Health & Safety Codes of Practice for Production Staff

Working on Location

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INDEX - Codes of Practice

1 - Location & Operational Safety

(For Film Crews & Technicians)

Cable Management

Cable layouts must be such that access and egress routes and fire doors are not obstructed (consider people with special needs), and cables do not become damaged.

If cables are slung overhead or placed on the ground, they must be kept tidy, protected and secure - if necessary by the use of warning signs and barriers.

Whenever possible control should, in order of preference be:

- fly cables above people or vehicles
- ramp cables that can not be flown
- use warning signs to deal with residual risk

If it is absolutely necessary to fly cables over a roadway or the public highway they must be:

- adequately supported by cantenary wires/cables
- high enough to be safe from any reasonably foreseeable vehicles
- clearly indicated with, for instance, hazard bunting.

Cables must not be used to carry currents greater than their rating; limitations shown on cable reels must be followed. Where extension leads must be used, then it is better to use one long lead with multiple outlets than to have multiple leads in series or parallel. The cable should be protected by a fuse of suitable value.

Camera Cranes Jibs & Dollies

Before any work with camera cranes and/or mountings begins the following must be checked as satisfactory, or corrected:

brake operation , safety devices (including arm locking pins and safety catches) & cable guards

Before operating a camera crane over an audience/members of the public, all pieces of equipment and their constituent parts must be securely fixed and cable loops kept to a minimum.

Where a mounting requires stabilising weights in the base, they must be properly fitted before any equipment is placed on the mounting. If fitted, safety belts must be worn.

The head and legs of a tripod must be secure before anything is mounted on it. Care must be taken to avoid swinging the crane over an audience. Where this is not practicable, ensure safe head room for a person standing; consider using a lookout.

If equipment could be knocked over/blown over/ fall onto any person/injure any person if a vehicle, boat or aircraft stops suddenly, it must be independently secured. Externally mounted cameras or other fittings on an aircraft must, in the UK, be CAA approved and fitted, and checked by a CAA-licensed engineer.

Working in Confined Spaces

A confined space is a place such as a well, grain silo, sewer, inspection pit, vat, or pipe.

The Danger

Where Camera Crews are requested to film news items or documentary pieces of personnel working or frequenting sewers and drains, careful planning and a suitable assessment of risk is required. Such spaces are dangerous because they tend to have unbreathable or poisonous atmospheres and it is usually difficult to get out.

Having determined the event and outline of the story the senior person in charge should discuss the following with the film crew and relevant professional safety advisers:

Has a suitable risk assessment been completed (as required by the Management of Health and Safety At Work Regulations 1992).

Things to consider:

- Has a competent person from the company or organisation (such as water authority) been approached and consulted about specific risks and procedures in place at the location which must be followed.
- What information, if any, has been shared between TX staff and the company or organisation.
- Are staff selected to work on the project medically fit and free from any underlying medical conditions. Working in confined space can be physically demanding and people should be reasonably fit.
- Has the selection of gas monitoring equipment, Personal Protective Equipment (full body harness and lifelines, breathing equipment, clothing) and specialist camera equipment * that may be required, been fully discussed.

*Hand lamps or other portable electrical equipment operated directly from the mains must not be used inside metal tanks or boilers, in inspection pits in garages, in damp situations or in comparable circumstances. Hand-lamps used in such situations must be operated from batteries or from a supply that, under fault conditions, cannot exceed 30V rms to earth.

Emergencies

Anyone who believes there to be a state of serious and imminent danger must raise the alarm.

Unit Managers must establish procedures to be followed in the event of serious and imminent danger (such as fire, bomb scare, substance release) or other emergencies (such as power failure, intruders, stuck lift). Procedures must be written down and should be rehearsed and revised at regular intervals.

There must be suitable and effective arrangements in place for providing employees with comprehensive information on all identified risks, the preventative and protective measures required and what to do in the event of serious or imminent danger. (Copies of Risk assessments & Location Emergency Procedures) There must be a sufficient number of nominated competent persons to implement the procedures.

Hazardous Substances - (CoSHH)

TX Staff must

- not work with a hazardous substance unless they understand the risks of the work and follow the required precautions and control measures;
- not introduce hazardous substances without authorisation;
- tell the Production manager if they suffer ill effects (including irritation) due to work involving substance exposure.

There must be a specific COSHH risk assessment for any activity that could expose anyone to a hazardous substance – including any infectious agent (CoSHH assessment). The assessment must be carried out by a competent person and specify the risks of the activity.

Manufacturers or suppliers of these materials will provide instructions (product/material safety data sheet) on their safe use, and usually these precautions will be sufficient to ensure safety. Information and training should be provided as required, and any recommended protective equipment such as gloves or goggles made available and used.

Confined Spaces

Confined spaces are dangerous because they may contain atmospheres that are unbreathable, poisonous or explosive.

A confined space is anywhere that is largely enclosed where there exists a risk that anyone entering could be:

- overcome by gas, fumes, vapours;
- suffer from a lack of oxygen;
- drowned;
- injured by fire or explosion or overcome by high temperatures;
- buried under free flowing materials.

Examples of confined spaces include wells, open manholes, trenches, pipes, tanks, ducts silos, sewers or vats.

Where a confined space contains an explosive atmosphere, specially protected electrical and recording equipment and special precautions (such as no smoking, no sparks) are required.

Expert advice must be obtained as to the precautions required in a particular case, and you should be aware that this could entail the acquisition of lifelines, breathing equipment, portable air monitoring alarms, etc.

Children are prohibited by law from entering many confined spaces.

2 - Location Lighting & Electrical Power

Earthing

All items of electrical equipment used on location require periodic testing, for example earthed equipment.

The electrical integrity of the earth of electrical systems used in and around buildings or fixed must be tested before first being put into service and then checked at regular intervals. The exposed metalwork of all electrical equipment likely to become electrically charged must be earthed unless the equipment is :

- Supplied via an isolating transformer or
- Double insulated, or
- Only supplied power at Extra Low Voltage or Safety Extra Low Voltage

General

All electrical work, including the fitting of a 13 Amp mains plug, must be done by trained and competent people. Every electrical system must be inspected and tested at regular intervals. All electrical equipment must be regularly examined to make sure it is safe. Poorly maintained or damaged electrical equipment can be dangerous.

All electrical equipment should be subject to routine periodic visual inspection to identify whether the appliance has been subject to physical damage, overheating or failure of the plug.

Where an item of electrical equipment or electrical flex or cable displays damage, and / or demonstrates a fault such as intermittent stopping etc, it should be withdrawn from use immediately and either disposed of or repaired by a competent person.

All electrical equipment must be suitable for the purpose, including the use to which it will be put and the environment in which it will be used. In particular, special precautions are required in damp conditions or where there could be an explosion such as a petrol station or coal mine.

Live Working

Live working is dangerous and can cause fatal accidents. No person may work on or near live conductors unless there is a qualified electrician in attendance and -

• it is unreasonable in all circumstances for it to be dead;

• it is reasonable in all circumstances for that person to be at work and/or near it while it is live;

• suitable precautions are taken to prevent injury.

The Electrician in control of the work must make an assessment before work starts, to show that it is necessary to work live. Convenience, speed and cheapness are not sufficient to justify the risk of live working.

There must be a written record of the assessment and if it is necessary to work live, there must be safe working. The work must be done by competent people; emergency arrangements must be made; and every precaution must be taken to minimise the risks to those who do the work and anyone else who might be affected, such as passers-by.

Cables must not be rigged or de-rigged while live. Some electrical work is only safe because the equipment is isolated from the supply. In such cases there must be absolutely reliable arrangements to ensure that the electricity supply cannot be reconnected.

All equipment fed from an uninterruptible power supply must be clearly identified, and there must be satisfactory means to ensure the equipment can be isolated.

Isolation

Engineers must ensure that, wherever possible, equipment is unplugged before removing covers or starting to work: the on/off switch alone should not be relied upon to isolate the equipment. If isolation can only be obtained using a switch, use the test meter (or an approved voltage tester) with insulated probes to see that the switch has effectively isolated the equipment. The test meter should be proved both before and after the test. Until the switch's effectiveness has been checked the equipment should be regarded as live.

Particular care must be taken when working on a UPS or other system with an automatically switched standby supply, or its load, to ensure that it is fully isolated.

It is important to take steps to see that the equipment is not inadvertently switched on while work is continuing. These steps may include fixing appropriate notices to the isolator, circuit breaker, switch, or plug-and-socket connection through which the power is supplied. Such notices should inform and not challenge e.g. "Work in progress on Bay 309 : Do not switch on" rather than "Do not touch".

If the point of isolation is not directly and continuously under the control and within the sight of the person carrying out the work, additional precautions must be taken. Where practicable, fuses should be removed. Where facilities are provided, isolators must be locked in the open position, and the keys retained by the person in charge of the work. Earthing wands or clips may be applied.

High Voltage Working

Work on high-voltage equipment may only be undertaken under a permit to work. Only competent and suitably qualified personnel may work with high voltages (1000V and greater).

There must never be lone working or live working with high voltages. Equipment must be isolated, earthed and checked before any work begins. All work with live mains electricity of any voltage must be considered high risk, and must only be carried out by suitably trained and competent persons.

Electricity on Location

For very small-scale use of electricity, the minimum control to be applied must be use of an RCD between the socket and the appliance. Otherwise:

• The power source must be checked for presence and correct polarity of live, neutral and earth connections before plugging in or connecting equipment.

• Wherever TX consumes electrical power the suitability of the supply to meet the demands must be assessed including the power requirements of other consumers at the location.

• Where more than one power source is in use at a location, or there are several substantial consumers, dangerous voltage differences can develop. Furthermore, there may be confusion on how to isolate a particular item. Therefore either [a] there must be one nominated competent person who plans and manages the power distribution, or [b] there must be absolute segregation of the systems.

Overhead Power Lines

Contact with overhead electric lines can be lethal whether they are carrying a voltage as high as 4kV or as low as 230V. Overhead lines consist usually of bare (uninsulated) conductors (sometimes called cables) supported via insulators by wooden poles or metal towers and structures. Many people mistake overhead power lines carried on wooden poles for telephone wires.

Work near overhead power lines must only be undertaken where there is a horizontal safe distance of 15m from wires on metal structures (NB from the wires, not just the structures) and 6m from wires on wooden structures. The safe distance must take into account to reach of camera booms, crane jibs, ladders, scaffold tubes etc.

If a radio mast, crane job, scaffold pole, ladder camera boom or similar object makes contact with or approaches near to these lines, an electric current can flow with a risk of fatal or severe shock or burns to any person n the immediate vicinity. This can also occur with objects made from material such as wood or plastic, which are normally regarded as electrical insulators. If damp or dirty, these may also be capable of transmitting sufficient current to cause dangerous or fatal electric shock.

Portable Electrical Equipment

This is applied to equipment which is not part of a fixed installation but is, or is intended to be, connected to a fixed installation, or a generator, by means of a flexible cable and either a plug and socket or a spur box, or similar means. It includes equipment that is either hand-held operated while connected to the supply, or is intended to be moved while connected to the supply, or is likely to be moved while connected to the supply.

Though there are no universally accepted definitions of what is meant by portable or transportable electrical equipment, the definition given in the paragraph above indicates the types of equipment covered, the supply to the equipment being at a voltage which can potentially result in a risk of fatal electric shock to any person, i.e. when it is more than 50V or 120V dc. Extension leads, plugs and sockets, and cord sets which supply portable equipment are classed as portable equipment since they operate in the same environment and are subject to the same use as the equipment they serve. All TX

portable equipment must be PAT tested by a competent person and visually inspected at frequent and regular intervals.

The "owner" of portable electrical equipment is the person who holds the equipment asset register. The "user" is the customer of the owner. The owner must make arrangements for inspection and, where appropriate, testing, according to the environment in which it is used and the risks.

The testing agency must record their findings. The owner must keep a copy of the records, and make the user aware of the findings. Any equipment which fails an inspection or test, or is otherwise found to be unsafe, must be taken out of service until it has been repaired, tested, and proven to be safe. Significant findings posing a significant risk must be reported to the user in writing at the earliest opportunity, and the user's Safety Services must be sent a copy of the report by the quickest reasonable means.

Users must regularly check the test date labels and the testing agency must be asked to re-test, without delay, any equipment found to have an out-of-date test label.

Contractors working with TX should maintain their own equipment and demonstrate, on request, that it is safe to use. Portable electrical equipment to be used in damp confined spaces should be either cordless or powered from a source of less than 30V.

Power Distribution System

Crews working on location must check with the local managers who have responsibility for power distribution systems forming part of any building's services to ensure that:

• the design, installation, maintenance and running of electrical distribution systems has been carried out by competent people;

• the distribution system is suitable for the activities that will be carried out in the area;

• every distribution system is inspected and tested at regular intervals;

Residual Current Device (RCD)

• RCDs should be used in circumstances where mains electrical power is used for hand held power tools & lamps particularly in environments which give rise to increased risks, such as dusty or damp conditions;

• All Residual Current Devices (RCDs) must be routinely tested (both manually and electrically) to ensure they remain in good working condition. The manager must determine the testing frequency according to the risks of the work, but as a minimum they must be checked using the in-built test button at least every 3 months, and must undergo a full performance test at least every 2 years. Results must be recorded;

• RCDs must never be removed from a circuit without a written risk assessment.

Uninterruptible Power Supplies (UPS)

UPS are used to provide a continuous source of supply in two separate ways:

1. Large units which supply power to significant power distribution systems, and are complete with their normal isolators, switchgear and circuit protection and feed socket outlets, lighting and equipment. Information about the supply should be given at the switchgear and should include a statement that it is supplied from a UPS.

2. Smaller units which supply continuous power to small systems (e.g. local computer servers), powered from a local socket on the normal power distribution system. Suitable notices should be placed at the entry to every room containing equipment plugged into the UPS, explaining where power is derived from and how total isolation may be achieved.

3 - Working with Portable Equipment

(Camera, Sound & Lighting)

Batteries and Battery Rooms

There is a wide variety of batteries available, each with its own associated risks. Care should be taken to ensure that batteries are suitable for the use to which they will be put.

Batteries contain hazardous substances and their use and disposal should be assessed for risks. It may be necessary for larger batteries to be disposed of in accordance with waste disposal legislation as hazardous/toxic waste.

Batteries must be protected against short circuit to prevent flash, fire or explosion. Do not recharge batteries while wearing them, e.g. in a body belt. Batteries that are damaged or are not designed to be recharged, must not be recharged.

