

# ACCESS E-MAG 48 & RESCUE 2023

covering TECHNICAL RESCUE, WILDERNESS SAR (PARK RANGER) & ARB CLIMBER print magazines





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## MARKET GUIDES



**Manufacturers** of the following gear might want to give us a heads-up on your ranges if you don't hear from us in the coming months so that we don't miss you:

- Arborist HARNESSES**
- Swivel & Pulley CARABINERS**
- Pull Saw TOOLS**
- Battery Powered SPREADERS & RAMS**
- Powered Ascenders ROPE**
- Fire-Rescue/Technical-Rescue HELMETS**
- Inflatable Powered Rescue Boats WATER**
- USAR/ SAR UAV's**
- Water Rescue HELMETS**
- Inflatable Rescue Boards WATER**
- Cave Rescue ROPES**
- water rescue DRONES**

## ON THE COVER

Our cover shot is a late change and shows the Turkish earthquake courtesy of the *EU Humanitarian and Civil Aid* program. The EU along with Azerbaijan, were the first to mobilise and get boots on the ground with advisors and assessors and the Dutch and Romanian USAR teams within the first 24 hours which proved vital in this disaster because of the relatively few number of survivors and freezing temperatures, especially through the first two nights. You'll notice in this picture the lack of damage to building in the background which may well have been constructed to post-1999 earthquake standards, not even broken glass! Being a Syrian resident, on the other hand, proved to be one nightmare after another. Having been used as a template for the Russian invasion of Ukraine with civilian infrastructure obliterated by shelling (war crimes) those that were left had little chance of surviving an earthquake in poorly constructed and/or already damaged buildings. The *White Helmets* rescue organisation was again the only saviour in this desperate environment with no international teams able to get through a blockaded border in the early days when it really counted. After day 5 it becomes a wholly humanitarian crisis with survivors needing shelter, warmth, food and water. There are still survivors even after several days and the teams still have a job to do bringing closure to many relatives with body recoveries but it's not what teams hoped to be doing. More lessons to be learnt from nature's wrath. See page 13 for more on Turkey.



SitRep  
February  
2023

# It's A Mad, Mad World

Just when we thought that things couldn't get much worse after the Covid pandemic, some deranged despot decided to invade the Ukraine (badly) putting world and in particular European gas, electricity and oil supplies in jeopardy and sky-rocketing fuel and energy prices as well as just about every other consumer and edible product. In our case, paper and mailing costs increased to a quite ridiculous level and couple this with a surge of strike actions throughout Europe and we have added to the list of things we use as an excuse for bringing issues out late. And that's not to mention Avian Flu and the original elephant in the room - climate change. That has increased the scale and severity of weather events which directly affects all readers of these magazines whether you're in the emergency services, military or rope access/arb industries. Let's hope we don't get a huge tectonic plate shift or volcanic eruption to add to the mayhem.....

.....I should have kept my mouth shut. A week after I wrote that the Anatolian plate through Turkey/Northern Syria shifted and caused utter devastation. We always comment that the vast majority of rescues in these situations are within the first day and carried out by local crews and bystanders and that is indeed the case here with additional huge assistance from Turkish EFAD and a number of well equipped teams like AKUT that were expanded and spread more widely after the last big earthquake in 1999. In fact there was an earthquake tax levied on the Turks after that which may shine a light on exactly how much money was raised and where it went with many outlying towns complaining of no rescue presence for days afterwards. What was initially a little surprising was how few survivors there were and of those, how few made it beyond the third day. This will be all about the types of construction and how shallow the earthquake was in terms of severity and in particular the duration of shaking. A building that collapses and continues to be shaken for a full minute or more is levelling out the survivable voids. As we write, there are teams from virtually every country that has one including the Ukraine! That is laudable dedication to the cause considering that they still have to deal with building collapse literally every day as a result of Russian shelling of civilian residences, hospitals and schools.



We're considering owning up to being 3 rather than 4 issues per year or we may sell one of the titles?

Our 4 issues per year/quarterly magazines have not achieved better than 3-per year since the start of Covid. Actually, regular readers will know that we've rarely achieved better than 3 issues per year in the past 30 years so now that we have 4 titles instead of 1 p'raps we're not too bad after all. We've been lucky not to have been affected by all the madness beyond being **reliably late** because we're a small independent with low overheads, minimal staffing and a great editorial team. We only allocate a day or two a month to advertising (our version of sales= a few reminder/renewal emails) so we're not a typical magazine. We've never wanted to expand to become a proper company, we like being a very informal, small operation. It's all about quality of life. So with admin and production sucking away too much time these days, to maintain our quality of life we need to either reduce our official output to 9 magazines a year instead of 12 (which they pretty much are anyway) or we need to get in some admin staff (too much responsibility), or we could sell one of the titles to really reduce the workload (but we'd probably have to maintain editorial input for a seamless transition period so that may not actually reduce our workload in the short term). Either way, readers won't notice any difference compared to our usual tardiness, it's just that we won't have to keep coming up with excuses for being late and when subscriptions or ad renewals come up it might be for 3 magazines rather than 4.....maybe. We'll let you know.

## NEW WEBSITE COMING & NEW PAGE TURNING VERSION for SUBSCRIBERS

Our rather crammed website is being updated. It was a bit of a rush-job when we first put it up but we never got around to creating it in the way we actually wanted. Hopefully, by the time we get the next Emag out, we'll be highlighting a functioning new website. In the meantime one thing we have managed to sort out is what to do about our digital subscribers. We have, since Covid, frozen digital subscriptions and instead provided the standard PDF version FREE-of-CHARGE to ALL via direct emails and on the website. Not surprisingly, this resulted in a huge jump in readership so, while continuing as a print magazine we're going to make the free PDFs a permanent thing. Digital subscribers will now get the higher resolution, hyperlinked page-turning version (just like this EMAG) and back issues can be requested at any time so you don't have to store them on your own computer if you don't want to.

cheers Ade Scott



# US GEAR REVIEWS

by **Ken Osterkamp**  
aka **GEAR FLOGGER**

Ken is a Veteran mountaineer and annual Denali resident (a 20,000ft/6000m peak!) so his review items undergo a slightly different type of abuse than ours.

Ken and the rest of the excellent Gear Flogger team are currently migrating their site and it sounds like it isn't going smoothly so bear with them while they move servers. In the meantime here's a word on Omega Pacific which saves us the job.

## Omega Pacific is back

Omega Pacific took a hiatus for a bit, but they're back under the Rock-N-Rescue banner. That's great news because they make solid products for people whose daily jobs require they stress-test gear while protecting their own lives and saving others.

The Phantom is a roughly 3x4.5 inch aluminum screw-lock with a large working area inside, thanks to the asymmetric D shape, and a smooth-like-butter locking action with high-traction knurling. The gate spring has a little extra tension in it, which is perfect for a working biner like this because you want it to snap closed like Cartman: with **AUTHORITAH!**

The keylock nose has absolutely zero hook on it, so no worries about snagging ropes and belay loops. The gate opening is a spacious 7/8", and it weighs under three ounces yet rocks the strength-to-weight ratio with a 28kN (6,294 lbf) major axis rating. Thank you hot forging!

Something you can't find in the specs is how the hardware feels in your hands, and the Phantom feels great. It's large enough to handle easily with gloves on, the ribbing makes it easy to get and keep a positive grip, and the action is so nice you end up treating it like a fidget spinner until the Sheflogger tells you to quit snapping that damn thing.

Also appreciated is the reasonable pricing. It's easy to go broke kitting out a working rack for a jobsite, so \$30 screw-lock biners are not on the menu. So welcome back Omega Pacific!

\$14.99 at Rock N Rescue



## ARB STUFF

# SQUIRREL FLEX TETHER

The NEW ISC Squirrel FLEX Tether is designed to offer the optimal balance of rigidity and flexibility for SRT Climbing with the Rope Wrench.

The Squirrel FLEX is made from a high-quality kernmantle rope, over-moulded with an advanced Polymer, selected to create a rigid tether that allows just the right amount of flex and an ultra-premium finish.

Minimising unwanted slack in a climbing system is always a high priority, so we designed the sewn eyes to offer a snug fit, firmly holding the karabiner and providing an optimal connection to your rope wrench. The Squirrel FLEX Tether is constructed with contrasting stitching, allowing visibility for easy inspections. Boasting an impressive 9kN (2023lbf) MBS, the small but mighty hot forged KL100 is the perfect accessory karabiner to provide a direct connection between your chest harness and your SRT system.

MBS: 24kN / 5395 lbf

Weight: 113g / 4oz

Height: 310mm / 11"

CE Certified to PPE Regulation (EU)

2016/425, when used as part of ISC Kit

KT282. Complies with ANSI Z133 & UKCA

[www.iscwales.com](http://www.iscwales.com)



Silky Outback Edition







## DRONE STUFF

# Evolution-PARROT Ai

in any direction The pitch axes of the two gimbals are co-linear and merged to achieve an ultra-compact design.

Main camera

With this solution, it is possible to point the main camera and the perception system in two different directions. This design avoids the use of expensive cameras on the sides, top, bottom and back of the drone, while still providing a large accessible field of view to the perception system.

Stereo cameras

### FEATURES:

- 4G: Internet connectivity
- Connected without range limit
- Flies Beyond Visual Line Of Sight
- Worldwide compatibility
- 48 MP Camera
- 4K 30 fps: Smooth video
- HDR10: Realistic colors
- 14 EV: Dynamic range
- 6x zoom: 1 cm details at 75 m (240 ft)
- Autonomous Photogrammetry
- Shoots 48 MP at 1 fps
- Survey grade accuracy: 0,46 cm/px GSD at 30 m (100 ft)
- Embedded Pix4D flight planning
- 4G transfer to Pix4Dcloud
- Cybersecurity by Design
- No data shared by default
- Strong authentication for 4G
- FIPS140-2 compliant & CC EAL5+ certified Secure Elements
- Software Development Kit with onboard coding capabilities
- Full open-source App
- The largest Partner Ecosystem for Drones

### SMART BATTERY



- Type: High density LiPo (262 Wh/kg)
- Capacity: 6,800 mAh 4.4 V
- Charging port: USB-C
- Weight: 366 g / 0.81 lb
- Maximum charging power: 45 W
- IP53 certified: dust and rain resistant
- Noise emission: 81 dB at 1 m
- MicroSD and SIM card slots

### SPECIFICATIONS

- Size folded: 304 x 130 x 118 mm
- Size unfolded: 320 x 440 x 118 mm
- Weight: 898 g / 1.98 lb
- Ready to fly in 60 seconds
- Maximum flight time: 32 min
- Maximum horizontal speed: 16 m/s – 34 mph
- Maximum vertical speed: 4 m/s – 9 mph
- Maximum wind resistance: 14 m/s – 31.3 mph during flight & 12 m/s – 26.8 mph during take-off and landing
- Maximum propeller speed: 10,000 rpm
- Service Ceiling: 5,000 m (above sea level)
- Operating temperatures: -10°C to 40°C

[ED: The ANAFI Parrot has evolved and while we would normally mention the more affordable, standard and ruggedised, military/SAR models as being more applicable to Rescue teams/agencies and arb/tree inspection companies. it's interesting to see where UAVs are going given that the ANAFI Parrot, in its current 'guise, is one of the standard models used worldwide. Plenty of competition of course but demand just keeps going up such that every team or company not already employing drones should consider if this is an asset worth investing in, from search and surveillance to at-height or hazardous area inspections, rope-placement, precision equipment delivery. You would probably want to start with something more modest than this new AI though unless you have plenty of money to experiment with! Our sectors (Rescue and Arb) rarely get considered in new developments like this, they are understandably more interested in mass market areas like real estate, construction, sports and government agencies. However, lets be thankful that the other market sectors drive rapid development and make these things accessible and affordable for all teams because if they were rescue-specific we'd probably see the same model for the next 15 years and costs would be several times higher. This is more of a check list than a description but the ANAFI site has a fantastically complete and complex PDF on the new AI drone.[here](#)....]

By their design, ANAFI Ai and its Skycontroller 4 are a milestone for the UAV industry: the controller does not require cumbersome cables anymore, and it enables the use of an iPad mini or all large smartphones. It also features a HDMI output, which allows streaming videos from ANAFI Ai. ANAFI Ai is Parrot's new cool drone: it looks nice, it is intriguing, foldable, operational in 1 minute and resistant to rain.

Designed by biomimicry, the new bio-inspired propeller blades use a leading edge similar to the shape of the fins of humpback whales. This allows a better propulsive efficiency. For the same rotation speed, the thrust is increased. The effect is comparable to an enlargement of the rotor diameter. Propellers achieve a Figure of Merit of 66%. The Figure of Merit is used as a performance indicator of a propeller design, it can be seen as an equivalent of the efficiency. Efficiency is defined by the ratio between input power and output power, whereas on a drone propeller we use the figure of merit (the ratio between the input power and an "ideal power") which is a theoretical maximum value of power provided by a propeller of a given size.

### ANAFI Ai's dual gimbal for perception and imaging

ANAFI Ai relies on a unique technical solution based on two mechanical gimbals to decouple the orientation of the main camera and the perception system:

- the main camera is mounted on a pitch-roll-yaw 3-axis gimbal making its 3D orientation independent from that of the drone
- the perception system is mounted on a single axis pitch gimbal – coupled to the drone's yaw movement, it can be oriented

# PETZL ROPE STUFF

Soooo last year



[ED: As usual, one of our favourite manufactures of shiny and not so shiny rope/web stuff, Petzl, has come up with its annual raft of goodies. Some of you 'testers' will already be familiar with these but for those that aren't we've included some highlights and as usual have stolen one of Petzl's nifty instructional diagrams so that you can feel like you've achieved some learning as well as spending hard-earned cash. First off there's the Pro Traxion which is a radical update merging this original Pro-Traxion progress capture pulley with a Spin Swivel pulley. This and the updated Mini Traxion are stated as being 'drop-resistant' which we got quite excited about thinking that there was some new test or process for hardware that limited damage in the event of dropping it onto a hard surface - something that usually necessitates retiring an expensive bit of kit or pretending that you never dropped it in the first place and hope for the best. But no, it simply means the Traxions can be attached to the rope without being removed from the anchor so there's less chance of dropping them - resistant to dropping see?]

	Certifications	Rope Diameter Compatibility	Sheave Diameter	Ball Bearings	Efficiency	Working Load Limit	Weight
<b>Progress-Capture Pulleys</b>							
<b>NEW 2023</b> PRO TRAXION	 P055AA00	CE EN 567 EN 12278 EN 12841 type B NFPA 2500 Technical Use Pulley and Rope grab UKCA	8 to 13 mm	38 mm	●	95 % Pulley: 11.5 kN x 2 = 23 kN Rope Clamp: 4 kN	295 g
<b>NEW 2023</b> MINI TRAXION	 P054AA00		7 to 11 mm	32 mm	●	93 % Pulley: 10 kN x 2 = 20 kN Rope Clamp: 4 kN	150 g

## PRO TRAXION

### PROGRESS CAPTURE PULLEY

Very high-efficiency, drop-resistant progress-capture pulley with swivel. Possible to open, even when attached to the anchor, the PRO TRAXION progress-capture pulley is designed for setting up haul systems. With a large diameter sheave mounted on sealed ball bearings and excellent efficiency, it is particularly suitable for hauling heavy loads. The swivel makes it easier to operate, allowing the pulley to be oriented under load and for direct connection of carabiners, ropes, or slings.

Weight: 295g/10.4oz  
Color(s): Yellow/Black  
Approx SRP: £141/\$175/€160 inc tax



## MINI TRAXION

### PROGRESS CAPTURE PULLEY

Compact and drop-resistant high-efficiency progress-capture pulley. Possible to open, even when attached to the anchor, the MINI-TRAXION progress-capture pulley is designed for setting up haul systems.

With a medium-diameter sheave and great efficiency, it is particularly suitable for hauling mid-weight loads.

It is compact, with minimized weight and bulk, which is especially useful during technical rescue and rope access work.

Weight: 150g/5.3oz  
Color(s): Yellow/Black  
Approx SRP: £81/\$101/€92 inc tax



## TOOLBAG 6

### LARGE-VOLUME TOOL POUCH

The TOOLBAG 6 tool pouch is one of three new bags with names corresponding to litrage. The 6, 3 and 1.5 with the 6 allowing you to carry a large number of tools. The opening and closure system is easy to use with one hand. It can be connected to the harness using the INTERFAST accessory, reducing bulk on the harness and making the pouch more accessible. It is durably constructed and can be used on a daily basis without worrying about wear.

Weight: 245 g  
Volume: 6 liters  
Certification(s): ANSI/ISEA 121-2018  
Approx SRP: £35/\$44/€39 inc tax



## RING2RING

### RIGID DOUBLE RING FOR SIT HARNESSES WITH TEXTILE BRIDGES

Specifically designed to be used on sit harnesses with textile bridges, the RING2RING accessory is primarily for use during helicopter rescue. Its function as an additional attachment ring allows the rescuer to better organize their equipment at the attachment point and makes it easier for the winch operator

to access the connection point when connecting the rescuer.  
Weight: 100g/3.5oz  
Certification(s): EN362 type M, EN12275 type Q, UKCA, EAC  
Approx SRP: £30/\$37/€33 inc tax





[ED: We just managed to nip this into the latest ArbClimber's GUIDE to Friction Savers but didn't have all the details or the extra shown below.]

## NAJA

### FRICION/CAMBIUM SAVING ANCHOR

Friction saver for tree care that is easily retrievable from the ground, with an integrated pulley and a strap with different adjustment positions. Designed for tree care, the NAJA friction saver allows the work rope to be set up without damaging the tree. The strap has four different adjustment positions to adapt to different branch diameters.

Rope ascents and movement in the tree are optimized with the high-efficiency pulley, which facilitates rope glide at the anchor. The included retrieval ball makes the system easily retrievable from the ground. The yellow strap of the NAJA friction saver offers four different adjustment positions to better adapt to different branch diameters.

Weight: 400g/14.1oz

Length: 150cm/60"

Breaking strength: 25kN

Certification(s): CE EN 795 B, EN 12278, EAC, TS 16415, UKCA

Approx SRP : £132/\$164/€150 (inc tax)

### NAJA Replacement/extension Strap

This strap is specially designed for the NAJA adjustable friction saver. It can be used to replace the original strap or link two straps together to lengthen the friction saver and enable work on larger-diameter trees. It is available in two lengths: 150cm/60" and 250cm/98".

Weight: 140g/5oz (150 cm length)

Approx SRP £16-27/\$20-33/€18-€30

### NAJA Retrieval Ball

Retrieval ball for NAJA adjustable friction saver. With a diameter of 21mm/0.8", this retrieval ball is specially designed for the NAJA adjustable friction saver. It enables quick and easy system retrieval from the ground by larks-footing to the rope's soft eye which passes through the gold-coloured NAJA and jams into the MINO small carabiner.

Weight: 8g/0.3oz

Approx SRP: £3/\$4/€4 inc tax

## MINO

### NON-PPE ACCESSORY CARABINER

MINO is a small, lightweight accessory carabiner ideal for hanging accessories on your harness. It is ergonomic and easy to use, even with gloves. MINO is sold individually or with two additional accessories (CAPTIV-type anti-rotation bar and LOCK-type locking bar).

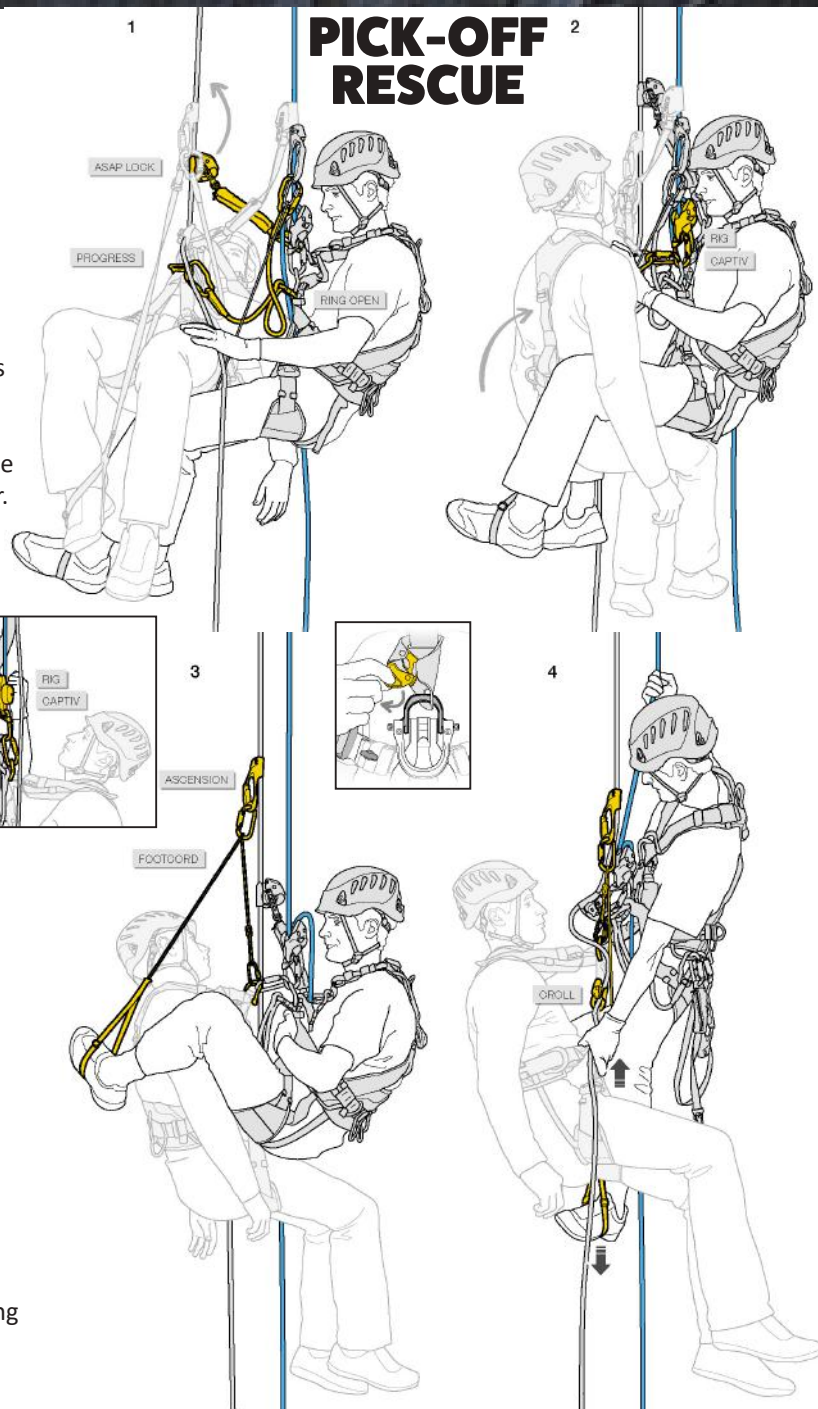
Weight: 11g/0.4oz

Opening: 13mm/1/2"

Working load limit: 400kg/881lb

Approx SRP: £10/\$12/€11 inc tax

## PICK-OFF RESCUE



### RELEASE AND EVACUATION OF A VICTIM ON A CROLL ASCENDER

Rescue from below by a team member with their own equipment.

The rescuer must carry out a risk assessment before responding and verify (among other things) that the victim's ropes are in good condition.

The counterbalance system is used to transfer the victim onto the descender. The rescuer ascends on the victim's safety line.

1) The rescuer transfers themselves to the RIG descender, tethers to the victim, and moves the ASAP up above the victim.

3) The rescuer puts a second connection in place. They can then remove the equipment that is in the victim's way.

3) On the victim's rope, the rescuer installs a foot loop in counterbalance on the ASCENSION handled rope clamp.

4) In counterbalance on the foot loop, the rescuer prevents the rope from running through the CROLL and raises the victim. They remove the CROLL and take up as much rope slack as possible in the RIG descender.

5. The rescuer, hanging on the RIG, removes the ASCENSION. They install a braking carabiner and accompany the victim to the ground.

