

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

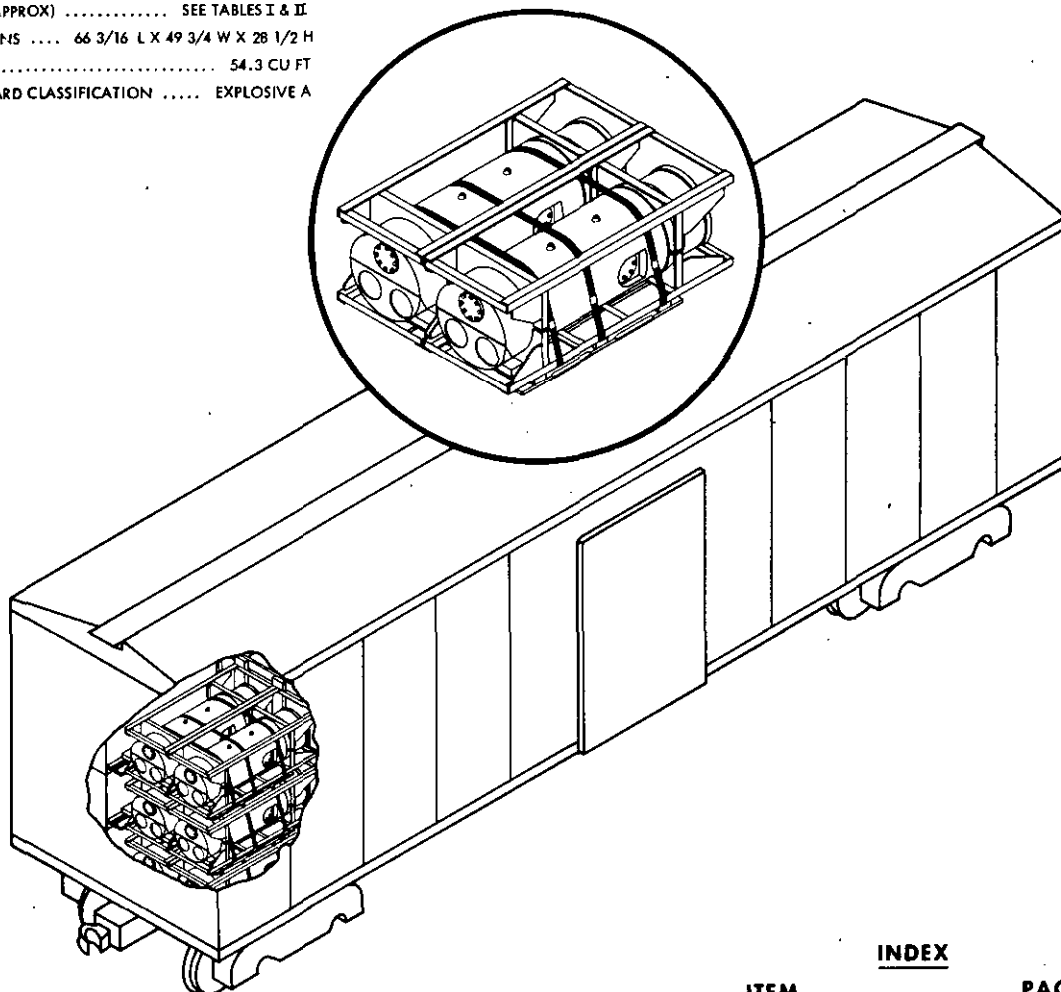
SUPERSEDING

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).

INDEX

ITEM	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 8/1/76
 SEA SYSCOM BY DIRECTION DATE

L. J. Grassmuck 7/21/76
 SIGNATURE SUPERVISOR, MILITARY & INTERMODEL SERVICES DATE
ORIGINATOR *7/4/76* 7/30/76
 NAVAL WEAPONS HANDLING CENTER DATE
 WPNSTA EARLE, NEW JERSEY

PAGE 1 OF 8

MIL-STD-1325-86 (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. DODX UTILITY LOADER CARS SHALL NOT BE USED FOR ITEMS WITH EXPLOSIVES A OR B HAZARD CLASSIFICATION.
- 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.
- 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 UNDERWATER MINES MK 52 & MODS IN UNDERWATER MINE CRATE MK 52 MOD 0.
- 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-S-781, TYPE I, HEAVY DUTY, CLASS A, DRY (UNLUBRICATED).
 SEALS - FED SPEC QQ-S-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).

