


# Liftcrane Boom Capacities

Boom No. B10:680

661,300 lb VPC (Variable Position Counterweight)

360 Degree Rating

## MLC650 SERIES 2

 **LIFTING CAPACITIES:** Lifting capacities for various boom lengths and operating radii are for freely suspended loads and may be based on percent of static tipping or strength of structural components. Capacities must be reduced by applicable deducts.


Upper boom point capacity for liftcrane service with single part whip line from Drum 3 is 30,000 lb or 60,000 lb with two part whip line. When Drum 1 or Drum 2 is used, capacity with single part whip line is 48,800 lb, or 73,500 lb with two part whip line. In all cases, upper boom point capacities cannot exceed those listed for main boom capacity.


Weight of all load blocks, hooks, weight ball, slings, hoist lines, etc., beneath boom and jib point sheaves is considered part of load. Boom is not to be lowered beyond radii where combined weights are greater than rated capacity. Where no capacity is shown, operation is not intended or approved.


**BOOM BACKWARD STABILITY:** Capacities indicated by (b) require 12,000 lb minimum weight suspended beneath boom point and (c) require 24,000 lb minimum weight. **Caution: Do not operate in areas indicated by (b) or (c) without required minimum weight. Boom may not lower and boom hoist wire rope may go slack causing wire rope damage or failure.**

**OPERATING CONDITIONS:** Machine to operate on a firm, level, and uniformly supporting surface. Refer to Boom Rigging **No. 81018141**, Wire Rope Specifications chart **No. 9359-A**, Counterweight Arrangements chart **No. 9349-A**, and Wind Conditions chart **No. 9358-A**. Crane operator judgment must be used to allow for dynamic load effects of swinging, hoisting or lowering, travel, wind conditions, as well as adverse operating conditions and physical machine depreciation. Refer to the Operator Manual for operating guidelines.

**MACHINE TRAVEL:** Machine to travel on a firm, level, and uniformly supporting surface. Boom must be within boom angle range shown in capacity chart. Refer to Maximum Allowable Travel Specifications chart **No. 9354-A**.

 **OPERATING RADIUS:** Operating radius is horizontal distance from axis of rotation to center of vertical hoist line or load block.

 **BOOM ANGLE:** Boom angle in degrees (°) is angle between horizontal and centerline of boom butt and inserts, and is an indication of operating radius. In all cases, operating radius shall govern capacity.

 **BOOM POINT ELEVATION:** Boom point elevation is vertical distance from ground level to centerline of boom point shaft.

**MACHINE EQUIPMENT:** Machine equipped with 36 ft 6 in. crawlers, 60 in. or 80 in. treads, 36 ft 1 in. live mast, 30 part boom hoist reeving, boom support straps, and 661,300 lb VPC.

Consult chart **No. 9489-A** when Jib No. 148 is attached.

<b>Luffing Jib Backstay Deduct</b>	
Boom Length (ft)	Deduct (lb)
105.0	3,500
124.7	5,000
144.4	6,000
164.0	7,500
183.7	8,500
203.4	10,000
223.1	10,000
242.8	10,000
262.5	11,000
282.2	12,500

Deduct the appropriate value from capacities when luffing jib backstays are stored on boom.

<b>Deduct From Capacities When Jib No. 148 Is Attached</b>	
Jib Length (ft)	Deduct (lb)
39.4	18,800
59.1	23,500
78.7	29,400
98.4	35,300
118.1	42,500
137.8	48,100

Weight of jib and 6,500 lb suspended beneath jib point have been included in determination of deduct.

Refer to Table 1 (with luffing jib backstays stored) and Tables 2 and 3 (without luffing jib backstays stored) for raising ability with the maximum weight of all load blocks, hooks, weight ball, slings, and hoist lines beneath boom point sheaves. For block weights shown with #, load blocks, hooks, weight ball, and slings must remain on ground until combined weights are within rated capacity of chart. For boom lengths shown with (a), upper boom point must be removed and boom top equipped with a maximum of eight (8) sheaves in lower boom point. Raising is not permitted in shaded areas of table.

Combined weight beneath boom point sheaves must not exceed block weight shown.

