

APPROVED
 BUREAU OF EXPLOSIVES
A. J. Grassmuck
 MILITARY ASSISTANT
 DATE 5/12/67

LOADING & BRACING IN BOX CARS OF MINE DISPERSING SYSTEM, AIRCRAFT, XM47, PACKED IN THE XM551 CONTAINER

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

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DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

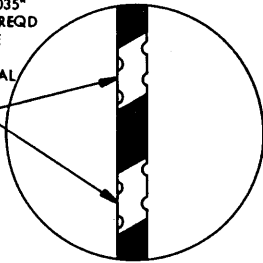
- A. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO THE XM47 AIRCRAFT MINE DISPERSING SYSTEM WHEN PACKAGED IN THE XM551 SERIES CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE XM551 CONTAINER WITH CONTENTS.
- B. THE LOADS AS SHOWN HEREIN ARE BASED ON BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES HAVING ADJUSTABLE AND/OR FIXED WALL MEMBERS, OR ARE BASED ON CONVENTIONAL BOX CARS.
- C. BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS HAVE BEEN SHOWN. HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR CARS EQUIPPED WITH PLUG DOORS. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN.
- D. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 4 THROUGH 9 ARE FOR CONVENTIONAL TYPE BOX CARS OF VARIOUS LENGTH AND WIDTH COMBINATIONS.
- E. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 10 THROUGH 15 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 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 LOCKING HOLES IN THE WALL MEMBER 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.
 3. 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, BEING USED FOR SHIPMENTS AS SHOWN ON PAGES 12, 14, AND 15, HAS A "BOWED END", RATHER THAN SQUARING OFF THE END BY INSTALLING DUNNAGE, ADDITIONAL CROSS MEMBERS CAN BE INSTALLED NEAR THE END WALL 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.
- F. 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.
- G. FOR DETAILS OF THE XM551 CONTAINER SEE DRAWING NO. 9206909.

CONTAINER DIMENSIONS --- 108" LONG X 29-1/8" WIDE X 31-1/2" HIGH.
GROSS WEIGHT ----- 1,040 POUNDS (APPROX).
TARE WEIGHT ----- 500 POUNDS (APPROX).

MATERIAL SPECIFICATIONS

- LUMBER ----- : SEE TM 715-5500-1, 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-5-781.
- ANTI-CHAFING MATERIAL: NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL).
- WIRE ----- : FED SPEC QQ-W-461.

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



ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD TO PROTECT THE CONTAINERS AT ALL POINTS OF CONTACT WITH STRAPPING).

INDICATES CONTAINER END WHICH HAS INSPECTION/MONITORING PORT. SEE GENERAL NOTE "J" ON PAGE 2.

INSPECTION/MONITORING PORT.

7'-5 1/2"

29 1/8"

9'-0"

CONTAINER STACKING PAD.

CONTAINER LIFTING POINT.

1-1/4" X .035" UNITIZING STEEL STRAPPING (4 REQD PER STACK).

RECEPTACLE FOR FORK TINE OF FORKLIFT TRUCK.

STACK DETAIL

(UNITIZING AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING.

- A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.
- B. POSITION THE INSPECTION/MONITORING PORT OF AN UPPER CONTAINER ABOVE THE INSPECTION/MONITORING PORT OF THE NEXT LOWER CONTAINER. SEE GENERAL NOTE "J" ON PAGE 2.

2. INSTALLATION OF 1-1/4" X .035" UNITIZING STEEL STRAPPING. SEE GENERAL NOTE "Q" ON PAGE 2.

- A. EACH OF THE TWO SETS OF UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING AS NEAR AS PRACTICAL TO THE INSIDE ENDS OF THE SKIDS. THE STRAPPING SHOULD LAY FLAT AND STRAIGHT WITH THE CONTOUR OF THE CONTAINERS; I.E., VERTICAL ALONG SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE STACK.
- B. PLACE ANTI-CHAFING MATERIAL UNDER THE STRAPPING AT ALL POINTS OF STRAPPING/CONTAINER CONTACT, AND SECURE TO PREVENT DISLODGEMENT DURING AND AFTER STRAP APPLICATION. STRIPS OF ANTI-CHAFING MATERIAL MAY BE TAPED OR STRING-TIED TO THE CONTAINERS OR TO THE STRAPPING, OR IT CAN BE FORMED INTO STRAP ENCIRCLING TUBES BY WINDING THE MATERIAL AROUND AND AROUND THE STRAPPING TO FORM A SELF-HOLDING UNIT.

- C. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE CRIMPED STRAP SEALS AS SHOWN. THE LAP JOINTS WILL BE MADE ALONG THE SIDE OF A 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.

NOTES: (1) APPROVED MATERIALS HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.

(2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

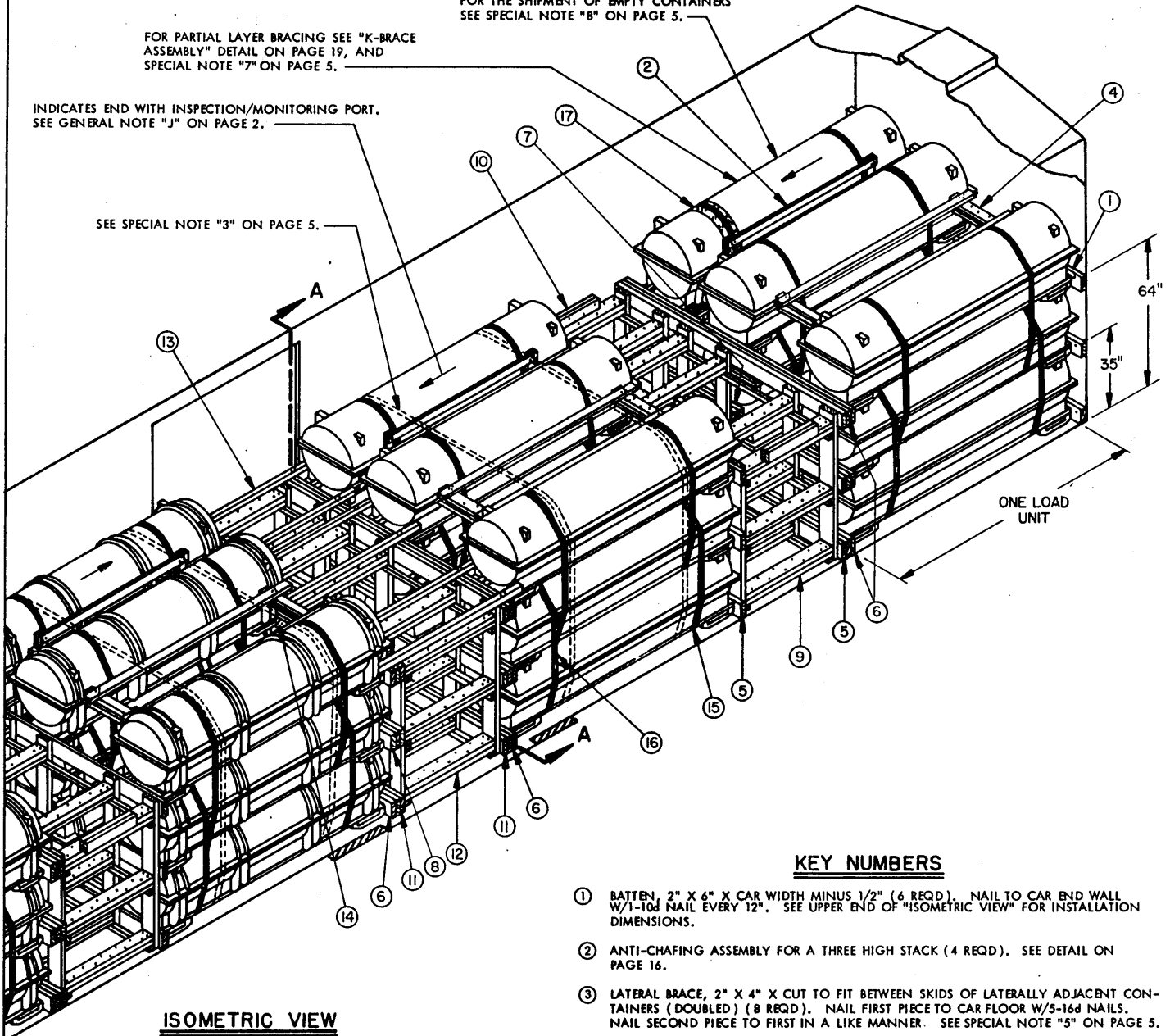
- A. ONLY APPROVED AND APPROPRIATELY-SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.
- B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION. **CAUTION:** THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED; FORK TINES MAY BE PLACED UNDER THE SKIDS. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER, TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING CAR LOADING, A UNITIZED TWO OR THREE-CONTAINER STACK MAY BE HANDLED BY INSERTING THE FORKS OF THE FORKLIFT TRUCK UNDER THE BODY OF AN UPPER CONTAINER.
- C. IF ONE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS OF THE CONTAINER. HOWEVER, IF A 2 OR 3-HIGH STACK IS HANDLED BY SLINGING, **DO NOT** ATTACH THE SLING TO THE LIFTING POINTS ON THE CONTAINERS. THE SLING MUST BE OF SUCH A DESIGN THAT LIFTING IS DONE ON THE BOTTOM OF THE LOWER CONTAINER.

FOR THE SHIPMENT OF EMPTY CONTAINERS
SEE SPECIAL NOTE "8" ON PAGE 5.

FOR PARTIAL LAYER BRACING SEE "K-BRACE
ASSEMBLY" DETAIL ON PAGE 19, AND
SPECIAL NOTE "7" ON PAGE 5.

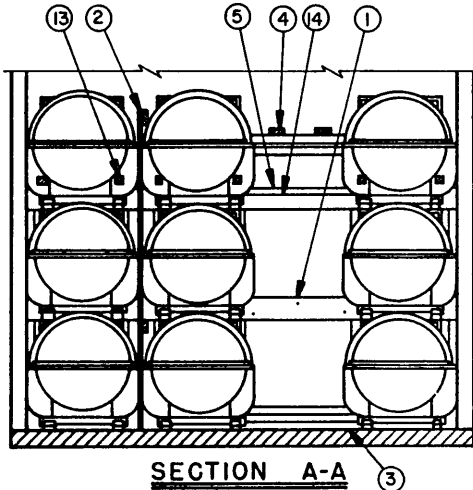
INDICATES END WITH INSPECTION/MONITORING PORT.
SEE GENERAL NOTE "J" ON PAGE 2.

SEE SPECIAL NOTE "3" ON PAGE 5.



ISOMETRIC VIEW

A 50'-6" LONG X 9'-2" WIDE CONVENTIONAL BOX
CAR WITH 6'-0" DOOR OPENINGS IS SHOWN.



SECTION A-A

KEY NUMBERS

- ① BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (6 REQD). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12". SEE UPPER END OF "ISOMETRIC VIEW" FOR INSTALLATION DIMENSIONS.
- ② ANTI-CHAFING ASSEMBLY FOR A THREE HIGH STACK (4 REQD). SEE DETAIL ON PAGE 16.
- ③ LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF LATERALLY ADJACENT CONTAINERS (DOUBLED) (8 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "5" ON PAGE 5.
- ④ SPACER ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 16.
- ⑤ INTERMEDIATE GATE (4 REQD, 2 RIGHT HAND AND 2 LEFT HAND). SEE "GATE A" DETAIL ON PAGE 16.
- ⑥ FILLER PIECE, 2" X 6" X CAR WIDTH MINUS 1/2" (DOUBLED) (8 REQD). NAIL FIRST PIECE TO TOP AND/OR BOTTOM HORIZONTAL PIECE OF INTERMEDIATE GATE MARKED ⑤ WHICH IS TO BE INSTALLED AGAINST A LOAD UNIT IN THE END OF THE CAR AND/OR CENTER GATE MARKED ⑪ W/1-10d NAIL EVERY 12". NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑦ FILLER PIECE, 2" X 6" X 57-1/2" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO THE 57-1/2" LONG HORIZONTAL PIECE OF INTERMEDIATE GATE MARKED ⑤ WHICH IS TO BE INSTALLED AGAINST A LOAD UNIT IN THE END OF THE CAR AND/OR CENTER GATE MARKED ⑪ W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑧ FILLER PIECE, 2" X 6" X 27-1/2" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO THE 27-1/2" LONG HORIZONTAL PIECE OF INTERMEDIATE GATE MARKED ⑤ WHICH IS TO BE INSTALLED AGAINST A LOAD UNIT IN THE END OF THE CAR AND/OR CENTER GATE MARKED ⑪ W/3-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑨ STRUT, 2" X 6" X 45" (DOUBLED) (36 REQD). LAMINATE W/9-10d NAILS. TOENAIL TO VERTICAL PIECES OF INTERMEDIATE GATES MARKED ⑤ W/2-12d NAILS AT EACH END.
- ⑩ GATE HOLD-DOWN, 2" X 4" X 24" (DOUBLED) (4 REQD). LOCATE TO CENTER ON LENGTH OF STRUT MARKED ⑨ AND SUCH THAT THE SECOND LAYER WILL BE IN CONTACT WITH THE STRUT. NAIL FIRST PIECE TO CAR SIDE WALL W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.

