MILITARY STANDARD

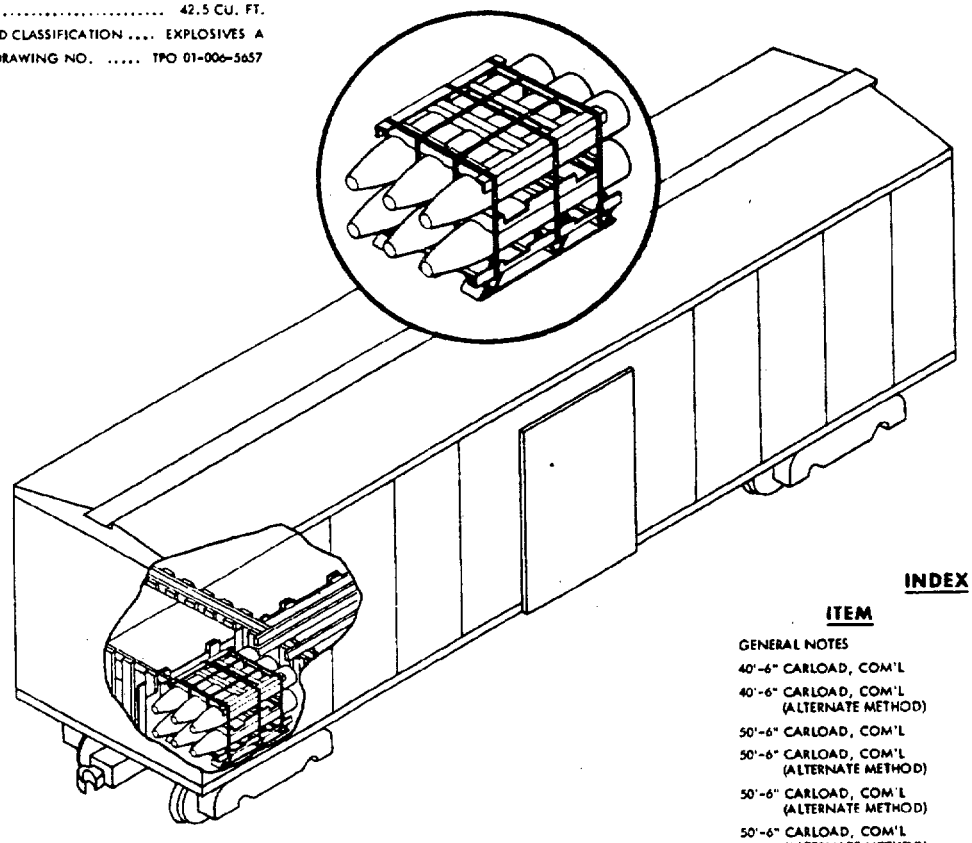
MIL-STD-1325-178 (NAVY)

14 DECEMBER 1976

RAILCAR LOADING OF HAZARDOUS MATERIALS BOMB MK 82 & MODS (500 LB.) ON BOMB PALLET MHU-149/E AIR FORCE UNIT LOAD TPO 01-006-5657

UNIT LOAD DATA

WEIGHT (APPROXIMATE) ..... 3029 LBS
DIMENSIONS ..... 61 3/4 L X 35 1/2 W X 33 1/2 H
CUBE ..... 42.5 CU. FT.
DOT HAZARD CLASSIFICATION .... EXPLOSIVES A
AIR FORCE DRAWING NO. ..... TPO 01-006-5657



INDEX

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 8140

AUTHORIZED AND RELEASED FOR GENERAL USE.

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SIGNATURE TECHNICAL DIRECTION AGENT (TDA) DATE

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APPROVED BY BUREAU OF EXPLOSIVES

L.J. Jaramuck 11/19/76
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ORIGINATOR Charles McBride 11/23/76
SIGNATURE

NAVAL WEAPONS HANDLING CENTER
WPNSTA EARLE, NEW JERSEY

GENERAL NOTES

1. FOR GENERAL INFORMATION CONCERNING ORDERING, INSPECTING AND PREPARING CARS, AND FOR DUNNAGING MATERIAL, DESIGN, AND INSTALLATION OF DUNNAGE SEE THE GENERAL DOCUMENT MIL-STD-1325 (NAVY).
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 SHIPPING ITEMS WITH EXPLOSIVE A OR B HAZARD CLASSIFICATION.
3. LOADING PLANS SHOWN ARE FOR 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.
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 500 LB MK 82 & MODS BOMBS PALLETIZED IN ACCORDANCE WITH TPO 01-006-5657.
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. 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
10. 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 36 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 AS FOLLOWS:

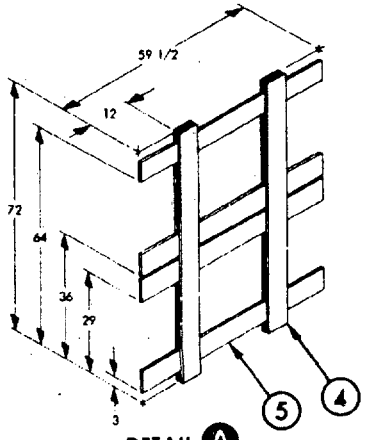
   A. BOXCARS WITH WOOD SIDEWALLS - BRACE BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH MIL-STD-1325 (NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED.

   B. BOXCARS WITH WOOD OR METAL SIDEWALLS - A PARTIAL UPPER LAYER CONSISTING OF 1 OR 2 STACKS EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE ALTERNATE METHOD SHOWN IN THIS DOCUMENT ON PAGES 22 THROUGH 26 OR A PARTIAL UPPER LAYER NOT IN EXCESS OF 24,000 LBS. EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE "PARTIAL LAYER RETENTION PROCEDURES USING KNEE BRACING" SHOWN IN MIL-STD-1325-102 (NAVY). A PARTIAL SINGLE LAYER SHOULD NOT BE SHIPPED IN AN ALL METAL BOXCAR.

   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. PROVIDED DOORWAY PROTECTION WHEN REQUIRED IS INSTALLED IN ACCORDANCE WITH MIL-STD-1325 (NAVY).
4. WHEN LOADING BOXCARS WITH AN INSIDE WIDTH GREATER THAN 9 FT. 2 IN. USE ALTERNATE SWAY BRACE FRAMES SHOWN ON PAGE 34 IN PLACE OF DETAIL A.

* CLINCHED

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



DETAIL A

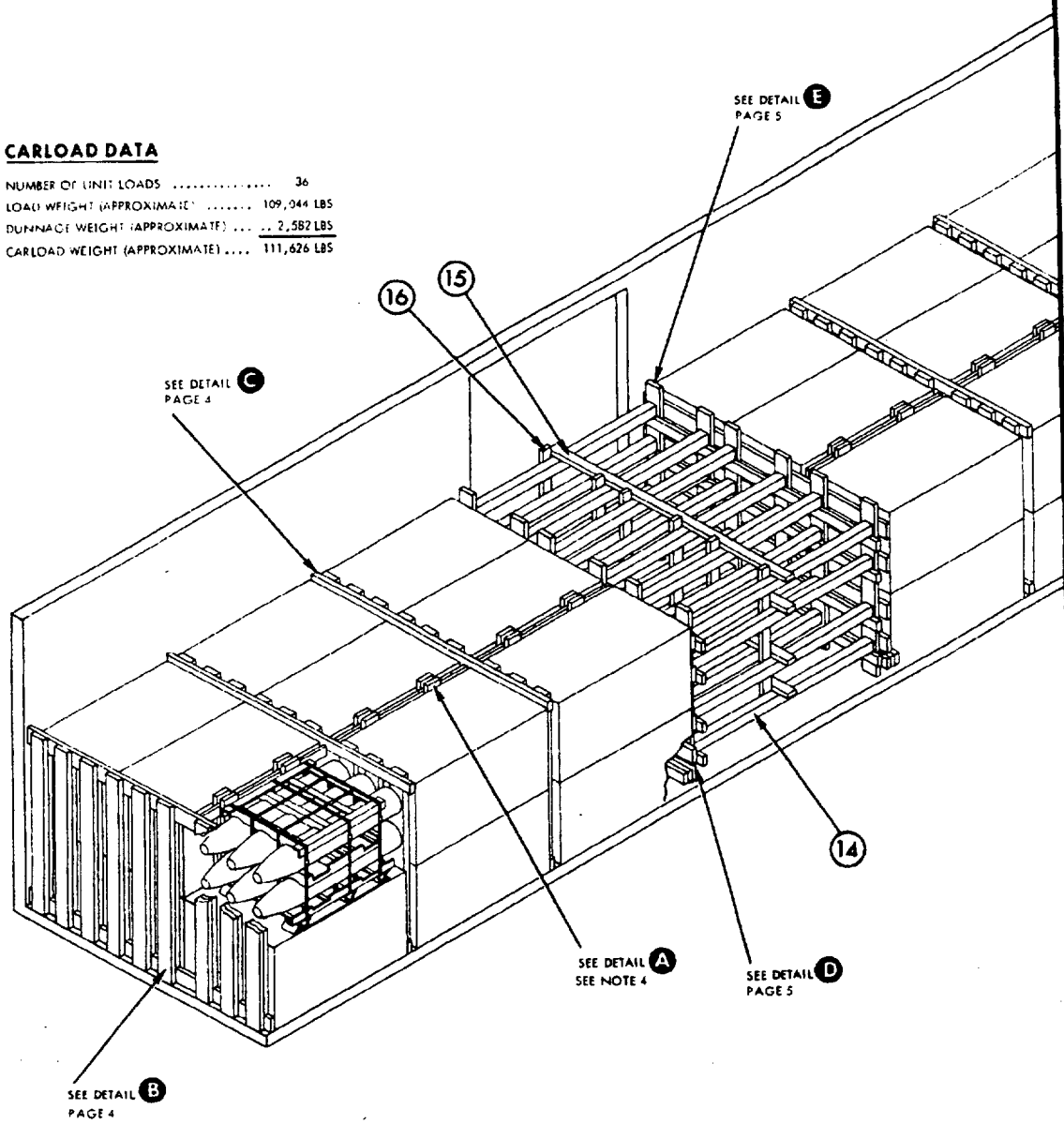
SWAY BRACE FRAME
6 REQUIRED

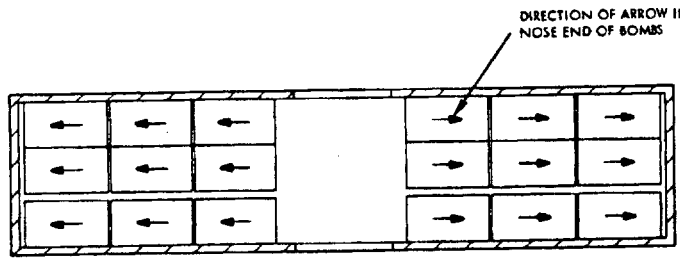
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	
16	VERTICAL TIE BAR	2 X 4 X 60	6	14	2 PER JOINT	16d
15	HORIZONTAL TIE BAR	2 X 4 X CAR WIDTH -1	4	14	2 PER JOINT	16d
14	STRUT	4 X 4 X WEDGE FIT**	24	9	2 PER JOINT	16d
13	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	12	4	16d
12	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	11	4	10d
11	HOLD DOWN SPACER	2 X 4 X CAR WIDTH - 1/2	2	9	3 PER JOINT	10d
10	CENTER GATE STRUT CLEAT	2 X 4 X CAR WIDTH - 1/2	8	9	3 PER JOINT	10d
9	CENTER GATE VERTICAL	2 X 6 X 70	12	SEE 7	-	-
8	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	8	9	3 PER JOINT	10d
7	SEPARATOR GATE HORIZONTAL	2 X 4 X CAR WIDTH - 1/2	8	6	3 PER JOINT	16d*
6	SEPARATOR GATE VERTICAL	2 X 6 X 70	36	SEE 7	-	-
5	SWAY BRACE HORIZONTAL	1 X 6 X 59 1/2	24	SEE 4	-	-
4	SWAY BRACE VERTICAL	1 X 6 X 72	24	5	3 PER JOINT	10d*
3	END GATE VERTICAL	2 X 6 X 61	18	1	5	10d
2	END GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	4	1	3 PER JOINT	10d
1	END GATE VERTICAL	2 X 6 X 72	18	SEE 2	-	-

LIST OF MATERIALS & NAILING DATA

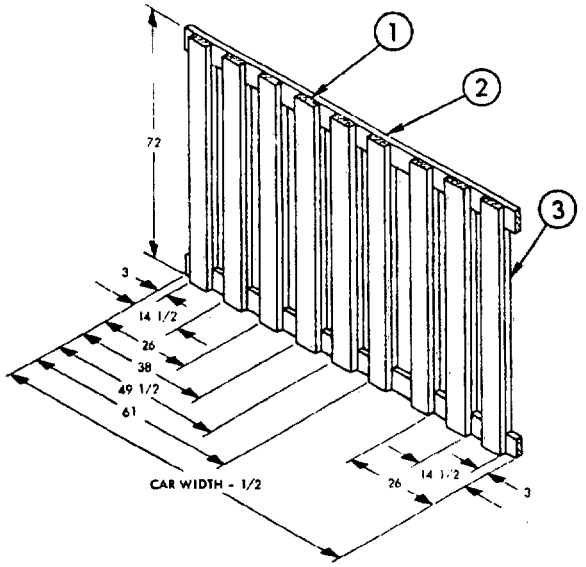
CARLOAD DATA

NUMBER OF UNIT LOADS	36
LOAD WEIGHT (APPROXIMATE)	109,044 LBS
DUNNAGE WEIGHT (APPROXIMATE)	2,582 LBS
CARLOAD WEIGHT (APPROXIMATE)	111,626 LBS

