Reading University Caving Club's Guide To

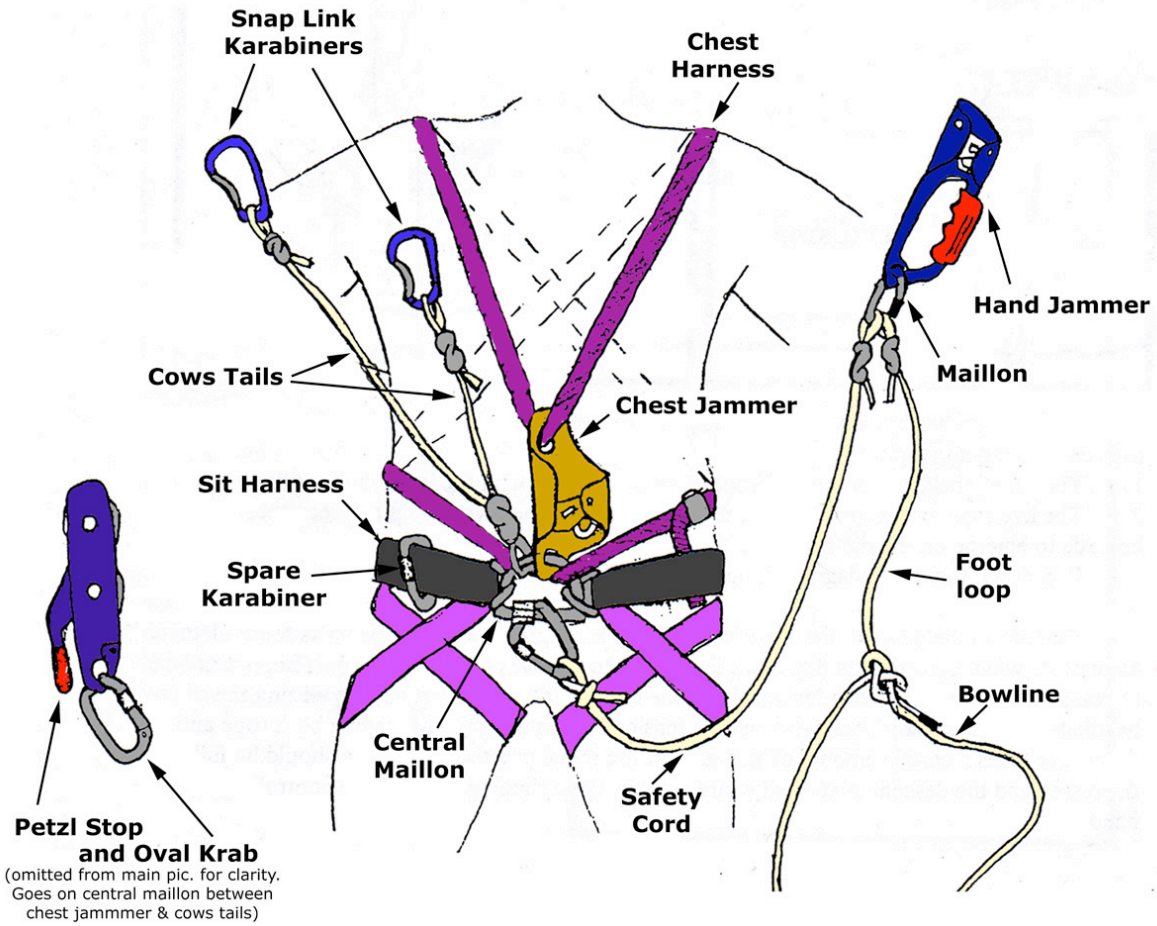
Single Rope Technique

Single Rope Technique (SRT) is a method used for entering and exploring deeper vertical cave systems, or potholes. This basic guide is designed for beginners and aims to supplement RUCC's SRT training sessions.

SRT is how cavers ascend and descend pitches in caves. SRT trips typically take place once members are familiar with general caving, and usually involve a trip to the limestone areas of the Yorkshire Dales. Please take the opportunity to familiarise yourself with this guide beforehand. Whilst the methods shown here are not the only way of doing SRT, they are what seems to work for most people in the club.

