

APPROVED BY
 BUREAU OF EXPLOSIVES
L. G. Grossnick
 SUPERVISOR, MILITARY & INTERMODAL SERVICES
 DATE 12/14/78

REVISION NO 1
 SIGNED E. P. Ratten
 DATE 9/2/83

STINGER

LOADING AND BRACING (CL & LCL) IN BOX CARS[⊕] OF THE COMPLETE ROUND PACKED IN WIREBOUND AND/OR ALUMINUM CONTAINER (UNITIZED AND UNUNITIZED OR PALLETIZED AND UNPALLETIZED)

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

REVISIONS				DRAFTSMAN <i>S. J. ...</i>	PROJ. ENG. <i>JDS/...</i>
1	JUL 83	<i>WILLIAM</i>	<i>John H. ...</i>	CHECKER DAK	LOG. ENG. OFFICE <i>John H. ...</i>
				APPROVED, U.S. ARMY MISSILE MATERIAL READINESS COMMAND <i>William J. ...</i>	
				APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND (DARCOM) <i>John H. ...</i>	
				U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	
				U. S. ARMY DARCOM DRAWING	
				JAN 1979	
				CLASS	DIVISION
				19	48
				DRAWING	FILE
				5514	GM 5SRI

DO NOT SCALE

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5). SEE GENERAL NOTE "FF".
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THE STINGER GUIDED MISSILE PACKED IN WIREBOUND CONTAINER AND/OR ALUMINUM CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER MEANS WIREBOUND CONTAINER AND/OR ALUMINUM CONTAINER WITH CONTENTS. ALSO, SUBSEQUENT REFERENCE TO SKIDDED UNIT MEANS THE SKIDDED UNIT OF NINE (9) WIREBOUND CONTAINERS WITH CONTENTS AND SUBSEQUENT REFERENCE TO PALLETIZED UNIT MEANS THE PALLETIZED UNIT OF NINE (9) ALUMINUM CONTAINERS WITH CONTENTS.
- C. FOR DETAILS OF THE WIREBOUND CONTAINER, SEE US ARMY MISSILE COMMAND DRAWING NO. 11509503 AND "CONTAINER" DETAIL ON PAGE 5.
- CONTAINER DIMENSIONS-- 67-1/4" LONG X 13-1/8" WIDE X 10-1/2" HIGH (APPROX).
GROSS WEIGHT ----- 77 POUNDS (APPROX).
CUBE ----- 5.4 CUBIC FEET.
- D. FOR DETAILS OF THE ALUMINUM CONTAINER, SEE US ARMY MISSILE COMMAND DRAWING NO. 11486952 AND "CONTAINER" DETAIL ON PAGE 7.
- CONTAINER DIMENSIONS-- 65-9/16" LONG X 13" WIDE X 13-3/8" HIGH (APPROX).
GROSS WEIGHT ----- 85-3/4 POUNDS (APPROX)
CUBE ----- 6.6 CUBIC FEET.
- E. FOR DETAILS OF THE UNITIZED WIREBOUND CONTAINERS, SEE US ARMY DARCOM DRAWING NO. 19-48-5239-GM205R1 AND "SKIDDED UNIT" ON PAGE 4.
- SKIDDED UNIT DIMENSIONS-- 39-3/8" LONG X 67-1/4" WIDE X 36-1/2" HIGH
GROSS WEIGHT ----- 749 POUNDS (APPROX).
CUBE ----- 55.9 CUBIC FEET.
- F. FOR DETAILS OF THE PALLETIZED ALUMINUM CONTAINERS, SEE US ARMY DARCOM DRAWING NO. 19-48-5239-GM205R1 AND "PALLET UNIT" ON PAGE 6.
- PALLETIZED UNIT
DIMENSIONS ----- 42" LONG X 67-1/16" WIDE X 45-5/8" HIGH
GROSS WEIGHT ----- 952 POUNDS (APPROX).
CUBE ----- 73.81 CUBIC FEET.
- G. THIS ITEM IS A DOT CLASS "A" EXPLOSIVE. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.
- H. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOX CARS, AND FOR SHIPMENTS IN CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS. REFER TO GENERAL NOTES "BB" THROUGH "EE" FOR SPECIFIC GUIDANCE RELATIVE TO OUTLOADING IN CARS HAVING LOAD DIVIDER BULKHEADS.
- J. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" 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. DOUBLE 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.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER ----- : SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS ----- : FED SPEC FF-N-105, COMMON.
- STRAPPING, STEEL --- : CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR C; FED SPEC QQ-5-781.
- STRAP SEALS ----- : TYPE D, STYLE I, II, OR IV, CLASS H, FED SPEC QQ-5-781.
- WIRE ----- : FED SPEC QQ-W-461.

(GENERAL NOTES CONTINUED)

- L. PORTIONS OF THE BOX CARS DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, AND PORTIONS OF THE BLOCKING AND BRACING COMPONENTS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- M. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT.
- N. PALLETIZED UNITS OR SKIDDED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS CAN BE TRANSPORTED. A PARTIAL UNIT MAY BE POSITIONED ON TOP OF THE LOAD, BOX CAR HEIGHT PERMITTING, AND SECURED TO THE UNIT DIRECTLY BELOW WITH STEEL STRAPPING. REFER TO THE "SHIPMENT OF PARTIAL UNITS" ON PAGES 62 THRU 65 FOR GUIDANCE. FOR THE TRANSPORTATION OF A QUANTITY OF CONTAINERS INSUFFICIENT TO FORM A PARTIAL UNIT (A PARTIAL UNIT WILL CONSIST OF FULL LAYERS) REFER TO THE "SHIPMENT OF LEFTOVER CONTAINERS" PROCEDURES ON PAGES 66 AND 67 FOR GUIDANCE.
- O. IN SOME INSTANCES CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITS SHOULD BE INSPECTED AND, AS REQUIRED, LOOSE UNITIZING STEEL STRAPPING MUST BE REPLACED OR TIGHTENED.
- P. WHEN REFERRING TO THE PALLET UNIT LENGTH OR UNIT WIDTH, THE 40" DIMENSION OF THE PALLET BASE CONSTITUTES THE LENGTH AND THE 48" DIMENSION CONSTITUTES THE WIDTH. SEE THE PALLETIZED UNIT ON PAGE 6. WHEN REFERRING TO THE SKIDDED UNIT LENGTH OR WIDTH, THE 38-1/2" DIMENSION OF THE SKIDDED BASE CONSTITUTES THE LENGTH AND THE 66" DIMENSION CONSTITUTES THE WIDTH. SEE THE SKIDDED UNIT ON PAGE 4.
- Q. BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS HAVE BEEN SHOWN. HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR 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.
- R. THE SELECTION OF RAIL CARS FOR THE TRANSPORT OF THE DESIGNATED ITEMS 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 DOCUMENT, WILL BE SELECTED. WHEN SELECTING RAIL CARS, EVERY EFFORT SHOULD BE MADE TO OBTAIN BOX CARS THAT DO NOT HAVE BOWED END WALLS. CARS WITH BOWED ENDS CAN BE USED, HOWEVER, IF AN END WALL IS BOWED OUTWARD MORE THAN TWO INCHES (2"), EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, 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 87 FOR GUIDANCE.
- S. NOTICE: WHEN POSITIONING UNITS IN A CAR THEY SHOULD BE PLACED TIGHTLY AGAINST A CAR SIDEWALL AND/OR AGAINST A LATERALLY ADJACENT UNIT, AS APPLICABLE, 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 UNITS 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 UNITS, SUCH AS THE JOINTS BETWEEN THE LAYERS OF BOXES ON THE UNIT. PADDING, OF 2-INCH (2") THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE LADING.
- T. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOX CAR 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 RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR.
- U. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEMS, 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.
- V. 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 THIS PAGE.
- W. THE USE OF AN OFFSET LOADING PATTERN WILL FACILITATE LOADING AND UNLOADING OPERATIONS IN THE DOORWAY AREA OF THE CAR. WHEN POSSIBLE TO DO SO, 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 OR THREE MORE LOAD UNITS IN ONE END THAN IN THE OTHER IS CONSIDERED TO BE AN OFFSET LOAD.

(CONTINUED ON PAGE 3)

(GENERAL NOTES CONTINUED)

- X. 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 ⑥ AND ⑦ ON PAGE 8 (ALSO SHOWN ON OTHER PAGES), THESE PIECES ARE 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 STRUTS AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.
- Y. TO ACHIEVE A TIGHTLY BLOCKED LOAD, A STRUT WILL BE CUT SLIGHTLY LONGER THAN THE MEASURED DISTANCE BETWEEN THE STRUT BEARING AREAS ON THE TWO CENTER GATES. ONE END OF THE STRUT WILL BE POSITIONED AT ITS BEARING AREA JUST ABOVE THE STRUT LEDGER ON ONE GATE, THEN THE OTHER END, WHICH CAN BE BEVELED ON THE LOWER CORNER IF DESIRED, WILL 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 75 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.
- Z. ALL THE LOADS SHOWN HEREIN ARE TYPICAL. BECAUSE OF THIS FACT, IT IS MOST LIKELY THAT THE ACTUAL QUANTITY TO BE SHIPPED WILL NOT BE DEPICTED IN ANY OF THE LOADING PROCEDURES HEREIN. A LOAD PLAN SHOULD BE DEVELOPED WHICH WILL BE THE MOST EFFICIENT AS TO THE AMOUNT OF DUNNAGE REQUIRED AND THE EASE OF LOADING FOR THE QUANTITY TO BE SHIPPED.
- AA. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.
- BB. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 10, 20, 38, AND 48 ARE FOR CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS. CAUTION: ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS' EQUIPCO, OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSO ARE NOT ACCEPTABLE, WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. THE DEPICTED PROCEDURES ARE APPLICABLE FOR CARS OF VARIOUS LENGTHS AND WIDTHS. THE AAR MECHANICAL DESIGNATION CLASS FOR THESE CARS, AS IDENTIFIED IN THE "OFFICIAL RAILWAY EQUIPMENT REGISTER", WILL BE RBL, XL, OR XLI.
- CC. 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 BOX CAR LOADS. THIS WILL ACCOUNT FOR A CONSIDERABLE SAVING IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF AMMUNITION ITEMS.
- DD. IF NAILING TO A CAR SIDEWALL IS NOT REQUIRED, BOX CARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8" OR THICKER PANELS MAY BE USED. HOWEVER, THESE SIDE FILLERS MUST NOT BE USED FOR LATERAL BLOCKING; THEY MUST BE RETRACTED AND LOCKED AGAINST THE CAR SIDEWALL. A "FILL PIECE" MUST BE INSTALLED IN THE VOID BETWEEN THE CAR SIDEWALL AND THE SIDE FILLER PANEL. SEE THE "TYPICAL TYPE A" VIEW ON PAGE 88 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 88, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.
- EE. 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.
- FF. CAUTION: CONTAINERS MUST NOT BE LOADED MORE THAN 9 CONTAINERS IN ' HEIGHT.
- GG. NOTICE: FOR MAXIMUM LOADS WITHIN THIS DRAWING, 50'-6" LONG BOX CARS ARE SHOWN. HOWEVER, THE BLOCKING AND BRACING PROCEDURES USED ARE ALSO ADEQUATE FOR MAXIMUM LOADS IN BOX CARS WHICH ARE 60'-8" LONG, OR OF OTHER LENGTHS.
- HH. CONVERSION TO METRIC EQUIVALENT: 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 = 25.4 MM, AND ONE POUND = 0.454 KG.

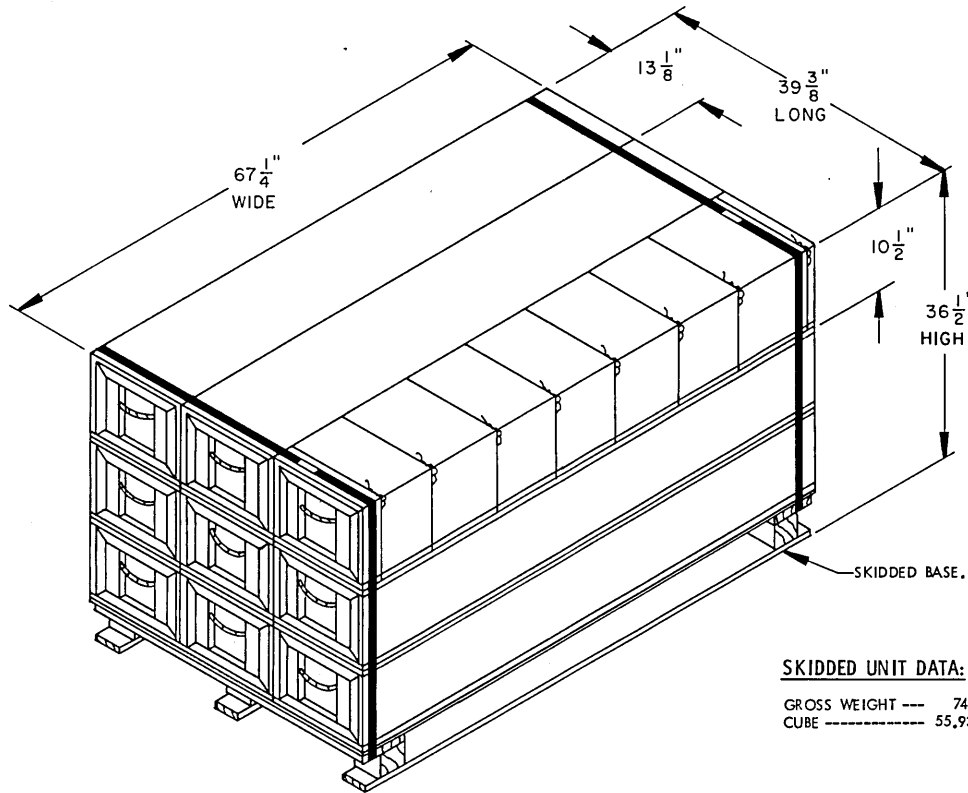
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REVISIONS

REVISION NO. 1 DATED JULY 1983, CONSISTS OF:

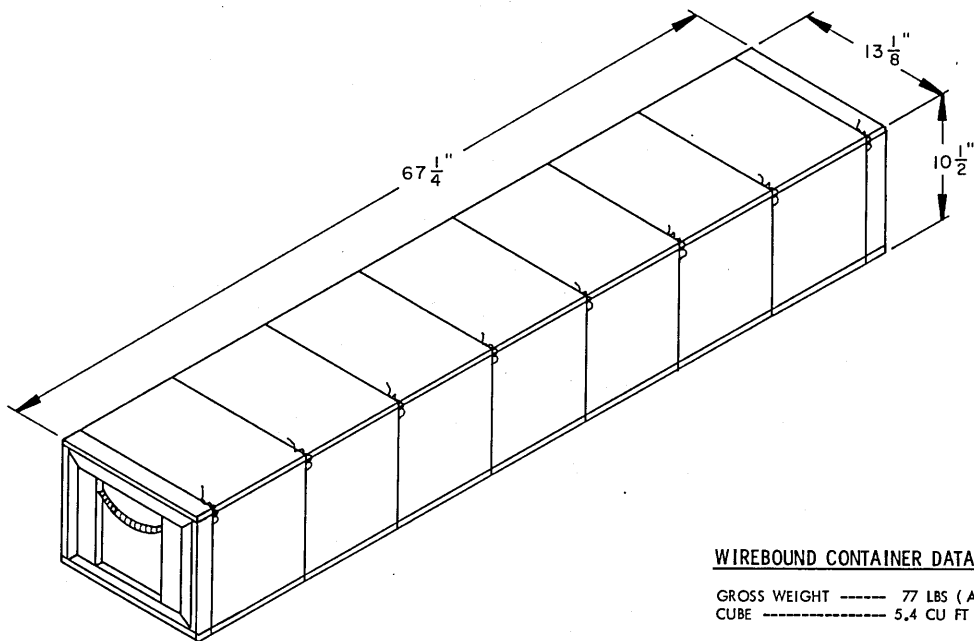
1. CHANGING THE DUNNAGE ASSEMBLIES, AND STRAPPING, ON THE PALLETIZED UNIT OF ALUMINUM CONTAINERS, SHOWN ON PAGE 6.
2. CHANGING ALL DUNNAGE ASSEMBLIES IN LOADS OF PALLETIZED ALUMINUM CONTAINERS AS REQUIRED.



SKIDDED UNIT DATA:

GROSS WEIGHT --- 749 LBS (APPROX)
 CUBE ----- 55.93 CU FT (APPROX)

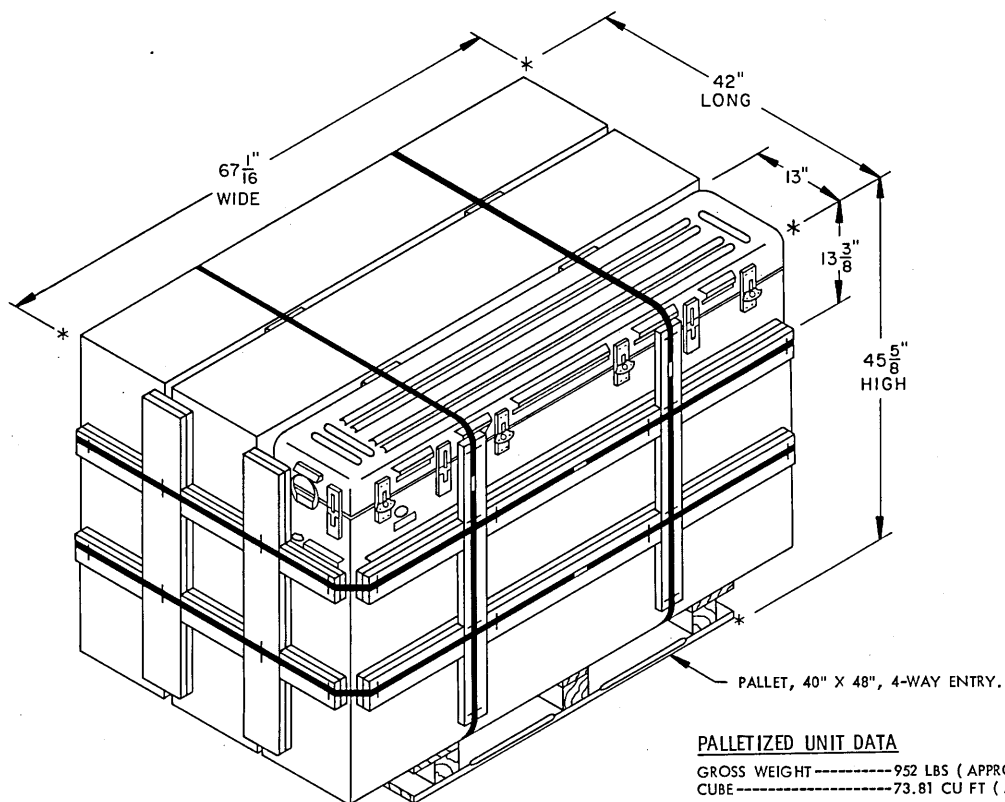
**SKIDDED UNIT OF NINE (9) GUIDED MISSILES,
 PACKED ONE (1) PER WIREBOUND (WOODEN) BOX**



WIREBOUND CONTAINER DATA:

GROSS WEIGHT ----- 77 LBS (APPROX)
CUBE ----- 5.4 CU FT (APPROX)

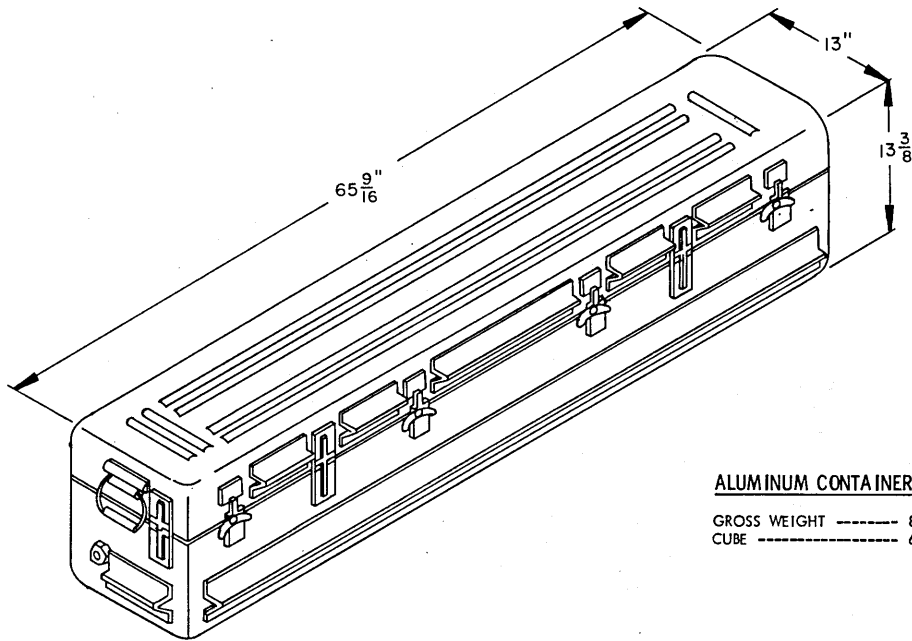
WIREBOUND CONTAINER



PALLETIZED UNIT DATA

GROSS WEIGHT ----- 952 LBS (APPROX)
 CUBE ----- 73.81 CU FT (APPROX)

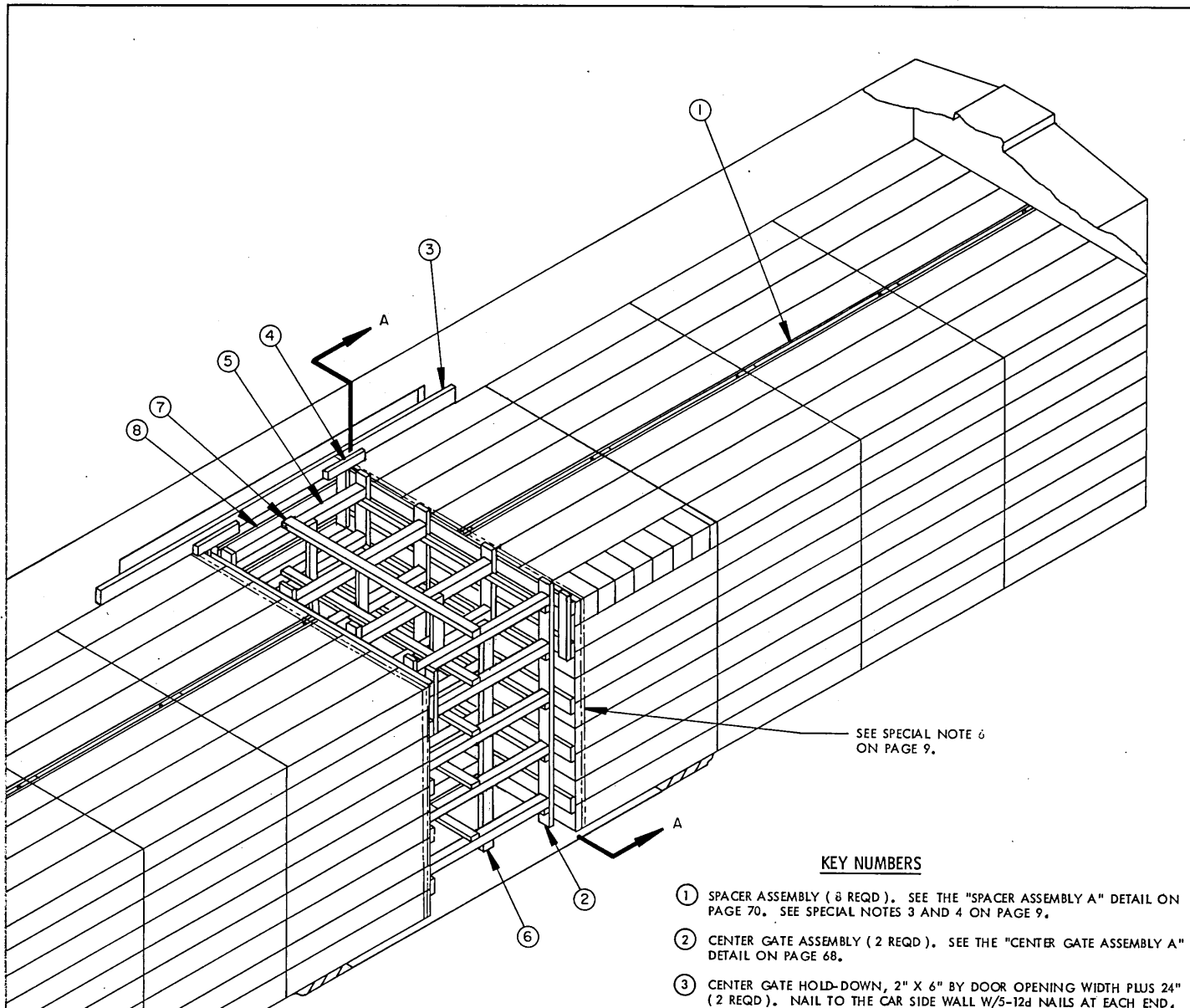
PALLETIZED UNIT OF NINE (9) GUIDED MISSILES,
PACKED ONE (1) PER ALUMINUM CONTAINER.



ALUMINUM CONTAINER DATA:

GROSS WEIGHT ----- 85-3/4 LBS (APPROX)
CUBE ----- 6.6 CU FT (APPROX)

ALUMINUM CONTAINER

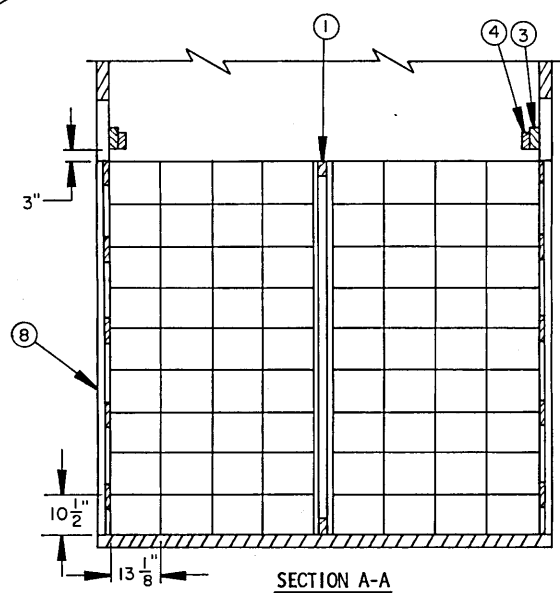


SEE SPECIAL NOTE 6
ON PAGE 9.

KEY NUMBERS

- ① SPACER ASSEMBLY (8 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 70. SEE SPECIAL NOTES 3 AND 4 ON PAGE 9.
- ② CENTER GATE ASSEMBLY (2 REQD). SEE THE "CENTER GATE ASSEMBLY A" DETAIL ON PAGE 68.
- ③ CENTER GATE HOLD-DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO THE CAR SIDE WALL W/5-12d NAILS AT EACH END, SEE GENERAL NOTE "K" ON PAGE 2.
- ④ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (4 REQD), CENTER ABOVE "CENTER GATE HOLD-DOWN BRACES" ON THE CENTER GATE AND NAIL TO CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑤ STRUT, 4" X 4" BY CUT-TO-FIT (20 REQD). TOENAIL TO PIECES MARKED ② W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "J" ON PAGE 2 AND "X" ON PAGE 3.
- ⑥ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 2" ABOVE THE TOP STRUT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "X" ON PAGE 3.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (5 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑧ DOORWAY PROTECTION GATE (2 REQD). SEE THE "DOORWAY PROTECTION GATE A" DETAIL ON PAGE 71. SEE SPECIAL NOTE 6 ON PAGE 9.

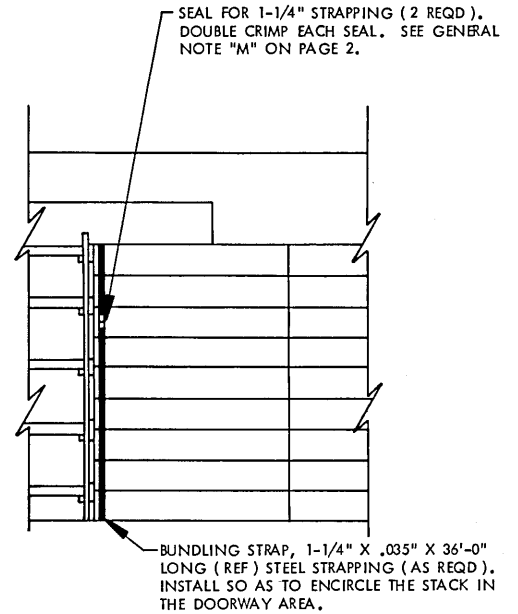
ISOMETRIC VIEW



SECTION A-A

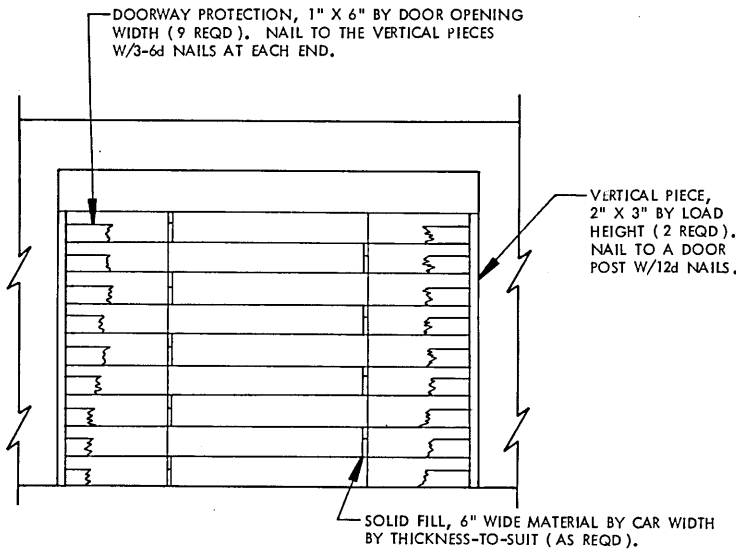
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. THE WIREBOUND CONTAINERS MUST BE POSITIONED WITH THE 13-1/8" DIMENSION ACROSS THE CAR WIDTH AS SHOWN IN "SECTION A-A" ON PAGE 8.
3. IF A WIDER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY A" MAY BE INCREASED BY LAMINATING 4" WIDE BY LOAD HEIGHT BY THICKNESS TO SUIT MATERIAL TO THE LOAD BEARING PIECES.
4. IF A NARROWER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY A" MAY BE DECREASED BY USING 1" THICK MATERIAL IN LIEU OF 2" THICK MATERIAL FOR THE LOAD BEARING PIECES. IF AN 8'-6" WIDE CAR IS USED, ONLY SEVEN (7) WIREBOUND CONTAINERS CAN BE POSITIONED ACROSS THE CAR WIDTH. IF THE EXCESS SPACE ACROSS THE WIDTH OF THE CAR IS 1-1/2" OR LESS, NO SPACER ASSEMBLY IS REQUIRED.
5. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS WIREBOUND CONTAINERS THAN SHOWN, IT IS PERMISSIBLE TO USE "FILLER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 12, IN THE TOP LAYER ONLY. ALSO ONE OR MORE COMPLETE LAYERS MAY BE OMITTED. "RISER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 12, MAY BE USED TO STEP-UP OR STEP-DOWN STACKS TO ADJUST THE LOAD QUANTITIES. SEE PAGES 12 THRU 15 FOR OTHER METHODS OF SHIPPING LESS THAN FULL LOADS.
6. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS WHICH ARE 10'-6" WIDE OR LESS, NO DOORWAY PROTECTION IS REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OF ANY WIDTH OR "THRU" PLUG DOORS WHICH ARE WIDER THAN 10'-6", DELETE "DOORWAY PROTECTION GATE A" AND USE "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON THIS PAGE. IF THE CAR BEING LOADED HAS STAGGERED DOORS, OR "THRU" DOORS OF THE CONVENTIONAL SLIDING TYPE, DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED (8) ON PAGE 8 WILL ALWAYS BE REQUIRED TO RETAIN THE WIREBOUND CONTAINERS AND/OR THE CENTER GATES. THIS SHOULD BE TAKEN INTO CONSIDERATION WHEN ORDERING A BOX CAR. SEE GENERAL NOTE "Q" ON PAGE 2.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
8. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 10 AND 11.



PLUG DOOR PROCEDURES

THESE PROCEDURES WILL APPLY TO PLUG DOORS, WHETHER AUXILIARY OR MAIN. EACH STACK OF WIREBOUND CONTAINERS WHICH EXTENDS MORE THAN 33" PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED MUST BE BUNDLED AS SHOWN ABOVE. IF A STACK EXTENDS MORE THAN 50" PAST A DOOR POST INTO THE DOORWAY AREA, TWO (2) BUNDLING STRAPS WILL BE REQUIRED ON THAT STACK. NOTE: THE BUNDLING STRAP MUST BE PRE-POSITIONED PRIOR TO LOADING THE WIREBOUND CONTAINERS. BUNDLING STRAPS WILL NOT BE REQUIRED FOR STACKS WHICH EXTEND LESS THAN 33" PAST A DOOR POST.



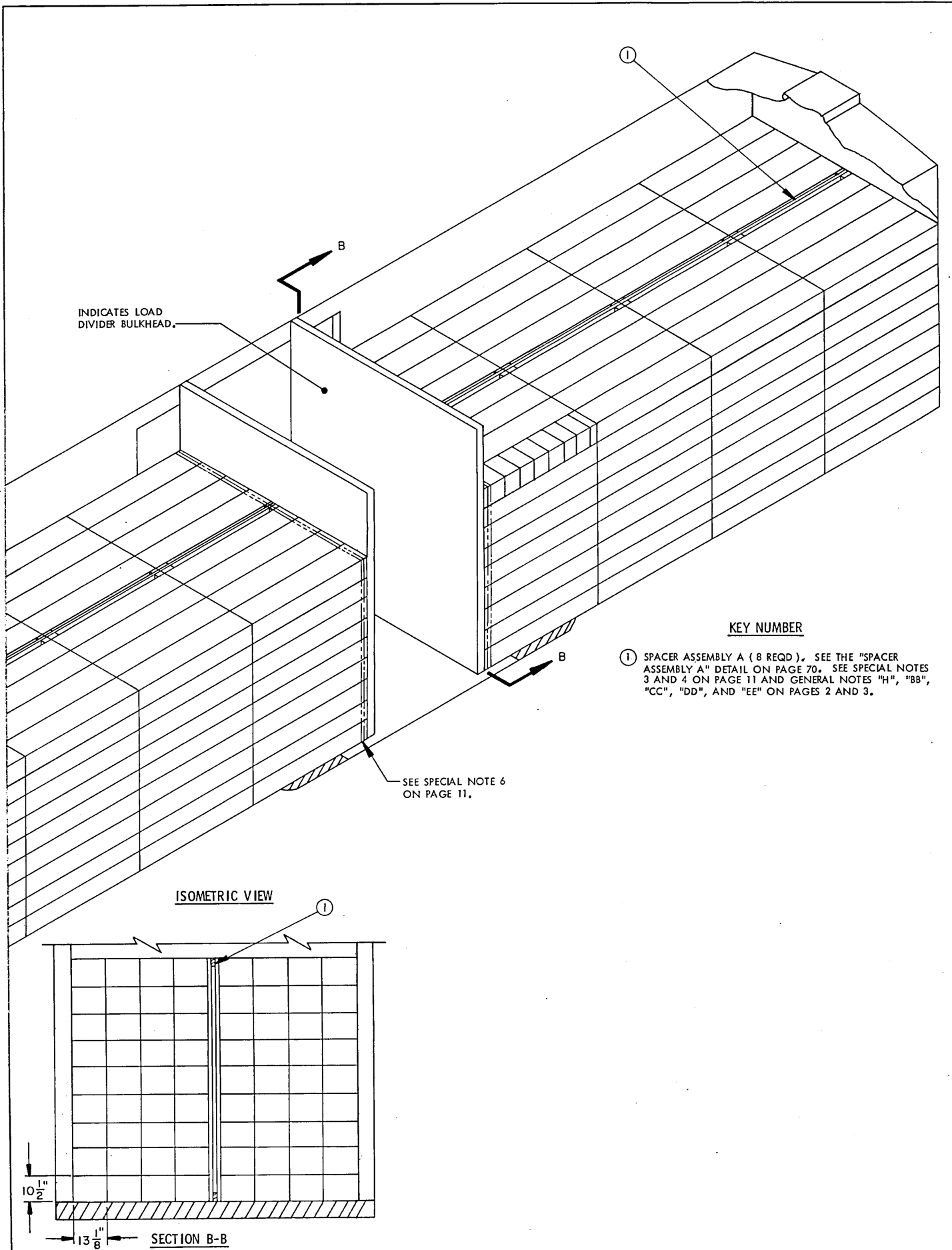
ALTERNATIVE LOADING PROCEDURES

IF THE BOX CAR BEING LOADED IS A FULL 50'-6" LONG OR LONGER, AN EXTRA STACK OF 72 WIREBOUND CONTAINERS MAY BE POSITIONED WITHIN THE CENTER AREA IN LIEU OF PIECES MARKED (2) THROUGH (7), SHOWN IN THE ISOMETRIC VIEW ON PAGE 8. STAGGER THE WIREBOUND CONTAINERS AS SHOWN ABOVE AND ADJUST THE LENGTH OF THE "SPACER ASSEMBLY A" AS NECESSARY TO FIT. DOORWAY PROTECTION, AS SHOWN ABOVE, WILL ALWAYS BE REQUIRED FOR CONVENTIONAL SLIDING DOORS, AND BUNDLING STRAPS, AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON THIS PAGE, WILL ALWAYS BE REQUIRED FOR PLUG DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	120	60
2" X 2"	74	25
2" X 3"	32	16
2" X 4"	429	286
2" X 6"	178	178
4" X 4"	104	139
NAILS	NO. REQD	POUNDS
6d (2")	60	1/2
10d (3")	684	8-1/2
12d (3-1/4")	20	1/2
16d (3-1/2")	80	1-3/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
WIREBOUND CONTAINERS	576	44,352 LBS
DUNNAGE		1,419 LBS
TOTAL WEIGHT		45,771 LBS



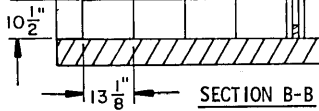
INDICATES LOAD DIVIDER BULKHEAD.

KEY NUMBER

- ① SPACER ASSEMBLY A (8 REQD), SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 70. SEE SPECIAL NOTES 3 AND 4 ON PAGE 11 AND GENERAL NOTES "H", "BB", "CC", "DD", AND "EE" ON PAGES 2 AND 3.

SEE SPECIAL NOTE 6 ON PAGE 11.

ISOMETRIC VIEW



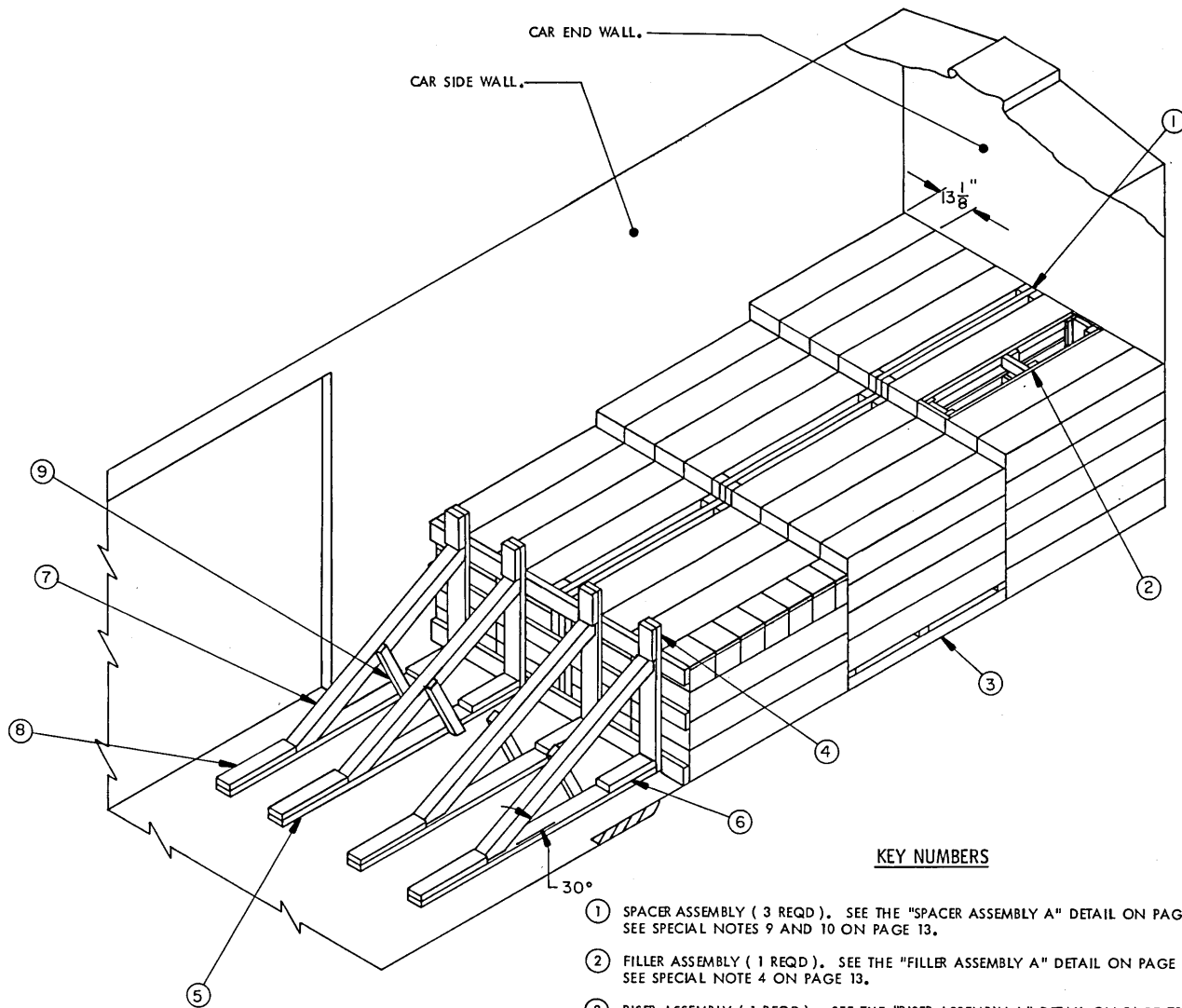
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING NARROWER DOOR OPENINGS CAN BE USED.
2. THE WIREBOUND CONTAINERS MUST BE POSITIONED WITH THE 13-1/8" DIMENSION ACROSS THE CAR WIDTH AS SHOWN IN "SECTION B-B" ON PAGE 10.
3. IF A WIDER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY A" MAY BE INCREASED BY LAMINATING 4" WIDE BY LOAD HEIGHT BY THICKNESS TO SUIT MATERIAL TO THE LOAD BEARING PIECES.
4. IF A NARROWER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY A" MAY BE DECREASED BY USING 1" THICK MATERIAL IN LIEU OF 2" THICK MATERIAL FOR THE LOAD BEARING PIECES. IF THE EXCESS SPACE ACROSS THE WIDTH OF THE CAR IS 1-1/2" OR LESS, NO SPACER ASSEMBLY IS REQUIRED.
5. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS WIREBOUND CONTAINERS THAN SHOWN, IT IS PERMISSIBLE TO USE "FILLER ASSEMBLIES", AS SHOWN ON PAGE 12, IN THE TOP LAYER ONLY. ALSO ONE OR MORE COMPLETE LAYERS MAY BE OMITTED. "RISER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 12, MAY BE USED TO STEP-UP OR STEP-DOWN STACKS TO ADJUST THE LOAD QUANTITIES. SEE PAGES 12 THRU 15 FOR OTHER METHODS OF SHIPPING LESS THAN FULL LOADS.
6. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS, OR "THRU" DOORS OF THE CONVENTIONAL SLIDING TYPE, WHICH ARE 10'-6" WIDE OR LESS, NO DOORWAY PROTECTION IS REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OF ANY WIDTH OR "THRU" PLUG DOORS WHICH ARE WIDER THAN 10'-6", "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 9 WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS WHICH ARE WIDER THAN 10'-6", DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED (B) ON PAGE 8 WILL BE REQUIRED. THIS SHOULD BE TAKEN INTO CONSIDERATION WHEN ORDERING A BOX CAR. SEE GENERAL NOTE "Q" ON PAGE 2.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	340	227
NAILS	NO. REQD	POUNDS
10d	320	5

LOAD AS SHOWN

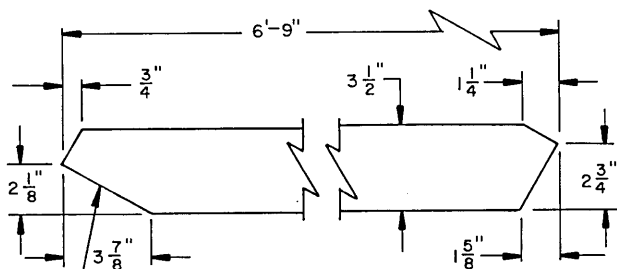
<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
WIREBOUND CONTAINERS --	576 -----	44,352 LBS.
DUNNAGE -----		459 LBS.
TOTAL WEIGHT -----		44,811 LBS.



ISOMETRIC VIEW

KEY NUMBERS

- ① SPACER ASSEMBLY (3 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 70. SEE SPECIAL NOTES 9 AND 10 ON PAGE 13.
- ② FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY A" DETAIL ON PAGE 72. SEE SPECIAL NOTE 4 ON PAGE 13.
- ③ RISER ASSEMBLY (1 REQD). SEE THE "RISER ASSEMBLY A" DETAIL ON PAGE 73. SEE SPECIAL NOTE 5 ON PAGE 13.
- ④ LCL GATE ASSEMBLY (1 REQD). SEE THE "LCL GATE ASSEMBLY A" DETAIL ON PAGE 73 AND SPECIAL NOTE 7 ON PAGE 13.
- ⑤ FLOOR CLEAT, 2" X 6" X 8'-4" (4 REQD). ALIGN WITH VERTICAL PIECES ON THE LCL GATE ASSEMBLY AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "K" ON PAGE 2.
- ⑥ SUPPORT PIECE, 2" X 6" X 18" (4 REQD). NAIL TO PIECE MARKED ⑤ W/4-16d NAILS AND TOENAIL TO THE VERTICAL PIECES OF THE LCL GATE ASSEMBLY W/2-12d NAILS.
- ⑦ DIAGONAL BRACE, 4" X 4" X 6'-9" (4 REQD). SEE THE "DIAGONAL BRACE A" DETAIL ON THIS PAGE FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE ON THE LCL GATE ASSEMBLY AND THE FLOOR CLEAT W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 12 ON PAGE 13.
- ⑧ BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). NAIL TO PIECE MARKED ⑤ W/6-40d NAILS.
- ⑨ DIAGONAL BRACE SUPPORT, 2" X 4" BY CUT-TO-FIT (4 REQD). BEVEL THE BOTTOM END WITH A 60° CUT. CENTER ON THE DIAGONAL BRACE AND NAIL TO PIECES MARKED ⑤ AND ⑦ W/2-12d NAILS AT EACH END.