40 FT 6 IN BOXCAR, COMMERCIAL

- 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.
- 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).
- 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

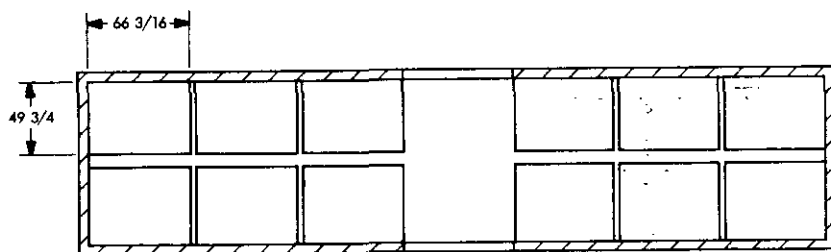
**** - 2 X 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 X 4's

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 108	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	-	-

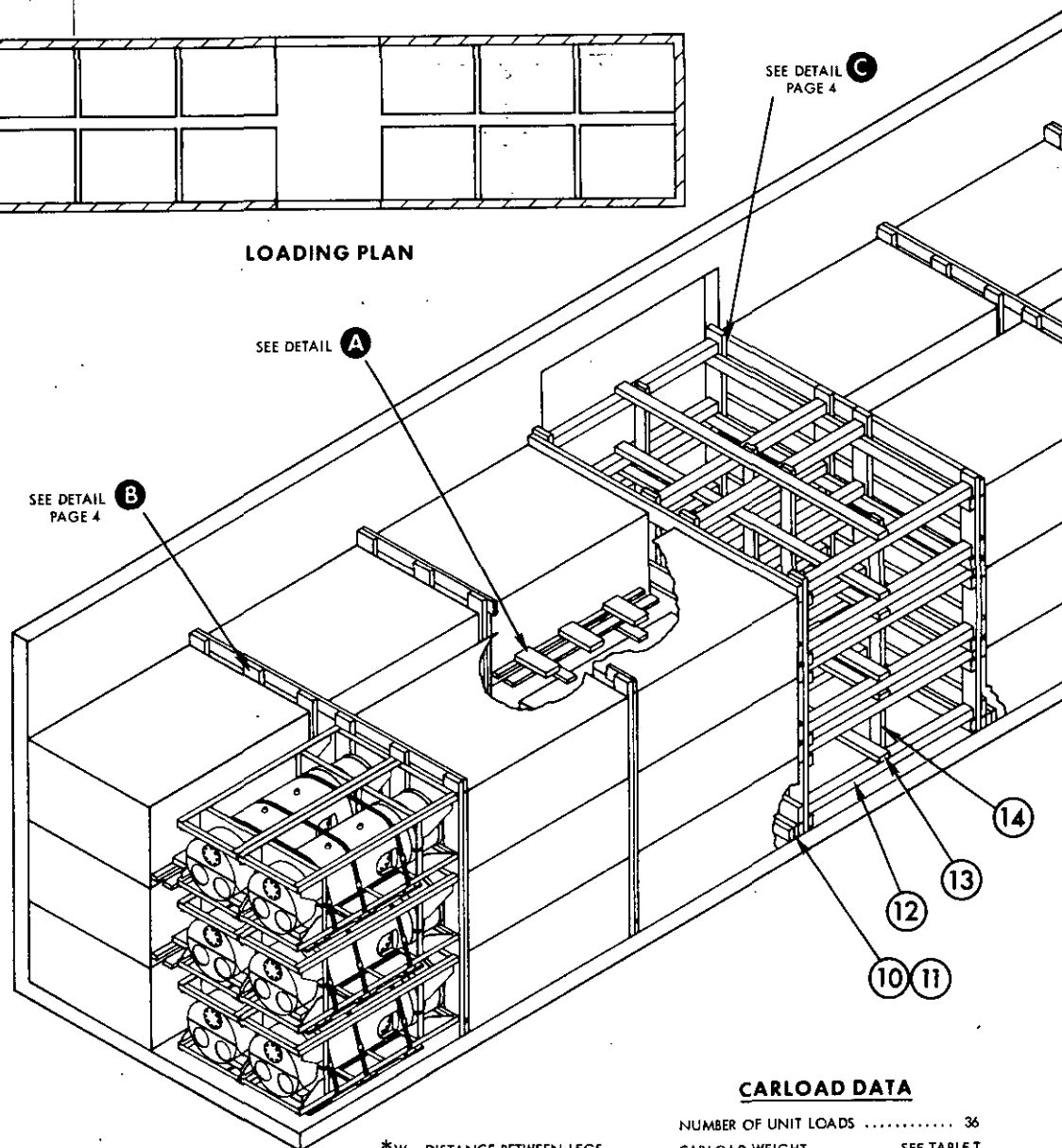
LIST OF MATERIALS & NAILING DATA

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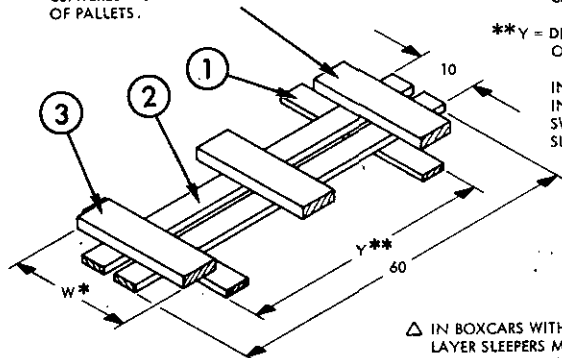