Basic Equipment

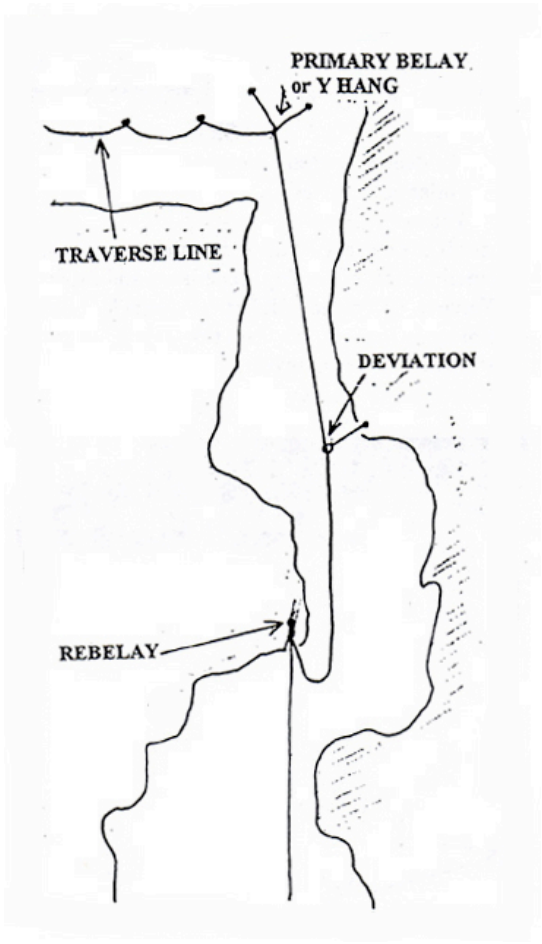
SRT equipment consists of two jammers and a foot loop used for going up ropes and a descender (petzl stop) for going down. Cowstails are used for safety and helping when passing obstacles.



What To Expect In A Cave...

The process of descending (abseiling) or ascending (prusiking) a free hanging rope is fairly simple. The more complex aspects of SRT stem from changing from one to the other mid rope, or when passing an obstacle such as a rebelay or deviation (see diagram to the right). Deviations and rebelays are added to stop any rub points (places where the rope would touch the rock). It is very important to avoid rub points as ropes can be damaged quickly by abrasion under tension.

Before you get to the pitch head or drop, there is normally a traverse or security line in place. This serves two purposes - backing up the primary belay with additional fixing points and as a place for waiting cavers to safely clip on with their cowstails.



Descending

A petzl stop (or descender) is used for abseiling the rope. When threading the rope into the descender, there are two main points to remember in order to avoid loading it incorrectly.

1. The "live" (belayed) part of the rope always passes around the lower bollard first.

2. The live rope enters from the left, the free section is then wound up between the bollards to emerge on the right.

The diagram above shows the correct threading on the side of the petzl stop.

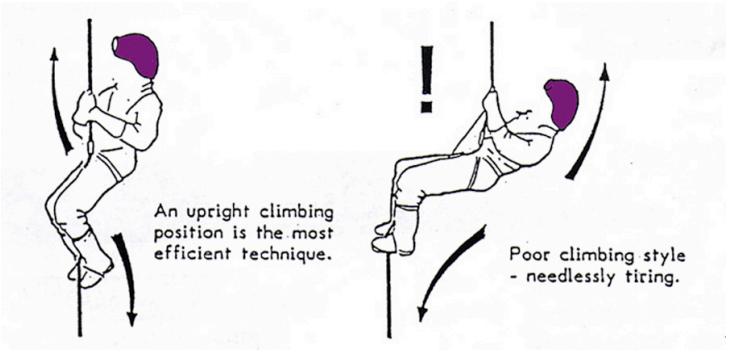
To control the descent, the right (controlling) hand grips and moves the free rope coming out of the descender so as to regulate its tension. The left hand then presses the handle to release the auto-lock. Speed of descent is therefore controlled by moving the free hanging rope below you to and away from the body to change the angle of the rope going into the descender. It is this tension that controls descent, not the handle on the descender. This is for safety - if you press the handle and let go of the rope you won't go far. However, squeezing the handle to release the auto-lock without this tension means unregulated descent. Managing both rope and descender takes some skill and during initial practice the handle should be fully depressed and the descent controlled entirely by the rope slipping through the controlling hand.

