



Assessor's Field Guide

Fixed Hardware Project

Boulder Climbing Community

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Fixed Hardware Project - Assessor Team

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Introduction

The Fixed Hardware Project (FHP) is a program designed and operated by the Boulder Climbing Community (BCC). The purpose of the project is to assist in the reduction of potential climbing injuries by providing hardware to, and organizing events for, independent volunteers involved with replacing sub-standard fixed hardware (Mechanics), and adding content to the base of public knowledge regarding the last-known condition of fixed hardware (Assessors).

This document is a guide for the fixed hardware Assessors - whose job is to assess the current state of fixed hardware, and log the results to a public knowledge base. It is the intent of the BCC to organize events for Assessors, while not directly participating in the training of, or work performed by, the Assessors. As such, this document is open to all volunteer Assessors, and it is their responsibility to maintain it.

Scope of Assessors Work

Objective

The primary objective of Assessors is to:

1. Assess the current state of fixed hardware on climbing routes.
2. Log this information to the Fixed Hardware field in Mountain Project.

We suggest that Assessors do NOT perform any maintenance work, unless they are also Mechanics with appropriate equipment, as even simple tasks such as tightening loose hangers can result in damage, or outright failure, of hardware, potentially leaving the route in a more dangerous state than when they arrived. Even the patching of old bolt holes is best left to Mechanics, as this activity can obscure the location of these holes leading a Mechanic to place a new bolt too close to an existing hole.

Skills Needed

The suggested skills needed to perform Assessor tasks include:

1. Climbing skills to safely access the fixed hardware on a route. The ability to free-climb the route is not required. The ability to access ALL the fixed hardware on a given route is desired, but not required.
2. Ability to maintain a static position on the route, by the fixed hardware to be assessed, and perform the assessment and logging, required for that fixed hardware (which may require the use of 2 hands simultaneously).

3. Ability to log assessment information accurately, but temporarily, at the site of each piece of fixed hardware (note: Mountain Project does not provide a means to store information when there is no internet access).
4. Ability to access the internet at a later time to enter the above assessment data to Mountain Project.

Gear Needed

We suggest any gear used on-route be tethered securely to your person, for the safety of those below you, as well as the device(s) themselves.

The suggested gear needed by an Assessor in the field includes:

1. Temporary data entry device. A voice recorder is recommended (available on most smart phones), but anything that can reliably store the needed information will work.
2. Camera. Used to document previously uncategorized fixed hardware.
3. Magnet. Used to differentiate between plated carbon steel and stainless steel.
4. Calipers. Used to measure bolt diameter, hanger thickness, and nut/head size.

The suggested gear needed by an Assessor after a field event includes:

1. Access to the internet (Mountain Project)
2. Data entry capability. A standard keyboard is suggested - not a touch screen.

Access Required

Special permissions are required for write-access to the Fixed Hardware field in Mountain Project.

Special permissions are required to access the Assessor's online group, used for general discussions and event notifications.

The above permissions may be requested by sending an email to the Fixed Hardware Project (see References, below).

Hardware Identification

This section is the crux of the document. These data will be referenced by climbers as part of their efforts to determine the risk of climbing a given route. They will also be used by the Mechanics' team to define the priority of maintaining a route. Accuracy and consistency are very important!

There are nine fields for each piece of fixed hardware. This section provides the suggested guidelines for data to be entered.

Type

This field is a pull-down list with four values:

- **Bolt** - anything from a rivet or machine screw (typically used only for aid climbing), a ¼" buttonhead, ⅜" wedge bolt, ½" 5-piece bolt, to a glue-in fits in this category.
- **Pin** - Any type of piton from a RURP, to a bong, to a drilled angle fits in this category.
- **Webbing** - Fixed webbing around a tree, or other natural feature.
- **Other** - Anything else - usually fixed (unintentionally, or intentionally) free-climbing passive or active gear.

Use

This field is a pull-down list with five values:

- **Lead** - Used for lead protection, or aid progression.
- **Anchor** - Usually located at the top of a climb, and used for lowering or rappelling. Usually co-located with one or more other pieces of fixed hardware. This hardware is not located at a generally accepted belay stance.
- **Belay** - Used for a belay stance, either at the bottom, or top of a pitch. Usually co-located with one or more other pieces of fixed hardware - but this is not required, nor always the case. It is located at a generally accepted belay stance, although not necessarily the preferred stance. The important part is that it's possible that someone might take a factor 2 fall onto this piece, and there may be limited other gear in the system as a backup.
- **Rappel** - Part of a generally accepted rappel route. This hardware is not located at a generally accepted belay stance.
- **Other** - ???

Current Condition

Now we get down to it. Unfortunately, this is far from an objective science - but we will do our best. The field is a pull-down list with six values: **Unknown (0)**, **Dangerous (1)**, **Poor (2)**, **Average (3)**, **Good (4)**, and **Bomber (5)**. First some general guidelines:

1. The field is intended to represent an absolute measure of the piece's strength. It should NOT be relative to the type of hardware, e.g. a brand new, well-installed, ¼" buttonhead is likely not as strong as a well-installed, superficially rusted, ½" wedge bolt. Likewise, the field should NOT take into account whether or not it is used for a belay stance (as this is accounted for in the prior field).
2. Only **Bolts** are rated (**Dangerous (1)** - **Bomber (5)**). All other types, including **Pins**, are rated **Unknown (0)**.

3. **Bolts** are rated **Unknown (0)** only if they can be seen (verifying they exist), but cannot be assessed for some reason.

