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DATE 8/6/96

LOADING AND BRACING (CL & LCL) IN BOX CARS[⊕] OF CHARGE, DEMOLITION, LINEAR, HE M58A3 AND INERT M68A2, IN METAL SHIPPING AND STORAGE CONTAINER

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⊕ THIS OUTLOADING PROCEDURE DRAWING INCLUDES PROCEDURES FOR CONVENTIONAL TYPE BOX CARS AND CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS. TO BE ACCEPTABLE, CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS MUST ALSO SATISFY THE SPECIAL NOTES ON PAGE 13.

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND	DRAFTSMAN	TECHNICIAN	ENGINEER
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U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	JUNE 1987		
REVISION NO. 1	SEPTEMBER 1996	CLASS	DIVISION
		DRAWING	FILE
		19	48
		4207	5J1007
SEE THE REVISION LISTING ON PAGE 3			

DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LINEAR DEMOLITION CHARGES, HE M58A3 AND INERT M68A2, IN METAL SHIPPING AND STORAGE CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER MEANS THE SHIPPING AND STORAGE CONTAINER WITH CONTENTS.
- C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOXCARS AND FOR SHIPMENTS IN CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
- D. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF LINEAR DEMOLITION CHARGES IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE OTHERWISE IN PROPER CONDITION IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENTS, WILL BE SELECTED.
- E. WHEN SELECTING RAILCARS, EVERY EFFORT SHOULD BE MADE TO OBTAIN BOXCARS THAT DO NOT HAVE BOWED ENDWALLS. CARS HAVING BOWED ENDWALLS CAN BE USED. HOWEVER, IF AN END WALL IS BOWED OUTWARD MORE THAN TWO INCHES (2"), EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, SHIM MATERIAL WILL BE REQUIRED. DIMENSIONAL LUMBER OR PLYWOOD, 4" OR 6" WIDE OF A THICKNESS AND LENGTH REQUIRED TO FILL THE VOID BETWEEN THE BOXCAR END WALL AND THE END-WALL GATE, WILL BE LAMINATED TO THE HORIZONTAL PIECES OF THE CAR TO PROVIDE A "SQUARED-OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR.
- F. CONVENTIONAL BOXCARS EQUIPPED WITH SLIDING DOORS HAVE BEEN SHOWN, HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR CONVENTIONAL CARS EQUIPPED WITH PLUG DOORS. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN. ALSO, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF CAR SEALS, A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED TO SEAL THE CAR. THE WIRE WILL BE THREADED THRU THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- G. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH CONTAINERS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- H. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE. IF THOSE MEMBERS SPECIFICALLY IDENTIFIED AS "STRUTS" WITHIN THE KEY NUMBERS OF A DEPICTED LOAD ARE SPECIFIED TO BE 4" X 4" MATERIAL, IT IS PERMISSIBLE TO USE TWO LAMINATED PIECES OF 2" X 6" MATERIAL IN LIEU OF EACH 4" X 4" STRUT. DOUBLED 2" X 6" STRUTS WILL BE LAMINATED W/1-10d NAIL EVERY 6".
- J. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OR SIDEWALL OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE, THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS OR SIDEWALL BOARDS. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO, OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP - - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
- WIRE, CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.

- K. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED BOXCAR LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-N-105 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY Senco PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.
- L. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER, WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 5 FOR GUIDANCE.
- M. THROUGHOUT THIS PROCEDURAL DRAWING, PORTIONS OF THE BLOCKING COMPONENTS AND OF THE DEPICTED CARS, SUCH AS A CAR SIDEWALL, HAVE BEEN OMITTED FROM THE LOAD VIEW FOR CLARITY PURPOSES.
- N. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOXCAR BEING LOADED OR THE QUANTITY TO BE SHIPPED. HOWEVER, THE APPROVED METHODS SPECIFIED HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE CONTAINERS. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE RAILCAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR.
- O. CAUTION: WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE APPLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, CONTAINERS BEING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EXIT BECOME NECESSARY.
- P. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4 MM AND ONE POUND EQUALS 0.454 KG.

GENERAL NOTES

(FOR CONVENTIONAL TYPE CARS)

- Q. IF THE CAR BEING USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDEWALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING OF THE LCL BRACES AND KNEE BRACE ASSEMBLIES IN THE LESS-THAN-FULL LOADS. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED IN LIEU OF THOSE SPECIFIED IN THE APPLICABLE LOADS AND DETAILS ON PAGES 14 THROUGH 16.
- R. WHEN POSITIONING CONTAINERS IN A CAR, THEY SHOULD BE PLACED TIGHTLY AGAINST SIDE FILL ASSEMBLIES AND/OR ARE TO BE PRESSED TIGHTLY TOGETHER LENGTHWISE SO AS TO ACHIEVE A TIGHT LOAD. TO AID IN ACHIEVING TIGHTNESS LENGTHWISE IN A FULL LOAD, A LOAD-COMPRESSING JACK MAY BE EMPLOYED IN THE AREA OF THE CENTER GATES TO MOVE THE CONTAINERS INTO THEIR FINAL SHIPPING POSITION. A HYDRAULIC JACK IS RECOMMENDED FOR THIS OPERATION. CAUTION: WHEN USING A JACK TO COMPACT A LOAD, THE JACK MUST BE USED AGAINST STRONG POINTS OF THE CONTAINERS. PADDING OF 2" THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE LADING.
- S. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN BY KEY NUMBERS ⑦ AND ⑧ ON PAGE 6. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUT AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.

(CONTINUED ON PAGE 3)

- T. TO ACHIEVE A TIGHTLY BLOCKED LOAD, A STRUT WILL BE CUT APPROXIMATELY 1/4" TO 3/8" LONGER THAN THE MEASURED DISTANCE BETWEEN THE STRUT BEARING AREAS ON THE TWO CENTER GATES. MEASUREMENTS FOR STRUT LENGTHS NEED TO BE ACCOMPLISHED AT SEVERAL PLACES DURING THE BLOCKING AND BRACING PROCESS. CARE MUST BE EXERCISED WHEN MEASURING FOR AND INSTALLING STRUTS. THE SPECIFIED APPROXIMATE DIMENSION FOR A STRUT LENGTH MAY BE ADJUSTED, AS NECESSARY, TO PROVIDE FOR A TIGHTLY BLOCKED LOAD WITHOUT DISTORTING, DENTING OR OTHERWISE DAMAGING THE CONTAINERS. ONE END OF THE STRUT WILL BE POSITIONED AT ITS BEARING AREA JUST ABOVE THE STRUT LEDGER ON ONE GATE. THE OTHER END, WHICH CAN BE BEVELED ON THE LOWER CORNER IF DESIRED, WILL THEN BE DRIVEN DOWNWARD UNTIL IT CONTACTS THE STRUT LEDGER ON THE OTHER GATE. EACH END OF THE STRUT WILL BE TOENAILED TO THE ADJACENT CENTER GATE, AS SPECIFIED WITHIN THE KEY NUMBERS FOR A LOAD, IN SUCH A MANNER SO THAT AS NEARLY AS PRACTICAL EQUAL LENGTHS OF A NAIL ARE EMBEDDED IN THE STRUT AND IN THE VERTICAL PIECE OF THE CENTER GATE. SEE THE "BEVEL-CUT" DETAIL ON PAGE 5 FOR BEVELING INSTRUCTIONS AND THE "STRUT INSTALLATION" DETAIL ON THAT PAGE FOR A PICTORIAL VIEW SHOWING THE PROPER POSITIONING OF A BEVELED STRUT FOR INSTALLATION. NOTE THAT THE UPPER CORNER NEEDS TO BE BEVELED ONLY IF THE STRUTS ARE VERY SHORT. IF ONLY ONE END IS BEVEL CUT, THE BEVELED EDGE WILL BE PLACED IN THE DOWNWARD POSITION SO THAT IT WILL ALLOW THE STRUT END TO SLIDE MORE FREELY DOWN THE FACE OF THE VERTICAL PIECE ON THE ADJACENT CENTER GATE AS THE STRUT IS DRIVEN DOWN INTO ITS FINAL BLOCKING POSITION.
- U. WHERE 2" X 2" PIECES ARE SPECIFIED FOR STRUT LEDGERS, 2" X 4" MATERIAL MAY BE SUBSTITUTED, IF DESIRED.
- V. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

GENERAL NOTES

(FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS)

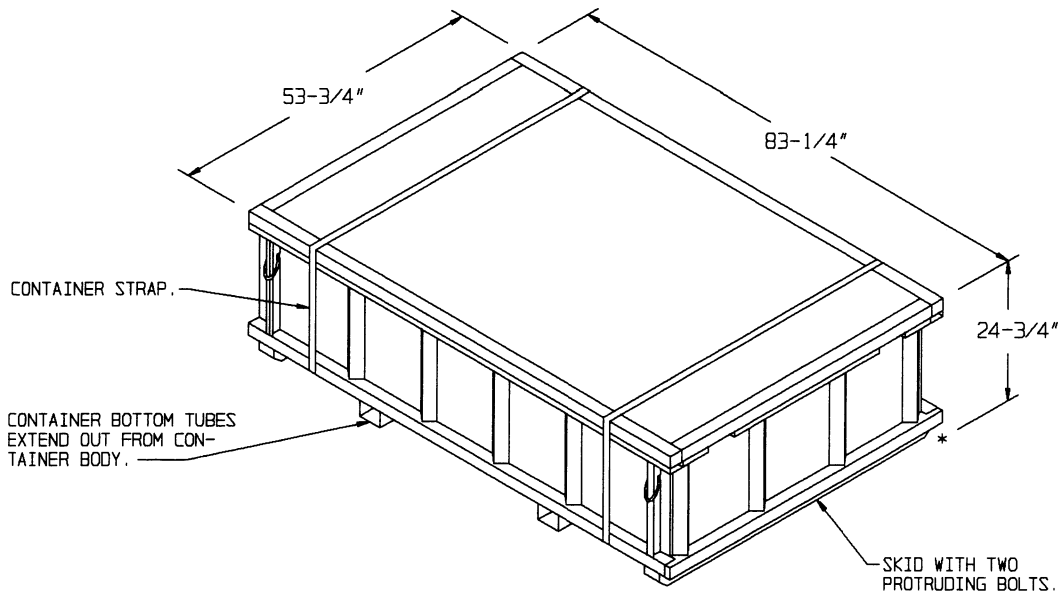
- AA. CAUTION: FOR CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS, ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO, OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSO ARE NOT ACCEPTABLE WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. THE DEPICTED PROCEDURES ARE APPLICABLE FOR CARS OF VARIOUS LENGTHS AND WIDTHS. THE AAR MECHANICAL DESIGNATION CLASS FOR THESE CARS, AS IDENTIFIED IN "THE OFFICIAL RAILWAY EQUIPMENT REGISTER", WILL BE RBL, XL, OR XLI.
- BB. THE USE OF LOAD DIVIDER EQUIPPED CARS WILL ELIMINATE THE NEED FOR CENTER GATES AND STRUTS, AND GATE HOLD DOWNS (WHEN APPLICABLE) WHICH ARE REQUIRED IN CONVENTIONAL BOXCAR LOADS. THIS WILL ACCOUNT FOR A CONSIDERABLE SAVING IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF LINEAR DEMOLITION CHARGES. NOTICE: ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONED DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST 15" OF TRAVEL ARE ACCEPTABLE.
- CC. IF NAILING TO A CAR SIDEWALL IS NOT REQUIRED, BOXCARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8" 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 SIDEWALL. A "FILL PIECE" MUST BE INSTALLED IN THE VOID BETWEEN THE CAR SIDEWALL AND THE SIDE FILLER PANEL. SEE THE "TYPICAL TYPE A" VIEW ON PAGE 19 FOR GUIDANCE. IF THE BACK OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 19, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.