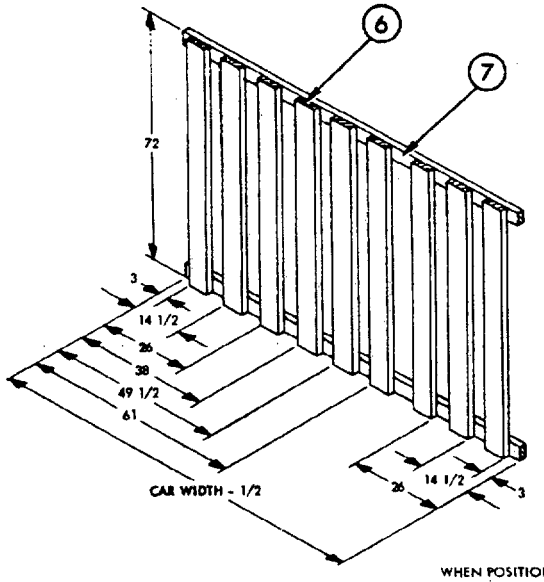




LOADING PLAN

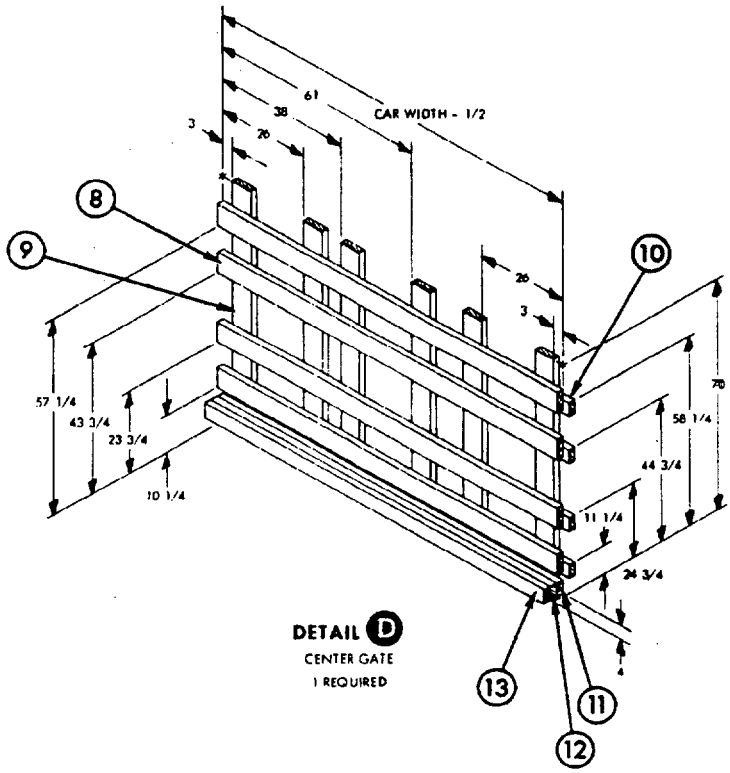


DETAIL B
END WALL GATE
2 REQUIRED

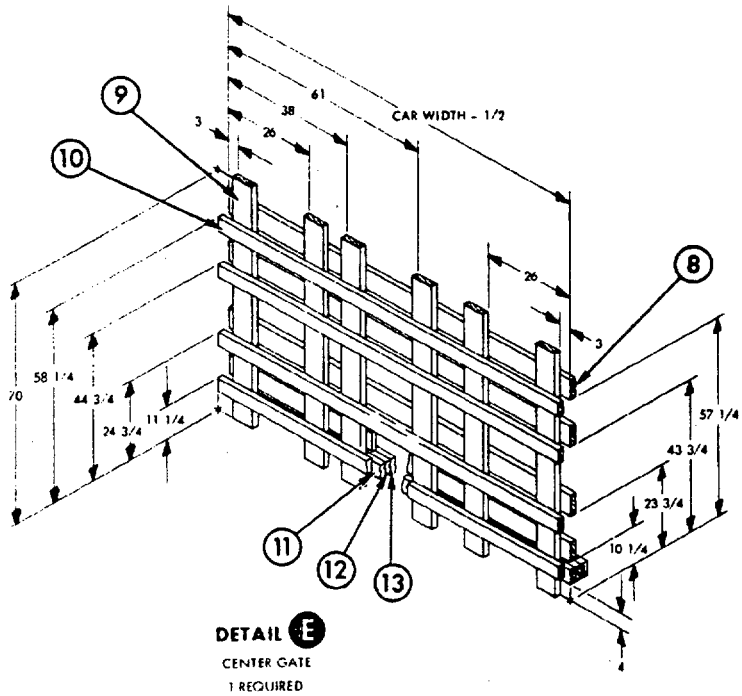


WHEN POSITIONING SEPARATOR GATES, VERTICALS SHALL BE AGAINST BASE END OF BOMBS.

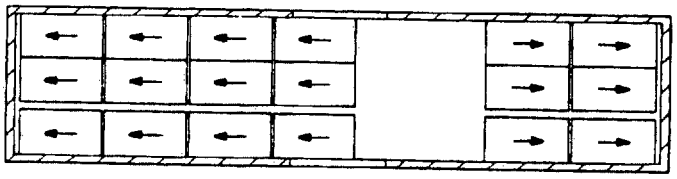
DETAIL C
SEPARATOR GATE
4 REQUIRED



DETAIL D
CENTER GATE
1 REQUIRED



DETAIL E
CENTER GATE
1 REQUIRED

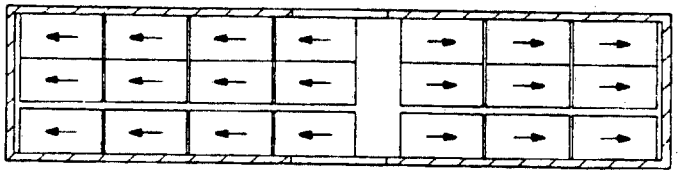


ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 123,999 LBS.
2. WHEN USING THIS ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 8).

CARLOAD DATA

NUMBER OF UNIT LOADS 36
LOAD WEIGHT (APPROXIMATE) ..... 109,044 LBS
DUNNAGE WEIGHT (APPROXIMATE) .... 2,858 LBS
CARLOAD WEIGHT (APPROXIMATE) ... 111,902 LBS



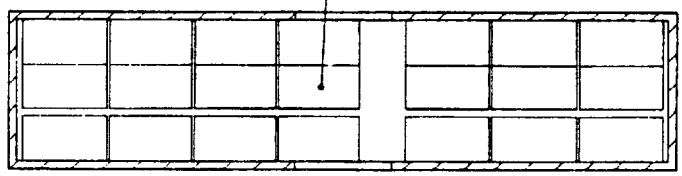
ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 133,999 LBS.
2. WHEN IISING THIS ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 8).
3. STRUT TIE BARS ARE NOT REQUIRED WITH THIS ALTERNATE LOADING PLAN.

CARLOAD DATA

NUMBER OF UNIT LOADS 42
LOAD WEIGHT (APPROXIMATE) ..... 127,218 LBS
DUNNAGE WEIGHT (APPROXIMATE) .... 2,616 LBS
CARLOAD WEIGHT (APPROXIMATE) ....129,834 LBS

SUBSTITUTE DUMMY UNIT LOAD (SEE PAGE 32) IN SECOND LAYER, CENTER ROW. WHEN POSITIONING DUMMY LOAD NEXT TO SWAY BRACE FRAME (DETAIL A PAGE 2), ADD 2 X 4 VERTICAL SPACER EACH SIDE OF SWAY BRACE FRAME HORIZONTALS AT THE MID - POINT - NAIL VERTICALS TO HORIZONTALS WITH TWO 10d NAILS PER JOINT AND CLINCH IF NECESSARY.



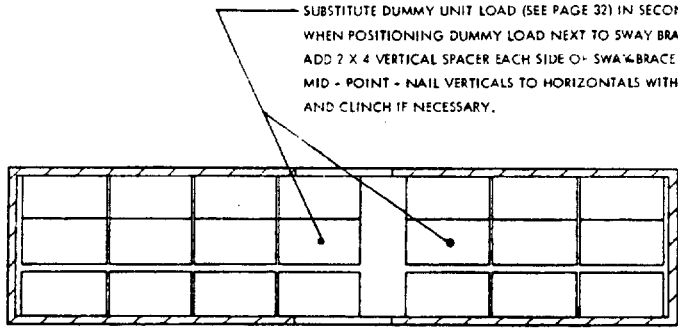
ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 131,499 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 8).
3. STRUT TIE BARS ARE NOT REQUIRED WITH THIS ALTERNATE LOADING PLAN.

CARLOAD DATA

NUMBER OF UNIT LOADS	41
LOAD WEIGHT (APPROXIMATE)	124,189 LBS
DUNNAGE WEIGHT (APPROXIMATE)	2,738 LBS
CARLOAD WEIGHT (APPROXIMATE)	126,927 LBS

SUBSTITUTE DUMMY UNIT LOAD (SEE PAGE 32) IN SECOND LAYER, CENTER ROW, EACH STACK. WHEN POSITIONING DUMMY LOAD NEXT TO SWAY BRACE FRAME (DETAIL A PAGE 2), ADD 2 X 4 VERTICAL SPACER EACH SIDE OF SWAY BRACE FRAME HORIZONTALS AT THE MID - POINT - NAIL VERTICALS TO HORIZONTALS WITH TWO 10d NAILS PER JOINT AND CLINCH IF NECESSARY.

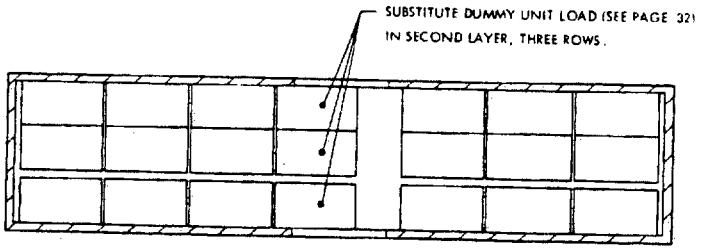


ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 177,999 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 8).
3. STRUT TIE BARS ARE NOT REQUIRED WITH THIS ALTERNATE LOADING PLAN.

CARLOAD DATA

NUMBER OF UNIT LOADS	40
LOAD WEIGHT (APPROXIMATE)	121,160 LBS
DUNNAGE WEIGHT (APPROXIMATE)	2,860 LBS
CARLOAD WEIGHT (APPROXIMATE)	124,020 LBS



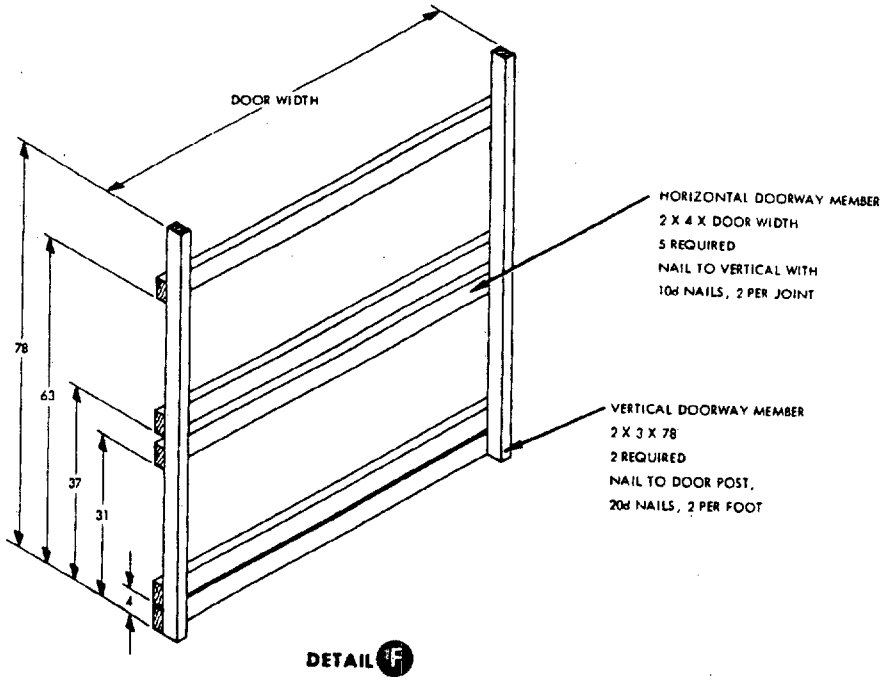
ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 124,999 LBS..
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED SEE DETAIL F..
3. STRUT TIE BARS ARE NOT REQUIRED WITH THIS ALTERNATE LOADING PLAN.

CARLOAD DATA

NUMBER OF UNIT LOADS	36
LOAD WEIGHT (APPROXIMATE)	118,131 LBS
DUNNAGE WEIGHT (APPROXIMATE)	2,982 LBS
CARLOAD WEIGHT (APPROXIMATE)	121,113 LBS

WHEN BOXCAR HAS STEEL DOOR POSTS DOORWAY PROTECTION AS SHOWN FOR SUCH POSTS IN MIL-STD-1325 (NAVY) IS REQUIRED.



DETAIL F
DOORWAY PROTECTION
2 REQUIRED

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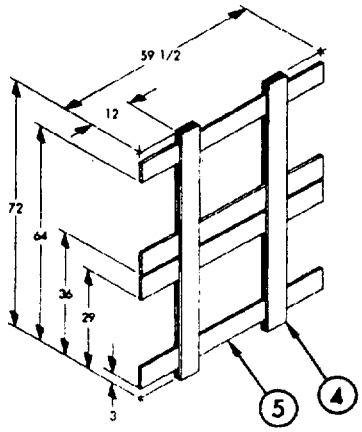
50 FT 6 IN. BOXCAR, COMMERCIAL

1. THE CARLOAD CONSISTS OF 48 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING.
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 AS FOLLOWS:
   - A.. BOXCARS WITH WOOD SIDEWALLS - BRACE BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH MIL-STD-1325(NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED.
   - B. BOXCARS WITH WOOD OR METAL SIDEWALLS - A PARTIAL UPPER LAYER CONSISTING OF 1 OR 2 STACKS EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE ALTERNATE METHOD SHOWN IN THIS DOCUMENT ON PAGES 22 THROUGH 26 OR A PARTIAL UPPER LAYER NOT IN EXCESS OF 24,000 LBS. EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE "PARTIAL LAYER RETENTION PROCEDURES USING KNEE BRACING" SHOWN IN MIL-STD-1325-102 (NAVY). A PARTIAL SINGLE LAYER SHOULD NOT BE SHIPPED IN AN ALL METAL BOXCAR.

   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 DOORWAY PROTECTION WHEN REQUIRED IS INSTALLED IN ACCORDANCE WITH MIL-STD-1325 (NAVY).
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS. 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. 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. 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 (DETAIL F) 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.
5. WHEN LOADING BOXCARS WITH AN INSIDE WIDTH GREATER THAN 9 FT 2 IN USE ALTERNATE SWAY BRACE FRAMES SHOWN ON PAGE 34 IN PLACE OF DETAIL A.



