

QUALITATIVE REQUIREMENTS (QRs) OF EMERGENCY RESCUE TENDER AS PER BIS : 949-2012

SL	Technical Parameter	Qualitative requirements (QRs)
1	Purpose	The Multifunctional Emergency Rescue Tender shall be designed specifically for the purpose of use at fires which requires special equipment, rescue and other special service calls such as: 1.1 Large special fires in Cities, Towns and in industries requiring the use of Breathing Apparatus, special equipment, illumination equipment etc. 1.2 Lift, goods transport, railway or machine accidents for which special equipment are required. Major leakages of toxic or dangerous Liquids or gases. 1.3 To fulfill the above duties, the Rescue Tender shall be comprehensively equipped with an electric generator, lifting, cutting, breaking, pulling, pushing gears, oxy-acetylene cutting equipment, portable electrical tools, hydraulic rescue tools, lighting equipment and power driven winch. 1.4 The Rescue Tender shall be fast on road and easily maneuverable in crowded streets and normal sharp corners. The overall dimensions shall not exceed the limit specified herein.
02	General requirements	Design construction features, materials and equipment and interpretation of Terminology of specification of Emergency Rescue tender shall be in accordance with IS: 949-2012 (Reaffirmed 2017) with latest revision. 2.1 The appliance shall be designed to carry the equipment listed in Annex "A". The equipment shall be arranged on a manner to allow the crew members to get ready in vehicle itself. 2.2 The appliance shall be suitable geared to provide a road speed of 70 km/h on a level ground. The acceleration shall be such that with a warm running engine, the fully laden appliance shall attain a speed of 64 km/h in 55 sec. from a standing start, through the gears. 2.2.1 The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when laden.
3	Material selections and treatment	3.1 The choice of materials to be used in the construction of the appliance super structure shall be Zinc-treated galvanized steel or extruded Aluminium to provide adequate strength, long-term durability and elasticity for absorbing operational stresses, while ensuring effective corrosion resistance and prevention of rusting. 3.2 Timber shall not be used in the body construction 3.3 The appliance shall be required for use in conditions with constant high humidity and heat. This shall be given full consideration while selecting the

		materials 3.4 All metal parts exposed to atmosphere shall be of corrosion resisting material. 3.5 Ferrous metal shall not be used for nickel or chromium plated fittings and the plating of all such fittings shall be of extra heavy quality.
4	Designs and Construction	4.1 The chassis shall be of 4x2, 16T, 130 BHP (minimum), turbo charged air cooled, diesel engine, cowl chassis, Bharat stage -VI/ latest version or latest equivalent chassis. The Emergency Rescue Tender shall be equipped with a factory-fitted air-conditioned driver-cum-crew cabin in compliance with GSR 886(E) dated 08 December 2023 and the AC system shall conform to IS 14618:2022 requirements and testing procedures, as amended.
4.2	Engine	The engine (oil fuel type) shall have sufficient cylinders based on finalization of Chassis. The engine shall be fitted with quick starting system. The engine shall be capable of driving the fully laden appliance at speed from starting without any preliminary running period, even under abnormally cold atmospheric conditions. The operating temperature of the engine cooling water shall be thermostatically controlled.
4.3	Fuel System	4.3.1 The fuel tank shall have a minimum capacity of 140 L/OEM. A fuel tank contents gauge shall be fitted on the instrument panel in the driving compartment. 4.3.2 The filling-orifice shall be of ample size, and shall be accessible position. The cap shall be clearly marked to show that it is for fuel.
4.4	Electrical System	4.4.1 A heavy-duty alternator/generator shall be fitted to the engine to supply the vehicle 12 or 24 V DC electrical system. The alternator/generator shall be fitted with the necessary control unit. 4.4.2 A trickle charger shall be fitted in the cab and it shall be fitted with socket for connection to 230 V AC electrical systems. A red pilot lamp, to indicate when the battery is being charged from an external supply shall be provided. 4.4.3 All-important electrical circuits shall have separate fuses suitably indicated and grouped into a common fuse box, which shall be located in an accessible position. Provision shall be made to carry spare fuses in this box. 4.4.4 In addition, all electrical wiring shall be made of flame retardant automotive wires and routed through conduit piping to minimize the risk of short circuits, enhance safety against accidental damage and facilitate easy inspection and maintenance during fault rectification or routine servicing.
4.5	Alternator Unit	4.5.1 A 230 V, 50-cycle alternator with its independent engine shall be provided. 4.5.2 The alternator shall be screen protected, continuously rated, self-regulating, self-excited, class 'E' insulation type, having an output of not less than 5 KVA at 0.8 power factor, (4 kW) 220 V Three phase, 50 cycles. 4.5.3 The alternator shall be equipped with a direct-coupled flange mounted exciter, which shall automatically keep the alternator voltage constant and provide an approximately straight-line voltage characteristic within 5 percent at all loads, and at any pre-set factor between 0.8 and unity. 4.5.4 Two cable reels each with 30 m of cable shall be provided. The cable shall be a 3-core duty flexible cords 250 V grade having a conductor of cross-section 4 mm (128/0.20 mm) conforming to IS 9968-1: 1988 AMD 3

		2016 or IS 694: 2010 Reaffirmed 2015. 4.5.5 Controls shall be mounted near the generator and shall consist of the following: a) Three sockets (plugs) and switches with 3 phase connections b) Four sockets (plugs) & switches (MCB's) with single phase connections of min. 20 AMP capacity c) Four sockets (plugs) & switches (MCB's) with single phase connections of min. 10 AMP capacity d) RPM Meter digital - 1 No e) KW meter-1 No f) Ampere meter separate for each phase-Total-3Nos. g) Frequency meter - 1 No h) 32 Amps TPN MCB - 1 No i) Hand throttle control; j) Engine cooling water temperature gauge (if water cooled);
4.6	Work	4.6.1 Enclosed accommodation for six persons shall be provided in the driver cab-cum-crew compartment including the driver and the in-charge of the crew. Both the seats should be independent. The driver's seat should be adjustable and comfortable. a) The rear portion of the compartment of driver's cabin should have one removable seat for full width of cab for 4 (four) crew members b) The cab floor should be covered with 3 mm thick Aluminium chequered plate rigidly fixed to the under frame cross members by means of nuts and bolts or riveting. c) Trap doors for topping up oil etc wherever necessary shall be provided. d) One roof light should be provided in the driver's cabin dwell vision and external rear view mirrors should be fitted to the cab. e) The driver cum crew cabin shall be provided with full four doors, one for driver, and one for officer and two at the crew compartment. f) The doors shall be generously sized for easy embarking /disembarking of crewmembers. All the doors shall be fitted on the super structural members, each hung upon three invisible coach type M.S. stout hinges and fitted with best quality handles. The door handle on outside of driver seat shall have a locking arrangement. Other doors shall be lockable from inside. g) Aluminium tower bolt of 8" shall be provided for all the doors from inside Adequate grab rails shall be provided for easily boarding and alighting from the appliance. h) The windscreen glass shall be provided in the two valves and shall be flat in shape. Each glass shall be fitted in E.P.D.M. rubber beading. The glasses shall be 5 mm thick toughened safety glass. i) The rubber beading used for fitting glasses and window frame shall be E.P.D.M. rubber.
4.6.2	Seats	a) The driver seat shall be adjustable type vertically, forward and backward. The officer seat shall be fixed type. Both the seats shall be rigidly fixed to the flooring by means of nuts and bolts. The seat cushion shall be of latex foam rubber 75 mm thick upholstered in good quality foam leather cloth. b) The back seat shall be of latex foam rubber 50 mm thick upholstered in good quality foam leather cloth. c) The crew seat shall be rigidly fixed to floor by means of nuts and bolts, running full width of the vehicle suitable for sitting five fire-fighters, covered with 75 mm x 50 mm cushion latex foam rubber upholstered in good quality foam leather of approved shade. d) Below the crew seat, two lockers shall be provided, one for storage of

