NOTICE OF
CHANGE

MIL-HDBK-1025/1
NOTICE 1
31 AUGUST 1990

MILITARY HANDBOOK

PIERS AND WHARVES

TO ALL HOLDERS OF MIL-HDBK-1025/1:

1. THE FOLLOWING PAGES OF MIL-HDBK-1025/1 HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
45	31 AUGUST 1990	45	30 OCTOBER 1987
46	31 AUGUST 1990	46	30 OCTOBER 1987

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

3. Holders of MIL-HDBK-1025/1 will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the military handbook is completely revised or cancelled.

CUSTODIAN
NAVY-YD

PREPARING ACTIVITY
NAVY-YD

PROJECT NO.
FACR 0760

AMSC N/A

AREA FACR

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Table 5
Outrigger Float Loads for Mobile Cranes

Capacity (tons)	Radius (ft)	Boom Length (ft)	Boom Over Corner (lbs)	Boom Over Back (ea) (lbs)	Boom Over Side (ea) (lbs)
50	25 and less	40	112,000	98,000	95,000
	30	40	106,400	93,600	90,200
	40	40	94,100	83,200	80,300
	50	50	90,700	79,800	76,900
	60 and more	60	87,400	76,900	74,100
70	20 and less	40	151,000	124,000	113,500
	30	40	125,300	102,900	94,200
	40	40	108,700	89,300	81,700
	50 and more	50	102,000	83,700	76,600
90	20 and less	50	187,000	146,500	137,500
	30	50	160,800	127,500	119,600
	40	50	140,300	109,900	103,100
	50 and more	50	130.900	102,500	96,200
115	20 and less	50	241,500	198,000	186,000
	30	50	181,100	148,500	139,100
	40	50	154,600	126,800	119,100
	50 and more	50	144,900	118,800	111,600
140	25 and less	50	233,500	206,500	200,500
	30	50	221,800	198,200	192,500
	40	50	198,500	175,500	170,400
	50	50	181,000	161,100	156,400
	60 and more	60	177,500	156,900	152,400

3.2.4.2 Outrigger Float Loads. Table 5 lists outrigger float loads for different capacity cranes. The maximum single float load from a boom over corner position and maximum concurrent pair of float loads from a boom over side and back positions are listed. Typically, the float loads are at the maximum when lifting the rated load at a short radius (20 to 25 ft) and should be used for design. However, for existing piers and wharves, the other listed loads may be used to analyze deck capacity.

3.2.4.3 Impact. An impact factor of 15 percent should be applied for all wheel loads when designing slab, beams, and pile caps. The impact factor is not applicable to piles and other substructure elements. The impact factor need not be applied when designing for outrigger float loads and for design of filled structures, and where wheel loads are distributed through paving and ballast (1 ft 6 in. or more).

3.2.5 Forklift and Straddle Carrier Loadings

3.2.5.1 Forklifts. See Figure 19 for wheel loads from forklifts and refer to Table 4 for designated forklifts applicable to piers and wharves.

3.2.5.2 Straddle Carriers. See Figure 20 for wheel loads for straddle carrier and Table 4 for straddle carriers applicable to piers and wharves. The straddle carrier shown is capable of lifting a loaded 20-ft container or a loaded 40-ft container. For other types of straddle carriers, refer to MIL-HDBK-1025/3, Cargo Handling Facilities.

3.5.2.3 Impact. An impact factor of 15 percent should be applied in the design of slabs, beams and pile caps. The impact factor is not applicable for the design of piles and other substructure elements, for filled structures, and where wheel loads are distributed through paving and ballast (1 ft 6 in. or more).

3.2.6 Loading on Railroad Tracks. For freight car wheel loads, use a live load of 8,000 lbs/ft of track corresponding to Cooper E-80 designation of the American Railway Engineering Association (AREA) Manual for Railway Engineering. In the design of slabs, girders, and pile caps, an impact factor of 20 percent should be applied. Impact is not applicable for the design of piles and filled structures, or where loads are distributed through paving and ballast (1 ft 6 in. or more).

3.2.7 Buoyancy. Typically, piers and wharf decks are not kept low enough to be subjected to buoyant forces. However, portions of the structure, such as utilidors and vaults, may be low enough to be subject to buoyancy forces, which are essentially uplift forces applied at the rate of 64 pounds per square foot of plan area for every foot of submergence below water level.