

MILITARY STANDARD

MIL-STD-1325-164
(NAVY)

17 JULY 1973

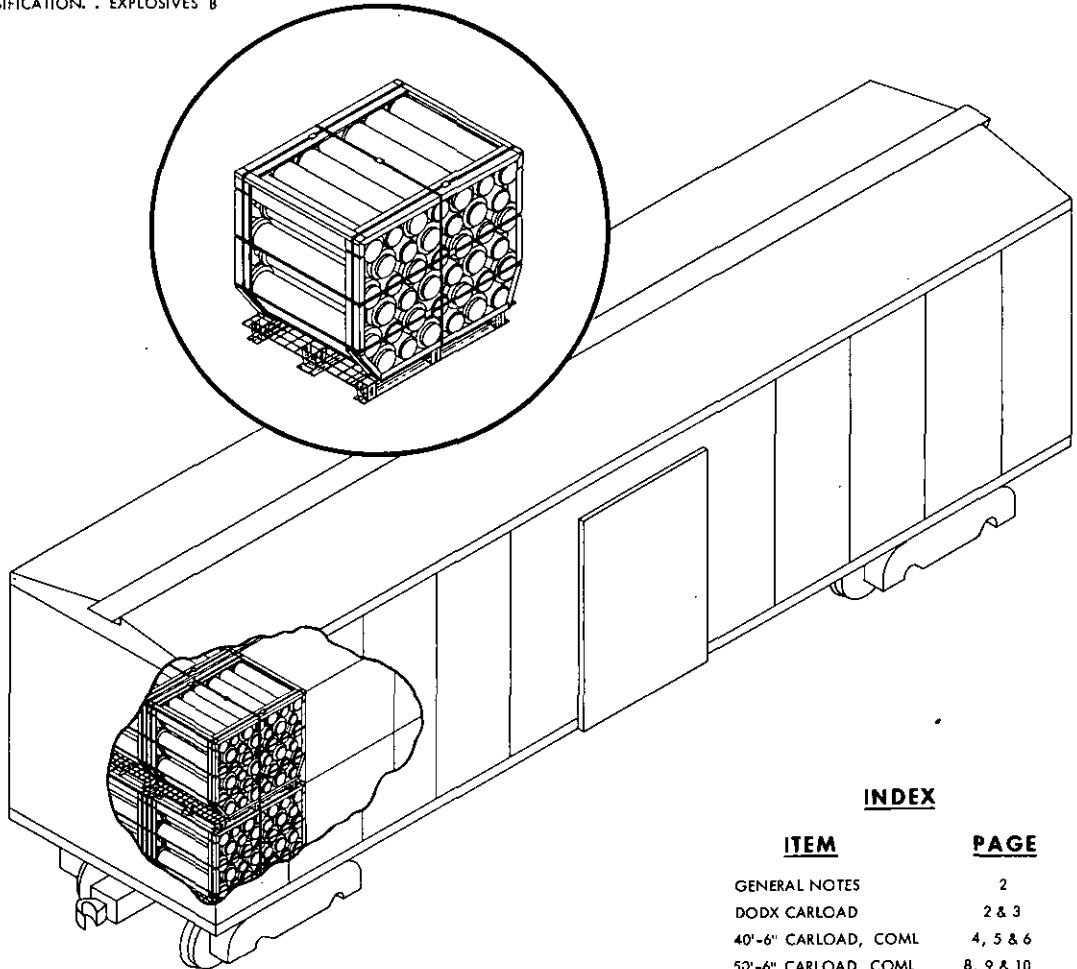
CARLOADING

CARTRIDGE, 5"/54

IN TANK MK 14, MK 14 MOD 1, MK 21 MOD 0 OR REDUCED MK 14
FLEET ISSUE UNIT LOAD

UNIT LOAD DATA

UNIT LOAD DRAWING WR-54/5
WEIGHT SEE TABLE I, PAGE 2
DIMENSIONS 48 L x 36 1/2 W x 43 3/8 H
CUBE 43.9 CU FT
DOT HAZARD CLASSIFICATION. EXPLOSIVES B



INDEX

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DODX CARLOAD	2 & 3
40'-6" CARLOAD, COML	4, 5 & 6
57'-6" CARLOAD, COML	8, 9 & 10

NOTES:

- UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
- FOR CROSS REFERENCE TO ASSOCIATED PALLETIZING, TRUCKLOADING AND CONTAINERLOADING MILITARY STANDARDS, REFER TO INDEX TO STANDARDS MIL-HDBK-236 (NAVY).

**AUTHORIZED AND RELEASED
FOR GENERAL USE**

APPROVED BY BUREAU OF EXPLOSIVES

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J.E. Kelly 7/3/73
SIGNATURE (ORD) SYSCOM, BY DIRECTION DATE

