

Material	Class of Hazard
Potassium Binoxalate. See Poisons	
Potassium Chlorate	E,H
Potassium Cyanide. See Poisons	
Potassium Ferricyanide. See Poisons	
Potassium Ferrocyanide. See Poisons	
Potassium Hydroxide	H
Potassium Nitrate	E,H
Potassium Nitrite	E,H
Potassium Perchlorate	E,H
Potassium Permanganate	H
Potassium Peroxide	E,H
Potassium Persulphate	H
Potassium Sulphide	H
Powders, Metallic, see under specific names	
Printing Inks, See Inks Printing	
Propyl Acetate	E,H
Propyl Alcohol	E,H
Prussiate of Potash. See Poisons	
Prussic Acid See Poison	
Pulverished coal See coal Pulverised	
Pure Alcohol	P,H
Pyrene	H
Pyrethrum Flowers See Flowers	
Pyridine -	
F.P. below 24.40C	E,H
F.P. not below 24.40c	E,H
Pyridene Base	
F.P. below 24.40C	E,H
F.P. not below 24.40C	H
Pyroxofm. See Potassium Sulphide	
Pyrogallic Acid. See Poisons	
Quicklime. See Lime Unslaked	
Quinenoxime. See Nitroso Phenol	
Raffia (Vegetable Fibre)	H
Rags -	
Clean Rags (Not including clean textile cuttings)	H
Oily or Creasy Rags	E,H
Ramie (Vegetable Fibre)	H
Rape Oil. See Oils Animal, Fish etc.	
Raphia, See Raffia	
Rayon Fibre	H
Rayon Waste	H
Rayophane Papers (Loose)	H

Material	Class of Hazard
Rectified Spirits of Wine See Spirits of Wine. Rectified	
Red Lead. See Poisons	
Red Lead See Poisons	
Red Phosphorous	H
Renovators	
F.P. below 75 OF	E.H
FP. not below 73 OF	H
Resins Natural	H
Resinates	H
Rhea Fibre	H
Rhigolene	H
Rice Root (Vegetable Fibre)	E.H
Rockets	E.H
Rock Gas	H
Rock Oils and their liquid products. See Oils. Mineral etc.	
Roofing felt, see Felt	
Rope, Tarred	H
Rosenary. See Herbs	
Rosin H	
Rosin Oils	H
Rosin Spirit	H
Rubber spirit	H
Rubber Goods, Old. See Pubber Waste	
Rubber, Reclaimed	H
Rubber Seed Oil, /see Oils, Animal, Fish etc.	
Rubber Solution-	
Containing mineral naphtha-	
FP. below 730F or bi-sulphide of carbon	E.H
FP. between 730F and 150F	H
Rubber waste including old rubber goods	H
Rum, See Spirits, Potable	
Russian Mats. See Mats, archangel or Russian	
Rye Grass	
Sacks and Bags, See Bags and Sacks	H
Safety cartridges. See ammunition	
Safety fuses. See ammunition	
Safflower flowers. See Flowers	
Saffron flowers See Flowers	
Sage. See Herbs	
Salpetre. See Potassium Nitrate	
Salvage Goods, Fire or Water-damaged	H
If so classified before damage	E.H
Sandarac	H
Sansevierra Biores	H
Saw Dust	H

Material	Class of Hazard
Schist Oils and their liquid products-See Oils Mineral etc.	
Screenings, cotton seed Cotton Seed Screenings	
Seal Oil. See Oils, animal, Fish etc.	
Seeds. See under specific names	
Senna leaves. See Leaves	
Seasame oil See Oils animals, fish etc.	
Shale Oils and their liquid products. See Oils mineral etc.	
Shark Oil. See Oils Animal, fish etc.	
Shavings, wood or paper	H
Sheep Dips. See Poisons	
Sheets Oiled	H
Ship's Flares, See Flares	H
Shoddy	
Signal Lights	E.H
Signal (Explosive)	E.H
Silk Waste (artificial) See Rayon Waste	
Silver Cyanide. See Poisons	
Sisal (vegetable fibre)	H
Snaps for Bon-bon crackers or cossagues	E.H
Sodium	E.H
Sodium Amalgam	E.H
Sodium Bichromate	H
Sodium Chlorate	E.H
Sodium Cyanide, See Poisons	
Sodium Hydro Sulphite	E.H
Sodium Hydroxide	H
Sodium Nitrate	E.H
Sodium Nitrite	E.H
Sodium Perchlorate	E.H
Sodium Permanganate	H
Sodium Peroxide	E.H
Sodium Sulphide	E.H
Sodox	E.
SolidifiedSpirits. See spirits Solidified	
Solygnum Wood preservative	
Solvents	
F.P. below 24.40C	E.H
F.P. between 24.40C and 65.50C	H
Soot H	
Material	Class of Hazards
Sorghum Stalk (Vegetable Fibre)	H
Soya Bean Oil, See Oils, animal, fish etc	
Spangle Lights	H
Spanish Black	H

Material	Class of Hazard
Spent Hops See Hpps. Spent	
Sphagm Moss, See Moss	
Spirits, Industrial	E.H
Spirits of Ammonia. See Ammonia	
Spirits of salts	H
Spirits of twine, Rectified	E.H
Spirits Potable unless packed in bottles or jars	E.H
Spirits, soliffied	
Stains -	
F.P. below 24.40C	E.H
F.P not below 24.40C	H
Stearic Acid in powder form in steel drums	H
Stearline	H
Storax Balsam. See Balsams	
Straw (Vegetable Fibre)	H
Straw Developes	H
Straw Plants	H
String Tarred	H
Strontium	E.H
Strontium chlorate	E.H
Strontium Nitrate	E.H
Strontium Peroxide	E.H
Suint	H
Sulphide of Barium. See Barium Sulphide	
Sulphide of Calcium. see Calcium Sulphide	
Sulphide of Copper. See Copper Sulphide	
Sulphide of Iron. See Iron sulphide	
Sulphide of Lime. See Calcium Sulphide	
Sulphide of phosphorous. See Phosphorous Sulphide	
Sulphide of Potash. See Potassium sulphide	
Sulphide of Soda. See Sodium Sulphide	
Sulphite. Waste Lequor	H
Sulphur	
Sulphur Chlorides (Monochloride and Dichoride)	H
Sulphur Dyes. Unless containing atleast 105 of inert inorganic salt and packed in air tight metal vessels	H
Sulphur Precip in 1 Lb packets	H
Sulphuric Acid. (Concentrated)	E.H
Sulphuric Acid. (Dilute)	H
Sulphuric Acid. Nordhausen	H
Sulphuric ether	E.H
Sumach Leaves. See Leaves	
Sunflower Oil. See Oils, Animal, Fish etc.	
Sunn Hemp (Vegetable Fibre)	H

Material	Class of Hazard
Sweet Spirits of Nitre. See Nitre sweet spirits of Tallo	H
Tampico Hemp (Vegetable Fibre)	H
Tar, all kinds	H
Tar Oils and their liquid products (other than in bottles)	H
Tarpaulins	H
Tarpaulin papers	H
Tarred Cloth. See Cloth, Tarred	
Tarred Felt. see Felt.	
Tarred Paper. See Paper	
Tarred Rope. See Rope, Tarred	
Tarred String. See String, Tarred	
Tarred Twine. See Twine, Tarred	
Tartar Eentic. See Poisons	
Tea Seed Oil. See Oils, Animal, Fish etc.	
Teasles, See flowers, dried	H
Terebene	H
Tetralin	E.H
Tetra Nitro Aniline	E.H
Tetro Nitro Methyl Aniline	H
Tetro Nitro Napthalene	E.H
Textile Materials, Oiled	H
Rhermit	E.H
Thistledown (Vegetable fibre)	H
Thorium Nitrate	E.H
Thus H	
Thyme (See Herbs)	H
Toddy (Vegetable Fibre)	H
Telu Balsam See Balsams	
Toluene	E.H
Toluol. See Toluene	
Tow of all kinds	H
Tree Cotton (Vegetable Fibre)	H
Trion-esyl Phosphate	H
Tri Nitro Aniline	E.H
Tri Nitro Benzene	E.H.
Tri Nitro Benzole. See Tri Nitro Benzene	
Tri Nitro Napthalene	E.H.
Tri Nitro Phenol	E.H.
Tri Nitro Toleuene	E.H.
Tri Nitro Toluol. See Tri Nitro Toluene	
Tri Sodium Phosphates in barrels (American)	H
Trotter Oil. See Oils, animal, Fish etc.	
Tula Fibre	H

Material	Class of Hazard
Tung Oil. See Oils, Animal, Fish etc.	
Tula Fibre	H
Tung Oil See Oil, Animal, Fish etc.	
Turkey Red Oil	H
Turpentine	H
Turpentine Substitute	H
tutty Powder. See Zinc Powder	
Twine Tarred	H
Tri Nitro Apisole	EH.
Unmanufactured Rubber. if stored with other goods (other goods means all kinds)	H
Unslaked Lime. See Lime, unslaked	
Uranium Nitrate	
Varnishes (other than Litho Varnish)	
F.P. below 24.40C	E.H.
F.P. not below 24.40c	H
Vaseline. See Petroleum Jelly	H
Vegetable Black	H
Vegetable Down See Down, Vegetable	H
Vegetable Fibres of all kinds	H
Vegetable Horse, Hair (Vegetable fibre)	H
Vegetable Oils, See Oils animal, Fish etc.	
Vegetable /silk (Vegetable Fibre)	H
Vegetable Wool (Vegetable Fibre)	H
Vetriol See Sulphuric Acid (Concentrated)	
Vodka. See Spirits, Potable	
Wagner Lockheed No. 21	H
Wanger Lockheed No. 21 B (if having an Oil base)	H
Waste of all kinds(excluding waste silk and tea waste)	H
Waste Celluloid	E.H.,
Waste Oily or Greasy	E.H.
Waterproofed cloth using an oil based solution	H
Water proofing solutions	
F.P. below 24.40C	E.H
F.P. between 24.40C and 65.50C	H
Wax of all kinds	H
Whale Oil. See Oils, Animal, Fish etc.	
Whisk (Vegetable Fibres)	
Whisky. See Spirits. Potable	
White Lead See Poisons	
White Phosphorous	E.H
White Spirit	H
Wood Alchohol	E.H

Material	Class of Hazard
Wood Fibre	H
Wood Flour	H
Wood Meal	H
Wood Oil See Oils Animal, fish etc	
Wood Shavings. See Shavings. Wood or paper	
Wood Spirit	E.H
Wood Wool	H
Wool Grease	H
Xylene-	
F.P. below 24.40C	E.H
F.P. not below 24.40C	H
Xylol. See Xylene	
Xylonite	E.H
Xylonite Solutions	E.H
Yellow Phosphorous	E.H
Yucca Fibre	H
Zacaton (Vegetable Fibre)	H
Zinc Richromate	H
Zinc Chlorate	E.H
Zinc Chloride. See Poisons	
Zinc Cyanide See Poisons	
ZincDust (Metallic)	E.H
Zinc Dust Sulphate	H
Zinc Peroxide	E.H
Zinc Powder	E.H

**SCHEDULE OF CHARGES TO BE LEVIED FOR HIRE OF FIRE APPLIANCES AND (FORCE) TO RENDER INTER STATE HELP**

(See Para 5 under 30 Miscellaneous)

Occasion when the Fire Force & Fire Equipment may attend free of cost or otherwise, should be as follows: -

**Within Jurisdiction**

- (i) Special services free of charge in all cases of human and animal rescuer works from fires, accidents or other emergencies for any length of time.
- (ii) Special services other than above to be charged for at all times on slab system for the total period the fire equipment is out on duty.