(KEY NUMBERS CONTINUED ON PAGE 5)

(KEY NUMBERS CONTINUED FROM PAGE 4)

- ① CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE "GATE A" DETAIL ON PAGE 16.
- ⑫ STRUT, 2" X 6" X CUT TO FIT (DOUBLED) (18 REQD). LAMINATE W/9-10d NAILS. TOENAIL TO VERTICAL PIECES OF CENTER GATE MARKED ① W/2-12d NAILS AT EACH END.
- ⑬ GATE HOLD-DOWN, 2" X 2" X CUT TO EXTEND 6" BEYOND ENDS OF CONTAINER SKIDS (6 REQD). NAIL TO TOP HORIZONTAL PIECE OF CENTER GATE MARKED ① AND/OR TOP FILLER PIECE MARKED ⑥ W/2-10d NAILS AT EACH END.
- ⑭ LATERAL RETAINING BLOCK FOR CENTER GATE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF ADJACENT CONTAINERS (2 REQD). NAIL TO UPPER LEVEL PIECE MARKED ⑥ WHICH HAS BEEN APPLIED TO CENTER GATE. SECURE W/5-10d NAILS.
- ⑮ STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (48 REQD). SEE GENERAL NOTE "L" ON PAGE 2. SEE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3.
- ⑯ SEAL FOR 1-1/4" STRAPPING (96 REQD).
- ⑰ ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPS AT ALL POINTS OF CONTACT WITH CONTAINERS.

SPECIAL NOTES

- 1. A 50'-6" LONG X 9'-2" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH 6'-0" DOOR OPENINGS IS SHOWN.
- 2. A WIDER CAR CAN BE USED AND IS PREFERRED FOR SHIPPING THE DEPICTED LOAD; HOWEVER, A CAR NARROWER THAN 9'-2" MUST NOT BE USED. SEE SPECIAL NOTE 6 FOR PROCEDURES APPLICABLE TO A 40'-6" LONG CAR.
- 3. A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. IF A CAR WITH THRU DOOR OPENINGS GREATER THAN 13'-6" IN WIDTH IS USED, THE END OF EACH LOAD UNIT EXTENDING INTO THE DOORWAY AREA MUST BE ENCIRCLED WITH 1-1/4" X .035" X 35'-0" LONG STEEL STRAPPING. IF A CAR WITH STAGGERED DOOR OPENINGS IS USED, THE LOAD UNITS WHICH ARE IN THE DOORWAY AREA ON EITHER SIDE OF THE CAR MUST BE ENCIRCLED WITH TWO (2) PIECES OF STEEL STRAPPING, ONE (1) AT EACH END OF THE UNIT AS SHOWN WITHIN THE "ISOMETRIC VIEW" BY THE DOTTED LINES.
- 4. THE DUNNAGE ASSEMBLIES AND OTHER BLOCKING AND BRACING COMPONENTS AND THE LOADING PATTERN SHOWN HEREIN ARE DESIGNED TO FACILITATE THE IN-TRANSIT INSPECTION/MONITORING OF THE DESIGNATED ITEM. THE INSPECTION/MONITORING PORTS ON THE CONTAINERS MUST NOT BE RENDERED INACCESSIBLE.
- 5. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD 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 TO THE NAILING OF A PIECE MARKED ③. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. ADDITIONALLY, PIECES MARKED ③ SHOULD BE CHANGED TO 2" X 6" MATERIAL TO RECIEVE THE LARGER SIZE NAILS. SEE "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
- 6. TWENTY-SEVEN (27) CONTAINERS CAN BE SHIPPED IN A 40'-6" LONG X 9'-2" WIDE CAR WHICH IS EQUIPPED WITH DOOR OPENINGS 9'-0" OR GREATER IN WIDTH. ADJUST QUANTITIES OF DUNNAGE PIECES AS NECESSARY. STRUT BRACING (REFERENCE PIECES MARKED ⑬ AND ⑰ ON PAGE 6) WILL BE REQUIRED TO BRACE PIECES MARKED ⑫.
- 7. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF ONE LESS CONTAINER THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, A "FILLER ASSEMBLY", AS DEPICTED ON PAGE 18, MUST BE SUBSTITUTED IN PLACE OF EACH OMITTED CONTAINER. THE TOP CONTAINER OF THE CENTER ROW IS THE RECOMMENDED ONE TO OMIT. AS REQUIRED, THE SPACER ASSEMBLY MARKED ④ WILL BE INSTALLED BETWEEN THE COVER FLANGES OF CONTAINERS IN THE SECOND LAYER, AND THE ADJACENT ANTI-CHAFING ASSEMBLY MAY BE SHORTENED IN HEIGHT.

IF THE QUANTITY TO BE SHIPPED CANNOT BE ACHIEVED BY THE SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES IN THE PLACE OF OMITTED CONTAINERS, OR BY THE OMISSION OF A FULL ROW FROM A LAYER, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. SEE "K-BRACE ASSEMBLY" DETAIL ON PAGE 19.

- 8. FOR THE SHIPMENT OF EMPTY CONTAINERS IN A 50'-6" LONG CAR THE FOLLOWING PROCEDURE IS APPLICABLE:
 - A. THE LOAD MAY BE INCREASED TO FORTY-FIVE (45) CONTAINERS (5 LOAD UNITS).
 - B. OMIT ONE (1) GATE MARKED ⑤ AND ALL FILLER PIECES MARKED ④, ⑦, AND ⑧, ALL STRUTS MARKED ⑬, AND ALL GATE HOLD-DOWN PIECES MARKED ⑱.
 - C. POSITION ONE (1) GATE MARKED ⑤ (WITHOUT THE STRUT LEDGER PIECES) BETWEEN ADJACENT LOAD UNITS (3 REQD). PROVIDE HOLD DOWN FOR GATES BY APPLYING A 2" X 4" X 26" LONG PIECE HORIZONTALLY TO THE TWO OUTWARD VERTICAL PIECES OF GATE MARKED ⑤ (2 REQD PER GATE). POSITION THE 2" X 4" PIECE TO FIT INTO THE NOTCHED OUT PORTION OF SKID END AND NAIL TO VERTICAL PIECES W/3-10d NAILS AT EACH END.
 - D. INCREASE LENGTH OF UNITIZING STRAP MARKED ⑮ TO 20'-0" AND APPLY TO ENCIRCLE A STACK OF THREE (3) CONTAINERS (30 REQD).
 - E. INCREASE QUANTITY OF PIECE MARKED ② TO FIVE (5) REQUIRED AND QUANTITIES OF PIECES MARKED ③ AND ④ TO TEN (10) REQUIRED.
 - F. FOR DOORWAY PROTECTION APPLY ONE (1) PIECE OF STEEL STRAPPING, AS SHOWN BY DOTTED LINES IN THE "ISOMETRIC VIEW", AROUND THE END OF CENTER LOAD UNIT WHICH EXTENDS INTO THE DOORWAY AREA. TWO (2) PIECES, ONE (1) AROUND EACH END OF CENTER LOAD UNIT, ARE REQUIRED IF THE DOOR OPENING IS GREATER THAN 10'-6" IN WIDTH. IF THE CAR IS EQUIPPED WITH STAGGERED DOOR OPENINGS GREATER THAN 15'-0" IN WIDTH ONE (1) PIECE OF STRAPPING WILL ALSO BE REQUIRED AROUND THE SECOND LOAD UNIT FROM THE END OF THE CAR, AT THE END NEAREST THE CENTER OF THE CAR.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	120	40
2" X 2"	178	60
2" X 4"	158	106
2" X 6"	1009	1009
NAILS	NO. REQD	POUNDS
6d (2")	48	1/2
10d (3")	1458	22-1/2
12d (3-1/4")	216	3-3/4
16d (3-1/2")	80	1-3/4
STEEL STRAPPING, 1-1/4" X .035"	720 ^d REQD	103 LBS
SEAL FOR 1-1/4" STRAPPING	96 REQD	5 LBS
ANTI-CHAFING MATERIAL	AS REQD	NIL

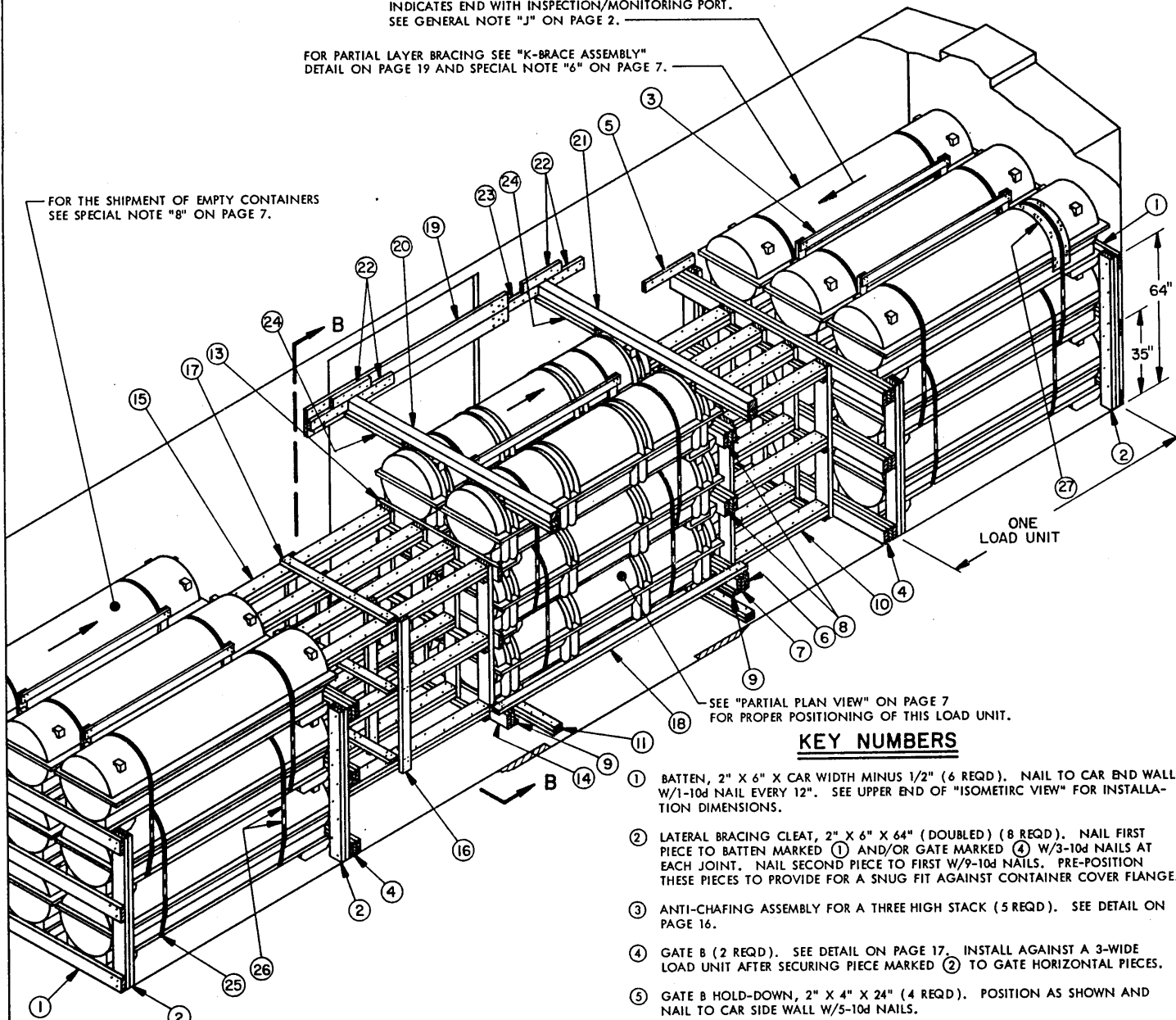
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	36	37,440 LBS
(W/XM47 SYSTEM)		
DUNNAGE		3,175 LBS
TOTAL WEIGHT		40,615 LBS

INDICATES END WITH INSPECTION/MONITORING PORT.
SEE GENERAL NOTE "J" ON PAGE 2.

FOR PARTIAL LAYER BRACING SEE "K-BRACE ASSEMBLY"
DETAIL ON PAGE 19 AND SPECIAL NOTE "6" ON PAGE 7.

FOR THE SHIPMENT OF EMPTY CONTAINERS
SEE SPECIAL NOTE "8" ON PAGE 7.



SEE "PARTIAL PLAN VIEW" ON PAGE 7
FOR PROPER POSITIONING OF THIS LOAD UNIT.