ORIGINATOR *A.R. Carangi* 7/2/73
SIGNATURE

**NAVAL WEAPONS HANDLING LABORATORY
N A D EARLE, NEW JERSEY**

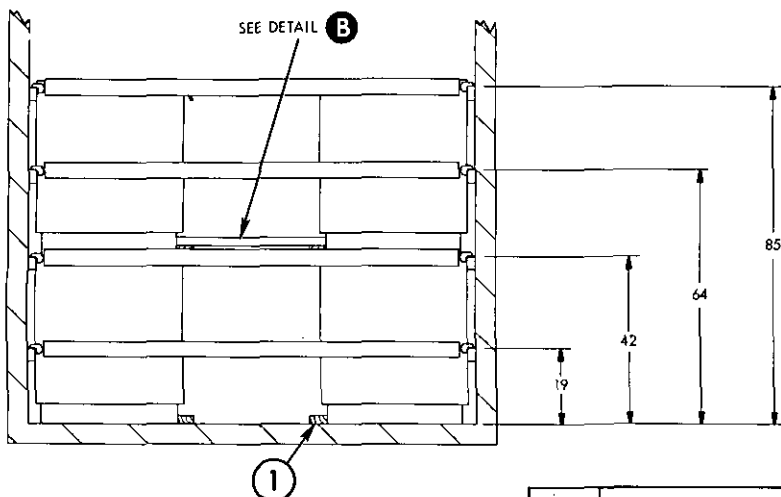
MIL-STD-1325-164 (NAVY)

GENERAL NOTES

- FOR GENERAL INFORMATION CONCERNING ORDERING, INSPECTING, AND PREPARING CARS, AND FOR DUNNAGING MATERIALS, DESIGN, AND INSTALLATION OF DUNNAGE SEE THE GENERAL DOCUMENT MIL-STD-1325 (NAVY) "RAILCAR LOADING OF HAZARDOUS MATERIALS".
- WHEN PLANNING SHIPMENTS ORDER THE MINIMUM NUMBER OF CARS OF THE CAPACITY REQUIRED FOR THE SHIPMENT, UTILITY LOADER CARS SHALL BE SERIES DODX 28000.
- LOADING PLANS SHOWN ARE FOR DODX UTILITY LOADER CAR WITH 50 FT 6 INCHES INSIDE LENGTH, 107 3/4 INCHES INSIDE WIDTH BETWEEN RAILS (111 INCHES INSIDE WIDTH BETWEEN SIDE WALLS), COMMERCIAL BOXCARS WITH 40 FT 6 INCHES INSIDE LENGTH, 110 INCHES INSIDE WIDTH, AND COMMERCIAL BOXCARS WITH 50 FT 6 INCHES INSIDE LENGTH, 110 INCHES INSIDE WIDTH.
- THE "LOAD LIMIT" OF A CAR MUST NOT BE EXCEEDED NOR SHOULD THE RAILCAR BE LOADED SO THAT MORE THAN ONE-HALF OF THE "LOAD LIMIT" IS CARRIED BY ONE SET OF TRUCKS.
- IF END WALLS OF CARS ARE NOT SQUARE THEY MUST BE SQUARED OFF BEFORE STARTING TO LOAD CAR.
- THE LOAD CONSISTS OF 5"/54 CARTRIDGES PALLETIZED IN ACCORDANCE WITH WR-54/5.
- THE UNIT LOADS ARE HANDLED AND LOADED WITH A SUITABLE FORK LIFT TRUCK.
- UNLESS OTHERWISE SPECIFIED NAILING SHALL BE IN ACCORDANCE WITH MIL-STD-1325 (NAVY).
- ALL STRAP JOINTS SHALL BE CRIMP-TYPE JOINTS MADE WITH A CRIMPING TOOL THAT DOES NOT CUT THE SEAL OR STRAP, RATHER THAN A TOOL THAT MAKES A NOTCH-TYPE JOINT. THE STRAPPING MUST BE IN ACCORDANCE WITH NAVSUP NOTICE 4642 DATED 21 APRIL 1971.
- APPLICABLE MATERIAL SPECIFICATIONS:
 - DUNNAGE LUMBER - FED. SPEC. MM-L-751
 - NAILS - FED. SPEC. FF-N-105
 - STRAPPING - FED. SPEC. QQ-5-781, TYPE I, HEAVY DUTY, CLASS A, DRY (UNLUBRICATED)
 - SEALS - FED. SPEC. QQ-5-781, STYLE III, HEAVY DUTY
- AFTER BLOCKING AND BRACING HAS BEEN INSPECTED ATTACH SHIPPING DOCUMENTS INSIDE THE CAR IN AN ACCESSIBLE AREA, CLOSE AND SEAL BOXCAR DOORS, AND ATTACH APPLICABLE PLACARDS TO THE OUTSIDE OF CAR AS PRESCRIBED IN OP 2165 (VOL. I).

50 FT 6 IN. BOXCAR, DODX

- THE CARLOAD CONSISTS OF 44 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING.
- A DETAILED DESCRIPTION AND OPERATING INSTRUCTIONS FOR THE UTILITY LOADER ARE CONTAINED IN OP 175L.
- TO PREVENT UNUSED "DF" EQUIPMENT FROM BECOMING DISLODGED DURING TRANSIT OF DODX CARS SECURE IT AT ANY LOCATION IN THE BOXCAR WHICH WILL NOT INTERFERE WITH UNLOADING.
- WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN DODX BOXCARS THE SAME PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE. ANY BAYS OR PORTION THEREOF MAY BE USED PROVIDING THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR ARE COMPLIED WITH, SEE MIL-STD-1325 (NAVY). EACH CROSSMEMBER WILL BE USED IN SUCH A MANNER THAT IT WILL RETAIN NOT MORE THAN 2000 LBS OF THE LADING.



SECTION A-A

SHOWING LOCATION OF WALL MEMBERS AND DOORWAY MEMBERS USED FOR CROSSMEMBERS

TABLE I

CARTRIDGE TANK	UNIT LOAD WT. (LBS)	CARLOAD WT. (LBS)
MK 14	1676	74,227
MK 14 MOD 1	1770	78,363
MK 21 MOD 0	1789	79,199
REDUCED MK 14	1399	62,039
ESTIMATED WEIGHT OF DUNNAGE (483 LBS) INCLUDED IN CARLOAD WEIGHT		

*W = DISTANCE BETWEEN POSTS OF PALLETS ACROSS THE CAR.

