 ALTIUS	<b>Altius Rope Access Trainers Manual</b>				
	<b>DATE:</b> 14 <sup>th</sup> Jan 2013	<b>VERSION:</b> 1 (one)	<b>DOC ID:</b> ADS006	<b>AUTHOR:</b> Connor Turley	Page 1 of 13

## Version History List

Version	Section Reviewed	Review Comments	Date	Reviewed by
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## Document Approval

Connor Turley – CEO – 14<sup>th</sup> January 2013

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Trainers must teach according to the most up to date version of the 'Altius Rope Access Trainers Manual' (ADS006) in conjunction with the most up to date version of the 'Altius Rope Access Training Manual' (ADS004) and the IRATA General Requirements.

All training shall take into consideration the safe job plan and various risk assessments including the Job Hazard Analysis carried out by the trainer.

The timetable in these notes is a suggested schedule for non-experienced trainees, however, people with different skills and/or learning styles could advance through the course at differing rates.

### Preparation

Arrive at least 45 minutes before the beginning of the class and work through the following items.


### Venue

1. Complete, check and sign IRATA Form 006R and display in relevant location.
2. Check raining Venue Risk Assessment has been completed, is current and displayed.
3. Check company certification is in date (Insurance & IRATA membership) and displayed.

### Administrative

**It is the responsibility of the trainer to ensure all the following course specific forms are completed.**

1. Training course booking sheet. Liaise with the Altius Training Manager for confirmation of payment details for trainees.
2. Job Hazard Analysis (JHA) for the course.
3. Toolbox Safety Briefing (TBS).

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## **Monday (Day One)**

### **The Trainee Induction Process**

Go into the training area and turn on lights, remove any bar or locks from fire exits and check the training equipment against the manifest. Check to see the correct numbers of kits are available in individual boxes and ensure each box has the appropriate items.

Go into the training classroom and place one training manual and at each seat and pens on the table.

Get yourself the "Trainee Safety Induction" sheet, "JHA" and "TBS" and complete the relevant parts of the JHA and Toolbox talk.

When all the trainees have arrived have them fill out the form ADS005 Altius Registration Form/ Medical Release/ Altius waiver.


Start your talk by welcoming them all to the training center and telling them your name and introducing your assistant trainer if you have one. Then explain the "housekeeping" rules starting with the fire alarm procedures, the location of the first aid station, location and rules surrounding the smoking area and the location of the toilets and kitchen.

After this, tell them all about IRATA including how long they have been running and how and why they started and how it became an international organization. Then move on to explain how the training and assessment works and the role of the assessor and how the week will run including rough guidelines on time and duration of breaks and lunch and what time you expect the day to end. At this point explain that should you feel that you need a little extra time you would like to shorten the breaks rather than extend the day and ask them if they are ok with this.

Ask if they have any questions.

Following on from this tell them more about yourself including your working history and how you came to be in a position to train them. This is your first opportunity to start forging trust between you and the candidates by you clearly explaining your skills, experience and qualifications. Explain to the group that you have sat where they have as new people looking to get your level 1 and went from there to level 2 and then on to level 3 and then got your training ticket. Explain how you have to keep your skills current and that you do the training and assessment every three years as well. This is particularly important when you have new people to the system in the class.

When this is completed start your morning safety talk based on your JHA and Toolbox Report sheets. When this is completed ask if anyone has anything to add and if not pass around both forms to be signed by each candidate.

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Check upgrades and re-cert candidates log books (up to date and in date) and check eligibility for upgrade and re-certification against IRATA registrations criteria. If you have SPRAT conversion or Accelerated Entry (AE) candidates ensure that you personally have a confirmation email from the Technical Director stating that they have been approved. **THIS IS YOUR RESPONSIBILITY!**

Once this is done proceed into the training area with the trainees and invite anyone who wishes to use the bathroom to do so before we begin. If you have 2's & 3's give them a kit each and ask them build their own kits and start running through all the level one maneuvers. Get them to place strips of duct tape on the front and back of their helmets and write their names on each.

Give all the 1's their own kit bag and take one for yourself and start your training by explaining what each piece of equipment is including;

- Its name and function.
- What it standard it conforms to and how to find that information.
- How it is used including common mistakes and misuse.
- How it is inspected and what to look for.

