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DATE 11/28/95

LOADING AND BRACING (CL & LCL) IN BOXCARS[⊕] OF MAVERICK (AGM-65) MISSILES PACKED IN CNU-263/E SHIPPING AND STORAGE CONTAINERS

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⊕ CAUTION: THIS OUTLOADING DRAWING INCLUDES PROCEDURES FOR CONVENTIONAL TYPE BOXCARS AND CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND		DRAFTSMAN	TECHNICIAN
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		DECEMBER 1995	
U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL		CLASS	DIVISION
		DRAWING	FILE
		19	48
		8513	SP5K4

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 THE MAVERICK MISSILE PACKED IN THE CNU-263/E CONTAINER. SEE THE CONTAINER STACK DETAIL ON PAGE 5. SUBSEQUENT REFERENCE TO CONTAINER MEANS THE CNU-263/E CONTAINER WITH CONTENTS. LOADING OF THIS ITEM IS LIMITED TO NOT MORE THAN THREE LAYERS IN HEIGHT.
- C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOX-CARS AND FOR SHIPMENTS IN CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
- D. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE MAVERICK MISSILES IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE 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 ENDS CAN BE USED, HOWEVER, IF AN ENDWALL IS BOWED OUTWARD MORE THAN 2" EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. REFER TO PAGE 14 FOR GUIDANCE.
- 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 IN ADDITION TO AND IN CONJUNCTION WITH EACH CAR SEAL 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. THE USE OF AN OFFSET LOADING PATTERN WILL FACILITATE LOADING AND UNLOADING OPERATIONS IN THE DOORWAY AREA OF THE CAR. UNLESS PROHIBITED WITHIN THE SPECIAL NOTES, A FULL LOAD SHOULD BE BUILT USING AN OFFSET LOADING PATTERN. FOR INSTANCE, A LOAD CONSISTING OF AN EVEN NUMBER OF LOAD UNITS AND HAVING TWO MORE LOAD UNITS IN ONE END OF THE CAR THAN IN THE OPPOSITE END, OR A LOAD CONSISTING OF AN ODD NUMBER OF LOAD UNITS AND HAVING ONE MORE LOAD UNIT IN ONE END THAN IN THE OTHER IS CONSIDERED TO BE AN OFFSET LOAD.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH MAVERICK MISSILES, 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.

(CONTINUED AT RIGHT)

- J. 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".
- K. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER 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.
- L. 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.
- M. 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 15 FOR GUIDANCE.
- N. 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.
- O. 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 UNITS. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE RAILCAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR.
- P. 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.
- Q. 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.

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 OR 2, 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.

GENERAL NOTES

(FOR CONVENTIONAL TYPE BOXCARS)

- R. 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 "DOORWAY BLOCKING" PIECES IN THE FULL LOADS AND TO THE NAILING TO THE CAR FLOOR 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 KEY NUMBERS. SEE GENERAL NOTE "K" ON PAGE 2.
- S. NOTICE: WHEN POSITIONING CONTAINERS IN A CAR, THEY SHOULD BE PLACED TIGHTLY AGAINST A CAR SIDEWALL AND 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 THE COVER FLANGE WHICH IS THE STRONG POINT OF THE CONTAINER. PADDING, OF 2" THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE LADING.
- T. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING. SEE THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 12. 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.
- U. 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 15 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.
- V. WHERE 2" X 2" PIECES ARE SPECIFIED FOR STRUT LEDGERS, 2" X 4" MATERIAL MAY BE SUBSTITUTED, IF DESIRED.
- W. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

GENERAL NOTES

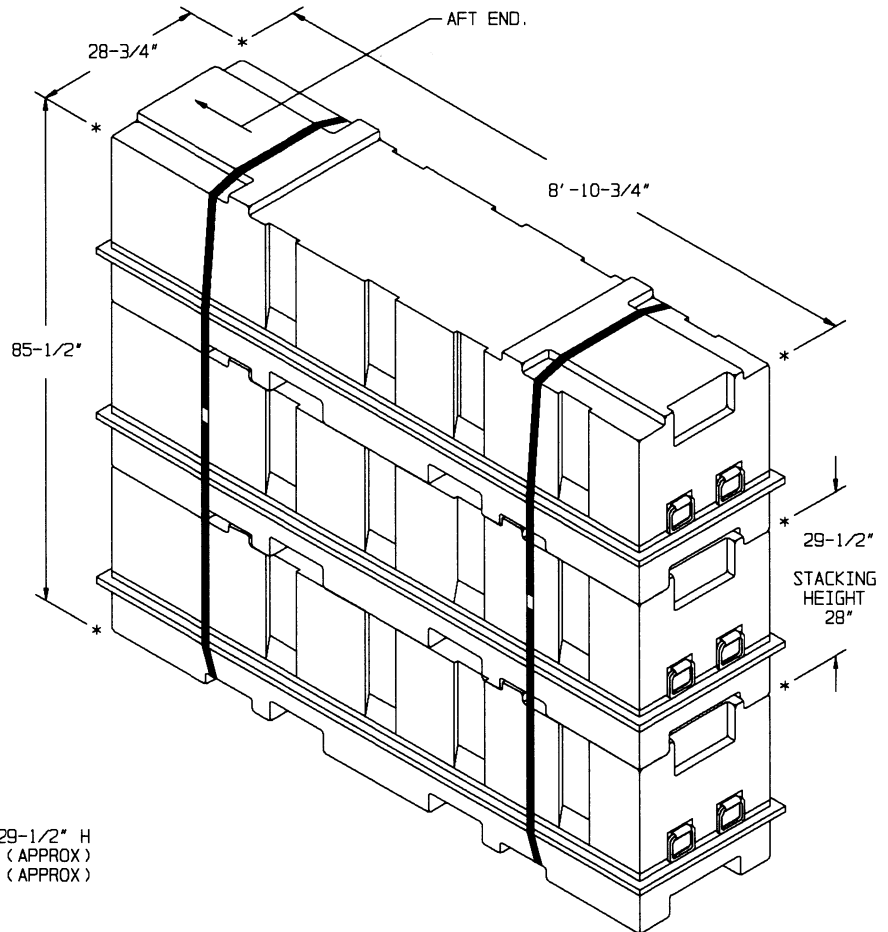
(GENERAL NOTES CONTINUED)

(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 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.
- 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 MAVERICK MISSILES. NOTICE: ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING 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 24 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 24, 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 SHOWN IN THE LOAD ON PAGE 10. FOR A FULL LOAD OF THE DEPICTED CNU-263/E CONTAINERS, A STRUT ASSEMBLY IS NOT REQUIRED BETWEEN THE LOAD DIVIDER BULKHEADS.
- 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 CONTAINERS 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.

(CONTINUED AT RIGHT)

1. THE METHOD OF OMITTING A CONTAINER DEPICTED ON PAGE 17 MAY BE USED TO ADJUST A LOAD QUANTITY DOWNWARD BY OTHER THAN A MULTIPLE OF A LOAD UNIT.
 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 OR TWO-HIGH LOADING PATTERN. INSTALL CENTER GATES AND STRUTS AS SHOWN ON PAGE 6 OR 8 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 LCL BRACES AS SHOWN ON PAGE 22 OR WITH KNEE BRACE ASSEMBLIES, AS SHOWN ON PAGE 21.
- GG. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD. SEE PAGE 11.



CNU 263/E CONTAINER

DIMENSIONS - - - 106-3/4" L X 28-3/4" W X 29-1/2" H
 CUBE - - - - - 52.4 CU FT (APPROX)
 GROSS WEIGHT - - - - - 710 LBS (APPROX)

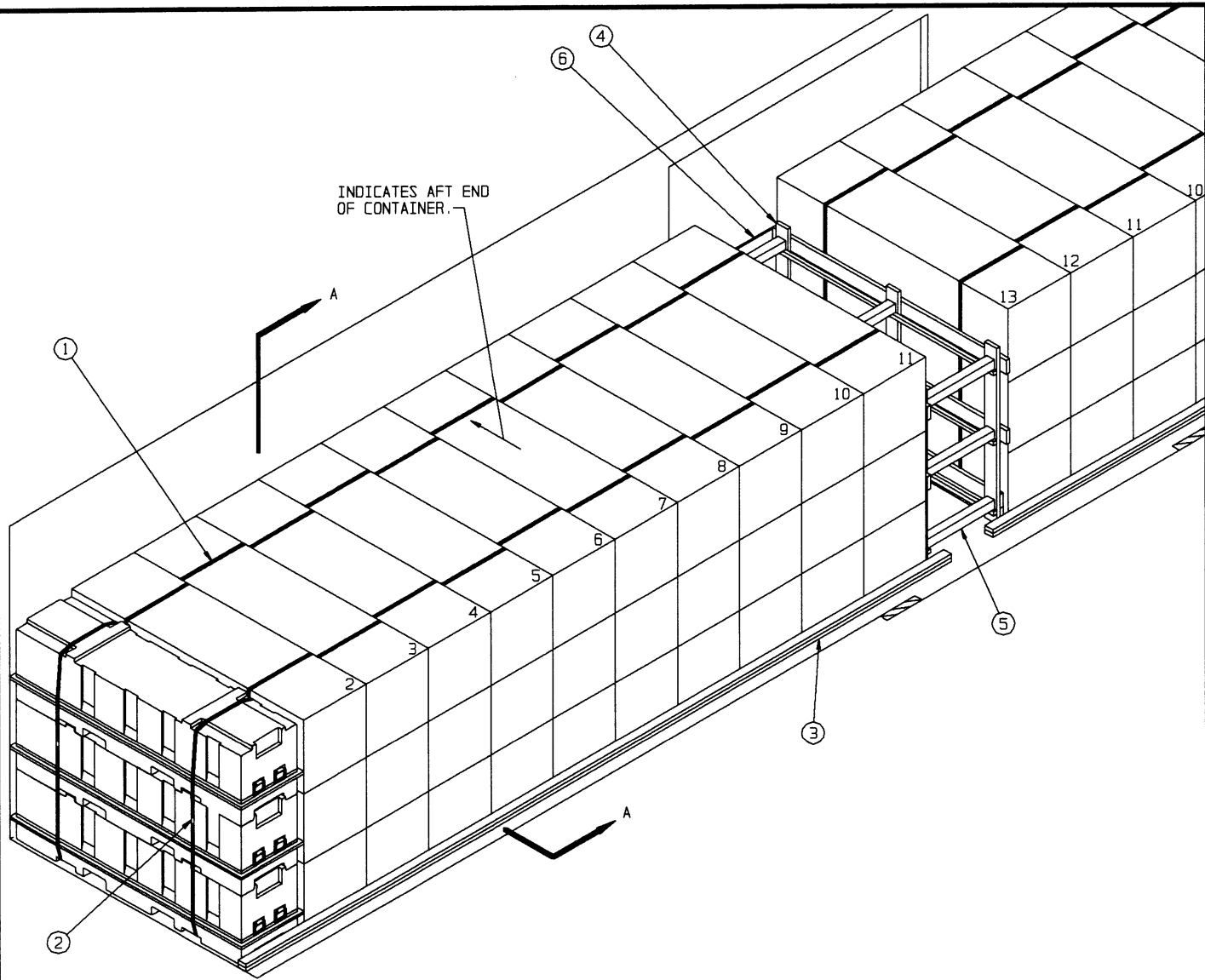
CONTAINER STACK DETAIL

UNITIZATION PROCEDURES:

