

# MILITARY STANDARD

MIL-STD-1325-86

(NAVY)

## RAILCAR LOADING OF HAZARDOUS MATERIALS

MINE, UNDERWATER MK 52 AND MODS  
IN CRATE, UNDERWATER MINE MK 52 MOD 0

3 AUGUST 1976

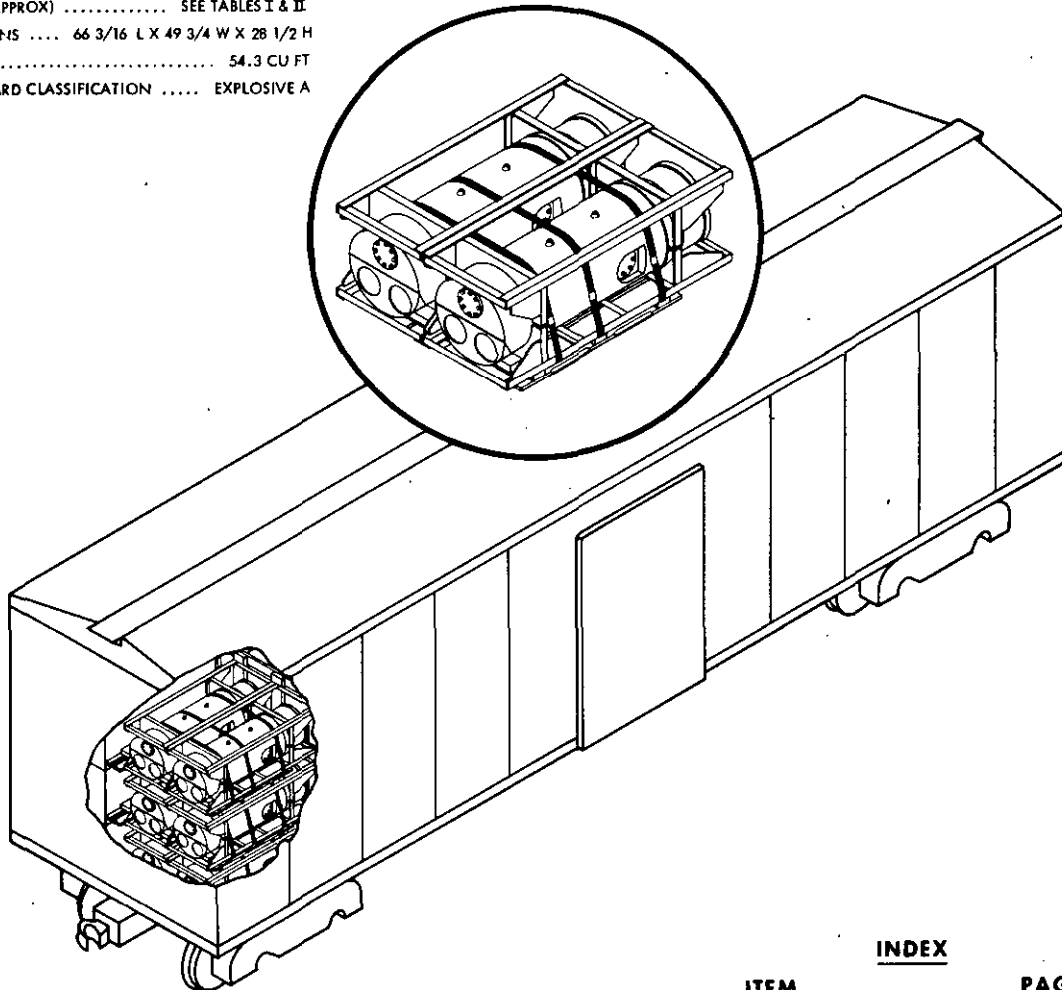
SUPERSADING

WR-52/86

27 NOVEMBER 1967

### UNIT LOAD DATA

UNIT LOAD DRAWING ..... WR-53/715  
WEIGHT (APPROX) ..... SEE TABLES I & II  
DIMENSIONS ..... 66 3/16 L X 49 3/4 W X 28 1/2 H  
CUBE ..... 54.3 CU FT  
DOT HAZARD CLASSIFICATION ..... EXPLOSIVE A



