

## MILITARY STANDARD

MIL-STD-1325-97

(NAVY)

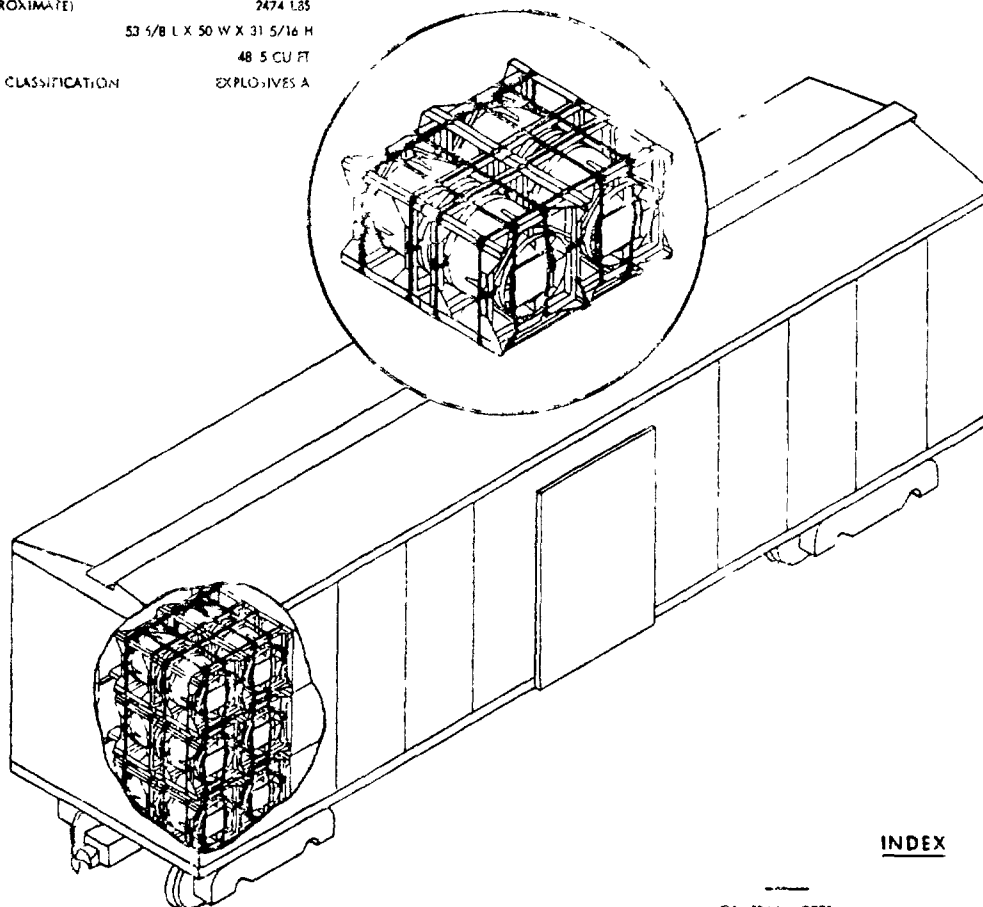
UNITARY LOADING OF HAZARDOUS MATERIALS  
EXPLOSIVE SECTION MK 1 MOD 1  
IN CRATE MX 101 MOD 1  
FLEET ISSUE UNIT LOAD

5 APRIL 1976

SUPERSEDING  
15 52/97  
4 OCT 1968

UNIT LOAD DATA

UNIT LOADING DRAWING NR 54/161  
WEIGHT (APPROXIMATE) 2474 LBS  
DIMENSIONS 53 5/8 L X 50 W X 31 5/16 H  
CUBE 48.5 CU FT  
DOT HAZARD CLASSIFICATION EXPLOSIVES A

INDEXPAGE

GENERAL NOTES	7
40 - 6 CARLOAD COM	2, 3, 6 -
50 - 6 CARLOAD COM	6, 7, 8 & 9

NOTES

- 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)

FSC B140

**AUTHORIZED AND RELEASED  
FOR GENERAL USE.**

**APPROVED BY BUREAU OF EXPLOSIVES**

*M. S. Long* 3/14/76  
GNA 3/14/76  
DATE 3/14/76  
BY DISPOSITION DATE

SIGNATURE *[Signature]* 3/14/76  
DATE 3/14/76  
ORIGINATOR *[Signature]* 4/14/76  
DATE 4/14/76  
SIGNATURE  
RESPONSIBLE HANDLING LABORATORY  
APNS A VALE NEW JERSEY  
PAGE 1 OF 8