**Outside Jurisdiction**

- (i) Special services in all cases of attending fires, accidents or other emergencies and rescuer works to be charged on a slab system for the full time the fire equipment is out on duty.
- (ii) Special services other than above also to be charged for all times on slab system for the total period the fire equipment is out on duty.

- Note:**
- 1. Time of duty to be reckoned from the time the fire unit leaves garage to the time it returns thereto.
  - 2. Mutual arrangements regarding levy of charges or otherwise may be brought about between neighbouring authorities.

Formula for Hire of Fire Fighting Equipment may be as follows :-

- (a) Purchase cost of equipment = X (to be rounded up)
- (b) Life of equipment = Y years
- (c) Annual depreciation = X divided by Y
- (d) Monthly depreciation = X divided by 12Y
- (e) Depreciation per day = X divided by 12x3
- (a) Charges to be levied within jurisdiction Depreciation per day plus 20% and maintenance charge (excluding consumption of fuel, oil, etc.). The figure to be rounded up to the nearest 5th of 10th digit as the case may be.....Say Z.

The charge of Rs. Z to be levied for the first 4 hours or a fraction thereof and 50% of this charge should be levied for every subsequent two hours or a part thereof.

- (b) Charge to be levied at twice the rate applicable outside jurisdiction within jurisdiction, viz = 4Z (for the first eight hours or a fraction thereof): -  
50% of this rate should be levied for every 4 hours or a fraction thereof.

In addition to above charges, extra charges should be levied for the actual consumption of fuel, oil, etc. and also for the services of the members of staff who attend.

Charges for the members of staff who attend should be calculated at the rate of a day's wages worked out on "pay plus dearness pay" for every 4 hours or a fraction thereof. 50% of this may be credited to the department and the other 50% paid to individual members for their work.

In such cases, a reasonable sum may be collected as deposit immediately on completion of the job and the hire charges etc. worked out on the above formula may be adjusted against itin due course.



## APPENDIX "30-B"

### GENERAL RULES TO BE FOLLOWED FOR COMPETITION DRILLS

(See Para 8 under 30 Miscellaneous)

- (i) Fire Trailer Pump.
- (ii) Extension Ladder with Rescue.
- (iii) Tactical Medley.

#### **Crew**

The crew shall consist of six members i.e. one Leading Fireman (who shall be in charge), one Driver/Operator (No.6 of the crew) and four firemen. Officers may also participate in the drill competition forming any member of the crew.

#### **Uniform**

The crew shall wear the uniform that is normally worn at the time of attending fire calls i.e. Helmets, Fire Tunics (with rank markings where necessary), Trousers, Gum Boots, Belt with Axe and Belt Lines.

#### **Judges**

The Panel of Judges will consist of the Chief Officer of the host State and four other Principal Officers to be decided by the Committee. The decision of the judges shall be final and binding.

#### **Method of Work**

- (a) Although the general principles as laid down in the Drill Manual for the Fire Services in India will be observed, the crew may not strictly follow the drills as laid down there, during the Competition stage, the aim being to finish the work as quickly as possible using all men at the Command of the Leader. NO.6 of the crew will however remain as Driver/Operator.
- (b) The teams completing the drills with the minimum timing (including penalties) shall be awarded trophies and prizes.
- (c) In the event of a tie, the timing of the performance will be taken into account to arrive at a decision and in the event of a further tie; the team concerned shall perform the drill again.
- (d) The teams taking part in the competitions should submit the list of names of the crew sufficiently in advance and within the specified period. Substitutes will be allowed only in case of injuries/sickness and that too with the approval of the judges.
- (e) Non-compliance with any of the general rules may result in disqualification.
  - (f) A team not completing the drill or in the even of failure to complete it within the Schedule time, shall be disqualified.
  - (g) Each State or Service may send only one team for each drill, which may include to reserves against any sickness or accidental injury.
  - (h) The use of non-standard equipments will not be permitted, unless otherwise specified.
  - (i) All doors and lockers of appliances will be kept closed prior to the commencement of the drill.
  - (j) The Host State will provided standard equipments for the drills, including Delivery hose, Suction hose, ropes and lines and such other equipments, as would be necessary.

#### **Penalties**

- (a) Penalties as specified against each drill, to be noted carefully by members of the crew. Commitment of any of them will lead to the addition of the timing of the performance by the corresponding timings, as indicated against each.
- (b) Touching the gears and equipments after the final whistle is blown (whether intentional or un-intentional) shall result in a heavy penalty, as mentioned under the schedule of penalties.
- (c) The appliance striking against a stationary object while driving it into position shall result in disqualification of the team.

- (d) Any team trying a foul start (before the whistle is blown) will be warned twice and if it is repeated a third time, it will be liable to disqualification and it may not be allowed to compete.

### **FIRE TRAILER PUMP DRILL COMPETITION (SCHEDULE TIME.....3 MINUTES)**

#### **Preliminary**

The drill shall consist of getting two lines of hose to work from Trailer Pump drawing water from a static tank/Dam, knocking down two targets and "Making up".

#### **2. Appliances and Equipment**

- (a) **Trailer Pump\*-** A Trailer pump shall be placed in a marked position with all jacks lowered, towing eye facing the target and towing bars folded. The suction inlet should have the blank cap (chained) fitted, hand tight.
- (b) **Suction Hose.-** Two 4" Suction hose, each of 8 ft. length shall be kept on the trailer pump on the brackets provided for the purpose with the straps opened up. The suction on the off side brackets shall have the metal strainer fitted.
- (c) **Suction Wrenches.-** A pair of suction wrenches of the conventional type i.e., the one with a semi-circular bent with an eye. To suit the couplings of the suction hose shall be placed alongside the delivery hose in the place marked and should be used for tightening the intermediate and intake joints.
- (d) **Manila Line.-** A two inch short line about 50 ft. long shall be kept in a coiled position, alongside the delivery hoses in the position marked and shall be used, one half for securing the suctions. Viz. a clove hitch at the strainer. An half hitch at the intermediate joint and a round turn and two half hitches on the near side rear stay of the trailer pump and the other half for lowering the suctions into the water. The line shall remain taut between the round turn and two half hitches right up to the clove hitch.
- (e) **Delivery Hose.-** Length of delivery hose (2½") size lengths if each of 50' or four length if each of 75' with couplings shall be kept on the ground in the marked positions, tightly rolled with female couplings inside.
- (f) **Branches.-** Two short (emergency) branches with 5/8" nozzles shall be kept alongside the hose on the ground, in the marked positions.
- (g) **Water Source.-** A static Tank/Dam full of water shall be arranged at the rear of the pump 2 ft behind the starting line.
- (h) **Target.-** The target shall be a board 18" square, painted white and should be hinged to a stand so that the board will fold up when struck by a jet from the branch. Hitting the target in this manner shall be termed "Knocking down the target". The top of the target shall be 3 ft. 8 ins. From the ground. The board shall be balanced upright by a counter-weight at the bottom. Two such targets shall be kept 7 ft. apart at a distance of 180 ft. from the starting line.

#### **3. Starting Line**

A starting line shall be marked at the rear of the pump 3 paces from the suction inlet and the crew shall be on this line at start of the competition.

#### **4. Drill**

The crew shall fall-in on the starting line with No.1 on the left in such a way that Nos. 3 & 4 are in line with the nearside the off side deliveries respectively of the pump. The trailer pump engine shall be kept started with all other equipments in their proper places.

The drill shall commence with the blowing of the first whistle by the starter and the time shall be reckoned from the time the first whistle is blown. Immediately the whistle is blown, the crew shall start work which will be as follows:-

On the whistle the crew will couple up two lengths of suction hose and connect it to the inlet of the pump. All joints are to be tightened up properly using wrenches correctly (i.e. the curve of the wrench should follow the

curve of the coupling). The suction hose should be secured by the Manila line, gently lowered into the water, tank/dam, pump primed water drawn and then delivered. Cooling control cock should then be opened.

Simultaneously two deliveries with three length of 50 each or two lengths of 75 ft. each shall be laid out connecting them to the two deliveries of the pump and fixing the branch at the end of the third hose in each case. The jets shall then be directed on to the two targets, knocking them down. When both the targets are knocked down, a (second) whistle will be blown by the leader of the team which shall be the signal for "Making up". The engine of the Trailer pump should then be shut down, petrol cock closed, cooling control cock closed, suctions disconnected, brought back and replaced in their original place on the trailer pump. The Manila line and suction wrenches should also be put back in their proper places from where they were taken out. The Manila line should be coiled up. The delivery hose lengths should be disconnected from the pump and the valves closed. All couplings and branches should also be disconnected from the delivery lines, hoses properly under-run and neatly rolled up with the female coupling inside and replaced on the ground from where they were taken out along with the branches, after which the crew will line up on the starting line. The third (final) whistle will be blown by the starting when all the members of the crew are on the starting line.

The total time calculated shall be from the time of the first whistle to the time of the third and final whistle.

Penalties as indicated in the stacked sheet will be imposed for the faults mentioned therein and will be added to the actual time taken for the drill in deciding the final result.

