

Code Ident  
10001

Naval Ordnance Systems Command  
Department of the Navy

WR-52/10D

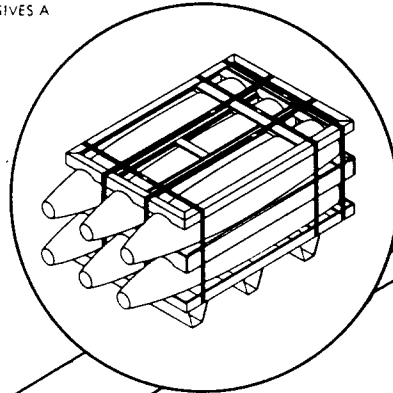
11 JANUARY 1972

SUPERSEDING  
WR-52/10C  
10 MARCH 1970

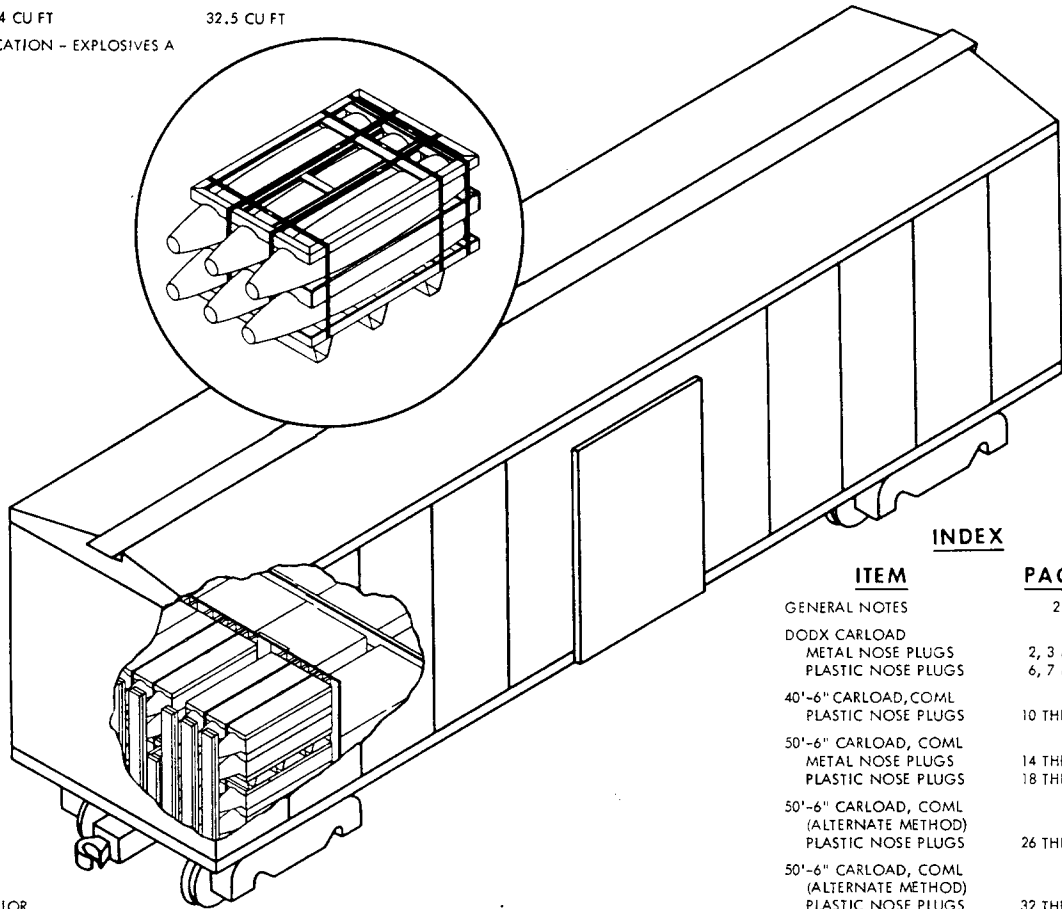
**WEAPONS REQUIREMENT, CARLOADING**  
**BOMB, GENERAL PURPOSE, MK 82 & MODS (500 LB)**  
**IN PALLET, BOMB, MK 9 MOD O**  
**FLEET ISSUE UNIT LOAD**

**UNIT LOAD DATA**

	METAL NOSE PLUGS	PLASTIC NOSE PLUGS
WEIGHT	3220	3130
DIMENSIONS	67 1/4 L x 33 3/4 W x 27 H	61 7/8 L x 33 3/4 W x 27 H
CUBE	35.4 CU FT	32.5 CU FT
DOT HAZARD CLASSIFICATION - EXPLOSIVES A		



UNIT-LOAD SHOWN  
WITH PLASTIC NOSE  
PLUGS.



THIS WR SUPERSEDES  
AND CANCELS ALL PRIOR  
DRAWINGS COVERING CARLOADING  
OF THIS ITEM  
UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES

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PLASTIC NOSE PLUGS	18 THRU 24
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PLASTIC NOSE PLUGS	26 THRU 30
50'-6" CARLOAD, COML (ALTERNATE METHOD)	
PLASTIC NOSE PLUGS	32 THRU 35
50'-6" CARLOAD, COML (USING LOAD DIVIDERS)	36 THRU 40
DUMMY UNIT LOAD	42, 43

54/31	PALLETIZING
51/6	TRUCKLOADING
WR NO.	ASSOCIATED PROCESS

REV LTR	REVISION DESCRIPTION	DATE	TDA	BUXPL	SYSCOM	APPROVAL
D	ADDED LOAD DIVIDER CAR AND DUMMY UNIT LOAD	6/20/71	MEP	A.F.B.	J.C.K.	
C	ADDED 40'6" COML CAR & REVISED 50'6" COML CAR	12/17/69	SEA	A.F.B.	R.E.Z.	
B	REVISE FORMAT AND ADDED METHODS	5/1/69	SEA	A.F.B.	R.E.Z.	
A	REDRAWN AND REVISED	1/17/67	SEA	A.F.B.	R.E.Z.	

**AUTHORIZED AND RELEASED FOR  
GENERAL USE.**

**APPROVED BY BUREAU OF EXPLOSIVES**

*C. F. Grassmuck* MILITARY ASSISTANT 11/23/66  
SIGNATURE DATE

*J. E. Kelly* NWHL 12/16/66  
SIGNATURE TECHNICAL DIRECTING ACTIVITY (TDA) DATE  
*Robert E. Albrecht* AIR-53492 12/20/66  
SIGNATURE (AIR) SYSCOM, BY DIRECTION DATE

ORIGINATOR *C. P. Troutman* 12/16/66  
SIGNATURE

NAVAL WEAPONS HANDLING LABORATORY  
U.S.N.A.D. EARLE, NEW JERSEY

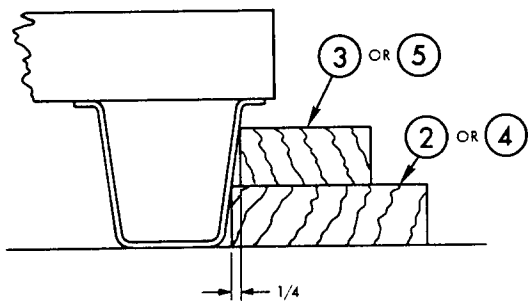
## GENERAL NOTES

1. FOR GENERAL INFORMATION CONCERNING ORDERING, INSPECTING, AND PREPARING CARS, AND FOR DUNNAGING MATERIALS, DESIGN, AND INSTALLATION OF DUNNAGE SEE THE GENERAL DOCUMENT WR-52 "CARLOADING OF WEAPONS AND MAJOR WEAPON SYSTEM COMPONENTS."
2. WHEN PLANNING SHIPMENTS ORDER THE MINIMUM NUMBER OF CARS OF THE CAPACITY REQUIRED FOR THE SHIPMENT. UTILITY LOADER CARS SHALL BE SERIES DODX 28000.
3. LOADING PLANS SHOWN ARE FOR DODX UTILITY LOADER CAR WITH 30 FT 6 INCHES INSIDE LENGTH, 107 3/4 INCHES INSIDE WIDTH BETWEEN RAILS (111 INCHES INSIDE WIDTH BETWEEN SIDE WALLS), COMMERCIAL BOXCARS WITH 40 FT 6 INCHES INSIDE LENGTH, 110 INCHES INSIDE WIDTH, AND COMMERCIAL BOXCARS WITH 50 FT 6 INCHES INSIDE LENGTH, 110 INCHES INSIDE WIDTH.
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 GENERAL PURPOSE BOMBS MK 82 AND MODS PALLETIZED IN ACCORDANCE WITH WR-54/31.
7. THE UNIT LOADS ARE HANDLED AND LOADED WITH A SUITABLE FORK LIFT TRUCK.
8. UNLESS OTHERWISE SPECIFIED NAILING SHALL BE IN ACCORDANCE WITH WR-52.
9. APPLICABLE MATERIAL SPECIFICATIONS:  
 DUNNAGE LUMBER - FED. SPEC MM-L-751  
 NAILS - FED. SPEC FF-N-105.  
 STRAPPING - FED. SPEC QQ-S-781, TYPE 1, CLASS A
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).

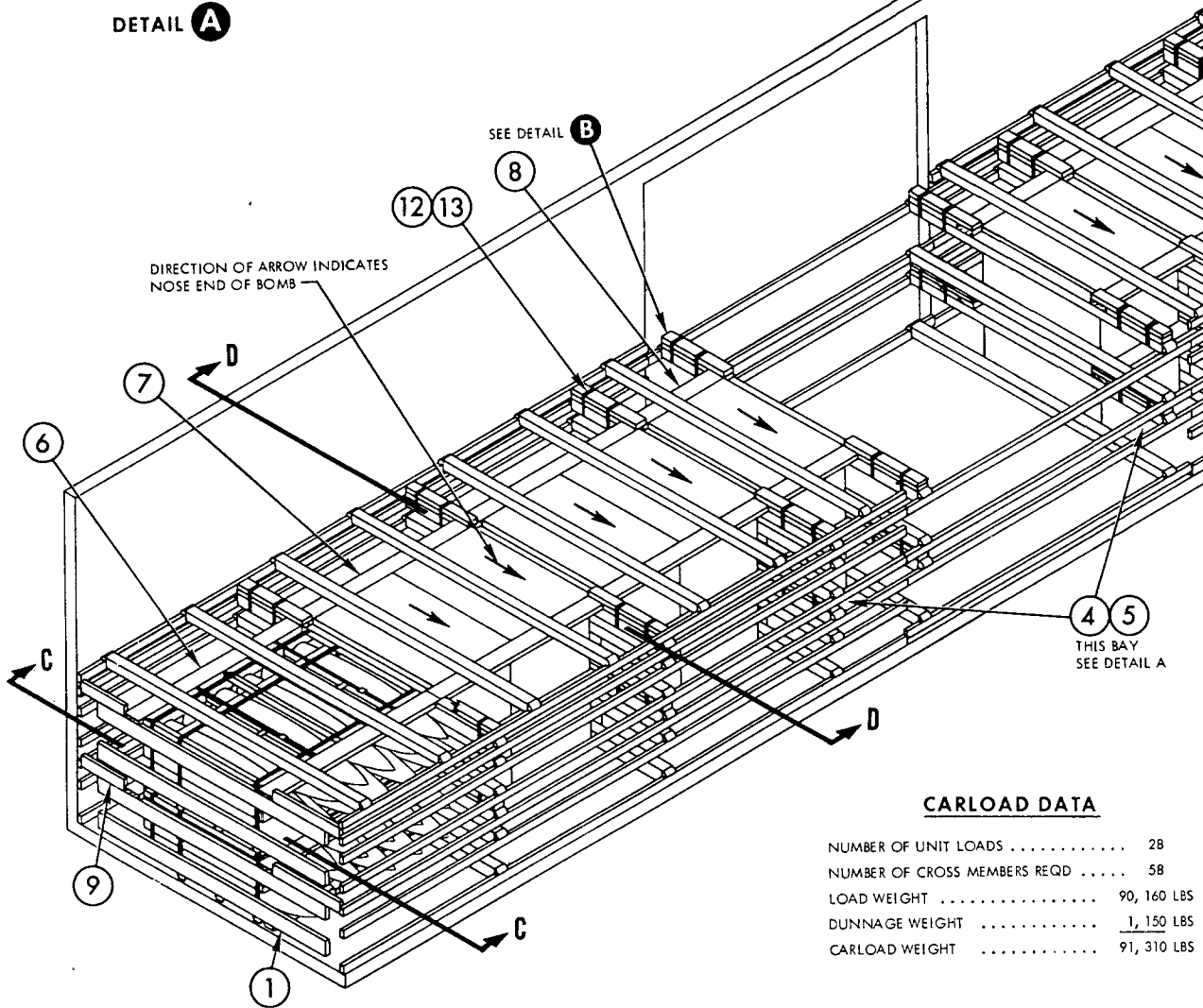
## 50 FT 6 IN. BOXCAR, DODX (BOMBS WITH METAL NOSE PLUGS)

1. THE CARLOAD CONSISTS OF 28 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING.
2. A DETAILED DESCRIPTION AND OPERATING INSTRUCTIONS FOR THE UTILITY LOADER ARE CONTAINED IN OP 1750.
3. TO PREVENT UNUSED "DF" EQUIPMENT FROM BECOMING DISLODGED DURING TRANSIT OF DODX CARS SECURE IT AT ANY LOCATION IN THE BOXCAR WHICH WILL NOT INTERFERE WITH UNLOADING.
4. WHEN LESS THAN CARLOAD (LCU) QUANTITIES ARE REQUIRED TO BE SHIPPED IN DODX BOXCARS THE SAME PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE. ANY BAYS OR PORTION THEREOF MAY BE USED PROVIDING THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR ARE COMPLIED WITH (SEE WR-52). EACH CROSSMEMBER WILL BE USED IN SUCH A MANNER THAT IT WILL RETAIN NOT MORE THAN 2200 LBS OF THE LADING.

13	SEAL	5/8	64	-	-	-
12	STRAPPING	5/8 x .020 x 30	64	-	-	-
11	LATERAL SWAY BRACE	2 x 4 x TO SUIT	32	10	5	12d
10	LATERAL SWAY BRACE	2 x 4 x TO SUIT	32	SEE 11	-	-
9	CLEAT	2 x 4 x TO SUIT	8	CAR WALL	2 PER FOOT	10d
8	LONGITUDINAL SWAY BRACE	2 x 6 x 40	8	-	-	-
7	LONGITUDINAL SWAY BRACE	2 x 6 x 71 5/8	16	-	-	-
6	LONGITUDINAL SWAY BRACE	2 x 6 x 71 1/4	8	1	2 PER JOINT	12d
5	SLEEPER	2 x 4 x 33	4	4	2 PER FOOT	30d
4	SLEEPER	2 x 6 x 33	4	CAR FLOOR	2 PER FOOT	16d
3	SLEEPER	2 x 4 x 66	12	2	2 PER FOOT	30d
2	SLEEPER	2 x 6 x 66	12	CAR FLOOR	2 PER FOOT	16d
1	END WALL BUFFER MEMBER	2 x 6 x 96	8	CAR WALL	1 PER FOOT	12d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQ D	NAIL TO	NUMBER	SIZE
LIST OF MATERIALS AND NAILING DATA						



DETAIL A



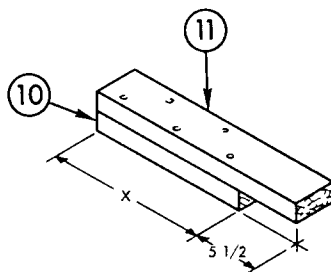
SEE DETAIL B

DIRECTION OF ARROW INDICATES  
NOSE END OF BOMB

4 5  
THIS BAY  
SEE DETAIL A

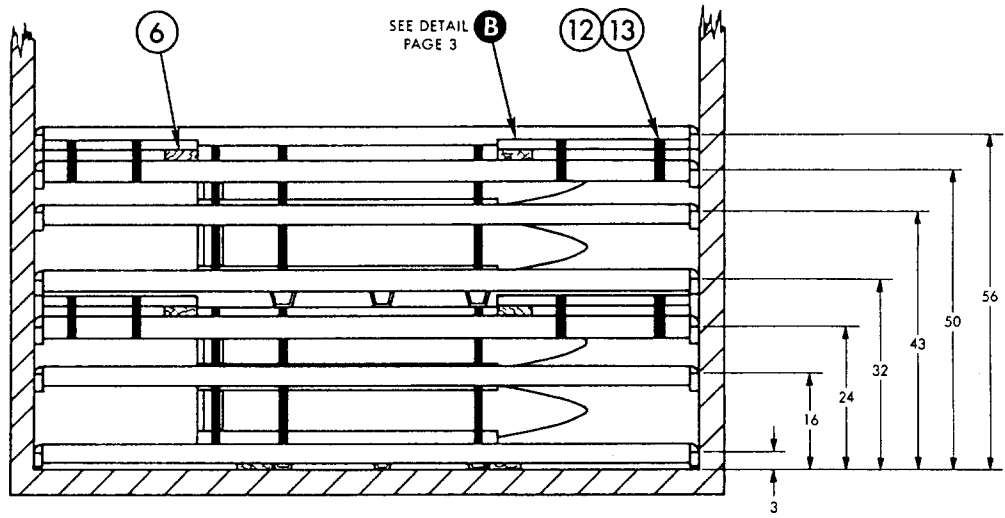
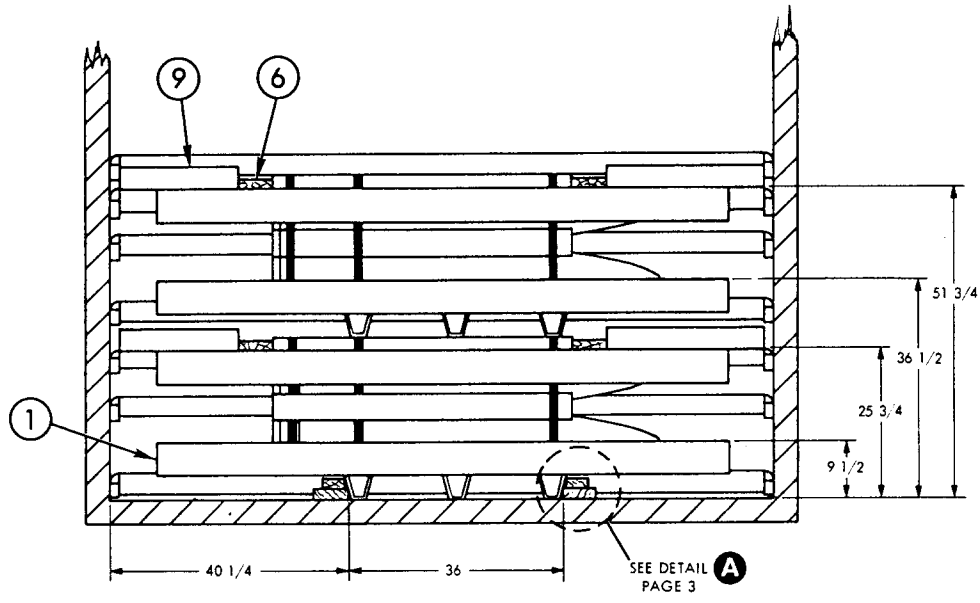
**CARLOAD DATA**

NUMBER OF UNIT LOADS .....	28
NUMBER OF CROSS MEMBERS REQD .....	58
LOAD WEIGHT .....	90, 160 LBS
DUNNAGE WEIGHT .....	1, 150 LBS
CARLOAD WEIGHT .....	91, 310 LBS

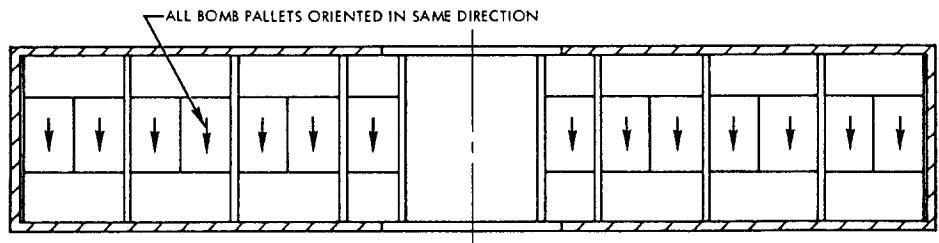


DETAIL B

X = DISTANCE BETWEEN SWAY BRACE  
MEMBER (PIECE 6, 7 OR 8) AND  
SIDE WALL OR SIDE RAIL OF CAR.



DOORWAY MEMBER LOCATIONS: 5", 24", 32" AND 50".