DETAIL A

SWAY BRACE FRAME
8 REQUIRED

*CLINCHED

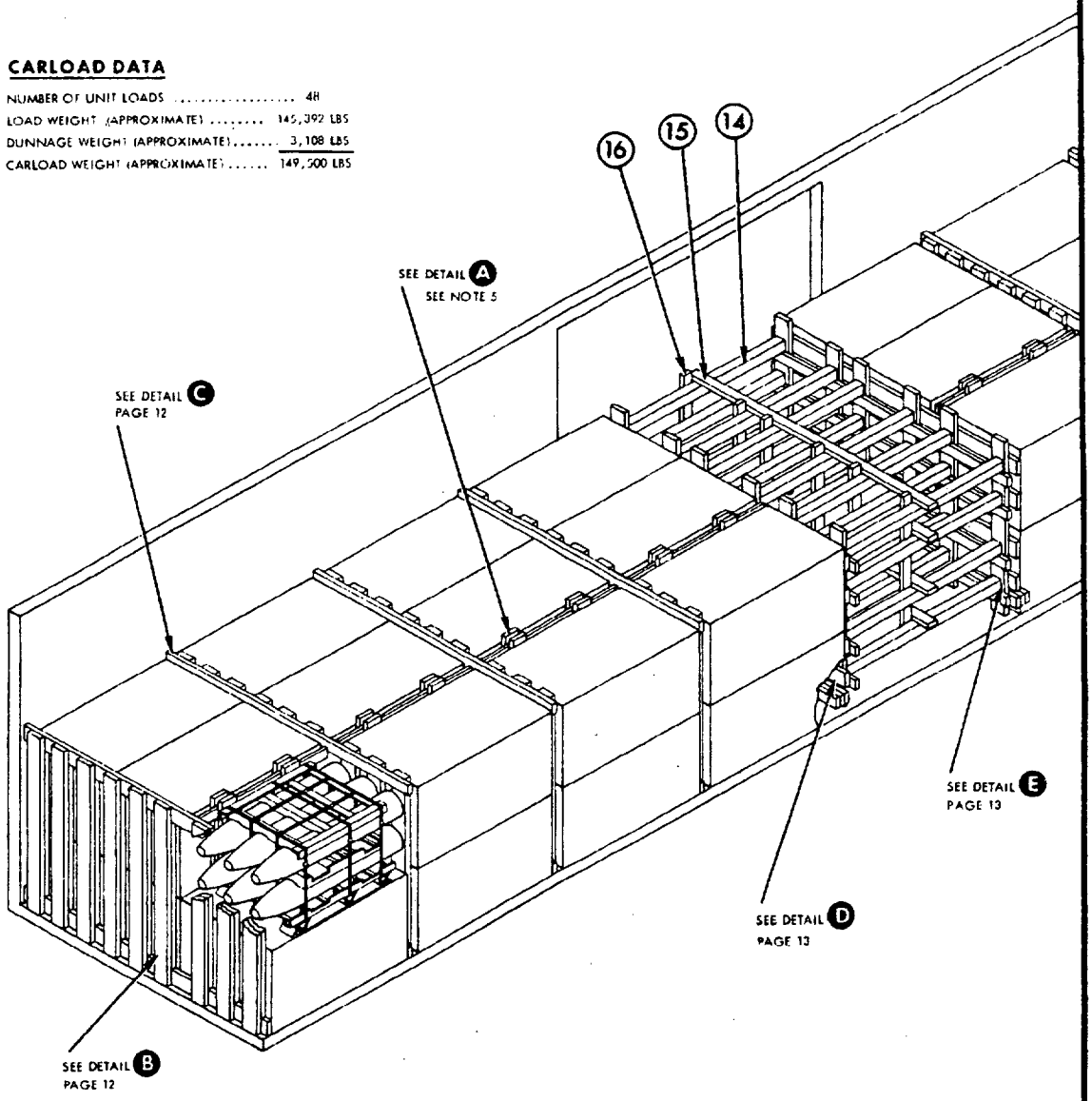
**2 X 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 X 4 STRUTS.

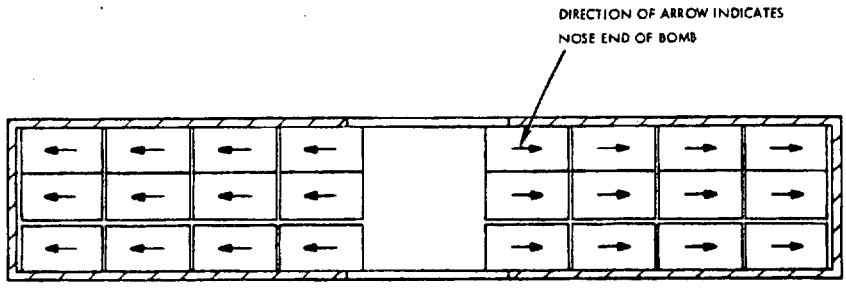
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER NAILS	SIZE
16	VERTICAL TIE BAR	2 X 4 X 60	6	14	2 PER JOINT	16d
15	HORIZONTAL TIE BAR	2 X 4 X CAR WIDTH - 1	4	14	2 PER JOINT	16d
14	STRUT	4 X 4 X WEDGE FIT**	24	9	2 PER JOINT	16d
13	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	12	4	16d
12	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	11	4	10d
11	HOLD DOWN SPACER	2 X 4 X CAR WIDTH - 1/2	2	9	3 PER JOINT	10d
10	CENTER GATE STRUT CLEAT	2 X 4 X CAR WIDTH - 1/2	8	9	3 PER JOINT	10d
9	CENTER GATE VERTICAL	2 X 6 X 70	12	SEE 7	-	-
8	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	8	9	3 PER JOINT	10d
7	SEPARATOR GATE HORIZONTAL	2 X 4 X CAR WIDTH - 1/2	12	6	3 PER JOINT	16d*
6	SEPARATOR GATE VERTICAL	2 X 6 X 70	54	SEE 7	-	-
5	SWAY BRACE HORIZONTAL	1 X 6 X 59 1/2	32	SEE 4	-	-
4	SWAY BRACE VERTICAL	1 X 6 X 72	32	5	3 PER JOINT	10d*
3	END GATE VERTICAL	2 X 6 X 61	18	1	5	10d
2	END GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	4	1	3 PER JOINT	10d
1	END GATE VERTICAL	2 X 6 X 72	18	SEE 2	-	-

LIST OF MATERIALS & NAILING DATA

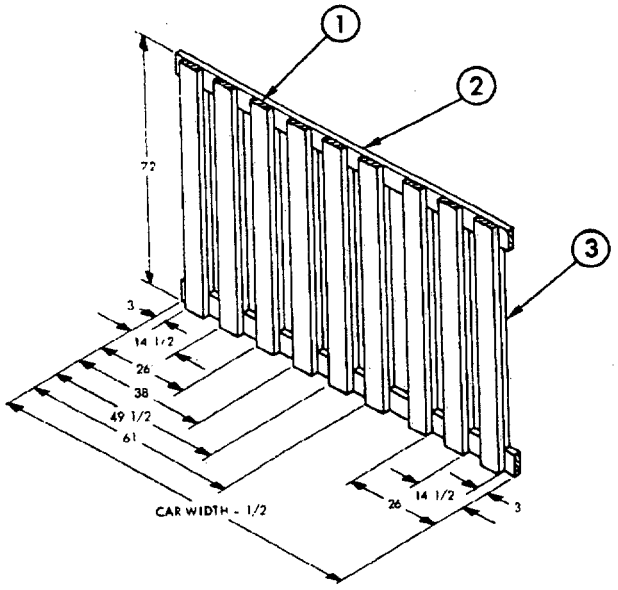
CARLOAD DATA

NUMBER OF UNIT LOADS	4H
LOAD WEIGHT (APPROXIMATE)	145,392 LBS
DUNNAGE WEIGHT (APPROXIMATE)	3,108 LBS
CARLOAD WEIGHT (APPROXIMATE)	149,500 LBS





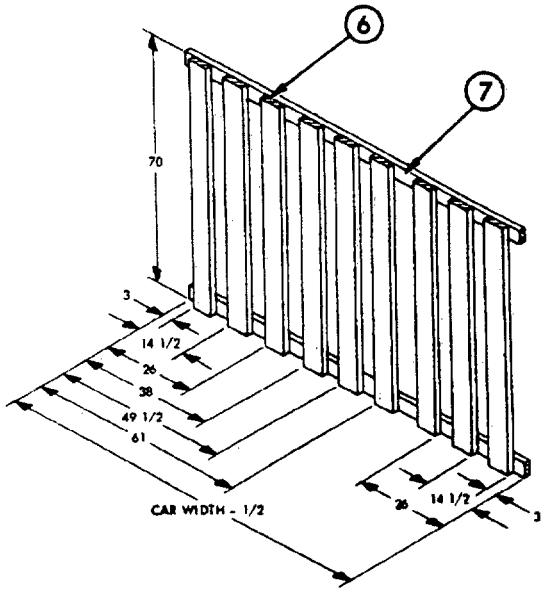
LOADING PLAN



DETAIL B

END WALL GATE
2 REQUIRED

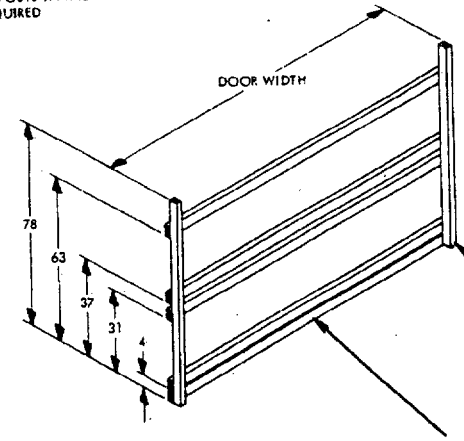
WHEN POSITIONING SEPARATOR GATES, VERTICALS SHALL BE AGAINST BASE END OF BOMBS.



DETAIL C

SEPARATOR GATE
6 REQUIRED

WHEN BOXCAR HAS STEEL DOOR POSTS DOORWAY PROTECTION AS SHOWN FOR SUCH POSTS IN MIL-STD-1325 (NAVY) IS REQUIRED

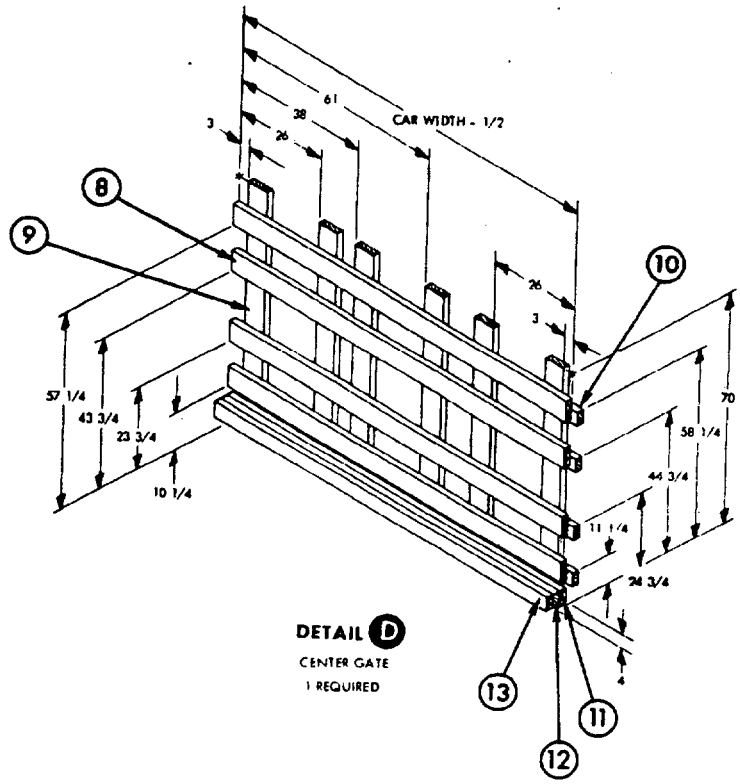


VERTICAL DOORWAY MEMBER
2 X 3 X 78
2 REQUIRED
NAIL TO DOOR POST, 20d NAILS, 2 PER FOOT.

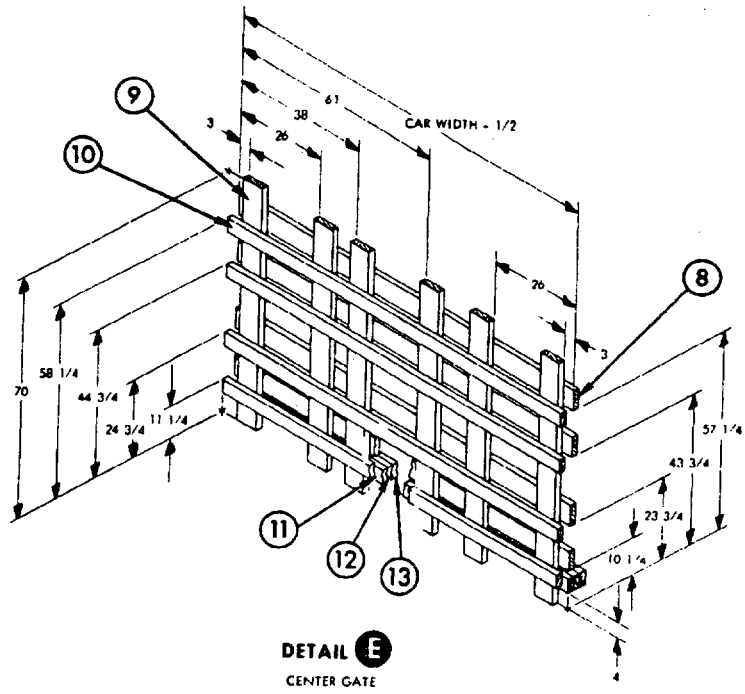
HORIZONTAL DOORWAY MEMBER
2 X 4 X DOOR WIDTH
5 REQUIRED
NAIL TO VERTICAL WITH 10d NAILS, 2 PER JOINT.

DETAIL F

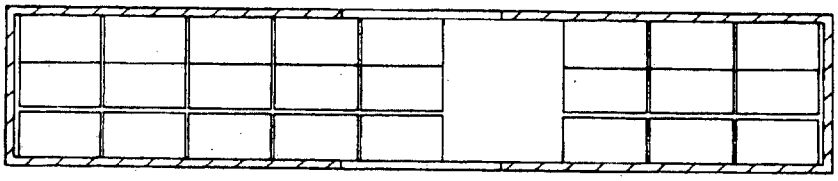
DOORWAY PROTECTION
2 REQUIRED



DETAIL D
CENTER GATE
1 REQUIRED



DETAIL E
CENTER GATE
1 REQUIRED



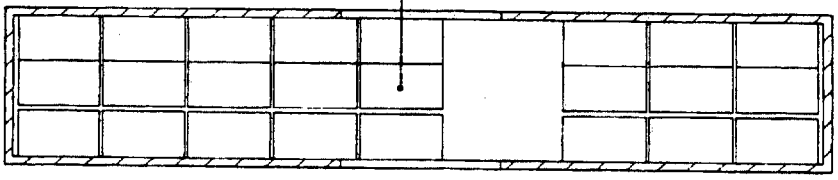
ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 156,999 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 12).

CARLOAD DATA

NUMBER OF UNIT LOADS	48
LOAD WEIGHT (APPROXIMATE)	145,392 LBS
DUNNAGE WEIGHT (APPROXIMATE)	3,324 LBS
CARLOAD WEIGHT (APPROXIMATE)	148,716 LBS

SUBSTITUTE DUMMY UNIT LOAD (SEE PAGE 32) SECOND LAYER, CENTER ROW. WHEN POSITIONING DUMMY LOAD NEXT TO SWAY BRACE FRAME (DETAIL A PAGE 10), ADD 2 X 4 VERTICAL SPACER EACH SIDE OF SWAY BRACE FRAME HORIZONTALS AT THE MID - POINT. NAIL VERTICALS TO HORIZONTALS WITH TWO 10d NAILS PER JOINT AND CLINCH IF NECESSARY



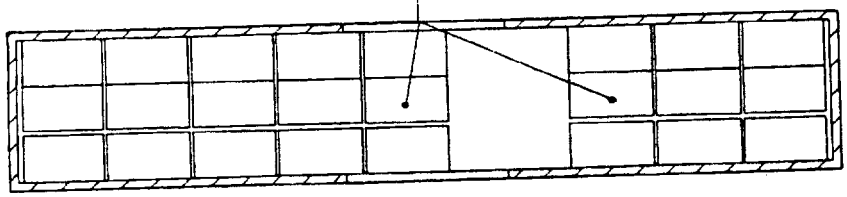
ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 152,999 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 12).

