Directorate General Defence Purchase
Ministry of Defence
New Airport Road
Tejgaon, Dhaka-1215
Tel: Mil:5036
Civ: 48111625
E-mail: adp1army1@dgdp.gov.bd

24 Ashwin 1431

06.06.0000.07.214.re-eval.24/P-1/ ARV LT TK

09 October 2024

PROCUREMENT OF ARMOURED RECOVERY VEHICLE FOR LIGHT TANK FOR BANGLADESH ARMY.

Reference:

A. Army Headquarters, General Staff Branch, Armoured Directorate letter number 23.01.901.030.01.011. 02.03.10.24 Dated 07 October 2024 (Not to all).

1. Please be informed that, Bangladesh Army is planning to procure **Armoured Recovery Vehicle Light Tank**. Therefore, you are requested to submit following documents/ information in respect of Armoured Recovery Vehicle Light Tank directly to **Army Headquarters, General Staff Branch, Armoured Directorate, Dhaka Cantonment by 24 October 2024** as following:

a. Provide information as mentioned in Anx A.
b. Catalogue/Brochures (Original in English).
c. Parts Catalogue (Original in English).
d. List of Standard Services Tools and Standard Service Material.
e. Technical/Training/Maintenance/Operational Manual (Original in English).
f. Workshop/Repair Manual (Original of the recommended models).
g. Manufacturers Authorization Certificate to the concerned firm.
h. Proper Authorization from principal of the firm/company to sign the contract.
j. Valid certificate from Original Equipment Manufacturer as authorized agent, Stocking Depot, Maintenance Center or Authorized Dealer.
k. Provision of repair, maintenance and after sale services support from manufacturers.
l. The International reputation of the firm/company/principal/manufacturer and quality of particular equipment/item.
m. Use of the items by their own defence service.
n. Number of clients/ countries using the items/equipment.
p. Previous track records of the manufacturer/supplier (both in Bangladesh and other countries).
q. Yearly production volume.
r. Independent production capability of spares in own factory and degree of maintenance support assurance.
s. Line of maintenance facilities of establishment available in Bangladesh (To what items it may be concerned).
t. For joint venture companies special care to be taken before evaluation/standardization. Percentage of components in their own country and percentage out sourced to be mentioned.
u. Principal/manufacturer whether having both production and assembly line or not.
v. Research and development (R&D), Model validity of the equipment facilities of the company/firm/manufacture.

2. You are also requested to provide enlistment certificate of DGDP along with technical offer. Lack of any information will disqualify the offer.

3. Forwarded for your information and necessary action please.

SHEULY AKTER
Lieutenant Colonel
For Director General

Annex:

A. Preliminary Technical Specification of Armoured Recovery Vehicle for Light Tank - 15 (Fifteen) Pages only.

Distribution:

External:

Action:

(All Concerned Supplier/Firm)

Information:

Army Headquarters, General Staff Branch, Coord

Army Headquarters, General Staff Branch, Weapon Equipment and Statistic Directorate

Army Headquarters, General Staff Branch, Armoured Directorate

Army Headquarters, Master General of the Ordnance Branch, Ordnance Directorate

Army Headquarters, Master General of the Ordnance Branch, Electrical and Mechanical Engineers Directorate

Army Headquarters, Master General of the Ordnance Branch, Inspection and Technical Development Directorate

Inspectorate of Vehicle & Engineering Equipment, Dhaka Cantonment

Internal:

IT Section: Publish in web site.

ANX-A

PRELIM SPEC FOR ARV FOR LT TK

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
PART-1: GENERAL SPECIFICATION OF OPERATIONAL AND FUNCTIONAL CAPABILITY			
1	General Purpose and Description	a. The general purpose of the Armoured Recovery Vehicle (ARV) is to carryout recovery and assist repair in the field	
		b. The size, weight and power of the ARV should allow it to go where a Light Tank VT-5 can go	
		c. All the mechanical system incorporated should preferably be like that of the Light Tank VT-5	
		d. The weapons and armoured are for self defense purpose only	
		e. The ammunition used for ARV should be similar to existing ammunition used by BD Army	
		f. The radio set should be compatible with the existing radios in all respect	
		g. Spare parts should have sustainable sources	
		h. Lub oils and hydraulic oils should be of commercially avail grades	
PART-2: TECHNICAL SPECIFICATION			
2	Name of Armoured Recovery Vehicle (ARV)	Details to be mentioned	
3	Name and detailed contact address of the manufacturer	Details to be mentioned	
4	Name and detailed contact address of the Local agent	Details to be mentioned	
5	Name and detailed contact address of the Principal	Details to be mentioned	
6	Make, Type and Model	Details to be mentioned	
7	Grouping of countries	Group A,B and C	
8	Country of Origin	Group A,B and C	
9	Country of Manufacture	Group A,B and C	
10	Local Fly & Assembly	Group A,B and C	
	General Data		
	a. Combat Weight	33 ± 3 tons	
	b. Crew	To be mentioned	
	c. Ground Pressure (Kg/cm^2)	0.70 ± 0.10Kg/cm^2	
	d. Power to weight ratio (hp/ton)	≥ 25 HP/Ton	
	e. Ground clearance (mm)	≥ 400 mm	
	f. Combat Operational Temperature Range (-°C ~ +°C)	-15° to +55° C	
	g. Track		
	(1) Tread (mm) [Distance between center of two tracks]	Details to be mentioned	
	(2) Length of Track on Ground	Details to be mentioned	
	(3) Track to Track Distance	Details to be mentioned	
	(4) Type of Track Block used	Rubber Padded Steel Track	

