

Vehicle extrication with limited staffing levels: surviving in a cut-back environment

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Go to virtually any class on motor vehicle extrication or read any instruction manual on the subject and no doubt you will find that the optimum recommended crew requirement for a light motor vehicle extrication operation is five:

- The incident commander, who has an overall view of the incident and should be hands-off at all times lest he lose sight of the big-picture
- Two rescuers. They are responsible for conducting the inner-survey of the crash site, stabilising the vehicle(s) and performing the extrication
- Two medics, responsible for accessing and evaluating the patient, emergency care and then finally managing the release of the patient

This is the ideal situation. Everyone working together with all efforts focussing on safely accessing, treating and extricating a live patient with a good chance of surviving the ordeal. Every minute spent on such an extrication should show progress on the previous minute and bring the team closer to this goal. If you respond to a two- or multiple-car collision, you would ideally want to have a five-person crew for each car. That is, of course, the ideal situation. Times, as Bob Dylan famously said, "they are a-changin'". No longer do we have an ideal number of rescuers responding to an extrication incident. The call rates are unfortunately getting bigger and the responding crews are getting smaller. It is nowadays more often the rule than the exception that a crew of three responders will be the sum total of the ▶



A limited-manpower rescue is all about team work

- ▶ rescue effort. There are a lot of reasons for this, mostly linked to budgets and the failure of management to appreciate the risk to which their staff is subjected. I could write a book on that subject so best that I don't get started on that point.

In this article I want to focus on how we can deal with the challenge and still give the patient a good chance of survival. I am in no way implying that a crew of two or three is ideal. It is, unfortunately, a daily fact of life for emergency responders across the country.

The first thing you have to do when approaching this challenge is to add a limited-manpower rescue evolution into your training. You can accomplish a great deal with a well-trained three-man unit, if they are able to anticipate the other team members' moves and adapt their own activities accordingly. YOU HAVE TO TRAIN TOGETHER. This is very important. A limited-manpower rescue is all about team work. You can have three fantastic rescuers together but if they are not used to working with each other, you will lose out on a lot of their talents and ultimately the patient release will be compromised.

Let me explain: In a limited-manpower extrication where three people are doing the work of five, each rescuer has to take on additional tasks that rely heavily on their fellow crew members doing the same. This must be seamless and each rescuer must know what those

additional responsibilities are and who will be doing what.

During the 1990s and up until 2003 the South African National Extrication Challenge included a limited manpower evolution as part of the final round of the competition. In those years we were fortunate to see some of the best practices being developed by some of the most enterprising rescuers in the world. I recall a highly experienced international assessor from Scotland, Bill Denny, saying to me after the final round at the National Challenge in Cape Town in 1999, that the limited manpower evolution performed by the Boksburg team was the best evolution he had ever seen, even those including five members. It was also included in the 2001 World Extrication Challenge, which was held in Johannesburg. Unfortunately, we received a lot of resistance, especially from the Australian and British competitors who cited safety concerns as the reason for their opposition to the evolution. It is indeed a pity that the World Rescue Organisation's (WRO's) rules do not allow for a limited manpower evolution as it would, in my opinion, challenge the best extrication teams in the world to find solutions to a real-world problem that many services have to face.

So to the rescue

Despite the fact that there are only three rescuers available, all the tasks that need to be performed still have to be done. This includes initial safety, size-up, tool

staging, vehicle stabilisation, patient assessment, patient access and victim extrication. You also need one of the members to take command of the incident.

The obvious point of departure in planning a limited manpower evolution would be to decide which additional functions can be paired and who should be taking them on board.

In a five-person evolution the incident commander (IC) will not touch a rescue tool. His/her job is to take up a position that provides (a) a view of the extrication zone, (b) a clear view of the area immediate surrounding the hot-zone and (c) clear communication with the medic in the wreck and the rescue crew. The IC must also be free to move around the wreck and note certain conditions that may be deteriorating such as stabilisation, weather changes etc and then be able to direct the rescue crew to respond accordingly. In a limited manpower evolution it will be necessary for the IC to get 'hands-on' but at the same time give attention to the prevailing conditions. Upon arrival the IC will direct each of the two rescuers to assist in the initial size-up. While the IC does a quick walk around the hot-zone, he/she should note the position of the vehicles, prevailing hazards such as utility lines, fuel spills, traffic and location and number of victims. At the same time one rescuer should do a walkaround in a clockwise direction while the other does a walkaround in the opposite direction with their collective attention focussing inward. Both rescuers should note the position of the wrecks, location and condition of victims, degree of entrapment and possible extrication options. It is always good for one of these rescuers to carry a small bundle of cribbing consisting of a few 4x4 blocks and wedges that can quickly be deployed into an area for initial stabilisation. Chock as you go. The other rescuer will be the one who should make contact with any victims. Remember that the moment you make contact with a victim you should not break that contact. This might remove your third rescuer from the feedback process, which should happen immediately after the initial size-up is completed. It might not be always possible but in this situation it might be advisable to delay making verbal contact with any victim until the report back to the IC has been completed. We are talking seconds here and the impact on the victim should be negligible.

The IC should, when approaching the scene, carry a fire extinguisher in one hand and place it in a position designated by him/herself before starting the size-up. He/she can also carry out a number of preparatory activities while doing the initial size-up. This can include establishing window access and hazard management, ie engine access, battery management, ignition off, air bag immobilisation, vehicle in park, etc.

