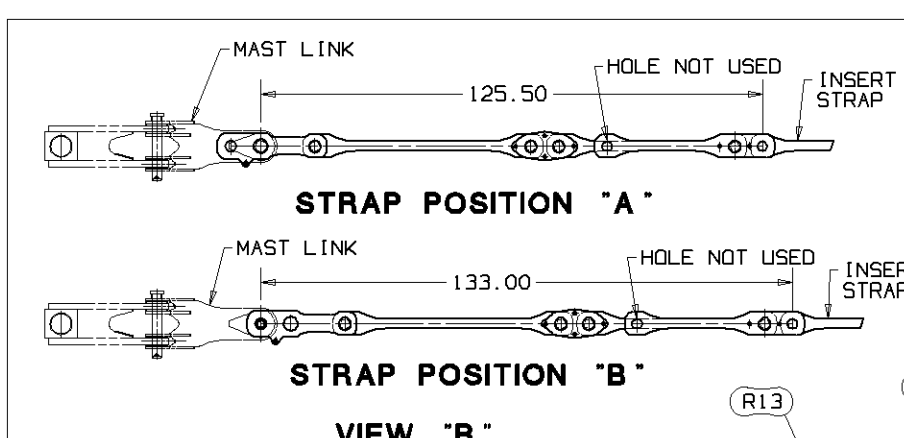
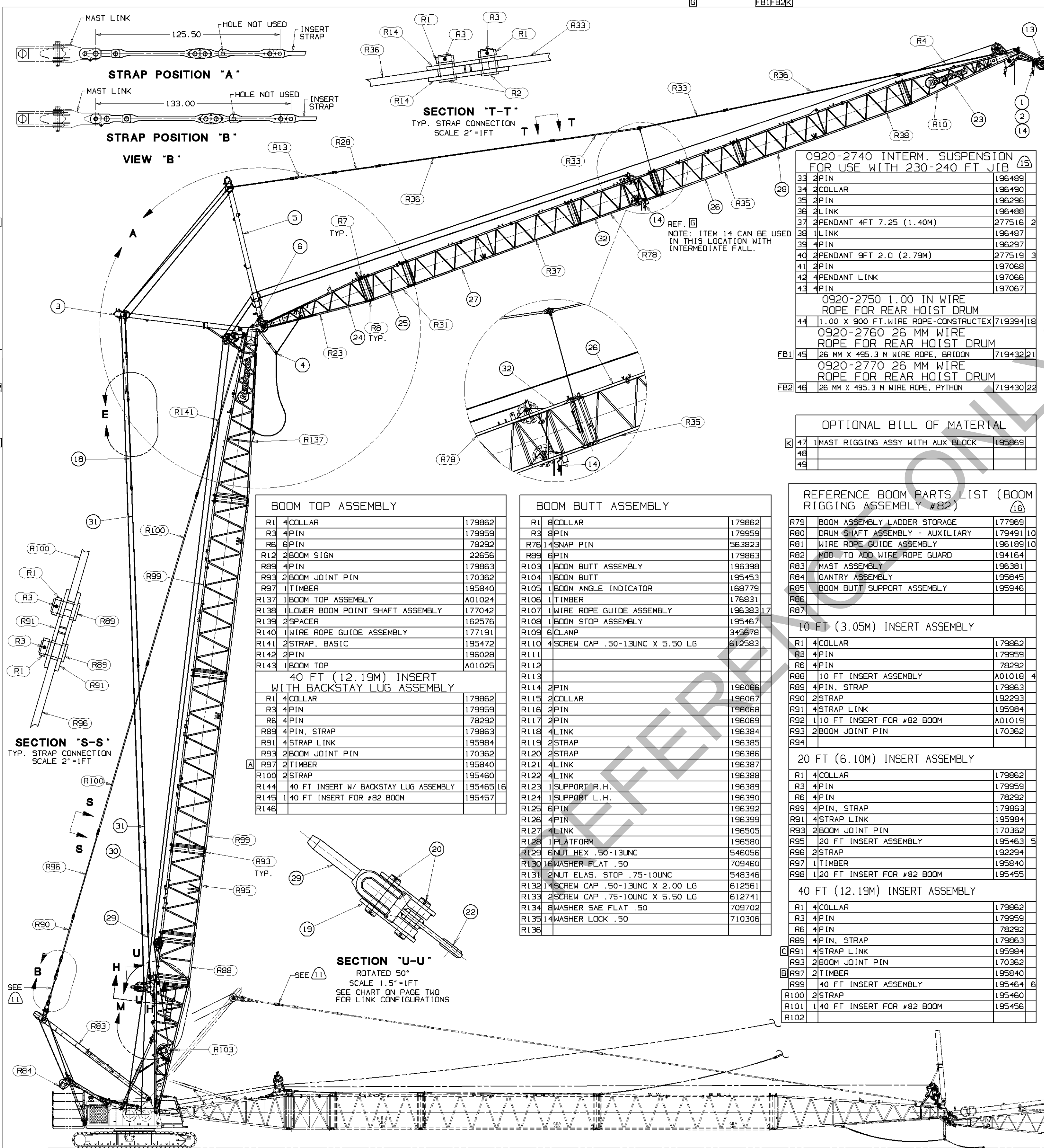




| BOOM TOP ASSEMBLY                                |                                       |        |
|--------------------------------------------------|---------------------------------------|--------|
| R1                                               | 4COLLAR                               | 179862 |
| R3                                               | 4PIN                                  | 179959 |
| R6                                               | 6PIN                                  | 78292  |
| R12                                              | 2BOOM SIGN                            | 22656  |
| R89                                              | 4PIN                                  | 179863 |
| R93                                              | 2BOOM JOINT PIN                       | 170362 |
| R97                                              | 1TIMBER                               | 195840 |
| R137                                             | 1BOOM TOP ASSEMBLY                    | A01024 |
| R138                                             | 1LOWER BOOM POINT SHAFT ASSEMBLY      | 177042 |
| R139                                             | 2SPACER                               | 162576 |
| R140                                             | 1WIRE ROPE GUIDE ASSEMBLY             | 177191 |
| R141                                             | 2STRAP, BASIC                         | 195472 |
| R142                                             | 2PIN                                  | 196028 |
| R143                                             | 1BOOM TOP                             | A01025 |
| 40 FT (12.19M) INSERT WITH BACKSTAY LUG ASSEMBLY |                                       |        |
| R1                                               | 4COLLAR                               | 179862 |
| R3                                               | 4PIN                                  | 179959 |
| R6                                               | 4PIN                                  | 78292  |
| R89                                              | 4PIN, STRAP                           | 179863 |
| R91                                              | 4STRAP LINK                           | 195984 |
| R93                                              | 2BOOM JOINT PIN                       | 170362 |
| R97                                              | 2TIMBER                               | 195840 |
| R100                                             | 2STRAP                                | 195460 |
| R144                                             | 40 FT INSERT W/ BACKSTAY LUG ASSEMBLY | 195465 |
| R145                                             | 140 FT INSERT FOR #82 BOOM            | 195457 |
| R146                                             |                                       |        |

| BOOM BUTT ASSEMBLY |                                 |        |
|--------------------|---------------------------------|--------|
| R1                 | 8COLLAR                         | 179862 |
| R3                 | 8PIN                            | 179959 |
| R76                | 14SNAP PIN                      | 563823 |
| R89                | 6PIN                            | 179863 |
| R103               | 1BOOM BUTT ASSEMBLY             | 196398 |
| R104               | 1BOOM BUTT                      | 195453 |
| R105               | 1BOOM ANGLE INDICATOR           | 168779 |
| R106               | 1TIMBER                         | 176831 |
| R107               | 1WIRE ROPE GUIDE ASSEMBLY       | 196383 |
| R108               | 1BOOM STOP ASSEMBLY             | 195467 |
| R109               | 6CLAMP                          | 345679 |
| R110               | 4SCREW CAP .50-13UNC X 5.50 LG  | 612583 |
| R111               |                                 |        |
| R112               |                                 |        |
| R113               |                                 |        |
| R114               | 2PIN                            | 196066 |
| R115               | 2COLLAR                         | 196067 |
| R116               | 2PIN                            | 196068 |
| R117               | 2PIN                            | 196069 |
| R118               | 4LINK                           | 196384 |
| R119               | 2STRAP                          | 196385 |
| R120               | 2STRAP                          | 196386 |
| R121               | 4LINK                           | 196387 |
| R122               | 4LINK                           | 196388 |
| R123               | 1SUPPORT R.H.                   | 196389 |
| R124               | 1SUPPORT L.H.                   | 196390 |
| R125               | 6PIN                            | 196392 |
| R126               | 4PIN                            | 196399 |
| R127               | 4LINK                           | 196505 |
| R128               | 1PLATFORM                       | 196580 |
| R129               | 6NUT HEX .50-13UNC              | 546056 |
| R130               | 16WASHER FLAT .50               | 709460 |
| R131               | 6NUT ELAS. STOP .75-10UNC       | 548346 |
| R132               | 14SCREW CAP .50-13UNC X 2.00 LG | 612561 |
| R133               | 2SCREW CAP .75-10UNC X 5.50 LG  | 612741 |
| R134               | 8WASHER SAE FLAT .50            | 709702 |
| R135               | 14WASHER LOCK .50               | 710306 |
| R136               |                                 |        |

| 0920-2740 INTERM. SUSPENSION FOR USE WITH 230-240 FT JIB |                           |        |
|----------------------------------------------------------|---------------------------|--------|
| R33                                                      | 2PIN                      | 196489 |
| R34                                                      | 2COLLAR                   | 196490 |
| R35                                                      | 2PIN                      | 196296 |
| R36                                                      | 2LINK                     | 196488 |
| R37                                                      | 2PENDANT 4FT 7.25 (1.40M) | 277516 |
| R38                                                      | 1LINK                     | 196487 |
| R39                                                      | 4PIN                      | 196297 |
| R40                                                      | 2PENDANT 9FT 2.0 (2.79M)  | 277519 |
| R41                                                      | 2PIN                      | 197068 |
| R42                                                      | 4PENDANT LINK             | 197066 |
| R43                                                      | 4PIN                      | 197067 |

| 0920-2750 1.00 IN WIRE ROPE FOR REAR HOIST DRUM |                                      |        |
|-------------------------------------------------|--------------------------------------|--------|
| R44                                             | 1.00 X 900 FT. WIRE ROPE-CONSTRUCTEX | 719394 |
| 0920-2760 26 MM WIRE ROPE FOR REAR HOIST DRUM   |                                      |        |
| R45                                             | 26 MM X 495.3 M WIRE ROPE, BRIDON    | 719432 |
| 0920-2770 26 MM WIRE ROPE FOR REAR HOIST DRUM   |                                      |        |
| R46                                             | 26 MM X 495.3 M WIRE ROPE, PYTHON    | 719430 |

| OPTIONAL BILL OF MATERIAL |                                   |        |
|---------------------------|-----------------------------------|--------|
| R47                       | 1MAST RIGGING ASSY WITH AUX BLOCK | 195869 |
| R48                       |                                   |        |
| R49                       |                                   |        |

| REFERENCE BOOM PARTS LIST (BOOM RIGGING ASSEMBLY #82) |                                 |        |
|-------------------------------------------------------|---------------------------------|--------|
| R79                                                   | BOOM ASSEMBLY LADDER STORAGE    | 177969 |
| R80                                                   | DRUM SHAFT ASSEMBLY - AUXILIARY | 179491 |
| R81                                                   | WIRE ROPE GUIDE ASSEMBLY        | 196189 |
| R82                                                   | MOD. TO ADD WIRE ROPE GUARD     | 194164 |
| R83                                                   | MAST ASSEMBLY                   | 196381 |
| R84                                                   | GANTRY ASSEMBLY                 | 195845 |
| R85                                                   | BOOM BUTT SUPPORT ASSEMBLY      | 195946 |
| R86                                                   |                                 |        |
| R87                                                   |                                 |        |

| 10 FT (3.05M) INSERT ASSEMBLY |                            |        |
|-------------------------------|----------------------------|--------|
| R1                            | 4COLLAR                    | 179862 |
| R3                            | 4PIN                       | 179959 |
| R6                            | 4PIN                       | 78292  |
| R88                           | 10 FT INSERT ASSEMBLY      | A01018 |
| R89                           | 4PIN, STRAP                | 179863 |
| R90                           | 2STRAP                     | 192293 |
| R91                           | 4STRAP LINK                | 195984 |
| R92                           | 110 FT INSERT FOR #82 BOOM | A01019 |
| R93                           | 2BOOM JOINT PIN            | 170362 |
| R94                           |                            |        |

| 20 FT (6.10M) INSERT ASSEMBLY |                            |        |
|-------------------------------|----------------------------|--------|
| R1                            | 4COLLAR                    | 179862 |
| R3                            | 4PIN                       | 179959 |
| R6                            | 4PIN                       | 78292  |
| R89                           | 4PIN, STRAP                | 179863 |
| R91                           | 4STRAP LINK                | 195984 |
| R93                           | 2BOOM JOINT PIN            | 170362 |
| R95                           | 20 FT INSERT ASSEMBLY      | 195463 |
| R96                           | 2STRAP                     | 192294 |
| R97                           | 1TIMBER                    | 195840 |
| R98                           | 120 FT INSERT FOR #82 BOOM | 195455 |

| 40 FT (12.19M) INSERT ASSEMBLY |                            |        |
|--------------------------------|----------------------------|--------|
| R1                             | 4COLLAR                    | 179862 |
| R3                             | 4PIN                       | 179959 |
| R6                             | 4PIN                       | 78292  |
| R89                            | 4PIN, STRAP                | 179863 |
| R91                            | 4STRAP LINK                | 195984 |
| R93                            | 2BOOM JOINT PIN            | 170362 |
| R97                            | 2TIMBER                    | 195840 |
| R99                            | 40 FT INSERT ASSEMBLY      | 195464 |
| R100                           | 2STRAP                     | 195460 |
| R101                           | 140 FT INSERT FOR #82 BOOM | 195456 |
| R102                           |                            |        |

| 0920-2500 40 FT INSERT ASSEMBLY |                                   |         |
|---------------------------------|-----------------------------------|---------|
| R27                             | 40 FT. INSERT ASSEMBLY            | A00786  |
| R1                              | 4COLLAR                           | 179862  |
| R2                              | 4PIN, STRAP                       | 196416  |
| R3                              | 4PIN                              | 179959  |
| R7                              | 2PIN                              | 195488  |
| R8                              | 2PIN                              | 76998-3 |
| R14                             | 4STRAP LINK                       | 196413  |
| R22                             | 2PIN                              | 195489  |
| R29                             | 2PIN                              | 196472  |
| R30                             | 2PIN                              | 196456  |
| R36                             | 2STRAP 39 FT 5.00                 | 196412  |
| R34                             | 2TIMBER                           | 196423  |
| R37                             | 40 FT INSERT FOR #149 LUFFING JIB | A00785  |

| 0920-2600 40 FT INSERT ASSEMBLY |                                   |         |
|---------------------------------|-----------------------------------|---------|
| R28                             | INSERT 40 FT. W BACKSTAY LUG ASSY | A00788  |
| R1                              | 4COLLAR                           | 179862  |
| R2                              | 4PIN, STRAP                       | 196416  |
| R3                              | 4PIN                              | 179959  |
| R7                              | 2PIN                              | 195488  |
| R8                              | 2PIN                              | 76998-3 |
| R14                             | 4STRAP LINK                       | 196413  |
| R22                             | 2PIN                              | 195489  |
| R29                             | 2PIN                              | 196472  |
| R30                             | 2PIN                              | 196456  |
| R36                             | 2STRAP 39 FT 5.00                 | 196412  |
| R34                             | 2TIMBER                           | 196423  |
| R38                             | 40 FT INSERT FOR #149 LUFFING JIB | A00787  |

| 0920-2700 PENDANT 10 FT. - 1.00 (3.07M) JIB BACKSTAY FOR USE WITH 10 FT. BOOM INSERT  |                                 |        |
|---------------------------------------------------------------------------------------|---------------------------------|--------|
| R29                                                                                   | 2PENDANT 10 FT. - 1.00 (3.07M)  | 277382 |
| 0920-2710 PENDANT 20 FT. - 1.50 (6.13M) JIB BACKSTAY FOR USE WITH 20 FT. BOOM INSERT  |                                 |        |
| R30                                                                                   | 2PENDANT 20 FT. - 1.50 (6.13M)  | 277383 |
| 0920-2720 PENDANT 40 FT. - 3.00 (12.27M) JIB BACKSTAY FOR USE WITH 40 FT. BOOM INSERT |                                 |        |
| R31                                                                                   | 2PENDANT 40 FT. - 3.00 (12.27M) | 277384 |

| 0920-2730 INSERT 20 FT WITH INTERMEDIATE FALL |                                         |         |
|-----------------------------------------------|-----------------------------------------|---------|
| R32                                           | 20FT INSERT WITH INT. FALL ASSEMBLY     | A00790  |
| R1                                            | 4COLLAR                                 | 179862  |
| R2                                            | 4PIN STRAP                              | 196416  |
| R3                                            | 4PIN                                    | 179959  |
| R7                                            | 2JIB UPPER CONNECTOR PIN                | 195488  |
| R8                                            | 2JIB LOWER CONNECTOR PIN                | 76998-3 |
| R14                                           | 4STRAP LINK                             | 196413  |
| R22                                           | 2PIN                                    | 195489  |
| R29                                           | 2PIN                                    | 196472  |
| R30                                           | 2PIN                                    | 196456  |
| R33                                           | 2STRAP 19 FT 5.00                       | 196411  |
| R39                                           | 2SHEAVE ASSEMBLY 1.0 WIRE ROPE          | 171250  |
| R40                                           | 1ROPE GUARD                             | 197058  |
| R41                                           | 2SHAFT                                  | 197059  |
| R42                                           | 2LOCKWASHER                             | 225111  |
| R43                                           | 4LOCKNUT                                | 225105  |
| R44                                           | 2SPACER                                 | 197060  |
| R45                                           | 4KEEPER PLATE                           | 169810  |
| R46                                           | 2SPACER                                 | 197061  |
| R47                                           | 2SPACER                                 | 172084  |
| R48                                           | 1ROLLER                                 | 175543  |
| R49                                           | 1BUSHING                                | 289836  |
| R50                                           | 1PIN                                    | 197062  |
| R51                                           | 1SPACER                                 | 197063  |
| R52                                           | 1SPACER                                 | 197064  |
| R53                                           | 2PIN                                    | 196455  |
| R54                                           | 1ROLLER                                 | 602183  |
| R55                                           | 1SHAFT                                  | 197070  |
| R56                                           | 2PENDANT 2FT-6.00 (.76M)                | 277517  |
| R57                                           | 2PENDANT 13FT-8.5 (4.18M)               | 277518  |
| R58                                           | 4LINK                                   | 196106  |
| R59                                           | 4PIN                                    | 197067  |
| R60                                           | 2PIN                                    | 197068  |
| R61                                           | 2PIN                                    | 197088  |
| R62                                           | 1SHEAVE FOR 1.00 OR 26mm DIA. WIRE ROPE | 179242  |
| R63                                           | 2THRUST WASHER                          | 179243  |
| R64                                           | 1PLATE, KEEPER                          | 179305  |
| R65                                           | 1BEARING ROLLER                         | 225068  |
| R66                                           | 1LOAD PIN M/D TOTCO                     | 563845  |
| R67                                           | 1SCREW, SET .25-28UNF                   | 620317  |
| R68                                           | 1RING, RETAINING                        | 596357  |
| R69                                           | 2CAPSCREW .375-16UNC-2B THD X .75 LG    | 612452  |
| R70                                           | 3LOCKWASHER .38                         | 710304  |
| R71                                           | 1ROPE GUARD                             | 174078  |
| R72                                           | 1SC. HEX HD CAP .375-16UNC-2A X 1.75    | 612460  |
| R73                                           | 1NUT HEX .375-16 UNC-2B                 | 546054  |
| R74                                           | 1WASHER FLAT .375                       | 709440  |
| R75                                           | 1SHEAVE                                 | 631350  |
| R76                                           | 1SAFETY SNAP PIN                        | 563823  |
| R77                                           | 1ROPE GUARD                             | 197090  |
| R78                                           | 120FT INSERT WITH INT. FALL WELDMENT    | A00789  |

| BILL OF MATERIAL                   |             |                      |           |          |                  |                                                                                   | ASSEMBLIES<br>USED ON |
|------------------------------------|-------------|----------------------|-----------|----------|------------------|-----------------------------------------------------------------------------------|-----------------------|
| ITEM<br>NO                         | QTY<br>REQD | DESC<br>TION         | UOM<br>IN | MATERIAL | QTY<br>OR DNG NO |  |                       |
| 0920-2000 BASIC JIB 70 FT. (21.3M) |             |                      |           |          |                  |                                                                                   |                       |
| D                                  | 1           | 1PIN                 |           |          | 563874           |                                                                                   |                       |
| E                                  | 2           | 1ADAPTER             |           |          | 196135           |                                                                                   |                       |
| H                                  | 3           | 1MAIN STRUT ASSEMBLY |           |          | A00962           | 28                                                                                |                       |
|                                    | 4           | 1JIB STOP ASSEMBLY   |           |          | 196350           |                                                                                   |                       |
|                                    |             |                      |           |          |                  |                                                                                   |                       |

| REVISIONS |          |     |  |  |  |
|-----------|----------|-----|--|--|--|
| 1         | 08-21-01 | JMM |  |  |  |
| 2         | 08-21-01 | JMM |  |  |  |
| 3         | 05-30-02 | RLP |  |  |  |
| 4         | 02-24-10 | JAS |  |  |  |
| 5         | 02-24-10 | JAS |  |  |  |
| 6         | 02-24-10 | JAS |  |  |  |
| 7         | 02-24-10 | JAS |  |  |  |
| 8         | 02-24-10 | JAS |  |  |  |
| 9         | 02-24-10 | JAS |  |  |  |
| 10        | 02-24-10 | JAS |  |  |  |
| 11        | 02-24-10 | JAS |  |  |  |
| 12        | 02-24-10 | JAS |  |  |  |
| 13        | 02-24-10 | JAS |  |  |  |
| 14        | 02-24-10 | JAS |  |  |  |
| 15        | 02-24-10 | JAS |  |  |  |
| 16        | 02-24-10 | JAS |  |  |  |
| 17        | 02-24-10 | JAS |  |  |  |
| 18        | 02-24-10 | JAS |  |  |  |
| 19        | 02-24-10 | JAS |  |  |  |
| 20        | 02-24-10 | JAS |  |  |  |
| 21        | 02-24-10 | JAS |  |  |  |
| 22        | 02-24-10 | JAS |  |  |  |