**NOTE:**

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

ITEM	INDEX	PAGE
GENERAL NOTES		2
40'6" CARLOAD, COM'L		2, 3 & 4
50'6" CARLOAD, COM'L		6, 7 & 8

FSC 8140

**AUTHORIZED AND RELEASED FOR  
GENERAL USE.**

**APPROVED BY BUREAU OF EXPLOSIVES**

*M/S Gray* NWHC 7/30/76  
TECHNICAL DIRECTION AGENT (TDA) DATE  
*J E Kelly* 8/12/76  
SEA SYSCOM BY DIRECTION DATE

*A. J. Grassmuck* 7/21/76  
SIGNATURE SUPERVISOR, MILITARY & INTERMODEL SERVICES DATE

ORIGINATOR *7/4 Earle* 7/30/76  
NAVAL WEAPONS HANDLING CENTER DATE  
WPNSTA EARLE, NEW JERSEY

**MIL-STD-1325-86 (NAVY)**

**GENERAL NOTES**

1. 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."
2. WHEN PLANNING SHIPMENTS ORDER THE MINIMUM NUMBER OF CARS OF THE CAPACITY REQUIRED FOR THE SHIPMENT. DODX UTILITY LOADER CARS SHALL NOT BE USED FOR ITEMS WITH EXPLOSIVES A OR B HAZARD CLASSIFICATION.
3. LOADING PLANS SHOWN ARE FOR COMMERCIAL BOXCARS WITH 40 FT 6 IN (INSIDE LENGTH, 110 IN INSIDE WIDTH, AND COMMERCIAL BOXCARS WITH 50 FT 6 IN INSIDE LENGTH, 110 IN INSIDE WIDTH.
4. 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.
5. IF END WALLS OF CARS ARE NOT SQUARE THEY MUST BE SQUARED OFF BEFORE STARTING TO LOAD CAR.
6. THE LOAD CONSISTS OF UNDERWATER MINES MK 52 & MODS IN UNDERWATER MINE CRATE MK 52 MOD 0.
7. THE UNIT LOADS ARE HANDLED AND LOADED WITH A SUITABLE FORK LIFT TRUCK.
8. UNLESS OTHERWISE SPECIFIED NAILING SHALL BE IN ACCORDANCE WITH MIL-STD-1325 (NAVY).
9. 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.
10. APPLICABLE MATERIAL SPECIFICATIONS:
  - DUNNAGE LUMBER - FED SPEC MM-L-751
  - NAILS - FED SPEC FF-N-105
  - STRAPPING - FED SPEC QQ-S-781, TYPE I, HEAVY DUTY, CLASS A, DRY (UNLUBRICATED).
  - SEALS - FED SPEC QQ-S-781, STYLE III, HEAVY DUTY
11. 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).

**40 FT 6 IN BOXCAR, COMMERCIAL**

1. THE CARLOAD CONSISTS OF 36 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION IN ACCORDANCE WITH MIL-STD-1325 (NAVY) IS REQUIRED.
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 MIL-STD-1325-100 (NAVY) OR PARTIAL UPPER LAYER BRACING IN ACCORDANCE WITH THE "VERTICAL MEMBER AND STRAPPING" PROCEDURE OR THE "KNEE BRACING" PROCEDURE SHOWN IN MIL-STD-1325-102 (NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. 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.

\* - W = DISTANCE BETWEEN LEGS OF PALLETS ACROSS THE CAR

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

\*\*\* - CLINCHED

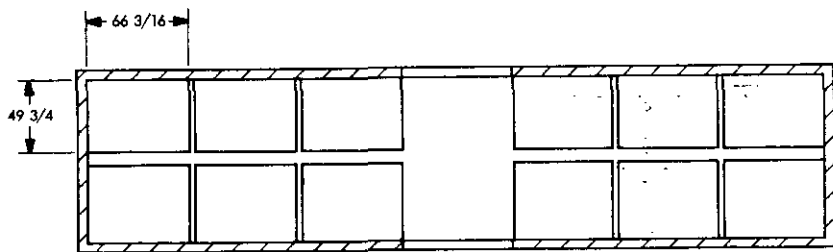
\*\*\*\* - 2 X 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 X 4's

PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE	PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
14	VERTICAL TIE BAR	2 X 4 X 88	4	12	3 PER JOINT	10d	9	HOLD DOWN SPACER	2 X 4 X CAR WIDTH-1	2	7	3 PER JOINT	10d
13	HORIZONTAL TIE BAR	2 X 4 X 106	6	12	2 PER JOINT	10d	8	CENTER GATE STRUT CLEAT	1 X 4 X CAR WIDTH-1	12	7	3 PER JOINT	10d
12	STRUT	4 X 4 **** X WEDGE FIT	24	7	2 PER JOINT	16d	7	CENTER GATE VERTICAL	2 X 6 X 90	8	SEE 6	-	-
11	HOLD DOWN	2 X 4 X 48	4	10	5	10d	6	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH-1	12	7	3 PER JOINT	10d
10	HOLD DOWN	2 X 4 X 48	4	9	5	10d	5	SEPARATOR GATE VERTICAL	2 X 6 X 90	24	SEE 4	-	-
							4	SEPARATOR GATE HORIZONTAL	1 X 4 X CAR WIDTH-1	8	5	3 PER JOINT	10d
							3	CROSS BRACE	2 X 6 X W	54	SEE 2	-	-
							2	SWAY BRACE LONGITUDINAL	1 X 4 X 60	36	1, 3	SEE NOTE	**
							1	SWAY BRACE SUPPORT	1 X 4 X (W+8)*	36	SEE 2	-	-

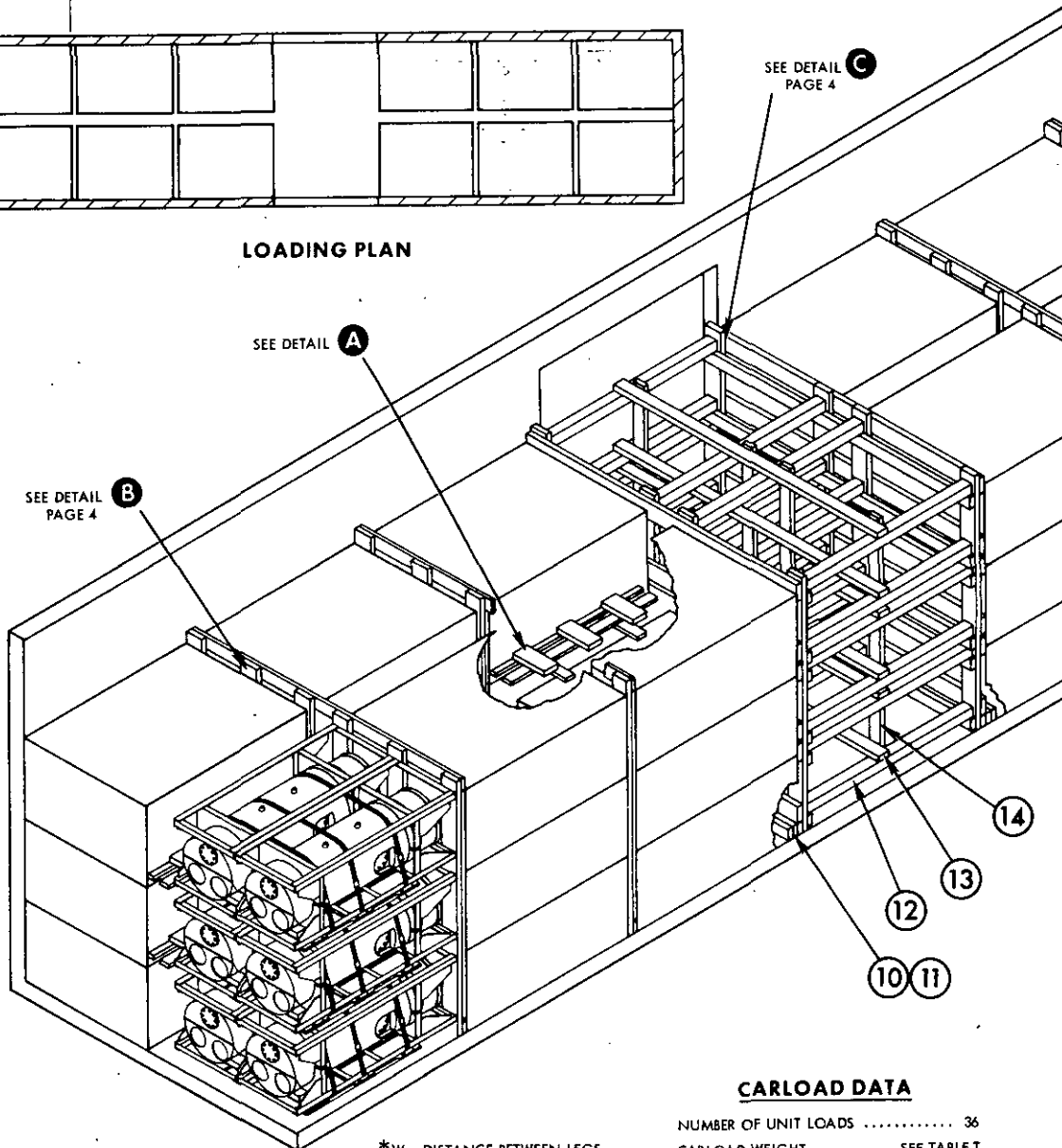
LIST OF MATERIALS & NAILING DATA

LIST OF MATERIALS & NAILING DATA

MIL-STD-1325-86 (NAVY)



