

**FORM A: BID**  
(See B8)

1. Contract Title SUPPLY AND DELIVERY OF FIRE PUMPER AND HEAVY RESCUE APPARATUS

2. Bidder

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Usual Business Name of Bidder as it appears on Invoice (if different from above)

\_\_\_\_\_  
Street

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

\_\_\_\_\_  
Email Address of Bidder

\_\_\_\_\_  
Facsimile Number

(Mailing address if different)

\_\_\_\_\_  
Street or P.O. Box

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

\_\_\_\_\_  
GST Registration Number (if applicable)

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

\_\_\_\_\_  
Email Address

4. Definitions

All capitalized terms used in the Contract shall have the meanings ascribed to them in the General Conditions and D4.

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/she is in receipt of a notice of award from the Award Authority authorizing the commencement of the Work.

7. Contract By submitting a bid in response to this Tender, the Bidder certifies that it has read, understands, and agrees to the terms and conditions of this Tender and that the Tender, 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.

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.

10. Indigenous Self-Declaration The City is requesting that Bidders identify if their business is at least 51% owned by one or more Indigenous persons of Canada.

YES, 51% or more Indigenous ownership

NO, it is not

This information is being gathered for statistical purposes only and will not be used for purposes of evaluation.

11. Signatures 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 B9)

**SUPPLY AND DELIVERY OF FIRE PUMPER AND HEAVY RESCUE APPARATUS**

**UNIT PRICES**

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE
1.	Fire Pumper Apparatus	19009	Each	4	
2.	Heavy Rescue Apparatus	19024	Each	2	

\_\_\_\_\_  
Name of Bidder

**FORM N: DETAILED SPECIFICATIONS 19009**  
**FIRE PUMPER APPARATUS**

**1.0 DESCRIPTION OF EQUIPMENT/APPLICATION**

- 1.1 These specifications describe **Fire Pumper Apparatus** and other equipment and features as specified herein. The Winnipeg Fire Paramedic Service (WFPS) wishes to acquire fire pumper apparatus that is a highly specialized piece of equipment that will be responding to fire, rescue, medical and various other types of calls. The vehicle must incorporate the highest level of safety components to effectively protect WFPS personnel when travelling in and subsequently when operating this unit.
- 1.2 The **Fire Pumper Apparatus** shall be a new 2019 model year or newer.
- 1.3 The **Fire Pumper Apparatus** and all other items/components shall be the manufacturer's latest model. The equipment shall be furnished complete and ready for operation. Any parts or accessories not specifically mentioned, but which are required to complete and place the equipment and associated attachments in successful operation shall be furnished as though specifically mentioned in these specifications. The equipment and associated attachments, and all parts thereof, shall conform in strength and quality of material and workmanship, to the best standards and engineering practice of the industry.
- 1.4 It will be the responsibility of the Bidder to inform the City of any errors or omissions in these specifications, for under this Contract the Contractor shall be held responsible for the satisfactory operational function of the equipment.

**2.0 OTHER SPECIFICATIONS AND STANDARDS**

- 2.1 All applicable SAE standards form an integral part of these specifications and shall have precedence in any conflict concerning minimum acceptable standards.
- 2.2 The **Fire Pumper Apparatus** shall comply with the applicable regulations:
- (NFPA 1901) National Fire Protection Association Standard latest revisions
- Transport Canada, National Safety Mark, NSM:  
<http://www.tc.gc.ca/eng/acts-regulations/acts-road.htm>
- Manitoba Safety and Health Regulation, Parts 12, 16, 22:  
<http://web2.gov.mb.ca/laws/regs/current/217.06.pdf>
- Canadian Motor Vehicle Safety Standards C.M.V.S.S.  
[http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\\_c.\\_1038/section-sched3.html](http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1038/section-sched3.html)
- PART B - Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker.  
<http://web2.gov.mb.ca/laws/regs/index.php?act=h60>
- Canadian Standards Association, CSA:  
<http://www.csagroup.org/>
- Under Writers of Canada, U/L:  
<http://www.ulc.ca/>
- Society of Automotive Engineers, SAE:  
<http://www.sae.org/>
- City of Winnipeg Lighting Visibility Standard:  
<http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf>.

- 2.3 In Canada, Modification to new vehicles can only be done at facilities that are recognized by Transport Canada. All of these facilities must have a National Safety Mark from Transport Canada. Transport Canada National Safety Mark is a label that indicates that the modifications are compliant with all current Canadian Motor Vehicle Safety Standards (CMVSS).

**STATE (NSM) #** \_\_\_\_\_

- 2.4 The vehicle shall be complete with a current Manitoba Safety Sticker affixed to the driver's side window.
- 2.5 It will be the responsibility of the Bidder to inform the City of any deficiencies in these specifications, for under this Contract the Contractor shall be held responsible for the design, performance, reliability and satisfactory operational function of the units.

**3.0 SERVICE FACILITY**

- 3.1 For the purpose of warranty repairs, the Bidder shall have an authorized service facility located within 10 km of the boundaries of the City of Winnipeg. The facility, or a portion thereof, shall be dedicated to the service and maintenance of the type equipment being offered. Further to 9.1, Bidders shall provide a description of the service facility including, but not limited to, number of qualified service staff, years of service experience, and general service capabilities within three (3) Business Days upon request of the Contract Administrator. The Winnipeg Fire Department's Emergency Mechanical Services Branch shall be an authorized warranty repair facility. The emergency mechanical services branch shall have the ability to do authorized warranty repair work and provide an invoice to bill back parts and labour to the bidder. It shall be the decision of the Director of the Emergency Mechanical Services Branch as complete the warranty work at the WFPS facility or to send the work to the OEM for warranty. The OEM service facility must be able to start the requested work within three (3) business days.

**4.0 REFERENCES**

- 4.1 Provide five (5) references where this equipment is used in a working environment where climatic conditions are similar to the City of Winnipeg.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**5.0 MAKE & MODEL**

- 5.1 **State** make, year and model of the equipment bid- \_\_\_\_\_

**6.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS**

- 6.1 Each bid will be evaluated based on adherence to all terms, conditions and requirements outlined in the Bid Opportunity package.
- 6.2 All items in these specifications must be answered indicating compliance or non-compliance. **BIDDERS SHALL STATE "YES" FOR COMPLIANCE OR STATE DEVIATION**, or give reply where requested to do so. Deviations and/or equivalent shall be clearly stated and fully detailed. Deviations and/or equivalent will be considered subject to evaluation. In every instance where a brand name or design specification is used, the City will also consider deviations and/or equivalent.
- 6.3 **EACH BIDDER IS REQUIRED TO FILL IN EVERY BLANK. FAILURE TO DO SO MAY BE USED AS A BASIS FOR REJECTION OF BID**

## **7.0 PERFORMANCE RELIABILITY**

- 7.1 The responsibility for the design of the **Fire Pumper Apparatus**, its performance and reliability shall rest upon the Contractor.
- 7.2 The term “repeated failures” as used herein is defined to mean that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the vehicle inoperative, or requiring repeated shop correction, service and/or replacement during the warranty period applicable for said component, subassembly, of 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.
- 7.3 Where the **Fire Pumper 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.
- 7.4 The equipment shall be capable of consistent top performance in City of Winnipeg Environment. Note: The City of Winnipeg has four seasons with ambient temperatures ranging from approximately 90°F (32°C) to -40°F (-40°C)

## **8.0 FUEL**

- 8.1 Where applicable, all equipment must be full of fuel upon delivery (**no exceptions**).

## **9.0 QUALIFICATIONS OF MANUFACTURER & CONTRACTOR**

- 9.1 The manufacturer of the **Fire Pumper Apparatus** shall have experience manufacturing the equipment.
- 9.2 The manufacturer shall have in effect a documented quality control program ensuring that the quality of materials and workmanship, including welding, conforms to the best standards and engineering practice of the industry.
- 9.3 The Contractor shall have experience servicing, repairing and maintaining **Fire Pumper Apparatus** of the type being offered.

## **10.0 SPECIFICATIONS:**

**Note: A Preproduction Meeting** will be held between the City and Contractor at the request of the Contract Administrator following award of the Contract. The purpose of the Preproduction Meeting is to review specifications for determining locations, configurations, dimensions etc. and any changes that may be requested by the City prior to production.

### **GVWR, DIMENSIONS, WEIGHT DISTRIBUTION & TURNING RADIUS**

- 10.1 Weights: \_\_\_\_\_

The Truck shall not exceed the City of Winnipeg’s limit for gross vehicle weight, axle and tire loads

**Note: The City of Winnipeg and the Province of Manitoba limits the gross vehicle weight and axle and tire loads to:**

- Front axle (steering axle) – 7300 kg (16,094 lbs.)
- Rear axle (single axle) – 9100 kg (20,062 lbs.)

- Tire load – 9 kilograms for each millimeter width of tire (approximately 500 lbs. per inch of tire width).

10.2 **Weigh Scale Ticket:**

The Contractor shall provide a certified weigh scale ticket upon delivery of the completed unit. The scale ticket shall include front and rear axle weights including five (5) operators, full of water, foam all equipment as specified in this tender and full of fuel.

\_\_\_\_\_

10.3 **Weight distribution:**

**State** weight distribution with water and foam and all associated tools and equipment.

**Front:**

\_\_\_\_\_

**Rear:**

\_\_\_\_\_

10.4 **Center of gravity:**

The vehicles shall meet all safety standards in relation to center of gravity.

\_\_\_\_\_

10.5 **GVWR**

Gross vehicle weight rating (GVWR), **state**.

\_\_\_\_\_

10.6 **Front (GAWR)**

Gross axle weight rating front (GAWR), approx. 21,000lbs. shall be 10% greater than actual vehicle weight carried on front axle, **state**.

\_\_\_\_\_

10.7 **Rear (GAWR)**

Gross axle weight rating rear (GAWR), approx. 27,000lbs. shall be 10% greater than actual vehicle weight carried on rear axle, **state**.

\_\_\_\_\_

10.8 **Tare weight**

State the tare weight of the apparatus being bid:

**Front:**

\_\_\_\_\_

**Rear:**

\_\_\_\_\_

**Total:**

\_\_\_\_\_

10.9 **Dimensions**

State the following dimensions: (**Note: No part of the vehicle, including lights, shall exceed the overall height specified.**)

a) **Overall width** – Shall not exceed 102 in.

\_\_\_\_\_

b) **Overall height** – Shall not exceed 126 in.

\_\_\_\_\_

c) **Overall length** – Shall not exceed 33 ft.

\_\_\_\_\_

d) **Wheelbase** – **State**.

\_\_\_\_\_

e) **Ground clearance** – Shall not be less than 8 in.

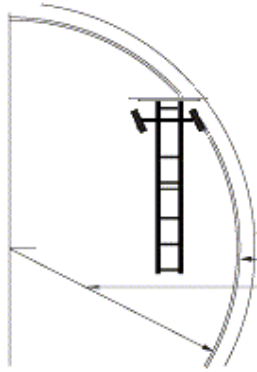
\_\_\_\_\_

f) **Turning Radius- State** turning radius- See example:

\_\_\_\_\_

10.10 **Turning Radius- State** the vehicle turning radius, wall to wall. Curb to Curb.  
**Example:**

\_\_\_\_\_



	Left Turn	Right Turn	Tolerance
Wall to Wall Diameter (ft)	130.9	111.4	+/- 3.0
Curb to Curb Diameter (ft)	127.2	106.9	+/- 3.0
Turning Radius (ft)	62.9	52.7	+/- 1.5

- a) **Wall to Wall (ft.)**
- b) **Curb to Curb(ft.)**
- c) **Turning Radius (ft.)**

**ENGINE**

- 10.11 Type Six cylinder Cummins ISL9 diesel or Detroit DD13 with integrated exhaust brake. Must meet current EPA Standards. Cummins diesel Tier IV Final - Emergency Service Vehicle) rated. \_\_\_\_\_
- 10.12 Engine location Over front axle. \_\_\_\_\_
- 10.13 Horsepower Approximately 400-500 HP gross. \_\_\_\_\_
- 10.14 Torque Approximately 1250-1800 lbs-ft. \_\_\_\_\_
- 10.15 Engine governor Electronic, compatible with fire pumper operation. \_\_\_\_\_
- 10.16 Oil drain plug Magnetic type. \_\_\_\_\_
- 10.17 Oil filter As recommended by the engine manufacturer, full flow, spin-on filter. \_\_\_\_\_
- 10.18 Fuel filter/primary Recommended by the engine manufacturer, spin-on filter, remote mounted on the chassis frame such that it is easily accessible for servicing. \_\_\_\_\_
- 10.19 Fuel filter/secondary (If recommended) spin-on filter. The filter shall be remote mounted on the chassis frame, easily accessible for servicing. \_\_\_\_\_
- 10.20 Starter 12-volt electric. The starter shall be shielded from exhaust heat where required. \_\_\_\_\_
- 10.21 Air cleaner Heavy-duty replaceable element, dry type, as recommended by the engine manufacturer. \_\_\_\_\_

**ENGINE COOLING SYSTEM**

- 10.22 Engine cooling 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 95F (35C) to -45F (-43C). 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 normal operating temperature of the coolant system shall be approximately 180F (92C).

10.23	Radiator	Pressurized type with surge tank or coolant recovery system.	_____
10.24	Fan drive	Thermostatically controlled fan clutch, viscous type or air clutch.	_____
10.25	Coolant	<b>Extended Life</b> coolant, antifreeze to -35°F (-37°C).	_____
10.26	Coolant filter	Spin on type, as recommended by manufacturer.	_____
10.27	Coolant hoses	Green line heavy-duty heater hose P#G6304-063.	_____
10.28	Hose clamps	Spring loaded constant torque type.	_____

**ELECTRICAL SYTEM**

10.29	Electrical supply	Multiplex Electrical System, Cold Cranking Amp Heavy Duty Batteries, Battery Charging System, Ground Wire, and Heavy Duty Alternator with thermal protection and over crank protection.	_____
10.30	Batteries	Four (4) batteries, 12-volt, group 31, approximately 2700-2850 CCA.	_____
10.31	Battery location	Galvanized battery housing <b>state</b> location.	_____
10.32	Battery cables	4/0 gauge, colour coded welding type cable, with connector ends crimped, pull tested and sealed with heat shrink tubing at all connections. Positive battery cables must be secured to the frame and isolated from shorting to ground. All battery & starter cables shall be properly isolated from the frame rail and secured individually so they won't rub against each other.	_____
10.33	Battery charging system	Blue sea systems P12 Battery Charger (40A) 7532 , with P12 Battery Charger LED Remote 7520, SureEject 7851 auto eject and Air Brake Compressor.	_____
10.34	Charging system plugin	Located between driver's door and the rear passenger door. Automatic ejector type with a 20 Amp receptacle. Located approx. 60 to 80 in. (1524 – 2032 mm) above ground level.	_____
10.35	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. Ground wires must be secured to the frame rail

10.36	Alternator	420 Amp leece Neville alternator	_____
10.37	Battery disconnect	Power to all electrical systems shall be wired through a power disconnects 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. <b>State</b> details of the power disconnect system	_____

**FUEL SYSTEM**

10.38	Fuel tank	Approx. 50 Imp. Gallons (227L) Capacity. Fuel tank to be mounted as high as possible in the frame	_____
10.39	Fuel transfer pump	Pump is to be external to fuel tank, back flow checked and in line with fuel supply lined.	_____

**EXHAUST SYSTEM**

10.40	Horizontal muffler and exhaust	Aluminized or stainless steel.	_____
10.41	Tailpipe	<p>Located on the right side of the apparatus, suitable for use with an exhaust extraction system. The tailpipe shall be 90 degree to the rub rail, shall extend ½ in. (13 mm) beyond the rub rail and shall be 3 in. (76 mm) below the rub rail. Hanger brackets shall be 18 in. (457 mm) from the rub rail.</p> <p><b>Note: The tailpipe configuration is intended for use with a “Plymovent” automatic exhaust disconnection system and shall include the installation of the appropriate adapter.</b></p>	_____
10.42	Exhaust Accessories	The body manufacturer on the vehicle shall ship an exhaust temperature mitigation device loose for installation. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.	_____

- 10.43 Exhaust Diverter
- a) An exhaust diverter valve shall be located in-line of exhaust tubing and controlled from driver's position to re-route exhaust discharge. Exhaust diverter valve shall be constructed from 14 gauge stainless steel material with air actuated control. \_\_\_\_\_
  - b) As a default, the exhaust shall always discharge to curbside just ahead of rear wheels, and when selected the exhaust shall discharge to a vertical exhaust pipe, extending above the body height 12". \_\_\_\_\_
  - c) The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the apparatus or equipment to excessive heating. \_\_\_\_\_
  - d) Exhaust pipe discharge shall be directed away from any operator's position. \_\_\_\_\_
  - e) Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided. \_\_\_\_\_

### **TRANSMISSION**

- 10.44 Transmission Transmission shall be an Allison EVS 3000 automatic transmission as for Fire and Emergency use and rated for the requested horsepower and torque. The transmission shall have an intergraded hydraulic transmission retarder. \_\_\_\_\_
- 10.45 Torque converter As recommended by the Manufacturer. \_\_\_\_\_
- 10.46 Direct drive lockup For pumping operation. \_\_\_\_\_
- 10.47 Shifter As recommended by the Manufacturer. \_\_\_\_\_
- 10.48 Transmission filter As recommended by the Manufacturer. \_\_\_\_\_
- 10.49 Drain plug Magnetic type. \_\_\_\_\_
- 10.50 Oil level dipstick Bayonet type with high and low level markings. \_\_\_\_\_
- 10.51 PTO opening For this application. \_\_\_\_\_

### **DRIVE SHAFTS**

- 10.52 Drive shaft Drive shaft Spicer 1710 Series drive shafts with Glide-coat splines. Bidder to provide engine/transmission SCAN and OEM recommendations for best-suited match. \_\_\_\_\_
- 10.53 Drive shaft clearance Adequate clearance to allow for greasing of the drive \_\_\_\_\_

shaft U-joints from underneath the vehicle.