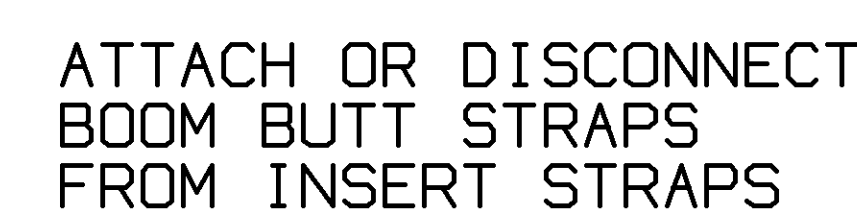
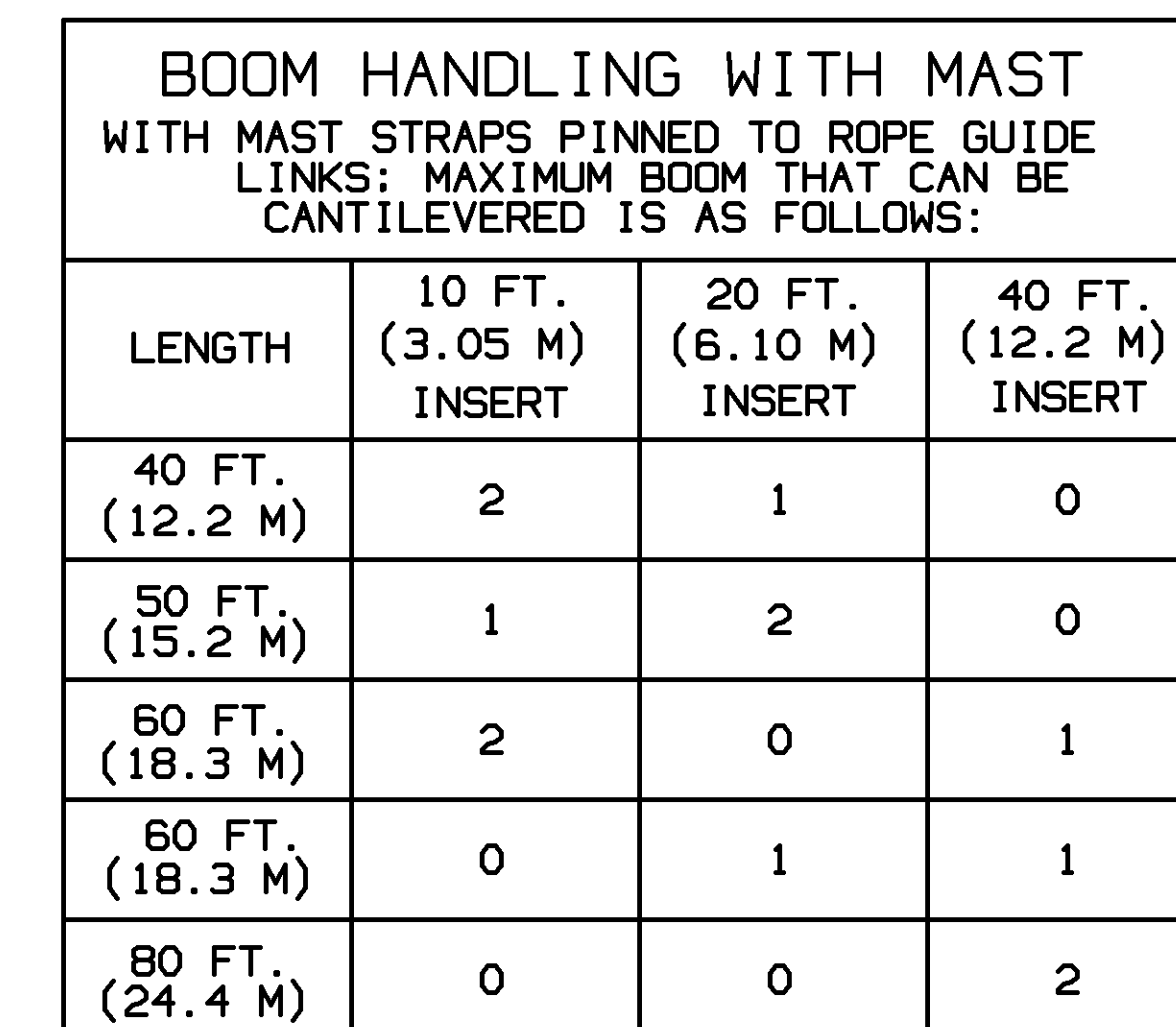
| 0920-2100 JIB TOP ASSEMBLY |                   |         |
|----------------------------|-------------------|---------|
| R23                        | 1JIB TOP ASSEMBLY | A00918  |
| R1                         | 6COLLAR           | 179862  |
| R2                         | 6PIN, STRAP       | 196416  |
| R3                         | 6PIN              | 179959  |
| R4                         | 2STRAP 21 FT 9.50 | 196424  |
| R5                         | 4LINK JIB STRAP   | 196421  |
| R6                         | 2PIN              | 78292   |
| R7                         | 2PIN              | 195488  |
| R8                         | 2PIN              | 76998-3 |
| R9                         | 2PIN              | 196392  |
| R10                        | 1JIB TOP WELDMENT | A00917  |
| R11                        | 1JIB POINT ASSY   | 196405  |
| R12                        | 2BOOM SIGN        | 22656   |

| 0920-2200 25 FT JIB BUTT ASSEMBLY |                        |          |
|-----------------------------------|------------------------|----------|
| R24                               | 1JIB BUTT ASSEMBLY     | 195491   |
| R1                                | 2COLLAR                | 179862   |
| R2                                | 2PIN, STRAP            | 196416   |
| R3                                | 2PIN                   | 179959   |
| R6                                | 2PIN                   | 78292    |
| R13                               | 2STRAP 8 FT 6.00       | 196415   |
| R14                               | 4LINK JIB STRAP        | 196413   |
| R15                               | 2HINGE PIN             | 177479   |
| R16                               | 2PIN                   | 196469   |
| R17                               | 2PIN                   | 196470-2 |
| R18                               | 2PIN                   | 196470-3 |
| R19                               | 2STRUT SUPPORT BRACKET | 196471   |
| R20                               | 2KEEPER                | 169810   |
| R21                               | 2BAR .50 x 1.00 x 6.00 | 221009   |
| R22                               | 2PIN                   | 195489   |
| R23                               | 1JIB BUTT WELDMENT     | 195490   |
| R24                               | 1BUILDERS PLATE        | 181503   |
| R25                               | 16SHIM                 | A00038   |
| R26                               |                        |          |
| R27                               |                        |          |

| 0920-2300 10 FT INSERT ASSEMBLY |                                   |         |
|---------------------------------|-----------------------------------|---------|
| R25                             | 10 FT INSERT ASSEMBLY             | A00782  |
| R1                              | 4COLLAR                           | 179862  |
| R2                              | 4PIN, STRAP                       | 196416  |
| R3                              | 4PIN                              | 179959  |
| R7                              | 2PIN                              | 195488  |
| R8                              | 2PIN                              | 76998-3 |
| R14                             | 4STRAP LINK                       | 196413  |
| R22                             | 2PIN                              | 195489  |
| R28                             | 2STRAP 9 FT 5.00                  | 196410  |
| R29                             | 2PIN                              | 196472  |
| R30                             | 2PIN                              | 196456  |
| R31                             | 10 FT INSERT FOR #149 LUFFING JIB | A00781  |
| R32                             |                                   |         |

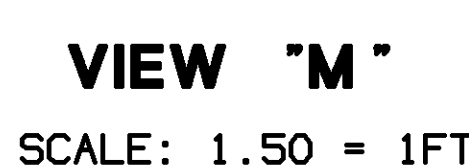
| 0920-2400 20 FT INSERT ASSEMBLY |                                   |         |
|---------------------------------|-----------------------------------|---------|
| R26                             | 20 FT INSERT ASSEMBLY             | A00784  |
| R1                              | 4COLLAR                           | 179862  |
| R2                              | 4PIN, STRAP                       | 196416  |
| R3                              | 4PIN                              | 179959  |
| R7                              | 2PIN                              | 195488  |
| R8                              | 2PIN                              | 76998-3 |
| R14                             | 4STRAP LINK                       | 196413  |
| R22                             | 2PIN                              | 195489  |
| R29                             | 2PIN                              | 196472  |
| R30                             | 2PIN                              | 196456  |
| R33                             | 2STRAP 19 FT 5.00                 | 196411  |
| R34                             | 1TIMBER                           | 196423  |
| R35                             | 20 FT INSERT FOR #149 LUFFING JIB | A00783  |





| INSERTS REQ'D. FOR<br>VARIOUS JIB LENGTHS<br>SEE SHEET 8 FOR LUFFING JIB<br>MAKE-UP ORDER WITH<br>INTERMEDIATE FALL |        |                           |                           |                                            |                            |
|---------------------------------------------------------------------------------------------------------------------|--------|---------------------------|---------------------------|--------------------------------------------|----------------------------|
| ITEM NO.                                                                                                            |        | 25                        | 26                        | 32                                         | 27 OR 28                   |
| JIB<br>LENGTHS                                                                                                      |        | 10 FT<br>3.05 M<br>INSERT | 20 FT<br>6.10 M<br>INSERT | 20 FT<br>6.10 M<br>INSERT<br>(W/INT. FALL) | 40 FT<br>12.19 M<br>INSERT |
| FEET                                                                                                                | METERS |                           |                           |                                            |                            |
| 70                                                                                                                  | 21.3   | 0                         | 0                         | 1                                          | 0                          |
| 80                                                                                                                  | 24.4   | 1                         | 0                         | 1                                          | 0                          |
| 90                                                                                                                  | 27.4   | 0                         | 1                         | 1                                          | 0                          |
| 100                                                                                                                 | 30.5   | 1                         | 1                         | 1                                          | 0                          |
| 110                                                                                                                 | 33.5   | 0                         | 0                         | 1                                          | 1                          |
| 120                                                                                                                 | 36.6   | 1                         | 0                         | 1                                          | 1                          |
| 130                                                                                                                 | 39.6   | 0                         | 1                         | 1                                          | 1                          |
| 140                                                                                                                 | 42.7   | 1                         | 1                         | 1                                          | 1                          |
| 150                                                                                                                 | 45.7   | 0                         | 0                         | 1                                          | 2                          |
| 160                                                                                                                 | 48.8   | 1                         | 0                         | 1                                          | 2                          |
| 170                                                                                                                 | 51.8   | 0                         | 1                         | 1                                          | 2                          |
| 180                                                                                                                 | 54.9   | 1                         | 1                         | 1                                          | 2                          |
| 190                                                                                                                 | 57.9   | 0                         | 0                         | 1                                          | 3                          |
| 200                                                                                                                 | 61.0   | 1                         | 0                         | 1                                          | 3                          |
| 210                                                                                                                 | 64.0   | 0                         | 1                         | 1                                          | 3                          |
| 220                                                                                                                 | 67.1   | 1                         | 1                         | 1                                          | 3                          |
| 230                                                                                                                 | 70.1   | 0                         | 0                         | 1                                          | 4                          |
| 240                                                                                                                 | 73.2   | 1                         | 0                         | 1                                          | 4                          |

| INSERTS, PENDANTS, AND ROLLER GUIDES<br>REQUIRED FOR VARIOUS BOOM LENGTHS |        |                                        |                                                  |                                        |                          | JIB BACKSTAY PENDANTS, LINKS, AND PINS<br>REQUIRED FOR VARIOUS BOOM LENGTHS |                          |                           |                            |                        |               |                       |               |
|---------------------------------------------------------------------------|--------|----------------------------------------|--------------------------------------------------|----------------------------------------|--------------------------|-----------------------------------------------------------------------------|--------------------------|---------------------------|----------------------------|------------------------|---------------|-----------------------|---------------|
| ITEM NO.                                                                  |        | R88                                    | R95                                              | R99 OR<br>R144                         |                          | 29                                                                          | 30                       | 31                        | 17                         | 21                     | 16            | 19                    | 20            |
| BOOM<br>LENGTH                                                            |        | 10 FT<br>3.05 M<br>ASSEMBLY<br>SEE (7) | 20 FT<br>6.10 M<br>INSERT<br>ASSEMBLY<br>SEE (8) | 40 FT<br>12.19 M<br>INSERT<br>ASSEMBLY | STRAP<br>POSITION<br>(1) | 10 FT<br>3.07 M<br>PEND.                                                    | 20 FT<br>6.13 M<br>PEND. | 40 FT<br>12.27 M<br>PEND. | 5FT 5IN<br>1.54 M<br>PEND. | LINK<br>24.00<br>610MM | PIN<br>170690 | LINK<br>8.50<br>216MM | PIN<br>A01169 |
| FEET                                                                      | METERS |                                        |                                                  |                                        |                          |                                                                             |                          |                           |                            |                        |               |                       |               |
| 80                                                                        | 24.4   | 1                                      | 0                                                | 0                                      | A                        | 2                                                                           | 0                        | 0                         | 2                          | 0                      | 0             | 0                     | 0             |
| 90                                                                        | 27.4   | 2                                      | 0                                                | 0                                      | A                        | 4                                                                           | 0                        | 0                         | 0                          | 2                      | 2             | 2                     | 4             |
| 100                                                                       | 30.5   | 1                                      | 1                                                | 0                                      | A                        | 2                                                                           | 2                        | 0                         | 0                          | 2                      | 2             | 2                     | 4             |
| 110                                                                       | 33.5   | OR 2                                   | 1                                                | 0                                      | A                        | OR 4                                                                        | 2                        | 0                         | 0                          | 2                      | 2             | 2                     | 4             |
|                                                                           |        | OR 0                                   | 2                                                | 0                                      |                          | 0                                                                           | 2                        | 2                         | 2                          | 4                      |               |                       |               |
|                                                                           |        | OR 0                                   | 0                                                | 1                                      |                          | OR 0                                                                        | 0                        | 2                         | 0                          | 2                      | 4             |                       |               |
| 120                                                                       | 36.6   | OR 1                                   | 2                                                | 0                                      | A                        | OR 2                                                                        | 4                        | 0                         | 0                          | 2                      | 2             | 2                     | 4             |
|                                                                           |        | OR 1                                   | 0                                                | 1                                      |                          | OR 2                                                                        | 0                        | 2                         | 0                          | 2                      | 4             |                       |               |
|                                                                           |        | OR 0                                   | 0                                                | 1                                      |                          | OR 0                                                                        | 0                        | 2                         | 0                          | 2                      | 4             |                       |               |
| 130                                                                       | 39.6   | OR 2                                   | 0                                                | 1                                      | A                        | OR 4                                                                        | 0                        | 2                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 0                                   | 1                                                | 1                                      |                          | OR 0                                                                        | 2                        | 0                         | 0                          | 2                      | 4             |                       |               |
|                                                                           |        | OR 1                                   | 1                                                | 1                                      |                          | A                                                                           | 2                        | 2                         | 0                          | 0                      | 2             | 4                     |               |
| 150                                                                       | 45.7   | OR 2                                   | 1                                                | 1                                      | A                        | OR 4                                                                        | 2                        | 2                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 0                                   | 2                                                | 1                                      |                          | OR 0                                                                        | 4                        | 2                         | 0                          | 0                      | 2             | 4                     |               |
|                                                                           |        | OR 0                                   | 0                                                | 2                                      |                          | OR 0                                                                        | 0                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
| 160                                                                       | 48.8   | OR 1                                   | 2                                                | 1                                      | A                        | OR 2                                                                        | 0                        | 2                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 1                                   | 0                                                | 2                                      |                          | OR 2                                                                        | 0                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
|                                                                           |        | OR 0                                   | 0                                                | 2                                      |                          | OR 0                                                                        | 0                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
| 170                                                                       | 51.8   | OR 2                                   | 0                                                | 2                                      | A                        | OR 4                                                                        | 0                        | 4                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 0                                   | 1                                                | 2                                      |                          | OR 0                                                                        | 2                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
|                                                                           |        | OR 1                                   | 1                                                | 2                                      |                          | OR 0                                                                        | 0                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
| 180                                                                       | 54.9   | 1                                      | 1                                                | 2                                      | A                        | 2                                                                           | 2                        | 4                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 2                                   | 1                                                | 2                                      |                          | OR 4                                                                        | 2                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
|                                                                           |        | OR 0                                   | 2                                                | 2                                      |                          | OR 0                                                                        | 4                        | 4                         | 0                          | 0                      | 2             | 4                     |               |
| 190                                                                       | 57.9   | OR 0                                   | 0                                                | 3                                      | B                        | OR 0                                                                        | 0                        | 6                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 0                                   | 0                                                | 3                                      |                          | OR 0                                                                        | 0                        | 6                         | 0                          | 0                      | 2             | 4                     |               |
|                                                                           |        | OR 0                                   | 0                                                | 3                                      |                          | OR 0                                                                        | 0                        | 6                         | 0                          | 0                      | 2             | 4                     |               |
| 200                                                                       | 61.0   | OR 1                                   | 2                                                | 2                                      | B                        | OR 2                                                                        | 4                        | 4                         | 0                          | 0                      | 0             | 2                     | 4             |
|                                                                           |        | OR 1                                   | 0                                                | 3                                      |                          | OR 2                                                                        | 0                        | 5                         | 0                          | 0                      | 2             | 4                     |               |
|                                                                           |        | OR 0                                   | 0                                                | 3                                      |                          | OR 0                                                                        | 0                        | 5                         | 0                          | 0                      | 2             | 4                     |               |

