

TECHNICAL SPECIFICATION OF EMERGENCY RESCUE TENDER

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1 PURPOSE:

The Multifunctional Emergency Rescue Tender shall be designed specifically for the purpose of use at fires, rescue and other special service calls such as:

- 1.1 Large fires in Cities or in Towns, difficult or special fires requiring the use of Breathing Apparatus, special equipment, illumination equipment.
- 1.2 Major electrical fires in electrical installations or transformers
- 1.3 Ship fires
- 1.4 Aircraft fires
- 1.5 Lift, goods transport, railway or machine accidents for which special equipment is required
Major leakages of toxic or dangerous liquids or gases.
- 1.7 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.
- 1.8 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.

2. GENERAL REQUIREMENTS

Design construction features, materials and equipment and interpretation of Terminology of specification of Emergency Rescue tender shall be in accordance with IS 949-2000

- 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.
- 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 shall be made with a view to combining lightness with strength and durability.
- 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 either shall be of corrosion resisting material or treated to resist corrosion.
- 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 Ashok Leyland comet and cargo, TATA -LPT 709 (BHP-90), 1613 (BHP-130), 2516 (BHP-160) or any other suitable make.

NOTE: As per operational requirement user will specify the exact requirement of the Chassis from above option.

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

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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. A fuel tank contents gauge shall be fitted on the instrument panel in the driving compartment.

4.3.2 The fitting 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.

4.5 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 434(Part 1):1964 or IS 694:1977.

4.5.5 Controls shall be mounted near the generator and shall consist of the following:

Three sockets (plugs) and switches with 3 phase connections

Four sockets (plugs) & switches (MCB's) with single phase connections of min. 20 AMP capacity

Four sockets (plugs) & switches (MCB's) with single phase connections of min. 10 AMP capacity

RPM Meter digital – 1 No

KW meter – 1 No

Ampere meter separate for each phase – Total – 3Nos.

Frequency meter – 1 No

32 Amps TPN MCB – 1 No

Hand throttle control;

Engine cooling water temperature gauge (if water cooled);

4.6 Body 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 compartment of driver's cabin should have one removable seat for full width of cab for 4 (four) crew members.

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- b) The cab floor should be covered with 3 mm thick Aluminum 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 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:

- 1 Under frame cross members : 100 x 50 x 5 mm
- 2 Floor longitudinal members : 50 x 50x 6 mm
- 3 Vertical members on even side : 45 x 45 x 20 mm
- 4 Skirt member : 45 x 45 x 20 mm
- 5 Waist member : 45 x 45 x 20 mm
- 6 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 2mm thick MS pressed sections and square tubes.
- h) The Angles and channels used shall be of min. 3mm thickness. ZINC PLATING shall treat for the complete Structure material for anti corrosion.
- 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.

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h) The interior panelling shall be done from 1.22mm thick aluminium sheets & the exterior panelling shall be done from 1.60mm 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 1000 watts metal halide lamps, 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 no 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" X 1" 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' 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 equipments 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 equipments.
- b) All equipments 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 equipments 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.

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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 interconnected 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 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 A 10.5 m aluminium TRUSSED TYPE extension ladder 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 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:

Overall length not less than 2.0 m

Overall width not less than 600 mm

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 $27\frac{1}{2}^{\circ}$ 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 paint to be manufactured by ICI/Dulux/Nerolac/DuPont etc.

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 English shall be painted on both sides of vehicle on the water tank 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.

6 INSTRUCTION BOOK AND ACCESSORIES

6.1 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.

6.2 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) 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;
- e) Wind screen wipers (electrically operated) - of approved design - two;
- f) Tools- All tools required for normal routine maintenance of the appliance, which are not included in the kit for the chassis;
- g) 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;
- h) 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.

7 MARKING

7.1 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.

