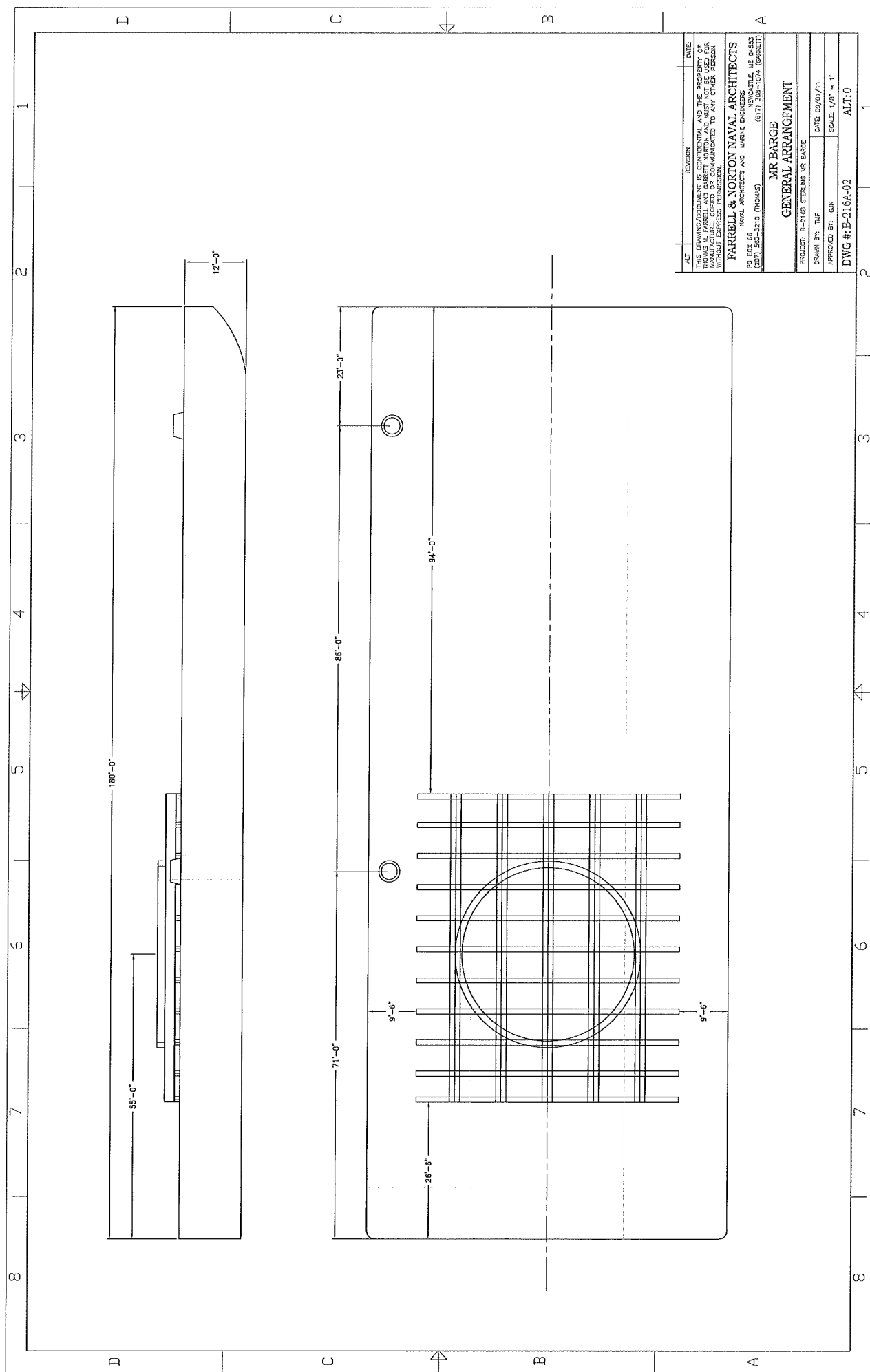


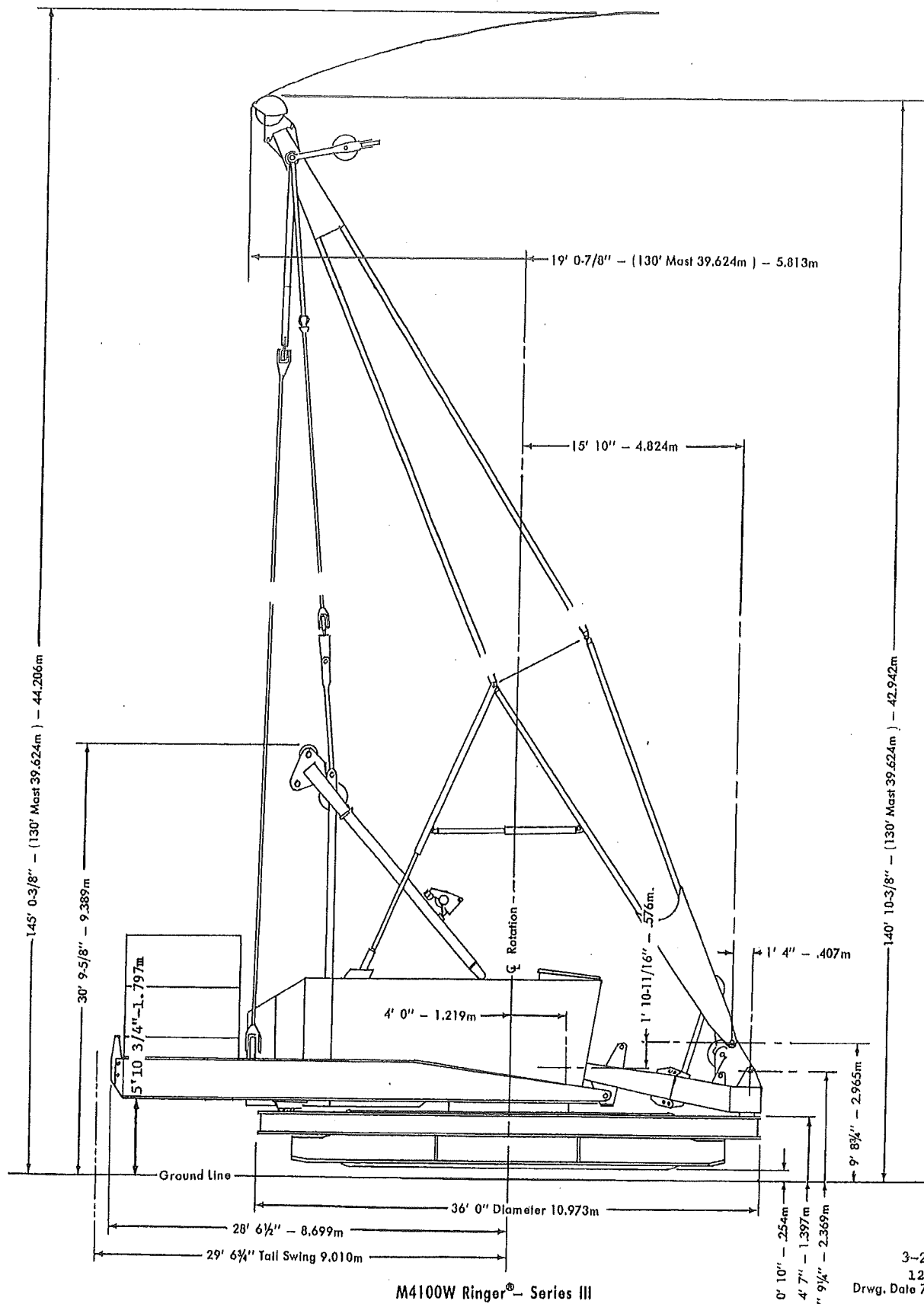




MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



M4100W Ringer® - Series III

See Reverse Side

3-20-80

12-4-72

Drwg. Date 7-20-71

OUTLINE DIMENSIONS

181553-1

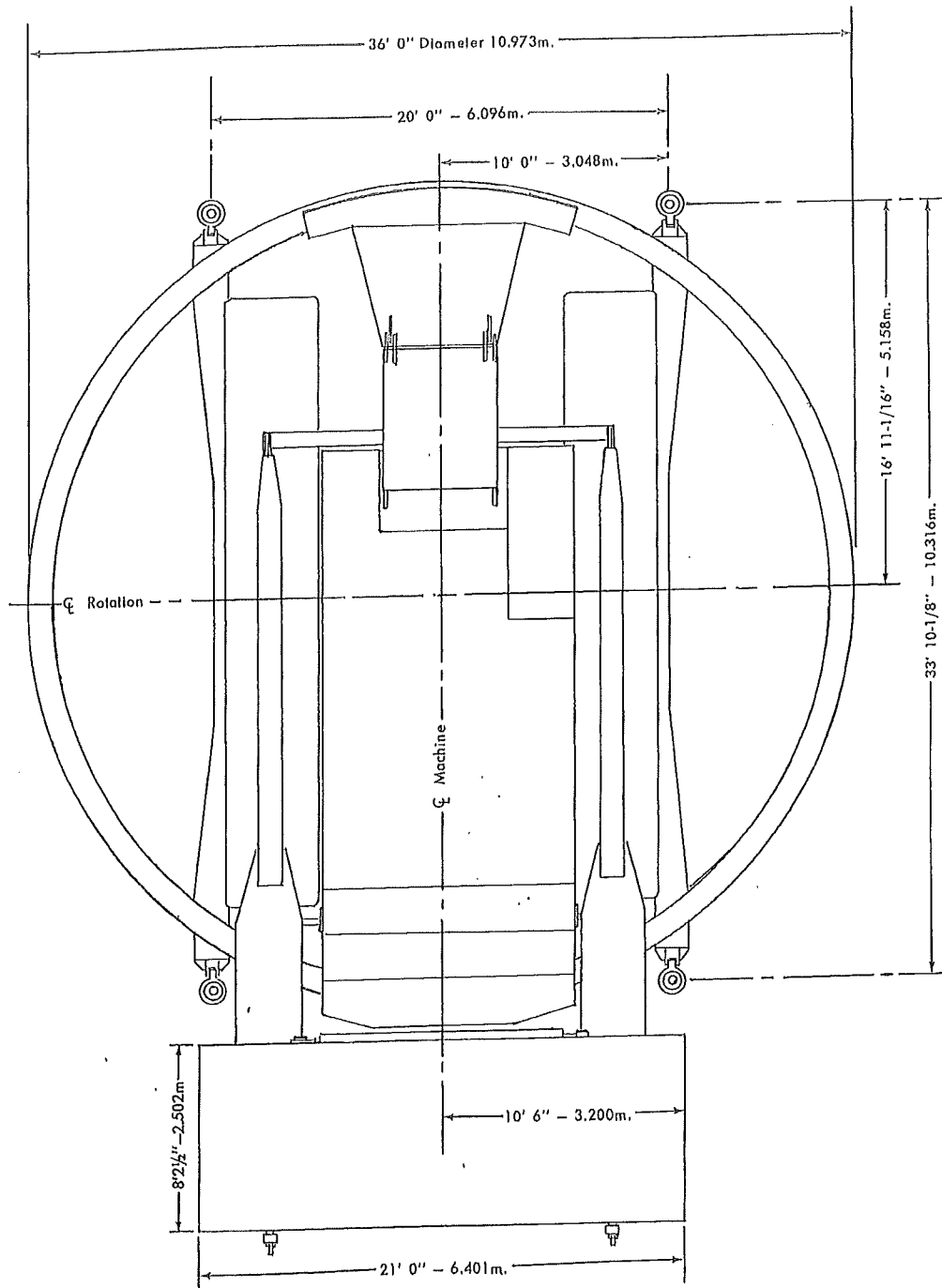
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MANITOWOC ENGINEERING CO.

A Division of The Manitowoc Company, Inc.

