

DRAFT QRs & TDs FOR HYDRAULIC LADDER MOUNTED VEHICLE

Ser No	Specifications	Parameters	Trial Directives
1.	Introduction	The entire system will comprise of heavy duty hydraulic operated ramp system mounted on a compatible high mobility & maneuverability host vehicle used during specialized intervention operations.	To be physically checked by the BOO.
<u>Specifications of Base Vehicle</u>			
2.	Design	Monocoque	OEM to provide certificate and the same to be physically checked by the BOO.
3.	Weight	Weight of the vehicle along with the ramp system should not exceed 7 tons.	OEM to provide certificate and the same to be physically checked by the BOO.
4.	Payload Capacity	Minimum 3 tons.	OEM to provide certificate and the same to be physically checked by the BOO.
5.	<u>Physical Dimensions</u> (a) Wheelbase (b) Overall Length (c) Overall Width (d) Overall Height (e) Internal Volume (f) Max Speed (g) Air Transportation	Not more than 4.5 mtrs. Not more than 6 mtrs. Not more than 3 mtrs. Not more than 2.5 mtrs. Minimum 3.5 m ³ . Maximum Speed upto 110 kms/hr. Vehicle should be transportable in C 130J Super Hercules.	To be physically checked by the BOO. -do- -do- -do- -do- -do- OEM to provide certificate and the same will be physically checked by the BOO.
6.	<u>Other Operational Specifications</u> (a) Transmission (b) Steering	6 speed all wheel transmission. Power assisted steering wheel.	To be demonstrated by the OEM and the same to be physically checked by the BOO. -do-

	(c) Turning Radius (d) Seating	Not to exceed 9 mtrs. (h) Total seating for 6 fully equipped personnel (including co driver/commander). (ii) Driver and co driver/commander bucket seats with 3 point seat belts. (iii) 5 crew jump seats with 3 point seat belt harness in the body of the vehicle. (iv) Crew seating should allow the entire crew for comfortable viewing, monitoring and firing through firing ports. (iv) All interior upholstery to be heavy duty waterproof vinyl.	-do- -do-
	(e) Gun Ports	6 spring loaded swing type gun ports (2 on driver, commander side and 4 for the rear crew).	-do-
7.	<u>Armor</u> (a) Opaque Armor	(i) 4 sided armoring of vehicle. (ii) All vertical areas to have double layer armoring. (iii) Roof to have single layer armoring. (iv) Floor should be mix of armor and mild steel with protection against fragmentation grenades. (v) Engine compartment to be suitably armored with air vent louvers to ensure ventilation. (vi) All armoring should be NIJ Level	For points (i) to (iv) and point (vi) OEM to provide certificate from National/International/NABL certified lab and the same to be physically checked by the BOO. Additionally for point (vi) fire 5 rounds of 7.62 x 51 mm from a range of 10 meters on to the armor plate and BOO to check that the rounds have not penetrated the armor. Firer, weapon and ammunition to be provided

	(b) Transparent Armor	<p>III compliant.</p> <p>(i) Windshield and glass paneling on driver and commander side.</p> <p>(ii) All glass to have anti spall shield for protection against shattering.</p> <p>(iii) All armoring should be NIJ Level III compliant.</p>	<p>by the OEM.</p> <p>For points (i) to (iii) OEM to provide certificate from National/International/NABL certified lab and the same to be physically checked by the BOO.</p> <p>Additionally for point (iii) fire 5 rounds of 7.62 x 51 mm from a range of 10 meters on to the armor plate and BOO to check that the rounds have not penetrated the armor.</p>
8.	Doors & Turret	<p>(i) 2 front doors on either side of driver and co driver/commander.</p> <p>(ii) 2 rear doors on either side.</p> <p>(iii) 1 Rear top opening door.</p> <p>(iv) All hinges to be heavy duty type to sustain functioning of heavy armored doors.</p> <p>(v) All doors to be equipped with robust interior grab handles to assist in operating the door.</p> <p>(vi) 1 roof mounted turret (co driver/commander side) with ballistic steel overlap (NIJ Level III).</p>	<p>For points (i) to (iii), (v) and (vi) to be physically checked by the BOO.</p> <p>For point (iv) OEM to demonstrate and the same to be physically checked by the BOO.</p> <p>For point (vi) additionally OEM provide certificate from National/International/NABL certified lab and the same to be physically checked by the BOO.</p>
9.	Tyres	<p>(i) All wheels including the spare wheel to be equipped with run flat devices.</p> <p>(ii) All rims including spare wheel to be capable of carrying the entire weight of the vehicle including the ramp system.</p>	<p>OEM provide certificate from National/International/NABL certified lab and the same to be physically checked by the BOO.</p>

