Contents

For any further questions or comments regarding this newsletter, please do not hesitate to get in touch with us at rescue@holmatro.com.

New Car Technology in practice

By Ian Dunbar, Holmatro Rescue Consultant

New Car Technology (NCT), as its name suggests, will always be a contemporary subject. It will always promote debate and raise concern amongst rescuers. As vehicles get stronger and the amount of reinforcement increases, are we fully confident that the rescue tools in our hand will perform when they are required? After all, rescuers very rarely (if ever) get the opportunity to train on brand new vehicles.

Performance of cutters on new vehicles

At the recent World Rescue and Australasian Road Rescue Challenge in New Zealand I delivered a learning symposium on the subject of hydraulic cutters. The main reason for this was to add some clarity regarding the performance of cutters when used on new vehicles. I am aware there has been debate regarding the need to explore alternative rescue techniques due to the perceived ineffective performance of hydraulic tools on new car construction. While this debate may be healthy - and I would always promote the exploration of new techniques - it has left some rescuers unsure of their own equipment and procedures.

Some of the discussions I had with rescuers at the event proved there was a common belief that the latest generation of cutters are approaching their limits, something I clearly proved to be a myth. During the three days of competition in New Zealand, the cutters we tested during the symposium proceeded to perform on brand new Holden vehicles without concern.

C-pillar cut

The tests clearly proved that cutters specifically designed for NCT used less than 50% (360 bar) of the available capacity (maximum available - 720 bar) when cutting new cars, and less than 30% when used on older vehicles (this data was achieved by inserting a pressure gauge on the single line hose between the hydraulic pump and the tool).

B-pillar cut

Relationship between pressure and hydraulic oil flow

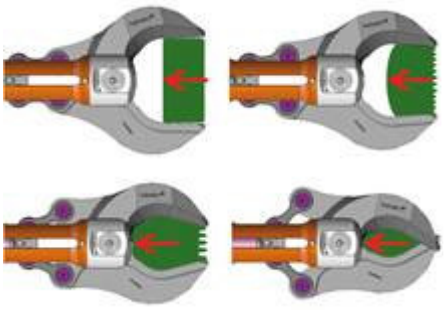
Also, I highlighted the relationship between pressure and hydraulic oil flow. As pressure increases, flow decreases. We used a hydraulic pump which delivers increased oil flow in the second stage. At pressures of 150-450 bar the unit delivers between 975-1125 cc/min. This is the range we proved (during the learning symposium) the tool is operating when dealing with new vehicles and this increased oil flow maintains the speed of the tool during operation.

Cutting performance

An optimal cutting performance is achieved by a combination of three basic principles;

- **More hydraulic cutting force (as described above)**
- **Intelligent construction that allows for minimal blade separation and a narrower tool profile.**
- **Advanced blade design.**

Blades specifically designed with NCT in mind draw the material to be cut into the recess of the blades; this is where the maximum cutting force is located. The cutters we used had wide opening blades which are effective on new A-, B- and C-pillar constructions. They had a high cutting capacity, despite being light and ergonomic.



There is no doubt that New Car Technology raises a lot of questions for today's rescuer. These questions must be answered and all alternatives must be explored. However, having the confidence in your equipment and knowing it will perform today and into the future, allows you to worry about the business of rescue, without fretting about the capacity of your tools.

If you have any further questions, please contact Ian Dunbar at i.dunbar@holmatro.com

Rescue from Partially Submerged Vehicles

By Ian Dunbar, Holmatro Rescue Consultant

Fire fighters must strive to be prepared for every eventuality, and foresee the types of incidents where they may be called on to perform a rescue. Swift water rescue and extrication from vehicles are of course separate disciplines and each has its own dynamics. But what happens when there is an operational requirement for them to be used simultaneously, can this be achieved practically and safely?

Such incidents have the potential to catch us unaware, if we do not prepare adequately. 'Crossover' training (or training that involves multiple disciplines - in this case Vehicle Extrication Techniques and Swift Water Rescue) must be considered as part of your approach to operational preparedness.

Safe approach

The very nature of such incidents will mean that your standard approach to road traffic collisions will be thoroughly compromised. Access to the vehicle and casualty will be delayed until a safe system of work can be established, which includes rescuers wearing personal protective equipment (PPE) conducive to water rescue and extrication.

Identifying vehicle fuel types e.g. hybrid, and isolating the battery to neutralize the hazards posed by airbags, will be difficult. Full stability of the vehicle will be hard to achieve due to its position in the water. This compromises scene safety and the casualty's condition.

Space creation may require hydraulic rescue equipment to be partially submerged in water. **Will your tools operate safely and efficiently in such conditions?** Not all are designed for this, and knowing the limitations of your tools is vital.

©Photo: Jeffrey Koper

The need for rapid extrication

Once access has been gained, your casualty's condition must be assessed as at any other incident using kinematics, mechanism of

injury and primary and secondary surveys. But now your casualty is submerged in cold and possibly foul water. This complicates already life threating traumatic injury and increases the need for a rapid extrication.

Prepare yourself

If an incident is foreseeable, then it should be prepared for. The promotion of theoretical discussion, followed by practical application in line with local standard operating procedures (for both disciplines) and using the most appropriately designed tools for the job, will best prepare rescuers for such eventualities.

If you have any further questions, please contact Ian Dunbar at i.dunbar@holmatro.com

DAF Heavy Rescue Seminar

By Ian Dunbar, Holmatro Rescue Consultant

On 21st September 2011 I was invited to DAF Trucks in Eindhoven to give a presentation and practical demonstration on large goods vehicle construction and heavy rescue techniques. Rescue personnel form the Netherlands were invited and were given the opportunity to look closely at the construction of the vehicles and to discuss and practice extrication methods.

This type of extrication presents rescuers with a wide range of challenges. This is primarily because there is a lack of trucks to train with and so we do not get the opportunity to refine our skills, like we do on smaller vehicles. Stability, glass management and space creation is now something we are really proficient with on cars, but such skills on larger vehicles require more equipment, resources as well as precious time.

The construction of large goods vehicles has become stronger over the last decade, providing a more effective safety cell for the occupants. Additional security devices such as DAF's night lock mean that initial access may be more difficult. It is also important to remember that large goods vehicles also contain airbags and supplementary restraint systems.

The practical demonstration showed that despite the reinforced construction and security features, access and space creation

was not a problem. We removed the door (which was secured with the night lock) and went onto ram the dashboard forward.

Holmatro and DAF will continue to work closely together in the future to give rescuers the knowledge, techniques and equipment they need to perform rescues from large goods vehicles.

If you have any further questions, please contact Ian Dunbar at i.dunbar@holmatro.com

If you no longer wish to receive these newsletters, fill in your details and unsubscribe on our website.