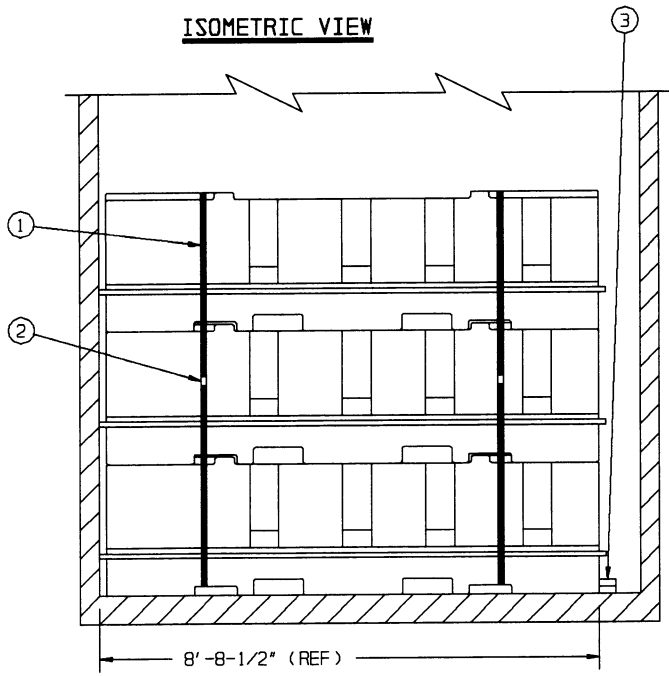
1. WHEN STACKING CONTAINERS FOR UNITIZING, PLACE THE AFT END OF AN UPPER CONTAINER DIRECTLY ON TOP OF THE AFT END OF A LOWER CONTAINER. CONTAINERS WILL NOT BE STACKED MORE THAN THREE HIGH.
2. INSTALLATION OF 1-1/4" X .035" OR .031" UNITIZING STRAPS. SEE GENERAL NOTE "M" ON PAGE 2.
 - A. POSITION STRAPS TO ENCIRCLE THE CONTAINERS NEAR THE ENDS AS SHOWN IN THE ISOMETRIC VIEW AND SO THAT THE STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I.E., VERTICAL ALONG THE SIDES AND FLAT ACROSS THE TOP AND BOTTOM OF THE STACK.
 - B. THE STRAPPING WILL BE FIRMLY TENSIONED BUT NOT SO MUCH SO AS TO DAMAGE THE CONTAINER. EACH END-OVER-END LAP JOINT WILL BE SEALED WITH ONE SEAL WITH TWO PAIR OF NOTCHES PER SEAL AS SHOWN IN THE "STRAP JOINT A" DETAIL ON PAGE 15. THE LAP JOINT WILL BE MADE ALONG THE SIDE OF THE STACK. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

CONTAINER OR STACK HANDLING PROCEDURES:

1. APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.
2. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.
 - A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIAL HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.
 - B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS MUST BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER TO PREVENT DAMAGE TO A CONTAINER BY FORK TINES OR THE FORKLIFT PACKAGE GUARD.
 - C. IF A CONTAINER OR A STACK OF CONTAINERS IS HANDLED BY SLINGING, THE SLING MUST BE OF SUCH A DESIGN THAT LIFTING IS DONE ON THE BOTTOM OF THE LOWER CONTAINER.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (48 REQD). INSTALL AS SHOWN IN THE "UNITIZATION PROCEDURES" ON PAGE 5.
- ② SEAL FOR 1-1/4" STEEL STRAPPING (48 REQD, 1 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.
- ③ SIDE BLOCKING, 2" X 4" BY LOAD LENGTH PLUS 9" (REF: 27'-2" FOR THE NEAR END OF THE LOAD, 31'-11" FOR THE FAR END) (DOUBLED) (1 EACH REQD). PRE-POSITION AS SHOWN BY THE "SECTION A-A" VIEW BELOW. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. RANDOM LENGTHS MAY BE USED. SEE GENERAL NOTE "K" ON PAGE 2, AND SPECIAL NOTE 3 ON PAGE 7.
- ④ CENTER GATE A (2 REQD). SEE THE DETAIL ON PAGE 12.
- ⑤ STRUT, 4" X 4" BY A LENGTH TO SUIT (REF: 32") (9 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ④, W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "T" AND "U" ON PAGE 3. SEE SPECIAL NOTE 7 ON PAGE 7.
- ⑥ DOORWAY PROTECTION (1 REQD). SEE THE DETAIL ON PAGE 13. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTE 4 ON PAGE 7.

SPECIAL NOTES:

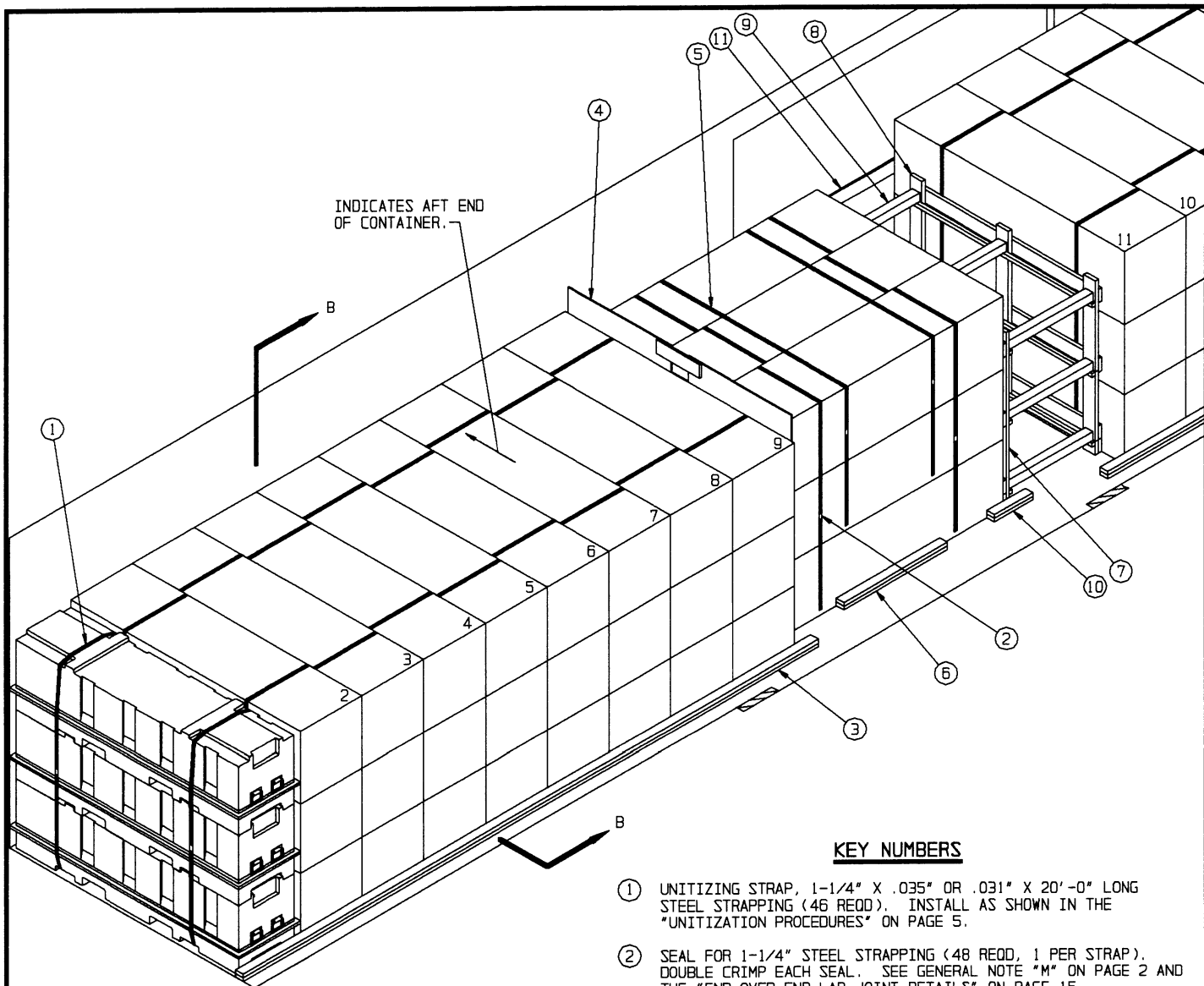
1. A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL TYPE BOXCAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS (9'-0" MINIMUM WIDTH) AND CARS HAVING OTHER WIDTH DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "E" ON PAGE 2.
2. A TYPICAL LOAD IS SHOWN ON PAGE 6. A MAXIMUM OF 60 CONTAINERS FOR AN APPROXIMATE LADING WEIGHT OF 42,600 POUNDS CAN BE LOADED IN A 50'-6" LONG CAR OR 45 (POSSIBLY 48) CONTAINERS FOR AN APPROXIMATE LADING WEIGHT OF 31,950 OR 34,080 POUNDS CAN BE LOADED IN A 40'-6" CAR WHEN USING THE DEPICTED LOADING PROCEDURES.
3. IF THE CAR TO BE LOADED IS 9"-2" WIDE OR LESS, THE SIDE BLOCKING, PIECE MARKED (3), WILL NOT BE REQUIRED. NOTE THAT WHEN SIDE BLOCKING IS NOT REQUIRED, IT WILL BE NECESSARY TO USE TWO DOORWAY PROTECTION ASSEMBLIES, SHOWN IN THE LOAD ON PAGE 6 AS PIECE MARKED (6).
4. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED (6) IN THE LOAD ON PAGE 6, IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGE 16 FOR OTHER TYPES OF DOORWAY PROTECTION FOR SLIDING DOORS.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS, THE CONTAINER STACKS MAY BE LOADED AGAINST THE PLUG DOOR. IF THE CAR IS EQUIPPED WITH COMBINATION PLUG AND SLIDING DOORS, A WOODEN DOOR GATE MUST BE PROVIDED FOR THE SLIDING DOOR PORTION ON THE ONE SIDE OF THE CAR, OR ON BOTH SIDES IF SIDE BLOCKING IS NOT USED.
6. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED BY OMITTING ONE OR MORE CONTAINER STACKS FROM THE END PORTIONS OF THE LOAD, OR THE ENTIRE ONE OR TWO TOP TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, REFER TO THE TYPICAL LCL PROCEDURES ON PAGES 17 THRU 22 FOR GUIDANCE.
7. NOTE THAT DOUBLED 2" X 6" STRUTS MAY BE USED IN LIEU OF THE DEPICTED 4" X 4" STRUTS, PIECES MARKED (5). LAMINATE THE DOUBLED 2" X 6" STRUTS W/1-10d NAIL EVERY 6".

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	60	30
2" X 2"	51	17
2" X 3"	22	11
2" X 4"	120	80
2" X 6"	102	102
4" X 4"	24	32
NAILS	NO. REQD	POUNDS
6d (2")	36	1/4
10d (3")	120	2
12d (3-1/4")	20	1/2
16d (3-1/2")	124	2-3/4
STEEL STRAPPING, 1-1/4" - - 960' REQD - - - 138 LBS		
SEAL FOR 1-1/4" STRAPPING - - 48 REQD - - - 2 LBS		

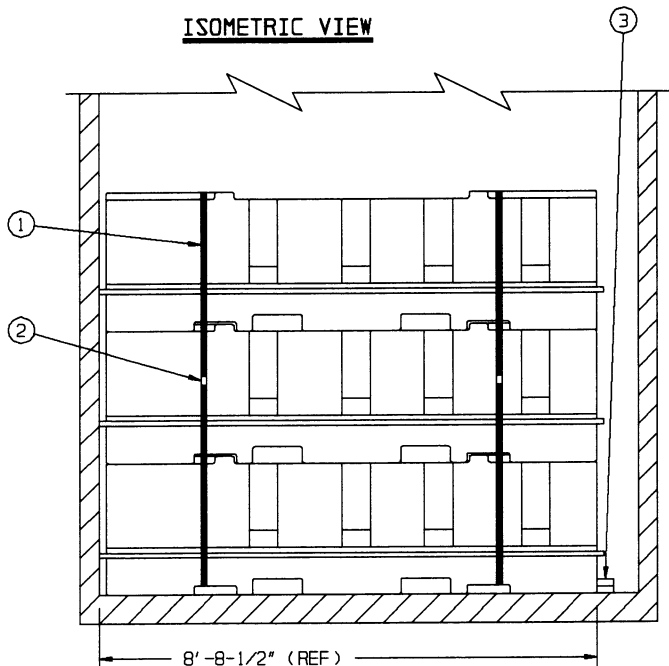
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	72	51,120 LBS
DUNNAGE		690 LBS
TOTAL WEIGHT		51,810 LBS (APPROX)



INDICATES AFT END OF CONTAINER.

ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

- ① UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (46 REQD). INSTALL AS SHOWN IN THE "UNITIZATION PROCEDURES" ON PAGE 5.
- ② SEAL FOR 1-1/4" STEEL STRAPPING (48 REQD, 1 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.
- ③ SIDE BLOCKING, 2" X 4" BY LENGTH OF END PORTION OF LOAD PLUS 9" (REF: 22'-4" FOR THE NEAR END OF THE LOAD, 27'-2" FOR THE FAR END) (DOUBLED) (1 EACH REQD). PRE-POSITION AS SHOWN BY THE "SECTION B-B" VIEW BELOW. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. RANDOM LENGTHS MAY BE USED. SEE GENERAL NOTE "K" ON PAGE 2, AND SPECIAL NOTE 3 ON PAGE 9.
- ④ SEPARATOR GATE (1 REQD). SEE THE DETAIL ON PAGE 13.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENIRCLE THE TOP TWO LAYERS OF LENGTHWISE-POSITIONED CONTAINERS. DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.
- ⑥ SIDE BLOCKING, 2" X 4" X 48" (DOUBLED) (2 REQD). POSITION AGAINST THE LENGTHWISE CONTAINERS AND SO AS TO CENTER ON THE FORKLIFT OPENINGS OF A CONTAINER. NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑦ CENTER GATE B (1 REQD). SEE THE DETAIL ON PAGE 13.
- ⑧ CENTER GATE C (1 REQD). SEE THE DETAIL ON PAGE 14.
- ⑨ STRUT, 4" X 4" BY A LENGTH TO SUIT (REF: 40") (9 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑦ AND ⑧, W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "T" AND "U" ON PAGE 3. SEE SPECIAL NOTE 7 ON PAGE 9.