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	h. Dimensions		
	(1) Length of ARV (mm)		
	(a) Length of ARV (without Dozing Spade/Blade)	Details to be mentioned	
	(b) Length of ARV (with Dozing Spade/Blade)	Details to be mentioned	
	(2) Height of ARV (mm)		
	(a) Height of ARV without AAMG	Details to be mentioned	
	(b) With AAMG at maximum elevation	Details to be mentioned	
	(3) Width of ARV (mm)		
	(a) Width of ARV without Side Skirt	Details to be mentioned	
	(b) Width of ARV with Side Skirt	Details to be mentioned	
12.	Type of Tank to be recovered	Should be Capable of conducting Recovery Operation (Towing, Pulling, Lifting etc) for Light Tank VT-5	
13.	Power Pack (Engine)		
	a. Make and Model	Details to be mentioned	
	b. Type	Details to be mentioned	
	c. Country of Origin	Group A,B and C	
	d. Name of the manufacturer	Group A,B and C	
	e. Country of Assembly	Group A,B and C	
	f. Maximum rated Power with RPM (hp at rated RPM)	Details to be mentioned	
	g. Maximum Torque with RPM (N.m at rated RPM)	Details to be mentioned	
	h. Number of Cylinder	Details to be mentioned	
	j. Compression Ratio	Details to be mentioned	
	k. Bore, Stroke	Details to be mentioned	
	l. Piston Displacement	Details to be mentioned	
	m Turbocharger/ Supercharger (if applicable)	Details to be mentioned	
	n. Engine Life (Minimum Motor Hours before 1st Overhaul)	≥ 10000 Km / 1000 motor hours	
	p. Engine basic starting system	Details to be mentioned	
	q. Number of means available to start the engine	Details to be mentioned	
	r. Fuel used by Engine/ Power Pack	Diesel	
	s. Engine test bench report	During inspection Engine Test Bench report (for each model) which was prepared by manufacturer during production of engine at manufacturing factory must be produced and submitted to the PSI team for each model (duly signed and stamped by the manufacturer). Other engines (mentioning engine number) of the same model will be certified confirming the engine Test Bench Report by the manufacturer (duly signed and stamped)	
14.	Auxiliary Power Unit (APU) (Optional)		
	a. Brand and Model	To be mentioned	
	b. Type of APU used on ARV	Details to be mentioned	
	c. Country of Origin and Manufacture	Details to be mentioned	

	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	e Name of Manufacturer with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
	e Year of Manufacture	Not earlier than the contracted year	
	f Fuel type, delivery and supply system of APU	Diesel Details to be mentioned	
	g Maximum power output of APU	Details to be mentioned	
	h Location of APU on ARV	Details to be mentioned	
	j Functions of APU	Details to be mentioned	
	k Type of armour protection available for APU	Details to be mentioned	
15	Cooling System		
	a Type of Cooling System	Liquid/ Water Cooled	
	b Total capacity of coolants/ water in the radiator (Liters)	Details to be mentioned	
16	Lubrication System		
	a Total capacity of lubricant in the System (Liters)	Details to be mentioned	
	b Operating pressure in Lub System (kg/cm^2)	Details to be mentioned	
	c Type of Lubricant	Common commercial grade Grade to be mentioned	
	d Total capacity of lubricant in the Spare Tanks (Liters)	Details to be mentioned	
17	Pneumatic System		
	a Operating pressure required on Pneumatic System (kg/cm^2)	Details to be mentioned	
18	Hydraulic system		
	a Total capacity of hydraulic oil in the tank (liters)	Details to be mentioned	
	b Type of Hydraulic Oil	Common commercial grade Grade to be mentioned	
	c Country of origin	Group A,B and C	
	d Country of Manufacture	Group A,B and C	
	e Country of Assembly	Group A,B and C	
19	Steering System	Details to be mentioned	
20	Electric System		
	a Type, total number, voltage, amp-hour (AH) of batteries	Details to be mentioned	
	c Type and number of generator/ alternator used	Details to be mentioned	
	d Electrical operating power	Details to be mentioned	
21	Running Gears		
	a Suspension	(1) Hydro-pneumatic/ Any other better system (2) Details to be mentioned	
	b Track Propelling System	Details to be mentioned	
	(1) Type and numbers of Road Wheel	Details to be mentioned	
	(2) Track Block/ Link/ Shoe (Steel track block having provision of fitting rubber pad) The ARV track to be supplied with rubber pad		
	(a) Type of Track Block used	Details to be mentioned	
	(b) Dimension (Length & Width) (mm)	Details to be mentioned	