N.B.-For conversion of the figures into Metric Units, please read as follows: -

<b>Suction Hose-</b>	4" size = 100m.m
	8 ft. length = 2.5metres
<b>Manilas Lines-</b>	50 ft. length of 2" size = 15 metres of line of 50m.m. size.
<b>Delivery Hoses</b>	2½" R.L. = 63m.m.R.L.
	50' length = 15metres.
<b>Branches-</b>	5/8" size = 15.5m.m. (app.)
<b>Water Sources-</b>	Distance of 2 ft. = 7metre (app.)
<b>Target-</b>	18" square = 45c. m. square
	3 ft. 9 inches = 1.5 metres
	7ft = 2metres.
	Distance of 180 ft. = 56 metres

### FIRE TRAILER PUMP DRILL COMPETITION FAULTS & PENALTIES

- |     |   |         |
|-----|---|---------|
| 1.  | Dropping of Suction Coupling of the ground while connecting and disconnection - per fault   | 3secs   |
| 2.  | Suction Couplings not tightened with wrenches-per fault   | 2 secs. |
| 3.  | Suction improperly secured with rope-per fault  | 1 sec.  |
| 4.  | Manila line loose between stays & strainer  | 1 sec.  |
| 5.  | Dropping of delivery hose coupling while laying out and "making-up"-per fault.  | 3 secs. |
| 6.  | Dropping of branch pipes (at any stage)-per fault   | 2 secs. |
| 7.  | Excessive dragging of delivery hose-per fault   | 2 secs. |
| 8.  | Failure to open cooling system, if provided.  | 2 secs. |
| 9.  | Bursting of delivery hoses due to sudden high pressure-per fault  | 2 secs. |
| 10. | "Water on" signal before connecting branch-per fault  | 1 sec.  |
| 11. | "Knocking down" wrong target-per fault  | 2 secs. |
| 12. | Disconnecting branches and delivery hose couplings before "whistle by the Leader of the team for make-up" in spite of having "knocked |         |

	down Target"-perfault	1 sec.
13.	Failure to shut down engines on "Make-up"	1 sec.
14.	Failure to close Petrol Cock	1 sec.
15.	Failure to close Cooling Control Cock, if provided.	1 sec.
16.	Failure to replace suction Hoses in proper place.	2 sec.
17.	Failure to replace Suction Blank Cap (hand tight)	1 sec.
18.	Failure to close Delivery Valves properly-per fault	1 sec.
19.	Failure to put back wrenches in proper place.	2 sec.
20.	Failure to "Make-up" Manila Line properly.	1 sec.
21.	Failure to put back Manila line in proper place.	1 sec.
22.	Under running delivery hose before disconnecting-per fault	2 secs.
23.	Failure to under run hoses properly-per fault.	2 secs.
24.	Failure to roll up hoses properly-per fault	2 secs.
25.	Failure to replace hoses in proper place-per fault	2 secs.
26.	"Throwing" rolled hose-per fault	2 secs.
27.	Failure to keep branches in proper place.	2 secs.
28.	Trying to rectify faults after third whistle-per fault	3 secs.

## EXTENSION LADDER DRILL COMPETITION WITH RESCUE

(Schedule time - 2½mts)

### Preliminary

The drill shall consist of extending and patching an Extension Ladder to the second floor, rescuing a casualty (dummy), carrying it down, lowering it on to a stretcher and "Making-up".

### Appliances & Equipment:

**\*(a) Fire Tender/Motor Pump+**

A fire tender or a motor pump with an Extension ladders shall be stationed in a marked position at the distance of 75 ft. from the drill tower.

**(b) Extension Ladder-**

A 35 ft. wooden extension ladder (trussed type) shall be kept on the fire tender properly secured.

**(c) Stretcher**

A stretcher shall be kept on the fire or Motor Pump, alongside the ladder properly secured by leather straps.

**(d) Casualty**

A dummy shall be kept on the second floor for rescue work (Fireman's lift).

### Starting line

Starting line shall be marked at least 75 ft. away from the Drill Tower and the front wheel of the Fire Tender shall be on this line at the start of the competition.

### Drill

The crew shall be in mounted position, each member of the crew being in his respective seat. The engine shall be started and all doors properly closed.

The drill shall commence with the blowing of a whistle by the starter and the timing is reckoned from the

time the first whistle is blown, the crew shall start work which will be as follows :-

On the whistle, the vehicle shall be moved forward to any spot as desired by the leader of the team. As the vehicle stops, the crew shall dismount, unship the ladder, carry it to the drill tower, extend and pitch it to the second floor in such a way that the head of the ladder is above the horizontal mark on the Drill Tower. This mark shall be at a height of 25 ft. from the ground. The Leading Fireman will then climb the ladder, step on to the second floor and start rescue work. He will pick up the casualty (dummy) and by the "Fireman's Lift" bring down the casualty to a stretcher, which will be brought to the foot of the ladder by two members of the crew. When the casualty has been lowered to the stretcher, a (second) whistle shall be blown by the leader of the team which will be the signal for "Making up". The stretcher with the dummy will, however be carried away by the two stretcher bearers to a marked place 20 ft. away from the lower where the casualty will be taken off from the stretcher, gently placed on the ground, the stretcher made up and carried back to the appliance from where it was taken and properly strapped up. The ladder shall not be left unattended, while the leading Fireman is ascending or descending.

When the ladder is made up, it should be shipped on the appliance and the head etc. properly secured.

After all the gears are made up and restored on the appliance, the crew will mount, take up their respective seats and close the doors when the vehicle will be driven back to the starting line. As the rear wheels of the appliance cross the starting line, a (third) final whistle will be blown by the starter.

The total time taken for the drill shall be from the time the first whistle is blown to the third and final whistle.

Penalties as indicated on page 278 will be imposed for the faults mentioned therein and will be added to the actual time taken for the drill in deciding the final placings.

**N.B.-** For conversion into metric units, please read as follows :-

Position of Fire Tender/Motor pump - Distance of 75 feet=24metres.

Ladder - 35 ft.=10.5metres.

Mark on drill tower-25 ft.=7.8metres (app.)

Position of stretcher-20 ft.=6metres.

### EXTENSION LADDER DRILL COMPETITION-FAULTS & PENALTIES

- |   |          |
|---|----------|
| 1. Dismounting before the vehicle is stopped-per fault  | 2 Secs.  |
| 2. Allowing the ladder to fall on the ground at any stage of the drill-per fault.                           | 10 Secs. |
| 3. Lowering the head of the ladder heavily against the drill tower.   | 5 Secs.  |
| 4. The heading the ladder grazing against the wall of the drill tower while extending or lowering-per fault | 2 Secs.  |
| 5. Failure to pitch the ladder above the horizontal mark on the tower.                                      | 2 Secs.  |
| 6. Failure to maintain the safe working angle.  | 2 Secs.  |
| 7. Leaving the ladder unattended while the Leading Fireman is ascending or descending-per fault.            | 3 Secs.  |
| 8. Propping the stretcher on the ground at any stage of the drill-per fault                                 | 3 Secs.  |
| 9. Failure to open up stretcher properly.   | 2 Secs.  |
| 10. Rough handling of dummy while rescuing or lowering on to stretcher or ground-per fault.                 | 3 Secs.  |
| 11. Dummy slipping off from shoulders while carrying down.  | 30 Secs. |
| 12. Failure to keep stretcher properly and in its place on "Make up"-per fault.                             | 2 Secs.  |
| 13. Dropping the ladder heavily on the gallows while shipping.  | 3 Secs.  |
| 14. Failure to engage pawls after housing.  | 2 Secs.  |
| 15. Failure to secure the ladder properly-per fault.  | 2 Secs.  |

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|-----|--|---------|
| 16. | Trying to mount a vehicle which is in motion-per fault.                | 1 Sec.  |
| 17. | Doors of Fire Tender not properly closed-per fault.                    | 2 Secs. |
| 18. | Trying to rectify faults after the third whistle is blown-per attempt. | 3 Secs. |
| 19. | Running with the stretcher bearing the casualty on it.                 | 3 Secs. |

## TACTICAL MEDLEY DRILL COMPETITION

### Preliminary

The drill shall consist of hauling up a branch and line of hose to the second floor using an Extension Ladder, rescuing a casualty ( dummy) by Fireman's Life, working a Trailer pump to draw water from a Tank/ Dam situated at a minimum distance of 75 ft. from the Drill Tower, knocking down a Target and "Making up".

### Appliances & Equipments

- (a) **Fire Tender-** A fire tender (towing vehicle) with an Extension ladder and a large trailer pump (400 galls. /minutes) hooked up, shall be stationed in a marked position at a minimum distance of 75' from the Drill Tower.
- (b) **Extension Ladder-** A 35" wooden extension ladder (trussed type) shall be kept in position on the fire tender properly secured.
- (c) **Trailer Pump -** A large trailer pump (400 g.p.m./1800 liters/minutes) shall be hooked on to the fire tender. The pump inlet should have the blank cap (chained) hand tight. Towing bars shall be kept folded and all three jacks raised and tightened with the safety pins in position. The safety pins should also be chained.
- (d) **Suction Hose -** Two 4" suction hose, each of 8 ft. length shall be kept on the buckets provided with the straps opened up. The suction on the off side brackets shall have the metal strainer fitted.
- (e) **Suction Wrenches-** A pair of suction wrenches of the universal type shall be kept in the locker of the towing vehicle and should be used for tightening the intermediate and inlet joints of the suctions.
- (f) **Manila Line-** A two inch short line about 50 ft, long shall be kept in a coiled state in the locker of the Fire Tender near the suction wrenches for suction work and a 2" long line (100 ft.) for hauling up the hose with branch.
- (g) **Delivery Hose-** Lengths of delivery hoses (2½") three lengths if each of 50' or two lengths if each of 75" with couplings shall be kept in the locker of the Fire Tender. Hose shall be rolled tight with the female coupling inside.
- (h) **Branches-** One short (emergency) branch with 5/8" nozzle shall be kept in the locker of the Fire Tender.
- (i) **Casualty -** A dummy shall be kept on the second floor for rescuer work (Firemen's Lift).
- (o) **Water Source-** A static tank/dam full of water shall be provided at a minimum distance of 75 ft. from the drill tower.
- (k) **Target-** A target of the type mentioned in "Fire Trailer Pump Drill" shall be kept at a distance of 20 ft. from the drill tower in line with the branch on the second floor.
- (l) **Starting Line -** A starting line shall be marked at a distance of 75" away from the drill tower and the front wheel of the fire tender shall be on this line at the start of the drill.

### Drill

The crew shall be in the mounted position each member being in his respective seat and the engine shall be started up.

The drill shall commence with the blowing of the first whistle by the starter and the time shall be reckoned from the time the first whistle is blown. The crew shall commence work as soon as the whistle is blown which shall be as follows :-

On the whistle, the vehicle shall be moved forward to any spot desired by the leader with the pump,

couple up two lengths of suction of connect it to the inlet of the pump, using the suction wrenches for tightening of all joints and using the short manila line for securing the suctions with a clove hitch at the strainer end, an half hitch at the intermediate joint and round turn and two half hitches at the near side rear stay, of the pump, gently lowered into the Water tank/dam prima the pump, run out the delivery line (three lengths of 50 ft. each or two lengths of 75 ft. each) and only start delivering the water as soon as the branch man is ready on the second floor and the order "water on" is given. Simultaneously the ladder should be unshipped. The ladder extended and patched to the second floor of the drill tower so that the head of the ladder is above the horizontal mark on the Drill Tower. (This mark shall be at the height of 25 ft. from the ground). As soon as the ladder is pitched the leading fireman shall go to the second floor by climbing the ladder taking with him one end of the long line (Manila) after trying a bow line. A second and third fireman shall also follow the leading fireman to the second floor and start hauling up the hose and branch on which the appropriate knots have been tied i.e. a rolling hitch on the house 18' to 20' away from the branch and a clove hitch on the branch folded over the hose and near the female coupling. In the meantime the leading fireman shall rescue the casualty (dummy) by the fireman's lift. When the branch has been hauled up to the second floor and is in position, the order "Water on" will be given by the branch man, the jet will be directed on the target as soon as the target is knocked down the second whistle shall be blown by the leader of the team which shall also be the signal for making up. The second whistle shall not be blown, until the dummy is carried down and the target knocked down. The ladder shall not be left unattended whenever anyone is ascending or descending the ladder. The casualty carried down shall be lowered on to a stretcher, which should be kept on the ground in a place, properly marked for the purpose.

