MANITOWOC ENGINEERING CO.

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



LUFFING JIB RAISING PROCEDURE

LUFFING JIB NO. 135 ON BOOM NO. 22EL

- 888 SERIES 1 888 SERIES 2

EUROPEAN STANDARDS

RECOMMENDED BOOM AND LUFFING JIB RAISING AND LOWERING PROCEDURE.

888 SERIES 1 MUST BE EQUIPPED WITH 144, 100 LB. (65 360 kg) CRANE COUNTERWEIGHT AND 888 SERIES 2 MUST BE EQUIPPED WITH 179, 100 LB. (81 240 kg) CRANE COUNTERWEIGHT AND 44,000 LB. (19 960 kg) CARBODY COUNTERWEIGHT FOR RAISING AND LOWERING VARIOUS BOOM AND LUFFING JIB COMBINATIONS. REFER TO LUFFING JIB RIGGING ASSEMBLY NO. 177063 OR NO. 177354 FOR BOOM AND LUFFING JIB MAKE-UP OF INSERTS, PENDANTS, AND MISCELLANEOUS PARTS, ETC.

THREE METHODS MAY BE USED TO RAISE AND LOWER BOOM AND LUFFING JIB COMBINATIONS, DEPENDING ON LENGTH.@

A. FOLD UNDER JACK-KNIFE METHOD

BOOM AND LUFFING JIB ARE ASSEMBLED IN FOLD UNDER POSITION. BOOM AND LUFFING JIB MUST BE INLINE OVER FRONT OF BLOCKED CRAWLERS PRIOR TO RAISING BOOM AND LUFFING JIB. SLOWLY RAISE BOOM, JIB POINT WHEELS WILL ROLL ALONG GROUND. WHEN LUFFING JIB HINGE PIN IS 30' (9.1m) OFF GROUND, CONNECT JIB PENDANTS. MOVE JIB TOP WIRE ROPE GUIDE TO WORKING POSITION. TIGHTEN LUFFING JIB SUSPENSION WITH LUFFING JIB HOIST. SLOWLY RAISE BOOM UNTIL LUFFING JIB IS VERTICAL AND LUFFING JIB POINT WHEELS ARE CLEAR OF GROUND. TIGHTEN LUFFING JIB SUSPENSION WITH LUFFING JIB HOIST. BOOM AND LUFFING JIB ARE THEN RAISED TOGETHER USING BOOM HOIST UNTIL BOOM REACHES DESIRED BOOM OPERATING RANGE. LUFFING JIB RADIUS MUST BE WITHIN CAPACITY CHART BEFORE SWINGING OVER SIDE OF MACHINE.

POSITION BOOM AT 75 DEGREES WITH BOOM AND LUFFING JIB INLINE OVER FRONT OF BLOCKED CRAWLERS PRIOR TO LOWERING LUFFING JIB. SLOWLY LOWER LUFFING JIB TO VERTICAL. LOWER BOOM UNTIL LUFFING JIB POINT WHEELS ARE JUST CLEAR OF GROUND. SLOWLY BOOM DOWN AND ASSIST LUFFING JIB POINT WHEELS IN FOLD UNDER DIRECTION. BOOM DOWN UNTIL LUFFING JIB HINGE PIN IS 30' (9.1m) OFF GROUND. DISCONNECT LUFFING JIB PENDANTS. MOVE JIB TOP WIRE ROPE GUIDE TO STOWED POSITION. RAISE LUFFING JIB STRUT WITH LUFFING JIB HOIST UNTIL LUFFING JIB STRUT IS IN LINE WITH LUFFING JIB. LOWER BOOM AND LUFFING JIB TO GROUND.

THE FOLLOWING BOOM AND LUFFING JIB COMBINATIONS MAY BE RAISED AND LOWERED USING FOLD UNDER JACK-KNIFE METHOD. BOOM LENGTHS SHOWN WITH ASTERISK (*) REQUIRE LOWER BOOM POINT TO BE REMOVED. BOOM LENGTH SHOWN WITH POUND SIGN (#) REQUIRE ONLY THE MIDDLE TWO SHEAVES IN LOWER BOOM POINT. ALL OTHER SHEAVES MUST BE REMOVED FROM LOWER BOOM POINT.

888 SERIES 1				
MAXIMUM BOOM AND LUFFING JIB LENGTHS LIFTED UNASSISTED OVER FRONT OF BLOCKED CRAWLERS USING FOLD UNDER JACK-KNIFE METHOD				
	LUFFING JIB NO. 135 FEET METERS 70 21.3 70 - 80 21.3 - 24.4 70 - 90 21.3 - 27.4 70 - 110 21.3 - 30.5 70 - 110 21.3 - 33.5 70 - 120 21.3 - 36.6 70 - 130 21.3 - 39.6 70 - 140 21.3 - 39.6 70 - 140 21.3 - 42.7 80 - 150 24.4 - 45.7 OOK AND WEIGHT BALL ON			

