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As climbing continues to grow in popularity, so does the importance of fixed anchor maintenance. Local climbing organizations across the country are recognizing that lone rebolting volunteers working on their own—enough to keep up before climbing's explosive growth in the last decade—are no longer sufficient to stay on top of the number of fixed anchors that are reaching the end of their life.

Fixed anchor maintenance programs have become fixtures of LCO programming in many forms, from paid-staff programs to annual volunteer-led events. Whatever it looks like at your LCO, here are five important tenets that every fixed anchor maintenance program should carefully consider.



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### **1. The Yin and Yang of Personal Protective Equipment**

If the purpose of replacing a rusty bolt is to prevent a future injury, then it's counter-productive to risk life and limb in the process. In planning an event or program that prioritizes the safety of future climbers, remember to prioritize the safety of volunteers and staff in the here and now. Some of the cheapest and lightest forms of personal protection equipment (PPE)—safety glasses, hearing protection, gloves, helmets, particulate masks, and more—should be standard kit for anyone doing rebolting work. A small investment in PPE like the above can prevent a big bill from a trip to the emergency room after an accident.

Personal Protective Equipment (PPE) can be defined as "equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses." Some forms of PPE that first come to mind are safety glasses, hearing protection and of course N95 masks. But PPE doesn't end there. Climbing ropes, quickdraws, harnesses and our descending devices are also considered PPE.

### **1a. To Grigri or Not to Grigri**

If you've ever done any rebolting work, you've almost certainly found yourself hanging on a Grigri hands-free, hopefully with a backup knot just below the device. But anyone who's spent significant time rebolting will tell you those knots don't get tied all the time, and sometimes it's just the Grigri's camming action between you and the ground.

A descender is one of the most important pieces of any rebolter's kit. Because of how comfortable we are with Grigris for climbing, they've become the go-to for bolt replacement work. But it's not a true hands-free device—as noted by Petzl in the technical notice for the device. The Petzl Rig is the gold-standard for work-at-height professionals, with these key benefits:

- The user can go 100% hands free if all conditions are met.
- The user can install or remove the rope while the Rig is connected to a carabiner. This eliminates accidentally dropping the device.
- The Rig can handle a two person load in the event that a rescue is needed.

### **2. Anchors**

Consider the irony of replacing aging, unreliable anchors while hanging on those same unreliable anchors to do the work! Any fixed anchors that will be part of the rope safety system for rebolting work should be thoroughly and soundly assessed before work begins. If the anchors aren't adequate, the work plan should be reassessed to include alternatives like opportunities for anchors built with natural protection or even drilling holes for new anchors when absolutely necessary.

The Occupational Safety and Health Administration (OSHA) states that "a proper anchor needs to support 5,000 pounds per person or maintain a factor of safety of at least two to the maximum fall arresting force of the personal fall arrest system." Keep this in mind when assessing your anchors, and remember that in the case of an accident the anchors may need to support two people.

### **3. Training**

Whether you are a volunteer organizing a rebolting event, or a lone wolf, it's important to know how to properly use your equipment. I'm not speaking of the "how to *do* the work"

equipment, but rather the “how to *get* to work” equipment. This could be as simple as watching YouTube and practicing in a tree—or something complex like creating a training program for volunteers of the Boulder Climbing Community (BCC) or the paid crew of the Salt Lake Climbers Alliance (SLCA). Without having a system in place, people will be roaming the cliffs with equipment they don't know how to use.

#### **4. PPE for Your PPE**

The rope is the foundation of any work-at-height safety system, and protecting the rope when hazards are present is absolutely crucial. Rope protectors safeguard the rope from environmental dangers like sharp rock edges and human hazards like a power grinder or a hot drill bit. Proper rope protection helps mitigate a catastrophic failure within the rope system. Keeping a few on hand for any rebolting event allows you to adapt to any situation that arises while out in the field.

#### **5. The Two-rope System**

Professionals who work at height—lineworkers, arborists, and wind turbine technicians to name a few—prefer a two-rope safety system. While it's not always feasible for LCOs, volunteers, or individuals performing anchor maintenance, it's important to know that it's the gold-standard of work-at-height safety. A second rope and a backup device like the Petzl ASAP or Kong Back-Up adds redundancy to the system that's important when there are objective hazards—like the ones discussed in point number four—that can cause failure of the primary suspension line. In addition to the safety aspect, working within the bounds of OSHA's work-at-height best practices can help legitimize your organization in the eyes of state and federal officials—an advantage when performing work on public lands.

As crags get more and more crowded and climbers seek out climbing areas that are off the beaten path, the importance of fixed anchor maintenance continues to increase. Just as the rebolting community has evolved extraction techniques and abandoned the chop-and-patch methods of the past, so too must we embrace worker safety with the same gusto. It's time we look at the whole picture and make this critical work safer for everyone who takes part.

*Please note that the information contained in this publication is for informational purposes only. Seek training from qualified experts and organizations. Rock climbing, fixed anchor replacement and other associated activities are dangerous, and can result in death, paralysis or serious injury. If you choose to use this information, you assume all risks associated with use and you do so at your own risk.*