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		batteries and another for keeping accessories. The extra length of battery cable shall be provided if required. e) The super structure of the cabin shall be constructed out of 14-gauge M.S. 45 x 45 x 20 mm-pressed "TOP HAT" sections. The super structure shall be strengthened specifically on the members with the lockers doors frames are to be fitted and the other members by providing brackets and gussets of 14-gauge M.S. plate securely welded. The details of super structure are as follows: i. Under frame cross members: 100 x 50 x 5 mm ii. Floor longitudinal members: 50 x 50 x 6 mm iii Vertical members on even side: 45 x 45 x 20 mm iv. Skirt member: 45 x 45 x 20 mm V. Waist member: 45 x 45 x 20 mm vi. Top deck longitudinal: 45 x 45 x 20 mm f) The cab and lockers should be of composite construction with sufficient rigidity and reinforcement and shall be kept as light as possible. g) The structure/frame work shall be of welded constructions and made from 2 mm thick MS pressed sections and square tubes. h) The Angles and channels used in the appliance structure shall be of minimum 3 mm thickness and the entire material shall be Zinc treated galvanized to ensure anti-corrosion protection and long term durability. i) The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure. j) The structure shall be so designed to avoid any vibration/ratting / deformation in the intended usage of the vehicle. k) The interior paneling shall be done from 1.22 mm thick Aluminium sheets & the exterior paneling shall be done from 1.60 mm thick Aluminium sheets.
4.6.3	Cable Winch	a) An electrically operated cable winch of 6-ton capacity should be provided. b) The winch unit should be complete with minimum 5.5 HP 12v DC series wound electric reversible motor for increased pulling power, rope drum, and 90 ft heavy duty galvanized EIPS wire rope with replaceable self-locking clevis hook and shall be mounted on the front bumper of the vehicle with suitable strong supports.
4.6.4	Telescopic Light Mast:	a) A compact, low profile, roof mounted lighting system, fitted with 4 X 200 watts LED lights, vertically elevated pneumatically up to 15 feet (4.6m) shall be installed on the roof of the vehicle. b) Lighting shall be provided by a 12V or 24V DC with Remote Control, directional lighting system, with rotation & tilt lamps to provide total coverage. c) The remote control unit shall allow a person to operate all the functions of the light mast & accurately aim for complete directional positioning. In addition Auto-show, a one button command, automatically retracts, turnout the lights and stows the entire system to the compact transport position shall also be included in the remote controller. d) The complete unit should comprise of handheld remote control with cable, rotation & tilt positioned, mounting frame with built in tilt system.
4.6.5	Miscellaneous	a) A suitable bumper shall be provided at the rear rigidly fixed to the super structural members by means of nuts and bolts, fabricated from 100 x 50 x 5 mm M.S. channel. b) Two Cat ladders made out of Stainless steel round or square pipe of 1" dia shall be provided c) Two nos. of 1" dia Aluminium pipe railing with sufficient number of Aluminium double socket brackets shall be provided to the rear body over the deck.

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		d) A heavy-duty towing hook shall be provided and fitted with the rear bumper by means of nuts and bolts; e) Quick removable type wire mesh guard made from 1" X1" size MS wire mesh of 16 SWG covered in MS angle frame shall be provided to all the glasses of driver-cum-crew cabin. f) An illuminated 'FIRE AND RESCUE' sign shall also be fitted to the outer centre front of the cab. g) The bodywork shall be designed to enclose as much as possible of the appliance without interfering with necessary accessibility but at the same time, shall have clean lines.
4.6.6	Lockers:	a) The lockers shall be provided for storage of all equipment listed in the Annexure. The lockers will have drawers as per the latest International Standards i.e. roll in-roll out type with opening in tapered position giving very easy & immediate access to all equipment. b) All equipment should be stowed very scientifically & systematically in the drawers & each piece of equipment shall have its designated location so that at the time of EMERGENCY the required equipment can be very easily located & removed for use. c) Location of equipment (labels) shall be provided on each drawer for immediate identification. d) All the equipment shall be properly clamped and strapped in the drawers to prevent shifting of the equipment while the vehicle is in motion. e) The drawer sides shall be constructed from aluminium angles of minimum 100mm X 4mm thickness and the bottom floor of the drawers shall be made from 3 mm thick aluminium sheets and then covered with good quality neoprene rubber sheets. f) The drawers should have self-locking system to prevent accidental opening while the vehicle is in motion. The bottom edges of the drawers shall be covered with SS 304 angles of min 2 mm thickness. g) The ROLL IN-ROLL OUT drawers shall be made according to the required size of the equipment that is to be stowed. h) The lockers shall be covered with Push-Pull type Aluminium Roller Shutters only for faster & smoother rescue operation at the time of emergency. i) The roller shutters shall be made from extruded Aluminium sections with suitable roller, spring, guide channels etc. All Aluminium sections used shall be properly anodized. j) The Roller shutters shall be rolled inwards underneath the roof giving unobstructed access to the equipment lockers and the fire fighting material. k) These roller shutters should open in every position of the vehicle even in rough terrain. Guide rails shall support the shutters over entire length on both sides to make them absolutely torsion free. l) The opening of the roller shutters shall be done by means of a lift bar provided. m) This should be of the self-locking type so that while the vehicle is moving, the shutters do not open accidentally during movement of vehicle. n) Roller shutters shall be made of hollow rectangular shaped Aluminium links which shall be inter connected with rubber /plastic/ PVC profiles sealing the roller shutter watertight when closed. o) These roller shutters should be durable, maintenance free, weather and corrosion resistant. p) All lockers shall be fitted with internal lighting which shall be capable of

