


HELLFIRE

LOADING AND BRACING (CL & LCL) IN BOX CARS OF GUIDED MISSILE PACKED ONE PER METAL CONTAINER, UNPALLETIZED AND PALLETIZED (9 PER PALLET)

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 INCLUDES CONVENTIONAL TYPE BOX CARS AND CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

DO NOT SCALE

REVISIONS				DESIGNER	TYPIST	CHECKER	TECHNICIAN	ENGINEER
				<i>Bo</i>	<i>pt</i>		<i>RS</i>	
3	JAN 92	<i>RS</i> <i>WJF</i>	<i>Carl W Horner</i> <i>William J Ernst</i>	<i>RS</i>	<i>WJF</i>	<i>WJF</i>	<i>WJF</i>	
				APPROVED, U.S. ARMY MISSILE COMMAND				
				<i>Carl Horner</i>				
				APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND (AMC)				
				<i>William J Ernst</i>				
				U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL				
				JANUARY 1992				
				CLASS	DIVISION	DRAWING	FILE	
				19	48	5525	GM 5HF1	

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED WITHIN THIS DOCUMENT ARE APPLICABLE TO THE HELLFIRE GUIDED MISSILE PACKED EITHER ONE (1) PER UNSEALED OR SEALED SHIPPING AND STORAGE CONTAINER OR NINE (9) EACH PER PALLET UNIT. SUBSEQUENT REFERENCE TO MISSILE CONTAINER HEREIN MEANS THE CONTAINER WITH MISSILE COMPONENTS; SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS THE PALLET UNIT WITH NINE (9) MISSILE CONTAINERS.
- C. FOR DETAIL OF THE UNSEALED CONTAINER, SEE APN DRAWING 13012182 AND THE "UNSEALED CONTAINER UNIT" DETAIL ON PAGE 4.
- CONTAINER DIMENSIONS----76-1/4" LONG BY 15-1/2" WIDE BY 16-1/2" HIGH
GROSS WEIGHT-----175 POUNDS (APPROX)
CUBE-----11.3 CUBIC FEET
- FOR DETAIL OF THE SEALED CONTAINER, SEE APN DRAWING 13155079 AND THE "SEALED CONTAINER UNIT" DETAIL ON PAGE 4.
- CONTAINER DIMENSIONS----76" LONG BY 14-5/8" WIDE BY 16-1/2" HIGH.
GROSS WEIGHT-----185 POUNDS (APPROX)
CUBE-----10.6 CUBIC FEET
- FOR DETAIL OF THE STRETCHED CONTAINER, SEE APN DRAWING 13349856 AND THE "STRETCHED CONTAINER UNIT" DETAIL ON PAGE 4.
- CONTAINER DIMENSIONS----84" LONG BY 14-5/8" WIDE BY 16" HIGH.
GROSS WEIGHT-----203 POUNDS (APPROX)
CUBE-----11.4 CUBIC FEET
- D. FOR DETAIL OF THE PALLET UNITS, SEE US ARMY MATERIEL COMMAND DRAWING 19-48-5250-GM20HF1 AND THE "PALLET UNIT" DETAILS ON PAGE 5.
- UNSEALED PALLET UNIT DIMENSIONS----46-1/2" LONG BY 76-1/4" WIDE BY 53" HIGH.
GROSS WEIGHT-----1,669 POUNDS (APPROX)
CUBE-----108.7 CUBIC FEET
- SEALED PALLET UNIT DIMENSIONS----44-3/8" LONG BY 76" WIDE BY 53" HIGH.
GROSS WEIGHT-----1,749 POUNDS (APPROX)
CUBE-----103.4 CUBIC FEET
- STRETCHED PALLET UNIT DIMENSIONS----44-3/8" LONG BY 84" WIDE BY 53" HIGH.
GROSS WEIGHT-----1,921 POUNDS (APPROX)
CUBE-----114.3 CUBIC FEET
- E. THIS ITEM IS A DOT CLASS "A" EXPLOSIVE. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED GUIDED MISSILE, OR WHEN THEY ARE EMPTY.
- F. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE FOR CONVENTIONAL TYPE BOX CARS OF VARIOUS LENGTH AND WIDTH COMBINATIONS WITH WOOD OR NAILABLE METAL FLOORS AND EQUIPPED WITH CONVENTIONAL SLIDING AND/OR PLUG TYPE DOORS. ALL-METAL CARS WITH NAILABLE FLOORS CAN BE USED FOR THE FULL LOAD SHOWN ON PAGES 28 AND 29. PROCEDURES ARE ALSO INCLUDED FOR SHIPMENT IN CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH OR WITHOUT ADJUSTABLE SIDE FILLERS.
- G. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE VARIOUS WIDTH DOORS OF THE CONVENTIONAL SLIDING TYPE. THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE TO CARS WHICH ARE EQUIPPED WITH PLUG DOORS. THE "DOORWAY AREA" WITHIN A CAR IS DEFINED AS THE CARGO SPACE THAT IS ADJACENT TO A CONVENTIONAL TYPE AND/OR PLUG TYPE DOOR. THE LENGTH OF A "DOORWAY AREA" CAN BE AS MUCH AS 24 FEET IN SOME CARS THAT ARE EQUIPPED WITH STAGGERED DOORS. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN, EXCEPT TO A NAILING STRIP IF A DOOR IS SO EQUIPPED FOR SECURING SUCH ITEMS AS GATE HOLD DOWNS OR DOORWAY SPANNER DUNNAGE. 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 THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- H. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 14, 15, 16, 17, 18, 19, 38, 39, 40, AND 41 ARE FOR 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 TRANSOCO 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

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER-----SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS-----FED SPEC FF-N-105; COMMON.
- STRAPPING, STEEL-----ASTM D 3953; FLAT STRAPPING, TYPE 1 OR 2, HEAVY DUTY; COATED FINISH (ORGANIC), ZINC-COATED OR UNCOATED.
- WIRE-----FED SPEC QQ-W-461.
- SEAL, STRAP-----ASTM D 3953; CLASS H, FINISH A, B (GRADE 2), OR C, TYPE D, STYLE I, II, OR IV.
- STAPLE, STRAP-----COMMERCIAL GRADE.

(GENERAL NOTES CONTINUED)

- RAILWAY EQUIPMENT REGISTER" WILL BE RBL, XL, OR XLI.
1. 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 27 FOR GUIDANCE. IF THE BACKS OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 27, THE "FILL PIECE" MATERIAL IS NOT REQUIRED. NOTE: DUNNAGE MATERIALS MUST NOT BE NAILED TO SIDE FILLERS.
2. 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 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.
3. 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 SAVINGS IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF THE HELLFIRE MISSILE.
- J. 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 THE "BULKHEAD A" DETAIL ON PAGE 27 FOR GUIDANCE APPLICABLE TO UNPALLETIZED ITEMS OR TO THE "BULKHEAD B" DETAIL ON PAGE 37 FOR PALLETIZED ITEMS.
- K. 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.
- L. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN A CAR WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, 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.
- M. IN SOME INSTANCES CONTAINERS WILL ALREADY BE UNUNITIZED WHEN OFFERED FOR LOADING. THESE UNITS SHOULD BE INSPECTED AND, AS REQUIRED, LOOSE UNUNITIZING STEEL STRAPPING MUST BE REPLACED OR TIGHTENED.
- N. NOTICE: WHEN POSITIONING PALLETIZED 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 CONTAINERS 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.
- O. 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 FOR THE NAILING OF THE APPLICABLE DUNNAGE PIECES. IF THE NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED IN LIEU OF THOSE SPECIFIED IN THE KEY NUMBERS. SEE GENERAL NOTE "R" ON PAGE 3.
- P. 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".
- Q. 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 ON PAGE 3)

REVISIONS

REVISION NO. 1, DATED NOVEMBER 1982, CONSISTS OF:

1. ADDING PROCEDURES FOR SEALED TYPE CONTAINERS, ARMY PART NUMBER 13155079.
2. CHANGING BLOCKING PROCEDURES AS REQUIRED TO CONFORM TO CHANGED PALLET ON THE UNSEALED TYPE CONTAINERS.

REVISION NO. 2, DATED APRIL 1986, CONSISTS OF:

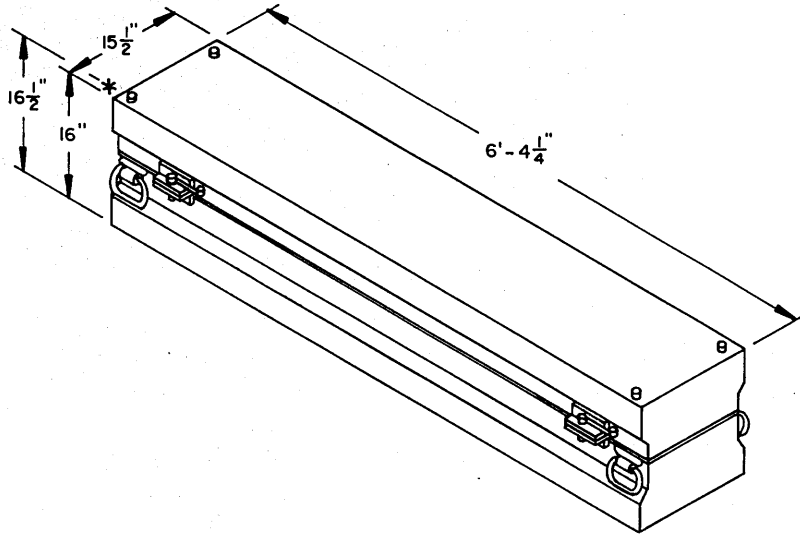
1. ADDING PROCEDURES FOR SEPARATOR GATES.

REVISION NO. 3, DATED JANUARY 1992, CONSISTS OF:

1. ADDING PROCEDURES FOR STRETCHED CONTAINER AND PALLET UNIT.
2. CHANGING MATERIAL SPECIFICATIONS FOR STEEL STRAPPING AND STRAP SEALS.
3. ADDING PROCEDURES FOR LINING OF METAL WALLED CARS.

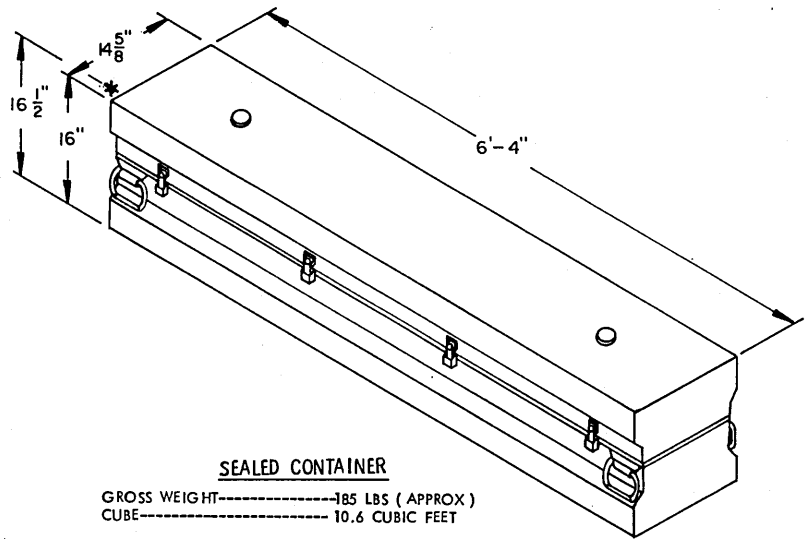
(GENERAL NOTES CONTINUED)

- R. 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 27 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.
- S. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF VERTICAL AND HORIZONTAL STRUT BRACING AS TYPICALLY SHOWN BY KEY NUMBERS ⑥ AND ⑦ ON PAGE 6. THESE PIECES ARE NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". 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 VERTICAL AND HORIZONTAL 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.
- T. WHEN 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. CAUTION: EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO LADING ITEMS.
- U. 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.
- V. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.
- W. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454KG.
- X. WHEN LOADING IN METAL LINED CARS, THE METAL END WALLS AND/OR SIDEWALLS MAY BE "LINED" TO PREVENT CHAFING OF THE CONTAINERS DURING TRANSIT, IF DESIRED. SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 26 FOR ASSEMBLIES TO BE USED AT THE SIDES OF A CAR FOR UNPALLETTIZED LOADS OF SEALED CONTAINERS AND STRETCHED CONTAINERS; USE "SPACER ASSEMBLY D" FOR UNPALLETTIZED LOADS OF UNSEALED CONTAINERS. FOR ALL LOADS OF PALLETTIZED CONTAINERS, USE "SPACER ASSEMBLY E" WHICH IS ALSO DETAILED ON PAGE 26. THE BULKHEADS, IF REQUIRED, THE SEPARATOR GATES, AND THE CENTER GATES MUST BE MODIFIED, AS SPECIFIED, WHEN USING THESE SPACER ASSEMBLIES.



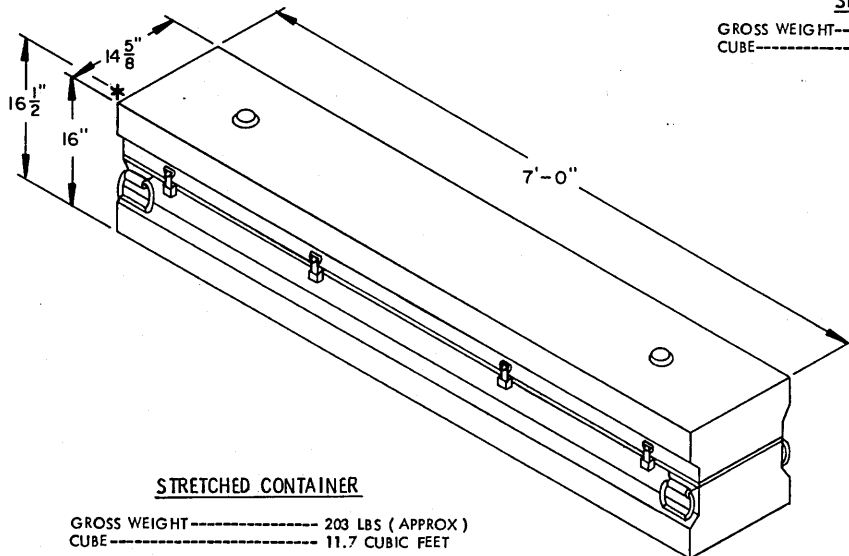
UNSEALED CONTAINER

GROSS WEIGHT ----- 175 LBS (APPROX)
 CUBE ----- 11.3 CUBIC FEET



SEALED CONTAINER

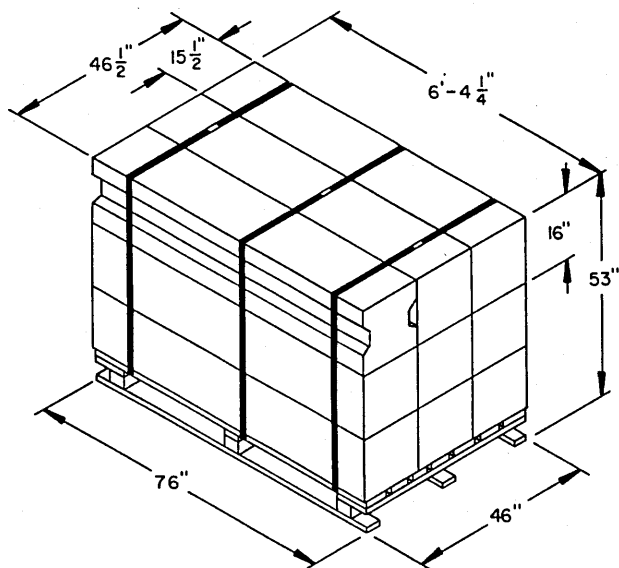
GROSS WEIGHT ----- 185 LBS (APPROX)
 CUBE ----- 10.6 CUBIC FEET



STRETCHED CONTAINER

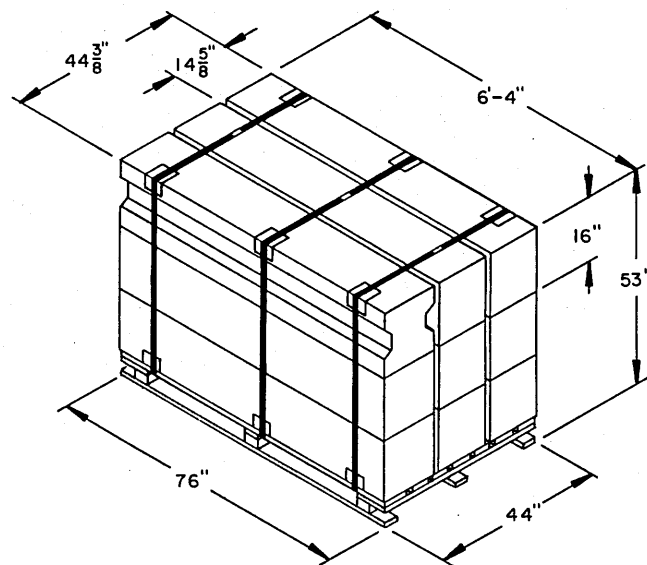
GROSS WEIGHT ----- 203 LBS (APPROX)
 CUBE ----- 11.7 CUBIC FEET

DETAILS OF CONTAINERS



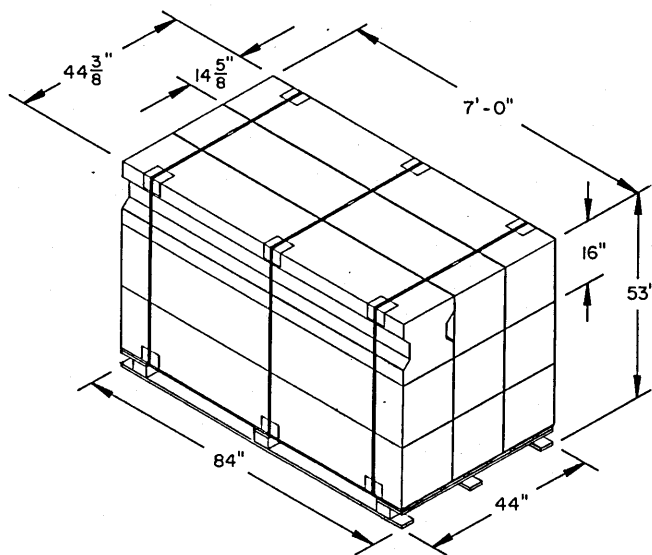
UNSEALED PALLET UNIT

GROSS WEIGHT----- 1,669 LBS (APPROX)
 CUBE ----- 108.7 CUBIC FEET



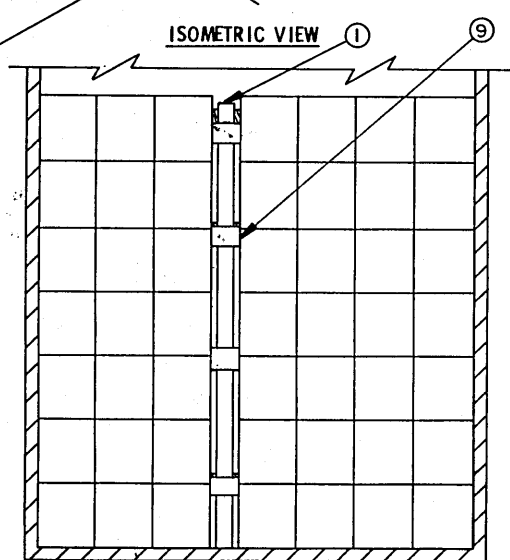
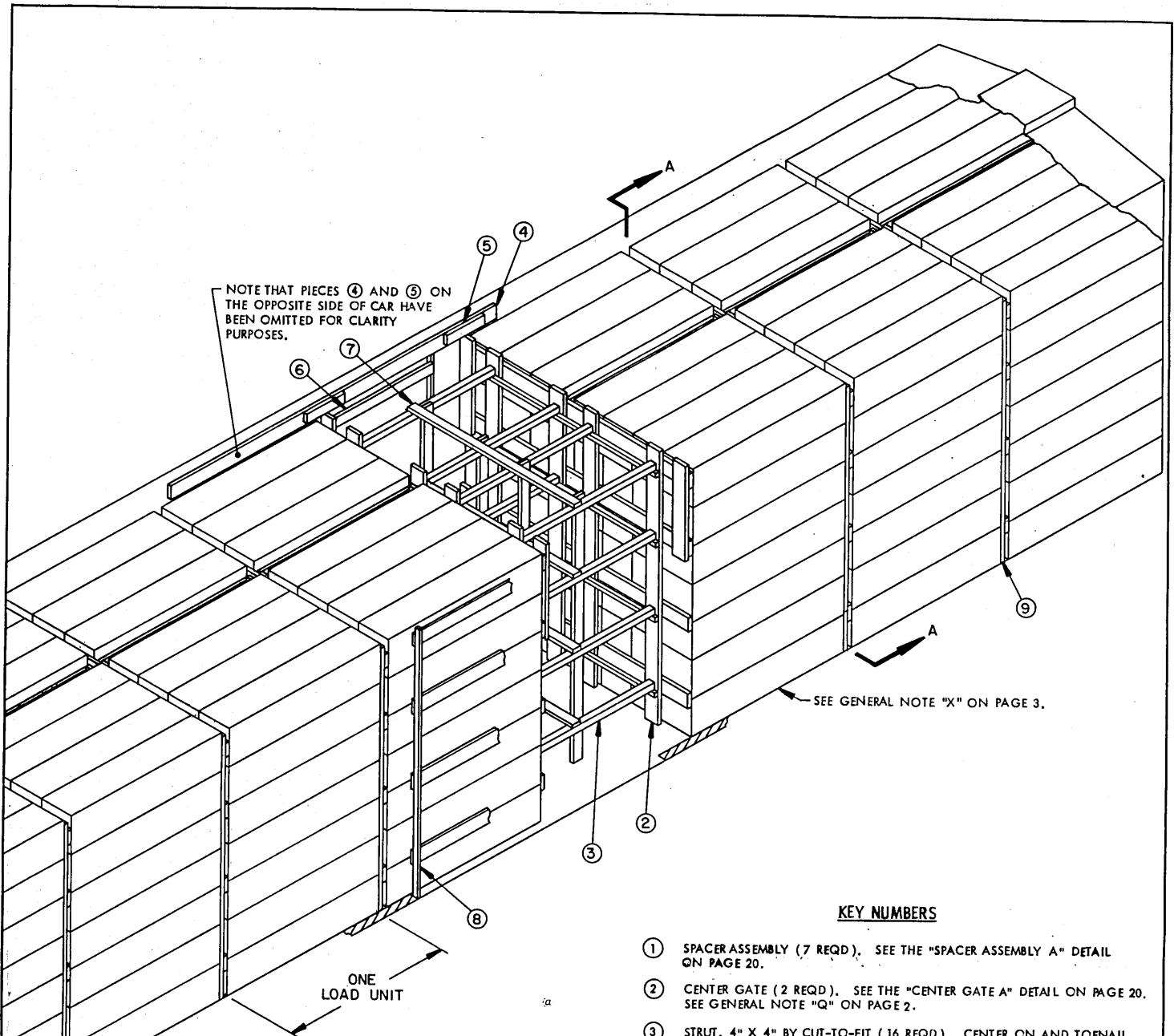
SEALED PALLET UNIT

GROSS WEIGHT----- 1,749 LBS (APPROX)
 CUBE ----- 103.4 CUBIC FEET



STRETCHED PALLET UNIT

GROSS WEIGHT----- 1,921 LBS (APPROX)
 CUBE ----- 114.3 CUBIC FEET



KEY NUMBERS

- ① SPACER ASSEMBLY (7 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 20.
- ② CENTER GATE (2 REQD). SEE THE "CENTER GATE A" DETAIL ON PAGE 20. SEE GENERAL NOTE "Q" ON PAGE 2.
- ③ STRUT, 4" X 4" BY CUT-TO-FIT (16 REQD). CENTER ON AND TOENAIL TO THE VERTICAL PIECES OF CENTER GATES MARKED ② W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "R" ON PAGE 3.
- ④ GATE HOLD DOWN, 2" X 6" BY DOORWAY OPENING WIDTH PLUS 36" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END.
- ⑤ GATE HOLD DOWN RETAINER BLOCK, 2" X 4" X 18" (4 REQD). POSITION TO CENTER ABOVE A CENTER GATE AND NAIL TO A GATE HOLD DOWN W/5-10d NAILS.
- ⑥ VERTICAL STRUT BRACING, 2" X 4" X 9'-6" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "S" ON PAGE 3.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 18" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑧ DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION GATE A" DETAIL ON PAGE 22. SEE SPECIAL NOTE 3 ON PAGE 7.
- ⑨ SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21.

SECTION A-A

343-UNIT LOAD (SEALED) (UNPALLETIZED) IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR

SPECIAL NOTES:

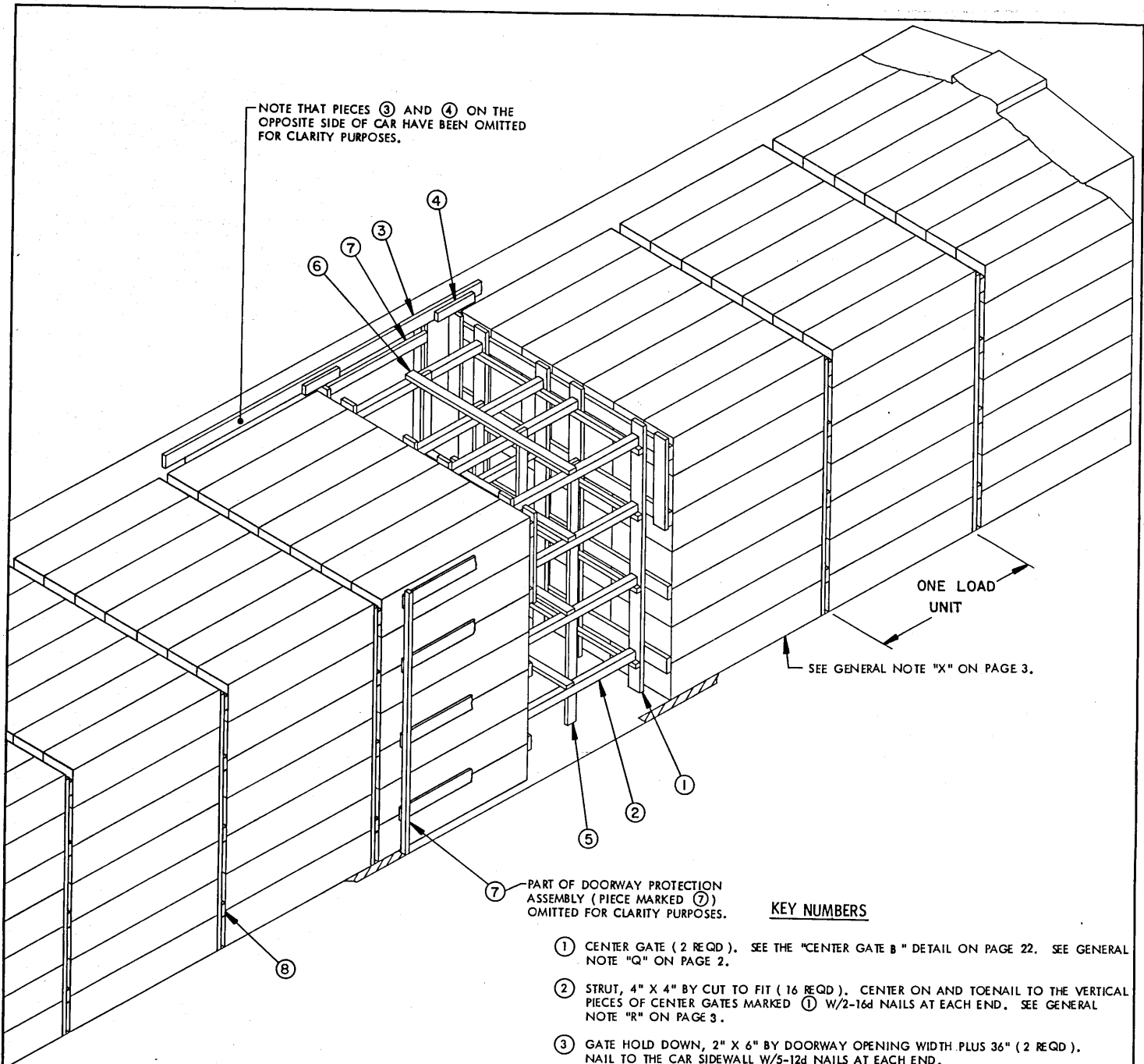
1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. OTHER LENGTH CARS CAN BE USED, HOWEVER, IF OTHER WIDTH CARS ARE USED THE SPACER ASSEMBLIES MAY BE OMITTED OR MODIFIED SUCH AS SHOWN BY "SPACER ASSEMBLY B" DETAILED ON PAGE 23.
2. IF THE BOX CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-FLOOR, 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 "BULKHEAD A" DETAIL ON PAGE 27 AND GENERAL NOTE "J" ON PAGE 2.
3. A CAR EQUIPPED WITH CONVENTIONAL SLIDING DOORS IS SHOWN. IF THE CAR BEING LOADED HAS PLUG TYPE DOORS, IT WILL BE NECESSARY TO USE PIECES MARKED ② AND ③ ON PAGE 10 IN LIEU OF THE DOORWAY PROTECTION GATE A, PIECE MARKED ⑤, ON PAGE 6.
4. TO SATISFY A LESS THAN FULL LOAD QUANTITY, ONE OR MORE CONTAINERS MAY BE OMITTED FROM THE TOP LAYER AND A "FILLER ASSEMBLY" AS DETAILED ON PAGE 24, USED IN THE PLACE OF EACH OMITTED CONTAINER. ALSO, THE LOAD MAY BE DECREASED BY MULTIPLES OF SEVEN (7) CONTAINERS BY USE OF ONE OR MORE "RISER ASSEMBLIES" AS SHOWN IN THE "RISER ASSEMBLY" DETAIL ON PAGE 23 AND AS TYPICALLY DEPICTED IN THE ISOMETRIC VIEW ON PAGE 12. ADDITIONALLY, QUANTITIES CAN BE ADJUSTED BY OMITTING ONE OR MORE ENTIRE LAYERS, OR BY OMITTING A LOAD UNIT. **CAUTION:** "FILLER ASSEMBLIES" OR "RISER ASSEMBLIES" MUST NOT BE LOCATED ADJACENT TO A CENTER GATE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	494	247
2" X 2"	57	19
2" X 3"	38	19
2" X 4"	297	198
2" X 6"	455	455
4" X 4"	80	107
NAILS	NO. REQD	POUNDS
6d (2")	348	2
10d (3")	608	9-1/2
12d (3-1/4")	20	1/2
16d (3-1/2")	64	1-1/2

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (SEALED)	----343-----	63,455 LBS
DUNNAGE	-----	2,104 LBS
TOTAL WEIGHT -----		65,559 LBS

NOTE THAT PIECES ③ AND ④ ON THE OPPOSITE SIDE OF CAR HAVE BEEN OMITTED FOR CLARITY PURPOSES.