### **PUT YOUR HARNESS ON!**

Once your harness is on invite all the trainees to do the same and move around helping them into and adjusting their harnesses. Take each individual piece of equipment and show them how it is attached to the harness setup whilst recapping briefly what is called and its function. Invite them to build their setup at the same time. Get them to place strips of duct tape on the front and back of their helmets and write their names on each.


### **Level 1 Rope Access Maneuvers**

Demonstrate **EVERY** manoeuvre for the level 1's whilst explaining what you are doing as well as also recapping all the steps after the demonstration is finished.

Do not use a trainee as the demonstrator, do it yourself!

Start by explaining the fundamental principles of the IRATA industrial rope access system including the double redundancy at all times via a minimum two points of contact.

Explain how to best use the karabiners that we have and how they can be weakened by cross loading or having an open gate. If you are training with auto locking karabiners ensure to emphasize to them that these are not standard across the industry and explain the differences between them and screw gates. Teach the spin-over method to lessen the chance of the karabiner coming un-done during a maneuver. Warn against fingers being trapped in the gate mechanism of the karabiner.

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Where the SafeTec Duck or Petzl shunt are used as a back-up device the following procedure **MUST** be followed;

- The tail string on the Duck/Shunt **MUST** only be 2mm diameter cord with a maximum length of 2.5"/63mm and no knot tied at the end.
- Once the Duck/Shunt is placed on the safety rope it must not be touched directly until it is time to remove it. To move it up the rope the attached karabiner is to be used. To move down the rope hold the tail string gently between the thumb and fore/index finger and pull it. Do not hold tail string when performing the function test of descent device.
- **NEVER** simultaneously operate the descender and tow the Duck/Shunt. Use the 'one for one' technique at all times and be aware when passing all obstructions and when close to the ground.
- Take extra care to ensure a 'light' control of the tail when wearing gloves.
- Keep the Duck/Shunt as high as practical – always above shoulder level when stationary and above the level of the top of the descender when in descent mode.
- Check the Duck/Shunt does not miss-load during changeovers or rescues.
- **Do not wrap the tail cord around anything.**
- Minimize contact with the Duck/Shunt and its tail cord.


Where the Petzl ASAP is used the following procedure will be followed:

- The Petzl ASAP **MUST** be used in conjunction with the Petzl Absorbica (L57) fall arrest lanyard connected with a Petzl Triact karabiner.
- Do not use the ASAP when performing rope to rope transfers or similar techniques
- Do not use the ASAP when using reactive tools or equipment, a device that locks onto the rope to prevent the potential of any fall must be used during such operations
- Only the ASAP for straight drop descents and ascents, deviations, and small re-belays.
- Avoid any slack between the ASAP and the anchor (especially likely during windy conditions)
- Do not attach ASAP without the Absorbica (L57) shock absorber (despite Petzl instruction)
- Refer to, read and follow the most up to date Altius technique sheet in conjunction with the Petzl user instructions on the correct use of the ASAP + Absorbica.

Whichever back-up device is being used you will demonstrate how it is placed on, functions and is removed from the safety rope and get the trainees to practice this.

Emphasize the ways you can defeat each device (particularly towed devices) and what to avoid while they are in use.

Show the candidates how the chest ascender (Croll) functions and get them to practice opening and closing it fully as well as just pushing down on the cam from above to release it partially.

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Demonstrate how it is placed on the rope and how it slides up by squatting down and standing slowly allowing the working rope to slide through smoothly. Explain the ramifications of shock loading a tooth device and why you should never be in a position where this is a possibility.

Next show them how the hand ascender (ascension) functions and how it placed on, moved up and removed from the rope. Explain that in conjunction with the foot-loop/etrier the hand ascender is an aid to ascending the rope and not a backup device or point of contact in this situation.

Now demonstrate ascending about 6' / 2m up the rope showing how the backup is moved and the Croll slides up when you stand in the foot-loop. After this demonstrate how to down climb using the Croll (jimmying) whilst maintaining the backup device's position correctly.

Get the trainees to practice this maneuver and offer encouragement and pointers as needed.

Once they have practiced a number of times ask them to remain on the ground and demonstrate how the I'D is used including the etched diagrams on the faceplate and inside on the device. Show them how it is loaded correctly explaining what happens if it is loaded incorrectly. Take in the tension on your working line so the I'D is fully loaded and sit down into it to demonstrate how it functions and the operators correct hand placement. Get them all to practice loading, sitting in, working and unloading the I'D on the ground.