888 SERIES 2				
MAXIMUM BOOM AND LUFFING JIB LENGTHS LIFTED UNASSISTED OVER FRONT OF BLOCKED CRAWLERS USING FOLD UNDER JACK-KNIFE METHOD				
BOOM LENGTH FEET IMETERS	LUFFING FEET	JIB NO. 135 METERS		
90 27. 4 100 30. 5 110 33. 5 120 36. 6 130 39. 6 140 42. 7 150 45. 7 160 48. 8 170 51. 8 180 54. 9 #190 57. 9 *200 61. 0 LOAD BLOCKS, HO	70 - 80 70 - 90 70 - 100 70 - 110 70 - 120 70 - 130 70 - 140 70 - 150 70 - 160 70 - 170 100 - 130 100 - 130	21.3 - 24.4 21.3 - 27.4 21.3 - 30.5 21.3 - 33.5 21.3 - 36.6 21.3 - 36.6 21.3 - 42.7 21.3 - 45.7 21.3 - 45.7 21.3 - 51.8 30.5 - 39.6 GHT BALL ON		

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EUROPEAN STANDARDS

B. LAYOUT IN-LINE METHOD

BOOM AND LUFFING JIB ARE ASSEMBLED IN LAYOUT, END TO END, POSITION. BOOM AND LUFFING JIB MUST BE INLINE OVER FRONT OF BLOCKED CRAWLERS PRIOR TO RAISING BOOM AND LUFFING JIB. SLOWLY RAISE BOOM UNTIL JIB STOP STRUT IS JUST CLEAR OF GROUND. ATTACH JIB STOP PENDANTS AND UNPIN JIB STOP INNER STRUT FROM RETRACTED POSITION. SLOWLY RAISE BOOM UNTIL JIB STOP STRUT IS FULLY EXTENDED AND PINS ENGAGED (APPROXIMATELY 168 DEGREE BOOM TO LUFFING JIB ANGLE). TIGHTEN LUFFING JIB SUSPENSION WITH LUFFING JIB HOIST. BOOM AND LUFFING JIB CAN THEN BE RAISED SIMULTANEOUSLY USING ONLY THE BOOM HOIST. REVERSE THIS PROCEDURE WHEN LOWERING BOOM AND LUFFING JIB.

THE FOLLOWING COMBINATIONS MAY BE RAISED AND LOWERED USING LAYOUT IN-LINE METHOD.

888 SERI ES 1				
MAXIMUM BOOM AND LUFFING JIB LENGTHS LIFTED UNASSISTED OVER FRONT OF BLOCKED CRAWLERS USING LAYOUT IN-LINE METHOD				
BOOM LENGTH FEET METERS 70 21 3 80 24 4 90 27 4 100 30 5 110 33 5 120 36 6 130 39 6 140 42 7	LUFFING JIB NO. 135 FEET METERS 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 140 21.3 - 51.8 70 - 140 21.3 - 42.7 70 - 120 21.3 - 36.6 70 - 90 21.3 - 27.4			
20, 10 0 0 110	70 21.3 HOOK AND WEIGHT BALL ON BOOM AND LUFFING JIB			

888 SERI ES 2				
MAXIMUM BOOM AND LUFFING JIB LENGTHS LIFTED UNASSISTED OVER FRONT OF BLOCKED CRAWLERS USING LAYOUT IN-LINE METHOD				
BOOM LENGTH	LUFFING JIB NO. 135			
	FEET METERS 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 170 21.3 - 51.8 70 - 160 21.3 - 48.8 70 - 150 21.3 - 45.7 70 - 120 21.3 - 36.6 70 - 100 21.3 - 30.5 70 - 80 21.3 - 24.4 HOOK AND WEIGHT BALL ON BOOM AND LUFFING JIB			

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C. LAYOUT JACK-KNIFE METHOD

LONGER BOOM AND LUFFING JIB COMBINATIONS MUST BE RAISED AND LOWERED USING THIS METHOD. IN SOME CASES, FOLD UNDER JACK-KNIFE METHOD MAY BE USED WHERE BOOM AND LUFFING JIB COMBINATIONS EXCEED LAYOUT IN-LINE METHOD FOR RAISING AND LOWERING.

BOOM AND LUFFING JIB ARE ASSEMBLED IN LAYOUT, END TO END, POSITION. BOOM AND LUFFING JIB MUST BE INLINE OVER FRONT OF BLOCKED CRAWLERS PRIOR TO RAISING BOOM AND LUFFING JIB. SLOWLY RAISE BOOM UNTIL JIB STOP STRUT IS JUST CLEAR OF GROUND. ATTACH JIB STOP PENDANTS AND UNPIN JIB STOP INNER STRUT FROM RETRACTED POSITION. SLOWLY RAISE BOOM UNTIL JIB STOP STRUT IS FULLY EXTENDED AND PINS ENGAGED (APPROXIMATELY 168 DEGREE BOOM TO LUFFING JIB ANGLE). BOOM IS THEN RAISED WHILE JIB POINT WHEELS ARE ALLOWED TO ROLL ON GROUND. TENSION SHOULD BE APPLIED TO LUFFING JIB HOIST TO KEEP JIB STRUT OFF LUFFING JIB DURING BOOM RAISING. BOOM UP UNTIL BOOM TO LUFFING JIB ANGLE REACHES VALUE SPECIFIED IN TABLE OR VERTICAL, WHICHEVER OCCURS FIRST. TIGHTEN LUFFING JIB SUSPENSION WITH LUFFING JIB HOIST. BOOM AND LUFFING JIB ARE THEN RAISED TOGETHER USING BOOM HOIST UNTIL BOOM REACHES DESIRED BOOM OPERATING ANGLE. LUFFING JIB RADIUS MUST BE WITHIN CAPACITY CHART BEFORE SWINGING OVER SIDE OF MACHINE.