Manitowoc, Wisconsin



181553-2

M4100W Ringer® - Series III

12-4-72
Drwg. Date 7-20-71

181553-2



S/N: 10181

MANITOWOC ENGINEERING CO.

Division of the Manitowoc Company, Inc., Manitowoc, Wisconsin 54220

**LIFTCRANE BOOM CAPACITIES****4100W****4100W SERIES 1
RINGER SERIES 3**

BOOM NO. 27 WITH OPEN THROAT TOP
36' RINGER ATTACHMENT ON BLOCKING
122,400 LB. CRANE COUNTERWEIGHT
275,000 LB. AUXILIARY COUNTERWEIGHT
BARGE MOUNT - 1/2 DEGREE THRU 2 DEGREE MACHINE LIST
85% TIPPING - 360 DEGREE RATING

CAPACITIES ARE FOR A CRAWLER MACHINE WHEN OPERATING ON A BARGE. MACHINE SHALL BE POSITIVELY SECURED TO PREVENT SHIFTING. CAPACITIES FOR VARIOUS BOOM LENGTHS AND OPERATING RADII ARE FOR FREELY SUSPENDED LOADS AND DO NOT EXCEED 85% OF A STATIC TIPPING LOAD. CAPACITIES BASED ON STRUCTURAL COMPETENCE ARE DENOTED BY AN ASTERISK (*).

