

# Rescue News

## PT Hydraulics Australia

At a recent Training Event by Lukas in Hamm, Germany, the latest in New Car Technology from Europe, including Ultra High Strength Steels, were pitted against the brand new range of Lukas eDraulics, powered exclusively by batteries. Prior to the event, a number of participants expressed their skepticism over whether battery-operated tools were capable of overcoming the New Car Technology. However after the first cutting demonstrations, where the eDraulic tools easily accounted for all challenges placed in front of them, even the most serious doubts were put to rest.



In one of the scenarios, a car had lost control in a parking garage and broken through the protective rail, leaving the vehicle dangling from the edge of the first floor. The advantages of eDraulic tools were clearly evident as Rescue Teams had to climb two staircases to access the accident scene. A test run was completed using conventional hydraulics, then compared against the results of using the eDraulic tools to access the scene. Without the need to carry Pumps & Hoses, teams were able to commence the Rescue Operation more efficiently & quickly, and expended far less energy in reaching the scene.



### Smart Solutions for Rescue Operations

Today's Rescuers need to address the challenges that new and future vehicles will present them with. This means constantly reviewing their equipment, training, information management, and medical requirements.

*You cannot do one without consideration of the other.*

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# Smart Solutions to Rescue Operations

In today's rescue environment new and safer vehicles are creating some issues with not only rescue tools but also with rescue personnel on how best to approach this challenge. This article highlights several of these potential issues, categorized into four major areas:

- New Vehicle Technology
- Training
- Casualty Management
- Equipment

## New Vehicle Technology

The strength of Safety Zones in vehicles continues to improve, largely through the use of Ultra High-Strength Materials such as Boron Steel. This is reflected in A and B Pillars which are now stronger, wider and deeper than previous vehicles, presenting challenges to both equipment and current techniques. Adding to the challenges are a range of inbuilt safety systems, such as SRS Airbags (including Driver, Passenger, Side, Curtain, Anti Submarining, Thorax & Foot) as well as Side Impact Protection Systems (SIPS) and Roll Over Protection Systems (ROPS). Further complicating the situation is the range of power sources now available in vehicles, such as Hybrid & Gas Vehicles.

### *Identifying & Managing the Risk*

Other than internal and external labels on vehicles to identify these components, a number of size-up techniques are available for Rescuers. 'Peel and Peak' or 'Expose before you Cut' (removal of inner vehicle panels) is critical to identifying high risk zones, as well as identifying areas of the vehicle structure that may allow for easier cutting or spreading of metals easier, such as in the lower part of the B-Pillar of the VE Commodore as pictured above on the right.

When engaging your cutter, the first action may be a squashing action, especially if your cutter does not have the capacity to cut through the structure in one stroke. As an optional Cutting Technique, you may need to reset the tool and do this once or twice on both sides of material, reduce the cutting area, weakening the structure and allowing you to move your cutter in further to optimize your cutting forces.



**Subaru B-Pillar strengthened by two Reinforcement Bars**



## Training



Road Crash Rescue competitions are an excellent opportunity to learn and practice the latest Rescue techniques.

Whether or not you are equipped with the latest in Rescue Equipment, Rescue Personnel need a range of avenues to access up to date information on vehicles as well as the opportunity to practice on newer types of vehicles. This will allow you to adjust techniques and thought processes in a controlled environment.

The use of Training Support Programs and attending Road Crash Rescue Competitions, such as the ARRO Challenge, is an excellent way to access & practice the newest Rescue Techniques, and presents a good forum for the exchange of ideas. Staying up to date with new vehicle information is also vital. Using computer programs such as the Crash Recovery System (CRS) will provide rescuers with education on new vehicles and the risks associated with them.

## Casualty Management

With the changes in new vehicles design, medical entrapments are becoming more frequent. In turn, this has increased the requirement of rescuers to utilise space creating techniques such as roof removals, roof flaps, side removals and cross ramming. These techniques create larger gaps to allow the safe management of casualties.