ONE LOAD UNIT

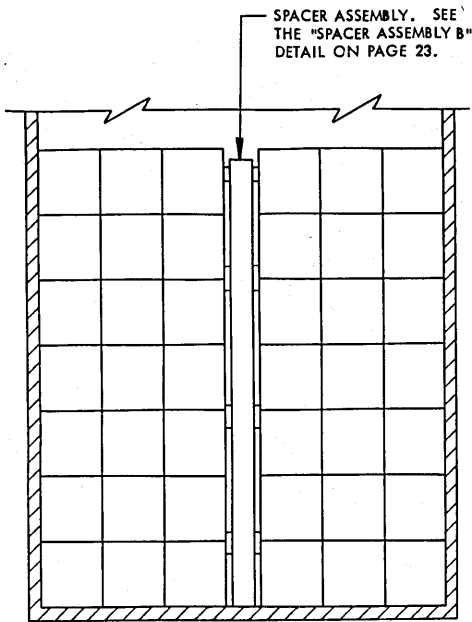
SEE GENERAL NOTE "X" ON PAGE 3.

⑦ PART OF DOORWAY PROTECTION ASSEMBLY (PIECE MARKED ⑦) OMITTED FOR CLARITY PURPOSES.

KEY NUMBERS

- ① CENTER GATE (2 REQD). SEE THE "CENTER GATE B" DETAIL ON PAGE 22. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② STRUT, 4" X 4" BY CUT TO FIT (16 REQD). CENTER ON AND TOENAIL TO THE VERTICAL PIECES OF CENTER GATES MARKED ① W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "R" ON PAGE 3.
- ③ GATE HOLD DOWN, 2" X 6" BY DOORWAY OPENING WIDTH PLUS 36" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END.
- ④ GATE HOLD DOWN RETAINER BLOCK, 2" X 4" X 18" (4 REQD). POSITION TO CENTER ABOVE A CENTER GATE AND NAIL TO A GATE HOLD DOWN W/5-10d NAILS.
- ⑤ VERTICAL STRUT BRACING, 2" X 4" X 9'-6" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "5" ON PAGE 3.
- ⑥ HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 18" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑦ DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION GATE A" DETAIL ON PAGE 22. SEE SPECIAL NOTE 3 ON PAGE 9.
- ⑧ SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21.

ISOMETRIC VIEW



TYPICAL SECTION

THE SECTION VIEW ABOVE DEPICTS THE REQUIRED USE OF "SPACER ASSEMBLIES" IN CARS LESS THAN 9'-1" WIDE. A SPACER ASSEMBLY WILL ALSO BE REQUIRED IN A 9'-6" WIDE CAR IN WHICH SEVEN (7) ROWS OF UNSEALED CONTAINERS CAN BE LOADED. SEE GENERAL NOTE "X" ON PAGE 3.

SPECIAL NOTES:

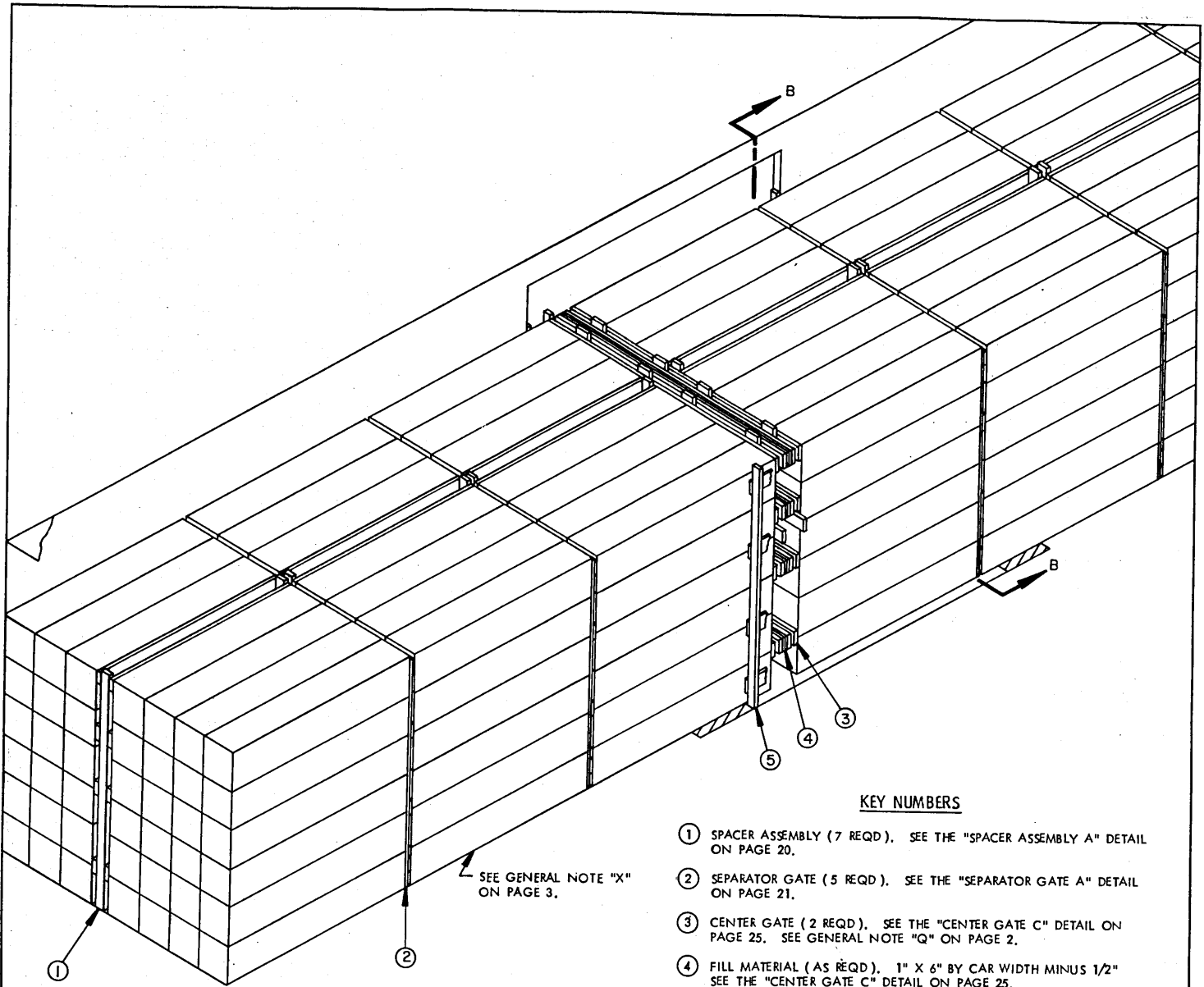
1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. OTHER LENGTH CARS AND CARS WHICH ARE WIDER OR NARROWER CAN BE USED. REFER TO THE "TYPICAL SECTION" AT LEFT FOR GUIDANCE IN THE LATERAL BRACING OF CONTAINERS IN OTHER WIDTH CARS.
2. IF THE BOX CAR 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 "BULKHEAD A" DETAIL ON PAGE 27 AND GENERAL NOTE "J" ON PAGE 2.
3. A CAR EQUIPPED WITH CONVENTIONAL SLIDING DOORS IS SHOWN. IF THE CAR BEING LOADED HAS PLUG TYPE DOORS, IT WILL BE NECESSARY TO USE PIECES MARKED ① AND ② ON PAGE 15 IN LIEU OF THE DOORWAY PROTECTION GATE A, PIECE MARKED ⑦, ON PAGE 8.
4. TO SATISFY A LESS THAN FULL LOAD QUANTITY, ONE OR MORE CONTAINERS MAY BE OMITTED FROM THE TOP LAYER AND A "FILLER ASSEMBLY" AS DETAILED ON PAGE 24, USED IN THE PLACE OF EACH OMITTED CONTAINER. ALSO THE LOAD MAY BE DECREASED BY MULTIPLES OF SEVEN (7) CONTAINERS BY USE OF ONE OR MORE "RISER ASSEMBLIES" AS SHOWN IN THE "RISER ASSEMBLY" DETAIL ON PAGE 23 AND AS TYPICALLY DEPICTED IN THE ISOMETRIC VIEW ON PAGE 12. ADDITIONALLY, QUANTITIES CAN BE ADJUSTED BY OMITTING ONE OR MORE ENTIRE LAYERS, OR BY OMITTING A LOAD UNIT. **CAUTION:** "FILLER ASSEMBLIES" OR "RISER ASSEMBLIES" MUST NOT BE LOCATED ADJACENT TO A CENTER GATE.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	494	247
2" X 2"	57	19
2" X 3"	38	19
2" X 4"	75	50
2" X 6"	191	191
4" X 4"	80	107
NAILS	NO. REQD	POUNDS
6d (2")	348	2
10d (3")	300	4-3/4
12d (3-1/4")	20	1/2
16d (3-1/2")	64	1-1/2

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (UNSEALED)	343	60,025 LBS
DUNNAGE		1,275 LBS
TOTAL WEIGHT		61,300 LBS

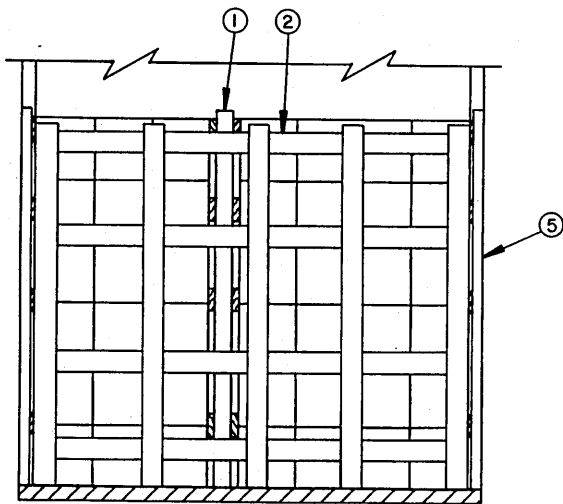


SEE GENERAL NOTE "X"
ON PAGE 3.

KEY NUMBERS

- ① SPACER ASSEMBLY (7 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 20.
- ② SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21.
- ③ CENTER GATE (2 REQD). SEE THE "CENTER GATE C" DETAIL ON PAGE 25. SEE GENERAL NOTE "Q" ON PAGE 2.
- ④ FILL MATERIAL (AS REQD). 1" X 6" BY CAR WIDTH MINUS 1/2" SEE THE "CENTER GATE C" DETAIL ON PAGE 25.
- ⑤ DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION GATE B" DETAIL ON PAGE 25. SEE SPECIAL NOTE 3 ON PAGE 11.

ISOMETRIC VIEW



SECTION B-B

SPECIAL NOTES:

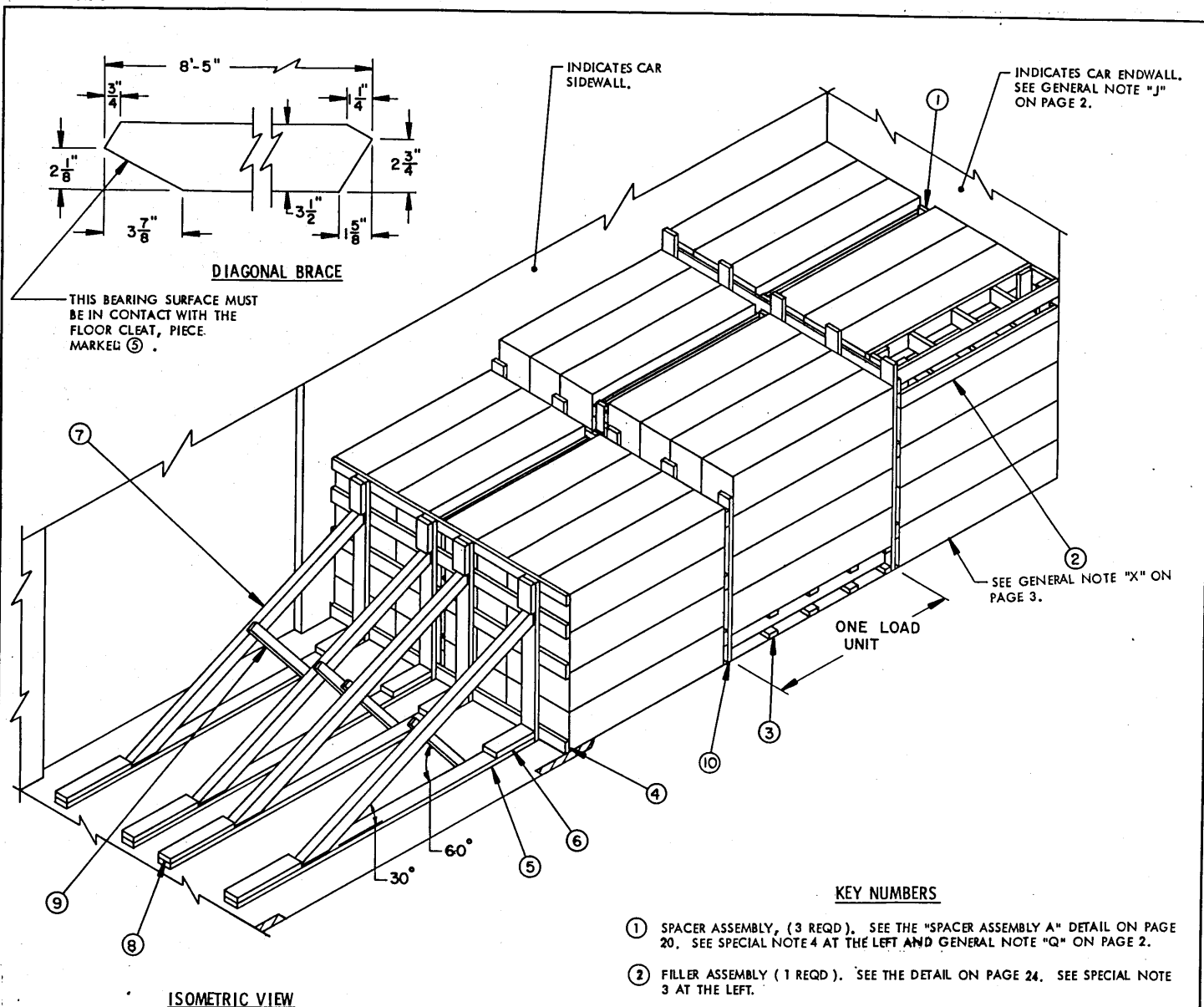
1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. OTHER LENGTH CARS CAN BE USED, HOWEVER, IF OTHER WIDTH CARS ARE USED, THE SPACER ASSEMBLIES MAY BE OMITTED OR MODIFIED SUCH AS SHOWN BY "SPACER ASSEMBLY B" DETAILED ON PAGE 23.
2. IF THE BOX CAR 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 "BULKHEAD A" DETAIL ON PAGE 27 AND GENERAL NOTE "J" ON PAGE 2.
3. A CAR EQUIPPED WITH CONVENTIONAL SLIDING DOORS IS SHOWN. IF THE CAR BEING LOADED HAS PLUG TYPE DOORS, IT WILL BE NECESSARY TO USE PIECES MARKED ② AND ③ ON PAGE 16 IN LIEU OF THE DOORWAY PROTECTION GATE B, PIECE MARKED ⑤, ON PAGE 10.
4. TO SATISFY A LESS THAN FULL LOAD QUANTITY, ONE OR MORE CONTAINERS MAY BE OMITTED FROM THE TOP LAYER AND A "FILLER ASSEMBLY" AS DETAILED ON PAGE 24, USED IN THE PLACE OF EACH OMITTED CONTAINER. ALSO, THE LOAD MAY BE DECREASED BY MULTIPLES OF SEVEN (7) CONTAINERS BY USE OF ONE OR MORE "RISER ASSEMBLIES" AS SHOWN IN THE "RISER ASSEMBLY" DETAIL ON PAGE 23 AND AS TYPICALLY DEPICTED IN THE ISOMETRIC VIEW ON PAGE 12. ADDITIONALLY, QUANTITIES CAN BE ADJUSTED BY OMITTING ONE OR MORE ENTIRE LAYERS, OR BY OMITTING A LOAD UNIT. **CAUTION:** "FILLER ASSEMBLIES" OR "RISER ASSEMBLIES" MUST BE LOCATED ADJACENT TO A CENTER GATE.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	535	268
2" X 3"	49	25
2" X 4"	234	156
2" X 6"	525	525
NAILS	NO. REQD	POUNDS
6d (2")	484	3
10d (3")	548	8-1/2
12d (3-1/4")	20	1/2

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (STRETCHED)	294	59,682 LBS
DUNNAGE		1,511 LBS
TOTAL WEIGHT		61,193 LBS (APPROX)



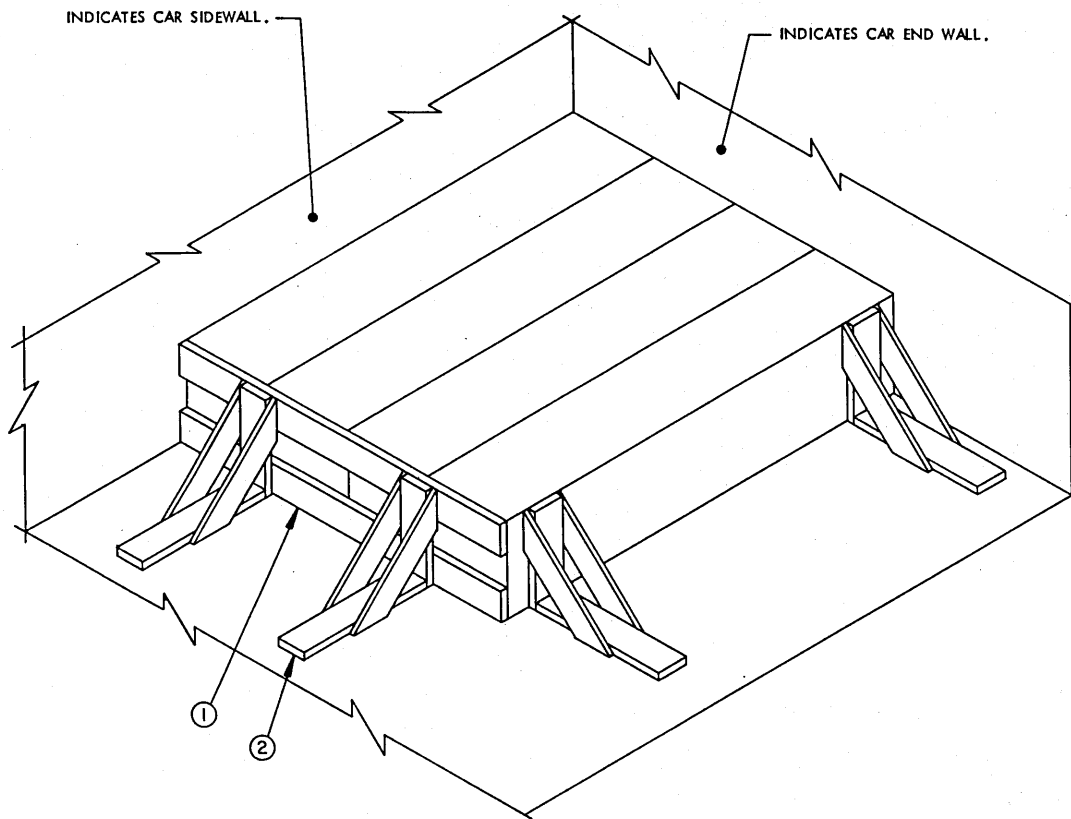
ISOMETRIC VIEW

KEY NUMBERS

- ① SPACER ASSEMBLY, (3 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 20. SEE SPECIAL NOTE 4 AT THE LEFT AND GENERAL NOTE "Q" ON PAGE 2.
- ② FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 24. SEE SPECIAL NOTE 3 AT THE LEFT.
- ③ RISER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 23. SEE SPECIAL NOTE 3 AT THE LEFT.
- ④ LCL GATE (1 REQD). SEE THE "LCL GATE A" DETAIL ON PAGE 21.
- ⑤ FLOOR CLEAT, 2" X 6" X 11'-6" (4 REQD). NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "O" ON PAGE 2.
- ⑥ SUPPORT PIECE, 2" X 6" X 18" (4 REQD). NAIL TO PIECE MARKED ③ W/4-40d NAILS AND TOENAIL TO THE VERTICAL PIECE OF LCL GATE MARKED ④ W/2-12d NAILS.
- ⑦ DIAGONAL BRACE, 4" X 4" X 8'-5" (4 REQD). SEE THE DETAIL ABOVE. TOENAIL TO PIECES MARKED ④ AND ⑤ W/2-16d NAILS AT EACH END.
- 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" X 32" (4 REQD). BEVEL THE BOTTOM END WITH A 60° CUT. CENTER ON THE DIAGONAL BRACE AND NAIL TO PIECES MARKED ③ AND ⑦ W/2-12d NAILS AT EACH LOCATION.
- ⑩ SEPARATOR GATE (2 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 5 AT LEFT.

SPECIAL NOTES:

1. THE PROCEDURES SHOWN ARE FOR A 9'-2" WIDE BOX CAR AND DEPICT THE USE OF "KNEE BRACE" TYPE BLOCKING. SEE THE "TYPICAL SECTION" ON PAGE 9 FOR LATERAL BRACING OF CONTAINERS IN OTHER WIDTH CARS. FOUR KNEE BRACE ASSEMBLIES AS SHOWN ARE ADEQUATE FOR RETAINING NOT MORE THAN 15,000 POUNDS. HOWEVER, THE MAXIMUM STACK HEIGHT ADJACENT TO AN LCL GATE IS LIMITED TO NOT MORE THAN FOUR (4) CONTAINERS HIGH.
2. THE USE OF THE "RISER ASSEMBLY" AND "FILLER ASSEMBLY" ARE SPECIFIED FOR THE DEPICTED LOAD ONLY TO SHOW A TYPICAL APPLICATION. "RISER ASSEMBLIES" AND "FILLER ASSEMBLIES" MAY BE USED IN THE LOAD AS REQUIRED TO ADJUST THE LOADING PATTERN FOR THE NUMBER OF CONTAINERS TO BE SHIPPED.
3. "RISER ASSEMBLIES" AND "FILLER ASSEMBLIES" MUST NOT BE USED IN THE LOAD UNIT WHICH IS ADJACENT TO AN LCL GATE. ALSO, "FILLER ASSEMBLIES" MUST BE USED IN THE TOP LAYER ONLY.
4. THE PROCEDURES SHOWN ABOVE DEPICT A "SEALED AND/OR STRETCHED" CONTAINER BOTH OF WHICH ARE 14-5/8" WIDE. THE SAME PROCEDURES WILL BE USED FOR SHIPMENT OF THE "UNSEALED" CONTAINER, WHICH IS 15-1/2" WIDE, EXCEPT THAT THE "SPACER ASSEMBLIES", PIECES MARKED ①, WILL BE ELIMINATED.
5. IN THE DEPICTED LOAD, THE SEPARATOR GATE BETWEEN THE FIRST LOAD UNIT (NEAREST THE END WALL) AND THE MIDDLE LOAD UNIT WILL BE CONSTRUCTED AS SHOWN ON PAGE 21, USING CHART "C" FOR 5 LAYERS OF CONTAINERS. THE SEPARATOR GATE BETWEEN THE SECOND AND THIRD LOAD UNITS MUST BE CONSTRUCTED SUCH THAT THE VERTICAL PIECES ARE ON THE OPPOSITE SIDE OF THE HORIZONTAL PIECES AS SHOWN ON PAGE 21. CHART "C" FOR 4 LAYERS OF CONTAINERS WILL BE USED FOR THE SECOND SEPARATOR GATE.



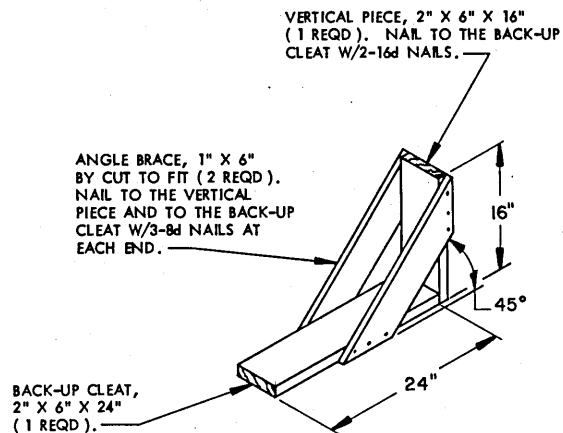
ISOMETRIC VIEW

KEY NUMBERS

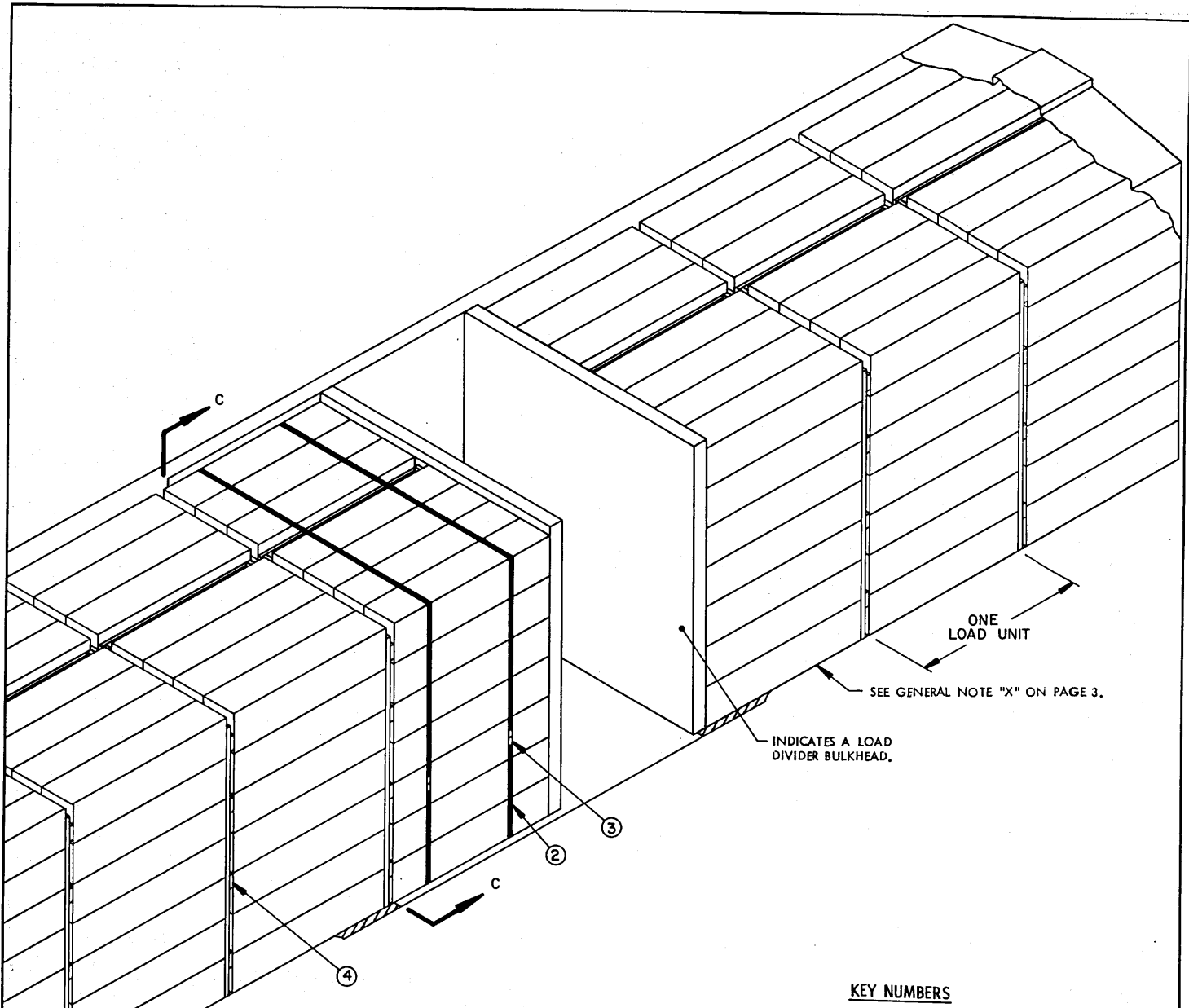
- ① HORIZONTAL PIECE, 2" X 6" X 58" (2 REQD). SEE SPECIAL NOTE 6.
- ② LCL BRACE (4 REQD). SEE THE DETAIL BELOW. NAIL TO THE CAR FLOOR W/7-16d NAILS AND NAIL TO PIECES MARKED ① W/2-10d NAILS AT EACH JOINT, AS APPLICABLE. SEE GENERAL NOTES "O" AND "Q" ON PAGE 2.. SEE SPECIAL NOTE 4 AT THE LEFT.