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled by Manufacturer
	(c) Weight of each Track Block (kg)	Details to be mentioned	
	(d) Total weight of each Track (kg)	Details to be mentioned	
	(e) Total numbers of Track Block on each track	Details to be mentioned	
22.	Braking System (Preferably hydraulic assisted mech brake)	Details to be mentioned	
23.	Final Drive	Details to be mentioned	
	a Country of origin	Group A,B and C	
	b Country of Manufacture	Group A,B and C	
	c Country of Assembly	Group A,B and C	
24	Transmission System		
	a Main Gear Box		
	(1) Type/Model of Gear Box	Details to be mentioned	
	(2) Number of Gears		
	(a) Number of Forward Gear	Details to be mentioned	
	(b) Number of Reverse Gear	Details to be mentioned	
	(3) Gear Ratio at various gears	Details to be mentioned	
	(4) Speed at various gears (km/hour)	Details to be mentioned	
	(5) Gear Control Mechanism (Preferable Hydraulically Assisted Mechanical Control)	Details to be mentioned	
	b Speedup/ Connecting/ Transmission Gear Box (If applicable)	Details to be mentioned	
	c Master Clutch (If applicable)		
	(1) Master Clutch Control Mechanism	Details to be mentioned	
	d PSM/ Equivalent Steering Mechanism	Details to be mentioned	
	e Country of Manufacture	Group A,B and C	
	f Country of Origin	Group A,B and C	
	g Country of Assembly	Group A,B and C	
25	Operational Data		
	a Average Speed (km/h)		
	(1) On high way (Minimum 40 km/h)	Minimum 40 km/h	
	(2) On cross country road (Minimum 35 km/h)	Minimum 35 km/h	
	b Maximum Speed (km/h)		
	(1) Maximum speed on high way (Minimum 70 km/h)	Minimum 70 km/h	
	(2) Maximum speed on country road (Minimum 60 km/h)	Minimum 60 km/h	
	c Fuel (Liters)		
	(1) Total fuel capacity on Tank	Details to be mentioned	
	(2) Fuel capacity of external/ drop out tanks	Details to be mentioned	
	(3) Fuel Consumption per km Run (Liters)		
	(a) On high way	Details to be mentioned	
	(b) On cross country	Details to be mentioned	
	d Cruising Range (km))		
	(1) On high way	500 ± 50 km	
	(2) On country road	400 ± 50 km	
	e Oil Consumption per 100 km Run (Liters)		
	(1) On high way	Details to be mentioned	

	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	(2) On country road	Details to be mentioned	
f	Fuel (Liters)		
	(1) Total fuel capacity on ARV	Details to be mentioned	
	(2) External/ drop out fuel tank capacity (if available)	Details to be mentioned	
	(3) Fuel Consumption per 100 km Run (Liters/ Hour)		
	(a) On high way	Details to be mentioned	
	(b) On Country Road	Details to be mentioned	
g	Oil Consumption per 100 km Run (Liters/ Hour)		
	(1) On high way	Details to be mentioned	
	(2) On country road	Details to be mentioned	
h	Obstacle Negotiation		
	(1) Maximum Grade Ascending Ability (Degree)	≥ 32°	
	(2) Maximum Side slope ARV can drive (Degree)	≥ 22°	
	(3) Width of Trench ARV will Cross (mm)	≥ 2200 mm	
	(4) Vertical Obstacle ARV will Climb (Escarpment) (mm)	≥ 800 mm	
	(5) Vertical Obstacle ARV will Decent (Counter- Escarpment)	≥ 800 mm	
	(6) Fording depth without preparation (mm)	≥ 1.2 Meters	
j	Deep Fording (Submerging)- Optional		
	(1) Minimum preparation time required (minutes)	Details to be mentioned	
	(2) Maximum depth the ARV can submerge	Minimum 5 meters	
	(3) Maximum distance the ARV can cross while on deep fording	Details to be mentioned	
26	Armour Protection		
a	Country of Origin	Group A,B and C	
b	Country of Manufacture	Group A,B and C	
c	Country of Assembly	Group A,B and C	
d	Side Skirt	Details to be mentioned	
e	Type of Armour used on ARV	Type, Composition and Details to be mentioned	
f	Armour Thickness and type of ammo can be protected/ protection level		
	(1) Hull		
	(a) Nose Armour (mm)	Thickness (mm) and type of ammo which can be protected/protection level to be mentioned	
	(b) Stern Armour (mm)	Thickness (mm) and type of ammo which can be protected/protection level to be mentioned	
	(c) Side Armour (mm)	Thickness (mm) and type of ammo which can be protected/protection level to be mentioned	
	(d) Hull Top and Bottom Armour (mm)	Thickness (mm) and type of ammo which can be protected/protection level to be mentioned	
	(2) Side Skirt		
	(a) Thickness of Side Skirt (mm)	Type, Composition and Details to be mentioned	
	(3) Armour Thickness of Repair and Recovery	Thickness (mm) and type of ammo which can be protected/protection level to be mentioned	