Open communication between medical and rescue crews needs to be maintained, especially in time-critical incidents where, at times, there will be situations where a 'rescue versus medical' scenario will be presented. Communications between both providers in prioritising needs will be essential to ensure a good outcome for the casualty. To this end, whenever the opportunity arises, it is an excellent idea to have your local Ambulance service attend your rescue training.



Packex Smash & Stabfast are products which make rescue safer & more efficient

Most of today's equipment allows for a safe and effective rescue to be undertaken. As demands increase on rescue tools, manufacturers are working closely with vehicle makers to ensure that current rescue tools are capable of meeting these demands now and in the future. One end result of this process is that rescue tools are becoming heavier due to demands of the required cutting forces. At times this may require a two person operation to use the tool effectively. For example, some vehicles may require up to 135 Ton Cutting forces in certain sections of the vehicle safety cell to release entrapment.

Additionally, the range of tools available for Rescue is always growing. These tools aim to provide safer, more efficient & more flexible options at the rescue scene. Visit PT Rescue's website – [www.pthydraulics.com.au](http://www.pthydraulics.com.au) - Rescue Products and get more information on our range of Rescue Tools.

## Equipment

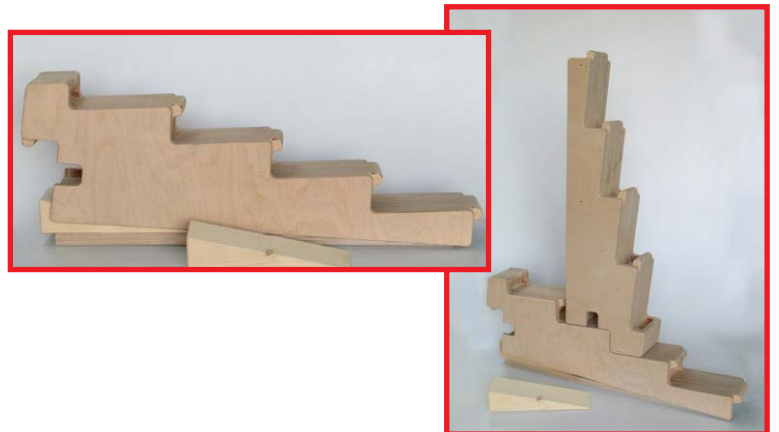
# New Products

PT Rescue is proud to announce that we have added to our range of Stabilisation Products. From the manufacturers of Stabfast, we are now able to offer a range of interlocking wooden cribbing. Along with our existing range of Turtle Plastic Cribbing, made from recycled plastics, we are now able to offer a cribbing solution for every application.



StabLock is a system of interlocking blocks, using a similar design to Lego blocks. All pieces are made of Waterproof Beech Multiplex plywood. The full kit comes with pieces ranging from 1 x 3 notches up to 2 x 6 notches, a ground plate, top pieces and a wedge. It is contained in a 600 x 400 x 270mm Plastic Case and weighs 26.5kg. Upon request, larger individual pieces are also available, up to 2 x 18 notches.

The StabLock Step Chock has a built in wedge, which slides within a variable hinge at the bottom of the Step Chock to quickly and accurately achieve any height necessary. Two Step Chocks will fit together perfectly to minimise the amount of space required on your Rescue Appliance. StabLock Step Chocks weigh 9.6kg, and are made of the same Beech Plywood as StabLock blocks.



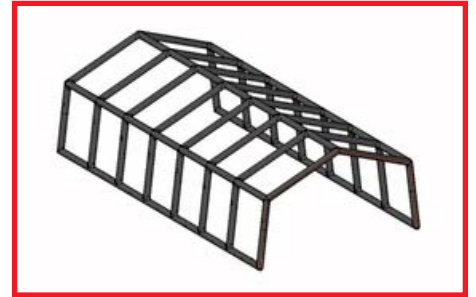
StabPack uses the same Lego principle as in the StabLock blocks. The system is incredibly compact as it is stored on a carrier frame. Each set consists of four blocks with 2 x 3 notches, as well as 2 wedges which can be inserted between the blocks to create any angle. A plastic carry case is also available which houses 4 StabPack sets and weighs 37kg.