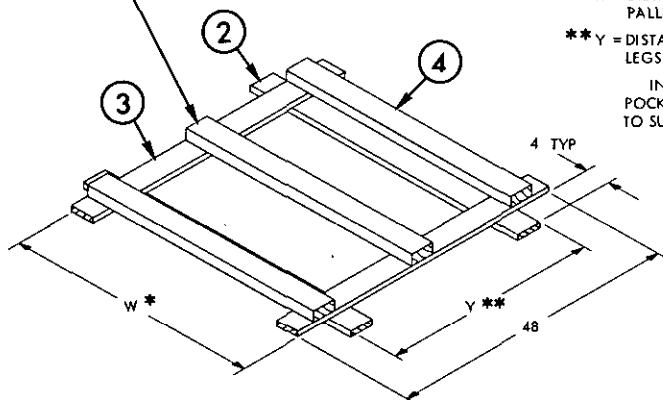
** PIECE 3 NAILS TO PIECE 4 WITH 10d NAILS, CLINCHED, 3 PER JOINT, AND TO PIECE 2 WITH 6d NAILS, 1 PER JOINT.

4	CROSS BRACE	2 x 4 x W*	33	SEE 3	-	-
3	SWAY BRACE LONGITUDINAL	1 x 4 x 48	22	2, 4	SEE NOTE **	
2	SWAY BRACE SUPPORT	1 x 4 x (W + 8)*	22	SEE 3	-	-
1	SLEEPER	2 x 4 x 48	22	CAR FLOOR	2 PER FOOT	16d
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS & NAILING DATA

MIL-STD-1325-164 (NAVY)

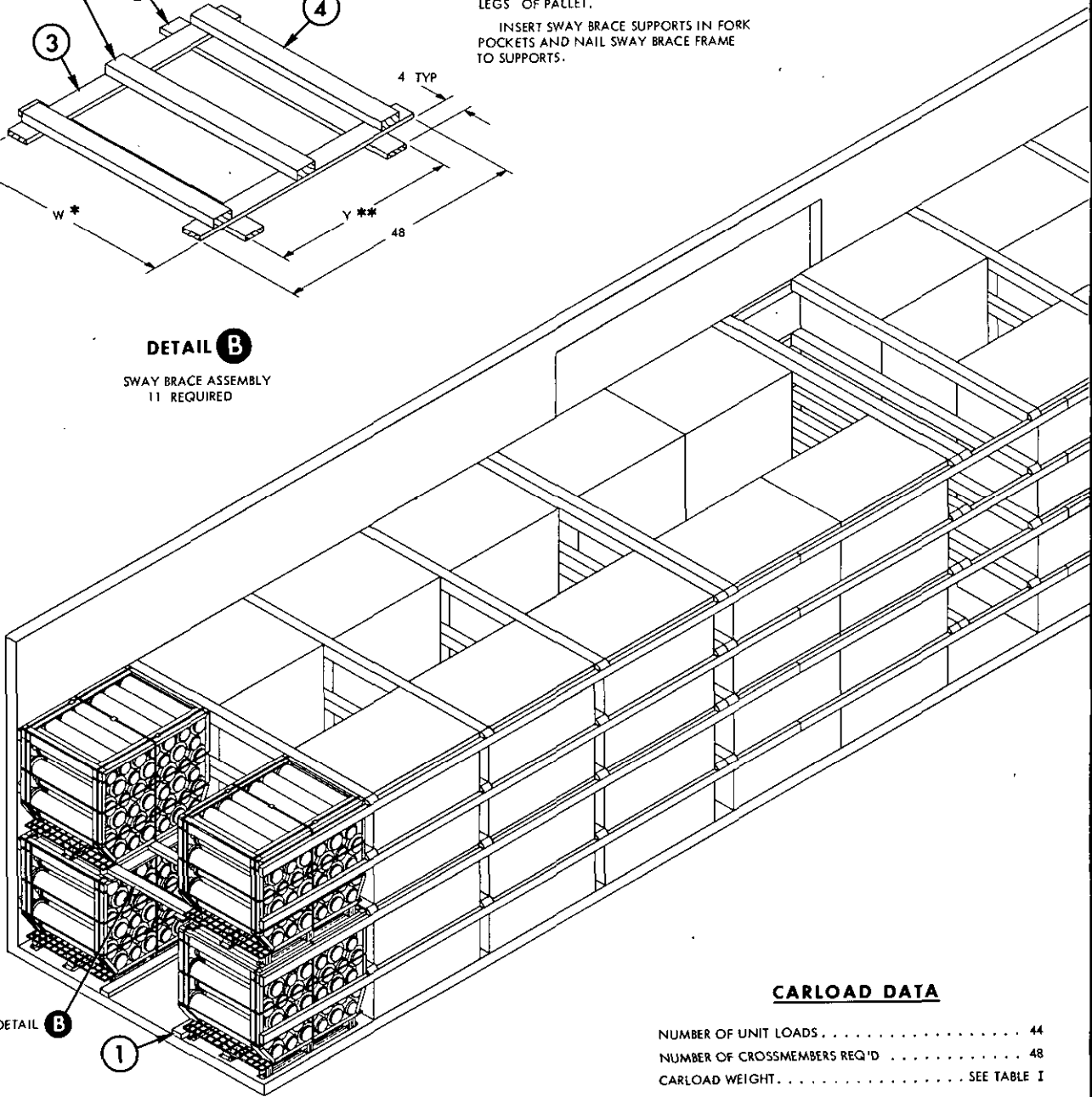
CROSS BRACES MUST BE CENTERED AGAINST LEGS OF PALLETS



*W = DISTANCE BETWEEN LEGS OF PALLETS ACROSS THE CAR.
 **Y = DISTANCE BETWEEN INSIDE OF OUTER LEGS OF PALLET.
 INSERT SWAY BRACE SUPPORTS IN FORK POCKETS AND NAIL SWAY BRACE FRAME TO SUPPORTS.