UPPER BOOM POINT CAPACITY FOR LIFTCRANE SERVICE WITH SINGLE PART WHIP LINE OR COMBINATION OF TWO SINGLE PART LINES IS 28,300 LBS. IN ALL CASES, UPPER BOOM POINT CAPACITIES CANNOT EXCEED THOSE LISTED FOR THE MAIN BOOM CAPACITY.

WEIGHT OF ALL LOAD BLOCKS, HOOKS, WEIGHT BALL, SLINGS, HOIST LINES, ETC., BENEATH BOOM POINT SHEAVES, IS CONSIDERED PART OF MAIN BOOM 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.

MACHINE TO OPERATE WITH ROLLER PATH PROPERLY SUPPORTED AND MACHINE LIST NOT TO EXCEED DEGREES NOTED. REFER TO RIGGING NO. 50999 AND WIRE ROPE SPECIFICATION CHART NO. 6144. CRANE OPERATOR JUDGMENT MUST BE USED TO ALLOW FOR DYNAMIC LOAD EFFECTS OF SWINGING, HOISTING OR LOWERING, WIND CONDITIONS, AS WELL AS ADVERSE OPERATING CONDITIONS AND PHYSICAL MACHINE DEPRECIATION.

OPERATING RADIUS IS HORIZONTAL DISTANCE FROM AXIS OF ROTATION AT BARGE DECK TO CENTER OF VERTICAL HOIST LINE OR LOAD BLOCK. BOOM ANGLE 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 IS VERTICAL DISTANCE FROM BARGE DECK TO CENTERLINE OF BOOM POINT SHAFT.

MACHINE EQUIPPED WITH 36' RINGER ATTACHMENT ON BLOCKING, 26'6" EXTENDIBLE CRAWLERS, 48" TREADS, 17' RETRACTABLE GANTRY, 130' MAST, 8 PART BOOM HOIST REEVING, FOUR 1-3/8" BOOM PENDANTS, 14" DIAMETER X 16" WIDTH BOOM HOIST DRUMS, 122,400 LB. CRANE COUNTERWEIGHT, AND 275,000 LB. AUXILIARY COUNTERWEIGHT.

MAXIMUM BOOM LENGTHS LIFTED UNASSISTED	
LIST	BOOM LENGTH
1/2 DEGREE	280'
1 DEGREE	260'
2 DEGREE	240'
LOAD BLOCK, HOOK AND WEIGHT BALL ON BARGE AT START. JIB IS NOT TO BE USED ON MACHINE WHILE OPERATING ON A BARGE.	

BOOM LGTH. FEET	OPER. RAD. FEET	BOOM ANG. DEG.	BOOM POINT ELEV. FEET	BOOM CAPACITY 1/2 DEGREE LIST POUNDS	BOOM CAPACITY 1 DEGREE LIST POUNDS	BOOM CAPACITY 2 DEGREE LIST POUNDS
1 4 0	38	81.4	146.2	488,700*		
	40	80.6	145.9	488,700*	435,800*	
	45	78.5	145.0	488,700*	435,800*	358,700*
	50	76.4	143.9	488,700*	435,800*	356,100*
	55	74.3	142.6	462,200	434,000*	322,100*
	60	72.2	141.1	408,100	394,800	293,800*
	65	70.0	139.3	364,900	354,100	269,900*
	70	67.8	137.4	329,600	320,700	249,400*
	75	65.6	135.3	300,300	292,800	231,600*
	80	63.3	132.9	275,600	269,200	216,000*
	85	61.0	130.2	254,400	248,900	202,300*
	90	58.7	127.3	236,100	231,300	190,100*
	95	56.2	124.1	220,000	215,900	179,200*
	100	53.7	120.6	205,900	202,200	169,300*
	105	51.1	116.8	192,000*	190,100	160,400*
	110	48.5	112.6	179,200*	179,200*	152,400*
	115	45.7	107.9	167,600*	167,600*	145,000*
	120	42.7	102.8	156,400*	156,400*	138,200*
	125	39.6	97.1	145,300*	145,300*	132,000*
	130	36.3	90.6	134,800*	134,800*	126,200*
	135	32.7	83.4	124,900*	124,900*	120,900*
	140	28.7	74.9	115,200*	115,200*	115,200*



S/N: 10181

MANITOWOC ENGINEERING CO.