(CONTINUED ON PAGE 9)

(KEY NUMBERS CONTINUED FROM PAGE 8)

- ⑩ CENTER GATE LATERAL BLOCK, 2" X 4" X 18" (DOUBLED) (2 REQD). POSITION TO CENTER ON THE CENTER GATE, PIECE MARKED ⑦, AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑪ DOORWAY PROTECTION (1 REQD). SEE THE DETAIL ON PAGE 13. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTE 4 AT RIGHT.

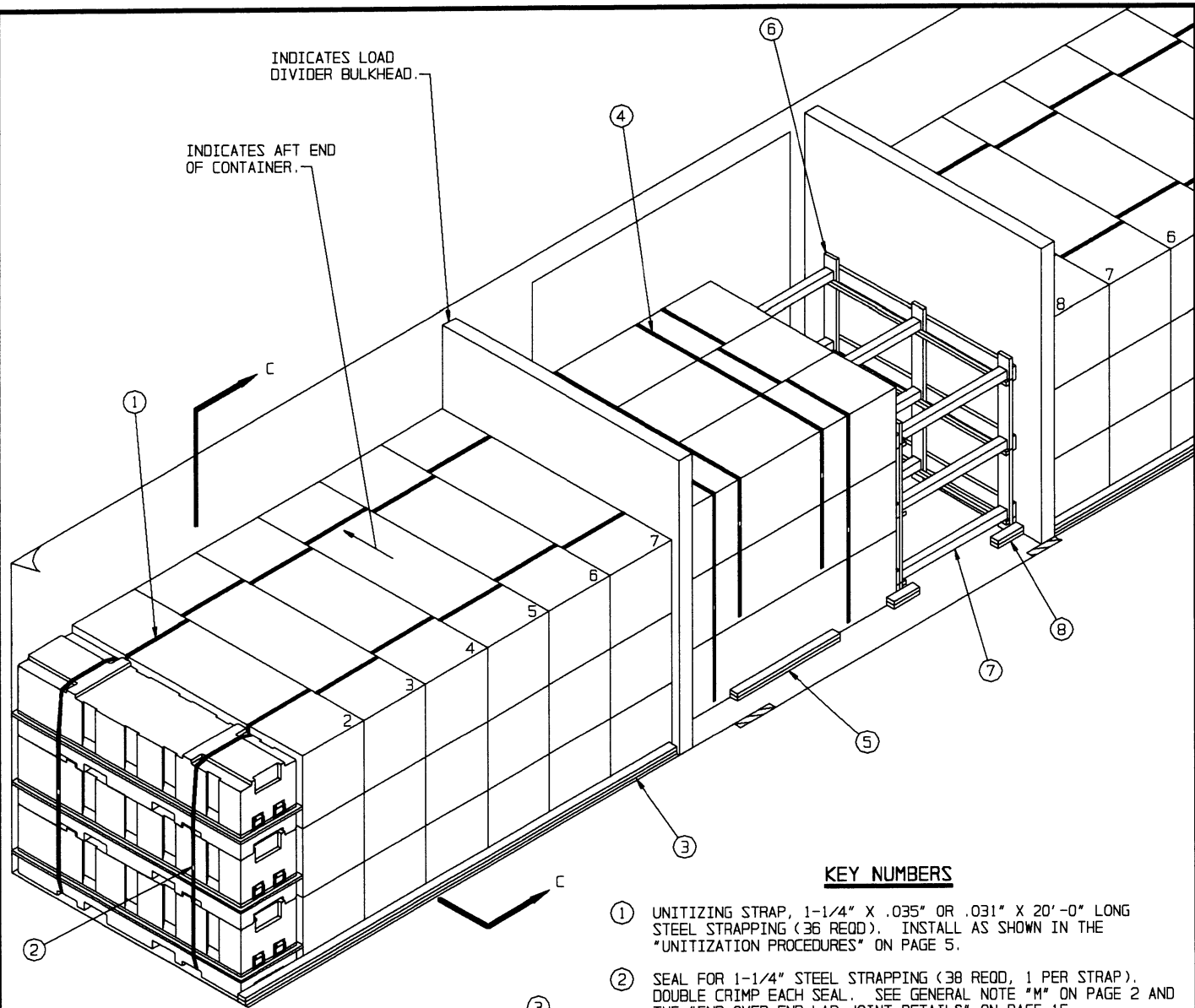
SPECIAL NOTES:

1. A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL TYPE BOXCAR EQUIPPED WITH 15'-0" WIDE STAGGERED DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS (9'-0" MINIMUM WIDTH) CAN BE USED. CARS HAVING OTHER WIDTH DOOR OPENINGS CAN BE USED, HOWEVER, NARROWER DOORS MAY REQUIRE A DIFFERENT LOADING PATTERN AND MAY NOT BE EASY TO LOAD. SEE GENERAL NOTE "E" ON PAGE 2.
2. A TYPICAL LOAD IS SHOWN ON PAGE 8. A MAXIMUM OF 57 CONTAINERS FOR AN APPROXIMATE LADING WEIGHT OF 40,470 POUNDS CAN BE LOADED IN A 50'-6" LONG CAR OR 45 CONTAINERS FOR AN APPROXIMATE LADING WEIGHT OF 31,950 POUNDS CAN BE LOADED IN A 40'-6" CAR WHEN USING THE DEPICTED LOADING PROCEDURES.
3. IF THE CAR TO BE LOADED IS 9'-2" WIDE OR LESS, THE SIDE BLOCKING, PIECE MARKED ③, WILL NOT BE REQUIRED. HOWEVER, AN ADDITIONAL PIECE MARKED ⑩ WILL BE REQUIRED TO KEEP THE CENTER GATE C, PIECE MARKED ⑧, IN ALIGNMENT WITH THE CENTER GATE B, PIECE MARKED ⑦. POSITION TO CENTER ON THE CENTER GATE, PIECE MARKED ⑧. PRE-POSITION, IF NECESSARY. NOTE THAT WHEN SIDE BLOCKING IS NOT REQUIRED, IT WILL BE NECESSARY TO USE TWO DOORWAY PROTECTION ASSEMBLIES, SHOWN IN THE LOAD ON PAGE 8 AS PIECE MARKED ⑪. THE SIDE BLOCKING, PIECE MARKED ⑥, IS NOT TO BE OMITTED REGARDLESS OF CAR WIDTH.
4. DOORWAY PROTECTION IS REQUIRED FOR ALL CROSSWISE CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED ⑩ IN THE LOAD ON PAGE 8, IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGE 16 FOR OTHER TYPES OF DOORWAY PROTECTION FOR SLIDING DOORS.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS, THE CROSSWISE CONTAINER STACKS MAY BE LOADED AGAINST THE PLUG DOOR. IF THE CAR IS EQUIPPED WITH COMBINATION PLUG AND SLIDING DOORS, A WOODEN DOOR GATE MUST BE PROVIDED FOR THE SLIDING DOOR PORTION ON THE ONE SIDE OF THE CAR WHERE THE CROSSWISE CONTAINERS WILL BEAR, OR ON BOTH SIDES IF SIDE BLOCKING IS NOT USED.
6. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED BY OMITTING ONE OR MORE CONTAINER STACKS FROM THE END PORTIONS OF THE LOAD, OR THE ENTIRE ONE OR TWO TOP TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, REFER TO THE TYPICAL LCL PROCEDURES ON PAGES 17 THRU 22 FOR GUIDANCE.
7. NOTE THAT DOUBLED 2" X 6" STRUTS MAY BE USED IN LIEU OF THE DEPICTED 4" X 4" STRUTS, PIECES MARKED ⑨. LAMINATE THE DOUBLED 2" X 6" STRUTS W/1-10d NAIL EVERY 6".

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	64	32
2" X 2"	43	15
2" X 3"	22	11
2" X 4"	134	90
2" X 6"	191	191
4" X 4"	30	40
NAILS	NO. REQD	POUNDS
6d (2")	56	1/2
10d (3")	120	2
12d (3-1/4")	20	1/2
16d (3-1/2")	134	3
PLYWOOD, 1/2"	64 SQ FT REQD	88 LBS
STEEL STRAPPING, 1-1/4"	971' REQD	139 LBS
SEAL FOR 1-1/4" STRAPPING	48 REQD	2 LBS

LOAD AS SHOWN

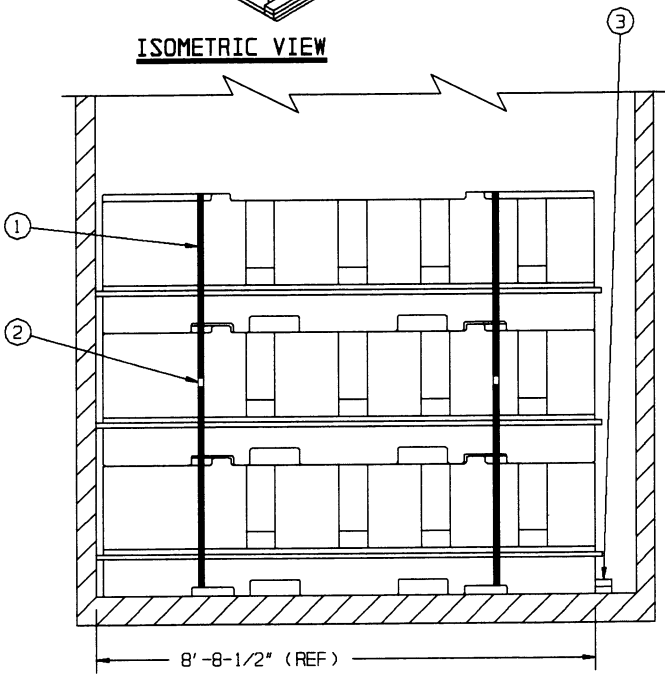
ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	69	48,990 LBS
DUNNAGE		993 LBS
TOTAL WEIGHT		49,983 LBS (APPROX)



INDICATES LOAD DIVIDER BULKHEAD.

INDICATES AFT END OF CONTAINER.

ISOMETRIC VIEW



SECTION C-C

KEY NUMBERS

- ① UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (36 REQD). INSTALL AS SHOWN IN THE "UNITIZATION PROCEDURES" ON PAGE 5.
- ② SEAL FOR 1-1/4" STEEL STRAPPING (38 REQD, 1 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.
- ③ SIDE BLOCKING, 2" X 4" BY LOAD LENGTH (REF: 16'-9" FOR THE NEAR END OF THE LOAD, 19'-2" FOR THE FAR END) (DOUBLED) (1 EACH REQD). PRE-POSITION AS SHOWN BY THE "SECTION C-C" VIEW BELOW. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. RANDOM LENGTHS MAY BE USED. SEE GENERAL NOTE "K" ON PAGE 2, AND SPECIAL NOTE 3 ON PAGE 11.
- ④ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TOP TWO LAYERS OF LENGTHWISE POSITIONED CONTAINERS.
- ⑤ SIDE BLOCKING, 2" X 4" X 48" (DOUBLED) (2 REQD). POSITION AGAINST THE LENGTHWISE CONTAINERS AND SO AS TO CENTER BETWEEN THE FORKLIFT OPENINGS ON A CONTAINER. NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑥ CENTER GATE B (2 REQD). SEE THE DETAIL ON PAGE 13.
- ⑦ STRUT, 4" X 4" BY A LENGTH TO SUIT (REF: 50") (9 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑥, W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "T" AND "U" ON PAGE 3. SEE SPECIAL NOTE 7 ON PAGE 11.
- ⑧ CENTER GATE LATERAL BLOCK, 2" X 4" X 12" (DOUBLED) (4 REQD). POSITION TO CENTER ON A CENTER GATE, PIECE MARKED ⑥, AND/OR TO BUTT AGAINST THE LOAD DIVIDER BULKHEAD. NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

