

Levelling a Crane

Levelling a crane is one of the most important tasks an operator performs before operating a crane. The safety of the operator and the performance of the crane depend on proper levelling and the correct use of outriggers.

When a crane is out of level, this can severely impact the crane's stability and its rated capacity.

Many crane accidents can be attributed to improper crane levelling. They are often the result of the operator failing to:

- extend all outriggers
- fully extend outrigger beams
- consider ground conditions

A crane must be set up on a firm, level surface away from hazards and obstacles. Level the crane before operation, and periodically check for level during operation. The general steps are outlined below. For more information or details specific to your crane type, refer to the manufacturer's manual.

NOTE

Make sure the boom remains in the stowed position. Do not adjust outriggers with the boom extended or with a suspended load.

1. Extend all outriggers/stabilizers until they are approximately four inches from the ground.



2. Place pads under each outrigger.
 - The size of pads required will depend on the supporting surface.

- Larger pads may be required if the soil is loose or has not been compacted.
- An increase in outrigger pad size will decrease the outrigger bearing pressure.



3. Extend the front outriggers onto the pads to level the crane side to side.



4. Extend the rear outrigger jacks onto the pads to level the crane front to rear.

- Wooden pads must be set at a 90° angle to the extended outrigger jack.
- Outrigger beams must be marked to show the required amount of extension. Those marks must be visible to indicate the beams have

been fully extended.



5. Check the level from front to rear and from side to side.

- The crane must be within the degree of level specified in the manufacturer's manual.
- Hand levels should be placed on top of the swing circle to properly level the crane.
- The target levels installed on some cranes may not be accurate enough for final levelling. They should be checked periodically for accuracy.



6. If the crane is equipped with a front (bumper) outrigger, extend it onto the pad. Extend the front outrigger only after the crane is levelled.



7. Conduct a walk-around inspection before operating the crane.



Information in this document is considered accurate at the time of publication. Please contact [BC Crane Safety – Publications Review](#) with any questions or recommendations for content revision. Please refer to [WorkSafeBC](#) for current copies of the Workers Compensation Act and Occupational Health and Safety Regulation (OHSR).