DETAIL B

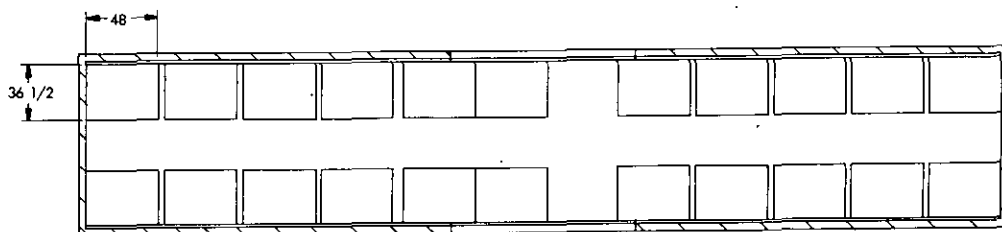
SWAY BRACE ASSEMBLY
 11 REQUIRED



SEE DETAIL **B**

CARLOAD DATA

NUMBER OF UNIT LOADS	44
NUMBER OF CROSSMEMBERS REQ'D	48
CARLOAD WEIGHT	SEE TABLE I



LOADING PLAN

MIL-STD-1325-164 (NAVY)

40 FT 6 IN. BOXCAR, COMMERCIAL

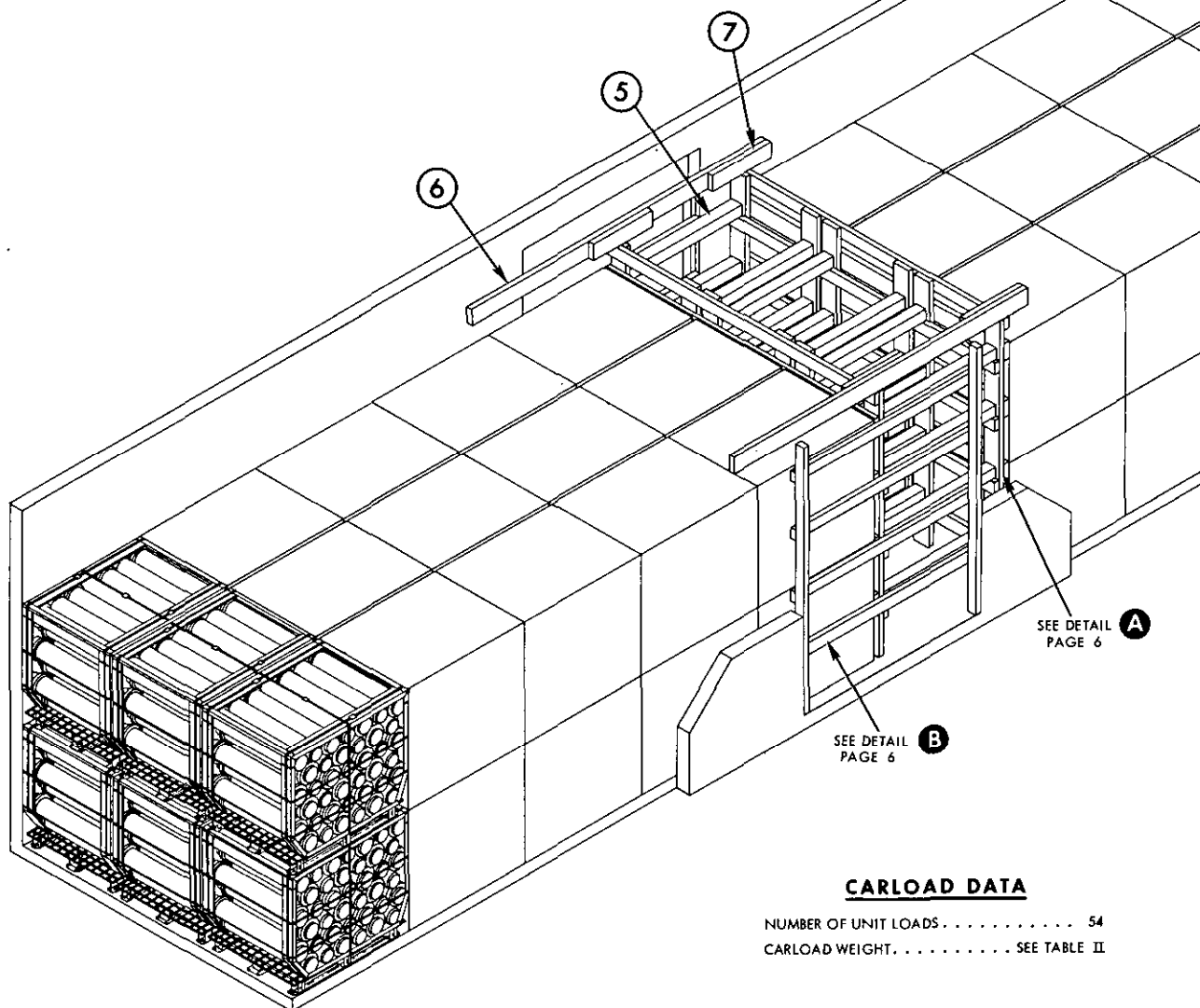
1. THE CARLOAD CONSISTS OF 54 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING.
2. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN COMMERCIAL BOXCARS AND A PARTIAL LAYER RESULTS, THE PARTIAL LAYER OF LADING SHALL BE BRACED BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED. THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR MUST BE COMPLIED WITH, SEE MIL-STD-1325 (NAVY).
3. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 6 FT WIDE DOORWAY OPENINGS AND ARE EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE TO BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 6 FT WIDE.