**Table 1: With Luffing Jib Backstays**

Over End or Side of Crawlers	
Boom Length (ft)	Block Weight (lb)
105.0	46,500
124.7	46,500
144.4	46,500
164.0	46,500
183.7	46,500
203.4	46,500
223.1	22,600
242.8	22,600
262.5	16,200
282.2	#
301.8	Raising Not Permitted
321.5	
341.2	

REFERENCE ONLY!

**Table 2: Without Luffing Jib Backstays**


Over End or Side of Crawlers	
Boom Length (ft)	Block Weight (lb)
105.0	46,500
124.7	46,500
144.4	46,500
164.0	46,500
183.7	46,500
203.4	46,500
223.1	46,500
242.8	22,600
262.5	22,600
282.2	16,200
301.8	#
321.5	Raising Not Permitted
341.2	


**Table 3: Without Luffing Jib Backstays**

Over End of Blocked Crawlers	
Boom Length	Block Weight
105.0	46,500
124.7	46,500
144.4	46,500
164.0	46,500
183.7	46,500
203.4	46,500
223.1	46,500
242.8	22,600
262.5	22,600
282.2	16,200
301.8	#
321.5	#
(a) 341.2	#


**Warning:** Crane must remain in-line with crawlers when raising over end of blocked crawlers until operating radius is within 360 degree chart. Crane tipping or structural damage can occur.


Explanation of Symbols


B10  Boom No. B10:680


 VPC (Variable Position Counterweight)


 360 Degree Rating

 Boom Length

 Operating Radius  
(see page 1)

 Boom Angle  
(see page 1)

 Boom Point Elevation  
(see page 1)

 Lifting Capacities  
(see page 1)

REFERENCE ONLY!

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ASME B30.5



B10



661,300 lb



360°

105.0 ft			
ft	°	ft	lb
19	84.9	114.4	1,433,000 c
20	84.3	114.2	1,245,800 c
22	83.2	113.9	1,154,500 c
24	82.1	113.6	1,075,400 b
26	81.0	113.2	1,006,300 b
28	79.9	112.8	945,300 b
30	78.8	112.3	891,200 b
32	77.6	111.8	842,800
34	76.5	111.2	799,200
36	75.4	110.6	759,900
38	74.2	110.0	724,100
40	73.1	109.3	691,500
45	70.2	107.4	621,300
50	67.2	105.2	538,000
55	64.1	102.7	471,300
60	61.0	99.8	418,900
65	57.7	96.5	376,800
70	54.3	92.8	342,000
75	50.8	88.6	313,000
80	47.0	83.8	288,300
85	43.0	78.4	267,000
90	38.6	72.0	248,500
95	33.6	64.5	232,300
100	27.8	55.2	218,000
105	20.4	42.5	205,200

124.7 ft			
ft	°	ft	lb
22	84.3	133.8	1,134,400 c
24	83.4	133.5	1,058,600 b
26	82.4	133.2	992,000 b
28	81.5	132.8	933,100
30	80.6	132.4	880,700
32	79.6	132.0	833,600
34	78.7	131.6	791,300
36	77.7	131.1	752,900
38	76.8	130.5	718,000
40	75.8	130.0	686,100
45	73.4	128.4	617,200
50	71.0	126.6	544,400
55	68.5	124.5	477,000
60	66.0	122.2	424,200
65	63.4	119.6	381,500
70	60.7	116.7	346,500
75	58.0	113.5	317,100
80	55.2	109.9	292,200
85	52.3	106.0	270,700
90	49.2	101.5	252,100
95	46.0	96.6	235,700
100	42.5	91.1	221,200
105	38.9	84.8	208,300
110	34.8	77.6	196,800
115	30.3	69.1	186,300
120	24.9	58.6	176,900
125	18.0	44.4	168,300