**AXLES AND SUSPENSION**

10.54	Front axle	21,000 lbs. capacity c/w oil lubricated wheel bearings.	_____
10.55	Front Suspension	Heavy duty independent front suspension (IFS) air ride or torsion bar shall be accepted	_____
10.56	Shock absorbers	Front, heavy duty, double acting.	_____
10.57	Rear axle	Meritor single speed axle, 27,000 lbs. capacity. Heavy-duty differential housing.	_____
10.58	Drive ratio	Capable of achieving 100 km/hr (60 mph).	_____
10.59	Differential drain plugs	Magnetic type.	_____
10.60	Differential vent	Remote vent. Vent to c/w 10 micron breathable filter, water/dust cap and check valve.	_____
10.61	Rear suspension	Hendrickson Firemaax air ride suspension with capacity to best match GAWR to come with levelling valve for each spring.	_____

**WHEELS AND TIRES**

10.62	Front wheels	Black aluminum hub piloted, 10 bolt with gold pin stripe on outer face	_____
10.63	Front tires	Michelin, 315/80R 22.5 or equivalent 2OPR Michelin XZ3 .	_____
10.64	Rear wheels	Black aluminum hub piloted, 10 bolt. with gold pin stripe on outer face	_____
10.65	Rear tires	Michelin 11R or 12R22.5 16PR, Michelin XDN2.	_____
10.66	Spare wheel & tire	One (1) wheel and tire to match front wheel and tire. Spare wheel & tire to be shipped loose.	_____

**BRAKE SYSTEM**

10.67	Brake system	Full air service brake system with spring loaded parking brakes and an anti-lock system.	_____
10.68	Antilock braking system	Comes with roll stability control, Meritor/Wabco four channel systems, providing independent antilock braking control at four wheels and traction control at rear drive wheels.	_____
10.69	Disc brakes (front)	Front disc brakes.	_____
10.70	Drum brakes (rear)	Meritor outbound drum brakes rear.	_____
10.71	Slack adjusters	Meritor automatic type.	_____
10.72	Parking brakes	Spring set parking brake on rear service brake system.	_____

10.73	Air lines	Colour-coded, reinforced nylon tubing.	_____
10.74	Air compressor	Water-cooled, pressure-lubricated compressor, approx. 18.7CFM capacity. The compressor air intake shall be plumbed into the engine air intake after the air cleaner.	_____
10.75	Air dryer	Heated, spin-on desiccant type.	_____
10.76	Moisture ejector	Heated, automatic, in wet tank only.	_____
10.77	Drain valves	Cable operated manual drain valve P#WA12105, in each air tank except the wet tank. The cables shall be vinyl coated and shall terminate at the bottom at the bottom edge of the cab or at the rub rail on the body.	_____
10.78	Auxiliary air reservoir	Nominal 1200 in <sup>3</sup> (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.	_____
10.79	External air inlet	Milton A style air fitting installed on left side of chassis so the WFD can plug their shop air lines into the truck. Shall be plumbed to the outlet side of the air dryer for the option to put alcohol into the air system without going through the dryer.	_____
10.80	Airline sources	All air lines shall be sourced after the air dryer.	_____
10.81	Auxiliary pump	Blue sea systems air brake compressor pump. Horizontal or vertical accepted	_____
10.82	Park brake valve location	Park brake valve must be located as close to the driver as possible. This item shall be discussed at the preproduction meeting	_____

**STEERING**

10.83	Power steering	Hydraulic power steering with thermostatically controlled oil cooler, tilt and telescopic style, rated for front GVWR rating.	_____
10.84	Steering wheel	2 spoke. Padded style.	_____

**FRAME**

10.85	Galvanized frame and components	Galvanized steel single or double frame rail(s) designed and constructed to match the GVWR and application of the vehicle as a triple combination fire pumper apparatus. The frame shall be hot dip galvanized prior to assembly and attachment of any	_____
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components. OEM shall provide engineering document that supports single or double frame application choice. The frame rails shall have an OEM approved undercoating. The components that shall be galvanized shall include:

- Main frame "C" channel or channels
- Front splayed rails and fish plates
- Cross members (excluding suspension cross members)
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

10.86	RBM	Resisting bending moment combined for both frame rails 3,200,000 in-lbs. RBM shall be rated for GVWR request, application and intended use.	_____
10.87	Front frame extension	Bolt on as required for front bumper stated herein.	_____
10.88	Front bumper	Black heavy duty front bumper. Bumper bolted to the chassis frame. Bumper apron to be 3/16" –anti-slip. The front bumper shall have 45 degree angled corners. The front bumper shall have a 5" intake with chiksan for the fire pump located on the right hand side, on the left hand side of the front bumper there shall be a 44mm trash line discharge with a chiksan joint. There shall be Chevron on the front face of the bumper. Front bumper trash line storage configuration to be determined at preproduction meeting.	_____
10.89	Front tow hooks	Frame shall have forward "forks" to which the eyehooks are affixed.	_____
10.90	Rear tow hooks	Two (2) eyehooks, bolted to the chassis frame. A cross-member shall be located in the chassis frame at the tow hook location. The tow hooks shall be easily accessible.	_____

**CAB AND CAB EQUIPMENT**

10.91	Custom cab	a) This apparatus shall fully incorporate a clean cab concept. The clean cab shall allow for easy decontamination. The cab interior shall be of a light color to show dirty easily. There shall be anti-slip seamless cab floor to allow for easy decontamination and washing. There shall be no firefighting equipment stored in the cab. The details of the clean cab shall be discussed at the preproduction meeting.	_____
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- b) There shall be a heated compartment at the rear of the cab that is part of the tilt cab system. This compartment shall be a pass through compartment with one pull out vertical tray on each side. The driver's side pull out storage rack shall hold (2) SCBA, two (2) helmets and firefighting tools. SCBA access for the firefighters shall be as ergonomical as possible. The officer's side pull out storage rack shall have a thermal imaging camera and charging mount, three (3) SCBA, three (3) helmets. This compartment shall be sealed from the cab so as to not allow off gassing into the crew area. The pull out vertical trays shall be the exact same length on each side. The pull out trays shall have a chevron decal on them. The details of the clean cab shall be discussed at the preproduction meeting. \_\_\_\_\_
- c) The cab shall be a custom, fully enclosed, with a 16.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The raised roof shall not have any windows in the angled part of the roof. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to five (5) seating positions. \_\_\_\_\_
- d) The cab shall have two non-SCBA seats located on the rear wall that face forward. These two seats shall be positioned in the middle of the rear wall to allow for a clear forward view of the fire scene. There shall be a third seat that is offset to one side that functions as a jump seat and has a flip up seat bottom. There shall be enough space between the three forward facing rear seats to allow crew personnel to be seated comfortably. There shall be an black aluminum custom cabinet that extends between the two exterior medical compartments \_\_\_\_\_
- e) There shall be an exterior medical compartment on both side of the cab located between the front and rear doors. These compartments shall be heated and have roll up doors. These compartments shall have one adjustable shelf \_\_\_\_\_

10.92 Cab design

- a) The cab shall incorporate a fully enclosed design with sidewall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination \_\_\_\_\_

		of welds and proven industrial	
		b) Adhesives designed specifically for aluminum fabrication for construction.	_____
		c) Cab tilt system shall allow for electric over hydraulic tilting of the cab with a permanently mounted rocker switch mounted in the right side pump panel. Cab tilt system shall include a hydraulically operated manual cab tilt option in the event the pump fails	_____
10.93	Cab construction	a) The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.	_____
		b) The cab shall be constructed of corrosion resistant aluminum plate. The cab shall be constructed from 3/16" 6061-T6 or 6063-T6. Aluminum extrusions for extreme duty situations. The cab and sub structure shall create an occupant compartment that will create a roll over protection system. The cab shall meet or exceed NFPA 1901 standards. The cab shall be fully crash test rated.	_____
10.94	Cold weather insulation	Extreme climate full insulation under cab, doors, roof, ceiling, firewall, and walls 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. Also as required to meet HVAC needs and acceptable sound suppression requirements.	_____
10.95	Interior and exterior seams	All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favourable efficiency for heating and cooling retention.	_____
10.96	Exterior width	The exterior width of the cab shall be 94.00 inches wide with an interior width of a minimum of 88.00 inches. The overall cab length shall be 146" inches with 60.00 inches from the centerline of the front of the axle to the back of the cab or equivalent.	_____
10.97	Cab interior design	The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for	_____



ease of movement inside the cab.

10.98	Cab interior height	The cab shall offer an interior height of 57.25 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 55.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.	_____
10.99	Cab doors	The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall have an opening of 36 inches wide X and 53.50 inches high. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of a minimum 33.75 inches wide X a minimum of 61.00 inches high, from the cab floor to the top of the door opening. The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.	_____
10.100	First step area (Driver and Officer)	The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.50 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.	_____
10.101	First step area (Crew)	The first step for the crew area shall measure approximately 11.50 inches deep X 21.50 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches.	_____
10.102	<b>Drawing: cab interior layout and relevant dimensions.</b>	Bidders shall provide drawings, within 72 hours of the request of the Contract Administrator.	_____
10.103	Insulating material	Insulating material to prevent galvanic corrosion shall be provided at all possible areas of contact between aluminum and steel. The insulation material used shall be nonporous.	_____
10.104	Door handles/latches exterior	As recommended by manufacturer.	_____
10.105	Door handles/latches interior	Flush-mounted, paddle handle type, located such as to prevent accidental actuation.	_____

10.106	Door latch striker plates	Recessed such as not to protrude into the door opening area.	_____
10.107	Door hinges	As recommended by manufacturer.	_____
10.108	Weather stripping	Automotive style.	_____
10.109	Grab handles	Grab handles as per NFPA standard. Grab handles shall be of a one piece design	_____
10.110	Step area lights	LED recessed, side mounted light in each entrance step area. The lights shall be activated by door switches.	_____
10.111	Seats/seating layout	All seats shall be manufactured by H.O. Bostrom with grey non-absorbent extreme duty vinyl. Three Front Facing seats on rear wall of cab	_____
10.112	Driver's seat	H.O. Bostrom Sierra Air ABTS air seat 5" Fore/Aft Adjust and occupancy switch.	_____
10.113	Officer's seat	H.O. Bostrom Serria ABTS air seat with 5" Fore/Aft Adjust, and occupancy switch.	_____
10.114	Air seat supply	Air supply for the seats shall be taken from the auxiliary air reservoir.	_____
10.115	Rear seats	Forward Facing Crew (2): HO. Bostrom Sierra ABTS seat and occupancy switch. One non scba jump seat.	_____
10.116	Seat belts	Three-point, retractable type for all seats. Seat belts shall be designed to be long enough for large operators, and female Deutsch connections to extend so as to be easily accessible.	_____
10.117	Winter Front	Apparatus shall come with a custom fit removable winter front with adjustable openings that allow air to go through if required.	_____
10.118	Advanced Protection System (APS)	The system shall include the following components: a) Driver steering wheel airbag. b) Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag. c) Large driver, officer, and crew area side curtain airbags. d) APS advanced seat belt system - retractor pretensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries. e) Heavy truck Restraints Control Module (RCM) -	_____ _____ _____ _____ _____

		receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event.	
		f) Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM.	_____
		g) Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel.	_____
10.119	Floor covering	Heavy duty rubber anti-slip seamless floor-mat that is non-absorbent and works with the clean cab concept and will allow for easy decontamination	_____
10.120	Headliner	Grey, heavy duty non-absorbent vinyl with padding.	_____
10.121	Windows	Tinted safety glass for all windows including windshield. Apparatus shall be equipped with power windows. The apparatus shall include an automatic windows up feature, when the apparatus is placed in pump gear the multiplex system shall automatically close the windows to keep diesel exhaust emissions out of the cab	_____
10.122	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 drivers switch panel.	_____
10.123	Sun visors	Two (2) swivel visors. One positioned each in the front of the driver and officer. These visors swivel to provide coverage of the front door windows.	_____
10.124	Mirrors exterior	a) The cab exterior shall include bus style mirrors, one (1) mounted on the drivers' door and one (1) mounted on the right front cab corner radius below the windshield. Flat and convex mirrors heated and remote controlled located within easy reach of the driver.	_____
		b) Left side mirror head, injection moulded chrome plated ABS plastic that measures approx. 9.50 inches wide X 17.50 inches high and is mounted with a polished die-cast aluminum arm.	_____
		c) Right side mirror, injection moulded chrome plated ABS plastic that measures approx. 9.50 inches wide X 17.50 inches high and is mounted with a 19.00 inch long polished cast aluminum arm.	_____
10.125	Front/Rear heater and	Heating/Ventilating/Air Conditioning System(HVAC)	_____

	air conditioner	<p>The HVAC shall be a high output, fresh air type with multi-speed fan, controlled by the driver. There shall be a HEPA filtration system capable of stripping the outside air of pollen, bacteria, and pollution before they enter the cabin and systematically scrubbing the air inside the cabin to eliminate any trace of these particles air. Outlets shall be provided at dashboard level and in the driver 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 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 -40°C.</p> <p>When the apparatus is placed In pump gear the air conditioning system shall automatically switch into recirculation mode so as not to pull in contaminated outside air.</p>	
10.126	Rear heat/air conditioner/Aux. coolant heater	<p>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.</p> <p><b>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.</b></p>	_____
10.127	Dome lights	<p>LED four (4) lights, two (2) in the front and two (2) in the rear portion of the cab to fully illuminate the cab interior. Dome lights shall be combination type with clear and red lenses. All lights shall be operated by door switches.</p>	_____
10.128	Rear crew area interior work lights	<p>There shall be four (4) evenly spaced 8" Federal Signal Commander LED work lights. These four (4) lights shall be wired to a manually operated rocker switch located in the rear crew area that is interlocked to only operate when the park brake is applied.</p>	_____
10.129	Instrumentation	<p>Full instrumentation on a removable or flip down panel, or pullout gauges.</p>	_____
10.130	Metric instrumentation	<p>To include, but not limited to:</p> <ul style="list-style-type: none"><li>a) Speedometer/odometer: metric</li><li>b) Tachometer.</li><li>c) Oil pressure gauge.</li><li>d) Coolant temperature gauge.</li><li>e) Transmission oil temperature gauge or warning light.</li><li>f) Low oil pressure/high water temperature warning</li></ul>	_____

- lights(s)
- g) Voltmeter
- h) Fuel level gauge
- i) Air reservoir pressure gauge(s).
- j) Engine hour meter.
- 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.

10.131	Ignition switch	Keyless type.	_____
10.132	Doors	Heavy-duty construction with stainless steel inside door panels. Doors shall have a led light that flashes when the door is open.	_____
10.133	Warning system	OEM engine warning system.	_____
10.134	Radio	AM/FM stereo, mounted inside of dash, controlled by the driver.	_____
10.135	Mobile radio	12V power & ground located at center dash area <b>(Location to be determined at pre-production meeting).</b>	_____
10.136	Lap top computer provision	12V power & ground at center dash area (purchaser to supply support bracket) <b>(Location to be determined at pre-production meeting).</b>	_____
10.137	USB charging ports	Two (2) located at center dash area.	_____
10.138	Switch Activated Vehicle Immobilizer	Unmarked dash mounted switch so when activated it will disable the vehicle from moving.	_____
10.139	Cab door hardware	Hardware to be heavy duty in design and operator glove friendly.	_____

**FIRE PUMP AND ASSOCIATED EQUIPMENT**

10.140	Hale fire pump	Hale QMAX XS 1750gpm, mid-ship factory mounted, single stage centrifugal fire pump with a rated capacity of 1750 (US) GPM @ 150 psi.	_____
10.141	Pump overheat protection system	Thermal relief valve with automatic reset.	_____
10.142	Pump Anodes	Three (3) pump magnesium anodes, to protect pump by reducing galvanic corrosion. Two (2) suction and 1-discharge anodes.	_____
10.143	Relief valve system	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.**

10.144 Priming pump Hale electric primer. \_\_\_\_\_

10.145 Piping All intake and discharge piping shall be sized to meet or exceed the flow capacity corresponding to the intake and outlet discharge size, taking into account flow loss (resistance) due to valves, elbows, port openings, etc. All pipes shall be corrosion resistant, schedule 40, stainless steel, butt welded continuous length pipes. \_\_\_\_\_

10.146 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. All valves shall be Akron electric ball valves. All valves shall be controlled from the pump operator's panel. Valve sizes at various locations are specified herein. \_\_\_\_\_

10.147 Suction relief control valve Shall be mechanical. \_\_\_\_\_

10.148 Pump intakes Intakes shall be provided as follows: \_\_\_\_\_

10.149

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 Front Bumper	1	5 in. (76 mm)	National Standard (Male)	Yes

10.150 The 6 inch (152mm) intakes The 6 in. (152 mm) intakes shall be located to provide sufficient clearance for hard suction lines. Both intakes shall be equipped with a Hale Master Intake Valve (MIV) or equivalent, removable strainers and 6 in. to 4 in. storz reducer and suction intake drain. There shall be a 5" pump intake with an Akron electric valve and relief. It shall be located on the right hand side of the front bumper with chiksan joint and a 5" to 4" storz adapter  
  
**Note: Storz cap shall be attached to all storz inlets and outlets with vinyl coated, stainless steel cables or an approved alternative.** \_\_\_\_\_

10.151 Tank-to-pump line 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.  
  
**(Design Engineering) Victaulic coupling- A** \_\_\_\_\_

**development in which a groove is cut around each end of pipe instead of the usual threads; two ends of pipe are then lined up and a rubber ring is fitted around the joint; two semicircular bands, forming a sleeve, are placed around the ring and are drawn together with two bolts, which have a ridge on both edges to fit into the groove of the pipe; as the bolts are tightened, the rubber ring is compressed, making a watertight joint ,while the ridges fitting in the grooves make it strong mechanically.**

10.152 External tank fill intake the top Intake shall be provided as follows: to fill tank from the top. \_\_\_\_\_

10.153

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

\_\_\_\_\_

10.154 Intake plumbing 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 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. \_\_\_\_\_

10.155 Pump discharge outlets Discharge outlets shall be provided as follows: \_\_\_\_\_

10.156

DISCHARGE OUTLET LOCATION	QTY	SIZE	THREAD TYPE	GATED
Right Side Pump Panel	1	4 in.	Storz	Yes
Right Side Pump Panel	1	2½ in	WCT (Male)	Yes
Rear, Right	1	4 in.	Storz	Yes
Rear, Left	1	2½ in.	WCT (Male)	Yes
Transverse (Cross Lay) Area	2	1 ¾ in.	National Standard (Male)	Yes
Front bumper trash line	1	1 ¾ in.	National Standard (Male)	Yes
Rearward of Transverse (Deluge)	1	4 in.	National Standard (Male)	Yes
Pump-to-Tank Fill Line	1	1½ in.	National Standard (Male)	Yes

\_\_\_\_\_

10.157 Piping for the right and rear The piping for the right and rear 4 in. (102 mm). Storz discharge outlets sized to achieve rated flow capacity of outlet. \_\_\_\_\_

10.158 Valves for the right and rear The valves for the right and rear 4 in. (102 mm). Storz discharge outlets sized to achieve rated flow \_\_\_\_\_

		capacity of outlet. C/w Akron Model # 8840 and manual hand wheel.	
10.159	Piping for the 1 ¾ in. transverse and front outlet	The piping for the 1 ¾ in. transverse and front outlet shall be 2 inches (51 mm).	_____
10.160	Valves for the 1 ¾ in. transverse and front outlet	The valves for the 1 ¾ in. transverse and front outlet shall be 2 inches (51 mm).	_____
10.161	Rear discharge outlets	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.	_____
10.162	Discharge outlets	The 1 ¾". (38 mm) discharge outlets in the transverse 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.	_____
10.163	Vertical discharge outlet	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.	_____
10.164	Monitor	Akron 3578 Stream Master 2 and a 1578 Saber Master Nozzle, mounted on the vertical discharge outlet with 360° rotation without hitting the cab with the water steam. The monitor shall be mounted as low as possible so as to not increase the overall height of the apparatus.	_____
10.165	Drain valves	Innovative Control 1/4 turn valve with "T" handle and label. 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 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.	_____
10.166	Pump compartment	The pump compartment shall be designed to be as small as possible while able to achieve installation of all the specified components. Fully enclosed on all sides including the bottom with hinged door for access to pump. The bottom portion of the enclosure shall be a removable, bolt-on, minimum 3/16 in. (5 mm) aluminum pan constructed with a 2 piece loose fitted aluminum panel. All discharge, intake and drain valves in the pump area shall be located inside	_____



the pump compartment.

