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TECHNICAL BULLETIN No. 01/2002

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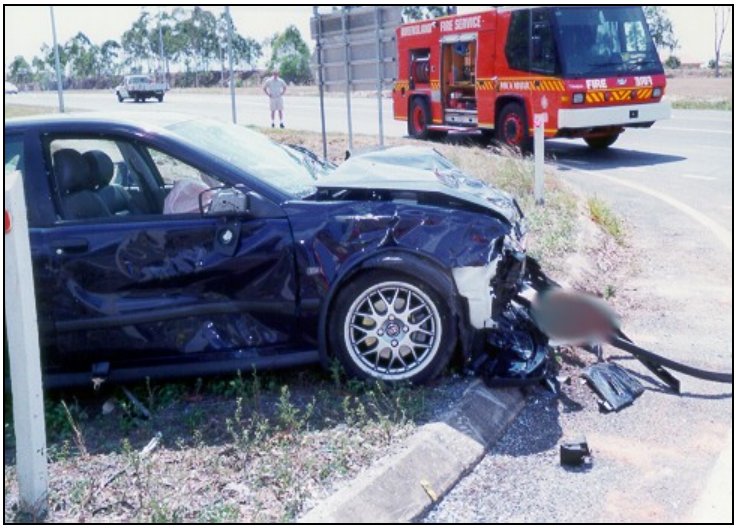
SUBJECT: Supplementary Restraint Systems, 1997 Volvo S40 Sedan.

INTRODUCTION

This bulletin highlights the general type and location of Supplementary Restraint System (SRS) features within a 1997 Volvo S40 sedan. Namely the seat mounted side impact airbags and the seat belt location within the 'B'-pillar.

This information has been sourced while attending an incident where some SRS features had been activated. No disentanglement techniques were carried out on this vehicle as the driver had been released by opening the doors by hand. The opportunity was then taken to view the vehicle's SRS features at the scene and later while being stored for the insurance company.

As to the varying locations, types and numbers of SRS devices, it should be remembered that all rescuers working on a vehicle with/or suspected undeployed SRS devices, that they should follow their Standard Operating Procedures for this type of hazard. For example; battery isolation, vehicle identification and the location or SRS devices fitted, should by referenced by accessing the Federal Office of Road Safety 'Emergency Rescuer's Guide to Vehicle Airbags', or other resources if available.

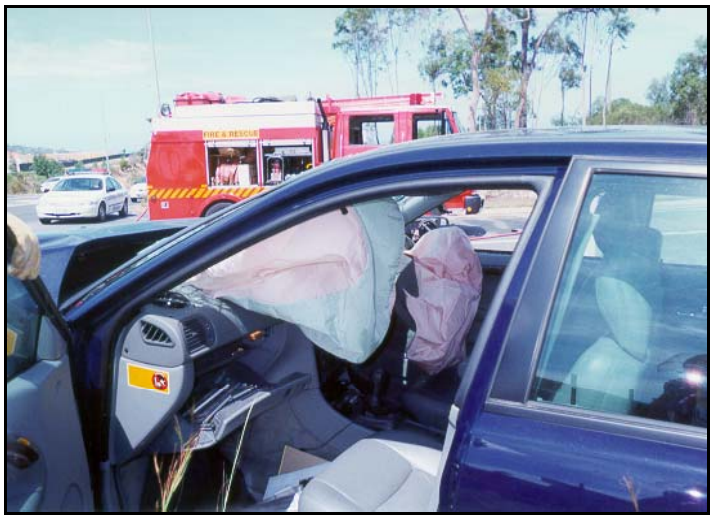


VEHICLE

1997 Volvo S40 sedan.

This particular vehicle was fitted with two traditional frontal impact airbags, one mounted in the steering wheel and the other in the passenger dash pad above the glove box (top mount). Both front seat occupants are provided with pre-tensioning seat belts with force limiters, and Side Impact airbags are fitted to the two front seats. A burglar/car alarm was also fitted, this made for an interesting reaction once the battery was isolated.