144.4 ft			
ft	°	ft	lb
24	84.3	153.4	1,038,500 b
26	83.5	153.1	974,700
28	82.7	152.8	918,100
30	81.9	152.5	867,500
32	81.1	152.1	822,000
34	80.3	151.7	780,900
36	79.4	151.3	743,700
38	78.6	150.8	709,700
40	77.8	150.3	678,600
45	75.8	149.0	611,300
50	73.7	147.5	548,400
55	71.6	145.7	480,500
60	69.5	143.8	427,200
65	67.3	141.6	384,300
70	65.1	139.2	348,900
75	62.9	136.6	319,400
80	60.6	133.7	294,200
85	58.2	130.5	272,600
90	55.8	127.0	253,800
95	53.3	123.2	237,300
100	50.7	119.0	222,700
105	48.0	114.4	209,700
110	45.2	109.4	198,100
115	42.2	103.8	187,600
120	39.1	97.6	178,100
125	35.7	90.6	169,400
130	31.9	82.6	161,500
135	27.7	73.2	154,200
140	22.7	61.6	147,400
145	16.1	45.7	138,600

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**164.0 ft**

ft	°	ft	lb
24	85.0	173.2	1,017,400
26	84.3	173.0	956,800
28	83.6	172.7	902,600
30	82.9	172.4	854,100
32	82.2	172.1	810,400
34	81.4	171.7	770,700
36	80.7	171.4	734,700
38	80.0	171.0	701,700
40	79.3	170.6	671,500
45	77.5	169.4	605,900
50	75.7	168.0	551,600
55	73.9	166.5	485,600
60	72.0	164.8	431,800
65	70.2	163.0	388,500
70	68.3	160.9	352,800
75	66.4	158.6	322,900
80	64.4	156.2	297,500
85	62.4	153.5	275,700
90	60.4	150.6	256,700
95	58.4	147.4	240,100
100	56.3	144.0	225,300
105	54.1	140.3	212,200
110	51.8	136.3	200,500
115	49.5	132.0	189,900
120	47.1	127.3	180,300
125	44.6	122.2	171,500
130	42.0	116.6	163,500
135	39.2	110.4	155,400
140	36.3	103.5	146,300
145	33.1	95.8	137,900
150	29.5	87.1	130,100
155	25.6	76.8	122,700
160	20.8	64.1	115,800

**183.7 ft**

ft	°	ft	lb
26	84.9	192.8	938,900
28	84.3	192.6	887,200
30	83.6	192.3	840,700
32	83.0	192.0	798,700
34	82.4	191.7	760,400
36	81.7	191.4	725,600
38	81.1	191.0	693,600
40	80.5	190.6	664,300
45	78.9	189.6	600,400
50	77.3	188.4	547,300
55	75.7	187.1	490,900
60	74.0	185.6	436,600
65	72.4	183.9	392,800
70	70.7	182.1	356,700
75	69.1	180.2	326,500
80	67.4	178.0	300,900
85	65.6	175.7	278,900
90	63.9	173.2	259,700
95	62.1	170.5	242,900
100	60.3	167.5	228,000
105	58.5	164.4	214,700
110	56.6	161.1	202,900
115	54.7	157.5	192,200
120	52.7	153.6	182,500
125	50.7	149.4	173,400
130	48.6	145.0	162,800
135	46.4	140.1	153,000
140	44.2	134.9	144,000
145	41.8	129.3	135,600
150	39.4	123.1	127,900
155	36.7	116.4	120,600
160	34.0	109.0	113,800
165	30.9	100.7	107,500
170	27.6	91.2	101,500
175	23.8	80.1	95,800
180	19.2	66.4	90,400

**203.4 ft**

ft	°	ft	lb
28	84.8	212.4	868,500
30	84.3	212.1	824,500
32	83.7	211.9	784,400
34	83.1	211.6	747,900
36	82.5	211.3	714,500
38	82.0	211.0	683,800
40	81.4	210.7	655,500
45	80.0	209.7	593,700
50	78.5	208.6	542,100
55	77.1	207.4	495,900
60	75.6	206.1	441,100
65	74.2	204.6	396,900
70	72.7	203.0	360,500
75	71.2	201.3	330,000
80	69.7	199.4	304,100
85	68.2	197.3	281,900
90	66.6	195.1	262,500
95	65.1	192.7	245,500
100	63.5	190.1	230,500
105	61.9	187.4	217,200
110	60.2	184.5	205,200
115	58.6	181.4	194,400
120	56.9	178.1	182,300
125	55.2	174.5	170,700
130	53.4	170.8	160,100
135	51.6	166.7	150,300
140	49.7	162.4	141,300
145	47.8	157.9	133,000
150	45.9	153.0	125,300
155	43.8	147.7	118,100
160	41.7	142.0	111,300
165	39.5	135.9	105,000
170	37.1	129.3	99,100
175	34.6	122.0	93,600
180	32.0	114.0	88,300
185	29.1	105.1	83,300
190	25.9	94.9	78,600
195	22.3	83.0	74,100
200	17.9	68.3	69,700

