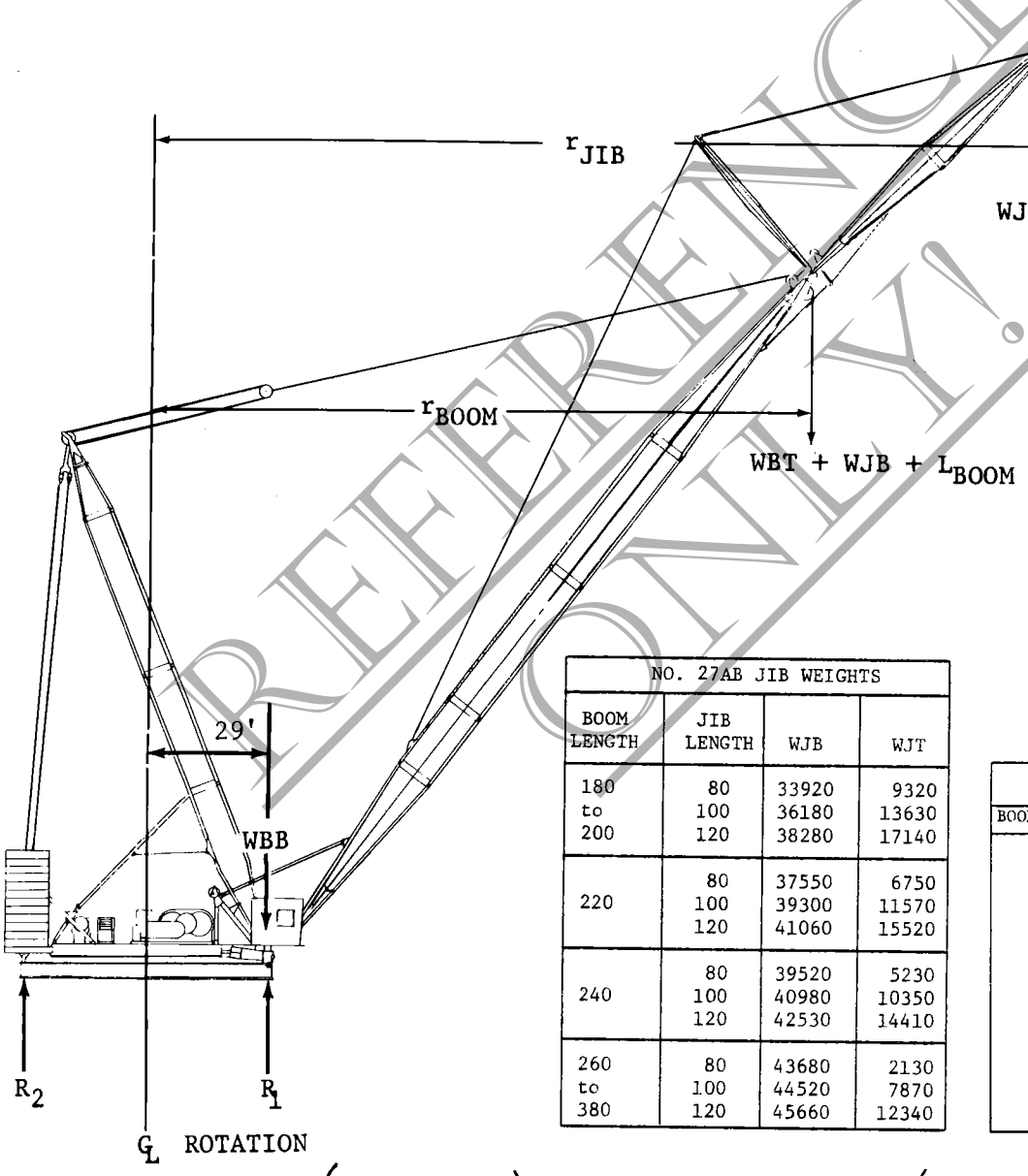
TECHNICAL DATA

FOUNDATION REACTIONS
60 FT. DIA. PLATFORM RINGER - SERIES 3 NO. 63 BOOM

February 28, 1979
(Rev. 1-10-83)