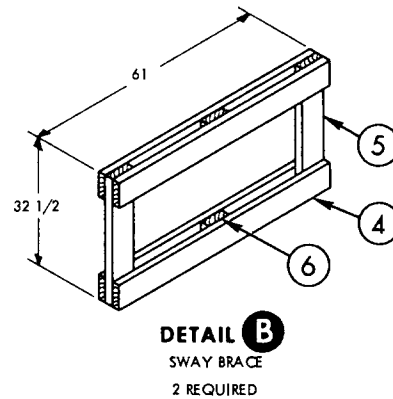
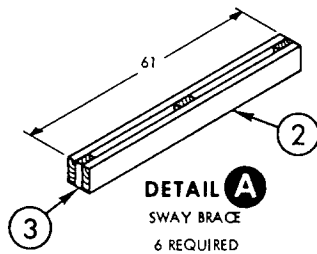


LOADING PLAN

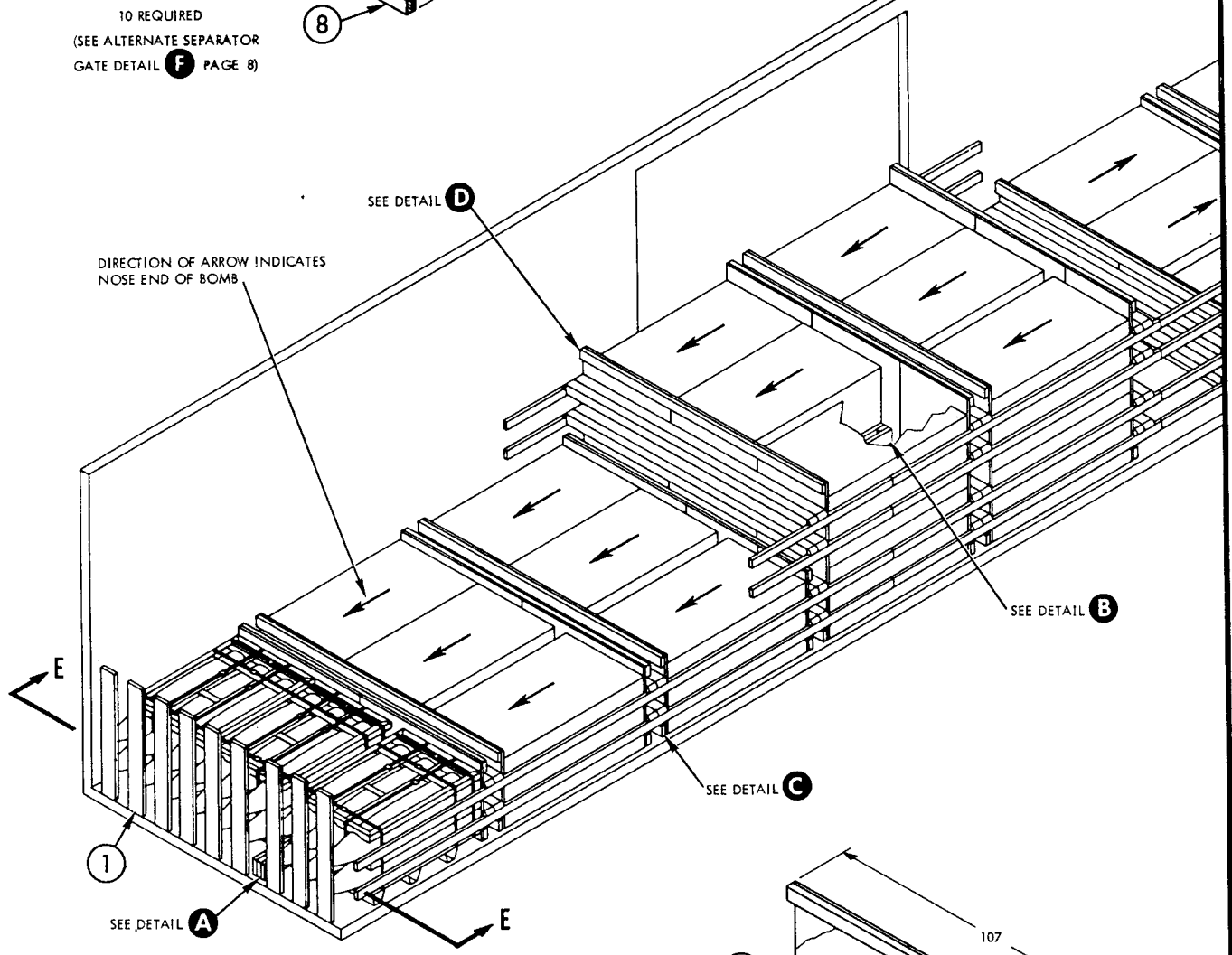
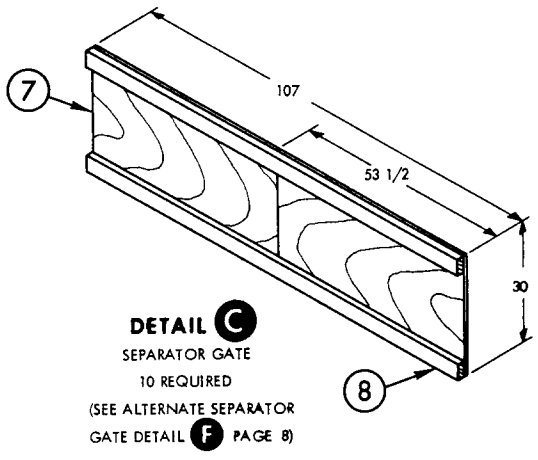
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## 50 FT 6 IN. BOXCAR, DODX (BOMBS WITH PLASTIC NOSE PLUGS)

1. THE CARLOAD CONSISTS OF 30 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING.
2. A DETAILED DESCRIPTION AND OPERATING INSTRUCTIONS FOR THE UTILITY LOADER ARE CONTAINED IN OP 1750.
3. TO PREVENT UNUSED "DF" EQUIPMENT FROM BECOMING DISLODGED DURING TRANSIT OF DODX CARS SECURE IT AT ANY LOCATION IN THE BOXCAR WHICH WILL NOT INTERFERE WITH UNLOADING.
4. WHEN LESS THAN CARLOAD (LCI) QUANTITIES ARE REQUIRED TO BE SHIPPED IN DODX BOXCARS THE SAME PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE. ANY BAYS OR PORTION THEREOF MAY BE USED PROVIDING THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR ARE COMPLIED WITH (SEE WR-52). EACH CROSS MEMBER WILL BE USED IN SUCH A MANNER THAT IT WILL RETAIN NOT MORE THAN 2500 LBS OF THE LADING.
5. THE UNIT LOADS ARE HANDLED FROM THE LOADING DOCK INTO THE RAILCAR IN THE DOORWAY AREA BY A SUITABLE FORK LIFT TRUCK LIFTING FROM THE SIDE OF THE LOAD. THEY ARE ALSO REMOVED FROM THE DOORWAY AREA OF THE RAILCAR IN A SIMILAR MANNER. A SECOND FORK LIFT TRUCK IS USED WITHIN THE RAILCAR DURING LOADING OPERATIONS TO SKID THE LOAD INTO THE DESIRED POSITION EACH END OF THE CAR BY SLIGHTLY LIFTING THE BASE END AND PUSHING FORK LIFT TINES AGAINST THE BASE LATERAL SKID. DURING UNLOADING OPERATIONS THE FORK LIFT TRUCK IN THE CAR IS USED AS FOLLOWS:
  - (a) RAISE THE UNIT LOAD FROM THE BASE END SUFFICIENT TO POSITION A 2 x 4 x 18 ON EDGE UNDER AND NORMAL TO THE BASE LATERAL SKID.
  - (b) LOWER THE UNIT LOAD UNTIL THE BASE SKID RESTS ON THE 2 x 4 AND THEN FULLY INSERT FORK TRUCK TINES UNDER LATERAL SKIDS.
  - (c) LIFT UNIT LOAD APPROXIMATELY SIX INCHES FROM FLOOR, TILT BACK, AND MOVE UNIT LOAD TO DOORWAY AREA.
  - (d) THE OTHER FORK TRUCK IS USED TO REMOVE UNIT LOAD FROM THE RAILCAR.

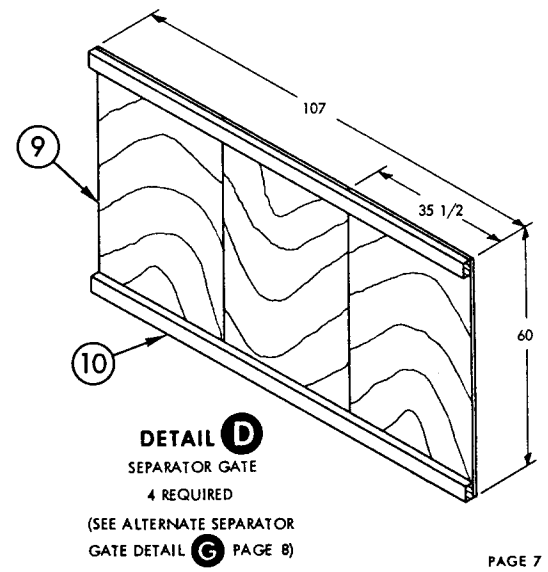


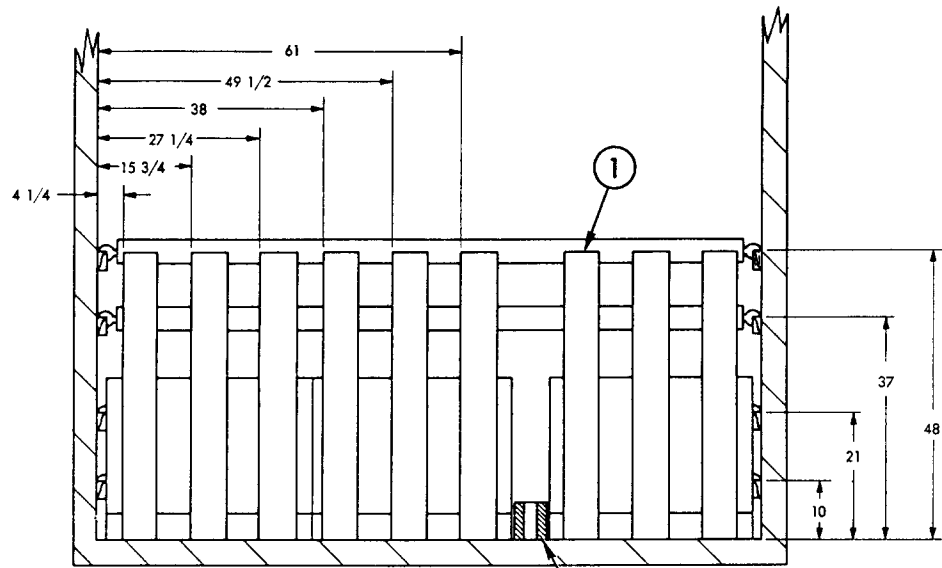
10	TIE PIECE	2 x 4 x 107	8	SEE 9	-	-
9	PLYWOOD SPACER	1/2 x 35 1/2 x 60	12	10	2 PER FOOT	6d
8	TIE PIECE	2 x 4 x 107	20	SEE 7	-	-
7	PLYWOOD SPACER	1/2 x 30 x 53 1/2	20	8	2 PER FOOT	6d
6	SPACER CLEAT	2 x 4 x 5 1/2	4	SEE 4	-	-
5	SWAY BRACE UPRIGHT	2 x 4 x 32 1/2	4	SEE 4	-	-
4	SWAY BRACE LONGITUDINAL	2 x 6 x 61	8	5, 6	3 PER JOINT	12d
3	SPACER CLEAT	2 x 4 x 5 1/2	18	SEE 2	-	-
2	SWAY BRACE LONGITUDINAL	2 x 6 x 61	12	3	3 PER JOINT	12d
1	END WALL MEMBER	2 x 6 x 48	18	CAR WALL	1 PER FOOT	12d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQ D	NAIL TO	NUMBER	SIZE
					NAILS	
LIST OF MATERIALS AND NAILING DATA						



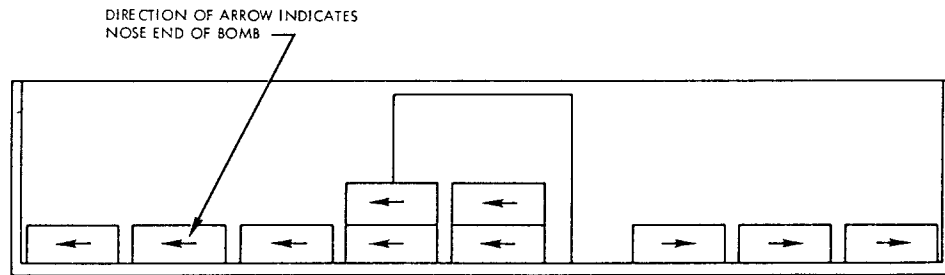
**CARLOAD DATA**

NUMBER OF UNIT LOADS .....	30
NUMBER OF CROSS MEMBERS REQD .....	44
LOAD WEIGHT .....	93,900 LBS
DUNNAGE WEIGHT .....	1,385 LBS
CARLOAD WEIGHT .....	95,285 LBS

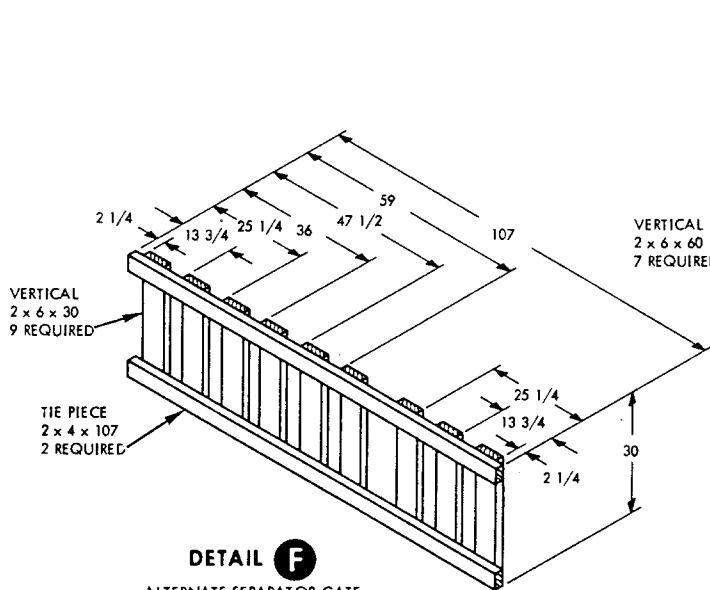




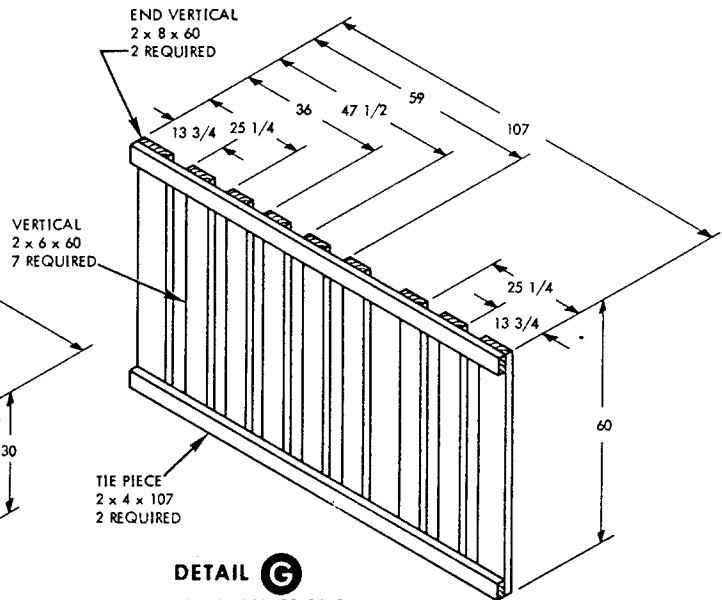
**SECTION E-E**  
 SHOWING LOCATION OF WALL MEMBERS  
 USED FOR CROSS MEMBERS  
 ALSO LOCATION OF END WALL MEMBERS



**ELEVATION  
 LOADING PLAN**



**DETAIL F**  
 ALTERNATE SEPARATOR GATE  
 10 REQUIRED.  
 PREFABRICATE WITH 12d NAILS  
 THREE PER JOINT



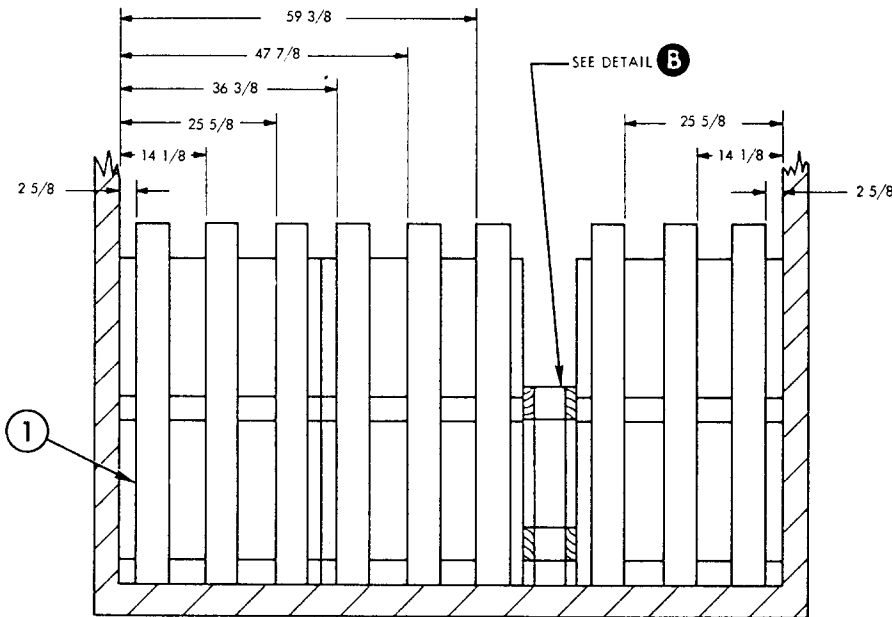
**DETAIL G**  
 ALTERNATE SEPARATOR GATE  
 4 REQUIRED  
 PREFABRICATE WITH 12d NAILS  
 THREE PER JOINT



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# 40 FT 6 IN. BOXCAR, COMMERCIAL (BOMBS WITH PLASTIC NOSE PLUGS)

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 BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH DETAILS PAGES 8, 9 AND 10 OF WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED.
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 WR-52.



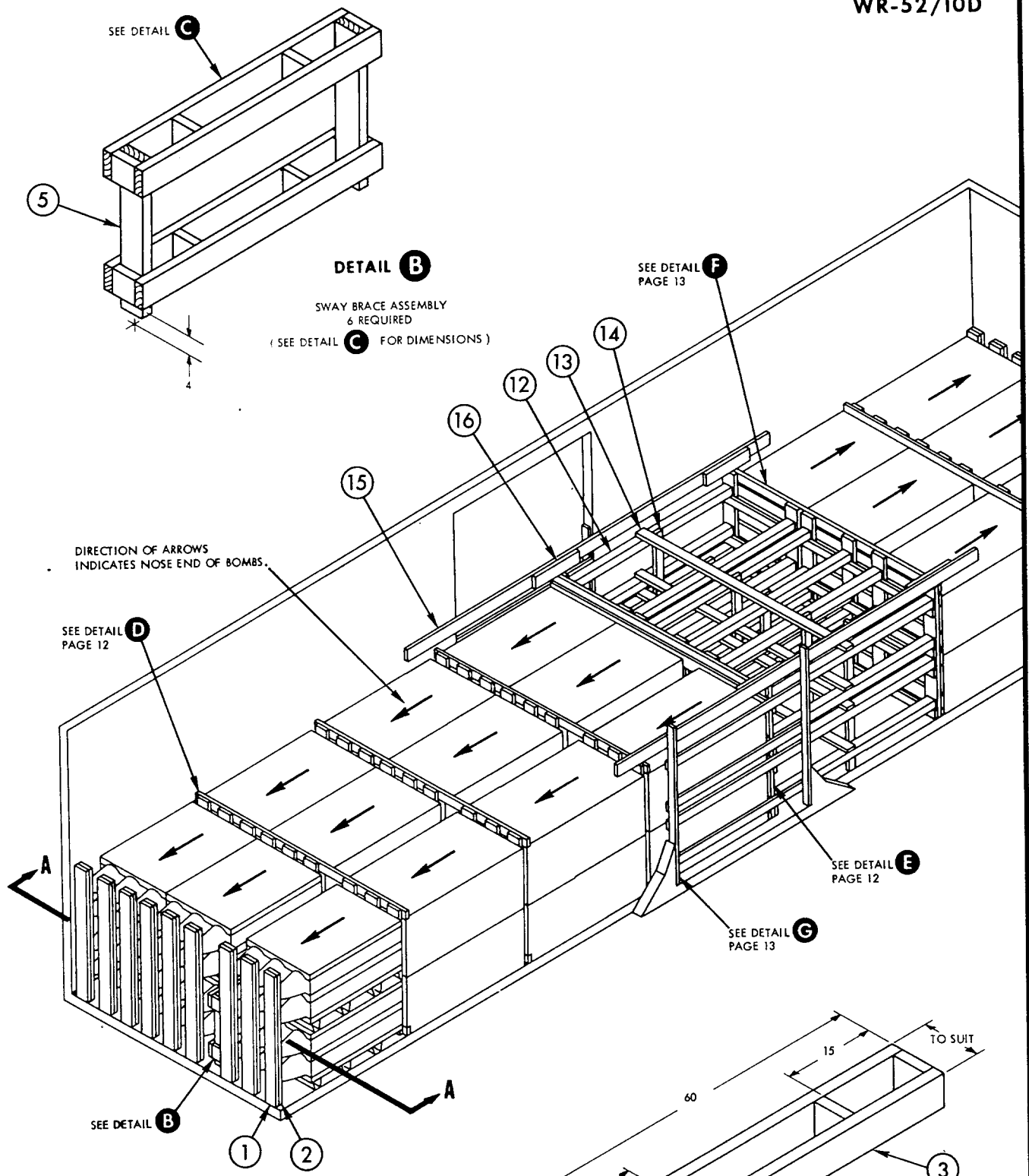
**SECTION A-A**  
SHOWING LOCATION OF END WALL MEMBERS

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

\*\* PIECE 15 NAILS TO CAR WALL WITH 10d NAILS, 2 PER FOOT ON CENTER GATE SIDE OF DOOR AND 5 NAILS ON OTHER SIDE, POSITIONED AS SHOWN IN ISOMETRIC.

18	HORIZONTAL DOORWAY MEMBER	2 x 4 x DOOR WIDTH	8	17	3 PER JOINT	10d
17	VERTICAL DOORWAY MEMBER	2 x 3 x 72	4	DOOR POST	2 PER FOOT	20d
16	HOLD DOWN CLEAT	2 x 6 x 24	4	15	5	10d
15	GATE HOLD DOWN	2 x 6 x 16 FT	2	CAR WALL	SEE NOTE **	
14	VERTICAL TIE BAR	2 x 4 x 57	6	12	3 PER JOINT	16d
13	HORIZONTAL TIE BAR	2 x 4 x CAR WIDTH-1	4	12	3 PER JOINT	16d
12	STRUT	4 x 4 x WEDGE FIT *	24	9	2 PER JOINT	16d
11	TOP HORIZONTAL	2 x 4 x CAR WIDTH-1	2	9	3 PER JOINT	10d
10	CENTER GATE STRUT CLEAT	2 x 4 x CAR WIDTH-1	8	9	3 PER JOINT	10d
9	CENTER GATE VERTICAL	2 x 6 x 60	12	SEE 8	-	-
8	CENTER GATE HORIZONTAL	2 x 6 x CAR WIDTH-1	8	9	3 PER JOINT	10d
7	SEPARATOR GATE HORIZONTAL	2 x 4 x CAR WIDTH-1	8	6	3 PER JOINT	10d
6	SEPARATOR GATE VERTICAL	2 x 6 x 57	36	SEE 7	-	-
5	SWAY BRACE TIE PIECE	2 x 6 x 32 1/2	12	4	4 PER JOINT	10d
4	CROSS BRACE	2 x 6 x CUT TO FIT	48	SEE 3	-	-
3	SWAY BRACE LONGITUDINAL	2 x 6 x 60	24	4	3 PER JOINT	16d
2	END WALL MEMBER	2 x 6 x 60	18	1	1 PER FOOT	10d
1	END WALL MEMBER	2 x 6 x 60	18	CAR WALL	1 PER FOOT	10d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS. REQD	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS AND NAILING DATA



DIRECTION OF ARROWS INDICATES NOSE END OF BOMBS.

