



**Construction Plant-hire Association**  
Tower Crane Interest Group



***Tower Crane Technical Information Note***

**TIN 038**

**Leaving Tower Cranes Out-of-Service**

This Technical Information Note sets out the precautions to be taken when leaving tower cranes out-of-service. It is important that the operator monitors the wind speed constantly using the anemometer display in the cab. This will give early warning of rising wind speeds and enable him to take action to take the tower crane out of service and descend down the ladders to ground level **before** the limiting wind speed is reached.

**1.0 General**

When out of service tower cranes rely on their ability to free slew and weather vane to ensure that the jib points downwind and presents the minimum area to the wind, thus reducing the wind forces on the crane. In the past cranes which have not been able to free slew have suffered considerable structural damage and in some cases collapse.

To be able to weather vane effectively a tower crane requires the slew brake to be released and, in the case of a luffing crane, the jib to be set at no less than the manufacturer's specified minimum out-of-service radius. This will ensure that centre of pressure of the jib is sufficiently forward of the centre of slew to produce adequate turning moment to overcome friction in the slew bearing and turn the jib downwind

Different makes and model of tower crane have different slew brake release mechanisms and it is essential that the tower crane operator is fully familiar with the type on the crane they are to operate. Before leaving the crane out of service and climbing down the tower the operator should check that the crane is in free slew and that the jib of a luffing crane is set at the correct radius.

It is essential on all types of tower cranes (luffing, saddle and jack-knife) that sign boards, banners etc are not put on the counter-jib without the express agreement of the crane manufacturer as this will reduce or negate the ability of the crane to weather vane.

A Safety Alert entitled *Preventing catastrophic failure of luffing jib tower cranes in high winds* issued by the Health and Safety Executive on 20<sup>th</sup> February 2014 (See **Annex A**), requires tower crane owners to take the following actions:-

1. **Ensure they have the most accurate, up to date information by discussions or correspondence with the supplier or manufacturer.**
2. Check the correct minimum out of service radius for the specific crane they are operating with the supplier or manufacturer;  
***NOTE:** Manufacturers may permit reduced out of service radii in certain circumstances. In such cases any additional requirements imposed by the manufacturer must be complied with in full.*
3. Check both after erection and periodically in service, the function of the device that releases the slew brake and places the crane in free slew;
4. Check both after erection and periodically in service, that the condition of the slew drive motors, gearboxes and slew ring bearing has not deteriorated to the extent that the crane is prevented from slewing freely;
5. Check both after erection and periodically in service, the setting and function of any devices that warn the operator that the crane jib has not been left parked at the correct out of service radius and the slew brake has not been released;
6. Check that operators have been provided with instructions on how the crane should be placed in free slew and the correct radius at which the jib should be positioned when leaving the crane unattended. This should include measures to routinely check that the operators understand and are following the instructions provided;

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7. Undertake periodic checks that the buildings under construction, other cranes or high reach plant are not preventing the crane from free slewing. Consideration needs to be given to both front jibs and rear counter jibs.

Whilst this HSE Safety Alert is specifically aimed at luffing jib tower cranes, actions 1, 3, 4, 5, 6 and 7 apply equally to other types of tower crane.

In addition the following points should be taken into account when leaving any tower crane out-of-service:-

- Loads and/or lifting accessories must not be left on the hook and the hook should be hoisted to the out-of service position specified in the manufacturer's manual;
- On saddle jib cranes the trolley must be left in the position specified by the crane manufacturer;
- Before leaving the cab the operator should ensure that any aircraft warning beacon is lit;
- The operator should take care when passing through the slew ring when climbing down the crane as any change in wind direction will cause the upper part of the crane to rotate.

**2.0 Precautions to be taken when, on a site with multiple tower cranes, one or more cranes are left out-of-service, whilst the others are still in operation.**

When not all the tower cranes on a site are required to be in operation, there is a temptation to leave one or more cranes in free slew whilst the remainder continue in service. If the jib of the free slewing crane cannot enter the airspace of any other crane or its load this is not an issue. If however, as is the case with most multi crane installations, there is a risk of the out-of-service crane colliding with the structure, hoist rope or load of any other crane, additional precautions must be taken.

It is often thought acceptable to leave the out of service crane with the jib parked parallel with the nearest crane and the slew brake on. The danger with this practice is that if the wind is blowing from a direction at 90° to the jib it may well suddenly increase to a level where the jib is blown through the brake and the jib slews in an uncontrolled manner into the path of an adjacent crane.

**The only safe solution to this problem is to station an operator in the cab of the out-of-service crane to keep the jib and counter jib clear of the working cranes.**

The operator should be in radio communication with the operators of the other cranes at all times and should continuously monitor the wind speed. If the wind speed approaches the maximum in-service value (See **TIN 020**), the operator should put the crane into free slew as soon as the other cranes are taken out of service.

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