- |        |                         |  |       |
|--------|-------------------------|--|-------|
| 10.167 | 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. Gasket Material around all Discharges, Intakes and Handle Slots on Pump Panel to hold in heat of Module Plumbing. | _____ |
| 10.168 | 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. There shall be a bolt on removable panel to allow for easy removal of the MIV valves.  | _____ |
| 10.169 | Pump compartment heater | Two (2) 35,000 btu Red Dot coolant 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 equipped with an on/off switch, located for convenient operation on the pump operator's panel.   | _____ |

**PUMP DRIVE**

- |        |                    |  |       |
|--------|--------------------|--|-------|
| 10.170 | Pump drive         | The pump shall be driven via a split shaft main drive with a single speed transfer case with 4 <sup>th</sup> gear lockup solenoid mounted in pump house. Separate power for the pressure governor and 4 <sup>th</sup> gear lock up solenoid.             | _____ |
| 10.171 | Shifting mechanism | Shifting mechanism shall be Hale Electric powered shift mechanism bolted to the transfer case.   | _____ |
| 10.172 | Shift control      | Hale 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.   | _____ |
| 10.173 | Warning lights     | Two (2) 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. | _____ |

**PUMP OPERATOR'S PANEL**

10.174	Location	Driver side with roll up door. The control panel shall be located behind a full length and width roll-up door. The LED strip lighting shall illuminate the entire pump panel without causing glare for the operator. The officers side (right) pump panel shall have a LCD touch screen for the automatic pressure governor control system.	_____
10.175	Pump operator's panel (left)	The pump operator's panel shall contain the following controls, gauges, warning lights, etc.  <ul style="list-style-type: none"> <li>a) Main LCD screen for fully automated pump control system.</li> <li>b) Priming control. Hale electric priming control</li> <li>c) Water tank level gauge, FRC, Hale or Class 1 digital tank level gauge.</li> <li>d) Foam system controls and display.</li> <li>e) Foam tank level gauge: Hale, FRC or Class 1, digital tank level gauge.</li> <li>f) Monitor remote controls</li> <li>g) Heater controls for pump compartment heater.</li> <li>h) Manufacturer to supply a label specifying the tank size in Imperial Gallons.</li> </ul>	_____
10.176	Electronic Pressure Governor Control System	FRC Incontrol pressure governor.  <b>State Optional price</b> for Hale SAM™ Control System.	_____ \$ _____
10.177	Panel plate	Stainless steel plate with slots for the valve control handles. The slots shall be fully sealed using flexible rubber boots.	_____
10.178	Name plates	Color coded, metal nameplates, block lettered in English, for all controls, gauges, warning lights, etc.	_____
10.179	NFPA 1901 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).	_____
10.180	Passenger side pump panel	The pump panel shall be located behind a full length and width roll-up door (Amdor). The LED strip lighting shall illuminate the entire pump panel without causing glare for the operator. There shall be a second screen for the automated pump control system	_____
10.181	Tank capacity label	Volume of the tank in Imperial gallons to be mounted at tank level indicator.	_____
10.182	<b>Diagram (control panel)</b>	<b>Bidders shall provide drawings, within 72 hours of the request of the Contract Administrator.</b>	_____

**WATER TANK**

10.183	Construction	Polypropylene construction.	_____
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10.184	Baffles	Longitudinal and transverse baffles as recommended by the manufacturer to prevent excessive water movement and reaction.	_____
10.185	Capacity	400 Imperial gallons.	_____
10.186	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".	_____
10.187	Overflow vent	Located to drain directly to ground, clear of any chassis, fuel tank and driveline components.	_____
10.188	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 and from the lowest part of the tank.	_____
10.189	Outlet fitting	4 inch 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.	_____
10.190	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.	_____
10.191	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 an aluminum 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.	_____
10.192	Lift eyes	Threaded bosses for attaching lift eyes for removal of the tank shall be built into the top of the tank.	_____
10.193	External tank drain	Located at lowest part of the tank and operated from pump panel. Tank drain must be clear of the frame rails and any components. If its mounted external from the heated pump house it shall be insulated.	_____

**FOAM SYSTEM**

10.194	Foam system	Smart foam system with electronic control, direct injection, foam concentrates proportioning system with Class "A/B" foam capability. Foam system is to be installed as per manufacturer's instruction and must be capable of supplying the lines.	_____
10.195	Foam injector	Located in the outlet manifold to supply foam concentrate to both 1½ in. (38mm) cross-lays, trash line and to the 2½ in. (64mm) rear outlet.	_____

10.196	Controller	Digital display/controller located at the pump operator's panel.	_____
10.197	Foam tank	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.	_____
10.198	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 miffed 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.	_____

**APPARATUS BODY**

**Note: Compartment configurations to be finalized at Pre-production meeting. All tools shall be mounted for proper weight distribution.**

10.199	Type	<p>a) Pumper style, heavy-duty style body, aluminum or 304L stainless. If submitting an aluminium body extruded aluminum will only be accepted, (no exceptions). Shall be tongue and groove or interlocking of the components. <b>Note: Aluminum or 304L stainless bodies on steel sub frame shall not be acceptable.</b></p> <p>b) Pumper body shall have body height match the cab height.</p> <p>c) The body compartments doors shall be roll up doors with pull down straps; lower door that folds down to a step/seating area. The fold down step shall include a positive lock. The fold down step would allow for easy access to the higher compartment shelves. Designs without the lower door will be accepted.</p>	<p>_____</p> <p>_____</p> <p>_____</p>
10.200	Rub rail	Extruded aluminum rub rail, bolted in place and located along the lower edge of the body, both sides nonconductive.	_____
10.201	Compartment floors	All compartment floors shall be 3/16 in. (5mm), with continuous welds.	_____
10.202	Insulating material	Insulating material to prevent galvanic corrosion shall be provided at all possible areas of contact between aluminum and steel. The insulation material used shall be nonporous.	_____
10.203	Drip mouldings	Located above all compartment door openings.	_____
10.204	Storage compartments	Located along each side and rear of the body and the storage compartments. Shall provide a combined interior volume. All compartments will have rollup doors.	_____

10.205	Compartment design	All compartments shall have vents for ventilation. All compartments shall have sweep-out style compartments. Bottom shelves to have provisions for water drainage.	_____
10.206	Compartment doors	Roll-up doors lock/lifting bars c/w door Ajar warning circuit c/w magnetic sensor located near top of door. The door sensor shall have a mounting bracket that is bolted to the compartment. (Sensors on door handles not acceptable) All compartment doors shall have anodized aluminum slats. The roll up door drum shall have a drip tray.	_____
10.207	Warning circuit	“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 and shielded to protect from visibility from oncoming traffic.	_____
10.208	Compartment lights	Amdor Luma-Bar LED lighting in each compartment to the right and left of opening, full length of opening. The opening of each compartment door shall activate the lights in each compartment.	_____
10.209	Shelves	All compartment shelves shall be 3/16 in. (5 mm) aluminum and shall cover the full width of the compartment. Shelves shall be lined with an Interlocking matting, dry-deck or equal.	_____
10.210	Slide-out trays	All slide-out trays shall be 3/16 in. (5 mm) aluminum with heavy-duty steel sliders, with ball bearing rollers capable of supporting a 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. All slide out trays shall be marked with chevron pattern decal.	_____

**Compartment Descriptions**

10.211	Left side, front compartment (L1)	Three (3) adjustable full width shelves. Shelf rails to start 18' from bottom of compartment. Location for remote controls for Command Light and Monitor. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.212	Left side, center compartment (L2)	Equipped with one (1) adjustable shelf. This compartment shall have one (1) 110v electrical outlet with power bar. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.213	Left side, rear compartment (L3)	To include a 12" wide, full height storage area. The remainder of the compartment shall have 2 adjustable shelves and 1 roll out tray at the bottom	_____

of the compartment. Shelf rails to start 18' from bottom of compartment. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.

10.214	Right side, front compartment (R1)	Two (2) adjustable full width shelves. Adjustable bracket rail to start 18" from bottom of compartment. Horizontal slide in compartments to accommodate three portable fire extinguishers. Back wall to be lined with PAC mount tracking. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.215	Right side, center compartment (R2)	Equipped with one (1) adjustable shelf. This compartment shall have one (1) 110v electrical outlet and power bar. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.216	Right side, rear compartment (R3)	Two full width adjustable shelves and one pull out tray at the bottom of the compartment. Shelf rails to start 18' from bottom of compartment. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.217	Rear compartment	Rear compartment shall have one full width pull out tray.	_____

**Equipment Compartments/Ladders/ Back Board/Scoop**

10.218	Ladder storage	Shall be in an enclosed compartment and shall be incorporated into the body design. The ladder compartment access shall be easily accessible to operators. Ladder storage centered in the rear of the apparatus to allow for full sized compartments on both sides of the apparatus. Ladder storage shall be able to accommodate the below. Bottom of compartment no higher than 72" from the ground. Ladder storage options shall be discussed at the preproduction meeting.	_____
10.219	Ladders	Ladder storage shall be able to accommodate: One (1) 30 ft. 3-section extension ladder, Duo-Safety. One (1) 14 ft. (4.3 m) roof ladder with folding roof hooks, Duo-Safety 1200 Series One (1) 10 ft. (3.0 m) folding (attic) ladder, Duo-Safety 585-A Series.	_____
10.220	Back board & scoop storage compartment	Storage capability for one (1) Back Board measuring 6' X 18" and one (1) Scoop Stretcher measuring 6' X 18". With a width of approximately 12" and with the bottom of the compartment at or below 72" high from the ground.	_____
10.221	Pike Poles	To be incorporated into a compartment no higher than 72" from the ground and may be part of the	_____

ladder compartment.

10.222	Equipment compartments	The Bidder shall design all equipment compartments to accommodate the equipment specified in FIRE FIGHTING EQUIPMENT and Appendix #1. The Bidder shall be responsible for it location, securing, and weight distributions. All tool brackets shall be PAC mount tool mounting hardware included within the compartment construction as per attached tool list. Fire Extinguishers stored horizontally in compartments.	_____
10.223	SCBA storage	Four (4) SCBA high-pressure (45) minutes cylinder storage pods within rear wheel well fenders on each side of the apparatus. The pods shall be equipped with weather tight doors c/w slam locks.	_____
10.224	Rear step	NFPA compliant and the step height shall be 22 in. (559 mm) above ground level. Step surfaces shall be non-slip and drain opening shall be provided to facilitate cleaning of the non-slip surfaces.	_____
10.225	Hose bed access steps	Located to allow personnel to climb from the rear step onto the hose bed. Step surfaces shall be aluminum anti-slip grip strut.	_____
10.226	Handrails	NFPA handrails, located to assist in access to hose bed.	_____
10.227	Wheel wells	Equipped with full liners 5052-H321 aluminum or composite materials wheel fender and lined with Full Metal Jacket protective spray on liner.	_____
10.228	Checker plate	The front corners and the area immediately above the wheel wells shall be covered with polished aluminum or stainless steel checker plate.	_____

**HOSE BED**

10.229	Hose bed dividers	All hose bed dividers shall run longitudinally.	_____
10.230	Hose bed loading (floor) height	Should not exceed 72 in. above ground level for easy of access.	_____
10.231	Hose bed bottom	The hose bed shall have a flat bottom of removable vinyl or aluminum 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) 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 18 in. wide.	_____

- c) Space on the right-centre for 500 ft. of 2½ in. (64 mm) synthetic double jacket, rubber lined fire hose. \_\_\_\_\_
- d) 200ft - 2 ½ in. preconnected c/w nozzle on extreme right side of hose bed. \_\_\_\_\_

**Note: Fire hose shall be supplied with the apparatus.**

- 10.232 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. \_\_\_\_\_
- 10.233 Hose bed cover Heavy duty anti-slip aluminum clam shell hose bed cover, with locking mechanism. \_\_\_\_\_

**TRANSVERSE SPEEDLAY AREA**

- 10.234 Transverse (speed-lay) The transverse (speed-lay) area shall be located at the rear of the pump panel and deluge standpipe to allow for easy access to pump compartment when the cab is tilted \_\_\_\_\_
- 10.235 Transverse area The transverse area shall be covered by checker plate aluminum 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. \_\_\_\_\_
- 10.236 Hose capacity The transverse area shall provide sufficient space for two (2) cross-lays 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) cross-lays bins measuring 8" wide.. Both cross-lays shall be separately pre-connected to discharge outlets in the centre of the transverse floor. The transverse shall be large enough to hold the specified hose and pistol grip-nozzles. \_\_\_\_\_
- 10.237 Transverse floor Lined with removable vinyl or aluminum slats. \_\_\_\_\_
- 10.238 Guides Full-length stainless steel guides mounted along the bottom and sides of the transverse opening on each side of the apparatus. \_\_\_\_\_
- 10.239 Handrails Aluminum or stainless steel handrails with rubber grip inserts, located on the left side, right side and below the cross-lay area, on each side of the apparatus. \_\_\_\_\_

**ELECTRICAL SYSTEMS, GENERAL**



10.240	Electrical	The complete Fire Pumper Apparatus shall be equipped with a multiplex electrical system. Vmux or equivalent multiplex systems shall be accepted. All electrical wiring harness shall be encased in pre-engineered weatherproof loom. All harness connections shall be weather tight connections. Each circuit shall be colour coded and/or marked the entire length. The marking shall be easy to read. Individual wires shall be multi-strand copper with cross linked polyethylene insulation. Volts drop in any electrical wiring circuit shall not exceed 0.5 volts at highest operating temperature within normal working range.	_____
10.241	Wiring	All wiring shall be in pre-engineered harnesses with weatherproof, guided pin-snap-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.	_____
10.242	Connectors	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.	_____
10.243	Solder	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.	_____
10.244	Electrical standard	All wiring shall be properly secured and routed. All holes required for routing shall be grommetted and sealed as required.	_____
10.245	Circuit breakers	Circuit breakers shall be used in lieu of fuses for all circuits requiring overload protection (reset type circuit breakers preferred). 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. Circuit breaker box cleared and labelled.	_____
10.246	Electrical distribution panels	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.	_____
10.247	Auxillary Power Unit (APU)	The vehicle shall be equipped with an APU system with a capacity of a minimum of 10,000 watts (10kw). Current frequency shall be stable at 60 hertz. The chassis engine shall be allowed to idle for five (5) minutes and then the chassis engine will shut off and the APU shall start and allow for full heating and cooling of the cab and rear seating area. The APU shall have the ability to run all	_____

electrical components such as emergency lights, 110v outlets, scene lights, etc. Simultaneous use of all the electronic components on the apparatus when main chassis engine not in use. The APU shall have an uninterrupted power supply (UPS) and shall provide power to all 12v and 120v power accessories. The APU will be a three or four cylinder diesel engine. The APU shall be mounted in such a way to allow for easy servicing. The APU will run off the onboard diesel fuel tank. There shall be a remote switch to allow for starting the APU without use of the five minute timer as well as an override switch to disable the APU.