POSITION BOOM AT 75 DEGREES WITH BOOM AND LUFFING JIB INLINE OVER FRONT OF BLOCKED CRAWLERS PRIOR TO LOWERING LUFFING JIB. LOWER LUFFING JIB UNTIL BOOM TO LUFFING JIB ANGLE REACHES VALUE SPECIFIED IN TABLE. LOWER BOOM UNTIL LUFFING JIB POINT WHEELS CONTACT GROUND. IF LUFFING JIB IS HANGING VERTICAL, RAISE LUFFING JIB A FEW DEGREES FORWARD OF VERTICAL. CONTINUE TO LOWER BOOM WHILE LUFFING JIB ROLLS ALONG GROUND. KEEP ENOUGH TENSION ON LUFFING JIB HOIST TO KEEP JIB STRUT OFF LUFFING JIB. STOP LOWERING BOOM WHEN JIB STOP PENDANTS START TO GO INTO TENSION (APPROXIMATELY 168 DEGREE BOOM TO LUFFING JIB ANGLE). DISENGAGE JIB STOP STRUT PINS AND LOWER BOOM TO RETRACT JIB STOP INNER STRUT. PIN STRUT IN RETRACTED POSITION AND UNPIN JIB STOP PENDANTS. ROTATE JIB STOP STRUTS FORWARD AND LOWER BOOM AND LUFFING JIB TO GROUND.

THE FOLLOWING BOOM AND LUFFING JIB COMBINATIONS REQUIRE JACK KNIFING TO A SPECIFIED BOOM TO LUFFING JIB ANGLE FOR RAISING AND LOWERING. BOOM LENGTHS SHOWN WITH ASTERISK (*) REQUIRE LOWER BOOM POINT TO BE REMOVED. BOOM LENGTH SHOWN WITH DOUBLE ASTERISK (**) REQUIRES LOWER BOOM POINT AND WIRE ROPE GUIDE ASSEMBLY NO. 177364 TO BE REMOVED. BOOM LENGTH SHOWN WITH POUND SIGN (#) REQUIRES ONLY THE MIDDLE TWO SHEAVES IN LOWER BOOM POINT. ALL OTHER SHEAVES MUST BE REMOVED FROM LOWER BOOM POINT. BOOM LENGTH SHOWN WITH DOUBLE POUND SIGN (##) REQUIRES LOWER BOOM POINT. WIRE ROPE GUIDE ASSEMBLY NO. 177364 AND LOWER WIRE ROPE GUIDE SHEAVE AND SHAFT IN JIB STRUT TO BE REMOVED.

	888 SERIES 1				
/		LIFTED UN	ASSI STED OV	ND LUFFING JIE 'ER FRONT OF BL T JACK-KNIFE N	OCKED CRAWLERS
	BOOM	LENGTH	LUFFING	JIB NO. 135	BOOM TO LUFFING JIB ANGLE
	FEET	METERS	FEET	METERS	DEGREES
	120 130	36. 6 39. 6	150 - 170 130 - 170	45.7 - 51.8 39.6 - 51.8	90 90
	140	42. 7	100 - 170	30.5 - 51.8	90
	150	45. 7	80 - 170	24.4 - 51.8	90
	160 **170	48. 8 51. 8	70 - 170 80 - 150	21.3 - 51.8	60 60
-	LOAD			<u> 24.4 - 45.7</u> GHT BALL ON GF	ROUND UNTLI BOOM
-	AND L	ŬFFING JI			COULD OILLIE DOOM

888 SERI ES 2			
MAXIMUM BOOM AND LUFFING JIB LENGTHS LIFTED UNASSISTED OVER FRONT OF BLOCKED CRAWLERS USING LAYOUT JACK-KNIFE METHOD			
BOOM LENGTH LUFFING JIB NO. 135 FEET METERS FEET METERS 130 39.6 170 51.8 140 42.7 160 - 170 48.8 - 51.8 150 45.7 130 - 170 39.6 - 51.8 160 48.8 110 - 170 33.5 - 51.8 170 51.8 90 - 170 27.4 - 51.8 180 54.9 70 - 170 21.3 - 51.8 #190 57.9 70 - 170 21.3 - 51.8 *200 61.0 100 - 130 30.5 - 39.6 **200 61.0 140 - 150 42.7 - 45.7 ##200 61.0 160 - 170 48.8 - 51.8 LOAD BLOCKS, HOOK AND WEIGHT BALL ON GROUNT BALL	BOOM TO LUFFING JIB ANGLE DEGREES 90 90 90 90 90 60 60 60 60		