Division of the Manitowoc Company, Inc. Manitowoc, Wisconsin 54220

**LIFTCRANE BOOM CAPACITIES****4100W****4100W SERIES 1
RINGER SERIES 3**

BOOM NO. 27 WITH OPEN THROAT TOP
36' RINGER ATTACHMENT ON BLOCKING
122,400 LB. CRANE COUNTERWEIGHT
275,000 LB. AUXILIARY COUNTERWEIGHT
BARGE MOUNT - 1/2 DEGREE THRU 2 DEGREE MACHINE LIST
85% TIPPING - 360 DEGREE RATING

BOOM LGTH. FEET	OPER. RAD. FEET	BOOM ANG. DEG.	BOOM POINT ELEV. FEET	BOOM CAPACITY 1/2 DEGREE LIST POUNDS	BOOM CAPACITY 1 DEGREE LIST POUNDS	BOOM CAPACITY 2 DEGREE LIST POUNDS
1 6 0	45	80.0	165.3	431,400*	381,400*	310,000*
	50	78.2	164.4	431,400*	381,400*	310,000*
	55	76.3	163.2	431,400*	381,400*	310,000*
	60	74.5	161.9	405,000	381,400*	292,300*
	65	72.6	160.5	362,100	350,100	268,400*
	70	70.7	158.8	327,100	317,100	247,900*
	75	68.8	157.0	298,000	289,500	230,100*
	80	66.9	154.9	273,300	266,200	214,600*
	85	64.9	152.7	252,300	246,100	200,800*
	90	62.9	150.2	234,000	228,600	189,700*
	95	60.9	147.6	218,100	213,300	177,700*
	100	58.8	144.7	204,000	199,800	167,900*
	105	56.7	141.5	191,500	187,800	159,000*
	110	54.5	138.1	180,300	177,000	151,000*
	115	52.3	134.4	170,300	167,300	143,600*
	120	50.0	130.3	161,200	158,500	136,800*
1 8 0	125	47.6	126.0	153,000	150,600	130,600*
	130	45.2	121.2	145,400	143,300	124,900*
	135	42.6	116.0	137,100*	136,600	119,600*
	140	39.9	110.3	129,400*	129,400*	114,600*
	145	37.0	104.0	122,200*	122,200*	110,000*
	150	33.9	97.0	115,400*	115,400*	105,700*
	155	30.5	89.0	107,700*	107,700*	101,700*
	160	26.8	79.9	100,000*	100,000*	98,000*
	45	81.1	185.6	376,900*	331,700*	268,000*
	50	79.5	184.8	376,500*	331,300*	267,600*
	55	77.9	183.7	376,100*	330,800*	267,200*
	60	76.2	182.6	375,500*	330,200*	266,100*
	65	74.6	181.3	358,600	312,900	245,600*
	70	72.9	179.8	323,900	285,600	227,800*
	75	71.3	178.2	294,900	262,500	212,300*
	80	69.6	176.4	270,500	242,600	198,600*
	85	67.9	174.5	249,500	225,300	186,500*
	90	66.1	172.4	231,300	210,200	175,600*
	95	64.4	170.1	215,400	196,800	165,800*
	100	62.6	167.6	201,400	184,800	156,900*
	105	60.8	164.9	189,000	174,100	148,800*
	110	59.0	162.0	177,900	164,500	141,500*
	115	57.1	158.9	167,900	155,800	134,700*
	120	55.2	155.5	158,800	147,800	128,500*
	125	53.2	151.9	150,600	140,600	122,800*
	130	51.2	148.0	143,100	133,900	117,500*
	135	49.1	143.8	136,200	127,800	112,500*
	140	47.0	139.3	129,900	122,100	108,000*
	145	44.8	134.5	124,000	116,900	103,700*
	150	42.4	129.2	118,600	112,000	99,700*
	155	40.0	123.5	113,500*	107,500	95,900*
	160	37.5	117.3	107,500*	101,900*	92,400*
	165	34.8	110.5	101,900*	96,600*	89,100*
	170	31.9	102.9	96,600*	91,500*	85,900*
	175	28.7	94.3	91,500*	86,100*	83,000*
	180	25.2	84.5	86,100*		



S/N: 10181

MANITOWOC ENGINEERING CO.