CARLOAD DATA

NUMBER OF UNIT LOADS	47
LOAD WEIGHT (APPROXIMATE)	142,363 LBS
DUNNAGE WEIGHT (APPROXIMATE)	3,506 LBS
CARLOAD WEIGHT (APPROXIMATE)	145,871 LBS

SUBSTITUTE DUMMY UNIT LOAD (SEE PAGE 32) SECOND LAYER, CENTER ROW, EACH STACK. WHEN POSITIONING DUMMY LOAD NEXT TO SWAY BRACE FRAME (DETAIL A PAGE 10), ADD 2 X 4 VERTICAL SPACER EACH SIDE OF SWAY BRACE FRAME HORIZONTALS AT THE MID - POINT. NAIL VERTICALS TO HORIZONTALS WITH TWO 10d NAILS PER JOINT AND CLINCH IF NECESSARY.



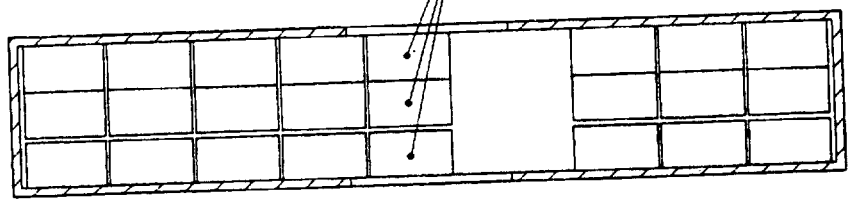
ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 147,999 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 12).

CARLOAD DATA

NUMBER OF UNIT LOADS	46
LOAD WEIGHT (APPROXIMATE)	139,334 LBS
DUNNAGE WEIGHT (APPROXIMATE)	3,692 LBS
CARLOAD WEIGHT (APPROXIMATE)	143,026 LBS

SUBSTITUTE DUMMY UNIT LOAD (SEE PAGE 37). SECOND LAYER, THREE ROWS



ALTERNATE LOADING PLAN

1. THIS ALTERNATE LOADING PLAN SHALL ONLY BE USED WHEN THE LOAD LIMIT OF THE BOXCAR EXCEEDS 143,999 LBS.
2. WHEN USING THE ALTERNATE LOADING PLAN, DOORWAY PROTECTION MUST BE PROVIDED (SEE DETAIL F, PAGE 12).

CARLOAD DATA

NUMBER OF UNIT LOADS	45
LOAD WEIGHT (APPROXIMATE)	136,305 LBS
DUNNAGE WEIGHT (APPROXIMATE)	3,876 LBS
CARLOAD WEIGHT (APPROXIMATE)	140,181 LBS

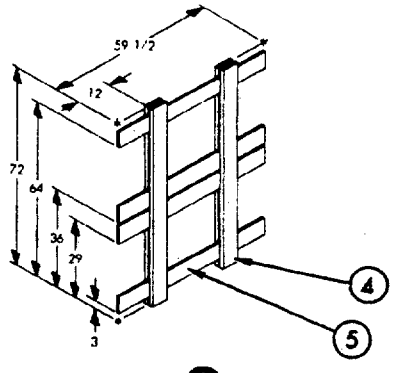
50 FT 6 IN. BOXCAR, COMMERCIAL (ALTERNATE METHOD)

1. THE CARLOAD CONSISTS OF EITHER 33 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING, OR 39 UNIT LOADS IN ACCORDANCE WITH THE ALTERNATE PLAN AND DETAILS DEPICTED ON PAGES 22 & 23 OF 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 AS FOLLOWS:
   - A. BOXCARS WITH WOOD SIDEWALLS - BRACE BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH MIL-STD-1325 (NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED.
   - B. BOXCARS WITH WOOD OR METAL SIDEWALLS - A PARTIAL UPPER LAYER CONSISTING OF 1 OR 2 STACKS EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE ALTERNATE METHOD SHOWN IN THIS DOCUMENT ON PAGES 22 THROUGH 26 OR A PARTIAL UPPER LAYER NOT IN EXCESS OF 24,000 LBS. EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE "PARTIAL LAYER RETENTION PROCEDURES USING KNEE BRACING" SHOWN IN MIL-STD-1325-102 (NAVY). A PARTIAL SINGLE LAYER SHOULD NOT BE SHIPPED IN AN ALL METAL BOXCAR.

   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 DOORWAY PROTECTION WHEN REQUIRED IS IN ACCORDANCE WITH MIL-STD-1325 (NAVY).
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS. 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. 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 DOUBLED CRIMPED SEALS. 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. 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.
5. WHEN LOADING BOXCARS WITH AN INSIDE WIDTH GREATER THAN 9 FT 2 IN USE ALTERNATE SWAY BRACE FRAMES SHOWN ON PAGE 34, IN PLACE OF DETAIL A & C.

PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER NAILS	SIZE NAILS
23	DIAGONAL BRACE	4 X 4 X 50	8	19, 21	1 EACH END	60d
22	HORIZONTAL POCKET CLEAT	2 X 6 X 18	8	21	7	16d
21	HORIZONTAL WALL CLEAT	2 X 6 X 72	8	CAR WALL	16	10d
20	CENTER CLEAT	2 X 4 X 36	4	19	7	16d
19	CROSS BRACE	4 X 4 X CAR WIDTH	4	SEE 18	-	-
18	CROSS BRACE STIFFENER	2 X 6 X CAR WIDTH	4	19	2 PER FOOT	16d
17	LOWER WALL CLEAT	2 X 4 X 6	4	CAR WALL	3	10d
16	STRUT	4 X 4 X ** WEDGE FIT	12	11	2 PER JOINT	16d
15	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	14	4	16d
14	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	13	4	10d
13	HOLD DOWN SPACER	2 X 4 X CAR WIDTH - 1/2	2	11	3 PER JOINT	10d
12	CENTER GATE STRUT CLEAT	2 X 4 X CAR WIDTH - 1/2	4	11	3 PER JOINT	10d
11	CENTER GATE VERTICAL	2 X 6 X 36	12	SEE 10	-	-
10	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	4	11	3 PER JOINT	10d
9	SEPARATOR GATE HORIZONTAL	2 X 4 X CAR WIDTH - 1/2	14	8	3 PER JOINT	16d *
8	SEPARATOR GATE VERTICAL	2 X 6 X 36	63	SEE 9	-	-
7	SWAY BRACE HORIZONTAL	1 X 6 X 59 1/2	14	SEE 6	-	-
6	SWAY BRACE VERTICAL	1 X 6 X 36	28	7	3 PER JOINT	10d *
5	SWAY BRACE HORIZONTAL	1 X 6 X 59 1/2	8	SEE 4	-	-
4	SWAY BRACE VERTICAL	1 X 6 X 72	8	5	3 PER JOINT	10d *
3	END GATE VERTICAL	2 X 6 X 61	18	1	5	10d
2	END GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	4	1	3 PER JOINT	10d
1	END GATE VERTICAL	2 X 6 X 72	18	SEE 2	-	-

LIST OF MATERIALS & NAILING DATA



DETAIL A

SWAY BRACE FRAME

2 REQUIRED

*CLINCHED

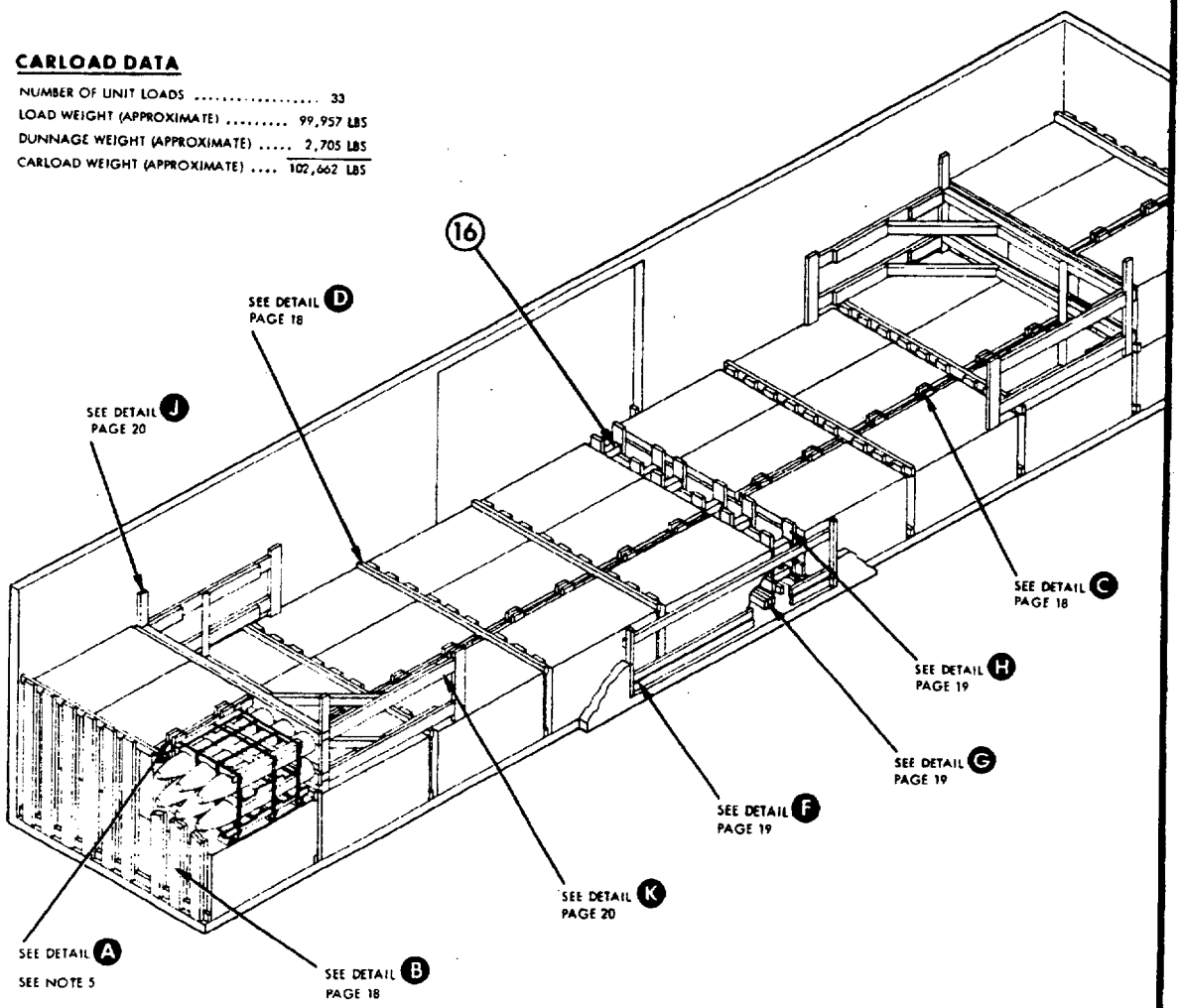
**2 X 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 X 4's.

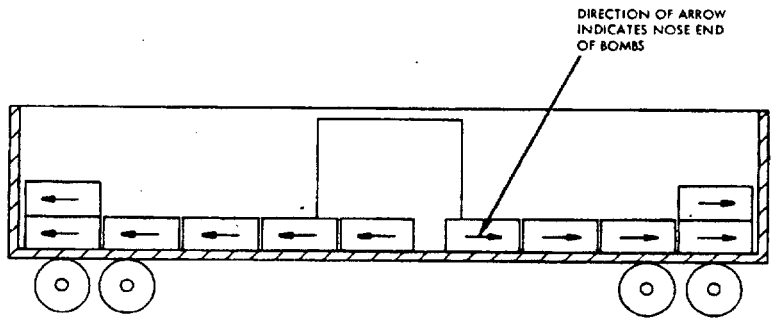
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D.	NAIL TO	NUMBER NAILS	SIZE NAILS
29	HORIZONTAL DOORWAY MEMBER	2 X 4 X DOOR WIDTH	6	28	2 PER JOINT	10d
28	VERTICAL DOORWAY MEMBER	2 X 3 X 36	4	DOOR POST	2 PER FOOT	20d
27	UPPER WALL CLEAT	2 X 4 X 18	4	CAR WALL	4	10d
26	VERTICAL BACK-UP CLEAT	2 X 6 X 36	4	CAR WALL	8	10d
25	INTERMEDIATE WALL CLEAT	2 X 4 X CUT TO FIT	4	CAR WALL	4	10d
24	HORIZONTAL BACK-UP CLEAT	2 X 6 X 30	4	21	14	16d

LIST OF MATERIALS & NAILING DATA

CARLOAD DATA

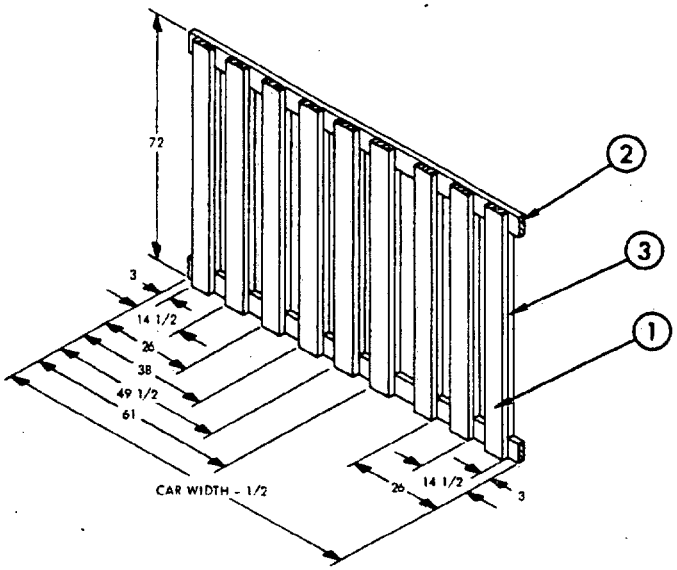
NUMBER OF UNIT LOADS	33
LOAD WEIGHT (APPROXIMATE)	99,957 LBS
DUNNAGE WEIGHT (APPROXIMATE)	2,705 LBS
CARLOAD WEIGHT (APPROXIMATE)	102,662 LBS



