AUXILIARY COUNTERWEIGHTS
4100W, SERIES-3 RINGER®

WARNING **Crane Owners furnishing and filling their own auxiliary counterweight shall fabricate and fill counterweight boxes to specifications called for in this folio; otherwise, capacity charts furnished with Crane and Attachment WILL BE INVALID.**

AUXILIARY COUNTERWEIGHT REQUIREMENTS

■ **FULL COUNTERWEIGHT** (optional)

368,000 lb (166 925 kg) [tolerance plus 5,600 lb (2 540 kg) and minus 0 lb (0 kg)] consisting of:

8 counterweight boxes (3 per side and 2 per center stack) each weighing 46,000 lb (20 866 kg) [tolerance plus 700 lb (318 kg) and minus 0 lb (0 kg)] with a fill density of 222 lb (101 kg) per cubic ft.

■ **FULL COUNTERWEIGHT** (standard)

275,000 lb (124 740 kg) [tolerance plus 4,200 lb (1 905 kg) and minus 0 lb (0 kg)] consisting of:

6 counterweight boxes (3 stacks, 2 high).

■ **PARTIAL COUNTERWEIGHT**

184,000 lb (83 462 kg) [tolerance plus 2,800 lb (1 270 kg) and minus 0 lb (0 kg)] consisting of:

4 counterweight boxes (1 per side and 2 per center stack).

■ **PARTIAL COUNTERWEIGHT**

135,000 lb (61 236 kg) [tolerance plus 2,100 lb (951 kg) and minus 0 lb (0 kg)] consisting of:

3 counterweight boxes (3 stacks, 1 high).

NOTE Refer to the MACHINE EQUIPMENT section of the capacity chart being used for required amount of auxiliary counterweight.

IMPORTANT *A certified weight shall be kept on file for each auxiliary counterweight box fabricated and filled by Crane Owner.*

Counterweights fabricated by others must not extend beyond counterweight carrier. Maximum dimensions for counterweight are 20'-10" long x 8'-0" wide, height is variable.

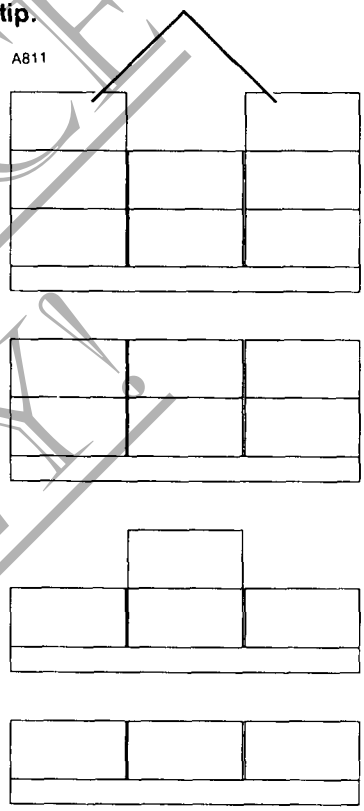
Total counterweight center of gravity must be located at center of counterweight carrier; that is, counterweight carrier must be balanced side to side and front to rear. Counterweight boxes may be tied down to counterweight carrier for further stability, if required.

Fill material shall be packed in counterweight boxes to provide uniform weight throughout box and should be grouted permanently in place to prevent any material movement.

WARNING **TIPPING HAZARD!**

Before 7th and 8th counterweight boxes can be added, mast assembly must be assembled and mounted in place on machine. The 7th and 8th counterweight boxes MUST be removed before the mast assembly can be removed.

If above precaution is not followed, counterweight carrier may tip.



The Table below contains the formula used at the factory to fill "Manitowoc" counterweight boxes:

Counterweight Boxes
Part No. 181586

Scrap Iron	25,000 lb (11 340 kg)
Concrete	16,000 lb (7 258 kg)
Sand	12,000 lb (5 443 kg)
Cement	2,300 lb (1 043 kg)
Water	1,700 lb (771 kg)
Counterweight Box	5,000 lb (2 268 kg)*
Total Counterweight	46,000 lb (20 866 kg)

* Weight of empty counterweight box may vary due to manufacturing tolerances; therefore, additional scrap iron may be required to obtain the total weight.