**CARLOAD DATA**

NUMBER OF UNIT LOADS .....	36
LOAD WEIGHT .....	112,680 LBS
DUNNAGE WEIGHT .....	2,865 LBS
CARLOAD WEIGHT .....	115,545 LBS

**DETAIL B**  
 SWAY BRACE ASSEMBLY  
 6 REQUIRED  
 (SEE DETAIL C FOR DIMENSIONS)

SEE DETAIL **F**  
 PAGE 13

SEE DETAIL **D**  
 PAGE 12

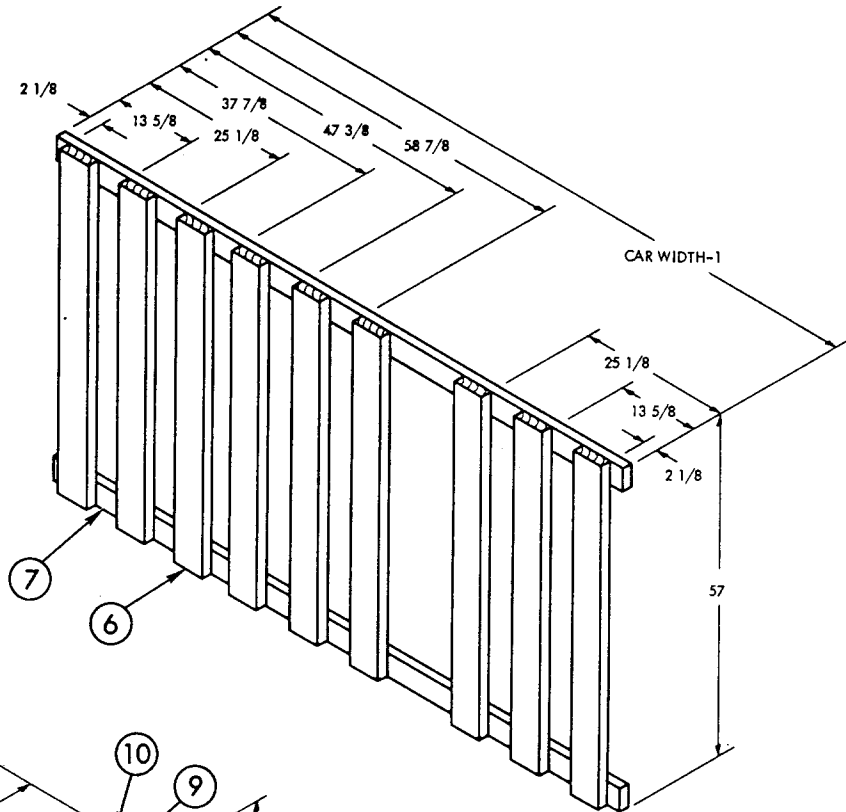
SEE DETAIL **E**  
 PAGE 12

SEE DETAIL **G**  
 PAGE 13

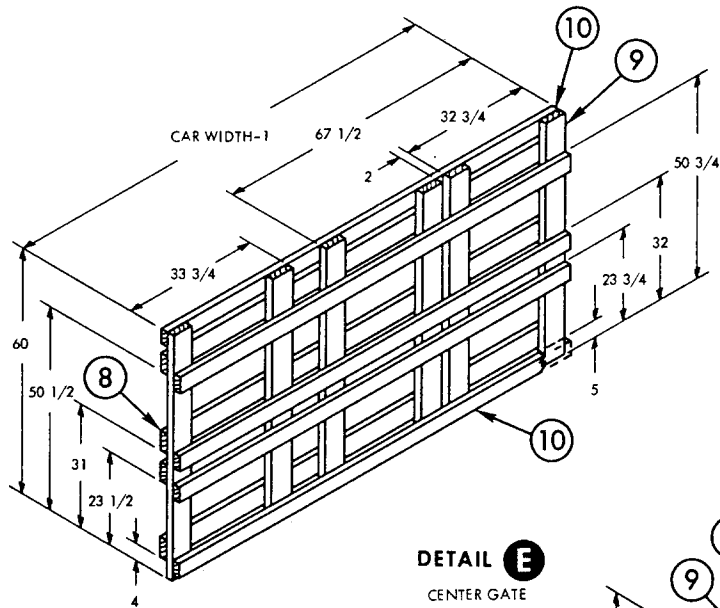
SEE DETAIL **B**

**DETAIL C**  
 SWAY BRACE FRAME  
 12 REQUIRED

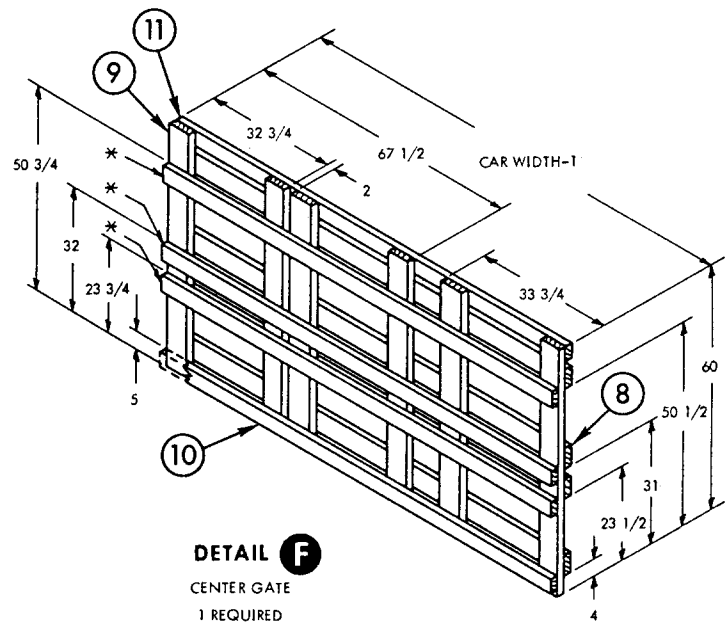
**WR-52/10D**



**DETAIL D**  
SEPARATOR GATE  
6 REQUIRED

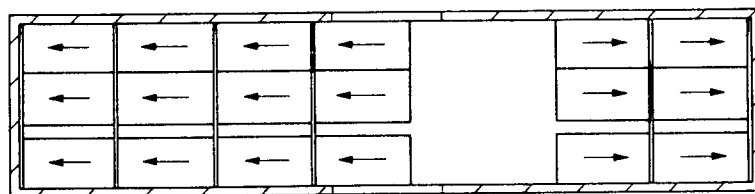
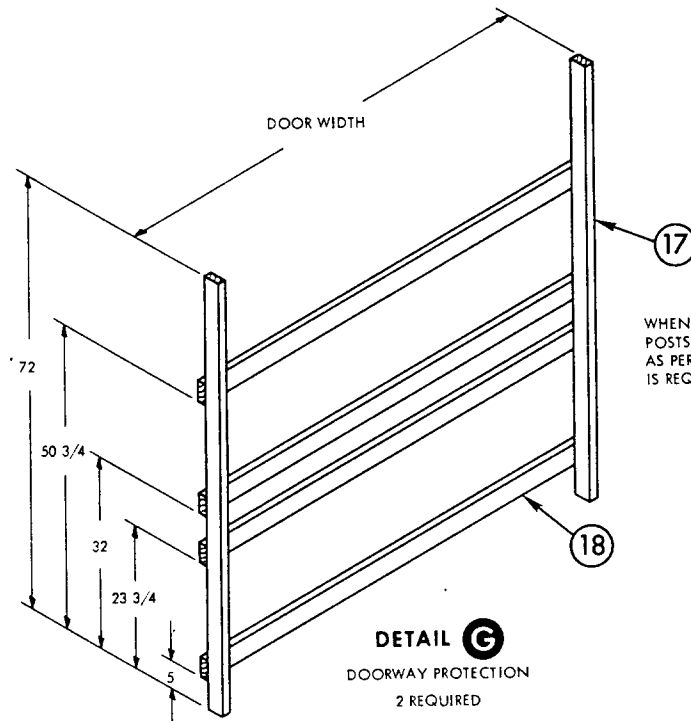


**DETAIL E**  
CENTER GATE  
1 REQUIRED



**DETAIL F**  
CENTER GATE  
1 REQUIRED

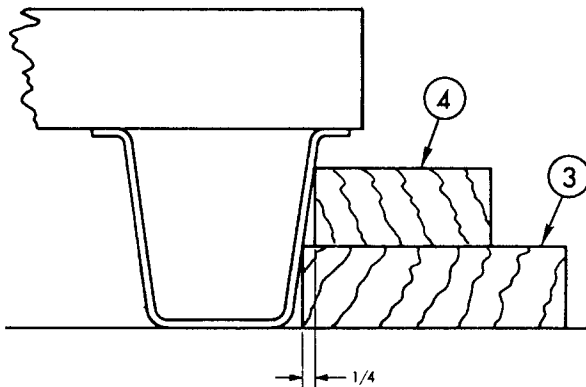
\*POSITION AFTER STRUTS  
HAVE BEEN INSTALLED ON  
LOWER STRUT CLEAT.  
(REQUIRED ONE GATE ONLY)



LOADING PLAN

## 50 FT 6 IN. BOXCAR, COMMERCIAL (BOMBS WITH METAL NOSE PLUGS)

1. THE CARLOAD CONSISTS OF 32 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THE 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 DETAILS PAGES 8, 9 AND 10 OF WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED.
3. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 10 FT WIDE DOORWAY OPENINGS AND ARE EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE TO BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 10 FT WIDE PROVIDING THE LENGTH OF PIECE 19 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING.
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS, PROVIDING THE DOORS ARE SPANNED WITH ADDITIONAL 2 x 6 MEMBERS AT PROPER HEIGHTS TO BACK UP SWAY BRACING. THE LENGTH OF PIECE 19 MUST BE ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR WHETHER MAIN OR AUXILIARY, EXCEPT WHEN THE CAR HAS A COMBINATION OF A CONVENTIONAL SLIDING TYPE DOOR AND PLUG TYPE DOOR, AND AN ADEQUATE NAILING STRIP IS PROVIDED ON THE PLUG TYPE 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.



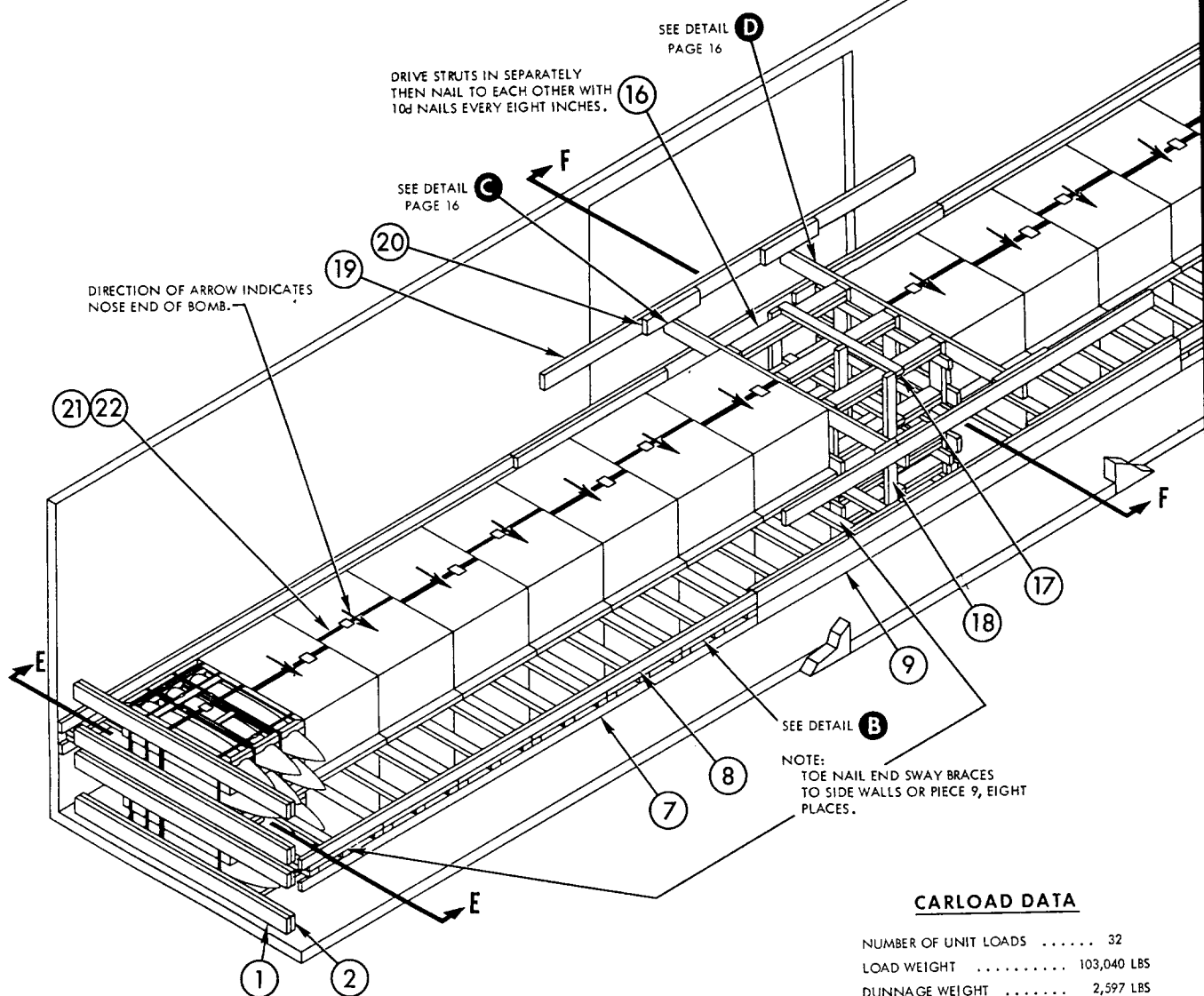
DETAIL A

\* FASTEN TO CAR WALL WITH TWO 10d NAILS PER FOOT AND TWO 16d NAILS IN EACH WALL STUD.

\*\* 4 x 4 STRUTS MAY BE SUBSTITUTED IN PLACE OF DOUBLE 2 x 6'S.

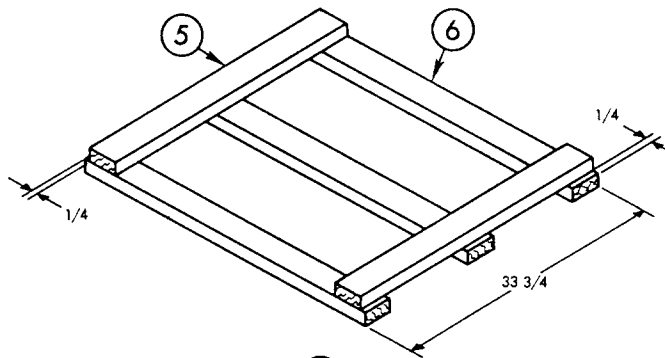
22	SEAL	1 1/4 x 22 GA MIN	16	-	-	-
21	STRAP	1 1/4 x .035 x 16 FT	16	-	-	-
20	HOLD DOWN CLEAT	2 x 6 x 24	4	19	5	12d
19	GATE HOLD DOWN	2 x 6 x 14 FT	2	CAR WALL	5 EA END	10d
18	VERTICAL TIE BAR	2 x 4 x 56	3	16	3 PER JOINT	12d
17	HORIZONTAL TIE BAR	2 x 4 x 54	4	16	3 PER JOINT	16d
16	STRUT	2 x 6 x WEDGE FIT **	24	13	2 PER JOINT	16d
15	STRUT CLEAT	2 x 4 x 60	8	13	3 PER JOINT	12d
14	TOP HORIZONTAL	2 x 6 x CAR WIDTH-1	2	13	3 PER JOINT	12d
13	CENTER GATE VERTICAL	2 x 6 x 54 1/8	6	SEE 12	-	-
12	CENTER GATE HORIZONTAL	2 x 6 x 60	6	13	3 PER JOINT	12d
11	DOORWAY TOP CLEAT	2 x 4 x 67 1/2	4	9	2 PER FOOT	12d
10	DOORWAY BOTTOM CLEAT	2 x 4 x 67 1/2	4	9	2 PER FOOT	12d
9	DOORWAY MEMBER	2 x 6 x 16 FT	4	CAR WALL	7 EA END	10d
8	SWAY FRAME TOP CLEAT	2 x 4 x 17 FT 3	4	CAR WALL	SEE NOTE *	
7	SWAY FRAME BOTTOM CLEAT	2 x 4 x 17 FT 3	4	CAR WALL	SEE NOTE *	
6	SWAY FRAME LATERAL	2 x 4 x CUT TO FIT	96	SEE 5	-	-
5	SWAY FRAME LONGITUDINAL	2 x 4 x 33 3/4	64	6	3 PER JOINT	12d
4	SLEEPER	2 x 4 x 33 3/4	32	3	2 PER FOOT	30d
3	SLEEPER	2 x 6 x 33 3/4	32	CAR FLOOR	2 PER FOOT	16d
2	END WALL MEMBER	2 x 6 x 96	8	1	1 PER FOOT	12d
1	END WALL MEMBER	2 x 6 x 96	8	CAR WALL	1 PER FOOT	12d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQ D	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS AND NAILING DATA



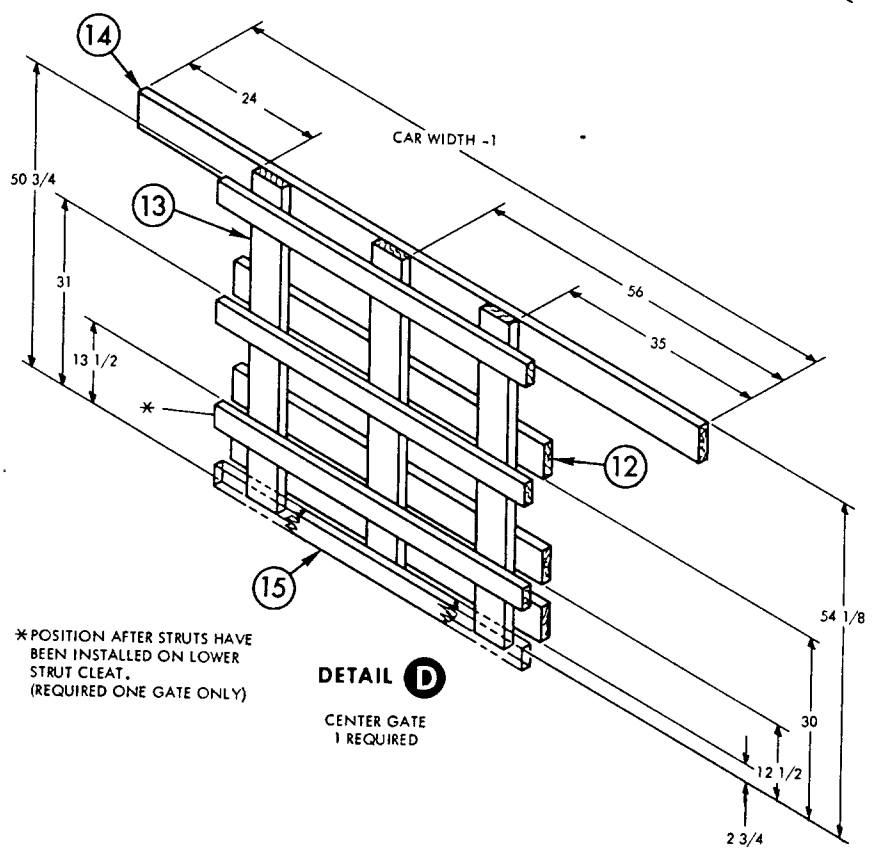
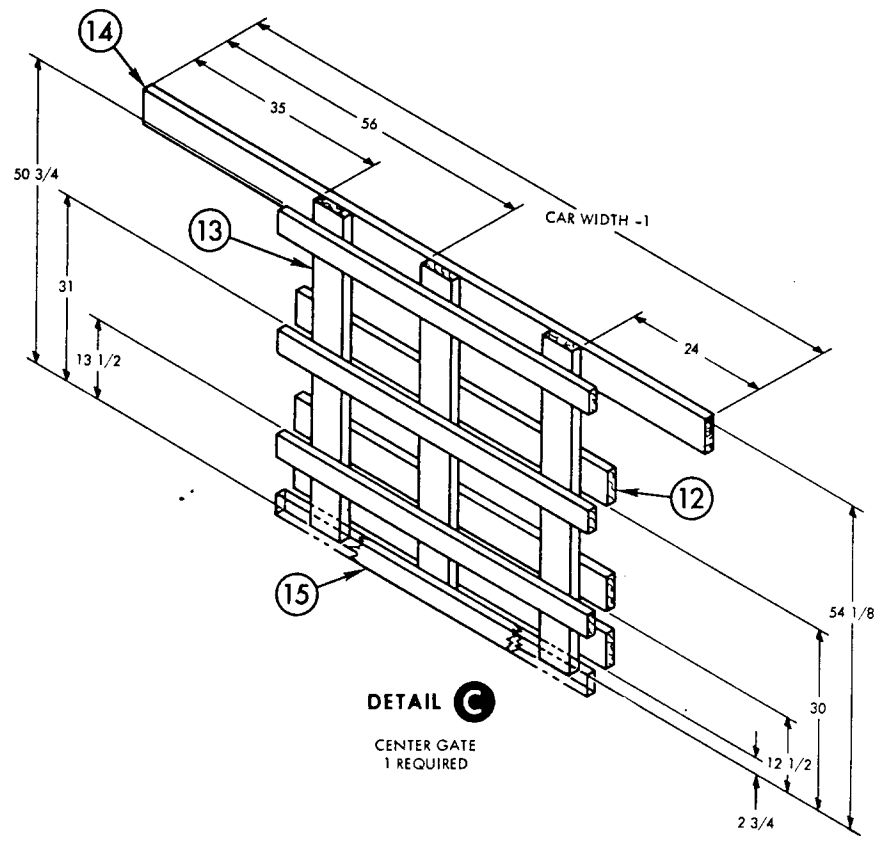
**CARLOAD DATA**

NUMBER OF UNIT LOADS	.....	32
LOAD WEIGHT	.....	103,040 LBS
DUNNAGE WEIGHT	.....	2,597 LBS
CARLOAD WEIGHT	.....	105,637 LBS

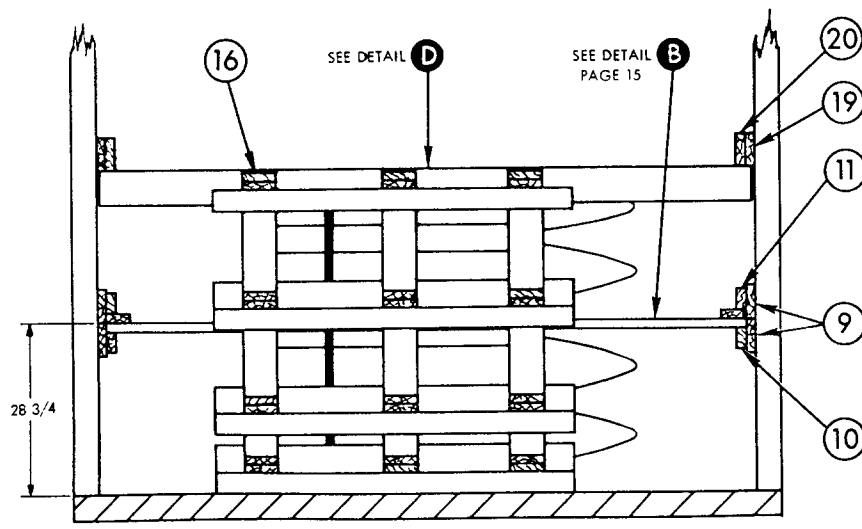
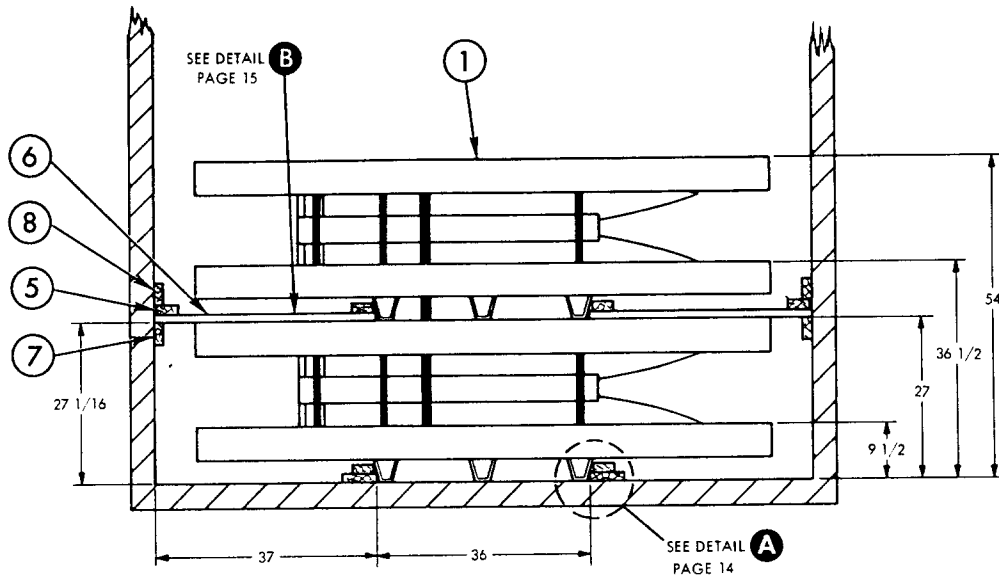