On the second whistle, by the leader of the team, which is the signal for "Making up", all gears should be made up and stowed on the appliance in their respective places from where they were taken out. The hoses on the ground should be under run but the hose taken to the second floor need not. They should be rolled up neatly on the female coupling and re-stowed in the locker of the Fire Tender. The Trailer pump engine should be shut down, petrol cock and delivery valve closed, suction blank cap fitted on the pump inlet hand tight, the suction hoses replaced on the bracket from where they were taken out, jacks raised and properly tightened with the safety pins placed in position and the trailer hooked on to the appliance properly. The rope should be coiled neatly and put back in the locker of the Fire Tender along with the suction wrenches. When the ladder has been made up, it should be shipped on the fire Tender and the head etc. properly secured. When all gears have been made up, the crew shall mount the appliance and take their seats in their respective places, the doors properly closed and the vehicle moved back to the starting line. As the wheels of the Trailer Pump crossed the starter shall blow the starting line a third and final whistle.

The total time taken for the drill shall be from the time the first whistle is blown to the time of the third and final whistle.

Penalties as indicated in pages 9-10 will imposed for the faults mentioned therein and added to the actual time taken for the drill in deciding the final placing.

**N.B.** For conversion of the figures into Metric Units, please refer to the same for the Trailer Pump Drill and the Extension Ladder Drill with rescue.

Manila Line-2" size 100 ft. length = 50 mm size of app. 30 meters.

#### **TACTICAL MEDLEY DRILL COMPETITION-FAULTS & PENALTIES**

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|----|---|---------|
| 1. | Dismounting before vehicle is stopped-per fault.  | 2 Secs. |
| 2. | Failure to apply handbrake of T.P. when set at the water source.                          | 2 Secs. |
| 3. | Dropping of suction couplings on the ground while connecting and disconnecting-per fault. | 3 Secs. |
| 4. | Suction Couplings not tightened with wrenches-per fault                                   | 2 Secs. |
| 5. | Suction improperly secured with rope-per fault.   | 2 Secs. |
| 6. | Manila Line loose between stay & strainer.  | 1 Sec.  |
| 7. | Allowing the Extension Ladder to fall on the ground at any stage of the drill-per fault.  | 10Secs. |

8.	Barging the head of the ladder heavily against the drill tower.	5 Secs.
9.	The heading of the ladder grazing against the wall of the tower, while extending/lowering.	2 Secs.
10.	Failure to pitch the ladder above the horizontal mark on the drill tower.	2 Secs.
11.	Failure to maintain the safe working angle.	2 Secs.
12.	Leaving the ladder unattended while a member of the crew is ascending or descending per fault.	3 Secs.
13.	Dropping of delivery hose couplings while laying out or making up-per fault.	3 Secs.
14.	Dropping of branch pipe (at any stage )-per fault.	3 Secs.
15.	Excessive dragging of delivery hose-per fault.	2 Secs.
16.	Improper carrying of Line to second floor.	2 Secs.
17.	Improper knots on delivery hose for hauling up-per faults.	2 Secs.
18.	Knots on hose at wrong place.	2 Secs.
19.	Failure to open cooling system, if provided.	2 Secs.
20.	"Water on" signal before connecting branch.	2 Secs.
21.	Bursting of delivery hose due to sudden high pressure-per fault.	1 Sec.
22.	Rough handling of dummy while rescuing and lowering on to stretcher per fault.	3 Secs.
23.	Dummy slipping off from shoulders while carrying down.	30 Secs.
24.	Disconnecting branches and delivery hose coupling before whistle for "Make up" by the leader of the team, in spite of having knocked down the target-per fault	1 Sec.
25.	Failure to shut down engine of T.P. on "Make up".	1 Sec.
26.	Failure to close cooling control cock, if provided.	1 Sec.
27.	Failure to replace Suctions in proper place.	2 Secs.
28.	Failure to replace suction blank cap (hand tight).	1 Sec.
29.	Failure to use safety pins on TP. Stays when raised and tightened prior to hocking on to the towing vehicle-per fault.	2 Secs.
30.	Failure to release hand brake of T P. prior to hooking on to the towing vehicle.	2 Secs.
31.	Failure to put back wrenches in proper place.	2 Secs.
32.	Failure to make up manila line properly.	2 Secs.
33.	Failure to put back manila lines in proper place-per fault.	2 Secs.
34.	Failure to engage pawls after housing the ladder.	2 Secs.
35.	Dropping the ladder heavily on the gallons while shipping.	3 Secs.
36.	Failure to secure the ladder properly-per fault.	2 Secs.
37.	Under running delivery hose before disconnecting.	2 Secs.
38.	Failure to under-run delivery hose properly.	2 Secs.
39.	Failure to roll up hoses properly.	2 Secs.
40.	Failure to replace hoses in proper place-per fault.	2 Secs.
41.	"Throwing" rolled hose-per fault.	2 Secs.
42.	Failure to keep branch in proper place.	2 Secs.



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|-----|---|---------|
| 43. | Failure to close locker door/doors-per fault.                                   | 2 Secs. |
| 44. | Mounting the appliance while it is in motion-per fault.                         | 1 Sec.  |
| 45. | Carelessly leaving Extension ladder or T P. at place of work and not making up. | 5 Secs. |
| 46. | Trying to rectify faults after third whistle-per fault.                         | 3 Secs. |

## APPENDIX "30-C"

### REPORT OF SUB-COMMITTEE ON ASSESSMENT OF REQUIREMENTS OF FIRE FIGHTING EQUIPMENT AND ORGANISATIONAL STRUCTURE OF FIRE SERVICES

(See Para 13 under 30 Miscellaneous)

### ANNEXURE III

#### REPORT OF SUB-COMMITTEE NO.2 ITEM NO.15 AND ITEM NO.17 ASSESSMENT OF REQUIREMENT OF FIRE FIGHTING EQUIPMENT ORGANISATION STRUCTURE OF FIRE SERVICES

1. A Sub-Committee constituted of the following members met in the afternoon of 7th December 1976 in Committee Room "C" at Vigyan Bhavan.  
Shri S.C. Chatterjee            Convener  
Shri A.S. Kulkarni  
Shri R.S. Sundaram  
Shri S.M. Bharucha  
Shri B.R. Mehta  
Shri Jagan Mohan  
Shri S.K. Dheri  
Lt Col. R.M. Rajan
2. The following officers were also present at the meeting:-  
Shri H.S. Gahlaut, Deputy Chief Fire Officer, Delhi Fire Service  
Shri S.P. Batra, Station Fire Officer, Delhi Fire Service  
Shri P.N. Mehrotra, Fire Adviser, Ministry of Home Affairs.
3. The note appended at Appendix-IV to the Agenda and the paper at Appendix-V to the Agenda were thoroughly examined and discussed. The Sub-Committee unanimously approved of the suggestions made in these two documents with the following changes:
  - (a) **Funding:** A recommendation may also be included that a special project for the development of fire services may be taken up under the UNDP.
  - (b) **Organization:** The designation of Sub Fire Officer may be changed to read as Assistant Station Fire Officer.
  - (c) The scale of Assistant Divisional Officers in each operational Division should be specified as "one or more Assistant Divisional Fire Officers so that no Assistant Divisional Fire officer shall have to command more than 5 Fire Stations".
  - (d) **Retainer for Volunteers:** Only a monthly retainer should be recommended Reference to any Separate allowance for attending to individual fire calls may be deleted.
  - (e) **Uniform:** The exact scale of issue of uniform may be specified.
  - (f) **Appliances and Equipment:** The portable pump for volunteer fire stations may be specified as 90-120 Liters per minute or higher capacity as required by local conditions.
  - (h) **Water Sources:** Provision of water sources for tall buildings, above 15m in height should also be included in the recommendations.

- (i) Residential accommodation should be made free for all ranks.

Sd/-  
(S.C. CHATTERJEE)

Sd/-  
(B.R. MEHTA)

Sd/-  
(A.S. KULKARNI)

Sd/-  
(JAGAN MOHAN)

Sd/-  
(R.S. SUNDARAM)

Sd/-  
( S.K. DHERI)

Sd/-  
(S.M. BHARUCHA)

Sd/-  
LT. COL. (R.M. RAJAN)

The Committee feels that the present syllabus of the College, vis-a-vis examination system needs thorough revision. It also feels that instead of running lower or elementary courses, College should run more number of senior courses, i.e. Station Officers, i.e. Station Officers, Divisional Officers and Fire Prevention Officers courses etc.

### **ASSESSMENT OF REQUIREMENT OF FIRE FIGHTING EQUIPMENTS**

(See Para 13 under Miscellaneous)

The standing Fire Advisory Committee had made certain recommendations regarding the assessment of requirements of fire fighting equipment for the various State Fire Services. These recommendations were primarily based on population. The Committee had, however, recommended that in industrial cities and area of high fire risk, the scale and type of additional fire fighting appliances should be determined by an actual survey of the area to be protected and that generally a fire station should be available for every four square miles of the area to be covered. As regards the type of appliances, the Committee had recommended pumping appliances only.

Considering the general problem of shortage of water for fire fighting, almost throughout the country, and the inconvenient and out the way location of the natural sources of water in most of the places, it is necessary that the type of fire appliances which should be provided at the fire stations in cities/towns should be standardized as follows:-

- (a) Water tender, carrying 2700 liters water and fitted with 1800 liters per minutes pump should preferably be mid-ship mounted. In addition to the 1800 lpm pump, the appliances should also carry a 275 lpm portable pump conforming to IS 642, and other ancillary gear.
- (b) Extra heavy water tender, carrying 9000 liters of water and fitted with suitable outlets for connection to 75mm and 100mm suction inlet of pump.
- (c) Rescue tender built in all metal station wagon, or a one tonne chassis. The appliance should carry light rescuer equipment for immediate use by the first turn out crew.
- (d) Ambulance- This may be normal ambulance fitted with two stretchers. It should, carry, besides normal first aid equipment, an oxygen resuscitator.

Each fire station should normally have a compliment of 2 water tender pumps, one extra heavy water tender, one light rescue tender and one ambulance. However, where the fire station have to be located at closer distances the light rescue tender and ambulance may be restricted to selected fire stations only.