08. Equipment for Emergency Rescue Tender:-

List of Mandatory equipments for users :-

Sl.No	DESCRIPTIONS	QTY	UNIT
1	Compressed Air Breathing Apparatus set positive pressure 45 min duration complete with 4 spare cylinder as per IS 10245 part-II	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	5	Nos.
7	Long line 100 m size 50mm circumferences	2	Length
8	Safety Belt – full body Harness with hook & rope	2	Nos.
9	Hammer – 10 Kg.	6	Nos.
10	Rubber Gloves in container tested with 10,000 V	10	Pairs
11	Engineering Tools set consisting of: DE spanner 8" x 3/4" – 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
12	Electric Tools set 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 tap – 1 No	1	Set

13	Shears, bolt cutter large with insulated handle of 600mm	2	Nos.
14	Spreader for iron railings, double screw type 125 to 175mm travel	2	Nos.
15	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 batt with 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 all applicable safety standards and shall be brand new and of reputed make.	2	Nos
16	Drilling machine 0 230 V(With a set of drill 12 Nos.)	1	No.
17	Nylon Rope ladder with snap hooks of 25 m length with aluminum round	1	No.
18	3 layer Fire Proximity suit (aluminized) with helmet, hood, gloves & boots.	2	Sets
19	10.5 m trussed type double aluminum 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 Velcro / straps for securing.	10	Nos.
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 bouncy 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	<p>Hydraulic Electrical-Hydraulically operated spreader complete with chain set; The minimum spreading force on the open arm – 20 tons</p> <p>Minimum spreading distance – 600 mm</p> <p>Minimum spreading force at closed arm – 34-110 Kn</p> <p>Minimum pulling distance – 495 mm</p> <p>Minimum pulling force – 28 kN</p> <p>Weight not more than 20 kgs.</p> <p>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. 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</p>	1	Set
23	<p>HYDRAULIC ELCTRO-HYDRAULIC CUTTER</p> <p>Min. blade opening : 150 mm</p> <p>Weight not more than 20 kgs</p> <p>Cutting capacity 30mm min.</p> <p>Cutting force 600 kN min.</p> <p>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.</p> <p>The design of the tool shall be based on EN 13204 with type test</p>	1	set



<p>24</p>	<p>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 2nd 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.</p>	<p>1</p>	<p>set</p>
<p>25</p>	<p>Concrete breaker / chipping hammer – big impact rate min. 0-1400 per / min. power input – 1240 watt, single phase 230-250 volts, light in weight, shock proof body with required accessories with pointed and flat bit (electrical operated)</p>	<p>1</p>	<p>No.</p>
<p>26</p>	<p>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.</p>	<p>1</p>	<p>set</p>

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27	Safety goggles	6	Nos.
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	Hydraulic Combi- Tool (With pulling chain and adapter)	1	Set

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

SI.No	DESCRIPTIONS	QTY	UNIT
1	Under water BA set (under water rescue) with 4 spare cylinders. 12 L cylinder with harness, pressure gauge and regulator.	4	Sets
2	Wet Suit: the wet suit shall be one piece design overall with hood and zipper made from 3 mm reflective neoprene rubber. The wrist, ankle, and face seal 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	4	Sets
3	Encapsulating Chemical Protective Gas tight and splash protection Suit with gloves and boot as per NFPA 1994-2007 certified including for Chemical / Bio terrorism use (NBC Type Suit)	2	Set
4	First Aid Medical Outfit - for 50 persons	2	Sets
5	Blanket Woolen (in box)	6	Nos.
6	Blanket, Asbestos 2 x 2 mtrs (in box)	1	No.
7	B.A. Compressor should be 3 or 4 stage, 250 lpm free air delivery, operating pressure 200 & 300 bar with twin filling connection for 200 bar and 300 bar, auto drain / auto stop. The compressor should be driven by a three phase electric connection.	1	Set.
8	Chain lifting 3 tons complete with end rings & shackles	1	of 6 Meter
9	Pulling & Lifting Machine, lifting 1.5 tonnes or Pulling 3 tons complete with wire rope & hook	1	Sets
9.a	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.b	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	Nos.
10	Grapnel with nylon rope of 40mm Circumferences & 30 m length	5	Nos.
11	Lowering line, 50 m size 50mm circumferences	1	Length
12	Short line 15 m size 50mm circumference	2	length