Locking Off

Once the descender is on the rope it is important that it is 'locked off' before you put your weight on it. This also applies when passing obstacles. Locking off is for safety and avoids descent before you are ready. To lock off fold and push the free hanging rope through the oval krab and thread the resulting loop over the top of the descender.

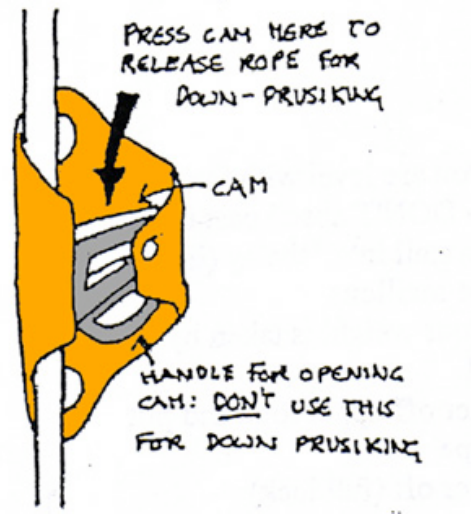
Prusiking

We have now covered descending, next is going back up, or prusiking. This uses the chest jammer, hand jammer and foot loop. By pushing down on the foot loop rope moves through the chest jammer. Weight is then put on the chest jammer, and the hand jammer is used to move the foot loop upwards. The process repeats and the caver can move up the rope by standing up and sitting down. At the start it helps if you grip the rope between your feet to make sure it pulls through. As you go up the weight of the rope will eventually pull it through. Keep upright with your body as close to the rope as possible to help avoid getting tired.



Down Prusiking

Down prusiking is occasionally used for descending very short distances, going down a loaded rope, or when passing knots. It involves taking weight of the chest jammer and pressing the top cam to shift it down. Then do the same with the hand jammer. Keep doing this until you have gone down enough.



Changing From Ascent To Descent

You may find that you need to do change from going down down to going up or vice versa. This may for example be necessary if you find yourself in a tricky situation or overshoot/undershhot past obstacles. Here's how:

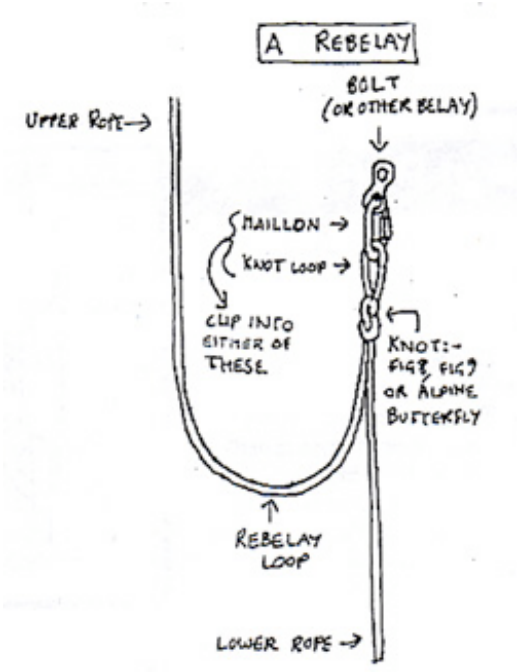
- ☑ Make sure your hand jammer isn't a long way above your chest jammer
- ☑ Put your petzl stop on the rope below your jammers and lock off
- ☑ Stand up to take weight off chest jammer and release from rope
- ☑ Sit down until the weight is on the stop
- ☑ Unclip the hand jammer
- ☑ Unlock stop and abseil

Changing From Descent To Ascent

- ☑ Lock off stop
- ☑ Attach hand jammer
- ☑ Stand up in foot loop
- ☑ Attach chest jammer to rope above stop
- ☑ Take one prusik up, this makes things easier
- ☑ Remove stop
- ☑ Start prusiking

Passing A Rebelay

A rebelay is where the rope is re-attached (belayed) to the rock part of the way down a pitch. If the rope from the top of the pitch meets a rub point, waterfall or loose rock the rope is rebelayed to the rock over to one side so that the lower part of the rope (which hangs down from the rebelay) avoids it. This means that you will have to unclip above it and reclip on to the rope below it if descending, and vice versa when ascending.