SPECIAL NOTES:

1. THE PROCEDURES SHOWN ON THIS PAGE DEPICT SEALED AND/OR STRETCHED CONTAINERS.
2. CONTAINERS MUST NOT BE STACKED IF THESE BLOCKING PROCEDURES ARE USED.
3. IF DESIRED, LCL BRACES AND HORIZONTAL PIECES MAY BE INSTALLED AT EACH END OF THE LOAD.
4. EACH BRACE AS APPLIED FOR LONGITUDINAL OR LATERAL BRACING WILL SUPPORT 2,000 OR 8,000 POUNDS OF LADING, RESPECTIVELY. A BRACE MUST BE USED FOR EACH 32" INCREMENT OF LATERAL LOAD DIMENSION (ENDS OF CONTAINERS). A MINIMUM OF TWO (2) BRACES MUST BE USED AGAINST THE SIDE OF A CONTAINER.
5. FOUR (4) CONTAINERS ARE SHOWN AS A TYPICAL LOAD QUANTITY. THE NUMBER OF CONTAINERS MAY BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED.
6. THE PROCEDURES SHOWN MAY ALSO BE USED FOR SHIPMENT OF UNSEALED CONTAINERS, HOWEVER, FOR A 4-UNIT LOAD, PIECE MARKED ① WILL BE INCREASED TO 62" IN LENGTH.



LCL BRACE



ONE
LOAD UNIT

SEE GENERAL NOTE "X" ON PAGE 3.

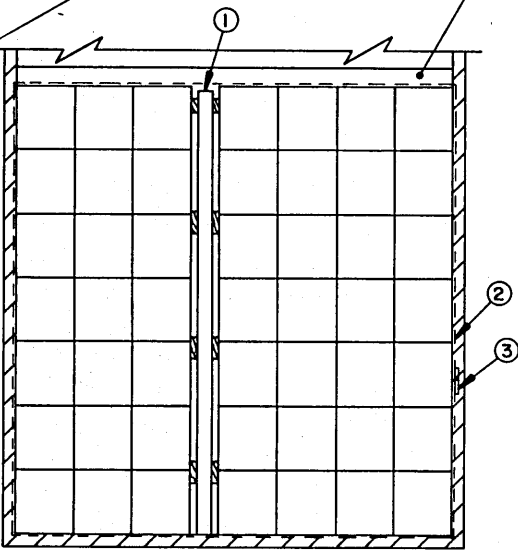
INDICATES A LOAD
DIVIDER BULKHEAD.

ISOMETRIC VIEW

INDICATES A LOAD
DIVIDER BULKHEAD.

KEY NUMBERS

- ① SPACER ASSEMBLY (7 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 20. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② DOORWAY PROTECTION BUNDLING STRAP, 1-1/4" X .035" OR .031" X 40'-0" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO ENCIRCLE THE LOAD UNIT LOCATED IN THE DOORWAY AREA. SEE SPECIAL NOTE 3 ON PAGE 15.
- ③ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "T" ON PAGE 3.
- ④ SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21



SECTION C-C

SPECIAL NOTES:

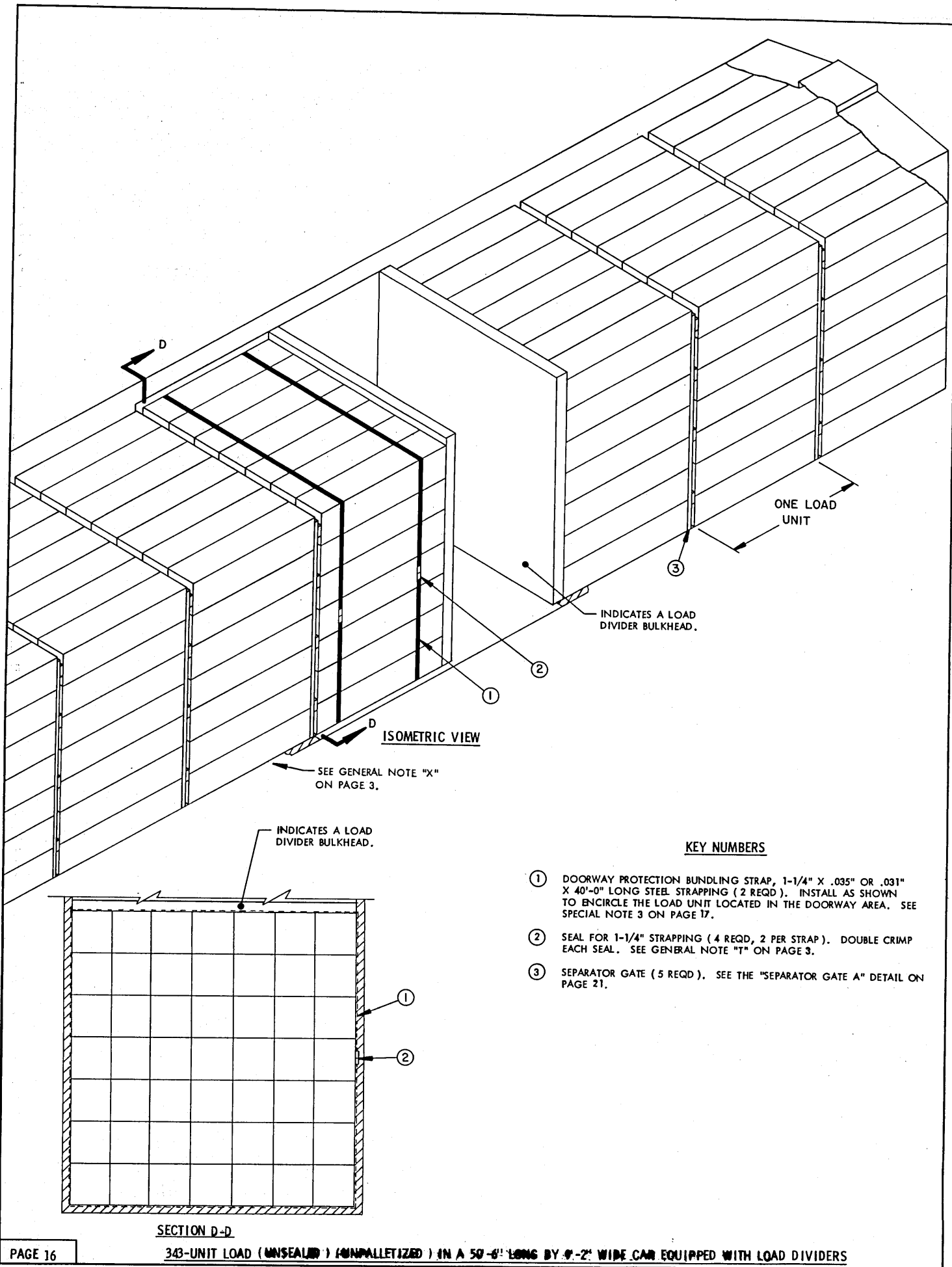
1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, AND WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. OTHER LENGTH CARS CAN BE USED, HOWEVER, IF OTHER WIDTH CARS ARE USED THE SPACER ASSEMBLIES MAY BE OMITTED OR MODIFIED SUCH AS SHOWN BY "SPACER ASSEMBLY B" DETAILED ON PAGE 23. NOTE: ONLY THOSE CARS WHICH SATISFY THE SPECIFICATIONS CONTAINED IN GENERAL NOTE "H" ON PAGE 2 CAN BE USED.
2. IF THE BOX 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 "BULKHEAD A" DETAIL ON PAGE 27 AND GENERAL NOTE "J" ON PAGE 2.
3. A CAR EQUIPPED WITH PLUG TYPE DOORS IS SHOWN. IF THE CAR BEING LOADED IS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, THE "DOORWAY PROTECTION A", AS DETAILED ON PAGE 22, MUST BE USED IN LIEU OF PIECES MARKED ② AND ③. SEE SPECIAL NOTE 4.
4. PIECES MARKED ② AND ③ ARE ONLY REQUIRED WHEN A LOAD UNIT EXTENDS MORE THAN 38" INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR. ONE BUNDLING STRAP, PIECE MARKED ②, IS REQUIRED FOR UNITS EXTENDING MORE THAN 38" BUT LESS THAN 70" INTO THE DOORWAY AREA; TWO STRAPS, AS SHOWN, ARE REQUIRED WHEN LOAD UNITS EXTEND MORE THAN 70" INTO THE DOORWAY AREA.
5. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN, "FILLER ASSEMBLIES" OR "RISER ASSEMBLIES" MAY BE USED. SEE THE ISOMETRIC VIEW SHOWN ON PAGE 12 FOR PROPER APPLICATION AND GUIDANCE. CAUTION: "RISER ASSEMBLIES" SHOULD ONLY BE USED WHEN THE QUANTITY TO BE SHIPPED CANNOT BE SATISFIED BY THE OMISSION OF A LOAD UNIT OF 49 CONTAINERS AND/OR THE OMISSION OF A COMPLETE LAYER FROM ONE OR BOTH ENDS OF THE CAR. "RISER ASSEMBLIES" MUST NOT BE USED ADJACENT TO A LOAD DIVIDER BULKHEAD. "FILLER ASSEMBLIES" MUST ONLY BE USED IN THE TOP LAYER OF A LOAD.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	414	207
2" X 4"	222	148
2" X 6"	264	264
NAILS	NO. REQD	POUNDS
6d (2")	300	1-3/4
10d (3")	308	4-3/4
STRAPPING, STEEL, 1-1/4" X .035" ----- 80' REQD-----		12 LBS
SEAL FOR 1-1/4" STRAPPING ----- 4 REQD-----		NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (SEALED)---343-----		63,455 LBS
DUNNAGE-----		1,257 LBS
TOTAL WEIGHT-----		64,712 LBS



ONE LOAD UNIT

INDICATES A LOAD DIVIDER BULKHEAD.

ISOMETRIC VIEW

SEE GENERAL NOTE "X" ON PAGE 3.

INDICATES A LOAD DIVIDER BULKHEAD.

KEY NUMBERS

- ① DOORWAY PROTECTION BUNDLING STRAP, 1-1/4" X .035" OR .031" X 40'-0" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO ENCIRCLE THE LOAD UNIT LOCATED IN THE DOORWAY AREA. SEE SPECIAL NOTE 3 ON PAGE 17.
- ② SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "T" ON PAGE 3.
- ③ SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21.

SECTION D-D

SPECIAL NOTES:

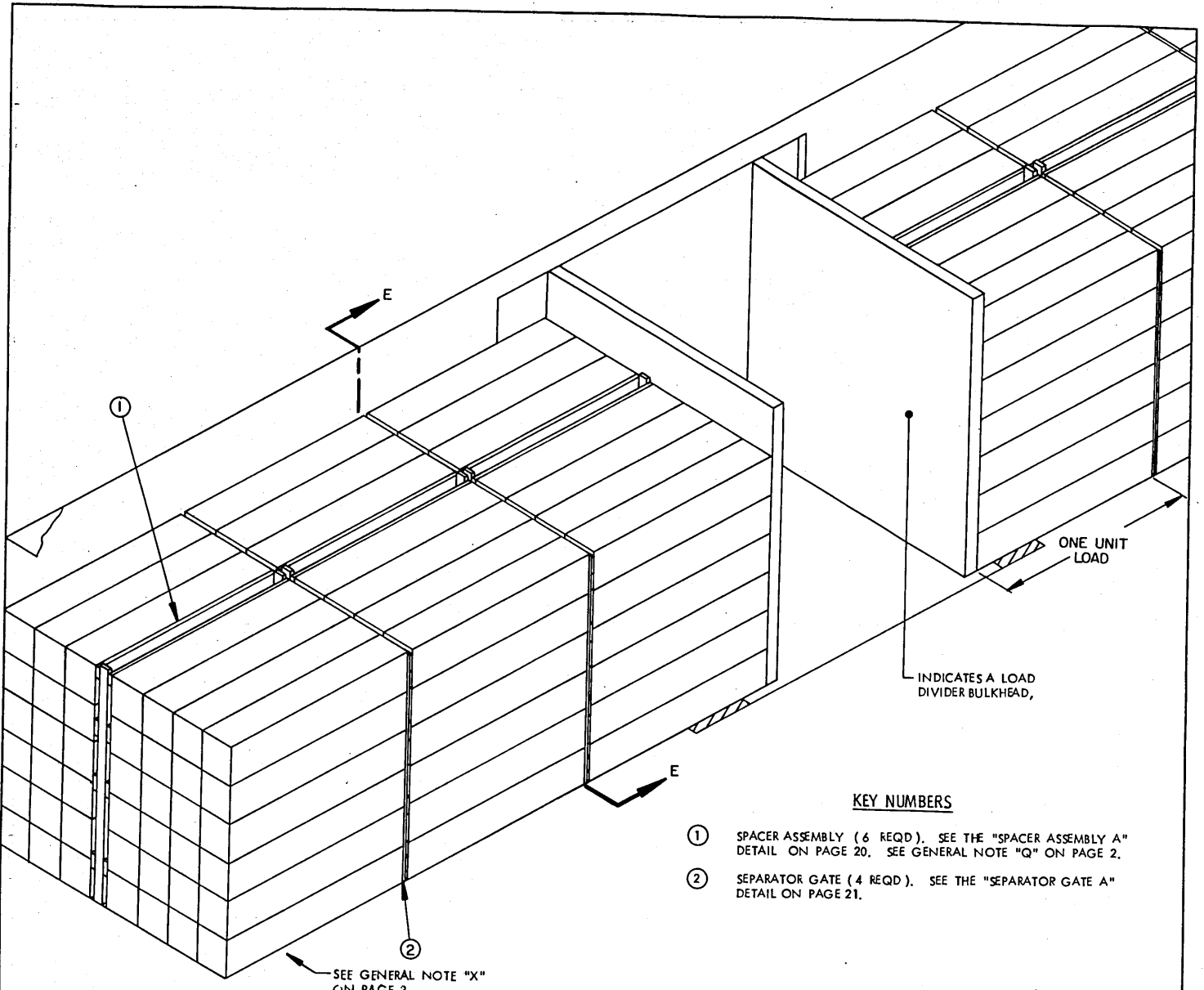
1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, AND WITH 12'-0" WIDE DOOR OPENINGS IS SHOWN. OTHER LENGTH CARS AND CARS WHICH ARE WIDER OR NARROWER CAN BE USED. REFER TO THE "TYPICAL SECTION" ON PAGE 9 FOR GUIDANCE IN THE LATERAL BRACING OF CONTAINERS IN OTHER WIDTH CARS. NOTE: ONLY THOSE CARS WHICH SATISFY THE SPECIFICATIONS CONTAINED IN GENERAL NOTE "H" ON PAGE 2 CAN BE USED.
2. IF THE BOX 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 "BULKHEAD A" DETAIL ON PAGE 27 AND GENERAL NOTE "J" ON PAGE 2.
3. A CAR EQUIPPED WITH PLUG TYPE DOORS IS SHOWN. IF THE CAR BEING LOADED IS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, THE DOORWAY PROTECTION A, AS DETAILED ON PAGE 22, MUST BE USED IN LIEU OF PIECES MARKED ① AND ②. SEE SPECIAL NOTE 4.
4. PIECES MARKED ① AND ② ARE ONLY REQUIRED WHEN A LOAD UNIT EXTENDS MORE THAN 38" INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR. ONE BUNDLING STRAP, PIECE MARKED ①, IS REQUIRED FOR UNITS EXTENDING MORE THAN 38" BUT LESS THAN 70" INTO THE DOORWAY AREA; TWO STRAPS, AS SHOWN, ARE REQUIRED WHEN LOAD UNITS EXTEND MORE THAN 70" INTO THE DOORWAY AREA.
5. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN, "FILLER ASSEMBLIES" OR "RISER ASSEMBLIES" MAY BE USED. SEE THE LOAD VIEW SHOWN ON PAGE 12 FOR PROPER APPLICATION AND GUIDANCE. CAUTION: "RISER ASSEMBLIES" SHOULD ONLY BE USED WHEN THE QUANTITY TO BE SHIPPED CANNOT BE SATISFIED BY THE OMISSION OF A LOAD UNIT OF 49 CONTAINERS AND/OR THE OMISSION OF A COMPLETE LAYER FROM ONE OR BOTH ENDS OF THE CAR. "RISER ASSEMBLIES" MUST NOT BE USED ADJACENT TO A LOAD DIVIDER BULKHEAD. "FILLER ASSEMBLIES" MUST ONLY BE USED IN THE TOP LAYER OF A LOAD.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	414	207
NAILS	NO. REQD	POUNDS
6d (2")	300	1-3/4
STRAPPING, STEEL, 1-1/4" X .035" ----- 80' REQD ----- 12 LBS		
SEAL FOR 1-1/4" STRAPPING-----4 REQD----- NIL		

LOAD AS SHOWN

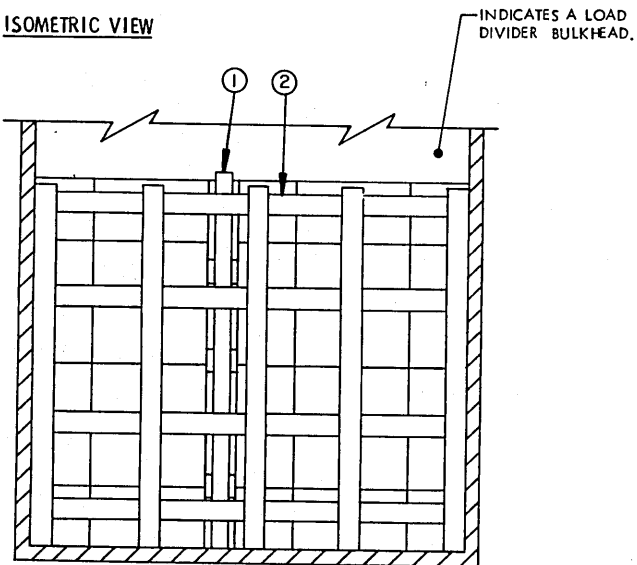
<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
CONTAINER (UNSEALED)	343	60,025 LBS
DUNNAGE		428 LBS
TOTAL WEIGHT		60,453 LBS



KEY NUMBERS

- ① SPACER ASSEMBLY (6 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 20. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② SEPARATOR GATE (4 REQD). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 21.

ISOMETRIC VIEW



SECTION E-E

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. OTHER LENGTH CARS CAN BE USED, HOWEVER, IF OTHER WIDTH CARS ARE USED THE SPACER ASSEMBLIES MAY BE OMITTED OR MODIFIED SUCH AS SHOWN BY "SPACER ASSEMBLY A" DETAILED ON PAGE 20. NOTE: ONLY THOSE CARS WHICH SATISFY THE SPECIFICATIONS CONTAINED IN GENERAL NOTE "H" ON PAGE 2 CAN BE USED.
2. IF THE BOX 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 "BULKHEAD A" DETAIL ON PAGE 27 AND GENERAL NOTE "J" ON PAGE 2.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN, "FILLER ASSEMBLIES" OR "RISER ASSEMBLIES" MAY BE USED. SEE THE ISOMETRIC VIEW SHOWN ON PAGE 12 FOR PROPER APPLICATION AND GUIDANCE. CAUTION: "RISER ASSEMBLIES" SHOULD ONLY BE USED WHEN THE QUANTITY TO BE SHIPPED CANNOT BE SATISFIED BY THE OMISSION OF A LOAD UNIT OF 49 CONTAINERS AND/OR THE OMISSION OF A COMPLETE LAYER FROM ONE OR BOTH ENDS OF THE CAR. "RISER ASSEMBLIES" MUST NOT BE USED ADJACENT TO A LOAD DIVIDER BULKHEAD. "FILLER ASSEMBLIES" MUST ONLY BE USED IN THE TOP LAYER OF A LOAD.

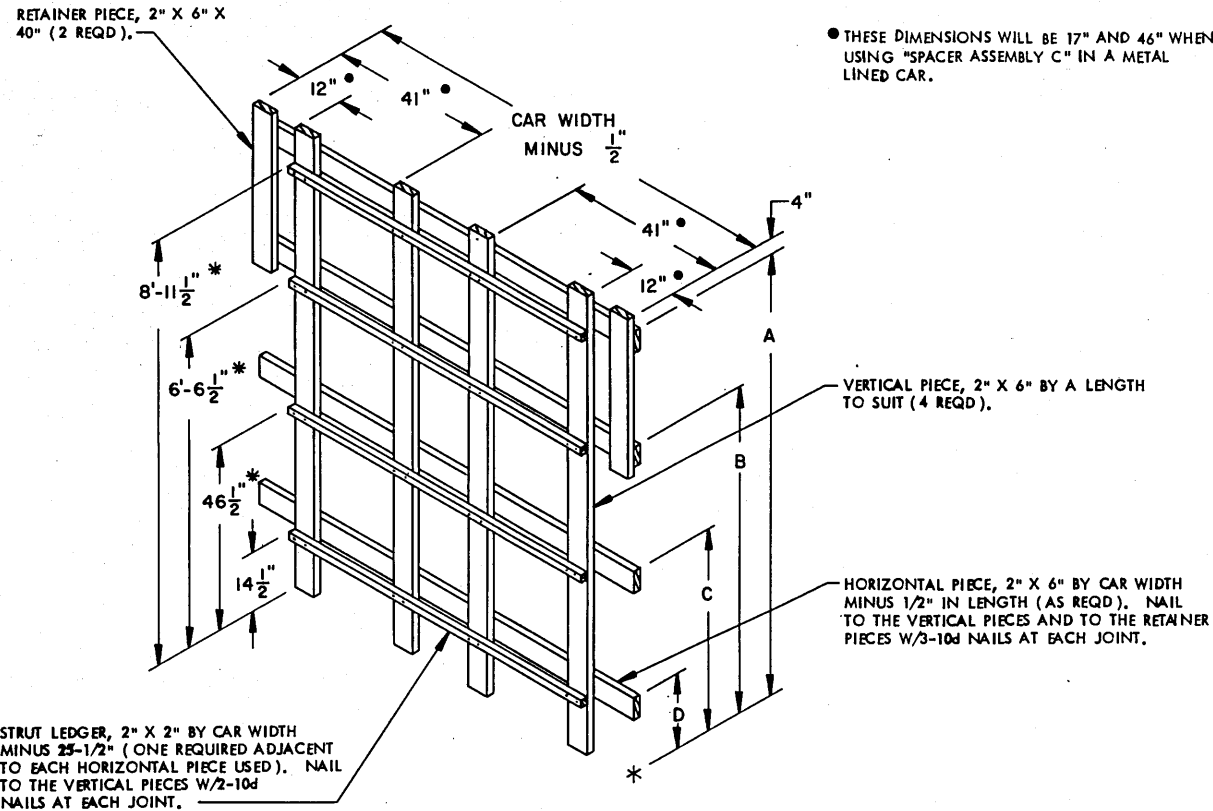
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	305	153
2" X 4"	200	134
2" X 6"	252	252
NAILS	NO. REQD	POUNDS
6d (2")	240	1-1/2
10d (3")	264	4-1/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (STRETCHED)	---252-----	51,156 LBS
DUNNAGE	-----	545 LBS
TOTAL WEIGHT	-----	51,701 LBS (APPROX)

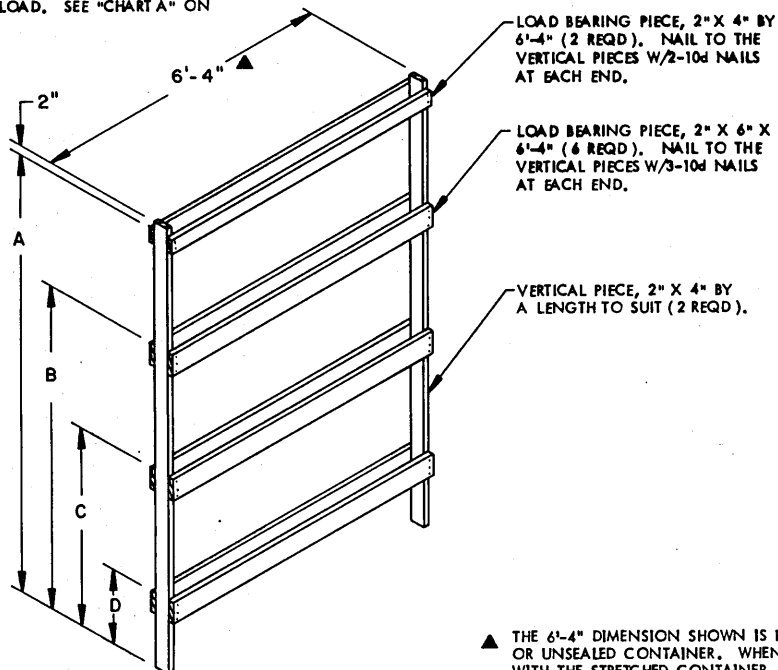
RETAINER PIECE, 2" X 6" X 40" (2 REQD).



CENTER GATE A

THIS CENTER GATE IS DESIGNED FOR USE IN THE SEALED UNPALLETIZED LOAD SHOWN ON PAGE 6. SEE "CHART A" BELOW FOR DIMENSIONS.

* DIMENSIONS FOR LOCATION OF STRUT LEDGERS WILL BE 4-1/2" LESS THAN THE DIMENSIONS OF THE HORIZONTAL PIECE WHEN THE GATE IS CONSTRUCTED FOR OTHER THAN A 7-LAYER LOAD. SEE "CHART A" ON THIS PAGE.

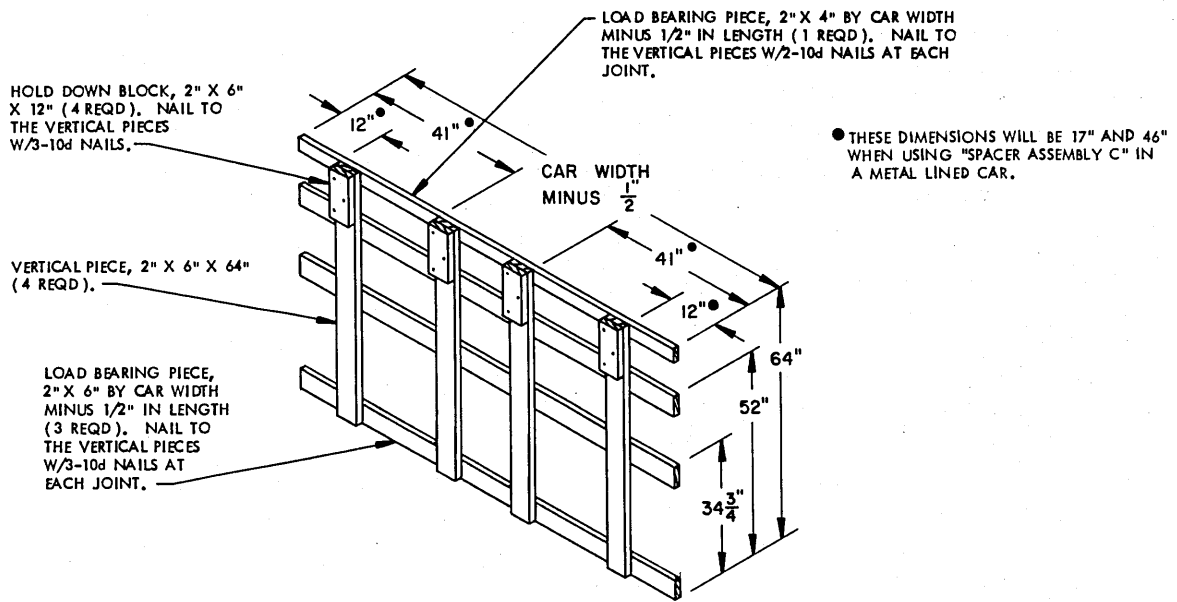


SPACER ASSEMBLY A

SEE "CHART A" AT RIGHT.

