APPROVED BY
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DATE 8/19/70

LOADING AND BRACING (CL & LCL) IN BOX CARS ⌖ OF CBU ITEMS PACKED IN THE CNU-105/E CONTAINER

INDEX

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

DRAFTSMAN	PROJ ENG	APSA PROJ OFF
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REVISIONS

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EXAMINED AND APPROVED
AMMUNITION PROCUREMENT & SUPPLY AGENCY

APPROVED BY ORDER OF COMMANDING GENERAL
U. S. ARMY MATERIEL COMMAND

U. S. ARMY MATERIEL COMMAND

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GENERAL NOTES

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 THEY ARE PACKED IN THE CNU-105/E CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-105/E CONTAINER WITH CONTENTS.

C. FOR DETAILS OF THE CONTAINER, SEE DRAWING NO. 66E6091.
CONTAINER DIMENSIONS ---- 94-1/8" LONG X 22-1/4" WIDE X 25-7/8" HIGH.
GROSS WEIGHT ---------- 1,010 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.

E. BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS OF VARIOUS WIDTHS HAVE BEEN SHOWN. HOWEVER, 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. ALTHOUGH THE DEPICTED DOORS HAVE BEEN SHOWN AS 8'-0" OR 10'-0" WIDE "THROUGH DOORS", STAGGERED DOOR CONFIGURATIONS ARE ALSO PERMITTED IF THE SPECIAL PROVISIONS AS SPECIFIED HEREIN ARE APPLIED. ALSO, CARS THAT HAVE DOOR OPENINGS WHICH ARE LESS THAN 8'-0" WIDE MAY BE USED; HOWEVER, THESE CARS ARE NOT RECOMMENDED FOR USE BECAUSE OF THE DIFFICULTY WHICH WILL BE EXPERIENCED DURING LOADING OPERATIONS.

F. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 4 THROUGH 11 ARE FOR CONVENTIONAL TYPE BOX CARS OF VARIOUS LENGTH AND WIDTH COMBINATIONS. THE PROCEDURES FOR FULL CARLOADS SPECIFY THE USE OF AN "OFFSET CENTER GATE" LOADING PATTERN TO FACILITATE LOADING AND UNLOADING OF THE CARS, PARTICULARLY IN THE DOORWAY AREAS.

G. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 20 THROUGH 25 ARE FOR BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES, AND 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.

1. A CROSS MEMBER, WHEN USED AS SPECIFIED BY ANY ONE OF THE DEPICTED OUTLOADING METHODS, WILL NOT BE RELIED UPON TO RETAIN MORE THAN 4,000 POUNDS OF LADING ON EITHER SIDE OF THE MEMBER. 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 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.

(GENERAL NOTES CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

3. 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 MUST BE INSTALLED IN THE SAME QUANTITY AND AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS LOAD BLOCKING MEMBERS.

H. 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 DESIGNATED ITEM.

J. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH AN EMPTY ITEM OR WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.

K. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN THE CARS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE 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. ONE AND ONE-QUARTER INCH (1-1/4") STEEL STRAPPING WILL BE USED TO UNITIZE CONTAINERS AS SHOWN ON PAGE 3. IF THE CAPACITY OF THE MATERIALS HANDLING EQUIPMENT USED TO LOAD THE CONTAINERS ABOARD A CAR PERMITS, IT IS RECOMMENDED THAT THE CONTAINERS BE UNITIZED PRIOR TO PLACEMENT IN 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.

M. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED. CAUTION: EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO CONTAINERS.

N. EXCEPT FOR PLYWOOD, DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE.

O. 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.

P. 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.

R. 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 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.

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 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.

T. THE "DOORWAY AREA" WITHIN A CAR IS DEFINED AS THE CARGO SPACE THAT IS ADJACENT TO A CONVENTIONAL TYPE AND/OR PLUG TYPE DOOR. THE LENGTH OF A "DOORWAY AREA" CAN BE AS MUCH AS 24 FEET IN SOME CARS THAT ARE EQUIPPED WITH STAGGERED DOORS.

MATERIAL SPECIFICATIONS

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

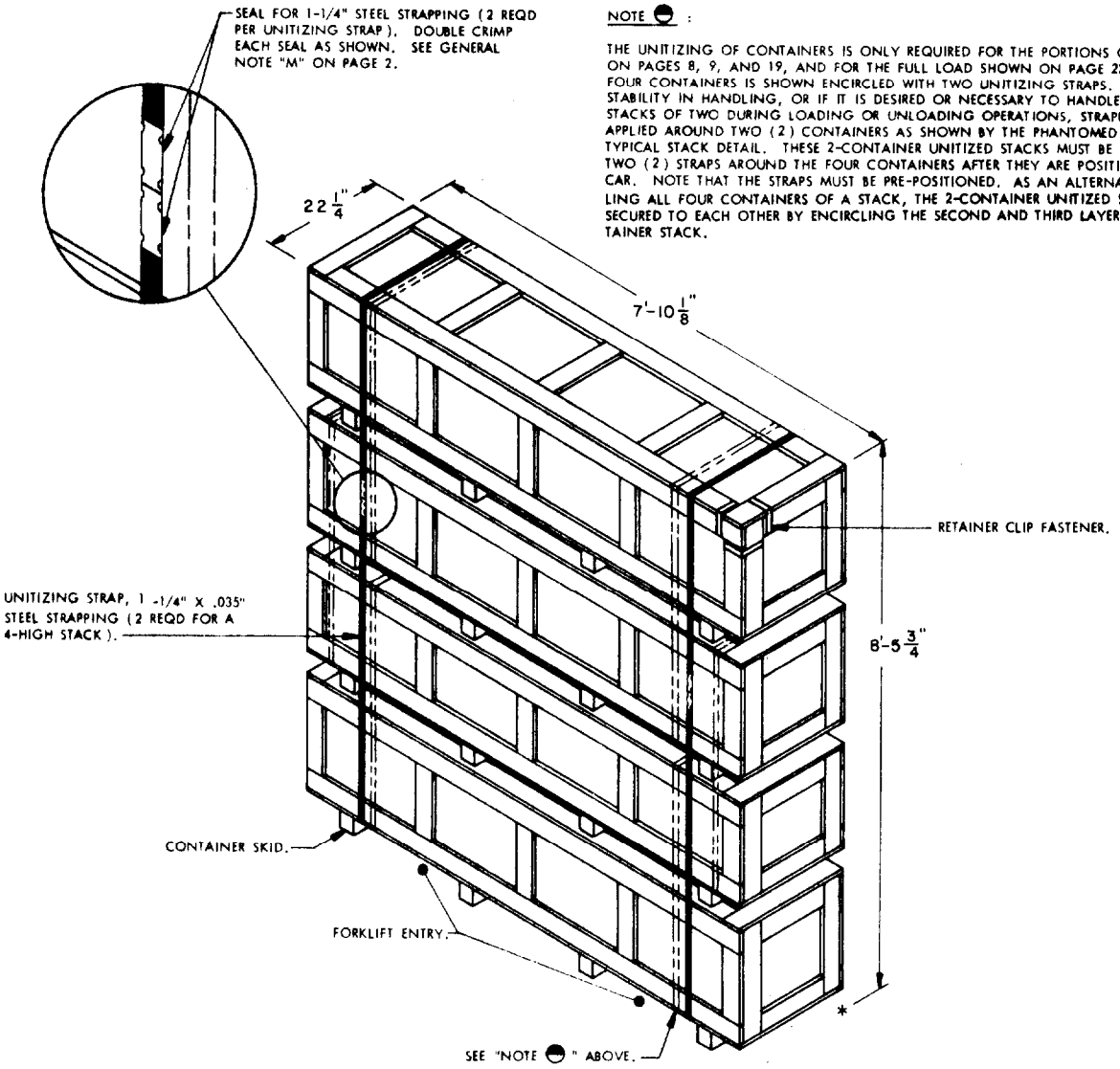
NAILS ---------- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.

STRAPPING, STEEL: TYPE I OR IV, CLASS A OR B, FED SPEC QQ-S-781.

PLYWOOD ------ : GROUP B OR C, GRADE * C-D (EXTERIOR); FED SPEC NN-P-530, FSN 5530-051-1198.

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

STRAP SEAL ----- : COMMERCIAL GRADE.



NOTE ⓔ :

THE UNITIZING OF CONTAINERS IS ONLY REQUIRED FOR THE PORTIONS OF LOADS SHOWN ON PAGES 8, 9, AND 19, AND FOR THE FULL LOAD SHOWN ON PAGE 22. A STACK OF FOUR CONTAINERS IS SHOWN ENCIRCLED WITH TWO UNITIZING STRAPS. HOWEVER, FOR STABILITY IN HANDLING, OR IF IT IS DESIRED OR NECESSARY TO HANDLE CONTAINERS IN STACKS OF TWO DURING LOADING OR UNLOADING OPERATIONS, STRAPPING MAY BE APPLIED AROUND TWO (2) CONTAINERS AS SHOWN BY THE PHANTOMED LINES IN THE TYPICAL STACK DETAIL. THESE 2-CONTAINER UNITIZED STACKS MUST BE ENCIRCLED WITH TWO (2) STRAPS AROUND THE FOUR CONTAINERS AFTER THEY ARE POSITIONED IN THE CAR. NOTE THAT THE STRAPS MUST BE PRE-POSITIONED. AS AN ALTERNATIVE TO ENCIRLING ALL FOUR CONTAINERS OF A STACK, THE 2-CONTAINER UNITIZED STACKS MAY BE SECURED TO EACH OTHER BY ENCIRCLING THE SECOND AND THIRD LAYERS OF A 4-CONTAINER STACK.

TYPICAL STACK DETAIL

NOTE THAT MOST RETAINER CLIP FASTENERS HAVE BEEN OMITTED INTENTIONALLY.

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING.

   A. PLACE AN UPPER CONTAINER AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.

   B. POSITION THE FORWARD END OF AN UPPER CONTAINER ABOVE THE FORWARD END OF THE NEXT LOWER CONTAINER.

   C. THE SKIDS OF AN UPPER CONTAINER MUST BE SEATED IN THE AREA FORMED BY THE EXTERIOR CLEATS ON THE TOP OF THE NEXT LOWER CONTAINER.

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

   A. POSITION EACH UNITIZING STRAP AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING NEAR INSIDE OF END SKIDS AND SO THAT STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I.E., VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE STACK.

   B. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO (2) DOUBLE 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 ENSURE THAT CONTAINERS ARE NOT DAMAGED, BUT SO THAT THE STRAPPING CRUSHES SLIGHTLY INTO THE OUTSIDE EDGES OF THE STACK. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.

(CONTINUED AT RIGHT)

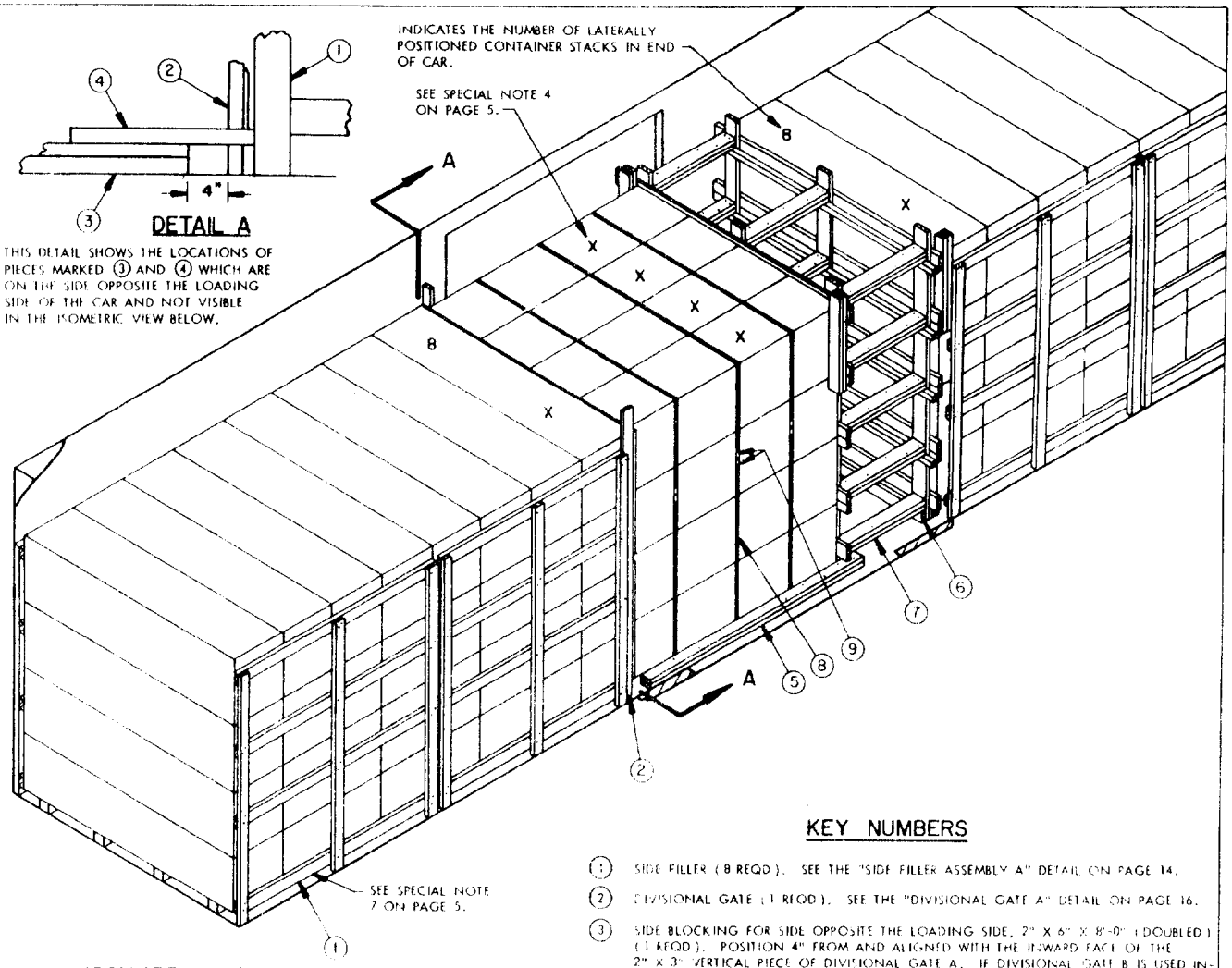
(UNITIZING AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

3. CONTAINER OR CONTAINER STACK HANDLING.

   NOTES: (1) APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.
   (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, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER, TO PREVENT DAMAGE TO A CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING CARLOADING, A UNITIZED STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORKLIFT ENTRY AREAS OF AN UPPER CONTAINER. IF A CONTAINER OR STACK OF CONTAINERS IS HANDLED BY SLINGING, THE SLING MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER.



DETAIL A

THIS DETAIL SHOWS THE LOCATIONS OF PIECES MARKED ③ AND ④ WHICH ARE ON THE SIDE OPPOSITE THE LOADING SIDE OF THE CAR AND NOT VISIBLE IN THE ISOMETRIC VIEW BELOW.

ISOMETRIC VIEW

KEY NUMBERS

① SIDE FILLER (8 REQD). SEE THE "SIDE FILLER ASSEMBLY A" DETAIL ON PAGE 14.

② DIVISIONAL GATE (1 REQD). SEE THE "DIVISIONAL GATE A" DETAIL ON PAGE 16.

③ SIDE BLOCKING FOR SIDE OPPOSITE THE LOADING SIDE, 2" X 6" X 8'-0" (DOUBLED) (1 REQD). POSITION 4" FROM AND ALIGNED WITH THE INWARD FACE OF THE 2" X 3" VERTICAL PIECE OF DIVISIONAL GATE A. IF DIVISIONAL GATE B IS USED, INSTALL SO AS TO CENTER THE LONGITUDINALLY POSITIONED CONTAINER STACKS (APPROX 2-1/2" FROM THE END OF THE LATERALLY POSITIONED CONTAINER STACKS). SEE "DETAIL A" ABOVE FOR LOCATION GUIDANCE. NAIL THE FIRST PIECE TO THE CAR FLOOR W/11-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

④ SIDE FILLER RETAINER BLOCK, 2" X 4" X 1'8" (1 REQD). POSITION AGAINST A PIECE MARKED ① AND ON TOP OF PIECE MARKED ③ AND NAIL TO PIECE MARKED ③ W/3-16d NAILS. SEE "SECTION A-A" BELOW. IF DIVISIONAL GATE B IS USED INSTEAD OF DIVISIONAL GATE A, THIS RETAINER BLOCK WILL NOT BE REQUIRED. SEE "DETAIL A" ABOVE FOR LOCATION GUIDANCE.

