Committed to improving professional rescue techniques

UNITED KINGDOM RESCUE ORGANISATION

Chair: Steve Apter

LGV Boarding
UKRO Workshop

August 2012
Lincoln

LGV
Boarding workshop

- The purpose of this presentation is to assist operational crews in the challenges that could be faced in boarding a casualty from a Large Goods Vehicle/ PSV cab.

LGV
Boarding workshop

The term “Boarding” refers to the process of removing a casualty from a vehicle with their C spine correctly managed/ immobilised using a long board and associated equipment. In the following pages it is taken that all necessary preliminary and risk critical steps have been taken and the vehicle prepared properly for this process.

LGV
Boarding Considerations

- Nature of Casualties injuries
- Level of technical entrapment
- Cab/ vehicle construction
- Amount of access/ space available
- Working height/ conditions, i.e. vehicle down an embankment etc
- Availability of suitable equipment, i.e. LGV access platform, KED (Kendrick Extrication Device), suitable hydraulic rescue equipment etc.
- Levels of Crew training, expertise and experience in these incidents, (Ambulance and Fire service).
- Amount of time available, communicated from Paramedic team/ Doctors.

LGV Boarding
Initial Actions on Arrival

- In all LGV and PSV incidents there are a few safety critical steps which must be take **before** working in and around these vehicles.
- Vehicles parking brake applied/ LGV wheel chocks fitted.
- Vehicles suspension and any lift axles managed/ assessed. (Vehicle body/ Lift axles must be propped/ blocked before attempting to access the underside).
- Consider electrical isolation carefully, isolation will ensure air suspension is stopped from self adjusting, but may cause lift axles to drop. It may be prudent to stabilise vehicle/ cab in its current position before isolating, to allow the plan to be properly assessed.
- Note: For further information on air brake safety, air suspension/ lift axle systems and Cab stabilisation, please visit
- http://www.ukro.org/education/ukro_workshops/public_service_vehicle_rescue/
- http://www.ukro.org/education/ukro_workshops/lgv_rescues/

LGV Boarding
Cab Stabilisation

After the initial actions have been completed, the cab's suspension will require managing to remove any movement. Any movement can potentially be transmitted to the casualty

- Initial/ Primary stabilisation
- Involves compressing the cab suspension by pulling it down onto wooden/ rubber blocks using a suitable ratchet strap.
- Normally carried out by the first pump/ crew in attendance.
- Removes a large amount of cab suspension movement not all, but consideration of ratchet strap/ block placement is crucial for the OIC to ensure any subsequent actions/ work is not impeded, i.e. cab roof removal.
- Placing blocks under the cab steps will help remove cab movement depending on cab design. (Steps can be integral to the cab or attached to chassis)
- Note: for further information please visit
- http://www.ukro.org/education/ukro_workshops/public_service_vehicle_rescue/

LGV Boarding
Cab stabilisation

- SECONDARY (MAIN) STABILISATION

- Carried out by attending Rescue Tender crew utilising vehicle stabilisation kit (various manufacturers).
- Removes all cab movement including tyre sidewall deflection.
- Allows 360’ access to cab for hydraulic interventions/ attack.
- Can be continually adjusted/ tensioned throughout space creation phase.
- Note: for further information please visit
- http://www.ukro.org/education/ukro_workshops/public_service_vehicle_rescue/

LGV Boarding
Driver Seat Management

- Once the cabs suspension has been properly managed, the final stage is to remove any additional movement from the drivers seat.

- Two main types.
  - Mechanical, uses a gas strut/ damper to provide seat suspension against a mechanically inputted drivers weight adjustment.
  - Pneumatic, uses a rubber airbag supplied with compressed air (from the vehicles auxiliary air tanks), continually balances the drivers weight against the inputted seat height adjustment (Pneumatic).

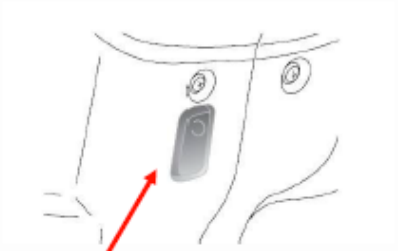
- Both seat frames are constructed similarly, using a cantilever/scissor construction.

