

Wind Conditions

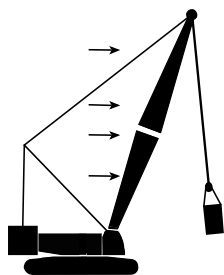
MLC165-1

Luffing Jib No. 135 on
Boom No. 74A

General Information

- A. Judgment and experience of qualified operators, job planners, and supervisors must be used to compensate for affect of wind on lifted load and boom by reducing ratings, reducing operating speeds, or a combination of both. Failing to observe this precaution can cause crane to tip or boom to collapse. Death or serious injury to personnel can result.
- B. Wind speed (to include wind gusts) must be monitored by job planners and supervisors. *Be aware that wind speed at boom point can be greater than wind speed at ground level. Also be aware that the larger the sail area of the load, the greater the wind's affect on the load.*
- C. Wind adversely affects lifting capacity and stability as shown below. The result could be loss of control over the load and crane, even if the load is within the crane's capacity.
- D. As a general rule, ratings and operating speeds must be reduced when: **Wind causes load to swing forward past allowable operating radius or sideways past either boom hinge pin.**

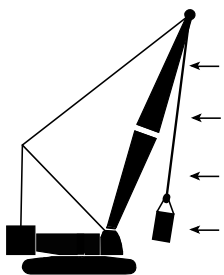
How Wind Affects a Crane



Forward stability is affected by wind on the rear of the boom. Wind applies a force to the boom and load that adds to the crane's overturning moment. This action has the same effect as adding load to the hook.

The wind's affect on the rear of the load increases load radius. This condition can result in an overload hazard, possibly causing the crane to tip or the boom to collapse.

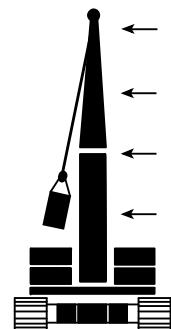
To avoid this hazard, reduce operating speeds and load (see appropriate table for maximum wind speed).



Backward stability is affected by wind on the front of the boom. This condition is especially dangerous when the boom is at or near the maximum angle when operating without load.

Wind forces on the front of the boom reduce the normal forward tipping effect of the boom. The crane can tip or the boom can collapse if this condition is not avoided.

The boom can buckle and collapse if the load contacts the boom.



Boom strength is affected the most when the wind acts on the side of the boom.

The wind's affect on the side of the load can cause the load to swing out past the boom hinge pin. This condition can result in excessive side load forces on the boom, possibly causing the crane to tip or the boom to collapse.

To avoid this hazard, reduce operating speeds and load (see appropriate table for maximum wind speed).

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Operation Permitted

Operation is permitted in steady winds or gusts up to the maximum wind speed given in Table 1 thru 11, provided the lifted load does not exceed capacity chart percentage.

Wind speed to be measured at jib point elevation. *Refer to luffing jib capacity chart for specific backward stability conditions.*

Operation Not Permitted

Operation is not permitted when the wind speed exceeds the values listed in Tables 1 thru 11 for a given capacity chart percentage. Observe the following options:

Boom with 21,3 - 36,6 m (70.0 - 120.0 ft) Luffing Jib

- **Up to 20 m/s (45 mph) -**
Park crane with load blocks and weight balls on ground or secured and position boom at 80° and luffing jib at 45°.
- **20 m/s (45 mph) and Above -**
Lower boom and luffing jib onto blocking at ground level.

Boom with 39,6 - 45,7 m (130.0 - 150.0 ft) Luffing Jib

- **Up to 18 m/s (40 mph) -**
Park crane with load blocks and weight balls on ground or secured and position boom at 80° and luffing jib at 45°.
- **18 m/s (40 mph) and Above -**
Lower boom and luffing jib onto blocking at ground level.

Boom with 48,8 - 51,8 m (160.0 - 170.0 ft) Luffing Jib

- **Up to 16 m/s (35 mph) -**
Park crane with load blocks and weight balls on ground or secured and position boom at 80° and luffing jib at 45°.
- **16 m/s (35 mph) and Above -**
Lower boom and luffing jib onto blocking at ground level.

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Table 1: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	21,0 (68.9)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
60	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)
Operation Not Permitted above 16 m/s (35 mph)											

Table 2: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	24,0 (78.7)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
80	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
60	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)
Operation Not Permitted above 16 m/s (35 mph)											

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Table 3: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	27,0 (88.6)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
60	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)
Operation Not Permitted above 16 m/s (35 mph)											

Table 4: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	30,0 (98.4)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
60	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

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Table 5: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	33,0 (108.0)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
60	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

Table 6: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	36,0 (118.1)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
60	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

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Table 7: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	39,0 (128.0)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
60	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)
50	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

Table 8: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	42,0 (137.8)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
60	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
50	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

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Table 9: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	45,0 (147.6)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	7 (15)	7 (15)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
80	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
60	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
50	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
40	16 (35)	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

Table 10: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	48,0 (157.5)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	7 (15)	7 (15)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
80	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
60	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
50	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
40	16 (35)	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	11 (25)
Operation Not Permitted above 16 m/s (35 mph)											

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Table 11: Allowable Wind Speeds and Gusts for Various Capacity Chart Percentages

Boom Length m (ft)	51,0 (167.3)										
Luffing Jib Length m (ft)	21,3 (70.0)	24,4 (80.0)	27,4 (90.0)	30,5 (100.0)	33,5 (110.0)	36,6 (120.0)	39,6 (130.0)	42,7 (140.0)	45,7 (150.0)	48,8 (160.0)	51,8 (170.0)
Percent of Capacity Chart	Maximum Wind Speed m/s (mph)										
100	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	7 (15)	7 (15)	7 (15)
90	11 (25)	11 (25)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
80	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)	9 (20)
70	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)	9 (20)
60	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)	9 (20)
50	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)	9 (20)
40	16 (35)	16 (35)	14 (30)	14 (30)	14 (30)	14 (30)	14 (30)	11 (25)	11 (25)	11 (25)	9 (20)
Operation Not Permitted above 16 m/s (35 mph)											