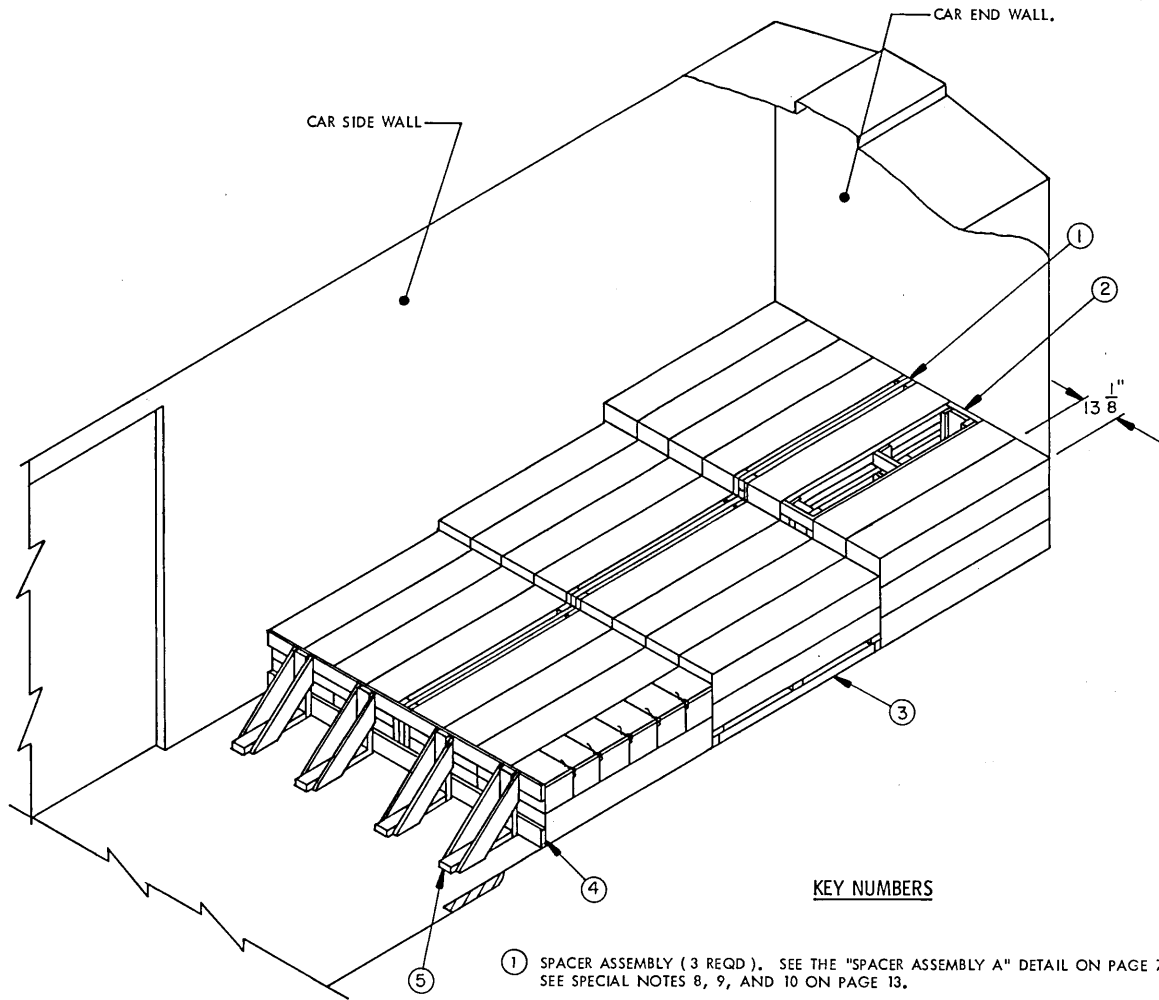


DIAGONAL BRACE A

THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE FLOOR CLEAT MARKED ⑤.

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF 103 WIREBOUND CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. FOUR KNEE BRACE ASSEMBLIES AS SHOWN ARE ADEQUATE FOR RETAINING A MAXIMUM SIZE LCL LOAD.
3. IF THE LADING EXTENDS INTO THE DOORWAY AREA MORE THAN ONE-HALF OF A WIREBOUND CONTAINER LENGTH, USE DOORWAY PROTECTION AS SPECIFIED IN THE LOAD ON PAGE 8.
4. FILLER ASSEMBLIES, SHOWN AS PIECE MARKED ②, MAY BE USED AS REQUIRED IN THE TOP LAYER ONLY. DO NOT USE IN THE LAYER ADJACENT TO THE LCL GATE ASSEMBLY.
5. A RISER ASSEMBLY, SHOWN AS PIECE MARKED ③, MAY BE USED TO STEP DOWN WIREBOUND CONTAINERS AS SHOWN TO MEET THE REQUIREMENTS OF SPECIAL NOTE 7. DO NOT USE UNDER THE STACK ADJACENT TO THE LCL GATE ASSEMBLY.
6. THE USE OF THE "RISER ASSEMBLY" AND THE "FILLER ASSEMBLY" ARE SPECIFIED FOR THE DEPICTED LOAD ONLY TO SHOW A TYPICAL APPLICATION. THEY MAY BE USED IN THE LOAD AS REQUIRED TO ADJUST THE LOADING PATTERN FOR THE QUANTITY OF CONTAINERS TO BE SHIPPED.
7. THE MAXIMUM STACK HEIGHT ADJACENT TO THE LCL GATE ASSEMBLY IS FOUR (4) CONTAINERS HIGH.
8. THE WIREBOUND CONTAINERS MUST BE POSITIONED WITH THE 13-1/2" DIMENSION ACROSS THE CAR WIDTH AS SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 12.
9. IF A WIDER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY A" MAY BE INCREASED BY LAMINATING 4" WIDE BY LOAD HEIGHT BY THICKNESS TO SUIT MATERIAL TO THE LOAD BEARING PIECES.
10. IF A NARROWER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY A" MAY BE DECREASED BY USING 1" THICK MATERIAL IN LIEU OF 2" THICK MATERIAL FOR THE LOAD BEARING PIECES. IF AN 8'-6" WIDE CAR IS USED, ONLY SEVEN (7) WIREBOUND CONTAINERS CAN BE POSITIONED ACROSS THE CAR WIDTH. IF THE EXCESS SPACE ACROSS THE WIDTH OF THE CAR IS 1-1/2" OR LESS, NO SPACER ASSEMBLY IS REQUIRED.
11. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
12. POSITION THE DIAGONAL BRACE, SHOWN AS PIECE MARKED ⑦, TIGHT AGAINST THE HOLD-DOWN CLEAT ON THE LCL GATE ASSEMBLY AND IN LINE WITH THE INSIDE EDGE OF THE FLOOR CLEAT, AS SHOWN ABOVE, TO FACILITATE POSITIONING OF THE DIAGONAL BRACE SUPPORT, SHOWN AS PIECE MARKED ⑨ ON PAGE 12.



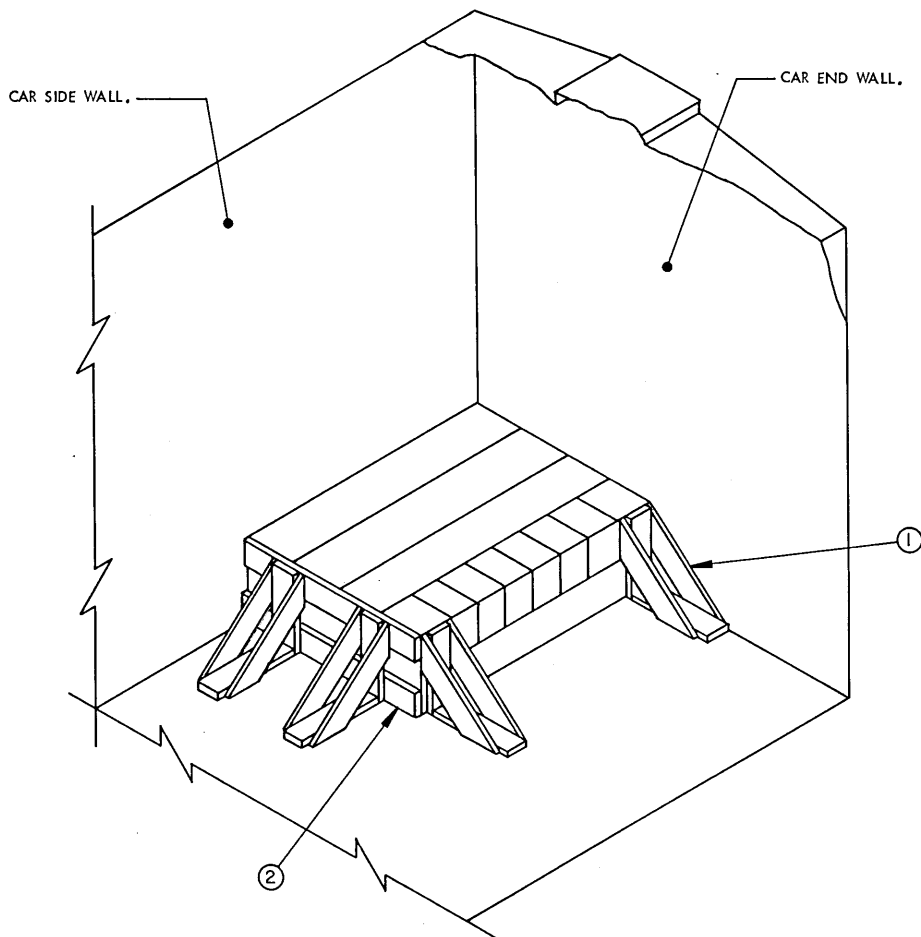
ISOMETRIC VIEW

KEY NUMBERS

- ① SPACER ASSEMBLY (3 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 70. SEE SPECIAL NOTES 8, 9, AND 10 ON PAGE 13.
- ② FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY A" DETAIL ON PAGE 72. SEE SPECIAL NOTES 4 AND 6 ON THIS PAGE.
- ③ RISER ASSEMBLY (1 REQD). SEE THE "RISER ASSEMBLY A" DETAIL ON PAGE 73. SEE SPECIAL NOTES 5 AND 6 ON THIS PAGE.
- ④ LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (2 REQD). POSITION AS SHOWN.
- ⑤ LCL BRACE (4 REQD). SEE THE "LCL BRACE" DETAIL ON PAGE 74. CENTER ON JOINTS BETWEEN CONTAINERS AS SHOWN ABOVE. NAIL TO PIECES MARKED ④ W/3-10d NAILS AT EACH JOINT AND NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE SPECIAL NOTE 2 ON THIS PAGE AND GENERAL NOTE "K" ON PAGE 2.

SPECIAL NOTES:

- 1. A TYPICAL LCL LOAD OF 55 WIREBOUND CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
- 2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. AN LCL BRACE MUST BE CENTERED ON ALTERNATE JOINTS BETWEEN CONTAINERS AS SHOWN ABOVE TO ASSURE ADEQUATE BRACING OF THE LOAD. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL BRACING.
- 3. WIREBOUND CONTAINERS MUST NOT BE STACKED MORE THAN TWO (2) HIGH ADJACENT TO THE LCL BRACES.
- 4. FILLER ASSEMBLIES, SHOWN AS PIECE MARKED ②, MAY BE USED AS REQUIRED IN THE TOP LAYER ONLY. DO NOT USE IN THE LAYER ADJACENT TO THE LCL BRACES.
- 5. A RISER ASSEMBLY, SHOWN AS PIECE MARKED ③, MAY BE USED TO STEP DOWN WIREBOUND CONTAINERS AS SHOWN ABOVE TO MEET THE REQUIREMENTS OF SPECIAL NOTE 3. DO NOT USE UNDER THE STACK ADJACENT TO THE LCL BRACES.
- 6. THE USE OF THE "RISER ASSEMBLY" AND THE "FILLER ASSEMBLY" ARE SPECIFIED FOR THE DEPICTED LOAD ONLY TO SHOW A TYPICAL APPLICATION. THEY MAY BE USED IN THE LOAD AS REQUIRED TO ADJUST THE LOADING PATTERN FOR THE QUANTITY OF CONTAINERS TO BE SHIPPED.
- 7. THE "VERTICAL PIECE" ON THE LCL BRACE SHOWN ABOVE MUST BE 21" HIGH AND THE "BACK-UP CLEAT" MUST BE 24" LONG.



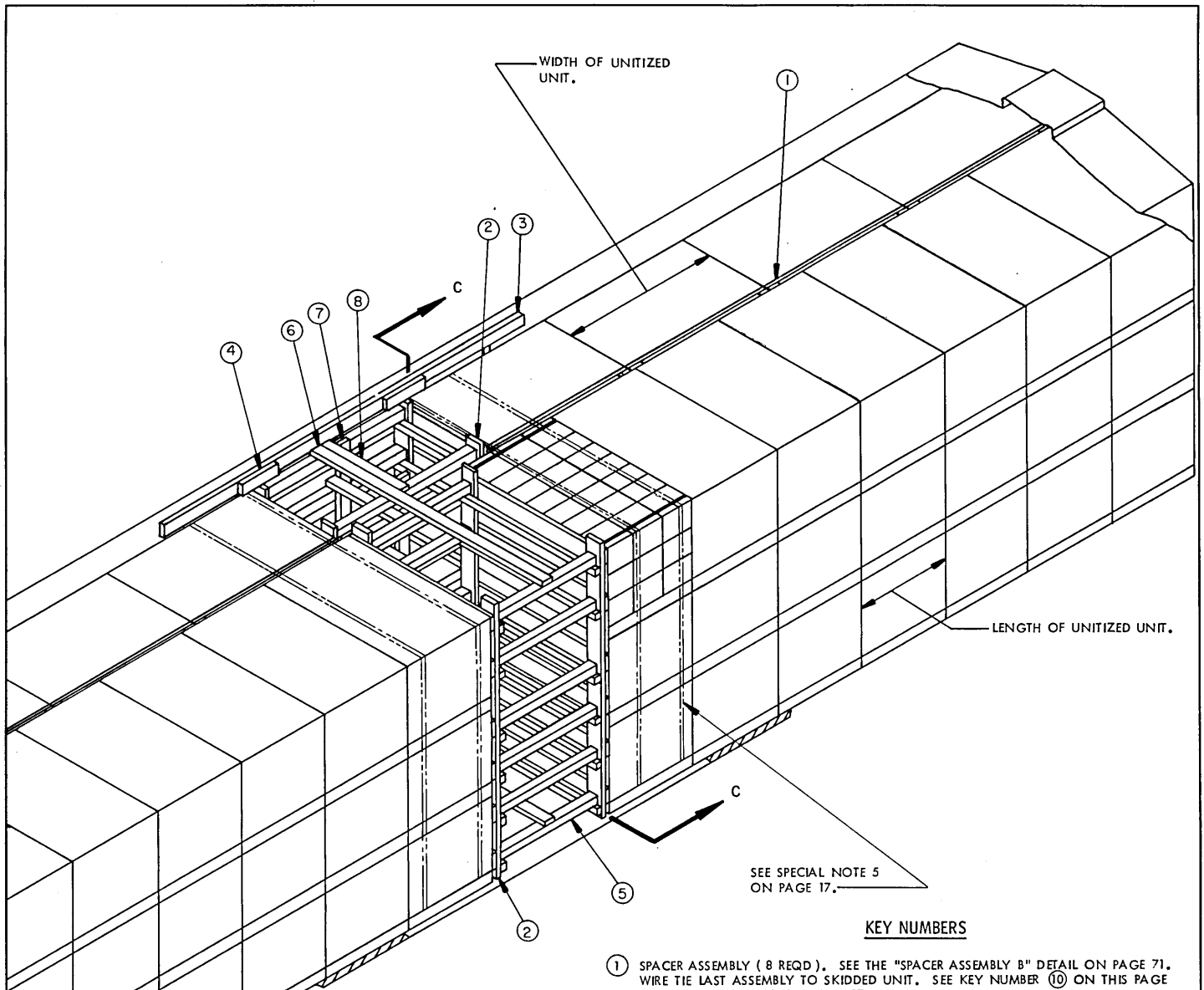
ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF EIGHT (8) WIREBOUND CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR A NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. THE LONGITUDINAL LCL BRACES MUST BE CENTERED ON ALTERNATE JOINTS BETWEEN CONTAINERS AS SHOWN ABOVE TO ASSURE ADEQUATE BRACING OF THE LOAD. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL BRACING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL SUPPORT 8,000 POUNDS OF LADING.
3. THE "VERTICAL PIECE" ON THE LCL BRACE SHOWN ABOVE MUST BE 21" HIGH AND THE "BACK-UP CLEAT" MUST BE 24" LONG.

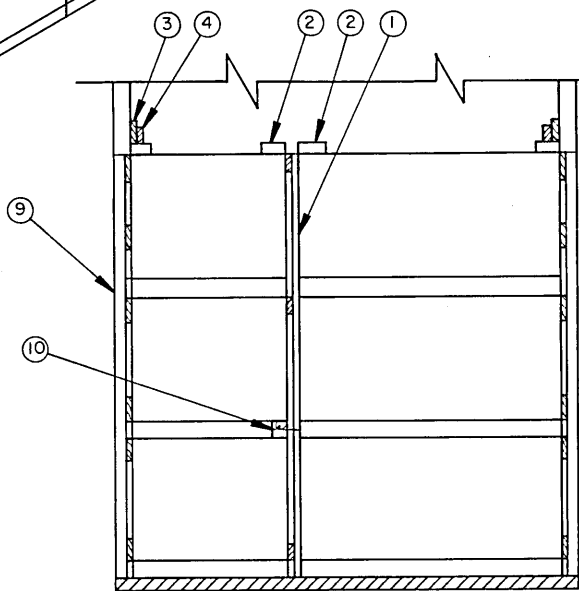
- ① LCL BRACE (4 REQD). SEE THE "LCL BRACE" DETAIL ON PAGE 74. POSITION THE TWO LONGITUDINAL LCL BRACES TO CENTER ON THE JOINTS BETWEEN CONTAINERS AND NAIL TO THE LOAD BEARING PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE LCL BRACES TO THE CAR FLOOR W/7-16d NAILS. SEE SPECIAL NOTES 2 AND 3 ON THIS PAGE AND GENERAL NOTE "K" ON PAGE 2.
- ② LOAD BEARING PIECE, 2" X 6" BY CUT-TO-FIT (2 REQD).



ISOMETRIC VIEW

KEY NUMBERS

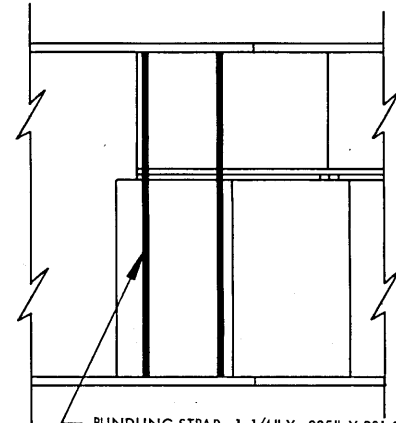
- ① SPACER ASSEMBLY (8 REQD). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 71. WIRE TIE LAST ASSEMBLY TO SKIDDED UNIT. SEE KEY NUMBER ⑩ ON THIS PAGE AND SPECIAL NOTE 3 ON PAGE 17.
- ② CENTER GATE ASSEMBLY (4 REQD). SEE THE "CENTER GATE ASSEMBLY C" DETAIL ON PAGE 69.
- ③ CENTER GATE HOLD-DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO THE CAR SIDE WALL W/5-12d NAILS AT EACH END.
- ④ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (4 REQD). CENTER THE CLEATS ABOVE THE VERTICAL PIECES ON THE CENTER GATE AND NAIL TO PIECE MARKED ③ W/5-10d NAILS.
- ⑤ STRUT, 4" X 4" BY CUT-TO-FIT (24 REQD). TOENAIL TO PIECE MARKED ② W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑥ ANTI-SWAY BOARD, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO PIECE MARKED ⑤ W/3-10d NAILS AT EACH JOINT. NOTE: POSITION ON TOP AND BOTTOM LAYER STRUTS.
- ⑦ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 2" ABOVE THE TOP STRUTS (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "X" ON PAGE 3.
- ⑧ HORIZONTAL STRUT BRACING, 2" X 4" X CUT-TO-FIT (6 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑨ DOORWAY PROTECTION GATE (2 REQD). SEE THE "DOORWAY PROTECTION GATE B" DETAIL ON PAGE 72. SEE SPECIAL NOTE 5 ON PAGE 17.
- ⑩ TIE WIRE, NO. 14 GAGE WIRE BY LENGTH-TO-SUIT (4 REQD). WIRE TIE THE LAST "SPACER ASSEMBLY B" TO THE SKIDDED UNIT BASE AS SHOWN IN "SECTION C-C" ON THIS PAGE.



SECTION C-C

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 20 AND 21.
3. A WIDER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD BY ADJUSTING THE WIDTH OF THE "SPACER ASSEMBLY B". ADDITIONAL PIECES OF 4" WIDE MATERIAL MAY BE LAMINATED TO THE BEARING PIECES.
4. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS SKIDDED UNITS THAN SHOWN, SEE THE METHODS SHOWN ON PAGES 22 THROUGH 35.
5. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS OR STAGGERED PLUG DOORS OF ANY WIDTH, "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON THIS PAGE WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS (ANY WIDTH), DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED (9) ON PAGE 16, WILL ALWAYS BE REQUIRED TO RETAIN THE SKIDDED UNITS AND/OR THE CENTER GATES. SEE GENERAL NOTE "Q" ON PAGE 2.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
7. IF SKIDDED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF WIREBOUND CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 62, 64, AND 65 FOR SHIPPING GUIDANCE.
8. FOR A SHIPMENT OF ONE OR MORE LEFTOVER WIREBOUND CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER WIREBOUND CONTAINERS" ON PAGE 66.



BUNDLING STRAP, 1-1/4" X .035" X 38'-0" LONG (REF) STEEL STRAPPING (AS REQD). INSTALL SO AS TO EN-CIRCLE THE LOAD UNITS IN THE DOORWAY AREA. SEAL WITH TWO 1-1/4" SEALS PER EACH STRAP. DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

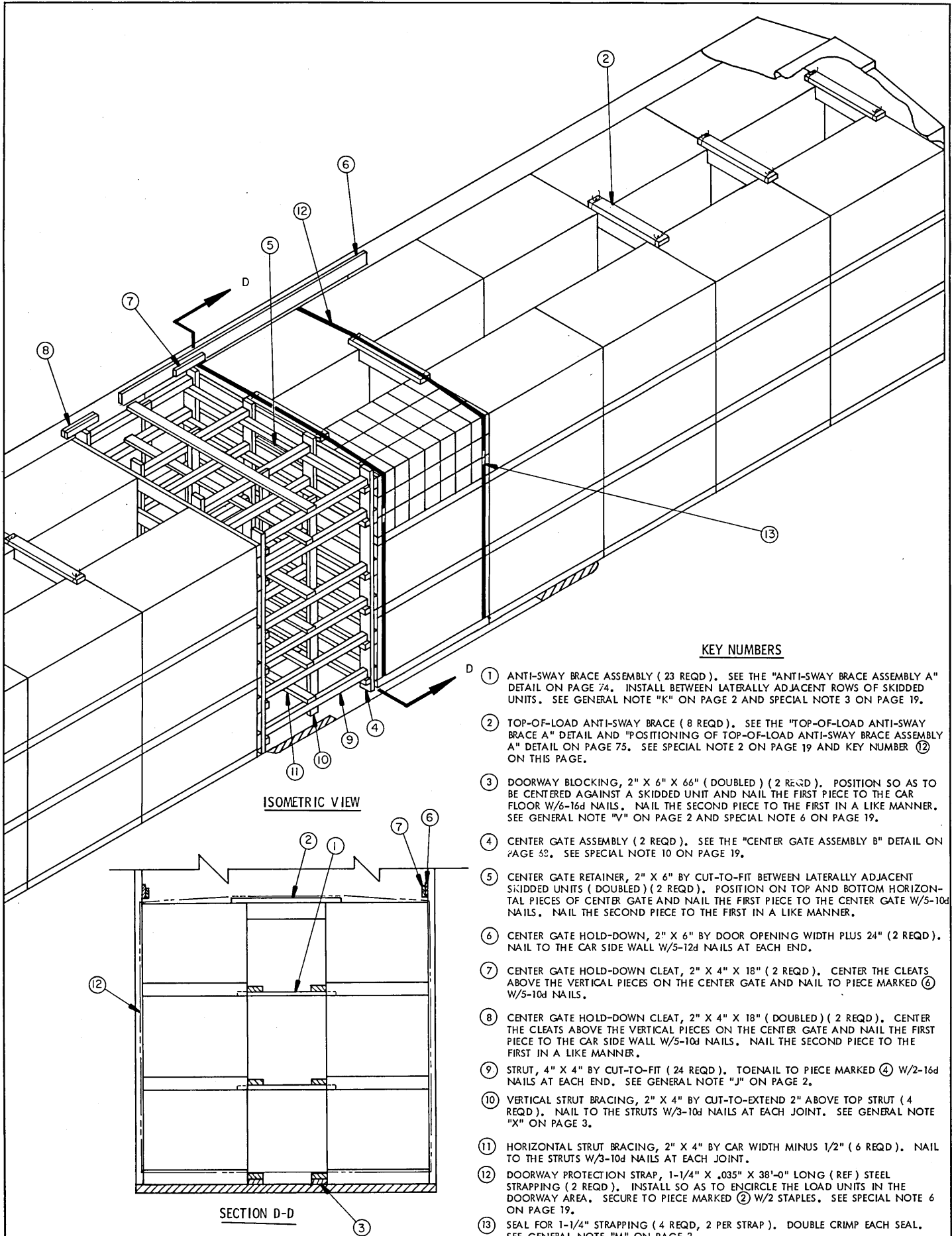
PLUG DOOR PROCEDURES

THESE PROCEDURES WILL APPLY TO PLUG DOORS, WHETHER AUXILIARY OR MAIN. FOR EACH STACK OF SKIDDED UNITS WHICH EXTENDS MORE THAN ONE-HALF OF ITS LENGTH OR WIDTH PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED, ONE BUNDLING STRAP IS REQUIRED. FOR EACH STACK OF SKIDDED UNITS WHICH EXTENDS MORE THAN THREE-QUARTERS OF ITS LENGTH OR WIDTH PAST A DOOR POST INTO THE DOORWAY AREA, TWO BUNDLING STRAPS ARE REQUIRED.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	144	72
2" X 2"	107	36
2" X 3"	37	19
2" X 4"	461	308
2" X 6"	210	210
4" X 4"	111	148
NAILS	NO. REQD	POUNDS
6d (2")	72	1/2
10d (3")	688	10-3/4
16d (3-1/2")	96	2
WIRE, NO. 14 GAGE ----- 12' REQD ----- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SKIDDED UNIT -----	66 -----	49,432 LBS
DUNNAGE -----		1,600 LBS
TOTAL WEIGHT -----		51,032 LBS



KEY NUMBERS

- ① ANTI-SWAY BRACE ASSEMBLY (23 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 74. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF SKIDDED UNITS. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 19.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75. SEE SPECIAL NOTE 2 ON PAGE 19 AND KEY NUMBER ⑫ ON THIS PAGE.
- ③ DOORWAY BLOCKING, 2" X 6" X 66" (DOUBLED) (2 REQD). POSITION SO AS TO BE CENTERED AGAINST A SKIDDED UNIT AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "V" ON PAGE 2 AND SPECIAL NOTE 6 ON PAGE 19.
- ④ CENTER GATE ASSEMBLY (2 REQD). SEE THE "CENTER GATE ASSEMBLY B" DETAIL ON PAGE 52. SEE SPECIAL NOTE 10 ON PAGE 19.
- ⑤ CENTER GATE RETAINER, 2" X 6" BY CUT-TO-FIT BETWEEN LATERALLY ADJACENT SKIDDED UNITS (DOUBLED) (2 REQD). POSITION ON TOP AND BOTTOM HORIZONTAL PIECES OF CENTER GATE AND NAIL THE FIRST PIECE TO THE CENTER GATE W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑥ CENTER GATE HOLD-DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO THE CAR SIDE WALL W/5-12d NAILS AT EACH END.
- ⑦ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). CENTER THE CLEATS ABOVE THE VERTICAL PIECES ON THE CENTER GATE AND NAIL TO PIECE MARKED ⑥ W/5-10d NAILS.
- ⑧ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (DOUBLED) (2 REQD). CENTER THE CLEATS ABOVE THE VERTICAL PIECES ON THE CENTER GATE AND NAIL THE FIRST PIECE TO THE CAR SIDE WALL W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑨ STRUT, 4" X 4" BY CUT-TO-FIT (24 REQD). TOENAIL TO PIECE MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑩ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 2" ABOVE TOP STRUT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "X" ON PAGE 3.
- ⑪ HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 1/2" (6 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑫ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 38'-0" LONG (REF) STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENIRCLE THE LOAD UNITS IN THE DOORWAY AREA. SECURE TO PIECE MARKED ② W/2 STAPLES. SEE SPECIAL NOTE 6 ON PAGE 19.
- ⑬ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

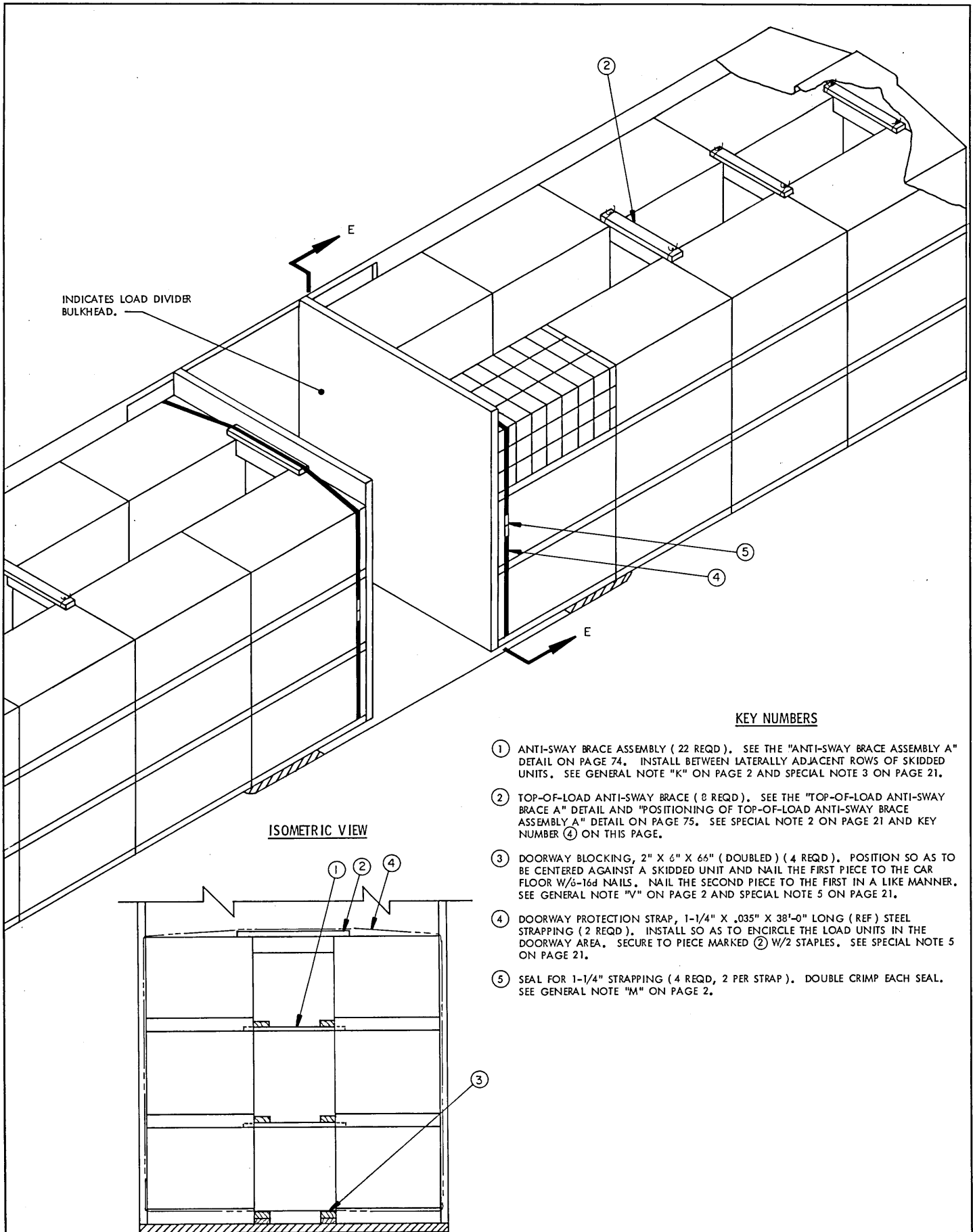
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. TOP-OF-LOAD ANTI-SWAY BRACES MUST BE INSTALLED ON THE FIRST TWO (2) STACKS AT EACH END OF THE BOX CAR, AS SHOWN ON PAGE 18, AND WIRE TIE TO A UNITIZING STRAP WITH NO. 14 GAGE WIRE AS SHOWN BY THE "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75. USE TWO (2) TOP-OF-LOAD ANTI-SWAY BRACES ON TOP OF THE TWO STACKS WITHIN THE DOORWAY AREA OF THE CAR, AS SHOWN ON PAGE 18.
3. A WIDER OR NARROWER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD BY ADJUSTING THE PIECES MARKED ① AND ②.
4. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS SKIDDED UNITS THAN SHOWN, SEE THE METHODS SHOWN ON PAGES 22 THROUGH 35.
5. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS OR STAGGERED PLUG DOORS OF ANY WIDTH, DOORWAY PROTECTION STRAPS, SHOWN AS PIECE MARKED ⑫ ON PAGE 18, WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS (ANY WIDTH), DOORWAY PROTECTION STRAPS, SHOWN AS PIECE MARKED ⑫, ON PAGE 18, WILL BE REQUIRED. SEE GENERAL NOTE "Q" ON PAGE 2.
6. FOR EACH LOAD UNIT OF SIX SKIDDED UNITS WHICH EXTENDS MORE THAN 33" PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED, ONE (1) SET OF PIECES MARKED ②, ③, ⑫, AND ⑬ MUST BE INSTALLED TO BUNDLE THAT UNIT. FOR EACH LOAD UNIT OF SIX SKIDDED UNITS WHICH EXTENDS 54" OR MORE PAST A DOOR POST INTO THE DOORWAY AREA, PIECES MARKED ③ AND TWO (2) SETS OF PIECES MARKED ②, ⑫, AND ⑬ MUST BE INSTALLED TO BUNDLE THAT UNIT AS SHOWN WITHIN THE BASIC LOAD VIEWS.
7. THE SPECIFIC BLOCKING AND BRACING DUNNAGE AND THE BASIC METHOD OF APPLICATION IS ALSO ADEQUATE FOR RETAINING A FULL LOAD IN A 40'-6" LONG BY 8'-6" WIDE CAR. THIRTY-SIX (36) SKIDDED UNITS MAY BE SHIPPED IN A 40'-6" LONG CAR, WITH 24 UNITS LOADED WITHIN ONE END OF THE CAR AND 12 UNITS LOADED WITHIN THE OTHER END. ADJUST QUANTITIES OF DUNNAGE AS REQUIRED.
8. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 20 AND 21.
9. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
10. FOR EASE OF HANDLING, SPLIT CENTER GATES WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE. IN LIEU OF EACH "CENTER GATE ASSEMBLY B", INSTALL TWO (2) GATES AS SHOWN ON PAGE 86. AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE TIE PIECE.
11. IF SKIDDED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF WIREBOUND CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 62, 64, AND 65 FOR SHIPPING GUIDANCE.
12. FOR SHIPMENT OF ONE OR MORE LEFTOVER WIREBOUND CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER WIREBOUND CONTAINERS" ON PAGE 66.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	110	37
2" X 4"	270	180
2" X 6"	494	494
4" X 4"	145	194
NAILS	NO. REQD	POUNDS
10d (3")	658	10-1/4
16d (3-1/2")	120	2-3/4
STEEL STRAPPING, 1-1/4" X .035" -----	76' REQD -----	11 LBS
SEAL FOR 1-1/4" STRAPPING -----	4 REQD -----	NIL
WIRE, NO. 14 GAGE -----	32' REQD -----	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SKIDDED UNIT -----	48 -----	35,952 LBS
DUNNAGE -----	-----	1,834 LBS
TOTAL WEIGHT -----		37,786 LBS



INDICATES LOAD DIVIDER BULKHEAD.

ISOMETRIC VIEW

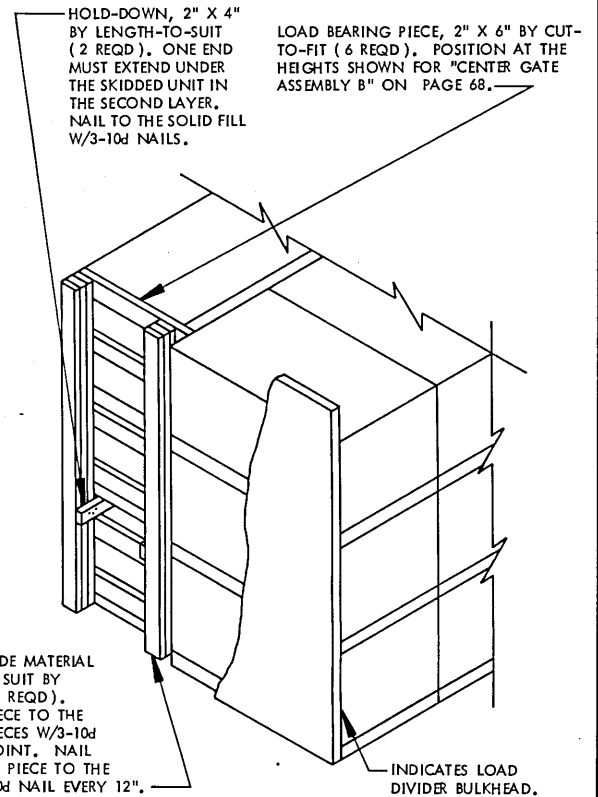
SECTION E-E

KEY NUMBERS

- ① ANTI-SWAY BRACE ASSEMBLY (22 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 74. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF SKIDDED UNITS. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 21.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75. SEE SPECIAL NOTE 2 ON PAGE 21 AND KEY NUMBER ④ ON THIS PAGE.
- ③ DOORWAY BLOCKING, 2" X 6" X 66" (DOUBLED) (4 REQD). POSITION SO AS TO BE CENTERED AGAINST A SKIDDED UNIT AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "V" ON PAGE 2 AND SPECIAL NOTE 5 ON PAGE 21.
- ④ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 38'-0" LONG (REF) STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENIRCLE THE LOAD UNITS IN THE DOORWAY AREA. SECURE TO PIECE MARKED ② W/2 STAPLES. SEE SPECIAL NOTE 5 ON PAGE 21.
- ⑤ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

SPECIAL NOTES:

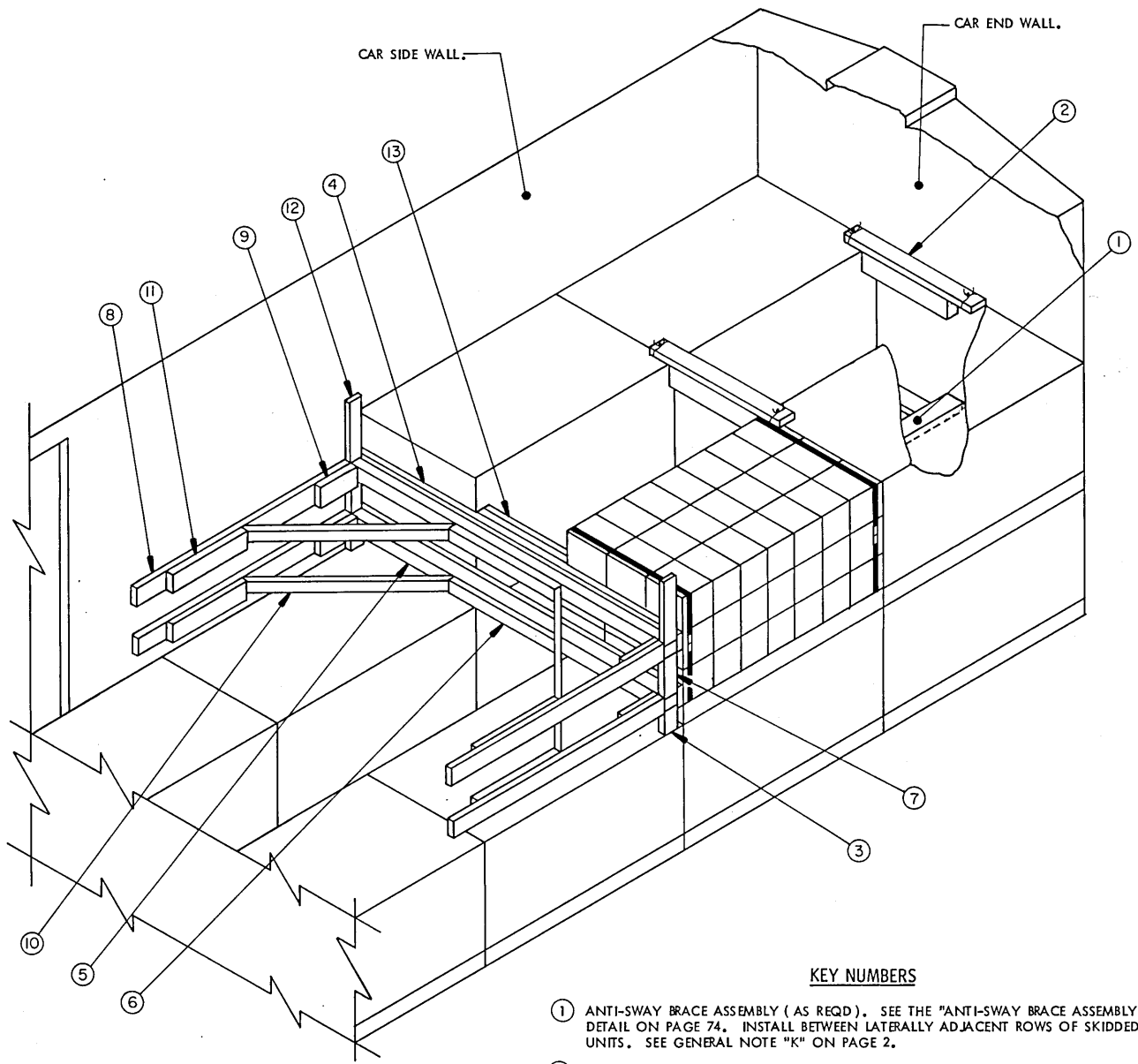
1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. TOP-OF-LOAD ANTI-SWAY BRACES MUST BE INSTALLED ON THE FIRST TWO (2) STACKS AT EACH END OF THE BOX CAR, AS SHOWN ON PAGE 20, AND WIRE TIE TO A UNITIZING STRAP WITH NO. 14 GAGE WIRE AS SHOWN BY THE "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75. USE ONE (1) TOP-OF-LOAD ANTI-SWAY BRACE ON TOP OF EACH STACK WITHIN THE DOORWAY AREA OF THE CAR, AS SHOWN ON PAGE 20.
3. A WIDER OR NARROWER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD BY ADJUSTING THE PIECES MARKED ① AND ②.
4. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS, OR "THRU" DOORS OF THE CONVENTIONAL SLIDING TYPE, WHICH ARE 10'-6" WIDE OR LESS, NO DOORWAY PROTECTION STRAPS ARE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OF ANY WIDTH OR "THRU" PLUG DOORS WHICH ARE WIDER THAN 10'-6", DOORWAY PROTECTION STRAPS, SHOWN AS PIECE MARKED ④ ON PAGE 20, WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS WHICH ARE WIDER THAN 10'-6", DOORWAY PROTECTION STRAPS, SHOWN AS PIECE MARKED ④ ON PAGE 20, WILL BE REQUIRED. THIS SHOULD BE TAKEN INTO CONSIDERATION WHEN ORDERING A BOX CAR. SEE GENERAL NOTE "Q" ON PAGE 2.
5. FOR EACH LOAD UNIT OF SIX SKIDDED UNITS WHICH EXTENDS MORE THAN 33" PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED, ONE (1) SET OF PIECES MARKED ②, ③, ④, AND ⑤ MUST BE INSTALLED TO BUNDLE THAT UNIT. FOR EACH LOAD UNIT OF SIX SKIDDED UNITS WHICH EXTENDS 54" OR MORE PAST A DOOR POST INTO THE DOORWAY AREA, PIECES MARKED ③ AND TWO (2) SETS OF PIECES MARKED ②, ④, AND ⑤ MUST BE INSTALLED TO BUNDLE THAT UNIT, AS SHOWN WITHIN THE BASIC LOAD VIEWS.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
7. IF SKIDDED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF WIRE-BOUND CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 62, 64, AND 65 FOR SHIPPING GUIDANCE.
8. FOR SHIPMENT OF ONE OR MORE LEFTOVER WIREBOUND CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER WIREBOUND CONTAINERS" ON PAGE 66.
9. FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE GENERAL NOTES "BB", "CC", "DD", AND "EE" ON PAGE 3.
10. IF DESIRED, AN OFFSET LOADING PATTERN AS SHOWN IN THE LOAD ON PAGE 18 MAY BE USED. SEE GENERAL NOTE "W" ON PAGE 2.
11. IF A MAXIMUM LOAD, AS SHOWN ON PAGE 16 IS DESIRED, A FILLER ASSEMBLY MUST BE FABRICATED TO FIT BETWEEN THE LOAD DIVIDER BULKHEADS AND THE SKIDDED UNITS. SEE THE LOADING PROCEDURES ON PAGE 16 AND THE "FILLER ASSEMBLY" ON THIS PAGE.



FILLER ASSEMBLY

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	165	110
2" X 6"	264	264
4" X 4"	21	28
NAILS	NO. REQD	POUNDS
10d (3")	248	4
STEEL STRAPPING, 1-1/4" X .035" ----- 76' REQD ----- 11 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 4 REQD ----- NIL		
WIRE, NO. 14 GAGE ----- 32' REQD ----- NIL		

LOAD AS SHOWN		
ITEM	QUANTITY	WEIGHT (APPROX)
SKIDDED UNIT	48	35,952 LBS
DUNNAGE		819 LBS
TOTAL WEIGHT		36,771 LBS



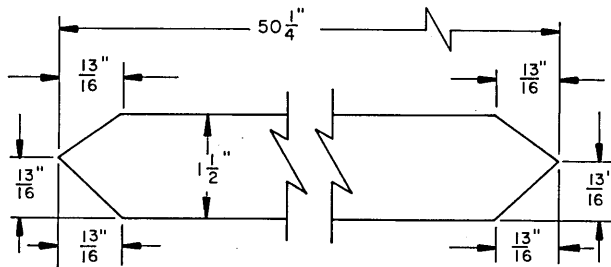
ISOMETRIC VIEW

KEY NUMBERS

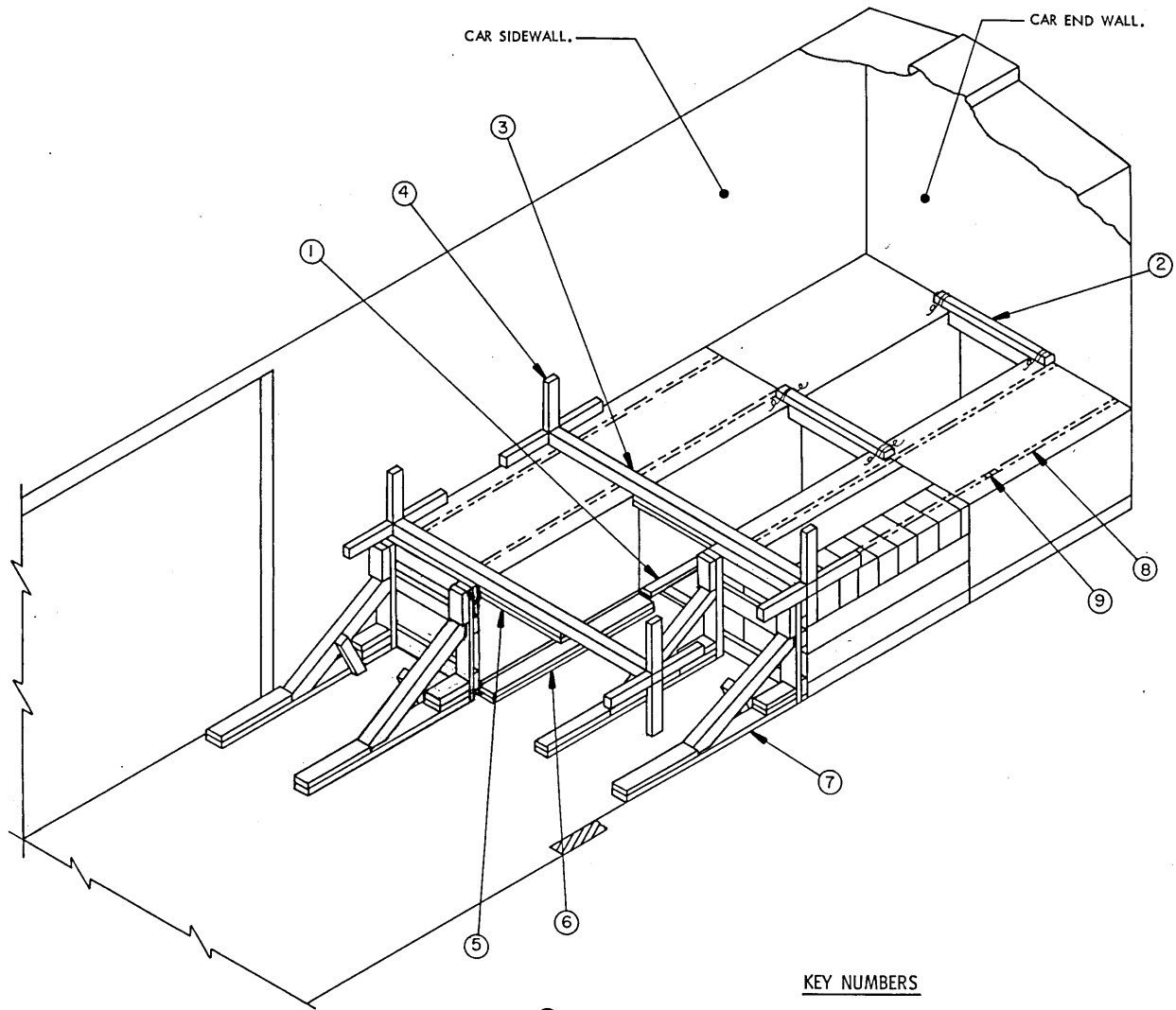
- ① ANTI-SWAY BRACE ASSEMBLY (AS REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 74. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF SKIDDED UNITS. SEE GENERAL NOTE "K" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY (AS REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75. SEE SPECIAL NOTE 2 ON PAGE 21.
- ③ SUPPORT CLEAT, 2" X 4" X 6" (2 REQD). NAIL TO THE CAR SIDEWALL W/2-12d NAILS.
- ④ LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT-TO-FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, W/1-12d NAIL EVERY 6".
- ⑤ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH IN LENGTH (CUT-TO-FIT) (2 REQD).
- ⑥ CENTER CLEAT, 2" X 4" X 36" (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, W/7-16d NAILS. SEE SPECIAL NOTE 4 ON PAGE 23.
- ⑦ SPACER CLEAT, 2" X 4" X 12" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.
- ⑧ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑨ POCKET CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/4-16d NAILS.
- ⑩ DIAGONAL BRACE, 2" X 4" X 50-1/4" (4 REQD). SEE THE "DIAGONAL BRACE B" DETAIL ON PAGE 23 FOR BEVEL CUTS REQUIRED. TO NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/2-16d NAILS AT EACH END.
- ⑪ BACK-UP CLEAT, 2" X 6" X 24" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/8-16d NAILS.
- ⑫ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.
- ⑬ ANTI-SWAY BRACE, 2" X 6" BY CUT-TO-FIT (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE LOAD BEARING PIECE W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST PIECE IN A LIKE MANNER.

