

APPROVED BY  
BUREAU OF EXPLOSIVES

*D m Hawk*

DATE 11/8/96

# LOADING AND BRACING (CL & LCL) IN BOXCARS<sup>⊕</sup> OF CHARGE, DEMOLITION, LINEAR, HE M58, M58A1 & M58A2, AND INERT M68 & M68A1, IN METAL SHIPPING AND STORAGE CONTAINER

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

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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 FOR LOADS OF LINEAR DEMOLITION CHARGES, HE M58, MSBA1, AND MSBA2 AND INERT M68 AND M6BA1 IN METAL SHIPPING AND STORAGE CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE 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 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 17 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. 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 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.

- 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 SENCOR 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 BOXCARS)

- 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 "SPACER ASSEMBLY RETAINER" IN THE FULL LOADS AND TO THE NAILING TO THE CAR FLOOR OF THE KNEE BRACE ASSEMBLIES OR THE BACK-UP CLEATS 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 "J" AT LEFT.
- R. 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 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 (4) AND (5) 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 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.

(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.

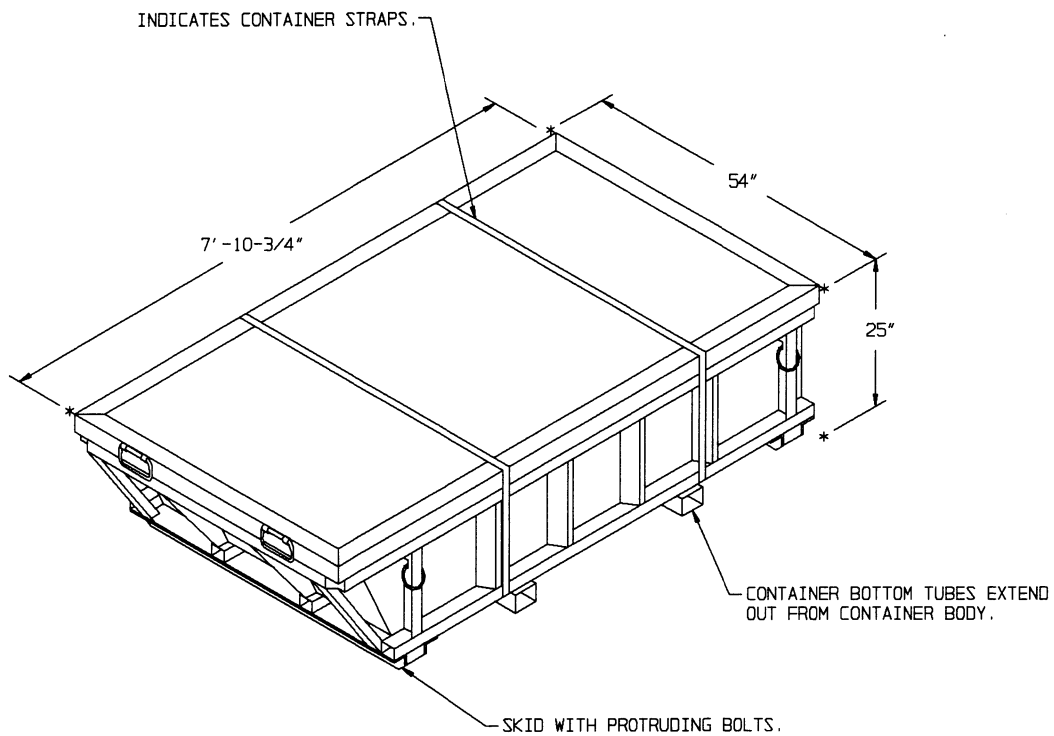
### GENERAL NOTES

(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 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 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 28 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 28, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.

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- 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 27.
- 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 19 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 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 FLOORLINE BLOCKING AS SHOWN ON PAGE 26 OR WITH KNEE BRACE ASSEMBLIES, AS SHOWN ON PAGE 24.
- GG. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.



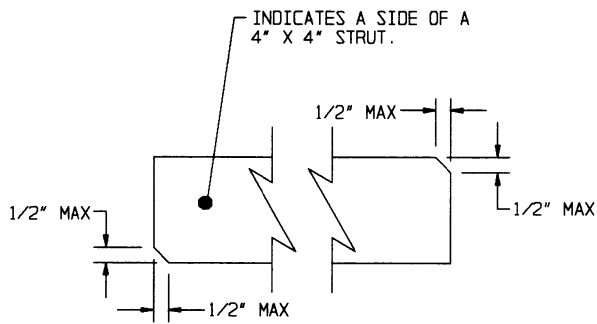
**SHIPPING AND STORAGE CONTAINER**

CONTAINER DIMENSIONS - - - 7'-10-3/4" LONG X 54" WIDE X 25" HIGH.

GROSS WEIGHT (APPROX)

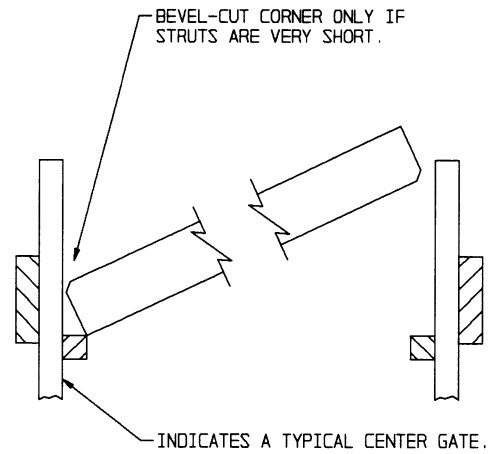
- WITH HE COMP C4, M58 CHARGE, DODIC M025 - - - - 3,000 LBS
- WITH HE COMP C4, M58A1 CHARGE, DODIC M025 - - - 3,000 LBS
- WITH HE COMP C54, M58A1 CHARGE, DODIC M913 - - - 3,000 LBS
- WITH HE COMP C4, M58A2 CHARGE, DODIC M913 - - - 3,000 LBS
- WITH INERT, M68 CHARGE, DODIC M051 - - - - - 3,000 LBS
- WITH INERT, M68A1 CHARGE, DODIC M051 - - - - - 3,000 LBS

CUBE - - - - - 74.0 CUBIC FEET



**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.



ONE SEAL WITH TWO PAIR OF NOTCHES.

**STRAP JOINT A**

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

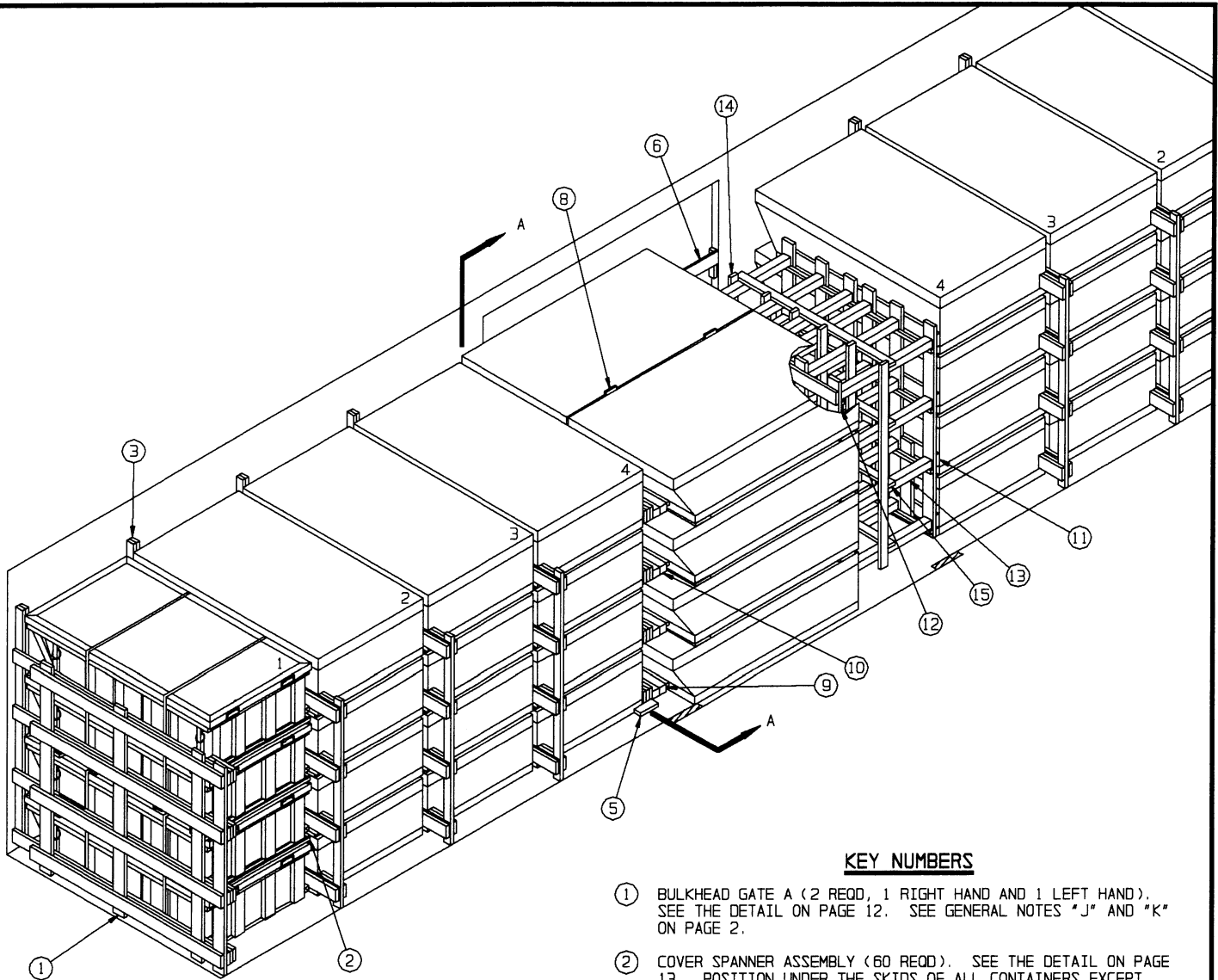


TWO SEALS, BUTTED TOGETHER, WITH TWO PAIR OF CRIMPS EACH SEAL.

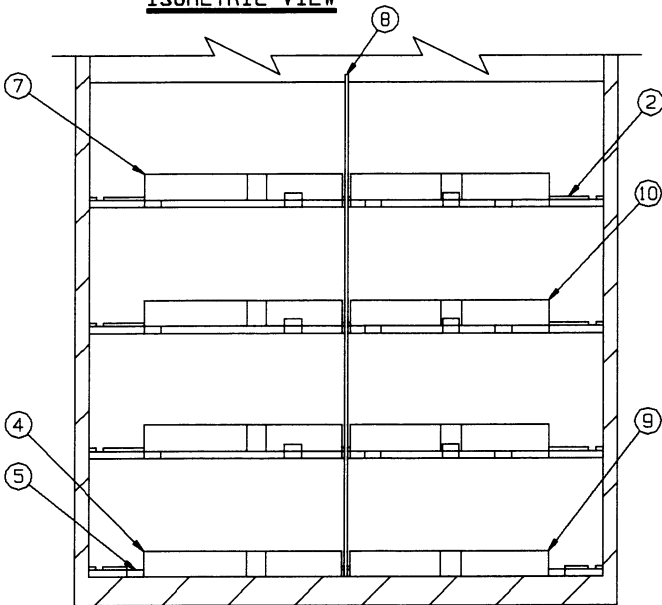
**STRAP JOINT B**

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 BULKHEAD GATE A (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE DETAIL ON PAGE 12. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ② COVER SPANNER ASSEMBLY (60 REQD). SEE THE DETAIL ON PAGE 13. POSITION UNDER THE SKIDS OF ALL CONTAINERS EXCEPT THOSE IN THE BOTTOM LAYER. POSITION WITH THE STOP PIECES ON THE UPPER SIDE.
- ③ SEPARATOR GATE A (6 REQD, 3 RIGHT HAND AND 3 LEFT HAND). SEE THE DETAIL ON PAGE 12. INSTALL WITH THE HORIZONTAL PIECES AGAINST THE ALREADY LOADED CONTAINERS.
- ④ SPACER ASSEMBLY A WITHOUT RISER PIECES (1 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE FLOOR WITH THE 2" X 6" FILL PIECES OF THE ASSEMBLY IN CONTACT WITH THE CROSSWISE CONTAINER ON EACH SIDE OF THE BOTTOM TUBE NEAREST THE NOSE END.
- ⑤ SPACER ASSEMBLY RETAINER PIECE, 2" X 4" X 9" (2 REQD). POSITION FLUSH WITH THE SIDE OF THE CROSSWISE CONTAINER AND AGAINST THE OUTER EDGE OF SPACER ASSEMBLY A WITHOUT RISER PIECES, PIECE MARKED ④, AND/OR AGAINST THE OUTER EDGE OF SPACER ASSEMBLY B WITHOUT RISER PIECE, PIECE MARKED ⑨, NAIL TO THE CAR FLOOR W/2-16d NAILS.
- ⑥ DOORWAY PROTECTION (2 REQD). SEE THE DETAIL ON PAGE 17. NAIL TO THE DOORPOSTS W/12d NAILS. SEE SPECIAL NOTES 3, 4, AND 5 ON PAGE 7.
- ⑦ SPACER ASSEMBLY A WITH RISER PIECES (3 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE NOSE END OF A LENGTHWISE CONTAINER IN THE FIRST LAYER IN CONTACT WITH A CROSSWISE CONTAINER, PRIOR TO LOADING THE LENGTHWISE CONTAINER IN THE SECOND LAYER. REPEAT FOR SUBSEQUENT LAYERS.
- ⑧ ANTI-CHAFING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 15. POSITION WITH THE STOP BLOCKS UNDER THE STACK OF CONTAINERS WHICH ARE ALREADY LOADED. SEE SPECIAL NOTE 4 ON PAGE 7.

(CONTINUED ON PAGE 7)

- ⑨ SPACER ASSEMBLY B WITHOUT RISER PIECES (1 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE FLOOR WITH THE 2" X 6" FILL PIECES OF THE ASSEMBLY IN CONTACT WITH A CROSSWISE CONTAINER ON EACH SIDE OF THE BOTTOM TUBE NEAREST THE BASE END.
- ⑩ SPACER ASSEMBLY B WITH RISER PIECES (3 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE NOSE END OF A LENGTHWISE CONTAINER IN THE FIRST LAYER, IN CONTACT WITH A CROSSWISE CONTAINER, PRIOR TO LOADING THE LENGTHWISE CONTAINER IN THE SECOND LAYER. REPEAT FOR SUBSEQUENT LAYERS.
- ⑪ CENTER GATE A (1 REQD). SEE THE DETAIL AND THE APPLICABLE "VIEW A" ON PAGE 14, BASED ON THE WIDTH OF THE CAR BEING LOADED. POSITION AGAINST THE CROSSWISE CONTAINER STACK.
- ⑫ CENTER GATE B (1 REQD). SEE THE DETAIL ON PAGE 15. POSITION AGAINST THE LENGTHWISE CONTAINER STACKS. WIRE TIE TO OPPOSING HANDLES ON THE ENDS OF THE COVERS.
- ⑬ STRUT, 4" X 4" BY CUT TO FIT (REF: 59") (24 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑪ AND ⑫, W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 6 ON THIS PAGE.
- ⑭ VERTICAL STRUT BRACING, 2" X 4" X 7'-6" (6 REQD). NAIL TO THE STRUTS, PIECES MARKED ⑬, W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "S" ON PAGE 2.
- ⑮ HORIZONTAL STRUT BRACING, 2" X 4" X 7'-0" (4 REQD). NAIL TO THE STRUTS, PIECES MARKED ⑬, W/3-10d NAILS AT EACH JOINT.