# New Products - Vetter Medical Tents

Vetter has added to its already extensive product range with the introduction of a number of Medical Tents. These tents are suitable for a range of applications including First Aid Tents, Operations Control Centres, Screening facility for treatment of injuries, Accommodation and Rehabilitation from Heat Exhaustion.

The tents range in size from 20 square metres (3.7 x 5.4m) up to 60 square metres (11.0 - 5.4m). All tents are also able to be joined to each other to create a 'Tent City' and the use of a Docking Tent allows a large scale mobile hospital to be constructed.

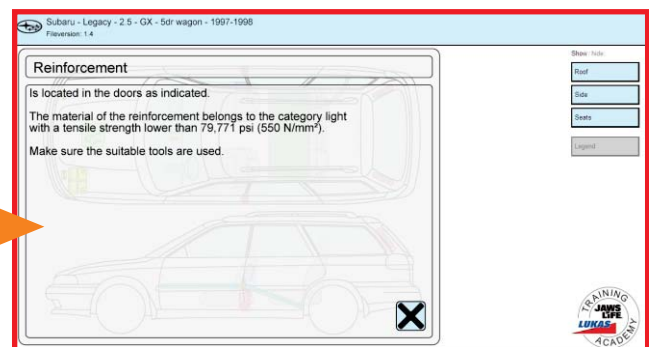
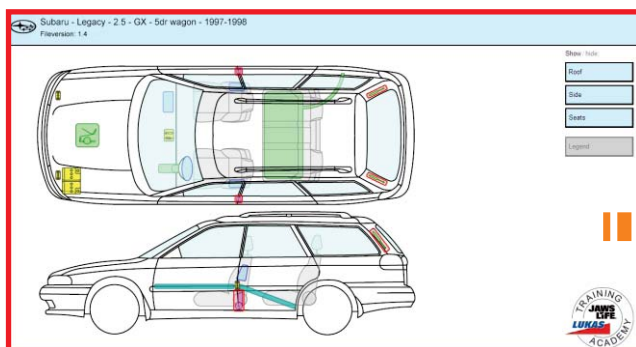
Each tent has 4 small ducts to allow cables and heating devices, as well as windows on opposing sides. All tents are inflated to 0.3 bar using a compressed air bottle or air compressor, and inflation times range from 3 to 6 minutes depending on the size of the tent. Accessories are available including lighting, heaters & air conditioners, and the outer skin can be provided in any colour upon request.



## Product Update - Crash Recovery System

The Crash Recovery System has become an even more useful tool for Rescue workers with the introduction of a Pacific Database of vehicles, including Australian vehicles such as Holden & Ford. This ensures that critically important information such as Airbag & High-Strength alloy locations are available for nearly every car on the Australian Road.

For more information on the Crash Recovery System, or to arrange a demonstration of the software, please don't hesitate to contact us.



*The Crash Recovery System has become even more valuable for Australian Rescue Workers with the Pacific Database, including Ford & Holden, nearing completion.*

*By clicking on any of the components, specific information is displayed, such as tensile strength, power supply drain times, potential dangers of the particular component and deactivation procedures.*

# Getting the Most from Lithium-Ion Batteries

## Caring For your Lithium-ion Battery

As more and more tools, including new Rescue Tools, are now being powered by Lithium-ion batteries, it is important to know how best to care for them so you have the power when you need it most.

In many ways, Lithium-ion is superior to nickel and lead-based batteries and the applications for lithium-ion batteries are growing as a result. A typical Lithium-ion battery provides 300-500 discharge/charge cycles. The battery prefers a partial rather than a full discharge. Frequent full discharges should be avoided when possible. Instead, charge the battery more often. There is no concern of battery memory when applying unscheduled charges.



Although lithium-ion is memory-free, batteries with fuel gauges exhibit what engineers refer to as "digital memory". Here is the reason: Short discharges with subsequent recharges do not provide the periodic calibration needed to synchronize the fuel gauge with the battery's state-of-charge. A deliberate full discharge and recharge every 30 charges corrects this problem. Letting the battery run down to the cut-off point in the equipment will do this. If ignored, the fuel gauge will become increasingly less accurate.

