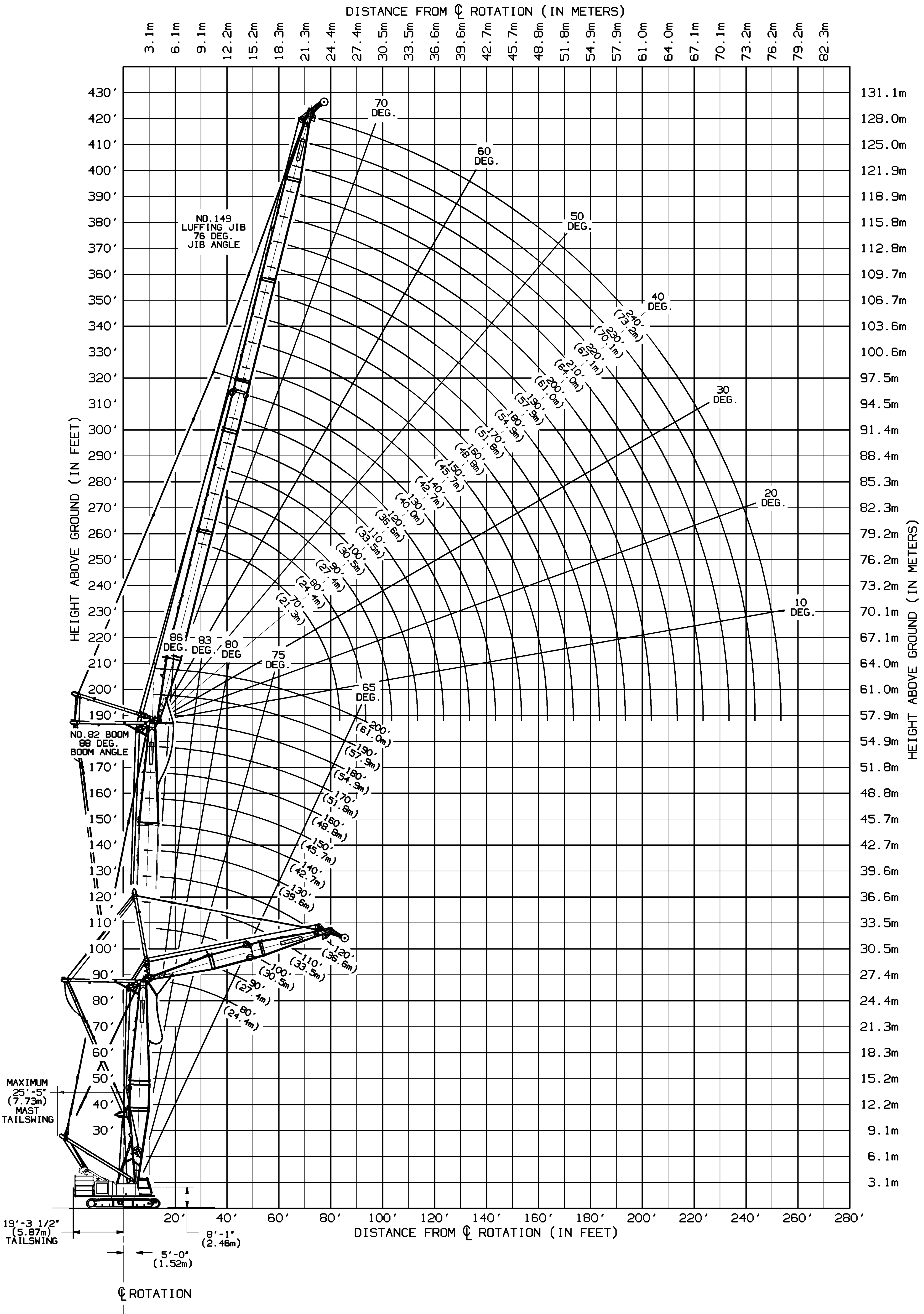
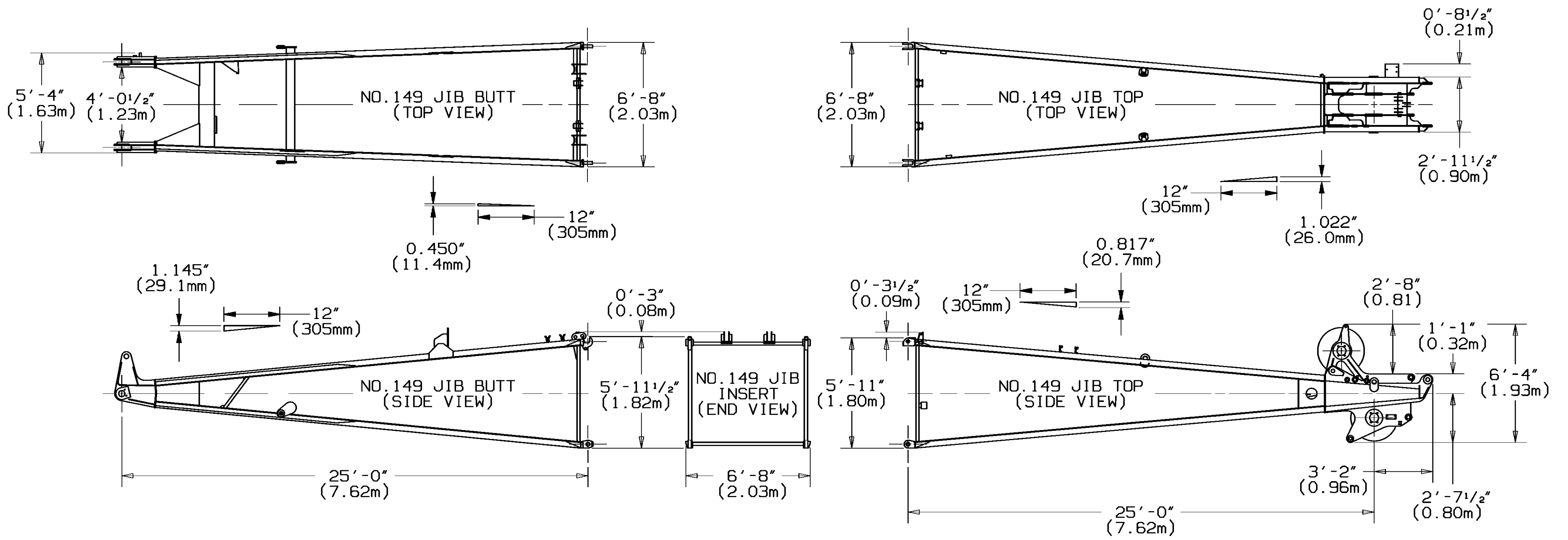