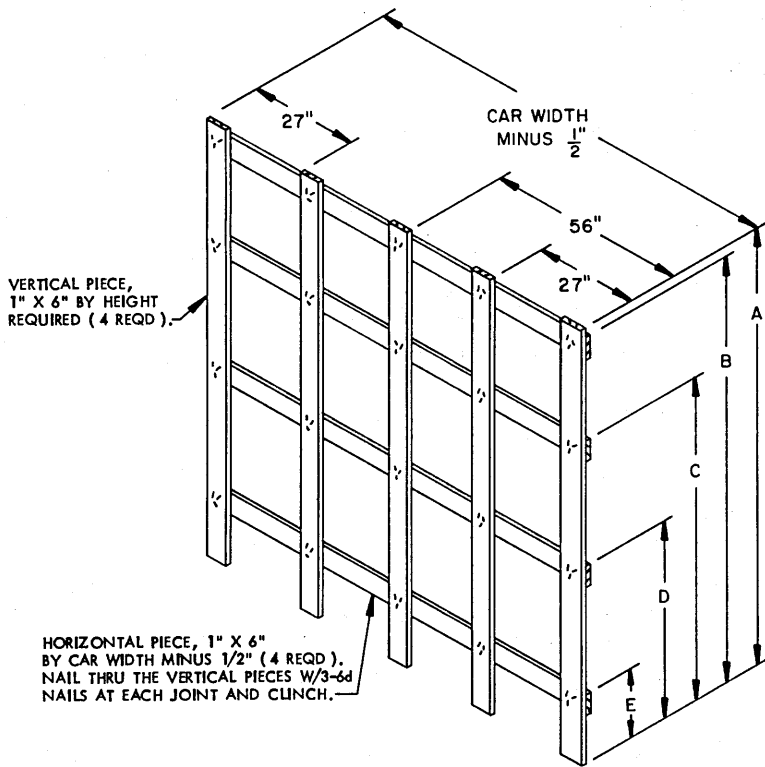
CHART A				
LAYERS OF CONTAINERS	DIM A	DIM B	DIM C	DIM D
2	32"			5-1/2"
3	48"			19"
4	64"		42"	19"
5	6'-8"		51"	19"
6	8'-0"	6'-2"	51"	19"
7	9'-4"	6'-11"	51"	19"

▲ THE 6'-4" DIMENSION SHOWN IS FOR USE WITH THE SEALED OR UNSEALED CONTAINER. WHEN USING SPACER ASSEMBLY A WITH THE STRETCHED CONTAINER, THIS DIMENSION SHOULD BE INCREASED TO 7'-0"



LCL GATE A

THIS LCL GATE IS DESIGNED FOR USE WITH THE SEALED OR STRETCHED UNPALLETIZED LOAD SHOWN ON PAGE 12.



SEPARATOR GATE A

SEE CHART B FOR LOADS ON PAGES 6, 8, 14 AND 16. SEE CHART C FOR THE LOAD ON PAGE 12. FOR CHART C, THE "LAYERS OF CONTAINERS" COLUMN REFERS TO THE LAYERS OF CONTAINERS IN THE PORTION OF THE LOAD NOT ON RISERS.

CHART B

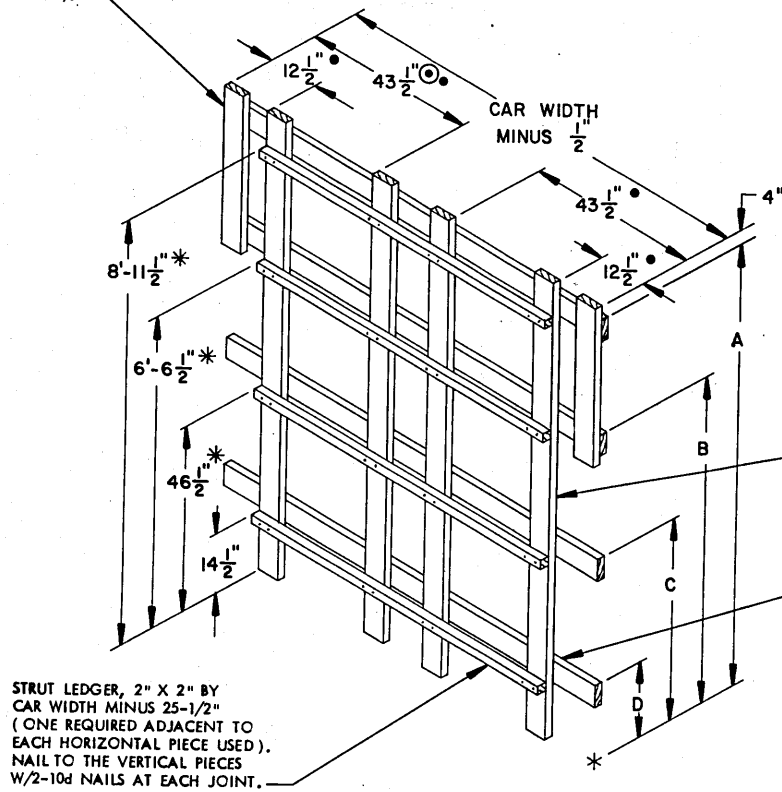
LAYERS OF CONTAINERS	DIM A	DIM B	DIM C	DIM D	DIM E
2	31"	29"			12"
3	47"	45"			18"
4	63"	61"		35"	12"
5	6'-7"	6'-5"		51"	18"
6	7'-11"	7'-9"	67"	35"	12"
7	9'-3"	9'-1"	6'-11"	51"	18"

CHART C

LAYERS OF CONTAINERS	DIM A	DIM B	DIM C	DIM D	DIM E
2	35"	29"			12"
3	51"	45"			18"
4	67"	61"		35"	12"
5	6'-11"	6'-5"		51"	18"
6	8'-3"	7'-9"	67"	35"	12"
7	9'-7"	9'-1"	6'-11"	51"	18"

• THESE DIMENSIONS WILL BE 14-3/4" AND 45-3/4" WHEN USING "SPACER ASSEMBLY D" IN A METAL LINED CAR.

RETAINER PIECE, 2" X 6" X 40"
(2 REQD).



VERTICAL PIECE, 2" X 6" BY A LENGTH TO SUIT (4 REQD).

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

STRUT LEDGER, 2" X 2" BY CAR WIDTH MINUS 25-1/2" (ONE REQUIRED ADJACENT TO EACH HORIZONTAL PIECE USED). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

CENTER GATE B

THIS CENTER GATE IS DESIGNED FOR USE IN THE UNSEALED UNPALLETIZED LOAD SHOWN ON PAGE 8. SEE "CHART D" BELOW FOR DIMENSIONS.

⊙ 28-1/2" FOR A 9'-6" WIDE CAR. NOTE THAT ONE RIGHT HAND AND ONE LEFT HAND GATE ARE REQUIRED FOR A LOAD IN A 9'-6" WIDE CAR.

* DIMENSIONS FOR LOCATION OF STRUT LEDGERS WILL BE 4-1/2" LESS THAN THE DIMENSION OF THE HORIZONTAL PIECE WHEN THE GATE IS CONSTRUCTED FOR OTHER THAN A 7-LAYER LOAD. SEE "CHART D" BELOW.

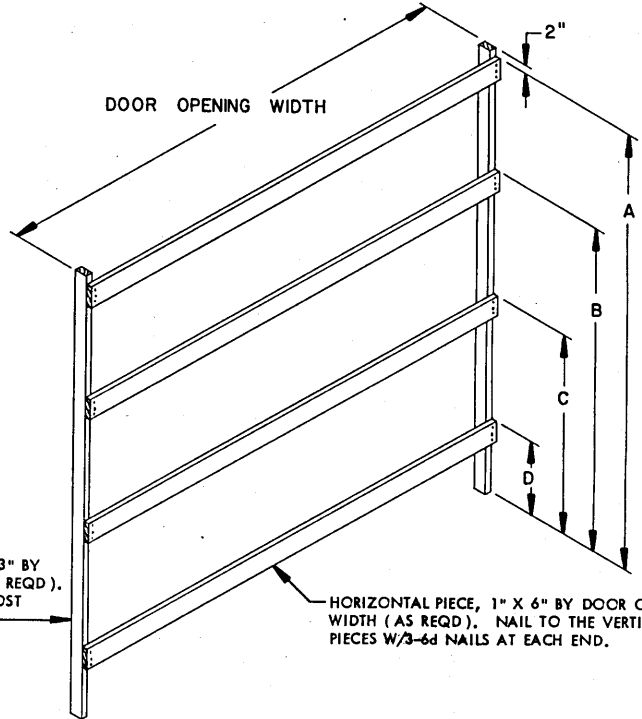
CHART D					
LAYERS OF CONTAINERS	NO. OF STRUT LEDGERS **	DIM A	DIM B	DIM C	DIM D
3	2	48"			19"
4	3	64"		42"	19"
5	3	6'-8"		51"	19"
6	4	8'-0"	6'-2"	51"	19"
7	4	9'-4"	6'-11"	51"	19"

** THIS COLUMN NOT APPLICABLE FOR THE "DOORWAY PROTECTION GATE A" DETAIL AT RIGHT.

NOTE ⊙ : WHEN A CAR HAS DOOR POSTS WHICH DO NOT PROVIDE FOR ADEQUATE SECUREMENT OF THE GATE AS SHOWN BY THE SPECIFIED NAILING METHOD, REFER TO DRAWING 19-48-1634-5A29 OR TO "BUREAU OF EXPLOSIVES PAMPHLET NO. 6" FOR ALTERNATIVE GATE SECUREMENT METHODS.

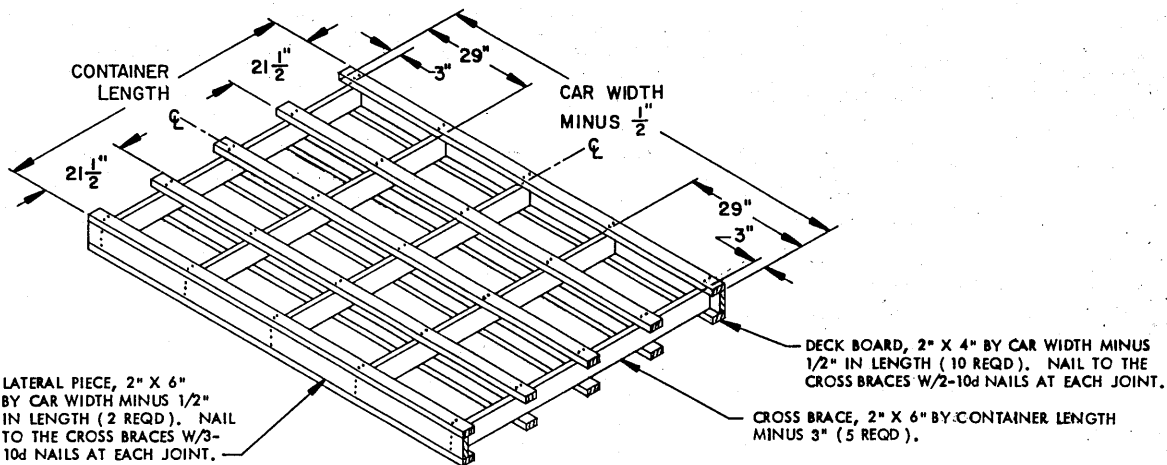
VERTICAL PIECE, 2" X 3" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE DOOR POST W/12d NAILS.

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



DOORWAY PROTECTION GATE A

SEE "CHART D" AND "NOTE ⊙" AT LEFT.

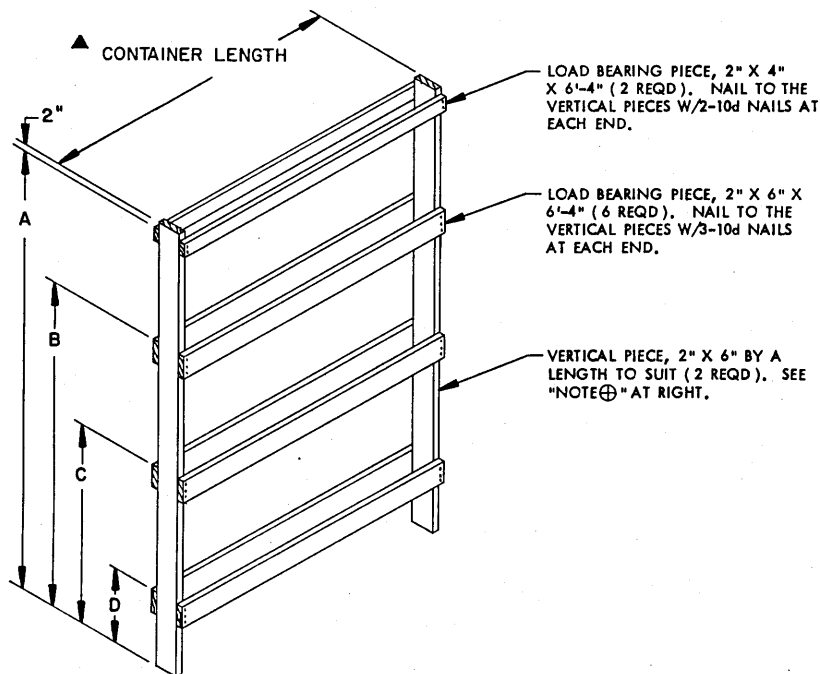


RISER ASSEMBLY

CHART E

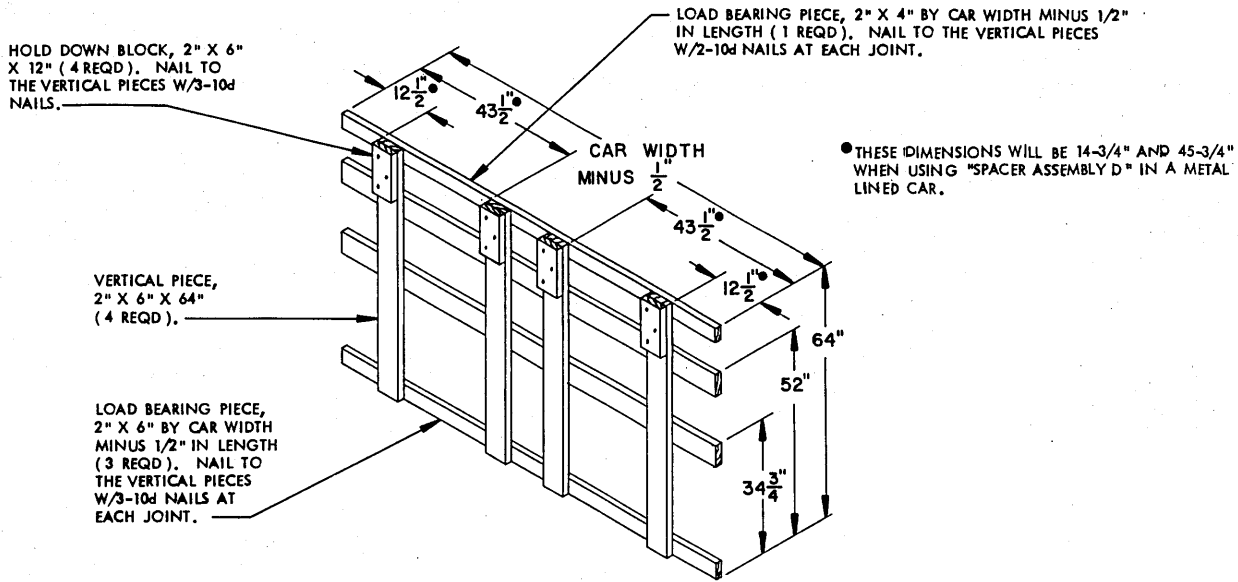
LAYERS OF CONTAINERS	DIM A	DIM B	DIM C	DIM D
2	32"			5-1/2"
3	48"			19"
4	64"		42"	19"
5	6'-8"		51"	19"
6	8'-0"	6'-2"	51"	19"
7	9'-4"	6'-11"	51"	19"

▲ THE 6'-4" DIMENSION SHOWN IS FOR USE WITH THE SEALED OR UNSEALED CONTAINER. WHEN USING SPACER ASSEMBLY B WITH THE STRETCHED CONTAINER, THIS DIMENSION SHOULD BE INCREASED TO 7'-0"



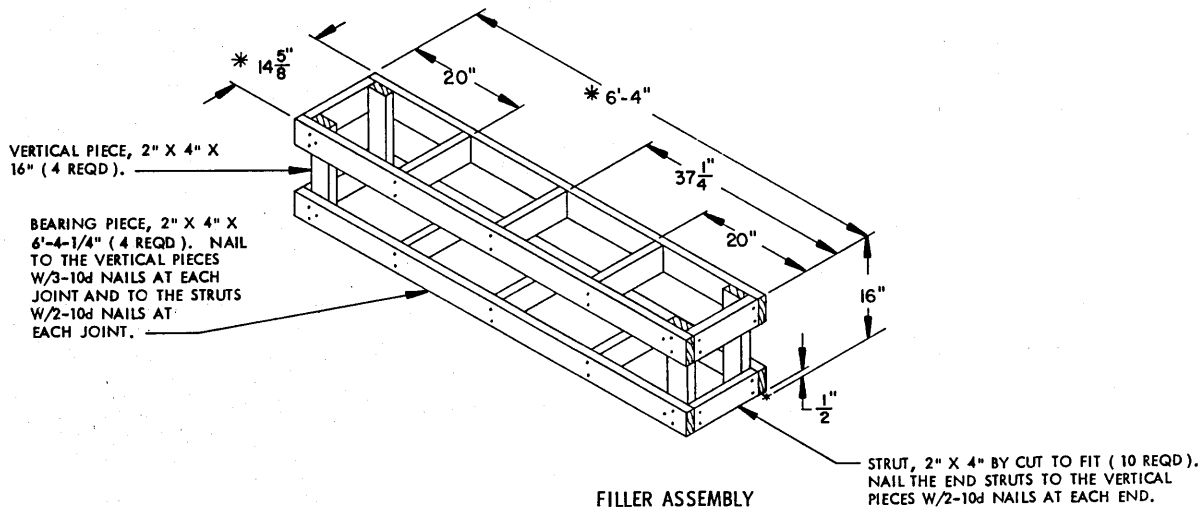
SPACER ASSEMBLY B
SEE "CHART E" AT RIGHT ABOVE.

NOTE ⊕:
THE SPACER ASSEMBLY SHOWN AT THE LEFT IS FOR USE IN AN 8'-6" WIDE BOX CAR SUCH AS SHOWN IN THE "TYPICAL SECTION" ON PAGE 9. IF A 9'-6" WIDE CAR IS USED, EACH LOAD UNIT WILL CONSIST OF SEVEN CONTAINERS WIDE AND A "SPACER ASSEMBLY". THIS SPACER ASSEMBLY WILL HAVE VERTICAL PIECES OF 2" X 4" MATERIAL AND THEY WILL BE TURNED SO THAT THE BEARING PIECES ARE NAILED TO THE WIDTH OF THE 2" X 4".



LCL GATE B

THIS GATE IS DESIGNED WHEN SHIPPING UNSEALED CONTAINERS IN ACCORDANCE WITH THE LOAD SHOWN ON PAGE 12. SEE SPECIAL NOTE 4 ON PAGE 12.



FILLER ASSEMBLY

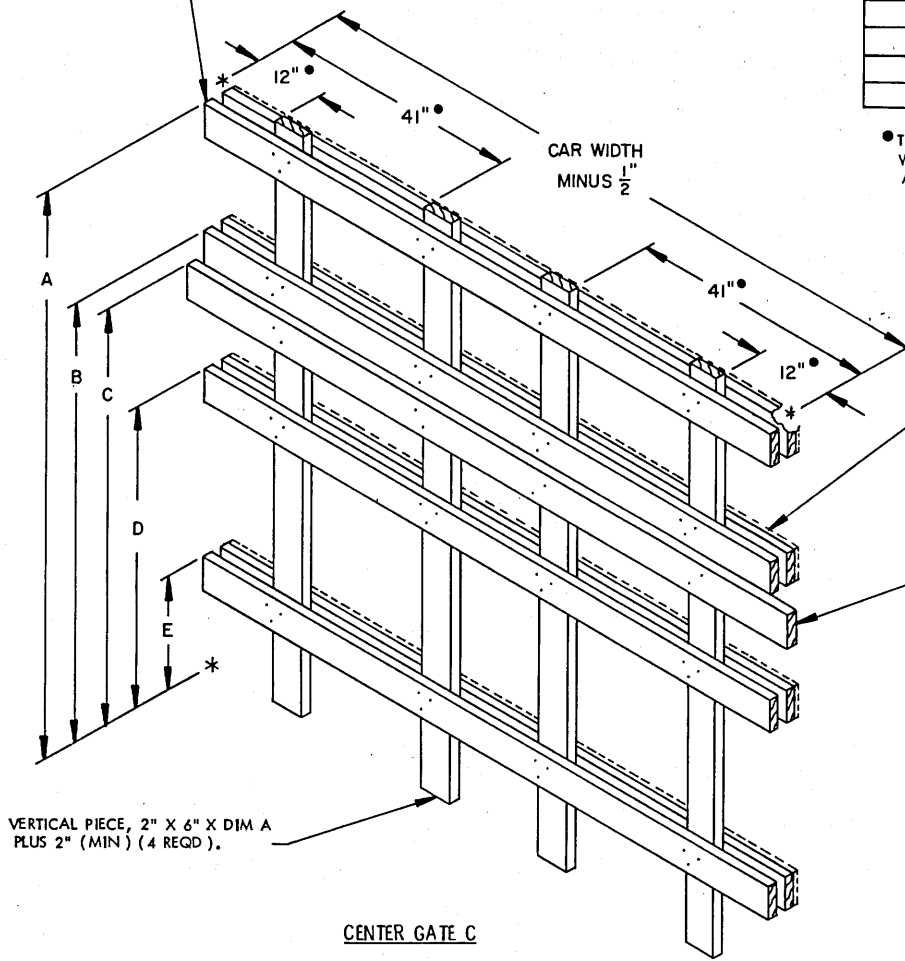
* THE DIMENSION SHOWN ON THE ABOVE DETAIL ARE FOR USE WITH THE SEALED CONTAINER, WHEN USING THE FILLER TO REPLACE AN UNSEALED CONTAINER, THE 6'-4" DIMENSION WILL BE INCREASED TO 6'-4-1/4" AND THE 14-5/8" DIMENSION WILL BE INCREASED TO 15-1/2". WHEN USED FOR THE STRETCHED CONTAINER THE 6'-4" DIMENSION WILL BE INCREASED TO 7'-0". ALL OTHER DIMENSIONS WILL REMAIN UNCHANGED.

DETAILS

HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (8 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

CHART F					
LAYER OF CONTAINERS	DIM A	DIM B	DIM C	DIM D	DIM E
2	32"		25"		5-1/2"
3	48"		41"		19"
4	64"		57"	42"	19"
5	6'-8"		67"	51"	19"
6	8'-0"	6'-2"	67"	51"	19"

● THESE DIMENSIONS WILL BE 17" AND 46" WHEN USING "SPACER ASSEMBLY C" IN A METAL LINED CAR.



FILL MATERIAL, 1" X 6" BY CAR WIDTH MINUS 1/2" (AS REQD). LAMINATE TO HORIZONTAL PIECES W/1-6d NAIL EVERY 8".

GATE HOLD DOWN, 2" X 6" BY CAR WIDTH PLUS 6". NAIL TO THE VERTICAL PIECE OF THE DOORWAY PROTECTION W/2-10d NAILS.

VERTICAL PIECE, 2" X 6" X DIM A PLUS 2" (MIN) (4 REQD).

CENTER GATE C

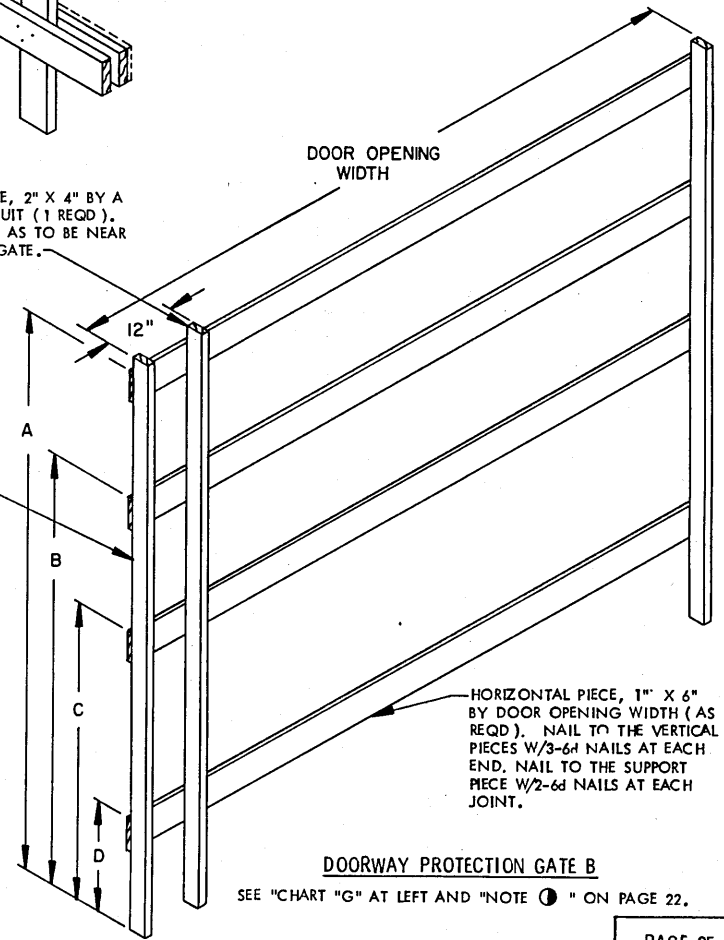
SEE "CHART F" UPPER RIGHT.

SUPPORT PIECE, 2" X 4" BY A LENGTH TO SUIT (1 REQD). POSITION SO AS TO BE NEAR THE CENTER GATE.

VERTICAL PIECE, 2" X 3" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE DOOR POSTS W/12d NAILS.

DOOR OPENING WIDTH

CHART G				
LAYER OF CONTAINERS	DIM A	DIM B	DIM C	DIM D
3	48"			19"
4	64"		42"	19"
5	6'-8"		51"	19"
6	8'-0"	6'-2"	51"	19"

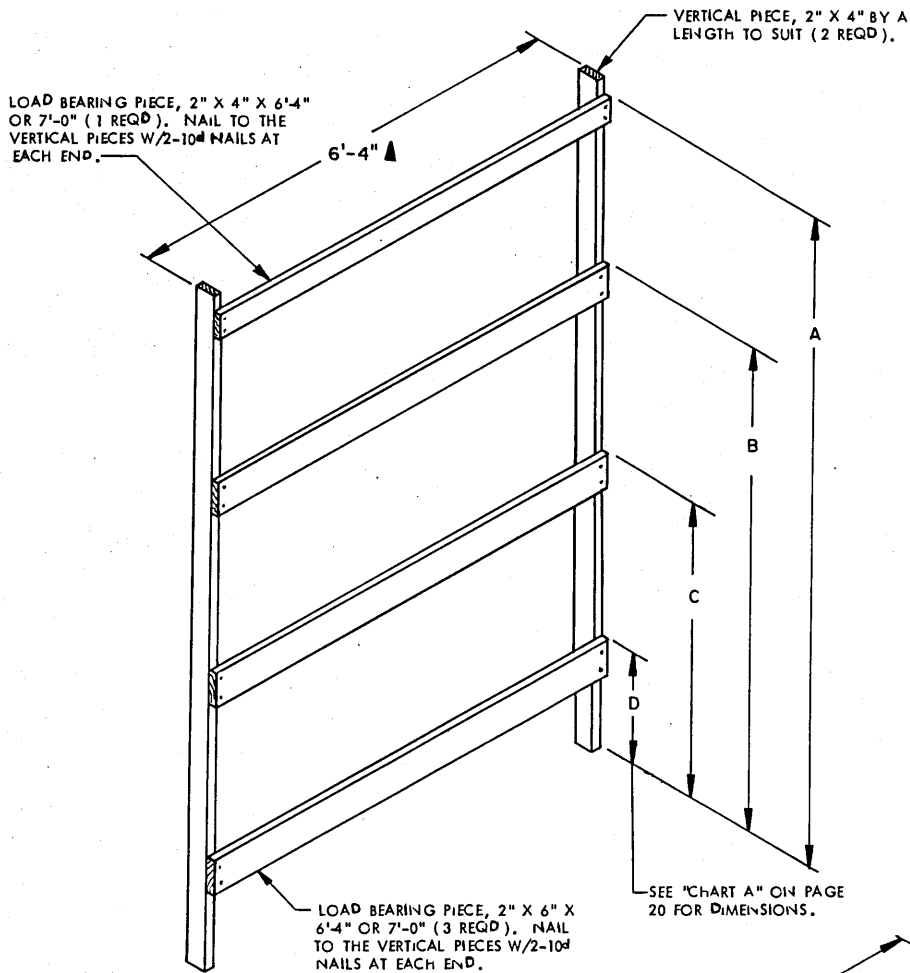


HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (AS REQD). NAIL TO THE VERTICAL PIECES W/3-6d NAILS AT EACH END. NAIL TO THE SUPPORT PIECE W/2-6d NAILS AT EACH JOINT.

DOORWAY PROTECTION GATE B

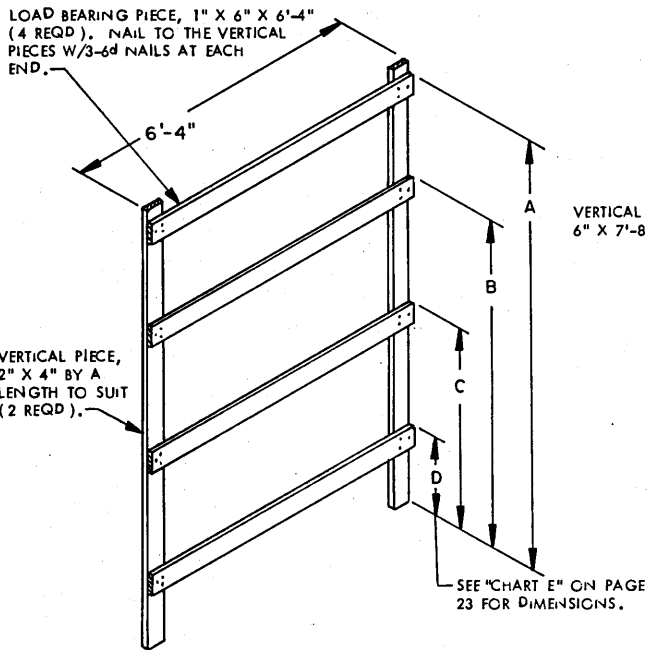
SEE "CHART G" AT LEFT AND "NOTE ●" ON PAGE 22.

