APPROVED BY
BUREAU OF EXPLOSIVES
DATE 8/19/91

LOADING AND BRACING (CL & LCL) IN BOX CARS OF PALLETIZED PROPELLING CHARGES PACKED IN CYLINDRICAL METAL CONTAINERS

PA95 SERIES CONTAINER

INDEX

THIS OUTLOADING PROCEDURE DRAWING INCLUDES PROCEDURES FOR CONVENTIONAL TYPE BOX CARS, BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES OF VARIOUS DESIGN AND MANUFACTURE, AND CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

DO NOT SCALE

REVISIONS				DRAFTSMAN	TYPIST	CHECKER	TECHNICIAN	ENGINEER
		DEV		PB	JM		R. Arnold	
		DEO		SMCAC - DEV		SMCAC - DEO		SMCAC - DE
		DE			W. Zurucki		W. Ernst	
		DEV		APPROVED U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND				
		DEO						
		DE		APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND (AMC)				
		DEV		William F. Ernst				
		DEO		U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL				
		DE		U.S. ARMY MATERIEL COMMAND				
		DEV		MARCH 1992				
		DEO		CLASS	DIVISION	DRAWING	FILE	
		DE		19	48	4042B/16	5PM 1000	

PROJECT FSA 43B/16-63

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 IN THIS DRAWING ARE APPLICABLE FOR THE PA95 SERIES PROPELLING CHARGE CONTAINER WHEN UNITIZED ON 35" X 45-1/2" FOUR WAY ENTRY PALLETS. SEE THE PICTORIAL VIEWS ON PAGE 4. REFER TO THE U.S. ARMY MATERIEL COMMAND (DARCOM) DRAWING 19-48-4042A/17-20M 1001 FOR UNITIZATION PROCEDURES FOR THE PA95 SERIES CONTAINER.

C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOX CARS, FOR SHIPMENTS IN BOX CARS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES, AND FOR SHIPMENTS IN CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

D. CAUTION: METAL PROPELLING CHARGE CONTAINERS THAT OVERHANG THE PALLET END MUST NOT BE ALLOWED TO CONTACT STEEL SIDEWALLS OR END WALLS OF BOX CARS. THIS TYPE OF UNIT LOAD SHOULD BE SHIPPED IN BOX CARS HAVING WOOD SIDEWALLS AND/OR END WALLS. IF CARS WITH WOOD SIDEWALLS AND/OR END WALLS ARE NOT AVAILABLE, AND ALL-STEEL CARS ARE USED, THE SIDEWALLS AND/OR END WALLS MUST BE LINED WITH DIMENSIONAL LUMBER, PLYWOOD, HARDBOARD, OR SOLID FIBERBOARD. THE LINING SHOULD BE PROVIDED WHEREVER METAL-OF-CONTAINER TO METAL-OF-CAR CONTACT IS POSSIBLE. REFER TO PAGE 63 FOR GUIDANCE.

E. ALL THE LOADS SHOWN HEREIN ARE TYPICAL. BEACUSE OF THIS FACT, IT IS MOST LIKELY THAT THE ACTUAL QUANTITY TO BE SHIPPED WILL NOT BE DEPICTED IN ANY OF THE LOADING PROCEDURES. A LOAD PLAN SHOULD BE DEVELOPED WHICH WILL BE THE MOST EFFICIENT AS TO THE AMOUNT OF DUNNAGE REQUIRED AND AS TO THE EASE OF LOADING, FOR THE QUANTITY TO BE SHIPPED. THE LOAD PLANNING CHARTS ON PAGE 38 MAY BE USED IN CONJUNCTION WITH THE DEPICTED LOADING PROCEDURES FOR GUIDANCE.

F. THE SELECTION OF RAIL CARS FOR THE TRANSPORT OF PALLET UNITS OF PROPELLING CHARGES IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE PROPER CONDITION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENTS, WILL BE SELECTED.

G. WHEN SELECTING RAIL CARS, EVERY EFFORT SHOULD BE MADE TO OBTAIN BOX CARS THAT DO NOT HAVE BOWED END WALLS. CARS HAVING 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, AND END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. REFER TO PAGE 64 FOR GUIDANCE.

H. BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS HAVE BEEN SHOWN, HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR CARS EQUIPPED WITH PLUG DOORS. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN. ALSO, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF CAR SEALS, A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED TO SEAL THE CAR. THE WIRE WILL BE THREADED THRU THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.

J. THE USE OF AN OFFSET LOADING PATTERN WILL FACILITATE LOADING AND UNLOADING OPERATIONS IN THE DOORWAY AREA OF THE CAR. WHEN POSSIBLE TO DO SO, A FULL LOAD SHOULD BE BUILT USING AN OFFSET LOADING PATTERN. FOR INSTANCE, A LOAD CONSISTING OF AN EVEN NUMBER OF LOAD UNITS AND HAVING TWO MORE LOAD UNITS IN ONE END OF THE CAR THAN IN THE OPPOSITE END, OR A LOAD CONSISTING OF AN ODD NUMBER OF LOAD UNITS AND HAVING ONE MORE LOAD UNIT IN ONE END THAN IN THE OTHER IS CONSIDERED TO BE AN OFFSET LOAD.

K. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH PALLETIZED UNITS OF PROPELLING CHARGES, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN. MIXED ITEMS TO BE SHIPPED IN CARS EQUIPPED WITH MECHANICAL BRACING DEVICES MUST BE SEPARATELY BLOCKED, USING THE PROCEDURES SHOWN FOR THESE CARS AS GUIDANCE.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER ----------: SEE TM 743-200-1, DUNNAGE LUMBER, FED SPEC MM-L-751.

NAILS----------: COMMON, FED SPEC FF-N-105.

STRAPPING, STEEL : ASTM D 3953; FLAT STRAPPING, TYPE 1 OR 2, HEAVY DUTY, COATED FINISH (ORGANIC), ZINC-COATED (GRADE 2), OR UNCOATED.

STRAP SEAL-------: ASTM D 3953; CLASS H, FINISH A, B (GRADE 2), OR C, TYPE D, STYLE I II IV.

STRAP STAPLE-----: COMMERCIAL GRADE.

PLYWOOD--------: GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D, FED SPEC NN-P-530. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.

WIRE ----------: FED SPEC QQ-W-461.

HARDBOARD ------: ANSI/AHA A135.4, CLASS 1.

SOLID FIBERBOARD: FED SPEC PP-F-320. TYPE SF, CLASS DOMESTIC, GRADE 175 OR STRONGER; OR TYPE SF, CLASS WEATHER-RESISTANT, GRADE W65 OR STRONGER.

(GENERAL NOTES CONTINUED)

L. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE. IF THOSE MEMEBERS SPECIFICALLY IDENTIFIED AS "STRUTS" WITHIN THE KEY NUMBERS OF A DEPICTED LOAD ARE SPECIFIED TO BE 4" X 4" MATERIAL, IT IS PERMISSABLE TO USE TWO LAMINATED PIECES OF 2" X 6" MATERIAL IN LIEU OF EACH 4" X 4" STRUT. DOUBLED 2" X 6" STRUTS WILL BE LAMINATED W/1-10d NAIL EVERY 6".

M. 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.

N. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED CAR LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2" OR LESS IN LENGTH SOULD BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-N-105 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD-RESTRAINING FLOOR DUNNAGE APPLICATION.

O. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE (1) SEAL WITH TWO (2) PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 62 FOR GUIDANCE.

P. THROUGHOUT THIS PROCEDURAL DRAWING, PORTIONS OF THE BLOCKING COMPONENTS AND OF THE DEPICTED CARS, SUCH AS A CAR SIDE WALL, HAVE BEEN OMITTED FROM THE LOAD VIEW FOR CLARITY PURPOSES.

Q. 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.

R. 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.

GENERAL NOTES

(FOR CONVENTIONAL TYPE BOX CARS)

S. IF THE CAR BEING USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDEWALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING OF THE "DOORWAY BLOCKING" PIECES IN THE FULL LOADS AND TO THE NAILING TO THE CAR FLOOR OF THE LCL BRACES AND KNEE BRACE ASSEMBLIES IN THE LESS-THAN-FULL LOADS. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED IN LIEU OF THOSE SPECIFIED IN THE APPLICABLE KEY NUMBERS. SEE GENERAL NOTE "M" ABOVE.

T. NOTICE: WHEN POSITIONING PALLET UNITS IN A CAR THEY SHOULD BE PLACED TIGHTLY AGAINST A CAR SIDE WALL 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 PALLETIZED 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 PALLET 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.

U. LOAD BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN BY THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 66. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THEN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUTS AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.

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(GENERAL NOTES CONTINUED FROM PAGE 2)

V. 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. THE OTHER END, WHICH CAN BE BEVELED ON THE LOWER CORNER IF DESIRED, WILL THEN BE DRIVEN DOWNWARD UNTIL IT CONTACTS THE STRUT LEDGER ON THE OTHER GATE. EACH END OF THE STRUT WILL BE TOENAILED TO THE ADJACENT CENTER GATE, AS SPECIFIED WITHIN THE KEY NUMBERS FOR A LOAD, IN SUCH A MANNER SO THAT AS NEARLY AS PRACTICAL EQUAL LENGTHS OF A NAIL ARE EMBEDDED IN THE STRUT AND IN THE VERTICAL PIECE OF THE CENTER GATE. SEE THE "BEVEL CUT" DETAIL ON PAGE 66 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.

W. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

GENERAL NOTES

(FOR BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES)

X. THE OUTLOADING PROCEDURES FOR BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES MAY BE ADAPTED AS REQUIRED TO FACILITATE THE USE OF BOX CARS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES, HOWEVER, FIXED OR ADJUSTABLE WALL MEMBERS AND DOORWAY MEMBERS WITHIN THESE CARS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. CAUTION: BOX CARS EQUIPPED WITH MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.

1. FOR BLOCKING THE LOADS WHICH ARE DEPICTED, A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE LADING ON EITHER SIDE THAN AS SHOWN. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM AND CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE SPACING OF THE LOCKING HOLES IN THE WALL MEMBERS PERMIT. LOCKING BARS (LEVER JACKS) SHOULD BE USED FOR THIS PURPOSE. AN ADDITIONAL 1/2" OF ADJUSTMENT CAN BE MADE BY TURNING A CROSS MEMBER END-FOR-END WHEN LOCKING PINS ON THE MEMBER ARE OFF-CENTER. NOTE: IT IS RECOMMENDED THAT EACH CROSS MEMBER BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS AND AT EQUAL DISTANCES FROM THE END OF THE CAR).

2. CAUTION: ALL BLOCKING AND BRACING COMPONENTS IN EMPTY CARS AND ALL UNUSED COMPONENTS IN LOADED CARS MUST BE "SECURED" FOR SHIPMENT--ADJUSTABLE WALL MEMBERS TO VERTICAL WALL ATTACHMENT RAILS, AND CROSS MEMBERS TO ADJUSTABLE WALL MEMBERS, OR TO FIXED HORIZONTAL WALL MEMBERS OR TO DOORWAY MEMBERS, AND DOORWAY MEMBERS TO DOOR POSTS. COMPONENTS ASSIGNED TO EACH CAR MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.

Y. IN A CAR EQUIPPED WITH ADJUSTABLE WALL MEMBERS, PROVIDING THE FIXED WALL MEMBERS WHICH ARE PRESENT IN SOME "ADJUSTABLE" CARS ARE NOT PROPERLY POSITIONED TO PROVIDE SIDE BEARING SURFACES BETWEEN THE UNITS AND THE CAR SIDEWALLS, ADJUSTABLE WALL MEMBERS (AS REQUIRED) MUST BE INSTALLED TO PROVIDE A MINIMUM OF ONE SURFACE AREA FOR SIDE BEARING AT SOME LOCATION WITHIN THE UPPER HALF OF EACH UNIT.

Z. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

GENERAL NOTES

(FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS)

AA. CAUTION: FOR CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO, OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSCO ARE NOT ACCEPTABLE, WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. THE DEPICTED PROCEDURES ARE APPLICABLE FOR CARS OF VARIOUS LENGTHS AND WIDTHS. THE AAR MECHANICAL DESIGNATION CLASS FOR THESE CARS, AS IDENTIFIED IN "THE OFFICIAL RAILWAY EQUIPMENT REGISTER," WILL BE RBL, XL, OR XLI.

BB. THE USE OF LOAD DIVIDER EQUIPPED CARS WILL ELIMINATE THE NEED FOR CENTER GATES AND STRUTS, AND GATE HOLD DOWNS (WHEN APPLICABLE) WHICH ARE REQUIRED IN CONVENTIONAL BOX CAR LOADS. THIS WILL ACCOUNT FOR A CONSIDERABLE SAVING IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF PROPELLING CHARGES. NOTICE: ONLY CUSHIONED CARS THAT HAVING SLIDING CENTER SILL TYPE CUSIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST FIFTEEN INCHES (15") OF TRAVEL ARE ACCEPTABLE.

CC. 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 72 FOR GUIDANCE. IF THE BACK OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 72, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.

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(GENERAL NOTES CONTINUED)

DD. NOTICE: AFTER THE LOAD DIVIDER BULKHEADS ARE POSITIONED AGAINST THE LADING, AND THE LOCKING PINS ARE ENGAGED IN THE HOLES OF THE RAILS, THE LOWER LOCKING PINS MUST BE INSPECTED TO ENSURE THAT THE PINS ARE FULLY ENGAGED IN THE LOCKING HOLES. IF THE PINS ARE NOT FULLY SEATED IN THE LOCKING HOLES, THE LINKAGE MECHANISM WILL BE ADJUSTED AS REQUIRED SO THAT THE PINS WILL BE FULLY SEATED INTO THE LOCKING HOLES OF THE LOWER RAILS. IF PRESENT, DEBRIS MUST BE REMOVED FROM BENEATH THE LOCKING HOLES WHICH HAVE BEEN SELECTED FOR SECURING A LOAD DIVIDER BULKHEAD.

EE. A "STRUT ASSEMBLY" MUST BE INSTALLED BETWEEN THE LOAD DIVIDER BULKHEADS IF THE CAR CONTAINS CLASS A OR CLASS B EXPLOSIVES AND THE LOAD IN EITHER END OF THE CAR WEIGHS 50,000 POUNDS OR MORE. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF CLASS C EXPLOSIVES. NOTE THAT THE STRUT ASSEMBLY MAY BE OMITTED FROM LOADS OF CLASS A OR B EXPLOSIVES WEIGHING 50,000 POUNDS WHEN THE LADING AND ADEQUATE BLOCKING AND BRACING ARE POSITIONED TO COMPLETELY FILL THE SPACE BETWEEN THE INSTALLED BULKHEADS AS SPECIFIED IN GENERAL NOTE "FF-3" BELOW. DETAILS OF STRUT ASSEMBLIES FOR USE BETWEEN 2-PIECE BULKHEADS AND BETWEEN 1-PIECE BULKHEADS ARE SHOWN ON PAGE 71.

FF. THE NORMAL LOADING PATTERN IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS IS TO POSITION THE LADING BETWEEN A CAR END WALL AND A LOAD DIVIDER BULKHEAD IN FULL LAYERS. OBVIOUSLY, A LOAD QUANTITY MUST THEN BE A MULTIPLE OF THE NUMBER OF PALLETIZED UNITS WHICH ARE IN ONE LOAD UNIT. A LOAD UNIT IS DEFINED AS A STACK OF CONTAINERS WHICH IS FULL CAR WIDTH BY FULL LOAD HEIGHT BY ONE UNIT IN LENGTH. IF THE QUANTITY TO BE SHIPPED CANNOT BE ATTAINED BY ADJUSTING THE NUMBER OF TIERS IN ONE OR BOTH ENDS OF A CAR, ONE OF THE FOLLOWING PROCEDURES MUST BE USED IN ORDER TO OBTAIN THE DESIRED QUANTITY.

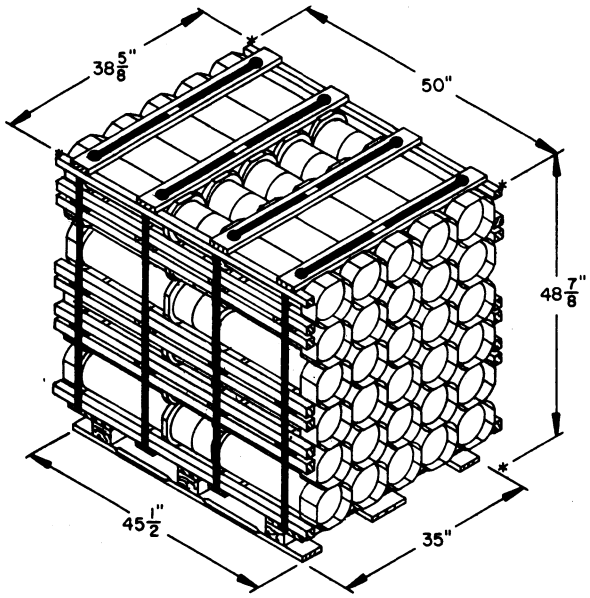
1. ONE OR MORE RISERS CAN BE POSITIONED WITHIN A LOAD TO INCREASE A LOAD QUANTITY. SEE THE RISER PROCEDURES AND DETAILS ON PAGES 44 THRU 46.

2. THE "GATES AND STRUTS" METHOD OF OMITTING A PALLET UNIT MAY BE USED TO ADJUST A LOAD QUANTITY DOWNWARD BY OTHER THAN A MULTIPLE OF A LOAD UNIT. SEE THE PROCEDURES ON PAGES 40 THRU 43 FOR GUIDANCE.

3. AT LOCATION (S) WHERE K-BRACES MIGHT NORMALLY BE USED IN A LOAD IN A CONVENTIONAL CAR, LOAD DIVIDER BULKHEADS CAN BE POSITIONED. LOADING CAN THEN CONTINUE TOWARD THE CENTER OF THE CAR FROM EACH INSTALLED LOAD DIVIDER BULKHEAD, IN EVEN LAYERS WHICH ARE ONE OR MORE LESS IN HEIGHT THAN THE LOAD IN THE ENDS OF THE CAR. INSTALL CENTER GATES, STRUTS AND GATE HOLD DOWNS AS SHOWN IN THE APPLICABLE CONVENTIONAL BOX CAR DRAWING HEREIN, TO PROVIDE FOR A TIGHT LOAD BETWEEN THE BULKHEADS.

4. ONE OR MORE UNITS CAN BE POSITIONED IN CONTACT WITH A LOAD DIVIDER BULKHEAD ON THE CENTER-OF-CAR SIDE. BLOCK AND BRACE WITH LCL BRACES AS SHOWN ON PAGE 58, OR WITH KNEE BRACE ASSEMBLIES, AS SHOWN ON PAGE 54.

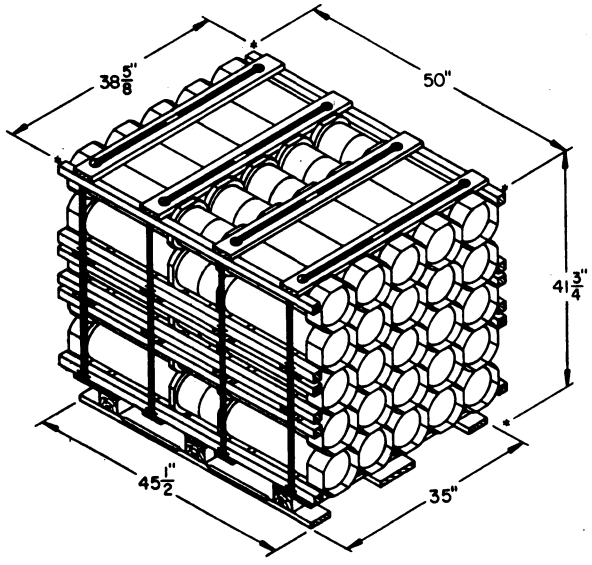
GG. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.



PALLET UNIT (BASIC HEIGHT)

CONTAINER ---------- 60 EACH @ 28 LBS (APPROX)
CUBE ---------- 54.6 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,839 LBS (APPROX)

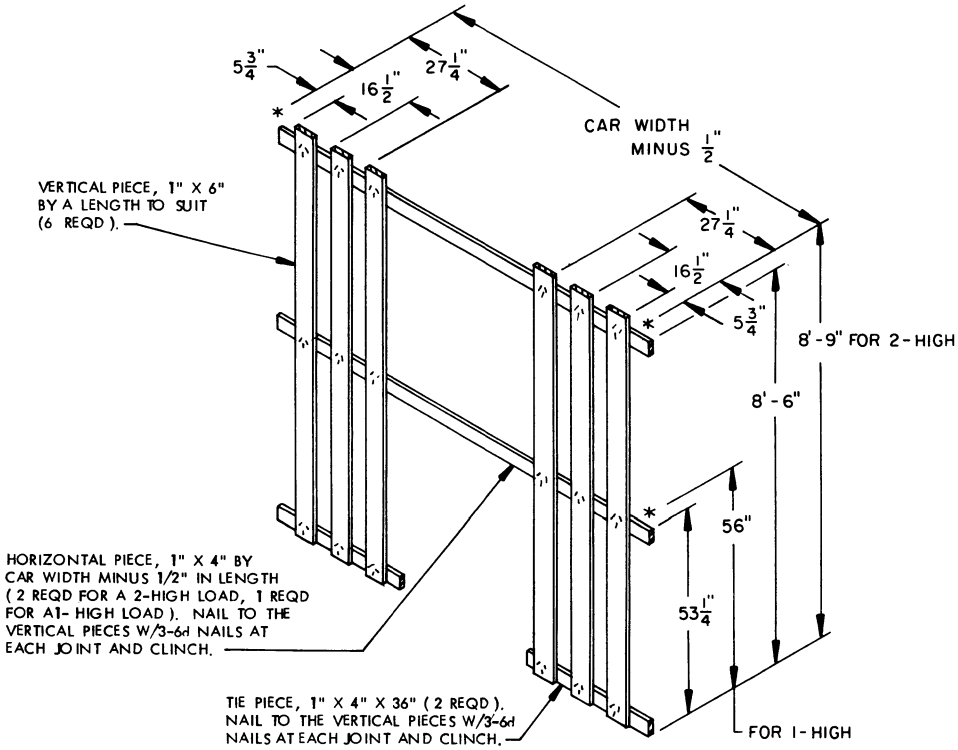
REFER TO PAGES 6 THRU 15 FOR OUTLOADING PROCEDURES.



PALLET UNIT (DECREASED HEIGHT)

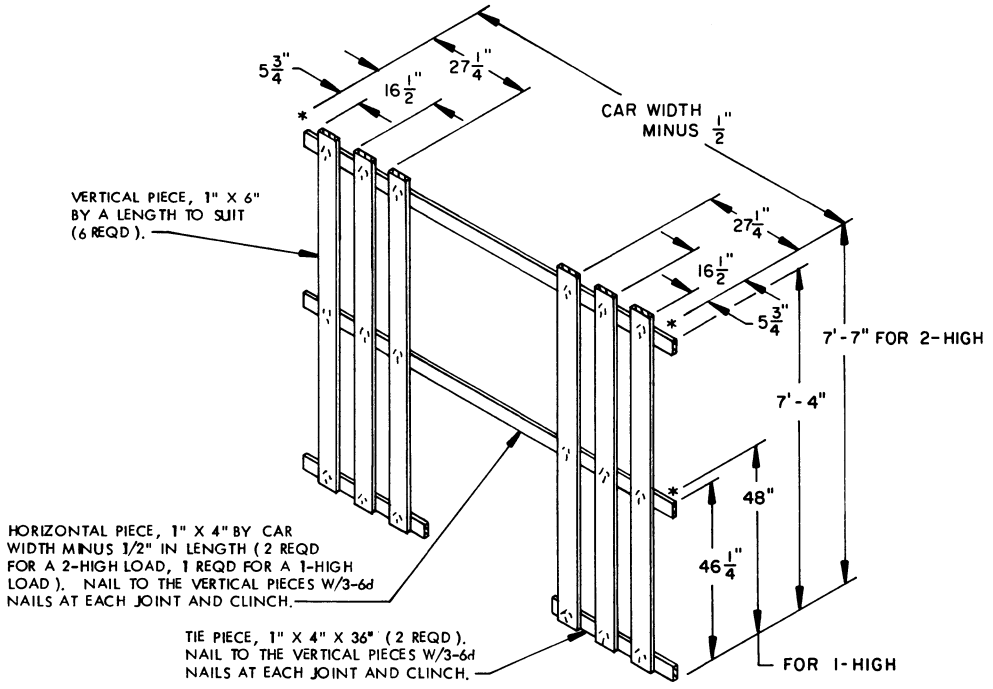
CONTAINER ---------- 50 EACH @ 28 LBS (APPROX)
CUBE ---------- 46.7 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,539 LBS (APPROX)

REFER TO PAGES 22 THRU 31 FOR OUTLOADING PROCEDURES.



SEPARATOR GATE G

SEE SPECIAL NOTE 7 ON PAGE 9.



SEPARATOR GATE H

SEE SPECIAL NOTE 7 ON PAGE 25.

(KEY NUMBERS CONTINUED)

(17) DOORWAY PROTECTION (1 REQD). SEE THE "DOORWAY PROTECTION A" DETAIL ON PAGE 18. NAIL TO THE DOOR POSTS W/12d NAILS.

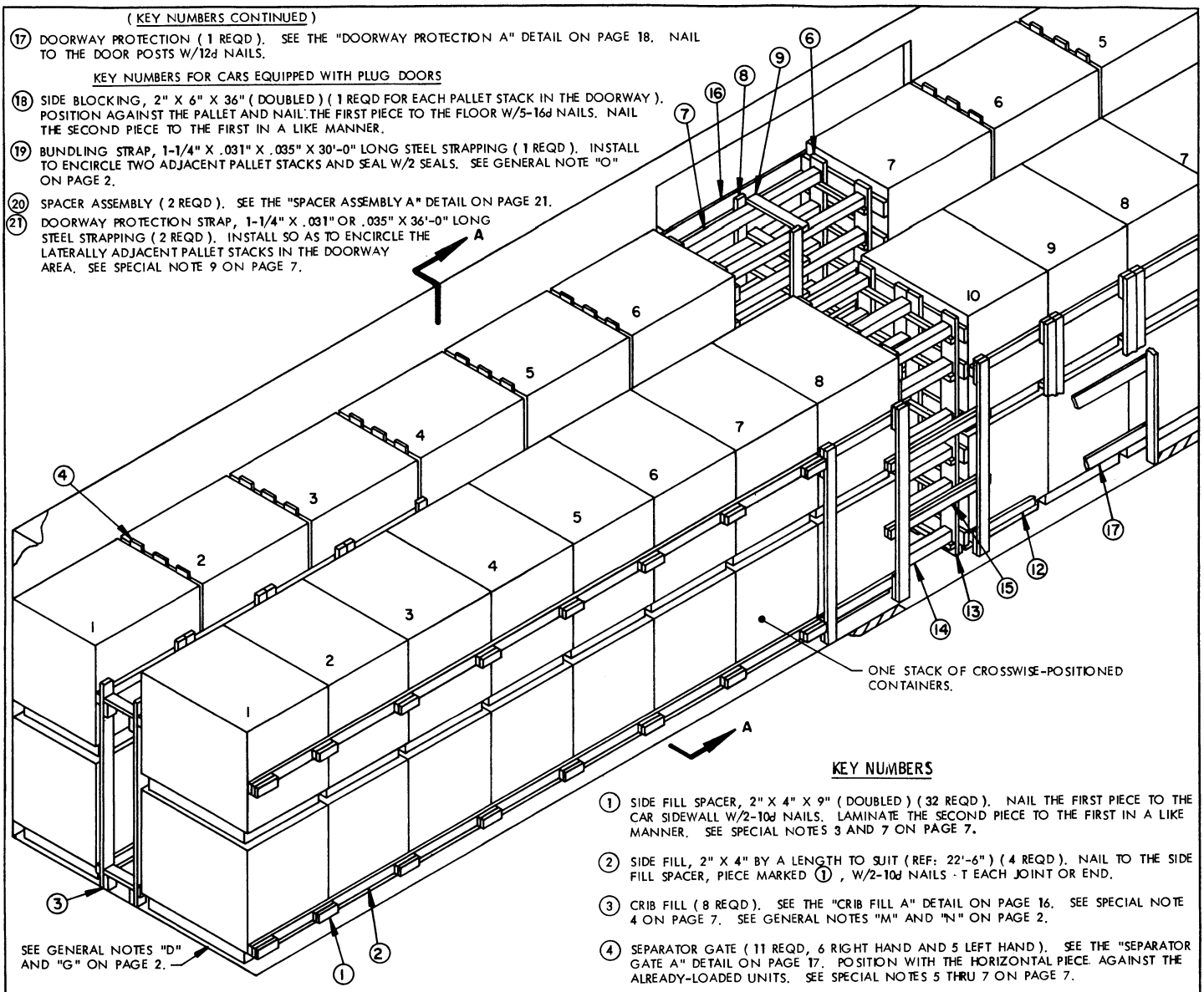
KEY NUMBERS FOR CARS EQUIPPED WITH PLUG DOORS

(18) SIDE BLOCKING, 2" X 6" X 36" (DOUBLED) (1 REQD FOR EACH PALLET STACK IN THE DOORWAY). POSITION AGAINST THE PALLET AND NAIL THE FIRST PIECE TO THE FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

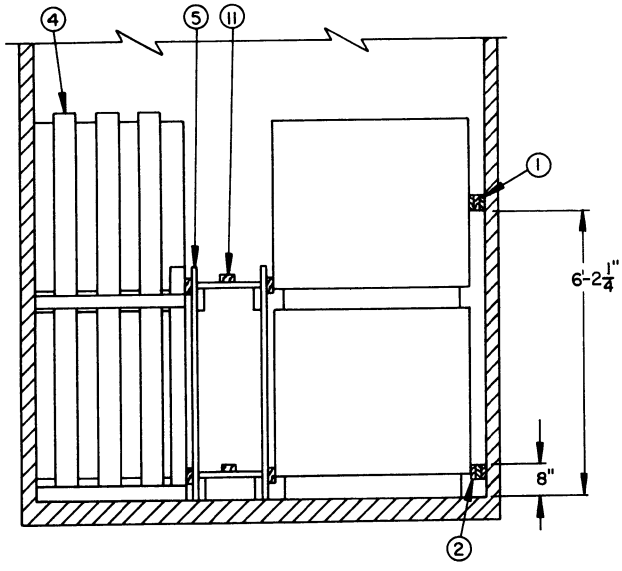
(19) BUNDLING STRAP, 1-1/4" X .031" X .035" X 30'-0" LONG STEEL STRAPPING (1 REQD). INSTALL TO ENCIRCLE TWO ADJACENT PALLET STACKS AND SEAL W/2 SEALS. SEE GENERAL NOTE "O" ON PAGE 2.

(20) SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 21.

(21) DOORWAY PROTECTION STRAP, 1-1/4" X .031" OR .035" X 36'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE THE LATERALLY ADJACENT PALLET STACKS IN THE DOORWAY AREA. SEE SPECIAL NOTE 9 ON PAGE 7.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

(1) SIDE FILL SPACER, 2" X 4" X 9" (DOUBLED) (32 REQD). NAIL THE FIRST PIECE TO THE CAR SIDEWALL W/2-10d NAILS. LAMINATE THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTES 3 AND 7 ON PAGE 7.

(2) SIDE FILL, 2" X 4" BY A LENGTH TO SUIT (REF: 22'-6") (4 REQD). NAIL TO THE SIDE FILL SPACER, PIECE MARKED (1) , W/2-10d NAILS AT EACH JOINT OR END.

(3) CRIB FILL (8 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 16. SEE SPECIAL NOTE 4 ON PAGE 7. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(4) SEPARATOR GATE (11 REQD, 6 RIGHT HAND AND 5 LEFT HAND). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 17. POSITION WITH THE HORIZONTAL PIECE AGAINST THE ALREADY-LOADED UNITS. SEE SPECIAL NOTES 5 THRU 7 ON PAGE 7.

(5) CRIB FILL (10 REQD). SEE THE "CRIB FILL B" DETAIL ON PAGE 16.

(6) CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "CENTER GATE A" DETAIL ON PAGE 16. SEE SPECIAL NOTE 8 ON PAGE 7.

(7) STRUT, 4" X 4" BY CUT TO FIT (REF: 63-1/2") (12 REQD). TOENAIL TO PIECES MARKED (6) W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "L", "U", AND "V" ON PAGES 2 AND 3.

(8) VERTICAL STRUT BRACING, 2" X 4" X 8'-0" (2 REQD). NAIL TO THE STRUTS, PIECE MARKED (7), W/3-10d NAILS AT EACH JOINT.

(9) HORIZONTAL STRUT BRACING, 2" X 4" X 30" (6 REQD). NAIL TO THE STRUTS, PIECE MARKED (7) , W/3-10d NAILS AT EACH JOINT.

(10) STRUT, 2" X 4" BY CUT TO FIT (REF: 63-1/2") (2 REQD). TOENAIL TO THE STOP PIECES OF PIECES MARKED (6) W/2-12d NAILS AT EACH END.

(11) CRIB FILL RETAINER, 2" X 4" BY A LENGTH TO SUIT (REF: 48") (2 REQD). POSITION TO SPAN THE UPPER AND LOWER STRUTS OF LONGITUDINALLY ADJACENT CRIB FILL "B" ASSEMBLIES AT THE CENTER OF THE CAR AND NAIL TO EACH STRUT W/3-10d NAILS. SEE THE "PARTIAL PLAN VIEW OF CAR EQUIPPED WITH SLIDING DOORS" ON PAGE 7.

(12) SIDE FILL ASSEMBLY (4 REQD). SEE THE "SIDE FILL ASSEMBLY B" DETAIL ON PAGE 37.

(13) CENTER GATE (2 REQD). SEE THE "CENTER GATE B" DETAIL ON PAGE 17.

(14) STRUT, 4" X 4" BY CUT TO FIT (REF: 26-1/2") (18 REQD). TOENAIL TO PIECES MARKED (13) W/2-16d NAILS AT EACH END.

(15) SIDE FILL ASSEMBLY RETAINER, 2" X 4" BY A LENGTH TO SUIT (REF: 46") (DOUBLED) (2 REQD). LAMINATE W/1-10d NAIL EVERY 12". POSITION AT 27-1/2" AND 57-1/2" ABOVE THE CAR FLOOR AND SECURE BY NAILING THRU THE VERTICAL PIECES OF PIECE MARKED (12) W/3-10d NAILS AT EACH END.

(16) DOORWAY PROTECTION (1 REQD). SEE THE "DOORWAY PROTECTION B" DETAIL ON PAGE 19. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTE 9 ON PAGE 7.

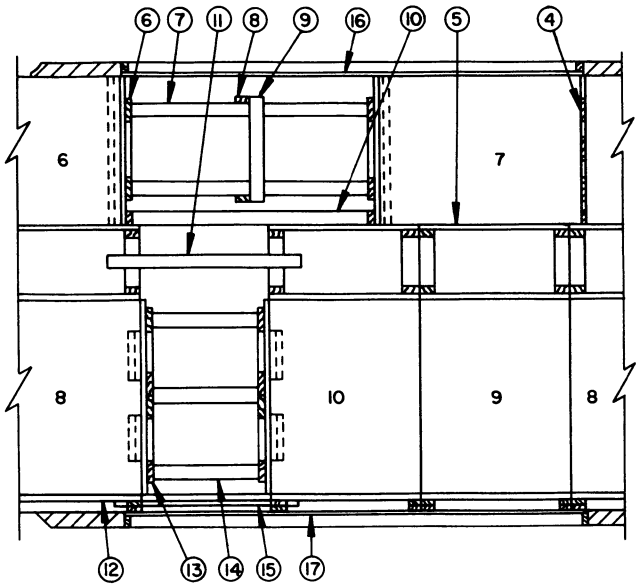
(CONTINUED ABOVE AT LEFT)

PALLET UNIT (BASIC HEIGHT) 62-UNIT LOAD IN A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL BOX CAR

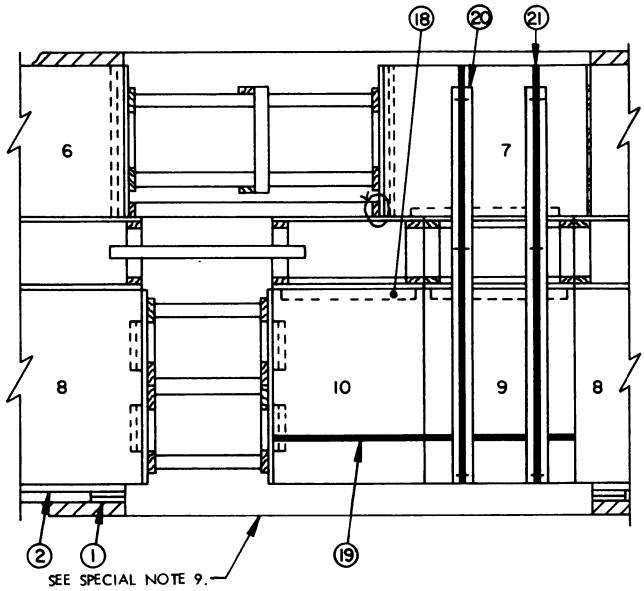
SUPERSEDES SMCAC FORM 6, 1 NOV 85

SMCAC FORM 6-1, 1 NOV 87

PROJECT FSA 43B/16-63



PARTIAL PLAN VIEW OF BOX CAR EQUIPPED WITH SLIDING DOORS



PARTIAL PLAN VIEW OF BOX CAR EQUIPPED WITH PLUG DOORS

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	144	48
1" X 6"	344	172
2" X 2"	85	29
2" X 3"	38	19
2" X 4"	1122	748
2" X 6"	197	197
4" X 4"	104	139
NAILS	NO. REQD	POUNDS
6d (2")	312	2
10d (3")	1860	28-3/4
12d (3-1/4")	36	3/4
16d (3-1/2")	120	2-3/4

SPECIAL NOTES:

1. A 60'-8" LONG BY 9'-6" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 6. A MAXIMUM OF FIFTY-TWO (52) OF THESE UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 95,628 POUNDS, CAN BE PLACED IN A 50'-6" LONG CAR WHEN USING THE DEPICTED PROCEDURES: FORTY (40) UNITS, FOR A LADING WEIGHT OF 73,560 POUNDS, CAN BE LOADED IN A 40'-6" LONG CAR.

3. THE SIDE FILL SPACERS AND SIDE FILL, PIECES MARKED ① AND ② , ARE REQUIRED TO PROVIDE FOR PROPER WEIGHT DISTRIBUTION ACROSS THE CAR WIDTH. THE LENGTH OF THE SIDE FILL SHOULD BE SUCH THAT IT WILL CONTACT ALL PALLET UNIT STACKS WHICH DO NOT EXTEND INTO THE DOORWAY. RANDOM LENGTH MATERIAL MAY BE USED FOR PIECE MARKED ② , HOWEVER, THE JOINTS IN THE PIECES MUST BE MADE ON PIECE MARKED ① . RANDOM LENGTH MATERIAL MAY ALSO BE USED IN LIEU OF PIECE MARKED ① . ALL RANDOM LENGTH MATERIAL WILL THEN BE NAILED W/1-10d NAIL EVERY 24". IF THE CAR BEING LOADED HAS NON-NAILABLE SIDEWALLS, SIDE FILL ASSEMBLIES, PIECE MARKED ⑫ , MUST BE USED THROUGHOUT THE LENGTH OF THE LOAD IN LIEU OF PIECES MARKED ① AND ② .

4. THE "HIGH" CRIB, SHOWN AS PIECE MARKED ③, MUST BE INSTALLED IN EACH END OF THE LOAD. FOUR (4) ASSEMBLIES ARE REQUIRED IN EACH END OF A LOAD REGARDLESS OF THE CAR LENGTH.

5. THE SEPARATOR GATES, SHOWN AS PIECES MARKED ④ IN THE LOAD ON PAGE 6, ARE DESIGNATED "RIGHT HAND" AND "LEFT HAND" TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES. WHEN LOADING THE CAR, POSITION A PALLET UNIT STACK AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE BOTTOM AND TOP PALLET UNITS IN THE FIRST STACK. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED, FOR ONE OR TWO-LAYER LOADS. CONSTRUCT EACH SEPARATOR GATE FOR ONE OR TWO-HIGH LOADS FROM 38-1/2" WIDE PLYWOOD OF AN APPROPRIATE LENGTH.

7. ALL SEPARATOR GATES, PIECES MARKED ④ , WHICH ARE WITHIN THE DOORWAY AREA OF A CAR EQUIPPED WITH CONVENTIONAL SLIDING DOORS MUST BE WIRE TIED TO THE ADJACENT CRIB FILL TO PREVENT DISPLACEMENT. ENCIRCLE THE STOP PIECE OF THE SEPARATOR GATE AND THE UPPER HORIZONTAL PIECE OF THE CRIB FILL WITH NO. 14 GAGE WIRE AND TWIST TAUT.

8. CENTER GATES "A" AND "B" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD, IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 65 FOR GUIDANCE.

9. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH OR LENGTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECES MARKED ⑯ AND ⑰ IN THE LOAD ON PAGE 6, IS APPLICABLE FOR BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGES 68 THRU 70 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED. SEE THE "PARTIAL PLAN VIEW OF CAR EQUIPPED WITH PLUG DOORS" VIEW AT LEFT FOR GUIDANCE. NOTE THAT THE VERTICAL PIECES AND BOTTOM SUPPORT PIECES OF THE CRIB FILL, PIECES MARKED ⑤ , MUST HAVE THREE INCHES (3") CUT OFF THE BOTTOM END OF ONE SIDE SO THE CRIB WILL REST EVENLY ON THE NAILED SIDE BLOCKING WHICH IS ADJACENT TO THE LENGTHWISE UNITS. ALSO NOTE THAT THE CENTER GATES "A" MUST BE WIRE TIED TO PIECE MARKED ⑰ OR THE ADJACENT CRIB FILL, AS APPLICABLE, TO PREVENT DISPLACEMENT. NOTE: TWO DOORWAY PROTECTION STRAPS ARE REQUIRED FOR EACH PALLET STACK WHICH IS COMPLETELY WITHIN THE DOORWAY AREA OR WHICH IS NOT RETAINED BY AT LEAST SIX INCHES (6") OF CAR SIDEWALL. WHEN TWO STRAPS CANNOT BE INSTALLED, A PALLET STACK MUST BE SECURED TO THE ADJACENT STACK BY A BUNDLING STRAP, PIECE MARKED ⑲ . ONE (1) DOORWAY PROTECTION STRAP IS REQUIRED FOR EACH PALLET STACK WHICH IS RETAINED BY FROM 6" TO ONE-HALF THE PALLET LENGTH OR WIDTH. BATTENS WILL BE REQUIRED ON THE BELL ENDS. SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70.

10. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. THE LOAD CAN BE REDUCED BY ONE OR TWO PALLET UNITS BY EMPLOYING THE PROCEDURES ON PAGE 40. TWO (2) PALLET UNITS CAN BE OMITTED FROM A 2-TIER LOAD BY LEAVING OUT THE CROSSWISE STACK NO. 10 AND THE ADJACENT CRIB FILL. NOTE THAT WHEN STACK NO. 10 IS OMITTED, THE SIDE FILL WILL BE DOUBLED 2" X 4" BY A LENGTH TO SUIT (REF: 22'-6") IN LIEU OF USING PIECES MARKED ① AND ② , AND THE 2" X 4" X 9" FILL PIECES WILL BE OMITTED FROM THE SIDE FILL ASSEMBLIES, PIECES MARKED ⑫ . ALSO NOTE THAT THE SIDE FILL RETAINER PIECE, PIECE MARKED ⑮ WILL BE SINGLE THICKNESS RATHER THAN DOUBLED, AND THAT STRUT BRACING MUST BE APPLIED TO THE STRUTS, PIECES MARKED ⑭ . SIDE BLOCKING 2" X 4" X 18" (DOUBLED) WILL BE REQUIRED FOR CENTER GATE "A". NAIL THE FIRST PIECE TO THE FLOOR W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. THE ENTIRE TOP TIER MAY ALSO BE OMITTED. A PARTIAL 1- TIER LOAD CAN BE SHIPPED AS SHOWN ON PAGES 54 AND 55.

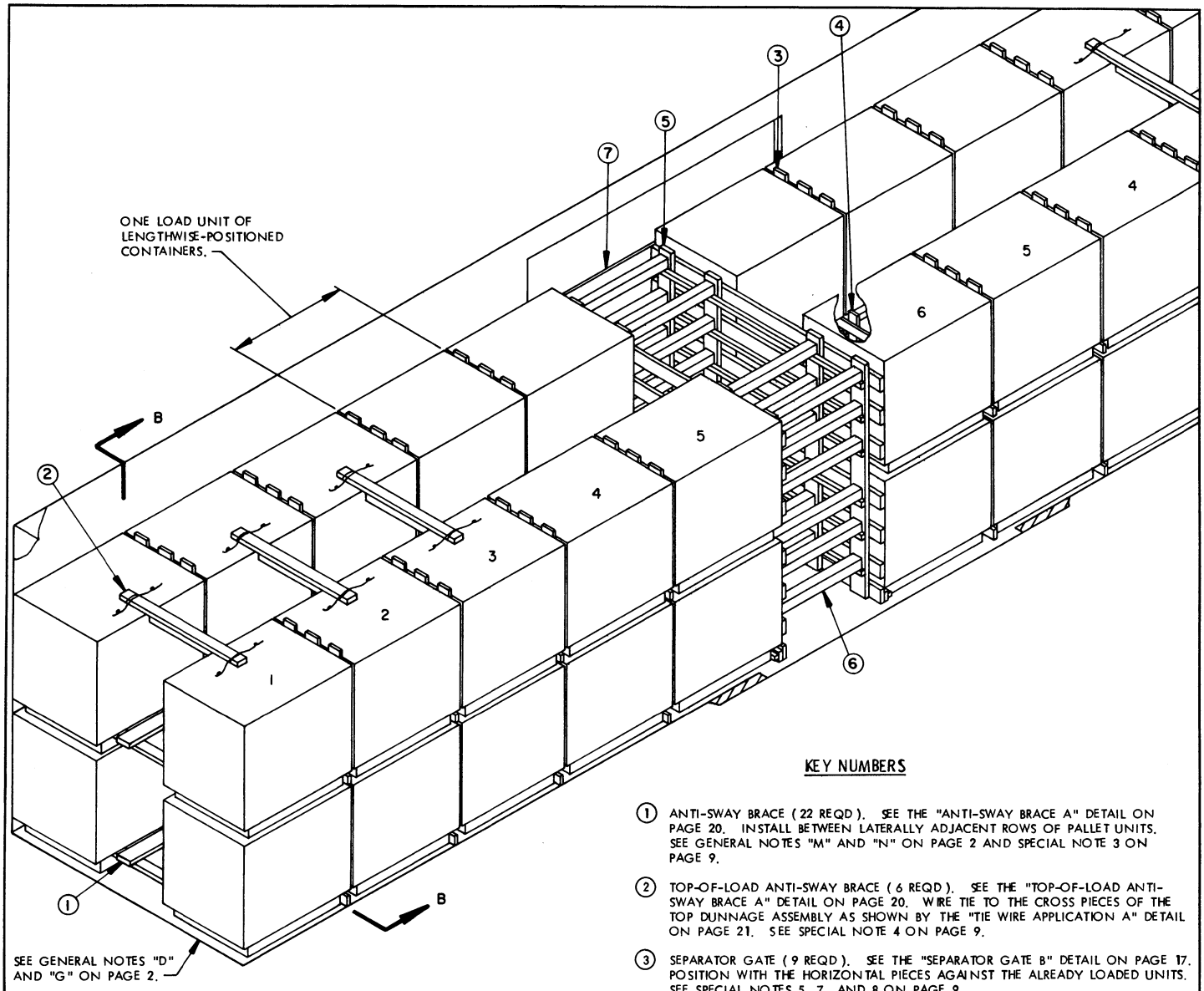
11. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGE 59 FOR SHIPPING GUIDANCE FOR LENGTHWISE UNITS AND PAGES 60 AND 62 FOR CROSSWISE UNITS.

12. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

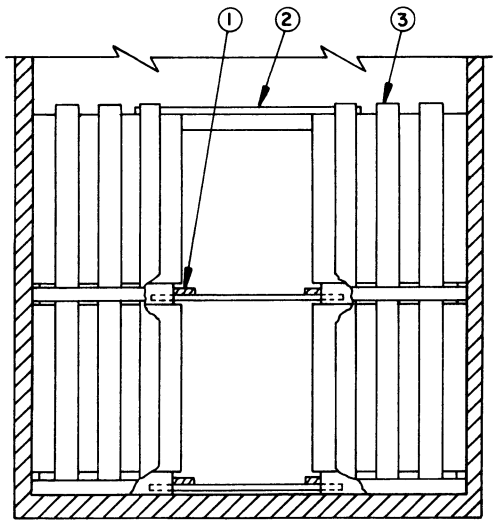
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	62	114,018 LBS
DUNNAGE		2,729 LBS
TOTAL WEIGHT		116,747 LBS (APPROX)

PALLET UNIT (BASIC HEIGHT) 62-UNIT LOAD IN A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL BOX CAR



ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

(1) ANTI-SWAY BRACE (22 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 9.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO THE CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 9.

(3) SEPARATOR GATE (9 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 17. POSITION WITH THE HORIZONTAL PIECES AGAINST THE ALREADY LOADED UNITS. SEE SPECIAL NOTES 5, 7, AND 8 ON PAGE 9.

(4) STOP PIECE, 1" X 4" X 56" (2 REQD). INSTALL ON THE SIDE OPPOSITE THE VERTICAL PIECES OF THE SEPARATOR GATE, PIECE MARKED (3) , WHICH IS IN THE DOORWAY AREA. POSITION IN CONTACT WITH THE ADJACENT PALLET UNITS AND NAIL TO THE HORIZONTAL PIECES W/3-6*d* NAILS AT EACH JOINT AND CLINCH. SEE SPECIAL NOTE 6 ON PAGE 9.

(5) CENTER GATE (2 REQD). SEE THE "CENTER GATE C" DETAIL ON PAGE 18. SEE SPECIAL NOTES 9, 10, AND 13, ON PAGE 9.

(6) STRUT, 4" X 4" BY CUT TO FIT (REF: 43") (24 REQD). TOENAIL TO PIECES MARKED (5) W/2-16*d* NAILS AT EACH END. SEE GENERAL NOTES "L", "U", AND "V" ON PAGES 2 AND 3.

(7) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION B" DETAIL ON PAGE 19. NAIL TO THE DOOR POSTS W/12*d* NAILS. SEE SPECIAL NOTE 12 ON PAGE 9.

PALLET UNIT (BASIC HEIGHT) 44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

(SPECIAL NOTES CONTINUED)

13. IF THE DOORWAY PROTECTION PROCEDURES SHOWN ON PAGE 14 ARE USED IN LIEU OF THE WOODEN DOORWAY PROTECTION, PIECES MARKED ⑦ , THE CENTER GATES MUST BE RESTRAINED FROM LATERAL MOVEMENT. THIS CAN BE ACCOMPLISHED BY NAILING TO THE CENTER GATE, TWO DOUBLED 2" X 6" X 12" PIECES POSITIONED ON THE BOTTOM HORIZONTAL OF THE TOP LAYER. SEE THE PHANTOMED PIECES ON THE CENTER GATE "C" DETAIL ON PAGE 18. STOP PIECES WILL BE REQUIRED FOR EACH CENTER GATE WHICH IS IN THE DOOR OPENING OR WITHIN SIX INCHES (6") OF BEING IN THE OPENING.

14. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR (4) UNITS OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO (2) UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD. OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 38 THRU 62 FOR GUIDANCE.

15. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGE 59 FOR SHIPPING GUIDANCE.

16. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 8. A MAXIMUM OF FIFTY-TWO (52) OF THESE UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 95,628 POUNDS, CAN BE PLACED IN A 60'-8" LONG CAR, WHEN USING THE DEPICTED PROCEDURES; THIRTY-SIX (36) UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 66,204 POUNDS, CAN BE LOADED IN A 40'-6" CAR.

3. IF THE DOORWAY PROTECTION PROCEDURES AS SHOWN IN THE LOAD ON PAGE 14 ARE USED IN LIEU OF THE WOODEN DOOR GATE TYPE PROTECTION, PIECE MARKED ⑦ , NAILED FLOORLINE BLOCKING MUST BE USED IN LIEU OF EACH LOWER ANTI-SWAY BRACE IN THE DOORWAY AREA. NAILED BLOCKING IS REQUIRED FOR ALL PALLET STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH ON EITHER SIDE OF THE CAR. SEE SPECIAL NOTE 12.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ② IN THE LOAD ON PAGE 8, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO THE CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. THREE (3) BRACES ARE REQUIRED IN EACH END OF A LOAD IN A 40'-6" OR 50'-6" LONG CAR: FOUR (4) BRACES ARE REQUIRED IN EACH END OF A 60'-8" CAR.

5. TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES, POSITION PALLET UNIT STACKS AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE, SHOWN AS PIECE MARKED ③ , SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE PALLET UNITS. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES IN THE DOORWAY OF A CAR EQUIPPED WITH SLIDING DOORS, MUST BE PREVENTED FROM SHIFTING INTO A DOOR OPENING BY THE APPLICATION OF THE STOP PIECES, PIECES MARKED ④ . IN CARS EQUIPPED WITH STAGGERED DOORS, STOP PIECES MAY BE REQUIRED ON UP TO FOUR SEPARATOR GATES.

