

# **Advance Life Support & Basic Life Support Ambulance**

## **(1): SCHEDULE OF REQUIREMENTS**

<b>No</b>	<b>Item</b>	<b>Quantity</b>
<b>1</b>	<b>Advance Life Support Ambulance Wide Body &amp; High Roof</b>	<b>17</b>
<b>2</b>	<b>Basic Life Support Ambulance</b>	<b>41</b>

## **(2) TECHNICAL SPECIFICATIONS**

## **2.1 Technical Specifications of Vehicles**

يجب ارفاق المطلوبات التالية للعربات

The following information should be submitted

✓	المطلوبات	
	Technical specification المواصفات الفنية الميكانيكية للعربة (تفاصيل)	-1
	Place of origin بلد المنشاء .	-2
	Brand type. نوع العربات	-3
	Year of production سنة التصنيع .	-4
	Warranty الضمان, يجب ارفاق كتيب الضمان عند التوريد	-5
	After sales service خدمات ما بعد البيع .	-6
	Drawing or Pictures: To provide inside, outside, set up within the vehicle and all other necessary configurations and fittings. وضح صور للعربات من الداخل و الخارج	-7
	Sound level of Sarnia at one meter in (dB). مستوى صوت السارينا على مسافة متر.	-8

## 1. 4WD VEHICLES: LHD-PASIC CAR عربات الدفع الرباعي – العناية الاساسية

<b>1</b>	<b>General Features</b>
1.1	3 doors
1.2	( 6 ) Seats
1.3	Air Conditioning fully integrated
1.4	Fabric seat upholstery
1.5	Transmission: Manual, 5 speed, floor mount lever, cabin operated, high/low transfer with free wheel hubs
1.6	Front suspension: Coil springs Rear suspension: leaf springs
1.7	Brake Front: Disc: Brake Rear: Drum or Disc with ABS.
1.8	Roof luggage carrier in aluminium
1.9	Power assisted side mirrors
<b>2</b>	<b>Vehicle Dimensions</b>
2.1	Wheelbase: 2500mm, Min
2.2	Ground Clearance: 220mm
2.3	Tank Capacity: 90 litres+ sub tank 40 Litres.
<b>3</b>	<b>Engine Features</b>
3.1	Mount: Front Longitudinal
3.2	Displacement: minimum 3000 cc
3.3	6 cylinders, min (75HP).
3.4	Assembly: OHC/OHV
3.5	Fuel Type: <b>Diesel</b>
3.6	With snorkel type air cleaner
<b>4</b>	<b>Steering</b>
4.1	Left Hand Drive
4.2	Power Assisted Steering, Ball and nut.
<b>5</b>	<b>Accessories</b>
5.1	FM Radio with CD player (stereo sys), antenna
5.2	Interior Clock
5.3	Power window
<b>6</b>	<b>Electricals</b>
6.1	12 Volts System
<b>7</b>	<b>Wheels and Tyres</b>
7.1	Tool Kit, Jack and wheel spanner
7.2	Wheels: 16 steel rim or equivalent
7.3	Spare Tires supplied
<b>8</b>	<b>Others accessories</b>
8.1	Owner's manual in English
8.2	First aid kit
8.3	Fire extinguisher
8.4	Emergency reflective triangles
8.5	Air bag (D+P)
<b>9</b>	<b>Warranty required for vehicles: 24 month or 50,000km.</b>

**2- NEW VEHICLES: LHD, Mini bus HIGH ROOF – PASSENGER VAN (INTENSIVE CARE)**

الحافلات ذات السقف العالى - عناية مكثفة

<b>1</b>	<b>General Features</b>
1.1	4 doors.
1.2	( 6)Seats.
1.3	Air Conditioning fully integrated
1.4	Superior Fabric seat.
1.5	Transmission: Manual, 5 speed.
1.6	Front suspension: : Double wish bone, coil spring, Rear suspension: leaf springs.
1.7	Brake Front: Ventilated Disc: Brake Rear: Drum &ABS.
1.8	Power window.
1.9	Air bags (D+P).
<b>2</b>	<b>Vehicle Dimensions</b>
2.1	Wheelbase: 2500mm ,Min,L:5000, W:1800, H:2000
2.2	Ground Clearance: 185mm,Min.
2.3	Tank Capacity: 70 litres.
<b>3</b>	<b>Engine Features</b>
3.1	Mount: Front Longitudinal
3.2	Displacement: minimum 2500 cc.
3.3	4 cylinders inline, Min (75HP), Water cooled.
3.4	Assembly :DOHC
3.5	Fuel Type: <b>Diesel –Electronic fuel pump preferred.</b>
3.6	Snorkel type air cleaner preferred.
<b>4</b>	<b>Steering</b>
4.1	Left Hand Drive
4.2	Power Assisted Steering, Rack and pinion
<b>5</b>	<b>Accessories</b>
5.1	FM Radio with CD player (stereo sys), antenna
5.2	Interior Clock
<b>6</b>	<b>Electricals</b>
6.1	12 Volts System
<b>7</b>	<b>Wheels and Tyres</b>
7.1	Tool Kit, Jack and wheel spanner
7.2	Wheels: 15 steel rim or equivalent
7.3	Spare Tires supplied
<b>8</b>	<b>Others accessories</b>
8.1	Fire extinguisher
8.4	Emergency reflective triangles
8.6	Air bag (D+P)
<b>9</b>	<b>Warranty required for vehicles: 24 month or 50,000km.</b>