SPECIAL NOTES:

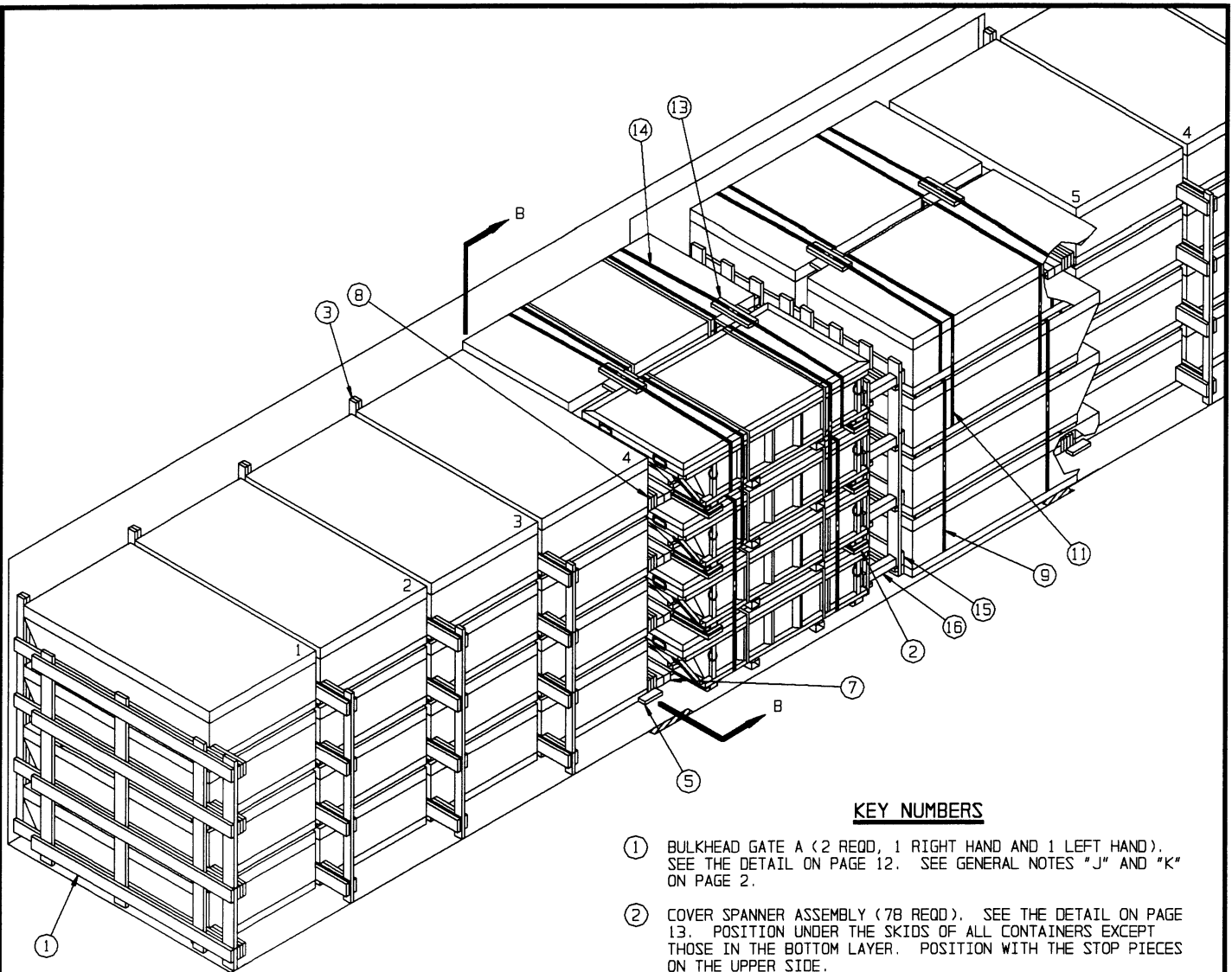
- 1. A 40-UNIT LOAD IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR. CARS OF OTHER LENGTHS AND WIDER CARS CAN BE USED. CARS NARROWER THAN 9'-2" CANNOT BE USED. SEE SPECIAL NOTE 4.
- 2. A CAR EQUIPPED WITH 10'-0" WIDE THRU DOOR OPENINGS IS SHOWN. CARS HAVING OTHER WIDTH THRU DOORS OR CARS EQUIPPED WITH STAGGERED DOOR OPENINGS CAN BE USED. CARS HAVING THRU DOOR OPENINGS AS NARROW AS 8'-0" CAN BE USED BUT LOADING WILL BE DIFFICULT. THE DEPICTED LOADING PATTERN IS ADEQUATE FOR CARS HAVING STAGGERED DOOR OPENINGS.
- 3. THE DOORWAY PROTECTION ASSEMBLY ON THE SIDE OPPOSITE THE LOADING SIDE OF THE CAR IS NOT TO BE INSTALLED UNTIL ALL CROSSWISE CONTAINER STACKS HAVE BEEN LOADED. ALSO, THE DOORS ON THE SIDE OPPOSITE THE LOADING SIDE MUST BE OPEN DURING LOADING OPERATIONS. DUE TO THE LENGTH AND WIDTH OF THE DEMOLITION CHARGE CONTAINER, THE DIMENSION ACROSS THE CORNERS OF THE CONTAINER WILL NOT PERMIT TURNING THE CONTAINER WITHIN THE CONFINES OF THE CAR WIDTH. OPENING THE DOOR ON THE OPPOSITE SIDE WILL ALLOW THE END OF THE CONTAINER TO PROTRUDE THRU CROSSWISE CONTAINER STACKS IN THE ENDS OF THE CAR.
- 4. IF THE CAR BEING LOADED IS 9'-4" OR 9'-6" WIDE, THE DOORWAY PROTECTION PROCEDURES ON PAGE 8 WILL BE USED. OMIT THE DOORWAY PROTECTION, PIECES MARKED ⑥, AND THE ANTI-CHAFING ASSEMBLY, PIECE MARKED ⑧. IN LIEU OF THESE PIECES, INSTALL THE UNITIZING STRAPS, PIECES MARKED ⑨ AND ⑩, THE SIDE BLOCKING, PIECES MARKED ⑫, THE TOP-OF-LOAD SPACERS, PIECES MARKED ⑬, AND THE BUNDLING STRAPS, PIECES MARKED ⑭, AS SHOWN ON PAGE 8.
- 5. IF THE 9'-2" WIDE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS, OMIT THE DOORWAY PROTECTION, PIECES MARKED ⑥. TO PROTECT THE COVER LATCHES ON THE CONTAINER, INSTALL 2" X 6" DOOR SPANNERS TO SPAN THE PLUG DOORS. INSTALL AT THE SAME HEIGHTS AS THE HORIZONTAL PIECES OF ANY OF THE CENTER GATES HEREIN, ONE FOR EACH LAYER OF THE LOAD. NAIL TO THE CAR SIDEWALL W/4-10d NAILS AT EACH END. DO NOT NAIL TO THE PLUG DOOR.
- 6. NOTE THAT DOUBLED 2" X 6" STRUTS MAY BE USED IN LIEU OF THE DEPICTED 4" X 4" STRUTS, PIECES MARKED ⑬. LAMINATE THE DOUBLED 2" X 6" STRUTS W/1-10d NAIL EVERY 6". VERTICAL AND HORIZONTAL STRUT BRACING WILL BE REQUIRED AS FOR THE 4" X 4" STRUTS.
- 7. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. THE LOAD CAN BE REDUCED BY FOUR CONTAINERS FROM THE END OF THE LOAD OPPOSITE THE LENGTHWISE CONTAINER STACKS BY OMITTING A CROSSWISE CONTAINER STACK. NOTE THAT AN ADDITIONAL SET OF VERTICAL AND HORIZONTAL STRUT BRACING, PIECES MARKED ⑭ AND ⑮, WILL BE REQUIRED. THE LOAD CAN BE REDUCED BY MULTIPLES OF TEN CONTAINERS BY OMITTING LAYERS FROM THE LOAD. TO REDUCE A LOAD BY ONE CONTAINER, SEE THE PROCEDURES ON PAGE 19 FOR GUIDANCE.

BILL OF MATERIAL

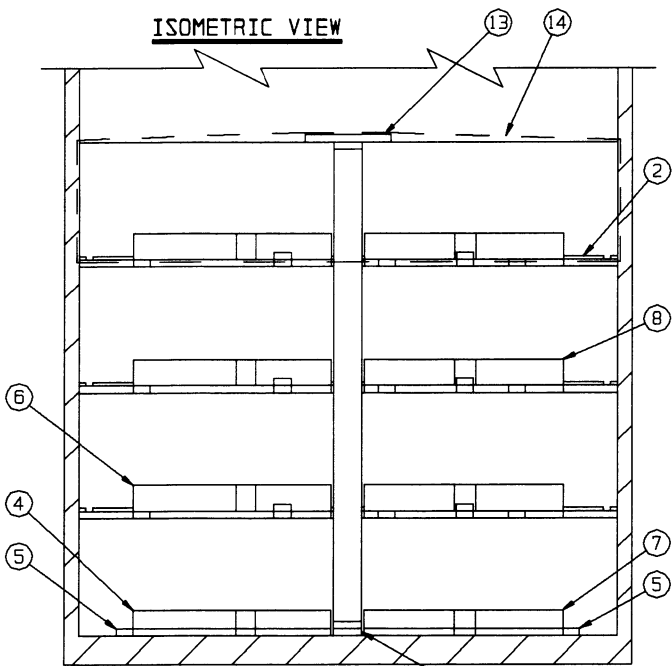
LUMBER	LINEAR FEET	BOARD FEET
1" X 2"	550	92
1" X 6"	327	164
2" X 2"	75	25
2" X 3"	36	18
2" X 4"	307	205
2" X 6"	727	727
2" X 8"	273	364
4" X 4"	174	232
NAILS	NO. REQD	POUNDS
6d (2")	1,606	9-1/2
10d (3")	1,653	25-1/2
12d (3-1/4")	28	1/2
16d (3-1/2")	100	2-1/4
60d (6")	32	3-1/4
WIRE, NO. 14 GAGE	5' REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	40	120,000 LBS
DUNNAGE		3,688 LBS
TOTAL WEIGHT		123,688 LBS (APPROX)



**ISOMETRIC VIEW**



**SECTION B-B**

THE UNIZING STRAPS, PIECES MARKED ⑨ AND ⑪ HAVE BEEN OMITTED FOR CLARITY.

**KEY NUMBERS**

- ① BULKHEAD GATE A (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE DETAIL ON PAGE 12. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ② COVER SPANNER ASSEMBLY (78 REQD). SEE THE DETAIL ON PAGE 13. POSITION UNDER THE SKIDS OF ALL CONTAINERS EXCEPT THOSE IN THE BOTTOM LAYER. POSITION WITH THE STOP PIECES ON THE UPPER SIDE.
- ③ SEPARATOR GATE A (7 REQD, 4 RIGHT HAND AND 3 LEFT HAND). SEE THE DETAIL ON PAGE 12. INSTALL WITH THE HORIZONTAL PIECES AGAINST THE ALREADY LOADED CONTAINERS.
- ④ SPACER ASSEMBLY A WITHOUT RISER PIECES (2 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE FLOOR WITH THE 2" X 6" FILL PIECES OF THE ASSEMBLY IN CONTACT WITH THE CROSSWISE CONTAINER ON EACH SIDE OF THE BOTTOM TUBE NEAREST THE NOSE END.
- ⑤ SPACER ASSEMBLY RETAINER PIECE, 2" X 4" X 9" (4 REQD). POSITION FLUSH WITH THE SIDE OF THE CROSSWISE CONTAINER AND AGAINST THE OUTER EDGE OF SPACER ASSEMBLY A WITHOUT RISER PIECES, PIECE MARKED ④, AND/OR AGAINST THE OUTER EDGE OF NAIL SPACER ASSEMBLY B WITHOUT RISER PIECE, PIECE MARKED ⑦, NAIL TO THE CAR FLOOR W/2-16d NAILS.
- ⑥ SPACER ASSEMBLY A WITH RISER PIECES (6 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE NOSE END OF A LENGTHWISE CONTAINER IN THE FIRST LAYER IN CONTACT WITH A CROSSWISE CONTAINER, PRIOR TO LOADING THE LENGTHWISE CONTAINER IN THE SECOND LAYER. REPEAT FOR SUBSEQUENT LAYERS.
- ⑦ SPACER ASSEMBLY B WITHOUT RISER PIECES, (2 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE FLOOR WITH THE 2" X 6" FILL PIECES OF THE ASSEMBLY IN CONTACT WITH THE CROSSWISE CONTAINER ON EACH SIDE OF THE BOTTOM TUBE NEAREST THE NOSE END.
- ⑧ SPACER ASSEMBLY B WITH RISER PIECES (6 REQD). SEE THE DETAIL ON PAGE 13. POSITION ON THE NOSE END OF A LENGTHWISE CONTAINER IN THE FIRST LAYER IN CONTACT WITH A CROSSWISE CONTAINER, PRIOR TO LOADING THE LENGTHWISE CONTAINER IN THE SECOND LAYER. REPEAT FOR SUBSEQUENT LAYERS.

(CONTINUED ON PAGE 9)



(KEY NUMBERS CONTINUED FROM PAGE 8)

- ⑨ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (8 REQ'D). INSTALL TO ENCIRCLE THE BOTTOM THREE CONTAINERS IN A LENGTHWISE STACK. SEE SPECIAL NOTES 4 AND 5 AT RIGHT.
- ⑩ SEAL FOR 1-1/4" STEEL STRAPPING (40 REQ'D, 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑪ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (8 REQ'D). INSTALL TO ENCIRCLE THE TOP TWO CONTAINERS IN A LENGTHWISE STACK.
- ⑫ SIDE BLOCKING, 2" X 6" X 48" (DOUBLED) (2 REQ'D). POSITION SO AS TO BE ON THE CENTER OF THE CAR WIDTH AND TO CENTER AGAINST THE CONTAINER BOTTOM TUBES OF THE LENGTHWISE CONTAINER STACK IN THE DOORWAY. SEE THE "SECTION B-B" VIEW ON PAGE 8. NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE IN A LIKE MANNER.
- ⑬ TOP-OF-LOAD SPACER (4 REQ'D). SEE THE DETAIL ON PAGE 13.
- ⑭ BUNDLING STRAP, 1-1/4" X .035" X .031" X 24'-0" LONG STEEL STRAPPING (4 REQ'D). INSTALL TO ENCIRCLE THE TOP LAYER OF LENGTHWISE CONTAINERS. STAPLE TO THE TOP-OF-LOAD SPACER, PIECE MARKED ⑬, W/2 STAPLES.
- ⑮ CENTER GATE C (2 REQ'D). SEE THE DETAIL ON PAGE 16.
- ⑯ STRUT, 4" X 4" BY CUT TO FIT (REF: 29") (32 REQ'D). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑮ W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 6 AT RIGHT.

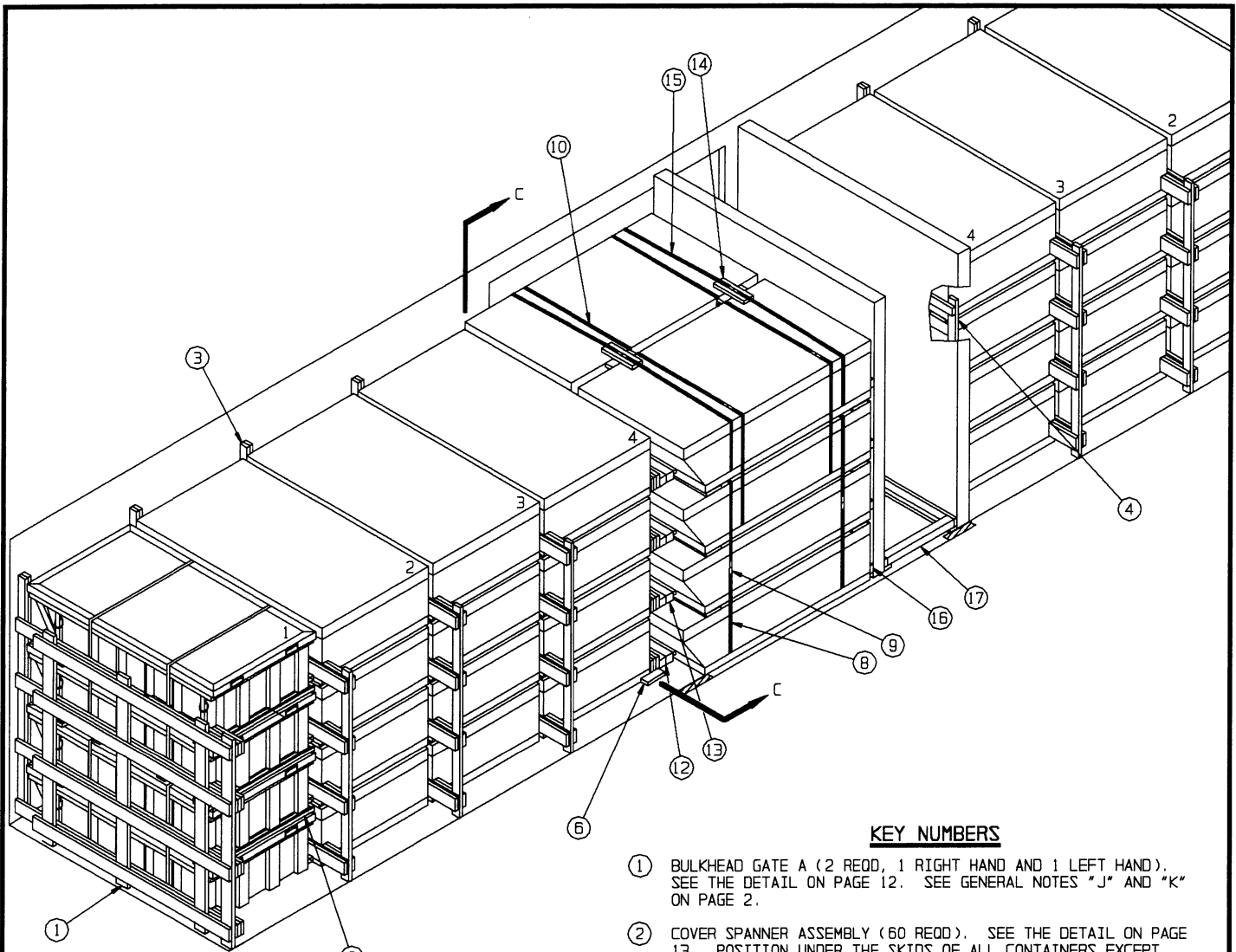
SPECIAL NOTES:

1. A 52-UNIT LOAD IS SHOWN IN A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL BOXCAR. CARS OF OTHER LENGTHS AND WIDER CARS CAN BE USED. CARS NARROWER THAN 9'-2" CANNOT BE USED. SEE SPECIAL NOTE 4.
2. A CAR EQUIPPED WITH 15'-0" WIDE THRU DOOR OPENINGS IS SHOWN. CARS HAVING OTHER WIDTH STAGGERED DOORS CAN BE USED. CARS HAVING THRU DOOR OPENINGS ARE NOT PRACTICAL TO LOAD AND WILL NOT BE USED.
3. THE DOORS ON THE SIDE OPPOSITE THE LOADING SIDE MUST BE OPEN DURING LOADING OPERATIONS. DUE TO THE LENGTH AND WIDTH OF THE DEMOLITION CHARGE CONTAINER, THE DIMENSION ACROSS THE CORNERS OF THE CONTAINER WILL NOT PERMIT TURNING THE CONTAINER WITHIN THE CONFINES OF THE CAR WIDTH. OPENING THE DOOR ON THE OPPOSITE WILL ALLOW THE END OF THE CONTAINER TO PROTRUDE THRU THE DOOR OPENINGS WHEN MAKING THE TURN TO POSITION THE CROSSWISE CONTAINER STACKS IN THE ENDS OF THE CAR.
4. IF THE CAR BEING LOADED IS ONLY 9'-2" WIDE, THE DOORWAY PROTECTION PROCEDURES ON PAGE 6 WILL BE USED FOR BOTH THE MAIN AND THE AUXILIARY DOOR OPENINGS. OMIT THE UNITIZING STRAPS, PIECES MARKED ⑨ AND ⑪, THE SIDE BLOCKING, PIECES MARKED ⑫, THE TOP-OF-LOAD SPACERS, PIECES MARKED ⑬, AND THE BUNDLING STRAPS, PIECES MARKED ⑭. IN LIEU OF THESE PIECES, USE THE DOORWAY PROTECTION AND THE ANTI-CHAFING ASSEMBLY, PIECES MARKED ⑥ AND ⑧, RESPECTIVELY, AS SHOWN ON PAGE 6. IF THE CAR IS 9'-4" OR 9'-6" WIDE. THE DEPICTED BLOCKING AND BRACING IS ADEQUATE. SEE SPECIAL NOTE 5.
5. IF THE CAR BEING LOADED IS 9'-2" WIDE AND IS EQUIPPED WITH PLUG TYPE DOORS FOR EITHER THE MAIN OR AUXILIARY DOORS, OR BOTH, OMIT THE DOORWAY PROTECTION, PIECES MARKED ⑥ ON PAGE 6. TO PROTECT THE COVER LATCHES ON THE CONTAINER, INSTALL 2" X 6" DOOR SPANNERS TO SPAN THE PLUG DOORS. INSTALL AT THE SAME HEIGHTS AS THE HORIZONTAL PIECES OF ANY OF THE CENTER GATES HEREIN, ONE FOR EACH LAYER OF THE LOAD. NAIL TO THE CAR SIDEWALL W/4-10d NAILS AT EACH END. DO NOT NAIL TO THE PLUG DOOR.
6. NOTE THAT DOUBLED 2" X 6" STRUTS MAY BE USED IN LIEU OF THE DEPICTED 4" X 4" STRUTS, PIECES MARKED ⑯. LAMINATE THE DOUBLED 2" X 6" STRUTS W/1-10d NAIL EVERY 6".
7. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. THE LOAD CAN BE REDUCED BY FOUR CONTAINERS BY OMITTING A CROSSWISE CONTAINER STACK, BUT LOADING OF THE LENGTHWISE STACKS THEN WILL BE DIFFICULT IN THAT END OF THE CAR. NOTE THAT A SET OF VERTICAL AND HORIZONTAL STRUT BRACING, SHOWN AS PIECES MARKED ⑭ AND ⑮ ON PAGE 6, WILL THEN BE REQUIRED. THE LOAD CAN BE REDUCED BY MULTIPLES OF THIRTEEN CONTAINERS BY OMITTING LAYERS FROM THE LOAD. TO REDUCE A LOAD BY ONE CONTAINER, SEE THE PROCEDURES ON PAGE 19 FOR GUIDANCE.

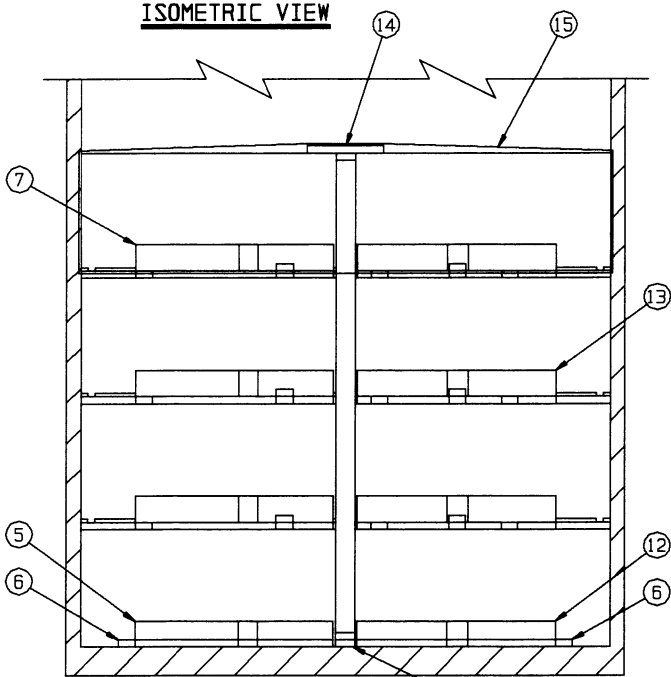
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 2"	715	120
1" X 6"	265	133
2" X 2"	127	43
2" X 3"	7	4
2" X 4"	301	201
2" X 6"	973	973
2" X 8"	355	474
4" X 4"	190	254
NAILS	NO. REQ'D	POUNDS
6d (2")	1,952	11-1/2
10d (3")	1,943	30
16d (3-1/2")	168	3-3/4
60d (6")	64	6-1/2
STEEL STRAPPING, 1-1/4" -- 428' REQ'D ----- 62 LBS		
SEAL FOR 1-1/4" STRAPPING -- 40 REQ'D ----- 2 LBS		
STAPLE FOR 1/4" STRAPPING -- 8 REQ'D ----- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	52	156,000 LBS
DUNNAGE		4,512 LBS
<hr/>		
TOTAL WEIGHT		160,512 LBS (APPROX)



**ISOMETRIC VIEW**



**SECTION C-C**

**KEY NUMBERS**

- ① BULKHEAD GATE A (2 REOD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE DETAIL ON PAGE 12. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ② COVER SPANNER ASSEMBLY (60 REOD). SEE THE DETAIL ON PAGE 13. POSITION UNDER THE SKIDS OF ALL CONTAINERS EXCEPT THOSE IN THE BOTTOM LAYER. POSITION WITH THE STOP PIECES ON THE UPPER SIDE.
- ③ SEPARATOR GATE A (6 REOD, 3 RIGHT HAND AND 3 LEFT HAND). SEE THE DETAIL ON PAGE 12. INSTALL WITH THE HORIZONTAL PIECES AGAINST THE ALREADY LOADED CONTAINERS.
- ④ SEPARATOR GATE B (1 REOD). SEE THE DETAIL ON PAGE 16. POSITION WITH THE HORIZONTAL PIECES AGAINST THE LOAD DIVIDER BULKHEAD.
- ⑤ SPACER ASSEMBLY A WITHOUT RISER PIECES (1 REOD). SEE THE DETAIL ON PAGE 13. POSITION ON THE FLOOR WITH THE 2" X 6" FILL PIECES OF THE ASSEMBLY IN CONTACT WITH THE CROSSWISE CONTAINER ON EACH SIDE OF THE BOTTOM TUBE NEAREST THE NOSE END.
- ⑥ SPACER ASSEMBLY RETAINER PIECE, 2" X 4" X 9" (2 REOD). POSITION FLUSH WITH THE SIDE OF THE CROSSWISE CONTAINER AND AGAINST THE OUTER EDGE OF SPACER ASSEMBLY A WITHOUT RISER PIECES, PIECE MARKED ④, AND/OR AGAINST THE OUTER EDGE OF NAIL SPACER ASSEMBLY B WITHOUT RISER PIECE, PIECE MARKED ⑫, NAIL TO THE CAR FLOOR W/2-16d NAILS.
- ⑦ SPACER ASSEMBLY A WITH RISER PIECES (3 REOD). SEE THE DETAIL ON PAGE 13. POSITION ON THE NOSE END OF A LENGTHWISE CONTAINER IN THE FIRST LAYER IN CONTACT WITH A CROSSWISE CONTAINER, PRIOR TO LOADING THE LENGTHWISE CONTAINER IN THE SECOND LAYER. REPEAT FOR SUBSEQUENT LAYERS.
- ⑧ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (4 REOD). INSTALL TO ENCIRCLE THE BOTTOM THREE CONTAINERS IN A LENGTHWISE STACK.
- ⑨ SEAL FOR 1-1/4" STEEL STRAPPING (20 REOD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.

(CONTINUED ON PAGE 11)

- ⑩ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (4 REQ). INSTALL TO ENCIRCLE THE TOP TWO CONTAINERS IN A LENGTHWISE STACK.
- ⑪ SIDE BLOCKING, 2" X 4" X 48" (DOUBLED) (1 REQ). POSITION SO AS TO BE ON THE CENTER OF THE CAR WIDTH AND TO CENTER AGAINST THE CONTAINER BOTTOM TUBES OF THE LENGTHWISE CONTAINER STACK IN THE DOORWAY. SEE THE "SECTION B-B" VIEW ON PAGE 8. NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑫ SPACER ASSEMBLY B WITHOUT RISER PIECES (1 REQ). SEE THE DETAIL ON PAGE 13. POSITION ON THE FLOOR WITH THE 2" X 6" FILL PIECES OF THE ASSEMBLY IN CONTACT WITH A CROSSWISE CONTAINER ON EACH SIDE OF THE BOTTOM TUBE NEAREST THE BASE END.
- ⑬ SPACER ASSEMBLY B WITH RISER PIECES (3 REQ). SEE THE DETAIL ON PAGE 13. POSITION ON THE NOSE END OF A LENGTHWISE CONTAINER IN THE FIRST LAYER, IN CONTACT WITH A CROSSWISE CONTAINER PRIOR TO LOADING THE LENGTHWISE CONTAINER IN THE SECOND LAYER. REPEAT FOR SUBSEQUENT LAYERS.
- ⑭ TOP-OF-LOAD SPACER (2 REQ). SEE THE DETAIL ON PAGE 13.
- ⑮ BUNDLING STRAP, 1-1/4" X .035" X .031" X 24'-0" LONG STEEL STRAPPING (4 REQ). INSTALL TO ENCIRCLE THE TOP LAYER OF LENGTHWISE CONTAINERS. STAPLE TO TOP-OF-LOAD SPACER, PIECE MARKED ⑭, W/2 STAPLES.
- ⑯ SPACER ASSEMBLY C (8 REQ). SEE THE DETAIL ON PAGE 17. INSERT THE SUPPORT PIECES OF THE ASSEMBLY INTO THE LONGITUDINAL TUBES OF THE FRAME FOR EACH CONTAINER PRIOR TO POSITIONING THE CONTAINER WITHIN THE LOAD.
- ⑰ STRUT ASSEMBLY (1 REQ). SEE THE "STRUT ASSEMBLY FOR 1-PIECE BULKHEADS" DETAIL ON PAGE 27. INSTALL BETWEEN THE LOAD DIVIDER BULKHEADS. SEE SPECIAL NOTE 6 AT RIGHT.

SPECIAL NOTES:

- 1. A 40-UNIT LOAD IS SHOWN IN A 50'-6" LONG BY 9'-4" WIDE CUSHIONED BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS. CARS OF OTHER LENGTHS AND WIDER CARS CAN BE USED. CARS NARROWER THAN 9'-2" CANNOT BE USED.
- 2. A CAR EQUIPPED WITH 10'-0" WIDE THRU DOOR OPENINGS IS SHOWN. CARS HAVING OTHER WIDTH THRU DOORS OR CARS EQUIPPED WITH STAGGERED DOORS CAN BE USED. CARS HAVING THRU DOOR OPENINGS AS NARROW AS 8'-0" CAN BE USED BUT LOADING WILL BE DIFFICULT.
- 3. THE DOORS ON THE SIDE OPPOSITE THE LOADING SIDE MUST BE OPEN DURING LOADING OPERATIONS. DUE TO THE LENGTH AND WIDTH OF THE DEMOLITION CHARGE CONTAINER, THE DIMENSION ACROSS THE CORNERS OF THE CONTAINER WILL NOT PERMIT TURNING THE CONTAINER WITHIN THE CONFINES OF THE CAR WIDTH. OPENING THE DOORS ON THE OPPOSITE WALL ALLOW THE END OF THE CONTAINER TO PROTRUDE THRU THE DOOR OPENINGS WHEN MAKING THE TURN TO POSITION THE CROSSWISE CONTAINER STACKS IN THE ENDS OF THE CAR.
- 4. IF THE CAR BEING LOADED IS ONLY 9'-2" WIDE AND IS EQUIPPED WITH SLIDING TYPE DOORS, THE DOORWAY PROTECTION PROCEDURES ON PAGE 6 WILL BE USED IN LIEU OF THE UNITIZING STRAPS, PIECES MARKED ⑨ AND ⑩, THE SIDE BLOCKING, PIECES MARKED ⑪, THE TOP-OF-LOAD SPACERS, PIECES MARKED ⑭, AND THE BUNDLING STRAPS, PIECES MARKED ⑮. IN LIEU OF THESE PIECES, USE THE DOORWAY PROTECTION AND THE ANTI-CHAFING ASSEMBLY, PIECES MARKED ⑥ AND ⑧, RESPECTIVELY, AS SHOWN ON PAGE 6. IF THE CAR IS 9'-4" OR 9'-6" WIDE, THE DEPICTED BLOCKING AND BRACING IS ADEQUATE.
- 5. IF THE CAR BEING LOADED IS 9'-2" WIDE AND IS EQUIPPED WITH PLUG TYPE THRU DOORS OR PLUG TYPE MAIN OR AUXILIARY DOORS, OR BOTH, FOR STAGGERED DOORS, OMIT THE DOORWAY PROTECTION, PIECES MARKED ⑥ ON PAGE 6. TO PROTECT THE COVER LATCHES ON THE CONTAINER, INSTALL 2" X 6" DOOR SPANNERS TO SPAN THE PLUG DOORS. INSTALL AT THE SAME HEIGHTS AS THE HORIZONTAL PIECES OF ANY OF THE CENTER GATES HEREIN, ONE FOR EACH LAYER OF THE LOAD. NAIL TO THE CAR SIDEWALL W/4-10d NAILS AT EACH END. DO NOT NAIL TO THE PLUG DOOR.
- 6. A STRUT ASSEMBLY, SHOWN AS PIECE MARKED ⑰ ON PAGE 10, IS REQUIRED BETWEEN THE LOAD DIVIDER BULKHEADS WHEN THE LOAD IN EITHER END OF THE CAR IS 50,000 POUNDS OR MORE. SEE THE "STRUT ASSEMBLY FOR 1-PIECE BULKHEADS" DETAIL ON PAGE 27.
- 7. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. THE LOAD CAN BE REDUCED BY EIGHT CONTAINERS BY OMITTING ALL THE LENGTHWISE CONTAINERS. PIECES MARKED ⑤ THRU ⑮ WILL THEN NOT BE REQUIRED. AN ADDITIONAL SEPARATOR GATE B WILL BE REQUIRED FOR THE CROSSWISE CONTAINER STACK WHICH WILL THEN BE AGAINST THE LOAD DIVIDER BULKHEAD. THE LOAD CAN BE REDUCED BY MULTIPLES OF TEN CONTAINERS BY OMITTING ONE OR MORE ENTIRE LAYERS. THE LOAD CAN BE REDUCED BY OMITTING LAYERS OR STACKS FROM EITHER OR BOTH ENDS OF THE LOAD. IF THE DESIRED QUANTITY CANNOT BE ATTAINED BY ANY OF THESE MEANS, ONE CONTAINER CAN BE OMITTED IN CONJUNCTION WITH ANY OF THE METHODS BY EMPLOYING THE PROCEDURES ON PAGE 19 FOR GUIDANCE.
- 8. IF A 60'-8" LONG CAR IS FURNISHED FOR LOADING, 48 CONTAINERS CAN BE LOADED, FOR AN APPROXIMATE LADING WEIGHT OF 144,000 POUNDS. IF THE CAR IS EQUIPPED WITH 10'-0" WIDE THRU DOORS THERE WILL BE FIVE CROSSWISE STACKS IN EACH END OF THE CAR ALONG WITH THE TWO LENGTHWISE STACKS. IF THE CAR IS EQUIPPED WITH 15'-0" WIDE STAGGERED DOORS, THERE SHOULD BE SIX CROSSWISE STACKS IN THE RIGHT END OF THE LOAD ALONG WITH THE TWO LENGTHWISE STACKS, AND THERE SHOULD BE FOUR CROSSWISE STACKS IN THE LEFT END.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 2"	550	92
1" X 6"	223	112
1" X 8"	18	12
2" X 2"	40	14
2" X 4"	328	219
2" X 6"	541	541
2" X 8"	273	364
4" X 4"	72	96
NAILS	NO. REQD	POUNDS
6d (2")	1,554	9-1/4
10d (3")	1,254	19-1/2
12d (3-1/4")	16	1/2
16d (3-1/2")	16	1/2
60d (6")	32	3-1/4
STEEL STRAPPING, 1-1/4" -- 214' REQD ----- 31 LBS		
SEAL FOR 1-1/4" STRAPPING -- 20 REQD ----- 1 LB		
STAPLE FOR 1/4" STRAPPING -- 4 REQD ----- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	40	120,000 LBS
DUNNAGE		2,965 LBS
TOTAL WEIGHT		122,965 LBS (APPROX)

VERTICAL PIECE, 2" X 4" X 9'-0" FOR A 4-HIGH LOAD, 6'-9" FOR A 3-HIGH LOAD, 54" FOR A 2-HIGH LOAD, 12" FOR A 1-HIGH LOAD (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE HORIZONTAL PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 12".