7. WHEN NAILED FLOORLINE BLOCKING IS USED FOR DOORWAY PROTECTION, THE SEPARATOR GATES ADJACENT TO THE NAILED BLOCKING MUST BE MODIFIED. SEE THE "SEPARATOR GATE G" DETAIL ON PAGE 5. THE USE OF THIS MODIFIED GATE WILL ALLOW THE SEPARATOR GATE TO CLEAR THE NAILED FLOORLINE BLOCKING DURING THE NORMAL SHIFTING OF THE LOAD. NOTE THAT THE STOP PIECES, PIECE MARKED ④ , WILL BE 60" FOR A 2-HIGH LOAD AND 12" FOR A 1-HIGH LOAD WHEN SEPARATOR GATE "G" IS BEING USED IN A CAR EQUIPPED WITH SLIDING DOORS. STOP PIECES ARE NOT REQUIRED IN CARS EQUIPPED WITH PLUG DOORS.

8. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED. SEE THE "ALTERNATIVE SEPARATOR GATE" DETAIL ON PAGE 64 FOR CONSTRUCTION GUIDANCE.

9. CENTER GATE "C" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD, IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 65 FOR GUIDANCE.

10. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE C", SHOWN AS PIECE MARKED ⑤ IN THE LOAD ON PAGE 8, INSTALL TWO (2) "CENTER GATES A" AS SHOWN ON PAGE 16. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 65. OMIT THE STOP PIECES FROM "CENTER GATE A".

11. DOOR SPANNER TYPE GATE HOLD DOWN MAY BE USED IN LIEU OF THE 2" X 2" AND 2" X 6 " MATERIAL NAILED TO CENTER GATE C, PROVIDING THE CAR BEING LOADED HAS NAILABLE SIDEWALLS. SEE THE DETAILS ON PAGE 67 FOR GUIDANCE.

12. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECES MARKED ⑦ IN THE LOAD ON PAGE 8, IS APPLICABLE FOR BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGES 68 THRU 70 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED, AS SHOWN IN THE LOAD ON PAGE 14. NOTE THAT THE DOORWAY PROTECTION PROCEDURES FOR CARS EQUIPPED WITH PLUG DOORS MAY ALSO BE USED IN CARS EQUIPPED WITH SLIDING DOORS.

(CONTINUED AT LEFT)

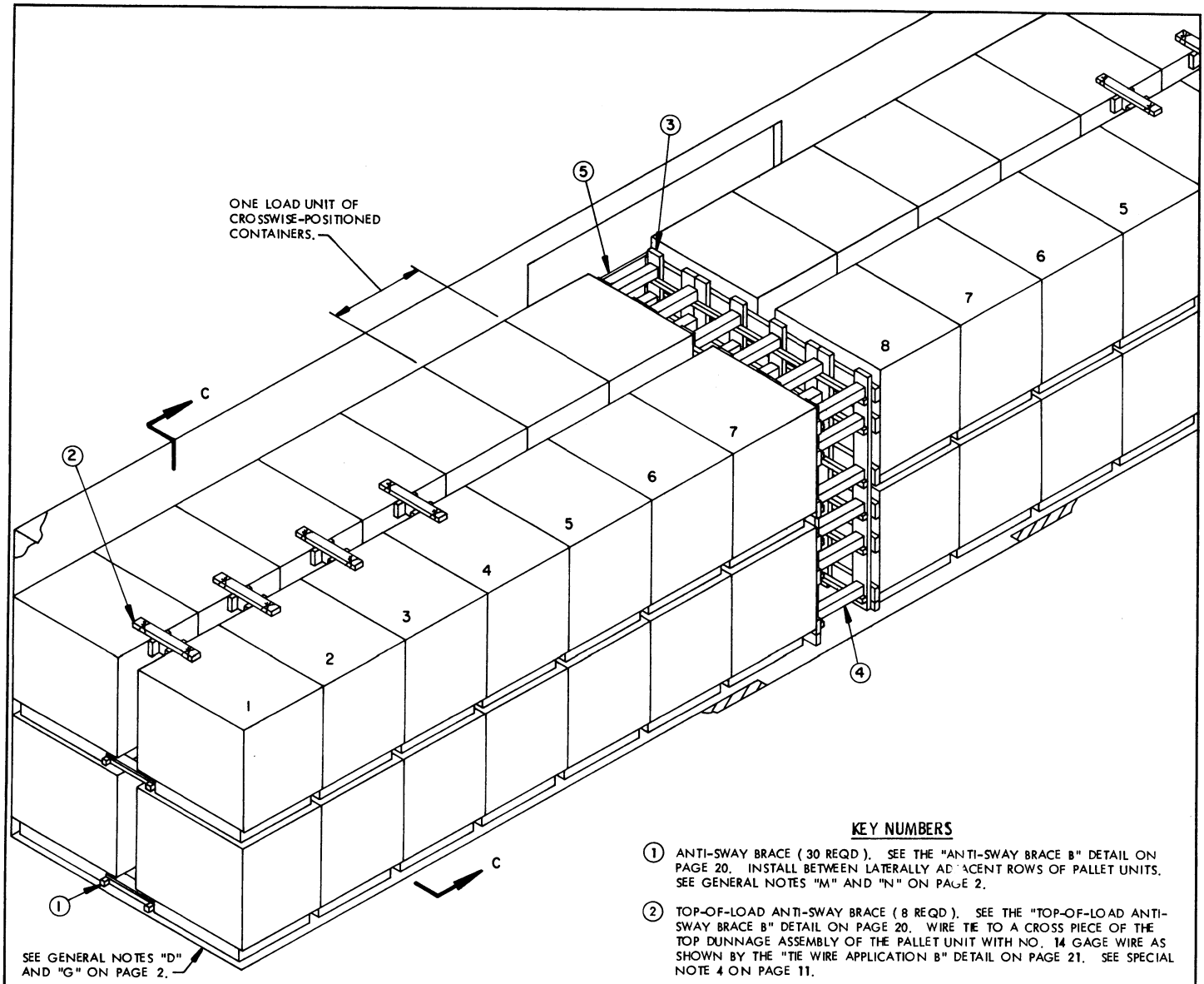
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	175	59
1" X 6"	512	256
2" X 2"	114	38
2" X 3"	31	16
2" X 4"	300	200
2" X 6"	252	252
4" X 4"	86	115
NAILS	**NO. REQD**	**POUNDS**
6d (2")	384	2-1/2
10d (3")	598	9-1/4
12d (3-1/4")	28	1/2
16d (3-1/2")	96	2-1/4
WIRE, NO. 14 GAGE----------72' REQD----------1 LB		

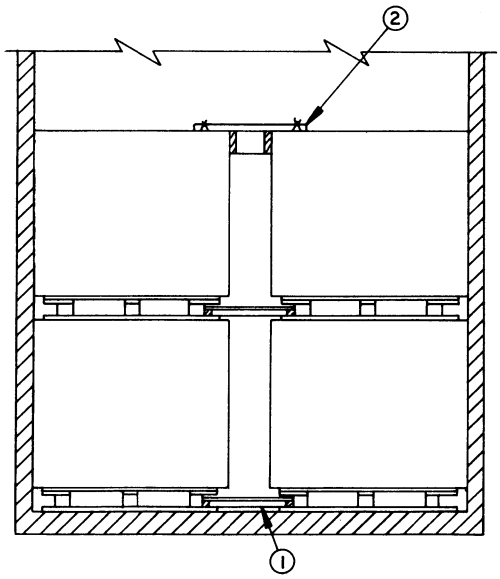
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	44	80,916 LBS
DUNNAGE		1,888 LBS
TOTAL WEIGHT		82,804 LBS (APPROX)

PALLET UNIT (BASIC HEIGHT) 44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR



ISOMETRIC VIEW



SECTION C-C

KEY NUMBERS

(1) ANTI-SWAY BRACE (30 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 20. WIRE TIE TO A CROSS PIECE OF THE TOP DUNNAGE ASSEMBLY OF THE PALLET UNIT WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 11.

(3) CENTER GATE (2 REQD). SEE THE "CENTER GATE D" DETAIL ON PAGE 19. SEE SPECIAL NOTES 5 THRU 7 ON PAGE 11.

(4) STRUT, 4" X 4" BY CUT TO FIT (REF: 20-1/2") (36 REQD). TOENAIL TO PIECES MARKED (3) W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "L", "U", AND "V" ON PAGES 2 AND 3.

(5) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION A" DETAIL ON PAGE 18. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTES 3 AND 8 ON PAGE 11.

PALLET UNIT (BASIC HEIGHT) 60-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS OF OTHER LENGTHS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 10. A MAXIMUM OF SEVENTY-TWO (72) OF THESE UNITS FOR AN APPROXIMATE LADING WEIGHT OF 132,408 POUNDS, CAN BE PLACED IN A 60'-8" CAR WHEN USING THE DEPICTED PROCEDURES; FORTY-FOUR (44) UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 80,916 POUNDS, CAN BE LOADED IN A 40'-6" CAR.

3. IF ALTERNATIVE DOORWAY PROTECTION PROCEDURES AS SHOWN IN THE LOAD ON PAGES 14 AND 30 ARE USED IN LIEU OF THE WOODEN DOOR GATE TYPE PROTECTION, PIECE MARKED (5) , NAILED FLOORLINE BLOCKING MUST BE USED IN THE DOORWAY AREA. NAILED BLOCKING IS REQUIRED FOR ALL PALLET STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH ON EITHER SIDE OF THE CAR. SEE SPECIAL NOTE 8 .

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (2) IN THE LOAD ON PAGE 10, MUST BE INSTALLED IN EACH OF THE CAR AND WIRE TIED TO A CROSS PIECE OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. FOUR (4) BRACES ARE REQUIRED IN EACH END OF A LOAD IN 40'-6" AND 50'-6" LONG CARS; FIVE (5) BRACES ARE REQUIRED IN EACH END OF A 60'-8" CAR.

5 CENTER GATE "D" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD, IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 65 FOR GUIDANCE.

6. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPEDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE D", SHOWN AS PIECE MARKED (3) IN THE LOAD ON PAGE 10, INSTALL TWO (2) "CENTER GATES B" AS SHOWN ON PAGE 17. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 65.

7. DOOR SPANNER TYPE GATE HOLD DOWN MAY BE USED IN LIEU OF THE DOUBLED 2" X 3" HOLD DOWNS ON CENTER GATES "D", PROVIDING THE CAR BEING LOADED HAS NAILABLE SIDEWALLS. SEE THE DETAILS ON PAGE 67 FOR GUIDANCE.

8. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECES MARKED (5) IN THE LOAD ON PAGE 10 , IS APPLICABLE FOR BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGES 68 THRU 70 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED, AS SHOWN IN THE LOAD ON PAGE 30. NOTE THAT THE DOORWAY PROTECTION PROCEDURES FOR CARS EQUIPPED WITH PLUG DOORS MAY ALSO BE USED IN CARS EQUIPPED WITH SLIDING DOORS. ALSO NOTE THAT BATTENS WILL BE REQUIRED ON THE BELL ENDS. SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70.

9. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 2-TIER LOAD CAN BE REDUCED BY A MUL IPLE OF FOUR (4) UNITS, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO (2) UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD. OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 38 THRU 62 FOR GUIDANCE.

10. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 60 AND 62 FOR SHIPPING GUIDANCE.

11. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

12. A CAR TO BE USED FOR SHIPMENT OF THE DEPICTED 60-UNIT LOAD IN A 50'-6" LONG CAR MUST HAVE A LOAD LIMIT OF AT LEAST 116,200 POUNDS. A 72-UNIT LOAD IN A 60'-8" LONG CAR WILL REQUIRE A LOAD LIMIT OF AT LEAST 139,500 POUNDS WHEN LOADED IN AN OFFSET LOADING PATTERN. A 44-UNIT LOAD IN A 40'-6" LONG CAR MUST HAVE A LOAD LIMIT OF 89,600 POUNDS OR GREATER.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	84	28
1" X 6"	80	40
2" X 2"	300	100
2" X 3"	38	19
2" X 4"	93	62
2" X 6"	268	268
4" X 4"	62	83
NAILS	**NO. REQD**	**POUNDS**
6d (2")	468	3
10d (3")	880	13-3/4
12d (3-1/4")	28	1/2
16d (3-1/2")	144	3-1/4
WIRE, NO. 14 GAGE----------60' REQD----------1 LB		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	60	110,340 LBS
DUNNAGE		1,222 LBS
TOTAL WEIGHT		111,562 LBS (APPROX)

PALLET UNIT (BASIC HEIGHT) 60-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

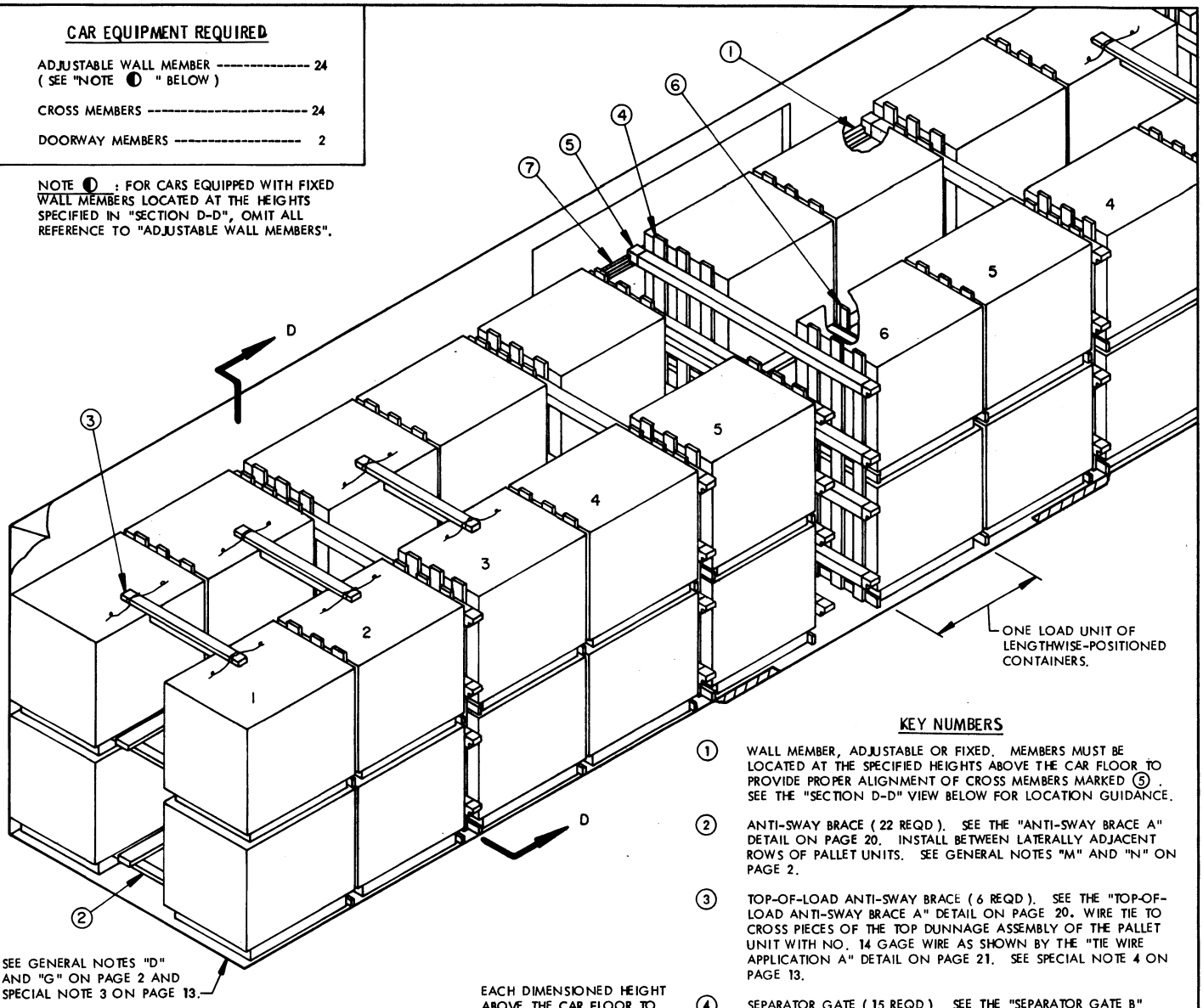
CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBER ---------- 24
(SEE "NOTE ◐ " BELOW)

CROSS MEMBERS ---------- 24

DOORWAY MEMBERS ---------- 2

NOTE ◐ : FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION D-D", OMIT ALL REFERENCE TO "ADJUSTABLE WALL MEMBERS".



ISOMETRIC VIEW

KEY NUMBERS

① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED ⑤. SEE THE "SECTION D-D" VIEW BELOW FOR LOCATION GUIDANCE.

② ANTI-SWAY BRACE (22 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

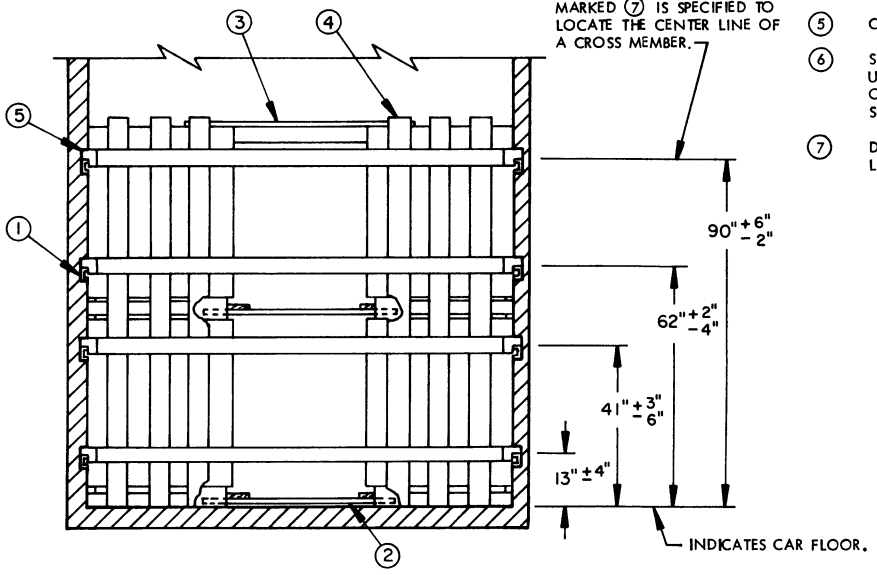
③ TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY OF THE PALLET UNIT WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 13.

④ SEPARATOR GATE (15 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 17. AS APPLICABLE, POSITION WITH HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNITS. SEE SPECIAL NOTES 5 AND 7 ON PAGE 13.

⑤ CROSS MEMBER (24 REQD). SEE GENERAL NOTE "X" ON PAGE 3.

⑥ STOP PIECE, 1" X 4" X 56" (6 REQD). POSITION AGAINST PALLET UNITS IN THE DOORWAY AREA AND TO THE HORIZONTAL PIECES OF PIECE MARKED ④ W/3-6d NAILS AT EACH JOINT AND CLINCH. SEE SPECIAL NOTE 6 ON PAGE 13.

⑦ DOORWAY MEMBER (8 REQD). SEE THE "SECTION D-D" VIEW AT LEFT FOR LOCATION GUIDANCE.



SECTION D-D

PALLET UNIT (BASIC HEIGHT)

44-UNIT LOAD IN A 50'-6" LONG BY 9'-0" WIDE BOX CAR EQUIPPED WITH MECHANICAL BRACING DEVICES

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-0" WIDE (INSIDE CLEARANCE) WOOD-LINED BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 12. A MAXIMUM OF THIRTY-TWO (32) OF THESE UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 58,848 POUNDS, CAN BE PLACED IN A 40'-6" LONG CAR.

3. IF A CAR HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, CROSS MEMBERS CAN BE INSTALLED NEAR THE END WALL OF THE CAR TO PROVIDE A "SQUARED" END" RATHER THAN INSTALLING DUNNAGE AS SPECIFIED IN GENERAL NOTE "G" ON PAGE 2. THESE CROSS MEMBERS SHOULD BE INSTALLED AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS BLOCKING MEMBERS. A SEPARATOR GATE, SHOWN AS PIECE MARKED (4) , MUST BE POSITIONED AGAINST THESE CROSS MEMBERS PRIOR TO LOADING.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (3) IN THE LOAD ON PAGE 12, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. THREE (3) BRACES ARE REQUIRED IN EACH END OF A LOAD IN 40'-6" AND 50'-6" LONG CARS; FOUR (4) BRACES ARE REQUIRED IN A 60' LONG CAR.

5. TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES, POSITION PALLET UNIT STACKS AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE SHOWN AS PIECES MARKED (4) SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE BOTTOM AND TOP PALLET UNITS. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES IN THE DOORWAY MUST BE PREVENTED FROM SHIFTING INTO A DOOR OPENING BY THE APPLICATION OF THE STOP PIECES, PIECES MARKED (6). IN CARS EQUIPPED WITH STAGGERED DOORS, STOP PIECES MAY BE REQUIRED ON UP TO FOUR SEPARATOR GATES.

7. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED, FOR ONE OR TWO-LAYER LOADS.

8. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A LOAD MAY BE REDUCED BY MULTIPLES OF TWO (2) PALLET UNITS BY OMITTING LATERALLY ADJACENT UNITS FROM THE TOP LAYER OF ONE OR MORE LOAD UNITS OR BY MULTIPLES OF FOUR (4) PALLET UNITS BY OMITTING ONE OR MORE ENTIRE LOAD UNITS. TO REDUCE A LOAD BY ONE (1) PALLET UNIT, REFER TO THE LCL PROCEDURES ON PAGES 36 AND 37 FOR GUIDANCE.

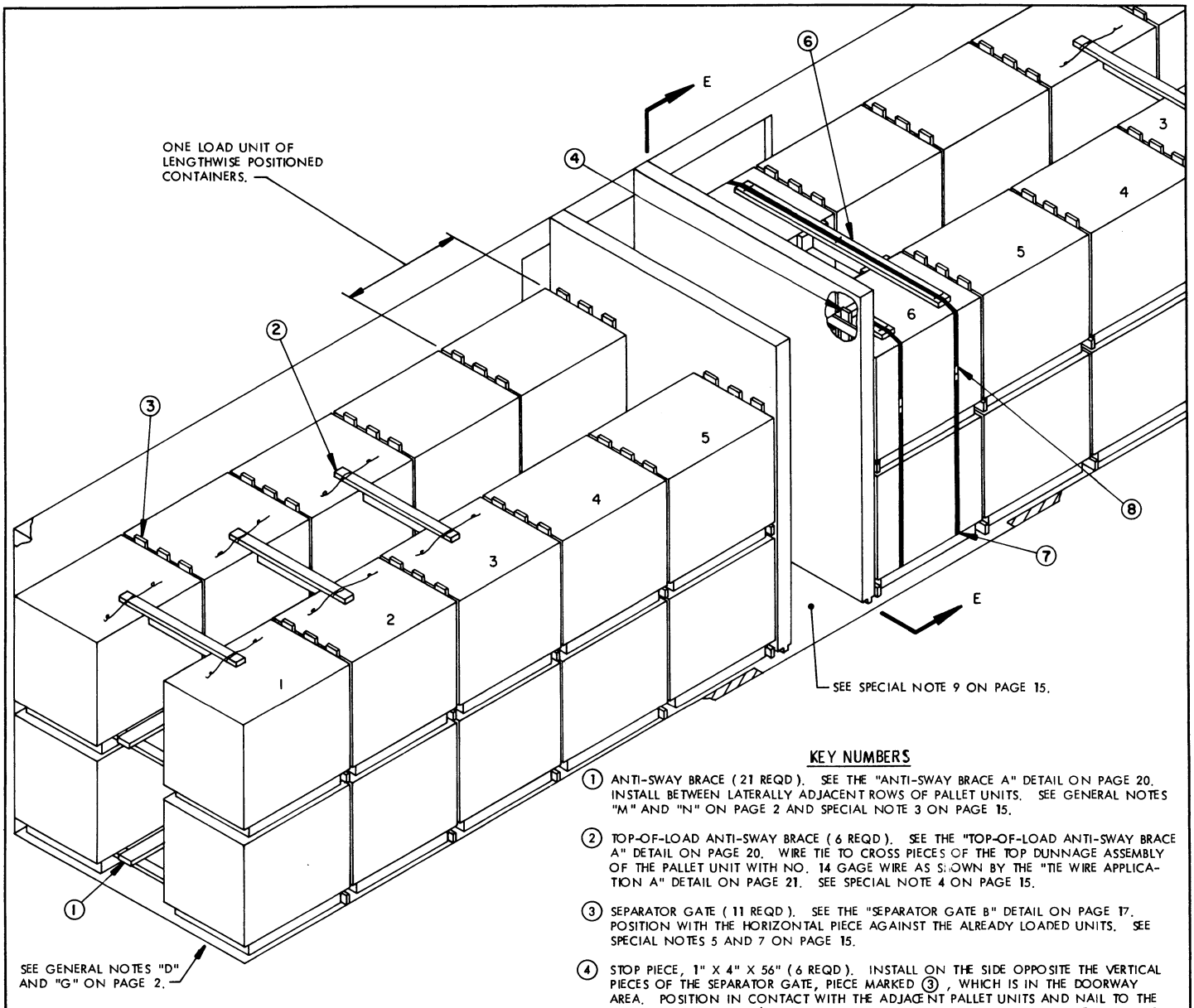
9. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4" 1" X 6" 2" X 4" 2" X 6"	297 720 279 66	99 360 186 66
NAILS	NO. REQD	POUNDS
6d (2") 10d (3")	576 294	3-1/2 4-3/4
WIRE, NO. 14 GAGE----------72' REQD----------1 LB		

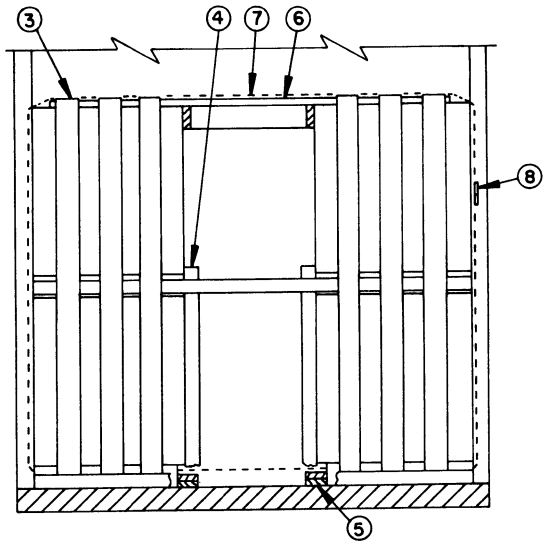
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	44	80,916 LBS
DUNNAGE		1,432 LBS
TOTAL WEIGHT		82,348 LBS

PALLET UNIT (BASIC HEIGHT)
44-UNIT LOAD IN A 50'-6" LONG BY 9'-0" WIDE BOX CAR EQUIPPED WITH MECHANICAL BRACING DEVICES



ISOMETRIC VIEW



SECTION E-E

KEY NUMBERS

(1) ANTI-SWAY BRACE (21 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 15.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY OF THE PALLET UNIT WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 15.

(3) SEPARATOR GATE (11 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 17. POSITION WITH THE HORIZONTAL PIECE AGAINST THE ALREADY LOADED UNITS. SEE SPECIAL NOTES 5 AND 7 ON PAGE 15.

(4) STOP PIECE, 1" X 4" X 56" (6 REQD). INSTALL ON THE SIDE OPPOSITE THE VERTICAL PIECES OF THE SEPARATOR GATE, PIECE MARKED (3) , WHICH IS IN THE DOORWAY AREA. POSITION IN CONTACT WITH THE ADJACENT PALLET UNITS AND NAIL TO THE HORIZONTAL PIECES W/3-6d NAILS AT EACH JOINT AND CLINCH. SEE SPECIAL NOTE 6 ON PAGE 15.

(5) SIDE BLOCKING, 2" X 6" X 45" (DOUBLED) (2 REQD). POSITION AGAINST THE PALLET AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 3 ON PAGE 15.

(6) SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 21.

(7) DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" X 36'-0" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO ENCIRCLE LOAD UNIT IN DOORWAY. STAPLE TO SPACER ASSEMBLY W/3 STAPLES. SEE SPECIAL NOTE 8 ON PAGE 15.

(8) SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.

PALLET UNIT (BASIC HEIGHT)
44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR EQUIPPED WITH LOAD DIVIDERS

PROJECT FSA 43B/16-63

(SPECIAL NOTES CONTINUED)

10. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR (4) UNITS, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO (2) UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD. OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 38 THRU 46 AND GENERAL NOTE "FF" ON PAGE 3 FOR GUIDANCE.

11. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGE 59 AND/OR PAGES 60 AND 62 FOR SHIPPING GUIDANCE.

12. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	229	77
1" X 6"	528	264
2" X 4"	277	185
2" X 6"	104	104
NAILS	NO. REQD	POUNDS
6d (2")	432	2-3/4
10d (3")	282	4-1/2
12d (3-1/4")	28	1/2
16d (3-1/2")	20	1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031" -- 72' REQD -------- 11 LBS		
SEAL FOR 1-1/4" STRAPPING ---------- 4 REQD --------- NIL		
STAPLE FOR 1-1/4" STRAPPING ---------- 6 REQD --------- NIL		
WIRE, NO. 14 GAGE ---------- 72' REQD -------- 1 LB		

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE WOOD-LINED CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING NARROWER OR WIDER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTES "AA" THRU "EE" ON PAGE 3.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 14. USE THE CHART BELOW TO DETERMINE OTHER MAXIMUM LOADS AS APPLICABLE.

CAR LENGTH	POSITION OF CONTAINERS	TOTAL NO. OF UNITS	APPROXIMATE LADING WEIGHT
60'-8"	LENGTHWISE	52	95,628 LBS
40'-6"	LENGTHWISE	36 ●	66,204 LBS
60'-8"	CROSSWISE	72 ●	132,408 LBS
50'-6"	CROSSWISE	60 ●	110,340 LBS
40'-6"	CROSSWISE	48 ●	88,272 LBS

● THE LOADS MARKED WITH THIS SYMBOL MUST BE REDUCED BY FOUR (4) PALLET UNITS UNLESS THE OPERATING MECHANISM FOR THE BULKHEADS IS LOCATED ON THE EDGE SO THAT IT CAN BE OPERATED FROM OUTSIDE THE CAR.

3. WHEN USING THE DOORWAY PROTECTION PROCEDURES SHOWN ON PAGE 14 BY PIECES MARKED ⑤ THRU ⑧ , NAILED FLOORLINE BLOCKING MUST BE USED IN LIEU OF THE LOWER ANTI-SWAY BRACES IN THE DOORWAY AREA. NAILED BLOCKING IS REQUIRED FOR ALL PALLET STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH ON EITHER SIDE OF THE CAR.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ② IN THE LOAD ON PAGE 14, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO THE CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. THREE (3) BRACES ARE REQUIRED IN EACH END OF A LOAD IN A 50'-6" OR 40'-6" CAR; FOUR (4) BRACES ARE REQUIRED IN EACH END OF A LOAD IF A 60'-8" CAR IS USED.

5. TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES, POSITION PALLET UNIT STACKS AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE, SHOWN AS PIECE MARKED ③ , SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE BOTTOM AND TOP PALLET UNITS. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES IN THE DOORWAY OF A CAR EQUIPPED WITH SLIDING DOORS MUST BE PREVENTED FROM SHIFTING INTO A DOOR OPENING BY THE APPLICATION OF THE STOP PIECES, PIECES MARKED ④ . IN CARS EQUIPPED WITH STAGGERED DOORS, STOP PIECES MAY BE REQUIRED ON UP TO FOUR SEPARATOR GATES.

7. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED. SEE THE "ALTERNATIVE SEPARATOR GATE" DETAIL ON PAGE 64 FOR CONSTRUCTION GUIDANCE.

8. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH OR LENGTH. DOORWAY PROTECTION SHOWN BY PIECES MARKED ⑤ , ⑥ , ⑦ , AND ⑧ ON PAGE 14 MAY BE USED FOR CONTAINERS-LENGTHWISE LOADS IN CARS EQUIPPED WITH EITHER SLIDING TYPE OR PLUG TYPE DOORS, OR A COMBINATION THEREOF (MUST BE USED IN PLUG DOOR CARS). NOTE: TWO (2) BUNDLING STRAPS ARE REQUIRED FOR EACH PALLET STACK AND/OR LOAD UNIT WHICH IS COMPLETELY WITHIN THE DOORWAY AREA OR WHICH IS NOT RETAINED BY AT LEAST SIX INCHES (6") OF CAR SIDEWALL ON BOTH SIDES OF THE CAR. ONE (1) BUNDLING STRAP IS REQUIRED FOR EACH PALLET STACK AND/OR LOAD UNIT WHICH IS RETAINED BY FROM SIX INCHES (6") TO ONE-HALF THE PALLET/LOAD UNIT WIDTH OR LENGTH. IF THE CAR BEING LOADED IS EQUIPPED WITH SLIDING TYPE DOORS, WOODEN DOOR GATES, SHOWN AS PIECE MARKED ⑦ ON PAGE 8 FOR CONTAINERS-LENGTHWISE LOADS OR PIECE MARKED ⑤ ON PAGE 10 FOR CONTAINERS-CROSSWISE LOADS OR ANY OF THE ALTERNATIVES ON PAGES 68 THRU 70 MAY BE USED. BATTENS ARE REQUIRED FOR THE BELL END WHEN CONTAINERS ARE CROSSWISE IN THE CAR. SEE THE "BATTEN PLACEMENT " DETAIL ON PAGE 70.

9. A STRUT ASSEMBLY, AS DETAILED ON PAGE 71, IS REQUIRED BETWEEN THE LOAD DIVIDER BULKHEADS WHEN THE LOAD IN EITHER END OF THE CAR IS 50,000 POUNDS OR MORE. FOR THE DEPICTED LOAD, A STRUT ASSEMBLY IS NOT REQUIRED. THE STRUT ASSEMBLY WILL ALWAYS BE REQUIRED FOR FULL LOADS IN 60' OR LONGER CARS.

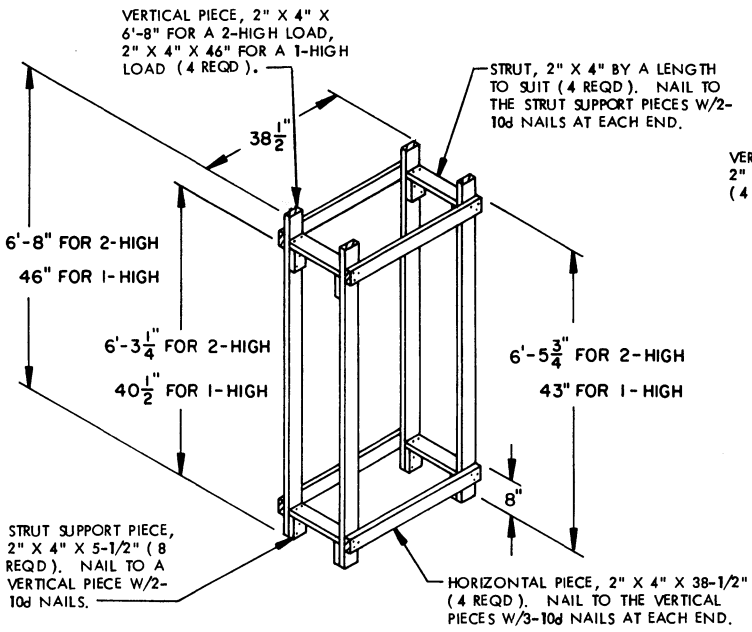
(CONTINUED AT LEFT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	44	80,916 LBS
DUNNAGE		1,281 LBS
TOTAL WEIGHT		82,197 LBS (APPROX)

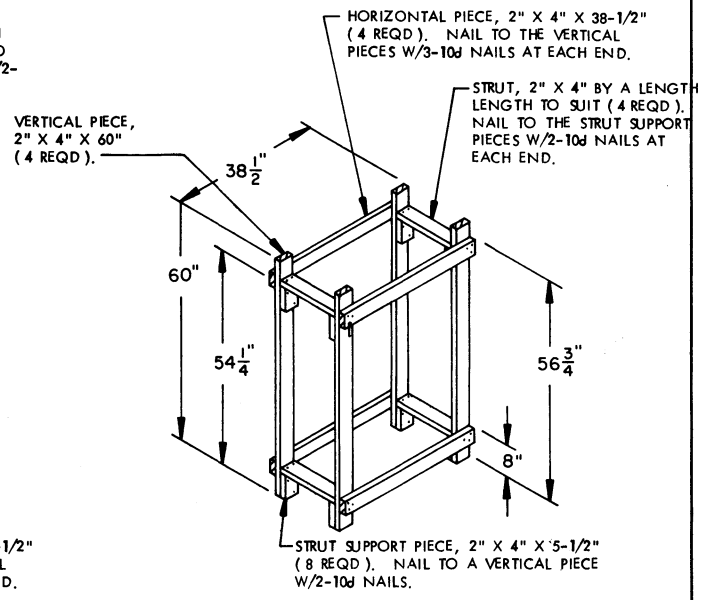
PALLET UNIT (BASIC HEIGHT)

44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR EQUIPPED WITH LOAD DIVIDERS



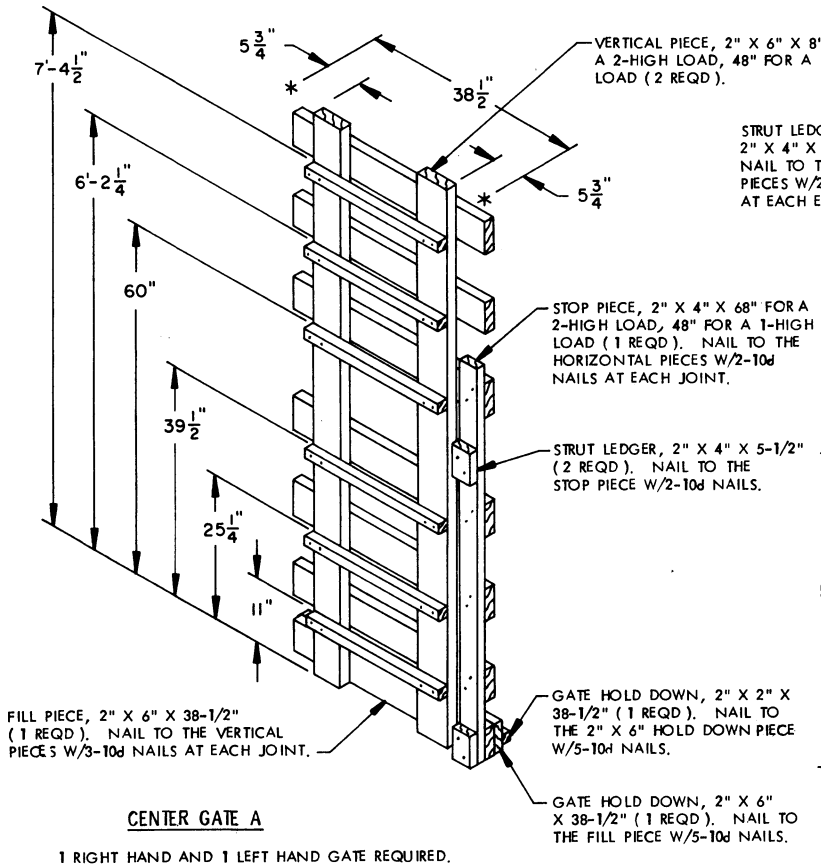
CRIB FILL A

CRIB FILL ASSEMBLIES "A" AND "B" SHOULD BE PRE-FABRICATED. CONSTRUCT TO BE 1/2" TO 3/4" LESS IN WIDTH THAN THE DISTANCE BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS.



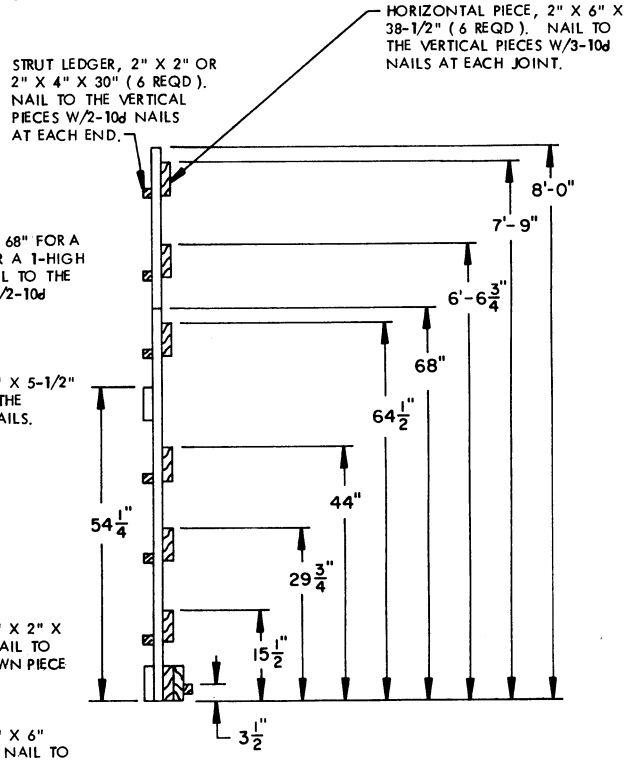
CRIB FILL B

CRIB FILL "B" IS NOT REQUIRED FOR A 1-HIGH LOAD; USE CRIB FILL "A" THROUGHOUT THE LENGTH OF THE LOAD.



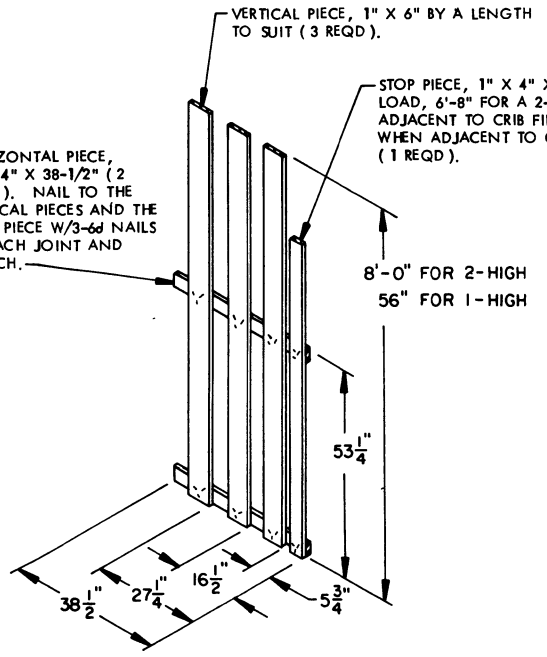
CENTER GATE A

1 RIGHT HAND AND 1 LEFT HAND GATE REQUIRED.



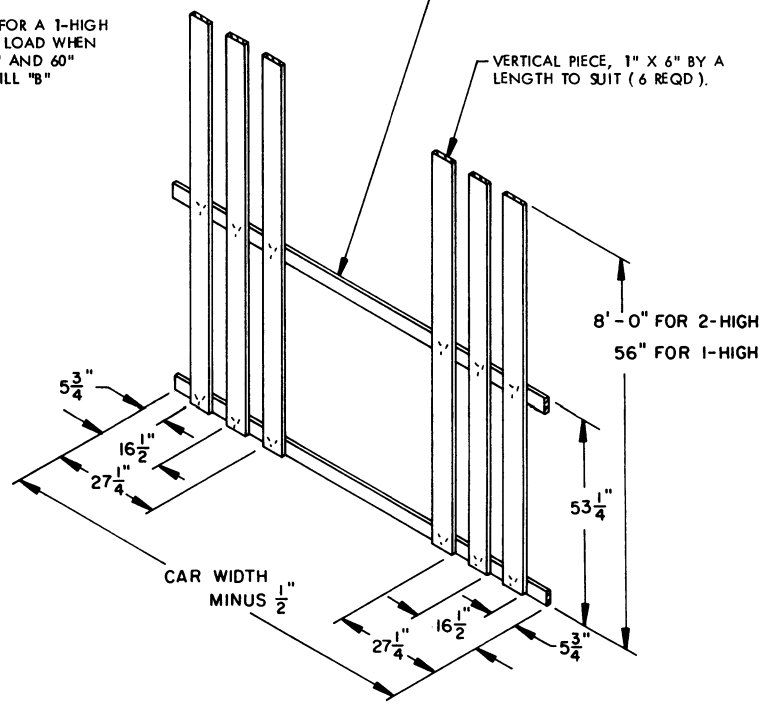
END VIEW

DETAILS FOR PALLET UNIT (BASIC HEIGHT)



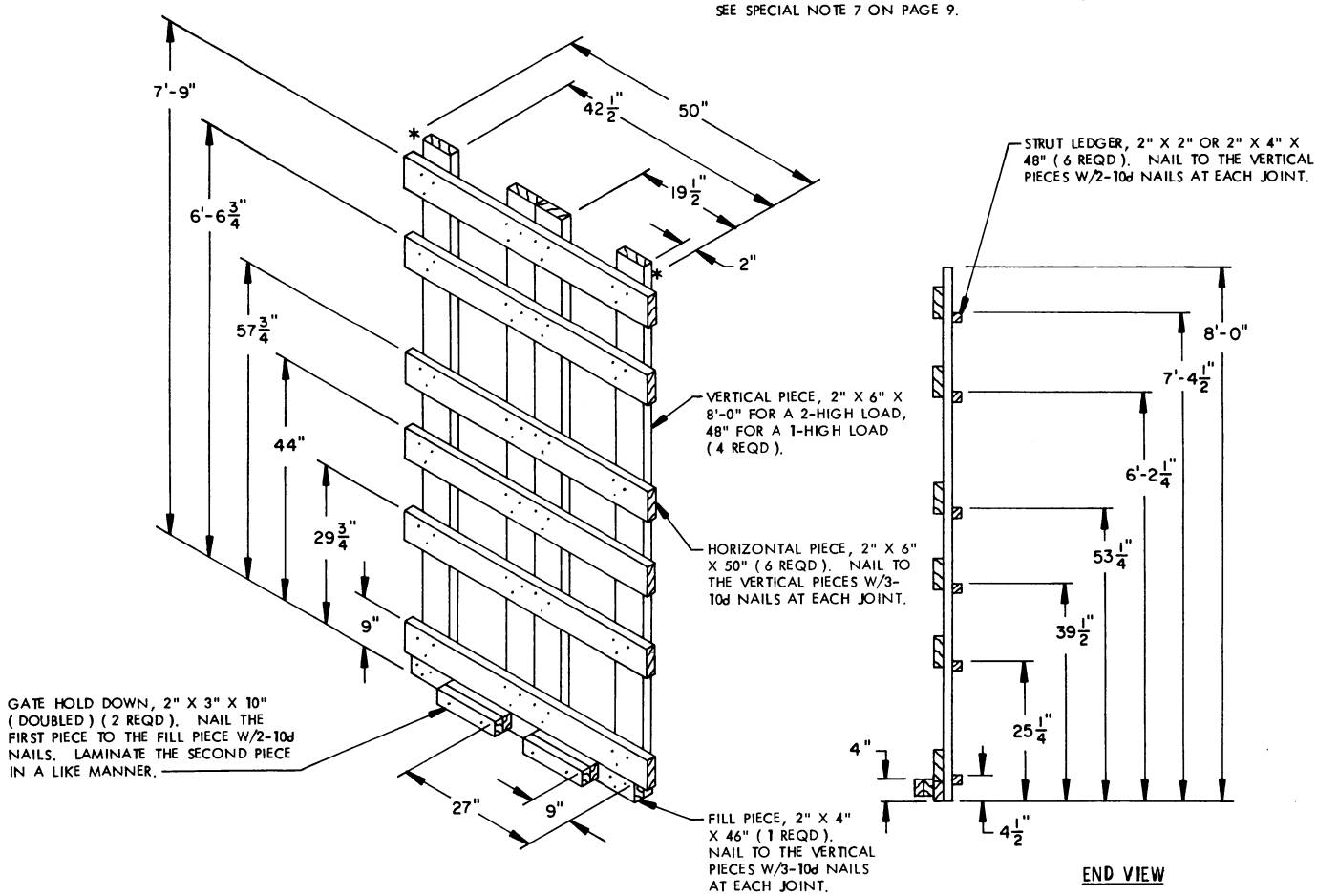
SEPARATOR GATE A

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



SEPARATOR GATE B

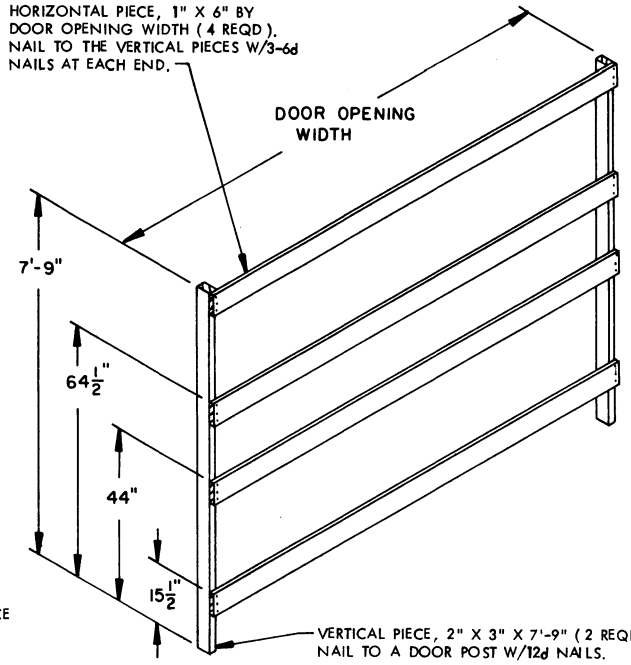
SEE SPECIAL NOTE 7 ON PAGE 9.



CENTER GATE B

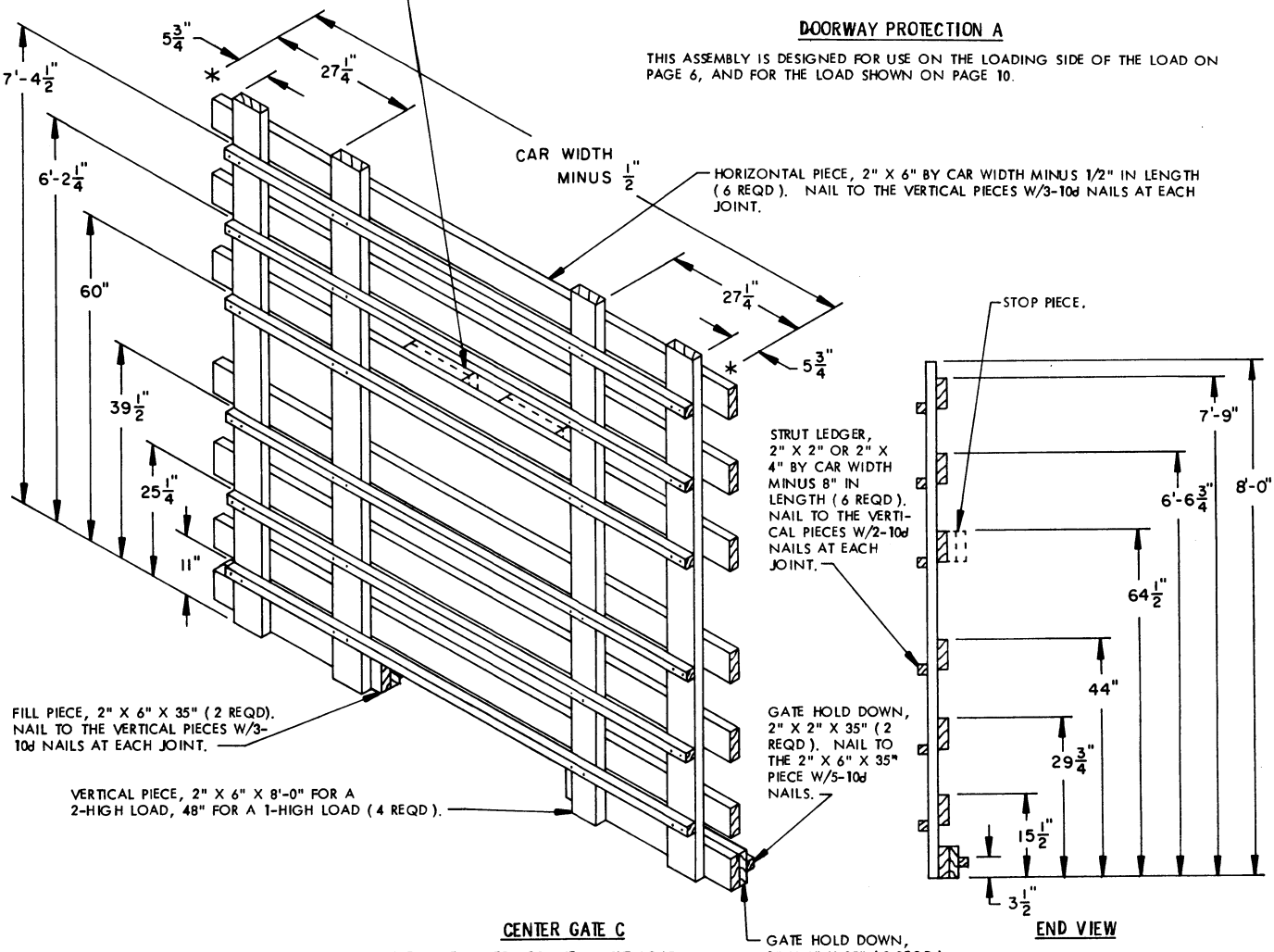
END VIEW

DETAILS FOR PALLET UNIT (BASIC HEIGHT)



DOORWAY PROTECTION A

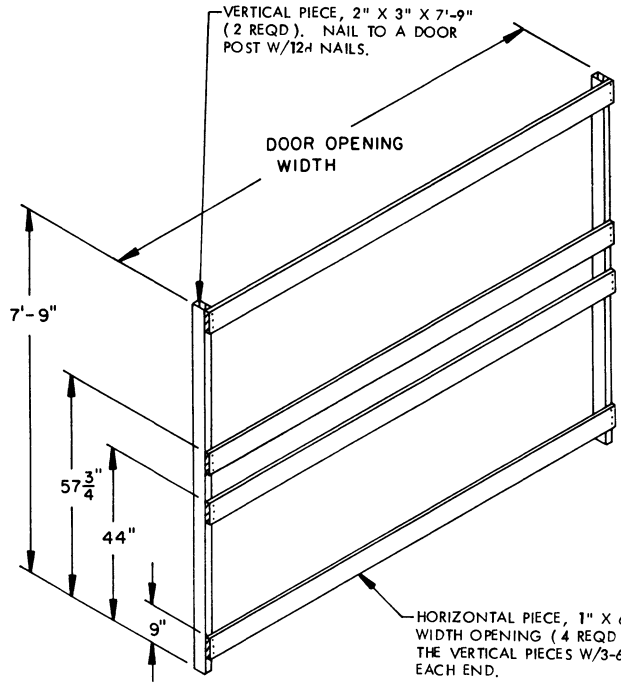
THIS ASSEMBLY IS DESIGNED FOR USE ON THE LOADING SIDE OF THE LOAD ON PAGE 6, AND FOR THE LOAD SHOWN ON PAGE 10.