MIL-STD-1325-86 (NAVY)



LOADING PLAN



CROSS BRACES MUST BE
CENTERED AGAINST LEGS
OF PALLET.



DETAIL A

SWAY BRACE ASSEMBLY
18 REQUIRED Δ

*W = DISTANCE BETWEEN LEGS
OF PALLET 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.

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

CARLOAD DATA

NUMBER OF UNIT LOADS 36

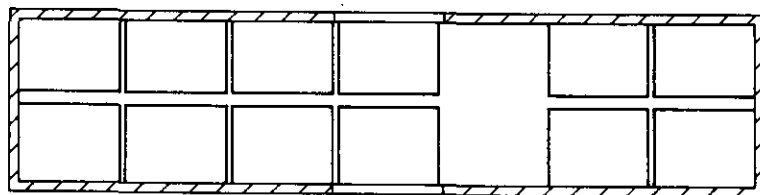
CARLOAD WEIGHT SEE TABLE I

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

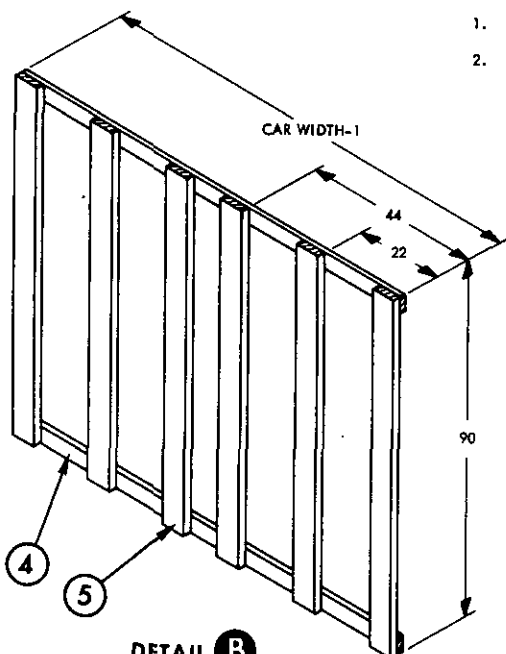
APPROXIMATE WEIGHT OF DUNNAGE (2054 LBS)
INCLUDED IN CARLOAD WEIGHT

MIL-STD-1325-86 (NAVY)