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF A PARTIAL SECOND LAYER IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A NAILABLE SIDEWALL. CARS OF OTHER WIDTHS CAN BE USED.
2. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN WOOD-LINED CARS FOR THE SECUREMENT OF A PARTIAL TOP TIER. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 8,000 POUNDS. THE K-BRACE METHOD SHOWN MAY BE USED AT EACH END OF THE CAR.
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 ③, ④, ⑤, ⑦, ⑨ AND ⑫ MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑩ TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑧ 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 ⑧ 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 ⑧ IS DOUBLED.
4. THE CENTER CLEAT, SHOWN AS PIECE MARKED ⑥, WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2" AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
5. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
6. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



DIAGONAL BRACE B



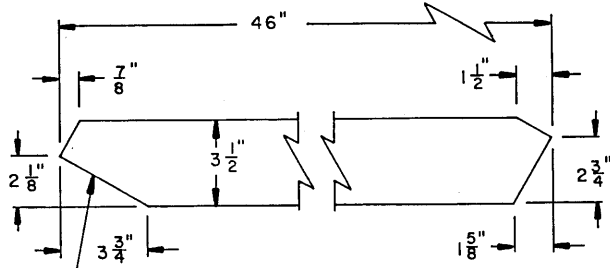
ISOMETRIC VIEW

KEY NUMBERS

- ① ANTI-SWAY BRACE ASSEMBLY (2 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 74. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF SKIDDED UNITS. SEE GENERAL NOTE "K" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (2 REQD). SEE THE TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75. SEE SPECIAL NOTE 4 ON THIS PAGE.
- ③ HOLD-DOWN, 4" X 4" BY CAR WIDTH IN LENGTH (CUT-TO-FIT) (2 REQD). INSTALL ACROSS THE SKIDDED UNITS WHICH ARE ADJACENT TO THE KNEE BRACE ASSEMBLIES. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ④ POCKET CLEAT, 2" X 4" X 18" (13 REQD). NAIL TO THE CAR SIDEWALL W/5-10d NAILS. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ⑤ ANTI-SWAY BLOCK, 2" X 4" BY CUT-TO-FIT BETWEEN LATERALLY ADJACENT SKIDDED UNITS (DOUBLED) (2 REQD). POSITION AS SHOWN ABOVE AND NAIL THE FIRST PIECE TO THE HOLD-DOWN PIECES MARKED ③, W/5-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ⑥ SIDE BLOCKING, 2" X 6" X 66" (DOUBLED) (1 REQD). POSITION AGAINST THE SKIDDED UNIT AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑦ KNEE BRACE ASSEMBLY (2 REQD). SEE THE "KNEE BRACE ASSEMBLY A" DETAIL ON PAGE 25 FOR CONSTRUCTION SPECIFICATIONS AND NAILING REQUIREMENTS. SEE SPECIAL NOTE 2 ON THIS PAGE.
- ⑧ ALTERNATIVE HOLD-DOWN, 1-1/4" X .035" X 29'-0" LONG (REF) STEEL STRAPPING (4 REQD). ENCIRCLE TWO LONGITUDINALLY ADJACENT SKIDDED UNITS AS SHOWN ABOVE. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ⑨ SEAL FOR 1-1/4" STEEL STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

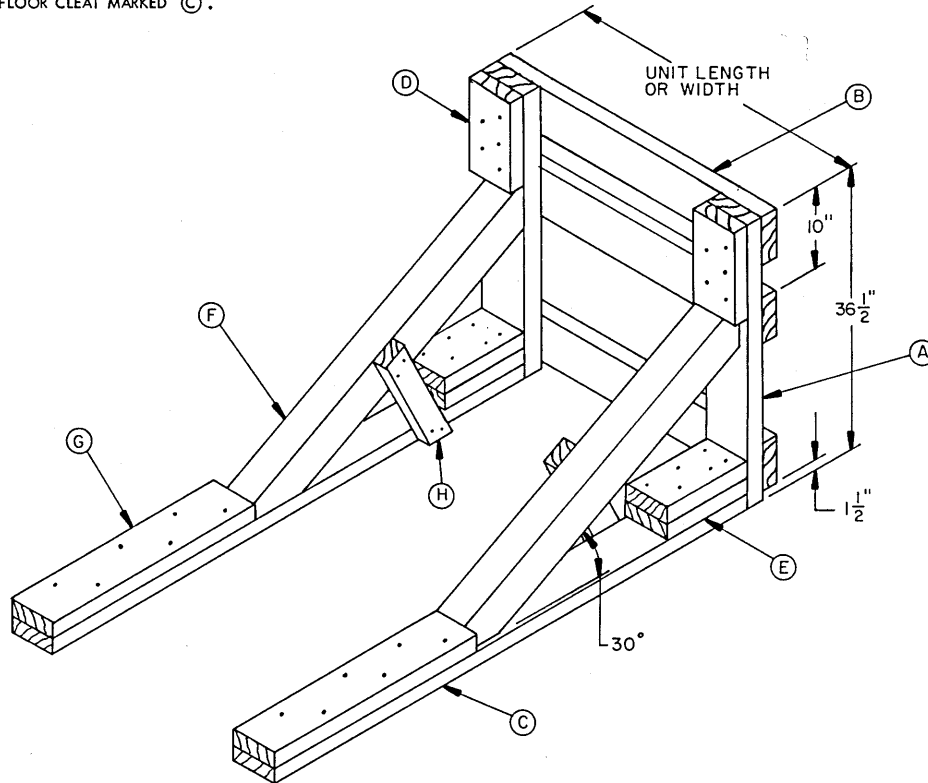
SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF FIVE (5) SKIDDED UNITS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING NAILABLE SIDEWALLS AND A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED. THE PROCEDURES ARE ALSO APPLICABLE FOR OTHER QUANTITIES OF SKIDDED UNITS. SEE GENERAL NOTE "V" ON PAGE 2.
2. A KNEE BRACE ASSEMBLY MUST BE USED FOR EACH ROW OF SKIDDED UNITS. ONE (1) KNEE BRACE ASSEMBLY IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 8,500 POUNDS.
3. IF THE CAR BEING LOADED HAS METAL SIDEWALLS, USE STEEL STRAPPING, SHOWN AS PIECE MARKED ⑧, IN LIEU OF PIECES MARKED ③, ④, AND ⑤.
4. TOP-OF-LOAD ANTI-SWAY BRACES MUST BE INSTALLED ON THE FIRST TWO (2) SKIDDED UNITS AT EACH END OF THE BOX CAR. WIRE TIE TO A UNITIZING STRAP WITH NO. 14 GAGE WIRE AS SHOWN BY THE "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75.



DIAGONAL BRACE C

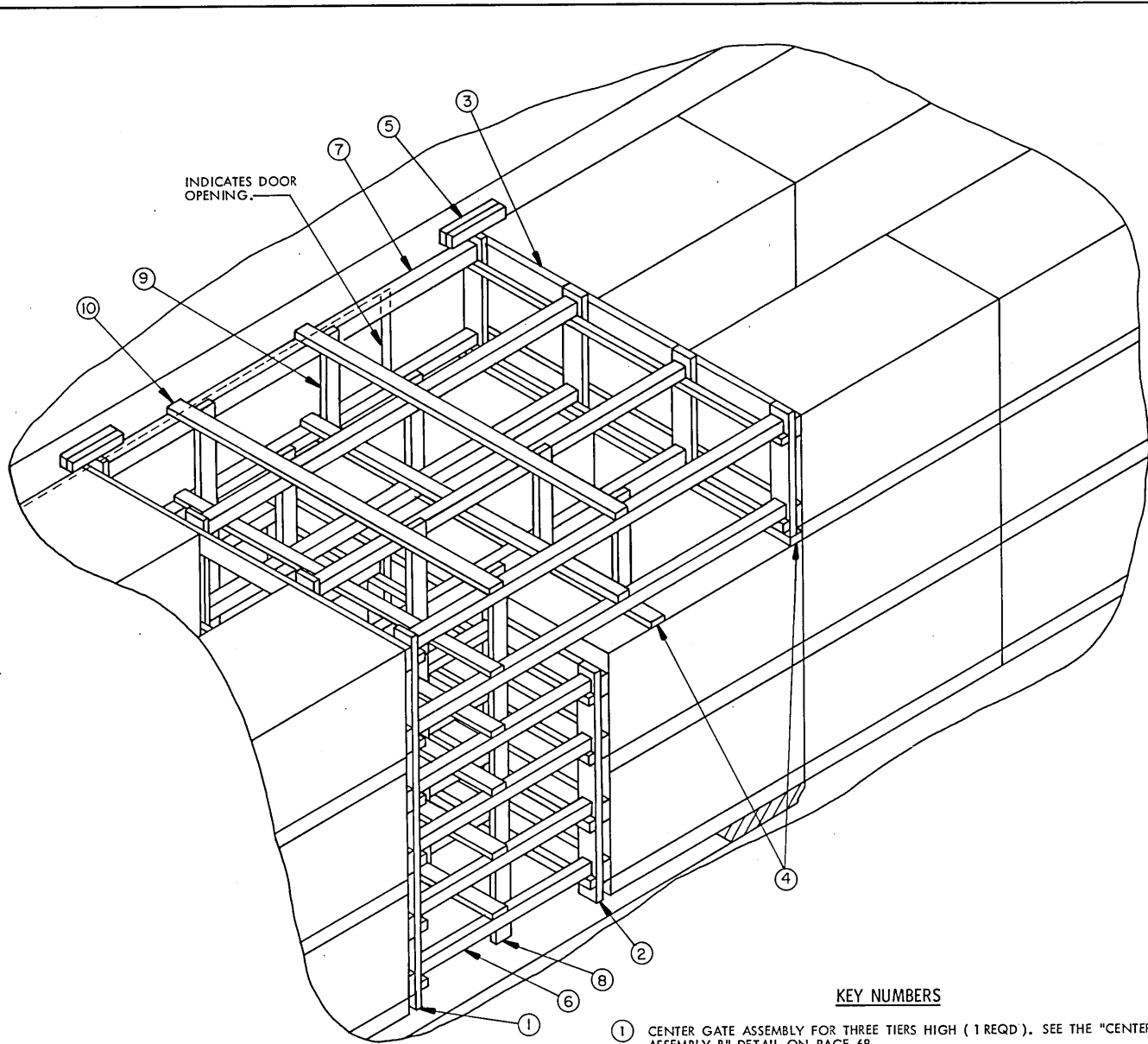
THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE FLOOR CLEAT MARKED ©.



KNEE BRACE ASSEMBLY A

KEY LETTERS

- (A) VERTICAL PIECE, 2" X 6" X 36-1/2" (2 REQD).
- (B) HORIZONTAL PIECE, 2" X 6" BY UNIT LENGTH OR WIDTH (3 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH END.
- (C) FLOOR CLEAT, 2" X 6" X 70" (2 REQD). ALIGN WITH A VERTICAL PIECE AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8".
- (D) HOLD-DOWN CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO A VERTICAL PIECE W/5-10d NAILS.
- (E) POCKET CLEAT, 2" X 6" X 12" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE FLOOR CLEAT W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER AND TOENAIL IT TO THE VERTICAL PIECE W/2-16d NAILS.
- (F) DIAGONAL BRACE, 4" X 4" BY CUT-TO-FIT (46" REF) (2 REQD). SEE THE DETAIL ABOVE FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE AND TO THE FLOOR CLEAT W/2-16d NAILS AT EACH END.
- (G) BACK-UP CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO THE FLOOR CLEAT W/6-40d NAILS.
- (H) DIAGONAL BRACE SUPPORT, 2" X 4" BY LENGTH-TO-SUIT (2 REQD). BEVEL THE BOTTOM END WITH A 60° CUT. CENTER ON THE DIAGONAL BRACE AND NAIL TO PIECES MARKED © AND © W/2-12d NAILS AT EACH END.



INDICATES DOOR
OPENING.

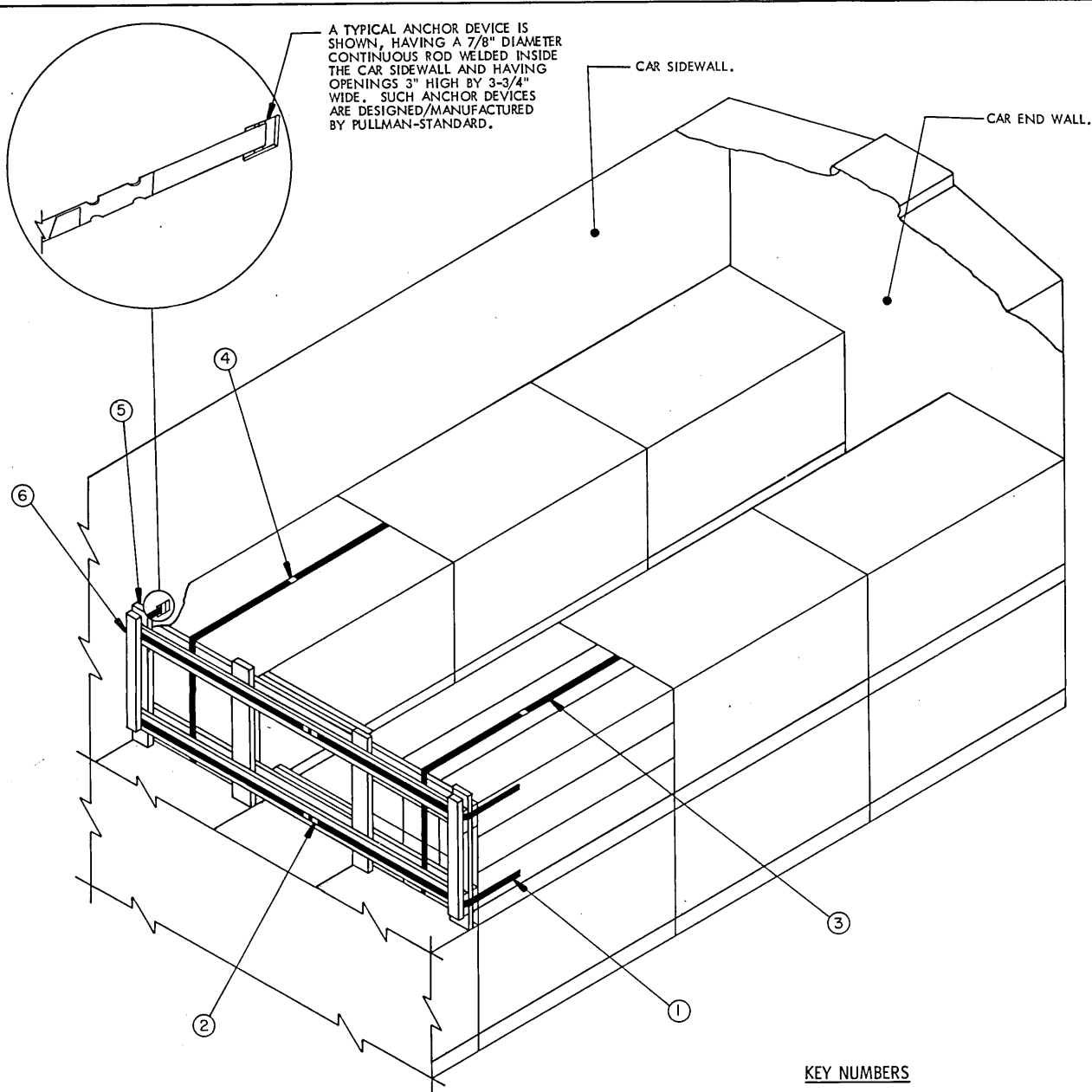
ISOMETRIC VIEW

KEY NUMBERS

- ① CENTER GATE ASSEMBLY FOR THREE TIERS HIGH (1 REQD). SEE THE "CENTER GATE ASSEMBLY B" DETAIL ON PAGE 68.
- ② CENTER GATE ASSEMBLY FOR TWO TIERS HIGH (1 REQD). SEE THE "CENTER GATE ASSEMBLY D" DETAIL ON PAGE 69.
- ③ CENTER GATE ASSEMBLY FOR ONE TIER HIGH (1 REQD). SEE THE "CENTER GATE ASSEMBLY E" DETAIL ON PAGE 70. TOENAIL TO PIECE MARKED ④ W/2-12d NAILS AT EACH JOINT. SEE SPECIAL NOTE 4 ON PAGE 27.
- ④ SUPPORT PIECE, 2" X 4" BY CAR WIDTH MINUS 1/2" (2 REQD). POSITION ONE PIECE UNDER THE VERTICAL STRUT BRACING MARKED ⑨ AND ONE PIECE UNDER THE CENTER GATE ASSEMBLY MARKED ③. SEE SPECIAL NOTE 4 ON PAGE 27.
- ⑤ CENTER GATE HOLD-DOWN CLEATS, 2" X 4" X 18" (DOUBLED) (4 REQD). CENTER THE CLEATS ABOVE THE VERTICAL PIECES ON THE CENTER GATES, SHOWN AS PIECES MARKED ① AND ③. NAIL THE FIRST PIECE TO THE CAR SIDEWALL W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT (16 REQD). TOENAIL TO PIECES MARKED ① AND ② W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 27.
- ⑦ STRUT, 4" X 4" BY CUT-TO-FIT (8 REQD). TOENAIL TO PIECES MARKED ① AND ③ W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 27.
- ⑧ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 3" ABOVE THE TOP STRUT (4 REQD). NAIL TO THE STRUTS MARKED ⑥ AND ⑦ W/3-10d NAILS AT EACH JOINT. SEE SPECIAL NOTE 4 ON PAGE 27.
- ⑨ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 3" ABOVE THE TOP STRUT (4 REQD). NAIL TO THE STRUTS MARKED ⑦ W/3-10d NAILS AT EACH JOINT. TOENAIL TO PIECE MARKED ④ W/2-12d NAILS AT AT EACH JOINT.
- ⑩ HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 1/2" IN LENGTH (8 REQD). NAIL TO THE STRUTS MARKED ⑥ AND ⑦ W/3-10d NAILS AT EACH JOINT.

SPECIAL NOTES:

1. THE CENTER PORTION OF A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. THE PROCEDURES FOR THE ADJUSTMENT OF A LOAD QUANTITY BY THE OMISSION OF TWO ADJACENT PALLETIZED UNITS FROM THE TOP TIER ARE SHOWN AS TYPICAL.
3. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO PERMIT THE OMISSION OF THE UNITS FROM THE TOP TIER ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
4. THE LENGTH OF THE STRUTS AND/OR WIDTH OF THE OMITTED UNITS MAY REQUIRE THAT MORE THAN ONE SET OF VERTICAL STRUT BRACING BE INSTALLED. TO PROTECT THE LADING FROM BEING PUNCTURED WHEN A SET OF VERTICAL STRUT BRACING IS INSTALLED ABOVE THE LOWER TIER OF A LOAD, A SUPPORT PIECE, SHOWN AS PIECE MARKED ④, MUST BE POSITIONED UNDER AND SECURED TO EACH APPLICABLE VERTICAL STRUT BRACING PIECE, SHOWN AS PIECE MARKED ⑤, AND UNDER THE CENTER GATE ASSEMBLY E, SHOWN AS PIECE MARKED ③.
5. FOUR (4) LOAD BLOCKING 4" X 4" STRUTS FOR EACH ROW/TIER ARE ADEQUATE FOR RETAINING A WEIGHT OF 12,250 POUNDS.



A TYPICAL ANCHOR DEVICE IS SHOWN, HAVING A 7/8" DIAMETER CONTINUOUS ROD WELDED INSIDE THE CAR SIDEWALL AND HAVING OPENINGS 3" HIGH BY 3-3/4" WIDE. SUCH ANCHOR DEVICES ARE DESIGNED/MANUFACTURED BY PULLMAN-STANDARD.

CAR SIDEWALL.

CAR END WALL.

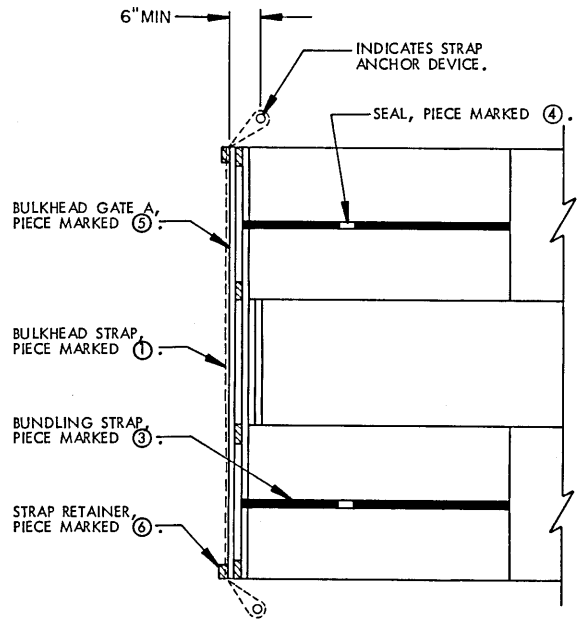
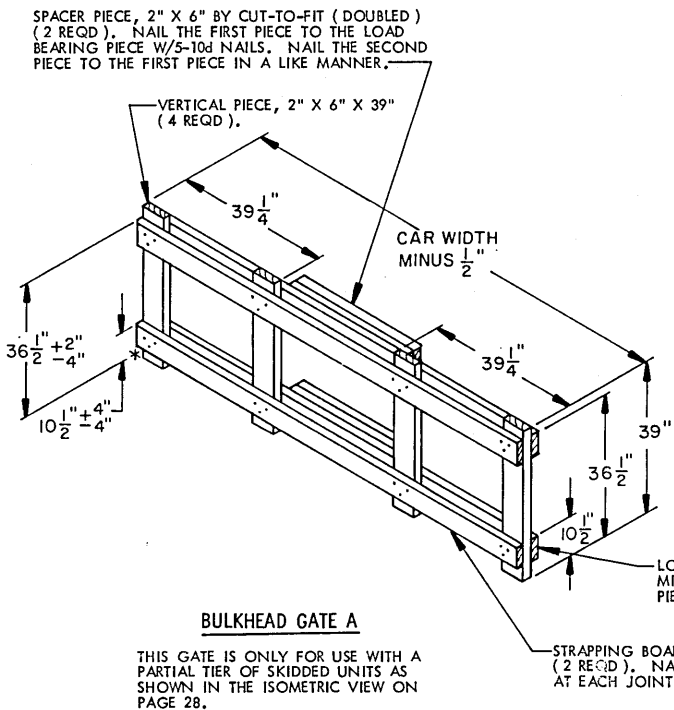
ISOMETRIC VIEW

KEY NUMBERS

- ① BULKHEAD STRAP, 2" X .050" X 34'-0" LONG (REF) STEEL STRAPPING (2 REQD). INSTALL FROM TWO EQUAL LENGTH PIECES. SEE THE "LOAD PATTERN/STRAP APPLICATION PLAN" ON PAGE 29 FOR INSTALLATION GUIDANCE. SEE SPECIAL NOTES 3 AND 4 ON PAGE 29.
- ② SEAL FOR 2" STRAPPING (12 REQD, 6 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ③ BUNDLING STRAP, 1-1/4" X .035" X 24'-0" LONG (REF) STEEL STRAPPING (2 REQD). ENCIRCLE SKIDDED UNIT AND HORIZONTAL PIECES OF THE BULKHEAD GATE. SEAL THE STRAP JOINT W/1 SEAL.
- ④ SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD, 1 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑤ BULKHEAD GATE (1 REQD). SEE THE "BULKHEAD GATE A" DETAIL ON PAGE 29. SEE SPECIAL NOTE 3 ON PAGE 29.
- ⑥ STRAP RETAINER, 2" X 4" BY A LENGTH-TO-SUIT (2 REQD). NAIL TO THE BULKHEAD GATE W/2-12d NAILS ABOVE AND BELOW EACH BULKHEAD STRAP.

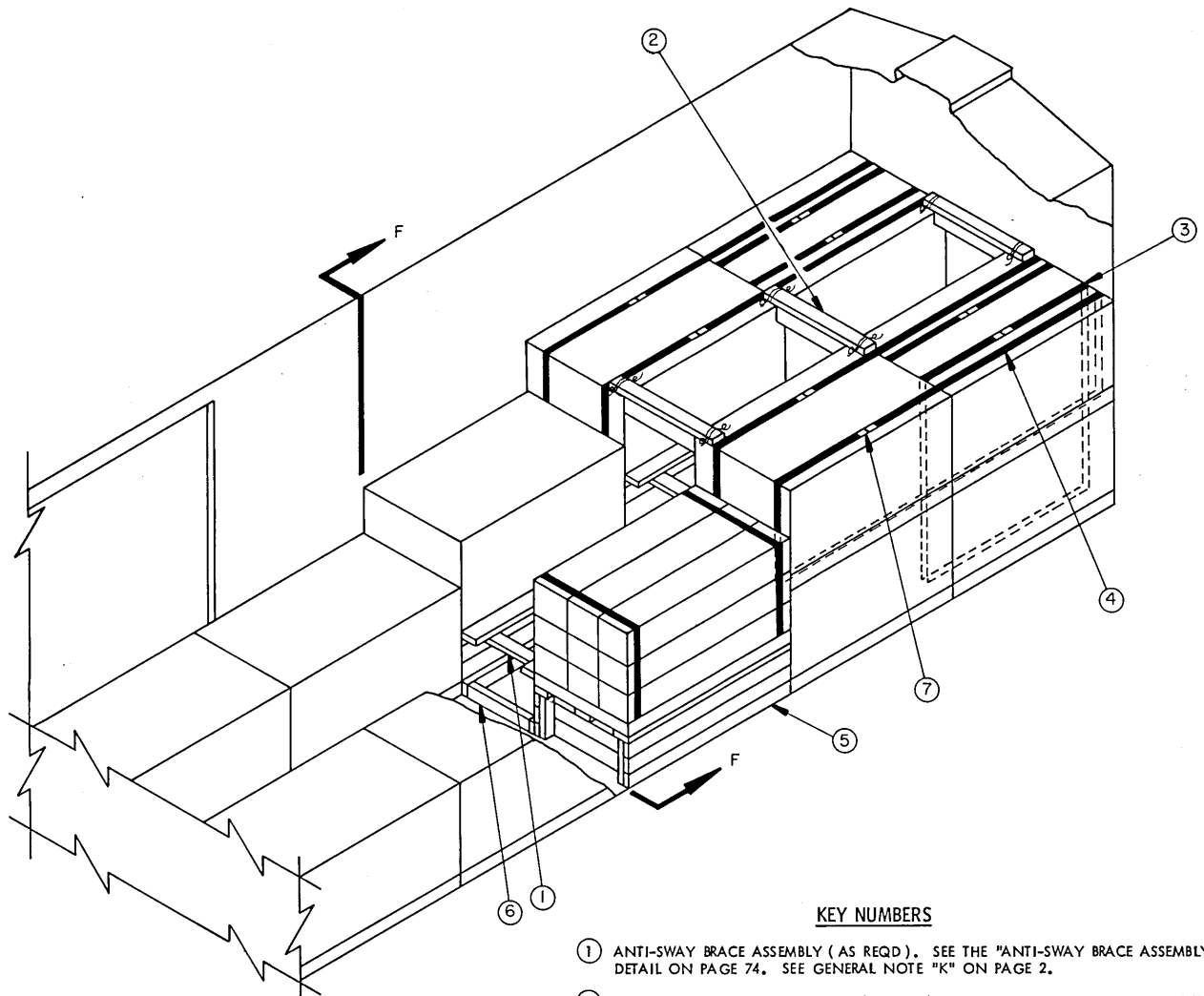
SPECIAL NOTES:

1. A 9'-6" WIDE ALL-METAL BOX CAR EQUIPPED WITH STRAP ANCHOR DEVICES AND HAVING AN AAR MECHANICAL DESIGNATION CLASS OF XL IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THE PROCEDURES SHOWN DEPICTING THE BULKHEAD GATE METHOD OF PARTIAL-LAYER (TIER) BRACING FOR THE ADJUSTMENT OF A LOAD QUANTITY IS TYPICAL.
3. A BULKHEAD GATE USED IN CONJUNCTION WITH TWO (2) STRAPS WILL RETAIN UP TO 12,000 POUNDS OF LADING.
4. BULKHEAD STRAPS WILL BE TWO INCH (2") WIDE STEEL STRAPPING; 1-1/4" STRAPPING MUST NOT BE USED. A BULKHEAD STRAP WILL BE OF A LENGTH TO SUIT AND WILL BE THREADED THRU THE ANCHOR DEVICE (PRIOR TO POSITIONING THE ADJACENT UNITS) FAR ENOUGH TO PROVIDE FOR ONE LEG BEING APPROXIMATELY 48" LONGER THAN THE OTHER. THE STRAP ATTACHED TO THE MATING ANCHOR DEVICE WILL HAVE THE OPPOSITE LEG EXTENDING 48". THE TWO LEGS OF EACH HALF OF A STRAP WILL BE SECURED NEAR THE ANCHOR DEVICE WITH ONE DOUBLE CRIMPED SEAL. NOTE THAT THIS SEAL MUST BE POSITIONED EITHER CLOSE ENOUGH TO OR FAR ENOUGH AWAY FROM THE ANCHOR DEVICE SO AS NOT TO BE AT THE POINT WHERE THE STRAP BENDS AROUND THE END OF THE BULKHEAD GATE OR AROUND THE CORNER OF THE ADJACENT UNITS. THE STRAP ENDS OF EACH PAIR OF LONG AND SHORT LEGS WILL BE SECURED WITH TWO (2) SEALS BUTTED TOGETHER AND DOUBLE CRIMPED.
5. THE STRAPPING BOARDS ON A BULKHEAD GATE ARE TO BE ALIGNED AS NEARLY AS POSSIBLE WITH THE ANCHOR DEVICES IN THE CAR TO WHICH THE BULKHEAD STRAPS ARE ATTACHED. A TOLERANCE IS ALLOWED ON DIMENSIONS TO PROVIDE FOR THIS ALIGNMENT.
6. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN. REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.



LOAD PATTERN/STRAP INSTALLATION PLAN

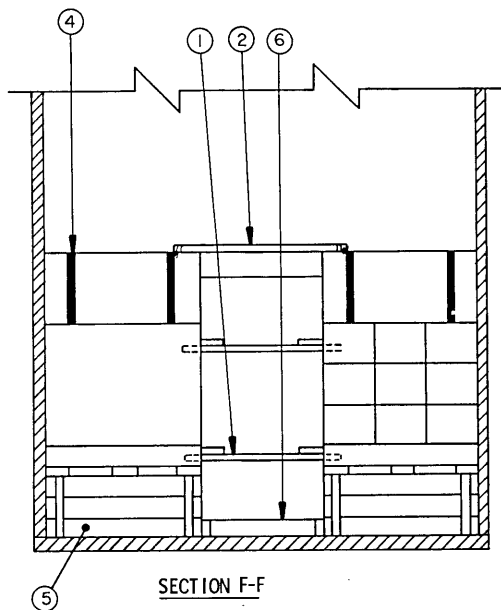
THE PARTIAL TOP VIEW SHOWN ABOVE DEPICTS THE POSITION OF PIECES MARKED ① THROUGH ⑥.



ISOMETRIC VIEW

KEY NUMBERS

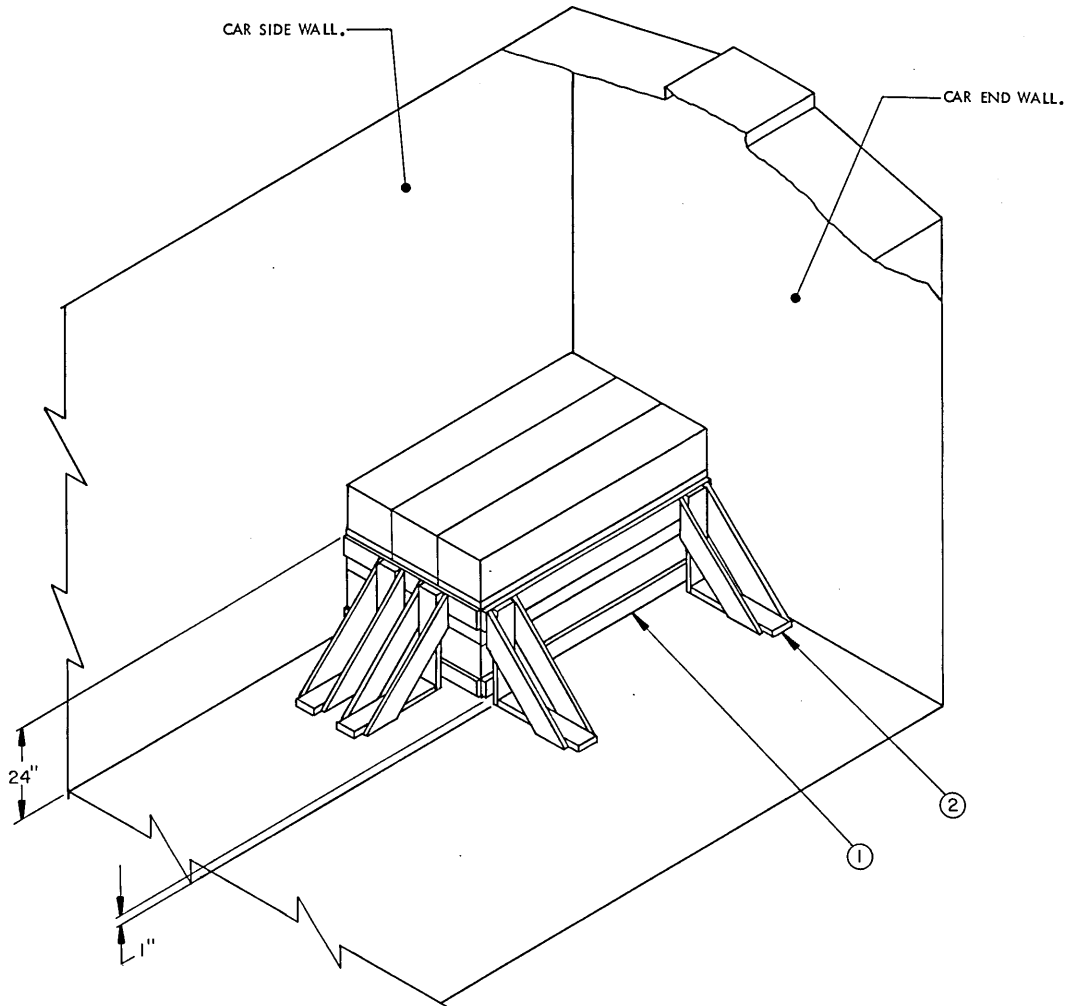
- ① ANTI-SWAY BRACE ASSEMBLY (AS REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 74. SEE GENERAL NOTE "K" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (3 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75.
- ③ VERTICAL UNITIZING STRAP, 1-1/4" X .035" X 24'-0" LONG (REF) STEEL STRAPPING (4 REQD, 2 PER STACK). INSTALL SO AS TO ENCIRCLE THE TWO SKIDDED UNITS, AND SEAL THE JOINT W/2 SEALS, PRIOR TO FINAL POSITIONING OF THE STACK IN THE CAR. SEE SPECIAL NOTE 3 ON PAGE 31.
- ④ HORIZONTAL UNITIZING STRAP, 1-1/4" X .035" X 29'-0" LONG (REF) STEEL STRAPPING (4 REQD). PRE-POSITION AROUND THE TOP UNIT OF THE UNITIZED 2-HIGH STACK. INSTALL SO AS TO ENCIRCLE THE TWO LONGITUDINALLY ADJACENT SKIDDED UNITS, AND SEAL THE JOINT W/2 SEALS. SEE SPECIAL NOTE 3 ON PAGE 31.
- ⑤ RISER ASSEMBLY (2 REQD). SEE THE "RISER ASSEMBLY B" DETAIL ON PAGE 76. SEE SPECIAL NOTE 2 ON PAGE 31.
- ⑥ RISER RETAINER ASSEMBLY (1 REQD). SEE THE "RISER RETAINER ASSEMBLY B" DETAIL ON PAGE 85.
- ⑦ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION F-F

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF A PARTIAL SECOND LAYER IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR. ALL METAL OR WOOD-LINED CARS OF OTHER WIDTHS CAN BE USED.
2. THE RISER METHOD OF PARTIAL-LAYER BRACING MAY BE USED IN ALL-METAL CARS OR IN WOOD-LINED CARS FOR THE SECUREMENT OF A PARTIAL TOP TIER OF NOT MORE THAN 16,000 POUNDS (8,000 POUNDS IN EACH ROW WHICH IS RETAINED BY A RISER). THE RISER MUST ALWAYS BE POSITIONED ON THE CAR FLOOR.
3. THE POSITIONING OF THE VERTICAL UNITIZING STRAPS MARKED ③ AND THE HORIZONTAL UNITIZING STRAPS MARKED ④, IS APPLICABLE FOR LCL LOADS WHICH ARE AT LEAST TWO LOAD UNITS LONG IN THE UPPERMOST TIER. IF THE UPPERMOST TIER IS ONLY ONE LOAD UNIT IN LENGTH, PIECE MARKED ③ WILL BE INSTALLED SO AS TO ENCIRCLE A STACK IN THAT LOAD UNIT AND PIECES MARKED ④ WILL NOT BE REQUIRED.
4. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
5. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



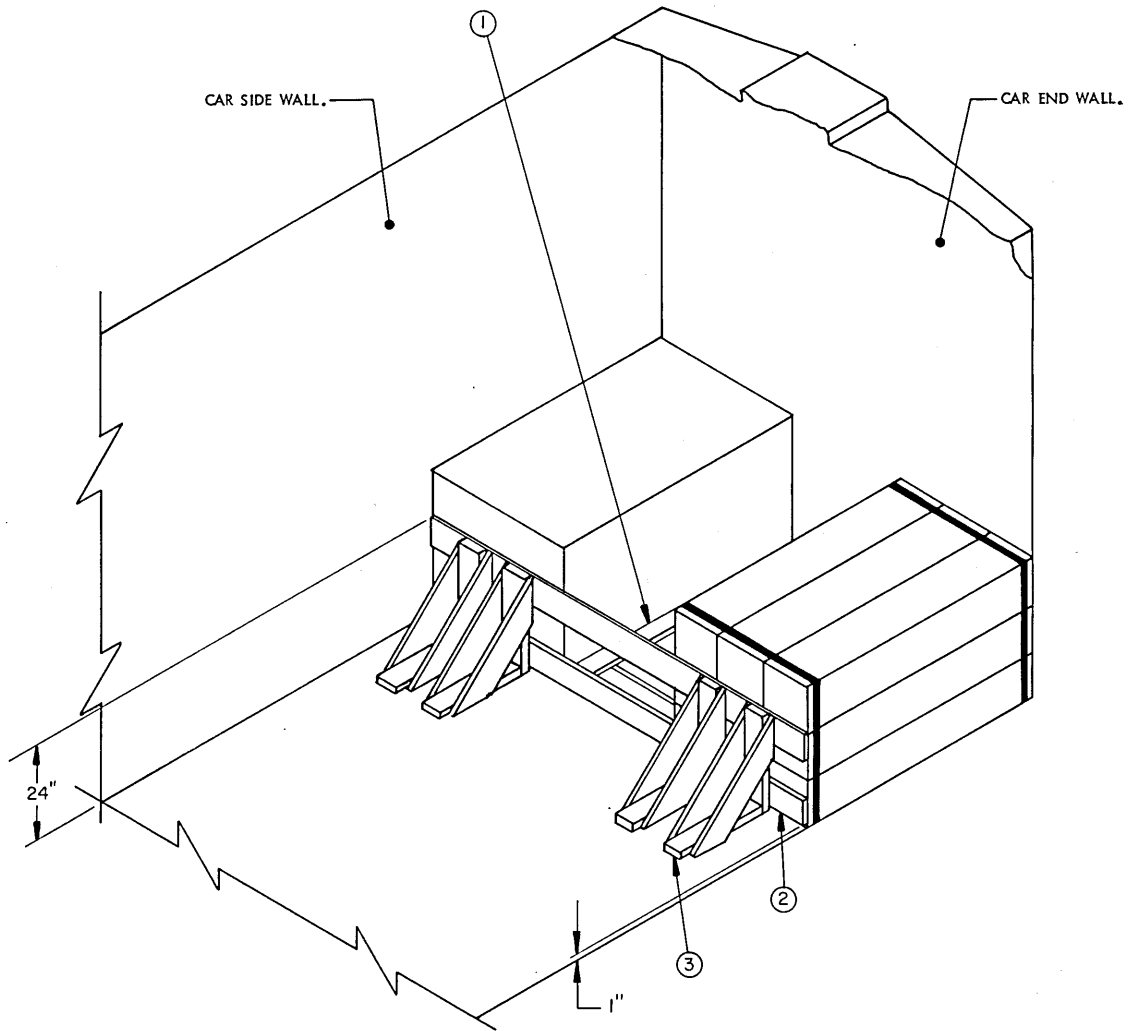
ISOMETRIC VIEW

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF ONE (1) SKIDDED UNIT IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTE "V" ON PAGE 2.
2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL SUPPORT 8,000 POUNDS OF LADING. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL AND LATERAL BRACING.
3. THE SKIDDED UNIT MAY BE CENTERED ACROSS THE CAR WIDTH WITH LOAD BEARING PIECES AND LCL BRACES POSITIONED AGAINST EACH SIDE AND END, IF DESIRED.
4. POSITION THE BOTTOM EDGE OF THE LOWER LOAD BEARING PIECE 1" ABOVE THE CAR FLOOR. POSITION THE TOP EDGE OF THE UPPER LOAD BEARING PIECE 24" ABOVE THE CAR FLOOR.

KEY NUMBERS

- ① LOAD BEARING PIECE, 1" X 6" BY UNIT LENGTH OR WIDTH (4 REQD). NAIL TO THE LCL BRACE W/3-6d NAILS AT EACH JOINT PRIOR TO PLACEMENT AGAINST THE SKIDDED UNIT. SEE SPECIAL NOTE 4 ON THIS PAGE.
- ② LCL BRACE (4 REQD). SEE THE DETAIL ON PAGE 74. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 2 ON THIS PAGE.



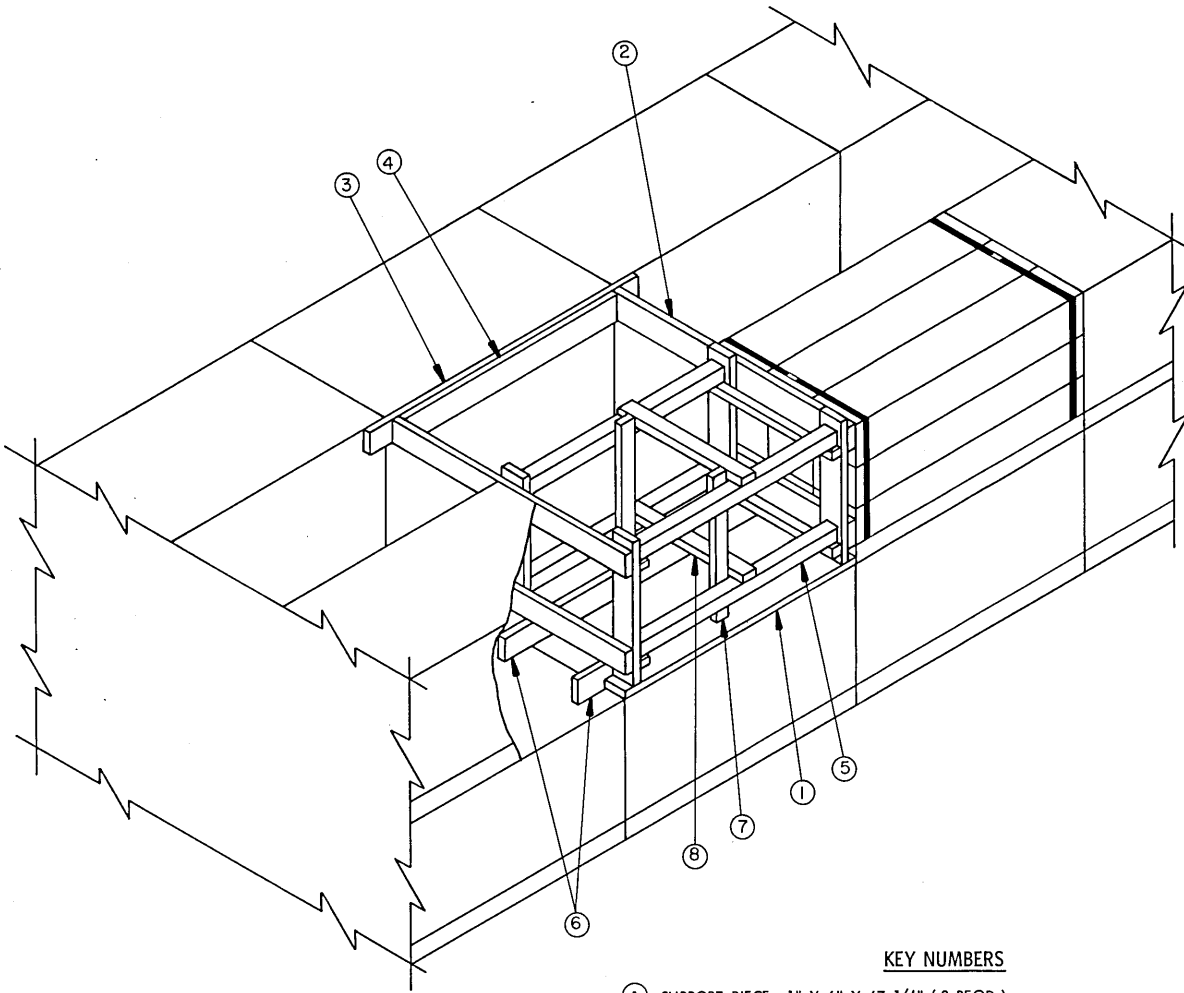
ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF TWO (2) SKIDDED UNITS OF WIREBOUND CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR A AVAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTE "V" ON PAGE 2.
2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL BRACING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL RETAIN 8,000 POUNDS OF LADING.
3. POSITION THE BOTTOM EDGE OF THE LOWER LOAD BEARING PIECE 1" ABOVE THE CAR FLOOR. POSITION THE TOP EDGE OF THE UPPER LOAD BEARING PIECE 24" ABOVE THE CAR FLOOR.

- ① ANTI-SWAY BRACE ASSEMBLY (1 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY A" DETAIL ON PAGE 75.
- ② LOAD BEARING PIECE, 1" X 6" BY CAR WIDTH MINUS 1/2" (2 REQD). NAIL TO THE VERTICAL PIECES OF THE LCL BRACE W/3-6d NAILS AT EACH JOINT PRIOR TO PLACEMENT AGAINST LADING.
- ③ LCL BRACE (4 REQD). SEE THE "LCL BRACE" DETAIL ON PAGE 74. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 2 ON THIS PAGE.