**DETAIL B**

SWAY BRACE  
32 REQUIRED



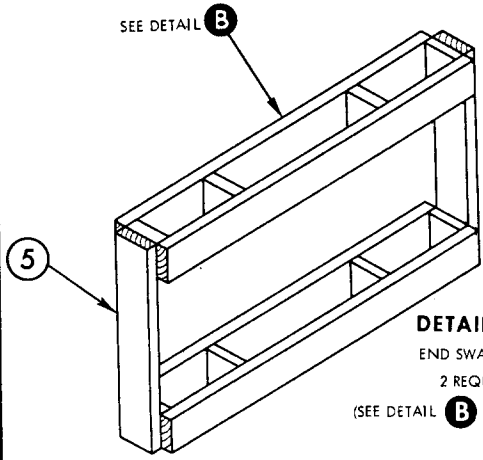




## 50 FT 6 IN. BOXCAR, COMMERCIAL (BOMBS WITH PLASTIC NOSE PLUGS)

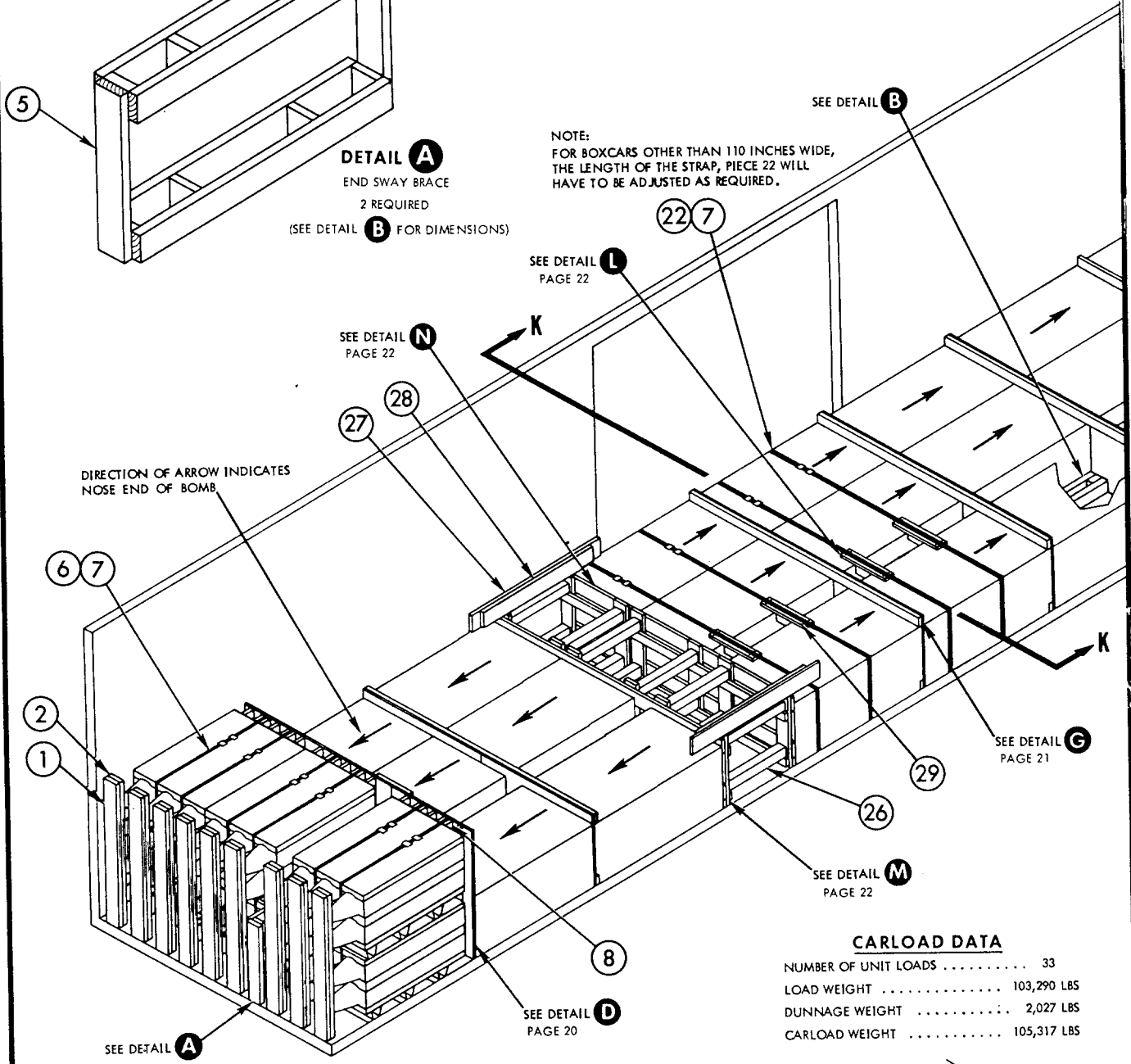
1. THE CARLOAD CONSISTS OF 33 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING. IT MAY ALSO CONSIST OF 27 UNIT LOADS COMPRISING THE FIRST LAYER ONLY OF THIS PROCEDURAL DRAWING OR 39 UNIT LOADS IN ACCORDANCE WITH THE ALTERNATE PLAN AND DETAILS DEPICTED ON PAGES 23 & 24 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 BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH DETAILS PAGES 8, 9 AND 10 OF WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED.
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 PIECE 27 IS ADJUSTED WHEN NECESSARY.
4. THE UNIT LOADS ARE HANDLED FROM THE LOADING DOCK INTO THE RAILCAR IN THE DOORWAY AREA BY A SUITABLE FORK LIFT TRUCK LIFTING FROM THE SIDE OF THE LOAD. THEY ARE ALSO REMOVED FROM THE DOORWAY AREA OF THE RAILCAR IN A SIMILAR MANNER. A SECOND FORK LIFT TRUCK IS USED WITHIN THE RAILCAR DURING LOADING OPERATIONS TO SKID THE LOAD INTO THE DESIRED POSITION EACH END OF THE CAR BY SLIGHTLY LIFTING THE BASE END AND PUSHING FORK LIFT TINES AGAINST THE BASE LATERAL SKID. DURING THE UNLOADING OPERATIONS THE FORK LIFT TRUCK IN THE CAR IS USED AS FOLLOWS:
  - (a) RAISE THE UNIT LOAD FROM THE BASE END SUFFICIENT TO POSITION A 2 x 4 x 18 ON EDGE UNDER AND NORMAL TO THE BASE LATERAL SKID.
  - (b) LOWER THE UNIT LOAD UNTIL THE BASE SKID RESTS ON THE 2 x 4 AND THEN FULLY INSERT FORK TRUCK TINES UNDER LATERAL SKIDS.
  - (c) LIFT UNIT LOAD APPROXIMATELY SIX INCHES FROM FLOOR, TILT BACK, AND MOVE UNIT LOAD TO DOORWAY AREA.
  - (d) THE OTHER FORK TRUCK IS USED TO REMOVE UNIT LOAD FROM THE RAILCAR.
5. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS, PROVIDING THE LENGTH OF PIECE 27 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILIARY, EXCEPT WHEN THE CAR HAS A COMBINATION OF A CONVENTIONAL SLIDING TYPE DOOR AND A PLUG TYPE DOOR, AND AN ADEQUATE NAILING STRIP IS PROVIDED ON THE PLUG TYPE DOOR. IF NECESSARY TO SPAN PLUG DOORS AND LUMBER OF SUFFICIENT LENGTH IS NOT AVAILABLE, RANDOM LENGTH MATERIAL, DOUBLED AND SPLICED, BUT WITH JOINTS OF SPLICES OFFSET MAY BE USED. THE STACKS THAT ARE 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 AND AN UPPER SWAY BRACE AS SHOWN IN DETAIL "L" MUST BE INSTALLED BETWEEN THE ROWS OF THE DOORWAY STACKS.

LIST OF MATERIALS AND NAILING DATA							LIST OF MATERIALS AND NAILING DATA						
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQD	NAIL TO	NUMBER NAILS	SIZE	PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQD	NAIL TO	NUMBER NAILS	SIZE
29	STAPLE	1 1/4	8	21	-	-	15	PLYWOOD SHEET	1/2 x 30 x 54 1/2	10	16	2 PER FOOT	6d
28	HOLD DOWN CLEAT	2 x 6 x 48	2	27	1 PER FOOT	10d	14	SPACER	2 x 6 x 27	12	13	5	16d
27	GATE HOLD DOWN	2 x 6 x 60	2	CAR WALL	1 PER FOOT	10d	13	SPACER	2 x 10 x 27	12	SEE 14	-	-
26	STRUT	4 x 4 x WEDGE FIT ***	12	24	2 PER JOINT	16d	12	SPACER	2 x 4 x 30	18	SEE 9, 10	-	-
25	CENTER GATE STRUT CLEAT	2 x 4 x CAR WIDTH-1	4	24	3 PER JOINT	10d	11	TIE PIECE	2 x 4 x 20	4	SEE 9, 10	-	-
24	CENTER GATE VERTICAL	2 x 6 x 30	12	SEE 23	-	-	10	PLYWOOD SHEET	1 x 30 x 37 1/2	2	11, 12	SEE NOTE ***	-
23	CENTER GATE HORIZONTAL	2 x 6 x CAR WIDTH-1	4	24	3 PER JOINT	10d	9	PLYWOOD SHEET	1 x 30 x 71 1/2	2	11, 12	SEE NOTE ***	-
22	STRAP	1 1/4 x .035 x 24 FT	4	-	-	-	8	UPRIGHT	4 x 4 x 54	12	-	-	-
21	TOP PIECE	1 x 4 x CUT TO FIT	4	20	4	10d	7	SEAL	1 1/4 x 22 GAMIN	32	-	-	-
20	CROSS BRACE	2 x 4 x CUT TO FIT	4	SEE 21	-	-	6	STRAP	1 1/4 x .035 x 19 FT	12	-	-	-
19	SLEEPER	2 x 4 x 48	4	18	2 PER FOOT	30d	5	SWAY BRACE TIE PIECE	2 x 6 x 32 1/2	4	4	4 PER JOINT	10d
18	SLEEPER	2 x 4 x 48	4	CAR FLOOR	2 PER FOOT	16d	4	CROSS BRACE	2 x 6 x CUT TO FIT	36	SEE 3	-	-
17	GATE STOP	2 x 6 x W*	2	9	4	6d	3	SWAY BRACE LONGITUDINAL	2 x 6 x 60	18	4	3 PER JOINT	16d
16	TIE PIECE	2 x 4 x CAR WIDTH-1	10	SEE 15	-	-	2	END WALL MEMBER	2 x 6 x 60	18	1	1 PER FOOT	10d
							1	END WALL MEMBER	2 x 6 x 60	18	CAR WALL	1 PER FOOT	10d



**DETAIL A**  
 END SWAY BRACE  
 2 REQUIRED  
 (SEE DETAIL B FOR DIMENSIONS)

NOTE:  
 FOR BOXCARS OTHER THAN 110 INCHES WIDE,  
 THE LENGTH OF THE STRAP, PIECE 22 WILL  
 HAVE TO BE ADJUSTED AS REQUIRED.

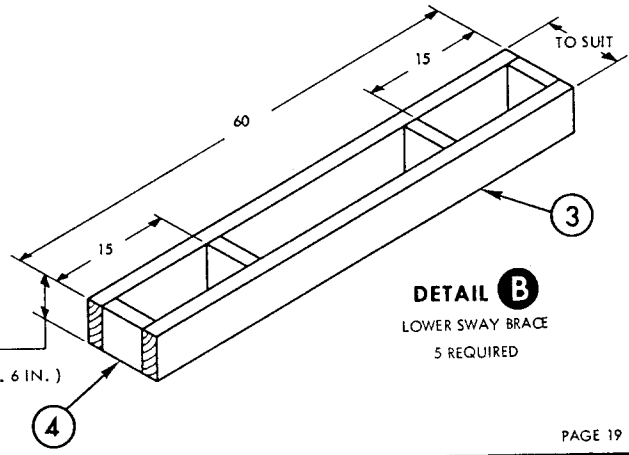


DIRECTION OF ARROW INDICATES  
 NOSE END OF BOMB

**CARLOAD DATA**

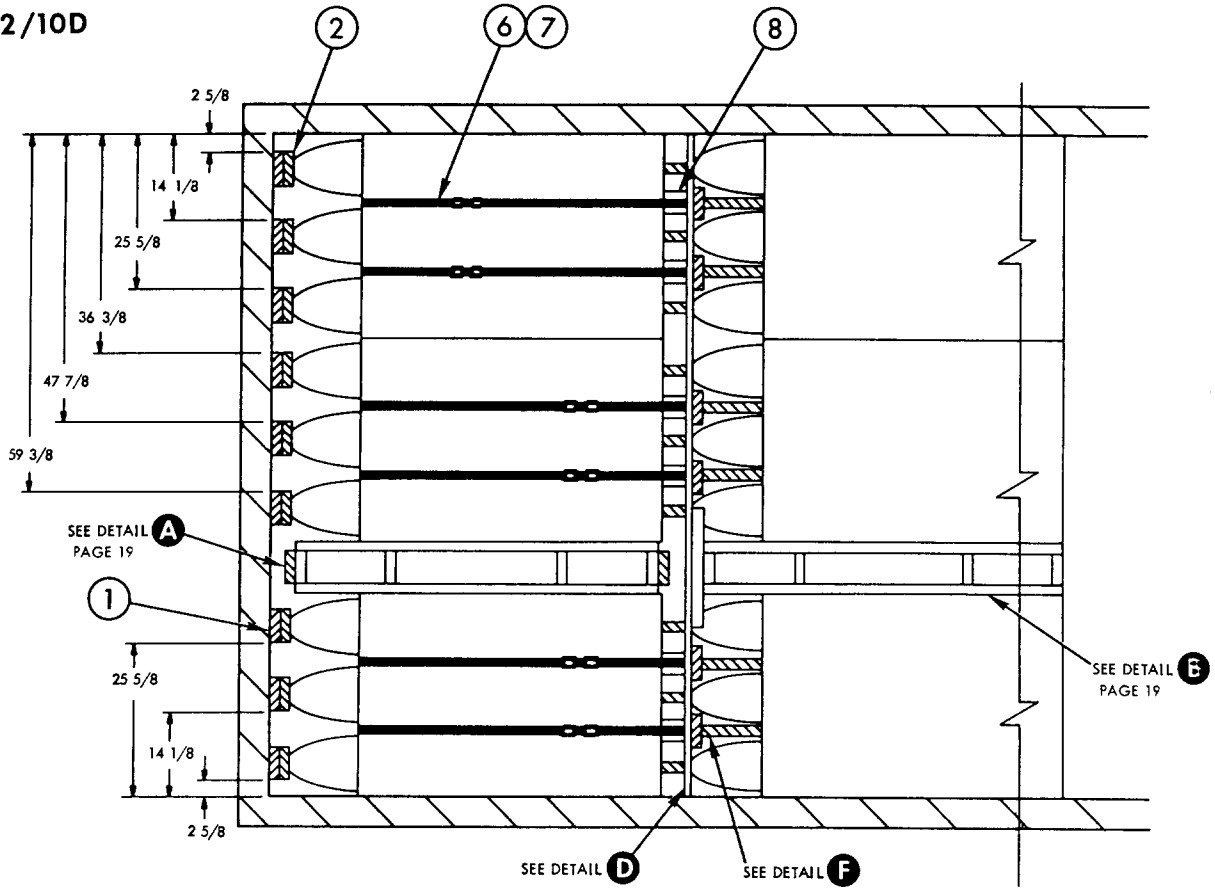
NUMBER OF UNIT LOADS	33
LOAD WEIGHT	103,290 LBS
DUNNAGE WEIGHT	2,027 LBS
CARLOAD WEIGHT	105,317 LBS

- \*<sub>W</sub> = DISTANCE BETWEEN UNIT LOADS ACROSS THE CAR.
- \*\* = PIECES 9 & 10 NAIL TO PIECE 11 WITH 10d NAILS, CLINCHED, 5 EACH END AND TO PIECE 12 WITH 10d NAILS, 5 PER JOINT.
- \*\*\* = 2 x 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 x 4'S.

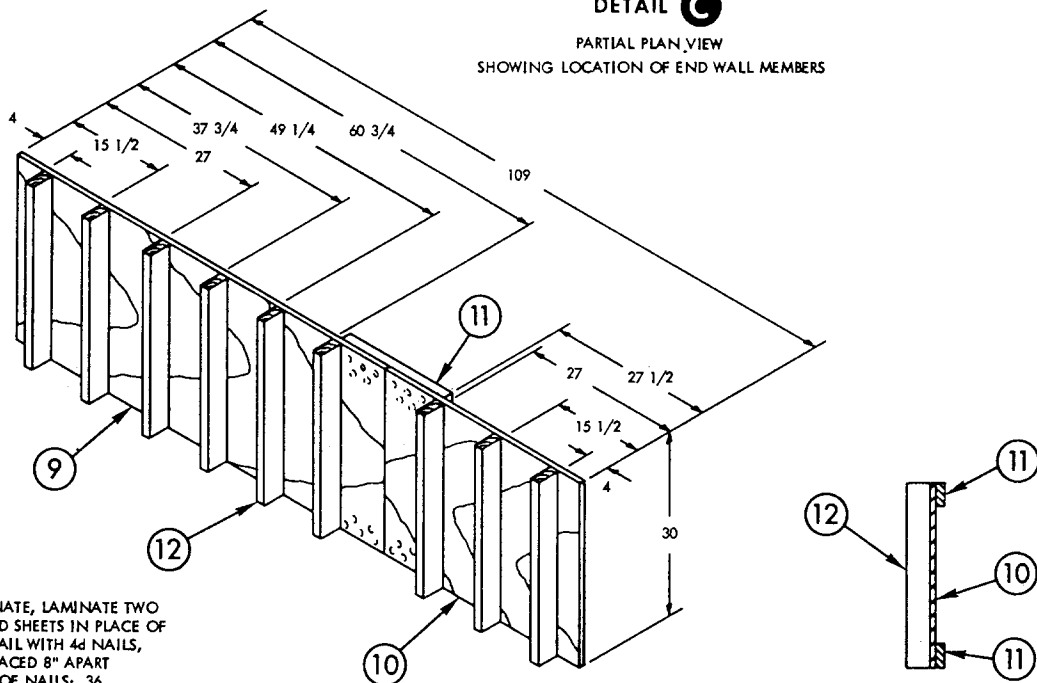


**DETAIL B**  
 LOWER SWAY BRACE  
 5 REQUIRED

WR-52/10D



**DETAIL C**  
PARTIAL PLAN VIEW  
SHOWING LOCATION OF END WALL MEMBERS



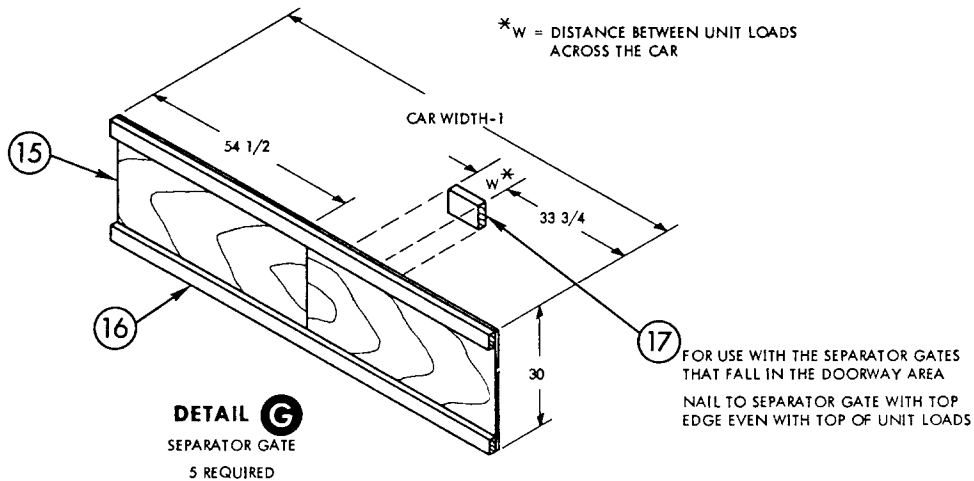
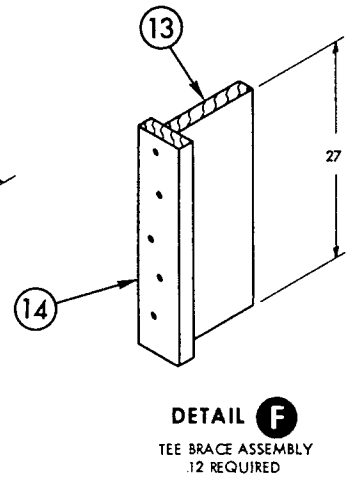
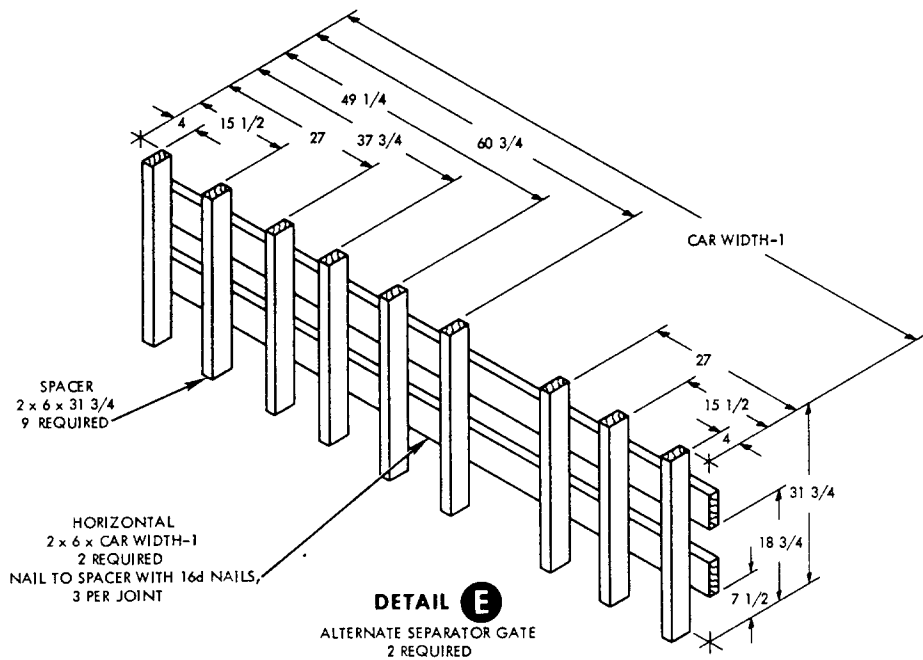
AS AN ALTERNATE, LAMINATE TWO 1/2" PLYWOOD SHEETS IN PLACE OF 1" SHEETS. NAIL WITH 4d NAILS, CLINCHED, SPACED 8" APART APPROX. NO. OF NAILS: 36