## **General Vehicular Design and Floor Plans**

This ambulance should be either of international designated testing authority approved Monocoque design manufacturer.

The ambulance should be designed, built and complete with operating accessories as specified herein. The assembly, sub-assembly and equipment should be integrated in such a way so as to enable the vehicle function in a reliable way and in a sustained fashion with durability and ensuring safety and comfort to patient and team.

The design of the vehicle and the specified equipment shall permit accessibility for servicing / replacement and adjustment of components / parts and accessories, with minimum disturbance to other components and systems. Also, the bidder shall ensure that sufficient reinforcement is provided to protect the components, assemblies, pipelines, tubing, wirings, etc. which are susceptible to damage / hazards encountered during on-road, off road operations of ambulance.

The emergency medical care vehicles, including base vehicle, equipment, devices, medical accessories and electronic equipment should be brand new standard commercial products, tested and certified to meet or exceed the these specifications. The bidder should enclose all necessary brochures, certifications and proofs in this regard along with the technical bid. The technical bid evaluation committee shall base its opinion on the enclosed documentary proofs with regards to compliance with the specifications asked for and may summarily reject the technical bid if adequate supporting documents are not enclosed with the technical bid or any of the furnished documents are found to reflect factually incorrect information. The technical bid evaluation committee reserves the right to ask for additional information if necessary.

### **Patient Compartment:**

Patient Compartment volumetric space shall be sufficient in size to transport occupants and accommodate / store all equipment & fitments specified.

The length of the patient compartment measured from partition to the inside edge of the rear loading door at the floor level shall be at least 3100 mm.

The minimum width of the compartment when measured at the center point of the patient compartment shall be not be less than 1500mm and should provide  $460 \pm 150$ mm clear aisle walkway between stretcher / cot and the base of squad bench, with the cot located in the street side (non-centred) position.

An access window between Driver's Cabin and Patient Compartment should be provided at appropriate location for visual checks and voice communication between the cabin and patient compartment. This window should be latch able from the patient cabin side and should be transparent, shatter proof and shall have adjustable opening.

The interior panelling of the patient compartment including sidewalls, partition between patient cabin and driver cabin, roof, door panels and all other surfaces in the patient compartment should be made from long life superior quality. There should be PUF / PU insulation, minimum 12 mm thick between the outer and inner panels of these vehicles for reduction of heat and noise within the patient compartment. The insulating material should be non-toxic, non-settling type, vermin proof, mild dew proof and non-hygroscopic.



Adequate provision for storage of medicines/consumables/equipment should be made by providing lockable cabinets & drawers. These should be made from non-wood & non-ferrous fire retardant material in sync with the ambulance's internal look and feel. The drawers should be on guide ways & should be provided with appropriate self-restraining mechanism to arrest the inadvertent opening of the unlocked drawers unless pulled while the vehicle is in motion. One number of drugs storage console with at least 40 individual bins should be provided in easy reach of paramedic when seated. These bins must permit the user to take out the drugs without removing the bin & should be secured firmly to avoid drugs or bins from falling when the ambulance is in motion.

The floor (except the wheel humps) should be flat, anti-static & should be finished with minimum 2mm thick two component PU coating with anti-scratch treatment or 2mm thick Anti-skid PVC vinyl matting or FRP / ABS with Anti-skid coating.

**Door:** There shall be a 'two leaf' divided rear door or 'flap type' rear door at the rear end of the patient compartment for entry and exit of personnel as well as loading and unloading of the ambulance cot. This door shall not be less than 1170mm in height with minimum width of 1120mm and the door opening should be side-ways or bottom to top. Each door should be hinged at least at two places and should have firm latching provision. It shall be capable of being positively restrained in the open position. A "Door-Open" warning device shall signal (indicate in the cab) when doors are not closed. Each door shall have effective compression or overlapping seals to prevent leakage of exhaust fumes, dust, water, and air.