DETAILS



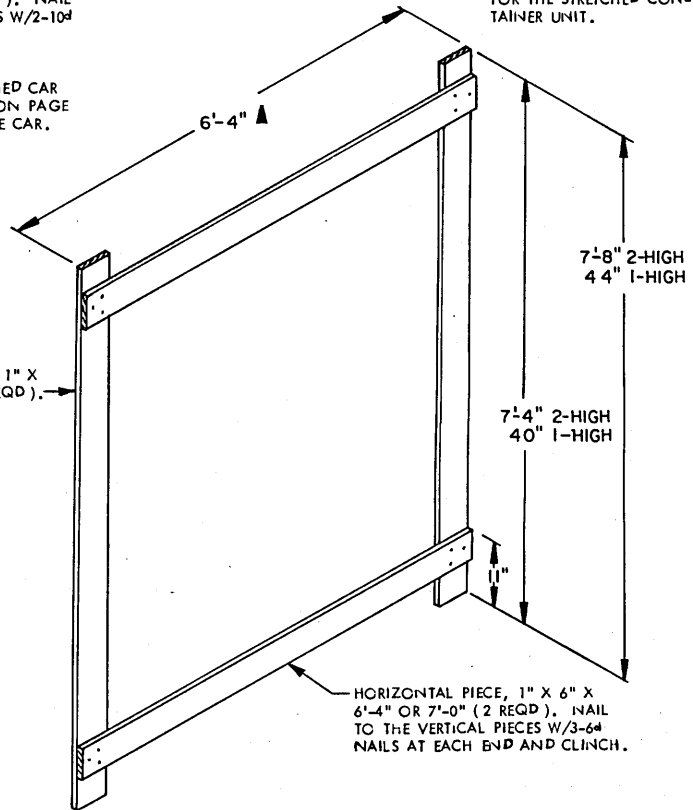
SPACER ASSEMBLY C
 FOR USE IN A 9'-6" WIDE METAL LINED CAR
 FOR THE SEALED CONTAINER LOAD ON PAGE
 10. INSTALL ON BOTH SIDES OF THE CAR.

▲ THIS DIMENSION WILL BE 7'-0"
 FOR THE STRETCHED CON-
 TAINER UNIT.



SPACER ASSEMBLY D

FOR USE IN A 9'-6" WIDE METAL LINED
 CAR FOR THE UNSEALED CONTAINERS LOAD
 SHOWN ON PAGE 8. INSTALL ON BOTH
 SIDES OF THE CAR.



SPACER ASSEMBLY E

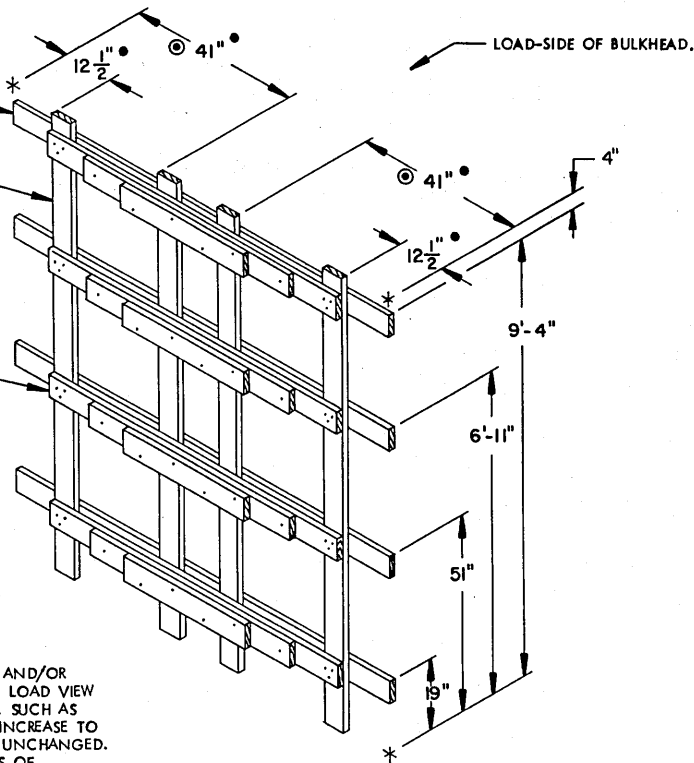
FOR USE IN METAL LINED CARS FOR THE
 PALLETIZED LOADS OF ANY OF THE
 CONTAINERS.

● THESE DIMENSIONS WILL BE 17" AND 46" WHEN USING "SPACER ASSEMBLY C" IN A METAL LINED CAR FOR LOADS OF SEALED CONTAINERS OR STRETCHED CONTAINERS. THESE DIMENSIONS WILL BE 14-3/4" AND 45-3/4" WHEN USING "SPACER ASSEMBLY D" IN A METAL LINED CAR FOR LOADS OF UNSEALED CONTAINERS.

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

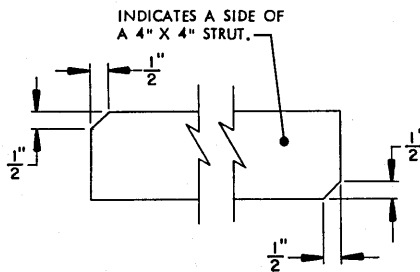
VERTICAL PIECE, 2" X 6" X 9'-8" (4 REQD.).

SHIM MATERIAL, 4" WIDE PLYWOOD OR DIMENSIONAL LUMBER OF A THICKNESS AND A LENGTH AS REQUIRED TO FILL THE VOID BETWEEN THE CAR END WALL AND THE BULKHEAD. NAIL TO THE HORIZONTAL PIECE AND/OR LAMINATE W/1-APPLICABLY SIZED NAIL EVERY 6".



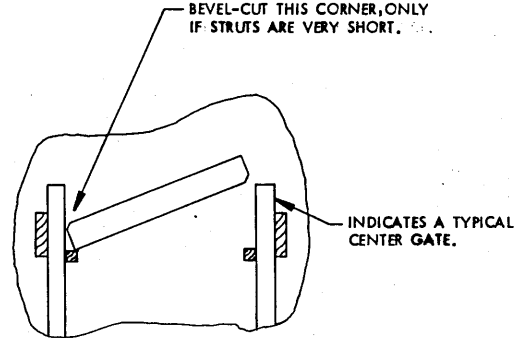
◎ THE BULKHEAD SHOWN IS FOR USE WITH SEALED AND/OR STRETCHED TYPE CONTAINERS AS SHOWN IN THE LOAD VIEW ON PAGE 6. FOR UNSEALED TYPE CONTAINERS, SUCH AS SHOWN ON PAGE 8, THE 41" DIMENSION WILL INCREASE TO 43-1/2". ALL OTHER DIMENSIONS WILL REMAIN UNCHANGED. FOR A LOAD WITH LESS THAN SEVEN (7) LAYERS OF CONTAINERS, REFER TO "CHART A" ON PAGE 20 FOR HEIGHT REQUIREMENTS OF THE HORIZONTAL PIECES.

BULKHEAD A



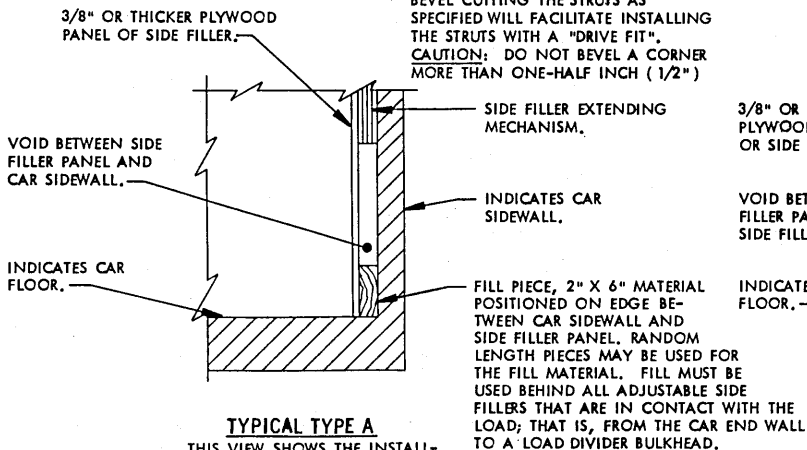
BEVEL CUT

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")



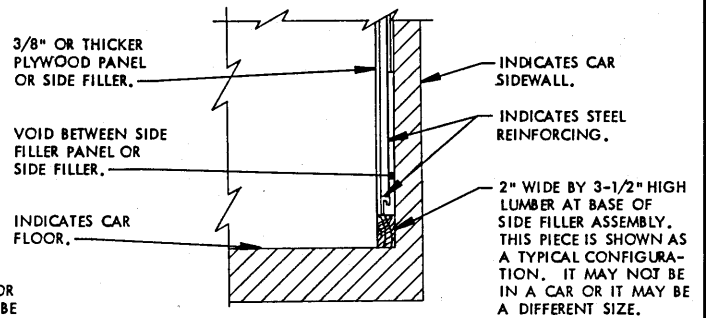
STRUT INSTALLATION

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



TYPICAL TYPE A

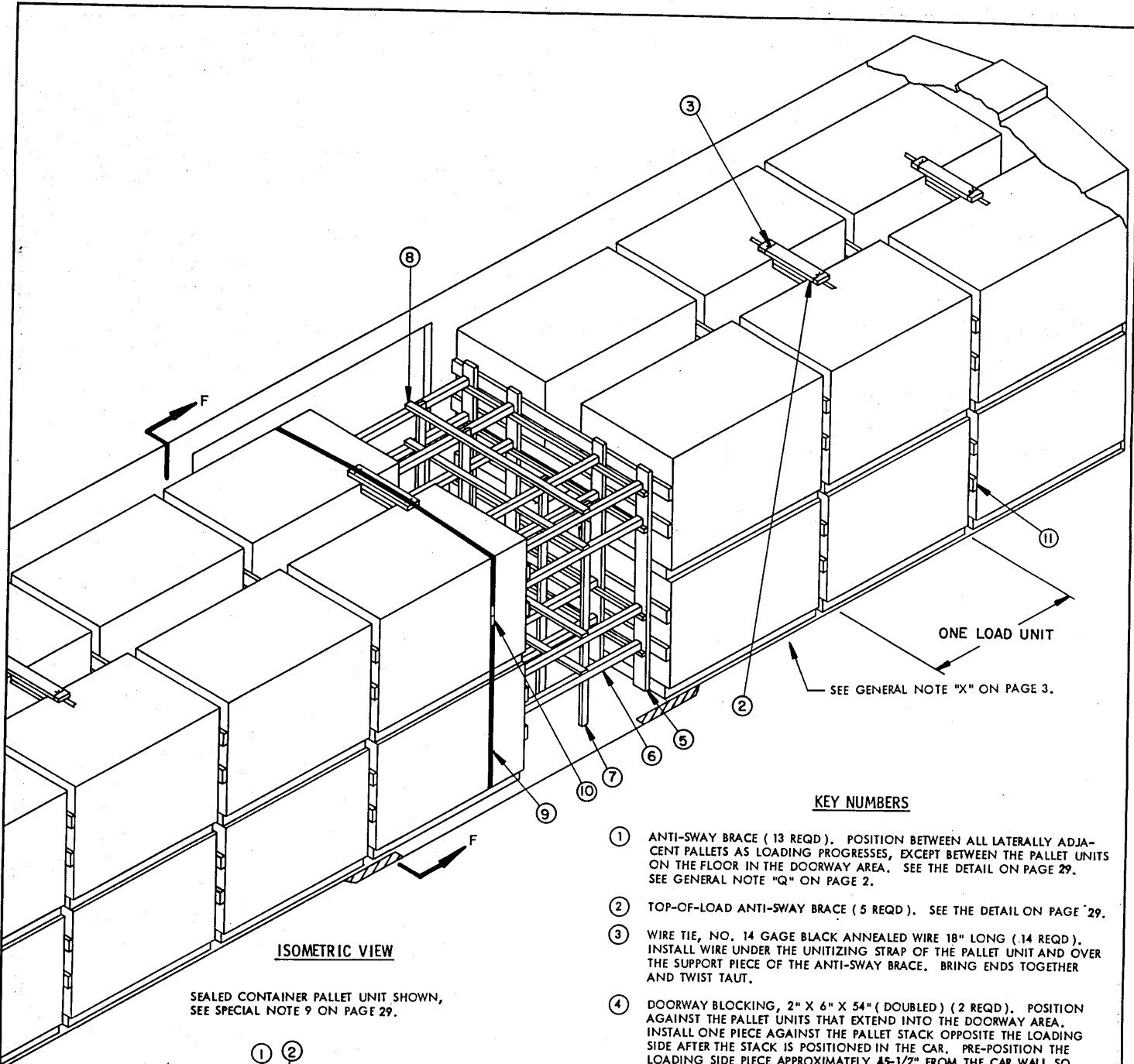
THIS VIEW SHOWS THE INSTALLATION OF A "FILL PIECE" IN A CAR EQUIPPED WITH A STANDARD ADJUSTABLE SIDE FILLER.



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.

DETAILS

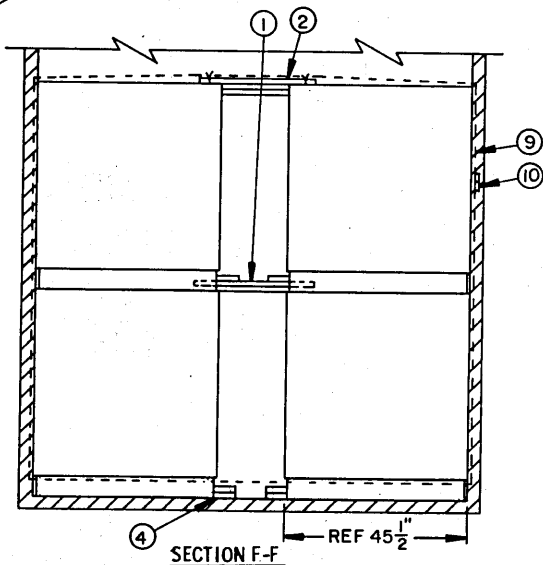


ISOMETRIC VIEW

SEALED CONTAINER PALLET UNIT SHOWN,
SEE SPECIAL NOTE 9 ON PAGE 29.

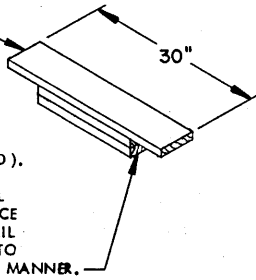
KEY NUMBERS

- ① ANTI-SWAY BRACE (13 REQD). POSITION BETWEEN ALL LATERALLY ADJACENT PALLETS AS LOADING PROGRESSES, EXCEPT BETWEEN THE PALLET UNITS ON THE FLOOR IN THE DOORWAY AREA. SEE THE DETAIL ON PAGE 29. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (5 REQD). SEE THE DETAIL ON PAGE 29.
- ③ WIRE TIE, NO. 14 GAGE BLACK ANNEALED WIRE 18" LONG (14 REQD). INSTALL WIRE UNDER THE UNITIZING STRAP OF THE PALLET UNIT AND OVER THE SUPPORT PIECE OF THE ANTI-SWAY BRACE. BRING ENDS TOGETHER AND TWIST TAUT.
- ④ DOORWAY BLOCKING, 2" X 6" X 54" (DOUBLED) (2 REQD). POSITION AGAINST THE PALLET UNITS THAT EXTEND INTO THE DOORWAY AREA. INSTALL ONE PIECE AGAINST THE PALLET STACK OPPOSITE THE LOADING SIDE AFTER THE STACK IS POSITIONED IN THE CAR. PRE-POSITION THE LOADING SIDE PIECE APPROXIMATELY 45-1/2" FROM THE CAR WALL SO AS TO CONTACT THE LAST PALLET STACK TO BE POSITIONED. NAIL THE FIRST PIECE TO THE CAR FLOOR W/10-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 4 ON PAGE 29.
- ⑤ CENTER GATE (2 REQD). SEE THE "CENTER GATED" DETAIL ON PAGE 33. SEE SPECIAL NOTE 5 ON PAGE 29.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT (16 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑤, W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "R" ON PAGE 3.
- ⑦ VERTICAL STRUT BRACING, 2" X 4" X 8'-0" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "S" ON PAGE 3.
- ⑧ HORIZONTAL STRUT BRACING, 2" X 4" X 8'-6" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑨ DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" X 39'-0" LONG STEEL STRAPPING (1 REQD). INSTALL AS SHOWN TO ENIRCLE THE LOAD UNIT WHICH PROTRUDES INTO THE DOORWAY AREA. STAPLE TO A TOP-OF-LOAD ANTI-SWAY BRACE, PIECE MARKED ②, W/2 STAPLES. SEE SPECIAL NOTE 4 ON PAGE 29.
- ⑩ SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD). POSITION AS SHOWN, DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "T" ON PAGE 3.
- ⑪ SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 39.



SUPPORT PIECE,
2" X 6" X 30"
(1 REQD.).

SPACER, 2" X 6"
BY CUT TO FIT
BETWEEN LATERALLY
ADJACENT UNITS
(DOUBLED) (1 REQD).
CENTER THE FIRST
PIECE ON AND NAIL
TO THE SUPPORT PIECE
W/4-10d NAILS. NAIL
THE SECOND PIECE TO
THE FIRST IN A LIKE MANNER.

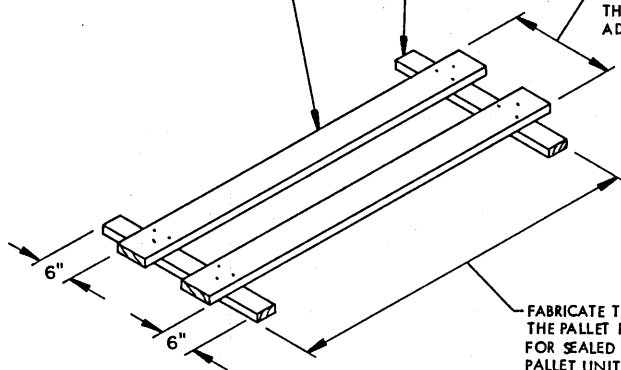


TOP-OF-LOAD ANTI-SWAY BRACE

BUFFER PIECE, 2" X 6" BY THE DISTANCE
BETWEEN OUTSIDE PALLET POSTS PLUS 6"
(2 REQD). POSITION AGAINST THE
PALLET POSTS AND NAIL TO THE RETAINER
PIECES W/3-10d NAILS AT EACH JOINT.

RETAINER PIECE, 2" X 4" BY LENGTH
TO SUIT (2 REQD). POSITION TO
EXTEND UNDER THE LATERALLY ADJA-
CENT PALLETS AND AGAINST THE
PALLET POSTS.

FABRICATE TO FIT BETWEEN
THE POSTS OF LATERALLY
ADJACENT PALLETS.



FABRICATE TO FIT AGAINST
THE PALLET POSTS (REF: 61")
FOR SEALED AND UNSEALED
PALLET UNITS AND 69" FOR
STRETCHED PALLET UNITS).

ANTI-SWAY BRACE

BILL OF MATERIAL

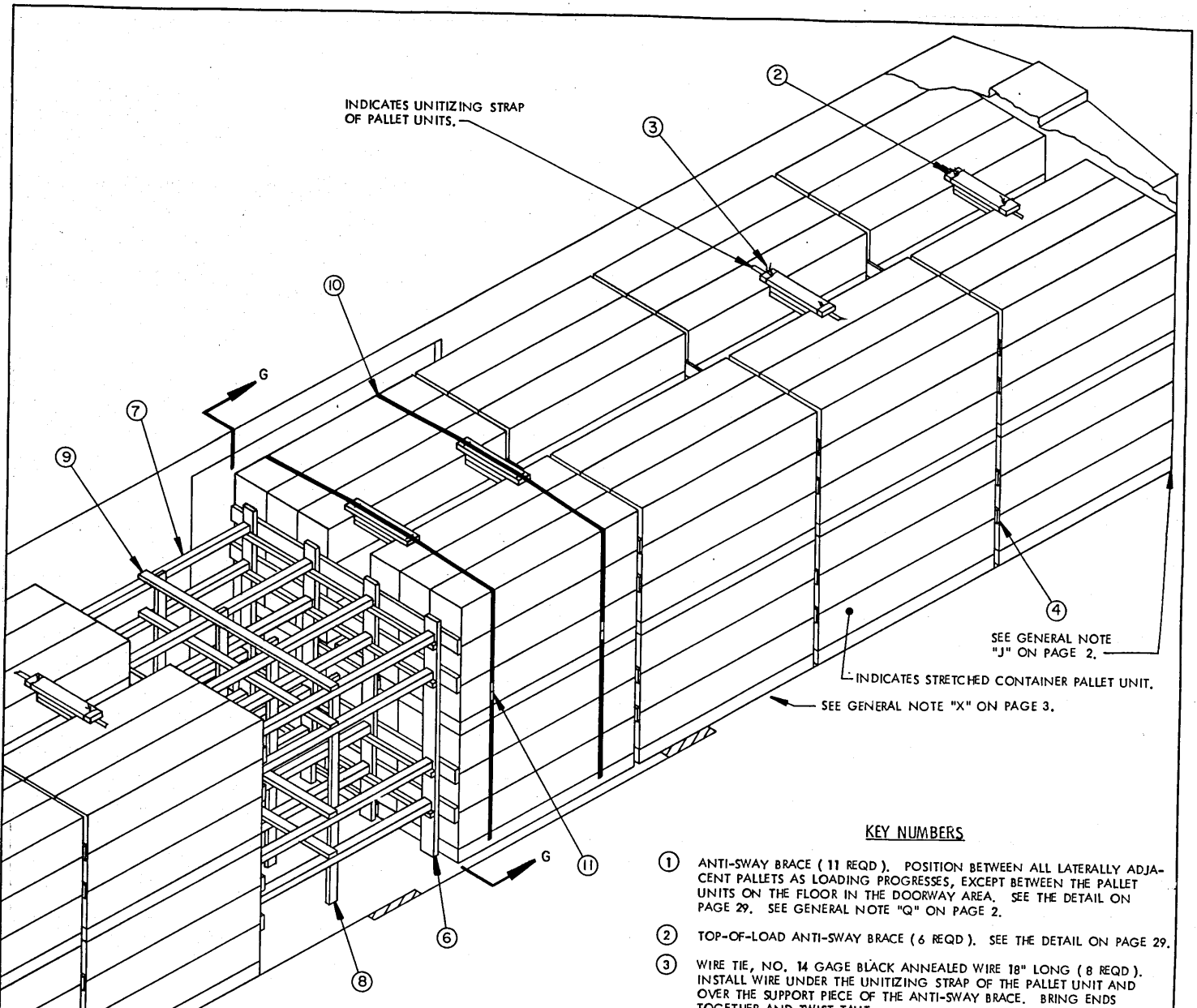
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	350	175
2" X 2"	63	21
2" X 3"	63	32
2" X 4"	182	121
2" X 6"	332	332
4" X 4"	78	104
NAILS	NO. REQD	POUNDS
6d (2")	240	1-1/2
10d (3")	572	8-3/4
16d (3-1/2")	104	2-1/2
STEEL STRAPPING, 1-1/4" X .035"-----39' REQD-----6 LBS		
SEAL FOR 1-1/4" STRAPPING-----2 REQD-----NIL		
STAPLE FOR 1-1/4" STRAPPING-----2 REQD-----NIL		
NO. 14 GAGE WIRE-----21' REQD-----NIL		

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 (7'-0" MINIMUM) DOOR OPENINGS CAN BE USED.
2. ANTI-SWAY BRACES, PIECES MARKED (1), WILL BE INSTALLED BETWEEN ALL LATERALLY ADJACENT PALLET UNITS EXCEPT THE FLOOR LINE UNITS WHICH ARE COMPLETELY IN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR BY MORE THAN 38".
3. A CAR EQUIPPED WITH PLUG TYPE DOORS IS SHOWN. IF THE CAR BEING LOADED HAS CONVENTIONAL SLIDING DOORS, THE DOORWAY PROTECTION C, AS DETAILED ON PAGE 32, MAY BE USED IN LIEU OF PIECES MARKED (4) AND (9), IF DESIRED. SEE SPECIAL NOTE 4.
4. DOORWAY BLOCKING, PIECE MARKED (4), AND DOORWAY PROTECTION STRAPPING, PIECE MARKED (9), ARE REQUIRED FOR ALL LOAD UNITS WHICH EXTEND MORE THAN 38" INTO THE DOORWAY AREA. ONE (1) STRAP IS REQUIRED FOR A LOAD UNIT WHICH IS RETAINED BY AT LEAST 6" OF CAR SIDEWALL ON BOTH SIDES OF THE CAR, AND TWO (2) STRAPS ARE REQUIRED FOR LOAD UNITS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH ARE RETAINED BY LESS THAN SIX INCHES (6") OF CAR SIDEWALL ON BOTH SIDES OF THE CAR.
5. FOR EASE OF HANDLING, SPLIT CENTER GATES, CONSTRUCTED IN ACCORDANCE WITH THE "CENTER GATE" DETAIL ON PAGE 37, MAY BE USED AS AN ALTERNATIVE TO USING CENTER GATE D. USE TWO (2) GATES, TIED TOGETHER AS SHOWN BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 37.
6. A LOAD MAY BE DECREASED BY FOUR (4) PALLET UNITS BY OMITTING A COMPLETE LOAD UNIT FROM THE LONG END OF THE LOAD. A LOAD MAY BE DECREASED BY TWO (2) PALLET UNITS BY EMPLOYING THE PRINCIPLES OF THE PROCEDURES SHOWN ON PAGE 42. IF IT IS NECESSARY TO DECREASE A LOAD BY ONE (1) PALLET UNIT, REFER TO THE PROCEDURES ON PAGE 32 FOR GUIDANCE.
7. A ONE-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED ON TOP OF THE LOAD FOR SHIPMENT, CAR HEIGHT PERMITTING. REFER TO PAGES 43 AND 44 FOR GUIDANCE. A TWO-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED WITHIN A LOAD. REFER TO PAGE 45 FOR SPECIAL REQUIREMENTS.
8. ONE OR TWO LEFTOVER CONTAINERS CAN BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO PAGE 46 FOR GUIDANCE.
9. THE PROCEDURES SHOWN DEPICT A "SEALED CONTAINER" PALLET UNIT WHICH IS 44-3/8" LONG BY 76" WIDE. THE SAME PROCEDURES WILL BE USED FOR SHIPMENT OF THE "UNSEALED CONTAINER" PALLET UNIT, WHICH IS 44-1/2" LONG BY 76-1/4" WIDE.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT (SEALED)	28	48,972 LBS
DUNNAGE		1,589 LBS
TOTAL WEIGHT		50,561 LBS

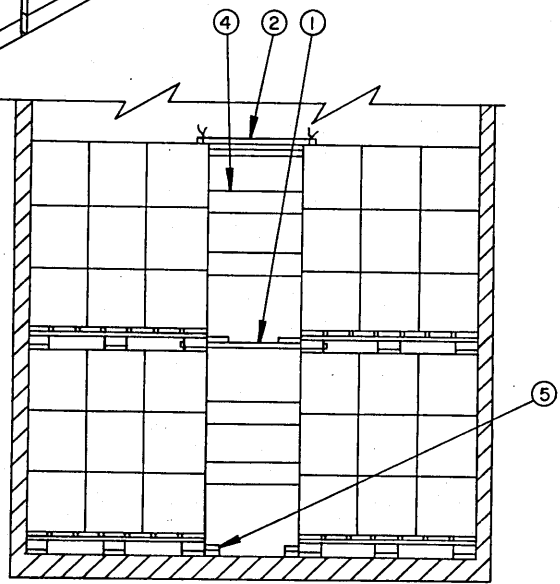


INDICATES UNITIZING STRAP OF PALLET UNITS.

SEE GENERAL NOTE "J" ON PAGE 2.

INDICATES STRETCHED CONTAINER PALLET UNIT.
SEE GENERAL NOTE "X" ON PAGE 3.