|                       |                   |                                               |                                                                  |
|-----------------------|-------------------|-----------------------------------------------|------------------------------------------------------------------|
| DATE<br>04-24-01      | SCALE<br>1/16"=1' | Mantowee Cranes, Inc.<br>Manitowoc, Wisconsin | REVISION                                                         |
| DRAWING NO.<br>197167 | OK:TWB<br>APP:MEB | MODEL 999                                     | DIAGRAM - RANGE ASSEMBLY -<br>NO. 82 BOOM<br>NO. 149 LUFFING JIB |

SHT. 1 OF 2



NOTE 1: THIS DRAWING IS INTENDED ONLY AS A GUIDE TO ASSIST IN JOB PLANNING.

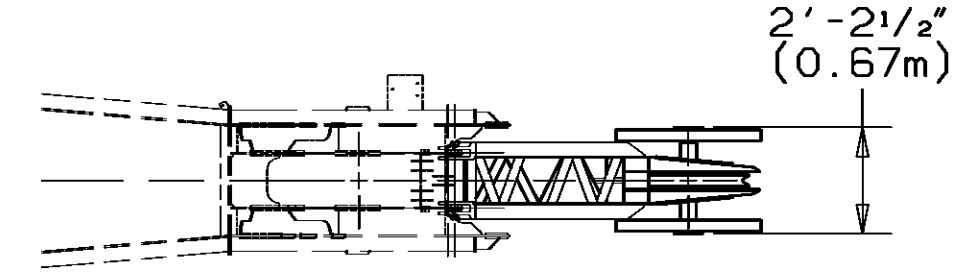
NOTE 2: FOR PLANNING A LIFT, THIS DRAWING IS TO BE USED IN CONJUNCTION WITH APPROPRIATE CAPACITY CHARTS, RANGE CHART, WIRE ROPE SPECIFICATIONS, RIGGING DRAWING, AND OUTLINE DIMENSIONS.