The highly explosive hydrogen which evolves during the re-charging of wet batteries must be strictly controlled (proper ventilation, no ignition sources).

The following must be observed in battery charging areas:

- All electrical equipment or fittings must be of a suitable type or suitably protected (because of the explosion risk)
- Combustible materials must be kept at least 3 metres clear of any large battery charger
- No temporary light fittings may be used, other than approved hand-lamps
- Where work is being carried out in a battery area, the doors and windows must be kept open or, if the room is totally enclosed, the ventilation fans must be kept running

- No large metal object such as an aluminium ladder or scaffold tube may be taken into a battery area.

- Appropriate personal protective equipment must be worn if identified by the risk assessment

4 - Working on or Near or with Water

Boats

Except for scheduled services or vessels operated by the armed or emergency services, any person involved in the use of a boat must check that the skipper is competent.

- For work inshore in the UK, if there are more than 12 'passengers' then the skipper must have a boatman's licence for the relevant waters

- At sea, as a minimum, written confirmation must be obtained that the boat's crew are certified as competent and proficient as required for the intended activity.

- In all other instances the Producer must obtain satisfactory evidence of the skipper's competence and copies of documents supporting & confirming this must be received by TX management prior to shooting commencement.

The vessel must be suitable and suitably equipped for the proposed voyage. At sea, every vessel must have a person with adequate experience in charge of the navigational watch and at least one person with a relevant Radio Operator's certificate.

Based upon the risk assessment a decision must be taken in advance as lifejackets and/or survival suits to be worn and who is to provide them.

5 - Working at Heights

Ladders

Users of ladders must be trained in their safe use.

The ladder, or steps, must

- be suitable for use

- be properly used (e.g. the ladder must be suitably footed and secured, even for short term jobs).

- be inspected regularly and maintained in good condition by a competent person

  damaged ladders must be taken out of service immediately.

- be the right type, class (e.g. BS or EN) for the job (metal ladders must not be used in electrical switch rooms)
- be properly stored when not in use

It is recommended that each ladder is individually identified to enable the implementation of an effective maintenance system.

Heights

The risks of any person falling from any height, or of objects falling onto people from a height, must be eliminated or controlled. The assessment of any outdoor work must include possible weather effects.

Where there is a risk of serious injury and in all cases where working at a height of more than 2m, the following must be observed:

- Nobody may be called upon to work at unaccustomed heights against their will; only those suitably qualified and physically able may do so.
- Safety barriers used as edge protection must be at least 1.1m high (0.9m if erected before 1993) and must have toe boards and intermediate rails, or equivalent protection.
- You must carry out a risk assessment before working at height to find out what health and safety measures need to be to be adopted to avoid or reduce risk. Work should be done at a safe level to minimise risk.
- Precautions must be taken where a person can fall from a distance of more than 2 m. If there is an increased risk of injury when falling a distance of less than 2m, eg working near a traffic route or above a dangerous surface, then suitable precautions will also be required.

Note: There are three basic ways of preventing falls of people:

- edge protection, eg guard rails;
- restraint, eg safety harnesses;
- safe by position, eg maintaining a safe distance from an edge. Depending on the circumstances this will normally be at least 3 metres (further in poor weather).

Access to any roof areas must be controlled. Only authorised and competent persons may be given access.

Suitable notices must be erected to warn of any fragile roof (e.g.

6 - Working from Vehicles

Driving

This rule applies to all driving in the course of TX work – regardless of who owns the vehicle. Anyone who manages someone who drives in the course of their work (including to and from locations, etc.) must comply with the fatigue rule. There must be satisfactory arrangements for the maintenance of TX vehicles.

Any vehicle used in the course of work must be appropriate for the purpose, maintained in good working order and be driven by a competent person.

When equipment is transported in vehicles, there must be adequate load restraint.

The driver should check the vehicle is roadworthy.

Drivers must have a current licence for the class of vehicle involved.

Any driver experiencing symptoms of fatigue should stop at the earliest opportunity and take a rest break.

Hand-held telephones must not be used by the driver when a vehicle is in motion.

Shooting from Vehicles

Items covered:

- Roadtest or other car shooting on public roads including:
    - Car-to-car shots using a purpose-built vehicle at normal speeds
    - Car-to-car shots using an ordinary vehicle as a camera car at normal speeds
    - Pieces to camera in moving car
    - Driving shots using members of the public as drivers
- Filming of motorcycles from cars at normal speeds on public roads
- Roadtest and driving shots of cars and motorcycles at higher speeds on tracks
- Filming of Motor Racing Rallying, from trackside and using mounted cameras.
- Recording pieces in the following situations:
    - Interview of or commentary by driver (either professional or members of the public) in moving car on public roads
    - Commentary as a passenger in a moving car on public roads.
    - Commentary as a passenger in motor racing car whilst travelling at higher speeds on tracks
    - Commentary at Motor Racing Rallying/ Circuits

Risk Assessment

Prior to any production activity an assessment of the potential risks must be carried out. This must be reviewed as necessary if more information becomes available or if circumstances change. The risk assessment will determine what precautionary measures are required. Part of the risk assessment may require an exchange of information with other parties, e.g. event organisers, Police Authority.

Hazards

Physical injury to crew, presenters and / or director/producer.

- Potential risks to members of the public/ onlookers
- Exposure to high levels of noise which could cause hearing damage.
- Inability to communicate between presenters and crews.
- High Speed: A tracking car may become unstable if used for car-to car shots at high speeds with the tail gate open or the tail gate may be forced down suddenly on the camera operator.
- In car camera/recording equipment could injure passengers in vehicles

Compliance with legislation

If a vehicle is to be used on the public highway all road traffic legislation must be complied with, including speed limits, tax, MOT and driving licences.

- As far as possible roads with relatively light traffic should be used.
- When traffic is considerable avoid any ambitious manoeuvres during car-to-car shooting.
- The activities of the production must not put any other road users at risk. This includes ensuring that all vehicle warning signs are fully operational and visible to other road users.

The decision on whether to equip roadside crew and production teams with high visibility clothing should be determined as part of the risk assessment. Unless there is good reason not to, all those at risk from passing vehicles should wear a high visibility vest to ensure that they remain visible and are less likely to be involved in a collision.

Some experience has shown that the incidence of collision between passing cars due to " rubbernecking" has been great when filming is taking place on the roadside, although the safety of the person under our control should be the priority.

Where filming takes place with the tailgate in the open position, information regarding the vehicles activities must be available to other road users, e.g. clearly visible indicator and brake lights.

Competence of Drivers

The competence of all drivers should be assessed in relation to the nature of the activity in which they are to be involved. Where specialist driving is required, e.g., vehicle stunts or high speed work, the driver should have appropriate experience and, where applicable, qualifications.

If a member of the public is used for any driving shots or if a member of the public is driving whilst an interview takes place, there is the need to assess the member of the public's driving ability prior to any shooting/recording and ensure that anything that the person is asked to do is within the driver's perceived ability. In the case of filming, an experienced director will be needed,

Unless the camera operator and bike rider are specialists in the activity, manned cameras on motorcycles should not be used.

If a reporter/presenter is to have tuition or "have a go" as part of the recording - another person should be available to operate the recording equipment so that the reporter can concentrate on the task in hand.

Position of Equipment/Personnel

The equipment and any operator must not obstruct the driver's view, distract his/her attention whilst driving or put other road users at risk.

The position of the camera operator/reporter must be safe in all circumstances including all foreseeable emergencies.

It is generally OK to fit low power battery lights to the bonnet of cars being filmed as long as the percentage of view obscured is insignificant.

When filming/recording in motor racing pits, reporters/presenters/crews should have a "minder" with them looking out for dangerous car movements or equipment in potentially dangerous positions.

Trackside positions should take account of the possibility of vehicles skidding off the track, e.g. beyond bends or at wet/ muddy stretches. Where this risk exists unmanned equipment or protective barriers must be used.

Restraints on Equipment and People within vehicles

There must be effective measures to prevent loaded equipment striking any occupant in the event of an emergency stop or collision. Steps should also be taken to prevent small items of equipment from either causing a hazard to the normal operation of the vehicle or alternatively striking somebody in the event of a collision. Where possible they should be held collectively in a small padded bag in the passenger footwell of the vehicle.

In any moving vehicle, including buses or coaches, people should remain seated and if required by road traffic legislation e.g. in cars they should be adequately restrained by the use of seat belts or other appropriate harnesses. No-one may be seated in the passenger foot well of the car.

a) Filming

Wherever possible lightweight cameras should be used.

During car to car shooting the camera operator must wear a harness attached to a secure part of the vehicle, for example a door pillar. If a purpose-built vehicle is used then the operator must be secured to the vehicle using the mounts provided.

If filming through an open tailgate it must be secured in an open position.

When filming out of a tail gate the camera should be fixed to a secure part of the vehicle. There must be adequate restraint, support and protection afforded to any camera operators to reduce the risk of injury in the event of a collision. Precautions should be taken to ensure that exhaust fumes are not drawn into the car.

Where full sized cameras are used in front seats of vehicles the camera will not be fixed with a lanyard. An unrestrained camera held in the front seat will be projected through the front windscreen in the event of a crash. The force associated with a collision may cause a restrained camera on a lanyard to rebound and strike the cameraperson. However adequate precautions should be taken to ensure that any unrestrained camera or piece of equipment does not pose a risk to either crew, driver or any other passengers in the car.

Where possible, lightweight or mini cameras should be used for filming from the back seat of vehicles. Where a full-sized camera is hand-held in the back seat it must be attached by a line to a secure part of the vehicle (e.g. door pillar). This minimises the likelihood of the camera flying forward in the event of sudden braking or collision and causing serious injury (possible decapitation) to front seat occupants.

Communication

Drivers and crews must be briefed beforehand of the shots to be attempted.

Subject to satisfactory reception there must be walkie-talkie contact between camera car and filmed car or between the camera position and the filmed car.

If crew or presenter are inexperienced in car-to-car shooting an extra briefing should be given by the experienced director and more time allowed for the shoot.

There will need to be more careful briefing of presenters for car-to-bike shots than for car-to-car shots before the shots are attempted due to the difficulties of walkie-talkie operation on a bike.

Selection of Equipment

When it is not possible to use a full-size camera safely - for example to achieve close up car-to-car shots of wheels - a remote minicamera should be used.

Minicamera equipment and mounts must be fit for purpose and should only be fitted by competent persons - who have adequate technical knowledge and experience.

Unmanned fixed minicameras can be used for pieces to camera on motorcycles. They must be placed so as not to increase the likelihood of injury should the rider come off the motorcycle due to an accident.

Safe System of Work

Pieces to camera/mic whilst driving

Presenters need to keep their eyes on the road and look at the camera for no longer than they would normally look away to inspect their instruments or look in the rear view mirror. They should also endeavour to keep both hands on the wheel when recording pieces to camera with the exception of the occasional gesture or operation of controls.

If the presenter/ reporter is driving they should not also be in sole charge of recording equipment

Filming through sunroofs

Camera operators must not stand up to shoot through the sunroof while the vehicle is moving. In convertible-type vehicles or open backed vehicles camera persons can film standing up as long as they are effectively restrained and there is adequate protection in the event of a collision or accident.

Filming of/from motorcycles

Unless the camera operator and bike rider are specialists in the activity, manned cameras on motorcycles must not be used.

Unmanned fixed minicameras can be used for pieces to camera on motorcycles.

There will need to be more careful briefing of presenters for car-to-bike shots than for car-to-car shots before the shots are attempted due to the difficulties of walkie-talkie operation on a bike.

High noise Levels

Where there is a potential risk from high noise levels (a rule of thumb would be if two people have to shout to talk to each other at a normal distance) you should find a quieter spot or provide ear defenders for the production team and crew. Sound recordists may need to equip their headphones with some suitable protection and this requirement should be entered on the schedule.

Inbuilt safety measures in cars

Head-restraints should be as close to the ideal position - top of ears level with the top of the restraint - as the design allows, and should never be removed, if there is someone in the seat concerned.

High Speed Work

Cars should not be used for car-to-car shots at high speeds with the tailgate open as this could impair the stability of the vehicle and could force the tailgate down on the camera operator. Consideration should be given to attaching a minicamera to the back of the tracking vehicle instead.

Pay particular attention to tyre pressures, and the condition of tyres on vehicles which are used for the recording or the subject of filming and those used as camera cars. As competent drivers, presenters must remain aware of their own limitations, that of their vehicles and not be tempted or encouraged to stray beyond them

Participation

If the impression that a presenter is participating in a race is required, e.g. go-karting, thought should be given to whether participation is necessary to achieve the recording or pictures that are needed. The Dangerous Sports Rules should be followed. To record the piece without the pressure of participation is a good control measure. All speeds and manoeuvres must be kept to safe limits, the action recorded in short sections and the presenter's place at the finish determined and known by all participants.

Use of A Frames and Low Loaders

If either the use of A-Frames or Low Loaders are being considered, further advice should be sought from Safety Services.

Use of radio cars with extendible masts

(Please refer to Regions Policy and Guidance: Vehicles with extendible masts: Radio Cars)

7 - Working with FX, Smoke and Vapours

General

The visual effects contractor, as the specialist in explosives, pyrotechnics and fire effects will remain at all times responsible for advising the crew on the safe planning and execution of the effect. The crew must therefore ensure the visual effects contractor is given adequate information in order that the risk assessment might fully consider the effect, the risks, those affected and the controls and emergency arrangements which are required to be in place.

The Producer is however responsible for the Production and will take the lead in ensuring co-ordination of the safety arrangements including exchange of information and collaboration with contractors (e.g. stunt co-ordinators) and others affected.

On matters of explosives, pyrotechnic and fire safety the visual effects contractor must not be overruled. However, if there is any doubt as to the adequacy of the safety arrangements the effect should not proceed.

Risk Assessment

The visual effects contractor is responsible for ensuring a suitable and sufficient risk assessment for all the activities under their control, are undertaken and that significant findings are properly communicated. "Significant findings" are those which will affect the safety of:

- people and equipment under the control of the Production, e.g. crew, artists;
- third parties not involved in the production, e.g. the public;
- equipment or premises.

The "significant findings" may be in the form of a method statement. The information needs to be provided in good time.

