


APPROVED BY
 BUREAU OF EXPLOSIVES
H. F. Grassmuck
 MILITARY ASSISTANT
 DATE 7/12/68

LOADING AND BRACING (CL & LCL) IN BOX CARS OF CBU ITEMS PACKED IN THE CNU-104/E CONTAINER

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES, AND MATERIAL SPECIFICATIONS-----	2
UNITIZATION AND HANDLING PROCEDURES-----	3
LOADS FOR CONVENTIONAL BOX CARS:	
36-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR-----	4, 5
TYPICAL LCL (8-UNIT LOAD) IN A 9'-2" WIDE BOX CAR-----	6
TYPICAL LCL (3-UNIT LOAD) IN A 9'-2" WIDE BOX CAR-----	7
PARTIAL LAYER BRACING-----	8
DETAILS-----	9-11
LOADS FOR BOX CARS EQUIPPED WITH MECHANICAL BRACING	
DEVICES HAVING ADJUSTABLE AND/OR FIXED WALL MEMBERS:	
36-UNIT LOAD IN A 50'-6" LONG BY 8'-11" WIDE BOX CAR-----	12, 13
TYPICAL LCL (3-UNIT LOAD) IN AN 8'-11" WIDE BOX CAR-----	14
TYPICAL LCL (2-UNIT LOAD) IN AN 8'-11" WIDE BOX CAR-----	15

 INCLUDES PROCEDURES FOR CONVENTIONAL BOX CARS AND BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES OF VARIOUS DESIGN AND MANUFACTURE.

DRAWN BY JEE	PROJ. ENG. <i>MWD/lews</i>	APSA	SUBMITTED
CHECKED BY <i>GBF</i>	ENC. BRNO. CTR. <i>GB</i>		<i>W. J. Harding Col.</i> COMMANDING OFFICER, SEVANA ARMY DEPOT
REVISIONS			EXAMINED AND APPROVED
			<i>Ralph Haly</i> AMMUNITION PROCUREMENT & SUPPLY AGENCY
			APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND
			<i>Parsons</i>
			U. S. ARMY MATERIEL COMMAND
			AUGUST 1968
			CLASS DIVISION DRAWING FILE
			19 48 7046 SP5K1

DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO CBU ITEMS WHEN PACKAGED IN THE CNU-104/E CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-104/E CONTAINER WITH CONTENTS. CAUTION: CONTAINERS MUST NOT BE STACKED MORE THAN THREE (3) CONTAINERS HIGH.
- C. FOR DETAILS OF THE CONTAINER SEE DRAWING NO. 67E10255.
CONTAINER DIMENSIONS ----- 154-1/2" LONG X 24-1/4" WIDE X 30-1/2" HIGH.
GROSS WEIGHT (MAX) ----- 1,155 POUNDS (APPROX).
TARE WEIGHT ----- 185 POUNDS (APPROX).
- D. THE LOADS AS SHOWN HEREIN ARE BASED ON CONVENTIONAL BOX CARS, OR ARE BASED ON BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES HAVING ADJUSTABLE AND/OR FIXED WALL MEMBERS. NOTE: ALL METAL CARS CAN BE USED FOR THE LOADS DELINEATED ON PAGES 4 THROUGH 7 PROVIDING THE CARS BEING USED HAVE NAILABLE FLOORS. ALL METAL CARS CAN NOT BE USED FOR LOADS REQUIRING A K-BRACE TYPE OF PARTIAL LAYER BLOCKING AS DEPICTED ON PAGE 8.
- E. BOX CARS HAVE BEEN SHOWN WHICH HAVE 12'-0" STAGGERED DOORS OF THE CONVENTIONAL SLIDING TYPE; HOWEVER, CARS WITH 12'-0" WIDE THROUGH DOORS OR CARS WITH WIDER DOORS CAN BE USED. CARS WHICH ARE EQUIPPED WITH MECHANICAL BRACING DEVICES CAN BE USED WHEN PROVIDED WITH 10'-0" OR WIDER DOORS.
- F. THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE TO CARS WHICH ARE EQUIPPED WITH PLUG DOORS. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN. ALSO, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF "CAR SEALS", A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED IN ADDITION TO, AND IN CONJUNCTION WITH, EACH CAR SEAL USED TO "SEAL" THE CAR. THE WIRE WILL BE THREADED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- G. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 4 THROUGH 8 ARE FOR 50'-6" LONG BY 9'-2" WIDE BOX CARS OF THE CONVENTIONAL TYPE. NARROWER OR WIDER CARS CAN BE USED.
- H. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 12 THROUGH 15 ARE FOR 50'-6" LONG BY 8'-11" WIDE BOX CARS WHICH ARE EQUIPPED WITH MECHANICAL BRACING DEVICES, AND THE PROCEDURES 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 HEREIN. CAUTION: BOX CARS EQUIPPED WITH MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED. NARROWER OR WIDER CARS CAN BE USED.
1. A CROSS MEMBER, WHEN USED AS SPECIFIED BY ANY ONE OF THE OUTLOADING METHODS CONTAINED HEREIN, WILL NOT BE RELIED UPON TO RETAIN MORE LADING WEIGHT ON EITHER SIDE THAN AS SHOWN FOR THE SPECIFIC OUTLOADING METHOD BEING USED. 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 PERMITS. 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 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.
3. AS REQUIRED, ANTI-CHAFING MATERIAL OF SUITABLE THICKNESS MUST BE USED BETWEEN CONTAINERS AND CAR SIDE WALLS TO PREVENT CONTACT OF THE CONTAINERS WITH ANY EXPOSED METAL SURFACE. THE ANTI-CHAFING MATERIAL MUST BE SECURED TO PREVENT DISPLACEMENT DURING TRANSIT.
4. IF A CAR HAS A "BOWED END", RATHER THAN SQUARING OFF THE END BY INSTALLING DUNNAGE, ADDITIONAL CROSS MEMBERS CAN BE INSTALLED NEAR THE END OF THE CAR TO PROVIDE A "SQUARED" END. THESE CROSS MEMBERS SHOULD BE INSTALLED IN THE SAME QUANTITY AND AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS LOAD BLOCKING MEMBERS.
- J. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOX CAR BEING LOADED OR THE QUANTITY TO BE SHIPPED, AND COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED FOR THE VARIOUS LOADS SHOWN HEREIN MAY BE USED AS REQUIRED. HOWEVER, THE APPROVED METHODS SPECIFIED HEREIN FOR FULL OR PARTIAL CARLOADS MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.
- K. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN BOX CARS WHICH ARE PARTIALLY LOADED WITH ITEMS PACKED IN THE CNU-104/E CONTAINER, 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.
- L. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH EMPTY DISPENSERS OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEMS DESIGNATED WITHIN THE DRAWING TITLE.
- M. ONE AND ONE-QUARTER INCH (1-1/4") STEEL STRAPPING WILL BE USED TO UNITIZE STACKED CONTAINERS AS SHOWN ON PAGE 3, AND AS SPECIFIED BY THE APPLICABLE OUTLOADING METHODS DEPICTED HEREIN. IF THE CAPACITY OF THE MATERIAL HANDLING EQUIPMENT USED TO LOAD THE CONTAINERS ABOARD A CAR PERMITS, IT IS RECOMMENDED THAT THE CONTAINERS BE UNITIZED PRIOR TO PLACEMENT WITHIN THE CAR. NOTICE: IN SOME INSTANCES, CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITIZED STACKS SHOULD BE INSPECTED AND AS REQUIRED, LOOSE UNITIZING STEEL STRAPPING MUST BE REPLACED.
- N. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT AS SHOWN, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. CAUTION: EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO CONTAINERS.
- O. IF THE CAR BEING USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDE WALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED FOR THE NAILING OF THE APPLICABLE DUNNAGE PIECES. IF A NAIL SIZE IS NOT SPECIFIED, 30d NAILS SHOULD BE USED.
- P. EXCEPT FOR PLYWOOD, DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE AND 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" WIDE.
- Q. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OR A SIDE WALL OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. 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.
- R. 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 VIEWS FOR CLARITY PURPOSES.
- S. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO DEPICTED OUTLOADING METHODS.

(GENERAL NOTES CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

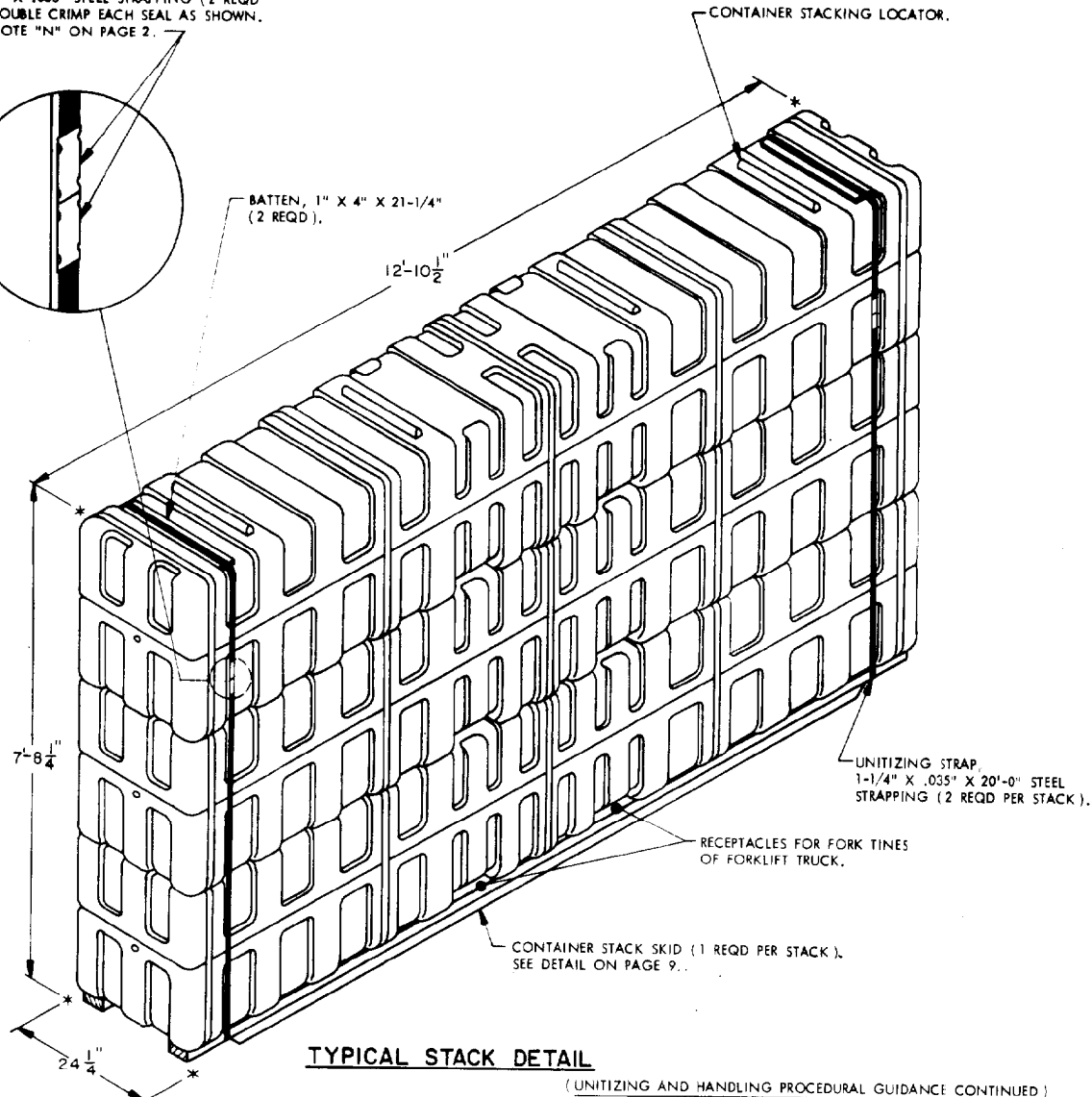
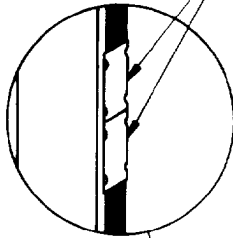
- LUMBER ----- : SEE TM 715-5500-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- PLYWOOD ----- : GROUP B OR C, GRADE * C-C (EXTERIOR);
FED SPEC NN-P-530. FSN 5530-051-1198.
- NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED.
REF: FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- STRAPPING, STEEL ----- : TYPE I OR IV, CLASS A OR B, FED SPEC QQ-5-781.
- STRAP SEAL
STRAP STAPLE ----- : COMMERCIAL GRADE.
- ANTI-CHAFING MATERIAL: NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL); OR
FED SPEC LLL-H-35 (HARD BOARD).

* IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.

(UNITIZING AND HANDLING PROCEDURAL GUIDANCE CONTINUED FROM PAGE 3)

- (2) THE INSIDE-OF-CAR FORKLIFT WILL BE USED TO SKID THE CONTAINER STACK INTO POSITION WITHIN AN END AREA OF THE CAR.
- (3) STEPS 1 AND 2 WILL BE REPEATED UNTIL BOTH ENDS OF THE CAR ARE LOADED.
- (4) A FORKLIFT WILL BE USED TO SET THE FOUR CONTAINER STACKS OF THE MIDDLE-OF-CAR LOAD UNIT DIRECTLY INTO THEIR SHIPPING POSITIONS. NOTE THAT ONE SET OF CENTER GATES AND STRUTS SHOULD BE INSTALLED PRIOR TO LOADING THE MIDDLE LOAD UNIT CONTAINER STACKS INTO A CONVENTIONAL TYPE CAR.

SEAL FOR 1-1/4" X .035" STEEL STRAPPING (2 REQD PER STRAP). DOUBLE CRIMP EACH SEAL AS SHOWN. SEE GENERAL NOTE "N" ON PAGE 2.



TYPICAL STACK DETAIL

(UNITIZING AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING.

- A. THE BOTTOM CONTAINER WILL BE ALIGNED WITH AND POSITIONED ON A "CONTAINER STACK SKID".
- B. AN UPPER CONTAINER WILL BE FULLY SEATED ON THE CONTAINER STACKING LOCATORS OF THE NEXT LOWER CONTAINER AND AS NEARLY AS POSSIBLE IN VERTICAL ALIGNMENT.

2. INSTALLATION OF 1-1/4" X .035" UNITIZING STEEL STRAPPING. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.

- A. THE UNITIZING STRAP SHOULD BE POSITIONED AROUND THE CONTAINERS AND SKID AS SHOWN, AND PLACED SO THAT THE STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACE OF THE CONTAINERS; I.E., VERTICAL ALONG SIDES AND STRAIGHT ACROSS TOP AND BOTTOM OF THE STACK.
- B. PLACE THE BATTEN (1" X 4" X 21-1/4") UNDER THE STRAPPING ACROSS THE TOP OF THE STACK TO PREVENT STRAPPING FROM DAMAGING THE TOP CONTAINER.
- C. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLED CRIMPED STRAP SEALS AS SHOWN. THE LAP JOINT WILL BE MADE ALONG THE SIDE OF THE STACK SO THAT THE SEALS WILL NOT BE IN CONTACT WITH THE CONTAINERS. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO INSURE THAT THE CONTAINERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.

3. CONTAINER OR CONTAINER STACK HANDLING.

(CONTINUED AT RIGHT)

CAUTION: EXTREME CARE MUST BE EXERCISED DURING UNLOADING OPERATIONS TO PREVENT DAMAGE TO THE EXPOSED PLASTIC AREA OF THE CONTAINER.

- NOTES:**
- (1) APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE, OTHER THAN HEREIN.
 - (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

- A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.
- B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION WHENEVER POSSIBLE. IF DESIRED, STACKS MAY BE HANDLED BY CAREFULLY PLACING FORKLIFT TINES IN THE SIDE OPENINGS PROVIDED THEREFOR UNDER THE MIDDLE CONTAINER. **CAUTION:** THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED; HOWEVER, FORK TINES MAY BE PLACED UNDER THE "CONTAINER STACK SKID" FROM AN END DIRECTION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER OR WITHDRAWING FORKS FROM UNDER THE "CONTAINER STACK SKID", TO PREVENT DAMAGE TO THE CONTAINERS BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.
- C. THE LOADING PATTERNS DEPICTED HEREIN HAVE BEEN DESIGNED SO THAT A CAR CAN BE EFFICIENTLY LOADED OR UNLOADED BY THE USE OF TWO FORKLIFT TRUCKS. ONE LIFT IS TO OPERATE WITHIN THE CAR AND THE OTHER LIFT IS TO PLACE CONTAINER STACKS INTO THE DOORWAY AREA OF A CAR OR TO REMOVE THEM FROM THAT AREA, AS WILL BE THE CASE DURING UNLOADING OPERATIONS. THE FOUR CONTAINER STACKS OF EACH LOAD UNIT WITHIN A CAR CAN BE LOADED AS FOLLOWS:

- (1) THE OUTSIDE-OF-CAR FORKLIFT WILL BE USED TO SET A CONTAINER STACK INTO THE DOORWAY AREA.

(CONTINUED IN LOWER RIGHT-HAND COLUMN ON PAGE 2)

UNITIZATION AND HANDLING PROCEDURES

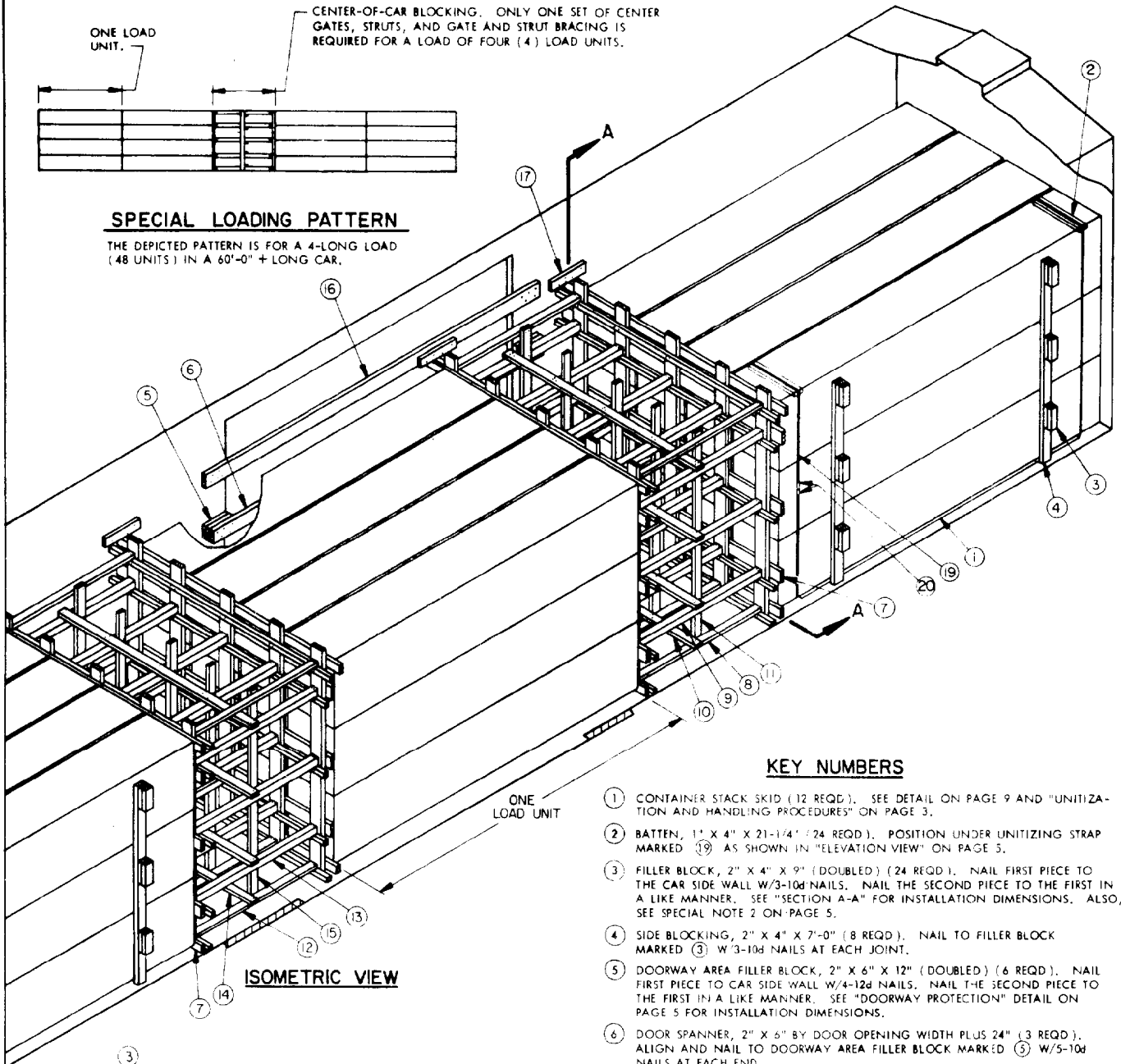
ONE LOAD UNIT.

CENTER-OF-CAR BLOCKING. ONLY ONE SET OF CENTER GATES, STRUTS, AND GATE AND STRUT BRACING IS REQUIRED FOR A LOAD OF FOUR (4) LOAD UNITS.



SPECIAL LOADING PATTERN

THE DEPICTED PATTERN IS FOR A 4-LONG LOAD (48 UNITS) IN A 60'-0" LONG CAR.