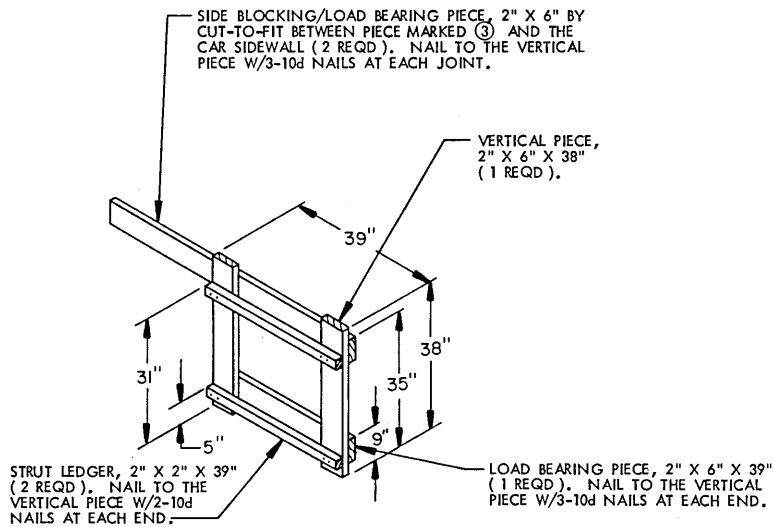
ISOMETRIC VIEW

KEY NUMBERS

- ① SUPPORT PIECE, 1" X 6" X 67-1/4" (2 REQD).
- ② LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 35. NAIL TO THE FILLER PIECE MARKED ④ W/3-10d NAILS. TOENAIL TO THE SUPPORT PIECE MARKED ①, W/2-6d NAILS AT EACH JOINT.
- ③ ANTI-SWAY BEARING PIECE, 2" X 6" X 79" (1 REQD).
- ④ FILLER PIECE, 2" X 6" BY CUT-TO-FIT (1 REQD). NAIL TO PIECE MARKED ③ W/5-10d NAILS.
- ⑤ STRUT, 4" X 4" BY CUT-TO-FIT (4 REQD). TOENAIL TO PIECE MARKED ② W/2-12d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑥ GATE HOLD-DOWN, 2" X 3" X 7'-0" (2 REQD). POSITION TO EXTEND UNDER SKIDDED UNITS AS SHOWN AND NAIL TO PIECE MARKED ② W/2-10d NAILS AT EACH JOINT.
- ⑦ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑧ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

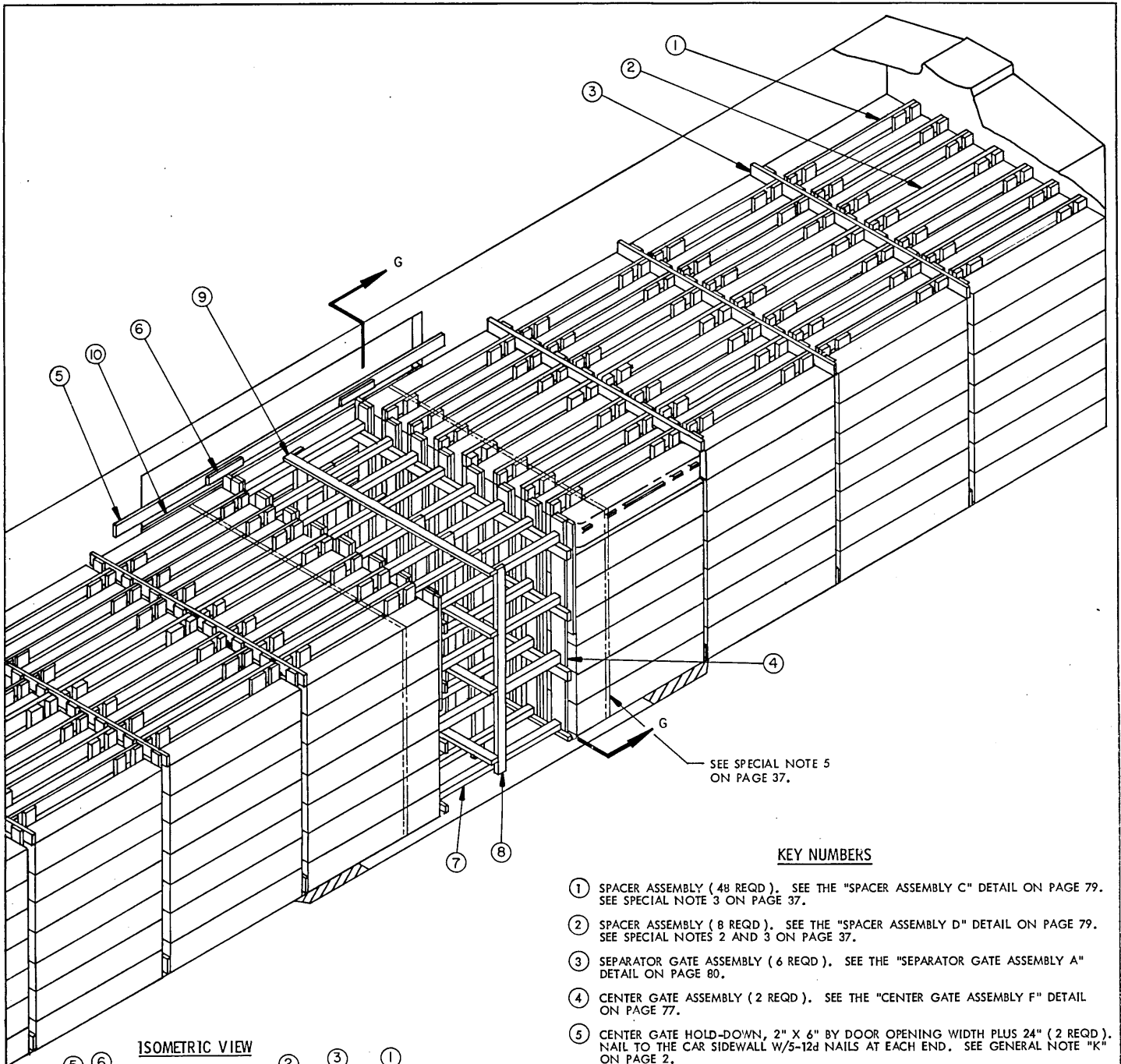
SPECIAL NOTES:

1. A PARTIAL VIEW OF A LOAD IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING ONE SKIDDED UNIT OMITTED FROM THE TOP LAYER IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THIS METHOD OF PARTIAL-LAYER (TIER) BRACING (OMITTING A UNIT FROM THE TOP TIER FOR ADJUSTMENT OF LOAD QUANTITY) IS APPLICABLE FOR USE IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AS WELL AS CONVENTIONAL BOX CARS. THE OMISSION OF A SECOND-TIER UNIT IS SHOWN AS TYPICAL.
3. THE OMITTED-UNIT PROCEDURE SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA OF THE CAR. ALSO, THERE SHOULD BE AT LEAST ONE (1) LOAD UNIT BETWEEN THE OMITTED UNIT AND A LOAD DIVIDER BULKHEAD, OR BETWEEN THE OMITTED UNIT AND A CENTER GATE FOR A LOAD IN A CONVENTIONAL BOX CAR.
4. ONLY THE BLOCKING AND BRACING FOR THE OMITTED UNIT IS SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



LOAD BEARING GATE A

NOTE: WHEN FABRICATING THIS GATE, ONE RIGHT HAND GATE AND ONE LEFT HAND GATE WILL BE REQUIRED.

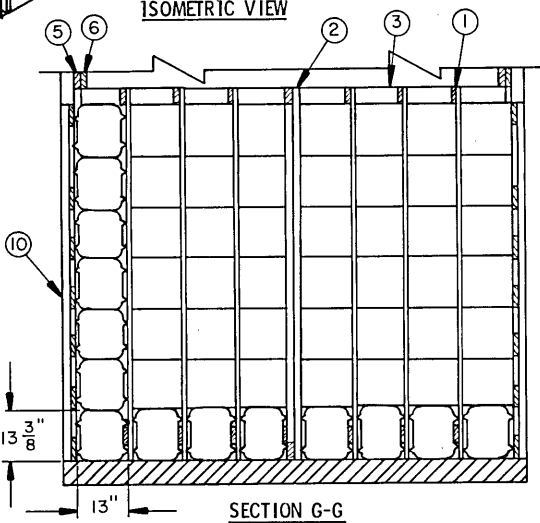


SEE SPECIAL NOTE 5 ON PAGE 37.

KEY NUMBERS

- ① SPACER ASSEMBLY (48 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 79. SEE SPECIAL NOTE 3 ON PAGE 37.
- ② SPACER ASSEMBLY (8 REQD). SEE THE "SPACER ASSEMBLY D" DETAIL ON PAGE 79. SEE SPECIAL NOTES 2 AND 3 ON PAGE 37.
- ③ SEPARATOR GATE ASSEMBLY (6 REQD). SEE THE "SEPARATOR GATE ASSEMBLY A" DETAIL ON PAGE 80.
- ④ CENTER GATE ASSEMBLY (2 REQD). SEE THE "CENTER GATE ASSEMBLY F" DETAIL ON PAGE 77.
- ⑤ CENTER GATE HOLD-DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END. SEE GENERAL NOTE "K" ON PAGE 2.
- ⑥ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (4 REQD). CENTER THE CLEATS ABOVE THE VERTICAL BRACES ON THE CENTER GATE AND NAIL TO THE CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑦ STRUT, 4" X 4" BY CUT-TO-FIT (32 REQD). TOENAIL TO PIECES MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑧ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 2" ABOVE TOP STRUT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "X" ON PAGE 3.
- ⑨ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑩ DOORWAY PROTECTION GATE (2 REQD). SEE THE "DOORWAY PROTECTION GATE C" DETAIL ON PAGE 81. SEE SPECIAL NOTE 5 ON PAGE 37.

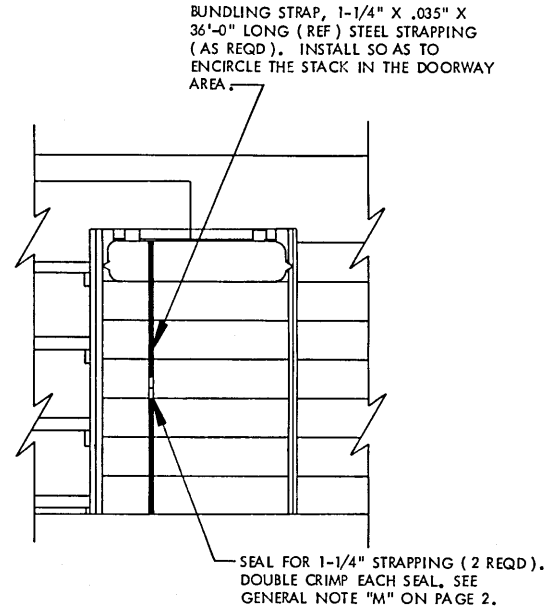
ISOMETRIC VIEW



SECTION G-G

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-4" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. IF A WIDER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY D" MAY BE INCREASED BY LAMINATING 1" THICK BY 6" WIDE MATERIAL TO THE "BEARING PIECES".
3. IF A NARROWER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, THE WIDTH OF THE "SPACER ASSEMBLY D" MAY BE DECREASED BY USING 1" THICK MATERIAL IN LIEU OF THE 2" THICK MATERIAL FOR THE "BEARING PIECES" AND THE "RETAINER PIECES". IF THE CAR BEING LOADED IS 9'-2" WIDE, USE A "SPACER ASSEMBLY C" IN LIEU OF THE "SPACER ASSEMBLY D". IF THE CAR BEING LOADED IS LESS THAN 9'-2" WIDE, ONLY SEVEN (7) ALUMINUM CONTAINERS CAN BE POSITIONED ACROSS THE CAR WIDTH.
4. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS ALUMINUM CONTAINERS THAN SHOWN, IT IS PERMISSIBLE TO USE "FILLER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 40, IN THE TOP LAYER ONLY. ALSO ONE OR MORE COMPLETE LAYERS MAY BE OMITTED. "RISER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 40, MAY BE USED TO STEP-UP OR STEP-DOWN STACKS TO ADJUST THE LOAD QUANTITIES. SEE PAGES 40 THROUGH 43 FOR OTHER METHODS OF SHIPPING LESS THAN FULL LOADS.
5. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS WHICH ARE 10'-6" WIDE OR LESS, NO DOORWAY PROTECTION IS REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OF ANY WIDTH OR "THRU" PLUG DOORS WHICH ARE WIDER THAN 10'-6", DELETE "DOORWAY PROTECTION GATE C" AND USE "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON THIS PAGE. IF THE CAR BEING LOADED HAS STAGGERED DOORS, OR "THRU" DOORS OF THE CONVENTIONAL SLIDING TYPE, DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED (10) ON PAGE 36 WILL ALWAYS BE REQUIRED TO RETAIN THE ALUMINUM CONTAINERS AND/OR THE CENTER GATES. THIS SHOULD BE TAKEN INTO CONSIDERATION WHEN ORDERING A BOX CAR. SEE GENERAL NOTE "Q" ON PAGE 2.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
7. THE ALUMINUM CONTAINER MUST BE POSITIONED WITH THE 13" DIMENSION ACROSS THE CAR WIDTH AS SHOWN IN "SECTION G-G".
8. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 38 AND 39.



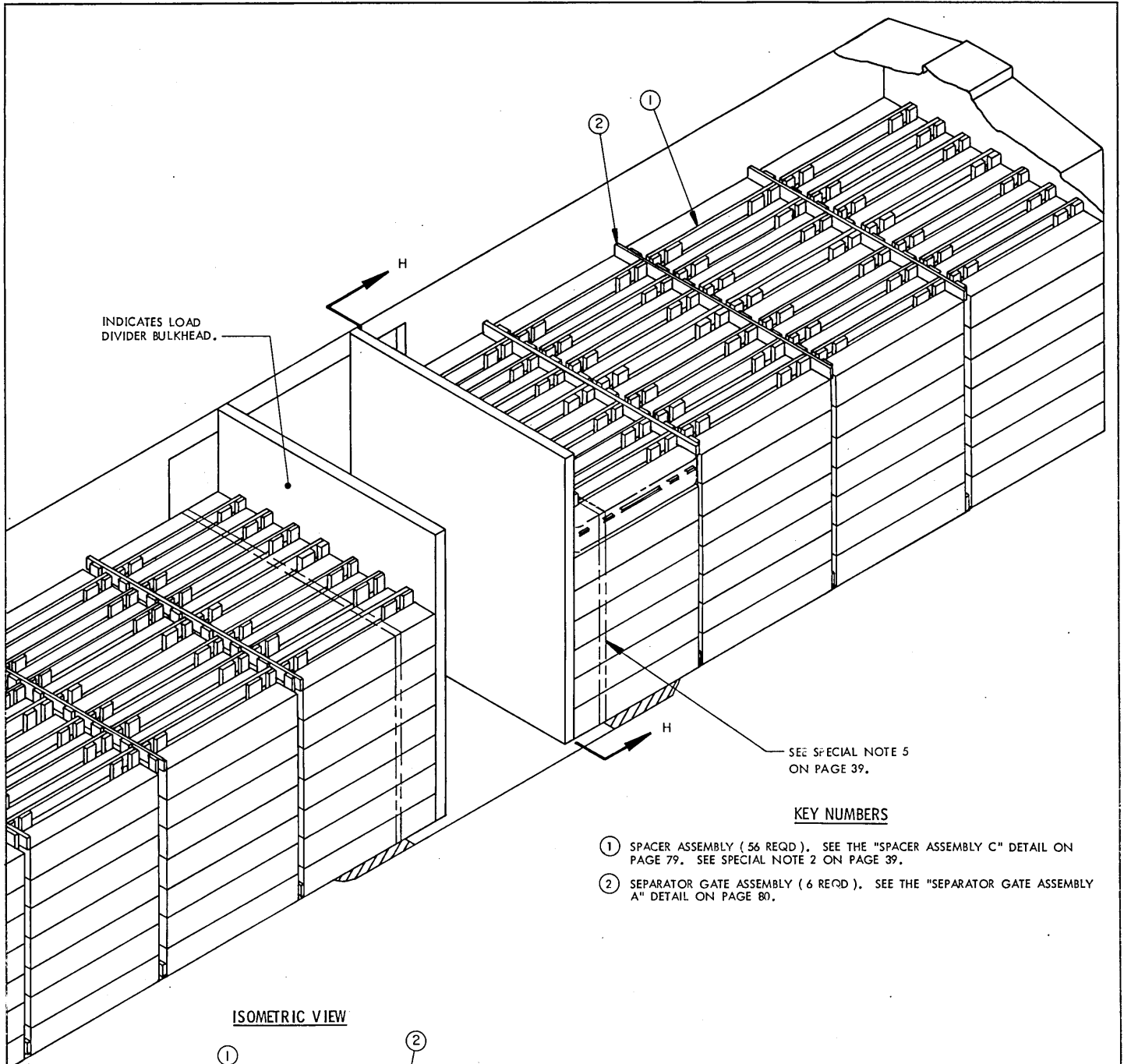
PLUG DOOR PROCEDURES

THESE PROCEDURES WILL APPLY TO PLUG DOORS, WHETHER AUXILIARY OR MAIN. EACH STACK OF ALUMINUM CONTAINERS WHICH EXTENDS MORE THAN 33" PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED MUST BE BUNDLED AS SHOWN ABOVE. IF A STACK EXTENDS MORE THAN 50" PAST A DOOR POST INTO THE DOORWAY AREA, TWO (2) BUNDLING STRAPS WILL BE REQUIRED ON THAT STACK. NOTE: THE BUNDLING STRAP MUST BE PRE-POSITIONED PRIOR TO LOADING THE ALUMINUM CONTAINERS. BUNDLING STRAPS WILL NOT BE REQUIRED FOR STACKS WHICH EXTEND LESS THAN 33" PAST A DOOR POST.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	1,402	468
1" X 6"	1,872	936
2" X 2"	19	7
2" X 3"	31	8
2" X 4"	503	335
2" X 6"	531	531
4" X 4"	178	238
NAILS	NO. REQD	POUNDS
6d (2")	1,764	10
10d (3")	940	14
12d (3-1/4")	20	1/2
16d (3-1/2")	64	1-1/2

LOAD AS SHOWN

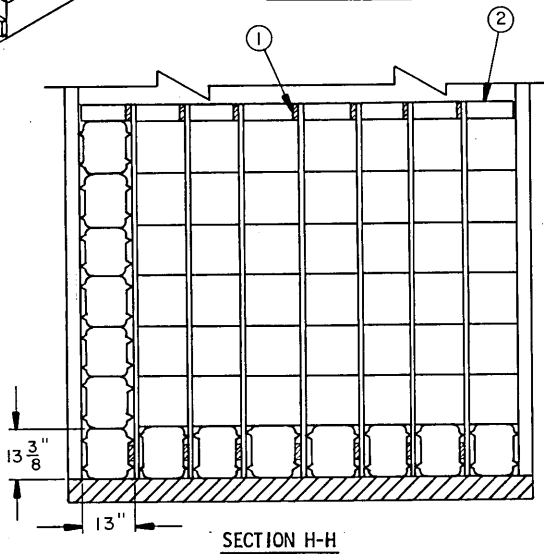
ITEM	QUANTITY	WEIGHT (APPROX)
ALUMINUM CONTAINERS	448	38,416 LBS.
DUNNAGE		5,072 LBS.
TOTAL WEIGHT		43,488 LBS.



KEY NUMBERS

- ① SPACER ASSEMBLY (56 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 79. SEE SPECIAL NOTE 2 ON PAGE 39.
- ② SEPARATOR GATE ASSEMBLY (6 REQD). SEE THE "SEPARATOR GATE ASSEMBLY A" DETAIL ON PAGE 80.

ISOMETRIC VIEW



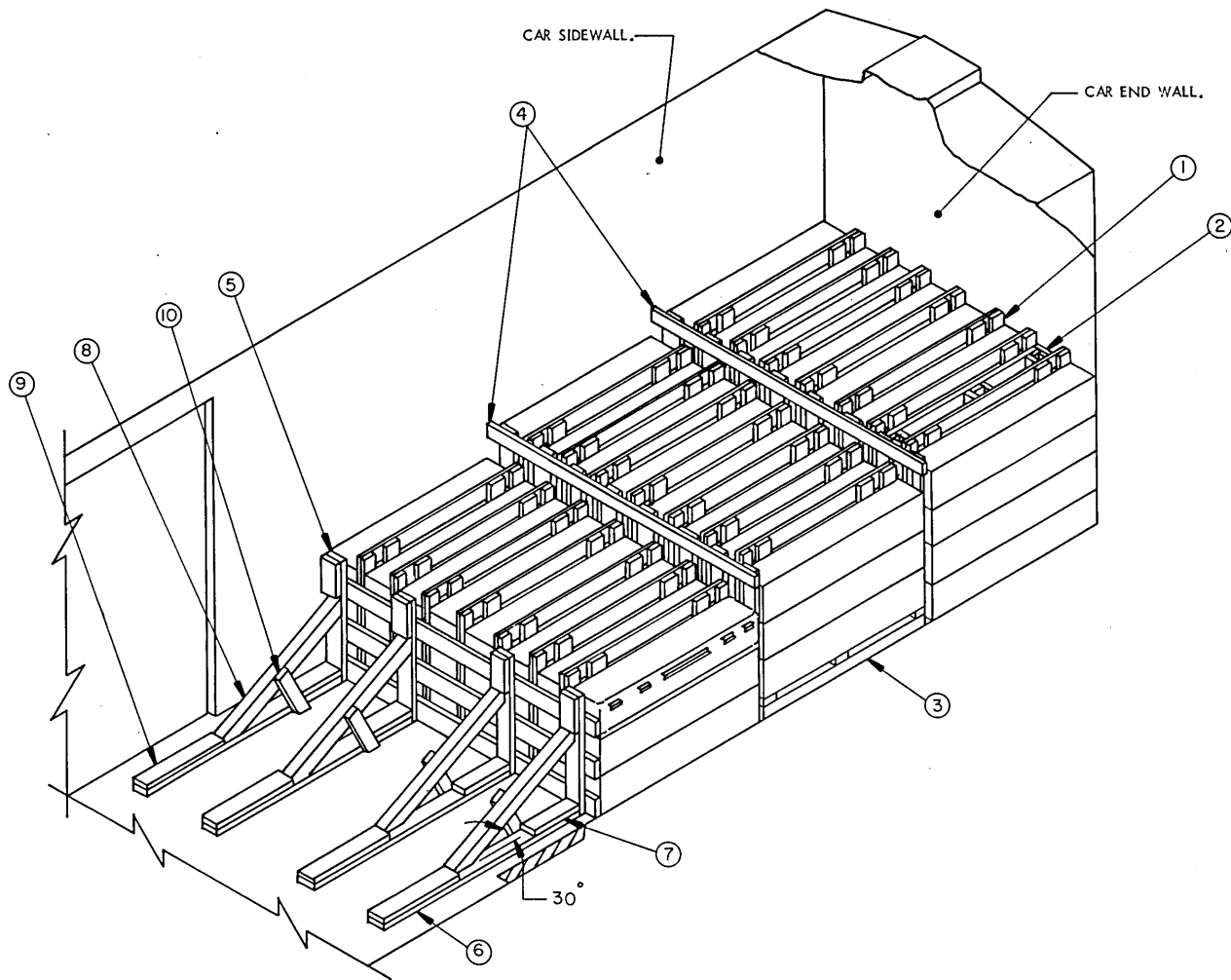
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. IF A WIDER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, SEE KEY NUMBERS ① AND ② IN THE LOAD ON PAGE 36 AND SPECIAL NOTE 2 ON PAGE 37.
3. IF THE CAR BEING LOADED IS LESS THAN 9'-2" WIDE, ONLY SEVEN (7) ALUMINUM CONTAINERS CAN BE POSITIONED ACROSS THE CAR WIDTH.
4. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS ALUMINUM CONTAINERS THAN SHOWN, IT IS PERMISSIBLE TO USE "FILLER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 40, IN THE TOP LAYER ONLY. ALSO ONE OR MORE COMPLETE LAYERS MAY BE OMITTED. "RISER ASSEMBLIES", AS SHOWN IN THE LOAD ON PAGE 40, MAY BE USED TO STEP-UP OR STEP-DOWN STACKS TO ADJUST LOAD QUANTITIES. SEE PAGES 40 THROUGH 43 FOR OTHER METHODS OF SHIPPING LESS THAN FULL LOADS.
5. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS, OR "THRU" DOORS OF THE CONVENTIONAL SLIDING TYPE, WHICH ARE 10'-6" WIDE OR LESS, NO DOORWAY PROTECTION IS REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OF ANY WIDTH OR "THRU" PLUG DOORS WHICH ARE WIDER THAN 10'-6", "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 37 WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS WHICH ARE WIDER THAN 10'-6", DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED ⑩ ON PAGE 36 WILL BE REQUIRED. THIS SHOULD BE TAKEN INTO CONSIDERATION WHEN ORDERING A BOX CAR. SEE GENERAL NOTE "Q" ON PAGE 2.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
7. THE ALUMINUM CONTAINER MUST BE POSITIONED WITH THE 13" DIMENSION ACROSS THE CAR WIDTH AS SHOWN IN "SECTION H-H".

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	1,617	539
1" X 6"	1,832	916
NAILS	NO. REQD	POUNDS
6d (2")	1,872	11

LOAD AS SHOWN

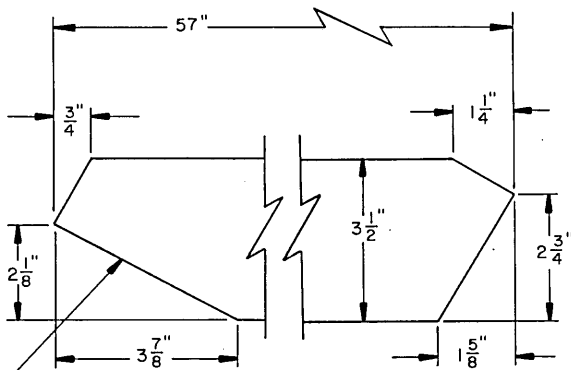
ITEM	QUANTITY	WEIGHT (APPROX)
ALUMINUM CONTAINERS	448	38,416 LBS.
DUNNAGE		2,921 LBS.
TOTAL WEIGHT		41,337 LBS.



ISOMETRIC VIEW

KEY NUMBERS

- ① SPACER ASSEMBLY (21 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 79. SEE SPECIAL NOTE 9 ON PAGE 41.
- ② FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY B" DETAIL ON PAGE 82. SEE SPECIAL NOTES 4 AND 6 ON PAGE 41.
- ③ RISER ASSEMBLY (1 REQD). SEE THE "RISER ASSEMBLY C" DETAIL ON PAGE 82. SEE SPECIAL NOTES 5 AND 6 ON PAGE 41.
- ④ SEPARATOR GATE ASSEMBLY (2 REQD). SEE THE "SEPARATOR GATE ASSEMBLY A" DETAIL ON PAGE 80.
- ⑤ LCL GATE ASSEMBLY (1 REQD). SEE THE "LCL GATE ASSEMBLY B" DETAIL ON PAGE 41.
- ⑥ FLOOR CLEAT, 2" X 6" X 6'-7-1/2" (4 REQD). ALIGN WITH VERTICAL PIECES ON THE LCL GATE ASSEMBLY AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "K" ON PAGE 2.
- ⑦ SUPPORT PIECE, 2" X 6" X 18" (4 REQD). NAIL TO PIECE MARKED ⑥ W/4-16d NAILS AND TOENAIL TO THE VERTICAL PIECES OF THE LCL GATE ASSEMBLY W/2-12d NAILS.
- ⑧ DIAGONAL BRACE, 4" X 4" X 57" (4 REQD). SEE THE "DIAGONAL BRACE D" DETAIL ON THIS PAGE FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE ON THE LCL GATE ASSEMBLY AND THE FLOOR CLEAT W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 12 ON PAGE 13.
- ⑨ BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). NAIL TO PIECE MARKED ⑥ W/6-40d NAILS.
- ⑩ DIAGONAL BRACE SUPPORT, 2" X 4" BY CUT-TO-FIT (4 REQD). BEVEL THE BOTTOM END WITH A 60° CUT. CENTER ON THE DIAGONAL BRACE AND NAIL TO PIECES MARKED ⑥ AND ⑧ W/2-12d NAILS AT EACH END.

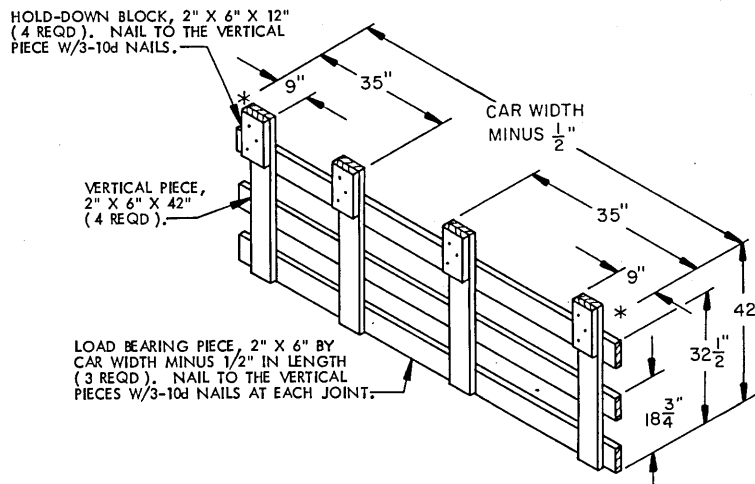


THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE FLOOR CLEAT MARKED ⑥.

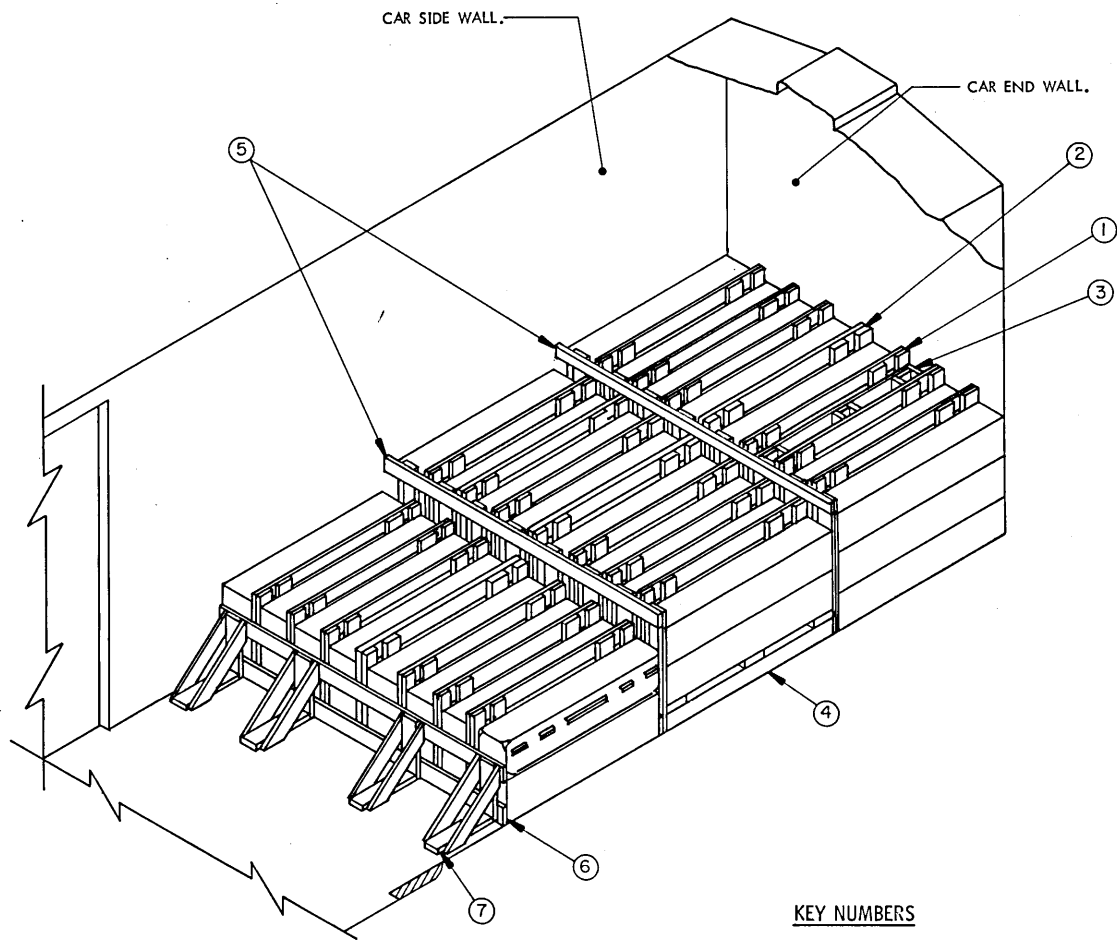
DIAGONAL BRACE D

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF 79 ALUMINUM CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. FOUR KNEE BRACE ASSEMBLIES AS SHOWN ARE ADEQUATE FOR RETAINING A MAXIMUM SIZE LCL LOAD.
3. IF THE LADING EXTENDS INTO THE DOORWAY AREA MORE THAN ONE-HALF OF AN ALUMINUM CONTAINER LENGTH, USE DOORWAY PROTECTION AS SPECIFIED IN THE LOAD ON PAGE 36.
4. FILLER ASSEMBLIES, SHOWN AS PIECE MARKED ②, MAY BE USED AS REQUIRED IN THE TOP LAYER ONLY. DO NOT USE IN THE LAYER ADJACENT TO THE LCL GATE ASSEMBLY.
5. A RISER ASSEMBLY, SHOWN AS PIECE MARKED ③, MAY BE USED TO STEP DOWN ALUMINUM CONTAINERS AS SHOWN TO MEET THE REQUIREMENTS OF SPECIAL NOTE 7. DO NOT USE UNDER THE STACK ADJACENT TO THE LCL GATE ASSEMBLY.
6. THE USE OF THE "RISER ASSEMBLY" AND THE "FILLER ASSEMBLY" ARE SPECIFIED FOR THE DEPICTED LOAD ONLY TO SHOW A TYPICAL APPLICATION. THEY MAY BE USED IN THE LOAD AS REQUIRED TO ADJUST THE LOADING PATTERN FOR THE QUANTITY OF CONTAINERS TO BE SHIPPED.
7. THE MAXIMUM STACK HEIGHT ADJACENT TO THE LCL GATE ASSEMBLY IS THREE (3) CONTAINERS HIGH.
8. THE ALUMINUM CONTAINERS MUST BE POSITIONED WITH THE 13" DIMENSION ACROSS THE CAR WIDTH AS SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 40.
9. IF A WIDER CAR IS USED FOR SHIPPING THE DEPICTED LOAD, SEE KEY NUMBERS ① AND ② IN THE LOAD ON PAGE 36 AND SPECIAL NOTE 2 ON PAGE 37.
10. IF THE CAR BEING LOADED IS LESS THAN 9'-2" WIDE, ONLY SEVEN (7) ALUMINUM CONTAINERS CAN BE POSITIONED ACROSS THE CAR WIDTH.
11. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
12. POSITION THE DIAGONAL BRACE, SHOWN AS PIECE MARKED ⑧, TIGHT AGAINST THE HOLD-DOWN CLEAT ON THE LCL GATE ASSEMBLY AND IN LINE WITH THE INSIDE EDGE OF THE FLOOR CLEAT, AS SHOWN ABOVE, TO FACILITATE POSITIONING OF THE DIAGONAL BRACE SUPPORT, SHOWN AS PIECE MARKED ⑩ ON PAGE 40.



LCL GATE ASSEMBLY B



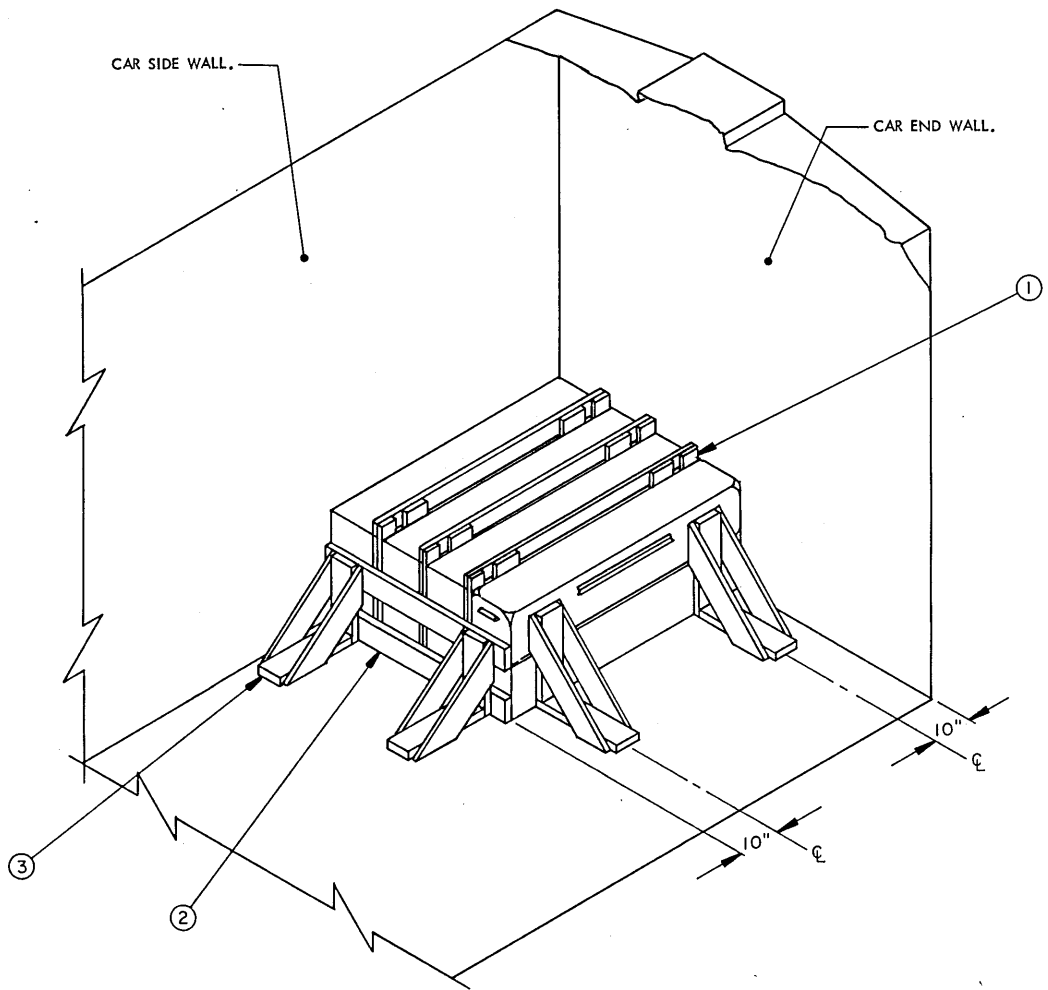
ISOMETRIC VIEW

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF 55 ALUMINUM CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. AN LCL BRACE MUST BE CENTERED ON CONTAINER AS SHOWN ABOVE TO ASSURE ADEQUATE BRACING OF THE LOAD. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL BRACING.
3. ALUMINUM CONTAINERS MUST NOT BE STACKED MORE THAN TWO (2) HIGH ADJACENT TO THE LCL BRACES.
4. FILLER ASSEMBLIES, SHOWN AS PIECE MARKED (3), MAY BE USED AS REQUIRED IN THE TOP LAYER ONLY. DO NOT USE IN THE LAYER ADJACENT TO THE LCL BRACES.
5. A RISER ASSEMBLY, SHOWN AS PIECE MARKED (4), MAY BE USED TO STEP DOWN ALUMINUM CONTAINERS AS SHOWN ABOVE TO MEET THE REQUIREMENTS OF SPECIAL NOTE 3. DO NOT USE UNDER THE STACK ADJACENT TO THE LCL BRACES.
6. THE USE OF THE "RISER ASSEMBLY" AND THE "FILLER ASSEMBLY" ARE SPECIFIED FOR THE DEPICTED LOAD ONLY TO SHOW A TYPICAL APPLICATION. THEY MAY BE USED IN THE LOAD AS REQUIRED TO ADJUST THE LOADING PATTERN FOR THE QUANTITY OF CONTAINERS TO BE SHIPPED.
7. THE "VERTICAL PIECE" ON THE LCL BRACE SHOWN ABOVE MUST BE 19" HIGH AND THE "BACK-UP CLEAT" MUST BE 24" LONG.

KEY NUMBERS

- (1) SPACER ASSEMBLY (18 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 79. SEE SPECIAL NOTE 3 ON PAGE 37.
- (2) SPACER ASSEMBLY (3 REQD). SEE THE "SPACER ASSEMBLY D" DETAIL ON PAGE 79. SEE SPECIAL NOTES 2 AND 3 ON PAGE 37.
- (3) FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY B" DETAIL ON PAGE 82. SEE SPECIAL NOTES 4 AND 6 ON THIS PAGE.
- (4) RISER ASSEMBLY (1 REQD). SEE THE "RISER ASSEMBLY C" DETAIL ON PAGE 82. SEE SPECIAL NOTES 5 AND 6 ON THIS PAGE.
- (5) SEPARATOR GATE ASSEMBLY (2 REQD). SEE THE "SEPARATOR GATE ASSEMBLY A" DETAIL ON PAGE 80.
- (6) LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (2 REQD). POSITION AS SHOWN.
- (7) LCL BRACE (4 REQD). SEE THE "LCL BRACE" DETAIL ON PAGE 74. CENTER ON CONTAINERS AS SHOWN ABOVE. NAIL TO PIECES MARKED (6) W/3-10d NAILS AT EACH JOINT AND NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE SPECIAL NOTE 2 ON THIS PAGE AND GENERAL NOTE "K" ON PAGE 2.



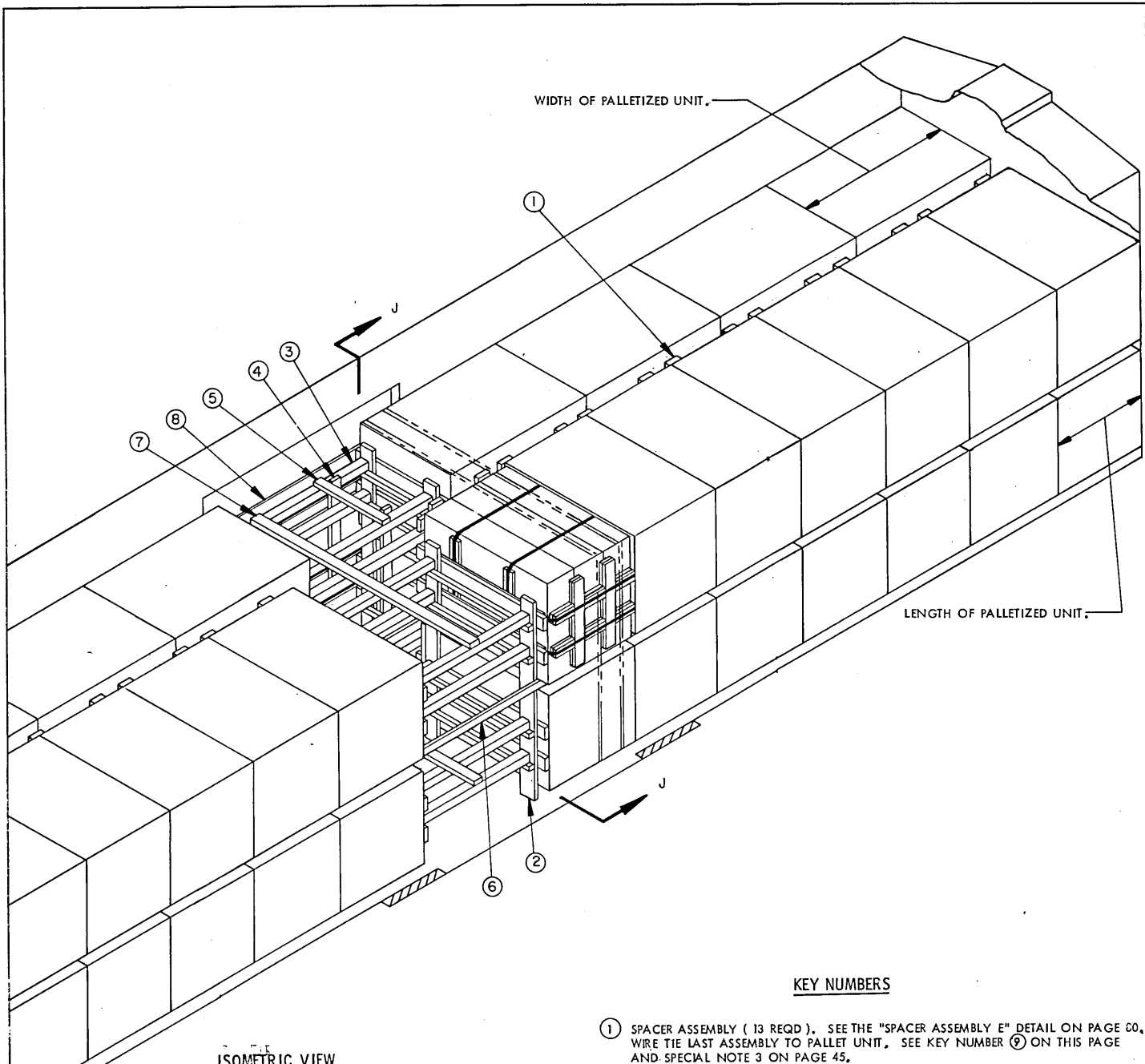
ISOMETRIC VIEW

SPECIAL NOTES:

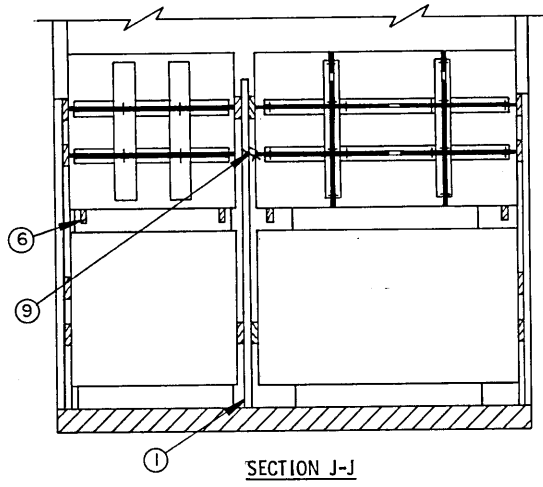
1. A TYPICAL LCL LOAD OF EIGHT (8) ALUMINUM CONTAINERS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR A NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL BRACING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL SUPPORT 8,000 POUNDS OF LADING.
3. THE "VERTICAL PIECE" ON THE LCL BRACES USED FOR LONGITUDINAL BRACING MUST BE 19" HIGH AND THE "BACK-UP CLEAT" MUST BE 24" LONG. THE "VERTICAL PIECE" ON THE LCL BRACES USED FOR LATERAL BRACING MUST BE 24" HIGH AND THE "BACK-UP CLEAT" MUST BE 24" LONG.

KEY NUMBERS

- ① SPACER ASSEMBLY (3 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 79.
- ② LOAD BEARING PIECE, 2" X 6" BY CUT-TO-FIT (2 REQD).
- ③ LCL BRACE (4 REQD). SEE THE "LCL BRACE" DETAIL ON PAGE 74. POSITION THE TWO LONGITUDINAL LCL BRACES TO CENTER ON THE END CONTAINERS AND NAIL TO THE LOAD BEARING PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE LCL BRACES TO THE CAR FLOOR W/7-16d NAILS. SEE SPECIAL NOTES 2 AND 3 ON THIS PAGE AND GENERAL NOTE "K" ON PAGE 2.