Once they are confident in the loading and use of the I'D demonstrate ascending on ascenders, changing over and descending on the I'D whilst maintaining the backup device correctly and performing a test 'bump check'. When you have done this invite them to try it themselves but get them to inform you when they are ready to step out of their Croll and into their I'D so you can do a visual check. Once they have practiced it a suitable amount invite them to now go higher and again once they have mastered this you can stop for morning break.

At the morning break take a passport style photo of each candidate in whatever the approved method is for the training center and send these to the office along with the 'Training Sign-In Sheet' and the candidate forms.

After the break get the trainees to practice what they have learnt so far for a suitable period of time. When you are comfortable with their level of understanding and practice move on to the rope-to-rope transfer and teach it according to the current 'Altius Training Manual'.

Demonstrate the maneuver yourself whilst explaining the process and in particular emphasizing the four points of contact at all times throughout. Once you are back on the ground recap the steps and then get the trainees to work through it.

This should bring you up to lunch so set a return time that you want them back in their harnesses and then point out the various places that they can buy lunch from.

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After lunch get them to re-cap and practice the maneuvers from the morning and then move on to passing knots and teach it according to the current 'Altius Training Manual'. Demonstrate the maneuver yourself whilst explaining the process and explain the various reasons why there might be knots in a rope. Once you are back on the ground recap the steps and then get the trainees to work through it.

Once they are comfortable with this you should be late on in the afternoon so get the candidates to disassemble their kits and untie on of their cow's tail and remove it from the harness and keep it with them. Get them to place all the rest of their personal equipment in the box and place the helmet on the outside. This serves as a marker to who owns which box as their name is on the helmet and allows the helmets to dry out and air overnight.

Using the cow's tails that they now all have teach the knots that are specified in the 'Altius Training Manual' until you are confident that they have grasped them. Invite the candidates to take the cow's tail home with them to practice the knots in the evening.

Move all of your trainees into the classroom and teach them all the theory surrounding Fall Factors and why we keep towed back up devices high. Ensure that you make the theory relevant to the situations they will find themselves in, both in training and work.

At the end of the day ensure that the trainees tidy up the training center with you by coiling the ropes and tidying away their personal kits and any dummies and/or hauling weights used.

Point out the relevant pages in the training manuals to the candidates pertaining to what was covered that day and invite them to read those in the evening. Hand out the relevant question papers to the level 2's & 3's and get them to work on them in the evenings.

Give them the start time you want them at the next day and then send them off home.


Once they have all gone home go into the training area tidy the equipment bench/area, sweep the floor and throw away any other rubbish lying around. Once this is done replace the bars or locks on the fire exit doors and turn off the lights.

Tidy the training classroom and get it ready for the next day.

### **Tuesday (Day Two)**

Go into the training area and turn on lights, remove any bar or locks from fire exits and check the training equipment against the manifest.

Get yourself a blank "TBS" and complete the relevant parts then once all the trainees have arrived start your morning safety talk based on your Toolbox Talk sheets.

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Ask if anyone has any questions about the previous days training or about anything they read in the training manual.

Get everyone in to the training area and kitted up. Assist the level 1's with attaching their cow's tails and showing them the correct way to check each other's kits and what to look for.

Start by re-capping what they learnt the day before and get them all to practice everything they learnt so far and give some tips on improving technique to avoid strains etc. Once they are at a comfortable standard move on to the next topic.

Show and explain what deviations and re-belays are and when they can and cannot be used and point out the differences between them. Demonstrate each of the maneuvers and then re-cap on the steps taken once back on the ground.

Allow them plenty of time to practice these maneuvers and monitor and correct as needed.

Explain the different types of safe working at height systems including work positioning, fall prevention and fall arrest. Demonstrate the different types of fall arrest devices that you have available and how to go from work positioning to fall arrest and back. Demonstrate how to climb using fall arrest lanyards and then give them time to practice. This should bring you up to morning break.

After the break explain and demonstrate the methods for going over various edges and how best to navigate around edge protection and mid-rope protection. During this time also explain and demonstrate the use of a work seat.

This should bring you up to lunchtime.

Following lunch get the trainees to practice all they have learnt so far.

Next move on to rigging of ropes using small 'Y' hangs and reinforce the use of the twin rope system and dual anchors.