The opening of the door should be possible from inside and outside at all times. Under no condition, during travel mode, this door should open on its own.

The doors of the patient's compartment shall be fitted with an appropriate mechanism to enable the following:

- lock and unlock from inside without use of a key;
- lock and unlock from outside with use of a key;
- unlock from the outside using a key when the door is locked from the inside

**Windows:** In the patient's compartment, there shall be a minimum of two external windows. There shall be one on each side or one on the side and other at the rear. The windows shall be positioned or screened to ensure patient's privacy when required. Windows shall be fitted with safety glasses complying with the requirements of international standards.

**Ambulance Cot** as per specifications detailed in this document should be provided for the primary patient.

**A foldable seat** for the Doctor/Paramedic should be installed facing towards the rear of the patient compartment & it should be near to the primary patient's head for easy accessibility. This seat should have adequate restrains for the passenger and should be fitted with foldable arm rests.

**A Squad bench** with backrest suitable to accommodate minimum four sitting patients or folding/scoop stretcher shall be installed along the side wall. The squad bench should be upholstered with waterproof washable cover and should have adequate restrains for the sitting patients as well as the stretcher.

**Grab Rail** made of stainless steel pipe with proper support / fixing, for ease in entering shall be installed in the ceiling. Minimum two IV hooks or holders to be provided at suitable locations to ensure proper patient care.

**Dust Bin**

Concealed portable dust bins for waste disposal should be provided at suitable locations.

**Fire extinguisher**

Two numbers of multipurpose fire extinguishers of ABC Type duly filled should be provided. One fire extinguisher shall be placed in the Driver's cabin and the second in patient's compartment, at appropriate location, where it is easily visible and symbolized.

All fitments/equipment/outlets/switches/storage spaces, etc in the patient compartment should be permanently & clearly labelled in English. The font used should be easily readable and in contrasting color of the background.

**Oxygen Delivery System**

The ambulance shall have piped medical oxygen system (manifold) capable of storing and supplying medical grade oxygen. The manifold should have two oxygen cylinders which should be at least B-type. All oxygen cylinders being used in the ambulance including the portable cylinders.

The cylinders attached to the manifold should be individually changeable from outside the patient compartment and a cylinder changing wrench should be housed at an appropriate location. The manifold should be so designed that it shall ensure proper fixation of cylinders during travel and should ensure easy cylinder changing and positioning.

Minimum two medical oxygen outlets for the primary patient, flush with right side wall (distance between patient head and oxygen outlets to be less than 890mm) to be provided.

The oxygen outlets should be universal in design to be able to accommodate the probe of the oxygen flow-meter and the probe of the driving gas hose of the ventilator directly in one single action without any intermediate connectors and adapters.

**Noise**

Noise testing of patient compartment will be as per international standards.

**Air-Conditioning**

The AC unit should be installed at a suitable location in the patient cabin to ensure there is no congestion in the driver/patient cabin. With all windows & doors closed, the system should be capable of lowering the cabin temperature to a maximum of 26 degrees Celsius within 30 minutes from 35 degrees Celsius ambient temperature. The gas used for Air conditioning should be environment friendly as per International regulatory requirements. The engine idling rpm should be so designed and tuned to fulfil the requirements of AC Unit.

## **Siren**

All siren loudspeakers have to be mounted on the front of the vehicle. Hidden installation is allowed. The main sound direction must be in driving direction. The frequency range must be at least one octave and should be between 500Hz and 2.000Hz. An additional electronic air horn can be used. Further there should be a public address system that can be worked at all times ergonomically from the driver's seat. The siren switch can only be used if the warning lights are on.

## **Exterior Special Lighting and Illumination**

The ambulance should have the following lighting fitments (12V):

- LED based flashing lights with top red lens having minimum four LED flashers visible on both sides of the ambulance (integrated or enclosed in a light bar) mounted on the roof top. The LED flashers should flash cyclically using appropriate flashers.
- At least two LED flashers & one spot lamp on both sides of the ambulance as well as two flashers & a rear loading lamp on the rear wall of the ambulance mounted at the highest position feasible. (The rear loading light shall automatically be activated when rear doors are opened.)

## **Interior Patient Compartment Illumination:**

There should be diffused flicker free automotive grade (12V, minimum 4000 deg Kelvin) lighting in the patient compartment. All interior lighting shall be flush mounted and should not get loose or fall down during vehicle movement or vibration. Normal white illumination within the patient compartment without outside ambient light shall not be less than 100 Lux (lx) when measured along the centreline of the clear floor; and 150 lx on at least 90% of the surface area of the primary patient cot. At least one patient compartment light and rear loading lamp shall be automatically activated when the patient compartment rear doors are open.