13	Hardwood Blocks, assorted from 75mm to 225mm thick	12	Nos.
14	Spades	6	Nos.
15	Mattocks, Handle	6	Nos.
16	Pick Axe with Handle	6	Nos.
17	Axes	6	Nos.
18	Crow Bar 1 meter long	6	No.
19	Sledge Hammer	6	No.
20	Rake – 3 Prong	1	No.
21	High Safety Boots (high voltage)	6	Pairs
22	Mat Rubber Large	2	Nos.
23	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 mafra file 10" – 1 No Carpenter tool box – 1 No. Chopper – 1 No.	1	Set
24	Shears, bolt cutter with insulated handle of 400mm	2	Nos.
25	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.
26	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
27	Cordoning radium type rope – 5 Metre	6	Nos.
28	Full body safety harness made from Kevlar for cut and heat resistance for working in any condition, EN 361	3	Nos
29	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.
30	Steel bucket (9 litres capacity)	10	No.
31	Proppings – 20 ft. length (for propping at house collapses telescopic)	2	Nos.
32	Water Proof suits (rain coat)	2	Nos.
33	Rollers for moving heavy objects (6" dia x 4')	2	Nos.
34	Nylon ropes three strand Hawser laid size 50mm circumferences 30 m with breaking load 5.3 ton (IS:4272)	4	Nos.
35	Chokes (metal) for vehicles	4	Nos.
36	Insulated plier (12" size) screw driver (14" size) fuse remover, electrical tester	1	Set
37	Salvage sheets 12'x12' & 6'x4' - 1each	1	Set
38	Parachute knot complete for lowering purpose	1	No.


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39	Inflatable Rubber boat – 5 persons (bellow type – with hand pump (rubber dinghy without board, motor 25 HP.	1	No.
40	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
41	Night vision OWL optics binoculars, focused ranged 25", field of view 596' at 1000 yards with storage case	1	set
42	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.
43	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
44	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
45	Self-rescue automatic escape (standard size)	2	Nos
46	Shovel	6	Nos.
47	Asbestos Gloves	6	Nos.
48	Safety belt with hook	6	Nos.
49	Jumping Sheet (Jump Rescue Device 980 x 500 x 360	2	Nos.
50	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
51	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 accs., 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.


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52	Temp. Measuring Device - Infrared portable temp. measuring device	1	No.
53	Ascender & Descender Device with 150 mtrs rope, ascending & locking handle with hook & rescue triangle / rescue evacuation harness with parapet wall anchor - CE approved.	1	Set
54	Vehicle Stabilization Kit - Quick strut 120-200 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.
55	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 10m - 2 nos Sealing plate 600x300x30 mm - 2 nos. Sealing plate 1000x300x30 mm - 1 no. Transport case for above	1	Set
56	Airline Trolley with 15 m hose and Cylinder on trolley wheels	1	Set


It is noted that this list is not exhaustive. Please include items which are required for conducting the above mentioned exercises.


(V. Ram Prasad)
Insp/A T I, BSE
Member-VI



(Ramesh Singh)
Asstt. Commandant, CRPF
Member-IV


(Hardeep Singh)
Asstt. Comdt. (ITSP)
Member-IV


(Vivek Sharma)
Team Commander, NS/G
Member-III


(Dr. M.M. Gosai)
Dy S.P., BPR & D
Member-II


(Naresh Kumar)
Asstt. Commandant/Fire
OISF
Member-I


(Dr. K.C. Wadhwa) 23/07/15
Dy Inspector General/Fire
Presiding Officer