- DD. NOTICE: AFTER THE LOAD DIVIDER BULKHEADS ARE POSITIONED AGAINST THE LADING, AND THE LOCKING PINS ARE ENGAGED IN THE HOLES OF THE RAILS, THE LOWER LOCKING PINS MUST BE INSPECTED TO ENSURE THAT THE PINS ARE FULLY ENGAGED IN THE LOCKING HOLES. IF THE PINS ARE NOT FULLY SEATED IN THE LOCKING HOLES, THE LINKAGE MECHANISM WILL 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 WHICH HAVE BEEN SELECTED FOR SECURING A LOAD DIVIDER BULKHEAD.
- EE. A "STRUT ASSEMBLY" MUST BE INSTALLED BETWEEN THE LOAD DIVIDER BULKHEADS IF THE CAR CONTAINS HAZARD CLASS AND DIVISION 1.1, 1.2, OR 1.3 EXPLOSIVES AND THE LOAD IN EITHER END OF THE CAR WEIGHS 50,000 POUNDS OR MORE. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF HAZARD CLASS AND DIVISION 1.4 EXPLOSIVES. NOTE THAT THE STRUT ASSEMBLY MAY BE OMITTED FROM LOADS OF HAZARD CLASS AND DIVISION 1.1, 1.2, OR 1.3 EXPLOSIVES WEIGHING 50,000 POUNDS WHEN THE LADING AND ADEQUATE BLOCKING AND BRACING ARE POSITIONED TO COMPLETELY FILL THE SPACE BETWEEN THE INSTALLED BULKHEADS AS SPECIFIED IN GENERAL NOTE "FF-3" BELOW. DETAILS OF STRUT ASSEMBLIES FOR USE BETWEEN 2-PIECE BULKHEADS AND BETWEEN 1-PIECE BULKHEADS ARE SHOWN ON PAGE 20.
- FF. THE NORMAL LOADING PATTERN IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS IS TO POSITION THE LADING BETWEEN A CAR ENDWALL AND A LOAD DIVIDER BULKHEAD IN FULL LAYERS. OBVIOUSLY, A LOAD QUANTITY MUST THEN BE A MULTIPLE OF THE NUMBER OF PALLET UNITS WHICH ARE IN ONE LOAD UNIT. A LOAD UNIT IS DEFINED AS A STACK OF CONTAINERS WHICH IS FULL CAR WIDTH BY FULL LOAD HEIGHT BY ONE UNIT IN LENGTH. IF THE QUANTITY TO BE SHIPPED CANNOT BE ATTAINED BY ADJUSTING THE NUMBER OF TIERS IN ONE OR BOTH ENDS OF A CAR, OR BY ADJUSTING THE NUMBER OF LOAD UNITS IN EITHER END OF THE CAR, ONE OF THE FOLLOWING PROCEDURES MUST BE USED IN ORDER TO OBTAIN THE DESIRED QUANTITY.
1. THE "OMITTED-CONTAINER PROCEDURES" FOR OMITTING A CONTAINER MAY BE USED TO ADJUST A LOAD QUANTITY DOWNWARD BY OTHER THAN A MULTIPLE OF A LOAD UNIT. SEE THE PROCEDURES ON PAGE 17 FOR GUIDANCE.
 2. AT LOCATION(S) WHERE K-BRACES MIGHT NORMALLY BE USED IN A LOAD IN A CONVENTIONAL CAR, LOAD DIVIDER BULKHEADS CAN BE POSITIONED. LOADING CAN THEN CONTINUE TOWARD THE CENTER OF THE CAR FROM EACH INSTALLED LOAD DIVIDER BULKHEAD IN A ONE-HIGH LOADING PATTERN. INSTALL CENTER GATES AND STRUTS AS SHOWN ON PAGE 6 OF THE CONVENTIONAL BOXCAR DRAWING HEREIN TO PROVIDE FOR A TIGHT LOAD BETWEEN THE BULKHEADS.
 3. ONE OR MORE UNITS CAN BE POSITIONED IN CONTACT WITH A LOAD DIVIDER BULKHEAD ON THE CENTER-OF-CAR SIDE. BLOCK AND BRACE WITH FLOORLINE BLOCKING AS SHOWN ON PAGE 16 OR WITH KNEE BRACE ASSEMBLIES, AS SHOWN ON PAGE 14.
- GG. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.

REVISION

REVISION NO. 1, DATED SEPTEMBER 1996, CONSISTS OF:

1. CHANGING LOAD DETAIL TO INCREASE NUMBER OF CONTAINERS.
2. UPDATING GENERAL NOTES AND DRAWING FORMAT.



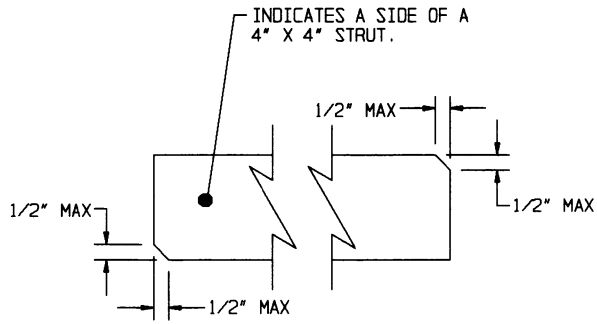
SHIPPING AND STORAGE CONTAINER

NOTE: CONTAINERS WILL NOT BE STACKED
UNLESS COVER SPANNER ASSEMBLIES ARE
PROVIDED UNDER SKIDS BETWEEN LAYERS.
SEE THE DETAIL ON PAGE 9.

GROSS WEIGHT (APPROX):

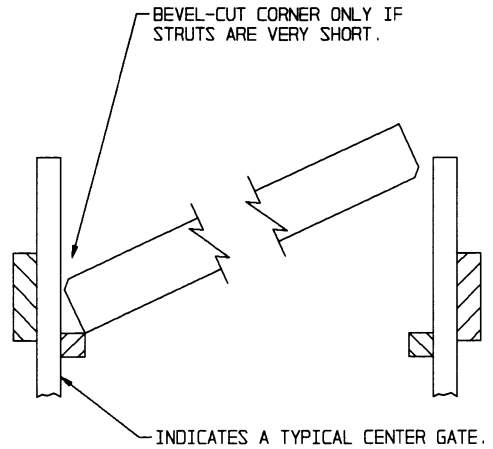
WITH HE COMP C4 M58A3 CHARGE, DODIC M913 - - - 2,900 LBS
WITH INERT M68A2 CHARGE, DODIC M914 - - - - - 2,790 LBS

CUBE - - - - - 64.1 CU. FT.



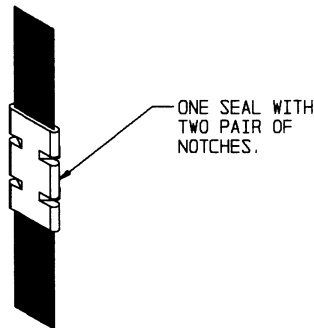
BEVEL-CUT

BEVEL CUTTING THE STRUTS AS SPECIFIED WILL FACILITATE INSTALLING THE STRUTS WITH A "DRIVE FIT". CAUTION: DO NOT BEVEL A CORNER MORE THAN ONE-HALF INCH (1/2").



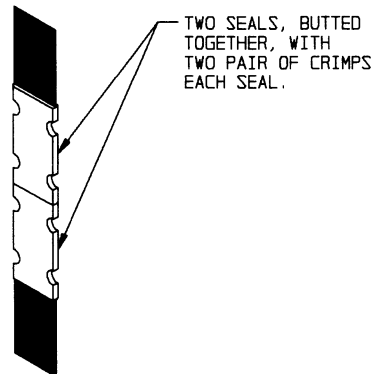
STRUT INSTALLATION

SEE GENERAL NOTE "T" ON PAGE 3 FOR ADDITIONAL STRUT INSTALLATION GUIDANCE.



STRAP JOINT A

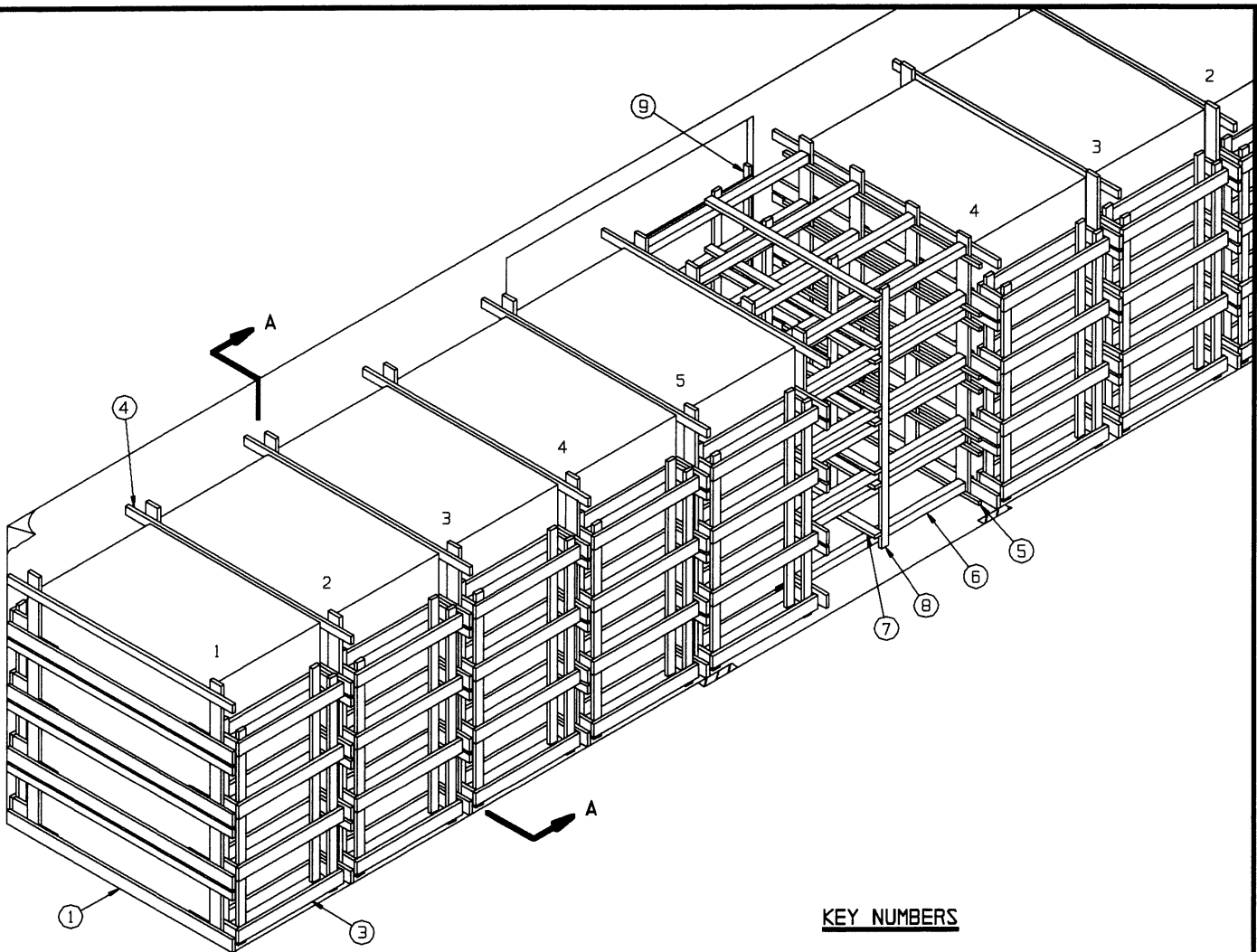
METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.



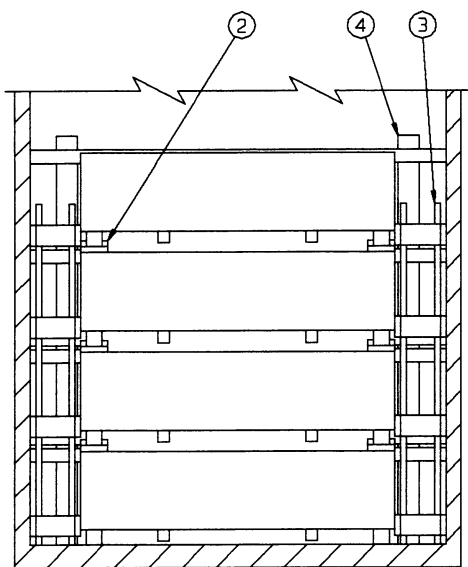
STRAP JOINT B

METHOD OF SECURING A STRAP JOINT WHEN USING A CRIMP-TYPE SEALER.

