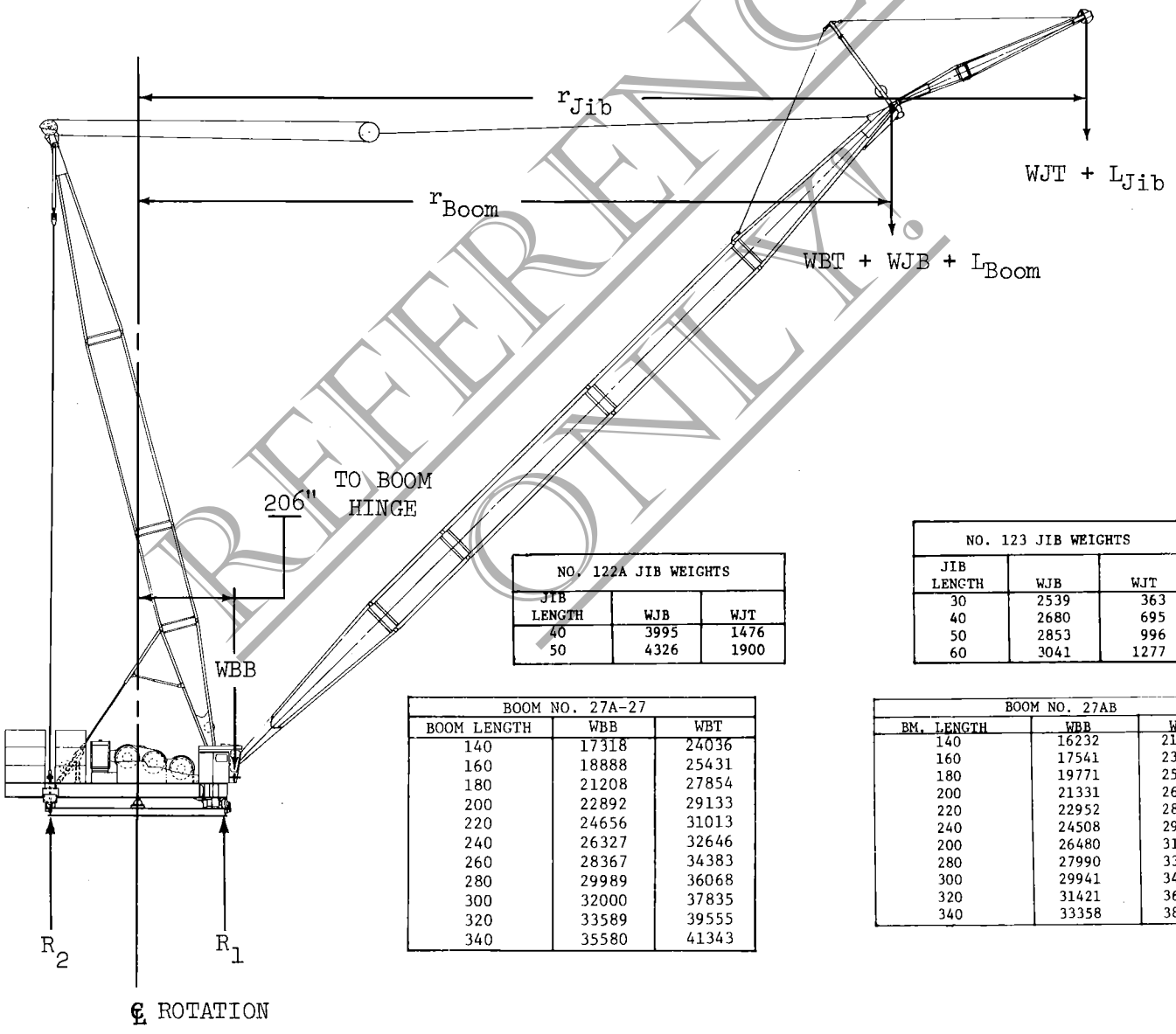
TECHNICAL DATA

FOUNDATION REACTIONS
36 FT. PLATFORM RINGER

December 13, 1977
(Rev. 2-7-78)
(REV. 10-31-83)

I. 36 FT. DIA. RING SUPPORT REQUIREMENT

Boom Carrier Reaction:
The boom carrier reaction, (R_1) under the 36 ft. dia. ring can be determined for given boom lengths with loads up to and including rated loads by the following methods:



NO. 122A JIB WEIGHTS		
JIB LENGTH	WJB	WJT
40	3995	1476
50	4326	1900

NO. 123 JIB WEIGHTS		
JIB LENGTH	WJB	WJT
30	2539	363
40	2680	695
50	2853	996
60	3041	1277

BOOM NO. 27A-27		
BOOM LENGTH	WBB	WBT
140	17318	24036
160	18888	25431
180	21208	27854
200	22892	29133
220	24656	31013
240	26327	32646
260	28367	34383
280	29989	36068
300	32000	37835
320	33589	39555
340	35580	41343

BOOM NO. 27AB		
BM. LENGTH	WBB	WBT
140	16232	21920
160	17541	23126
180	19771	25415
200	21331	26602
220	22952	28354
240	24508	29869
200	26480	31521
280	27990	33082
300	29941	34755
320	31421	36346
340	33358	38033

$$R_1 = 46{,}915 + WBB + \left[.5 + \frac{r_{Boom}}{34}\right](WBT + WJB + L_{Boom}) + \left[.5 + \frac{r_{Jib}}{34}\right](WJT + L_{Jib})$$

When any of the above terms are not required for a particular lifting condition, they become equal to 0.