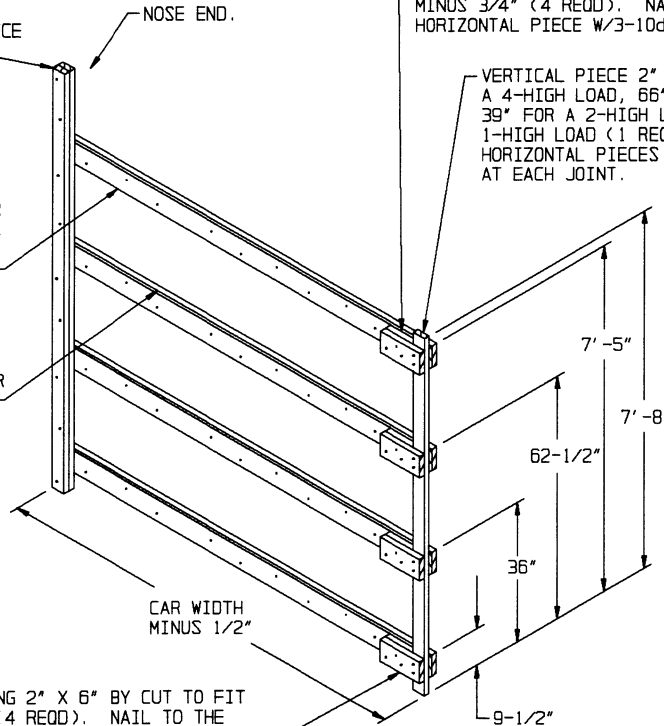
HORIZONTAL PIECE, 1" X 6" BY CAR WIDTH MINUS 1/2" (4 REQD). NAIL TO THE 2" X 6" HORIZONTAL PIECE W/1-6d NAIL EVERY 8".

HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (4 REQD).

SIDE BLOCKING 2" X 6" BY CUT TO FIT MINUS 3/4" (4 REQD). NAIL TO THE FILL PIECE W/3-10d NAILS AND TO THE VERTICAL PIECE W/2-10d NAILS.

FILL PIECE, 2" X 6" BY CUT TO FIT MINUS 3/4" (4 REQD). NAIL TO HORIZONTAL PIECE W/3-10d NAILS.

VERTICAL PIECE 2" X 4" X 7'-8" FOR A 4-HIGH LOAD, 66" FOR A 3-HIGH LOAD, 39" FOR A 2-HIGH LOAD, 12" FOR A 1-HIGH LOAD (1 REQD). NAIL TO THE HORIZONTAL PIECES W/3-10d NAILS AT EACH JOINT.



### SEPARATOR GATE A

RIGHT HAND AND LEFT HAND GATES ARE REQUIRED. A RIGHT HAND GATE IS SHOWN. NOTE THAT LATERAL BRACING AT THE NOSE END OF THE CONTAINER IS NOT PROVIDED BY THE GATE FOR 1-HIGH LOAD.

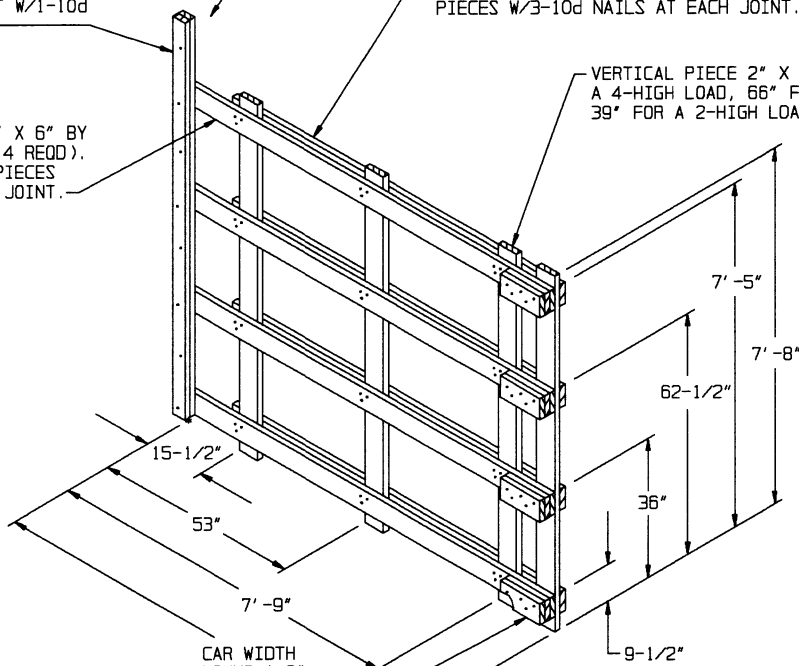
LATERAL STOP PIECE, 2" X 4" X 8'-7" FOR A 4-HIGH LOAD, 6'-5" FOR A 3-HIGH LOAD, 50" FOR A 2-HIGH LOAD (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE LOAD BEARING PIECES W/4-10d NAILS AT EACH JOINT. NAIL THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 12".

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

NOSE END.

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

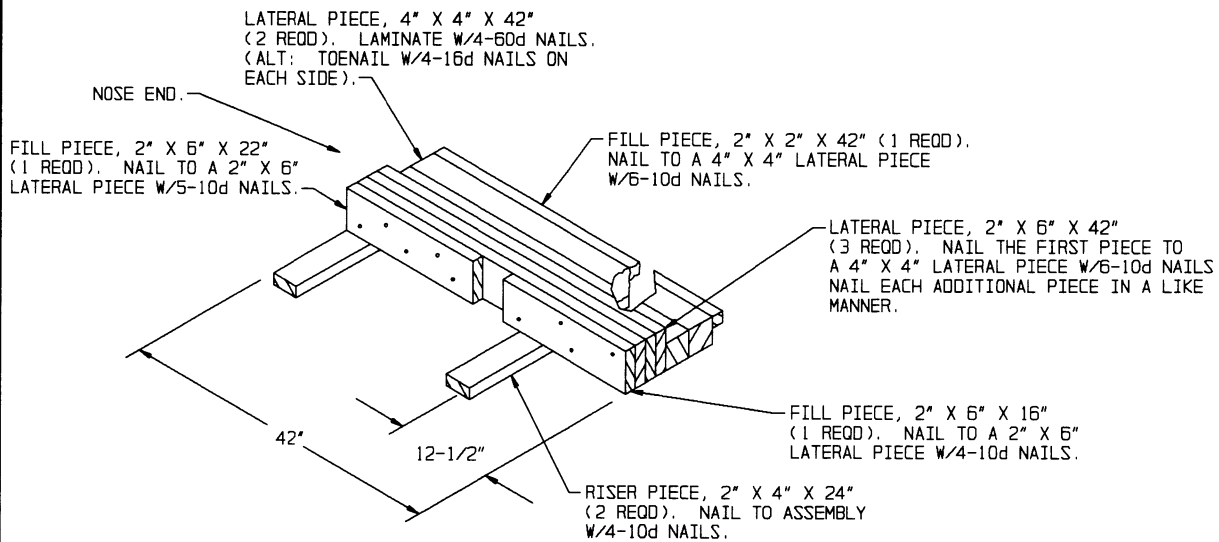
VERTICAL PIECE 2" X 6" X 7'-8" FOR A 4-HIGH LOAD, 66" FOR A 3-HIGH LOAD, 39" FOR A 2-HIGH LOAD (4 REQD).



SIDE BLOCKING 2" X 6" BY CUT TO FIT MINUS 3/4" (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO A LOAD BEARING PIECE W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-10d NAILS.

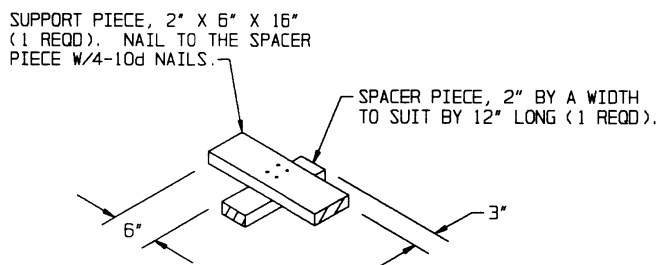
### BULKHEAD GATE A

RIGHT HAND AND LEFT HAND GATES ARE REQUIRED. A RIGHT HAND GATE IS SHOWN.

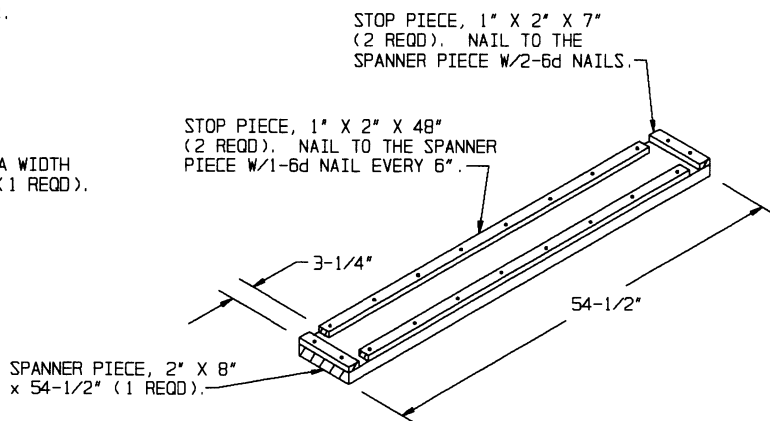


**SPACER ASSEMBLY A**

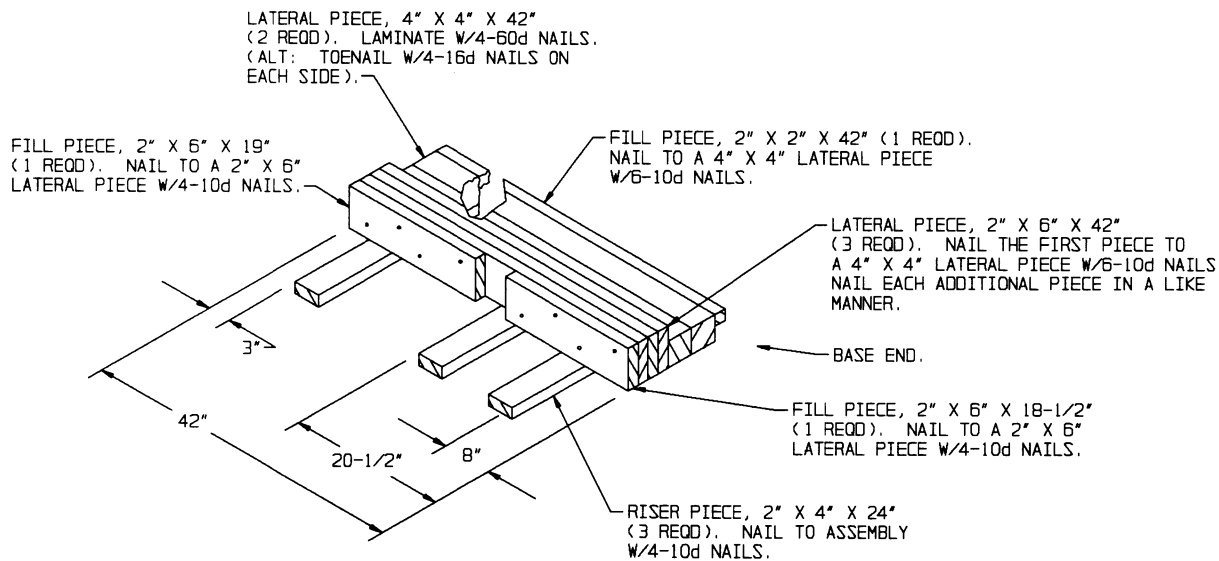
FOR NOSE END OF CROSSWISE CONTAINER.



**TOP-OF-LOAD SPACER**

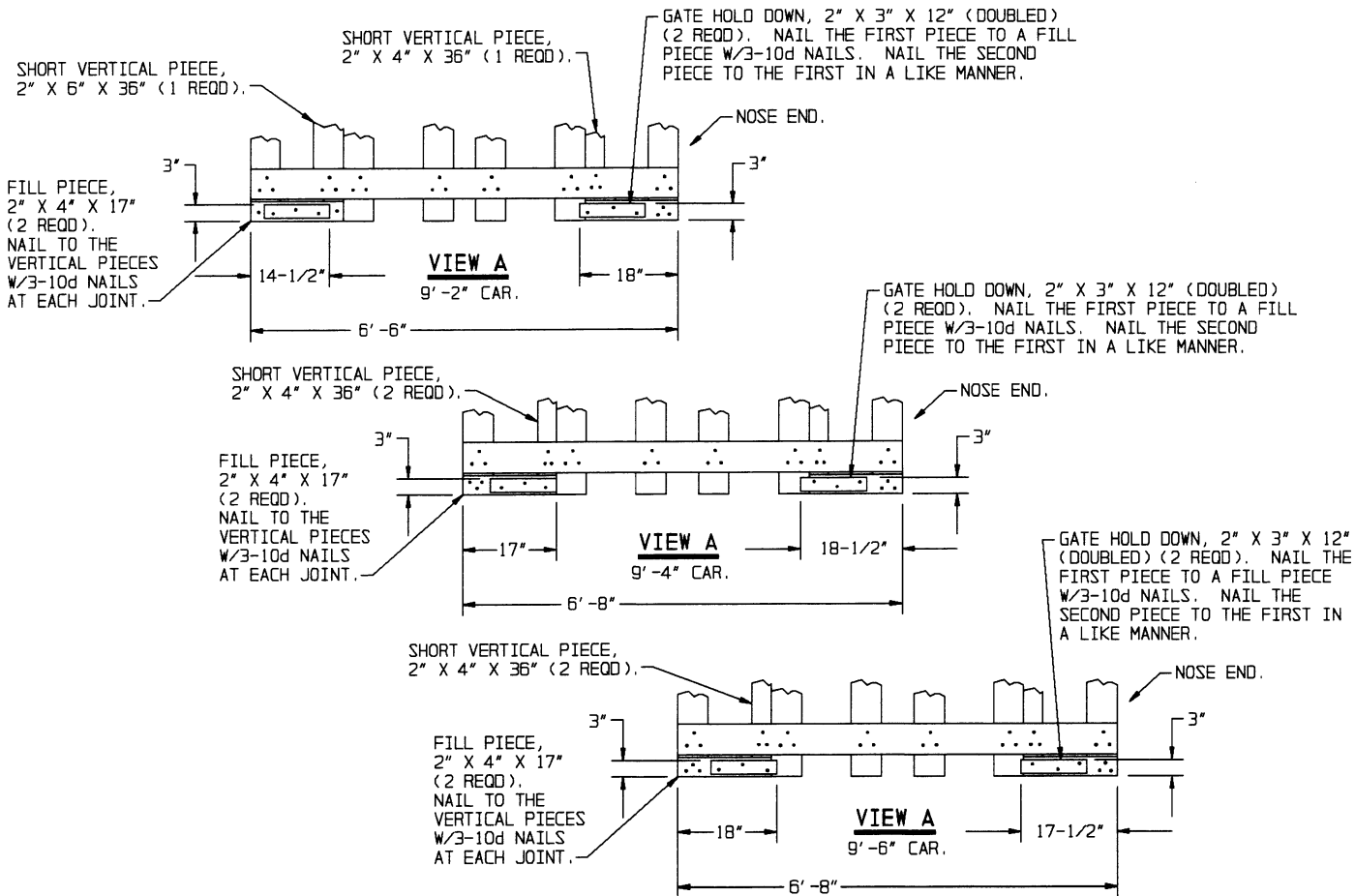
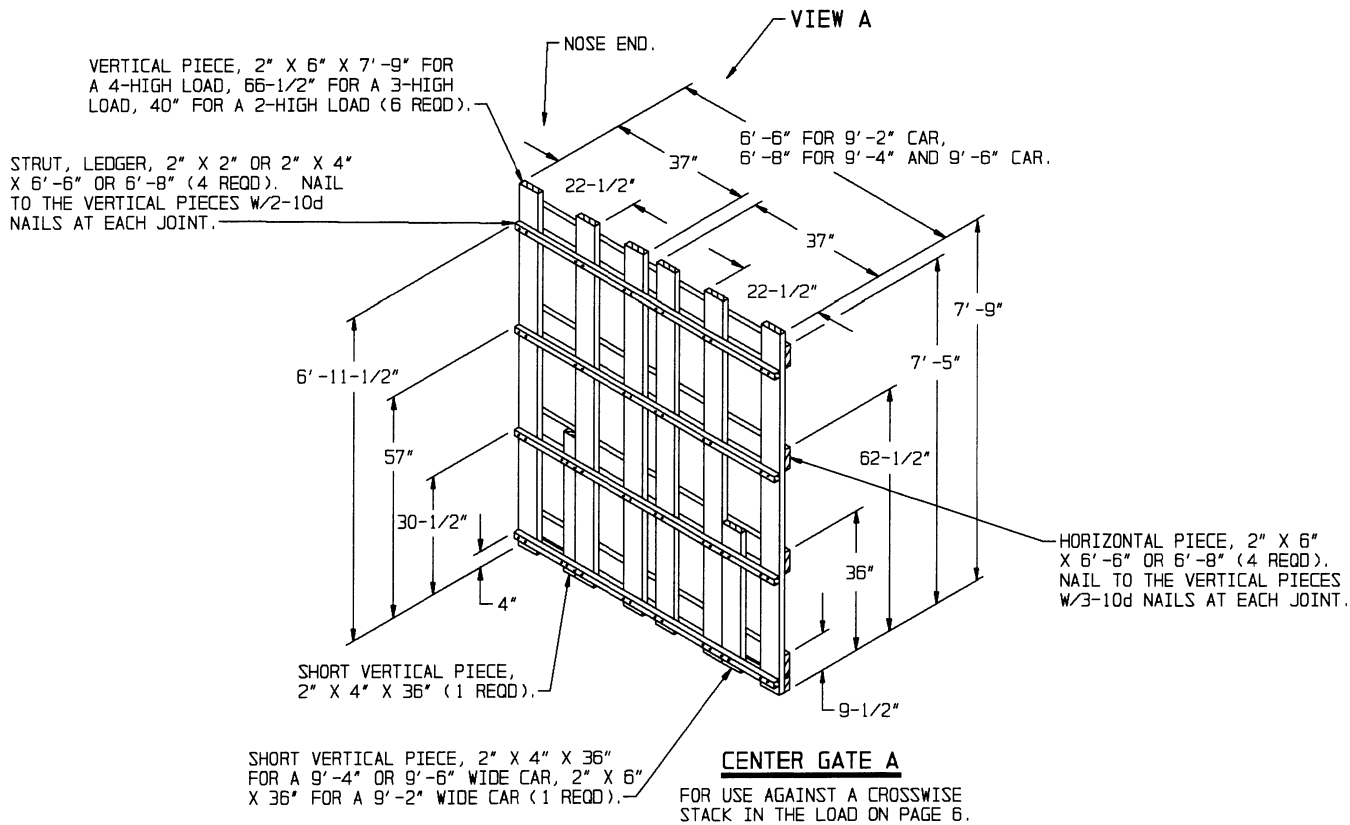