END-OVER-END LAP JOINT DETAILS



ISOMETRIC VIEW



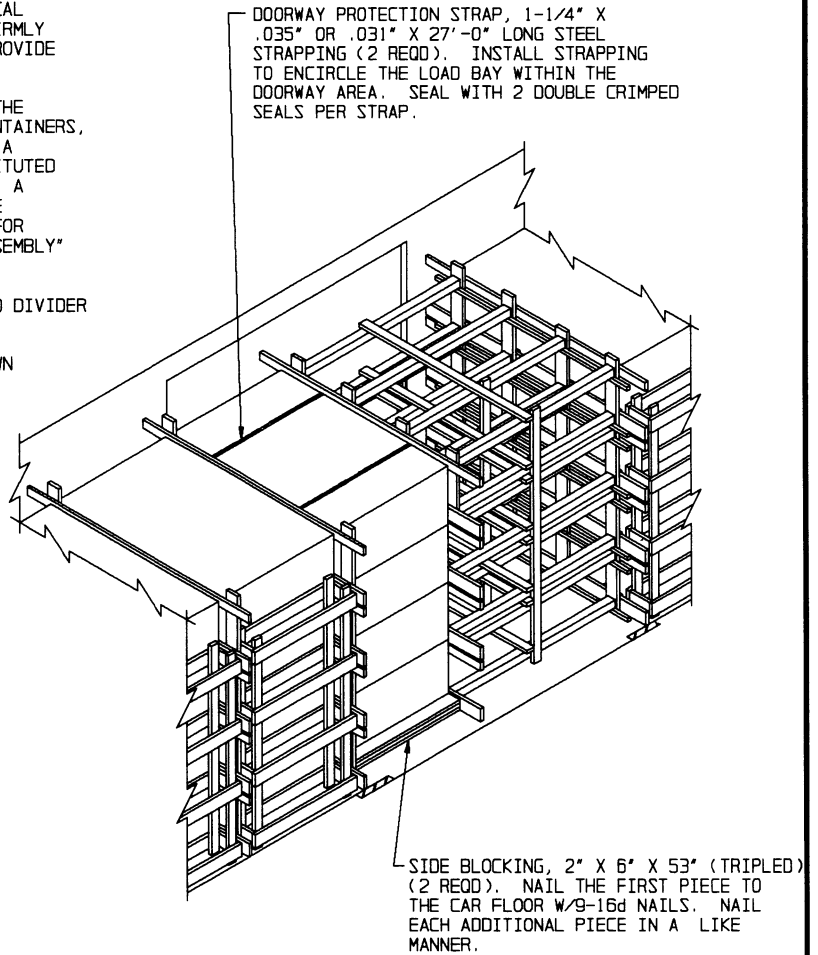
SECTION A-A

KEY NUMBERS

- ① END-WALL GATE (2 REQD). SEE THE "SEPARATOR/END-WALL GATE" DETAIL ON PAGE 8. NOTE OMISSION OF LOAD BEARING FILL PIECES ON THE CAR-WALL SIDE OF GATE SO THAT THE HORIZONTAL PIECES HAVE FULL BEARING AGAINST THE WALL. SEE GENERAL NOTES "E" AND "J" ON PAGE 2.
- ② COVER SPANNER ASSEMBLY (54 REQD, 2 PER UPPER LAYER CONTAINER). SEE THE DETAIL ON PAGE 9. PREPOSITION ONE UNDER EACH SKID OF EACH UPPER LAYER CONTAINER.
- ③ SIDE FILL ASSEMBLY (18 REQD). SEE THE DETAIL ON PAGE 9.
- ④ SEPARATOR GATE (7 REQD). SEE THE "SEPARATOR/END-WALL GATE" DETAIL ON PAGE 8.
- ⑤ CENTER GATE (2 REQD). SEE THE DETAIL AND NOTE ON PAGE 10. NOTE THAT THE INSTALLATION OF CERTAIN STRUT LEDGERS OF THE GATE MUST BE PERFORMED AT THE LOADING SITE TO PERMIT NAILING OF SOME LAYERS OF STRUTS MARKED ⑥, TO THE CENTER GATE VERTICALS.
- ⑥ STRUT, 4" X 4" BY CUT TO FIT BETWEEN VERTICALS OF CENTER GATES MARKED ⑤ (32 REQD). TOENAIL TO GATE VERTICALS W/2-16d NAILS AT EACH END.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" X 7'-4" (8 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. NOTE THAT THESE PIECES MUST BE INSTALLED AS EACH LAYER OF STRUTS IS COMPLETED DUE TO NEARNESS OF SOME STRUT LAYERS.
- ⑧ VERTICAL STRUT BRACING, 2" X 4" X 9'-0" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑨ DOORWAY PROTECTION (2 REQD). SEE THE DETAIL ON PAGE 11. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTE 5 ON PAGE 7.

SPECIAL NOTES:

1. A 36-CONTAINER LOAD IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. CONTAINERS MUST BE CENTERED AND STACKED IN VERTICAL ALIGNMENT BETWEEN THE SIDEWALLS OF THE CAR AND FIRMLY PUSHED AGAINST THE SEPARATOR/END-WALL GATES TO PROVIDE FOR A TIGHT LOAD.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS, AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE LAYER, A "FILLER ASSEMBLY" MAY BE SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER. HOWEVER, A MAXIMUM OF 4 FILLER ASSEMBLIES CAN BE USED IN THE DEPICTED LOAD. SEE THE "TYPICAL LCL PROCEDURES FOR OMITTED CONTAINER" ON PAGE 17 AND THE "FILLER ASSEMBLY" DETAIL ON PAGE 18.
4. IF THE BOX CAR TO BE LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 12 AND 13.
5. AN ALTERNATIVE FORM OF DOORWAY PROTECTION IS SHOWN ON THIS PAGE. WHEN USING THE ALTERNATIVE FORM, OMIT TWO SIDE FILL ASSEMBLIES AND FOLLOW THE PROCEDURES SHOWN ON THIS PAGE.



ALTERNATIVE DOORWAY PROTECTION

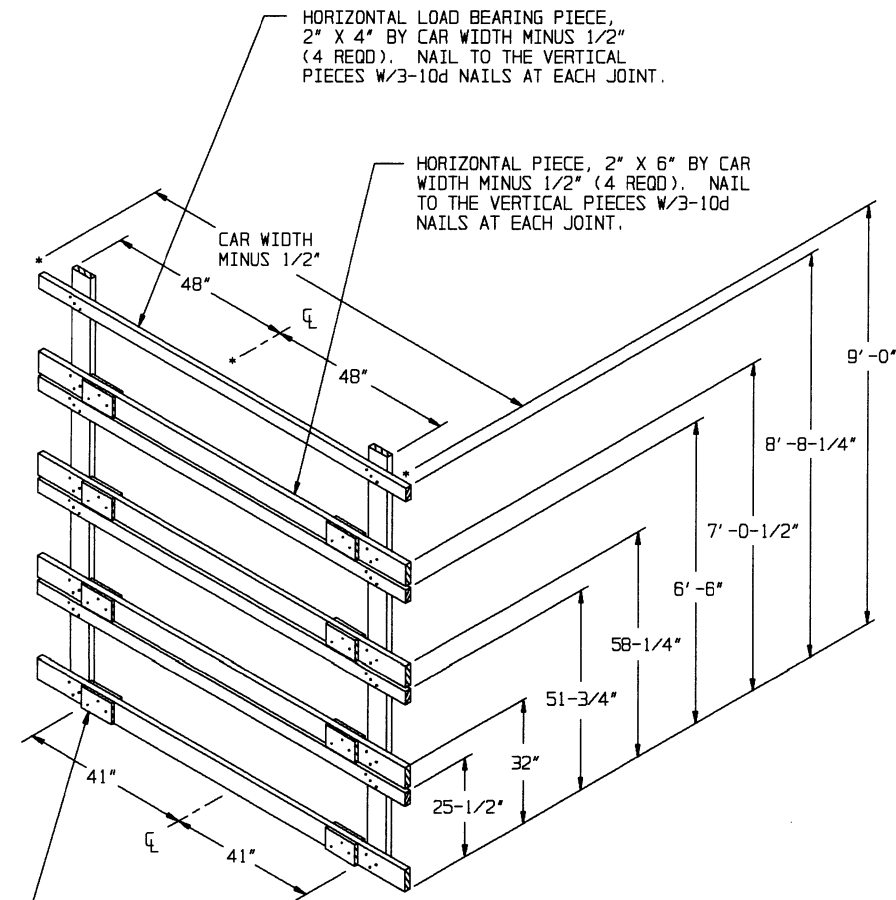
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 2"	455	76
1" X 6"	120	60
2" X 2"	128	43
2" X 3"	5	3
2" X 4"	1,036	691
2" X 6"	1,368	1,368
2" X 8"	241	321
4" X 4"	267	356
NAILS	NO. REQD	POUNDS
6d (2")	1,500	8-3/4
10d (3")	2,400	37
16d (3-1/2")	128	2-3/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER WITH HE MSBA3 CHARGE	36	104,400 LBS
DUNNAGE		5,885 LBS
TOTAL WEIGHT		110,285 LBS (APPROX)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER WITH INERT M6BA2 CHARGE	36	100,440 LBS
DUNNAGE		5,885 LBS
TOTAL WEIGHT		106,325 LBS (APPROX)



HORIZONTAL LOAD BEARING PIECE,
2" X 4" BY CAR WIDTH MINUS 1/2"
(4 REQD). NAIL TO THE VERTICAL
PIECES W/3-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 6" BY CAR
WIDTH MINUS 1/2" (4 REQD). NAIL
TO THE VERTICAL PIECES W/3-10d
NAILS AT EACH JOINT.

CAR WIDTH
MINUS 1/2"

48"

CL

48"

9'-0"

8'-8-1/4"

7'-0-1/2"

6'-6"

58-1/4"

51-3/4"

32"

25-1/2"

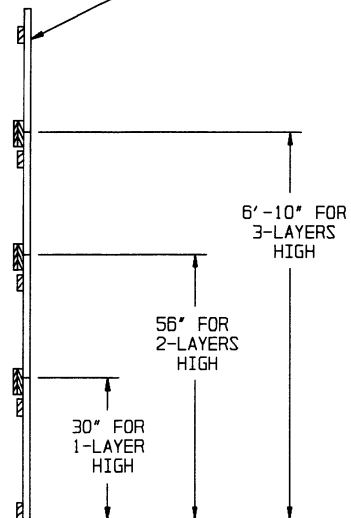
41"

CL

41"

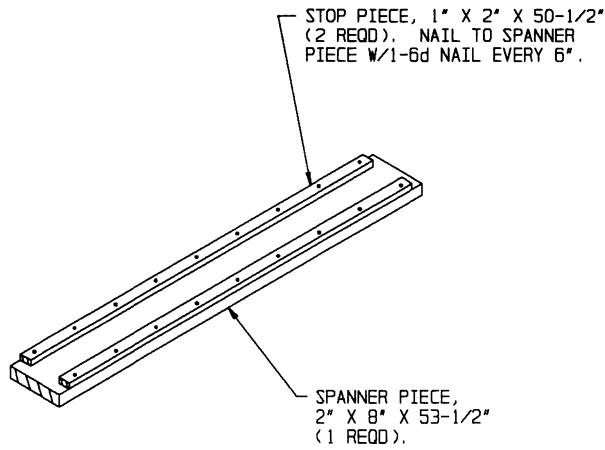
LOAD BEARING FILL PIECE,
1" X 6" X 9" (16 REQD).
NAIL TO THE HORIZONTAL
PIECES W/3-6d NAILS. OMIT
8 FILL PIECES ON ONE SIDE
OF THIS GATE WHEN USED
AS AN END-WALL GATE SO
THAT ALL HORIZONTAL PIECES
HAVE FULL BEARING ON THE
CAR WALL. WHEN USED AS AN
END-WALL GATE AND CAR HAS
A BOWED END-WALL, SEE GENERAL
NOTE "E" ON PAGE 2.

VERTICAL PIECE, 2" X 6" X 9'-0" FOR
4-LAYERS HIGH, 6'-10" FOR 3 LAYERS
HIGH, 56" FOR 2-LAYERS HIGH, AND
30" FOR 1-LAYER HIGH (2 REQD).