CENTER GATE C

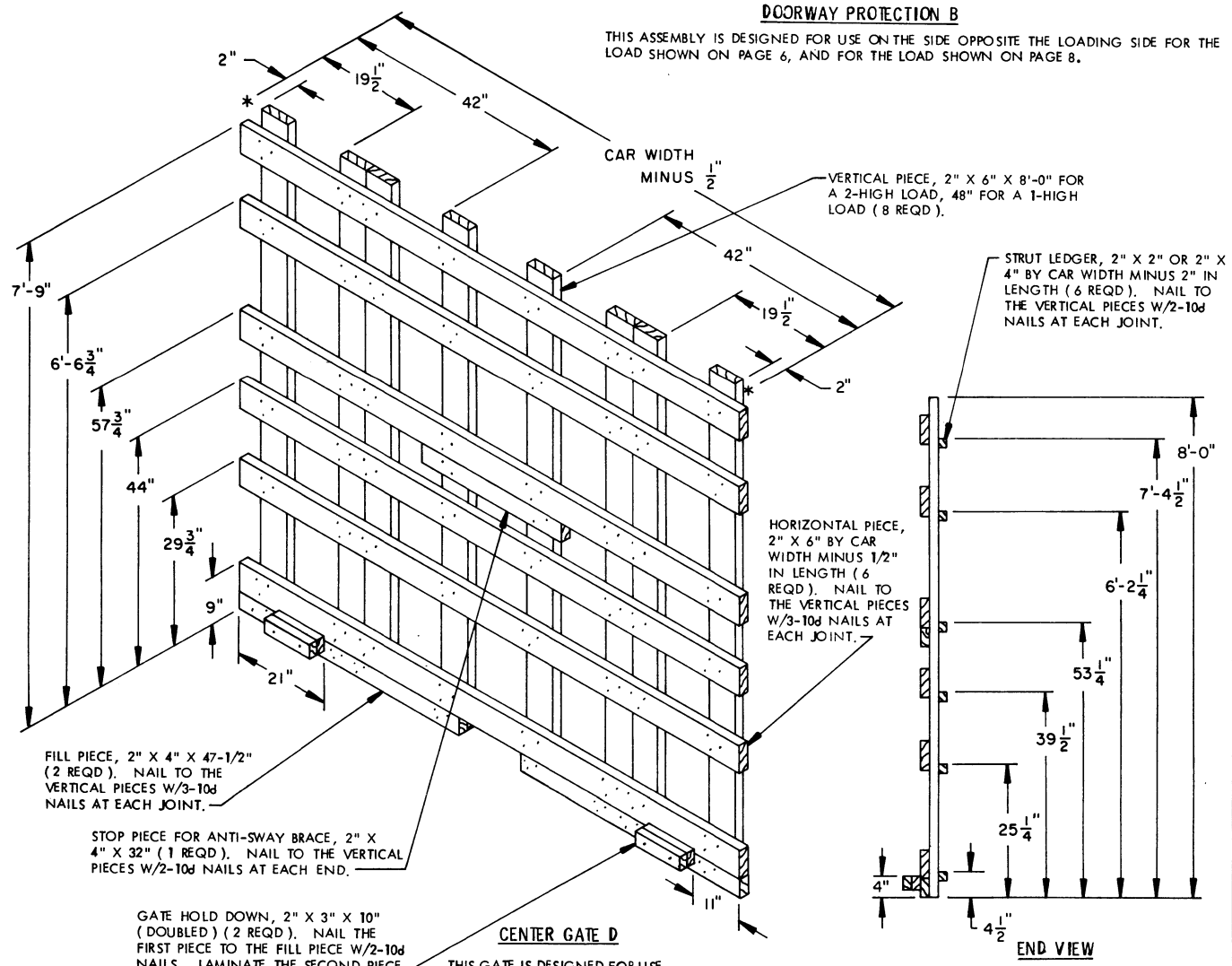
THIS GATE IS DESIGNED FOR USE IN THE LOAD SHOWN ON PAGE 8.

DETAILS FOR PALLET UNIT (BASIC HEIGHT)



DOORWAY PROTECTION B

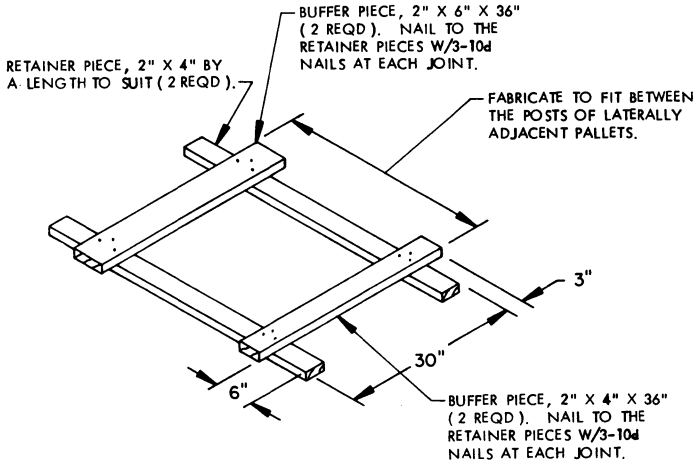
THIS ASSEMBLY IS DESIGNED FOR USE ON THE SIDE OPPOSITE THE LOADING SIDE FOR THE LOAD SHOWN ON PAGE 6, AND FOR THE LOAD SHOWN ON PAGE 8.



CENTER GATE D

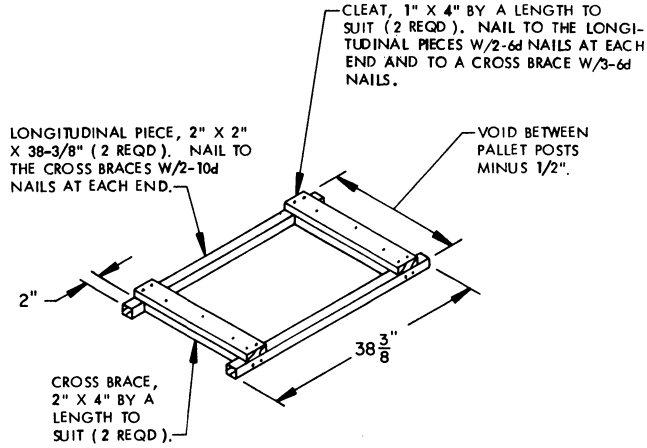
THIS GATE IS DESIGNED FOR USE IN THE LOAD SHOWN ON PAGE 10.

DETAILS FOR PALLET UNIT (BASIC HEIGHT)

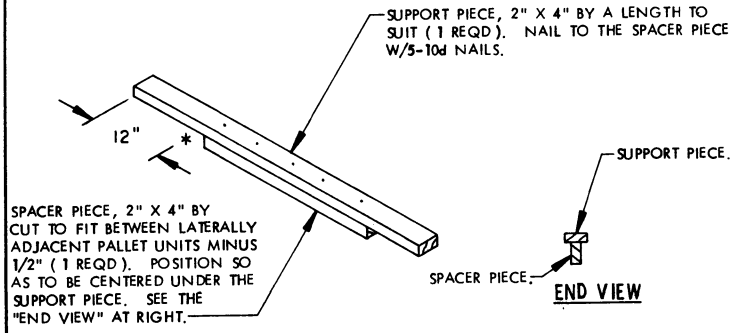


ANTI-SWAY BRACE A

IF DESIRED, THE ANTI-SWAY BRACE CAN BE PARTIALLY PRE-ASSEMBLED: THE 2" X 4" BUFFER PIECE CAN BE NAILED TO BOTH RETAINER PIECES. THE LONG ENDS OF THE ASSEMBLY CAN THEN BE INSTALLED INTO THE FORKLIFT OPENING OF A LOADED PALLET PRIOR TO POSITIONING THE LATERALLY ADJACENT PALLET.

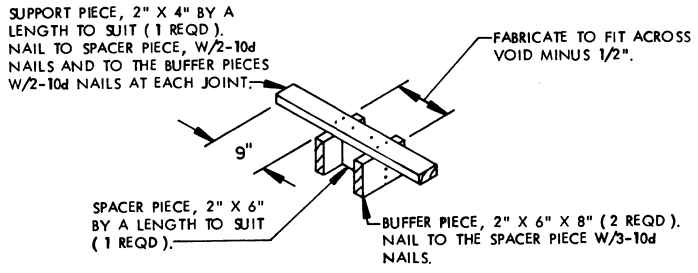


ANTI-SWAY BRACE B



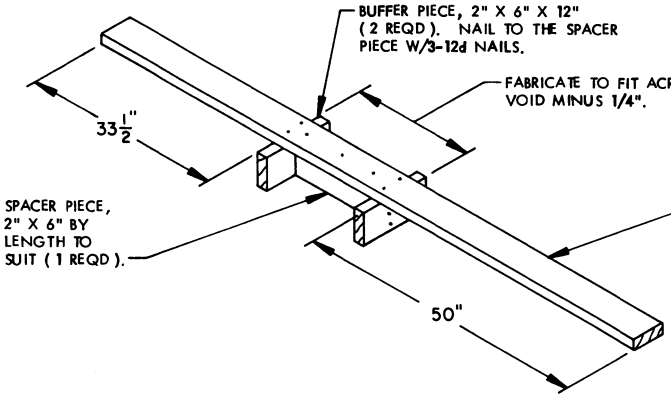
TOP OF LOAD ANTI-SWAY BRACE A

END VIEW



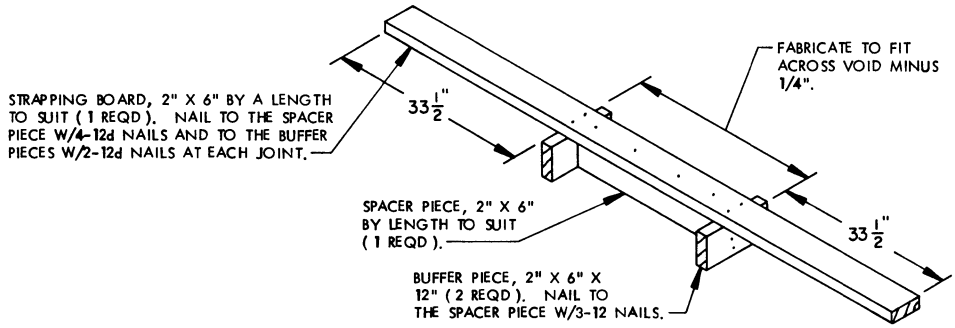
TOP OF LOAD ANTI-SWAY BRACE B

DETAILS FOR PALLET UNIT (BASIC HEIGHT)



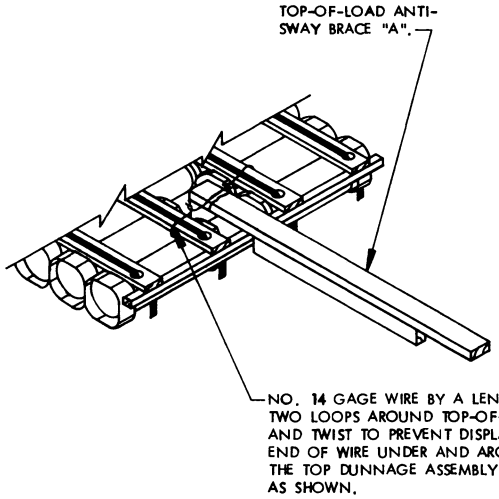
SPACER ASSEMBLY A

THIS ASSEMBLY IS FOR USE IN THE LOADS SHOWN ON PAGES 6 AND 22 WHEN NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS ARE USED FOR DOORWAY PROTECTION.

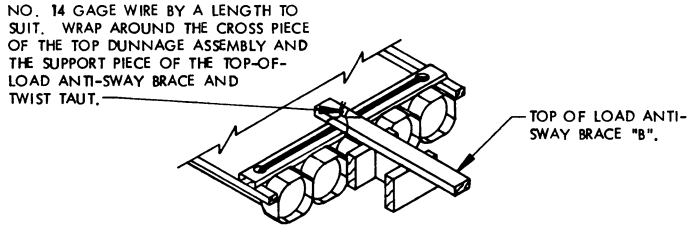


SPACER ASSEMBLY B

THIS ASSEMBLY IS FOR USE IN THE LOADS SHOWN ON PAGES 8 AND 24 WHEN NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS ARE USED FOR DOORWAY PROTECTION. IT IS ALSO FOR USE IN THE LOADS ON PAGES 14 AND 30 WHEN THE PALLETS ARE POSITIONED WITH THE CONTAINERS LENGTHWISE IN THE CAR.



TIE WIRE APPLICATION A



TIE WIRE APPLICATION B

(KEY NUMBERS CONTINUED)

(16) DOORWAY PROTECTION (1 REQD). SEE THE "DOORWAY PROTECTION D" DETAIL ON PAGE 35. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTE 9 ON PAGE 23.

(17) DOORWAY PROTECTION (1 REQD). SEE THE "DOORWAY PROTECTION C" DETAIL ON PAGE 34. NAIL TO THE DOOR POSTS W/12d NAILS.

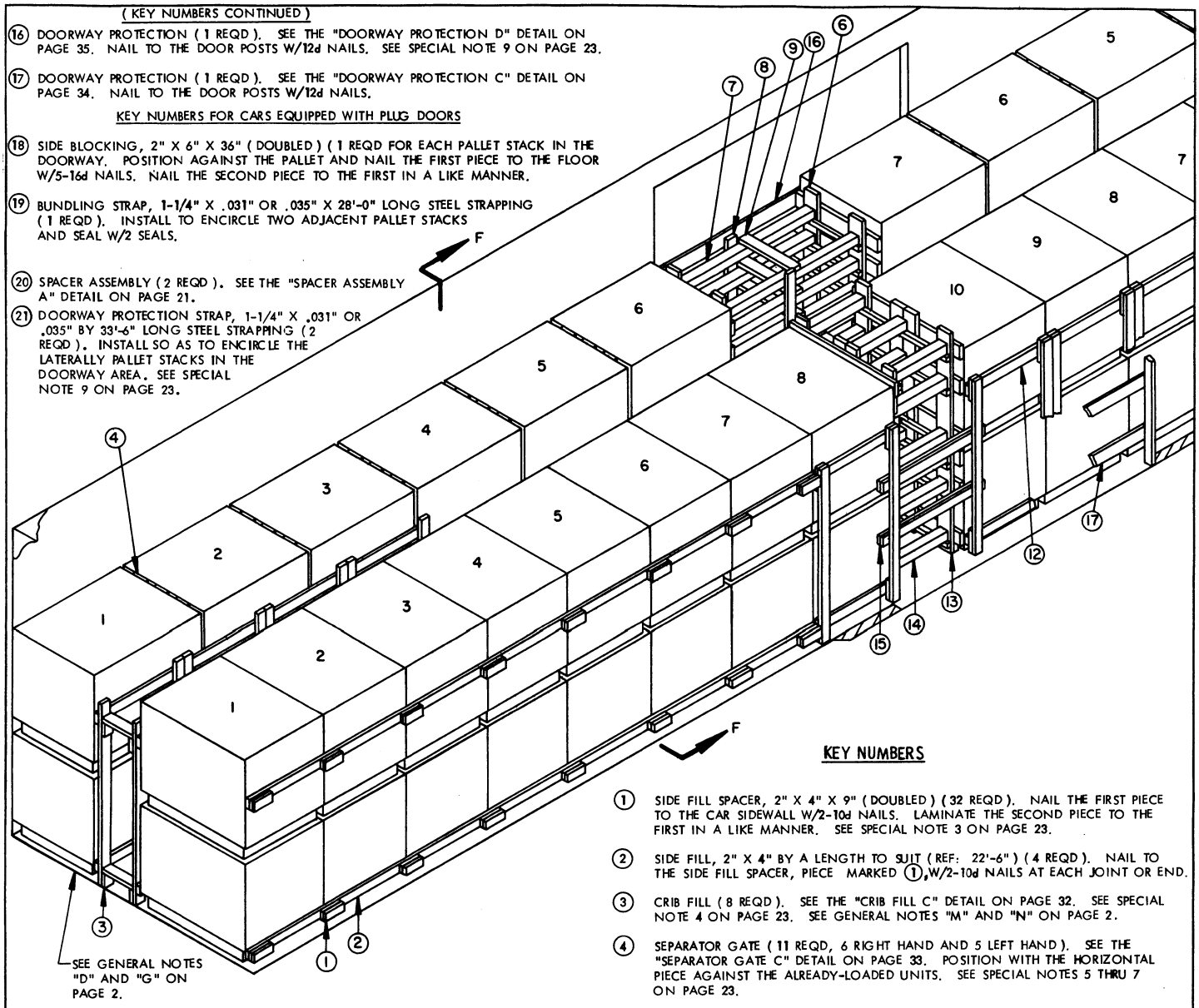
KEY NUMBERS FOR CARS EQUIPPED WITH PLUG DOORS

(18) SIDE BLOCKING, 2" X 6" X 36" (DOUBLED) (1 REQD FOR EACH PALLET STACK IN THE DOORWAY. POSITION AGAINST THE PALLET AND NAIL THE FIRST PIECE TO THE FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

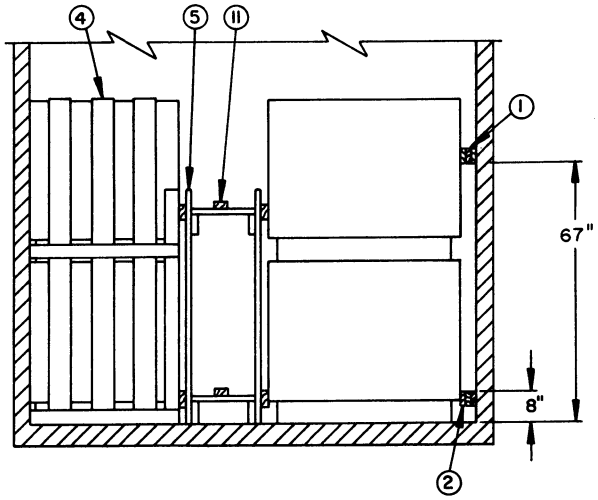
(19) BUNDLING STRAP, 1-1/4" X .031" OR .035" X 28'-0" LONG STEEL STRAPPING (1 REQD). INSTALL TO ENCIRCLE TWO ADJACENT PALLET STACKS AND SEAL W/2 SEALS.

(20) SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 21.

(21) DOORWAY PROTECTION STRAP, 1-1/4" X .031" OR .035" BY 33'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE THE LATERALLY PALLET STACKS IN THE DOORWAY AREA. SEE SPECIAL NOTE 9 ON PAGE 23.



ISOMETRIC VIEW



SECTION F-F

KEY NUMBERS

(1) SIDE FILL SPACER, 2" X 4" X 9" (DOUBLED) (32 REQD). NAIL THE FIRST PIECE TO THE CAR SIDEWALL W/2-10d NAILS. LAMINATE THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 3 ON PAGE 23.

(2) SIDE FILL, 2" X 4" BY A LENGTH TO SUIT (REF: 22'-6") (4 REQD). NAIL TO THE SIDE FILL SPACER, PIECE MARKED (1), W/2-10d NAILS AT EACH JOINT OR END.

(3) CRIB FILL (8 REQD). SEE THE "CRIB FILL C" DETAIL ON PAGE 32. SEE SPECIAL NOTE 4 ON PAGE 23. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(4) SEPARATOR GATE (11 REQD, 6 RIGHT HAND AND 5 LEFT HAND). SEE THE "SEPARATOR GATE C" DETAIL ON PAGE 33. POSITION WITH THE HORIZONTAL PIECE AGAINST THE ALREADY-LOADED UNITS. SEE SPECIAL NOTES 5 THRU 7 ON PAGE 23.

(5) CRIB FILL (10 REQD). SEE THE "CRIB FILL D" DETAIL ON PAGE 32.

(6) CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "CENTER GATE E" DETAIL ON PAGE 32. SEE SPECIAL NOTE 8 ON PAGE 23.

(7) STRUT, 4" X 4" BY CUT TO FIT (REF: 63-1/2") (12 REQD). TOENAIL TO PIECES MARKED (6) W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "L", "U", AND "V" ON PAGES 2 AND 3.

(8) VERTICAL STRUT BRACING, 2" X 4" BY 6'-9" (2 REQD). NAIL TO THE STRUTS, PIECE MARKED (7), W/3-10d NAILS AT EACH JOINT.

(9) HORIZONTAL STRUT BRACING, 2" X 4" X 30" (6 REQD). NAIL TO THE STRUTS, PIECE MARKED (7), W/3-10d NAILS AT EACH JOINT.

(10) STRUT, 2" X 4" BY CUT TO FIT (REF: 63-1/2") (2 REQD). TOENAIL TO THE STOP PIECES OF PIECES MARKED (6) W/2-12d NAILS AT EACH END.

(11) CRIB FILL RETAINER, 2" X 4" BY A LENGTH TO SUIT (REF: 48") (2 REQD). POSITION TO SPAN THE UPPER AND LOWER STRUTS OF LONGITUDINALLY ADJACENT CRIB FILL "D" ASSEMBLIES AT THE CENTER OF THE CAR AND NAIL TO EACH STRUT W/3-10d NAILS. SEE THE "PARTIAL PLAN VIEW OF CAR EQUIPPED WITH SLIDING DOORS" ON PAGE 23.

(12) SIDE FILL ASSEMBLY (4 REQD). SEE THE "SIDE FILL ASSEMBLY C" DETAIL ON PAGE 37.

(13) CENTER GATE (2 REQD). SEE THE "CENTER GATE F" DETAIL ON PAGE 33.

(14) STRUT, 4" X 4" BY CUT TO FIT (REF: 26-1/2") (18 REQD). TOENAIL TO PIECES MARKED (13) W/2-16d NAILS AT EACH END.

(15) SIDE FILL ASSEMBLY RETAINER, 2" X 4" BY A LENGTH TO SUIT (REF: 46") (DOUBLED) (2 REQD). LAMINATE W/1-10d NAIL EVERY 12". POSITION AT 27-1/2" AND 50-1/2" ABOVE THE CAR FLOOR AND SECURE BY NAILING THRU THE VERTICAL PIECES OF PIECE MARKED (12) W/3-10d NAILS AT EACH END.

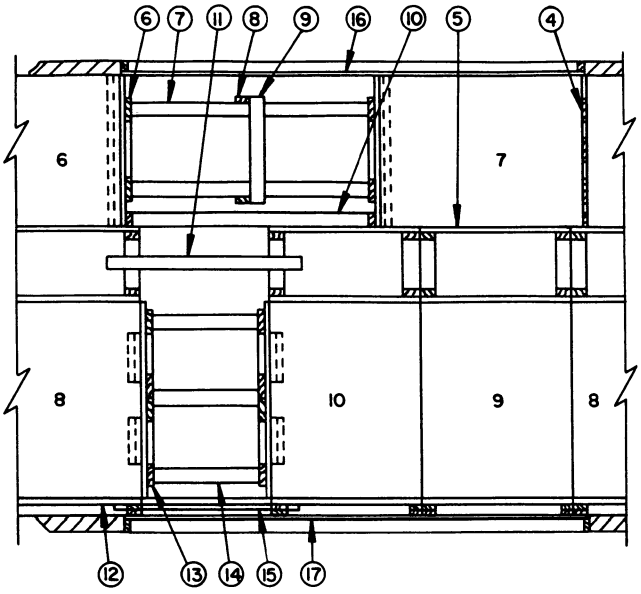
(CONTINUED AT UPPER LEFT)

PALLET UNIT (DECREASED HEIGHT) 62-UNIT LOAD IN A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL BOX CAR

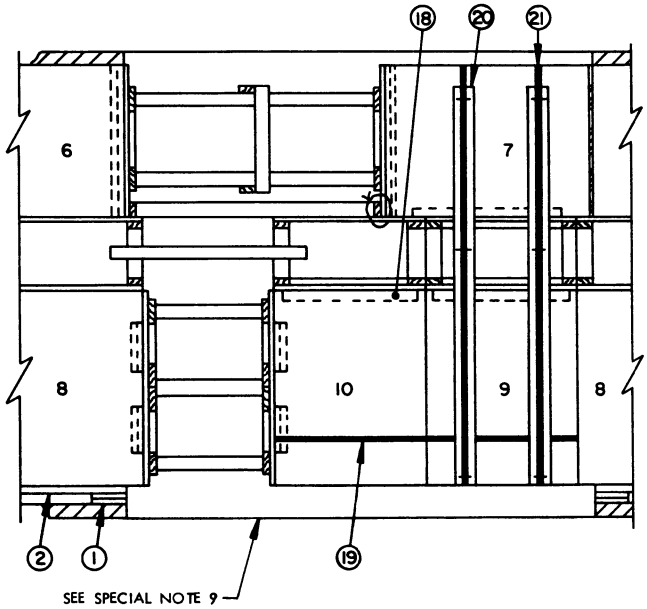
SMCAC FORM 6-1, 1 NOV 87

SUPERSEDES SMCAC FORM 6, 1 NOV 85

PROJECT FSA 43B/16-63



PARTIAL PLAN VIEW OF CAR EQUIPPED WITH CONVENTIONAL DOORS



SEE SPECIAL NOTE 9

PARTIAL PLAN VIEW OF CAR EQUIPPED WITH PLUG DOORS

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	201	67
1" X 6"	542	271
2" X 2"	78	26
2" X 3"	35	18
2" X 4"	1045	697
2" X 6"	188	188
4" X 4"	104	139
NAILS	NO. REQD	POUNDS
6d (2")	444	2-3/4
10d (3")	1840	28-1/2
12d (3-1/4")	34	3/4
16d (3-1/2")	120	2-3/4

SPECIAL NOTES:

1. A 60'-8" LONG BY 9'-6" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE DECREASED HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 22. A MAXIMUM OF FIFTY-TWO (52) OF THESE UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 80,028 POUNDS, CAN BE PLACED IN A 50'-6" CAR WHEN USING THE DEPICTED PROCEDURES; FORTY (40) UNITS FOR A LADING WEIGHT OF 61,560 POUNDS CAN BE OUTLOADED IN A 40'-6" LONG CAR.

3. THE SIDE FILL SPACERS AND SIDE FILL, PIECES MARKED (1) AND (2), ARE REQUIRED TO PROVIDE FOR PROPER WEIGHT DISTRIBUTION ACROSS THE CAR WIDTH. THE LENGTH OF THE SIDE FILL SHOULD BE SUCH THAT IT WILL CONTACT ALL PALLET UNIT STACKS WHICH DO NOT EXTEND INTO THE DOORWAY. RANDOM LENGTH MATERIAL MAY BE USED FOR PIECE MARKED (2), HOWEVER, THE JOINTS IN THE PIECES MUST BE MADE ON PIECE MARKED (1). RANDOM LENGTH MATERIAL MAY ALSO BE USED IN LIEU OF PIECE MARKED (1). ALL RANDOM LENGTH MATERIAL WILL THEN BE NAILED W/1-10d NAIL EVERY 24". IF THE CAR BEING LOADED HAS NON-NAILABLE SIDEWALLS, SIDE FILL ASSEMBLIES, PIECE MARKED (12), MUST BE USED THROUGHOUT THE LENGTH OF THE LOAD IN LIEU OF PIECES MARKED (1) AND (2).

4. THE "HIGH" CRIB, SHOWN AS PIECE MARKED (3), MUST BE INSTALLED IN EACH END OF THE LOAD. FOUR (4) ASSEMBLIES ARE REQUIRED IN EACH END OF A LOAD REGARDLESS OF THE CAR LENGTH.

5. THE SEPARATOR GATES, SHOWN AS PIECES MARKED (4) IN THE LOAD ON PAGE 22, ARE DESIGNATED "RIGHT HAND" AND "LEFT HAND" TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES. WHEN LOADING THE CAR, POSITION A PALLET UNIT STACK AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE BOTTOM AND TOP PALLET UNITS IN THE FIRST STACK. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED, FOR ONE OR TWO-LAYER LOADS. CONSTRUCT EACH SEPARATOR GATE FOR ONE OR TWO-HIGH LOADS FROM 38-1/2" WIDE PLYWOOD OF AN APPROPRIATE LENGTH.

7. ALL SEPARATOR GATES, PIECES MARKED (4), WHICH ARE WITHIN THE DOORWAY AREA OF A CAR EQUIPPED WITH CONVENTIONAL SLIDING DOORS MUST BE WIRE TIED TO THE ADJACENT CRIB FILL TO PREVENT DISPLACEMENT. ENCIRCLE THE STOP PIECE OF THE SEPARATOR GATE AND THE UPPER HORIZONTAL PIECE OF THE CRIB FILL WITH NO. 14 GAGE WIRE AND TWIST TAUT.

8. CENTER GATES "E" AND "F" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD, IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 65 FOR GUIDANCE.

9. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH OR LENGTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECES MARKED (16) AND (17) IN THE LOAD ON PAGE 22, IS APPLICABLE FOR BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGES 68 THRU 70 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED. SEE THE "PARTIAL PLAN VIEW OF CAR EQUIPPED WITH PLUG DOORS" VIEW AT LEFT FOR GUIDANCE. NOTE THAT THE VERTICAL PIECES AND BOTTOM SUPPORT PIECES OF THE CRIB FILL, PIECES MARKED (5), MUST HAVE THREE INCHES (3") CUT OFF THE BOTTOM END OF ONE SIDE SO THE CRIB WILL REST EVENLY ON THE NAILED SIDE BLOCKING WHICH IS ADJACENT TO THE LENGTHWISE UNITS. ALSO NOTE THAT THE CENTER GATES "E" MUST BE WIRE TIED TO PIECE MARKED (11) OR THE ADJACENT CRIB FILL, AS APPLICABLE, TO PREVENT DISPLACEMENT. NOTE: TWO DOORWAY PROTECTION STRAPS ARE REQUIRED FOR EACH PALLET STACK WHICH IS COMPLETELY WITHIN THE DOORWAY AREA OR WHICH IS NOT RETAINED BY AT LEAST SIX INCHES (6") OF CAR SIDEWALL. WHEN TWO STRAPS CANNOT BE INSTALLED, A PALLET STACK MUST BE SECURED TO THE ADJACENT STACK BY A BUNDLING STRAP, PIECE MARKED (19). ONE (1) DOORWAY PROTECTION STRAP IS REQUIRED FOR EACH PALLET STACK WHICH IS RETAINED BY FROM 6" TO ONE-HALF THE PALLET LENGTH OR WIDTH. BATTENS WILL BE REQUIRED ON THE BELL ENDS. SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70.

10. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. THE LOAD CAN BE REDUCED BY ONE OR TWO PALLET UNITS BY EMPLOYING THE PROCEDURES ON PAGE 40. TWO (2) PALLET UNITS CAN BE OMITTED FROM A 2-TIER LOAD BY LEAVING OUT THE CROSSWISE STACK NO. 10 AND THE ADJACENT CRIB FILL. NOTE THAT WHEN STACK NO. 10 IS OMITTED, THE SIDE FILL WILL BE DOUBLED 2" X 4" OF A LENGTH TO SUIT (REF: 22'-6") IN LIEU OF USING PIECES MARKED (1) AND (2), AND THE 2" X 4" X 9" FILL PIECES WILL BE OMITTED FROM THE SIDE FILL ASSEMBLIES, PIECE MARKED (12). ALSO NOTE THAT THE SIDE FILL RETAINER PIECE, PIECE MARKED (15), WILL BE SINGLE THICKNESS RATHER THAN DOUBLED, AND THAT STRUT BRACING MUST BE APPLIED TO THE STRUTS, PIECES MARKED (14). SIDE BLOCKING WILL BE REQUIRED FOR CENTER GATE "E", A PIECE OF 2" X 4" X 18" (DOUBLED). NAIL THE FIRST PIECE TO THE FLOOR W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. THE ENTIRE TOP TIER MAY ALSO BE OMITTED. A PARTIAL 1-TIER LOAD CAN BE SHIPPED IN ONE OR BOTH ENDS OF A CAR BY USING KNEE BRACES AS SHOWN ON PAGES 54 AND 55.

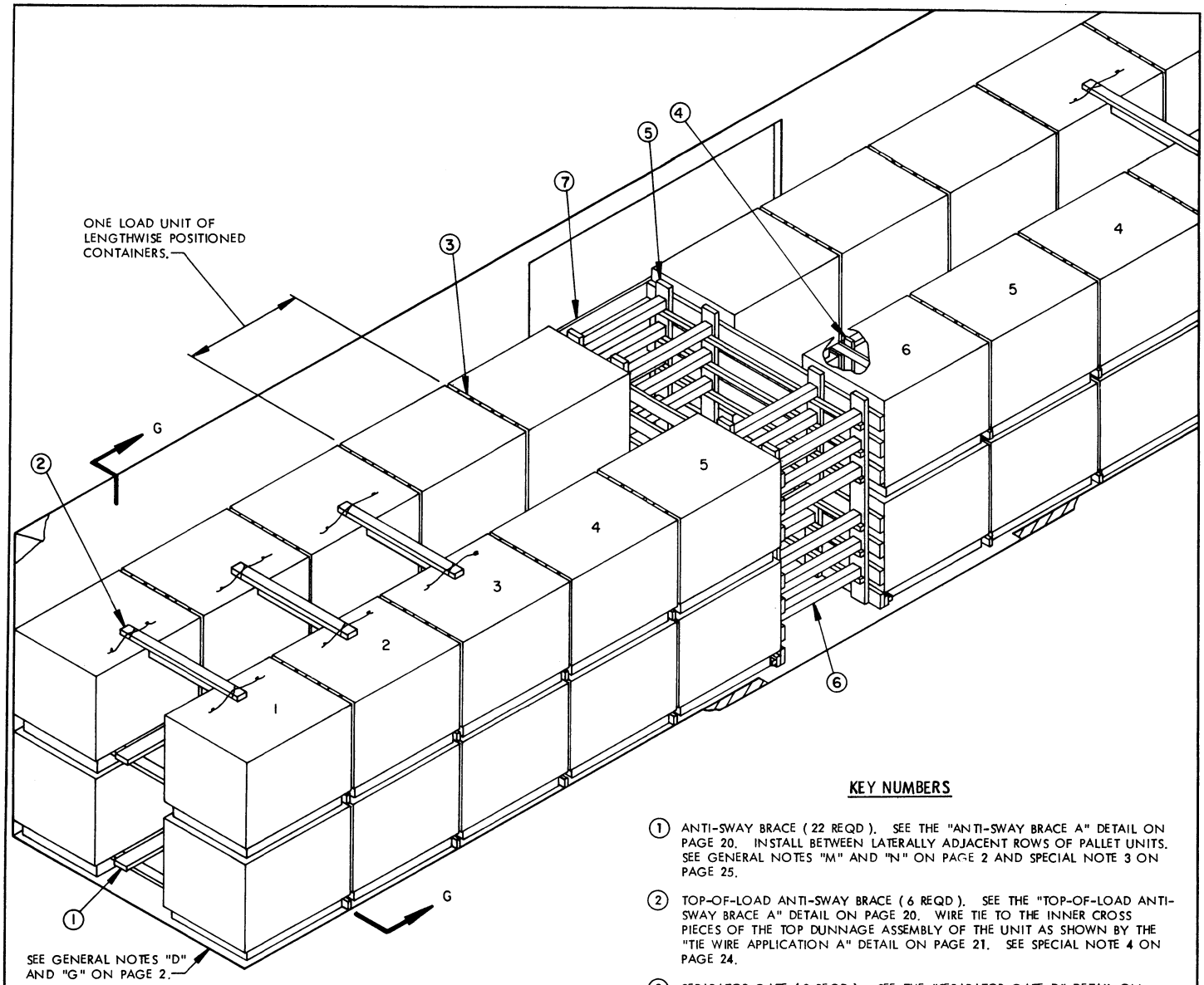
11. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGE 59 FOR SHIPPING GUIDANCE FOR LENGTHWISE UNITS AND PAGES 60 AND 62 FOR CROSSWISE UNITS.

12. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

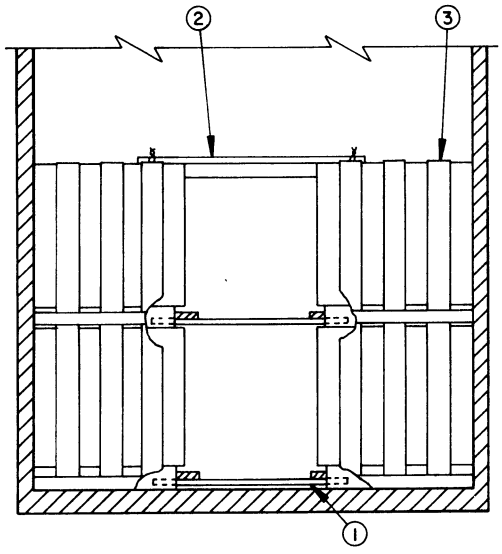
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	62	95,418 LBS
DUNNAGE		2,848 LBS
TOTAL WEIGHT		98,266 LBS (APPROX)

PALLET UNIT (DECREASED HEIGHT) 62-UNIT LOAD IN A 60'-8" LONG BY 9'-6" WIDE CONVENTIONAL BOX CAR



ISOMETRIC VIEW



SECTION G-G

KEY NUMBERS

(1) ANTI-SWAY BRACE (22 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 25.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO THE INNER CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY OF THE UNIT AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 24.

(3) SEPARATOR GATE (9 REQD). SEE THE "SEPARATOR GATE D" DETAIL ON PAGE 33. POSITION WITH THE HORIZONTAL PIECE AGAINST THE ALREADY-LOADED UNITS. SEE SPECIAL NOTES 5, 7, AND 8 ON PAGE 25.

(4) STOP PIECE, 1" X 4" X 48" (2 REQD). INSTALL ON THE SIDE OPPOSITE THE VERTICAL PIECES OF THE SEPARATOR GATE, PIECE MARKED (3) , WHICH IS IN THE DOORWAY AREA. POSITION IN CONTACT WITH THE ADJACENT PALLET UNITS AND NAIL TO THE HORIZONTAL PIECES W/3-6d NAILS AT EACH JOINT AND CLINCH. SEE SPECIAL NOTE 6 ON PAGE 25.

(5) CENTER GATE (2 REQD). SEE THE "CENTER GATE G" DETAIL ON PAGE 34. SEE SPECIAL NOTES 9, 10, AND 13 ON PAGE 25.

(6) STRUT, 4" X 4" BY CUT TO FIT (REF: 43") (24 REQD). TOENAIL TO PIECES MARKED (5) W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "L", "U", AND "V" ON PAGES 2 AND 3.

(7) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION D" DETAIL ON PAGE 35. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTE 12 ON PAGE 25.

PALLET UNIT (DECREASED HEIGHT) 44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

(SPECIAL NOTES CONTINUED)

12. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECES MARKED (7) IN THE LOAD ON PAGE 24, IS APPLICABLE FOR BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGES 68 THRU 70 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED, AS SHOWN IN THE LOAD ON PAGE 14. NOTE THAT THE DOORWAY PROTECTION PROCEDURES FOR CARS EQUIPPED WITH PLUG DOORS MAY ALSO BE USED IN CARS EQUIPPED WITH SLIDING DOORS.

13. IF THE DOORWAY PROTECTION PROCEDURES SHOWN ON PAGE 14 ARE USED IN LIEU OF THE WOODEN DOORWAY PROTECTION, PIECES MARKED (7) , THE CENTER GATES MUST BE RESTRAINED FROM LATERAL MOVEMENT. THIS CAN BE ACCOMPLISHED BY NAILING TO THE CENTER GATE, TWO DOUBLED 2" X 6" X 12" PIECES POSITIONED ON THE BOTTOM HORIZONTAL OF THE TOP LAYER. SEE THE PHANTOMED PIECES ON THE CENTER GATE "G" DETAIL ON PAGE 34. STOP PIECES WILL BE REQUIRED FOR EACH CENTER GATE WHICH IS IN THE DOOR OPENING OR WITHIN SIX INCHES (6") OF BEING IN THE OPENING.

14. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR (4) UNITS OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO (2) UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD. OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 38 THRU 62 FOR GUIDANCE.

15. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGE 59 FOR SHIPPING GUIDANCE.

16. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	173	58
1" X 6"	458	229
2" X 2"	114	38
2" X 3"	29	15
2" X 4"	300	200
2" X 6"	244	244
4" X 4"	86	115
NAILS	NO. REQD	POUNDS
6d (2")	384	2-1/2
10d (3")	598	9-1/4
12d (3-1/4")	28	1/2
16d (3-1/2")	96	2-1/4
WIRE, NO. 14 GAGE----------60' REQD----------1 LB		

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE DECREASED HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 24. A MAXIMUM OF FIFTY-TWO (52) OF THESE UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 80,028 POUNDS, CAN BE PLACED IN A 60'-8" LONG CAR WHEN USING THE DEPICTED PROCEDURES: THIRTY-SIX (36) UNITS FOR AN APPROXIMATE LADING WEIGHT OF 55,404 POUNDS CAN BE LOADED IN A 40'-6" CAR.

3. IF DOORWAY PROTECTION PROCEDURES AS SHOWN ON PAGE 14 ARE USED IN LIEU OF THE WOODEN DOOR GATE TYPE PROTECTION, PIECE MARKED (7) , NAILED FLOORLINE BLOCKING MUST BE USED IN LIEU OF EACH LOWER ANTI-SWAY BRACE IN THE DOORWAY AREA. NAILED BLOCKING IS REQUIRED FOR ALL PALLET STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH ON EITHER SIDE OF THE CAR. SEE SPECIAL NOTE 12.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (2) IN THE LOAD ON PAGE 24, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO THE CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. THREE (3) BRACES ARE REQUIRED IN EACH END OF A LOAD IN A 40'-6" OR 50'-6" LONG CAR; FOUR (4) BRACES ARE REQUIRED IN EACH END OF A 60'-8" CAR.

5. TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES, POSITION PALLET UNIT STACKS AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE, SHOWN AS PIECE MARKED (3) , SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE PALLET UNITS. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES IN THE DOORWAY OF A CAR EQUIPPED WITH SLIDING DOORS MUST BE PREVENTED FROM SHIFTING INTO A DOOR OPENING BY THE APPLICATION OF THE STOP PIECES, PIECES MARKED (4) . IN CARS EQUIPPED WITH STAGGERED DOORS, STOP PIECES MAY BE REQUIRED ON UP TO FOUR SEPARATOR GATES.

7. WHEN NAILED FLOORLINE BLOCKING IS USED FOR DOORWAY PROTECTION, THE SEPARATOR GATES ADJACENT TO THE NAILED BLOCKING MUST BE MODIFIED. SEE THE SEPARATOR GATE "H" DETAIL ON PAGE 5. THE USE OF THIS MODIFIED GATE WILL ALLOW THE SEPARATOR GATE TO CLEAR THE NAILED BLOCKING DURING THE NORMAL SHIFTING OF THE LOAD. NOTE THAT THE STOP PIECES, PIECE MARKED (4) , WILL BE 52" FOR A 2-HIGH LOAD AND 12" FOR A 1-HIGH LOAD WHEN SEPARATOR GATE "H" IS BEING USED IN A CAR EQUIPPED WITH SLIDING DOORS. STOP PIECES ARE NOT REQUIRED IN CARS EQUIPPED WITH PLUG DOORS.

8. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED, FOR ONE OR TWO-LAYER LOADS: SEE THE "ALTERNATIVE SEPARATOR GATE" DETAIL ON PAGE 64 FOR CONSTRUCTION GUIDANCE.

9. CENTER GATE "G" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD, IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 65 FOR GUIDANCE.

10. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE G", SHOWN AS PIECE MARKED (5) IN THE LOAD ON PAGE 24, INSTALL TWO (2) "CENTER GATES E" AS SHOWN ON PAGE 32. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 65. OMIT THE STOP PIECES FROM "CENTER GATE E".

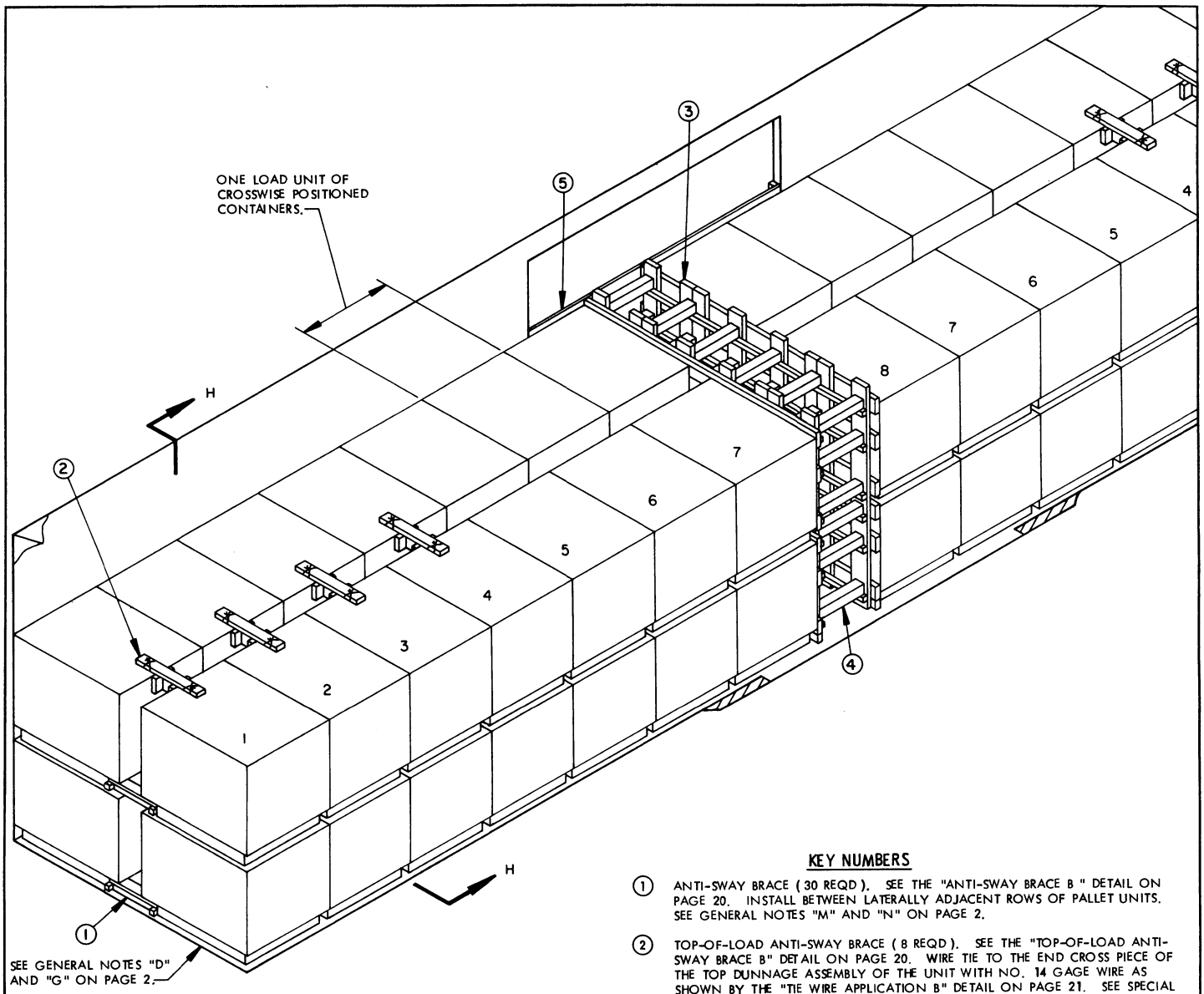
11. DOOR SPANNER TYPE GATE HOLD DOWN MAY BE USED IN LIEU OF THE 2" X 2" AND 2" X 6" MATERIAL NAILED TO CENTER GATE "G", PROVIDING THE CAR BEING LOADED HAS NAILABLE SIDEWALLS. SEE THE DETAILS ON PAGE 67 FOR GUIDANCE.

(CONTINUED AT LEFT)

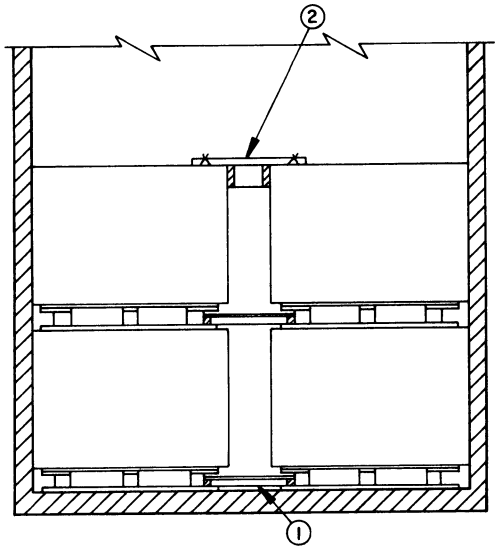
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	44	67,716 LBS
DUNNAGE		1,813 LBS
TOTAL WEIGHT		69,529 LBS (APPROX)

PALLET UNIT (DECREASED HEIGHT) 44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR



ISOMETRIC VIEW



SECTION H-H

KEY NUMBERS

(1) ANTI-SWAY BRACE (30 REQD). SEE THE "ANTI-SWAY BRACE B " DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 20. WIRE TIE TO THE END CROSS PIECE OF THE TOP DUNNAGE ASSEMBLY OF THE UNIT WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 27.

(3) CENTER GATE (2 REQD). SEE THE "CENTER GATE H" DETAIL ON PAGE 35. SEE SPECIAL NOTES 5 THRU 7 ON PAGE 27.

(4) STRUT, 4" X 4" BY CUT TO FIT (REF: 20-1/2") (36 REQD). TOENAIL TO PIECES MARKED (3) W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "L" "U", AND "V" ON PAGES 2 AND 3.

(5) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION C" DETAIL ON PAGE 34. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTES 3 AND 8 ON PAGE 27.

PALLET UNIT (DECREASED HEIGHT) 60-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS OF OTHER LENGTHS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2 AND SPECIAL NOTE 3 BELOW.

2. THE DECREASED HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 26. A MAXIMUM OF SEVENTY-TWO (72) OF THESE UNITS FOR AN APPROXIMATE LADING WEIGHT OF 110,808 POUNDS CAN BE PLACED IN A 60'-8" CAR WHEN USING THE DEPICTED PROCEDURES: FORTY-FOUR (44) UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 67,716 POUNDS CAN BE OUTLOADED IN A 40'-6" CAR.

3. IF ALTERNATIVE DOORWAY PROTECTION PROCEDURES AS SHOWN IN THE LOAD ON PAGE 30 ARE USED IN LIEU OF THE WOODEN DOOR GATE TYPE PROTECTION, PIECE MARKED (5) , NAILED FLOORLINE BLOCKING MUST BE USED IN LIEU OF EACH LOWER ANTI-SWAY BRACE IN THE DOORWAY AREA. NAILED BLOCKING IS REQUIRED FOR ALL PALLET STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH ON EITHER SIDE OF THE CAR. SEE SPECIAL NOTE 8.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (2) IN THE LOAD ON PAGE 26, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO A CROSS PIECE OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. FOUR BRACES ARE REQUIRED IN EACH END OF A LOAD IN 40'-6" AND 50'-6" LONG CARS; FIVE (5) BRACES ARE REQUIRED IN EACH END OF A 60'-8" CAR.