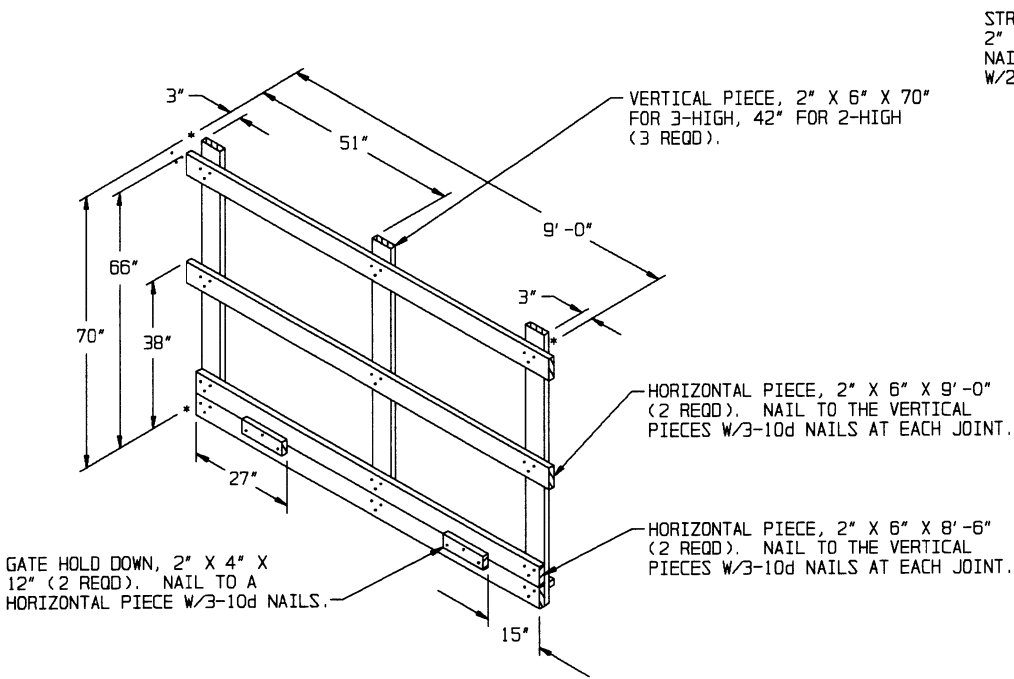
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-4" WIDE CUSHIONED BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS (9'-0" MINIMUM WIDTH) AND CARS HAVING WIDER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTES "AA" THRU "EE" ON PAGE 4.
2. A TYPICAL LOAD IS SHOWN ON PAGE 10. A MAXIMUM OF 69 CONTAINERS FOR AN APPROXIMATE LADING WEIGHT OF 48,990 POUNDS CAN BE LOADED IN A 60'-8" LONG CAR, OR 42 CONTAINERS FOR AN APPROXIMATE LADING WEIGHT OF 29,820 POUNDS CAN BE LOADED IN A 40'-6" LONG CAR, WHEN USING THE DEPICTED LOADING PROCEDURES.
3. IF THE CAR TO BE LOADED IS 9'-2" WIDE OR LESS, THE SIDE BLOCKING, PIECE MARKED (3), WILL NOT BE REQUIRED FOR THE CONTAINERS POSITIONED CROSSWISE IN THE CAR.
4. IF CONTAINERS ARE POSITIONED CROSSWISE IN THE DOORWAY AREA AS SHOWN IN THE LOAD ON PAGE 6, DOORWAY PROTECTION WILL BE REQUIRED ON ONE SIDE FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH. DOORWAY PROTECTION WILL BE REQUIRED ON BOTH SIDES OF THE CAR IF THE SIDE BLOCKING, PIECE MARKED (3), IS NOT USED. WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED (6) ON PAGE 6, IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGE 16 FOR OTHER TYPES OF DOORWAY PROTECTION FOR SLIDING DOORS.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS, THE CONTAINER STACKS MAY BE LOADED AGAINST THE PLUG DOOR, IF APPLICABLE. IF THE CAR IS EQUIPPED WITH COMBINATION PLUG AND SLIDING DOORS, A WOODEN DOOR GATE MUST BE PROVIDED FOR THE SLIDING DOOR PORTION ON THE ONE SIDE OF THE CAR IF CROSSWISE CONTAINER STACKS ARE ADJACENT TO THE DOOR OPENING.
6. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED BY OMITTING ONE OR MORE CONTAINER STACKS FROM THE END PORTIONS OF THE LOAD. FOR OTHER METHODS OF REDUCING A LOAD, REFER TO THE TYPICAL LCL PROCEDURES ON PAGES 17 THRU 22 FOR GUIDANCE.
7. NOTE THAT DOUBLED 2" X 6" STRUTS MAY BE USED IN LIEU OF THE 4" X 4" STRUTS, PIECES MARKED (7). LAMINATE THE DOUBLED 2" X 6" STRUTS W/1-10d NAIL EVERY 6".

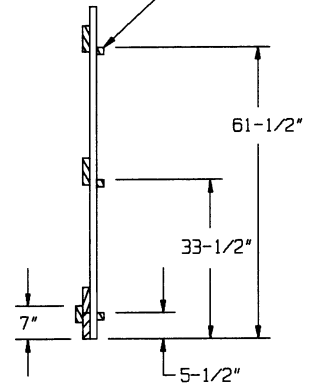
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	43	15
2" X 4"	104	70
2" X 6"	185	185
4" X 4"	38	51
NAILS	NO. REQD	POUNDS
10d (3")	120	2
16d (3-1/2")	124	2-3/4
STEEL STRAPPING, 1-1/4" - - 771' REQD - - - 111 LBS		
SEAL FOR 1-1/4" STRAPPING - - 38 REQD - - - 2 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	54	38,390 LBS
DUNNAGE		760 LBS
TOTAL WEIGHT		39,150 LBS (APPROX)

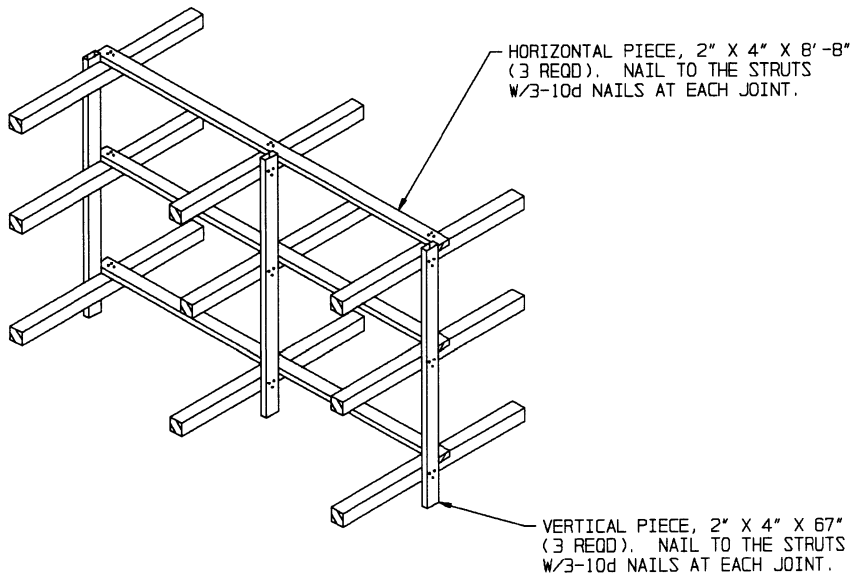


STRUT LEDGER, 2" X 2" OR
2" X 4" X 8'-6" (3 REQD).
NAIL TO THE VERTICAL PIECES
W/2-10d NAILS AT EACH JOINT.