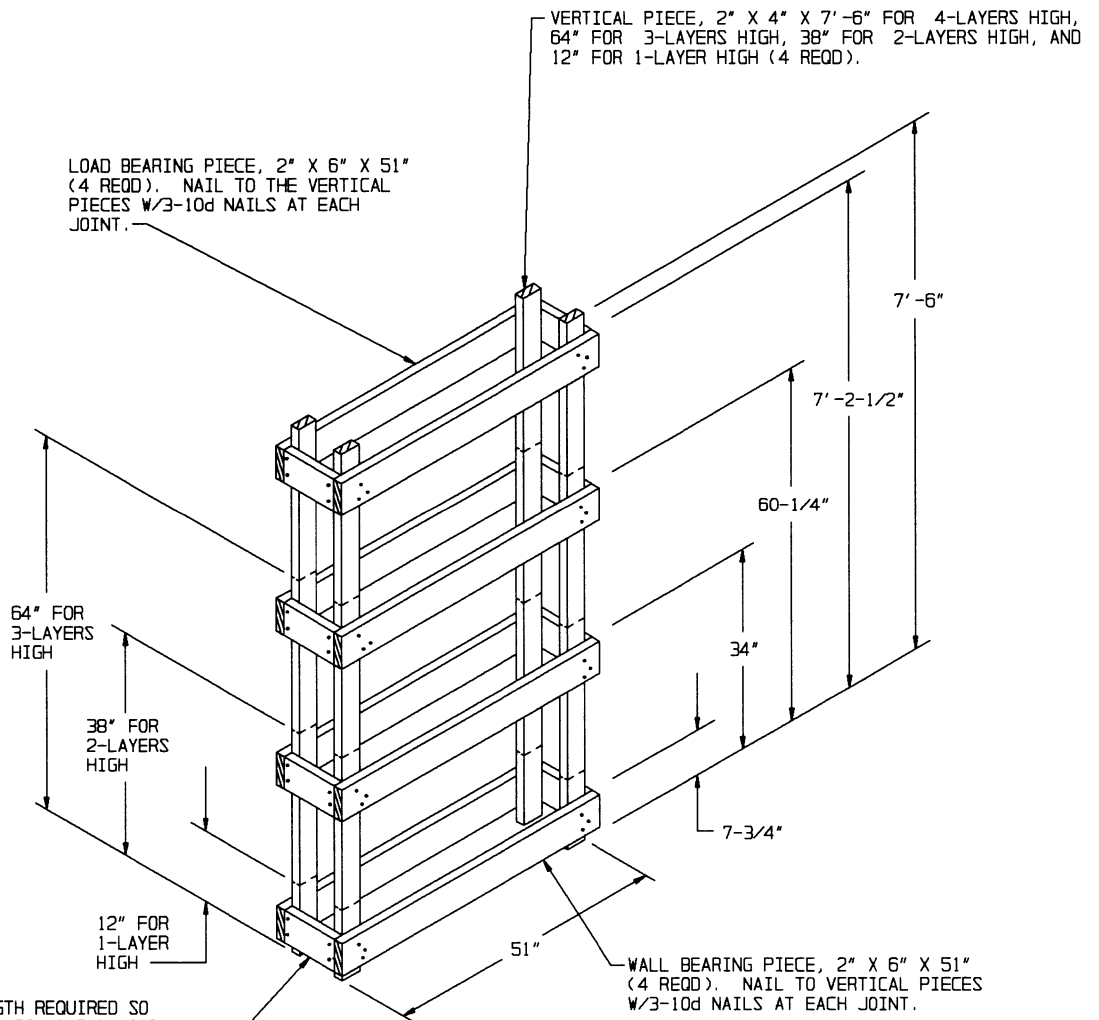


SEPARATOR/END WALL GATE

END VIEW



COVER SPANNER ASSEMBLY



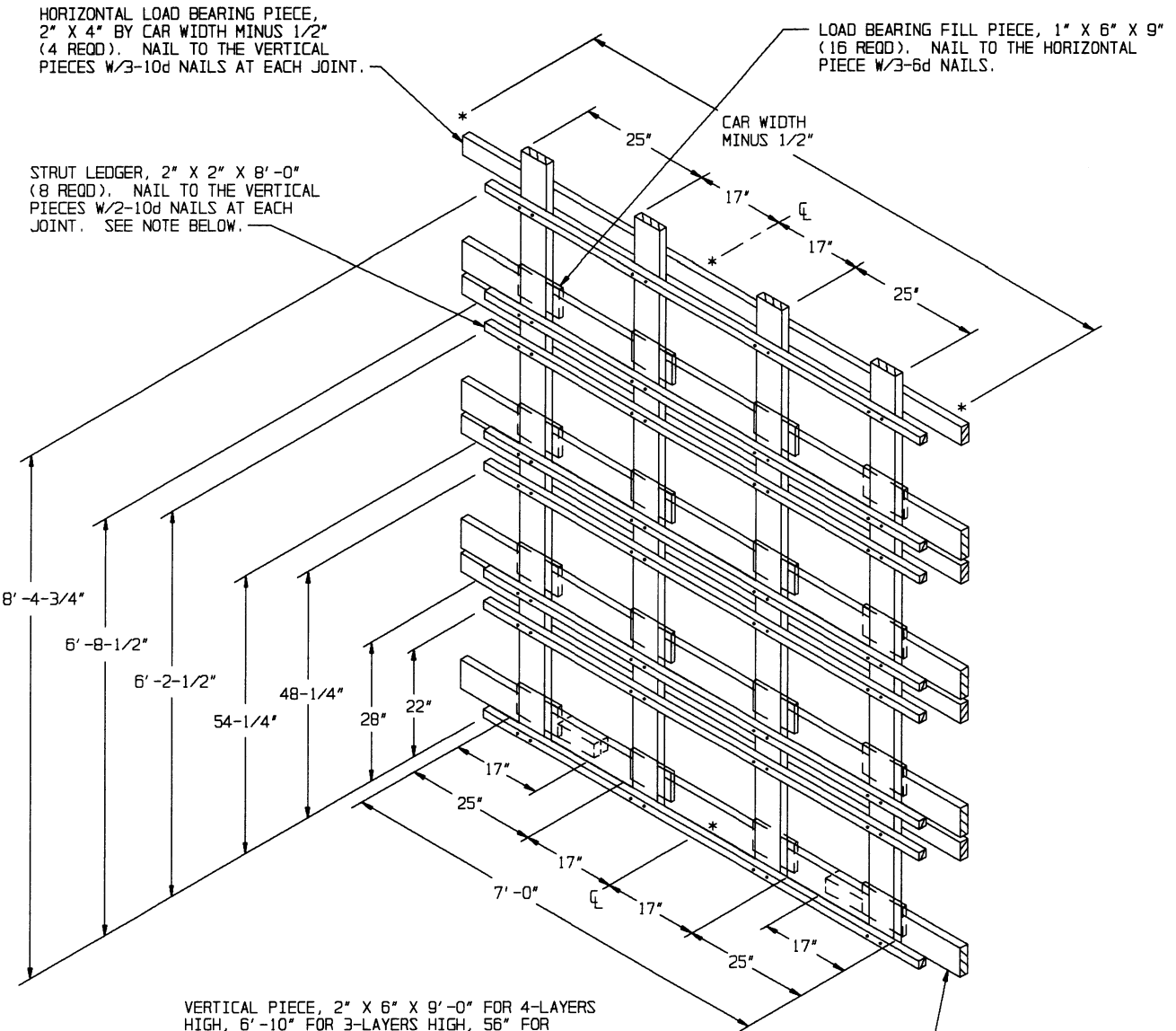
STRUT, 2" X 6" BY LENGTH REQUIRED SO THAT WIDTH OF ASSEMBLY FILLS THE VOID BETWEEN THE BOTTOM FRAME OF THE CONTAINER AND THE SIDE WALL OF THE CAR MINUS 1/2" (8 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

SIDE FILL ASSEMBLY

HORIZONTAL LOAD BEARING PIECE, 2" X 4" BY CAR WIDTH MINUS 1/2" (4 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

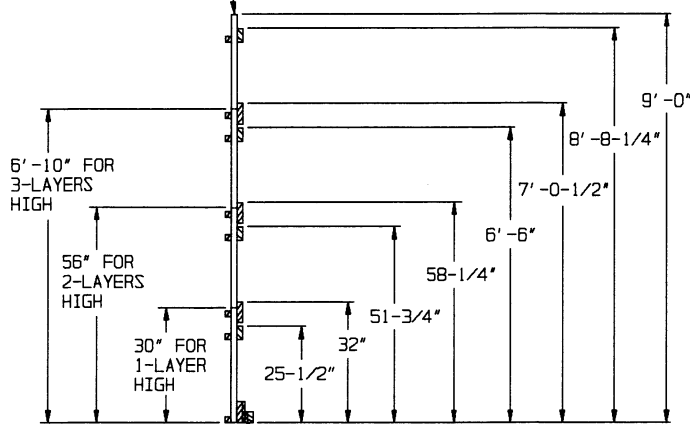
LOAD BEARING FILL PIECE, 1" X 6" X 9" (16 REQD). NAIL TO THE HORIZONTAL PIECE W/3-6d NAILS.

STRUT LEDGER, 2" X 2" X 8'-0" (8 REQD), NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT. SEE NOTE BELOW.



VERTICAL PIECE, 2" X 6" X 9'-0" FOR 4-LAYERS HIGH, 6'-10" FOR 3-LAYERS HIGH, 56" FOR 2-LAYERS HIGH, AND 30" FOR 1-LAYER HIGH (4 REQD).

HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (4 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

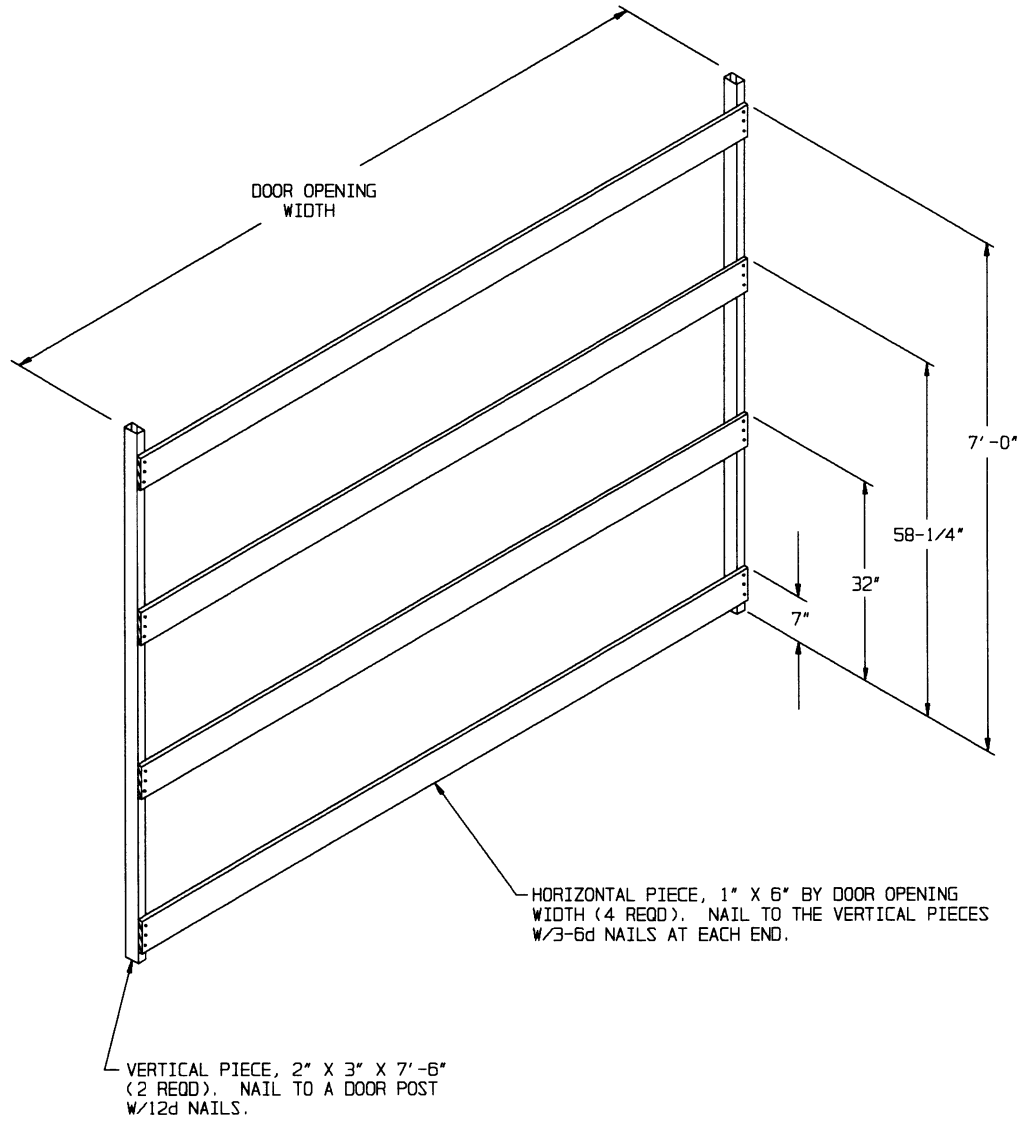


CENTER GATE

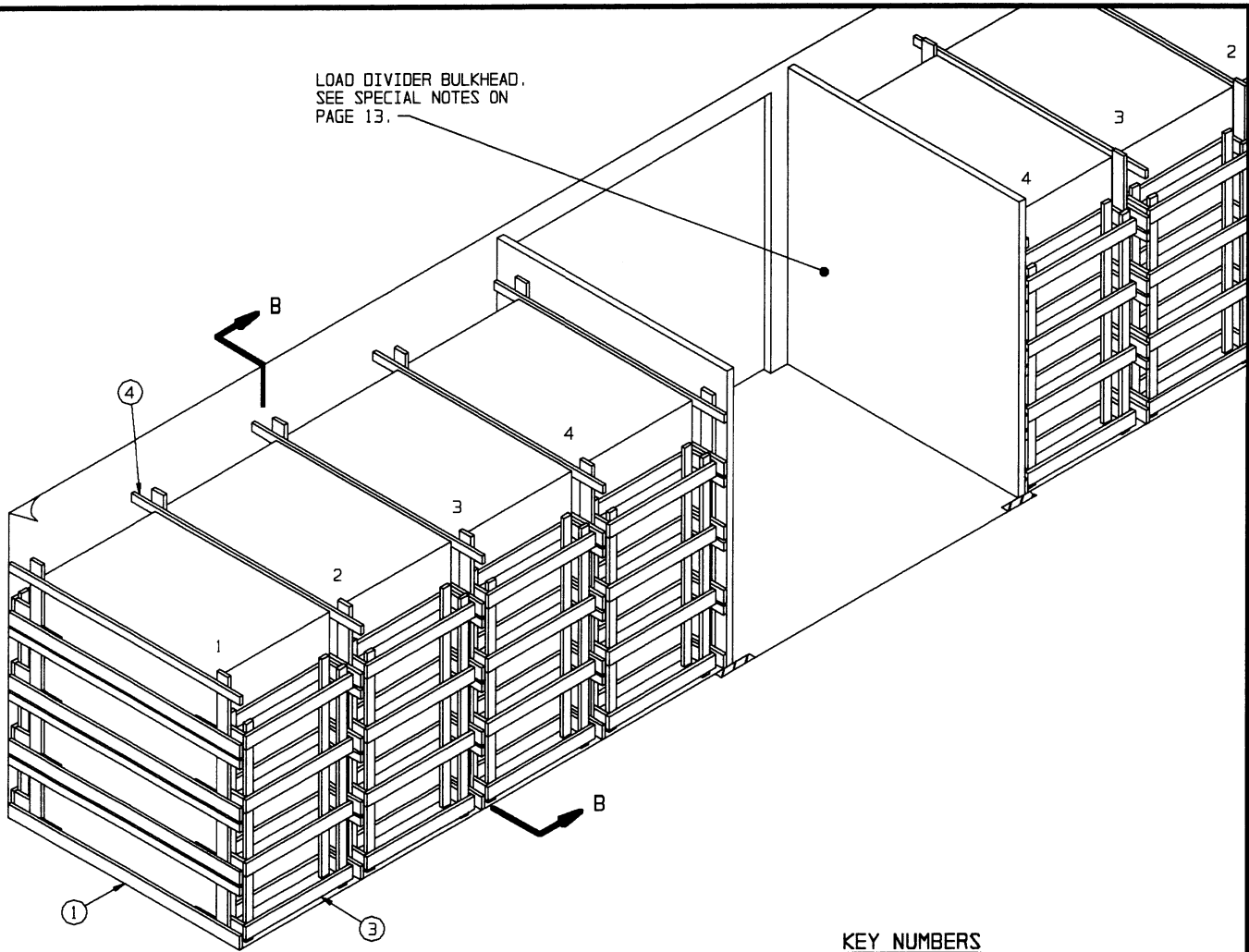
NOTE: DUE TO THE MINIMAL CLEARANCE BETWEEN SOME LAYERS OF STRUTS, THE STRUT LEDGER LOCATED AT THE 28", 54-1/4" AND 6'-8-1/2" HEIGHTS MUST BE INSTALLED ON THE GATE AT THE LOADING SITE TO PERMIT INSTALLATION AND TOENAILING OF THE LAYER OF STRUTS IMMEDIATELY BELOW.