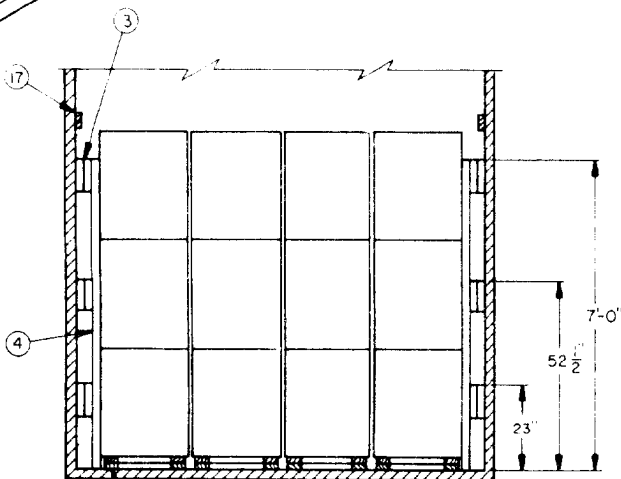


ISOMETRIC VIEW

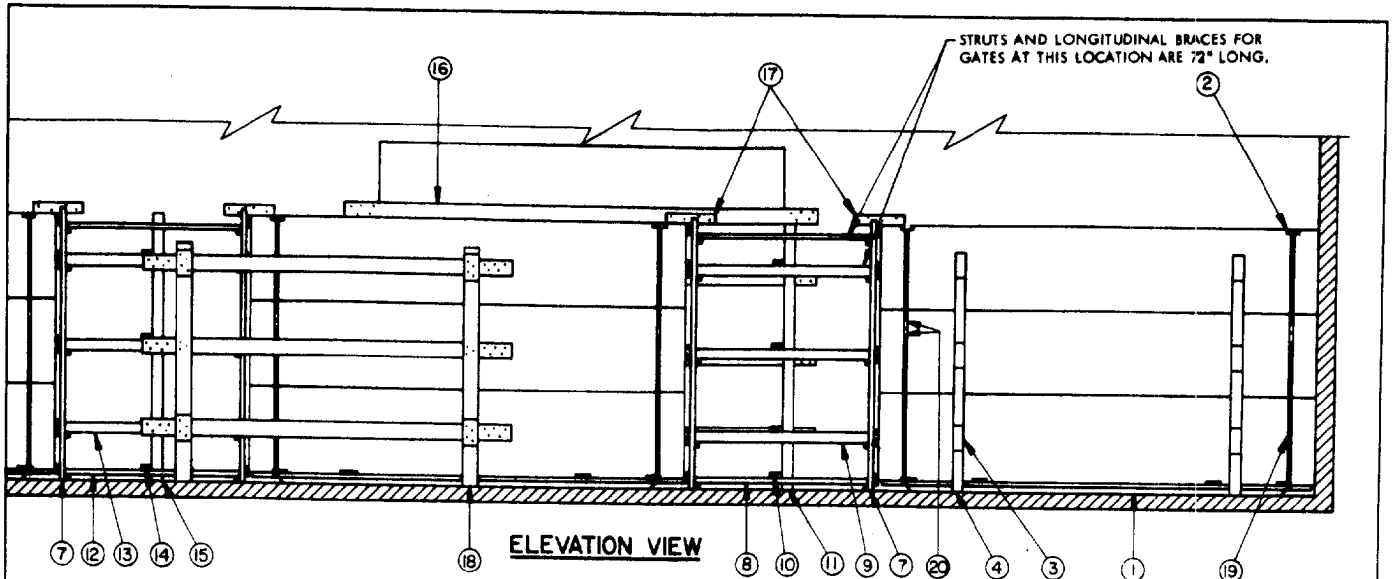
KEY NUMBERS

- ① CONTAINER STACK SKID (12 REQD.). SEE DETAIL ON PAGE 9 AND "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
- ② BATTEN, 1" X 4" X 21-1/4" (24 REQD.). POSITION UNDER UNITIZING STRAP MARKED ⑨ AS SHOWN IN "ELEVATION VIEW" ON PAGE 5.
- ③ FILLER BLOCK, 2" X 4" X 9" (DOUBLED) (24 REQD.). NAIL FIRST PIECE TO THE CAR SIDE WALL W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE "SECTION A-A" FOR INSTALLATION DIMENSIONS. ALSO, SEE SPECIAL NOTE 2 ON PAGE 5.
- ④ SIDE BLOCKING, 2" X 4" X 7'-0" (8 REQD.). NAIL TO FILLER BLOCK MARKED ③ W/3-10d NAILS AT EACH JOINT.
- ⑤ DOORWAY AREA FILLER BLOCK, 2" X 6" X 12" (DOUBLED) (6 REQD.). NAIL FIRST PIECE TO CAR SIDE WALL W/4-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE "DOORWAY PROTECTION" DETAIL ON PAGE 5 FOR INSTALLATION DIMENSIONS.
- ⑥ DOOR SPANNER, 2" X 5" BY DOOR OPENING WIDTH PLUS 24" (3 REQD.). ALIGN AND NAIL TO DOORWAY AREA FILLER BLOCK MARKED ⑤ W/5-10d NAILS AT EACH END.
- ⑦ CENTER GATE (4 REQD.). SEE DETAIL ON PAGE 9.
- ⑧ LONGITUDINAL BRACE FOR GATES, 2" X 4" X 72" (7 REQD.). POSITION FIVE (5) PIECES ON BOTTOM BRACE LEDGER AGAINST VERTICALS OF CENTER GATES MARKED ⑦ AND TOENAIL TO VERTICALS W/2-12d NAILS AT EACH END. POSITION TWO (2) PIECES ON THE TOP BRACE LEDGER AGAINST OUTER VERTICALS OF CENTER GATES MARKED ⑦ AND TOENAIL TO OUTER VERTICALS W/2-12d NAILS AT EACH END.
- ⑨ STRUT, 4" X 4" X 72" (15 REQD.). TOENAIL TO VERTICALS ON CENTER GATES MARKED ⑦ W/2-16d NAILS AT EACH END.
- ⑩ HORIZONTAL STRUT BRACING, 2" X 4" X 8'-6" (4 REQD.). NAIL TO STRUTS MARKED ⑨ AND/OR BOTTOM LONGITUDINAL BRACE FOR GATES MARKED ⑧ W/3-10d NAILS AT EACH JOINT.
- ⑪ VERTICAL STRUT BRACING, 2" X 4" X 7'-9" (5 REQD.). NAIL TO STRUTS MARKED ⑨ W/3-10d NAILS AT EACH JOINT AND NAIL TO LONGITUDINAL BRACE FOR GATES MARKED ⑧ W/2-10d NAILS AT EACH JOINT.
- ⑫ LONGITUDINAL BRACE FOR GATES, 2" X 4" BY CUT TO FIT (7 REQD.). POSITION FIVE (5) PIECES ON BOTTOM BRACE LEDGER AGAINST VERTICALS OF CENTER GATES MARKED ⑦ AND TOENAIL TO VERTICALS W/2-12d NAILS AT EACH END. POSITION TWO (2) PIECES ON THE TOP BRACE LEDGER AGAINST OUTER VERTICALS OF CENTER GATES MARKED ⑦ AND TOENAIL TO OUTER VERTICALS W/2-12d NAILS AT EACH END.

(KEY NUMBERS CONTINUED ON PAGE 5)



SECTION A-A



(KEY NUMBERS CONTINUED FROM PAGE 4)

(SPECIAL NOTES CONTINUED FROM LEFT)

- 13 STRUT, 4" X 4" BY CUT TO FIT (15 REQD). TOENAIL TO VERTICALS ON CENTER GATES MARKED 7 W/2-16d NAILS AT EACH END.
- 14 HORIZONTAL STRUT BRACING, 2" X 4" X 8'-6" (4 REQD). NAIL TO STRUTS MARKED 13 AND/OR BOTTOM LONGITUDINAL BRACE FOR GATES MARKED 12 W/3-10d NAILS AT EACH JOINT.
- 15 VERTICAL STRUT BRACING, 2" X 4" X 7'-9" (5 REQD). NAIL TO STRUTS MARKED 13 W/3-10d NAILS AT EACH JOINT AND NAIL TO LONGITUDINAL BRACE FOR GATES MARKED 12 W/2-10d NAILS AT EACH JOINT.
- 16 GATE HOLD-DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). POSITION OVER CENTER GATE MARKED 7 AND NAIL TO CAR SIDE WALL W/5-12d NAILS AT EACH END.
- 17 GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (8 REQD). NAIL TO GATE HOLD-DOWN AND/OR CAR SIDE WALL W/4-10d NAILS.
- 18 DOORWAY PROTECTION (1 REQD), TO BE INSTALLED ON LOADING SIDE OF CAR. SEE DETAIL ON THIS PAGE. ALSO SEE SPECIAL NOTE 4 ON THIS PAGE.
- 19 UNITIZING STRAP, 1-1/4" X .035" X 20'-0" STEEL STRAPPING (24 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND GENERAL NOTE "N" ON PAGE 2.
- 20 SEAL FOR 1-1/4" STRAPPING (48 REQD; 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL AS SPECIFIED WITHIN GENERAL NOTE "N" ON PAGE 2.

ACHIEVED BY THE SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES FOR THE OMITTED CONTAINERS, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. REFER TO PAGE 8 FOR A TYPICAL INSTALLATION.

- 4. THE "DOORWAY PROTECTION" ASSEMBLY DETAILED ON THIS PAGE IS FOR THE DOORWAY ON THE LOADING SIDE OF THE CAR. NOTE DIFFERENCE IN SIZE AND LOCATION OF STOP CLEATS FOR CARS EQUIPPED WITH PLUG DOORS. ONLY PIECES MARKED 5 AND 6 AS SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 4 ARE REQUIRED FOR DOORWAY PROTECTION ON THE OPPOSITE SIDE OF THE CAR.

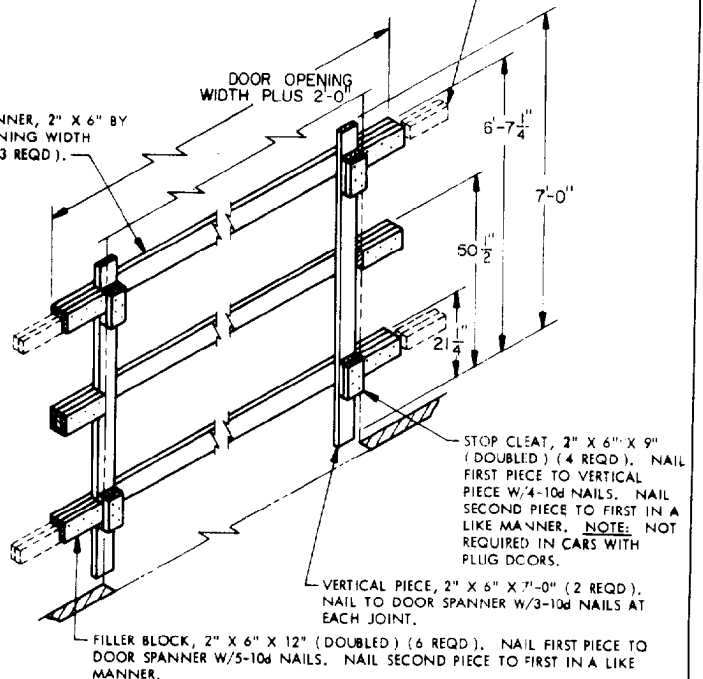
FOR USE IN PLUG DOOR CARS. STOP CLEAT, 2" X 4" X 12" (DOUBLED) (4 REQD). INSTALL IN ALIGNMENT WITH TOP AND BOTTOM DOOR SPANNER PIECES ON LOADING SIDE. NAIL FIRST PIECE TO CAR SIDE WALL W/4-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.

SPECIAL NOTES

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH 12'-0" STAGGERED DOOR OPENINGS IS SHOWN. SHORTER AND/OR NARROWER CARS, OR CARS HAVING SMALLER DOOR OPENINGS ARE NOT RECOMMENDED; HOWEVER, LONGER AND/OR WIDER CARS AND CARS EQUIPPED WITH DOOR OPENINGS GREATER THAN 12'-0" MAY BE USED. SEE "SPECIAL LOADING PATTERN" ON PAGE 4.
2. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD HAS ALL METAL SIDE WALLS, THE "SPECIAL PROVISIONS" DETAIL AS SHOWN ON PAGE 11 SHOULD BE APPLIED. ALSO, THE "SIDE FILL BLOCKING" ASSEMBLY AS DETAILED ON PAGE 13 WILL BE USED IN LIEU OF FILLER BLOCK MARKED 3 AND SIDE BLOCKING MARKED 4.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF LESS CAPACITY THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, A "FILLER ASSEMBLY" AS DETAILED ON PAGE 10, MUST BE SUBSTITUTED FOR EACH OMITTED CONTAINER. THE TOP CONTAINER OF A CENTER CONTAINER STACK IN AN END LOAD UNIT IS THE PREFERRED POSITION FOR A "FILLER". IF THE QUANTITY TO BE SHIPPED CANNOT READILY BE

(SPECIAL NOTES CONTINUED AT RIGHT)

DOOR SPANNER, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (3 REQD).



STOP CLEAT, 2" X 6" X 9" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO VERTICAL PIECE W/4-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. NOTE: NOT REQUIRED IN CARS WITH PLUG DOORS.

VERTICAL PIECE, 2" X 6" X 7'-0" (2 REQD). NAIL TO DOOR SPANNER W/3-10d NAILS AT EACH JOINT.

FILLER BLOCK, 2" X 6" X 12" (DOUBLED) (6 REQD). NAIL FIRST PIECE TO DOOR SPANNER W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.