ISOMETRIC VIEW



SECTION J-J

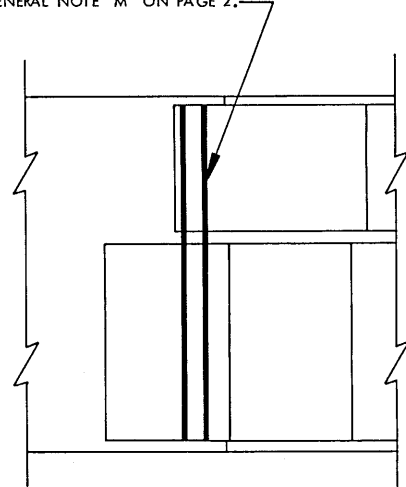
KEY NUMBERS

- ① SPACER ASSEMBLY (13 REQD). SEE THE "SPACER ASSEMBLY E" DETAIL ON PAGE 60. WIRE TIE LAST ASSEMBLY TO PALLET UNIT, SEE KEY NUMBER ⑨ ON THIS PAGE AND SPECIAL NOTE 3 ON PAGE 45.
- ② CENTER GATE ASSEMBLY (4 REQD). SEE THE "CENTER GATE ASSEMBLY G" DETAIL ON PAGE 77.
- ③ STRUT, 4" X 4" BY CUT-TO-FIT (16 REQD), TOENAIL TO PIECES MARKED ② W/2-16d NAILS AT EACH END, SEE GENERAL NOTE "J" ON PAGE 2.
- ④ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 2" ABOVE TOP STRUT (2 REQD), NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT, SEE GENERAL NOTE "X" ON PAGE 3.
- ⑤ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑥ GATE HOLD-DOWN, 2" X 4" CENTER SPACE PLUS 18" (4 REQD). NAIL TO VERTICAL ON "CENTER GATE ASSEMBLY G" W/2-10d NAILS AT EACH JOINT.
- ⑦ ANTI-SWAY BOARD, 2" X 4" BY CUT-TO-FIT (2 REQD). POSITION ACROSS TOP AND BOTTOM LAYER STRUTS, CENTER ON THE SHORT STRUTS AND NAIL W/3-10d NAILS AT EACH JOINT.
- ⑧ DOORWAY PROTECTION GATE (2 REQD). SEE "DOORWAY PROTECTION GATE D" DETAIL ON PAGE 81. SEE SPECIAL NOTE 5 ON PAGE 45.
- ⑨ TIE WIRE, NO. 14 GAGE WIRE BY LENGTH-TO-SUIT (4 REQD). WIRE TIE THE LAST "SPACER ASSEMBLY E" TO THE UNITIZING STRAPS ON THE ADJACENT PALLETIZED UNIT.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-6" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 8'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 48 AND 49.
3. A WIDER OR NARROWER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD BY ADJUSTING THE WIDTH OF THE "SPACER ASSEMBLY E". ADDITIONAL PIECES OF 6" WIDE MATERIAL MAY BE LAMINATED TO THE HORIZONTAL PIECES OR PIECES OF 1" THICK BY 6" WIDE MATERIAL MAY BE USED IN LIEU OF THE 2" THICK BY 6" WIDE MATERIAL.
4. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS PALLETIZED UNITS THAN SHOWN, SEE THE METHODS SHOWN ON PAGES 50 THRU 61.
5. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS OR STAGGERED PLUG DOORS OF ANY WIDTH, "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON THIS PAGE WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS (ANY WIDTH), DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED (B) ON PAGE 44, WILL ALWAYS BE REQUIRED TO RETAIN THE PALLETIZED UNITS. SEE GENERAL NOTE "Q" ON PAGE 2.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
7. IF PALLETIZED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF ALUMINUM CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 63, 64, AND 65 FOR SHIPPING GUIDANCE.
8. FOR SHIPMENT OF ONE OR MORE LEFTOVER ALUMINUM CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER ALUMINUM CONTAINERS" ON PAGE 67.

BUNDLING STRAP, 1-1/4" X .035" X 36'-0" LONG (REF) STEEL STRAPPING (AS REQD). INSTALL SO AS TO ENCIRCLE THE LOAD UNITS IN THE DOORWAY AREA. SEAL WITH TWO 1-1/4" SEALS PER EACH STRAP. DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



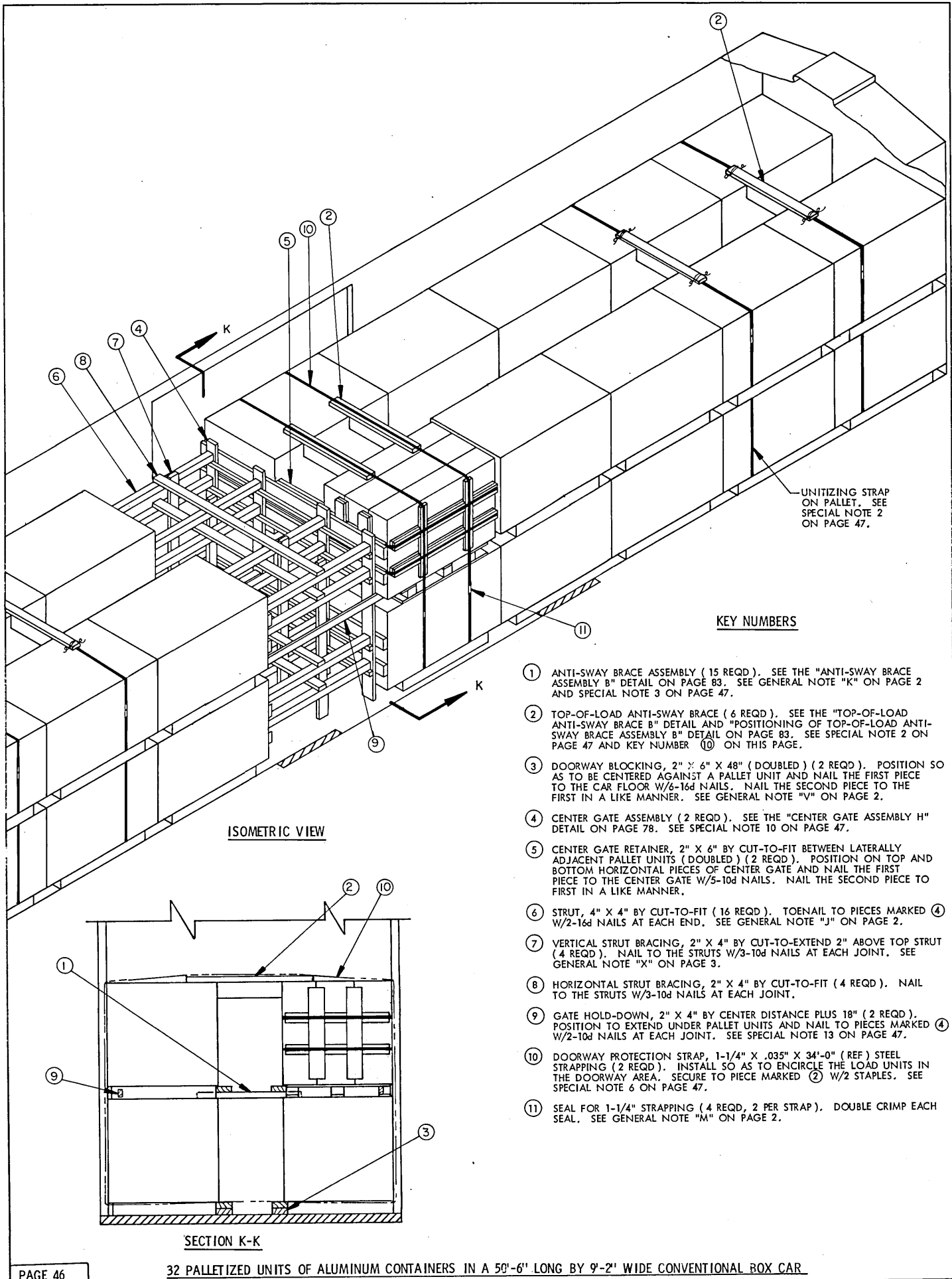
PLUG DOOR PROCEDURES

THESE PROCEDURES WILL APPLY TO PLUG DOORS WHETHER AUXILIARY OR MAIN. FOR EACH STACK OF PALLETIZED UNITS WHICH EXTENDS MORE THAN ONE-HALF (1/2) OF ITS LENGTH OR WIDTH PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED, ONE BUNDLING STRAP IS REQUIRED. FOR EACH STACK OF PALLETIZED UNITS WHICH EXTENDS MORE THAN THREE-QUARTERS (3/4) OF ITS LENGTH OR WIDTH PAST A DOOR POST INTO THE DOORWAY AREA, TWO BUNDLING STRAPS ARE REQUIRED.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	64	32
2" X 2"	63	21
2" X 3"	28	7
2" X 4"	74	50
2" X 6"	510	510
4" X 4"	79	106
NAILS	NO. REQD	POUNDS
6d (2")	48	1/2
10d (3")	560	8-3/4
16d (3-1/2")	32	1-3/4
WIRE, NO. 14 GAGE	12' REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLETIZED UNITS	42	39,984 LBS.
DUNNAGE		1,463 LBS.
TOTAL WEIGHT		41,447 LBS.



UNITIZING STRAP ON PALLET. SEE SPECIAL NOTE 2 ON PAGE 47.

KEY NUMBERS

- ① ANTI-SWAY BRACE ASSEMBLY (15 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 47.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. SEE SPECIAL NOTE 2 ON PAGE 47 AND KEY NUMBER ⑩ ON THIS PAGE.
- ③ DOORWAY BLOCKING, 2" X 6" X 48" (DOUBLED) (2 REQD). POSITION SO AS TO BE CENTERED AGAINST A PALLET UNIT AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "V" ON PAGE 2.
- ④ CENTER GATE ASSEMBLY (2 REQD). SEE THE "CENTER GATE ASSEMBLY H" DETAIL ON PAGE 78. SEE SPECIAL NOTE 10 ON PAGE 47.
- ⑤ CENTER GATE RETAINER, 2" X 6" BY CUT-TO-FIT BETWEEN LATERALLY ADJACENT PALLET UNITS (DOUBLED) (2 REQD). POSITION ON TOP AND BOTTOM HORIZONTAL PIECES OF CENTER GATE AND NAIL THE FIRST PIECE TO THE CENTER GATE W/5-10d NAILS. NAIL THE SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT (16 REQD). TOENAIL TO PIECES MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑦ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 2" ABOVE TOP STRUT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "X" ON PAGE 3.
- ⑧ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑨ GATE HOLD-DOWN, 2" X 4" BY CENTER DISTANCE PLUS 18" (2 REQD). POSITION TO EXTEND UNDER PALLET UNITS AND NAIL TO PIECES MARKED ④ W/2-10d NAILS AT EACH JOINT. SEE SPECIAL NOTE 13 ON PAGE 47.
- ⑩ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 34'-0" (REF) STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENIRCLE THE LOAD UNITS IN THE DOORWAY AREA. SECURE TO PIECE MARKED ② W/2 STAPLES. SEE SPECIAL NOTE 6 ON PAGE 47.
- ⑪ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

ISOMETRIC VIEW

SECTION K-K

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. TOP-OF-LOAD ANTI-SWAY BRACES MUST BE INSTALLED ON THE FIRST TWO (2) STACKS AT EACH END OF THE BOX CAR, AS SHOWN ON PAGE 46, AND WIRE TIE TO A UNITIZING STRAP WITH NO. 14 GAGE WIRE AS SHOWN BY THE POSITIONING OF TOP-OF-LOAD "ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. USE TWO (2) TOP-OF-LOAD ANTI-SWAY BRACES ON TOP OF THE TWO STACKS WITHIN THE DOORWAY AREA OF THE CAR, AS SHOWN ON PAGE 46.
3. A WIDER OR NARROWER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD BY ADJUSTING THE PIECES MARKED ① AND ②.
4. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS PALLETIZED UNITS THAN SHOWN, SEE THE METHODS SHOWN ON PAGES 50 THROUGH 61.
5. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS OR STAGGERED PLUG DOORS OF ANY WIDTH, DOORWAY PROTECTION STRAPS, SHOWN AS PIECE MARKED ⑩ ON PAGE 46, WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS (ANY WIDTH), DOORWAY PROTECTION STRAPS, SHOWN AS PIECE MARKED ⑩ ON PAGE 46, WILL BE REQUIRED. SEE GENERAL NOTE "Q" ON PAGE 2.
6. FOR EACH LOAD UNIT OF FOUR PALLETS WHICH EXTENDS MORE THAN 33" PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED, ONE (1) SET OF PIECES MARKED ②, ③, ⑩, AND ⑪ MUST BE INSTALLED TO BUNDLE THAT UNIT. FOR EACH LOAD UNIT OF FOUR PALLETS WHICH EXTENDS 54" OR MORE PAST A DOOR POST INTO THE DOORWAY AREA, PIECES MARKED ③ AND TWO (2) SETS OF PIECES MARKED ②, ⑩, AND ⑪ MUST BE INSTALLED TO BUNDLE THAT UNIT AS SHOWN WITHIN THE BASIC LOAD VIEWS.
7. THE SPECIFIC BLOCKING AND BRACING DUNNAGE AND THE BASIC METHOD OF APPLICATION IS ALSO ADEQUATE FOR RETAINING A FULL LOAD IN A 40'-6" LONG BY 8'-6" WIDE CAR. TWENTY-EIGHT (28) PALLETIZED UNITS MAY BE SHIPPED IN A 40'-6" LONG CAR, WITH 16 UNITS LOADED WITHIN ONE END OF THE CAR AND 12 UNITS LOADED WITHIN THE OTHER END. ADJUST QUANTITIES OF DUNNAGE AS REQUIRED.
8. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 48 AND 49.
9. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
10. FOR EASE OF HANDLING, SPLIT CENTER GATES WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE. IN LIEU OF EACH "CENTER GATE ASSEMBLY H", INSTALL TWO (2) GATES AS SHOWN ON PAGE 86. AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE TIE PIECE.
11. IF PALLETIZED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF ALUMINUM CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 63, 64, AND 65 FOR SHIPPING GUIDANCE.
12. FOR SHIPMENT OF ONE OR MORE LEFTOVER ALUMINUM CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER ALUMINUM CONTAINERS" ON PAGE 67.
13. IF DESIRED FOR EASE OF NAILING, PIECES MARKED ⑨ MAY BE POSITIONED ON THE INSIDE OF THE VERTICAL PIECES OF THE CENTER GATE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	68	23
2" X 4"	204	136
2" X 6"	312	312
4" X 4"	85	114
4" X 6"	13	26
NAILS	NO. REQD	POUNDS
10d (3")	416	6-1/4
12d (3-1/4")	30	1/2
16d (3-1/2")	88	2
STEEL STRAPPING, 1-1/4" X .035" -----	68' REQD -----	9-1/2 LBS
SEAL FOR 1-1/4" STRAPPING -----	4 REQD -----	NIL
WIRE, NO. 14 GAGE -----	32' REQD -----	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLETIZED UNITS -----	32 -----	30,464 LBS.
DUNNAGE -----		630 LBS.
TOTAL WEIGHT -----		31,094 LBS.

SEE SPECIAL NOTE 9 ON PAGE 49.

LENGTH OF
PALLETIZED UNIT.

INDICATES LOAD
DIVIDER BULKHEAD.

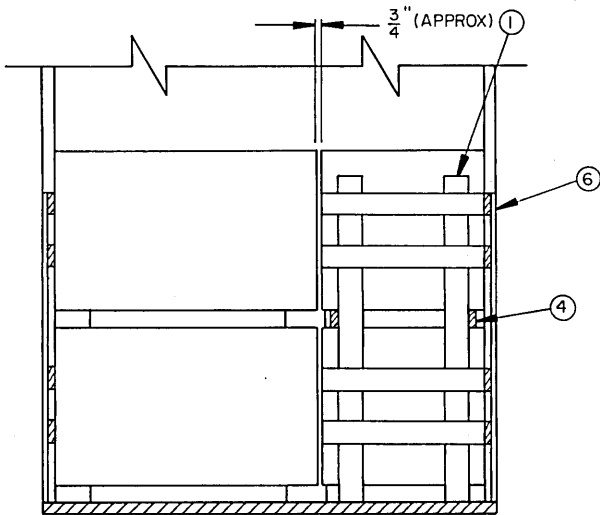
WIDTH OF
PALLETIZED UNIT.

SEE SPECIAL NOTE 8
ON PAGE 49.

ISOMETRIC VIEW

KEY NUMBERS

- ① CENTER GATE ASSEMBLY (3 REQD). SEE THE "CENTER GATE ASSEMBLY G" DETAIL ON PAGE 77.
- ② STRUT, 4" X 4" BY CUT-TO-FIT (8 REQD). TOENAIL TO PIECES MARKED ① W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ③ SOLID FILL, 6" WIDE MATERIAL BY THICKNESS TO SUIT (AS REQD). NAIL FIRST PIECE TO PIECE MARKED ① W/1-10d NAIL EVERY 8". NAIL ADDITIONAL PIECES TO FIRST IN A LIKE MANNER.
- ④ GATE HOLD-DOWN, 2" X 4" BY LENGTH TO SUIT (2 REQD). ONE END MUST EXTEND UNDER THE OVERHANG ON THE PALLETIZED UNIT. NAIL TO PIECE MARKED ① W/2-10d NAILS AT EACH JOINT.
- ⑤ GATE/SOLID FILL HOLD-DOWN, 2" X 4" BY CUT-TO-FIT (2 REQD). ONE END MUST EXTEND UNDER THE ADJACENT PALLETIZED UNIT. NAIL TO ① AND ③ W/3-10d NAILS AT EACH END.
- ⑥ DOORWAY PROTECTION GATE (2 REQD). SEE THE "DOORWAY PROTECTION GATE D" ON PAGE 81.



SECTION L-L

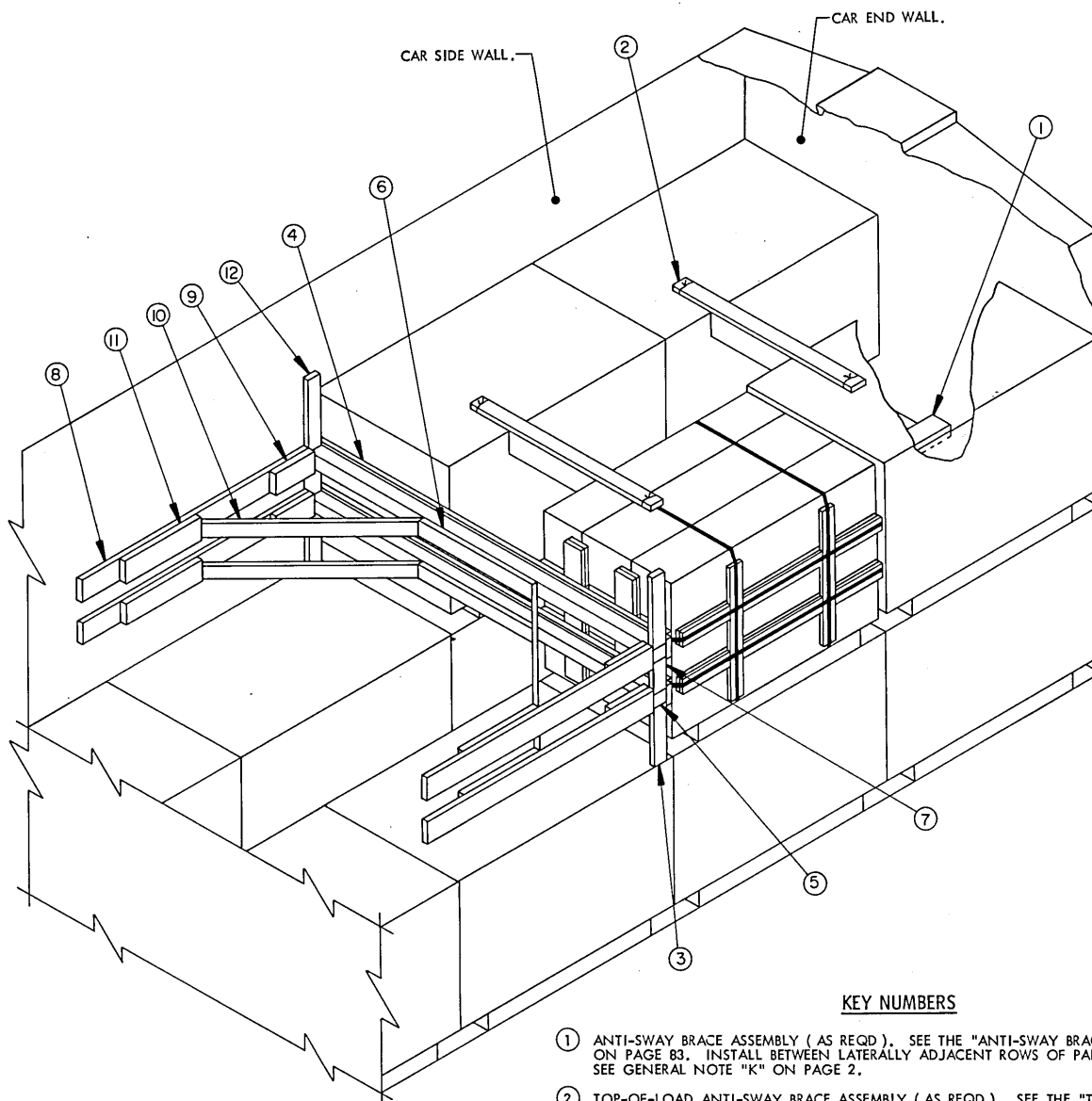
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. IF NARROWER CARS ARE USED, THE PALLETIZED UNITS MUST BE POSITIONED AS SHOWN IN THE LOAD ON PAGE 46. "ANTI-SWAY BRACE ASSEMBLIES" AND "TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLIES" MUST BE USED. USE LOAD DIVIDER BULKHEADS IN LIEU OF PIECES MARKED (3) THROUGH (8).
3. IF THE CAR BEING LOADED IS WIDER THAN 9'-2", A "SPACER ASSEMBLY", AS SHOWN IN THE LOAD ON PAGE 44, MUST BE USED BETWEEN LATERALLY ADJACENT PALLETIZED UNITS.
4. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
5. IF PALLETIZED UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF ALUMINUM CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 63, 64, AND 65 FOR SHIPPING GUIDANCE.
6. FOR SHIPMENT OF ONE OR MORE LEFTOVER ALUMINUM CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER ALUMINUM CONTAINERS" ON PAGE 67.
7. FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE GENERAL NOTES "BB", "CC", "DD", AND "EE" ON PAGE 3.
8. IF THE CAR BEING LOADED HAS "THRU" PLUG DOORS OR STAGGERED PLUG DOORS OF ANY WIDTH, "BUNDLING STRAPS" AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 45 WILL BE REQUIRED. IF THE CAR BEING LOADED HAS STAGGERED CONVENTIONAL SLIDING DOORS (ANY WIDTH) OR "THRU" CONVENTIONAL SLIDING DOORS (ANY WIDTH), DOORWAY PROTECTION GATES, SHOWN AS PIECE MARKED (6) ON PAGE 48, WILL ALWAYS BE REQUIRED TO RETAIN THE PALLETIZED UNITS AND/OR THE CENTER GATES. SEE GENERAL NOTE "Q" ON PAGE 2.
9. TO MAKE LOADING EASIER AND TO PREVENT DAMAGE TO THE PALLETIZED UNITS, A SLIP-SHEET CAN BE USED EFFECTIVELY AS A "SHOEHORN" TYPE DEVICE. THE SLIP-SHEET WILL PROVIDE A SMOOTH SURFACE THAT WILL PREVENT UNIT STRAPS FROM INTERLOCKING OR CATCHING ON OTHER PROJECTIONS WHEN LATERALLY ADJACENT PALLETIZED UNITS ARE BEING LOADED. A SLIP-SHEET WILL BE USED AFTER ONE STACK (2 UNITS HIGH) IS LOADED WITH ONE OF ITS SIDES IN TIGHT CONTACT AGAINST CAR SIDE WALL. THE SLIP-SHEET IS TO BE PLACED AGAINST THE OTHER SIDE OF THE STACK, BEFORE THE LATERALLY ADJACENT STACK IS LOADED. AFTER LOADING THE LATERALLY ADJACENT STACK THE SLIP-SHEET IS TO BE REMOVED FOR SUBSEQUENT USE WHEN LOADING THE REMAINING STACKS. A SLIP-SHEET OF SUITABLE SIZE CAN BE MADE FROM A SHEET OF 1/8" TEMPERED HARDBOARD (MASONITE) OR FROM A SHEET OF ANY OTHER MATERIAL THAT WILL SATISFY THE REQUIREMENT.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	80	40
2" X 2"	34	12
2" X 3"	28	14
2" X 4"	8	6
2" X 6"	116	116
4" X 4"	14	19
NAILS	NO. REQD	POUNDS
6d (2")	48	1/4
10d (3")	184	3
16d (3-1/2")	32	1

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLETIZED UNITS	42	39,984 LBS.
DUNNAGE		405 LBS.
TOTAL WEIGHT		40,389 LBS.



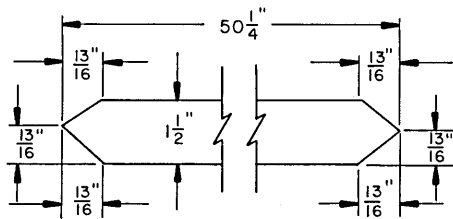
ISOMETRIC VIEW

KEY NUMBERS

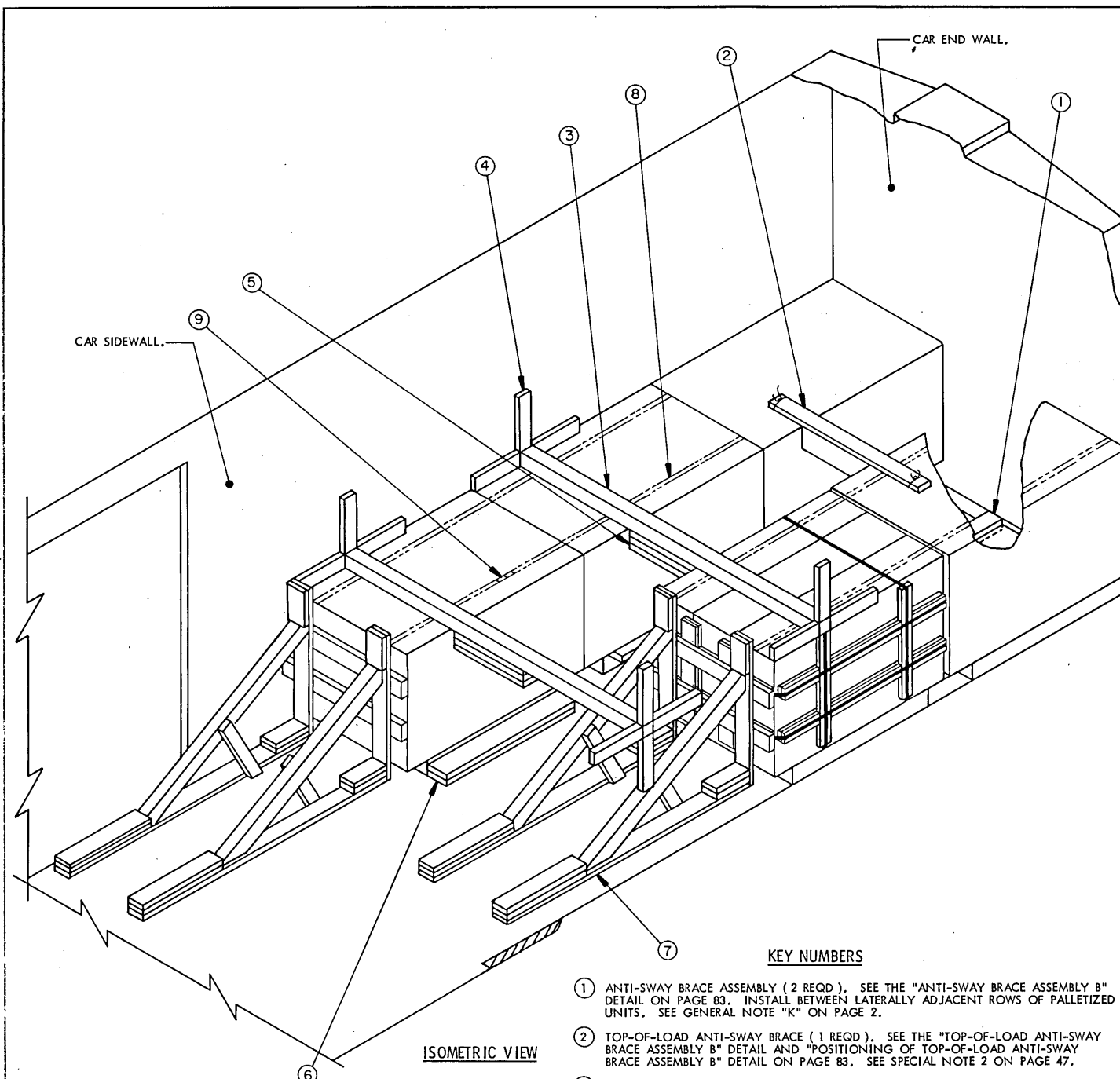
- ① ANTI-SWAY BRACE ASSEMBLY (AS REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 83. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLETIZED UNITS. SEE GENERAL NOTE "K" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY (AS REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. SEE SPECIAL NOTE 2 ON PAGE 47.
- ③ SUPPORT CLEAT, 2" X 4" X 16" (2 REQD). NAIL TO THE CAR SIDEWALL W/2-12d NAILS. SEE SPECIAL NOTE 6 ON PAGE 51.
- ④ LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT-TO-FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, W/1-12d NAIL EVERY 6". SEE SPECIAL NOTES 6 AND 7 ON PAGE 51.
- ⑤ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH IN LENGTH (CUT-TO-FIT) (2 REQD).
- ⑥ CENTER CLEAT, 2" X 4" X 36" (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, W/7-16d NAILS. SEE SPECIAL NOTE 4 ON PAGE 51.
- ⑦ SPACER CLEAT, 2" X 4" X 10" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS. SEE SPECIAL NOTE 7 ON PAGE 51.
- ⑧ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑨ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/4-16d NAILS.
- ⑩ DIAGONAL BRACE, 2" X 4" X 50-1/4" (4 REQD). SEE THE "DIAGONAL BRACE E" DETAIL ON PAGE 51 FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/2-16d NAILS AT EACH END.
- ⑪ BACK-UP CLEAT, 2" X 6" X 24" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/8-16d NAILS.
- ⑫ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF A PARTIAL SECOND LAYER IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING A NAILABLE SIDEWALL. CARS OF OTHER WIDTHS CAN BE USED.
2. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN WOOD-LINED CARS FOR THE SECUREMENT OF A PARTIAL TOP TIER. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 8,000 POUNDS. THE K-BRACE METHOD SHOWN ABOVE MAY BE USED AT EACH END OF THE CAR.
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 (3), (4), (5), (7), (9) AND (12) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED (10) TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED (8) 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 (8) 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 (6) IS DOUBLED.
4. THE CENTER CLEAT, SHOWN AS PIECE MARKED (6), WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2" AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
5. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
6. WHEN POSITIONING THE SUPPORT CLEAT, SHOWN AS PIECE MARKED (3), FIELD CHECK TO ASSURE THAT THE LOAD BEARING PIECE, SHOWN AS PIECE MARKED (4), WILL BE CENTERED ON THE LOWER HORIZONTAL DUNNAGE ON THE PALLETIZED UNIT, AS SHOWN.
7. WHEN POSITIONING THE SPACER CLEATS, SHOWN AS PIECE MARKED (7), FIELD CHECK THE LENGTH TO ASSURE THAT THE LOAD BEARING PIECE, SHOWN AS PIECE MARKED (4), WILL BE CENTERED ON THE TOP HORIZONTAL DUNNAGE ON THE PALLETIZED UNIT, AS SHOWN.
8. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



DIAGONAL BRACE E



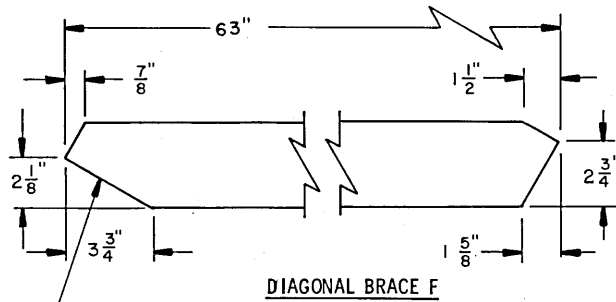
ISOMETRIC VIEW

KEY NUMBERS

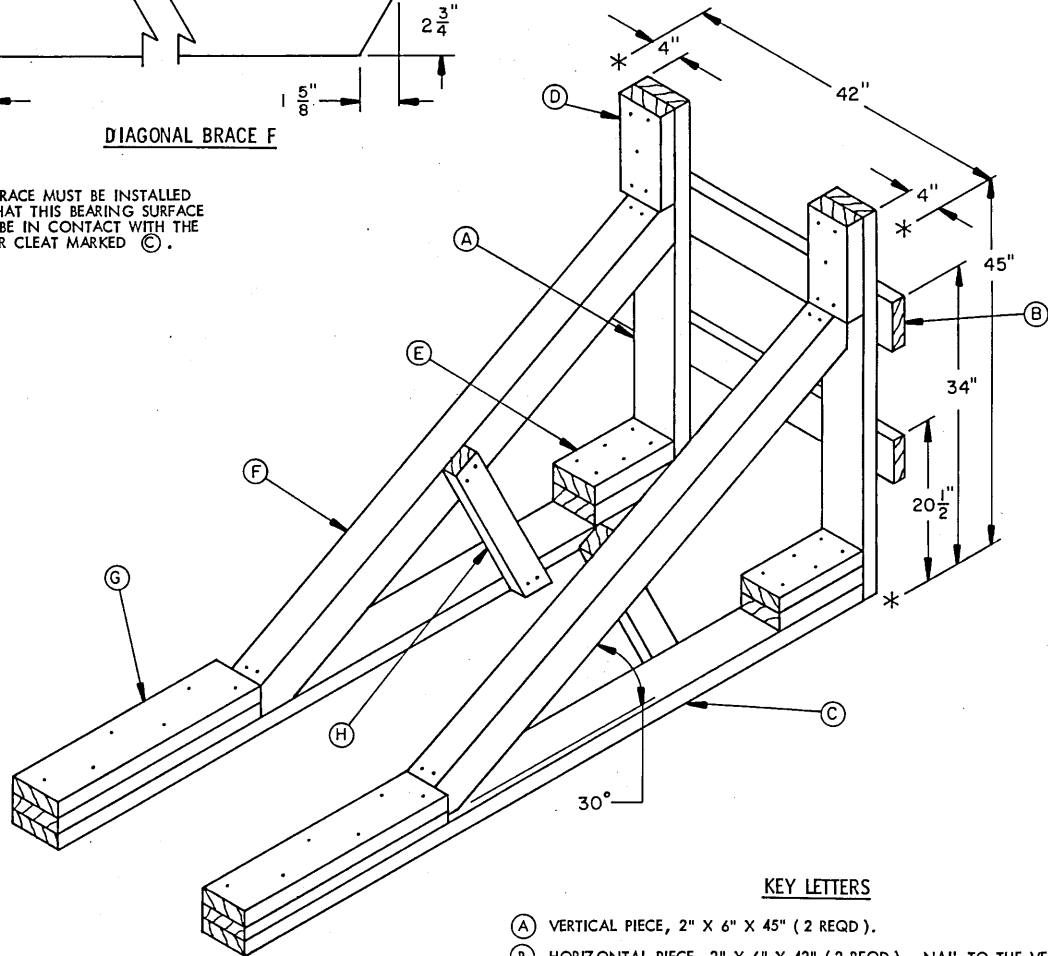
- ① ANTI-SWAY BRACE ASSEMBLY (2 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLETIZED UNITS. SEE GENERAL NOTE "K" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY B" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. SEE SPECIAL NOTE 2 ON PAGE 47.
- ③ HOLD-DOWN, 4" X 4" BY CAR WIDTH IN LENGTH (CUT-TO-FIT) (2 REQD). INSTALL ACROSS THE PALLETIZED UNITS WHICH ARE ADJACENT TO THE KNEE BRACE ASSEMBLIES. KEEP IN LINE WITH THE VERTICAL DUNNAGE ON THE PALLETIZED UNIT, AS SHOWN ABOVE. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ④ POCKET CLEAT, 2" X 4" X 18" (13 REQD). NAIL TO THE CAR SIDEWALL W/5-10d NAILS. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ⑤ ANTI-SWAY BLOCK, 2" X 4" BY CUT-TO-FIT BETWEEN LATERALLY ADJACENT PALLETIZED UNITS (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO PIECE MARKED ③ W/5-10d NAILS. NAIL EACH ADDITIONAL PIECE TO THE FIRST PIECE IN A LIKE MANNER. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ⑥ SIDE BLOCKING, 2" X 6" X 48" (DOUBLED) (1 REQD). POSITION AGAINST THE PALLETIZED UNIT AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/7-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑦ KNEE BRACE ASSEMBLY (2 REQD). SEE THE "KNEE BRACE ASSEMBLY B" DETAIL ON PAGE 53 FOR CONSTRUCTION SPECIFICATION AND NAILING REQUIREMENTS. SEE SPECIAL NOTE 2 ON THIS PAGE.
- ⑧ ALTERNATIVE HOLD-DOWN, 1-1/4" X .035" X 31'-0" LONG (REF) STEEL STRAPPING (4 REQD). ENCIRCLE TWO LONGITUDINALLY ADJACENT PALLETIZED UNITS AS SHOWN ABOVE. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ⑨ SEAL FOR 1-1/4" STEEL STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF FIVE (5) PALLETIZED UNITS IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING NAILABLE SIDEWALLS AND A WOOD OR NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED. THE PROCEDURES ARE ALSO APPLICABLE FOR OTHER QUANTITIES OF PALLETIZED UNITS. SEE GENERAL NOTE "V" ON PAGE 2.
2. A KNEE BRACE ASSEMBLY MUST BE USED FOR EACH ROW OF PALLETIZED UNITS. ONE (1) KNEE BRACE ASSEMBLY IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 8,500 POUNDS.
3. IF THE CAR BEING LOADED HAS METAL SIDEWALLS, USE STEEL STRAPPING, SHOWN AS PIECE MARKED ⑧ IN LIEU OF PIECES MARKED ③, ④, AND ⑤.



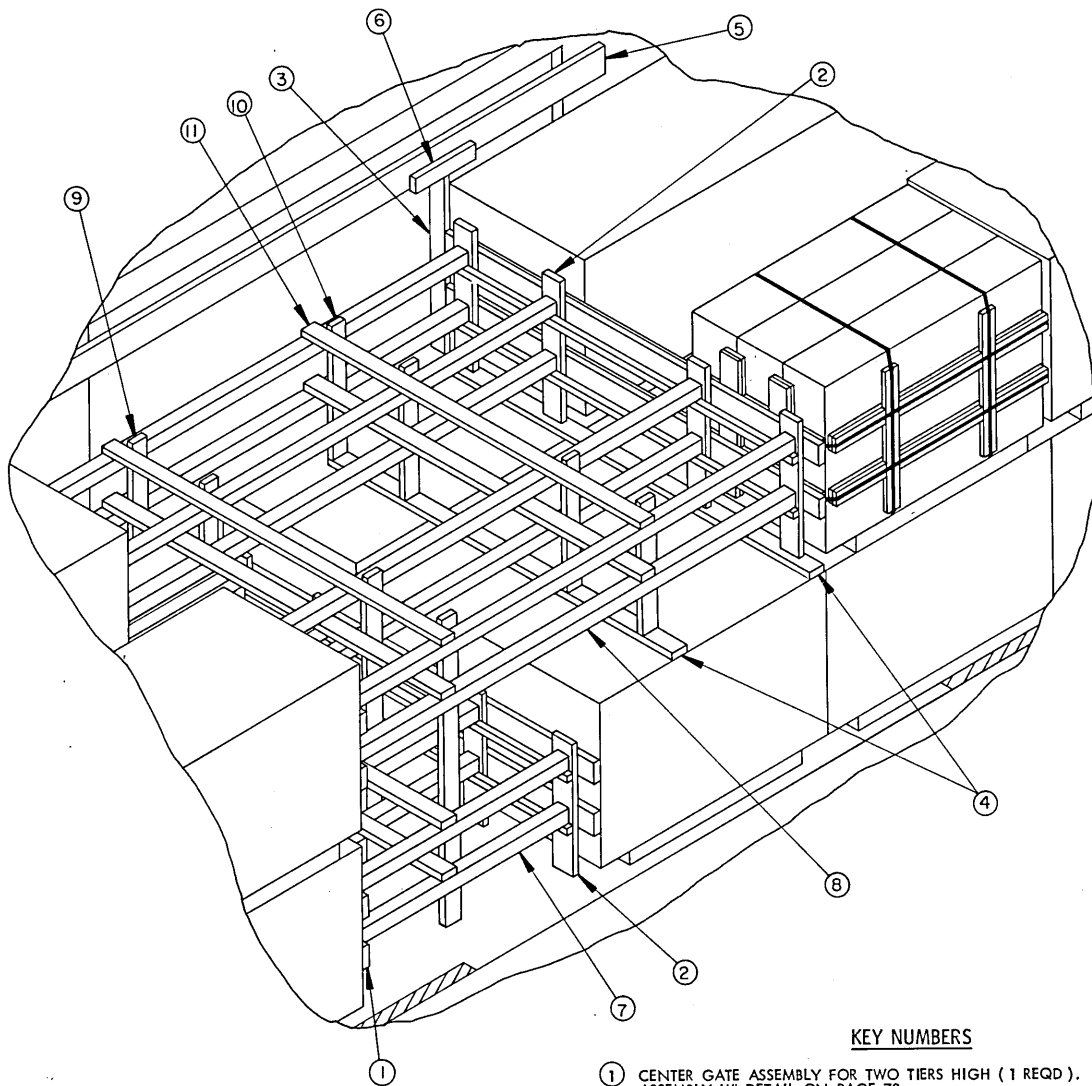
THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE FLOOR CLEAT MARKED (C).



KNEE BRACE ASSEMBLY B

KEY LETTERS

- (A) VERTICAL PIECE, 2" X 6" X 45" (2 REQD).
- (B) HORIZONTAL PIECE, 2" X 6" X 42" (2 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT. NOTE: FIELD CHECK DIMENSIONS TO ASSURE THAT THESE PIECES ARE IN LINE WITH THE TOP AND BOTTOM HORIZONTAL DUNNAGE PIECES ON THE PALLETIZED UNIT.
- (C) FLOOR CLEAT, 2" X 6" X 7'-0-1/2" (2 REQD). ALIGN WITH A VERTICAL PIECE AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8".
- (D) HOLD-DOWN CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO A VERTICAL PIECE W/5-10d NAILS.
- (E) POCKET CLEAT, 2" X 6" X 12" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE FLOOR CLEAT, PIECE MARKED (C), W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER AND TOENAIL IT TO THE VERTICAL PIECE MARKED (A), W/2-16d NAILS.
- (F) DIAGONAL BRACE, 4" X 4" BY CUT-TO-FIT (REF: 63") (2 REQD). SEE THE DETAIL ABOVE FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE AND TO THE FLOOR CLEAT, PIECES MARKED (A) AND (C), W/2-16d NAILS AT EACH END.
- (G) BACK-UP CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO THE FLOOR CLEAT, PIECE MARKED (C), W/6-40d NAILS.
- (H) DIAGONAL BRACE SUPPORT, 2" X 4" BY LENGTH-TO-SUIT (2 REQD). BEVEL THE BOTTOM END WITH A 60° CUT. CENTER ON THE DIAGONAL BRACE AND NAIL TO PIECES MARKED (C) AND (F) W/2-12d NAILS AT EACH END.



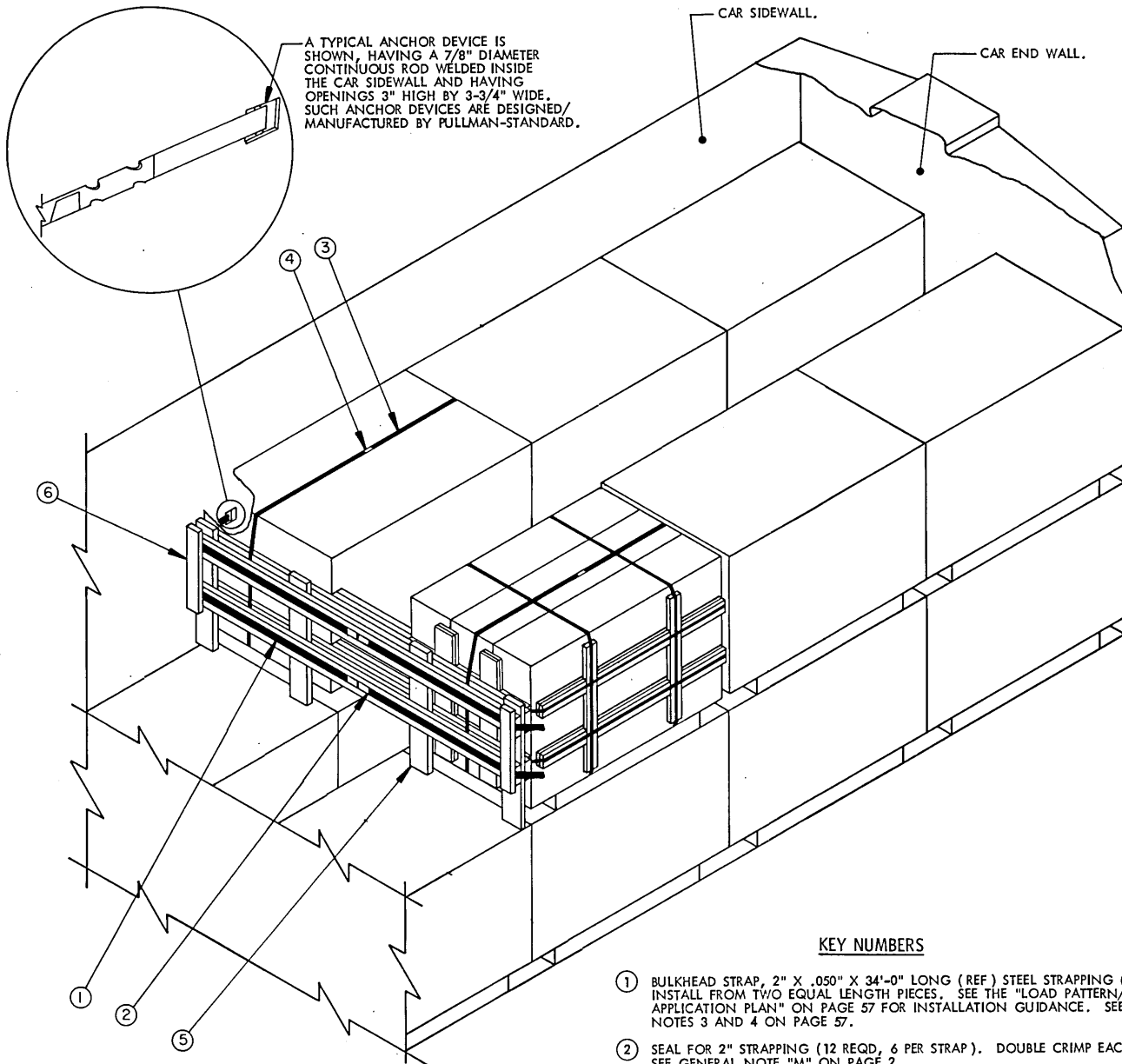
ISOMETRIC VIEW

KEY NUMBERS

- ① CENTER GATE ASSEMBLY FOR TWO TIERS HIGH (1 REQD). SEE THE "CENTER GATE ASSEMBLY H" DETAIL ON PAGE 78.
- ② CENTER GATE FOR UPPER TIER (2 REQD). SEE THE "CENTER GATE ASSEMBLY J" DETAIL ON PAGE 78 FOR CONSTRUCTION DIMENSIONS. TOENAIL TO PIECE MARKED ④ W/2-12d NAILS AT EACH JOINT. SEE SPECIAL NOTE 6 ON PAGE 55.
- ③ CENTER GATE HOLD-DOWN BRACE, 2" X 4" BY LENGTH-TO-SUIT (4 REQD). POSITION TO CONTACT PIECES MARKED ⑤ AND ⑥ AND NAIL TO THE HORIZONTAL PIECES ON PIECES MARKED ① AND ② W/3-10d NAILS AT EACH JOINT.
- ④ SUPPORT PIECE, 2" X 4" BY CAR WIDTH MINUS 1/2" (2 REQD). POSITION ONE PIECE UNDER THE VERTICAL STRUT BRACING MARKED ⑩ AND ONE PIECE UNDER THE CENTER GATE ASSEMBLY MARKED ②. SEE SPECIAL NOTE 4 ON PAGE 5.
- ⑤ CENTER GATE HOLD-DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END.
- ⑥ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (4 REQD). CENTER THE CLEATS ABOVE THE HOLD-DOWN BRACE MARKED ③ AND NAIL TO THE CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑦ STRUT, 4" X 4" BY CUT-TO-FIT (8 REQD). TOENAIL TO PIECES MARKED ① AND ② W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 55.
- ⑧ STRUT, 4" X 4" BY CUT-TO-FIT (8 REQD). TOENAIL TO PIECES MARKED ① AND ② W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑨ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 3" ABOVE THE TOP STRUT (4 REQD). NAIL TO THE STRUTS MARKED ⑦ AND ⑧ W/3-10d NAILS AT EACH JOINT. SEE SPECIAL NOTE 4 ON PAGE 55.
- ⑩ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-EXTEND 3" ABOVE THE TOP STRUT (4 REQD). NAIL TO THE STRUTS MARKED ⑧ W/3-10d NAILS AT EACH JOINT. TOENAIL TO PIECE MARKED ④ W/2-12d NAILS AT EACH JOINT.
- ⑪ HORIZONTAL STRUT BRACING, 2" X 4" BY LENGTH-TO-SUIT (6 REQD). NAIL TO THE STRUTS MARKED ⑦ AND ⑧ W/3-10d NAILS AT EACH JOINT.