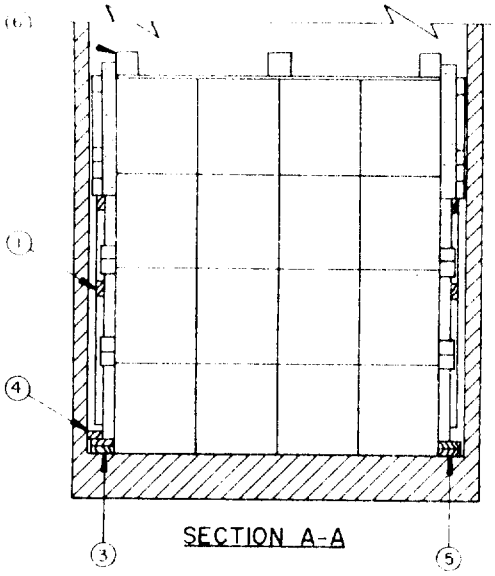
⑤ SIDE BLOCKING FOR LOADING SIDE OF CAR, 2" X 4" X 8'-0" (DOUBLED) (1 REQD) POSITION TO EXTEND 4" BEYOND A VERTICAL PIECE OF ADJACENT CENTER GATE. NAIL THE FIRST PIECE TO THE CAR FLOOR W/11-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

⑥ CENTER GATE (2 REQD). SEE THE "CENTER GATE A" DETAIL ON PAGE 14.

⑦ TOP (1, 2" X 6" BY CUT TO FIT (DOUBLED) (15 REQD). LAMINATE W/3-10d NAILS EVERY 6" AND TOENAIL THE TOP PIECE TO THE VERTICAL PIECES OF THE CENTER GATES W/2-12d NAILS AT EACH END. SEE THE "STRUT BRACING ASSEMBLY" DETAIL ON PAGE 19 FOR SPECIAL REQUIREMENTS.

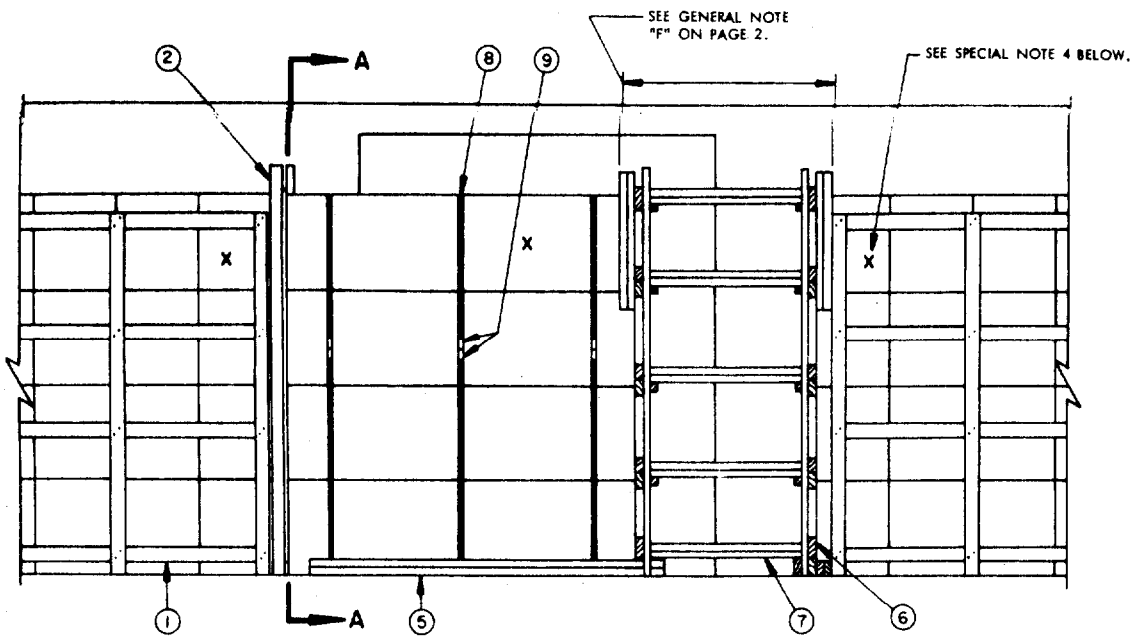
⑧ BUNDLING STRAP, 1-1/4" X .035" X 24'-0" STEEL STRAPPING (3 REQD). INSTALL AROUND THE LONGITUDINALLY POSITIONED CONTAINER STACKS. SEE GENERAL NOTE "M" ON PAGE 2.

⑨ SEAL FOR 1-1/4" STRAPPING (6 REQD, 2 PER STRAP).



SECTION A-A

80-UNIT LOAD IN A 40'-6" LONG BY 8'-6" WIDE BOX CAR



PARTIAL ELEVATION VIEW

SPECIAL NOTES:

1. A 40'-6" LONG BY 8'-6" WIDE CONVENTIONAL BOX CAR THAT IS EQUIPPED WITH 8'-0" WIDE BY 9'-8" HIGH DOOR OPENINGS IS SHOWN.

2. IF CARS BETWEEN 8'-6" AND 9'-2" IN WIDTH ARE USED, A COMBINATION OF "SIDE FILLER ASSEMBLIES A AND B" AS SHOWN ON PAGES 14 AND 15 WILL BE USED.

3. A CAR WITH DOORS OF A LARGER WIDTH THAN SHOWN OR WITH STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. THE DELINEATED PROCEDURE IS APPLICABLE IF THE DOOR OPENING IS NOT GREATER THAN 10'-0" IN WIDTH. SEE THE "PARTIAL PLAN VIEW" ON PAGE 19 FOR PROVISIONS FOR STAGGERED DOORS.

4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN, IN ORDER TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE STACK OR LAYER, A "FILLER ASSEMBLY", AS SHOWN ON PAGE 18, MUST BE SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER. CONTAINERS MAY BE OMITTED AT ANY LOCATION WITHIN THE TOP LAYER EXCEPT FROM STACKS MARKED WITH X'S. IT SHOULD BE NOTED THAT CONTAINERS SHOULD BE OMITTED FROM THE MID-AREA OF THE CAR TO THE MAXIMUM EXTENT POSSIBLE WHEN CONTAINERS MUST BE OMITTED. THE SECOND CONTAINER FROM THE CENTER GATE IN THE SHORT-LOAD END OF THE CAR IS THE PREFERRED POSITION FOR A "FILLER". IF THE QUANTITY TO BE SHIPPED CANNOT READILY BE ACHIEVED BY APPLYING THE CRITERIA JUST CITED, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. SEE THE "PARTIAL LAYER BRACING PROCEDURES" ON PAGE 12 AND THE "K-BRACE ASSEMBLY" DETAIL ON PAGE 13 FOR A TYPICAL INSTALLATION AND THE BRACING SPECIFICATIONS.

5. WHEN SHIPPING LOADS WHICH ARE LESS THAN 4-LAYERS IN HEIGHT, IT WILL BE NECESSARY TO ADJUST THE HEIGHT OF THE CENTER GATES TO SUIT. NOTE THAT ONLY THREE (3) STRUTS (1 LEVEL) CAN BE OMITTED FOR EACH OMITTED LAYER.

6. IF A CAR BEING USED IS MORE THAN 8'-6" WIDE AND IS 40'-6" LONG, THE TOP TWO HORIZONTAL PIECES OF EACH CENTER GATE WILL BE CAR WIDTH MINUS 1/2" IN LENGTH AND WILL BE EXTENDED AN EQUAL AMOUNT BEYOND EACH GATE LOCATOR CLEAT (SEE "CENTER GATE B" DETAIL ON PAGE 15 FOR A TYPICAL ILLUSTRATION).

7. IF DESIRED, FLOOR-LINE TYPE LATERAL BLOCKING MAY BE USED IN LIEU OF THE SIDE FILLER ASSEMBLIES SHOWN AS PIECES MARKED (1). REFER TO PAGE 8 FOR BLOCKING PROCEDURES APPLICABLE FOR THAT PORTION OF THE LOAD. THE BILL OF MATERIAL SHOWN ON PAGE 8 CONTAINS THE DUNNAGE REQUIREMENTS FOR A FULL CAR LOAD, INCLUDING CENTER GATES, STRUTS, ETC.

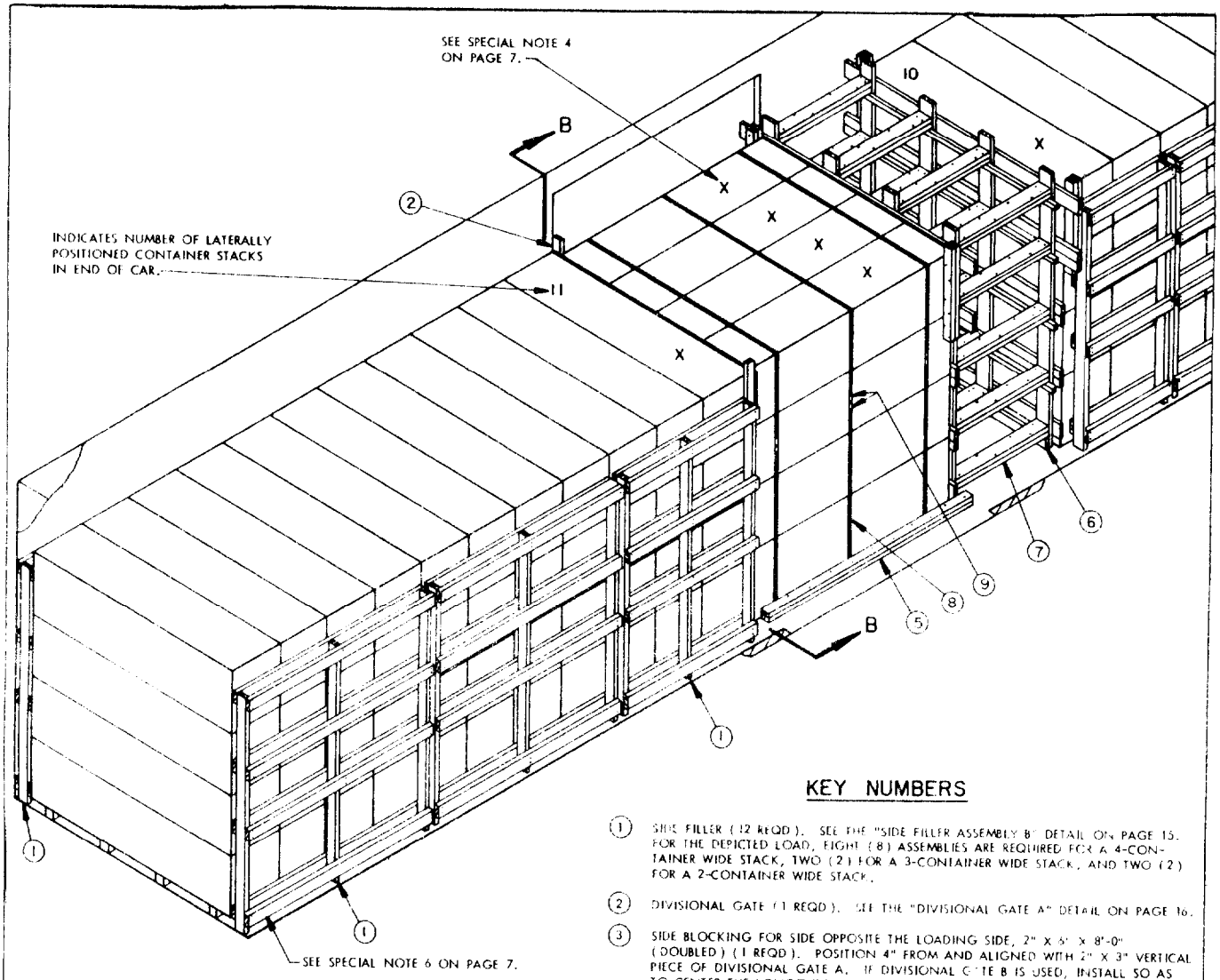
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	21
2" X 3"	26	13
2" X 4"	596	398
2" X 6"	177	177
NAILS	**NO. REQD**	**POUNDS**
6d (2")	32	1/4
10d (3")	579	9-1/2
12d (3-1/4")	60	1
16d (3-1/2")	47	1

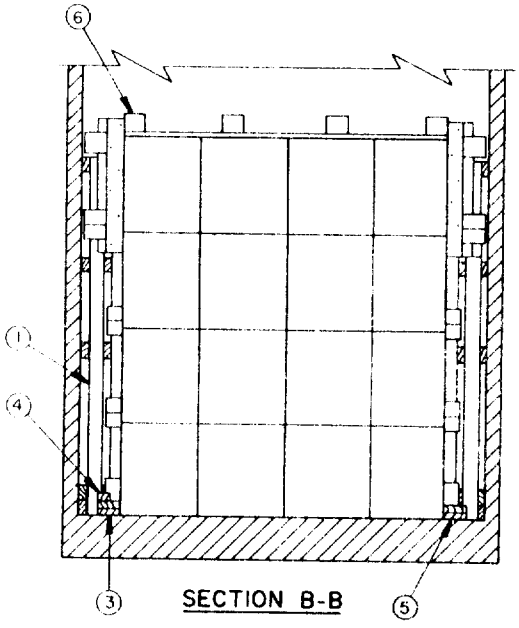
1/2" PLYWOOD, 48" X 96" --------- 2 SHEETS ----- 88 LBS
STEEL STRAPPING, 1-1/4" X .035" --102' REQD ------ 15 LBS
SEAL FOR 1-1/4" STRAPPING-------- 6 REQD ------ 1 LB

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
105/E CONTAINER	80	80,800 LBS
DUNNAGE		1,638 LBS
TOTAL WEIGHT		82,438 LBS



ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

(1) SIDE FILLER (12 REQD). SEE THE "SIDE FILLER ASSEMBLY B" DETAIL ON PAGE 15. FOR THE DEPICTED LOAD, EIGHT (8) ASSEMBLIES ARE REQUIRED FOR A 4-CONTAINER WIDE STACK, TWO (2) FOR A 3-CONTAINER WIDE STACK, AND TWO (2) FOR A 2-CONTAINER WIDE STACK.

(2) DIVISIONAL GATE (1 REQD). SEE THE "DIVISIONAL GATE A" DETAIL ON PAGE 16.

(3) SIDE BLOCKING FOR SIDE OPPOSITE THE LOADING SIDE, 2" X 6" X 8'-0" (DOUBLED) (1 REQD). POSITION 4" FROM AND ALIGNED WITH 2" X 3" VERTICAL PIECE OF DIVISIONAL GATE A. IF DIVISIONAL GATE B IS USED, INSTALL SO AS TO CENTER THE LONGITUDINALLY POSITIONED CONTAINER STACKS (APPROX 2-1/2" FROM THE END OF THE LATERALLY POSITIONED CONTAINER STACKS). SEE "DETAIL A" ON PAGE 4 FOR LOCATION GUIDANCE. NAIL THE FIRST PIECE TO THE CAR FLOOR W/11-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

(4) SIDE FILLER RETAINER BLOCK, 2" X 4" X 18" (1 REQD). POSITION AGAINST A PIECE MARKED (1) AND ON TOP OF PIECE MARKED (3) AND NAIL TO PIECE MARKED (3) W/3-16d NAILS. SEE "SECTION B-B" BELOW AND "DETAIL A" ON PAGE 4 FOR LOCATION GUIDANCE. NOTE THAT IF DIVISIONAL GATE B IS USED, THIS RETAINER BLOCK WILL NOT BE REQUIRED.

(5) SIDE BLOCKING FOR LOADING SIDE OF CAR, 2" X 4" X 8'-0" (DOUBLED) (1 REQD). POSITION TO EXTEND 4" BEYOND A VERTICAL PIECE OF ADJACENT CENTER GATE. NAIL THE FIRST PIECE TO THE CAR FLOOR W/11-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

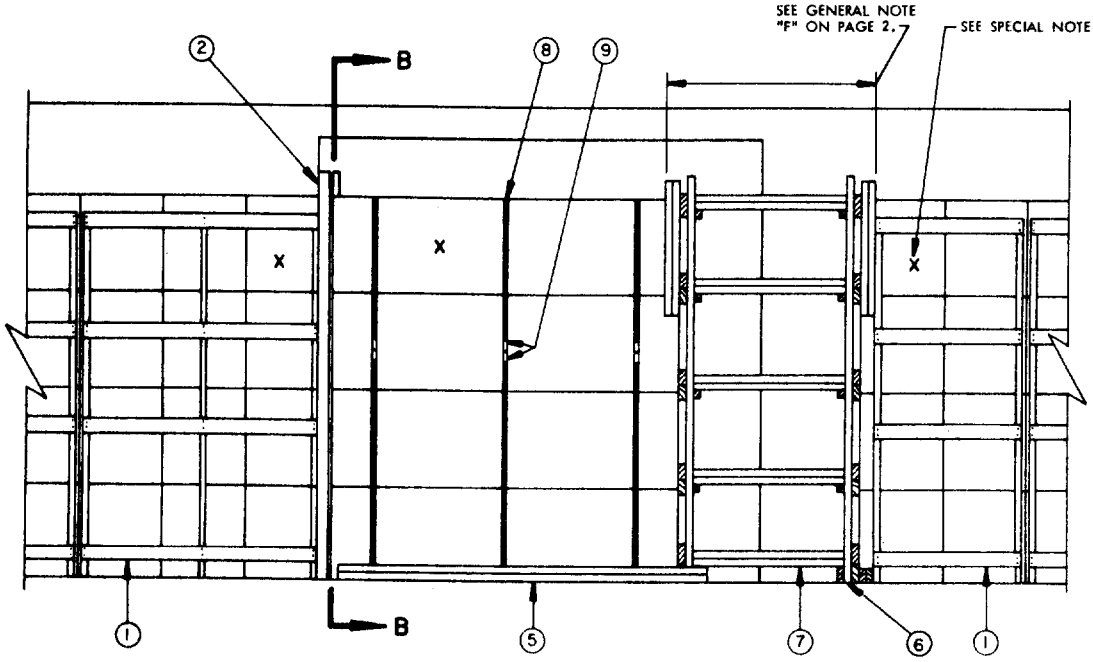
(6) CENTER GATE (2 REQD). SEE THE "CENTER GATE B" DETAIL ON PAGE 15.