10.	Drive and Maneuverability	<p>(i) Host vehicle should be capable of stable and quick maneuverability (min 60 km/hr) with the hydraulic ramp installed.</p> <p>(ii) Both front and rear axles of the vehicle to be suitably reinforced for carrying higher weight.</p> <p>(iii) Capable of high speed (min 60/hr)</p>	<p>For points (i) and (iii) to be demonstrated by the OEM and the same to be physically checked by the BOO.</p> <p>For point (ii) OEM to provide certificate and the same to be physically checked by the BOO.</p>
11.	Bumpers	<p>(i) Both front and rear should be equipped with heavy duty steel rams.</p> <p>(ii) Front bumper to have two reinforced towing points (one right and one left).</p> <p>(iii) Rear bumper to have one towing hook.</p>	To be physically checked by the BOO.
12.	Air-conditioning	<p>(i) Suitable OEM air conditioning unit to be installed.</p> <p>(ii) Air circulation system with intake/exhaust electrical fan to be installed.</p> <p>(iii) Auxiliary heating system to be installed.</p> <p>Optional specification to be specified by the user during tendering.</p>	To be demonstrated by the OEM and the same to be physically checked by the BOO.
13.	Instrument Panel	<p>Vehicle to have following indicators with display :</p> <p>(i) Speedometer.</p> <p>(ii) Tachometer.</p> <p>(iii) Odometer.</p> <p>(iv) Coolant Temperature.</p> <p>(v) Fuel Level Indicator.</p> <p>(vi) Oil Pressure.</p>	To be physically checked by the BOO.

		(vii) Door Open Indicator. (viii) Any other indicator required for smooth and optimal functioning of the vehicle along with the ramp system will be preferred.	
14.	<u>Braking System</u> (a) Service Brakes (b) Parking Brakes	(i) Two independent pneumatic (front and rear). (ii) Four disc brakes. (iii) Anti locking braking system (ABS). Pneumatic controlled and suitably located for drivers ease of access.	To be demonstrated by the OEM and the same to be physically checked by the BOO.
15.	Tools to be included in the vehicle	(i) Portable fire extinguisher (numbers to be specified at the time of tendering). (ii) Heavy duty hydraulic jack capable of lifting the weight of the vehicle. (iii) First aid kit. (iv) Operators' manual (in English & Hindi) with suitable diagrams. (v) Electric wiring manual.	To be physically checked by the BOO.
<u>Specifications of Hydraulic Ramp System</u>			
The ramp system should not be a prototype or first production, and should be in operational use with Special Forces around the world.			
16.	<u>Physical Characteristics</u> (a) Fitment	(i) The equipment should be permanently fitted to the host vehicle. (ii) If not, mounting onto the vehicle	To be demonstrated by the OEM and the same to be physically checked by the BOO.

	<p>(b) System & Capability</p>	<p>should not take more than 30 min and dismounting not more than 20 min.</p> <p>(i) Must have two independently operated multi angle extension hydraulic ramp.</p> <p>(ii) Capable of simultaneous deployment independent to each other.</p> <p>(iii) Should assist intervention into top deck of Boeing 747 and Air Bus A-380.</p> <p>(iv) Capable of addressing tail wing of all types of commercial aircrafts.</p> <p>(v) Should be able to assist in rapid and simultaneous intervention by 6 commandos.</p>	<p>OEM to demonstrate and the same to be physically checked by the BOO. System and capability to be checked on all types of commercial aircrafts.</p>
	<p>(c) Construction</p>	<p>(i) Aircraft grade aluminum, high strength steel and stainless steel fasteners.</p> <p>(ii) Should have high quality anti rust coating to withstand varied weather conditions.</p>	<p>OEM to provide certificate and the same to be physically checked by the BOO.</p>
	<p>(d) Height</p>	<p>Minimum 11.5 Meters and should be capable of addressing aircraft targets at an elevation of 25 mtrs.</p>	<p>OEM to demonstrate and the same to be physically checked by the BOO.</p>
	<p>(e) Ballistic Protection</p>	<p>(i) System must provide ballistic protection to the operators.</p> <p>(ii) Ballistic panels/shields at the intervention/target engagement end should be integral part of the ramp.</p>	<p>OEM to provide certificate from National/International/NABL certified lab certifying the ballistic level of the shields/panels. The same to be physically verified by the BOO.</p>

