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## APPENDIX 9: TECHNICAL EQUIPMENT POLICY

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### Guidance for the Technical Equipment Policy

This document has been written to accompany the Technical Equipment Policy. It is understood that there are varying degrees of adventurous activities offered throughout FSC units and therefore require varying amounts of PPE (Personal Protective Equipment) and FPE (Fall Protection Equipment) to cater for that.

The policy was initially written for the management of PPE at Castle Head, but has since evolved into a document that can be used organisationally. Therefore, there are parts of the document that can be altered to suit practice at each individual unit.

Anything written in italics in the document can be altered to suit the practice of the unit. At units that hold an AALA license, the person responsible for any PPE/FPE at each unit should go through the document with their technical advisor to change these items.

At units that do not hold an AALA license, but still use PPE for activities such as problem solving or low ropes courses, changes can be made with additional guidance from Katie Sheehy (katie.ch@field-studies-council.org), who wrote the technical equipment policy and has undertaken the necessary training.

### Technical Equipment Policy

#### Introduction

This document is in place to ensure the maintenance and upkeep of Personal Protective Equipment (PPE) and Fall Protection Equipment (FPE) used on activities at *Castle Head* and to make sure that records of this care are kept.

The employment of NGB award holders should ensure that equipment is used correctly and that appropriate training is given to participants in the activities; this document is therefore additional to these standards already in practice.

It is a legal requirement that all PPE and FPE undergoes a pre-use check<sup>1</sup> by the user and is thoroughly examined on a regular basis by a competent person. It is recommended that this thorough examination occurs every six months. *However, due the high usage of PPE and FPE at Castle Head, it has been decided that interim inspections are required: once a month, and the six monthly thorough examinations needs to be identified on records regarding the month they took place.*

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<sup>1</sup> Pre- use checks refer to the day to day visual and tactile check at the start of sessions to identify obvious faults or damage of equipment. Suspect items should be taken out of service to eliminate re-use and checked by a competent person to determine the appropriate action to be taken (see Page 3 – damaged equipment).

Included in this document is all the PPE and FPE used on activity sessions at *Castle Head*. Each heading refers to a piece of equipment, and within that heading the following points are covered:

- Routine care and maintenance
- Regular safety checks including who can do the checks
- When to retire equipment (including if it can be used for other activities afterwards)

The document also informs about the equipment stores folders, recording the safety checks in them, and how to report and record damaged or missing equipment.

**Please note – the information in this document is not exhaustive. Manufacturers instructions for inspection that accompany the product must always be followed.**

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## **Management Systems: marking, record keeping and damaged equipment**

### **Marking –**

All PPE and FPE must be marked to identify it as an individual piece of equipment so that its history and inspections can be traced throughout its life. Marking a product may have an effect on it, so mark where it will have the least effect, e.g. labels rather than the main webbing of a harness. In this document, marking equipment will be described within the headings of each piece of PPE/FPE.

### **Record keeping –**

When PPE and FPE have been purchased, the label or tag which provides the manufacturers specifications and information is to be kept. It is also helpful to write the date of when the kit was first put into use at the centre on the information label. *This information is kept in the activity filing cabinet in the tutor room.*

*There are 3 folders for recording the inventory and maintenance of PPE and FPE at Castle Head; climbing, water sports and waterproof store. Each folder should have an inventory of the equipment in that store, and each month, the equipment is to be counted to ensure kit has not gone missing, and also inspected to ensure the maintenance, upkeep and safety of kit. Remember to identify the month in which the six monthly thorough examinations take place.*

After PPE and FPE has been discarded, all records of that equipment and its maintenance need to be kept for a minimum of 2 years.

### **Damaged Equipment –**

Any damaged equipment is to be removed from the store so that it does not go back into circulation. A designated location for damaged equipment needs to be identified, a record kept of what has been taken out of the stores and the person responsible for that store is to be informed. (See Appendix 1 for the Castle Head example of a damaged equipment form). Then depending on the piece of equipment, the damage in question and the qualifications and experience of the responsible person, the equipment can be repaired and out back in stores, or retired and destroyed. The technical advisor may need to be consulted for this purpose.