(7) STRUT, 2" X 6" BY CUT TO FIT (DOUBLED) (20 REQD). LAMINATE W/1-10d NAIL EVERY 6" AND TOENAIL THE TOP PIECE TO THE VERTICAL PIECES OF THE CENTER GATES W/2-12d NAILS AT EACH END. SEE THE "STRUT BRACING ASSEMBLY" DETAIL ON PAGE 19 FOR SPECIAL REQUIREMENTS.

(8) BUNDLING STRAP, 1-1/4" X .035" X 34'-0" STEEL STRAPPING (3 REQD). INSTALL AROUND THE LONGITUDINALLY POSITIONED CONTAINER STACKS. SEE GENERAL NOTE "M" ON PAGE 2.

(9) SEAL FOR 1-1/4" STRAPPING (6 REQD, 2 PER STRAP).

100-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR



PARTIAL ELEVATION VIEW

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR THAT IS EQUIPPED WITH 10'-0" DOOR OPENINGS IS SHOWN. WIDER OR NARROWER CARS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD.

2. IF CARS BETWEEN 8'-6" AND 9'-2" IN WIDTH ARE USED, A COMBINATION OF "SIDE FILLER ASSEMBLIES A AND B" AS SHOWN ON PAGES 14 AND 15 WILL BE USED. FOR CARS WIDER THAN 9'-2", ADDITIONAL HORIZONTAL PIECES MUST BE NAILED TO THE SIDE FILLER ASSEMBLIES.

3. A CAR WITH DOORS OF A SIZE OTHER THAN SHOWN OR WITH STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. SEE THE "PARTIAL PLAN VIEW" ON PAGE 19 FOR PROVISIONS FOR STAGGERED DOORS.

4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN, IN ORDER TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE STACK OR LAYER, A "FILLER ASSEMBLY", AS SHOWN ON PAGE 18, MUST BE SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER. CONTAINERS MAY BE OMITTED FROM ANY LOCATION WITHIN THE TOP LAYER, EXCEPT FROM STACKS MARKED WITH X'S. IT SHOULD BE NOTED THAT CONTAINERS SHOULD BE OMITTED FROM THE MID-AREA OF THE CAR TO THE MAXIMUM EXTENT POSSIBLE WHEN CONTAINERS MUST BE OMITTED. THE SECOND CONTAINER FROM THE CENTER GATE IN THE SHORT-LOAD END OF THE CAR IS THE PREFERRED POSITION FOR A FILLER. IF THE QUANTITY TO BE SHIPPED CANNOT READILY BE ACHIEVED BY APPLYING THE CRITERIA JUST CITED, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. SEE THE "PARTIAL LAYER BRACING PROCEDURES" ON PAGE 12 AND THE "K-BRACE ASSEMBLY" DETAILED ON PAGE 13 FOR A TYPICAL INSTALLATION AND THE BRACING SPECIFICATIONS.

5. WHEN SHIPPING LOADS WHICH ARE LESS THAN 4-LAYERS IN HEIGHT, IT WILL BE NECESSARY TO ADJUST THE HEIGHT OF THE CENTER GATES TO SUIT. NOTE THAT ONLY FOUR (4) STRUTS (1 LEVEL) CAN BE OMITTED FOR EACH LAYER.

6. IF DESIRED, FLOOR-LINE TYPE LATERAL BLOCKING MAY BE USED IN LIEU OF THE SIDE FILLER ASSEMBLIES SHOWN AS PIECES MARKED (1). REFER TO PAGE 9 FOR BLOCKING PROCEDURES APPLICABLE FOR THAT PORTION OF THE LOAD. THE BILL OF MATERIAL SHOWN ON PAGE 9 CONTAINS THE DUNNAGE REQUIREMENTS FOR A FULL CAR LOAD, INCLUDING CENTER GATES, STRUTS, ETC.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	22
2" X 3"	26	13
2" X 4"	1059	706
2" X 6"	188	188
NAILS	**NO. REQD**	**POUNDS**
6d (2")	32	1/4
10d (3")	912	14-1/4
12d (3-1/4")	80	1-1/2
16d (3-1/2")	47	1

1/2" PLYWOOD, 48" X 96" ---------- 2 SHEETS -------- 88 LBS
STEEL STRAPPING, 1-1/4" X .035" ------- 102' REQD --------- 15 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 20 REQD --------- 1 LB

LOAD AS SHOWN

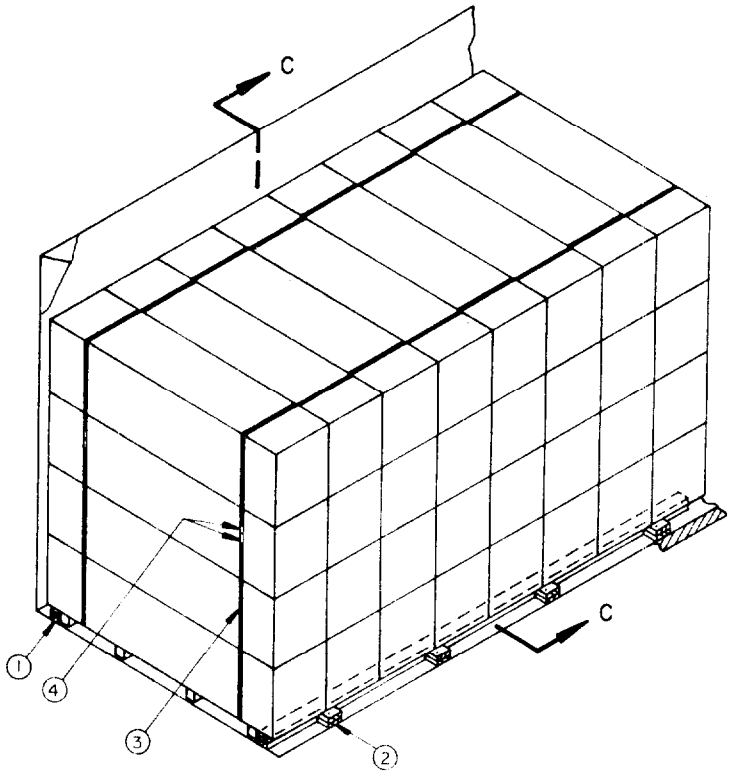
ITEM	QUANTITY	WEIGHT (APPROX)
105/E CONTAINER	100	101,000 LBS
DUNNAGE		2,441 LBS
TOTAL WEIGHT		103,441 LBS

SPECIAL NOTES:

1. THE PROCEDURE SHOWN IN THE ISOMETRIC VIEW AT THE RIGHT IS AN ALTERNATIVE TO A PORTION OF THE BLOCKING FOR THE 80-UNIT LOAD SHOWN ON PAGES 4 AND 5. IN LIEU OF USING THE SIDE FILLER ASSEMBLIES, PIECES MARKED (1) ON THOSE PAGES, LATERAL BLOCKING OF THE EIGHT (8) CONTAINER-STACKS IN EACH END OF THE CAR MAY BE ACCOMPLISHED BY UNITIZING EACH STACK AND INSTALLING FLOOR-LINE BLOCKING, AS DEPICTED.

2. THE BLOCKING OF THE FOUR (4) CONTAINER-STACKS IN THE MID-SECTION OF THE CAR AND THE CENTER BLOCKING FOR THE FULL CAR LOAD WILL BE AS SHOWN ON PAGES 4 AND 5 BY KEY NUMBERS (2) AND (3), AND (5) THRU (9). PIECES SHOWN BY KEY NUMBERS (1) AND (4) ON THOSE PAGES ARE NOT REQUIRED AND WILL BE OMITTED.

3. THE BILL OF MATERIAL SHOWN BELOW INDICATES THE DUNNAGE REQUIREMENTS FOR AN 80-UNIT LOAD USING THE COMBINATION OF PROCEDURES.



ISOMETRIC VIEW

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	21
2" X 3"	26	13
2" X 4"	294	196
2" X 6"	194	194
NAILS	**NO. REQD**	**POUNDS**
6d (2")	32	1/4
10d (3")	467	7-1/4
12d (3-1/4")	60	1
16d (3-1/2")	111	2-1/2

1/2" PLYWOOD, 48" X 96" ---------- 2 SHEETS -------- 88 LBS
STEEL STRAPPING, 1-1/4" X .035" ----- 806' REQD --------- 116 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 84 REQD --------- 5 LBS

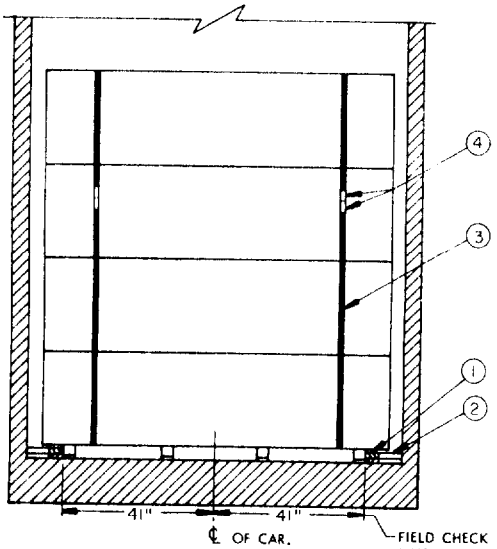
KEY NUMBERS

(1) SIDE BEARING PIECE, 2" X 4" X 14'-5" (DOUBLED) (4 REQD). PRE-POSITION AS SHOWN BY THE "SECTION C-C" VIEW. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

(2) SIDE BLOCKING, 2" X 6" BY CUT TO FIT (DOUBLED) (16 REQD). PRE-POSITION SO AS TO BE CENTERED ON EVERY OTHER JOINT OF CONTAINER STACKS, AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

(3) UNITIZING STRAP, 1-1/4" X .035" X 22'-0" STEEL STRAPPING (32 REQD). SEE THE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3 AND GENERAL NOTES "L" AND "M" ON PAGE 2.

(4) SEAL FOR 1-1/4" STRAPPING (64 REQD, 2 PER STRAP).



SECTION C-C

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
105/E CONTAINER	80	80,800 LBS
DUNNAGE		1,280 LBS
	TOTAL WEIGHT -----	82,080 LBS

80-UNIT LOAD IN A 40'-6" LONG BY 8'-6" WIDE BOX CAR

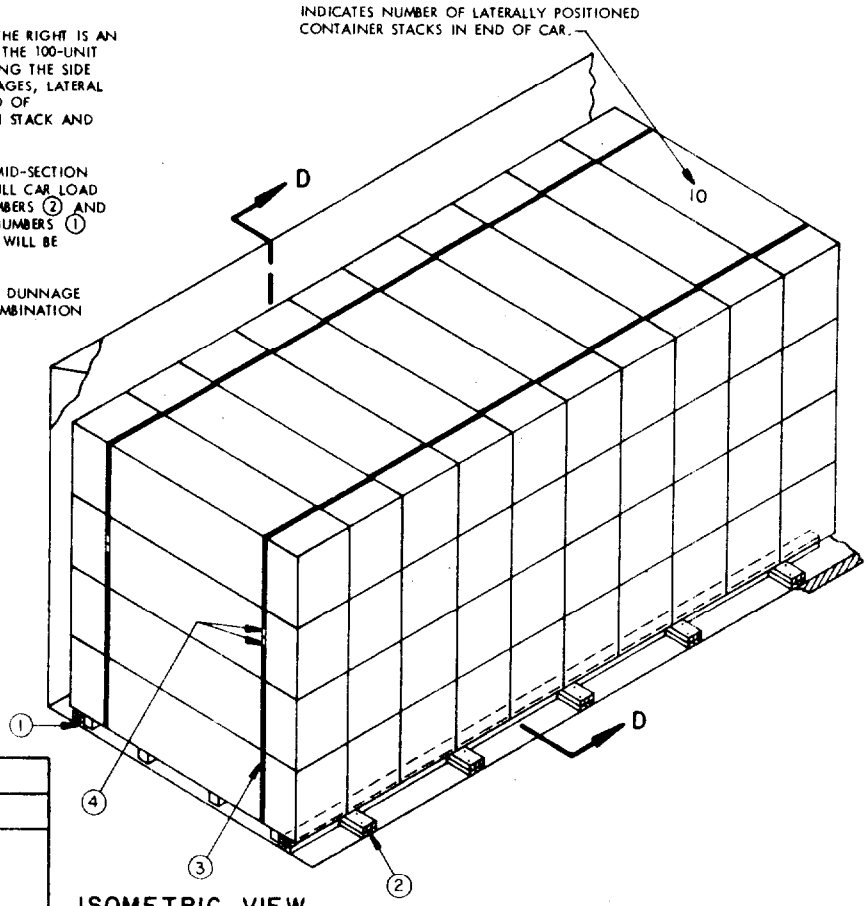
PROJECT SP 52-68

SPECIAL NOTES:

1. THE PROCEDURE SHOWN IN THE ISOMETRIC VIEW AT THE RIGHT IS AN ALTERNATIVE TO A PORTION OF THE BLOCKING FOR THE 100-UNIT LOAD SHOWN ON PAGES 6 AND 7. IN LIEU OF USING THE SIDE FILLER ASSEMBLIES, PIECES MARKED (1) ON THOSE PAGES, LATERAL BLOCKING OF THE CONTAINER-STACKS IN EACH END OF THE CAR MAY BE ACCOMPLISHED BY UNITIZING EACH STACK AND INSTALLING FLOOR-LINE BLOCKING, AS DEPICTED.

2. THE BLOCKING OF THE CONTAINER-STACKS IN THE MID-SECTION OF THE CAR AND THE CENTER BLOCKING FOR THE FULL CAR LOAD WILL BE AS SHOWN ON PAGES 6 AND 7 BY KEY NUMBERS (2) AND (3), AND (5) THRU (9). PIECES SHOWN BY KEY NUMBERS (1) AND (4) ON THOSE PAGES ARE NOT REQUIRED AND WILL BE OMITTED.

3. THE BILL OF MATERIAL SHOWN BELOW INDICATES THE DUNNAGE REQUIREMENTS FOR A 100-UNIT LOAD USING THE COMBINATION OF PROCEDURES.



ISOMETRIC VIEW

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	22
2" X 3"	26	13
2" X 4"	325	217
2" X 6"	227	227
NAILS	**NO. REQD**	**POUNDS**
6d (2")	32	1/4
10d (3")	368	5-3/4
12d (3-1/4")	80	1-1/2
16d (3-1/2")	367	8
STEEL STRAPPING, 1-1 4" X .035" ------	1,026' REQD ---	147 LBS
SEAL FOR 1-1/4" STRAPPING ----------	104 REQD ---	6 LBS

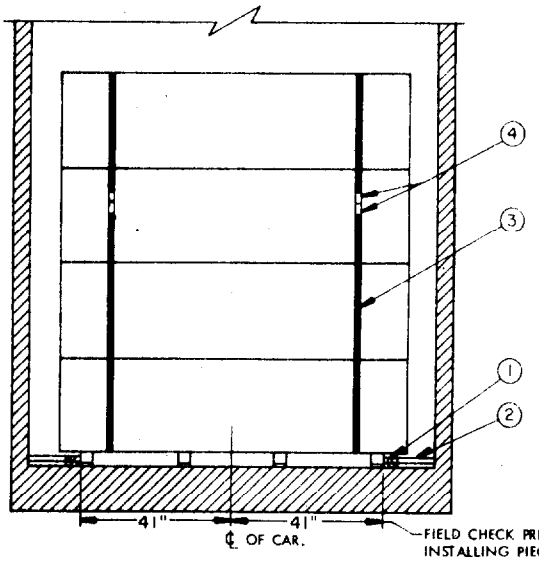
KEY NUMBERS

(1) SIDE BEARING PIECES, 2" X 4" X 18'-6" FOR THE 10 CONTAINER STACKS SHOWN, AND 2" X 4" X 20'-5" FOR THE 11 CONTAINER STACKS IN THE OPPOSITE END OF THE CAR (DOUBLED) (2 EACH REQD). PRE-POSITION AS SHOWN BY THE "SECTION D-D" VIEW. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. NOTE THAT RANDOM LENGTH MATERIAL MAY BE USED. JOINTS OF PIECES MUST BE STAGGERED AT LEAST 24". SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

(2) SIDE BLOCKING, 2" X 6" BY CUT TO FIT (DOUBLED) (22 REQD). PRE-POSITION SO AS TO BE CENTERED ON EVERY OTHER JOINT OF CONTAINER STACKS, AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

(3) UNITIZING STRAP, 1-1/4" X .035" X 22'-0" STEEL STRAPPING (42 REQD). SEE THE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3 AND GENERAL NOTES "L" AND "M" ON PAGE 2.