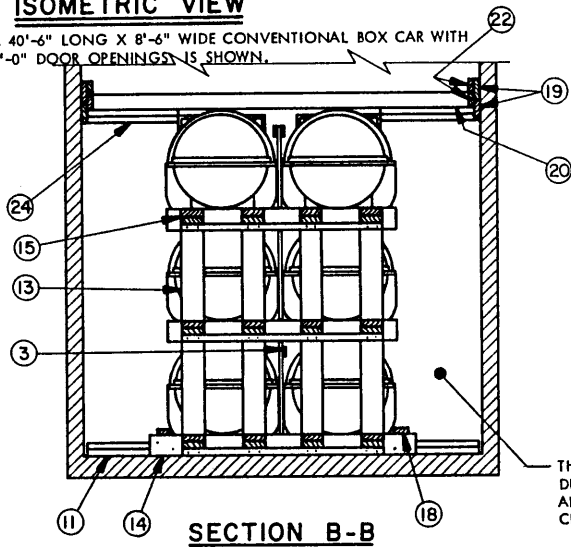
KEY NUMBERS

- ① BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (6 REQD). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12". SEE UPPER END OF "ISOMETRIC VIEW" FOR INSTALLATION DIMENSIONS.
- ② LATERAL BRACING CLEAT, 2" X 6" X 64" (DOUBLED) (8 REQD). NAIL FIRST PIECE TO BATTEN MARKED ① AND/OR GATE MARKED ④ W/3-10d NAILS AT EACH JOINT. NAIL SECOND PIECE TO FIRST W/9-10d NAILS. PRE-POSITION THESE PIECES TO PROVIDE FOR A SNUG FIT AGAINST CONTAINER COVER FLANGE.
- ③ ANTI-CHAFING ASSEMBLY FOR A THREE HIGH STACK (5 REQD). SEE DETAIL ON PAGE 16.
- ④ GATE B (2 REQD). SEE DETAIL ON PAGE 17. INSTALL AGAINST A 3-WIDE LOAD UNIT AFTER SECURING PIECE MARKED ② TO GATE HORIZONTAL PIECES.
- ⑤ GATE B HOLD-DOWN, 2" X 4" X 24" (4 REQD). POSITION AS SHOWN AND NAIL TO CAR SIDE WALL W/5-10d NAILS.
- ⑥ SEPARATOR GATE (1 REQD). SEE "GATE C" DETAIL ON PAGE 17.
- ⑦ FLOOR LINE FILLER PIECE, 2" X 6" X 68" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO BOTTOM HORIZONTAL PIECE OF SEPARATOR GATE MARKED ⑥ W/6-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑧ INTERMEDIATE AND TOP LEVEL FILLER PIECES, 2" X 6" X 58" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO INTERMEDIATE AND/OR TOP HORIZONTAL OF SEPARATOR GATE MARKED ⑥ W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑨ GATE HOLD-DOWN, 2" X 2" X 68" (2 REQD). NAIL TO PIECE MARKED ⑦ AND/OR BOTTOM HORIZONTAL PIECE OF CENTER GATE MARKED ⑬ W/8-10d NAILS.
- ⑩ STRUT, 2" X 6" X 45" (DOUBLED) (12 REQD). LAMINATE W/9-10d NAILS. TOENAIL TO VERTICAL PIECES OF GATE B MARKED ④ AND SEPARATOR GATE MARKED ⑥ W/2-12d NAILS AT EACH END.
- ⑪ LATERAL BRACE, 2" X 4" X 24" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "5" ON PAGE 7.

(KEY NUMBERS CONTINUED ON PAGE 7)

ISOMETRIC VIEW

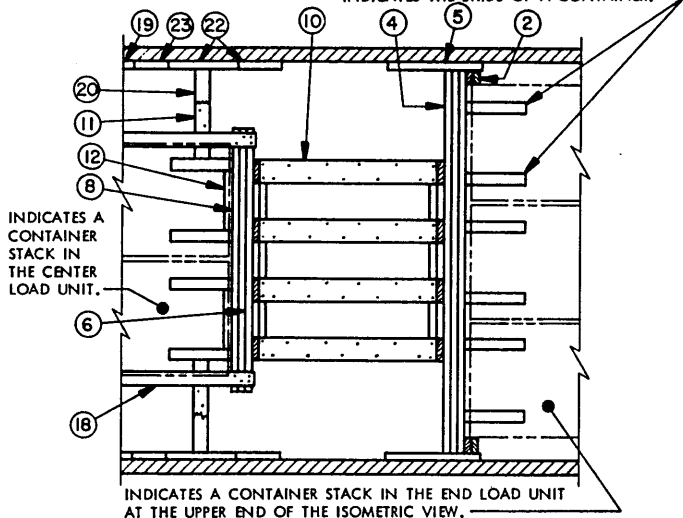
A 40'-6" LONG X 8'-6" WIDE CONVENTIONAL BOX CAR WITH
6'-0" DOOR OPENINGS IS SHOWN.



SECTION B-B

THE LOAD UNIT IN END OF CAR AND
DUNNAGE PIECES MARKED ①, ②,
AND ④ HAVE BEEN OMITTED FOR
CLARITY.

INDICATES THE SKIDS OF A CONTAINER.



PARTIAL PLAN VIEW

THIS VIEW DEPICTS THE CENTER LOAD UNIT OF SIX (6) CONTAINERS PROPERLY POSITIONED SO THE STRUTS MARKED (10) WILL BE IN ALIGNMENT WITH THE SKIDS OF CONTAINERS IN THE END LOAD UNIT.

(KEY NUMBERS CONTINUED FROM PAGE 6)

- (12) LATERAL RETAINING BLOCK FOR GATE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF A CONTAINER (REF 16") (4 REQD). PRE-POSITION AND NAIL TO TOP HORIZONTAL FILLER PIECE MARKED (8) AND/OR CENTER GATE MARKED (13) W/4-10d NAILS. SEE "VIEW A" ON PAGE 17 FOR INSTALLATION DIMENSIONS.
- (13) CENTER GATE (1 REQD). SEE "GATE C" DETAIL ON PAGE 17.
- (14) NAILING BLOCK, 2" X 6" X 8" (2 REQD). POSITION AGAINST VERTICAL PIECE OF CENTER GATE MARKED (13) AND NAIL TO BOTTOM HORIZONTAL PIECE W/2-10d NAILS. SEE "GATE C" DETAIL ON PAGE 17 FOR LOCATION.
- (15) STRUT, 2" X 6" X CUT TO FIT (DOUBLED) (12 REQD). LAMINATE W/1-10d NAIL EVERY 6". TOENAIL TO VERTICAL PIECES OF GATE B MARKED (4) AND CENTER GATE MARKED (13) W/2-12d NAILS AT EACH END.
- (16) VERTICAL STRUT BRACING, 2" X 4" X 64" (4 REQD). NAIL TO STRUTS MARKED (15) W/3-12d NAILS AT EACH JOINT.
- (17) LATERAL STRUT BRACING, 2" X 4" X 52" (3 REQD). NAIL TO STRUTS MARKED (15) W/3-12d NAILS AT EACH JOINT.
- (18) TIE PIECE, 2" X 4" X 10'-0" (2 REQD). POSITION AGAINST SIDE OF CONTAINER AND NAIL ONE END TO SEPARATOR GATE MARKED (6) AND/OR FILLER PIECE MARKED (7) W/4-10d NAILS AND THE OPPOSITE END TO CENTER GATE MARKED (13) AND NAILING BLOCK MARKED (14) W/2-10d NAILS AT EACH JOINT.
- (19) DOORWAY SPANNER, 2" X 6" X DOOR OPENING WIDTH PLUS 24" (4 REQD). NAIL TO CAR SIDE WALL W/5-12d NAILS AT EACH END. SEE SPECIAL NOTE "3" ON PAGE 7.
- (20) ANTI-SWAY BRACE, 4" X 4" X CAR WIDTH MINUS 3-1/4" (CUT TO FIT) (1 REQD).
- (21) ANTI-SWAY BRACE, 4" X 4" X CAR WIDTH (CUT TO FIT) (1 REQD).
- (22) POCKET CLEAT, 2" X 4" X 18" (10 REQD). NAIL TO CAR SIDE WALL AND/OR DOOR SPANNER MARKED (19) W/5-10d NAILS.
- (23) POCKET CLEAT, 2" X 4" X CUT TO FIT (2 REQD). NAIL TO CAR SIDE WALL W/4-10d NAILS.
- (24) ANTI-SWAY BLOCK, 2" X 4" X CUT TO FIT BETWEEN CONTAINER STACKING PAD AND CAR SIDE WALL AND/OR DOOR SPANNER MARKED (19) (DOUBLED) (4 REQD). NAIL FIRST PIECE TO ANTI-SWAY BRACE W/5-12d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- (25) STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (32 REQD). SEE GENERAL NOTE "L" ON PAGE 2. SEE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3.
- (26) SEAL FOR 1-1/4" STRAPPING (64 REQD).
- (27) ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT ALL POINTS OF CONTACT WITH CONTAINERS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER -----	24	24,960 LBS
(W/XM47 SYSTEM)		
DUNNAGE -----		2,383 LBS
TOTAL WEIGHT ---		27,343 LBS

SPECIAL NOTES

1. A 40'-6" LONG X 8'-6" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH 1'-0" DOOR OPENINGS IS SHOWN.
2. A WIDER CAR CAN BE USED FOR SHIPMENT OF THE DEPICTED LOAD.
3. A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. IF THE DOOR OPENING WIDTH IS GREATER THAN 7'-0", PIECES MARKED (19) MUST BE LONG ENOUGH TO CONTACT AT LEAST 12" OF CAR SIDE WALL AT BOTH ENDS AND AS APPLICABLE, TO EXTEND AN ADDITIONAL AMOUNT AT ONE END TO PROVIDE A NAILING SURFACE FOR PIECES MARKED (22). PIECE MARKED (21) WILL THEN BE CAR WIDTH MINUS 3-1/4" (CUT TO FIT) AND PIECES MARKED (23) WILL BE 18" LONG. IF THE CAR HAS STAGGERED OPENINGS GREATER THAN 12'-0" IN WIDTH, OMIT GATE B HOLD-DOWN SHOWN AS PIECE MARKED (5) AND ADD A 2" X 2" X 7'-6" LONG PIECE TO THE BOTTOM HORIZONTAL PIECE OF GATE B (REF GATE HOLD-DOWN PIECE MARKED (9)).
4. THE DUNNAGE ASSEMBLIES AND OTHER BLOCKING AND BRACING COMPONENTS AND THE LOADING PATTERN SHOWN HEREIN ARE DESIGNED TO FACILITATE THE IN-TRANSIT INSPECTION/MONITORING OF THE DESIGNATED ITEM. THE INSPECTION/MONITORING PORTS ON THE CONTAINERS MUST NOT BE RENDERED INACCESSIBLE.
5. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD 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 TO THE NAILING OF PIECE MARKED (11). IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. ADDITIONALLY, PIECE MARKED (11) SHOULD BE CHANGED TO 2" X 6" MATERIAL TO RECEIVE THE LARGER SIZE NAILS. SEE "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
6. NINETEEN (19) OR TWENTY-TWO (22) CONTAINERS CAN BE SHIPPED BY INSTALLING A "K-BRACE ASSEMBLY", AS DETAILED ON PAGE 19, AGAINST THE THIRD LAYER IN ONE OR BOTH ENDS OF THE CAR. IF AN ASSEMBLY IS INSTALLED AGAINST THE THIRD LAYER IN THE UPPER END OF THE LOAD SHOWN IT WILL BE NECESSARY TO INSTALL THE ANTI-SWAY BRACE MARKED (2) ON THE NEXT PAIR OF CONTAINER REINFORCING RINGS TOWARD THE CENTER OF THE CONTAINER TO PROVIDE FOR CLEARANCE OF HORIZONTAL WALL CLEATS OF "K-BRACE ASSEMBLY", ADJUST HEIGHT OF GATES AND ANTI-CHAFING ASSEMBLIES, AND QUANTITIES OF OTHER DUNNAGE PIECES AS NECESSARY.
7. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF ONE LESS CONTAINER THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, A "FILLER ASSEMBLY", AS DEPICTED ON PAGE 18, MUST BE SUBSTITUTED IN PLACE OF EACH OMITTED CONTAINER. **NOTE:** A SINGLE CONTAINER CANNOT BE OMITTED FROM A TOP LAYER IN THE CENTER LOAD UNIT.
8. FOR THE SHIPMENT OF EMPTY CONTAINERS THE FOLLOWING PROCEDURE IS APPLICABLE:
 - A. THE LOAD MAY BE INCREASED TO THIRTY-SIX (36) CONTAINERS (4 LOAD UNITS) IF THE DOOR OPENING WIDTH IS AT LEAST 10'-0".
 - B. USE A 3 WIDE X 3 HIGH LOADING PATTERN THROUGHOUT THE LENGTH OF THE CAR. INSTALL ANTI-CHAFING ASSEMBLIES, SPACER ASSEMBLY AND LATERAL BRACES, PIECES MARKED (2), (3), AND (4) ON PAGE 4, IN EACH LOAD UNIT.
 - C. BETWEEN EACH OF THE TWO END LOAD UNITS INSTALL A "GATE A" ASSEMBLY WITH ALL EXCEPT THE BOTTOM STRUT LEDGER REMOVED. SEE "GATE A" DETAIL ON PAGE 16. THIS REMAINING STRUT LEDGER WILL PROVIDE A HOLD DOWN FOR THE GATE.
 - D. AT THE CENTER OF THE CAR USE TWO (2) "GATE A" ASSEMBLIES, ONE AS SHOWN IN THE DETAIL AND ONE OPPOSITE HAND, AND INSTALL STRUTS, GATE HOLD-DOWN AND LATERAL RETAINING BLOCK FOR CENTER GATE, PIECES MARKED (12), (13), AND (14) ON PAGE 4.
 - E. INCREASE LENGTH OF UNITIZING STRAPPING MARKED (25) TO 20'-0" AND APPLY TO ENCIRCLE A STACK OF THREE (3) CONTAINERS (24 REQD).
 - F. FOR DOORWAY PROTECTION IF THE THRU DOOR OPENING WIDTH IS GREATER THAN 12'-0" APPLY ONE (1) PIECE OF STEEL STRAPPING, AS SHOWN IN DOTTED LINES IN "ISOMETRIC VIEW" ON PAGE 4, AROUND THE END OF THE CENTER LOAD UNIT WHICH EXTENDS INTO THE DOORWAY AREA. IF THE CAR IS EQUIPPED WITH STAGGERED DOOR OPENINGS GREATER THAN 13'-0" IN WIDTH TWO (2) PIECES OF STEEL STRAPPING WILL BE REQUIRED AROUND EACH LOAD UNIT ADJACENT TO THE CENTER AREA.