The number of fire stations should be determined on the basis of response time.

In high hazards area, a response time of a maximum of 3 minutes should be aimed at. In other areas,

the response time should not exceed 5 minutes. For determining the response time, actual runs by fire appliances should be conducted during peak hours of traffic in various parts of the district for which the fire cover is to be provided. The location of fire stations should then be plotted on the map on the basis of these tests.

For Metropolitan cities, divisional fire service HQ and fire service command HQ, it is also necessary to provide a bulk of special appliances like emergency tender, a light van, extra heavy water pumping appliances (in certain selected cases only), turn table ladders, hydraulic platform, control post van, canteen van, hose laying tender and the like.

In certain special cases, specialized fire fighting cases, specialized fire fighting appliances, like foam crash tender or dry powder truck may be necessary at the fire station. This depend upon the predominant fire risk which a particular fire station may be required to cover.

While on the question of assessment of requirements of equipment, it is also necessary to consider the provision of command cars and motor cycles for officers of the rank of Divisional Officers and above and for each fire station respectively.

Mobile workshops should also be provided in each Divisional HQ in the State/Union Territory. Each fire service should also have at lease one publicity van for fire prevention propaganda.

### **ORGANISATIONAL STRUCTURE OF FIRE SERVICES RESTRUCTURING OF FIRE SERVICES ORGANISATION IN INDIA**

1. It is an undisputed fact that all aspects of organization of fire services must be given simultaneous and equal attention, so as to make these services really effective. Unfortunately none of the Fire Authorities in India have been bale to achieve it so far. Some of the reasons for this situation are :-  
Lack of appreciation of the minimum essential requirements of fire services for ensuring their operational efficiency and for maintaining the efficiency at optimum level.  
Heterogeneous character of fire services organization in the country, resulting in multiplicity of Fire Authorities.  
Lack of appreciation of the need for maintaining an efficient fire services organization.  
Lack of resources.
2. Based on recommendations of SFAC, the Government of India, has repeatedly impressed upon the State Governments to take over the fire services from the Local Bodies and to maintain them as separate departments of their respective States. But, only partial success has been achieved in this direction during the past eighteen years. It is a matter of regret that even in the States where the fire services constitute a separate department, they lack in essential facilities.
3. Various aspects of fire services organizations are discussed below and suggestions are offered for formulation of recommendations by the SFAC with a view to ensure uniformity in the organization and expeditious development of fire services throughout the country.

#### **Legislation**

4. As far back as the year 1958, the Government of India had requested all State Governments to take over the fire services within their respective states and to maintain them as a separate department. A model fire Force Bill was drafted in the Ministry of Home Affairs in consultation with the Law Ministry and, after it had been examined the SFAC, it was forwarded to all State Governments for enactment by their respective Legislatures. This course of action had to be adopted because of the Constitutional position. Several reminders were issued to the State Governments and, following the Fire Protection Seminar, organized by the Ministry of Home Affairs, in November, 1974, the Home Minister himself addressed all Chief Ministers on the Subject. But, the desired result has not been achieved so far.
5. It is suggested that SFAC may consider recommending Central Legislation (with the concurrence of State Governments). The State Governments who may frame their own rules, based on model rules, which may be supplied to them as guide, may then implement the Central Act. If necessary, the Government of India may consider transferring the subject of fire protection to the Concurrent List in the

Constitution of India.

6. In addition to the Fire Service Act, it is also essential to have suitable Legislation on measures for the prevention of Fires. It is suggested that SFAC may consider recommending a Central Legislation on this subject also (with the concurrence of State Governments). The State Governments who may frame rules, based on model rules, which may be supplied to them as guide, may also implement this Act. It is further suggested that the proposed Fire Prevention Act may cover all aspects of fire prevention, including enforcement of Safety Codes and the National Building Code of India, 1970, in so far as it relates to fire safety.

### **Funding**

7. Some of the important reasons for maintenance of fire services by State Governments are:

Safeguarding the life and property of people from uncontrolled fire.

Protecting the assets created through the implementation of successive Five Year Plans.

The achievements of Planned development must be protected if full benefit has to be derived from them. In the absence of adequate measures for the prevention and control of fire in various establishments, which have been created as a result of Five Year Plans, the entire property may be destroyed in case of fire, bringing the efforts to nil. It is universally recognized that plant and machinery and more prone to fire with the passage of time, i.e. with ageing.

To prevent loss of national wealth by fire.

8. It is, therefore, necessary that each State Governments, who should shoulder this responsibility in the same manner as they do for Law and Order, must organize effective fire protection. Bulk of the funds for the establishments and maintenance of fire services must, therefore, come out of the consolidated funds of the respective State Governments. However, in view of the fact that all aspects of fire service organization must be developed simultaneously, it may not be possible for the State Governments to find sufficient funds for the fire services out of non-planned expenditure. Since one of the main objects of developing fire services is to consolidate the gains accruing from the Five Year Plans, it is natural that establishment and maintenance of fire services should be treated as a 'Plan' subject and all necessary expenditure for this purpose should be accepted as a Planned expenditure of the State Governments.
9. Many State Governments have expressed their willingness to raise loans for the development of their fire services. The General Insurance Corporation of India has agreed to subscribe to the State loans, as and when they are raised for the development of fire services. But, Reserve Bank of India has fixed a ceiling for the raising of public loans by each State Government. This loan prevents the State Governments from raising loans for the development of fire services. It is, therefore, suggested that the Committee may consider recommending to the government that the State Governments may be permitted to raise loans for the development of fire services over and above the normal ceiling fixed for them by the Reserve Bank of India.

### **Organization**

10. It is estimated that over 70% of India's population lives in villages. An idea of the proportion of major towns and villages can be had from the fact that in West Bengal, there are only 16 district headquarter towns against over 48,000 villages and Orissa the number of villages exceeds 50,000 against 13 district headquarter towns. In many States, a large area in each city town has thatched houses/huts clustered together. In most States, almost all houses in the rural areas have thatched roofs and they built close together. Considering this condition, it is futile to depend upon a few fire stations in the cities/towns to be able to fight fires in the rural areas or in the areas within the city/town, which resemble the rural areas, in so far as the type of construction of houses is concerned. The fire protection organization has, therefore, essentially to cover the entire territory of each State. In other words, it has to reach down to the village level. It would be difficult to find resources for fire protection organization at this mass scale. Full public involvement is, therefore, essential. It is suggested that the fire services in each State should be so organized that they would be able to enforce effective fire prevention measures and would also be able to fight fire anywhere within the State without such loss of property, while recommendation for the establishment of fire prevention wings in fire service are given later in this note, the fire fighting

organization should cover.

- (a) **Full time paid fire station** -These fire stations should be restricted to district headquarter towns and such other towns/areas where the fire risk is abnormally high. Properly designed fire stations buildings should be provided for such fire stations and fire fighting appliances and equipment should be provided as per scales recommended later in this note. Personnel for manning these stations should be full time paid staff.
  - (b) **Retained fire station-** These fire stations should be established in all sub divisional headquarter towns and other towns having lesser fire risk. These fire stations should be similar to those mentioned at (a) above, but only a skeleton full time paid staff should be provided at these stations. Such staff should be limited to one Station Fire Officer, one Leading Fireman per watch for the watch room and one driver per fire appliance/ambulance per watch. The remaining staff should be drawn from retained personnel who should be paid a fixed monthly retainer and a small allowance for attending each fire call.
  - (c) **Volunteer fire stations-** These fire stations should be established in each Block Development Center, so that no separate building would be necessary. The equipment should comprise one or two 90-120 liters per minute capacity portable pumps, which could be kept in the office of Block Development Officer, and a hand-operated siren should be provided for raising the fire alarm, when necessary. Sufficient volunteers should be trained for manning the portable pumps and fighting the fire, as and when required. The Block Development Officer's jeep may be used for transporting the fire pumps till such time as it is possible to provide a separate transport vehicles for this purpose. Each of these pumps, complete with the accessories should cost between Rs.5,000 and Rs.6,000 only.
  - (d) **Rural fire posts-** One or more rural fire post/posts should be established in each inhabited village. The number of such posts should be determined by the size and layout of the village. Simple fire fighting equipment, like barrel mounted hand operated pump, ceiling hooks, and fire beaters should be provided at each of these posts. The entire equipment for Gram Panchayats. Training in the observance of fire precautions and fire fighting should be given to as many Villagers as possible, so that they could fight fires on self-help basis within their own villages.
  - (e) **Fire retardant treatment of thatch-** To reduce the incidence of fire in the villages and in large areas having thatched buildings within the cities, method of treating the thatch and other combustible material, with a view to make them fire retardant, should be propagated. The method has been developed by the Fire Research Division of CBRI who are willing to train anyone in its application. The State Governments may arrange to put up exhibition huts/houses in which treated thatch is used. The idea should catch up quickly and people would then treat the thatching material before constructing their houses.
11. Once the State Governments take over the fire services and organize them as a separate department, the area covered by any single fire service department will be too large and unmanageable, unless the entire State is sub-divided into smaller commands for purpose of administrative, technical and operational control of the fire services. For this purpose, it will be necessary to divide each State into several zones, each zone being termed as a "Fire Service Command". The zoning should be done in such a way that no fire service command should have more than 30 full time and retained fire stations in it. Each command should be further sub-divided into 3 fire service divisions so that each division would have a maximum of 10 full time and retained fire stations in it.
  12. Each fire service command should be commanded by a Chief Fire Officer, who should be assisted by a Deputy Chief Fire Officer. At the division level, the Officer-in-charge of a division should be of the rank of Divisional Fire Officer and he should be assisted by an Assistant Divisional Fire Officer.
  13. Besides the structure given in the foregoing para for the operational wing of the fire service, establishment of other bureaus is necessary for handling other aspects of the Service. The following bureaus are recommended:-
    - (a) Headquarters Bureau
    - (b) Communication and Alarm Bureau
    - (c) Fire Prevention Bureau

- (d) Community Relations Bureau
- (e) Training Bureau
- (f) Research and Development Bureau

14. The structure, intended purpose and justification for each of these bureaus are given below:-

- (a) Headquarters Bureau - This bureau should be headed by a Principal Staff Officer, who should be an uniformed officer of the rank of Deputy Director/Chief Fire Officer, the only difference being that the Deputy Director will be the senior most amongst all the Chief Fire Officers and the Principal Staff Officer.