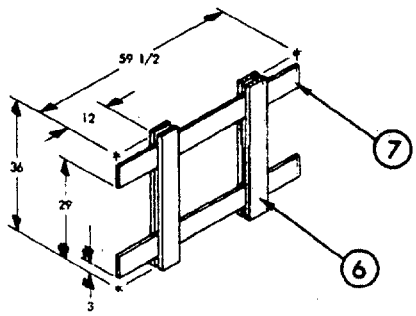


ELEVATION

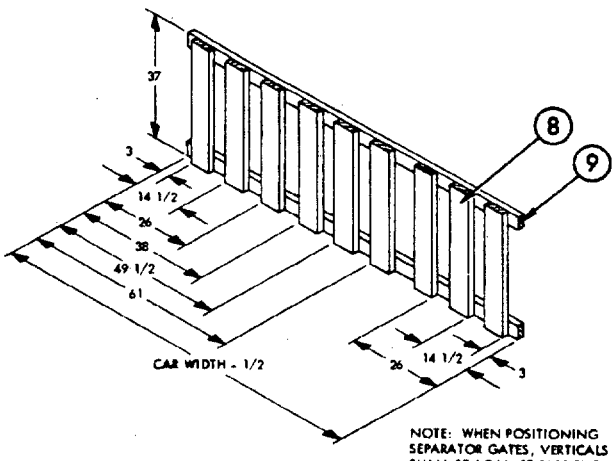
LOADING PLAN



DETAIL B
END WALL GATE
2 REQUIRED

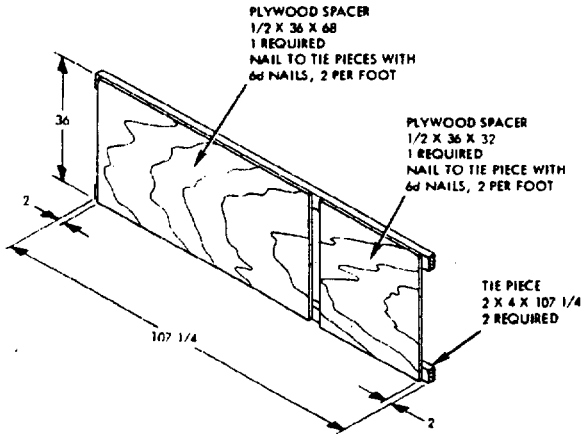


DETAIL C
SWAY BRACE FRAME
7 REQUIRED

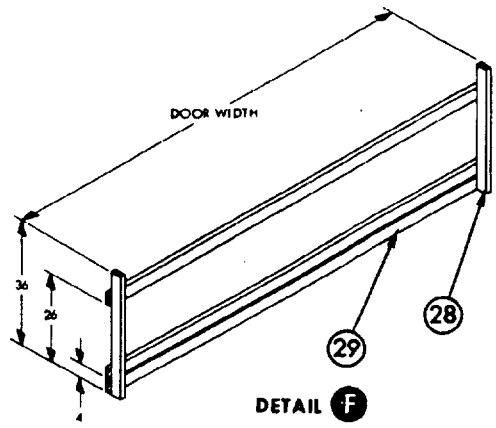


NOTE: WHEN POSITIONING SEPARATOR GATES, VERTICALS SHALL BE AGAINST BASE END OF BOMB.

DETAIL D
SEPARATOR GATE
7 REQUIRED

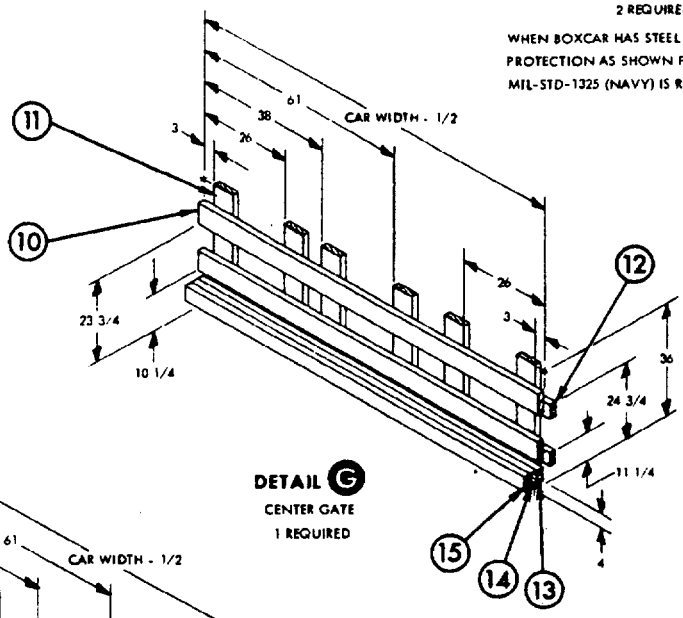


DETAIL E
ALTERNATE SEPARATOR GATE
7 REQUIRED

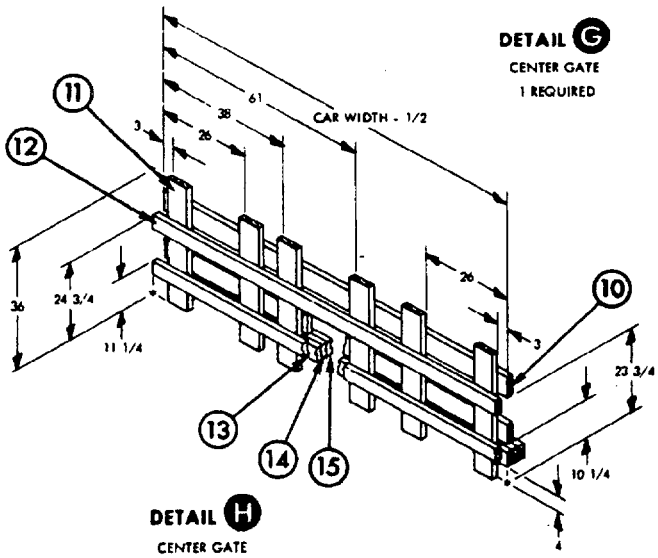


DETAIL F
DOORWAY PROTECTION
2 REQUIRED

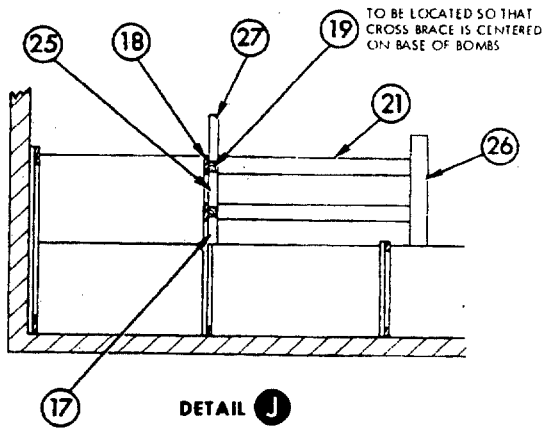
WHEN BOXCAR HAS STEEL DOOR POSTS DOORWAY PROTECTION AS SHOWN FOR SUCH POSTS IN MIL-STD-1325 (NAVY) IS REQUIRED



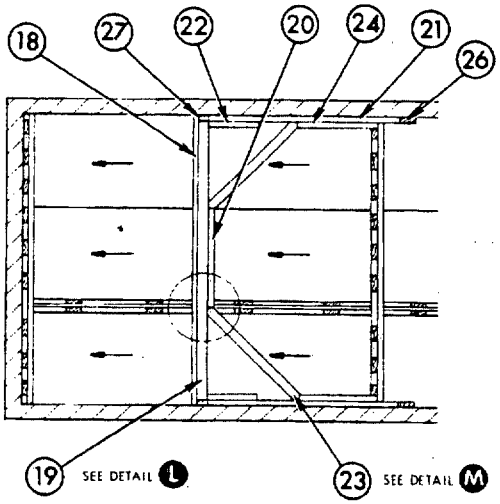
DETAIL G
CENTER GATE
1 REQUIRED



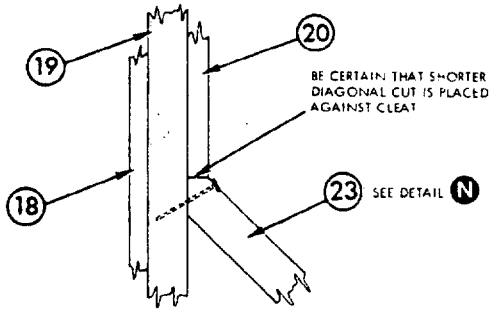
DETAIL H
CENTER GATE
1 REQUIRED



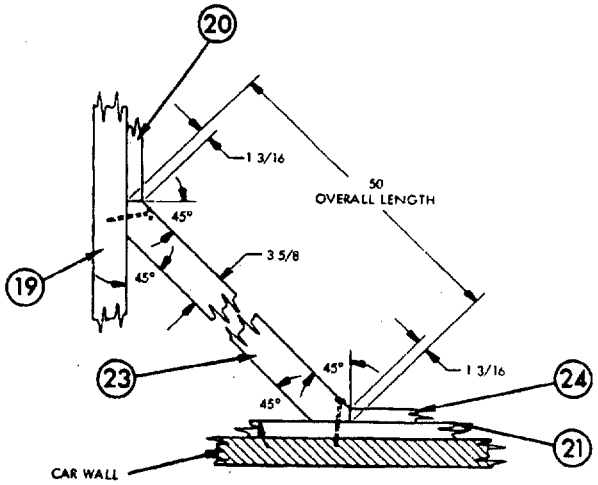
DETAIL J



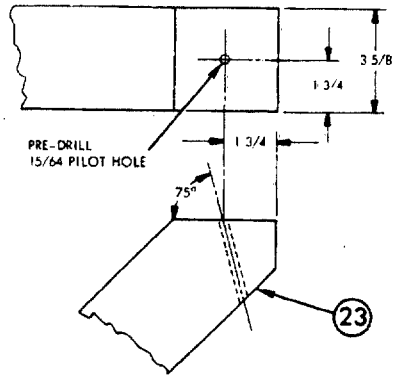
DETAIL K
PARTIAL LAYER BRACING



DETAIL L
POSITIONING OF DIAGONAL BRACE



DETAIL M
POSITIONING OF DIAGONAL BRACE



DETAIL N
LOCATION OF PILOT HOLE FOR 60d NAIL

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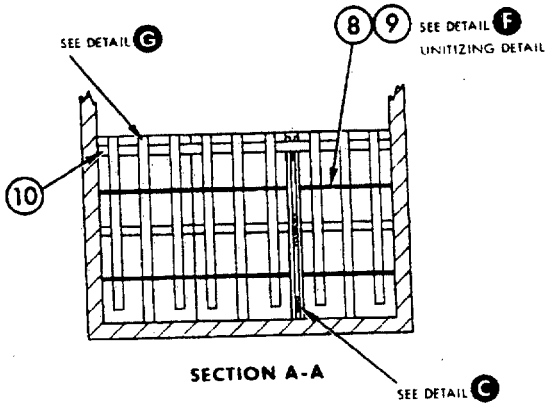
50 FT 6 IN. BOXCAR, COMMERCIAL (ALTERNATE METHOD)

1. THE CARLOAD CONSISTS OF 39 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 AS FOLLOWS:
   - A. BOXCARS WITH WOOD SIDEWALLS - BRACE BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH MIL-STD-1325 (NAVY). SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED.
   - B. BOXCARS WITH WOOD OR METAL SIDEWALLS - A PARTIAL UPPER LAYER CONSISTING OF 1 OR 2 STACKS EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE ALTERNATE METHOD SHOWN IN THIS DOCUMENT ON PAGES 22 THROUGH 26 OR A PARTIAL UPPER LAYER NOT IN EXCESS OF 24,000 LBS. EACH END OF THE BOXCAR MAY BE BRACED IN ACCORDANCE WITH THE "PARTIAL LAYER RETENTION PROCEDURES USING KNEE BRACING" SHOWN IN MIL-STD-1325-102 (NAVY). A PARTIAL SINGLE LAYER SHOULD NOT BE SHIPPED IN AN ALL METAL BOXCAR.

   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.
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILLIARY, 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. 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. 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.
5. WHEN LOADING BOXCARS WITH AN INSIDE WIDTH GREATER THAN 9 FT 2 IN USE ALTERNATE SWAY BRACE FRAMES SHOWN ON PAGE 34 IN PLACE OF DETAIL C AND D.

PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NAILS NUMBER	NAILS SIZE
21	HOLD DOWN SPACER	2 X 4 X CAR WIDTH - 1/2	2	18	3 PER JOINT	10d
20	CENTER GATE STRUT CLEAT	2 X 4 X CAR WIDTH - 1/2	4	18	3 PER JOINT	10d
19	CENTER GATE VERTICAL	2 X 6 X 36	12	SEE 18	-	-
18	CENTER GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	4	19	3 PER JOINT	10d
17	SWAY BRACE HORIZONTAL	1 X 6 X 59 1/2	10	SEE 16	-	-
16	SWAY BRACE VERTICAL	1 X 6 X 36	20	17	3 PER JOINT	10d*
15	SEPARATOR GATE HORIZONTAL	2 X 4 X CAR WIDTH - 1/2	6	14	3 PER JOINT	16d*
14	SEPARATOR GATE VERTICAL	2 X 6 X 36	27	SEE 15	-	-
13	SWAY BRACE HORIZONTAL	1 X 6 X 63	16	SEE 11	-	-
12	SWAY BRACE VERTICAL	1 X 6 X 70	16	13	3 PER JOINT	10d*
11	SWAY BRACE VERTICAL	1 X 4 X 70	16	13	3 PER JOINT	10d*
10	TIE PIECES	2 X 4 X CAR WIDTH - 1/2	4	4, 5	1 PER JOINT	16d
9	SEAL	1 1/4	24	-	-	-
8	STRAP	1 1/4 X .035 X 19 FT	12	-	-	-
7	SPACER	2 X 4 X 8 1/4	48	6	3	10d
6	TIE PIECE	2 X 4 X 35	24	4, 5	2 PER JOINT	16d
5	UPRIGHT	4 X 4 X 67	24	SEE 6	-	-
4	UPRIGHT	4 X 4 X 72	12	SEE 6	-	-
3	END GATE VERTICAL	2 X 6 X 61	18	1	5	10d
2	END GATE HORIZONTAL	2 X 6 X CAR WIDHT - 1/2	4	1	3 PER JOINT	10d
1	END GATE VERTICAL	2 X 6 X 72	18	SEE 2	-	-