# RTC RESCUE MANUALS

## a Buyers Guide

By Rich Denham & Nick Appleton

TECHNICAL RESCUE magazine Extrication Editors

We all have our department's own policies and procedures when it comes to working on roadways and undertaking casualty centred rescues at Road Traffic Collisions – RTC's ( Motor Vehicles Collisions -MVC's), but where do we go to get much needed supplemental information?

Your authors cut their teeth on Len Watson's seminal 'RTA Persons Trapped', way back in 1990. This beat Kidd and Czajkowski's 'VEHICLE EXTRICATION A Training Manual' to the punch by six months and together they were the first of the fifteen – soon to be sixteen – manuals that are now available on the subject of rescue at RTC/MVA's. Not only do I have all of these titles, I've also co-written two manuals, the first of which was never published having been pipped to the post by the Lukas manual. But, excellent as this manual is, the fact that we then felt that ours would only reinvent the wheel highlighted an obvious omission in virtually all the manuals and something that we as instructors had been majoring on for some time. So before we detail what's available in the way of manuals, lets first consider what's in a name.

Of the fifteen manuals currently available, nine of these have the word 'extrication' in their titles and yet ironically if you look at their full titles and related contents, you'll see that at no point are any vehicles extricated or rescued. Unfortunately, but specifically to the point, neither are any casualties/patients.

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**Oxford English Dictionary Definition: -  
Extrication (noun) : Free (someone or something) from a constraint or difficulty**

In the case of rescue at RTC's, extrication is freeing someone - a casualty (patient) - from the constraint of a crashed vehicle. This is important because people buying these books not unreasonably expect that they 'do what it says on the tin' – that there is an element of actual casualty extrication in these books, egress solutions for differing entrapments – just as these books all demonstrate to a greater or lesser extent differing space creation options for various situations. And although there are often excellent sections on casualty care, there are no detailed and illustrated casualty extrications from vehicles. In principle, its perhaps a bit like finding a book called 'Brick Laying', then opening the book up and discovering that there's excellent in-depth coverage of all the major elements of building construction. Except for how to Lay Bricks. So, in a shameless plug for the authors' own forthcoming book, it should be noted that this one deals exclusively with the extrication of casualties – there are twenty separate casualty circumstances catered for -

and a truly multi-agency approach is detailed for achieving these. But more of this later...

Of the manuals that are currently available, perhaps the first

tranche – published between 1990 and 2004 – are showing their age. They contain a lot of dated information, have no colour diagrams or photos and can be very heavy with dense text, the latter not being something that aids comprehension, especially for uber-practical rescuers.

However it is still worth tracking down copies of these – even as 'previously-loved' purchases – for the still relevant and very valuable tips and alternative perspectives that can be gleaned from their pages.

The next selection comprises the four books published between 2005 and







2012. These do feature colour photos and diagrams and also benefit from a less 'wordy' approach and also start to make use of text boxes, etc.

to break up the flow of words and make the concepts being explained more easily understood. Also more contemporary than their predecessors, these are again worthy of your attention and for the same reasons. Finally there is the period from 2014 to the present day, perhaps initially most easily recognisable by one of their focuses being on electric (and other fuel) vehicles. These books also move on a step further in terms of their graphic presentations of concepts and techniques and are much easier to read and digest as exemplified by Holmatro's handy little A5 manual- a true pocket guide.

These later manuals also contain the author's personal favourites, and our criteria for giving five stars to an RTC Rescue Manual :

- Is it easy to read and understand?
- Is it based on contemporary information?
- Does it have a good practical section on all aspects of safety ?
- Does the book contain contemporary information ?
- Does it have a comprehensive space creation section ?
- Does it have an RTC related Casualty Care element, especially with regard to multi-agency integration ?

In direct relation to these points, we gave three 5 star ratings :

Overall we preferred the international approach of Ian Dunbar's comprehensive 'VEHICLE EXTRICATION : The Next Generation'. The ongoing and well worked theme throughout was integrating both the fire and medical services in training and pre-planning for rescue at RTC's and this really is the future. But in an acknowledgement of the fact that of all fifteen currently available manuals, they originate in either the UK (6, some arguably shared with the Netherlands ) or the USA (9) we suggest that a UK and European audience would be well served by the orientation of the second Ian Dunbar book, 'VEHICLE EXTRICATION TECHNIQUES' and that in the USA and Canada, that the 'PRINCIPLES OF VEHICLE EXTRICATION' is very well suited to that environment.

However, note that all of the books listed here are - in their own context - excellent manuals dealing with safety, procedures, vehicle anatomy, casualty care, in some cases differing vehicle fuels and especially the vital art of space creation, and should be assessed and selected by you on their own merits. They are

invaluable texts in terms of what they do and do well. And incidentally, those who will look at our guide will likely notice that we only gave our book four stars, our reasoning being that this buyers guide relates to manuals dealing with the full scope of casualty rescue from RTC's and ours focuses only – although admittedly in some depth – on casualty extrication. It will be however the only one of its kind, founded on evidence based medical research and decades of practical experience, so ultimately you can decide what rating it warrants. In conclusion RTC's are an ever evolving and demanding challenge and rescuers like you are the perfect proof of that, in as much as you are reading this magazine and specifically this article to better equip yourselves for those challenges. You will also realise that continuous personal development isn't something that is done just as a hoop-jumping exercise at work, but that it has a very real value for you, your knowledge and skills acquisition and maintenance and the people that you serve. And incidentally, no one wants to screw-up at a rescue... So pick one of these books, buy a copy and read it in small chunks and with a pencil in your hand to make notes in the margin. The result WILL improve the outcome for casualties that have yet to be.....altogether now...

In the following tables a black outlined white square indicates that the subject is covered but not in any great depth. TBD= To be Determined  
5 star recommendations are shown in gold

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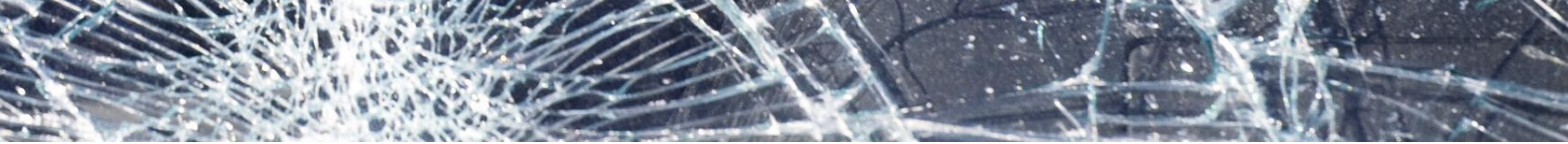


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# EXTRICATION

IMAGES not to SCALE							
TITLE	RTA PERSONS TRAPPED	VEHICLE EXTRICATION A Training Manual/Study Guide	ADVANCED VEHICLE ENTRAPMENT RESCUE	VEHICLE RESCUE	VEHICLE RESCUE & EXTRICATION	VEHICLE EXTRICATION	HOLMATRO'S VEHICLE EXTRICATION TECHNIQUES
<b>COST</b>	£21	n/a	n/a	£31	n/a	\$83	Free
<b>EDITORIAL FOCUS</b>	Casualty centred space creation	Casualty centred space creation	Casualty centred space creation	US procedural & access techniques	Accessing vehicle entrapments	US procedural & access techniques	Space creation
<b>VEHICLE CONSTRUCTION</b>	■	■	■	□	■	■	■
<b>TRUCKS/HGVs/ELECTRIC</b>	□	-	■	-	■	□	■ ■
<b>TOOLS &amp; PPE</b>	□	■	■	□	■	□	■
<b>STABILISATION</b>	■	□	■	■	■	■	□
<b>GLASS MANAGEMENT</b>	■	□	■	■	■	■	□
<b>SPACE CREATION</b>	■	■	■	■	■	■	■
<b>CASUALTY CARE</b>	□	■	■	■	□	□	-
<b>CASUALTY EXTRICATION</b>	-	-	-	□	-	-	-
<b>AUTHOR(S)</b>	Len Watson	Kidd & Czajkowski	Len Watson	Harvey Grant James Gargan	Ronald E Moore	Brian G Anderson	Brendan Morris
<b>PUBLISHER</b>	Greenwave	Fire Engineering /Penwell	Holmatro	Brady/Prentice Hall	Mosby Jems	Fire Engineering /Penwell	Holmatro
<b>ISBN</b>	0-95168600-3	9780878149155	0951686011	9780835983747	0-323-01833-5	1-59370-021-0	2-910725-34-0
<b>PUBLISHED</b>	1990	1991	1994	1997	2003	2004	2005
<b>FIRST PUBLISHED</b>	1990	1991	1994	1996	1991	2004	2005
<b>SOFT/HARD BACK</b>	■	■	■	■	■	■	■
<b>B&amp;W / COLOUR</b>	■	■	■	■ ■	■	■	■ ■
<b>PHOTOS/DIAGRAMS</b>	■	■ ■	■	■	■	■	■ ■
<b>FORMAT &amp; PAGES</b>	EUA4 374	USA4 253	USA4 255	USA4 352	USA4 414	USA4 573	A5 98
<b>KEY CHAPTERS</b>	<ul style="list-style-type: none"> <li>Space Creation</li> <li>Training</li> <li>Immediate Care and Medical</li> <li>Appreciation (broad perspectives, some dated)</li> </ul>	<ul style="list-style-type: none"> <li>Vehicle structure</li> <li>Hand tools</li> <li>Patient considerations &amp; Packaging</li> <li>Training</li> </ul>	<ul style="list-style-type: none"> <li>Scene &amp; vehicle stabilization</li> <li>Space Creation, various postures</li> <li>Casualty release theory</li> </ul>	<ul style="list-style-type: none"> <li>Eqpt &amp; Training</li> <li>Managing the incident scene</li> <li>Hazards</li> <li>Gaining access</li> <li>Disentangling</li> <li>Patient packaging</li> </ul>	<ul style="list-style-type: none"> <li>New Technology</li> <li>Electric/Hybrids</li> <li>Rescue Life-Cycle /Golden hour</li> <li>Vehicle, Rescuer &amp; Scene Safety</li> <li>Incident Command</li> <li>Casualty Care</li> <li>Tools &amp; Eqpt</li> <li>Rescue Evolutions</li> <li>Glossary</li> </ul>	<ul style="list-style-type: none"> <li>Tools &amp; Rigs</li> <li>Stabilization</li> <li>Door/Side/Roof &amp; Interior procedures</li> <li>Entrapment beneath/between</li> <li>Empalement</li> <li>Trucks/Trailers</li> <li>Buses</li> <li>Sport vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Vehicle Design inc. Hybrids</li> <li>Equipment</li> <li>Scene Safety &amp; crew organization</li> <li>Techniques</li> <li>Heavy Vehicles</li> </ul>
<b>BREADTH of COVERAGE</b>	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>IMAGE QUALITY/CLARITY</b>	■	■ ■	■ ■ ■	■	■ ■	■ ■	■ ■ ■ ■
<b>QUALITY of TEXT</b>	■ ■ ■	■ ■ ■ ■	■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■
<b>QUALITY of PAPER STOCK</b>	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>VALUE for MONEY</b>	■	■ ■	■ ■	■	■ ■	■ ■	■ ■ ■ ■ ■
<b>COMMENT</b>	The original car rescue manual led the way	Comprehensive but very dated	'Updated' and condensed version of RTA Persons Trapped	Detailed but very text heavy few photos and no diagrams	Detailed but dated in parts. Too much text, few photos and no diagrams	Also detailed but dated in parts. Too much text, few photos and no diagrams	Essentially a Holmatro catalogue but with excellent space creation sequences
<b>OVERALL MARK out of 5</b>	■ ■	■	■ ■	■	■ ■	■ ■	■ ■ ■





 FIRE SERVICE MANUAL Vol 2 Incidents involving rescue from rd vehicles	 VEHICLE RESCUE 1-2-3	 VEHICLE EXTRICATION TECHNIQUES	 PRINCIPLES OF VEHICLE EXTRICATION 4th ED	 VEHICLE RESCUE & EXTRICATION 2nd ED	 Road Traffic Collisions: A Complete Guide	 VEHICLE EXTRICATION THE NEXT GENERATION	 Bumper to Bumper Extrication	 EXTRICATION Rescue of Casualties from Crashed Vehicles
£28	\$35	\$20/€15	\$75	\$130	£28	€35	\$35	TBA
UK procedural	Car safety & space creation	Accessing vehicle entrapments with holmatro kit	All aspects of entrapment rescue	All aspects of entrapment rescue	Mostly procedural	All aspects of entrapment rescue	Pre-rescue new vehicle technology	Casualty handling/ Casualty extrication
■	□	■	■	■	■	■	■	-
-	□	■	■	■	■	■	■	■
■	□	■	■	■	■	■	-	-
■	■	■	■	■	■	■	-	-
■	■	■	■	■	■	■	-	-
■	□	□	□	■	■	■	-	■
-	-	□	□	□	-	-	-	■
HM Fire Service Inspectorate	Ronald E Moore	Ian Dunbar	Peters & Smith	David Sweet	Andrew Holden	Ian Dunbar	Michael Smith	R Denham, N Appleton
HMSO	University of Extrication	Holmatro	Ifsta/Fire Protection Publications	IAFC/NFPA Jones&Bartlett	Self-Published	Lukas Rescue	Boron Extrication Training	Technical Rescue Ltd
9780113413058	9780983845003	9789081279604	9780879395971	9781284042177	-	9783000653063	9798830659352	TBA
2007	2011	2014	2017	2018	2019	2021	2022	2023
2007	2011	2014	'98,'00,'10	2012*	2019	2021	2022	2023
■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■
EUA4 204	USA4 230	Custom 256	USA4 522	USA4 442	EUA4 205	EUA4 293	USA4 94	UKA4 220+
<ul style="list-style-type: none"> <li>Vehicle Design</li> <li>Dealing with incidents</li> <li>Safety and</li> <li>Operational Procedures</li> <li>Medical care</li> </ul>	<ul style="list-style-type: none"> <li>Space Creation</li> <li>Hybrid vehicles</li> <li>Internal space creation</li> <li>Underride extrication</li> </ul>	<ul style="list-style-type: none"> <li>Safety</li> <li>Vehicle Technology</li> <li>Tools&amp;Eqpt</li> <li>Team Approach</li> <li>At the scene</li> </ul>	<ul style="list-style-type: none"> <li>Passenger vehicles</li> <li>Commercial Vehicles</li> <li>Heavy vehicles</li> <li>Special circumstances</li> </ul>	<ul style="list-style-type: none"> <li>Incident command</li> <li>Kinetics/ construction</li> <li>Electric/Hybrids</li> <li>SRS/Airbags</li> <li>Tools/Eqpt</li> <li>Site Ops/Stabilization</li> <li>Casualty handling</li> <li>Trucks/Tractors</li> <li>Alt Techniques</li> <li>Wrapping up</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles in water</li> <li>The collision</li> <li>Traffic management</li> <li>Debriefing</li> </ul>	<ul style="list-style-type: none"> <li>Extrication planning</li> <li>Medical considerations</li> <li>Technical processes and evolutions</li> </ul>	<ul style="list-style-type: none"> <li>Accident statistics</li> <li>Vehicle structure</li> <li>Glass</li> <li>Airbags</li> <li>Restraints</li> <li>Battery</li> </ul>	<ul style="list-style-type: none"> <li>Multi-agency approach</li> <li>Self &amp; assisted extrication</li> <li>20 detailed car &amp; cab extrication sequences</li> <li>Air ambulance &amp; Trauma Care approved</li> </ul>
■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■
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Free download. Uses Holmatros's space creation information and diagrams	Techniques, six photos per page, good sequence detail	Comprehensive selection of sequential space creation evolutions.	Comprehensive MVA information resource, primarily for North America	*Originally just 'Vehicle Extrication'. Very comprehensive 2021 update is E-book only	Shows space creation sequences as a numbered sequence on a vehicle frame	Comprehensive hardback, especially good on integrating Fire and Medical rescue services	Full background to vehicle technology	The first and only manual to concentrate wholly on the casualty's needs & removal
■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■

## USAR STUFF

### SEE-THROUGH-WALL technology used in TURKISH/SYRIAN 'QUAKE



Camero-Tech has supplied its Xaver 400 and Xaver 100 systems to the search and rescue expedition sent by the **IDF Home Front**

**Command SAR Unit** to the disaster area in Turkey (pic right) . These systems - which are capable of detecting the breathing of living people buried under layers of debris/ rubble, even without movement - are part of the company's overall search & rescue kit, which is fully equipped with Camero-Tech's STTW radar imaging systems, enabling search and rescue teams to detect live objects in disaster scenarios such as earthquakes, tsunamis, and fires.

"As our hearts go out to all those who have been affected by this tragic event, we are proud that we have been able to assist the rescue efforts, using Camero systems to successfully save lives," says Amir Beeri, CEO and founder of Camero-Tech. "The technology we have developed over the years, which is usually used in military and law enforcement missions, continues to prove its effectiveness in its original purpose of saving lives. This is not the first time we have witnessed the success of our unique technology in disaster areas; it was also used to locate and rescue survivors following the 2017 earthquake in Mexico."

On arrival at the scene of a disaster, Camero's compact search & rescue kit is ready to be deployed in less than a minute, enabling teams in the field to move agilely even in harsh environments, and to locate life under debris and collapsed buildings. The kit contains two Camero Xaver TM 100 systems, a Xaver TM 400, a XaverNet TM and various rescue accessories - including a variety of straps, holding devices, and more - that can be used in a variety of situations.

- The Xaver TM 100 is a compact, handheld detector and tracker that provides reliable primary information on the existence of live objects. It facilitates faster go/ no-go decision-making when searching in major disaster areas, such as collapsed buildings with many rooms and voids.
- The Xaver TM 400 is a compact radar-based device that provides accurate, real-time, mission-critical information on live and static objects, indicating their location within a structure. It also provides simultaneous detection of static and moving objects
- The XaverNet TM is a remote wireless ToughPad that simultaneously controls and monitors up to four Xaver TM systems, enabling real-time visual data and data recording/ playback in multiple locations within the disaster area. It is the force multiplier that speeds up the process of finding survivors. The critical data can also be used for post-mission analysis and training. <https://camero-tech.com>

## IDF SAR in TURKEY



*[ED: We've mentioned the Xaver system before and it was used to good effect in the Turkish/Syrian earthquake. This disaster prompted the most diverse range of countries ever to provide Rescue teams for one incident and even included countries with their own considerable existing problems -Ukraine, Moldova, Libya, Iraq, Palestine, Lebanon and Sudan! It's difficult to single out one team/country though Turkey itself, despite domestic criticism, deserves mention for its relentless and extensive response by many teams. But with their usual military efficiency in getting out solid details we've highlighted the Israeli Army's SAR Unit because it has been at the forefront of disaster response for many decades, far longer than any other team. They always seem to be the fastest to respond and get in on the ground when it really matters which is why their live-rescue rate is so high. This incident involved joining forces with civilian rescue and medical agencies to provide a joint Israeli 'task-force' .At a time when the Israeli Army could do with some good PR their Rescue teams are a credit to the international Disaster Response community. ]*

The IDF "Olive Branches" humanitarian aid delegation, which comprised a search and rescue delegation led by the Home Front Command and a medical aid delegation led by the Medical Corps in the Technological and Logistics Directorate (J4), completed its mission upon the return of the medical aid delegation to Israel today (Wednesday).

The medical aid delegation arrived in Türkiye on Wednesday, February 8, 2023, following the earthquakes in the south of the country that killed and injured tens of thousands. The delegation assisted in reopening a local hospital in the city of Kahramanmaraş, where its members provided medical treatment to the wounded.



# TURKISH EARTHQUAKE

The medical aid delegation included approximately 150 doctors, nurses, surgeons, anaesthesiologists, X-ray technicians, laboratory technicians, paramedics and medical logistics personnel. Also participating in the delegation were representatives from Magen David Adom (MDA), the Ministry of Health and additional bodies.

Over [several days] of continuous efforts, the delegation treated over 470 injured civilians, including approximately 150 children and approximately 50 dental patients. In addition, 10 surgical and orthopaedic operations were performed. The delegation also treated wounded Syrians who were in Türkiye at the time of the earthquakes.



The IDF delegation, led by the Home Front Command and the Medical Corps, consists of representatives from the Ministry of Defence, Magen David Adom (MDA), the Fire & Rescue Authority, the Ministry of Health, the ZAKA International Rescue Unit and additional bodies.

The rescue and medical teams are continuing their search, medical assistance and rescue efforts. The IDF is working and will continue to work at all times as long as needed to assist, save lives and treat the victims of the earthquakes.

Attached Is the Interim Summary Data of the IDF "Olive Branches" Humanitarian Aid Delegation's Activity (Participating Bodies, Equipment Allocated to the Victims and Teams, and the Civilians Who Were Rescued)

- Over 230 participants in the medical aid delegation.
- Over 150 participants in the search and rescue delegation.
- Hundreds of work clothes and winter equipment, such as jackets, storm suits, coats, gloves against the cold, fleece caps, undershirts and thermal pants.
- Approximately 30,000 heat packs.
- Thousands of undergarments (socks, underwear and towels).
- Hundreds of beds and accommodation equipment for the search and rescue teams.
- Intensive care, surgery and patient admission beds, and equipment for medical imaging, laboratory, women's, children's, and orthopedics departments.
- Thousands of units of medicine, medical equipment, medical dressings and various instruments alongside a range of medical kits.
- Unit 9900's specialty mapping team, which analyzes collapsed buildings in cooperation with the Home Front Command's "Agamim" Branch. The unit also mapped approximately 600 buildings at the destruction sites, and has so far built approximately 300 models that assist the teams in the field.

- The IDF sent a satellite communication kit on a military Hummer Jeep, which will assist the teams in the field by establishing a communication network.
- The medical delegation brought 7 tons of medical equipment to Türkiye, designated for operating, emergency, patient admission and intensive care rooms, along with 10 tons of additional medical equipment. The medical delegation flew in approximately 10 tons of logistical and administrative equipment.

- 15 Magen David Adom (MDA) personnel and four rescuers from the Fire and Rescue Services are taking part in the delegation.

Information Regarding the Civilians Rescued By the IDF "Olive Branches" Delegation in Türkiye up to 10thFeb:

## 9th Feb 2023 Day 2

9. Elif, 24 years old
10. Zeynep, 24 years old
11. A 7-year-old girl
12. Ada
13. Ismail
14. Ismail's daughter
15. Hussein Amar, 50 years old
16. Romeisa, 14 years old
17. Muhammad, 39 years old, Romeisa's father

## 10th Feb 2023 Day 2

18. Not yet Listed
19. Not yet Listed

## INTERNATIONAL TEAMS

### in TURKEY/SYRIA 2023

Many other countries not sending teams sent substantial financial and humanitarian aid eg. Canada, NZ, Finland, Belgium etc.

Albania	Israel	Romania
Algeria	Italy	Russia
Argentina	Japan	Serbia
Austria	Kosovo	Slovakia
Australia	Lebanon	South Korea
Azerbaijan	Libya	Spain
Bulgaria	Lithuania	Sudan
China	Malaysia	Switzerland
Croatia	Malta	Taiwan
Czech Republic	Mexico	Thailand
Estonia	Moldova	Tunisia
France	Montenegro	Turkmenistan
Georgia	Netherlands	Qatar
Germany	North Macedonia	UAE
Greece	Palestine	Ukraine
Hungary	Poland	United Kingdom
India	Portugal	United States
Iraq	Pakistan	



# USEFUL KIT FOR COLLAPSED BUILDING RESCUE



## EDILGRAPPA 315DE Concrete Crusher

[ED: better if used with a battery pack to allow for quiet, fume-free operation especially during the listening periods]

This portable unit is suited for rescue situations and demolition works in the Construction Industry. The 315 DE allows the operator to easily remove sections of concrete attached to structures without disturbing existing fixture material. Extremely useful for victims in rescue situations with extrication from collapsed walls, stair cases, lift shafts, columns, etc. The 315 DE provides low noise output and clean crushing whilst in operation, making it perfectly suited for any working environment. This unit is designed & precision manufactured in Italy to the highest of international standards for the worldwide rescue industry.