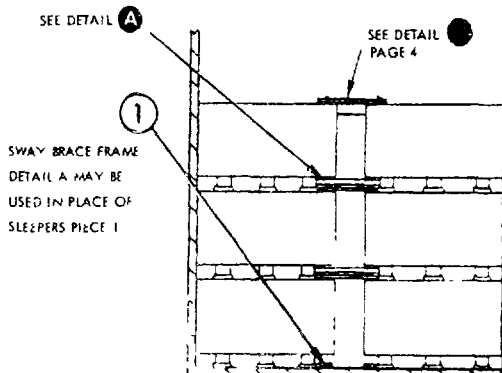
MIL-STD-1325-102 (NAVY)

## 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
2. IN 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 EXPLORATORY 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 MK 1 MOD 1 EXPLOSIVE SECTIONS IN MK 101 MOD 0 CRATES PALLETIZED IN ACCORDANCE WITH WK-54/161.
  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 1).

## 40 FT 6 IN BOXCAR, COMMERCIAL

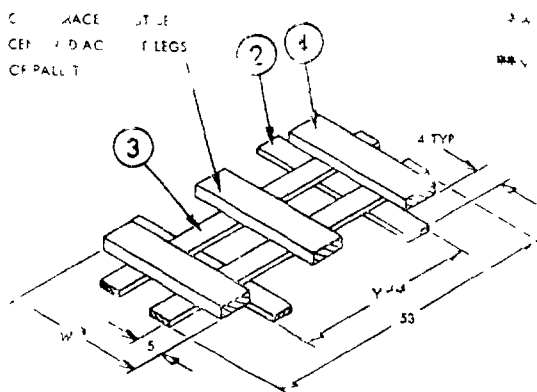
1. THE CARLOAD CONSISTS OF 48 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING.
2. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN COMMERCIAL BOXCARS AND A PARTIAL LAYER RESULTS, THE PARTIAL LAYER OF LADING SHALL BE BRACED BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH MIL-STD-1325-100 (NAVY) OR PARTIAL UPPER LAYER BRACING IN ACCORDANCE WITH 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.
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 IN 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) INSTALLED BETWEEN THE ROWS OF THE DOORWAY STACKS. EACH STRAP IS SECURED TO STRAPPING BOARD WITH TWO 1 1/4 IN 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. 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. DIMENSIONAL LUMBER DOORWAY PROTECTION, PIECES 12 AND 13, 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.



SECTION B-B

MIL-STD-129 77 (2A, 1)

C BRACE  
CENT. GATE  
OF PALLET



**DETAIL 1**  
SWAY BRACE ASSEMBLY  
16 REQUIRED

3 1/4 DIST. BETWEEN POSTS OF  
PALLET CROSS TIE BAR

\*\*\* DIST. BETWEEN TIE BAR  
OUTER POSTS OF PALLET

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

SEE DETAIL  
PAGE 4

SECURE THE TOP SWAY BRACE  
WITH NO. 14 GAGE TIE WIRE  
24" LONG, ENCLOSE THE SUPPORT  
PIECE AND THE STRAP OF THE UNIT  
LOAD AND TWIST TAUT

### CARLOAD DATA

NUMBER OF UNIT LOADS 48  
LOAD WEIGHT (APPROX) 118,752 LBS  
DUMPAGE WEIGHT (APPROX) 1,725 LBS  
CARLOAD WEIGHT (APPROX) 120,477 LBS  
SEE LOADING PLAN NOTE PAGE 4

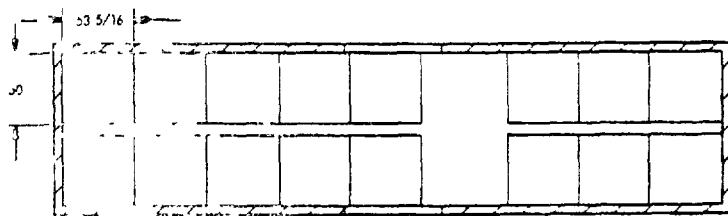
DESCRIPTION	SIZE	NO. OF PIECES REQUIRED	NAIL TO	NUMBER	SIZE	DESCRIPTION	SIZE	NO. OF PIECES REQUIRED	NAIL	NUMBER	SIZE
5	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1	12	6	3 PER JOINT	10d					
4	CROSS BRACE	2 X 6 X W***	48	SEE 3							
3	SWAY BRACE LONGITUDINAL	1 X 4 X 53	32	1 3	SEE NOTE ***						
2	SWAY SUPPORT	1 X 4 X (W - 8)***	32	SEE 3							
1	SLEEPER	2 X 1 X 53*	16	CAR FLOOR							