		being automatically switched 'ON' and 'OFF' by the opening and closing of the roller shutters. q) A master switch for isolating the locker lighting circuit shall also be provided.
4.6.7	Access to the roof of the vehicle.	Grab-rails and non-slip steps be provided wherever necessary. A ladder made out of S.S. round or square pipe of 1" dia shall be provided at the rear of the appliance to provide easy access to the roof of the vehicle.
4.6.8	Trussed type extension ladder	A 10.5m Aluminium Trussed Type extension ladder as per IS 4571: 1977 shall be mounted on suitable gallows fitted with rollers and designed to facilitate easy and quick removal of the ladder from the rear of the appliance.
4.6.9	Stretcher- Ladders	In addition, two stretcher-ladders shall be mounted separately on the appliance in such a way that they shall be removed easily, quickly and independently, when required. Specification of the stretcher-ladders shall be as follows: a) Stretcher ladder- Main ladder section shall be manufactured from Aluminium alloy and shall have following requirements: b) Overall length not less than 2.0 m c) Overall width not less than 600 mm d) Centre of rungs 210 mm approximately
4.7	Stability	The stability of the appliance shall be such that when under fully equipped and loaded conditions (but excluding crew). If the surface on which the appliance stands is tilted to either side, the point at which overturning occurs is not passed at an angle of 27½° from the horizontal.
5	Workmanship and finish	5.1 The standard of workmanship and finish of all mechanical and other parts shall be such that the parts normally required to be replaced, can be supplied and will fit-in correctly. 5.2 The complete exterior of the vehicle shall be painted with two finish coat fire-red colour conforming to shade No. 536 of IS 5. The paint shall conform to IS 2932. The Automobile paint (ICI/Dulux/ DuPont etc.) shall only be used. 5.3 The driving compartment, crew's compartment, inside the vehicle and inside lockers shall be painted cream. Lockers shall be finished in shadow board painting or replica of items to show the position of each piece of equipment. 5.4 All other parts except engine shall be painted black. 5.5 Necessary anti-corrosion and priming coats shall be applied before painting. 5.6 Painting and phosphate of the chassis shall be carried out to withstand the climatic conditions in the tropics. 5.7 The words "Central Industrial Security Force, Fire Service Training Institute." In Hindi & English shall be painted on both sides of vehicle with monogram on the Body of Rescue Tender in a suitable size letters in Golden Yellow paint with Black colour shading. NOTE: The name of "Central Industrial Security Force, Fire Service Training Institute." is given as example; the names of respective organization will be incorporated accordingly.
6	Instruction Book	Instruction Book Instruction book(s) for the guidance of the user, including both operating and normal maintenance procedures, shall be provided. The book(s) shall include an itemized and illustrated spare parts list, giving reference to all the wearing parts.
7	Accessories	The following accessories shall be provided in addition to these normally fitted on the chassis: a) One 250 mm diameter bell shall be mounted externally. It can be operated from inside the driving/crew compartment; b) Fog lamps- two, low mounted in front of appliance;

		c) Reversing light- one, suitable situated to assist reversing; d) LED Light bar min. 1200 mm wide with Aluminium Housing and max. 90 mm height with Blue and Red lighting shall be provided on top of the fire vehicle. e) Revolving beacon light- Two, of blue colour and shall be capable of throwing revolving beams of light round 360° with beams inclined upward, horizontally and downward. These shall be mounted on the cab-roof and second on roof at rear and shall be operated from the vehicle battery; f) Wind screen wipers (electrically operated) - of approved design -two; g) Tools- All tools required for normal routine maintenance of the appliance, which are not included in the kit for the chassis; h) Search light-two, adjustable to give flood or beam light and shall be mounted in convenient position on the appliance but at the same time, shall be capable of being readily removed and mounted on tripods away from the appliance. These shall each be supplied complete with tripod and not less than 30 m of TRS cable on reel mounted on the appliance; i) Spot light- two, adjustable and shall be mounted in convenient position on the roof of the appliance; and j) One, 12 volts battery operated siren shall be mounted in a convenient position.
8.	Marking	Each appliance shall be clearly and permanently marked with the following information: a) Manufacturer's name or trade-mark, if any; and b) Year of manufacture.
9.	Equipment for Emergency Rescue Tender:-	List of mandatory equipment for users is enclosed. However the list is not exhaustive, new inventions can also be added according to user requirements.

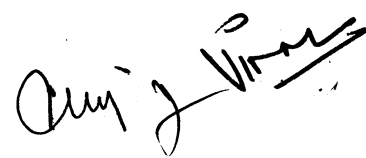
a) List of Mandatory equipment of reputed company make and confirming to relevant BIS or EN standard for users:-

SL	DESCRIPTIONS	QTY	UNIT
1	Compressed Air Carbon Composite Breathing Apparatus set positive pressure 45 min duration complete with 4 spare cylinder as per EN-137 or IS 10245 (Part 2):2023	4	Sets
2	Portable smoke exhauster/ ventilator should be light weight with weight less than 45 kgs., compact having fan size 16" with minimum 10 blades capable of airflow output of minimum 40,000 cu. M/ hr with minimum 5 h.p. petrol engine. Ventilator set should be supplied complete with collapsible duct (5 m), 10 deg tilt accessory and water mist adaptor.	1	Set
3	Pulling & Lifting Machine, lifting or Pulling 5 tons complete with wire rope & hook	1	Sets
4	Chain saw wood cutting (electrical) single phase AC/DC Voltage 220-250, guide bar min 50-60 cm. cutting capacity 50-60 cm, along with spare chain.	1	No.
4.a	Rotary circular saws, petrol engine operated with 14" diamond blade and 5 different types of abrasive blades, with spare blades for all types of blades. Weight within 15 kg.	1	No.
5	Portable Rotary Electric Hammer Drill with spare bits. Voltage 220-250 V, power 620 W approx., impact rate 0.2000 per min., rotary Drill Bit of 300 mm long-2 Nos.	1	Set
6	Fire hook as per BIS	5	Nos.

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7	Long line 100 m size 50 mm circumferences (Polypropylene)	2	Length
8	Safety Belt – full body Harness with carabina hook & rope	2	Nos.
9	Hammer – 10 Kg.	6	Nos.
10	Rubber Gloves in container tested with 10,000 V as per BIS	10	Pairs
11	Shears, bolt cutter large with insulated handle of 600 mm	2	Nos.
12	Spreader for iron railings, double screw type 125 to 175 mm travel	2	Nos.
13	Water Proof rechargeable torch: The torch shall be water proof. There shall be 3 point toggle switch with intensity halogen bi-pin type 8 watt bulb two ultra-bright blue LED on the back side. The min run time of the torch shall be 3 hours with steady mode with halogen bulb and 6 hours with LED. The torch shall have rechargeable type led acid/Ni-Cd battery of 6 volts, 4.5 Ah capacity. The approx. weight of the torch shall be 1.5 kgs. and shall be supplied with quick release strap and charging accessories. The torch shall be in accordance with IP-58 or higher protection ensures uninterrupted lighting even under continuous immersion and all applicable safety standards and shall be brand new and of reputed make.	2	Nos.
14	Engineering Tools set (reputed make) consisting of: DE spanner 8" x ¾" -2 Nos Flat file through 8" - 1 No Three square file 6"-1 No Chisel 6"-1 No Screw Driver 8" heavy - 1 No Screw Driver 18" heavy-1 No Allen Key 105 to 10 mm-1 set Cutting plier heavy - 1 No Long nose pliers 7" heavy-1 No Hack saw with blade 12"-1 No Tool Box-1 No Tin cutter-1 No Pincer-1 No	1	Set
15	Electric Tools set (reputed make) consisting of: Industrial plier 10" heavy - 1 No Insulated screw driver 8"-1 No Electrical hand gloves tested at 11 KV Electrical tester heavy - 1 No Tool bag - 1 No Insulated tape 1 No	1	Set
16	Drilling machine 230 V(With a set of drill 12 Nos.)	1	No.
17	Nylon Rope ladder with snap hooks of 25 m length with aluminium round	1	No.
18	Structural Fire Protective suit conforming to EN 469 or ISO 11999-3 or IS 16890 with Fire Hood either confirming to NFPA 1971 or ISO 11999-9:2016 or EN 13911.	2	Sets
19	10.5 m trussed type double Aluminium extension ladder	1	No.
20	Life Jacket foam type MMD approved: the lift jacket shall be approved by MMD, Ministry of Shipping and shall meet the latest standard of IMCO & SOLAS. The jacket shall be foam field having floatability of 16.5 kgs. The size of the jacket shall be 80 x 37 x 10 cm approx. The jacket shall be provided with 3 M reflective tape with whistle. The cover of life jacket shall be made from nylon and orange in colour. The foam shall be soft neopropylene foam & airex. The lift jacket shall be provided with suitable	10	Nos.