ISOMETRIC VIEW



SECTION G-G

KEY NUMBERS

- ① ANTI-SWAY BRACE (11 REQD). POSITION BETWEEN ALL LATERALLY ADJACENT PALLET AS LOADING PROGRESSES, EXCEPT BETWEEN THE PALLET UNITS ON THE FLOOR IN THE DOORWAY AREA. SEE THE DETAIL ON PAGE 29. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE DETAIL ON PAGE 29.
- ③ WIRE TIE, NO. 14 GAGE BLACK ANNEALED WIRE 18" LONG (8 REQD). INSTALL WIRE UNDER THE UNITIZING STRAP OF THE PALLET UNIT AND OVER THE SUPPORT PIECE OF THE ANTI-SWAY BRACE. BRING ENDS TOGETHER AND TWIST TAUT.
- ④ SEPARATOR GATE (4 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 39.
- ⑤ DOORWAY BLOCKING, 2" X 6" X 72" (DOUBLED) (2 REQD). POSITION AGAINST THE PALLET UNITS THAT EXTEND INTO THE DOORWAY AREA. INSTALL ONE PIECE AGAINST THE PALLET STACK OPPOSITE THE LOADING SIDE AFTER THE STACK IS POSITIONED IN THE CAR. PRE-POSITION THE LOADING SIDE PIECE APPROXIMATELY 44-3/8" FROM THE CAR WALL SO AS TO CONTACT THE LAST PALLET STACK TO BE POSITIONED. NAIL THE FIRST PIECE TO THE CAR FLOOR W/12-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 4 ON PAGE 31.
- ⑥ CENTER GATE (2 REQD). SEE THE "CENTER GATE D" DETAIL ON PAGE 33. SEE SPECIAL NOTE 5 ON PAGE 31.
- ⑦ STRUT, 4" X 4" BY CUT-TO-FIT (16 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑥, W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "R" ON PAGE 3.
- ⑧ VERTICAL STRUT BRACING, 2" X 4" X 8'-0" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "S" ON PAGE 3.
- ⑨ HORIZONTAL STRUT BRACING, 2" X 4" X 8'-6" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑩ DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO ENCIRCLE THE LOAD UNIT WHICH PROTRUDES INTO THE DOORWAY AREA. STAPLE TO A TOP-OF-LOAD ANTI-SWAY BRACE, PIECE MARKED ②, W/2 STAPLES. SEE SPECIAL NOTE 4 ON PAGE 31.
- ⑪ SEAL FOR 1-1/4" STEEL STRAPPING (4 REQD). POSITION AS SHOWN. DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "T" ON PAGE 3.

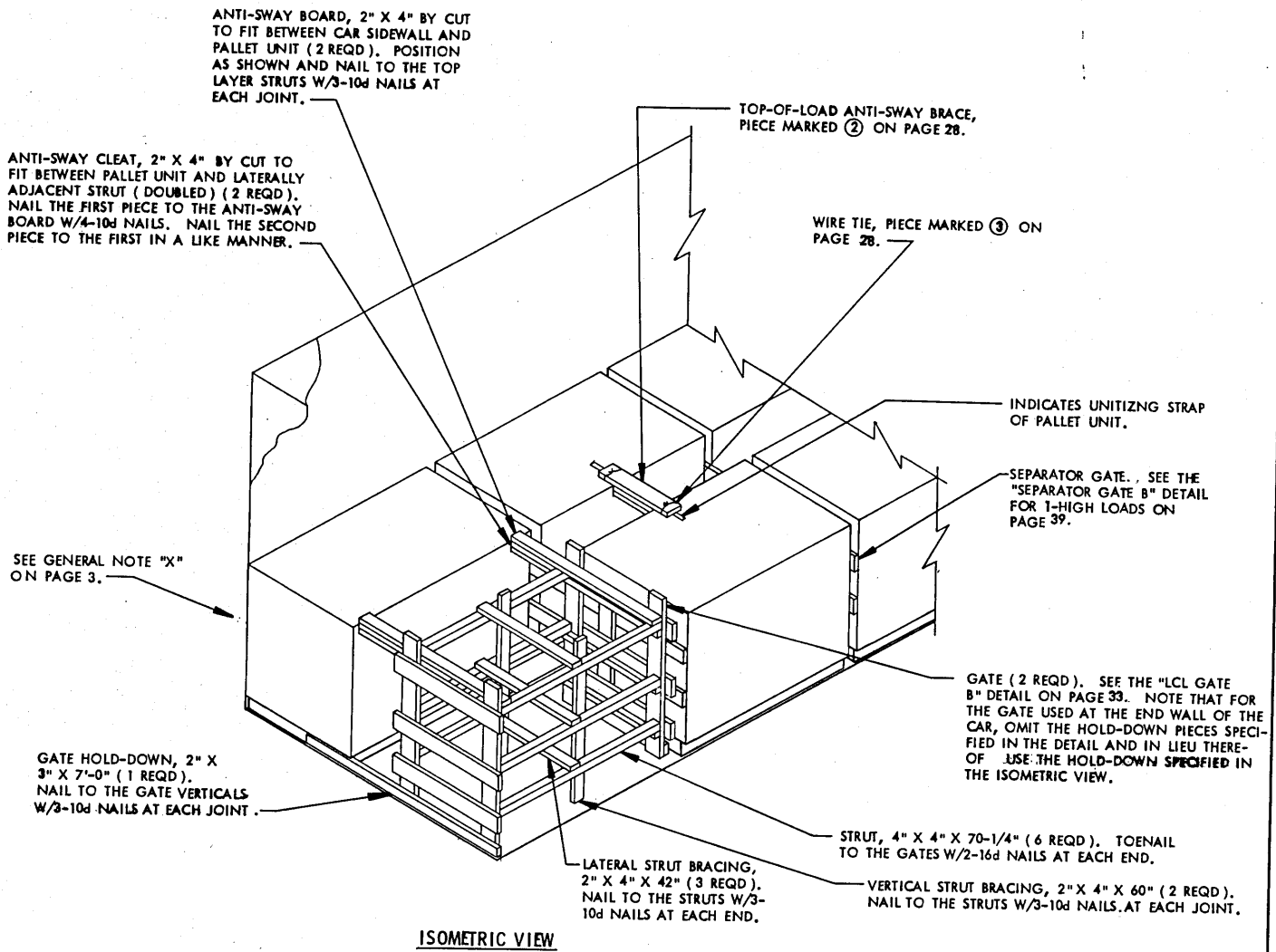
SPECIAL NOTES:

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 (7'-0" MINIMUM) DOOR OPENINGS CAN BE USED.
2. ANTI-SWAY BRACES, PIECES MARKED ①, WILL BE INSTALLED BETWEEN ALL Laterally ADJACENT PALLET UNITS EXCEPT THE FLOOR LINE UNITS WHICH ARE COMPLETELY IN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR BY MORE THAN 38".
3. A CAR EQUIPPED WITH PLUG TYPE DOORS IS SHOWN. IF THE CAR BEING LOADED HAS CONVENTIONAL SLIDING DOORS, THE DOORWAY PROTECTION C, AS DETAILED ON PAGE 33, MAY BE USED IN LIEU OF PIECES MARKED ⑤ AND ⑩, IF DESIRED. SEE SPECIAL NOTE 4.
4. DOORWAY BLOCKING, PIECE MARKED ⑤, AND DOORWAY PROTECTION STRAPPING, PIECE MARKED ⑩, ARE REQUIRED FOR ALL LOAD UNITS WHICH EXTEND MORE THAN 38" INTO THE DOORWAY AREA. ONE (1) STRAP IS REQUIRED FOR A LOAD UNIT WHICH IS RETAINED BY AT LEAST 6" OF CAR SIDEWALL ON BOTH SIDES OF THE CAR, AND TWO (2) STRAPS ARE REQUIRED FOR LOAD UNITS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH ARE RETAINED BY LESS THAN SIX INCHES (6") OF CAR SIDEWALL ON BOTH SIDES OF THE CAR.
5. FOR EASE OF HANDLING, SPLIT CENTER GATES, CONSTRUCTED IN ACCORDANCE WITH THE "CENTER GATE E" DETAIL ON PAGE 37, MAY BE USED AS AN ALTERNATIVE TO USING CENTER GATE D. USE TWO (2) GATES, TIED TOGETHER AS SHOWN BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 37.
6. A LOAD MAY BE DECREASED BY FOUR (4) PALLET UNITS BY OMITTING A COMPLETE LOAD UNIT FROM THE LONG END OF THE LOAD. A LOAD MAY BE DECREASED BY TWO (2) PALLET UNITS BY EMPLOYING THE PRINCIPLES OF THE PROCEDURES SHOWN ON PAGE 42. IF IT IS NECESSARY TO DECREASE A LOAD BY ONE (1) PALLET UNIT, REFER TO THE PROCEDURES ON PAGE 32 FOR GUIDANCE.
7. A ONE-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED ON TOP OF THE LOAD FOR SHIPMENT, CAR HEIGHT PERMITTING. REFER TO PAGES 43 AND 44 FOR GUIDANCE. A TWO-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED WITHIN A LOAD. REFER TO PAGE 45 FOR SPECIAL REQUIREMENTS.
8. ONE OR TWO LEFTOVER CONTAINERS CAN BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO PAGE 46 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	277	139
2" X 2"	63	21
2" X 3"	18	9
2" X 4"	145	97
2" X 6"	337	337
4" X 4"	128	171
NAILS	NO. REQD	POUNDS
6d (2")	48	1/2
10d (3")	472	7-1/2
16d (3-1/2")	112	2-1/2
STEEL STRAPPING, 1-1/4" X .035"	78' REQD	11 LBS
SEAL FOR 1-1/4" STRAPPING	4 REQD	NIL
STAPLE FOR 1-1/4" STRAPPING	4 REQD	NIL
NO. 14 GAGE WIRE	12' REQD	NIL

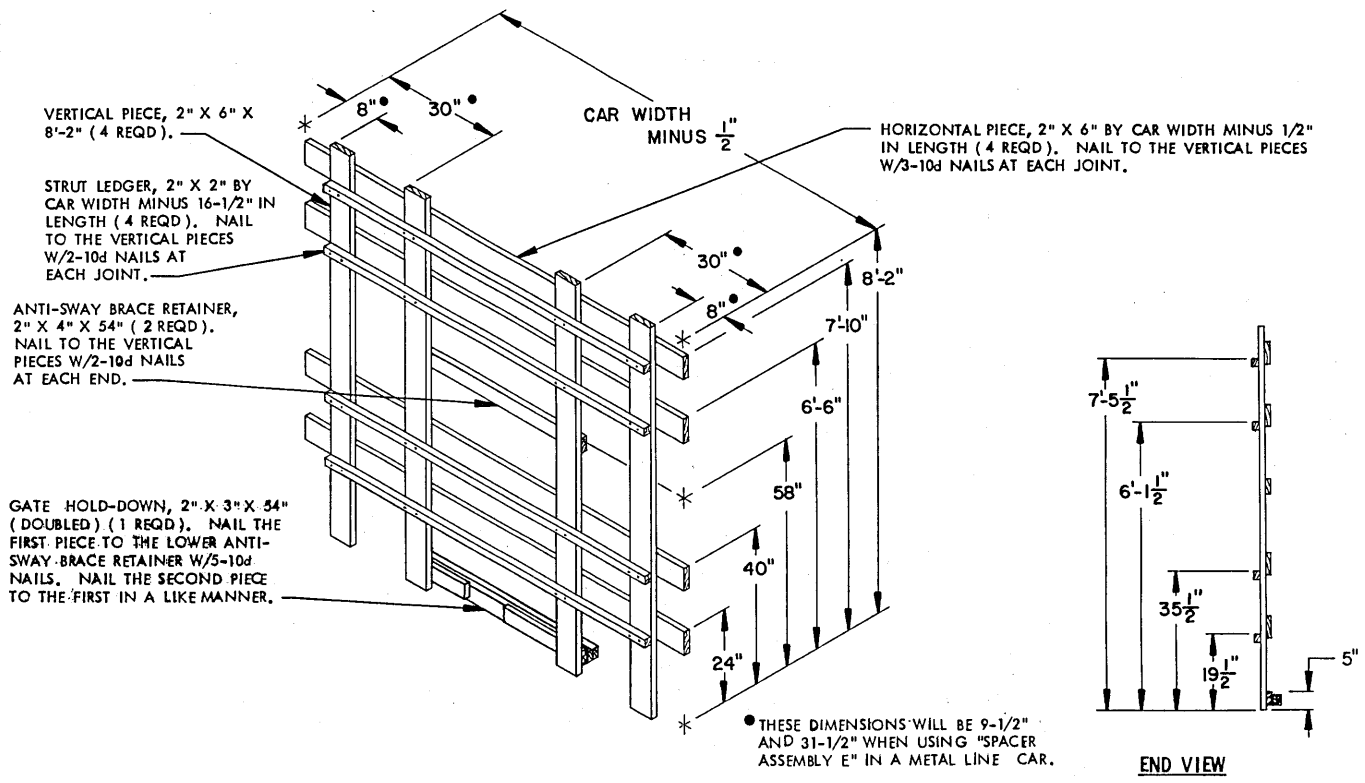
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT (STRETCHED)	24	46,104 LBS
DUNNAGE		1,570 LBS
TOTAL WEIGHT		47,674 LBS (APPROX)



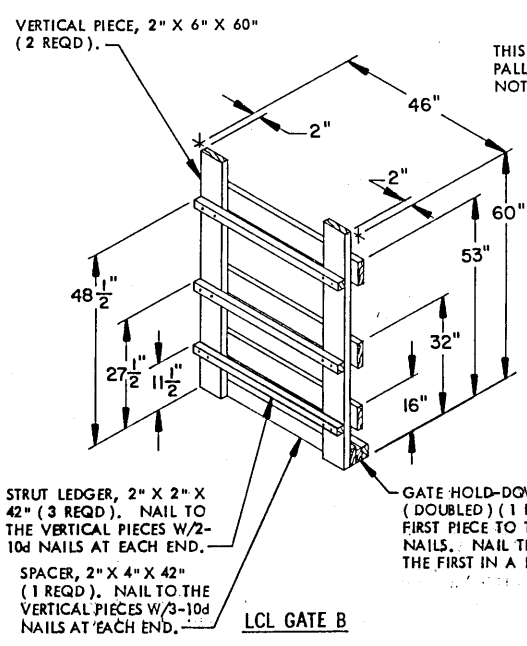
SPECIAL NOTES:

1. THESE PROCEDURES SPECIFY REQUIREMENTS FOR OMITTING A PALLET UNIT FROM A LOAD. THE PROCEDURES DEPICTING ONE PALLET UNIT OMITTED FROM A 1-LAYER LOAD IS ALSO APPLICABLE FOR OMITTING A PALLET UNIT FROM THE 2-LAYER LOADS SHOWN ON PAGES 28 AND 38.
2. THE OMISSION OF A ONE-LAYER UNIT IS SHOWN AS TYPICAL. THE PROCEDURES ARE APPLICABLE FOR USE IN A SECOND LAYER BY PLACING THE DUNNAGE ON A FIRST LAYER PALLET UNIT.

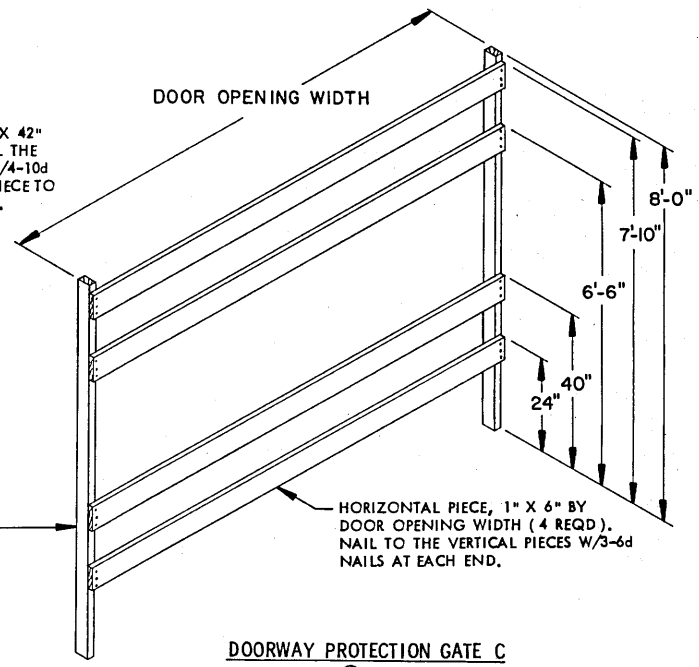


CENTER GATE D

THIS CENTER GATE IS DESIGNED FOR USE WITH THE PALLETIZED LOAD SHOWN ON PAGE 28. SEE SPECIAL NOTE 5 ON PAGE 29.

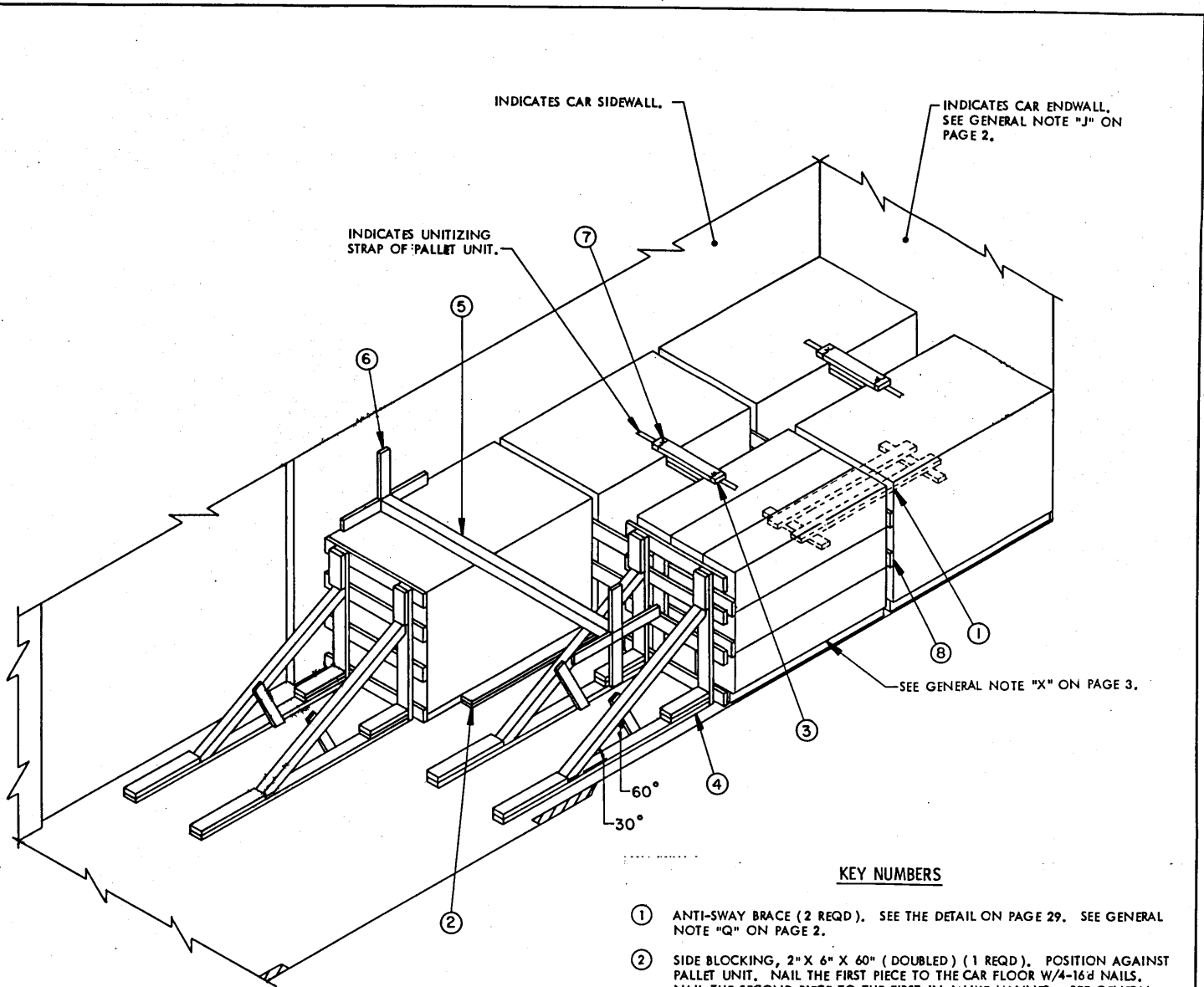


THIS GATE IS DESIGNED FOR USE IN THE LOAD SHOWN ON PAGE 32.



DOORWAY PROTECTION GATE C
SEE "NOTE 1" ON PAGE 22.

DETAILS



ISOMETRIC VIEW

SPECIAL NOTES:

1. THESE LCL OUTLOADING PROCEDURES ARE SHOWN DEPICTING THE USE OF KNEE-BRACE ASSEMBLIES IN A BOX CAR EQUIPPED WITH WOOD OR NAILABLE METAL FLOOR AND NAILABLE SIDEWALLS.
2. IF A PALLET UNIT EXTENDS MORE THAN 38" INTO THE DOORWAY AREA, DOORWAY PROTECTION MUST BE PROVIDED, EITHER THE GATE TYPE AS SHOWN BY THE "DOORWAY PROTECTION C" DETAIL ON PAGE 33 OR DOORWAY BLOCKING AND DOORWAY PROTECTION STRAP SIMILAR TO PIECES MARKED (4) AND (9) ON PAGE 28. ALSO, 2" X 6" BY A LENGTH TO SUIT DOOR SPANNER PIECES MUST BE PROVIDED, AS REQUIRED, FOR NAILING POCKET CLEATS MARKED (6) AND TO PROVIDE A FULL BEARING SURFACE FOR THE ENDS OF THE HOLD-DOWN PIECE MARKED (5) WHEN LOCATED IN A DOORWAY AREA. THESE PIECES WILL EXTEND AT LEAST 12" PAST THE EDGE OF THE DOOR OPENING AND BE NAILED TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END. IF NECESSARY, THOSE PIECES MARKED (6) WHICH ARE SHOWN IN A VERTICAL POSITION IN THE ISOMETRIC VIEW MAY BE INSTALLED HORIZONTALLY.
3. ONE KNEE BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING NOT MORE THAN 7,500 POUNDS OF LADING. ADDITIONAL "KNEES", PIECE MARKED (A) AND PIECES MARKED (I) THRU (K) ON PAGE 35 MAY BE INSTALLED IN A KNEE BRACE ASSEMBLY, ONE (1) FOR EACH 3,750 POUNDS THAT A ROW EXCEEDS THE 7,500 POUNDS TOTAL WEIGHT.
4. IF THE CAR FURNISHED FOR LOADING HAS NON-NAILABLE SIDEWALLS, PIECES MARKED (5) AND (6) CANNOT BE USED. IN LIEU THEREOF, THE ODD UNIT CAN BE SECURED TO THE ADJACENT PALLET WITH ONE PIECE OF 1-1/4" X .085" X 23'-0" LONG STEEL STRAPPING.

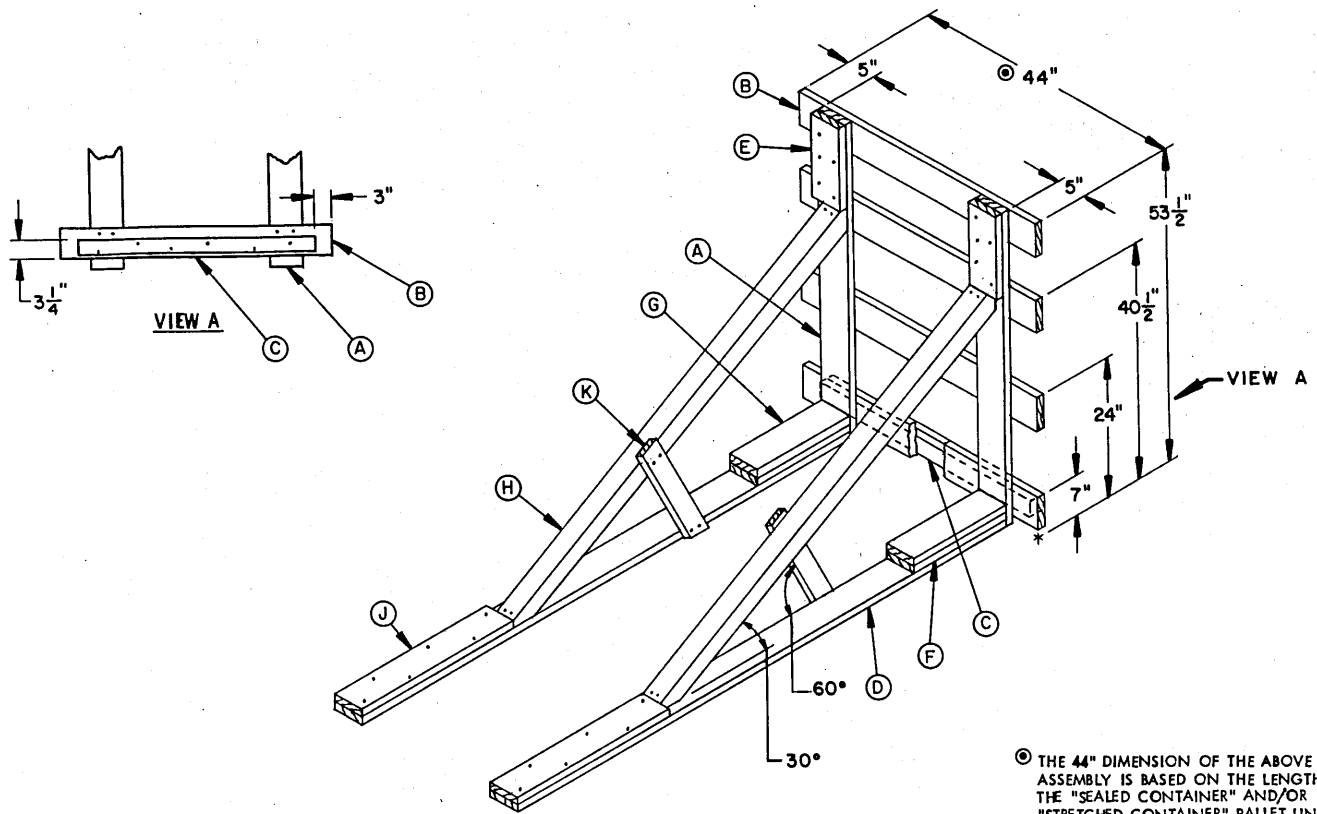
(CONTINUED AT RIGHT)

KEY NUMBERS

- (1) ANTI-SWAY BRACE (2 REQD). SEE THE DETAIL ON PAGE 29. SEE GENERAL NOTE "Q" ON PAGE 2.
- (2) SIDE BLOCKING, 2" X 6" X 60" (DOUBLED) (1 REQD). POSITION AGAINST PALLET UNIT. NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "F" ON PAGE 2.
- (3) TOP-OF-LOAD ANTI-SWAY BRACE (2 REQD). SEE THE DETAIL ON PAGE 29.
- (4) KNEE BRACE ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 35. NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE SPECIAL NOTE 3 AT THE LEFT.
- (5) HOLD-DOWN, 4" X 4" BY CAR WIDTH (1 REQD). SEE SPECIAL NOTES 2 AND 4 AT LEFT.
- (6) POCKET CLEAT, 2" X 4" X 18" (7 REQD). NAIL TO THE CAR SIDEWALL W/5-10d NAILS.
- (7) WIRE TIE, NO. 14 GAGE BLACK ANNEALED WIRE 18" LONG (4 REQD). INSTALL WIRE UNDER THE UNITIZING STRAP OF THE PALLET UNIT AND OVER THE SUPPORT PIECE OF THE ANTI-SWAY BRACE. BRING ENDS TOGETHER AND TWIST TAUT.
- (8) SEPARATOR GATE (2 REQD). SEE THE "SEPARATOR GATE B" DETAIL FOR 1-HIGH LOADS ON PAGE 39.

(SPECIAL NOTES CONTINUED)

5. THE PROCEDURES SHOWN ABOVE DEPICT A "SEALED CONTAINER" PALLET UNIT WHICH IS 44-3/8" LONG BY 76" WIDE AND THE "STRETCHED CONTAINER" PALLET UNIT WHICH IS 44-3/8" LONG BY 84" WIDE. THE SAME PROCEDURES WILL BE USED FOR SHIPMENT OF THE "UNSEALED CONTAINER" PALLET UNIT, WHICH IS 46-1/2" LONG BY 76-1/4" WIDE, HOWEVER, THE WIDTH OF THE KNEE BRACE ASSEMBLY, PIECE MARKED (4) WILL BE INCREASED FROM 43" TO 46"

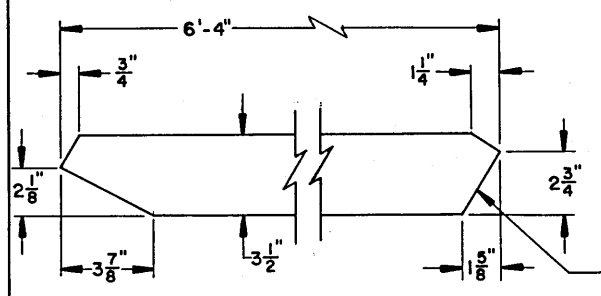


Ⓢ THE 44" DIMENSION OF THE ABOVE ASSEMBLY IS BASED ON THE LENGTH OF THE "SEALED CONTAINER" AND/OR "STRETCHED CONTAINER" PALLET UNIT, WHEN THE ASSEMBLY IS USED TO SHIP AN "UNSEALED CONTAINER" PALLET UNIT, THIS DIMENSION WILL BE INCREASED TO 46". ALL OTHER DIMENSIONS WILL REMAIN UNCHANGED.