The Headquarters bureaus should have six divisions under it as follows:-

- (i) Administration
- (ii) Finance
- (iii) Planning
- (iv) Provisioning
- (v) Technical
- (vi) Workshops

Each of the above divisions should be headed by an uniformed officer of the rank of Divisional Fire Officer and should have its own sub-divisions and sections, as necessary. Functions of various divisions in Headquarters are given below:-

- (i) **Administration** - This division will look after the general administration of the fire services, lay down and execute all plans and programmes under the guidance of the Director handle all matters connected with recruitment, personal records, promotion, retirement, etc., and such other functions as may be assigned to it.
  - (ii) **Finance** - The recurring and non-recurring expenditure for any State fire services will be substantial. At the same time, enforcement of the fire prevention Legislation will also result in abnormal increase of work and accounting for the fees etc., which will be recovered on various items. A full-fledged division for handling all financial matters will, therefore, be necessary.
  - (iii) **Planning** -It is necessary that execution of all schemes for future development of various aspects is planned in a systematic manner. This includes the design of future fire stations, appliances and equipment, other buildings for the department and so on. A separate division is, therefore, necessary for planning, which will work in close co-ordination with technical division and Research and Development Bureau.
  - (iv) **Provisioning** - A large quantity of appliances, equipment, uniform clothing and spare parts for fire appliances and general purpose stores will be required for the fire services. It is essential to create a separate division for forecasting future requirements and taking necessary action for procurement, proper storage and distribution of stores and equipment.
  - (v) **Technical**- Before the appliances, equipment, and other stores could be purchased, it would be necessary to lay down specifications for the guidance of the provisioning divisions. It would also be necessary for the fire services to actively participate in the preparation of national standards and building codes, keeping in view the interest of the Service. The technical division would look after this work, so as to relieve the other divisions of this responsibility and to achieve better coordination and result.
  - (vi) **Workshops** - Prompt repair and maintenance of all fire service equipment is of utmost importance. It is a specialized job and must be attended to by specially trained staff. A workshop division should, therefore, be created in each fire service. This division should have two sub-divisions-a centrally located workshop and a fully equipped mobile workshop for each fire service division.
- (b) **Communications and Alarm Bureau**- Means of communications and fire alarm system are essential for the operational efficiency of any well organized fire service. With a large number of control rooms and

watch rooms, it will be necessary to maintain substantial quantities of communication equipment in a serviceable condition at all times. Functions of the communication and alarm bureau will embrace not only the maintenance of equipment, but also planning and provisioning of the equipment and its installation.

Each State Fire Service should have one central control room in the fire service HQ, one control room in each command HQ, one control room in each fire service divisional HQ and a watch room at every full time and retained fire station.

A Chief fire Officer assisted by a Deputy Chief Fire Officer should head the communications and fire alarm bureau. It should have three main divisions and nine sub-divisions as given below:-

- (i) **Operations Division** - Sub-Divisions under this division should be:-  
One central control room, command control rooms at the scale of one per command, divisional control rooms at the scale of one per division and fire station watch rooms at the scale of one per full time and retained fire station.
  - (ii) **Maintenance Division** -Its sub-divisions should be:-  
Installation, central telecomm workshop and mobile telecomm workshop (at the scale of one per division).
  - (iii) **Administration Division** - Sub-divisions under this division should be:  
Establishment, tele-communication, planning and tele-communications provisioning.
- (c) **Fire Prevention Bureau** - Consequent to the enactment of fire prevention Legislation, it would be necessary to set up an efficient machinery for its enforcement. It would also be necessary for the fire services to scrutinize all plans for new buildings within the municipal limits of each city/town in the State from fire safety angle and to inspect such buildings, when ready, with a view to recommend the issue of occupancy certificate.
- In addition to the enforcement of fire prevention Legislation and other duties connected with inspection of buildings, etc., the fire services would also have to launch a mass campaign for the prevention of fire all over the State, including both, the urban and the rural areas.
- To enable the fire services to discharge these functions, it is suggested that a Fire Prevention Bureau should be established in each State Fire Service. Such a bureau should have a limited number of highly trained personnel on its staff, whose functions should be clearly demarcated. They should function with the assistance of operational staff at the fire stations, for routine work only. The Community Relations Bureau, which is being recommended later in this note, would also play a very important role in assisting the Fire Prevention Bureau in the achievement of their objective.
- The Fire Prevention Bureau should be headed by a Chief Fire Officer, assisted by a Deputy Chief Fire Officer. Should have three divisions under it, each of which should be headed by a Divisional fire Officer, assisted by an Assistant Divisional Fire Officer and supported by such other staff as may be necessary. Its divisions should be:-
- (i) Individual Building Division
  - (ii) Fire Licenses for ware houses Division
  - (iii) Fire Licenses for Industries Division
  - (iv) Renewal of Occupancy Certificates Division
  - (v) Other miscellaneous Inspections Divisions
  - (vi) Complaints Division
  - (vii) Inspection Division
  - (viii) Prosecution Division
- (d) **Community Relations Bureau** - With the increase in fire prevention activities on a statewide level, it would be necessary to prepare and disseminate simple and effective literature on fire prevention measures and to arrange talks to different groups of people in various walks of life, so as to arouse fire



consciousness. In order to make the task of the fire services easier and more readily acceptable to general public, it would also be necessary to create a machinery for improving the image of the Service in the mind of common man. A community Relations Bureau, the, therefore, suggested for this purpose.

This bureau should also be headed by a Chief Fire Officer assisted by a Deputy Chief fire Officer and should have the following divisions under it:-

- (i) Publications Division
- (ii) Public Relations Division
- (iii) Audio Visual Division
- (iv) Photography Division

Other divisions may be added as and when the need arises.

Each of the above division should be headed by a Division Fire Officer, assisted by an Assistant Divisional Fire Officer and such other staff as may be necessary.

- (e) **Training Bureau** - The head of the Training Bureau should be an officer of the rank of Chief Fire Officer who should be assisted a Deputy Chief Fire Officer and such other uniformed and non-uniformed staff as may be necessary to handle the various training activities. The bureau should have 7 division under it as follows:-

- (i) Administration Division
- (ii) Library & Documentation Division
- (iii) Junior Course Division
- (iv) Senior Course Division
- (v) Specialized Courses Division
- (vi) Training & Visual Aids Division
- (vii) Sports & Welfare Division

- (f) **Research & Development Bureau** - This Bureau should also be headed by a Chief Fire Officer, assisted by a Deputy Chief Fire Officer. It should have six Divisions under it as given below:-

- (i) Data processing Division
- (ii) Research into Technical Literature & Documentation Division
- (iii) Operational Research Division
- (iv) Evaluation of new equipment Division
- (v) Development of new equipment Division
- (vi) Testing of new equipment before acceptance Division

Each of these divisions should be headed by a Divisional fire Officer, assisted by an Assistant Divisional Fire Officer and such other staff as may be necessary.

### **Fire Stations**

15. Operational efficiency of any fire service depends, to a large extent, upon the location of fire stations in relation to the entire area which is required to be protected and also the design of the fire stations. It has been observed that in most cases the minimum essential features of fire station and their relative locations are not taken into account and the station building is designed in a haphazard manner, without adequate protection to the fire appliances. In most cases, the fire stations are simply housed in rented buildings with temporary sheds open on four all sides, erected for fire appliances. In its second meeting, the SFAC had made certain recommendations about the minimum dimensions for each essential feature of fire station, based on 24 hours' continuous duty system, and the shift duty system. Although the recommendations still hold good, they are not being followed. The committee may therefore consider reiterating that all fire stations must conform to recommendation of SFAC. The Committee may also evolve model designs for a full time paid fire station and a retained fire station, based on the three watch

system of duty.

16. More often than not, only one fire station is provided in a town. Very often, this single fire station is located either on the outskirts of the town or outside the town, which delays the response of appliances to any fire incident which may occur at the further end of the town. It is suggested that, for all high hazards and closely built up areas, response time of a maximum of 3 minutes should be aimed at end, for all other areas, the response time should not exceed five minutes. Fire appliances should actually be run during peak traffic hours to determine the approximate locations of fire stations from where the area allotted to it can be covered within this time limit.
17. It is also the practice in many fire brigades to have the fire service headquarters combined with one of the fire stations. This practice often comes in the way of finding a suitable location for the fire station itself. It may be recommended by this Committee that all divisional, command and fire services headquarters should be located in independent buildings.

### **Appliances & Equipment**

18. In so far as the city/town fire brigades are concerned, diesel chassis are decidedly superior to petrol chassis for the fabrication of fire appliances. The Committee may therefore recommended that all mobile fire and rescue appliances should be built on diesel chassis.
19. Considering scarcity of water sources for fire fighting purposes in also all parts of the country, it may be recommended that the following types of appliances should be standardizes for fire fighting:
  - (a) Water tender pump, carrying 2,700 litres water and fitted with 1800 litres per minute pump preferably, mid-ship-mounted and carrying an additional 275 litres per minute portable pump, conforming to IS 642.
  - (b) Extra heavy water tender, carrying 9,000 litres of water and fitted with suitable outlets for connection to 75mm and 100 mm suction in inlets.
  - (c) It is also suggested that the following scale of appliances may be recommended as standard scale for each fire station:
    - (a) For each full time paid fire stations:
      - (i) Water tender pump (see para 19(a)) above-2 Nos.
      - (ii) Extra havy water tender (see para 19(b)) above -1 No.
      - (iii) Ambulance-1 No.
    - (b) For each retained fire stations-same scale of appliances as for the full time paid stations.
    - (c) Volunteers fire stations-  
Portable pumps of 90-120 litres per minute capacity with 40mm dia hose, in convenient lengths, and other anxillary equipment-1 set.
    - (d) For each rural fire post
      - (i) Hand operated rotary pump, mounted on 200 litres capacity barrel on trolley wheels-1 No.
      - (ii) Ceiling (fire) hooks-2 Nos.
      - (iii) Fire beaters-2Nos.
20. The following scale of hose may be recommended for each mobile pumping appliances-
  - (a) RRL hose, conforming to type II of IS: 636, size 63 mm dia, in 22.5 m or 30 m lengths according to local preference, and fitted with pressure die-cast light allow coupling instantaneous conforming to IS 903.720m
  - (b) Controlled percolation hose coated on both sides, or unlined canvas hose in 30 m lengths and fitted with pressure die-caste-light alloy instantaneous couplings conforming to IS 903-240 m
21. Fifty per cent of each type of hose should be carried on the fire appliances at all times and the remaining

fifty per cent should be kept as reserve at the fire station for replenishing the wet hose after use.