Move all the trainees into the training classroom and explain all the theory regarding angles and forces paying particular attention to reinforce the ideal and critical maximum angles. Explain the formula for working out the forces applied to anchors based on the angle of the 'Y' hang.

At the end of the day ensure that the trainees tidy up the training center with you by coiling the ropes and tidying away their personal kits and any dummies and/or hauling weights used.

Point out the relevant pages in the training manuals to the candidates pertaining to what was covered that day and invite them to read those in the evening.

Give them the start time you want them at the next day and then send them off home.



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Once they have all gone home go into the training area tidy the equipment bench/area, sweep the floor and throw away any other rubbish lying around. Once this is done replace the bars or locks on the fire exit doors and turn off the lights.

Tidy the training classroom and get it ready for the next day.

### **Wednesday (day 3)**

Go into the training area and turn on lights, remove any bar or locks from fire exits and check the training equipment against the manifest.

Get yourself a blank "TBS" and complete the relevant parts then once all the trainees have arrived start your morning safety talk based on your Toolbox Talk sheets.

Ask if anyone has any questions about the previous days training or about anything they read in the training manual.

Get everyone in to the training area and kitted up. Oversee the level 1's attaching their cow's tails and encourage them to check each other's kits.

Start by re-capping what they learnt the day before and get them all to practice everything they learnt so far and give some tips on improving technique to avoid strains etc. Once they are at a comfortable standard move on to the next topic.


After they are all comfortable on the maneuvers they have learnt so far and are moving smoothly move on to aid climbing on fixed anchors. Demonstrate this yourself and particularly emphasize the danger of going to one point of contact. If possible in the training venue initially have them do this at a low level just off of the ground so very close supervision can be provided.

Once they have done this explain the difference between this and climbing on mobile anchors and let them practice this technique as well.

This will bring you up to lunch.

When they return from lunch, move on to the descent rescue using two sets of ropes. Ensure that you have familiarized yourself with the most up to date method of teaching this as laid out in the Altius Training Manual, do not assume that this technique is the same as the last time you taught.

At the end of the day ensure that the trainees tidy up the training center with you by coiling the ropes and tidying away their personal kits and any dummies and/or hauling weights used.

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Point out the relevant pages in the training manuals to the candidates pertaining to what was covered that day and invite them to read those in the evening.

Give them the start time you want them at the next day and then send them off home.

Once they have all gone home go into the training area tidy the equipment bench/area, sweep the floor and throw away any other rubbish lying around. Once this is done replace the bars or locks on the fire exit doors and turn off the lights.

Tidy the training classroom and get it ready for the next day.

#### **Thursday (day 4)**

Go into the training area and turn on lights, remove any bar or locks from fire exits and check the training equipment against the manifest.

Get yourself a blank "TBS" and complete the relevant parts then once all the trainees have arrived start your morning safety talk based on your Toolbox Talk sheets.

Ask if anyone has any questions about the previous days training or about anything they read in the training manual.

Get everyone in to the training area and kitted up. Oversee the level 1's attaching their cow's tails and encourage them to check each other's kits.


Start by re-capping what they learnt the day before and get them all to practice everything they learnt so far and give some tips on improving technique. Once they are at a comfortable standard tell them that you are going to put them through a mock assessment this morning.

Use the training white board with the syllabus on to get the trainees to understand all the maneuvers that they need to perform and ask them to tick/mark them off as and when they have completed them. Get them all to run through all of the maneuvers that will be required on the assessment. This mock assessment will continue after the morning break until lunchtime.

After they return from lunch bring them into the training classroom and give them the written test. Explain the parameters of the test and the results needed for a pass and what would constitute a major discrepancy and a minor discrepancy.

Once this is completed get them to mark each other's papers and then go over and explain any incorrect answers and the reasons for them.

Have the trainees finish off the day practicing all the maneuvers they have been taught and ensure that they are picking up on anything they have been unsure of.

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At the end of the day ensure that the trainees tidy up the training center with you by coiling the ropes and tidying away their personal kits and any dummies and/or hauling weights used.

Give them the start time you want them at the next day and then send them off home.

Once they have all gone home go into the training area tidy the equipment bench/area, sweep the floor and throw away any other rubbish lying around. Once this is done replace the bars or locks on the fire exit doors and turn off the lights.

Tidy the training classroom and get it ready for the next day.