LOADING PLAN



CARLOAD DATA

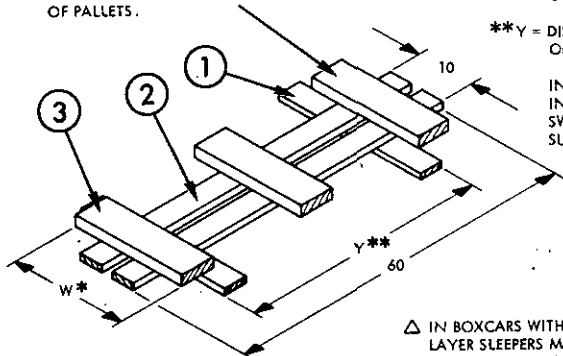
NUMBER OF UNIT LOADS ..... 36  
 CARLOAD WEIGHT ..... SEE TABLE I

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 A

SWAY BRACE ASSEMBLY  
 18 REQUIRED  $\Delta$

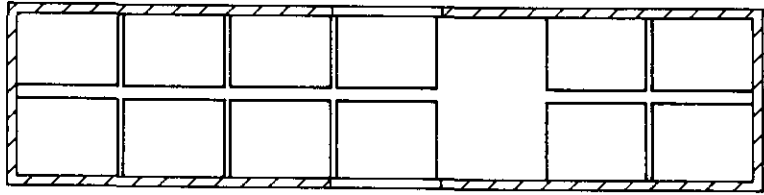
$\Delta$  IN BOXCARS WITH NAILABLE FLOORS BOTTOM LAYER SLEEPERS MAY BE SUBSTITUTED IN PLACE OF THE SWAY BRACE ASSEMBLY.

TABLE I

MINE	APPROXIMATE WEIGHTS IN LBS	
	UNIT LOAD	CARLOAD
MK 52		
MOD 1	2474	91118
MOD 2	2584	95078
MOD 3	2608	95942
MOD 4	2520	92774
MOD 5	2604	95798
MOD 6	2574	94718

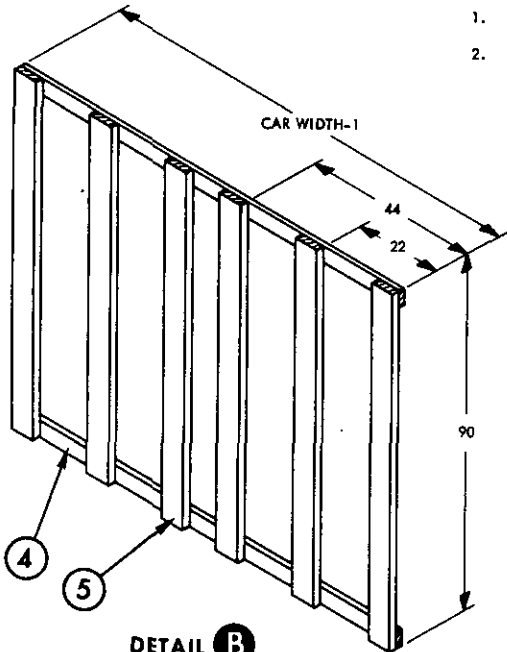
APPROXIMATE WEIGHT OF DUNNAGE (2054 LBS) INCLUDED IN CARLOAD WEIGHT

MIL-STD-1325-86 (NAVY)