TABLE II

CARTRIDGE TANK	UNIT LOAD WT. (LBS)	CARLOAD WT. (LBS)
MK 14	1676	91,582
MK 14 MOD 1	1770	96,658
MK 21 MOD 0	1789	97,684
REDUCED MK 14	1399	76,624
ESTIMATED WEIGHT OF DUNNAGE (1078 LBS) INCLUDED IN CARLOAD WEIGHT		

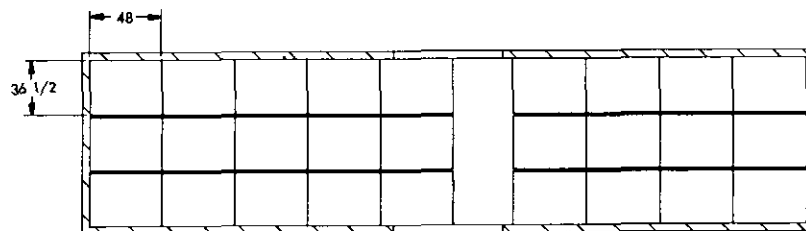
* 2 x 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 x 4'S.

9	HORIZONTAL DOORWAY MEMBER	2 x 4 x DOOR WIDTH	8	8	2 PER JOINT	10d
8	VERTICAL DOORWAY MEMBER	2 x 3 x 96	4	DOOR POST	2 PER FOOT	20d
7	HOLD DOWN CLEAT	2 x 6 x 24	4	6	5	10d
6	GATE HOLD DOWN	2 x 6 x 10 FT	2	CAR WALL	5 EACH END	10d
5	STRUT	4 x 4 x WEDGE FIT *	24	2	2 PER JOINT	16d
4	TOP HORIZONTAL	2 x 4 x CAR WIDTH - 1	2	2	3 PER JOINT	10d
3	CENTER GATE STRUT CLEAT	2 x 4 x CAR WIDTH - 1	8	2	3 PER JOINT	10d
2	CENTER GATE VERTICAL	2 x 6 x 96	12	SEE 1	-	-
1	CENTER GATE HORIZONTAL	2 x 6 x CAR WIDTH - 1	8	2	3 PER JOINT	10d
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
						NAILS
LIST OF MATERIALS & NAILING DATA						