Hydraulic Pressure 700 Bar

Hydraulic Power 30 Tonnes

Maximum Opening 300mm

Crushing Power (Tips) 13.6 Tonnes

Weight 52Kgs Dimensions L x W x H 740 x 860 x 180mm

[www.edilgrappa.com](http://www.edilgrappa.com)

## HOLMATRO CCU10 MiniCutter

[ED: this one is self-contained, easily hand-transportable and light in the hand. If there was one thing that needed to be cut in abundance in Türkiye it was reinforcing bar. Many teams were using circular saws, hydraulic cutters and dedicated rebar cutters. Some were even using bolt croppers and hacksaws. This tool from Holmatro, falls somewhere between a hydraulic cutter and a reb-bar cutter. It can do the job of a rebar cutter but with a regular rescue cutter pivoting jaw rather than anvil-style head it can open to cut many different materials. Quiet and light for easy operation anywhere in the rubble pile.]

max. working pressure	720 / 72 (bar/Mpa) /10443 psi
battery included	yes
Max. cutting opening	59mm / 2.3"
Water/Dust Ingress:	IP54
theoretical cutting force	220 / 22.4 (kN/t) / 49458 lbf
cutter jaw	inclined
weight, ready for use	4.9kg / 10.8 lb

weight excl. battery	4.5kg / 9.9 lb
dimensions:	554 x 154 x 92mm
	21.8 x 6.1 x 3.6 in

### Norms

EN 13204 classification AC59B-4.9

NFPA 1936, cutting capacity A4 B3 C2 D4 E4

EN 13204, cutting capacity 1D 2D 3C

Round bar: 22 mm 0.9 in

- Charge status LEDs on battery
- Up to 70 cuts with one 2Ah battery
- Inclined battery position – For easy switching of batteries
- Part of the Cordless Alliance System (CAS) – Battery compatible with other tools that use this platform

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We care that you and your squad have immediate and available access to the technology, so we ensured its pricing is at a level that falls within your discretionary spend. The ascender has been NATO registered and numbered. Purchases can be made through one of our many NATO registered distributors allowing for worldwide access quickly and timely.

### RONIN TACTICAL LIFT (STL) Features:

- The handheld tactical ascender that will change worldwide military and police operations.
- Safe working load 400 lbs. (181 kg) and weighs only 18 lbs. (8.1 kg) with battery
- This powerful tool will revolutionize the market for tactical ascenders with its compact size and lightweight.
- The Ronin Tactical Lift has been developed to manage heavy loads in harsh environments despite its extremely compact size. The automatic in-feed rope system protects against detachment while providing operational capabilities not present in other ascender options.



- No longer reserved for your special ops, the STL can be deployed across your entire force serving multiple functions from gear-hauling to rescue. Confidently hand the STL off to any of your units to enhance their operational capabilities.

### FEATURES:

- 400 lbs. (181 kg) Safe Working Load
- Variable Speed Control (0.5 – 1.5 ft./sec)
- Hands-Free Braking System
- Gravity Feed Descent
- Automatic End Feed Rope Loading
- Safely Secures Rope inside the Lift & Prevents Accidental Detachment
- Allows for Angled Ascents
- Hot-Swappable Lithium Battery w/charge reading
- Water Resistant IP54 Rating
- Quieter Gearbox / Motor Combination
- Operating Temp. -4°F – 120 °F (-20 °C – +49 °C)
- Battery Indicator Power Selector Switch
- Allows for Battery Indicator Reading to be On or Off

[www.roninpowerascender.com](http://www.roninpowerascender.com)

**RONIN TACTICAL LIFT IS ONLY AVAILABLE FOR GOVERNMENT PURCHASES but other products in the range are suitable for rescue, access & arborists**

# WATER RESCUE DRONES/SUVs

## DOLPHIN1 SUV INCIDENT & ON TRIAL

[ED: After being operational for 3 years including with Beach Rescue on Brighton Beach in the UK and being trialled by French Rescue services amongst many others, OceanAlpha's Dolphin 1 now has a 'stretcher' version shown opposite which is lighter, (perhaps less ruggedised with Polyethylene rather than Carbon fibre casing?) but otherwise similar technology to Dolphin1 providing a solid platform for rescuers or casualties and equipment delivery, it even has a heated bed. Meanwhile, back with the Dolphin1, we can't validate this report but taken at face value this seems to be a perfect, if relatively routine, job for SUV's like the Dolphin1 or the EMILY series we featured in WSAR11. This would certainly suit our water rescue editor Mike Crosslin's contention that committing rescuers to water should be a last resort! We'll have a Back-to-Back of rescue drones/SUVs in TECHNICAL RESCUE later this year. ]



The maritime police rush to the scene immediately with Dolphin 1 Remote-Controlled Lifebuoy. When they arrive, the eyewitnesses quickly point out the exact location of the drowning teenager and note that the young man has been struggling on the water for more than half an hour. The wave is too rough to swim back to shore, which puts him in a precarious situation.

The police launch the Dolphin 1 lifebuoy to rescue him at once. Dolphin1 rides the huge waves to approach the drowning teen at its max speed and reaches him in a very short time under the remote control of the police.

Fortunately, the youngster successfully grabs Dolphin 1 and is brought back to shallow water safely. The police officers wade into the water to take the boy to a safe place for a further physical check-up.

According to Gong Zhengqing, deputy director of Shao Police Station, the Dolphin 1 Water Rescue Robot was previously purchased by the Maritime Police Detachment of Weihai City to specifically equip the first responders for quicker and safer water rescue.

It is a notable example of many successful use cases of Dolphin 1, a portable, easy-to-use and affordable electric watercraft to assist rescuers worldwide in guarding a wider water area. The Remote-Controlled Lifebuoy can also support the rescue team to save victims trapped in floods.

According to WHO's global report, drownings claim the lives of 372 000 people each year. The invention of the Dolphin1 water rescue robot is expected to enhance the efficiency of water rescue and reduce risks for rescuers under various streamflow conditions.



On 9th August 2022, Dolphin1 Water Rescue Robot successfully rescues a drowning teenager from the rough waves. At around 18:00, the Shao Police Station of Weihai Maritime Police Detachment receives an alarm for help. A 15-year-old youngster is swept out to the sea, approximately 100m far from shore, by a strong undercurrent when he is swimming along the coast.

### A Vehicle Used to Search all Environments...

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- Highly Portable
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- (4) high output motors
- Pan & tilt front AND rear cameras come standard
- Starting at \$20,995



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 www.jwfishers.com

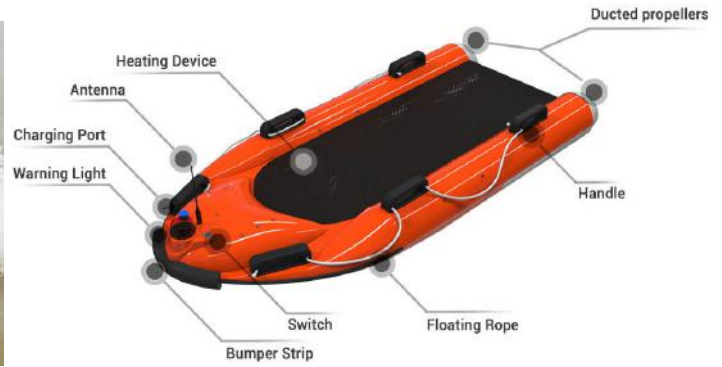




# WATER RESCUE DRONES/SUVs

# STRETCHERSUV

SPECIFICATION	DOLPHIN1	STRETCHER
Hull Material	High Density Polystyrene	Carbon Fiber
Dimensions	119cm x 85cm x 20cm	168cm x 73cm x 26cm
Weight	13kg	30kg
Propulsion	Water-jet	Water-jet
Max. Speed	7.5mph/ 12kmh/3.3mps	10.5mph/16.9kmh/4.7mps
Duration	30 mins@3.3mps 60min@1 mps	60mins
Payload	225kg	200kg
Buoyancy	32kg	30kg
Control Range	800m	800m
Bed Heater	-	>27.2°C
Thruster Power	1800W	-
IP rating	67	67
Approx Cost	TBA	£5500
Website	www.oceanalpha.com	



## Paris Fire Brigade (Brigade des sapeurs-pompiers de Paris, BSPP) Trials the DOLPHIN

Apologies for the poor quality screen grabs showing how the Dolphin is easily transported - in this case with the rescuer climbing a dock ladder with it on his shoulder. Above: the Dolphin is towing two relatively large, male firefighter 'victims' in full wetsuits. The spec says a top speed of 9mph /7.5mph but that's unloaded so the return journey will always be proportionally slower.



# Hybrid (MULTISCENDER) devices

## for Ascending/ Descending/ Work Positioning

This Guide deals with stand-alone hardware for ascending/descending/Work positioning. The more traditional and modern equivalent systems utilise a prusik cord and some associated hardware like the Hitch Climber, Rope Wrench, HitchHiker etc. and proponents will say that these are better systems. They are certainly cheaper and generally lighter. The system on the right is typical of a modern prusik system utilising either a Bachmann's or Klemheist or, in this case the highly favoured Valdotaín Tresse. It has a Rope Wrench attached to a stiffened 'lanyard' and both are straddling a HitchClimber pulley attached to your rope bridge or main hard-point connection. The Wrench diverts load away from the hitch and makes it easier to control. The whole system is relatively inexpensive but it's quite an expansive set up and takes time to set up and/or change around relative to the subject of this Guide, Multiscenders. Both options require the same amount of supporting ascending items to create a more efficient ascent system. For a multiscender to be more efficient than simply foot-locking the rope around your boot you'll need a foot and/or knee ascender but technically, the hardware we're talking about here is all that you attach to your harness. You can use it to get into the tree, get out of the tree and work around the tree while you're in the canopy. Then there is the eternal question of SRT versus DdRT. DdRT uses two ends of the same rope and so gets a 2:1 advantage which makes taking in during ascent easier, it also makes descent mode more controllable. In contrast it could be said to be less efficient than SRT because you have to pull twice the amount of rope to move the same distance you do with SRT. Fight it out amongst yourselves. Some of these devices will do both SRT and DdRT.

As a definition, 'Hybrid' is not truly accurate as the term could equally be applied to a few other items of rope hardware that fit more than one usage category like the CMC MPD



# FROM THE ARCHIVES

*This article is from ARBCLIMBER issue 10 in 2017 and covers hardware that was mostly unique to arborists but would certainly have caught the eye of other rope-user sectors if only because it was shiny metal. With one or two updates- particularly to the ZigZag and RopeRunner, these devices are all still used and available and the Akimbo, mentioned below is still a popular device. We used the term 'Multiscender' with an 's' as outlined in the Editor's Notes below from that issue and it seems to have stuck but we do still see it spelt with and without the 's'. Note that our tables back then still bled across the centre-spine - we hadn't learnt to add in a gap column so that the text was easier to read and letters weren't lost! This was the original 'introduction'....*

*This issue [ArbClimber#10] we take stock of the current crop of metal thingies.. not quite sure what to call them...., hybrids, multiscenders, multicenders, mechanical prusiks? Mechanical prusiks is the most descriptive and easiest to associate and would have been my preferred option but it seems to have been overlooked by the manufacturers probably because it isn't quite accurate due to the free-fall descent capabilities of the hardware. Perhaps they just want to get away from the word 'prusik'. We've used the term 'hybrids' as have a number of others in the industry but as we mention in the article that term could equally be applied to loads of other multi-use devices. Which leaves Multiscender. We spell it with an 's' because that's what we've always used and it seems to make sense since it's a cross between an Ascender (with an s) and Descender (also with an s). I think the dropped 's' was Rock's fault when he bought out the Rescuecender. I think they got the spelling wrong in an initial press release or something but then carried on as if they had meant to spell it that way?*

*We've included some 'garage' devices and in the case of the Bone and BOLA by Gordon Svedberg these truly are being sold 'out-of-the-garage' but there's clearly no certification so it's an 'at-your-own-risk' kind of deal. When Jaime Merritt's Akimbo makes it into shops in the next few months courtesy of Rock Exotica it might be the latest saviour of modernity and convert another generation of arborists from prusik cord or it might come and go without much fuss and be quickly replaced by the next greatest thing since sliced bread. It looks promising though. A word of caution; don't get out of the habit of using prusiks. It's a good idea to have a set cords (or Purcells as they're known in rescue) in your overalls or trouser pockets just in case you ever need to get out of trouble. You don't want to end up having to escape from a canopy doing the James Bond thing with your boot laces only to find you've forgotten how to use them and then, to add insult to injury, your boots drop off.*



CONTINUE to...

# BEWARE of ONLINE GUIDES & REVIEWS

We mentioned this last time but it seems that online reviews have reached epidemic proportions since Covid lockdown! While they can be a useful source of information, we continue to see mostly very superficial reviews, sometimes no more than a desktop review 'out-of-the-box'. The problem is not so much the face-to-face YouTube reviews because you can tell whether the review is comprehensive and they've covered the stuff you might have asked but the less transparent 'Top Five' products articles. They are often so limited in their scope, with some obvious market leaders excluded, that alarm bells should be ringing but of course that would only be the case if you already had a decent knowledge of what they're presenting. We don't have a problem with linking the item being discussed - we often do that in these E-mags and latterly in the digital versions of our magazines to make it easier for readers but that will almost always be to the manufacturer not a regional shop or distributor.

As we said last time...., you need to be able to compare any given product with as many of its contemporaries as possible to know how good it actually is. That's why we ended up bringing all reviews in-house, albeit with quite a wide cross-section of expert users. We were/are using new kit every week and more than that, are able to push the outer envelopes of their intended use by using them across a range of disciplines that they may not even have been designed for. This may seem a little unfair but, in our experience, if kit can be abused, it will be. Having an idea of what constitutes failure potential, however outlandish that might be, is useful information though we don't always report the details on this!

There are a number of online reviewers who may have started out with limited scope but are now well versed in how the latest bit of kit compares to the competition and these sites are very good. But there are unfortunately also a whole load of 'reviews' and 'Best Gear for 2023' type things that are not quite bogus because they often have a decent top-pick but it's not necessarily the best for any number of reasons not included in the 'test-criterion' which only seems to include name, cost and where you can buy it, in fact a direct link to the Amazon page! That's a fair indication that they wouldn't know the product if it hit them in the face and what info they have provided is second hand from other online 'reviews' and 'guides'.

## MARKET GUIDE

as a descender/lowering/progress capture device or SMC Advance HX and Petzl Traxions as pulley/progress capture devices, but are in no way similar to the 'Hybrids' in this article which are used routinely as combination ascender/descenders and for work positioning. Even that definition is a little misleading because Petzl GriGri, the Taz Love and indeed many autolocking descenders can be used for progress-capture and therefore as a make-shift ascender as well as descender and for work positioning due to their easy take-in of slack (slack-tending). But they won't tend slack automatically when you pull them up the rope. Nope, you are required to physically pull the tail/trail-rope through those devices as you ascend which is one of two things that sets them apart from multiscenders and you wouldn't use them in place of a prusik-hitch ascending system which is the Holy Grail that multiscenders aspire to. Not that it has ever been acceptable to descend at speed using unmitigated rope prusiks but that's what a lot of old-timers did (do?). The safer option is to switch to a dedicated ascender so really, the 'Holy Grail' is to effectively replace an ascender or prusik hitch system AND a descender with one device and these are more accurately described as 'multiscenders'. Incidentally, it might seem like the concept of 'multiscenders' is new but we were discussing them in UK caving circles back in the early eighties. Not forgetting of course that pretty much everything we do in SRT including the original development of autolock descenders by Petzl with the STOP stems from caving. However, the most recent crop of devices highlighted in this article may have more to do with the original Jumars than the Stop descender, take a look at the silver ascender above from an Iranian climbing group that credits this device as the fore-runner of the iconic yellow Swiss Jumar so is presumably from midway through the last century - does that chain link style grip look familiar?

In terms of development of the artificial prusik we should probably credit ART with that because their original LockJack has been around for a good many years. I remember picking one of the early versions up from the lads at Royal Kew Gardens Arb section back in the nineties and it's still hung in my workshop but it didn't look anything like the slick model you see in the picture on the previous page. It has taken a long time between Hubert Kowalewski's first model and now to kick-start the development of 'artificial prusiks' and that has everything to do with the dramatic switch from traditional tree climbing methods with rope-on-rope systems to 'technical' climbing using an ever widening array of hardware and sophistication. Once companies from the technical ropes arena like DMM, Petzl, Rock Exotica, ISC etc. got involved, expansion and development mushroomed. And yet.... When you look at the hybrids in this *Guide* it's perhaps a little surprising that not only are there not many, but the majority, starting with ART but later typified by Morgan Thompson's Unicender and Kev Bingham's RopeRunner (pic right) have been developed within the arb industry before being taken on by the metal wizards. Admittedly, in the case of the Unicender, which for many years was the only such device



# FROM THE ARCHIVES



UNICENDER — SINGLE ROPE CONFIGURATION

INITIATING DESCENT

CONTROLLED DESCENT

available, it was an obvious and short route from Morgan's original idea to his namesake's company taking on development and production but nevertheless it was still an idea born outside of the rope access and rescue mainstream. The promising looking GET Int. Line-Boss pictured right, went out of business a while back. Kev Bingham's RopeRunner was awaiting a mk2 but that seems to have stalled and Jamie Merrit's Akimbo (right) is also now made by Rock Exotica. All have gone from garage prototype to an 'elite' level production and perhaps Gordon Svedberg's Bulldog devices will go the same way. But for now, Petzl's ZigZag represents the main incursion of the 'technical-ropes' mainstream into the arb sector rather than the other way around. Following in ART's footsteps the ZigZag has most closely followed doubled rope technique (DdRT) and the traditional functioning of a closed-loop/split-tail prusik systems but even so it has struggled to achieve the universal acceptance we might have expected initially. This is partly because it doesn't allow mid-rope attachment but that hasn't stopped ART so it's mainly because of an early mishap and recall which spooked the market. It's fair to say that the ZigZag may have missed its original window which might have made it as universally common in the arb world as the GriGri became in the sport climbing world.



All of the devices in this Guide appeal to the techies and repel the traditionalists. Techies are the shiny-metal fetishists who will always be happy to buy and experiment with anything new that weighs more than a traditional prusik and is...well.... shiny. And for most of these devices you need to be a bit of a techie because they're not for beginners. Any thoughts of making life easier for those who weren't overly proficient with traditional methods could result in an early visit to the ER. Take a look at Unicender's various control functions in the pictures above. Once you're used to them and especially if you've used a range of other technical devices it all comes together quite easily. Novices on the other hand should cut their teeth on rope prusik systems first and especially using the Rope Wrench which was Kev Bingham's revelation in diverting part of the



load away from the knot (or indeed any compact multiscender) and making them much easier to control. Outside of Germany there has been a preponderance of 'chain-link' style devices since this is the primary way for metal to function in a similar way to a prusik. The Uncender is a chain link, Zig-Zag is a chain link, RopeRunner is a chain link, Bone is a chain-link and Akimbo is an alien chain link. The Germans on the other hand, in the guise of those complex metal artisans ART, have continued to evolve their original RopeJack which now looks every inch the most sophisticated device on the market as the SpiderJack. These might look intimidatingly complex but all four current ART devices are actually quite straightforward modifications to the LockJack's original locking mechanism enhanced by various handles and casings and Dyneema (in the case of LockJack 2.1). Their function is as smooth as their design curves, in fact, the slack tending on ART devices is so efficient that the latest variant, SpiderJack3 has a secondary lock that you can engage (black handle in the pic below).

This is not to prevent slippage, because it's actually as auto-locking as any of the hybrids in this guide, but to prevent rope take-in when moving around the canopy. Even without the weight of trail-rope beneath the Lockjack it will self-tend so efficiently that you might be at your required work position and simply adjust your hips for comfort, only to find that LockJack has shortened more rope and put you slightly out of position! Hence the extra locking position - brilliant when you have to add a feature because your device is TOO efficient. SpiderJack3 also added a pulley for more efficient redirection of the trail rope when limb-walking and was orientated to make it easier to use with left or right hand.

The one thing we can say for sure about ALL hybrid devices is that they must squeeze the rope between two metal elements somewhere along the line. Whether that's in a camming action, a simple squeeze or a moving chain link where the hole's alignment alters the friction, it means that there are varying degrees of friction within your system that also affect:



The Spiderjacks have a secondary wooden brake on the top arm on each device. The wood is most visible as the brown section on the left. This Spiderjack 2.1 also shows a Dyneema extender which the Aussies came up with as a way to attach the other end of the doubled rope and keep it out of the way of the harness attachment eye at the bottom and make changing ropes easier. 2.1 is available with or without the Dyneema extender but there's only about a \$10 difference whereas to buy the kit separately costs about \$65.

- 1) how well it functions as an ascender, and allied with this...
- 2) how efficient it is in NOT losing progress and efficiency to drop-back
- 3) how forgiving the start-stop function is
- 4) how easily it switches between modes

The ground-breaking LockJacks seemed to suffer more than others with wear to 'metal components' which, to be fair, could be replaced easily enough but in their second version they introduced that rather odd second rope-contact point made of wood (the brown section in the SpiderJack picture above) . It just shows that you can't beat natural materials and in this case the

robust nature of a tough hardwood adds a second friction brake to mitigate wear on the original metal cam/pins. In fact, the wood is really the primary friction plate since it's the first contact point and climbers proficient with its use can apply finite levels of friction such that spectacular fliers of dozens if not hundreds of feet are possible. Proficiency is the key to smooth starts on LockJacks but the Zig Zag and Akimbo have an action that seems to give much gentler transition from stopped to moving (in descent) mode. Certainly far smoother than the Uncender and RopeRunner which take more getting used to. This is not surprising with the Zig-Zag since it is a permanent DdRT device with that short 'bike-chain' but Akimbo functions this way on single rope which is very promising. The Akimbo also exhibits minimal drop back in ascent mode, something the Uncender is also adept at but others struggle with. You can get used to working with drop-back but it's better when there isn't much.





Loading the Akimbo is kinda like opening a piece of garden trellis. It threads mid-line and has easy alteration of cam distances to suit different ropes and weights without the need for a tool.

Descending mode is quite obvious with most of these devices and you could easily purchase any of them specifically as a descender but it's in providing an efficient ascending or in reality a rope-holding capability that sets them apart. Some SRT devices like the Akimbo provide an eye specifically for attaching to your chest harness or neck loop, Rope Runner provides a similar, if more ad-hoc, tie-in option and the Bone also has an ad-hoc option with a cord eye or you can use that middle integral eye. As mentioned earlier, you could ascend by simply jamming the trail rope between your feet in a sit-stand kind of action so that you start with knees bent and the rope foot-locked and as you stand on the jammed rope your device is either pushed

up or dragged up with you - **this is something you COULD NOT DO with an autolock descender like the GriGri or Taz because you would need to pull rope through and is what sets these arborist hybrids apart.** It is of course far, far more efficient to use a foot ascender and a floating knee cam to provide an efficient SRT rope-walking system where the hybrid provides the uppermost progress capture and foot and/or knee provide almost effortless ascending. 'Effortless' - I wish. At my age it's more akin to watching a climbing walrus but it's still climbing. Anyway, the additional tie-in point to a chest or neck attachment or a shoulder strap will simply drag the device up the rope when you stand up on the foot and/or knee ascender. This negates the need to waste one of your hands pulling the multiscender up the rope and can instead give more oomph to your upwards progress. Your legs are much stronger than your arms so unlike a traditional ascending system a multiscender rig takes all effort away from your arms which are simply used to hold the rope above the multiscender for balance. In practice, most climbers can't resist pulling up on their arms as well to gain some speed but for the more efficient systems it's not necessary. Some of these devices, in particular the RopeRunner and Unicender impart some friction due to the amount of rope-contact points and this can sometimes benefit from some extra arm assistance in ascent mode.