5. CENTER GATE "H" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 65 FOR GUIDANCE.

6. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE H", SHOWN AS PIECE MARKED (3) IN THE LOAD ON PAGE 26, INSTALL TWO (2) "CENTER GATES F" AS SHOWN ON PAGE 33. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 65.

7. DOOR SPANNER TYPE GATE HOLD DOWN MAY BE USED IN LIEU OF THE DOUBLED 2" X 3" HOLD DOWNS ON CENTER GATES "H", PROVIDING THE CAR BEING LOADED HAS NAILABLE SIDEWALLS. SEE THE DETAILS ON PAGE 67 FOR GUIDANCE.

8. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECES MARKED (5) IN THE LOAD ON PAGE 26, IS APPLICABLE FOR BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS. REFER TO PAGES 68 THRU 70 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED AS SHOWN IN THE LOAD ON PAGE 30. BATTENS ARE REQUIRED ON THE BELL ENDS. SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70.

9. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR (4) UNITS, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO (2) UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD. OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 38 THRU 62 FOR GUIDANCE.

10. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGES 60 AND 62 FOR SHIPPING GUIDANCE.

11. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	84	28
1" X 6"	80	40
2" X 2"	300	100
2" X 3"	33	17
2" X 4"	104	70
2" X 6"	242	242
4" X 4"	62	83
NAILS	**NO. REQD**	**POUNDS**
6d (2")	468	2-3/4
10d (3")	888	13-3/4
12d (3-1/4")	24	1/2
16d (3-1/2")	144	3-1/4
WIRE, NO. 14 GAGE	40' REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	60	92,340 LBS
DUNNAGE		1,181 LBS
TOTAL WEIGHT		93,521 LBS (APPROX)

PALLET UNIT (DECREASED HEIGHT) 60-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

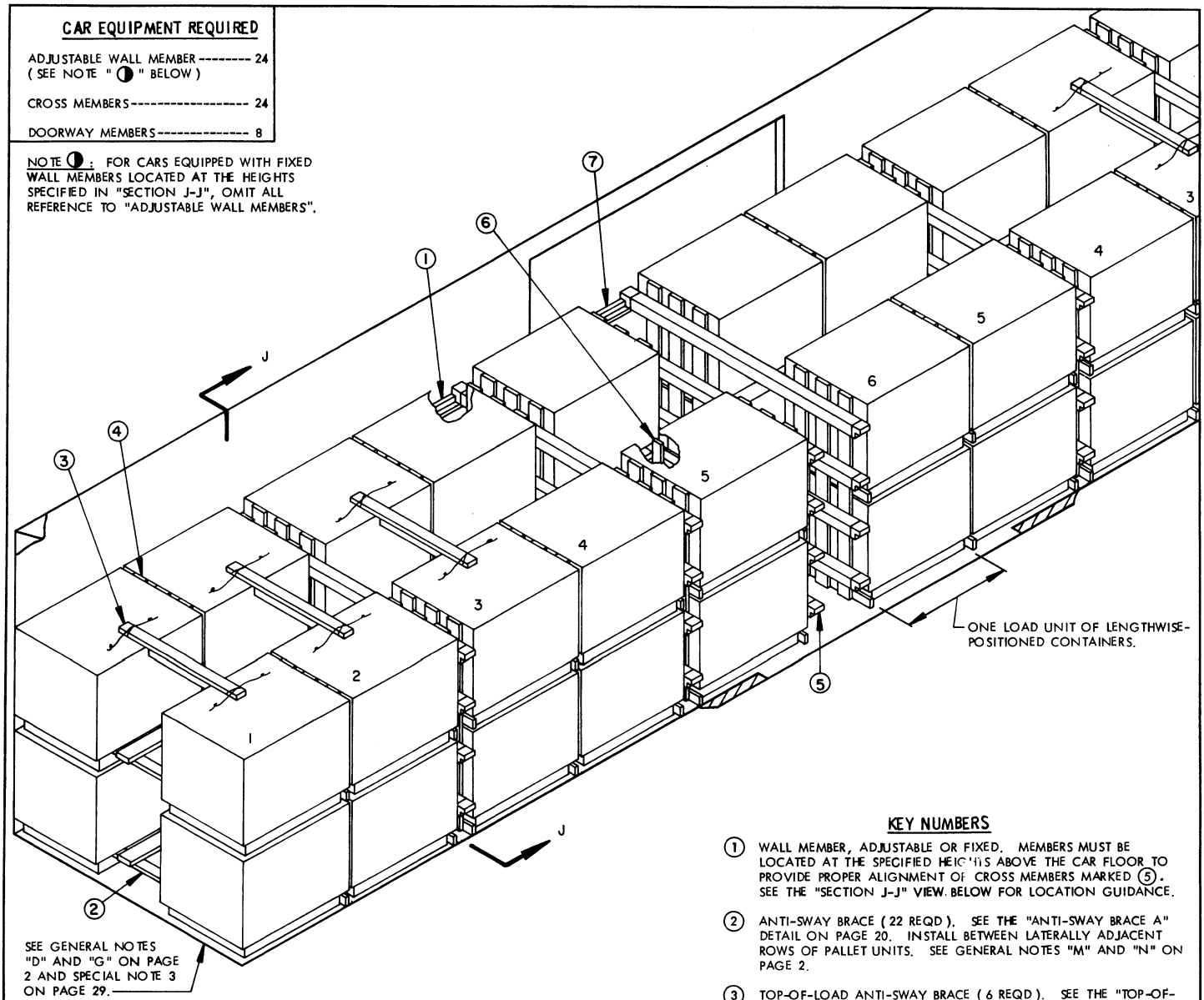
CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBER -------- 24
(SEE NOTE " ◑ " BELOW)

CROSS MEMBERS ---------- 24

DOORWAY MEMBERS ---------- 8

NOTE ◑ : FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION J-J", OMIT ALL REFERENCE TO "ADJUSTABLE WALL MEMBERS".



SEE GENERAL NOTES "D" AND "G" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 29.

ISOMETRIC VIEW

KEY NUMBERS

(1) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED (5). SEE THE "SECTION J-J" VIEW BELOW FOR LOCATION GUIDANCE.

(2) ANTI-SWAY BRACE (22 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO THE INNER CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY OF THE UNIT WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 29.

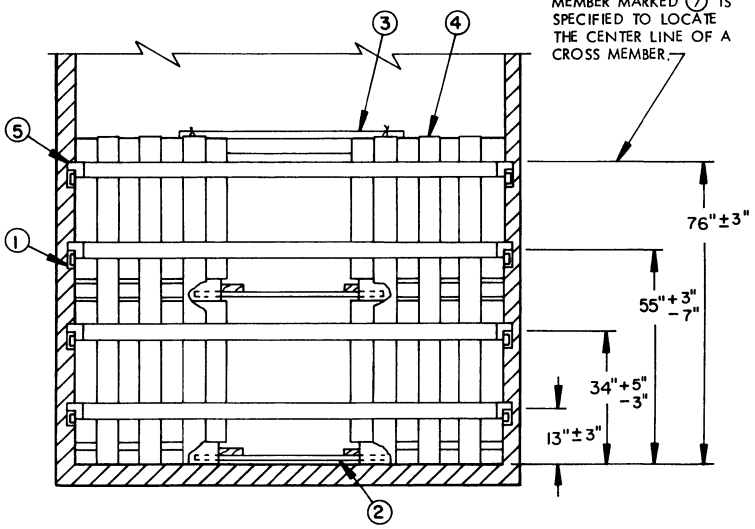
(4) SEPARATOR GATE (15 REQD). SEE THE "SEPARATOR GATE D" DETAIL ON PAGE 33. AS APPLICABLE, POSITION WITH HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNITS. SEE SPECIAL NOTES 5 AND 7 ON PAGE 29.

(5) CROSS MEMBER (24 REQD). SEE GENERAL NOTE "X" ON PAGE 3.

(6) STOP PIECE, 1" X 4" X 48" (6 REQD). POSITION AGAINST PALLET UNITS IN THE DOORWAY AREA AND NAIL TO THE HORIZONTAL PIECES OF PIECE MARKED (4) W/3-6d NAILS AT EACH JOINT AND CLINCH. SEE SPECIAL NOTE 6 ON PAGE 29.

(7) DOORWAY MEMBER (8 REQD). SEE THE "SECTION J-J" VIEW AT LEFT FOR LOCATION GUIDANCE.

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED (1) AND/OR A DOORWAY MEMBER MARKED (7) IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.



SECTION J-J

PALLET UNIT (DECREASED HEIGHT)
44-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR EQUIPPED WITH MECHANICAL BRACING DEVICES

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-0" WIDE (INSIDE CLEARANCE) WOOD-LINED BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 10'-0" WIDE DOOR OPENINGS, IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE DECREASED HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 28. A MAXIMUM OF THIRTY-TWO (32) OF THESE UNITS, FOR AN APPROXIMATE LADING WEIGHT OF 49,248 POUNDS, CAN BE PLACED IN A 40'-6" LONG CAR.

3. IF A CAR HAS BOWED END WALLS WHICH ARE BOWED OUTWARD TWO INCHES (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, CROSS MEMBERS CAN BE INSTALLED NEAR THE END WALL OF THE CAR TO PROVIDE A "SQUARED END" RATHER THAN INSTALLING DUNNAGE AS SPECIFIED IN GENERAL NOTE "G" ON PAGE 2. THESE CROSS MEMBERS SHOULD BE INSTALLED AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS BLOCKING MEMBERS. A SEPARATOR GATE, SHOWN AS PIECE MARKED (4) , MUST BE POSITIONED AGAINST THESE CROSS MEMBERS PRIOR TO LOADING.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (3) IN THE LOAD ON PAGE 28, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO CROSS PIECES OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21. THREE (3) BRACES ARE REQUIRED IN EACH END OF A LOAD IN 40'-6" AND 50'-6" LONG CARS; FOUR (4) BRACES ARE REQUIRED IN A 60' LONG CAR.

5. TO FACILITATE POSITIONING OF THE PALLET UNITS AS LOADING PROGRESSES, POSITION PALLET UNIT STACKS AGAINST THE END WALL, THEN POSITION A SEPARATOR GATE, SHOWN AS PIECE MARKED (4) , SO THE 1" X 4" TIE PIECES ARE LOCATED UNDER THE "OVERHANG" OF THE PALLET UNITS. REPEAT THIS PROCEDURE FOR THE REMAINING STACKS.

6. SEPARATOR GATES IN THE DOORWAY MUST BE PREVENTED FROM SHIFTING INTO A DOOR OPENING BY THE APPLICATION OF THE STOP PIECES, PIECES MARKED (6) . IN CARS EQUIPPED WITH STAGGERED DOORS, STOP PIECES MAY BE REQUIRED ON UP TO FOUR SEPARATOR GATES.

7. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED. SEE THE "ALTERNATIVE SEPARATOR GATE" DETAIL ON PAGE 64 FOR CONSTRUCTION GUIDANCE.

8. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A LOAD MAY BE REDUCED BY MULTIPLES OF TWO (2) PALLET UNITS BY OMITTING LATERALLY ADJACENT UNITS FROM THE TOP LAYER OF ONE OR MORE LOAD UNITS, OR BY MULTIPLES OF FOUR (4) PALLET UNITS BY OMITTING ONE OR MORE ENTIRE LOAD UNITS. TO REDUCE A LOAD BY ONE (1) PALLET UNIT, REFER TO THE LCL PROCEDURES ON PAGES 36 AND 37 FOR GUIDANCE.

9. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

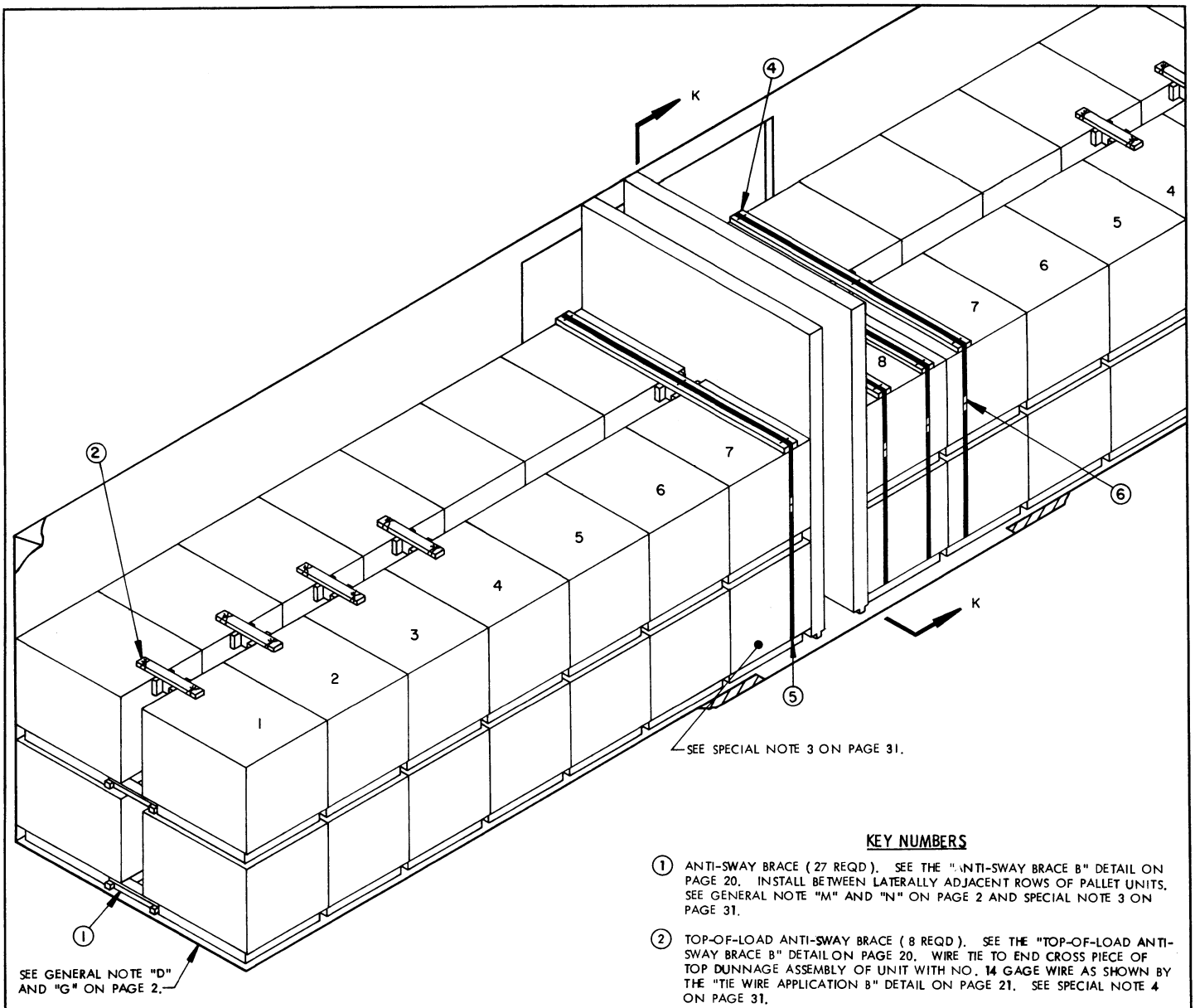
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	293	98
1" X 6"	630	315
2" X 4"	279	186
2" X 6"	66	66
NAILS	**NO. REQD**	**POUNDS**
6d (2")	576	3-1/2
10d (3")	294	4-3/4
WIRE, NO. 14 GAGE----------60' REQD----------1 LB		

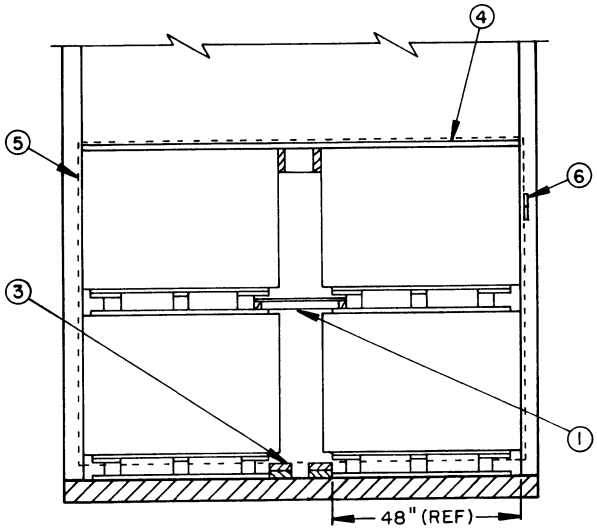
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	44	67,716 LBS
DUNNAGE		1,340 LBS
TOTAL WEIGHT		69,056 LBS (APPROX)

PALLET UNIT (DECREASED HEIGHT)
44-UNIT LOAD IN A 50'-6" LONG BY 9'-0" WIDE BOX CAR EQUIPPED WITH MECHANICAL BRACING DEVICES



ISOMETRIC VIEW



SECTION K-K

KEY NUMBERS

(1) ANTI-SWAY BRACE (27 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTE "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 31.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 20. WIRE TIE TO END CROSS PIECE OF TOP DUNNAGE ASSEMBLY OF UNIT WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. SEE SPECIAL NOTE 4 ON PAGE 31.

(3) SIDE BLOCKING, 2" X 6" X 36" (DOUBLED) (2 REQD FOR EACH LOAD UNIT REQUIRING ONE OR TWO DOORWAY PROTECTION STRAPS). NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 5 ON PAGE 31.

(4) SPACER ASSEMBLY (3 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 35.

(5) DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" X 33'-6" LONG STEEL STRAPPING (4 REQD). INSTALL AS SHOWN TO ENCIRCLE LOAD UNIT IN DOORWAY. STAPLE TO SPACER ASSEMBLY W/3 STAPLES.

(6) SEAL FOR 1-1/4" STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.

PALLET UNIT (DECREASED HEIGHT)
60-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR EQUIPPED WITH LOAD DIVIDERS

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE WOOD-LINED, CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING NARROWER OR WIDER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTES "AA" THRU "EE" ON PAGE 3.

2. THE DECREASED HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 30. USE THE CHART BELOW TO DETERMINE OTHER MAXIMUM LOADS AS APPLICABLE.

CAR LENGTH	POSITION OF CONTAINERS	NO. OF UNITS	APPROXIMATE LADING WEIGHT
60'-8"	CROSSWISE	72 ●	111,096 LBS
40'-6"	CROSSWISE	48 ●	67,892 LBS
60'-8"	LENGTHWISE	52	80,236 LBS
50'-6"	LENGTHWISE	44 ●	67,892 LBS
40'-6"	LENGTHWISE	36 ●	55,548 LBS

● THE LOADS MARKED WITH THIS SYMBOL MUST BE REDUCED BY FOUR (4) PALLET UNITS UNLESS THE OPERATING MECHANISM FOR THE BULKHEADS IS LOCATED ON THE EDGE SO THAT IT CAN BE OPERATED FROM OUTSIDE THE CAR.

3. WHEN USING THE DOORWAY PROTECTION PROCEDURES SHOWN ON PAGE 30 BY PIECE MARKED (3) THRU (6), NAILED FLOORLINE BLOCKING MUST BE USED IN LIEU OF THE LOWER ANTI-SWAY BRACES IN THE DOORWAY AREA. NAILED BLOCKING IS REQUIRED FOR ALL PALLET STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH OR LENGTH ON EITHER SIDE OF THE CAR.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (2) IN THE LOAD ON PAGE 30, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO A CROSS PIECE OF THE TOP DUNNAGE ASSEMBLY WITH NO. 14 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. FOUR (4) BRACES ARE REQUIRED IN EACH END OF A 50'-6" OR 40'-6" LONG CAR; FIVE (5) BRACES ARE REQUIRED IN A 60'-8" LONG CAR.

5. DOORWAY PROTECTION IS REQUIRED FOR ALL PALLET UNIT STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK WIDTH OR LENGTH. DOORWAY PROTECTION SHOWN BY PIECES MARKED (3), (4), (5), AND (6), ON PAGE 30 MAY BE USED FOR CONTAINERS-CROSSWISE LOADS IN CARS EQUIPPED WITH EITHER SLIDING TYPE OR PLUG TYPE DOORS, OR A COMBINATION THEREOF (MUST BE USED IN PLUG DOOR CARS). NOTE: TWO BUNDLING STRAPS ARE REQUIRED FOR EACH PALLET STACK AND/OR LOAD UNIT WHICH IS COMPLETELY WITHIN THE DOORWAY AREA OR WHICH IS NOT RETAINED BY AT LEAST SIX INCHES (6") OF CAR SIDEWALL. ONE (1) BUNDLING STRAP IS REQUIRED FOR EACH PALLET STACK AND/OR LOAD UNIT WHICH IS RETAINED BY FROM SIX INCHES (6")TO ONE-HALF OF THE PALLET/LOAD UNIT LENGTH OR WIDTH. IF THE CAR BEING LOADED IS EQUIPPED WITH SLIDING TYPE DOORS, WOODEN DOOR GATES, SHOWN AS PIECE MARKED (5) ON PAGE 26 FOR CONTAINERS-CROSSWISE LOADS OR PIECE MARKED (7) ON PAGE 24 FOR CONTAINERS-LENGTHWISE LOADS, OR ANY OF THE ALTERNATIVES ON PAGES 68 THRU 70 MAY BE USED. BATTENS ARE REQUIRED FOR THE BELL END WHEN CONTAINERS ARE CROSSWISE IN THE CAR. SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70

6. A STRUT ASSEMBLY, AS DETAILED ON PAGE 71, IS REQUIRED BETWEEN THE LOAD DIVIDER BULKHEADS WHEN THE LOAD IN EITHER END OF THE CAR IS 50,000 POUNDS OR MORE. FOR THE DEPICTED LOAD, A STRUT ASSEMBLY IS NOT REQUIRED. THE STRUT ASSEMBLY WILL ALWAYS BE REQUIRED IN A 60' CAR FOR A FULL LOAD.

7. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR (4) PALLET UNITS OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO (2) UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 38 THRU 46 AND GENERAL NOTE "FF" ON PAGE 3 FOR GUIDANCE.

8. IF PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF CONTAINERS ARE TO BE TRANSPORTED, REFER TO PAGE 59 AND/OR PAGES 60 AND 62 FOR SHIPPING GUIDANCE.

9. FOR SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS, SEE THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 61 FOR GUIDANCE.

BILL OF MATERIAL

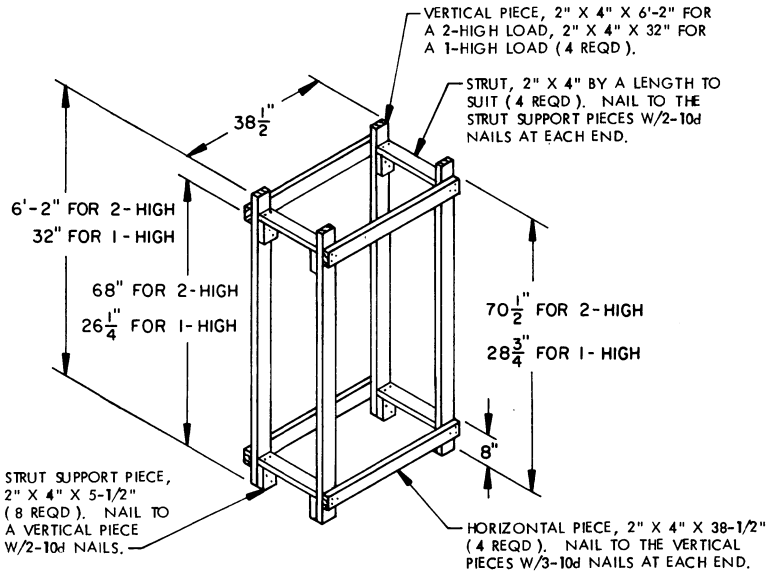
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	77	26
2" X 2"	173	58
2" X 4"	81	54
2" X 6"	98	98
NAILS	**NO. REQD**	**POUNDS**
6d (2")	378	2-1/4
10d (3")	312	5
12d (3-1/4")	52	1
16d (3-1/2")	60	1-1/2

STEEL STRAPPING, 1-1/4" X .035" OR .031" ----- 134' REQD ------ 20 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 8 REQD ----- NIL
STAPLE FOR 1-1/4" STRAPPING ---------- 12 REQD ----- NIL
WIRE, NO. 14 GAGE ---------- 40' REQD ---- NIL

LOAD AS SHOWN

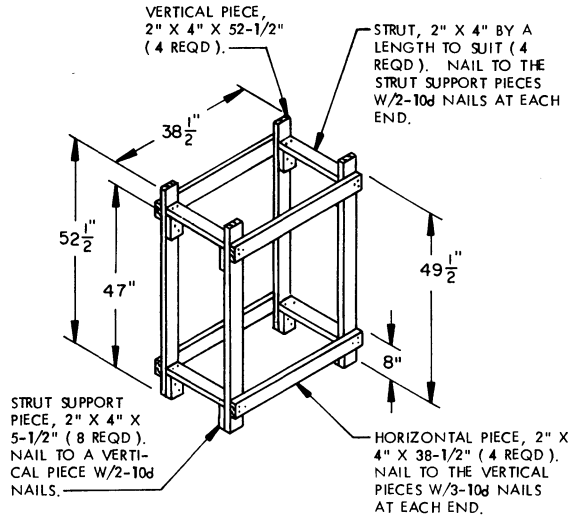
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	60	92,340 LBS
DUNNAGE		502 LBS
TOTAL WEIGHT		92,842 LBS (APPROX)

PALLET UNIT (DECREASED HEIGHT)
60-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR EQUIPPED WITH LOAD DIVIDERS



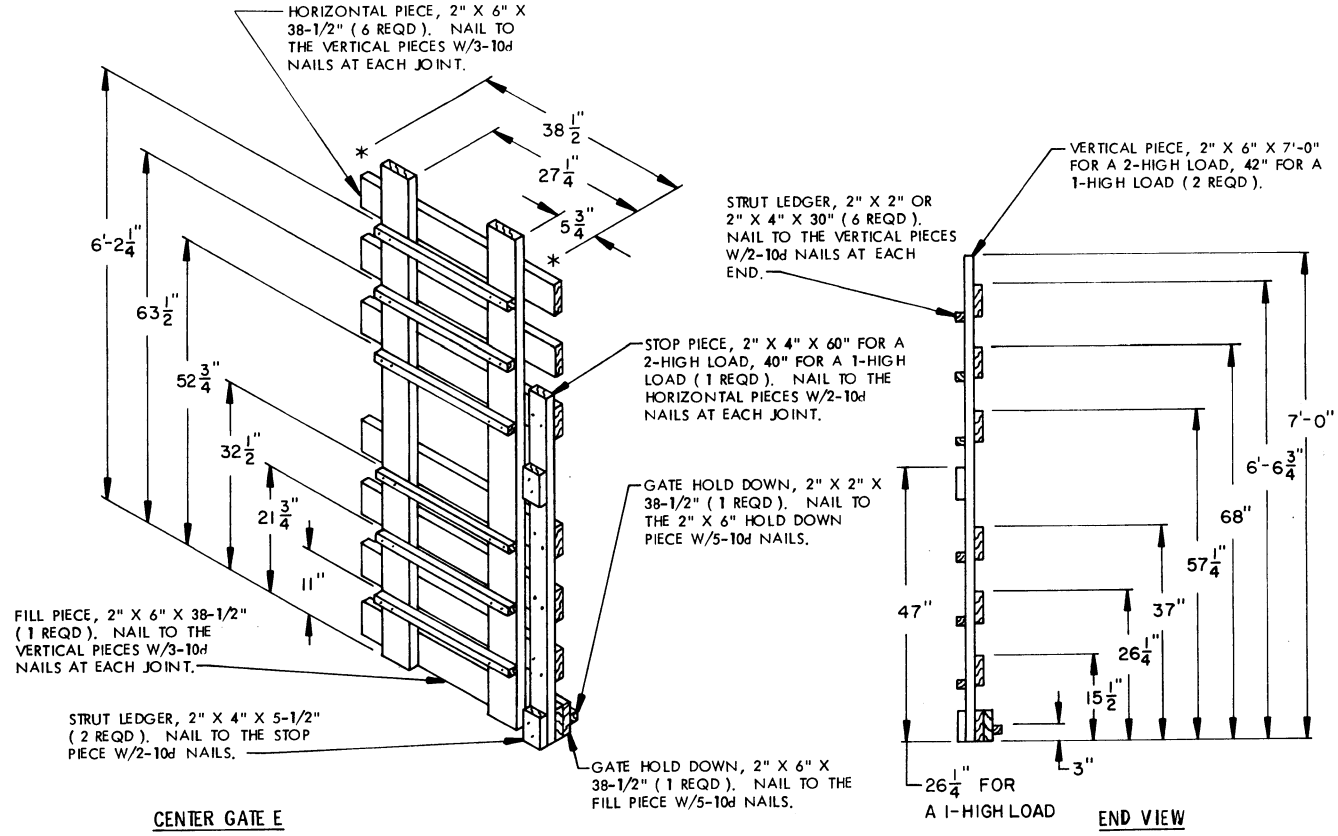
CRIB FILL C

CRIB FILL ASSEMBLIES "C" AND "D" SHOULD BE PRE-FABRICATED. CONSTRUCT TO BE 1/2" TO 3/4" LESS IN WIDTH THAN THE DISTANCE BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS.



CRIB FILL D

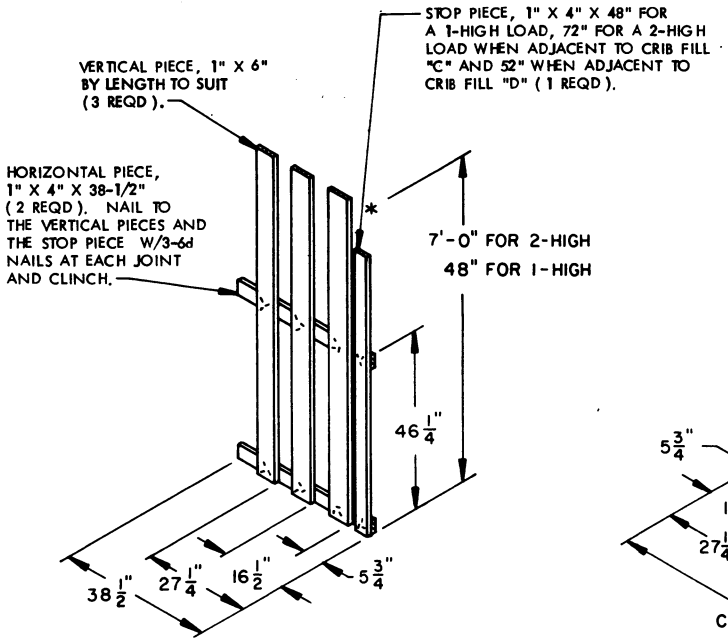
CRIB FILL "D" IS NOT REQUIRED FOR A 1-HIGH LOAD; CRIB FILL "C" WILL BE USED THROUGHOUT THE LENGTH OF THE LOAD.



CENTER GATE E

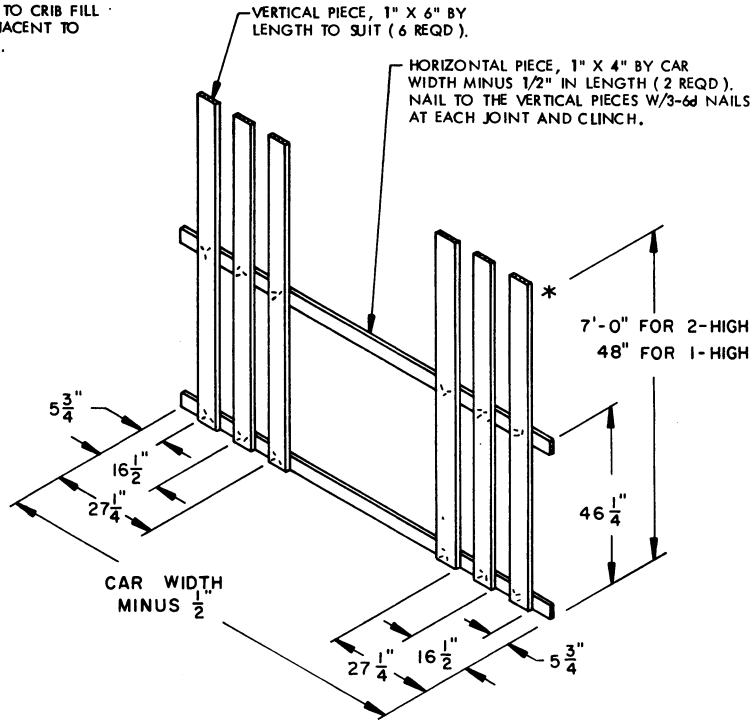
1 RIGHT HAND AND 1 LEFT HAND GATE REQUIRED.

DETAILS FOR PALLET UNIT (DECREASED HEIGHT)



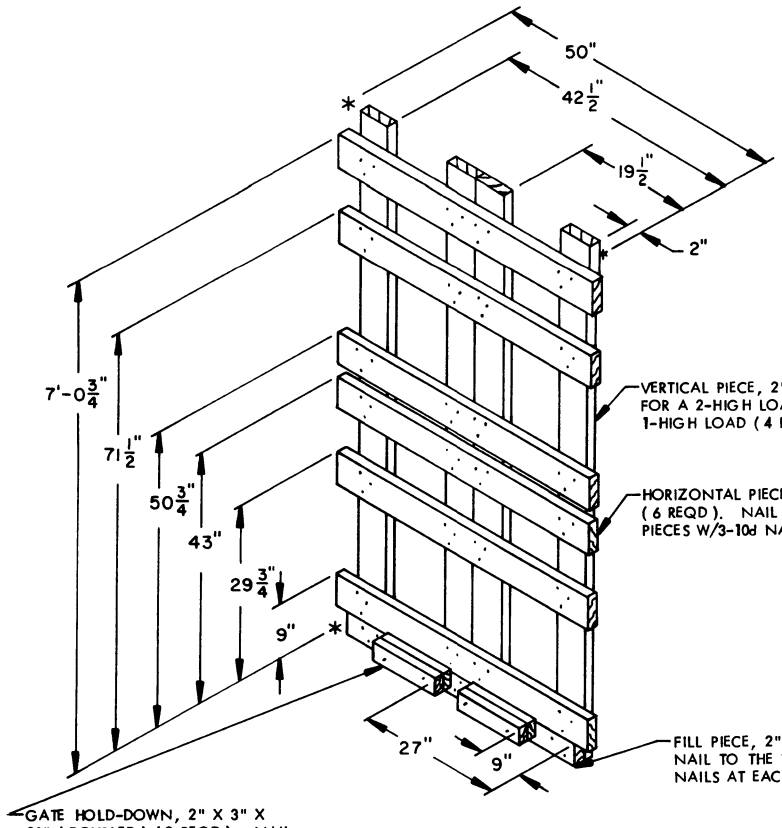
SEPARATOR GATE C

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

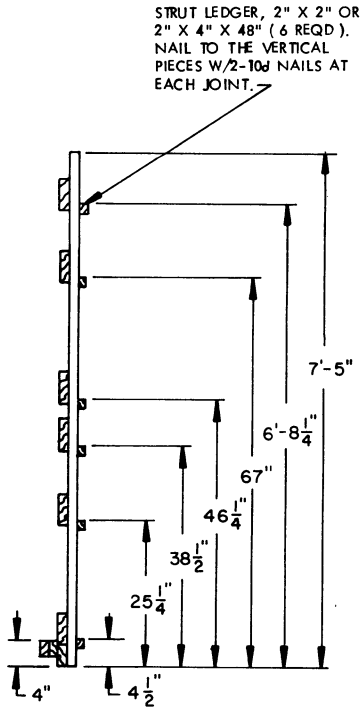


SEPARATOR GATE D

SEE SPECIAL NOTE 7 ON PAGE 25.

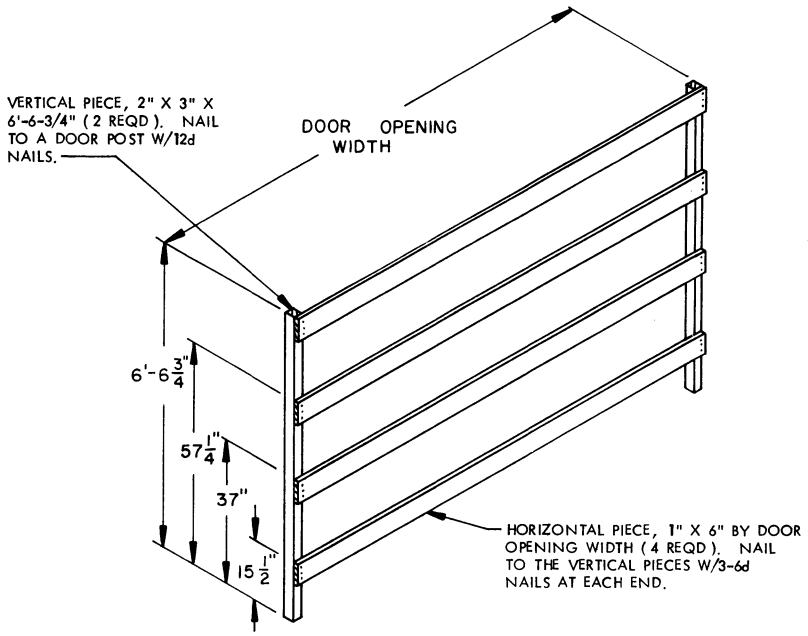


CENTER GATE F



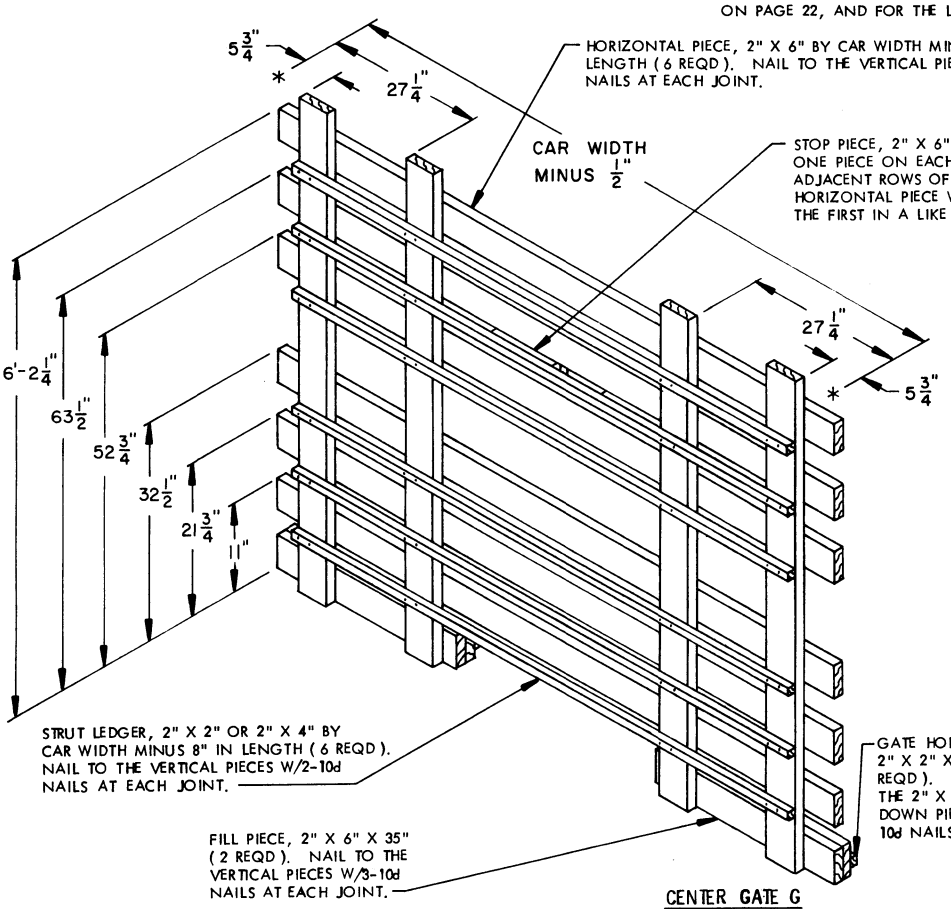
END VIEW

DETAILS FOR PALLET UNIT (DECREASED HEIGHT)



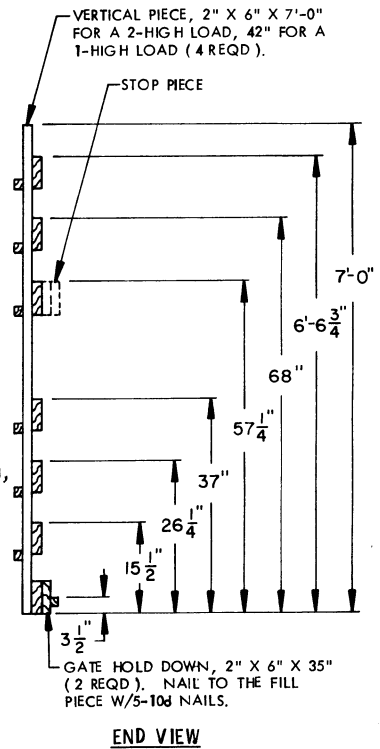
DOORWAY PROTECTION C

THIS ASSEMBLY IS DESIGNED FOR USE ON THE LOADING SIDE OF THE LOAD SHOWN ON PAGE 22, AND FOR THE LOAD SHOWN ON PAGE 26.

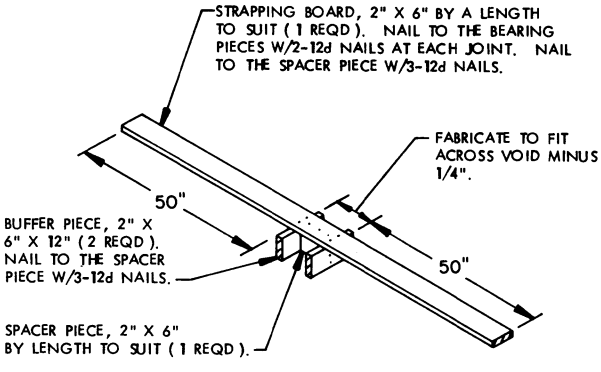


CENTER GATE G

THIS GATE IS DESIGNED FOR USE IN THE LOAD SHOWN ON PAGE 24.

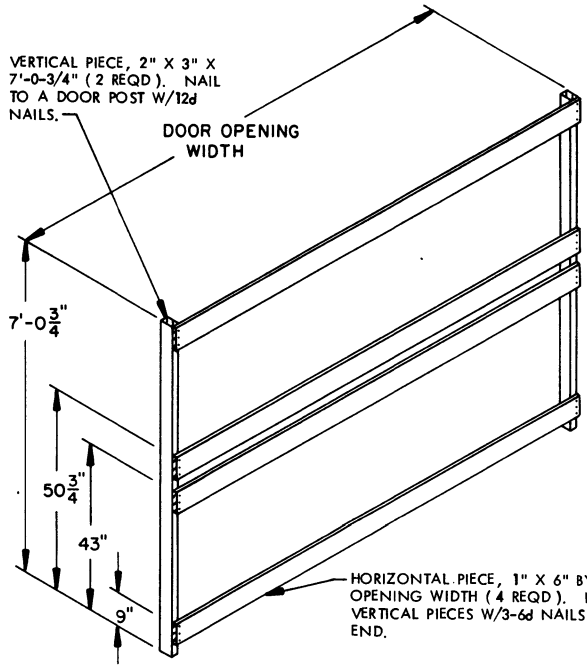


END VIEW



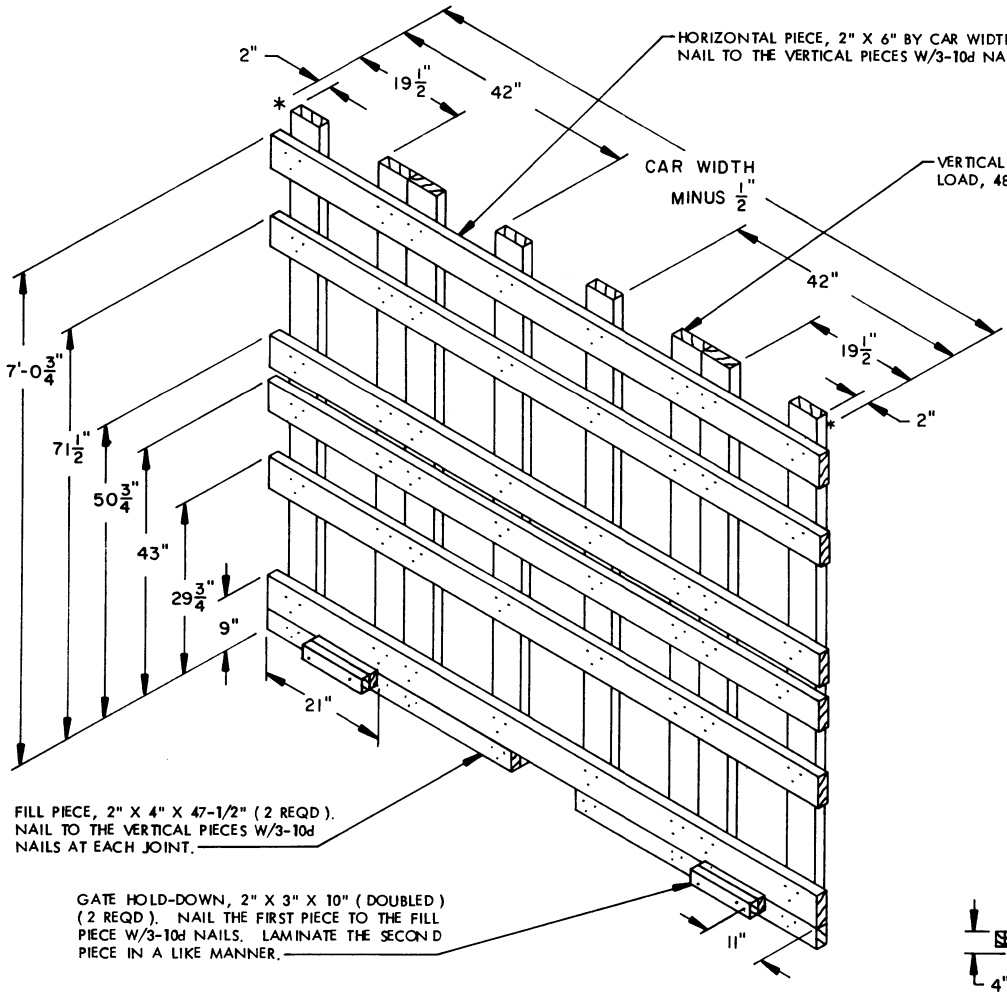
SPACER ASSEMBLY C

THIS ASSEMBLY IS FOR USE IN THE LOADS SHOWN ON PAGES 10 AND 26 WHEN NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS ARE USED FOR DOORWAY PROTECTION. IT IS ALSO FOR USE IN THE LOADS ON PAGES 14 AND 30 WHEN THE PALLETS ARE POSITIONED WITH THE CONTAINERS CROSSWISE IN THE CAR.



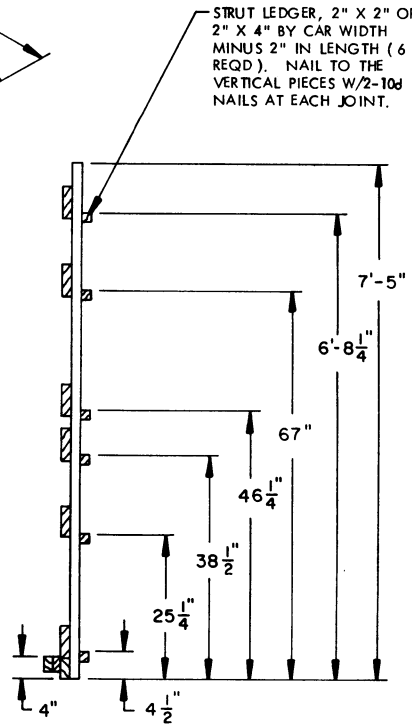
DOORWAY PROTECTION D

THIS ASSEMBLY IS FOR USE THE SIDE OPPOSITE THE LOADING SIDE OF THE LOAD SHOWN ON PAGE 22, AND FOR THE LOAD SHOWN ON PAGE 24.



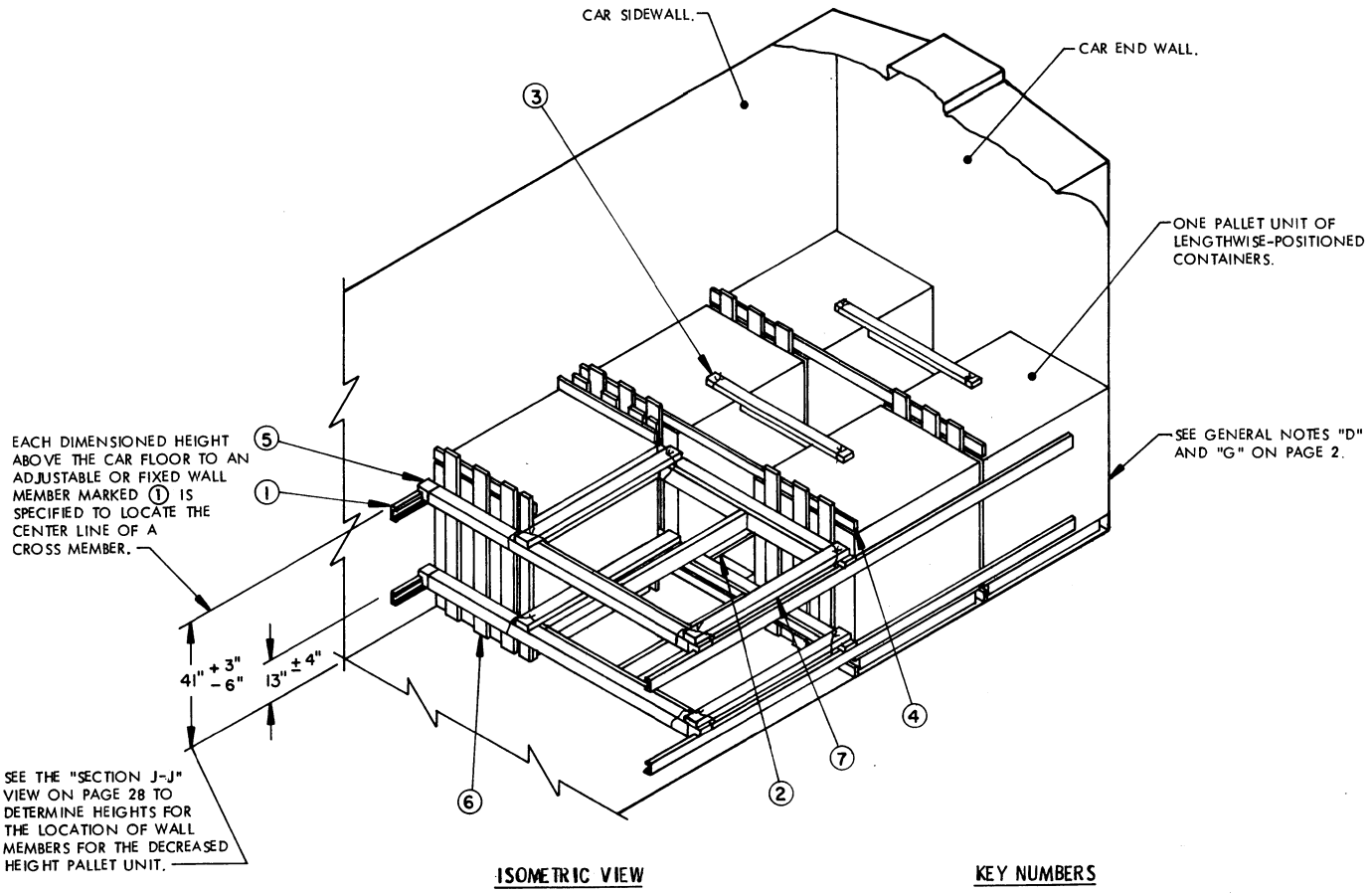
CENTER GATE H

THIS CENTER GATE IS DESIGNED FOR USE IN THE LOAD SHOWN ON PAGE 26.



END VIEW

DETAILS



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 9'-0" WIDE (INSIDE CLEARANCE) WOOD-LINED BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LCL LOAD. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.

3. FIVE (5) UNITS ARE SHOWN AS A TYPICAL LOAD QUANTITY. THE NUMBER OF UNITS CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (3) , MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO A UNIT WITH NO. 14 GAGE WIRE. THREE (3) BRACES ARE REQUIRED IN EACH END OF A 40' AND 50' CAR, FOUR (4) BRACES ARE REQUIRED IN A 60'-LONG CAR.

5. SEPARATOR GATES MAY BE FORMED FROM 3/8" OR THICKER PLYWOOD IN LIEU OF DIMENSIONAL LUMBER, IF DESIRED. CONSTRUCT EACH GATE TO BE CAR WIDTH MINUS 1/2" IN LENGTH BY UNIT HEIGHT, OR UNIT LENGTH IN WIDTH BY UNIT HEIGHT, AS APPLICABLE.