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
27.	Main Armament		
	a. 12.7 mm AAMG (Warsaw Version)		
	(1) Caliber	12.7 mm	
	(2) Type and Model	Details to be mentioned	
	(3) Country of Origin	Group A,B and C	
	(4) Name of Manufacturer	Group A,B and C	
	(5) Weapon Operating System	Details to be mentioned	
	(6) Loading System	Details to be mentioned	
	(7) Combat Rate of Fire (Rounds/ Minute)	Minimum 60 rounds/minute	
	(8) Maximum Rate of Fire (Rounds/ Minute)	500 ± 100 rounds/minute	
	(9) Effective range against Air Target (m)	≥ 1500 m	
	(10) Effective range against Ground Target (m)	≥ 1500 m	
	(11) Maximum Muzzle Velocity (m/ sec²)	Details to be mentioned	
	(12) Chamber Pressure	To be mentioned	
	(13) Maximum Elevation (Degree)	Details to be mentioned	
	(14) Maximum Depression (Degree)	Details to be mentioned	
	(15) Maximum Traverse (Degree)	Details to be mentioned	
	(16) Barrel Life (Rounds can be fired through each barrel)	Details to be mentioned	
	(17) Weapon Firing System	Details to be mentioned	
	(18) Number of spare barrel available for each weapon	Minimum 01 spare barrel is required for each weapon	
	(19) Country of Assembly (if Different than coutry of Origin	To be mentioned	
	(20) Name, Address, Contract Number, Website/e-Mail Address of the Manufacturer	Details to be mentioned	
	(21) Name, Address, Contract Number, Website/e-mail Address of the Principal	Details to be mentioned	
	(22) Name, Address, Contract Number, Website/e-mail Address of the Local Agent	Details to be mentioned	
	(23) Year of Manufacture	Not Before the contracted Year	
	(24) Ammunition feed System	Details to be mentioned	
	(25) Maximum Allwable Chamber Pressure	To be mentioned	
	(8) Number of Crew	To be mentioned	
	(26) Sustained Rate of Fire (Rounds per Minute) (Firing for a prlong period in operational situation)	To be mentioned	
	(27) Rifing	Number of lands and groves to be mentioned	
	(28) Overall Length in Ground Role	To be mentioned	
	(29) Overall Length in Anti - Aircraft Role	To be mentioned	
	(30) Overall width in Ground Role	To be mentioned	
	(31) Overall width in Anti -Aircraft Role	To be mentioned	
	(32) Weight of Gun Body	To be mentioned	
	(33) Weight of Gun Mount	To be mentioned	
	(34) Total Weight (Complete)	To be mentioned	
	(35) Weight of Empty Magazine/Box	To be mentioned	
	(36) Weight of Magazine/Box with Standard Ammunition	To be mentioned	
	(37) Length of Barrel (mm)	To be mentioned	
	b. Additional Armaments on ARV (if applicable)	Details to be mentioned	
	c. Ammunition		

	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	(1) 12.7 mm AAMG		
	(a) Dimension of the ammunition	12.7 x 107 mm / 12.7 x 108 mm	
	(b) Total ammunitions per magazine/ box	Details to be mentioned	
	(c) Total ammunitions stowed on ARV with number of boxes	Details to be mentioned	
	(d) Ammunition Feed System	Details to be mentioned	
	(e) Name of ammunition (API or API/T)	To be mentioned	
	(f) Type of ammunition to be fired	To be mentioned	
	(g) Length of the cartridge case	To be mentioned	
	(h) Material of the cartridge case	To be mentioned	
	(j) Maximum range	To be mentioned	
	(k) Effective range	To be mentioned	
	(L) Penitration Capability		
	(i) Type and grade of armour plate	To be mentioned	
	(ii) Thickness of Armour plate	To be mentioned	
	(iii) Angle of armour impact	To be mentioned	
	(m) Chamber pressure of the ammunition	To be mentioned	
	(n) Velocity of the ammunition	To be mentioned	
	(p) Magazine/Box capacity	To be mentioned	
	(q) Number of magazine and link belt	To be mentioned	
	(r) Loading system	To be mentioned	
	(2) Other Types of Ammunition (if applicable)	Details to be mentioned	
28	Repair & Recovery Capabilities		
a	Towing Capabilities in Land		
	(1) Maximum Towing Capability	Minimum 35 Ton	
	(2) Maximum towing Speed	Details to be mentioned	
	(3) Maximum towing Range	Details to be mentioned	
	(4) Maximum towing Load	Details to be mentioned	
b	Main Winch Capability		
	(1) Max Pulling/ traction Force (Ton)		
	(a) Single rope without Pulley Block (Ton)	Minimum 35 Ton	
	(b) With Pulley Block (Ton)	≥ 70 Ton	
	(c) Number of Pullies	Min 2	
	(d) Maximum available length of Drag Rope on Winch (m)	To be mentioned	
	(e) Maximum operational/ usable length of Drag Rope (m)	To be mentioned	
	(f) Dia of steel rope (mm)	Minimum 30 mm	
	(g) Rope winding and unwinding speed at max traction Force (m/min)	Details to be mentioned	
	(h) Drive (Hydrostatic/ Mechanical)	Details to be mentioned	
	(j) Maximum Support Force (Ton)	Details to be mentioned	
	(k) Maximum distance between ARV and the load	Details to be mentioned	