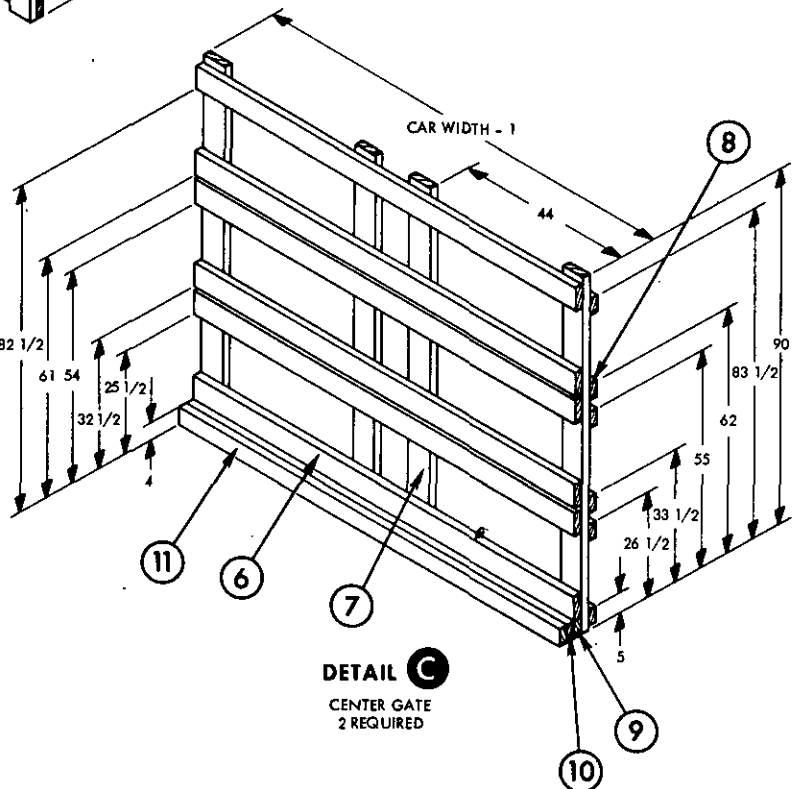


ALTERNATE LOADING PLAN

1. THE ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 109,999 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN DOORWAY PROTECTION MUST BE PROVIDED, SEE MIL-STD-1325 (NAVY).



**DETAIL B**  
SEPARATOR GATE  
4 REQUIRED



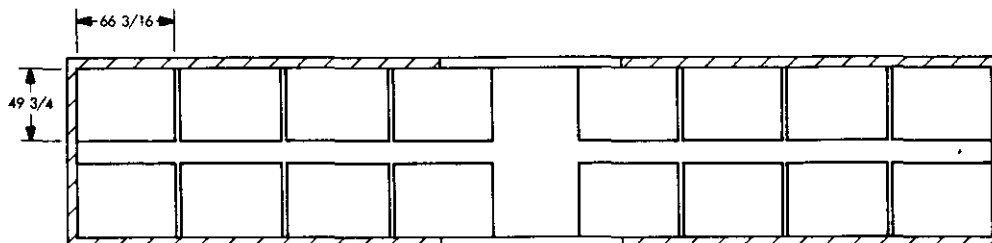
**DETAIL C**  
CENTER GATE  
2 REQUIRED

**THIS PAGE INTENTIONALLY LEFT BLANK**

## MIL-STD-1325-86 (NAVY)

## 50 FT 6 IN BOXCAR, COMMERCIAL

1. THE CARLOAD CONSISTS OF 48 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION IN ACCORDANCE WITH MIL-STD-1325 (NAVY) IS REQUIRED.
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 MIL-STD-1325-100 (NAVY) OR PARTIAL UPPER LAYER BRACING IN ACCORDANCE WITH THE "VERTICAL MEMBER AND STRAPPING" PROCEDURE OR THE "KNEE BRACING" PROCEDURE SHOWN IN MIL-STD-1325-102 (NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. 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.
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG DOORS PROVIDING STACKS WITH MORE THAN HALF OF THE UNIT LOAD IN THE DOORWAY AREA ARE UNITIZED WITH TWO LATERALLY APPLIED 1 1/4" STEEL STRAPS PER STACK EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS AND A TOP SWAY BRACE, CONSISTING OF A STRAPPING BOARD AND CROSS BRACE, TWO PER STACK (SEE DETAIL D) IS INSTALLED BETWEEN THE ROWS OF THE DOORWAY STACKS. EACH STRAP IS SECURED TO STRAPPING BOARD WITH TWO 1 1/4" STAPLES. 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. DIMENSIONAL LUMBER DOORWAY PROTECTION IS NOT REQUIRED WHEN PLUG DOOR EQUIPPED BOXCARS ARE USED EXCEPT WHEN CAR HAS A COMBINATION OF PLUG DOOR AND CONVENTIONAL SLIDING DOOR. THEN DIMENSIONAL LUMBER DOORWAY PROTECTION IS REQUIRED FOR THE CONVENTIONAL DOOR. PLUG DOORS MUST BE SECURELY CLOSED AND WIRED 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