(4) SEAL FOR 1-1/4" STRAPPING (84 REQD, 2 PER STRAP).

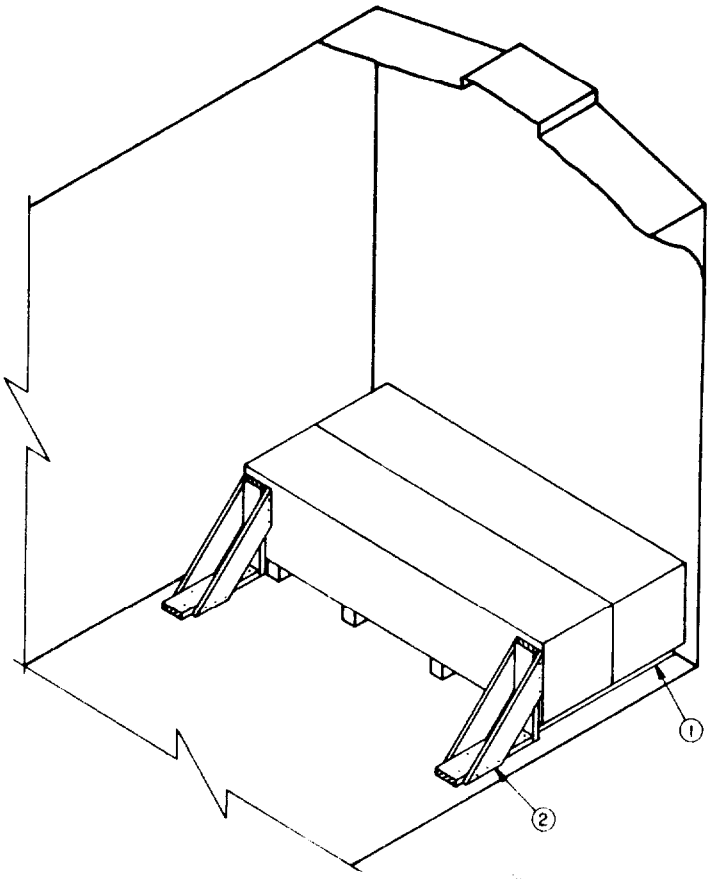


SECTION D-D

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
105/E CONTAINER ---	100 ---------	101,000 LBS
DUNNAGE ----------		1,366 LBS
TOTAL WEIGHT ------		102,366 LBS

100-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOX CAR



ISOMETRIC VIEW

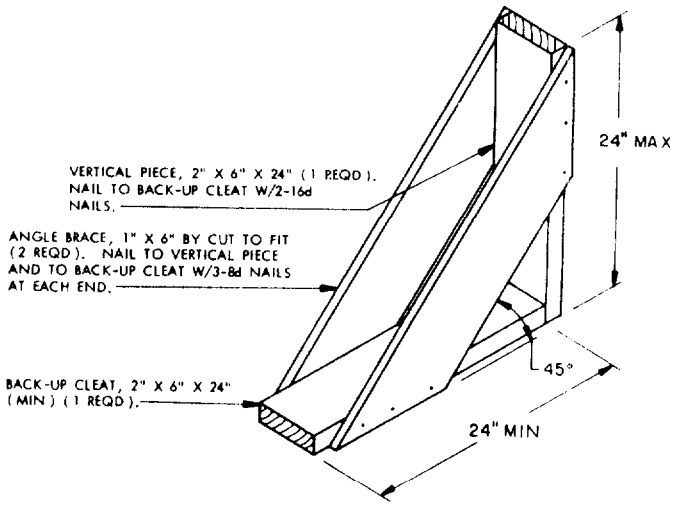
KEY NUMBERS

(1) SIDE BLOCKING, 2" X 4" X 44" (2 REQD). PRE-POSITION TO CONTACT THE CONTAINER SKIDS, AND NAIL TO THE CAR FLOOR W/8-16d NAILS. SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

(2) LCL BRACE (2 REQD). POSITION AS SHOWN AND NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE THE DETAIL AND SPECIAL NOTE 3 BELOW.

SPECIAL NOTES:

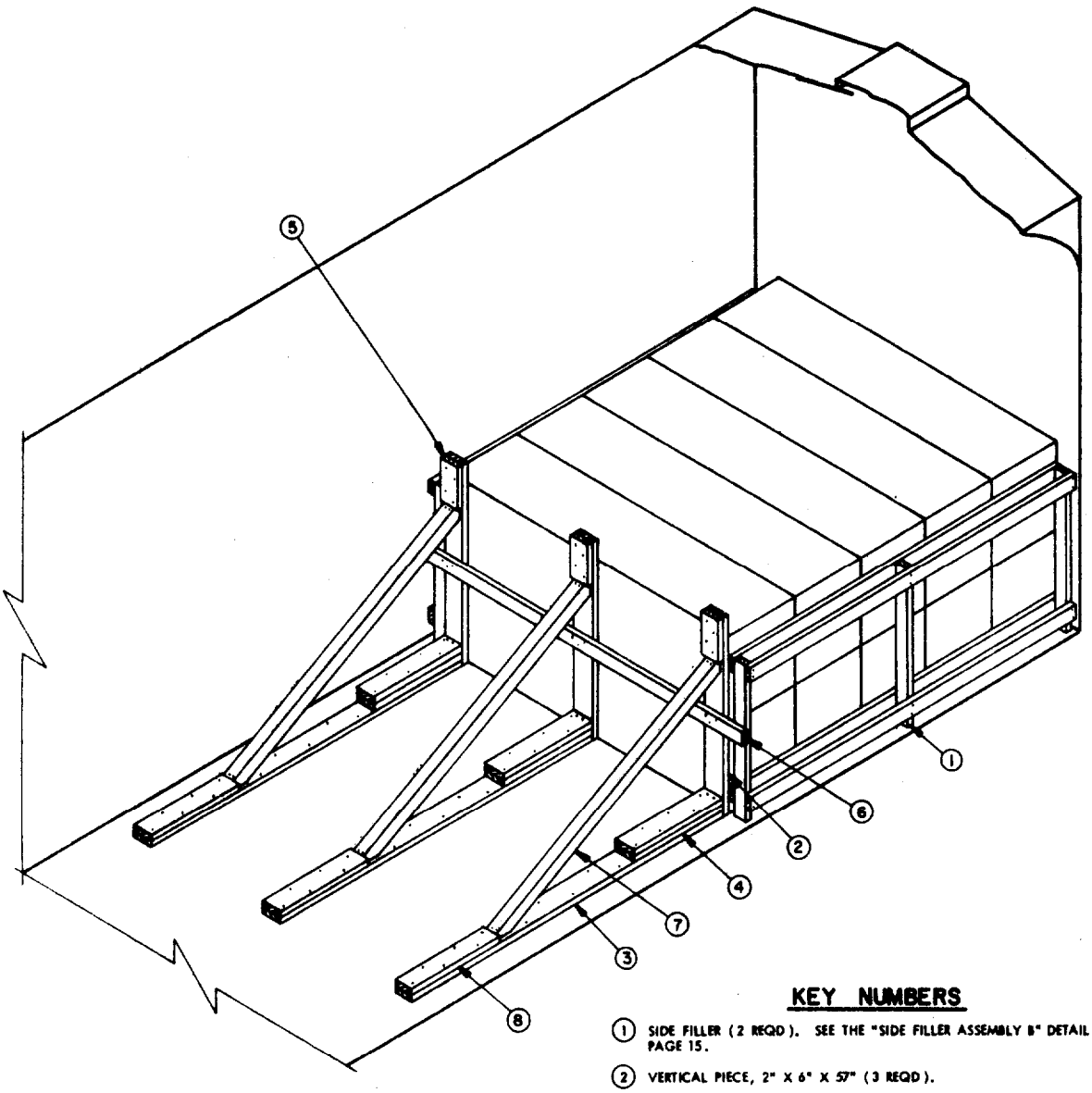
1. THESE LCL OUTLOADING PROCEDURES DEPICT THE SHIPMENT OF A ONE (1) CONTAINER HIGH LOAD USING TWO (2) LCL BRACES IN A BOX CAR EQUIPPED WITH A NAILABLE FLOOR.
2. AN 8'-6" WIDE BOX CAR IS DEPICTED; HOWEVER, ANY WIDTH CAR CAN BE USED FOR THE TYPE OF OUTLOADING DEPICTED.
3. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS. AT LEAST TWO (2) BRACES MUST BE USED AGAINST A CONTAINER. ADDITIONAL BRACES MAY BE APPLIED AS NECESSARY.



LCL BRACE

SEE SPECIAL NOTE 3 ABOVE.

TYPICAL LCL (2-UNIT LOAD) IN AN 8'-6" WIDE BOX CAR



ISOMETRIC VIEW

SPECIAL NOTES:

1. THE LOAD AS SHOWN IS BASED ON A 9'-2" WIDE CONVENTIONAL BOX CAR. HOWEVER, WIDER OR NARROWER CARS MAY ALSO BE USED.
2. IF CARS LESS THAN 9'-2" WIDE ARE USED, A COMBINATION OF "SIDE FILLER ASSEMBLIES A AND B" AS DETAILED ON PAGES 14 AND 15 MAY BE USED.
3. IF CARS WIDER THAN 9'-2" ARE USED, THE WIDTH OF THE VERTICALS OF THE "SIDE FILLER ASSEMBLY" MAY BE ADJUSTED AS REQUIRED TO FILL THE VOID AT THE SIDE OF THE CAR.
4. IF THE LADING EXTENDS INTO A DOORWAY AREA, USE THE SIDE BLOCKING METHOD SHOWN ON PAGE 19 AND ADJUST THE LENGTHS OF THE "DOORWAY FILLER" AND THE "SIDE BLOCKING" TO FIT THE LOAD.
5. THREE KNEE BRACE ASSEMBLIES SHOWN AS PIECES MARKED (2) THROUGH (8) ARE ADEQUATE FOR RETAINING AN LCL LOAD OF NOT MORE THAN 21,000 POUNDS. A MINIMUM OF TWO (2) ASSEMBLIES MUST BE USED TO BRACE A LOAD.

KEY NUMBERS

(1) SIDE FILLER (2 REQD). SEE THE "SIDE FILLER ASSEMBLY B" DETAIL ON PAGE 15.

(2) VERTICAL PIECE, 2" X 6" X 57" (3 REQD).

(3) FLOOR CLEAT, 2" X 6" X 8'-9" (3 REQD). NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

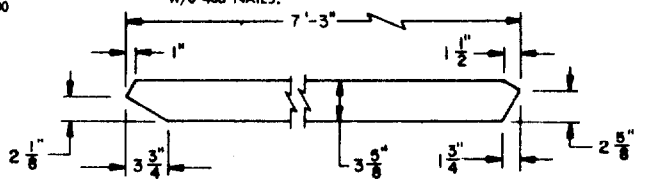
(4) POCKET CLEAT, 2" X 6" X 30" (DOUBLED) (3 REQD). NAIL THE FIRST PIECE TO A PIECE MARKED (3) W/6-40d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER, AND TOENAIL IT TO THE ADJACENT PIECE MARKED (2) W/2-12d NAILS. SEE GENERAL NOTE "R" ON PAGE 2.

(5) HOLD-DOWN CLEAT, 2" X 6" X 12" (3 REQD). NAIL TO A PIECE MARKED (2) W/4-10d NAILS.

(6) CROSS BRACE, 2" X 4" BY CAR WIDTH MINUS 1/2" (1 REQD). CENTER ON VERTICAL PIECES MARKED (2) AND NAIL W/3-10d NAILS AT EACH JOINT.

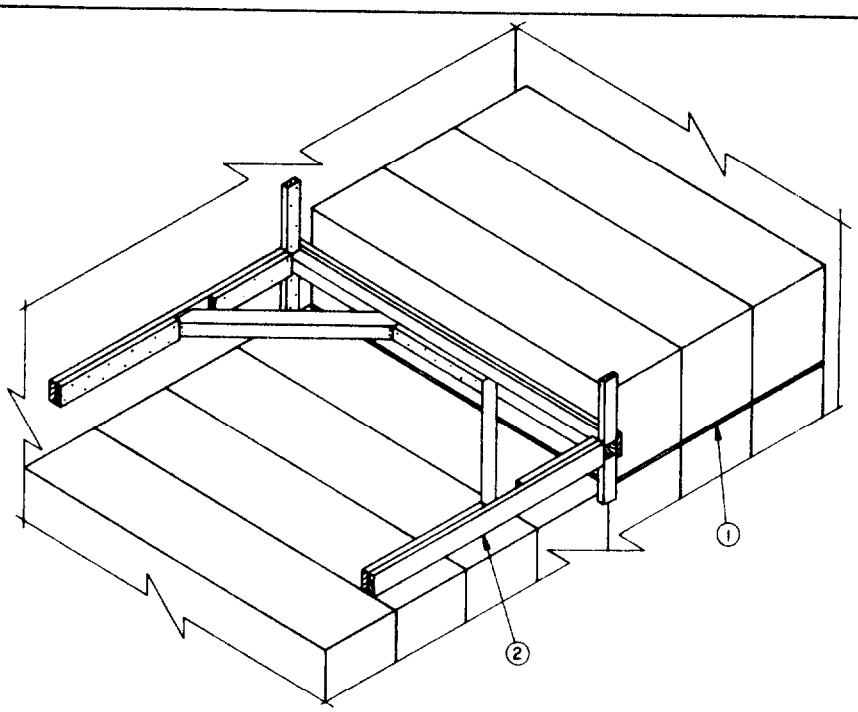
(7) KNEE BRACE, 4" X 4" X 7'-3" (3 REQD). SEE THE DETAIL BELOW FOR REQUIRED BEVEL CUTS. TOENAIL TO PIECES MARKED (2) AND (3) W/2-16d NAILS AT EACH END.

(8) BACK-UP CLEAT, 2" X 6" X 30" (3 REQD). NAIL TO A PIECE MARKED (3) W/6-40d NAILS.



BRACE

TYPICAL LCL (10-UNIT LOAD) IN A 9'-2" WIDE BOX CAR



ISOMETRIC VIEW

SPECIAL NOTES:

1. THE LOAD AS SHOWN IS BASED ON AN 8'-6" WIDE CONVENTIONAL BOX CAR. HOWEVER, WIDER CARS MAY ALSO BE USED. LOAD BLOCKING DUNNAGE OTHER THAN THE PARTIAL LAYER BRACING DUNNAGE, HAS BEEN OMITTED FROM THE LOAD VIEW FOR CLARITY PURPOSES.

2. A THREE (3) CONTAINER PARTIAL LAYER AS SHOWN SHOULD BE CONSIDERED AS TYPICAL; ADDITIONAL CONTAINERS MAY BE ADDED TO THE "PARTIAL LAYER", PROVIDING THE PROVISIONS OF SPECIAL NOTE 4 ARE NOT VIOLATED.

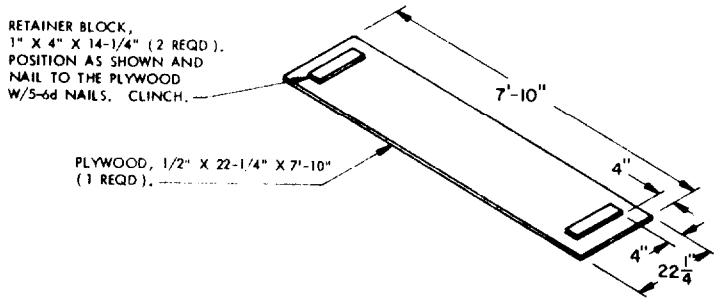
3. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL LAYER BRACING", BECAUSE THE LENGTH OF THE PARTIAL LAYER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED (A), (B), (C), (F), AND (J) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDE WALL. IT IS ALRIGHT FOR THE END OF A DIAGONAL BRACE MARKED (G) TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED (E) MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE.

4. THE K-BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A MAXIMUM PARTIAL LAYER LOAD OF NOT MORE THAN 7,000 POUNDS OR SIX (6) CONTAINERS WITH CONTENTS.