For example, the contractors risk assessment/significant findings must include, where appropriate:

- general risks and controls
- safe distances
- risks and controls from the flash/radiated heat
- risks and controls from noise
- risks and controls from blast
- risks and controls from fragmentation particles and other debris
- risks and controls from unplanned spread of fire (e.g. including to the set, equipment, props, costume, hair, surrounding structures or area).
- risks and controls from toxic effects
- the cueing arrangements
- the personal protective equipment required
- the emergency arrangements for dealing with effects which do not go according to plan. (raising alarm, evacuation, fire, first aid)
- other specialist advice/support used. For example, engineering advice about structural integrity.
- misfires
- specific responsibilities of visual effects team and others directly involved in managing and co-ordinating the effect.
- risks to others (e.g. public, crew, divers, stunt coordinators, artistes) and the proposed controls.

The Producer should use this information to complete the risk assessment for the whole production:

- to consider the effect, timing and compatibility of each activity on all those involved in the production
- to make all involved aware of the main risks in producing the programme
- to consider whether new risks come to light as a result of the combined method statements and systems of work.
- to comply with the relevant Regulations (e.g. Management of Health and Safety Regulations).

If there are any significant last minute changes to the production activity the VFX contractors and programme risk assessments must be reviewed to determine if the risk assessment is still valid and to ensure the controls identified are still adequate. Any significant changes in the risks and controls must be properly communicated to all those involved.

Cueing

There must be an agreed system for cueing an effect that is clear and unambiguous. The visual effects designer responsible for setting off the effect must have a clear line of sight.

The cueing arrangements must be rehearsed in situ before the effect is performed.

Rehearsal

To ensure the safety of all, the producer must ensure a thorough rehearsal of the action. All those involved in the sequence, including artistes, must be present at rehearsal or re-rehearsal and must be made fully aware of the action intended, the risks, precautionary measures and emergency arrangements (e.g. misfire).

Communication

Persons involved must be thoroughly briefed about the effect and the risks and controls, prior to any rehearsal. The briefing and rehearsal must be repeated if there are significant alterations. Everyone affected by the changes must be fully briefed.

There must be effective means to warn and exclude people from any danger area. The producer, in consultation with the visual effects contractor is responsible for ensuring adequate arrangements for managing and policing any exclusion zone. The risk assessment must clearly identify these arrangements and also the nominated member(s) of the crew responsible for enforcing and monitoring the exclusion zone. This could, for example, be the visual effects supervisor, floor manager, production manager or 1st AD.

Materials

The visual effects contractor is responsible for:

- procurement of all explosives and pyrotechnics.
- specification of all other materials to be used in the effect.
- ensuring all materials are fit for purpose prior to use.

the safe transportation, storage and use of all explosives, pyrotechnic and other materials used in the effects.

Diving & Explosives

A specialist dive contractor and extraordinary controls will be required for all work involving underwater explosions or where in the event of a misfire explosives could finish under water

8 - Working with Animals & Children

Introduction

The Health and Safety (Young Persons) Regulations

protect the health and safety of young people (i.e. those under 18 years of age) at work. They amend the Management of Health and Safety at Work Regulations to require a specific assessment of risk to young people.

General Rules

…Where a child is involved, the risk assessment must take account of their particular vulnerabilities. It should set out what arrangements there are in place for their supervision e.g. by a parent, guardian or licensed chaperone. Parents or guardians must be provided with written information regarding the risks and control measures.

…Children must not enter production work areas without a chaperone.

Children under 16 involved in production, must at all times be accompanied by a parent, guardian or licensed chaperone. Parents who are not licensed chaperones may not be responsible for children other than their own.'

Children under Minimum School Leaving Age (usually 16) cannot take part in a performance endangering life or limb.

A child under 13 cannot ride on or drive any or other farm vehicle.

Hazards

Young people are specifically prohibited from certain high risk work, including:

cleaning machinery in motion exposing persons to injury;

working on dangerous machines [unless sufficiently trained or supervised - see below];

lifting excessive weights;

work involving the handling of equipment for the application, storage or production, of compressed, liquefied or dissolved gases;

manufacture and handling of devices containing explosives - e.g. fireworks;

work involving high voltage electrical hazards;

work with fierce or poisonous animals;

operating cranes and lifting appliances on building and engineering sites;

demolition.

These prohibitions may be relaxed where the work is essential to their vocational training, provided the work is carried out under supervision of a competent person.

Curiosity & perception of danger

Children are naturally inquisitive, and the majority of their learning is done by experience, which makes them more adventurous than adults. This curiosity may lead them into all sorts of dangers that they may not be aware of. Children may well ignore warning signs if they are intrigued by what they see beyond, or they may be unable to read, so it is important to ensure that a physical barrier is erected around the area so that the children cannot put themselves at risk. Some children are notorious ‘climbers’ and may not be deterred by barriers, so it is particularly important to keep a watchful eye on them. Children may see a dangerous environment as an adventure playground, as they don’t perceive danger as adults do. people at work - A guide for employers". ISBN 0 7176 1285 6

9 - Working in Studios

Grids

- There must be satisfactory arrangements and a safe system of work established to ensure that no one is put at risk through grid working;
- Access to grids should be controlled;
- No loose items should be taken into a grid;
- Grid areas must be inspected regularly to check that the decking is secure and there is nothing that could fall;.
- The grid must not be over-loaded - the SWL (Safe Working Load) must be posted;
- Always check local instructions before commencing any grid work.

Audiences

Where audiences are present, the risk assessment process must take into account any audience members at particular risk. Overall responsibility for audiences, spectators, public, etc., normally lies with the organiser of the event. If the organiser of the event is the Producer they take that responsibility. Premises and facilities managers are responsible for ensuring that the facilities they provide and control do not affect the safety or welfare of others.

Adequate arrangements must be in place for the health, safety and welfare of the audience at all times. Audiences must be told:

- the emergency evacuation procedure
- first aid arrangements
- when hazards such as smoke, strobe lights or loud noises are to be used.

In studios there must be a 1.5 metre buffer between the audience and any production activity or equipment, leading directly in to the exit or perimeter gangway.

Audience seating must be secured so it can not be easily overturned, and it must be checked beforehand to ensure it is free from obvious defect

10 - Working Near & Shooting from Aircraft

Flying

Microlight/Gliders/Hang Gliders & Paragliders
Parashuting
Filming or Recording Equipment Fitted to an Aircraft
Filming or Flying with the doors off
Radio Equipment & Frequencies
Model Aircraft
Insurance

Working with the UK Emergency Services and the Armed Services

The pilots in the emergency and armed services are professional also their aircraft are professionally maintained. For the purposes of these rules they are deemed to be approved.

Hiring Or Chartering Aircraft, Including Fixed Wing, Helicopters, Balloons And Airships

If a production company charters an aircraft to carry camerapersons or other passengers it will be classed as public transport and the operator must hold an Air Operators Certificate (AOC), issued by the Civil Aviation Authority (CAA).

AOCS are issued in respect of operations for aeroplanes, helicopters and hot air balloons. High standards must be achieved before the award of an AOC and must be demonstrated to CAA flight operations inspectors.

Working With Non Professional Operators

The holder of a Private Pilot's Licence may not fly passengers or undertake aerial work for 'valuable consideration' (hire or reward for money or otherwise).

Where an aircraft is to be filmed from the ground then, provided the aircraft is taking off, flying and landing in accordance with normal aviation practice, and there is no "valuable consideration", a commercial pilot's licence may not be necessary.

Productions may wish to take part in a Press Day or cover a story involving a personality flying where commercial licences are not held. In certain circumstances and providing there is no "valuable consideration" this may be possible, but productions must consult with Safety Services at the earliest opportunity.

COMPANY REQUIREMENTS	Public Transport Transport category (Passenger) Commercial AOC Public Transport Transport category (Cargo) Commercial
IRCRAFT REQUIREMENTS	(Certificate of Airworthiness)
PILOT REQUIREMENTS	Air Operators Certificate (AOC) Aerial Work, Commercial, Private or above

Microlights/gliders/hang-gliders/paragliders

Microlights, gliders, hang-gliders and paragliders may not be used for public transport or for aerial work, other than aerial work which consists of the giving of instruction in flying.

This means that it is illegal, except for instruction, for such aircraft to be flown for 'valuable consideration', (ie. hire or reward for cash or otherwise). It is essential that this requirement is strictly adhered to. Any non-compliance with the requirements of the Air Navigation Order can only be by special permission or exemption issued by the CAA.

If for editorial reasons, a production wishes to do a story about learning to fly or about a particular pilot then it is possible to undertake filming or recording of these aircraft, providing the following requirements are met:

No 'valuable consideration' must be given or received;

The pilot must hold a current and valid licence:

Gliders: Instructor rating (BGA) Instructor rating (BGA)

Microlights: Qualified Flying Instructor rating (BMAA)

Qualified Flying Instructor rating (BMAA)

Hang-Glider and Paraglider: Senior Instructor with dual rating (BHPA)

Any filming or recording equipment attached to the aircraft must be:

Gliders: checked by an approved BGA inspector.

Microlights: checked by the QFI. (The manufacturers may also need to be consulted).

Hang-Glider & Paraglider: checked by the BHPA Senior Instructor.

The flight activity must be in accordance with the requirements of the BGA/BMAA Operations Manual or the BHPA Technical Manual, as appropriate;

No TX crew may be carried in the glider tug aircraft without 'special permission' from the CAA.

Parachuting

Parachuting may only take place under the control of an organisation (eg club or team) which holds a valid CAA permission and exemption permitting such an activity.

The parachuting must only be carried out in accordance with the conditions laid down in the British Parachuting Association Operations Manual, or other manuals agreed with the CAA.

The use of automatic activation devices must always be considered.

Only FAI ‘D’ certificated parachutists may use cameras, and the equipment and its attachment must be examined by an advanced instructor.

Other than those jumping, no BBC crew or artists may be carried in the drop aircraft without ‘special permission’ from the CAA, unless the aircraft is flown under an AOC.

‘Stunt‘ parachuting must always be cleared the British Parachuting Association

consideration must be given to the relative merits of a stunt artist against a professional parachutist;

automatic activation devices will normally be required for stunt jumps;

the stunt parachutist must be a BPA member, holding a ‘C’ certificate;

where a stunt performer is making the jump there must be another person of at least equal or higher competence and experience to co-ordinate the event.

Filming Or Recording Equipment - Fitted To An Aircraft

Filming or recording equipment fitted to an aircraft must be CAA approved and the operators permission must be obtained. It must be installed by a competent person and checked by a Licensed Aircraft Engineer.

Filming Or Flying With The Doors Off

When flying with the doors off all persons and equipment must be secured and all loose articles properly stowed. Camera and recording equipment must be independently secured from the operator. The Safety harnesses used by camerapersons must be fit for purpose and be suitable for the recording activity.

Radio Equipment and Frequencies

Any radio equipment to be used in an aircraft must be CAA approved. The radio frequencies to be used must be cleared for airborne use. Approval must be given by the operator before radio equipment is used in an aircraft.

Model aircraft

Model aircraft companies/operators used to carry recording equipment, cameras or otherwise, must be listed on the BBC approved list.

It should be noted that model aircraft over a certain weight must meet Civil Aviation Authority requirements and those used for a commercial activity ie. where there is ‘valuable consideration’ (hire, reward for money or otherwise) need a special exemption from the CAA.

Advice regarding the safety of other model aircraft flight and their safe use in productions should be sought from

The British Model Flying Association (BMFA);

Large Model Association (LMA);

British Association of Radio Controlled Slope Soarers (BARCS).

Insurance

The aircraft operator must hold insurance to cover all liabilities arising out of the operation of the aircraft, for personal injury to or damage to the property of any third party or passenger, including BBC personnel.

The BBC would normally expect such insurance to have a limit indemnity of at least £5,000,000. If in doubt, advice should be sought from ACP Insurance Services.

Insurance advice must be sought where:

- a member of TX staff is to act as pilot.
- the TX is asked to provide any form of indemnity
- any TX or borrowed equipment valued in excess of £1,000,000 is being carried in an aircraft.
- ten or more TX staff travel on the same flight, whether scheduled or unscheduled.

General

If the flight takes place over a large expanse of water, the pilot will require you to **wear** a life jacket. It is the responsibility of the pilot to ensure that before the aircraft takes off all passengers are made familiar with the position and method of use of emergency exits, safety belts (with diagonal shoulder strap where required to be carried), safety harnesses and (where required to be carried) oxygen equipment, life-jackets and the floor lighting systems and all other devices required by the CAA.

Before the aircraft take-off there should be a thorough safety briefing of all present. Prior to the commencement of any flight operations the pilot or operator's representative will brief all personnel who need to be closer on the ground than 150 metres to the aircraft involved at any stage in the operation. **No one may enter this risk area without permission.** No one should change their position or the position of any equipment, props or sets etc. without informing the pilot or operator's representative. (see also para. 1.2.15.)

Always obey the pilot's instructions regarding the safety of both personnel and equipment in the aircraft. This is especially important in light aircraft, where any unrehearsed movement within the

cabin should be avoided. Before the flight, it is essential to agree single words of instruction or signs to enable the pilot to position the aircraft as necessary without any possibility of misunderstanding. The dialogue should be confined to two persons - pilot/camera(wo)man or pilot/director - at any given time.

The person in charge of the programme-making activity must ensure that **only** those essential to the actual filming shall be allowed to be carried in the aircraft during filming. The number of passengers may be subject to a condition in any relevant Permission or Exemption issued by the CAA.

Upon boarding an aircraft the pilot may require a seat belt or safety harness to be worn at all times. In any event it must be fastened as soon as you get in and kept fastened until the pilot signals that it is safe to release it (as on scheduled passenger flights).

No person may fly or be carried except in that part of the aircraft designed for the purpose. Dangerous goods may not be carried.

Once in the air, a pilot has to carry out many operations simultaneously - including flying the aircraft, keeping a look-out, positioning for the filming, navigating and communicating with Air Traffic Control agencies, and it is essential that all concerned should keep to the planned brief. Any changes to the planned brief may require the aircraft to return to base, or designated landing zone, for a re-briefing. If possible, carry out a dummy run before actual filming begins. In some instances, e.g. if the pilot has to fly with a door off and with cameras in the slipstream or if he has to carry out any extreme manoeuvres such as a steep turn, it may be essential to hold practices on the way to the target area. It is not permissible to drop articles from an aircraft without authorisation from the CAA.

When filming one aircraft in flight from another it is most important that both pilots should have recent experience of formation flying and be authorised for display flying. The manoeuvres must be agreed in advance of the flight at the planning and briefing stages. It is essential that such briefing sessions are attended by everyone involved. When formation flying, the camera aircraft should always fly on a level or predetermined course, leaving all manoeuvres to the plane being filmed. The filmed plane must **never** fly under the camera plane (which, apart from being dangerous by cutting out visibility, also renders filming impossible) and the pilot of any small aircraft must always take extreme care to avoid the effects of turbulence around another aircraft when flying in close formation. In many cases, where two aircraft are involved, it is worth considering using a camera fitted with a telephoto lens to shorten the apparent distance between aircraft.