*At Castle Head, damaged equipment is to go to the damaged equipment bucket in the breakfast room, the damaged equipment form filled in and the person responsible for the stores informed.*

*Person currently responsible for:*

*Waterproof store – Katie Sheehy*

*Climbing store – Katie Sheehy*

*Water sports store – Katie Sheehy*

### **Climbing ropes**

*The ropes used at Castle Head include dynamic single ropes for the indoor climbing wall, the abseil tree safety rope, the high all aboard, outdoor climbing ropes (for bottom or top roping only), mountain walking ropes, low stretch ropes for all abseiling (including the abseil tree), rigging ropes and the safety access line on the abseil tree. None of the ropes are to be used for lead climbing.*

#### **Routine monitoring, care and maintenance:**

- Every rope is to be individually identifiable with a certain colour tape on the two ends of each rope or code, written on tape on the two ends of the rope.
- Ongoing awareness and pre-use checks of the rope e.g. when flaking and coiling before and after use – look for signs of abrasion, damage, wear and tear.
- When in use, avoid standing on the rope as small particles of grit can get inside the rope and damage the core.
- Ropes are to be washed *twice a year*.
- Ropes are to be kept in the *climbing store* when not in use.
- *Monthly* checks (to be carried out by or under the supervision of SPA holders only):
  - ✓ Count ropes to ensure all are there and there are none missing, using the tape on the ends to identify them.
  - ✓ Visual and tactile inspection of entire length; flake the rope out and run it through your fingers; looking for external damage or irregularities, and feeling for unevenness, flat areas, stiffness or any other irregularity. Re-coil the rope after checks.

#### **Degradation and discard criteria:**

- If there is obvious major damage, or if over time, the rope has deteriorated in condition, the rope should be discarded.
- Any of the following signs require the affected length of rope to be discarded:
  - ✓ contact with any chemical
  - ✓ sheath wear or cutting rendering the core visible
  - ✓ sheath wear or cutting resulting in serious damage or wear to the sheath
  - ✓ sheath wear resulting in general ‘furring’ and making the rope more flexible in the affected section
  - ✓ signs of sheath melting or fusing
- If the rope has been used with no major damage or obvious deterioration, discard after *1 year* from the purchase date unless otherwise stated by the manufacturer.
- Once a rope has been discarded from climbing use, it can still be used around the centre for non-PPE purposes, e.g. raft building and problem solving. To ensure retired rope is not used again for fall protection purposes, all tape identification is to be removed, and the knowledge shared that rope with no identification is for non-PPE use only.

### **Harnesses**

*All harnesses currently used at Castle Head are manufactured by Edelrid, DMM and Petzl. They are used for all outdoor climbing, indoor climbing and the on-site high challenges.*

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**Routine monitoring, care and maintenance:**

- Every harness should be marked with the date it was first used and an individual identification code if it does not already have one (supplied by the manufacturer). Write this information on the label that is stitched into the harness.
- Ongoing awareness pre-use checks of harnesses during day to day use on session.
- When harnesses are not in use they must be kept in the *climbing store*.
- *Monthly* checks (to be carried out by or under the supervision of SPA holders only):
  - ✓ Visual and tactile inspection of the entire length of each harness:  
Tape sections - look for excessive fading, wear, furring or cuts  
Stitched joints – look for damaged, frayed or loose stitching.  
Abrasion at tie-on points – look for signs of abrasion, fraying etc, where the abseil/belay loop touches the rest of the harness or where the rope is tied onto the harness.
  - Buckles and adjusting devices – look for any corrosion, deformation or damage.
  - Any indication of contamination by acids, alkalis or other corrosive agents.

**Degradation and discard criteria:**

- A harness must be discarded if they fail any of the above monthly checks.
- After *1 year* from the purchase date, harnesses are to be retired unless otherwise stated by the manufacturer. Once withdrawn from service, they should be cut up to prevent further use by others.
- *The XL size DMM Alpine harnesses are used considerably less; therefore they should be retired after 3 years from the purchase date.* Once withdrawn from service, they should be cut up to prevent further use by others.