DOORWAY PROTECTION

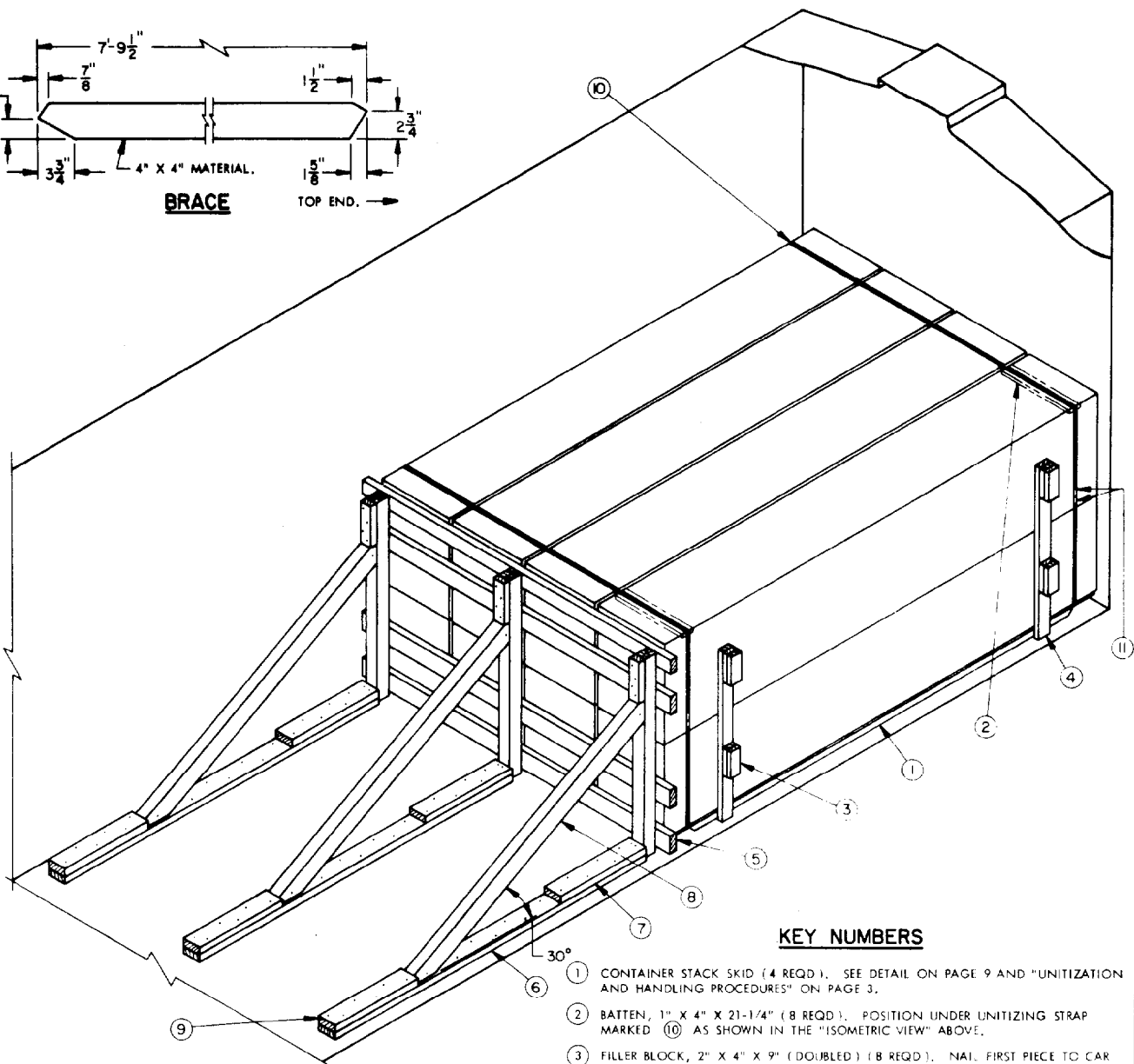
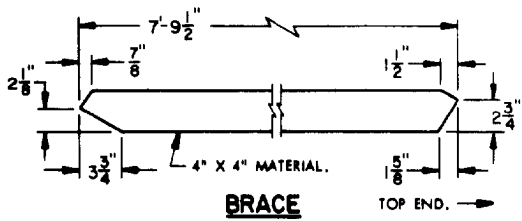
SEE SPECIAL NOTE 4 ON THIS PAGE.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (W/CBU ITEM)	36	41,580 LBS
DUNNAGE		3,789 LBS
TOTAL WEIGHT		45,369 LBS

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	43	15
1" X 6"	89	45
2" X 2"	183	61
2" X 4"	974	650
2" X 6"	486	486
4" X 4"	162	216
NAILS		
	NO. REQD	POUNDS
6d (2")	528	3-1/4
10d (3")	1624	25
12d (3-1/4")	154	2-3/4
16d (3-1/2")	120	3
STEEL STRAPPING, 1-1/4" X .035" -----	480' REQD -----	69 LBS
SEAL FOR 1-1/4" STRAPPING -----	48 REQD -----	2-1/2 LBS

36-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (CONVENTIONAL)



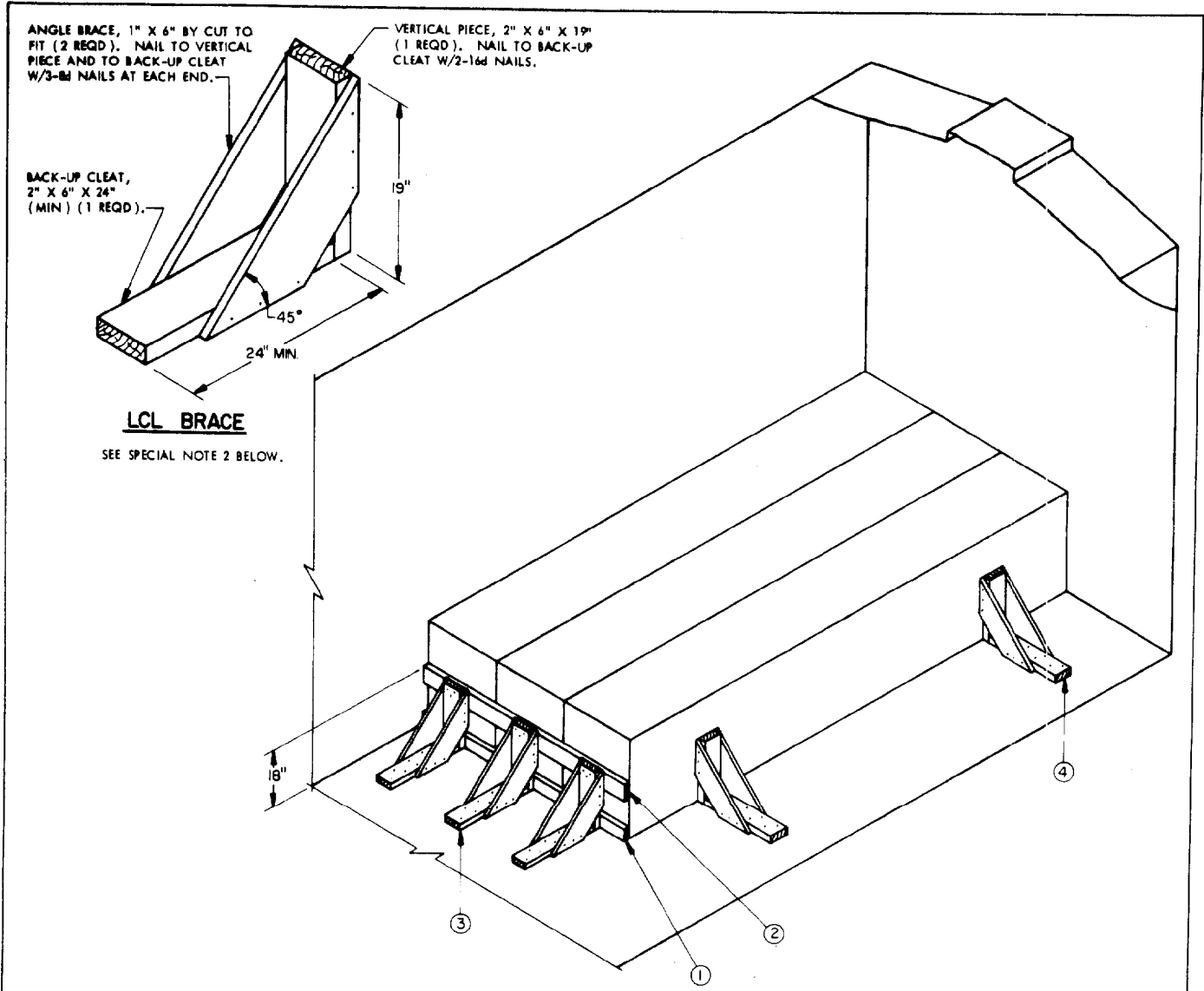
ISOMETRIC VIEW

KEY NUMBERS

- ① CONTAINER STACK SKID (4 REQD.). SEE DETAIL ON PAGE 9 AND "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
- ② BATTEN, 1" X 4" X 21-1/4" (8 REQD.). POSITION UNDER UNITIZING STRAP MARKED ⑩ AS SHOWN IN THE "ISOMETRIC VIEW" ABOVE.
- ③ FILLER BLOCK, 2" X 4" X 9" (DOUBLED) (8 REQD.). NAIL FIRST PIECE TO CAR SIDE WALL W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE "SECTION A-A" ON PAGE 4 FOR INSTALLATION DIMENSIONS.
- ④ SIDE BLOCKING, 2" X 4" X 52-1/2" (4 REQD.). NAIL TO FILLER BLOCK MARKED ③ W/3-10d NAILS AT EACH JOINT.
- ⑤ LCL GATE (1 REQD.). SEE DETAIL ON PAGE 9.
- ⑥ FLOOR CLEAT, 2" X 6" X 9'-3" (3 REQD.). ALIGN WITH VERTICALS ON THE LCL GATE MARKED ⑤ AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8".
- ⑦ POCKET CLEAT, 2" X 6" X 30" (3 REQD.). NAIL TO FLOOR CLEAT MARKED ⑥ W/6-40d NAILS. TOENAIL TO VERTICALS OF LCL GATE MARKED ⑤ W/2-16d NAILS.
- ⑧ KNEE BRACE, 4" X 4" X 7'-9-1/2" (3 REQD.). SEE "BRACE" DETAIL ABOVE. TOENAIL TO VERTICALS OF LCL GATE MARKED ⑤ AND FLOOR CLEAT MARKED ⑥ W/2-16d NAILS AT EACH END.
- ⑨ BACK-UP CLEAT, 2" X 6" X 30" (3 REQD.). NAIL TO FLOOR CLEAT MARKED ⑥ W/6-40d NAILS.
- ⑩ UNITIZING STRAP, 1-1/4" X .035" X 16'-0", STEEL STRAPPING (8 REQD.). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND GENERAL NOTE "N" ON PAGE 2.
- ⑪ SEAL FOR 1-1/4" STRAPPING (16 REQD.; 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL AS SPECIFIED WITHIN GENERAL NOTE "N" ON PAGE 2.

SPECIAL NOTES

1. A 9'-2" WIDE BOX CAR IS SHOWN. A NARROWER OR WIDER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD BY DECREASING OR INCREASING THE THICKNESS OF THE FILLER BLOCK MARKED ③. IF THE CAR BEING USED HAS METAL WALLS, THE "SIDE FILL BLOCKING" ASSEMBLY AS DETAILED ON PAGE 13 WILL BE USED IN LIEU OF FILLER BLOCK MARKED ③ AND SIDE BLOCKING MARKED ④.
2. ONE (1) KNEE BRACE ASSEMBLY, SHOWN AS PIECES MARKED ⑥, ⑦, ⑧ AND ⑨ IS ADEQUATE FOR RETAINING AN LCL LOAD OF NOT MORE THAN 7,000 POUNDS. NOT LESS THAN TWO (2) KNEE BRACE ASSEMBLIES WILL BE USED FOR BLOCKING AN LCL LOAD.
3. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR, SEE GENERAL NOTE "O" ON PAGE 2 FOR GUIDANCE.



LCL BRACE
SEE SPECIAL NOTE 2 BELOW.