R_1 - Reaction under boom carrier 36 ft. dia ring at centerline of front roller carrier in lbs.

WBB & WBT - Equivalent weight of boom and rigging in lbs. at boom hinge pin and boom top respectively.

WJB & WJT - Equivalent weight of jib and rigging in lbs. at boom hinge pin and jib point respectively.

r_{Boom} & r_{Jib} - Distance from centerline of rotation in ft. to boom point and jib point respectively.

L_{Boom} & L_{Jib} - Lifted load in lbs. at boom point and jib point respectively (include weight of load blocks, slings, etc.)

R_2 - Reaction on 36 ft. dia. ring at centerline of counterweight carrier. R_2 is maximum when the machine is not lifting a load.

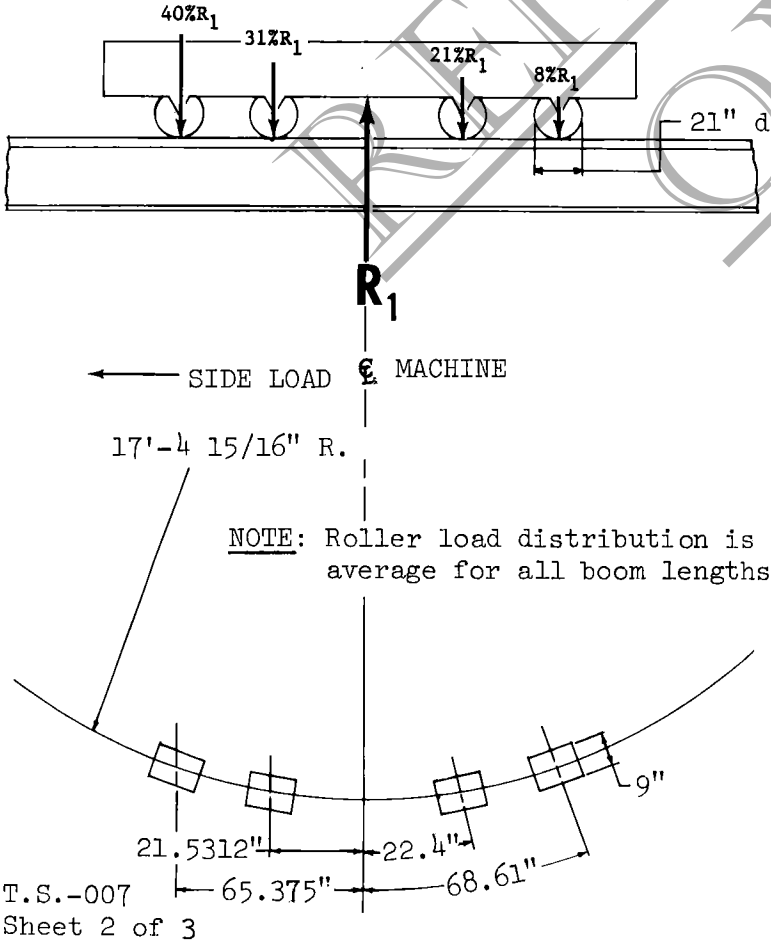
Maximum R_2 = 702,000 lbs. with 550,000 counterweight.

Weight of Manitowoc 36 Ft. Dia. Ring - 38,610# (including wear plates).