22. In addition to the appliances mentioned above, one or more of the following specialized appliances should be provided at selected fire stations or fire service divisional headquarters, according to local circumstances:-
- (a) Turn table ladders - 45 m
  - (b) Turn table ladders..., 31 m
  - (c) Hydraulic platform - 31 m
  - (d) Hydraulic platform - 21 m
  - (e) Light rescue tender
  - (f) Emergency tender
  - (g) Extra heavy pumping appliance of not less than 10,000 litres per minute pumping capacity
  - (h) Hose laying tender
  - (i) Lighting van
  - (j) Control post van
  - (k) Canteen van
  - (l) Mobile workshop for repair of fire appliances
  - (m) Mobile workshop for tele-comm equipment
  - (n) Breakdown van
23. Each fire station should also be equipped with a motor cycle.
24. Each officer of the rank of Divisional fire Officer and above should be provided with a command car and each Assistant Divisional Fire Officer should be provided with a motorcycle.
25. Each mobile pumping appliance should be equipped with two sets of compressed air breathing apparatus; each foam/crash tender should be issued with two sets of compressed air breathing apparatus; each light rescue tender should be equipped with 4 sets of compressed air breathing apparatus; each turn table ladders should be equipped with four sets of compressed air breathing apparatus and each emergency tender should be equipped with 4 sets of compressed air breathing apparatus. In addition, each operational officer from Sub Officer upwards should be equipped with a personal breathing apparatus set.
26. A minimum of 500 litres of foam compound should be recommended to be stocked at every fire station and two foam making branches, each with a pick up tube, size-2, conforming to IS 2097 should be recommended per mobile pumping appliances.
27. In cities having high-rise buildings (buildings over 15 m high) one pneumatic-jumping cushion should also be provided for the city.

#### **Maintenance of fire appliances and equipment**

28. Prompt maintenance of all fire appliances and equipment is a must for any fire service. Any delay in essential repair to fire appliances jeopardizes the operational efficiency of the Service. This fact is seldom realized and it is left to the Officer in-charge of the fire services to try and get the fire appliances repaired through external agencies, which results both in unnecessary delays and expenditure. It is, therefore, suggested that the committee may recommend that every State Fire Service must have its own well-equipped and well-manned central workshop for meeting this important requirement. In addition to the central workshop, a mobile workshop, for on the spot repair of fire appliances should also be recommended for each fire service divisional headquarters.
29. These recommendations should also include stocking of necessary fast moving spare parts in the workshop so that essential repair is not delayed.

#### **Manpower**

30. The necessary supervisory ranks have already been mentioned earlier in this note under 'Organisation'. The committee may consider recommending that crew for various types of appliances may be provided

at the following scales for each watch:-

Name of appliance	Sub Officer	Leading Fireman	Driver Operator	Fireman	Total
Water tender pump	Nil	1	1	4	6
Extra heavy water tender	Nil	Nil	1	1	2
Turn table ladder and Hydraulic					
Platform	1	1	1	3	6
Pump escape	Nil	1	1	4	6
Light rescuer tender	Nil	1	1	2	4
Emergency tender	1	1	1	4	7
Crash tender/foam tender	Nil	1	1	2	4
Ambulance	Nil	Nil	1	1	2

31. The manpower at each fire station may comprise:

Station Officer-1

Sub Officer-1

Leading Fireman (one per watch-for watch room duty)-2

Crew for the appliances-as per scale given above.

32. For the control rooms at fire service headquarters and the command and divisional head-quarters, the following manpower may be recommended:-

Central Control Room - 1 Divisional Officer, 4 Station Officers (one per watch and one reserve) and 8 Sub Officers (2 per watch and 2 reserve).

Command Control Room - 1 Assistant Divisional Officer, 4 Sub Officers (1 per watch and 1 reserve) and 8 Leading Firemen (2 per watch and 2 reserve).

Divisional Control Room - 4 Station Officers, 4 Sub Officers (one per watch and one reserve) & 8 Leading firemen (2 per watch & 2 reserve).

### Duty System

33. It is recommended that a standard 3 watch duty system should be introduced in the fire Services, in which the first watch should be on duty for 24 hours at a stretch. On being relieved by the second watch, the first watch should be on 24 hours off duty and again come on duty for 8 hours on the third day. Similarly, the second watch, on being relieved by the third watch should remain off duty for 24 hours, and come on 8 hours duty on the third day and so on. This system would appear to be more expensive, but, considering the fact that extra manpower would be required for fire prevention duty and water sources inspection and maintenance it is actually more economical, because the personnel of the day duty watch will be in addition to the watch on normal operational duty and could be employed for fire prevention water sources, inspection and other miscellaneous duties thereby economizing on manpower and utilizing them to the maximum advantage.

34. One third of the total strength of each rank, except Chief Fire officer and above should be provided as leave/training reserve. The need for this reserve. Is obvious.

### Retained Firemen

35. It has been recommended that retained personnel should be employed for manning the retained fire stations, except for skeleton staff which should be full time paid staff at such stations. It may be recommended that each retained fireman should be paid a monthly retainer of RS.1 00 and in addition, an allowance of RS.5 per call, which he may attend. Mobilization of retained personnel may be left to the Director of Fire Service of the state, because this will depend upon local circumstances. In some states, it may be possible to have the retained personnel of 12 hours shift duty at the fire station, while in other states it may be not be possible to do so. In such cases, a system of raising fire alarm may be worked

out to ensure prompt attendance by the retained personnel.

#### **Status of Fire Service Personnel-Fire Service Ranks**

36. The fire service ranks should be as follows:

Director of Fire Services  
Deputy Director of Fire Services  
Principal Staff Officer/Chief Fire Officer  
Deputy Chief Fire Officer  
Divisional Fire Officer  
Assistant Divisional Fire Officer  
Leading Fireman  
Driver and  
Fireman.

37. It is suggested that suitable pay scales for each rank may be included in the fire services legislation, which has been recommended earlier. So that uniformity could be achieved throughout the country.

38. All operational officers of the rank of Asstt. Station Officer and above should be paid a call allowance on a sliding scale for being required to be available on call round-the-clock. This allowance need not be paid to the remaining staff, because they will be working in batches and not will be required to be available on call round-the-clock.

#### **Recruitment**

39. Normal recruitment of fire service personnel should be at two levels.

(a) Fireman's level-Candidates for recruitment at this level should have passed matriculation or Higher Secondary Examination with Science subjects.

(b) Asstt. Station Officer's level-Candidates for recruitment at this level must be Science Graduates.

40. The advantage of adopting this system of recruitment will be that officers of the rank of Asstt. Station Officers and above can be detailed for training in the Post-Graduate Course in Fire Engineering, which is proposed to be conducted at the National Fire Service College, Nagpur and ultimately the average standard of Officers in the Service will be raised. This system will also enable all senior ranks to be filled in by promotion from within the service in due course of time, which is highly desirable.

#### **Uniforms**

41. SFAC has made certain recommendations in the past for issue of various items, of uniform to fire service personnel of various ranks. The committee has also recommended that normal working dress for all fire service personnel should be trousers and tucked-in-shirts. This may be reiterated. However, the committee has not made any positive recommendation about the scale of issue of uniform and has left it to the individual Fire Authorities to decide the scale for their fire service personnel. This practice again creates difficulty and leaves much to be desired in many cases. The committee may reconsider recommending the minimum scale of uniform, which would ensure a smart turn-out by all personnel.

42. The fire tunic recommended earlier by this Committee for all operational ranks is either not being issued or the design of the tunic is not suitable. It is therefore suggested that the Committee may recommend a standard pattern of turn-out clothing for all fire service personnel throughout the country. This clothing should comprise of the following item:-

(a) FRP helmets, conforming to IS 2/45-1969 in colours as recommended by the Standing Fire Advisory Committee earlier, i.e., yellow for ranks up to Station Officer and white for Assistant Divisional Fire Officer and above.

(b) A turn-out coat made out the thick water proof canvas of Navy blue colour. The coat should be lined on the inside with a woolen liner and fitted with zip fastener along its entire front. A flap overlapping the zip fastener should be provided all along its length. It should be retained in closed position by snap-softeners. Length of the coat should up to the knee of the wearer. Rain coat type

pockets should be provided in the coat for keeping belt line and small gear, as necessary. Shoulder flaps should also be provided for rank marking and for carrying a coiled rope on the shoulder.

- (c) Thigh-length gum boots for all ranks up to and including Sub Officers. The boots should have mild steel mid-soles and protective steel toe-caps. A warm lining should also be provided on the inside of boots. All officers of the rank of Station Officer and above should be issued black leather Wellingtons, which should also have mild steel, mild-soles and a protective tow caps.

#### **Rank Markings**

- 43. Rank markings have already been recommended by the SFAC earlier. Same markings may continue to be in force in all fire services throughout the country.

#### **Protective Clothing**

- 44. Two sets of heat/flame resistant protective clothing should be carried on each mobile fire and rescue appliance. The number of such sets should be increased to four for each emergency tender.

Where the fire station is required to lower the risk of acid/Ammonia, protective suits for these should also be carried on each mobile fire and rescue appliance.

#### **Training**

- 45. It has already been recommended above in this note that a Training Bureau should be established in each State Fire Service. The functions of the Training Bureau are obvious. The Committee may consider recommending the following courses should be conducted by each state Fire Service for the personnel.
  - (a) Fireman Recruits' Course -Duration - 6 months
  - (b) Asstt. Station Officer Recruits' Course -Duration - 6 months
  - (c) Driver Recruits' Course -Duration - 6 months
  - (d) Leading Fireman's' Course -Duration - 3 months
  - (e) Breathing Apparatus Course -Duration - 2 weeks
  - (f) Fire Prevention Course -Duration - 3 months
  - (g) Other specialized Courses -as and when necessary, including training in radiotelephone and control/watch roomprocedures.
- 46. In addition to the above courses, the following assessment should also be carried out by the Training Bureau-
  - (a) Assessment of technical proficiency of all operational personnel up to and including the rank of Station Officer-three to six working days per batch.
  - (b) Assessment of standard of maintenance of fire appliances. This should be carried out with (a) above, or where this is not practicable because of distances, by a team visiting the outlying fire stations.
  - (c) Assessment of the state of physical efficiency of all ranks up to and including the station Officer. This should also be carried out with (a) above.
- 47. If any serving member of the operational staff fails to qualify in the assessment of his technical proficiency and physical fitness, he should be told about it and recalled for a check to the training school after three months.
- 48. Asstt. Station Officers and above should also be detailed for appropriate courses at the National Fire Service College, Nagpur.
- 49. Besides the courses of instruction and assessment of technical proficiency and physical fitness, field training of all operational ranks should be arranged through conduct of field exercise in different types of occupancies such exercises may be arranged at least once a week at fire station level and at least once in three months at division level.
- 50. An exercise involving various divisions in each command should be conducted by the Chief Fire Officer

of the concerned command once every six months.

51. A major exercise involving all operational commands and communications and Alarm Bureau should be conducted by the Director once a year.
52. The field exercise will go a long way in familiarising all operational ranks with the procedures and operational techniques and will at the same time enable the officer to find out shortcomings, if any, and to take timely remedial action to prevent recurrence of mistakes/shortcomings.
53. Planned tours of the area covered by each fire station should be arranged periodically with a view to make all stations personnel familiar with topography, sources of water supply and special hazards in their area.
54. All operational personnel should be given special training in map reading. A large size map of the district and the town where the fire station is located should be displayed in the watch room of each fire station and a smaller version of the same should be provided on the watch room console and near the seat of the Officer-in-charge on each fire appliance. This will ensure more efficient mobilization of fire appliances.