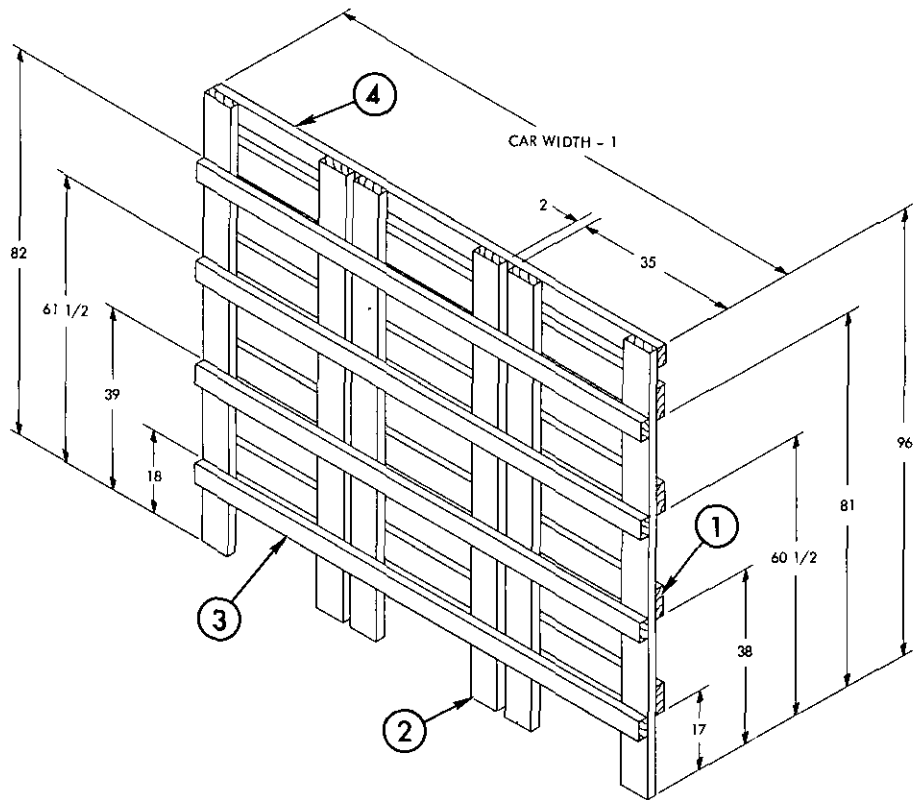
CARLOAD DATA

NUMBER OF UNIT LOADS 54
CARLOAD WEIGHT SEE TABLE II



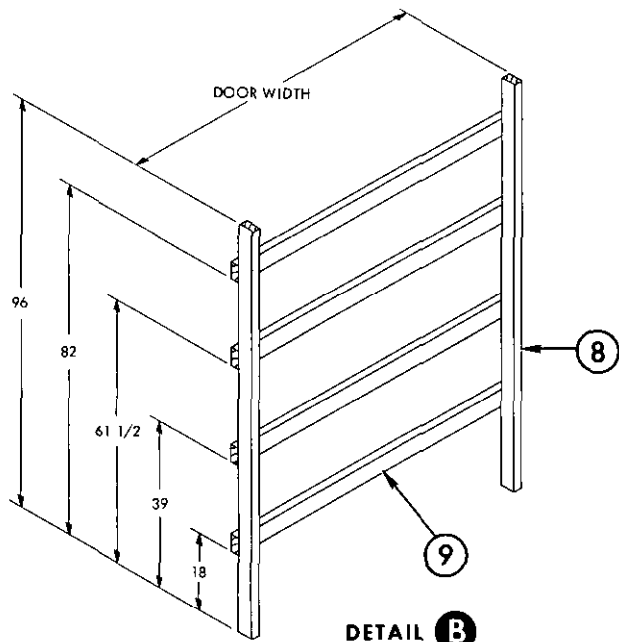
LOADING PLAN

MIL-STD-1325-164 (NAVY)



DETAIL A

CENTER GATE
2 REQUIRED



DETAIL B

DOORWAY PROTECTION
2 REQUIRED

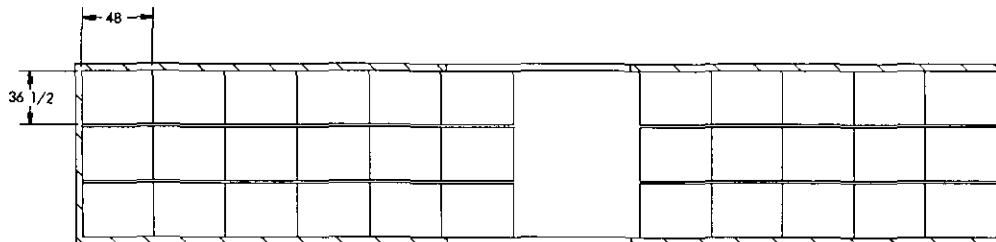
WHEN BOXCAR HAS STEEL DOOR POSTS
DOORWAY PROTECTION AS PER MIL-STD-1325 (NAVY)
PAGE 46, FIG. 21 IS REQUIRED.

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MIL-STD-1325-164 (NAVY)

50 FT 6 IN. BOXCAR, COMMERCIAL

1. THE CARLOAD CONSISTS OF EITHER 66 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING, OR, WHEN LOAD LIMIT OF CAR PERMITS (SEE NOTE 4 OF GENERAL NOTES, PAGE 2) 72 UNIT LOADS AS SHOWN IN THE ALTERNATE LOADING PLAN ON PAGE 10. FOR THE ALTERNATE LOADING PLAN HORIZONTAL AND VERTICAL TIE BARS SHALL BE OMITTED.
2. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN COMMERCIAL BOXCARS AND A PARTIAL LAYER RESULTS, THE PARTIAL LAYER OF LADING SHALL BE BRACED BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED. THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR MUST BE COMPLIED WITH, SEE MIL-STD-1325 (NAVY).
3. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 10 FT WIDE DOORWAY OPENINGS AND ARE EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE TO BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 10 FT WIDE PROVIDING THE LENGTH OF PIECE 6 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING.
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS PROVIDING THE LENGTH OF PIECE 6 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILIARY, EXCEPT WHEN THE CAR HAS A COMBINATION OF A CONVENTIONAL SLIDING TYPE DOOR AND A PLUG TYPE DOOR, AND AN ADEQUATE NAILING STRIP IS PROVIDED ON THE PLUG TYPE DOOR. IF LUMBER OF SUFFICIENT LENGTH TO SPAN PLUG DOORS IS NOT AVAILABLE, RANDOM LENGTH MATERIAL, DOUBLED AND SPLICED, BUT WITH JOINTS OF SPLICES OFFSET, MAY BE USED. STACKS WITH MORE THAN HALF OF THE UNIT LOAD IN THE DOORWAY AREA MUST BE UNITIZED WITH TWO LATERALLY APPLIED 1 1/4" STEEL STRAPS PER STACK, EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS AND DOORWAY PROTECTION, PIECES 10 AND 11, IS NOT REQUIRED WHEN PLUG DOOR EQUIPPED BOXCARS ARE USED, EXCEPT WHEN CAR HAS A COMBINATION OF PLUG DOOR AND CONVENTIONAL SLIDING DOOR. THEN DOORWAY PROTECTION IS REQUIRED FOR THE CONVENTIONAL DOOR. SECURELY CLOSE DOORS AND WIRE TOGETHER WITH A STRONG FLEXIBLE STEEL WIRE INSERTED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES AND THE WIRE ENDS TWISTED TOGETHER.