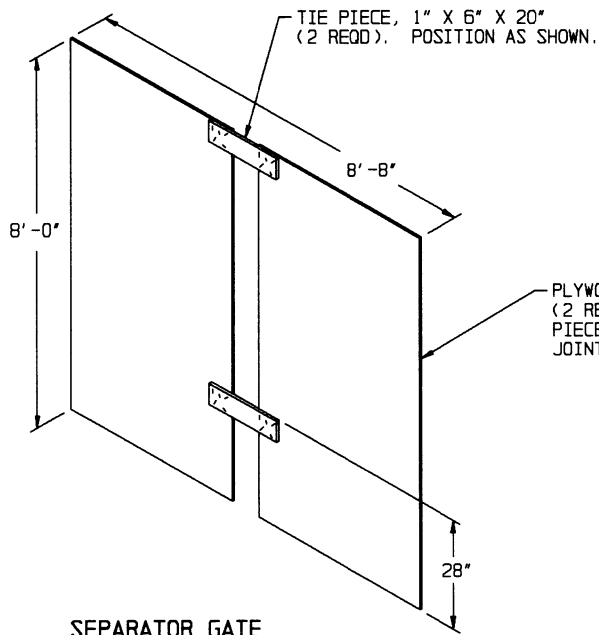


END VIEW

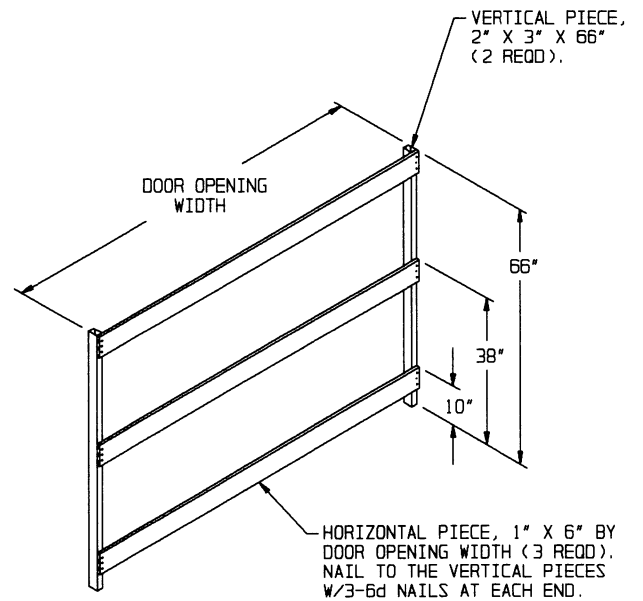
CENTER GATE A



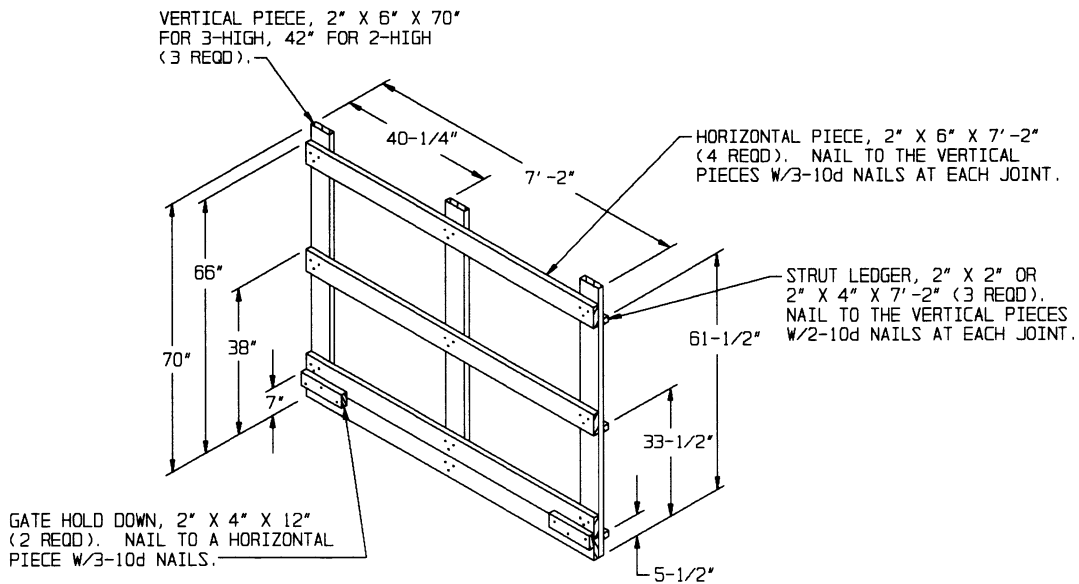
TYPICAL STRUT BRACING



SEPARATOR GATE

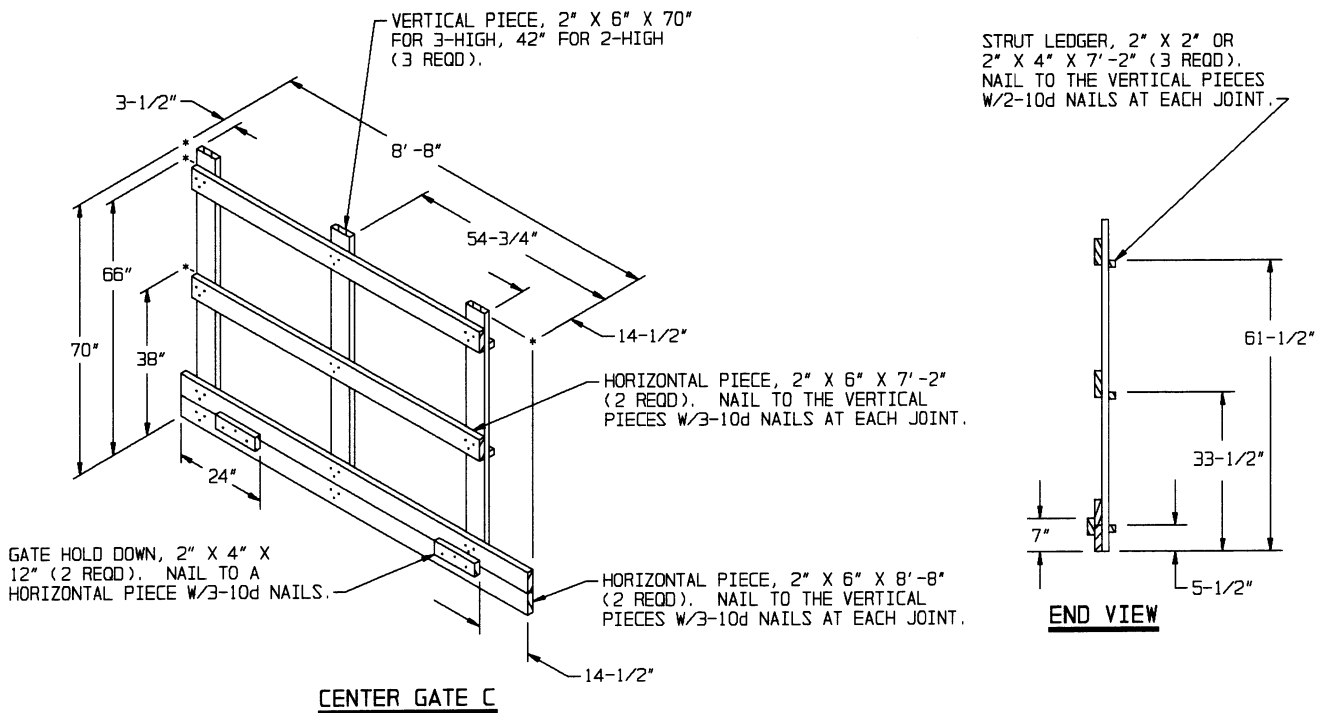


DOORWAY PROTECTION

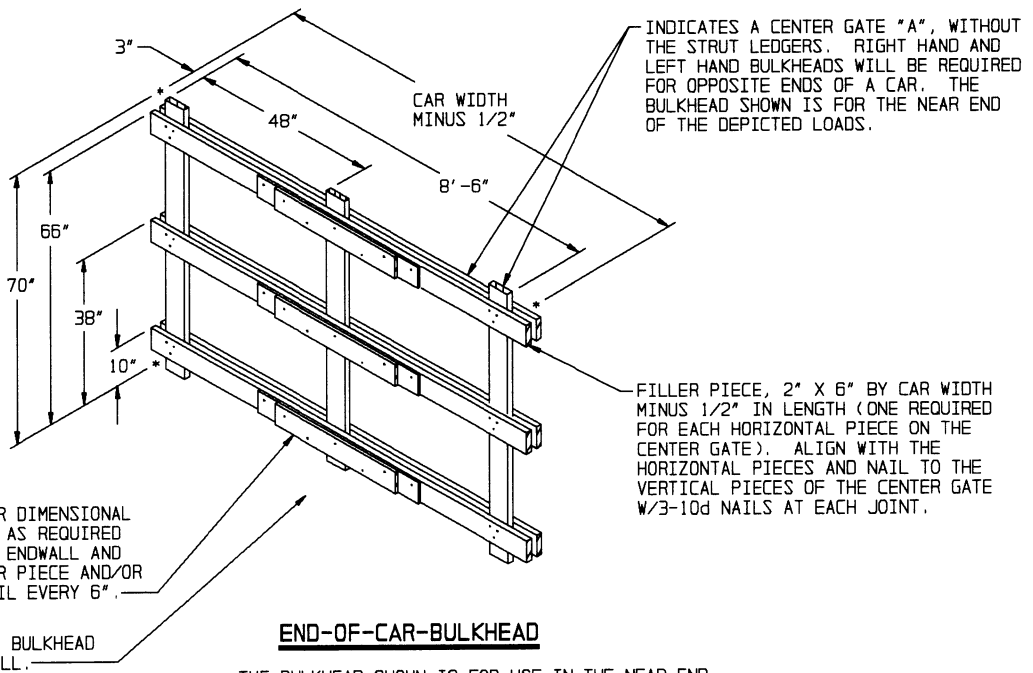


CENTER GATE B

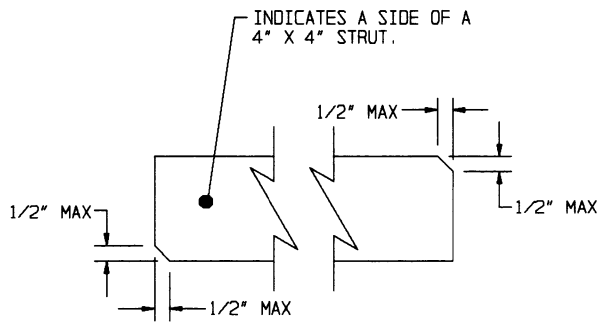
DETAILS



NOTE:
 IF A BOXCAR TO BE LOADED HAS BOWED ENDWALLS WHICH ARE BOWED OUTWARD MORE THAN TWO INCHES, EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED-OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. THE BULKHEAD IS APPLICABLE FOR USE AT THE END OF A LOAD IN A CONVENTIONAL BOXCAR OR IN A CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS.

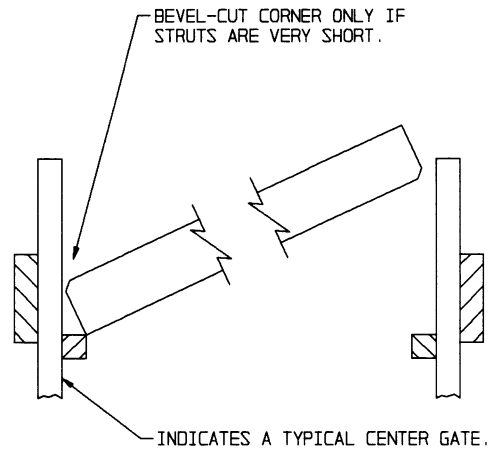


THE BULKHEAD SHOWN IS FOR USE IN THE NEAR END OF THE DEPICTED LOADS. THE GATE WILL BE OPPOSITE HAND FOR THE OTHER END. SEE "NOTE" ABOVE.



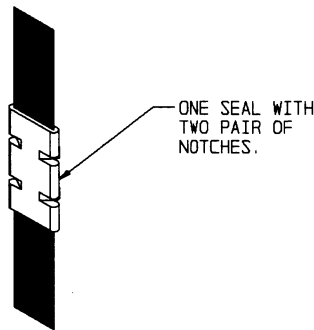
BEVEL-CUT

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").



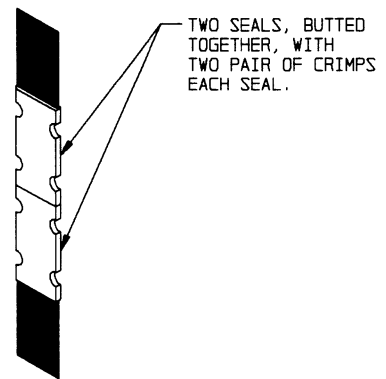
STRUT INSTALLATION

SEE GENERAL NOTE "U" 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

HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (1 REOD PER LAYER). NAIL TO THE VERTICAL PIECES W/3-6d NAILS AT EACH END. SEE THE "DOORWAY PROTECTION" DETAIL ON PAGE 13 FOR HEIGHT LOCATIONS.

DOORWAY PROTECTION-GATE STRAP, 1-1/4" X .035" X 3'-0" (REF) NAIL-ON TYPE STEEL STRAPPING (4 REOD PER LAYER OF LOAD). NAIL TO GATE AND CAR SIDEWALL AS SHOWN BY THE "VIEW B" SKETCH BELOW. NOTE THAT TYPE 1 STRAPPING MAY BE PUNCHED FOR NAILING IF TYPE 2 STRAPPING IS NOT AVAILABLE.

INDICATES DOOR OPENING.

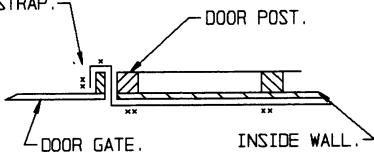
VIEW B

VERTICAL PIECE, 2" X 3" BY A LENGTH TO SUIT (2 REOD).

INDICATES CAR SIDEWALL.

INDICATES FLOOR.

INDICATES LOCATION OF 7 (MIN) 4d NAILS PER STRAP.



VIEW B

THIS VIEW DEPICTS THE LOCATION OF THE NAILS FOR SECURING THE DOORWAY PROTECTION GATE STRAP. NOTE THAT THE STRAPS MUST BE APPLIED TO THE CAR SIDEWALL PRIOR TO POSITIONING THE ADJACENT UNITS.

ALTERNATIVE DOORWAY PROTECTION A

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS WHEN THE DOOR POSTS ARE STEEL WITHOUT NAILING HOLES AND THE CAR SIDEWALLS ARE NAILABLE. THE VIEW SHOWN ABOVE IS FOR A THREE-LAYER LOAD.

FILLER BLOCK, 1" X 4" X 9" (2 REOD). NAIL TO A VERTICAL PIECE W/4-6d NAILS.

DOOR OPENING WIDTH

DOOR SPANNER, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (1 REOD). POSITION ABOVE THE LOAD AND NAIL THRU A FILLER BLOCK INTO A VERTICAL PIECE W/3-12d NAILS AT EACH JOINT. NAIL TO THE CAR SIDEWALL W/2-12d NAILS AT EACH END (OPTIONAL).

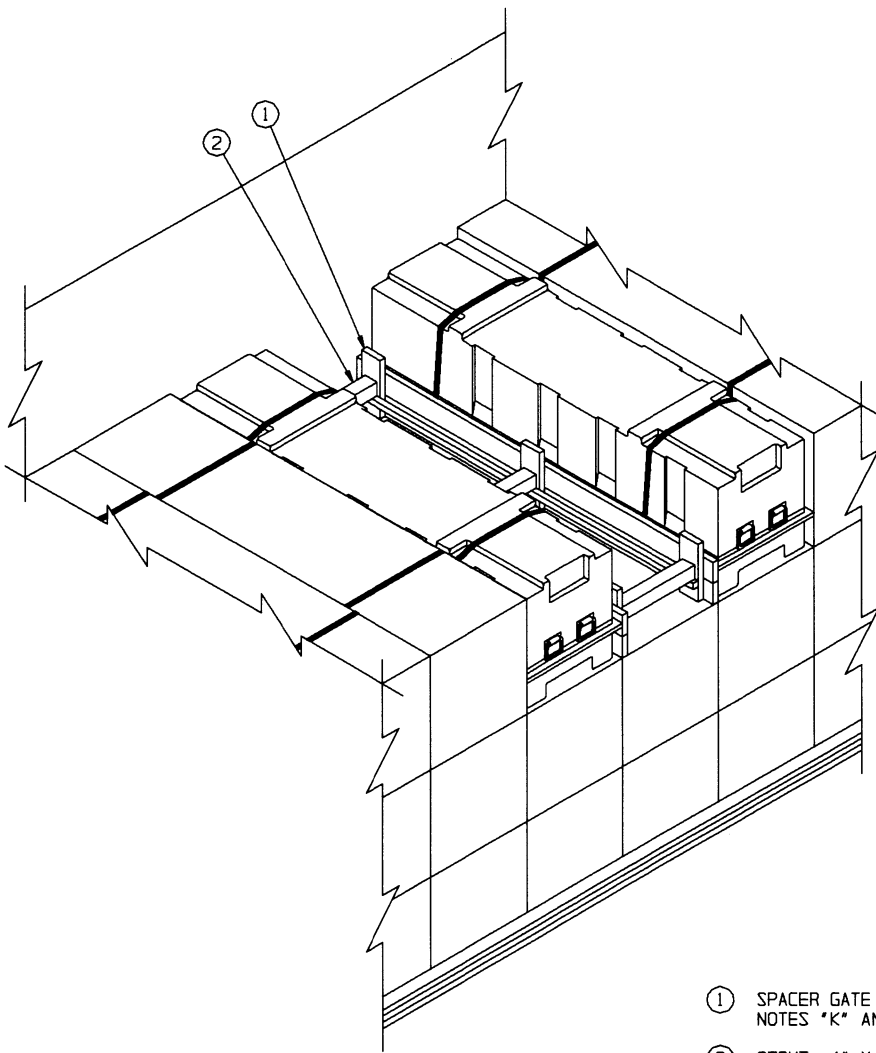
VERTICAL PIECE, 2" X 3" BY A LENGTH TO SUIT (2 REOD).

HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (3 REOD).

SPREADER PIECE, 2" X 3" MATERIAL CUT SLIGHTLY LONGER THAN MEASURED DISTANCE (2 REOD). DRIVE INTO POSITION TO PROVIDE FOR A WEDGE FIT. TOENAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

ALTERNATIVE DOORWAY PROTECTION C

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, WHEN THE DOOR POSTS ARE NOT NAILABLE. IF THE CAR HAS NAILABLE SIDEWALLS, NAIL-ON TYPE STRAPPING MAY BE USED TO SECURE THE GATE IN LIEU OF USING THE SPREADER PIECES. SEE THE "ALTERNATIVE DOORWAY PROTECTION A" DETAIL ABOVE FOR GUIDANCE.



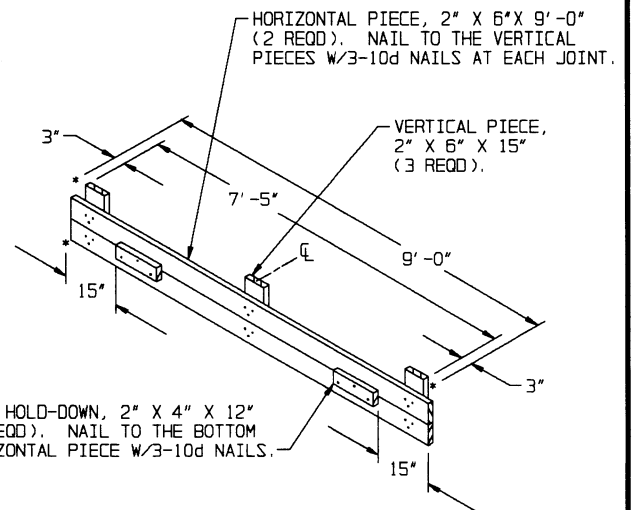
ISOMETRIC VIEW

KEY NUMBERS

- ① SPACER GATE (2 REQD). SEE THE DETAIL BELOW. SEE GENERAL NOTES "K" AND "L" ON PAGE 2.
- ② STRUT, 4" X 4" BY CUT TO FIT (REF: 22-3/4") (3 REQD). TOENAIL TO THE SPACER GATES, PIECES MARKED ①, W/2-16d NAILS AT EACH END. SEE THE "STRUT INSTALLATION" DETAIL ON PAGE 15 AND GENERAL NOTES "J" ON PAGE 2 AND "U" ON PAGE 3.

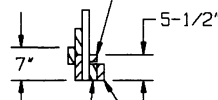
SPECIAL NOTES:

1. A PARTIAL VIEW OF A 9'-6" WIDE CONVENTIONAL TYPE BOXCAR IS SHOWN. CARS OF OTHER WIDTHS (9'-0" MINIMUM) CAN ALSO BE USED.
2. THIS PROCEDURE IS APPLICABLE ONLY FOR THE OMISSION OF A CONTAINER FROM A CROSSWISE-CONTAINER PORTION OF A LOAD. DO NOT USE WITHIN THE CONTAINERS-LENGTHWISE LOAD UNIT.
3. THE OMITTED CONTAINER PROCEDURES SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH. ALSO, THERE SHOULD BE AT LEAST ONE LOAD UNIT BETWEEN THE OMITTED CONTAINER AND THE CENTER GATE.
4. ONLY THE BLOCKING AND BRACING FOR THE OMITTED CONTAINER AND THE FLOOR BLOCKING ARE SHOWN. REFER TO ANY OF THE FULL LOAD PAGES FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



SPACER GATE

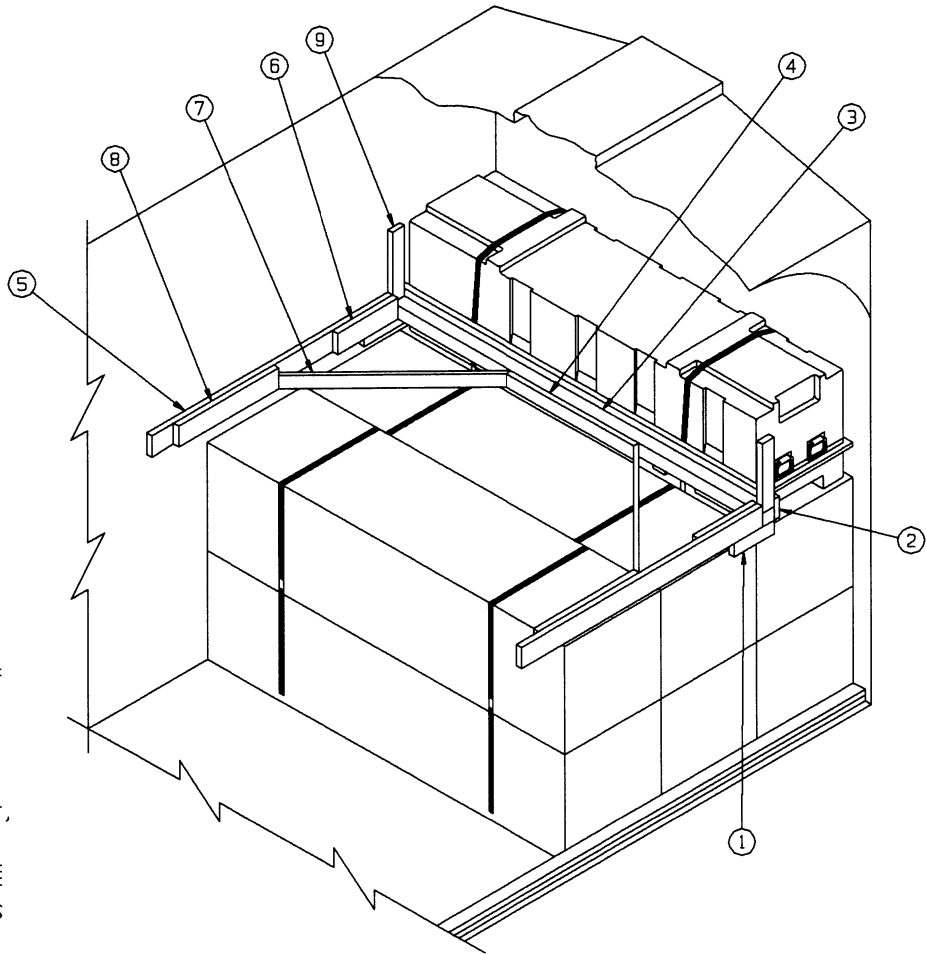
STRUT LEDGER, 2" X 2" X 8'-6"
(1 REQD). NAIL TO THE VERTICAL
PIECES W/2-10d NAILS AT EACH JOINT.



END VIEW

FILL PIECE, 2" X 4" X 8'-6"
(1 REQD). NAIL TO THE VERTICAL
PIECES W/3-10d NAILS AT EACH JOINT.

SUPPORT PIECE, 2" X 4" X 12" (2 REQD).
POSITION TO BE OVER THE SKID STOP PIECES
AND NAIL TO THE FILL PIECE W/3-10d NAILS.



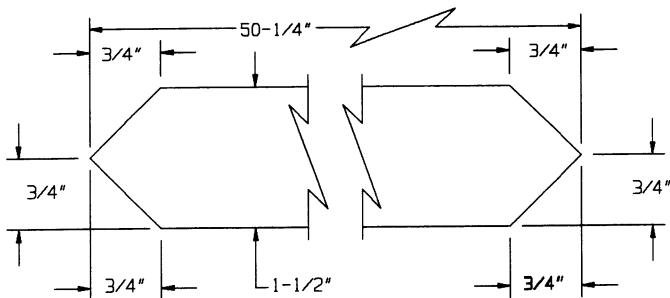
ISOMETRIC VIEW

SPECIAL NOTES:

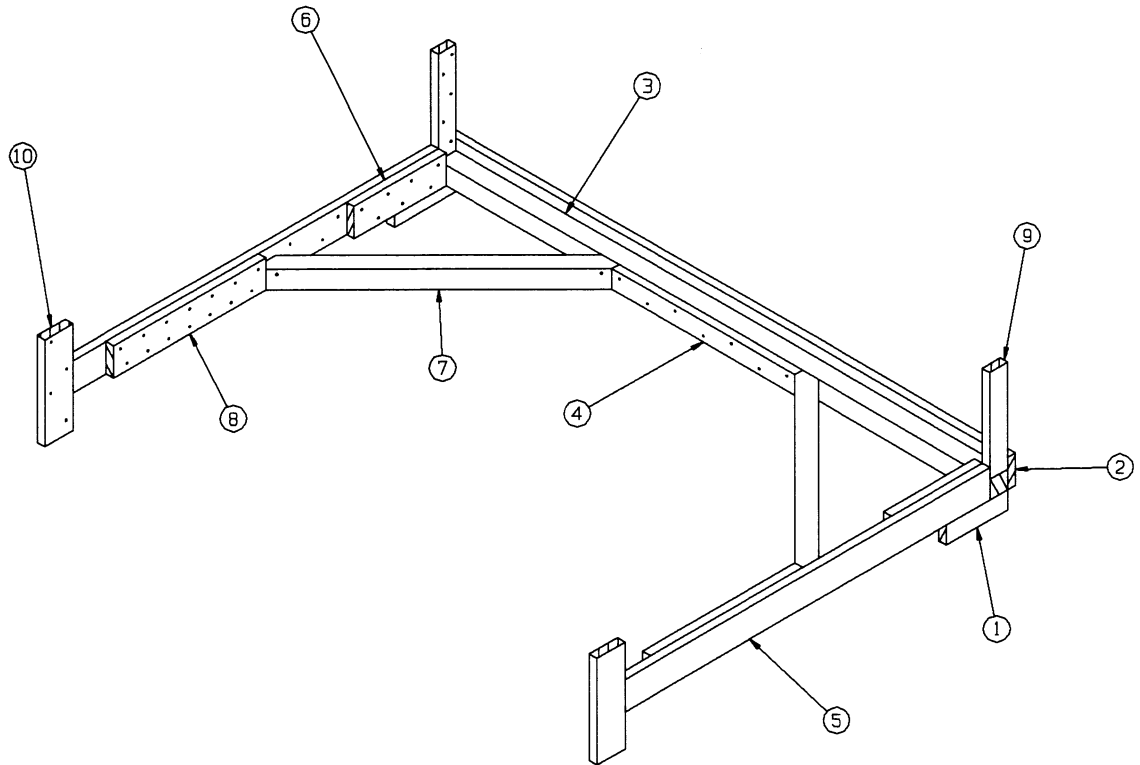
1. A 9'-4" WIDE WOOD-LINED (SIDEWALLS) CONVENTIONAL BOXCAR IS SHOWN WITH A TYPICAL K-BRACE. WOOD-LINED CARS OF OTHER WIDTHS (9'-0" MINIMUM) CAN BE USED.
2. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN A WOOD-LINED CAR FOR THE SECUREMENT OF A PARTIAL TOP TIER, BE IT A FIRST, SECOND, OR THIRD TIER. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 4,000 POUNDS. THIS WILL BE NOT MORE THAN FIVE CONTAINERS. IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO THE DETAIL ON PAGE 19.
3. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED ①, ②, ③, ⑤, AND ⑨ MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑦ TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑤ MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING (REF: 60") TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE. LAMINATE THE SECOND PIECE OF THE DOUBLED PIECE MARKED ⑤ TO THE FIRST W/16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED ⑤ IS DOUBLED.
4. THE CENTER CLEAT, SHOWN AS PIECE MARKED ④, WILL BE 38" LONG FOR A 9'-4" WIDE CAR, 36" FOR A 9'-2" CAR, AND 34" FOR A 9'-0" WIDE CAR.

KEY NUMBERS

- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION HORIZONTALLY AS SHOWN, 2-1/2" (6" TO THE TOP) ABOVE THE LOAD. NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE GENERAL NOTES "K" AND "L" ON PAGE 2.
- ② LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT TO FIT) (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6".
- ③ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH IN LENGTH (CUT TO FIT) (1 REQD).
- ④ CENTER CLEAT, 2" X 4" X 40" (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/7-16d NAILS. SEE SPECIAL NOTE 4 AT LEFT.
- ⑤ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (2 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑥ POCKET CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/4-16d NAILS.
- ⑦ DIAGONAL BRACE, 2" X 4" X 50-1/4" (2 REQD). SEE THE DETAIL AT LEFT FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/2-16d NAILS AT EACH END.
- ⑧ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/8-16d NAILS.
- ⑨ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.