## **Electrical System**

The electrical system should be of uniform specification across all Advance Life Support & Basic Life Support Ambulances. There shall be two independent forward electrical circuits in the ambulance: the Original Equipment Manufacture-Base Vehicle Circuit and the non- Original Equipment Manufacture-Base electrical circuit. At no point shall the forward Original Equipment Manufacture-Base base vehicle circuit be tampered with to provide for any non- Original Equipment Manufacture-Base electrical load requirements.

Each ambulance should have additional 'supplementary battery(s)' sufficient enough to power the non- Original Equipment Manufacture-Base electrical load requirements of the homologated vehicle. These batteries should be located at a suitable location outside the patient compartment and should be automatically

charged by the vehicle alternator while the vehicle is on and via 220V external AC supply if connected when stationary. The alternator of the base vehicle should have the current rating which is at least 10% higher than the peak current consumption of the fully equipped ambulance. (Including current for charging of the batteries, running of air conditioning system as well as all the medical and non-medical devices, etc.)

A permanently fitted automotive grade battery charger should be provided to enable charging of the supplementary batteries via external 220V AC supply whenever connected.

Adequate number of power receptacles / connections should be provided in the patient compartment to simultaneously power all the equipment's & fitments asked for in this document. The mountings of all electrical outlets shall be sturdy enough to handle wire/plug pressure and vibrations during transit. There should be at least one free automotive grade 12V DC receptacle provided in the patient & driver compartment each at an easily accessible location.

All switches, connectors, end-wiring should be rated to carry out minimum 125 % of their maximum ampere load. All wiring should conform to international standards specification.

Electrical panels that are accessible to accidental contact shall have a protective cover, shield, and so forth, to prevent shorts that can result in injury, fire, or damage to the electrical system.

Electrical wiring and components shall not terminate in the oxygen storage compartment except for the oxygen controlled solenoid, compartment light, and switch plunger or trigger device. Wiring necessarily passing through an oxygen compartment shall be routed in a metallic conduit.

### **Radio Frequency Interference (RFI)**

The ambulance electrical / electronic and mechanical equipment in running mode / on condition, should meet the Radio Frequency Interference standards.

### **Emblems, Marking & Color Scheme**

Complete body exterior should be uniform white in color. All external marking should be retro-reflective in nature and materials used for the same should meet or exceed the requirements of international standards.

Guidelines in regards to Emblems and Markings for Ambulances issued by the Government from time to time shall be applicable. However, the quality parameters of the markings indicated above shall remain constant.

### **Operating Manuals, etc.**

Comprehensive User Manual/s written in simple English with detailed parts description, operating instructions, service contact numbers, etc for the Base

Vehicle, Patient/Driver Compartment Equipment, Fittings, etc shall be provided. These should be printed on high quality paper and housed in water-resistant pouches.

Laminated sheets, clearly showing the Patient and Driver Cabin Layout with location of equipment, fittings, switches, consumables, etc suitably depicted should be fixed in the patient and driver cabin at suitable locations. Laminated sheet showing the non-Original Equipment Manufacture electrical wiring diagram complete with location of various fuses and circuit breakers should be displayed in the vehicle at a suitable location.

### **Layout Drawings**

Sample drawing showing the layout of patient cabin for Advance Life Support / Basic Life Support Ambulance is attached along with. This drawing is indicative of an ideal ambulance layout and the bidders should adhere to this guidance in consonance with the above detailed specifications as regards the location and positioning of various medical equipment & patient care ergonomics while adapting the remaining fitments to their vehicle dimensions. Any dimension/fitment/equipment depicted in the sample drawing and not asked for in this tender document maybe ignored.

The bidders **MUST** provide 2D & 3D rendered drawings for all types of quoted ambulances showing location of various components, sub-assemblies for structure, interior layouts, fitment of oxygen system components, layout of seats & furniture, medical equipment, non- Original Equipment Manufacture electrical system layout, etc along with the technical bid.

## **2.2 Technical Specifications of medical equipment**

## Equipment for Advance Life Support & Basic Life Support Ambulance

All equipment & accessories being used in the ambulance including those in the Oxygen Delivery System should be US Food and Drug Administration (FDA) or European CE certified (where ever mentioned in the Technical Specification & Copy of the certificate to be enclosed along with the technical bid). Bidders should clearly states the technical specifications of their offered equipment, manufacturer, place of origin, the equipment model, warranty, and the certificate (CE or FDA).