When stunt flying or low level aerial filming is taking place, only essential personnel should be allowed closer than 150 metres (about 500 feet) from the aircraft or its projected flight path.

Action vehicle drivers must not change their agreed route or speed without informing the pilot. A representative of the operator must be on hand with the Production Manager at all times when stunt or low flying operations take place.

Any changes to the required action must be the subject of a re-briefing and the aircraft must land if necessary. Following the re-briefing, the action should be re-rehearsed to familiarise all those concerned with the sequence.

If it is necessary to abort a sequence then a clear and simple method should be agreed beforehand. It would be good practice to have a code word for this action.

Accident Reporting Procedures

In addition to the BBC internal accident reporting procedures, the aircraft operator or pilot must report an accident to the Air Accidents Investigation Branch (AAIB) of the Department of Transport (see Appendix A), the Civil Aviation Authority and the Police. They must be informed immediately by telephone. If the pilot is unable to make the report any other person present should contact the local police.

In the event of an accident, evidence which may be vital to any investigation can easily be lost. Unfortunately, much evidence quickly disappears if souvenir hunters manage to get within reach of any wreckage. The police, who are well aware of this problem, will assist in ensuring that the wreckage is securely guarded. Beyond what is necessary to treat persons who are injured or remove risk of further injury **it is essential that nothing is moved until the AAIB investigator arrives and then only with their permission.** (This includes BBC equipment, personal effects, etc.)

HELICOPTERS

Basic precautions

If you are involved in the use of helicopters, observe the following precautions:-

- Never enter the landing area without first obtaining permission of the aircraft operator's ground staff.
- When you do approach a helicopter, always keep in the line of sight of the pilot and be prepared for the pilot's signals. The same goes for when you leave. NEVER approach or depart from the rear.
- Do not load or unload until rotor blades are stopped.
- The tail section of the helicopter is particularly dangerous. The tail rotor can be hypnotic and people have been known to walk or run into them. Do not duck under the tail boom, always walk around the front.
- When approaching a helicopter with the blades turning, only do so when signalled by the pilot, and always make sure the pilot knows what you are doing and duck your head by bending over. The blades can flex down or even be moved down by the pilot. In most cases you can stand up straight only when within arms length of the cabin. The most dangerous time is when the blades are turning slowly and the wind is gusty.
- Never approach a helicopter by walking down a slope or leave a helicopter by walking up a slope. You could walk into a rotor blade.
- Helicopter rotors tend to blow dust, dirt, sand and loose articles. The 'rotor wash' created by the helicopter's rotor blades drifts with the prevailing wind. The landing area must be kept secure, clean and clear of debris. It is advisable to wear eye protection in these circumstances.
- When carrying equipment around take care, keeping long or tall items parallel to the ground within 30 metres (100 feet) of a helicopter. Be conscious of the blades. Remember that the aircraft skin surfaces, antennae and Plexiglass (Perspex) windows are all fragile.
- Take care not to extend any equipment such as booms, lights, supports or props etc., up into the path of the rotor blades.
- The pilot will show you how to open and close the helicopter doors and exit in an emergency. [See also para 1.2.6]

- The ‘downdraft’ from helicopters when taking off or landing, but especially in the hover, can be tremendous. Be aware of unsecured equipment such as hats, plastic bags, umbrellas, chairs and props etc. being blown up into the rotor blades or engine air intakes. Similarly take care with cameras on tripods, scaffolding, scenery, booms, lights and reflectors.
- During flight operations, communication between pilot and passenger must be maintained at all times.
- Make sure that any equipment taken on board a helicopter, such as spare magazines and cans of film or tapes, battery packs, tapes etc., are properly secured and cannot roll around the cabin and jam any controls. It would be good practice to land and change magazines, batteries etc., on the ground rather than try to change them in the air.
- Certain military helicopters such as the Chinook have their cabin access at the rear. If in doubt, check with the pilot or ground crew controller.
- Production crew should be provided with flying suits (aircrew overalls) and these should be worn at all times when shooting from a helicopter, together with life saving equipment as instructed by the pilot.
- Whenever possible, the camera(wo)man should fly on the same side of the helicopter as the pilot, although consideration must also be given to establish the best shooting position compatible with flight direction.
- The camera(wo)man and equipment must be effectively secured when in flight.

Balloons

Powerlines present a particular hazard to balloon operators. This should be borne in mind at the planning stage.

In addition to the general provisions of section 1, staff must ensure that they receive a briefing from the balloon commander on safeguards during landing.

All occupants of the balloon should be equipped with warm clothing preferably in natural fibres (and head protection in the case of hot air balloons, due to the proximity of the burners), together with appropriate safety equipment, i.e. safety harnesses. The camera and any other equipment must be effectively secured within the basket or gondola and attached, if applicable, to suitable safety lines to prevent them falling.

Safety harnesses should be worn at all times when there is not the security of a hand-hold. However, there is a danger that if a balloon has a bumpy landing, passengers may be thrown or tipped overboard. If the balloon then took off again, passengers attached to the balloon via a safety harness would be left suspended or dragged along. Recording should therefore not take place and safety harnesses should be unhooked during landing operations. In no circumstances should a person intentionally leave the basket without the pilot’s permission.

Weather conditions are of vital importance in relation to any ballooning or airship activity and will need to be checked long range and on each day that a flight is planned. The pilot has the responsibility for any final decision as to whether a flight takes place and this will depend not only upon forecasts but also actual conditions. If ‘on the day’ conditions are unsuitable then the flight is very unlikely to proceed.

PARACHUTES

Blood Donors

Sport parachutists are advised that parachuting and giving blood are not compatible. Whilst the quantity of blood is quickly replaced after donation, the necessary oxygen retaining qualities required at altitude are not. Therefore for a period of time, donors should not fly.

Different types of parachuting

- Tandem Parachuting
- Static line Parachuting
- Free Fall Parachuting
- Accelerated Freefall parachuting.

Tandem jumping involves a Tandem Instructor attaching a novice parachutist to himself by a securing harness. The Tandem Instructor is in total control of the descent, the parachute deployment and the landing phase onto the Drop Zone (DZ). The Tandem Instructor will also have complete access to the reserve chute.

Fixed or Static Line involves the parachute being donned by the parachutist and, in turn, a static line secured onto the aircraft's running wire by the line's end clip. Deployment of the chute occurs when the parachutist completes his exit drill from the aircraft and places his whole body weight onto the deploying static line.

Accelerated Freefall involves the parachutist exiting away from the aircraft with no umbilical attachment. The deployment of the parachute is left entirely to the individual. (see also 8.4.2. and 8.4.3. below)

N.B: Any unusual activity (stunts) involving parachute work must be the subject of reference to Safety Services. (see also 8.1.2.)

Reserve Parachutes & Automatic Devices

Parachutists taking part in a descent must be equipped with a minimum of two airworthy parachutes (one main & one reserve) attached to a common harness. Tandem parachutists must be attached to a Tandem Instructor using equipment specifically designed for the purpose and approved by the BPA.

Accelerated Freefall (AFF) and Ram Air Progression System (RAPS) parachutists must have an Automatic Activation Device (AAD) fitted to AFF and RAPS equipment.

AAD's may be used in conjunction with either the main or reserve parachute, but must only back up the manual operation. All parachutists must submit personal AAD's to the Club Chief Instructor (CCI) for inspection before taking them into use.

Training

If any TX staff, that are to take part in parachute jumping must be adequately trained. The following points must be covered:

- the correct method of inspection of equipment;
- the correct method of donning the parachute, and its reserve;
- safety on approaching the aircraft prior to emplaning;
- procedures to adhere to once in the aircraft (this will include procedures for emergency landing etc);
- communications and signal type language operated by CCIs;
- exit drills, and how to steer effectively to avoid other parachutists and to land within the DZ;
- emergency procedures to be completed in the air, i.e. steering away from other parachutists, approaching water, approaching trees, getting out of "Twists" and deployment of the reserve parachute;
- landing techniques, with preparations for forward, backwards, and sideways landings;
- flight simulation swings;
- correct evacuation from the DZ once landed;
- the importance of debriefing.

Clothing

Students undertaking their first parachute jumps often assume that adequate thermal protection from the elements is provided by the jump suit. This is not so. Guidance should be sought from the training school with regard to the correct items of clothing required and P.P.E.

Use of Cameras

The use of cameras are confined to FAI ‘D’ certificate parachutists. Their equipment and particularly the manner of its attachment to the body or helmet, should be carefully examined by an Advanced Instructor to ensure that it is capable of withstanding the stresses of parachute openings at terminal velocity.

A Jumpmaster who is a competent instructor, **in current practice,** and specifically approved in writing by his/her chief instructor, may be permitted to wear a helmet mounted camera when despatching jumpers, provided the equipment is configured so that it does not impede, in any way, the primary responsibilities of that Jumpmaster, and that no form of sighting or aiming system obscures his/her normal field of view. It must be arranged in such a way that the Jumpmaster can, in the event of a static line hang up or other emergency, be able to remove it instantly.

Medical

The BBC requires all parachutists to be in possession of either a declaration of fitness to parachute or, in the case of persons over 40 years, a doctor’s certificate. In the case of a minor (under 18 Years), the signature of the witness of the Declaration of fitness must be that of the parent or guardian.

No person above the age of fifty years will normally be accepted for parachute training. Exceptions to this rule may be allowed if:-

The person has previous experience and/or

Is of a high standard of fitness for their age and can convince the instructor of that fitness.

No parachutist will take any form of alcoholic drink before he/she has completed parachuting for the day. Equally important is the need to remain sober during the evening before parachuting.

Parachutists who do not feel fit in all respects, and particularly if they have a head cold, must not parachute until they are fully recovered.

MODEL AIRCRAFT

General Precautions

On private sites with public access, suitable notices warning of model flying should be erected. On any site with public access it is recommended that a **Safety Marshall** be appointed at any flying session. The duties should include warning both public and flyers of flight

patterns, take-off areas and safety procedures and advising spectators of the safest area from which to watch.

Flying

At flying sites close to airports and aerodromes, liaison should be maintained with airport authorities to determine any special precautions needed and, in special cases, to agree safe model flying heights. **Note:** CAA exempted models are subject to more stringent regulations than models below 7 kg and need the permission of Air Traffic Control to fly within 5 km of any airfield.

DO NOT OVERFLY houses, domestic gardens, car parks, traffic, railways, organised games, spectators or people walking by.

Model Helicopters

A model helicopter must have a higher degree of safety built into it than perhaps any other flying model. Because the BMFA feels so strongly about this, the following guide is in addition to the R/C guide.

It is **VITAL** that a helicopter is never run up or flown in or near the pits area or near spectators. When starting the model in the pits, hold the rotor head firmly. When the engine is running carry the model a sensible distance from other people before running up or flying. Do not release the rotor of the model until you are sure that it is safe to do so and **NEVER FORGET** the amount of energy there is in a spinning rotor.

A MODEL HELICOPTER MUST NEVER UNDER ANY CIRCUMSTANCES BE FLOWN OR RUN UP:

- In or near the pits area or close to any spectators.
- Directly towards the pits area or any spectators
- With metal rotor blades.

- With knife sharp leading edges on the main or tail rotors.
- With damaged or out of balance rotor blades. Note that blades, especially wooden ones, should be reinforced at the root with hardwood, glass-fibre or some other suitable material.
- With radio equipment unproofed against shock and vibration.
- In the presence of spectators or at a competition or;

. Until thorough maintenance checks are carried out.

GENERAL AIRCRAFT SAFETY GUIDANCE

If the filming involves the use of aircraft and/or work on an aerodrome where aircraft are based, observe the following basic precautions:-

- Do not enter an aircraft manoeuvring area or approach an aircraft closer than 150 metres, either on foot or with a vehicle, without first checking with the Air Traffic Controller, Aerodrome Manager, Pilot, Engineer or Ground Crew. Do not park vehicles close to an aircraft.
- When filming amongst aircraft, keep a regular check on your surroundings to ensure you are not in danger of getting too close to taxying aircraft, propellers, rotor blades and jet engines.
- NEVER EVER RUN in the vicinity of aircraft.
- Remember that the pilot of a moving aircraft cannot always see all the ground in front of him and, because of other distractions, may not be aware of your presence.
- Do not offer or accept an invitation to assist in the man-handling, preparation or starting of an aircraft.
- Do not go within 5 metres (16 feet) of a propeller, whether turning or not. For jet engines the distances are 20 metres (66 feet) in front, and 50 metres (160 feet) behind. Seek advice from the owner/operator/pilot before approaching any aircraft.
- Be especially aware that helicopter rotors can flex downwards either because of turbulence or by pilot operation. In addition, special care should be taken when approaching a helicopter on sloping ground. (See Section 2, HELICOPTERS)
- NEVER THROW anything in the vicinity of an aircraft, especially if the engine or blades are turning. Make sure that all loose objects in the vicinity of aircraft are secured.
- Do not smoke in the vicinity of fuel installations, or aircraft, or in hangars. Smoking is permitted in some light aircraft in flight, but check with the pilot first.
- Remember that high level noise can be harmful to hearing. Arrange to take ear defenders for all staff who might be exposed to excessive noise. If radio sets are required for communications then noise cancelling headsets must be used.

12 - Use & Choice of Safety Equipment

Law

The Health and Safety at Work Act 1974 places on the BBC a general duty to ensure the health and safety of its staff. This is generally best done by removing or controlling hazards at source, (e.g. by guarding or ventilation etc.) In circumstances where this cannot reasonably be done individuals must be protected by the use of PPE. Control at source may well be impractical due to the short - term nature of the activity, e.g. plant maintenance. In these cases it is necessary to consider whether suitable and appropriate PPE should be provided, and its use enforced, in order to ensure that staff are as safe as is reasonably practicable.

The additional requirements of the employer under the new regulations are, to ensure that:-

- where the presence of more than one risk to health or safety makes it necessary for his employees to wear or use simultaneously more than one item of PPE, such equipment is compatible and continues to be effective against the risk or risks in question.
- appropriate accommodation is provided for that PPE when not in use;
- information, instruction and training, as is adequate and appropriate, is provided for employees to know:

    - the risks and limitations of the PPE; - the purpose and manner of use of the PPE; and
    - any additional action required by the employee to ensure that the PPE remains in an efficient sate and working order and in good repair.