**COVER SPANNER ASSEMBLY**



**SPACER ASSEMBLY B**

FOR BASE END OF CROSSWISE CONTAINER.



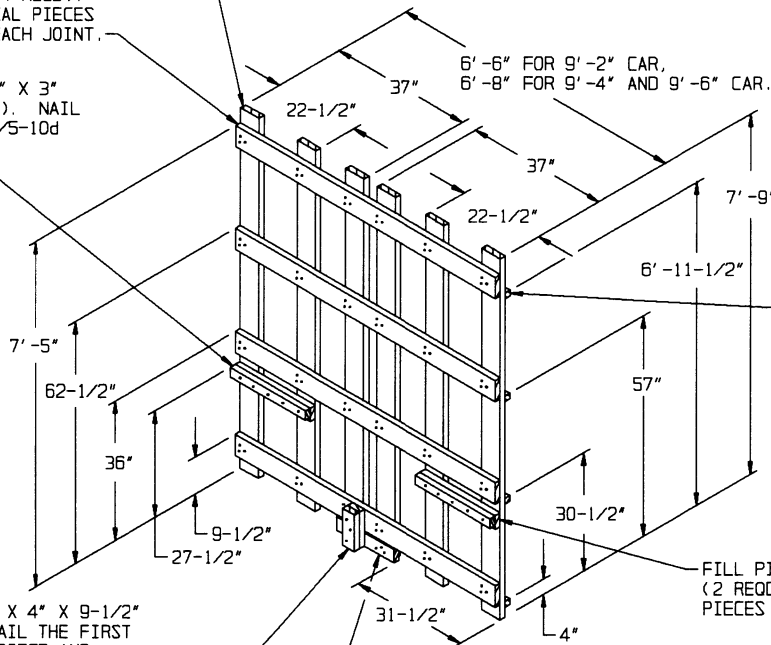
**DETAILS**

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

GATE HOLD DOWN, 2" X 3" X 22-1/2" (2 REQD). NAIL TO A FILL PIECE W/5-10d NAILS.

VERTICAL PIECE, 2" X 6" X 7'-9" FOR A 4-HIGH LOAD, 66-1/2" FOR A 3-HIGH LOAD, 40" FOR A 2-HIGH LOAD (6 REQD).

6'-6" FOR 9'-2" CAR, 6'-8" FOR 9'-4" AND 9'-6" CAR.

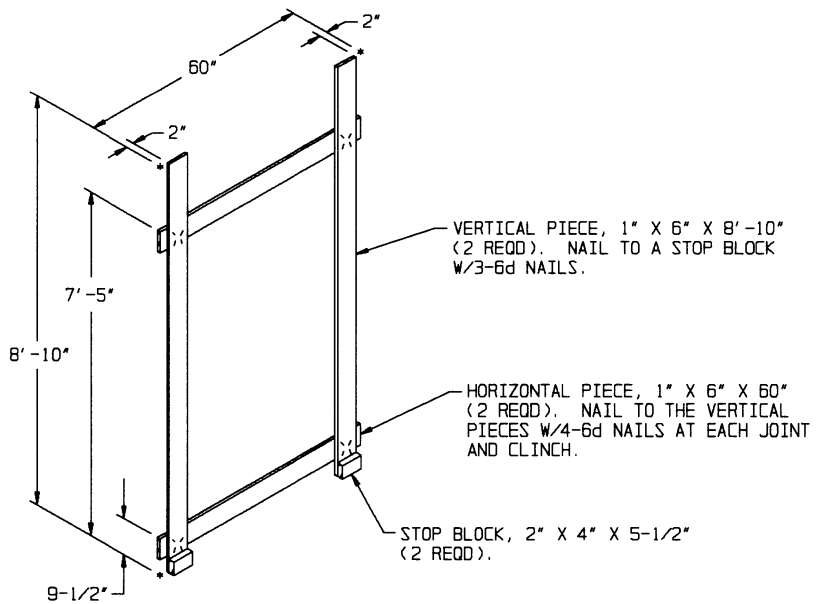


GATE LATERAL BRACE, 2" X 4" X 9-1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO A HORIZONTAL PIECE AND THE FILL PIECE W/2-10d NAILS AT EACH JOINT. NAIL THE SECOND PIECE TO THE FIRST W/3-10d NAILS. ONLY REQUIRED FOR 9'-4" AND 9'-6" WIDE CARS.

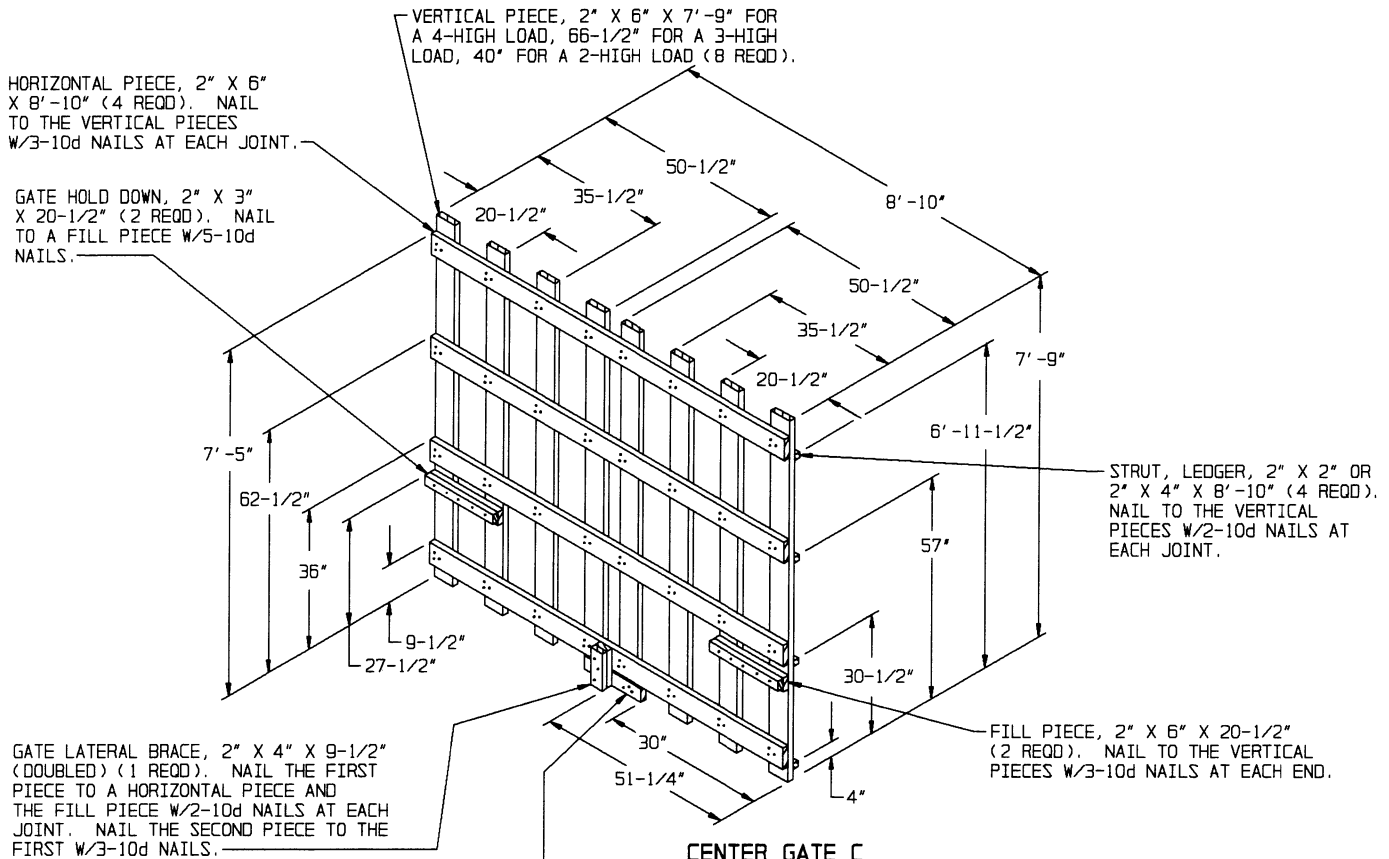
FILL PIECE, 2" X 4" X 17" (1 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH END. ONLY REQUIRED FOR 9'-4" AND 9'-6" WIDE CARS.

**CENTER GATE B**

FOR USE AGAINST AN ENDWISE STACK IN THE LOAD ON PAGE 6.

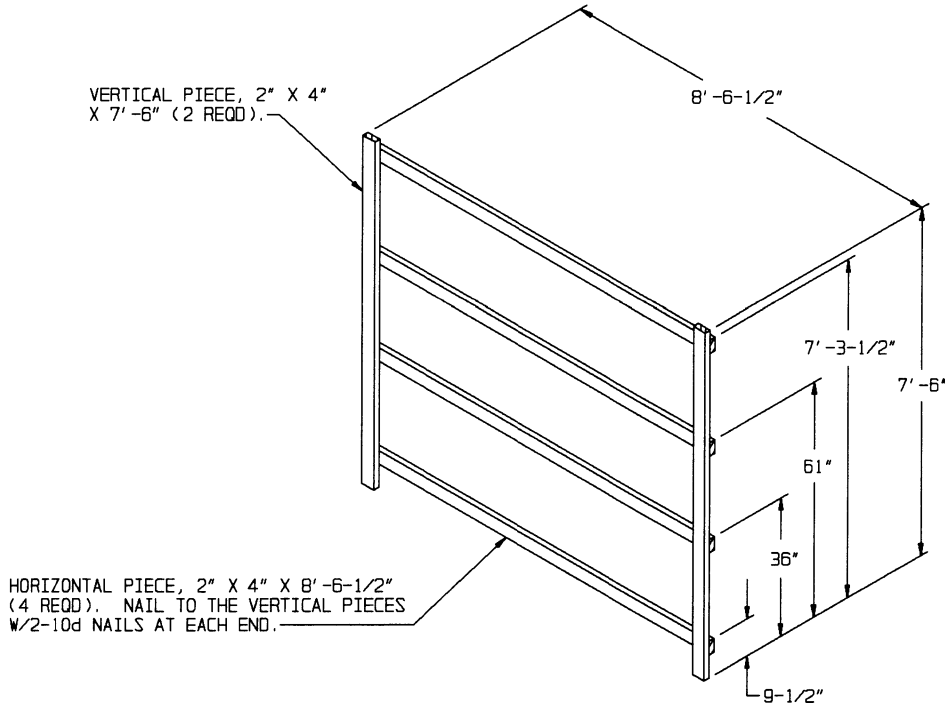


**ANTI-CHAFING ASSEMBLY**



**CENTER GATE C**

FOR USE IN THE LOAD ON PAGE 8.

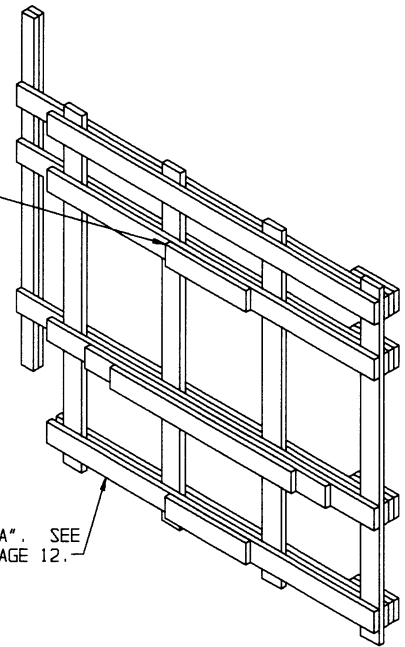


**SEPARATOR GATE B**

FOR USE IN THE LOAD ON PAGE 10.



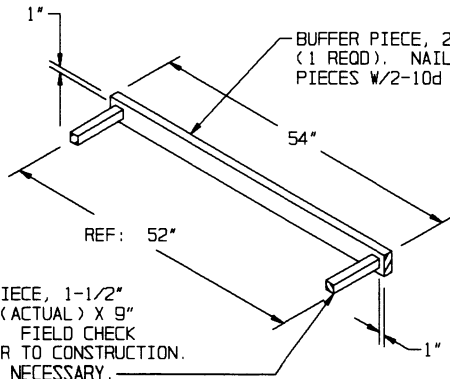
SHIM MATERIAL, 6" WIDE PLYWOOD OR DIMENSIONAL LUMBER OF A THICKNESS AND LENGTH AS REQUIRED TO FILL THE VOID BETWEEN THE CAR ENDWALL AND THE BULKHEAD GATE "A". NAIL TO THE BULKHEAD GATE "A" AND/OR LAMINATE W/1 APPLICABLY SIZED NAIL EVERY 6".



BULKHEAD GATE "A". SEE THE DETAIL ON PAGE 12.

**BULKHEAD GATE B**

FOR CARS HAVING BOWED ENDWALLS.

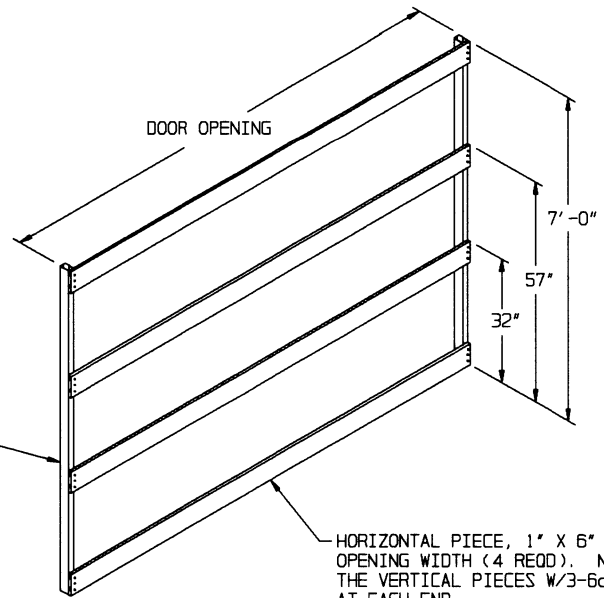


BUFFER PIECE, 2" X 4" X 54"  
(1 REQD). NAIL TO THE SUPPORT  
PIECES W/2-10d NAILS AT EACH JOINT.