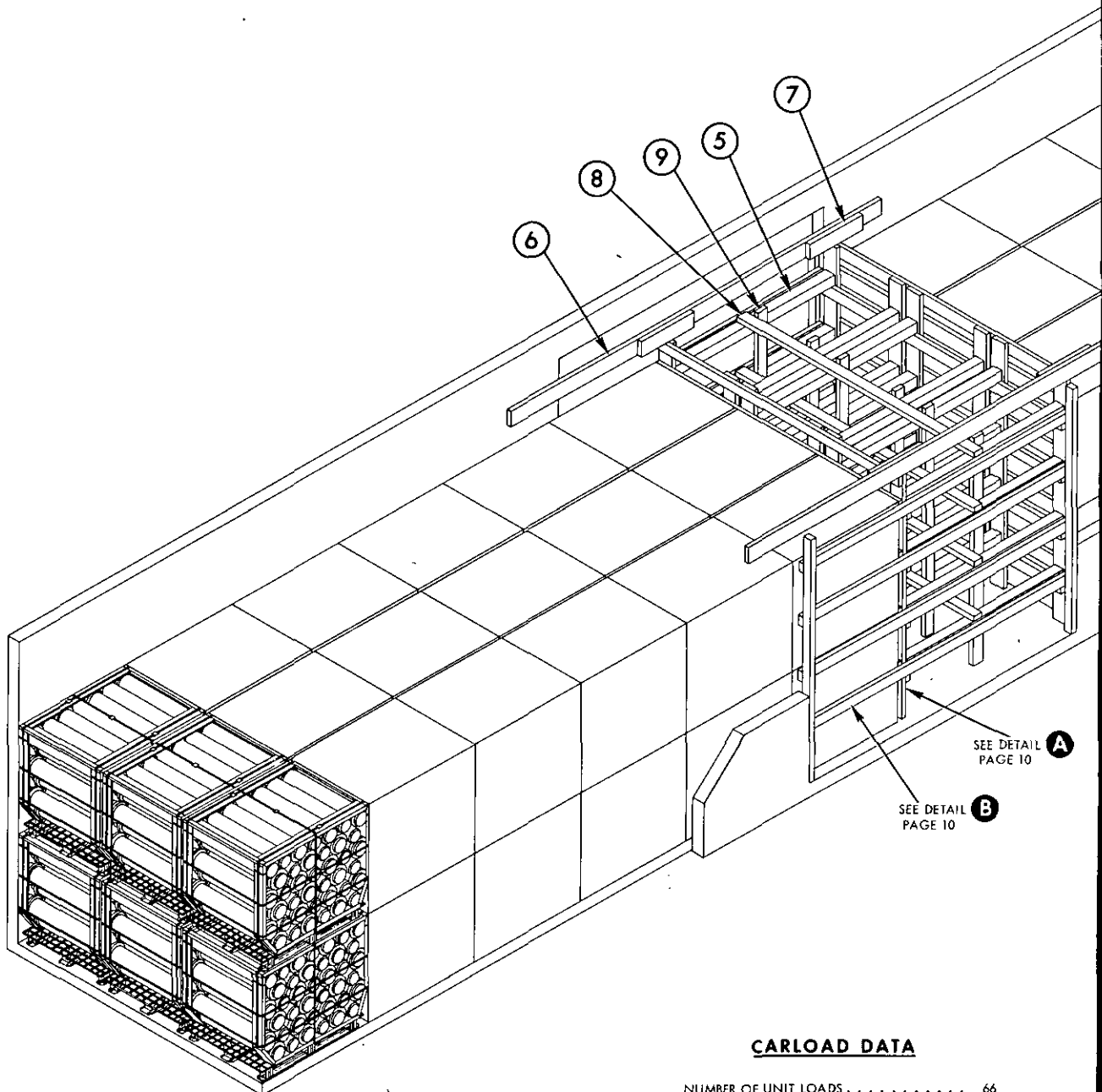
LOADING PLAN

*2 x 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 x 4'S.

11	HORIZONTAL DOORWAY MEMBER	2 x 4 x DOOR WIDTH	8	10	2 PER JOINT	10d
10	VERTICAL DOORWAY MEMBER	2 x 4 x 96	4	DOOR POST	2 PER FOOT	20d
9	VERTICAL TIE BAR	2 x 4 x 90	6	5	3 PER JOINT	16d
8	HORIZONTAL TIE BAR	2 x 4 x CAR WIDTH - 1	4	5	3 PER JOINT	16d
7	HOLD DOWN CLEAT	2 x 6 x 24	4	6	5	10d
6	GATE HOLD DOWN	2 x 6 x 14 FT	2	CAR WALL	5 EACH END	10d
5	STRUT	4 x 4 x WEDGE FIT *	24	2	2 PER JOINT	16d
4	TOP HORIZONTAL	2 x 4 x CAR WIDTH - 1	2	2	3 PER JOINT	10d
3	CENTER GATE STRUT CLEAT	2 x 4 x CAR WIDTH - 1	8	2	3 PER JOINT	10d
2	CENTER GATE VERTICAL	2 x 6 x 96	12	SEE 1	-	-
1	CENTER GATE HORIZONTAL	2 x 6 x CAR WIDTH - 1	8	2	3 PER JOINT	10d
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS & NAILING DATA

MIL-STD-1325-164 (NAVY)