### **Communications and Alarm System**

55. The following minimum facilities are recommended for each State Fire Service:

- (a) A central control room at the Fire Service Headquarters.
- (b) A command control room in each Fire Service Command Headquarters.
- (c) A divisional control room in each Fire Service Divisional Headquarters.
- (d) A watch room in each fire station.
- (e) Mobile station on each fire appliance.
- (f) Walkie-talkie, R/T sets on each fire appliance.

56. The equipment which should be provided at and the functions of each of the above facilities are given below:-

- (a) **Central Control Room -** This control room will be a monitoring and information center for the entire fire service. The main purpose of this control room will be to keep the Director of Fire Services posted of the operational position in all commands under him and to enable him to mobilize the resources of any of or all commands under him and to enable him to mobilize the resources of any of or commands for dealing with a serious emergency which may be beyond the resources of any particular command.

The following equipment is recommended for the central control room:

- (i) At least two auto-telephones.
  - (ii) A set of automatic recorders for recording all communication which may be transmitted/received from/at the central control room, either over the line communication system or over the radio telephone network.
  - (iii) A separate PBX for internal communication with the headquarters, with direct lines to the fire Service Command Control Room, IG, Police Department and the Secretary to the Municipal Services Department.
  - (iv) A high frequency 100 W radio telephone set for instant communication with each command control room, plus an identical reserve set.
  - (v) A transistorized radio receiver, operating on a battery, on the same frequency as the H.F radiotelephone set.
  - (vi) A large size wall map with lights to indicate all fire stations in the States, Each of the lights should be capable of being controlled individually from any position on the console.
- (b) **Command Control Room-** the purpose of the command control room is to provide a monitoring and the information facility to the Chief Fire Officer of the Command, so as to keep him informed of all fire and

other emergency incidents within his command to mobilize the resources of any single Division. The following equipment is recommended for each command control room.

- (i) A three position console for line communication between the command control room and each of the 3 fire service divisional control room within the command.
  - (ii) At least two auto-telephones.
  - (iii) A set of automatic recorders for recording all communication which may be transmitted/received from/at the command control room, either over the line communication system or over the radio telephone net-work.
  - (iv) A separate PBX for internal communication with command headquarters and direct line to each of the 3 fire service divisional controls within the command and the Police Departments.
  - (v) A 100 W high Frequency radio telephone set, operating on the same frequency as the central control room set along with an identical reserve set.
  - (vi) A transistorized radio receiver, operating on batteries, on the same frequency as the high frequency radio telephone set.
  - (vii) A large size wall map of the area under the command with lights to indicate all fire stations, with in the Command, similar to the one in control control room.
- (c) **Fire Service Divisional Control Room** - This will be a monitoring and information center for the Division so as to keep the Divisional fire Officer informed of all fires and other emergency incidents within his Division and to enable him to mobilize the resources of any or all fire stations within his Division, as may be necessary. The following equipment is recommended for each fire services Divisional control room:
- (i) At least two auto-telephones.
  - (ii) A set automatic recorders for recording all communications which may be transmitted/received from/at the divisional control rooms.
  - (iii) A separate PBX for internal communication within the Divisional headquarter and for all non operational communications.
  - (iv) A 100 W high frequency radio telephone set, operating on the same frequency as the command control rooms set plus an identical reserve set.
  - (v) A PBX for instant communication with the Police Department, Water Works, other essential services and internal communication.
  - (vi) A large-size wall map of the area covered by the Division and other adjoining Division.
  - (vii) A transistorized radio receiver, operating on batteries on the same frequency as the HF radio set.
  - (viii) A 50 W VHF radio telephone set, in addition to HF set, along with an identical reserve set.
  - (ix) A separate transistorized radio receiver on VHF frequency.
- (d) **Fire Station Watch Room** - The purpose of the fire station watch room is to ensure expeditious receipt of fire calls and dispatch of appliances to the scene of incident. It also facilitates the dispatch of additional assistance to the fire ground and establishment of contact with all essential services, whose assistance may be necessary for successful fire fighting and rescue operations.
- The following equipments recommended for each watch room:
- (i) A single position console with facilities for receiving fire calls, either directly from the public or from the divisional control room as may be necessary in each case and for contracting Police and other essential services, as may be necessary.
  - (ii) It will also have an illuminated grid map of the area covered by the fire station with controls for lighting up any particular grid from the console.
  - (iii) Necessary switch for operating the fire bells and public address equipment (with the microphone on the console).
  - (iv) A 50 W VHF radio telephone set on the same frequency as the VHF set in the divisional control



room.

- (v) A transistorized radio receiver, operating on batteries, on the same frequency as the VHF radio set.
  - (vi) Facilities for non-operational communications should be provided through an independent telephone in the fire station office.
- (e) **Mobile Radio Telephone Stations on Fire Appliances-** Each mobile fire appliance, including each Command car and motor cycle, should be equipped with a 25 W mobile VHF radio telephone set with a choice of 2 frequencies - (1) for communication with the fire station watch room and (2) for fire ground communication with walkie-talkie sets.

Each appliance should also carry at least one walkie-talkie set (radio telephone set) for fire ground communications with the fire appliances.

#### **Water Supply**

- 57. Standardization of the types of fire fighting appliances, as suggested earlier in this note, will automatically ensure adequate water for fire fighting within the urban areas. However, fire fighting in industries may require additional water resources. To meet this requirement, the industrial managements should be made responsible to make necessary provision of stored water within their premises. This may be included in the proposed Legislation.
- 58. For towns covered by volunteer fire stations, it would be necessary to ensure that sufficient water would be readily available for fire fighting. For this purpose all available natural sources of water may be surveyed and tapped. In addition, storage tanks should be constructed at suitable location within the towns where volunteer fire stations are to function.
- 59. For war time needs only, additional storage tanks will have to be provided in almost every town which falls within the vulnerable areas as may be declared by Government of India from time to time. It would be desirable to pre-plant the locations of such storage tanks in each town covered by the fire services. The actual construction of tanks may be taken up in the case of an impending emergency.

#### **Mutual Assistance**

- 60. Where ever fire services are maintained by defence installations, railways and industries plants should be drawn up in advance for mutual assistance between all such organizations and the State Fire Services with the cooperation of all concerned. Such plans should aim at eliminating all possible delays in rendering assistance at the time of any emergency. All concerned with implementation of the emergency plan must be made fully familiar with their operation and periodical exercise should be conducted to remove snags, if any. Such mutual assistance should be rendered at 'no charge' basis.
- 61. Mutual assistance plans should also be drawn up between neighbouring State Fire Services on a 'no charge' basis.

#### **Welfare**

- 62. The committee may consider recommending the following minimum welfare measures are recommended for fire services personnel:
  - (a) All fire service personnel, up to the pay limit specified in the Act, should be covered by the Workmen's Compensation Act.
  - (b) In addition to the Workmen's Compensation Act, all uniformed fire service personnel, should be insured at Government cost.
  - (c) Residential family accommodation should be provided for all fire service personnel. Such accommodation should be free of cost for officers of the rank of Sub Officer and above and against payment for all ranks who are required to perform duties on a three-watch system.
  - (d) A benevolent fund should be established in each fire service. The donations collected on the occasion of the Fire Service' Day, through the sale of pin flags, should form the nucleus of this fund. It should be augmented by compulsory subscriptions from all members of the Service on a sliding scale. The Government should also contribute an amount equal to the subscription raised by members of the Service.

- (e) Fire Service should be authorized by their respective State Governments to organize charity shows fetes, fares, etc. for raising funds for the benevolent fund.
- (f) In addition to rendering minimum assistance to any member of the fire service, or his family, in distress the benevolent fund should also have provision for giving loans to its members to the extent it is possible.
- (g) Recreation facilities-indoor and outdoors should be provided at each fire stations.
- (h) Prompt medical attention should be available to all members of the fire services and their families, free of cost.

**RECOMMENDED ORGANISATIONAL STRUCTURE OF FIRE SERVICES**

(See Para 14 under 30 Miscellaneous)

All aspects of Organization of Fire Services must be given simultaneous and equal attention so as to make these services really effective. Unfortunately, none of the Fire Authorities in India have been able to achieve it so far. Some of the reasons for this situation are :-

- Lack of appreciation of the minimum essential requirements of Fire Services for ensuring their operational efficiency and for maintaining the efficiency at optimum level.
  - Heterogeneous character of Fire Services' organization in the country, resulting in multiplicity of Fire Authorities.
  - Lack of appreciation of the need for maintaining an efficient Fire Services' organization.
  - Lack of resources.
2. Based on recommendations of SFAC, the Government of India, has repeatedly impressed upon the State Governments to take over the Fire Services from the Local Bodies and to maintain them as separate departments of their respective states. But, only partial success has been achieved in this direction during the past eighteen years. It is a matter of regret that even in the States where the Fire Services constitute a separate department, they lack in essential facilities.
3. With a view to bring about uniformity in the organization of Fire Services all over the country and also with a view to achieve the minimum desirable standard of efficiency in the Fire Services, the Standing Fire Advisory Committee makes the following recommendations.

**Legislation**

4. The Central Government may enact Central Legislation with the concurrence of State Governments on the following:
- (a) Organization of Fire Services and .
  - (b) Fire Prevention, covering all aspects of fire prevention, including enforcement of Safety Codes and the National Building Code of India, 1970 in so far as it relates to fire safety.
5. The Central Acts may be implemented by the State Governments who may frame their own Rules, based on model Rules which may be supplied to them as guide.

**Funding**

6. Some of the important reasons for maintenance of Fire Services by State Governments are:
- Safeguarding the life and property of people from uncontrolled fire.
  - Protecting the assets created through the implementation of successive Five Year Plans. The achievement of Planned development must be protected if full benefit has to be derived from them. In the absence of adequate measures for the preventions and control of fire in various establishments, which have been created as a result of Five Year Plans, the entire property may be destroyed in case of fire, bringing the efforts nil. It is universally recognized that plant and machinery are more prone to fire with the passage of time, ie., with ageing.
  - To prevent loss of national wealth by fire.
7. It is, therefore, necessary that effective fire protection must be organized by each State Government, who should shoulder this responsibility in the same manner as they do for Law and Order. Bulk of the funds for establishment and maintenance of Fire Services must therefore, come out of the consolidated funds of the respective State Governments. However, in view of the fact that all aspects of Fire Services' organization must be developed simultaneously and expeditiously, it may not be possible for the State Governments to find sufficient funds for the Fire Services out of non-planned expenditure. Since one of the main objects of developing fire Services is to consolidate the gains accruing from the Five Year Plans, it is natural that establishment and maintenance of Fire Services should be treated as a Plan subject and all necessary expenditure for this purpose should be accepted as a planned expenditure of