Division of the Manitowoc Company, Inc. Manitowoc, Wisconsin 54220

**LIFTCRANE BOOM CAPACITIES****4100W****4100W SERIES 1
RINGER SERIES 3****BOOM NO. 27 WITH OPEN THROAT TOP
36' RINGER ATTACHMENT ON BLOCKING****122,400 LB. CRANE COUNTERWEIGHT****275,000 LB. AUXILIARY COUNTERWEIGHT****BARGE MOUNT - 1/2 DEGREE THRU 2 DEGREE MACHINE LIST****85% TIPPING - 360 DEGREE RATING**

BOOM LGTH. FEET	OPER. RAD. FEET	BOOM ANG. DEG.	BOOM POINT ELEV. FEET	BOOM CAPACITY 1/2 DEGREE LIST POUNDS	BOOM CAPACITY 1 DEGREE LIST POUNDS	BOOM CAPACITY 2 DEGREE LIST POUNDS
200	50	80.6	205.1	332,100*	291,800*	
	55	79.1	204.2	331,400*	291,200*	234,300*
	60	77.6	203.1	330,500*	290,500*	233,800*
	65	76.2	202.0	329,600*	289,600*	233,200*
	70	74.7	200.7	321,500	289,000*	232,500*
	75	73.2	199.2	292,800	282,600	226,500*
	80	71.7	197.6	268,400	259,700	211,000*
	85	70.2	195.9	247,600	240,000	197,300*
	90	68.6	194.0	229,500	222,900	185,100*
	95	67.1	192.0	213,700	207,900	174,300*
	100	65.5	189.8	199,700	194,600	164,500*
	105	63.9	187.5	187,300	182,700	155,600*
	110	62.3	184.9	176,300	172,100	147,600*
	115	60.7	182.2	166,300	162,500	140,200*
	120	59.1	179.3	157,300	153,900	133,500*
	125	57.4	176.2	149,000	146,000	127,300*
	130	55.7	172.9	141,600	138,800	121,500*
	135	53.9	169.4	134,700	132,100	116,200*
	140	52.1	165.6	128,400	126,000	111,300*
	145	50.3	161.6	122,600	120,400	106,700*
220	150	48.4	157.3	117,200	115,200	102,500*
	155	46.4	152.7	112,200	110,300	98,500*
	160	44.4	147.8	107,500	105,600	94,700*
	165	42.3	142.5	103,100	101,600	91,200*
	170	40.2	136.8	99,100	97,700	87,900*
	175	37.9	130.6	95,300	94,000	84,700*
	180	35.5	123.9	91,000*	90,500	81,800*
	185	32.9	116.5	86,500*	86,500*	79,000*
	190	30.2	108.4	82,200*	82,200*	76,300*
	195	27.2	99.3	78,100*	78,100*	73,800*
	200	23.9	88.8	74,100*	74,100*	71,500*
	50	81.4	225.3	293,300*		
	55	80.1	224.5	292,500*	256,500*	
	60	78.8	223.6	291,600*	255,800*	205,100*
	65	77.4	222.5	290,600*	255,000*	204,500*
	70	76.1	221.3	289,600*	254,200*	203,900*
	75	74.8	220.0	288,500*	253,300*	203,200*
	80	73.4	218.6	266,100	252,300*	202,400*
	85	72.0	217.1	245,300	237,100	195,600*
	90	70.7	215.4	227,300	220,200	183,500*
	95	69.3	213.5	211,600	205,300	172,600*
	100	67.9	211.6	197,700	192,100	162,800*
	105	66.5	209.5	185,300	180,300	154,000*
	110	65.0	207.2	174,300	169,600	145,900*
	115	63.6	204.8	164,400	160,300	138,600*
	120	62.1	202.3	155,400	151,700	131,900*
	125	60.6	199.5	147,200	143,800	125,700*
	130	59.1	196.6	139,700	136,600	119,900*
	135	57.6	193.6	132,900	130,100	114,700*
	140	56.1	190.3	126,600	124,000	109,700*
	145	54.5	186.8	120,800	118,400	105,200*
	150	52.9	183.1	115,400	113,200	100,900*
	155	51.2	179.2	110,400	108,300	96,900*
	160	49.5	175.1	105,700	103,800	93,100*
	165	47.8	170.7	101,400	99,600	89,600*
	170	46.0	166.0	97,300	95,700	86,300*
	175	44.2	161.0	93,500	92,000	83,200*
	180	42.3	155.7	90,000	88,600	80,200*
	185	40.3	150.0	86,600	85,300	77,500*
	190	38.2	143.9	83,400	82,200	74,800*
	195	36.1	137.3	80,400	79,300	72,300*
	200	33.8	130.1	77,100*	76,600	69,900*
	205	31.4	122.3	73,400*	73,400*	67,700*
	210	28.8	113.7	69,900*	69,900*	65,500*
	215	25.9	104.0	66,400*	66,400*	63,400*
	220	22.8	93.0	63,100*	63,100*	61,500*



S/N: 10181

MANITOWOC ENGINEERING CO.