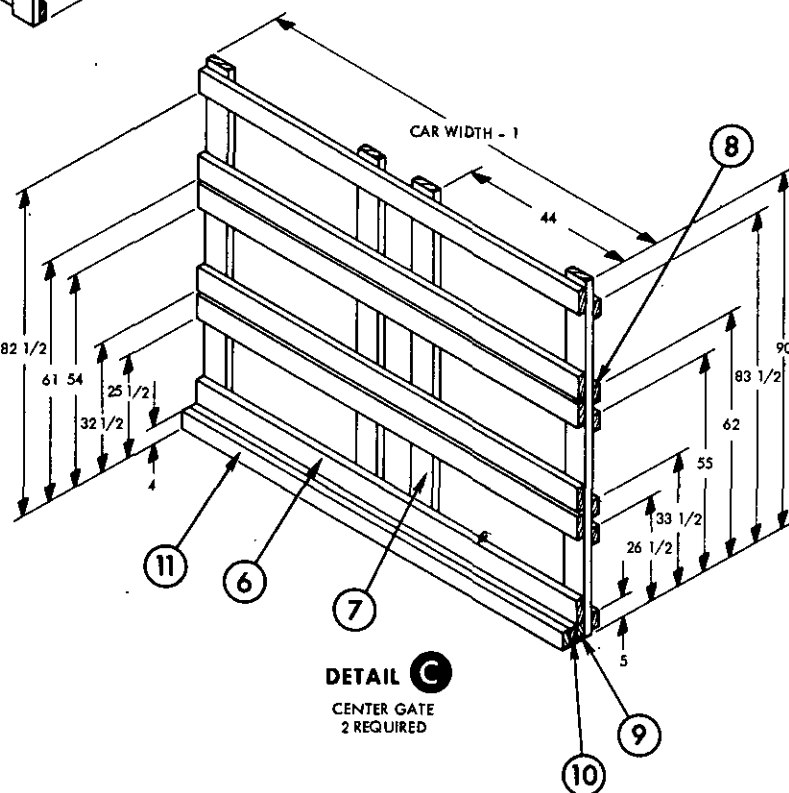


ALTERNATE LOADING PLAN

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

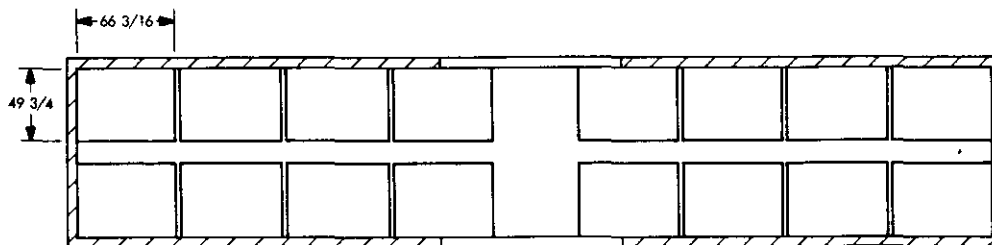
MIL-STD-1325-86 (NAVY)

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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.