LIST OF MATERIALS & NAILING DATA

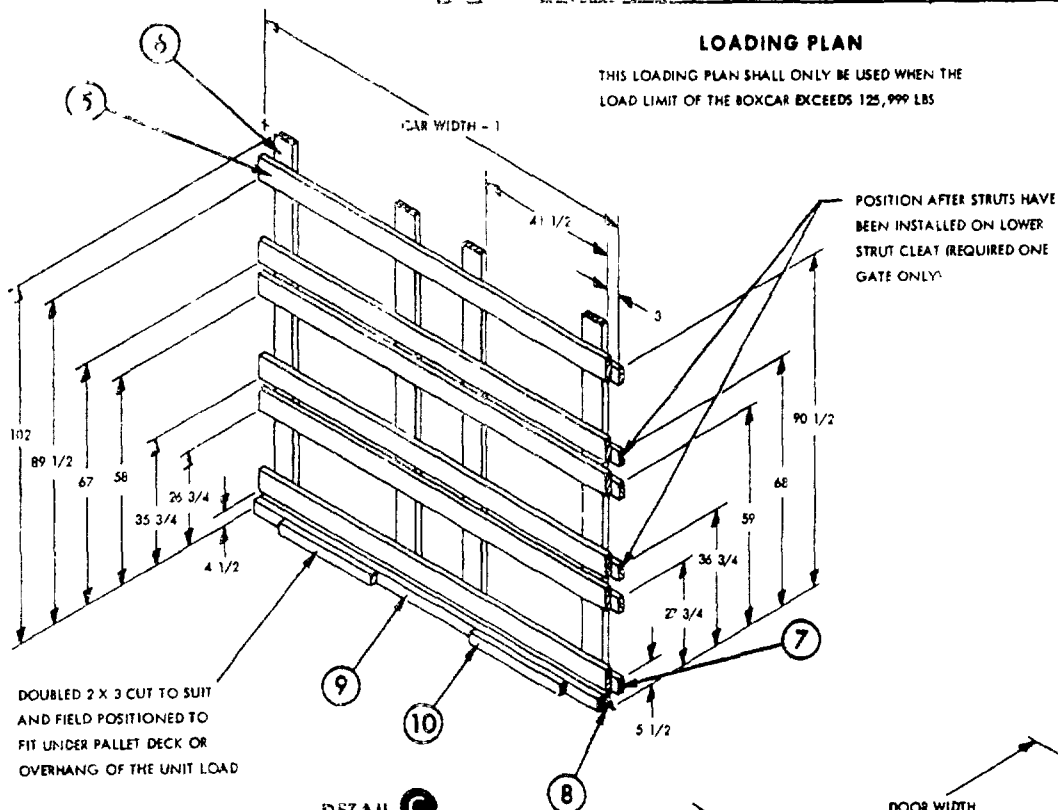
17	CROSS PIECE	2 X 4 X CUT TO FIT	5	SEE 16							
16	SUPPORT PIECE	1 X 4 X CUT TO FIT	8	17							10d
15	VERTICAL TIE BAR	2 X 4 X 9									10d
14	HORIZONTAL TIE BAR	2 X 4 X CAR WIDTH - 4	6	1							10d
13	HORIZONTAL DOORWAY MEMBER	2 X 4 X DOOR WIDTH	12	14							10d
12	VERTICAL DOORWAY MEMBER	2 X 3 X 102	4	DOOR POST							20d
11	STRUT	4 X 4 X *** WEDGE FIT	24	6							16d
10	HOLD DOWN CLEAT	2 X 3 X CUT TO FIT	4	9							16d
9	HOLD DOWN CLEAT	2 X 3 X CUT TO FIT	4	8							10d
8	HOLD DOWN SPACER	2 X 4 X CAR WIDTH	2	6							10d
7	CENTER GATE STRUT CLEAT	1 X 4 X CAR WIDTH	12	6							10d
6	CENTER GATE VERTICAL	2 X 6 X 102	4	SEE 7							