**Slings**

*Slings at Castle Head are used primarily for the outdoor climbing sessions.*

**Routine monitoring, care and maintenance:**

- Each sling should be individually marked for traceability to the date first used and also so as not to confuse them with retired slings being used for non PPE uses.
- Ongoing awareness pre-use checks of slings during day to day use on session.
- When slings are not in use they must be kept in the *climbing store*.
- *Monthly* checks (to be carried out by or under the supervision of SPA holders only):
  - ✓ Visual and tactile inspection of the entire length. Look for signs of damage to the tape or stitching.
  - ✓ Slings are to be washed *once a year*.

**Degradation and discard criteria:**

- A sling must be discarded if:
  - ✓ the edge is cut or seriously damaged
  - ✓ there is abrasion or cutting of the tape surface sufficient to produce 'furring'
  - ✓ the tape has been contaminated by acids, alkalis, or other corrosive agents
  - ✓ any stitched joints are worn, cut or have loose threads

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- After 1 year from the purchase date, slings are to be retired unless otherwise stated by the manufacturer.
  - Once a sling has been retired, it may be used for other non-PPE uses around the centre e.g. problem solving, keeping harnesses and helmets together on session. However, its identification must be removed, the sling cut and retied so that it can be recognisable as a retired sling, to ensure that it does not accidentally go back in with the current PPE slings.

### **Karabiners and Maillons.**

*Both steel and aluminium karabiners and also steel maillons are used at Castle Head. There are also several pieces equipment that combines both karabiners and other metal work with textile elements such as quick draws, and figure of 8's.*

*Keep the aluminium karabiners for use with textile equipment, e.g. belaying, slings, Prussic loops – and not for clipping bolts. Use steel karabiners for clipping bolts and gear, i.e. when setting up a top/bottom rope system at a crag.*

### **Routine monitoring, care and maintenance:**

- Each karabiner and maillon should be individually marked for traceability to the date first used and also so as not to confuse them with retired ones being used for non PPE uses.
- Ongoing awareness and pre-use checks of karabiners during day to day use on session, in particular the gate.
- When not in use, karabiners and maillons should be kept in the *climbing store*. Maillons are to be stored with the gates closed, i.e. screwed shut.
- *Monthly* checks (to be carried out by or under the supervision of SPA holders only):
  - ✓ Count the karabiners and maillons to ensure none are missing
  - ✓ Check that the gate opens and closes easily and smoothly. If not, lubricate the hinge with a suitable lubricant such as 3 in 1 oil. Wipe away any surplus, and check the movement again – if this does not cure the problem, discard the karabiner.
  - ✓ If the gate catches on the latch or does not close fully under its own spring, the karabiner should be discarded (a misalignment can indicate over-loading has occurred and therefore strength has been compromised) Do not bend the gate to rectify this as it weakens the hinge.
  - ✓ Inspect the inner surface of the karabiner and maillon, particularly where the rope will run. Any with burrs, grooves or sharp edges on its inside radius should not be used for clipping ropes (see note above about steel and aluminium karabiners use). Do not file down any sharp edges on the karabiner, since even the grooves left by a fine-cut file could significantly damage the nylon filaments of the rope sheath. Any grooves deep enough to catch a thumb nail should be discarded.
  - ✓ Check the screw action on screw gates to ensure that it is smooth and will keep the sleeve locked in the closed position. If there is any sign of cracking or distortion, the karabiner should be discarded.

### **Degradation and discard criteria:**

- Discard a karabiner/maillon if it has failed any of the monthly safety checks stated above.

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- If there is a significant loss of metal due to wear and tear from normal use, discard. 1/10<sup>th</sup> of wear of the total thickness of the metal is a good indication of when to discard.
  - If the karabiner/maillon passes all of its monthly safety checks, discard after a period of 5 years from the purchase date unless otherwise stated by the manufacturer.
  - Once a karabiner/maillon has been discarded from climbing use it can be used around the centre for other uses provided it is not used as PPE. To ensure it does not go back into use for PPE purposes, its individual identification is to be removed and the metal scored severely or marked with gloss paint.