Division of the Manitowoc Company, Inc. Manitowoc, Wisconsin 54220

**LIFTCRANE BOOM CAPACITIES****4100W**

BOOM NO. 27 WITH OPEN THROAT TOP
 36' RINGER ATTACHMENT ON BLOCKING
 122,400 LB. CRANE COUNTERWEIGHT
 275,000 LB. AUXILIARY COUNTERWEIGHT
 BARGE MOUNT - 1/2 DEGREE THRU 2 DEGREE MACHINE LIST
 85% TIPPING - 360 DEGREE RATING

4100W SERIES 1
RINGER SERIES 3

BOOM LGTH. FEET	OPER. RAD. FEET	BOOM ANG. DEG.	BOOM POINT ELEV. FEET	BOOM CAPACITY 1/2 DEGREE LIST POUNDS	BOOM CAPACITY 1 DEGREE LIST POUNDS	BOOM CAPACITY 2 DEGREE LIST POUNDS
240	55	80.9	244.8	264,100K	230,900K	
	60	79.7	243.9	263,300K	230,200K	183,600K
	65	78.5	243.0	262,400K	229,500K	183,000K
	70	77.3	241.9	261,400K	228,700K	182,400K
	75	76.1	240.7	260,300K	227,800K	181,700K
	80	74.8	239.4	253,800K	226,900K	181,000K
	85	73.6	238.0	238,000K	226,000K	180,300K
	90	72.3	236.5	224,000K	217,500	179,500K
	95	71.1	234.8	209,600	202,800	171,100K
	100	69.8	233.0	195,700	189,700	161,300K
	105	68.5	231.1	183,400	178,000	152,500K
	110	67.2	229.1	172,400	167,600	144,400K
	115	65.9	226.9	162,500	158,100	137,100K
	120	64.6	224.6	153,600	149,600	130,400K
	125	63.3	222.2	145,400	141,800	124,200K
	130	62.0	219.6	138,000	134,600	118,500K
	135	60.6	216.9	131,100	128,100	113,200K
	140	59.2	214.0	124,900	122,000	108,300K
	145	57.8	210.9	119,100	116,500	103,700K
	150	56.4	207.7	113,700	111,300	99,400K
	155	54.9	204.2	108,700	106,500	95,400K
	160	53.5	200.6	104,100	102,000	91,700K
	165	52.0	196.8	99,700	97,800	88,200K
	170	50.4	192.8	95,700	93,900	84,900K
	175	48.9	188.6	91,900	90,200	81,700K
	180	47.3	184.1	88,300	86,800	78,800K
	185	45.6	179.3	85,000	83,500	76,000K
	190	43.9	174.3	81,800	80,400	73,400K
	195	42.2	168.9	78,800	77,500	70,900K
	200	40.4	163.2	76,000	74,800	68,500K
	205	38.5	157.2	73,300	72,200	66,200K
	210	36.5	150.7	70,800	69,700	64,100K
	215	34.5	143.6	68,400	67,400	62,000K
	220	32.3	136.1	65,500K	65,200	60,100K
	225	30.0	127.8	62,400K	62,400K	58,200K
	230	27.5	118.7	59,400K	59,400K	56,400K
	235	24.8	108.5	56,500K	56,500K	54,700K
	240	21.8	96.9	53,700K	53,700K	53,000K



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 275,000 LB. AUXILIARY COUNTERWEIGHT
 BARGE MOUNT - 1/2 DEGREE THRU 2 DEGREE MACHINE LIST
 85% TIPPING - 360 DEGREE RATING