**DETAIL D**

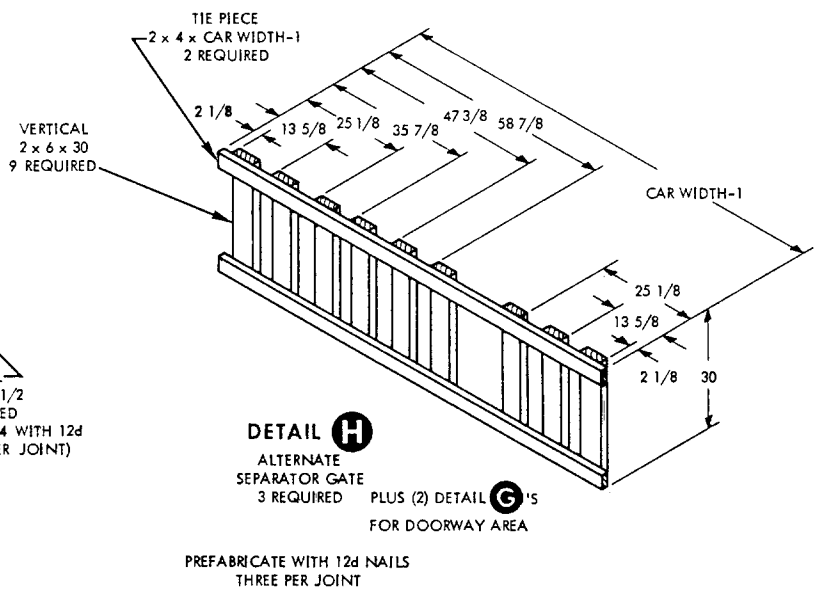
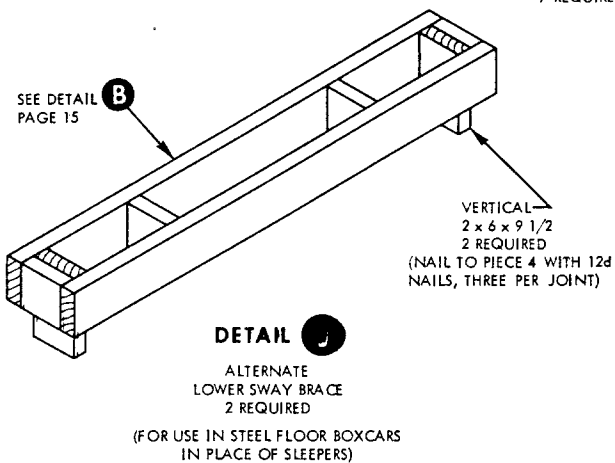
SEPARATOR GATE  
2 REQUIRED

(SEE **DETAIL E** FOR ALTERNATE

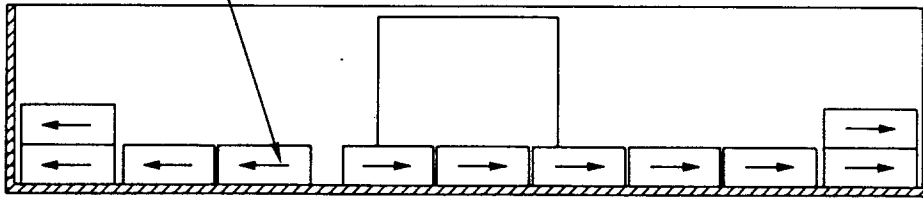
SEPARATOR GATE)



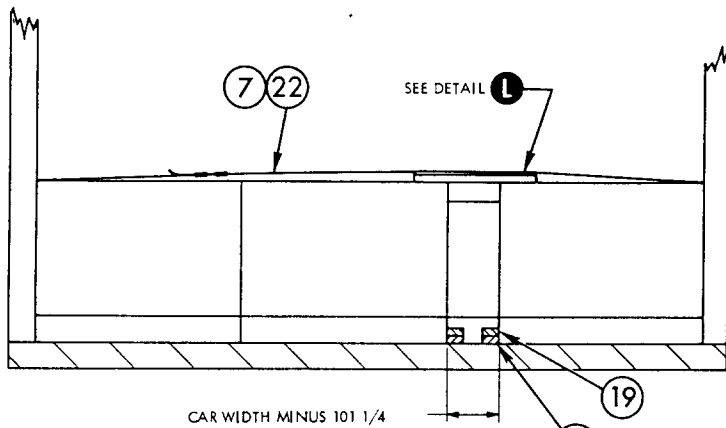
NOTE: PLYWOOD SEPARATOR GATES MUST BE USED IN  
DOORWAY AREA OF CONVENTIONAL DOOR  
BOXCARS



DIRECTION OF ARROW INDICATES  
NOSE END OF BOMB



**ELEVATION  
LOADING PLAN**

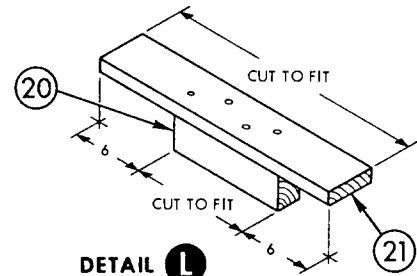


CAR WIDTH MINUS 10 1/4

SEE DETAIL **J**  
PAGE 21  
FOR ALTERNATE  
FOR STEEL FLOOR CARS

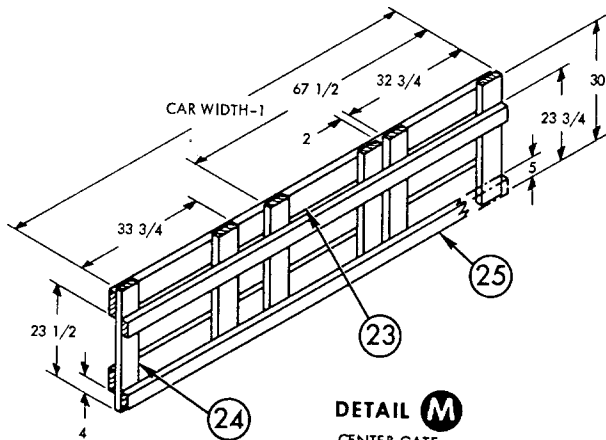
**SECTION K-K**

(SLEEPERS USED FOR SWAY BRACING  
IN DOORWAY BAYS)



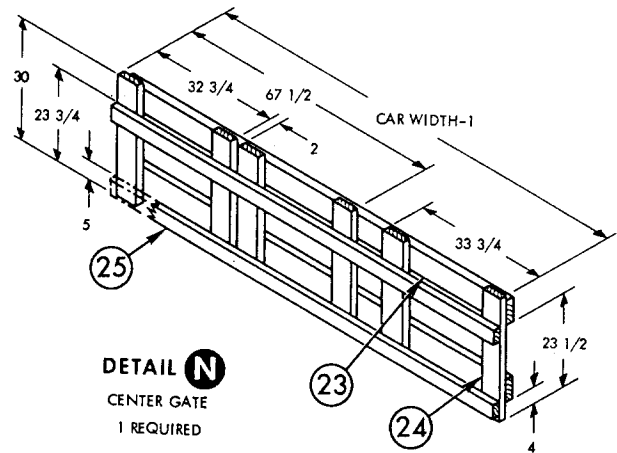
**DETAIL L**

UPPER SWAY BRACE  
4 REQUIRED



**DETAIL M**

CENTER GATE  
1 REQUIRED

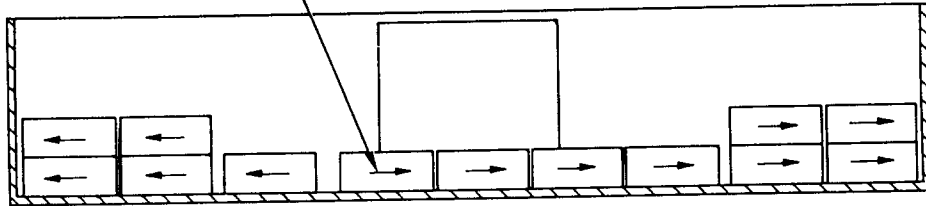


**DETAIL N**

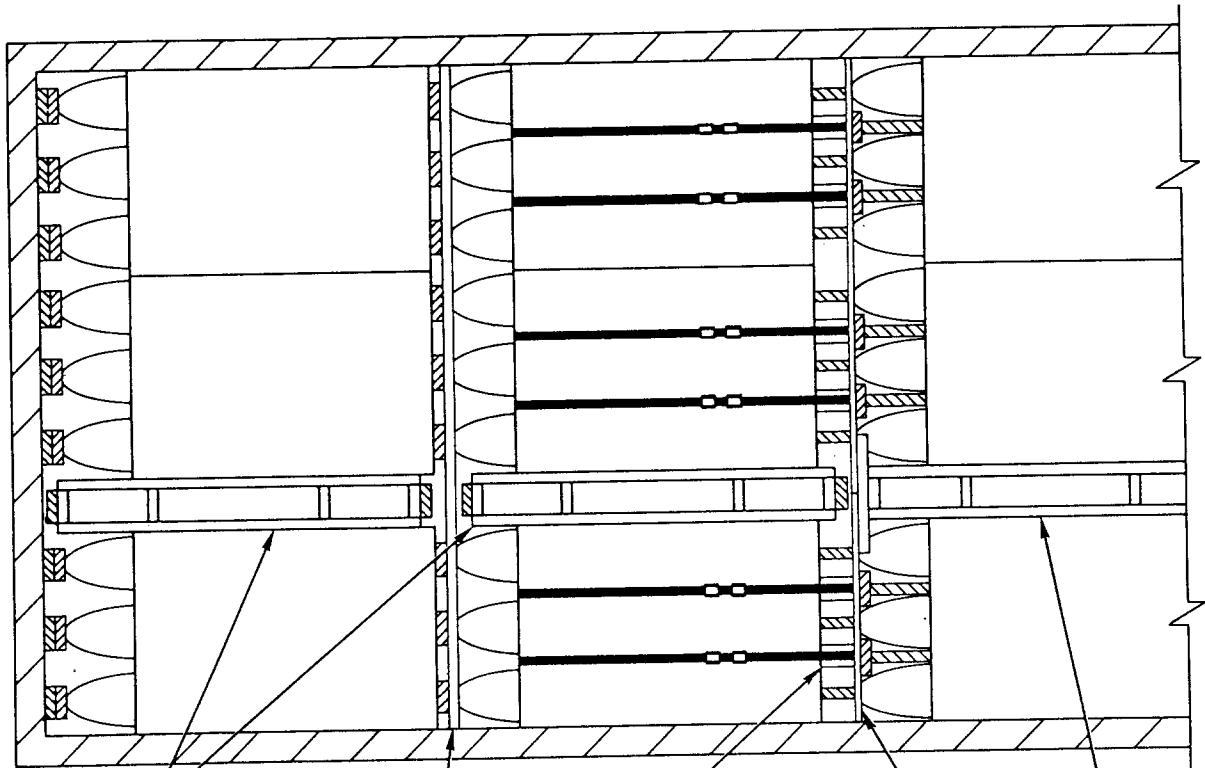
CENTER GATE  
1 REQUIRED

# ALTERNATE PLAN FOR 39 UNIT LOADS

DIRECTION OF ARROW INDICATES  
NOSE END OF BOMB



ELEVATION  
LOADING PLAN



SEE DETAIL **A**  
PAGE 19

SEE DETAIL **R**  
PAGE 24

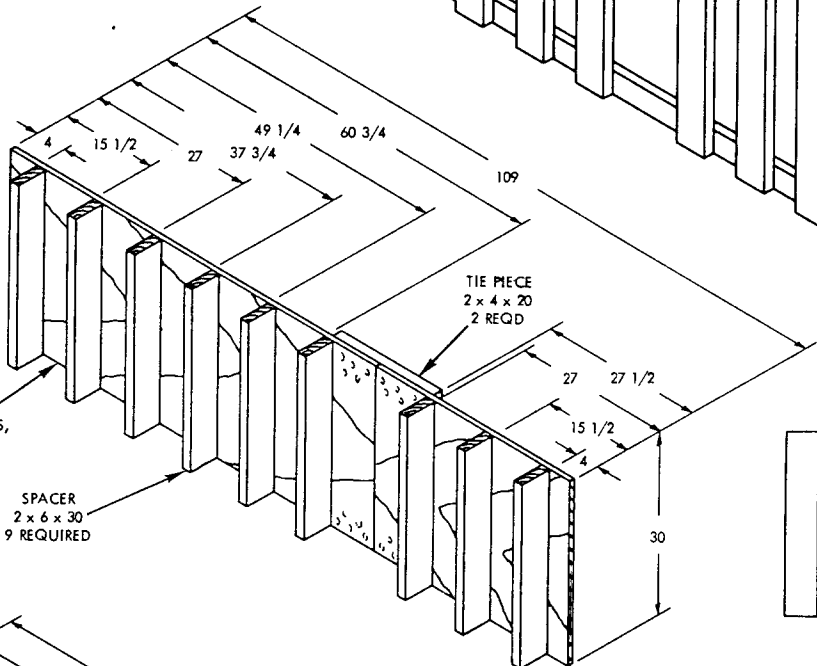
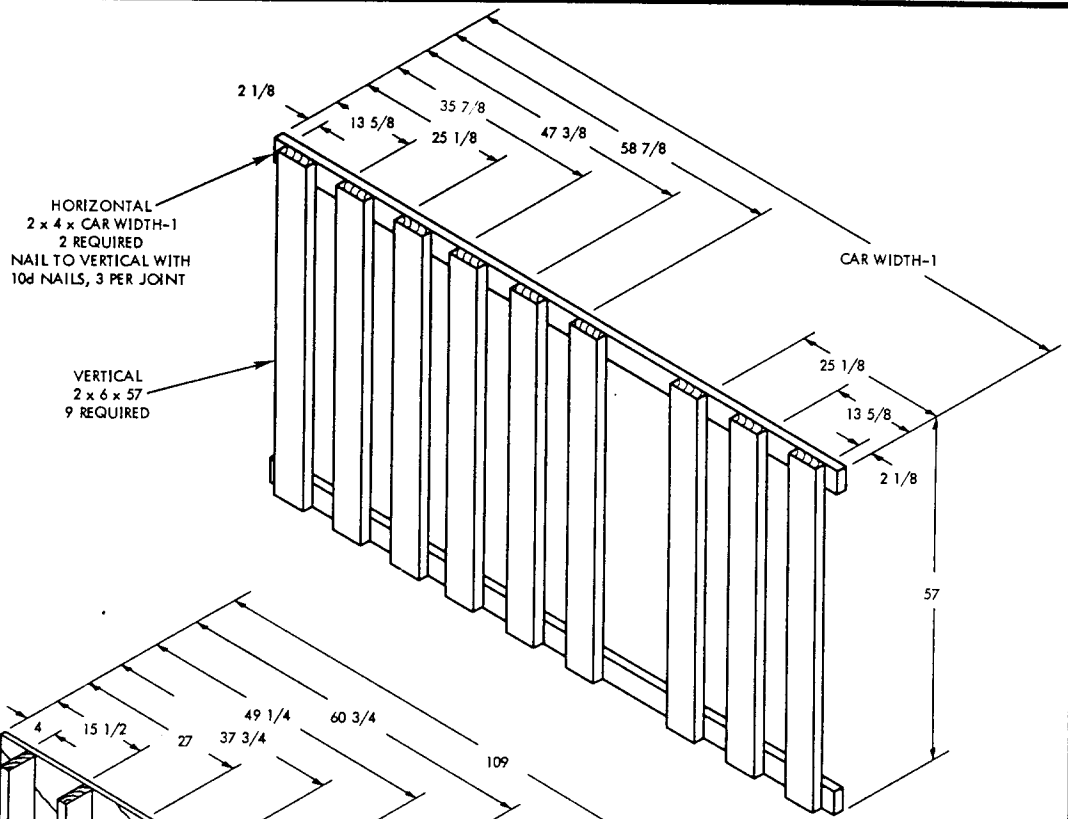
UPRIGHT  
4 x 6 x 54  
12 REQUIRED

SEE DETAIL **S**  
PAGE 24

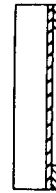
SEE DETAIL **B**  
PAGE 19

DETAIL **P**  
PARTIAL LAYER PLAN

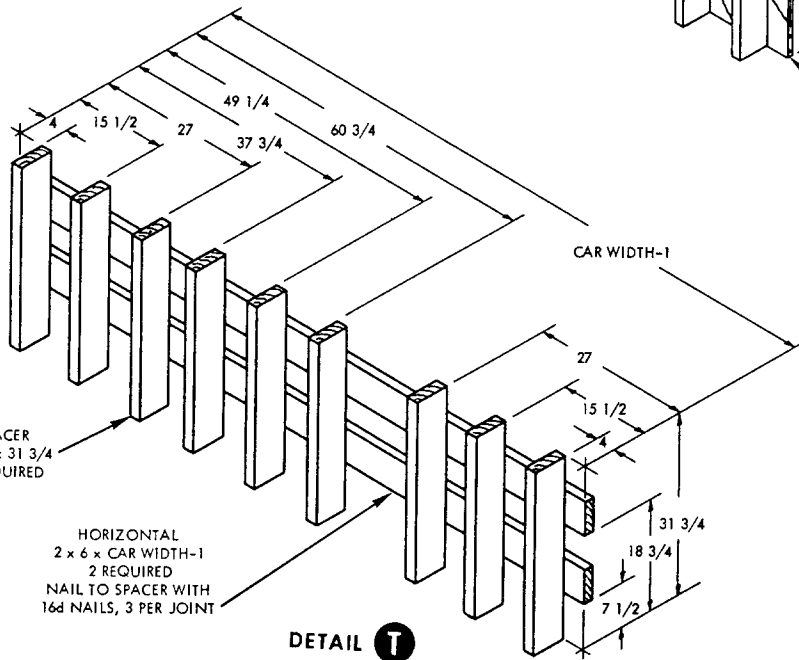
**WR-52/10D**



**DETAIL R**  
SEPARATOR GATE  
2 REQUIRED



AS AN ALTERNATE,  
LAMINATE TWO 1/2"  
PLYWOOD SHEETS IN  
PLACE OF 1" SHEETS.  
NAIL WITH 4d NAILS,  
CLINCHED, SPACED  
8" APART. APPROX NO.  
OF NAILS: 36



PLYWOOD SHEET  
1 x 30 x 37 1/2  
1 REQUIRED  
NAIL TO TIE PIECE WITH 10d NAILS,  
CLINCHED, 5 PER JOINT AND TO  
SPACER WITH 10d NAILS, 5 PER JOINT

**DETAIL S**  
SEPARATOR GATE  
2 REQUIRED

(SEE **DETAIL T** FOR  
ALTERNATE SEPARATOR GATE)

**DETAIL T**  
ALTERNATE SEPARATOR GATE  
2 REQUIRED



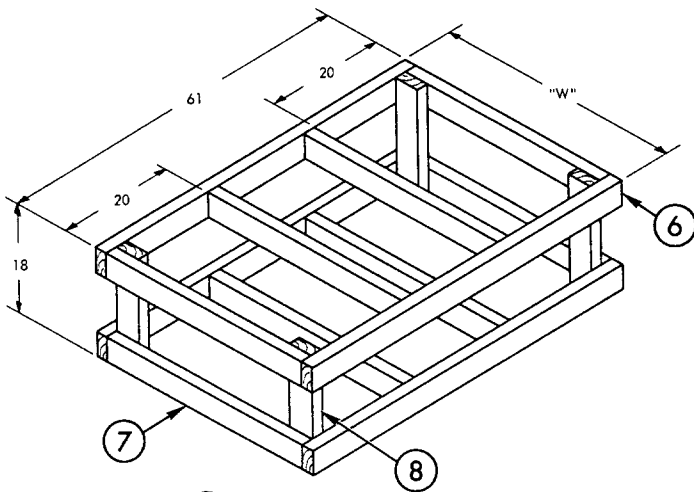
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## 50 FT 6 IN. BOXCAR, COMMERCIAL (ALTERNATE METHOD) (BOMBS WITH PLASTIC NOSE PLUGS)

1. THE CARLOAD CONSISTS OF EITHER 45 UNIT LOADS WHICH MUST BE LOADED AND DUNNAGED IN ACCORDANCE WITH THIS PROCEDURAL DRAWING, OR 40 UNIT LOADS AS SHOWN IN ALTERNATE LOADING PLAN PAGE 30. FOR THIS LOADING PLAN CENTER GATE AREA SHALL BE DUNNAGED SIMILAR TO PROCEDURE SHOWN ON ALTERNATE CARLOADING METHOD PAGE 33, EXCEPT FOR OMITTING THE FOUR UPPER LAYER MIDDLE ROW STRUTS.
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 DETAILS PAGES 8, 9 AND 10 OF WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED.
3. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 10 FT WIDE DOORWAY OPENINGS AND ARE EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE TO BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 10 FT WIDE PROVIDING THE LENGTH OF PIECE 16 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING.
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS PROVIDING THE LENGTH OF PIECE 16 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILIARY, EXCEPT WHEN THE CAR HAS A COMBINATION OF A CONVENTIONAL SLIDING TYPE DOOR AND A PLUG TYPE DOOR, AND AN ADEQUATE NAILING STRIP IS PROVIDED ON THE PLUG TYPE DOOR. IF LUMBER OF SUFFICIENT LENGTH TO SPAN PLUG DOORS IS NOT AVAILABLE, RANDOM LENGTH MATERIAL, DOUBLED AND SPLICED, BUT WITH JOINTS OF SPLICES OFFSET, MAY BE USED. THE STACKS THAT ARE IN THE DOORWAY AREA MUST BE UNITIZED WITH TWO LATERALLY APPLIED 1 1/4" STEEL STRAPS PER STACK, EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS AND A TOP SWAY BRACE CONSISTING OF A STRAPPING BOARD AND CROSS BRACE (SEE DETAIL J) MUST BE INSTALLED BETWEEN THE ROWS OF THE DOORWAY STACKS. STRAP IS SECURED TO STRAPPING BOARD WITH TWO 1 1/4" STAPLES. DOORWAY PROTECTION, PIECES 18 AND 19 IS NOT REQUIRED WHEN PLUG DOOR EQUIPPED BOXCARS ARE USED, EXCEPT WHEN CAR HAS A COMBINATION OF PLUG DOOR AND CONVENTIONAL SLIDING DOOR. THEN DOORWAY PROTECTION IS REQUIRED FOR THE CONVENTIONAL DOOR. SECURELY CLOSE DOORS AND WIRE TOGETHER WITH A STRONG FLEXIBLE STEEL WIRE INSERTED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES AND THE WIRE ENDS TWISTED TOGETHER.