DIAGONAL BRACE



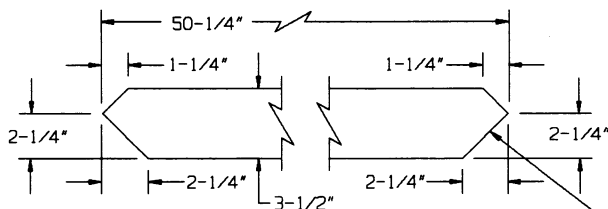
ISOMETRIC VIEW

SPECIAL NOTES:

1. THE TYPE "B" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 7,000 POUNDS. THIS WILL BE NOT MORE THAN NINE CONTAINERS. IF THE PARTIAL TIER TO BE BRACED WEIGHS LESS THAN 4,000 POUNDS, THE TYPE "A" K-BRACE DEPICTED ON PAGE 18 MAY BE USED.
2. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED ①, ②, ③, ⑥, ⑨, AND ⑩, MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑦, TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑤ MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING (REF: 54") TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE. LAMINATE THE SECOND PIECE OF THE DOUBLED PIECE MARKED ⑤ TO THE FIRST W/16-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE, PIECE MARKED ⑦, WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED ⑤ IS DOUBLED.
3. THE CENTER CLEAT, SHOWN AS PIECE MARKED ④, WILL BE 38" LONG FOR A 9'-4" WIDE CAR, 36" FOR A 9'-2" CAR, AND 34" FOR A 9'-0" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
4. REFER TO PAGE 18 FOR A TYPICAL INSTALLATION OF A K-BRACE.

KEY NUMBERS

- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION HORIZONTALLY AS SHOWN, 2-1/2" (6" TO THE TOP) ABOVE THE LOAD. NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE GENERAL NOTES "K" AND "L" ON PAGE 2. SEE SPECIAL NOTE 2 AT LEFT.
- ② LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT TO FIT) (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6".
- ③ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH IN LENGTH (CUT TO FIT) (1 REQD).
- ④ CENTER CLEAT, 2" X 4" X 40" (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/7-16d NAILS. SEE SPECIAL NOTE 3 AT LEFT.
- ⑤ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (2 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑥ POCKET CLEAT, 2" X 6" X 18" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/7-16d NAILS.
- ⑦ DIAGONAL BRACE, 4" X 4" X 50-1/4" (2 REQD). SEE THE DETAIL BELOW FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/1-60d NAIL AT EACH END.
- ⑧ BACK-UP CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO A HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/14-16d NAILS.
- ⑨ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.
- ⑩ VERTICAL BACK-UP CLEAT, 2" X 6" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS.

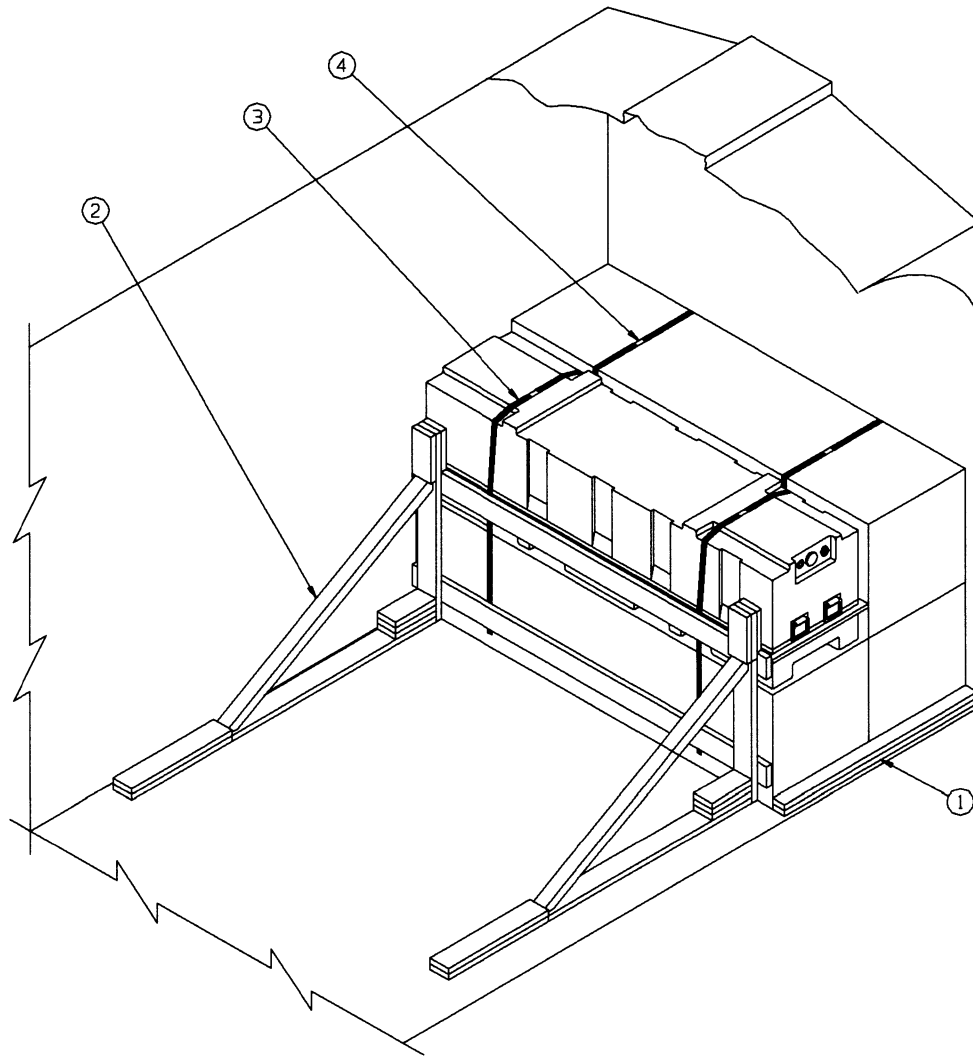


DIAGONAL BRACE

SEE SPECIAL NOTE 2 ABOVE.

THIS BEARING SURFACE MUST BE POSITIONED SO AS TO BE IN CONTACT WITH A CROSS CAR BRACE, PIECE MARKED ③, OR A HORIZONTAL WALL CLEAT, PIECE MARKED ⑤.

TYPE "B" K-BRACE



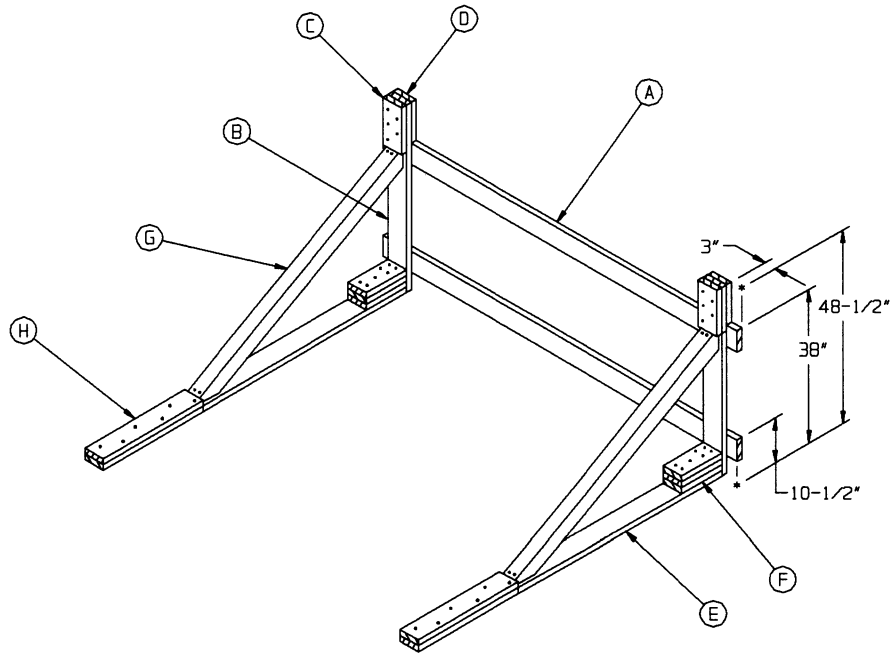
ISOMETRIC VIEW

SPECIAL NOTES:

1. A 4-UNIT LOAD IS SHOWN IN A 9'-6" WIDE CONVENTIONAL BOXCAR. CARS OF OTHER WIDTHS (9'-0" MINIMUM) CAN BE USED.
2. IF THE CAR TO BE LOADED IS 9'-2" WIDE OR LESS, THE SIDE BLOCKING, PIECE MARKED ①, WILL NOT BE REQUIRED.
3. THE TOTAL KNEE BRACE ASSEMBLY IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF NOT MORE THAN 8,500 POUNDS.

KEY NUMBERS

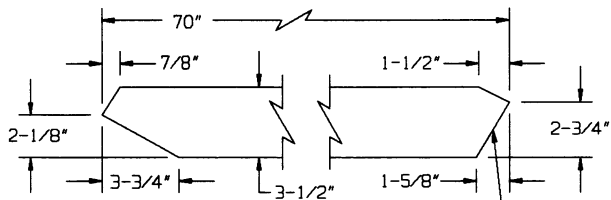
- ① SIDE BLOCKING, 2" X 4" BY LOAD LENGTH (DOUBLED) (1 REQD). PRE-POSITION, NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". LAMINATE THE SECOND PIECE IN A LIKE MANNER. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 2 AT LEFT.
- ② KNEE BRACE ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 21 AND SPECIAL NOTE 3 AT LEFT.
- ③ UNITIZING STRAP, 1-1/4" X .035" OR .031" BY A LENGTH TO SUIT (REF: 16'-0") (4 REQD). SEE THE "UNITIZATION PROCEDURES" ON PAGE 5.
- ④ SEAL FOR 1-1/4" STRAPPING (4 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIRS OF NOTCHES. SEE GENERAL NOTE "M" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.



ISOMETRIC VIEW

KEY LETTERS

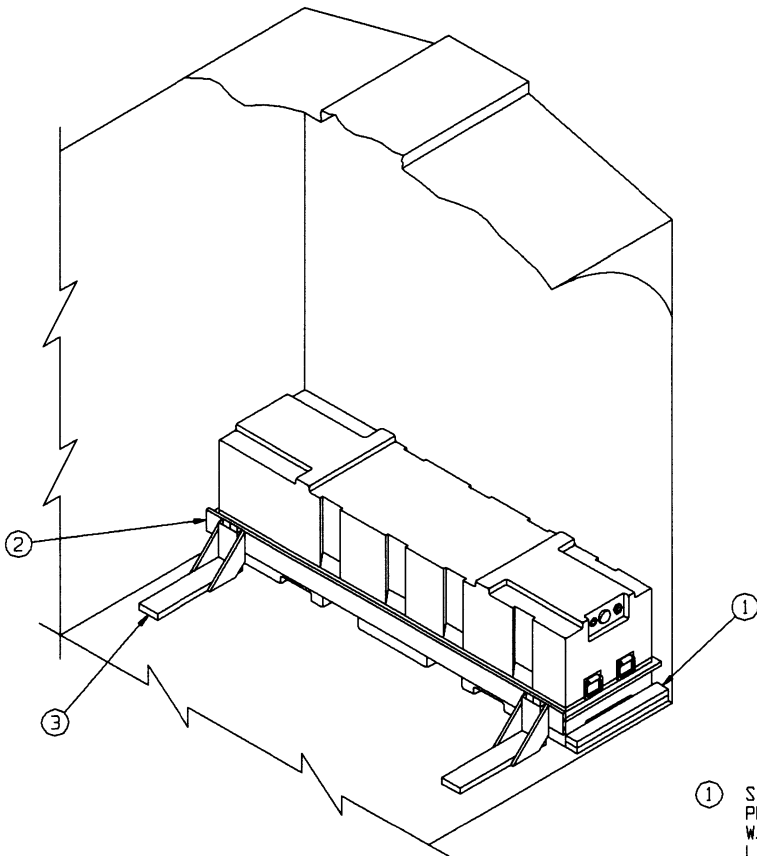
- (A) LOAD BEARING PIECE, 2" X 6" X 8'-10" (2 REQD). NAIL TO THE VERTICAL PIECES, PIECES MARKED (B), W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTES "K" AND "L" ON PAGE 2.
- (B) VERTICAL PIECE, 2" X 6" X 48-1/2" (2 REQD). LOCATE 3" FROM ENDS OF LOAD BEARING PIECES, PIECES MARKED (A). NAIL TO THE FLOOR CLEAT, PIECE MARKED (E), W/2-16d NAILS.
- (C) HOLD-DOWN CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO A VERTICAL PIECE, PIECE MARKED (B), W/5-10d NAILS.
- (D) REINFORCING PIECE, 2" X 6" X 10-1/2" (2 REQD). POSITION IN CONTACT WITH PIECE MARKED (A) AND NAIL TO A VERTICAL PIECE, PIECE MARKED (B), W/5-10d NAILS.
- (E) FLOOR CLEAT, 2" X 6" X 7'-7" (2 REQD). NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "R" ON PAGE 3.
- (F) POCKET CLEAT, 2" X 6" X 12" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO A FLOOR CLEAT, PIECE MARKED (E), W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST AND THE THIRD TO THE SECOND IN A LIKE MANNER. TOENAIL THE TOP PIECE TO A VERTICAL PIECE, PIECE MARKED (B), W/2-10d NAILS.
- (G) BRACE, 4" X 4" X 70" (2 REQD). SEE THE DETAIL AT LEFT FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE AND TO THE FLOOR CLEAT, PIECES MARKED (B) AND (E), W/2-16d NAILS AT EACH END.
- (H) BACK-UP CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO THE FLOOR CLEAT, PIECE MARKED (E), W/6-40d NAILS.