10.248	360 Degree Camera Package	Camera system Safety Vision Total View 360 degree bird's eye view or equivalent. Includes 4 cameras located front, rear, left and right, and wireless remote control. Preference is to use multiplex screen with the camera system. Note: cameras must be located as high as possible with side cameras centrally located.	_____
10.249	Collision Avoidance system	Collision Avoidance Systems model CAS-4HW rear obstacle detection and proximity system. Includes 4 sensors at rear of vehicle and speaker in cab.	_____
10.250	110v Power Supply	The apparatus shall be equipped with a heavy duty inverter and 110v charging outlets. There shall be two (2) 110v outlets in the rear of the cab and two (2) in the rear compartments, one on each side of the apparatus.	_____
10.251	Head Set communications	Headset communications Fire Com headset system located in the cab. Wired or wireless is acceptable.	_____
10.252	Power Distribution	Each compartment shall have a blue sea power and ground distribution block to all for future accessory add-ons. There shall be a Blue Sea 12V power distribution module model 5032. Location: behind officer's seat.	_____

**VEHICLE LIGHTING AND WARNING EQUIPMENT**

10.253	All lighting to conform to: C.M.V.S.S. Manitoba Highway Traffic Act. City of Winnipeg Lighting Visibility Standard <a href="http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf">http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf</a> .	_____	
10.254	Lighting	Supplier installed <b>high count</b> LED lighting	_____
10.255	LED optical warning system	The apparatus shall have an LED optical warning system that meets and exceeds NFPA 1901.	_____

10.256 Light bar (LED)	One (1) Federal Signal Navigator lightbar, model #NVG73D-NFPA21 shall be installed. The Navigator lightbar shall be a 73" linear high profile design, and shall feature four (4) Red QuadraFlare Solaris light modules. Each outer end of the lightbar shall include two (2) Red Rotators. There shall be 2 Inner Rotators. The center modules shall be capable of both White and Red light output. In response mode, the forward center lights shall flash in both Red and white sequences. With the application of the park brake, the forward modules shall change to all Red. The lightbar shall feature all Clear domes, and be located on the apparatus cab roof. There shall be a White Light Disable switch in the cab to manually turn off the White light function in the event of fog or snow. Directed to front and sides only. Back of front light bar shall not be equipped with lighting individual switches shall be provided for alley included in light bar.	_____
10.257 Traffic clearing light	LED traffic clearing light. Federal Signal P#LEDTCL97-W. located on the front of the apparatus above the head lights	_____
10.258 LED lights	FireTech 72" 12V brow light with integrated marker lights and black housing. Includes switch accessible to driver. Replaces front brow marker lights.	_____
10.259 Warning Lights	a) Warning light Whelen C-Series model C6L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of cab down low just ahead of rear doors.	_____
	b) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Amber with clear lenses. Location: (1) each side of body rear facing up high.	_____
	c) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of body rear facing up high.	_____
	d) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of body on forward upper body corners.	_____
	e) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of body on rearward upper body corners.	_____

10.260	Warning light Package	Whelen Super LED lower level warning light package. Includes (8) C-Series model C6L light heads and (2) ION-T Series model TLI light heads with bezels or equivalent. Color: Red with red lenses. Location side facing lights: at forward most position, centered in rear wheel well, and side facing at rear of body in rub rail if equipped. Note: ION-T Series light only available with clear lenses. or equivalent	_____
10.261	Traffic advisor	Whelen 500 Series TAL 85 LED, c/w controller. The arrow stick shall be mounted in the rear of the body below the hose bed. Wiring shall run continuously to the in cab controller.	_____
10.262	Scene lights	a) FireTech FT-GESM scene lights (PR) or equivalent with chrome flange (when required) and weatherproof connectors. Switch in cab (driver and officer side lights switched separately). (1) Each side rear compartment face up high.	_____
		b) FireTech FT-GESM scene lights (PR) or equivalent with chrome flange (when required) and weatherproof connectors. Switch in cab (driver and officer side lights switched separately). (1) Each side of cab, rearward of forward doors, up high.	_____
		c) FireTech FT-GESM scene lights (PR) or equivalent with chrome flange (when required) and weatherproof connectors. Switch in cab (driver and officer side lights switched separately). Driver side forward and rearward areas of roof top storage compartment.	_____
		d) FireTech FT-GESM scene lights (PR) or equivalent with chrome flange (when required) and weatherproof connectors. Switch in cab (driver and officer side lights switched separately). Officer side forward and rearward areas of roof top storage compartment.	_____
10.263	Load management system	An automatic electrical load management system to be provided.	_____
10.264	LED Head Lights	Fire Tech 4x6 LED head lights. FT-4X6-4KIT.	_____
10.265	Tail lights	Whelen C6 series LED vertical mount tail lights. Includes LED stop/tail, arrow turn and back-up lights with vertical chrome ABS 4 housing and weatherproof connectors.	_____

10.266	Turn signals	Weldon auxiliary turn signal model 9186-8580 LED (PR). Location: (1) each side in body wheel well offset forward.  As per NFPA 1901 (current edition).	_____
10.267	Wig wags	Alternately flashing headlights operating on high beam only.	_____
10.268	Siren	Federal PA 4000 Siren system with two (2) speakers with mounted in the front bumper spaced as wide apart as possible. Federal Rumbler secondary siren. Includes amp, timer, and two speakers mounted under vehicle with heavy fabricated brackets. Requires control switch. The siren speakers must be insulated to prevent excessive noise in the cab	_____
10.269	Warning lights and siren controllers	The warning light 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. Officer to operate Siren to be a Federal PA 4000.	_____
10.270	Air horns	Two (2) heavy duty 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 a centre mounted chain.	_____
10.271	Back-up alarms	Electronic, self-adjusting (87-112 dB) type.	_____
10.272	Spotlights	LED heavy-duty hand held spotlight with momentary switch, dash mounted in the officer area.	_____
10.273	Light tower	Command Light Shadow Series SL442D-FE 12V LED. Tower shall be self-sustaining and capable to supplying power required for the lighting system. To be run off vehicle 12 Volt system. To be mounted on top of rear body. Command light shall have control from the multiplex display as well as the handheld controller.	_____

### **FIRE FIGHTING EQUIPMENT**

10.274	<b>The following equipment shall be supplied as part of the apparatus and shall be mounted where applicable. All firefighting equipment shall be mounted with proper weight distribution in mind</b>		
10.275	Nozzles	a) Two (2) 2½ in. (64 mm) WCT Akron Model 4825 Nozzles. (500-1100).	_____
		b) One (1) 2½ in. (64 mm) WCT Akron Model 2393	_____

Axial Play Pipe c/w stacked tips.

- c) Four (4) 1½ in (38 mm) Akron Model 4820 Assault nozzle with Pistol Grip (350-550). \_\_\_\_\_
  - d) One (1) 1½ in (38 mm) Akron Model 1720 Turbojet Nozzle with Pistol Grip (500). \_\_\_\_\_
  - e) One (1) 1½ in. (38 mm) nozzle, Akron Style 4715, (350-550). \_\_\_\_\_
  - f) One Akron 777 Quick Attack Foam Tube. \_\_\_\_\_
- 10.276 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) 2 (2) 2½ in. (64 mm) hydrant gate, Akron style 2285, Western Canada thread. \_\_\_\_\_
  - c) One Akron 2582 4" stortz to 3 x 2½ WCT male valve c/w thread protectors and mount. \_\_\_\_\_
- 10.277 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. \_\_\_\_\_
- 10.278 Adapters
- a) Two (2) 2½ in. (64 mm) double male adapters, Akron style 336 – Pyrolite, Western Canada thread. \_\_\_\_\_
  - b) Two (2) 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) Three 6" hydrant to 4" stortz swivel hydrant adaptor. \_\_\_\_\_
- 10.279 Portable monitor
- a) 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 (18 in.) \_\_\_\_\_

(457 mm) long). Stream straightener and quad stacked tips shall be adaptable to Akron monitor.

b) Portable monitor compartment storage bracket required. Mounting brackets shall also be required for the stream straightener and tips. \_\_\_\_\_

10.280 Hose

a) 11 lengths of 1¾ in. Angus ULTIMA double jacket, rubber lined fire hose coupled with 1½ in. NPSH. \_\_\_\_\_

b) One (1) 75 ft. 1¾ in. rubber trash line yellow in colour. \_\_\_\_\_

c) Twelve (12) 64 mm hose Angus ULTIMA double jacket, rubber lined fire hose coupled WCT. \_\_\_\_\_

d) Eight (8) 100mm X 33 M Angus Hi-Vol Storz. \_\_\_\_\_

e) Two (2) 100mm X 15M Angus Hi-Vol Storz. \_\_\_\_\_

f) Two (2) 44mm X 2 M Aqua Flow Plus. \_\_\_\_\_

**PAINT COLOUR**

The apparatus shall be painted as follows:

10.281 Cab

Painted two tone colour scheme with the bottom half Red to match SIKKENS Brand Code 911662 (Red) and the top half Black to match SIKKENS Brand Code 910788 (Black), using a polyurethane enamel paint. (DuPont Imron or Sikkons paint). \_\_\_\_\_

10.282 Apparatus body

Painted red to match the bottom half of the cab. \_\_\_\_\_

Chrome Accents

All body components that are normally chrome shall be powder coated or linex black, including the front bumper. \_\_\_\_\_

10.283 Apparatus body compartments, interior

Painted with light grey, scratch resistant, automotive grade paint. \_\_\_\_\_

10.284 Chassis Frame, Axles, & Undercarriage

Painted using smooth black corrosion resistant paint. Paint Application - 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. The cab and Aerial Ladder Platform 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. Any caulking of body seams shall be performed prior to painting. Caulking material shall be of the highest industry standards. \_\_\_\_\_

10.285 Paint application

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

10.286 Reflective stripping

All reflective striping shall be 3M diamond grade striping where ever possible. The reflective striping shall be red on white and/or aluminum background and white on red background. The side striping shall be stylized Z pattern front to back of vehicle. The striping shall be composed of 5 bands. The band width shall be 10". Example: white stripe on red background. From top down shall be: one 1" white stripe, one 1' red stripe, one 6" white stripe, one 1" red stripe, one 1" white stripe. The stripes shall not be spaced apart to reveal background. The stripe shall be edge sealed as per 3M guidelines. Incorporated within the cab reflective stripe shall be stylized WFD. Cab drivers and officers door shall be location of Winnipeg Fire Department crest (size 12 3/4" x 12" wide) crest shall be within reflective stripe. Were diamond grade reflective striping is difficult to apply; series 680 reflective film shall be allowable Example: on roll up door slats. The reflective striping shall at all times meet and/or exceed NFPA 1901 as the standard guideline.

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

**NOISE LEVEL**

10.287 Sound level

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 traveling at any speed up to governed speed with the sirens off and doors and windows closed. **State dba.**

**Bidder to provide recommendation for extra sound insulation.**

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10.288 **TESTING & CERTIFICATION-**

Testing- The completed vehicle shall be tested and labelled to (NFPA) National Fire Protection Association Standard latest revisions by an



independent third party certification organization.

10.289	Third Party Organization-	The third party organization accredited for testing systems on fire vehicle in accordance with ISO/IEC 17020 or ISO/IEC Guide 65.	_____
10.290	Certification-	The certification organization shall not be owned or controlled by manufacturers or vendors of the vehicle being tested. Manufacturer's certification is not acceptable. (No exceptions)	_____
10.291	Labelling-	A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.	_____
10.292	Safety Labelling	A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.	_____
10.293	Dimension Plate-	A warning label shall be provided in the cab within sight of the driver stating the following vehicle dimensions:  •Height and length in standard and metric measurements.  •Gross vehicle weight rating in pounds and kilograms.	_____
10.294	Voltage Testing	The wiring and permanently connected devices and equipment shall be subject to a dielectric voltage withstand test of 900 volts for one minute. The testing shall be performed after all body work has been completed. The electric polarity of all permanently wired equipment, cord reels, and receptacles shall be tested to verify that wiring connections have been properly made.	_____
10.295	Fluid Capacity and Type Label	A permanent label shall be provided and shall state the type and quantity of the following fluids used in the vehicle:  • Engine Oil • Engine Coolant • Chassis Transmission Fluid • Drive Axle Fluid • Pump Gear Case • Primer Lubricant (If Applicable)	_____
10.296	Vehicle Data Recorder	Meeting the requirements of NFPA 1901-2009, Vehicle Data Recorder is required. Recorded to Include the following Data:  • Vehicle Speed • Acceleration • Deceleration • Engine Speed • Engine Throttle Position • ABS Event	_____

- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Switch
- Park Brake
- Service Brake
- Time
- Date
- Engine Hours

10.297 Inputs Five (5) seat position inputs for occupied and belts buckled. Additional six (6) seat expansion module available. Easily interfaces with V-MUX™ or other multiplexing systems. Data is extracted by a standard, mini USB cable \_\_\_\_\_

10.298 Occupant restraint indicator Occupant Restraints designed to alert driver and officer, this module will indicate where restraints of occupied seats are properly fastened keeping personnel safe. The indicator shall be low profile compact size. Support commercial and custom cab seating layouts up to 12 seats. A dimming feature adjusts indicator intensity to synchronize with dash lights and have a built-in audible alarm. \_\_\_\_\_

10.299 Visual Tire Pressure Monitoring There shall be a visual six (6) wheel tire pressure system supplied that monitors all of the tires on the vehicle. An LED valve cap shall be attached to the tires valve-stem that contains a Pressure Sensor to alert the operators of a developing tire problem \_\_\_\_\_

10.300 Transportation Road Safety Kit Fire Extinguisher One (1) 2.5 lb. ABC vehicle type fire extinguisher with mounting bracket shall be provided. \_\_\_\_\_

First Aid Kit- One (1) standard First Aid Kit shall be provided. \_\_\_\_\_

Warning Flares- One (1) set of three (3) dual faced triangular warning flares to meet the Department of Transportation's Motor Vehicle Safety Standards shall be provided. \_\_\_\_\_

**DRAWINGS**

10.301 Two (2) sets of three (3) view drawings showing complete unit including chassis, body, compartments, tool locations, etc. Bidders shall provide drawings, within 72 hours of the request of the Contract Administrator. \_\_\_\_\_

**11.0 WARRANTY**

11.1 All warranty information be detailed and include all exclusions. The Bidder shall provide all published warranty information upon delivery of the equipment. Bidder \_\_\_\_\_

shall State: all warranty information

**BODY WARRANTY**

- |      |  |               |       |
|------|--|---------------|-------|
| 11.2 | Structural                                       | <b>State:</b> | _____ |
| 11.3 | Body Vehicle basic coverage                      | <b>State:</b> | _____ |
| 11.4 | Body compartment latches,<br>hinges and shelving | <b>State:</b> | _____ |
| 11.5 | Components e.g. Pumps                            | <b>State:</b> | _____ |
| 11.6 | Electrical                                       | <b>State:</b> | _____ |
| 11.7 | Body Lighting                                    | <b>State:</b> | _____ |
| 11.8 | Body Paint                                       | <b>State:</b> | _____ |

**CAB & CHASSIS WARRANTY**

- |       |                                       |  |       |
|-------|---------------------------------------|--|-------|
| 11.9  | Basic Vehicle - Chassis               | <b>State:</b>  | _____ |
| 11.10 | Electrical                            | <b>State:</b>  | _____ |
| 11.11 | LED Lighting                          | <b>State:</b>  | _____ |
| 11.12 | Batteries                             | <b>State:</b>  | _____ |
| 11.13 | Drivetrain                            | <b>State:</b>  | _____ |
| 11.14 | Cab Structure/Corrosion               | <b>State:</b>  | _____ |
| 11.15 | Frame & Cross-Members<br>(Structural) | <b>State:</b>  | _____ |
| 11.16 | Frame & Cross-Members<br>(Corrosion)  | <b>State:</b>  | _____ |
| 11.17 | Cab Paint                             | <b>State:</b>  | _____ |
| 11.18 | Engine                                | <b>State:</b>  | _____ |
| 11.19 | Transmission                          | <b>State:</b>  | _____ |
| 11.20 | Axles - Front & Rear                  | <b>State:</b>  | _____ |
| 11.21 | Components                            | <b>State:</b>  | _____ |
| 11.22 | Warranty Literature                   | All warranty literature and Documentation<br>or "fine print" documentation shall be<br>provided within three (3) Business Days<br>of the request from the Contract<br>Administrator. This warranty<br>documentation will be entered into the<br>City of Winnipeg Fire Department's<br>Service Data Network to expedite and | _____ |

administrate warranty claims and repairs.

12.0 **DELIVERY**

12.1 Delivery Point: The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.I.V.S. (if applicable) to the WFMA 185 Tecumseh Street, Winnipeg MB. The Contractor shall be notified by the Contractor Administrator the delivery address prior to issuance of the purchase order \_\_\_\_\_

12.2 Delivery Time: Equipment shall be delivered between 8:00 am and 2:00 pm on Business Days. \_\_\_\_\_  
**State:** Delivery Date.

12.3 Delivery Contact: The Contractor shall contact the Contract Administrator prior to delivery of the equipment. \_\_\_\_\_

12.4 P.D.I: A pre-delivery inspection shall be performed by the Winnipeg Fire Paramedic Service on the Apparatus and equipment. \_\_\_\_\_

13.0 **MANUALS**

13.1 Manuals supplied under this Contract shall cover the complete equipment including all components thereof; CD or USB flash drive is preferred where available. \_\_\_\_\_

13.2 The following manuals shall be supplied with the units when delivered:  
a) Operator's manual – Two (2) per unit (one operator manual shall be sent to the Winnipeg Fire Paramedic Service Training Academy 2546 McPhillips Street Winnipeg, Manitoba Office- (204).986.8398 Fax- (204).986.4266 \_\_\_\_\_

b) Parts and service manuals – One (1) complete set including preventative maintenance schedules. CDs or USB flash drive are preferred. \_\_\_\_\_

14.0 **PARTS/LABOUR DISCOUNT**

14.1 Bidder to provide City of Winnipeg Parts Discount % Pricing from retail parts pricing. **State: percentage discount** \_\_\_\_\_ %

14.2 Bidder to provide City of Winnipeg Labor Discount % Pricing from Retail shop labor rate. **State: percentage discount** \_\_\_\_\_ %

15.0 **FIRST SERVICE PREVENTATIVE MAINTENANCE KIT**

15.1 In order to assure minimum downtime of the equipment in future service, the Contractor shall provide one (1) complete replacement set of new OEM filters for each unit purchased. The set of required filters shall include (if applicable to the equipment type) air, fuel, oil, cab and hydraulic, or otherwise all known necessary common replacement filters required for the first preventative maintenance servicing. \_\_\_\_\_

- 15.2 The Contractor shall provide a list of factory recommended lubricants to be used with the equipment, as well as a complete cross reference guide for all warranty approved lubricants and filters that can be used during preventative maintenance servicing.