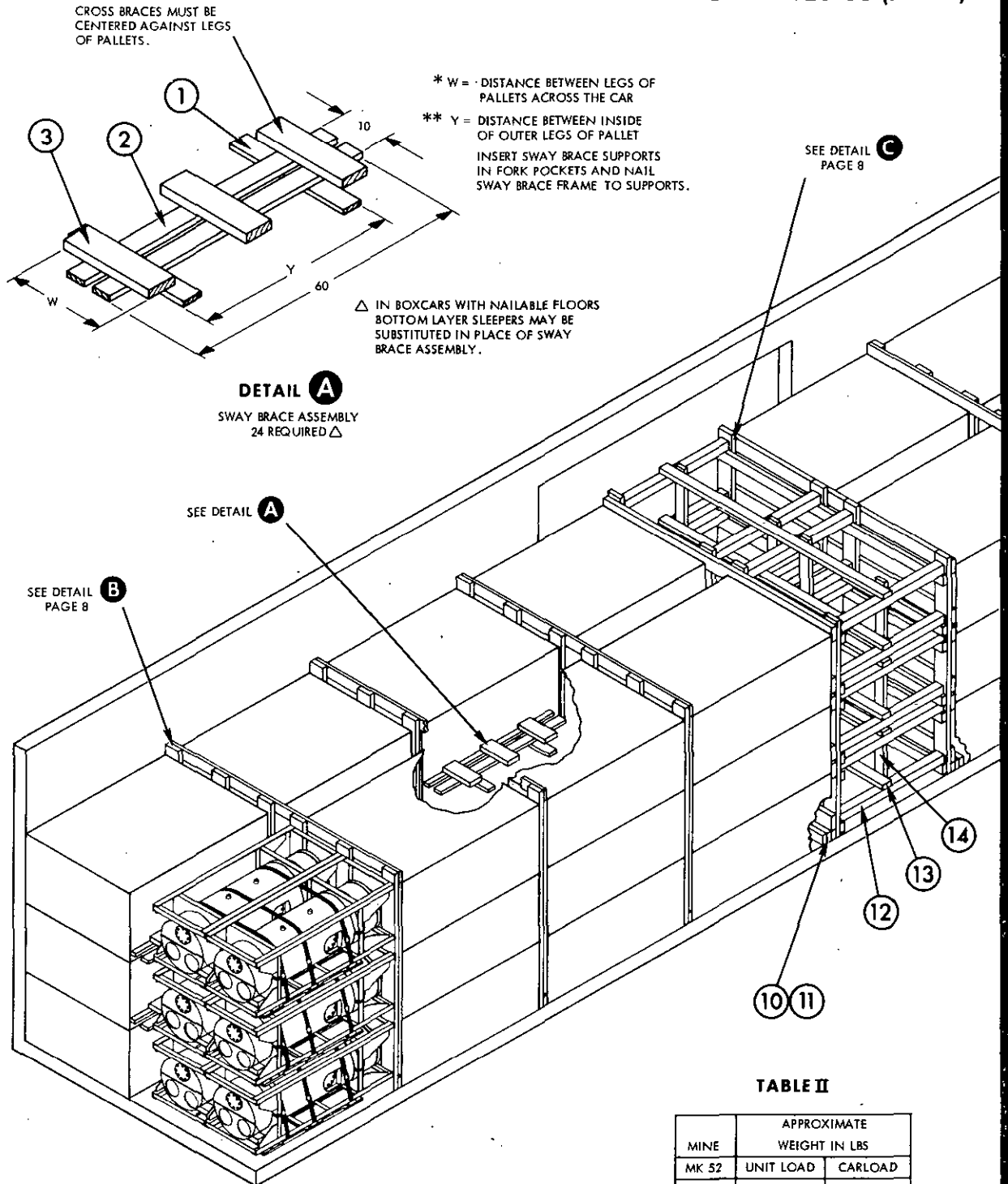
LOADING PLAN

- * - W = DISTANCE BETWEEN LEGS OF PALLET 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
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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 NAILS	SIZE

LIST OF MATERIALS & NAILING DATA

MIL-STD-1325-86 (NAVY)