### Ambulance Equipment List:

No	Requested equipment	Ambulance Type	Quantity For Basic	Quantity For advance
1	Ambulance stretcher	Advance & Basic	One	One
2	Spine Board	Advance & Basic	One	One
3	Scoop Stretcher	Advance & Basic	One	One
4	Defibrillator	<b>Advance Only</b>	-	One
5	Patient Monitor	<b>Advance Only</b>	-	One
6	Transport Ventilator	<b>Advance Only</b>	-	One
7	Infusion Pump	<b>Advance Only</b>	-	One
8	Syringe pump	<b>Advance Only</b>	-	One
9	Handheld Glucometer	<b>Advance Only</b>	-	One
10	Foldable evacuation stretcher	<b>Advance Only</b>	-	One
11	Pulse Oximeter	Advance & Basic	One	One
12	Oxygen Flow Meter with Humidifier	Advance & Basic	Two	Two
13	Suction Pump (Manual & Handheld)	Advance & Basic	One	One
14	Suction Pump (electronic)	Advance & Basic	One	One
15	Resuscitation Bag (Ambo bag)	Advance & Basic	One	One
16	Mouth to Mask ventilation device	Advance & Basic	One	One
17	Oxygen Cylinder	Advance & Basic	Two	Two
18	Laryngoscope with blades	Advance & Basic	One	One
19	Nebulizer	Advance & Basic	One	One
20	Stethoscope	Advance & Basic	One	One
21	Sphygmomanometer (Manual)	Advance & Basic	One	One
22	Pupillary Torch	Advance & Basic	One	One
23	Needle Sharp Container	Advance & Basic	One	One
24	Thermometer (Digital)	Advance & Basic	One	One
25	Pneumatic Splints	Advance & Basic	One set	One set
26	Cervical Collars	Advance & Basic	One	One
27	EMT Shears	Advance & Basic	One	One
28	Artery Forceps	Advance & Basic	Two	Two
29	Toothed Forceps	Advance & Basic	Two	Two
30	Magill's forceps	Advance & Basic	Two	Two
31	Kidney Tray	Advance & Basic	Two	Two
32	First Aid Kit Bag	Advance & Basic	One	One
33	Search Light	Advance & Basic	One	One
34	Rescue Equipment	Advance & Basic	One	One

Price list of all consumables, accessories & spares valid for a period of 2 years must be submitted along with the technical bid. (These prices will not be taken into account during the technical or financial bid evaluation).

Unless specified otherwise, all the following equipment have to be supplied in both Advance Life Support & Basic Life Support Ambulances. If multiple makes & models are quoted in the technical bid for any item, all makes & models must be fully compliant with the tender specifications.

### **1. Ambulance stretcher**

- Roll-in Self Collapsing Ambulance stretcher
- The ambulance stretcher including all accessories should be international standards.
- The stretcher should be supplied with a fixation system.
- The stretcher assembly excluding the mattress & other accessories should be less than or equal to 50kg in weight.
- The stretcher should load seamlessly and no manual intervention vis-a-vis the locking mechanism, wheels, etc should be required after loading in the ambulance to close the rear doors.
- Should have at least three strap-type restraining devices (chest, hip, and knee) to prevent longitudinal or transverse dislodgment of the patient during transit.
- Should be supplied with suitable accessories to fix the supplied portable oxygen cylinder
- One number of folding IV Poles should be provided
- The stretcher mattress should be water proof and upholstered with fire proof material.
- The stretcher should be able to be guided in and out of the ambulance without any part of the stretcher (including the legs) striking any part of the ambulance body including the rear footstep. The loading angle of the stretcher should not be more than 16 degrees. If required, a suitable loading platform (not necessarily be made of ABS) may be provided to ensure the same.

### **2. Spine Board**

- It should be made of plastic.
- It should be buoyant.
- It should have dimensions approximately 200 X40X7cm (length X width X thickness).
- It should have light weight.
- It should have handles for carrying the patient.
- It should be X ray & MRI compatible.

### **3. Scoop Stretcher**

- Light weight (Net weight: <15 Kgs)
- To be made of plastic or aluminum.
- To be supplied with quick release straps.
- Can be split into two sections (vertically).
- The stretcher should have dimensions approximately 200 X 40 cm (Length X width)



- The stretcher should have a depth about 3 to 5cm.

#### **4. Defibrillator**

Defibrillator for reviving heart functionality by applying selected electrical energy on the chest wall of the patient

- Wall Mounted, Transport defibrillator with an international certified fixation system.
- Should have manual and Automated external defibrillation (AED) mode
- Synchronized & a synchronized cardioversion
- Biphasic defibrillator with energy range 0-270J joule
- Should include TFT or LCD display screen > 6"
- Delivered energy indicator (meter)
- Standard external paddles for adults and pediatric with charge/discharge controls
- Charging time: < 15 sec. for 270J
- Should include a 3-leads ECG monitor for vital cardiac signs monitoring
- ECG leads and including reusable electrodes
- Should include paper speed: 25/50 mm/s for recorder
- Should include abnormal heart rate alarm
- Controllable alarm volume
- Should have the capability to work directly on mains electrical supply as well as on a battery.
- Should have a rechargeable battery with charging indicator.
- Should include Low battery indicator
- Should have self-test capability

##### **General requirements**

- Input power supply: 220 ± 20% AC Volt, 50Hz, schuko.
- Working temperature 0 till +50 degrees celsius
- CE or USA FDA approved device.
- Service manual (English language).
- Operation manual (English language).