### **Belay and Abseil devices.**

*Castle Head uses DMM bugs, Petzl Gri Gri's and the Italian hitch for belaying, and figure of 8's for abseiling.*

### **Routine monitoring, care and maintenance:**

- Each device should be individually marked for traceability to the date first used.
- Ongoing awareness and pre-use checks of devices during day to day use on session.
- *Monthly* checks (to be carried out by or under the supervision of SPA holders only):
  - ✓ Visual and tactile inspection, particularly where the rope will run in use. Look for significant wear, burrs, grooves, sharp edges, cracks and deformation.
  - ✓ Check that any attachment wires or cords are secure and in good condition.

### **Degradation and discard criteria:**

- Discard if the device fails any of its monthly safety checks, i.e. it has one or more of the faults stated above.
- If there is a significant loss of metal due to wear and tear from normal use, discard. 1/10<sup>th</sup> of wear of the total thickness of the metal is a good indication of when to discard.
- If the device passes all of its monthly safety checks, discard after a period of 3 years from the purchase date unless otherwise stated by the manufacturer.

### **Climbing helmets**

*All climbing helmets currently used at Castle Head are manufactured by Edelrid. They are used for all outdoor climbing, indoor climbing, the on-site high challenges, low ropes course, obstacle course, the walks into cathedral quarry, ghyll scrambling, sea level traverse and some conservation tasks.*

### **Routine monitoring, care and maintenance:**

- Ongoing awareness and pre-use checks of helmets during day to day use on session.
- Each helmet should be individually marked for traceability to the date first used.
- Do not use paint or stickers on the helmets.
- When helmets are not in use they must be kept in the *climbing store*.
- *After using helmets at Humphrey Head (due to the salty air conditions), the helmets are to be dunked in fresh water (this can include the rain water butts) and allowed to dry naturally.*
- If helmets are particularly dirty (e.g. from the obstacle course or low ropes), they are to be washed in fresh water.

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- *Monthly* checks (to be carried out by or under the supervision of SPA holders only):
    - ✓ Visual and tactile inspect of each helmet for:
      - damage or deformation of any component
      - loose, damaged or missing rivets
      - check straps for security of fixing to the shell
      - broken or missing locking mechanisms

**Degradation and discard criteria:**

- A helmet must be discarded after any severe impact and if they fail any of the checks stated above.
- After *2 years* from the purchase date, helmets are to be retired unless otherwise stated by the manufacturer.

**Water sports helmets**

*All water sports helmets currently used at Castle Head are manufactured by Palm. They are used for all canoeing and raft building sessions.*

**Routine monitoring, care and maintenance:**

- Ongoing awareness and inspection of helmets during day to day use on session.
- Every helmet should be marked with the date it was first used.
- Do not use paint or stickers on the helmets.
- When helmets are not in use they must be kept in the *canoe store*.
- *Monthly* checks (to be carried out by or under the supervision of at least BCU Level 2 coach holders or the new UKCC/BCU Level 1 only):
  - ✓ Visual and tactile inspect of each helmet for:
    - damage or deformation of any component
    - loose, damaged or missing rivets
    - check straps for security of fixing to the shell
    - broken or missing locking mechanisms

**Degradation and discard criteria:**

- A helmet must be discarded after any severe impact and if they fail any of the checks stated above
- After *2 years* from the purchase date, helmets are to be retired unless otherwise stated by the manufacturer.

**Buoyancy aids**

*Buoyancy aids (BA's) are used at Castle Head for canoeing, raft building, and ghyll scrambling sessions. All BA's at Castle Head have a minimum buoyancy of 50N.*

**Routine monitoring, care and maintenance:**

- Ongoing awareness and inspection of buoyancy aids during day to day use on session.
- Each buoyancy aid should be marked with an individual identification code and the date it was first used.
- When not in use, buoyancy aids are to be kept in the *water sports store*.

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- *Monthly* checks (to be carried out by or under the supervision of at least BCU Level 2 coach holders or the new UKCC/BCU Level 1 only):
    - ✓ Visual and tactile inspection of each buoyancy aid for signs of any damage and deformation:
      - Check the buckles, zips and adjustment straps.
      - Check for deterioration of the foam within the buoyancy aid. Deterioration of foam is indicated by shrinking and of the breaking up and disintegration of the solid block of foam.
  - Annual checks:
    - ✓ After 3 years from the date of first use, each buoyancy aid needs to be weight checked on a yearly basis.
    - ✓ This involves tying an appropriate weight to the buoyancy aid (see Appendix 1). Place it in a tank of water and squeeze out all the air. If the BA continues to float and support the weight it is OK. If it sinks the BA should be discarded.