LIST OF MATERIALS & NAILING DATA

11 5511323 7 1A/1

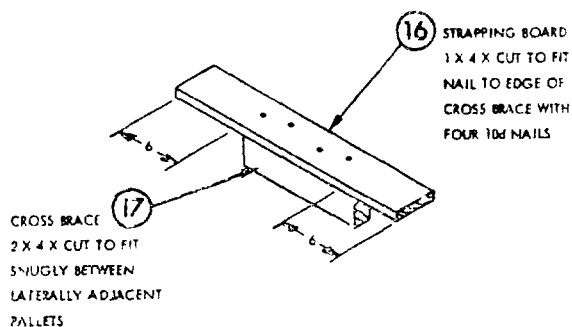
**LOADING PLAN**

THIS LOADING PLAN SHALL ONLY BE USED WHEN THE  
LOAD LIMIT OF THE BOXCAR EXCEEDS 125,999 LBS



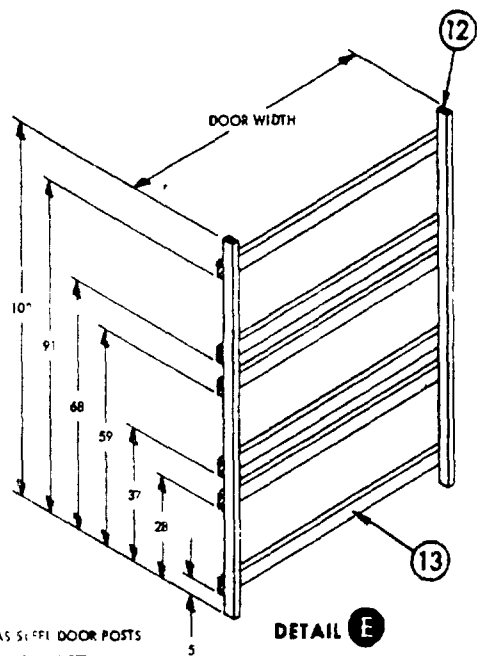
DOUBLED 2 X 3 CUT TO SUIT  
AND FIELD POSITIONED TO  
FIT UNDER PALLET DECK OR  
OVERHANG OF THE UNIT LOAD

**DETAIL C**  
CENTER GATE  
2 REQUIRED



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

**DETAIL D**  
CROSS BRACE



**DETAIL E**  
DOORWAY PROTECTION  
2 REQUIRED

WHEN BOXCAR HAS STEEL DOOR POSTS  
DOORWAY PROTECTION AS PER  
UL STD-1325 (MAY) 5 REQUIRED

MIL-STD-3323-97 (NAVY)

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MIL-STD-1325-102 (NAVY)

## 50 FT 6 IN BOXCAR, COMMERCIAL

- THE CARLOAD CONSISTS OF 60 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURE. DRAWING BOXCAR NOT RATING THE LOAD CARRYING CAPACITY (LOADING) FOR UNIT LOADS MAY BE LOADED WITH A LESSER CARRYING CAPACITY. SPECIFICATIONS IN THIS DOCUMENT MUST BE FOLLOWED AS CLOSELY AS POSSIBLE. IF A PARTIAL LAYER RESULTS, A PARTIAL LAYER OF LADING SHALL BE BRACED IN ACCORDANCE WITH MIL-STD-1325-102 (NAVY) OR MIL-STD-1325-102 (NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED.
- WHEN LESS THAN CARLOAD (LCI) 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-1325-102 (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 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.
- 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 IN 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) INSTALLED BETWEEN THE ROWS OF THE DOORWAY STACKS. EACH STRAP IS SECURED TO STRAPPING BOARD WITH TWO 1 1/4 IN 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. IF LUMBER OF SUFFICIENT LENGTH TO SPAN PLUG DOORS IS NOT AVAILABLE RANDOM LENGTH MATERIAL DOUBLED AND SPLICED BUT WITH JOINTS OF SPLICED OFFSET MAY BE USED. DIMENSIONAL LUMBER DOORWAY PROTECTION 1 PIECES 12 AND 13 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.