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

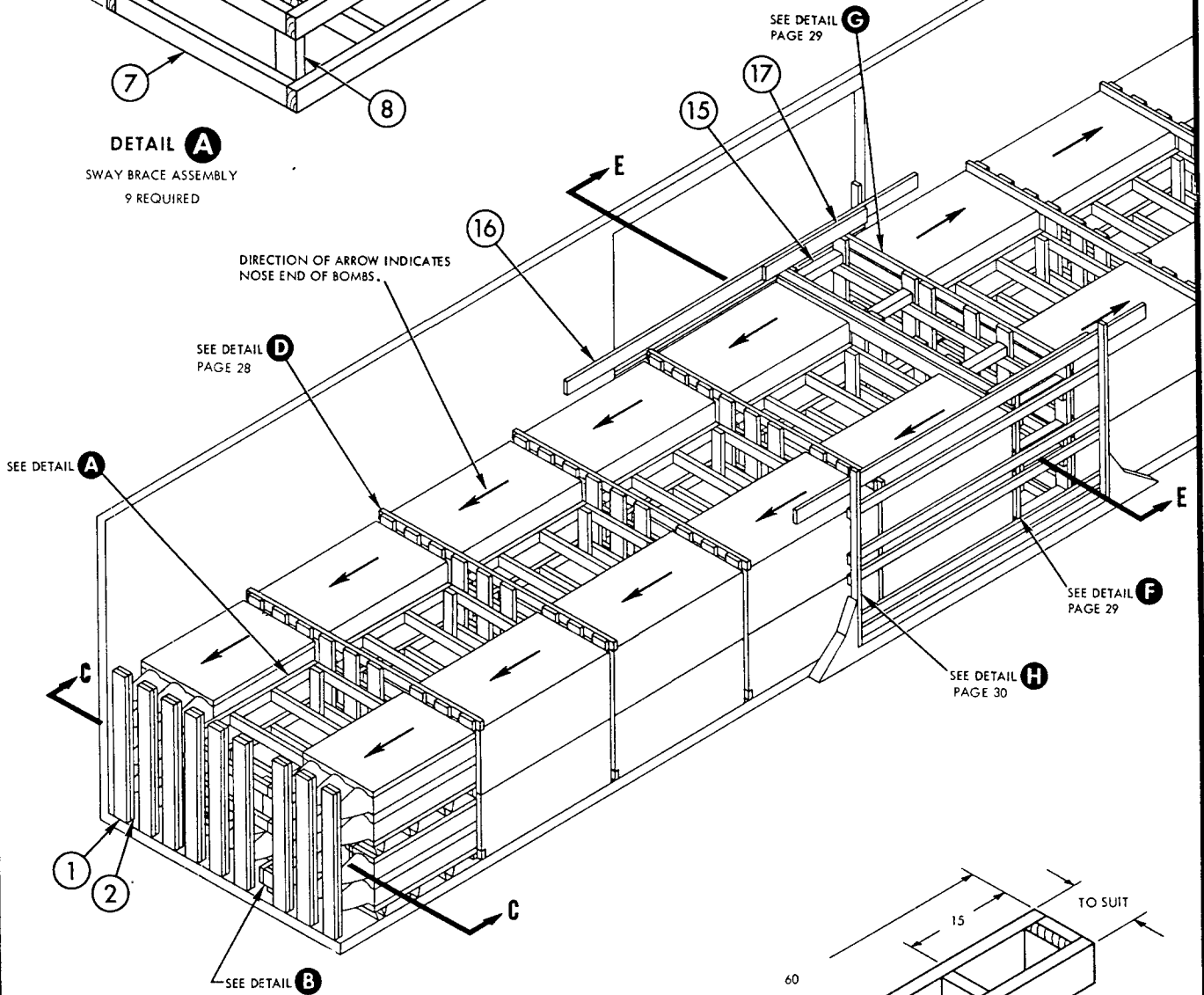
19	HORIZONTAL DOORWAY MEMBER	2 x 4 x DOOR WIDTH	10	18	3 PER JOINT	10d
18	VERTICAL DOORWAY MEMBER	2 x 3 x 72	4	DOOR POST	2 PER FOOT	20d
17	HOLD DOWN CLEAT	2 x 6 x 48	2	16	2 PER FOOT	10d
16	GATE HOLD DOWN	2 x 6 x 14 FT	2	CAR WALL	5 EA END	10d
15	STRUT	4 x 4 x WEDGE FIT *	20	12	2 PER JOINT	16d
14	TOP HORIZONTAL	2 x 4 x CAR WIDTH-1	2	12	3 PER JOINT	10d
13	CENTER GATE STRUT CLEAT	2 x 4 x CAR WIDTH-1	8	12	3 PER JOINT	10d
12	CENTER GATE VERTICAL	2 x 6 x 60	12	SEE 11	-	-
11	CENTER GATE HORIZONTAL	2 x 6 x CAR WIDTH-1	8	12	3 PER JOINT	10d
10	SEPARATOR GATE HORIZONTAL	2 x 4 x CAR WIDTH-1	14	9	3 PER JOINT	10d
9	SEPARATOR GATE VERTICAL	2 x 6 x 57	63	SEE 10	-	-
8	SWAY BRACE UPRIGHT	2 x 4 x 18	36	7	3 PER JOINT	10d
7	CROSS BRACE	2 x 4 x CUT TO FIT	72	SEE 6	-	-
6	SWAY BRACE LONGITUDINAL	2 x 4 x 61	36	7, 8	2 PER JOINT	16d
5	VERTICAL	2 x 6 x 9 1/2	18	4	4 PER JOINT	10d
4	CROSS BRACE	2 x 6 x CUT TO FIT	36	SEE 3	-	-
3	SWAY BRACE LONGITUDINAL	2 x 6 x 60	18	4	3 PER JOINT	16d
2	END WALL MEMBER	2 x 6 x 60	18	1	1 PER FOOT	10d
1	END WALL MEMBER	2 x 6 x 60	18	CAR WALL	1 PER FOOT	10d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	
LIST OF MATERIALS AND NAILING DATA						



W = DISTANCE BETWEEN UNIT LOADS  
ACROSS THE CAR.

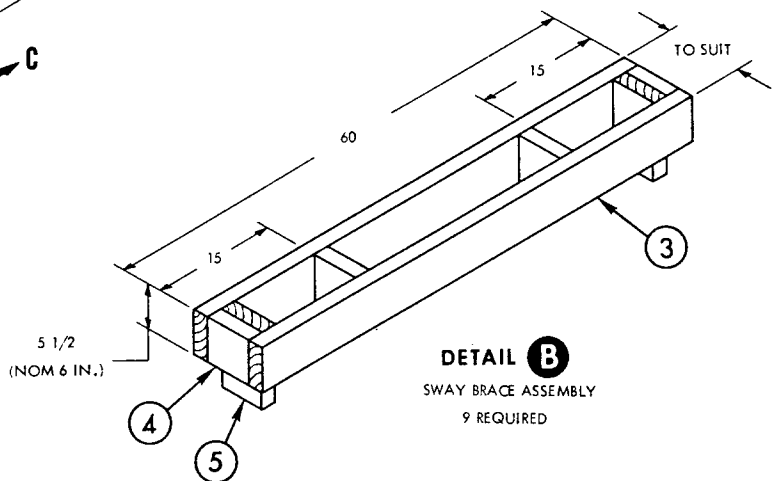
**DETAIL A**

SWAY BRACE ASSEMBLY  
9 REQUIRED



**CARLOAD DATA**

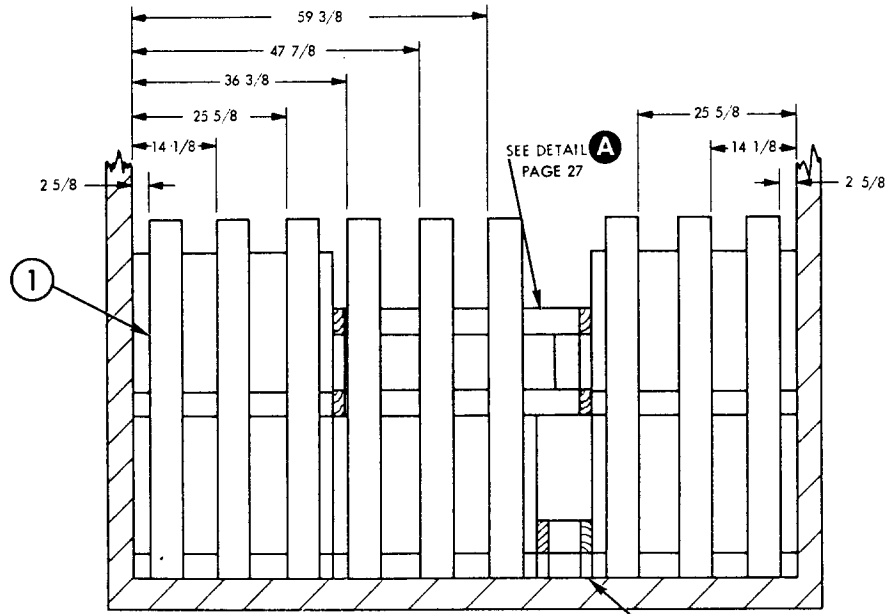
NUMBER OF UNIT LOADS	.....	45
LOAD WEIGHT	.....	140,850 LBS
DUNNAGE WEIGHT	.....	2,892 LBS
CARLOAD WEIGHT	.....	143,742 LBS



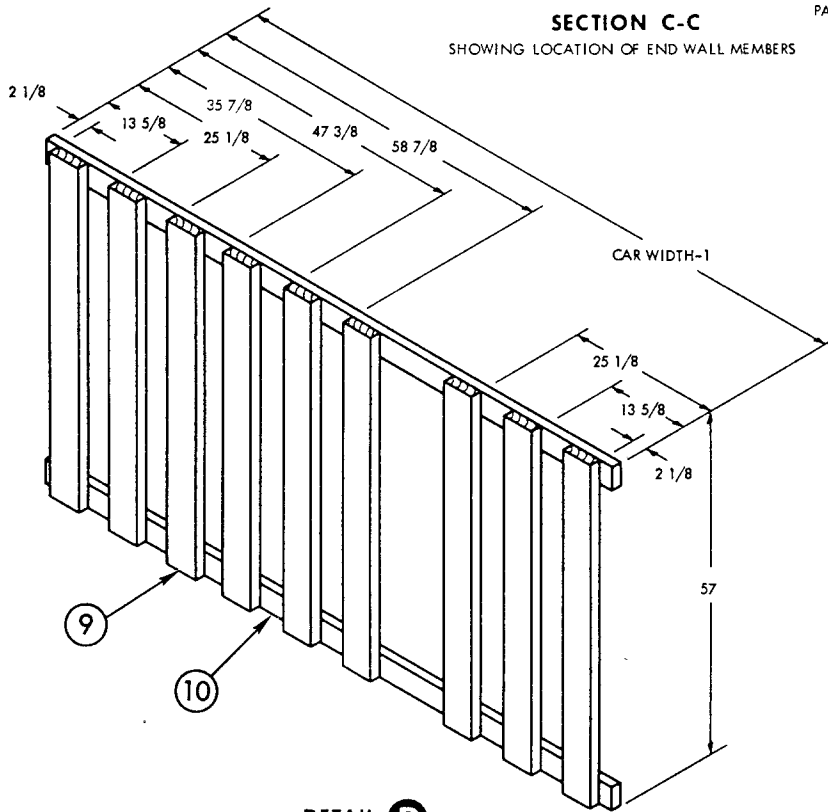
**DETAIL B**

SWAY BRACE ASSEMBLY  
9 REQUIRED

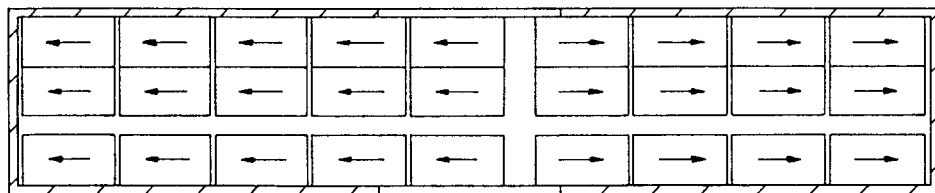
WR-52/10D



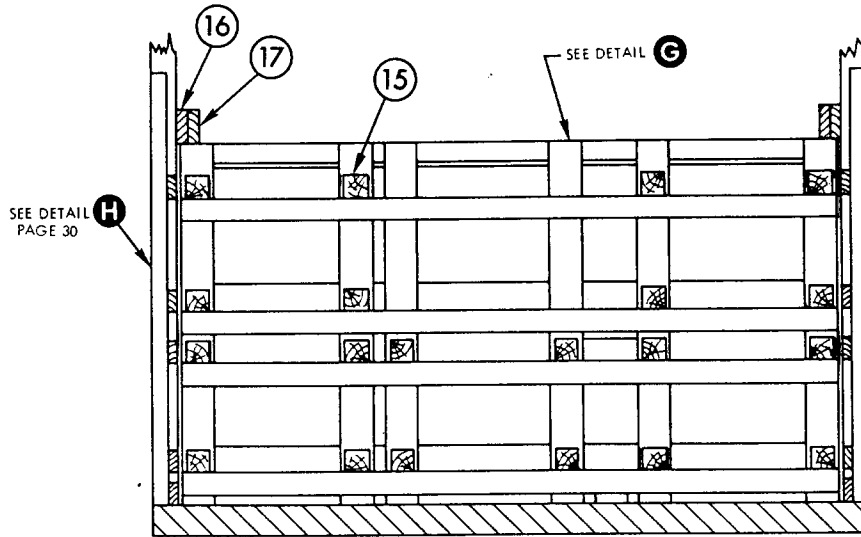
SECTION C-C  
SHOWING LOCATION OF END WALL MEMBERS



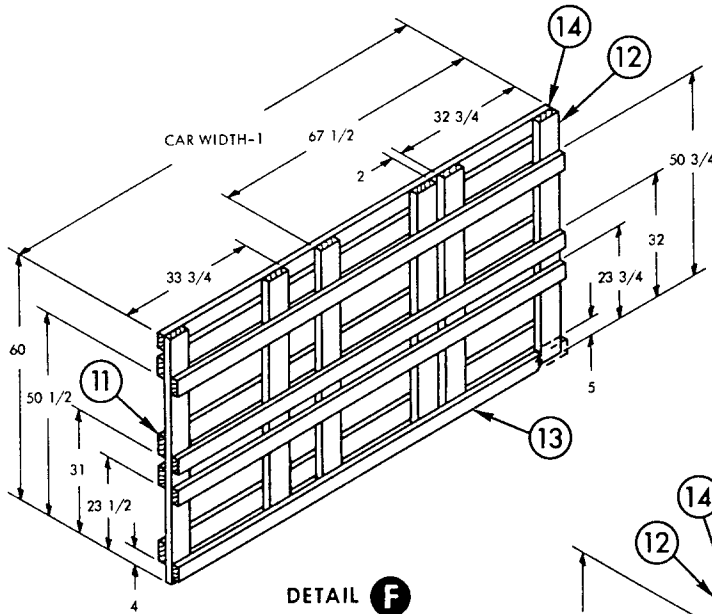
DETAIL D  
SEPARATOR GATE  
7 REQUIRED



LOADING PLAN

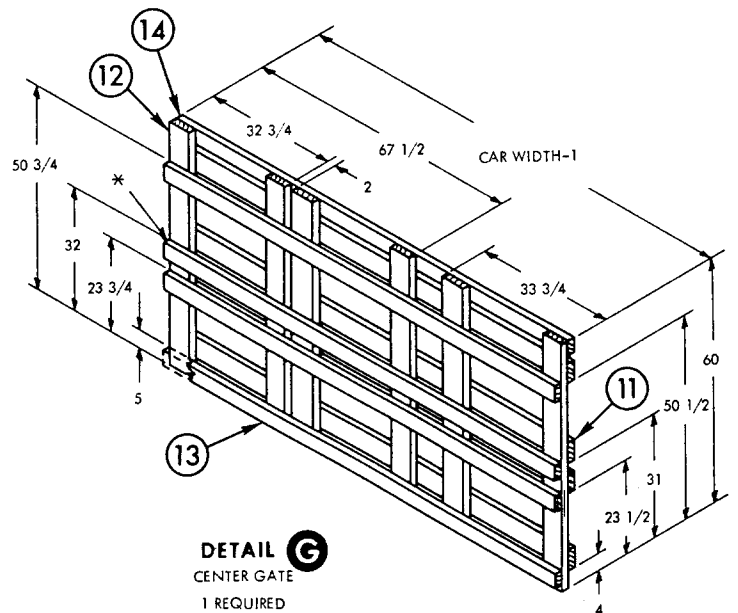


SECTION E-E



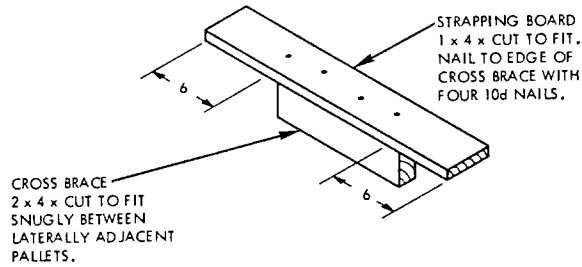
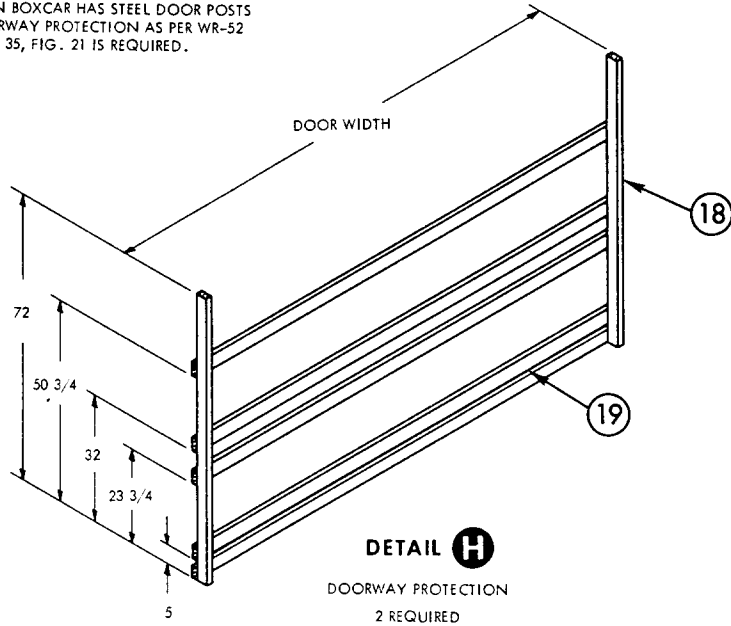
**DETAIL F**  
CENTER GATE  
1 REQUIRED

\* POSITION AFTER STRUTS  
HAVE BEEN INSTALLED ON  
LOWER STRUT CLEAT.  
(REQUIRED ONE GATE ONLY)

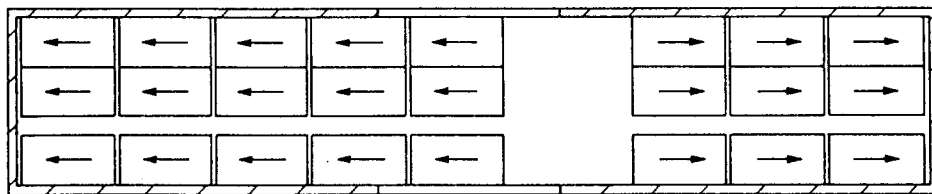


**DETAIL G**  
CENTER GATE  
1 REQUIRED

WHEN BOXCAR HAS STEEL DOOR POSTS  
DOORWAY PROTECTION AS PER WR-52  
PAGE 35, FIG. 21 IS REQUIRED.



**DETAIL J**  
TOP SWAY BRACE

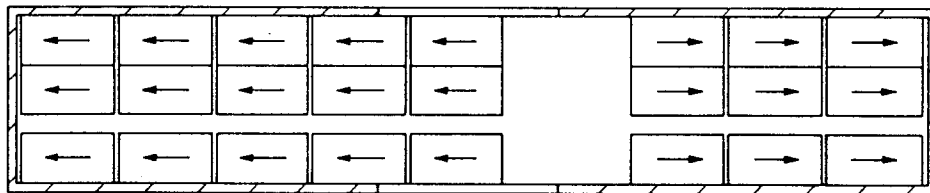


ALTERNATE LOADING PLAN

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## 50 FT 6 IN. BOXCAR, COMMERCIAL (ALTERNATE METHOD) (BOMBS WITH PLASTIC NOSE PLUGS)

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 DETAILS PAGES 8, 9 AND 10 OF WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED.
3. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 10 FT WIDE DOORWAY OPENINGS AND ARE EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE TO BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 10 FT WIDE PROVIDING THE LENGTH OF PIECE 15 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING.
4. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG TYPE DOORS PROVIDING THE LENGTH OF PIECE 15 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILIARY, EXCEPT WHEN THE CAR HAS A COMBINATION OF A CONVENTIONAL SLIDING TYPE DOOR AND A PLUG TYPE DOOR, AND AN ADEQUATE NAILING STRIP IS PROVIDED ON THE PLUG TYPE DOOR. IF LUMBER OF SUFFICIENT LENGTH TO SPAN PLUG DOORS IS NOT AVAILABLE, RANDOM LENGTH MATERIAL, DOUBLED AND SPLICED, BUT WITH JOINTS OF SPLICES OFFSET, MAY BE USED. THE STACKS THAT ARE IN THE DOORWAY AREA MUST BE UNITIZED WITH TWO LATERALLY APPLIED 1 1/4" STEEL STRAPS PER STACK, EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS AND A TOP SWAY BRACE CONSISTING OF A STRAPPING BOARD AND CROSS BRACE (SEE DETAIL J) MUST BE INSTALLED BETWEEN THE ROWS OF THE DOORWAY STACKS. STRAP IS SECURED TO STRAPPING BOARD WITH TWO 1 1/4" STAPLES. DOORWAY PROTECTION, PIECES 17 AND 18 IS NOT REQUIRED WHEN PLUG DOOR EQUIPPED BOXCARS ARE USED, EXCEPT WHEN CAR HAS A COMBINATION OF PLUG DOOR AND CONVENTIONAL SLIDING DOOR. THEN DOORWAY PROTECTION IS REQUIRED FOR THE CONVENTIONAL DOOR. SECURELY CLOSE DOORS AND WIRE TOGETHER WITH A STRONG FLEXIBLE STEEL WIRE INSERTED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES AND THE WIRE ENDS TWISTED TOGETHER.



**LOADING PLAN**

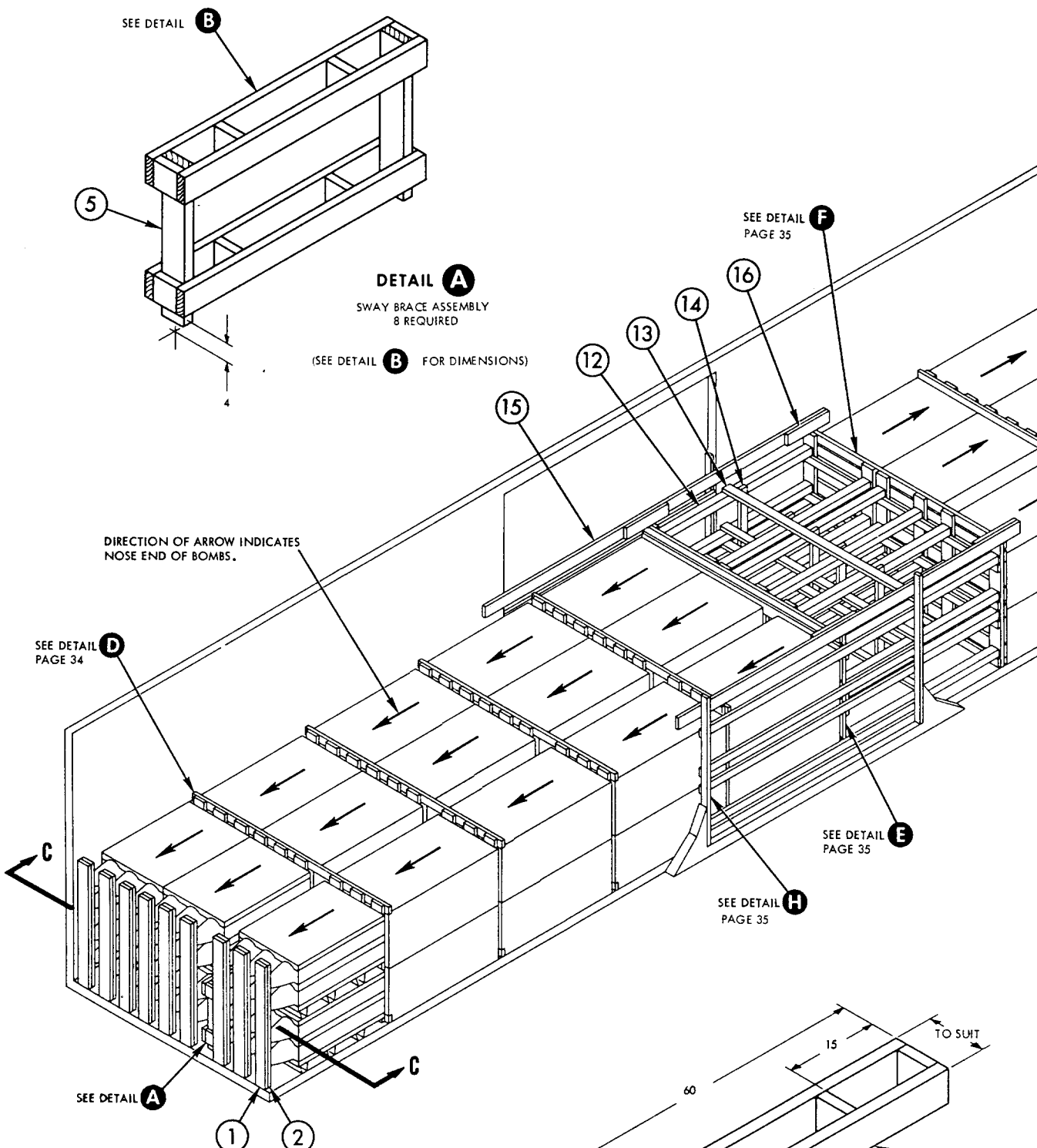
\* 2 x 6 STRUTS DOUBLED AND LAMINATED WITH 10d NAILS MAY BE SUBSTITUTED IN PLACE OF 4 x 4'S.