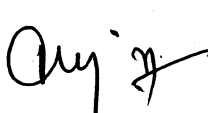




	straps for securing.		
21	Life Buoy MMD approved with 30 m rope: The ring buoys shall be made from polyurethane having 800 mm O.D. and 430 mm I.D. the buoyancy shall be minimum 19.5 kgs. & the weight shall not be more than 4.5 kg. The ring buoys shall be provided polypropylene rope having 9.5 mm dia. The colour of the ring buoys shall be orange. The ring buoys shall be approved by MMD, Ministry of Shipping.	10	Nos.
22	Hydraulic Electrical-Hydraulically operated spreader complete with chain set The minimum spreading force on the open arm 20 tons Minimum spreading distance - 600 mm Minimum spreading force at closed arm-34-110 kN Minimum pulling distance-495 mm Minimum pulling force - 28 kN Weight not more than 20 kg. The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with tool adapter attached on the tool with back up of a rechargeable high capacity Li/Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20 m extension cable reel. Accessories: Pulling chains, chain adaptors. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual shall be supplied.	1	Set
23	Hydraulic Electro-Hydraulic Cutter Min. blade opening: 150 mm Weight not more than - 20 kgs Cutting capacity - 30mm min. Cutting force-600 kN min. The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with tool adapter attached on the tool with back up of a rechargeable high capacity Li/Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual should be supplied. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make Operation and maintenance manual Tool kit with spare set (pair) of cutting blades	1	Set
24	Hydraulic Electro- Hydraulic Telescopic Ram Minimum Lifting force 103 kN. Minimum Retracted Length 540 mm Minimum extended length including extension and cross head-1200 mm Min. Piston stroke-358 mm Min. stroke of 2 nd plunger-250 mm Weight not more than 17 kgs The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with tool adapter attached on the tool with back up of a rechargeable high capacity Li/Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual should be supplied	1	Set
25	Concrete breaker/chipping hammer - Big impact rate min. 0-1400 per /min. power input 1240 watt, single phase 230-250 volts, light in weight,	1	No.







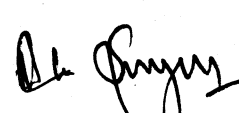
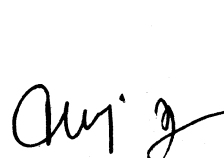
	shock proof body with required accessories with pointed and flat bit (electrical operated)		
26	Pneumatic Lifting Air Bags (Flat Type) and Accessories: Working pressure shall be 10 bar & made from Kevlar reinforced nitrile rubber with 3 layers aramide reinforcement, Non slip design, capable of being interlocked when 2 bags are placed on top of each other. Insertion thickness of the bag shall not be more than 25 mm including profile Resistant to ozone and range of chemicals etc. The bags shall comply the following requirements Quantity: 1 each Lifting Capacity: 10 tons & 20 tons & 40 tons & 65 tons & 80 tons. The air bags are to be supplied with the following accessories: Pressure reducer 300 bar to 10 bar-02Nos Dual controller with pressure gauges-1 Air hose 5 m with couplings-2 Nos Air hose 10 m with couplings-2 Nos Single control unit – 2 No Air cylinder 6L 300 bar -2 nos. Shut off hose with safety valve 4 Nos Connection piece to connect two air cylinder-2 Nos The air bags and all its accessories shall comply the operating requirement and safety standard stipulated under EN 13731. The bags shall be brand new and of reputed make. The dual controller, pressure reducer, single control unit, shut off hose and air hoses shall be supplied in a suitable carrying box. Operation and maintenance manual shall be provided.	1	Set
27	Safety goggles as per EN standard	6	No.
28	Multi/5 gas detection with volatile organic compounds (VOCs). The instrument shall be compact and light weight. The instrument shall be capable of measuring five gases including combustible gas, oxygen, CO, Ammonia and chlorine. The device shall make comply all the safety standards stipulated under EN/NFPA applicable to the gas detection equipment.	1	No.
29	Combi-Tool (With pulling chain and adapter) Combi-tool shall be as per EN 13204, NFPA 1936 or equivalent. Working Pressure -not less than 700 bar, Spreading Force – Not less than 590 KN, Spreading Distance – Not less than 250 mm, Pulling Distance - Not less than 250 mm, Highest Pulling Force - Not less than 34 KN, Weight including battery - Not more than 20 Kg, Material of Cutter Blade -Dropped-Forged Special Steel Alloy, Material of Hinges, Pin, Levers - Corrosion Heat Treated Tool Steel, Type of Battery - Lithium Ion Based Rechargeable, Charging Time of Battery - not more than 120 min, Connector shall be provided to connect the tool to any 220 V Power source.	1	Set

b) List of equipment as per operational requirement of the users:-

Sl	Descriptions	Qty	Unit
1	Wet Suit: the wet suit shall conforming to IS 14252:1995 & IS 15809:2008. It is one piece design overall with hood and zipper made from 3 mm reflective neoprene rubber. The wrist, ankle, and face seal	4	Sets

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	shall be water tight. The suit shall be supplied with pair of 5 fingered heat reflective gloves made from 3 mm reflective neoprene rubber with double lining. The suit shall also be supplied with a pair of boots, which are made from heat reflective 5 mm neoprene rubber lining, non-slip sole and nylon side zipper. Suitable fins should also be supplied along with half/full face mask		
1 (a)	For Hazmat emergencies: a) Spill containment kit b) Portable bunds/dike c) Portable decontamination shower d) Neutralizing agents.	1 2 2 1	No. No. No. No.
2	Encapsulating Chemical Protective Gas tight and splash protection Suit with gloves and boot as per NFPA 1994-2007 certified or conforming to IS 15071:2002 and IS 17377 (Parts 1 & 2, 2020) including for Chemical/ Bio terrorism use (NBC Type Suit)	2	Sets
3	First Aid Medical Outfit for 50 persons	2	Sets
4	Blanket Woolen (in box) 160x225 cm (standard make)	6	Nos.
5	Blanket, Asbestos 2 x 2 mtrs (in box)	1	Nos.
6	Chain lifting 3 tons complete with end rings & shackles (of 6 Meter)	1	No.
7	Pulling & Lifting Machine, lifting 1.5 tonnes or Pulling 3 tons complete with wire rope & hook	1	Sets
8	Portable Concrete cutting chain saw with guide bar and diamond chain of minimum 14", petrol engine operated with spare chain. Weight within 15 kg.	1	Nos.
9	Portable petrol engine operated carbide tipped chain saw with 20" guide bar and chain with spare chain and depth gauge. Weight within 15 kg.	1	No.
9.a	Grapnel with nylon rope of 40mm Circumferences & 30 m length	5	Nos.
9.b	Lowering line, 50 m size 50mm circumferences	1	Length
10	Short line 15 m size 50mm circumference (Polypropylene)	2	Length
11	Hardwood Blocks, assorted from 75mm to 225mm thick	12	Nos.
12	Spades	6	Nos.
13	Mattocks, Handle	6	Nos.
14	Pick Axe with Handle	6	Nos.
15	Axes	6	Nos.
16	Crow Bar 1 meter long	6	Nos.
17	Sledge Hammer	6	Nos.
18	Rake – 3 Prong	1	No.
19	High Safety Boots (high voltage)	6	Pairs
20	Mat Rubber Large	2	Pairs