NOTE 3: FOR PLANNING LIFTS WHERE CLEARANCES ARE LIMITED AND ACCURACY IS DESIRED, A DETAILED LAYOUT SHOULD BE PREPARED.

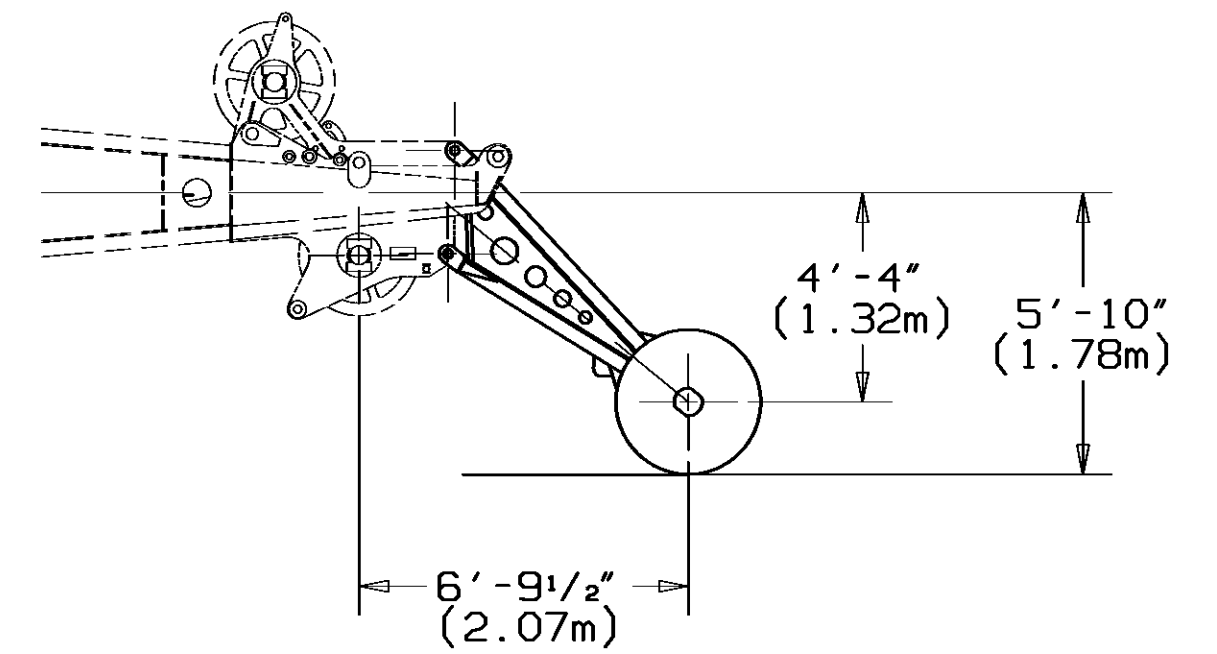
NOTE 4: WHEN EQUIPPED WITH BLOCK-UP LIMIT CONTROL, LOAD BLOCK TO BOOM POINT/JIB POINT MINIMUM DISTANCE MAY BE MORE THAN INDICATED. SEE OPERATOR'S MANUAL FOR "BLOCK-UP LIMIT CONTROL".

NOTE 5: MAXIMUM BOOM ANGLE 88 DEGREES FOR NO.82 BOOM WITH NO.149 LUFFING JIB. MAXIMUM JIB ANGLE 76 DEGREES FOR NO.149 LUFFING JIB.

