

Greetings all. Today's Bulletin is about the safe use of articulated pick and carry cranes.

Articulated pick and carry cranes are a very common crane used in construction, mining, and general mobile crane duties. They have many benefits for their users, but as with all cranes, careful consideration needs to be given for their safe use.

The name "pick and carry" gives an indication of how these cranes are used and the utilitarian nature of the cranes. They are used in a wide variety of applications, have a high frequency of use with widely varying loads.

Through best estimation from insurance data, and crane hirer incident information, articulated pick and carry cranes currently account for somewhere between 64% - 68% of all crane incidents. These incidences have prompted a large focus on the articulated pick and carry market and placed pressure on hirers to provide evidence to their clients that operators are trained and experienced adequately.

These cranes contain a hydraulic articulated steering system, different to other road-based vehicles. Furthermore, they differ in crane mode, as their dynamic nature is compensated through design by such mechanisms as derating the load chart when used on uneven ground, or once the crane is articulated greater than 10 degrees. These unique articulating pick and carry crane characteristics differentiate them from slewing cranes and as a result a skilled slewing crane operator can unwittingly find himself in a potentially dangerous situation when using a pick and carry crane.



**How Pick and Carry Cranes Differ**

Contrary to slewing mobile cranes, articulated cranes typically do not have stabiliser legs or outriggers; crane stability is entirely from the crane tyres. Crane rated capacities on tyres depend on tyre capacity, condition of the tyres, tyre air pressure and ground condition. During the lifting operation, slewing mobile cranes usually lift the load from a fixed location, whereas articulated cranes often travel on sites with their load.

Adverse operating conditions should be considered, including the supporting surface, pendulum action of the load, jerking or sudden stops of the load and other factors affecting stability, as rated lifting capacities are based on freely suspended loads with the crane on a firm, level (max.1% slope / 0.57 °) and uniform surface.

Crane operators need to take into consideration changing ground conditions that can occur when travelling whilst carrying load, as changing ground conditions (uneven road surface, potholes, etc.) will cause a reduction in crane rated capacity. This can create a side slope condition and the rated capacity of the crane reduces, to ensure the crane remains stable. Manufacturer's instructions should be followed for operating on a side slope (crane manufacturers provide de-ration charts for when operating on out of level side slopes, over 1% slope / 0.57° and up to 8.75% slope / 5°). If no deration chart or instruction is given on side slope operation, the crane should not be operated on side slope.

How do you tell if the side slope of the site is more than 5 degrees? A simple way is to drive the crane slowly around the site with no load on the hook, the crane computer system will tell you the level of the ground (see the picture below, please note this is only on cranes fitted with the LMI system, earlier models have a liquid level bubble similar to a spirit level mounted in the centre of the dash).





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### **Helpful Video and Webinar**

CICA has launched a 15-minute video to help plan lifts using an articulated pick and carry crane. This video, found [here](#), addresses stability changes when operating an articulated pick and carry crane and how to operate the crane within its rated capacity on a side slope to reduce the likelihood of rolling over. This video is a supplement to the existing position paper that CICA has produced explaining how articulated crane operation is unique from slewing cranes. Use this video to upskill, train or remind your team, so that together we can ensure everyone gets home safely.

The Federal Safety Commissioner's Safety Campaign webinar was held on Thursday 15 July 2021. This webinar focused on managing the risks associated with articulated mobile cranes and can be accessed [here](#).

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