END VIEW

HOLD-DOWN/STOP CLEAT, 2" X 3" BY CUT TO FIT BETWEEN LOAD BEARING FILL PIECE AND BOTTOM TUBE OF CONTAINER. (REF: 8") (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE HORIZONTAL PIECE W/2-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.



DOORWAY PROTECTION

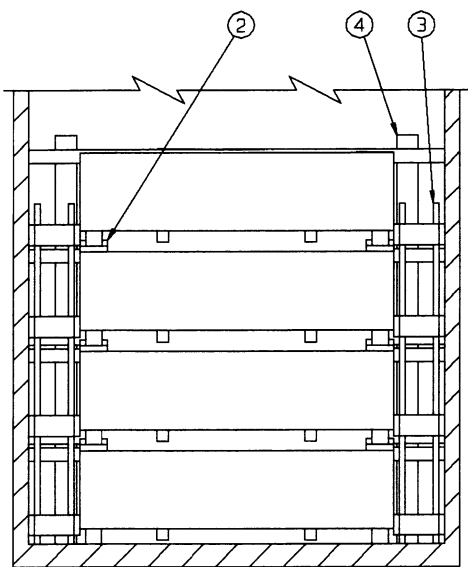


LOAD DIVIDER BULKHEAD.
SEE SPECIAL NOTES ON
PAGE 13.

ISOMETRIC VIEW

KEY NUMBERS

- ① END-WALL/BULKHEAD GATE (4 REOD). SEE THE "SEPARATOR/END-WALL GATE" DETAIL ON PAGE 8. NOTE OMISSION OF LOAD BEARING FILL PIECES ON THE CAR-WALL OR LOAD DIVIDER BULKHEAD SIDE OF THE GATE SO THAT HORIZONTAL PIECES HAVE FULL BEARING AGAINST THE END WALL AND/OR BULKHEAD. SEE GENERAL NOTES "E" AND "J" ON PAGE 2.
- ② COVER SPANNER ASSEMBLY (48 REOD, 2 PER UPPER LAYER CONTAINER). SEE THE DETAIL ON PAGE 9. PREPOSITION ONE UNDER EACH SKID OF EACH UPPER LAYER CONTAINER.
- ③ SIDE FILL ASSEMBLY (16 REOD). SEE THE DETAIL ON PAGE 9.
- ④ SEPARATOR GATE (6 REOD). SEE THE "SEPARATOR/END-WALL GATE" DETAIL ON PAGE 8.



SECTION B-B

SPECIAL NOTES:

(SPECIAL NOTES CONTINUED)

1. A 32-CONTAINER LOAD IS SHOWN IN A 50'-6" LONG CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND 10'-0" WIDE THRU DOOR OPENINGS. SEE THE GENERAL NOTES ON PAGE 3.
2. CONTAINERS MUST BE CENTERED AND STACKED IN VERTICAL ALIGNMENT BETWEEN THE SIDEWALLS OF THE CAR AND FIRMLY PUSHED AGAINST THE SEPARATOR/END-WALL GATES TO PROVIDE FOR A TIGHT LOAD. CONTAINERS MUST NOT EXTEND INTO THE DOORWAY AREA MORE THAN 2".
3. CAUTION: FOR CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS, ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO, OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSCO ARE NOT ACCEPTABLE, WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. THE DEPICTED PROCEDURES ARE APPLICABLE FOR CARS OF VARIOUS LENGTHS AND WIDTHS. THE AAR MECHANICAL DESIGNATION CLASS FOR THESE CARS, AS IDENTIFIED IN "THE OFFICIAL RAILWAY EQUIPMENT REGISTER" WILL BE RBL, XL, OR XLI.
4. THE USE OF LOAD DIVIDER EQUIPPED CARS WILL ELIMINATE THE NEED FOR CENTER GATES AND STRUTS WHICH ARE REQUIRED IN CONVENTIONAL BOX CAR LOADS. THIS WILL ACCOUNT FOR A CONSIDERABLE SAVING IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF THE DESIGNATED CONTAINERS. NOTICE: ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST FIFTEEN INCHES (15") OF TRAVEL ARE ACCEPTABLE. CAUTION: THE WEIGHT OF THE LOAD TO BE RETAINED BY ONE LOAD DIVIDER MUST NOT EXCEED ONE-HALF OF THE LOAD LIMIT WHICH IS STENCILED ON THE SIDE OF THE CAR.
5. BOX CARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8" 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 SIDEWALL. A "FILL PIECE" MUST BE INSTALLED IN THE VOID BETWEEN THE CAR SIDEWALL AND THE SIDE FILLER PANEL. SEE THE "TYPICAL TYPE A" VIEW ON PAGE 19 FOR GUIDANCE. IF THE BACK OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 19, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.
6. NOTICE: AFTER THE LOAD DIVIDER BULKHEADS ARE POSITIONED AGAINST THE LADING, AND THE LOCKING PINS ARE ENGAGED IN THE HOLES OF THE RAILS, THE LOWER BLOCKING PINS MUST BE INSPECTED TO ENSURE THAT THE PINS ARE FULLY ENGAGED IN THE LOCKING HOLES. IF THE PINS ARE NOT FULLY SEATED IN THE LOCKING HOLES, THE LINKAGE MECHANISM WILL 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 WHICH HAVE BEEN SELECTED FOR SECURING A LOAD DIVIDER BULKHEAD.

7. A "STRUT ASSEMBLY" MUST BE INSTALLED BETWEEN THE LOAD DIVIDER BULKHEADS IF THE LOAD IN EITHER END OF THE CAR WEIGHS 50,000 POUNDS OR MORE. DETAILS FOR USE BETWEEN 2-PIECE BULKHEADS AND BETWEEN 1-PIECE BULKHEADS ARE SHOWN ON PAGE 20. IN THE EVENT THAT A STRUT ASSEMBLY IS OF SUCH A LENGTH THAT THE 4" X 4" STRUTS ARE LONGER THAN 12'-0", A SPECIAL HOLD-DOWN ASSEMBLY MUST BE USED. SEE THE "STRUT ASSEMBLY HOLD-DOWN" DETAILS ON PAGE 21 FOR GUIDANCE.
8. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS, AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE LAYER, A "FILLER ASSEMBLY" MAY BE SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER. HOWEVER, A MAXIMUM OF 4 FILLER ASSEMBLIES CAN BE USED IN THE DEPICTED LOAD. SEE THE "TYPICAL LCL PROCEDURE FOR OMITTED CONTAINER" ON PAGE 17 AND THE "FILLER ASSEMBLY" DETAIL ON PAGE 18.
9. THESE PROCEDURES ARE ALSO APPLICABLE FOR SHIPMENT OF A 40-CONTAINER (4-LAYER) LOAD IN A 60'-8" LONG CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND HAVING A LOAD LIMIT OF NOT LESS THAN 122,000 POUNDS. STACKS MUST BE POSITIONED IN THE CAR ACCORDING TO THE "LOADING PLAN" SHOWN ON PAGE 22. A "STRUT ASSEMBLY" BETWEEN BULKHEADS WILL BE REQUIRED INCLUDING "STRUT ASSEMBLY HOLD-DOWNS".

(CONTINUED AT RIGHT)

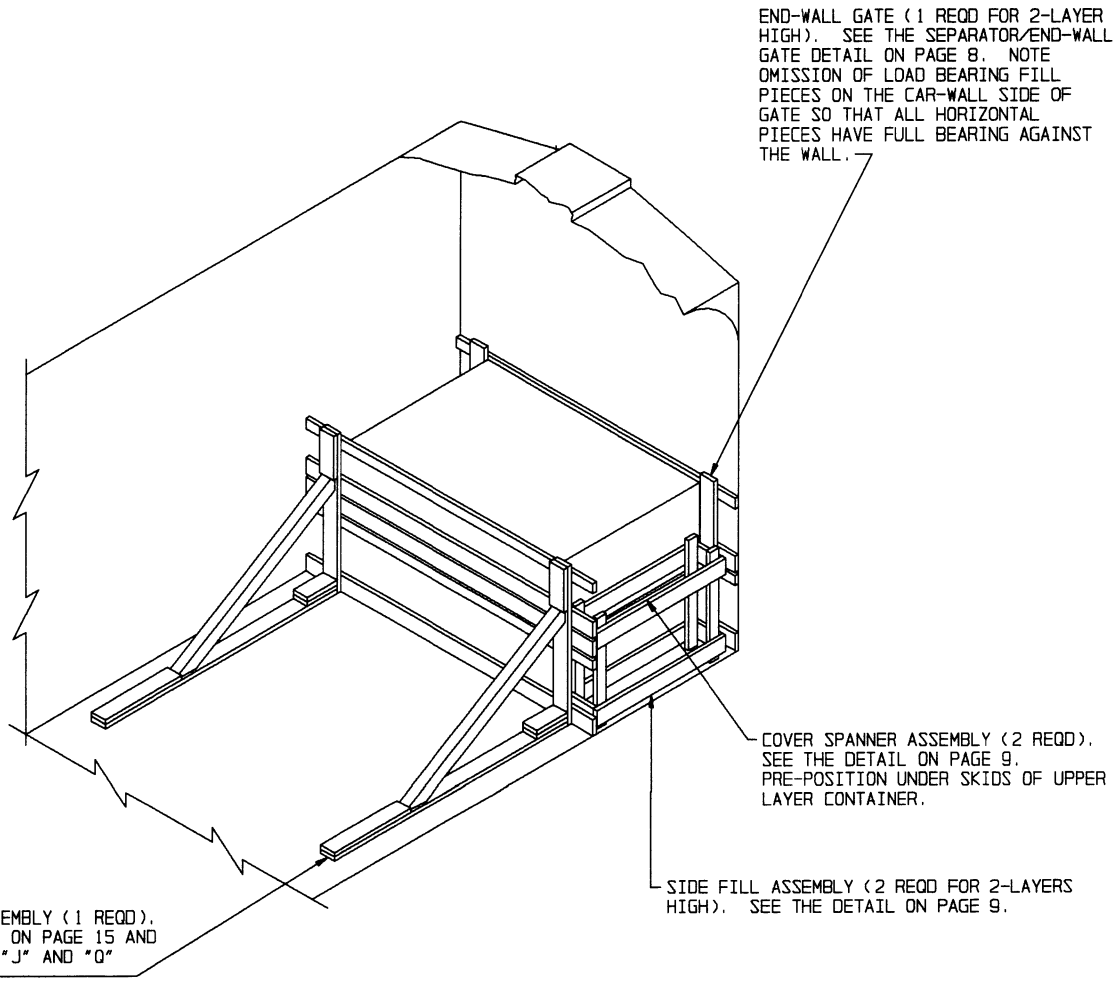
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 2"	404	67
1" X 6"	96	48
2" X 4"	845	564
2" X 6"	1,196	1,196
2" X 8"	214	285
NAILS	NO. REQD	POUNDS
6d (2")	1,344	8
10d (3")	1,760	27

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER WITH		
HE M58A3 CHARGE	32	92,800 LBS
DUNNAGE		4,355 LBS
TOTAL WEIGHT		97,155 LBS (APPROX)

LOAD AS SHOWN

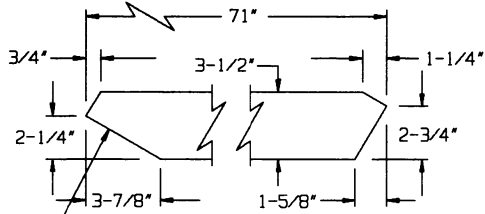
ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER WITH		
INERT M6BA2 CHARGE	32	89,280 LBS
DUNNAGE		4,355 LBS
TOTAL WEIGHT		93,635 LBS (APPROX)



ISOMETRIC VIEW

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF TWO CONTAINERS IS SHOWN IN A CONVENTIONAL BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR. TO USE THE KNEE BRACE ASSEMBLY AS SHOWN, A CONTAINER STACK MUST BE TWO CONTAINERS HIGH.
2. ONE (1) KNEE BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 8,500 POUNDS.

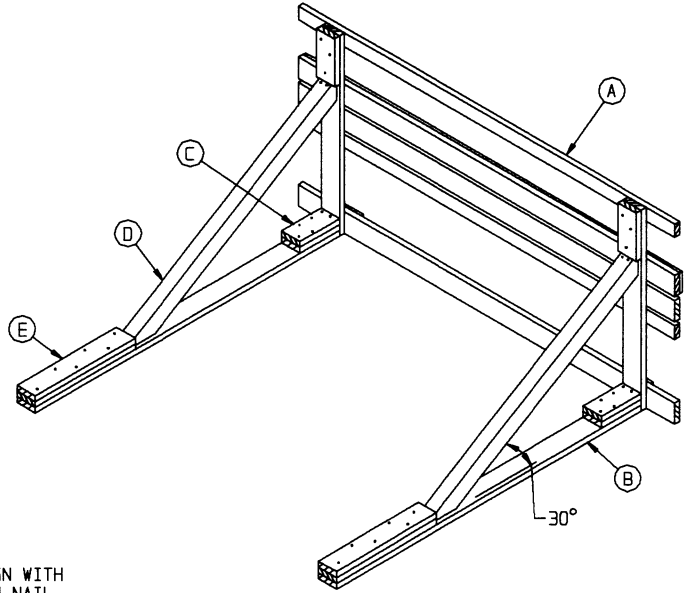


DIAGONAL BRACE ①

THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE FLOOR CLEAT MARKED ②.