If I could offer just two pieces of advice it would be:

- 1) Be aware that in descent-and descent-restart mode with an

arb multiscender, not only is there is no 'anti-panic' brake as there often is with regular SRT descenders but managing the trail rope doesn't work in the same way. The open-channel design of the mechanical rope grab means that when you find the sweet-spot there is virtually no friction at all so the normal trail-rope grabbing to negate any inadvertent and unexpected freefall is quite ineffective. That's why so few quote an MBS because it would slip rather than break. This is highlighted by the Lockjack/Spiderjack which requires your full bodyweight to activate, consequently if you mitigate this by grasping the trail rope the Lockjack's brake will continually slip - it's not a problem, it's simply a quirk that you need to get used to when using this style of device. For those used to cam or bobbin descenders some reorientation is required.

2) test your new device on your particular rope BEFORE you get anywhere near your next job. All hardware functions differently on different ropes and some are far more selective than others. Indeed some, like the RopeRunner, actually specify a rope construction, 24 strand rather than 32 but there's enough variance in rope construction for you to try all sorts. This kind of specificity doesn't mean they're bad devices, it might be that the perfect union of one device and one specific rope represents the very best thing on the market. But either way, make sure you try out your specific rope in safety first and that you check again further down the road when you change your rope.

In the following tables we have listed the current crop of arb multiscenders. Bear in mind that some countries like Germany preclude use of non-CE devices by law. We've included the BOLA, a cut-down version of the Bone, even though it's technically a lanyard adjuster (just as the Zillon is a cut-down version of the Zig-Zag). This is because it still functions as a multiscender in its own right albeit for DdRT only and with greater limitations than the full size Bone. It is very compact though. As always with these guides, ticking the most boxes doesn't necessarily make that product the top-dog. The old saying 'Jack-of All Trades- Master of None' could apply so be careful when considering what's best for you. Guides like ours tend to be able to narrow the field to your specific requirements rather than indicate the best and the worst.



The Bulldog Bone is not yet mass-produced but available from the maker under strict 'non-liability' conditions.



images  
NOT to scale

MODEL


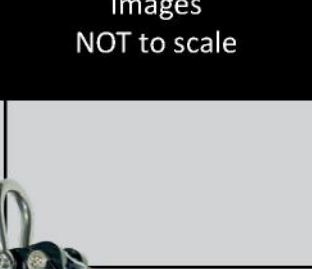







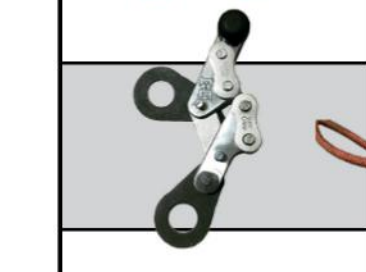












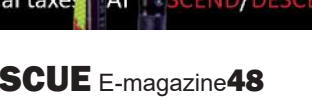



COMPANY

ORIGIN

COST

WT

DIMS  
(height x width  
x depth)

		LockJack Sport Basic	ART		£175 €236	290g 10.2oz	200x60x70 7.9 x 2.4 x 2.8
		LockJack Sport (swivel)	ART		£210 \$261 €261	310g 11oz	200x60x80 7.9 x 2.3 x 3.1
		SpiderJack 2.1	ART		£210 \$275 €237	240g 8.5oz	130x50x90 5.1 x 2 x 3.5
		SpiderJack 3	ART		£250 \$350 €330	500g 1.1 lb	170x45x120 6.7 x 1.8 x 4.7
		BOLA	BULLDOG		custom	n/a	n/a
		Bone	BULLDOG		custom	n/a	n/a
		ZIGZAG	PETZL		£186 \$280 €205	320g 11.25 oz	115x87x25 4.5 x 3.4 x 1.0
		Akimbo	ROCK EXOTICA		TBA	318g 11.25 oz	102x108x42 4 x 4.2 x 1.7
		Unicender	ROCK EXOTICA		£240 \$309	308g 10.9oz	155x76x55 6.1 x 3 x 2.2
		ROPE RUNNER	SINGING TREE		\$349	246g 8.7 oz	159x75x45 6.25 x 3 x 1.8

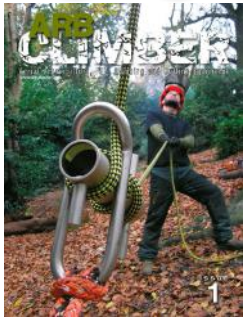
NOTES: COST: INCLUDES local taxes. ART: ASCEND/DESCEND: All these devices do both but a white box indicates less efficiency, generally



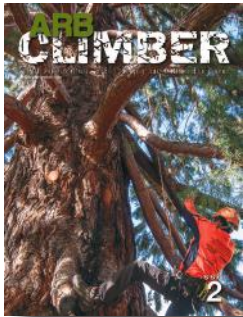
Width (mm)	STANDARDS	MBS ABS	WLL SWL	MIN ROPE DIAM	MAX ROPE DIAM	SRT	D&RT	ASCEND	DESCEND	ADJUST	MIDLINE ATTACH	INTEGRAL SWIVEL	INTEGRAL ASCENDER EYE	PROTOTYPE only	COLOURS	NOTES	WWW
10mm 2.75"	CE	28kN		11 7/16"	13 1/2"		■	■	■	□	■	NO	■		Black/red	Fixed carabiner eye. All components replaceable. Approved for two person load	climb-art.de
10mm 3.1"	CE	28kN		11 7/16"	13 1/2"		■	■	■	□	■	■	■		Black/red	Swivel carabiner eye. All components replaceable. Approved for two person load	climb-art.de
10mm 3.5"	CE	28kN		11 7/16"	13 1/2"		■	■	■	□	NO	NO	■		Black	Available with Dyneema extender - add approx £25/\$60 and 40g. Approved for two person load	climb-art.de
10mm 4.7"	CE	28kN	200kg 440 lb	11 7/16"	14		■	■	■	□	NO	■	■		Natural/ black/red	All wearing parts are replaceable. Approved for two person load	climb-art.de
	no	n/a	n/a	11 7/16"	13 1/2"		■	□	□		■	NO	■	■	Natural	Designed primarily as a lanyard adjuster. Early version 11mm only	-
	no	n/a	n/a	11 7/16"	13 1/2"	■	■	■	■	NO	■	■	■	■	Natural	Swivel is a retrofit, original has a fixed eye. This and the BOLA has evolved from the original OAR or Offset Ascending Rack	-
9mm 1.1"	CE	n/a	n/a	11.5 7/16"	13 1/22		■	■	■	NO	NO	■	■		Gold		petzl.com
10mm 5"	pending	n/a	n/a	n/a	12.7 1/2"	■	□	■	■	■	■	NO	■	■	Black/red		rockexotica.com
11mm 2"	no	n/a	140kg	11 7/16"	13 1/2"	■	■	□	■	■	■	NO	□		Orange	SRT Barrel attachment available to improve frictional adjustment. Not officially sold in Europe	rockexotica.com
15mm 1.8"	no	22.7 kN 5000 lb	125kg	11 7/16"	13 1/2"	■		□		□	■	NO	■		Blue, Gold, Black, 'camo'	Not officially sold in Europe	singingtreedetroit.net

due to friction ADJUST: Can be altered for rope size or bodyweight by hand or. □ with tools PROTOTYPE: ■ not in full 'mass'-production

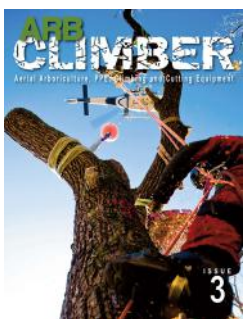
# ARB CLIMBER CONTENT



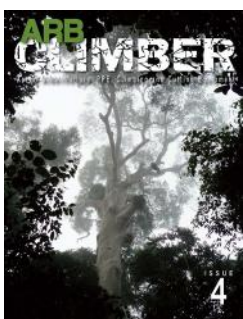
- **MARKET GUIDE: HARNESSES**
- AERIAL RESCUE: pt1 - Jo Hedger
- GEAR REVIEW:DMM Impact Blocks
- ROPE TRICKS: pt1 Double Ropes by Jeff Jepson
- BACK to BACK: MultiTools #1
- FIRST AID:- Severed Fingers
- CHAINSAW TECHNIQUES: One-Handed vs Two Handed Cutting
- GEAR REVIEW: Haix Boots
- GEAR SPOTLIGHT:The Wrench Explained by Kev Bingham



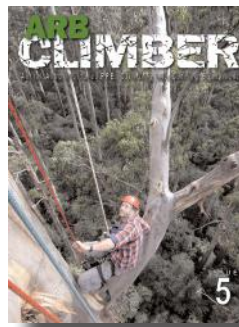
- **MARKET GUIDE: HELMETS**
- Chainsaw Protective Boot Tests
- ROPE: SRT DRT Knots
- SPECIAL: Big wood - Calculating Pendulum loads
- TECHNIQUES: Aerial Chainsaw Cuts
- REVIEW: CAMP Harness
- AERIAL RESCUE: pt2 by Jo Hedger
- New Hardware



- **MARKET GUIDE: TREE CHAINSAWS**
- AERIAL RESCUE: pt3 DdRT Pick Offs
- ROPES: Rope Tricks pt3 - DRT Climbing Hitches by Jeff Jepson
- REVIEW: Petzl ZigZag
- SPECIAL: Using Helicopters instead of cranes by Nikola Dentshev
- SPOTLIGHT: Wrench Update
- SPOTLIGHT: The Frontier Harness
- ROPES: Safe Ascent -Bridge&Cowell
- CHAINSAW USE: Positioning to make the cut by Thomas Amorim
- REVIEW: Teufelberger CE Lanyard s



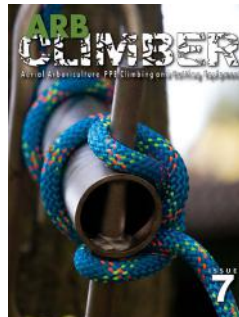
- **MARKET GUIDE-CLIMBING ROPES**
- RECALL: Petzl ZigZag
- REVIEW: CT Quick Arbor Ascenders
- BACKtoBACK: Multitools from Leatherman & Gerber
- SPECIAL: Big Wood - Tropical Canopy Access -Waldo Etherington
- ROPES: SRT: Mechanical Prusiks from Kev Bingham
- CHAINSAW USE: Managing the saw while aloft pt1by Thomas Amorim
- BOOK REVIEW: TCIA SRT-Best Practice



- **MARKET GUIDE: RIGGING ROPES** pt1
- SPOTLIGHT: The HAAS Ascending Rig
- SPECIAL: Arboreal Fungi
- CHAINSAW MAINTENANCE
- ROPES: TIE-IN-Point Selection
- REVIEW: Abortec Forestwear Socks
- IN USE: Safe Chainsaw use aloft pt2
- SPECIAL: Climbing Roaring Meg
- REVIEW: CAMP access Harness



- **MARKET GUIDE- RIGGING ROPES** pt2
- COVER: ArbPro StepN'Go Boots
- REVIEW: SHERRILLTREE Rook pulley
- SPECIAL: Battery Chainsaws
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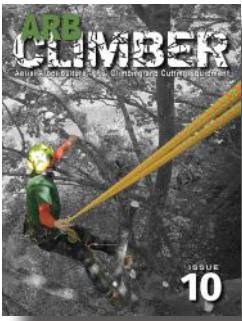


- **MARKET GUIDE: CHAINSAW BOOTS**pt1
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- REVIEW: CMI Rope Jack:
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- BACK to BACK: Top 5 Multitools
- CHAINSAW MAINTENANCE:- replacing a broken clutch spring
- SPECIAL: Gear to Have in 2016

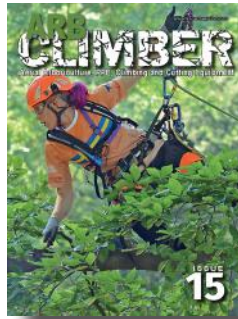


- **MARKET GUIDE: CHAINSAW BOOTS**pt2
- COVER: CMI Rope Jack
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- Review ECHO CS 2511 TES Chainsaw
- Maintenance - Starting issues
- Mini Pulley Systems - The Aztek and the DMM RPM
- TCIA Books: Arborist First Responder Field Guide





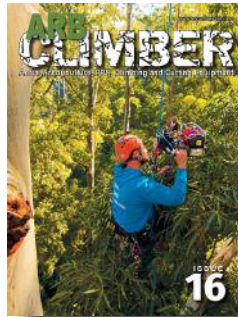
- MARKET GUIDE: HYBRID DEVICES
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- COVER: CousinTrestec Atrax Rope
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- GEAR REVIEW: Edelrid TreeCore Harness
- BOOK REVIEW: TCIA Aerial Rescue
- GEAR REVIEW: Unilite 3000 Area Light



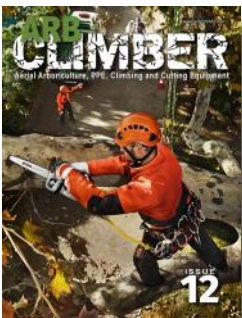
- MARKET GUIDE: ROPE WINCHES
- MARKET GUIDE: TOOL HOOKS/CLIPS
- COVER: Bo hammerstrand
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- COVER: DART - Makita saw used by Disaster Arborist Response Team
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- REVIEW: Peli Trauma Case
- KNOTS/HITCHES: pt 1 Prusiks
- WELFARE: Managing Worksite Micro-Environments



- MARKET GUIDE: POWER WINCHES
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- ON-THE-JOB: Chris Girard deals with a lightning struck tree
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- MARKET GUIDE: IMPACT PULLEYS
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- REVIEW: Arbortec Python Kit Bag
- KNOTS: Beginners Friction Hitches pt 2 Klemheist & MT
- TECHNIQUES: Using Rigging Plates
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continued on next page.....



- MARKET GUIDE: CHAINSAW GLOVES
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- REVIEW: EDELRID Spring Bag
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- COMPETITIONS: The Competitive Edge by TC Mazar
- ITCC Ohio & Euro 2018 Results
- UK & Ireland TCC 2018 Results
- KNOTS: Beginners Guide to Friction Hitches pt 3 Schwabisch
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- MARKET GUIDE: LOWERING DEVICES
- COVER: Rock Exotica Akimbo
- REVIEW: Leatherman Rebar versus Rev & Wingman
- GEAR Rock Exotica Akimbo
- WELFARE: Protecting the Body GEAR: Testing the ZigZag for SRT/SRS by P.Brandt/R. Mumford
- KNOTS: Beginners Guide to Friction Hitches pt 4 Distel Hitch
- CRANES & HELOS: Give it to the Gods by Jimmy Hughes

**AZTEK SYSTEM**

# AZTEK

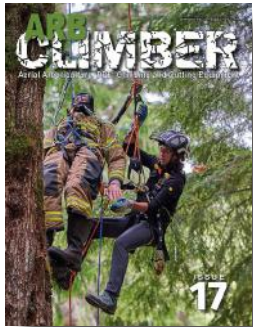
**AZTEK Omni™**

COLOR CODED    EDGE RESTRAINT    LOW TENSION RELEASE

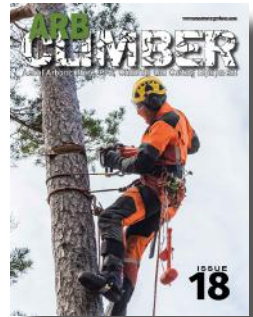
SWIVEL CONNECTION    50' CORD LENGTH

**ROCK EXOTICA**

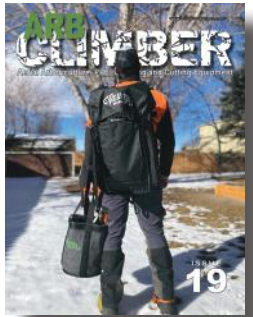




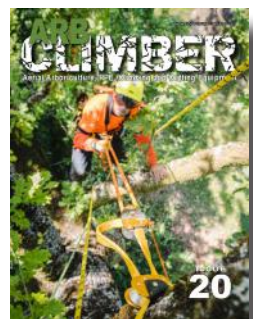
- MARKET GUIDE: HANDLED ASCENDERS
- COVER: Aerial Rescue Challenge USA
- TECHNIQUES: The Art of Cabling
- ROPE TECHNIQUES - International SRT pt2 by Paul Poynter
- ON-THE-JOB: Chris Girard - Storm damage
- STANDARDS: Mandating Two-Rope Working in the UK/EU
- GEAR REVIEW: Petzl Sequoia Harness
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- MARKET GUIDE: NON-HANDLED ASCENDERS/ROPE GRABS (Chest, hand & Emergency)
- COVER: Petzl Vertex & 'Covid mask'
- GEAR REVIEW: Petzl Vertex Helmet (2020)
- GEAR REVIEW: FTC 11.7mm Argiope
- GEAR REVIEW: Echo DCS-2500T 50v battery Chainsaw
- RECREATIONAL CLIMBING: Just for the Hell of it...pt1



- MARKET GUIDE: BATTERY BLOWERS
- MARKET GUIDE: 11.7MM ROPES
- COVER: Weaver Rope Bags
- GEAR REVIEW: Edelrid Climbing spikes
- GEAR REVIEW: Pine Sap Remover
- REC CLIMBING: Where can you Climb?
- COMPETITIONS: Treepalooza 2020 by Michael Oxman



- MARKET GUIDE: BACK PACK BATTERY BLOWERS
- BACK-TO-BACK: FRENCH HARNESSSES
- COVER: PETZL Eject Cambium Saver
- GEAR REVIEW: Ego Battery Chainsaw
- GEAR REVIEW: Atlantic Braids FLEX24 Rope
- SPECIAL: Electronic Kit Marking Systems
- REC CLIMBING: Crossbow Linesetting by Michael Oxman
- REC CLIMBING: Sleeping in the Trees by Charlotte Ina Sterland

## EXPLOSION-PROOF ROPE?

[ED: This is an unusual, niche product!]

### Pro-ATEX11

**Semi-static rope type A, verified for usage in explosive atmospheres.**

Verified for its usage in ATEX environments by Applus, satisfies the point 2.6 of the annex II of the regulation EU2016/425. The rope allows a normal usage including the utilization of ascenders, descenders, fall arresters and even to make knots.

It has an inner structure of tinned copper, providing a great longitudinal electric conductivity. The special design of this copper structure achieves a good elasticity although being metallic, guaranteeing excellent performance as semi-static rope. Furthermore, it remains structurally integral, maintaining its conductivity even after having suffered impact loads.

The braided sheath incorporates numerous micro-capillaries of silver, which turns it in a capacitive material. The silver allows transporting any charge of static electricity from the exterior to the conductor material inside the rope. Through this, the electricity is driven out to ground thanks to the grounding included in the sawn terminals of the rope edges.

The charge transport is made inside the rope, so keeping it away from the explosive environment. This eliminates the creation of static loads in the operator or around the rope. So, it is avoided any possible spark which could originate an ignition and a possible explosion.

By means of a multimeter, the operator can check the correct status of the rope for its usage in ATEX environments. Not available on the market before obtaining the certification.



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# RECALL NOTICE

# ROCK EXOTICA OMNI 1.1 PULLEYS & VARIANTS

MADE FEBRUARY 2020 THROUGH OCTOBER 2022

Download the Omni Recall Notice (PDF):  
*Retirada de Omni (Español).pdf*

Recall Submission Forms:

*Online Return Form (US Customers Only)*

*Online Return Forms (Worldwide & Outside the US)*

The entirety of the content listed below is available in a printer-friendly PDF in the files listed above.

### The button assembly on a limited number of 1.1" Omni

**Swivel Pulleys and associated variants may not be secure.** If the button comes out the side plate can open, allowing the rope to fall out which can result in serious injury or death. It was discovered that a small number of pulleys manufactured from February 2020 through October 2022 may not have had adequate thread locker or sealant, allowing the set screw to back out. Under normal circumstances, either the thread lock or sealant is adequate to secure the button and prevent this issue.

Rock Exotica is issuing a recall for Omni Block 1.1" style pulleys, manufactured from February 2020 through October 2022. These pulleys must be returned to us for inspection / repair.

Rock Exotica is also issuing an inspection notice for all Omni Block style pulleys made from 2018 to current. Pulleys can be inspected by the user / competent person, or if you are not comfortable doing the inspection, you can return it to us for inspection. Inspection criteria is detailed at the end of the document.

Additionally, as a reminder, all products should be inspected before and after each use. For Omni pulleys, the buttons and set screws should be a part of this inspection, along with checking for cracks / deformation / corrosion, the action of the side plate, sheave and swivel eye, bolts, and general condition. Accordingly, we are including supplementary information on checking the button set screws for earlier Omnis made before 2018.

Recall Notice for Omni 1.1" Pulley Variants, 20050xxx through 22304xxx: Stop Use, Remove from Service & Return to Rock Exotica Follow these steps to determine if your Omni Pulley is subject to recall:

- Verify the model number of your Omni Pulley as a 1.1" variant.
- Find the serial number on your Omni Pulley.
- IF the serial number falls on or within the range of 20050xxx to 22304xxx, then your Omni Pulley is subject to recall and must be returned to Rock Exotica. Follow the instructions on page 4 of the Omni Recall Notice to return your pulley for inspection or repair.

### IDENTIFYING YOUR OMNI PULLEY MODEL

Use the information below to identify your model, matching the correct part number along with the description.

Rock Exotica 1.1" Omni Variants  
Part #, Description

### IDENTIFYING YOUR SERIAL NUMBER

The Recall dates span from February 2020 through October 2022 for



the 1.1" Omni Pulley. The serial numbers that correspond are shown in the box below. Also shown are the three possible locations of serial numbers on the back of the Omni.

20050xxx to 22304xxx

\*If you have any questions about whether your serial number falls within this period, please contact us at [recall@rockexotica.com](mailto:recall@rockexotica.com)

Inspection Notice for Omni Pulleys from 2018 to current: Inspect Before Next Use. Follow these steps:

- Identify the location of the set screw(s) on your Omni Pulley.
- Compare the images in the inspection criteria to your pulley.
- Follow the inspection instructions to determine if you are required to return your pulleys for additional inspection by Rock Exotica and repair if necessary.

If you are not comfortable doing the inspection, you may return your device(s) to us and we can perform the inspection for you. See details on returning your device **for inspection on page 4.**

### INSPECTION EVALUATION (from 2018 to current)

The inspection criteria below apply to Omni Pulleys manufactured from about 2018 to the current date. The serial number corresponding to this period begins at 18001xxx

#### Brownish / Yellowish

Sealant is even with or slightly below surface

STATUS: PASS

White / Grey

Sealant is slightly below, even with or above surface

STATUS: PASS

#### No Sealant

STATUS: RETURN

Brownish / Yellowish

Sealant is above surface

STATUS: RETURN

#### Rock Exotica 1.1" Omni Variants

Part #, Description

- P54 Omni-Block 1.1" (Single)
- P54-B Omni-Block 1.1" (Single/Black)
- P54-D Omni-Block 1.1" (Double)
- P54-D-B Omni-Block 1.1" (Double/Black)
- P54-SB-B Omni-Block 1.1" SwivelBiner Top Single/Black
- P54-D-SB-B Omni-Block 1.1" SwivelBiner Top (Double/Black)

#### All other Rock Exotica Omni Models

- P51-B Omni-Block 1.5" (Single)
- P51-B Omni-Block 1.5" (Single/Black)
- P51-SH Omni-Block 1.5" Shackles Top
- P51-SS Omni-Block 1.5" Stainless Steel Sheave
- P51-D Omni-Block 1.5" (Double)
- P51-D-B Omni-Block 1.5" (Double/Black)
- P53 Omni-Block 2.0" (Single)
- P53-B Omni-Block 2.0" (Single/Black)
- P53-D Omni-Block 2.0" (Double)
- P53-D-B Omni-Block 2.0" (Double/Black)
- P55 Omni-Block 2.6" (Single)
- P55-B Omni-Block 2.6" (Single/Black)
- MHP55 Omni-Rigging Block 2.6"
- MHP58 Omni-Rigging Block 4.5"

### Identifying Your Serial Number

The Recall dates span from February 2020 through October 2022 for the 1.1" Omni Pulley. The serial numbers that correspond are shown in the box below. Also shown below are the three possible locations of serial numbers on the back of the Omni.