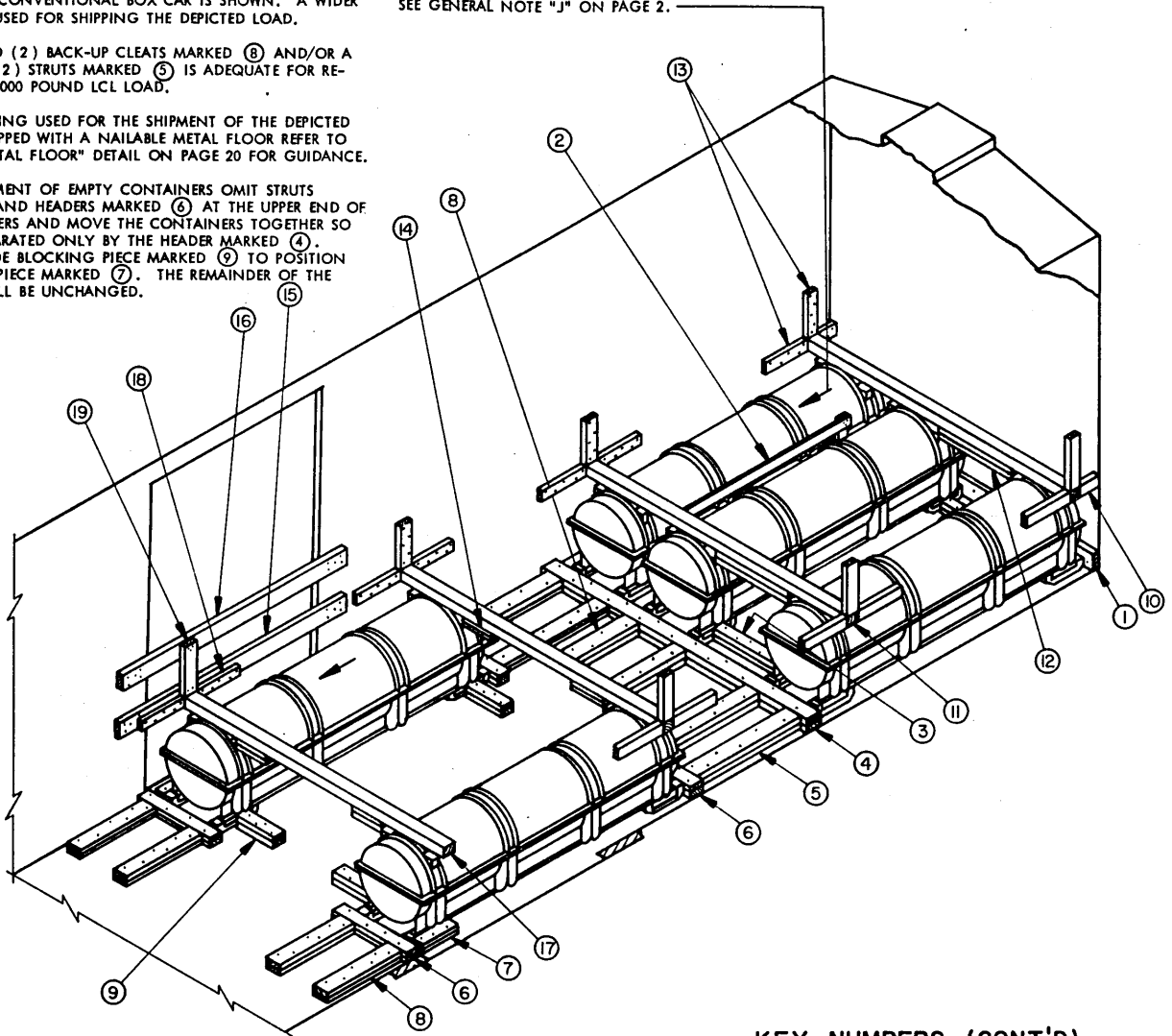
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	132	43
2" X 2"	64	22
2" X 4"	118	79
2" X 6"	748	748
4" X 4"	17	23
NAILS	NO. REQD	POUNDS
6d (2")	60	1/2
10d (3")	1008	15-1/2
12d (3-1/4")	248	4-1/4
16d (3-1/2")	40	1
STEEL STRAPPING, 1-1/4" X .035" -----	480' REQD	69 LBS
SEAL FOR 1-1/4" STRAPPING -----	64 REQD	4 LBS
ANTI-CHAFING MATERIAL -----	AS REQD	NIL

SPECIAL NOTES

1. A 9'-2" WIDE CONVENTIONAL BOX CAR IS SHOWN. A WIDER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD.
2. A SET OF TWO (2) BACK-UP CLEATS MARKED (8) AND/OR A SET OF TWO (2) STRUTS MARKED (5) IS ADEQUATE FOR RETAINING A 9,000 POUND LCL LOAD.
3. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR REFER TO "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
4. FOR THE SHIPMENT OF EMPTY CONTAINERS OMIT STRUTS MARKED (5) AND HEADERS MARKED (6) AT THE UPPER END OF THE CONTAINERS AND MOVE THE CONTAINERS TOGETHER SO THEY ARE SEPARATED ONLY BY THE HEADER MARKED (4). TURN ONE SIDE BLOCKING PIECE MARKED (9) TO POSITION SIMILAR TO PIECE MARKED (7). THE REMAINDER OF THE BLOCKING WILL BE UNCHANGED.

INDICATES END WITH INSPECTION/MONITORING PORT.
SEE GENERAL NOTE "J" ON PAGE 2.



ISOMETRIC VIEW

A 9'-2" WIDE CAR IS SHOWN

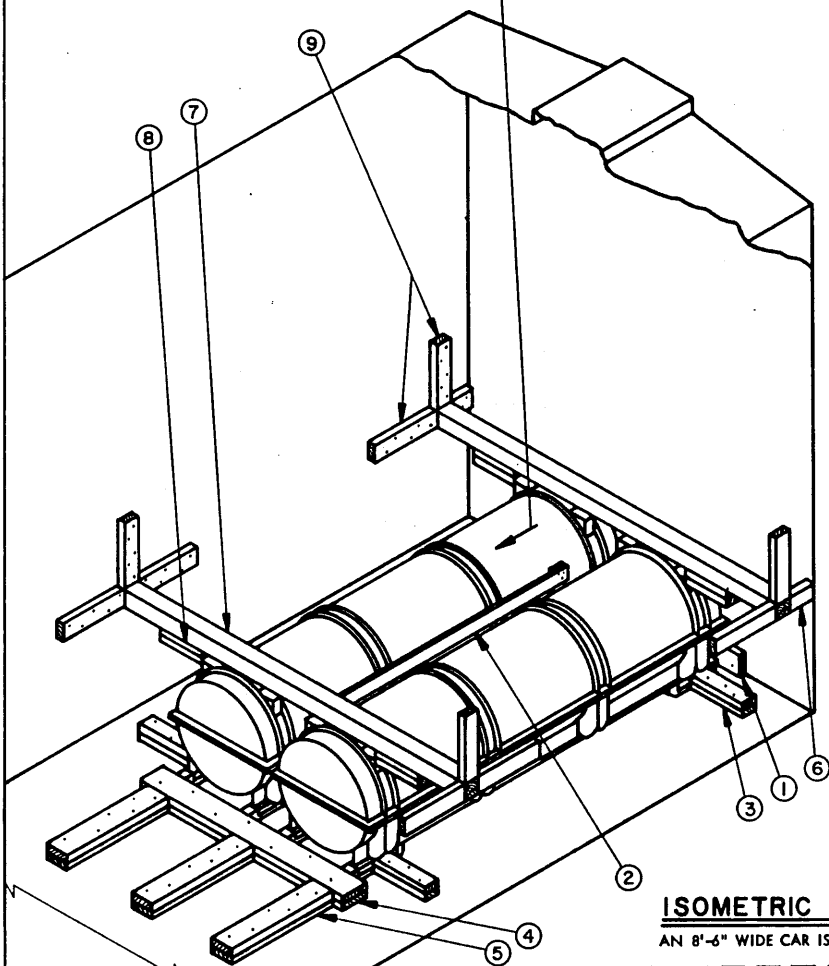
KEY NUMBERS

- (1) BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (1 REQ'D). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12".
- (2) ANTI-CHAFING ASSEMBLY FOR A ONE-HIGH STACK (1 REQ'D). SEE DETAIL ON PAGE 16.
- (3) LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF ADJACENT CONTAINERS (DOUBLED) (2 REQ'D). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "3".
- (4) HEADER, 2" X 6" X CAR WIDTH MINUS 1/2" (DOUBLED) (1 REQ'D). NAIL FIRST PIECE TO CAR FLOOR W/1-16d NAIL EVERY 8". NAIL SECOND PIECE TO FIRST W/1-40d NAIL EVERY 8".
- (5) STRUT, 2" X 6" X 42" (DOUBLED) (4 REQ'D). ALIGN WITH CONTAINER SKID. NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS.
- (6) HEADER, 2" X 6" X 30" (DOUBLED) (4 REQ'D). NAIL FIRST PIECE TO CAR FLOOR W/4-16d NAILS. NAIL SECOND PIECE TO FIRST W/4-40d NAILS.
- (7) SIDE BLOCKING, 2" X 4" X 15" (DOUBLED) (2 REQ'D). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- (8) BACK-UP CLEAT, 2" X 6" X 30" (DOUBLED) (6 REQ'D). ALIGN WITH CONTAINER SKID. NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS. SEE SPECIAL NOTE "2".
- (9) SIDE BLOCKING, 2" X 4" X 15" (DOUBLED) (4 REQ'D). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.

KEY NUMBERS (CONT'D)

- (10) POCKET CLEAT, 2" X 4" X 7-1/2" (2 REQ'D). NAIL TO CAR SIDE WALL W/2-10d NAILS.
- (11) CONTAINER HOLD-DOWN, 4" X 4" X CAR WIDTH (CUT TO FIT) (3 REQ'D).
- (12) ANTI-SWAY BLOCK, 2" X 4" X CUT TO FIT BETWEEN STACKING PADS OF ADJACENT CONTAINERS (DOUBLED) (2 REQ'D). NAIL FIRST PIECE TO CONTAINER HOLD-DOWN MARKED (11) W/5-12d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- (13) POCKET CLEAT, 2" X 4" X 18" (16 REQ'D). NAIL TO CAR SIDE WALL W/5-10d NAILS.
- (14) ANTI-SWAY BLOCK, 2" X 4" X 12" (DOUBLED) (4 REQ'D). NAIL FIRST PIECE TO CONTAINER HOLD-DOWN MARKED (11) AND/OR (17) W/3-12d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- (15) DOORWAY SPANNER, 2" X 6" X DOOR OPENING WIDTH PLUS 24" (9'-0" MIN. WHEN LOADING IN A 50'-6" LONG CAR) (2 REQ'D). NAIL TO CAR SIDE WALL W/5-12d NAILS AT EACH END.
- (16) DOORWAY SPANNER, 2" X 6" X DOOR OPENING WIDTH PLUS 24" (2 REQ'D). NAIL TO CAR SIDE WALL W/5-12d NAILS AT EACH END.
- (17) CONTAINER HOLD-DOWN, 4" X 4" X CAR WIDTH MINUS 3-1/4" (CUT TO FIT) (1 REQ'D).
- (18) POCKET CLEAT, 2" X 4" X 18" (4 REQ'D). NAIL TO DOORWAY SPANNER MARKED (15) W/5-10d NAILS.
- (19) POCKET CLEAT, 2" X 4" X 18" (2 REQ'D). NAIL TO DOORWAY SPANNER MARKED (15) W/2-10d NAILS AND TO DOORWAY SPANNER MARKED (16) W/3-10d NAILS.

INDICATES END WITH INSPECTION/MONITORING PORT.
SEE GENERAL NOTE "J" ON PAGE 2.