**Degradation and discard criteria:**

- If a buoyancy aid fails any of the above checks and tests, it should be discarded.
- After 6 years from the purchase date, buoyancy aids are to be retired unless otherwise stated by the manufacturer. Once withdrawn from service, they should be cut up to prevent further use by others.

**Throw lines**

*Throw lines at Castle Head are used on canoeing, ghyll scrambling, and raft building sessions and some academic sessions, e.g. river studies.*

**Routine monitoring, care and maintenance:**

- Ongoing inspections of the lines e.g. when repacking the line into the bag after use – look for signs of abrasion, damage, wear and tear.
- If a throw line has got wet during use, please ‘daisy chain’ it and hang to dry before repacking the line into its bag.
- Throw lines are to be kept in the *water sports store* when not in use.
- *Monthly* checks (to be carried out by or under the supervision of at least BCU Level 2 coach holders or the new UKCC/BCU Level 1 only):
  - ✓ Count ropes to ensure all are there and there are none missing.
  - ✓ Visual and tactile inspection of entire length; flake the rope out and run it through your fingers; looking for external damage. Re-pack the rope after checks.
  - ✓ Throw lines are to be washed once a year.

**Degradation and discard criteria:**

- If there is obvious major damage, or if over time, the rope has deteriorated in condition, the throw line should be discarded
- If the throw line has been used with no major damage or obvious deterioration, discard after 3 years from the purchase date.
- Once a throw line has been discarded from climbing use, it can still be used around the centre for non-PPE purposes, e.g. raft building and problem solving.



Appendix 2 - BCU guidance regarding the testing of Buoyancy Aids.

## THE TESTING OF BUOYANCY AIDS (PFD's)

The minimum stated buoyancy level should be available in the device for the duration of its 'reasonable life'. The length of time involved will obviously vary considerably according to a number of variable factors: ie frequency of use, conditions of use (eg environmental) and conditions of storage.

Surveys would indicate that an average life expectancy, where the buoyancy aid (PFD) has not been abused, is between 3-5 years - the shorter term applying to frequent multi-use, although this could, of course, be reduced, where poor conditions apply.

It is recommended that the buoyancy level is checked after the second year. This can be accomplished quite simply in the following manner:

With a complete PFD it is not possible to replicate a manufactures test (Manufacturers test FOAM ONLY in a temperature controlled environment). As an approximate and very simple guide....

Take a Cast Iron or Steel bar bell weight to the relevant amount of uplift. Tie the weight through the arm holes of the PFD leaving a long tail for you to hold on to. Squeeze out as much of the air as possible. Holding the tail or long piece of string in your hand throw the PFD and weight into fresh water. If it floats it is OK and if it sinks it wants throwing away. The following table will help you decode the manufacturers PFD label.

Bearers Kg weight	30-40,	40-50,	50-60,	60-70,	over 70kg	,over 70kg,	over 70kg
Minimum buoyancy	35N	40N	40N	45N	50N	60N	70N
Bar Bell Weight	3.5 kg	4kg	4kg	4.5kg	5kg	6kg*	6kg*

\*EN393 has a minimum uplift of 50N of buoyancy or 5.1kg. It can be said that all PFD's labelled with a bearers weight "over 70kg" irrespective of buoyancy content can only be tested to 50N or with a 5kg weight.

### NOTE:

(a) In practice all PFD Foams degrade with age. Testing with a 5kg weight for a minimum 50N labelled PFD means that the 5kg weight is actually supporting 45N of buoyancy before sinking 10% less than the minimum amount on the lable. If your PFD has shrunk by this 10% then it is not worth keeping.

(b) For intervals of 500 grams (0.5kg) you could either use small Bar Bell weights (several added together) or weigh the Bar Bell collars and use them.

It is pointed out that this is only a rough and ready guide. Trapped air, attachments metal or plastic can all affect the buoyancy of a BA. A visual/manual check of the stitching, zip (if fitted) and security fastenings should suffice for the general condition of the device.