BRACE

4" X 4" MATERIAL

THE BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH A VERTICAL PIECE MARKED (B).



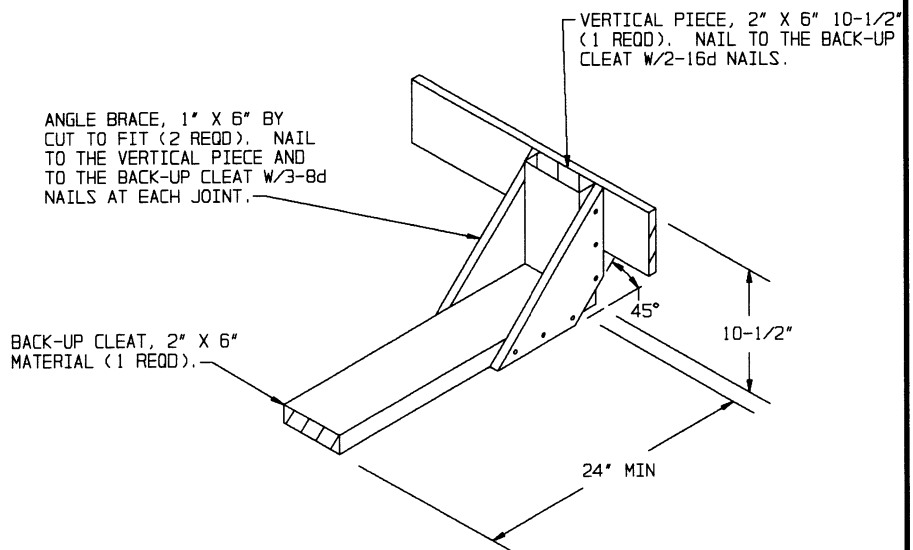
ISOMETRIC VIEW

KEY NUMBERS

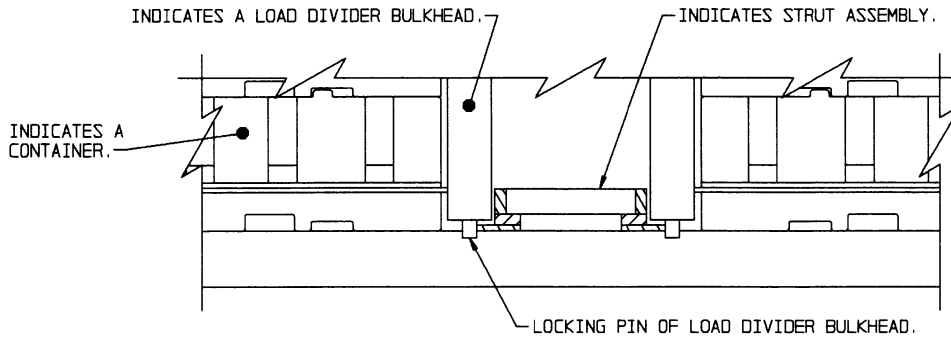
- ① SIDE BLOCKING, 2" X 4" BY LOAD LENGTH (DOUBLED) (1 REQD). PRE-POSITION. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". LAMINATE THE SECOND PIECE IN A LIKE MANNER. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 AT LEFT.
- ② HORIZONTAL PIECE, 1" X 6" X 8'-10" (1 REQD). NAIL TO THE LCL BRACES W/3-6d NAILS AT EACH JOINT. SEE GENERAL NOTE "L" ON PAGE 2.
- ③ LCL BRACE (2 REQD). SEE THE DETAIL BELOW. POSITION AS SHOWN, ALIGNED WITH THE SUPPORT FRAMES OF THE CONTAINER. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTE "R" ON PAGE 3. SEE SPECIAL NOTE 2 AT LEFT.

SPECIAL NOTES:

- 1. A 9'-6" WIDE CONVENTIONAL TYPE BOXCAR HAVING A WOOD OR NAILABLE METAL FLOOR IS SHOWN. CARS OF OTHER WIDTHS (9'-0" MINIMUM) CAN BE USED.
- 2. TWO LCL BRACES AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN TWO CONTAINERS. A MINIMUM OF TWO BRACES WILL BE USED.
- 3. IF THE CAR TO BE LOADED IS 9'-2" WIDE OR LESS, SIDE BLOCKING, PIECE MARKED ①, WILL NOT BE REQUIRED.

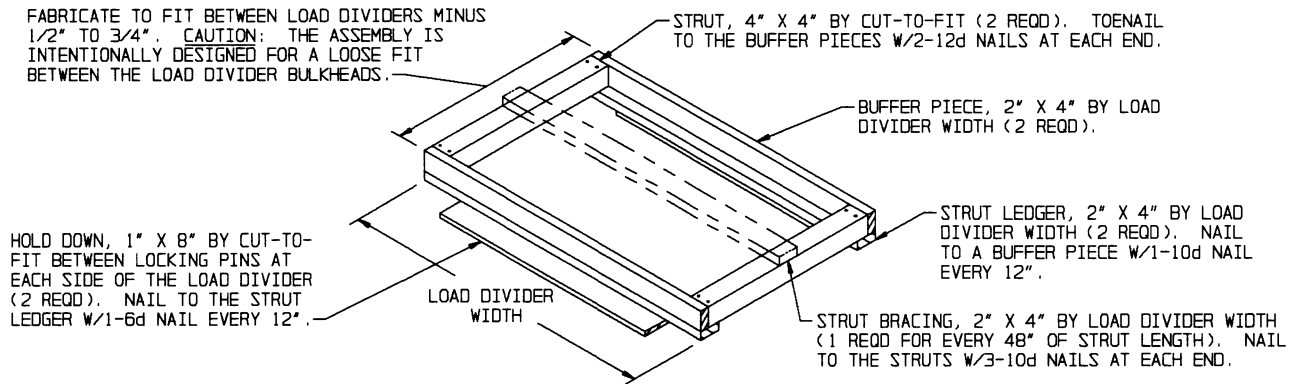


LCL BRACE



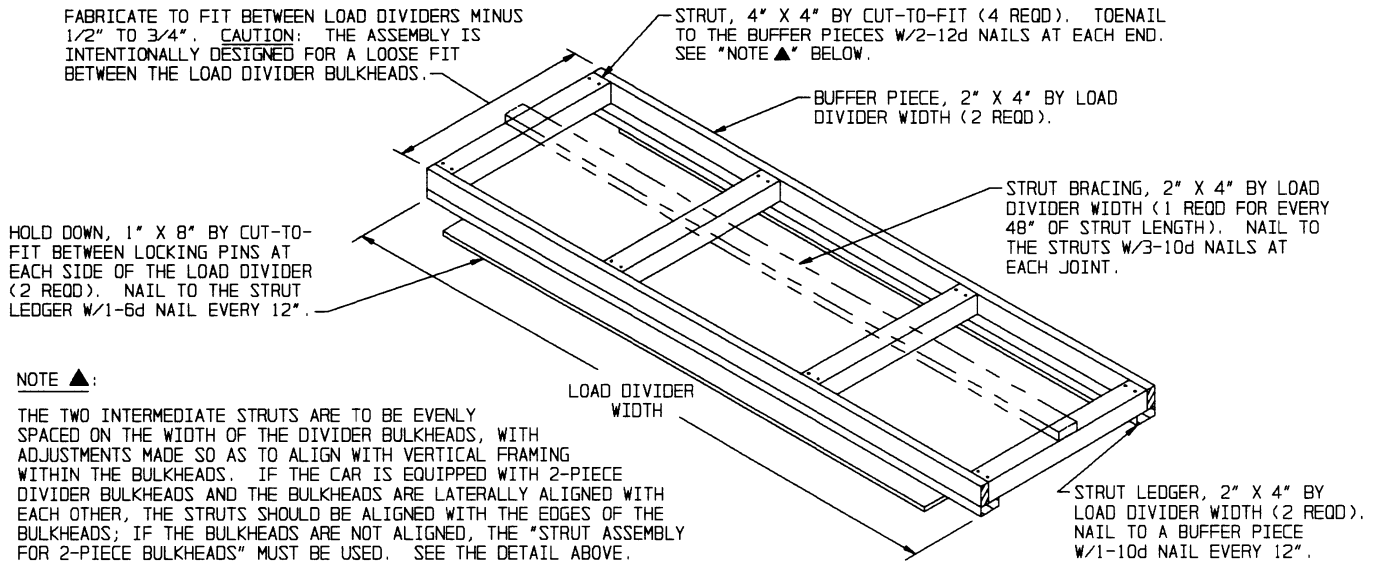
INSTALLATION OF STRUT ASSEMBLY

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.



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.



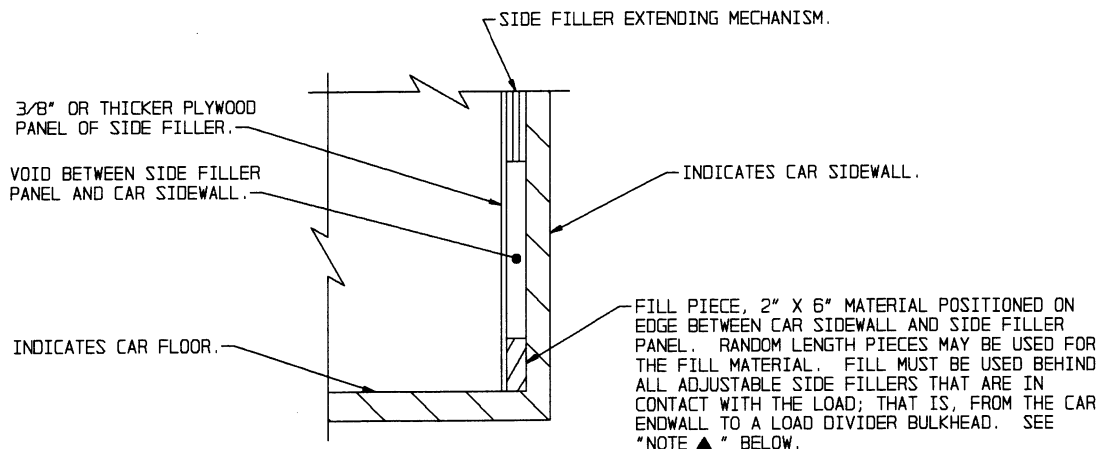
NOTE ▲:

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.

PROVISIONS FOR BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS

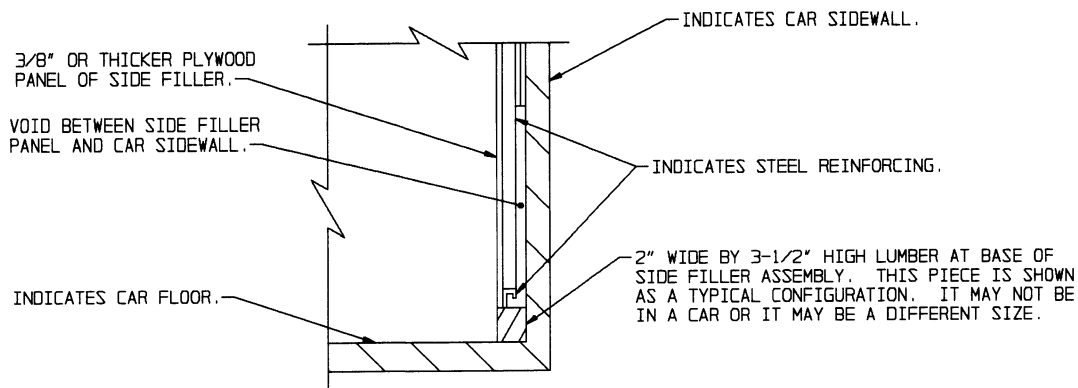


TYPICAL TYPE A

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.