

An alternative approach

In this issue's comment, UKRO (UK Rescue Organisation) looks at a suggested alternative technique that could be utilised when dealing with RTC's, and aims to provide guidance to considerations that should be made in relation to hazards and risk management.

With the increase in use of higher tensile materials within modern day vehicle construction there is a growing shift, where possible, to try and plan space creation and casualty removal techniques without introducing cutting of main vehicle structure components eg A, B and C posts.

Research shows that the approximately 70% of RTCs on the UK's roads, where people are killed or seriously injured (of which there were 27,000 in 2009) involve just one person – the driver – with vehicles being on all four wheels. With this information, let us firstly look at non-cutting techniques that could be used for such vehicles, with the proviso that consideration needs to be given to both the needs of the casualty, and the type of vehicle that is being dealt with eg Hatchback, Saloon or Convertible.

In previous articles we have covered the construction of modern vehicles, showing that there is an increase in boronated and high strength low alloy metal usage to strengthen cross-members in the floor panel and through the roof rails. We can utilise these cross-members to create extra space by using rams to push the roof into a "tent" shape.

This "tenting" technique is used where either the posts cannot be cut, or there are objects impinging on the removal of the roof.

In order to undertake this technique it is necessary firstly to deal

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with the rear glass and ensure that any sharps that are often left on a bonded rear screen are removed or covered over (this will provide protection to the casualty when they are removed through the rear of the vehicle). Secondly, clear any objects from within the rear passenger area. Locate the cross-member that runs under the back seat and open up the roof lining to reveal the boronated or high tensile roof rail. Prior to any ram installation a check under the vehicle should be made to understand any hazards that may pose a risk if the cross-member deforms throughout the tenting process (often there is a plastic fuel tank which sit just behind the cross-members). Where the cross-member can be seen clearly under the vehicle it is often good practice to block from the ground to the cross-member as a precautionary measure should the tool operator get over zealous with extending the roof.

Select the largest ram that will fit from the bottom cross-member to the roof rail; this selection is critical as the roof rail needs to be pushed past its ultimate strength (the point where the metal once deformed will not return to its original position). Boronated steel has a high ultimate capacity so it will need to be

pushed a considerable distance. If the choice of ram is incorrect the ram will reach its maximum extension and deform the roof but when the ram is removed the roof will then return to its original position taking up valuable time within the extrication process. This technique should be employed at the centre of the rear roof rail to gain the maximum deformation of the roof.

With the correct ram in position, it is now necessary for tool operators to split up, with one of them where possible going to the opposite side of the car to the ram operator, so that monitoring of stability can take place from both sides of the vehicle. Should the floor pan start to deform throughout the tenting process, judgements can be made in connection to its effect on stability. If at any stage the vehicle floor pan starts to deform substantially (which is shouldn't if the cross-member is strong enough or if correct chocking has occurred) then ramming should cease.

One point of note with regards to how far the roof should be tented is that we are aiming for the maximum amount of space both to work within the vehicle and to extricate the casualty without the technique compromising the stability of the vehicle. This can occur if the roof is rammed a large distance, as the C posts then start to pull the side structures of the vehicle upwards, impacting the rear suspension housings and thus affecting the rear wheels and ultimately the stability of the vehicle.

With the roof now tented to a suitable position, the ram can now be removed, thus providing a significant working area and extrication route for a casualty on a longboard.

The UKRO was formed in 2002 to address the growing diversity of rescues that emergency services in the UK were requested to undertake. To find out more about this dynamic organisation, visit www.ukro.org.

Crews preparing to "tent" a vehicle with the ram in situ.