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled by Manufacturer
	during winch op with max number of pulley		
	(l) Country of origin and assembly of main winch	Group A,B and C	
c.	**Auxiliary Winch Capability**		
	(1) Maximum Pulling/ Traction Force of Auxiliary Winch (Ton)	Minimum 3 ton	
	(2) Maximum available length of Drag Rope on Auxiliary Winch (m)	Details to be mentioned	
	(3) Maximum operational/ usable length of Drag Rope (m)	Details to be mentioned	
	(4) Drive (Mechanical/ Hydrostatic)	Details to be mentioned	
	(5) Country of origin and assembly of Auxiliary winch	Group A,B and C	
	(6) Dia of steel rope (mm)	To be mentioned	
d.	**Earth Dozing Capability**		
	(1) Width of ARV Dozer Blade (mm)	Details to be mentioned	
	(2) Maximum Bite/ sink of Dozer Blade (mm)	Minimum 80 mm	
	(3) ARV Dozer Blade operation (Mechanical/Hydraulic)	Details to be mentioned	
	(4) Earth Dozing/ Moving capability (m^3/ Hr)	Minimum 100 m^3/h	
e.	**Anchor/Spade**		
	(1) Force	80 ton	
	(2) Deployment Mechanism	Hydraulic	
f.	**Lifting Crane**		
	(1) Type of Crane used on ARV(Mechanical/ Hydraulic)	Details to be mentioned	
	(2) Operational Hoisting/ Lifting method of Boom (Mechanical/ Hydraulic)	Details to be mentioned	
	(3) Maximum Lifting Load Capacity (kg)	Minimum 10 Ton	
	(4) Traverse Radius (at max lifting load) (m)	Details to be mentioned	
	(5) Boom Traversing Angle (Degree)	Details to be mentioned	
	(6) Make and Model	Details to be mentioned	
	(7) **Boom Length**(m)		
	(a) Maximum Length (m)	Details to be mentioned	
	(b) Minimum Length (m)	Details to be mentioned	
	(8) Crane Traversing speed (r/m)	Details to be mentioned	
	(9) Maximum crane hook lowering and hoisting speed (m/min)	Details to be mentioned	
	(10) Maximum Lifting Height (m) with maximum load	Details to be mentioned ≥VT5 height (≥2525mm)	
	(11) Country of Origin	Group A,B and C	
	(12) Country of Manufacture	Group A,B and C	
	(13) Country of Assembly	Group A,B and C	
g.	**Load Platform Capability**		
	(1) Maximum loading area/ Piggyback space available on ARV	Details to be mentioned	
	(2) Maximum additional load carrying capacity on ARV (kg)	Details to be mentioned	
h.	**Welding & Cutting Operation**		
	(1) Type	Details to be mentioned	

Sl	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	(2) Electrical Welding and Cutting Operational Power (Volt)	Details to be mentioned	
	(3) Electrical Welding and Cutting Operational Current (A)	Details to be mentioned	
	(4) GAS Welding and Cutting capability (Optional)	Details to be mentioned	
	(5) Max Welding & Cutting operational radius from ARV (m)	Details to be mentioned	
	(6) Maximum Electrode Diameter (mm)	Details to be mentioned	
	(7) Welding & cutting capability using APU of ARV	Details to be mentioned	
	(8) Detail data regarding sources and duration of the power supply for such operations (for both electrical & gas welding/ Cutting operations) or possible by APU welding	Details to be mentioned	
29.	Repair Tools & Accessories	Details to be mentioned	
30.	Electric Impact Wrench (Optional)	Details to be mentioned	
31	**Protection System**		
	a **Smoke Grenade/ Shrapnel Launcher**		
	(1) Number of Launcher with total Smoke Grenades/ Shrapnel available on ARV	Details to be mentioned	
	(2) Base firing	To be mentioned	
	(3) Warsaw Type (Base firing)	To be mentioned	
	(4) Type of smoke grenade/ Shrapnel shell used	Details to be mentioned	
	(5) Caliber of Smoke Grenade/ Shrapnel Shell (mm)	Details to be mentioned	
	(6) Maximum effective range of smoke grenade/ Shrapnel (m)	Details to be mentioned	
	(7) Effective area of the grenade	Details to be mentioned	
	(8) Firing system of smoke grenade/ Shrapnel launcher	Details to be mentioned	
	(9) Location of smoke grenade/shrapnel launcher	To be mentioned	
	b **Thermal Smoke Screen Generation** (Through Exhaust Manifold)		
	(1) Rate of diesel discharged on exhaust/ minute (L/min)	Details to be mentioned	
	c **Auto Fire Extinguishing & Suppression System**		
	(1) Number of fire extinguisher bottles with location	Details to be mentioned	
	(2) Mode of fire extinguishing Operation (Automatic with manual options)	Details to be mentioned	
	(3) Number of sensors available on ARV	Details to be mentioned	
	(4) Minimum time require to initiate fire suppression operation	Details to be mentioned	
	d NBC Protection & Decontamination System	Details to be mentioned	
32	**Observation Device**		
	a. **Day Observation Devices (For ARV Commander)**		
	(1) Generation	Minimum 3rd Gen or better	
	(2) Quantity	To be mentioned	

