

## ROPE ACCESS EQUIPMENT: DESCENDERS AND BACK-UP DEVICES

There has been much discussion over the past few years over the merits of various types of descending and back-up devices – the debate shows no sign of slowing down or a consensus being reached and this brief article details our current view point on the matter (text is taken from our current equipment policy – QM.05.582). Of course, this opinion is subject to rapid change with the state of the art or as required by specific projects!

We have always tried to take a forward looking approach in equipping our rope access teams and believe that we are leading by example in many areas.



*Cold weather needle gunning on the Brent Delta using an 'ID' descender and 'ASAP' back-up device.....*



*....and using a 'Stop' descender and 'Shunt' as a back-up device in sunnier climes on the Brent Bravo!*

### **582.7 DESCENDING DEVICES (EN 12841 TYPE C / EN 341 - RESCUE)**

Descenders are used to attach a technician to a working rope and to control their descent.

All descending devices used by the Company shall:

- Be compatible with the ropes and connectors with which they are used
- Enable the user to manually control the speed of descent
- Self brake in the event of a loss of control by the technician

In addition, they shall be subject to an on-site risk assessment taking into account the prevailing environmental conditions, experience of user, length of descent and rescue plan.

Two types of descender are in current use by the Company, both made by Petzl.

'ID'S' – Conforms to EN 12841 Type C and in addition to the above requirements features a 'fail to safe' mechanism that means a panic 'grab reflex' on the release handle, by an inexperienced or incapacitated technician causes the descent to stop. The ID'S is rated for use with heavy loads of two hundred to two hundred and fifty kilograms depending on the circumstances of use, making it a suitable device for snatch rescues. However, the ID'S is a fairly bulky item of equipment, has few user serviceable parts and is prone to ingress of dirt into 'sealed' parts of the mechanism.

'STOP' – Conforms to EN 341 and therefore may not be considered suitable for all types of rope access work. It lacks a 'fail to safe' mechanism and has a recommended maximum load of one hundred and fifty kilograms (although Petzl state that laboratory tests show that it can be used with loads not exceeding two hundred and fifty kilograms), which would be exceeded in a snatch rescue. The Stop is a very lightweight device, is user (Company) serviceable and easily cleaned after soiling.

Petzl have recently introduced a lighter and less bulky version of the ID'S – the 'RIG'. This device lacks a 'fail to safe mechanism', but is specifically designed for industrial rope access and conforms to EN 12841 Type C.

### **582.7.1 Replacement of Non – Conforming Descenders: Company Statement**

In common with almost all UK rope access companies, Axiom NDT Ltd owns a large number of ‘Stop’ descenders. Although not conforming to EN 12841 Type C, the Company considers that there is sufficient historical evidence to make their use acceptable in a number of specific rope access situations at present.

These may include their use:

- As an emergency descender in situations that would not normally require descent and in which weight is a factor
- In very dirty environments
- By technicians who are not familiar with (have never used) the ID’S or RIG descender.

However Axiom NDT Ltd is committed to meeting and exceeding best practice for rope access operations. Therefore:

- All Company employees shall be trained in the use of ID’S
- All rope access kits sent to site will include both ID’S and Stops
- When competent to do so, Rope Access Supervisors employed by the Company will provide (and record the details of) on-site training in the use of ID’S for technicians unfamiliar with them
- The choice of descender will be recorded on the Specific Rope Access Procedure prepared for each job by the Rope Access Supervisor, along with their reasoning
- At a point in time when it is felt that Company employees are comfortable with using the ID’S descender, the Company will begin the process of introducing RIG descenders in place of Stops for most projects
- Due to the potential confusion between the ID’S and RIG descender and the currently prevailing unfamiliarity with both these types of descender, it is not considered sensible to introduce both at the same time.
- Neither Stops or RIG descenders will be issued to trainees (new start IRATA Level Ones)

### **582.9 BACK-UP DEVICES (EN 12841 TYPE A)**

See Also: *Petzl Statement on the Use of Shunts for Industrial Rope Access* ([http://www.irata.org/irata\\_technicians.htm](http://www.irata.org/irata_technicians.htm) )

These items are used to form a connection between a technician and their back-up / secondary rope. The intention is that in the event of the failure of the primary means of suspension, the back-up device will lock in place on the back-up rope and either prevent a fall being sustained or arrest the fall safely. This must be done without causing the back-up rope to fail or sustain catastrophic damage and without causing a force in excess of 6 kN (threshold of injury) to be applied to the falling person.

Back-up devices should be able to arrest a fall at any angle likely to be applied (e.g. an uncontrolled slide on a bank or cutting may cause a device to behave differently than in a free fall) and should be usable by two people if specified on the rescue plan. For this reason the back-up device should not slip at a downwards force of less than 2.5 kN.

Given that the back-up device is the final fail safe against death or serious injury, it should ideally require as little user manipulation / contact and be as free from the possibility of user error as possible.

There are two types of back-up device in current use by the Company, again both manufactured by Petzl:

**ASAP** – Conforms with both EN 12841A and EN 353 (when used with a shock absorbing lanyard), requires minimal user manipulation once attached to the back-up rope and a panic ‘grab reflex’ by an inexperienced or incapacitated technician does not affect the braking action of the ASAP. With the correct lanyard, ASAPs can be used by two people (snatch rescue). However, ASAPs are quite bulky items of equipment, require the addition of a shock absorbing lanyard in most circumstances and do not hold their position on the rope (hang at the end of the lanyard).

**Shunt** – Does not conform with either of the above standards (classified as an ascender – EN 567 Mountaineering Rope Clamps), requires user manipulation in ascent and descent and a ‘grab reflex’ around the body of the Shunt will cause the unit to slip. They also perform poorly in tests when shock loaded with the weight of two people. However, Shunts will hold their position on the rope, do not require additional shock absorbers and can be applied to a wide range of other uses, making them versatile tools.

### **582.9.1 Replacement of Non – Conforming Back-Up Devices: Company Statement**

In common with almost all UK rope access companies, Axiom NDT Ltd owns a large number of Shunt ‘ascenders’ that are used as back-up devices. Although not conforming to EN 12841 A or EN 353, the Company considers that there is sufficient historical evidence to make their use acceptable as a back-up device in a number of specific rope access situations at present.

These may include their use:

- In circumstances where it is desirable for a back-up device to hold position above a technicians head (e.g. hot works) or when a high priority is given to being able to release it under load
- During pitch head rescues
- When there is insufficient space for the shock absorbing lanyard of an ASAP to deploy
- By technicians who are not familiar with (have never used) the ASAP.

However Axiom NDT Ltd is committed to meeting and exceeding best practice for rope access operations. Therefore:

- All Company employees shall be trained in the use of ASAPs
- All rope access kits sent to site will include both ASAPs and Shunts
- As Company employees and sub-contractors become more familiar with the ASAP, the use of Shunts will become increasingly discouraged for the majority of work types (although they will remain available for use at the discretion of the Rope Access Supervisor)
- When competent to do so, Rope Access Supervisors employed by the Company will provide (and record the details of) on-site training in the use of ASAPs for technicians unfamiliar with them
- The choice of back-up device will be recorded on the Specific Rope Access Procedure prepared for each job by the Rope Access Supervisor, along with their reasoning
- Shunts will not be issued to trainees (new start IRATA Level Ones)