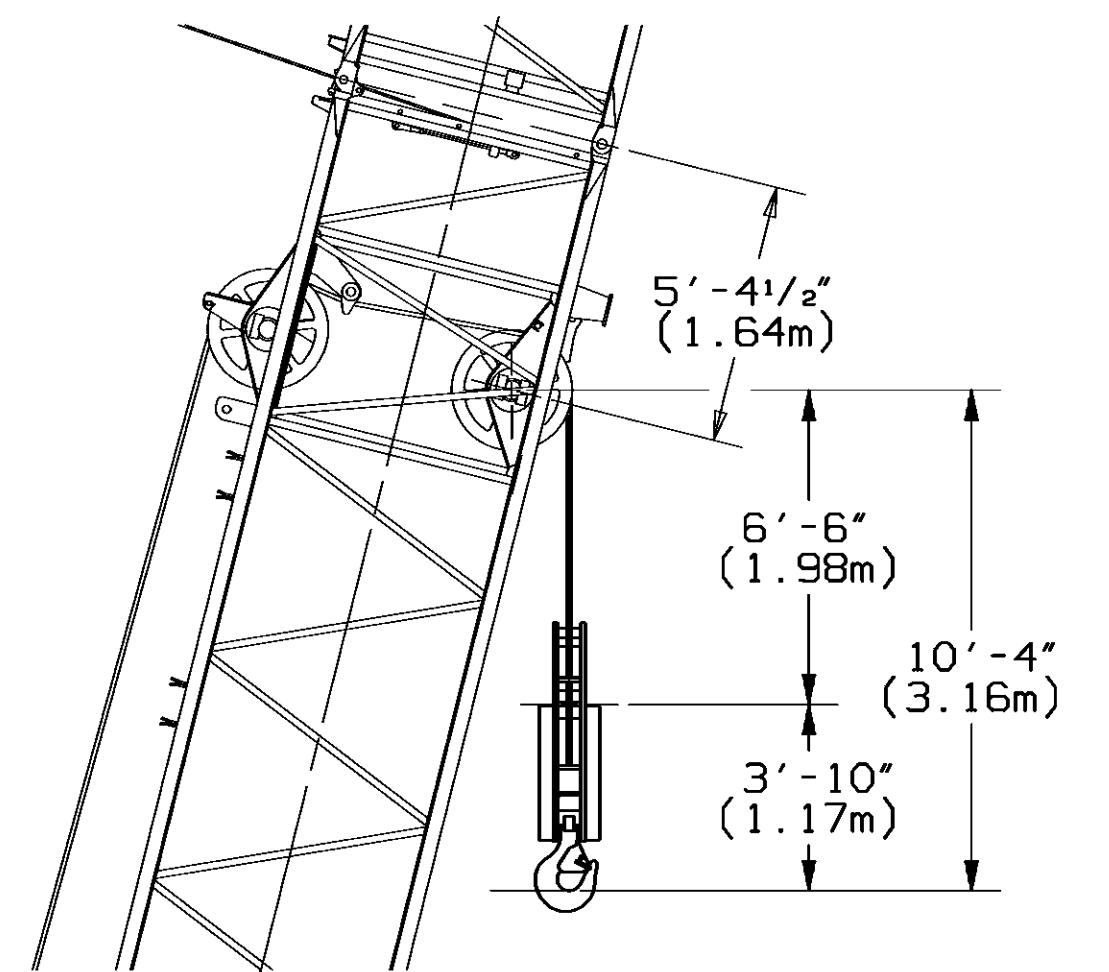
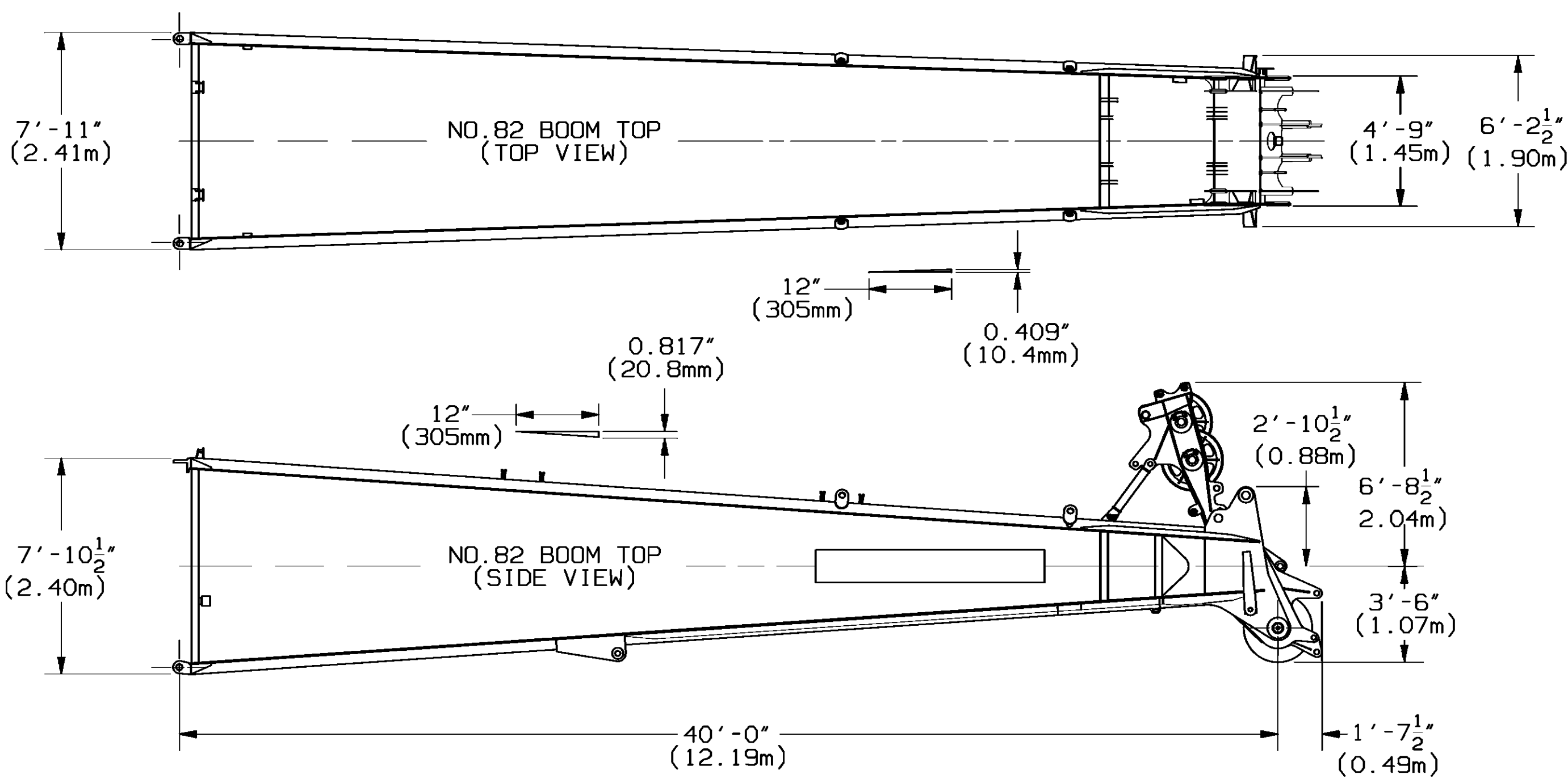
NOTE 6: MAXIMUM BOOM AND BOOM AND JIB LENGTHS SHOWN ON SHEET 1 ARE FOR MACHINES EQUIPPED WITH SERIES 3 COUNTERWEIGHTS. IN ALL CASES, REFER TO CRANE BOOM RIGGING OR CAPACITY CHARTS FOR MAXIMUM LENGTHS.