### **APPENDIX #1**

Listing of Equipment on WFD Engines (The purpose of this appendix is to illustrate what a typical WFD engine carries as a full equipment load. The Bidder shall provide drawings of tool locations as best suited by the manufacture. The Contractor shall be responsible for the method of securing the equipment and all weight distributions. This list will not match the equipment being purchased in section 10.274 (FIRE FIGHTING EQUIPMENT) and is for compartment configurations only.

#### **Cab:**

- 1 Medeco Key/ Ace Lock Box Key (ea)
- 1 Panasonic Toughbook Computer
- 2 Sherlock Map Book
- 4 Portable Radios w Remote Microphones
- 1 Fuel Card
- 2 Quick Fit Sprinkler Tongs
- 1 Cab Jack Bar
- 3 Radio Headsets (in office)
- 1 Garbage Container
- 1 Seat Belt Cutter
- 1 CO Detector
- 2 Hand Sanitizers
- 1 Emergency Response Guide book
- 1 Medical Clipboard
- 1 Fire Alarm Clipboard / CO Detector
- 1 Tactical Clipboard
- 1 Inventory Clipboard
- 1 After the Fire Kit
- 2 Erik Kits
- 1 Vehicle Registration

#### **COMPARTMENT**

- 1 O2 Cylinder
- 1 K.E.D.
- 1 Frac Pac
- 1 Trauma Bag

#### **COMPARTMENT**

- 2 Storz to 65 mm Male
- 1 Storz to 65mm Female
- 2 65 mm Double Female Adaptors
- 2 65 mm Double Male Adaptors
- 1 Rubber Mallet
- 1 44mm Flake cw Akron 4820 Pistol Grip Nozzle and Reducer
- 1 High Pressure Kit cw High Pressure Hydrant Key, 1- 3 1/2 " Female to 4 1/2 " male, 1- 3 1/2 Female to 100mm Storz, 1- 65mm Male to 100 Storz
- 2 Hydrant Keys
- 4 Storz keys
- 2 65 mm Spanner Wrenches
- 3 Hose Hangers
- 1 65 mm Akron AssaultFog Nozzle
- 1 65 mm Akron Smooth bore w Tips 1 3/4", 1 3/8", & 1"

- 1 Turbojet Foam Nozzle
- 1 Cellar Nozzle
- 1 Socket Set
- 1 Set Road Deflectors (triangles)
- 1 65 mm Hydrant Gate
- 1 100mm Storz Manifold to 3- 65 mm Outlets
- 1 65 mm to 44 mm Gated Wye
- 1 Command Light Control
- 1 Deluge Gun Control
- 1 Spray Bottle R.V. Anti-freeze
- 2 Scene Tape (rolls)
- 1 Tool Box cw:Crescent wrench, Needlenose Pliers, Linesman Pliers, Waterpump Pliers, side Cutters,Cable Cutter, Utility Knife, Hacksaw c/w 3 blades, Screwdriver set, Pipe Wrench, BallPeen Hammer, Vise Grip Pliers, adjustable rubber strap wrench

#### **COMPARTMENT**

- 1 Piercing Nozzle
- 2 Water Back Packs
- 1 Plug N Dyke (container) & Wedges
- 1 Medical Bag (collars, blankets, headblocks)

#### **COMPARTMENT**

- 2 Sand Bags & 2 Containers of Sand
- 1 Sledge Hammer
- 1 Halligan/ Axe New York Tool
- 1 Axe
- 1 Bolt Cutter
- 1 Kelly Tool
- 1 20' Pony Length 100mm w Hyd. Adaptor
- 1 30' Pony Length 100mm w Hydrant Adaptor
- 1 50' roll 44mm Hose
- 1 50' Roll 44mm Hose cw Akron 4820Pistol Grip Nozzle w Reducer
- 1 24" Pry Bar
- 1 High Rise Kit

#### **COMPARTMENT**

- 1 Hydrant Kit w: hydrant gate, 1- Storz to 65mm Female Adaptor, 2 Storz Keys, 1- Adjustable Hydrant Key,1-Hydrant Key
- 1 Retractable Power Supply Box 200'
- 1 Heavy Gauge Electrical Cord 30'
- 1 Heavy Guage Electrical cord 50'
- 2 Sliding Female to 3 Prong Male Electical Adaptors
- 2 Sliding Male to 3 Prong Female Electrical Adaptors

#### **COMPARTMENT**

- 1 Burn Bundle / OB Kit
- 1 SAED/ &/ or Life Pak 12 Lead Monitor
- 1 O2 Therapy Kit
- 1 Incident Command Board/ Pas Kit
- 1 Universal Precautions Kit
- 2 Trauma Bears

#### **COMPARTMENT**

- 1 Foam Tank Filler Hose

#### **COMPARTMENT**

- 1 Hose Clamp 100mm
- 2 24' Pry Bars

- 1 Axe
- 1 Dry Chemical Extinguisher
- 1 CO2 Extinguisher
- 1 Pressurized Water Extinguisher
- 1 Air Pump (hand)
- 1 Water Cooler
- 1 Bag w 3 Mustang Jackets and Set Throwballs
- 1 Rabbit Tool

#### **COMPARTMENT**

- 4 Tarps
- 1 Utility Rope (bag)

#### **COMPARTMENT**

- 1 PPV Fan (Battery)
- 2 Portable Lights w Cord Reels
- 1 Ground Monitor w 4 Tips
- 1 Little Giant Ladder
- 1 D-Handle Pike Pole (short) 4'

#### **WHEEL WELL STORAGE**

- 4 SCBA Air Cylinders

#### **BACKBOARD COMPARTMENT**

- 1 Spine Board w Straps, Head Bed
- 1 Scoop Stretcher

#### **TOP OF PUMP**

- 2 Corn Brooms
- 1 30' Extension Ladder
- 1 14' Roof Ladder
- 1 6' Pike Pole
- 1 10' Pike Pole
- 1 10' Collapsible Attic Ladder
- 1 4' Straight Lining Bar
- 2 Squeegees
- 2 Square Mouth Shovels

#### **HOSE BED**

- 8 100' Lengths of 100mm Hose cw Hydrant Adaptor
- 8 50' Lengths of 65mm Hose w Water Thief

#### **FRONT BUMPER**

- 1 Trash Line (75') cw Nozzle

#### **CROSS-LAY HOSE BED**

- 2 4 -50' Lengths 44mm Preconnected Hose c/w Nozzle
- 1 4 -50' Lengths 65mm Preconnected Hose c/w Nozzle

#### **MISCELLANEOUS**

Lennox Hacksaw c/w 3 blades.  
One (1) set of wheel chocks (mounted).  
30 in. bolt cutter.  
Two (2) combination Storz wrenches with mount.  
Two (2) combination Storz wrenches loose.

- One (1) hose clamp.( manual able to accept 4 inch hose).
- One (1) Honda EU2000i Portable Generator.
- Two (2) Portable LED Lights c/w Cord Reels.
- Four (4) Energizer Hard Case Lanterns. With batteries.
- One (1) Bullard T3 truck mount battery charger.
- Two (2) (50') extension cord 12/3 (20 amp twist lock plugs).
- Two (2) 12" 12/3 adapter (20 amp twist lock female to 15 amp u ground male)
- Two (2) 12" 12/3 adaptor (15 amp u ground female to 20 amp twist lock male).
- One (1) 1 gallon RotoPax gasoline pack with built in spout.
- One (1) 2 gallon RotoPax gasoline pack with built in spout.
- One (1) braid on braid 150' utility rope w/ bag.
- One (1) Chainsaw Stihl MS 260 c/w Wrench.
- One (1) bracket for 3 Oxygen D cylinders.
- Two (2) poly bush fire backpacks (folding).
- One (1) Halligan Tool.



**FORM N: DETAILED SPECIFICATIONS 19024**  
**HEAVY RESCUE APPARATUS**

**1.0 DESCRIPTION OF EQUIPMENT/APPLICATION**

- 1.1 These specifications describe **Heavy Rescue Apparatus** other equipment and features as specified herein. The Winnipeg Fire Paramedic Service (WFPS) wishes to acquire Heavy rescue apparatus that will be responding to medical, fire and specialty rescue situations. This apparatus is a specialized piece of equipment. The vehicle must incorporate the highest level of safety components to effectively protect WFPS personnel when travelling in and subsequently when operating this unit.
- 1.2 The **Heavy Rescue Apparatus** shall be a new 2019 model year or newer.
- 1.3 The **Heavy Rescue Apparatus** and all other items/components shall be the manufacturer's latest model. The equipment shall be furnished complete and ready for operation. Any parts or accessories not specifically mentioned, but which are required to complete and place the equipment and associated attachments in successful operation shall be furnished as though specifically mentioned in these specifications. The equipment and associated attachments, and all parts thereof, shall conform in strength and quality of material and workmanship, to the best standards and engineering practice of the industry.
- 1.4 It will be the responsibility of the Bidder to inform the City of any errors or omissions in these specifications, for under this Contract the Contractor shall be held responsible for the satisfactory operational function of the equipment.

**2.0 OTHER SPECIFICATIONS AND STANDARDS**

- 2.1 All applicable SAE standards form an integral part of these specifications and shall have precedence in any conflict concerning minimum acceptable standards.
- 2.2 The **Heavy Rescue Apparatus** shall comply with the applicable regulations:

(NFPA 1901) National Fire Protection Association Standard latest revisions

Transport Canada, National Safety Mark, NSM:  
<http://www.tc.gc.ca/eng/acts-regulations/acts-road.htm>

Manitoba Safety and Health Regulation, Parts 12, 16, 22:  
<http://web2.gov.mb.ca/laws/regs/current/217.06.pdf>

Canadian Motor Vehicle Safety Standards C.M.V.S.S.  
[http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\\_c.\\_1038/section-sched3.html](http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1038/section-sched3.html)

PART B - Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker.  
<http://web2.gov.mb.ca/laws/regs/index.php?act=h60>

Canadian Standards Association, CSA:  
<http://www.csagroup.org/>

Under Writers of Canada, U/L:  
<http://www.ulc.ca/>

Society of Automotive Engineers, SAE:  
<http://www.sae.org/>

City of Winnipeg Lighting Visibility Standard:  
<http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf>.

- 2.3 In Canada, Modification to new vehicles can only be done at facilities that are recognized by Transport Canada. All of these facilities must have a National Safety Mark from Transport Canada. Transport Canada National Safety Mark is a label that indicates that the modifications are compliant with all current Canadian Motor Vehicle Safety Standards (CMVSS).

**STATE (NSM) #** \_\_\_\_\_

- 2.4 The vehicle shall be complete with a current Manitoba Safety Sticker affixed to the driver's side window.
- 2.5 It will be the responsibility of the Bidder to inform the City of any deficiencies in these specifications, for under this Contract the Contractor shall be held responsible for the design, performance, reliability and satisfactory operational function of the units.

**3.0 SERVICE FACILITY**

- 3.1 For the purpose of warranty repairs, the Bidder shall have an authorized service facility located within 10 km of the boundaries of the City of Winnipeg. The facility, or a portion thereof, shall be dedicated to the service and maintenance of the type equipment being offered. Further to 9.1, Bidders shall provide a description of the service facility including, but not limited to, number of qualified service staff, years of service experience, and general service capabilities within three (3) Business Days upon request of the Contract Administrator. The Winnipeg Fire Department's Emergency Mechanical Services Branch shall be an authorized warranty repair facility. The emergency mechanical services branch shall have the ability to do authorized warranty repair work and provide an invoice to bill back parts and labour to the bidder

**4.0 REFERENCES**

- 4.1 Provide five (5) references where this equipment is used in a working environment where climatic conditions are similar to the City of Winnipeg.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**5.0 MAKE & MODEL**

- 5.1 **State** make, year and model of the equipment bid- \_\_\_\_\_

**6.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS**

- 6.1 Each bid will be evaluated based on adherence to all terms, conditions and requirements outlined in the Bid Opportunity package.

- 6.2 All items in these specifications must be answered indicating compliance or non-compliance. **BIDDERS SHALL STATE "YES" FOR COMPLIANCE OR STATE DEVIATION**, or give reply where requested to do so. Deviations and/or equivalents shall be clearly stated and fully detailed. Deviations and/or equivalents will be considered subject to evaluation. In every instance where a brand name or design specification is used, the City will also consider deviations and/or equivalents.

- 6.3 **EACH BIDDER IS REQUIRED TO FILL IN EVERY BLANK. FAILURE TO DO SO MAY BE USED AS A BASIS FOR REJECTION OF BID**

**7.0 PERFORMANCE RELIABILITY**

- 7.1 The responsibility for the design of the **Heavy Rescue Apparatus**, its performance and reliability shall rest upon the Contractor.
- 7.2 The term “repeated failures” as used herein is defined to mean that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the vehicle inoperative, or requiring repeated shop correction, service and/or replacement during the warranty period applicable for said component, subassembly, of 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.
- 7.3 Where the **Heavy Rescue 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.
- 7.4 The equipment shall be capable of consistent top performance in City of Winnipeg Environment. Note: The City of Winnipeg has four seasons with ambient temperatures ranging from approximately 90°F (32°C) to -40°F (-40°C)

## **8.0 FUEL**

- 8.1 Where applicable, all equipment must be full of fuel upon delivery (**no exceptions**).

## **9.0 QUALIFICATIONS OF MANUFACTURER & CONTRACTOR**

- 9.1 The manufacturer of the **Heavy Rescue Apparatus** shall have five (5) years continuous experience manufacturing the equipment.
- 9.2 The manufacturer shall have in effect a documented quality control program ensuring that the quality of materials and workmanship, including welding, conforms to the best standards and engineering practice of the industry.
- 9.3 The Contractor shall have five (5) years continuous experience servicing, repairing and maintaining **Heavy Rescue Apparatus** of the type being offered.

## **10.0 SPECIFICATIONS**

**Note: A Preproduction Meeting** will be held between the City and Contractor at the request of the Contract Administrator following award of the Contract. The purpose of the Preproduction Meeting is to review specifications for determining locations, configurations, dimensions etc. and any changes that may be requested by the City prior to production.

### **GVWR, DIMENSIONS, WEIGHT DISTRIBUTION & TURNING RADIUS**

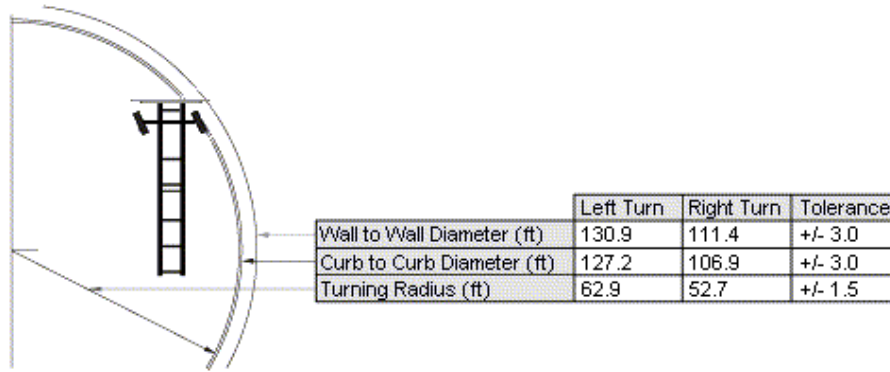
- 10.1 Weights: \_\_\_\_\_

The Truck shall not exceed the City of Winnipeg's limit for gross vehicle weight, axle and tire loads

**Note: The City of Winnipeg and the Province of Manitoba limits the gross vehicle weight and axle and tire loads to:**

- Front axle (steering axle) – 7300 kg (16,094 lbs.)
- Rear axle (single axle) – 9100 kg (20,062 lbs.)
- Tire load – 9 kilograms for each millimeter width of tire (approximately 500 lbs. per inch of tire width).

- 10.2 **Weigh Scale Ticket:**  
The Contractor shall provide a certified weigh scale ticket upon delivery of the completed unit. The scale ticket shall include front and rear axle weights including five (5) operators, full of water, foam all equipment as specified in this tender and full of fuel. \_\_\_\_\_
- 10.3 **Weight distribution:**  
**State** weight distribution with water and foam and all associated tools and equipment.  
**Front:** \_\_\_\_\_  
**Rear:** \_\_\_\_\_
- 10.4 **Center of gravity:**  
The vehicles shall meet all safety standards in relation to center of gravity. \_\_\_\_\_
- 10.5 **GVWR**  
Gross vehicle weight rating (GVWR), **state**. \_\_\_\_\_
- 10.6 **Front (GAWR)**  
Gross axle weight rating front (GAWR), approx. 21,000lbs. shall be a 10% greater than actual vehicle weight carried on front axle, **state**. \_\_\_\_\_
- 10.7 **Rear (GAWR)**  
Gross axle weight rating rear (GAWR), approx. 24-27,000lbs. shall be 10% greater than actual vehicle weight carried on rear axle, **state**. \_\_\_\_\_
- 10.8 **Tare weight**  
State the tare weight of the apparatus being bid:  
**Front:** \_\_\_\_\_  
**Rear:** \_\_\_\_\_  
**Total:** \_\_\_\_\_
- 10.9 **Dimensions**  
State the following dimensions: (**Note: No part of the vehicle, including lights, shall exceed the overall height specified.**)
- a) **Overall width** – Shall not exceed 102 in. \_\_\_\_\_
  - b) **Overall height** – Shall not exceed 132 in. \_\_\_\_\_
  - c) **Overall length** – Shall not exceed 38 ft. \_\_\_\_\_
  - d) **Wheelbase** – **State**. \_\_\_\_\_
  - e) **Ground clearance** – Shall not be less than 8 in. \_\_\_\_\_
  - f) **Turning Radius- State** turning radius- See example: \_\_\_\_\_
- 10.10 **Turning Radius- State** the vehicle turning radius, wall to wall. Curb to Curb.  
**Example:**



- a) **Wall to Wall (ft.)**
- b) **Curb to Curb(ft.)**
- c) **Turning Radius (ft.)**

10.11 **ENGINE**

- 10.12 Type Six cylinder Cummins ISL9 diesel or Detroit DD13 equivalent with integrated exhaust brake. Must meet current EPA Standards. Cummins diesel Tier IV Final -Emergency Service Vehicle) rated. \_\_\_\_\_
- 10.13 Engine location Over front axle. \_\_\_\_\_
- 10.14 Horsepower Approximately 400-500 HP gross. \_\_\_\_\_
- 10.15 Torque Approximately 1250-1800 lbs-ft. \_\_\_\_\_
- 10.16 Engine governor Electronic, compatible with fire pumper operation. \_\_\_\_\_
- 10.17 Oil drain plug Magnetic type. \_\_\_\_\_
- 10.18 Oil filter As recommended by the engine manufacturer, full flow, spin-on filter. \_\_\_\_\_
- 10.19 Fuel filter/primary Recommended by the engine manufacturer, spin-on filter, remote mounted on the chassis frame such that it is easily accessible for servicing. \_\_\_\_\_
- 10.20 Fuel filter/secondary (If recommended) spin-on filter. The filter shall be remote mounted on the chassis frame, easily accessible for servicing. \_\_\_\_\_
- 10.21 Starter 12-volt electric. The starter shall be shielded from exhaust heat where required. \_\_\_\_\_
- 10.22 Air cleaner Heavy-duty replaceable element, dry type, as recommended by the engine manufacturer. \_\_\_\_\_

**ENGINE COOLING SYSTEM**

- 10.23 Engine cooling 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 95F (35C) to -45F (-43C). 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 normal operating temperature of the coolant system shall be approximately 180F (92C).