KEY LETTERS

- ① LCL GATE (1 REQD). SEE THE DETAIL BELOW.
- ② FLOOR CLEAT, 2" X 6" X 7'-7-1/2" (2 REQD). ALIGN WITH GATE VERTICALS AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "O" ON PAGE 2.
- ③ POCKET CLEAT, 2" X 6" X 12" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE FLOOR CLEAT, PIECE MARKED ②, W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER AND TOENAIL IT TO THE GATE VERTICALS W/2-16d NAILS.
- ④ DIAGONAL BRACE, 4" X 4" BY CUT TO FIT (REF: 71") (2 REQD). SEE THE DETAIL ABOVE FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL OF THE GATE AND TO THE FLOOR CLEAT, MARKED ② AND ③, W/2-16d NAILS AT EACH END.
- ⑤ BACK-UP CLEAT, 2" X 6" X 36" (DOUBLED) (2 REQD). POSITION THE FIRST PIECE AGAINST THE DIAGONAL BRACE MARKED ④ AND NAIL TO THE FLOOR CLEAT MARKED ② W/6-40d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "J" ON PAGE 2.

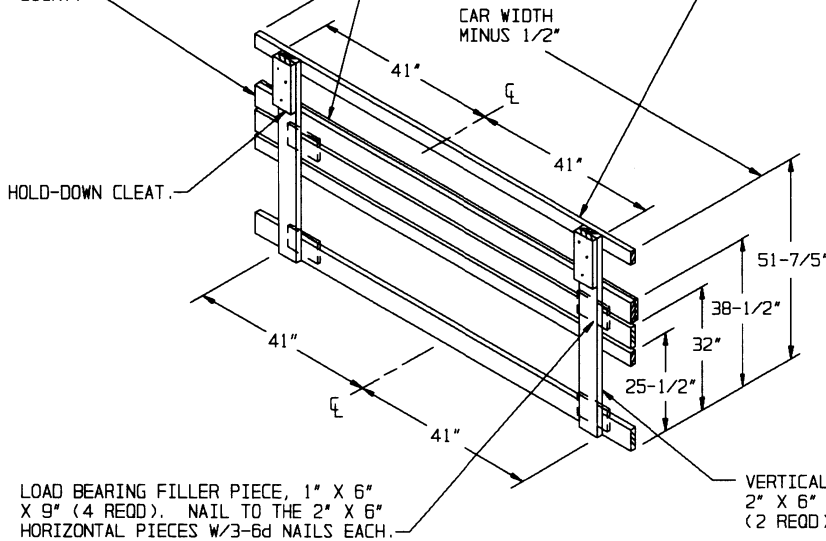


KNEE BRACE ASSEMBLY

HORIZONTAL LOAD BEARING FILLER PIECE, 1" X 6" BY CAR WIDTH MINUS 1/2" (1 REQD). LAMINATE TO THE UPPER 2" X 6" HORIZONTAL PIECE W/1-6d NAIL EVERY 8".

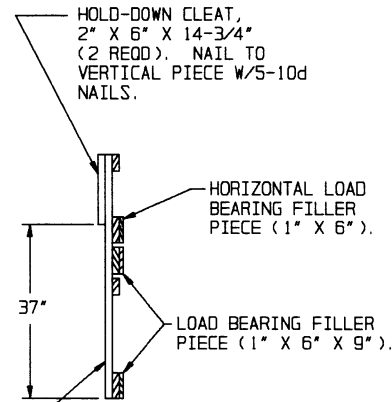
HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (3 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

HORIZONTAL LOAD BEARING PIECE, 2" X 4" BY CAR WIDTH MINUS 1/2" (2 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.



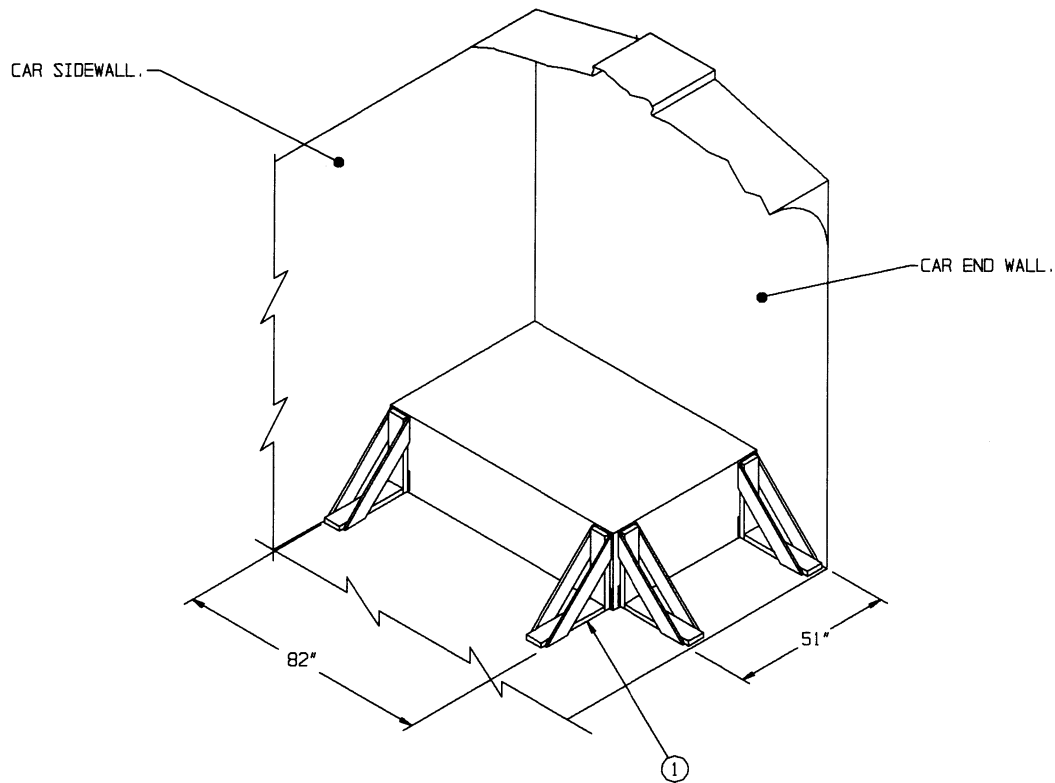
LOAD BEARING FILLER PIECE, 1" X 6" X 9" (4 REQD). NAIL TO THE 2" X 6" HORIZONTAL PIECES W/3-6d NAILS EACH.

VERTICAL PIECE 2" X 6" X 51-3/4" (2 REQD).



END VIEW

LCL GATE



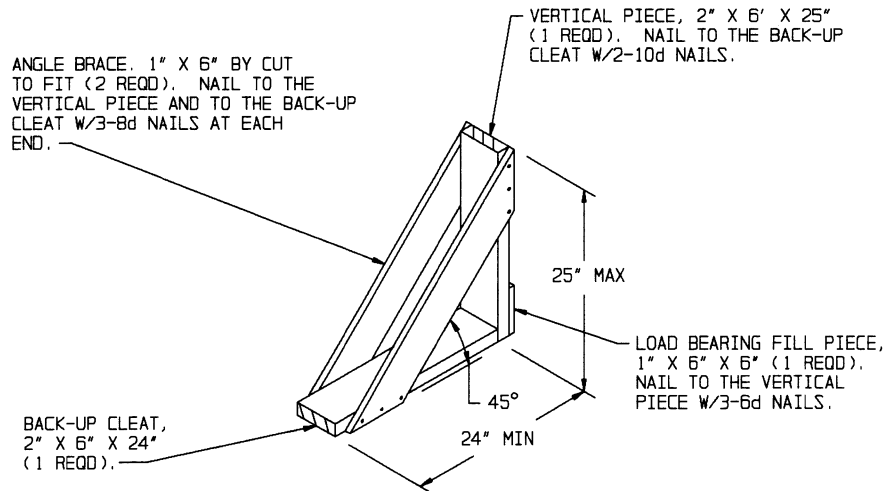
ISOMETRIC VIEW

KEY NUMBER

SPECIAL NOTES:

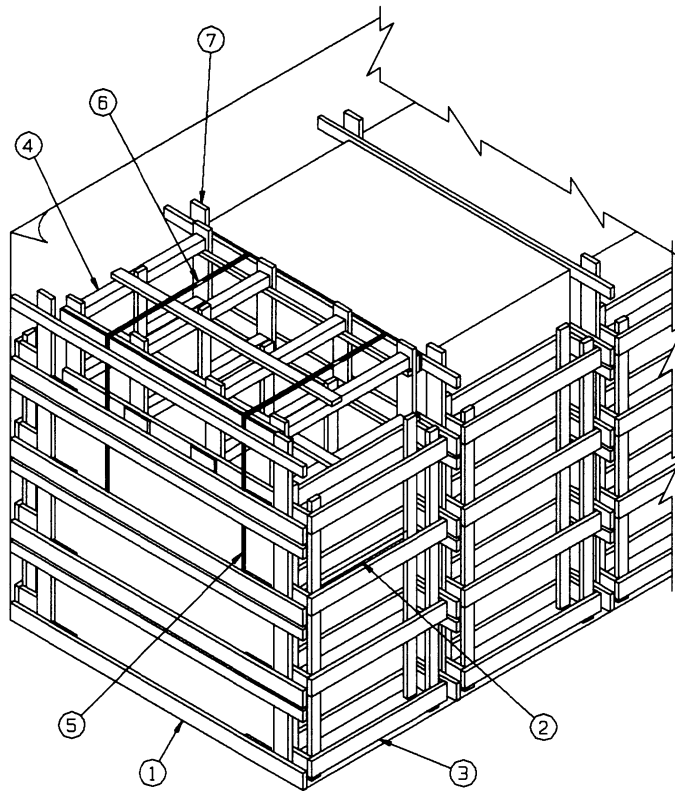
1. THESE OUTLOADING PROCEDURES ARE SHOWN DEPICTING THE USE OF "LCL BRACES".
2. CONTAINERS MUST NOT BE STACKED WHEN LCL BRACES ARE USED.
3. EACH BRACE AS APPLIED FOR LONGITUDINAL OR LATERAL BRACING WILL SUPPORT 2,000 OR 8,000 POUNDS RESPECTIVELY. A MINIMUM OF TWO (2) BRACES MUST BE USED IN THEIR RESPECTIVE DIRECTIONS.

- ① LCL BRACE (4 REQD). SEE THE "LCL BRACE" DETAIL BELOW. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTES "J" AND "Q" ON PAGE 2 AND SPECIAL NOTE 3 AT LEFT.



LCL BRACE

TYPICAL LCL - ONE CONTAINER LOAD



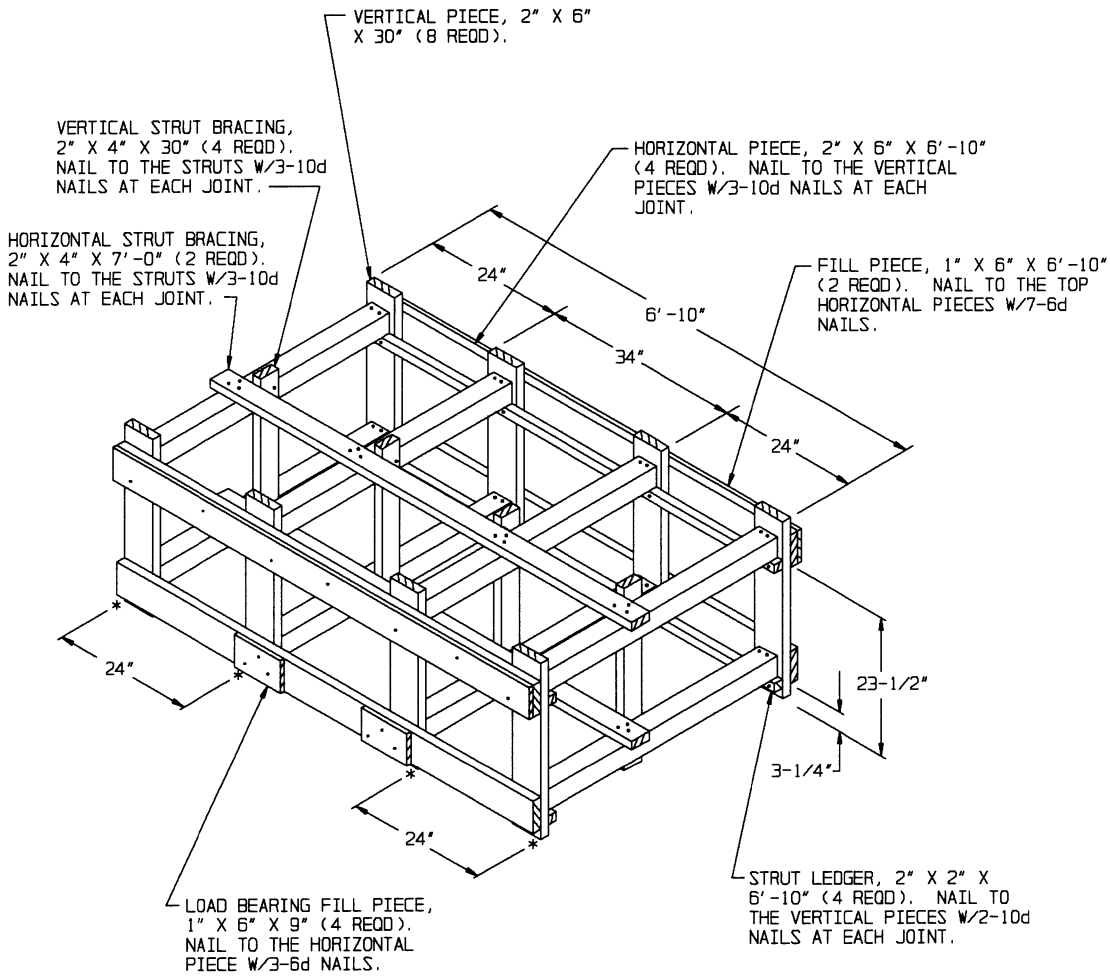
ISOMETRIC VIEW

KEY NUMBERS

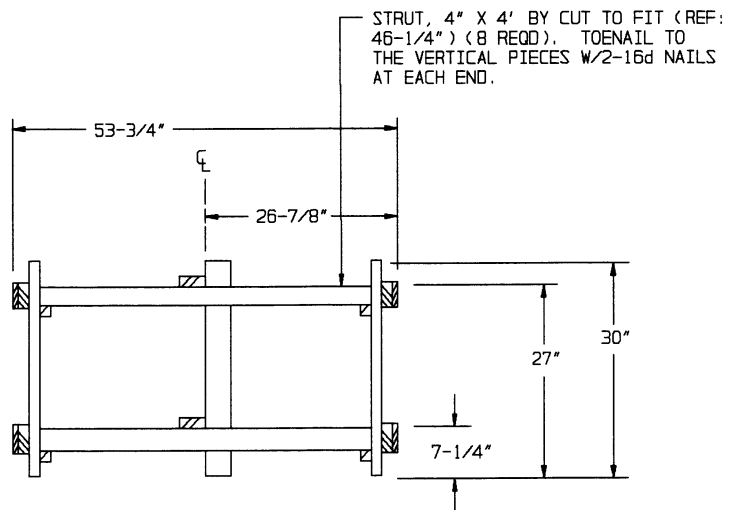
SPECIAL NOTES:

1. A PARTIAL VIEW OF A LOAD IN A CONVENTIONAL TYPE BOX CAR HAVING ONE CONTAINER OMITTED FROM THE TOP LAYER IS SHOWN AND A FILLER ASSEMBLY USED IN ITS PLACE.
2. IN A CONVENTIONAL TYPE BOX CAR OR IN A CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, A CONTAINER MAY BE OMITTED FROM THE TOP LAYER OF ANY STACK, EXCEPT THE STACK ADJACENT TO A CENTER GATE OR ADJACENT TO A LOAD DIVIDER BULKHEAD. HOWEVER, CONTAINERS WILL NOT BE OMITTED FROM TWO IMMEDIATELY ADJACENT STACKS.
3. THE OMISSION OF A FOURTH-LAYER CONTAINER IS SHOWN AS TYPICAL. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN. REFER TO THE APPLICABLE LOAD PAGES FOR THE BLOCKING AND BRACING REQUIREMENTS AND SPECIAL NOTES FOR THE BALANCE OF THE LOAD.

- ① END-WALL GATE (AS REQD). SEE THE "SEPARATOR/END-WALL GATE" DETAIL ON PAGE 8. NOTE THE OMISSION OF THE LOAD BEARING FILL PIECES ON THE CAR-WALL SIDE OF GATE SO THAT HORIZONTAL PIECES HAVE FULL BEARING AGAINST THE WALL.
- ② COVER SPANNER ASSEMBLY (AS REQD, 2 PER UPPER LAYER CONTAINER). SEE THE DETAIL ON PAGE 9. PREPOSITION UNDER EACH SKID OF EACH UPPER LAYER CONTAINER.
- ③ SIDE FILL ASSEMBLY (AS REQD). SEE THE DETAIL ON PAGE 9.
- ④ FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 18.
- ⑤ FILLER ASSEMBLY HOLD-DOWN STRAP, 1-1/4" X .035" OR .031" X 18'-0" LONG STEEL STRAPPING (2 REQD). PREPOSITION SO AS TO ENCIRCLE THE FILLER ASSEMBLY AND THE CONTAINER IMMEDIATELY BELOW. SECURE TO THE FILLER ASSEMBLY, PIECE MARKED ④, W/2-STAPLES.
- ⑥ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑦ SEPARATOR GATE (AS REQD). SEE THE "SEPARATOR/END-WALL GATE" DETAIL ON PAGE 8.

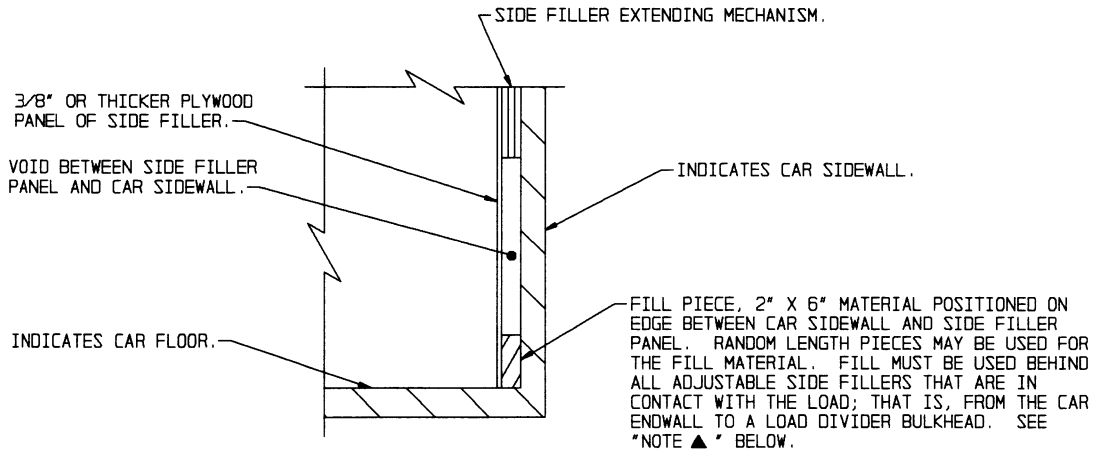


FILLER ASSEMBLY



END VIEW

DETAILS

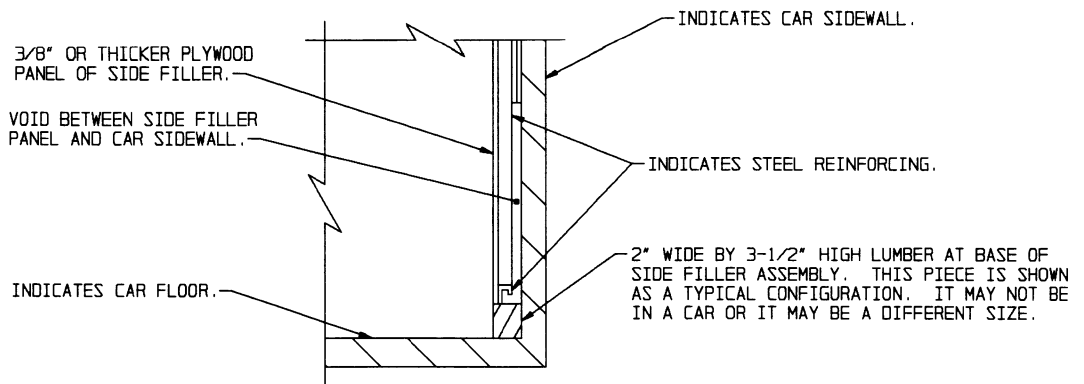


TYPICAL TYPE A

THIS VIEW SHOWS THE INSTALLATION OF A "FILL PIECE" IN A CAR EQUIPPED WITH A STANDARD ADJUSTABLE SIDE FILLER.

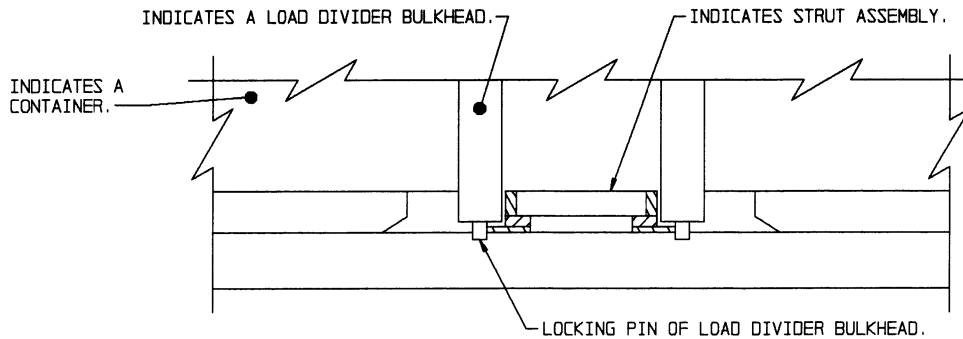
NOTE ▲:

NAILING OF "FILL PIECES" IS NOT REQUIRED EXCEPT THAT EACH "FILL PIECE" LOCATED NEAREST THE DOOR OPENINGS OF THE CAR WILL BE SECURED AGAINST LONGITUDINAL MOVEMENT W/1-6d NAIL DRIVEN THROUGH THE SIDE FILLER PANEL AND INTO THE "FILL PIECE".



TYPICAL TYPE B

THIS VIEW SHOWS A TYPICAL SECTION OF A CAR EQUIPPED WITH HEAVY DUTY, STEEL REINFORCED, ADJUSTABLE SIDE FILLERS. A "FILL PIECE", AS SHOWN IN THE "TYPICAL TYPE A" DETAIL ABOVE, IS NOT REQUIRED IN CARS SO EQUIPPED.

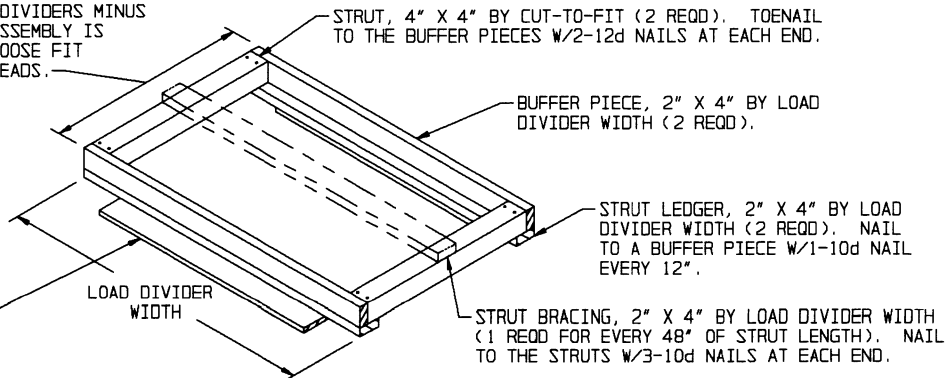


INSTALLATION OF STRUT ASSEMBLY

THIS SIDE ELEVATION VIEW SHOWS THE STRUT ASSEMBLY INSTALLED BETWEEN THE LOAD DIVIDER BULKHEADS. NOTE THE 1/2" TO 3/4" (TOTAL) SPACE INTENTIONALLY PROVIDED BETWEEN THE ASSEMBLY AND THE BULKHEADS.

FABRICATE TO FIT BETWEEN LOAD DIVIDERS MINUS 1/2" TO 3/4". CAUTION: THE ASSEMBLY IS INTENTIONALLY DESIGNED FOR A LOOSE FIT BETWEEN THE LOAD DIVIDER BULKHEADS.

HOLD DOWN, 1" X 8" BY CUT-TO-FIT BETWEEN LOCKING PINS AT EACH SIDE OF THE LOAD DIVIDER (2 REQ). NAIL TO THE STRUT LEDGER W/1-6d NAIL EVERY 12".

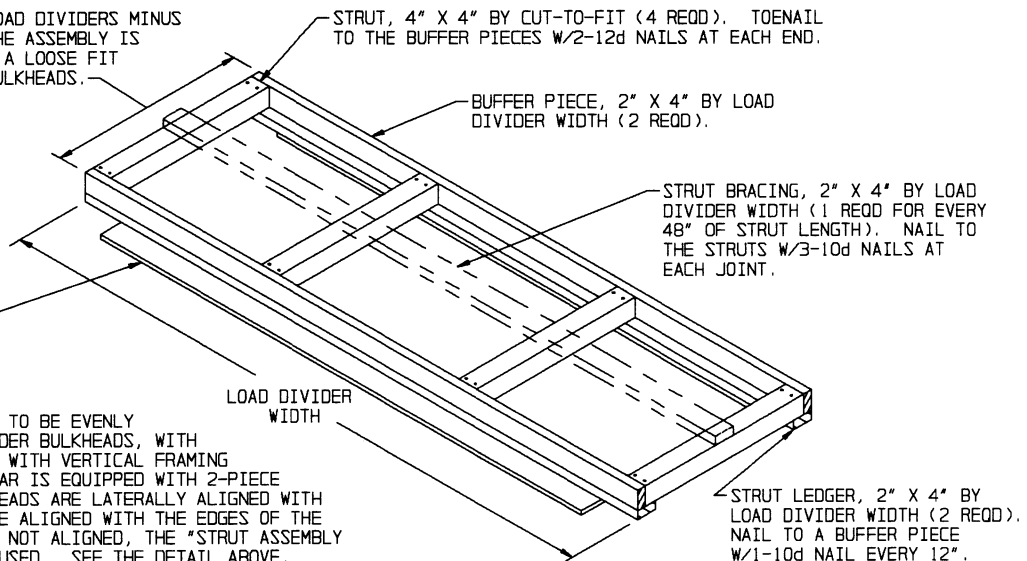


STRUT ASSEMBLY FOR 2-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS OF HAZARD CLASS AND DIVISION 1.1, 1.2, OR 1.3 EXPLOSIVES. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF HAZARD CLASS AND DIVISION 1.4 EXPLOSIVES, REGARDLESS OF THE WEIGHT OF THE LOAD. NOTE: TWO ASSEMBLIES AS SHOWN ARE REQUIRED FOR A 2-PIECE BULKHEAD IF NOT LATERALLY ALIGNED. SEE "NOTE ▲" BELOW.