KNEE BRACE ASSEMBLY

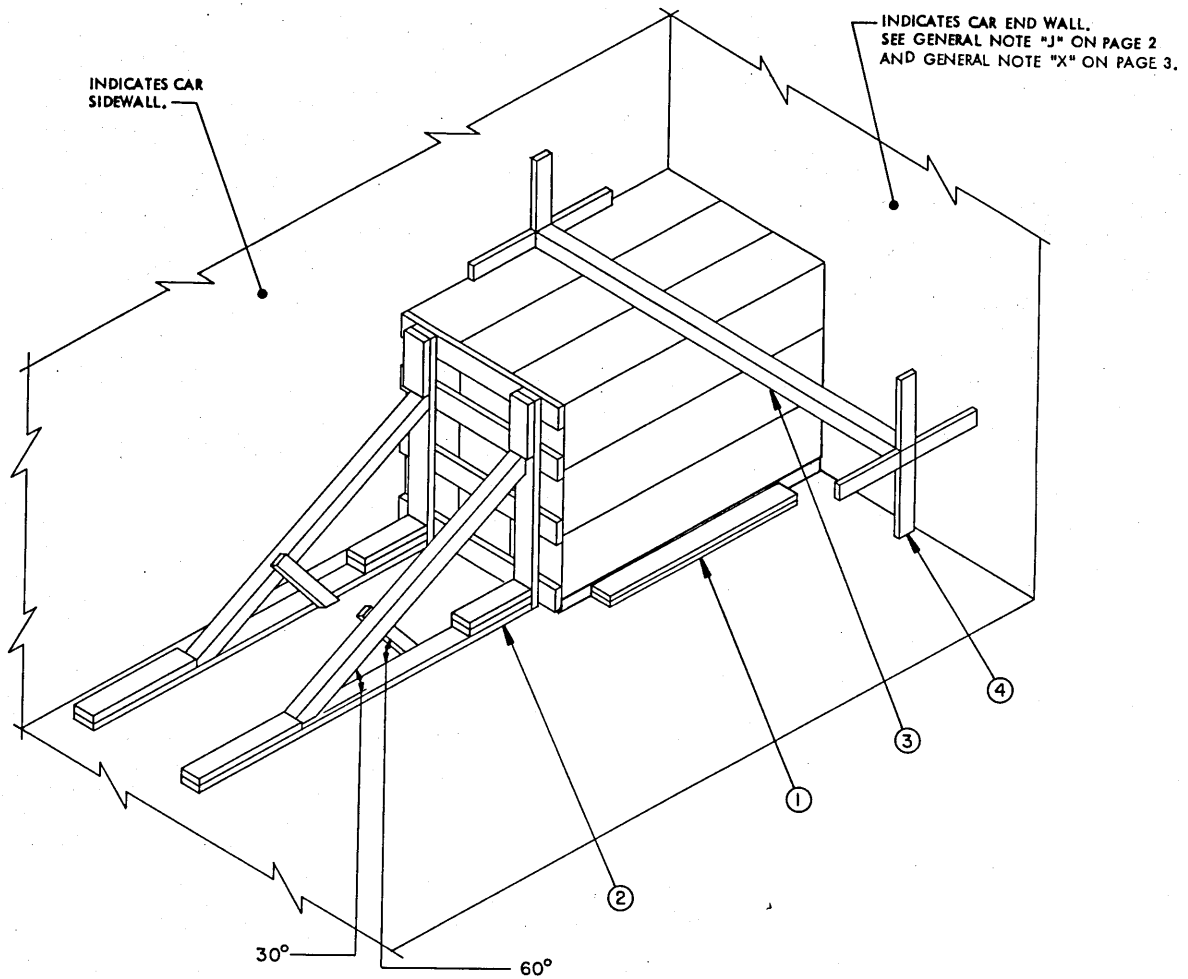
NOTE: THIS ASSEMBLY IS ADEQUATE FOR RETAINING A MAXIMUM OF 7,500 POUNDS.

LUMBER AND NAILING DATA				
PC MK	LUMBER SIZE	NO. REQD	NAIL TO	NUMBER OF SIZE OF NAILS
(A)	2" X 6" X 53-1/2"	2		
(B)	2" X 6" X 43"	4	(A)	3-10d AT EACH JOINT
(C)	2" X 3" X 40"	2	(B)	6-10d
(D)	2" X 6" X 8'-0"	2	CAR FLOOR	1-16d EVERY 8"
(E)	2" X 6" X 14"	2	(A)	5-10d
(F)	2" X 6" X 18"	2	(D)	4-40d
(G)	2" X 6" X 18"	2	(A)	TOENAIL W/2-12d
(H)	4" X 4" X 6'-4" SEE "DETAIL PIECE G"	2	(A) (F) AND (D)	4-40d 2-16d AT EACH END.
(J)	2" X 6" X 30"	2	(D)	6-40d
(K)	2" X 4" X 24" BEVEL ONE END WITH 60° CUT	2	(H) AND (D)	2-12d AT EACH END



THIS BEARING SURFACE MUST BE IN CONTACT WITH THE VERTICAL PIECE MARKED (A) ABOVE.

DETAIL PIECE (H)
4" X 4" MATERIAL



ISOMETRIC VIEW

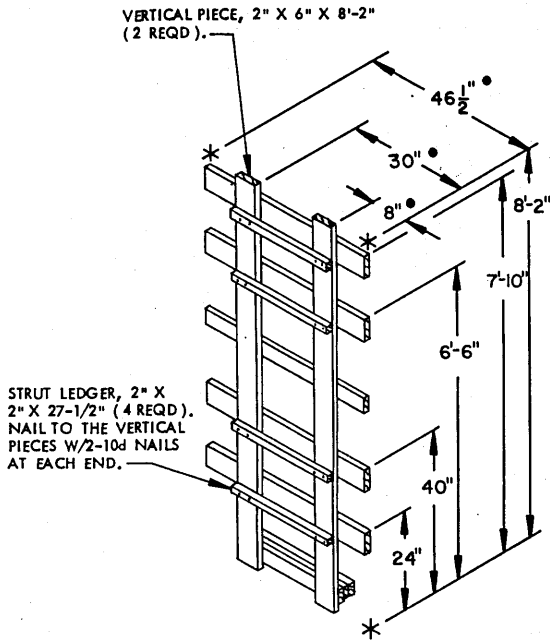
SPECIAL NOTES:

1. THESE LCL OUTLOADING PROCEDURES ARE SHOWN DEPICTING THE USE OF A KNEE-BRACE ASSEMBLY IN A BOX CAR EQUIPPED WITH WOOD OR NAILABLE METAL FLOOR AND NAILABLE SIDEWALLS.
2. ONE KNEE BRACE ASSEMBLY IS ADEQUATE FOR RETAINING NOT MORE THAN 7,500 POUNDS OF LADING.
3. THE PROCEDURES SHOWN ABOVE ARE APPLICABLE TO BOTH THE "SEALED CONTAINER" PALLET UNIT OR THE "UNSEALED CONTAINER" PALLET UNIT. AND THE "STRETCHED CONTAINER" PALLET UNIT.

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" X 54" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTES "F" AND "Q" ON PAGE 2.
- ② KNEE BRACE ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 35. NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE SPECIAL NOTE 2 AT LEFT.
- ③ HOLD-DOWN, 4" X 4" BY CAR WIDTH (1 REQD).
- ④ POCKET CLEAT, 2" X 4" X 18" (7 REQD). NAIL TO THE CAR SIDEWALL W/5-10d NAILS.

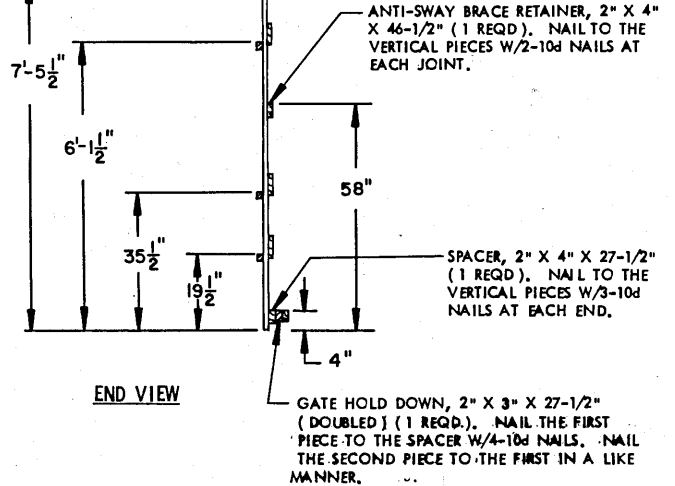
• THESE DIMENSIONS WILL BE 48", 31-1/2", AND 9-1/2" WHEN USING "SPACER ASSEMBLY E" IN A METAL LINED CAR.



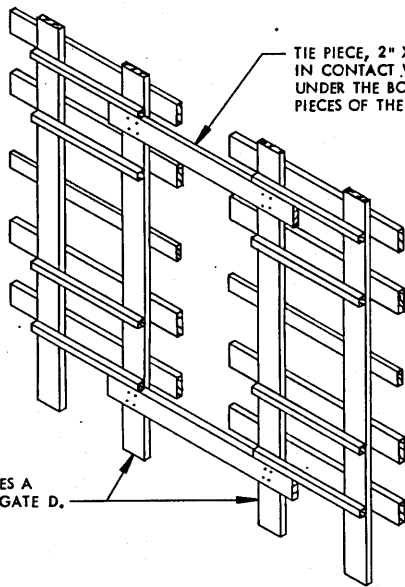
CENTER GATE E

SEE SPECIAL NOTE 5 ON PAGE 29 OR 31.

HORIZONTAL PIECE, 2" X 6" X 46-1/2" (4 REQD).
NAIL TO THE VERTICAL PIECES
W/3-10d NAILS AT EACH JOINT.



END VIEW



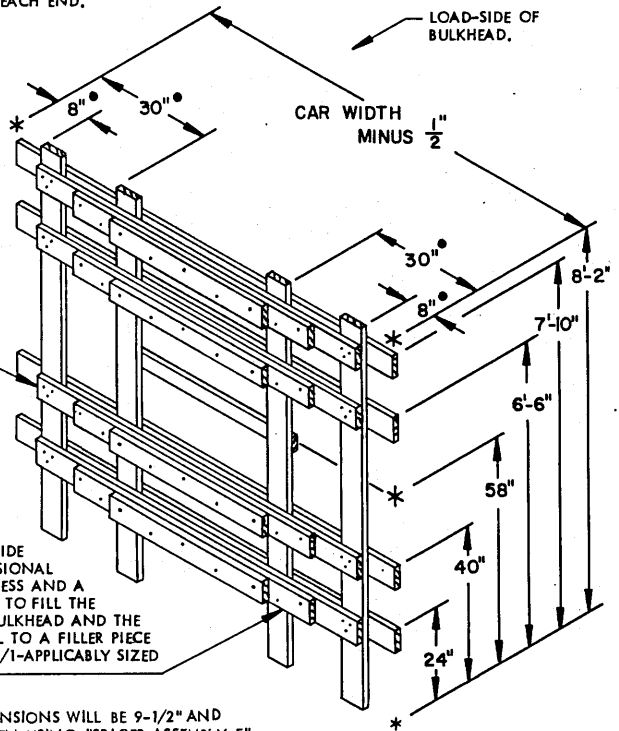
TIE PIECE APPLICATION

THIS PROCEDURE IS APPLICABLE FOR USE WITH TWO CENTER GATES E. NOTE THAT THE TIE PIECES SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED. SEE SPECIAL NOTE 5 ON PAGE 29.

FILLER PIECE, 2" X 6" BY CAR WIDTH MINUS 16-1/2" IN LENGTH (4 REQD). ALIGN WITH THE HORIZONTAL PIECES OF THE MODIFIED CENTER GATE C AND NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

PLACE THIS SIDE OF BULKHEAD AGAINST THE CAR END WALL.

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

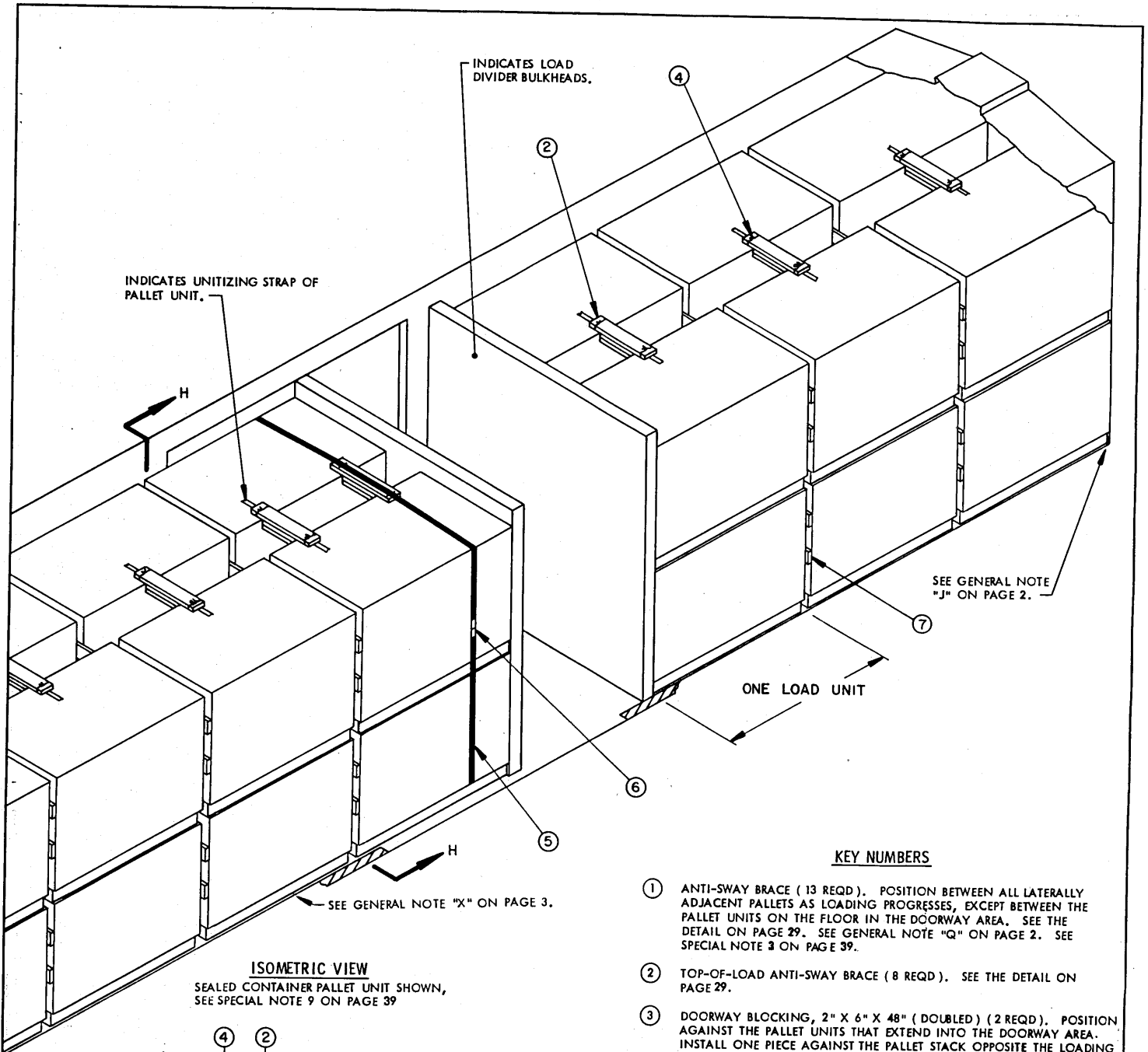


• THESE DIMENSIONS WILL BE 9-1/2" AND 31-1/2" WHEN USING "SPACER ASSEMBLY E" IN A METAL LINED CAR.

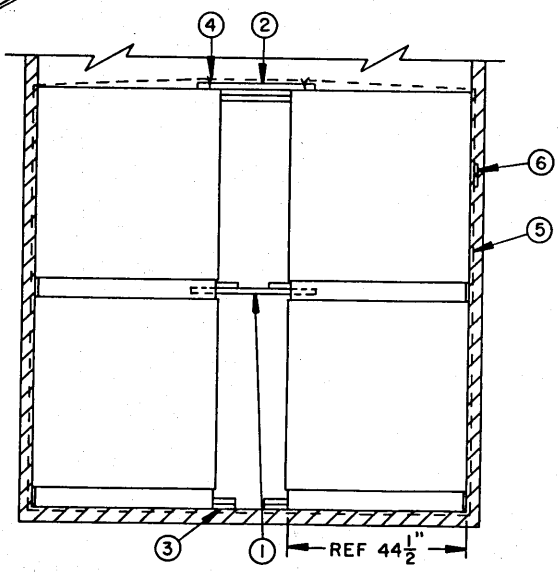
BULKHEAD B

THIS BULKHEAD IS A CENTER GATE C WITHOUT THE STRUT LEDGERS AND IS FOR USE AT THE END OF THE CAR IN A LOAD OF PALLETIZED CONTAINERS.

DETAILS



ISOMETRIC VIEW
SEALED CONTAINER PALLET UNIT SHOWN,
SEE SPECIAL NOTE 9 ON PAGE 39

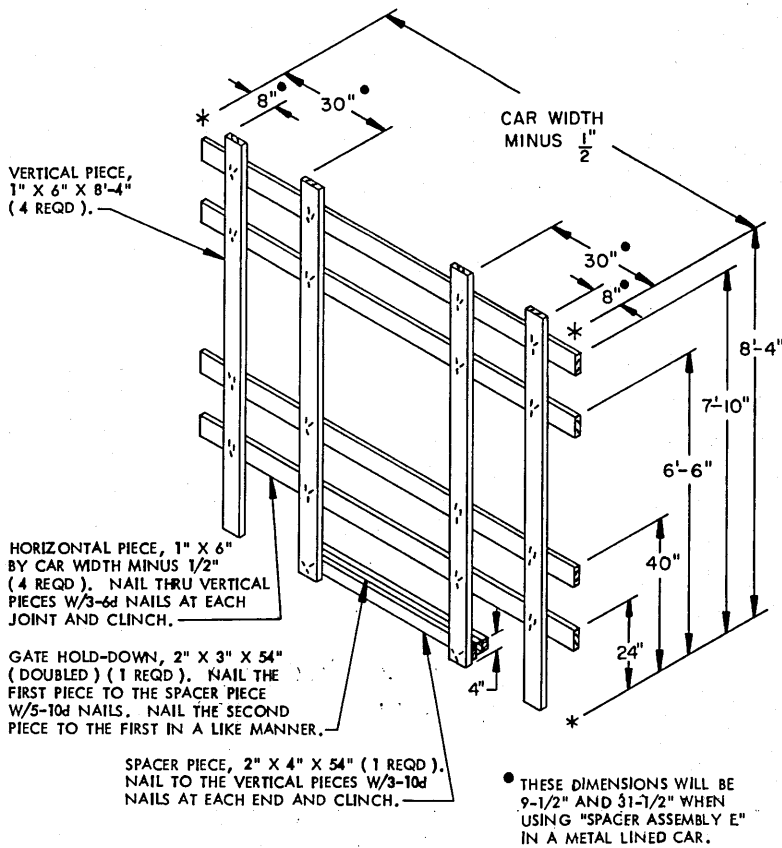


SECTION H-H

28-UNIT LOAD (PALLETIZED) IN A 50'-6" LONG BY 9'-2" WIDE CAR EQUIPPED WITH LOAD DIVIDERS

KEY NUMBERS

- ① ANTI-SWAY BRACE (13 REQD). POSITION BETWEEN ALL LATERALLY ADJACENT PALLET AS LOADING PROGRESSES, EXCEPT BETWEEN THE PALLET UNITS ON THE FLOOR IN THE DOORWAY AREA. SEE THE DETAIL ON PAGE 29. SEE GENERAL NOTE "Q" ON PAGE 2. SEE SPECIAL NOTE 3 ON PAGE 39.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 29.
- ③ DOORWAY BLOCKING, 2" X 6" X 48" (DOUBLED) (2 REQD). POSITION AGAINST THE PALLET UNITS THAT EXTEND INTO THE DOORWAY AREA. INSTALL ONE PIECE AGAINST THE PALLET STACK OPPOSITE THE LOADING SIDE AFTER THE STACK IS POSITIONED IN THE CAR. PRE-POSITION THE LOADING-SIDE PIECE APPROXIMATELY 44-1/2" FROM THE CAR WALL SO AS TO CONTACT THE LAST PALLET STACK TO BE POSITIONED. NAIL THE FIRST PIECE TO THE CAR FLOOR W/10-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "F" ON PAGE 2 AND SPECIAL NOTE 5 ON PAGE 39.
- ④ WIRE TIE, NO. 14 GAGE BLACK ANNEALED WIRE 18" LONG (14 REQD). INSTALL WIRE UNDER THE UNITIZING STRAP OF THE PALLET UNIT AND OVER THE SUPPORT PIECE OF THE ANTI-SWAY BRACE. BRING ENDS TOGETHER AND TWIST TAUT.
- ⑤ DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" X 39'-0" LONG STEEL STRAPPING (1 REQD). INSTALL AS SHOWN TO ENCLOSE THE LOAD UNIT WHICH PROTRUDES INTO THE DOORWAY AREA. STAPLE TO A TOP-OF-LOAD ANTI-SWAY BRACE, PIECE MARKED ②, W/2 STAPLES. SEE SPECIAL NOTE 5 ON PAGE 39.
- ⑥ SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD). POSITION AS SHOWN. DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "T" ON PAGE 3.
- ⑦ SEPARATOR GATE (5 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 39.



SEPARATOR GATE B

FOR A ONE-HIGH LOAD, OMIT THE TWO UPPER HORIZONTAL PIECES AND DECREASE THE HEIGHT OF THE VERTICAL PIECES TO 48"

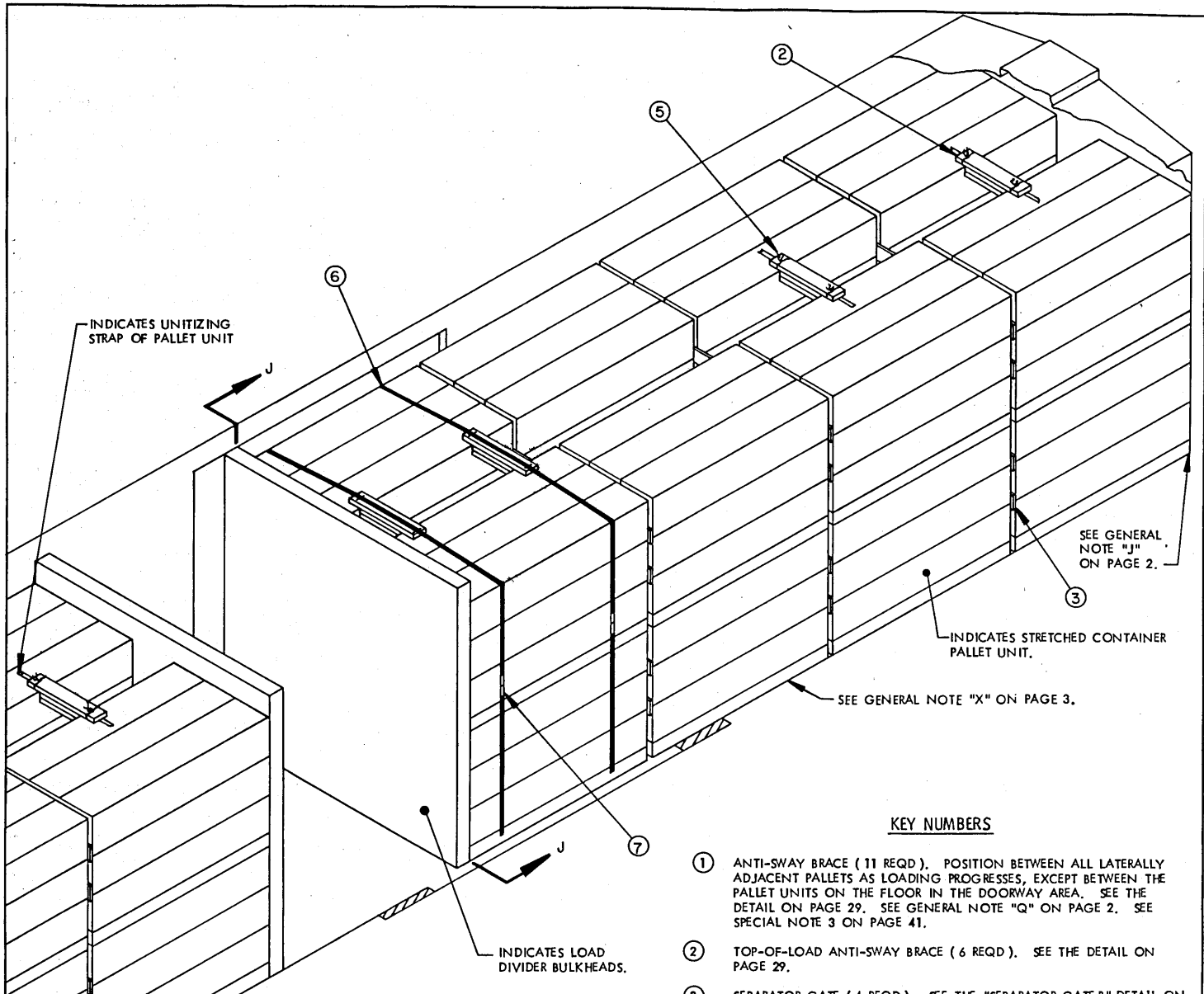
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	350	175
2" X 3"	45	23
2" X 4"	97	65
2" X 6"	211	211
NAILS	NO. REQD	POUNDS
6d (2")	240	1-1/2
10d (3")	300	4-1/2
16d (3-1/2")	40	1
STEEL STRAPPING, 1-1/4" X .035"	39' REQD	6 LBS
SEAL FOR 1-1/4" STRAPPING	2 REQD	NIL
STAPLE FOR 1-1/4" STRAPPING	2 REQD	NIL
NO. 14 GAGE WIRE	21' REQD	NIL

SPECIAL NOTES:

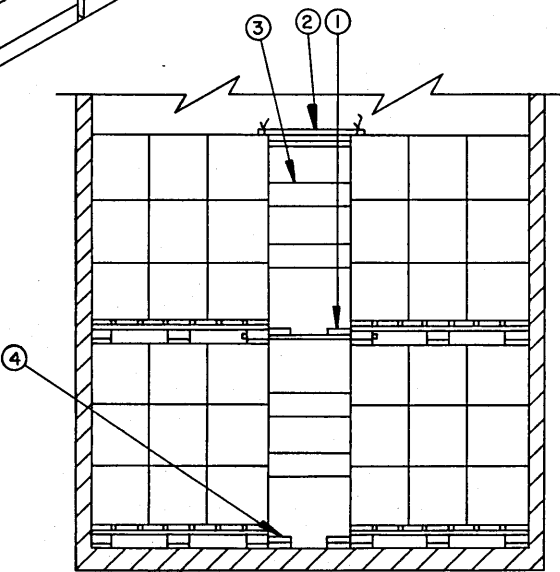
1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER (7'-0" MINIMUM) DOOR OPENINGS CAN BE USED. NOTE: ONLY THOSE CARS WHICH SATISFY THE SPECIFICATIONS CONTAINED IN GENERAL NOTE "H" ON PAGE 2 CAN BE USED.
2. IF THE BOX CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD MORE THAN 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 "BULKHEAD 8" DETAIL ON PAGE 37 AND GENERAL NOTE "J" ON PAGE 2.
3. ANTI-SWAY BRACES, PIECES MARKED ①, WILL BE INSTALLED BETWEEN ALL LATERALLY ADJACENT PALLET UNITS EXCEPT THE FLOOR LINE UNITS WHICH ARE COMPLETELY IN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR BY MORE THAN 38".
4. A CAR EQUIPPED WITH PLUG TYPE DOORS IS SHOWN. IF THE CAR BEING LOADED IS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, THE DOORWAY PROTECTION C, AS DETAILED ON PAGE 33, MAY BE USED IN LIEU OF PIECES MARKED ③ AND ⑤, IF DESIRED. SEE SPECIAL NOTE 5.
5. DOORWAY BLOCKING, PIECE MARKED ③, AND DOORWAY PROTECTION STRAPPING, PIECE MARKED ⑤ ARE REQUIRED FOR ALL LOAD UNITS WHICH EXTEND MORE THAN 38" INTO THE DOORWAY AREA. ONE (1) STRAP IS REQUIRED FOR A LOAD UNIT WHICH IS RETAINED BY AT LEAST 6" OF CAR SIDEWALL ON BOTH SIDES OF THE CAR, AND TWO (2) STRAPS ARE REQUIRED FOR LOAD UNITS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH ARE RETAINED BY LESS THAN SIX INCHES (6") OF CAR SIDEWALL ON BOTH SIDES OF THE CAR.
6. A LOAD MAY BE DECREASED BY A MULTIPLE OF FOUR (4) PALLET UNITS BY OMITTING COMPLETE LOAD UNITS FROM EITHER OR BOTH ENDS OF THE CAR. A LOAD MAY BE DECREASED BY TWO (2) PALLET UNITS BY EMPLOYING THE PRINCIPLES OF THE PROCEDURES SHOWN ON PAGE 42. IF IT IS NECESSARY TO DECREASE A LOAD BY ONE (1) PALLET UNIT, REFER TO THE PROCEDURES ON PAGE 32 FOR GUIDANCE.
7. A ONE-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED ON TOP OF THE LOAD FOR SHIPMENT, CAR HEIGHT PERMITTING. REFER TO PAGES 43 AND 44 FOR GUIDANCE. A TWO-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED WITHIN A LOAD. REFER TO PAGE 45 FOR SPECIAL REQUIREMENTS.
8. ONE OR TWO LEFTOVER CONTAINERS CAN BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO PAGE 46 FOR GUIDANCE.
9. THE PROCEDURES SHOWN DEPICT A "SEALED CONTAINER" PALLET UNIT WHICH IS 48-3/8" LONG BY 76" WIDE. THE SAME PROCEDURES WILL BE USED FOR SHIPMENT OF THE "UNSEALED CONTAINER" PALLET UNIT, WHICH IS 46-1/2" LONG BY 76-1/4" WIDE.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT (SEALED)	28	48,972 LBS
DUNNAGE		961 LBS
TOTAL WEIGHT		49,933 LBS



ISOMETRIC VIEW



SECTION J-J

KEY NUMBERS

- ① ANTI-SWAY BRACE (11 REQD). POSITION BETWEEN ALL LATERALLY ADJACENT PALLETS AS LOADING PROGRESSES, EXCEPT BETWEEN THE PALLET UNITS ON THE FLOOR IN THE DOORWAY AREA. SEE THE DETAIL ON PAGE 29. SEE GENERAL NOTE "Q" ON PAGE 2. SEE SPECIAL NOTE 3 ON PAGE 41.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE DETAIL ON PAGE 29.
- ③ SEPARATOR GATE (4 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 39.
- ④ DOORWAY BLOCKING, 2" X 6" X 72" (DOUBLED) (2 REQD). POSITION AGAINST THE PALLET UNITS THAT EXTEND INTO THE DOORWAY AREA. INSTALL ONE PIECE AGAINST THE PALLET STACK OPPOSITE THE LOADING SIDE AFTER THE STACK IS POSITIONED IN THE CAR. PRE-POSITION THE LOADING-SIDE PIECE APPROXIMATELY 44-3/8" FROM THE CAR WALL SO AS TO CONTACT THE LAST PALLET STACK TO BE POSITIONED. NAIL THE FIRST PIECE TO THE CAR FLOOR W/14-16d NAILS. NAIL THE SECOND SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "F" ON PAGE 2 AND SPECIAL NOTE 5 ON PAGE 41.
- ⑤ WIRE TIE, NO. 14 GAGE BLACK ANNEALED WIRE 18" LONG (8 REQD). INSTALL WIRE UNDER THE UNITIZING STRAP OF THE PALLET UNIT AND OVER THE SUPPORT PIECE OF THE ANTI-SWAY BRACE. BRING ENDS TOGETHER AND TWIST TAUT.
- ⑥ DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" X 39'-0" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO ENCIRCLE THE LOAD UNIT WHICH PROTRUDES INTO THE DOORWAY AREA. STAPLE TO A TOP-OF-LOAD ANTI-SWAY BRACE, PIECE MARKED ②, W/2 STAPLES SEE SPECIAL NOTE 5 ON PAGE 41.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD). POSITION AS SHOWN. DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "T" ON PAGE 3.