I. 60 FT. DIA. RING SUPPORT REQUIREMENT

Boom Carrier Reaction:
The boom carrier reaction on the 60 ft. dia. ring can be determined for a given boom length with loads up to and including rated loads by the following method:



NO. 63 BOOM WEIGHTS (UPPER BOOM POINT REMOVED FOR USE WITH OR WITHOUT JIB)		
BOOM LENGTH	WBB	WBT
140	29420	52800
160	34080	57650
180	37550	61470
200	41470	65240
220	45630	68940
240	49440	72830
260	53580	76560
280	56900	80620
300	61170	84850
320	64700	88380
340	68960	92620
360	72460	96180
380	76710	100440

NO. 27AB JIB WEIGHTS			
BOOM LENGTH	JIB LENGTH	WJB	WJT
180 to 200	80	33920	9320
	100	36180	13630
	120	38280	17140
220	80	37550	6750
	100	39300	11570
	120	41060	15520
240	80	39520	5230
	100	40980	10350
	120	42530	14410
260 to 380	80	43680	2130
	100	44520	7870
	120	45660	12340

BOOM NO. 63 UPPER BOOM POINT INSTALLED		
BOOM LENGTH	WBB	WBT
140	29288	56417
160	33922	61241
180	37409	65045
200	41340	68802
220	45515	72490
240	49327	76370
260	53481	80082
280	56803	84141
300	61080	88358
320	64621	91887
340	68879	96125
360	72395	99680
380	76693	103933
400	80138	107507

$$R_1 = 180{,}763 + WBB + \left(\frac{r_{Boom}}{58} + .5\right)(WBT + WJB + L_{Boom}) + \left(\frac{r_{Jib}}{58} + .5\right)(WJT + L_{Jib})$$

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

Note - To find r_{Boom} when lifting on the jib assume jib to be in-line with boom rather than offset 6° to simplify calculations.

R_1 - Reaction under centerline of boom carrier on 60 ft. dia. ring 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 jib hinge pin and jib top 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 under centerline of counterweight carrier on 60 ft. dia. ring. Maximum R_2 = 1,389,915 lbs.

R_2 is maximum when the machine is not lifting a load.

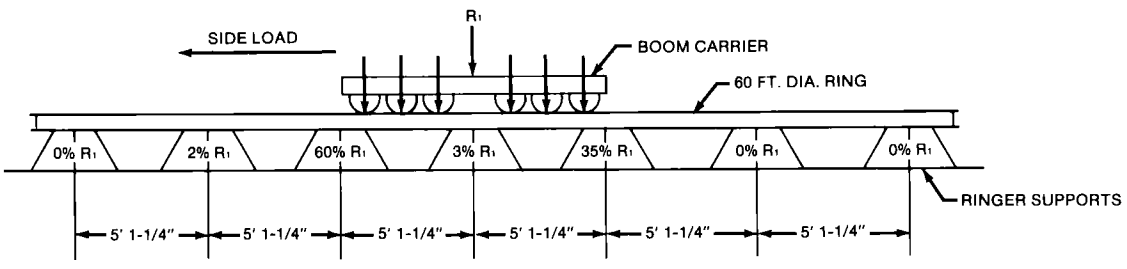
II. 60 FT. DIA. RING SUPPORT LOAD DISTRIBUTION

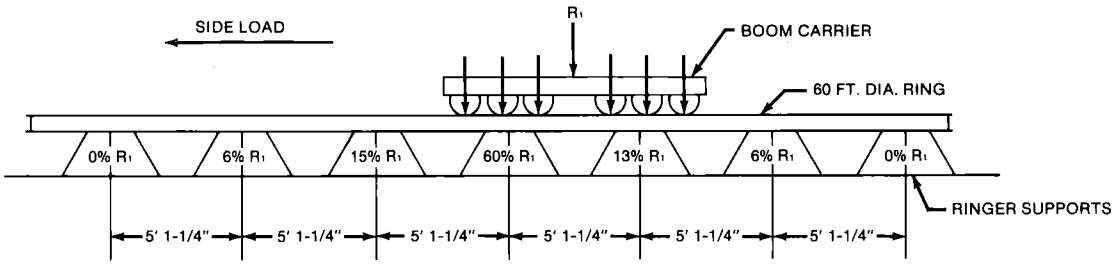
60 ft. diameter roller ring supported by 36 equally spaced ring supports (5' - 1¼" spacing on centers), having a base dimension of 36" x 36" (1,296 sq. in.). Supports weigh 1,340 lbs. each.