SPECIAL NOTES:

1. THE CENTER PORTION OF A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. THE PROCEDURES FOR THE ADJUSTMENT OF A LOAD QUANTITY BY THE OMISSION OF TWO ADJACENT PALLETIZED UNITS FROM THE TOP TIER ARE SHOWN AS TYPICAL.
3. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO PERMIT THE OMISSION OF THE UNITS FROM THE TOP TIER ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
4. THE LENGTH OF THE STRUTS AND/OR WIDTH OF THE OMITTED UNITS MAY REQUIRE THAT MORE THAN ONE SET OF VERTICAL STRUT BRACING BE INSTALLED. TO PROTECT THE LADING FROM BEING PUNCTURED WHEN A SET OF VERTICAL STRUT BRACING IS INSTALLED ABOVE THE LOWER TIER OF A LOAD, A SUPPORT PIECE, SHOWN AS PIECE MARKED (4), MUST BE POSITIONED UNDER AND SECURED TO EACH APPLICABLE VERTICAL STRUT BRACING PIECE, SHOWN AS PIECE MARKED (10), AND UNDER THE CENTER GATE ASSEMBLY J, SHOWN AS PIECE MARKED (2).
5. FOUR (4) LOAD BLOCKING 4" X 4" STRUTS FOR EACH ROW/TIER ARE ADEQUATE FOR RETAINING A WEIGHT OF 12,250 POUNDS.
6. WHEN FABRICATING CENTER GATE J FOR USE IN THE SECOND LAYER (TIER), CHANGE THE DIMENSIONS, AS SHOWN ON PAGE 78, TO ALLOW FOR THE SUPPORT PIECE, SHOWN AS PIECE MARKED (4).

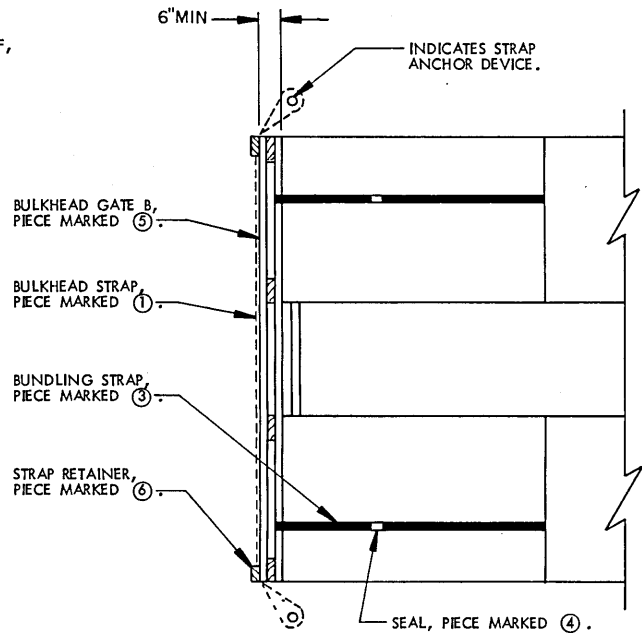


KEY NUMBERS

- ① BULKHEAD STRAP, 2" X .050" X 34'-0" LONG (REF) STEEL STRAPPING (2 REQD). INSTALL FROM TWO EQUAL LENGTH PIECES. SEE THE "LOAD PATTERN/STRAP APPLICATION PLAN" ON PAGE 57 FOR INSTALLATION GUIDANCE. SEE SPECIAL NOTES 3 AND 4 ON PAGE 57.
- ② SEAL FOR 2" STRAPPING (12 REQD, 6 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ③ BUNDLING STRAP, 1-1/4" X .035" X 28'-0" LONG (REF) STEEL STRAPPING (2 REQD). ENCIRCLE PALLETIZED UNIT AND HORIZONTAL PIECES OF THE BULKHEAD GATE. SEAL THE STRAP JOINT W/1 SEAL.
- ④ SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD, 1 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑤ BULKHEAD GATE (1 REQD). SEE THE "BULKHEAD GATE B" DETAIL ON PAGE 57. SEE SPECIAL NOTE 3 ON PAGE 57.
- ⑥ STRAP RETAINER, 2" X 4" BY A LENGTH-TO-SUIT (2 REQD). NAIL TO THE BULKHEAD GATE W/2-12d NAILS ABOVE AND BELOW EACH BULKHEAD STRAP.

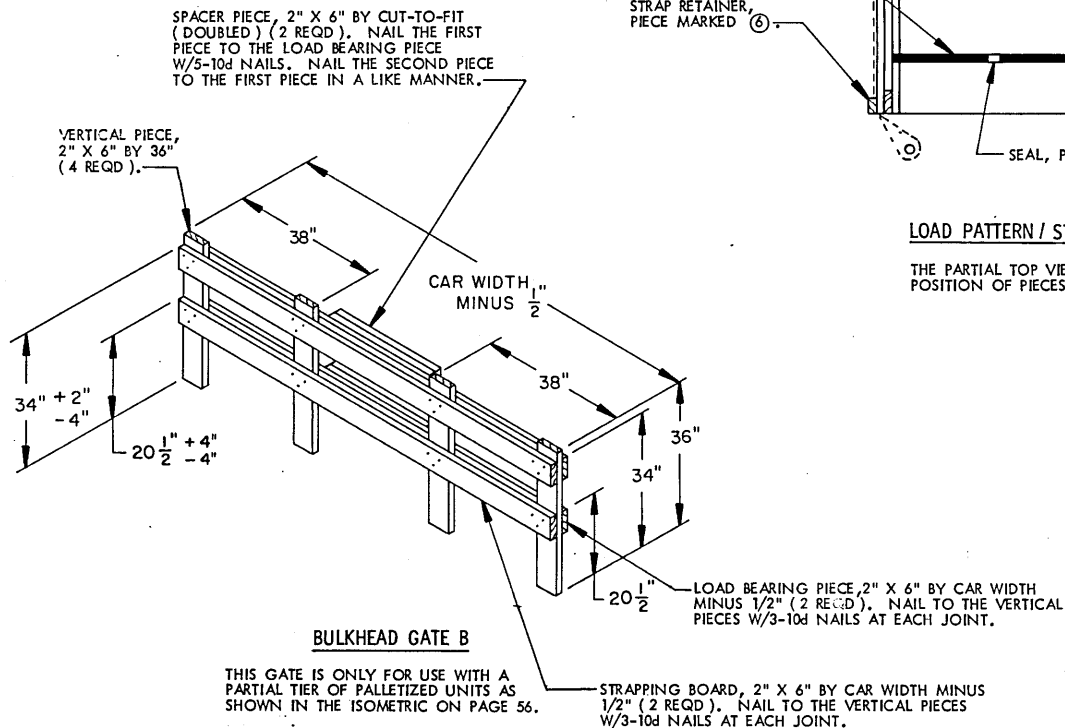
SPECIAL NOTES:

1. A 9'-6" WIDE ALL-METAL BOX CAR EQUIPPED WITH STRAP ANCHOR DEVICES AND HAVING AN AAR MECHANICAL DESIGNATION CLASS OF XL IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THE PROCEDURES SHOWN DEPICTING THE BULKHEAD GATE METHOD OF PARTIAL-LAYER (TIER) BRACING FOR THE ADJUSTMENT OF A LOAD QUANTITY IS TYPICAL.
3. A BULKHEAD GATE USED IN CONJUNCTION WITH TWO (2) STRAPS WILL RETAIN UP TO 12,000 POUNDS OF LADING.
4. BULKHEAD STRAPS WILL BE TWO INCH (2") WIDE STEEL STRAPPING; 1-1/4" STRAPPING MUST NOT BE USED. A BULKHEAD STRAP WILL BE OF A LENGTH TO SUIT AND WILL BE THREADED THRU THE ANCHOR DEVICE (PRIOR TO POSITIONING THE ADJACENT UNITS) FAR ENOUGH TO PROVIDE FOR ONE LEG BEING APPROXIMATELY 48" LONGER THAN THE OTHER. THE STRAP ATTACHED TO THE MATING ANCHOR DEVICE WILL HAVE THE OPPOSITE LEG EXTENDING 48". THE TWO LEGS OF EACH HALF OF A STRAP WILL BE SECURED NEAR THE ANCHOR DEVICE WITH ONE DOUBLE CRIMPED SEAL. NOTE THAT THIS SEAL MUST BE POSITIONED EITHER CLOSE ENOUGH TO OR FAR ENOUGH AWAY FROM THE ANCHOR DEVICE SO AS NOT TO BE AT THE POINT WHERE THE STRAP BENDS AROUND THE END OF THE BULKHEAD GATE OR AROUND THE CORNER OF THE ADJACENT UNITS. THE STRAP ENDS OF EACH PAIR OF LONG AND SHORT LEGS WILL BE SECURED WITH TWO (2) SEALS BUTTED TOGETHER AND DOUBLE CRIMPED.
5. THE STRAPPING BOARDS ON A BULKHEAD GATE ARE TO BE ALIGNED AS NEARLY AS POSSIBLE WITH THE ANCHOR DEVICES IN THE CAR TO WHICH THE BULKHEAD STRAPS ARE ATTACHED. A TOLERANCE IS ALLOWED ON DIMENSIONS TO PROVIDE FOR THIS ALIGNMENT.
6. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.



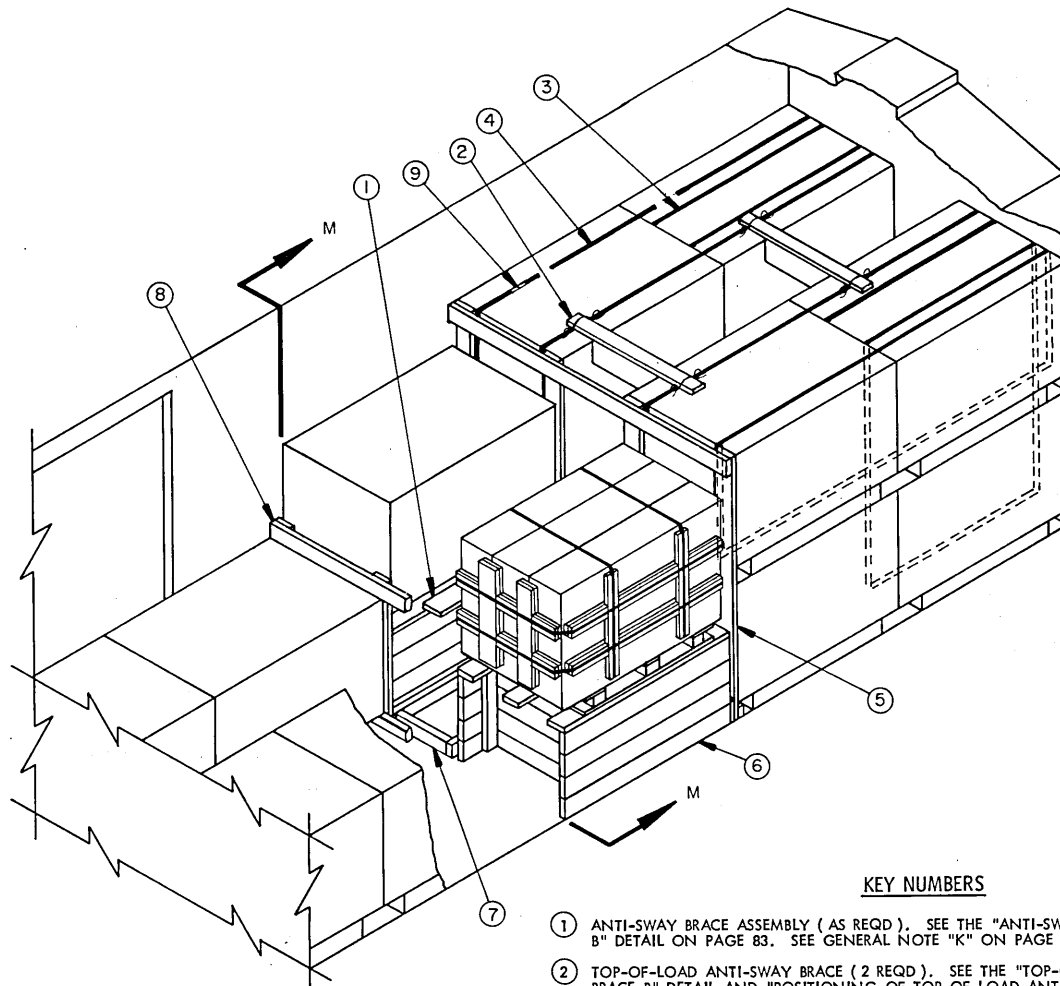
LOAD PATTERN / STRAP INSTALLATION PLAN

THE PARTIAL TOP VIEW SHOWN ABOVE DEPICTS THE POSITION OF PIECES MARKED ① THROUGH ⑥.



THIS GATE IS ONLY FOR USE WITH A PARTIAL TIER OF PALLETIZED UNITS AS SHOWN IN THE ISOMETRIC ON PAGE 56.

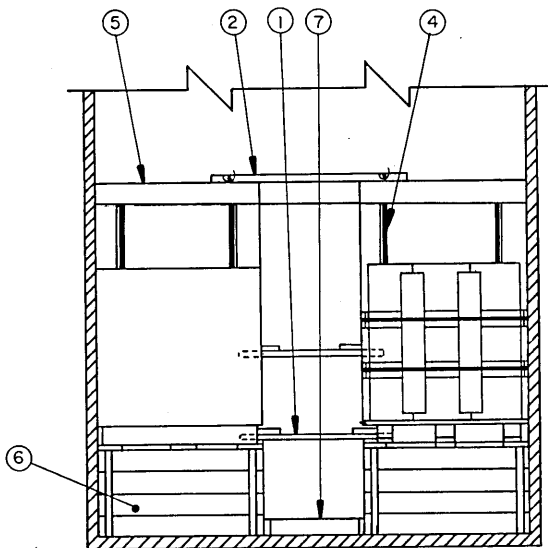
STRAPPING BOARD, 2" X 6" BY CAR WIDTH MINUS 1/2" (2 REQ'D). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.



ISOMETRIC VIEW

KEY NUMBERS

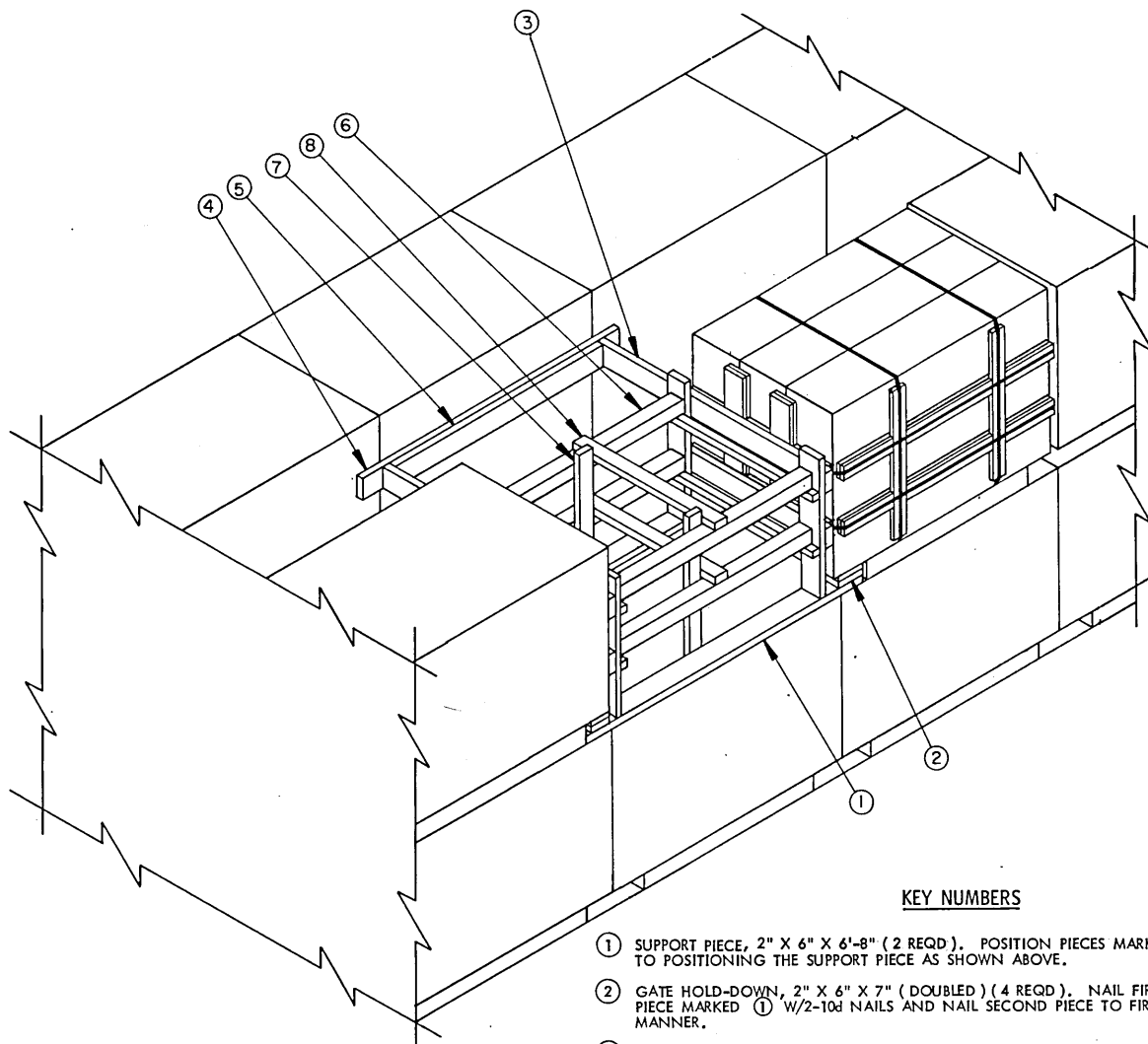
- ① ANTI-SWAY BRACE ASSEMBLY (AS REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83. SEE GENERAL NOTE "K" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (2 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL AND "POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY B" DETAIL ON PAGE 83.
- ③ VERTICAL UNITIZING STRAP, 1-1/4" X .035" X 27'-0" LONG (REF) STEEL STRAPPING (4 REQD, 2 PER STACK). INSTALL SO AS TO ENCIRCLE THE TWO PALLETIZED UNITS, AND SEAL THE JOINT W/2 SEALS, PRIOR TO FINAL POSITIONING OF THE STACK IN THE CAR. SEE SPECIAL NOTE 3 ON PAGE 59.
- ④ HORIZONTAL UNITIZING STRAP, 1-1/4" X .035" X 30'-0" LONG (REF) STEEL STRAPPING (4 REQD). PRE-POSITION AROUND THE TOP UNIT OF THE UNITIZED 2-HIGH STACK. INSTALL SO AS TO ENCIRCLE THE TWO LONGITUDINALLY ADJACENT PALLETIZED UNITS AND SEAL THE JOINT W/2 SEALS. SEE SPECIAL NOTE 3 ON PAGE 59.
- ⑤ SUPPORT GATE (1 REQD). SEE THE "SUPPORT GATE A" DETAIL ON PAGE 84 AND SPECIAL NOTE 5 ON PAGE 59.
- ⑥ RISER ASSEMBLY (2 REQD). SEE THE "RISER ASSEMBLY D" DETAIL ON PAGE 85. SEE SPECIAL NOTE 2 ON PAGE 59.
- ⑦ RISER RETAINER ASSEMBLY (1 REQD). SEE THE "RISER RETAINER ASSEMBLY B" DETAIL ON PAGE 85.
- ⑧ SUPPORT GATE (1 REQD). SEE THE "SUPPORT GATE B" DETAIL ON PAGE 84. SEE SPECIAL NOTE 5 ON PAGE 59.
- ⑨ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION M-M

SPECIAL NOTES:

1. A TYPICAL LCL LOAD OF A PARTIAL SECOND LAYER IS SHOWN IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR. ALL METAL OR WOOD-LINED CARS OF OTHER WIDTHS CAN BE USED.
2. THE RISER METHOD OF PARTIAL-LAYER BRACING MAY BE USED IN ALL-METAL CARS OR IN WOOD-LINED CARS FOR THE SECUREMENT OF A PARTIAL TOP TIER OF NOT MORE THAN 16,000 POUNDS (8,000 POUNDS IN EACH ROW WHICH IS RETAINED BY A RISER). THE RISER MUST ALWAYS BE POSITIONED ON THE CAR FLOOR.
3. THE POSITIONING OF THE VERTICAL UNITIZING STRAPS MARKED (3) AND THE HORIZONTAL UNITIZING STRAPS MARKED (4), IS APPLICABLE FOR LCL LOADS WHICH ARE AT LEAST TWO LOAD UNITS LONG IN THE UPPER MOST TIER. IF THE UPPERMOST TIER IS ONLY ONE LOAD UNIT IN LENGTH, PIECE MARKED (3) WILL BE INSTALLED SO AS TO ENCIRCLE A STACK IN THAT LOAD UNIT AND PIECES MARKED (4) WILL NOT BE REQUIRED.
4. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE 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. SEE THE DETAIL ON PAGE 87 AND GENERAL NOTE "R" ON PAGE 2.
5. SUPPORT GATES ARE REQUIRED BETWEEN THE LONGITUDINAL ADJACENT PALLETIZED UNITS NEXT TO THE RISER ASSEMBLY FOR BETTER LOAD BEARING DISTRIBUTION.
6. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO DEPICT THE PROCEDURES ARE SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



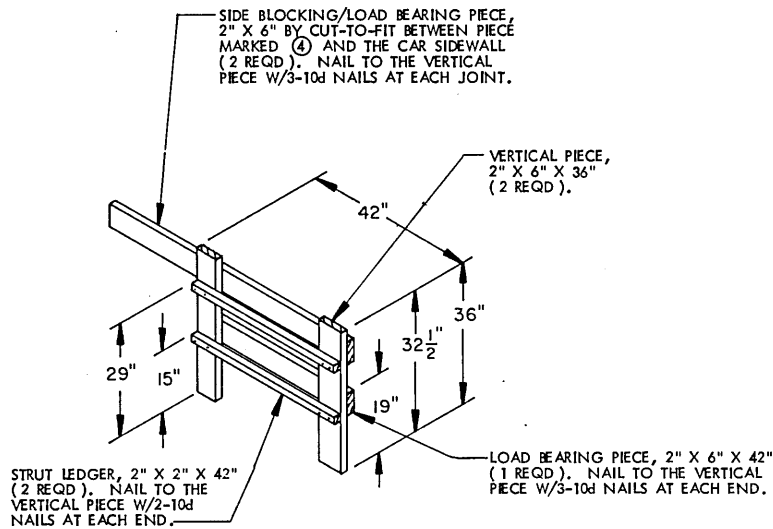
ISOMETRIC VIEW

KEY NUMBERS

- ① SUPPORT PIECE, 2" X 6" X 6'-8" (2 REQD). POSITION PIECES MARKED ② PRIOR TO POSITIONING THE SUPPORT PIECE AS SHOWN ABOVE.
- ② GATE HOLD-DOWN, 2" X 6" X 7" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO PIECE MARKED ① W/2-10d NAILS AND NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ③ LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE B" DETAIL ON PAGE 61. NAIL TO THE FILLER PIECE MARKED ⑤ W/3-10d NAILS. TOENAIL TO THE SUPPORT PIECE MARKED ① W/2-10d NAILS AT EACH JOINT.
- ④ ANTI-SWAY BEARING PIECE, 2" X 6" X 79" (1 REQD).
- ⑤ FILLER PIECE, 2" X 6" BY CUT-TO-FIT (1 REQD). NAIL TO PIECE MARKED ④ W/5-10d NAILS.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT (4 REQD). TOENAIL TO PIECE MARKED ③ W/2-12d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑦ VERTICAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑧ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO STRUTS W/3-10d NAILS AT EACH JOINT.

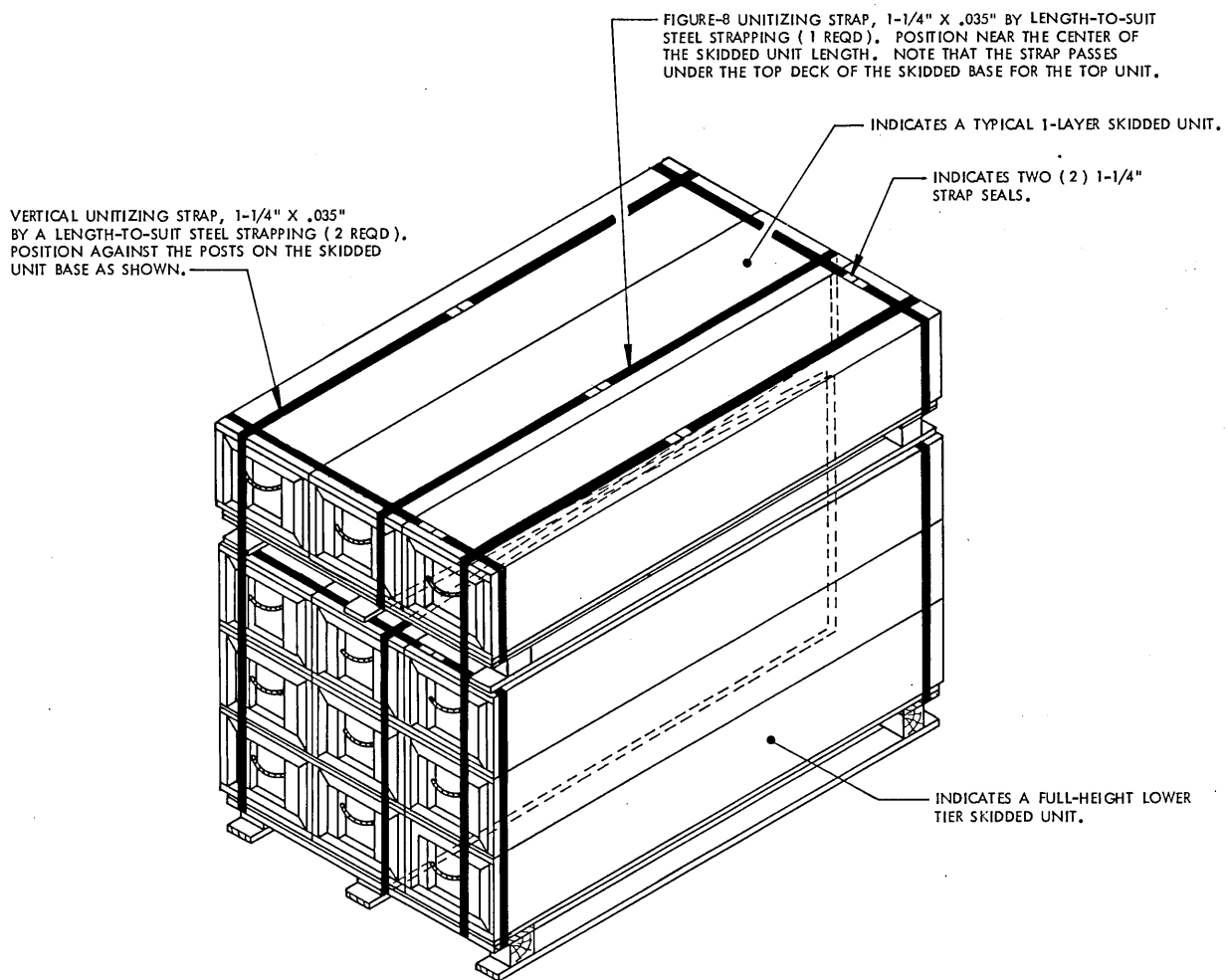
SPECIAL NOTES:

1. A PARTIAL VIEW OF A LOAD IN A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR HAVING ONE PALLETIZED UNIT OMITTED FROM THE TOP LAYER IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THIS METHOD OF PARTIAL-LAYER (TIER) BRACING (OMITTING A UNIT FROM THE TOP TIER FOR ADJUSTMENT OF LOAD QUANTITY) IS APPLICABLE FOR USE IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AS WELL AS CONVENTIONAL BOX CARS. THE OMISSION OF A SECOND-TIER UNIT IS SHOWN AS TYPICAL.
3. THE OMITTED-UNIT PROCEDURE SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA OF THE CAR. ALSO, THERE SHOULD BE AT LEAST ONE (1) LOAD UNIT BETWEEN THE OMITTED UNIT AND A LOAD DIVIDER BULKHEAD, OR BETWEEN THE OMITTED UNIT AND A CENTER GATE FOR A LOAD IN A CONVENTIONAL BOX CAR.
4. ONLY THE BLOCKING AND BRACING FOR THE OMITTED UNIT IS SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.



LOAD BEARING GATE B

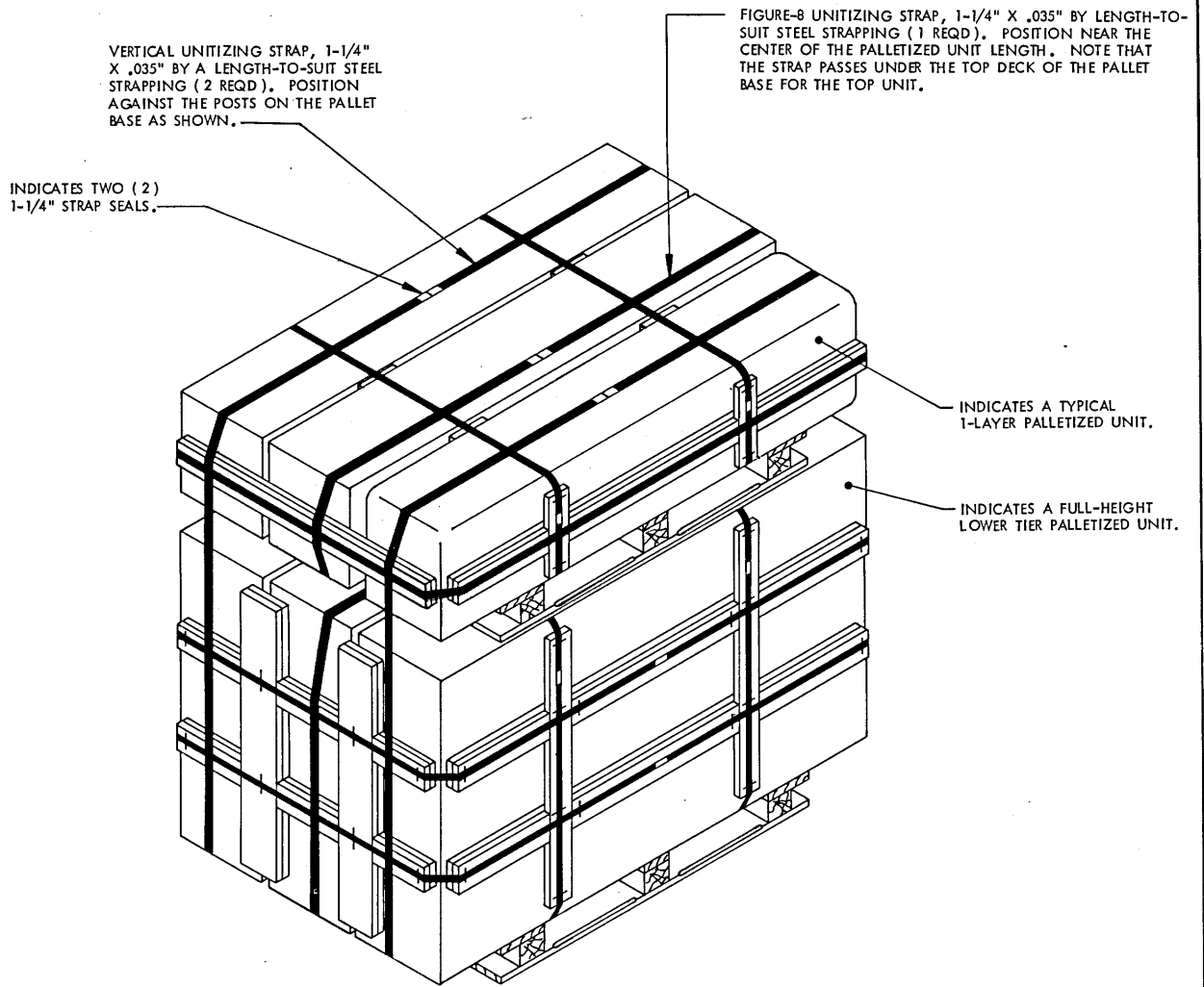
NOTE: WHEN FABRICATING THIS GATE, ONE RIGHT HAND GATE AND ONE LEFT HAND GATE WILL BE REQUIRED.



SECUREMENT OF A PARTIAL SKIDDED UNIT OF WIREBOUND CONTAINERS
ON TOP OF A FULL SKIDDED UNIT OF WIREBOUND CONTAINERS

SPECIAL NOTES:

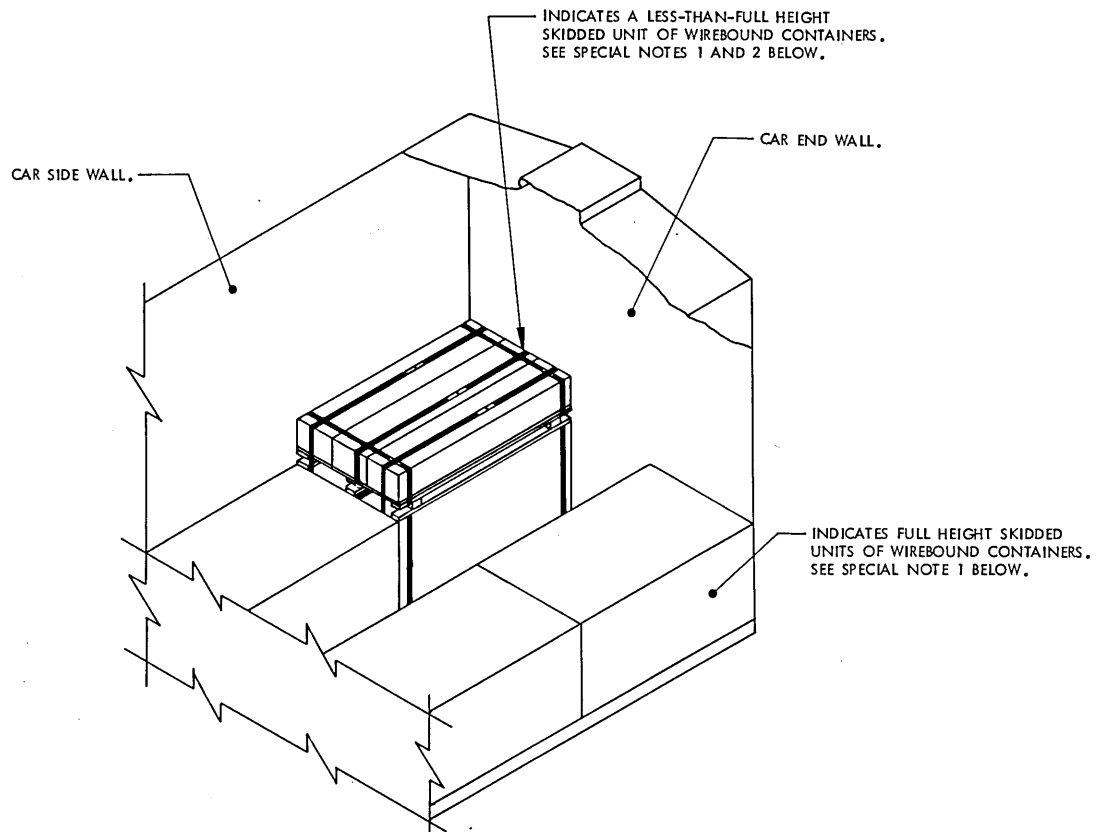
1. SHIPMENTS OF SKIDDED UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL SKIDDED UNITS WITHIN A LOAD. THE PROCEDURES ON THIS PAGE AND ON PAGES 64 AND 65 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
2. THE PARTIAL SKIDDED UNIT WILL BE STRAPPED TO THE SKIDDED UNIT DIRECTLY BELOW WITH TWO (2) VERTICAL UNITIZING STRAPS AND A FIGURE-8 UNITIZING STRAP, AS SHOWN ABOVE. PLACEMENT WITHIN THE LOAD IS OPTIONAL.
3. THE "SHIPMENT OF A PARTIAL SKIDDED UNIT" PROCEDURES ON THIS PAGE ARE APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AS WELL AS FOR LOADS IN CONVENTIONAL BOX CARS.
4. FOR SHIPMENT OF "LEFTOVER" WIREBOUND CONTAINERS, SEE THE PROCEDURES ON PAGE 66.



SECUREMENT OF A PARTIAL PALLETIZED UNIT OF ALUMINUM CONTAINERS ON TOP OF A FULL PALLETIZED UNIT OF ALUMINUM CONTAINERS

SPECIAL NOTES:

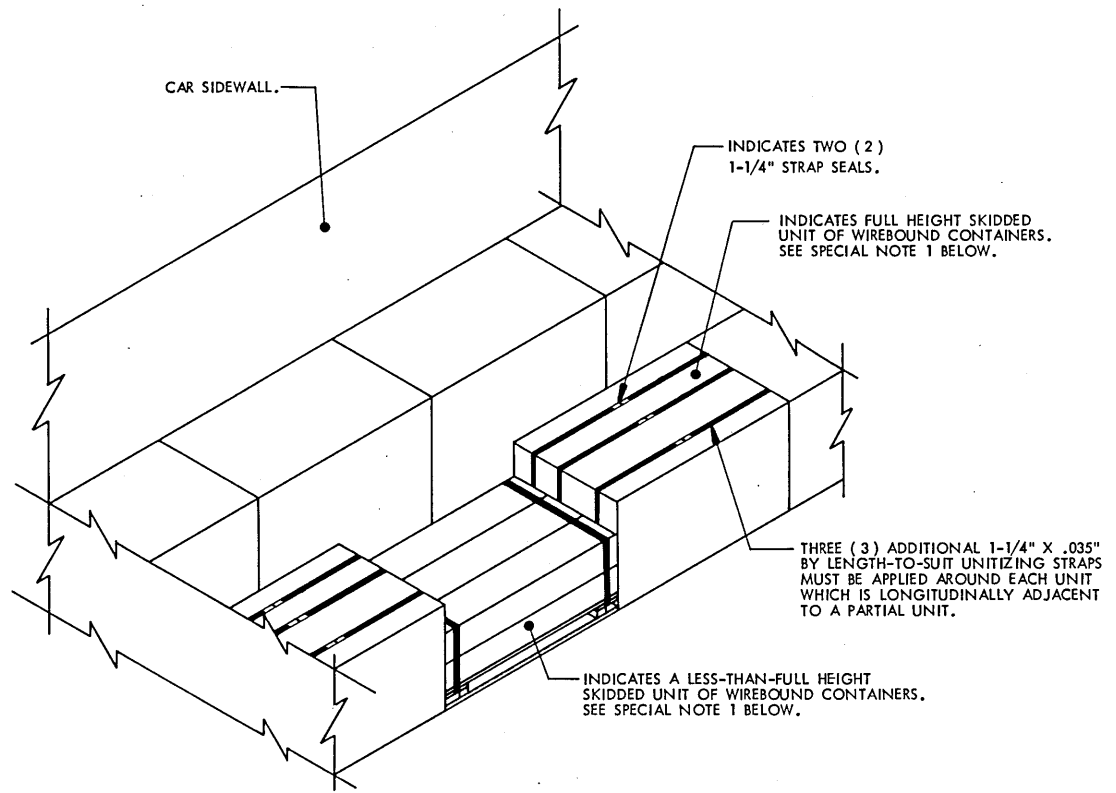
1. SHIPMENTS OF PALLETIZED UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL PALLETIZED UNITS WITHIN A LOAD. THE PROCEDURES ON THIS PAGE AND ON PAGES 64 AND 65 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
2. THE PARTIAL PALLETIZED UNIT WILL BE STRAPPED TO THE PALLETIZED UNIT DIRECTLY BELOW WITH TWO (2) VERTICAL UNITIZING STRAPS AND A FIGURE-8 UNITIZING STRAP, AS SHOWN ABOVE. PLACEMENT WITHIN THE LOAD IS OPTIONAL.
3. THE "SHIPMENT OF A PARTIAL PALLETIZED UNIT" PROCEDURES ON THIS PAGE ARE APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AS WELL AS FOR LOADS IN CONVENTIONAL BOX CARS.
4. FOR SHIPMENT OF "LEFTOVER" ALUMINUM CONTAINERS, SEE THE PROCEDURES ON PAGE 67.



POSITIONING OF A PARTIAL PALLETIZED OR SKIDDED UNIT ON TOP OF A TIER

SPECIAL NOTES:

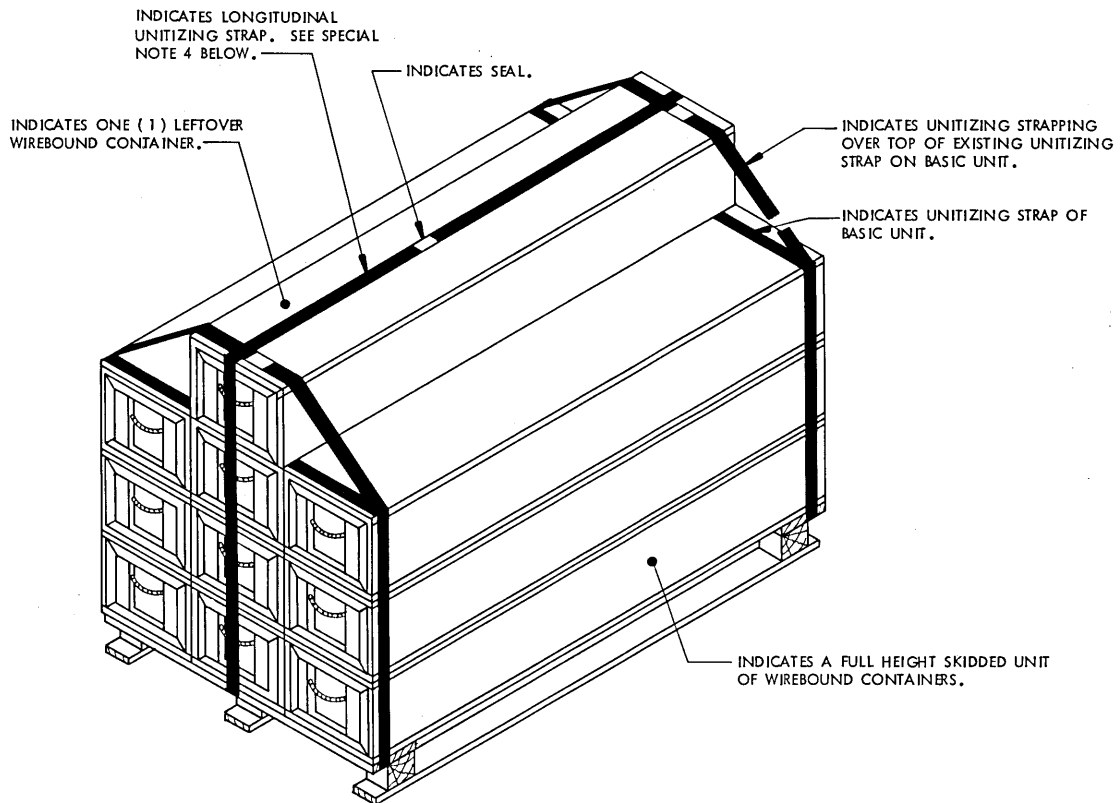
1. THE ISOMETRIC VIEW SHOWN ABOVE DEPICTS SKIDDED UNITS OF WIREBOUND CONTAINERS; HOWEVER, THE PROCEDURES WILL ALSO APPLY TO PALLETIZED ALUMINUM CONTAINERS.
2. FOR SECUREMENT OF A PARTIAL PALLETIZED OR SKIDDED UNIT ON TOP OF A FULL HEIGHT PALLETIZED OR SKIDDED UNIT, SEE PAGES 62 AND 63.
3. SHIPMENTS OF PALLETIZED OR SKIDDED UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION, MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL UNITS WITHIN A LOAD. THE PROCEDURES ON THIS PAGE AND ON PAGE 65 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF PARTIAL UNITS.
4. THE PROCEDURES SHOWN ON THIS PAGE ARE ONLY APPLICABLE TO PARTIAL PALLETIZED OR SKIDDED UNITS CONSISTING OF ONE OR TWO LAYERS OF CONTAINERS. FOR SHIPMENT OF "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGES 66 AND 67.
5. THE SHIPMENT OF A PARTIAL PALLETIZED OR SKIDDED UNIT AS SHOWN ABOVE IS APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AS WELL AS FOR LOADS IN CONVENTIONAL BOX CARS.



**POSITIONING OF A PARTIAL PALLETIZED
OR SKIDDED UNIT WITHIN A TIER**

SPECIAL NOTES:

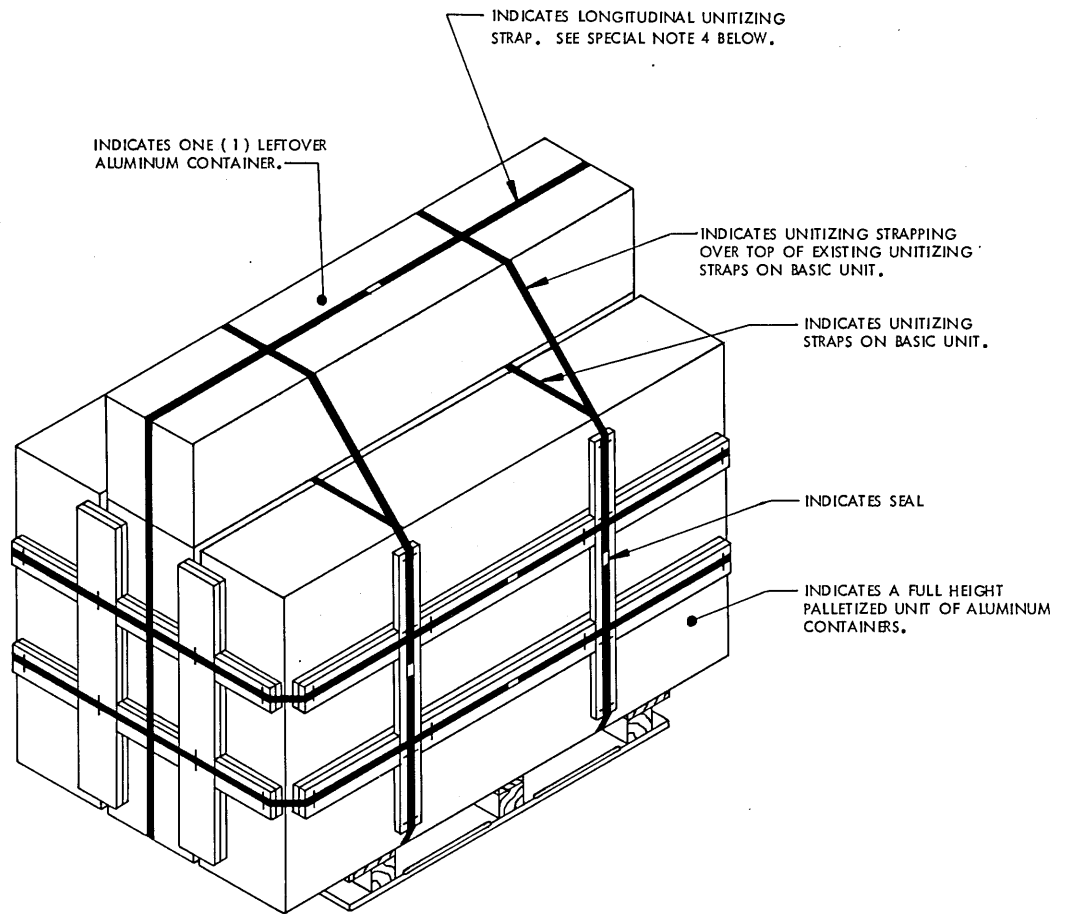
1. THE ISOMETRIC VIEW SHOWN ABOVE DEPICTS SKIDDED UNITS OF WIREBOUND CONTAINERS; HOWEVER, THESE PROCEDURES WILL ALSO APPLY TO PALLETIZED ALUMINUM CONTAINERS.
2. FOR SECUREMENT OF A PARTIAL PALLETIZED OR SKIDDED UNIT ON TOP OF A FULL-HEIGHT PALLETIZED OR SKIDDED UNIT, SEE PAGES 62 AND 63.
3. SHIPMENT OF PALLETIZED OR SKIDDED UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION, MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL UNITS WITHIN A LOAD. THE PROCEDURES ON THIS PAGE AND ON PAGE 64 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
4. THE PROCEDURES SHOWN ON THIS PAGE ARE ONLY APPLICABLE TO PARTIAL PALLETIZED OR SKIDDED UNITS CONSISTING OF ONE OR TWO LAYERS OF CONTAINERS. FOR SHIPMENT OF "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGES 66 AND 67.
5. LEFTOVER CONTAINERS, IN AN AMOUNT WHICH IS NOT MORE THAN THE QUANTITY IN ONE LAYER OF A UNIT, CAN BE SECURED TO THE TOP OF A PARTIAL UNIT FOR PLACEMENT WITHIN A TIER, WITH THESE LIMITATIONS:
 - A. LEFTOVER CONTAINERS ON TOP OF A PARTIAL UNIT ARE APPLICABLE FOR CONUS AND OCONUS RAILROAD SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOTS TO POSTS, CAMPS, AND STATIONS, OR, UPON APPROVAL FROM HIGHER HEAD-QUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLY, AND PACK PLANTS TO DEPOTS. CAUTION: A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A PARTIAL UNIT, MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.
 - B. THE LEFTOVER CONTAINERS MUST BE SECURED TO THE PARTIAL UNIT WITH THEIR OWN STRAPPING, SEPARATE FROM THE STRAPS FOR THE PARTIAL UNIT. SEE THE DETAILS ON PAGES 66 AND 67 FOR GUIDANCE IN STRAP APPLICATION.
6. CAUTION: THE PARTIAL UNIT MUST BE LOCATED IN THE TOP TIER OF A LOAD; OTHER UNITS MUST NOT BE PLACED ON TOP OF THE PARTIAL UNIT. THE PARTIAL UNIT SHOULD BE PLACED IN THE LOAD SO THAT THERE IS AT LEAST ONE (1) FULL-HEIGHT UNIT BETWEEN IT AND THE CENTER GATE; HOWEVER, THE PARTIAL UNIT IS NOT TO BE WITHIN A LOAD UNIT WHICH IS TO BE ENCIRCLED WITH DOORWAY PROTECTION STRAPS. THE ONLY ADDITIONAL DUNNAGE NEEDED IS THE SIX (6) 1-1/4" X .035" UNITIZING STRAPS WHICH MUST BE APPLIED, THREE (3) TO EACH OF THE UNITS LONGITUDINALLY ADJACENT TO THE PARTIAL UNIT. SEE THE "POSITIONING OF PARTIAL PALLETIZED OR SKIDDED UNIT WITHIN A TIER" VIEW ABOVE FOR GUIDANCE.
7. THE "POSITIONING OF A PARTIAL PALLETIZED OR SKIDDED UNIT WITHIN A TIER" VIEW ABOVE DEPICTS A PORTION OF A CONVENTIONAL BOX CAR LOAD. HOWEVER, THE "SHIPMENT OF PARTIAL UNITS" PROCEDURES ON THIS PAGE ARE ALSO APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.