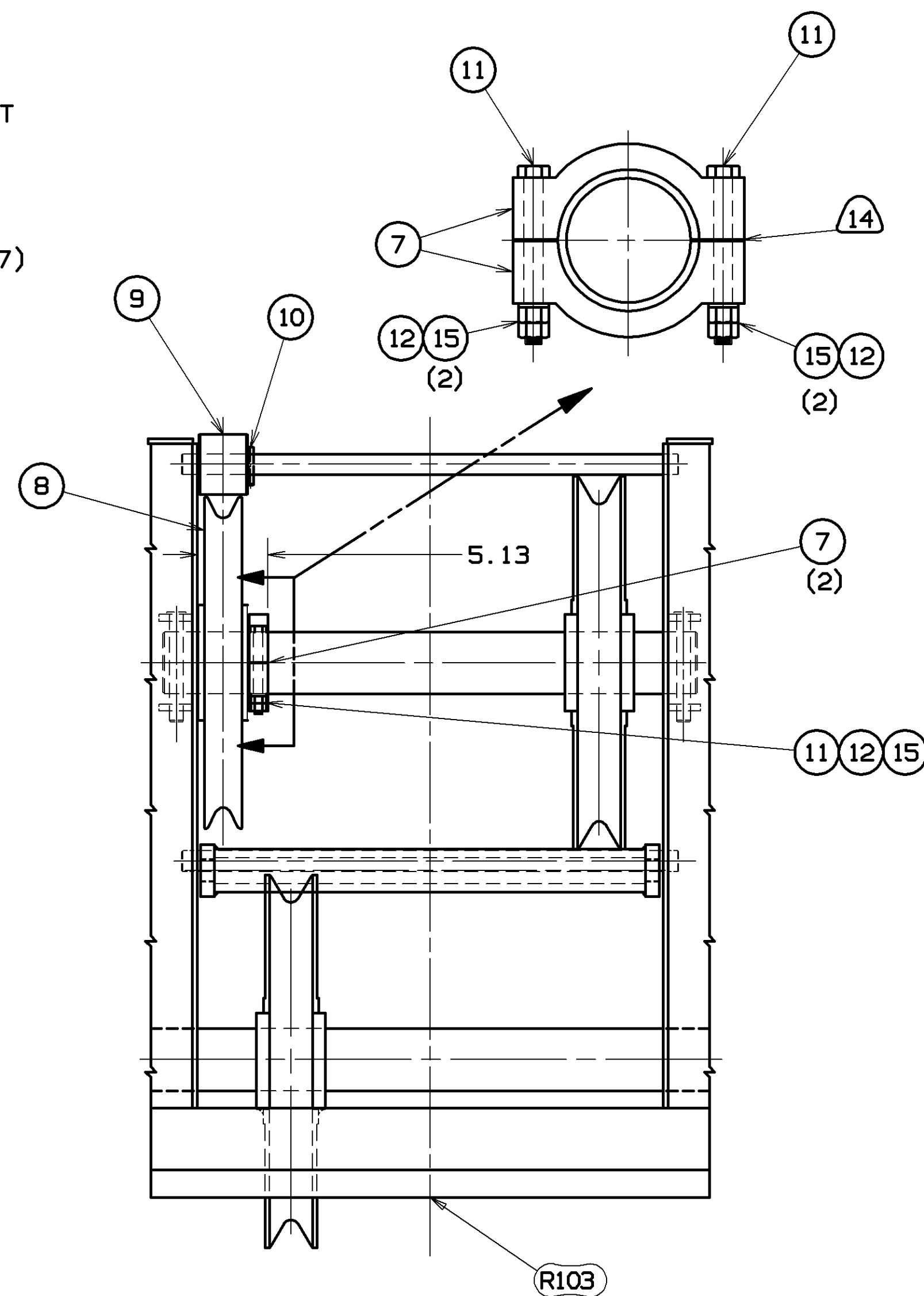
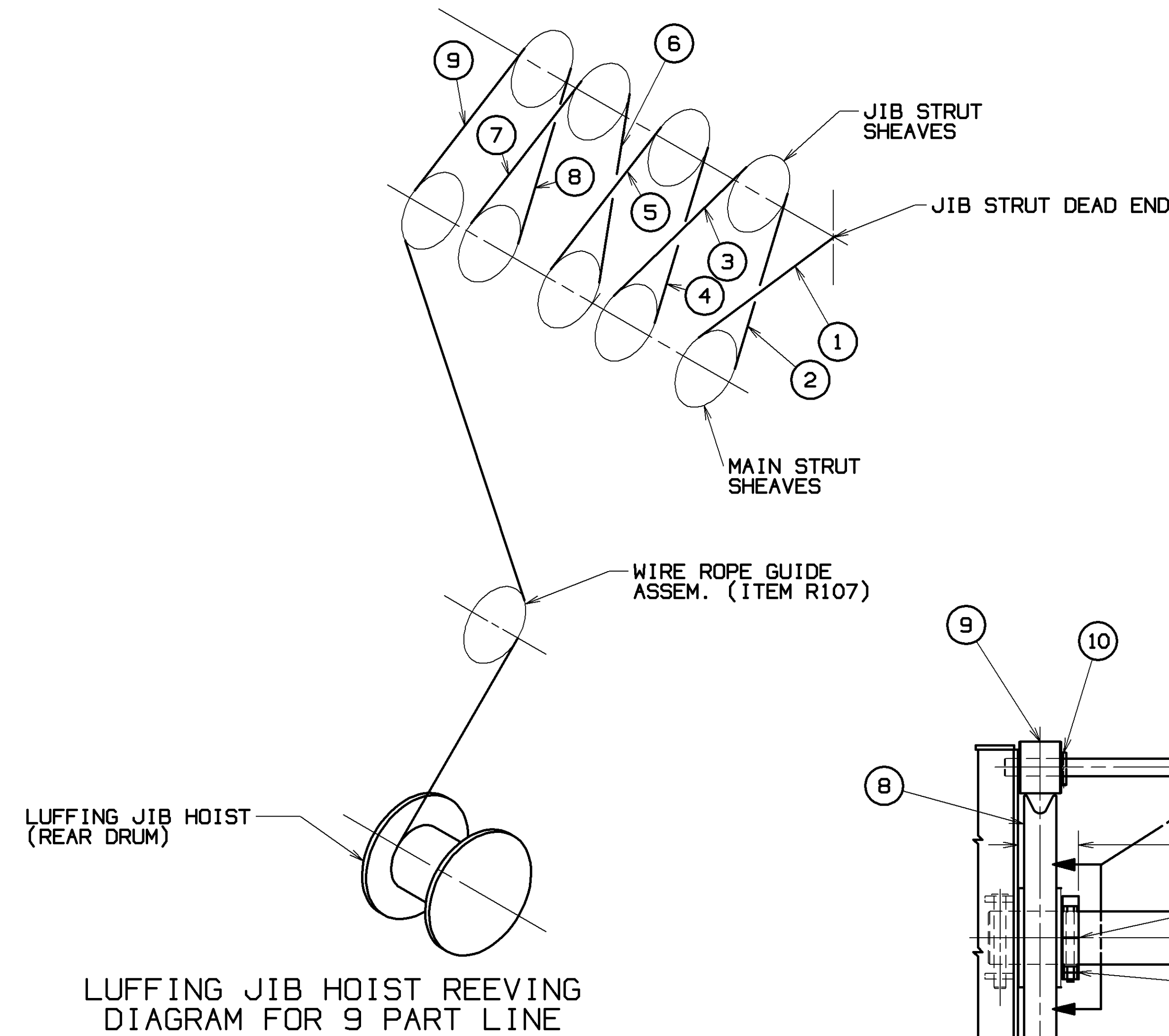


| LUFFING JIB<br>SECTION ASSEMBLY                                                           |        | LUFFING JIB WELDMENTS (THIS<br>NUMBER APPEARS ON NAMEPLATE)                                      |
|-------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------|
| 10' INSERT                                                                                | A00782 | A00781                                                                                           |
| 20' INSERT                                                                                | A00784 | A00783                                                                                           |
| 20' INSERT (A)                                                                            | A00790 | A00789                                                                                           |
| 40' INSERT (B)                                                                            | A00786 | A00785                                                                                           |
| 40' INSERT (C)                                                                            | A00788 | A00787                                                                                           |
| TOP                                                                                       | A00918 | A00917                                                                                           |
| BUTT                                                                                      | 195491 | 195490                                                                                           |
| LUFFING JIB ASSEMBLIES LISTED<br>ABOVE REPLACE PAST PRODUCTION<br>ASSEMBLIES LISTED BELOW |        | LUFFING JIB WELDMENTS/MODIFICATIONS<br>LISTED BELOW ARE ACCEPTABLE FOR<br>WELDMENTS LISTED ABOVE |
| 10' INSERT                                                                                | 195493 | 195492 OR A00791                                                                                 |
| 20' INSERT                                                                                | 195495 | 195494 OR A00792                                                                                 |
| 20' INSERT (A,D)                                                                          | 196401 | 196400 OR A00307 AND A00795                                                                      |
| 40' INSERT (B)                                                                            | 195497 | 195496 OR A00793                                                                                 |
| 40' INSERT (C)                                                                            | 196403 | 196402 OR A00794                                                                                 |
| TOP                                                                                       | 195499 | 195498, A00808, OR 81003576                                                                      |
| BUTT                                                                                      |        | 81003577                                                                                         |
| (A) WITH INT. FALL ASSEMBLY                                                               |        |                                                                                                  |
| (B) WITHOUT JIB BACKSTAYS                                                                 |        |                                                                                                  |
| (C) WITH JIB BACKSTAYS                                                                    |        |                                                                                                  |
| (D) SEE 20                                                                                |        |                                                                                                  |

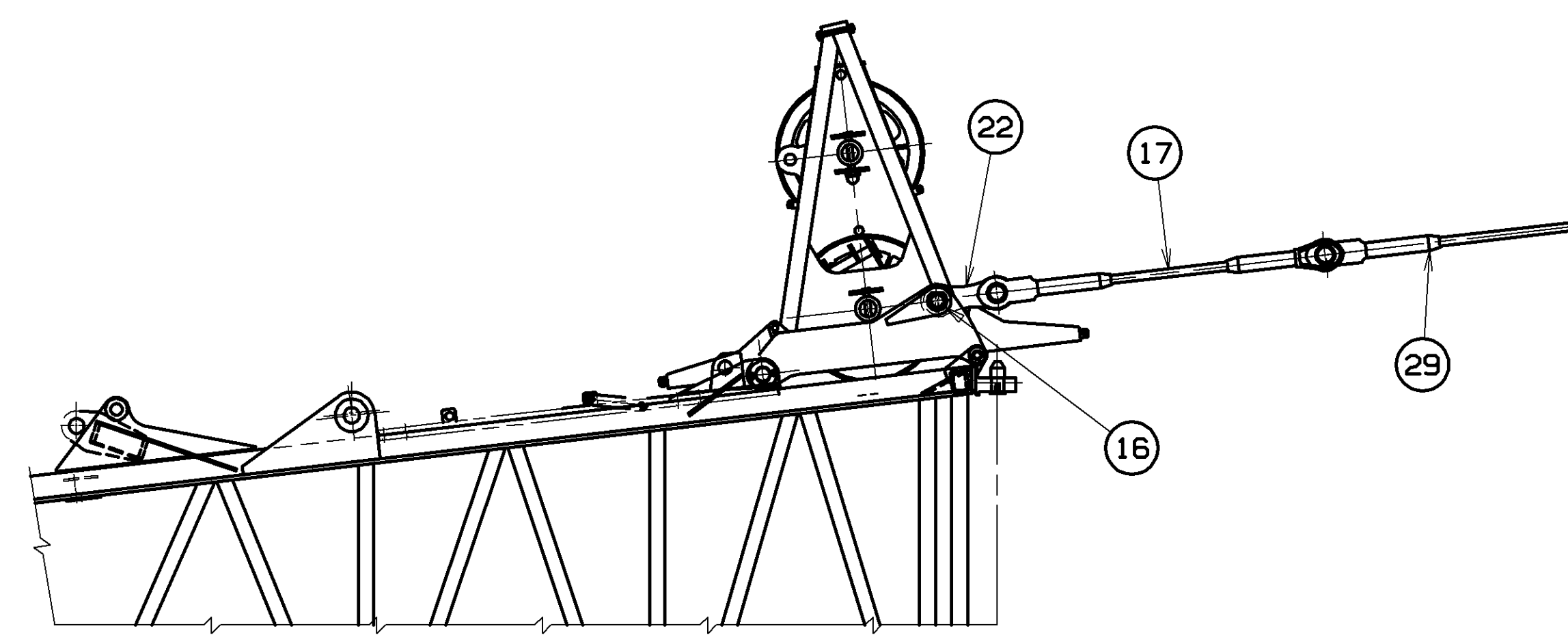
| BOOM SECTION ASSEMBLY                                                                        |                                                                                     | BOOM SECTION WELDMENT APPEARS ON NAMEPLATE) | (THIS NUMBER |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------|--------------|
| 10FT. INSERT A01018                                                                          |                                                                                     | A01019                                      |              |
| 20FT. INSERT 195463                                                                          |                                                                                     | 195455                                      |              |
| 40FT. INSERT 195464(A)                                                                       |                                                                                     | 195456                                      |              |
| 40FT. INSERT 195465(B)                                                                       |                                                                                     | 195457                                      |              |
| 40FT. TOP A01024                                                                             |                                                                                     | A01025                                      |              |
| 30FT. BUTT 196398                                                                            |                                                                                     | 195453                                      |              |
| <div>A</div> BOOM SECTIONS/ASSEMBLIES LISTED ABOVE REPLACE PAST PRODUCTION BOOM LISTED BELOW | BOOM WELDMENTS/MODIFICATIONS LISTED ABOVE ARE ACCEPTABLE FOR WELDMENTS LISTED ABOVE |                                             |              |
| 10FT. INSERT (C)                                                                             | A01014 OR A01015                                                                    |                                             |              |
| 10FT. INSERT (D)                                                                             | A01122, A01016 OR A01017                                                            |                                             |              |
| 20FT. INSERT                                                                                 | A01020                                                                              |                                             |              |
| 40FT. INSERT (A)                                                                             | A01022                                                                              |                                             |              |
| 40FT. INSERT (B)                                                                             | A01021                                                                              |                                             |              |
| 40FT. TOP                                                                                    | A01093, A01023, OR 81003574                                                         |                                             |              |
| 30FT. BUTT                                                                                   | 81003575                                                                            |                                             |              |
| (A) WITHOUT JIB BACKSTAY LUGS                                                                |                                                                                     |                                             |              |
| (B) WITH JIB BACKSTAY LUGS                                                                   |                                                                                     |                                             |              |
| (C) WITH SHEAVE FRAME WELDED TO INSERT                                                       |                                                                                     |                                             |              |
| (D) WITHOUT SHEAVE FRAME                                                                     |                                                                                     |                                             |              |

| INSERTS REQ'D. FOR<br>VARIOUS JIB LENGTHS<br>SEE SHEET 6 FOR LUFFING JIB<br>MAKE-UP ORDER WITHOUT<br>INTERMEDIATE FALL |        |                           |                           |                            |
|------------------------------------------------------------------------------------------------------------------------|--------|---------------------------|---------------------------|----------------------------|
| ITEM NO.                                                                                                               |        | 25                        | 26                        | 27 OR 28                   |
| JIB LENGTHS                                                                                                            |        | 10 FT<br>3.05 M<br>INSERT | 20 FT<br>6.10 M<br>INSERT | 40 FT<br>12.19 M<br>INSERT |
| FEET                                                                                                                   | METERS |                           |                           |                            |
| 70                                                                                                                     | 21.3   | 0                         | 1                         | 0                          |
| 80                                                                                                                     | 24.4   | 1                         | 1                         | 0                          |
| 90                                                                                                                     | 27.4   | 0<br>OR $\frac{0}{0}$     | 2<br>0                    | 0<br>1                     |
| 100                                                                                                                    | 30.5   | 1<br>OR $\frac{1}{1}$     | 2<br>0                    | 0<br>1                     |
| 110                                                                                                                    | 33.5   | 0                         | 1                         | 1                          |
| 120                                                                                                                    | 36.6   | 1                         | 1                         | 1                          |
| 130                                                                                                                    | 39.6   | 0<br>OR $\frac{0}{0}$     | 2<br>0                    | 1<br>2                     |
| 140                                                                                                                    | 42.7   | 1<br>OR $\frac{1}{1}$     | 2<br>0                    | 1<br>2                     |
| 150                                                                                                                    | 45.7   | 0                         | 1                         | 2                          |
| 160                                                                                                                    | 48.8   | 1                         | 1                         | 2                          |
| 170                                                                                                                    | 51.8   | 0                         | 0                         | 3                          |
| 180                                                                                                                    | 54.9   | 1                         | 0                         | 3                          |
| 190                                                                                                                    | 57.9   | 0                         | 1                         | 3                          |
| 200                                                                                                                    | 61.0   | 1                         | 1                         | 3                          |
| 210                                                                                                                    | 64.0   | 0                         | 0                         | 4                          |
| 220                                                                                                                    | 67.1   | 1                         | 0                         | 4                          |
| 230                                                                                                                    | 70.1   | 0                         | 1                         | 4                          |
| 240                                                                                                                    | 73.2   | 1                         | 1                         | 4                          |