ISOMETRIC VIEW

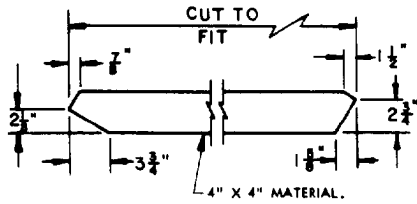
SPECIAL NOTES

1. A 9'-2" WIDE BOX CAR IS SHOWN; HOWEVER, ANY WIDTH CAR CAN BE USED FOR THE TYPE OF OUTLOADING DEPICTED.
2. EACH BRACE AS APPLIED FOR LONGITUDINAL OR LATERAL BRACING WILL SUPPORT 2,000 OR 8,000 POUNDS OF LADING RESPECTIVELY. A MINIMUM OF TWO (2) BRACES MUST BE USED FOR LATERAL BRACING. FOR LONGITUDINAL BRACING, AT LEAST ONE (1) BRACE IS REQUIRED FOR EACH CONTAINER.
3. THE BLOCKING PROCEDURES SHOWN ON THIS PAGE ARE RESTRICTED TO LCL SHIPMENTS OF ONLY ONE (1) LAYER HIGH.
4. THE CONTAINERS SHOWN IN THE "ISOMETRIC VIEW" ABOVE ARE NOT PROVIDED WITH "CONTAINER STACK SKIDS" UNDER THEM. IF DESIRED, TO FACILITATE EASIER HANDLING FOR SKIDDING THE CONTAINER TO THE END OF THE CAR, A "CONTAINER STACK SKID" MAY BE INSTALLED UNDER EACH CONTAINER. HOWEVER, THE SIZE OF THE LCL BRACES MARKED ③ AND ④ WILL BE ADJUSTED TO PROVIDE A 22" LONG VERTICAL PIECE AND THE LENGTH OF THE ANGLE BRACE ADJUSTED ACCORDINGLY. IN ADDITION, HORIZONTAL PIECES MARKED ① AND ② WILL BE RAISED 3". FOR "CONTAINER STACK SKID" ASSEMBLY, SEE DETAIL ON PAGE 9 AND "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

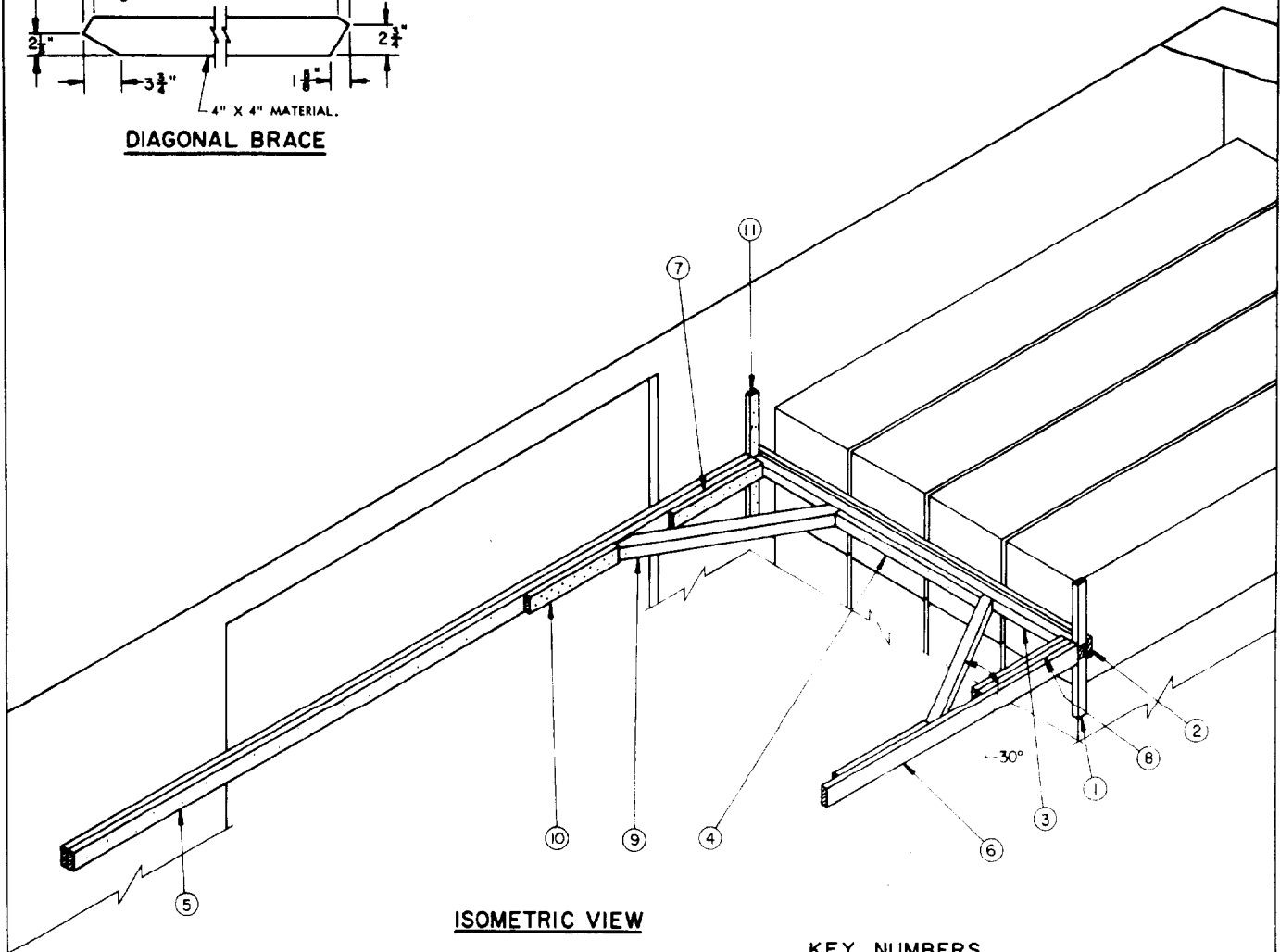
KEY NUMBERS

- ① BOTTOM HORIZONTAL, 2" X 4" X 6'-1" (1 REQD.).
- ② TOP HORIZONTAL, 2" X 6" X 6'-1" (1 REQD.). SEE "ISOMETRIC VIEW" ABOVE FOR INSTALLATION DIMENSION.
- ③ END BLOCKING LCL BRACE (3 REQD.). SEE DETAIL AT LEFT ABOVE. NAIL TO TOP AND BOTTOM HORIZONTALS W/3-10d NAILS AT EACH JOINT. NAIL TO THE CAR FLOOR W/9-16d NAILS.
- ④ SIDE BLOCKING LCL BRACE (2 REQD.). SEE DETAIL AT LEFT ABOVE. NAIL TO THE CAR FLOOR W/9-16d NAILS.

TYPICAL LCL (3-UNIT LOAD) IN A 9'-2" WIDE CAR (CONVENTIONAL)



DIAGONAL BRACE



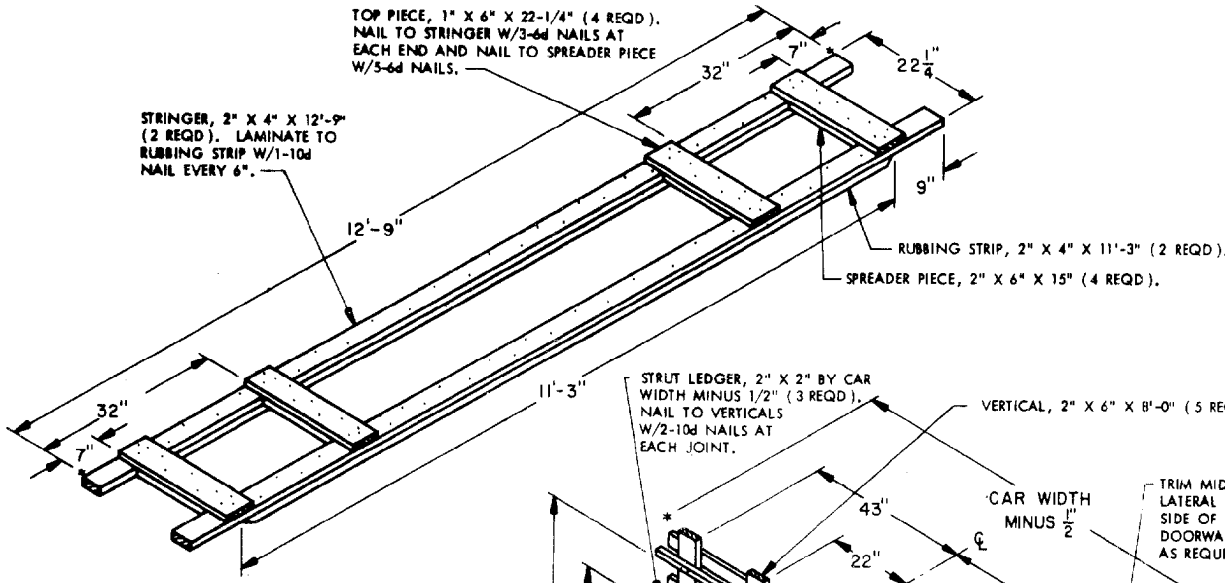
ISOMETRIC VIEW

KEY NUMBERS

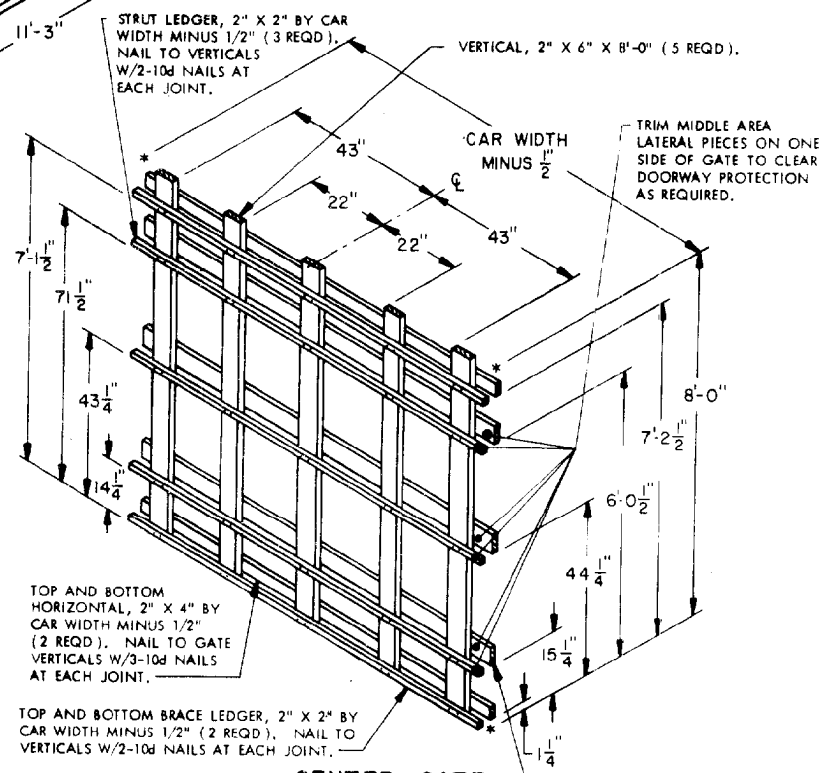
- ① WALL CLEAT, 2" X 4" X 18" (2 REQD.). NAIL TO CAR SIDE WALL W/5-12d NAILS.
- ② HORIZONTAL, 2" X 6" BY CAR WIDTH (CUT TO FIT) (1 REQD.). NAIL TO CROSS CAR BRACE MARKED ③ W/1-12d NAIL EVERY 6".
- ③ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (1 REQD.).
- ④ CENTER CLEAT, 2" X 4" X 48" (1 REQD.). NAIL TO CROSS CAR BRACE MARKED ③ W/7-12d NAILS.
- ⑤ HORIZONTAL WALL CLEAT, 2" X 6" BY LENGTH TO SUIT (DOUBLED) (1 REQD.). CLEAT WILL BE LENGTH NECESSARY TO EXTEND ACROSS THE DOORWAY AND FAR ENOUGH PAST DOOR OPENING TO PROVIDE A TOTAL WALL BEARING SURFACE OF 7'-0" LONG, I.E., THE SUM OF THE WALL BEARING SURFACE ON BOTH SIDES OF THE DOOR OPENING. HOWEVER, A MINIMUM OF 12" OF WALL BEARING SURFACE MUST BE AVAILABLE ON THE LOAD SIDE OF THE DOOR OPENING FOR ADEQUATE NAILING. NAIL FIRST PIECE TO CAR WALL W/16-12d NAILS. NAIL SECOND PIECE TO FIRST W/1-10d NAIL EVERY 8".
- ⑥ HORIZONTAL WALL CLEAT, 2" X 6" X 7'-0" (1 REQD.). NAIL TO CAR SIDE WALL W/16-12d NAILS.
- ⑦ POCKET CLEAT, 2" X 6" X 30" (1 REQD.). NAIL TO HORIZONTAL WALL CLEAT MARKED ⑤ W/10-16d NAILS.
- ⑧ POCKET CLEAT, 2" X 6" X 30" (DOUBLED) (1 REQD.). NAIL FIRST PIECE TO HORIZONTAL WALL CLEAT MARKED ⑥ W/10-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑨ DIAGONAL BRACE, 4" X 4" BY CUT TO FIT (2 REQD.). SEE DETAIL AT LEFT ABOVE. TOENAIL TO CROSS CAR BRACE MARKED ③ AND TO HORIZONTAL WALL CLEAT MARKED ⑤ AND/OR ⑥ W/1-60d NAIL AT EACH END.
- ⑩ BACK-UP CLEAT, 2" X 6" X 30" (2 REQD.). NAIL TO HORIZONTAL WALL CLEAT MARKED ⑤ AND/OR ⑥ W/14-16d NAILS.
- ⑪ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD.). NAIL TO CAR SIDE WALL W/4-12d NAILS.