21	Carpenter Tools Set consisting of: Carpenter hand saw 24" - 1 No Carpenter chisel farshi - 1 No Carpenter try square 12"-1 No Screw Driver 8" heavy-1 No Cutting Plier 8" heavy - 1 No Wooden maffra file 10"-1 No Carpenter tool box - 1 No. Chopper-1 No.	1	Set
22	Shears, bolt cutter with insulated handle of 400 mm	2	Nos.
23	Plastic traffic cones: Fiber glass cone with provision for fixing flasher, painted with red and white fluorescent strips. The cone shall also be fixed with reflectors on both sides.	10	Nos.
24	Rechargeable torch: Ni-Cd battery with quick charging facilities with spare battery pack simultaneously charging facilities, weight approx. 440 gms, 25000 peak beam in heavy duty bezel, "O" ring sealed, operation 1.7 hours continuous, minimum 5.5 watt black dot xenon bulb, antiglare coating, for maximum visibility in smoke & fog.	4	Nos.
25	Cordoning radium type rope – 5 Metre	6	Nos.
26	Full body safety harness made from Kevlar for cut and heat resistance for working in any condition conforming to EN 361 or IS 3521 (Part 1):2021	3	Nos.
27	Drivers Knife: The driver's knife shall be made from sea water grade stainless steel material. The minimum handle length shall be 4" having one side sharp edge and other side saw edge.	2	Nos.
28	Galvanised Steel bucket (9 litres capacity)	10	Nos.
29	Proppings – 20 ft. length (for propping at house collapses telescopic)	2	Nos.
30	Water Proof suits (rain coat)	2	Nos.
31	Rollers for moving heavy objects (6" dia x 4')	2	Nos.
32	Nylon ropes three strand Hawser laid size 50mm circumferences 30 m with breaking load 5.3 ton (IS:4272)	4	Nos.
33	Chokes (metal) for vehicles	4	Nos.
34	Insulated plier (12" size) screw driver (14" size) fuse remover, electrical tester	1	Set
35	Salvage sheets 12'x12' & 6'x4' - 1 each	1	Sets
36	Parachute knot complete for lowering purpose	1	No.
37	Inflatable Rubber boat 5 persons (bellow type with hand pump) rubber dinghy without board, motor 25 HP.	1	No.
38	Angle cutter (electric rescue saw) voltage 220-250V, Wattage approx. 2500 w, RPM min. 4000, disc diameter max. 250 mm (12"). Arbor size 20 mm with diamond tip blade -2 Nos and composite blade - 5 Nos	1	Set
39	Night vision OWL optics binoculars, focused ranged 25", field of view 596 at 1000 yards with storage case	1	Set

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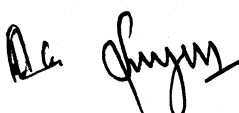
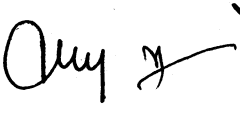
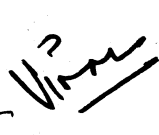
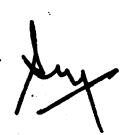
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40	Rechargeable light for search & rescue operations: Rechargeable battery of lead acid type having 10 AH capacity, high intensity halogen 20 watt bulb, 400 lumens, minimum 100000 candle power, made from high impact ABS thermoplastic housing with rubberized impact bumpers, and scratched resistant lens cushion grip handle, up to 9 hours continuous run time, approx. size L 11.5" x W 5.1" x H 7", approx weight 7.4 lbs with AC & DC charger with mounted rack. Orange or yellow colour, CE approved.	2	Nos.
41	SINGLE ACTING COMPACT HYDRAULIC DOOR OPENER: The door opener same company is essential and door opener, shall be hydraulically operated with two toes, one fixed and one moving and it shall be suitable to force open doors of building that open to the inside and that can be reinforced or blocked.	1	No.
42	Rescue saw for laminated glass, metal and wood with charger and replaceable spare blades: Strokes per minute: 0-2000 Stroke Length: 1 inch/25 mm Battery: rechargeable li-ion 18V, 2 Ah Weight: within 5 kg	1	No.
43	Self-rescue automatic escape (standard size)	2	Nos.
44	Shovel	6	Nos.
45	Asbestos Gloves	6	Nos.
46	Safety belt with hook as per BIS	6	Nos.
47	Victim Location Unit (Search camera) with colour LCD screen Monitor display with communication system with accessories/attachments/extension line for search in under water min. up to a depth of 10 m. (CE marked). EN certificate to be submitted with the offer.	1	No.
48	Thermal Imaging Camera: The camera shall have LCD screen display. core/detector (uncooled micro bolometer with digital processing with 4 hour rechargeable battery with spare battery, AC/DC battery charger, wireless transmitter/receiver & other accessories. meeting MIL-STD-810-E standard. It should have coloured temperature pallets (3 types) with zoom feature. The camera shall be reputed imported make. EN certificate to be submitted with the offer.	1	No.
49	Temp. Measuring Device - Infrared portable temp. measuring device	1	No
50	Ascender & Descender device with 100 mtrs rope, ascending & locking handle with hook & rescue triangle/ rescue evacuation harness 'with parapet wall anchor- CE approved.	1	Set
51	Vehicle Stabilization Kit - Quick strut 122-200 cm- 2 nos Capacity of strut: 1000 kg Adjustment wrenches - 2 nos. Cluster hooks-2 nos Straps-2 nos Sleeves-2 nos Total weight: within 35 kgs Above should be supplied in carrying bag/case	1	No.





52	Leak Sealing Kit Leak sealing bag 1.5 bar with acid protection cover - 1 no. Foot air pump with safety valve 1 no. Inflation hose 10m, 1.5 bar 1 no. Tensioning and extension belts 10 m-2 nos Sealing plate 600x300x30 mm-2 nos. Sealing plate 1000x300x30 mm-1 no. Transport case for above	1	Set
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Sh. S K Yadav
(AC/BSF)


Sh. Vimal
(DC/SSB)


Sh. Anil Kapoor
(AC/ITBP)


Sh. Sanjay Singh
(AC/NSG)


Manoj Kumar
(AC/CRPF)

3/9/22
J. P. K. Jethan
414/E, CISF


Sh. Rajesh Shukla
(ADO/DFS)


Sh. Pankaj Chawla
(Sc. "F"/CFEES -DRDO)


Sh. Binay Kumar
(AD/BPR&D)


Sh. Amit Saran
(DIG/CISF)

3/9/22
Sh. Vijay Prakash, IPS
ADG (HQ)/CISF
Chairman


Director General/CISF

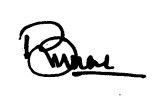
TRIAL DIRECTIVES (TDs) OF
EMERGENCY RESCUE TENDER BIS:949-2012 (Reaffirmed 2017) with latest revision.