Where PPE is necessary, the Act imposes upon every employee a duty to wear such PPE for his/her own safety. The Regulations, go beyond these duties and now require every employee to:-

- Report any loss or defect of PPE provided;
- Return any PPE to appropriate accommodation when not in use.

In certain types of work, which are deemed hazardous or injurious to health, the issue and use of PPE is specified by specific statutory provisions, for example:-

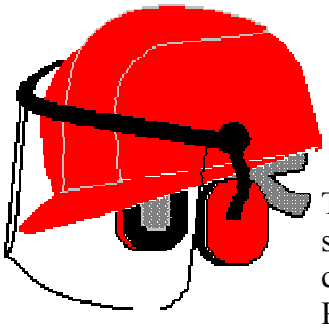
- The Control of Lead at Work Regulation 1980;
- The Ionising Radiation regulations 1985;
- The Asbestos at Work Regulations 1987;
- The Control of Substances Hazardous to Health Regulations 1988;
- The Noise at Work Regulations 1989; and
- The Construction (Head Protection) regulations 1989.

The requirements of the Personal Protective Equipment at Work Regulations modify and strengthen the above provisions.

Selection

If PPE is found to be necessary, the employer is required to ensure that suitable PPE is provided. It shall not be suitable unless:

- it is appropriate for the risks involved and the conditions at the workplace where exposure to the risk may occur;
- it takes account of ergonomic requirements and the state of health of the person who may wear it;
- it is capable of fitting the wearer correctly, after adjustments within the range for which it is designed;
- so far as is practicable, it is effective to prevent or adequately control the risks involved without increasing the overall risk;
- it complies with any enactment which implements in Great Britain any provision on design or manufacture with respect to health or safety.



The EC Mark

CE

British Standards Kitemark

The Regulations also state that an assessment must be carried out to ensure that any PPE chosen will provide adequate protection against the hazards associated with the work activity. The assessment should include the following considerations:

- an assessment of the risks that cannot be avoided by other means;
- the PPE specification, i.e. what is required of the PPE and any additional risks associated with the use of PPE; and
- what PPE is currently available from manufacturers and suppliers of PPE which meets the above specification.

This assessment should then be reviewed if it is thought to be no longer valid or, there have substantial changes to the job. This booklet is designed to give guidance on safety equipment and PPE which conform to British Standards Institution standards (BSI). The BSI prepares standards for products and issues licences to manufacturers only after thorough inspection and testing of individual products. Manufacturers awarded such licences are required to display the certification mark (i.e. the kitemark) on all products for which the relevant licences have been issued. Some if not all of these British Standards will eventually be replaced by the E.C. equivalent, compliance will be denoted by the 'CE mark' (this may take some time, as there have been administrative delays.

Maintenance

All clothing should be regularly cleaned and kept in good condition. In some cases this may require professional attention. Staff should therefore inspect their PPE regularly. In order to encourage good care, managers should introduce a system for issue and maintenance and also keep records.

Multiple Hazards

Many situations arise where there may be more than one hazard present in a given working environment. When situations such as this occur consideration must be given to the combination of personal protective equipment required and its combined effect. In most cases this should not be a problem, but in situations where eye and ear protection is required, both items must be selected so as not to compromise each other's effectiveness, i.e. spectacles could not be worn with ear muffs without compromising the ear protection. There are certain situations with specific hazards, where personal protective equipment is available which protects against both hazards, e.g. in situations where eye and head protection is required, then a helmet with a visor can be obtained. If such equipment is used then the individual components must comply with the relevant British Standard.

Head Protection

The Construction (Head Protection) Regulations 1989 came into effect on 30 March 1990. From this date it is compulsory (unless there is no foreseeable risk of head injury) to wear safety helmets on all building and civil engineering sites in this country.

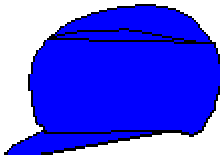
In any working environment where there is a foreseeable risk of injury to the head from falling objects, it is advisable that safety helmets conforming to BS 5240 should be worn.

Bump caps (BS 4033) should be supplied to employees who work in confined spaces.To afford adequate protection it is imperative that the helmet is a good fit or can be adjusted to the size of the users head.

Helmets must not be painted or marked in any way, other than one approved by the manufacturer. (This is because some marking materials can degrade the helmet's impact resistance.) Helmets should be regularly inspected and replaced if any damage or deterioration is found. Any helmet which becomes damaged or receives a heavy impact should be immediately replaced. The helmet, including its accessories, should be regularly cleaned and maintained in good condition.

Other British Standards dealing with specialist activities:

- BS 4423 - CLIMBERS' HELMETS
- BS 6473 - HORSE RIDING
- BS 3864 - FIREMENS' HELMETS
- BS 6863 - PEDAL CYCLES



Bump caps (BS 4033). Suitable for work in restricted head room

Standard Industrial Helmet (BS 5240)

Eye Protection

The Protection of Eyes Regulations 1974 are quite comprehensive and cover 35 types of industrial hazard, for which some form of eye protection is required.

When considering which type of eye protection would be appropriate to guard against injury, it is important to consider the different standards required for the specific hazards in the workplace.

The hazards and the appropriate grade markings are as follows:-

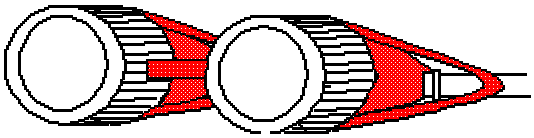
Hazard	**British Standard Grade Markings**
General	BS 2092
Impact	BS 2092
Grade 1	BS 2092 Grade 2
Dusts	BS 2092 'D'
Liquid droplets/splashes	BS 2092 'C'
Gases	BS 2092 'G'
Molten metals	BS 2092 'M'

* Grades C, D, and G are only applicable to the lens housing, whereas all other grades are applicable to both lenses and its housing. The lens and housing will be marked according to its grade and appropriate conformity to British Standard. For multiple hazards a combination of the above grades is possible.

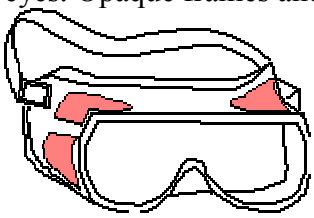
Types of Eye Protector

Spectacles with side shields

Goggles



Cup type goggles Grades 1 & 2. Excellent enclosure of eyes. Opaque frames and flitre lenses available for gas welding or metal-cutting. Cannot be worn

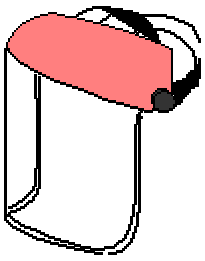


Box type goggles Grades 1 & 2. Protects against splashes, dust, gases, and molten metals. opaque frames and filter lenses available for gas welding of metal-cutting.

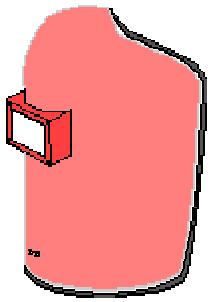
Spectacles (including prescription spectacles) Grades basic & 2. Wide range of sizes to give a good fit. Provides a reasonable degree of protection against non severe hazards. Not available for protection against dusts, molten metals, liquides droplets or splashes.

Eye shields Grade 2 only. These are light in weight. Good all round vision. Type known as 'overspecs' as they can be worn over prescription spectacles.

Face shields



Face screens or shields Grades 1 & 2. Provides protection to eyes and face. Available for protection against liquid splashes and molten metal. Available in tinted and/or heat reflective material for gas welding and furnace work. Can be mounted to a safety helmet using a designed carrier attachment.



Welding face screen Grade 2 only. Provides protection to eyes, face and neck against ultraviolet radiation. Interchangeable filters for gas and electric operations.

In certain circumstances members of staff who wear prescription spectacles, and who need to wear eye protectors for a substantial part of the working day, may be provided with prescription safety spectacles. Where managers feel that this may be appropriate Safety Services should be consulted. Radiation-Ultraviolet from:-

Welding

Protection from incident radiation, is achieved with the use of filters as specified in BS 679:1989. The filters reduce the intensity of radiation, and are classified according to their shade number and type of welding process respectively. The types of welding processes are classified as follows:

Process Classification code
Gas welding without flux GW
Gas welding with flux GWF
Electric welding EW

i.e. the recommended filter for lead welding without flux is 3/GW (as recommended in BS 7028:1988)

Filters may also provide impact protection.

Lasers

The selection of eye protection for laser use is complex and must be done by a competent person, as the filter chosen will depend on various factors. The filter dictates the level of protection. Contact Safety Services for advice.

Hearing Protection

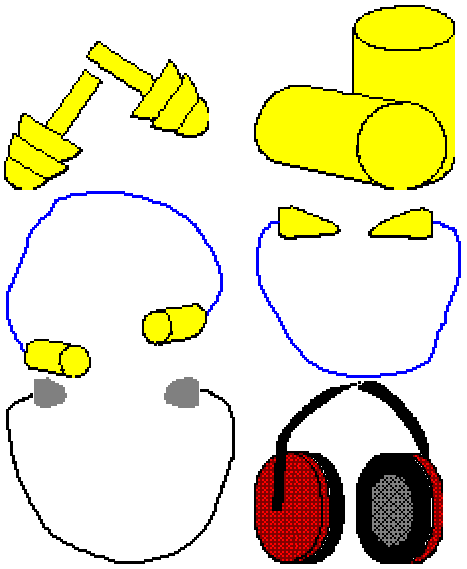
The Noise at Work Regulations 1989 state that every employer shall reduce, to the lowest level reasonably practicable, the risk of hearing damage to his employees from exposure to noise.

In the first instance one should try to eliminate the noise hazard at source. If this is impracticable, suitable protection must be made available if the noise level exceeds 85 decibels dB(A) when averaged over an eight hour working day. If the average noise exposure exceeds 90 dB(A) ear protection must be provided and worn.

To ensure protectors are suitable for the conditions where they are to be used and are efficient in providing protection, the following factors should be taken into consideration:-

- The level, duration and nature of noise exposure.
- The job and working environment.
- Compatibility with other P.P.E.
- The fit to the wearer.
- Any difficulty or discomfort experienced.

There are various types of ear protectors which should conform to BS 6344:-



permanent re-usable ear plugs caps)

disposable ear plugs

ear muffs

semi insert protectors (canal

- Amplitude sensitive protectors
- Frequency selective protectors

The selection of ear protectors should be made following an assessment by a competent person of the nature of the hazard, i.e. decibel range and the degree of risk (loudness and exposure time). When the degree of protection needed is high or the spectral distribution of the noise is unusual, octave band analysis may be necessary. A register of competent persons, under the Noise at Work Regulations, is maintained by Safety Services. Please bear in mind that the comfort of the wearer is of paramount importance. Selection of ear protection of an unnecessary high level of attenuation can be counter productive since it may not always be worn. If you require assistance in selecting ear protectors please contact Safety Services.

Respiratory Protective Equipment (RPE)

Substances such as dusts, fumes, vapours, gases and even micro-organisms encountered at work can cause significant damage to health or, in extreme cases, death. The most common mechanism whereby this damage occurs is by breathing in hazardous substances which are present in the air. Health and safety legislation requires employers to control the employees exposure to hazardous substances at work, e.g.

- The Control of Substances Hazardous to Health Regulations 1988.

- The Control of Asbestos at Work Regulations 1987.
- The Control of Lead at Work Regulations 1980.

WHEN TO USE RPE These regulations emphasise that RPE should be employed as a last resort for preventing or controlling exposure to substances hazardous to health. The main reason for this directive is that RPE only protects the person wearing it, whereas other control measures such as enclosures and local exhaust ventilation control the contaminant at source and prevent it escaping into the workplace. RPE is also unreliable unless correctly specified, scrupulously maintained and properly used.

RPE should therefore only be used where it is not reasonably practicable to control exposure by engineering methods. Such circumstances could occur where -

- RPE provides temporary protection before engineering controls are installed.
- Maintenance work requires staff to enter an area which has high contaminant levels. In the event of plant failure RPE is required to effect escape.
- Exposures are of short duration and the permanent installation of other control methods is not reasonably practicable.
-

SELECTION OF RPE No form of RPE provides 100% protection against exposure to a hazardous substance. There is always some potential or actual leakage of contaminated air into the RPE. When selecting RPE consider the following questions :-

- Is sufficient oxygen present in the atmosphere?
- Is the contaminant a dust, a gas or a vapour?
- What is the relevant exposure limit?
- What is the concentration of the contaminant in the atmosphere?

Only when these questions have been answered can the correct type of RPE be chosen. Great care must be exercised in selecting RPE to ensure the equipment can provide the required protection. For equipment offering high levels of protection, RPE is approved by the Health and Safety Executive (HSE) and an Approval Certificate is issued. In cases of lower performance RPE, the equipment must be shown to meet a laboratory performance standard, approved by the HSE. If in doubt, advice can be sought from Safety Services.

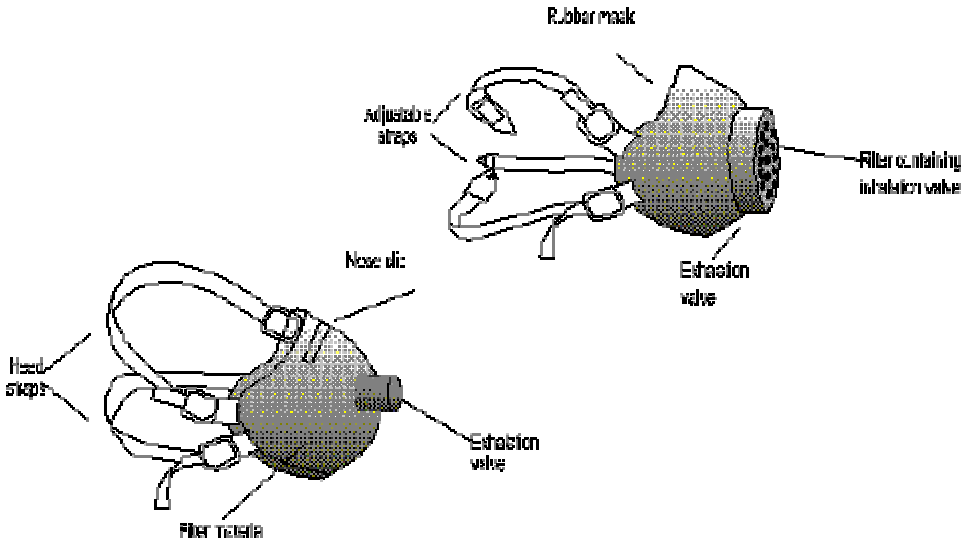
Although RPE is used to provide protection against a large variety of substances it can broadly be classified into two groups -

- Dusts, mists and other particulate matter, including micro-organisms.
- gases and vapours.