SPECIAL NOTES

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 12'-0" STAGGERED DOOR OPENINGS, WITH A PARTIAL THIRD (3RD) LAYER IS SHOWN. THE "K-BRACE" ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A MAXIMUM PARTIAL LAYER OF 6,000 POUNDS.
2. SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL LAYER BRACING" BECAUSE OF THE LENGTH OF THE PARTIAL LAYER TO BE SHIPPED.
3. A WIDER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD. THE 9'-2" WIDE CAR IS THE PREFERRED WIDTH CAR FOR SHIPPING THIS ITEM. IF A WIDER CAR IS USED, FILLER BLOCK MARKED ④ ON PAGE 4 MUST BE INCREASED TO PROVIDE FOR A TIGHT LOAD ACROSS THE CAR.
4. PORTIONS OF THE CAR, FIRST AND SECOND LAYERS OF THE CONTAINERS, AND RELATED BLOCKING AND BRACING ARE OMITTED FROM THE "ISOMETRIC VIEW" ABOVE FOR CLARITY PURPOSES. REFER TO PAGES 4 AND 5 FOR APPLICABLE BLOCKING AND BRACING PROCEDURES TO BE USED IN CONJUNCTION WITH PARTIAL LAYER BRACING SPECIFIED ABOVE.



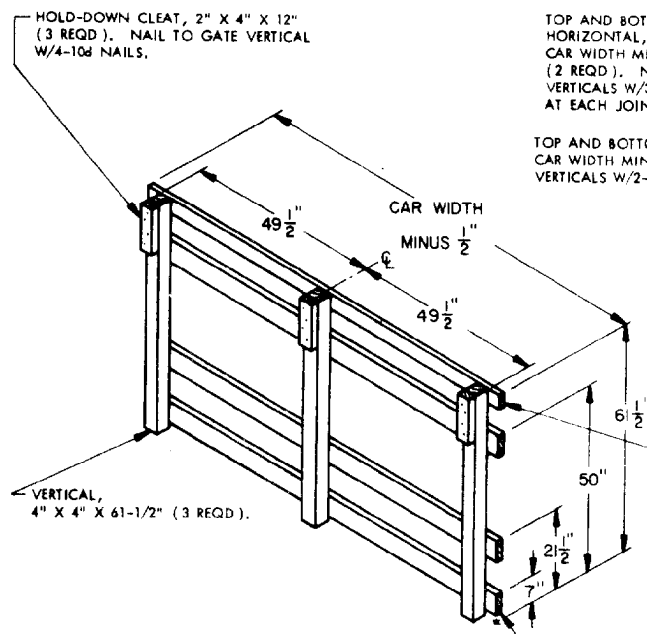
CONTAINER STACK SKID



CENTER GATE

THE CENTER GATE AS DETAILED IS FOR A 3-LAYER LOAD. FOR A 2-LAYER OR A 1-LAYER LOAD, ELIMINATE 2" X 6" HORIZONTALS AND 2" X 2" STRUT LEDGERS AS APPLICABLE. REDUCE HEIGHT OF GATE ACCORDINGLY. NOTE THAT ONLY ONE LEVEL OF 4" X 4" STRUTS CAN BE OMITTED FOR EACH OMITTED LAYER. REGARDLESS OF THE NUMBER OF LAYERS WITHIN THE LOAD BEING SHIPPED, 2" X 4" GATE BRACING MUST BE PROVIDED AT THE TOP AND BOTTOM OF THE GATES.

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

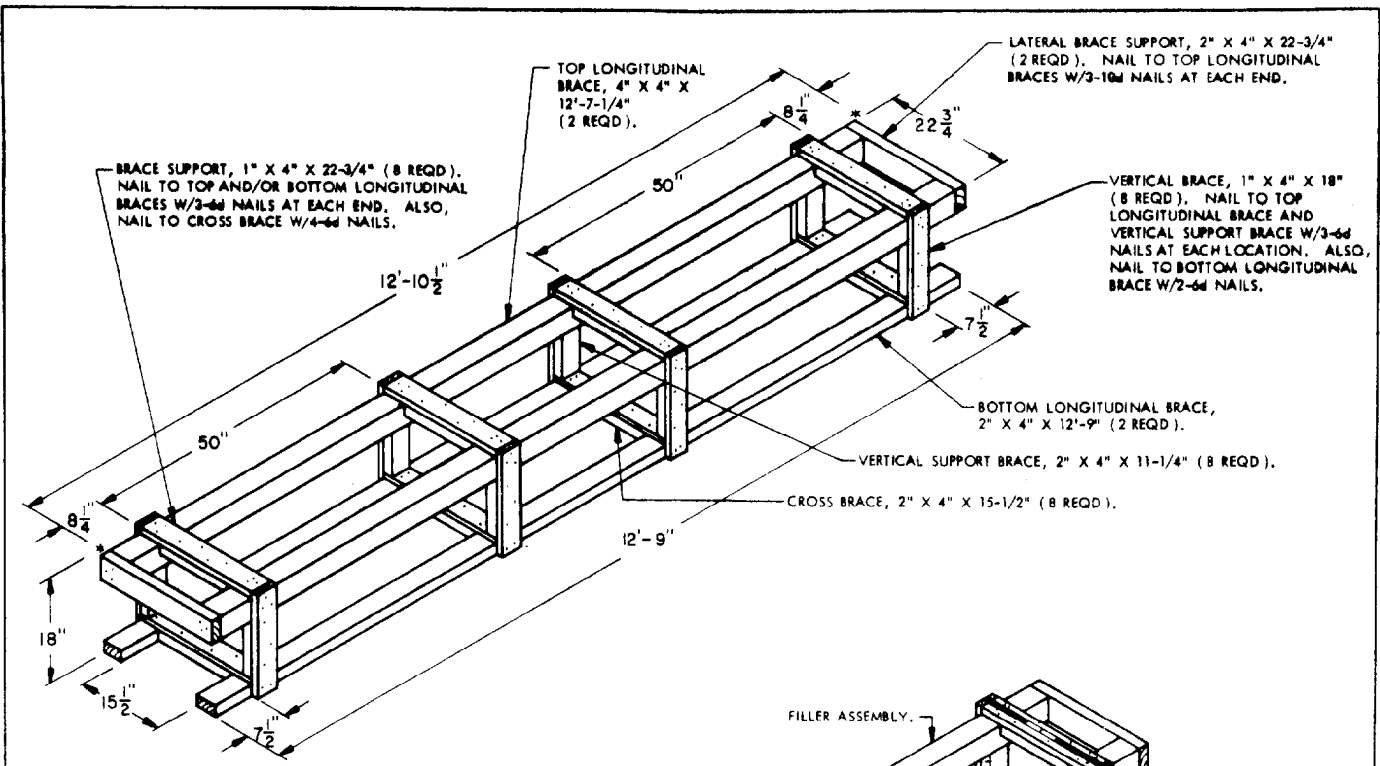


LCL GATE

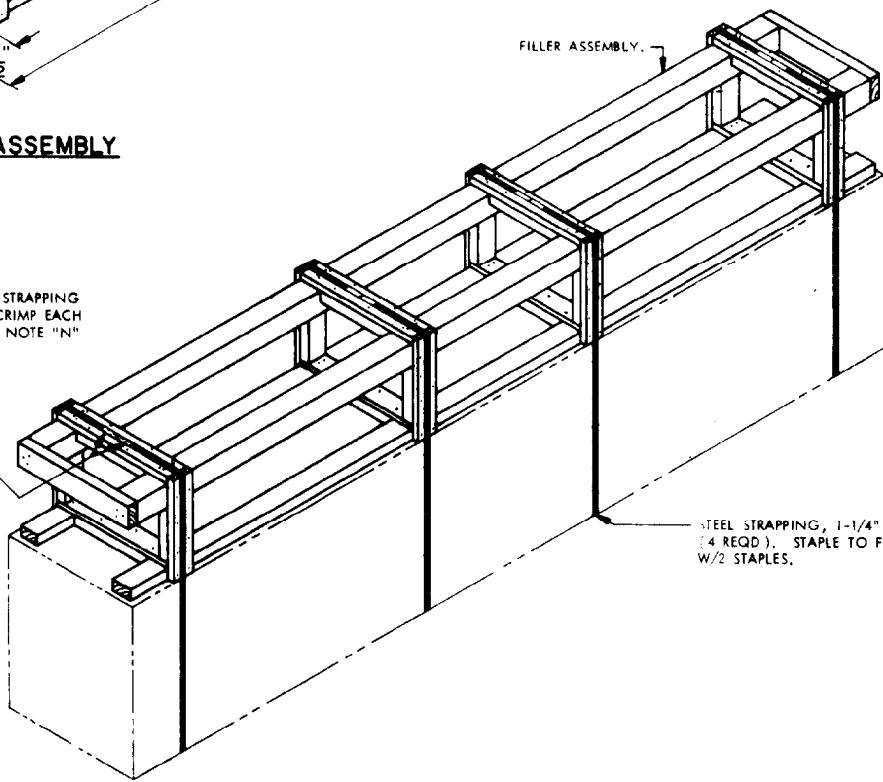
TOP HORIZONTAL, 2" X 4" BY CAR WIDTH MINUS 1/2" (1 REQD). NAIL TO GATE VERTICALS W/3-10d NAILS AT EACH JOINT.

HORIZONTAL, 2" X 6" BY CAR WIDTH MINUS 1/2" (3 REQD). NAIL TO GATE VERTICALS W/3-10d NAILS AT EACH JOINT.

DETAILS

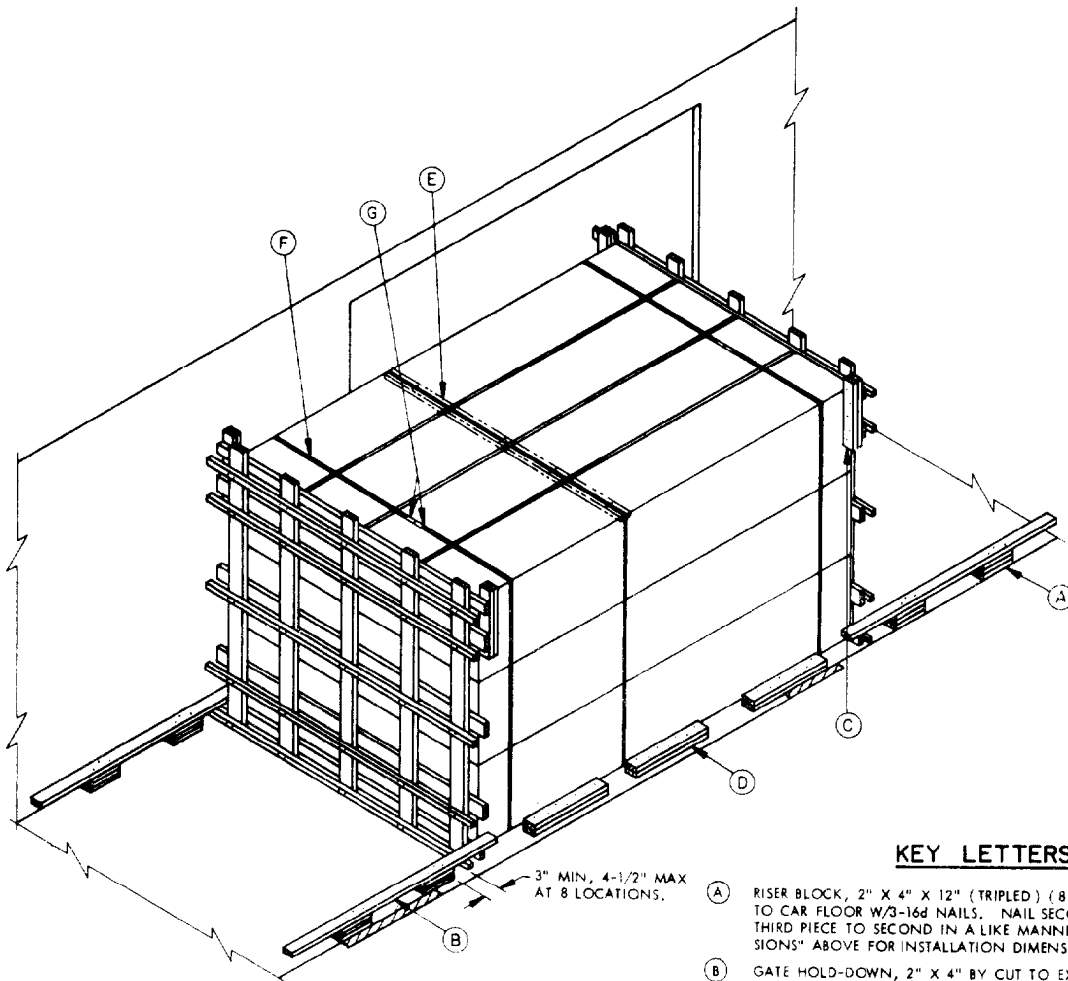


FILLER ASSEMBLY



APPLICATION OF FILLER ASSEMBLY

TO BE USED ONLY ON TOP LAYER OF LOAD.