60 Ft. Dia. Ring Weight
Total 60 ft. dia. ring weight with wear plates
Deep Ring - 123,780 lbs.
Standard Ring - 82,812 lbs.
(Ring weight is distributed uniformly around ring)

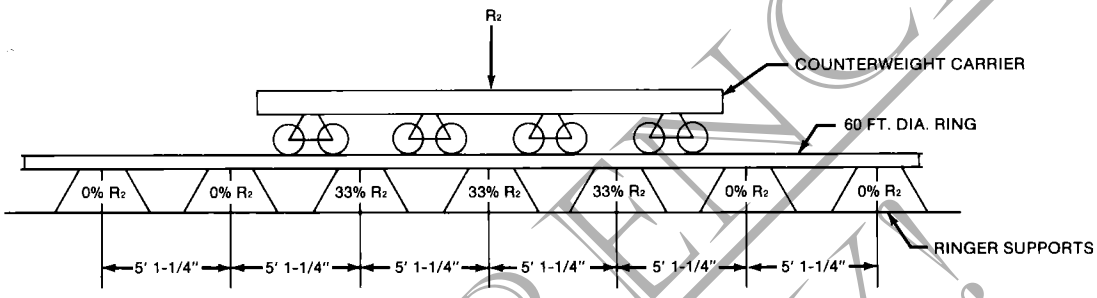
The load on the ring supports from R_1 and R_2 is distributed in such a manner that 60% R_1 is carried by one support, and 33% R_2 is carried by one support. For 360 degree rotation of the machine, the foundation under each of the 36 ring supports must be capable of supporting 60% R_1 or 33% R_2, whichever is greater.

A. RING SUPPORT LOAD DISTRIBUTION DUE TO R_1
(Lifted load combined with side load.)





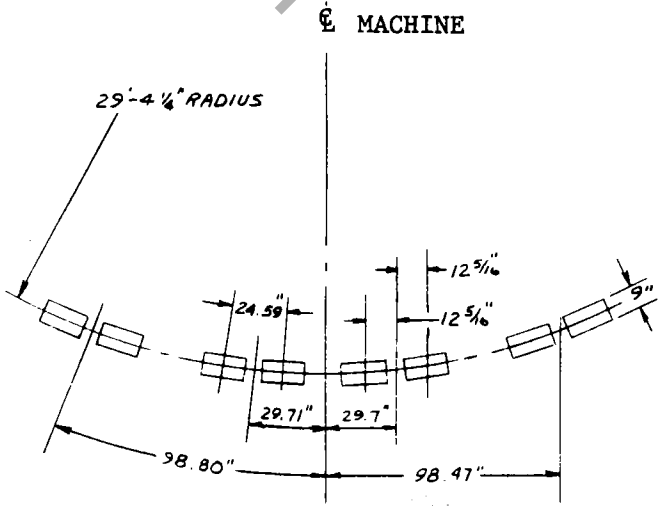
B. RING SUPPORT LOAD DISTRIBUTION DUE TO R_2