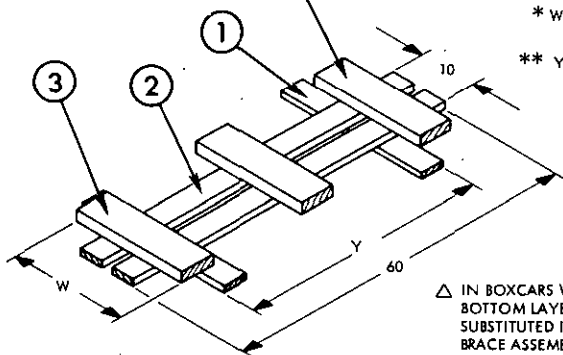
- \* - W = DISTANCE BETWEEN LEGS OF PALLETS ACROSS THE CAR
- \*\* - PIECE 2 NAILS TO PIECE 3 WITH 10d NAILS, CLINCHED, 3 PER JOINT, AND TO PIECE 1 WITH 6d NAILS, 1 PER JOINT
- \*\*\* - CLINCHED
- \*\*\*\* - 2 X 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 X 4's.

14	VERTICAL TIE BAR	2 X 4 X 88	4	12	3 PER JOINT	10d
13	HORIZONTAL TIE BAR	2 X 4 X 108	6	12	3 PER JOINT	10d
12	STRUT	4 X 4 **** X WEDGE FIT	24	7	2 PER JOINT	16d
11	HOLD DOWN	2 X 4 X 48	4	10	5	10d
10	HOLD DOWN	2 X 4 X 48	4	9	5	10d
9	HOLD DOWN SPACER	2 X 4 X CAR WIDTH-1	2	7	3 PER JOINT	10d
8	CENTER GATE STRUT CLEAT	2 X 4 X CAR WIDTH-1	12	7	3 PER JOINT	10d
7	CENTER GATE VERTICAL	2 X 6 X 90	8	SEE 6	-	-
6	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH-1	12	7	3 PER JOINT	10d
5	SEPARATOR GATE VERTICAL	2 X 6 X 90	36	SEE 4	-	-
4	SEPARATOR GATE HORIZONTAL	1 X 4 X CAR WIDTH-1	12	5	3 PER JOINT	**** 10d
3	CROSS BRACE	2 X 6 X W	72	SEE 2	-	-
2	SWAY BRACE LONGITUDINAL	1 X 4 X 60	48	1, 3	SEE NOTE	**
1	SWAY BRACE SUPPORT	1 X 4 X (W+8) *	48	SEE 2	-	-
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS &amp; NAILING DATA

MIL-STD-1325-86 (NAVY)

CROSS BRACES MUST BE CENTERED AGAINST LEGS OF PALLETS.



\* W = DISTANCE BETWEEN LEGS OF PALLETS ACROSS THE CAR

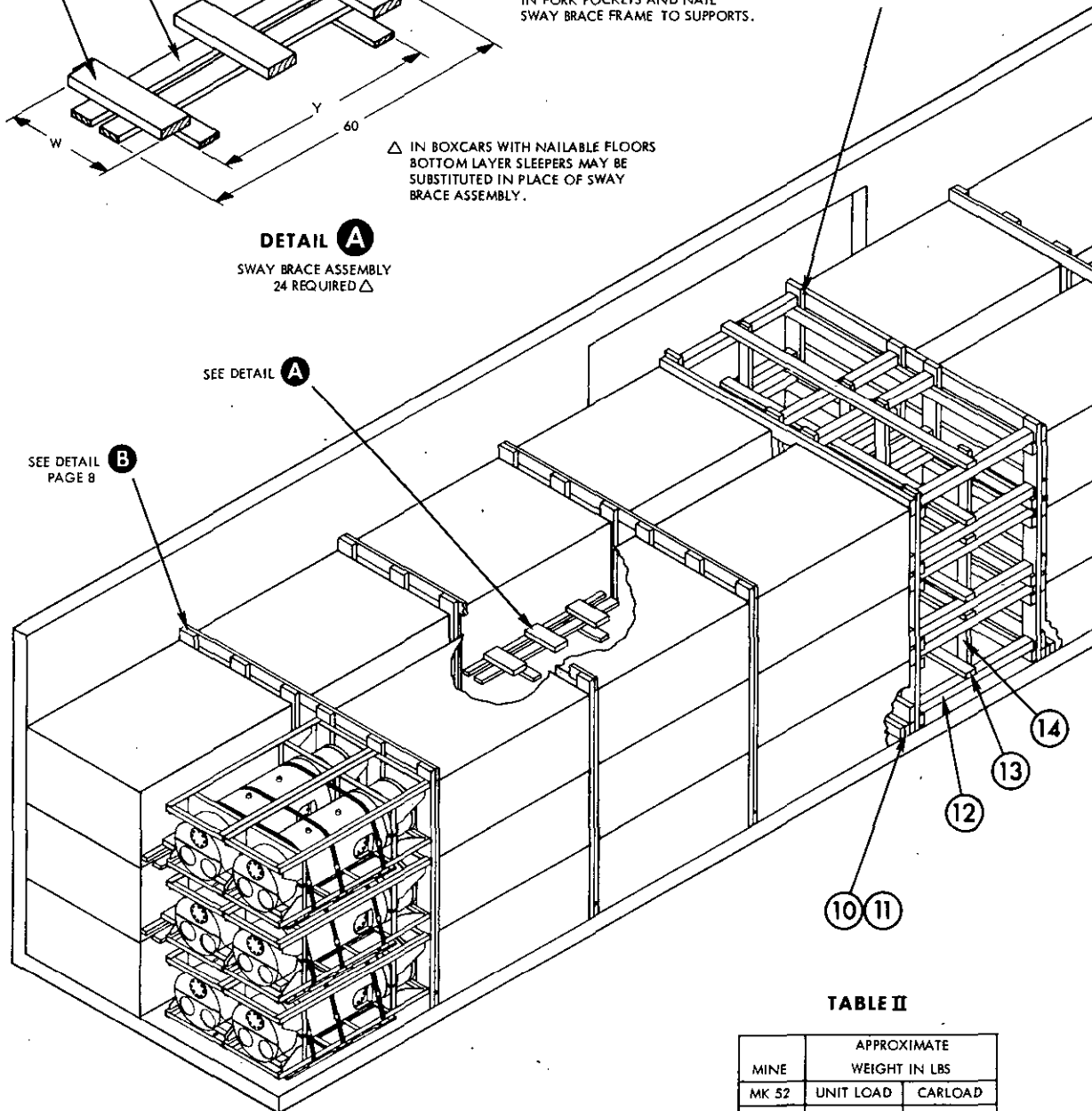
\*\* Y = DISTANCE BETWEEN INSIDE OF OUTER LEGS OF PALLET