SPECIAL PROVISIONS

THE SPECIAL PROVISIONS SHOWN ABOVE DELINEATE ALTERNATE DOORWAY PROTECTION AND GATE HOLD-DOWN METHODS.

SPECIAL NOTES

1. WHEN LOADING A BOX CAR THAT HAS ALL METAL SIDE WALLS, THE GATE HOLD-DOWN METHOD SHOWN AS PIECES MARKED (A), (B), AND (C) IN "SPECIAL PROVISIONS" ABOVE SHOULD BE USED IN LIEU OF PIECES MARKED (16) AND (17) ON PAGES 4 AND 5.
2. WHEN LOADING A BOX CAR THAT HAS DOORWAY OPENINGS OVER 12'-0", THE DOORWAY PROTECTION METHOD SHOWN AS PIECES (D), (E), (F), AND (G) IN "SPECIAL PROVISIONS" ABOVE SHOULD BE USED IN LIEU OF PIECES MARKED (5), (6), AND (18) ON PAGES 4 AND 5.
3. THE REMAINDER OF THE LOAD AND STRUTS, STRUT BRACING AND OTHER BRACING MEMBERS FOR CENTER GATES ARE OMITTED FROM THE ABOVE "SPECIAL PROVISIONS" FOR CLARITY PURPOSES. SEE PAGES 4 AND 5 FOR LOADING, BLOCKING AND BRACING PROCEDURES WHICH AUGMENT THE "SPECIAL PROVISIONS" DEPICTED.

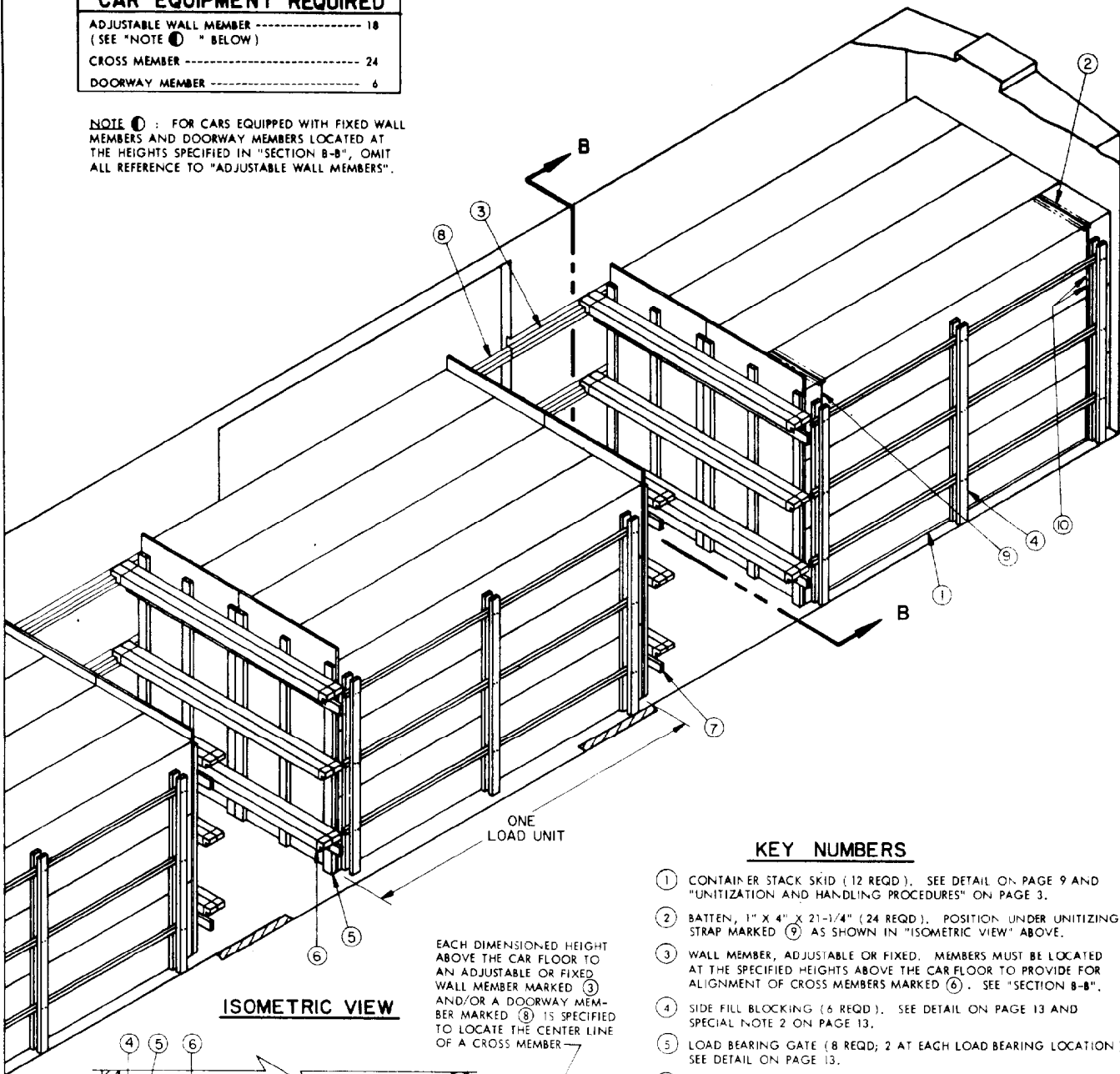
KEY LETTERS

- (A) RISER BLOCK, 2" X 4" X 12" (TRIPLED) (8 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST AND THIRD PIECE TO SECOND IN A LIKE MANNER. SEE "SPECIAL PROVISIONS" ABOVE FOR INSTALLATION DIMENSIONS.
- (B) GATE HOLD-DOWN, 2" X 4" BY CUT TO EXTEND 6" PAST THE BOTTOM 2" X 4" HORIZONTAL MEMBER OF THE ADJACENT CENTER GATES (4 REQD). NAIL TO RISER BLOCK W/3-16d NAILS AT EACH LOCATION.
- (C) SIDE CLEAT, 2" X 4" X 24" (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO THE TOP TWO HORIZONTALS OF A CENTER GATE THAT IS IN A DOORWAY AREA W/3-10d NAILS AT EACH JOINT. NAIL THE SECOND PIECE TO THE FIRST W/5-10d NAILS.
- (D) DOORWAY PROTECTION, 2" X 4" X 30" (DOUBLED) (6 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/7-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- (E) STRAPPING BOARD, 2" X 4" X 8'-0" (1 REQD). POSITION AS SHOWN IN "SPECIAL PROVISIONS" ABOVE.
- (F) LOAD UNIT UNITIZING STRAP, 1-1/4" X .035" X 33'-0" STEEL STRAPPING (3 REQD). POSITION THE TWO (2) END STRAPS OVER BATTENS THAT ARE LOCATED ON TOP OF LADING. PASS MIDDLE STRAP THRU FORK TINE RECEPTACLE OF CONTAINERS ON FIRST LAYER AND STAPLE TO STRAPPING BOARD MARKED (E) W/4 STAPLES.
- (G) SEAL FOR 1-1/4" STRAPPING (6 REQD; 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL AS SPECIFIED WITHIN GENERAL NOTE "N" ON PAGE 2.

CAR EQUIPMENT REQUIRED

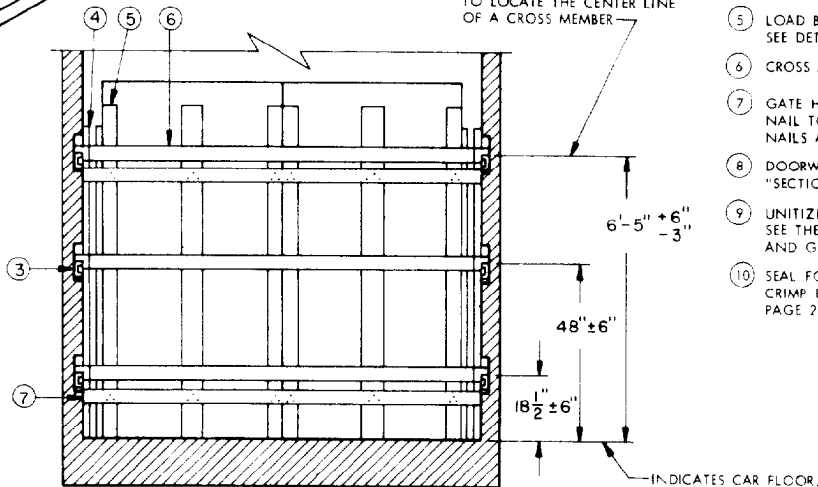
ADJUSTABLE WALL MEMBER -----	18
(SEE "NOTE ①" BELOW)	
CROSS MEMBER -----	24
DOORWAY MEMBER -----	6

NOTE ① : FOR CARS EQUIPPED WITH FIXED WALL MEMBERS AND DOORWAY MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION B-B", OMIT ALL REFERENCE TO "ADJUSTABLE WALL MEMBERS".



ISOMETRIC VIEW

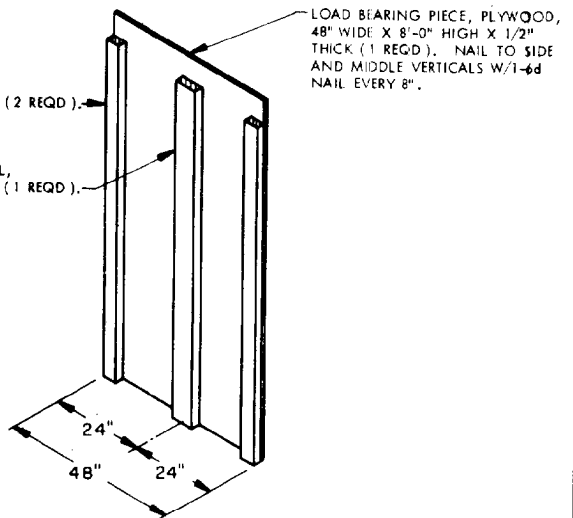
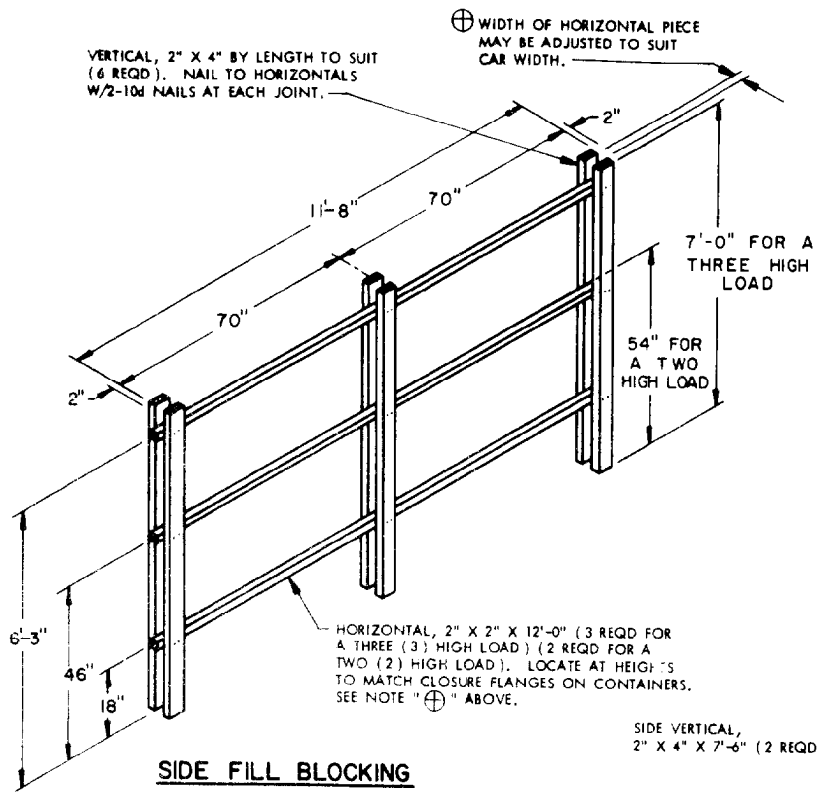
EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED ③ AND/OR A DOORWAY MEMBER MARKED ⑧ IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER



SECTION B-B

KEY NUMBERS

- ① CONTAINER STACK SKID (12 REQD.). SEE DETAIL ON PAGE 9 AND "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
- ② BATTEN, 1" X 4" X 21-1/4" (24 REQD.). POSITION UNDER UNITIZING STRAP MARKED ⑨ AS SHOWN IN "ISOMETRIC VIEW" ABOVE.
- ③ WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE FOR ALIGNMENT OF CROSS MEMBERS MARKED ⑥. SEE "SECTION B-B".
- ④ SIDE FILL BLOCKING (6 REQD.). SEE DETAIL ON PAGE 13 AND SPECIAL NOTE 2 ON PAGE 13.
- ⑤ LOAD BEARING GATE (8 REQD.; 2 AT EACH LOAD BEARING LOCATION). SEE DETAIL ON PAGE 13.
- ⑥ CROSS MEMBER (24 REQD.). SEE GENERAL NOTE "H-1" ON PAGE 2.
- ⑦ GATE HOLD-DOWN, 2" X 4" BY CAR WIDTH (CUT TO FIT) (8 REQD.). NAIL TO VERTICALS ON LOAD BEARING GATE MARKED ⑤ W/3-10d NAILS AT EACH JOINT.
- ⑧ DOORWAY MEMBER (6 REQD.). POSITION AT HEIGHTS SPECIFIED IN "SECTION B-B" ON THIS PAGE.
- ⑨ UNITIZING STRAP, 1-1/4" X .035" X 20'-0" STEEL STRAPPING (24 REQD.). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND GENERAL NOTE "N" ON PAGE 2.
- ⑩ SEAL FOR 1-1/4" STRAPPING (48 REQD.; 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL AS SPECIFIED WITHIN GENERAL NOTE "N" ON PAGE 2.



SPECIAL NOTES

1. A 50'-6" LONG X 8'-11" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 12'-0" STAGGERED DOOR OPENINGS, IS SHOWN. CARS WITH 10'-0" OR WIDER DOORS CAN BE USED.
2. A WIDER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. TO FILL THE ADDITIONAL WIDTH OF A CAR, THE HORIZONTAL OF SIDE FILL BLOCKING MARKED ④ WILL BE INCREASED. SHORTER AND NARROWER CARS ARE NOT RECOMMENDED. IF THE CAR BEING USED HAS AVAILABLE SIDE WALLS, THE FILLER BLOCK MARKED ③ AND THE SIDE BLOCKING MARKED ④ AS SHOWN ON PAGES 4 AND 5 MAY BE USED, IF DESIRED, IN LIEU OF "SIDE FILL BLOCKING" ASSEMBLY MARKED ④ ON PAGE 12 AND DETAILED ON THIS PAGE.
3. IF THE CAR BEING USED FOR A SHIPMENT OF THE DESIGNATED ITEM IS EQUIPPED WITH 10'-0" DOOR OPENINGS, IT WILL BE NECESSARY TO OMIT ONE CONTAINER STACK FROM THE LOAD UNIT IN THE DOORWAY AREA. FOR LATERAL BLOCKING PROCEDURES OF A THREE-CONTAINER STACK LOAD UNIT, SEE KEY LETTERS (D), (E), (F), AND (G) ON PAGE 11.
4. TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, ONE OR TWO CONTAINERS MAY BE OMITTED FROM THE THIRD LAYER OF A LOAD UNIT. FOR FOUR (4) CONTAINERS OR A MULTIPLE OF FOUR (4) CONTAINERS LESS THAN A FULL LOAD, OMIT THE ENTIRE THIRD LAYER FROM ONE OR MORE OF THE LOAD UNITS.

LOAD BEARING GATE

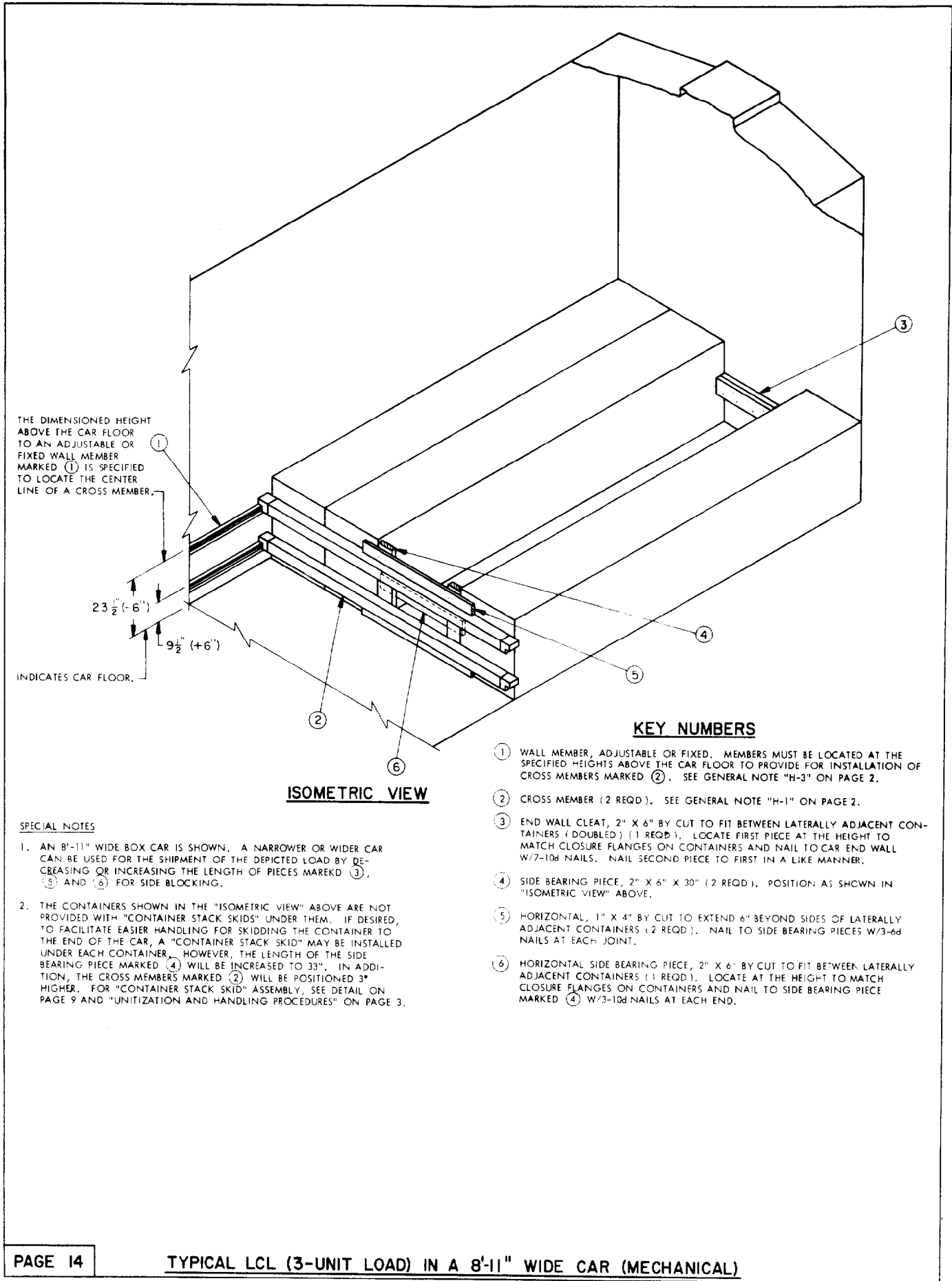
THE LOAD BEARING GATE AS DETAILED IS FOR A 3-LAYER LOAD. FOR A 2-LAYER OR A 1-LAYER LOAD, THE HEIGHT OF THE GATE MAY BE REDUCED ACCORDINGLY.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	43	15
1" X 6"	89	45
2" X 2"	216	72
2" X 4"	1020	680
2" X 6"	120	120
NAILS	NO. REQD	POUNDS
6d (2")	792	4-3/4
10d (3")	888	13-3/4
PLYWOOD, 4' X 8' X 1/2" THICK	8 REQD	352 LBS
STEEL STRAPPING, 1-1/4" X .035"	490 REQD	69 LBS
SEAL FOR 1-1/4" STRAPPING	48 REQD	2-1/2 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	36	41,580 LBS
(W/CBU ITEM)		
DUNNAGE		2,772 LBS
TOTAL WEIGHT		44,352 LBS

36-UNIT LOAD IN A 50'-6" LONG BY 8'-11" WIDE CAR (MECHANICAL)



THE DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED ① IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.

INDICATES CAR FLOOR.

$18\frac{1}{2} + 6$
 $- 3$

ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES

1. AN 8'-11" WIDE BOX CAR IS SHOWN. A NARROWER OR WIDER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD BY DECREASING OR INCREASING THE LENGTH OF PIECES MARKED ② AND ③ FOR SIDE BLOCKING.
2. THE CONTAINERS SHOWN IN THE "ISOMETRIC VIEW" ABOVE ARE NOT PROVIDED WITH "CONTAINER STACK SKIDS" UNDER THEM. IF DESIRED, TO FACILITATE EASIER HANDLING FOR SKIDDING THE CONTAINER TO THE END OF THE CAR, A "CONTAINER STACK SKID" MAY BE INSTALLED UNDER EACH CONTAINER. HOWEVER, THE HEIGHT OF THE LOAD BEARING PIECE MARKED ④ WILL BE INCREASED TO 33". IN ADDITION, THE CROSS MEMBER MARKED ⑤ WILL BE POSITIONED 3" HIGHER. FOR "CONTAINER STACK SKID" ASSEMBLY, SEE DETAIL ON PAGE 9 AND "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

- ① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBER MUST BE LOCATED AT THE SPECIFIED HEIGHT ABOVE THE CAR FLOOR TO PROVIDE FOR INSTALLATION OF CROSS MEMBER MARKED ⑤. SEE GENERAL NOTE "H-3" ON PAGE 2.
- ② END WALL CLEAT, 2" X 6" BY CUT TO FIT BETWEEN LATERALLY ADJACENT CONTAINERS (DOUBLED) (1 REQD). LOCATE FIRST PIECE AT THE HEIGHT TO MATCH CLOSURE FLANGES ON CONTAINERS AND NAIL TO CAR END WALL W/7-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ③ HORIZONTAL SIDE BEARING PIECE, 2" X 6" BY CUT TO FIT BETWEEN LATERALLY ADJACENT CONTAINERS (DOUBLED) (1 REQD). LAMINATE W/7-10d NAILS AND LOCATE AT THE HEIGHT TO MATCH CLOSURE FLANGES ON CONTAINERS.
- ④ LOAD BEARING PIECE, PLYWOOD, 30" WIDE X 32" HIGH X 1/2" THICK (2 REQD). NAIL TO HORIZONTAL PIECE MARKED ③ W/4-6d NAILS AT EACH LOCATION.
- ⑤ CROSS MEMBER (1 REQD). SEE GENERAL NOTE "H-1" ON PAGE 2.

TYPICAL LCL (2-UNIT LOAD) IN AN 8'-11" WIDE BOX CAR (MECHANICAL)

PAGE 15