

VEHICLE EXTRICATION

the next generation



AUTHOR: Ian Dunbar
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REVIEW by Rich Denham & Nick Appleton



TRm Extrication Editors:
 Veteran London Firefighters and instructors, Rich is now consulting and training in Latin America and Nick is now a senior instructor with Babcock PLC under contract to London Fire Brigade



PATIENT SAFETY

In addition to safety, securing and treating a patient on scene is a critical part of the extrication process. The author provides a comprehensive overview of the patient safety considerations that are essential for a successful extrication.

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Published during lockdown this excellent book from Ian Dunbar who many of you will remember as Holmatro's extrication front-man, does seem to be everything you ever wanted to know about casualty extrication from crashed vehicles and more good stuff besides.

CONTENT OVERVIEW
 So what's in this technical treasure trove that makes it so good?

- i) all the usual suspects like *safety*, the *vehicle structure* and the *team approach* (v2 – more of that later). The *Scene* is still a feature, although divided into component parts in the other sections rather than a subject in its own right. *Space creation* techniques for the three standard crash circumstances
 - cars upright
 - on their side
 - on their roofs
 ...plus specials like *multi-vehicle scenes*, *night incidents*, in *water* and *precarious positions*.
- ii) more unusual fare is provided by sections on *training*, *human factors* and *crew resource management*, *medical staff* and *medical considerations* and *collision investigation*.
- iii) What isn't covered is a section on tools. In other manuals this can become a veritable equipment catalogue for the

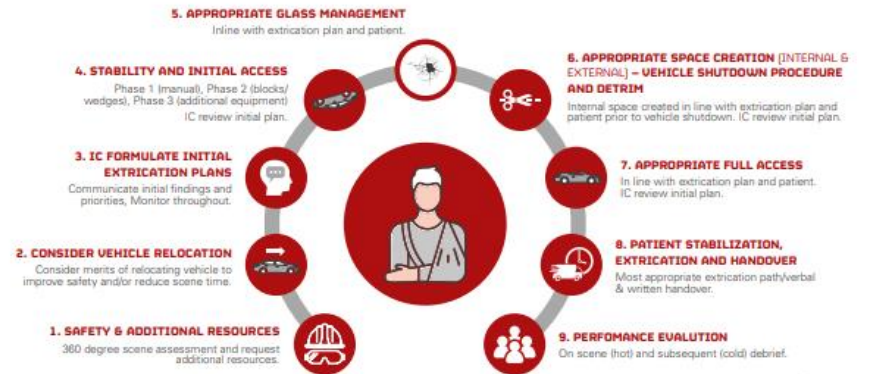
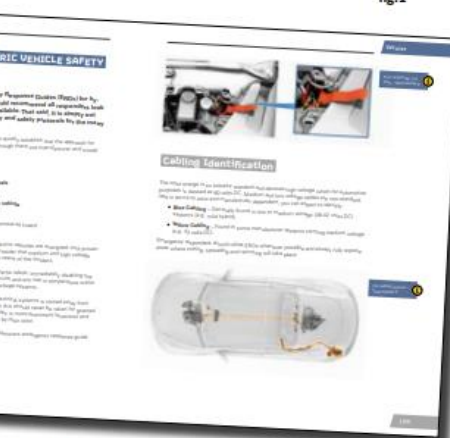


fig.1

manufacturer sponsoring the book but is an area well covered by your Fire and Rescue services' own training and equipment notes so it won't be missed. Incidentally the book does not deal with larger vehicles: trucks, trailers, vans/pickups and other goods vehicles but that's a manual in its own right.