III. 60 FT. DIA. RING SUPPORTED DIRECTLY ON FOUNDATION

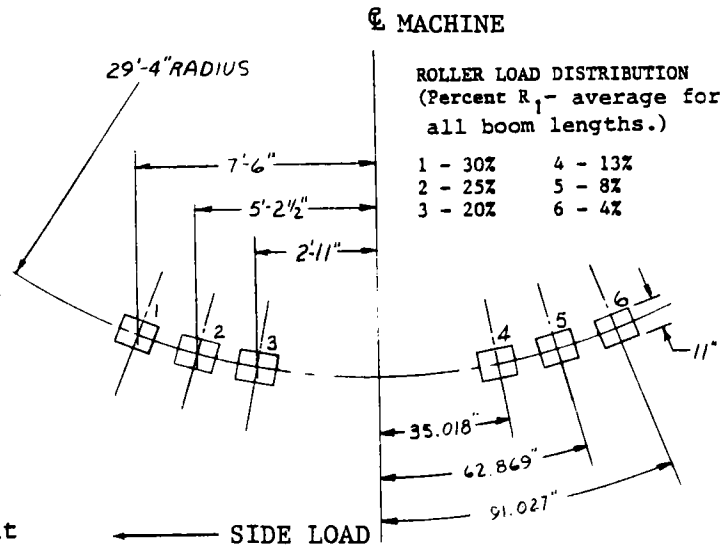
A. BOOM CARRIER AND COUNTERWEIGHT CARRIER ROLLER LOADS

COUNTERWEIGHT CARRIER ROLLERS
21" DIA. EQUALIZED IN SETS OF 2



R_2 distributed uniformly over counterweight carrier rollers

BOOM CARRIER ROLLERS
24" DIA.

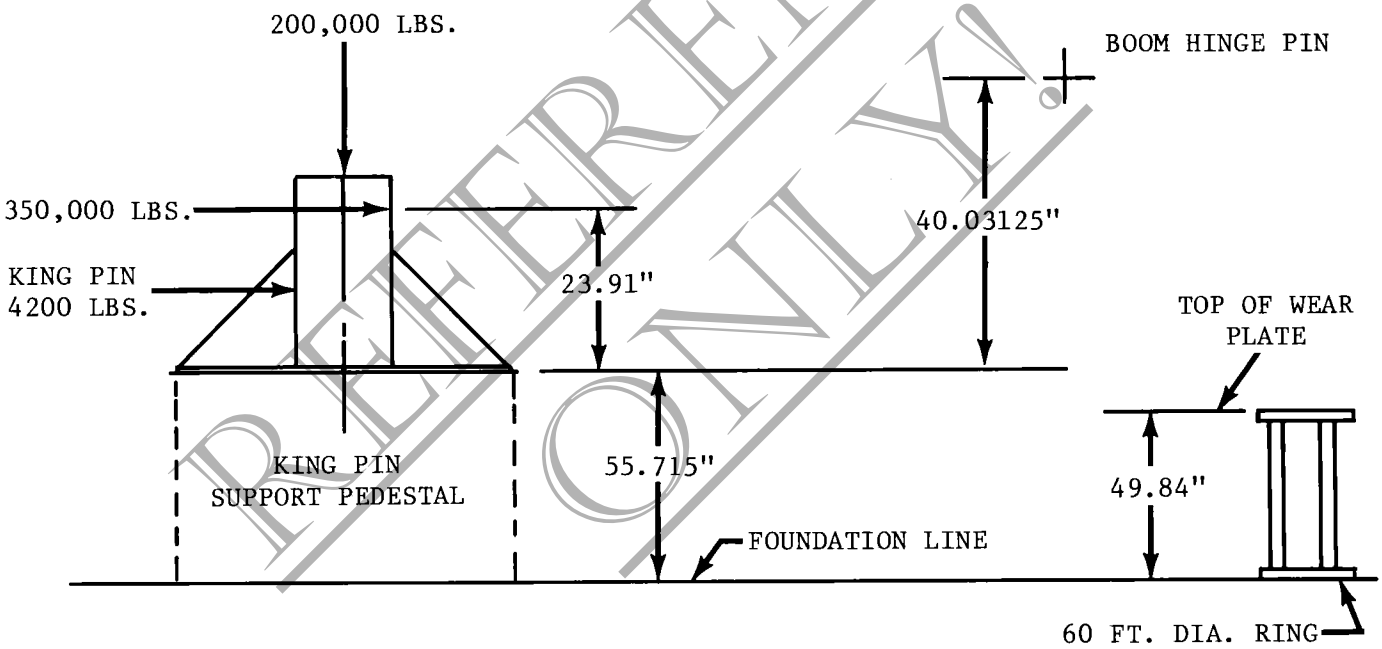


B. UPLIFT ON RING

Maximum uplift on 60 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.

IV. KING PIN SUPPORT REQUIREMENT

The following sketch shows the king pin reactions and dead weight:



NOTE: MEC King Pin Support Pedestal 190459 (not shown) has dead weight of 14,022 lbs. This pedestal can be furnished by others.