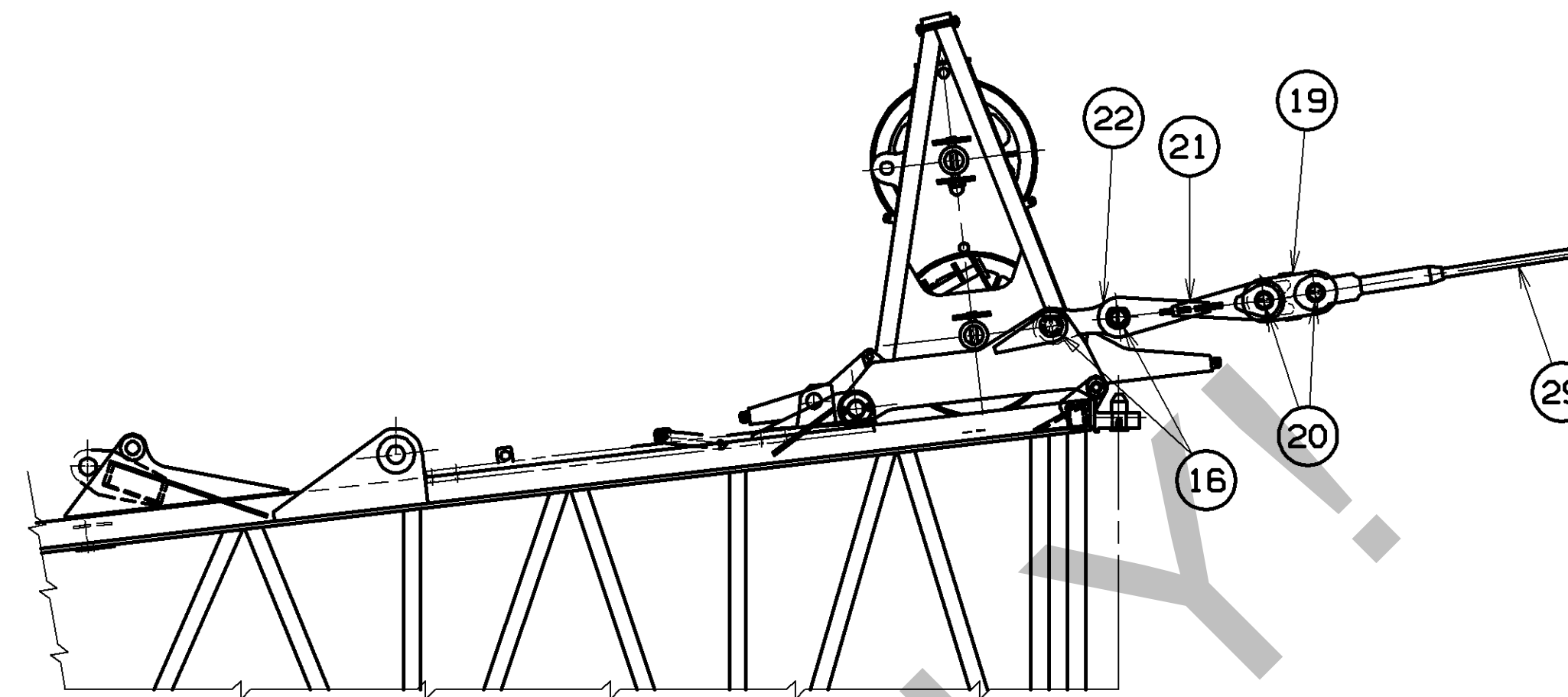




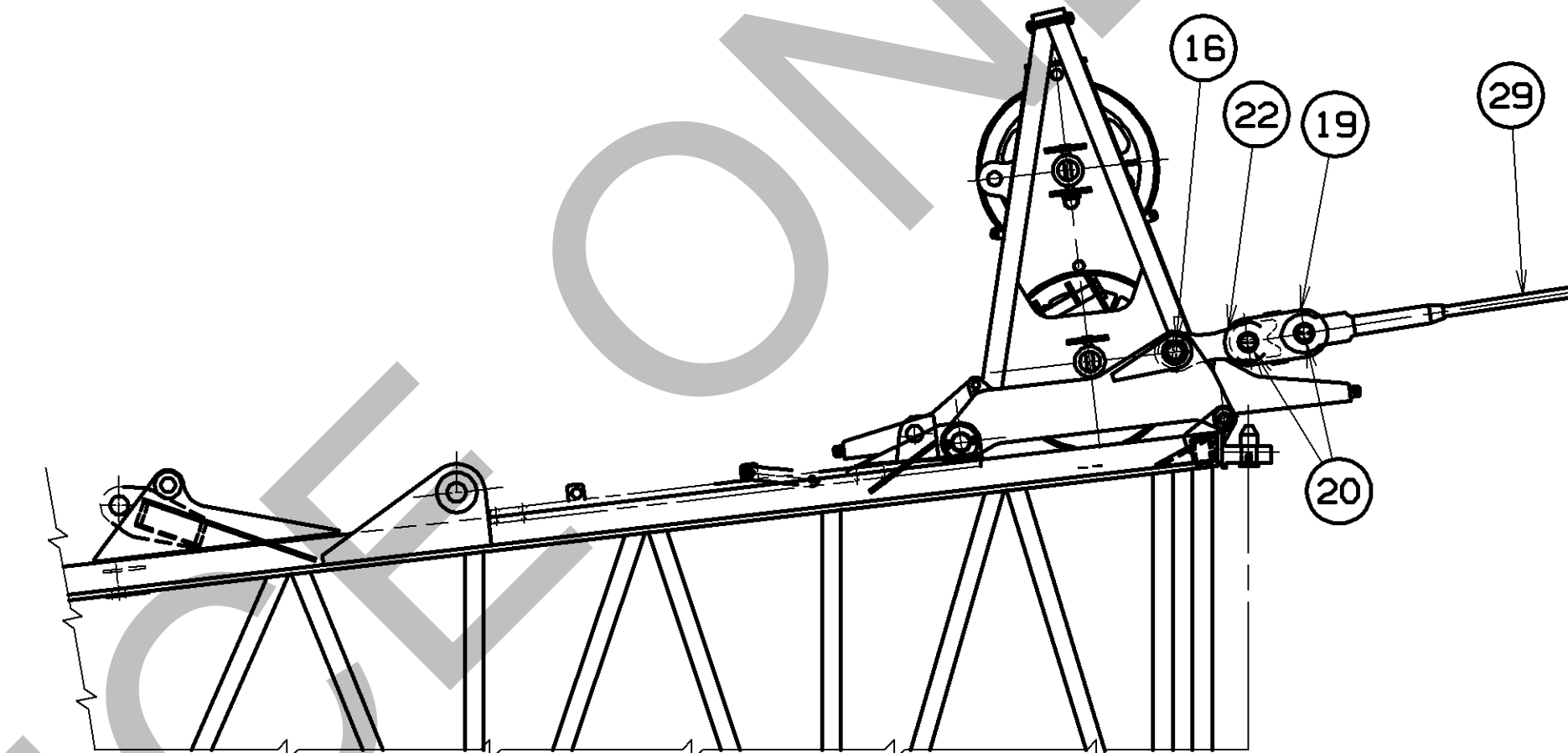
VIEW "H" - "H"  
SCALE: 2.00 = 1 FT



TYP. 80FT BOOM

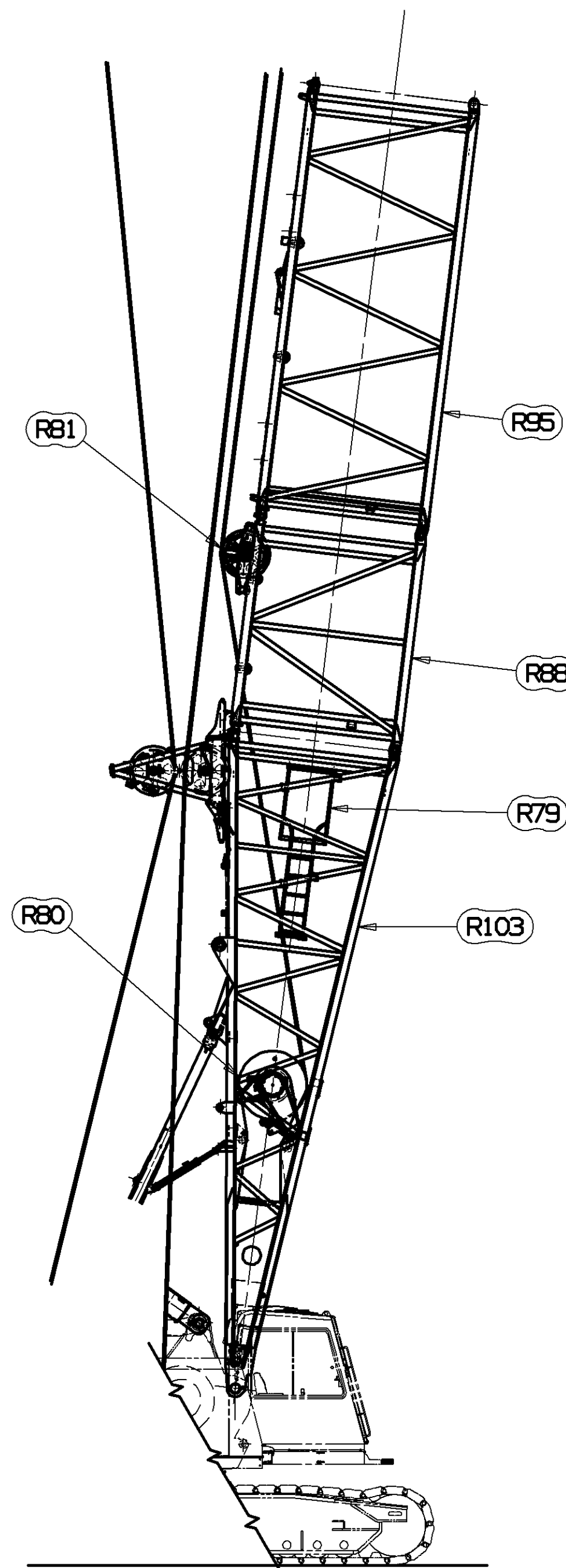


TYP. 90FT - 120 FT BOOM

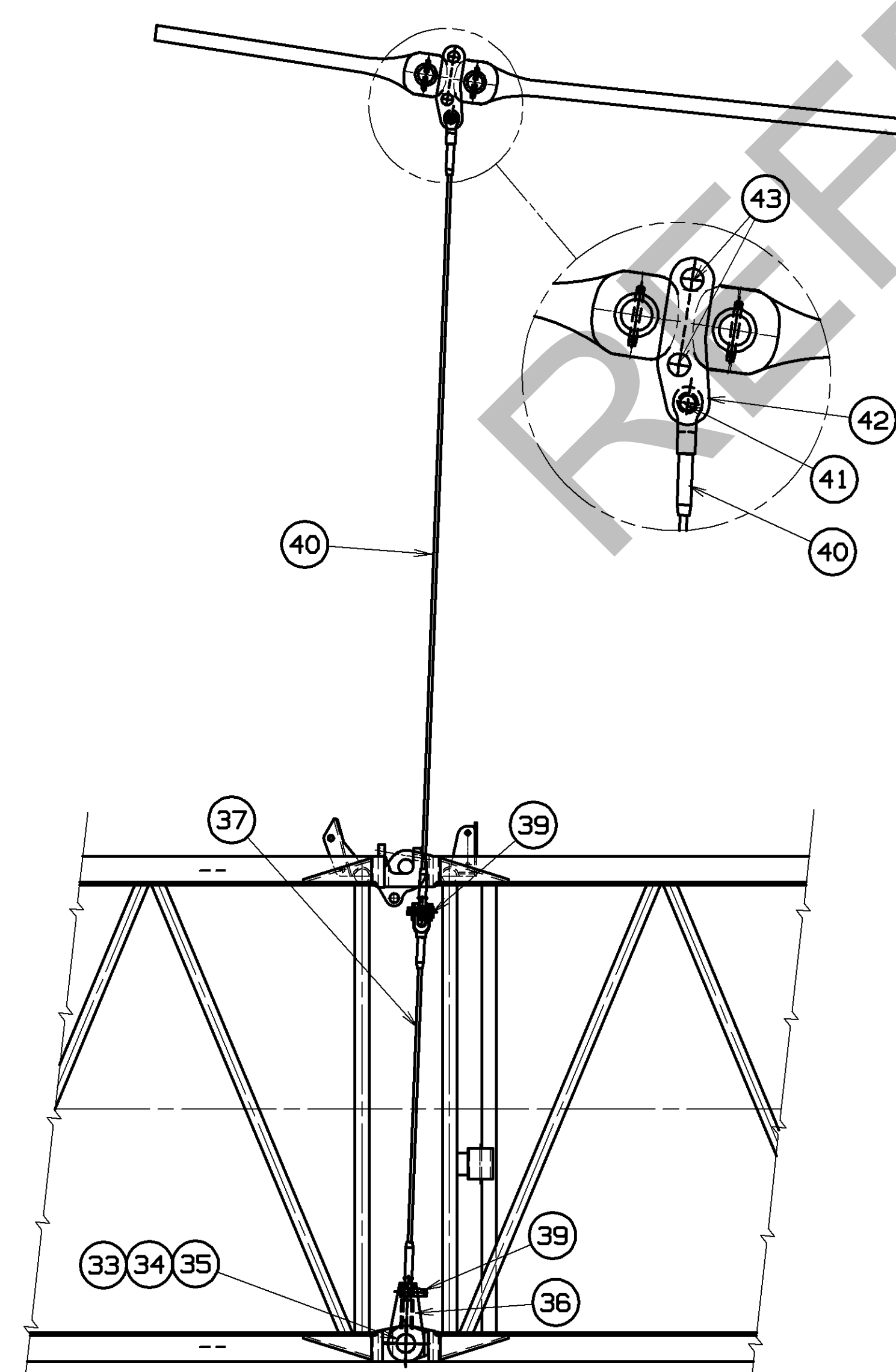


TYP. 130FT - 200 FT BOOM

VIEW "M"  
BASIC LUFFING JIB BACKSTAY PENDANT ARRANGEMENT  
SCALE: .5" = 1 FT

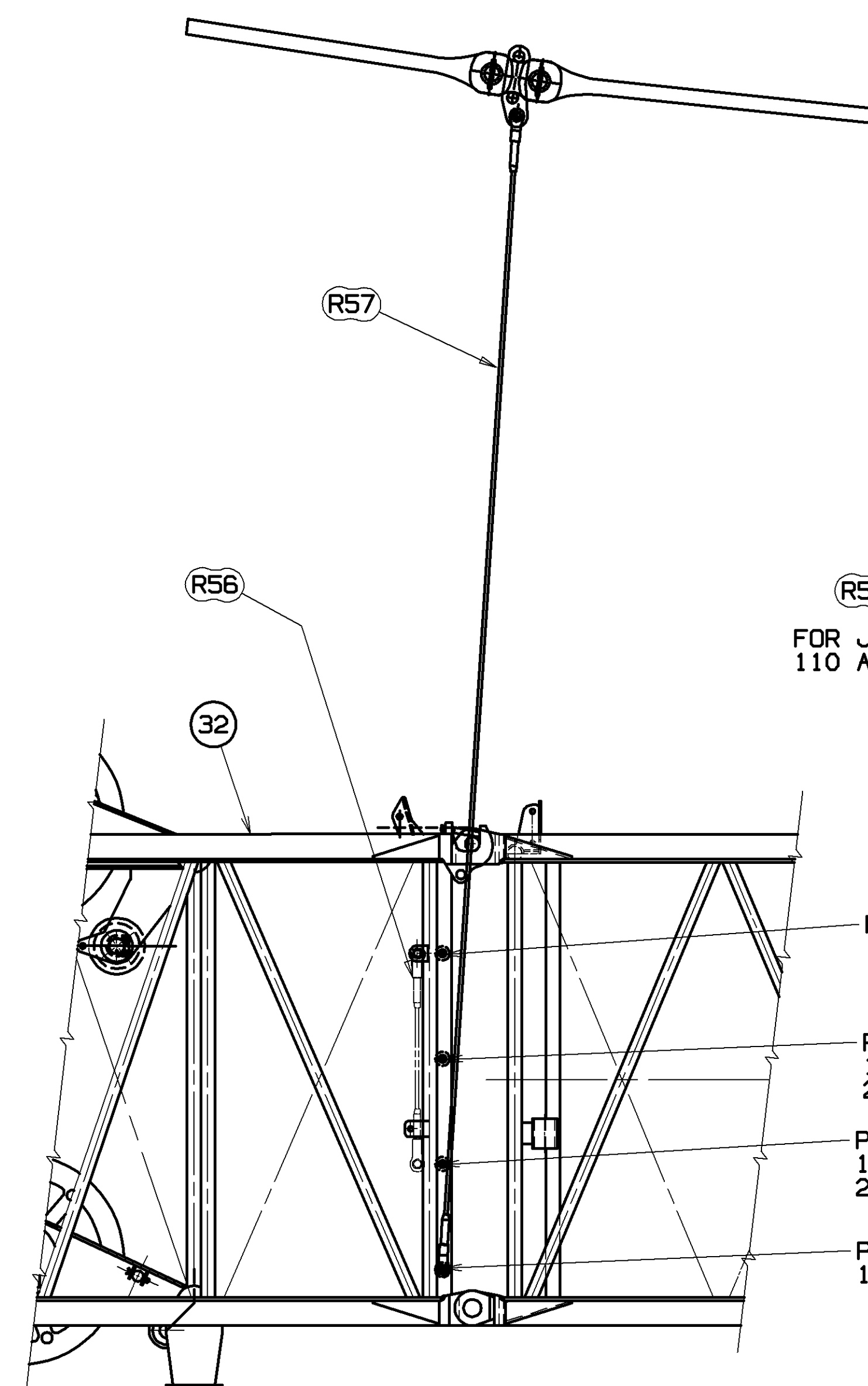
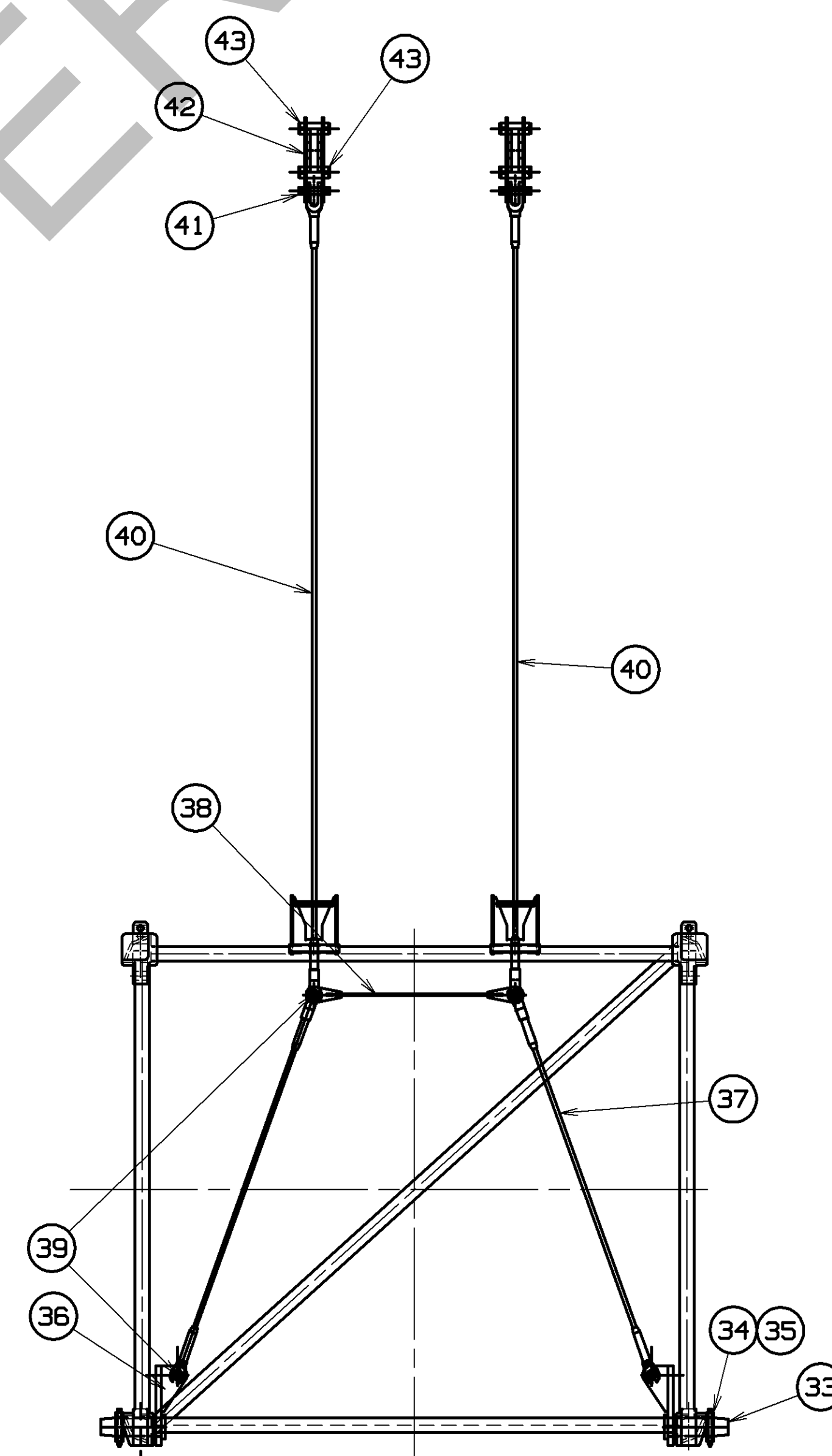


#82 BOOM/#149 JIB ASSEMBLY  
WITH AUX. DRUM SHAFT ASSEMBLY



INTERMEDIATE SUSPENSION FOR 230-240 FT JIB WITHOUT INTERMEDIATE FALL INSERT

SCALE: .75=1FT



INTERMEDIATE SUSPENSION JIB WITH INTERMEDIATE FALL INSERT

SCALE .75=1FT

- 1 SEE VIEW "B".
- 2 ON DRAWING (196289).
- 3 ON DRAWING (197015)
- 4 MAXIMUM NO. OF 10 FT. (3.05M) BOOM INSERTS = (2)
- 5 MAXIMUM NO. OF 20 FT. (6.10M) BOOM INSERTS = (2)
- 6 COMBINATIONS OF 10 FT. (3.05M) AND 20 FT. (6.10M) BOOM INSERTS CANNOT EXCEED (2) - 10 FT. (3.05M) PLUS (1) - 20 FT. (6.10M) OR (1) - 10 FT. (3.05M) PLUS (2) - 20 FT. (6.10M). 90 FT. (27.4M) BOOM REQUIRES (2) - 10 FT. (3.05M) BOOM INSERTS.
- 7 SEE 4 AND 6
- 8 SEE 5 AND 6
- 9 STARTING WITH THE BOOM BUTT, INSERTS AND STRAPS MUST BE ASSEMBLED IN ORDER OF ASCENDING LENGTH. THE SHORTER INSERTS AND STRAPS MUST BE CLOSEST TO THE BOOM BUTT. SEE SHEET 6 FOR LUFFING JIB MAKE-UP ORDER.
- 10 WHEN AUXILIARY DRUM SHAFT ASSEMBLY (ITEM R80) IS USED, #82 BOOM BUTT ASSEMBLY (ITEM R103), WIRE ROPE GUIDE ASSEMBLY (ITEM R81) AND 10 FT. (3.05M) #83 INSERT ASSEMBLY (ITEM R88) ARE REQUIRED. THE 10 FT. INSERT MUST BE ADJACENT TO THE BOOM BUTT AT ALL TIMES. MINIMUM BOOM LENGTH USING THESE COMPONENTS IS 80 FT. (24.38M). WIRE ROPE GUIDE ASSEMBLY 177612 MUST BE REMOVED FOR LUFFING JIB OPERATION.
- 11 STRAPS SHOWN - SEE VIEW "B" (SHEET 1) ARE CALLED FOR ON BOOM BUTT ASSEMBLY (ITEM R103). STRAPS SHOWN - SEE VIEW "C" (SHEET 7) ARE CALLED FOR ON MAST ASSEMBLY (ITEM 83).
- 12 REFER TO SPECIFIC CAPACITY CHART FOR APPROPRIATE BOOM AND JIB COMBINATIONS.
- 13 REFER TO LUFFING JIB RAISING PROCEDURE FOR RAISING AND LOWERING BOOM AND JIB.
- 14 TIGHTEN EACH SIDE EQUALLY TO PROVIDE AN EQUAL GAP. TORQUE (ITEMS 11, 12, AND 15) TO 120 FT. LBS. AND ADD SECOND (ITEM 15) AS A LOCKNUT. SEE VIEW H-H.
- 15 INTERMEDIATE SUSPENSION FOR 230-240 FT. JIB WITHOUT INTERMEDIATE FALL INSERT. SEE SHEET 3.
- 16 SEE 9 OR 12
- 17 417449 MODIFICATION TO WIRE ROPE GUIDE ASSY 176985 MAY BE USED.
- 18 WIRE ROPE 1.00 INCH X 900 FT. CONSTRUCTEX. BREAKING STRENGTH OF 125,000 LBS. FOR USE ON REAR DRUM. REF. 719394.
- 19 ON DRAWING 78145
- 20 ANY INSERT 196400 MFG. PRIOR TO 4-11-01 MUST BE MODIFIED PER A00307 AND A00795. ANY INSERT 196400 MFG. 4-11-01 OR LATER MUST BE MODIFIED PER A00795
- 21 WIRE ROPE 1.00 INCH X 1625 FT. BRIDON DYFORM. BREAKING STRENGTH OF 156,400 LBS. FOR USE ON REAR DRUM.
- 22 WIRE ROPE 1.00 INCH X 1625 FT. PYTHON LIFT. BREAKING STRENGTH OF 161,200 LBS. FOR USE ON REAR DRUM.
- 23 WHEN USING 2 PART LINE ON INTERMEDIATE FALL, WEDGE SOCKET ASSEMBLY (ITEM 14) FROM UPPER BOOM POINT CAN BE USED.
- 24 REQUIRED FOR USE WITH 80 FT BOOM LENGTHS
- 25 SEE 19 AND 24
- 26 REQUIRED FOR USE WITH 90-120 FT BOOM LENGTHS
- 27 REQUIRED FOR USE WITH 90-200 FT BOOM LENGTHS
- 28 A10081 IS A REPLACEMENT FOR A00962
- 29 A10084 IS A REPLACEMENT FOR 196354