20050xxx to 22304xxx

\*If you have any questions about whether your serial number falls within this period, please contact us at [recall@rockexotica.com](mailto:recall@rockexotica.com)

### Serial Number Format

2 2 0 0 1 X X X X X

YEAR of manufacture

DAY of manufacture

YEAR of manufacture

Omni - Block 1.1



**MEDICAL STUFF**

**VICTIM/CASUALTY  
HYPOTHERMIA BAG**



**WIGGY'S**  
**Sleeping Bags**

[ED: WSAR#12 has a review of the Wiggy's Superlite sleeping bag. This is not something we've covered much in any of our magazines because there are so many excellent climbing, mountaineering and hiking magazines that already cover such 'soft' equipment. Nevertheless, sleeping bags, tents and associated camping equipment are entirely relevant to emergency services, in particular to disaster response teams and long-range Search & Rescue teams including the military. When US manufacturer Wiggy's took out an ad in our rescue titles we were obviously intrigued as to why they would think that this would be a market for them in particular. Unlike some of our US and Australian editors (who knew the bags and prompted the review), what we didn't know at the time was that they were already deeply embedded within rescue and in particular the military and coastguard.

Our review of their sleeping bag touches upon some other comparative high-end brands because we thought it would be a useful exercise to take a more direct look at how specific models that we are familiar with, compare to these Wiggys bags and

to detail what else is in the Wiggys range. It's unusual for us to start a review without good prior knowledge of the company and so we took the unprecedented step of requesting a review without taking a deep dive into the products. Usually we know a product is good when we request it but this time we didn't want our perception to be coloured either way by overly positive and/or negative online reviews which invariably exist for consumer products. What we did know, was that a company producing a more technical product like the VCH/Hypothermia bag is more likely to be producing very good, consumer-oriented products like sleeping bags. The VCH is used by the US Coastguard in Alaska and it's hard to think of a more extreme environment than being wet in bitter sub-zero temperatures in Alaska in the rotor wash of an MH-60 Jayhawk! So it was low risk not to have done any homework on the sleeping bag because this VCH in their range is a fair validation of the serious intent of the Wiggys bags. If we had subsequently found out that a key part of Wiggys range of products was scatter cushions sold in Walmart we might have been concerned. Having finished



## WIGGYS VCH

### Bag SPECS:

- Waterproof interior and exterior fabrics
- The bottom is 1000-denier cordura and the lining and top are 200 denier Oxford nylon.
- Color is black on the bottom portion and the lining.
- The top comes in international orange or black.
- The insulation used is our L-12oz
- The zippers throughout are #10 YKK zippers
- The top half of the bag separates completely from the bottom half to easily place a victim and for sanitization washing after use.
- The zippers can be opened from either end and either side depending where it is necessary to provide service to the victim.
- There is a zipper in the middle of the foot/leg area to expose a portion of either leg, if that is all that is required.
- A pocket panel can be opened at waist level for mid section access.
- Each arm has an access point that does not require opening the zipper.
- For head trauma, individual sides or for the full head access can be exposed.
- A chest pocket is located inside the bag for necessary additional heaters.



- 8-man carry feature provides adequate space on either side of the bag for on foot extractions.
- Adjustable rescue litter straps run length and width on the underside of the bag.
- Weight is approximately 8 pounds. Compression stuff sack is 11" x 23" (uncompressed).

US National Stock: #6532014989681

Canadian N.S.N. / Nato Stock: #6530219148698 (orange)

Canadian N.S.N.: #6530219205924 (green)

Compression Stuff Sack: Included

COST: \$395

[www.wiggys.com](http://www.wiggys.com)

*the initial review of our sleeping bag, which is really just the most basic form of hypothermia protection, it turned out there seemed to be a mixture of good and bad press for Wiggys bags, with some of the bad press partly bought on themselves unnecessarily due to the rather unorthodox and outspoken views of owner-founder Jerry Wigatow and partly because some users have misconstrued the best use of these sleeping bags, perhaps based on their performance ratings, thinking they were getting a diminutive alpine-style bag. While some rescue teams do operate in something of an alpine expedition mode and mirror high performance, ultra-lightweight mountaineering equipment, most do not.*

*Performance allied with being extremely robust would be the preferred mantra for most rescuers and this is exactly what we found the Wiggys Superlite to be. There are some provisos and comments of course but definitely worth stealing for my own use and now, more often than not, chosen ahead of a pile of other bags as long as I haven't got to haul it's ass to the top of a mountain! Incidentally, the fact that we did end up putting the review into WSAR gives away the fact that it must have performed pretty well as we don't bother putting in rubbish and when we subsequently researched these bags in depth (very much the wrong way around for our normal modus operandi) we were very pleased to see a number of familiar names from our sector in some of the testimonials or online reviews countering some of the negative comments from ultralight purists.*

*See WSAR#12 for the full Wiggys SuperLight bag review.*



**Cascade Rescue litters are purpose-built to function as a patient packaging and patient movement system that exceeds the expectations of rescue professionals.**

Our NFPA Steel Litters and UL Certified Litters are ideal for difficult access and confined space rescues. Built in the USA, competitively priced, and manufactured by a company that has been in business since 1962. Our Professional Series Litters are what rescue professionals require in demanding technical rescues.

Rescues can be dangerous. **It's best to get gear from a company who understands that.**



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## DRONES/UAVs

# S. ALBERTA CANADA ASSESS DRONE FOR SAR & MEDICAL TRIAGE



Case Study: Delivery from altitude speeds remote medical assistance for search and rescue operations.

Researchers at the Southern Alberta Institute of Technology Test RPAS platforms to assist in search and rescue, as well as Remote Guided Medical Triage

### BACKGROUND

The *Southern Alberta Institute of Technology* (SAIT) in Calgary, Alberta, Canada is one of the foremost researchers of innovative applications for Remote Piloted Aircraft Systems (RPAS) technology. Through its *Centre for Innovation and Research in Unmanned Systems* (CIRUS) and *Applied Research and Innovation Services* (ARIS) department, Institute researchers and their students work with an array of clients exploring novel applications for drone technology. Institute research projects have ranged from applications for oil and gas exploration, environmental monitoring, search and rescue, and remote delivery of medical services. The *Applied Research* lab works with both public and private partners to conduct impartial testing of these cutting-edge applications, providing the necessary results and procedural knowledge to move from proof-of-concept to production.

### CLIENT NEEDS

As part of a joint project with the *University of Calgary* and *W21C*, the research division for Foothills Hospital, one of Canada's largest health facilities, SAIT researchers leveraged drone delivery to bring COVID test strips to remote indigenous communities. Extending testing capabilities into remote areas introduced added convenience to residents who would have had to travel long distances to a testing lab, and ensured residents limited their potential for further viral exposure. Ultimately, SAIT researchers demonstrated the test kits could be safely transported by RPAS, and drone delivered test kits ultimately offered a path to limiting health care inequality among these remote communities.

SAIT researchers were again called upon to explore the use of RPASs to assist in search and rescue operations. The concept for this project revolved around using drones to deliver emergency trauma kits to a simulated stranded hiker. The kit included a basic medical triage kit with gauze, clamps and tourniquets, along with a communications device. The idea was to drop the kit to a stranded hiker who would be directly connected

to an emergency room doctor. The medical expert could then talk the victim through the proper use of the medical kit. As SAIT researchers conducted initial testing, they quickly realized that landing the drone on these extended range missions was going to prove difficult. "Even in the relatively flat prairies in Alberta, field tests were losing telemetry connectivity as the RPAS descended below five meters," said UAV/GIS Project Coordinator & Researcher, Stephanie Lapointe. "Once we realized landing and taking off would become problematic, we sought out a tethered delivery system and found the A2Z Drone Delivery winch."

### SOLUTION

Leveraging the Rapid Delivery System enabled researchers to make accurate deliveries from altitude where telemetry data remained uninterrupted by the undulating topography. The tethered delivery technique also minimized the drone's time-on-station, saving valuable battery life to extend the potential range of potentially-lifesaving missions.

"With the A2Z Rapid Delivery System, we were able to fly out to the simulated patient, and safely deliver the medical kit right next to them," said Wade Hawkins, Principal Investigator. "Our stranded hiker was able to open the package, turn on the communications device, and was connected directly to our emergency doctor who tele-mentored the patient through applying several trauma treatments, including gauze packing, tourniquet and clamp. We continue to conduct deliveries to allow medical personnel to refine their communication procedures and gather patient feedback through a post-mission survey."

According to Dr. Andrew Kirkpatrick of Alberta Health Services and the TeleMentored Ultrasound Supported Medical Interventions (TMUSMI) Research Group, "The applications for drone-borne remote medical assistance are potentially unlimited, and potentially lifesaving in emergency situations like a stranded hiker having sustained injuries. Obviously, it takes valuable time for rescuers to deploy, locate and triage a victim. With remote medical assistance, we believe we could buy those rescuers more time to reach victims and extract them to a trauma center. With our partners at SAIT, we have also been testing additional applications for the drone-based remote medical treatment."

In expanded testing of this remote medical assistance concept, SAIT researchers delivered a portable ultrasound machine to a patient living in a remote community. The medical tele-mentor

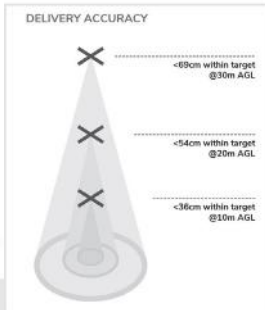
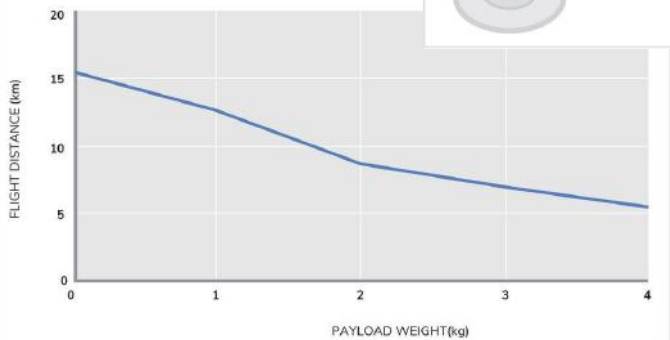


## GLOSSARY of DRONE/ROV TERMS

- AGL= Above Ground Level
- AUV= Autonomous Underwater Vehicle (no direct human control)
- BVLOS= Beyond Visual Line of Sight
- C-UAS = Counter Unscrewed Aerial System
- DRONE = Sub 25kg UAS or RPAS
- MSL= Mean Sea Level (actual flight height regardless of height above land)
- RPAS = Remotely Piloted Aerial System
- UAS= Unmanned Aircraft System
- RDS= Rapid Delivery System
- ROUV= Remote Operated Underwater Vehicle
- ROV= Remote Operated Vehicle (can be air, land or water)
- RPAS= Remote Piloted Aircraft Systems
- RTH= Return to Home
- SUV = Surface Unmanned Vehicle/Vessel
- UAV = Unmanned Aerial Vehicle
- UAS = Uncrewed Aerial System or Unmanned Aerial System
- USV= Unmanned Surface Vehicle/Vessel
- UUV= Unmanned Underwater Vehicle
- VLOS= Visual Line of Sight

A2Z Drone Delivery capabilities

FLIGHT DISTANCE vs. PAYLOAD WEIGHT



was able to successfully talk the patient through remote imaging of their own lungs and spleen. The application would bring real-time medical care to remote communities where traveling to city centers for medical care can be difficult or impossible.

### RESULTS

Leveraging the tethered delivery capabilities of the Rapid Delivery System, SAIT researchers were able to confirm a successful proof-of-concept for its remote medical assistance testing. By safely and efficiently fulfilling deliveries from altitude, the researchers also demonstrated that RPAS platforms could be used to expand the use of remote medical care beyond simple search and rescue operations to more intricate medical procedures. As the researchers at SAIT continue to push the boundaries of RPAS applications, the research team is now conducting tests with the second generation RDS2. With its expanded payload capacity and flexible payload options, the researchers are able to transport larger and heavier payloads, opening up numerous new use cases for their partners. "Many of the capabilities of the latest generation Rapid Delivery System are allowing us to explore new use cases," said Adam Batchelor of the *Centre for Innovation and Research in Unmanned Systems* at SAIT. "If we end up in a scenario where the tether gets hung up in the trees, we can abandon the tether and still fly the drone back home. So, a lot of good scenarios have been opened up by the second-generation winch."

<https://www.a2zdronedelivery.com/saitcasestudy>

## SWIFT WATER RESCUE EMILY

- Easy to deploy off riverbanks, piers, bridges
- Self-righting technology for strong currents
- Battery powered, jet boat
- Fast and durable, 40 km/h
- Line of sight technology
- Navigation Lights for Night Missions

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# UNSOCIAL MEDIA...STILL

As we continually mention, **we don't do social media** - not *Twitter*, not *Facebook*, not *Instagram*, not *TikTok*, none of 'em. We understand the value of corporate *Facebook* sites keeping colleagues and customers up to date and some of our folk, especially Kelly and Gary do use it personally but as a magazine we just can't bring ourselves to support the vast empires of .com billionaires and all the dubious stuff that results until or unless they all get a grip on the nutters and extremists and armchair 'warriors' to whom they give an unfettered voice. We have legacy stuff on *Linked-In* because we got lured in when it first started not realising that it would turn into as much of a stalking monolith as the others. If you send us a link request we might occasionally get to it every month or two but don't take it as a personal rebuff if you don't get friended or whatever the hell *Linked-In's* version is. We'll get there, when we get there...

Similarly, there is apparently still an **ARBCLIMBER** facebook page that we don't have access to and can't change or answer, we think it was set up years ago by a well meaning 'intern'. Despite this complete lack of detail or indeed updating, it still get's 'liked'. We do like a readership easily pleased.

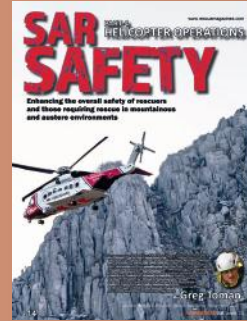
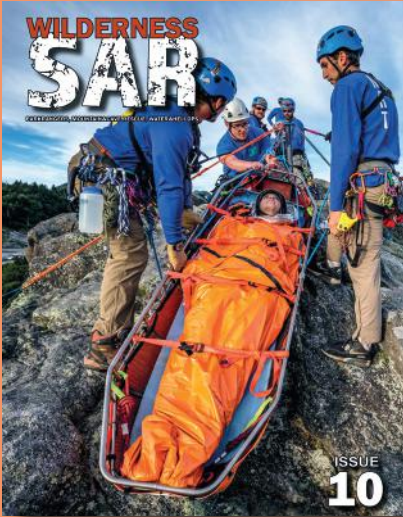
# ARBCLIMBER WEBSITE Back but don't bother looking for it!

We had to buy back our own website at exorbitant cost after we lost access to it and the ability to renew our ownership. We had to wait for it to come back onto the market in order to be able to purchase it outright. We don't even use it because all three titles are amalgamated into the one website for all four magazines but it was daft not to have the option. Someone else would have bought it and spent the next few years trying to sell it back to us at an even more inflated price! *We got rid of a previous email address ~~ade@trmedialtd.com~~ but we've got plenty of other contact addresses:*

- [admin@rescuemagazines.com](mailto:admin@rescuemagazines.com)
- [arbclimber@aol.com](mailto:arbclimber@aol.com)
- [rescuemagazine@aol.com](mailto:rescuemagazine@aol.com)
- [admin@arbclimber.com](mailto:admin@arbclimber.com) (we don't use this much)
- [accessandrescue@aol.com](mailto:accessandrescue@aol.com)



# WHAT'S in WILDERNESS SAR 10



WSAR#10's cover and On-the-Cover spread shows a great shot by Hailey Burluson of North Carolina's Linville Central Rescue Squad's MRT lowering a casualty in a titanium Cascade stretcher using an SMC monopod tying in nicely

(so to speak) with Reed Thorne's article opposite in TRm80 on using Pulleys as Back-tie Stays. You'll remember the Cascade models from last issue's GUIDE to Rigid Frame Stretchers but this time we are looking at Flexible/roll-up Stretchers as exemplified by the original SKED and a separate listing for Helicopter 'bags' which are protective cocoon style stretchers specifically designed for helicopter winching.



Rescue Safety by Australian firefighter Greg Toman carries on the helicopter theme with a look at how teams from around the world conduct helicopter operations. Also from down-under is NSW Police's Roland Curll completing his series on the SAR Pack, with examination of the components incorporated into the pack for the purpose of rescuing a casualty. Mostly these will be team items with larger kit being divided up between SAR packs for easier carrying.

Our second GUIDE covers Flotation harnesses for rescue dogs. This includes a number of 'commercial' models suitable for rescue dogs rather than specifically designed for Rescue dogs as that would only constitute 4 or 5 models. Only one manufacturer provides a rescue-specific harness intended for swimming rescue dogs like the Italian Newfoundlands.



Our Water Rescue series from the swiftwater rescue guru Mike Croslin and Chilean Rescue 3 instructor Mitch Sasser is spread between both of our rescue titles and this issue features an updated look at the long-standing technique of Continuous Loop as a means to perform a rescue or search while keeping rescuers safe. It's a good idea to also take a look at the accompanying article in TECHNICAL RESCUE #80's on Team Protection.





# STANDARDS INFORMATION

# NFPA 2500

combined **TECHNICAL RESCUE** standard that replaces.....

**NFPA 1983** operational equipment

**NFPA 1858** equipment selection/use/care

**NFPA 1670** team competency



**NFPA 1983**  
which was equipment focused

**NFPA 1858**  
which provided selection use and care information

**NFPA 1670**  
which outlines team competency for Technical Rescue



Last year, Lou McCurley of PMI-Rope [ED: *pic above in her very informative blog*] released a blog post talking about NFPA 2500 – what it is, what it might mean to you, and how to use it. If you want to review that information, you can find it on our website, at [www.pmirope.com](http://www.pmirope.com).



**NFPA only rule is that as of Spring 2023 MANUFACTURERS have to stop selling equipment marked to the 2017 edition of 1983**

One of the things we talked about in that post was the release date of the NFPA 2500 document and just how long it might be before you actually see gear being marked to the new standard.

Today I am here to let you know about an important update to NFPA 2500; but if you haven't reviewed the original post you might want to check that out too.

There are more than 30 people who are part of the NFPA Special Operations Protective Clothing and Equipment Committee that oversees NFPA 2500. The people who sit on this committee are not just manufacturers, but also represent test labs, fire departments, training companies, rescue teams, and more. NFPA standards development processes are compliant with ANSI protocol, and prevent any one interest group from becoming a majority. This may come as a surprise to some who might believe that standards are written by and for manufacturers themselves.

The NFPA 2500 standard combines what used to be three separate documents... NFPA 1983 (which was equipment focused); NFPA 1858 (which provided selection use and care information) and NFPA 1670 (which outlines team competency for Technical Rescue.) Now, the substance of all three of those documents is contained in just one standard.

This is important, because if you are a fire department you might be accustomed to looking for markings on your equipment that say NFPA 1983, along with some year-reference.

But pretty soon the equipment you're used to seeing with these markings is going to be marked NFPA 2500, with (1983) in parenthesis, and then the effective year – in this case, 2022. This standard is updated once every five years, so it will be awhile before that effective date is changed again.

Here's where the new information comes in. In our previous post, we talked about the fact that the standard was released in 2021, with a 2022 effective date, and we talked about how

manufacturers were given a deadline of September 2022 to get all their gear re-tested and re-marked to the new standard.

However, earlier last year NFPA released a Tentative Interim Amendment (TIA), extending that deadline for an additional six months,

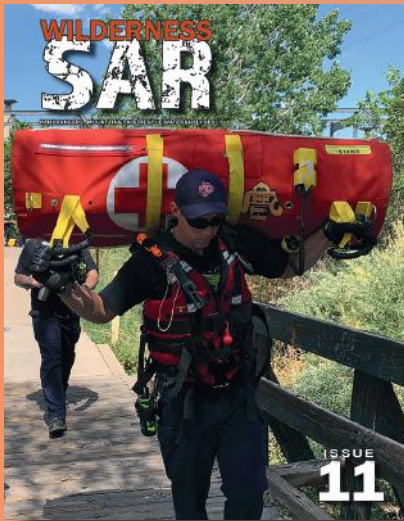
due to administrative delays.

As a result of this change, marking to the new NFPA 2500 (1983) 2022 standard, which was released all the way back in 2021, is actually not required until about now (early 2023)!

Please keep in mind that there is no limit on when you have to stop buying or using equipment that is marked to older versions of the NFPA 1983 standard; in fact, most of the provisions and requirements for equipment testing have not really changed. There are no NFPA requirements to stop using certain equipment, there are no particular hazards or concerns associated with continuing to use gear marked to a previous version of the NFPA standards. Their only rule is that as of Spring 2023 MANUFACTURERS have to stop selling equipment marked to the 2017 edition of 1983.



# WHAT'S in WILDERNESS SAR 11



One of three or four proven water rescue 'drones' that we currently see in rescue is the **EMILY** by Hydronalix providing our front cover courtesy of Denver Fire & Rescue. Our inside spread features the beach rescue version with the swiftwater rescue version on the cover.



This issue is absolutely dominated by our **GUIDE to Climbing helmets** which takes up no less than 26 pages. Luckily, if there's one item of equipment that is common to every land-rescue team it's a helmet. These are specifically climbing helmets, ski-patrol helmets in the next issue and water rescue helmets in issue 13 while sister publications ARBCLIMBER has arborist climbing helmets and TECHNICAL RESCUE is carrying the heavier rescue/multi-role helmets. This didn't leave so much room but elsewhere we have a Greg Toman's ongoing **SAR-SAFETY** series examining rescue around the world getting into technology with a look at **Geo-Location systems**. Only space for one **GEAR REVIEW** and it's **Non-Stop Dogwear's Protector dog-lifejacket** or PFD as we prefer to call it.



Finally, a biggie from our **Water Rescue** editors on **Anchoring** options for water rescue operations and swiftwater in particular. This is again part of the shameless instructional series utilising the REACH device, a kind of mini-grapple that we've been promoting on and off for years and finally seems to be getting the traction it deserves with California now adopting it and incorporating it into their SwRT regs and guides.

MARKET GUIDE	BRAND	MODEL	WEIGHT	PRICE	FEATURES	CONTACT
1	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
2	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
3	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
4	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
5	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
6	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
7	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
8	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
9	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC
10	ARCTIC	ARCTIC	1.2kg	£120	Lightweight, high visibility	ARCTIC

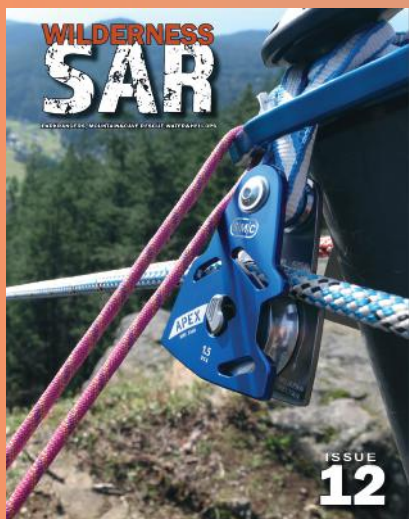








# COMING UP in WILDERNESS SAR 12



Not necessarily the cover of issue 12 until it's actually printed, we have switched at the last minute at least twice before. Either way this is the second of SMC's covers highlighting their **APEX Spindle pulley**. We had the

swivel pulley on issue 9 and this time it is the entirely eyeless spindle version for attachment direct to rope or slings.

Our **Guide** is **Inflatable Non-Powered Rafts** which is not a go-to option for most rescue agencies unless they have actual swiftwater risks on their patch, often the true definition of 'wilderness'. Nevertheless, there are many other rescue teams operating in slow speed flood and inundations that also swear by the sheer comforting bulk of a fully encapsulating raft as distinct from the open-backed/open-stern craft we looked at last time. Look out for **powered inflatable boats GUIDES** in **TECHNICAL RESCUE 83 & 84**.