	<p>(f) Life</p> <p>(g) Environmental Conditions</p>	<p>(iii) Should be NIJ Level III compliant.</p> <p>Minimum service life of 10 years.</p> <p>(i) Storage Temperature: -40⁰ C to +55⁰ C.</p> <p>(ii) Operating Temperature: -40⁰ C to +55⁰ C.</p>	<p>OEM to give certificate.</p> <p>OEM to provide certificate from National/International/NABL certified lab certifying the ballistic level of the shields/panels. The same to be physically verified by the BOO.</p>
17.	<p><u>Operational Parameters</u></p> <p>(a) Configuration</p>	<p>(i) Modular multiple and independent ramps.</p> <p>(ii) Each ramp should have internally stowed extension allowing maximum reach and host vehicle front end clearance at the same time.</p> <p>(iii) Capable of both upward and sideways deployment.</p> <p>(iv) <u>Detachable stiles/modules:-</u></p> <p>(aa) Tactical ramp with multiple angle extension ramps.</p> <p>(ab) Tactical elevated platforms for sniper post.</p> <p>(ac) Perimeter breach platform/ramp.</p> <p>(ad) Tactical sliding platform (extendable) for deployment of 2 commandos.</p> <p>(v) Should have options to allow operator to expand tactical capabilities beyond the ramp system.</p>	<p>OEM to demonstrate and the same to be physically checked by the BOO.</p>

	<p>(b) Ramp Deployment Time</p> <p>(c) Hydraulics</p> <p>(d) Ladder Turret</p>	<p>(i) System should be able to reach maximum height within 10 seconds.</p> <p>(ii) Base ladder elevation/depression (Hydraulic) – Maximum 45 seconds.</p> <p>(iii) Base Ladder elevation/depression (Mechanical/Manual) – Maximum 75 seconds.</p> <p>(i) Rapid base ramp extension.</p> <p>(ii) Rapid base ramp elevation/depression.</p> <p>(iii) Hydraulic system to be independent of host vehicle hydraulics.</p> <p>(iv) Emergency mechanical deployment facility with quick switching modes between hydraulic and mechanical.</p> <p>(v) Hydraulic fluid used should be fire resistance.</p> <p>(vi) Zero maintenance while being used during operation.</p> <p>(i) Rotatable ladder turret with both mechanical and hydraulic capability.</p> <p>(ii) Should be located at the extension of the ramp system.</p> <p>(iii) 360⁰ ladder deployment capability.</p> <p>(iv) Perpendicular and azimuthally ladder alignment capability.</p> <p>(v) Emergency mechanical</p>	<p>OEM to demonstrate and the same to be physically checked by the BOO.</p> <p>To be demonstrated by the OEM and the same to be physically checked by the BOO.</p> <p>OEM to demonstrate and the same to be physically checked by the BOO.</p>
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	<p>(e) Camouflage & Concealment</p> <p>(f) Surface and Side rails</p>	<p>deployment mode with switching facility between hydraulic and mechanical mode.</p> <p>(i) Ramp system along with the host vehicle should be black non reflective paint.</p> <p>(ii) Ramp system should have discrete transportation cover.</p> <p>(iii) Cover should be capable of quick attachment and removal.</p> <p>(iv) Enable concealment of the ramp system in semi extended state.</p> <p>(v) Removal time of cover from the system should not be more than 45 seconds.</p> <p>(i) Surface of the ramp system should have high traction and grip.</p> <p>(ii) Non skid ramp surface.</p> <p>(iii) Ladder and aircraft contact end to have robust military grade rubber cushion to avoid damage to aircraft.</p> <p>(iv) System should have high side railings and perimeter handrails.</p> <p>(v) Side rails and hand rails to be of same colour as of the ramp system.</p>	<p>To be demonstrated by the OEM and the same to be physically checked by the BOO.</p> <p>To be demonstrated by the OEM and the same to be physically checked by the BOO.</p>
18.	Surveillance	<p>(i) Panoramic vision/monitoring facility for driver and ramp operator.</p> <p>(ii) The surveillance view to have wireless/robust wired transmission link to the operations control centre/room.</p>	OEM to demonstrate and the same to be physically checked by the BOO.
19.	Manuals	Technical literature and manuals in	OEM to give certificate.

		English (Numbers to be specified by the user during tendering). MLRS along with pricing for next 5 years.	
20.	Training	(i) Onsite training on repair and operational usage by the OEM (for both vehicle and ramp system to be organized by the OEM). (ii) Number of personnel to be trained and duration of training to be specified by the user at the time of tendering.	OEM to give certificate.