

TRAVERSE RESCUE STRETCHER

TITAN

Titan (Mythology): Immortal, being of incredible strength

by **Rob Thomas**

Park Ranger magazine's South African Editor & CEO- School for Mountain Leadership

MANUFACTURER:	Traverse Rescue
ORIGIN:	Canada
COST	Approx US\$1000
MATERIAL:	Stainless Steel (Titanium option)
WEIGHT:	16.3kg / 36 lbs
WIDTH:	580mm / 23"
LENGTH:	2110mm / 83"
DEPTH:	160mm / 7.25"
STANDARDS:	CE Class 1 Medical,
STRENGTH	
TESTED TO:	MIL-L-37957A: 1134kg (2500 lbs)
www:	traverserescue.com

Five years ago we acquired a stainless steel basket stretcher for training purposes. It was intended primarily for rope rescue training, both in urban and in wilderness environments. It also needed to be well behaved around helicopters since we would be using it for helicopter rescue training. Being a nice guy I would also make it available to the mountain rescue team I'm a member of so that they could train with it and use operationally if needed.

We chose a tapered split-apart basket manufactured by Traverse Rescue called 'Titan' which is the same model marketed by CMC under the name 'ProSeries but with some cosmetic differences. Our model has a Polyethylene backboard and 'Durethane' netting and the option of: Patient head protection box • Extended carry handles for narrow trails • Wheel • Backpack straps • Protective cover • Flotation collar • Bridles

What influenced the decision?

We needed a stretcher that would last. It needed to be student-proof as well, and they are not known

for their kindness and consideration to equipment. It needed to be versatile, suited to cliffs, buildings, wilderness and helicopter work. A stretcher that only worked with a proprietary bridle would be unacceptable as students needed to be taught the principles of stretcher rigging which meant that standard carabiners would have to fit. Designated rigging points were fine, as long as other parts of the stretcher could be used as well (for teaching the principles of improvised stretcher bridles). Having a break-apart option would make storage and transport easier while also offering the option of having individual rescuers carry the two halves when walking in to a training location.

First impressions

I collected the box from the supplier and popped it into the load bed of my double-cab truck. Check! First criterion met – it fits with ample space to spare. On opening the box I found the stretcher nested, the two halves together in a plastic bag. The patient-retention straps were already fitted and ready to go.

Included in the box was an instruction manual.

Like all people I put the instruction manual down and immediately set to work trying to put the stretcher together without reading the instructions. [ED: only us males Rob, women are smart enough to read them first]. Less than a minute later the stretcher was assembled. No rocket science there! The process is easy: approximate the two halves for assembly, then change their orientation as though the stretcher has just had its back broken. This allows the two sets of 'teeth' to interlock after which the stretcher can be straightened which aligns the locking collars, allowing you to screw them together. Once properly tightened they are prevented from accidental loosening by means of a spring-nose plunger which must be depressed before the collar can be unscrewed. There are no detachable parts so nothing gets lost or left behind.

There are four patient restraint



straps using slide-lock buckles, each with a red release tab as can be seen in the title photo opposite.

The stretcher gives the impression of being robust, although I was concerned that students would manage somehow to bend the inter-locking teeth while carrying the unassembled stretcher around – or, more to the point, putting it down without exercising due care.

A long term project

For five years I used the stretcher on a variety of occasions. It was used primarily for training but the mountain rescue team I'm a member of fell in love with it and would regularly ask if the stretcher was available for both training and callouts until they finally bought their own. It saw duty teaching patient packaging and doing rope rescue training in office blocks, flats, factories, mines, construction sites, silos, canyons and cliffs. It was used for cross-country carries and low-angle evacs. It was used for heli rescue, doing more callouts with helicopters than my own team's stretcher (although I'm sure that'll change soon enough).

IN ACTION

Putting it together and taking it apart is quick and intuitive, and once assembled it is superbly rigid. Despite my initial misgivings, over the past 5 years of use no one has yet managed to bend the interlocking teeth that join the two halves and believe me when I say that students really don't care!

Patient packaging is easy with a gazillion options available, depending on how you prefer to do it. When teaching V- and diamond-lashing to students for basic wilderness patient packaging, there was no shortage of possible variations. The four patient retention straps which ship with the stretcher are quick to connect and easy to tension. If over-tensioned they can take a bit of tugging to release them – especially if this has been done for storage purposes where there's nothing involved that has any 'give'. The buckles do also have some sharper-than-necessary edges which results in them starting to wear through the straps after about 4 years.

Perhaps chamfering them or giving them a 1mm radius would extend the straps' lives but 4 years is still a good run for a piece of training equipment. I eventually added two quick-adjusting V-straps made of climbing tape (one at neck level, the other at knee level) which would connect to a patient harness, ensuring that patients did not get ejected from the stretcher should forces try to conspire against us.

Patients found that lying on the stretcher for extended periods without padding would leave an entertaining mesh pattern on their backs, and lying in the stretcher without head blocks or a helmet requires a bit of padding under the head to avoid an uncomfortable extension of the neck. While this seems odd it does mean that putting head blocks in place or keeping the patient's helmet on does not result in flexion of the neck which would occlude the airway.