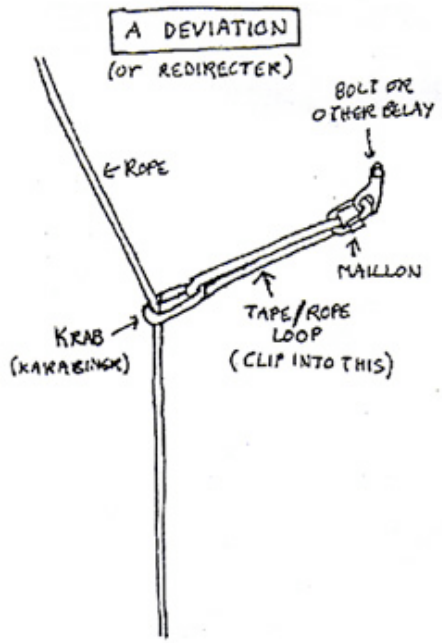
Descending Past A Rebelay

- Abseil until you are level with the rebelay knot - DON'T abseil past it!
- Clip the short cowstail into the rebelay (into the knot or the maillon)
- Abseil until your weight is taken by the short cowstail
- Take descender off upper rope and put it on lower rope
- Lock descender off
- Unclip the short cowstail by standing in rebelay loop or on any handy ledge, to take your weight off it. Transfer your weight onto the descender

Ascending Past A Rebelay

- Prusik up to just below rebelay knot.
- Clip long cowstail into rebelay
- Take weight off chest ascender by standing in footloops
- Transfer chest jammer from lower to upper rope
- Transfer foot ascender from lower to upper rope (watch that the safety cord isn't wrapped round the lower rope)
- Unclip long cowstail from rebelay (you may need to prusik up a little to do this until it is slack)

Passing A Deviation



A deviation (or redirector) is another means of avoiding rub points and other hazards by altering the hang of the rope down the pitch. The rope runs freely through a krab which is attached to a belay via a tape or rope-loop. This deviation pulls the rope away slightly from its natural vertical hang to move the rope below the deviation away from a rub-point. A deviation never bears the full weight of a caver (or a fraction of it) and consequently

deviations can sometimes be used where there isn't a sufficiently strong belay for a rebelay. Since deviations sometimes use poor belays you should never load them with your full weight. In the description below, the cowstail is clipped into the deviation merely to stop you swinging away from it - at no point should you be hanging from the deviation itself. Your weight should always be taken by the rope.

Descending Past A Deviation

- Abseil down level to the deviation (you should lock off your descender)
- Clip into the deviation with long cowstail
- Unclip the deviation karabiner from the rope below you and clip it in on the rope above you
- Unclip the cowstail, unlock the descender and continue abseiling

Ascending Past A Deviation

- Prusik up to the deviation
- Clip into the deviation with long cowstail
- Unclip the deviation karabiner from the rope above you and clip it into the rope below you
- Unclip the cowstail (you will find that you swing away from the deviation) and continue prusiking

Please Note:

This guide is a start but is intended as an introduction, and is to be read before full training takes place. Caving is a potentially dangerous activity and it is the caver's responsibility to make sure that he/she understands the safe and correct use of gear before they try it in a cave environment. The club or university cannot accept any responsibility for any damage or injury resulting from advice in this guide.

Photos: Walking up to Alum Pot, Lisa in Yorkshire & Andy Rumming in Gaping Ghyll Main Shaft.

Thanks to J for his hard work in preparing the first version of this guide.

Enjoy your SRT!