10.24	Radiator	Pressurized type with surge tank or coolant recovery system.	_____
10.25	Fan drive	Thermostatically controlled fan clutch, viscous type or air clutch.	_____
10.26	Coolant	<b>Extended Life</b> coolant, antifreeze to -35°F (-37°C).	_____
10.27	Coolant filter	Spin on type, as recommended by manufacturer.	_____
10.28	Coolant hoses	Green line heavy-duty heater hose P#G6304-063	_____
10.29	Hose clamps	Spring loaded constant torque type.	_____

**ELECTRICAL SYTEM**

10.30	Electrical supply	Multiplex Electrical System, Cold Cranking Amp Heavy Duty Batteries, Battery Charging System, Ground Wire, and Heavy Duty Alternator with thermal protection and over crank protection.	_____
10.31	Batteries	Four (4) batteries, 12-volt, group 31, approximately 2700-2850 CCA.	_____
10.32	Battery location	Galvanized battery housing <b>state</b> location.	_____
10.33	Battery cables	4/0 gauge, colour coded welding type cable, with connector ends crimped, pull tested and sealed with heat shrink tubing at all connections. Positive battery cables must be secured individually to the frame and isolated from shorting to ground.	_____
10.34	Battery charging system	Blue sea systems P12 Battery Charger (40A) 7532 , with P12 Battery Charger LED Remote 7520, SureEject 7851 auto eject and Air Brake Compressor	_____
10.35	Charging system plugin	Located between driver's door and the rear passenger door. Automatic ejector type with a 20 Amp receptacle. Located approx. 60 to 80 in. (1524 – 2032 mm) above ground level.	_____
10.36	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. Ground wires must be secured to the frame rail

10.37 Alternator 420 Amp leece Neville alternator \_\_\_\_\_

10.38 Battery disconnect Power to all electrical systems shall be wired through a power disconnects 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:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**FUEL SYSTEM**

10.39 Fuel tank Approx. 50 Imp. Gallons (227L) Capacity \_\_\_\_\_

10.40 Fuel transfer pump Pump is to be external to fuel tank, back flow checked and in line with fuel supply lined. \_\_\_\_\_

**EXHAUST SYSTEM**

10.41 Horizontal muffler and exhaust Aluminized or stainless steel. \_\_\_\_\_

10.42 Tailpipe Located on the right side of the apparatus, suitable for use with an exhaust extraction system. The tailpipe shall be 90 degree to the rub rail, shall extend ½ in. (13 mm) beyond the rub rail and shall be 3 in. (76 mm) below the rub rail. Hanger brackets shall be 18 in. (457 mm) from the rub rail.  
**Note: The tailpipe configuration is intended for use with a “Plymovent” automatic exhaust disconnection system and shall include the installation of the appropriate adapter.**

10.43 Exhaust Accessories The body manufacturer on the vehicle shall ship an exhaust temperature mitigation device loose for installation. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet. \_\_\_\_\_

10.44 Exhaust Diverter a) An exhaust diverter valve shall be located in-line of exhaust tubing and controlled from driver's position to re-route exhaust discharge. Exhaust diverter valve shall be constructed from 14-gauge stainless steel material with air-actuated \_\_\_\_\_

control.

- b) As a default, the exhaust shall always discharge to curbside just ahead of rear wheels, and when selected the exhaust shall discharge to a vertical exhaust pipe, extending above the body height 12".
- c) The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the apparatus or equipment to excessive heating.
- d) Exhaust pipe discharge shall be directed away from any operator's position.
- e) Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.

**TRANSMISSION**

10.45	Transmission	Transmission shall be an Allison EVS 3000 automatic transmission with integrated hydraulic transmission retarder for Fire and Emergency use and rated for the requested horsepower and torque.	_____
10.46	Torque converter	As recommended by the Manufacturer.	_____
10.47	Direct drive lockup	For pumping operation.	_____
10.48	Shifter	As recommended by the Manufacturer.	_____
10.49	Transmission filter	As recommended by the Manufacturer.	_____
10.50	Drain plug	Magnetic type.	_____
10.51	Oil level dipstick	Bayonet type with high and low level markings.	_____
10.52	PTO opening	For this application.	_____

**AIR COMPRESSOR**

10.53	Air compressor	There shall be an electric air compressor with air tank(s) capable of running rescue style air chisel, impact gun and rescue air bags. The air compressor shall be run off the apparatus inverter and the APU.	_____
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**DRIVE SHAFTS**

10.54	Drive shaft	Drive shaft Spicer 1710 Series or equivalent, drive shafts with Glide-coat splines. Bidder to provide engine/transmission SCAN and OEM recommendations for best-suited match.	_____
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10.55	Drive shaft clearance	Adequate clearance to allow for greasing of the drive shaft U-joints from underneath the vehicle.	_____
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**AXLES AND SUSPENSION**

10.56	Front axle	21,000 lbs. capacity c/w oil lubricated wheel bearings.	_____
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10.57	Front Suspension	Heavy duty independent front suspension (IFS) air ride or torsion bar shall be accepted	_____
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10.58	Shock absorbers	Front, heavy duty, double acting.	_____
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10.59	Rear axle	Meritor single speed axle, 24-27,000 lbs. capacity. Heavy-duty differential housing.	_____
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10.60	Drive ratio	Capable of achieving 105 km/hr (65 mph).	_____
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10.61	Differential drain plugs	Magnetic type.	_____
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10.62	Differential vent	Remote vent. Vent to c/w 10 micron breathable filter, water/dust cap and check valve.	_____
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10.63	Rear suspension	Hendrickson Firemaax air ride suspension with capacity to best match GAWR to come with levelling valve for each spring.	_____
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**WHEELS AND TIRES**

10.64	Front wheels	Black aluminum hub piloted, 10 bolt.	_____
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10.65	Front tires	Michelin, 385/65R 22.5.	_____
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10.66	Rear wheels	Black aluminum hub piloted, 10 bolt.	_____
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10.67	Rear tires	Michelin 12R22.5 16PR, XDN2.	_____
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10.68	Spare wheel & tire	One (1) wheel and tire to match front wheel and tire. Spare wheel & tire to be shipped loose.	_____
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**BRAKE SYSTEM**

10.69	Brake system	Full air service brake system with spring loaded parking brakes and an anti-lock system.	_____
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10.70	Antilock braking system	Comes with roll stability control, Meritor/Wabco four (4) channel systems, providing independent antilock braking control at four wheels and traction control at rear drive wheels.	_____
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10.71	Disc brakes (front)	Front disc brakes.	_____
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10.72	Drum brakes (rear)	Meritor outbound drum brakes rear.	_____
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10.73	Slack adjusters	Meritor automatic type.	_____
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10.74	Parking brakes	Spring set parking brake on rear service brake system.	_____
10.75	Air lines	Colour-coded, reinforced nylon tubing.	_____
10.76	Air compressor	Water-cooled, pressure-lubricated compressor, approx. 18CFM capacity. The compressor air intake shall be plumbed into the engine air intake after the air cleaner.	_____
10.77	Air dryer	Heated, spin-on desiccant type.	_____
10.78	Moisture ejector	Heated, automatic, in wet tank only.	_____
10.79	Drain valves	Cable operated manual drain valve P3WA12105, in each air tank except the wet tank. The cables shall be vinyl coated and shall terminate at the bottom at the bottom edge of the cab or at the rub rail on the body.	_____
10.80	Auxiliary air reservoir	Nominal 1200 in <sup>3</sup> (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. There shall be an extra isolated air tank that will be used to run the vehicle rescue tools	_____
10.81	External air inlet	Milton A style air fitting installed on left side of chassis so the WFD can plug their shop air lines into the truck. Shall be plumbed to the outlet side of the air dryer for the option to put alcohol into the air system without going through the dryer.	_____
10.82	Airline sources	All air lines shall be sourced after the air dryer.	_____
10.83	Auxiliary pump	Blue sea systems air brake compressor. Horizontal or vertical accepted	_____
	Park Brake Valve Location	Park brake valve shall be located as close to the driver as possible. This item shall be discussed at the prebuild meeting	_____

**STEERING**

10.84	Power steering	Hydraulic power steering with oil cooler, tilt and telescopic style, rated for front GVWR rating.	_____
10.85	Steering wheel	2 spoke. Padded style.	_____

**FRAME**

10.86	Galvanized frame and components	Galvanized steel single or double frame rail(s) designed and constructed to match the GVWR and	_____
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application of the vehicle as a triple combination fire pumper apparatus. The frame shall be hot dip galvanized prior to assembly and attachment of any components. OEM shall provide engineering document that supports single or double frame application choice. The frame rails shall have an OEM approved undercoating. The components that shall be galvanized shall include:

- Main frame “C” channel or channels
- Front splayed rails and fish plates
- Cross members (excluding suspension cross members)
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

10.87	RBM	Resisting bending moment combined for both frame rails 3,200,000 in-lbs. RBM shall be rated for GVWR request, application and intended use.	_____
10.88	Front frame extension	Bolt on as required for front bumper stated herein.	_____
10.89	Front bumper	Heavy-duty front bumper, The front bumper shall be painted black bumper bolted to the chassis frame. Bumper apron to be 3/16” –anti-slip. The front bumper shall have 45 degree angled corners. The front bumper shall have a full length and width compartment with one single lid. This compartment shall be divided into three separate areas. The center section shall be for the winch and the two outside storage areas shall be for rescue equipment and tools. This storage shall be able to hold a min 500lbs. The front face of the bumper shall have a chevron decal.	_____
10.90	Front tow hooks	Frame shall have forward “forks” to which the eyehooks are affixed.	_____
10.91	Rear tow hooks	Two (2) eyehooks, bolted to the chassis frame. A cross-member shall be located in the chassis frame at the tow hook location. The tow hooks shall be easily accessible.	_____
10.92	Technical rescue Anchor Points	There shall be six (6) Technical Rescue Life Safety Anchors rated for life safety. 2 front, 2 rear and one on each side of the apparatus (not used for towing). It is preferred that these anchor points be located inside compartments.	_____

**CAB AND CAB EQUIPMENT**

10.93 Custom cab

- a) This apparatus shall fully incorporate a clean cab concept. The clean cab shall allow for easy decontamination. The cab interior shall be of a light color to show dirty easily. There shall be anti-slip seamless cab floor to allow for easy decontamination and washing. There shall be no firefighting equipment stored in the cab. There shall be a heated compartment at the rear of the cab that is part of the tilt cab system. This compartment shall be a pass through compartment with one pull out vertical tray on each side. The drivers side pull out storage rack shall hold (2) SCBA, two (2) helmets and fire fighting tools on the drivers side tray. SCBA access for the firefighters shall be as ergonomical as possible. The officers side pull out storage rack shall have a thermal imaging camera and charging mount, three (3) SCBA, three (3) helmets. This compartment shall be sealed from the cab so as to not allow off gassing to get into the crew area. The pull out vertical trays shall be the exact same length on each side. The pull out trays shall be wrapped in chevron and have a flashing red light. The details of the clean cab shall be discussed at the pre-production meeting
- b) The cab shall be a custom, fully enclosed, with a minimum 20.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall have five (5) seating positions.
- c) The cab shall have two non-SCBA seats located on the rear wall that face forward. These two seats shall be positioned in the middle of the rear wall to allow for a clear forward view of the fire scene. There shall be a third seat that is offset to one side that functions as a jump seat and has a flip up seat bottom. There shall be enough space between the three forward facing rear seats to allow crew personnel to be seated comfortably.
- d) There shall be two medical compartments accessible from the outside only. These compartments shall be behind the driver and officer with a roll up door and one adjustable shelf in each. There shall be cargo netting installed on top of the medical compartments on the inside of the cab and run full height to the roof to allow for extra storage.

		e) There shall be an open interior compartment with one (1) adjustable shelf. This compartment shall hold the required components for the WFD Drone Program. This compartment shall have a maximum width and height without impeding the forward view from the rear seats. This compartment shall have one (1) 110v charging outlet that are able to charge while the apparatus is running and while plugged in to shore power.	_____
		f) There shall be a sliding tabletop located on top of the engine tunnel that slides towards rear seating area to allow for building of the drone.	_____
10.94	Cab design	a) The cab shall incorporate a fully enclosed design with sidewall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.	_____
		b) Cab tilt system shall allow for electric over hydraulic tilting of the cab with a permanently mounted rocker switch mounted in the right side compartment. Cab tilt system shall include a hydraulically operated manual cab tilt option in the event the pump fails	_____
		c) The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.	_____
10.95	Cab construction	The cab shall be constructed of corrosion resistant aluminum plate. The cab shall be constructed from minimum of 3/16" 6061-T6 or 6063-T6. Aluminum extrusions for extreme duty situations. The cab and sub structure shall create an occupant compartment that will create a roll over protection system. The cab shall meet or exceed NFPA 1901 standards. The cab shall be fully crash test rated.	_____
10.96	Cold weather insulation	Extreme climate full insulation under cab, roof, ceiling, firewall, and walls 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. Also as required to meet HVAC needs and acceptable sound suppression requirements.	
10.97	Interior and exterior seams	All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favourable efficiency for heating and cooling retention.	_____
10.98	Exterior width & length	The exterior width of the cab shall be 94.00 inches wide with an interior width of 88.00 inches. The cab shall be an extended length cab to allow the specialty rescue groups more area to don specialty gear.	_____
10.99	Cab interior design	The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.	_____
10.100	Cab interior height	The cab shall offer an interior height of 57.25 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 55.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.	_____
10.101	Cab doors	The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening. The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.	_____
10.102	First step area (Driver and Officer)	The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.50 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.	_____
10.103	First step area (Crew)	The first step for the crew area shall measure approximately 11.50 inches deep X 21.50 inches	_____

wide. The intermediate step shall measure approximately 10.25 inches deep X 22.50 inches wide. The height from the first step to the Intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches.

10.104	Front grill	It would be preferred if the front grill tilted down to allow for remote access to check the engine and transmission fluid levels.	_____
		<b>State optional price</b> to paint a large Canadian flag on the front grill of the apparatus.	\$ _____
10.105	<b>Drawing: cab interior layout and relevant dimensions.</b>	Bidders shall provide drawings, within 72 hours of the request of the Contract Administrator.	_____
10.106	Insulating material	Insulating material to prevent galvanic corrosion shall be provided at all possible areas of contact between aluminum and steel. The insulation material used shall be nonporous.	_____
10.107	Door handles/latches exterior	As recommended by manufacturer.	_____
10.108	Door handles/latches interior	Flush-mounted, paddle handle type, located such as to prevent accidental actuation.	_____
10.109	Door latch striker plates	Recessed such as not to protrude into the door opening area.	_____
10.110	Door hinges	As recommended by manufacturer.	_____
10.111	Weather stripping	Automotive style.	_____
10.112	Grab handles	Grab handles as per NFPA standard. Grab handles shall be of a one piece design	_____
10.113	Step area lights	LED recessed, side mounted light in each entrance step area. The lights shall be activated by door switches.	_____
10.114	Seats/seating layout	All seats shall be manufactured by H.O. Bostrom with grey non-absorbent extreme duty vinyl. Three Front Facing non SCBA seats on rear wall of cab	_____
10.115	Driver's seat	H.O. Bostrom Sierra ABTS air seat with 5" Fore/Aft Adjust and occupancy switch.	_____
10.116	Officer's seat	H.O. Bostrom Serria ABTS air seat with 5" Fore/Aft Adjust, and occupancy switch.	_____
10.117	Air seat supply	Air supply for the seats shall be taken from the auxiliary air reservoir.	_____
10.118	Rear seats	<u>Forward Facing Rear Crew (3):</u> HO. Bostrom Sierra ABTS seats and occupancy switch.	_____
10.119	Seat belts	Three-point, retractable type for all seats. Seat belts shall be designed to be long enough for large	_____

operators, and female Deutsch connections to extend so as to be easily accessible. The seat and seat belt sensor wiring connectors shall be Deutsch connectors.