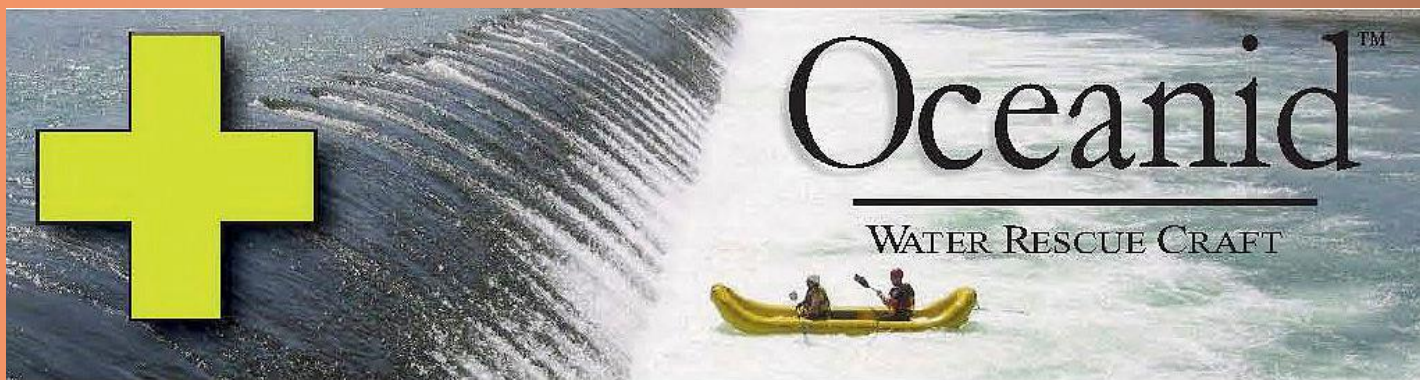
**GEAR REVIEWS** this issue are the **NEBO Luxstream 1600** (or 1760 in the US) which throws a phenomenal main beam out to a mile....or does it?

The other review is **Wiggys Superlight sleeping bag** that will keep you warm and dry even if you sleep outside on a pavement in rain/sleet and around zero to 2 degrees Centigrade. Or does it?....

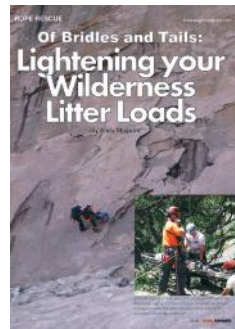
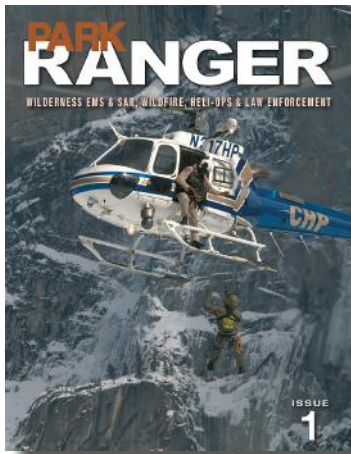
A glorious pictorial extravaganza courtesy of our Hawaii SAR article **Lost in Paradise** highlighting the evolution of the SAR community in these tropical islands and the start of **HAWAII SAR-Con** which you will notice highlighted on our **EVENTS** page. Most Wilderness teams are lucky enough to have fantastic scenery on their patch but Hawaii SAR may well have the best views. Opposite is a view of the **Oahu SAR team's** cliff training in the east of Oahu which is the most populous of Hawaii's 8 main islands with over a million inhabitants and significantly more when tourists are included who are likely customers for Hawaii SAR teams. Finally, our second **GUIDE** is to **Ski Helmets** that meet EN1077 A or b and are actively marketed at rescuers/Ski-Patrol (not simply skiing and Ski-tour mountain helmets otherwise we would have used up the entire magazine!)



Model	Capacity	Weight	Price	Notes
NEBO Luxstream 1600	2-4	1600g	£199	Long-throw beam, green flashlight
Wiggys Superlight	1-2	1000g	£129	Superlight, dry bag compatible
NEBO Luxstream 1760	2-4	1760g	£219	Long-throw beam, green flashlight
Wiggys Superlight	1-2	1000g	£129	Superlight, dry bag compatible

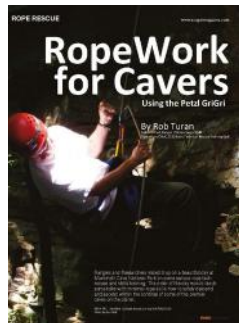
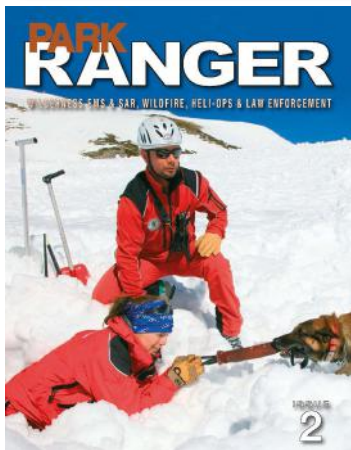






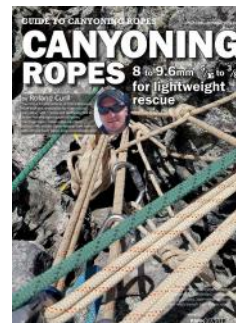
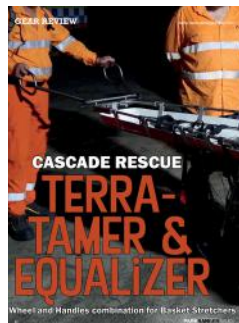
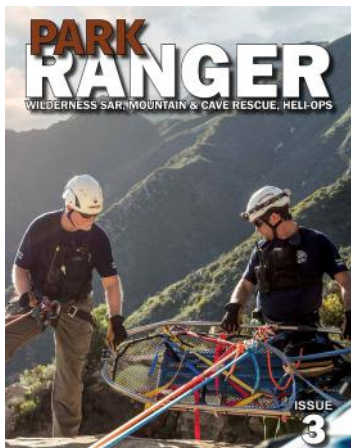
- (it's a)WOMAN'S WORLD-Salute to the Bag Lady
- SPECIAL - Speak Up! by Ken Phillips
- GEAR REVIEW- Princeton Tec Apex Headlamp
- ROPE RESCUE - Litter Bridles
- GEAR SPOTLIGHT - REACH Rescue System

- SAR HELOs - Things that go bump in the flight
- MARKET GUIDE - Rigging Plates
- SPECIAL - UAVs
- GEAR REVIEW- Wolverine ICS Boots
- SEARCH DOGS - Getting to know their capabilities



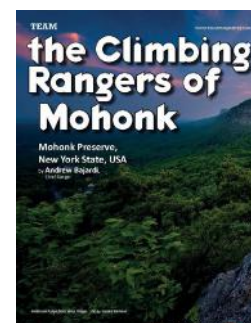
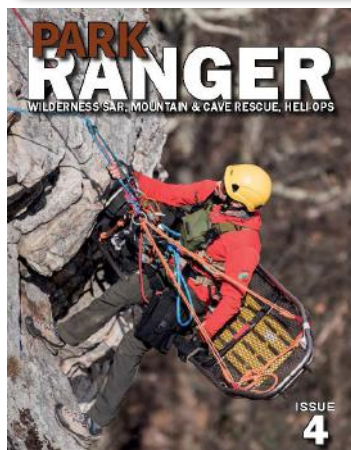
- GEAR SPOTLIGHT - Yamaha Rhino ATV
- (It's ) WOMAN@S WORLD - The greatest Job
- GEAR REVIEW - Arcteryx Alpha SV Jacket
- ROPE RESCUE - Rope Work for Cavers
- WATER RESCUE - Pinned Rafts

- SAR HELOs - An Inconvenient Death
- INCIDENT: Grand Tetons 2010
- MARKET GUIDE: Low Stretch Ropes 10-10.9mm
- GEAR REVIEW - Savvy Female Body Armour
- SEARCH DOGS - K9 102 for Search Management



- CASCADE TERRAIN TAMER & EQUALIZER review
- TRADITIONAL SKILLS FOR TODAY'S RANGER
- WATER RESCUE - PWC Training course
- ANIMAL RESCUE - Improved Rescue
- SAR DOGS - Distance Alerts

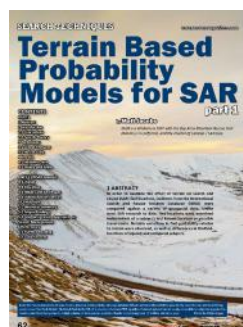
- GEAR REVIEW - Mammut El Cap Helmet
- MISSION REPORT - Meteor Crater, 2013
- MARKET GUIDE - <10mm CANYONING ROPES
- TRAIL NOTES -Who works for who?
- GEAR REVIEW - Peli Urban Elite iPad Backpack



- INCIDENT REPORT Montecito 2018 Debris Flow
- HELICOPTERS: casualty strop/packaging options
- TEAM: Climbing Rangers of Mohonk Preserve NY.
- KIT PROFILE: Cave Rescuer

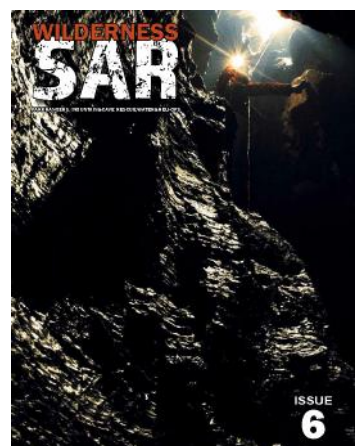
- MARKET GUIDE to 7/16" , 11-11.9mm Low Stretch Ropes
- GEAR REVIEW - Haix Nevada Pro Mid Boot
- GEAR REVIEW, Garmin Fenix 5X Plus GPS watch





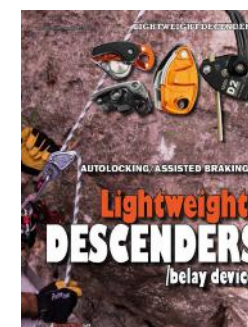
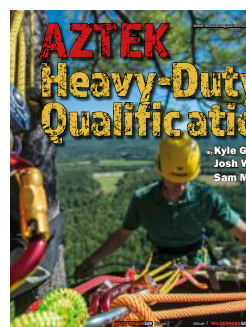
- COVER/REVIEW: Team Wendy Ski Patrol Helmet
- INCIDENT REPORT: RSA Amputation/Cliff Rescue
- KIT PROFILE: RNLI Offshore Rescue
- SEARCH TECHNIQUES: Terrain based Probability

- Models for SAR by Matt Jacobs
- MARKET GUIDE to 300+ Lumen Headlamps
- GEAR REVIEW: C.A.M.P. Lift Ascender
- GEAR REVIEW: Bestard SAR Pro Boot



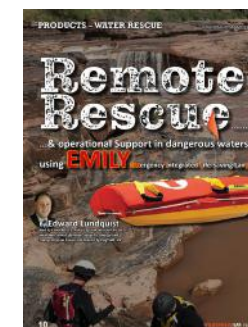
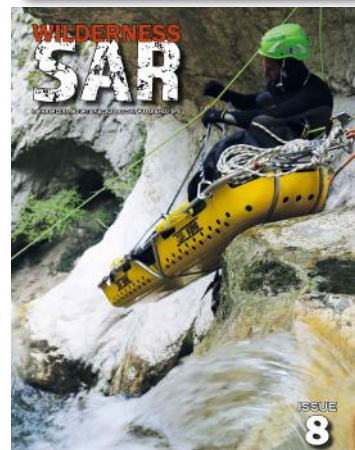
- GEAR REVIEW - DMM Revolver Rig crab/pulley
- KIT PROFILE - Killin Mountain Rescue, Scotland
- DRONES/UAVs - Listening Drones for SAR by Samuel McNalley

- MARKET GUIDE to Headlamps pt2 100-299+Lm
- SEARCH TECHNIQUES Terrain-Based Probability Models for SAR pt2 by Matt Jacobs
- Training Mnt Rescue Volunteers - by DAS



- TESTING-Sterling Ropes Tests for AZTEK system
- SAR SAFETY - Pt1 Skills & Clothing by Greg Toman
- MARKET GUIDE to Headlamps pt3 <100 Lumen
- MARKET GUIDE to Lightweight Descenders

- WOMEN in RESCUE by Andrea DeVries
- KIT PROFILE - Women's Rescue Clothing
- GEAR REVIEW - Silva Compass & Navigation skills by Roland Curll



- COVER-Kong Stretcher & Italian Cave Rescue
- WATER RESCUE: EMILY Drone by Ed Lundquist
- WELL-BEING: Stress Injury by L McGladrey & K Dermocoeur
- SPOTLIGHT: Micro-Blasting by Carroll Bassett
- MARKET GUIDE to Basic Hand Ascenders

- MOUNTAIN RESCUE- UAVs by DAS
- SAR SAFETY: Pt2 MR Equipment by Greg Toman
- MARKET GUIDE to Rescue Dog Harnesses
- EQUIPMENT- SAR Pack pt 1 by Roland Curll
- WATER RESCUE-: Crossline REACH by Mitch Sasser





- COVER- SMC Apex Pulley on TerrAdapter multi-pod
- MARKET GUIDE - Rigid-Frame Rescue Stretchers
- SAR MANAGEMENT- ARCOS Search Management/
- TEAM- Austrian Mountain Rescue
- SAR SAFETY - pt3 Ropes & Safety System
- DRONES - UAV Search Strategies by DAS
- EQUIPMENT- SAR Pack pt2 Packing for Weather

TEAM/ORGANISATION SPONSORS

BRIDGEDALE SOCKS



[ED: It's always a double edged sword to highlight a corporate sponsor of a rescue team or organisation because it can open the floodgates to a mass of pleading letters from equally deserving applicants. So while some larger companies may have the resources to expand their donations it's best to assume that the majority of sponsorships we might highlight in this Emag going forward are the only sponsorship of this type so don't bother bombarding them with begging letters/emails. This one is from Scottish Mountain Rescue who are sponsored 3 pairs of socks per team member, per year by Bridgedale Socks. Below is SMR's Q&A wording. But as an aside, I can't speak highly enough of Bridgdale socks having worn them for over 35 years and the reason I'm so enthusiastic is that my sock drawers have several leading brands in them, but about 20 years ago I began to notice that my ThorLos, Karrimor, Mountain whatever's and, with lower expectations, the high street brands Trespass, Jeep, Nike and 'Heat-Holders' etc. were being consistently outlasted by two brands even though they received more wear than all the others put together - Bridgdale and something of an outlier, Arbortec - not sure who makes socks for Arbortec, they have a tight weave which is a little too stiff for my liking but I can't fault their resilience. The various Bridgedale Heavy and Light socks are the Goldilocks socks. Maybe I've just been lucky with the Bridgedales but along with various brands I get for birthdays and Christmas I always buy a pair of Bridgedale heavyweights every second year even though the previous pairs are still going strong to guarantee I have trustworthy pair that won't suddenly spring a hole in the toe or the ball of the foot - besides, you can't beat a new pair of mountain socks - better than slippers!]



**SMR:** Bridgedale have supported Mountain Rescue Teams for several years – they provide three pairs of socks every year free of charge to all SMR members. We chatted to them to find out more about the history of their support.

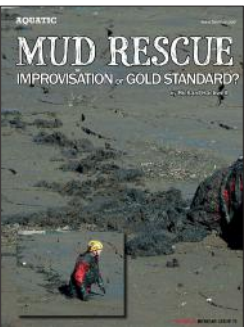
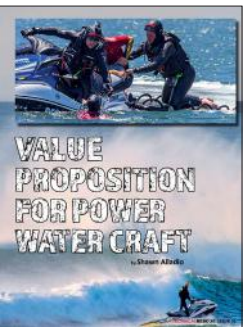
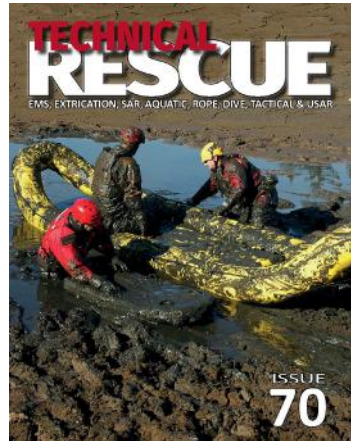
**SMR:** Why did Bridgedale decide to support teams?  
**BD:** As a technical sock manufacturer, we wanted to do our small part in supporting MRT – as your members are out in the most challenging terrains and weather conditions, if we can make sure your feet are warm, dry and comfortable, it is hopefully one less thing for you to worry about, so you can concentrate on helping the people who need it.  
**SMR:** Can you tell me more about the people behind the Bridgedale partnership with teams?  
**BD:** As we manufacture Bridgedale socks in our own factory in Northern Ireland, we can take socks directly from the source. Ronnie is our Factory Manager, and he manages a great team of people who are all motivated to make sure the socks we produce are the very best quality they can be, so they will perform in all conditions.  
**SMR:** Tell me a bit more about Bridgedale and Magic Mountain?  
**BD:** The Bridgedale factory has been making socks for over 100 years, we use only high quality yarns and we design our socks using the best blend of natural and synthetic yarns to ensure your feet stay dry, warm and comfortable. Every single sock that we knit, is checked by hand by one of our team, so you can be sure that every sock is perfect, and that is why we are able to offer our *lifetime guarantee*.  
**SMR:** What has been your favourite moment working with and supporting teams?  
**BD:** Whenever we get an e-mail/note from an MRT member to say how much they love our socks! It's always great to get feedback and to know that we have helped in some small way.  
**SMR:** Where can people buy Bridgedale socks if they want to get their own?  
**BD:** You will find a selection of Bridgedale socks in most Outdoor stores, and we also have our own website [www.bridgedale.com](http://www.bridgedale.com), where you can see the complete range of socks we make.





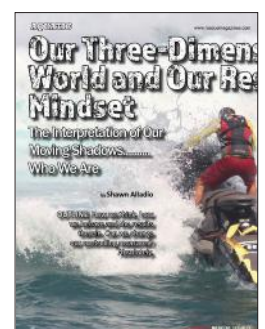
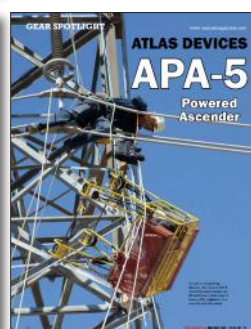
- COVER - CMC MPD
- MARKET GUIDE: Mini Pulley Systems
- REVIEW: StatGear T3 rescue knife
- Reed Thorne on the HOOSIER BIN POLE
- REVIEW: Peli AIR Case
- AQUATIC: QRS on PFDs

- AQUATIC: DIVE - Public Safety Divers and OSHA
- TEAM: Toll Heli Ops in NSW Australia
- SPOTLIGHT: Jerry-Rig Tripod
- A New Team Approach? by Rich Denham
- REVIEW: Holmatro Hand Hydraulic CombiTool
- SAR/TACTICAL: Traditional Ranger Skills



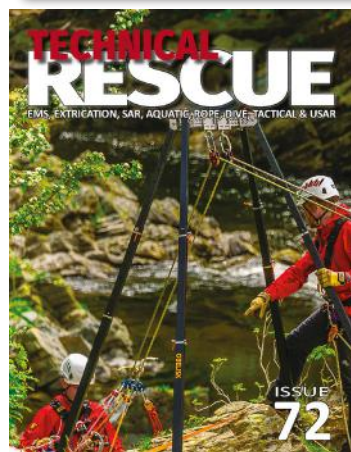
- COVER: Mud Rescue using the Oceanid RDC
- MARKET GUIDE: <10mm Canyoning Ropes
- REVIEW: Cresto ResQDD Evacuation Device
- REVIEW: Oregon 40v Battery Chainsaw
- AQUATIC: RWC Value Proposition

- Mud Rescue by Rich Hackwell
- Toll Helicopters ACE Training Centre
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- EXTRICATION Using an Impact Wrench
- REVIEW: UniLite 1000 Lumen Headtorch



- COVER: Atlas Devices APA-5 Powered Ascender
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- REVIEW: Anderson Multi-Point Rescue Strap
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- EXTRICATION: Floor Pan Flip evolution
- Reed Thorne on the AZ AZORP-Rigging Pod

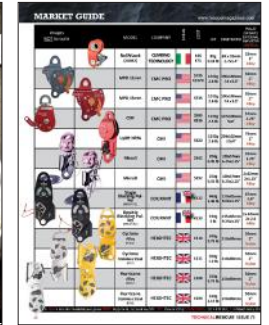
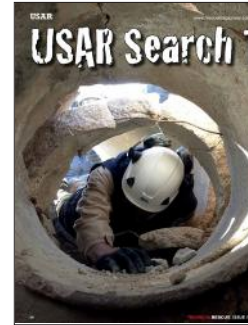
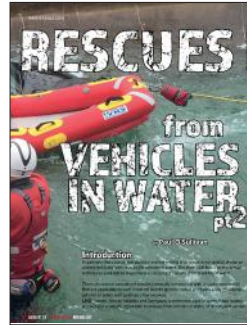
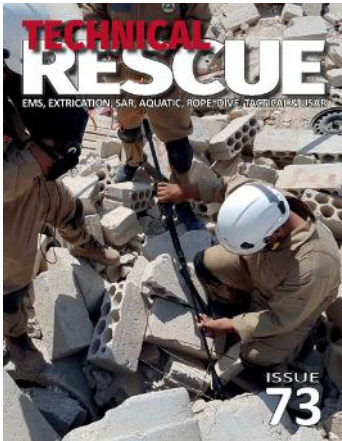


- COVER: Lyon Obelisk quadpod
- GEAR SPOTLIGHT - Sterling Lightning GT Hook
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- EXTRICATION -Glass Management
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- MARKET GUIDE - Back-Up Devices
- AQUATIC - Our Three-Dimensional World and our Rescue Mindset Pt2 by Shawn Alladio
- EXTRICATION: The Extra Cut by Dave Dalrymple

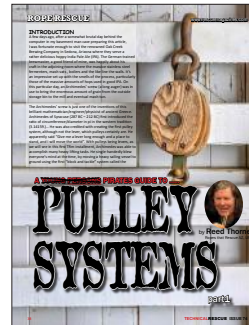


# TECHNICAL RESCUE back issues



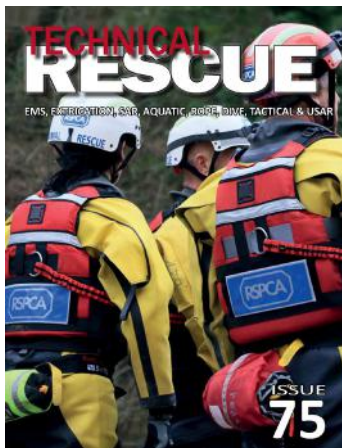
- COVER: Syrian Civil Defence (the White Helmets)
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- Rescue from In-Water Vehicles pt2
- USAR - White Helmets Search Techniques
- AQUATIC - Our Three-Dimensional World and our Rescue Mindset Pt3 by Shawn Alladio
- MARKET GUIDE - Progress Capture Pulleys



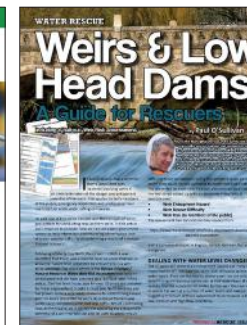
- COVER: Bluewater's Technora rope ARMORTECH
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- Vehicle Casualty handling/removal
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- GEAR - CMC LEVR Escape Device and System
- KIT PROFILE - MINES RESCUE by Brian Robinson

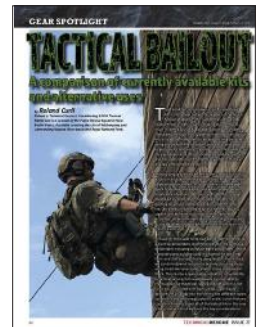
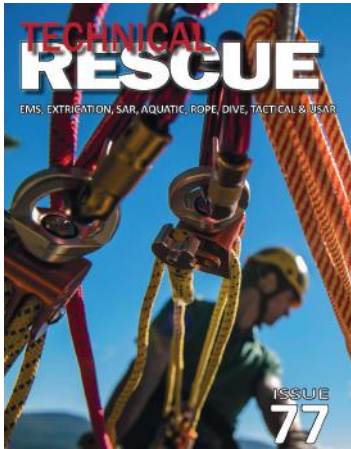