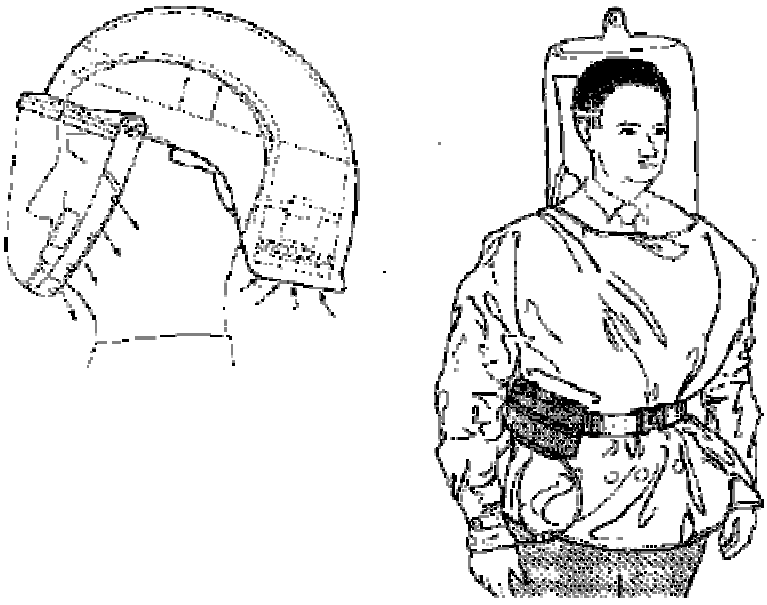
Respirators are often designed for only one of the above mentioned categories, although combination types do exist. RPE must be selected on the basis of its protection performance, with respect to the multiple of the Occupational Exposure Standard, (OES) individuals are being exposed to in the workplace. The OES levels are reviewed annually by the HSE. The tables below give references to the different levels of protection.

Dusts and other Particulate

Respirator European Standard of the OES	**Classification in Maximum multiple**
Disposable filtering facepiece respirator	FFP1
Half mask respirator (Filter classification)	P1
Full mask respirator (Filter classification)	P1
Powered respirators with helmets or hoods	THP1
Powered respirators with full facemasks	TMP1



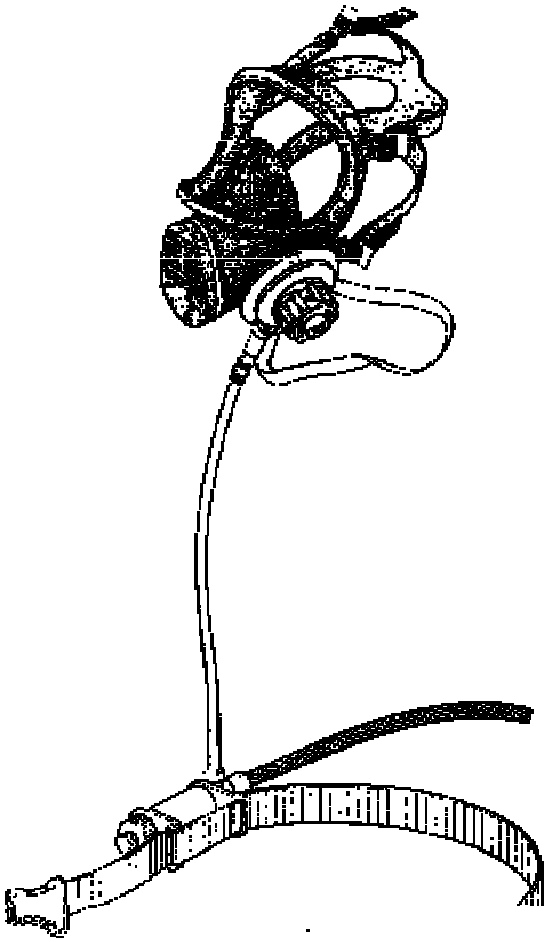
Gases and vapours



Disposable respirator Half mask respirator

Respirator Maximum multiple of OES	
Half mask respirators	60
Full mask respirator	2,000
Powered respirators with helmets or hoods	
Powered respirators with full face masks	2,000

Equipment that provides uncontaminated air from an independent source can be used against any form of contaminant.



All types of RPE restrict the wearer to some extent and the following factors must also be considered before selection is made:-

- Is the intended wearer medically fit to use it?
- Will the RPE fit and provide a good seal for the wearer?
- Does the intended wearer have facial hair or wear spectacles which can considerably reduce the protection factor in certain types of equipment?

TRAINING Legislation requires employers to provide suitable information, instruction and training for their employees to enable them to make effective use of RPE.

Medical Examination

All RPE acceptable to the HSE under health and safety legislation must pass some basic performance requirements, which include tests and limits for resistance to breathing. These limits have been set following medical advice and should cause no problems to average healthy adults. However, people with respiratory disorders such as asthma may find difficulty with respirators which rely on lung-power to draw air through filters.When staff are required to wear respirators managers must satisfy themselves as to their fitness and training and if in any doubt advice should be sought from Safety

Services and the Occupational Health Department. In particular, staff required to use air-fed breathing apparatus must be medically examined before being allowed to do so.

Use

RPE must be used in accordance with the manufacturer's or supplier's instructions. A visual inspection of the equipment must be carried out prior to each use in order to check, where appropriate, the condition of the battery, filter, airflow rate and fittings. If equipment is found to be defective it should be labelled and removed from service. Defective equipment must never be used, under any circumstances.

Maintenance

Effective maintenance of RPE is essential to ensure that the equipment continues to provide the degree of protection for which it was designed. Maintenance includes cleaning, disinfection, examination, repair, testing and record keeping.With the exception of disposable filtering facepiece respirators, RPE should not be used unless it has had a recent thorough examination. The interval between thorough examinations should not be more than one month and records of examinations should be kept for five years.

Storage

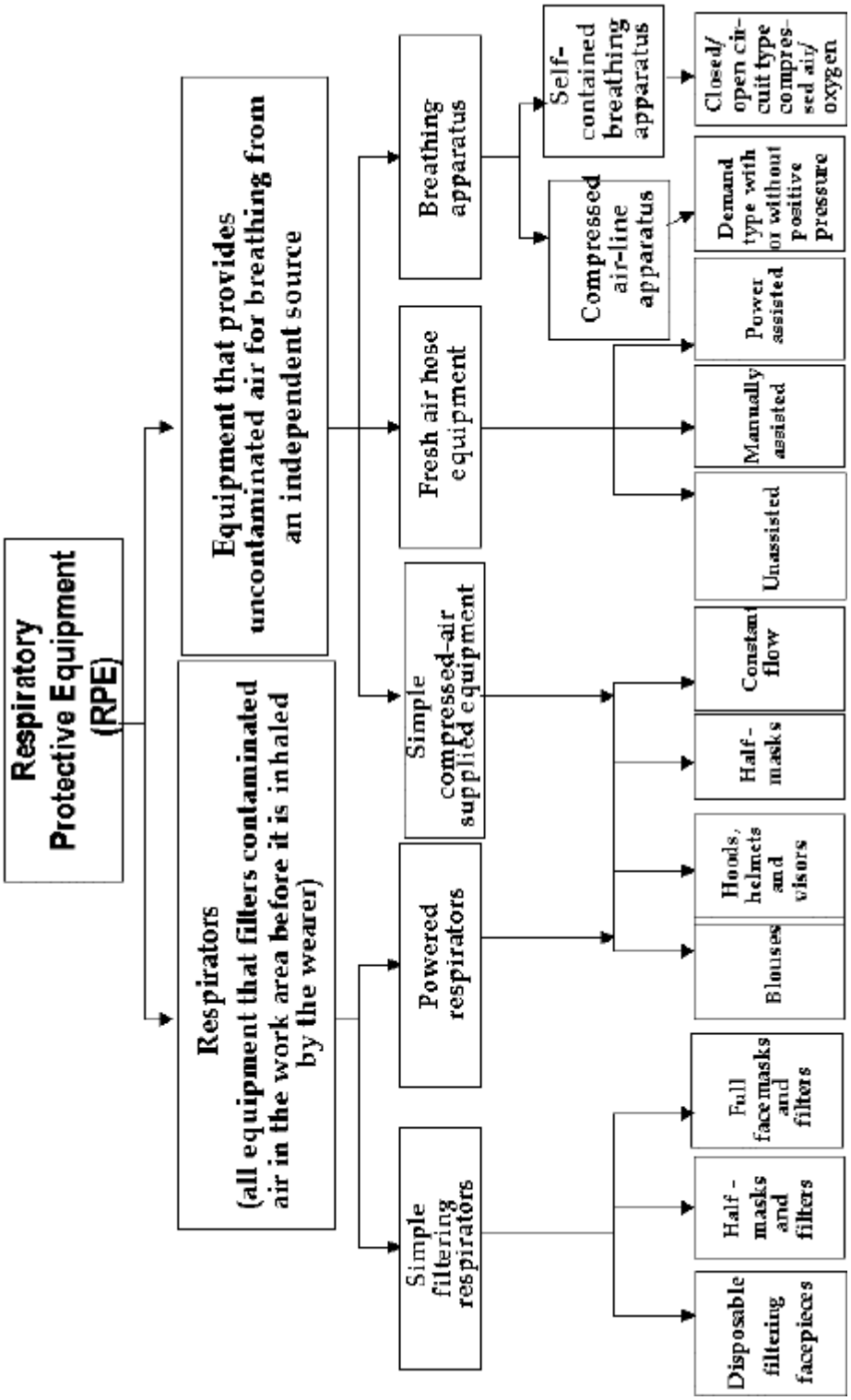
The equipment should be stored in an appropriate area to protect it from excess moisture, harmful contaminants, heat, cold, sunlight or corrosive substances. There should be a clear segregation of equipment which is ready for use and that which is awaiting repair or maintenance. A sufficient stock of spare parts should be available at all times.

Types of RPE

Respiratory protective equipment can be divided into two major classes, according to the basic principle by which protection is given to the wearer. The two classes are -

- Equipment such as face masks with filters and powered respirators, which take in contaminated air from the workplace and filter or clean it before it is inhaled. All such devices are called respirators.
- Equipment such as air-fed hoods and self-contained breathing apparatus, which deliver uncontaminated air from an independent source to the wearer.

See RPE table to assist in selecting types of RPE.



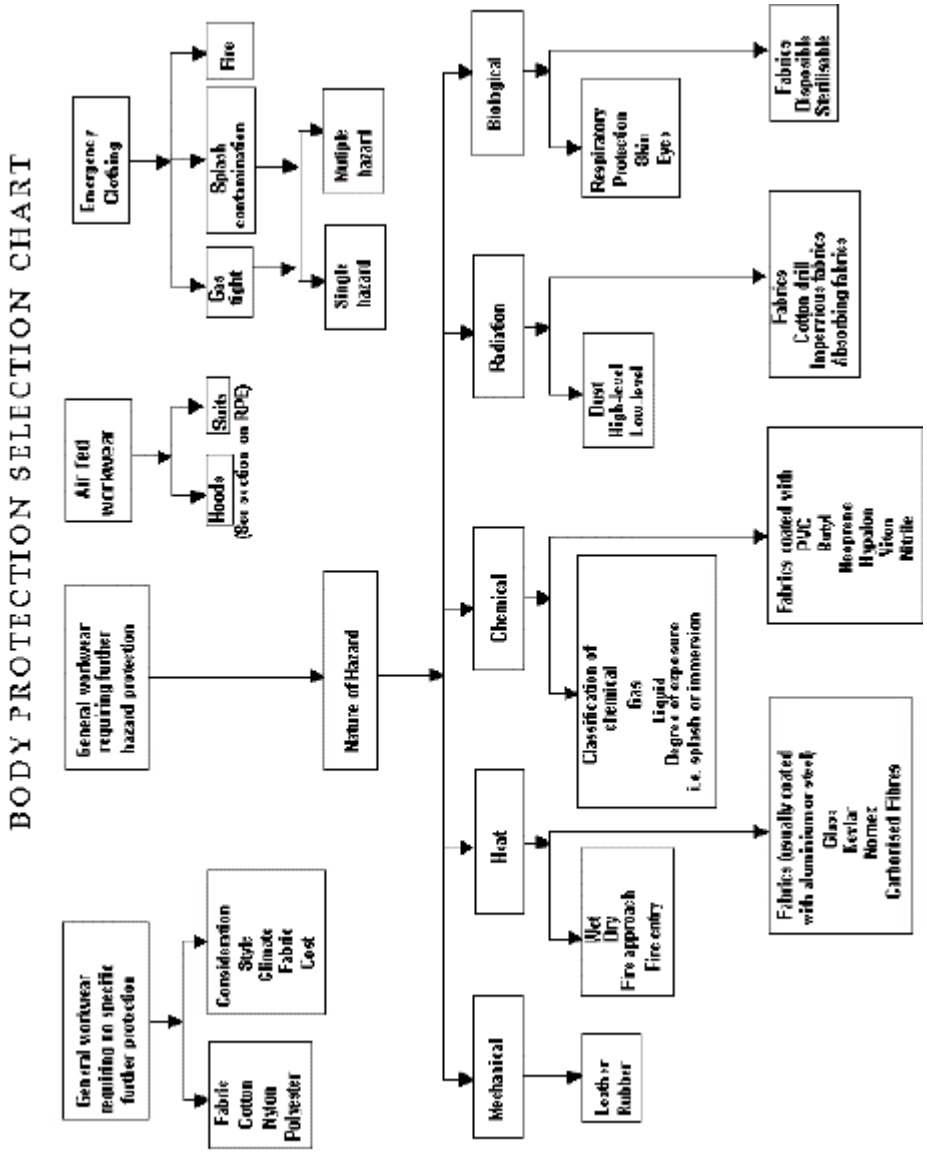
Body Protection

All the factors that apply to ordinary, domestic apparel also apply to workwear. In addition, the specific and more aggressive conditions that may apply at work should be taken into account.

Workwear may be designed to keep the wearer and ordinary clothing clean or may be for protection

against harmful agents, such as chemicals. When selecting protective clothing the following points should be taken into account:-

- Nature of the hazard
- Protection required
- Climatic conditions
- Fabric
- Style
- Fit to wearer
- Cost
- Emergency clothing



Life Jackets and Survival Suits

Staff and artists who are required to work on or near water must be provided with suitable equipment

and clothing if there is a risk of them accidentally falling in.