SUPPORT PIECE, 1-1/2"  
X 1-1/2" (ACTUAL) X 9"  
(2 REQD). FIELD CHECK  
SIZE PRIOR TO CONSTRUCTION.  
ADJUST AS NECESSARY.

**SPACER ASSEMBLY C**

FOR USE IN THE LOAD ON PAGE 10.



**DOORWAY PROTECTION**

HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (1 REQD PER LAYER). NAIL TO THE VERTICAL PIECES W/3-6d NAILS AT EACH END. SEE THE "DOORWAY PROTECTION" DETAIL ON PAGE 17 FOR HEIGHT LOCATIONS.

VIEW B

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

DOORWAY PROTECTION-GATE STRAP, 1-1/4" X .035" OR .031" X 3'-0" (REF) NAIL-ON TYPE STEEL STRAPPING (1 REQD 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.

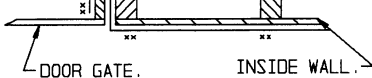
INDICATES DOOR OPENING.

INDICATES CAR SIDEWALL.

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

DOOR POST.

INDICATES FLOOR.



**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 FOUR-LAYER LOAD. ADJUST THE QUANTITIES OF HORIZONTAL PIECES AND DOORWAY PROTECTION GATE STRAPS TO SUIT.

DOOR SPANNER, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (1 REQD). 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).

DOOR OPENING WIDTH

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

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

HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (1 REQD PER CONTAINER LAYER).

SPREADER PIECE, 2" X 3" MATERIAL CUT SLIGHTLY LONGER THAN MEASURED DISTANCE (2 REQD). DRIVE INTO POSITION TO PROVIDE FOR A WEDGE FIT. TOENAIL TO THE VERTICAL PIECES W/2-12d NAILS AT EACH END.

**ALTERNATIVE DOORWAY PROTECTION B**

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.

STRAPPING BOARD, 2" X 4" X 55-1/2"  
(REF) (2 REQD). ALIGN WITH RISER  
PIECE AND NAIL TO THE HORIZONTAL  
PIECES W/2-10d NAILS AT EACH JOINT.

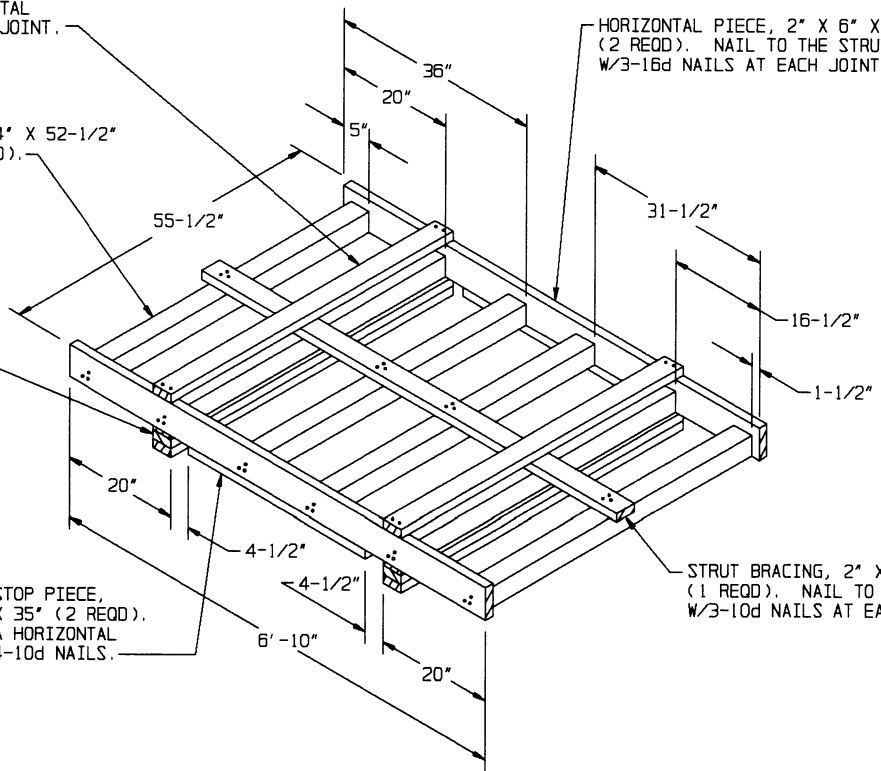
STRUT, 4" X 4" X 52-1/2"  
(REF) (6 REQD).

RISER PIECE, 1 EACH 1" X 4"  
X 55-1/2" (REF) AND 2 EACH  
2" X 4" X 55-1/2" (REF) (2 REQD).  
NAIL THE 1" X 4" PIECE TO A  
STRUT W/6-6d NAILS. NAIL EACH  
2" X 4" PIECE TO THE 1" X 4"  
AND/OR TOGETHER W/6-10d NAILS.

LATERAL STOP PIECE,  
2" X 2" X 35" (2 REQD).  
NAIL TO A HORIZONTAL  
PIECE W/4-10d NAILS.

HORIZONTAL PIECE, 2" X 6" X 6'-10"  
(2 REQD). NAIL TO THE STRUTS  
W/3-16d NAILS AT EACH JOINT.

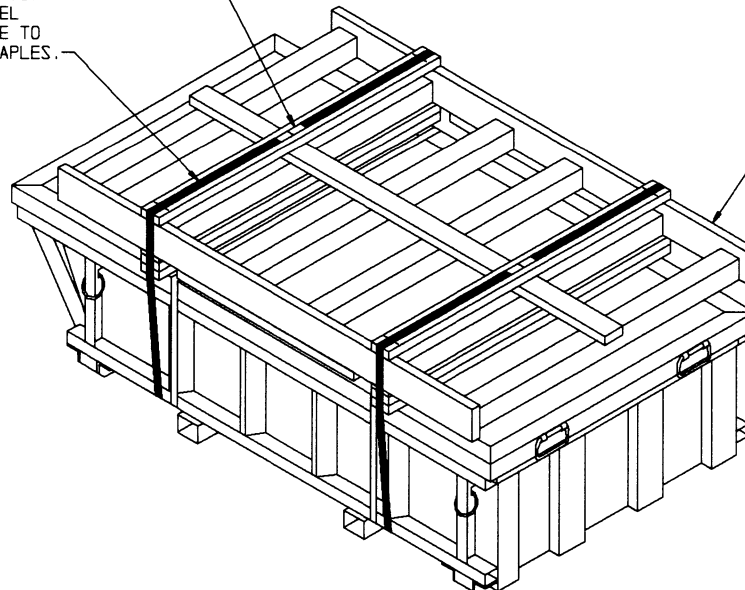
STRUT BRACING, 2" X 4" X 6'-10"  
(1 REQD). NAIL TO THE STRUTS  
W/3-10d NAILS AT EACH JOINT.



**FILLER ASSEMBLY**

SEAL FOR 1-1/4" STRAPPING  
(4 REQD, 2 PER STRAP).  
DOUBLE CRIMP EACH SEAL.

UNITIZING STRAP, 1-1/4" X .035"  
OR .031" X 15'-6" LONG STEEL  
STRAPPING (2 REQD). STAPLE TO  
THE FILLER ASSEMBLY W/2 STAPLES.

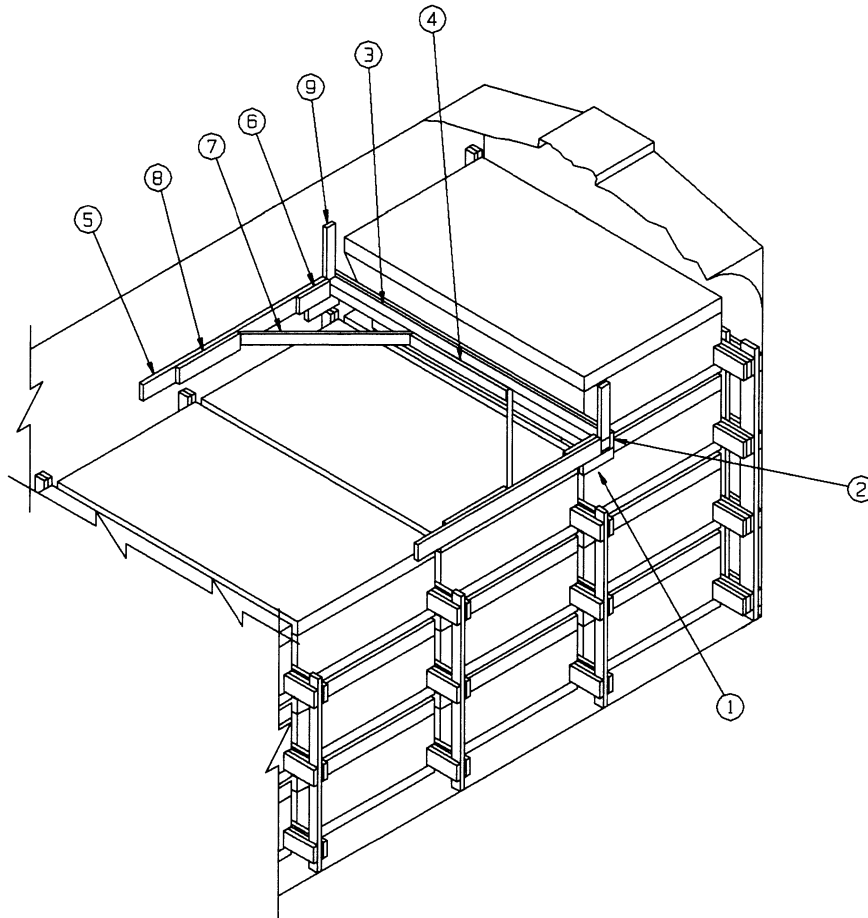


FILLER ASSEMBLY (1 REQD).  
SEE THE DETAIL ABOVE.

**APPLICATION OF FILLER ASSEMBLY**

THE FILLER ASSEMBLY IS TO BE USED ONLY IN THE TOP LAYER OF THE  
CONTAINERS CROSSWISE PORTION OF A LOAD. THERE SHOULD BE ONE  
CROSSWISE CONTAINER BETWEEN THE OMITTED CONTAINER AND THE  
LENGTHWISE CONTAINER STACKS AND/OR BETWEEN THE OMITTED CONTAINER  
AND CENTER GATE "A".

**OMITTED CONTAINER PROCEDURES**



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

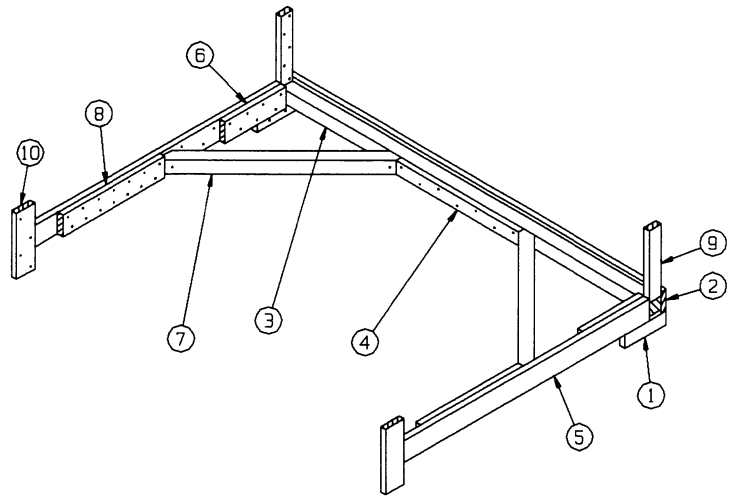
1. A 9'-4" WIDE WOOD-LINED (SIDEWALLS) CONVENTIONAL BOXCAR IS SHOWN WITH A TYPICAL K-BRACE. WOOD-LINED CARS OF OTHER WIDTHS (9'-2" MINIMUM) CAN BE USED.
2. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN A WOOD-LINED CAR FOR THE SECUREMENT OF A PARTIAL TOP TIER, BE IT A FIRST THRU A FOURTH TIER. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN APPROXIMATELY 4,000 POUNDS. THIS WILL BE NOT MORE THAN ONE DEMOLITION CHARGE CONTAINER.
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, ⑥, 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/16-16d 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 AN 9'-4" WIDE CAR OR 36" LONG FOR A 9'-2". ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.

**KEY NUMBERS**

- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REOD). POSITION HORIZONTALLY AS SHOWN WITH THE TOP EDGE APPROXIMATELY 5-1/2" ABOVE THE CONTAINER IN THE NEXT LOWER LAYER. NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ② LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT TO FIT) (1 REOD). 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 REOD).
- ④ CENTER CLEAT, 2" X 4" X 38" (1 REOD). 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 REOD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑥ POCKET CLEAT, 2" X 6" X 12" (2 REOD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/4-16d NAILS.
- ⑦ DIAGONAL BRACE, 2" X 4" X 50-1/4" (2 REOD). 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 REOD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/8-16d NAILS.
- ⑨ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REOD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

**SPECIAL NOTES:**

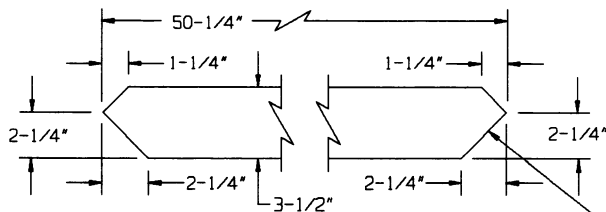
1. THE TYPE "B" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 7,000 POUNDS. THIS WILL BE NOT MORE THAN TWO DEMOLITION CHARGE CONTAINERS. IF THE PARTIAL TIER TO BRACED IS ONLY ONE CONTAINER, THE TYPE "A" K-BRACE DEPICTED ON PAGE 20 MAY BE USED. IF THREE OR FOUR CONTAINERS ARE TO BE SHIPPED IN THE PARTIAL LAYER, REFER TO THE DETAILS ON PAGES 22 AND 23, RESPECTIVELY, FOR GUIDANCE.
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 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 AN 9'-4" WIDE CAR OR 36" LONG FOR A 9'-2" CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
4. REFER TO PAGE 20 FOR A TYPICAL INSTALLATION OF A K-BRACE.



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION HORIZONTALLY AS SHOWN WITH THE TOP EDGE APPROXIMATELY 5-1/2" ABOVE THE CONTAINER IN THE NEXT LOWER LAYER. NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE GENERAL NOTES "J" AND "K" 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 38" (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/4-16d 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/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/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.



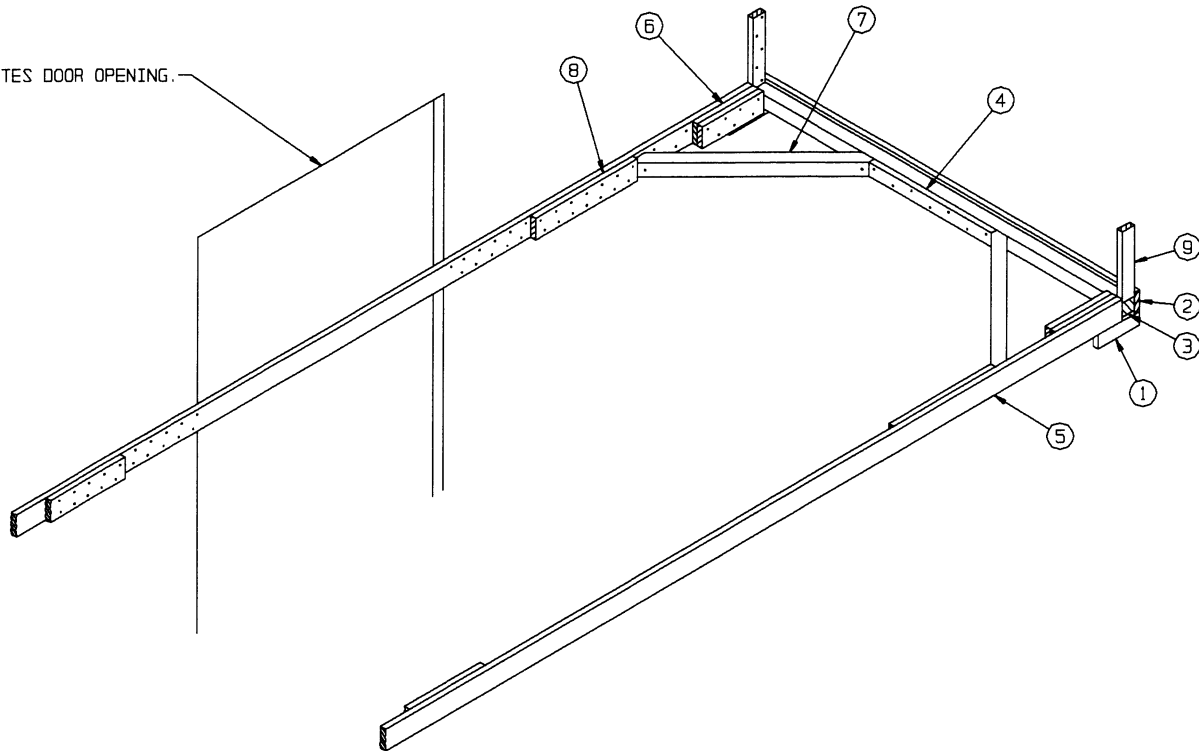
**DIAGONAL BRACE**

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**

INDICATES DOOR OPENING.