NO. 149 JIB POINT ROLLER ASSEMBLY  
(TOP VIEW)

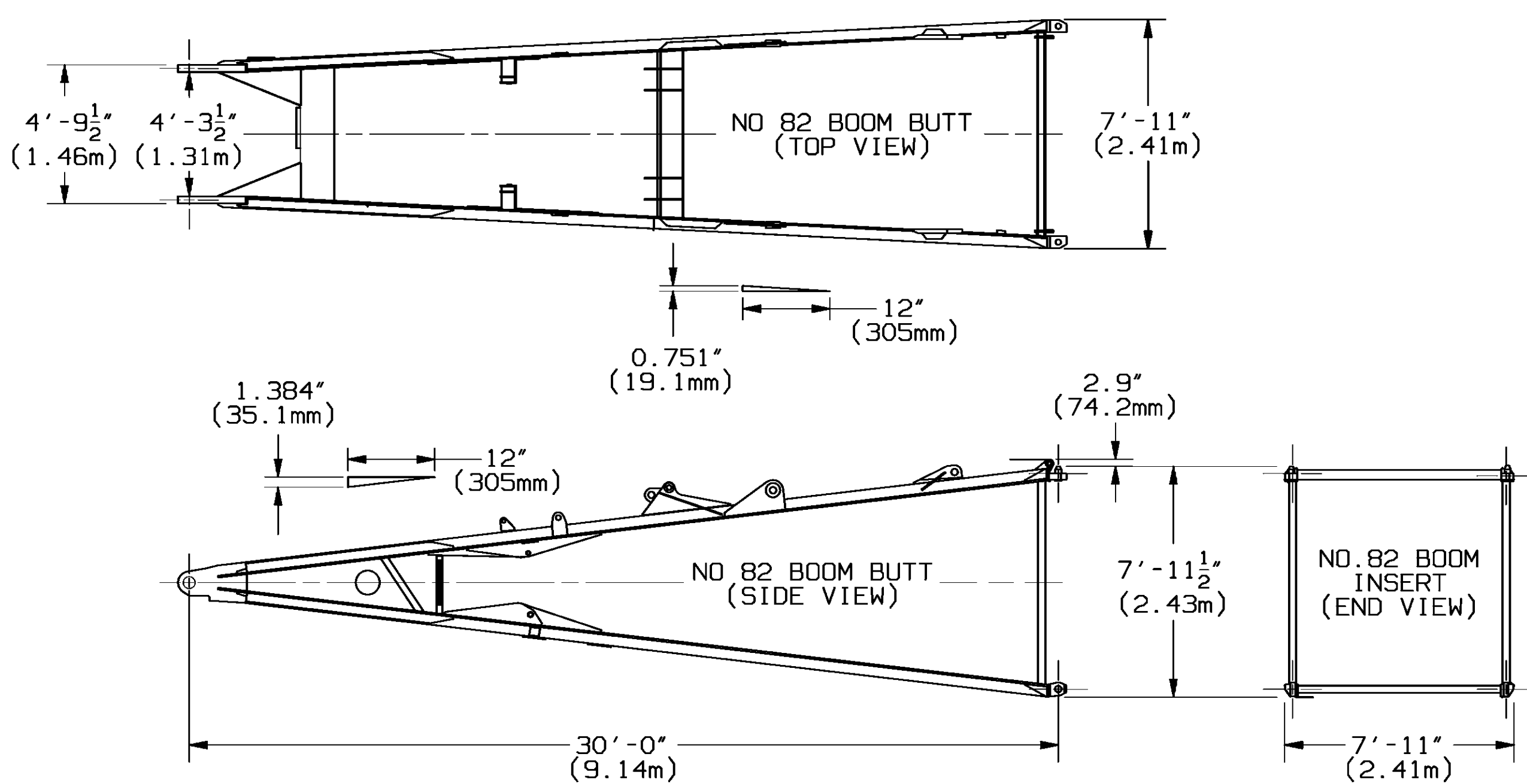


NO. 149 JIB POINT ROLLER ASSEMBLY  
(SIDE VIEW)



