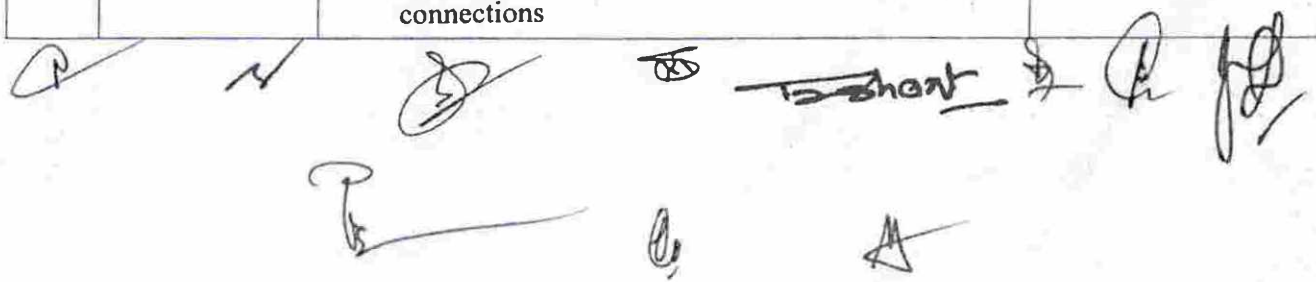


**TRIAL DIRECTIVES (TDs) OF
EMERGENCY RESCUE TENDER BIS : 949-2012**

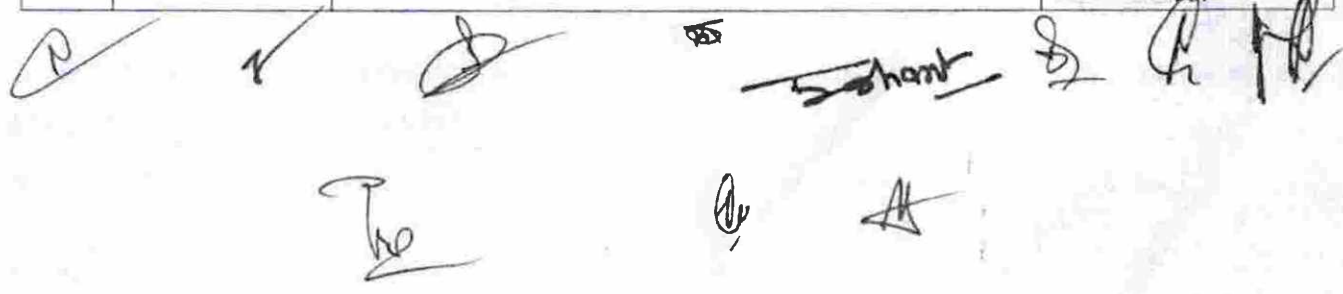
SL	COMPONENT	Qualitative requirements (QRs)	Trial Directives (TDs) for BOOs
1	Purpose	<p>The Multifunctional Emergency Rescue Tender shall be designed specifically for the purpose of use at fires which requires special equipment, rescue and other special service calls such as:</p> <p>1.1 Large special fires in Cities, Towns and in industries requiring the use of Breathing Apparatus, special equipment, illumination equipment etc.</p> <p>1.2 Lift, goods transport, railway or machine accidents for which special equipment are required. Major leakages of toxic or dangerous Liquids or gases.</p> <p>1.3 To fulfil 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.</p> <p>1.4 The Rescue Tender shall be fast on road and easily manoeuvrable in crowded streets and normal sharp corners. The overall dimensions shall not exceed the limit specified herein.</p>	The vehicle shall meet the requirement as per relevant standards and QRs.
2	General requirements	<p>Design construction features, materials and equipment and interpretation of Terminology of specification of Emergency Rescue tender shall be in accordance with IS : 949-2012.</p> <p>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 crewmembers to get ready in vehicle itself.</p> <p>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.</p> <p>2.2.1 The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when laden.</p>	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.

4.4	Electrical System	<p>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.</p> <p>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.</p> <p>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.</p>	Shall be checked physically and should meet the requirement as per relevant standards and QRs.
4.5	Alternator Unit	<p>4.5.1 A 230 V, 50-cycle alternator with its independent engine shall be provided.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>4.5.5 Controls shall be mounted near the generator and shall consist of the following:</p> <p>a) Three sockets (plugs) and switches with 3 phase connections</p>	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.


 A collection of handwritten signatures and initials in black ink, including a large signature on the left, a signature in the middle, and several initials on the right.

		<ul style="list-style-type: none"> 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	<p>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.</p> <ul style="list-style-type: none"> a) The rear portion of the compartment of driver's cabin should have one removable seat for full width of cab 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 	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.

		<p>The details of super structure are as follows:</p> <ul style="list-style-type: none"> i. Under frame cross members : 100 x 50 x 5 mm ii. Floor longitudinal members : 50 x 50x 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 <p>f) The cab and lockers should be of composite construction with sufficient rigidity and reinforcement and shall be kept as light as possible.</p> <p>g) The structure/frame work shall be of welded constructions and made from 2mm thick MS pressed sections and square tubes.</p> <p>h) The Angles and channels used shall be of min. 3mm thickness. ZINC PLATING shall treat for the complete Structure material for anti-corrosion.</p> <p>i) The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure.</p> <p>j) The structure shall be so designed to avoid any vibration / ratting / deformation in the intended usage of the vehicle.</p> <p>k) The interior panelling shall be done from 1.22mm thick aluminium sheets & the exterior panelling shall be done from 1.60mm thick aluminium sheets.</p>	
4.6.3	Cable Winch	<ul style="list-style-type: none"> 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. 	<p>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.</p>



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 absolutel torsion free

Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.

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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 27 ½° from the horizontal.	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.
5	Workmanship and finish	<p>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.</p> <p>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.</p> <p>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.</p> <p>5.4 All other parts except engine shall be painted black.</p> <p>5.5 Necessary anti-corrosion and priming coats shall be applied before painting.</p> <p>5.6 Painting and phosphate of the chassis shall be carried out to withstand the climatic conditions in the tropics.</p> <p>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.</p> <p>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.</p>	<p>Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs.</p> <p>Necessary certificates from statutory authority as per QRs, wherever necessary, shall also be checked and verified.</p>
6	Instruction Book	Instruction 4 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.	Shall be checked physically and should meet the requirement as per relevant standards and QRs.

9.	Equipment for Emergency Rescue Tender:-	List of mandatory equipment for users as enclosed with QRs.	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.
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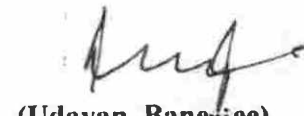

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