SL	Technical Parameter	Qualitative requirements (QRs)	Trial Directives (TDs for BOOs)
1	Purpose	The Multifunctional Emergency Rescue Tender shall be designed specifically for the purpose of use at fires which requires special equipment, rescue and other special service calls such as: 1.1 Large special fires in Cities, Towns and in industries requiring the use of Breathing Apparatus, special equipment, illumination equipment etc. 1.2 Lift, goods transport, railway or machine accidents for which special equipment are required. Major leakages of toxic or dangerous Liquids or gases. 1.3 To fulfill the above duties, the Rescue Tender shall be comprehensively equipped with an electric generator, lifting, cutting, breaking, pulling, pushing gears, oxy-acetylene cutting equipment, portable electrical tools, hydraulic rescue tools, lighting equipment and power driven winch. 1.4 The Rescue Tender shall be fast on road and easily maneuverable in crowded streets and normal sharp corners. The overall dimensions shall not exceed the limit specified herein.	The vehicle shall meet the requirement as per relevant standards and QRs.
02	General requirements	Design construction features, materials and equipment and interpretation of Terminology of specification of Emergency Rescue tender shall be in accordance with IS: 949-2012 (Reaffirmed 2017) with latest revision. 2.1 The appliance shall be designed to carry the equipment listed in Annex "A". The equipment shall be arranged on a manner to allow the	All items shall be physically checked and tested , and shall meet the requirements as per the relevant standards and approved Qualitative Requirements (QRs).

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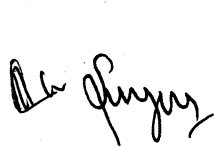
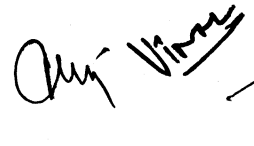





		crew members to get ready in vehicle itself. 2.2 The appliance shall be suitable geared to provide a road speed of 70 km/h on a level ground. The acceleration shall be such that with a warm running engine, the fully laden appliance shall attain a speed of 64 km/h in 55 sec. from a standing start, through the gears. 2.2.1 The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when laden.	
3	Material selections and treatment	3.1 The choice of materials to be used in the construction of the appliance super structure shall be Zinc-treated galvanized or extruded Aluminium to provide adequate strength, long term durability and elasticity for absorbing operational stresses, while ensuring effective corrosion resistance and prevention of rusting. 3.2 Timber shall not be used in the body construction 3.3 The appliance shall be required for use in conditions with constant high humidity and heat. This shall be given full consideration while selecting the materials 3.4 All metal parts exposed to atmosphere shall be of corrosion resisting material. 3.5 Ferrous metal shall not be used for nickel or chromium plated fittings and the plating of all such fittings shall be of extra heavy quality.	All materials used in the construction of the appliance shall be physically verified and tested and shall conform to the requirements of relevant standards and approved Qualitative Requirements (QRs).
4	Designs and Construction	4.1 The chassis shall be of 4x2, 16T, 130 BHP (minimum), turbo charged air cooled, diesel engine, cowl chassis, Bharat stage -VI/ latest version or latest equivalent chassis. The Emergency Rescue Tender shall be equipped with a factory-fitted air-conditioned	All items shall be physically checked and tested, and shall meet the requirements as per the relevant standards and approved Qualitative Requirements (QRs). Necessary

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		driver-cum-crew cabin in compliance with GSR 886(E) dated 08 December 2023 and the AC system shall conform to IS 14618:2022 requirements and testing procedures, as amended.	material-of-construction certificates from the manufacturer, as per QRs, shall also be checked and verified.
4.2	Engine	The engine (oil fuel type) shall have sufficient cylinders based on finalization of Chassis. The engine shall be fitted with quick starting system. The engine shall be capable of driving the fully laden appliance at speed from starting without any preliminary running period, even under abnormally cold atmospheric conditions. The operating temperature of the engine cooling water shall be thermostatically controlled.	
4.3	Fuel System	4.3.1 The fuel tank shall have a minimum capacity of 140 L/OEM. A fuel tank contents gauge shall be fitted on the instrument panel in the driving compartment. 4.3.2 The filling orifice shall be of ample size, and shall be accessible position. The cap shall be clearly marked to show that it is for fuel.	Shall be checked physically and should meet the requirement as per relevant standards and QRs. Necessary certificates from statutory authority as per QRs, wherever necessary, shall also be checked and verified.
4.4	Electrical System	4.4.1 A heavy-duty alternator/generator shall be fitted to the engine to supply the vehicle 12 or 24 V DC electrical system. The alternator/generator shall be fitted with the necessary control unit. 4.4.2 A trickle charger shall be fitted in the cab and it shall be fitted with socket for connection to 230 V AC electrical systems. A red pilot lamp, to indicate when the battery is being charged from an external supply shall be provided. 4.4.3 All-important electrical circuits shall have separate fuses suitably indicated and grouped into a common fuse box, which shall be located in an accessible position. Provision shall be made to carry spare fuses in this box. 4.4.4 In addition, all electrical wiring shall be made of flame retardant automotive wires and routed through conduit piping to minimize the risk of short circuits, enhance safety against accidental damage and facilitate easy inspection and maintenance during fault rectification or routine servicing.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.

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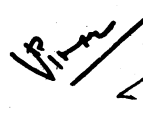
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4.5	Alternator Unit	4.5.1 A 230 V, 50-cycle alternator with its independent engine shall be provided. 4.5.2 The alternator shall be screen protected, continuously rated, self-regulating, self-excited, class 'E' insulation type, having an output of not less than 5 KVA at 0.8 power factor, (4 kW) 220 V Three phase, 50 cycles. 4.5.3 The alternator shall be equipped with a direct-coupled flange mounted exciter, which shall automatically keep the alternator voltage constant and provide an approximately straight-line voltage characteristic within 5 percent at all loads, and at any pre-set factor between 0.8 and unity. 4.5.4 Two cable reels each with 30 m of cable shall be provided. The cable shall be a 3-core duty flexible cords 250 V grade having a conductor of cross-section 4 mm (128/0.20 mm) conforming to IS 9968-1: 1988 AMD 3 2016 or IS 694: 2010 Reaffirmed 2015. 4.5.5 Controls shall be mounted near the generator and shall consist of the following: a) Three sockets (plugs) and switches with 3 phase connections b) Four sockets (plugs) & switches (MCB's) with single phase connections of min. 20 AMP capacity c) Four sockets (plugs) & switches (MCB's) with single phase connections of min. 10 AMP capacity d) RPM Meter digital - 1 No e) KW meter-1 No f) Ampere meter separate for each phase-Total-3Nos. g) Frequency meter - 1 No h) 32 Amps TPN MCB - 1 No i) Hand throttle control; j) Engine cooling water temperature gauge (if water cooled);	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.
4.6	Work	4.6.1 Enclosed accommodation for six persons shall be provided in the driver cab-cum-crew compartment including the driver and the in-	Shall be checked physically and should meet the requirement as per relevant standards and QRs.