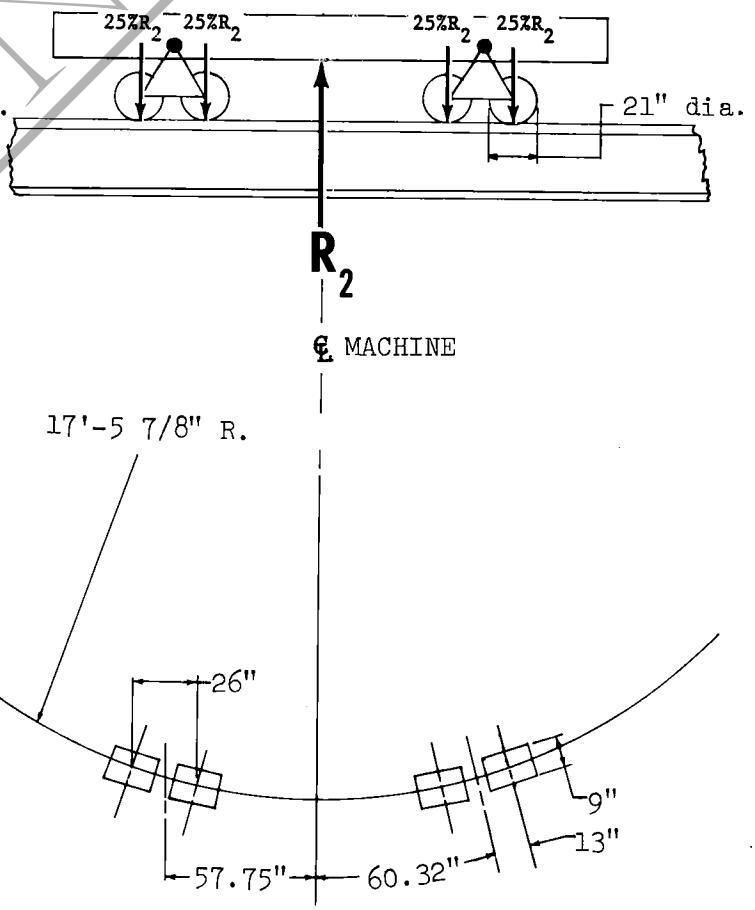
For 360 degree swing, the foundation for the 36 ft. ring must be capable of supporting R_1 or R_2 (whichever is greater) around the entire circumference of the ring.

The reactions R_1 or R_2 are distributed over the boom carrier and counterweight carrier rollers as follows:

BOOM CARRIER ROLLERS



COUNTERWEIGHT CARRIER ROLLERS
(Equalized in sets of two)



II. UPLIFT ON RING

Maximum uplift on 36 ft. dia. ring for rings secured directly to a foundation (such as barge mounted, gantry mounted, on a concrete pad, etc.) due to front roller carrier and counterweight carrier uplift = 120,000 lbs.

Clamps to secure 36 ft. dia. ring to foundation must be capable of 60,000 lbs.clamping force each. Twenty-eight (28) clamps to be equally spaced around perimeter of 36 ft. dia. ring.

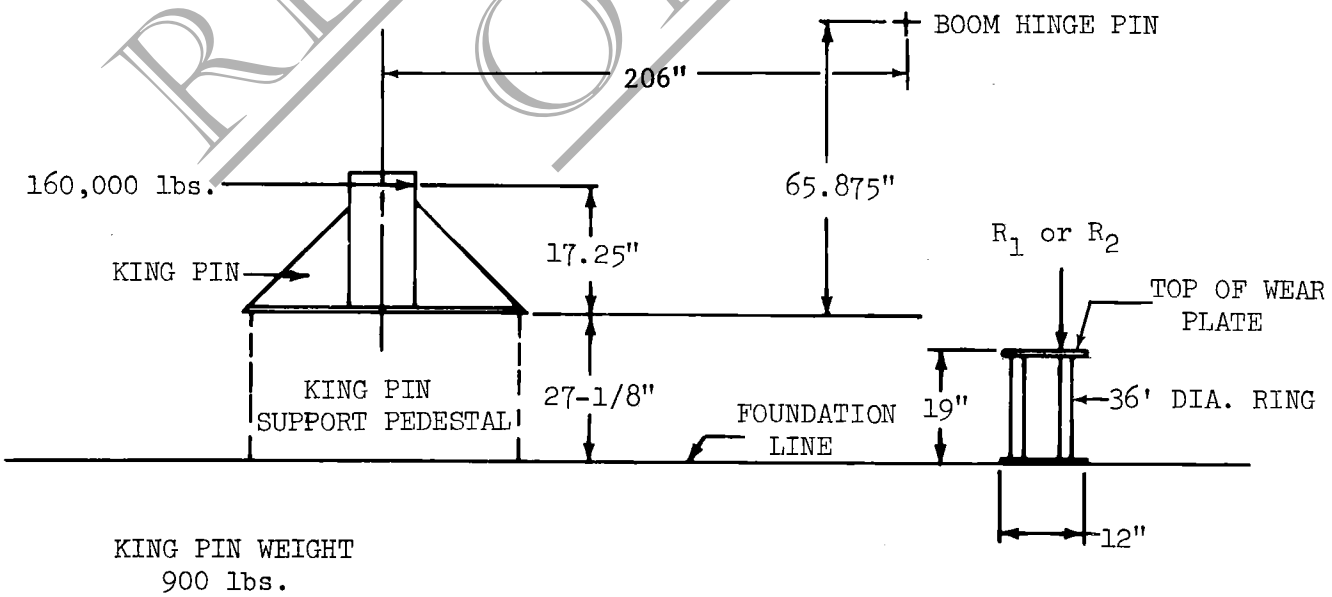
III. TANGENTIAL LOAD ON RING

Maximum tangential load from Ringer Swinger at ring gear pitch line is 25,000 lbs. per swinger unit. Ring gear pitch line is 196 inches from centerline of rotation.

IV. KING PIN SUPPORT REQUIREMENT

Figure A shows the King pin reactions and dead weight.

FIGURE A



KING PIN WEIGHT
900 lbs.