## Longevity of high-power lithium-ion

Generally speaking, batteries live longer if treated in a gentle manner. High charge voltages, excessive charge rate and extreme load conditions will have a negative effect and shorten the battery life. This also applies to high current rate lithium-ion batteries.

## Frequently Asked Questions

### Do Li-ion Batteries need to be discharged before charging?

NO, the batteries can be partially charged at any time

### What is the life of the battery?

The batteries have a life of approx 300 - 500 charging cycles, part charging only counts as a partial charge

### Are Li-ion Batteries always ready for use?

Once the batteries have been charged they remain ready for use for a period of many months. Lithium ion batteries have a very low self-discharge rate of approx 8% in the first month and then just 2% for each following month.



# Lukas eDraulic

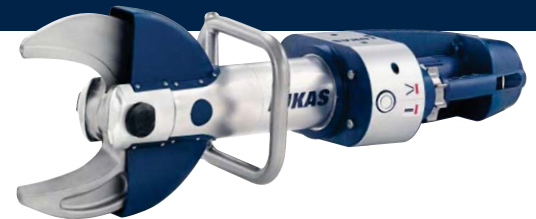
## S311E Cutter

Blade Opening	150 mm
Dimensions (L x W x H)	859 x 278 x 298 mm
Weight	17.5 kg



## S700E Cutter

Blade Opening	180 mm
Dimensions (L x W x H)	915 x 300 x 298 mm
Weight	24.9 kg



## SP300E Spreader

Spreading Force	112 kN / 25,200 lbs
Spreading Distance	605 mm
Pulling Force up to	28 kN / 6,295 lbs
Pulling Distance	495 mm
Dimensions (L x W x H)	830 x 355 x 293 mm
Weight	20.0 kg



## R411E Ram

Retracted Length	542 mm
Extended Length	900 mm
Piston Stroke	358 mm
Extended Length with Extension	1200 mm
Lifting Force	103 kN / 23,180 lbs
Dimensions (L x W x H)	542 x 170 x 265 mm
Weight	17.0 kg



# Preventative Care & Maintenance

## High Pressure Airbags

High pressure airbags are frequently used tools which require regular maintenance. Airbags are robust, powerful equipment used to lift, push, press, prise and support the heaviest loads in any rescue situation or natural disaster. Airbags and their accessories require regular visual and functional checks to ensure correct and safe operation. These should be carried out after each use at any incident or training prior to stowage. Visual checks should cover all items, including the airbag, hoses, regulator, controller and air source. Areas to inspect include couplings and connection nipples (free from damage, easy connection and disconnection), hoses (free from cracks, kinks, abrasion, hardening, effects of chemicals and heat), valves (move smoothly, signs of abrasion), gauges (free from damage) and of course airbags (surface free from cuts, punctures, cracks and heat or chemical marks)



Both visual and functional checks are outlined in detail in the Vetter High Pressure Airbags Daily Care & Preventative Maintenance Manual.

It is a requirement that airbags are hydrostatically tested every five years. This is conducted in our Melbourne workshop. Upon completion of a successful test, a Manufacturers Certificate of Conformance is issued, and the airbag is again deemed safe to use. Finally, airbags are constructed of rubber and are subject to natural ageing processes. Even if the bags show no signs of wear or damage they should be replaced after 15 years

For further information, a copy of the Preventative Maintenance Manual or to organise hydrostatic testing of your airbags, please contact PT Rescue's Melbourne office.

## Introducing Dan Wilkins

The PT Rescue Team continues to grow with Dan Wilkins filling the Customer Service role. Dan joins the team having last year completed his Bachelor of Applied Science degree at Victoria University. He has previously worked with PT Hydraulics in a casual capacity over recent years, including our move to our current premises at Ricketts Road. Dan also brings 5 years of Management experience from the Hospitality industry to the PT Rescue Team.

Dan will primarily assist the PT Rescue Team to ensure the highest level of Customer Service and existing relationships are maintained, whilst creating and developing new customers.

