

# Heavy vehicle extrications

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The current status of rail transport in South Africa results in more heavy commercial vehicles being used for road transportation of goods and dangerous goods than in the past ensuing in an increase of heavy vehicle accidents. Heavy commercial vehicles' new technology design is much more modern and more advanced and these vehicles also travel much faster than ever before.

In order to be able to execute an effective extrication, a good basic knowledge of heavy commercial vehicle systems and their anatomy is essential for any rescuer attending an accident.

Heavy commercial vehicles present us with quite a different challenge and we need to stay abreast to meet this challenge. Any heavy vehicle that has a special or unique design as to what



it does makes it a specialty truck. When we talk about heavy vehicle rescue, most think about the normal long distance trucks. We must also consider the specialty trucks as these can present

a more complex extrication than the large and heavy articulated trucks. These vehicles carry all types of cargo such as hazardous chemicals and gas, cement, agricultural products etc. ▶

## Rescue roundup

- ▶ In South Africa, trucks are involved in approximately one out of every eight motor vehicle accidents.

### Cabs

The cabs of many trucks are framed with structural steel work. A heavy gauge rolled-steel channel may run within the confines of the window screen pillar, bulkhead, door posts and rib at the rear of the cab.

### Commercial vehicle classification

Commercial vehicle classification has three classes ie light, medium and heavy commercial vehicles.

### Light commercial vehicles

Light commercial vehicles include four or six-wheeled rigid light commercial vehicles with an unladen weight of less than 3,5 tons.

Medium and heavy commercial vehicles are broken into further classifications ie rigid and articulated vehicles.

### Rigid vehicles

These are built on a solid frame and not designed to pull a trailer. Most of these vehicles have two to three axles.

### Articulated vehicles

These include 5-axle articulated (semi), 6-axle articulated (semi), 6-axle rigid vehicle/drawbar trailer combination, 7-axle rigid vehicle/drawbar trailer combination, 7-axle interlink or 8-axle interlink vehicles. These vehicles are designed to carry their payload on a semi-trailer, rigid/draw-bar combination or interlink trailers and include a truck-tractor or prime mover. The trailers also come in a variety of types including flatbeds for hauling building materials

or containers, goosenecks, closed box trailer for general cargo and tankers for hauling fuels or chemicals.

### Specialty vehicles

Specialty vehicles are designed for a specific purpose. Some examples of these types of trucks would be concrete trucks, dump trucks and grain and vehicle transports.

### Structural elements

The structural elements of a truck are divided into the following three categories ie frame, secondary structural elements and the structural drivetrain.

### Frame

The primary structural element in all current commercial vehicles is a steel frame that runs the length of the vehicle. The engine, drivetrain, suspension and truck bed are all attached to the frame.

### Secondary structural elements

The secondary structural elements are the parts of the truck that carry passengers and cargo; for example the cab and the cargo bed and some other equipment. Although these elements may account for a significant portion of the vehicle's weight, they do not provide the essential strength or stiffness of the truck but can cause the people inside the truck to get injured by secondary objects.

### Structural drivetrain

This category includes drive shafts, suspension, steering mechanism and braking components. These elements may contribute significantly to vehicle weight and are critical to the vehicle's safe and reliable functioning.

Commercial vehicles traveling long distances can be involved in vehicle accidents, causing patient entrapments and these extractions can take from a few minutes to several hours.

It is vital that we understand heavy commercial vehicle construction. Patients can lose limbs due to compartment syndrome and the length of time they were trapped in these big, heavy vehicles.

As emergency service practitioners, we need to ask ourselves the following questions:

- How effective are our training programmes in our services on heavy vehicle extrication?
- Do our staff get the necessary exposure to the different materials and places to gain entry and relocate the materials?
- Are our rescue vehicles equipped with rescue platforms for working at the heights of these vehicles?
- Do they understand that the same new car technology challenges and materials we will also find on trucks?

### Extrication considerations

It should be remembered that heavy goods vehicles are designed for carrying heavy loads as opposed to passengers. To manage these heavy loads, the type of vehicle construction is immensely strong and subsequently requires higher capacity rescue tools. The large size and weight of these vehicles can present complicated stabilisation problems such as large spaces between the ground and the vehicle, off-centre loads and hazardous cargo. ⚠



Heavy commercial vehicle accidents present complicated stabilisation problems



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