WIND CONDITIONS

Model 18000

TABLE OF CONTENTS

GENERAL

WARNING

TIPPING CRANE HAZARD!

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 and/or jib to collapse. Death or serious injury to personnel can result.

Wind adversely affects lifting capacity and stability as shown in Figure 1. The result could be loss of control over the load and crane, even if the load is within the crane's capacity.

Wind speed (to include wind gusts) must be monitored by job planners and supervisors.

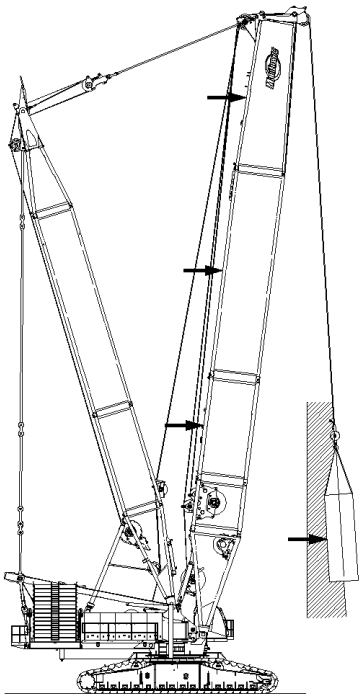
Beware that wind speed at boom point can be greater than wind speed at ground level. Also beware that the larger the sail area of the load, the greater the wind's affect on the load.

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.

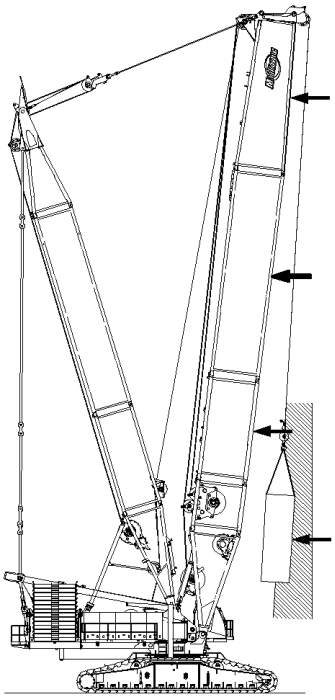
A1245

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.

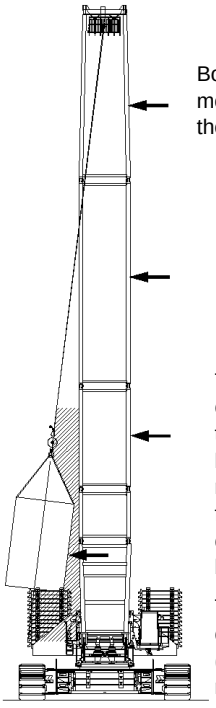
To avoid this hazard, reduce operating speeds and load (see appropriate table for recommended capacity reductions).



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 recommended capacity reductions).

FIGURE 1

RATING REDUCTIONS/OPERATION NOT PERMITTED

#55-79A, #55, or #55A Boom with 100' (30.5 m) Mast

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 1, provided ratings are reduced the specified amount.

Table 1
Rating Reductions for Various Wind Speeds and Wind Gusts

Boom Length ft (m)		120-300 (36.6-91.4)	320-340 (97.5-103.6)	360-400 (109.7-121.9)
Maximum Wind Speed mph	m/s	**Percent Rating Reduction**		
15	7	0	0	0
20	9	0	0	10
25	11	0	0	20
30	13	0	10	30
35	16	0	20	50
Above 35 mph (16 m/s)		**OPERATION NOT PERMITTED**		

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 1. Observe the following options:

Boom

- ***Up to 50 mph (22 m/s) -***

  Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 70°.

- ***50 mph (22 m/s) and Above -***

  Lower boom onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***

- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.

#55-79A Boom with 100' (30.5 m) Mast and 25.0 ft (7.6 m) Extended Upper Boom Point

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 2, provided ratings are reduced the specified amount.

Table 2
Rating Reductions for Various Wind Speeds and Wind Gusts

Boom Length ft (m)		200-300 (61.0-91.4)	320-340 (97.5-103.6)	360-400 (109.7-121.9)
Maximum Wind Speed		**Percent Rating Reduction**		
mph	m/s			
15	7	0	0	0
20	9	0	0	0
25	11	0	0	10
30	13	0	10	20
35	16	0	20	30
Above 35 mph (16 m/s)		**OPERATION NOT PERMITTED**		

Wind speed to be measured at boom point elevation.