LIST OF MATERIALS & NAILING DATA



* CLINCHED

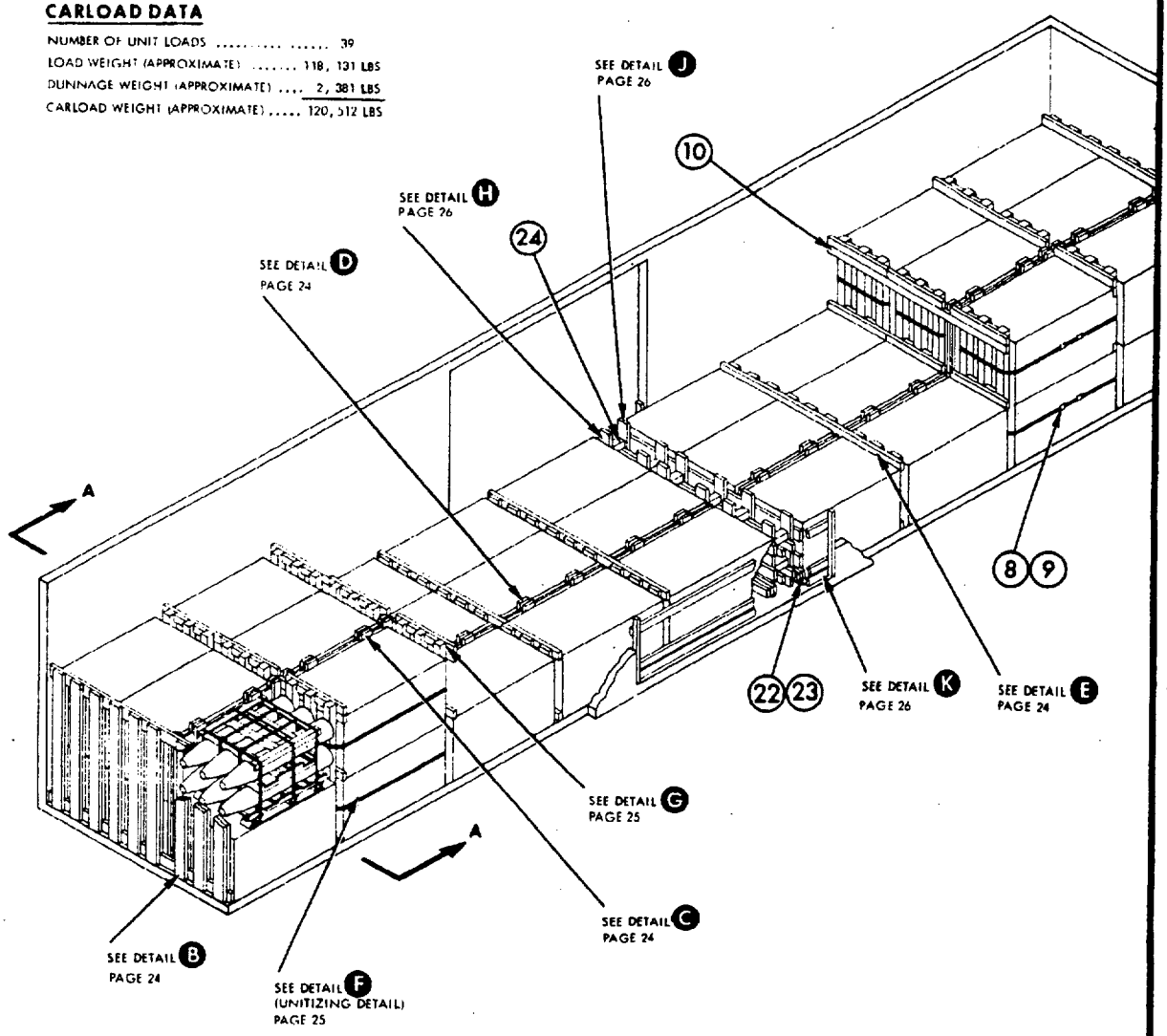
** 2 x 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 x 4's

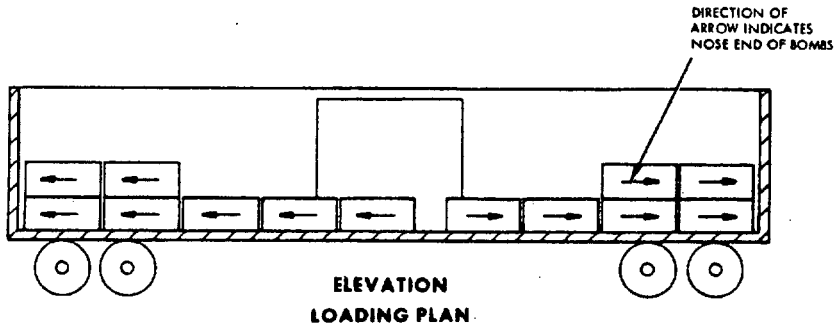
PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NAILS NUMBER	NAILS SIZE
26	HORIZONTAL DOORWAY MEMBER	2 X 4 X DOOR WIDTH	6	24	2 PER JOINT	10d
25	VERTICAL DOORWAY MEMBER	2 X 3 X 36	4	DOOR POST	2 PER FOOT	20d
24	STRUT	4 X 4 X WEDGE FIT**	12	18	2 PER JOINT	16d
23	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	22	4	16d
22	HOLD DOWN CLEAT	2 X 4 X CUT TO SUIT	2	21	4	10d

LIST OF MATERIALS & NAILING DATA

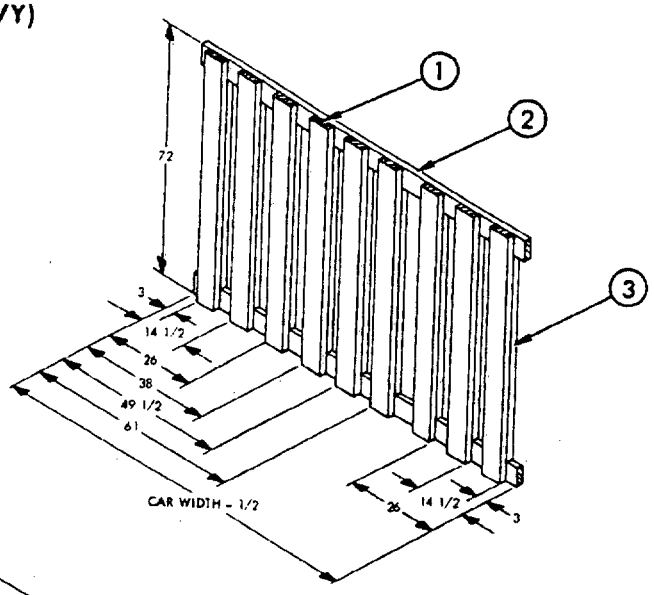
CARLOAD DATA

NUMBER OF UNIT LOADS 39
LOAD WEIGHT (APPROXIMATE) ..... 118, 131 LBS
DUNNAGE WEIGHT (APPROXIMATE) .... 2, 381 LBS
CARLOAD WEIGHT (APPROXIMATE) ..... 120, 512 LBS

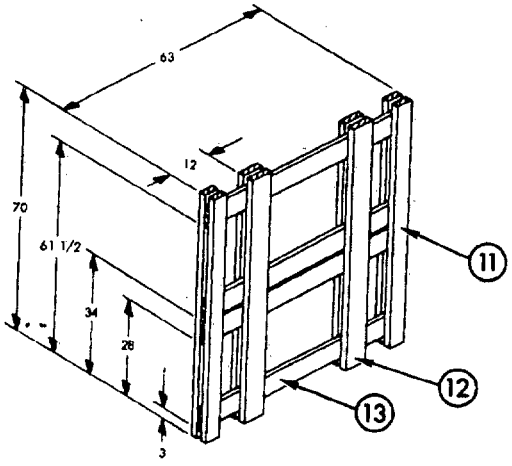




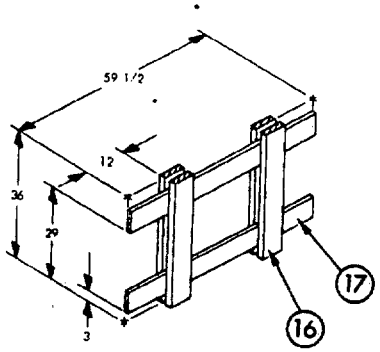
ELEVATION
LOADING PLAN



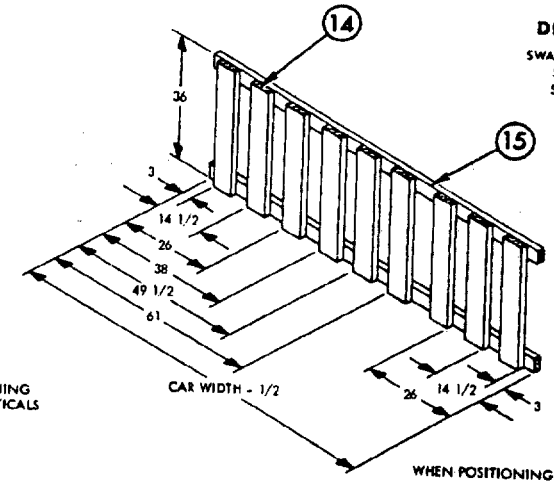
DETAIL B
END WALL GATE
2 REQUIRED



DETAIL C
SWAY BRACE
4 REQUIRED
SEE NOTE 5
PAGE 22



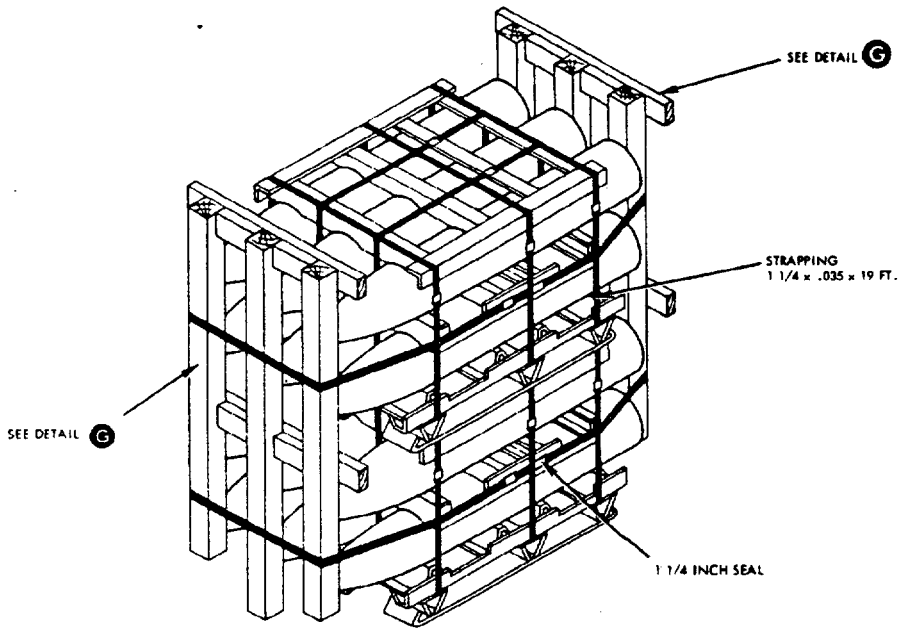
DETAIL D
SWAY BRACE FRAME
5 REQUIRED
SEE NOTE 5
PAGE 22



NOTE: WHEN POSITIONING SEPARATOR GATES, VERTICALS SHALL BE AGAINST BASE END OF BOMB.

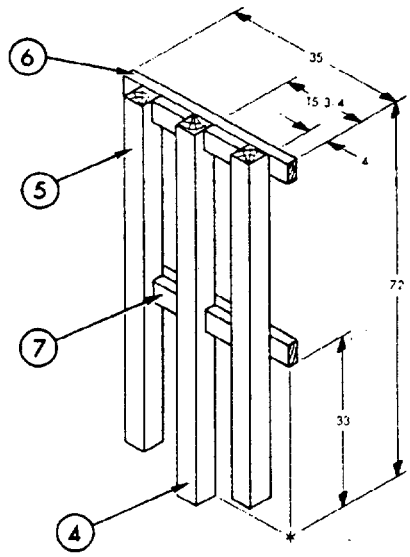
DETAIL E
SEPARATOR GATE
3 REQUIRED

WHEN POSITIONING SEPARATOR GATES, VERTICALS SHALL BE AGAINST BASE END OF BOMBS.



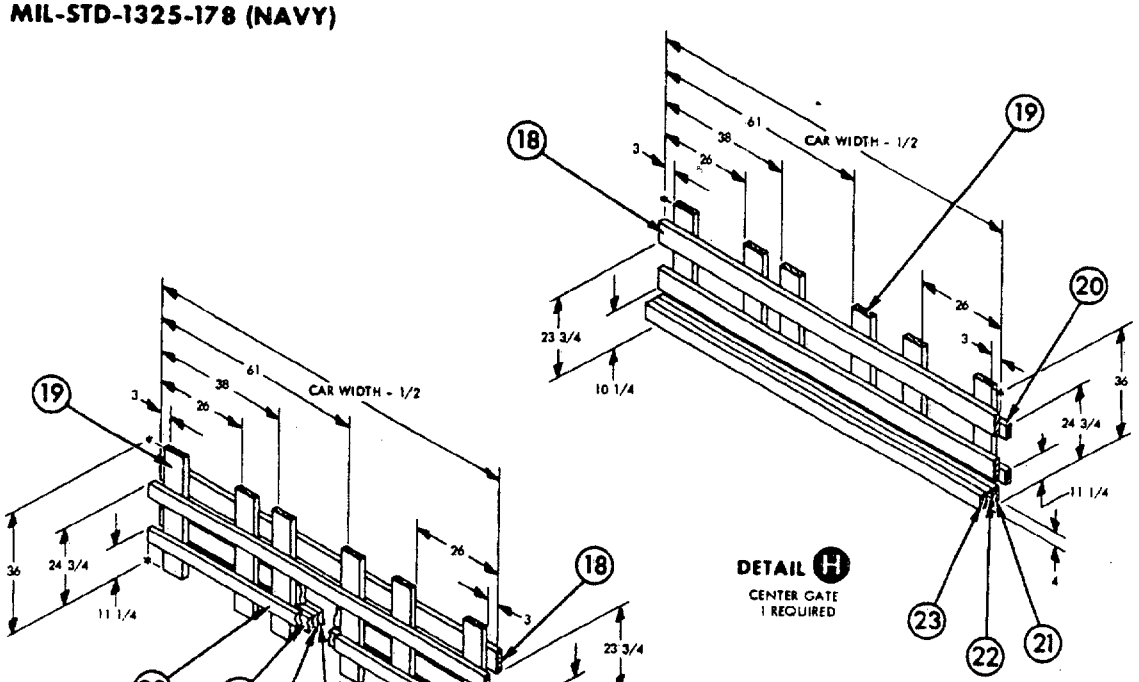
DETAIL F

UNITIZING DETAIL
TENSION AND SEAL WITH TWO DOUBLE CRIMPED SEALS PER STRAP



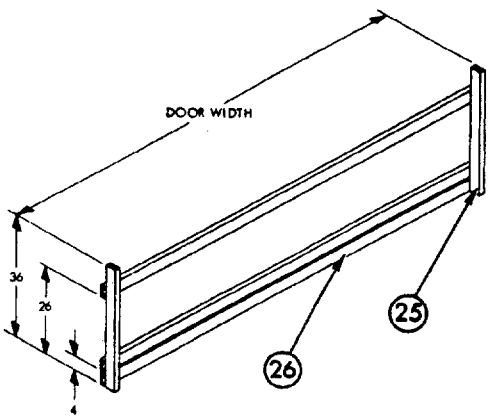
DETAIL G

PARTIAL LAYER BLOCKING
IF REQUIRED



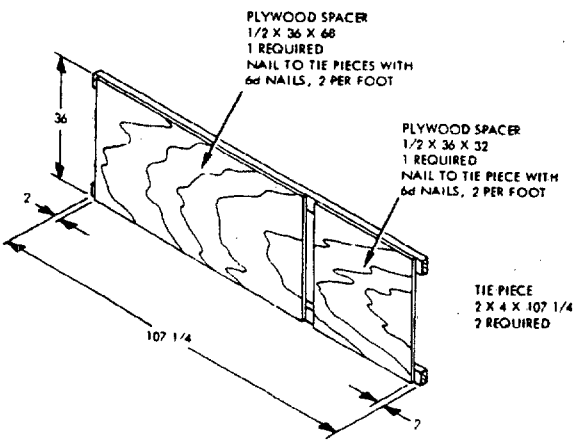
DETAIL H
CENTER GATE
1 REQUIRED

DETAIL J
CENTER GATE
1 REQUIRED



DETAIL K
DOORWAY PROTECTION
2 REQUIRED

WHEN BOXCAR HAS STEEL DOOR POSTS DOORWAY PROTECTION AS SHOWN FOR SUCH POSTS IN MIL-STD-1325 (NAVY) IS REQUIRED



DETAIL L
ALTERNATE SEPARATOR GATE
3 REQUIRED

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50 FT 6 IN. BOXCAR, COMMERCIAL (USING LOAD DIVIDERS)