INSERT SWAY BRACE SUPPORTS IN FORK POCKETS AND NAIL SWAY BRACE FRAME TO SUPPORTS.

SEE DETAIL C  
PAGE 8

△ IN BOXCARS WITH NAILABLE FLOORS BOTTOM LAYER SLEEPERS MAY BE SUBSTITUTED IN PLACE OF SWAY BRACE ASSEMBLY.

**DETAIL A**  
SWAY BRACE ASSEMBLY  
24 REQUIRED △



**TABLE II**

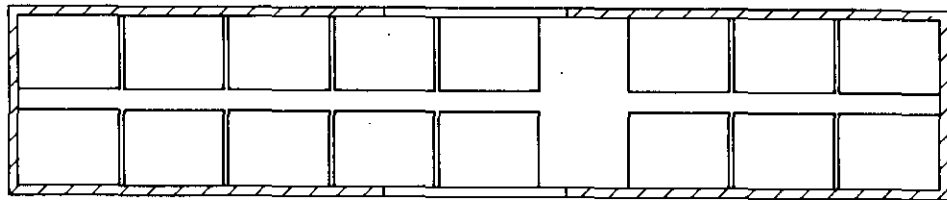
MINE	APPROXIMATE WEIGHT IN LBS	
	UNIT LOAD	CARLOAD
MOD 1	2474	121076
MOD 2	2584	126356
MOD 3	2608	127508
MOD 4	2520	123284
MOD 5	2604	127316
MOD 6	2574	125876

