

Rescue Technique/Equipments

Rescue

Rescue can be termed as responsive operations that usually involve the saving of life, or prevention of injury during an incident or in a dangerous situation.

Different type of rescues

- **Air-sea rescue**

Air-sea rescue is the coordinated search and rescue of the survivors of emergency water landings as well as people who have survived the loss of their sea-going vessel. ASR can involve a wide variety of resources including seaplanes, helicopters, submarines, rescue boats and ships.

Different type of rescues

- **Cave rescue**

Cave rescue is a highly specialized field of wilderness rescue in which injured, trapped or lost cave explorers are medically treated and extracted from various cave environments. Since cave accidents are a very limited form of incident, and cave rescue is a very specialized skill, normal emergency staff are rarely employed for this type rescue. Instead, this is usually undertaken by other experienced cavers who undergo regular training through their organizations and are called up at need.

Different type of rescues

- **Confined space rescue**

Confined space rescue is a rescue operations that involves the rescue and recovery of victims trapped in a confined space or in a place accessible only through confined spaces, such as underground vaults, storage tanks, or sewers. They are usually either unlit or poorly lit so rescuers must provide their own light source. Usually confined spaces often contain hazardous materials in liquid or gas form which can be harmful or fatal to humans. These hazards can be fatal as they create a limited window in which to perform a rescue. The general rule is that after four minutes without oxygen, a person in a confined space will likely suffer asphyxia resulting in either brain damage or death.

Different type of rescues

- **Swift water rescue**

Swift water rescue also called "whitewater rescue" is a type of rescue dealing in whitewater river conditions. Due to the added pressure of moving water, swift water rescue involves the use of specially trained personnel, ropes etc. The main goal is to use or deflect the water's power to assist in the rescue of the endangered person(s), as in most situations there is no easy way to overcome the power of the water.

Different type of rescues

- **Mines rescue**

Mine rescue is the very specialized job of rescuing miners and others who have become trapped or injured underground in mines because of mining accidents and disasters such as explosions, roof falls or floods. These personnel are called as "Mine rescue team". As mine rescue is particularly dangerous work, rescue crews are usually made up of volunteers who risk their own lives to save their fellow workers. Most mine rescue teams are composed of miners who know the particular mine, and are familiar with the various sorts of mine machinery they may encounter during the rescue, the layout of workings and geological conditions and working practices.

Different type of rescues

- **Rope rescue**

Rope rescue is a type of rescue that involves use of ropes, anchoring devices, friction rappel devices, various devices to utilize mechanical advantage for hauling systems, and other specialized equipment to reach victims and safely recover them.

Different type of rescues

- Three primary categories of rope rescue exist:
 1. high angle urban/structural
 2. wilderness/mountain rescue and
 3. cave rescue.

There are significant differences between each in both technique and equipment. As a rule, urban rope rescue involves heavier equipment and is of relatively short duration. Cave and wilderness rope rescue involves lighter equipment with extended rescue times. Although there is significant overlap in techniques and concepts, the two skill sets are not considered interchangeable. What works in an urban environment may not work in a wilderness environment and vice versa.

Different type of rescues

- **Search and rescue**

Search and rescue is the search for and provision of aid to people who are in distress or imminent danger. The general field of search and rescue includes many specialty sub-fields, mostly based upon terrain considerations. These include Mountain rescue; ground search and rescue, including the use of search and rescue dogs; urban search and rescue in cities; combat search and rescue on the battlefield and air-sea rescue over water.

Different type of rescues

- **Ski patrol**

A Ski Patrol is an organization that provides Emergency Medical and rescue services to skiers and participants of other snow sports, either at a ski area or in a back country setting. Patrollers are trained in Basic or Advanced Life Support to stabilize and transport patients to Hospitals, often with the same capabilities as in an ambulance

Different type of rescues

- **Extraction** (military)

Extraction, used in tactical combat and special operations of military, is the process of removing constituents from a targeted site when it is considered imperative that they be immediately relocated out of a hostile environment and taken to a secured area under friendly control. Extraction may imply rescuing entities from grave danger or immediate conditions that they are incapable of surviving.

Different type of rescues

- **Extrication**

Extrication is the process of removing a victim from the debris of a building collapse or a Rail/Road accident, when conventional means of exit are impossible or unadvisable. A delicate approach is needed to minimize injury to the victim during the extrication.