SECUREMENT OF LEFTOVER CONTAINERS

SPECIAL NOTES:

1. THE ISOMETRIC VIEW SHOWN ABOVE DEPICTS WIREBOUND CONTAINERS. FOR ALUMINUM CONTAINERS, SEE THE PROCEDURES ON PAGE 67.
2. SHIPMENTS OF SKIDDED UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE, HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION, MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS.
3. THE QUANTITY OF LEFTOVER CONTAINERS WHICH CAN BE SECURED TO A FULL HEIGHT SKIDDED UNIT WILL NOT EXCEED TWO. IF THREE LEFTOVER CONTAINERS ARE TO BE SHIPPED, ONE CONTAINER WILL BE SECURED TO THE TOP OF ONE SKIDDED UNIT AND TWO CONTAINERS WILL BE SECURED TO THE TOP OF A DIFFERENT SKIDDED UNIT.
4. LEFTOVER CONTAINERS MUST BE SECURED TO A FULL HEIGHT SKIDDED UNIT WITH TWO (2) PIECES OF STEEL STRAPPING (SEPARATE FROM UNIT STRAPS) OF A SIZE AT LEAST AS HEAVY AS THE UNITIZING STRAPPING. THREAD A STRAP UNDER THE TOP DECK BOARDS IN LINE WITH EXISTING UNITIZING STRAPS, COMPLETELY ENCIRCLE THE SKIDDED UNIT AND LEFTOVER CONTAINERS, TENSION, AND SEAL THE STRAP JOINT WITH ONE DOUBLE CRIMPED SEAL. ONE (1) PIECE OF STEEL STRAPPING OF A SIZE AT LEAST AS HEAVY AS THE UNITIZING STRAPPING MUST ENCIRCLE EACH LEFTOVER WIREBOUND CONTAINER AND THE SKIDDED UNIT LONGITUDINALLY AS SHOWN ABOVE.
5. LEFTOVER CONTAINERS MAY ALSO BE SECURED ON TOP OF A PARTIAL SKIDDED UNIT.
6. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS RAILROAD SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOTS TO POSTS, CAMPS, AND STATIONS, OR UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLE AND PACK PLANTS TO DEPOTS. **CAUTION:** A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A FULL OR PARTIAL UNIT MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.



SECUREMENT OF LEFTOVER CONTAINERS

SPECIAL NOTES:

1. THE ISOMETRIC VIEW SHOWN ABOVE DEPICTS ALUMINUM CONTAINERS. FOR WIRE-BOUND CONTAINERS, SEE THE PROCEDURES ON PAGE 66.
2. SHIPMENTS OF PALLETIZED UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE, HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION, MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS.
3. THE QUANTITY OF LEFTOVER CONTAINERS WHICH CAN BE SECURED TO A FULL HEIGHT PALLETIZED UNIT WILL NOT EXCEED ONE.
4. LEFTOVER CONTAINERS MUST BE SECURED TO A FULL HEIGHT PALLETIZED UNIT WITH TWO (2) PIECES OF STEEL STRAPPING (SEPARATE FROM UNIT STRAPS) OF A SIZE AT LEAST AS HEAVY AS THE UNITIZING STRAPPING. THREAD A STRAP UNDER THE TOP DECK BOARDS AND TO CENTER ON THE VERTICAL DUNNAGE ON BASIC UNIT AS SHOWN ABOVE, COMPLETELY ENCIRCLE THE PALLETIZED UNIT AND LEFTOVER CONTAINER, TENSION, AND SEAL THE STRAP JOINT WITH ONE DOUBLE CRIMPED SEAL. ONE (1) PIECE OF STEEL STRAPPING OF A SIZE AT LEAST AS HEAVY AS THE UNITIZING STRAPPING MUST ENCIRCLE THE LEFTOVER ALUMINUM CONTAINER AND THE PALLETIZED UNIT LONGITUDINALLY AS SHOWN ABOVE.
5. LEFTOVER CONTAINERS MAY ALSO BE SECURED ON TOP OF A PARTIAL PALLETIZED UNIT.
6. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS RAILROAD SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOTS TO POSTS, CAMPS, AND STATIONS, OR, UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLE, AND PACK PLANTS TO DEPOTS. CAUTION: A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A FULL OR PARTIAL UNIT, MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.

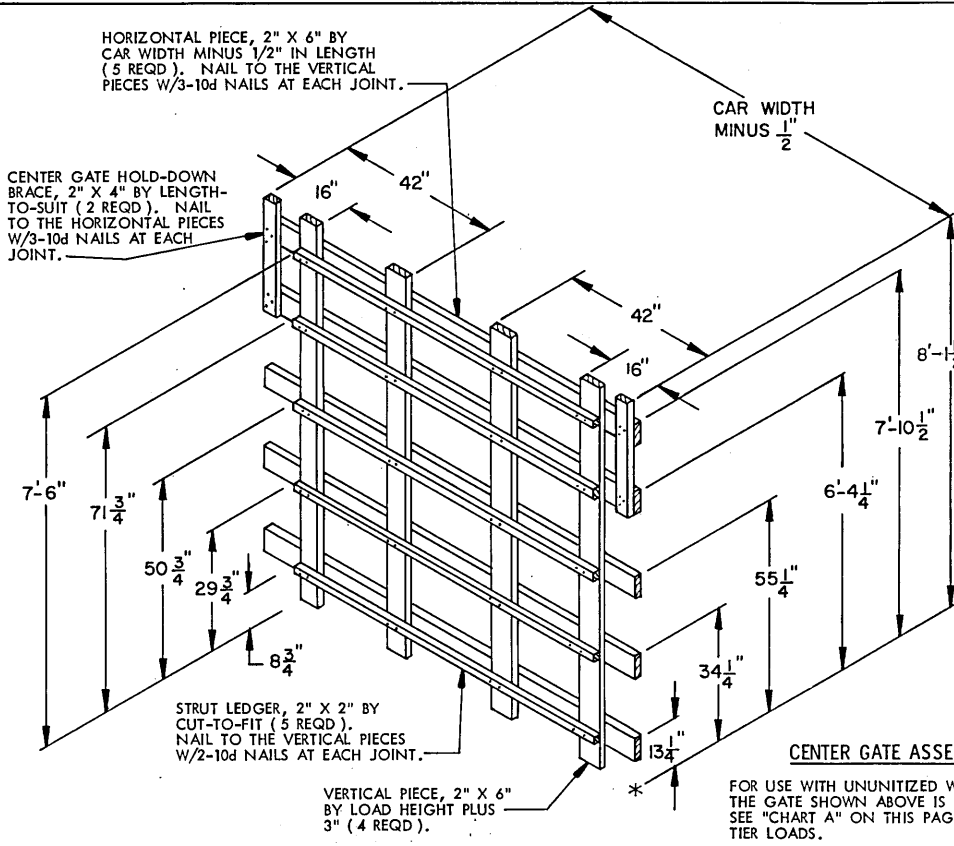


CHART A (SEE NOTE ⊕ BELOW)

LAYERS OF CNTRS	HEIGHT OF HORIZONTAL PIECES REQUIRED				
	6"	21"	*	*	*
2	6"	21"	*	*	*
3	13-1/4"	31-1/2"	*	*	*
4	6"	24"	42"	*	*
5	13-1/4"	34-1/4"	52-1/2"	*	*
6	6"	24"	45"	63"	*
7	13-1/4"	34-1/4"	52-1/2"	73-1/2"	*
8	6"	24"	45"	66"	84"
9	13-1/4"	34-1/4"	55-1/4"	76-1/4"	94-1/2"

NOTE ⊕:
 WHEN FABRICATING GATES FOR NINE LAYER LOADS OR LESS, USE "CHART A" ABOVE FOR PROPER LOCATION OF THE HORIZONTAL PIECES. ONE STRUT LEDGER, POSITIONED ON THE OPPOSITE SIDE OF THE VERTICAL PIECES IS REQUIRED FOR EACH HORIZONTAL PIECE ON THE GATE. THE TOP EDGE OF EACH STRUT LEDGER WILL BE LOCATED 4-1/2" BELOW THE TOP EDGE OF THE MATED HORIZONTAL PIECE. EACH VERTICAL PIECE WILL BE CUT-TO-EXTEND 3" ABOVE THE TOP HORIZONTAL PIECE.

* HORIZONTAL PIECE IS NOT REQUIRED.

CENTER GATE ASSEMBLY A

FOR USE WITH UNUNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE IS FOR A NINE TIER LOAD. SEE "CHART A" ON THIS PAGE FOR LESS THAN NINE TIER LOADS.

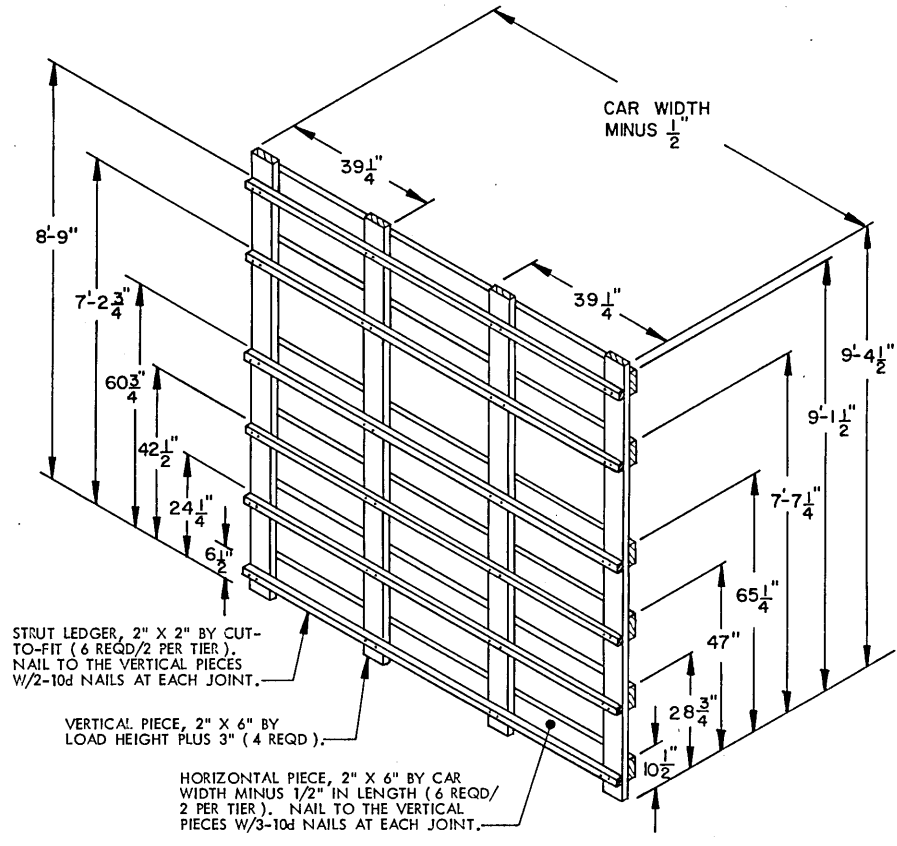


CHART B (SEE NOTE ⊙ BELOW)

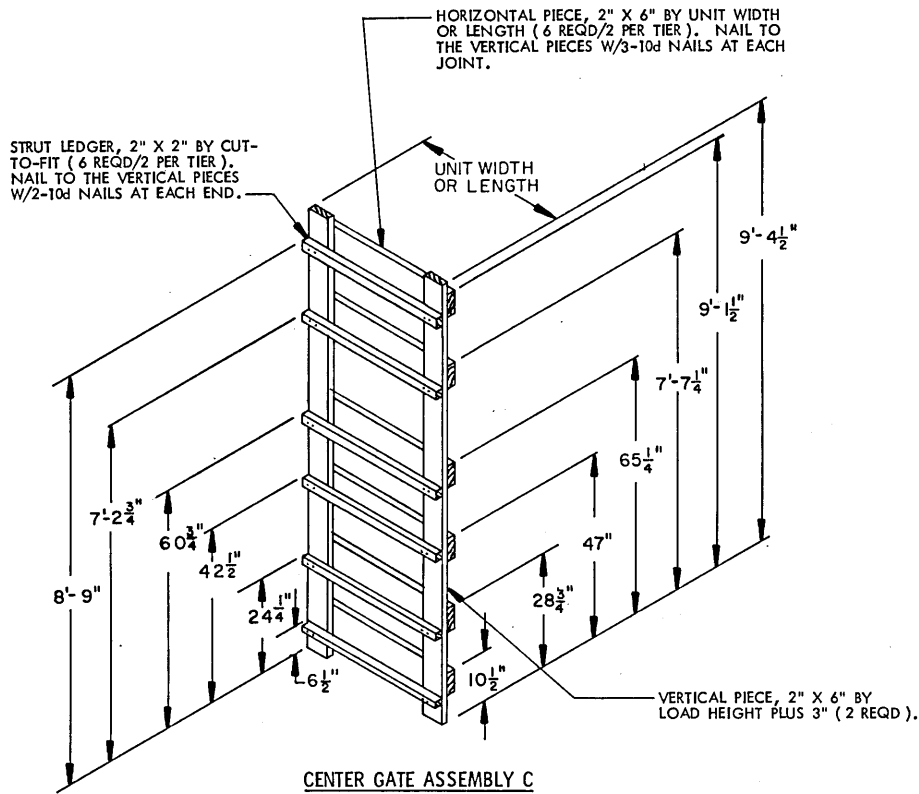
UNITS HIGH	HEIGHT OF HORIZONTAL PIECES REQUIRED				
	19"	36-1/2"	*	*	*
1 TIER	19"	36-1/2"	*	*	*
2 TIERS	10-1/2"	28-3/4"	55"	73"	*
3 TIERS	10-1/2"	28-3/4"	47"	65-1/4"	91-1/4" 109-1/2"

NOTE ⊙:
 WHEN FABRICATING GATES FOR THREE TIER LOADS OR LESS, USE "CHART B" ABOVE FOR PROPER LOCATION OF THE HORIZONTAL PIECES. ONE STRUT LEDGER, POSITIONED ON THE OPPOSITE SIDE OF THE VERTICAL PIECES IS REQUIRED FOR EACH HORIZONTAL PIECE ON THE GATE. THE TOP EDGE OF EACH STRUT LEDGER WILL BE LOCATED 4-1/2" BELOW THE TOP EDGE OF THE MATED HORIZONTAL PIECE. EACH VERTICAL PIECE WILL BE CUT-TO-EXTEND 3" ABOVE THE TOP HORIZONTAL PIECE. FOR AN ALTERNATIVE METHOD OF CONSTRUCTING THIS GATE, SEE THE "SPLIT GATE" DETAILS ON PAGE B6.

* HORIZONTAL PIECE IS NOT REQUIRED.

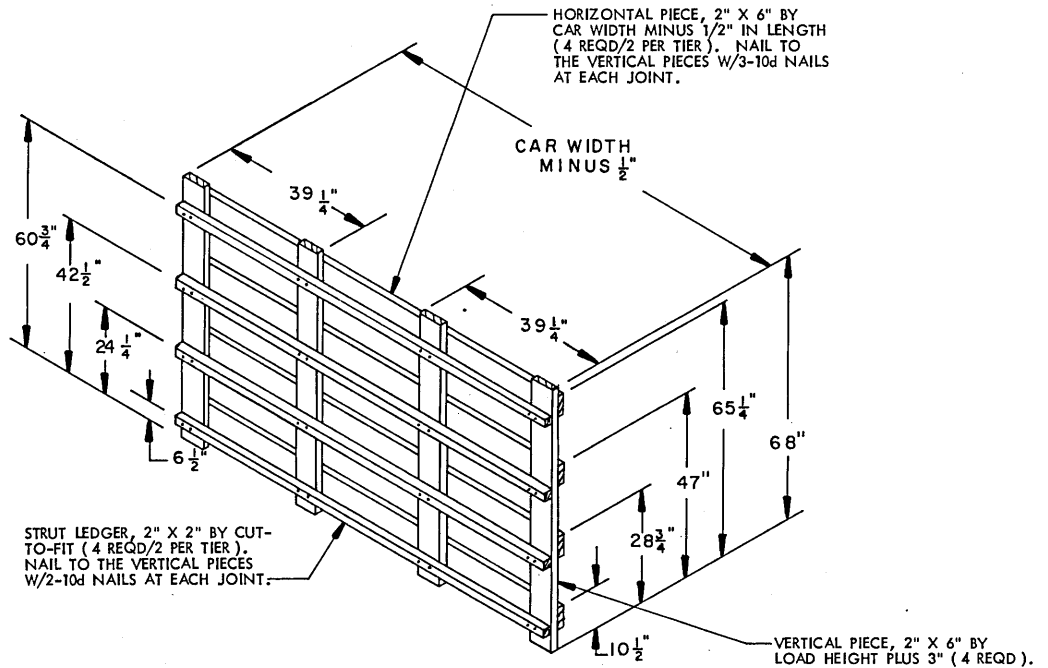
CENTER GATE ASSEMBLY B

FOR USE WITH UNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE IS FOR A THREE TIER LOAD. SEE "CHART B" ON THIS PAGE FOR A ONE OR TWO TIER LOAD.



CENTER GATE ASSEMBLY C

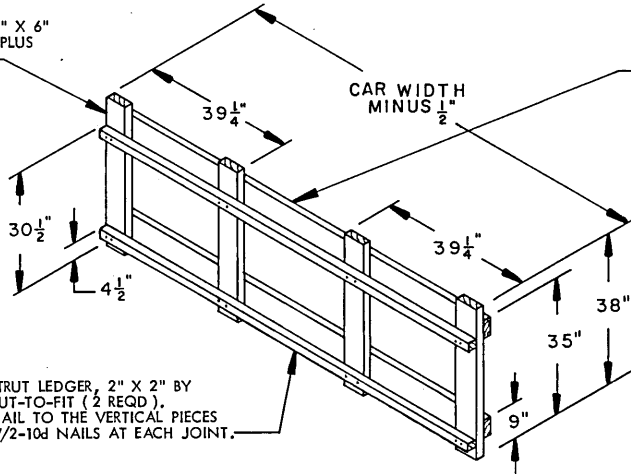
FOR USE WITH UNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE IS FOR A THREE TIER LOAD. SEE "CHART B" ON PAGE 68 FOR A ONE OR TWO TIER LOAD.



CENTER GATE ASSEMBLY D

FOR USE WITH UNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE IS FOR A TWO TIER LOAD.

VERTICAL PIECE, 2" X 6" BY LOAD HEIGHT PLUS 3" (4 REQD).

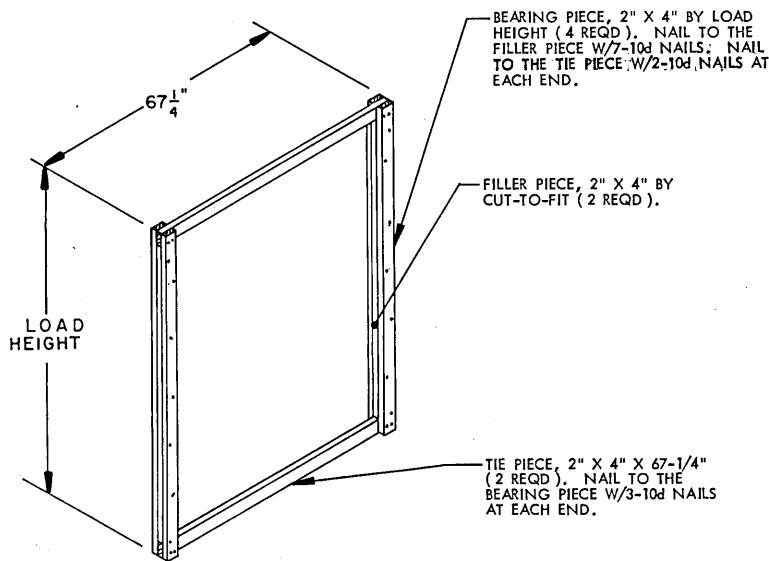


HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

STRUT LEDGER, 2" X 2" BY CUT-TO-FIT (2 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

CENTER GATE ASSEMBLY E

FOR USE WITH UNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE CAN ONLY BE USED WITH THE STRUTTED GATE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN ON PAGE 54.



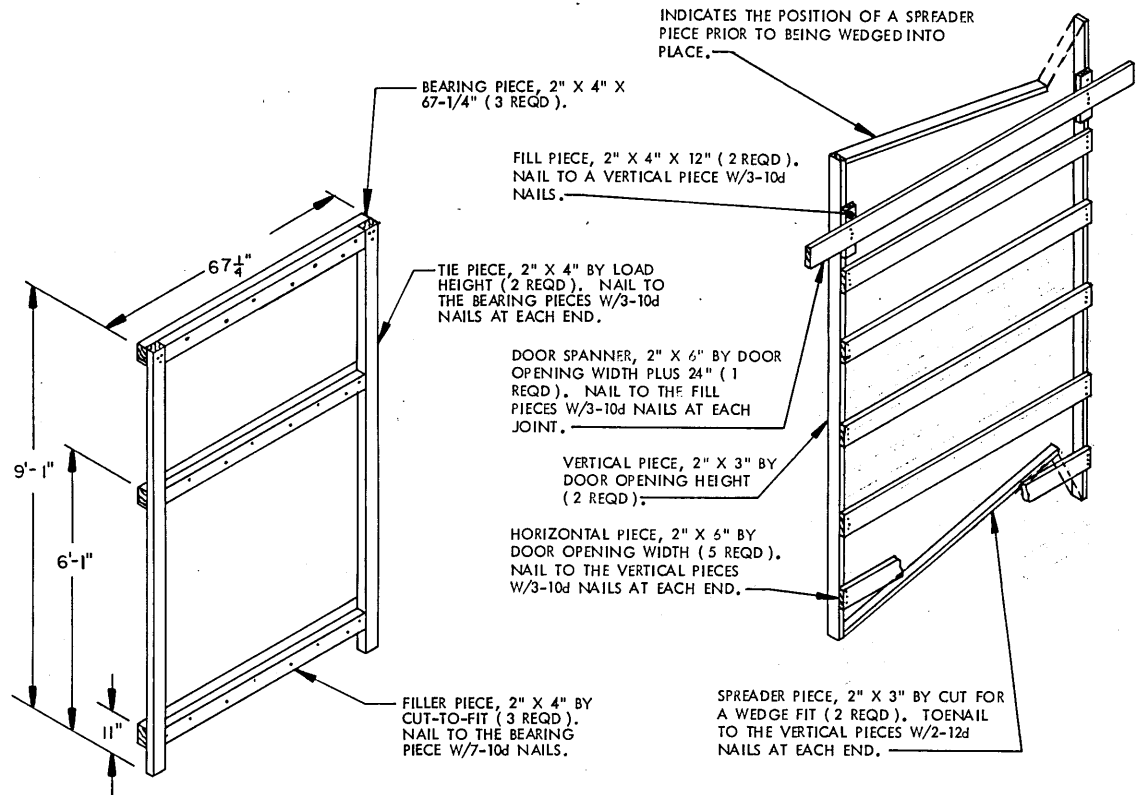
BEARING PIECE, 2" X 4" BY LOAD HEIGHT (4 REQD). NAIL TO THE FILLER PIECE W/7-10d NAILS; NAIL TO THE TIE PIECE W/2-10d NAILS AT EACH END.

FILLER PIECE, 2" X 4" BY CUT-TO-FIT (2 REQD).

TIE PIECE, 2" X 4" X 67-1/4" (2 REQD). NAIL TO THE BEARING PIECE W/3-10d NAILS AT EACH END.

SPACER ASSEMBLY A

FOR USE WITH UNUNITIZED WIREBOUND CONTAINERS.

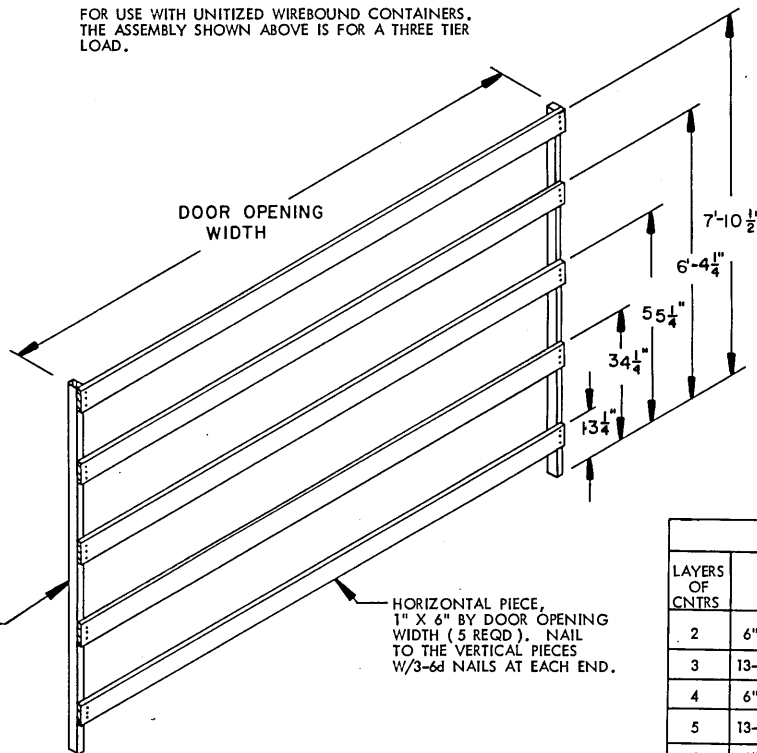


SPACER ASSEMBLY B

FOR USE WITH UNITIZED WIREBOUND CONTAINERS. THE ASSEMBLY SHOWN ABOVE IS FOR A THREE TIER LOAD.

ALTERNATIVE DOORWAY PROTECTION

THIS DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS WHEN THE DOOR POSTS ARE STEEL AND ARE WITHOUT HOLES FOR NAILING INTO. THE DOORWAY PROTECTION SHOWN IS FOR A NINE TIER LOAD OF UNUNITIZED WIREBOUND CONTAINERS. THE ASSEMBLY IS ADAPTABLE FOR USE IN LIEU OF DOORWAY PROTECTION GATES A, B, C, AND D SHOWN ON PAGES 71, 72, AND 31. THE NUMBER OF HORIZONTAL PIECES MAY BE ADJUSTED, DEPENDING ON THE NUMBER OF LAYERS WITHIN THE LOAD.



VERTICAL PIECE, 2" X 3" BY LOAD HEIGHT (2 REQD). NAIL TO A DOOR POST W/12d NAILS.

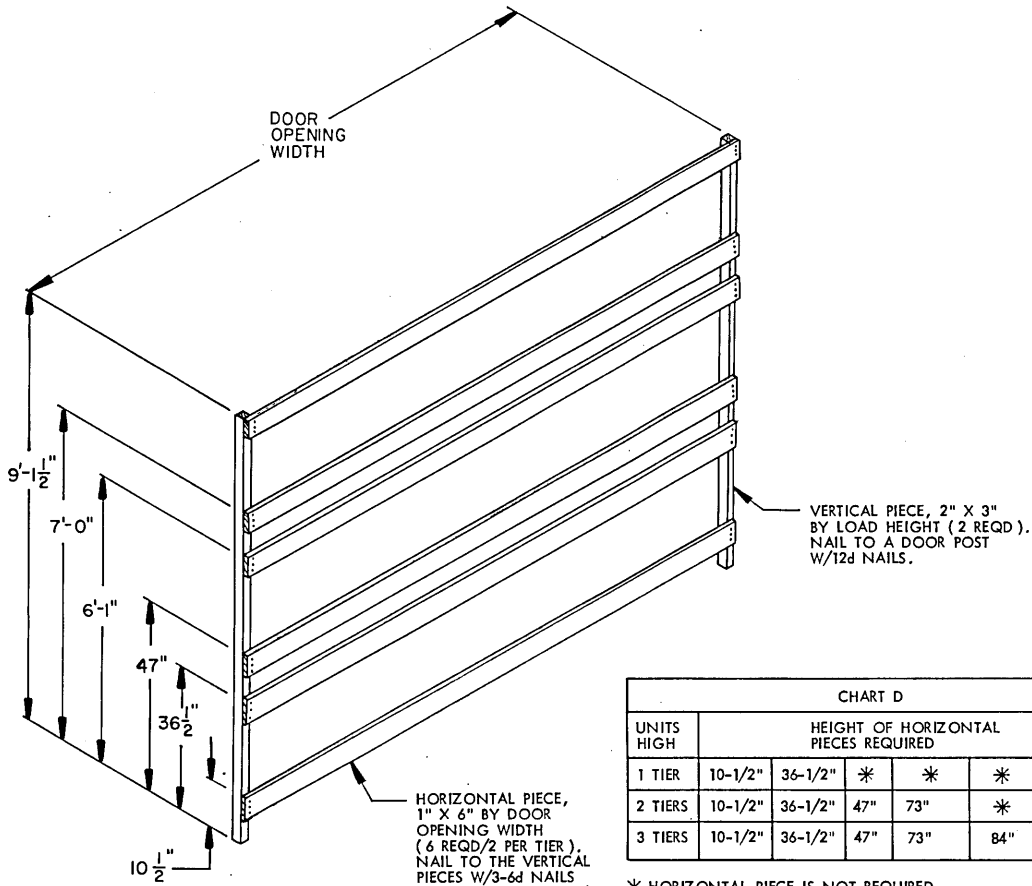
HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (5 REQD). NAIL TO THE VERTICAL PIECES W/3-6d NAILS AT EACH END.

DOORWAY PROTECTION GATE A

FOR USE WITH UNUNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE IS FOR A NINE TIER LOAD. SEE "CHART C" ON THIS PAGE FOR LESS THAN NINE TIER LOADS. NOTE: IF THE DOOR POSTS ARE NOT AVAILABLE, REFER TO THE "ALTERNATIVE DOORWAY PROTECTION" ON THIS PAGE.

CHART C					
LAYERS OF CNTRS	HEIGHT OF HORIZONTAL PIECES REQUIRED				
2	6"	21"	*	*	*
3	13-1/4"	31-1/2"	*	*	*
4	6"	24"	42"	*	*
5	13-1/4"	34-1/4"	52-1/2"	*	*
6	6"	24"	45"	63"	*
7	13-1/4"	34-1/4"	52-1/2"	73-1/2"	*
8	6"	24"	45"	66"	84"
9	13-1/4"	34-1/4"	55-1/4"	76-1/4"	94-1/2"

*HORIZONTAL PIECE IS NOT REQUIRED.

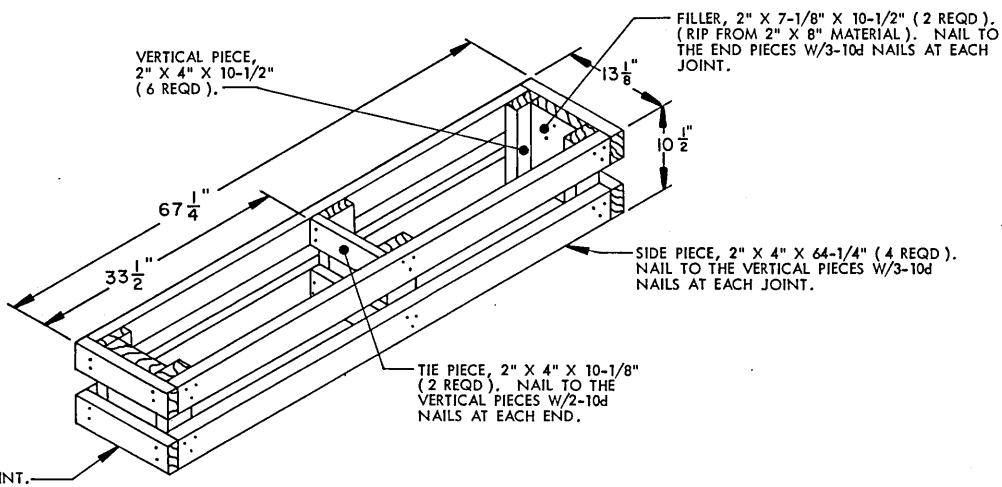


DOORWAY PROTECTION GATE B

FOR USE WITH UNITIZED WIREBOUND CONTAINERS. THE GATE SHOWN ABOVE IS FOR A THREE TIER LOAD. NOTE: IF THE DOOR POSTS ARE NOT AVAILABLE, REFER TO THE "ALTERNATIVE DOORWAY PROTECTION" ON PAGE 71.

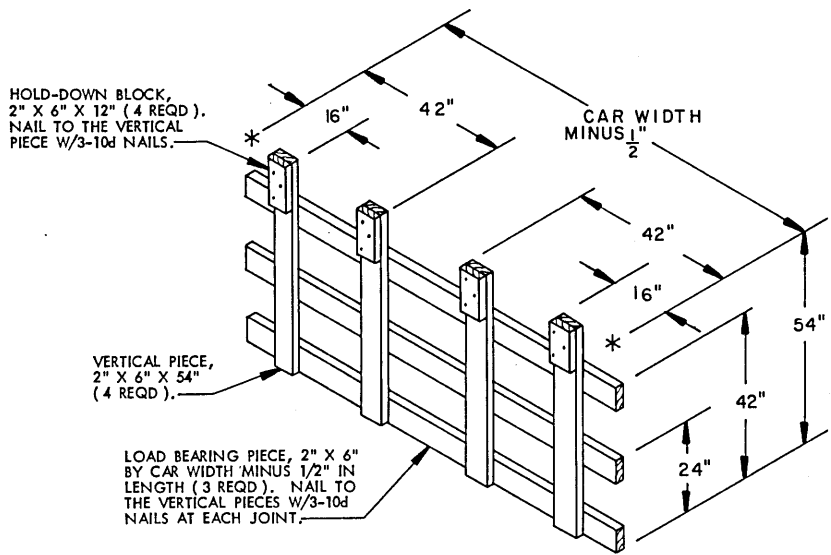
CHART D						
UNITS HIGH	HEIGHT OF HORIZONTAL PIECES REQUIRED					
	1 TIER	10-1/2"	36-1/2"	*	*	*
2 TIERS	10-1/2"	36-1/2"	47"	73"	*	*
3 TIERS	10-1/2"	36-1/2"	47"	73"	84"	109-1/2"

* HORIZONTAL PIECE IS NOT REQUIRED.



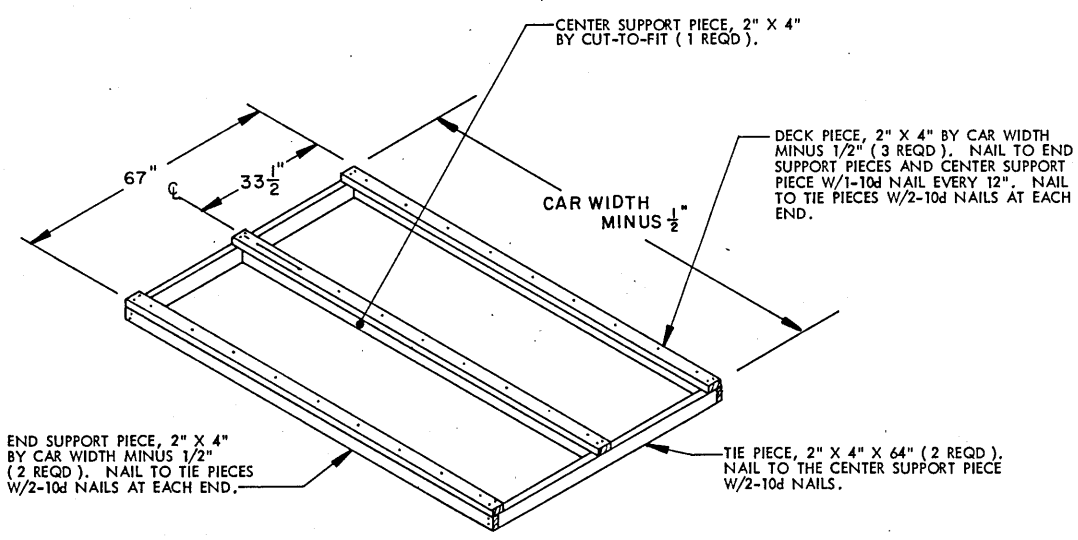
FILLER ASSEMBLY A

THE FILLER ASSEMBLY SHOWN ABOVE IS TO BE USED WITHIN LOADS TO TAKE THE PLACE OF AN OMITTED WIREBOUND CONTAINER. IT MUST BE USED IN THE TOP LAYER ONLY.



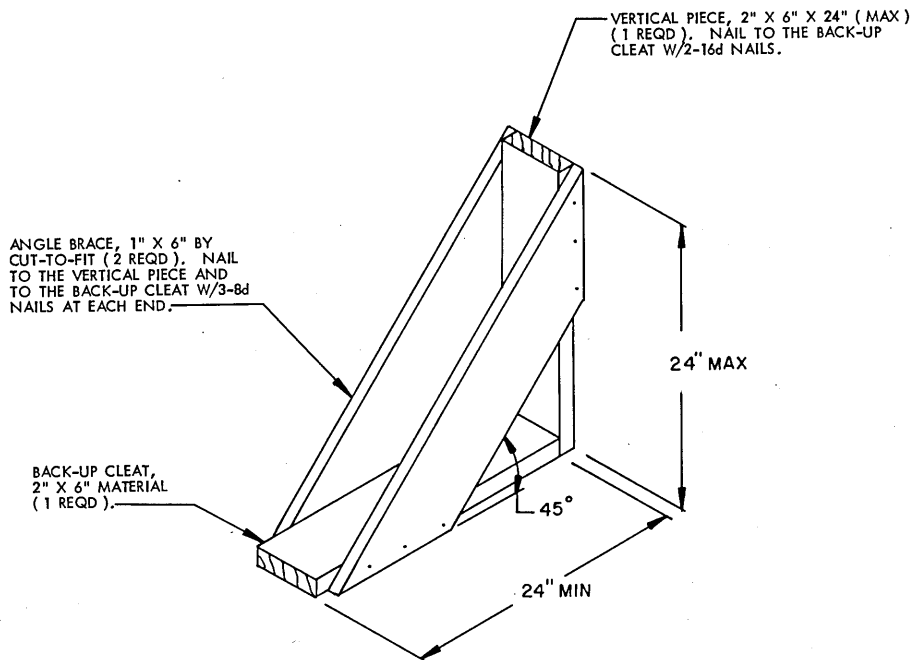
LCL GATE ASSEMBLY A

FOR USE WITH UNUNITIZED WIREBOUND CONTAINERS.



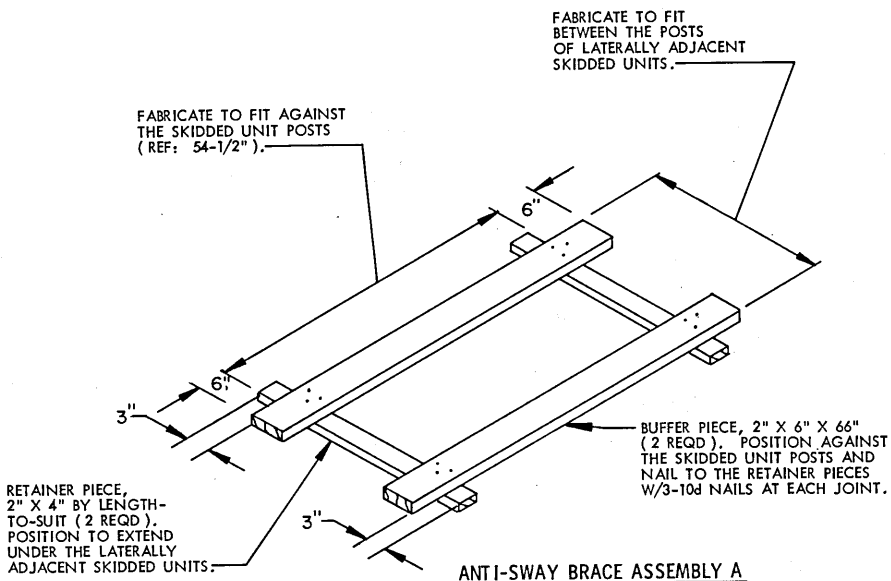
RISER ASSEMBLY A

FOR USE WITH UNUNITIZED WIREBOUND CONTAINERS.



LCL BRACE ASSEMBLY

EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. A MINIMUM OF TWO (2) LCL BRACES MUST BE USED FOR LONGITUDINAL BRACING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL SUPPORT 8,000 POUNDS OF LADING.

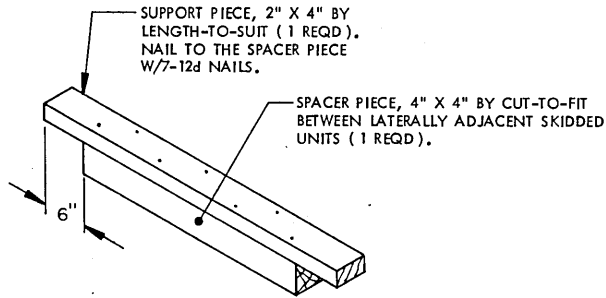


ANTI-SWAY BRACE ASSEMBLY A

FOR USE WITH UNITIZED WIREBOUND CONTAINERS. SEE THE "POSITIONING OF ANTI-SWAY BRACE ASSEMBLY A" ON THIS PAGE.

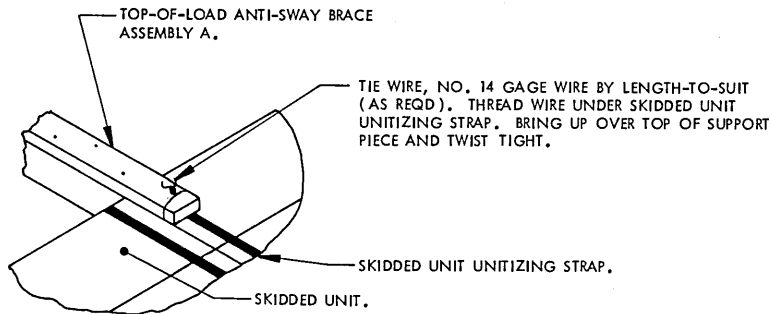
POSITIONING OF ANTI-SWAY BRACE ASSEMBLY A:

1. THE "ANTI-SWAY BRACE ASSEMBLY A" MUST BE FABRICATED IN PLACE BETWEEN LATERALLY ADJACENT SKIDDED UNITS.
 - A. POSITION THE FIRST RETAINER PIECE JUST BEHIND THE NEAR POSTS ON LATERALLY ADJACENT SKIDDED UNITS, SPANNING THE VOID BETWEEN THEM AND RESTING ON THE BOTTOM BOARDS OF THE SKIDDED UNITS.
 - B. POSITION A 2" X 6" X 66" BUFFER PIECE 3" FROM THE END OF THE FIRST RETAINER PIECE AND EXTENDING 5-3/4" BEYOND THE EDGE OF THE FIRST RETAINER PIECE. NAIL THE BUFFER PIECE TO THE RETAINER PIECE W/3-10d NAILS.
 - C. KEEPING THE FIRST BUFFER PIECE AGAINST THE SIDE OF A SKIDDED UNIT, POSITION THE SECOND BUFFER PIECE AGAINST THE SIDE OF THE LATERALLY ADJACENT SKIDDED UNIT AND EXTENDING 5-3/4" BEYOND THE EDGE OF THE FIRST RETAINER PIECE. NAIL THE BUFFER PIECE TO THE RETAINER PIECE W/3-10d NAILS.
 - D. HOLD THE ENDS OF BOTH BUFFER PIECES AND PUSH THE PARTIAL ASSEMBLY FORWARD UNTIL THE FIRST RETAINER PIECE CONTACTS THE SKIDDED UNIT POSTS ON THE FAR END.
 - E. POSITION THE SECOND RETAINER PIECE JUST BEHIND AND CONTACTING THE NEAR POSTS ON LATERALLY ADJACENT SKIDDED UNITS.
 - F. KEEP THE TWO BUFFER PIECES AGAINST THE SIDES OF THE LATERALLY ADJACENT SKIDDED UNITS AND NAIL EACH ONE TO THE SECOND RETAINER PIECE W/3-10d NAILS.



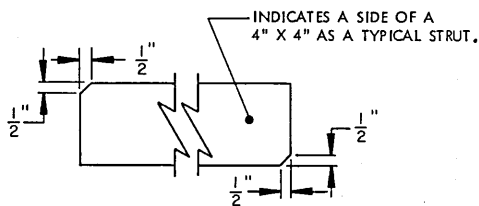
TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A

THIS ASSEMBLY IS DESIGNED FOR USE BETWEEN THE TOP OF LATERALLY ADJACENT SKIDDED UNITS OF WIREBOUND CONTAINERS. POSITION BETWEEN STACKS IN EACH END OF CAR TO PREVENT UNITS FROM TOPPLING INTO VOID AREA. THE ASSEMBLY WILL BE WIRE TIED TO THE SKIDDED UNIT UNITIZING STRAP TO PREVENT DISPLACEMENT.



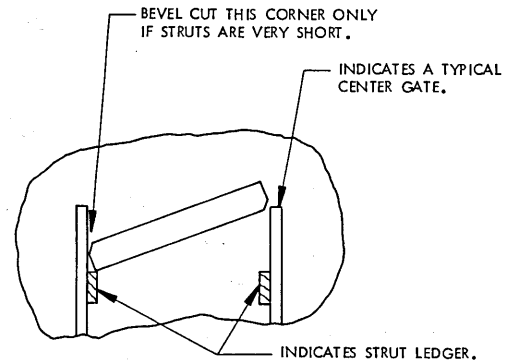
POSITIONING OF TOP-OF-LOAD ANTI-SWAY BRACE ASSEMBLY A

THIS VIEW DEPICTS THE SECUREMENT OF A TOP-OF-LOAD ANTI-SWAY BRACE TO THE TOP OF A SKIDDED UNIT BY WIRE TYING TO THE UNITIZING STRAPS WITH NO. 14 GAGE WIRE.



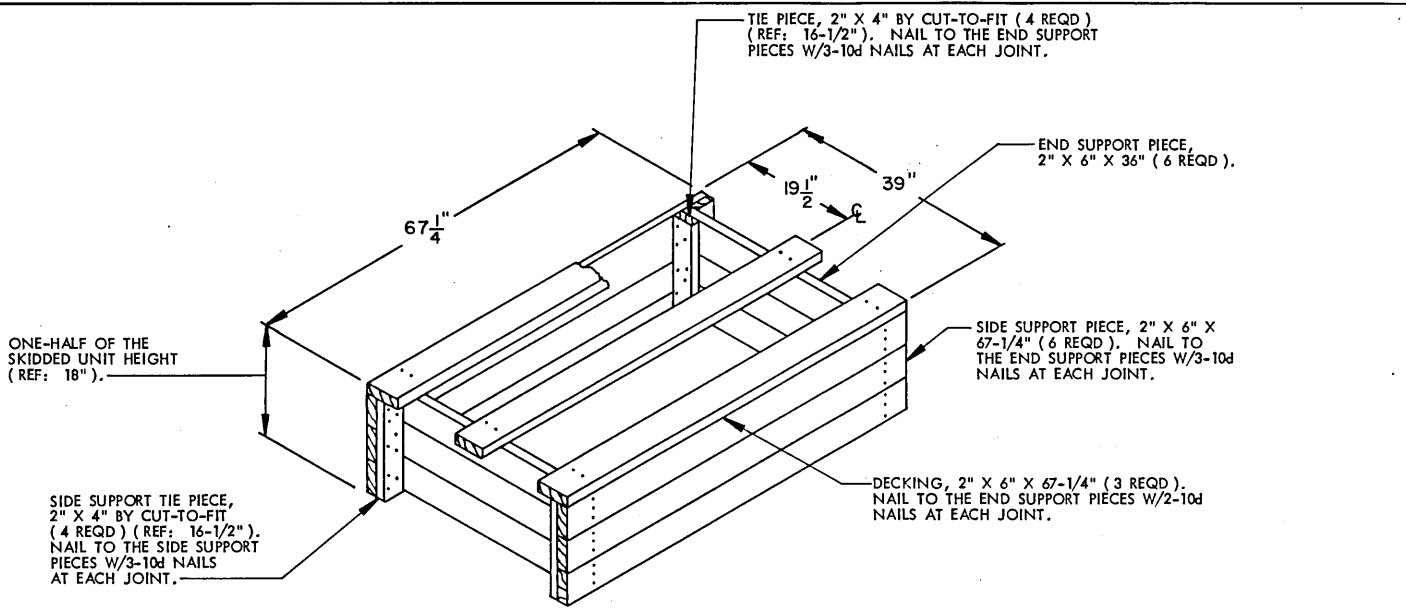
BEVEL CUT

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").