Carrying the stretcher to scenes was often achieved by strapping a half of the stretcher to a rescuer's backpack and off we'd go. This works really well unless you're going through dense bush in which case the (half) stretcher bearer needs some assistance in getting under low-hanging branches. Big step-downs in rocky terrain often resulted in the mating section getting bashed but with no apparent adverse effects.

For **cross country evacs** we found that there were more than enough hand holds so that when the time came to caterpillar the stretcher over rough, awkward terrain there were plenty of options. One place where plastic-tub stokes baskets would probably perform slightly better is keeping sticks from poking the patient. The mesh allows sticks to poke through so you have to take special care when setting the patient down for a breather. As with chicken wire the durathene netting still gets torn but unlike chicken wire, this doesn't result in a barbed wire bed! Rips in the mesh are easily repaired with small cable-ties or nylon cord.

When used for **rope rescue** the Strat-Load bridle connection points really did a good job of protection the carabiners and ends of the bridle from abrasion and leverage on the cliff.

BEAL

PRO

W O R K

TECHNOLOGY FOR YOUR SECURITY



RAIDER

HEAT RESISTANT ROPE



Ideal for use where heat or friction may be encountered, Beal RAIDER ropes use Aramide fibres in the sheath making the rope many times more resistant to high temperatures.



BLOWTORCH TEST

Semi-static rope holding a mass of 100kg exposed to a temperature of 400°C (+ or - 50°C) for 15 minutes:

- Classic 11 mm rope: Break after around 40 seconds
- Raider 11 mm rope: Residual strength around 1500 daN after 15 minutes

To learn more about Beal Raider ropes scan this code.



beal-pro.com

Beal products are distributed in the UK and Ireland by Lyon Equipment Limited
www.lyon.co.uk

The depth of the stretcher and the robustness of the top railing does a good job of protection the patient from knocks and scrapes, especially since, in training, the stretcher jockey [litter attendant] is often fairly inexperienced in this role and many fail to realise how hard the jockey needs to work during on-angle cliff rescue. On one occasion a jockey lost his footing and managed a mid-air 450° pirouette before slamming the head end of the stretcher into the cliff with no damage to stretcher or patient. On a personal note, I found the two

This allows a rescuer to hoist out of the aircraft with all his personal kit plus the stretcher, all in one neat, compact bundle and the speed with which it assembles means you're not wasting fuel as the aircraft stoozes around, waiting for you to put the stretcher together.

It accommodates most patients well, although those over 6' tall (180cm) need to have their knees flexed to fit. Placing a rolled up sleeping mat under the knees helps in this regard. Despite this not being a bariatric stretcher, the team did manage to heli hoist a

When hoisting patients into the aircraft the lack of a covering shell means that airflow goes straight through the stretcher instead of trying to turn it into a wing. It still needs a tag-line under the bigger helicopters though, which we discovered during a rescue when the anti-rotation tag-line was too short (the hover was higher than expected) but even then the spin isn't nearly as bad as it would be with a plastic stokes basket. In short-haul we found that developing spins were quickly killed by an expedited climb out

in that environment.

The final test

In October 2013 I was running a Wilderness SAR course. During these courses we head out into the mountains for 5 days of self-supported SAR activity. On the third day the students were finishing off the second of two 55m stretcher lower exercises for the day and the stretcher had been put down on the ground at the base of the cliff. The patient, also a student, was still tied in to the stretcher and the jockey was disconnecting the ropes from the bridle having called for 1m of



railings underneath the stretcher very useful for being able to get an underhand grip on when pulling the stretcher away from the rock. The vertical bars also permitted me to clip a carabiner to my harness belay loop, using my legs to pull the

140kg (308 lb) patient in the stretcher, although they had to dig around under the fat that was overflowing the stretcher to get access to the patient tie-in!

of confined space and a quick transition to the ferry.

I haven't used this stretcher in a water-rescue configuration so I can't comment on its functionality

slack on main and belay. Standing at the top of the cliff, the horrible sound of rock-fall below caused me to break out in an instant cold sweat as my blood turned to ice. A 500kg rock, probably loosened by the passage of the jockey over it, had parted from the face 1.5m above the stretcher and landed on the right side of the stretcher at hip level, injuring the patient. Cutting a long story short, the patient walked out of hospital 2 days later with nothing but soft tissue injuries. Initially the only visible damage to the stretcher was that the locking collar fitting was cracked and loosened, which was not surprising given that 500kg+ had just landed on it! These stretchers are bomber!

Once I took a closer look at it (on level ground) I discovered that the frame had also been deformed and the stretcher was damaged beyond being safe to use. If the same thing had happened with a plastic Stokes basket the outcome would have been significantly worse.

I'm looking forward to many years of rescuing with our stretcher's successor – also a Traverse Titan.



stretcher

away from the rock –very useful! The split-apart option means that when **hoisting out of helicopters** the two halves can be nested and strapped to a backpack before being clipped to the bridle.