The three crew members should then meet at a central point with both rescuers giving their report on their observations, whereafter a plan needs to be formulated. The IC should use the information gained by the team to establish the initial mode of operation. That should be kept simple and only a few options should exist. This could be rescue, body recovery, rapid

extrication, prolonged extrication, C-spine extrication or simple entrapment without C-spine extrication. One rescuer will almost exclusively be tied to caring for the patient while the other two will have to work together to perform the secondary stabilisation, glass removal, patient access, extrication and patient removal. Your IC will have to assist the tool operator in such tasks as holding hard protection in place, removing windows, placing cribbing in position and rigging stabilisation jacks. Although these tasks will demand all of your attention, don't get tunnel vision. Take a step back whenever possible and make sure the scene is stable.

The medic will, to a large extent, dictate the direction and pace of the extrication and patient removal and therefore it is vital that communication is maintained at all times.

You may ask, "How can you operate two tools at the same time while you only have three rescuers and one is already tied up to the patient?" Well, let's take the example of a sidewall removal with only two rescuers using two different tools: While the medic is administering whatever life support is needed to the patient and can be done under the circumstances, both rescuers work together to secure all safety restraint components and remove any interior cladding. The IC uses the hydraulic cutter to perform a complete cut high on the B-pillar, including door and window frames, while the second rescuer pops the rear door latch. Should there be any doubts about the coordination of the operation, the rear

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- ▶ door should be popped before the cut is made to ensure a stable platform for the spreader to work against. The IC can then position himself at the rear door opening and make a relief cut on the bottom of the B-post. At the same time the spreader operator should pinch the fender above the wheel well and remove the body panel from the suspension hub to expose the front hinges and the inner fender rail. Once the body panel is separated, use the spreader to compress the fender rail between the suspension hub and the firewall. This will allow the IC to use the spreader to make a complete cut of the compressed fender rail. At the same time the second rescuer can use the spreader to spread the relief cut at the bottom of the B-post. Once the B-post has sheared off, you can use the cutter to take off the top hinge.

The next step would be to pinch the A-post at the bottom between the dash assembly and the rocker. At the same time use the cutter to perform a cut high on the A-post. The IC can position a ram between the rocker and the upper A-post. The spreader can then be placed in a position at the bottom of the A-post relief cut and once the ram is maxed out on the roll, the spreader can take over and complete the lift.

By forming a picture in your mind of this evolution you will appreciate that it should not take the IC's attention away from the overall picture for extended periods.

The IC must have a large degree of trust in his/her team's abilities but must also recognise when they are in over their heads. A multiple-victim incident will require more crews and those must be called for upon arrival. More time will then have to be taken to prioritise the victims. Not only will the condition of the victims play a role here but also the degree of entrapment. If the first-in crew can release someone quickly while waiting for back-up before going on to a more complex entrapment, then this should be considered.

Limited-manpower evolutions are not for multiple victim incidents. You might, however, as overall incident commander on a major incident with more than one

vehicle involved, have to deploy three-person crews to different entrapments. The strategies and tactics of limited manpower evolutions will then also be of value.

Planning

The effective deployment of a limited-manpower crew will depend on the thought you give to the system and the planning that goes into it. When equipping your rescue rig, consider which equipment will need to come off first. Preconnected hydraulic, electric and air reels are other options that allow for quick tool deployment. Also consider the weight of the equipment to be lugged around and try to mount them in positions on the rig that will allow you to easily deploy them or at least get them to the staging area without putting your back out.

You would do well to consider grouping certain pieces of equipment in the order in which they will come off the rig. Moving heavy equipment might be overcome by using wheeled totes. Grouping your initial stabilisation cribbing into bundles tied together with rubber bands will enable a single rescuer to move two bundles of cribbing to the scene relatively easily. Knowing which equipment should be removed from the vehicle will allow you to group the equipment together for simultaneous placement on your tote. Your first tote may contain step chocks, some 4x4s, a staging tarp, a windshield saw and soft protection. The second bundle should contain the remainder of the shoring material and some boards for hard protection. You can then plan the rest of the equipment bundles according to your crew's skills and tactics.

Develop a varied arsenal of skills and find the tools to support those skills. Having a few wedges taped to your helmet with duct tape or rubber bands could help you to keep a car door open while you are manoeuvring your hydraulic spreader in place (the same type of wedges you would use to keep a door open while moving hose through a structural fire). Hone your reciprocating saw and air chisel skills. In previous articles I have elaborated on what a force multiple hand tools can be if they are properly integrated into an effective extrication system. Always have your hand tools available as a backup for your hydraulics. If your team are able to hone their hand-tool skills to a cutting edge, you might see them using them as their preferred rescue tool.

In closing

Emergency services management have a responsibility to ensure that they are provided with enough personnel to deploy to the stations and ultimately the response units that have to perform the various fire fighting and rescue functions they are mandated to do. We all know, however, that this is a difficult and arduous task and most of the time the size of rescue crews reflects below-normal staffing levels. It is up to us to find the best 'force-multipliers' to help us do our jobs to the best of our ability. It might require a move away from the tried and tested. At no point, however, should we compromise our personnel or patients' safety. Some creative thinking and planning with a clear focus on our primary task is necessary to accomplish this. ⚠