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	(3) Country of Origin	Group A,B and C	
	(4) Country of Manufacture and Assembly	G Group A,B and C	
	(5) Year of Manufacture	Not earlier than the contracted year	
	(6) Name and address of the Manufacture	Details to be mentioned	
	(7) Type and Model	To be mentioned	
	(8) Field of view (Degree at narrow and wide angle)	Details to be mentioned	
	(9) Magnification	Details to be mentioned	
	(10) Minimum Visibility Range	Details to be mentioned	
	(11) Maximum Visibility Range	Details to be mentioned	
	(12) Power Source (If available)	Details to be mentioned	
	(13) Color	To be mentioned	
	b. **Day Observation Devices (For ARV Driver)**		
	(1) Type and Model	To be mentioned	
	(2) Generation	Minimum 3rd Gen or better	
	(3) Quantity	To be mentioned	
	(4) Country of Origin	Group A,B and C	
	(5) Country of Manufacture and Assembly	G Group A,B and C	
	(6) Year of Manufacture	Not earlier than the contracted year	
	(7) Field of view (Degree at narrow and wide angle)	Details to be mentioned	
	(8) Name and address of the Manufacture	Details to be mentioned	
	(9) Magnification	Details to be mentioned	
	(10) Minimum Visibility Range	Details to be mentioned	
	(11) Maximum Visibility Range	Details to be mentioned	
	(12) Power Source (If available)	Details to be mentioned	
	(13) Color	To be mentioned	
	c. **Night Viewing Devices (For ARV Commander)**		
	(1) Type and Model	To be mentioned	
	(2) Generation	Minimum 3rd Gen or better	
	(3) Quantity	To be mentioned	
	(4) Country of Origin	Group A,B and C	
	(5) Country of Manufacture and Assembly	Group A,B and C	
	(6) Year of Manufacture	Not earlier than the contracted year	
	(7) Field of view (Degree at narrow and wide angle)	Details to be mentioned	
	(8) Magnification	Details to be mentioned	
	(9) Minimum and Maximum Viewing Range at Dark Night (m)	Following parameters about static and moving target. a. Type of target and size to be mentioned. b. Detection range to be mentioned.	

	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
		c. Identification range to be mentioned.	
	(10) Minimum and Maximum Viewing Range at Moonlight (m)	Following parameters about static and moving target. a. Type of target and size to be mentioned. b. Detection range to be mentioned. c. Identification range to be mentioned.	
	(11) Minimum and Maximum Viewing Range at star light (m)	Following parameters about static and moving target. a. Type of target and size to be mentioned. b. Detection range to be mentioned. c. Identification range to be mentioned.	
	(12) Power Source	Details to be mentioned	
	(13) Additional Passive night viewing devices (if available)	Details to be mentioned	
	(14) In excessive bad weather condition (rain, fog, haze, etc) operator can still see the object	To be available	
	(15) The sys is eye safe as per NATO or equivalent standard	To be available	
d	Night Viewing Devices (For ARV Driver)		
	(1) Type and model	To be mentioned	
	(2) Generation	Minimum 3rd Gen or better	
	(3) Quantity	To be mentioned	
	(4) Country of Origin	Group A,B and C	
	(5) Country of Manufacture and Assembly	Group A,B and C	
	(6) Year of Manufacture	Not earlier than the contracted year	
	(7) Field of view (Degree at narrow and wide angle)	Details to be mentioned	
	(8) Magnification	Details to be mentioned	
	(9) Minimum and Maximum Viewing Range at Dark Night (m)	Following parameters about static and moving target. a. Type of target and size to be mentioned. b. Detection range to be mentioned. c. Identification range to be mentioned.	
	(10) Minimum and Maximum Viewing Range at Moonlit and Clear Night (m)	Following parameters about static and moving target. a. Type of target and size to be mentioned. b. Detection range to be mentioned. c. Identification range to be mentioned.	
	(11) Minimum and Maximum Viewing Range at star light (m)	Following parameters about static and moving target. a. Type of target and size to be mentioned. b. Detection range to be mentioned. c. Identification range to be mentioned.	
	(12) Power Source	Details to be mentioned	
	(13) Additional Passive night viewing devices (if available)	Details to be mentioned	
	(14) In excessive bad weather condition (rain, fog, haze, etc) operator can still see the object	To be available	
	(15) The sys is eye safe as per NATO or equivalent standard	To be available	
e	Operating/Stowage Condition (For FCI		