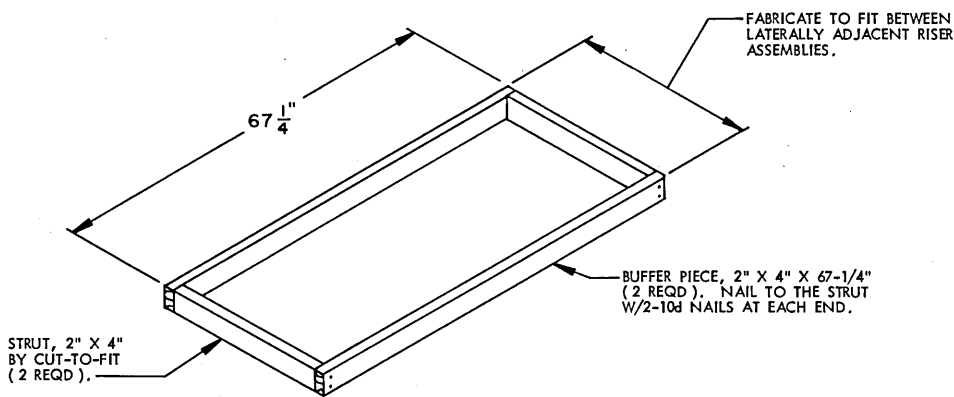
STRUT INSTALLATION

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



RISER ASSEMBLY B

FOR USE WITH UNITIZED WIREBOUND CONTAINERS.



RISER RETAINER ASSEMBLY A

FOR USE WITH UNITIZED WIREBOUND CONTAINERS.

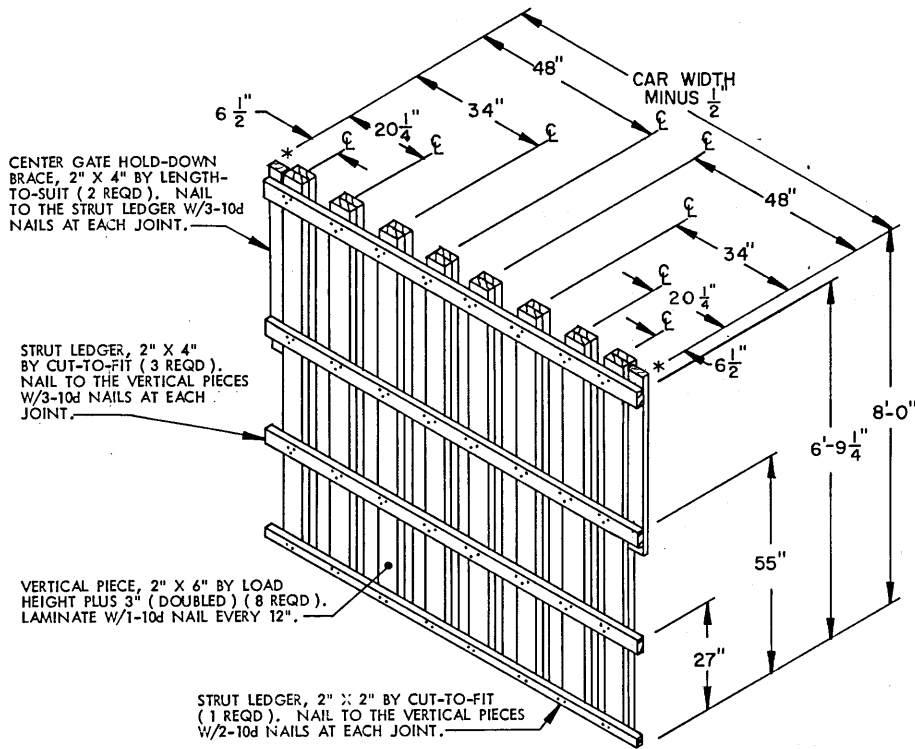
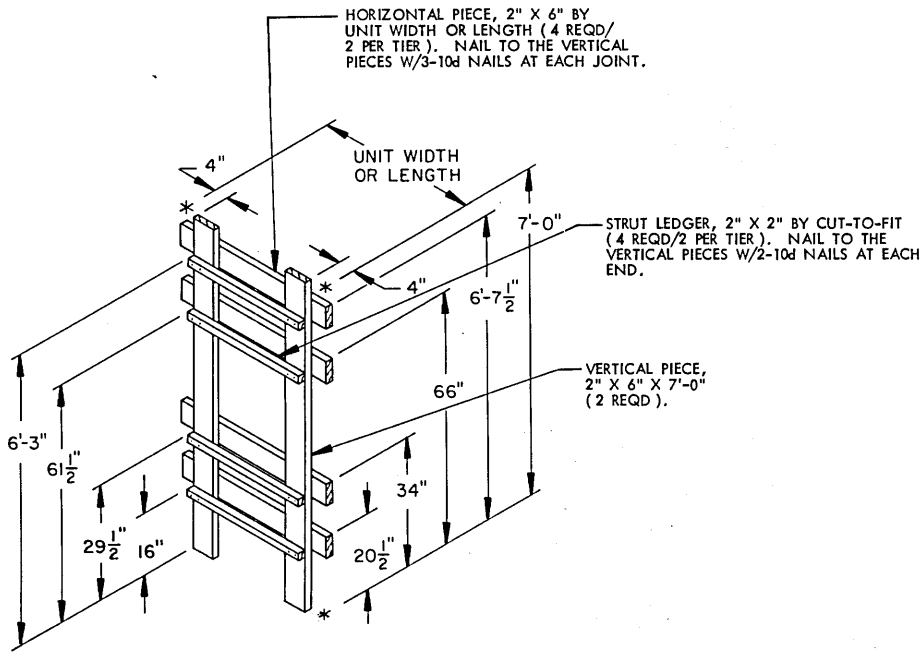


CHART E				
LAYERS OF CNTRS	HEIGHT OF STRUT LEDGER PIECES REQUIRED.			
	2	1-1/2"	18"	*
3	1-1/2"	27"	*	*
4	1-1/2"	27"	45"	*
5	1-1/2"	27"	55"	*
6	1-1/2"	27"	55"	78-1/8"
7	1-1/2"	27"	55"	81-1/4"

* HORIZONTAL PIECE NOT REQUIRED.

CENTER GATE ASSEMBLY F

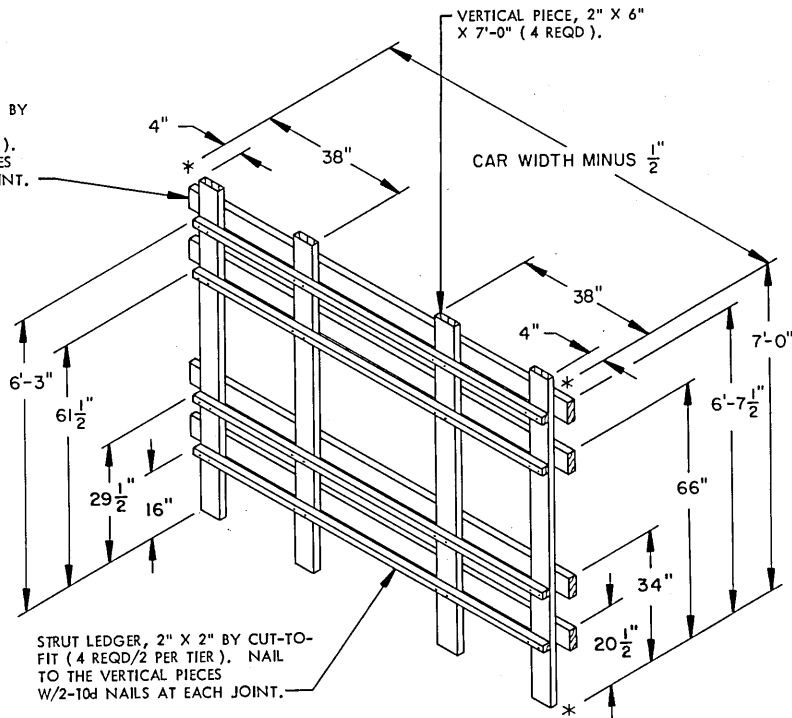
FOR USE WITH UNPALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN ABOVE IS FOR A SEVEN TIER LOAD. SEE "CHART E" ON THIS PAGE FOR STRUT LEDGER HEIGHTS FOR LOADS OF LESS THAN SEVEN CONTAINERS HIGH.



CENTER GATE ASSEMBLY G

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN ABOVE IS FOR A TWO TIER LOAD.

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

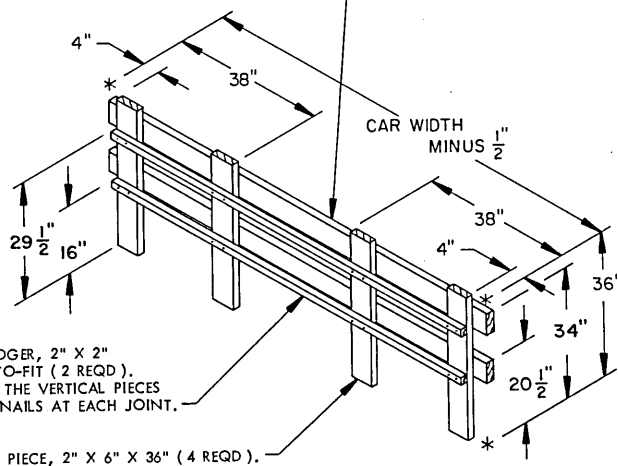


STRUT LEDGER, 2" X 2" BY CUT-TO-FIT (4 REQD/2 PER TIER). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

CENTER GATE ASSEMBLY H

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN ABOVE IS FOR A TWO TIER LOAD.

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

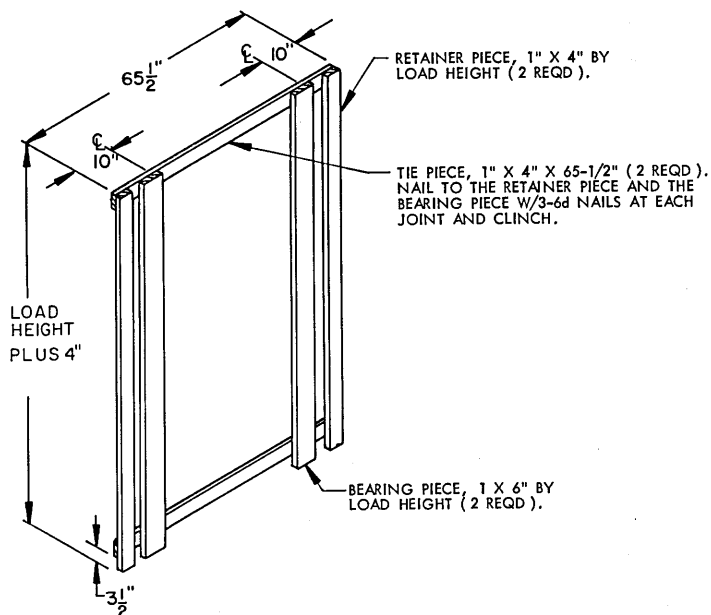


STRUT LEDGER, 2" X 2" BY CUT-TO-FIT (2 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 6" X 36" (4 REQD).

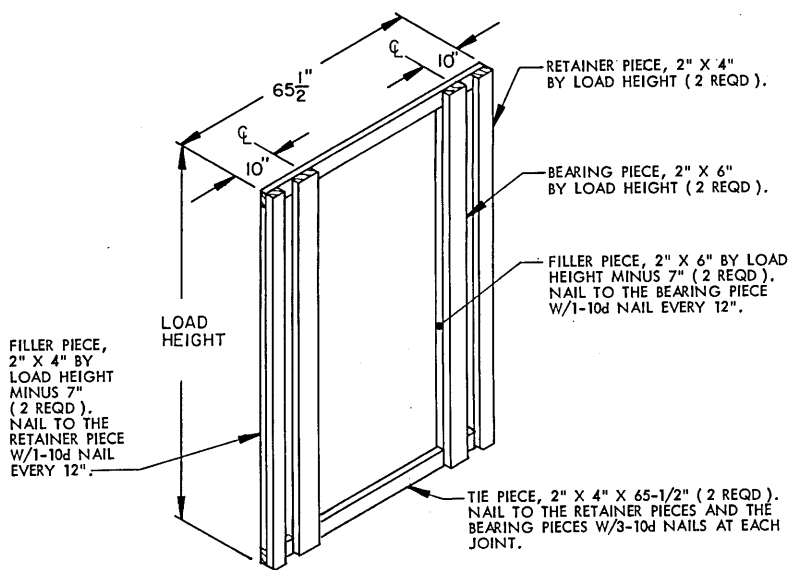
CENTER GATE ASSEMBLY J

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN ABOVE IS FOR A ONE TIER LOAD. NOTE: WHEN FABRICATING THIS GATE FOR USE IN THE SECOND LAYER (TIER) CHANGE THE HEIGHT OF THE HORIZONTAL PIECES FROM 20-1/2" TO 19" AND 34" TO 32-1/2". CHANGE THE HEIGHT OF THE STRUT LEDGERS FROM 16" TO 14-1/2" AND 29-1/2" TO 28".



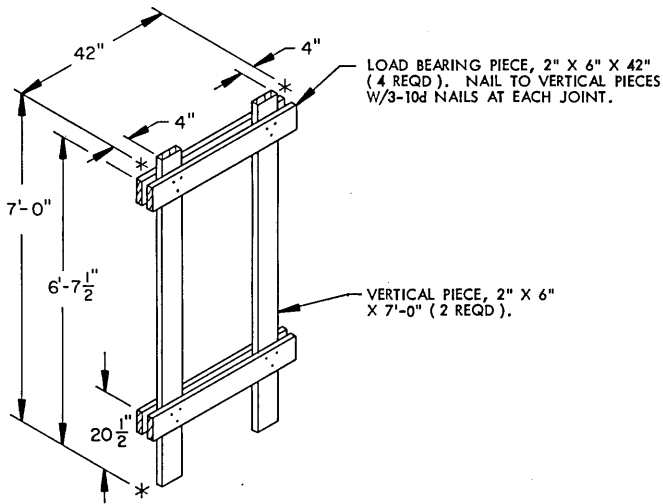
SPACER ASSEMBLY C

FOR USE WITH UNPALLETIZED ALUMINUM CONTAINERS. WHEN FABRICATING THIS ASSEMBLY, FIELD CHECK THE 3-1/2" DIMENSION ON THE BOTTOM TIE PIECE TO ASSURE IT FITS AS SHOWN IN "SECTION G-G" ON PAGE 36.



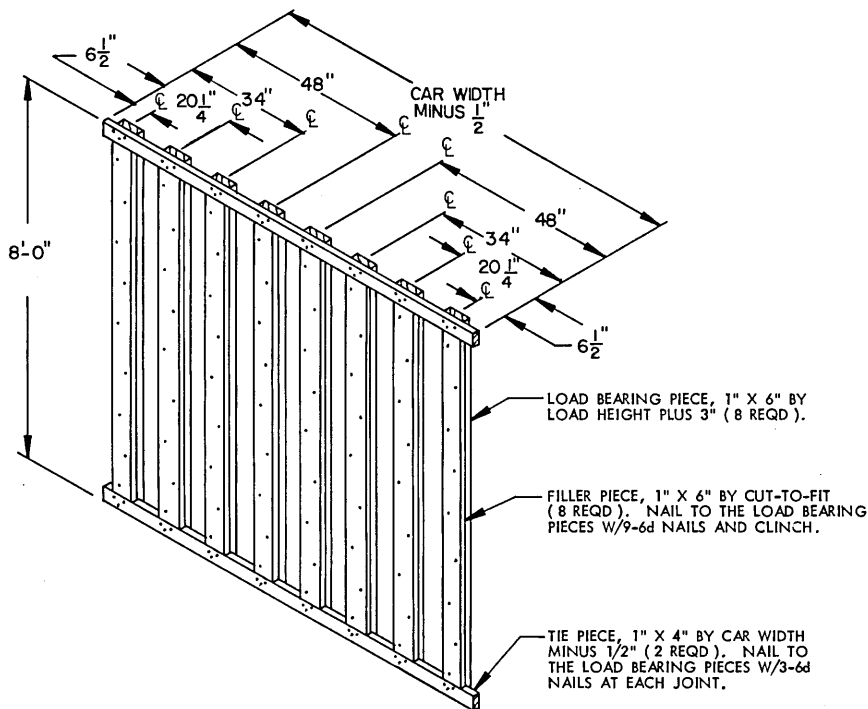
SPACER ASSEMBLY D

FOR USE WITH UNPALLETIZED ALUMINUM CONTAINERS.



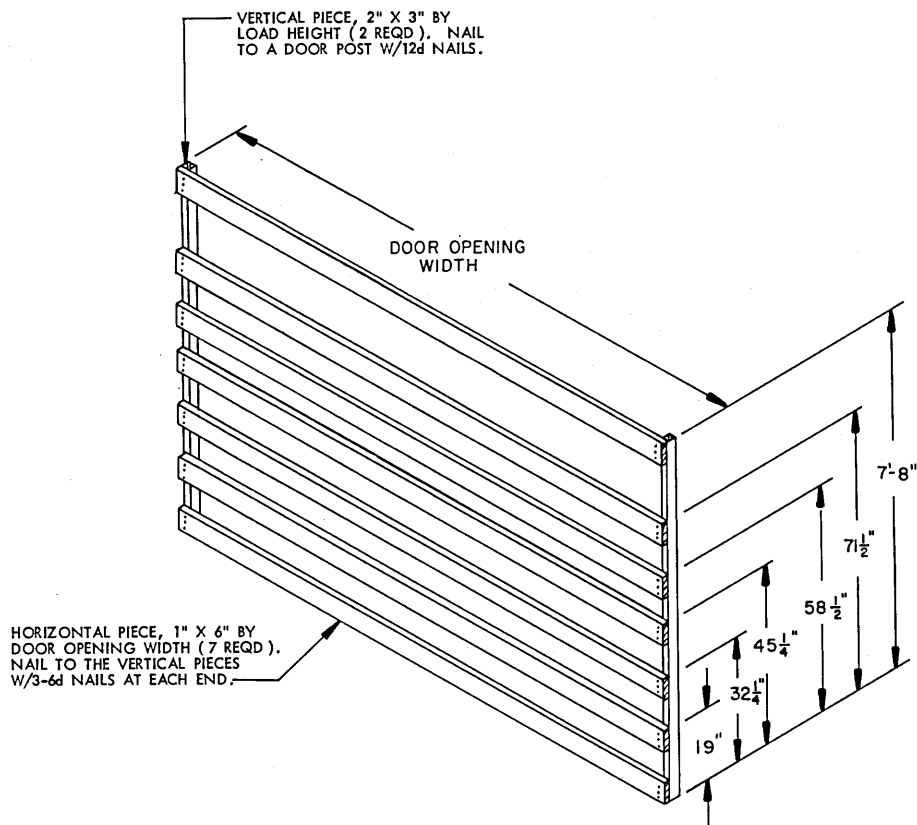
SPACER ASSEMBLY E

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. WHEN FABRICATING THIS ASSEMBLY, FIELD CHECK THE 20-1/2" AND 6'-7-1/2" DIMENSIONS FOR THE LOAD BEARING PIECES TO ASSURE THEY WILL BE IN LINE WITH THE HORIZONTAL DUNNAGE ON THE PALLETIZED UNIT.



SEPARATOR GATE ASSEMBLY A

FOR USE WITH UNPALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN ABOVE IS FOR A SEVEN TIER LOAD. FOR LOADS OF OTHER HEIGHTS, THE LOAD BEARING PIECES WILL BE 1" X 6" BY LOAD HEIGHT PLUS 3".

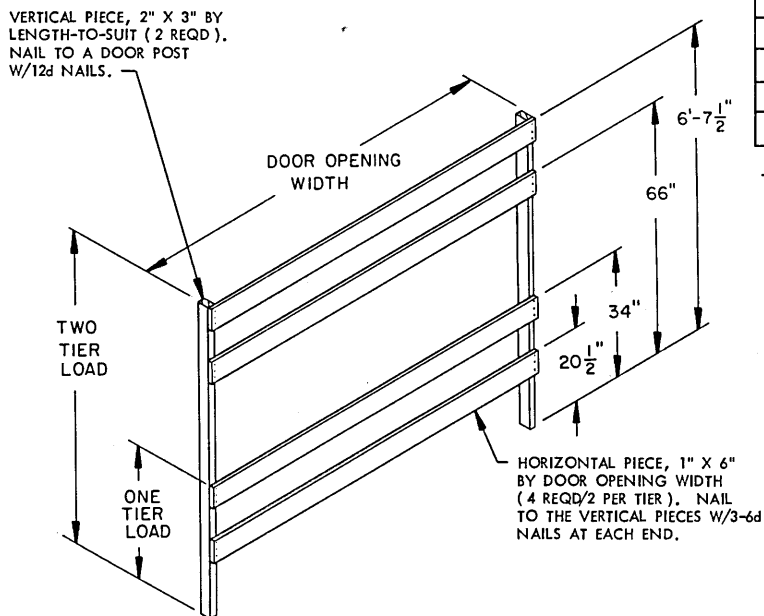


DOORWAY PROTECTION GATE C

FOR USE WITH UNPALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN ABOVE IS FOR A SEVEN TIER LOAD. SEE "CHART F" ON THIS PAGE FOR A LOAD OF LESS THAN SEVEN CONTAINERS HIGH. NOTE: IF THE DOOR POSTS ARE NOT NAILABLE, REFER TO THE "ALTERNATIVE DOORWAY PROTECTION" ON PAGE 71.

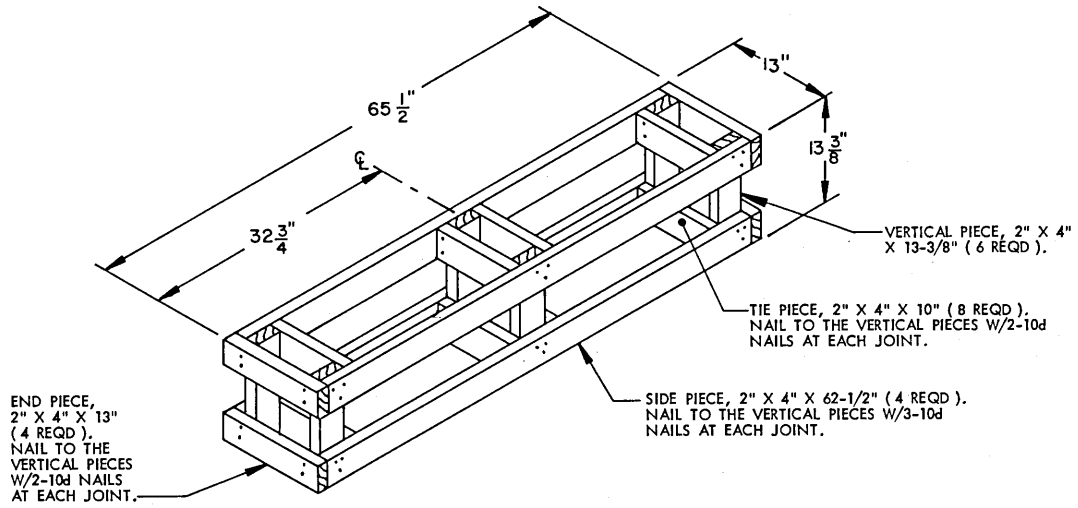
CHART F								
LAYERS OF CNTRS	HEIGHT OF HORIZONTAL PIECES REQUIRED							
	2	5-1/2"	26-1/2"	*	*	*	*	*
3	5-1/2"	19"	39-3/4"	*	*	*	*	*
4	5-1/2"	19"	32-1/4"	52-3/4"	*	*	*	*
5	5-1/2"	19"	32-1/4"	45-1/4"	66"	*	*	*
6	5-1/2"	19"	32-1/4"	45-1/4"	58-1/2"	79"	*	*
7	5-1/2"	19"	32-1/4"	45-1/4"	58-1/2"	71-1/2"	92"	*

* HORIZONTAL PIECE IS NOT REQUIRED.



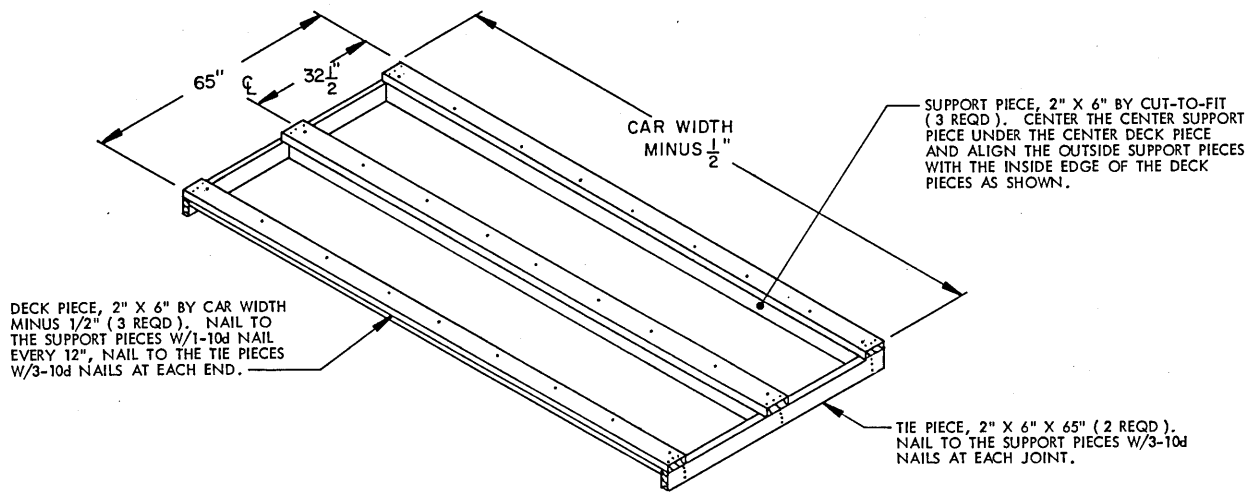
DOORWAY PROTECTION GATE D

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. THE GATE SHOWN IS FOR A TWO TIER LOAD. NOTE: IF THE DOOR POSTS ARE NOT NAILABLE, REFER TO THE "ALTERNATIVE DOORWAY PROTECTION" ON PAGE 71.



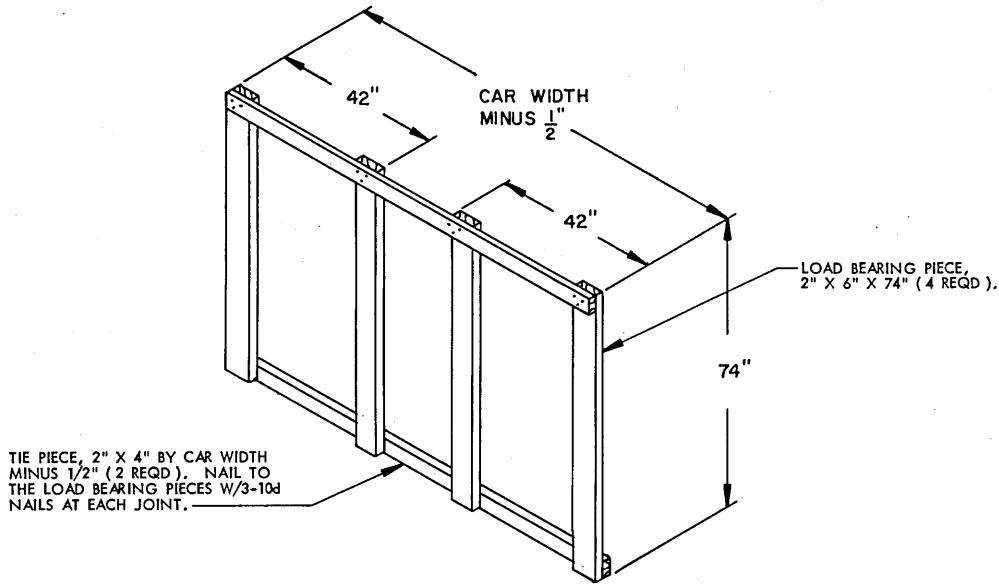
FILLER ASSEMBLY B

THE FILLER ASSEMBLY SHOWN ABOVE IS TO BE USED WITHIN LOADS TO TAKE THE PLACE OF AN OMITTED ALUMINUM CONTAINER. IT MUST BE USED IN THE TOP LAYER ONLY.



RISER ASSEMBLY C

FOR USE WITH UNPALLETIZED ALUMINUM CONTAINERS.

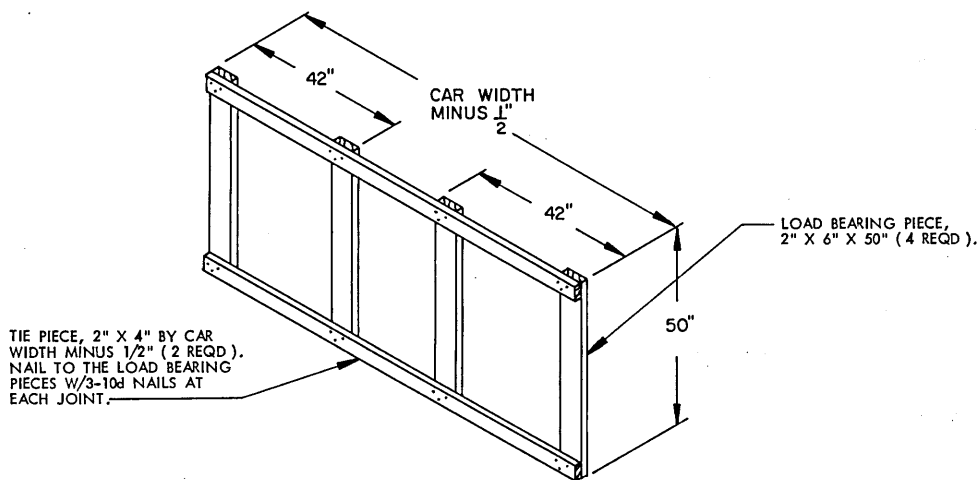


TIE PIECE, 2" X 4" BY CAR WIDTH MINUS 1/2" (2 REQD). NAIL TO THE LOAD BEARING PIECES W/3-10d NAILS AT EACH JOINT.

LOAD BEARING PIECE, 2" X 6" X 74" (4 REQD).

SUPPORT GATE A

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. THIS GATE IS ONLY TO BE USED WHEN "RISER ASSEMBLY D" IS USED WITHIN THE LOAD.

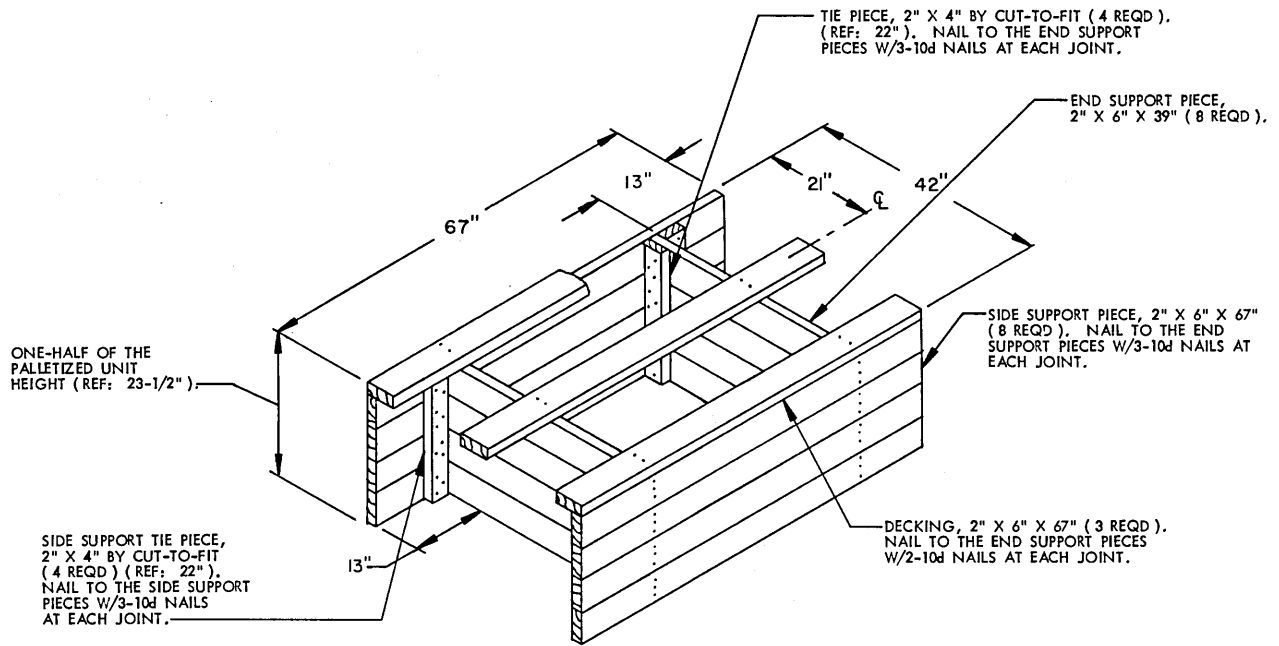


TIE PIECE, 2" X 4" BY CAR WIDTH MINUS 1/2" (2 REQD). NAIL TO THE LOAD BEARING PIECES W/3-10d NAILS AT EACH JOINT.

LOAD BEARING PIECE, 2" X 6" X 50" (4 REQD).

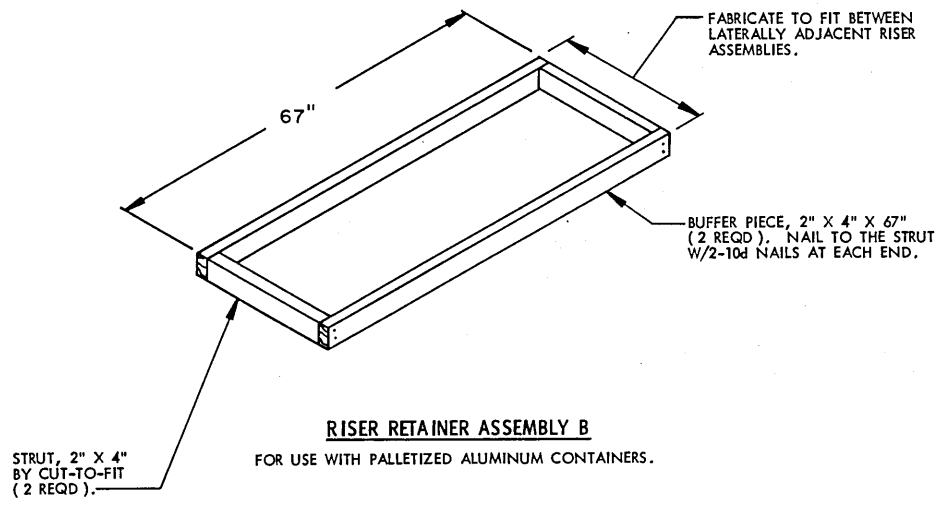
SUPPORT GATE B

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS. THIS GATE IS ONLY TO BE USED WHEN "RISER ASSEMBLY D" IS USED WITHIN THE LOAD.



RISER ASSEMBLY D

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS.

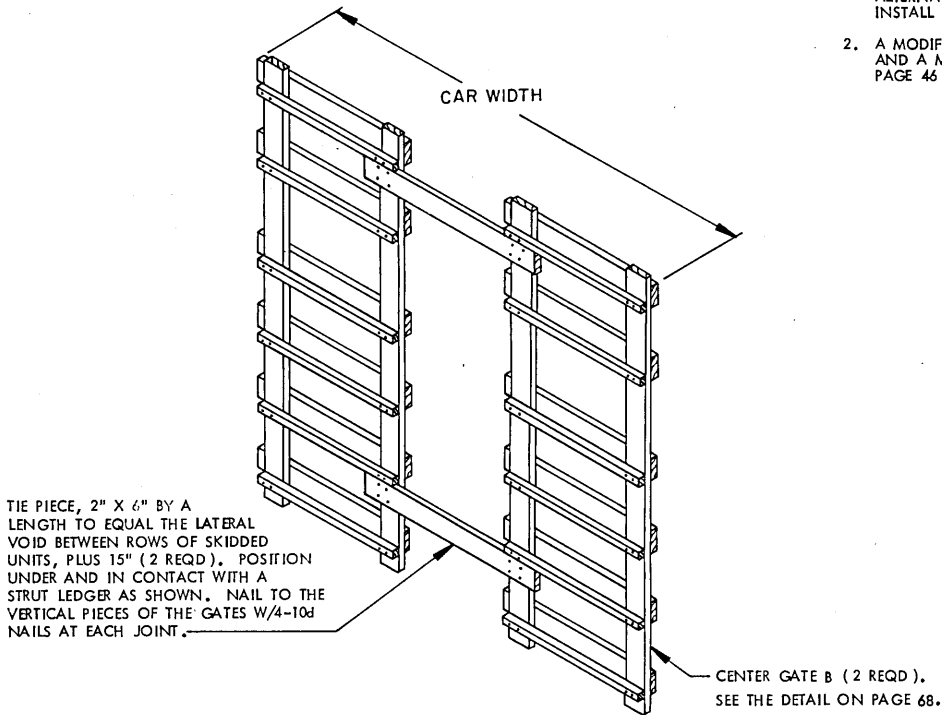


RISER RETAINER ASSEMBLY B

FOR USE WITH PALLETIZED ALUMINUM CONTAINERS.

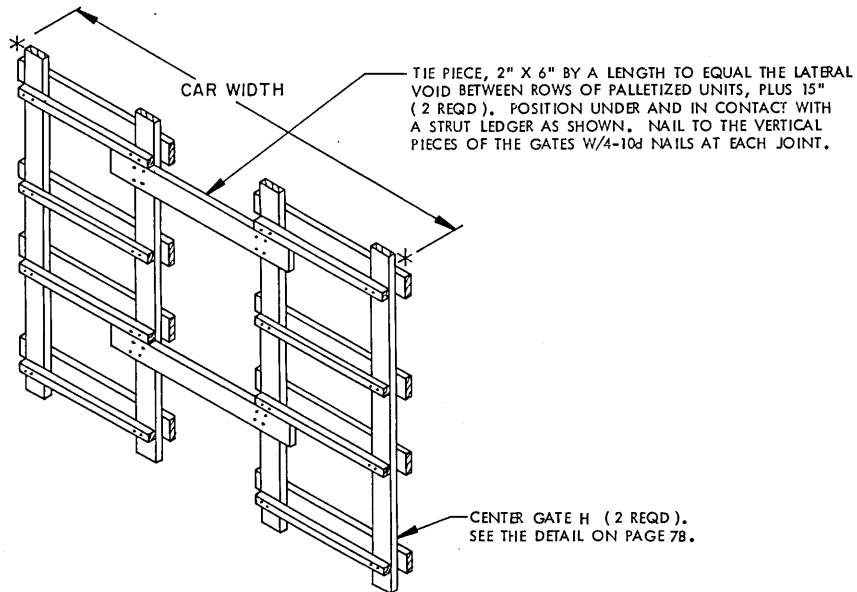
SPECIAL NOTES:

1. FOR EASE OF HANDLING, SPLIT CENTER GATES WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE. IN LIEU OF A FULL CAR WIDTH CENTER GATE, INSTALL TWO (2) SPLIT GATES.
2. A MODIFIED CENTER GATE B, SHOWN IN THE LOAD ON PAGE 18, AND A MODIFIED CENTER GATE H, SHOWN IN THE LOAD ON PAGE 46 HAVE BEEN SHOWN ON THIS PAGE AS TYPICAL.



TYPICAL TIE PIECE APPLICATION

THIS PROCEDURE IS APPLICABLE FOR USE WITH A CENTER GATE B, AS SHOWN ON PAGE 68. NOTE THAT THE TIE PIECES SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED.

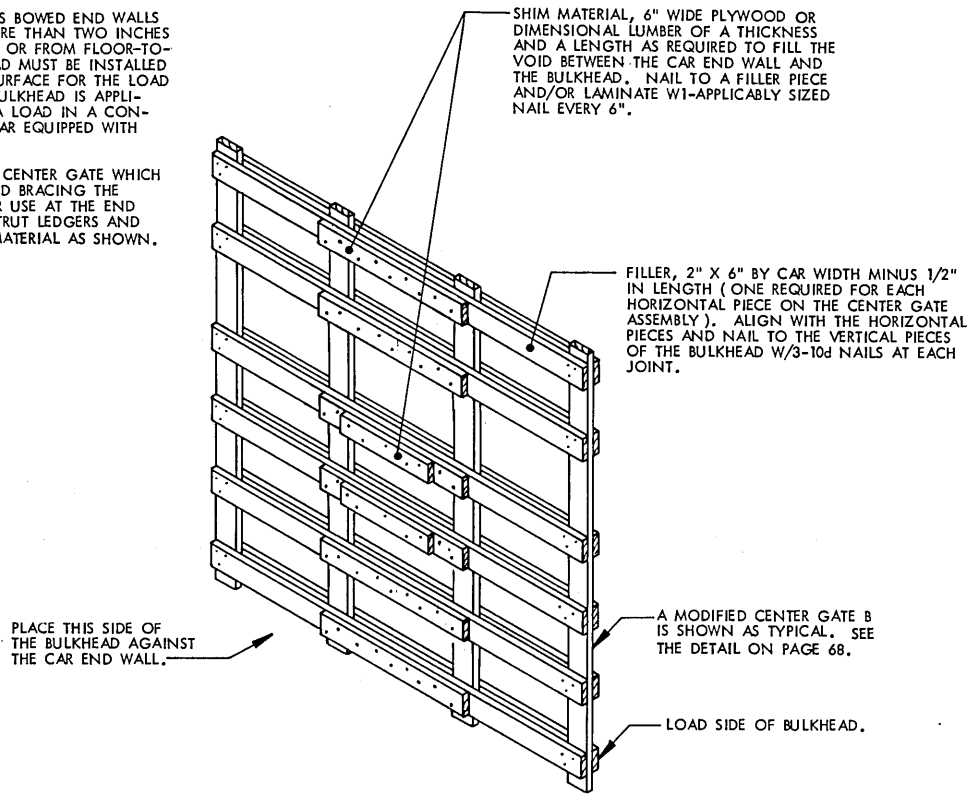


TYPICAL TIE PIECE APPLICATION

THIS PROCEDURE IS APPLICABLE FOR USE WITH A CENTER GATE H, AS SHOWN ON PAGE 78. NOTE THAT THE TIE PIECES SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED.

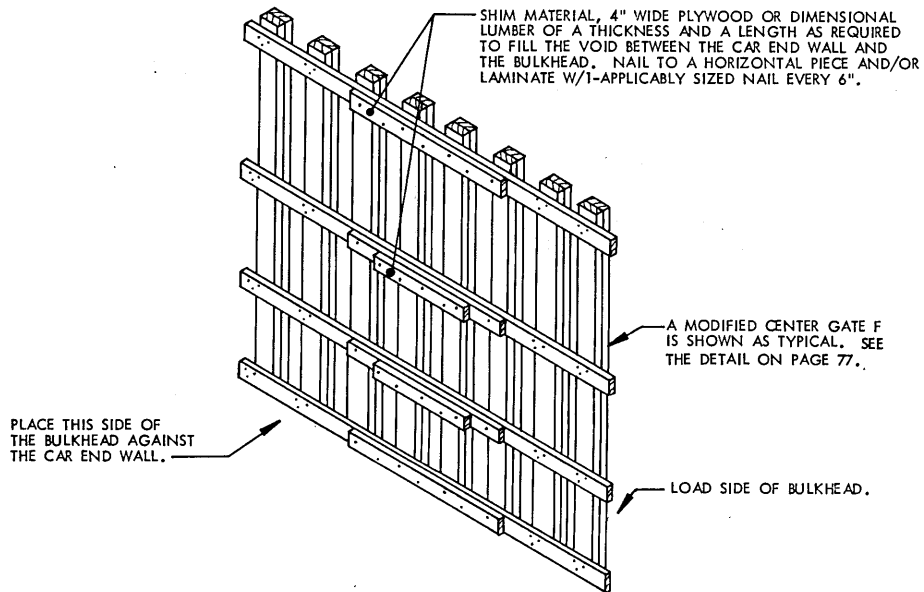
SPECIAL NOTES:

1. IF A BOX CAR TO BE LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD MORE THAN TWO INCHES (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. THE BULKHEAD IS APPLICABLE FOR USE AT THE END OF A LOAD IN A CONVENTIONAL BOX CAR OR IN A CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS.
2. THE BULKHEAD CONSISTS OF THE CENTER GATE WHICH WILL BE USED FOR BLOCKING AND BRACING THE COMPLETED LOAD, MODIFIED FOR USE AT THE END OF THE CAR BY OMITTING THE STRUT LEDGERS AND ADDING FILL PIECES AND SHIM MATERIAL AS SHOWN.



BULKHEAD A

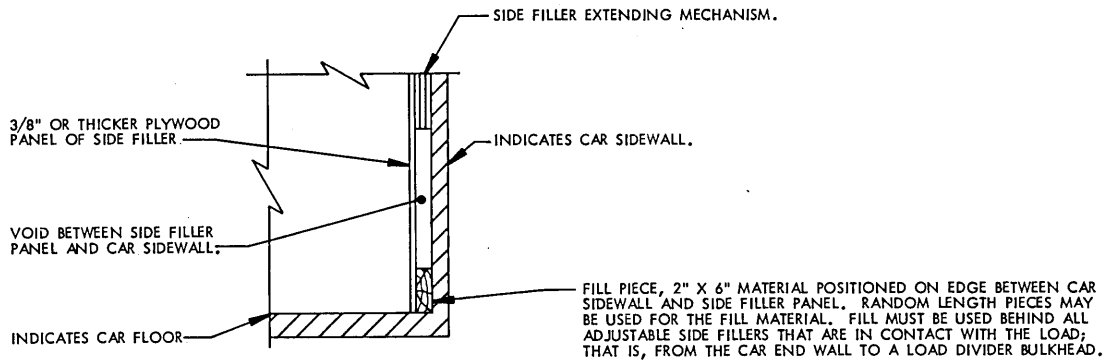
THIS BULKHEAD IS APPLICABLE FOR USE AT THE END OF A CAR. IT IS TYPICAL ONLY. A MODIFIED CENTER GATE B IS SHOWN. SEE THE LOAD ON PAGE 18 AND SPECIAL NOTE 2 ABOVE.



BULKHEAD B

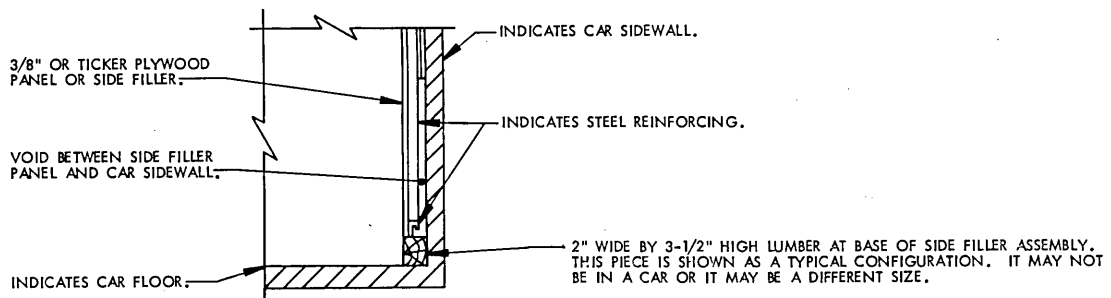
THIS BULKHEAD IS APPLICABLE FOR USE AT THE END OF A CAR. IT IS TYPICAL ONLY. A MODIFIED CENTER GATE F IS SHOWN. SEE THE LOAD ON PAGE 36 AND SPECIAL NOTE 2 ABOVE.

BOWED END WALL PROVISIONS



TYPICAL TYPE A

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



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.