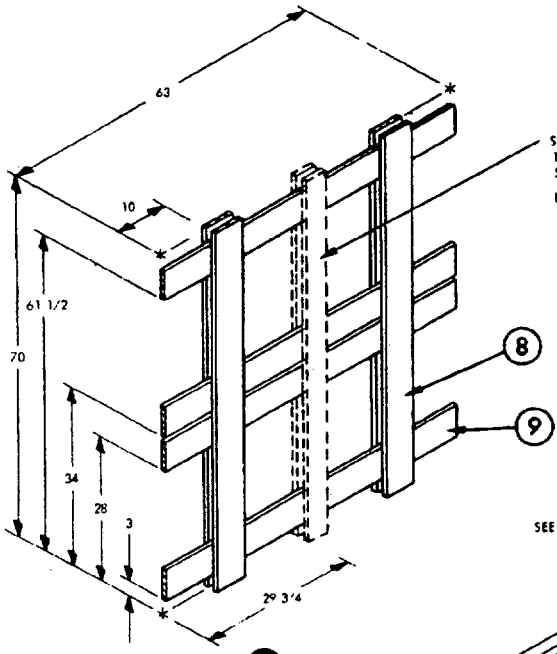
1. THESE PROCEDURES DEPICT THE METHOD OF LOADING THE AIR FORCE UNIT LOAD OF MK 82 BOMBS IN CUSHIONED BOXCARS WHICH ARE EQUIPPED WITH LOAD DIVIDERS AND WITH OR WITHOUT ADJUSTABLE SIDE FILLERS. ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST 15 INCHES OF TRAVEL ARE ACCEPTABLE. (ONLY THOSE CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO AND PRECO HAVE BEEN TESTED AND APPROVED BY THE AAR, BUX.) THE LOAD DIVIDERS WILL REPLACE THE CENTER GATE ASSEMBLY. A STRUT ASSEMBLY, DETAIL E, WILL BE REQUIRED BETWEEN THE LOAD DIVIDERS AS SHOWN IN THE LOAD VIEWS, IF EITHER LOAD DIVIDER IS REQUIRED TO RETAIN A LADING WEIGHT OF 50,000 POUNDS OR MORE.
2. BOXCARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8 INCH OR THICKER PANELS MAY BE USED. HOWEVER, THESE SIDE FILLERS MUST NOT BE USED FOR LATERAL BLOCKING. THEY MUST BE RETRACTED AND LOCKED AGAINST THE CAR SIDE WALL, AND A FILL PIECE INSTALLED IN THE VOID, IF ONE EXISTS, BETWEEN THE CAR SIDE WALL AND THE SIDE FILLER PANEL. (SEE DETAIL G, PAGE 31).
3. PRIOR TO LOADING A CAR EQUIPPED WITH LOAD DIVIDERS, A VERY CAREFUL INSPECTION MUST BE MADE TO ENSURE THAT THE CAR AND THE CAR EQUIPMENT IS IN GOOD CONDITION. THE CONDITION OF THE LOAD DIVIDERS SHOULD BE CHECKED THOROUGHLY. BREAKS IN WELDING, BENT OR OTHERWISE DAMAGED LOCKING PINS, AND BENT OR DEFORMED BULKHEADS ARE REASONS FOR REJECTING CARS. AFTER THE LOAD DIVIDERS ARE POSITIONED AGAINST THE LADING, AND THE LOCKING PINS ARE ENGAGED IN THE HOLES OF THE RAILS, THE LOCKING PINS MUST BE INSPECTED TO ENSURE THAT THE PINS ARE FULLY ENGAGED IN THE LOCKING HOLES. IF THE LOWER PINS ARE NOT FULLY SEATED IN THE HOLES, THE LINKAGE MECHANISM SHOULD BE ADJUSTED AS REQUIRED SO THAT THE PINS WILL BE FULLY SEATED INTO THE LOCKING HOLES OF THE LOWER RAILS. IF PRESENT, DEBRIS MUST BE REMOVED FROM BENEATH THE LOCKING HOLES SELECTED FOR SECURING A DIVIDER.
4. THE CARLOAD CONSISTS OF 46 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING. THERE ARE 23 UNIT LOADS AND ONE DUMMY UNIT LOAD IN EACH END OF THE CAR. THE DUMMY UNIT LOAD IS REQUIRED TO FILL OUT THE VOID SPACE AND MUST BE CONSTRUCTED AS SHOWN ON PAGE 32. (IF LOAD LIMIT OF CAR PERMITS, REPLACE DUMMY LOADS WITH BOMB LOADS.)
5. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN COMMERCIAL BOXCARS, ENTIRE STACKS SHALL BE ELIMINATED WHERE POSSIBLE, OTHERWISE ADDITIONAL DUMMY UNIT LOADS SHALL BE USED TO FILL OUT THE VOIDS IN A STACK
6. 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 EQUPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 10 FT WIDE PROVIDING DOORWAY PROTECTION IS INSTALLED WHEN REQUIRED. (SEE DETAIL F, PAGE 12).
7. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILLIARY, EXCEPT WHEN THE CAR HAS A COMBINGTION OF A CONVENTIONAL SLIDING TYPE DOOR AND A PLUG TYPE DOOR, AND AN ADEQUATE NAILING STRIP IS PROVIDED ON THE PLUG TYPE DOOR. STACKS WITH MORE THAN HALF OF THE UNIT LOAD IN THE DOORWAY AREA MUST BE UNITIZED WITH TWO LATERALLY APPLIED 1 1/4 INCH STEEL STRAPS PER STACK, EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS. 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. 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.
8. WHEN LOADING BOXCARS WITH AN INSIDE WIDTH GREATER THAN 9 FT 2 IN USE ALTERNATE SWAY BRACE FRAMES SHOWN ON PAGE 34 IN PLACE OF DETAIL A.

* CLINCHED

** "W" - DISTANCE BETWEEN LOCKING PINS AT EACH SIDE OF THE LOAD DIVIDER.

PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER NAILS	SIZE
14	TIE BAR	2 X 4 X CAR WIDTH - 1/2	1	13		
13	STRUT	4 X 4 X CUT TO FIT	4	12	2 EACH END	16d
12	BUFFER PIECE	2 X 4 X CAR WIDTH - 1/2	2	SEE 11	-	-
11	STRUT LEDGER	2 X 4 X CAR WIDTH - 1/2	2	12	1 PER FOOT	10d
10	HOLD DOWN	1 X 6 X "W"**	2	11	1 PER FOOT	6d
9	SWAY BRACE HORIZONTAL	1 X 6 X 63	32	SEE 8	-	-
8	SWAY BRACE VERTICAL	1 X 6 X 70	32	9	3 PER JOINT	10d*
7	SEPARATOR GATE HORIZONTAL	1 X 6 X CAR WIDTH - 1/2	8	6	3 PER JOINT	16d*
6	SEPARATOR GATE VERTICAL	2 X 6 X 72	18	SEE 7	-	-
5	SEPARATOR GATE HORIZONTAL	2 X 4 X CAR WIDTH - 1/2	12	4	3 PER JOINT	16d*
4	SEPARATOR GATE VERTICAL	2 X 6 X 70	54	SEE 5	-	-
3	END GATE VERTICAL	2 X 6 X 61	18	1	5	10d
2	END GATE HORIZONTAL	2 X 6 X CAR WIDTH - 1/2	4	1	3 PER JOINT	10d
1	END GATE VERTICAL	2 X 6 X 72	18	SEE 2	-	-

LIST OF MATERIALS & NAILING DATA

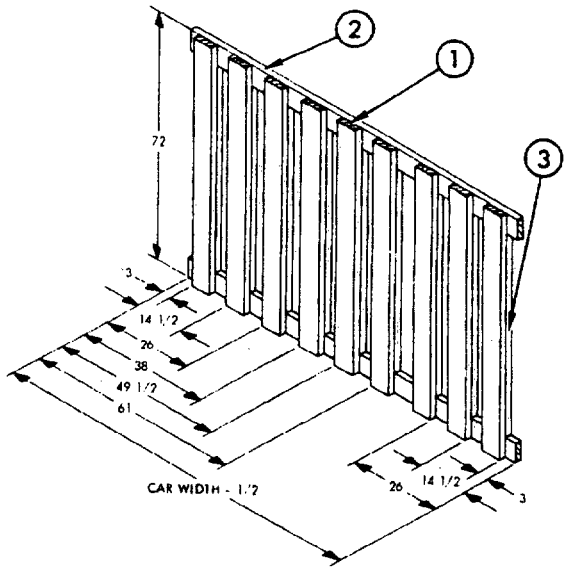


NOTE:
WHEN POSITIONING DUMMY LOAD NEXT TO SWAY BRACE FRAME, 1 X 4 SPACERS MUST BE INSTALLED ON EACH SIDE OF FRAME. THIS IS NOT REQUIRED WHEN 3 DUMMY LOADS ARE LOADED ACROSS THE CAR.

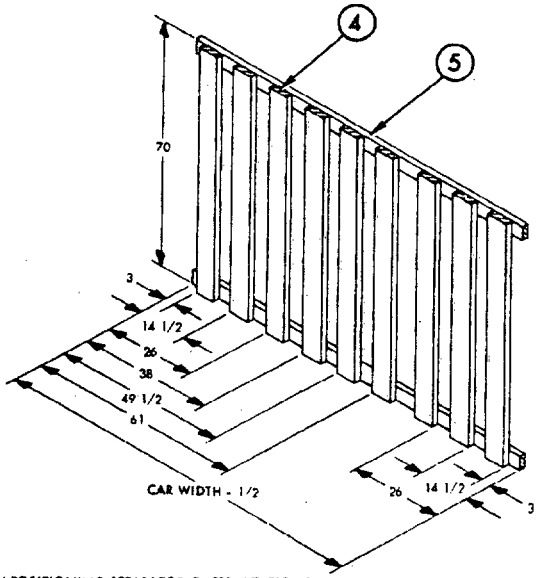
DETAIL A
SWAY BRACE FRAME
8 REQUIRED

CARLOAD DATA

NUMBER OF UNIT LOADS	46
LOAD WEIGHT (APPROXIMATE)	139,354 LBS
DUNNAGE WEIGHT (APPROXIMATE)	2,753 LBS
CARLOAD WEIGHT (APPROXIMATE)	142,087 LBS

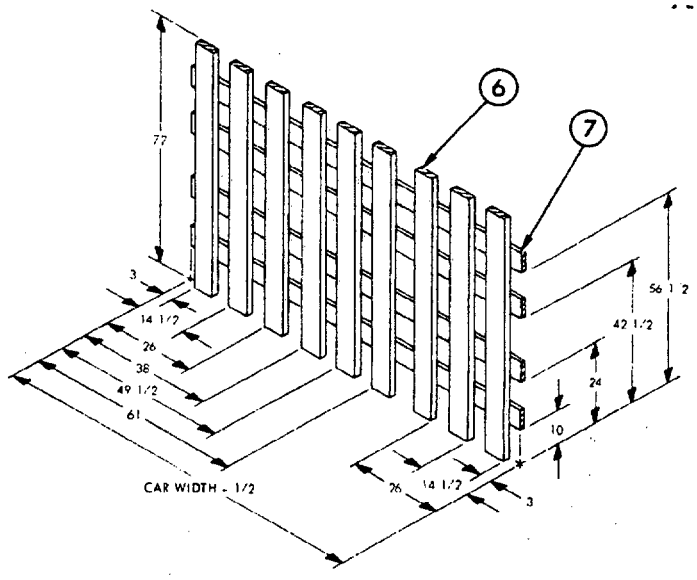


DETAIL B
END WALL GATE
2 REQUIRED

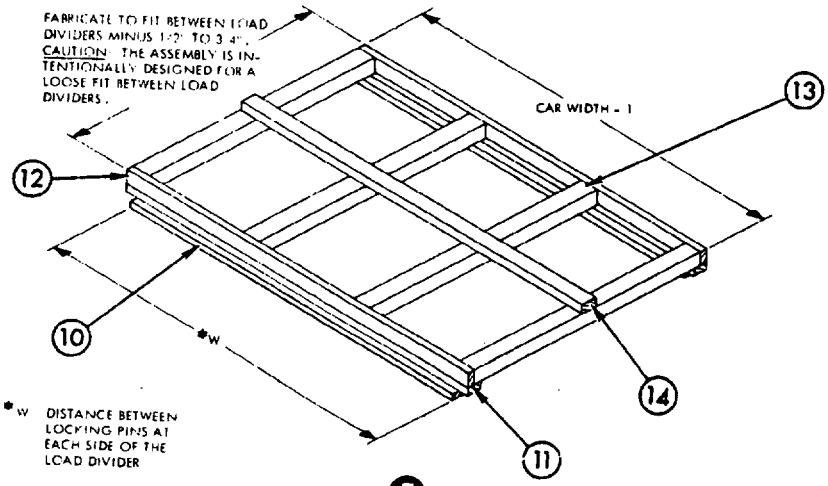


WHEN POSITIONING SEPARATOR GATES, VERTICALS SHALL BE AGAINST BASE END OF BOMBS.

