


TECHNICAL COMMITTEE REPORT TCR 17/01

Technical report on Aldery Cliff bolt belay anchors



SUMMARY

A number of bolt belay anchors were installed without permission at the BMC managed crag Aldery Cliff. Following an inspection of the anchors by the BMC Technical Officer, they were deemed not to meet the standards laid out in our bolting guidelines, and may provide a risk to users if not immediately, then in the medium term due to the specification used.

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Date:	25th April 2017

1. INTRODUCTION

Aldery Cliff is a BMC managed site in the Peak District. A number of bolted belay anchors were reported as having been installed at the crag. The LMG requested that the BMC Technical Officer inspect the anchors to give an opinion of their safety.

Six belay stations were spotted on inspection from the ground at various locations on the crag. Some were simply a pair of naked eyebolts, others included rope threaded through the eyebolts with a karabiner or maillon attached to facilitate lowering off.

Inspection was from the crag top by abseil, and two belay stations were inspected.

2. EXAMINATION

All anchors inspected were of the same basic format – a collared eyebolt threaded onto a threaded rod which was imbedded and glued into the rock. This system is often used in construction to make lifting points and to provide fall arrest anchors for workers, but no anchors designed for rock climbing use this system.

On reaching the first pair of anchors, the first eyebolt was found to be loose and to freely rotate. The second one was solidly attached, possibly secured using a thread locking compound. The loose eyebolt could not be lined up in the correct orientation of loading when used, which is probably the cause of it loosening.

The collared eyebolts appeared to be made from a galvanised steel, but did not contain any markings to indicate either their Safe Working Load (SWL) or material specification, only M12 to indicate the thread size. Removing the loose eyebolt, inspection of the threaded bar did not reveal any readable markings. Possibly made from a stainless steel, they appeared to be solidly glued into the rock.

The second pair of anchors inspected are shown in the front cover photo. Both were fairly solid, with some form of rubber washer between the rock and the eyebolt. Again, the eyebolts were unmarked except for the thread size, and note the angle of the nearest eyebolt which is out of line of the anticipated load direction. Rust is already apparent on the surface of the threaded rod.

3. CONCLUSIONS

The main issue is the use of components of unknown provenance and capability. Lack of any markings to indicate the SWL, and the possibility of mixed materials being used (which will cause accelerated corrosion and weakening) mean that the safety and quality of the components used is questionable.

Eyebolts are reliably used in the construction industry when used with a setting tool to ensure that the eyebolt is aligned with the direction of loading. This isn't the case here – rotational forces will cause the eyebolts to come loose as has happened to at least one already. This indicates that the installer has not thought through the consequences of their choice of components fully.

BMC guidance to bolt installers gives AISI304 stainless steel as the minimum for outdoor use, which these hangers don't appear to meet. As such, these anchors don't meet BMC recommendations in terms of corrosion resistance.

5. RECOMMENDATIONS

These anchors should have the eyebolts removed to prevent any further use, and if possible the threaded rods should be hammered or cut flush – failing that flattening the threads will suffice to prevent further use.