- COVER: Lukas eWXT Battery hydraulic tools
- Weirs/Low Head Dams pt2 by Paul O'Sullivan
- Weirs Hazards Assessment Report- pullout
- GEAR REVIEW - Petzl Swarm (ID, Astro Bod Fast, ASAP Lock & ASAP'Sorber) by Roland Curll

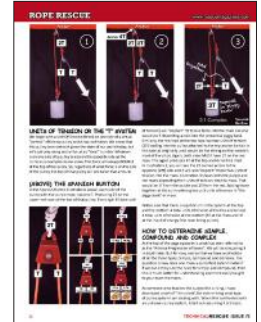
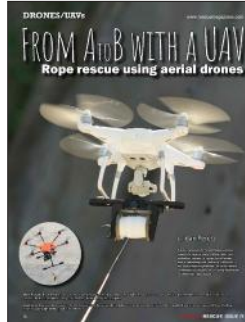
- Simple, Complex and Compound Pulley systems
- sequencing your actions at a vehicle accident by Rich Denham & Nick Appleton
- MARKET GUIDE - ESCAPE/Bail-Out Descenders
- TRAUMA - BVM vs Auto by Brian Robinson



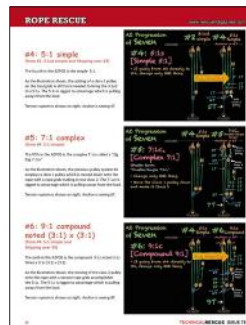
# TECHNICAL RESCUE back issues



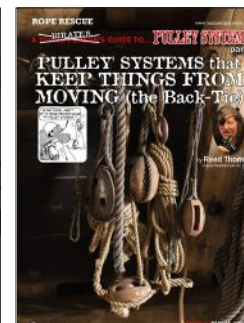
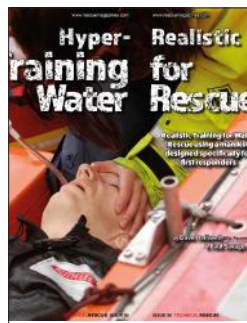
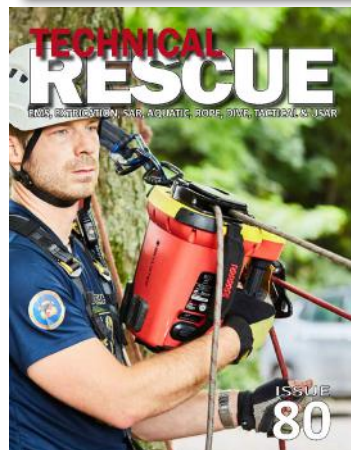
- COVER: Compound Pulley Systems- Reed Thorne
- EXTRICATION: A modification of the classic Dash Roll by Rich Denham & Nick Appleton
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- Flood response -Canada 2019 by Gary Foo



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- Teufelberger REEP Cord. By Steve Glassey
- Tactical Rope Rescue Systems. By Roland Curll



- COVER - Holmatro Pentheon
- EXTRICATION - Review of Lukas Extrication Manual. By Rich Denham & Nick Appleton
- Pulley Systems-Learning by Rote. By Reed Thorne
- WATER RESCUE - Reach Rescue Techniques
- DIVE Search Techniques by Mark Philipps
- MARKET GUIDE - Waterproof Cases pt3- S-Z
- Petzl Maestro/CMC MPD/CMC/Harken Clutch



- COVER - Actsafe RCX Powered Ascender
- WATER RESCUE: Training using Hyper-realistic manikins by Dave Halliwell & Paul Savage
- EXTRICATION - Righting a car-on-side with casualty inside. By Rich Denham & Nick Appleton
- Pulley Systems Back-Tie Pulleys. By Reed Thorne
- WATER RESCUE - Team Protection - a new approach by Dr Mike Croslin & Mitch Sasser
- MARKET GUIDE - Con-Space Rescue Stretchers
- GEAR REVIEW -PetzlI85 Duffel vs Skylotec 90 Duffel





*This article, in 2013, was the third in a series begun in issue 63 by our man of many talents, Rich Hackwell covering coastal/estuarine mud rescue. Congratulations to Rich on his recent promotion to Assistant Chief at HM Coastguard UK. Rich used to juggle being an auxiliary Coastguard and Beach Lifeguard with being the Arb officer for a district council before joining the Technical Rescue Unit. He went on to head Technical Rescue training at HM Coastguard spearheading a complete overhaul of CG Rope rescue systems, flood rescue capability and standardise mud rescue protocols before taking up his new Assistant Chief position this year.*

## MUD RESCUE part 3..... Extraction

This series of articles discusses the unique techniques and equipment involved in COASTAL mud rescue as practiced by the UK's agency with principal responsibility, HM Coastguard. Such procedures may not apply to inland mud-slide events which can be particularly deadly in hot climates when the mud sets like concrete.

### Platforms at The Scene of Extraction

All extraction activity must be undertaken from a safe working platform this is to reduce the risk of the rescuers becoming trapped themselves. In HMCG the mud working platform is the mud stretcher, this is a plastic basket stretcher with a buoyancy collar (see Fig 2). If working with other organisations, mud mats or inflatable mud paths can be used (photo above). The specialist load spreading mud boots 'Mudders' must not be used as the prime means of support during extraction as they are only designed for a single person load and any extra load may cause them to

get bogged in. Mudders are very useful to assist with the positioning of safe working platforms.

Mud working platforms can be placed around of the casualty as required either in parallel, or as an L or a V to permit all round working (see fig 1). By using a combination of these configurations it is possible to get 360o access to the casualty for the extraction effort.

### Initial Actions

On arrival, place the mud working platform around the casualty (see fig 1) and provide support. This will ensure physical support and reassurance that the subject cannot become further immersed. Additional support can be provided using an adjunct e.g. torpedo bouy, horseshoe life-ring or a yacht fender and this can be used to push down on or to provide support under the casualty's backside. You may also need to provide a lifejacket or something similar, not as floatation but to



# DOWN to BASICS



by **Rich Hackwell**  
Coastguard Technical Rescue

- Take immediate measures to prevent further heat loss
- Continually reassure and explain what you are doing

**Extraction by Digging**

Digging is primarily carried out with a gloved hand but can be supported with digging tools with care. Gloves are required because mud can contain any amount of sharp metal, glass, wood, shells and contaminants that you do not want entering broken skin. Digging tools are short shafted devices to enable technicians to dig from a kneeling position or in a restricted space. They may include entrenching tools or short-shaft construction or sturdy snow shovels. Tools should have the following characteristics; • short shaft, • non-sharp, non-serrated edge • T or D handle to aid grip in muddy, slippery conditions.

Initially, try digging using a gloved hand to try and free the legs as this is the safest option. If this is clearly ineffective, then use the entrenching tool or spade. Digging action should always be away from the legs. Mud Probes which are short blunt alloy poles can be used to identify the position of trapped limbs to better target digging efforts.

The casualty will be partially numbed by the pressure and cold temperature of the mud and is likely to have lost feeling in the legs. Care must be therefore be taken when using digging tools as serious injury could be caused that would not become apparent until the condition of the casualty abruptly worsens, or once evacuated and cleaned up.

Loose material should be cleared away from the hole to prevent the spoil from falling back into the hole. To prevent collapsing the edges of the hole a dish or crater shaped hole may be required rather than digging a vertical-sided hole.

**Extraction by Mud Lance**

The mud lance is a complete mud rescue system to enable the release of an entrapped casualty. It consists of a hollow steel tube with small holes in the end, three to four feet in length. A screw-on extension can be attached taking the length up to six feet. The T-bar handle of the lance has a ball-valve and quick release coupling. A long flexible pipe connects the lance to either a fire extinguisher which is charged with water and air or to a Compressed Air Breathing Apparatus (CABA) composite cylinder to deliver air.

The steel tube should ideally be placed beneath the casualty's entrapped limb and depending on the consistency of the mud, air or

water is introduced into the mud through the holes in the base of the lance (see fig 2) This will destroy the vacuum and its suction -effect so that once the consistency of the soft ground begins to loosen the casualty can begin to be extracted, freeing one leg at a time.

Remember, if not properly stabilised, the casualty could slip further into the mud so ensure that adequate support measures and if necessary a means to grasp the casualty eg a harness, pfd or lifejacket are to hand.

It is recommended that compressed air is used for wet material such as mud and that water is used for dry material such as sand. Water can be used in mud extraction. The procedure for using the lance is as follows:

- advise the casualty exactly what you are going to do, warn of the sensation caused by the agitation and that there may be an initial sense of sinking but remind them that they are secure and cannot sink further;
- insert the perforated shaft carefully to a depth just below the casualty's feet avoiding contact with the legs and feet;

## UK Coastguard MUD RESCUE equipment

- 2-3x prs Mudders
- 6x sets Drysuits & Boots
- 2x Rescue PFD
- 6x General Purpose lifejackets
- Mud poles/probes
- Digging tools
- Mud lance (air/water)
- 1 CABA Cylinder
- 2 Extinguisher cylinders
- 2x 200mtrs Cliff/mud rope
- 1x 400mtrs Mud rope (11mm KM)
- Double capstan petrol winch
- Rigging Pouch containing slings/karabiners/pulley
- Short stakes x 7 (picket)
- Long stakes x 4
- Sledgehammer
- Scene lighting
- Mud first aid kit
- 2x Mud Stretchers
- Water rescue eqpt
- whistles, airhorn, VHF radios

provide rescuers with a means to grasp the casualty and assist in support and handling. If the casualty is not deeply trapped in the mud, try and ease the casualty out manually:

- The casualty can sit on the mud working platform or adjunct for support
- With assistance from rescuers the victim can transfer his/herself into the stretcher
- The rescue team members can help lift the entrapped limbs
- Slowly and gently try and lift the casualty free
- No undue force is to be used and if the casualty shows any discomfort, stop immediately and use one of the extraction methods shown below





- as the vacuum is destroyed and the legs can be moved, ease the legs out one at a time until the casualty is free, then transfer into the stretcher with casualty lying on his back;

**Under no circumstances must a casualty be power winched free from soft ground**, as the risk of serious injury is very great. For this reason winching free by helicopter is not a safe option during the extraction phase. (Helicopter protocols will be covered in a later article)

**Extraction from Quicksand**

Quicksand has four key ingredients – sand, water, clay and salt.

Together these materials form a structure like a 'house of cards', with large water-filled gaps between the sand particles, which are loosely glued in place by the clay.

As long as it is left alone, the structure remains stable. As soon as it is disturbed, by stepping on it, the clay changes from a jelly-like consistency to a runny liquid. The effect is the same as stirring a pot of yoghurt. Liquefying the clay makes the quicksand about one million times runnier, and the whole 'house of cards' comes tumbling down, with the person trapped inside it.

Very quickly, the sand and clay sinks to the bottom with less viscous

water sitting above it. The result is a very stodgy layer of sand and clay, which is twice as dense as the original quicksand the victim originally stepped in and this is now packed tightly around the trapped body parts beneath the watery layer. The best way to release the person is to re-build the 'houses of cards' around the trapped body parts. This is done by re-introducing water between the sand and clay particles with the mud lance, reducing the density and making it looser and easier to extract the trapped body parts.

**NB: Compressed air injection is not recommended in freeing casualties trapped in quick sand.** Air makes the sand more compact giving rise to more pressure on the casualty, and making the extraction of the casualty more difficult. When using water, it is volume of water that is important not pressure. Too much water pressure can cause a sand blasting effect to the casualty; in some cases it can remove the skin.



All of the elements of a well-prepared rescue (training). •PPE •solid work platform that is easy to move •Mudders (webbed boots) allow good independent movement around the rescue site • water mud lance (left) • compressed air lance (right) •additional support in the form of personnel and a tracked vehicle with extra resources; medical equipment and refreshments. This may also be provided by a hovercraft or watercraft if the incident is close to a channel



# MUDDERS

The UK's HM Coastguard now issues specialist footwear 'Mudders' which are effective-ly snowshoes for mud. Based on the principle of a heron's webbed foot, Mudders offer much greater freedom of movement and efficient load distribution. Since they were introduced in 1995, MUDDERS have allowed rescue teams, construction workers, wildlife and fisheries agencies and duck hunters access to wetland areas that previously posed severe difficulties.



MUDDERS overcome the problems of sinking through the surface and the subsequent vice-like suction on the legs by dramatically reducing an individual's applied ground pressure the instant they step onto a soft area.

Their secret is the simple moulded hinged wing design that opens as you press down onto the surface, effectively quadrupling surface area and spreading the load over a contact patch of around 1000 cm<sup>2</sup>. The great thing about MUDDERS over other systems is that when you lift your foot back up the same neat hinge system closes the wings back in, reducing the contact area and making it much easier to step forward.

MUDDERS work best on surfaces and materials that are uniform in texture and density such as estuary mud where the wings can open fully and have the maximum surface contact. They are less effective on surfaces with heavy aggregates or dense roots intermixed which can distort or damage the wings

MUDDERS are a one size fit on virtually all typically used footwear such as boots, waders and wellingtons and are secured with a simple, no nonsense ladder lock buckle and strap. They are light and compact enough for easy storage and transport.

## CARE OF THE CASUALTY

Casualties can be trapped for some time before the alarm is raised and in the UK, northern Europe and in a North American winter, will often be suffering from hypothermia. This will be exacerbated by their exposure to the elements and exhaustion from their efforts to free themselves. They may also be suffering the effects of their physical entrapment e.g. hydrostatic squeeze or physical injury. In summer and in hotter climates they may well be suffering from dehydration and sun-stroke/ hyperthermia.

### Hypo/HYPERTHERMIA

Hypothermia is a major risk to someone who is immobile, not readily able to

exercise, thus unable to generate additional heat except by shivering. The mud rescue environment is wet or wet and evaporating, which will result in rapid cooling. The exposed nature of these incidents mean wind-chill will also be a major factor and it is important to provide an insulated blanket or similar protection. With a rising tide, entrapment, can result in immersion which will threaten body temperature still further assuming that drowning is not your primary concern. Hypothermic casualties must be handled more gently than those in reasonably good health due to the risk of cardiac arrest.

Conversely, for hyperthermic victims, plenty of drinking water and perhaps shelter during extraction should be part of the preplan. Mud rescues are extremely physical events and welfare of the rescuers is as important as that of the casualty. On a hot day, working in drysuits can be particularly draining but this can also be the case on what seems like a cold day when hydration is equally important. Mud teams in the UK carry survival bags to protect the casualty from exposure and to reduce evaporative heat loss. These are utilised at the soonest possibility.

### Post Rescue Collapse - Hydrostatic Squeeze

Pressure applied to the body (hydrostatic squeeze) can create a condition called post-rescue collapse, this condition is a risk with prolonged mud entrapment. After extraction and during recovery casualties should be kept horizontal until handed over to the ambulance service for assessment and treatment. Casualties should not be allowed to walk out e.g. using a pepperpot technique. Medical crews should be briefed on the degree of entrapment/ immersion the casualty has suffered as part of the handover.

### First aid equipment

Mud rescue is conducted in a hostile environment, casualties are in an exposed location with conditions hampering more standard first aid assessments, injuries can easily be obscured by mud or the casualty, exposure or predicament. First aid is kept to the priorities; airway, breathing, circulation and environmental protection. First aid equipment is therefore kept simple to facilitate its use in this difficult environment. In the UK this is deployed in a dedicated mud first aid kit. The outer bag is both sturdy and waterproof. Within this the equipment is compartmentalised into smaller water proof bags with a clear panel for identification. This prevents contamination of other equipment when accessing specific items. The kit comprises of:

- **Bag and Mask**, carried to facilitate resuscitation, this allows more effective CPR and protects the rescuer from contamination.
- **Large wound dressings**, carried to stop major bleeds, these military style dressings can be applied more easily than traditional ambulance dressings
- **Bottled Water**, for irrigation and hydration.
- **Survival Bag**, to protect the casualty from exposure
- **Tough cut shears/scissors**.

### First AID actions include:

#### Pre Extraction

- reassure the casualty and explain what you are going to do
- determine any particular discomforts or injury to the casualty, their general health and physical condition
- tend to any obvious injury
- keep warm
- put a lifejacket on them and other appropriate PPE

#### Post Extraction

- the casualty should be evacuated in the mud stretcher in as near as horizontal position as possible due to the effects of hydrostatic squeeze, exposure and shock
- the casualty may be hypothermic and should be wrapped in a survival bag to minimise further heat loss
- once transferred to a place of safety, the casualty should be handed over to the ambulance crew who have responsibility for subsequent treatment



# HIGH-RISE SAFETY

## HIGH FALL AIRBAGS

[ED: We still don't see many high-fall air bags in the rescue sector despite their potential importance at ALL high rise and rope rescue incidents and training. We tried to get them established as standard equipment on at least one specialist appliance/truck in every city back in 2004/5 but they never really made it into many inventories beyond some US metropolitan areas. Within the regular rescue manufacturers it was only the Vetter air bag that followed up on this in Europe with a range of readily available, high quality high-fall air bags. There are a few bespoke options from some lifting airbag manufacturers but only ever as a sideline. There are inevitably a number of Chinese models and indeed one manufacturer recently supplied 300 bags to one province-do they know something we don't? That's the kind of asset distribution we would like to see throughout rescue agencies worldwide so that at least one is available within minutes of every high rise urban and industrial area/facility. They won't always be able to fit a limited footprint or to be employed in time to save the day but there will be occasions when they will. Our original articles went into detail about a few safety issues like the safest fall position when hitting the bag and the fact that specialist lower pressure fall bags needed to collapse readily towards the centre so that a faller/jumper didn't collapse an edge and fall onto concrete and wasn't simply bounced off a poorly designed bag. Clearly there will always be a risk but it's still better than hitting the ground. We also mentioned the benefits of being able to undertake suicide intervention and rope rescue pick-off training in the most realistic of conditions - where your 'casualty' is fully exposed to falling should you take a wrong step during first contact. More often than not, training scenarios have the 'casualty' safely tied on which is much more forgiving of a poor first-contact attempt.

Back to the bags on the right and JT Scurlock is perhaps the US' leading and oldest manufacturer with double fans for the larger models which we always stated was preferable for both speed and redundancy. These days, self-contained battery fans rather than corded electric would help negate local carbon-monoxide from fuel generators or petrol/gas fans, be lighter and simplify setting up. JT Scurlock has no less than 6 models rated for falls from 40ft/12m to 200ft/61m. We would continue to urge height-safety rescue agencies to incorporate a high-fall airbag or two into your inventory and training.]



Our Safety Air Cushions are tested with weights to confirm these capabilities of this air

cushion. When our Safety Air Cushion is used in the recommended way and when a person lands on it in a proven and tested way, it will absorb the shock of the fall with a comfortable and safe body response. The end result is that a human can fall from these heights and upon hitting the air cushion, will decelerate at such a reduced and controlled weight that it is safe and therefore "life sustaining".

- JTS Safety Air Cushions are manufactured using fire retardant, 10 to 18 ounce vinyl reinforced polyester or nylon fabric ( per mil-spec C 20696 & CC 10-191-5902-5910).
- Breaking strength is over 200 lbs/inch and the tear strength is over 50 lbs.
- Safety Air Cushions are sewn with heavy-duty synthetic thread making seams stronger than material.
- Designed with an upper cell with air breathers as per U.S. Patent No. 3,851,730. Additionally, there is a lower cell which is a firm air compartment that provides a safety factor.

Safety Air Cushions are constructed with a white top surface with a red center target area, yellow sides and orange bottom. At present time, our Air Cushions are used across the United States and in several countries by the film industry and fire departments inc. New York, San Francisco, Las Vegas, Los Angeles, New Orleans, Tokyo, Hong Kong, and Chile and many others having found our product to be a valuable asset in both training and emergency use.

MODEL	Ht	Inflate*	Re-Inflate*	Wt	Dimensions		Fans
AC40	40ft	55sec	<30sec	143lb/65kg	10x5x7"	3x4.6x2.1m	1x20"
AC55	55ft	55sec	30sec	175lb/65kg	13x18x7.5"	3.9x5.4x2.2m	1x20"
AC70	70ft	55-70sec	<30sec	240lb/110kg	15x20x8"	4.5x6x2.5m	2x20"/1x24"
AC100	100ft	55-70sec	<30sec	350lb/163kg	20x25x9"	6x7.5x2.75m	2x20"#
AC150	150ft	130sec	40sec	570lb/258kg	32x23x12"	9.7x7x3.6m	2x24"
AC200	200ft	145sec	55sec	658lb/298kg	33x25x15"	7.6x10.1x4.5m	2x24"
Website	<a href="http://www.jumptosafety.net">www.jumptosafety.net</a>						
*based on 120v60hertz, varies with fan used. 50hz adds 25% to inflation time. # or 1x20" with 1x 24"							



**LYON**  
WORK & RESCUE  
TRAINING



# WHAT'S in TECHNICAL RESCUE 81



Issue 81 marked the start of a series of GUIDES to battery-powered rescue tools. We have previously had similar GUIDES to hydraulic tools that included battery but these days the range of options has expanded to such a degree that for the key players it's battery that they promote over hose-fed hydraulics. Our cover has the **Lukas Connect cutter** which has WiFi capability for tool operational data and inventory tracking. Our first of 5 GUIDES is on **Comb-Tools** with cutters, spreaders, rams and special tools to follow.



Texan Dive expert **Mark Phillips** guides us through a **Guide to Diver Rescue Search Lines** which is effectively a Guide to Guidelines.



Arizona's own god of Thunder, the venerable **Reed Thorne** continues

to dissect pulley uses and carries on last issue's *Back-Tie Anchors* with a subtle title change to *Guys*. Despite the name of the series this one doesn't actually use pulleys, rather it discusses guy ropes that incorporate an aspect that is trying to do the work of pulleys in a different way with the end-result often being similar to the work of the pre-tensioned systems discussed in the last issue.



## Extrication

from born again southerner **Rich Denham** and ex-southerner **Nick Appleton** is also a variation on last issue's article looking at **Relocation of a vehicle while the casualty is still inside** and using a forklift as intimated by that title picture is not one of the methods, although...



The second water rescue article is also our second GUIDE which is the start of a series of six GUIDES to **Inflatable Rescue 'Craft'**. This one is **Pontoons & Paths** for use on water, ice or mud and is followed in the next issue by **Open-Stern Sleds/Rafts**. We then move to WILDERNESS SAR#12 for **Non-Powered Rafts**, TECHNICAL RESCUE 83 & 84 for **Powered Inflatable Boats** and back to WSAR for the final article on **Inflatable Rescue Boards**.



# USAR STUFF

## FOLDABLE HELMET for CASUALTIES?



[ED: We included brief mention of Edelrid's collapsible helmet, the Madillo in WSAR's GUIDE to Helmets which, despite being a superior design in terms of standards and impact resistance,

didn't see the take up they had perhaps hoped or maybe it was too complicated a construct compared to a normal helmet.

Either way, the Japanese now seem to lead the way in folding or collapsible helmets, almost certainly as a result of their devastating earthquakes and tsunamis and aimed mostly at the general population. We're not sure that many rescue services would want to kit out their primary personnel with this type of helmet but they would certainly be a useful team item (with a chin strap) as a casualty helmet. The recent Turkish/Syrian earthquake demonstrated the dangers to civilian

first responders and then casualty heads as they are extracted past protruding rebar and sharp concrete. A helmet that folds flat can be made available to civilian helpers (in the early stages of response) and during rescues, passed through narrow gaps while cutting/breaking/breaching is undertaken. Such helmets are also much easier to transport for long-range teams especially since they also stack so you can get several in a small pack. The Izano is only one of many but has excellent credentials ]

### IZANO 2 Folding Helmet

(mk2= smaller folded height reduced from 82mm to 62mm)

designed to protect the wearer against falling objects and in a case of accidental falling.

The product is not designed for protection from electricity.