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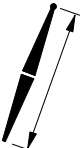
B10





661,300 lb



360°

 223.1 ft			
ft	°	ft	lb
30	84.8	232.0	803,000
32	84.2	231.7	765,300
34	83.7	231.5	730,800
36	83.2	231.2	699,100
38	82.7	230.9	669,900
40	82.2	230.6	642,900
45	80.9	229.8	583,500
50	79.6	228.8	533,700
55	78.2	227.7	491,400
60	76.9	226.5	441,900
65	75.6	225.1	397,500
70	74.3	223.7	361,000
75	72.9	222.1	330,400
80	71.6	220.4	304,400
85	70.2	218.5	282,000
90	68.8	216.5	262,600
95	67.4	214.4	245,500
100	66.0	212.1	230,500
105	64.6	209.7	217,000
110	63.1	207.1	205,000
115	61.7	204.4	194,100
120	60.2	201.5	182,100
125	58.7	198.4	170,500
130	57.1	195.1	159,900
135	55.6	191.6	150,100
140	54.0	187.9	141,100
145	52.3	184.0	132,800
150	50.7	179.8	125,100
155	49.0	175.4	117,900
160	47.2	170.7	111,200
165	45.4	165.8	104,900
170	43.5	160.5	99,000
175	41.6	154.8	93,500
180	39.5	148.7	88,300
185	37.4	142.1	83,400
190	35.2	135.0	78,700
195	32.8	127.2	74,300
200	30.3	118.7	70,100
205	27.5	109.2	66,000
210	24.5	98.4	62,200
215	21.0	85.7	58,500
220	16.7	70.0	54,900

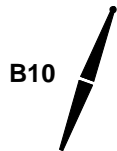
 242.8 ft			
ft	°	ft	lb
32	84.7	251.5	747,600
34	84.2	251.3	715,100
36	83.8	251.1	685,100
38	83.3	250.8	657,400
40	82.8	250.5	631,700
45	81.6	249.7	574,900
50	80.4	248.8	526,900
55	79.2	247.8	485,900
60	78.0	246.7	446,200
65	76.8	245.5	401,400
70	75.6	244.2	364,500
75	74.3	242.7	333,700
80	73.1	241.2	307,400
85	71.9	239.5	284,900
90	70.6	237.7	265,200
95	69.3	235.8	248,000
100	68.1	233.7	232,800
105	66.8	231.5	219,200
110	65.5	229.2	205,900
115	64.2	226.7	191,800
120	62.8	224.1	179,000
125	61.5	221.3	167,400
130	60.1	218.4	156,800
135	58.7	215.3	147,000
140	57.3	212.1	138,000
145	55.9	208.6	129,600
150	54.4	205.0	121,900
155	52.9	201.2	114,700
160	51.4	197.1	108,000
165	49.9	192.9	101,800
170	48.3	188.4	95,900
175	46.7	183.6	90,300
180	45.0	178.6	85,100
185	43.3	173.2	80,200
190	41.5	167.5	75,600
195	39.6	161.4	71,200
200	37.7	154.9	67,000
205	35.6	147.9	63,100
210	33.5	140.4	59,300
215	31.2	132.1	55,700
220	28.8	123.1	52,200
225	26.1	113.0	48,900
230	23.2	101.5	45,700
235	19.8	88.1	42,700
240	15.7	71.4	39,700