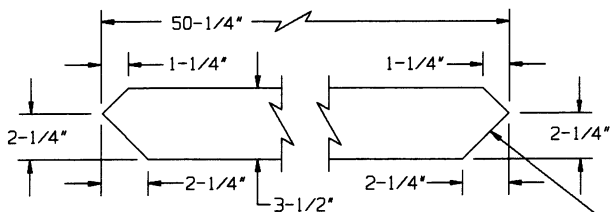
**ISOMETRIC VIEW**

**KEY NUMBERS**

**SPECIAL NOTES:**

1. THE TYPE "C" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 10,000 POUNDS. THIS WILL BE NOT MORE THAN THREE DEMOLITION CHARGE CONTAINERS. IF LESS CONTAINERS ARE TO BE SHIPPED, REFER TO THE PROCEDURES ON PAGES 20 AND 21 FOR GUIDANCE IN THE SHIPMENT OF ONE OR TWO DEMOLITION CHARGE CONTAINERS, RESPECTIVELY. IF FOUR DEMOLITION CHARGE CONTAINERS ARE TO BE SHIPPED, REFER TO THE PROCEDURES ON PAGE 23.
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, 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. LAMINATE THE SECOND PIECE TO THE FIRST W/40-16d 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.
3. THE CENTER CLEAT, SHOWN AS PIECE MARKED ④, WILL BE 36" LONG FOR AN 9'-2" WIDE CAR OR 38" LONG FOR A 9'-4" CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
4. CAUTION: A TYPE "C" K-BRACE MUST BE USED IN BOTH ENDS OF THE CAR; THE BRACE IS NOT DESIGNED FOR USE IN ONLY ONE END. NOTE THAT EXCEPT FOR PIECES MARKED ⑤, THE QUANTITIES SPECIFIED ARE APPLICABLE ONLY FOR THE BRACE IN ONE END.
5. REFER TO PAGE 20 FOR A TYPICAL INSTALLATION OF A K-BRACE.

- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION HORIZONTALLY AS SHOWN WITH THE TOP EDGE APPROXIMATELY 5-1/2" ABOVE THE CONTAINER IN THE NEXT LOWER LAYER. NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE GENERAL NOTES "J" AND "K" 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 38" (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 CUT TO FIT (2 REQD). A CLEAT WILL BE OF A LENGTH AS NECESSARY TO EXTEND ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO CONTACT PIECE MARKED ③ OF THE K-BRACE IN THE OPPOSITE END OF THE CAR. NAIL TO THE CAR SIDEWALL W/40-12d NAILS.
- ⑥ POCKET CLEAT, 2" X 6" X 18" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/7-16d NAILS. NAIL SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- 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 THE 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.

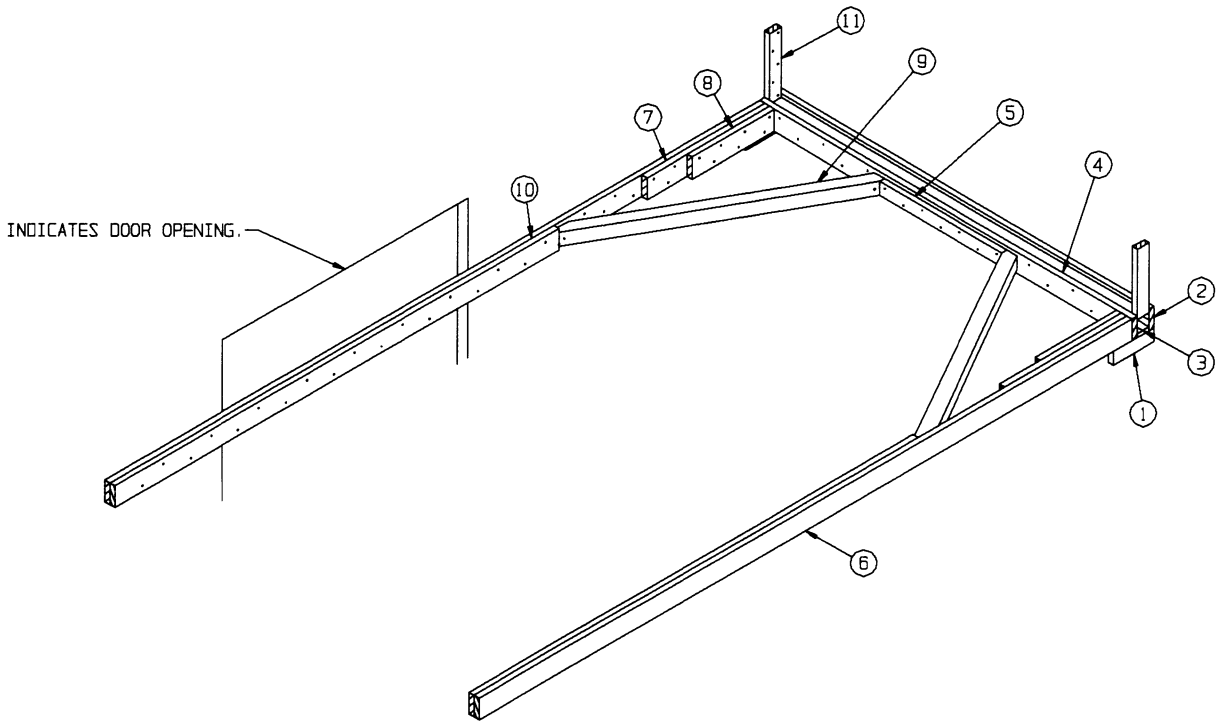


**DIAGONAL BRACE**

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 "C" K-BRACE**



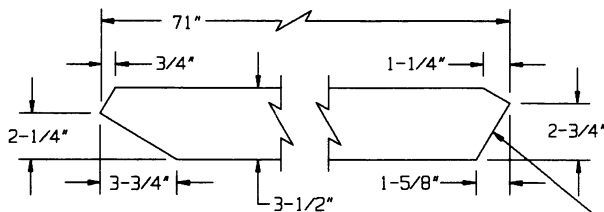
**ISOMETRIC VIEW**

**KEY NUMBERS**

**SPECIAL NOTES:**

1. THE TYPE "D" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 12,500 POUNDS. THIS WILL BE NOT MORE THAN FOUR DEMOLITION CHARGE CONTAINERS. IF LESS CONTAINERS ARE TO BE SHIPPED, REFER TO THE PROCEDURES ON PAGES 20, 21 OR 22 FOR GUIDANCE IN THE SHIPMENT OF ONE, TWO OR THREE DEMOLITION CHARGE CONTAINERS, RESPECTIVELY.
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, ④, ⑦, ⑧, AND ⑪ MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑨ TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑥ MUST BE DOUBLED. LAMINATE THE SECOND PIECE TO THE FIRST W/40-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 70-1/4" LONG IN LIEU OF 71" LONG WHEN PIECE MARKED ⑥ IS DOUBLED.
3. THE CENTER CLEAT, SHOWN AS PIECE MARKED ⑤, WILL BE 36" LONG FOR AN 9'-2" WIDE CAR OR 38" LONG FOR A 9'-4" CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
4. CAUTION: A TYPE "D" K-BRACE MUST BE USED IN BOTH ENDS OF THE CAR; THE BRACE IS NOT DESIGNED FOR USE IN ONLY ONE END. NOTE THAT EXCEPT FOR PIECES MARKED ⑥ AND ⑩, THE QUANTITIES SPECIFIED ARE APPLICABLE ONLY FOR THE BRACE IN ONE END.
5. REFER TO PAGE 20 FOR A TYPICAL INSTALLATION OF A K-BRACE.

- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION HORIZONTALLY AS SHOWN WITH THE TOP EDGE APPROXIMATELY 5-1/2" ABOVE THE CONTAINER IN THE NEXT LOWER LAYER. NAIL TO THE CAR SIDEWALL W/4-12d NAILS.
- ② LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6". SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ③ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (1 REQD).
- ④ HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6".
- ⑤ CENTER CLEAT, 2" X 4" X 36" (1 REQD). NAIL TO THE HORIZONTAL PIECE, PIECE MARKED ④, W/7-16d NAILS.
- ⑥ HORIZONTAL WALL CLEAT, 2" X 6" BY CUT TO FIT (2 REQD). A CLEAT WILL BE OF A LENGTH AS NECESSARY TO EXTEND ACROSS AND FAR ENOUGH PAST THE DOOR OPENINGS TO CONTACT PIECE MARKED ④ OF THE K-BRACE IN THE OPPOSITE END OF THE CAR. NAIL TO THE CAR SIDEWALL W/40-12d NAILS.
- ⑦ POCKET CLEAT, 2" X 6" X 36" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑥, W/10-16d NAILS.
- ⑧ POCKET CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO THE POCKET CLEAT, PIECE MARKED ⑦, W/7-16d NAILS.
- ⑨ DIAGONAL BRACE, 4" X 4" X 71" (2 REQD). SEE THE DETAIL BELOW FOR BEVEL-CUTS REQUIRED. TOENAIL TO THE HORIZONTAL PIECE, PIECE MARKED ④, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑥, W/1-60d NAIL AT EACH END.
- ⑩ BACK-UP CLEAT, 2" X 6" BY CUT TO FIT (2 REQD). A CLEAT WILL BE OF A LENGTH AS NECESSARY TO EXTEND TO CONTACT THE DIAGONAL BRACE, PIECE MARKED ⑨, IN THE OPPOSITE END OF THE CAR. NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑥, W/18-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING, IF APPLICABLE.
- ⑪ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

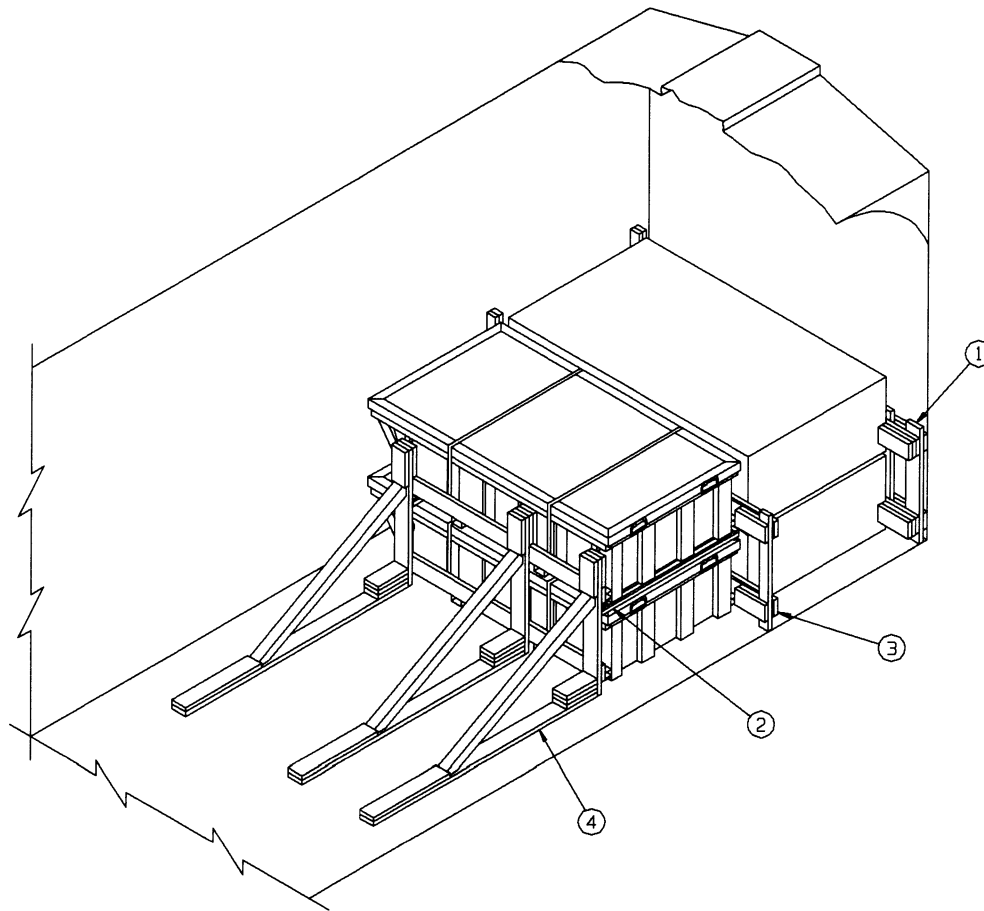


**DIAGONAL BRACE**

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.

**TYPE "D" K-BRACE**



ISOMETRIC VIEW

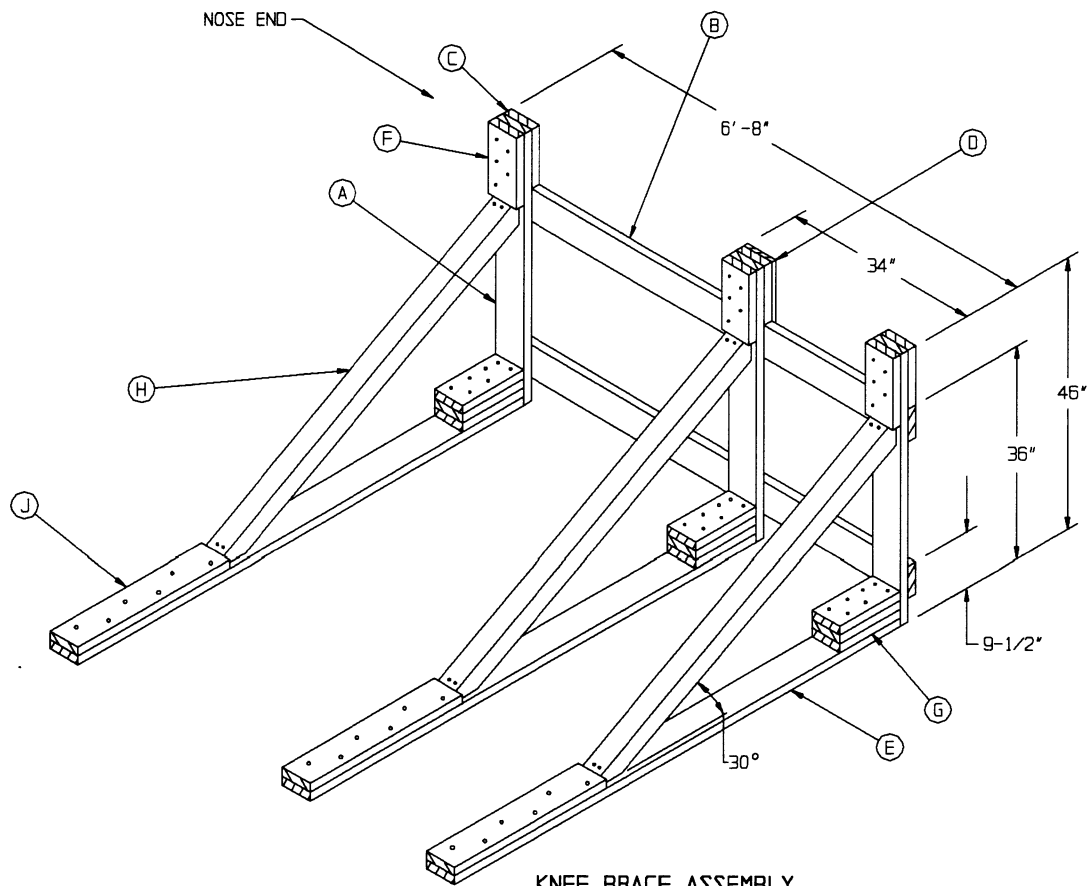
SPECIAL NOTES:

1. A 4-UNIT LOAD IS SHOWN IN A 9'-4" WIDE CONVENTIONAL BOXCAR USING THE KNEE BRACE METHOD OF LOAD RESTRAINT. OTHER WIDTH CARS MAY BE USED.
2. ONE KNEE BRACE ASSEMBLY WITH THREE "KNEES" IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF NOT MORE THAN 12,750 POUNDS. THIS WILL BE NOT MORE THAN FOUR CONTAINERS.
3. CONTAINERS WILL NOT BE STACKED MORE THAN TWO LAYERS HIGH FOR BRACING WITH KNEE BRACE ASSEMBLIES.
4. IF IT IS DESIRED TO SHIP FIVE CONTAINERS USING THESE PROCEDURES, IT WILL BE NECESSARY TO USE ONE MORE SEPARATOR GATE, PIECE MARKED ③, TO ADD ANOTHER "KNEE" TO THE KNEE BRACE ASSEMBLY, AND TO EMPLOY THE OMITTED-CONTAINER PROCEDURES DEPICTED ON PAGE 19. THE KNEE BRACE PROCEDURES WILL NOT BE USED FOR SHIPMENT OF MORE THAN FIVE CONTAINERS.