### **Friday (Assessment Day)**

Go into the training area and turn on lights, remove any bar or locks from fire exits and check the training equipment against the manifest.

Greet the assessor and go over the IRATA 006R Form with them during a walk round of the training area. Provide them with a helmet. Obtain a pad of IRATA assessment forms from the assessor.

Get yourself a blank "TBS" and complete the relevant parts then once all the trainees have arrived start your morning safety talk based on your Toolbox Talk sheets.


Introduce the assessor to the candidates and let him then take over.

Using the candidate forms fill out the IRATA assessment form for each trainee. Fill out the names and levels of all candidates on the assessment day form and leave for the assessor to complete once the assessment is over.

Be available to answers any questions the assessor may have and to oversee the day.

After the assessment explain how the process of certification works and also how to fill out their logbooks and what is needed to maintain their level or upgrade.

At the end of the day ensure that the trainees tidy up the training center with you by coiling the ropes and tidying away their personal kits and any dummies and/or hauling weights used.

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Once they have all gone home prepare all of your paper work from the course in the order below:


- 1) IRATA assessment day form signed by assessor
- 2) Candidate paperwork in the following order;
  - a) IRATA assessment form
  - b) Candidate registration form/Medical release/Altius waiver
  - c) Completed, marked and signed off test papers
- 3) Completed daily toolbox/tailgate talks
- 4) Completed JHA

Arrange for all of this paperwork to be sent to the office and once this is done go into the training area tidy the equipment bench/area, sweep the floor and throw away any other rubbish lying around. Once this is done replace the bars or locks on the fire exit doors and turn off the lights.

Tidy the training classroom and get it ready for the next course.

#### **Additional Notes**

<b>Topic</b>	<b>Avoided by or made easier to deal with by:</b>
Breaking into tight rope	Extra rope and equipment results in similar to "Hanging haul" or "Basic haul" depending on situation.
Short link	Attachment always made via "soft link" which may be cut in Emergency.
Large re-belay	Loop avoided by having 2 separate ropes knotted together in center (may be unfastened if required), which is now just a rope to rope transfer. Extra rope facilitates access by rescuer.
Descent passing knots	<ol style="list-style-type: none"> <li>1) Avoid tying mid rope knots if possible.</li> <li>2) Avoid having rope that only just reaches the ground, allows extra knot to be tied.</li> <li>3) Where knots must be used in both ropes-tie knots at different heights.</li> </ol>
Horizontal tensioned ropes	Use of a pullback line to either end, attached to operative, as with equipment being pulled across.
Snatch rescue	<ol style="list-style-type: none"> <li>1) Ropes rigged to descender allowing ropes and casualty to be lowered remotely.</li> <li>2) An extra rope facilitates access by rescuer, especially if ropes are tight or damaged.</li> </ol>

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Edge obstruction at top	Alpine butterfly knots tied just above top edge provide anchor points for cow's tails, which are clipped before removing chest ascender on ascent. This avoids potential shock loading, or tangle in descent. Fixed etrier (tape ladder) on edge facilitates awkward move over the edge.
Lifting heavy loads	Consider using lesser weights intermittently during training to relieve any such strains from using the 70KG dummy.
Edge Hazards	Avoid rigging over edges in the training centers teach edge avoidance Only use rope protection in safe configuration – see Altius Procedure Individually protect the ropes – avoid transverse movement along edges

### **Useful Terminology**

These are a selection of comments you can make to candidates who are unsure of certain aspects of the training or what they have learnt in the past.

There is no such thing as a half point of attachment it is either safe or not safe.

Screw up all karabiners in every part of your system.

Continually count how many separate attachment points you are on.

Keep a minimum of 2 points of attachment at all the times when doing rope access (fall arrest lanyards or work restraint techniques are NOT rope access and may utilize 1 point of attachment).

The safety line is your back up line

The working line is your main line

Descender + back-up device on separate lines with independent anchors = 2 points

Loaded chest ascender + back up device on separate lines with independent anchors = 2 point

Loaded chest ascender on one line = 1 point

Loaded hand ascender inverted for a haul on one line attached = 1 point

Standing in a foot loop attached to a hand ascender = 0 point

Cow's-tail attached to a knot or 1 karabiner = 1 point

A short-link is made of a short sling and 2 karabiners (= a quickdraw)

The cow's-tail are dynamic rope = medium stretch

The working lines are semi static = low stretch