 262.5 ft			
ft	°	ft	lb
34	84.7	271.1	702,900
36	84.2	270.9	674,200
38	83.8	270.6	647,600
40	83.4	270.4	622,800
45	82.2	269.7	567,900
50	81.1	268.8	521,300
55	80.0	267.9	481,400
60	78.9	266.9	446,800
65	77.8	265.8	404,300
70	76.7	264.6	367,200
75	75.5	263.2	336,100
80	74.4	261.8	309,700
85	73.3	260.2	287,000
90	72.1	258.6	267,200
95	71.0	256.8	249,900
100	69.8	254.9	234,600
105	68.6	252.9	220,000
110	67.4	250.8	204,300
115	66.2	248.6	190,200
120	65.0	246.2	177,500
125	63.8	243.7	165,800
130	62.6	241.1	155,200
135	61.3	238.3	145,400
140	60.1	235.4	136,400
145	58.8	232.3	128,000
150	57.5	229.0	120,300
155	56.2	225.7	113,100
160	54.8	222.1	106,400
165	53.5	218.3	100,100
170	52.1	214.4	94,200
175	50.7	210.2	88,700
180	49.2	205.9	83,500
185	47.7	201.3	78,600
190	46.2	196.5	74,000
195	44.6	191.4	69,600
200	43.0	186.0	65,500
205	41.4	180.3	61,500
210	39.7	174.2	57,800
215	37.9	167.7	54,200
220	36.0	160.8	50,800
225	34.1	153.4	47,500
230	32.0	145.4	44,400
235	29.8	136.8	41,400
240	27.5	127.2	38,500
245	24.9	116.6	35,700
250	22.1	104.5	33,100
255	18.8	90.3	30,200



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**282.2 ft**

ft	°	ft	lb
36	84.6	290.7	604,200
38	84.2	290.5	602,400
40	83.8	290.2	600,500
45	82.8	289.6	559,000
50	81.8	288.8	514,200
55	80.7	287.9	475,600
60	79.7	287.0	442,100
65	78.7	286.0	408,000
70	77.6	284.8	370,600
75	76.6	283.6	339,200
80	75.5	282.3	312,500
85	74.5	280.8	289,600
90	73.4	279.3	269,700
95	72.3	277.7	252,200
100	71.3	275.9	234,100
105	70.2	274.1	216,700
110	69.1	272.1	201,000
115	68.0	270.1	186,800
120	66.9	267.9	174,000
125	65.8	265.6	162,400
130	64.7	263.2	151,700
135	63.5	260.7	141,900
140	62.4	258.0	132,800
145	61.2	255.2	124,500
150	60.0	252.3	116,800
155	58.8	249.2	109,500
160	57.6	246.0	102,800
165	56.4	242.7	96,600
170	55.2	239.1	90,700
175	53.9	235.5	85,200
180	52.6	231.6	80,000
185	51.3	227.5	75,100
190	50.0	223.3	70,400
195	48.6	218.9	66,100
200	47.2	214.2	61,900
205	45.8	209.3	58,000
210	44.4	204.1	54,200
215	42.9	198.7	50,700
220	41.3	193.0	47,300
225	39.7	186.9	44,000
230	38.1	180.5	40,900
235	36.4	173.7	38,000
240	34.6	166.4	35,100
245	32.7	158.7	32,400
250	30.7	150.2	29,700
255	28.6	141.1	27,200
260	26.3	131.1	24,800
265	23.8	119.9	21,900
270	21.0	107.2	18,000

**301.8 ft**

ft	°	ft	lb
36	85.0	310.5	518,100
38	84.6	310.3	516,300
40	84.2	310.1	514,700
45	83.3	309.4	510,500
50	82.3	308.7	506,500
55	81.3	307.9	469,300
60	80.4	307.0	436,900
65	79.4	306.1	408,300
70	78.4	305.0	373,100
75	77.5	303.9	341,500
80	76.5	302.6	314,700
85	75.5	301.3	291,600
90	74.5	299.9	271,500
95	73.5	298.4	252,100
100	72.5	296.8	232,400
105	71.5	295.0	214,900
110	70.5	293.2	199,200
115	69.5	291.3	185,000
120	68.5	289.3	172,200
125	67.5	287.2	160,500
130	66.4	285.0	149,800
135	65.4	282.7	140,000
140	64.3	280.2	131,000
145	63.3	277.7	122,600
150	62.2	275.0	114,900
155	61.1	272.2	107,600
160	60.0	269.3	100,900
165	58.9	266.2	94,600
170	57.7	263.0	88,800
175	56.6	259.7	83,200
180	55.5	256.2	78,000
185	54.3	252.6	73,100
190	53.1	248.8	68,500
195	51.9	244.8	64,100
200	50.6	240.7	60,000
205	49.4	236.3	56,100
210	48.1	231.8	52,300
215	46.8	227.1	48,800
220	45.5	222.1	45,400
225	44.1	216.9	42,100
230	42.7	211.5	39,000
235	41.2	205.7	36,100
240	39.8	199.7	33,300
245	38.2	193.3	30,500
250	36.6	186.6	27,900
255	35.0	179.4	25,400
260	33.2	171.8	23,000
265	31.4	163.6	20,700
270	29.5	154.8	18,400