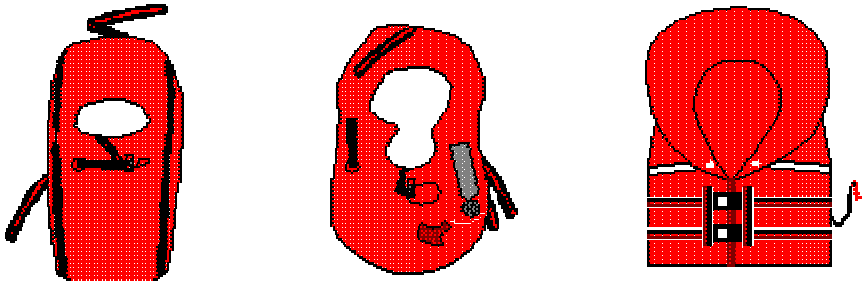
Personnel at risk of falling into water routinely wear life jackets to aid buoyancy, if such an incident were to occur. This precaution may well ensure that the wearer remains afloat, but it may not be enough to keep them alive.

For further information and details of relevant standards see HSE leaflet AIS1 PERSONAL BUOYANCY EQUIPMENT ON INLAND AND INSHORE WATERS.

There are various types of lifejackets available, these can be classified as follows:-

- **Inflatable lifejacket,** whose buoyancy is produced wholly by inflating it with air or other gases.
- **Orally inflatable lifejacket,** which is inflated by mouth only.
- **Gas inflatable lifejacket,** which is wholly or partially inflated by means of compressed gas. It can also be inflated by mouth.
- **Automatic gas inflatable lifejacket,** which is inflated automatically by means of a gas when immersed in water with facility for manual actuation. It can also be inflated by mouth.
- **Inherently buoyant lifejacket,** whose buoyancy is produced solely by the incorporation of materials lighter than water.
- **Partially inherently buoyant lifejacket,** whose buoyancy is produced partly by the incorporation of materials lighter than water and partly by inflation.

Typical Types of Lifejacket



Immersion in cold water has a dramatic effect on skin temperature, circulation and breathing. Within the first three minutes some people will lose consciousness and others will die. Continued heat loss produces the well known signs of hypothermia and at the same time impaired respiratory muscle function results in a build up of fluid in the lungs.

Sea temperatures around the UK range from 7-10oC in winter to a maximum of 16oC in summer. It is estimated that during the winter months an average person dressed in everyday clothing, falling into calm waters, would be expected to survive for 1-2 hours. In rough water the rate of loss of body heat would more than double with a corresponding drop in survival time.

Inland waters can reach freezing point in winter, with consequently shorter survival periods and an increased risk of sudden death resulting from the shock to the nervous system of entering the cold water.

A survival suit in addition to a life jacket gives further protection by :-

- reducing the initial shock.
- reducing the rate of heat loss.
- increasing the chance of being seen.

The PPE, medical condition and fitness of an individual are therefore significant factors to be taken into account in determining whether a person can be employed in or near water.

Life Lines

Life lines are also recommended, in appropriate circumstances, to retrieve people who experience difficulty in water. Part IV of the Merchant Shipping (Life Saving Appliances) Regulations 1986 specifies that a life line shall consist of a buoyant rescue quoit, attached to not less than 30 meters of buoyant line with a breaking strain of at least 1.0kN.

Safety Belts and Harnesses

Throughout industry there are many situations where workers operate in hazardous and potentially dangerous circumstances, and however well guarded working places appear to be, falls from heights will occur or personnel may become trapped in confined or inaccessible places. If a safety belt or harness is worn, the risk of serious injury or even death can be prevented. This equipment is available to meet most conceivable dangerous working situations.

In choosing a belt or harness for a particular application, care should be taken to ensure that it will give the user, as far as is safely possible, maximum comfort, freedom of movement and in the event of a fall, every possible protection to the body from the shock of sudden arrest.

Belts and harnesses must be capable of reasonable size adjustment, unless supplied in different sizes, and be fitted with safety line and hook.Damaged or worn equipment must be discarded and replaced.

A warning of the maximum safety drop for which the equipment is designed must be displayed on the belt or harness label.

BS 1397 classifies belts and harnesses into five types-

Pole Belts

Pole belts are designed for the use of linesmen and others required to work on poles or similar structures and should not be purchased for use by BBC staff as a safety belt unless for this specific purpose.

General Purpose Safety Belt

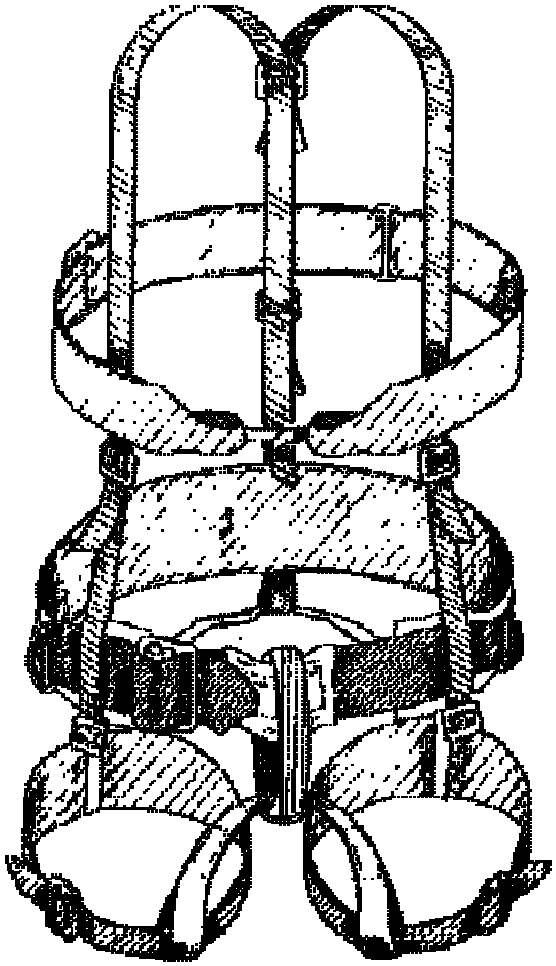
This equipment is used in conjunction with safety lanyards incorporating attachment devices, for fixing to anchorage points. They are intended for use where mobility can be limited and where the combined effects of the anchorage point position and the length of lanyard limits the drop to within a maximum distance of 120cm.

Chest Harness

This equipment is used in conjunction with lanyards for attachment to anchorage points. They incorporate a chest belt with shoulder straps, linked by a strong fabric, either at the front of the body or at the rear and capable of providing support for the torso. They limit the fall to a maximum distance of 2m.

General Purpose Safety Harness

This harness incorporates thigh straps and shoulder straps used in conjunction with safety lanyards, for attaching to anchorage points and may be built into light-weight carrier suits. They are used where freedom of movement is required but also restrict the falling distance to 2m.



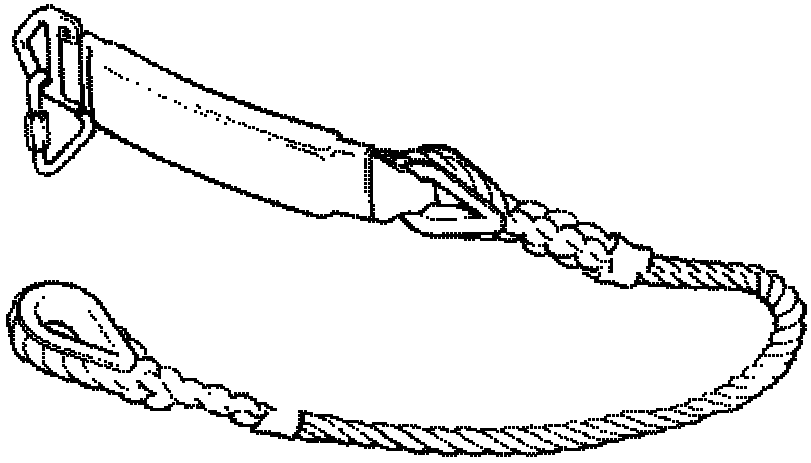
Manchester Multi-Purpose Harness System

Safety Rescue Harness

This equipment is used by persons working in confined spaces and although primarily intended for withdrawal in the event of an accident, they also limit a fall to a maximum distance of 60cmThey should be used in conjunction with rescue lines complying with the requirements of BS 3367

Shock Absorbers

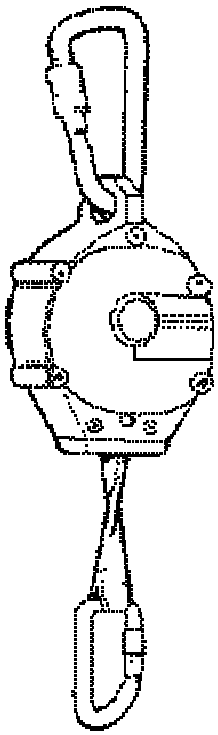
In certain circumstances, shock absorbers are recommended for use with all belts and harnesses as they effectively reduce the risk of injury to the body should a fall occur. They slow down the rate of fall thus absorbing energy and reducing the final loading on the body.



Shock Absorber Lanyard

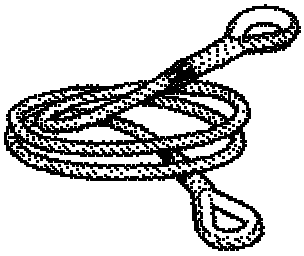
Fall Arrest Devices

These mechanical devices, when used in conjunction with a safety belt or harness, permit greater freedom of movement. These devices have two main features-They extend the area over which the user may safely work; and in the event of a fall, they restrict the drop, thereby reducing the load imposed upon the body on sudden arrest.The fall arrest device may be velocity sensing (inertia reel) or automatically operated and should conform to BS 5062.



Safety Rope

A safety rope is issued as a 50ft securing line made from a 'kermantle structure' i.e. woven cloth exterior and rubberised stranded interior. It is used in conjunction with two caribeners (or more). This system will then be used for securing off anyone or anything to a given anchorage point.



Hand & Skin Protection

Gloves

Gloves suitable for general industrial use should conform to the specifications contained in BS 1651.

Gloves suitable for staff working with electricity should conform to BS 697.

In selecting gloves it is essential to assess the resistance afforded by the glove to varying degrees of heat, abrasion or chemicals.

The glove should be suitable for the required operation, properly fit the wearer and be as comfortable

as possible. All gloves should be regularly checked for cuts and leaks and, if damaged, should be replaced immediately.

Two tables are reproduced outlining:

- types of gloves, and
- protection afforded against specific operations.

BS specifications for specialist activities:

- BS 6526 Oven Gloves
- BS 4005 Surgical Gloves

Barrier Creams

Barrier creams are often promoted as suitable for protection against a wide range of substances but you should treat these claims with caution. Use barrier creams only as a means of assisting in subsequent skin cleansing when involved in dirty work.

Soaps

There is now a wide selection of soaps and creams to combat industrial dermatitis and serious consideration should be given to installing such items in toilets, kitchens and washrooms.

- BS 1911 Hard Soap
- BS 1913 Soft Soap
- BS 4465 Liquid Soap
- BS 1912 Soap Flakes
- BS 1545 Liquid Toilet Soap

Glove Types

For the purpose of BS 1651 gloves are divided into the types given in the table below

1 Fresh split leather inseam gloves, gauntlets, mitts & one finger mitts
2 Grain leather inseam gloves, gauntlets, mitts & one finger mitts
3 Fabric gloves with leather palm
4 Inseam gloves and gauntlets made wholly from fabric
5 Leather outseam armoured gloves and gauntelts
6 Ligthweight PVC supported gloves with a rough finish
7 Lightweight PVC supported gloves with a smooth finish
8 Standard weight PVC supported gloves with a smooth finish
9 PVC gloves with a granular finish
10 Flock lined unsupported PVC gauntlets
11 Unflocked, matt finish, unsupported PVC gauntlets
12 Unlined rubber gloves or gauntlets
13 Flock lined rubber gloves or gauntlets
14 Fabric lined rubber gloves or gauntlets
15 Rubber gloves or gauntlets, fabric or flock lined or unlined with additional rubber reinforcement over the whole or part of the hand

Glove Selection Chart

Hazards	Typical Operations	Suitable Gloves	Type No.
Heat but no abrasion	Furnace work, drop stamping, casting,	Heat resistant leather wrist gloves	
Heat resistant leather inseam mitts, Heat resistant leather gauntlets, Heat resistant leather gauntlet with canvass cuffs, Felt mitts, palms faced with canvass or heat resistant leather Loop pile gloves or gauntlets			
Sharp materials or objects in an alkaline degreasing bath		Supported PVC gloves with granular finish, Reinforced, heavyweight rubber gloves	
Glass or timber handling, building demolition		Leather gloves and mitts, Loop pile gloves, Supported PVC gloves with granular finish, Reinforced, heavyweight rubber gloves	
Very heavy abrasions	Shot blasting	Reinforced, heavyweight natural rubber	
Heavy abrasions	Handling dressed castings or forgings, bricks concrete, cement, steel stock, heavy duty packaging	Abrasion resistant leather inseam mitts Asrasion resistant grain hide palm spilt leather, Back inseam gloves, Supported loop pile gloves Abrasion resistant leather staples leather palm gloves, PVC granular surface, heavyweight gloves Reinforced natural rubber gloves	
Light abrasions	Handling of packaged goods, general labouring	Leather wrist gloves and mitts Fabric gloves, Fabric gloves with leather palms, Loop pile gloves, PVC gloves, Rubber gloves	
Solvents*	Degreasing, printing, paint spraying	Supported PVC gloves rough, smooth, lightweight(excluding open back and knitted wrist styles)	
PVC lined gloves smooth and granular finish (excluding open back and knitted wrist styles) Natural and synthetic rubber gloves and gauntlets			
Chemicals*	Acids, alkali's, dyes and general chemical hazards not involving contact with solvents or oils	Standard weight PVC gloves,PVC gloves with a granular finish (excluding open back & knitted wrist styles) Natural and synthetic rubber glove and gauntlets	
Fats, oils*	Chemical hazards invo- lving contact with oils	Standard weight PVC gloves and gauntlets, Granular finish PVC gloves & gauntlets (excluding open back and knitted wrist styles) Natural and synthetic rubber gloves and gauntlets	
Electric shock	Do not use gloves in this standard but refer to BS 697		
General hazards in food handling	Kitchens and restaurants	PVC gloves rough or smooth finish Unsupported PVC gloves, Lightweight or medium-weight natural rubber unlined or lines gloves	

*It is important that the purchaser or user should seek advice from the manufacturer before making a final selection of a glove to meet specific needs. Attention is drawn to the method of test of BS 4724 to assess the resistance to permeation as may be appropriate according to the nature of the liquid composition and the type of glove under consideration.