| BILL OF MATERIAL |                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |      | ASSEMBLY USED ON |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------|------------------|
| ITEM NO.         | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                | QUANTITY | MATERIAL | DATE |                  |
| 1                | SEE VIEW "B".                                                                                                                                                                                                                                                                                                                                                                                              |          |          |      |                  |
| 2                | ON DRAWING (196289).                                                                                                                                                                                                                                                                                                                                                                                       |          |          |      |                  |
| 3                | ON DRAWING (197015)                                                                                                                                                                                                                                                                                                                                                                                        |          |          |      |                  |
| 4                | MAXIMUM NO. OF 10 FT. (3.05M) BOOM INSERTS = (2)                                                                                                                                                                                                                                                                                                                                                           |          |          |      |                  |
| 5                | MAXIMUM NO. OF 20 FT. (6.10M) BOOM INSERTS = (2)                                                                                                                                                                                                                                                                                                                                                           |          |          |      |                  |
| 6                | COMBINATIONS OF 10 FT. (3.05M) AND 20 FT. (6.10M) BOOM INSERTS CANNOT EXCEED (2) - 10 FT. (3.05M) PLUS (1) - 20 FT. (6.10M) OR (1) - 10 FT. (3.05M) PLUS (2) - 20 FT. (6.10M). 90 FT. (27.4M) BOOM REQUIRES (2) - 10 FT. (3.05M) BOOM INSERTS.                                                                                                                                                             |          |          |      |                  |
| 7                | SEE 4 AND 6                                                                                                                                                                                                                                                                                                                                                                                                |          |          |      |                  |
| 8                | SEE 5 AND 6                                                                                                                                                                                                                                                                                                                                                                                                |          |          |      |                  |
| 9                | STARTING WITH THE BOOM BUTT, INSERTS AND STRAPS MUST BE ASSEMBLED IN ORDER OF ASCENDING LENGTH. THE SHORTER INSERTS AND STRAPS MUST BE CLOSEST TO THE BOOM BUTT. SEE SHEET 6 FOR LUFFING JIB MAKE-UP ORDER.                                                                                                                                                                                                |          |          |      |                  |
| 10               | WHEN AUXILIARY DRUM SHAFT ASSEMBLY (ITEM R80) IS USED, #82 BOOM BUTT ASSEMBLY (ITEM R103), WIRE ROPE GUIDE ASSEMBLY (ITEM R81) AND 10 FT. (3.05M) #83 INSERT ASSEMBLY (ITEM R88) ARE REQUIRED. THE 10 FT. INSERT MUST BE ADJACENT TO THE BOOM BUTT AT ALL TIMES. MINIMUM BOOM LENGTH USING THESE COMPONENTS IS 80 FT. (24.38M). WIRE ROPE GUIDE ASSEMBLY 177612 MUST BE REMOVED FOR LUFFING JIB OPERATION. |          |          |      |                  |
| 11               | STRAPS SHOWN - SEE VIEW "B" (SHEET 1) ARE CALLED FOR ON BOOM BUTT ASSEMBLY (ITEM R103). STRAPS SHOWN - SEE VIEW "C" (SHEET 7) ARE CALLED FOR ON MAST ASSEMBLY (ITEM 83).                                                                                                                                                                                                                                   |          |          |      |                  |
| 12               | REFER TO SPECIFIC CAPACITY CHART FOR APPROPRIATE BOOM AND JIB COMBINATIONS.                                                                                                                                                                                                                                                                                                                                |          |          |      |                  |
| 13               | REFER TO LUFFING JIB RAISING PROCEDURE FOR RAISING AND LOWERING BOOM AND JIB.                                                                                                                                                                                                                                                                                                                              |          |          |      |                  |
| 14               | TIGHTEN EACH SIDE EQUALLY TO PROVIDE AN EQUAL GAP. TORQUE (ITEMS 11, 12, AND 15) TO 120 FT. LBS. AND ADD SECOND (ITEM 15) AS A LOCKNUT. SEE VIEW H-H.                                                                                                                                                                                                                                                      |          |          |      |                  |
| 15               | INTERMEDIATE SUSPENSION FOR 230-240 FT. JIB WITHOUT INTERMEDIATE FALL INSERT. SEE SHEET 3.                                                                                                                                                                                                                                                                                                                 |          |          |      |                  |
| 16               | SEE 9 OR 12                                                                                                                                                                                                                                                                                                                                                                                                |          |          |      |                  |
| 17               | 417449 MODIFICATION TO WIRE ROPE GUIDE ASSY 176985 MAY BE USED.                                                                                                                                                                                                                                                                                                                                            |          |          |      |                  |
| 18               | WIRE ROPE 1.00 INCH X 900 FT. CONSTRUCTEX. BREAKING STRENGTH OF 125,000 LBS. FOR USE ON REAR DRUM. REF. 719394.                                                                                                                                                                                                                                                                                            |          |          |      |                  |
| 19               | ON DRAWING 78145                                                                                                                                                                                                                                                                                                                                                                                           |          |          |      |                  |
| 20               | ANY INSERT 196400 MFG. PRIOR TO 4-11-01 MUST BE MODIFIED PER A00307 AND A00795. ANY INSERT 196400 MFG. 4-11-01 OR LATER MUST BE MODIFIED PER A00795                                                                                                                                                                                                                                                        |          |          |      |                  |
| 21               | WIRE ROPE 1.00 INCH X 1625 FT. BRIDON DYFORM. BREAKING STRENGTH OF 156,400 LBS. FOR USE ON REAR DRUM.                                                                                                                                                                                                                                                                                                      |          |          |      |                  |
| 22               | WIRE ROPE 1.00 INCH X 1625 FT. PYTHON LIFT. BREAKING STRENGTH OF 161,200 LBS. FOR USE ON REAR DRUM.                                                                                                                                                                                                                                                                                                        |          |          |      |                  |
| 23               | WHEN USING 2 PART LINE ON INTERMEDIATE FALL, WEDGE SOCKET ASSEMBLY (ITEM 14) FROM UPPER BOOM POINT CAN BE USED.                                                                                                                                                                                                                                                                                            |          |          |      |                  |
| 24               | REQUIRED FOR USE WITH 80 FT BOOM LENGTHS                                                                                                                                                                                                                                                                                                                                                                   |          |          |      |                  |
| 25               | SEE 19 AND 24                                                                                                                                                                                                                                                                                                                                                                                              |          |          |      |                  |
| 26               | REQUIRED FOR USE WITH 90-120 FT BOOM LENGTHS                                                                                                                                                                                                                                                                                                                                                               |          |          |      |                  |
| 27               | REQUIRED FOR USE WITH 90-200 FT BOOM LENGTHS                                                                                                                                                                                                                                                                                                                                                               |          |          |      |                  |
| 28               | A10081 IS A REPLACEMENT FOR A00962                                                                                                                                                                                                                                                                                                                                                                         |          |          |      |                  |
| 29               | A10084 IS A REPLACEMENT FOR 196354                                                                                                                                                                                                                                                                                                                                                                         |          |          |      |                  |

PRIVATE LABELING  
REQUIREMENT TO  
CONFORM TO  
ENGINEERING  
SPECIFICATION  
8629103794 FOR  
COMPONENTS LISTED  
IN 862901-06-026

DATE  
08-15-01

REV. LNK  
FB

NO. NO.  
A01031

SHT 3 OF 9



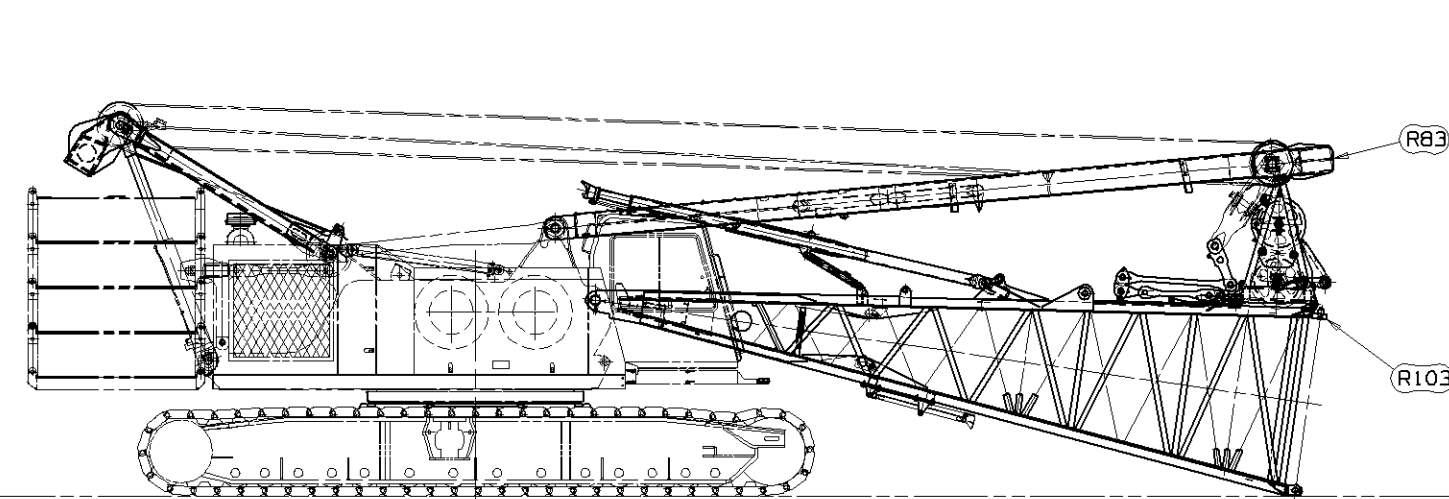
BOOM ASSEMBLY PROCEDURE

(MAST CAN BE USED TO ASSEMBLE ALL RIGGING COMPONENTS.)

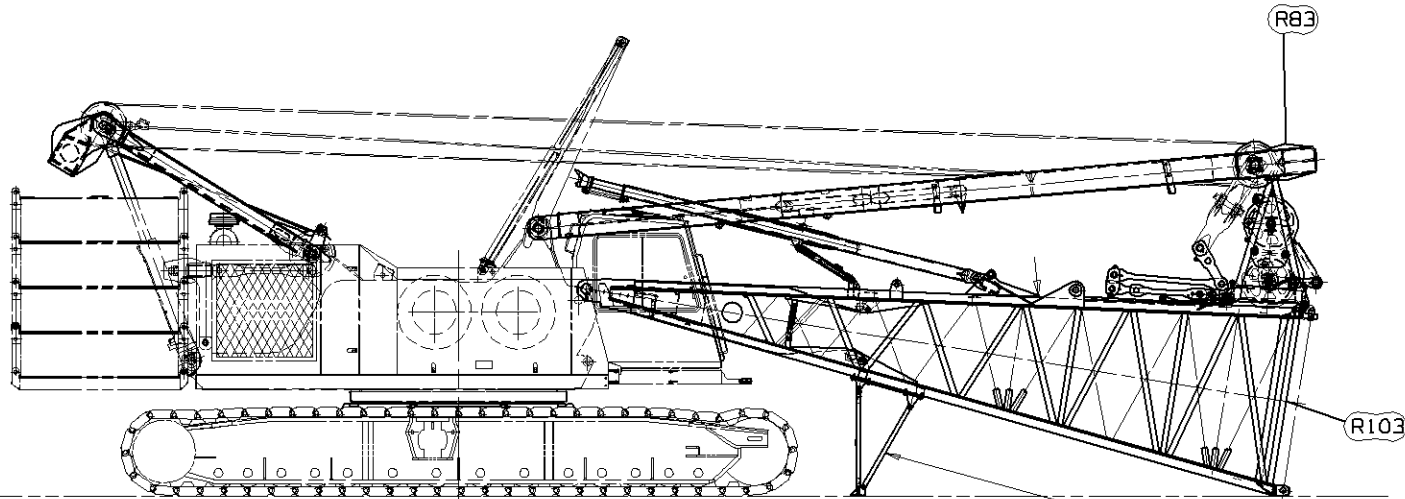
1. ASSEMBLE BOOM COMPLETE, WITHOUT BUTT.
  2. ATTACH ROPE GUIDES, STRAPS, LINKS AND PINS AS REQ'D. [B]
  3. IF BUTT IS TO BE INSTALLED WITH AUXILIARY BLOCK (ITEM 47), DO THAT NEXT. IF NOT, PROCEED TO STEP 4.
  4. ATTACH BOOM BUTT STRAPS TO MAST LINKS. SEE APPROPRIATE VIEWS AT LEFT. ALSO SEE CHART AND VIEWS ON SHEET 1 FOR PROPER PIN/LINK POSITION. LINKS MAY BE PINNED IN POSITION "A" OR "B" FOR BOOM ASSEMBLY OR HANDLING.
  - WITH BUTT PINNED TO ROTATING BED, LOWER MAST TO ROPE GUIDE ON BUTT.
  - OR  
WITH BUTT SUPPORTED BY BUTT ATTACHING ASSEMBLY, LOWER MAST DOWN TO: BUT NOT SUPPORTED BY WIRE ROPE GUIDE ON BUTT.
  - REMOVE STOWAGE LINKS. ATTACH BUTT LINKS TO MAST LINKS AND REMOVE SMALL STOWAGE PINS.
  - BOOM UP SLOWLY TO RAISE STRAPS FROM STOWED POSITION. (DO NOT PUT STRAPS IN TENSION) REMOVE STOWAGE PIN BETWEEN LINKS AND SUPPORTS ON BUTT. WITH STRAPS HANGING VERTICAL, INSERT LOCKING PINS AS SHOWN IN VIEW "K"- "K" & "L"- "L".
  5. IF BOOM BUTT WAS NOT INSTALLED IN STEP 3, INSTALL IT NOW USING THE OPTIONAL BOOM BUTT SUPPORT. ATTACH THE BUTT STRAPS TO THE HANDLING LINK ON THE ROPE GUIDE (AS SHOWN IN VIEW K-K) AND INSTALL THE BOOM BUTT WITH THE ROPE GUIDE AND BOOM STOPS TO THE ROTATING BED. (BOOM STOPS MUST BE IN THE SHIPPING/LOWER POSITION).
  6. ATTACH BOOM STOP HANDLING PENDANTS TO BOOM STOP TUBES. RAISE AND PIN BOOM STOPS IN WORKING POSITION AND STOW HANDLING PENDANTS ON MAST.
  7. WITH BUTT STRAPS ATTACHED TO BOOM HANDLING LINK ON ROPE GUIDE. (SEE VIEW "K"- "K") BOOM UP TO CLEAR GROUND WITH BUTT
  8. POSITION MACHINE TO ALIGN UPPER PIN CONNECTOR PINS ON BOOM BUTT WITH UPPER PIN CONNECTOR HOLES ON FIRST BOOM INSERT AND ENGAGE PINS.
  9. SLOWLY BOOM UP TO ALIGN LOWER PIN CONNECTOR HOLES ON BOOM BUTT WITH LOWER PIN CONNECTOR HOLES IN FIRST BOOM INSERT AND INSERT PINS.
- WARNING:
- DO NOT BOOM UP PAST LOWER CONNECTOR HOLES. IF BOOMING UP CONTINUES AFTER CONNECTORS BOTTOM OUT OR AFTER PINS ARE INSERTED, DAMAGE TO ROPE GUIDE AND BOOM BUTT WILL OCCUR.
10. BOOM DOWN TO DISCONNECT MAST STRAPS FROM ROPE GUIDE LINKS.
  11. ATTACH BOOM BUTT STRAPS TO INSERT STRAPS. (SEE VIEW "M" ON SHT 2)
  12. BOOM UP TO DESIRED BOOM ANGLE.

TO DISASSEMBLE BOOM

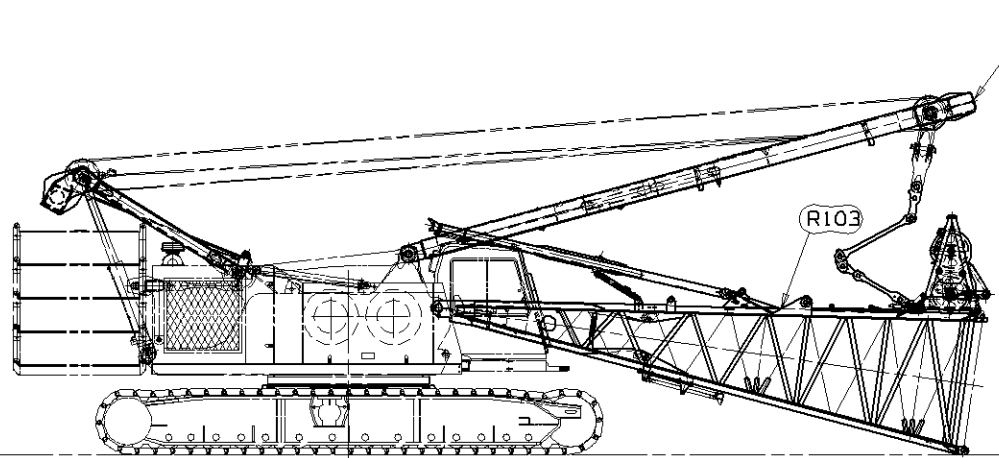
1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING.
  2. DISCONNECT BUTT STRAPS FROM BOOM INSERT STRAPS.
  3. CONNECT MAST STRAPS TO HANDLING LINK ON ROPE GUIDE (SEE VIEW "K"- "K")
  4. BOOM UP TO REMOVE SLACK FROM BUTT STRAPS.
- WARNING:
- DO NOT BOOM UP TO PUT TENSION INTO BUTT STRAPS. (REMOVE SLACK ONLY) TENSION IN BUTT STRAPS WILL DAMAGE ROPE GUIDE AND BOOM BUTT.
5. REMOVE LOWER BUTT TO INSERT PINS AND BOOM DOWN TO DISENGAGE UPPER BOOM BUTT TO INSERT PINS.
- WARNING:
- BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.
6. SLOWLY BACK AWAY FROM BOOM.
  7. LOWER BOOM STOPS TO SHIPPING POSITION.
  8. REMOVE BOOM BUTT FROM ROTATING BED AND STOW BUTT STRAPS.
  9. DISASSEMBLE BOOM WITH MAST.



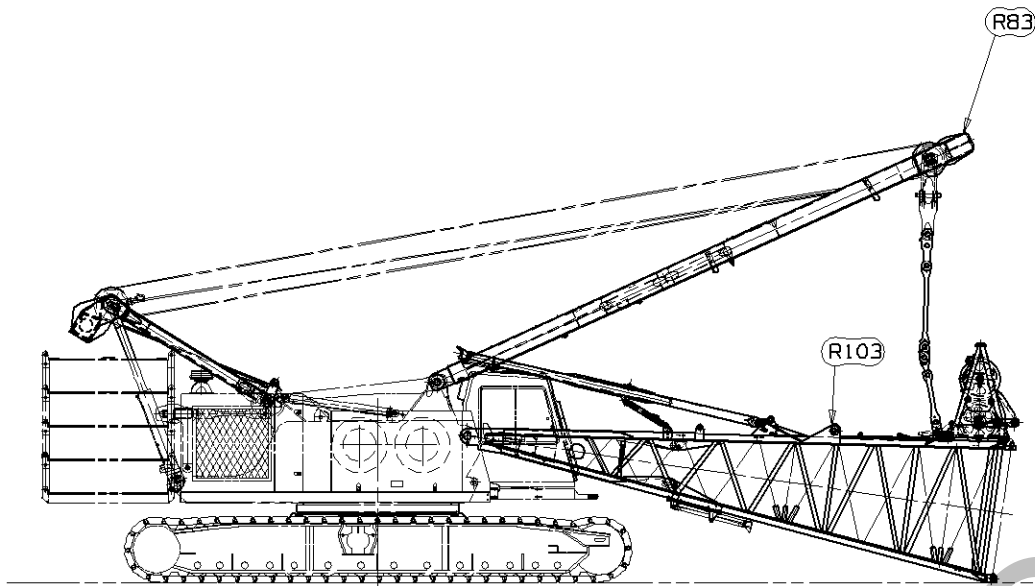
BOOM BUTT PINNED TO ROTATING BED.  
MAST RESTING ON BOOM BUTT WIRE ROPE GUIDE.  
ATTACH OR DISCONNECT BOOM BUTT STRAPS FROM MAST LINKS.



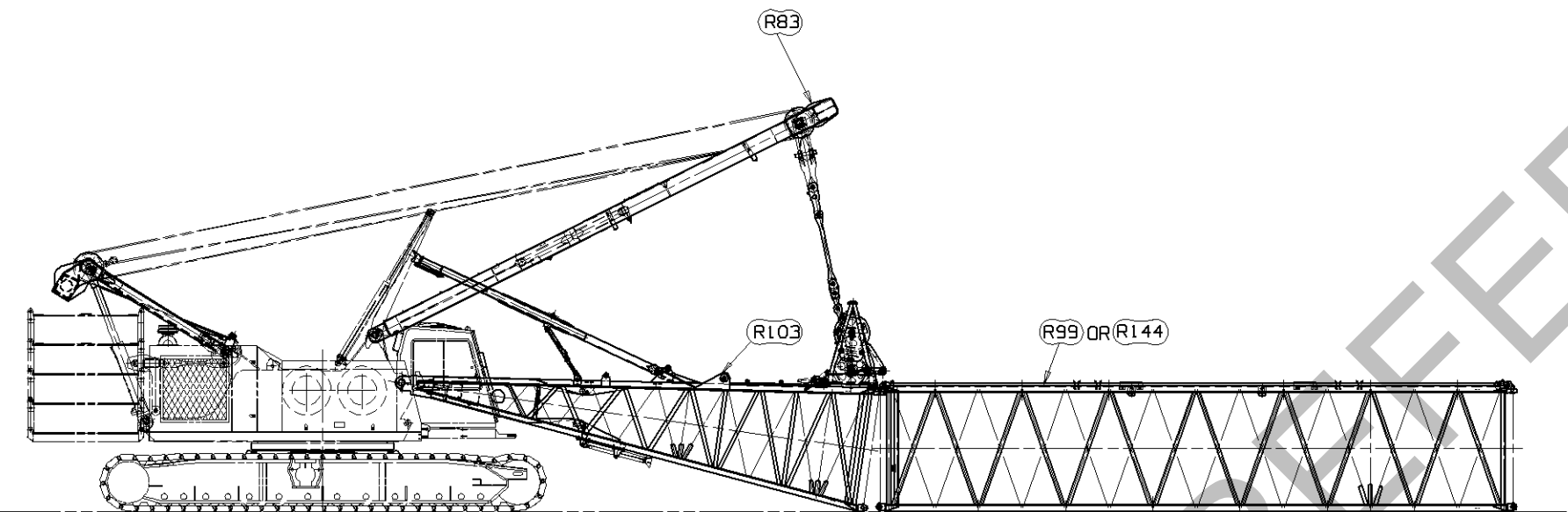
BOOM BUTT SUPPORTED BY OPTIONAL BUTT ATTACHING ASSEMBLY.  
MAST LOWERED TO, BUT NOT SUPPORTED BY, ROPE GUIDE.  
ATTACH OR DISCONNECT BOOM BUTT STRAPS FROM MAST LINKS.