ISOMETRIC VIEW

AN 8'-6" WIDE CAR IS SHOWN

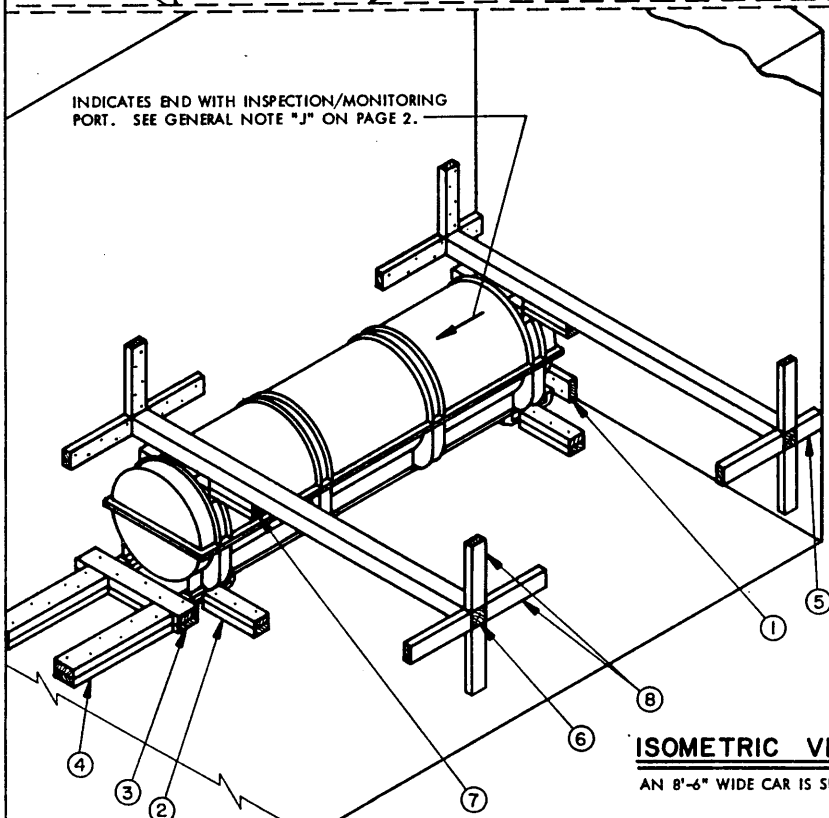
KEY NUMBERS

- ① BATTEN, 2" X 6" X 60" (1 REQD). NAIL TO CAR END WALL W/5-10d NAILS.
- ② ANTI-CHAFING ASSEMBLY FOR A ONE-HIGH STACK (1 REQD). SEE DETAIL ON PAGE 16.
- ③ SIDE BLOCKING, 2" X 4" X 15" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "2".
- ④ HEADER, 2" X 6" X 60" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/7-16d NAILS. NAIL SECOND PIECE TO FIRST W/7-40d NAILS.
- ⑤ BACK-UP CLEAT, 2" X 6" X 30" (DOUBLED) (3 REQD). ALIGN OUTSIDE PIECES WITH A CONTAINER SKID AND POSITION MIDDLE PIECE TO CENTER BETWEEN CONTAINER SKIDS. NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS. SEE SPECIAL NOTE "1".
- ⑥ POCKET CLEAT, 2" X 4" X 7-1/2" (2 REQD). NAIL TO CAR SIDE-WALL W/2-10d NAILS.
- ⑦ CONTAINER HOLD-DOWN, 4" X 4" X CAR WIDTH (CUT TO FIT) (2 REQD).
- ⑧ ANTI-SWAY BLOCK, 2" X 4" X 12" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CONTAINER HOLD-DOWN MARKED ⑦ W/3-12d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑨ POCKET CLEAT, 2" X 4" X 18" (10 REQD). NAIL TO CAR SIDE WALL W/5-10d NAILS.

SPECIAL NOTES

1. THREE (3) BACK-UP CLEATS SHOWN AS PIECE MARKED ⑤ ARE ADEQUATE FOR RETAINING A 13,000 POUND LCL LOAD.
2. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR REFER TO "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
3. THIS PROCEDURE IS ALSO APPLICABLE FOR THE SHIPMENT OF EMPTY CONTAINERS.

INDICATES END WITH INSPECTION/MONITORING PORT.
SEE GENERAL NOTE "J" ON PAGE 2.



ISOMETRIC VIEW

AN 8'-6" WIDE CAR IS SHOWN

KEY NUMBERS

- ① BATTEN, 2" X 6" X 30" (1 REQD). NAIL TO CAR END WALL W/3-10d NAILS.
- ② SIDE BLOCKING, 2" X 4" X 15" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "2".
- ③ HEADER, 2" X 6" X 30" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST W/5-40d NAILS.
- ④ BACK-UP CLEAT, 2" X 6" X 30" (DOUBLED) (2 REQD). ALIGN WITH CONTAINER SKID. NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS. SEE SPECIAL NOTE "1".
- ⑤ POCKET CLEAT, 2" X 4" X 7-1/2" (2 REQD). NAIL TO CAR SIDE WALL W/2-10d NAILS.
- ⑥ CONTAINER HOLD-DOWN, 4" X 4" X CAR WIDTH (CUT TO FIT) (2 REQD).
- ⑦ ANTI-SWAY BLOCK, 2" X 4" X 12" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CONTAINER HOLD-DOWN MARKED ⑥ W/3-12d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑧ POCKET CLEAT, 2" X 4" X 18" (12 REQD). NAIL TO CAR SIDE WALL W/5-10d NAILS.

SPECIAL NOTES

1. TWO BACK-UP CLEATS SHOWN AS PIECE MARKED ④ ARE ADEQUATE FOR RETAINING A 9,000 POUND LCL LOAD.
2. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR REFER TO "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
3. THIS PROCEDURE IS ALSO APPLICABLE FOR THE SHIPMENT OF AN EMPTY CONTAINER.

TYPICAL LCL METHODS, CONVENTIONAL BOX CAR

CAR EQUIPMENT REQUIRED

CROSS MEMBER ----- 40
 (SEE KEY NUMBERS ⑤ AND ⑥)
 DOORWAY MEMBER ----- 8

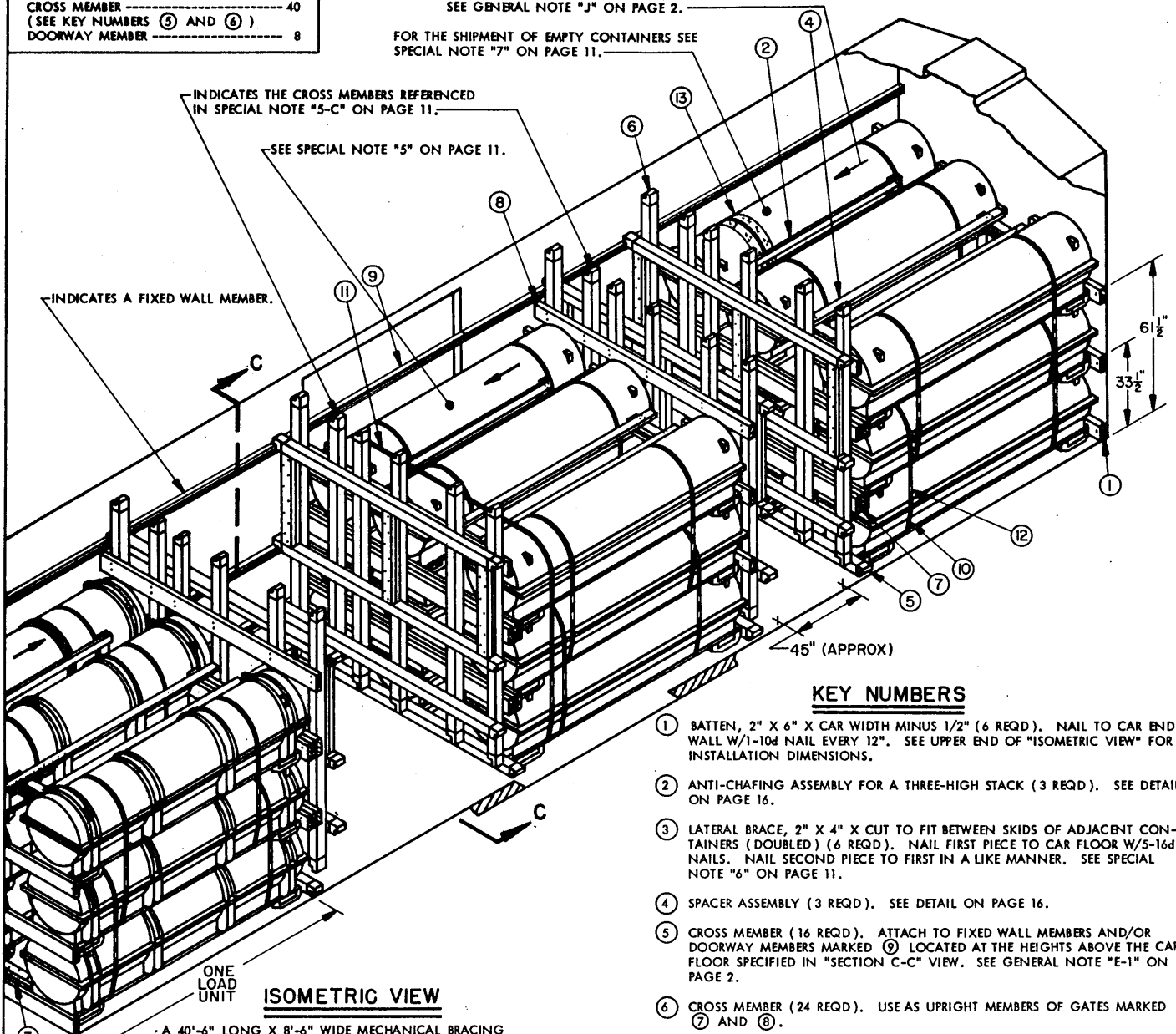
INDICATES END WITH INSPECTION/MONITORING PORT.
 SEE GENERAL NOTE "J" ON PAGE 2.

FOR THE SHIPMENT OF EMPTY CONTAINERS SEE
 SPECIAL NOTE "7" ON PAGE 11.

INDICATES THE CROSS MEMBERS REFERENCED
 IN SPECIAL NOTE "5-C" ON PAGE 11.

SEE SPECIAL NOTE "5" ON PAGE 11.

INDICATES A FIXED WALL MEMBER.



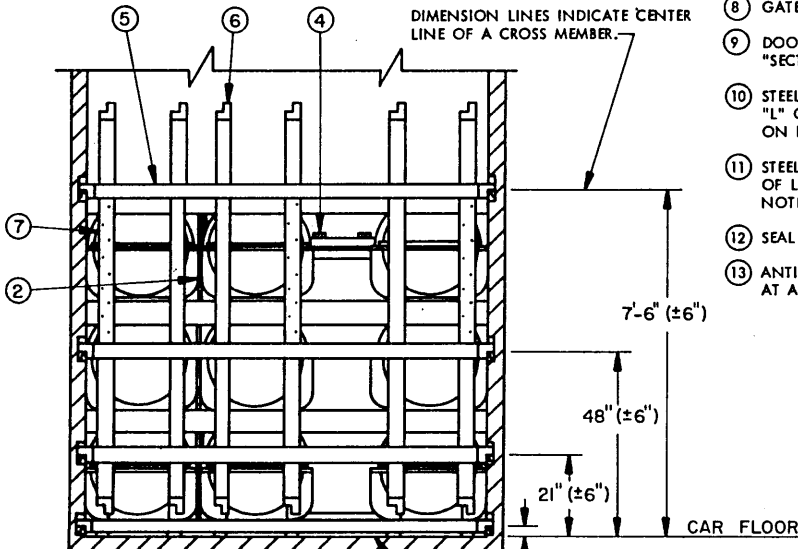
ISOMETRIC VIEW

A 40'-6" LONG X 8'-6" WIDE MECHANICAL BRACING
 EQUIPPED CAR WITH 6'-0" DOOR OPENINGS IS
 SHOWN. SEE SPECIAL NOTES "5" AND "8" ON PAGE 11.

KEY NUMBERS

- ① BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (6 REQD). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12". SEE UPPER END OF "ISOMETRIC VIEW" FOR INSTALLATION DIMENSIONS.
- ② ANTI-CHAFING ASSEMBLY FOR A THREE-HIGH STACK (3 REQD). SEE DETAIL ON PAGE 16.
- ③ LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF ADJACENT CONTAINERS (DOUBLED) (6 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "6" ON PAGE 11.
- ④ SPACER ASSEMBLY (3 REQD). SEE DETAIL ON PAGE 16.
- ⑤ CROSS MEMBER (16 REQD). ATTACH TO FIXED WALL MEMBERS AND/OR DOORWAY MEMBERS MARKED ⑨ LOCATED AT THE HEIGHTS ABOVE THE CAR FLOOR SPECIFIED IN "SECTION C-C" VIEW. SEE GENERAL NOTE "E-1" ON PAGE 2.
- ⑥ CROSS MEMBER (24 REQD). USE AS UPRIGHT MEMBERS OF GATES MARKED ⑦ AND ⑧.
- ⑦ GATE D (3 REQD). SEE DETAIL ON PAGE 21.
- ⑧ GATE E (1 REQD). SEE DETAIL ON PAGE 21.
- ⑨ DOORWAY MEMBER (8 REQD). POSITION AT THE HEIGHTS SPECIFIED IN "SECTION C-C" VIEW.
- ⑩ STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (36 REQD). SEE GENERAL NOTE "L" ON PAGE 2. SEE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3.
- ⑪ STEEL STRAPPING, 1-1/4" X .035" X 35'-0" (1 REQD). APPLY AROUND END OF LOAD UNIT WHICH EXTENDS INTO THE DOORWAY AREA. SEE GENERAL NOTE "L" ON PAGE 2. SEE SPECIAL NOTE "3" ON PAGE 11.
- ⑫ SEAL FOR 1-1/4" STRAPPING (74 REQD).
- ⑬ ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT ALL POINTS OF CONTACT WITH CONTAINERS.