Foot Protection 

The wearing of safety footwear with built-in steel toe-caps will reduce the numerous accidents that occur every year from heavy objects being dropped on the foot.

Similarly, mid sole protection footwear protects the wearer against penetration by sharp objects.

In selecting protective footwear, take care to ensure correct fitting and compatibility with the environment and processes envisaged in the work procedure.

- BS 1870 Part 1 specifies requirements for safety footwear other than all-rubber and all plastic moulded types, (i.e. general industrial).
- BS 1870 Part 2 deals with lined rubber boots
- BS 1870 Part 3 deals with P.V.C. moulded footwear.

Inspect all footwear regularly for cuts, leaks and wear and once damaged, replace it. BS specifications for specialist activities:

- BS 2723 Firemens' Boots
- BS 5451 Antistatic Rubber
- BS 5145 Industrial
- BS 5462 Midsole Protection
- BS 6159 Polyvinyl Chloride

Safety Signs

The Health and Safety (Safety, Signs & Signals) Regulations 1996 came into operation on 1st April 1996 but with a lead in until 24th December 1998 for existing, legal fire safety signs. The regulations govern the use of acoustic signs and hand signals in addition to sign boards.

The requirements for sign boards are not significantly different from those that existed under the previous (1980) regulations except that:

a. it is mandatory to display a sign wherever there is a significant risk that cannot be removed at source, i.e. a 'residual risk', and

b. all signs must include a pictogram indicating the nature of the hazard.

The table below indicates the conventions required in the use of signs, together with examples.

Safety colour	**Meaning or purpose**	**Examples of use**	**Contrasting colour (if required)**		
			Symbol colour	**Shape**	**Example**
Red*	Stop				
	Prohibition	Stop signs			
	Identification and colour of emergency				

Shutdown devices

Prohibitions signs White Black
Yellow Caution, risk of
danger Indication of hazards (fire, explosion,
radiation, chemical, etc.)

Identification of thresholds, dangerous

passages, obstacles Black Black
Blue Mandatory action Obligation to wear personal safety equipment

Mandatory signs White White
Green Safe condition Identification of safety showers, first-aid
posts and rescue points

Emergency signs White White
*Red is also used to identify fire fighting equipment and its location.

Portable Fire Extinguishers

Selection

There are several factors to consider in selecting the correct type of portable fire extinguisher but the most important is the kind of fire for which the apparatus is to be used.

In accordance with BS 4547, fires are classified into four categories (class A,B,C and D) depending on the actual combustible materials involved. It is important to remember that all extinguishers are certainly not suitable for all types of fire.

Class A

These are fires involving solid materials, usually of an organic nature, in which combustion normally takes place with the formation of glowing embers, e.g. wood, paper and textile fabrics. Water is the most effective way of extinguishing this type of fire.

Class B

These are fires involving liquids or liquefiable solids such as petrol, oil, greases and fats, where the blanketing or smothering effect of extinguishing agents which exclude oxygen is the most effective.

Class C

Fires of this classification involve gases such as hydrogen, propane, butane, etc. Fighting fires of this nature should be left to experts as the supply must be cut off to prevent an explosion if re-ignition takes place.

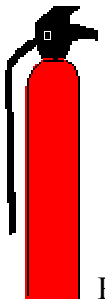
Class D

Fires involving metals such as magnesium, aluminium, sodium, potassium, calcium and zirconium require special materials and techniques to secure extinction and should again be left to experts.

Types and use of Extinguishers

A table is reproduced to assist in choosing the correct extinguisher for class A and B fires.

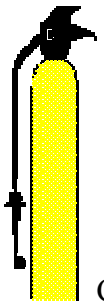
N.B. The provision of fire extinguishers on BBC premises is the responsibility of Television Facilities Management.



Red

Water

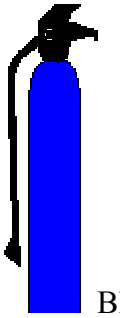
Use for Wood, Paper, Fabrics, etc.



Cream

Foam

Use for Flammable Liquids Oils, Fats, Spirits, Wood, Paper & Fabrics, etc.



Blue

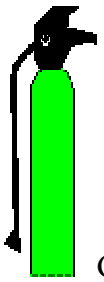
Powder

Use for All Risks - Flammable Liquids & Gases

Black

Carbon Dioxide

Use for Flammable Liquid Fires & Fires Involving Electricity



Green

Halon 1211

Use for Flammable Liquid Fires & Fires Involving Electricity

The conventional colours for fire extinguishers are as shown above. However, since 1st January 1997 all new extinguishers are required to be red, possibly including a small area of the above colour.

Containers for the Storage of Highly Flammable Liquids

The main hazards arising from the storage of highly flammable liquids are fire and explosion involving either the liquid in the container or escaping liquid or vapour. The precautions outlined are designed to minimise these hazards, but do not take into account possible damage caused by toxic, corrosive or oxidising hazards associated with the particular flammable liquid. The storage of highly flammable liquids is subject to the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972.

Design and Construction of Containers

All containers should be designed and constructed to standards suitable for the purpose. They should be robust and provided with well-fitting lids or tops to prevent spillage. BS 814 is suitable for steel drums whilst for plastic containers of 5-10 litres capacity the general standards in the Approved Code for plastic petrol containers may be used.

Storage Locations

Containers should be stored as follows:-

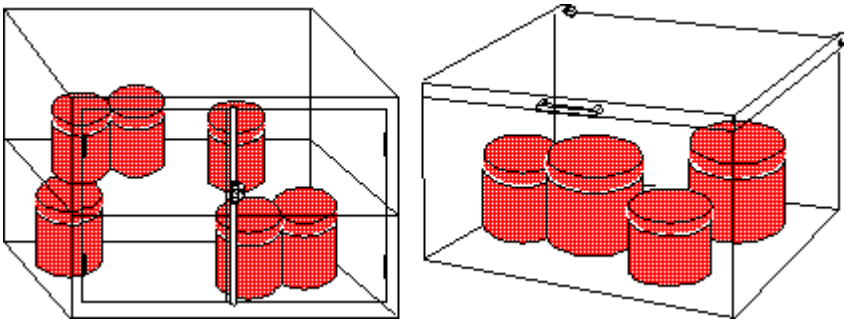
- where reasonably practicable in a safe position at ground level and in the open air. If for reasons of space the use of roof top storage is considered essential, the enforcing authority and the fire authority should be consulted via the Manager, Fire Prevention, Television;
- where open air storage is not reasonably practicable in a storeroom which is either in a safe position (preferably a separate building used only for this purpose) or in a fire resisting structure conforming to BS 476 Parts 20 to 23:1987, where each enclosing element, e.g. walls, doors, windows floors and ceiling, should be at least half-hour fire resistant. All internal surfaces should be at least Class 1 if tested to BS 476 Part 7; or
- in a suitably located fire resistant cupboard or bin, conforming to BS 476, Part 20 and 22:1987 with regard to freedom from collapse and resistance to the passage of fire for at least half an hour, provided the quantity of liquid does not exceed 50 litres in any workroom. The internal surface material (and any substrate bonded to it) should, if tested to BS 476 Part 6 have an index performance of not more than 12 and a sub-index of not more than 6. Prefabricated cupboards must be of a design approved by the Chief Inspector of Factories

No other materials should be kept in stores intended for flammable liquids. Correct stacking minimises handling difficulties during retrieval. MARKING AND LABELLING

Storerooms, cupboards and bins should be marked to indicate their contents. The marking should be clear and bold and state **`Highly Flammable'** or **`Flash Point below 32 C'**. At suitable locations **`No Smoking'** and **`No Naked Lights'** notices should also be displayed.

Individual containers should be clearly marked to indicate their contents and the degree of flammability. In most cases this will be dealt with by the Classification, Packaging and Labelling of Dangerous Substances Regulations 1984.

Precautions Against Spills and Leaks



Containers should be kept closed unless in use and if a leak or spill does occur it shall be contained or immediately drained off or treated to make it safe.

The quantity of any flammable liquid present at any one time in any workplace shall be as small as is reasonably practicable having regard to the operation.

When flammable liquids are not being used they should be stored in their appropriate fire resistant structure and should never be left out when the area is unattended.

CAUTION: Flammable liquids which are not miscible with water must be contained and not flushed down the drain.

Fire Precautions

The likelihood of a major fire can be minimised by good construction and layout of plant. A system of work should be introduced and staff instructed and trained in routine operations and emergency procedures.

Fire fighting equipment should be sited at ready-accessible points and appropriate for the type of liquid and on the conditions of storage.

Dry powder, foam or halon fire extinguishers are suitable for dealing with fires from small leaks or spills.

Safety Equipment Provided by the TX

Production Companies

Production Companies/Clients may make their own local arrangements for the acquisition and provision of safety equipment for Crews in line with the above notes. At all other times equipnmnet will be supplied by TX and charges applied for the use of equipment.

Safety equipment is provided free of charge to all TX crews and the following items are normally held in stock:-

- Life jackets
- Life lines (B.E.L.L.)
- Ear defenders (disposable & muffs)
- Safety goggles
- Safety harnesses and lines or straps
- Safety rope (50 ft) with caribiner
- Rescue line (secondary line)
- Fluorescent waistcoats and armbands
- Fire extinguishers
- Safety helmets
- Face/welders mask
- Gloves
- First Aid Kits
- Steel Toe Capped boots

When an item is issued by TX stores it will be accompanied by instructions for its use, storage and maintenance. In the event of items not returned or returned in an unusable condition a replacement fee will normally be charged to the Production Company or Client booking facilities. Specialised items not listed above require a minimum of one week's notice , without guarantee the specific item can be obtained. If specialist items are required then information from the user may be required with respect to the hazard.

All items held in stock are checked when they leave and on return. They are serviced as necessary. Issued items are the responsibility of the senior technician/assisitant or individual booking the equipment from stores, this nominated person will be responsible for the maintenance and safe storage of all safety items in their possession.

12 - First Aid

Introduction

The TX has a legal duty to provide first aid at work. There must be appropriate provision of trained first aiders, first aid boxes.

The general legal requirements are set out in Regulations and an Approved Code of Practice. This guidance note gives information about interpretation and special provision for the TX staff.

First aid provision for TX employees

The basic requirement is for the provision of one first aider for every 50 (or part of 50) employees.

Appointed Persons, trained only in emergency first aid, at locations where there are small numbers of staff (e.g. less than 15) and no significant major hazards.

First aid training or emergency first aid training should be offered to travelling staff, for example, rigger drivers / assistants (who are present at OB venues), engineers (who may undertake hazardous work in isolated locations)

It is the responsibility of the Producer/Production Company to ensure that there is adequate first aid cover for all productions, including outside broadcasts and location work. This may involve collaboration with other employers (see First Aid Provision with other Employers).

First aid provision with other employers

Outside companies brought in to work for TX may have their own first aiders, but it is for the Unit manager or producer to ensure that sufficient first aiders are available, even if this incurs extra costs.

Selection of first aiders

Individuals nominated for first aid training should always be assessed for their suitability and fitness to undertake the physically demanding duties involved. They must be able to cope with emergencies, able to undertake the course of study, and able to leave their place of work in an emergency to administer first aid

Training of first aiders

All training will be carried out by The St Johns Ambulance. In order to maintain a high degree of competence, refresher training is offered to TX first aiders on an annual basis. Full re-training must be completed every three years in order for first aiders' qualifications to remain valid.

7. First aid kits, boxes and rooms

First aid boxes are available in all buildings.

First aid kits are installed in TX vehicles used in outside broadcasts by travelling engineers, or by any other groups of workers on TX business in remote areas or isolated locations. Staff who have to travel extensively will receive training in first aid.

13. Workshop Safety & Working Practices

Soldering

- Only competent persons may carry out soldering activities
- A COSHH (Control of Substances Hazardous to Health) assessment must be made on the effects of exposure to colophony fumes wherever soldering is carried out.
- Anyone who solders must be warned of the effects of the fumes produced and the assessment must show whether they need to be included on a health surveillance programme.
- Where there is a risk of solder splash eye protection must be provided

Work Equipment

Work Equipment includes:

Introduction
Hired Equipment
Borrowed Loaned Equipment
Privately Owned Equipment
Generators

- Introduction

This covers all equipment/machinery whether fixed, portable or hand-held.

All work equipment must be selected and maintained so that it is suitable for the purpose for which it is to be used. All significant risks associated with its use must be assessed and adequately controlled. This should take account of who is to use the equipment and the environment in which it will be used.

All equipment/machinery used at work must also:

- be constructed or adapted so as to be suitable for the purpose for which it will be used;
- be operated by people who are either competent or effectively supervised;
- be maintained in an efficient state, in efficient working order and in good repair;
- be used or maintained only by specifically designated persons, if its use is likely to involve a specific risk to health or safety;
- be used only by people who have had adequate health and safety information and training and, if appropriate, written instructions;
- be positioned with sufficient room in all directions to allow it to be operated safely;
- have, unless inappropriate or unnecessary, one or more emergency stop controls;
- have controls which are clearly visible and identifiable, and not so positioned as to endanger the operator;

- have control systems which are safe and fail to safety;
- have, where appropriate, suitable means to isolate it from all sources of energy;
- be able to be maintained safely;
- be stable.

There must be assessment and control of the risks from specific hazards such as hazardous substances, ejected articles/substances, fire.

- Hired Equipment

Hired equipment should always be acquired from hire companies who supply properly maintained equipment that is safe to use and suitable for the job. The company should provide information on the safe use and operation of the equipment. Upon receipt the equipment must be checked to see that it has not been damaged in transit.

- Borrowed/Loaned Equipment

TX staff should not borrow equipment from contractors or lend equipment to contractors unless there has been a formal documented agreement.

- Privately Owned Equipment

Privately owned equipment used for work is legally regarded as work equipment and must conform to the same rules. You must get your manager's permission before using private equipment for work – it may not be suitable.

- Generators

There must be a safe system for bringing into service any stand-by generator. Those taking part must be suitably trained. The starting and switching routines should be tested and rehearsed at regular intervals. Contractors' generators may not be used indoors. If there may be hot re-fuelling, then only diesel generators should be used.

These Safety Notes & Codes may be amended . Check that you have the latest version or ask if you have any doubt or concerns regarding the safe working practices that TX expect you to apply when working on location on any production .