**321.5 ft**

ft	°	ft	lb
38	84.9	330.1	444,600
40	84.6	329.9	443,100
45	83.7	329.3	439,500
50	82.8	328.6	435,800
55	81.9	327.9	432,300
60	81.0	327.0	428,900
65	80.1	326.1	405,700
70	79.2	325.1	378,700
75	78.3	324.1	346,800
80	77.3	322.9	319,700
85	76.4	321.7	296,300
90	75.5	320.3	271,200
95	74.6	318.9	248,900
100	73.6	317.4	229,200
105	72.7	315.8	211,600
110	71.8	314.1	195,900
115	70.8	312.4	181,700
120	69.9	310.5	168,800
125	68.9	308.5	157,100
130	68.0	306.5	146,400
135	67.0	304.3	136,500
140	66.0	302.1	127,400
145	65.0	299.7	119,100
150	64.0	297.2	111,300
155	63.0	294.6	104,100
160	62.0	292.0	97,300
165	61.0	289.1	91,000
170	60.0	286.2	85,100
175	58.9	283.2	79,600
180	57.9	280.0	74,400
185	56.8	276.7	69,500
190	55.7	273.2	64,800
195	54.6	269.6	60,500
200	53.5	265.9	56,300
205	52.4	262.0	52,400
210	51.2	258.0	48,600
215	50.1	253.7	45,100
220	48.9	249.3	41,700
225	47.7	244.7	38,400
230	46.4	239.9	35,400
235	45.2	234.9	32,400
240	43.9	229.7	29,600
245	42.6	224.2	26,900
250	41.2	218.5	24,300
255	39.8	212.5	21,800
260	38.4	206.1	19,400
265	36.9	199.4	17,100

# MLC650 S-2

ASME B30.5




B10



661,300 lb



360°

			
ft	°	ft	lb
40	84.9	349.7	384,500
45	84.0	349.1	381,200
50	83.2	348.5	378,000
55	82.4	347.8	374,900
60	81.5	347.0	371,900
65	80.7	346.1	368,800
70	79.8	345.2	365,700
75	78.9	344.2	348,900
80	78.1	343.1	321,600
85	77.2	341.9	294,800
90	76.4	340.7	269,300
95	75.5	339.4	247,000
100	74.6	338.0	227,200
105	73.7	336.5	209,700
110	72.9	334.9	193,900
115	72.0	333.2	179,700
120	71.1	331.5	166,800
125	70.2	329.7	155,000
130	69.3	327.7	144,300
135	68.4	325.7	134,400
140	67.5	323.6	125,400
145	66.6	321.4	117,000
150	65.6	319.1	109,200
155	64.7	316.7	101,900
160	63.8	314.2	95,200
165	62.8	311.6	88,900
170	61.9	308.9	83,000
175	60.9	306.1	77,500
180	59.9	303.2	72,200
185	58.9	300.1	67,300
190	58.0	297.0	62,700
195	56.9	293.7	58,300
200	55.9	290.3	54,200
205	54.9	286.7	50,200
210	53.9	283.0	46,500
215	52.8	279.2	42,900
220	51.7	275.2	39,600
225	50.6	271.1	36,300
230	49.5	266.8	33,200
235	48.4	262.3	30,300
240	47.3	257.6	27,500
245	46.1	252.8	24,800
250	44.9	247.7	22,200
255	43.7	242.5	19,700
260	42.4	237.0	17,300

REFERENCE ONLY!