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		charge of the crew. Both the seats should be independent. The driver's seat should be adjustable and comfortable. a) The rear portion of the compartment of driver's cabin should have one removable seat for full width of cab for 4 (four) crew members b) The cab floor should be covered with 3 mm thick Aluminium chequered plate rigidly fixed to the under frame cross members by means of nuts and bolts or riveting. c) Trap doors for topping up oil etc wherever necessary shall be provided. d) One roof light should be provided in the driver's cabin dwell vision and external rear view mirrors should be fitted to the cab. e) The driver cum crew cabin shall be provided with full four doors, one for driver, and one for officer and two at the crew compartment. f) The doors shall be generously sized for easy embarking /disembarking of crewmembers. All the doors shall be fitted on the super structural members, each hung upon three invisible coach type M.S. stout hinges and fitted with best quality handles. The door handle on outside of driver seat shall have a locking arrangement. Other doors shall be lockable from inside. g) Aluminium tower bolt of 8" shall be provided for all the doors from inside Adequate grab rails shall be provided for easily boarding and alighting from the appliance. h) The windscreen glass shall be provided in the two valves and shall be flat in shape. Each glass shall be fitted in E.P.D.M. rubber beading. The glasses shall be 5 mm thick toughened safety glass. i) The rubber beading used for fitting glasses and window frame shall be E.P.D.M. rubber.	
4.6.2	Seats	a) The driver seat shall be adjustable type vertically, forward and	Shall be checked physically and should meet the requirement as per relevant

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		backward. The officer seat shall be fixed type. Both the seats shall be rigidly fixed to the flooring by means of nuts and bolts. The seat cushion shall be of latex foam rubber 75 mm thick upholstered in good quality foam leather cloth. b) The back seat shall be of latex foam rubber 50 mm thick upholstered in good quality foam leather cloth. c) The crew seat shall be rigidly fixed to floor by means of nuts and bolts, running full width of the vehicle suitable for sitting five fire-fighters, covered with 75 mm x 50 mm cushion latex foam rubber upholstered in good quality foam leather of approved shade. d) Below the crew seat, two lockers shall be provided, one for storage of batteries and another for keeping accessories. The extra length of battery cable shall be provided if required. e) The super structure of the cabin shall be constructed out of 14-gauge M.S. 45 x 45 x 20 mm-pressed "TOP HAT" sections. The super structure shall be strengthened specifically on the members with the lockers doors frames are to be fitted and the other members by providing brackets and gussets of 14-gauge M.S. plate securely welded. The details of super structure are as follows: i. Under frame cross members: 100 x 50 x 5 mm ii. Floor longitudinal members: 50 x 50 x 6 mm iii Vertical members on even side: 45 x 45 x 20 mm iv. Skirt member: 45 x 45 x 20 mm V. Waist member: 45 x 45 x 20 mm vi. Top deck longitudinal: 45 x 45 x 20 mm f) The cab and lockers should be of composite construction with sufficient rigidity and reinforcement and shall be kept as light as possible. g) The structure/frame work shall be	standards and QRs.
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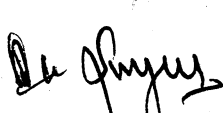
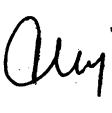
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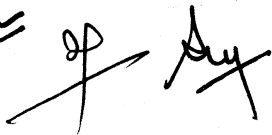
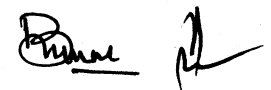
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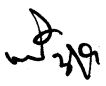
		of welded constructions and made from 2 mm thick MS pressed sections and square tubes. h) The Angles and channels used in the appliance structure shall be of minimum 3 mm thickness and the entire material shall be Zinc-plated galvanized to ensure anti-corrosion protection and long-term durability. i) The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure. j) The structure shall be so designed to avoid any vibration/ratting / deformation in the intended usage of the vehicle. k) The interior paneling shall be done from 1.22 mm thick Aluminium sheets & the exterior paneling shall be done from 1.60 mm thick Aluminium sheets.	
4.6.3	Cable Winch	a) An electrically operated cable winch of 6-ton capacity should be provided. b) The winch unit should be complete with minimum 5.5 HP 12v DC series wound electric reversible motor for increased pulling power, rope drum, and 90 ft heavy duty galvanized EIPS wire rope with replaceable self-locking clevis hook and shall be mounted on the front bumper of the vehicle with suitable strong supports.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs. Necessary certificates from statutory authority as per QRs, wherever necessary, shall also be checked and verified.
4.6.4	Telescopic Light Mast:	a) A compact, low profile, roof mounted lighting system, fitted with 4 X 200 watts LED lights, vertically elevated pneumatically up to 15 feet (4.6m) shall be installed on the roof of the vehicle. b) Lighting shall be provided by a 12V or 24V DC with Remote Control, directional lighting system, with rotation & tilt lamps to provide total coverage. c) The remote control unit shall allow a person to operate all the functions of the light mast & accurately aim for complete directional positioning. In addition Auto-show, a one button command, automatically retracts, turnout. the lights and stows the	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.

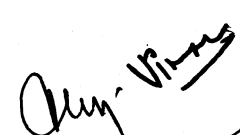
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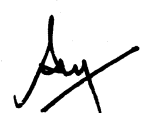
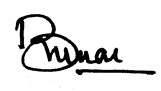




		entire system to the compact transport position shall also be included in the remote controller. d) The complete unit should comprise of handheld remote control with cable, rotation & tilt positioned, mounting frame with built in tilt system.	
4.6.5	Miscellaneous	a) A suitable bumper shall be provided at the rear rigidly fixed to the super structural members by means of nuts and bolts, fabricated from 100 x 50 x 5 mm M.S. channel. b) Two Cat ladders made out of Stainless steel round or square pipe of 1" dia shall be provided c) Two nos. of 1" dia Aluminium pipe railing with sufficient number of Aluminium double socket brackets shall be provided to the rear body over the deck. d) A heavy-duty towing hook shall be provided and fitted with the rear bumper by means of nuts and bolts; e) Quick removable type wire mesh guard made from 1" X1" size MS wire mesh of 16 SWG covered in MS angle frame shall be provided to all the glasses of driver-cum-crew cabin. f) An illuminated 'FIRE AND RESCUE' sign shall also be fitted to the outer centre front of the cab. g) The bodywork shall be designed to enclose as much as possible of the appliance without interfering with necessary accessibility but at the same time, shall have clean lines.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.
4.6.6	Lockers:	a) The lockers shall be provided for storage of all equipment listed in the Annexure. The lockers will have drawers as per the latest International Standards i.e. roll in-roll out type with opening in tapered position giving very easy & immediate access to all equipment. b) All equipment should be stowed very scientifically & systematically in the drawers & each piece of equipment shall have its designated location so that at the time of EMERGENCY the	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs. Necessary certificates from statutory authority as per QRs. wherever necessary, shall also be checked And verified.




required equipment can be very easily located & removed for use.

- c) Location of equipment (labels) shall be provided on each drawer for immediate identification.
- d) All the equipment shall be properly clamped and strapped in the drawers to prevent shifting of the equipment while the vehicle is in motion.
- e) The drawer sides shall be constructed from aluminium angles of minimum 100mm X 4mm thickness and the bottom floor of the drawers shall be made from 3 mm thick aluminium sheets and then covered with good quality neoprene rubber sheets.
- f) The drawers should have self-locking system to prevent accidental opening while the vehicle is in motion. The bottom edges of the drawers shall be covered with SS 304 angles of min 2 mm thickness.
- g) The ROLL IN-ROLL OUT drawers shall be made according to the required size of the equipment that is to be stowed.
- h) The lockers shall be covered with Push-Pull type Aluminium Roller Shutters only for faster & smoother rescue operation at the time of emergency.
- i) The roller shutters shall be made from extruded Aluminium sections with suitable roller, spring, guide channels etc. All Aluminium sections used shall be properly anodized.
- j) The Roller shutters shall be rolled inwards underneath the roof giving unobstructed access to the equipment lockers and the fire fighting material.
- k) These roller shutters should open in every position of the vehicle even in rough terrain. Guide rails shall support the shutters over entire length on both sides to make them absolutely torsion free.
- l) The opening of the roller shutters shall be done by means of a lift bar provided.