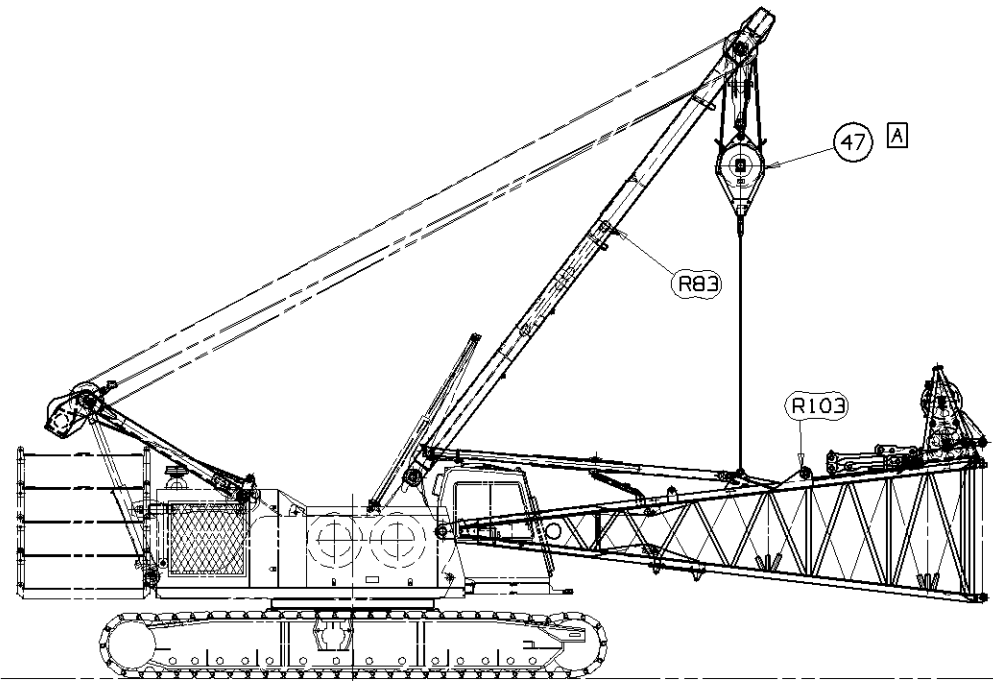
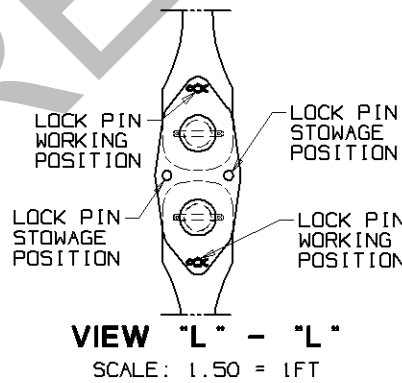
RAISE OR LOWER MAST WITH STRAPS



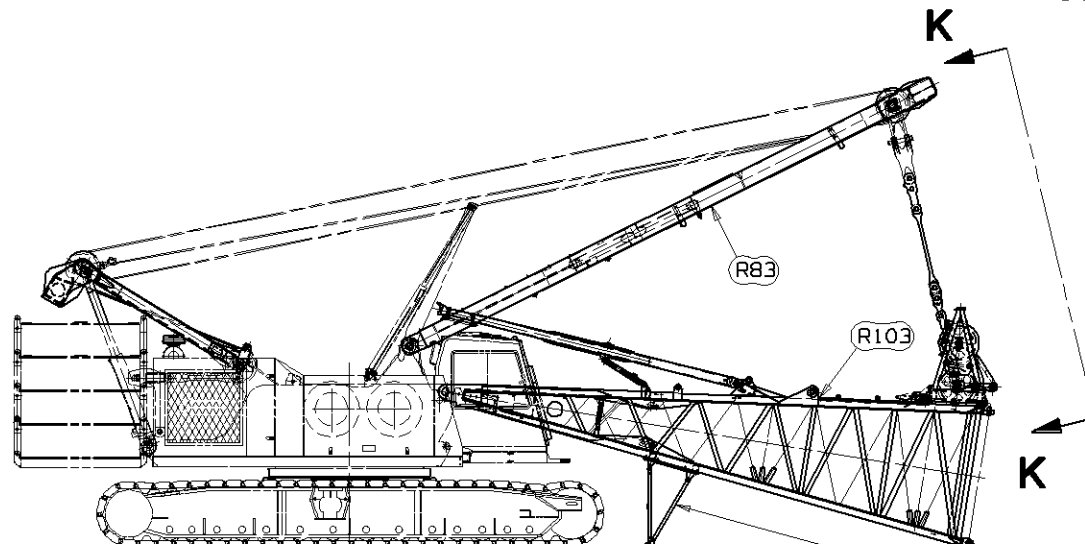
ATTACH OR DISCONNECT STRAPS FROM STOWAGE LUG ON BOOM BUTT



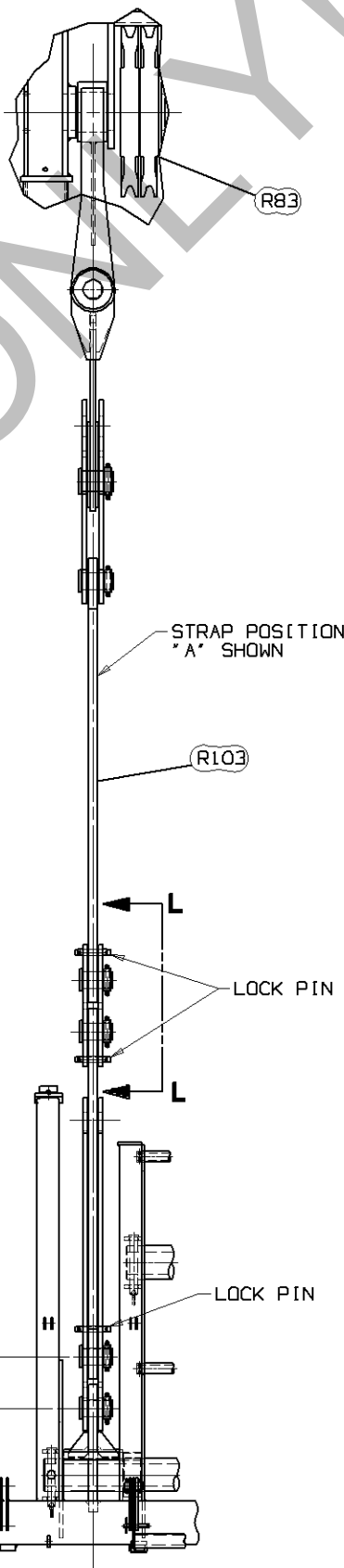
BOOM ASSEMBLY WITH MAST



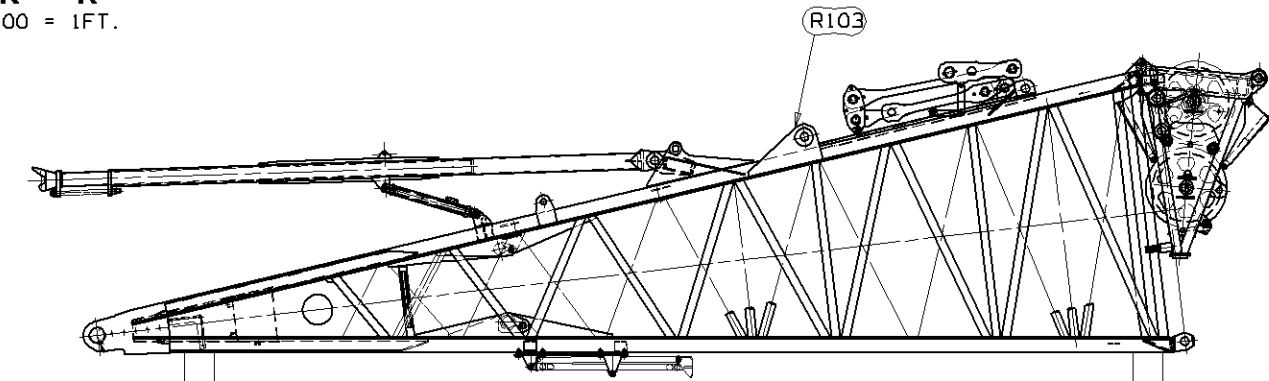
ATTACHING BOOM BUTT TO ROTATING BED  
USING AUXILIARY BLOCK IN MAST.



ATTACHING BOOM BUTT TO ROTATING BED  
USING OPTIONAL BUTT ATTACHING ASSEMBLY.



VIEW "K" - "K"  
SCALE: 1.00 = 1 FT.



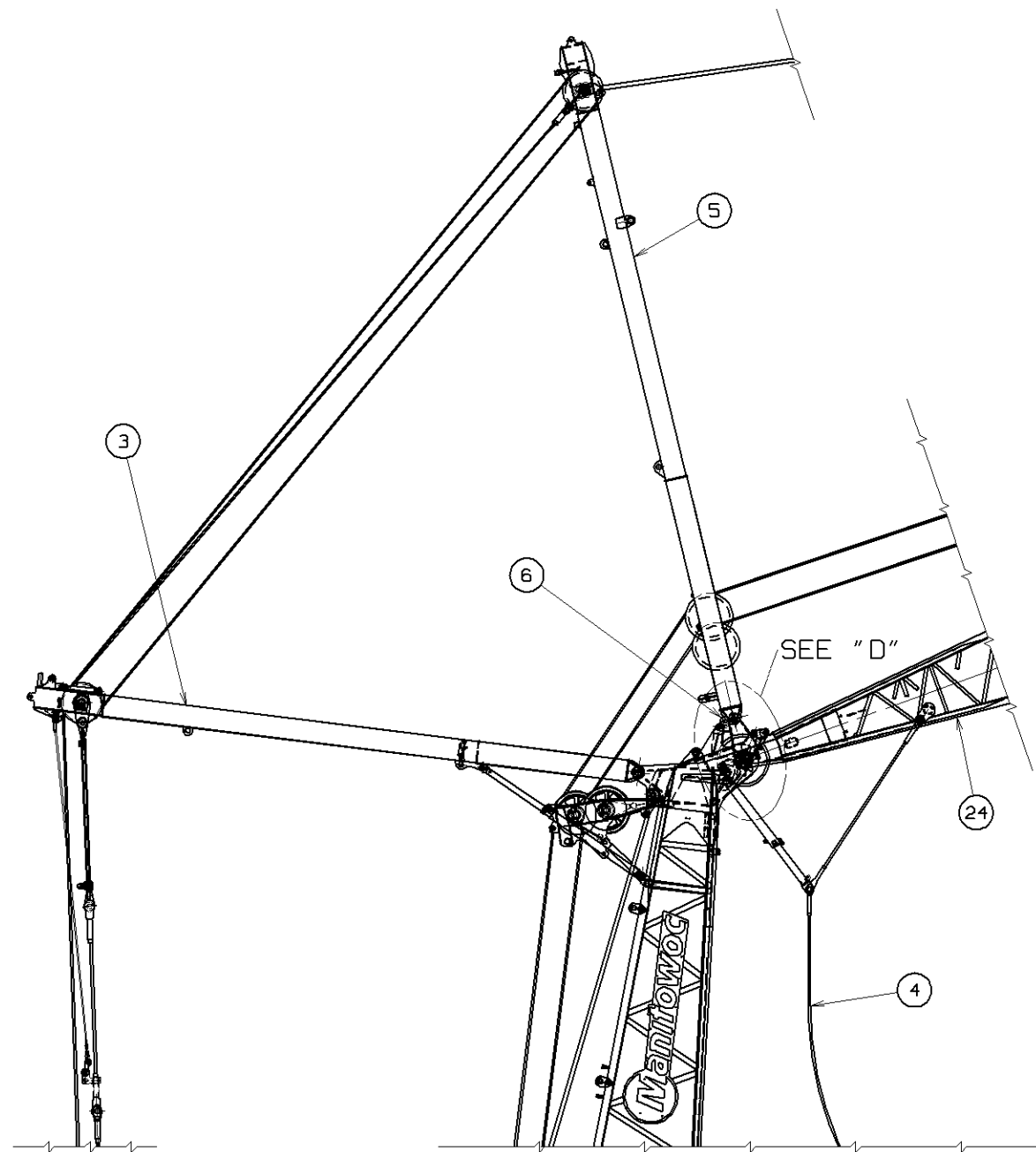
BOOM BUTT SHIPPING ARRANGEMENT



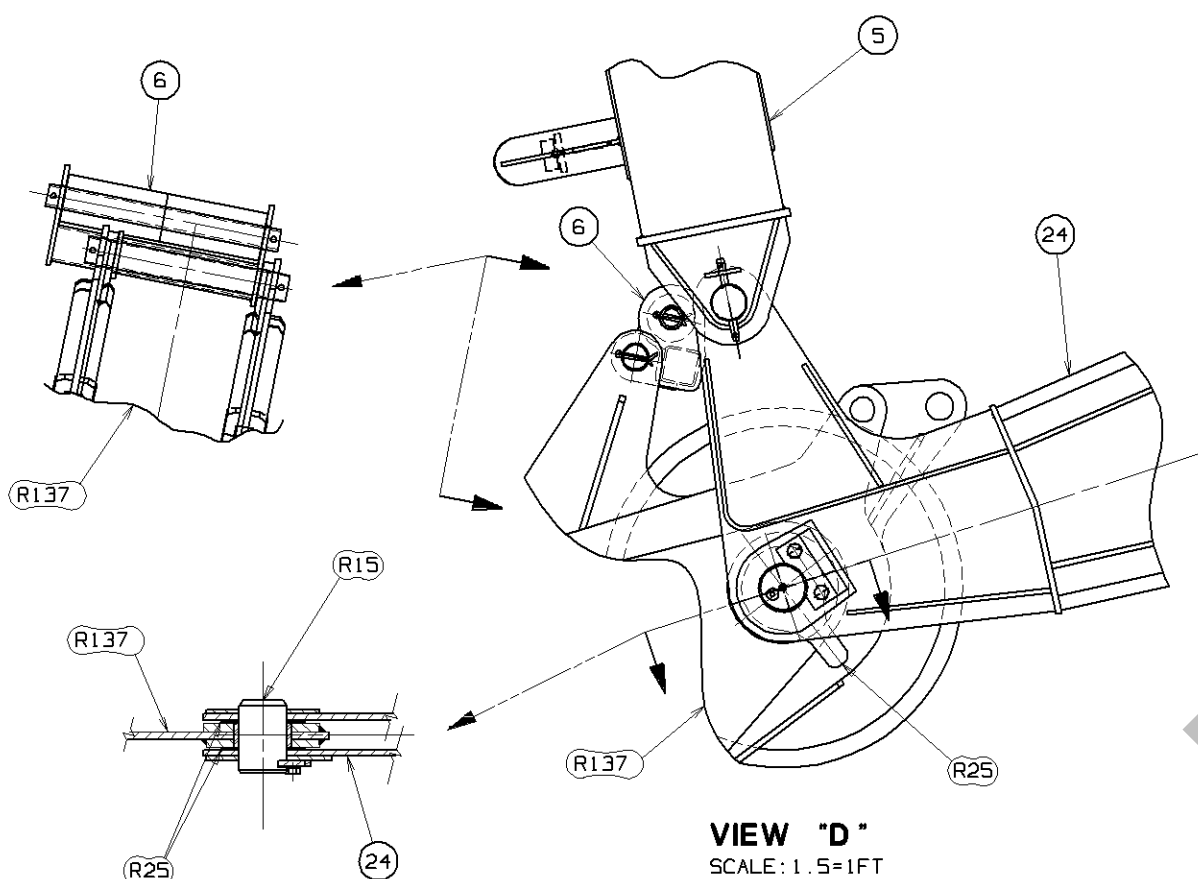
STRUT RAISING PROCEDURE

DANGER: DO NOT STAND UNDER STRUTS DURING ERECTION. MAKE SURE JIB STRUT IS PINNED TO THE JIB BUTT BEFORE ATTEMPTING MAIN STRUT ERECTION.

1. REMOVE THE MAIN STRUT BASIC PENDANT STORAGE PINS (R29 OF VIEW "E-E") AND INSTALL IN STORAGE POSITION. REMOVE PINS (563912 REF.) AND INSTALL IN STORAGE POSITION. SEE VIEW F-F FULLY EXTEND INNER TUBES (APPR. 14.50) AND ALLOW THEM TO REST ON TOP OF THE STRUT STOP TUBE STORAGE LUGS ON THE MAIN STRUT. (STAGE 1).
2. REMOVE PIN (196457 REF.) OF MAIN STRUT SPREADER BEAM AND INSTALL IN STORAGE POSITION.
3. LIFT MAIN STRUT TO POSITION WHERE FEMALE LUG END OF THE MAIN STRUT IS NEAR THE LUG ON BOOM TOP AND INSTALL STRUT PIN (196458 REF.) (STAGE 2)
4. LIFT MAIN AND JIB STRUT TO POSITION WHERE JIB STRUT SUPPORT BRACKET (R19 OF VIEW "G") CAN BE PLACED IN UP POSITION AND REPLACE PIN (196469 REF.) ADD AT LEAST 1 INSERT 20 FT (195495 REF.) AS COUNTERWEIGHT. (STAGE 3).
5. RUN A 1.00 OR 26 mm DIA WIRE ROPE FROM THE FRONT DRUM THROUGH WIRE ROPE GUIDE ASSEMBLY (R107) AND ATTACH TO WEDGE SOCKET (646246 REF.) (STAGE 4).
6. REMOVE PIN (139106 REF.) OF STRUT RAISING PENDANT (277514 REF.) AND INSTALL IN STORAGE LOCATION.
7. ATTACH WEDGE SOCKET TO LINK (177639 REF.) AND REMOVE STRUT PIN (172937 REF.). PLACE STRUT (177634 REF.) IN STORAGE LOCATION.
8. RAISE MAIN STRUT WITH LOAD LINE WHILE PAYING OUT LUFFING JIB HOIST LINE (DO NOT ALLOW LUFFING JIB HOIST LINE TO GO INTO TENSION UNTIL MAIN STRUT IS NEAR VERTICAL). (STAGE 5).
9. RAISE THE MAIN STRUT TO A POSITION WHERE THE MALE LUG END OF THE STRUT STOP TUBE ASSEMBLIES (196351 REF.) ARE NEAR THERE PINNING POSITIONS ON THE BOOM TOP LUGS. ADJUST TUBE LENGTH AS NECESSARY TO PIN TO THE BOOM TOP LUGS USING PINS (73045 REF.)
10. LOWER MAIN STRUT WITH LUFFING JIB HOIST LINE UNTIL SUPPORTED BY RETRACTED STRUT STOP TUBE ASSEMBLIES. REINSTALL PINS (563912 REF.) IN THE STRUT ERECTION AND POSITIONING LOCATION- SEE VIEW F-F.
11. CONNECT ALL BACKSTAY PENDANTS AND LINKS.
12. DISCONNECT WEDGE SOCKET FROM LINK (177639 REF.) AND CONNECT LINK ALONG WITH PENDANT (277514 REF.) TO CLAMPED STORAGE LUGS ON LEFT BACKSTAY PENDANT WITH PIN (139106 REF.) SEE VIEW E-E.
13. REMOVE PINS (177571 REF.) IN STRUT STOP ASSEMBLIES. RAISE MAIN STRUT WITH LUFFING JIB HOIST LINE UNTIL OPERATING POSITION PIN HOLES IN TUBE ASSEMBLIES ARE IN LINE AND INSTALL PINS (177571 REF.)
14. RELAX LUFFING JIB HOIST LINE AND REMOVE PINS (563912 REF.) FROM STRUT STOP TUBE ASSEMBLIES AND STORE IN LOCATION SHOWN. -SEE VIEW F-F.
15. REVERSE PROCEDURE FOR LOWERING STRUTS (ITEMS 3 AND 5).