KEY NUMBERS

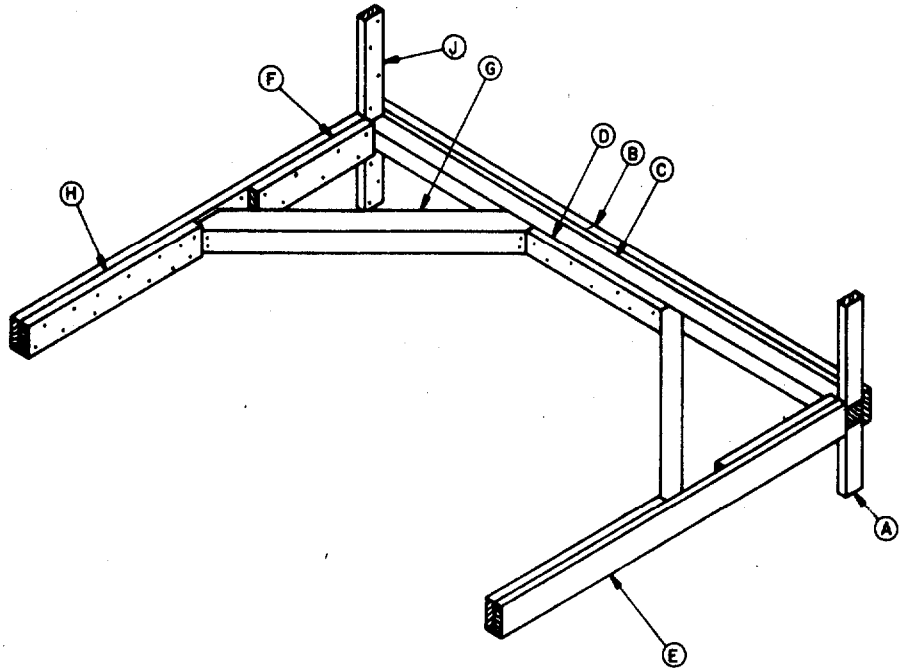
(1) CONTAINER DECKING ASSEMBLY (3 REQD). SEE THE DETAIL BELOW. INSTALL WITH THE RETAINER BLOCK PIECES DOWN.

(2) K-BRACE ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 13, AND GENERAL NOTE "R" ON PAGE 2.



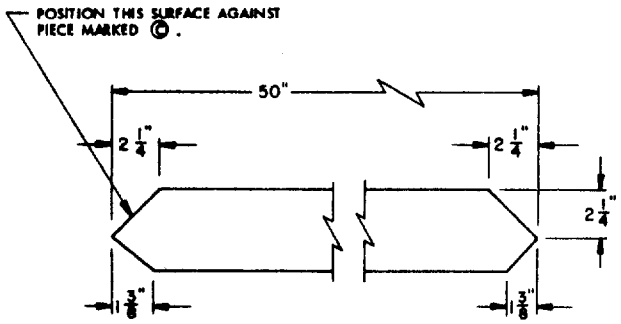
CONTAINER DECKING ASSEMBLY

THE ASSEMBLY AS SHOWN IS REQUIRED UNDER EACH CONTAINER IN A PARTIAL LAYER AS DEPICTED ABOVE. THE ASSEMBLY IS SHOWN UPSIDE DOWN FROM ITS INSTALLED POSITION.



K-BRACE ASSEMBLY

(SEE SPECIAL NOTES 3 AND 4 ON PAGE 12)



BRACE

4" X 4" PIECE MARKED (G).

KEY LETTERS

(A) WALL CLEAT, 2" X 4" X 11" (2 REQD). NAIL TO A CAR SIDE WALL W/4-12d NAILS.

(B) HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (1 REQD). NAIL TO PIECE MARKED (C) W/1-12d NAIL EVERY 6".

(C) CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (1 REQD).

(D) CENTER CLEAT, 2" X 4" X 28" FOR AN 8'-6" WIDE CAR OR 2" X 4" X 36" FOR A 9'-2" WIDE CAR (1 REQD). NAIL TO PIECE MARKED (C) W/7-12d NAILS.

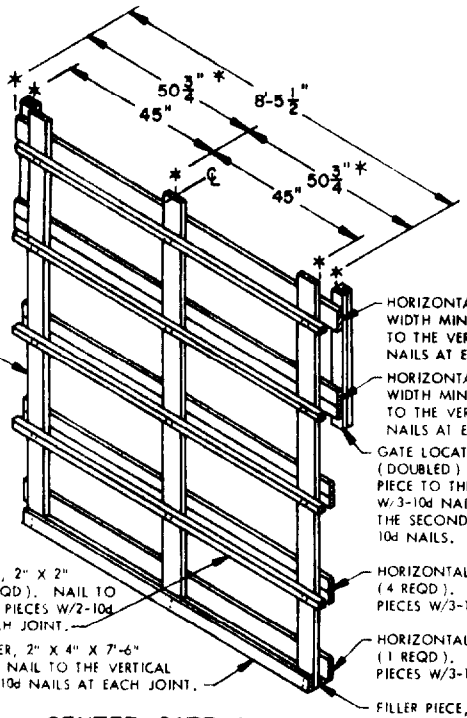
(E) HORIZONTAL WALL CLEAT, 2" X 6" X 72" (2 REQD). NAIL TO A CAR SIDE WALL W/16-12d NAILS.

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

(G) DIAGONAL BRACE, 4" X 4" X 50" (2 REQD). SEE THE "BRACE" DETAIL TO THE LEFT FOR BEVEL CUT REQUIREMENTS. TOENAIL TO PIECES MARKED (C) AND (E) W/2-16d NAILS AT EACH END.

(H) BACK-UP CLEAT, 2" X 6" X 36" (2 REQD). NAIL TO PIECE MARKED (E) W/14-16d NAILS.

(J) HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO A CAR SIDE WALL W/4-12d NAILS.



VERTICAL PIECE, 2" X 6" X 9'-0" (3 REQD).

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

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

GATE LOCATOR CLEAT, 2" X 4" X 36" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE GATE HORIZONTAL PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE SECOND PIECE TO THE FIRST W/6-10d NAILS.

STRUT LEDGER, 2" X 2" X 8'-0" (4 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 4" X 8'-0" (4 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

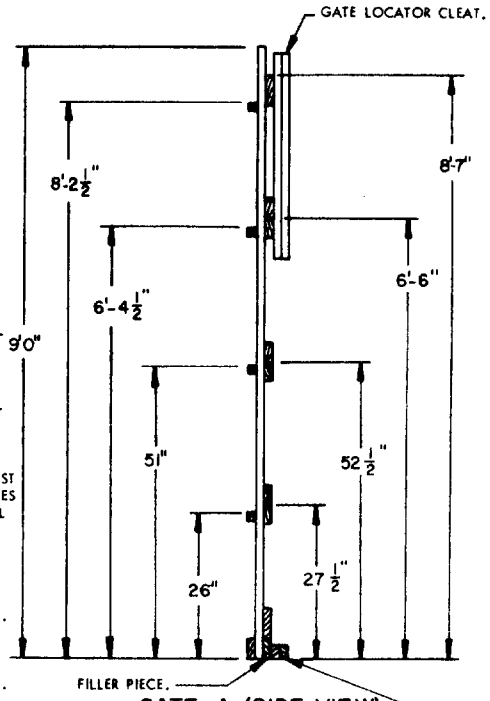
STRUT LEDGER, 2" X 4" X 7'-6" (1 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 6" X 8'-0" (1 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

FILLER PIECE, 2" X 4" X 8'-0" (1 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

CENTER GATE A

NOTE THAT THE CENTER GATE AS SHOWN IS FOR A 4-LAYER LOAD. ADJUST HEIGHT OF GATE TO SUIT THE NUMBER OF LAYERS WITHIN THE LOAD BEING SHIPPED.

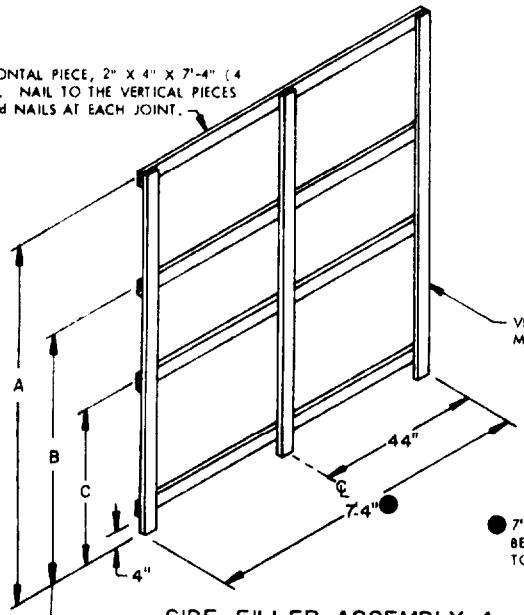


GATE A (SIDE VIEW)

GATE HOLD DOWN, 2" X 3" X 12" (DOUBLED) (2 REQD). POSITION EACH TO FIT JUST INSIDE OF AN OUTSIDE CONTAINER SKID FOR A GATE TO BE INSTALLED AGAINST LATERALLY POSITIONED CONTAINER STACKS, OR NEAR THE END OF THE FILLER PIECE FOR A GATE TO BE INSTALLED AGAINST LONGITUDINALLY POSITIONED CONTAINER STACKS. NAIL THE FIRST PIECE TO THE GATE FILLER PIECE W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

*48-1/2" FOR A GATE WHICH IS TO BE INSTALLED AGAINST LONGITUDINALLY POSITIONED CONTAINER STACKS.

HORIZONTAL PIECE, 2" X 4" X 7'-4" (4 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.



VERTICAL PIECE, 2" X 4" MATERIAL (3 REQD).

● 7'-0" FOR A SIDE FILLER ASSEMBLY WHICH WILL BE ADJACENT TO A CENTER GATE OR ADJACENT TO A VERTICAL PIECE OF "DIVISIONAL GATE A".

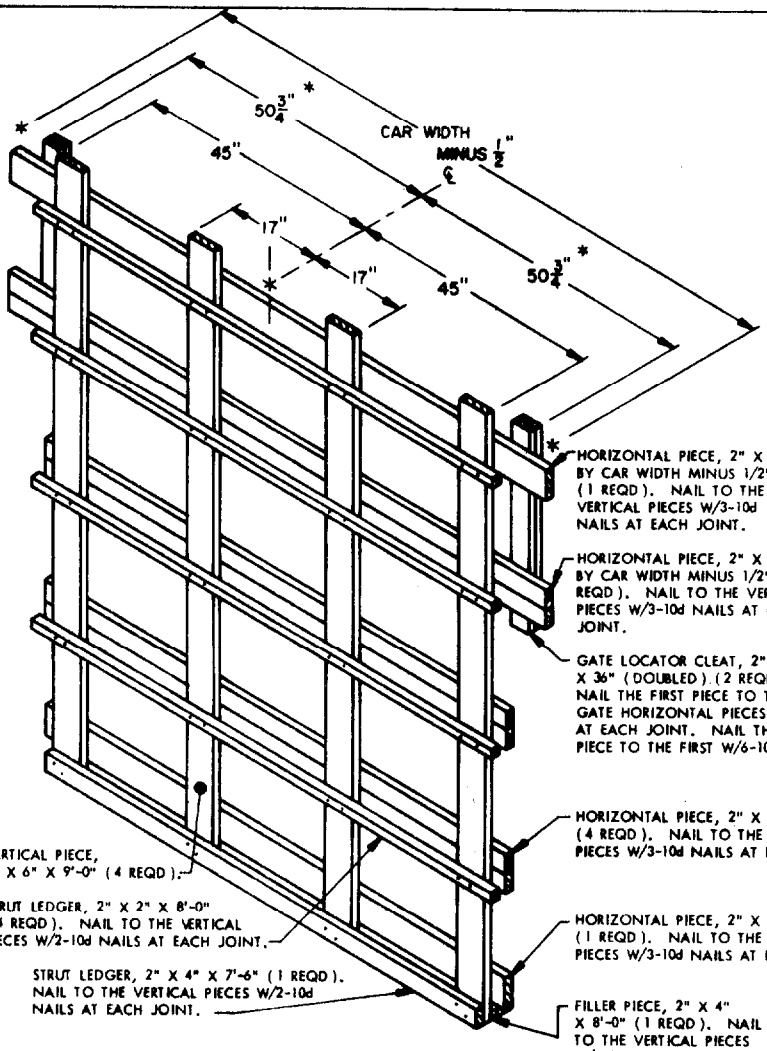
SEE "CHART B" AT RIGHT.

SIDE FILLER ASSEMBLY A

IF A SIDE FILLER ASSEMBLY SHOULD BE NEEDED FOR A LOAD COMBINATION OF LESS THAN FOUR (4) CONTAINERS, SEE THE DIMENSIONS GIVEN FOR "SIDE FILLER ASSEMBLY B" ON PAGE 15.

CHART B

	2-CONTAINER HIGH STACK	3-CONTAINER HIGH STACK	4-CONTAINER HIGH STACK
DIM. A	OMIT	OMIT	8'-0"
DIM. B	OMIT	6'-0"	67"
DIM. C	45-1/2"	41-1/2"	41-1/2"



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

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

GATE LOCATOR CLEAT, 2" X 4" X 36" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE GATE HORIZONTAL PIECES W/ 3-10d NAILS AT EACH JOINT. NAIL THE SECOND PIECE TO THE FIRST W/6-10d NAILS.

HORIZONTAL PIECE, 2" X 4" X 8'-0" (4 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 6" X 8'-0" (1 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

FILLER PIECE, 2" X 4" X 8'-0" (1 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 6" X 9'-0" (4 REQD).

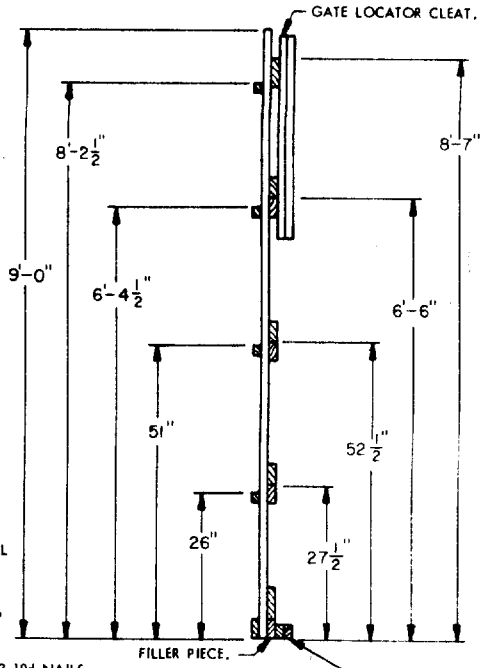
STRUT LEDGER, 2" X 2" X 8'-0" (4 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

STRUT LEDGER, 2" X 4" X 7'-6" (1 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

CENTER GATE B

*48-1/2" FOR A GATE WHICH IS TO BE INSTALLED AGAINST LONGITUDINALLY POSITIONED CONTAINER STACKS.

NOTE THAT THE CENTER GATE AS SHOWN IS FOR A 4-LAYER LOAD. ADJUST HEIGHT OF GATE TO SUIT THE NUMBER OF LAYERS WITHIN THE LOAD BEING SHIPPED.