- Material: ABS
- Weight: 450g
- Dimensions: H138 x W220 x D303mm, Folded: H63mm
- Fit 55.5-65.2cm
- Available in 6 styles
- Colours: White, Orange, Yellow, Green, Blue, White/Orange, Orange/White.

• Portable bag included

COST: Very approximately \$77. for the Mk2 version

[www.dic-plas.co.jp](http://www.dic-plas.co.jp)

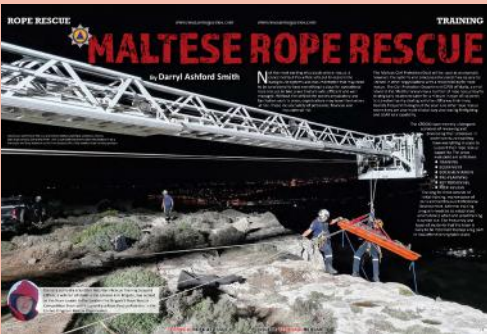


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# WHAT'S in TECHNICAL RESCUE 82



Petzl's excellent front cover of TR#82 depicts a French Police Unit undertaking canyon rescue as the ultimate combination of water rescue and rope rescue skills and equipment. Meanwhile, their inside spread describes elements of the *Spin* swivel-pulley range and a checklist for a cable car rescue.

Our Mountain Rescue editor Darryl Ashford-Smith of Scottish Mountain Rescue changes back to his fire-service roots to highlight the work and training of the Maltese Civil Protection Dept in dealing with the numerous cliffs around this Mediterranean Island more familiar to some from some pirate films filmed in the capital Valetta.



Reed Thorne gets to repeatedly use his favourite word 'jigger' to describe and explain **mini-pulley systems** or Casualty



Pulley Systems as we called them back in the 80's (thanks to Troll legend Dave Allport).

Two **Extrication** articles this issue, the second in our series of **GUIDES to Battery Tools** is **Cutters** while our extrication team continue to try and change the worlds perception of the proper use of the word 'extrication' and examine **rapid removal vs space making**. Police Rescue Squad (as it was in the late 90's) in Sydney would say they told us all along that hanging around while the roof is cut off as an automatic procedure in a car crash is often counter-productive to the health of the casualty.

Brand	Model	Price	Weight	Capacity
Brand A	Model X	£120	15kg	1000L
Brand B	Model Y	£150	18kg	1200L
Brand C	Model Z	£180	20kg	1500L



Brand	Model	Price	Weight	Capacity
Brand A	Model X	£200	25kg	1500L
Brand B	Model Y	£250	30kg	2000L
Brand C	Model Z	£300	35kg	2500L



Finally our second **Guide** is the second part of **Inflatable Rescue Craft** - in this case **Open-ended or Open-stern Watercraft**. These have become the go-to craft for flood and swiftwater rescue particularly in urban flooding and narrow river channels or rivers in spate. This **GUIDE** includes a separate section for double-ended craft that can be tipped as exemplified by the Oceanid RDC.



# ARB STUFF

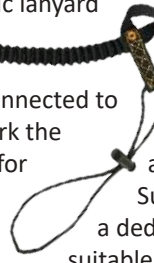
## TOOL LEASH 360 for the smaller stuff in life

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with Not



Equipped with a mini swivel connector to the harness that avoids twisting, a slot lanyard when not in use and a drawstring cord for attaching the tool with a larks-foot.

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Length 85 to 130cm

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[www.kong.it](http://www.kong.it)



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- Gate opening: 18mm
- Weight: 130g
- Static resistance: 25kN

COST: approx £\$€25-30 Inc VAT/tax

[www.mycourant.com](http://www.mycourant.com)



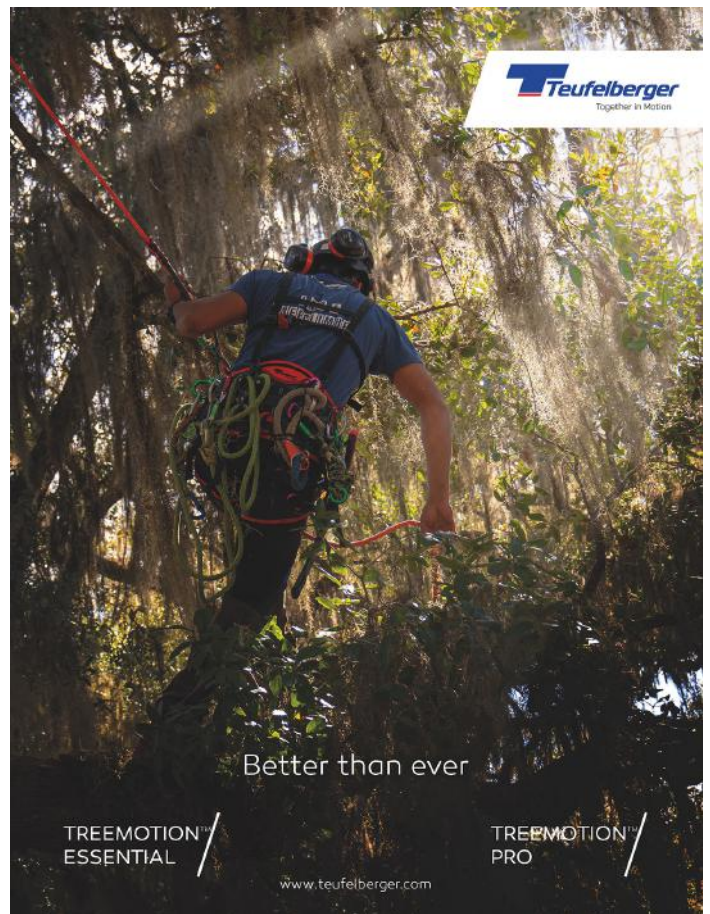
## PETZL TREECARE SOLUTIONS

Being effective in your daily work as an arborist means mastering advanced techniques and having the best equipment to efficiently move around and position yourself in the trees. Here's Waldo Eherrington in his element at Stourhead Arboretum in Wiltshire.



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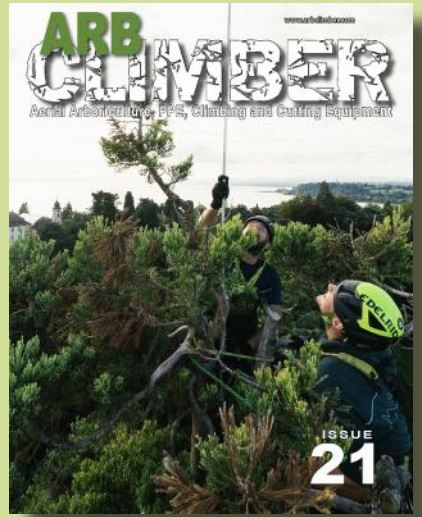
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## ARB CLIMBER issue 21:

Plenty of annoying delays in 2022 so this was late and, as it turned out, issue 22 was also late after being caught up in the mail and printing backlog so it didn't actually make it to print until early 2023! Issue 21's cover features Edelrid helmets and harnesses being used during the installation of a lightning conductor in a tree on Germany's Mainau Island in Lake Konstanz.



We have no less than four **Back-to-Back** articles in this issue although only two are actually listed as Back-to-Back. One is a look at the Stihl MSA 161T Battery chainsaw against the Echo DCS 2500T. The second is an epic 21 page look at six arborist sit harnesses from Europe/USA as a follow up to issue 20's look at six French harnesses by our friends at French-language magazine *Arboriste*. The third is our equally epic 14 page **GUIDE** to Climbing Spikes/Spurs. **From Japan** provides our fourth with Paul Poynter highlighting the good and bad of 14 pieces of SRT/SRS hardware.



All of that didn't leave much room but we still managed to squeeze in a **Redwood climbing expedition** to a 300+ footer in California from our man Ox in Oregon, a **REVIEW** of SIP Protection's **Canopy-W-Air class 1 chainsaw trousers** for climbers from



ArbClimber's rarely seen consultant editor Rich Hackwell and finally a more ethereal look at the artistry involved in arboriculture from ArbClimber's Poet Laureate, TC Mazar. See, we don't just play with shiny stuff.



# EVENTS

# ARB EVENTS

## ArborFest Expo East 2023

March 31-2nd April 2023

Western North Carolina Agricultural Center  
775 Boylston Highway,  
Fletcher, (Asheville)  
NC, 28732  
USA

[arborfestexpo.com](http://arborfestexpo.com)

**\$129 Workshops, tradeshow**



## The Arb Association ARB SHOW 2023

12-13th May 2023

Westonbirt Arboretum,  
Tetbury, Gloucestershire  
GL8 8QS Wiltshire,  
UK

[www.trees.org.uk](http://www.trees.org.uk)

**Workshops, Climbing Competition, Trade show**



## ISA 2023 European Tree Climbing Championship

June 29 - July 2 2023

Kastiel Budmerice,  
Budmerice 679  
900 86  
SLOVAKIA

[www.itcc-isa.com/events/regional/etcc](http://www.itcc-isa.com/events/regional/etcc)



## ISA 2023 ITCC- World Climbing Championship

11-13 August 2023

Hyder Park  
700 Pershing Ave SE  
Albuquerque, NM 87106  
USA

[www.itcc-isa.com](http://www.itcc-isa.com)



## ISA International Conference 2023

14-16 August 2023

Albuquerque Convention Center  
401 2nd Street NW,  
Albuquerque,  
NM 87102  
USA

[www.isa-arbor.com](http://www.isa-arbor.com)



## Tree Care Industry Association Expo 2023

56

**ACCESS&RESCUE** E-magazine 48

16-18th November 2023

St Louis,  
MO  
USA

<https://expo.tcia.org>

**Conference, Workshops, Climbing Competition, Trade-show**



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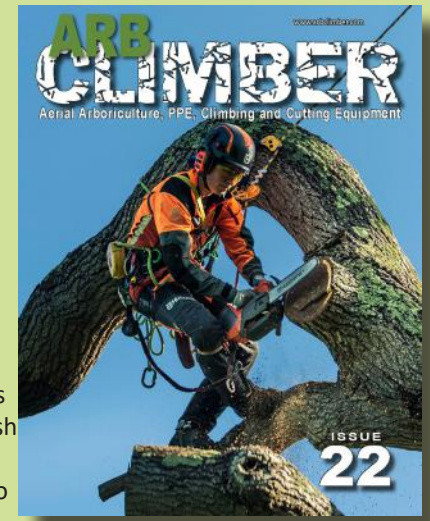
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Husqvarna reserves the right to change specifications and prices without notice. Please follow the instructions and warnings in the operator manual and wear the recommended personal protective equipment.

[www.rescuemagazines.com](http://www.rescuemagazines.com)



# WHAT'S in ARB CLIMBER 22



## ARB CLIMBER issue 22:

A cosmopolitan front cover for this one as it's on behalf of Husqvarna USA featuring Swedish Husqvarna equipment and PPE being used by the UK's competition climbing superstar Jo Hedger from the New Forest in Hampshire in her day-job as a working arborist and instructor. More on Husqvarna's chainsaws on page 2/3 and their helmets are covered in this issue's **GUIDE to ARBORIST HELMETS**. Like Rescue helmets, arborist helmets occupy a niche area in limbo between industrial and mountaineering (climbing) standards. It's a veritable minefield of conflicting standards that we try to unpick but it would be far better if we had a North American/European standard that is specific to rope-access/rescue workers. Elsewhere, we have two hardware-related Gear



**Reviews**, DMM's smallest **Impact block**, Petzl's **Spin** swivel pulleys and **Texora** slings. Our colleagues at Hevea in France provide the basis for a **Back to Back** comparison of **friction savers**, otherwise known as cambium savers and all functioning as remote anchors for your climbing ropes that can be retrieved from the ground. We look at **Decay Detection devices** from the two market leaders Rinttech and IML. Both companies produce tomograph and microdrill systems offering two different ways to show a cross-sectional representation of the trunk and highlight areas of weakness. **From Japan** this time around, Paul Poynter looks back at a discussion of the use of specialist fibres to make rigging ropes lighter and stronger. A discussion started over 15 years ago but still current. Our **Event** is **Treetopia 2022** in California is described in enthusiastic detail by Michael (Ox) Oxman with competitions, rec climbing and kit demonstrations. Also from the US, tech wizard Chris Girard discusses **Transporting Wood Across the Worksite** - in practice, this generally means highlines/ziplines shifting larger sections of trunk from the felling point to a point of removal from the work site.



# RESCUE EVENTS

## EVENTS 2023

### FDIC 2023

Fire-Rescue & Trade Show

11-14 April

Convention Center

Indianapolis

Indiana USA

[fdic.com](http://fdic.com)



### HAWAII SAR CON

Search & Rescue

(provisional 20-22 May)

Oahu - TBA

Hawaii

[hawaiiSARcon.com](http://hawaiiSARcon.com)



### RESCUE DAY 2023

Rope Rescue

11-14 May

Ramales de la Victoria,

Seville,

Spain



### GRIMP DAY

Rope Rescue

24 - 31 July

Namur

Belgium



### A&A 2023

Fire/Rescue/Safety Trade Show

24-27 October

Hannover

Germany

[interschutz.de](http://interschutz.de)



### Emergency Services Show (UK) 2023

Trade Show

19 - 20 September

NEC Birmingham

UK

[emergencyuk.com](http://emergencyuk.com)



### UKRO Festival of Rescue 2023

Extrication, Water & Rope Rescue Medical.

20 - 25 September

Lincolnshire

UK

<https://ukro.org>



**HAWAII SAR CON**  
**2023**

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RELATIONSHIPS AND COMMUNICATION TO WORK  
TOGETHER MORE EFFECTIVELY AND EFFICIENTLY TO  
SAVE LIVES.

DEMOGRAPHICS	SEARCH & RESCUE TRAINING	BENEFITS FOR BRANDS
<ul style="list-style-type: none"><li>• Age Range: 22-60</li><li>• Male: 60% Female: 40%</li><li>• Decision Makers</li><li>• Public Safety Personnel</li><li>• Island SAR teams</li><li>• SAR volunteers</li><li>• Government Agency Personnel</li></ul>	<ul style="list-style-type: none"><li>• Multiple days</li><li>• 200 participants</li><li>• Speakers</li><li>• Demonstrations</li><li>• Experiences</li><li>• Expert-led classes<ul style="list-style-type: none"><li>◦ Drone / K9 / Ropes</li><li>◦ GIS / GPS / Comms</li><li>◦ Prevention</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Hawaii Back Drop</li><li>• Worldwide Audience</li><li>• Fulfills CSR</li></ul> <p>REACH</p> <ul style="list-style-type: none"><li>• 2M Social Media</li><li>• Commercial, Recreational, Emergency Sectors</li></ul>

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WeberRescue's international **rescueDAYS** are the world's largest training event for technical assistance and have been taking place for 20 years in Germany and throughout the world, including Japan, Brazil, Ukraine, Poland, Austria, Slovenia and Portugal.

**rescueDAYS** allows participants to train for different accident scenarios and to gain knowledge about the technology used. The training covers the car, truck and bus rescue. During **rescueDAYS**, participants can learn new rescue techniques and exchange experiences with participants from all over the world, because no two rescue techniques are the same.

We are looking forward to exciting training days 2023 at Bostalsee in the far west of Germany! The 120 hectare venue is in Sankt Wendeler Land, one of the most beautiful regions in Saarland in the middle of the Saar-Hunsrück Nature Park and on the edge of the Hunsrück-Hochwald National Park. Its 60,000 m<sup>2</sup>+ event area offers excellent hosting for the rescueDAYS 2023. In addition to the training event, Fire Brigade Days for the district will take place together with a trade fair with over 100 exhibitors. The management conference can accommodate more than 300 participants with expert lectures held on Saturday in the large marquee. In addition to the fire departments of the district, THW, DRK, Malteser, DLRG, emergency medical services, the German Federal Armed Forces, state and federal police will also participate in the event.

As with last year's event, the two-day **rescueDAYS Original** and **rescueDAYS PLUS** events will run twice. This means that you have the opportunity to participate in **rescueDAYS** either on Thursday and Friday or on Saturday and Sunday.

**rescueDAYS Original (2 days)**

- Modern vehicle technologies
- Lifting, securing and stabilising
- Crossramming / Patient in focus
- Passenger car under trailer
- Chain rescue
- Passenger car on barrier
- Rear impact

**rescueDAYS PLUS (2 days)**

Parallel to the **rescueDAYS Original** training programme, the new **rescueDAYS PLUS** focus on additional rescue scenarios. This training with special topics also runs over two days.

- Truck rescue
- Accidents with agricultural vehicles
- Bus rescue
- Slings, pulling and diverting loads

[www.weber-rescue.com/en/rescue-days](http://www.weber-rescue.com/en/rescue-days)

# WEBERrescueDAYS























21. - 24. SEPTEMBER 2023  
BOSTALSEE

Germany (nr Luxembourg/French border)





## WHERE TO BUY **ARBCLIMBER**, **TECHNICAL RESCUE** & **WSAR** magazines

AUSTRALIA		<b>RISE PACIFIC</b>	7/593 Withers Rd	Rowse Hill	NSW 2155	rise-au.com
BELGIUM		<b>K2 PROFSHOP</b>	Cleydaellaan 10, Unit 8	Aertselaar	2630	k2profshop.be
CANADA West -ALBERTA		<b>ARBORIST SUPPLY CO</b>	Bay 8, 141 Commercial Drive	Calgary, AB	T3Z 2A7	arboristsupplyco.ca
CANADA West -BC		<b>UNIVERSAL FIELD SUPPLIES</b>	605-1515 Broadway St	Port Coquitlam, BC	V3C 6M2	universalfieldsupplies.com
CANADA East -ONTARIO		<b>UNIVERSAL FIELD SUPPLIES</b>	1645 Bonhill Road #1 & 2	Mississauga, ON	L5T1R3	universalfieldsupplies.com
DENMARK		<b>VERMEER DANMARK</b>	Agenavej 22	Greve	2670	vermeer.dk
GERMANY West		<b>BENK/CLIMBTOOLS</b>	Lahnstr.30 A	Mülheim an der Ruhr	45478	climbtools.de
GERMANY South		<b>FREWORKER</b>	St. Gilgen 15	Gilching	82205	freeworker.de
INDIA		<b>LIFEGEAR</b>	Om Heera Panna Mall	Mumbai	400102	lifegear.in
HONG KONG		<b>PROTREE</b>	Greenland Garden	Tuen Mun	NT 852	protreehk.com
IRELAND		<b>DONEGONS</b>	Ann Street	Bailieborough	Co Cavan	donegan.ie
JAPAN		<b>ODSK</b>	5513-2 Nishi-machi	Nagano-Ken	396-0026	works-odsk.jp
NEW ZEALAND		<b>TREETOOLS</b>	8a Kerwyn Ave East Tamaki	Auckland	2013	treetools.co.nz
UK South-Central		<b>HONEY BROTHERS</b>	New Pond Road, Peasmarsh	Guildford	GU3 1JR	honeybros.com
UK South Coast		<b>TREE KIT</b>	Unit 3, Building 446, Aviation Business Park	Christchurch	BH23 6NW	treetkit.com
UK North East		<b>GUSTHARTS</b>	Milkhope Centre, Blagdon Seaton Burn	Newcastle upon Tyne	NE13 6DA	gustharts.com
UK North West		<b>SKYLAND EQPT</b>	Unit 17 Wheathill Ind.Est. Holt Lane, Netherley	Liverpool	L27 0YA	skylandequipment.com
UK South West		<b>SORBUS INTERNATIONAL</b>	L1- L3, Commerce Park, Marshall Way,	Frome	BA11 2FB	sorbus-intl.co.uk
USA North-East		<b>ARBORTECH SUPPLY</b>	11494 James Madison St	Remington	VA 22734	arbortechonline.com
USA North-East		<b>GAP ARBORIST SUPPLY</b>	835 PA-41	Gap	PA 17535	gaparboristsupply.com
USA East		<b>MOUNTAINTEK</b>	1034 Maple Street	Hendersonville	NC 28792	mountaintek.com
USA North West		<b>WESSPUR</b>	2121 Iron Street	Bellingham	WA 98225	wesspur.com

STOCKISTS in this colour sell and/or can order: **ArbClimber**, **Wilderness SAR** & **Technical Rescue** magazines

### Tune in on Spotify or Anchor

Every episode contains great conversations with Arborists about personal experiences from humble beginnings to trial and error. Whether you climb, drag or sell, **Tree Talk For Tree Nerds** will entertain and educate every Arborist at any stage of career. ISA Certified Arborist Justin Herrera



**NEW Podcast for Arborists**

Arb supply stores that stock **ARBCLIMBER** ALL have a wide range of rope-related equipment, including ropes, hardware, harnesses, helmets etc. as well as chainsaws, boots, clothing etc. Now that SRT/SRS is an accepted area of tree work, the rope-related equipment is often the same and even if it's not they can get it in for you. In the case of suppliers shown in red (opposite) that stock **TECHNICAL RESCUE** and **WILDERNESS SAR** magazines as well as ARB CLIMBER, these are already rescue and access equipment suppliers of note so they can sort you out whether you're an arborist or a rescue agency.

For rope-related equipment in particular, you should check out your local ARB supplier or Rescue supplier, if you haven't already, and be amazed by the amount of kit you recognise. **If you would like to stock our magazines** (and aren't located next door to our existing stockists), **email us:** [admin@rescuemagazines.com](mailto:admin@rescuemagazines.com)



# HYDRATE YOURSELF!

*ED: A hot topic in every discipline and you might have noticed WEAVER LEATHER's ad in ARBCLIMBER centring on a Camelback-style hydration pack for climbers who are otherwise less able to take water on-board during a busy day aloft. These words of wisdom are from Honey Brothers in Surrey, UK, one of our regional magazine stockists:*

Drinking enough water each day is crucial for many reasons: To regulate body temperature, keep joints lubricated, prevent infections, deliver nutrients to cells, and keep organs functioning properly. Being well-hydrated also improves sleep quality and mood. (Always good to bear in mind if you are feeling grumpy)

## A LITTLE BIT OF HYDRATION PERSPECTIVE

Exercise performance is impaired when an individual is dehydrated by as little as 2% of body weight. Losses in excess of 5% of body weight can decrease the capacity for work by about 30%. If you then think about the 30% decrease in work capacity and then throw into the mix a running chainsaw up a tree. One lapse moment of concentration could be fatal. Just remember this on hot days up the trees.

## TIPS FOR STAYING HYDRATED

If you just can't remember to drink enough water, look for ways to build it into your day.

- Make water your go-to drink.
- Tip a glass at and between each meal.
- Set a reminder on your phone to have a glass every hour. –
- Carry a bottle around as taking a swig can become a habit
- And if you're hankering for a snack, have water instead. Sometimes, our bodies confuse thirst for hunger.

## How much is enough?

Women should be drinking around **2.7 litres a day**. Men should be drinking around **3.7 litres a day**.

These recommendations cover fluids from water, other beverages and food. About 20% of daily fluid intake usually comes from food and the rest from drinks. So, aiming for roughly around 0.7 less than the stats above should cover you. Your fluid intake is probably fine if you are rarely thirsty and your urine is colourless or a light yellow. Prevent dehydration by making water your

## Have you had a stressful swiftwater training experience?

Participate in the global survey and improve swiftwater training risk management.

[www.tinyurl.com/swiftwaterstress](http://www.tinyurl.com/swiftwaterstress)



drink of choice and try to have a glass with and between meals, When exercising and generally when you a feeling a bit thirsty.

## EXERCISE, ENVIRONMENT AND HEALTH

If you are doing any activity that makes you sweat, including climbing and tree work we might add, then you should drink extra to cover any fluid loss. It is important to drink before, during and after exercise. If you are working in a hot or humid environment, this can make you sweat without you even realising, so it is best to keep yourself topped up throughout the day.

Caught a cold or have a bit of a fever, we know it sounds pretty obvious that you should drink more when you are feeling under the weather but this can also improve your recovery.

## EMAIL ADDRESSES

*We've got a shed-full of email addresses so if you get mail bounced, try another one - they all work at some point!*

[admin@rescuemagazines.com](mailto:admin@rescuemagazines.com)

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