\*\* PIECE 15 NAILS TO CAR WALL WITH 10d NAILS, 2 PER FOOT ON CENTER GATE SIDE OF DOOR AND 5 NAILS ON OTHER SIDE, POSITIONED AS SHOWN IN ISOMETRIC.

18	HORIZONTAL DOORWAY MEMBER	2 x 4 x DOOR WIDTH	10	20	3 PER JOINT	10d
17	VERTICAL DOORWAY MEMBER	2 x 3 x 72	4	DOOR POST	2 PER FOOT	20d
16	HOLD DOWN CLEAT	2 x 6 x 24	4	15	5	10d
15	GATE HOLD DOWN	2 x 6 x 16 FT	2	CAR WALL	SEE NOTE **	
14	VERTICAL TIE BAR	2 x 4 x 57	6	12	3 PER JOINT	16d
13	HORIZONTAL TIE BAR	2 x 4 x CAR WIDTH-1	4	12	3 PER JOINT	16d
12	STRUT	4 x 4 x WEDGE FIT *	24	9	2 PER JOINT	16d
11	TOP HORIZONTAL	2 x 4 x CAR WIDTH-1	2	9	3 PER JOINT	10d
10	CENTER GATE STRUT CLEAT	2 x 4 x CAR WIDTH-1	8	9	3 PER JOINT	10d
9	CENTER GATE VERTICAL	2 x 6 x 60	12	SEE 8	-	-
8	CENTER GATE HORIZONTAL	2 x 6 x CAR WIDTH-1	8	9	3 PER JOINT	10d
7	SEPARATOR GATE HORIZONTAL	2 x 4 x CAR WIDTH-1	12	6	3 PER JOINT	10d
6	SEPARATOR GATE VERTICAL	2 x 6 x 57	54	SEE 7	-	-
5	SWAY BRACE TIE PIECE	2 x 6 x 32 1/2	16	4	4 PER JOINT	10d
4	CROSS BRACE	2 x 6 x CUT TO FIT	64	SEE 3	-	-
3	SWAY BRACE LONGITUDINAL	2 x 6 x 60	32	4	3 PER JOINT	16d
2	END WALL MEMBER	2 x 6 x 60	18	1	1 PER FOOT	10d
1	END WALL MEMBER	2 x 6 x 60	18	CAR WALL	1 PER FOOT	10d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS. REQ'D	NAIL TO	NUMBER	SIZE
					NAILS	

LIST OF MATERIALS AND NAILING DATA





SEE DETAIL **B**

**DETAIL A**  
SWAY BRACE ASSEMBLY  
8 REQUIRED

(SEE DETAIL **B** FOR DIMENSIONS)

SEE DETAIL **F**  
PAGE 35

DIRECTION OF ARROW INDICATES  
NOSE END OF BOMBS.

SEE DETAIL **D**  
PAGE 34

SEE DETAIL **E**  
PAGE 35

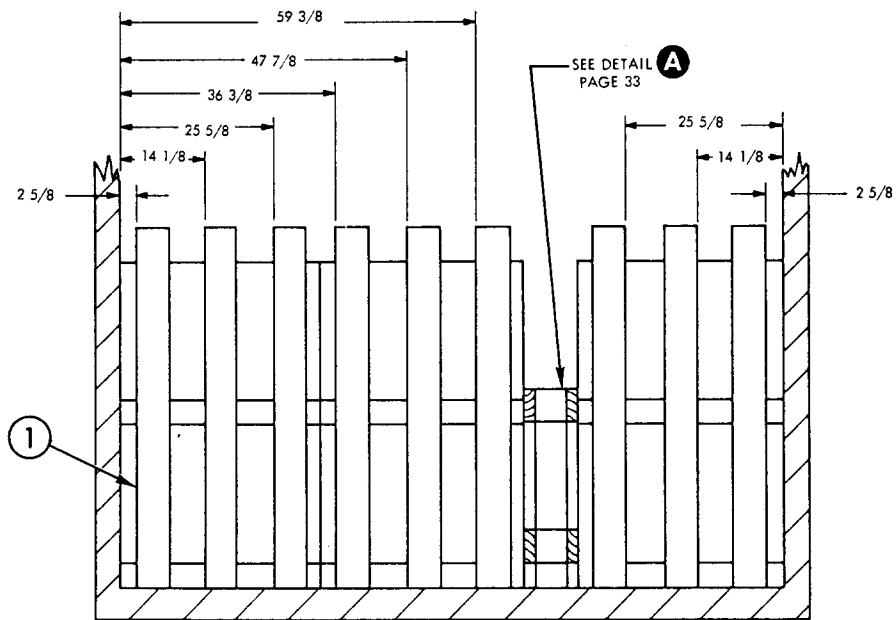
SEE DETAIL **H**  
PAGE 35

SEE DETAIL **A**

**DETAIL B**  
SWAY BRACE FRAME  
16 REQUIRED

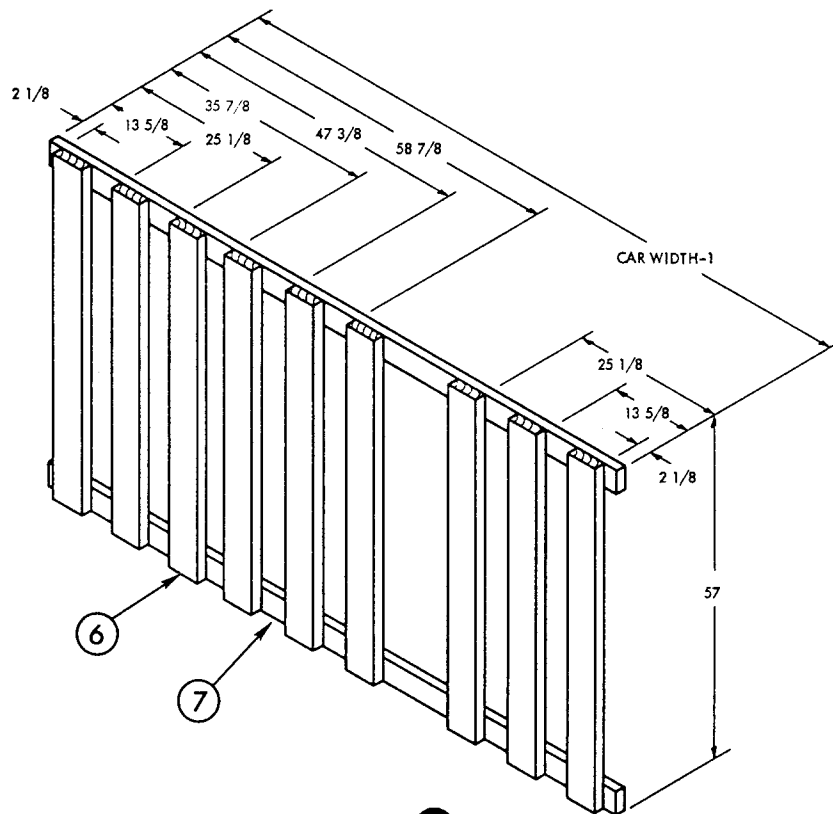
**CARLOAD DATA**

NUMBER OF UNIT LOADS	.....	48
LOAD WEIGHT	.....	150,240 LBS
DUNNAGE WEIGHT	.....	3,090 LBS
CARLOAD WEIGHT	.....	153,330 LBS



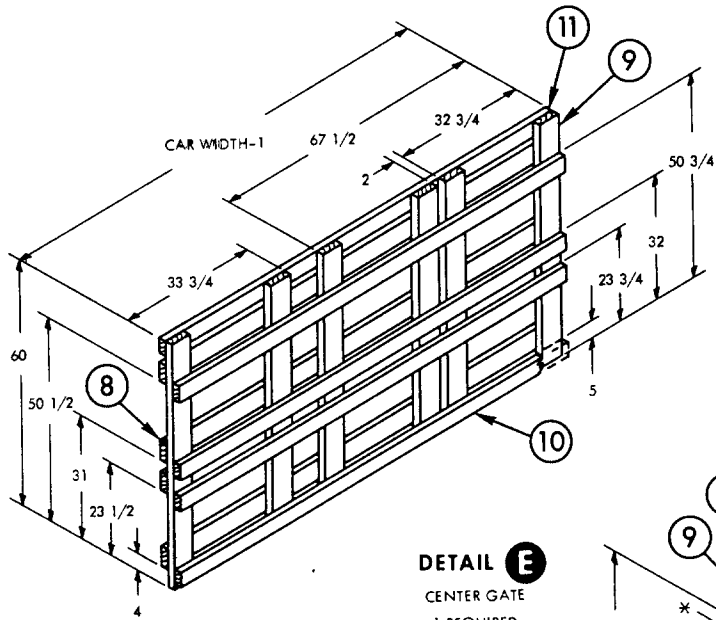
SECTION C-C

SHOWING LOCATION OF END WALL MEMBERS



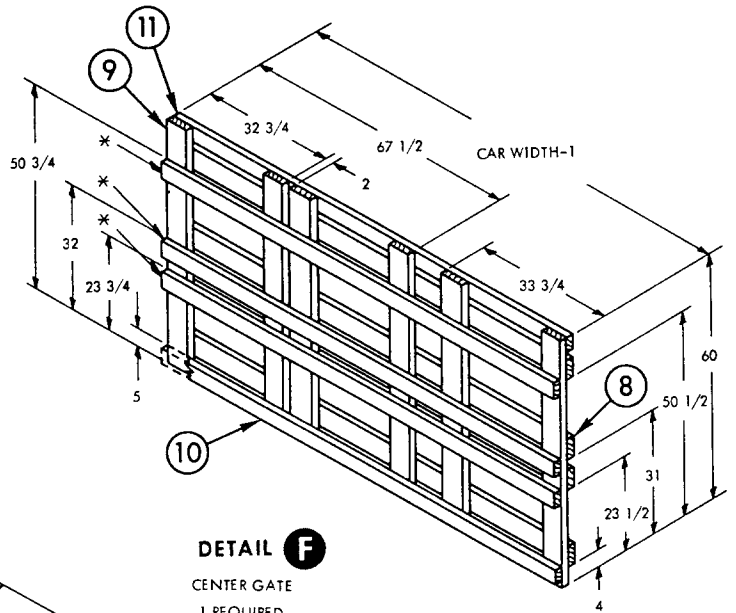
DETAIL D

SEPARATOR GATE  
6 REQUIRED



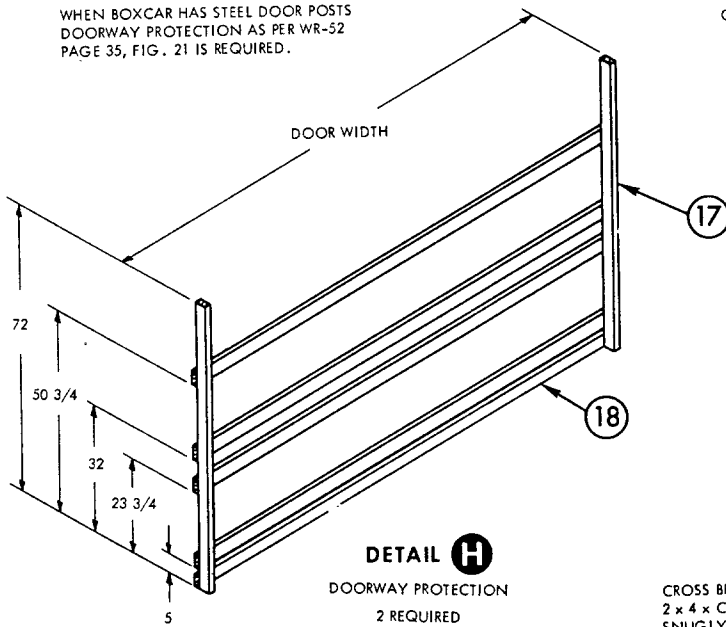
**DETAIL E**  
CENTER GATE  
1 REQUIRED

\* POSITION AFTER STRUTS  
HAVE BEEN INSTALLED ON  
LOWER STRUT CLEAT.  
(REQUIRED ONE GATE ONLY)

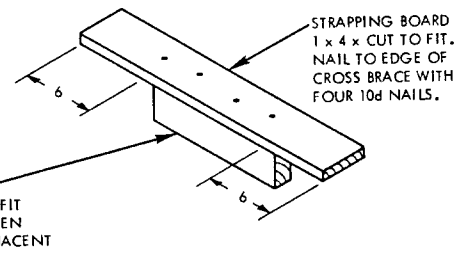


**DETAIL F**  
CENTER GATE  
1 REQUIRED

WHEN BOXCAR HAS STEEL DOOR POSTS  
DOORWAY PROTECTION AS PER WR-52  
PAGE 35, FIG. 21 IS REQUIRED.



**DETAIL H**  
DOORWAY PROTECTION  
2 REQUIRED



**DETAIL J**  
TOP SWAY BRACE

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

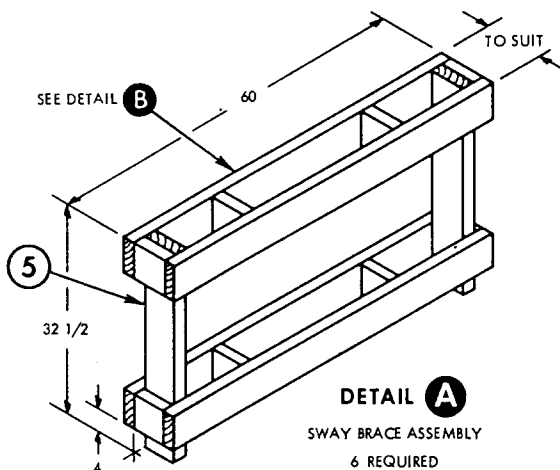
1. THESE PROCEDURES DEPICT THE METHOD OF LOADING THE FLEET ISSUE UNIT LOAD OF MK 82 BOMBS IN CUSHIONED BOX CARS WHICH ARE EQUIPPED WITH LOAD DIVIDERS AND WITH OR WITHOUT ADJUSTABLE SIDE FILLERS. ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH 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 FOR USE BY THE AAR, BUX.)

THE LOAD DIVIDERS WILL REPLACE THE CENTER GATE ASSEMBLY. A STRUT ASSEMBLY, DETAIL H, 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.

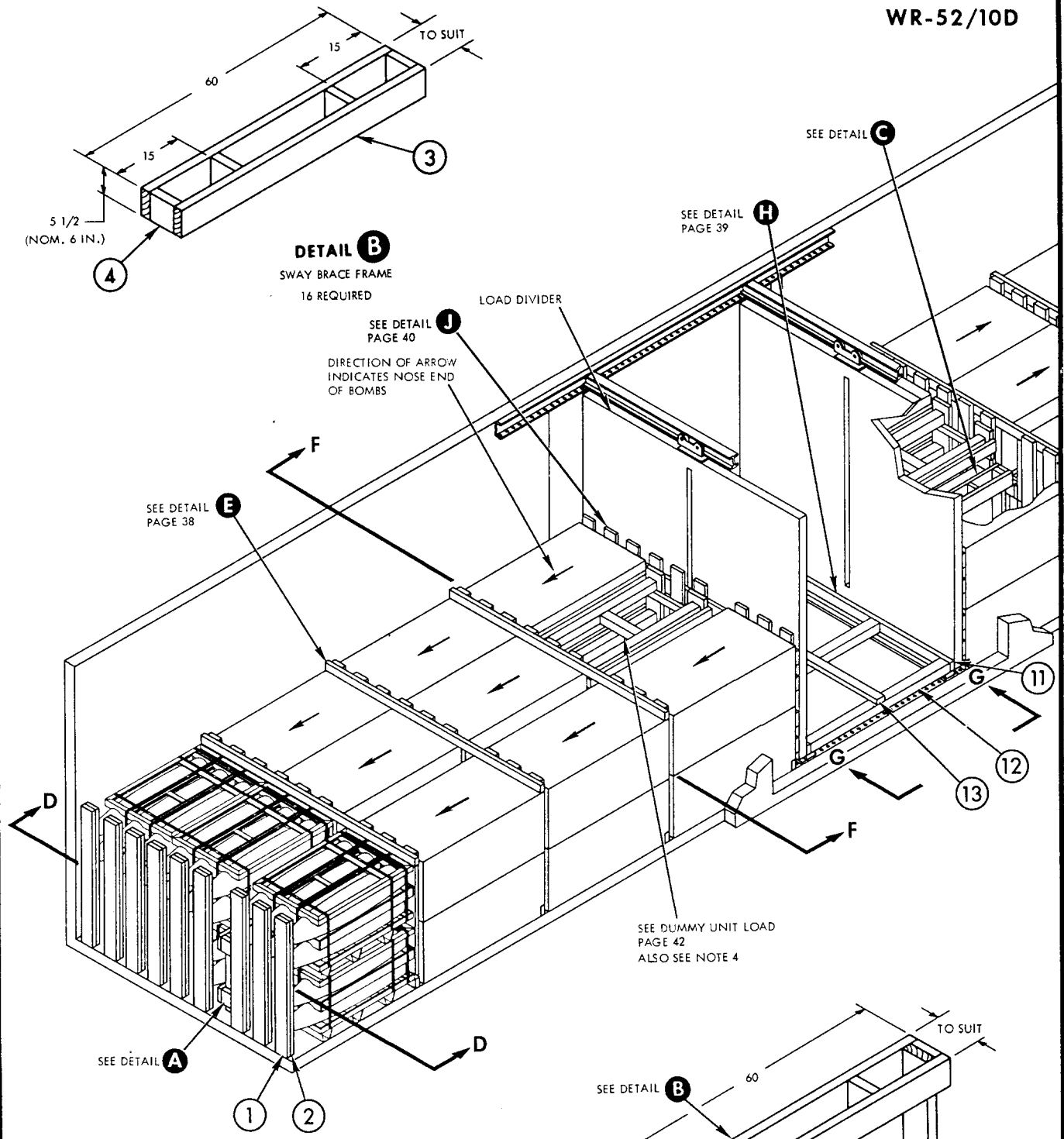
2. BOXCARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8 INCH OR THICKER PANELS MAY BE USED. HOWEVER, THESE SIDE FILLERS MUST NOT BE USED FOR LATERAL BLOCKING. THEY MUST BE RETRACTED AND LOCKED AGAINST THE CAR SIDE WALL, AND A FILL PIECE INSTALLED IN THE VOID, IF ONE EXISTS, BETWEEN THE CAR SIDE WALL AND THE SIDE FILLER PANEL. (SEE DETAIL K).
3. PRIOR TO LOADING A CAR EQUIPPED WITH LOAD DIVIDERS, A VERY CAREFUL INSPECTION MUST BE MADE TO INSURE 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 INSURE 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 CAR LOAD 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 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 42. (IF LOAD LIMIT OF CAR PERMITS, REPLACE DUMMY UNIT LOADS WITH BOMB LOADS, AND DETAIL C WITH DETAIL A.)
5. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN COMMERCIAL BOX CARS, 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 BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS OTHER THAN 10 FT WIDE PROVIDING DOORWAY PROTECTION IS INSTALLED WHEN REQUIRED. (SEE DETAIL H, PAGE 35.)
7. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOX CARS 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 INCH STEEL STRAPS PER STACK, EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS. DOORWAY PROTECTION IS NOT REQUIRED WHEN PLUG DOOR EQUIPPED BOX CARS ARE USED, EXCEPT WHEN CAR HAS A COMBINATION OF PLUG DOOR AND CONVENTIONAL SLIDING DOOR. THEN DOORWAY PROTECTION IS REQUIRED FOR THE CONVENTIONAL DOOR. SECURELY CLOSE DOORS AND WIRE TOGETHER WITH A STRONG FLEXIBLE STEEL WIRE INSERTED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES AND THE WIRE ENDS TWISTED TOGETHER.
8. WHEN BOX CARS OTHER THAN 9 FT 2 INCHES WIDE ARE USED, DUNNAGE NAILED TO THE SIDE WALL OF THE CAR MUST BE INSTALLED AS NECESSARY FOR A TIGHT LOAD ACROSS THE CAR.

\*W = DISTANCE BETWEEN LOCKING PINS AT EACH SIDE OF THE LOAD DIVIDER.