6. THE SPACER ASSEMBLIES, SHOWN AS PIECES MARKED (7) , MAY ALSO BE USED IN AN UPPER LAYER OF A LOAD FOR THE OMISSION OF A PALLET UNIT. IF THE ASSEMBLIES ARE USED NEXT TO THE CAR END WALL IN EITHER A FIRST LAYER OR IN AN UPPER LAYER, AND THE END WALL IS WOOD-LINED, CUT THE ADJACENT ENDS OFF THE SUPPORT PIECES FLUSH WITH THE LATERAL PIECE. EACH ASSEMBLY CAN THEN BE SUPPORTED BY NAILING THE LATERAL PIECE TO THE CAR END WALL W/6-10d NAILS. IF THE END WALL IS NON-NAILABLE, CROSS MEMBERS MUST BE INSTALLED AT THE END OF THE LOAD TO SUPPORT THE SPACER ASSEMBLIES.

KEY NUMBERS

(1) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED (5) .

(2) ANTI-SWAY BRACE (2 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (2 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO PALLET UNITS AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21.

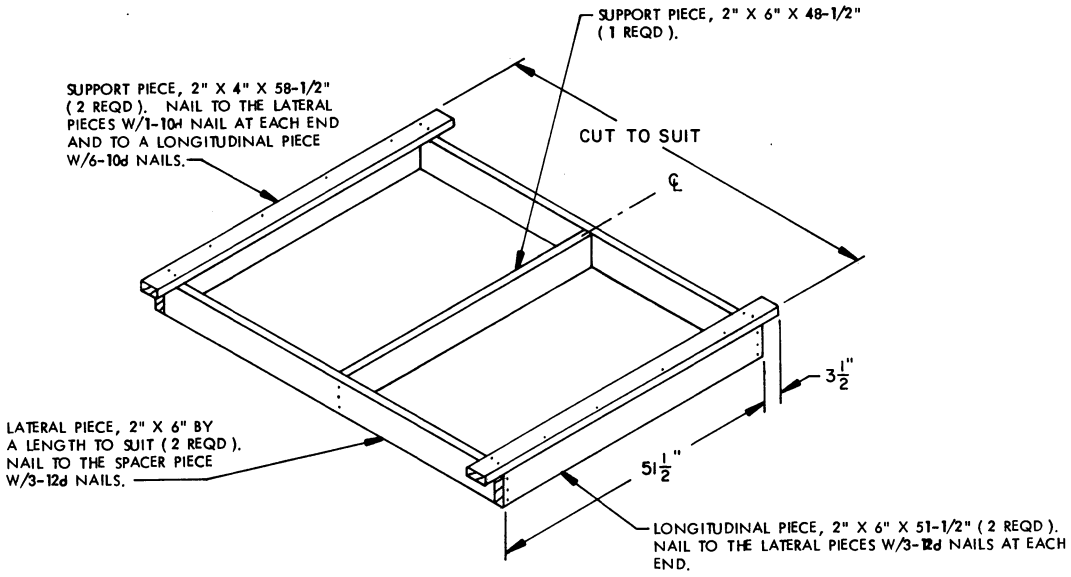
(4) SEPARATOR GATE FOR1-HIGH AND 2-WIDE (2 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 17 FOR BASIC HEIGHT UNITS OR "SEPARATOR GATE D" DETAIL ON PAGE 33 FOR DECREASED HEIGHT UNITS. POSITION WITH THE 1" X 4" HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNITS.

(5) CROSS MEMBER (4 REQD). SEE GENERAL NOTE "X" ON PAGE 3.

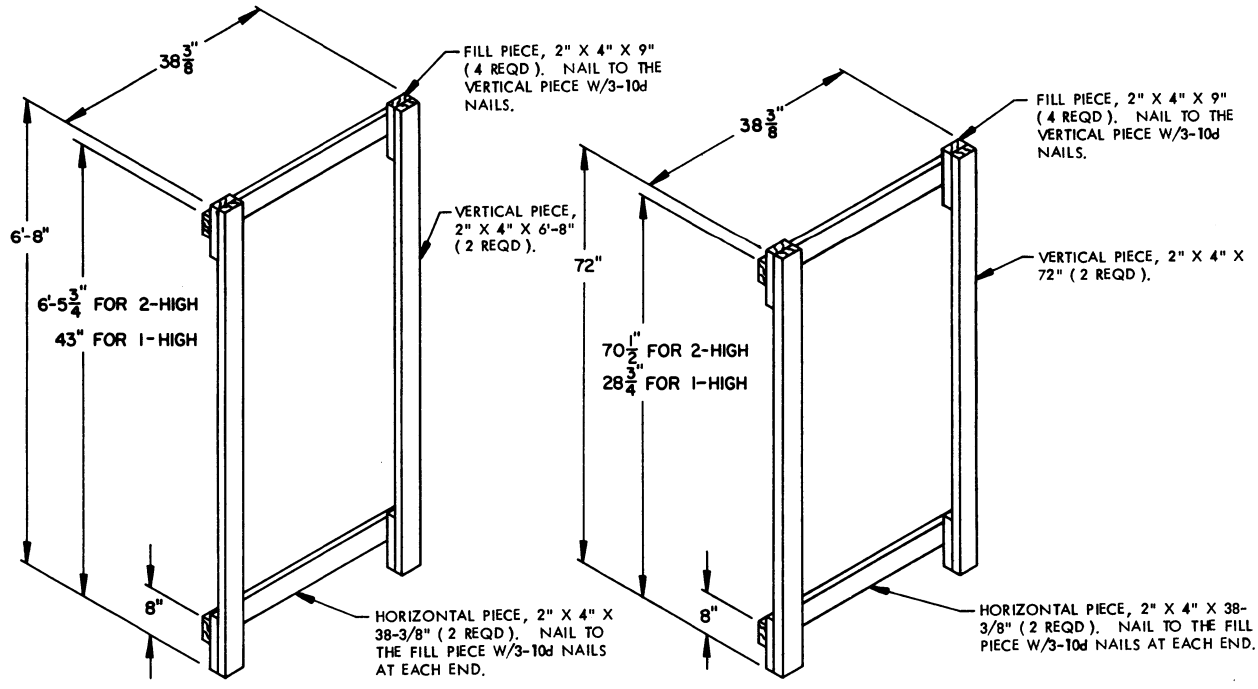
(6) SEPARATOR GATE FOR 1-HIGH AND 1-WIDE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 17 FOR BASIC HEIGHT UNITS OR "SEPARATOR GATE C" DETAIL ON PAGE 33 FOR DECREASED HEIGHT UNITS. POSITION WITH THE 1" X 4" HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNITS, AS APPLICABLE.

(7) SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY D" DETAIL ON PAGE 37 AND SPECIAL NOTE 6 AT LEFT. WIRE TIE TO CROSS MEMBER W/2 WRAPS OF NO. 14 GAGE WIRE AT EACH CORNER.

TYPICAL LCL (5-UNIT LOAD) IN A BOX CAR EQUIPPED WITH MECHANICAL BRACING DEVICES HAVING ADJUSTABLE OR FIXED WALL MEMBERS



SPACER ASSEMBLY D

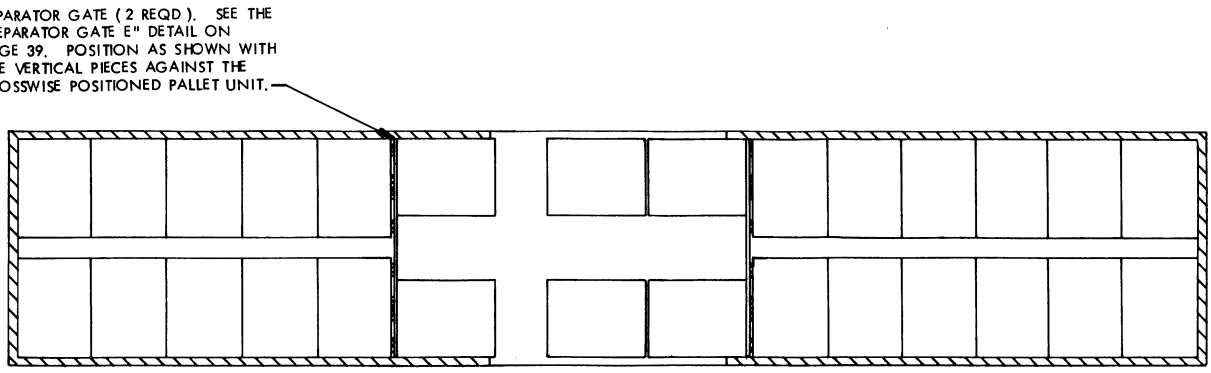


SIDE FILL ASSEMBLY B

THIS ASSEMBLY IS FOR USE IN THE LOAD SHOWN ON PAGE 6.

SIDE FILL ASSEMBLY C

THIS ASSEMBLY IS FOR USE IN THE LOAD SHOWN ON PAGE 22.



TYPICAL COMBINATION LOAD PATTERN PLAN VIEW

AN 11 LONG PLUS 3 WIDE LOAD IS SHOWN.

SPECIAL NOTES:

1. 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR IS SHOWN. WIDER CARS AND CARS OF OTHER LENGTHS CAN BE USED.

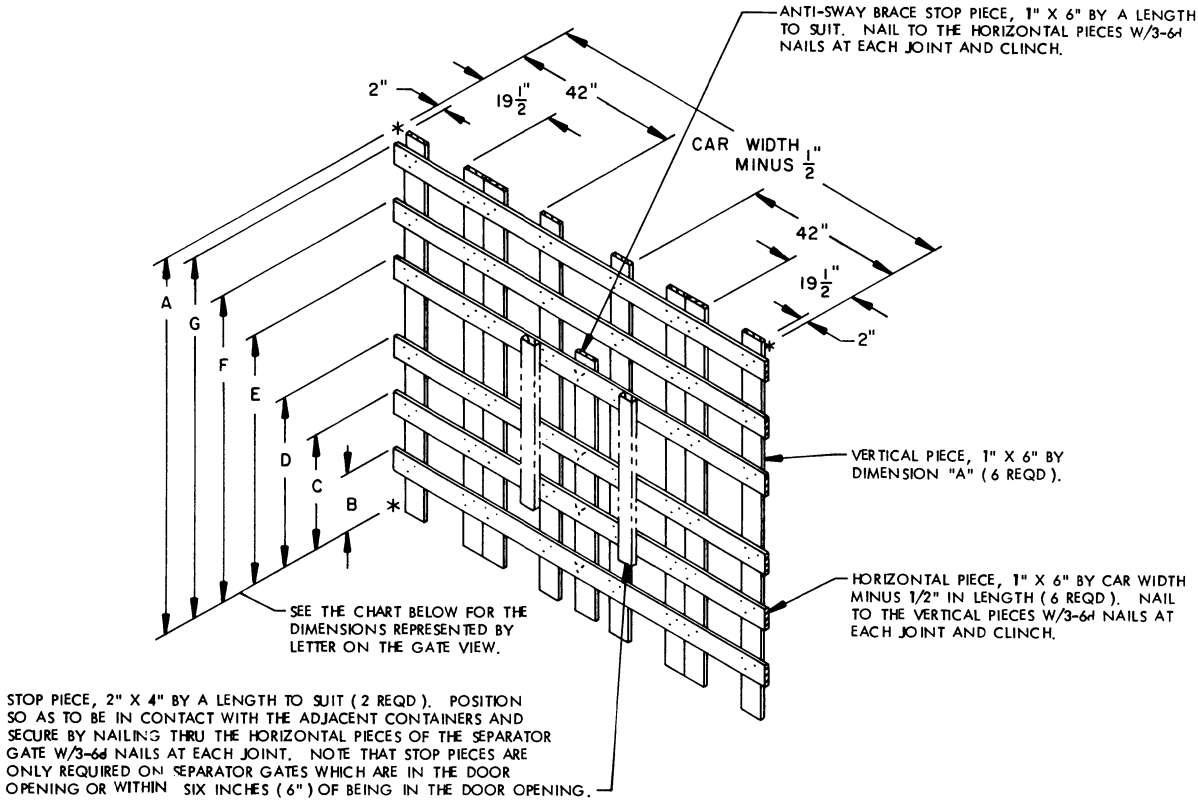
2. THE PROCEDURES ON THIS PAGE AND ON PAGE 39 ARE PRESENTED TO PROVIDE A METHOD OF OBTAINING A LOAD QUANTITY WHICH MAY NOT BE READILY ATTAINABLE BY ANY OF THE OTHER METHODS OF ADJUSTING A LOAD QUANTITY SPECIFIED HEREIN, INCLUDING THE DEPICTED LCL PROCEDURES.

3. THE BLOCKING AND BRACING FOR THE COMBINATION LOAD, OTHER THAN SEPARATOR GATE "E", HAS NOT BEEN SHOWN. REFER TO THE APPLICABLE LOAD PAGES FOR BLOCKING AND BRACING SPECIFICATIONS. A SEPARATOR GATE "E" MUST BE INSTALLED AT EVERY LOCATION WHERE THE DIRECTION OF THE UNITS CHANGES. THE GATE MUST BE POSITIONED SO THAT THE VERTICAL PIECES ARE AGAINST THE CROSSWISE UNITS OF THE LOAD.

4. THE CHART ON THIS PAGE GIVES THE VARIOUS QUANTITIES (PER LAYER) WHICH CAN BE ATTAINED BY THE COMBINATION LOAD METHOD, AND THE PATTERNS REQUIRED TO PROVIDE THESE QUANTITIES. FOR COMPARISON PURPOSES, THE OTHER TYPE LOADS WHICH CAN BE USED TO ATTAIN A LIKE QUANTITY, OR A QUANTITY WITHIN THE RANGE OF THE COMBINATION LOAD METHOD, AS WELL AS THE APPROXIMATE LENGTH OF THE STRUTS, ARE ALSO INCLUDED IN THE CHART.

PALLET UNIT QUANTITY			
CAR LENGTH	UNIT PER LAYER	LOAD PATTERN	APPROX STRUT LENGTH
40'-6" CAR	22	CROSSWISE LOAD ON PAGE 10 OR 26	55"
	20	5 LONG AT 38-5/8" PLUS 5 WIDE AT 50"	31"
	20	4 LONG AT 38-5/8" PLUS 6 WIDE AT 50"	19"
	20	COMBINATION LOAD ON PAGE 6 OR 22	57" & 24"
	18	2 LONG AT 38-5/8" PLUS 7 WIDE AT 50"	46"
	18	LENGTHWISE LOAD ON PAGE 8 OR 24	24"
50'-6" CAR	30	CROSSWISE LOAD ON PAGE 10 OR 26	60"
	28	12 LONG AT 38-5/8" PLUS 2 WIDE AT 50"	33"
	28	11 LONG AT 38-5/8" PLUS 3 WIDE AT 50"	21"
	26	COMBINATION LOAD ON PAGE 6 OR 22	60" & 43"
	24	7 LONG AT 38-5/8" PLUS 6 WIDE AT 50"	23"
	22	3 LONG AT 38-5/8" PLUS 9 WIDE AT 50"	25"
	26	LENGTHWISE LOAD ON PAGE 8 OR 24	43"
60'-8" CAR	36	CROSSWISE LOAD ON PAGE 10 OR 26	26"
	34	15 LONG AT 38-5/8" PLUS 2 WIDE AT 50"	39"
	34	14 LONG AT 38-5/8" PLUS 3 WIDE AT 50"	28"
	31	COMBINATION LOAD ON PAGE 6 OR 22	26" & 63"
	32	10 LONG AT 38-5/8" PLUS 6 WIDE AT 50"	29"
	30	6 LONG AT 38-5/8" PLUS 9 WIDE AT 50"	32"
	30	5 LONG AT 38-5/8" PLUS 10 WIDE AT 50"	19"
	28	2 LONG AT 38-5/8" PLUS 12 WIDE AT 50"	37"
	26	LENGTHWISE LOAD ON PAGE 8 OR 24	63"

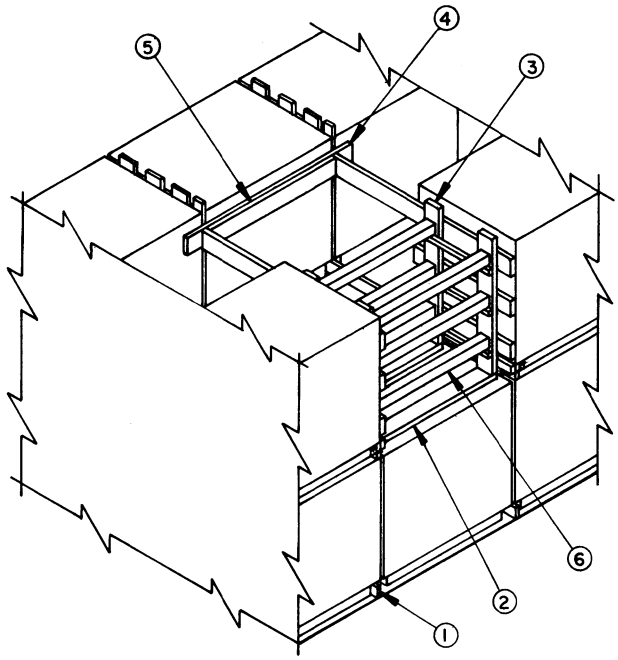
TYPICAL COMBINATION LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR



SEPARATOR GATE E

THIS GATE IS DESIGNED FOR USE IN THE COMBINATION LOAD SHOWN ON PAGE 38.

PALLET UNIT	DIMENSIONS						
	A	B	C	D	E	F	G
BASIC	8'-0"	15-1/2"	29-3/4"	44"	64-1/2"	6'-6-3/4"	7'-9"
DECREASED	7'-0"	15-1/2"	26-1/4"	37"	57-1/4"	68"	6'-6-3/4"



ISOMETRIC VIEW

SPECIAL NOTES:

1. A PARTIAL VIEW OF A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THE BASIC HEIGHT PALLET UNIT IS SHOWN. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.
3. THE OMITTED-UNIT PROCEDURE SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE (1) LOAD UNIT BETWEEN THE OMITTED UNIT AND A CENTER GATE.
4. ONLY THE BLOCKING AND BRACING FOR THE OMITTED UNIT IS SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
5. NOTE THAT THE TOP HORIZONTAL PIECE OF EACH SEPARATOR GATE WHICH IS ADJACENT TO THE OMITTED UNIT AREA MUST BE 1" X 2" MATERIAL IN LIEU OF 1" X 4" AND MAY NEED TO BE ADJUSTED IN HEIGHT SO AS TO PROVIDE CLEARANCE BETWEEN IT AND THE CONTAINERS ON THE UNIT BELOW AS WELL AS CLEARANCE BETWEEN IT AND THE LOAD BEARING GATE, PIECE MARKED (3).

KEY NUMBERS

(1) MODIFIED SEPARATOR GATE (2 REQD). SEE THE APPLICABLE SEPARATOR GATE DETAIL ON PAGE 17 OR 31, FOR POSITIONING OF THE VERTICAL PIECES. SEE SPECIAL NOTE 5 AT LEFT FOR GATE MODIFICATIONS. POSITION GATE SO THE HORIZONTAL PIECES ARE AWAY FROM THE OMITTED UNIT AREA.

(2) SUPPORT PIECE, 2" X 6" X 50" (2 REQD). POSITION SO AS TO BE UNDER THE VERTICAL PIECES OF THE LOAD BEARING GATE, PIECE MARKED (3).

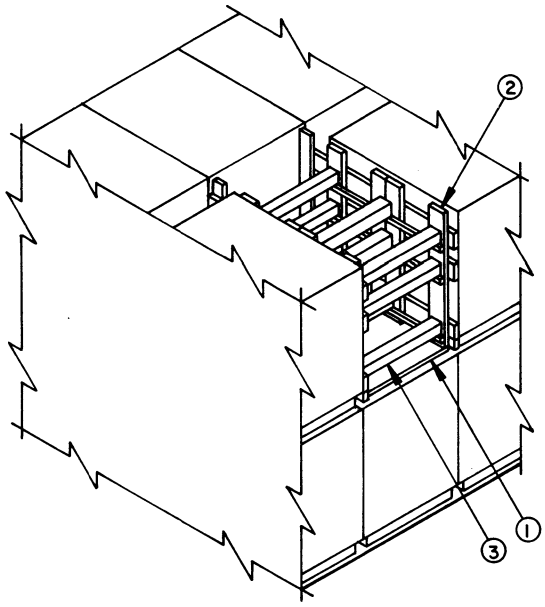
(3) LOAD BEARING GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE APPLICABLE DETAIL ON PAGE 42. NAIL TO THE FILLER PIECE, PIECE MARKED (5), W/3-10d NAILS. TOENAIL TO THE SUPPORT PIECE, PIECE MARKED (2), W/2-10d NAILS AT EACH JOINT. CAUTION: USE CARE NOT TO TOENAIL INTO A CONTAINER.

(4) ANTI-SWAY BEARING PIECE, 2" X 6" X 72" (1 REQD).

(5) FILLER PIECE, 2" X 6" X 47" (1 REQD). NAIL TO THE ANTI-SWAY BEARING PIECE, PIECE MARKED (4), W/5-10d NAILS.

(6) STRUT, 4" X 4" BY CUT TO FIT (REF: 44") (6 REQD). TOENAIL TO PIECES MARKED (3) W/2-16d NAILS AT EACH END.

TYPICAL LCL-ONE PALLET UNIT OMITTED FROM THE TOP LAYER OF A LENGTHWISE LOAD



ISOMETRIC VIEW

SPECIAL NOTES:

1. A PARTIAL VIEW OF A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR IS SHOWN. WIDER CARS CAN BE USED.
2. THE BASIC HEIGHT PALLET UNIT IS SHOWN. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.
3. THE OMITTED-UNIT PROCEDURES SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE (1) LOAD UNIT BETWEEN THE OMITTED UNIT AND A CENTER GATE.
4. ONLY THE BLOCKING AND BRACING FOR THE OMITTED UNIT IS SHOWN. REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.

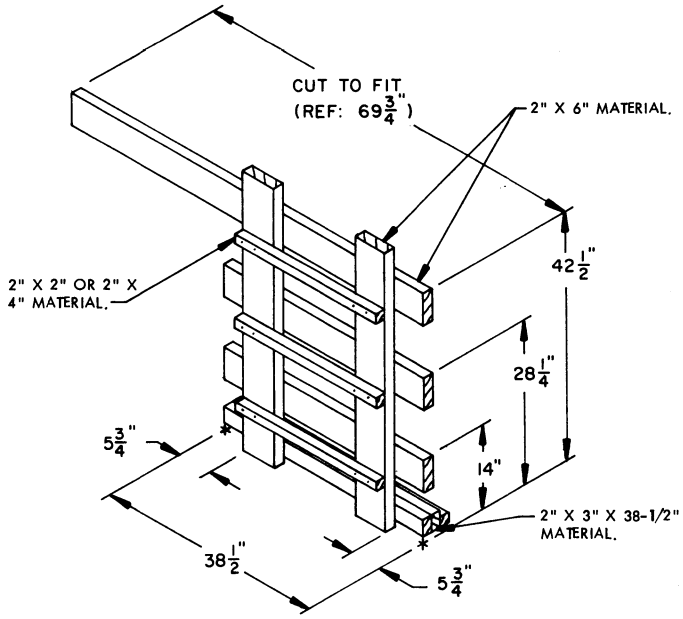
KEY NUMBERS

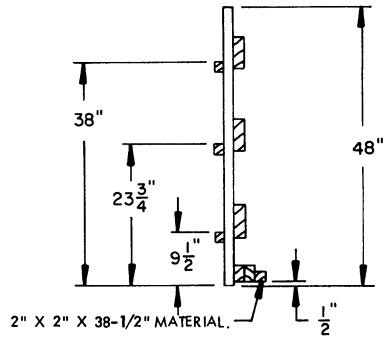
(1) SUPPORT PIECE, 2" X 6" X 38-5/8" (2 REQD). POSITION BENEATH THE OUTSIDE 2" X 6" VERTICAL PIECES OF THE LOAD BEARING GATE, PIECE MARKED (2) .

(2) LOAD BEARING GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE APPLICABLE DETAIL ON PAGE 43. TOENAIL TO THE SUPPORT PIECE, PIECE MARKED (1) , W/2-10d NAILS AT EACH JOINT: CAUTION: USE CARE NOT TO TOENAIL INTO A CONTAINER.

(3) STRUT, 4" X 4" BY CUT TO FIT (REF: 32-1/2") (9 REQD). TOENAIL TO PIECES MARKED (2) W/2-16d NAILS AT EACH END.

TYPICAL LCL-ONE PALLET UNIT OMITTED FROM THE TOP LAYER OF A CROSSWISE LOAD





END VIEW

LOAD BEARING GATE A

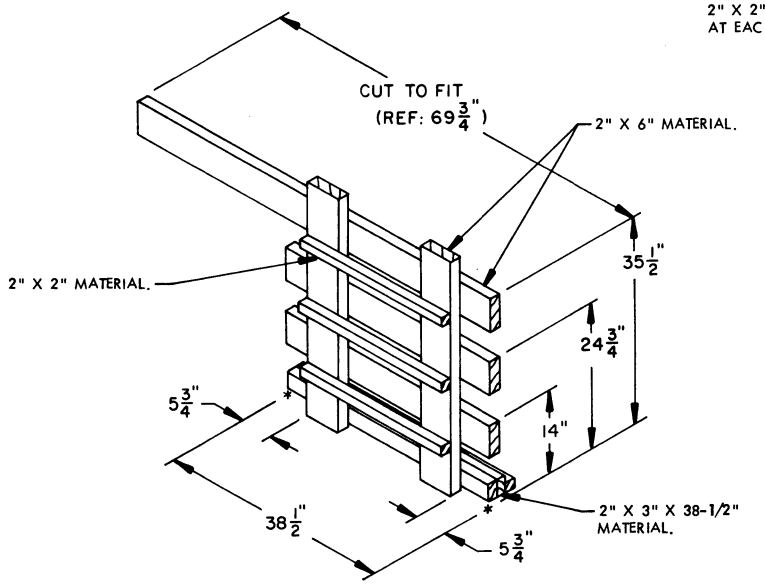
THIS GATE IS FOR USE IN A LOAD OF BASIC HEIGHT PALLET UNITS. SEE SPECIAL NOTE 3 AT RIGHT FOR NAILING GUIDANCE. ONE RIGHT HAND AND ONE LEFT HAND GATE REQUIRED . A RIGHT HAND GATE IS SHOWN.

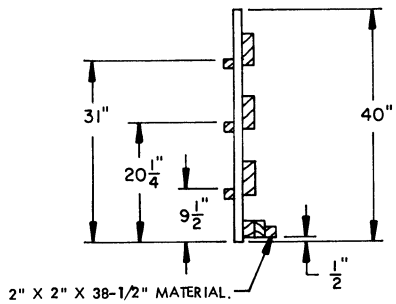
SPECIAL NOTES:

1. THE GATES SHOWN ON THIS PAGE ARE FOR USE WITH BASIC HEIGHT OR UNITS IN THE LCL PROCEDURES SHOWN ON PAGE 40. THOSE PROCEDURES DEPICT THE OMISSION OF A PALLET UNIT FROM A LOAD OF LENGTHWISE POSITIONED PALLET UNITS.

2. THE REFERENCE DIMENSIONS GIVEN FOR THE CUT-TO-FIT PIECES ARE BASED ON AN INSIDE CAR WIDTH OF 9'-2". THESE DIMENSIONS WILL HAVE TO BE ADJUSTED WHEN LOADING CARS OF OF OTHER WIDTHS.

3. THE NAILING OF THE VARIOUS PARTS OF THE GATES WILL BE AS FOLLOWS: NAIL THE 2" X 3" OR 2" X 6" HORIZONTAL PIECE (S) TO THE 2" X 6" VERTICAL PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE 2" X 2" HOLD DOWN PIECES TO A 2" X 3" HORIZONTAL PIECE W/5-10d NAILS. NAIL THE 2" X 2" OR 2" X 4" STRUT LEDGERS TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.



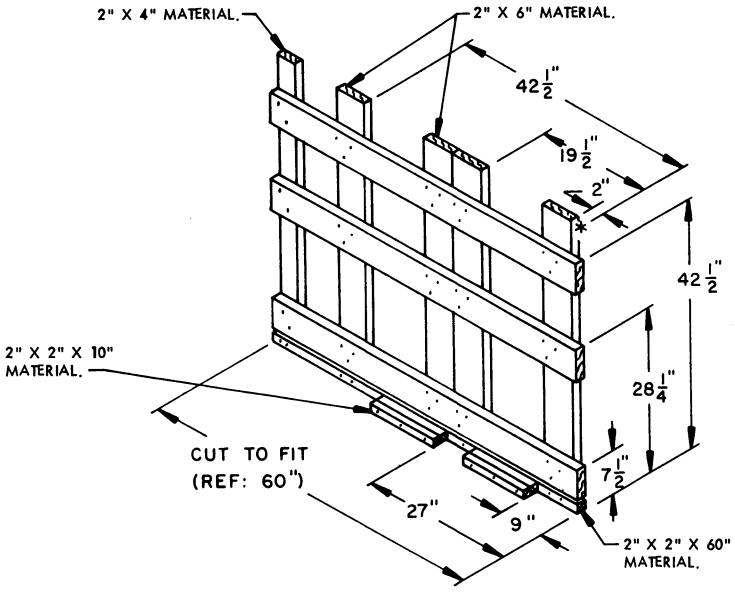


END VIEW

LOAD BEARING GATE B

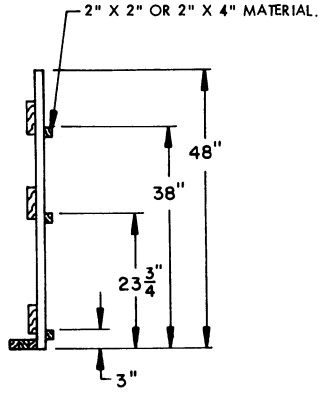
THIS GATE IS FOR USE IN A LOAD OF DECREASED HEIGHT PALLET UNITS. SEE SPECIAL NOTE 3 ABOVE FOR NAILING GUIDANCE. ONE RIGHT HAND AND ONE LEFT HAND GATE REQUIRED. A RIGHT HAND GATE IS SHOWN.

LOAD BEARING GATES FOR USE WITH PALLET UNITS IN A LENGTHWISE LOAD



LOAD BEARING GATE C

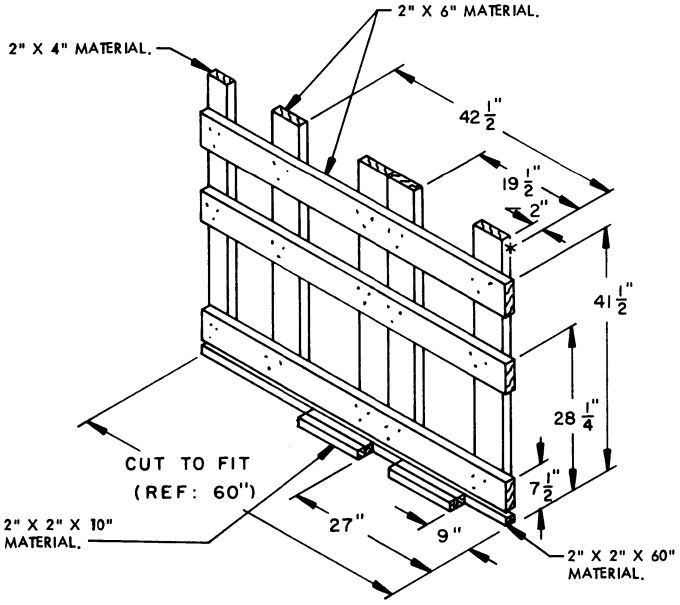
THIS GATE IS FOR USE IN A LOAD OF BASIC HEIGHT UNITS. SEE SPECIAL NOTE 3 BELOW FOR NAILING GUIDANCE. ONE RIGHT HAND AND ONE LEFT HAND GATE REQUIRED. A LEFT HAND GATE IS SHOWN.



END VIEW

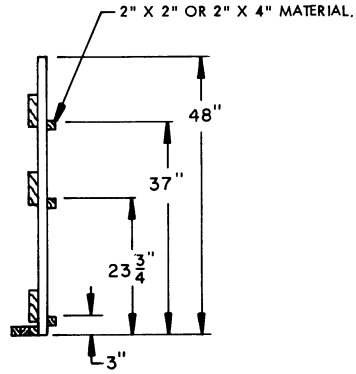
SPECIAL NOTES:

1. THE GATES ON THIS PAGE ARE FOR USE WITH BASIC HEIGHT OR DECREASED HEIGHT UNITS IN THE LCL PROCEDURES SHOWN ON PAGE 41". THOSE PROCEDURES DEPICT THE OMISSION OF A PALLET UNIT FROM A LOAD OF CROSSWISE-POSITIONED PALLET UNITS.
2. THE REFERENCE DIMENSION GIVEN FOR THE CUT-TO-FIT PIECES IS BASED ON AN INSIDE CAR WIDTH OF 9'-2". THIS DIMENSION WILL HAVE TO BE INCREASED WHEN LOADING WIDER CARS.
3. THE NAILING OF THE VARIOUS PARTS OF THE GATES WILL BE AS FOLLOWS: NAIL THE 2" X 6" HORIZONTAL PIECE (S) TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT; NAIL THE 2" X 2" HORIZONTAL PIECES W/2-10d NAILS AT EACH JOINT. NAIL THE DOUBLED 2" X 2" GATE HOLD DOWN PIECES TO A HORIZONTAL PIECE W/3-10d NAILS EACH LAYER. NAIL THE 2" X 2" STRUT LEDGERS TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

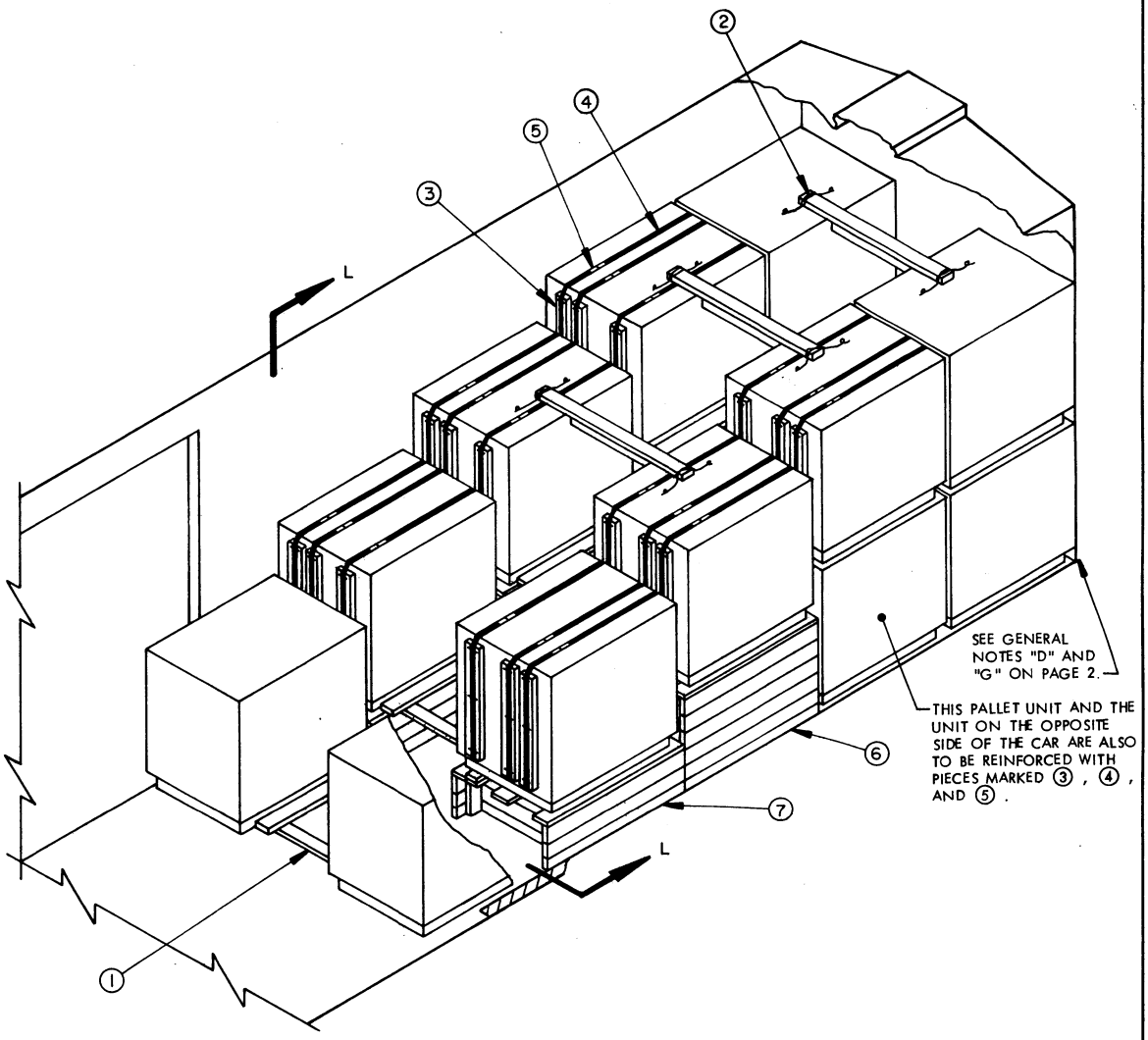


LOAD BEARING GATE D

THIS GATE IS FOR USE IN A LOAD OF DECREASED HEIGHT UNITS. SEE SPECIAL NOTE 3 AT RIGHT FOR NAILING GUIDANCE. ONE RIGHT HAND AND ONE LEFT HAND GATE REQUIRED. A LEFT HAND GATE IS SHOWN.



END VIEW



ISOMETRIC VIEW

KEY NUMBERS

(1) ANTI-SWAY BRACE (7 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 5 ON PAGE 45.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (3 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO PALLET UNITS AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21.

(3) STRAPPING BOARD, 2" X 6" X 41-1/2" (48 REQD/6 PER PALLET UNIT). POSITION AS SHOWN IN THE "METHOD A" DETAIL ON PAGE 46 . SEE SPECIAL NOTE 6 ON PAGE 45.

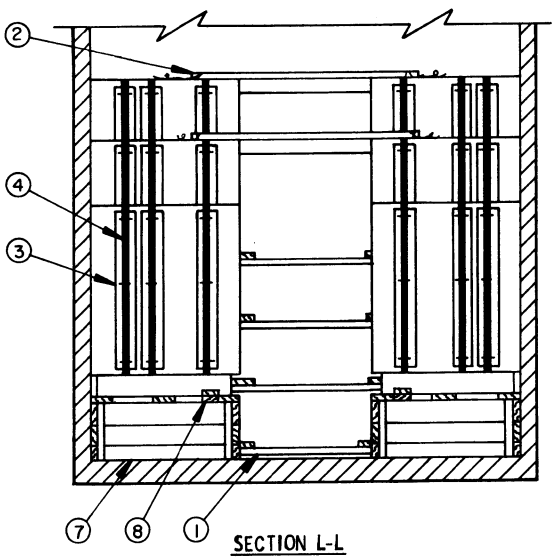
(4) REINFORCING STRAP, 1-1/4" X .035" X 17'-6" LONG (REF) STEEL STRAPPING (24 REQD). INSTALL TO ENCIRCLE THE PALLET UNIT AND THE STRAPPING BOARDS. SECURE TO A STRAPPING BOARD W/3 STAPLES. SEE THE "METHOD A" DETAIL ON PAGE 46.

(5) SEAL FOR 1-1/4" STRAPPING (48 REQD/2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.

(6) RISER ASSEMBLY (2 REQD). THE HEIGHT OF THESE RISER ASSEMBLIES WILL BE TWO-THIRDS OF THE PALLET UNIT HEIGHT. SEE THE "RISER ASSEMBLY" DETAIL ON PAGE 45.

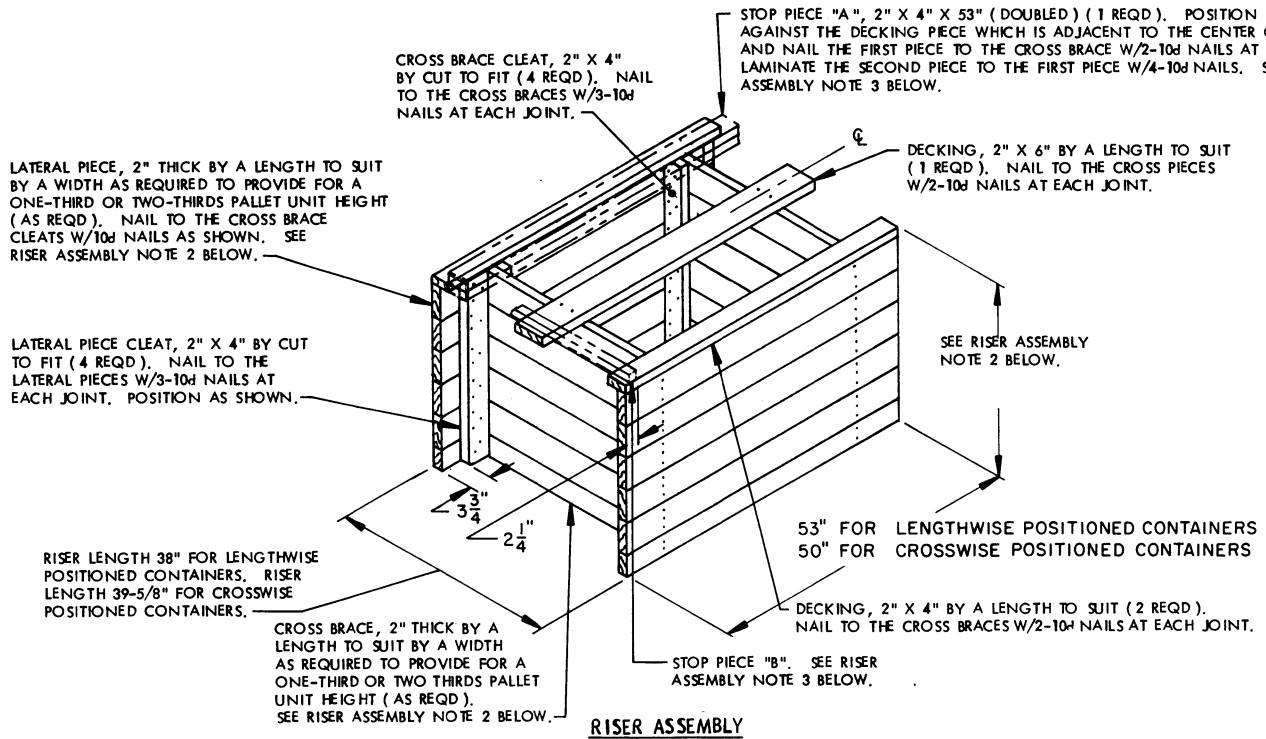
(7) RISER ASSEMBLY (2 REQD). THE HEIGHT OF THESE RISER ASSEMBLIES WILL BE ONE-THIRD OF THE PALLET UNIT HEIGHT. SEE THE "RISER ASSEMBLY" DETAIL ON PAGE 45.

(8) STOP PIECE "A" (4 REQD). SEE THE "RISER ASSEMBLY" DETAIL ON PAGE 45 FOR LOCATION AND NAILING GUIDANCE.



SECTION L-L

TYPICAL LCL LOAD USING RISER METHOD OF PARTIAL-LAYER BRACING



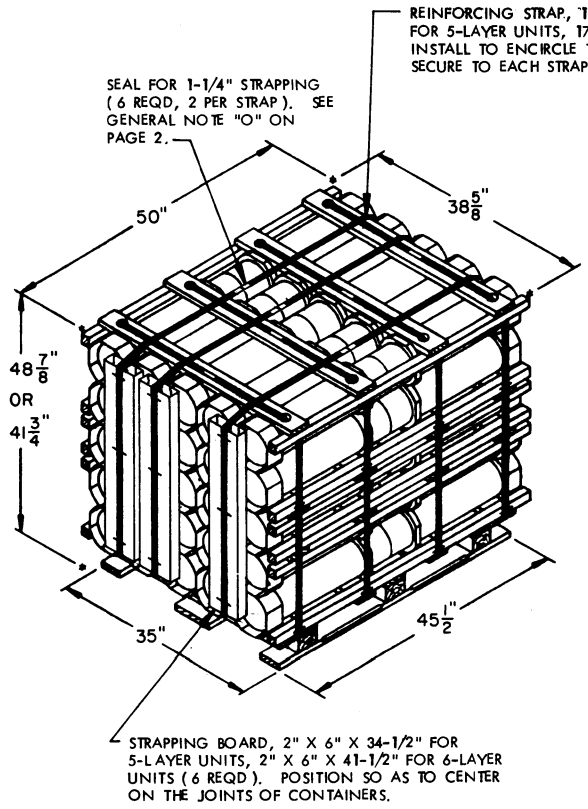
RISER ASSEMBLY

SPECIAL NOTES FOR LOAD:

1. A 9'-2" WIDE CONVENTIONAL TYPE WOOD-LINED BOX CAR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTE "D" ON PAGE 2.
2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LOAD ON PAGE 44. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.
3. THE RISER METHOD OF PARTIAL-LAYER BRACING IS TYPICALLY SHOWN WITH THE PALLET UNITS POSITIONED LENGTHWISE IN THE CAR. WITH MODIFICATIONS, THE PROCEDURES ARE ALSO APPLICABLE FOR CROSSWISE POSITIONED UNITS. SEE SPECIAL NOTES 5 AND 6.
4. ONLY THE BLOCKING AND BRACING FOR THE RISER METHOD OF PARTIAL-LAYER BRACING IS SHOWN. REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
5. ANTI-SWAY BRACE "A" IS APPLICABLE FOR THE LENGTHWISE POSITIONED UNITS. ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 20, WILL BE USED FOR CROSSWISE POSITIONED CONTAINERS.
6. FOR CROSSWISE POSITIONED UNITS, THE STRAPPING BOARDS SHOWN AS PIECES MARKED (3) WILL NOT BE REQUIRED. SEE THE "METHOD B" DETAIL ON PAGE 46 FOR MODIFICATIONS TO BE ACCOMPLISHED IN LIEU OF USING STRAPPING BOARDS, WHEN THE PALLET UNITS ARE TO BE POSITIONED CROSSWISE IN THE CAR. ALSO, FOR LOADS OF CROSSWISE UNITS, STOP PIECE "B", AS SHOWN ON THE RISER DETAIL ABOVE, WILL BE USED IN LIEU OF STOP PIECE "A".
7. LONGITUDINALLY ADJACENT PALLET UNITS ARE TO BE ORIENTED SUCH THAT THE STRAPPING BOARDS ON THE ADJACENT UNITS WILL BE IN ALIGNMENT.

SPECIAL NOTES FOR RISER ASSEMBLY:

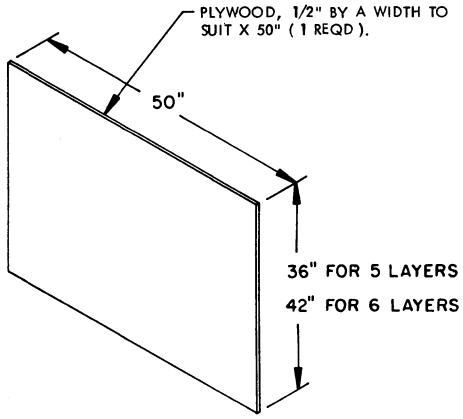
1. THE TYPICAL RISER ASSEMBLY SHOWN ABOVE IS FOR BASIC HEIGHT PALLET UNITS. THE HEIGHT OF THE BASIC UNIT IS 48-7/8". A TWO-THIRDS UNIT HEIGHT RISER IS SHOWN ABOVE AND AS KEY NUMBER (6) IN THE LOAD ON PAGE 44. EACH CROSS BRACE AND EACH LATERAL PIECE OF THE RISER IS FABRICATED FROM FIVE (5) PIECES OF 2" X 6" MATERIAL AND ONE (1) PIECE OF 2" X 4" MATERIAL TO PROVIDE FOR A TOTAL HEIGHT OF 32-1/2" AFTER THE DECKING IS IN PLACE. A ONE-THIRD HEIGHT RISER, SHOWN AS KEY NUMBER (7) IN THE LOAD ON PAGE 44, WILL BE FABRICATED FROM TWO (2) PIECES OF 2" X 6" AND ONE PIECE OF 2" X 4" MATERIAL FOR EACH CROSS BRACE AND EACH LATERAL PIECE, TO PROVIDE FOR A TOTAL HEIGHT OF 16" AFTER THE DECKING IS IN PLACE. THE DECREASED HEIGHT PALLET UNIT WILL REQUIRE THREE (3) PIECES OF 2" X 6" MATERIAL AND THREE (3) PIECES OF 2" X 4" MATERIAL FOR THE TWO-THIRDS HEIGHT RISER AND ONE (1) 2" X 6" PIECE PLUS TWO (2) 2" X 4" PIECES OF MATERIAL FOR THE ONE-THIRD HEIGHT RISER.
2. SELECT THE PROPER WIDTH COMBINATIONS FOR THE LATERAL/CROSS BRACE PIECES PRIOR TO CONSTRUCTING A RISER ASSEMBLY, TO ASSURE THAT THE TOTAL HEIGHT OF THE RISER ASSEMBLY IS ONE-THIRD OR TWO-THIRDS OF THE PALLET UNIT HEIGHT, BASED ON THE PALLET UNIT BEING LOADED AND THE LOCATION OF THE RISER ASSEMBLY WITHIN THE LOAD. NOTE: A PLUS OR MINUS 1" TOLERANCE IS PERMISSIBLE ON THE RISER HEIGHT.
3. THE STOP PIECE "A" SHOWN ON THE RISER ASSEMBLY ABOVE IS ONLY FOR USE WHEN THE PALLET UNITS ARE POSITIONED LENGTHWISE IN THE CAR, AS SHOWN IN THE LCL LOAD ON PAGE 44. IF THE PALLET UNITS ARE POSITIONED CROSSWISE IN THE CAR, POSITION A 2" X 2" BY A LENGTH TO SUIT PIECE ACROSS THE DECKING, ON THE END WHICH IS AGAINST THE CAR SIDEWALL, AND NAIL TO THE DECKING W/2-10d NAILS AT EACH JOINT. SEE STOP PIECE "B" ON THE RISER ASSEMBLY ABOVE FOR LOCATION GUIDANCE.



METHOD A

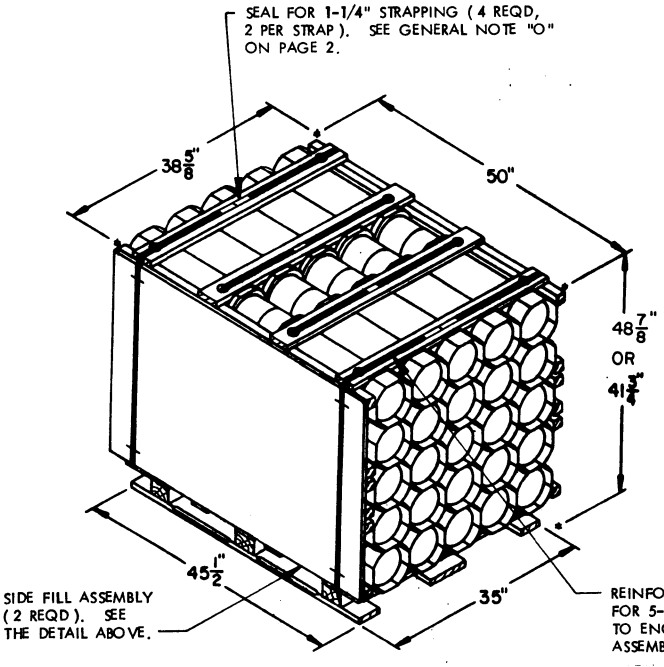
THE DECREASED HEIGHT PALLET UNIT IS SHOWN. THIS METHOD IS ALSO APPLICABLE FOR THE BASIC HEIGHT PALLET UNIT.

NOTE:
THE "METHOD A" DETAIL AT LEFT SHOWS THE MODIFICATION REQUIRED FOR PALLET UNITS WHICH ARE TO BE POSITIONED LENGTHWISE IN A CAR WHEN USING THE RISER METHOD OF PARTIAL-LAYER BRACING SHOWN ON PAGE 44. THE DECREASED HEIGHT UNIT IS SHOWN. THE PROCEDURE IS ALSO APPLICABLE FOR THE BASIC HEIGHT UNIT. FOR MODIFICATION OF UNITS TO BE POSITIONED CROSSWISE IN A CAR, REFER TO THE "METHOD B" DETAIL BELOW.