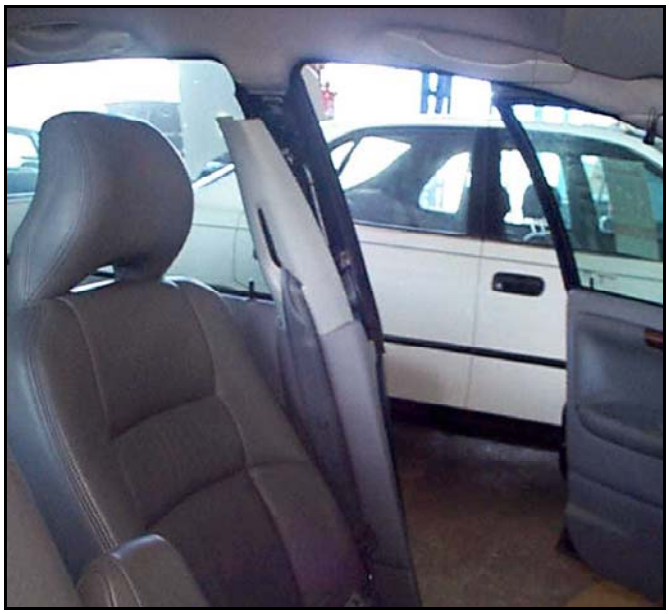
The burglar/car alarm was installed with a feature that if the vehicle's battery power supply was isolated, it would activate from it's own internal battery supply. This created a situation where a decision was needed about locating the burglar/car alarm to isolate it's internal power supply, or risk reactivating the SRS by restoring the vehicles battery power supply. This may compromise the safety of rescuers operating around a vehicle.



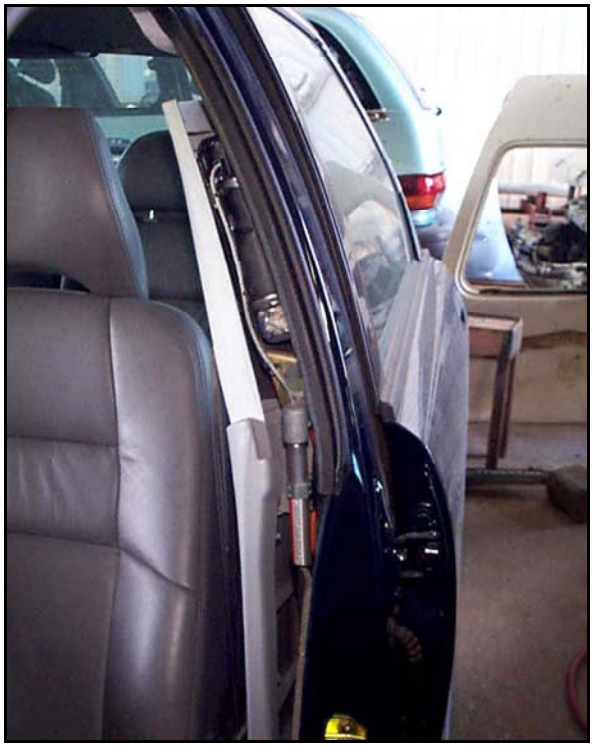
The frontal impact airbags presented no post-accident concern apart from the need to be aware of the by-products of their deployment, and we noted the position they were still in approximately one (1) hour post accident deployment.

The traditional location for seat belts in most vehicles we see at accidents is at the base of the 'B' pillar or fitted into the upper sill section. The seat belt pre-tensioners on this Volvo S40 had activated, the driver was the only occupant of this vehicle.

Viewed from this angle the location of the front seat belts within the 'B' pillar, are becoming more visible.



On closer inspection the seat belt assembly is now located considerably higher in the ‘B’ pillar, this highlights the need to expose the interior trim, before cutting commences. Also you can see the seat belt pre-tensioning mechanism, located below the vertical mounted seat belt reel. The whole assembly is attached with a thick steel bracket. This is appears to be a generic design for some models of European motor vehicles.