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 2. Observe the following options:

Boom

- ***Up to 50 mph (22 m/s) -***

  Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 70°.

- ***50 mph (22 m/s) and Above -***

  Lower boom onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***

- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.

#44 Luffing Jib on #55-79A Boom with 100' (30.5 m) Mast

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 3, provided ratings are reduced the specified amount.

Table 3
Rating Reductions for Various Wind Speeds and Wind Gusts

Luffing Jib Length ft (m)		70-120 (21.3-36.6)			130-180 (39.6-54.9)			190-240 (57.9-73.2)		
Boom Length ft (m)		140-180 (42.7-54.9)	200-240 (61.0-73.2)	260-280 (79.2-85.3)	140-180 (42.7-54.9)	200-240 (61.0-73.2)	260-280 (79.2-85.3)	140-180 (42.7-54.9)	200-240 (61.0-73.2)	260-280 (79.2-85.3)
Maximum Wind Speed		**Percent Rating Reduction**								
mph	m/s									
15	7	0	0	0	0	0	0	0	0	0
20	9	0	0	0	0	0	0	0	0	10
25	11	0	0	0	0	0	0	0	10	50
30	13	0	0	10	0	0	30	10	60	
35	16	0	0	10	0	20	60	20		
Above 35 mph (16 m/s)		**OPERATION NOT PERMITTED**								

For luffing jib operation in winds above 15 mph (7 m/s) with luffing jib positioned above 50°, load block from luffing jib point must weigh at least 15,000 lb (6804 kg). ***Luffing jib may be blown over backwards if this precaution is not observed.*** *Refer to luffing jib capacity chart for specific backward stability conditions.*

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 3. Observe the following options:

Boom with 70 - 180 ft (21.3 - 54.9 m) Luffing Jib

- ***Up to 50 mph (22 m/s)*** -
  Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 75° and luffing jib at 50°.
- ***50 mph (22 m/s) and Above -***

  Lower boom and luffing jib onto blocking at ground level.

Boom with 190 - 240 ft (57.9 - 73.2 m) Luffing Jib

- ***Up to 40 mph (18 m/s) -***

  Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 75° and luffing jib at 50°.
- ***40 mph (18 m/s) and Above -***

  Lower boom and luffing jib onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***
- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.

#55 or #55A Boom with 140' (42.7 m) Mast and Max-Er Attachment

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 4, provided ratings are reduced the specified amount.

Table 4
Rating Reductions for Various Wind Speeds and Wind Gusts

Boom Length ft (m)		140-280 (42.7-85.3)	300-340 (91.4-103.6)	360-380 (109.7-115.8)	400-440 (121.9-134.1)
Maximum Wind Speed		**Percent Rating Reduction**			
mph	m/s				
15	7	0	0	0	0
20	9	0	0	10	20
25	11	0	0	10	30
30	13	0	10	20	50
35	16	0	20	30	
Above 35 mph (16 m/s)		**OPERATION NOT PERMITTED**			

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 4. Observe the following options:

Boom

- ***Up to 50 mph (22 m/s) -***

  Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 70°.

- ***50 mph (22 m/s) and Above -***

  Lower boom onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***

- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.

#79A Luffing Jib on #55 or #55A Boom without Max-Er Attachment

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 5, provided ratings are reduced the specified amount.

Table 5
Rating Reductions for Various Wind Speeds and Wind Gusts

Luffing Jib Length ft (m)		90-150 (27.4-45.7)	170-230 (51.8-70.1)	250-310 (76.2-94.5)
Boom Length ft (m)		160-200 (48.8-61.0)	160-200 (48.8-61.0)	160-180 (48.9-54.9)
Maximum Wind Speed		**Percent Rating Reduction**		
mph	m/s			
15	7	0	0	0
20	9	0	0	10
25	11	0	0	60
30	13	0	30	
35	16	0	60	
Above 35 mph (16 m/s)		**OPERATION NOT PERMITTED**		

Wind speed to be measured at or above boom point elevation. Refer to Luffing Jib Capacity Chart for specific backward stability conditions.

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 5. Observe the following options:

Boom with 90 - 230 ft (27.4 - 70.1 m) Luffing Jib

- ***Up to 50 mph (22 m/s) -***

  Park crane (upper in line with crawlers) with load block on ground or secured and position boom at 85° and luffing jib at 55°.