DIMENSION LINES INDICATE CENTER
 LINE OF A CROSS MEMBER.



SPECIAL NOTES

1. A 40'-6" LONG X 8'-6" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH FIXED WALL MEMBERS, AND WITH 6'-0" DOOR OPENINGS IS SHOWN. SEE SPECIAL NOTE "8".
2. A WIDER CAR CAN BE USED AND IS PREFERRED FOR SHIPPING THE DEPICTED LOAD.
3. A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. IF A CAR WITH THRU DOOR OPENINGS GREATER THAN 9'-0" IN WIDTH IS USED, AN ADDITIONAL PIECE MARKED ① MUST BE APPLIED AROUND THE OPPOSITE END OF THE LOAD UNIT. TWO (2) PIECES MARKED ① ARE ALSO REQUIRED IF THE CAR BEING USED IS EQUIPPED WITH STAGGERED DOORS.
4. THE DUNNAGE ASSEMBLIES AND THE LOADING PATTERN SHOWN HEREIN ARE DESIGNED TO FACILITATE THE IN-TRANSIT INSPECTION/MONITORING OF THE DESIGNATED ITEM. THE INSPECTION/MONITORING PORTS ON THE CONTAINERS MUST NOT BE RENDERED INACCESSIBLE.
5. IF THE DEPICTED LOAD IS NOT SHIPPED IN A CAR EQUIPPED WITH THRU DOOR OPENINGS 14'-0" OR GREATER IN WIDTH OR WITH STAGGERED OPENINGS, IT WILL BE NECESSARY TO OMIT THE INDICATED CONTAINER STACK TO PROVIDE FOR ACCESS TO THE LOAD UNITS IN THE ENDS OF THE CAR. IF A CONTAINER STACK IS OMITTED, THE FOLLOWING IS APPLICABLE:
 - A. FOR LATERAL BRACING AT THE UPPER LEVEL, IN ADDITION TO THE SPACER ASSEMBLY SHOWN, APPLY DOUBLED 2" X 4" PIECES CUT TO FIT BETWEEN SKIDS OF ADJACENT CONTAINERS, TO THE MIDDLE HORIZONTAL PIECES OF GATES MARKED ⑦ AND ⑧.
 - B. APPLY PIECE MARKED ① AROUND THE SIX (6) REMAINING CONTAINERS OF THE LOAD UNIT AND AN ADDITIONAL PIECE MARKED ① AROUND THE OPPOSITE END OF THE LOAD UNIT.
 - C. OMIT ONE (1) CROSS MEMBER MARKED ⑥ FROM THE GATE MARKED ⑧ AND ONE (1) FROM THE GATE MARKED ⑦ WHICH IS AT THE END OF THE CENTER LOAD UNIT, AS INDICATED IN THE "ISOMETRIC VIEW".
 - D. OMIT 33" OF 2" X 6" MATERIAL FROM THE END OF THE MIDDLE HORIZONTAL PIECES (WHICH WOULD HAVE BEEN CONTACTED BY THE OMITTED CONTAINER STACK) OF GATES MARKED ⑦ AND ⑧.
6. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD 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 TO THE NAILING OF PIECE MARKED ③. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. ADDITIONALLY, PIECE MARKED ③ SHOULD BE CHANGED TO 2" X 6" MATERIAL TO RECEIVE THE LARGER SIZE NAILS. SEE "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
7. FOR THE SHIPMENT OF EMPTY CONTAINERS THIS PROCEDURE IS NOT RECOMMENDED. REFER TO SPECIAL NOTE "8" ON PAGE 5 AND/OR SPECIAL NOTE "8" ON PAGE 7 WHICH APPLY TO THE SHIPMENT OF EMPTY CONTAINERS IN CONVENTIONAL CARS.
8. **CAUTION:** ONLY CARS EQUIPPED WITH NAILABLE CROSS MEMBERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD. GATES CONSTRUCTED OF LUMBER ONLY MUST NOT BE SUBSTITUTED FOR THE CROSS MEMBER/LUMBER CONSTRUCTED GATES AS SHOWN HEREIN.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	86	29
2" X 4"	171	114
2" X 6"	255	255
NAILS	NO. REQD	POUNDS
6d (2")	36	1/4
10d (3")	654	10-1/4
16d (3-1/2")	60	1-1/2
STEEL STRAPPING, 1-1/4" X .035" -----	575' REQD ---	82 LBS
SEAL FOR 1-1/4" STRAPPING -----	74 REQD ---	4 LBS
ANTI-CHAFING MATERIAL -----	AS REQD ---	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER -----	27 -----	28,080 LBS
(W/XM47 SYSTEM)		
DUNNAGE -----		1,093 LBS
TOTAL WEIGHT ---		29,173 LBS

CAR EQUIPMENT REQUIRED

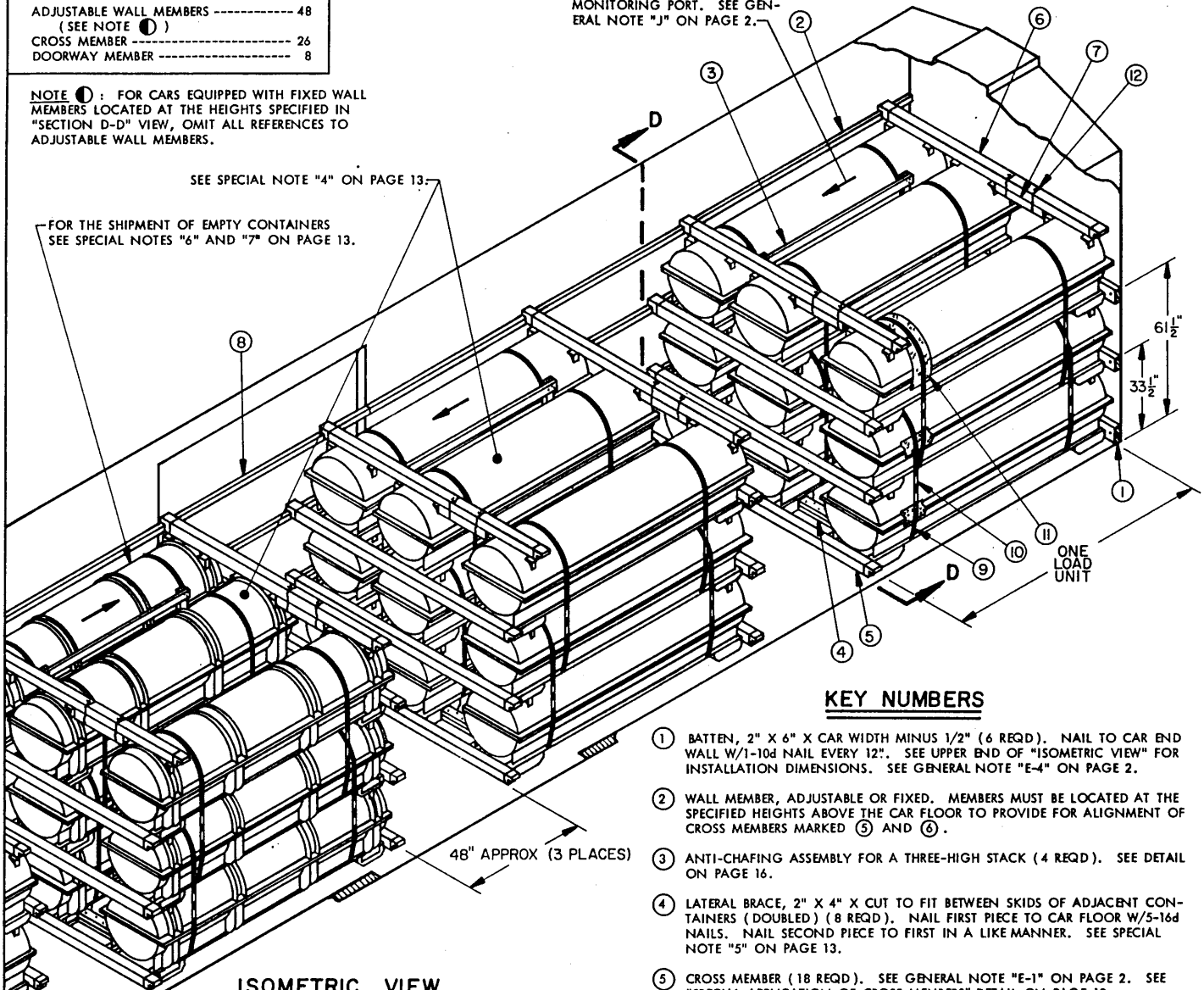
ADJUSTABLE WALL MEMBERS -----	48
(SEE NOTE ①)	
CROSS MEMBER -----	26
DOORWAY MEMBER -----	8

INDICATES END WITH INSPECTION/
MONITORING PORT. SEE GEN-
ERAL NOTE "J" ON PAGE 2.

NOTE ①: FOR CARS EQUIPPED WITH FIXED WALL
MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN
"SECTION D-D" VIEW, OMIT ALL REFERENCES TO
ADJUSTABLE WALL MEMBERS.

SEE SPECIAL NOTE "4" ON PAGE 13.

FOR THE SHIPMENT OF EMPTY CONTAINERS
SEE SPECIAL NOTES "6" AND "7" ON PAGE 13.

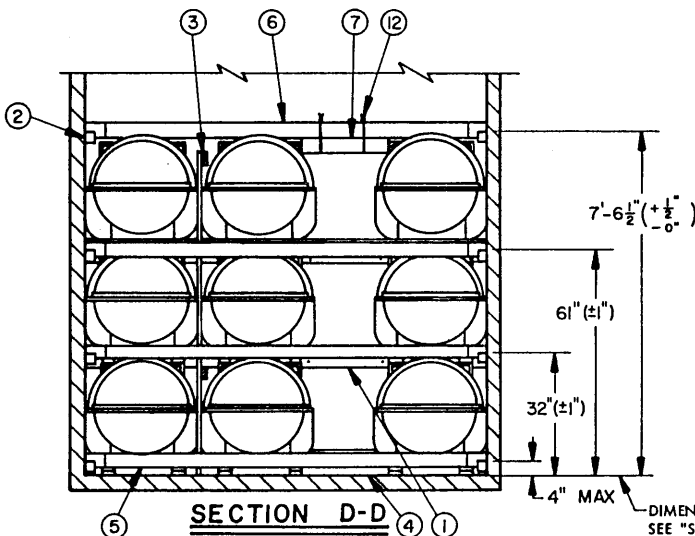


ISOMETRIC VIEW

A 50'-6" LONG X 8'-6" WIDE MECHANICAL BRACING
EQUIPPED CAR WITH 8'-0" DOOR OPENINGS IS
SHOWN. SEE SPECIAL NOTE "3" ON PAGE 13.

KEY NUMBERS

- ① BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (6 REQD). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12". SEE UPPER END OF "ISOMETRIC VIEW" FOR INSTALLATION DIMENSIONS. SEE GENERAL NOTE "E-4" ON PAGE 2.
- ② 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 AND ⑥.
- ③ ANTI-CHAFING ASSEMBLY FOR A THREE-HIGH STACK (4 REQD). SEE DETAIL ON PAGE 16.
- ④ LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF ADJACENT CONTAINERS (DOUBLED) (8 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "5" ON PAGE 13.
- ⑤ CROSS MEMBER (18 REQD). SEE GENERAL NOTE "E-1" ON PAGE 2. SEE "SPECIAL APPLICATION OF CROSS MEMBERS" DETAIL ON PAGE 13.
- ⑥ CROSS MEMBER (ANTI-SWAY) (8 REQD).
- ⑦ ANTI-SWAY BLOCK, 4" X 4" X CUT TO FIT BETWEEN STACKING PADS OF ADJACENT CONTAINERS (8 REQD).
- ⑧ DOORWAY MEMBER (8 REQD). POSITION AT THE HEIGHTS SPECIFIED IN "SECTION D-D" VIEW.
- ⑨ STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (48 REQD). SEE GENERAL NOTE "L" ON PAGE 2. SEE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3.
- ⑩ SEAL FOR 1-1/4" STRAPPING (96 REQD).
- ⑪ ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT ALL POINTS OF CONTACT WITH CONTAINERS.
- ⑫ NO. 8 GAGE BLACK ANNEALED WIRE 36" LONG (16 REQD). INSTALL TO ENCIRCLE PIECES MARKED ⑥ AND ⑦ AND TWIST-TIE ENDS TOGETHER TIGHTLY. NOTE: IF NO. 8 GAGE BLACK ANNEALED WIRE IS NOT AVAILABLE, TWO (2) STRANDS OF NO. 14 GAGE BLACK ANNEALED WIRE MAY BE SUBSTITUTED FOR EACH STRAND OF NO. 8 GAGE.