SPECIAL NOTES:

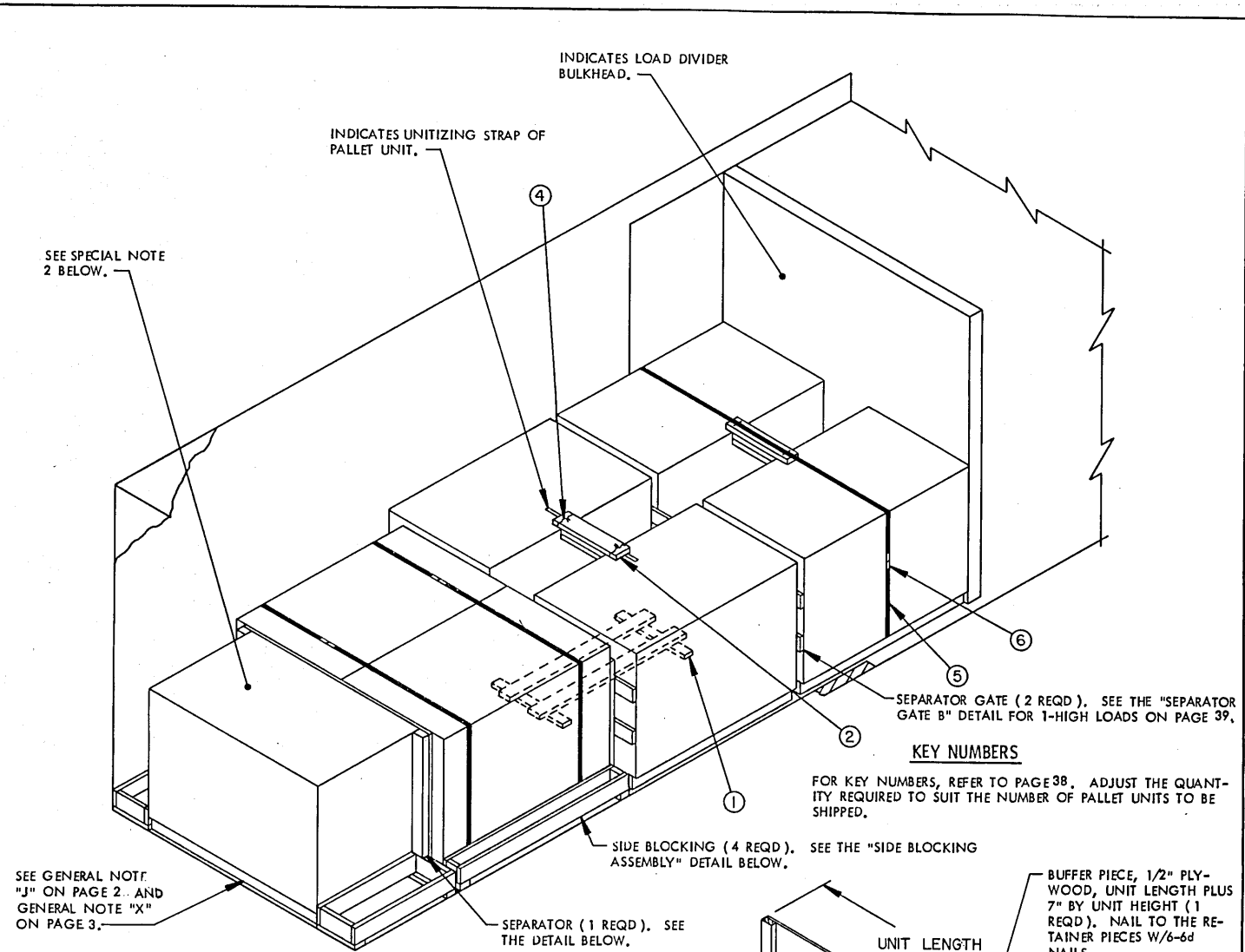
1. A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER (7'-0" MINIMUM) DOOR OPENINGS CAN BE USED. **NOTE:** ONLY THOSE CARS WHICH SATISFY THE SPECIFICATIONS CONTAINED IN GENERAL NOTE "H" ON PAGE 2 CAN BE USED.
2. IF THE BOX CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD MORE THAN 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 "BULKHEAD B" DETAIL ON PAGE 37 AND GENERAL NOTE "J" ON PAGE 2.
3. ANTI-SWAY BRACES, PIECES MARKED ① WILL BE INSTALLED BETWEEN ALL LATERALLY ADJACENT PALLET UNITS EXCEPT THE FLOOR LINE UNITS WHICH ARE COMPLETELY IN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR BY MORE THAN 38".
4. A CAR EQUIPPED WITH PLUG TYPE DOORS IS SHOWN. IF THE CAR BEING LOADED IS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, THE DOORWAY PROTECTION C, AS DETAILED ON PAGE 33, MAY BE USED IN LIEU OF PIECES MARKED ④ AND ⑤, IF DESIRED. SEE SPECIAL NOTE 5.
5. DOORWAY BLOCKING, PIECE MARKED ④, AND DOORWAY PROTECTION STRAPPING, PIECE MARKED ⑥ ARE REQUIRED FOR ALL LOAD UNITS WHICH EXTEND MORE THAN 38" INTO THE DOORWAY AREA. ONE (1) STRAP IS REQUIRED FOR A LOAD UNIT WHICH IS RETAINED BY AT LEAST 6" OF CAR SIDEWALL ON BOTH SIDES OF THE CAR, AND TWO (2) STRAPS ARE REQUIRED FOR LOAD UNITS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH ARE RETAINED BY LESS THAN SIX INCHES (6") OF CAR SIDEWALL ON BOTH SIDES OF THE CAR.
6. A LOAD MAY BE DECREASED BY A MULTIPLE OF FOUR (4) PALLET UNITS BY OMITTING COMPLETE LOAD UNITS FROM EITHER OR BOTH ENDS OF THE CAR. A LOAD MAY BE DECREASED BY TWO (2) PALLET UNITS BY EMPLOYING THE PRINCIPLES OF THE PROCEDURES SHOWN ON PAGE 42. IF IT IS NECESSARY TO DECREASE A LOAD BY ONE (1) PALLET UNIT, REFER TO THE PROCEDURES ON PAGE 32 FOR GUIDANCE.
7. A ONE-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED ON TOP OF THE LOAD FOR SHIPMENT, CAR HEIGHT PERMITTING. REFER TO PAGES 43 AND 44 FOR GUIDANCE. A TWO-LAYER PARTIAL PALLET UNIT CAN BE POSITIONED WITHIN A LOAD. REFER TO PAGE 45 FOR SPECIAL REQUIREMENTS.
8. ONE OR TWO LEFTOVER CONTAINERS CAN BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO PAGE 46 FOR GUIDANCE.
9. THE PROCEDURES SHOWN DEPICT A "STRETCHED CONTAINER" PALLET UNIT WHICH IS 44-3/8" LONG BY 7'-0" WIDE.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	277	139
2" X 4"	61	41
2" X 6"	198	198
NAILS	NO. REQD	POUNDS
6d (2")	48	1 1/2
10d (3")	228	3-3/4
STEEL STRAPPING, 1-1/4" X .035"-----78' REQD-----11 LBS		
SEAL FOR 1-1/4" STRAPPING-----4 REQD-----NIL		
NO. 14 GAGE WIRE-----12' REQD-----NIL		

LOAD AS SHOWN

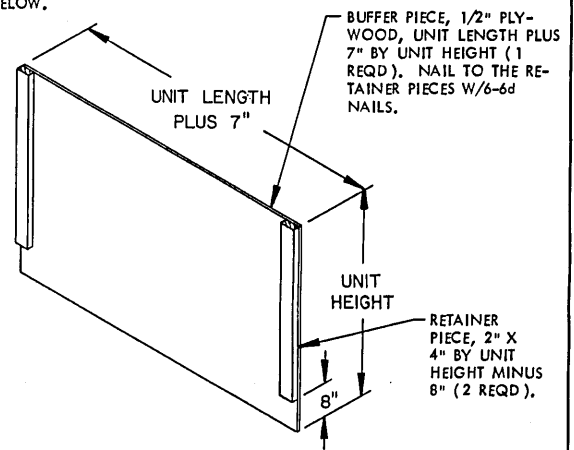
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT (STRETCHED)	24	46,104 LBS
DUNNAGE		772 LBS
TOTAL WEIGHT-----		46,876 LBS (APPROX)



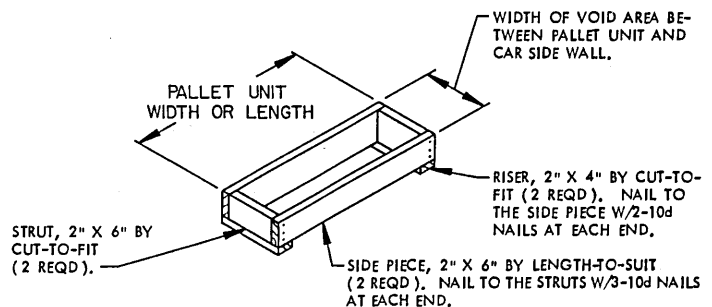
ISOMETRIC VIEW

SPECIAL NOTES:

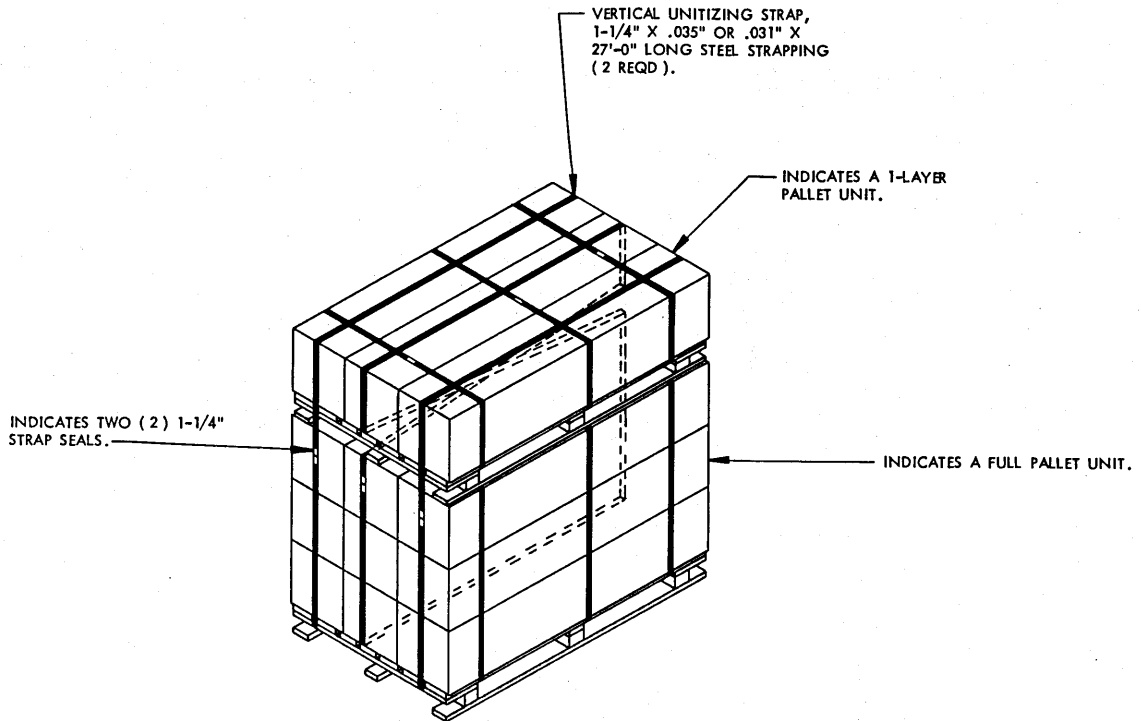
1. THESE PROCEDURES SPECIFY REQUIREMENTS FOR OMITTING A PALLET UNIT FROM A 1-LAYER LOAD. THE PRINCIPLES MAY BE APPLIED TO THE 2-LAYER LOAD DEPICTED ON PAGES 38 AND 39 FOR THE SHIPMENT OF A QUANTITY WHICH IS TWO LESS THAN A MULTIPLE OF FOUR PALLET UNITS. REFER TO PAGE 32 FOR GUIDANCE IN OMITTING ONE PALLET UNIT FROM A 2-LAYER LOAD.
2. EXERCISE CARE WHEN POSITIONING THE PALLET UNIT AGAINST THE END WALL OF THE CAR TO ASSURE THAT IT IS CENTERED Laterally IN THE CAR.
3. SEE SPECIAL NOTE 3 ON PAGE 39 FOR DOORWAY PROTECTION STRAPPING REQUIREMENTS.
4. THE PROCEDURES SHOWN ABOVE ARE APPLICABLE TO BOTH THE "SEALED CONTAINER" PALLET UNIT OR THE "UNSEALED CONTAINER" PALLET UNIT AND THE "STRETCHED CONTAINER" PALLET UNIT.



SEPARATOR



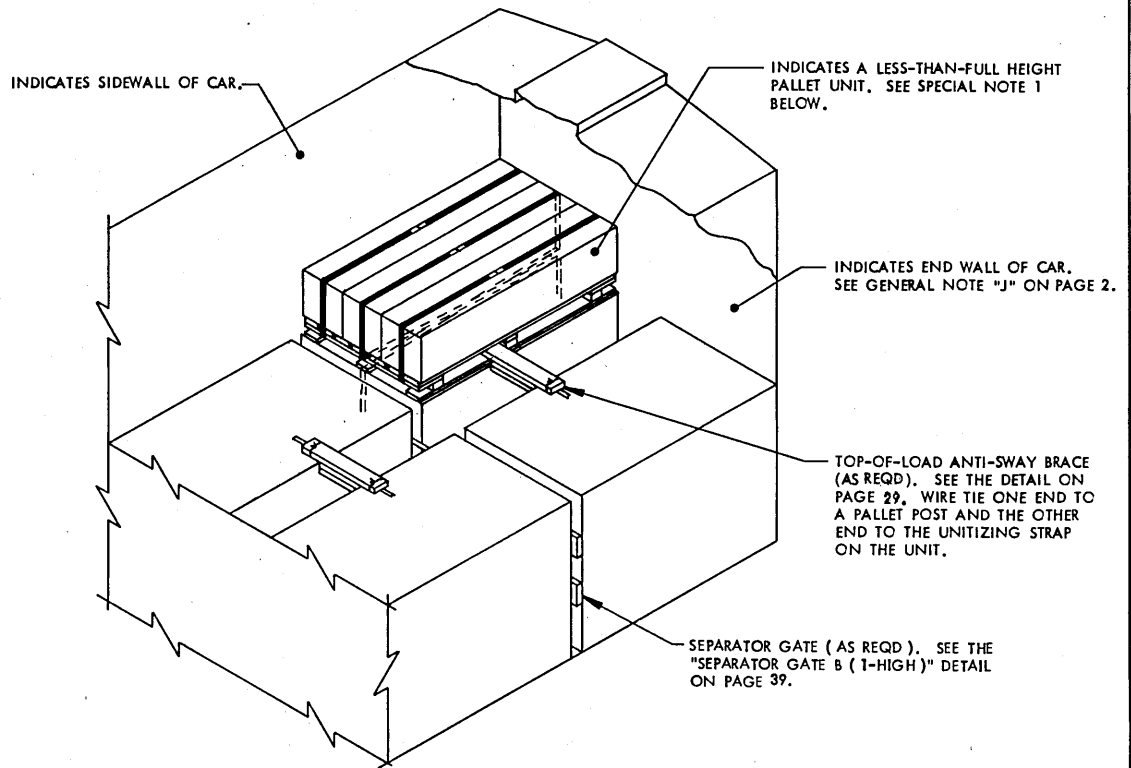
SIDE BLOCKING ASSEMBLY



SECUREMENT OF A PARTIAL PALLET UNIT ON
TOP OF A FULL PALLET UNIT

SPECIAL NOTES:

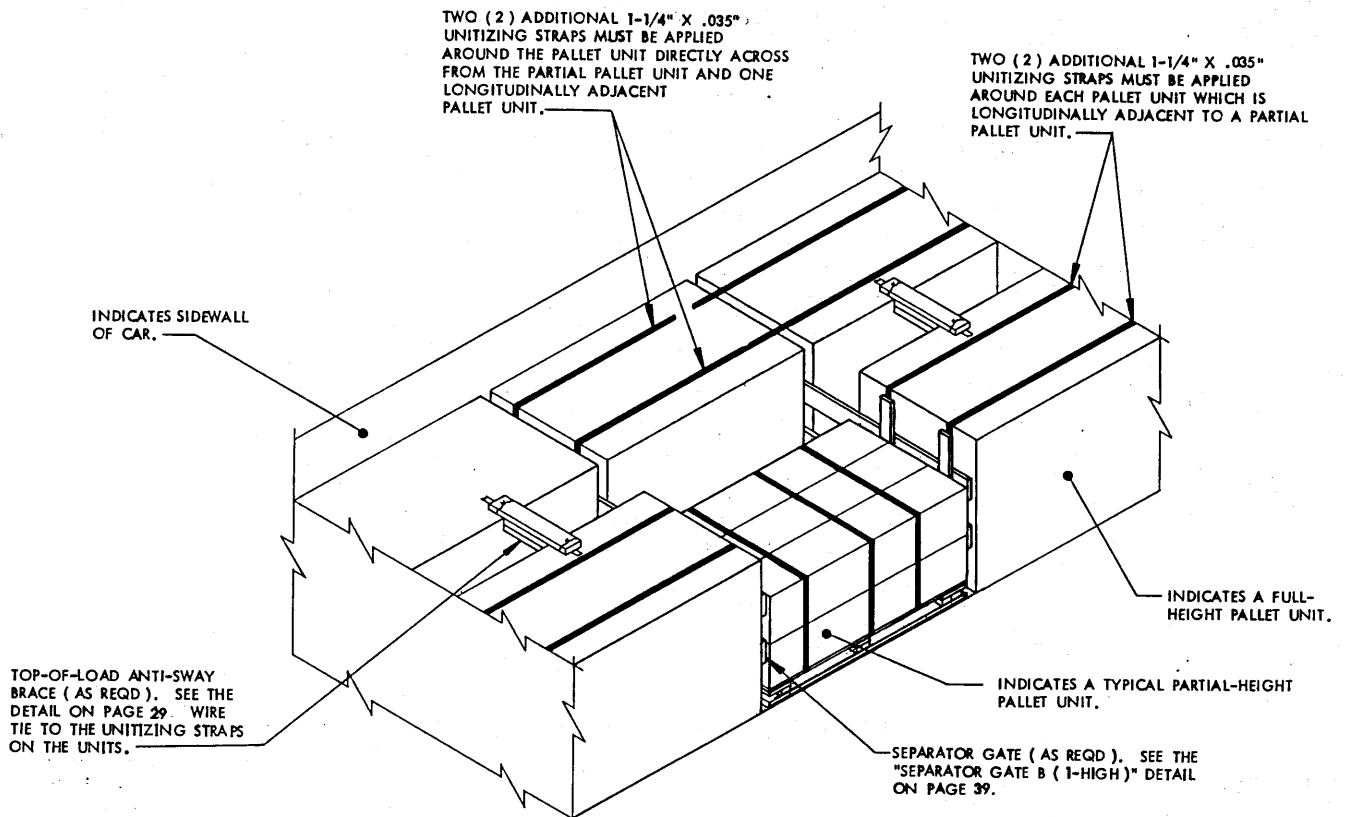
1. THE VIEW SHOWN ABOVE DEPICTS PROCEDURES FOR SECUREMENT OF A PARTIAL PALLET UNIT ON TOP OF A FULL PALLET UNIT.
2. SHIPMENTS OF PALLET UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL PALLET UNITS WITHIN A LOAD. THE PROCEDURES ON THIS PAGE AND ON PAGES 43 AND 45 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
3. SHIPMENTS OF A PARTIAL PALLET UNIT ON TOP OF A FULL PALLET UNIT, AS DETAILED ABOVE AND SHOWN IN THE PROCEDURES ON PAGE 44, ARE RESTRICTED TO ONE LAYER OF CONTAINERS. SHIPMENTS OF TWO LAYERS OF CONTAINERS ON A PALLET MUST BE SHIPPED WITHIN A LOAD AS SHOWN ON PAGE 45.
4. FOR SHIPMENT OF "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 46.
5. THE PROCEDURES SHOWN ABOVE ARE APPLICABLE TO BOTH THE "SEALED CONTAINER" PALLET UNIT OR THE "UNSEALED CONTAINER" PALLET UNIT AND THE "STRETCHED CONTAINER" PALLET UNIT



**POSITIONING OF A PARTIAL
PALLET UNIT (1 LAYER) WITHIN A LOAD**

SPECIAL NOTES:

1. FOR SECUREMENT OF A PARTIAL PALLET UNIT ON TOP OF A FULL-HEIGHT PALLET UNIT, SEE PAGE 43.
2. SHIPMENTS OF PALLET 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 45 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF PARTIAL UNITS.
3. THE PARTIAL UNIT IS SHOWN IN THE END OF THE CAR ONLY AS A TYPICAL LOCATION. THE PARTIAL UNIT MAY BE POSITIONED ANYWHERE IN THE LENGTH OF THE LOAD EXCEPT WITHIN THE DOORWAY AREA.
4. THE PROCEDURES SHOWN ON THIS PAGE ARE ONLY APPLICABLE TO PARTIAL PALLET UNITS CONSISTING OF ONE LAYER OF CONTAINERS. FOR SHIPMENT OF "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 46.
5. THE SHIPMENT OF A PARTIAL PALLET UNIT AS SHOWN ABOVE IS APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AS WELL AS FOR LOADS IN CONVENTIONAL BOX CARS.
6. THE PROCEDURES SHOWN ABOVE ARE APPLICABLE TO BOTH THE "SEALED CONTAINER" PALLET UNIT OR THE "UNSEALED CONTAINER" PALLET UNIT AND THE "STRETCHED CONTAINER" PALLET UNIT.



**POSITIONING OF A PARTIAL
PALLET UNIT (TWO LAYERS) WITHIN A LOAD**

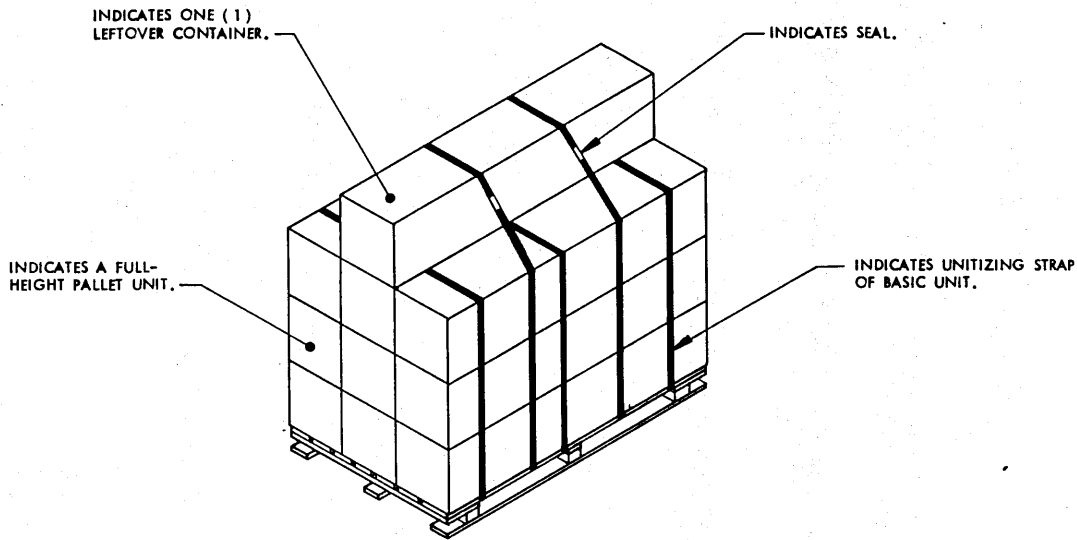
SPECIAL NOTES:

1. FOR SECUREMENT OF A PARTIAL PALLET UNIT ON TOP OF A FULL-HEIGHT PALLET UNIT, SEE PAGE 43.
2. SHIPMENT OF PALLET 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 44 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
3. THE PROCEDURES SHOWN ON THIS PAGE ARE ONLY APPLICABLE TO PARTIAL PALLET UNITS CONSISTING OF TWO LAYERS OF CONTAINERS. FOR SHIPMENT OF "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 46.
4. 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 LOAD, 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, 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 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 PAGE 46 FOR GUIDANCE IN STRAP APPLICATION.

(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

5. 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.
6. THE "POSITIONING OF A PARTIAL PALLET UNIT WITHIN A LOAD" VIEW ABOVE DEPICTS A PORTION OF A CONVENTIONAL BOX CAR LOAD. HOWEVER, THE "SHIPMENT OF A PARTIAL PALLET UNIT" PROCEDURES ON THIS PAGE ARE ALSO APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
7. THE PROCEDURES SHOWN ABOVE ARE APPLICABLE TO BOTH THE "SEALED CONTAINER" PALLET UNIT OR THE "UNSEALED CONTAINER" PALLET UNIT OR THE "STRETCHED CONTAINER" PALLET UNIT.



SECUREMENT OF LEFTOVER CONTAINERS

SPECIAL NOTES:

1. THE ISOMETRIC VIEW SHOWN ABOVE DEPICTS PROCEDURES FOR SECUREMENT OF A LEFTOVER CONTAINER ON TOP OF A FULL PALLET UNIT.
2. SHIPMENT OF 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 PALLET UNIT WILL NOT EXCEED THREE. IF FOUR OR FIVE LEFTOVER CONTAINERS ARE TO BE SHIPPED, TWO CONTAINERS WILL BE SECURED TO THE TOP OF ONE PALLET UNIT AND TWO OR THREE CONTAINERS WILL BE SECURED TO THE TOP OF A DIFFERENT PALLET UNIT.
4. LEFTOVER CONTAINERS MUST BE SECURED TO A FULL HEIGHT PALLET UNIT WITH A MINIMUM OF TWO (2) PIECES OF STEEL STRAPPING (SEPARATE FROM UNIT STRAPS) OF A SIZE AT LEAST AS HEAVY AS THE UNITIZING STRAPPING (3/4" X .035" OR .031"). THREAD A STRAP UNDER THE TOP DECK BOARDS IN LINE WITH EXISTING UNITIZING STRAPS, COMPLETELY ENCIRCLE THE PALLET UNIT AND THE LEFTOVER CONTAINERS, TENSION, AND SEAL THE STRAP JOINT WITH ONE DOUBLE CRIMPED SEAL.
5. LEFTOVER CONTAINERS MAY ALSO BE SECURED ON TOP OF A PARTIAL PALLET 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 SHIPMENT 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.
7. THE PROCEDURES SHOWN ABOVE ARE APPLICABLE TO BOTH THE "SEALED" TYPE CONTAINER OR THE "UNSEALED CONTAINER AND THE "STRETCHED CONTAINER" PALLET UNIT.