SIDE FILL ASSEMBLY

FOR METHOD "B" BELOW

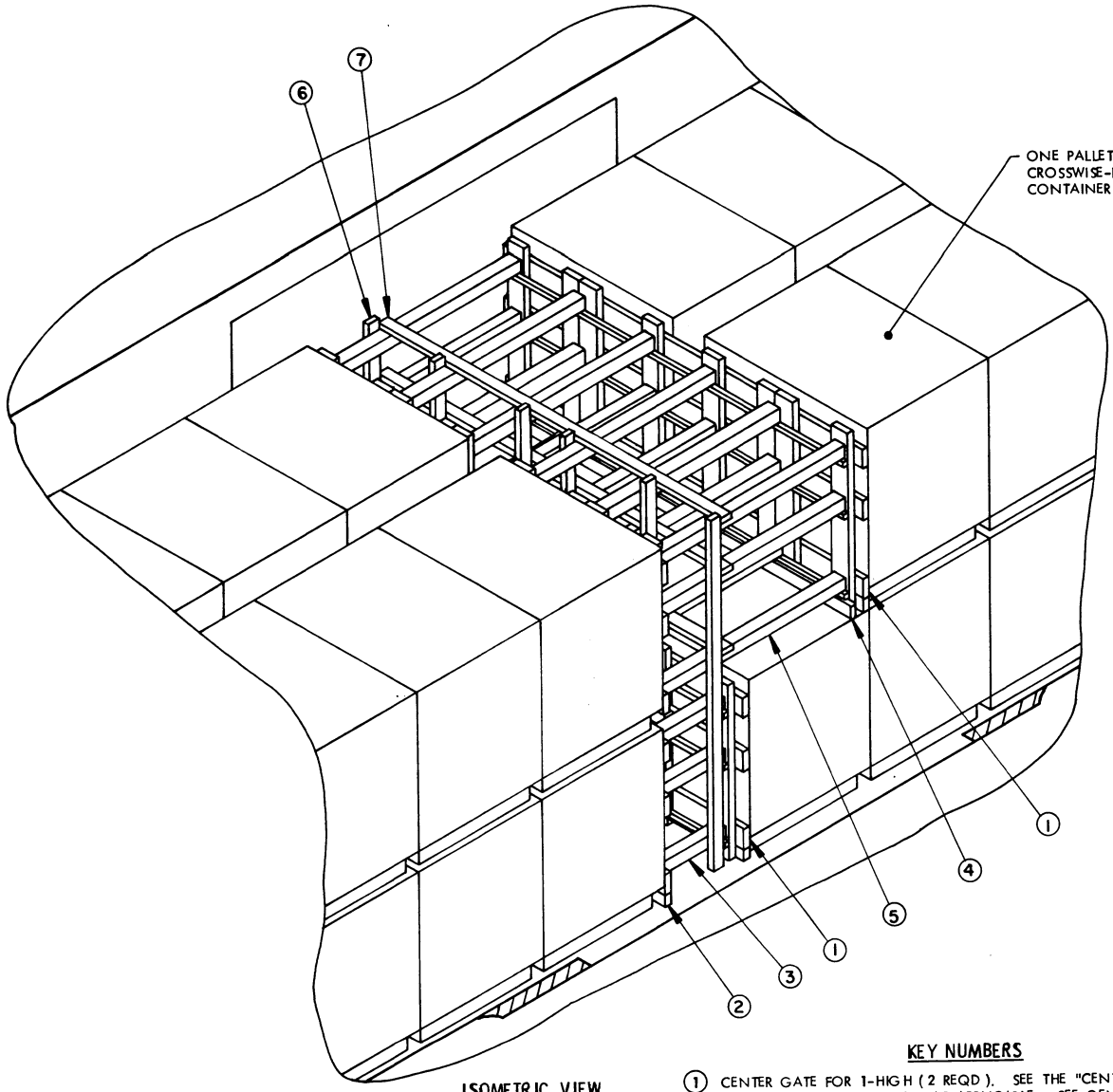


METHOD B

THE DECREASED HEIGHT PALLET UNIT IS SHOWN. THIS METHOD IS ALSO APPLICABLE FOR THE BASIC HEIGHT PALLET UNIT.

NOTE:
THE "METHOD B" DETAIL AT LEFT SHOWS THE MODIFICATION REQUIRED FOR PALLET UNITS WHICH ARE TO BE POSITIONED CROSSWISE IN A CAR WHEN USING THE RISER METHOD OF PARTIAL-LAYER BRACING SHOWN ON PAGE 44. THE DECREASED HEIGHT UNIT IS SHOWN, HOWEVER, THE PROCEDURE IS ALSO APPLICABLE FOR THE BASIC HEIGHT UNIT. FOR MODIFICATION OF UNITS, TO BE POSITIONED LENGTHWISE IN A CAR, REFER TO THE "METHOD A" DETAIL ABOVE.

TYPICAL LCL LOAD USING RISER METHOD OF PARTIAL-LAYER BRACING



ISOMETRIC VIEW

SPECIAL NOTES:

1. ONLY THE CENTER PORTION OF A 9'-2" WIDE CONVENTIONAL TYPE BOX CAR IS SHOWN TO PORTRAY THE STRUTTED GATE METHOD OF PARTIAL-LAYER BRACING. WIDER CARS CAN ALSO BE USED.
2. THE BASIC HEIGHT UNIT IS SHOWN. THE DEPICTED PROCEDURES ARE ALSO ADAPTABLE FOR THE DECREASED HEIGHT PALLET UNIT.
3. ONLY THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO PERMIT THE OMISSION OF THE UNITS FROM THE TOP LAYER ARE SHOWN.
4. THE CENTER GATE "D" SPECIFIED IS APPLICABLE FOR THE BASIC HEIGHT UNIT; THE CENTER GATE "H" IS APPLICABLE FOR THE DECREASED HEIGHT UNIT.
5. THE PRINCIPLES SHOWN FOR THE OMISSION OF PALLET UNITS FROM THE TOP LAYER OF A CROSSWISE LOAD MAY ALSO BE APPLIED FOR THE OMISSION OF A TOP LAYER FROM A LENGTHWISE LOAD. CENTER GATE "C", AS DETAILED ON PAGE 18, WILL BE USED FOR BASIC HEIGHT UNITS AND CENTER GATE "G", AS DETAILED ON PAGE 34, WILL BE USED FOR THE DECREASED HEIGHT UNITS.

KEY NUMBERS

(1) CENTER GATE FOR 1-HIGH (2 REQD). SEE THE "CENTER GATE D OR H" DETAIL ON PAGE 19 OR 35, AS APPLICABLE. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 4 AT THE LEFT.

(2) CENTER GATE FOR 2-HIGH (1 REQD). SEE THE "CENTER GATE D OR H" DETAIL ON PAGE 19 OR 35, AS APPLICABLE.

(3) STRUT, 4" X 4" BY CUT TO FIT (18 REQD). POSITION BETWEEN THE CENTER GATES, PIECES MARKED (1) AND (2) , IN THE FIRST LAYER AND TOENAIL W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "L", "U", AND "V" ON PAGES 2 AND 3.

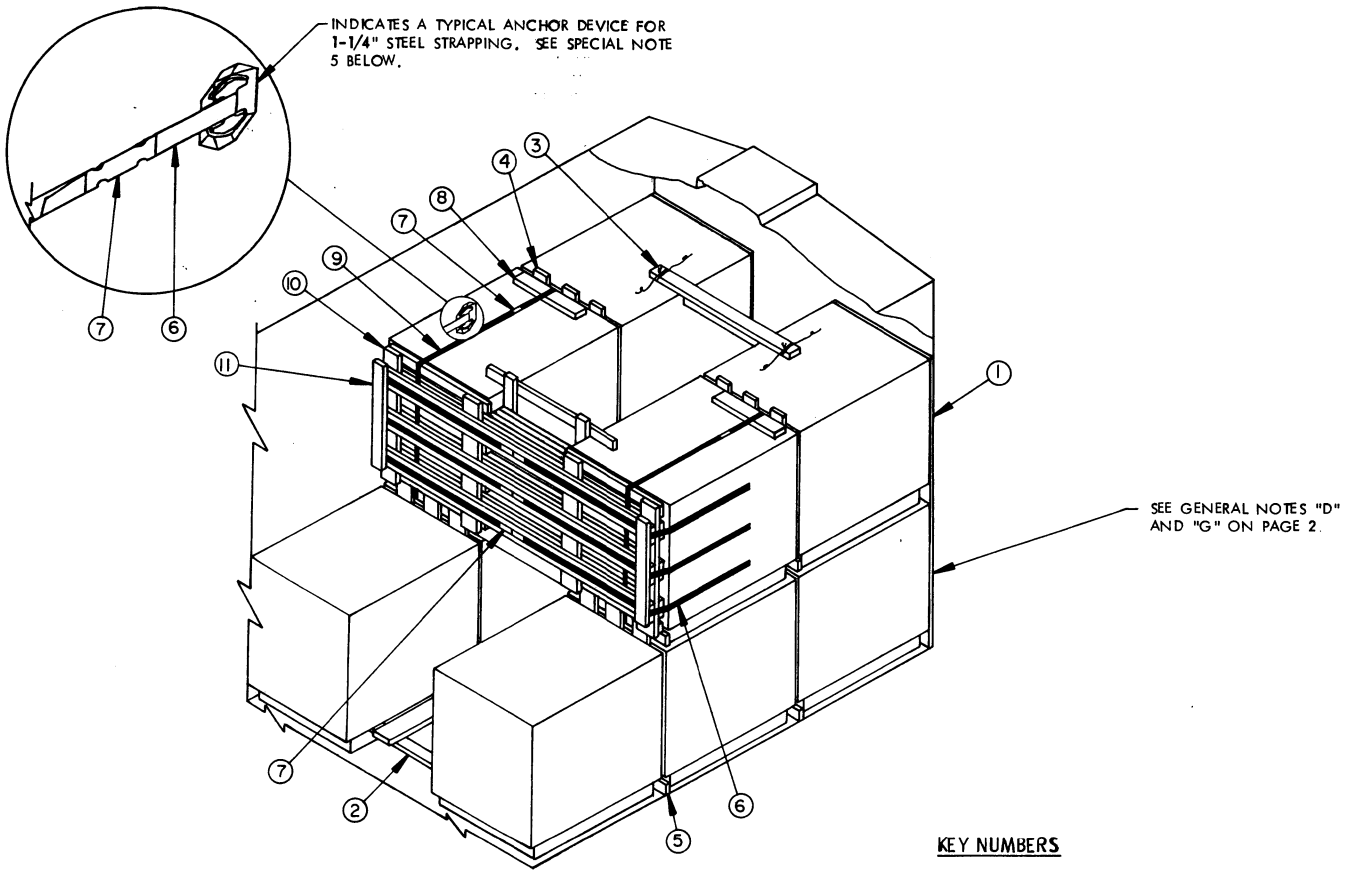
(4) GATE SUPPORT PIECE, 2" X 3" BY A LENGTH TO SUIT (1 REQD). NAIL TO THE VERTICAL PIECES OF THE CENTER GATE USED IN THE SECOND LAYER W/3-10d NAILS AT EACH JOINT.

(5) STRUT, 4" X 4" BY CUT TO FIT (18 REQD). POSITION BETWEEN THE CENTER GATES, PIECES MARKED (1) AND (2) , IN THE SECOND LAYER AND TOENAIL W/2-16d NAILS AT EACH END.

(6) VERTICAL STRUT BRACING, 2" X 4" BY CUT TO EXTEND A MINIMUM OF 2" ABOVE THE TOP STRUT (6 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

(7) HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 1/2" IN LENGTH (3 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

CROSSWISE-POSITIONED PALLET UNITS
TYPICAL LCL LOAD USING STRUTTED GATE METHOD OF PARTIAL-LAYER BRACING



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 9'-2" WIDE ALL-METAL BOX CAR EQUIPPED WITH STRAP ANCHOR DEVICES AND HAVING AN AAR MECHANICAL DESIGNATION CLASS OF XL IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LCL LOAD. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.

3. THE BULKHEAD GATE METHOD OF PARTIAL-LAYER BRACING IS ONLY APPLICABLE FOR USE IN LOADS OF LENGTHWISE POSITIONED PALLET UNITS AS SHOWN IN THE VIEW ABOVE. PARTIAL LAYERS OF CROSSWISE POSITIONED PALLET UNITS WILL NOT BE RETAINED BY THE BULKHEAD GATE METHOD.

4. A BULKHEAD GATE USED IN CONJUNCTION WITH THREE (3) BULKHEAD STRAPS WILL RETAIN UP TO 7,500 POUNDS OF LADING; A BULKHEAD GATE WITH TWO (2) STRAPS WILL RETAIN NOT MORE THAN 5,000 POUNDS. IF ONLY TWO STRAPS ARE USED, THEY MUST BE APPLIED OVER THE UPPER AND LOWER STRAPPING BOARDS. A BULKHEAD GATE WITH 2 STRAPS WILL RETAIN 2 BASIC HEIGHT UNITS OR 3 DECREASED HEIGHT UNITS; A BULKHEAD GATE WITH 3 STRAPS WILL RETAIN 4 OF EITHER HEIGHT PALLET UNIT.

5. THE ANCHOR DEVICES TO BE USED FOR THE ATTACHMENT OF THE BULKHEAD STRAPS MUST BE LOCATED AT LEAST THIRTY-SIX INCHES (36") TOWARD THE CAR END WALL FROM THE OPPOSITE-THE-LOAD SIDE OF THE BULKHEAD GATE. IF THE ANCHOR DEVICES IN THE CAR BEING LOADED ARE NOT LOCATED NEAR ENOUGH TO THE END OF THE CAR SO THAT THE 36" REQUIREMENT CAN BE SATISFIED, IT WILL BE NECESSARY TO INSTALL GATES AND STRUTS AT THE END OF THE CAR. THESE WILL BE 1-HIGH GATES FOR THE ITEM BEING LOADED AND WILL BE INSTALLED SIMILAR TO THE STRUTTED GATE METHOD SHOWN ON PAGE 47 FOR AN EVEN QUANTITY OF UNITS, OR THE PALLET UNIT OMITTED PROCEDURES ON PAGE 40 FOR A SINGLE UNIT.

(CONTINUED ON PAGE 49)

KEY NUMBERS

(1) END WALL LINING (1 REQD). SEE THE DETAIL ON PAGE 63. SEE GENERAL NOTE "D" ON PAGE 2. NOTE THAT IF AN END-OF-CAR BULKHEAD, AS DETAILED ON PAGE 64 IS USED, THE END-WALL LINING IS NOT REQUIRED.

(2) ANTI-SWAY BRACE (5 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 20. INSTALL BETWEEN THE LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 20. WIRE TIE TO PALLET UNITS AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 21.

(4) SEPARATOR GATE FOR 2-HIGH LOAD (1 REQD). SEE THE APPLICABLE DETAIL ON PAGE 17 OR 33 AND/OR THE "ALTERNATIVE SEPARATOR GATE" DETAIL ON PAGE 64. POSITION WITH THE HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNITS.

(5) SEPARATOR GATE FOR 1-HIGH LOAD (1 REQD). SEE THE APPLICABLE DETAIL ON THE AFOREMENTIONED PAGES.

(6) BULKHEAD STRAP, 1-1/4" X .031" OR .035" BY A LENGTH TO SUIT STEEL STRAPPING (3 REQD). INSTALL FROM 2 EQUAL LENGTH PIECES. SEE THE "STRAP APPLICATION PLAN VIEW" ON PAGE 49 FOR INSTALLATION GUIDANCE. SEE SPECIAL NOTES 4 AND 5 AT LEFT.

(7) SEAL FOR 1-1/4" STEEL STRAPPING (14 REQD, 4 PER BULKHEAD STRAP, PIECE MARKED (6) , AND 1 PER BUNDLING STRAP, PIECE MARKED (9)). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.

(8) STRAPPING BOARD (2 REQD). SEE THE DETAIL ON PAGE 49.

(9) BUNDLING STRAP, 1-1/4" X .031" OR .035" X 18'-0" LONG (REF) STEEL STRAPPING (2 REQD). ENCIRCLE THE PALLET UNIT, THE HORIZONTAL PIECES OF THE BULKHEAD GATE, AND A STRAPPING BOARD, PIECE MARKED (8). TENSION AND SEAL AFTER TENSIONING THE BULKHEAD STRAPS, PIECES MARKED (6) .

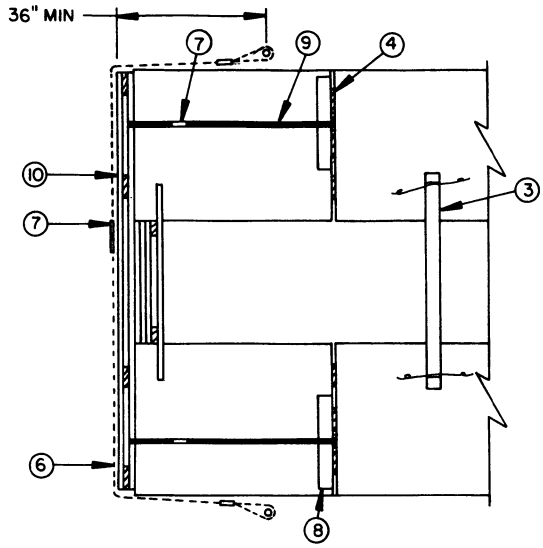
(10) BULKHEAD GATE (1 REQD). SEE THE DETAIL ON PAGE 49. SEE SPECIAL NOTE 4 AT LEFT.

(11) STRAP RETAINER, 2" X 4" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE BULKHEAD GATE W/2-12d NAILS ABOVE AND BELOW EACH BULKHEAD STRAP.

TYPICAL LCL LOAD USING BULKHEAD GATE METHOD OF PARTIAL-LAYER BRACING

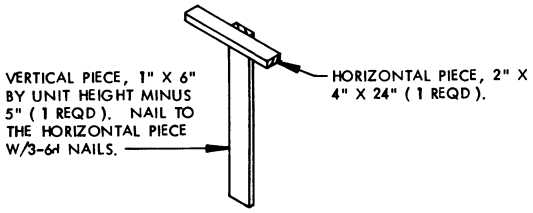
(SPECIAL NOTES CONTINUED FROM PAGE 48)

6. THE STRAPPING BOARDS ON A BULKHEAD GATE ARE TO BE ALIGNED AS NEARLY AS POSSIBLE WITH THE ANCHOR DEVICES IN THE CAR TO WHICH THE BULKHEAD STRAPS ARE ATTACHED. TOLERANCES ARE SPECIFIED ON THE END VIEW OF THE BULKHEAD GATE BELOW FOR THE LOCATION OF THE HORIZONTAL PIECES IN RELATION TO THE LOCATION OF THE STRAPPING BOARDS. THE STRAPPING BOARDS/HORIZONTAL PIECES SHOULD BE LOCATED WITHIN THESE TOLERANCES. IF THIS IS NOT POSSIBLE, ADDITIONAL HORIZONTAL PIECES MUST BE APPLIED, AS NECESSARY TO PROVIDE PROPER BEARING AGAINST THE CONTAINERS.

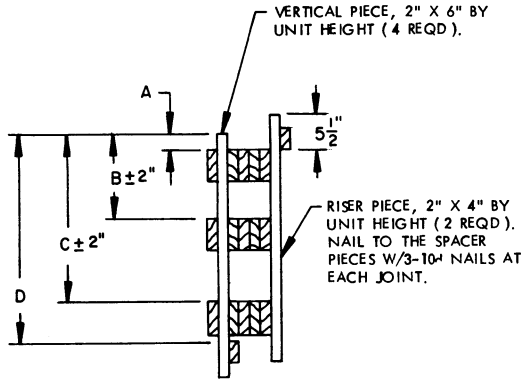


STRAP APPLICATION PLAN VIEW

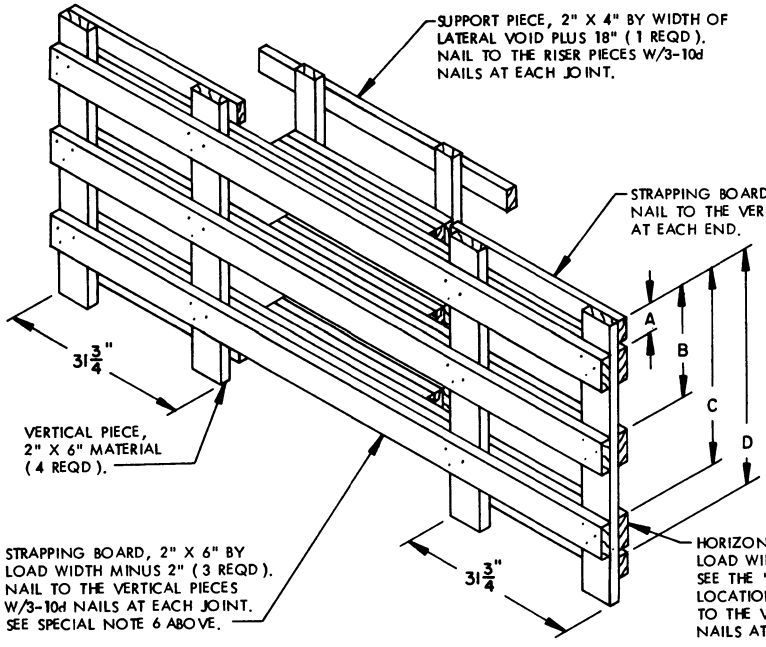
HORIZONTAL PIECE LOCATION					
UNIT	DIM A	DIM B	DIM C	DIM D	DIM E
BASIC HEIGHT	5"	19"	33-1/2"	40"	5"
DECREASED HEIGHT	2-1/2"	13-1/2"	28-1/2"	35"	0"



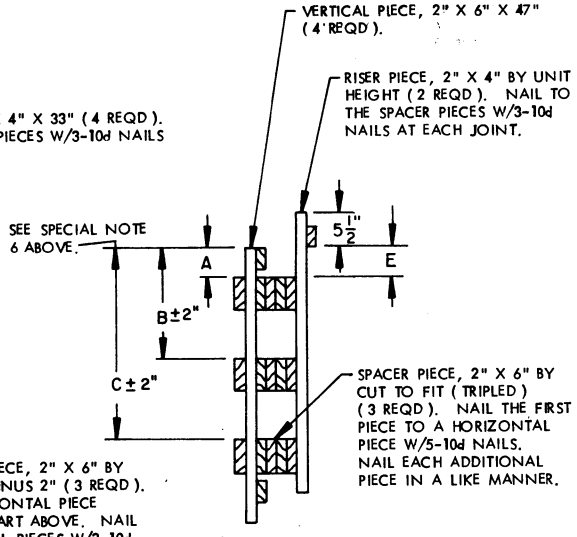
STRAPPING BOARD



END VIEW
(DECREASED HEIGHT UNIT)

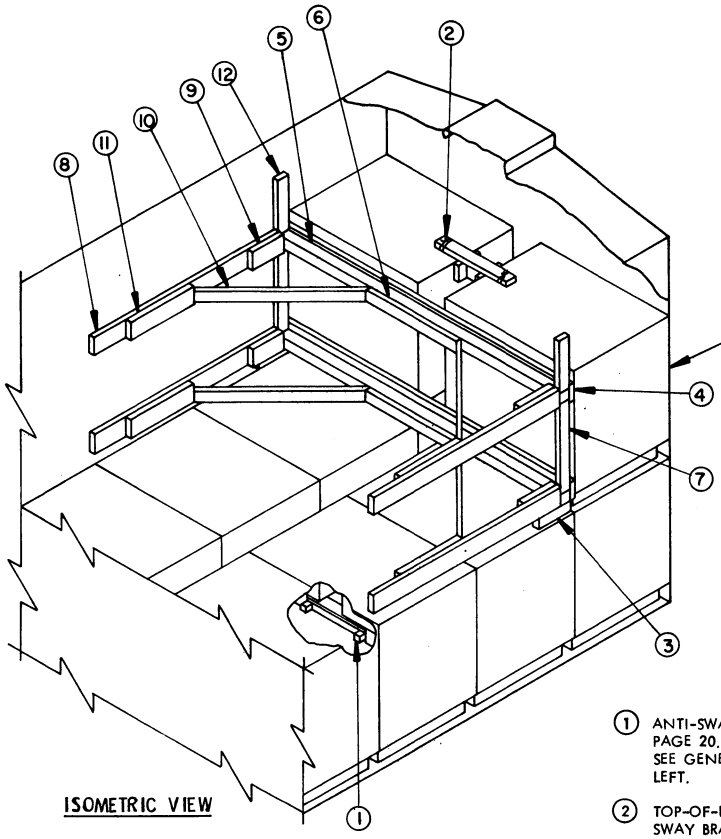


BULKHEAD GATE



END VIEW
(BASIC HEIGHT UNIT)

TYPICAL LCL LOAD USING BULKHEAD GATE METHOD OF PARTIAL-LAYER BRACING



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 9'-2" WIDE CONVENTIONAL WOOD-LINED BOX CAR IS SHOWN. WOOD-LINED CARS OF OTHER WIDTHS CAN BE USED.

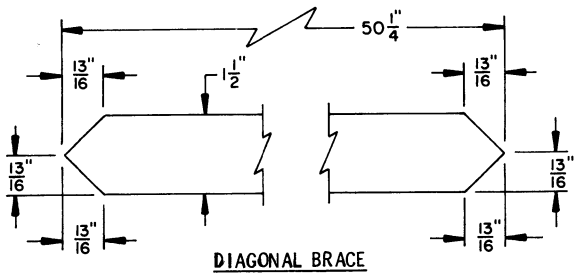
2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL LCL LOAD. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT UNIT.

3. PARTIAL-LAYER BRACING MAY BE APPLIED FOR ANY OF THE CONVENTIONAL CARLOADS DEPICTED HEREIN EXCEPT THE COMBINATION LOADS (1 ROW LENGTHWISE AND 1 ROW CROSSWISE). A CROSSWISE LOAD IS SHOWN AS TYPICAL. THE BLOCKING AND BRACING WILL VARY FOR LENGTHWISE LOADS. NOTE THAT FOR A LENGTHWISE PARTIAL TIER, THE PIECES MARKED (4) SHOULD BE LOCATED SO AS TO BEAR AGAINST THE PALLET UNITS IN THE SAME LOCATION AS THE HORIZONTAL PIECES OF A CENTER GATE FOR A LENGTHWISE LOAD.

4. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN WOOD-LINED CARS FOR THE SECUREMENT OF A PARTIAL TOP TIER, BE IT A SECOND TIER, THIRD TIER, OR FIRST. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 8,000 POUNDS. IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO THE DETAILS ON PAGES 51, 52, AND 53 FOR SELECTION OF THE APPLICABLY SIZED K-BRACE TO USE AND THE DESIGN SPECIFICATIONS FOR THE BRACE.

5. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED (3) , (4) , (5) , (7) , (9) , AND (12) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED (10) TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED (8) MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING (REF: 60"), TO PROVIDE FOR THE SPECIFIED NAILING

(CONTINUED AT RIGHT)



DIAGONAL BRACE

(SPECIAL NOTES CONTINUED)

OF EACH PIECE. LAMINATE THE SECOND PIECE OF THE DOUBLED PIECE MARKED (8) TO THE FIRST W/16-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED (8) IS DOUBLED.

6. THE CENTER CLEAT, SHOWN AS PIECE MARKED (6) , WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2" AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.

IF THE CAR HAS A BOWED END WALL, A BULKHEAD MUST BE INSTALLED. SEE THE "END-OF-CAR BULKHEAD" DETAIL ON PAGE 64.

KEY NUMBERS

(1) ANTI-SWAY BRACE (AS REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 20. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 AT LEFT.

(2) TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 20. WIRE TIE TO PALLET UNITS AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 21. NOTE THAT THE QUANTITY IS ONLY FOR THE PARTIAL-TIER UNITS.

(3) SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION AS SHOWN, 1" ABOVE THE LOWER PALLET UNIT AND NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE SPECIAL NOTE 5 AT LEFT.

(4) HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT TO FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED (5) W/1-12d NAIL EVERY 6". SEE SPECIAL NOTE 3 AT LEFT.

(5) CROSS CAR BRACE, 4" X 4" BY CAR WIDTH IN LENGTH (CUT TO FIT) (2 REQD).

(6) CENTER CLEAT, 2" X 4" X 36" (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED (5) , W/7-16d NAILS. SEE SPECIAL NOTE 6 ABOVE.

(7) SPACER CLEAT, 2" X 4" X 32-1/2" FOR 6-LAYER UNITS, 31-1/2" FOR 5-LAYER UNITS (2 REQD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS. REFER TO THE DIMENSION IN KEY NUMBER (10) ON PAGE 51 FOR A LENGTHWISE LOAD.

(8) HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.

(9) POCKET CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (8) , W/4-16d NAILS.

(10) DIAGONAL BRACE, 2" X 4" X 50-1/4" (4 REQD). SEE THE DETAIL AT LEFT FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED (5) , AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (8) , W/2-16d NAILS AT EACH END.

(11) BACK-UP CLEAT, 2" X 6" X 24" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (8) , W/8-16d NAILS.

(12) HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

TYPICAL LCL LOAD USING K-BRACE METHOD OF PARTIAL-LAYER BRACING

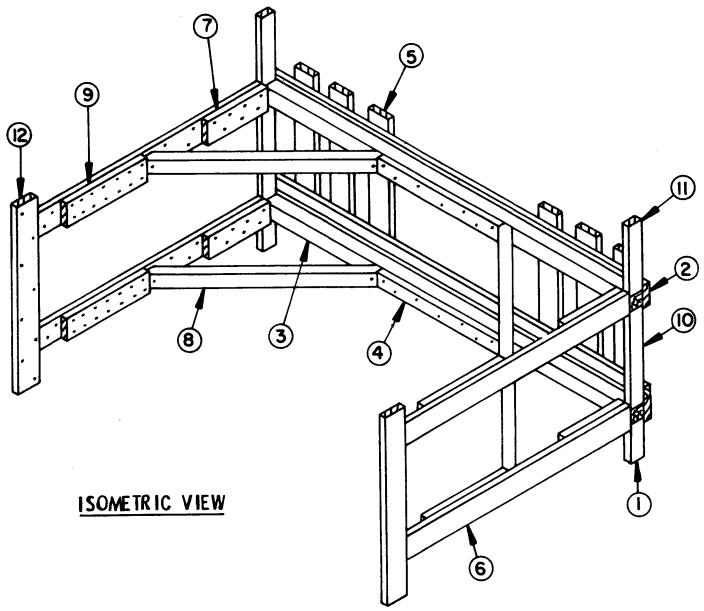
SPECIAL NOTES:

1. THE TYPE "B" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 14,000 POUNDS. THIS WILL BE NOT MORE THAN EIGHT (8) 5-LAYER UNITS OR SIX (6) 6-LAYER UNITS. IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO THE DETAILS ON PAGES 52 AND 53 FOR SELECTION OF THE APPLICABLY SIZED K-BRACE TO USE AND THE DESIGN SPECIFICATIONS FOR THE BRACE. IF THE PARTIAL TIER TO BE BRACED WEIGHS 8,000 POUNDS OR LESS, THE TYPE "A" K-BRACE DEPICTED ON PAGE 50 MAY BE USED.

2. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED ①, ②, ③, ⑦, ⑩, ⑪, AND ⑫ MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑧ TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑥ MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING (REF: 54") TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE. LAMINATE THE SECOND PIECE OF THE DOUBLED PIECE MARKED ⑥ TO THE FIRST W/16-16d NAILS CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED ⑥ IS DOUBLED.

3. THE CENTER CLEAT, SHOWN AS PIECE MARKED ④, WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2", AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.

4. REFER TO PAGE 50 FOR A TYPICAL INSTALLATION OF A K-BRACE.



ISOMETRIC VIEW

KEY NUMBERS

① SUPPORT CLEAT, 2" X 4" X 9" (2 REQD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS. POSITION SO AS TO CENTER PIECES MARKED ② AND ③ ON THE JOINT BETWEEN THE BOTTOM TWO LAYERS OF CONTAINERS ON THE UNITS. SEE SPECIAL NOTE 2 AT LEFT.

② LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6". SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

③ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (2 REQD).

④ CENTER CLEAT, 2" X 4" X 36" (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③ , W/7-16d NAILS. SEE SPECIAL NOTE 3 AT LEFT.

⑤ LOAD BEARING GATE (1 REQD). SEE THE "LOAD BEARING GATE E" DETAIL AT LEFT. POSITION SO THE HORIZONTAL PIECE RESTS ON THE LOAD BEARING PIECE, PIECE MARKED ② , AFTER PIECE MARKED ① AND LOWER PIECES MARKED ② , ③ , AND ④ HAVE BEEN INSTALLED.

⑥ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.

⑦ POCKET CLEAT, 2" X 6" X 18" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑥ , W/7-16d NAILS.

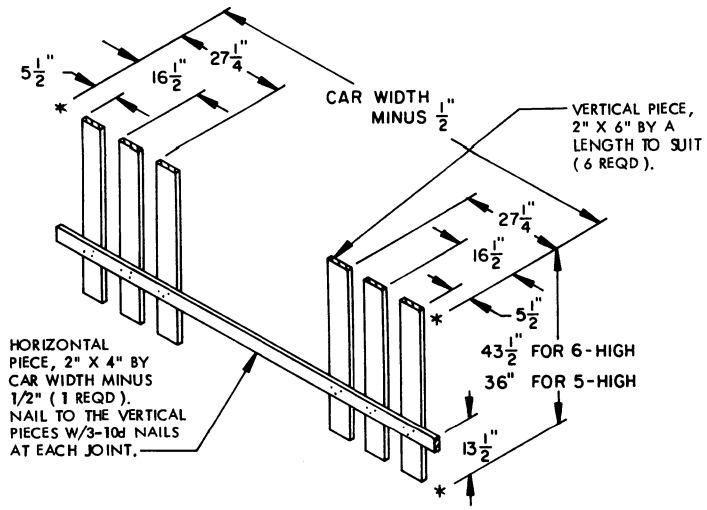
⑧ DIAGONAL BRACE, 4" X 4" X 50-1/4" (4 REQD). SEE THE DETAIL BELOW FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED ③ , AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑥, W/1-60d NAIL AT EACH END.

⑨ BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑥, W/ 14-16d NAILS.

⑩ SPACER CLEAT, 2" X 4" X 25" FOR 6-LAYER UNITS, 18" FOR 4-LAYER UNITS (2 REQD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS. REFER TO THE DIMENSIONS ON PAGES 50, 52, AND 53 FOR A CROSSWISE LOAD.

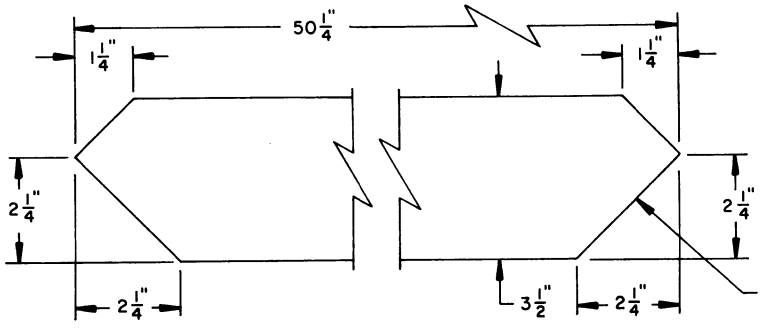
⑪ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

⑫ VERTICAL BACK-UP CLEAT, 2" X 6" BY UNIT HEIGHT (2 REQD). NAIL TO THE CAR SIDEWALL W/8-12d NAILS.



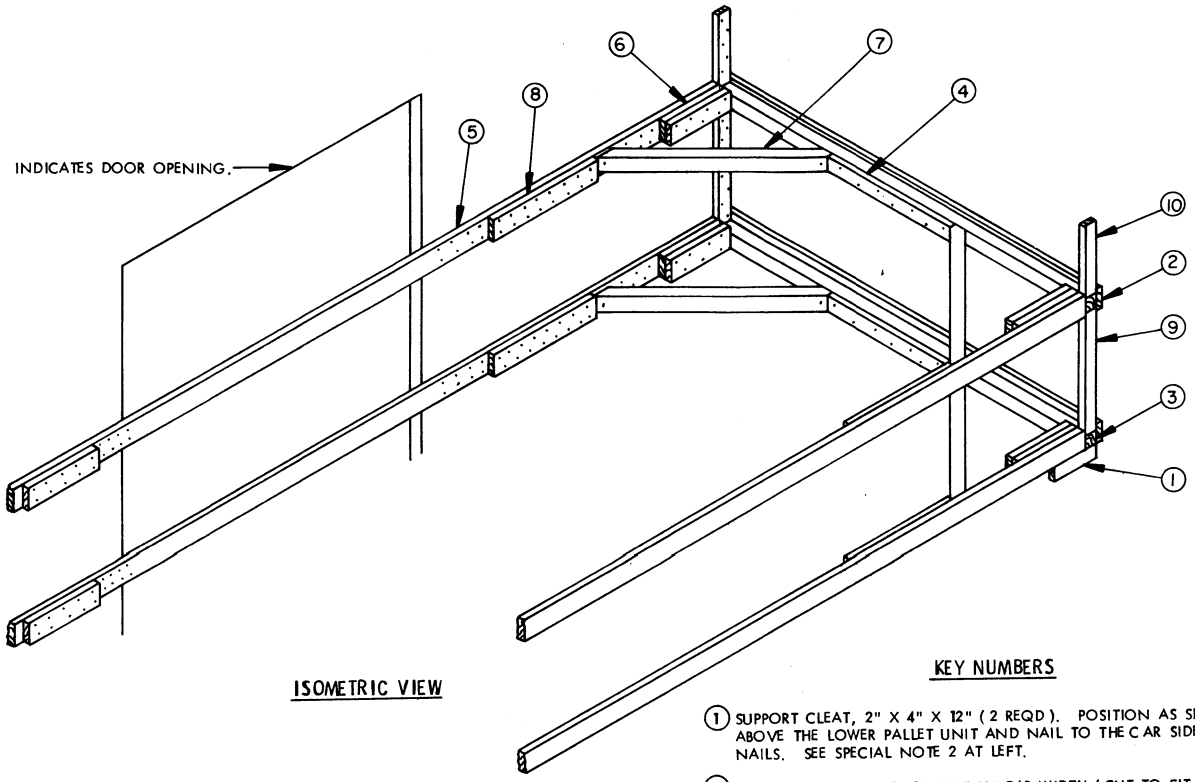
LOAD BEARING GATE E

ONLY FOR USE WITH LENGTHWISE UNITS.



DIAGONAL BRACE

SEE SPECIAL NOTE 2 ABOVE.



ISOMETRIC VIEW

KEY NUMBERS

(1) SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION AS SHOWN, 1" ABOVE THE LOWER PALLET UNIT AND NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE SPECIAL NOTE 2 AT LEFT.

(2) LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED (3), W/1-12d NAIL EVERY 6". SEE GENERAL NOTE "M" AND "N" ON PAGE 2.

(3) CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (2 REQD).

(4) CENTER CLEAT, 2" X 4" X 36" (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED (3), W/7-16d NAILS. SEE SPECIAL NOTE 3 BELOW.

(5) HORIZONTAL WALL CLEAT, 2" X 6" BY CUT TO FIT (4 REQD). A CLEAT WILL BE OF A LENGTH AS NECESSARY TO EXTEND ACROSS AND FAR ENOUGH PAST THE DOOR OPENINGS TO CONTACT PIECE MARKED (3) OF THE K-BRACE IN THE OPPOSITE END OF THE CAR. NAIL TO THE CAR SIDEWALL W/40-12d NAILS.

(6) POCKET CLEAT, 2" X 6" X 18" (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (5), W/7-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

(7) DIAGONAL BRACE, 4" X 4" X 50-1/4" (4 REQD). SEE THE DETAIL BELOW FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED (3), AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (5), W/1-60d NAIL AT EACH END.

(8) BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (5), W/14-16d NAILS.

(9) SPACER CLEAT, 2" X 4" X 32-1/2" FOR 6-LAYER UNITS, 31-1/2" FOR 5-LAYER UNITS (2 REQD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS. REFER TO THE DIMENSIONS SPECIFIED BY KEY NUMBER (10) ON PAGE 51 FOR A LENGTHWISE LOAD.

(10) HOLD DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

SPECIAL NOTES:

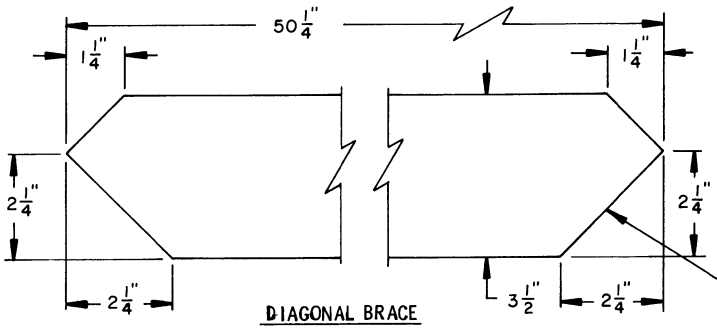
1. THE TYPE "C" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 20,000 POUNDS. THIS WILL BE NOT MORE THAN TEN (10) 6-LAYER UNITS OR TWELVE (12) 5-LAYER UNITS. IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO THE DETAIL ON PAGE 53 FOR THE APPLICABLY SIZED K-BRACE TO USE AND THE DESIGN SPECIFICATIONS FOR THE BRACE. IF THE PARTIAL TIER TO BE BRACED WEIGHS BETWEEN 8,000 POUNDS AND 14,000 POUNDS, THE TYPE "B" K-BRACE DEPICTED ON PAGE 51 MAY BE USED. IF THE PARTIAL TIER TO BE BRACED WEIGHS 8,000 POUNDS OR LESS, THE TYPE "A" K-BRACE DEPICTED ON PAGE 50 WILL BE ADEQUATE.

2. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED (1), (2), (3), (6), (9), AND (10) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED (7) TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED (5) MUST BE DOUBLED. LAMINATE THE SECOND PIECE TO THE FIRST W/40-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED (5) IS DOUBLED.

3. THE CENTER CLEAT, SHOWN AS PIECE MARKED (4), WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2", AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.

4. CAUTION: A TYPE "C" K-BRACE MUST BE USED IN BOTH ENDS OF THE CAR; THE BRACE IS NOT DESIGNED FOR USE IN ONLY ONE END. NOTE THAT EXCEPT FOR PIECES MARKED (5), THE QUANTITIES SPECIFIED ARE APPLICABLE ONLY FOR THE BRACE IN ONE END.

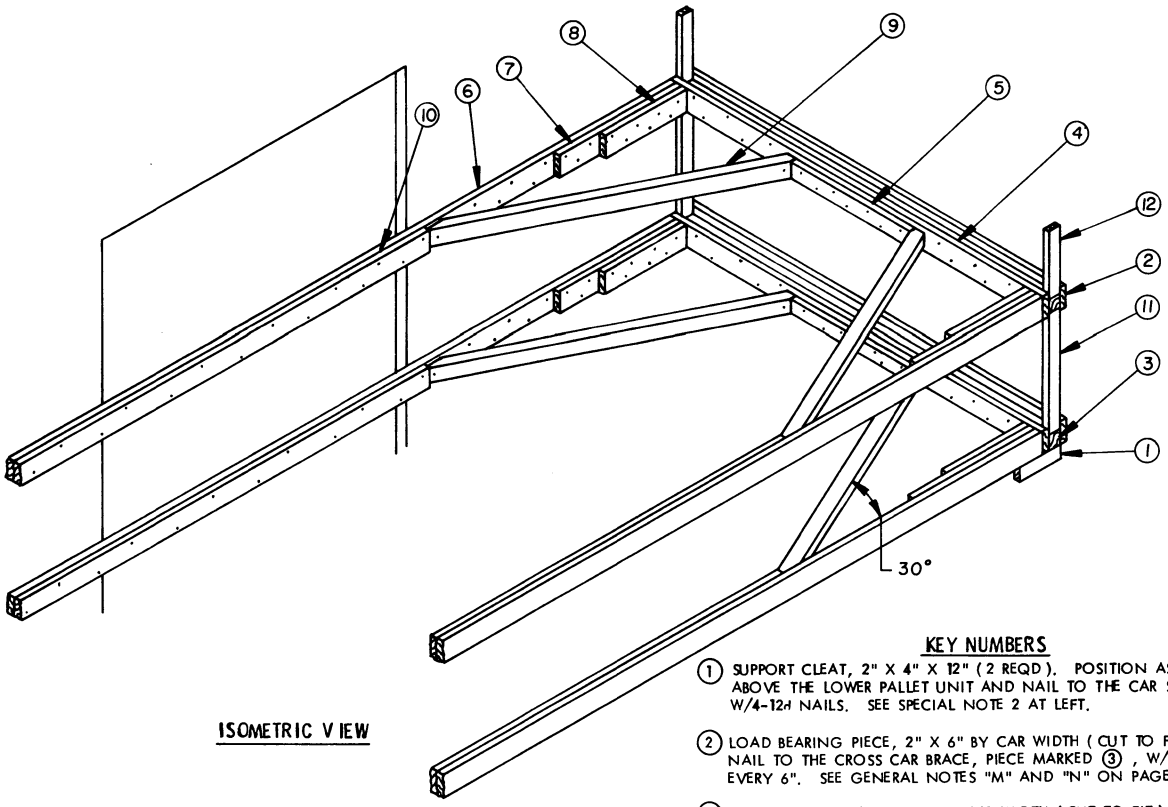
5. FOR CONTAINERS-LENGTHWISE LOADS, A LOAD BEARING GATE MUST BE USED. SEE THE "LOAD BEARING GATE E" DETAIL AND THE TYPICAL INSTALLATION ON PAGE 51.



DIAGONAL BRACE

SEE SPECIAL NOTE 2 ABOVE.

TYPE "C" K-BRACE



ISOMETRIC VIEW

KEY NUMBERS

(1) SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). POSITION AS SHOWN, 1" ABOVE THE LOWER PALLET UNIT AND NAIL TO THE CAR SIDEWALL W/4-12d NAILS. SEE SPECIAL NOTE 2 AT LEFT.

(2) LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED (3) , W/1-12d NAIL EVERY 6". SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(3) CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (2 REQD).

(4) HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (2 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED (3) , W/1-12d NAIL EVERY 6".

(5) CENTER CLEAT, 2" X 4" X 36" (2 REQD). NAIL TO THE HORIZONTAL PIECE, PIECE MARKED (4) , W/7-16d NAILS. SEE SPECIAL NOTE 3 AT LEFT.

(6) HORIZONTAL WALL CLEAT, 2" X 6" BY CUT TO FIT (4 REQD). A CLEAT WILL BE OF A LENGTH AS NECESSARY TO EXTEND ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO CONTACT PIECE MARKED (4) OF THE K-BRACE IN THE OPPOSITE END OF THE CAR. NAIL TO THE CAR SIDEWALL W/40-12d NAILS.

(7) POCKET CLEAT, 2" X 6" X 36" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (6), W/10-16d NAILS.

(8) POCKET CLEAT, 2" X 6" X 24" (4 REQD). NAIL TO THE POCKET CLEAT, PIECE MARKED (7) , W/7-16d NAILS.

(9) DIAGONAL BRACE, 4" X 4" X 71" (4 REQD). SEE THE DETAIL BELOW FOR BEVEL CUTS REQUIRED. TOENAIL TO THE HORIZONTAL PIECE, PIECE MARKED (4), AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (6) , W/1-60d NAIL AT EACH END.

(10) BACK-UP CLEAT, 2" X 6" BY CUT TO FIT (4 REQD). A CLEAT WILL BE OF A LENGTH AS NECESSARY TO EXTEND TO CONTACT THE DIAGONAL BRACE, PIECE MARKED (9), IN THE OPPOSITE END OF THE CAR. NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED (6), W/18-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING, IF APPLICABLE.

(11) SPACER CLEAT, 2" X 4" X 32-1/2" FOR 6-LAYER UNITS, 31-1/2" FOR 5-LAYER UNITS (2 REQD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS. REFER TO THE DIMENSIONS ON PAGE 51 FOR A LENGTHWISE LOAD.

(12) HOLD DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.

SPECIAL NOTES:

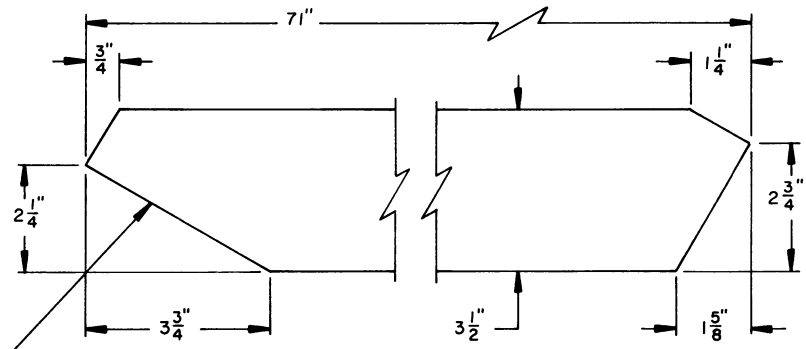
1. THE TYPE "D" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 25,000 POUNDS. THIS WILL BE NOT MORE THAN SIXTEEN (16) 5-LAYER UNITS OR TWELVE (12) 6-LAYER UNITS. IF THE PARTIAL TIER TO BE BRACED WEIGHS BETWEEN 14,000 POUNDS AND 20,000 POUNDS, THE TYPE "C" K-BRACE DEPICTED ON PAGE 52 MAY BE USED. FOR A PARTIAL TIER OF 8,000 POUNDS TO 14,000 POUNDS, THE TYPE "B" K-BRACE DEPICTED ON PAGE 51 MAY BE USED. IF THE PARTIAL TIER TO BE BRACED WEIGHS 8,000 POUNDS OR LESS, THE TYPE "A" K-BRACE DEPICTED ON PAGE 50 WILL BE ADEQUATE.

2. CAUTION: SOME CARS ARE NOT SUITED FOR APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE OF THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED (1) , (2) , (3) , (4) , (7) , (8) , (11) , AND (12) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED (9) TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED (6) MUST BE DOUBLED. LAMINATE THE SECOND PIECE TO THE FIRST W/40-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 70-1/4" LONG IN LIEU OF 71" LONG WHEN PIECE MARKED (6) IS DOUBLED.

3. THE CENTER CLEAT, SHOWN AS PIECE MARKED (5) , WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2", AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.

4. CAUTION: A TYPE "D" K-BRACE MUST BE USED IN BOTH ENDS OF THE CAR; THE BRACE IS NOT DESIGNED FOR USE IN ONLY ONE END. NOTE THAT EXCEPT FOR PIECES MARKED (6) AND (10) , THE QUANTITIES SPECIFIED ARE APPLICABLE ONLY FOR THE BRACE IN ONE END.

5. FOR CONTAINERS-LENGTHWISE LOADS, A LOAD BEARING GATE MUST BE USED. SEE THE "LOAD BEARING GATE E" DETAIL AND THE TYPICAL INSTALLATION ON PAGE 51.

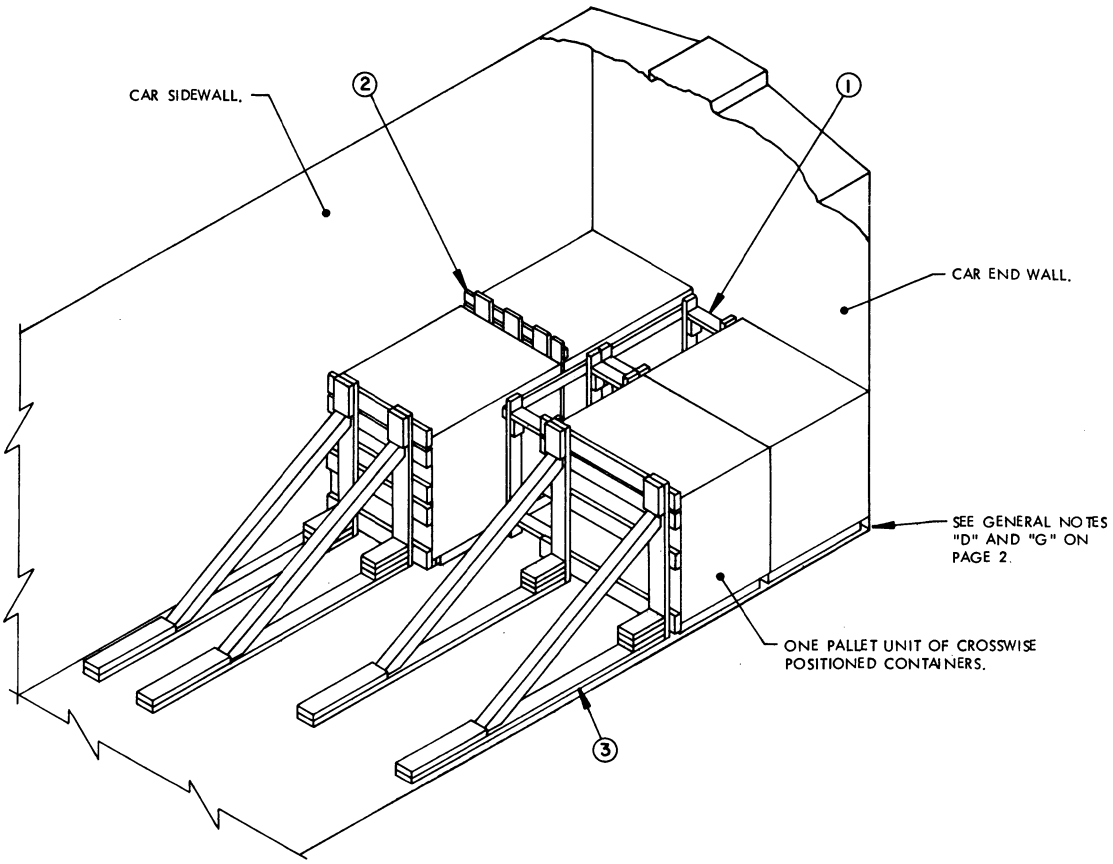


THIS BEARING SURFACE MUST BE POSITIONED SO AS TO BE IN CONTACT WITH A HORIZONTAL WALL CLEAT, PIECE MARKED (6) .