10.120	Winter Front	Apparatus shall come with a custom fit removable winter front with adjustable openings that allow air to go through if required.	_____
10.121	Advanced Protection System (APS)	<p>The system shall include the following components:</p> <ul style="list-style-type: none"><li>a) Driver steering wheel airbag.</li><li>b) Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag.</li><li>c) Large driver, officer, and crew area side curtain airbags.</li><li>d) APS advanced seat belt system - retractor pretensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.</li><li>e) Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event.</li><li>f) Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM.</li><li>g) Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel.</li></ul>	_____ _____ _____ _____ _____ _____ _____
10.122	Floor covering	Heavy-duty rubber anti-slip seamless floor-mat that is non-absorbent and works with the clean cab concept and will allow for easy decontamination. The floor covering shall extend 3" up the cab wall to assist with cleaning the cab.	_____
10.123	Headliner	Grey, heavy duty non-absorbent vinyl with padding	_____
10.124	Windows	Tinted safety glass for all windows including windshield. Apparatus shall be equipped with power windows. The apparatus shall include an automatic windows up feature, that runs off of a 5 minute timer the multiplex system shall automatically close the windows to keep diesel exhaust emissions out of the cab	_____



10.125	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 drivers switch panel.	_____
10.126	Sun visors	Two (2) swivel visors. One positioned each in the front of the driver and officer. These visors swivel to provide coverage of the front door windows.	_____
10.127	Mirrors exterior	a) The cab exterior shall include bus style mirrors, one (1) mounted on the drivers' door and one (1) mounted on the right front cab corner radius below the windshield. Flat and convex mirrors heated and remote controlled located within easy reach of the driver.  b) Left side mirror head, injection moulded chrome plated ABS plastic that measures approx. 9.50 inches wide X 17.50 inches high and is mounted with a polished die-cast aluminum arm.  c) Right side mirror, injection moulded chrome plated ABS plastic that measures approx. 9.50 inches wide X 17.50 inches high and is mounted with a 19.00 inch long polished cast aluminum arm.	_____ _____ _____
10.128	Front/Rear heater and air conditioner	Heating/Ventilating/Air Conditioning System (HVAC) The HVAC shall be a high output, fresh air type with multi-speed fan, controlled by the driver. There shall be a HEPA filtration system capable of stripping the outside air of pollen, bacteria, and pollution before they enter the cabin and systematically scrubbing the air inside the cabin to eliminate any trace of these particles air. Outlets shall be provided at dashboard level and in the driver 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 -40°C. There shall be an automatic feature that is interlocked with the park brake and a 5 min timer. This feature will turn the air conditioning system automatically on in recirculation mode so as not to pull in contaminated outside air.	_____
10.129	Rear heat/air conditioner/Aux. coolant heater	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.**

10.130	Dome lights	Four (4) LED lights, two (2) in the front and two (2) in the rear portion of the cab to fully illuminate the cab interior. Dome lights shall be combination type with clear and red lenses. All lights shall be operated by door switches. Each light shall be equipped with an individual switch at the light.	_____
10.131	Rear crew area interior work lights	There shall be four evenly spaced 8" Federal Signal Commander LED work lights. These four lights shall be wired to a manually operated rocker switch located in the rear crew area that is interlocked to only operate when the park brake is applied.	_____
10.132	Instrumentation	Full instrumentation on a removable or flip down panel, or pull-out gauges.	_____
10.133	Metric instrumentation	To include, but not limited to: <ul style="list-style-type: none"> <li>a) Speedometer/odometer: metric</li> <li>b) Tachometer.</li> <li>c) Oil pressure gauge.</li> <li>d) Coolant temperature gauge.</li> <li>e) Transmission oil temperature gauge or warning light.</li> <li>f) Low oil pressure/high water temperature warning lights(s)</li> <li>g) Voltmeter</li> <li>h) Fuel level gauge</li> <li>i) Air reservoir pressure gauge(s).</li> <li>j) Engine hour meter.</li> <li>k) Air cleaner restriction indicator gauge.</li> <li>l) Engine oil filter bypass indicator lights.</li> <li>m) Fuel filter bypass indicator lights.</li> <li>n) Transmission filter bypass indicator lights if recommended.</li> </ul>	_____
10.134	Ignition switch	Keyless type.	_____
10.135	Doors	Heavy-duty construction with stainless steel inside door panels. Doors shall have an led light that flashes when the door is open.	_____
10.136	Warning system	OEM engine warning system.	_____
10.137	Radio	AM/FM stereo, mounted inside of dash, controlled by the driver.	_____
10.138	Mobile radio	12V power & ground located at center dash area <b>(To be prewired during manufacture as determined at pre-production meeting).</b>	_____

10.139	Lap top computer provision	12V power & ground at center dash area (purchaser to supply support bracket) <b>(To be prewired during manufacture as determined at pre-production meeting).</b>	_____
10.140	USB charging ports	Two (2) located at center dash area.	_____
10.141	Switch Activated Vehicle Immobilizer	Unmarked dash mounted switch so when activated it will disable the vehicle from moving.	_____
10.142	Cab door hardware	Hardware to be heavy duty in design and operator glove friendly.	_____

**APPARATUS BODY**

**Note: Compartment configurations to be finalized at Pre-production meeting.**

10.143	Type	<p>Rescue style, heavy-duty style body, aluminum or 304Lstainless. If using aluminum bodies only extruded aluminum will be accepted. Shall be tongue and groove or interlocking of the components.</p> <p><b><i>Note: Aluminum or 304L stainless bodies on steel sub frame shall not be acceptable.</i></b></p> <p>The body compartment doors shall be roll up doors with pull down straps, there shall be a lower door that folds down or pulls out to a step/seating area. The fold down step shall include a positive lock. The fold down steps shall allow for easy access to the higher compartment shelves. Designs without the lower door/step shall be accepted.</p>	_____
10.144	Rub rail	Extruded aluminum rub rail, bolted in place and located along the lower edge of the body, both sides nonconductive.	_____
10.145	Compartment floors	All compartment floors shall be 3/16 in. (5mm), with continuous welds.	_____
10.146	Insulating material	Insulating material to prevent galvanic corrosion shall be provided at all possible areas of contact between aluminum and steel. The insulation material used shall be nonporous.	_____
10.147	Drip mouldings	Located above all compartment door openings.	_____
10.148	Storage compartments	Located along each side and rear of the body and the storage compartments. Shall provide a combined interior volume. All compartments will have rollup doors unless otherwise indicated.	_____
10.149	Compartment design	All compartments shall have vents for ventilation that prevents condensation build up inside the compartments. All compartments shall have sweep-out style compartments. Bottom shelves to have	_____

provisions for water drainage.

10.150	Compartment doors	Roll-up doors lock/lifting bars c/w door ajar warning circuit c/w magnetic sensor located near top of door. The door sensor shall have a fixed mounting bracket that is bolted to the compartment. (Sensors on door handles not acceptable) All compartment doors shall have anodized aluminum slats. The roll up door drum shall have a drip tray	_____
10.151	Warning circuit	“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 and shielded to protect from visibility from oncoming traffic. Compartment door ajar light sensors shall be bolted to the apparatus body	_____
10.152	Compartment lights	Amdor Luma-Bar LED lighting in each compartment to the right and left of opening, full length of opening. The opening of each compartment door shall activate the lights in each compartment.	_____
10.153	Shelves	All compartment shelves shall be 3/16 in. (5 mm) aluminum and shall cover the full width of the compartment. Shelves shall be lined with an interlocking matting, dry-deck or equal.	_____
10.154	Slide-out trays	All slide-out trays shall be 3/16 in. (5 mm) aluminum with heavy-duty steel sliders, with ball bearing rollers capable of supporting a capacity of 500 lbs or greater. 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. All slide out trays shall be marked with chevron pattern decal.	_____
10.155	Winch anchors	The completed unit shall have an integrated receiver system for use with a portable electric winch. There shall be four winch anchor points on the apparatus. One on the front and rear and one on each side of the apparatus. These receiver’s should be located inside compartments.	_____

**Compartment Descriptions**

10.156	Left side, front compartment (L1)	This compartment shall be shared with R1. This compartment shall store two backboards, one scoop stretcher and reeve sleeve and 6’ and 8’ pike poles. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.157	Left side, center compartment (L2)	This compartment shall be a pass through. This compartment shall have two (2) pull out trays and one lower adjustable shelf. The top pull out tray	_____

shall tilt. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.

- |        |                                     |  |       |
|--------|-------------------------------------|--|-------|
| 10.158 | Left side, rear compartment (L3)    | This compartment shall be a pass through. There shall be one (1) pull out tilting tray on the bottom of the compartment and an adjustable shelf above the tray. There shall be storage for strong backs and plywood on the upper shelf. There shall be one (1) 110v power outlet. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.  | _____ |
| 10.159 | Left Side, rear compartment (L4)    | This compartment shall be the rapid intervention compartment (RIT). It shall have a Hannay EF1514-17-18 low-pressure air hose reel mounted from the ceiling of the compartment. The Reel shall be designed to hold 110% of the capacity needed. 200ft of 3/8" parker air line. Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and shall be marked with a label indicating its function and shall be guarded to prevent accidental operation. There shall be a 200ft extension cord reel power by the APU. There shall be two (2) 110v-charging outlets. There shall storage for two (2) battery operated super vac PPV fans, a two-piece stokes basket, four rechargeable stream lights, Rapid Intervention (RIT) pelican box and RIT duffle bag. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features. | _____ |
| 10.160 | Right side, front compartment (R1)  | This compartment shall be shared with L1. There shall be storage for backboard, scoop stretcher, Four (4) Technical Rescue equipment backpacks approx. 80lbs each bag, (3) fire extinguishers. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.   | _____ |
| 10.161 | Right side, center compartment (R2) | This compartment shall be a pass through. This compartment shall have three (3) heavy duty vertical pull out tool boards with mounting for rescue struts and firefighting tools. The tool boards shall be the maximum allowable height of the compartment. The minimum height the tool boards shall be is 40" high to accommodate the vehicle rescue struts. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.   | _____ |
| 10.162 | Right side, rear compartment (R3)   | This compartment shall be a pass through. There shall be one (1) adjustable shelf. There shall be storage for strong backs and plywood. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.  | _____ |

10.163	Right side compartment (R4)	This compartment shall be the Vehicle Rescue compartment. It shall have a Hannay EF1514-17-18 low-pressure air hose reel mounted from the ceiling of the compartment. The Reel shall be designed to hold 110% of the capacity needed. 200ft of 3/8" parker air line. Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and shall be marked with a label indicating its function and shall be guarded to prevent accidental operation. There shall be a 200ft extension cord reel powered by the APU. There shall be two (2) 110v-charging outlets. There shall be a pull out tray to store Homalatro vehicle rescue tools, spreader, cutter and two extension rams. There shall be vertical storage for vehicle rescue struts & base plates. This compartment shall also store four (4) high pressure air bags, hoses and controller. Homalatro hydraulic hoses, two (2) sawzalls, large portable toolbox with extrication tools, tarps. Storage options shall allow for future equipment additions. Bidder to provide optimal storage options and features.	_____
10.164	Rear compartments	There shall be a rear compartment with two pull out trays on adjustable shelves. The upper tray shall be tilting. There shall be a separate recessed lower compartment that is between the frame rails to store 30" 4x6 cribbing. These two compartments shall share a common roll up door.	_____
10.165	Roof Mount Storage	There shall be coffin compartments on the roof of the apparatus to accommodate storage for dirty turn out gear and other lightweight firefighting tools. This area shall also allow easy access to service of the APU and Command light. There shall be pull out ladder with a flip down section to allow easy access to the roof.	_____
10.166	Equipment compartments	The Bidder shall design all equipment compartments to accommodate the equipment specified in Appendix #1. The Bidder shall be responsible for it location, securing, and weight distributions. All tool brackets shall be PAC mount tool-mounting hardware included within the compartment construction as per attached tool list. Fire Extinguishers stored horizontally in compartments.	_____
10.167	SCBA storage	Eight (8) SCBA storage pods. There shall be storage for four (4) SCBA high pressure forty-five hundred psi air cylinder storage pods within the rear wheel well fenders on each side of the apparatus. The pods shall be equipped with weather tight doors c/w slam locks.	_____
10.168	Rear step	NFPA compliant and the step height shall be 22 in. (559 mm) above ground level. Step surfaces shall be non-slip and drain opening shall be provided to facilitate cleaning of the non-slip surfaces.	_____

10.169 Wheel wells Equipped with full liners 5052-H321 aluminum or composite materials wheel fender and lined with Line-X or Full Metal Jacket protective spray on liner. \_\_\_\_\_

10.170 Checker plate The front corners and the area immediately above the wheel wells shall be covered with polished aluminum or stainless steel checker plate. \_\_\_\_\_

**ELECTRICAL SYSTEMS, GENERAL**

10.171 Electrical The complete Heavy Rescue Apparatus shall be equipped with a multiplex electrical system. Vmux or other multiplex systems shall be accepted. All electrical wiring harness shall be encased in pre-engineered weatherproof loom. All harness connections shall be weather tight connections. Each circuit shall be colour coded and/or marked the entire length. The marking shall be easy to read. Individual wires shall be multi-strand copper with cross linked polyethylene insulation. Volts drop in any electrical wiring circuit shall not exceed 0.5 volts at highest operating temperature within normal working range. \_\_\_\_\_

10.172 Wiring All wiring shall be in pre-engineered harnesses with weatherproof, guided pin-snap-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. \_\_\_\_\_

10.173 Connectors 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. \_\_\_\_\_

10.174 Solder 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. \_\_\_\_\_

10.175 Electrical standard All wiring shall be properly secured and routed. All holes required for routing shall be grommetted and sealed as required. \_\_\_\_\_

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

10.177 Electrical distribution panels 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. \_\_\_\_\_

10.178	Auxillary Power Unit (APU)	<p>The vehicle shall be equipped with an APU system with a capacity of 20,000 watts (20kw) or larger if possible. Current frequency shall be stable at 60 hertz. The engine shall be allowed to idle for five (5) minutes and then the chassis engine will shut off and the APU shall start and allow for full heating and cooling of the cab and rear seating area. Simultaneous use of all the electronic components on the apparatus when main chassis engine not in use. The APU shall have an uninterrupted power supply (UPS) and shall provide power to all 12v and 120v power accessories. The APU will be a three (3) or four (4) cylinder diesel engine. It will allow for easy servicing. The APU will run off the onboard diesel fuel tank. There shall be a switch in the cab to allow for starting the APU without use of the five minute timer as well as an override switch to disable the APU.</p>	_____
10.179	360 Camera Package	<p>Camera system Safety Vision Total View 360 degree bird's eye view or equivalent. Includes (four) 4 cameras located front, rear, left and right, and wireless remote control. With multiplex screen for the display. Note: cameras must be located as high as possible with side cameras centrally located.</p>	_____
10.180	Collision Avoidance System	<p>Collision Avoidance Systems model CAS-4HW rear obstacle detection and proximity system. Includes 4 sensors at rear of vehicle and speaker in cab.</p>	_____
10.181	110V Power Supply	<p>The apparatus shall be equipped with an inverter and 110v charging outlets. There shall be one (1) 110v outlets in the rear seating area of the cab and four (4) in the rear compartments, two on each side of the apparatus. Locations specified in the compartment sec. There shall be a power bar in each compartment. These plugs shall be powered off of the APU and shore power when plugged in.</p>	_____
10.182	Power Distribution	<p>Each compartment shall have a blue sea power and ground distribution block to all for future accessory add-ons. Blue Sea 12V power distribution module model 5032. Location: behind officer's seat.</p>	_____
10.183	Headset Communications	<p>Headset communications shall be Fire Com headset in cab system. There shall be four (4) wired headsets.</p>	_____
10.184	Winch	<p>Truck powered heavy-duty winch system with a minimum 9000lbs capacity. The winch shall be a removable type able to be deployed off different sides of the apparatus. There shall be a hard-wired connection at the front of the apparatus. The main location for the winch shall be the front of the apparatus.</p>	_____



**VEHICLE LIGHTING AND WARNING EQUIPMENT**

10.185	All lighting to conform to: C.M.V.S.S. Manitoba Highway Traffic Act. City of Winnipeg Lighting Visibility Standard <a href="http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf">http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf</a> .	_____
10.186	Lighting	Supplier installed <b>high count</b> LED lighting
10.187	LED optical warning system	The apparatus shall have an LED optical warning system that meets and exceeds NFPA 1901.
10.188	Light bar (LED)	One (1) Federal Signal Navigator lightbar, model #NVG73D-NFPA21 shall be installed. The Navigator lightbar shall be a 73" linear high profile design, and shall feature four (4) Red QuadraFlare Solaris light modules. Each outer end of the lightbar shall include two (2) Red Rotators. There shall be 2 Inner Rotators. The center modules shall be capable of both White and Red light output. In response mode, the forward center lights shall flash in both Red and white sequences. With the application of the park brake, the forward modules shall change to all Red. The light bar shall feature all Clear domes, and be located on the apparatus cab roof. There shall be a White Light Disable switch in the cab to manually turn off the White light function in the event of fog or snow. Directed to front and sides only. Back of front light bar shall not be equipped with lighting individual switches shall be provided for alley included in light bar.
10.189	LED lights	FireTech 72" 12V brow light with integrated marker lights and black housing. Includes switch accessible to driver. Replaces front brow marker lights.
10.190	Traffic Clearing Light	LED traffic clearing light. Federal Signal P#LEDTCL97-W. Located on the front of the apparatus above the headlights. These lights shall be wired to come on with the emergency lights with an interlock to the white light disable via the park brake.
10.191	Warning Lights	<p>a) Warning light Whelen C-Series model C6L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of cab down low just ahead of rear doors.</p> <p>b) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Amber with clear lenses. Location: (1) each side of body rear facing up high.</p> <p>c) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Red with</p>

red lenses. Location: (1) each side of body rear facing up high.

d) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of body on forward upper body corners.

e) Warning light Whelen C-Series model C9L Super LED (PR) or equivalent. Color: Red with red lenses. Location: (1) each side of body on rearward upper body corners.

10.192 Warning light Package

Whelen Super LED lower level warning light package. Includes (8) C-Series model C6L light heads and (2) ION-T Series model TLI light heads with bezels or equivalent. Color: Red with red lenses. Location side facing lights: at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped. Note: ION-T Series light only available with clear lenses or equivalent.

10.193 Traffic Advisor

The Traffic Advisor shall be comprised of eight (8) Whelen 600 Series Super LED lights, individually mounted with chrome bezels to the rear face of the vehicle and evenly distributed, if split by a hose bed, or walkway. The lights on ends shall be amber with turn arrows. The remaining lights shall be amber with amber lens and controlled by a Whelen TACTL5 controller located in center dash. The TACTL5 shall have four programmable directional sequence flash patterns of left, right, split, and flash. The LED display on the control head shall replicate the Traffic Advisor's directional sequence. The TACTL5 shall have a rear panel dip switch for the ability to set eight additional Scan-Lock™ flash patterns.