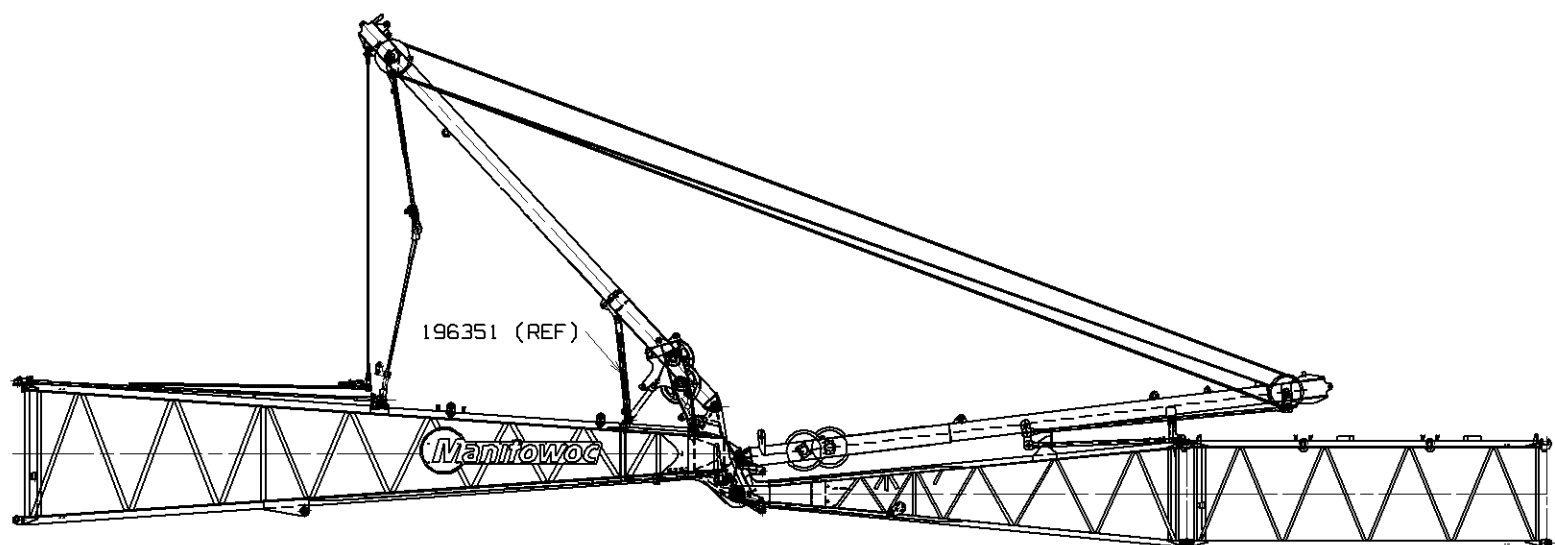


VIEW "A"  
SCALE: .25=1FT

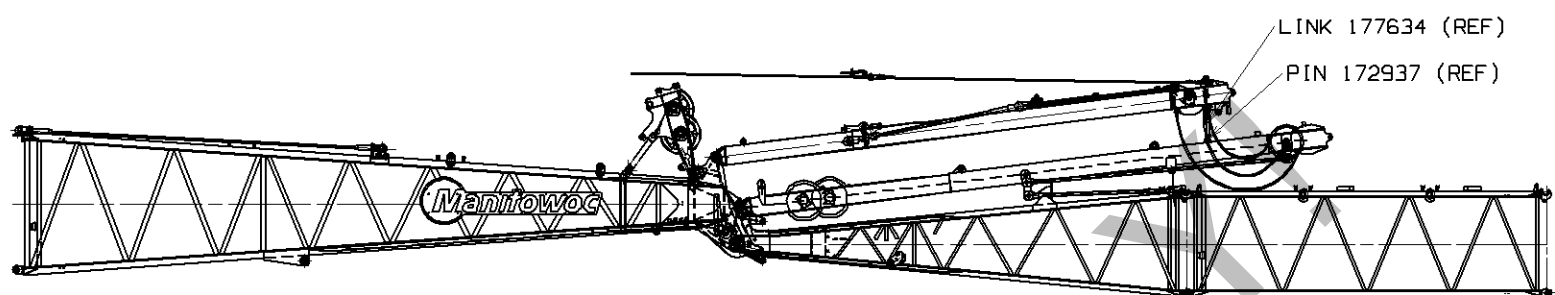


VIEW "D"  
SCALE: 1.5=1FT

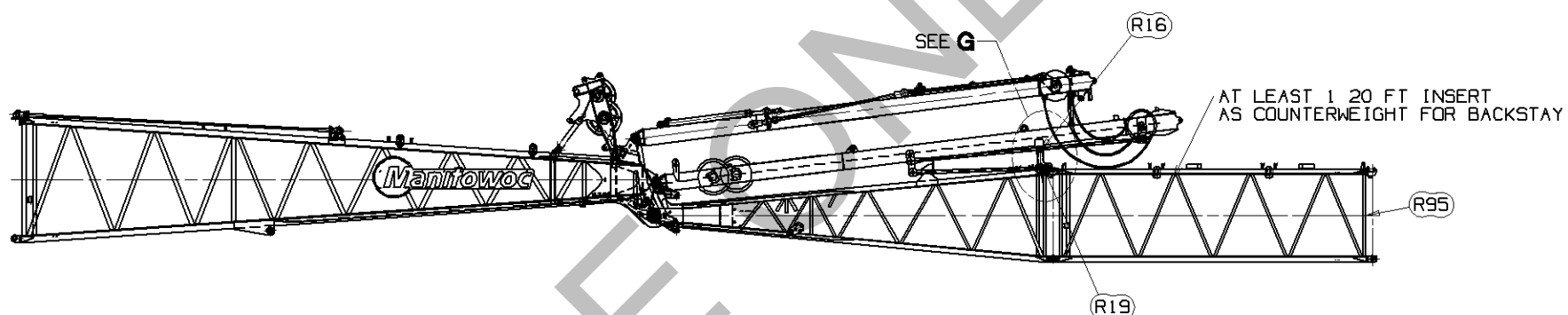
STAGE 5



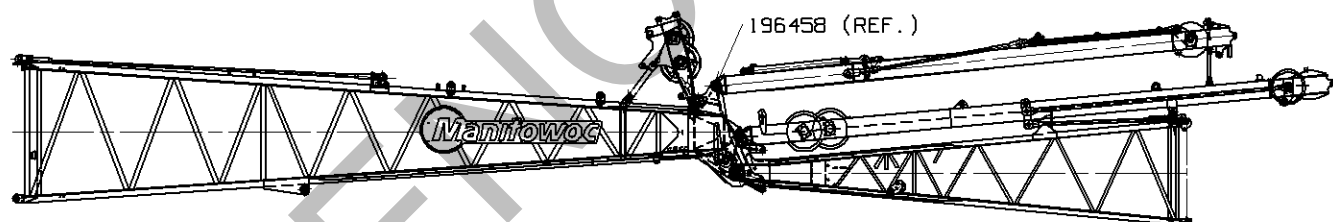
STAGE 4



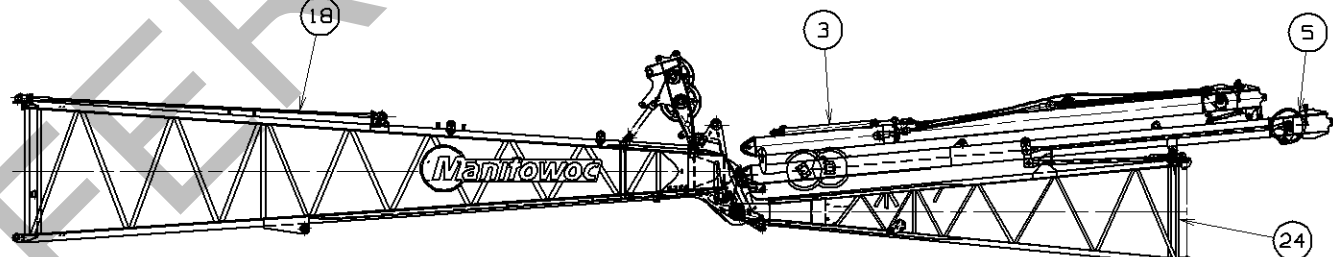
STAGE 3



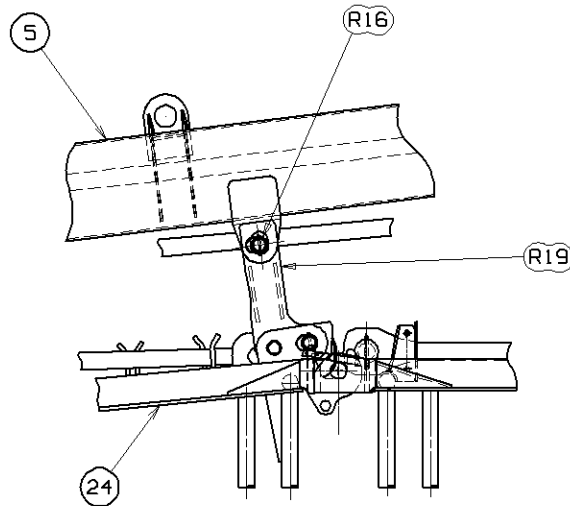
STAGE 2



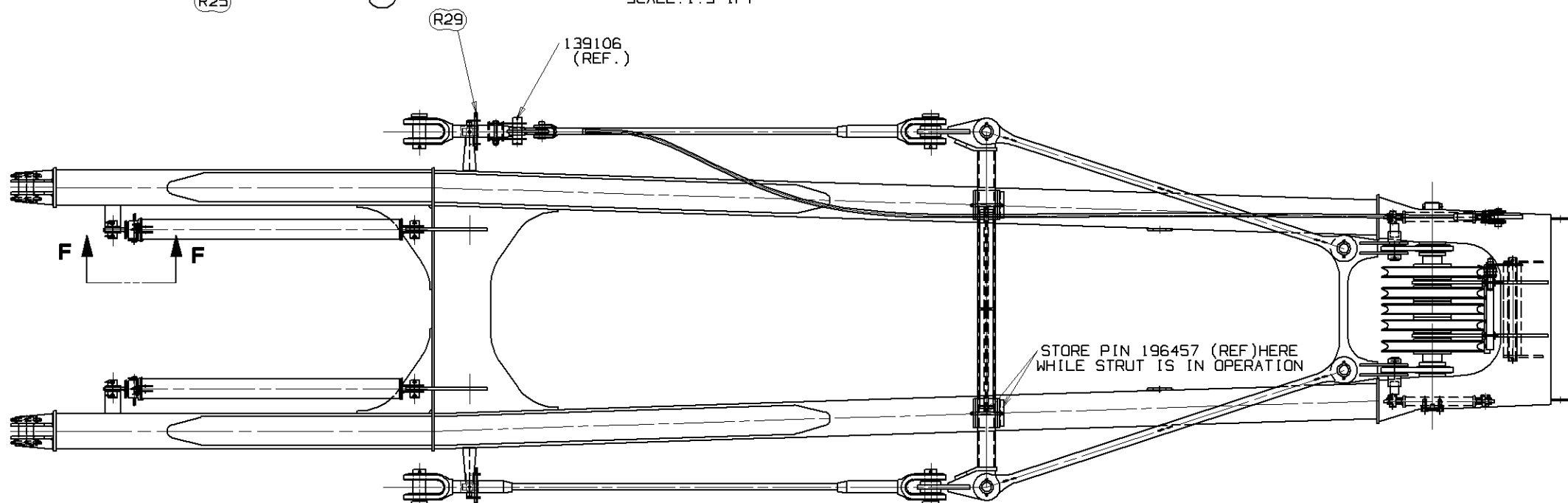
STAGE 1



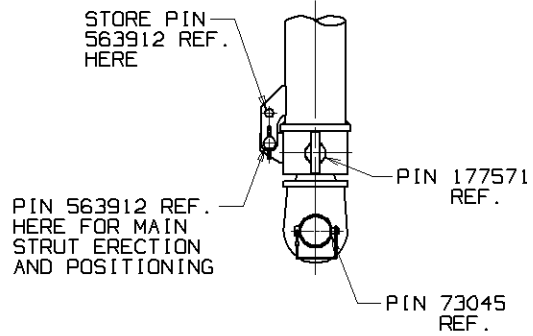
DETAIL STRUT RAISING  
SCALE: 0.19 = 1FT



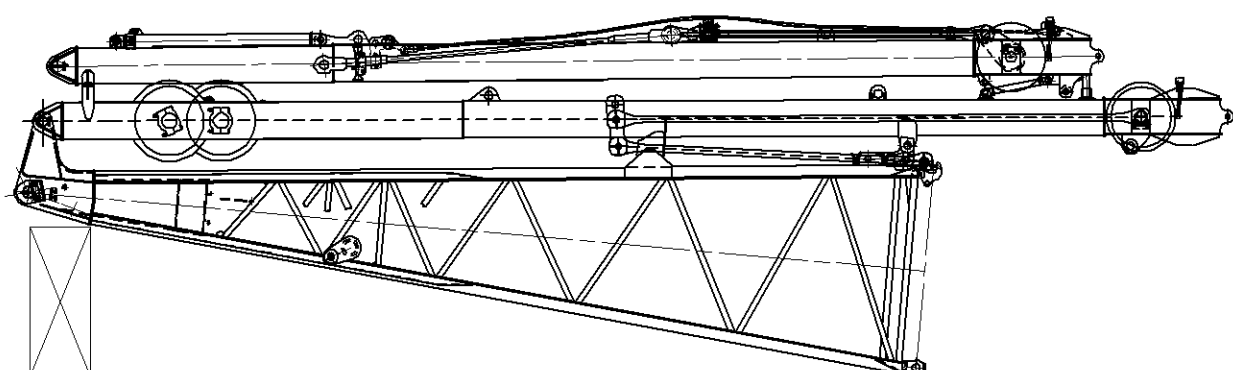
VIEW "G"  
SCALE: 1=1FT



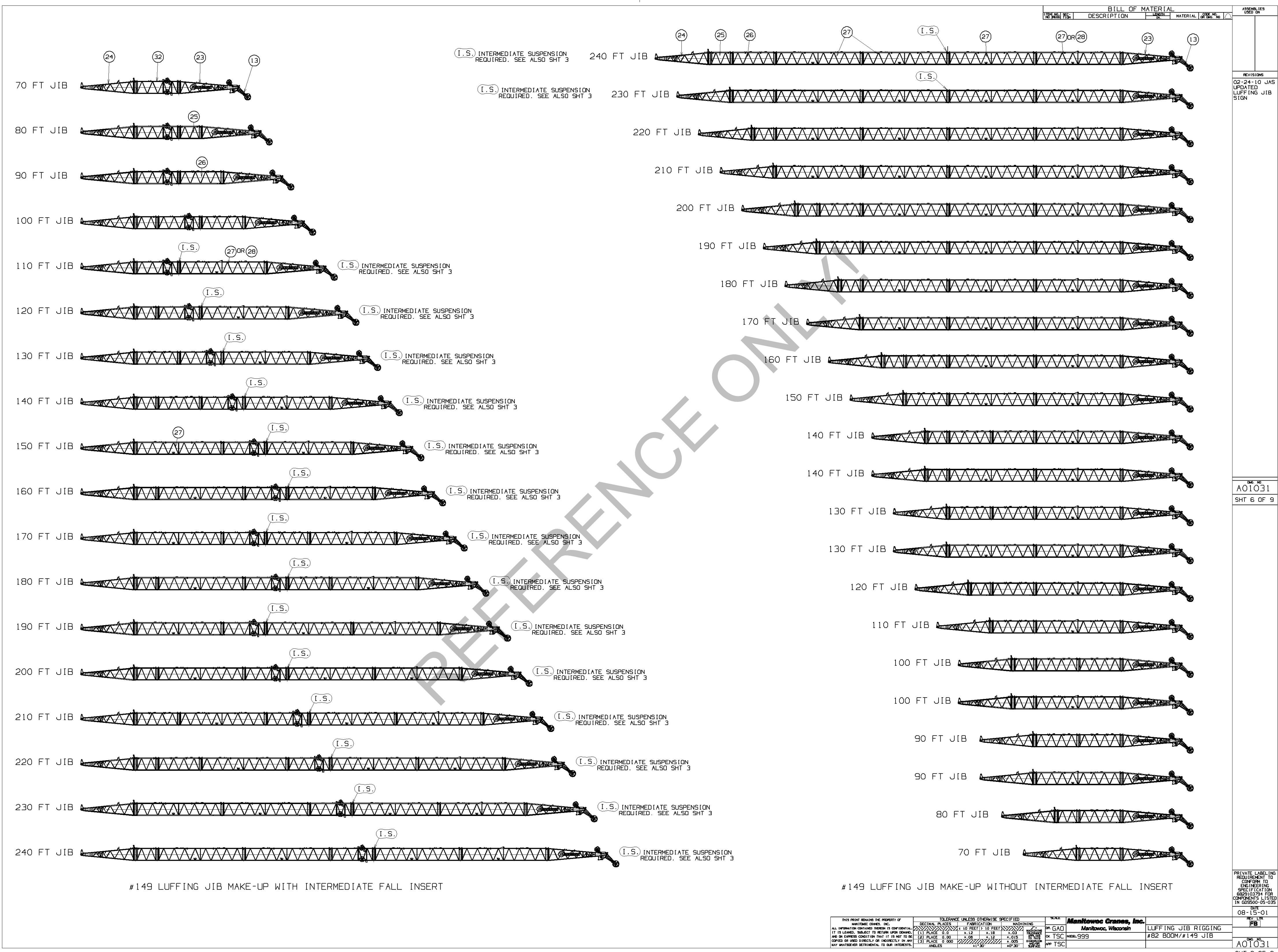
VIEW "E" - "E"  
SCALE: 0.75 = 1FT



VIEW "F" - "F"  
SCALE: 2.00 = 1FT



JIB BUTT SHIPPING ARRANGEMENT  
SCALE: .38=1FT



C

DO NOT SCALE THIS DRAWING

| BILL OF MATERIAL |     |             |          |
|------------------|-----|-------------|----------|
| ITEM NO.         | QTY | DESCRIPTION | MATERIAL |

| ASSEMBLIES USED ON |
|--------------------|
|--------------------|

| REVISIONS                                      |
|------------------------------------------------|
| 02-24-10 JAS<br>UPDATED<br>LUFFING JIB<br>SIGN |

|            |
|------------|
| 000 NO     |
| A01031     |
| SHT 6 OF 9 |

|                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------|
| PRIVATE LABELING<br>REQUIREMENT TO<br>CONFORM TO<br>ENGINEERING<br>SPECIFICATION<br>6829103794 FOR<br>COMPONENTS LISTED<br>IN 005600-05-025 |
|---------------------------------------------------------------------------------------------------------------------------------------------|

|      |          |
|------|----------|
| DATE | 08-15-01 |
| REV  | 1        |
| BY   | FB       |

|        |        |
|--------|--------|
| 000 NO | A01031 |
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SHT 6 OF 9

|                                                                                                                                                                                                                                                                                                                      |       |        |         |                                      |           |            |             |              |               |                |                 |                  |                   |                    |                     |                        |                       |                        |                         |                          |                           |                            |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|---------|--------------------------------------|-----------|------------|-------------|--------------|---------------|----------------|-----------------|------------------|-------------------|--------------------|---------------------|------------------------|-----------------------|------------------------|-------------------------|--------------------------|---------------------------|----------------------------|----|
| THIS PRINT REMAINS THE PROPERTY OF<br>MANITOWOC CRANES, INC.<br>ALL INFORMATION CONTAINED HEREIN IS CONFIDENTIAL<br>IT IS LOANED, SUBJECT TO RETURN UPON DEMAND,<br>AND ON EXPRESS CONDITION THAT IT IS NOT TO BE<br>COPIED OR USED DIRECTLY OR INDIRECTLY IN ANY<br>MANNER WHATSOEVER DETRIMENTAL TO OUR INTERESTS. |       |        |         | TOLERANCE UNLESS OTHERWISE SPECIFIED |           |            |             | MACHINING    |               |                |                 | DRAWING          |                   |                    |                     | MANITOWOC CRANES, Inc. |                       |                        |                         | LUFFING JIB RIGGING      |                           |                            |    |
| DECIMAL PLACES                                                                                                                                                                                                                                                                                                       | 1     | 2      | 3       | 4                                    | 5         | 6          | 7           | 8            | 9             | 10             | 11              | 12               | 13                | 14                 | 15                  | 16                     | 17                    | 18                     | 19                      | 20                       | 21                        | 22                         | 23 |
| (1) PLACE                                                                                                                                                                                                                                                                                                            | 0.1   | 0.01   | 0.001   | 0.0001                               | 0.00001   | 0.000001   | 0.0000001   | 0.00000001   | 0.000000001   | 0.0000000001   | 0.00000000001   | 0.000000000001   | 0.0000000000001   | 0.00000000000001   | 0.000000000000001   | 0.0000000000000001     | 0.00000000000000001   | 0.000000000000000001   | 0.0000000000000000001   | 0.00000000000000000001   | 0.000000000000000000001   | 0.0000000000000000000001   |    |
| (2) PLACE                                                                                                                                                                                                                                                                                                            | 0.01  | 0.001  | 0.0001  | 0.00001                              | 0.000001  | 0.0000001  | 0.00000001  | 0.000000001  | 0.0000000001  | 0.00000000001  | 0.000000000001  | 0.0000000000001  | 0.00000000000001  | 0.000000000000001  | 0.0000000000000001  | 0.00000000000000001    | 0.000000000000000001  | 0.0000000000000000001  | 0.00000000000000000001  | 0.000000000000000000001  | 0.0000000000000000000001  | 0.00000000000000000000001  |    |
| (3) PLACE                                                                                                                                                                                                                                                                                                            | 0.001 | 0.0001 | 0.00001 | 0.000001                             | 0.0000001 | 0.00000001 | 0.000000001 | 0.0000000001 | 0.00000000001 | 0.000000000001 | 0.0000000000001 | 0.00000000000001 | 0.000000000000001 | 0.0000000000000001 | 0.00000000000000001 | 0.000000000000000001   | 0.0000000000000000001 | 0.00000000000000000001 | 0.000000000000000000001 | 0.0000000000000000000001 | 0.00000000000000000000001 | 0.000000000000000000000001 |    |
| ANGLES                                                                                                                                                                                                                                                                                                               | 11.25 | 22.5   | 33.75   | 45                                   | 56.25     | 67.5       | 78.75       | 90           | 101.25        | 112.5          | 123.75          | 135              | 146.25            | 157.5              | 168.75              | 180                    | 191.25                | 202.5                  | 213.75                  | 225                      | 236.25                    | 247.5                      |    |