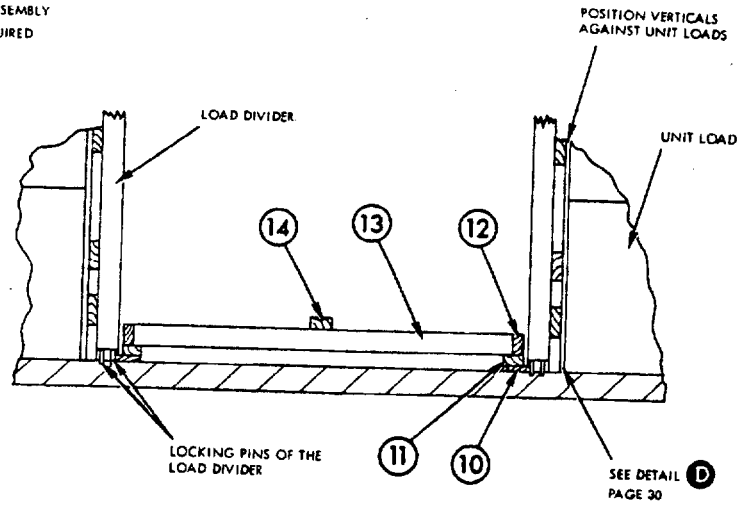
DETAIL C
SEPARATOR GATE
6 REQUIRED



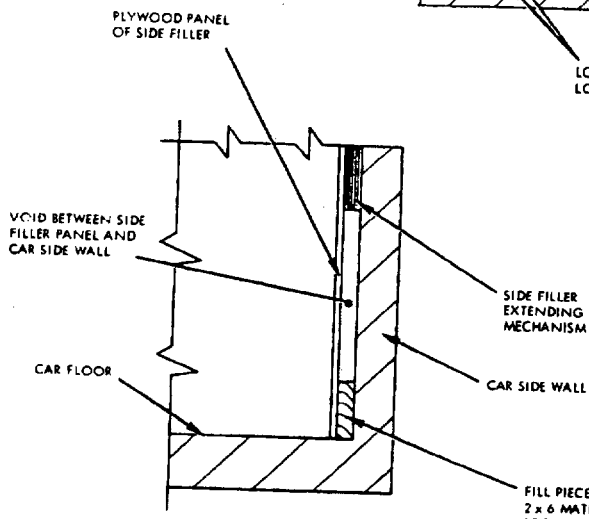
DETAIL D
SEPARATOR GATE
2 REQUIRED



DETAIL E
STRUT ASSEMBLY
1 REQUIRED

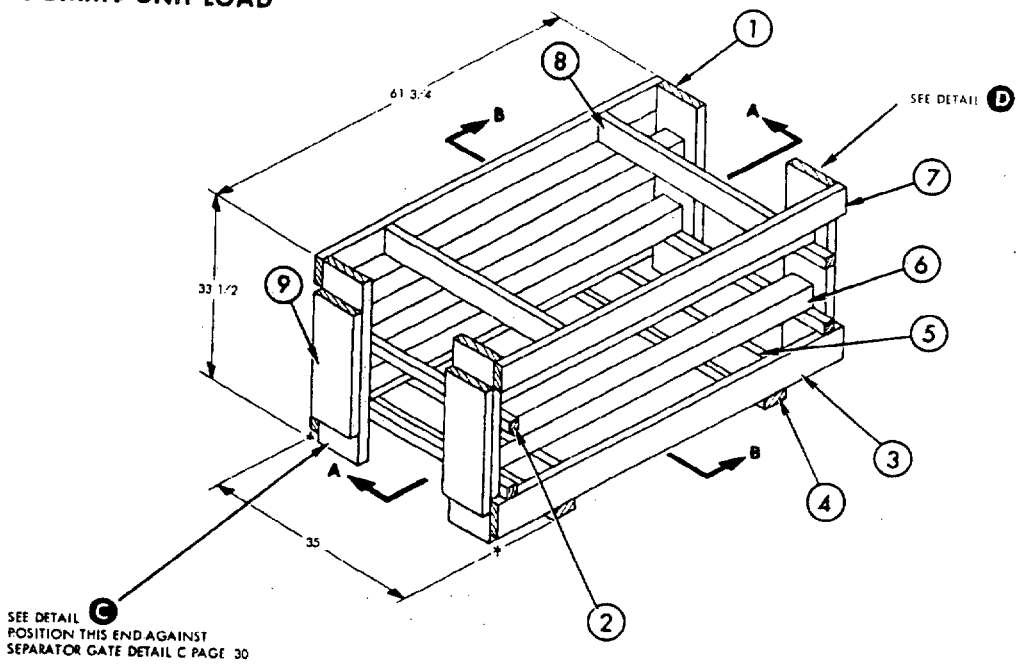


VIEW F-F
INSTALLATION OF STRUT ASSEMBLY



DETAIL G
SHOWING REINFORCEMENT FOR ADJUSTABLE SIDE FILLERS

DUMMY UNIT LOAD



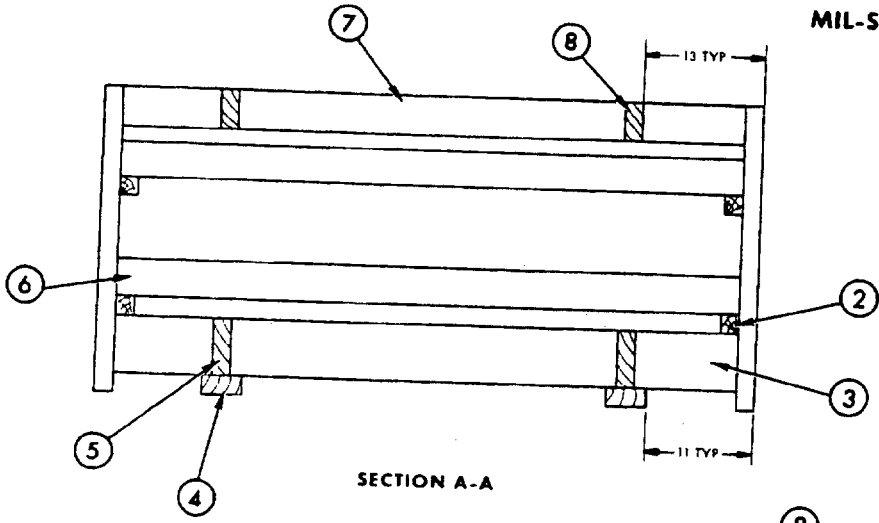
NOTES:

(1) NAIL SUPPORT (PIECE 4) TO LONGITUDINAL (PIECE 3) WITH 16d NAILS, 2 PER JOINT, AND TO CROSS BRACE (PIECE 5) WITH 5-16d NAILS.

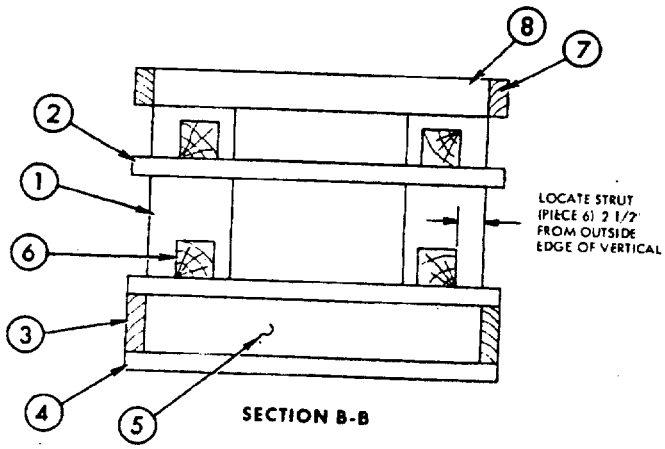
(2) TOENAIL STRUT TO VERTICAL WITH 16d NAILS, 3 EACH END (TOP AND BOTH SIDES), ALSO END NAIL THROUGH VERTICAL WITH 16d NAILS, 2 EACH END.

PIECE NO.	DESCRIPTION	SIZE	NO. OF PIECES REQ'D	NAIL TO	NUMBER OF NAILS	SIZE
9	VERTICAL CLEAT	2 X 8 X 25 1/2	2	1	4	10d
8	CROSS BRACE	2 X 4 X CUT TO FIT	2	SEE 7	-	-
7	LONGITUDINAL	2 X 4 X 60 1/4	2	1, 8	2 PER JOINT	16d
6	STRUT	4 X 4 X CUT TO FIT	4	1	SEE NOTE (2)	
5	CROSS BRACE	2 X 6 X CUT TO FIT	2	SEE 3	-	-
4	SUPPORT	2 X 4 X 35	2	3, 5	SEE NOTE (1)	
3	LONGITUDINAL	2 X 6 X 60 1/4	2	1, 5	3 PER JOINT	16d
2	STRUT CLEAT	2 X 2 X 35	4	1	3 PER JOINT	CLIN 16d
1	VERTICAL	2 X 8 X 33 1/2	4	SEE 2	-	-

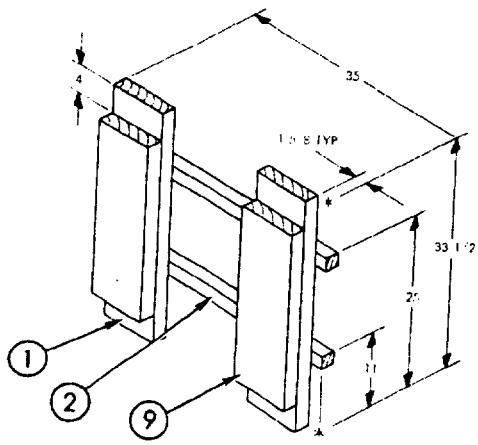
LIST OF MATERIALS & NAILING DATA



SECTION A-A



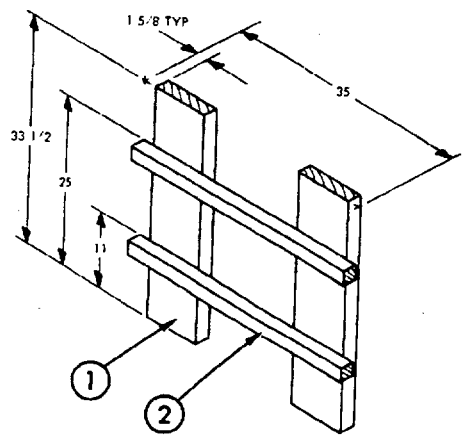
SECTION B-B



DETAIL C

END FRAME WITH CLEAT

1 REQUIRED



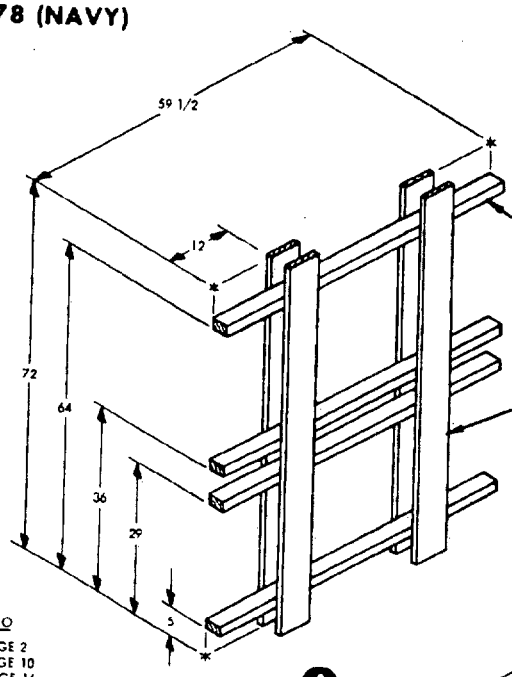
DETAIL D

END FRAME

1 REQUIRED

ALTERNATE SWAY BRACE FRAMES

NOTE: THESE ALTERNATE SWAY BRACE FRAMES ARE FOR USE IN RAILCARS WITH AN INSIDE WIDTH OF 9' 4". IF RAILCAR TO BE LOADED IS OTHER THAN 9' 4" CUT HORIZONTAL MEMBER TO THE APPROPRIATE WIDTH.

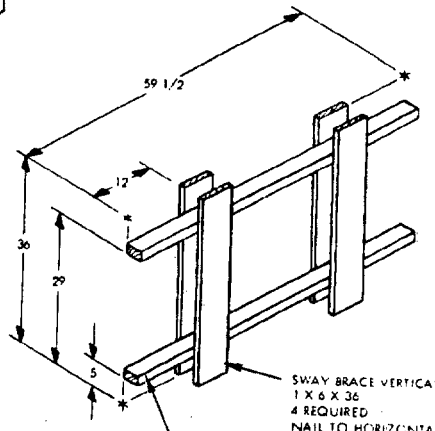


SWAY BRACE HORIZONTAL
2 X 3 X 59 1/2
(RIP 2 X 6 IN HALF)
4 REQUIRED

SWAY BRACE VERTICAL
1 X 6 X 72
4 REQUIRED
NAIL TO HORIZONTAL
WITH THREE 10d NAILS
PER JOINT

ALTERNATE TO
DETAIL A - PAGE 2
DETAIL A - PAGE 10
DETAIL A - PAGE 16
DETAIL A - PAGE 29
(ADD SPACER WHEN REQUIRED)

DETAIL A

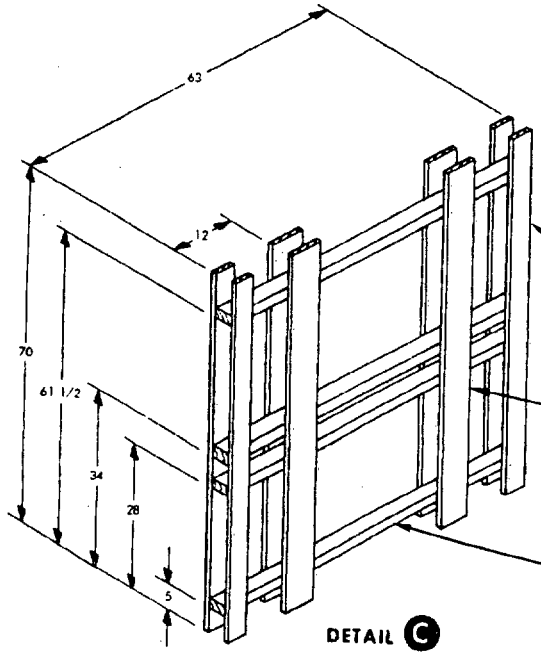


SWAY BRACE VERTICAL
1 X 6 X 36
4 REQUIRED
NAIL TO HORIZONTAL WITH
THREE 10d NAILS PER JOINT

SWAY BRACE HORIZONTAL
2 X 3 X 59 1/2
(RIP 2 X 6 IN HALF)
2 REQUIRED

DETAIL B

ALTERNATE TO
DETAIL C - PAGE 18
DETAIL D - PAGE 24



SWAY BRACE VERTICAL
1 X 4 X 70
4 REQUIRED
NAIL TO HORIZONTAL WITH
TWO 10d NAILS PER JOINT

SWAY BRACE VERTICAL
1 X 6 X 70
4 REQUIRED
NAIL TO HORIZONTAL WITH
THREE 10d NAILS PER JOINT

SWAY BRACE HORIZONTAL
2 X 3 X 63
(RIP 2 X 6 IN HALF)
4 REQUIRED

DETAIL C

ALTERNATE TO
DETAIL C - PAGE 24

REVIEW ACTIVITY
NAVY - OS, AS

PREPARING ACTIVITY
NAVY - OS
(PROJECT NO 8140 - N 310)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1977—703-020:659

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

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DOCUMENT IDENTIFIER AND TITLE
MIL-STD-1325-178 (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?)*

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