DIAGONAL BRACE

SEE SPECIAL NOTE 2 ABOVE

TYPE "D" K-BRACE



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR IS SHOWN. CARS OF OTHER WIDTHS AND CARS HAVING METAL LININGS CAN BE USED.
2. THE BASIC HEIGHT PALLET UNIT IS DEPICTED USING KNEE BRACE ASSEMBLY "A". FOR THE DECREASED HEIGHT PALLET UNIT, USE KNEE BRACE ASSEMBLY "B"
3. THE COMBINATION LOADING PATTERN IS SHOWN ONLY TO DEPICT LCL BLOCKING AGAINST BOTH SIDES OF THE UNIT, HOWEVER, THE PREFERRED LOADING PATTERN WOULD DEPICT TWO ROWS OF CROSSWISE POSITIONED PALLET UNITS OR TWO ROWS OF LENGTHWISE POSITIONED PALLET UNITS. IF A CROSSWISE PATTERN IS USED, THE HORIZONTAL PIECES WILL BE UNIT WIDTH, AND ANTI-SWAY BRACE "B" AND TOP-OF-LOAD ANTI-SWAY BRACE "B" WILL BE REQUIRED IN LIEU OF CRIB FILL. IF A LENGTHWISE PATTERN IS USED, ANTI-SWAY BRACE "A" AND TOP-OF-LOAD ANTI-SWAY BRACE "A" WILL BE USED IN LIEU OF THE CRIB FILL.
4. THE LOAD SHOWN DEPICTING THE KNEE BRACE METHOD OF PARTIAL-LAYER BRACING IS TYPICAL. THE QUANTITY MAY BE ADJUSTED TO SUIT, PROVIDED THE LIMITATIONS OF THE KNEE BRACE AS SET FORTH IN SPECIAL NOTE 5 ARE NOT EXCEEDED. IF AN ODD NUMBER OF UNITS ARE TO BE SHIPPED, THE ODD UNIT IN ONE ROW MUST BE STRAPPED TO THE UNIT BEHIND IT, WHEN LOADED IN TWO LIKE-POSITIONED ROWS.
5. A KNEE BRACE ASSEMBLY WILL BE USED FOR EACH ROW OF PALLET UNITS. ONE (1) KNEE BRACE ASSEMBLY IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF NOT MORE THAN 8,500 POUNDS.
6. HOLD-DOWN CLEATS (GATE HOLD-DOWN) MUST BE APPLIED TO THE BOTTOM HORIZONTAL PIECE OF A KNEE BRACE ASSEMBLY. THE PROPER MATERIAL SIZE AND PLACEMENT WILL BE AS DEPICTED BY THE CENTER GATE DETAILS FOR ONE ROW SPECIFIED ELSEWHERE. FOR HOLD-DOWN PIECES TO BE APPLIED TO THE KNEE BRACE ASSEMBLY WHICH IS USED AGAINST THE LENGTHWISE ROW, REFER TO THE "CENTER GATE A" DETAIL ON PAGE 16. FOR HOLD-DOWN PIECES TO BE APPLIED TO THE KNEE BRACE ASSEMBLY WHICH IS USED AGAINST THE CROSSWISE ROW, REFER TO THE "CENTER GATE B" DETAIL ON PAGE 17.

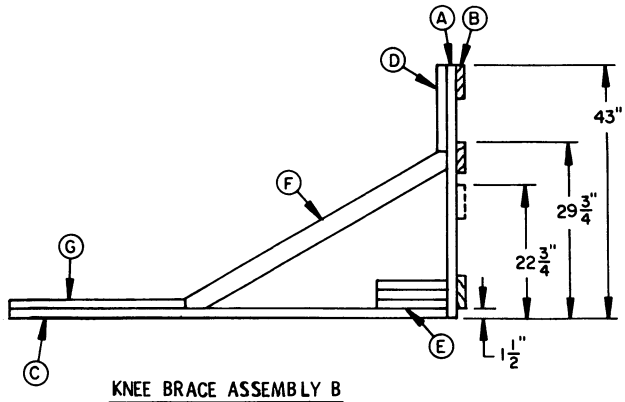
KEY NUMBERS

(1) CRIB FILL (2 REQD). SEE THE APPLICABLE CRIB FILL DETAIL ON PAGE 16 OR 32. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

(2) SEPARATOR GATE (1 REQD). SEE THE APPLICABLE SEPARATOR GATE DETAIL ON PAGE 17 OR 33. POSITION WITH THE HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNIT.

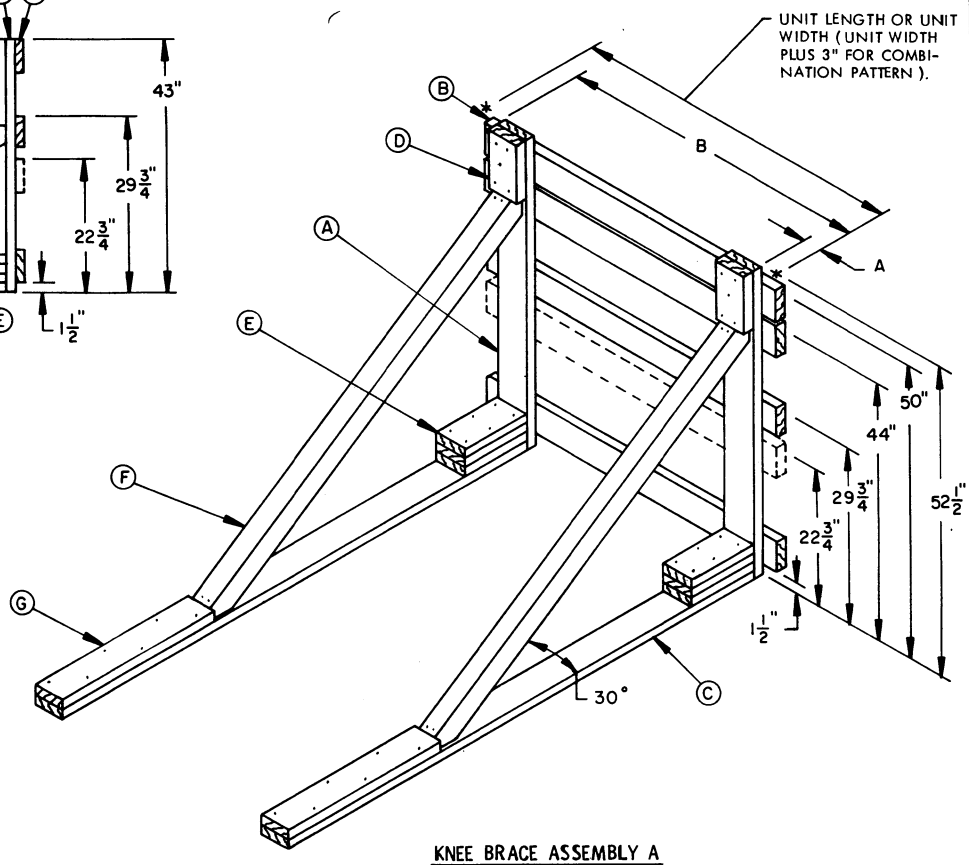
(3) KNEE BRACE ASSEMBLY (2 REQD). SEE THE "KNEE BRACE ASSEMBLY A" DETAIL ON PAGE 55 FOR CONSTRUCTION SPECIFICATIONS AND NAILING REQUIREMENTS FOR THE BASIC HEIGHT PALLET UNITS. SEE THE "KNEE BRACE ASSEMBLY B" DETAIL FOR THE DECREASED HEIGHT UNITS.

TYPICAL LCL LOAD USING KNEE BRACE METHOD OF PARTIAL-LAYER BRACING



KNEE BRACE ASSEMBLY B

(FOR DECREASED HEIGHT UNIT)



KNEE BRACE ASSEMBLY A

(FOR BASIC HEIGHT UNIT)

VERTICAL PIECE PLACEMENT		
UNIT	DIM A	DIM B
CROSSWISE	2"	42"
LENGTHWISE	5-3/4"	27-1/4"

KEY LETTERS

(A) VERTICAL PIECE, 2" X 6" X 52-1/2" FOR THE BASIC HEIGHT UNIT, 43" FOR THE DECREASED HEIGHT UNIT (2 REQD). SEE THE CHART AT LEFT FOR PLACEMENT DIMENSIONS.

(B) HORIZONTAL PIECE, 2" X 6" BY PALLET UNIT LENGTH, OR PALLET UNIT WIDTH PLUS 3" AS APPLICABLE. FOR BASIC HEIGHT UNITS - 4 REQD FOR CROSSWISE POSITIONED CONTAINERS, 5 REQD FOR LENGTHWISE POSITIONED CONTAINERS, AS SHOWN BY THE PHANTOM LINES. FOR DECREASED HEIGHT UNITS - 3 REQD FOR CROSSWISE POSITIONED CONTAINERS, 4 REQD FOR LENGTHWISE POSITIONED CONTAINERS AS SHOWN BY THE PHANTOM LINES.

(C) FLOOR CLEAT, 2" X 6" BY LENGTH TO SUIT (.87 OR 7/8 TIMES LENGTH OF PIECE MARKED (F) , PLUS 30") (2 REQD). ALIGN WITH A VERTICAL PIECE AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "S" ON PAGE 2.

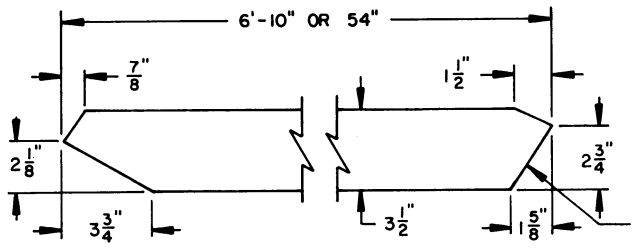
(D) HOLD-DOWN CLEAT, 2" X 6" X 10" FOR BASIC HEIGHT UNITS, 2" X 6" X 14-1/2" FOR DECREASED HEIGHT UNITS (2 REQD). NAIL TO A VERTICAL PIECE W/5-10d NAILS.

(E) POCKET CLEAT, 2" X 6" X 12" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE FLOOR CLEAT, PIECE MARKED (C) , W/4-16d NAILS. NAIL THE SECOND AND THIRD PIECES IN A LIKE MANNER AND TOENAIL THE THIRD PIECE TO THE VERTICAL PIECE, PIECE MARKED (A) , W/2-16d NAILS.

(F) BRACE, 4" X 4" X 6'-10" FOR BASIC HEIGHT UNITS, 4" X 4" X 54" FOR DECREASED HEIGHT UNITS (2 REQD). SEE THE DETAIL AT LEFT FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECES AND TO THE FLOOR CLEAT, PIECES MARKED (A) AND (C) , W/2-16d NAILS AT EACH END.

(G) BACK-UP CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO THE FLOOR CLEAT, PIECE MARKED (C) , W/6-40d NAILS.

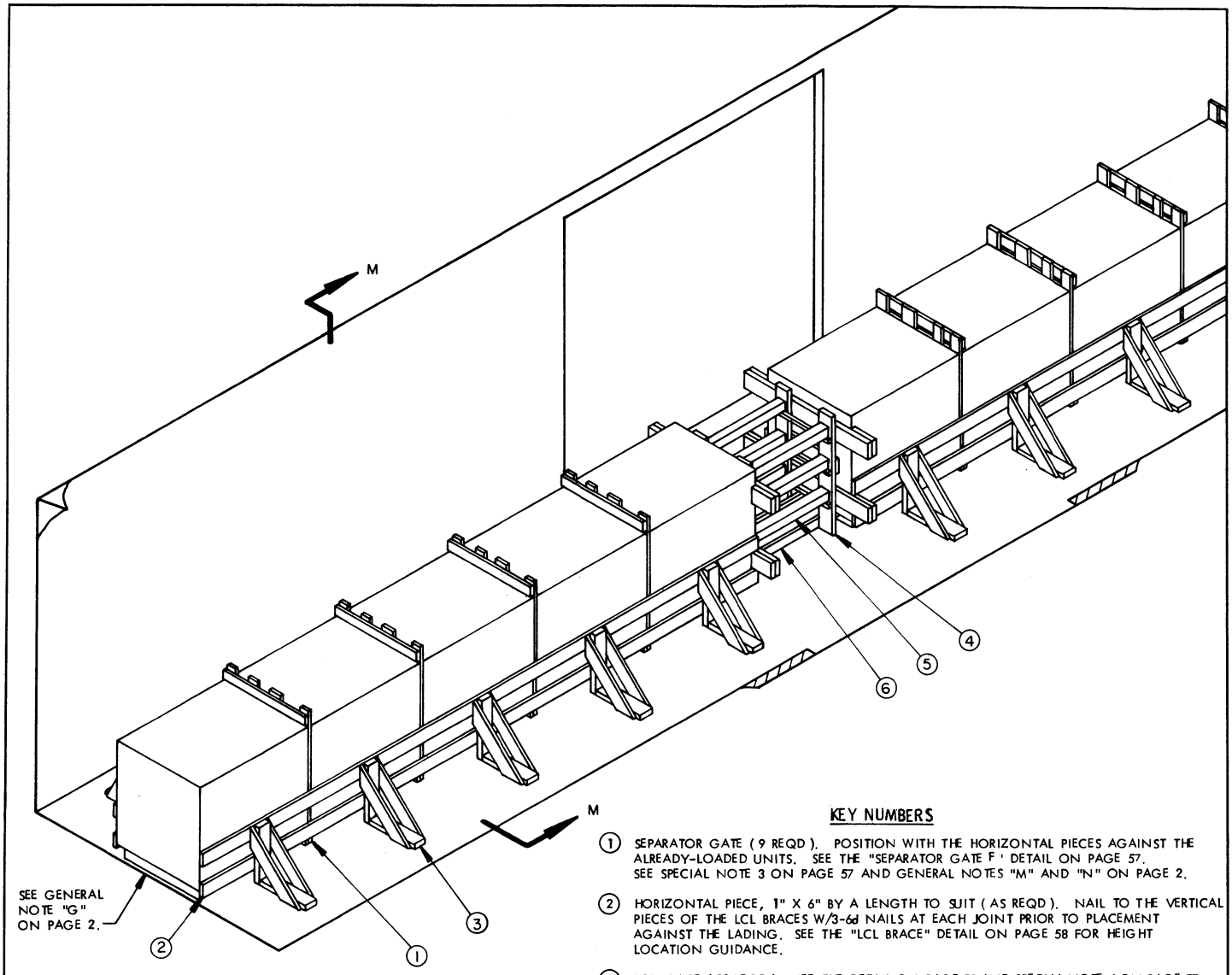
(H) HOLD-DOWN CLEAT (NOT SHOWN). SEE SPECIAL NOTE 6 ON PAGE 54.



BRACE

4" X 4" MATERIAL

TYPICAL LCL LOAD USING KNEE BRACE, METHOD OF PARTIAL-LAYER BRACING



ISOMETRIC VIEW

KEY NUMBERS

(1) SEPARATOR GATE (9 REQD). POSITION WITH THE HORIZONTAL PIECES AGAINST THE ALREADY-LOADED UNITS. SEE THE "SEPARATOR GATE F ' DETAIL ON PAGE 57. SEE SPECIAL NOTE 3 ON PAGE 57 AND GENERAL NOTES "M" AND "N" ON PAGE 2.

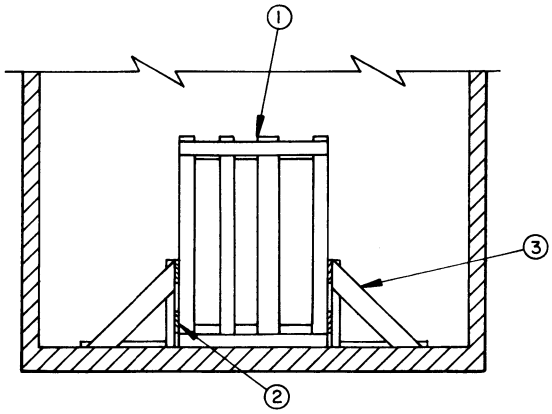
(2) HORIZONTAL PIECE, 1" X 6" BY A LENGTH TO SUIT (AS REQD). NAIL TO THE VERTICAL PIECES OF THE LCL BRACES W/3-6d NAILS AT EACH JOINT PRIOR TO PLACEMENT AGAINST THE LADING. SEE THE "LCL BRACE" DETAIL ON PAGE 58 FOR HEIGHT LOCATION GUIDANCE.

(3) LCL BRACE (22 REQD). SEE THE DETAIL ON PAGE 58 AND SPECIAL NOTE 4 ON PAGE 57. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTE "S" ON PAGE 2. AND 3.

(4) CENTER GATE (2 REQD). SEE THE "CENTER GATE J" OR THE "CENTER GATE K" DETAIL ON PAGE 57 FOR LENGTHWISE OR CROSSWISE UNITS, RESPECTIVELY.

(5) STRUT, 4" X 4" BY CUT TO FIT (6 REQD FOR LENGTHWISE, 9 REQD FOR CROSSWISE). TOENAIL TO PIECES MARKED (4) W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "U" AND "W" ON PAGE 2 AND 3.

(6) GATE HOLD-DOWN, 2" X 3" BY LENGTH OF CENTER VOID PLUS 24" (2 REQD). NAIL TO THE VERTICAL PIECES OF THE CENTER GATES W/2-10d NAILS AT EACH JOINT. SEE THE "CENTER GATE J" DETAIL ON PAGE 57 FOR LOCATION GUIDANCE. NOTE THAT FOR THE CROSSWISE UNITS, THE GATE HOLD DOWN PIECES WILL BE POSITIONED ON THE OUTWARD SIDE OF THE OUTER CENTER GATE VERTICAL PIECES. SEE SPECIAL NOTE 6 ON PAGE 57.



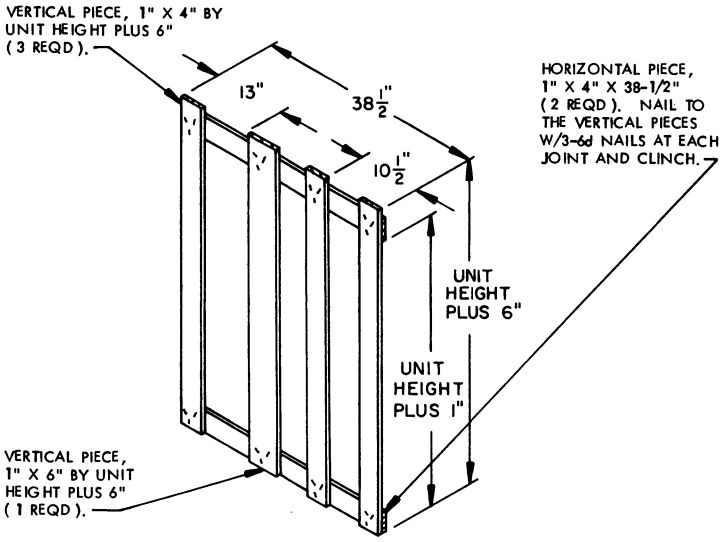
SECTION M-M

CENTER GATE J			CENTER GATE K		
DIM	5-HIGH UNIT	6-HIGH UNIT	DIM	5-HIGH UNIT	6-HIGH UNIT
A	42"	48"	H	48"	48"
B	57-1/2"	57-1/2"	J	68-3/4"	68-3/4"
C	14-3/4"	14-3/4"	K	11"	11"
D	36-1/4"	36-1/4"	L	28-1/2"	28-1/2"
E	15-1/2"	15-1/2"	M	51-1/2"	51-1/2"
F	26-1/4"	29-3/4"	N	9"	9"
G	37"	44"	O	29-3/4"	29-3/4"
			P	43"	44"

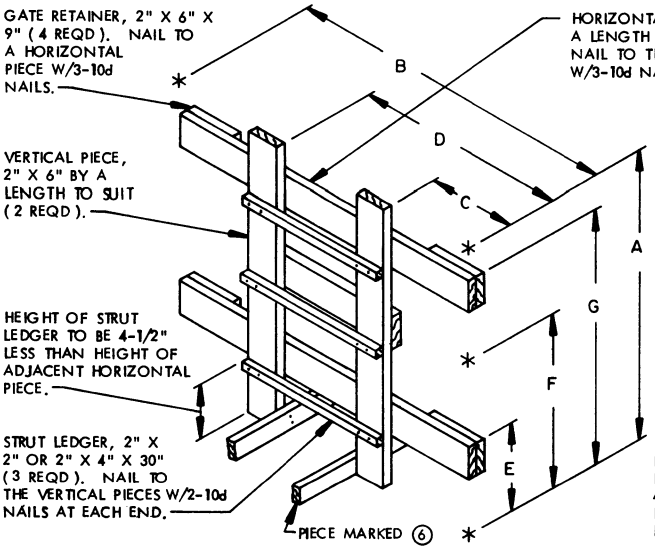
TYPICAL LCL LOAD USING 1-WIDE LOADING METHOD

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED, AND SHORTER BUT NOT LONGER CARS WILL BE USED.
2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE TYPICAL 1-WIDE LOAD. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR DECREASED HEIGHT PALLET UNITS.
3. A 1-WIDE LENGTHWISE LOAD IS SHOWN AS TYPICAL. A CHART IS GIVEN TO SPECIFY THE PROPER DIMENSIONS FOR THE LENGTH AND POSITIONING OF PIECES FOR THE CENTER GATES. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR 1-WIDE CROSSWISE LOADS FOR WHICH THERE IS ALSO A CHART WHICH SPECIFIES LENGTHS AND POSITIONING OF PIECES FOR THE CENTER GATES. NOTE THAT THE SEPARATOR GATES, PIECES MARKED ① , ARE NOT REQUIRED, AND THE QUANTITY OF LCL BRACES, PIECES MARKED ③ , IS NOT CORRECT FOR CROSSWISE LOADS.
4. ONE (1) LCL BRACE WILL BE USED AT EACH SIDE OF EACH PALLET UNIT. FOR CROSSWISE PALLET UNITS, THE BRACES WILL BE CENTERED ON THE LENGTH OF THE UNIT. FOR THE LENGTHWISE UNITS, THE BRACES WILL BE LOCATED NEAR THE CENTER OF THE UNIT WIDTH.
5. THE BILL OF MATERIAL AND LOAD AS SHOWN ARE BASED ON THE DEPICTED UNIT AND THEREFORE ARE ONLY TYPICAL.
6. IF DESIRED, GATE HOLD DOWN PIECES WITH THE ASSOCIATED FILL PIECES, AS SHOWN ELSEWHERE ON THE APPLICABLE CENTER GATE FOR A SINGLE ROW, MAY BE USED IN LIEU OF PIECES MARKED ⑥ .

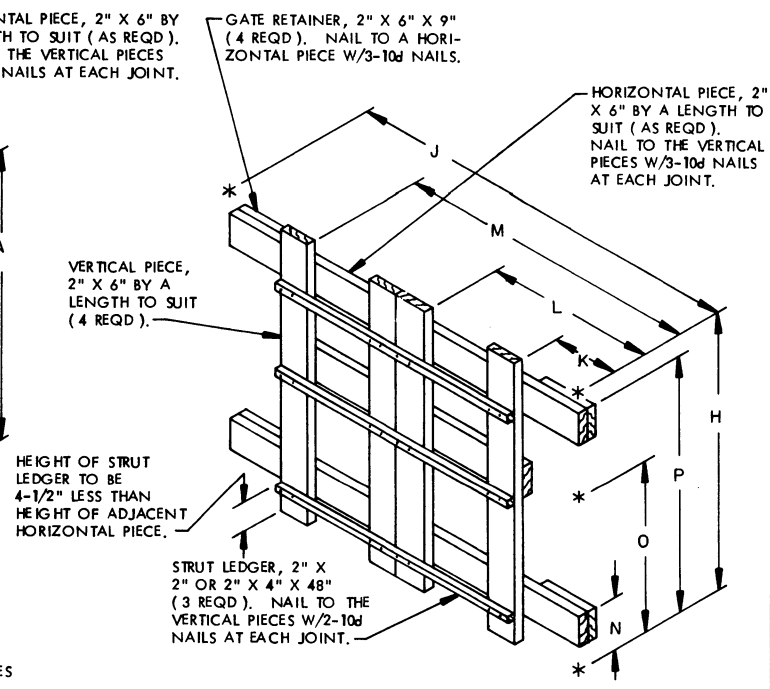


SEPARATOR GATE F



CENTER GATE J

THIS GATE IS FOR USE WITH LENGTHWISE UNITS. REFER TO THE "CENTER GATE J" CHART ON PAGE 56 FOR FIGURES REPRESENTED BY LETTERS ON THE ABOVE DETAIL.



CENTER GATE K

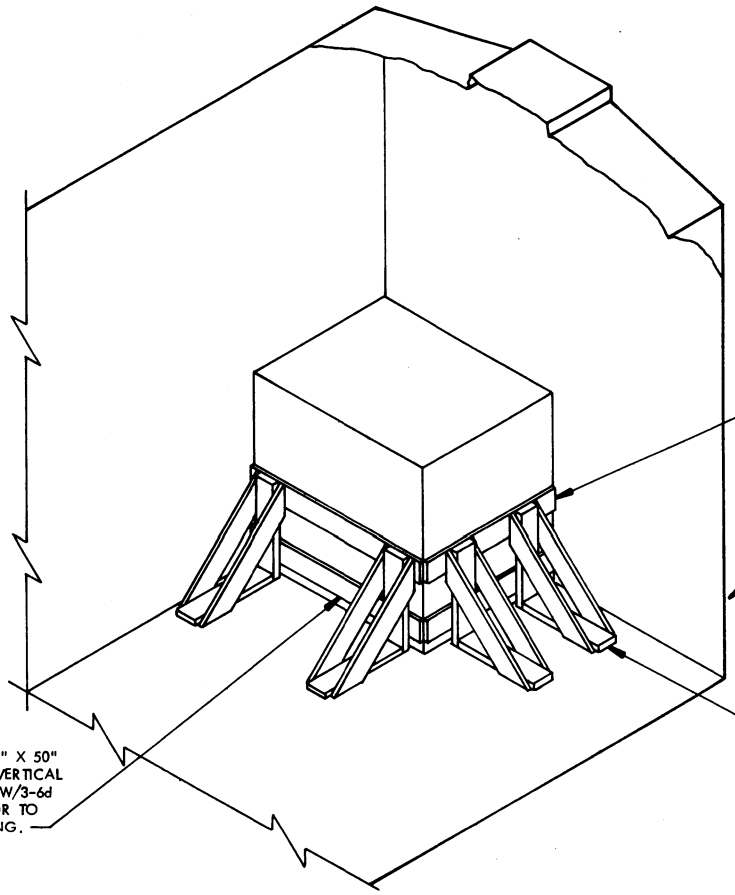
THIS GATE IS FOR USE WITH CROSSWISE UNITS. REFER THE CHART ON THE BOTTOM OF PAGE 56 FOR FIGURES REPRESENTED BY LETTERS ON THE DETAIL ABOVE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	140	47
1" X 6"	227	114
2" X 2"	14	5
2" X 3"	12	6
2" X 6"	254	254
4" X 4"	22	30
NAILS	NO. REQD	POUNDS
6d (2")	294	1-3/4
8d (2-1/2")	264	3
10d (3")	66	1-1/4
16d (3-1/2")	178	4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	11	20,229 LBS
DUNNAGE		922 LBS
TOTAL WEIGHT		21,151 LBS (APPROX)

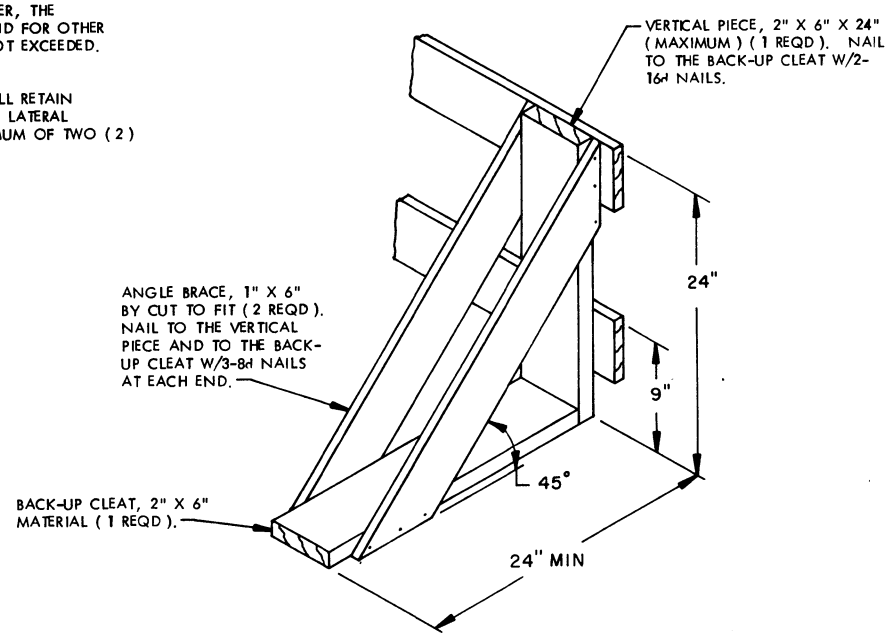
TYPICAL LCL LOAD USING 1-WIDE LOADING METHOD



ISOMETRIC VIEW

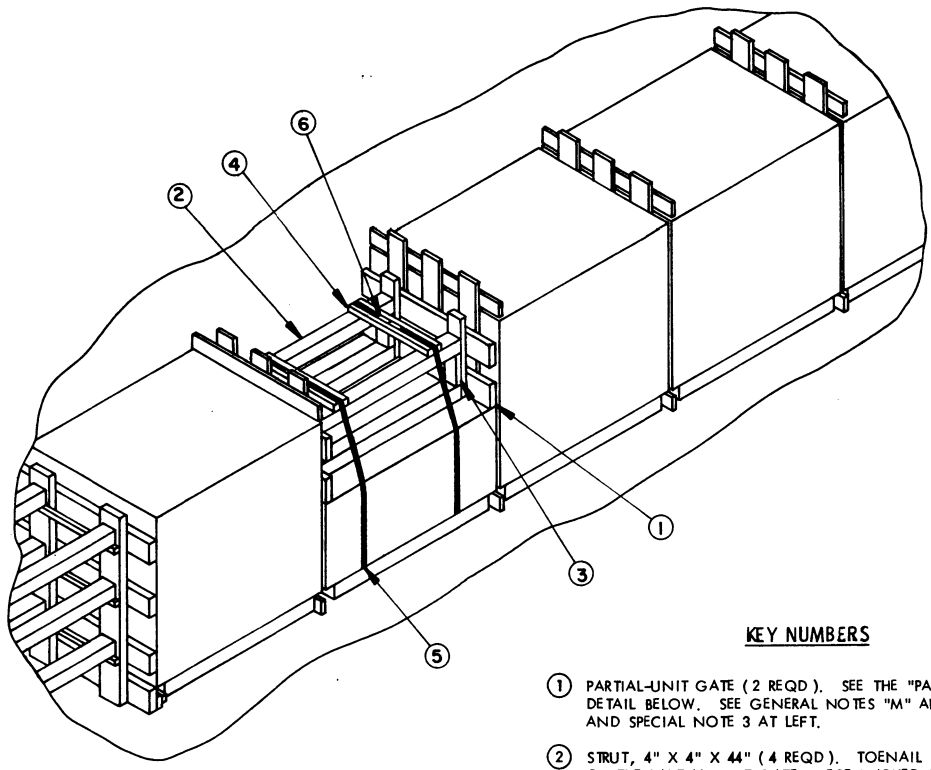
SPECIAL NOTES:

1. AN 8'-6" WIDE WOOD-LINED CONVENTIONAL TYPE BOX CAR HAVING A WOOD OR NAILABLE METAL FLOOR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTES "S" AND "D" ON PAGE 2.
2. THE BASIC HEIGHT UNIT IS SHOWN IN THE TYPICAL LCL LOAD. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.
3. THE LOAD SHOWN DEPICTING THE LCL BRACE METHOD OF PARTIAL-LAYER BRACING IS TYPICAL. A CROSSWISE UNIT IS SHOWN, HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR LENGTHWISE UNITS AND FOR OTHER QUANTITIES AS LONG AS THE CAPACITY OF THE BRACES IS NOT EXCEEDED. SEE SPECIAL NOTE 4.
4. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL SUPPORT 8,000 POUNDS OF LADING. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LONGITUDINAL BRACING.



LCL BRACE

TYPICAL LCL LOAD USING LCL BRACE METHOD OF PARTIAL-LAYER BRACING



POSITIONING OF PARTIAL UNIT OF LENGTHWISE POSITIONED CONTAINERS WITHIN A LAYER

SPECIAL NOTES:

1. SHIPMENTS OF PROPELLING CHARGES 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 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF A PARTIAL UNIT WITHIN A LENGTHWISE LOAD.

2. THE BASIC HEIGHT PALLET UNIT IS SHOWN IN THE SHIPMENT OF A PARTIAL UNIT. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT.

3. A LESS-THAN-FULL HEIGHT PALLET UNIT OF LENGTHWISE-POSITIONED PROPELLING CHARGES WHICH IS TO BE SHIPPED WITHIN A LAYER OF A LOAD HAS NO LIMITATIONS AS TO THE NUMBER OF LAYERS OF CONTAINERS ON THE PARTIAL UNIT. THE DEPICTED PROCEDURES SHOW THE BRACING OF A 3-LAYER UNIT WITHIN A 6-LAYER LOAD. THE PRINCIPLES CAN BE ADAPTED TO OTHER SIZE PARTIAL UNITS.

4. A PARTIAL UNIT MUST CONSIST OF FULL LAYERS OF FIVE (5) CONTAINERS, OR AN APPROVED FILLER ASSEMBLY, AS DETAILED BY DRAWING 19-48-4042A/17-20PM1001, MUST BE INSTALLED IN THE PLACE OF OMITTED CONTAINERS.

5. THE FILLERS AS REFERENCED IN SPECIAL NOTE 4 AND THE DUNNAGE DEPICTED ABOVE FOR THE SHIPMENT OF THE PARTIAL UNIT MAY BE REMOVED WHEN A SHIPMENT REACHES DESTINATION. OR IF DESIRED, THE FILLERS MAY REMAIN WITH THE UNIT DURING STORAGE (IF APPLICABLE) FOR POSSIBLE USE IN A FUTURE SHIPMENT.

6. THE "POSITIONING OF PARTIAL LENGTHWISE UNIT WITHIN A LAYER" VIEW ABOVE DEPICTS A PORTION OF A CONVENTIONAL BOX CAR LOAD, HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

7. THF PARTIAL UNIT PROCEDURES SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE (1) LOAD UNIT BETWEEN THE PARTIAL UNIT AND A CENTER GATE.

KEY NUMBERS

(1) PARTIAL-UNIT GATE (2 REQD). SEE THE "PARTIAL-UNIT GATE A" DETAIL BELOW. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 AT LEFT.

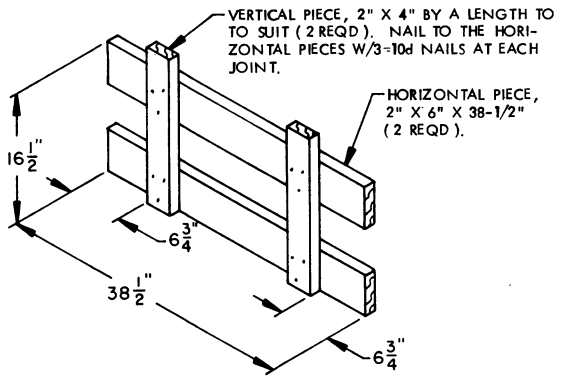
(2) STRUT, 4" X 4" X 44" (4 REQD). TOENAIL TO THE VERTICAL PIECES OF THE PARTIAL-UNIT GATE, PIECE MARKED (1) ,W/2-16d NAILS AT EACH END.

(3) STRUT SUPPORT PIECE, 2" X 4" X 8-1/2" (4 REQD). NAIL TO A VERTICAL PIECE OF THE PARTIAL-UNIT GATE W/3-10d NAILS.

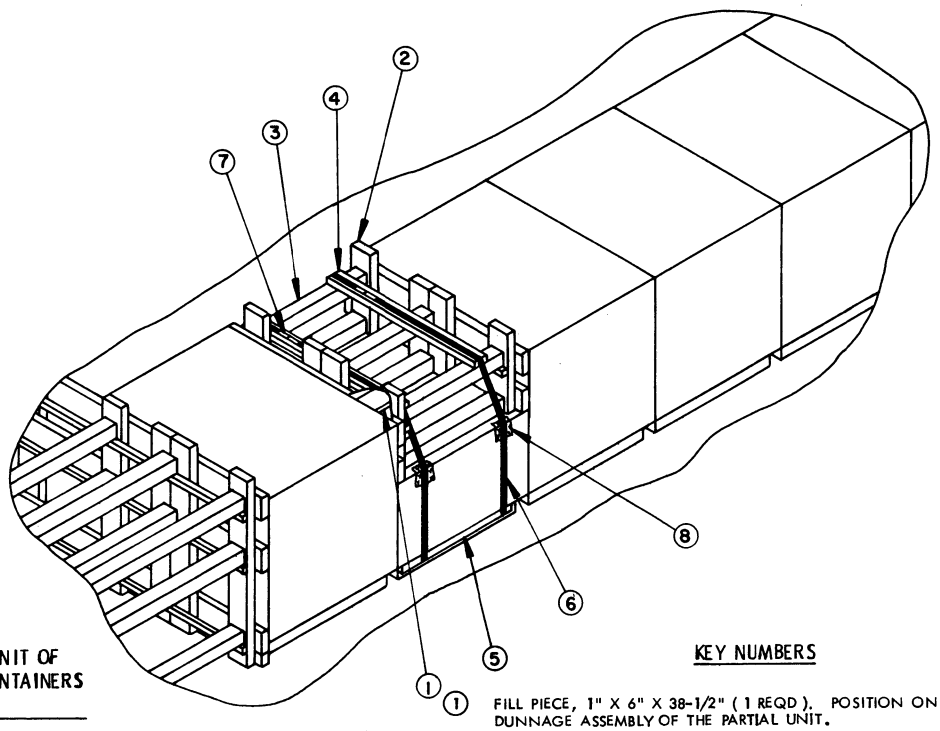
(4) STRAPPING BOARD, 2" X 4" X 25" (2 REQD). NAIL TO THE STRUTS, PIECES MARKED (2) , W/3-10d NAILS AT EACH END.

(5) UNITIZING STRAP, 1-1/4" X .031" OR .035" BY A LENGTH TO SUIT STEEL STRAPPING (2 REQD). PRE-POSITION THRU THE FORKLIFT OPENINGS OF THE PALLET.

(6) SEAL FOR 1-1/4" STEEL STRAPPING (4 REQD,2 PER JOINT). SEE GENERAL NOTE "O" ON PAGE 2.



PARTIAL UNIT GATE A



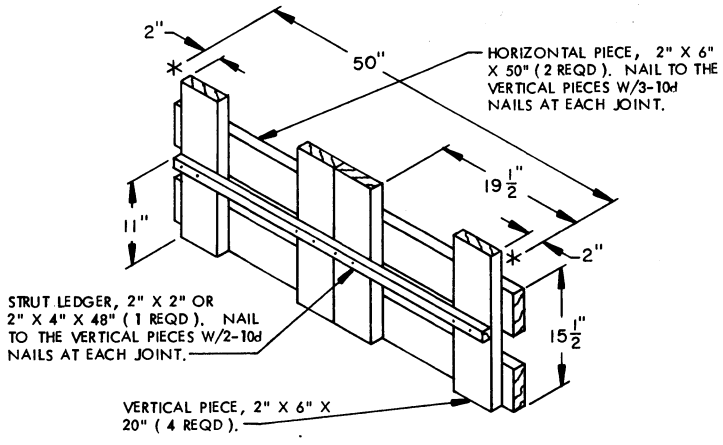
POSITIONING OF PARTIAL UNIT OF CROSSWISE POSITIONED CONTAINERS WITHIN A LAYER

SPECIAL NOTES:

1. SHIPMENTS OF PROPELLING CHARGES 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 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF A PARTIAL UNIT WITHIN A CROSSWISE LOAD.
2. THE DECREASED HEIGHT PALLET UNIT IS SHOWN IN THE SHIPMENT OF A PARTIAL UNIT. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR BASIC HEIGHT PALLET UNITS.
3. A LESS-THAN-FULL HEIGHT PALLET UNIT OF CROSSWISE-POSITIONED PROPELLING CHARGES WHICH IS TO BE SHIPPED WITHIN A LAYER OF A LOAD HAS NO LIMITATIONS AS TO THE NUMBER OF LAYERS ON THE PARTIAL UNIT. THE DEPICTED PROCEDURES SHOW THE BRACING OF A 3-LAYER UNIT WITHIN A 5-LAYER LOAD. THE PRINCIPLES CAN BE ADAPTED TO SUIT OTHER SIZE PARTIAL UNITS.
4. A PARTIAL UNIT MUST CONSIST OF FULL LAYERS OF FIVE (5) CONTAINERS, OR AN APPROVED FILLER ASSEMBLY, AS DETAILED BY DRAWING 19-48-4042A/17-20PM1001, MUST BE INSTALLED IN THE PLACE OF OMITTED CONTAINERS.
5. THE FILLERS AS REFERENCED IN SPECIAL NOTE 4 AND THE DUNNAGE DEPICTED ABOVE FOR THE SHIPMENT OF THE PARTIAL UNIT MAY BE REMOVED WHEN A SHIPMENT REACHES DESTINATION. OR IF DESIRED, THE FILLERS MAY REMAIN WITH THE UNIT DURING STORAGE (IF APPLICABLE) FOR POSSIBLE USE IN A FUTURE SHIPMENT.
6. THE "POSITIONING OF PARTIAL CROSSWISE UNIT IN A LAYER" VIEW ABOVE DEPICTS A PORTION OF A CONVENTIONAL BOX CAR LOAD, HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR LOADS IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
7. FOR THE SHIPMENT OF A PARTIAL UNIT CONSISTING OF ONE OR TWO LAYERS, THE PROCEDURES SHOWN ON PAGE 62 MAY BE MORE ECONOMICAL.
8. THE PARTIAL UNIT PROCEDURES SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE (1) LOAD UNIT BETWEEN THE PARTIAL UNIT AND A CENTER GATE.

KEY NUMBERS

1. FILL PIECE, 1" X 6" X 38-1/2" (1 REQD). POSITION ON CENTER OF THE TOP DUNNAGE ASSEMBLY OF THE PARTIAL UNIT.
2. PARTIAL-UNIT GATE (2 REQD). SEE THE "PARTIAL-UNIT GATE B" DETAIL BELOW. SEE "GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 3 AT LEFT.
3. STRUT, 4" X 4" X 32-1/2" (6 REQD). TOENAIL TO THE PARTIAL-UNIT GATE, PIECE MARKED (2) , W/2-16d NAILS AT EACH END.
4. STRAPPING BOARD, 2" X 4" X 44" (2 REQD). NAIL TO THE STRUTS, PIECES MARKED (3) , W/3-10d NAILS AT EACH JOINT.
5. BATTEN (2 REQD). SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70 FOR MATERIAL SIZE AND FOR PLACEMENT GUIDANCE.
6. UNITIZING STRAP, 1-1/4" X .031" OR .035" BY A LENGTH TO SUIT STEEL STRAPPING (2 REQD). PRE-POSITION. BATTENS ARE REQUIRED ON THE BELL ENDS. SEE THE "BATTEN PLACEMENT" DETAIL ON PAGE 70.
7. SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER JOINT). SEE GENERAL NOTE "O" ON PAGE 2.
8. ANTI-CHAFING NEUTRAL BARRIER MATERIAL. POSITION BETWEEN CONTAINERS AND STRAPPING AT POINTS OF CONTACT.



PARTIAL UNIT GATE B

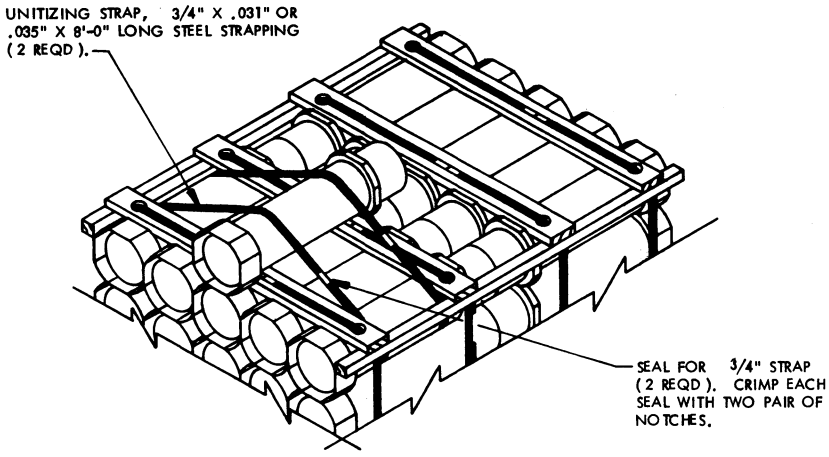
SPECIAL NOTES:

1. SHIPMENTS OF PROPELLING CHARGES 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. LEFTOVER CONTAINERS ARE DESCRIBED AS A QUANTITY OF CONTAINERS WHICH IS INSUFFICIENT TO FORM A FULL-LAYERED PARTIAL UNIT FOR SHIPMENT EITHER ON TOP OF A LOAD AS SHOWN ON PAGE 62 OR WITHIN A LAYER AS SHOWN ON PAGES 59 AND 60.

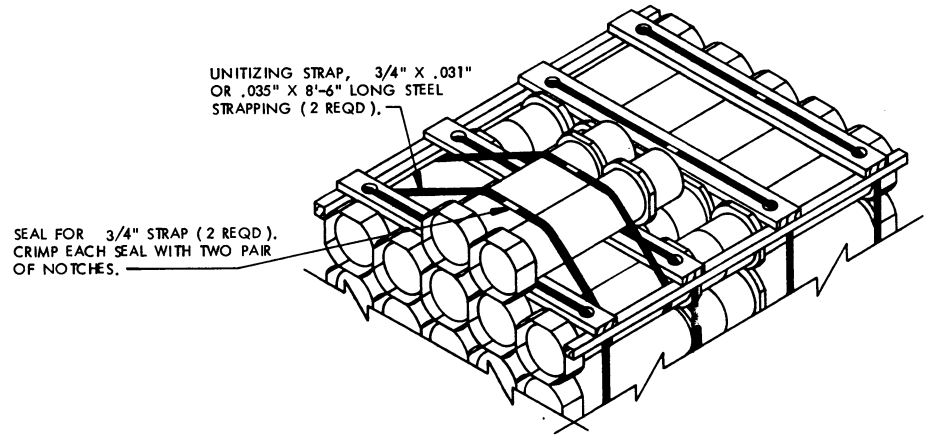
2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS RAILROAD SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOT TO POSTS, CAMPS, AND STATIONS, OR UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLE, AND PACK PLANTS TO DEPOTS. CAUTION: A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A FULL OR PARTIAL UNIT, MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.

3. THE UNITIZING STRAP MUST NOT GO AROUND THE TOP DUNNAGE ASSEMBLY. THE STRAP MUST BE THREADED BEHIND THE 2" X 2" PIECES OF THE ASSEMBLIES.

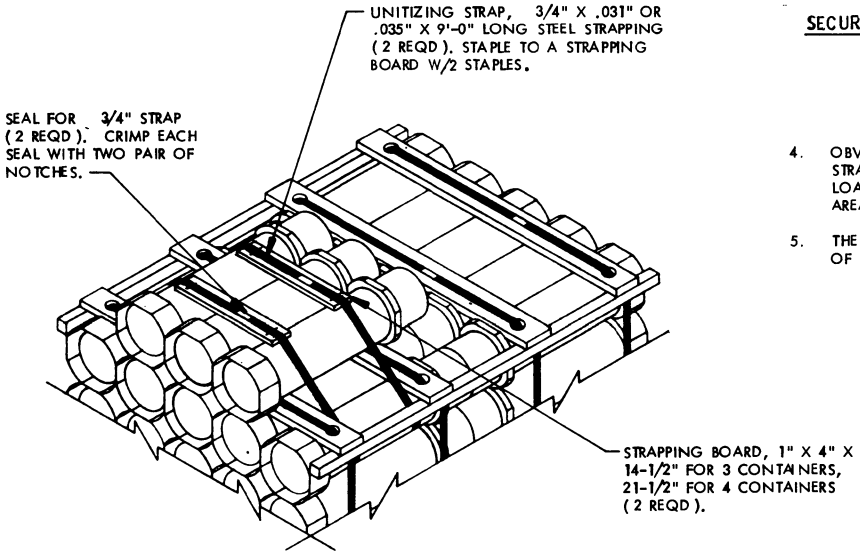
(CONTINUED BELOW)



SECUREMENT OF ONE CONTAINER



SECUREMENT OF TWO CONTAINERS

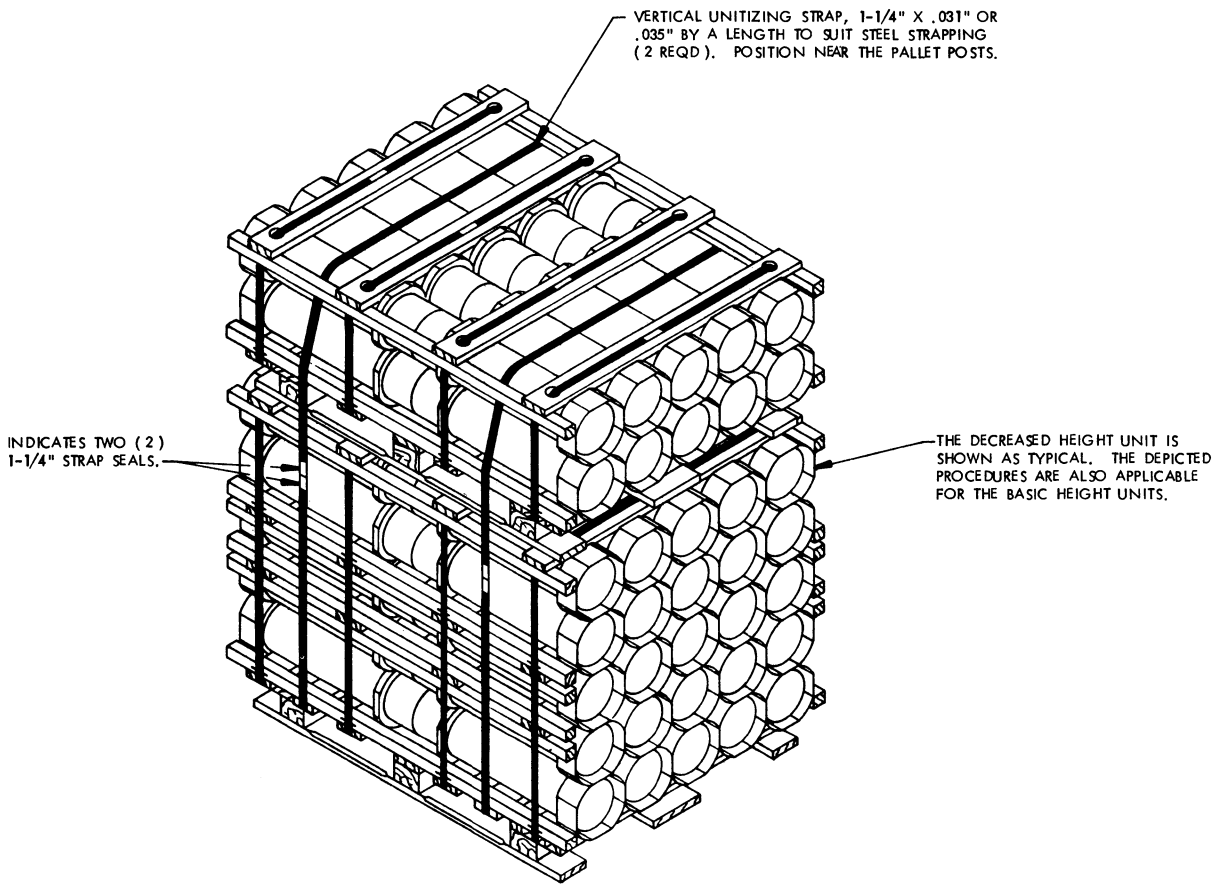


SECUREMENT OF THREE CONTAINERS

(SPECIAL NOTES CONTINUED)

4. OBVIOUSLY, A PALLET UNIT WITH ONE OR MORE CONTAINERS STRAPPED TO THE TOP MUST BE POSITIONED IN THE TOP LAYER OF A LOAD. THE PREFERRED LOCATION WOULD BE NEAR THE CENTER AREA OF A CAR IF A FULL LOAD IS BEING SHIPPED.

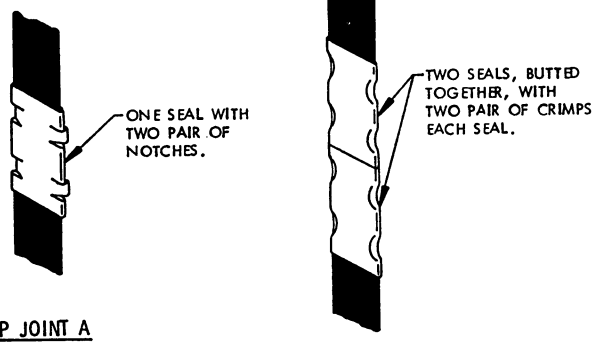
5. THE PROCEDURES ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.