#### **5. Patient Monitor**

- Patient monitor suitable for ambulance use.
- Wall Mounted with an international certified fixation system.
- With colored TFT screen has size about 10".
- Display waveforms and possibility to display 12 waveforms in 12-lead ECG view.
- Waveforms should be color coded and have clear visibility.
- Prioritized alarms for all monitored parameters, optimized for Critical Care environment, with alarm limits shown on the screen and alarm messages in clear English.
- Patient trends should be available for all parameters, in both numeric and graphical format for up to 72 hours at the bedside monitor.
- Automatic saving of patient waveforms during alarm conditions in the

monitor memory with

- Possibility to review the saved waveforms.
- Possibility to have different operating modes according to the type of patient, as well as different patient
- Viewing possibilities in each mode.
- The monitors should include the following parameters:
  - ECG, with automatic ST analysis and arrhythmia (extended arrhythmia), with 12 lead ECG
  - NIBP
  - SpO2
  - IBP
  - CO2 monitoring/ etCo2
  - Spectral index monitoring for monitoring depth of sedation
  - O2 monitoring with paramagnetic maintenance-free sensor, providing also O2 waveform

#### **General requirements**

- Should have the capability to work directly on mains electrical supply as well as on a battery.
- Input power supply:  $220 \pm 20\%$  AC Volt, 50Hz, schuko.
- Working temperature 0 till +50 degrees celsius
- CE or FDA approved device.
- Service manual (English language).
- Operation manual (English language).

#### **6. Transport Ventilator (Advance Only)**

- Wall Mounted Pneumatic/Turbine based Transport Ventilator
- Suitable for adults, children and infants up to 5 kg
- Modes of ventilation: ACMV or CMV
- PEEP
- Gas source : Compressed air / oxygen
- FIO2: 100% oxygen & air mix mode (with approx. 45% to 100 %)
- Equipment should be supplied complete with integrated carrying bracket for ambulance mounting as well as on ambulance cot, patient circuit, driving gas hose, PEEP Valve and breathing valve. (Transport Ventilator Kit)
- Should have airway pressure monitor & disconnect/low pressure / high pressure alarms.
- Should be European CE or US FDA certified

#### **7. Infusion pump**

- A microprocessor controlled infusion pump unit is needed to include but not limited to the following features:
- Flat hygienic touch screen.
- Syringe loading sensor – with KVO (keep vein open)
- Self-calibrated, self-diagnosis capability
- Volume range from 1 –999 ml/hr or better in 1 ml increment
- High accuracy rate  $< \pm 2\%$

- Audio visual indicators
- Multi types A/V alarms to include occlusion, door open, low battery, empty, etc...
- Open system using standard IV lines
- Air in line/ fluid detector
- Built in rechargeable battery, at least two hours operation
- IV stand, original approved by the manufacturer
- Input power supply:  $220 \pm 20 \% V AC$  , 50Hz, shuko type

#### **8. Syringe pump**

- Microprocessor controlled self-calibrated syringe pump with but not limited the following specification: -
- Using standard I.V syring from between 20ml to 60ml.
- Volume range: - form 1 - 99 ml
- Syringe loading sensor – with KVO (keep vein open)
- Audio and visual indicator
- Air inline alarm
- Anti-bolus system to reduce pressure on sudden release of occlusion
- Occulusion pressure not more than approx 750mm Hg or less
- The above must be of high quality, robust heavy duty.
- Internal rechargeable battery works for  $\geq 30$  minutes.
- Input power supply:  $220 \pm 20 \% V AC$  , 50Hz

#### **9. Handheld Glucometer**

- One unit with 100 units of disposable lancets/tips and Gluco Sticks
- Should be battery powered (AA or AAA).
- The brand provided should have supplies easily available in Sudan.
- Should come with calibration solution.
- Should be European CE or US FDA certified

#### **10. Foldable evacuation stretcher**

- Light weight foldable stretcher (net weight < 7Kg).
- Aluminum tubular frame.
- Washable and anti-bacterial top.
- Horizontally foldable stretcher.
- Four legs to keep space between the stretcher and the ground.
- Approximate dimensions when it is open of 200cm x 50cm (LXW).
- Height from the ground about 10cm.
- Should have load capacity of minimum 150Kg.
- Lifting handles cover with plastics.