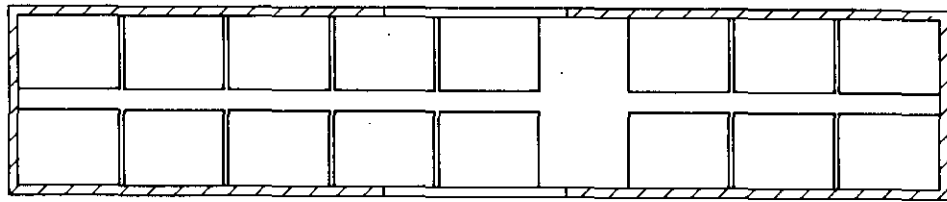
**CARLOAD DATA**

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

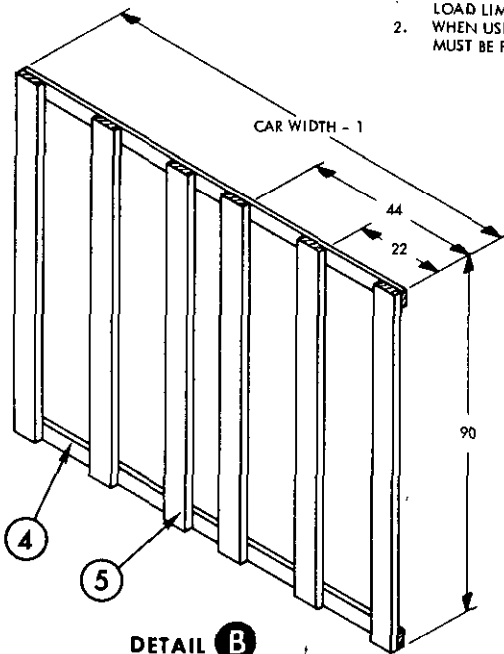
TABLE II

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

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

MIL-STD-1325-86 (NAVY)**ALTERNATE LOADING PLAN**

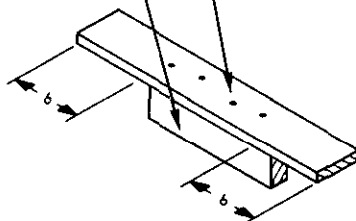
1. THE ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 132,500 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN DOORWAY PROTECTION MUST BE PROVIDED, SEE MIL-STD-1325 (NAVY).



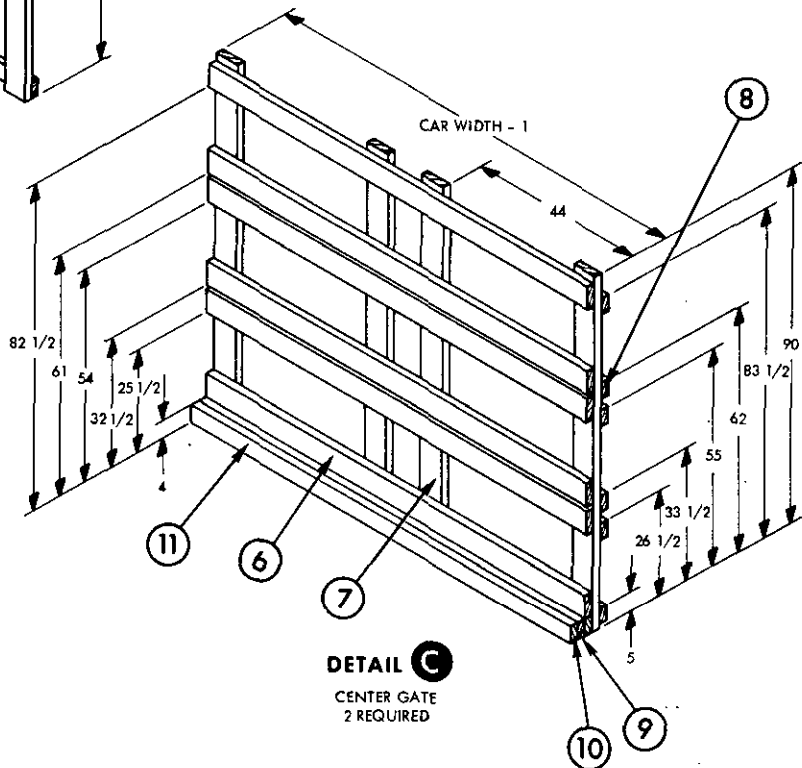
DETAIL B
SEPARATOR GATE
6 REQUIRED

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
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