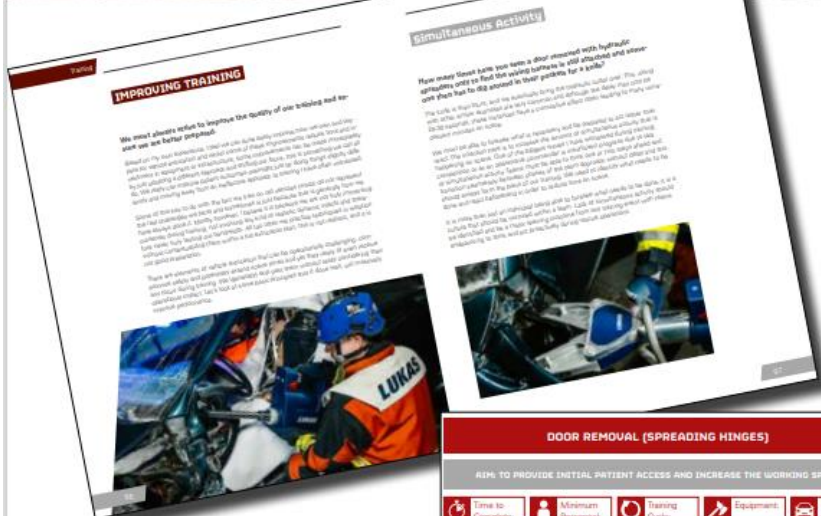
FORMAT AND PRODUCTION VALUES
 Before we go on to look at major content features, lets briefly review the physical format of this very well presented 293 page hardcover book. Close to UK standard A4 page size: 275mm x 205mm/11x8", in fact similar to this magazine – it is full colour throughout with lots of photos. Interestingly the potentially distracting blizzard of text-boxes so common in contemporary instructional manuals in general are dropped here in favour of highlighted headline text instead, arguably making the wealth of detailed information easier to prioritise and understand.

Many of the photos may be stills from the associated videos so can be quite dark, we would have called that 'moody' and it's a function of filming inside. This was likely done because external lighting conditions can't be controlled, vary continuously and so slow-down any photo-shoot. And as any RTC/MVA Instructor who's taken photos for a training note will tell you, outside, you inevitably get lots of extraneous and very distracting



background detail, something that is especially prevalent in US manuals. None of that here though...

THE TEAM APPROACH V2.0 (V3.0 ?) (fig1)
 The author goes into very readable detail revising the *Team Approach* pioneered by London Fire Brigade's Len Watson in the late 90's and was subsequently adopted by the UK Fire and Rescue Service. Its been largely unchanged since then so the review here is a welcome section of this book. However, the author states that he is surprised no-one has revised the team approach before, but here at *TECHNICAL RESCUE* magazine we did just that, years ago in TRm issue 69 from early 2017:



'A New Team Approach' (pic right). You can view this article via the extrication articles on our website at <https://www.rescuemagazines.com/extricationarticles>. These are two different takes on the subject; ours was focused on a logic that makes it easier to understand when delivering training, but the greater detail in this book, 44 pages to be precise, really is first-rate and gives in-depth context that's as valuable to attending crews as it certainly will be to your in-charge at an incident.



TRAINING
The author states in the first line of this chapter 'In my opinion, this is the most important section of this entire book' and in our opinion he's absolutely spot-on. He goes on to state that 'There can be no doubt that training

DOOR REMOVAL (SPREADING HINGES)

RIM: TO PROVIDE INITIAL PATIENT ACCESS AND INCREASE THE WORKING SPACE

Time to Complete	Minimum Personnel	Training Cycle	Equipment	Relevant Orientation
< 90 sec.	2 <small>(Technical Team Members)</small>	Monthly	Hydraulic spreaders and cutters (if required)	

METHOD:
Door removal provides ultimate space and allows the progression of other techniques e.g. deck-and-relocation.

Removing a door in the **closed position** and attaching the hinges is generally safer and easier as the door is controlled by the locking mechanism and the door is spread away from the patient.

- **Reveal the hinges** by crushing the **front wing** (handle). The wing can be fully removed.
- **Spread the top hinge first, then the check strap and finally the bottom hinge ensuring** that you always spread above the point of strength
- **Cut wing boom** (this is usually mid-way up the door)
- **When completed, simply pull door handle and remove the door**

If the connection is tearing e.g. A-pillar, make a cut and then continue spreading.

SAFETY AND GENERAL CONSIDERATIONS:
Although a very basic technique, door removal provides initial access to the passenger compartment and to the patient. IC's should keep in mind the following:

- **Any immediate hazards** from inside the vehicle
- **Identify any undeployed airbags/SRS** and make crews aware
- **Any possible contamination** from blood or body fluids
- **Any sharp edges or broken glass** adjacent due to the damage to the vehicle
- **Use hard and soft protection** to protect the patient
- **Use audible warning** when using hydraulic rescue tools
- **Cover all sharp edges** when completed

PATIENT CONSIDERATIONS:
Ensure the patient is not leaning on the door, as this will result in their movement when you open it.