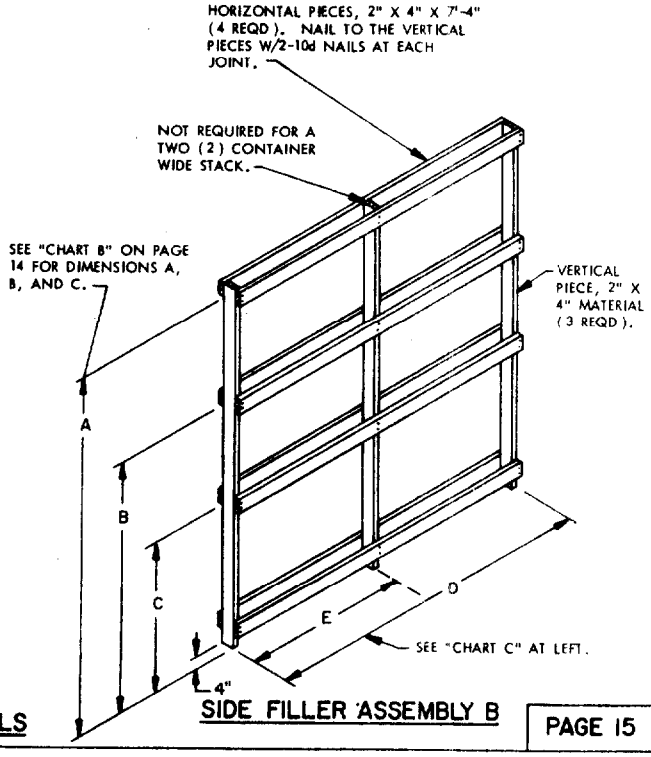


GATE B (SIDE VIEW)

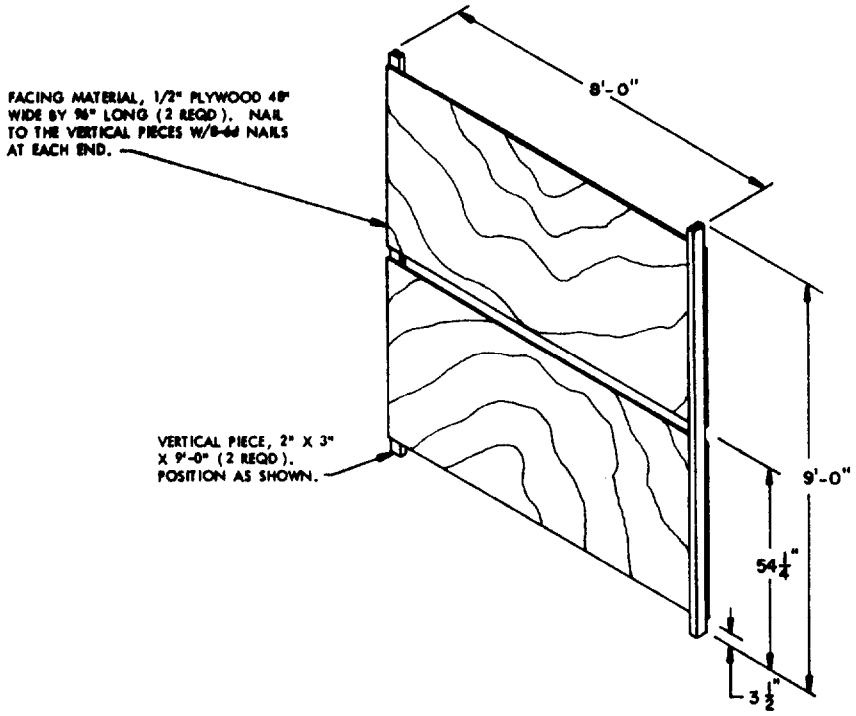
GATE HOLD DOWN, 2" X 3" X 12" (DOUBLED) (2 REQD). POSITION EACH TO FIT JUST INSIDE OF AN OUTSIDE CONTAINER SKID FOR A GATE TO BE INSTALLED AGAINST LATERALLY POSITIONED CONTAINER STACKS, OR NEAR THE END OF THE FILLER PIECE FOR A GATE TO BE INSTALLED AGAINST LONGITUDINALLY POSITIONED CONTAINER STACKS. NAIL THE FIRST PIECE TO THE GATE FILLER PIECE W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

CHART C				
DIM	2 CONTAINER WIDE STACK	3 CONTAINER WIDE STACK	4 CONTAINER WIDE STACK	5 CONTAINER WIDE STACK
D■	43"	66"	7'-4"	9'-3"
E	OMIT	33"	44"	55-1/2"

■FOR A SIDE FILLER ASSEMBLY B WHICH IS TO BE USED ADJACENT TO A CENTER GATE OR ADJACENT TO THE 2" X 3" VERTICAL PIECE OF A "DIVISIONAL GATE A", THE INDICATED "DIMENSION D" MUST BE REDUCED BY 3".

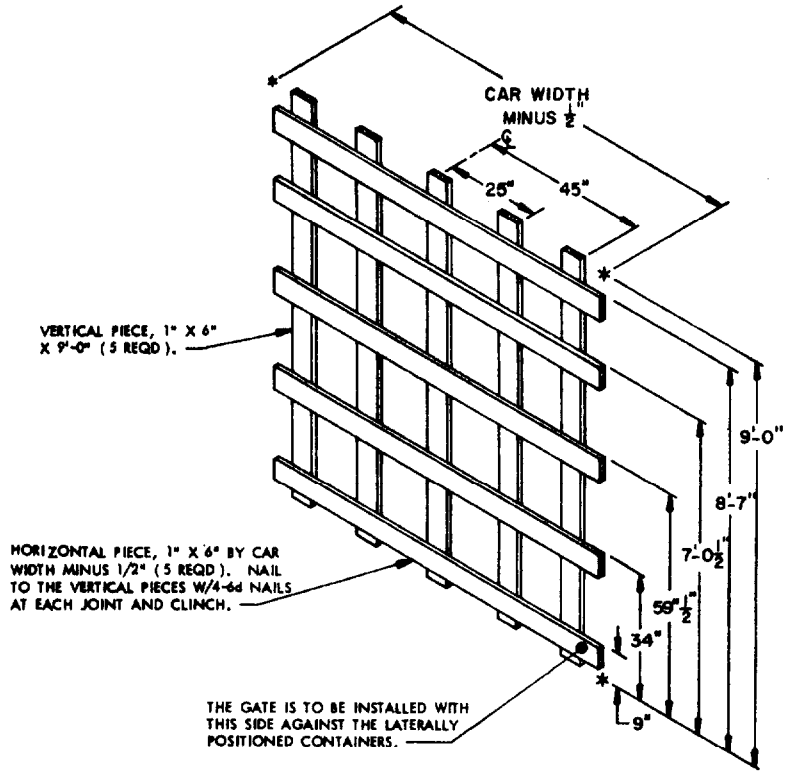


SIDE FILLER ASSEMBLY B



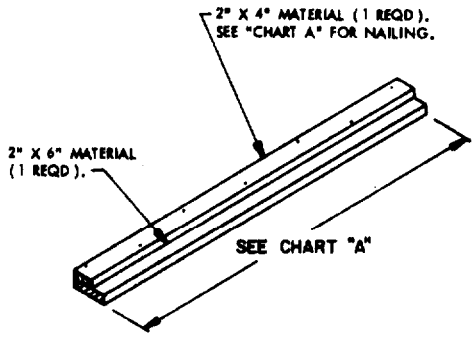
DIVISIONAL GATE A

IF 1/2" PLYWOOD (OR THICKER) IS NOT AVAILABLE, A GATE CONSTRUCTED OF LUMBER MAY BE SUBSTITUTED. SEE THE "DIVISIONAL GATE B" DETAIL BELOW FOR CONSTRUCTION GUIDANCE.



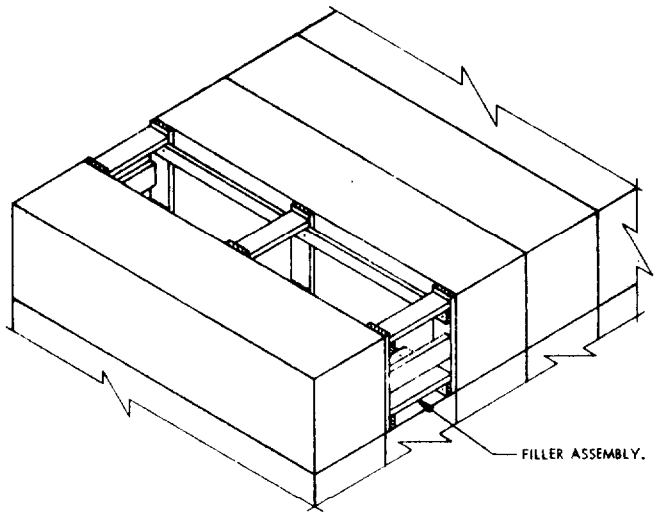
DIVISIONAL GATE B

THIS GATE IS DESIGNED AS AN ALTERNATIVE FOR "DIVISIONAL GATE A" WHEN PLYWOOD IS NOT AVAILABLE.



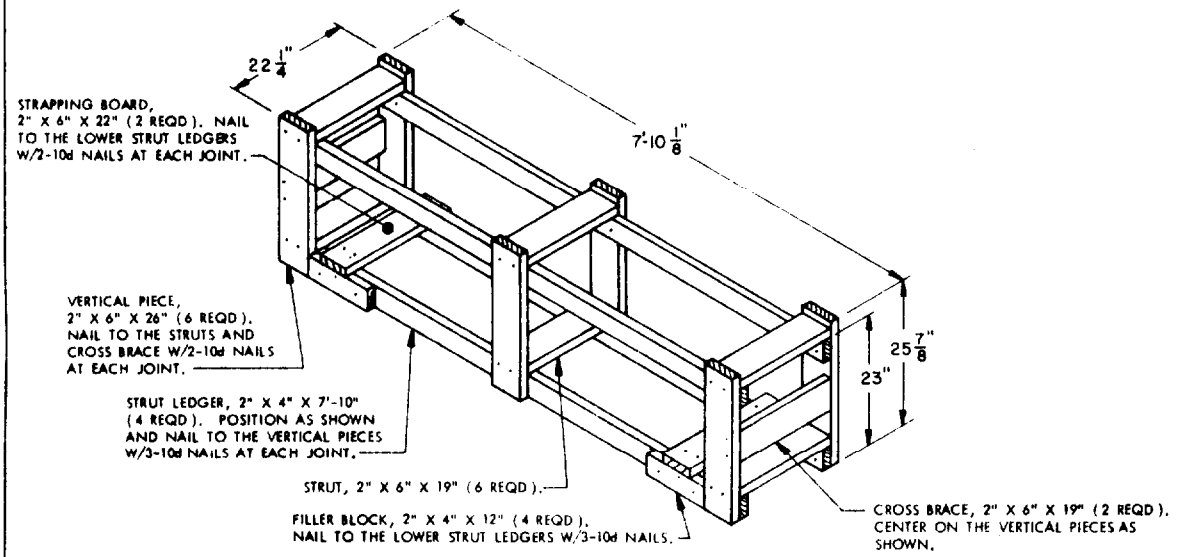
DOORWAY FILLER

CHART A		
BLOCKING FOR	LENGTH	LAMINATE WITH
1 CONTAINER	22"	3-10d NAILS
2 CONTAINERS	44"	4-10d NAILS
3 CONTAINERS	62"	5-10d NAILS
4 CONTAINERS	7'-5"	7-10d NAILS



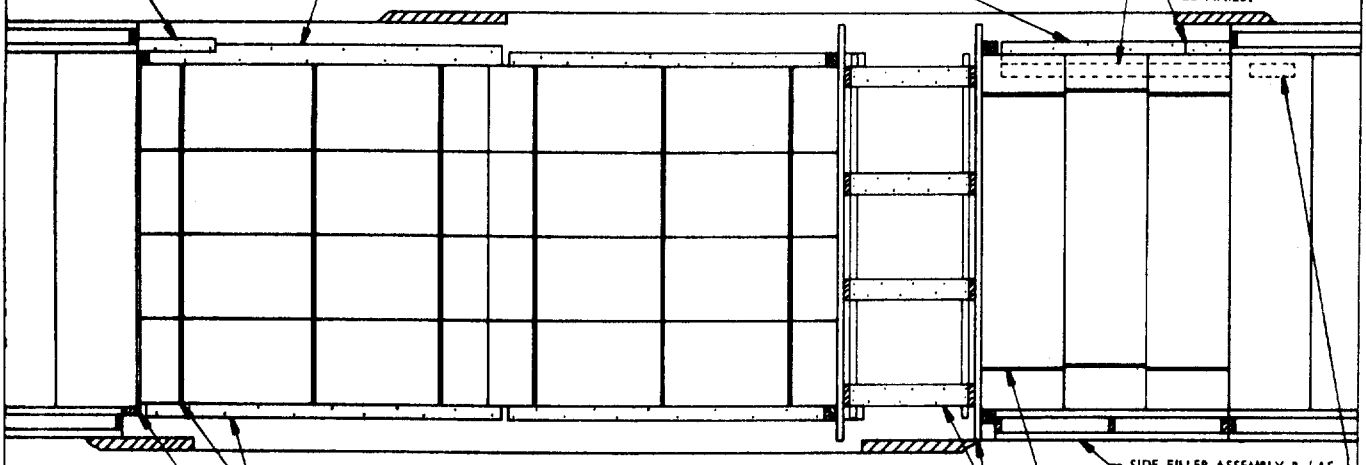
APPLICATION OF FILLER ASSEMBLY

THE VIEW ABOVE SHOWS THE APPLICATION OF THE FILLER ASSEMBLY IN A LOAD. THE ASSEMBLY SHOULD ALWAYS BE POSITIONED SO THAT THERE IS AT LEAST ONE CONTAINER BETWEEN IT AND THE CENTER GATE, OR AT LEAST ONE CONTAINER BETWEEN IT AND THE STACKS OF LONGITUDINALLY POSITIONED CONTAINERS, AS APPLICABLE. THE ASSEMBLY SHOULD BE USED IN THE SHORT-LOAD END OF THE CAR IF POSSIBLE. ALSO, THE ASSEMBLY SHOULD NEVER BE USED WITHIN LONGITUDINALLY POSITIONED CONTAINER STACKS IN THE DOORWAY AREA OF A CAR.



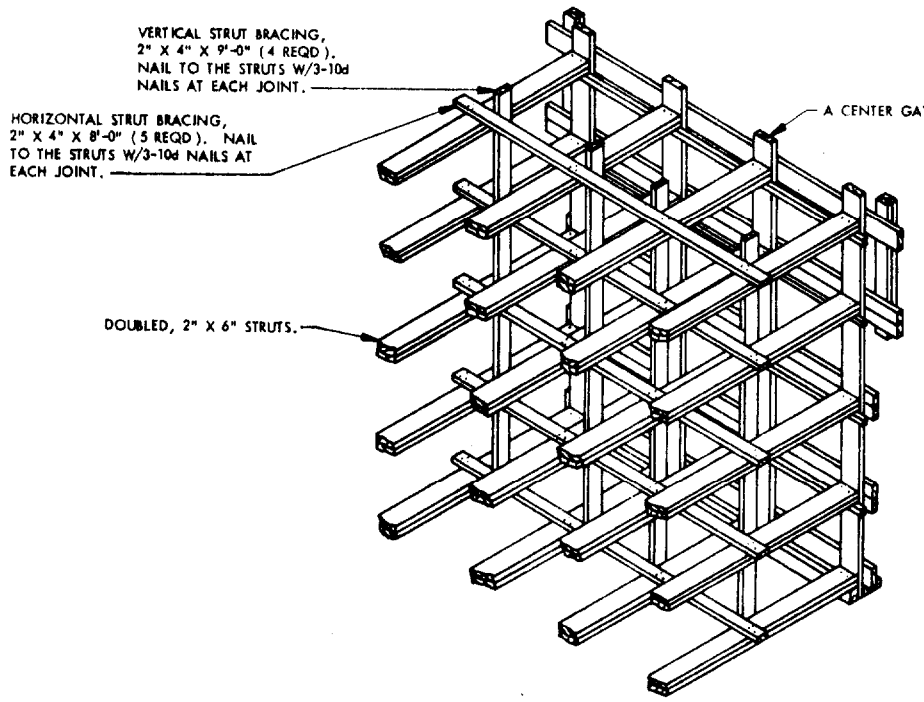
FILLER ASSEMBLY

WHEN A FILLER ASSEMBLY IS TO BE USED WITHIN A UNITIZED STACK, THE ASSEMBLY WILL BE SECURED TO THE TOP OF THE STACK. THE UNITIZING STRAP WILL BE INSTALLED OVER THE STRAPPING BOARD AND FILLER BLOCK.



PARTIAL PLAN VIEW

THIS VIEW DEPICTS THE LOADING AND BRACING FOR A 9'-2" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH LARGE AND/OR STAGGERED DOORS. REFERENCE IS MADE TO THE LOAD ON PAGE 6 FOR MATERIAL AND NAIL SIZE REQUIREMENTS. THE QUANTITY OF NAILS PER PIECE SHOULD BE ADJUSTED PROPORTIONALLY TO SUIT THE LENGTH OF THE PIECE BEING NAILED.



