Manitowoc Cranes, Inc.
Manitowoc, Wisconsin 54220 U.S.A.

Maximum Allowable Travel Specifications

222 WAGON

Boom No. 222 With Open Throat Top
Jib No. 10 With 12 Ft. 6 in. (3 810 mm) Strut

Jobsite Travel

222 WAGON must be equipped with counterweights as specified in tables.

1. Machine Travel With Load

A. Refer to on rubber capacity chart **No. 9187-A** for upperworks position (end sector). Grade in any direction must not exceed 1 percent (0.5 degrees).

B. Travel surface must be firm, level and uniformly supporting. Capacity charts on rubber are based on 140 PSI (965 kPa) minimum tire pressure and ¼ MPH (0.4 kms/hr) maximum travel speed; therefore judgment must be used to allow for dynamic effects of traveling with load. Carry load as close to ground as possible. Stabilize load with taglines. Travel slowly and smoothly to avoid shock loading boom, jib and rigging.

2. Machine Travel Without Load

A. Load blocks and/or hook and weight ball may be suspended beneath lower boom point, upper boom point and jib point. Total combined suspended weight beneath lower and upper boom point must not exceed 3,225 Lbs. (1 460 kg) or 2,600 Lbs. (1 180 kg) on lower boom point when jib is attached. Total suspended weight beneath jib point must not exceed 625 Lbs. (280 kg).

B. Machine to travel on a firm and uniformly supporting surface with crane upperworks in-line with wagon, 140 PSI (965 kPa) minimum tire pressure and 1 MPH (1.6 kms/hr) maximum travel speed. Grade in direction of travel should not exceed 3 percent (1.7 degrees); side-to-side grade must not exceed 1 percent (0.5 degrees) measured at boom hinge pins.

C. See tables for boom angle, boom length and direction for various grades. Adjust boom within boom angle range shown in tables with machine in a level position before traveling onto grade. Do not change boom angle after machine has been traveled onto grade. Boom angle is angle between horizontal and centerline of boom butt and inserts. See table below for grade vs. angle when traveling.

D. Do not exceed 1 percent (0.5 degrees) side-to-side grade at boom hinge pins when turning on grade. Travel with crane upperworks in-line with grade at all times.

E. Boom lengths shown in tables on page 2 do not include jib. Boom lengths shown in tables on page 3 include all jib lengths and offset angles.

F. ***Warning:*** Travel prohibited for boom lengths, jib lengths and boom angles not shown in tables. *Machine could tip.*

Refer to capacity charts for maximum boom and jib length raising.

Percent Grade Vs. Angle In Degrees	
Percent Grade	Angle
1	0.5
3	1.7

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Machine Travel Without Load - Boom Facing Downhill					
Boom Angle Range in Degrees	**Boom Length** (not including jib)				Boom Angle Range in Degrees
	53,300 Lb. (24 180 kg) Counterweight		**63,300 Lb. (28 710 kg) Counterweight**		
	Feet	Meters	Feet	Meters	
0 - 1% Percent Grade					
30 - 70	40 - 160	12.2 - 48.8	40 - 180	12.2 - 54.9	30 - 70
40 - 70	170 - 180	51.8 - 54.9	190	57.9	40 - 70
50 - 70	190 - 200	57.9 - 61.0	200	61.0	50 - 70
1 - 3% Percent Grade					
30 - 60			40	12.2	30 - 60
30 - 70	40 - 160	12.2 - 48.8	50 - 170	15.2 - 51.8	30 - 70
40 - 70	170	51.8	180 - 190	54.9 - 57.9	40 - 70
50 - 70	180 - 190	54.9 - 57.9	200	61.0	50 - 70
60 - 70	200	61.0			

Machine Travel Without Load - Boom Facing Uphill					
Boom Angle Range in Degrees	**Boom Length** (not including jib)				Boom Angle Range in Degrees
	53,300 Lb. (24 180 kg) Counterweight		**63,300 Lb. (28 710 kg) Counterweight**		
	Feet	Meters	Feet	Meters	
0 - 1% Percent Grade					
30 - 70	40 - 160	12.2 - 48.8	40 - 180	12.2 - 54.9	30 - 70
40 - 70	170 - 180	51.8 - 54.9	190	57.9	40 - 70
50 - 70	190 - 200	57.9 - 61.0	200	61.0	50 - 70
1 - 3% Percent Grade					
30 - 50			40	12.2	30 - 50
30 - 60			50	15.2	30 - 60
30 - 70	40 - 160	12.2 - 48.8	60 - 170	18.3 - 51.8	30 - 70
40 - 70	170	51.8	180 - 190	54.9 - 57.9	40 - 70
50 - 70	180 - 190	54.9 - 57.9	200	61.0	50 - 70
60 - 70	200	61.0			

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Machine Travel Without Load - Boom Facing Downhill					
Boom Angle Range in Degrees	Boom Length (including all jib lengths and offset angles)				Boom Angle Range in Degrees
	53,300 Lb. (24 180 kg) Counterweight		63,300 Lb. (28 710 kg) Counterweight		
	Feet	Meters	Feet	Meters	
0 - 1% Percent Grade					
35 - 70	70 - 130	21.3 - 39.6	70 - 140	21.3 - 42.7	35 - 70
40 - 70	140	42.7	150	45.7	40 - 70
50 - 70	150 - 160	45.7 - 48.8	160 - 170	48.8 - 51.8	50 - 70
60 - 70	170 - 190	51.8 - 57.9	180 - 190	54.9 - 57.9	60 - 70
1 - 3% Percent Grade					
35 - 70	70 - 130	21.3 - 39.6	70 - 140	21.3 - 42.7	35 - 70
40 - 70	140	42.7	150	45.7	40 - 70
50 - 70	150	45.7	160 - 170	48.8 - 51.8	50 - 70
60 - 70	160 - 190	48.8 - 57.9	180 - 190	54.9 - 57.9	60 - 70

Machine Travel Without Load - Boom Facing Uphill					
Boom Angle Range in Degrees	Boom Length (including all jib lengths and offset angles)				Boom Angle Range in Degrees
	53,300 Lb. (24 180 kg) Counterweight		63,300 Lb. (28 710 kg) Counterweight		
	Feet	Meters	Feet	Meters	
0 - 1% Percent Grade					
35 - 70	70 - 130	21.3 - 39.6	70 - 140	21.3 - 42.7	35 - 70
40 - 70	140	42.7	150	45.7	40 - 70
50 - 70	150 - 160	45.7 - 48.8	160 - 170	48.8 - 51.8	50 - 70
60 - 70	170 - 190	51.8 - 57.9	180 - 190	54.9 - 57.9	60 - 70
1 - 3% Percent Grade					
35 - 70	70 - 130	21.3 - 39.6	70 - 140	21.3 - 42.7	35 - 70
40 - 70	140	42.7	150	45.7	40 - 70
50 - 70	150	45.7	160 - 170	48.8 - 51.8	50 - 70
60 - 70	160 - 180	48.8 - 54.9	180 - 190	54.9 - 57.9	60 - 70
65 - 70	190	57.9			65 - 70