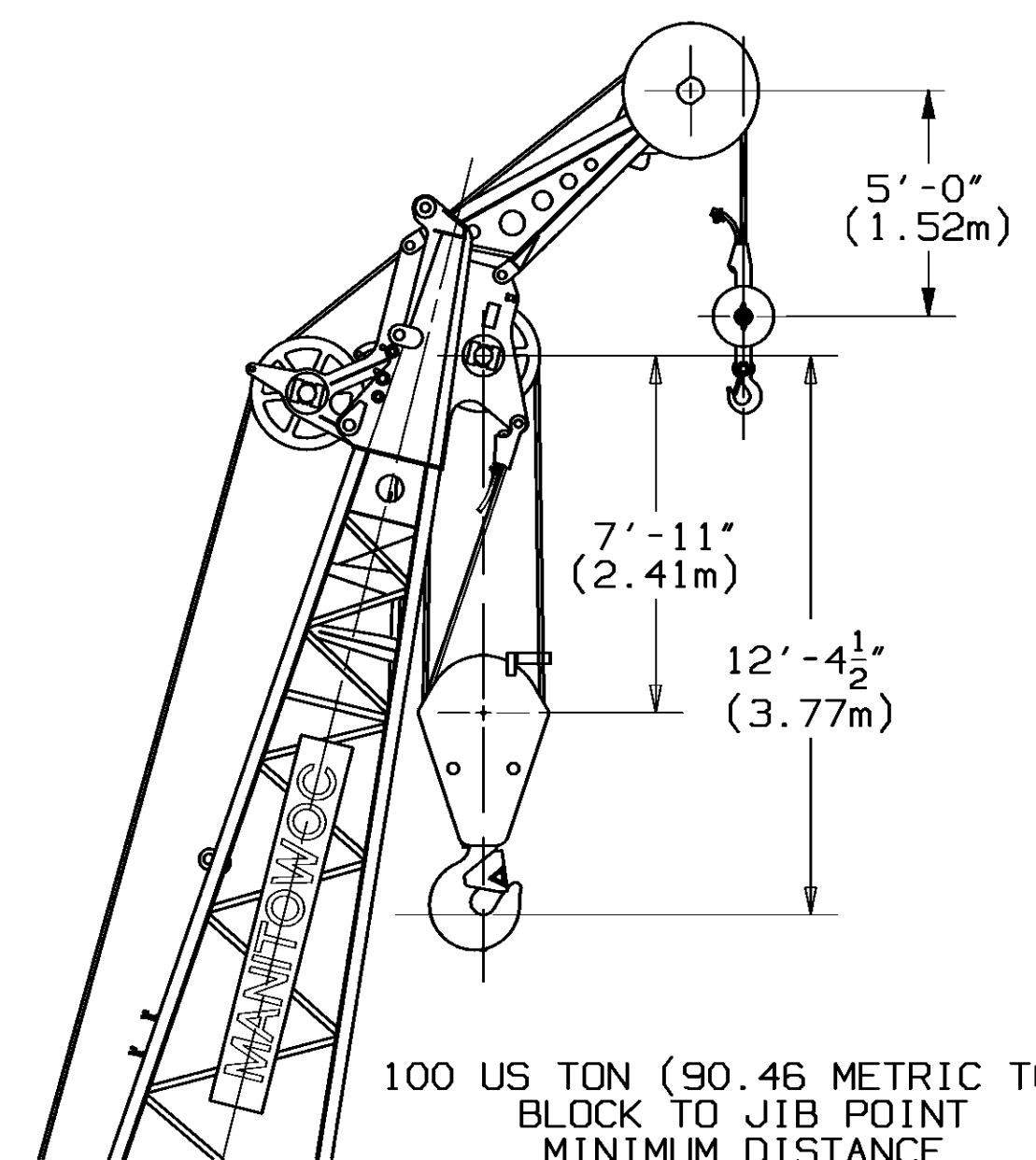
45 US TON (40.70 METRIC TON)  
BLOCK TO INTERMEDIATE FALL  
MINIMUM DISTANCE  
NO. 149 JIB - 2 PARTS OF LINE

MINIMUM DISTANCE MEASUREMENTS FROM MANITOWOC  
LOAD BLOCK TO JIB POINT SHOWN ABOVE BASED ON  
76 DEGREE JIB ANGLE AND PHYSICAL LIMITATIONS.



NO. 82 BOOM SHOWN, NO. 22EL BOOM SIMILAR

15 US TON (14 METRIC TON)  
SWIVEL HOOK & WEIGHT BALL  
TO JIB POINT MINIMUM DISTANCE  
NO. 149 JIB - SINGLE PART LINE



100 US TON (90.46 METRIC TON)  
BLOCK TO JIB POINT  
MINIMUM DISTANCE  
NO. 149 JIB - 6 PARTS OF LINE

MINIMUM DISTANCE MEASUREMENTS FROM MANITOWOC  
LOAD BLOCK TO JIB POINT SHOWN ABOVE BASED ON  
76 DEGREE JIB ANGLE AND 2 1/2 DEGREE FLEET ANGLE.

| DATE        | SCALE    | Manitowoc Cranes, Inc. | REVISION            |
|-------------|----------|------------------------|---------------------|
| 04-24-01    | 1/16"=1' | Manitowoc, Wisconsin   | REV A 01-06-05 RAW  |
| DRAWING NO. | CK.TWB   | MODEL 999 SERIES 3     | NO. 82 BOOM         |
| 197167      | APP.MEB  |                        | NO. 149 LUFFING JIB |