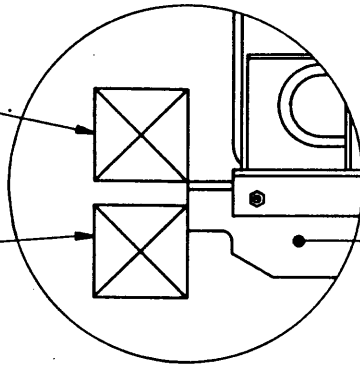


SECTION D-D

DIMENSION LINES INDICATE THE CENTER LINE OF A CROSS MEMBER.
SEE "SPECIAL APPLICATION OF CROSS MEMBERS" DETAIL ON PAGE 13.

INDICATES A CROSS MEMBER ATTACHED TO A FIXED RAIL AT THE 64" HEIGHT.

INDICATES A CROSS MEMBER ATTACHED TO AN ADJUSTABLE WALL MEMBER AT THE NEXT LOWER LEVEL BELOW THE 64" FIXED RAIL.



INDICATES THE SKID OF A THIRD LAYER CONTAINER.

SPECIAL APPLICATION OF CROSS MEMBERS

THE PROCEDURE SHOWN IN THE "SPECIAL APPLICATION OF CROSS MEMBER" DETAIL ABOVE IS APPLICABLE TO THE DODX SERIES 28,000 CARS WHICH ARE EQUIPPED WITH FIXED WALL MEMBERS AT THE 3", 32", AND 64" HEIGHTS. AT EACH BLOCKING STATION, THE INSTALLATION OF A CROSS MEMBER AT THE 64" HEIGHT AND ONE IMMEDIATELY BELOW AT THE 59" HEIGHT WILL FACILITATE THE USE OF THESE CARS, EVEN THOUGH THESE CROSS MEMBERS ARE NOT WITHIN THE 61" (± 1") TOLERANCE SPECIFIED IN "SECTION D-D" VIEW.

(SPECIAL NOTES CONTINUED)

(ITEM E OF SPECIAL NOTE 6 CONTINUED)

WHICH EXTENDS INTO THE DOORWAY AREA. TWO (2) PIECES, ONE (1) AROUND EACH END OF CENTER LOAD UNIT, ARE REQUIRED IF DOOR OPENING IS GREATER THAN 10'-6" IN WIDTH. IF THE CAR IS EQUIPPED WITH STAGGERED DOOR OPENINGS GREATER THAN 15'-0" IN WIDTH ONE (1) PIECE OF STRAPPING WILL ALSO BE REQUIRED AROUND EACH OF THE SECOND LOAD UNITS FROM THE END OF THE CAR, AT THE END NEAREST THE CENTER OF THE CAR.

7. FOR THE SHIPMENT OF EMPTY CONTAINERS IN A 40'-6" LONG CAR THE FOLLOWING PROCEDURE IS APPLICABLE:

- A. THIRTY-SIX (36) CONTAINERS (4 LOAD UNITS) MAY BE SHIPPED.
- B. OMIT SIX (6) CROSS MEMBERS MARKED (5). POSITION THE REMAINING CROSS MEMBERS BETWEEN ADJACENT LOAD UNITS AND AT THE END OF LOAD UNITS NEAR THE CENTER OF THE CAR, THREE (3) AT EACH LOCATION POSITIONED AT THE HEIGHTS SPECIFIED IN "SECTION D-D" VIEW.
- C. INCREASE LENGTH OF UNITIZING STRAPPING MARKED (9) TO 20'-0" AND APPLY TO ENCIRCLE A STACK OF THREE (3) CONTAINERS (24 REQD).
- D. DOORWAY PROTECTION (REF PIECE MARKED (11) ON PAGE 10) IS ONLY REQUIRED IF DOOR OPENINGS ARE GREATER THAN 12'-0" IN WIDTH.

SPECIAL NOTES

1. A 50'-6" LONG X 8'-6" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 8'-0" (MIN. WIDTH) DOOR OPENINGS IS SHOWN.
2. A WIDER CAR CAN BE USED AND IS PREFERRED FOR SHIPPING THE DEPICTED LOAD.
3. A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. IF A CAR WITH THRU DOOR OPENINGS GREATER THAN 13'-6" IN WIDTH IS USED, THE END OF THE LOAD UNIT EXTENDING INTO THE DOORWAY AREA MUST BE ENCIRCLED WITH STEEL STRAPPING AS SHOWN BY PIECE MARKED (1) ON PAGE 10. IF A CAR WITH STAGGERED DOOR OPENINGS IS USED, THE LOAD UNITS WHICH ARE IN THE DOORWAY AREA ON EITHER SIDE MUST BE ENCIRCLED WITH TWO (2) PIECES OF STEEL STRAPPING, ONE (1) AT EACH END OF THE UNIT.
4. THE LOADING PATTERN SHOWN HEREIN IS DESIGNED TO FACILITATE THE IN-TRANSIT INSPECTION/MONITORING OF THE DESIGNATED ITEM. THE INSPECTION/MONITORING PORTS ON THE CONTAINERS MUST NOT BE RENDERED INACCESSIBLE. IF THE LATERAL AISLE BETWEEN CONTAINER STACKS IS NOT OF SUFFICIENT WIDTH TO PROVIDE FOR ACCESS TO THE LOAD UNITS IN THE END OF THE CAR BY TECHNICAL ESCORT PERSONNEL, THE CENTER STACK OF EACH LOAD UNIT ADJACENT TO THE DOORWAY AREA MAY BE OMITTED. PIECES MARKED (4) AND (7) MUST BE EXTENDED AS REQUIRED; PIECES MARKED (3) IN THE APPLICABLE LOAD UNITS MAY BE OMITTED.
5. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD 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 TO THE NAILING OF PIECE MARKED (4). IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. ADDITIONALLY, PIECE MARKED (4) SHOULD BE CHANGED TO 2" X 6" MATERIAL TO RECEIVE THE LARGER SIZE NAILS. SEE "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
6. FOR THE SHIPMENT OF EMPTY CONTAINERS IN A 50'-6" LONG CAR THE FOLLOWING PROCEDURE IS APPLICABLE:
 - A. THE LOAD MAY BE INCREASED TO FORTY-FIVE (45) CONTAINERS (5 LOAD UNITS).
 - B. OMIT THREE (3) CROSS MEMBERS MARKED (5). POSITION THE REMAINING CROSS MEMBERS BETWEEN ADJACENT LOAD UNITS AND AT THE END OF LOAD UNITS NEAR THE CENTER OF THE CAR, THREE (3) AT EACH LOCATION POSITIONED AT THE HEIGHTS SPECIFIED IN "SECTION D-D" VIEW.
 - C. INCREASE LENGTH OF UNITIZING STRAPPING MARKED (9) TO 20'-0" AND APPLY TO ENCIRCLE A STACK OF THREE (3) CONTAINERS (30 REQD).
 - D. INCREASE QUANTITY OF PIECE MARKED (3) TO FIVE (5) REQUIRED AND QUANTITIES OF PIECES MARKED (4), (6), AND (7) TO TEN (10) REQUIRED.
 - E. FOR DOORWAY PROTECTION APPLY ONE (1) PIECE OF STEEL STRAPPING (REF PIECE MARKED (11) ON PAGE 10) AROUND THE END OF CENTER LOAD UNIT

(SPECIAL NOTES CONTINUED IN COLUMN AT LEFT)

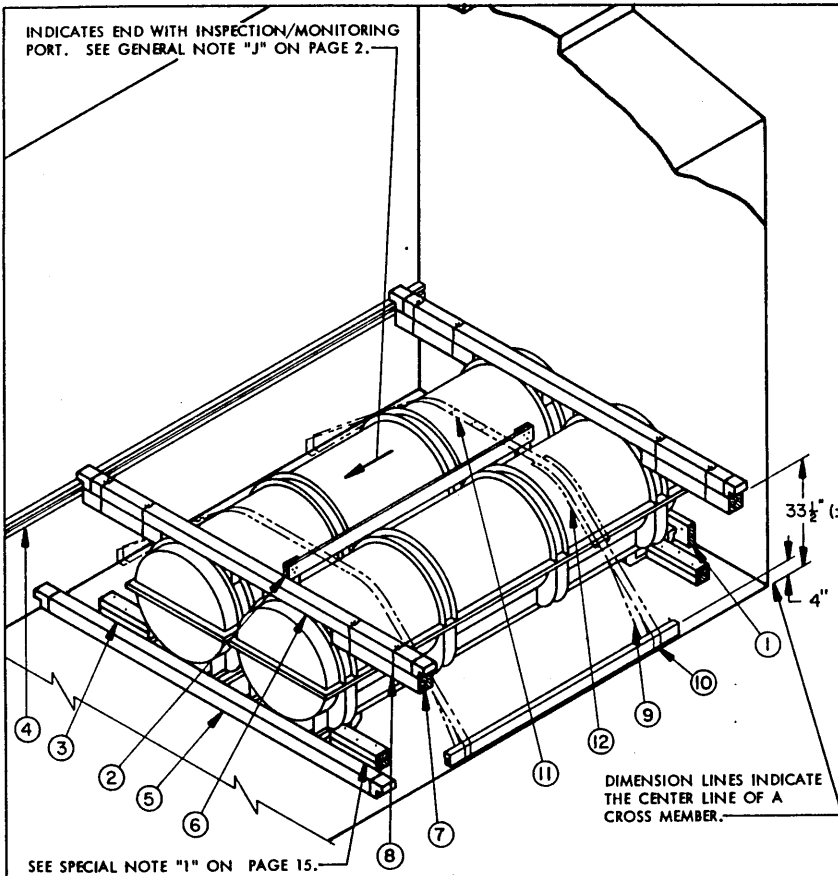
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	36	37,440 LBS
(W/XM47 SYSTEM)		
DUNNAGE		435 LBS
		TOTAL WEIGHT --- 37,875 LBS

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	106	36
2" X 4"	29	20
2" X 6"	51	51
4" X 4"	15	20
NAILS	NO. REQD	POUNDS
6d (2")	48	1/2
10d (3")	54	1
16d (3-1/2")	80	1-3/4
STEEL STRAPPING, 1-1/4" X .035"	720' REQD	103 LBS
SEAL FOR 1-1/4" STRAPPING	96 REQD	5 LBS
ANTI-CHAFING MATERIAL	AS REQD	NIL
NO. 8 GAGE WIRE	48' REQD	5 LBS

INDICATES END WITH INSPECTION/MONITORING PORT. SEE GENERAL NOTE "J" ON PAGE 2.



SEE SPECIAL NOTE "1" ON PAGE 15.

ISOMETRIC VIEW

AN 8'-6" WIDE CAR IS SHOWN.

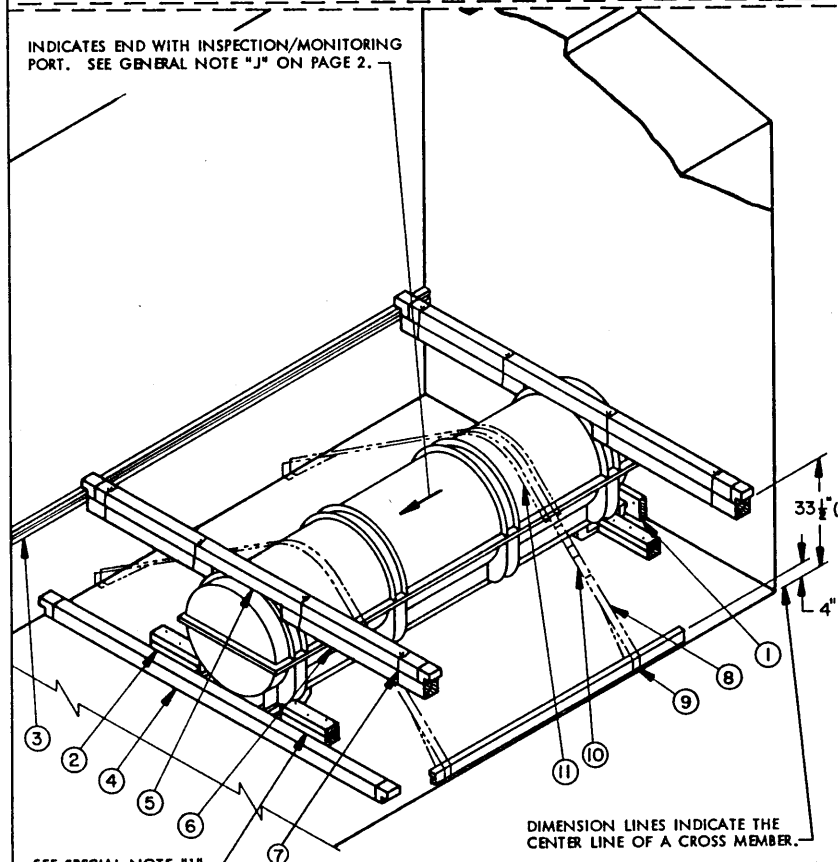
KEY NUMBERS

- ① BATTEN, 2" X 6" X 60" (1 REQD). NAIL TO CAR END WALL W/5-10d NAILS. SEE GENERAL NOTE "E-4" ON PAGE 2.
- ② ANTI-CHAFING ASSEMBLY FOR A ONE-HIGH STACK (1 REQD). SEE DETAIL ON PAGE 16.
- ③ SIDE BLOCKING, 2" X 4" X 15" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ④ 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 AND ⑥.
- ⑤ CROSS MEMBER (1 REQD). SEE GENERAL NOTE "E-1" ON PAGE 2.
- ⑥ CROSS MEMBER (HOLD DOWN) (2 REQD). SEE NOTE "●", POSITION AS SHOWN, CENTERED ABOVE CONTAINER STACKING PADS.
- ⑦ ANTI-SWAY BLOCK, 4" X 4" X CUT TO FIT BETWEEN CONTAINER STACKING PAD AND CAR SIDE WALL (4 REQD).
- ⑧ NO. 8 GAGE BLACK ANNEALED WIRE 36" LONG (8 REQD). INSTALL TO ENCIRCLE PIECES MARKED ⑥ AND ⑦ AND TWIST-TIE ENDS TOGETHER TIGHTLY. SEE NOTE "■" ON PAGE 15.
- ⑨ STEEL STRAPPING, 2" X .050" X 17'-0" (2 REQD). SEE GENERAL NOTE "L" ON PAGE 2.
- ⑩ PAD, 2" X .050" STRAP 24" LONG (4 REQD). POSITION UNDER AND SEAL TO PIECE MARKED ⑨. SEE "STRAPPING DETAILS" ON PAGE 20.
- ⑪ SEAL FOR 2" STRAPPING (16 REQD).
- ⑫ ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT POINTS OF CONTACT WITH CONTAINERS.