#### **11. Pulse Oximeter**

- Fingertip pulse oximeter with integrated color OLED Screen
- Screen should display SpO2 & Pulse Rate
- Should be suitable for Pediatric & Adult use
- Should have built in Alarms for low saturation, low battery, etc.
- Should be powered with standard AA or AAA batteries
- Should have auto power down feature when not in use.
- Should be supplied with appropriate batteries and storing case.

## **12. Oxygen Flow Meter with Humidifier**

- Dial setting type without any floats, needles or moving parts to indicate the flow level.
- Pressure compensated for inlet pressure range of 3 to 5 bar, be able to regulate the flow from 0 to 15 liters per min and should show the actual oxygen flow rate.
- Installed vertically so as to not interfere with the other outlets and should be easily readable from the Doctor's/Paramedic' seat.
- The inlet probe should be fully adaptable to the terminal outlet in the ambulance as well as to the outlet adapter of the portable oxygen cylinder specified below in the list of medical equipment
- The outlet of the flow-meter should be universal in design to accept the humidifier, the flow selector switch or a direct connector
- Should have a humidifier made up of an impact resistant polycarbonate bowl with cap and inlet outlet nipples
- Should include a flow selector switch to bypass the flow of the oxygen through the humidifier and allow nebulization to the patient directly using the flow of the oxygen
- Should be supplied with a direct connector to provide oxygen therapy without humidifier, insufflation kit and nasal prong
- Should be European CE or US FDA certified

## **13. Suction Pump (Manual & Handheld)**

- Portable & Lightweight
- Vacuum (max): 550mmHg.
- Non disposable and autoclavable container of minimum 250 ml connecting jar made out of polycarbonate with overfilling valve.
- Maximum Weight: <1Kg

## **14. Suction Pump (electronic)**

- Electronic Suction device with ambulance mount
- Control knob for continuously adjustable vacuum level up to at least 550 mmHg starting from zero
- Suction capacity of minimum 30 liters per minutes
- Minimum 500ml capacity secretion bottles with efficient over-flow protected
- Ambulance Wall / floor mounted
- Rechargeable Battery with minimum capacity of 30 minutes
- The ambulance wall mount should have built in charger with integrated DC charging module to directly charge the internal batteries of the device from the 12V ambulance batteries as soon as the device is placed on the bracket.
- Should be supplied with Wide – bore tubing, rigid pharyngeal curved suction tip;
- Tonsillar and flexible suction catheters, 5F – 14F
- Should be European CE or US FDA certified

**15. Resuscitation Bag (ambo bag)**

- Should be made of silicon
- Hand operated, self-re-expanding bags (2L, 1L & 500ml sizes) or minimum (1500 ml, 500 ml, 200 ml), with oxygen reservoir/accumulator, clear mask (adult, child, infant and neonate sizes); valve (clear, disposable)
- Working temperature up to 40 degrees.
- To be supplied in proper Carrying case.
- Should be CE or US FDA certified

**16. Mouth to Mask ventilation device**

- Suitable for Adult, Child & Infant/Neonate

**17. Oxygen Cylinder (Portable) with Oxygen Pressure Reducer**

- Should be manufactured as per international and Sudanese standards.
- Max. Working Pressure at 150 C: 150kgf/cm<sup>2</sup>
- Water capacity: min 1L
- Built in / attached with Pressure gauge, regulator and cylinder wrench/key
- Pressure regulator with plug-in type outlet port capable to accommodate the probe of the driving gas hose of ventilator or the inlet probe of the oxygen flow-meter directly in single action without any intermediate connectors or adapters etc.
- Adequate length tubing, mask (adult, child and infant sizes), transparent, non- rebreathing, venturi, and valveless, nasal cannulas (adult, child and infant sizes)

**18. Laryngoscope with blades**

- Stainless steel, Fiber optic laryngoscope consisting of:
- Penlight laryngoscope handle with knurled finish and uses AA batteries.
- Blade with fiber optic for cool light
- Stainless steel blades
- Blade size 1 , miller type
- Blade size 2, miller type
- Blade size 3, Macintosh type
- Blade size 4, Macintosh type
- Should be European CE or US FDA certified

**19. Nebulizer**

- Heavy duty
- Compact, light-weight, low noise.
- Durable long life compressor.
- Max Press=2.0-2.5 bars.
- Should produce particle of size 1-5 micron.
- Air delivery rate approx. 15 L/min.
- Flow control and flow gauge.
- Input power supply: 220/240 volt AC , 50Hz Schuko plug