SECUREMENT OF PARTIAL UNIT ON TOP

THIS PROCEDURE IS APPLICABLE ONLY FOR USE IN A CROSSWISE LOAD. CAUTION: THE PARTIAL UNIT ON TOP IS LIMITED TO NOT MORE THAN TWO (2) LAYERS OF CONTAINERS. FOR SHIPMENT OF MORE THAN TWO LAYERS OF CONTAINERS OR AN ALTERNATIVE METHOD FOR ONE OR TWO LAYERS, REFER TO THE "PROCEDURES FOR SHIPMENT OF PARTIAL UNITS" ON PAGE 60.

PROCEDURES FOR SHIPMENT OF PARTIAL UNITS

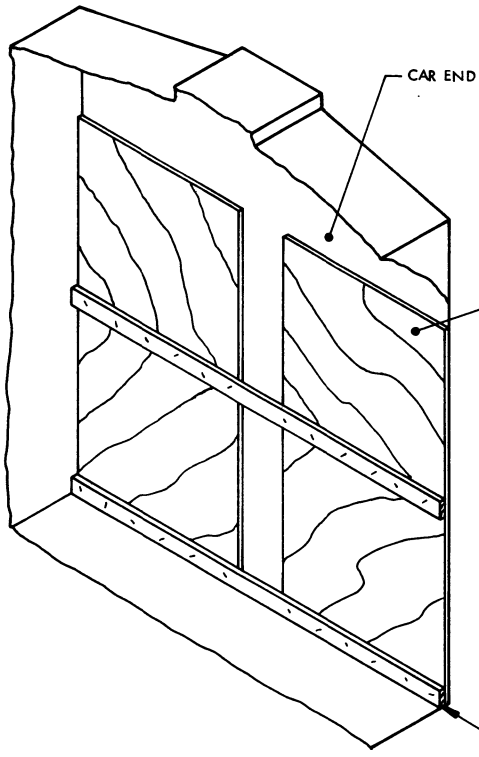


STRAP JOINT A

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

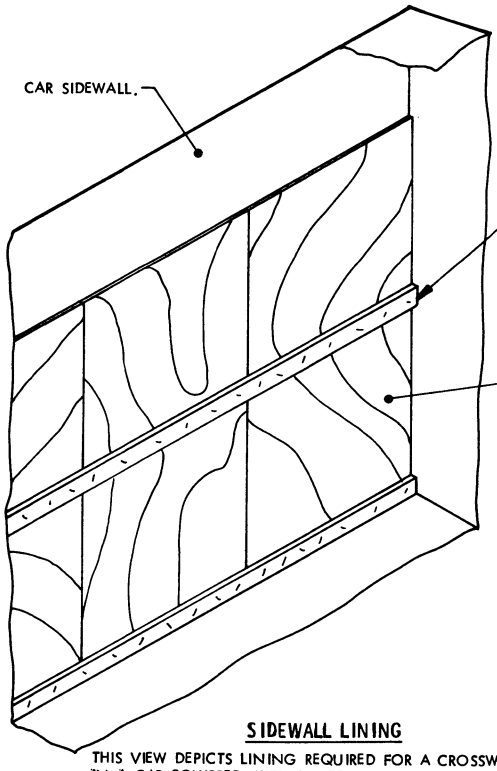
STRAP JOINT B

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



END-WALL LINING

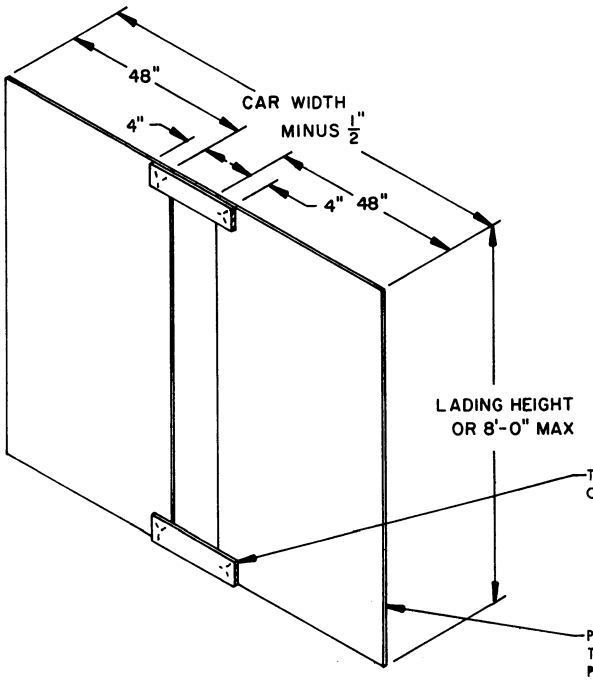
THIS VIEW DEPICTS LINING REQUIRED FOR A LENGTHWISE LOAD IN A CAR EQUIPPED WITH A STEEL END WALL.



SIDEWALL LINING

THIS VIEW DEPICTS LINING REQUIRED FOR A CROSSWISE SHIPMENT IN A CAR EQUIPPED WITH A STEEL SIDEWALL. NOTE THAT IF CAR IS EQUIPPED WITH A STEEL-FACED PLUG DOOR, THE SPECIAL LINING WILL ALSO BE REQUIRED IN THE DOORWAY AREA IF THE SPECIFIED DOORWAY PROTECTION DOES NOT SUFFICE.

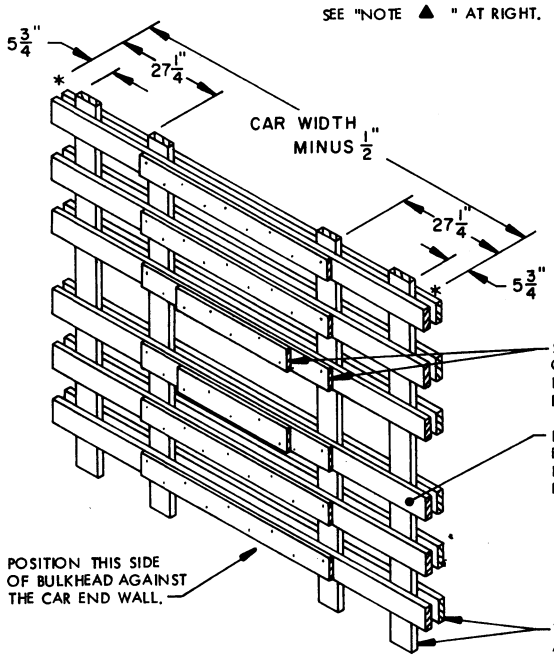
NOTE ▲ :
THE ALTERNATIVE SEPARATOR GATE MAY BE USED IN LIEU OF THE SEPARATOR GATE SHOWN WITHIN A LOAD, WHICH IS FABRICATED FROM 1" X 4" AND 1" X 6" MATERIAL. WHEN THE ALTERNATIVE SEPARATOR GATE IS BEING USED IN A CONVENTIONAL BOX CAR AND NAILED FLOORLINE BLOCKING IS TO BE USED FOR DOORWAY PROTECTION IN LIEU OF THE WOODEN GATE TYPE, THE LOWER TIE PIECE MUST BE POSITIONED AT LEAST 3-1/2" OFF THE FLOOR. ALSO, THE LOWER INSIDE CORNER OF EACH PLYWOOD SHEET MUST BE CUT OUT 3-1/2" HIGH BY 12" WIDE. THE USE OF THIS MODIFIED GATE WILL ALLOW THE SEPARATOR GATE TO CLEAR THE NAILED FLOORLINE BLOCKING DURING THE NORMAL SHIFTING OF THE LOAD.



ALTERNATIVE SEPARATOR GATE

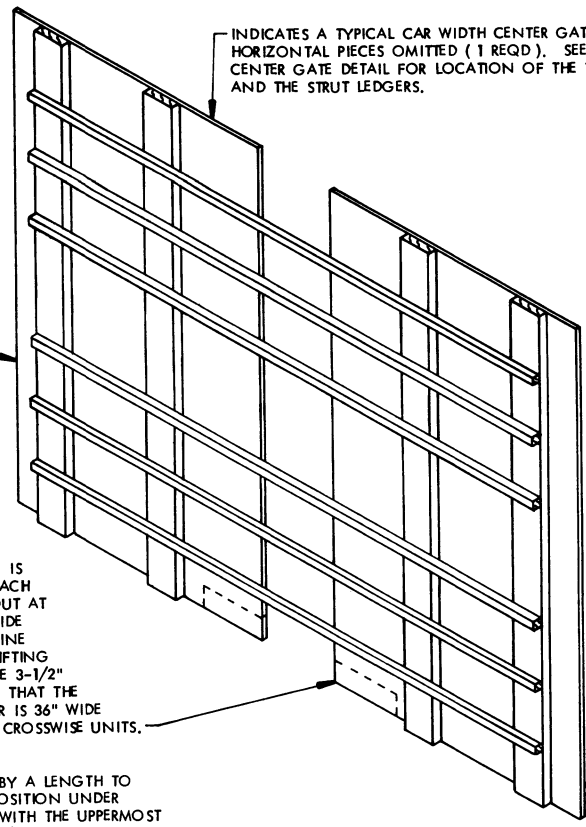
SEE "NOTE ▲ " AT RIGHT.

NOTE ○ :
IF A BOX CAR TO BE LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD MORE THAN TWO INCHES (2"), EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. THE BULKHEAD IS APPLICABLE FOR USE AT THE END OF A LOAD IN A CONVENTIONAL BOX CAR OR IN A CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, OR AT THE END OF A CAR EQUIPPED WITH MECHANICAL BRACING DEVICES, IF DESIRED, IN LIEU OF USING CROSS MEMBERS. THE BULKHEAD MAY BE FABRICATED FROM A CENTER GATE FOR THE UNIT THAT IS TO BE LOADED AND FOR THE UNIT POSITIONING (LENGTHWISE OR CROSSWISE). NOTE THAT THE GATE MUST BE MODIFIED BY OMITTING THE 2" X 2" STRUT LEDGERS AND THE GATE HOLD DOWN PIECES. A MODIFIED CENTER GATE "C", AS DETAILED ON PAGE 18, IS SHOWN AS TYPICAL.



END-OF-CAR BULKHEAD

SEE "NOTE ○ " AT RIGHT.



INDICATES A TYPICAL CAR WIDTH CENTER GATE, WITH THE HORIZONTAL PIECES OMITTED (1 REQD). SEE THE APPLICABLE CENTER GATE DETAIL FOR LOCATION OF THE VERTICAL PIECES AND THE STRUT LEDGERS.

PLYWOOD, 1/2" THICK BY THE UNIT WIDTH OR LENGTH BY THE LOAD HEIGHT (2 REQD). NAIL TO THE VERTICAL PIECES W/1-6d NAIL EVERY 6". NOTE: THE WIDTH OF THE PLYWOOD WILL BE UNIT WIDTH IF THE LENGTH OF THE UNIT IS PARALLEL WITH THE SIDEWALL OF A CAR, AS TYPICALLY SHOWN IN THE LOAD ON PAGE 10, OR UNIT LENGTH IF THE WIDTH OF THE UNIT IS PARALLEL WITH THE SIDEWALL OF A CAR, AS TYPICALLY SHOWN IN THE LOAD ON PAGE 8. PLYWOOD MAY BE ALLOWED TO EXTEND BEYOND THE UNIT LENGTH OR WIDTH, IF DESIRED.

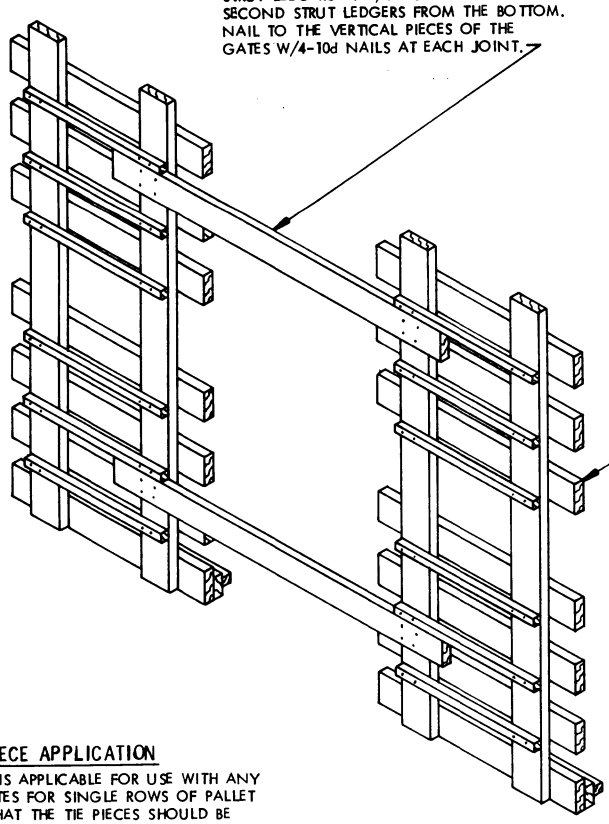
WHEN NAILED FLOORLINE BLOCKING IS USED FOR DOORWAY PROTECTION, EACH PLYWOOD SHEET MUST HAVE A CUTOUT AT THE LOWER INSIDE CORNER TO PROVIDE CLEARANCE FOR THE NAILED FLOORLINE BLOCKING DURING THE NORMAL SHIFTING OF THE LOAD. THE CUTOUT MUST BE 3-1/2" HIGH AND OF SUFFICIENT WIDTH SO THAT THE REMAINING PLYWOOD AT THE FLOOR IS 36" WIDE FOR LENGTHWISE UNITS OR 46" FOR CROSSWISE UNITS.

GATE HOLD-DOWN PIECE MUST BE SECURED TO THE PLYWOOD.

PLYWOOD CENTER GATE ALTERNATIVE

CENTER GATE "G" IS SHOWN AS TYPICAL. PLYWOOD MAY BE USED IN LIEU OF THE HORIZONTAL PIECES ON ANY CENTER GATE DEPICTED HEREIN, INCLUDING THOSE WHICH ARE FOR THE BRACING OF A SINGLE ROW.

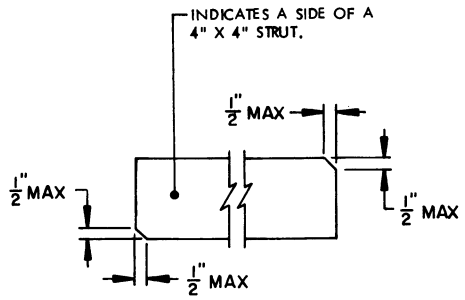
TIE PIECE, 2" X 6" BY A LENGTH TO SUIT (2 REQD). POSITION UNDER AND IN CONTACT WITH THE UPPERMOST STRUT LEDGERS AND/OR UNDER THE SECOND STRUT LEDGERS FROM THE BOTTOM. NAIL TO THE VERTICAL PIECES OF THE GATES W/4-10d NAILS AT EACH JOINT.



INDICATES A TYPICAL CENTER FOR A SINGLE ROW OF LENGTHWISE POSITIONED CONTAINERS (2 REQD). SEE THE CENTER GATE "A" OR "E" DETAIL ON PAGE 16 OR 32. FOR A SINGLE ROW OF CROSSWISE POSITIONED CONTAINERS, SEE THE CENTER GATE "B" OR "F" DETAIL ON PAGE 17 OR 33.

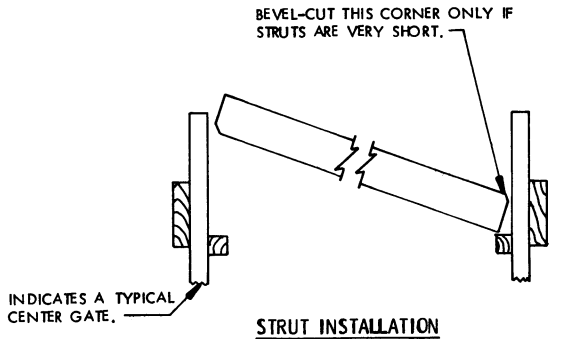
TIE PIECE APPLICATION

THIS PROCEDURE IS APPLICABLE FOR USE WITH ANY TWO CENTER GATES FOR SINGLE ROWS OF PALLET UNITS. NOTE THAT THE TIE PIECES SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED.



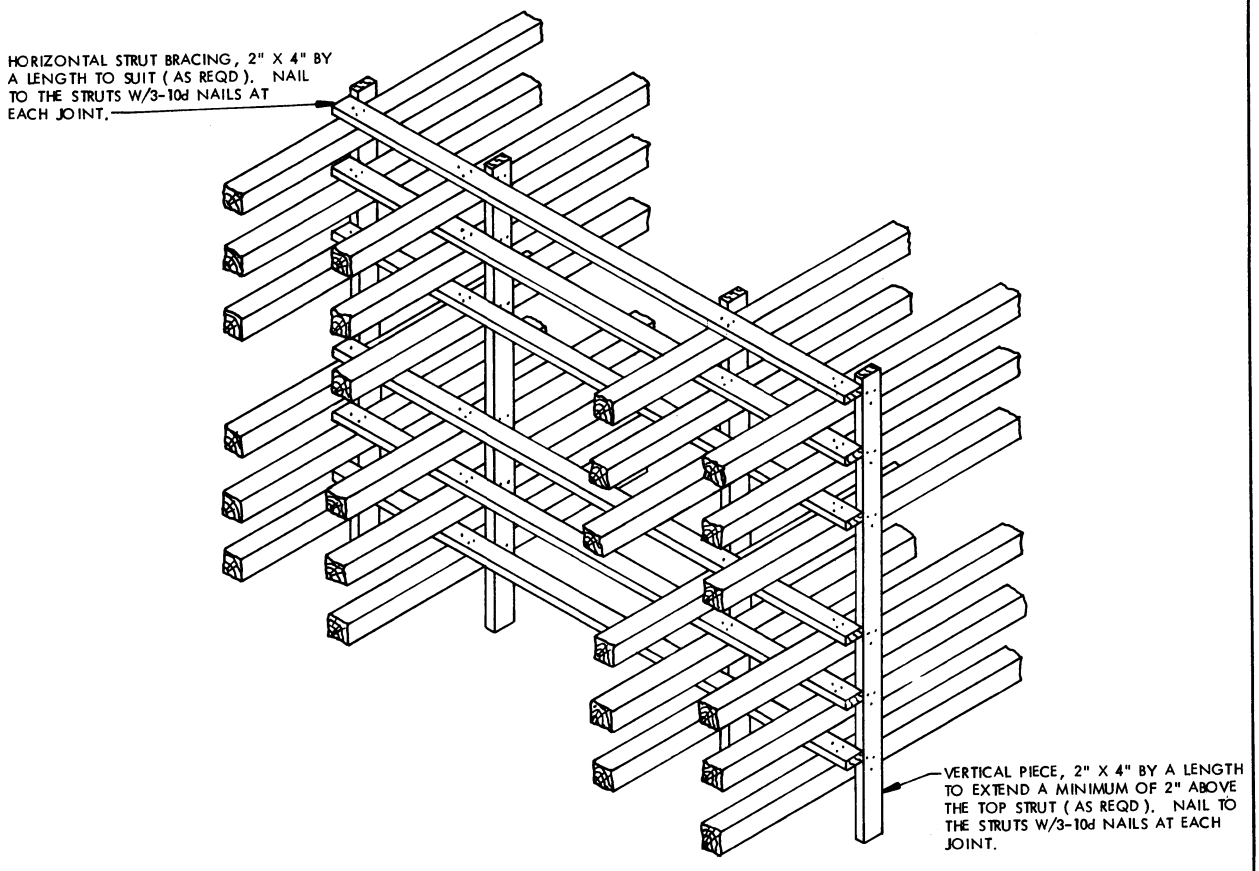
BEVEL-CUT

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").



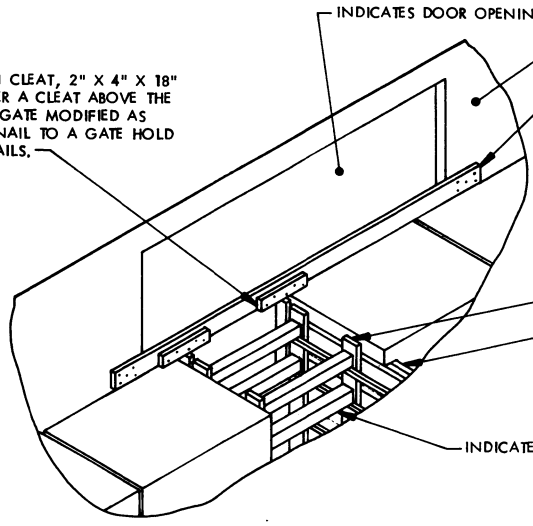
STRUT INSTALLATION

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



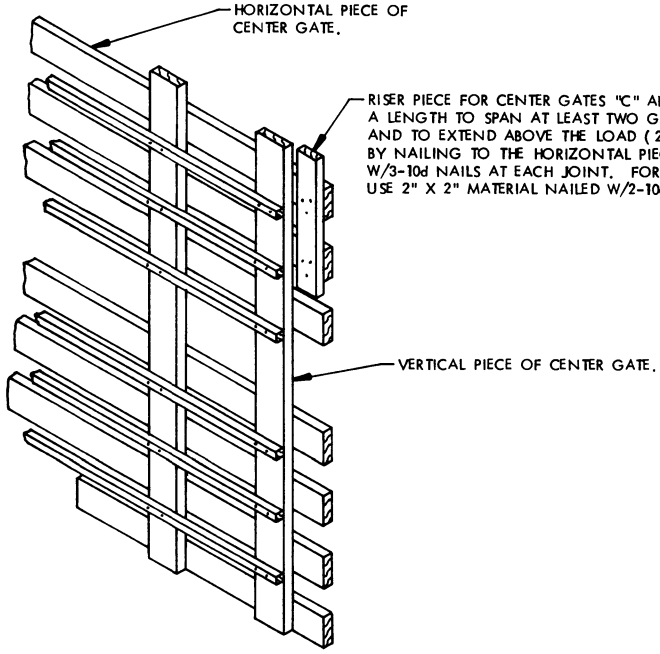
TYPICAL STRUT BRACING

SEE GENERAL NOTE "U" ON PAGE 2.



ALTERNATIVE GATE HOLD-DOWN

THIS VIEW DEPICTS AN ALTERNATIVE METHOD OF CENTER GATE-HOLD DOWN WHICH CAN BE USED IF DESIRED, PROVIDING THE CAR HAS NAILABLE SIDEWALLS. THIS METHOD MAY BE APPLIED IN LIEU OF USING THE GATE HOLD-DOWN PIECES WHICH ARE PART OF A CENTER GATE. NOTE: FOR A GATE NOT LOCATED IN OR NEAR THE DOORWAY AREA, THE GATE HOLD-DOWN CLEAT MAY BE DOUBLED AND NAILED TO THE CAR SIDEWALL TO PROVIDE A HOLD-DOWN.

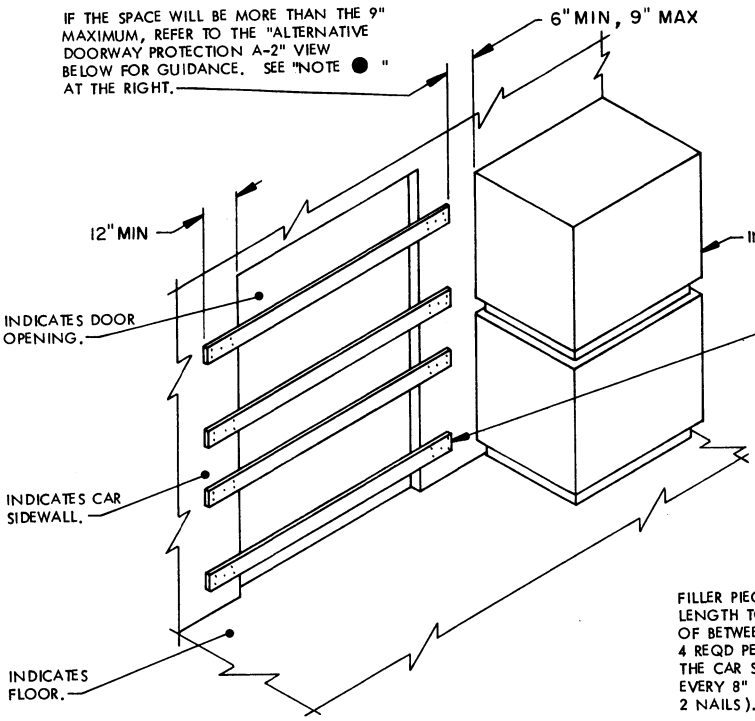


CENTER GATE MODIFICATION

THE MODIFICATION PROCEDURES SHOWN IN THIS VIEW ARE APPLICABLE FOR ALL THE CENTER GATES HEREIN. THESE GATES HAVE THE VERTICAL PIECES INSET FROM THE END OF THE HORIZONTAL PIECES AS SHOWN ABOVE. THE RISER PIECE WILL PROVIDE A MEANS FOR CONTACTING THE GATE WITH THE GATE HOLD-DOWN AS SHOWN IN THE "ALTERNATIVE GATE HOLD-DOWN" DETAIL AT THE TOP OF THIS PAGE.

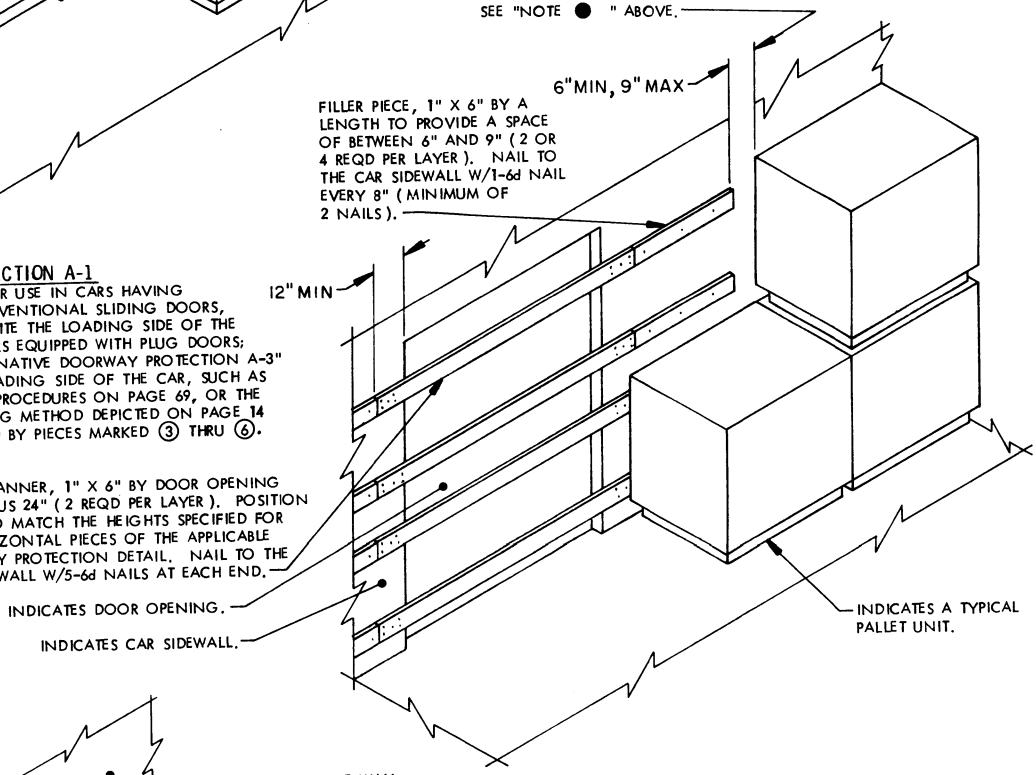
NOTE ● :

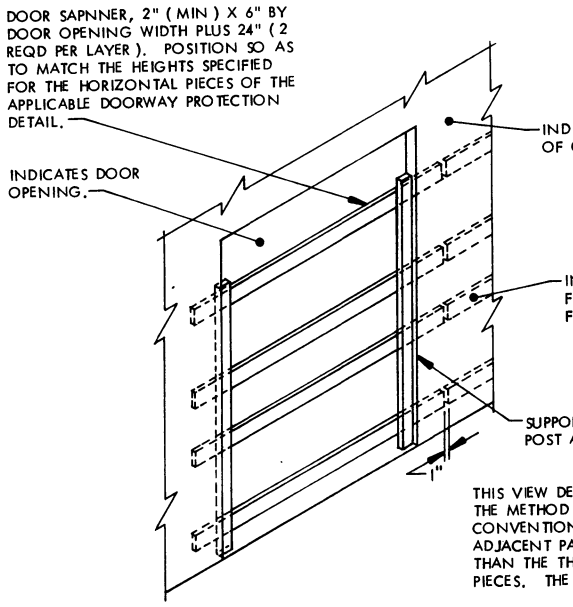
THE TOLERANCE DIMENSION (6" MIN, 9" MAX) IS ALLOWED TO PROVIDE FOR CLEARANCE DURING THE NORMAL LONGITUDINAL SHIFTING OF A LOAD IN TRANSIT.



ALTERNATIVE DOORWAY PROTECTION A-1

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS HAVING NAILABLE SIDEWALLS AND EQUIPPED WITH CONVENTIONAL SLIDING DOORS, AND IS APPLICABLE ONLY FOR THE SIDE OPPOSITE THE LOADING SIDE OF THE CAR. THE METHOD CAN ALSO BE USED IN CARS EQUIPPED WITH PLUG DOORS; HOWEVER, A METHOD OTHER THAN THE "ALTERNATIVE DOORWAY PROTECTION A-3" PROCEDURES BELOW MUST BE USED ON THE LOADING SIDE OF THE CAR, SUCH AS THE "ALTERNATIVE DOORWAY PROTECTION C" PROCEDURES ON PAGE 69, OR THE NAILED-DOWN BLOCKING AND STEEL STRAPPING METHOD DEPICTED ON PAGE 14 BY PIECE MARKED ⑤ THRU ⑧ OR ON PAGE 30 BY PIECES MARKED ③ THRU ⑥.



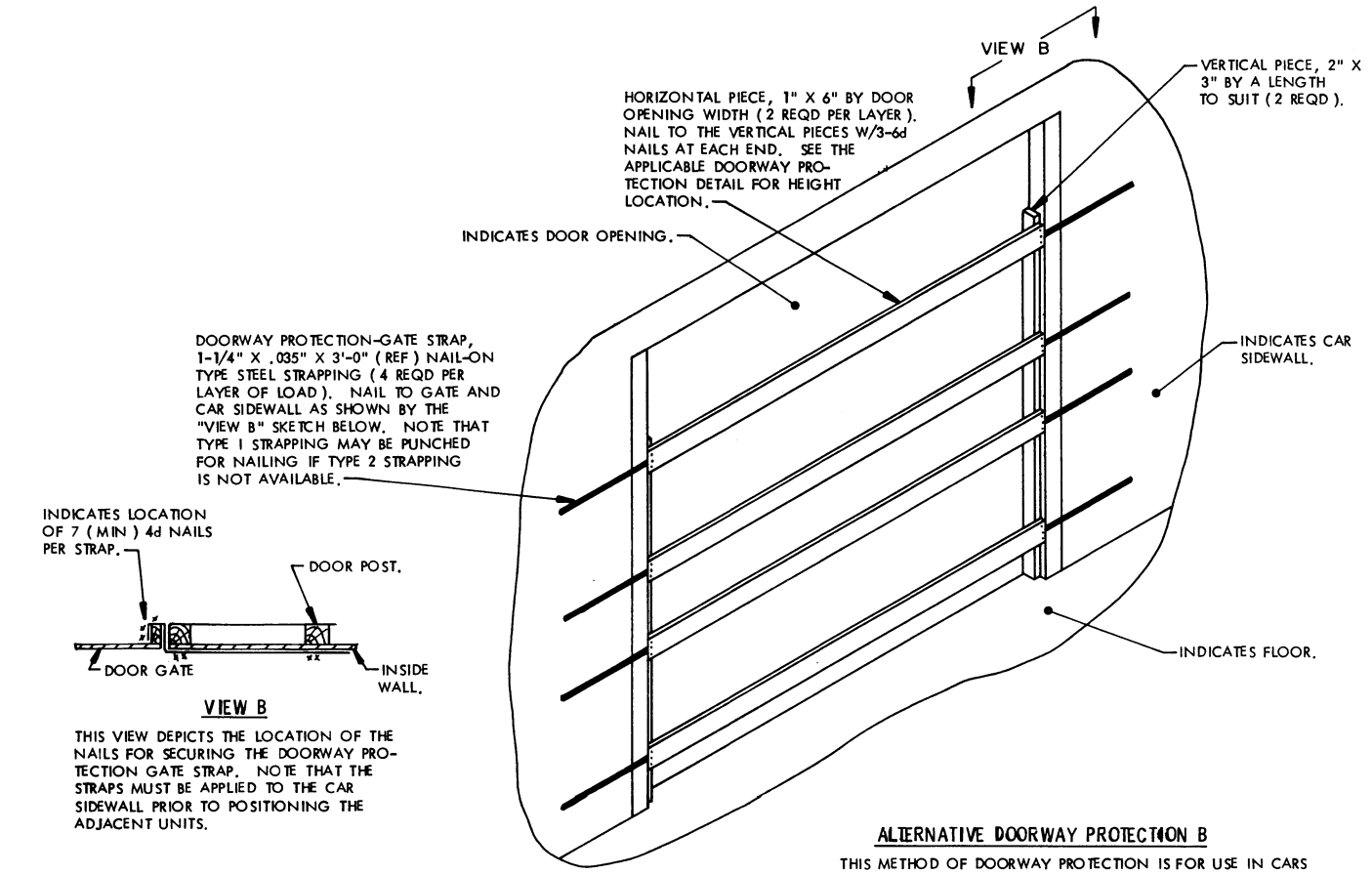


ALTERNATIVE DOORWAY PROTECTION A-2

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS HAVING NAILABLE SIDEWALLS AND EQUIPPED WITH CONVENTIONAL SLIDING DOORS, AND IS APPLICABLE ONLY FOR THE SIDE OPPOSITE THE LOADING SIDE OF THE CAR. SEE THE NOTE UNDER THE "A-1" PROCEDURES.

ALTERNATIVE DOORWAY PROTECTION A-3

THIS VIEW DEPICTS THE DOOR OPENING OF A CAR AS IT APPEARS WHEN LOOKING AT IT FROM OUTSIDE OF THE CAR. THE METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS HAVING NAILABLE SIDEWALLS AND EQUIPPED WITH CONVENTIONAL SLIDING DOORS, AND IS APPLICABLE FOR THE LOADING SIDE OF THE CAR. NOTE THAT THE ADJACENT PALLET UNITS MUST BE POSITIONED APPROXIMATELY 1-3/4" (REF) FROM THE CAR SIDEWALL (1/4" MORE THAN THE THICKNESS OF THE DOOR SPANNER PIECES) TO FACILITATE THE INSTALLATION OF THESE DOOR SPANNER PIECES. THE VIEW SHOWN ABOVE IS FOR A TWO LAYER LOAD.

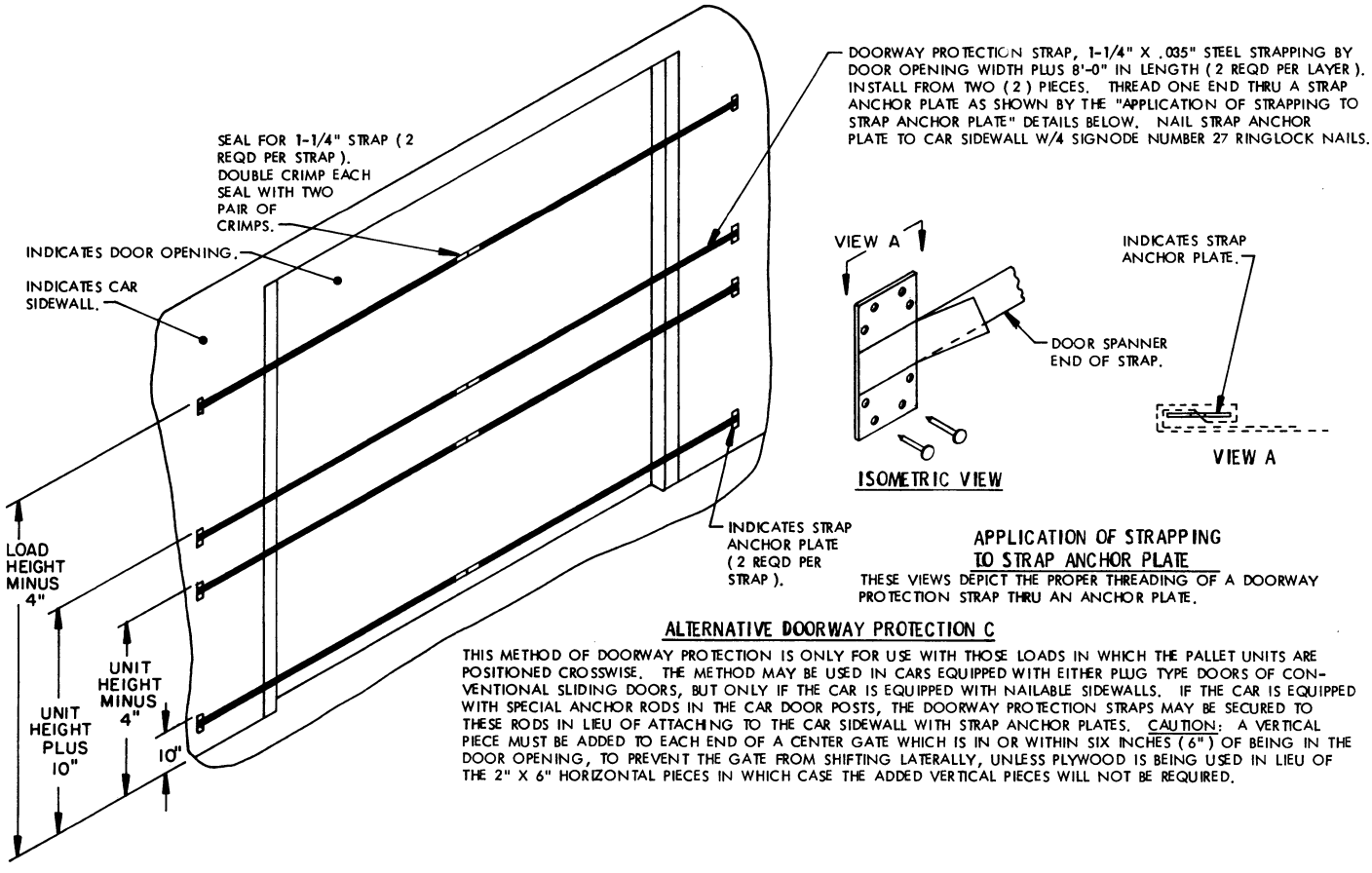


VIEW B

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

ALTERNATIVE DOORWAY PROTECTION B

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

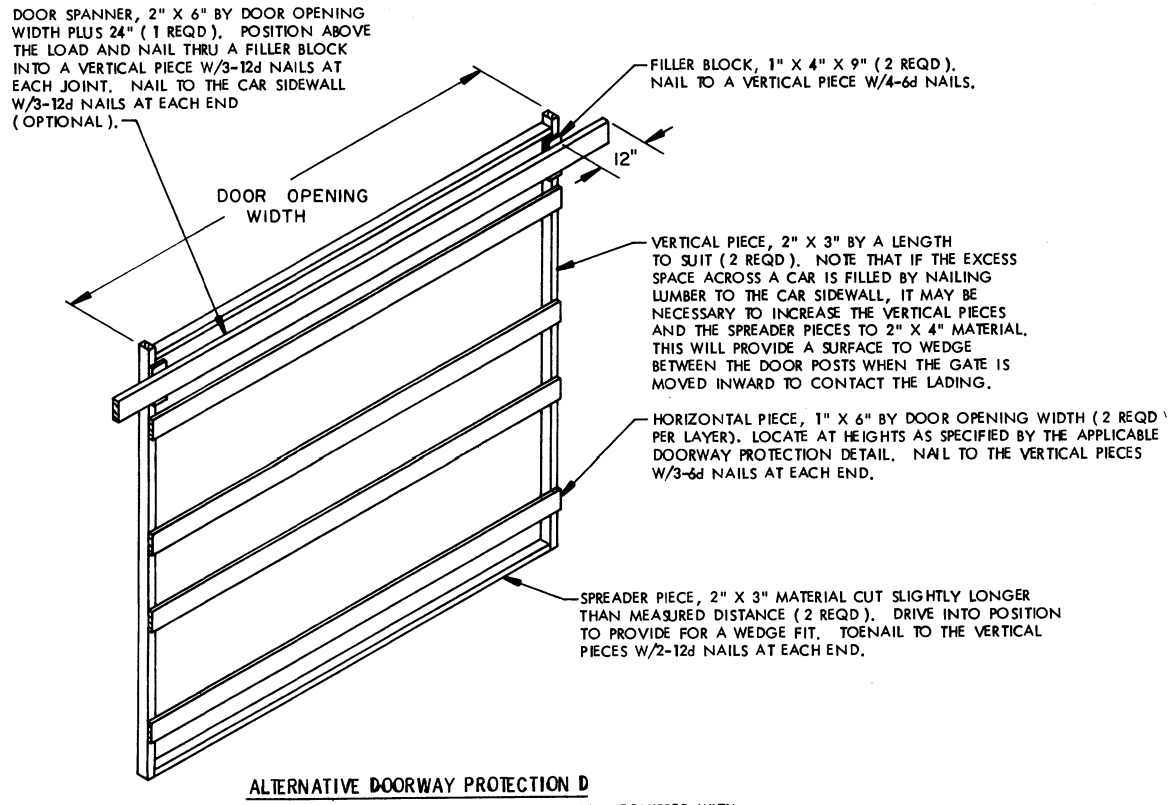


APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE

THESE VIEWS DEPICT THE PROPER THREADING OF A DOORWAY PROTECTION STRAP THRU AN ANCHOR PLATE.

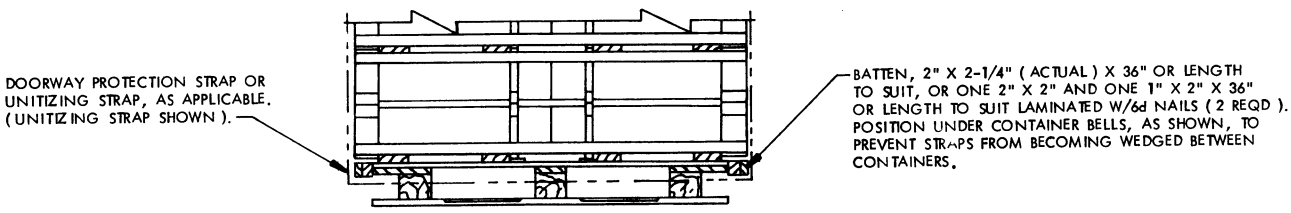
ALTERNATIVE DOORWAY PROTECTION C

THIS METHOD OF DOORWAY PROTECTION IS ONLY FOR USE WITH THOSE LOADS IN WHICH THE PALLET UNITS ARE POSITIONED CROSSWISE. THE METHOD MAY BE USED IN CARS EQUIPPED WITH EITHER PLUG TYPE DOORS OF CONVENTIONAL SLIDING DOORS, BUT ONLY IF THE CAR IS EQUIPPED WITH NAILABLE SIDEWALLS. IF THE CAR IS EQUIPPED WITH SPECIAL ANCHOR RODS IN THE CAR DOOR POSTS, THE DOORWAY PROTECTION STRAPS MAY BE SECURED TO THESE RODS IN LIEU OF ATTACHING TO THE CAR SIDEWALL WITH STRAP ANCHOR PLATES. CAUTION: A VERTICAL PIECE MUST BE ADDED TO EACH END OF A CENTER GATE WHICH IS IN OR WITHIN SIX INCHES (6") OF BEING IN THE DOOR OPENING, TO PREVENT THE GATE FROM SHIFTING LATERALLY, UNLESS PLYWOOD IS BEING USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES IN WHICH CASE THE ADDED VERTICAL PIECES WILL NOT BE REQUIRED.

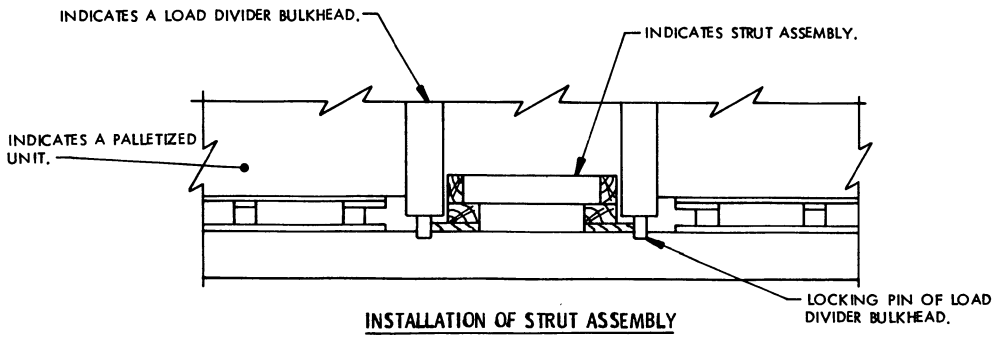


ALTERNATIVE DOORWAY PROTECTION D

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, WHEN THE DOOR POSTS ARE NOT NAILABLE. IF THE CAR HAS NAILABLE SIDEWALLS, NAIL-ON TYPE STRAPPING MAY BE USED TO SECURE THE GATE IN LIEU OF USING THE SPREADER PIECES. SEE THE "ALTERNATIVE DOORWAY PROTECTION B" DETAIL ON PAGE 69 FOR GUIDANCE. NOTE THAT THE DOOR SPANNER IN THIS DETAIL MAY BE USED AS A GATE HOLD-DOWN PIECE FOR THE "ALTERNATIVE GATE HOLD-DOWN" METHOD SHOWN ON PAGE 67.

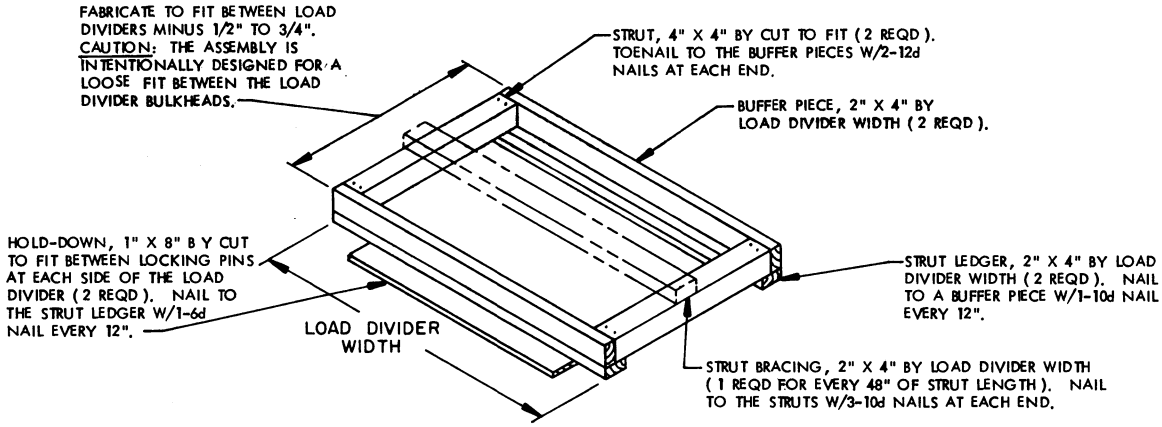


BATTEN PLACEMENT



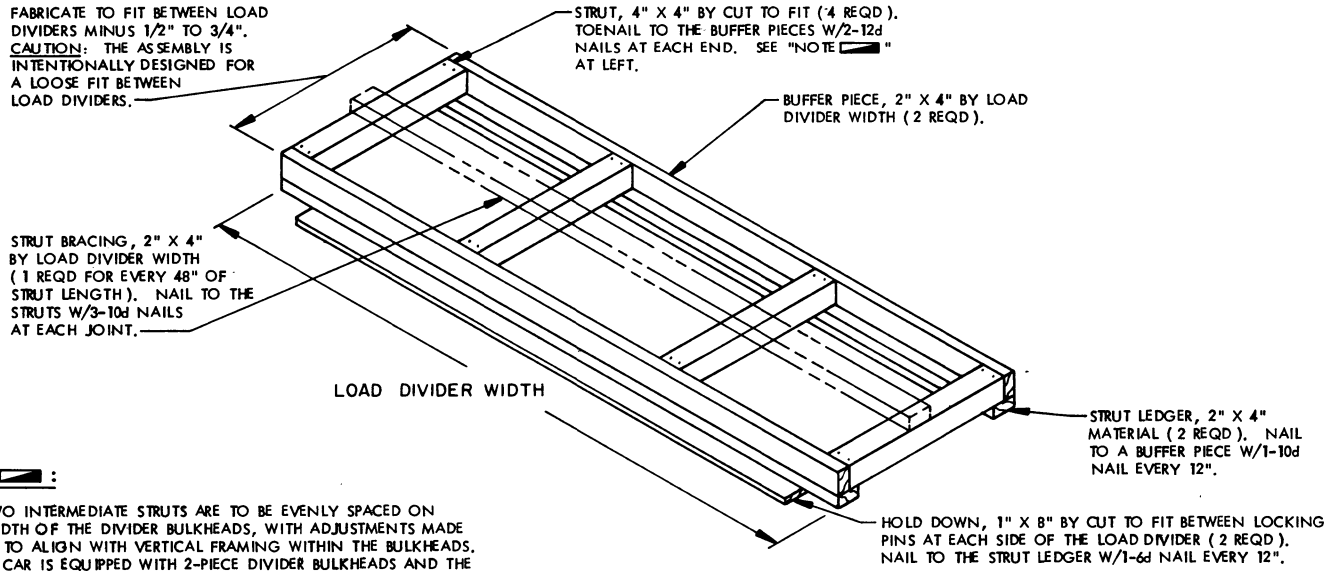
INSTALLATION OF STRUT ASSEMBLY

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



STRUT ASSEMBLY FOR 2-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS OF CLASS A OR CLASS B EXPLOSIVES. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF CLASS C EXPLOSIVES, REGARDLESS OF THE WEIGHT OF THE LOAD.
NOTE: TWO (2) ASSEMBLIES AS SHOWN ARE REQUIRED FOR A 2-PIECE BULKHEAD IF NOT LATERALLY ALIGNED. SEE "NOTE ▬" BELOW.

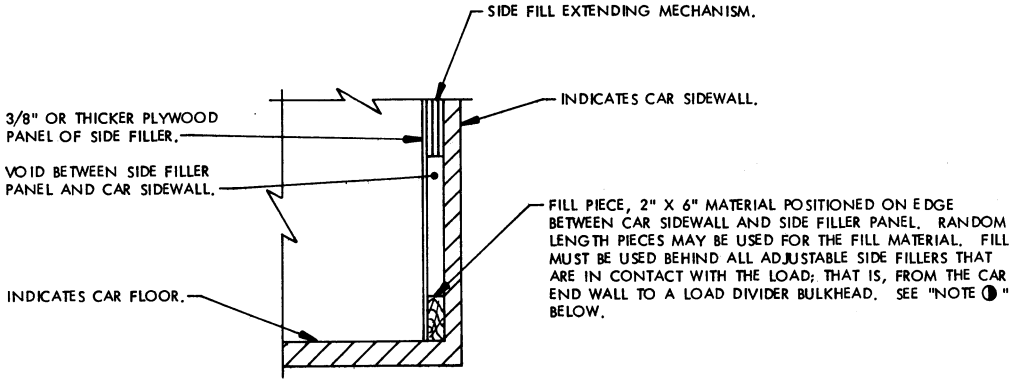


NOTE ▬ :

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

STRUT ASSEMBLY FOR 1-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS OF CLASS A OR CLASS B EXPLOSIVES. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF CLASS C EXPLOSIVES, REGARDLESS OF THE WEIGHT OF THE LOAD.

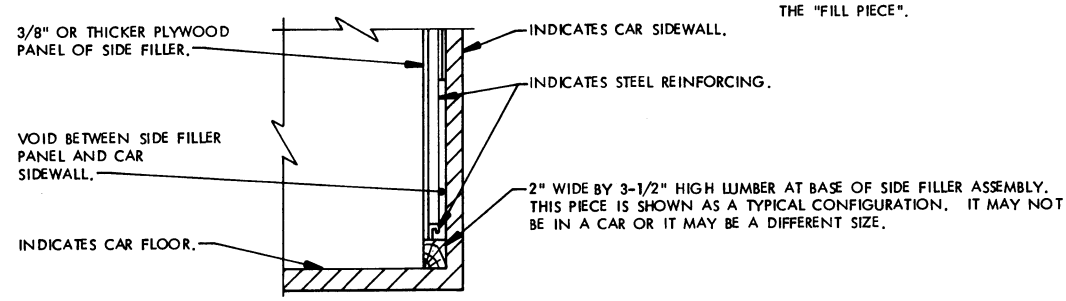


TYPICAL TYPE A

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

NOTE ◑:

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



TYPICAL TYPE B

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