STRUT BRACING ASSEMBLY

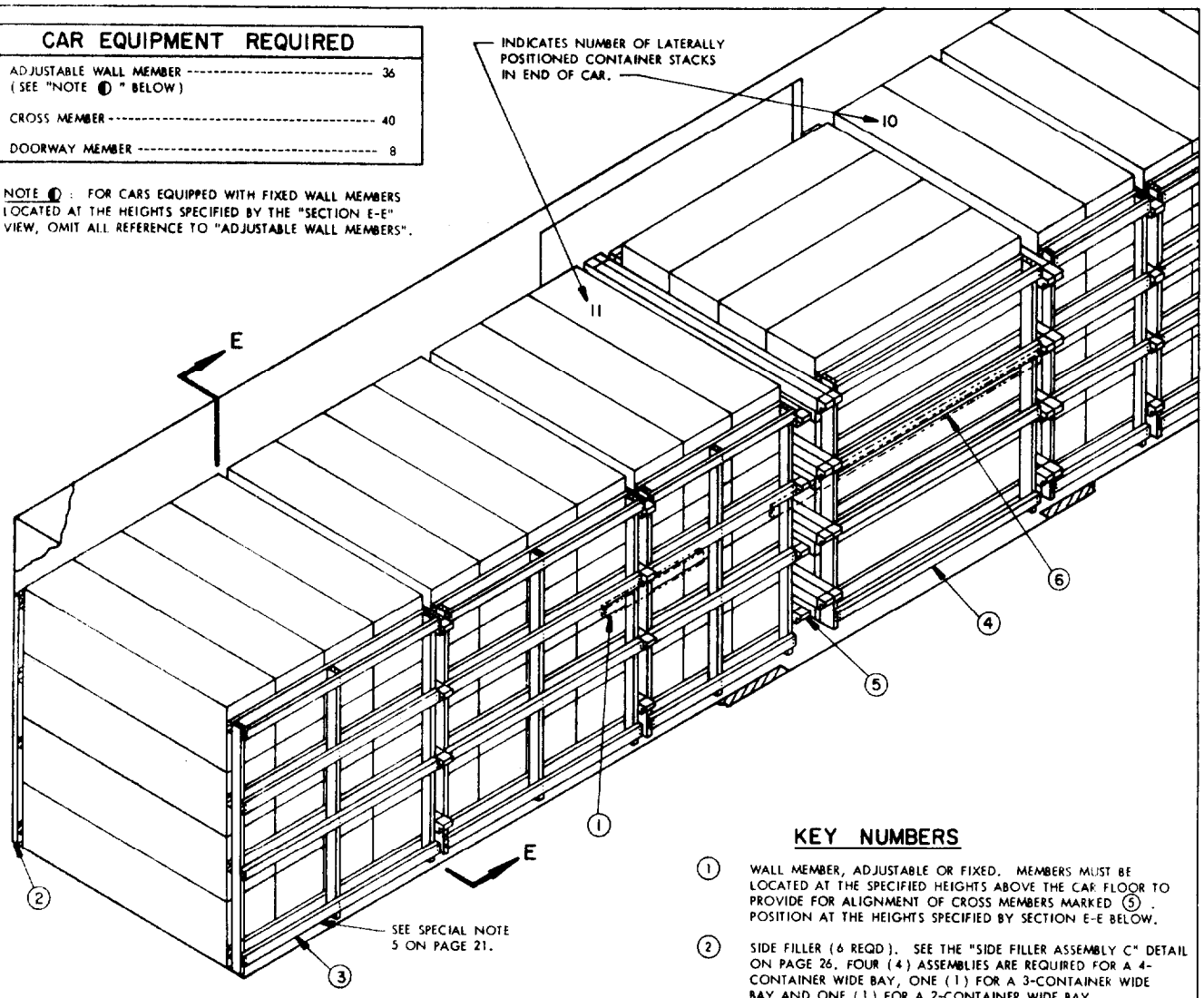
NOTES

1. STRUT BRACING IS REQUIRED WHEN STRUTS ARE 48" OR GREATER IN LENGTH. ONE (1) SET OF BRACING IS REQUIRED FOR EVERY 48" OF STRUT LENGTH.
2. STRUT BRACING AS SHOWN IS FOR A LOAD CONTAINING CENTER GATE B ASSEMBLIES. THE SAME TYPE OF BRACING IS ALSO APPLICABLE TO LOADS CONTAINING CENTER GATE A ASSEMBLIES; ONE LESS PIECE OF VERTICAL STRUT BRACING WILL BE REQUIRED.

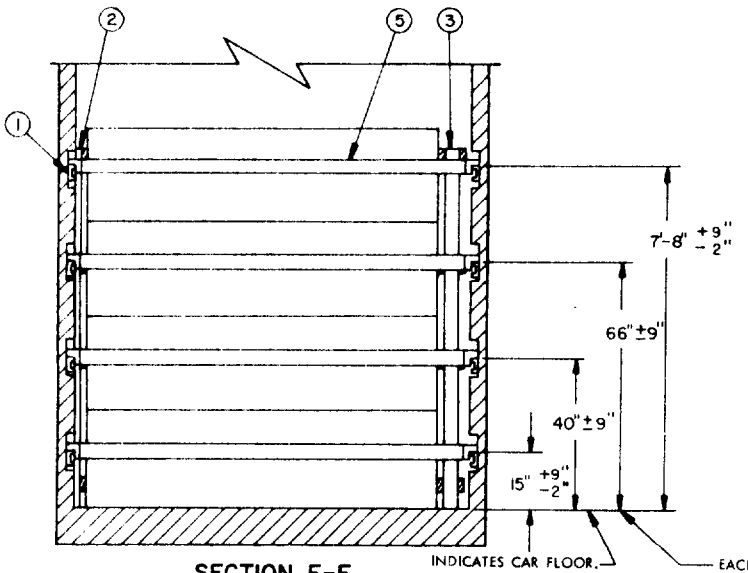
CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBER (SEE "NOTE ◐" BELOW)	36
CROSS MEMBER	40
DOORWAY MEMBER	8

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



ISOMETRIC VIEW



SECTION E-E

KEY NUMBERS

(1) 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 (5). POSITION AT THE HEIGHTS SPECIFIED BY SECTION E-E BELOW.

(2) SIDE FILLER (6 REQD). SEE THE "SIDE FILLER ASSEMBLY C" DETAIL ON PAGE 26. FOUR (4) ASSEMBLIES ARE REQUIRED FOR A 4-CONTAINER WIDE BAY, ONE (1) FOR A 3-CONTAINER WIDE BAY, AND ONE (1) FOR A 2-CONTAINER WIDE BAY.

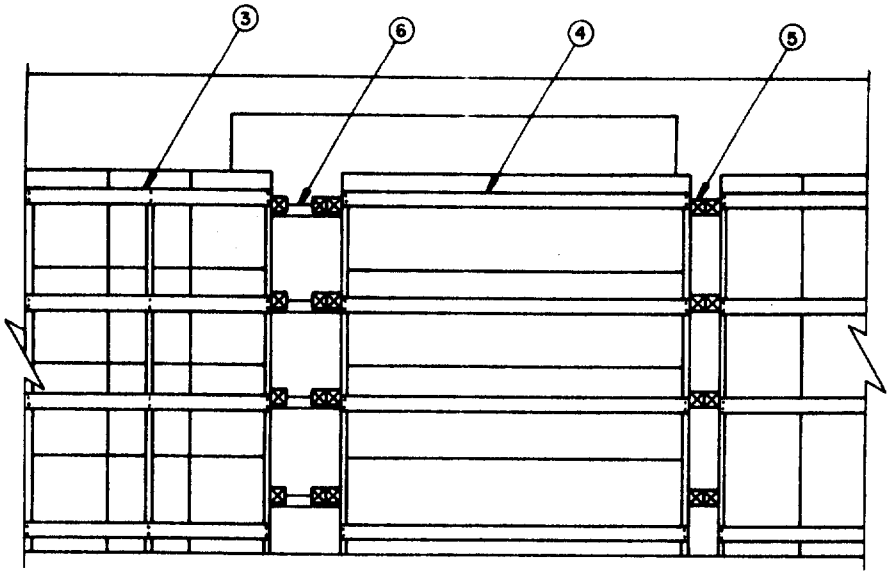
(3) SIDE FILLER (6 REQD). SEE THE "SIDE FILLER ASSEMBLY D" DETAIL ON PAGE 26. FOUR (4) ASSEMBLIES ARE REQUIRED FOR A 4-CONTAINER WIDE BAY, ONE (1) FOR A 3-CONTAINER WIDE BAY, AND ONE (1) FOR A 2-CONTAINER WIDE BAY.

(4) SIDE FILLER (2 REQD). SEE THE "SIDE FILLER ASSEMBLY D" DETAIL ON PAGE 26 FOR CONSTRUCTION GUIDANCE. NOTE THAT VERTICAL PIECES ARE REQUIRED ONLY AT THE ENDS OF AN ASSEMBLY AND MAY BE EITHER 4" OR 6" WIDE MATERIAL AS NECESSARY. INSTALL AN ASSEMBLY ON EACH SIDE OF THE LONGITUDINALLY POSITIONED CONTAINER STACKS IN THE DOORWAY AREA OF THE CAR.

(5) CROSS MEMBER (40 REQD). SEE GENERAL NOTE "G" ON PAGE 2. NOTE THAT TWO (2) CROSS MEMBERS ARE TO BE INSTALLED AT EACH LEVEL AT EACH END OF THE LONGITUDINALLY POSITIONED CONTAINER STACKS IN THE DOORWAY AREA.

(6) DOORWAY MEMBER (8 REQD). POSITION AT THE HEIGHTS SPECIFIED BY SECTION E-E BELOW.

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



PARTIAL ELEVATION VIEW

SPECIAL NOTES:

1. A 50'-6" LONG BY 8'-11" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH A 10'-0" WIDE DOOR OPENING IS SHOWN. AN 8'-0" WIDE DOOR OPENING IS OF ADEQUATE WIDTH FOR LOADING THE DESIGNATED ITEM; HOWEVER, DOORS LESS THAN 8'-0" WIDE WILL MAKE IT VERY DIFFICULT TO LOAD THE CAR.

2. A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. HOWEVER, AFTER LOADING HAS PROGRESSED TO THE BEGINNING OF A DOOR OPENING, IF A CAR WITH A STAGGERED DOOR IS USED, THE AUXILIARY DOOR MUST BE CLOSED AND SECURED, AND THE REMAINDER OF THE ITEMS LOADED ABOARD THE CAR BY TAKING THEM THROUGH A MAIN DOOR.

3. IF CARS WIDER THAN 8'-11" ARE USED, "SIDE FILLER ASSEMBLY D" BLOCKING MAY BE USED ON BOTH SIDES OF THE CAR; OR IF THE CAR IS NARROWER, "SIDE FILLER ASSEMBLY C" BLOCKING MAY BE USED ON BOTH SIDES OF THE CAR.

4. TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, THE "FILLER ASSEMBLY" SHOWN ON PAGE 18 CAN BE USED IN LIEU OF ONE OR TWO CONTAINERS ON THE TOP LAYER OF A FOUR-CONTAINER WIDE BAY OF LATERALLY POSITIONED CONTAINER STACKS. A "FILLER ASSEMBLY" MUST NOT BE UTILIZED NEXT TO A CROSS MEMBER IN THESE STACKS AND MUST NOT BE USED WITHIN THE LONGITUDINALLY POSITIONED CONTAINER STACKS IN THE DOORWAY AREA. THE LCL PROCEDURES ON PAGES 22 AND 23 MAY ALSO BE APPLIED FOR THE ADJUSTMENT OF THE LOAD QUANTITY.

5. IF DESIRED, FLOOR-LINE TYPE LATERAL BLOCKING MAY BE USED THROUGHOUT THE CAR OR IN THE DOORWAY AREA ONLY IN LIEU OF THE SIDE FILLER ASSEMBLIES SHOWN AS PIECES MARKED (2), (3), AND/OR (4). REFER TO PAGES 22 AND 23 FOR APPLICABLE BLOCKING AND BRACING PROCEDURES.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	861	574
2" X 6"	32	32
NAILS	NO. REQD	POUNDS
10d (3")	472	7-1/2

LOAD AS SHOWN

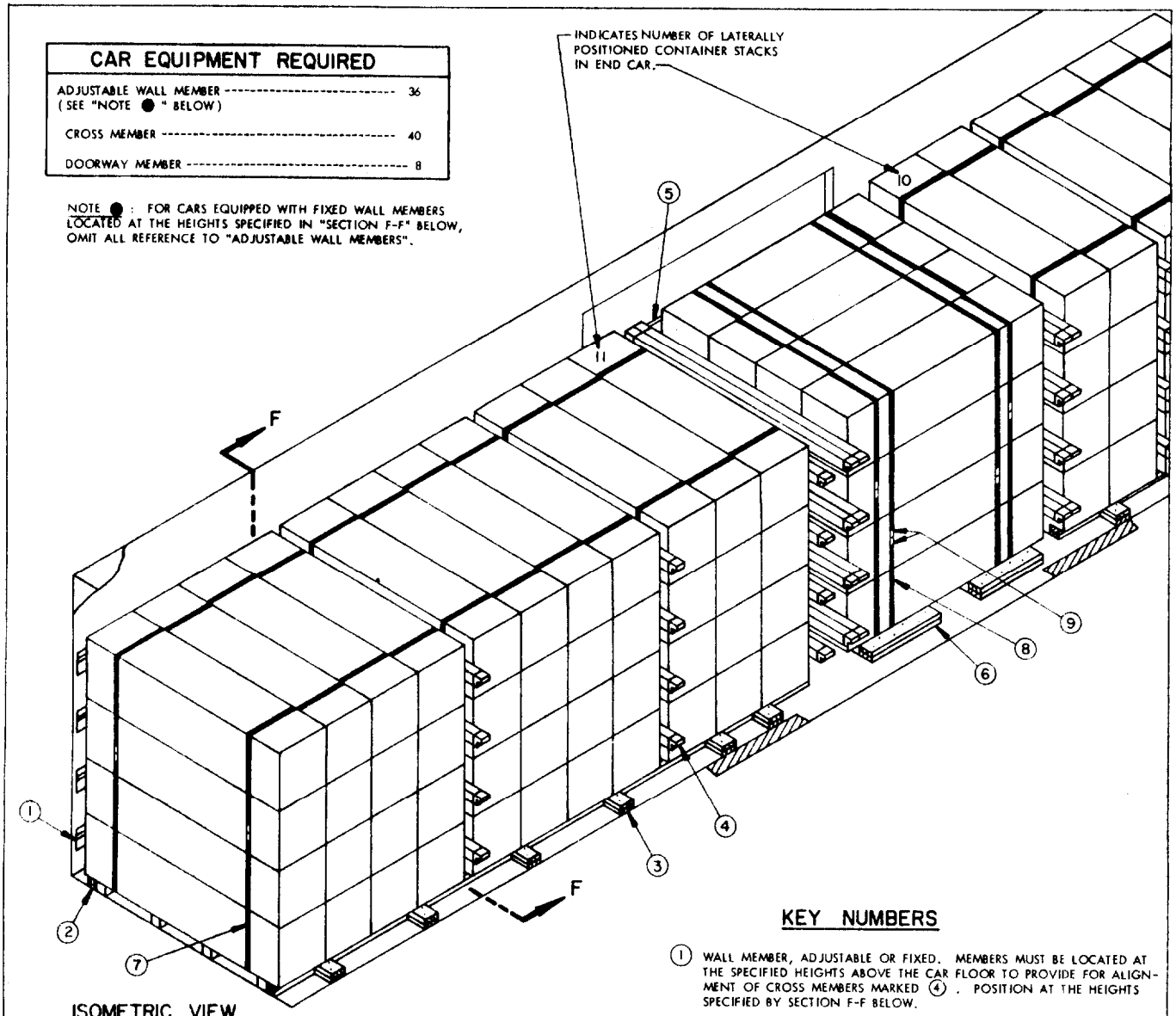
ITEM	QUANTITY	WEIGHT (APPROX)
105/E CONTAINER	100	101,000 LBS
DUNNAGE		1,523 LBS
TOTAL WEIGHT		102,523 LBS

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

CAR EQUIPMENT REQUIRED

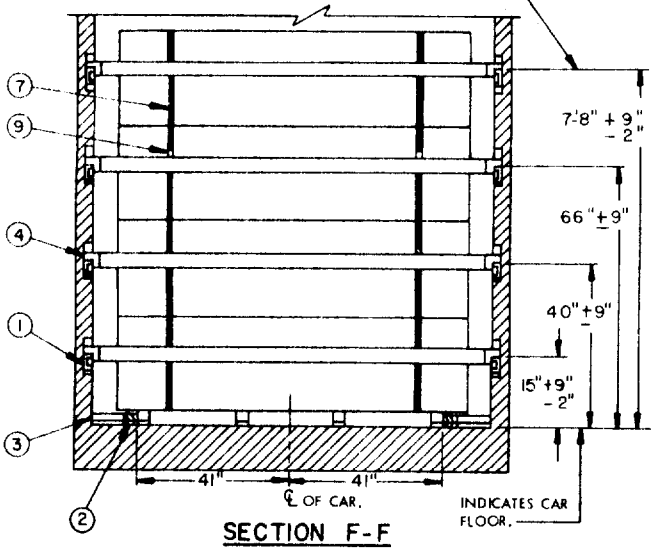
ADJUSTABLE WALL MEMBER (SEE "NOTE ● " BELOW)	36
CROSS MEMBER	40
DOORWAY MEMBER	8

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



ISOMETRIC VIEW

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED (1) AND/OR A DOORWAY MEMBER MARKED (5) IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.



SECTION F-F

KEY NUMBERS

(1) 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 (4). POSITION AT THE HEIGHTS SPECIFIED BY SECTION F-F BELOW.

(2) SIDE BEARING PIECES, 2" X 4" X 21'-2" FOR THE 11 CONTAINER STACKS SHOWN IN THE NEAR END OF THE CAR, AND 2" X 4" X 19'-2" FOR THE 10 CONTAINER STACKS IN THE OPPOSITE END OF THE CAR (DOUBLED) (2 EACH REQD). PRE-POSITION AS SHOWN BY THE "SECTION F-F" VIEW. NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. NOTE THAT RANDOM LENGTH MATERIAL MAY BE USED. JOINTS OF PIECES MUST BE STAGGERED AT LEAST 24". SEE GENERAL NOTES "R" AND "S" ON PAGE 2.