The location of the steel mounting bracket and pre-tensioning cable will certainly require rescuers to reconsider where the cut is made if the roof is to be released prior to any side removal techniques.

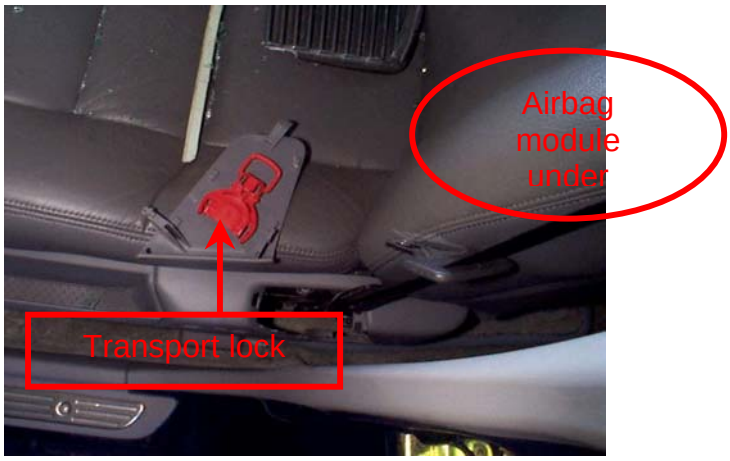
It should be noted that other models of Volvo vehicles are continuing this trend of locating the seat belt and pre-tensioning system higher up than in previous vehicles that we may be used to. If in doubt consult any reference material available or conduct further research.

Other likely construction features in the same area include the ergonomic seat belt height adjusters fitted in the majority of newer vehicles we see in Australia.

These are also constructed with a steel bracket attached to the ‘B’ pillar. This steel bracket allows the upper seat belt point to slide up or down to suit the occupant’s height in the seat.

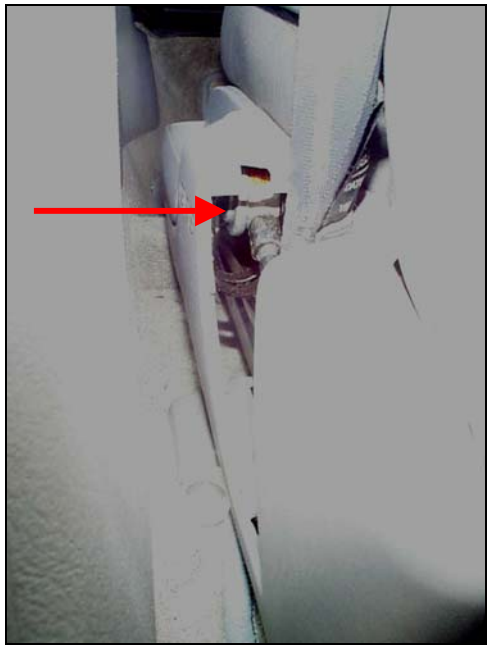
These brackets are mounted in a similar location as the photo, so this area should be avoided when attempting to cut the upper section of the ‘B’ pillar.

The 1997 Volvo S40 (and some other Volvo models) are fitted with a mechanically activated Side Impact Protection System (SIPS). The airbag sensor module is concealed along the outer bottom edge of the seat. Its location is identified by an engraved 'SIPS' logo in the plastic trim along the seats lower outer edge. The airbag itself is located along the outer upper edge of the seat, beneath the upholstery.



Rescuers should be aware that this side air bag sensor is self contained and mechanically activated, and is not deactivated by battery isolation. Options for protecting the striker pin that completes the circuit may not be suitable in all conditions. Two options identified through various text is to either cut the wire between the sensor and the airbag, and/or fit the red transport lock over the striker pin.

This next photo shows the location of the striker pin looking forward from behind the front seat. This may not always be accessible particularly when the vehicle has been involved in a side impact.



Rescuers should strive to be aware of all SRS locations and features, as the opportunity is not always available to view these Supplementary Restraint Systems post incident.

All photos in this bulletin have been taken by the author, please use the contact below if any individual or organisation wishes to use the photos.

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