- **Accessories**
- Air delivery tube
- Dosage cup
- Reusable mask for pediatrics.
- Reusable mask for adults.
- Should be European CE or US FDA certified

#### **20. Stethoscope**

- Dual-head stethoscope
- Y tube treated rubber with 10mm diameter
- Chest-pieces: stainless steel or chrome brass, with  $\Phi 28$  mm diaphragm
- Sensitivity of 3.2 dB in a range from 50 to 500 Hz for cardiology
- Sensitivity of 8.1 dB in a range from 600 to 1500 Hz for pneumology.
- Arm: stainless steel or chrome brass, with spring to give lasting spring and maximum reliability and comfort.
- Removable plastic ear-pieces.
- Included spare ear tips and diaphragm.
- Should be European CE or US FDA certified.

#### **21. Sphygmomanometer (Manual)**

- Aneroid type sphygmomanometer
- Manual, Dial Type
- Manometer with a range from 0 to 300mmHg fine graduation.
- Measurement tolerance below  $\pm 5$ mmHg
- Tubing system  $\emptyset$  approx: 1.5cm.
- A bulb with air releasing valve.
- Durable latex-free cuff for adult and another pediatrics.
- Wall-mountable.

#### **22. Pupillary Torch**

- Spot illumination without peripheral ring of light
- Pen type torch
- 3 volts DC bulb
- 2 AAA batteries.

#### **23. Needle & Syringe Destroyer and Sharp Container (Mechanical)**

- To be securely placed at an appropriate location to allow easy disposal of needles
- Maximum weight 2.5 Kgs
- Motion Tolerant

#### **24. Thermometer (Digital)**

- Battery operated thermometer
- Clinical Digital thermometer
- An audible signal for temperature measurement and
- Digital display of temperature value
- Range of measurement between 32 to 42 °C with an accuracy of  $\pm 0.1$  degree C.
- Auto shut-off

- Designed for oral, rectal, or axillary use
- Automatic self-test

### **25. Pneumatic Splints**

- Set of 6 adult sizes (Hand & wrist, Half arm, Full arm, Foot and ankle, Half leg & Full leg) with carrying case
- X-ray through the splints
- Inflation tubes' extension with closing clamp makes closing easy and quick after inflation
- Fixing of splint is by zipper or belt
- Distal end left open to expose toes
- Should be washable and reusable
- Should be supplied with the appropriate pump required to inflate the splints

### **26. Cervical Collars**

- Rigid and should be suitable for children aged 2 years or older, infant and adults
- Should be adjustable to 4 different sizes- Tall, Regular, Small & No neck
- Should have pre-moulded chin support, locking clips and rear ventilation panel, enlarged trachea opening.
- Should be high-density polyethylene and foam padding with one piece design enabling efficient storage where space is limited
- Should be X-ray lucent and easy to clean and disinfect

### **27. EMT Shears**

- One Nos with Thermoplastic handles.
- Should be capable of cutting a one rupee coin.
- 6" made of SS with one edge round and other edge sharp
- Should be as per CE/FDA/BIS/ISI standards

### **28. Artery Forceps**

- Stainless steel
- Artery Forceps Spencer (Straight) has length of 15cm.
- Artery Forceps spencer (Straight) has length of 22cm

### **29. Dissecting Forceps**

- Stainless Steel
- Adson forceps has length of 12cm.
- Adson forceps has length of 18cm.

### **30. Magill's forceps**

- Stainless steel forceps
- Two sizes 18cm and 22cm.

### **31. Kidney Tray**

- 18/ 8 Stainless Steel.
- 500 ml capacity

### **32. First Aid Kit Bag**

- Resuscitation & First Aid Kit Bag made of Nylon/tougher material having space for Emergency

### **33. Search Light**

- Light Source: Xenon Bulb or LED
- Light Output: minimum 145 lumen
- Construction: Super tough - chemical and heat resistant
- It should be Waterproof
- Portable with Spot beam of around 500 meters.
- Sealed Lead Acid/ NiCd battery operated
- Capacity of 60 minutes with full intensity
- Docking station style charging base which should be wall and vehicle mountable.
- Should be chargeable from 12V DC

### **34. Rescue Equipment**

- Hammer, four pound with 15" handle
- One Axe
- Wrecking Bar, minimum 24-inch (bar and two preceding items can either be separate or combined as a forcible entry tool).
- Crowbar, minimum 48 inches, with pinch point.
- Heavy duty scissors for cutting clothes, belts and boots

### **DRUGS & CONSUMABLES FOR EACH AMBULANCE:**

The bidder must ensure adequate and appropriate storage space to house the drugs and consumables securely during ambulance's day to day run as per international guidelines.