LGV Boarding
Driver Seat Management

- Note: For further information please visit,
  http://www.ukro.org/CMS/nat2010/UKRO_Heavy_Vehicle_Construction_Lo_Res.pdf

LGV Boarding
Steering Wheel Relocation

Reach/ Rake adjustment



New LGV's consider Air adjustment

Before attempting hydraulic techniques to create space, adjusting or moving the drivers seat and repositioning of the steering wheel should be utilised to maximised space around the drivers leg area (within regard to the casualties injury assessment) .

UKRO

LGV Boarding Access Platform

- Installed correctly, with handrails.
- Secured to vehicle using ratchet strap.
- Standing platform positioned at the same level or below the cab floor.
- If possible an additional handrail fitted at the height of the drivers seat.

LGV Boarding Scenarios/Planning

- As with any boarding event involving moving a casualty with possible C spine injuries, the utmost care should be taken and best practice employed.
- What also needs to be considered are the resources, space and time available.
- OIC's in their planning phase of the extrication path should consider a main and emergency plan, as per any extrication event.
- The emergency plan should be employed first, any entrapment released and crews briefed suitably to ensure, the casualty can be removed immediately should their vital signs diminish.
- Both plans will rely heavily on the amount of manpower, equipment and time available.
- Close liaison/ communication between both services will be required to ensure these stages are met, and full understanding is achieved.

LGV Boarding Scenarios/Options

- Before attempting a boarding event from an LGV or PSV, best practice should be sought/ discussed with the attending medical practitioners.
- Casualties C spine must be properly immobilised within the procedures laid down in Brigade/ NHS guidance (JRCALC). Including,

- Fitting of a cervical collar
- Placing in an immobilisation device such as KED (Kendrick Extrication Device) or TED (Telford Extrication Device)
- Continual manual stabilisation of the casualties C spine throughout to ensure neutral alignment
- Consideration and practice should be given to the scenario's where resources of medical staff, equipment and time are limited (Vital signs rapidly drop off)

LGV Boarding Scenarios/Options 1

- Board is offered from under casualty.
- Other end is supported on handrail

- Casualty is slid along the board's surface under control, until outside vehicle cab. (This will require at least one head handover)

LGV Boarding Scenarios/Options 1

- 2nd Board is introduced and placed under casualty, supported by the initial long board.

- Casualty is lowered onto 2nd board, crew adjust positions/ head change over if required, and remove casualty.

LGV Boarding Scenarios/Options 2

- Casualty is slid along board until sufficient clearance exists, or outside cab structure.

- Casualty is lowered under control onto the board on his/ her side (fetal position), Whilst maintaining C spine neutral alignment.

LGV Boarding Scenarios/Options 2

- Crew adjust positions/ head change over if required.
- Casualty removed in fetal position down onto awaiting Ambulance stretcher, where he/ she can be turned under control etc.

LGV Boarding Summary

- All safety critical steps need to be actioned **before** any internal vehicular/ casualty interventions are started, i.e. Parking brake operated, air suspension/ cab suspension/ drivers seat managed etc
- Good inter agency communication and training will be required at operational LGV/ PSV incidents.
- Nature of the casualties injuries, manpower, available equipment, levels of entrapment, cab layout and construction, distortion/ available access, experience of both attending services all need to be considered when planning a extrication path and boarding plan. Incidents of this type are very individual and will require an open-minded approach to rescue.
- OIC's need to ensure they have a suitable emergency plan in being and any entrapment released before pursuing a main plan. Full access LGV extrications can be time consuming due to the forces generated and materials employed, a casualty deteriorating within this time should be a primary consideration.
- The side the casualty is removed does not necessarily have to be the same the board was offered. As part of the boarding plan/ extrication path consideration must be given to the ease of getting the casualty onto the board and subsequently the casualty and the board out of the vehicle
- Consideration and practice should be given to the scenario's where resources of manpower, medical staff, equipment and time are limited (vital signs rapidly drop off).

For further information

http://www.ukro.org/education/ukro_workshops/

UKRO