| INSERTS, PENDANTS, AND ROLLER GUIDES<br>REQUIRED FOR VARIOUS BOOM LENGTHS |        |                                                  |                                                  |                                        | JIB BACKSTAY PENDANTS, LINKS, AND PINS<br>REQUIRED FOR VARIOUS BOOM LENGTHS |                          |                          |                           |                            |                         |               |                       |               |
|---------------------------------------------------------------------------|--------|--------------------------------------------------|--------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------|--------------------------|--------------------------|---------------------------|----------------------------|-------------------------|---------------|-----------------------|---------------|
| ITEM NO.                                                                  |        | R88                                              | R95                                              | R99 OR R122                            |                                                                             | 29                       | 30                       | 31                        | 17                         | 21                      | 16            | 19                    | 20            |
| BOOM<br>LENGTH                                                            |        | 10 FT<br>3.05 M<br>INSERT<br>ASSEMBLY<br>SEE (7) | 20 FT<br>6.10 M<br>INSERT<br>ASSEMBLY<br>SEE (8) | 40 FT<br>12.19 M<br>INSERT<br>ASSEMBLY | STRAP<br>POSITION<br>(1)                                                    | 10 FT<br>3.07 M<br>PEND. | 20 FT<br>6.13 M<br>PEND. | 40 FT<br>12.27 M<br>PEND. | 5FT .5IN<br>1.54M<br>PEND. | LINK<br>24.00<br>610 MM | PIN<br>170690 | LINK<br>8.5<br>216 MM | PIN<br>A01169 |
| FEET                                                                      | METERS |                                                  |                                                  |                                        |                                                                             |                          |                          |                           |                            |                         |               |                       |               |
| 80                                                                        | 24.4   | 1                                                | 0                                                | 0                                      | A                                                                           | 2                        | 0                        | 0                         | 2                          | 0                       | 0             | 0                     | 0             |
| 90                                                                        | 27.4   | 2                                                | 0                                                | 0                                      | A                                                                           | 4                        | 0                        | 0                         | 0                          | 2                       | 2             | 2                     | 4             |
| 100                                                                       | 30.5   | 1                                                | 1                                                | 0                                      | A                                                                           | 2                        | 2                        | 0                         | 0                          | 2                       | 2             | 2                     | 4             |
| 110                                                                       | 33.5   | OR 2                                             | 1                                                | 0                                      | A                                                                           | OR 4                     | 2                        | 0                         | 0                          | 2                       | 2             | 2                     | 4             |
|                                                                           |        | 0                                                | 2                                                | 0                                      |                                                                             | 0                        | 2                        | 2                         | 2                          | 4                       |               |                       |               |
|                                                                           |        | 0                                                | 0                                                | 1                                      |                                                                             | OR 0                     | 0                        | 2                         | 0                          | 2                       | 2             | 4                     |               |
| 120                                                                       | 36.6   | OR 1                                             | 2                                                | 0                                      | A                                                                           | OR 2                     | 4                        | 0                         | 0                          | 2                       | 2             | 2                     | 4             |
|                                                                           |        | 1                                                | 0                                                | 1                                      |                                                                             | 2                        | 0                        | 2                         | 2                          | 2                       | 4             |                       |               |
| 130                                                                       | 39.6   | OR 2                                             | 0                                                | 1                                      | A                                                                           | OR 4                     | 0                        | 2                         | 0                          | 0                       | 0             | 2                     | 4             |
| 140                                                                       | 42.7   | 1                                                | 1                                                | 1                                      | A                                                                           | 2                        | 2                        | 2                         | 0                          | 0                       | 0             | 2                     | 4             |
| 150                                                                       | 45.7   | OR 2                                             | 1                                                | 1                                      | A                                                                           | OR 4                     | 2                        | 2                         | 0                          | 0                       | 0             | 2                     | 4             |
|                                                                           |        | 0                                                | 2                                                | 1                                      |                                                                             | OR 0                     | 4                        | 2                         | 0                          | 0                       | 2             | 4                     |               |
|                                                                           |        | 0                                                | 0                                                | 2                                      |                                                                             | OR 0                     | 0                        | 4                         | 0                          | 0                       | 2             | 4                     |               |
| 160                                                                       | 48.8   | OR 1                                             | 2                                                | 1                                      | A                                                                           | OR 2                     | 4                        | 2                         | 0                          | 0                       | 0             | 2                     | 4             |
|                                                                           |        | 1                                                | 0                                                | 2                                      |                                                                             | 2                        | 0                        | 4                         | 0                          | 0                       | 2             | 4                     |               |
| 170                                                                       | 51.8   | OR 2                                             | 0                                                | 2                                      | A                                                                           | OR 4                     | 0                        | 4                         | 0                          | 0                       | 0             | 2                     | 4             |
| 180                                                                       | 54.9   | 1                                                | 1                                                | 2                                      | A                                                                           | 2                        | 2                        | 4                         | 0                          | 0                       | 0             | 2                     | 4             |
| 190                                                                       | 57.9   | OR 2                                             | 1                                                | 2                                      | B                                                                           | OR 4                     | 2                        | 4                         | 0                          | 0                       | 0             | 2                     | 4             |
|                                                                           |        | 0                                                | 2                                                | 1                                      |                                                                             | OR 0                     | 4                        | 4                         | 0                          | 0                       | 2             | 4                     |               |
|                                                                           |        | 0                                                | 0                                                | 3                                      |                                                                             | OR 0                     | 0                        | 6                         | 0                          | 0                       | 2             | 4                     |               |
| 200                                                                       | 61.0   | OR 1                                             | 2                                                | 2                                      | B                                                                           | OR 2                     | 4                        | 4                         | 0                          | 0                       | 0             | 2                     | 4             |
|                                                                           |        | 1                                                | 0                                                | 3                                      |                                                                             | 2                        | 0                        | 6                         | 0                          | 0                       | 2             | 4                     |               |

| LUFFING JIB<br>SECTION ASSEMBLY                                                                    |        | LUFFING JIB WELDMENT (THIS<br>NUMBER APPEARS ON NAMEPLATE)                                       |
|----------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------|
| 10' INSERT                                                                                         | A00782 | A00781                                                                                           |
| 20' INSERT                                                                                         | A00784 | A00783                                                                                           |
| 20' INSERT (A)                                                                                     | A00790 | A00789                                                                                           |
| 40' INSERT (B)                                                                                     | A00786 | A00785                                                                                           |
| 40' INSERT (C)                                                                                     | A00788 | A00787                                                                                           |
| TOP                                                                                                | A00918 | A00917                                                                                           |
| BUTT                                                                                               | 195491 | 195490                                                                                           |
| LUFFING JIB ASSEMBLIES LISTED<br>ABOVE REPLACE PAST PRODUCTION<br>ASSEMBLIES LISTED BELOW          |        | LUFFING JIB WELDMENTS/MODIFICATIONS<br>LISTED BELOW ARE ACCEPTABLE FOR<br>WELDMENTS LISTED ABOVE |
| 10' INSERT                                                                                         | 195493 | 195492 OR A00791                                                                                 |
| 20' INSERT                                                                                         | 195495 | 195494 OR A00792                                                                                 |
| 20' INSERT(A,D)                                                                                    | 196401 | 196400 OR A00307 AND A00795                                                                      |
| 40' INSERT (B)                                                                                     | 195497 | 195496 OR A00793                                                                                 |
| 40' INSERT (C)                                                                                     | 196403 | 196402 OR A00794                                                                                 |
| TOP                                                                                                | 195499 | (C) 195498, A00808, OR 81003576                                                                  |
| BUTT                                                                                               |        | 81003577                                                                                         |
| (A) WITH INT. FALL ASSEMBLY<br>(B) WITHOUT JIB BACKSTAYS<br>(C) WITH JIB BACKSTAYS<br>(D) SEE (20) |        |                                                                                                  |

| INSERTS REQ'D. FOR<br>VARIOUS JIB LENGTHS<br>SEE SHEET 6 FOR LUFFING JIB<br>MAKE-UP ORDER WITH<br>INTERMEDIATE FALL |                           |                           |                                               |                            |
|---------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|-----------------------------------------------|----------------------------|
| ITEM NO.                                                                                                            | 25                        | 26                        | 32                                            | 27 OR 28                   |
| JIB LENGTHS                                                                                                         | 10 FT<br>3.05 M<br>INSERT | 20 FT<br>6.10 M<br>INSERT | 20 FT<br>6.10 M<br>INSERT<br>(W/INT.<br>FALL) | 40 FT<br>12.19 M<br>INSERT |
| 70                                                                                                                  | 21.3                      | 0                         | 0                                             | 1                          |
| 80                                                                                                                  | 24.4                      | 1                         | 0                                             | 1                          |
| 90                                                                                                                  | 27.4                      | 0                         | 1                                             | 0                          |
| 100                                                                                                                 | 30.5                      | 1                         | 1                                             | 0                          |
| 110                                                                                                                 | 33.5                      | 0                         | 0                                             | 1                          |
| 120                                                                                                                 | 36.6                      | 1                         | 0                                             | 1                          |
| 130                                                                                                                 | 39.6                      | 0                         | 1                                             | 1                          |
| 140                                                                                                                 | 42.7                      | 1                         | 1                                             | 1                          |
| 150                                                                                                                 | 45.7                      | 0                         | 0                                             | 1                          |
| 160                                                                                                                 | 48.8                      | 1                         | 0                                             | 1                          |
| 170                                                                                                                 | 51.8                      | 0                         | 1                                             | 1                          |
| 180                                                                                                                 | 54.9                      | 1                         | 1                                             | 1                          |
| 190                                                                                                                 | 57.9                      | 0                         | 0                                             | 1                          |
| 200                                                                                                                 | 61.0                      | 1                         | 0                                             | 1                          |
| 210                                                                                                                 | 64.0                      | 0                         | 1                                             | 1                          |
| 220                                                                                                                 | 67.1                      | 1                         | 1                                             | 1                          |
| 230                                                                                                                 | 70.1                      | 0                         | 0                                             | 1                          |
| 240                                                                                                                 | 73.2                      | 1                         | 0                                             | 1                          |

| INSERTS REQ'D. FOR<br>VARIOUS JIB LENGTHS<br>SEE SHEET 6 FOR LUFFING JIB<br>MAKE-UP ORDER WITHOUT<br>INTERMEDIATE FALL |                           |                           |                            |
|------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|----------------------------|
| ITEM NO.                                                                                                               | 25                        | 26                        | 27 OR 28                   |
| JIB LENGTHS                                                                                                            | 10 FT<br>3.05 M<br>INSERT | 20 FT<br>6.10 M<br>INSERT | 40 FT<br>12.19 M<br>INSERT |
| 70                                                                                                                     | 21.3                      | 0                         | 1                          |
| 80                                                                                                                     | 24.4                      | 1                         | 1                          |
| 90                                                                                                                     | 27.4                      | OR 0<br>0                 | 2<br>0                     |
| 100                                                                                                                    | 30.5                      | OR 1<br>1                 | 2<br>0                     |
| 110                                                                                                                    | 33.5                      | 0                         | 1                          |
| 120                                                                                                                    | 36.6                      | 1                         | 1                          |
| 130                                                                                                                    | 39.6                      | OR 0<br>0                 | 2<br>2                     |
| 140                                                                                                                    | 42.7                      | OR 1<br>1                 | 2<br>0                     |
| 150                                                                                                                    | 45.7                      | 0                         | 1                          |
| 160                                                                                                                    | 48.8                      | 1                         | 1                          |
| 170                                                                                                                    | 51.8                      | 0                         | 1                          |
| 180                                                                                                                    | 54.9                      | 1                         | 1                          |
| 190                                                                                                                    | 57.9                      | 0                         | 1                          |
| 200                                                                                                                    | 61.0                      | 0                         | 1                          |
| 210                                                                                                                    | 64.0                      | 0                         | 1                          |
| 220                                                                                                                    | 67.1                      | 1                         | 1                          |
| 230                                                                                                                    | 70.1                      | 0                         | 1                          |
| 240                                                                                                                    | 73.2                      | 1                         | 1                          |

| BOOM SECTION ASSEMBLY                                                                                                             | BOOM SECTION WELDMENT (THIS NUMBER<br>APPEARS ON NAMEPLATE) |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 10FT. INSERT A01018                                                                                                               | A01019                                                      |
| 20FT. INSERT 195463                                                                                                               | 195455                                                      |
| 40FT. INSERT 195464(A)                                                                                                            | 195456                                                      |
| 40FT. INSERT 195465(B)                                                                                                            | 195457                                                      |
| 40FT. TOP A01024                                                                                                                  | A01025                                                      |
| 30FT. BUTT 196398                                                                                                                 | 195453                                                      |
| BOOM SECTIONS/ASSEMBLIES<br>LISTED ABOVE REPLACE PAST<br>PRODUCTION BOOM LISTED BELOW                                             |                                                             |
| 10FT. INSERT (C)                                                                                                                  | A01014 OR A01015                                            |
| 10FT. INSERT (D)                                                                                                                  | A01122, A01016 OR A01017                                    |
| 20FT. INSERT                                                                                                                      | A01020                                                      |
| 40FT. INSERT (A)                                                                                                                  | A01022                                                      |
| 40FT. INSERT (B)                                                                                                                  | A01021                                                      |
| 40FT. TOP                                                                                                                         | A01093, A01023, OR 81003574                                 |
| 30FT. BUTT                                                                                                                        | 81003575                                                    |
| (A) WITHOUT JIB BACKSTAY LUGS<br>(B) WITH JIB BACKSTAY LUGS<br>(C) WITH SHEAVE FRAME WELDED TO INSERT<br>(D) WITHOUT SHEAVE FRAME |                                                             |

| BILL OF MATERIAL |     |             |     | ASSEMBLIES<br>USED ON |
|------------------|-----|-------------|-----|-----------------------|
| QTY              | UOM | DESCRIPTION | QTY |                       |

| REVISIONS                                                                         |
|-----------------------------------------------------------------------------------|
| 11-26-01 JNM<br>REPLACED<br>NOTES<br>DELETED<br>04-10-08 BDR<br>REPLACED<br>NOTES |

|        |            |             |     |
|--------|------------|-------------|-----|
| QTY    | UOM        | DESCRIPTION | QTY |
| A01031 | SHT 8 OF 9 |             |     |

NOTE:  
THIS RIGGING AND STRAP  
ARRANGEMENT IS USED ON  
MACHINE S/N 9991001  
THRU S/N 9991050.

|                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                            |                                                  |                                                             |                                          |                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------|------------------------------------------|------------------------------------|
| THIS PRINT REMAINS THE PROPERTY OF<br>MANITOWOC CRANES, INC.<br>ALL INFORMATION CONTAINED HEREIN IS CONFIDENTIAL.<br>IT IS LOANED, SUBJECT TO RETURN UPON DEMAND,<br>AND ON EXPRESS CONDITION THAT IT IS NOT TO BE<br>COPIED OR USED DIRECTLY OR INDIRECTLY IN ANY<br>MANNER UNAUTHORIZED BY MANITOWOC CRANES, INC. |  | TOLERANCE UNLESS OTHERWISE SPECIFIED<br>DECIMAL PLACES FRACTION<br>(1) PLACE 0.0 ±.12 ±.18 ±.05<br>(2) PLACE 0.00 ±.06 ±.12 ±.015<br>(3) PLACE 0.000 ±.006 ±.006<br>ANGLES 11°-30' 40°-50' | SPACE<br>19-1F<br>DR. GAO<br>CK. TSC<br>APP. TSC | Manitowoc Cranes, Inc.<br>Manitowoc, Wisconsin<br>MODEL 999 | LUFFING JIB RIGGING<br>#82 BOOM/#149 JIB | DATE<br>08-15-01<br>REV. LNK<br>FB |
| PRIVATE LABELING<br>REQUIREMENT TO<br>CONFORM TO<br>ENGINEERING<br>SPECIFICATION<br>8829103794 FOR<br>COMPONENTS LISTED<br>IN 882901-06-026                                                                                                                                                                         |  | QTY                                                                                                                                                                                        |                                                  | UOM                                                         |                                          | DATE                               |
|                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                            |                                                  |                                                             |                                          | 08-15-01                           |



## BOOM ASSEMBLY PROCEDURE

(MAST CAN BE USED TO ASSEMBLE ALL RIGGING COMPONENTS.)

1. ASSEMBLE BOOM COMPLETE, WITHOUT BUTT.
2. ATTACH ROPE GUIDES, STRAPS, LINKS AND PINS AS REQ'D.
3. USING THE MAST WITH AUXILIARY BLOCK OR THE OPTIONAL BOOM BUTT SUPPORT, INSTALL THE BOOM BUTT WITH ROPE GUIDE AND BOOM STOPS TO ROTATING BED. (BOOM STOPS MUST BE IN SHIPPING (LOWER) POSITION.)
4. BOOM DOWN AND ATTACH MAST STRAPS TO BOOM HANDLING LINK ON ROPE GUIDE.  
(SEE VIEW "R"-"R")
5. BOOM UP TO CLEAR GROUND WITH BUTT.
6. POSITION MACHINE TO ALIGN UPPER PIN CONNECTOR PINS ON BOOM BUTT WITH UPPER PIN CONNECTOR HOLES ON FIRST BOOM INSERT AND ENGAGE PINS.
7. SLOWLY BOOM UP TO ALIGN LOWER PIN CONNECTOR HOLES ON BOOM BUTT WITH LOWER PIN CONNECTOR HOLES IN FIRST BOOM INSERT AND INSERT PINS.

WARNING:

DO NOT BOOM UP PAST LOWER CONNECTOR HOLES. IF BOOMING UP CONTINUES AFTER CONNECTORS BOTTOM OUT OR AFTER PINS ARE INSERTED, DAMAGE TO ROPE GUIDE AND BOOM BUTT WILL OCCUR.

8. BOOM DOWN TO DISCONNECT MAST STRAPS FROM ROPE GUIDE LINKS.
9. ATTACH BOOM STOP HANDLING PENDANTS TO BOOM STOP TUBES. RAISE AND PIN BOOM STOPS IN WORKING POSITION AND STOW HANDLING PENDANTS ON MAST.
10. ATTACH MAST STRAPS TO BOOM INSERT STRAPS.
11. BOOM UP TO DESIRED BOOM ANGLE.

TO DISASSEMBLE BOOM

1. BOOM DOWN AND SUPPORT BOOM ON BLOCKING.
2. DISCONNECT MAST STRAPS FROM BOOM INSERT STRAPS.
3. LOWER BOOM STOPS TO SHIPPING POSITION.
4. CONNECT MAST STRAPS TO HANDLING LINK ON ROPE GUIDE  
(SEE VIEW "R"-"R")
5. BOOM UP TO REMOVE SLACK FROM MAST STRAPS.

WARNING:

DO NOT BOOM UP TO PUT TENSION INTO MAST STRAPS. (REMOVE SLACK ONLY)  
TENSION IN MAST STRAPS WILL DAMAGE ROPE GUIDE AND BOOM BUTT.

6. REMOVE LOWER BUTT TO INSERT PINS AND BOOM DOWN TO DISENGAGE UPPER BOOM BUTT TO INSERT PINS.

WARNING:

BOOM MUST BE PROPERLY BLOCKED TO PREVENT SHIFTING DURING PIN REMOVAL.

7. SLOWLY BACK AWAY FROM BOOM.
8. REMOVE BOOM BUTT FROM ROTATING BED WITH MAST.
9. DISASSEMBLE BOOM WITH MAST.

| BOOM HANDLING WITH MAST                                                                                 |                              |                              |                              |
|---------------------------------------------------------------------------------------------------------|------------------------------|------------------------------|------------------------------|
| WITH MAST STRAPS PINNED TO ROPE GUIDE<br>LINKS; MAXIMUM BOOM THAT CAN BE<br>CANTILEVERED IS AS FOLLOWS: |                              |                              |                              |
| LENGTH                                                                                                  | 10 FT.<br>(3.05 M)<br>INSERT | 20 FT.<br>(6.10 M)<br>INSERT | 40 FT.<br>(12.2 M)<br>INSERT |
| 40 FT.<br>(12.2 M)                                                                                      | 2                            | 1                            | 0                            |
| 50 FT.<br>(15.2 M)                                                                                      | 1                            | 2                            | 0                            |
| 60 FT.<br>(18.3 M)                                                                                      | 2                            | 0                            | 1                            |
| 60 FT.<br>(18.3 M)                                                                                      | 0                            | 1                            | 1                            |
| 80 FT.<br>(24.4 M)                                                                                      | 0                            | 0                            | 2                            |

**VIEW "R" - "R"**  
SCALE: 1.00 = 1FT.

## BOOM HANDLING WITH MAST

### ATTACHING BOOM BUTT TO ROTATING BED USING AUXILIARY BLOCK IN MAST.

**ATTACHING BOOM BUTT TO ROTATING BED  
USING OPTIONAL BUTT ATTACHING ASSEMBLY.**

DO NOT SCALE THIS DRAWING

**NOTE:**  
THIS RIGGING AND STRAP  
ARRANGEMENT IS USED ON  
MACHINE S/N 9991001  
THRU S/N 9991050.

PRIVATE LABELING  
REQUIREMENT TO  
CONFORM TO  
ENGINEERING  
SPECIFICATION  
6829103794 FOR  
COMPONENTS LISTED  
IN GDS500-05-03

|           |          |
|-----------|----------|
| DATE      | 08-15-01 |
| REV. LTR. |          |

DWG. NO.  
A01031  
SHT 9 OF 9