4100W SERIES 1
RINGER SERIES 3

BOOM LGTH. FEET	OPER. RAD. FEET	BOOM ANG. DEG.	BOOM POINT ELEV. FEET	BOOM CAPACITY 1/2 DEGREE LIST POUNDS	BOOM CAPACITY 1 DEGREE LIST POUNDS
2 6 0	60	80.5	264.2	233,300*	203,800*
	65	79.4	263.3	232,500*	203,200*
	70	78.3	262.3	231,600*	202,500*
	75	77.1	261.3	230,700*	201,700*
	80	76.0	260.1	229,700*	200,900*
	85	74.9	258.8	220,400*	200,000*
	90	73.7	257.4	207,900*	199,100*
	95	72.6	255.8	196,700*	195,700*
	100	71.4	254.2	186,700*	186,700*
	105	70.3	252.5	177,600*	175,800*
	110	69.1	250.6	169,200*	165,400*
	115	67.9	248.7	160,800*	156,000*
	120	66.7	246.6	151,800*	147,500*
	125	65.5	244.4	143,700*	139,800*
	130	64.3	242.0	136,300*	132,700*
	135	63.1	239.5	129,500*	125,200*
	140	61.8	236.9	123,200*	120,200*
	145	60.5	234.2	117,400*	114,600*
	150	59.3	231.3	112,100*	109,500*
	155	58.0	228.2	107,100*	104,700*
	160	56.7	225.0	102,500*	100,200*
	165	55.3	221.7	98,100*	96,000*
	170	54.0	218.1	94,100*	92,100*
	175	52.6	214.4	90,300*	88,500*
	180	51.2	210.5	86,700*	85,000*
	185	49.8	206.3	83,400*	81,800*
	190	48.3	202.0	80,200*	78,700*
	195	46.8	197.4	77,300*	75,800*
	200	45.3	192.6	74,400*	73,100*
	205	43.7	187.5	71,800*	70,500*
	210	42.1	182.2	69,200*	68,000*
	215	40.5	176.5	66,800*	65,700*
	220	38.7	170.4	64,500*	63,500*
	225	36.9	164.0	62,300*	61,400*
	230	35.1	157.1	60,200*	59,300*
	235	33.1	149.7	58,300*	57,400*
	240	31.0	141.7	55,600*	55,600*
	245	28.8	133.0	53,000*	53,000*
	250	26.4	123.5	50,500*	50,500*
	255	23.8	112.8	48,000*	48,000*
	260	20.9	100.7	45,500*	45,500*



S/N: 10181

MANITOWOC ENGINEERING CO.

Division of the Manitowoc Company, Inc. Manitowoc, Wisconsin 54220

**LIFT CRANE BOOM CAPACITIES****4100W**

BOOM NO. 27 WITH OPEN THROAT TOP
 36' RINGER ATTACHMENT ON BLOCKING
 122,400 LB. CRANE COUNTERWEIGHT
 275,000 LB. AUXILIARY COUNTERWEIGHT
 BARGE MOUNT - 1/2 DEGREE THRU 2 DEGREE MACHINE LIST
 85% TIPPING - 360 DEGREE RATING

4100W SERIES 1
RINGER SERIES 3

BOOM LGTH. FEET	OPER. RAD. FEET	BOOM ANG. DEG.	BOOM POINT ELEV. FEET	BOOM CAPACITY 1/2 DEGREE LIST POUNDS
280	60	81.2	284.5	211,400K
	65	80.2	283.7	210,800K
	70	79.1	282.7	210,100K
	75	78.1	281.7	209,300K
	80	77.0	280.6	208,400K
	85	76.0	279.4	204,000K
	90	74.9	278.1	192,600K
	95	73.9	276.7	182,500K
	100	72.8	275.2	173,400K
	105	71.7	273.6	165,200K
	110	70.6	271.9	157,700K
	115	69.5	270.1	150,800K
	120	68.5	268.2	144,400K
	125	67.3	266.2	138,500K
	130	66.2	264.0	133,000K
	135	65.1	261.8	127,700
	140	64.0	259.4	121,500
	145	62.8	256.9	115,700
	150	61.7	254.3	110,400
	155	60.5	251.5	105,400
	160	59.3	248.6	100,800
	165	58.1	245.6	96,500
	170	56.9	242.4	92,500
	175	55.7	239.0	88,700
	180	54.4	235.6	85,100
	185	53.2	231.9	81,800
	190	51.9	228.1	78,600
	195	50.6	224.0	75,600
	200	49.2	219.8	72,800
	205	47.9	215.4	70,100
	210	46.5	210.8	67,600
	215	45.0	205.9	65,200
	220	43.6	200.8	62,900
	225	42.1	195.4	60,700
	230	40.5	189.7	58,700
	235	38.9	183.7	56,700
	240	37.3	177.3	54,800
	245	35.5	170.5	53,000
	250	33.7	163.3	51,200
	255	31.9	155.6	49,300K
	260	29.9	147.2	47,000K
	265	27.7	138.1	44,700K
	270	25.4	128.1	42,500K
	275	23.0	117.0	40,300K
	280	20.2	104.3	38,200K