KEY NUMBERS

- ① BULKHEAD GATE A (1 REQD). SEE THE DETAIL ON PAGE 12. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ② COVER SPANNER ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 13. POSITION UNDER THE SKIDS OF THE CONTAINERS IN SECOND LAYER. POSITION WITH THE STOP PIECES ON THE UPPER SIDE.
- ③ SEPARATOR GATE A (1 RIGHT HAND GATE REQD). SEE THE DETAIL ON PAGE 12. INSTALL WITH THE HORIZONTAL PIECES AGAINST THE ALREADY LOADED CONTAINERS.
- ④ KNEE BRACE ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 25 FOR CONSTRUCTION SPECIFICATIONS AND NAILING REQUIREMENTS. POSITION FLUSH WITH THE BASE ENDS OF THE CONTAINERS, AS SHOWN.

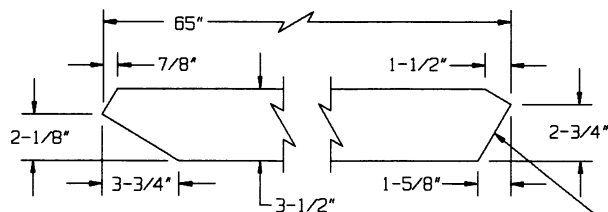




**KNEE BRACE ASSEMBLY**

**KEY LETTERS**

- (A) VERTICAL PIECE, 2" X 6" X 46" (3 REQD). NAIL TO A FLOOR CLEAT, PIECE MARKED (E), W/2-16d NAILS. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- (B) LOAD BEARING PIECE, 2" X 6" X 6'-8" (2 REQD). NAIL TO THE VERTICAL PIECES, PIECES MARKED (A), W/3-10d NAILS AT EACH JOINT.
- (C) SUPPORT BLOCK, 2" X 6" X 10" (3 REQD). POSITION IN CONTACT WITH PIECE MARKED (B) AND NAIL TO A VERTICAL PIECE, PIECE MARKED (A), W/3-10d NAILS.
- (D) FILL PIECE, 1" X 6" X 14" (1 REQD). POSITION AS SHOWN ON THE CENTER VERTICAL PIECE AND NAIL TO THE SUPPORT BLOCK, PIECE MARKED (C), W/4-6d NAILS.
- (E) FLOOR CLEAT, 2" X 6" X 7'-4" (3 REQD). NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "Q" ON PAGE 2.
- (F) HOLD-DOWN CLEAT, 2" X 6" X 12" (3 REQD). NAIL TO A VERTICAL PIECE, PIECE MARKED (A), W/5-10d NAILS.
- (G) POCKET CLEAT, 2" X 6" X 12" (TRIPLED) (3 REQD). NAIL THE FIRST PIECE TO THE FLOOR CLEAT, PIECE MARKED (E), W/5-16d NAILS. NAIL THE SECOND AND THIRD PIECES IN A LIKE MANNER AND TOENAIL THE THIRD PIECE TO THE VERTICAL PIECE, PIECE MARKED (A), W/2-16d NAILS.
- (H) BRACE, 4" X 4" X 65" (3 REQD). SEE THE DETAIL AT LEFT FOR BEVEL-CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE AND TO THE FLOOR CLEAT, PIECES MARKED (A) AND (E), W/2-16d NAILS AT EACH END.
- (J) BACK-UP CLEAT, 2" X 6" X 30" (3 REQD). NAIL TO THE FLOOR CLEAT, PIECE MARKED (E), W/6-40d NAILS.

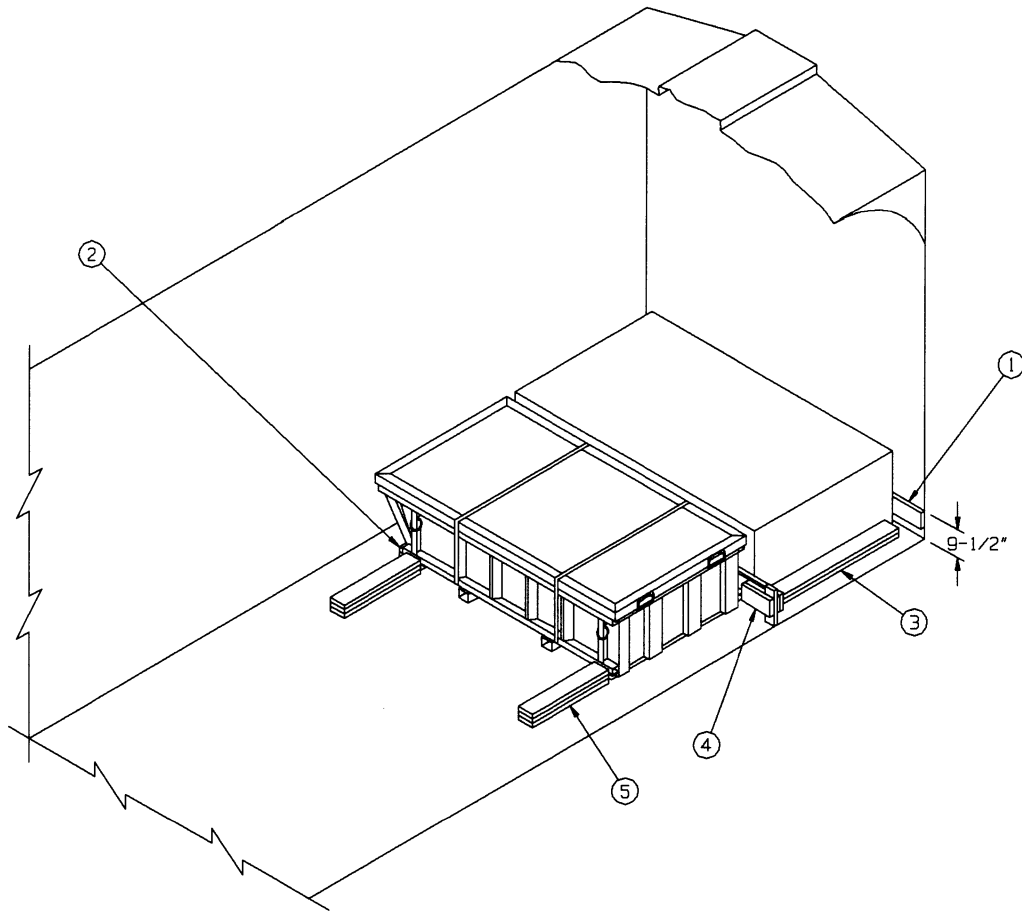


**BRACE**

4" X 4" MATERIAL.

**DETAILS**

THIS BEARING SURFACE MUST BE POSITIONED SO AS TO BE IN CONTACT WITH A VERTICAL PIECE, PIECE MARKED (A).



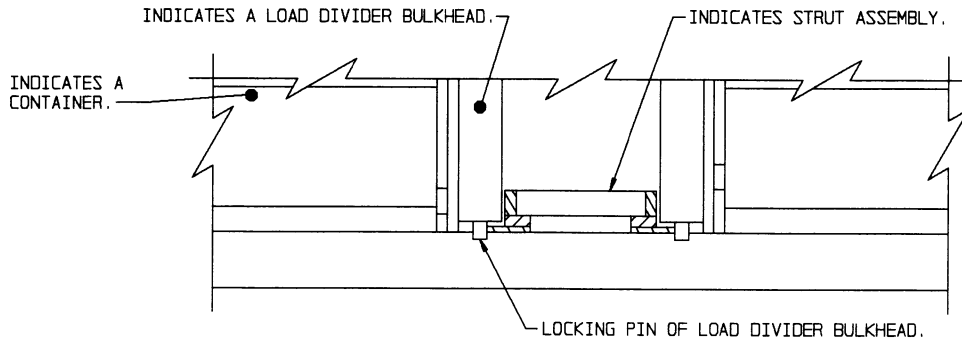
**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. A 2-UNIT LOAD IS SHOWN IN A 9'-4" WIDE CONVENTIONAL BOXCAR. CARS OF OTHER WIDTHS CAN BE USED.
2. IF THE CAR ENDWALL IS NOT AVAILABLE, A BULKHEAD GATE A WILL BE USED. SEE THE DETAIL ON PAGE 12.
3. TWO BACK-UP CLEATS, PIECES MARKED ⑤, ARE ADEQUATE FOR RETAINING NOT MORE THAN TWO CONTAINERS. IF THREE OR FOUR CONTAINERS ARE TO BE SHIPPED, TWO BACK-UP CLEATS MUST BE POSITIONED SIDE-BY-SIDE CENTERED ON EACH SKID.

**KEY NUMBERS**

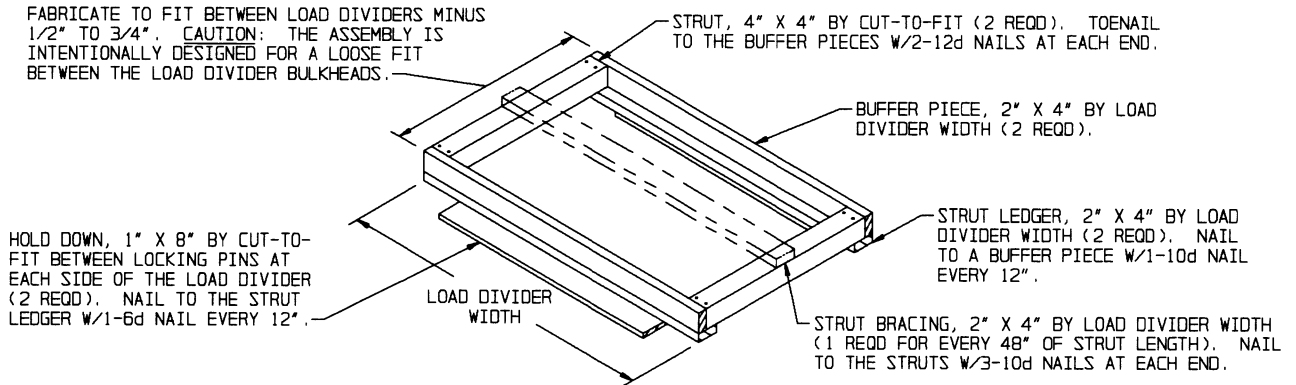
- ① ENDWALL BATTEN, 2" X 6" BY CAR WIDTH MINUS 1/2" (1 REQD). NAIL TO THE CAR ENDWALL W/1-10d NAIL EVERY 12". SEE GENERAL NOTES "J" AND "K" ON PAGE 2.
- ② SIDE BLOCKING, 2" X 6" X 48" (DOUBLED) (2 REQD). PRE-POSITION WITH THE LOAD SIDE APPROXIMATELY 18" FROM THE CAR SIDEWALL. NAIL THE FIRST PIECE TO THE CAR FLOOR W/10-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ SIDE BLOCKING, 2" X 6" X 48" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/10-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ SEPARATOR GATE FOR ONE HIGH (1 REQD). SEE THE DETAIL ON PAGE 12.
- ⑤ BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (2 REQD). ALIGN WITH A CONTAINER SKID. NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/6-40d NAILS. NAIL THE THIRD PIECE TO THE SECOND IN A LIKE MANNER. SEE SPECIAL NOTE 3 AT LEFT.



**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.

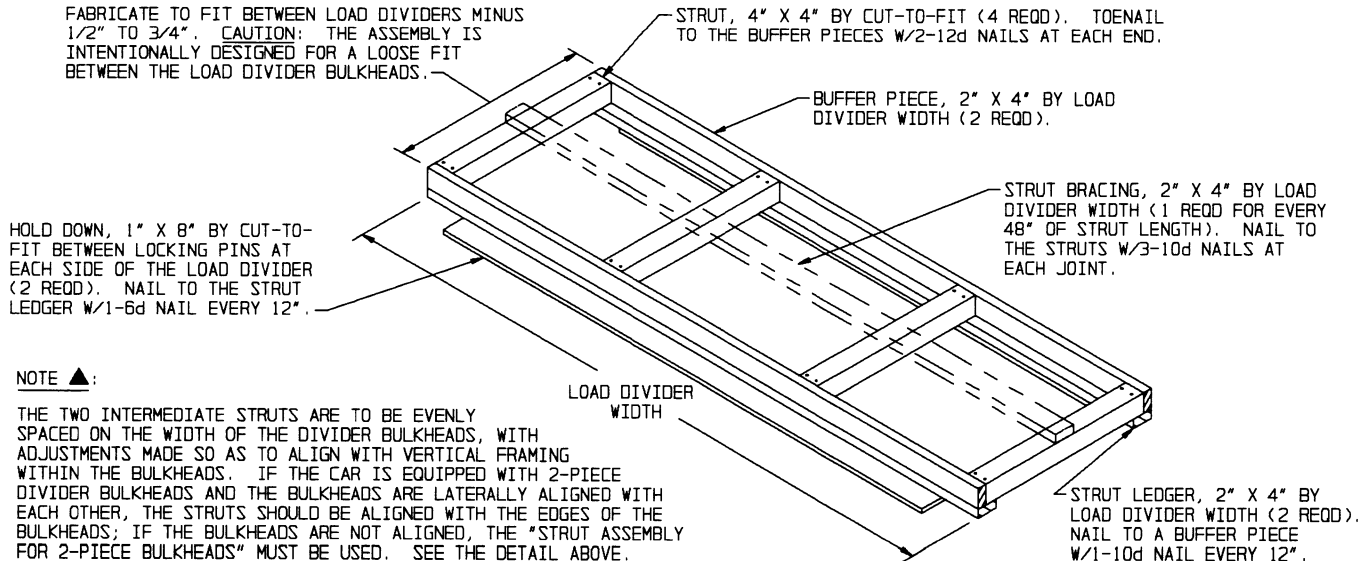
FABRICATE TO FIT BETWEEN LOAD DIVIDERS MINUS 1/2" TO 3/4". CAUTION: THE ASSEMBLY IS INTENTIONALLY DESIGNED FOR A LOOSE FIT BETWEEN THE LOAD DIVIDER BULKHEADS.



**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.

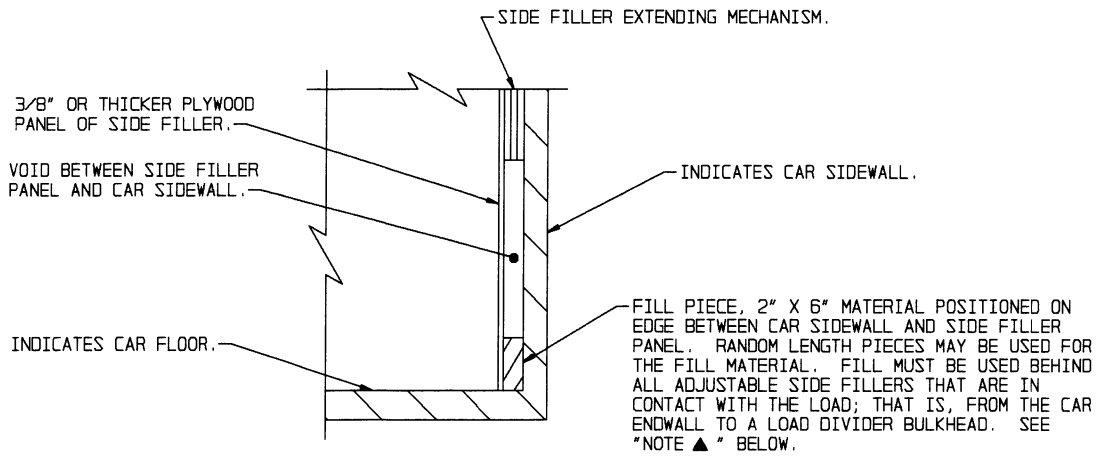


**NOTE ▲:**

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.

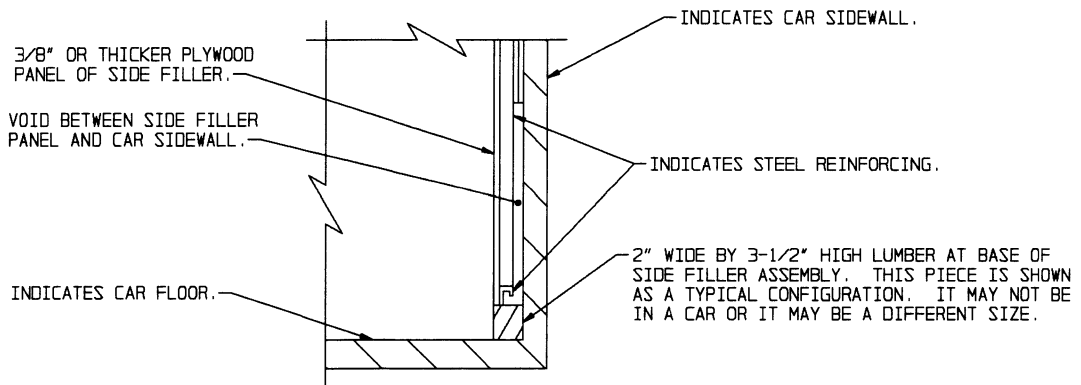


**TYPICAL TYPE A**

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.