(3) SIDE BLOCKING, 2" X 6" BY CUT TO FIT (DOUBLED) (22 REQD). PRE-POSITION SO AS TO BE CENTERED ON JOINT BETWEEN CONTAINER STACKS, AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

(4) CROSS MEMBER (40 REQD). SEE GENERAL NOTE "G" ON PAGE 2. NOTE THAT TWO (2) CROSS MEMBERS ARE TO BE INSTALLED AT EACH LEVEL AT EACH END OF THE LONGITUDINALLY POSITIONED CONTAINER STACKS IN THE DOORWAY AREA.

(5) DOORWAY MEMBER (8 REQD). POSITION AT THE HEIGHTS SPECIFIED BY SECTION F-F AT THE LEFT.

(6) DOORWAY AREA SIDE BLOCKING, 2" X 6" X 30" (DOUBLED) (4 REQD). POSITION SO AS TO BE CENTERED ON A PAIR OF CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

(7) UNITIZING STRAP, 1-1/4" X .035" X 22'-0" STEEL STRAPPING (50 REQD). SEE THE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3 AND GENERAL NOTES "L" AND "M" ON PAGE 2.

(8) BUNDLING STRAP, 1-1/4" X .035" X 34'-0" STEEL STRAPPING (2 REQD). INSTALL AROUND THE LONGITUDINALLY POSITIONED CONTAINER STACKS.

(9) SEAL FOR 1-1/4" STRAPPING (104 REQD, 2 PER STRAP).

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

SPECIAL NOTES:

1. THIS BLOCKING AND BRACING PROCEDURE, DEPICTING THE USE OF FLOOR-LINE LATERAL BRACING, IS AN ALTERNATIVE TO THE PROCEDURE USED FOR THE 100-UNIT LOAD SHOWN ON PAGES 20 AND 21.

2. A 50'-6" LONG BY 8'-11" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH A 10'-0" WIDE DOOR OPENING IS SHOWN. AN 8'-0" WIDE DOOR OPENING IS OF ADEQUATE WIDTH FOR LOADING THE DESIGNATED ITEM; HOWEVER, DOORS LESS THAN 8'-0" WIDE WILL MAKE IT VERY DIFFICULT TO LOAD THE CAR.

3. A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. HOWEVER, AFTER LOADING HAS PROGRESSED TO THE BEGINNING OF A DOOR OPENING, IF A CAR WITH A STAGGERED DOOR IS USED, THE AUXILIARY DOOR MUST BE CLOSED AND SECURED, AND THE REMAINDER OF THE ITEMS LOADED ABOARD THE CAR BY TAKING THEM THROUGH A MAIN DOOR.

4. TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, IF THE QUANTITY TO BE SHIPPED CANNOT BE OBTAINED BY OMITTING THE ENTIRE TOP LAYER FROM A BAY, THE "FILLER ASSEMBLY" SHOWN ON PAGE 18 CAN BE USED IN LIEU OF ONE OR TWO CONTAINERS ON THE TOP LAYER OF A LOAD. HOWEVER, A "FILLER ASSEMBLY" MUST NOT BE POSITIONED NEXT TO A CROSS MEMBER. THE LCL PROCEDURES ON PAGES 24 AND 25 MAY ALSO BE APPLIED FOR THE ADJUSTMENT OF THE LOAD QUANTITY.

5. "SIDE FILLER ASSEMBLY C" AND/OR "SIDE FILLER ASSEMBLY D", AS UTILIZED ON PAGES 20 AND 21, MAY BE USED IN THE DOORWAY IN LIEU OF THE DEPICTED PIECES MARKED (6) THRU (9).

BILL OF MATERIAL

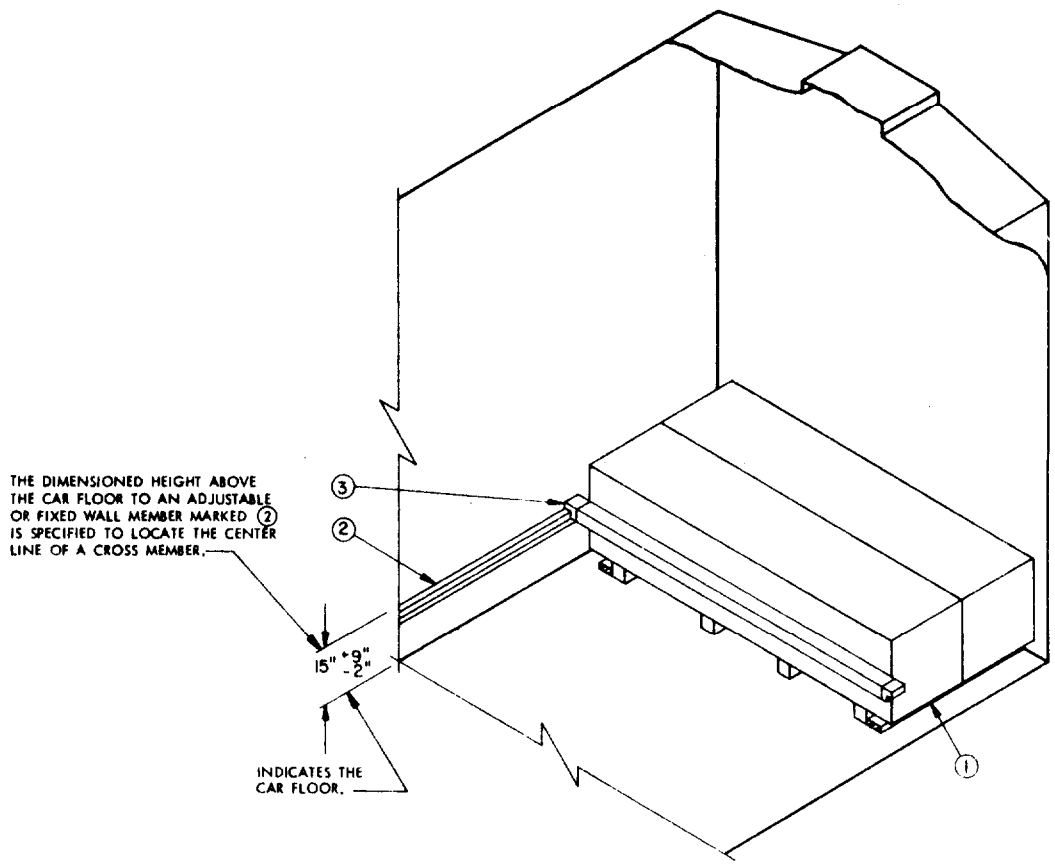
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	163	109
2" X 6"	64	64
NAILS	**NO. REQD**	**POUNDS**
16d (3-1/2")	380	8-1/2

STEEL STRAPPING, 1-1/4" X .035" ---------- 1,168' REQD -- 167 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 104 REQD --- 6 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX.)
105/E CONTAINER	100	101,000 LBS
DUNNAGE		615 LBS
	TOTAL WEIGHT	101,615 LBS

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



ISOMETRIC VIEW

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE SHIPMENT OF ONE (1) CONTAINER HIGH LOAD IN A BOX CAR (MECHANICAL) EQUIPPED WITH A NAILABLE FLOOR.
2. AN 8'-6" WIDE BOX CAR IS DEPICTED; HOWEVER ANY WIDTH CAR CAN BE USED FOR THE TYPE OF OUTLOADING DEPICTED.

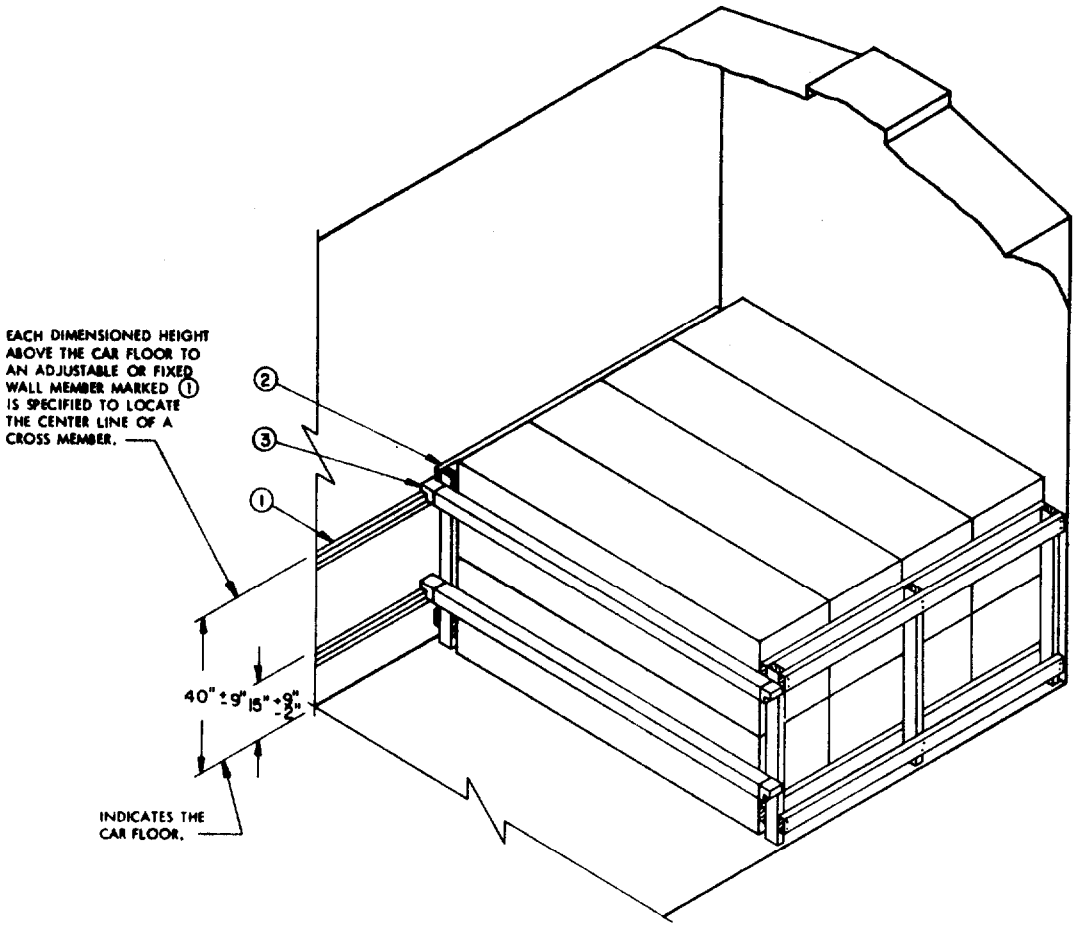
KEY NUMBERS

(1) SIDE BLOCKING, 2" X 4" X 44" (2 REQD). PRE-POSITION TO CONTACT THE CONTAINER SKIDS AND NAIL TO THE CAR FLOOR W/8-16d NAILS. SEE GENERAL NOTE "S" ON PAGE 2.

(2) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBER MUST BE AT SPECIFIED HEIGHT ABOVE THE CAR FLOOR TO PROVIDE FOR ALIGNMENT OF CROSS MEMBER MARKED (3).

(3) CROSS MEMBER (1 REQD). SEE GENERAL NOTE "G" ON PAGE 2.

TYPICAL LCL (2-UNIT LOAD) IN AN 8'-6" WIDE BOX CAR (MECHANICAL)



ISOMETRIC VIEW

SPECIAL NOTES:

1. THE LOAD AS SHOWN IS BASED ON A 9'-2" WIDE CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS.
2. IF CARS LESS THAN 9'-2" WIDE ARE USED, A COMBINATION OF "SIDE FILLER ASSEMBLIES C AND D" SHOWN ON PAGE 26 MAY BE USED.
3. IF CARS WIDER THAN 9'-2" ARE USED, THE VERTICALS ON THE "SIDE FILLER ASSEMBLY" MAY BE ADJUSTED AS REQUIRED TO FILL THE VOIDS AT THE SIDES OF THE CAR.

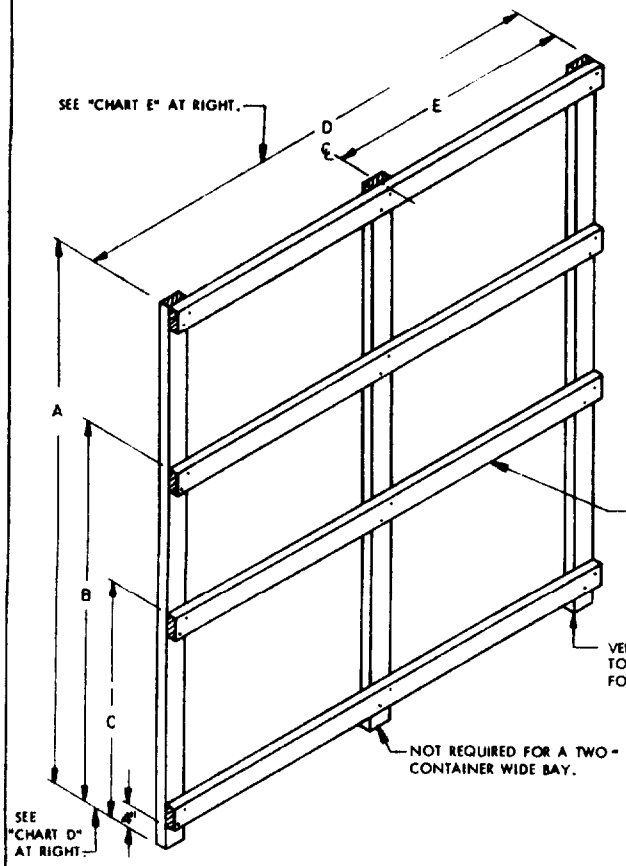
KEY NUMBERS

(1) 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 (3).

(2) SIDE FILLER (2 REQD). SEE THE "SIDE FILLER ASSEMBLY C" DETAIL ON PAGE 26.

(3) CROSS MEMBER (2 REQD). SEE GENERAL NOTE "G" ON PAGE 2.

TYPICAL LCL (8-UNIT LOAD) IN A 9'-2" WIDE BOX CAR (MECHANICAL)

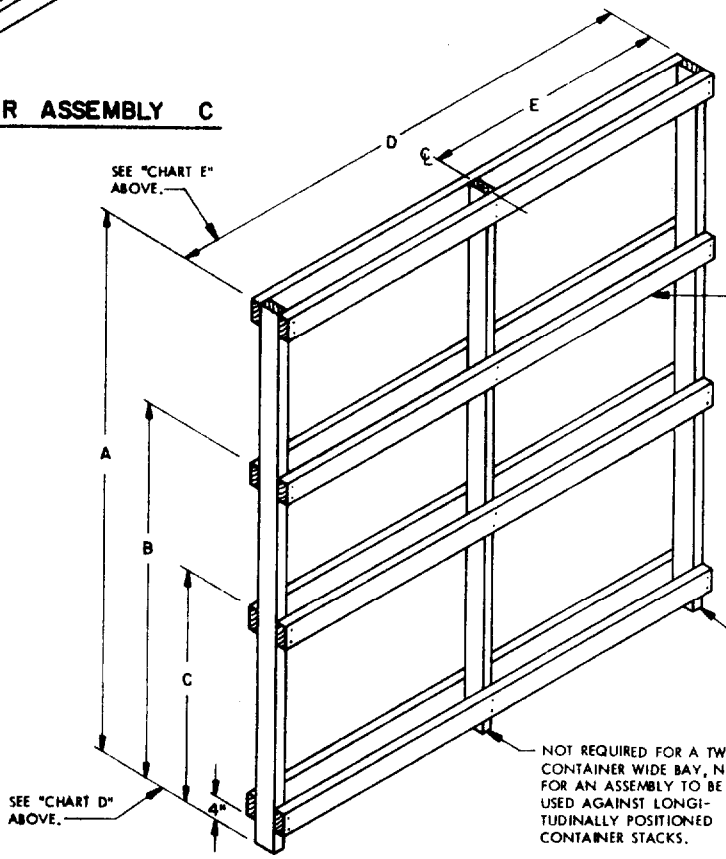


SIDE FILLER ASSEMBLY C

CHART D			
	2-CONTAINER HIGH STACK	3-CONTAINER HIGH STACK	4-CONTAINER HIGH STACK
DIM. A	OMIT	OMIT	8'-0"
DIM. B	OMIT	6'-0"	67"
DIM. C	45-1/2"	41-1/2"	41-1/2"

CHART E			
	2-CONTAINER WIDE BAY	3-CONTAINER WIDE BAY	4-CONTAINER WIDE BAY
DIM. D*	44"	66"	88"
DIM. E	OMIT	33"	44"

*DIMENSION "D" WILL BE 7'-10" FOR A "SIDE FILLER ASSEMBLY D" TO BE USED AGAINST THE LONGITUDINALLY POSITIONED CONTAINER STACKS IN THE DOORWAY OF A MECHANICAL CAR.



SIDE FILLER ASSEMBLY D