When spreading hinges, ensure the patient is protected from the possibility of flying debris. Continually brief and update your patient.

Once the door is open, your patient is exposed, and effort should be made to reduce the effects of the environment.

PRE-HOSPITAL CLINICIAN CONSIDERATIONS:
Door removal may require hydraulic tools to be used close to the patient. Brief the patient and ensure they are adequately protected. If you have concerns about yours or the patient's safety, cease the process immediately. Once completed, reassess the patient.

Removing a door will provide excellent patient access. If you start to work near the open door adjacent to your patient, this may compromise the space required by the technical team especially if you have administered oxygen and attached monitoring to your patient as it is then difficult to relocate you. **PLEASE** consider your position and how this may impact on the subsequent technical rescue process.

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activities are directly linked to patient outcomes' the undeniable and stark logic here being that reduced (quality) training results in reduced patient (life and quality-of-life) outcomes.

So what's detailed here is how you can maximise the physical training opportunities that are available – methodology, how to improve and also multi-agency training – and also what areas to focus on:

- Simultaneous activity
- Stability
- De-trimming
- Tackling different vehicle crash postures and damage configurations
- Using live 'casualties'

But also supplementing this with information gathering. For example, use of the NCAP website and also contacts with vehicle manufacturers to gain a better understanding of the structure and features of late model vehicles, how they behave in different crash impacts and so help identify the subsequent space creation solutions that rescuers might employ.

Without doubt all individuals with a training responsibility – officers on stations as well as training centre instructors – will benefit from reading this section, noting the suggestions and then reviewing and improving their own practice and delivery.

PRE-HOSPITAL CLINICIANS/MEDICAL CONSIDERATIONS FOR TECHNICAL RESCUERS

These are the attending medics, be they paramedics or air-ambulance doctors and this section is written primarily for them, to give some detailed context for the environment in which they'll be working. These sections also give technical rescuers some understanding of how to safely and effectively integrate their medical colleagues into what is arguably a very specific confined space rescue scenario. It also provides

some context for planning and facilitating the recommended multi-agency training in the earlier chapter on Training.

TECHNICAL PROCESSES AND EVOLUTIONS

These are essentially stability, access and space creation techniques but also include practical considerations for medical rescuers and casualty handling.

This chapter takes the form of 26 separate Process/Evolution data sheets (see fig 1 on page 15 which is page 247 in the manual), each with its own preceding introduction. There are no photograph sequences in this section, but this is not an issue as there is a concise explanatory video for 20 of these processes which is easily accessed via the QR-Code or the Lukas URL in the bottom right hand corner of each sheet. For an example video use the link: www.lukas.com/book/247 Its worth noting that this facility also allows for each of the data sheets in pdf form to be printed off as student notes (with copyright acknowledgement) or for physical reference and noting when undertaking or delivering training. And incidentally there are a further 10 QR-Code/URL accessed videos at various points throughout the rest of the book, on various subjects.

However its also worth noting that the author's previous work – for Holmatro: *VEHICLE EXTRICATION TECHNIQUES* (reviewed in 2014 in TR67, pic above and link on: rescuemagazines.com/extricationarticles) has more than twice this number (59) of evolution 'sheets', each with a dedicated process photo sequence. Given that firefighters tend to be very visual learners, this book might also be purchased as a complementary reference to the one being reviewed here and with the same author they'll dovetail very nicely.

CONCLUSION

Compared with all other RTC/MVA books over the last twenty years, this is without doubt the best and most comprehensive one yet written on the rescue of entrapped casualties from crashed vehicles. No, really, it is.

The promotional blurb says that the book has been written '...for the newest operative and (also) as a source of reference for more experienced rescuers' and that's absolutely true. But whichever category you fall into, buy this book because – going back to the section mentioned earlier on training – the adoption of its practices really will enhance the patient life and quality of life outcomes of the extrications that you inevitably will perform in future.

VEHICLE EXTRICATION – THE NEXT GENERATION – by LUKAS Hydraulik GmbH is available on Amazon or in their online store: lukas-store.com