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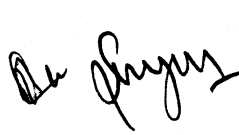
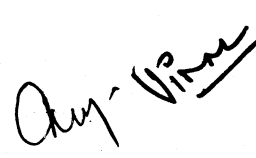
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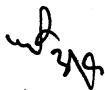
		m) This should be of the self-locking type so that while the vehicle is moving, the shutters do not open accidentally during movement of vehicle. n) Roller shutters shall be made of hollow rectangular shaped Aluminium links which shall be inter connected with rubber /plastic/ PVC profiles sealing the roller shutter watertight when closed. o) These roller shutters should be durable, maintenance free, weather and corrosion resistant. p) All lockers shall be fitted with internal lighting which shall be capable of being automatically switched 'ON' and 'OFF' by the opening and closing of the roller shutters. q) A master switch for isolating the locker lighting circuit shall also be provided.	
4.6.7	Access to the roof of the vehicle.	Grab-rails and non-slip steps be provided wherever necessary. A ladder made out of S.S. round or square pipe of 1" dia shall be provided at the rear of the appliance to provide easy access to the roof of the vehicle.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs. Necessary certificates from statutory authority as per QRs. wherever necessary, shall also be checked and verified.
4.6.8	Trussed type extension ladder	A 10.5m Aluminium Trussed Type extension ladder as per IS 4571: 1977 shall be mounted on suitable gallows fitted with rollers and designed to facilitate easy and quick removal of the ladder from the rear of the appliance.	Shall be checked physically and should meet the requirement as per relevant standards and QRs.
4.6.9	Stretcher-Ladders	In addition, two stretcher-ladders shall be mounted separately on the appliance in such a way that they shall be removed easily, quickly and independently, when required. Specification of the stretcher-ladders shall be as follows: a) Stretcher ladder- Main ladder section shall be manufactured from Aluminium alloy and shall have following requirements: b) Overall length not less than 2.0 m c) Overall width not less than 600 mm d) Centre of rungs 210 mm approximately	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.
4.7	Stability	The stability of the appliance shall be	Shall be checked and should meet



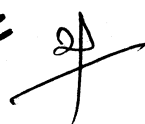






		such that when under fully equipped and loaded conditions (but excluding crew). If the surface on which the appliance stands is tilted to either side, the point at which overturning occurs is not passed at an angle of $27\frac{1}{2}^{\circ}$ from the horizontal.	the requirement as per relevant standards and QRs.
5	Workmanship and finish	5.1 The standard of workmanship and finish of all mechanical and other parts shall be such that the parts normally required to be replaced, can be supplied and will fit-in correctly. 5.2 The complete exterior of the vehicle shall be painted with two finish coat fire-red colour conforming to shade No. 536 of IS 5. The paint shall conform to IS 2932. The Automobile paint (ICI/Dulux/DuPont etc.) shall only be used. 5.3 The driving compartment, crew's compartment, inside the vehicle and inside lockers shall be painted cream. Lockers shall be finished in shadow board painting or replica of items to show the position of each piece of equipment. 5.4 All other parts except engine shall be painted black. 5.5 Necessary anti-corrosion and priming coats shall be applied before painting. 5.6 Painting and phosphate of the chassis shall be carried out to withstand the climatic conditions in the tropics. 5.7 The words "Central Industrial Security Force, Fire Service Training Institute." In Hindi & English shall be painted on both sides of vehicle with monogram on the Body of Rescue Tender in a suitable size letters in Golden Yellow paint with Black colour shading. NOTE: The name of "Central Industrial Security Force, Fire Service Training Institute." is given as example, the names of respective organisation will be incorporated accordingly.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.
6	Instruction Book	Instruction Book Instruction book(s) for the guidance of the user, including both operating and normal maintenance procedures, shall be provided. The book(s) shall include an itemized and	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs. Necessary certificates, from statutory authority as per QRs, wherever

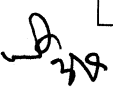


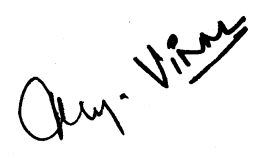





		illustrated spare parts list, giving reference to all the wearing parts.	necessary, shall also be checked and verified.
7	Accessories	The following accessories shall be provided in addition to these normally fitted on the chassis: - One 250 mm diameter bell shall be mounted externally. It can be operated from inside the driving/crew compartment; - Fog lamps- two, low mounted in front of appliance; - Reversing light- one, suitable situated to assist reversing; - LED Light bar min. 1200 mm wide with Aluminium Housing and max. 90 mm height with Blue and Red lighting shall be provided on top of the fire vehicle. - Revolving beacon light- Two, of blue colour and shall be capable of throwing revolving beams of light round 360° with beams inclined upward, horizontally and downward. These shall be mounted on the cab-roof and second on roof at rear and shall be operated from the vehicle battery; - Wind screen wipers (electrically operated) - of approved design -two; - Tools- All tools required for normal routine maintenance of the appliance, which are not included in the kit for the chassis; - Search light-two, adjustable to give flood or beam light and shall be mounted in convenient position on the appliance but at the same time, shall be capable of being readily removed and mounted on tripods away from the appliance. These shall each be supplied complete with tripod and not less than 30 m of TRS cable on reel mounted on the appliance; - Spot light- two, adjustable and shall be mounted in convenient position on the roof of the appliance; and - One, 12 volts battery operated siren shall be mounted in a convenient position.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.
8.	Marking	Each appliance shall be clearly and permanently marked with the following information: Manufacturer's name or trade-mark,	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.

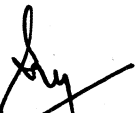






		if any; and b) Year of manufacture.	Necessary certificates from statutory authority as per QRs. wherever necessary. Shall also be checked and verified.
9.	Equipment for Emergency Rescue Tender	List of mandatory equipment for users is enclosed. However the list is not exhaustive, new inventions can also be added according to user requirements.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs. Necessary certificates from statutory authority as per QRs. wherever necessary. Shall also be checked and verified.

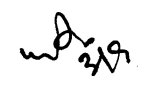

Sh. S K Yadav
(AC/BSF)


Sh. Vimal
(DC/SSB)


Sh. Anil Kapoor
(AC/ITBP)

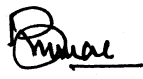

Sh. Sanjay Singh
(AC/NSG)

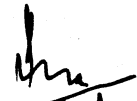

Manoj Kumar
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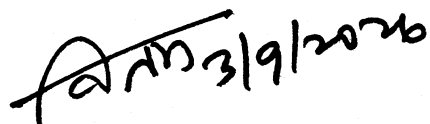

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Sh. Binay Kumar
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Sh. Anil Singh
(DIG/CISF)


Sh. Vijay Prakash, IPS
ADG (HQ)/CISF
Chairman


Director General/CISF