\*\* CLINCHED

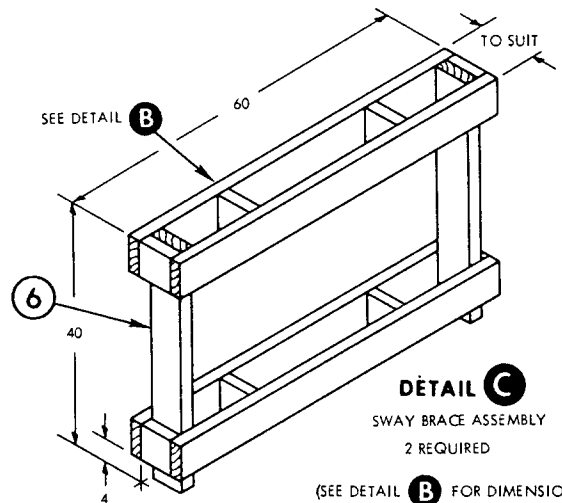


15	SEPARATOR GATE HORIZONTAL	2 x 6 x CAR WIDTH - 1	8	SEE 14	--	--
14	SEPARATOR GATE VERTICAL	1 x 6 x 58	18	15	3 PER JOINT	10d
13	TIE-BAR	2 x 4 x CAR WIDTH-1	1	12	3 PER JOINT	10d
12	STRUT	4 x 4 x CUT TO FIT	4	11	2 EACH END	16d
11	BUFFER PIECE	2 x 4 x CAR WIDTH-1	2	SEE 10	-	-
10	STRUT LEDGER	2 x 4 x CAR WIDTH-1	2	11	1 PER FOOT	10d
9	HOLD DOWN	1 x 6 x "W"*	2	10	1 PER FOOT	6d
8	SEPARATOR GATE HORIZONTAL	2 x 4 x CAR WIDTH-1	16	7	3 PER JOINT	10d
7	SEPARATOR GATE VERTICAL	2 x 6 x 60	72	SEE 8	-	-
6	SWAY BRACE TIE PIECE	2 x 6 x 40	4	4	4 PER JOINT	10d
5	SWAY BRACE TIE PIECE	2 x 6 x 32 1/2	12	4	4 PER JOINT	10d
4	CROSS BRACE	2 x 6 x CUT TO FIT	64	SEE 3	-	-
3	SWAY BRACE LONGITUDINAL	2 x 6 x 60	32	4	3 PER JOINT	16d
2	END WALL MEMBER	2 x 6 x 60	18	1	1 PER FOOT	10d
1	END WALL MEMBER	2 x 6 x 60	18	CAR WALL	1 PER FOOT	10d
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQD	NAIL TO	NUMBER	SIZE
					NAILS	



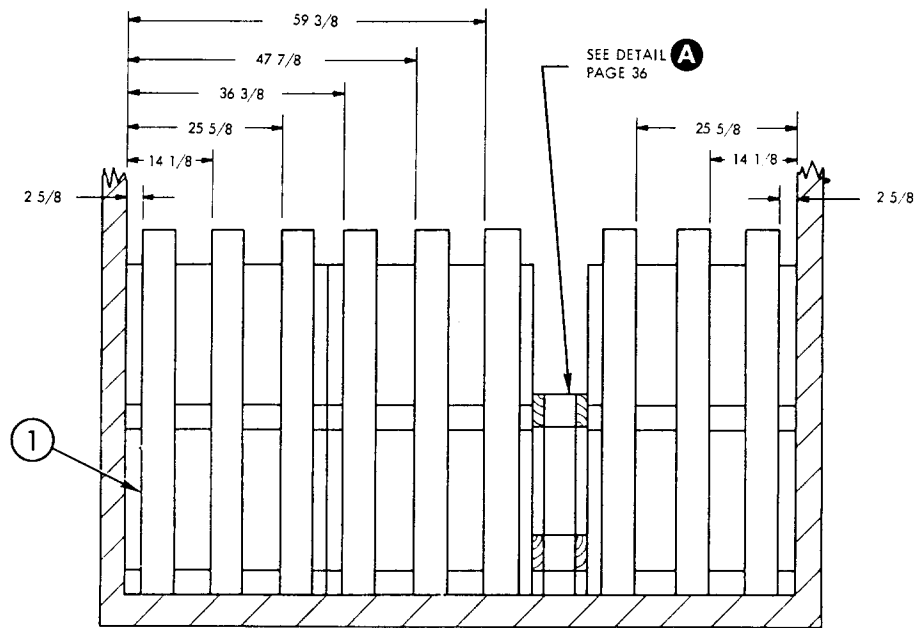
**CARLOAD DATA**

NUMBER OF UNIT LOADS	.....	46
LOAD WEIGHT	.....	143,980 LBS
DUNNAGE WEIGHT	.....	2,073 LBS
CARLOAD WEIGHT	.....	146,053 LBS

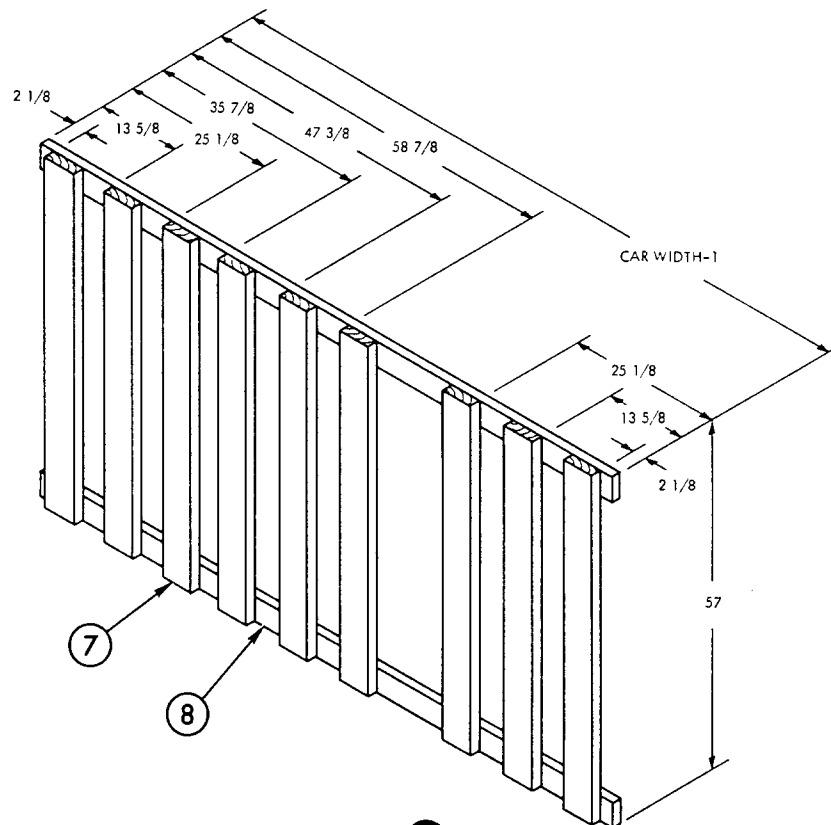


**DETAIL C**  
SWAY BRACE ASSEMBLY  
2 REQUIRED

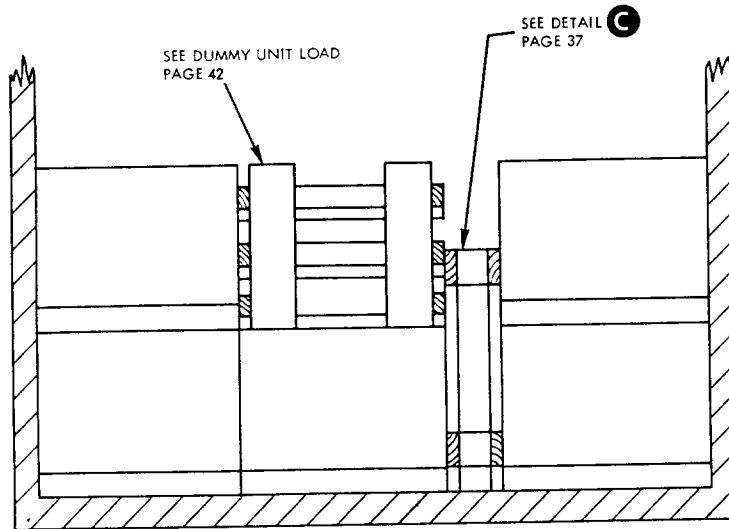
(SEE DETAIL B FOR DIMENSIONS)



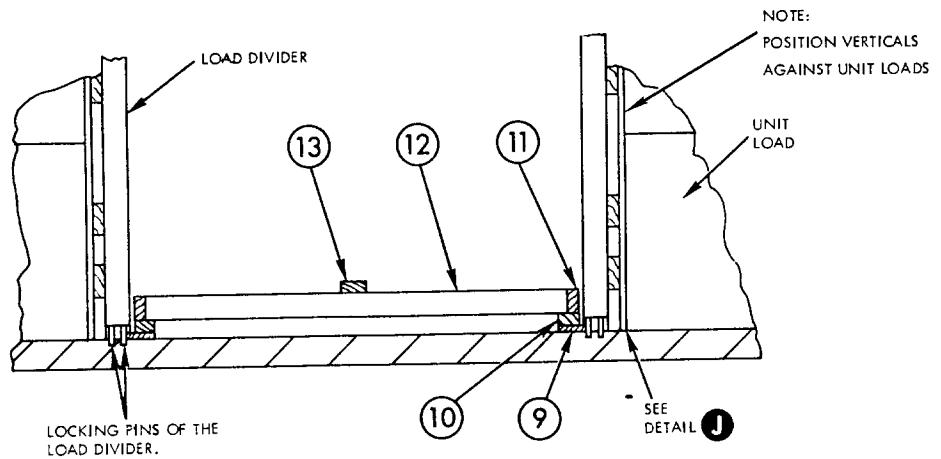
**SECTION D-D**  
SHOWING LOCATION OF END WALL MEMBERS



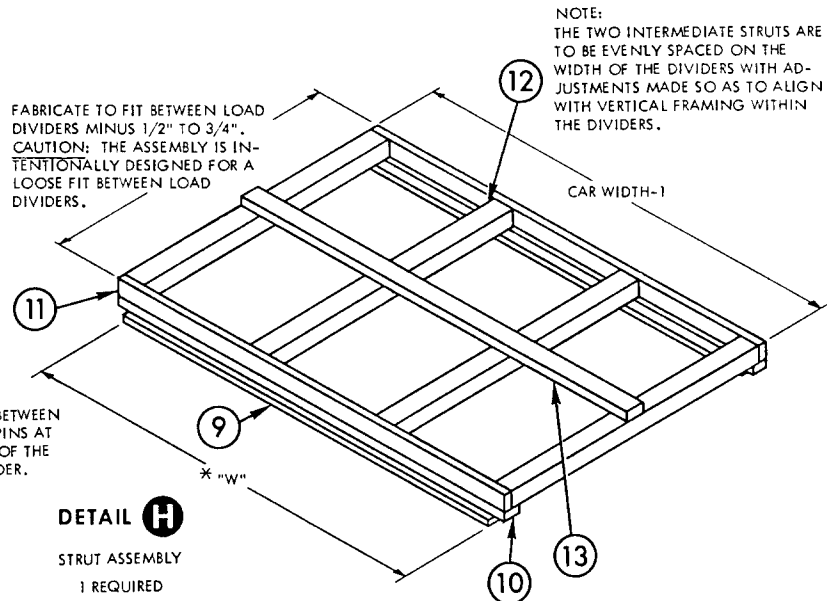
**DETAIL E**  
SEPARATOR GATE  
6 REQUIRED



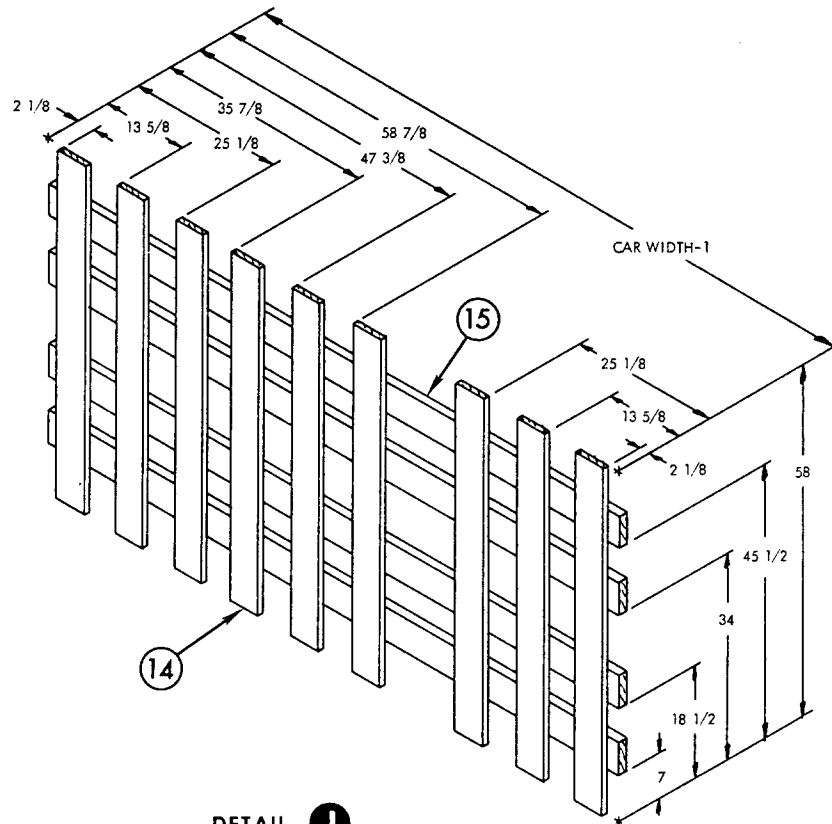
SECTION F-F



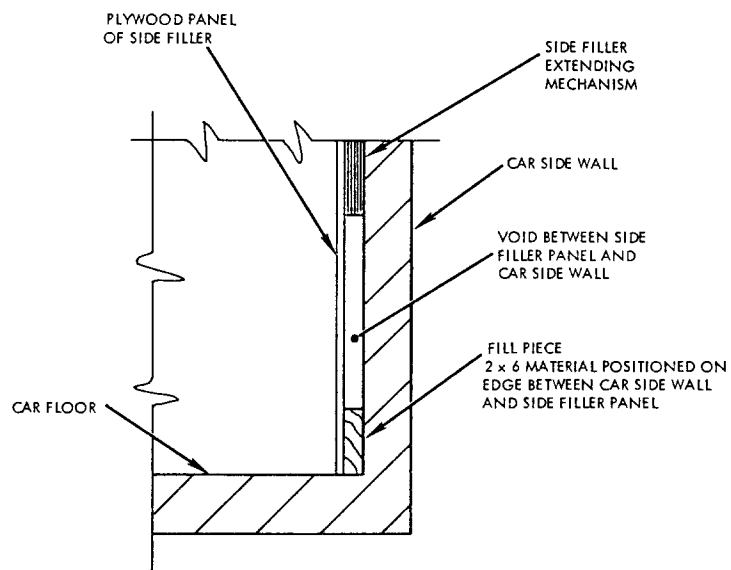
VIEW G-G  
INSTALLATION OF STRUT ASSEMBLY



DETAIL H  
STRUT ASSEMBLY  
1 REQUIRED



**DETAIL J**  
 SEPARATOR GATE  
 2 REQUIRED

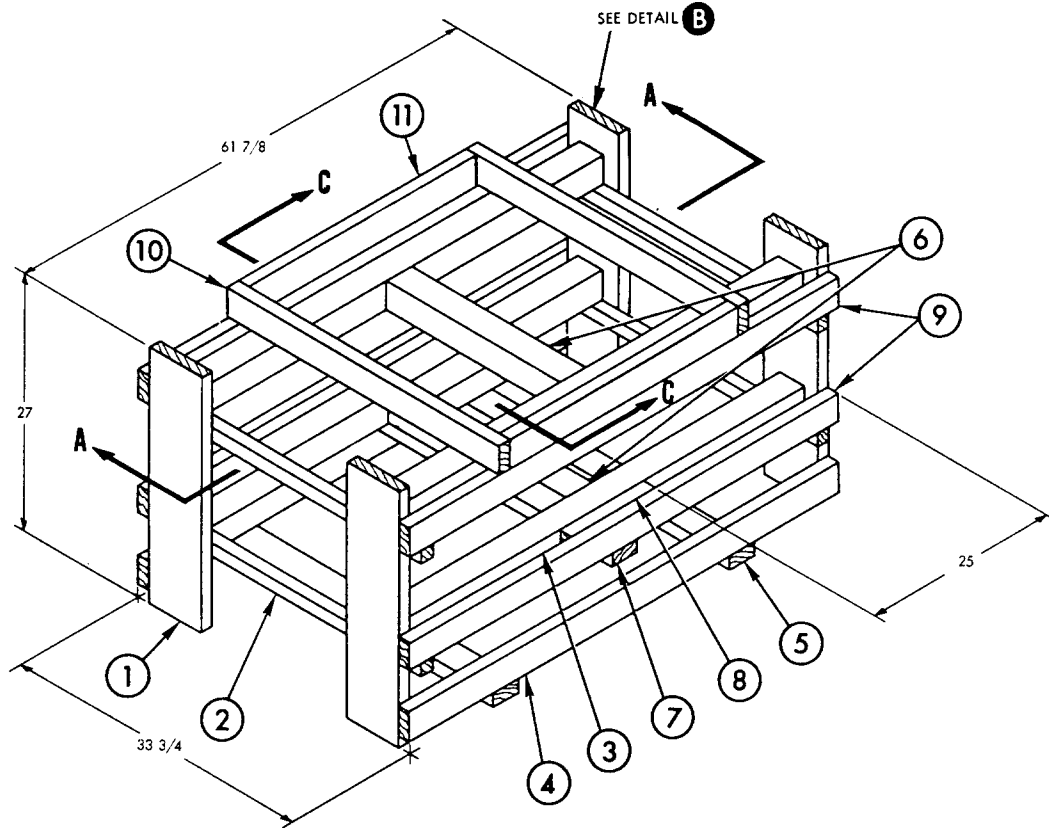


**DETAIL K**  
 SHOWING REINFORCEMENT FOR  
 ADJUSTABLE SIDE FILLERS



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# DUMMY UNIT LOAD



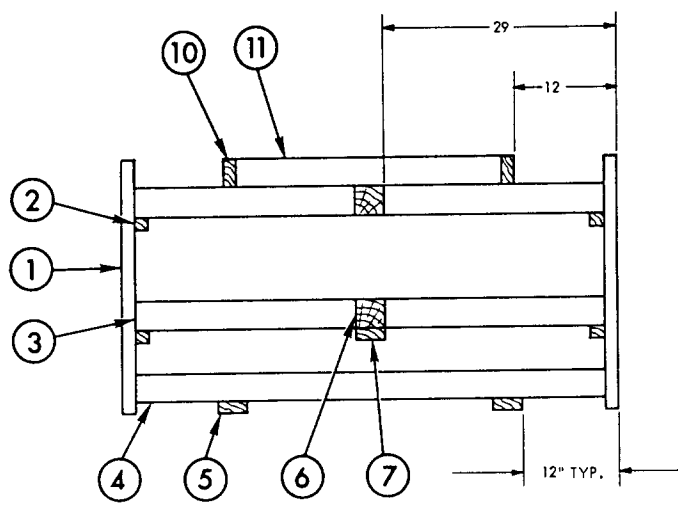
NOTE: PIECES 10 & 11 ARE ONLY REQUIRED WHEN OVERSTOWING ANOTHER DUMMY UNIT LOAD.

NOTES:

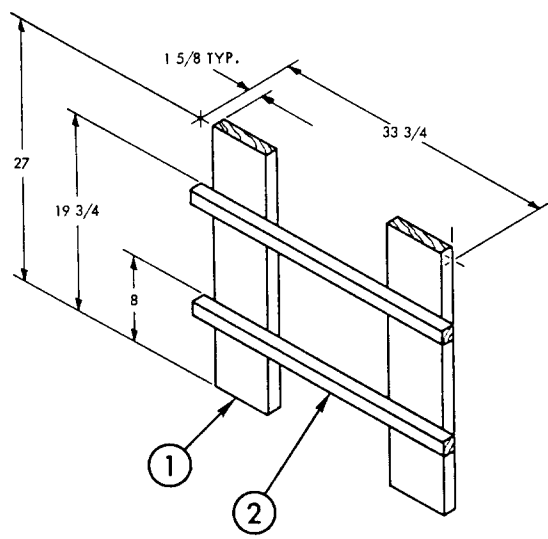
- (1) TOE NAIL STRUT TO VERTICAL WITH 16d NAILS, 3 EACH END (TOP AND BOTH SIDES) ALSO END NAIL THROUGH VERTICAL WITH 16d NAILS, 2 EACH END.
- (2) TOENAIL CROSS BRACE TO STRUT WITH 16d NAILS, 3 EACH END (TOP AND BOTH SIDES).
- (3) NAIL LATERAL MEMBER TO PIECES 3, 8, AND 9 WITH 16d NAILS, 1 PER JOINT, AND TO CROSS BRACE (PIECE 6) WITH 4-16d NAILS.
- (4) NAIL BUFFER STRIP TO VERTICAL WITH 16d NAILS, 2 PER JOINT, AND TO PIECE 8 WITH 4-16d NAILS.
- (5) NAIL UPPER SUPPORT PIECE (PIECE 10) TO PIECE 11 WITH 16d NAILS, 2 PER JOINT, TOE NAIL TO STRUT (PIECE 3) WITH 10d NAILS, 2 PER JOINT (1 EACH SIDE).
- (6) TOE NAIL UPPER SUPPORT PIECE (PIECE 11) TO PIECE 9 WITH 10d NAILS, 1 PER FOOT.

PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQD	NAIL TO	NUMBER	SIZE
11	UPPER SUPPORT PIECE	2 x 4 x 34 5/8	2	9	SEE NOTE (6)	
10	UPPER SUPPORT PIECE	2 x 4 x 33 3/4	2	3, 11	SEE NOTE (5)	
9	BUFFER STRIP	2 x 4 x 61 7/8	4	1, 8	SEE NOTE (4)	
8	SPACER	2 x 4 x 12	4	3	4	10d
7	LATERAL MEMBER	2 x 4 x 33 3/4	1	3, 6, 8, 9	SEE NOTE (3)	
6	CROSS BRACE	4 x 4 x CUT TO FIT	2	3	SEE NOTE (2)	
5	SUPPORT PIECE	2 x 4 x 33 3/4	2	4	2 PER JOINT	16d
4	LONGITUDINAL	2 x 4 x 61 7/8	2	1	2 PER JOINT	16d
3	STRUT	4 x 4 x 58 5/8	4	1	SEE NOTE (1)	
2	STRUT CLEAT	2 x 2 x 33 3/4	4	1	3 PER JOINT	16d CLNHD
1	VERTICAL	2 x 8 x 27	4	SEE 2	-	-

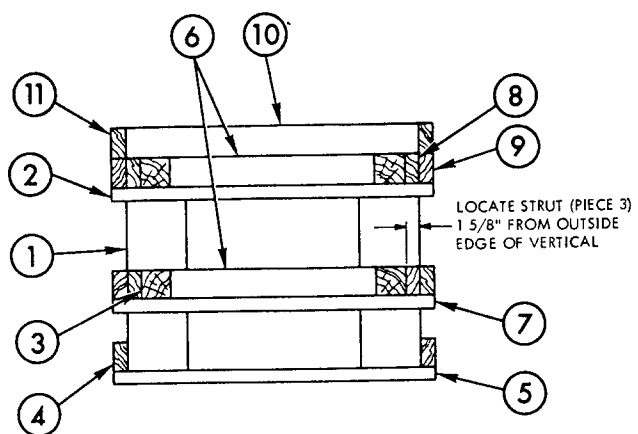
LIST OF MATERIALS AND NAILING DATA



SECTION A-A



**DETAIL B**  
END FRAME  
2 REQUIRED



SECTION C-C

WR-52/10D  
Change Notice 1  
27 March 1972

NAVAL ORDNANCE SYSTEMS COMMAND  
DEPARTMENT OF THE NAVY  
WEAPONS REQUIREMENT, CARLOADING

Bomb, General Purpose, Mk 82 & Mods (500 Lb)  
in Pallet, Bomb, Mk 9 Mod 0  
Fleet Issue Unit Load

This notice forms a part of WR-52/10D dated 11 January 1972 and is mandatory for use by establishments of the Naval Systems Command within the Naval Material Command.

Page 21

1. Delete "2x6x31-3/4" dimension for spacer in Detail E and replace it with "2x4x31-3/4".

Distribution  
WR-51 & WR-52  
distribution list

Preparing Activity  
NAD Earle (NWHL)

WR-52/10D  
Change Notice 2  
6 September 1972

NAVAL ORDNANCE SYSTEMS COMMAND  
DEPARTMENT OF THE NAVY  
WEAPONS REQUIREMENT, CARLOADING  
Bomb, General Purpose, Mk 82 & Mods (500-lb.)  
In Pallet, Bomb, Mk 9 Mod 0  
Fleet Issue Unit Load

This notice forms a part of WR-52/10D dated 11 January 1972 and is mandatory for use by establishments of the Naval Systems Command within the Naval Material Command.

Page 1

1. Under "Unit Load Data" add  
Thermally Protected  
On Mk 9 Pallet with Saddles  
3174.5 lbs.  
61-7/8 L x 33-3/4 W x 28 H  
33.6 cu. ft.
2. Add "54/225 Palletizing" in Associated Process Column.

Page 2

1. Change Note 6 of General Notes to read "The load consists of 500-lb. General Purpose Bombs Mk 82 and Mods Palletized in Accordance with WR-54/31 or Thermally Protected Bombs Palletized in Accordance with WR-54/225."

Page 12

1. Delete Callout Number 10 Pointing to Top Horizontal of Center Gate Detail E and Substitute Callout Number 11.

Page 32

1. Delete "20" in "Nail To" Column of Piece 18 in List of Materials and substitute "17".

Distribution

WR-51 & WR-52  
Distribution list

Preparing Activity

NAD Earle (NWHL)