Current Condition is calculated by starting with the value 5 (Bomber), and subtracting a single number for each parameter (listed below), down to a minimum of 1 (Dangerous), as follows:

Parameter	#	Description
Bolt Hole Diameter	0	Greater than or equal to ½" (including all glue-ins).
	-1	Greater than or equal to ⅜", but less than ½".
	-2	Less than ⅜".
Visible Surface Rust	0	No rust visible on bolt stud or hanger.
	-1	Less than half of the bolt stud and hanger surface is rusted.
	-2	More than half of the bolt stud and hanger surface is rusted.
Installed Location	0	No installation issues.
	-1	Installed less than 10 hole-diameters away from another bolt hole, or edge of the rock.
Rock Quality	0	Solid rock.
	-1	Rock is cracked, low quality, or not well-attached to the wall.
Physical Damage	0	No physical damage.
	-1	Bolt stud, nut, or hanger is visibly bent, dented, or cracked; and/or bolt is a spinner: the hanger is not tightly fastened and "spins".
	-2	Bolt stud is no longer fully seated - it has been partially pulled out of the rock.
	-3	Bolt is missing parts: nut and/or hanger is missing.
Hanger Type	0	Meets current standards.
	-1	Does not meet current standards, but was manufactured specifically for climbing (except those mentioned below).

	-2	Homemade hanger, SMC hanger with horizontal logo, or Leeper with small diameter (??") carabiner hole.
Lowering Hardware Surface Rust	0	No rust visible on lowering hardware.
	-1	Less than half of the lowering hardware surface is rusted.
	-2	More than half of the lowering hardware surface is rusted.
Lowering Hardware Wear	0	No visible wear
	-1	Lowering hardware (rings, links, chain, etc) is greater than ¼, but less than ½, way worn through.
	-2	Lowering hardware (rings, links, chain, etc) is approximately ½ way worn through.
	-3	Lowering hardware (rings, links, chain, etc) is greater than ½ way worn through.
Lowering Hardware Materials	0	Standard chain, links and/or rings are used.
	-1	Lowering hardware is made of sub-standard materials (webbing, wire, etc).
Lowering Hardware Damage	0	No visible damage
	-1	Anchor hardware is visibly bent, dented, or cracked.

Here are some examples of calculating a value for the Current Condition field:

Observation	Value
⅜" wedge bolt (-1) with rust covering ¾ of the surface of the hanger, stud and nut (-1). [5-1-1=3]	Average (3)
¼" buttonhead (-2) with rust covering the entire surface of the hanger and stud (-2). The hanger is "spinning"(-1), and there is webbing attached with aluminum rings (-1). [5-2-2-1-1=-1 ==> 1; can't go lower than 1!]	Dangerous (1)

Date Installed

This field must be entered in the following format: *yyyy-mm-dd*, where *yyyy* is the 4-digit year, *mm* is the 2 digit month, and *dd* is the 2-digit day of the month.

Example: If the date is April 3, 2015, it must be entered as "2015-04-03".

Leave the field blank if you cannot make a reasonable assumption, based upon the first ascent date or other information. If the year can be guessed, then fill in Jan 1st of that year as a stand-in date.

Pitch

A single number representing the pitch (starting with "1") on which this hardware exists. Anchors at the top of a pitch are counted for that pitch (below). Exception, if belay anchors exist at the base of the climb, they are designated with a "0".

Position

A single number representing the position, from the bottom of the pitch, of the piece, starting with 1, as the first fixed hardware piece above the belay. If two pieces exist at an anchor atop the pitch, they both get the same position (the position of the last lead piece, plus 1).

Description

Enter a description of the hardware. Be as specific as possible, including type, diameter, length, manufacturer, and metal(s) for all components (bolt, hanger, and/or lowering hardware). See the Fixed Hardware Reference (in the appendix) for details.

Notes - Public

Enter information (if any) that a climber might like to know, for example:

- historical information about what equipment the first ascentionist(s) placed.
- potential viewing problems, e.g. the piece is hidden from view by a flake, but is up and right from the prior bolt.
- potential positional problems, e.g. consider threading a sling through this bolt as it may crossload a carabiner during a fall.

Notes - Private

This information is NOT visible to the public, but is very important to the Fixed Hardware Project. It is used for the following purposes:

1. To help Mechanics determine the gear required to replace the hardware, if required.

2. To qualify who entered the data (an FHP volunteer, or someone else). This is used for metrics and for qualifying the likely integrity of the data.

At a minimum, enter “#FHP” as the last line in this field. This is used to note that an FHP volunteer entered these data.

Optionally, enter any information that would be helpful to Mechanics:

- is the rock quality poor (requiring longer bolts, or glue-ins, to be used)?
- is the piece located in a small corner, restricting access (and requiring special extraction tools).
- is the piece located in a place that is difficult to access, e.g. under an overhang, or on a traverse.

Appendix - A: References

Boulder Climbing Community: Fixed Hardware Project - Charter;

<https://drive.google.com/open?id=11w2ooKLWoXQX3Q5yBTWO32xZbX-1FO2Y4ipkVdNos6l>

Boulder Climbing Community: Fixed Hardware Project - Fixed Hardware Identification Guide;

<https://docs.google.com/document/d/1KMfDDRkuK3bgQZzaTMYyh5ejlQUv3GvGdRsZcoHZP7Y/edit?usp=sharing>

Access Fund: Fixed Anchors;

<https://www.accessfund.org/educate-yourself/for-advocates/managing-fixed-anchors>

Fixed Hardware Project contact: FixedHardwareProject@gmail.com

Appendix - B: Glossary

Term	Definition
Assessor	Person contributing to the evaluation and logging of the current condition of fixed hardware.
BCC	Boulder Climbing Community
FHP	Fixed Hardware Project
Mechanic	Person contributing to the efforts to extract and replace fixed hardware.