Triage

- **Triage** is the process of determining the priority of patients' treatments based on the severity of their condition. This rations patient treatment efficiently when resources are insufficient for all to be treated immediately. The term comes from the French verb *trier*, meaning to separate, sift or select.

Triage

The injured victims at an accident spot or at the place of disaster are divided into three categories:

- Those who are likely to live, regardless of what care they receive;
- Those who are likely to die, regardless of what care they receive;
- Those for whom immediate care might make a positive difference in outcome.

S.T.A.R.T.

(Simple Triage and Rapid Treatment) is a simple triage system that can be performed by lightly trained lay and emergency personnel in emergencies. It has been field-proven in mass casualty incidents such as Train accidents and bus accidents, though it was developed for use by Community Emergency Response Teams (CERTs) and Fire fighters after earthquakes.

Triage separates the injured into four groups:

- The *expectant* who are beyond help
- The injured who can be helped by *immediate* transportation
- The injured whose transport can be *delayed*
- Those with *minor* injuries, who need help less urgently

DEFINITIONS

- ART means Accident Relief Train
- M RT means Medical Relief Train .
- SPART means Self Propelled Accident Relief Train.
- CRANE(140T)

ACCIDENT RELIEF TRAIN

- It consists of 5 Coaches + 2 Wagons
- 2 Coaches of Mech + 1 Electrical + 1 Engg + 1 Staff Rest Van.
- Of 2 Mechanical, 1 Coach of Kitchen + Tools , and other Rerailing Equipment.

ACCIDENT RELIEF TRAIN





One BVZC and one BOBS (L) got derailed at SAIL siding of BXF on 12.08.07



Lifting by Hydraulic Jacks in water logging & raining condition to re-rail BOBS (L) on 12.08.07

MEDICAL RELIEF TRAIN



SPART

SELF PROPELLED ACCIDENT RELIEF TRAIN



140T BD CRANE



140 TON CRANE

- Basic Crane Motions

– Hoisting



Lifting/lowering

– Slewing



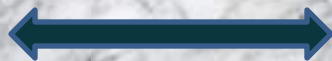
JIB Rotation 0-360
degree

– Derricking



Jib in - out

– Travelling



140 TON CRANE

The 140 t crane has many **advantages**:

- Capacity to lift a loaded BOXN wagon on the same track and slew it through 30 degrees on either side of the track centerline.
- Maximum permissible speed of 100 km/h.
- Provision of safe load moment indicator and safety cut-off.
- All motions hydraulically controlled through pumps, motors and cylinders.

MEDICAL VAN



AUXILLARY MEDICAL TOOL VAN



Rescue equipments in MRV

- Hydraulic cold cutting equipments with power pack and hand pumps (LUKAS)
- Light weight Electrically operated tools (Bosch)
- Generator for Electrically operated tools
- Breathing apparatus
- Wood saw
- Fire extinguishers
- Hydraulic jacks

Rescue equipments in MRV

- Gas cutting equipments
- Oxy fuel under water cutting equipments
- Terfor
- Aluminium ladders of different sizes
- Inflatable air bags

Rescue equipments in MRV

- Synthetic tents with aluminium poles
- Tarpaulins
- Manila rope 1" dia
- Luminous barricade
- Detonators
- Inflatable tents
- Hand tools like sledge hammer, cutting pliers, chisel, Tommy bar , spanners etc



Hydraulic Cutter



Hydraulic Spreader



Combined Cutter and Spreader



Power pack for Cutter and Spreader



Hand Pump for Cutter and Spreader



**Hand operated combined Cutter and Spreader
with built in Pump**



Gas cutting set



Terfor



Emergency Breathing Apparatus

Self contained Breathing Apparatus





Inflatable Air Bags



Inflatable Air Bag in operation



Oxy fuel Under water cutting equipment



Electrically operated Nibbler



Hand Drilling Machine



Hand drill with hollow saw for wider holes



Electrically operated Saw for plate cutting



Abrasive cutter/Angle grinder



Jig saw

A.C.GENERATOR





Cord less abrasive cutter



25 Kg capacity DCP Fire Extinguisher



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TO SEAT

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Thank You