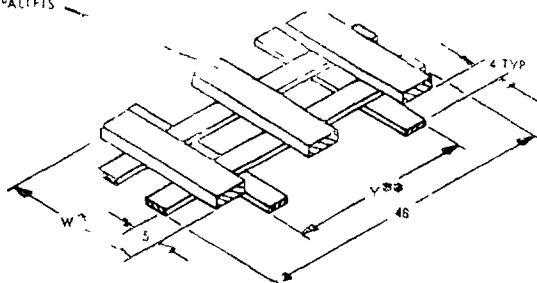
- \* USE SWAY BRACE ASSEMBLY  
DETAIL A FOR STEEL FLOOR CAPS
- \* \* \* = DISTANCE BETWEEN LEGS OF  
PALLET ACROSS THE CAR
- \*\*\* PIECE 3 NAILS TO PIECE 4 WITH 10d  
NAILS CLINCHED 3 PER JOINT AND TO  
PIECE 2 WITH 6d NAILS 1 PER JOINT
- \*\*\* 2 X 6 STRUTS DOUBLED AND LAMINATED  
WITH 10d NAILS MAY BE SUBSTITUTED  
IN PLACE OF 4 X 4

17	CROSS PIECE	2 X 4 X CUT TO FIT	8	SEE 16	-	-
16	SUPPORT PIECE	1 X 4 X CUT TO FIT	8	17	4	10d
15	VERTICAL TIE BAR	2 X 4 X 96	4	11	3 PER JOINT	10d
14	HORIZONTAL TIE BAR	2 X 4 X CAR WIDTH - 4	6	11	3 PER JOINT	10d
13	HORIZONTAL DOORWAY MEMBER	2 X 4 X DOOR WIDTH	12	12	2 PER JOINT	10d
12	VERTICAL DOORWAY MEMBER	2 X 3 X 102	4	DOOR POST	2 PER FOOT	20d
11	STRUT	4 X 4 X *** WEDGE FIT	24	6	2 PER FOOT	16d
10	HOLD DOWN CLEAT	2 X 3 X CUT TO FIT	4	9	4	16d
9	HOLD DOWN CLEAT	2 X 3 X CUT TO FIT	4	8	4	10d
8	HOLD DOWN SPACE	2 X 4 X CAR WIDTH - 1	2	6	3 PER JOINT	10d
7	CENTER GATE STRUT CLEAT	2 X 4 X CAR WIDTH - 1	12	6	3 PER JOINT	10d
6	CENTER GATE VERTICAL	2 X 6 X 102	8	SEE 5, 7, 8	-	-
5	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1	12	6	3 PER JOINT	10d
4	CROSS BRACE	2 X 6 X ***	60	SEE 3	-	-
3	SWAY BRACE LONGITUDINAL	1 X 4 X 53	40	1 3	SEE NOTE	***
2	SWAY BRACE SUPPORT	1 X 4 X *** 81-33	40	SEE 1	-	-
1	SLEEPER	2 X 4 X 57	20	CAR FLOOR	2 PER FOOT	16d
PIECE NO	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS &amp; NAILING DATA

## MIL-STD-1325-97(NAVY)

LOSS BR 75 MUST BE  
CENTERED AGAINST LCC  
O. PALLET



SEE DETAIL **A**

SWAY BRACE ASSEMBLY  
AS REQUIRED

- \* W DISTANCE BETWEEN POSTS OF  
PALLET ACROSS THE CAR
- \*\* V DISTANCE BETWEEN INSIDE OF OUTER  
POSTS OF PALLET

INSERT SWAY BRACE SUPPORTS IN  
FORRY POCKETS AND NAIL SWAY BRACE  
FRAME TO SUPPORTS

SEE DETAIL **E**  
PAGE 8

SECURE THE TOP SWAY BRACE WITH NO. 14 GAGE TIE WIRE  
24" LONG, ENCIRCLE THE SUPPORT PIECE AND THE STRAP OF  
THE UNIT LOAD AND TWIST TAUT

SEE DETAIL **B**  
PAGE 8

SEE DETAIL **A**

SEE DETAIL **C**  
PAGE 8

### CARLOAD DATA

NUMBER OF UNIT LOADS	60
LOAD HEIGHT (APPROX.)	146 440 LBS
UNIT WEIGHT (APPROX.)	1 990 LBS
CARLOAD WEIGHT (APPROX.)	50 400 LBS