- ***50 mph (22 m/s) and Above -***

  Lower attachment onto blocking at ground level.

Boom with 250 - 310 ft (76.2 - 94.5 m) Luffing Jib

- ***Up to 40 mph (18 m/s) -***

  Park crane (upper in line with crawlers) with load block on ground or secured and position boom at 85° and luffing jib at 60°.

- ***40 mph (18 m/s) and Above -***

  Lower attachment onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***

- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.

79A Luffing Jib on #55 or #55A Boom with Max-Er Attachment

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 6, provided ratings are reduced the specified amount.

Table 6
Rating Reductions for Various Wind Speeds and Wind Gusts

Luffing Jib Length ft (m)		90-150 (27.4-45.7)			170-230 (51.8-70.1)			250-310 (76.2-94.5)		
Boom Length ft (m)		160-220 (48.8-67.1)	240-280 (73.2-85.3)	300-340 (91.4-103.6)	160-220 (48.8-67.1)	240-280 (73.2-85.3)	300-340 (91.4-103.6)	160-220 (48.8-67.1)	240-280 (73.2-85.3)	300-340 (91.4-103.6)
Maximum Wind Speed		**Percent Rating Reduction**								
mph	m/s									
15	7	0	0	0	0	0	0	0	0	0
20	9	0	0	0	0	0	10	10	40	60
25	11	0	0	0	0	20	50	60		
30	13	0	0	10	30	60				
35	16	0	10	30	60					
Above 35 mph (16 m/s)										

OPERATION NOT PERMITTED

Wind speed to be measured at or above boom point elevation. Refer to Luffing Jib Capacity Chart for specific backward stability conditions.

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 6. Observe the following options:

Boom with 90 - 150 ft (27.4 - 45.7 m) Luffing Jib

- ***Up to 50 mph (22 m/s)*** -
  Park crane (upper in line with crawlers) with load block on ground or secured and position boom at 75° and luffing jib at 45°.
- ***50 mph (22 m/s) and Above -***

  Lower boom and luffing jib onto blocking at ground level.

Boom with 170 - 230 ft (51.8 - 70.1 m) Luffing Jib

- ***Up to 40 mph (18 m/s) -***

  Park crane (upper in line with crawlers) with load block on ground or secured and position boom at 75° and luffing jib at 55°.
- ***40 mph (18 m/s) and Above -***

  Lower boom and luffing jib onto blocking at ground level.

Boom with 250 - 310 ft (76.2 - 94.5 m) Luffing Jib

- ***Up to 30 mph (13 m/s) -***

  Park crane (upper in line with crawlers) with load block on ground or secured and position boom at 75° and luffing jib at 55°.
- ***30 mph (13 m/s) and Above -***

  Lower boom and luffing jib onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***
- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.

#79A Fixed Jib on #55 or #55A Boom with or without Max-Er Attachment

Operation Permitted

Operation is permitted in steady winds or wind gusts up to the maximum speed given in Table 7, provided ratings are reduced the specified amount.

Table 7
Rating Reductions for Various Wind Speeds and Wind Gusts

Fixed Jib Length ft (m)		50-110 (15.2-33.5)		
Boom Length ft (m)		140-260 (42.7-79.2)	280-300 (85.3-91.4)	320-340 (97.5-103.6)
Maximum Wind Speed mph	m/s	**Percent Rating Reduction**		
15	7	0	0	0
20	9	0	0	0
25	11	0	0	0
30	13	0	0	10
35	16	0	10	20
Above 35 mph (16 m/s)		**OPERATION NOT PERMITTED**		

Wind speed to be measured at or above boom point elevation.

Operation Not Permitted

Operation is not permitted in the areas indicated in Table 7. Observe the following options:

Boom with 50 - 110 ft (15.2 - 33.5 m) Fixed Jib

- ***Up to 50 mph (22 m/s) -***

  Park crane (upper in line with crawlers) with load block on ground or secured and position boom at 70°.

- ***50 mph (22 m/s) and Above -***

  Lower boom onto blocking at ground level.

Mast

- ***Above 50 mph (22 m/s) -***

  Haul in boom hoist wire rope just enough to tension mast straps. Do not raise boom off blocking. ***Wind can cause mast stops to collapse if this step is not performed.***

- ***Above 75 mph (34 m/s) -***

  Lower mast onto blocking at ground level.