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled by Manufacturer
	Eqpt)		
	(1) Operating Temperature Range	-20° to +55° C	
	(2) Storage Temperature Range	-20° to +55° C	
	(3) Humidity Permissible Condition for Operation	95%	
	(4) Operation during fog, rain, and snow	To be possible	
33	Communication System	All ARVs are to have VHF Radio sets. Any standard VHF (Base & Veh) version may be proposed which is compatible to Radio set CB6 pro VHF. **If it is not Std model or not used in BD Army then** Minimum 3 Radio sets will undergo test and trial at Bangladesh for testing its minimum & maximum communication range at Bangladesh test condition before minimum 6 months prior to delivery of ARV in Bangladesh	
	a VHF Radio Set		
	b General Description	(Must be a robust original IC based modular digital ARV VHF Radio set which is compatible to Radio set CB6 pro VHF)	
	(1) Type	Details to be mentioned	
	(2) Brand and Model	Details to be mentioned	
	(3) Country of Origin and Manufacture	Group A,B and C	
	(4) Name of Manufacturer with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
	(5) Year of Manufacture	Not earlier than the contracted year	
	(6) Frequency Range	Within 30 ~ 88 Mhz Above 88 MHz is also allowed	
	(7) Total numbers of Channels available	Details to be mentioned	
	(8) Channel Spacing	To be compatible with Radio set CB6 pro VHF. Details to be mentioned	
	(9) No of Pre-set memory channel	Details to be mentioned	
	(10) Operating Power Input	Details to be mentioned	
	(11) Power Output (Watt)	Details to be mentioned	
	(12) Receiver sensitivity	Details to be mentioned	
	(13) Power Consumption (Watt)		
	(a) At Transmission Mode	Details to be mentioned	
	(b) At Reception Mode	Details to be mentioned	
	(14) RF Shielding and Filter	Details to be mentioned	
	(15) Communication Access	For ARV Commander, Driver & Operator	
	(16) Maximum Communication Range (Km)		
	(a) Static to Static position	≥ 15 km	
	(b) On Move	≥ 10 km	
	(17) Type of Radio Set Mounting	Must have robust shock absorbing mounting	
	(18) Radio Antenna (Flexible Original Tank VHF Radio Antenna)		
	(a) Rod Antenna (m)	Details to be mentioned	
	(b) Emergency Auxiliary Antenna (if applicable)	Details to be mentioned	
	(c) Number of Segments on	Details to be mentioned	

	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	Antenna		
	(19) Mil Standard	Std 810 E/F/G or above	
	(20) SMS and Data Facility	Minimum 16 kbps Data and SMS facility to be available	
	(21) BITE	Should be available	
	(22) **Security features available in the set**		
	(a) Standard Encryption	Details to be mentioned	
	(b) Frequency Hopping	Details to be mentioned	
	(c) Other Types of Security (Optional)	Any other types of communication Security (if available) are to be mentioned	
	(23) Required Software	To be available	
	(24) Environmental Standard		
	(a) Shock and Vibration Proof	As per Military Standard 810 E/F/G	
	(b) Dust Proof	As per Military Standard 810 E/F/G	
	(c) Operating temperature	(-) 10° to +55° C	
	(d) Storage temperature	(-) 20° to +60° C	
	(25) Weight with operation condition	Details to be mentioned	
	(26) IP Facility (Optional Feature)	Details to be mentioned	
	(27) Power Supply System	a. To be operated from 12/24V vehicle power source (preferable)	
		b. DC rechargeable and replaceable battery may be proposed. Detail of brand, model, country of manufacture and battery rating are to be mentioned	
		c. The battery should have charging facility from vehicle systems (preferable)	
		d. For BD Army Standardized Radio Sets, the manufacturer will ensure smooth integration of the complete Radio set to the ARV system.	
	(28) List of standard accessories	Details to be mentioned	
	(29) List of optional accessories (if required)	Details to be mentioned	
c	Intercom	Must be a robust original IC based digital tank Intercom Set.	
	(1) Type	Details to be mentioned (Digital is preferable)	
	(2) Brand and Model	Details to be mentioned	
	(3) Country of Origin and Manufacture	Details to be mentioned	
	(4) Year of Manufacture	Not earlier than the contracted year	
	(5) Provisions	All Crews	
	(6) Communication Connectivity	All Crews simultaneously with min ARV Commander & Gunner's access to all Radio sets	
34	Special Equipment (Any special equipment that has not been mentioned above)	Details to be mentioned	
35	Miscellaneous		
	a ARV Onboard Fitted Items	Details list of all onboard default fitted items to be mentioned	
	b. Painting	Options of available different types of camouflaged painting diagram/ pictures to be provided	
	c Remote Control system for winch/recovery operation (Optional)	01 x remote control sys with quick release cable per ARV. Details to be mentioned.	