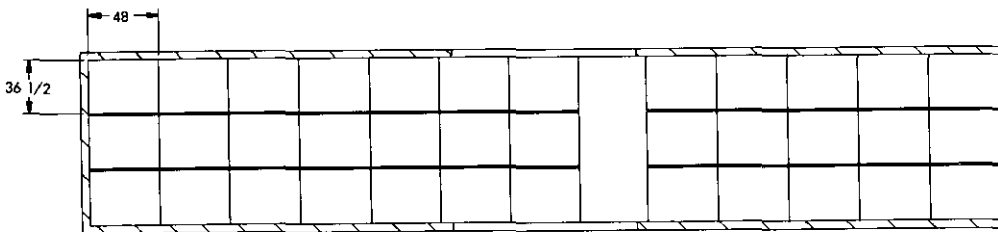
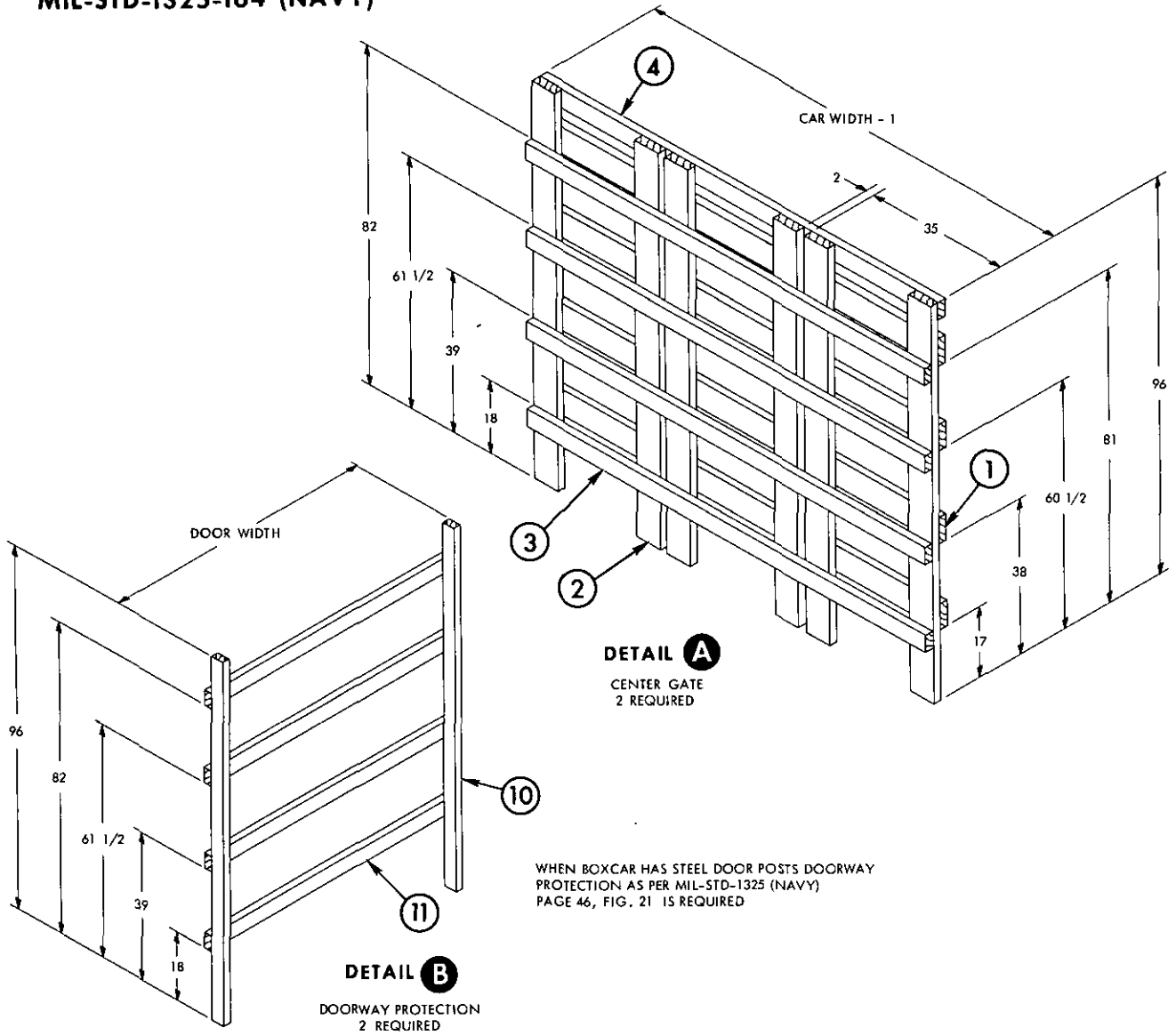
CARLOAD DATA

NUMBER OF UNIT LOADS 66
 CARLOAD WEIGHT SEE TABLE III

TABLE III

CARTRIDGE TANK	UNIT LOAD WT. (LBS)	CARLOAD WT. (LBS)
MK 14	1676	112,072
MK 14 MOD 1	1770	118,276
MK 21 MOD 0	1789	119,530
REDUCED MK 14	1399	93,790
ESTIMATED WEIGHT OF DUNNAGE (1456 LBS) INCLUDED IN CARLOAD WEIGHT		

MIL-STD-1325-164 (NAVY)



ALTERNATE LOADING PLAN

ALTERNATE CARLOAD DATA

NUMBER OF UNIT LOADS 72
 CARLOAD WEIGHT SEE TABLE IV

TABLE IV

CARTRIDGE TANK	UNIT LOAD WT. (LBS)	CARLOAD WT. (LBS)
MK 14	1676	121,675
MK 14 MOD 1	1770	128,443
MK 21 MOD 0	1789	129,811
REDUCED MK 14	1399	101,731
ESTIMATED WEIGHT OF DUNNAGE (1003 LBS) INCLUDED IN CARLOAD WEIGHT		