10.194 Scene lights

a) FireTech FT-GESM scene lights (PR) and weatherproof connectors. Switch in cab (driver and officer side lights switched separately). (1) Each side rear compartment face up high.

b) FireTech FT-GESM scene lights (PR) weatherproof connectors. Switch in cab (driver and officer side lights switched separately). (1) Each side of cab, rearward of forward doors, up high, switched with cab doors.

c) FireTech FT-GESM scene lights (PR) weatherproof connectors. Switch in cab (driver and officer side lights switched separately). Driver side forward and rearward areas of roof

		top storage compartment.	
		d) FireTech FT-GESM scene lights (PR) and weatherproof connectors. Switch in cab (driver and officer side lights switched separately). Officer side forward and rearward areas of roof top storage compartment.	_____
		e) Fire Tech FT-MB-2.15-F-B-CPREC adjustable Scene light. Located in the middle of the rear body, mounted up.	_____
		f) FireTech model WL2000 LED. There shall be two scene lights located on the rooftop to light up roof top storage area and the APU/command light area.	_____
10.195	Load management system	An automatic electrical load management system to be provided.	_____
10.196	Taillights	Whelen C6 series LED vertical mount tail lights. Includes LED stop/tail, arrow turn and back-up lights with vertical chrome ABS 4 housing and weatherproof connectors.	_____
10.197	LED Head Lights	Fire Tech 4x6 LED head lights. FT-4X6-4KIT	_____
10.198	Turn signals	Weldon auxiliary turn signal model 9186-8580 LED (PR). Location: (1) each side in body wheel well offset forward. As per NFPA 1901 (current edition).	_____
10.199	Wig wags	Alternately flashing headlights operating on high beam only.	_____
10.200	Siren	Siren system with two (2) speakers with mounted in the front bumper, spaced as wide apart as possible. The siren speakers must be insulated to prevent excessive noise in the cab	_____
10.201	Warning lights and siren controllers	The warning light 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. Officer to operate Siren to be a Federal PA 4000. Federal Rumbler secondary siren. Includes amp, timer, and two speakers mounted under vehicle with heavy fabricated brackets. Requires control switch.	_____
10.202	Air horns	Two (2) black heavy-duty air horns mounted in the front bumper. The air horns shall be operable from	_____

the driver's position via the steering wheel and a foot switch. There shall also be an air horn switch for the officer located on the dash close to the officer seat.

10.203	Back-up alarms	Electronic, self-adjusting (87-112 dB) type.	_____
10.204	Spotlights	LED heavy-duty hand held spotlight with momentary switch, dash mounted in the officer area.	_____
10.205	Light tower	Command Light CL602D-FE LED. Tower shall be self-sustaining and capable to supplying power required for the lighting system. To be run off vehicle 12 Volt system. To be mounted on top of rear body. The Command light shall have control from the multiplex display as well as the handheld controller. The command light shall have the automatic zone deploying feature.	_____

**RESCUE EQUIPMENT**

10.206 **The following equipment shall be supplied as part of the apparatus and shall be mounted where applicable. All firefighting equipment shall be mounted with proper weight distribution in mind**

10.207	Variable speed PPV blower	Super Vac Fan model #V18-BD battery operated PPV fan with 110v option. The supervac fan shall run off of Milwaukee batteries	_____
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**PAINT COLOUR**

The HEAVY RESCUE APPARATUS shall be painted as follows:

10.208	Cab	Painted two tone colour scheme with the bottom half Red to match SIKKENS Brand Code 911662 (Red) and the top half Black to match SIKKENS Brand Code 910788 (Black), using a polyurethane enamel paint. (DuPont Imron or Sikkons paint).	_____
10.209	Apparatus body	Painted red to match the bottom half of the cab.	_____
	Chrome Accents	All body components that are normally chrome shall be painted black, including the front bumper.	
10.210	Apparatus body compartments, interior	Painted with light grey, scratch resistant, automotive grade paint.	_____
10.211	Chassis Frame, Axles, & Undercarriage	Painted using smooth black corrosion resistant paint. Paint Application - 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. The cab and Aerial Ladder Platform 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. Any caulking of body seams shall be performed prior to painting. Caulking material shall be of the highest industry standards.

10.212 Paint application

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

10.213 Reflective striping

All reflective striping shall be 3M diamond grade striping where ever possible. The reflective striping shall be red on white and/or aluminum background and white on red background. The side striping shall be stylized Z pattern front to back of vehicle. The striping shall be composed of 5 bands. The band width shall be 10". Example: white stripe on red background. From top down shall be: one 1" white stripe, one 1' red stripe, one 6" white stripe, one 1" red stripe, one 1" white stripe. The stripes shall not be spaced apart to reveal background. The stripe shall be edge sealed as per 3M guidelines. Incorporated within the cab reflective stripe shall be stylized WFD. Cab drivers and officers door shall be location of Winnipeg Fire Department crest (size 12 3/4" x 12" wide) crest shall be within reflective stripe. Were diamond grade reflective striping is difficult to apply; series 680 reflective film shall be allowable Example: on roll up door slats. The reflective striping shall at all times meet and/or exceed NFPA 1901 as the standard guideline.

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

**NOISE LEVEL**

10.214 Sound level

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 traveling at any speed up to governed speed with the sirens off and doors and windows closed. **State dba.**

**Bidder to provide recommendation for extra sound insulation.**

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10.215	<b><u>TESTING &amp; CERTIFICATION-</u></b>	Testing- The completed vehicle shall be tested and labelled to (NFPA) National Fire Protection Association Standard latest revisions by an independent third party certification organization.	_____
10.216	Third Party Organization-	The third party organization accredited for testing systems on fire vehicle in accordance with ISO/IEC 17020 or ISO/IEC Guide 65.	_____
10.217	Certification-	The certification organization shall not be owned or controlled by manufacturers or vendors of the vehicle being tested. Manufacturer's certification is not acceptable. (No exceptions)	_____
10.218	Labelling-	A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.	_____
10.219	Safety Labelling	A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.	_____
10.220	Dimension Plate-	A warning label shall be provided in the cab within sight of the driver stating the following vehicle dimensions:  •Height and length in standard and metric measurements.  •Gross vehicle weight rating in pounds and kilograms.	_____
10.221	Voltage Testing	The wiring and permanently connected devices and equipment shall be subject to a dielectric voltage withstand test of 900 volts for one minute. The testing shall be performed after all body work has been completed. The electric polarity of all permanently wired equipment, cord reels, and receptacles shall be tested to verify that wiring connections have been properly made.	_____
10.222	Fluid Capacity and Type Label	A permanent label shall be provided and shall state the type and quantity of the following fluids used in the vehicle:  • Engine Oil • Engine Coolant • Chassis Transmission Fluid • Drive Axle Fluid • Pump Gear Case • Primer Lubricant (If Applicable)	_____
10.223	Vehicle Data Recorder	Meeting the requirements of NFPA 1901-2009, Vehicle Data Recorder is required. Recorded to Include the following Data:	_____



tool locations, etc.

11.0 **WARRANTY**

11.1 All warranty information be detailed and include all exclusions. The Bidder shall provide all published warranty information upon delivery of the equipment. Contractor shall **State:** all warranty information. \_\_\_\_\_

11.2 All warranty information be detailed and include all exclusions. The Bidder shall provide all published warranty information upon delivery of the equipment. Contractor shall **State:** all warranty information \_\_\_\_\_

11.3 **BODY WARRANTY**

11.4 Structural **State:** \_\_\_\_\_

11.5 Body Vehicle basic coverage **State:** \_\_\_\_\_

11.6 Body compartment latches, hinges and shelving **State:** \_\_\_\_\_

11.7 Components e.g. Pumps **State:** \_\_\_\_\_

11.8 Electrical **State:** \_\_\_\_\_

11.9 Body Lighting **State:** \_\_\_\_\_

11.10 Body Paint **State:** \_\_\_\_\_

11.11 **CAB & CHASSIS WARRANTY**

11.12 Basic Vehicle - Chassis **State:** \_\_\_\_\_

11.13 Electrical **State:** \_\_\_\_\_

11.14 LED Lighting **State:** \_\_\_\_\_

11.15 Batteries **State:** \_\_\_\_\_

11.16 Drivetrain **State:** \_\_\_\_\_

11.17 Cab Structure/Corrosion **State:** \_\_\_\_\_

11.18 Frame & Cross-Members (Structural) **State:** \_\_\_\_\_

11.19 Frame & Cross-Members (Corrosion) **State:** \_\_\_\_\_

11.20 Cab Paint **State:** \_\_\_\_\_

11.21 Engine **State:** \_\_\_\_\_

11.22 Transmission **State:** \_\_\_\_\_

11.23 Axles - Front & Rear **State:** \_\_\_\_\_



11.24 Components **State:** \_\_\_\_\_

11.25 Warranty Literature All warranty literature and Documentation or “fine print” documentation shall be provided within three (3) Business Days of the request from the Contract Administrator. This warranty documentation will be entered into the City of Winnipeg Fire Department’s Service Data Network to expedite and administrate warranty claims and repairs. \_\_\_\_\_

12.0 **DELIVERY**

12.1 Delivery Point: The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.I.V.S. (if applicable) to the WFMA 185 Tecumseh Street, Winnipeg MB. The Contractor shall be notified by the Contractor Administrator the delivery address prior to issuance of the purchase order \_\_\_\_\_

12.2 Delivery Time: Equipment shall be delivered between 8:00 am and 2:00 pm on Business Days. **State:** Delivery Date. \_\_\_\_\_

12.3 Delivery Contact: The Contractor shall contact the Contract Administrator prior to delivery of the equipment. \_\_\_\_\_

12.4 P.D.I: A pre-delivery inspection shall be performed by the Winnipeg Fire Paramedic Service on the Apparatus and equipment. \_\_\_\_\_

13.0 **MANUALS**

13.1 Manuals supplied under this Contract shall cover the complete equipment including all components thereof; CD or USB flash drive is preferred where available. \_\_\_\_\_

13.2 The following manuals shall be supplied with the units when delivered:  
a) Operator's manual – Two (2) per unit (one operator manual shall be sent to the Winnipeg Fire Paramedic Service Training Academy 2546 McPhillips Street Winnipeg, Manitoba Office- (204).986.8398 Fax- (204).986.4266 \_\_\_\_\_  
b) Parts and service manuals – One (1) complete set including preventative maintenance schedules. CDs or USB flash drive are preferred. \_\_\_\_\_

14.0 **PARTS/LABOUR DISCOUNT**

14.1 Bidder to provide City of Winnipeg Parts Discount % Pricing from retail parts pricing. **State: percentage discount** \_\_\_\_\_ %

14.2 Bidder to provide City of Winnipeg Labor Discount % Pricing from Retail shop \_\_\_\_\_ %

labor rate. **State: percentage discount**

15.0 **FIRST SERVICE PREVENTATIVE MAINTENANCE KIT**

15.1 In order to assure minimum downtime of the equipment in future service, the Contractor shall provide one (1) complete replacement set of new OEM filters for each unit purchased. The set of required filters shall include (if applicable to the equipment type) air, fuel, oil, cab and hydraulic, or otherwise all known necessary common replacement filters required for the first preventative maintenance servicing. \_\_\_\_\_

15.2 The Contractor shall provide a list of factory recommended lubricants to be used with the equipment, as well as a complete cross reference guide for all warranty approved lubricants and filters that can be used during preventative maintenance servicing. \_\_\_\_\_

**APPENDIX #1**

Listing of Equipment on WFD Engines (The purpose of this appendix is to illustrate what a typical WFD engine carries as a full equipment load. The Bidder shall provide drawings of tool locations as best suited by the manufacture. The Bidder shall be responsible for the method of securing the equipment and all weight distributions.

<b>Item Name</b>	<b>Model #</b>	<b>Total</b>
Acme Thread Strut 25-36"	22-796200	4
ATS Extension 12"	22-796012	4
ATS Extension 24"	22-796024	4
Paratech TVS Kit	22-797000	2
LongShore 304 Strut 36-50"	22-796720	2
LongShore 406 Strut 48-73"	22-796730	2
LongShore 610 Strut 72-116"	22-796360	2
LongShore Extension 235 24"	22-796342	3
LongShore Extension 435 48"	22-796356	3
HydraFusion Strut 10"	22-79HA10	1
HydraFusion Strut 16"	22-7HA16	2
HydraFusion Strut 4"	22-7HA04LI	1
HydraFusion Pump	22-790020G	2
Swivel Base	22-796060	4
Rigid Base	22-796070	4
Multi Base	22-796025	4

Contour Base	22-796270	4
V-Base	22-796090	4
Hinged Base Plate 12"	22-796180C	6
Shoring Hammer	22-796430	2
TY Strut Release Tool	-22-796840	2
Tie Down Keys with J Hook	22-796161	4
Ratchet Belt with Finger Hook	22-890553	6
Grade 100 Chain 20'	22-796165	2
Non Slip Neoprene Pad	22-890012	2
Strut Regulator	22-895400G2	1
Dual Deadman Strut Controller	22-796103G2	1
16' Air Hose – Red	22-890516	2
16' Air Hose – Black	22-890513	2
16' Air Hose – Blue	22-890514	2
Y-Coupling	22-890736	2
Inline Shutoff	22-890490-150	4
VSK controller	22-796V01	1
42"x1" pickets		4

<b>Item Name</b>	<b>Model #</b>	<b>Total</b>
<b><u>Airbags and controllers</u></b>		
Compact Multi-force Airbag	22-88D025C	1
Single Deadman controller	22-889510G2-150	1
Saddle Bag	22-890370	1
Inline Relief Valve 165PSI	22-890490-150	1
Regulator G2 200PSI CGS	22-895401G2	1
6"x6" Airbag	22-888110Gs	1
6"x12" 3.5T Airbag	22-888120G2	1
10"x10" Airbag	22-888130G2	1
15"x21" 15T Airbag	22-888150G2	2

24"x24" 38T Airbag	22-888170G2	2
Shutoff Adapter Industrial	22-890732	1
Shutoff Adapter Twist lock	22-890749	1
Master control kit case	22-890323	1
Dual Deadman Control	22-890900G2	1
Regulator G2 200PSI CGS	22-895401G2	1
Paratech Nipple ¼" NPTM	22-890681	2
Paratech Nipple ¼" MPTF	22-890682	2
Paratech Nipple 1/8" NPTM	22-890683	2
Nipple and Locking Tire Chuck	22-890731	1
Plastic Felling Wedge	22-890PFW	4
Pelican case	22-890337	1
Nipple for ALB 3/8-24 LH THD	22-890686	4
Industry interchange nipple	22-890732	1
Dual Deadman 150 ALB G2	22-890900G2-1	1
Regulator G2 200 PSI CGA	22-895401G2	1

#### **Rope Rescue Equipment**

Advantage Plastic Litter	CMC 726125	1
Pelvic Harness	CMC 724153	1
Pro Series Litter Harness	CMC 724121	1
Bosch Digital tape measure	GLR825	2

#### **Confined Space Equipment**

Arizona Vortex Kit	CMC 727300	1
Harken Lokhead Winch	CMC 733500	1
Spec Pak	CMC 721903	1
Confined space camera	Search Cam Recon III	1

#### **Air Tools**

Item Name	Model #	Total
Impact Socket Set		1
Ajax Air Hammer Rescue Kit	911 Series	1
Ajax 911 Air hose	3/8" 1030	2
Ajax Chisel bit kit	3196-RK	1
3/8" Fractional Deep Socket Set	1987	1
1/2" Metric Deep Socket Set	1991	1
3/8" Metric Deep Socket Set	1992	1
Ajax Air Ratchet	3/8" 1988	1
Clay Spade with Ergo Grip	3088	2
Ajax Cut-Off tool	1989	1
Ajax Standard cut-off wheels	1990	1
Ajax Air tool oil	1074	1
Ajax High Pressure Regulator	8245H	1

**Scene Lighting and Electrical**

Stream light Battery Scene light	45670 8	4
Honda InvertorUltra Quiet	2200i	1

**Battery / Electric Positive Pressure Fan**

Ram Fan or <http://ramfan.com/wp-content/uploads/2017/10/EX50Li.pdf>

BatFan

<http://www.leadernorthamerica.com/upload/medias/dsbatfanneozcl03265us3.pdf>

Item Name	Total
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**Hand Tools**

Standard Impact Socket Set	1
Metric Impact Socket Set	1
Adjustable Wrench 6"	1
Adjustable Wrench 10"	1
Screwdriver set (Philips, flat, Robertson, Torx)	1

Allen Wrenches (metric and Standard)		1
Pipe Wrench 10"		1
Pipe Wrench 14"		1
Asst. Impact Driver bits including Robertson		1
Ajax strip and peek tool	674-RT	1
Beta Tool Trolley	C41S	1

**Battery Operated Hand tools**

M18 Fuel Cordless Grinder with cut-off wheel		1
M18 Fuel Cordless ¾" Impact Wrench		1
Milwaukee M18 batteries	9 amp/hours	2

**Ladders**

Little Giant foldable ladder		1
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**Holmatro Extrication** Tools (As per Jason Perron and Keith Dixon)

5260 Spreader (32") Core	158.012.167	1
5060i Cutter Core	158.012.161	1
5370 Telescopic Ram Core	158.032.035	1
Regular ram		1
5111 Combi Tool Core	158.012.146	1
5111 Combi Tool EVO3	158.052.136	1
5160 Combi Tool EVO3	158.052.224	1
5160 Combi Tool Core	158.012.171	1
SR20 Duo Pump Core	158.152.178	1
SR40 Duo Pump Core	158.152.183	1
Core Hose 50' Blue	158.572.129	1
Core Hose 50' Orange	158.572.126	1
Chain Kit TL9 lifting tips		1
Mini Cutter HMC 8 U		1
Ram Support HRS 22 NCT		1

Spare Batteries	2
Battery Charger	1
Vehicle tire deflator kit	2

**Miscellaneous Extrication**

1 ton snatch blocks	1
Chain Binders	2
5 ton come along	1
Tirfor Rescue Kit      Rescue TU32K	1

**Item Name** **Total**

**Concrete Breaking**

Paratech Pak hammer Kit    22-550500G2	1
Hydraulic Jackhammer	
Electric Jackhammer (power consumption)	
611-RK Heavy Duty Breaching Hammer Kit / Ajax	

**Equipment for Pumper Rescues**

Paratech TVS Kit      22-797000	2 for each rescue
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