Ser	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	d. 12.7 mm AAMG Calibrating/ Bore Sighting Telescope		
	(1) Quantity	01 Telescope for each ARV	
	(2) Model	To be mentioned	
	(3) Brand	To be mentioned	
	(4) Country of Origin and Manufacture	Details to be mentioned	
	(5) Year of Manufacture	Not earlier than the contracted year	
	(6) Provisions	All Crews	
	(7) Manual	To be provided	
	(8) List of all accessories	To be provided	
	e. 12.7 mm AAMG Ammunition Belt Mechanical Loader/ Feeder	01 Belt Feeder for each ARV. Details list to be mentioned	
	f. Refueling/ De-fueling Pump	01 Pump per ARV	
	g. Electric Portable Drill Machine	01 per ARV	
	h. Portable Grinder	01 per ARV	
	j. Any software, if used for any system in the ARV	Details to be mentioned	
	k. Any Navigation System (If available)	Details to be mentioned Model, Brand, Country of Origin and manufacture to be mentioned Manual and list of all accessories to be provided	
36	Special Items/ Equipment (Provisions of all special items/equipment those can be fitted on ARV to be mentioned)	Details to be mentioned	
37	All equipment's, components, radio sets and weapon system, all sights etc of ARV will be Brand New and will be manufactured not before the year of contract	Manufacturer will provide guarantee certificate on that	
38	All components should be able to withstand minimum 95% humidity or above typical to Bangladesh weather	Manufacturer will provide guarantee certificate on that	
39	All components i.e. panel boards, gauges, instruments etc marking and display reading should be in English Language	To be confirmed by the Manufacturer	
PART-3: TRAINING REQUIREMENT			
40	**Training**		
	a. **Training Abroad** (ARV Manufacturing Plant Abroad before delivery of ARV)		
	(1) Users' Training. (Armour Corps)	Consolidated detailed training requirements will be provided separately during the tender bid	
	(2) Repair and Maintenance Experts' Training (EME Corps)	Consolidated detailed training requirements will be provided separately during the tender bid	
	b. **Training in Bangladesh** (At Respective Training Institution/ Workshop after delivery of the 1st Batch of ARVs to BD)		
	(1) Users' Training. (Armour Corps)	Consolidated detailed training requirements will be provided separately during the tender bid	
	(2) Repair and Maintenance Experts' Training. (EME Corps)	Consolidated detailed training requirements will be provided separately during the tender bid	
	(3) Training on SST Special	Consolidated detailed training	

	Description	Proposed Prelim Spec of ARV for LT Tk	To be filled up by Manufacturer
	Testing equipment, performing testing equipment, fault finding & rectification gadgets. (EME Corps)	requirements will be provided separately during the tender bid	
	(4) Inventory Con and Management Experts' Training (Ordnance Corps)	Consolidated detailed training requirements will be provided separately during the tender bid	
	c Training for FCI and Communication Sys (ITD Dte)	Consolidated detailed training requirements will be provided separately during the tender bid	
PART- 4: REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES			
41	ARV Accessories, Spares and Tools		
	a ARV Tools Box (Fitted on ARV)	ARV integral all essential tools to be fitted (Detailed list of items to be mentioned by the Supplier)	
	b ARV Spares Tools and Accessories	01 x complete set per ARV to be provided by the supplier (Detail list of items to be mentioned by the Supplier)	
42	Manuals/ Publications (All manuals/ publications to be written in English Language)		
	a Operational Manuals for all systems	01 x set per ARV + as per the demand of Armour and EME Directorates of AHQ	
	b Maintenance and Repair Manuals for all systems	As per the demand of Armour and EME Directorates of AHQ	
	c 100% Master Spare Parts Catalogue (Parts Catalogue)	As per demand of EME Directorates of AHQ	
PART- 5: LIST OF SPARES			
43	Provision of 10% Fast Moving Spare Parts and 5% Slow Moving Spare Parts	As per the demand of EME Directorates of AHQ	
PART- 6: TOOLS LIST FOR DIFFERENT LEVEL OF MAINTENANCE			
44	Special Parts, Tools and Accessories (SPTA)		
	a Special Service Tools (SST)	Details list to be provided by supplier	
	b Special Service Materials (SSM)	Details list to be provided by supplier	
PART- 7: FINANCIAL SPECIFICATIONS			
45	Financial SpecificationsS	To be provided during tender submission	
46	After sell Service Support/ Spare Parts	Minimum 20 Years	
47	Model Validity	Minimum 20 Years	