SEE DETAIL **A**

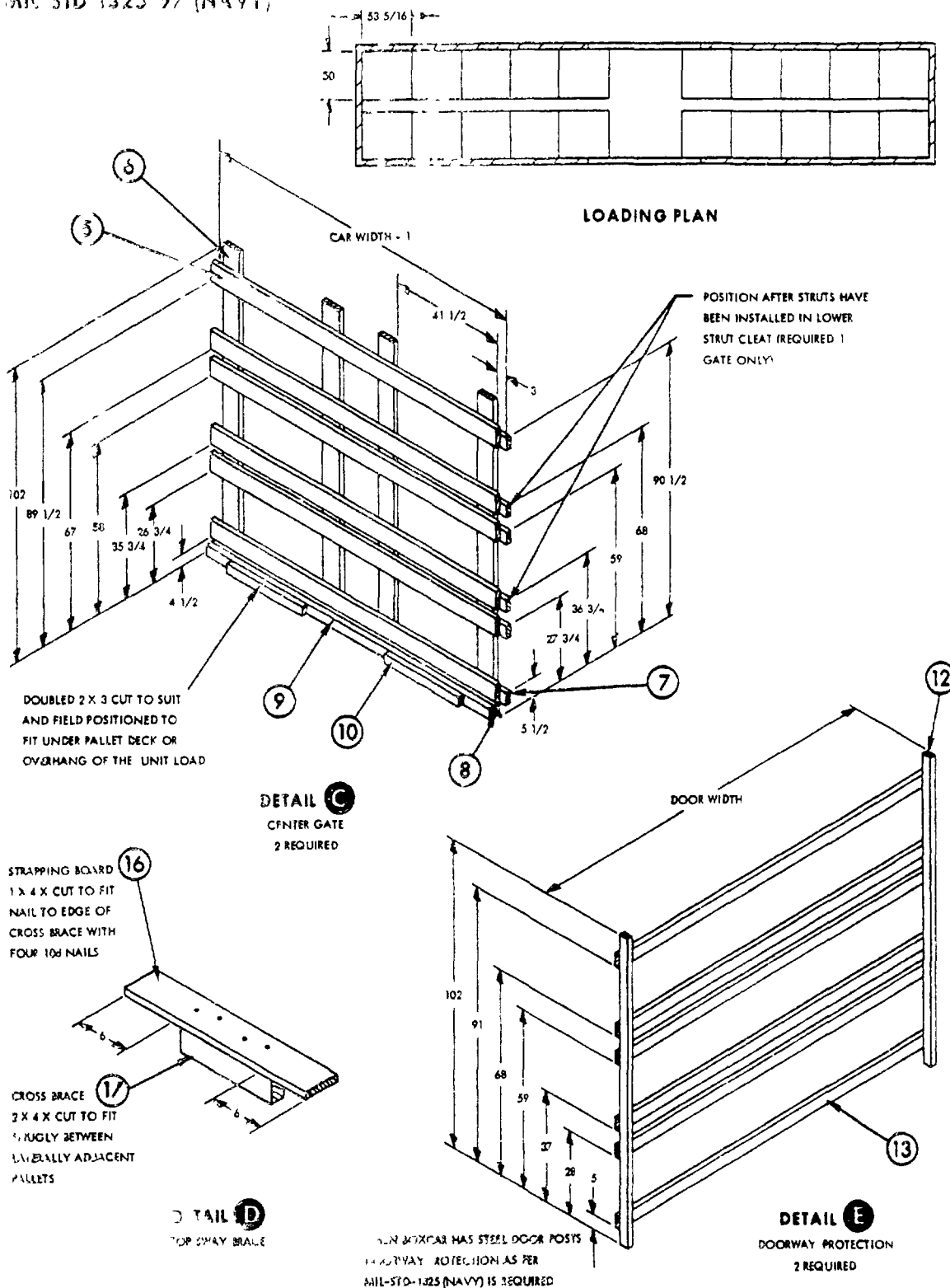
SEE DETAIL **D**  
PAGE 8

SWAY BRACE FRAME  
TAIL **3** MAY BE  
ED IN PLACE OF  
PER 25 12C. 1

### SECTION B-B



MIL STD 1325-97 (NAVY)



REVIEW AUTHORITY  
NAVY - 05

PREPARING ACTIVITY  
NAVY - 05  
(PROJECT NO. B140 - N319)



## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval  
No. 22-2755

**INSTRUCTIONS** 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.

DOCUMENT IDENTIFIER AND TITLE

MIL-STD-1325-97 (Navy)

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ 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?

☐ YES ☐ NO (If "Yes", in what way?)

4. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE

DD FORM 1325-97

1. PREVIOUS EDITION OF 1 JAN 63, NOT USED

GPO

S, 70 11 192

FOLD

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OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300

COMMANDING OFFICER  
NAVAL WEAPONS STATION EARLE  
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COLTS NECK, NEW JERSEY 07722

FOLD