FABRICATE TO FIT BETWEEN LOAD DIVIDERS MINUS 1/2" TO 3/4". CAUTION: THE ASSEMBLY IS INTENTIONALLY DESIGNED FOR A LOOSE FIT BETWEEN THE LOAD DIVIDER BULKHEADS.

HOLD DOWN, 1" X 8" BY CUT-TO-FIT BETWEEN LOCKING PINS AT EACH SIDE OF THE LOAD DIVIDER (2 REQ). NAIL TO THE STRUT LEDGER W/1-6d NAIL EVERY 12".

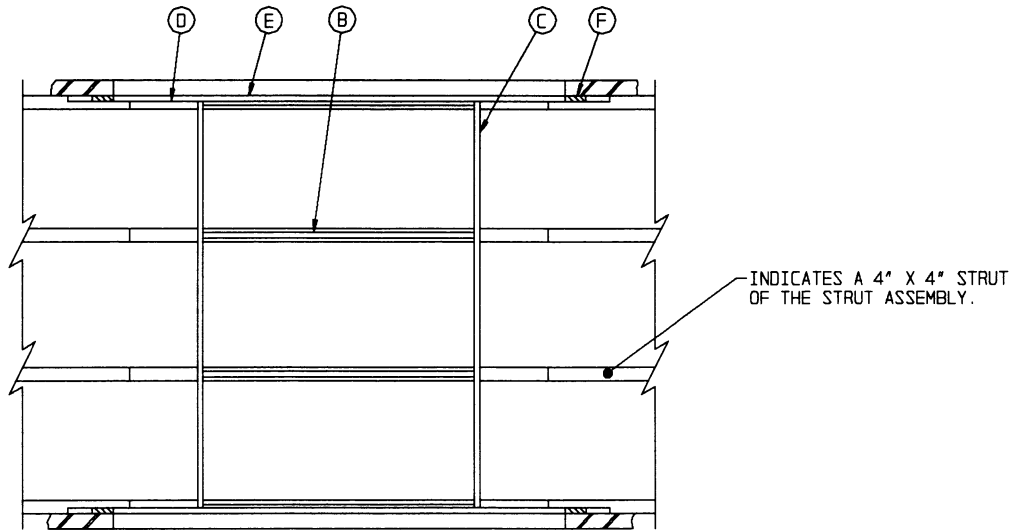


NOTE ▲:

THE TWO INTERMEDIATE STRUTS ARE TO BE EVENLY SPACED ON THE WIDTH OF THE DIVIDER BULKHEADS, WITH ADJUSTMENTS MADE SO AS TO ALIGN WITH VERTICAL FRAMING WITHIN THE BULKHEADS. IF THE CAR IS EQUIPPED WITH 2-PIECE DIVIDER BULKHEADS AND THE BULKHEADS ARE LATERALLY ALIGNED WITH EACH OTHER, THE STRUTS SHOULD BE ALIGNED WITH THE EDGES OF THE BULKHEADS; IF THE BULKHEADS ARE NOT ALIGNED, THE "STRUT ASSEMBLY FOR 2-PIECE BULKHEADS" MUST BE USED. SEE THE DETAIL ABOVE.

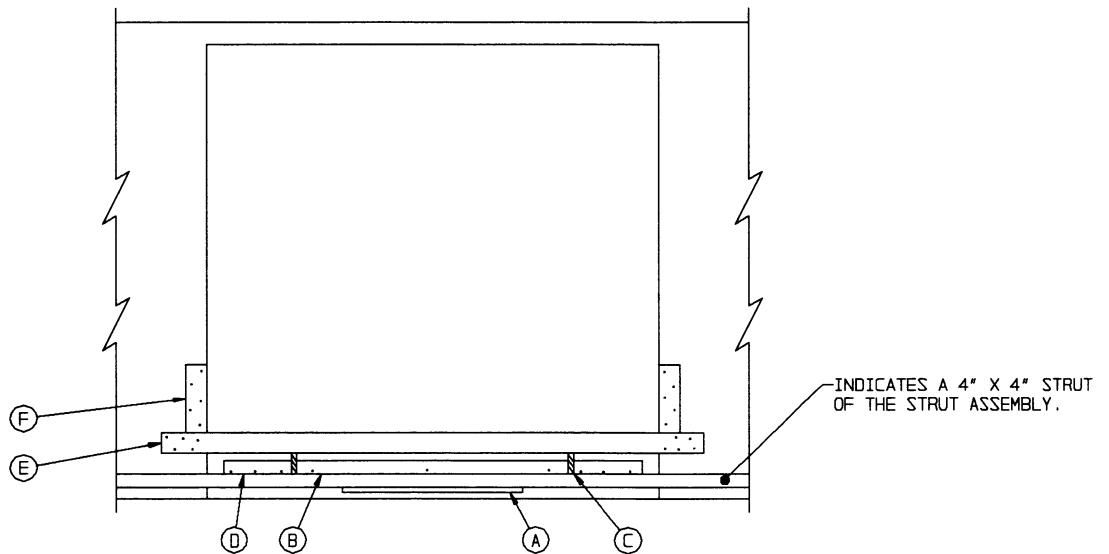
STRUT ASSEMBLY FOR 1-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS OF HAZARD CLASS AND DIVISION 1.1, 1.2, OR 1.3 EXPLOSIVES. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF HAZARD CLASS AND DIVISION 1.4 EXPLOSIVES, REGARDLESS OF THE WEIGHT OF THE LOAD.



PLAN VIEW OF STRUT ASSEMBLY HOLD-DOWN

THIS PLAN VIEW AND THE SIDE ELEVATION VIEW BELOW DEPICT THE HOLD-DOWN BLOCKING WHICH IS REQUIRED WHEN THE STRUTS OF THE "STRUT ASSEMBLY" USED IN A LOAD DIVIDER CAR ARE LONGER THAN 12'-0". NOTE THAT THE SPECIAL STRUT HOLD-DOWN AND THE STRUT ASSEMBLY ARE ONLY REQUIRED IF THE LOAD BEHIND EITHER DOOR IS MORE THAN 50,000 POUNDS.



SIDE ELEVATION VIEW OF STRUT ASSEMBLY HOLD-DOWN

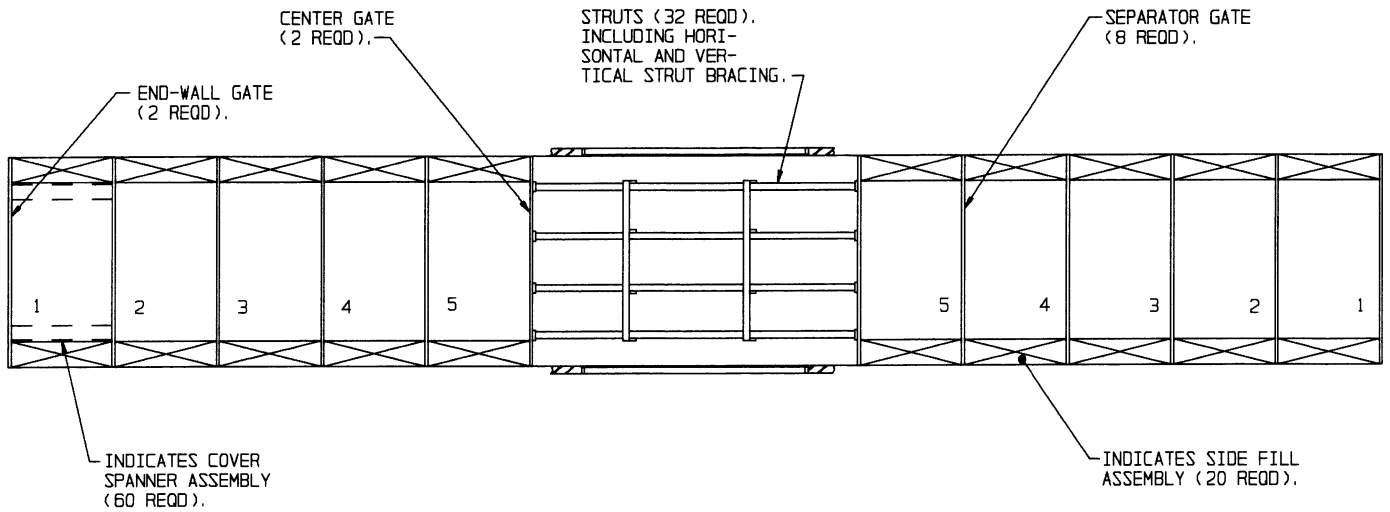
KEY LETTERS

(KEY LETTERS CONTINUED)

- (A) FILLER PIECE, 2" X 4" X 48" (4 REQD). POSITION SO AS TO BE CENTERED IN THE DOORWAY AND NAIL TO THE BOTTOM SURFACE OF A STRUT W/4-10d NAILS.
- (B) SPACER PIECE, 2" X 4" X 72" (4 REQD). POSITION ON EDGE AND SO AS TO BE CENTERED IN THE DOORWAY AREA AND TOENAIL TO A STRUT W/3-12d NAILS ON EACH SIDE.
- (C) HOLD-DOWN PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT IF THE CAR HAS PLUG DOORS, OR 2" X 6" BY CAR WIDTH PLUS 4" IF THE CAR HAS CONVENTIONAL SLIDING DOORS) (2 REQD). NAIL TO EACH PIECE MARKED (B) W/2-12d NAILS AND TOENAIL TO THE STRUTS W/2-12d NAILS AT EACH JOINT.

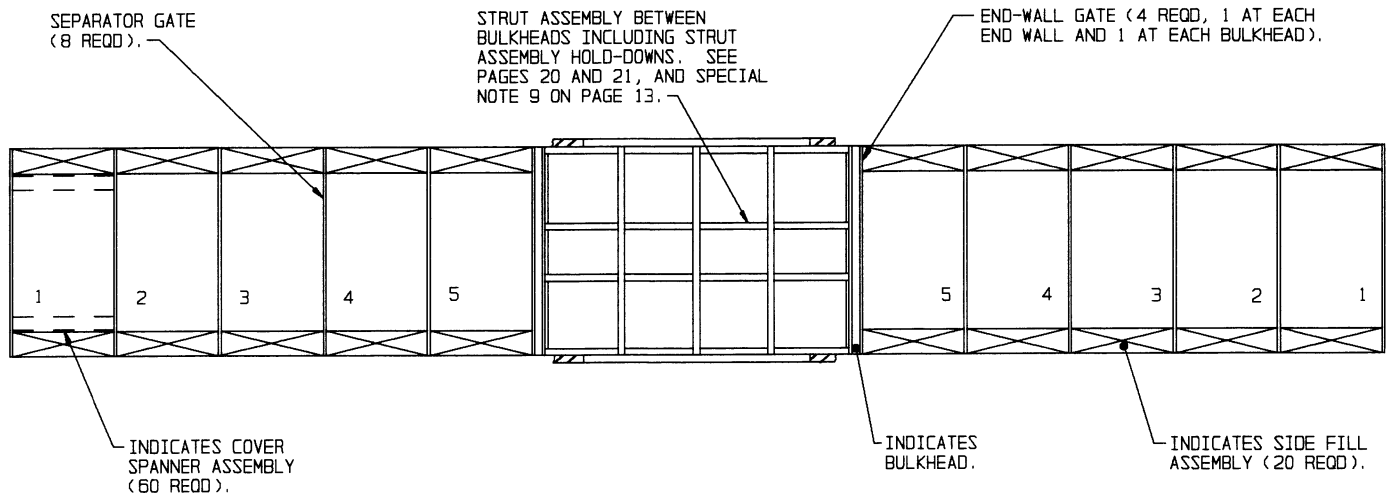
- (D) BRACE PIECE, 4" X 4" X 18" (8 REQD). POSITION AGAINST A PIECE MARKED (C) AND TOENAIL TO A STRUT W/3-12d NAILS ON EACH SIDE.
- (E) DOOR SPANNER PIECE, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO A CAR DOOR POST/SIDE WALL OR TO A NAILING STRIP W/5-12d NAILS AT EACH END. NOTE: PRIOR TO NAILING THESE PIECES IN PLACE, THE STRUTS OF THE STRUT ASSEMBLY ARE TO BE PRESSED DOWNWARD UNTIL THE PIECES MARKED (A) ARE TOUCHING OR ALMOST TOUCHING THE FLOOR OF THE CAR.
- (F) HOLD-DOWN CLEAT, 2" X 6" X 18" (4 REQD). NAIL TO A CAR DOOR POST/SIDE WALL OR TO A NAILING STRIP W/5-12d NAILS.

(CONTINUED AT RIGHT)



LOADING PLAN

A 40-CONTAINER (4 LAYER) LOAD IS SHOWN IN A 60'-8" LONG CONVENTIONAL BOX CAR HAVING A LOAD LIMIT OR NOT-LESS-THAN 124,000 POUNDS. THE "KEY NUMBERS" AND "SPECIAL NOTES" ON PAGES 6 AND 7 APPLY TO THIS LOAD.



LOADING PLAN

A 40-CONTAINER (4-LAYER) LOAD IS SHOWN IN A 60'-8" LONG BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND HAVING A LOAD LIMIT OF NOT-LESS-THAN 122,000 POUNDS. THE "KEY NUMBERS" AND "SPECIAL NOTES" ON PAGES 12 AND 13 APPLY TO THIS LOAD.