**CARLOAD DATA**

NUMBER OF UNIT LOADS ..... 48  
CARLOAD WEIGHT..... SEE TABLE II

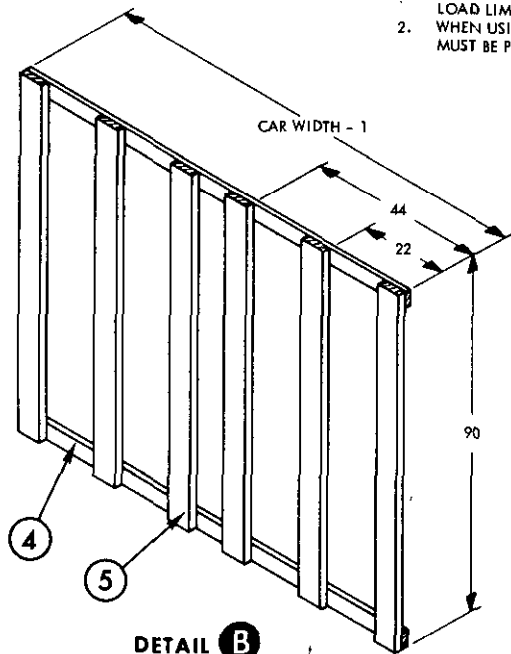
APPROXIMATE WEIGHT OF DUNNAGE (2324 LBS) INCLUDED IN CARLOAD WEIGHT

**MIL-STD-1325-86 (NAVY)**



**ALTERNATE LOADING PLAN**

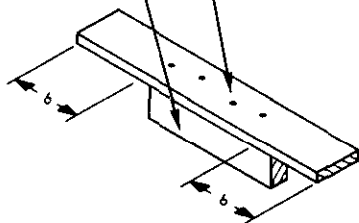
1. THE ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 132,500 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN DOORWAY PROTECTION MUST BE PROVIDED, SEE MIL-STD-1325 (NAVY).



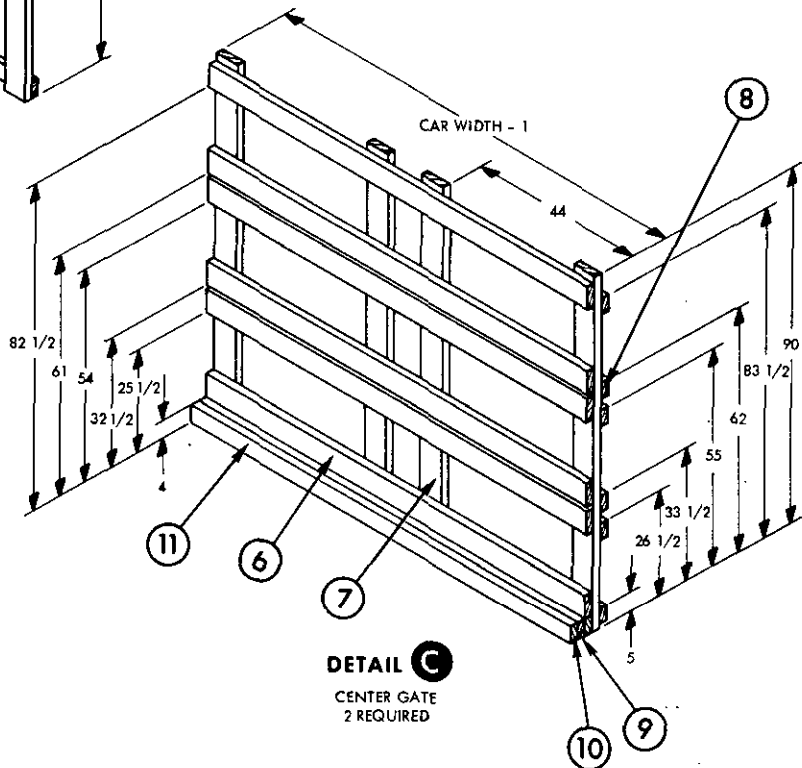
**DETAIL B**  
SEPARATOR GATE  
6 REQUIRED

STRAPPING BOARD  
1 X 4 X CUT TO FIT.  
NAIL TO EDGE OF  
CROSS BRACE WITH  
FOUR 10d NAILS.

CROSS BRACE  
2 X 4 X CUT TO FIT.  
SNUGLY BETWEEN  
LATERALLY ADJACENT  
PALLET.



**DETAIL D**  
TOP SWAY BRACE



**DETAIL C**  
CENTER GATE  
2 REQUIRED



STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL		OMB Approval No. 22-R255
<p><b>INSTRUCTIONS:</b> The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.</p>		
DOCUMENT IDENTIFIER AND TITLE		
Mil-Std-1325-86 (NAVY)		
NAME OF ORGANIZATION AND ADDRESS		CONTRACT NUMBER
		MATERIAL PROCURED UNDER A
		<input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT
1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?		
A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE DOCUMENT RESTRICTIVE?		
<input type="checkbox"/> YES <input type="checkbox"/> NO (If "Yes", in what way?)		
4. REMARKS		
SUBMITTED BY (Printed or typed name and address - Optional)		TELEPHONE NO.
		DATE

DD FORM 1426  
1 JAN 72

REPLACES EDITION OF 1 JAN 66 WHICH MAY BE USED

S/N 0102-014-1802

FOLD

POSTAGE AND FEES PAID



**OFFICIAL BUSINESS**  
PENALTY FOR PRIVATE USE \$300

DOD 316

Naval Weapons Station Earle (803)  
Colts Neck, N.J. 07722

FOLD