NOTE ●:

FOR CARS EQUIPPED WITH WALL MEMBERS LOCATED AT HEIGHTS WHICH PRECLUDE PROPER APPLICATION OF CROSS MEMBER (HOLD DOWN) MARKED ⑥, PIECES MARKED ⑨ THRU ⑫ WILL BE USED, AS SHOWN IN PHANTOM. OMIT PIECES MARKED ⑥, ⑦, AND ⑧.

INDICATES END WITH INSPECTION/MONITORING PORT. SEE GENERAL NOTE "J" ON PAGE 2.



SEE SPECIAL NOTE "1" ON PAGE 15.

ISOMETRIC VIEW

AN 8'-6" WIDE CAR IS SHOWN

KEY NUMBERS

- ① BATTEN, 2" X 6" X 30" (1 REQD). NAIL TO CAR END WALL W/3-10d NAILS. SEE GENERAL NOTE "E-4" ON PAGE 2.
- ② SIDE BLOCKING, 2" X 4" X 15" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- 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 ④ AND ⑤.
- ④ CROSS MEMBER (1 REQD). SEE GENERAL NOTE "E-1" ON PAGE 2.
- ⑤ CROSS MEMBER (HOLD DOWN) (2 REQD). SEE NOTE "●", POSITION AS SHOWN, CENTERED ABOVE CONTAINER STACKING PADS.
- ⑥ ANTI-SWAY BLOCK, 4" X 4" X CUT TO FIT BETWEEN CONTAINER STACKING PAD AND CAR SIDE WALL (4 REQD).
- ⑦ NO. 8 GAGE BLACK ANNEALED WIRE 36" LONG (8 REQD). INSTALL TO ENCIRCLE PIECES MARKED ⑤ AND ⑥ AND TWIST-TIE ENDS TOGETHER TIGHTLY. SEE NOTE "■" ON PAGE 15.
- ⑧ STEEL STRAPPING, 2" X .050" X 16'-0" (2 REQD). SEE GENERAL NOTE "L" ON PAGE 2.
- ⑨ PAD, 2" X .050" STRAP 24" LONG (4 REQD). POSITION UNDER AND SEAL TO PIECE MARKED ⑧. SEE "STRAPPING DETAILS" ON PAGE 20.
- ⑩ SEAL FOR 2" STRAPPING (16 REQD).
- ⑪ ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT POINTS OF CONTACT WITH CONTAINER.

NOTE ●:

FOR CARS EQUIPPED WITH WALL MEMBERS LOCATED AT HEIGHTS WHICH PRECLUDE PROPER APPLICATION OF CROSS MEMBER (HOLD DOWN) MARKED ⑤, PIECES MARKED ⑧ THRU ⑪ WILL BE USED, AS SHOWN IN PHANTOM. OMIT PIECES MARKED ③, ⑥, AND ⑦.

INDICATES END WITH INSPECTION/MONITORING PORT. SEE GENERAL NOTE "J" ON PAGE 2.

DIMENSION LINES INDICATE THE CENTER LINE OF A CROSS MEMBER.

INDICATES CAR FLOOR.

32" (+1")

4" MAX

35"

SPECIAL NOTES

1. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED ONE (1) OR TWO (2) UNIT LOAD 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 TO THE NAILING OF THE SIDE BLOCKING PIECES. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. ADDITIONALLY, THESE SIDE BLOCKING PIECES SHOULD BE CHANGED TO 2" X 6" MATERIAL TO RECEIVE THE LARGER SIZE NAILS. SEE "NAILABLE METAL FLOOR" DETAIL ON PAGE 20 FOR GUIDANCE.
2. PROCEDURES ON THESE TWO PAGES MAY BE APPLIED TO THE SHIPMENT OF LESS THAN A FULL LOAD UNIT WITHIN THE LOAD SHOWN ON PAGE 12, AND ARE ALSO APPLICABLE FOR THE SHIPMENT OF EMPTY CONTAINERS.

NOTE ■:

IF A WALL MEMBER IS AVAILABLE AT A 63-1/2" (+1/2", -0") HEIGHT, A CROSS MEMBER (ANTI-SWAY) AND 4" X 4" ANTI-SWAY BLOCK WITH WIRE (SHOWN AS PIECES MARKED ⑥, ⑦, AND ⑫ ON PAGE 12) MAY BE USED IN LIEU OF THE SPACER ASSEMBLY BETWEEN THE CONTAINERS IN THE SECOND LAYER.

NOTE □:

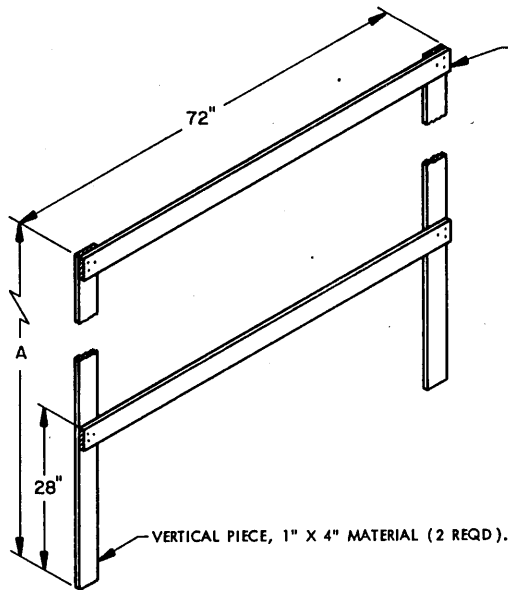
IF NO. 8 GAGE BLACK ANNEALED WIRE IS NOT AVAILABLE, TWO (2) STRANDS OF NO. 14 GAGE BLACK ANNEALED WIRE MAY BE SUBSTITUTED FOR EACH STRAND OF NO. 8 GAGE.

ISOMETRIC VIEW

AN 8'-6" WIDE CAR IS SHOWN

KEY NUMBERS

- ① BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (1 REQD). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12". SEE GENERAL NOTE "E-4" ON PAGE 2.
- ② BATTEN, 2" X 6" X 30" (2 REQD). NAIL TO CAR END WALL W/3-10d NAILS. SEE UPPER END OF "ISOMETRIC VIEW" FOR INSTALLATION DIMENSIONS. SEE GENERAL NOTE "E-4" ON PAGE 2.
- 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.
- ④ ANTI-CHAFING ASSEMBLY FOR A ONE-HIGH STACK (1 REQD). SEE DETAIL ON PAGE 16.
- ⑤ SPACER ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 16. SEE NOTE "■" AT LEFT.
- ⑥ CROSS MEMBER (2 REQD). SEE GENERAL NOTE "E-1" ON PAGE 2.
- ⑦ STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (4 REQD). SEE GENERAL NOTE "L" ON PAGE 2. SEE "UNITIZING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3.
- ⑧ STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (2 REQD). APPLY AROUND THE TWO ADJACENT CONTAINERS IN THE FIRST LAYER. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑨ SEAL FOR 1-1/4" STRAPPING (12 REQD).
- ⑩ ANTI-CHAFING NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT POINTS OF CONTACT WITH CONTAINERS.

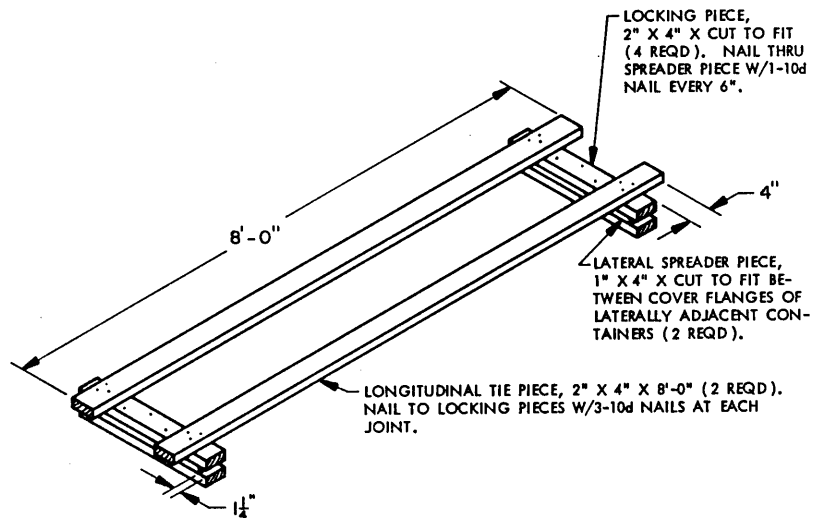


HORIZONTAL PIECE, 1" X 4" X 72" (2 REQD FOR A TWO OR THREE HIGH STACK, 1 REQD FOR A ONE HIGH STACK). NAIL TO VERTICAL PIECES W/3-6d NAILS AT EACH END. CLINCH.

VERTICAL PIECE, 1" X 4" MATERIAL (2 REQD).

ANTI-CHAFING ASSEMBLY

DIMENSION A FOR A THREE-HIGH STACK = 71-2"
 DIMENSION A FOR A TWO-HIGH STACK = 57"
 DIMENSION A FOR A ONE-HIGH STACK = 28"



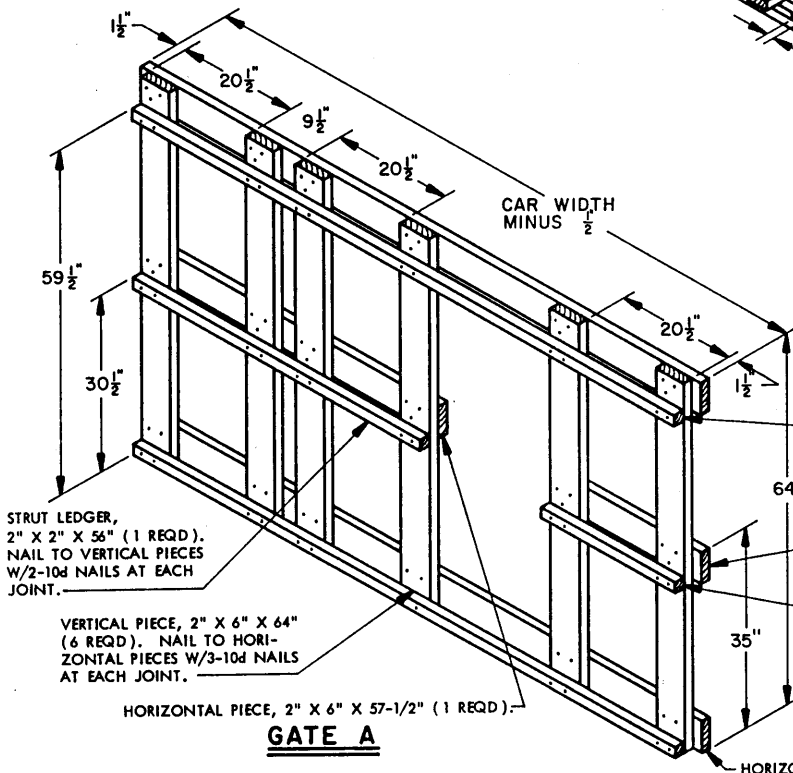
LOCKING PIECE, 2" X 4" X CUT TO FIT (4 REQD). NAIL THRU SPREADER PIECE W/1-10d NAIL EVERY 6".

LATERAL SPREADER PIECE, 1" X 4" X CUT TO FIT BETWEEN COVER FLANGES OF LATERALLY ADJACENT CONTAINERS (2 REQD).

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

SPACER ASSEMBLY

LONGITUDINAL TIE PIECES MUST BE APPLIED AFTER THE LATERAL SPREADER PIECES AND LOCKING PIECE HAVE BEEN ASSEMBLED AND BOTH ASSEMBLIES HAVE BEEN INSTALLED.



CAR WIDTH MINUS 1/2"

STRUT LEDGER, 2" X 2" X 56" (1 REQD). NAIL TO VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 6" X 64" (6 REQD). NAIL TO HORIZONTAL PIECES W/3-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 6" X 57-1/2" (1 REQD).

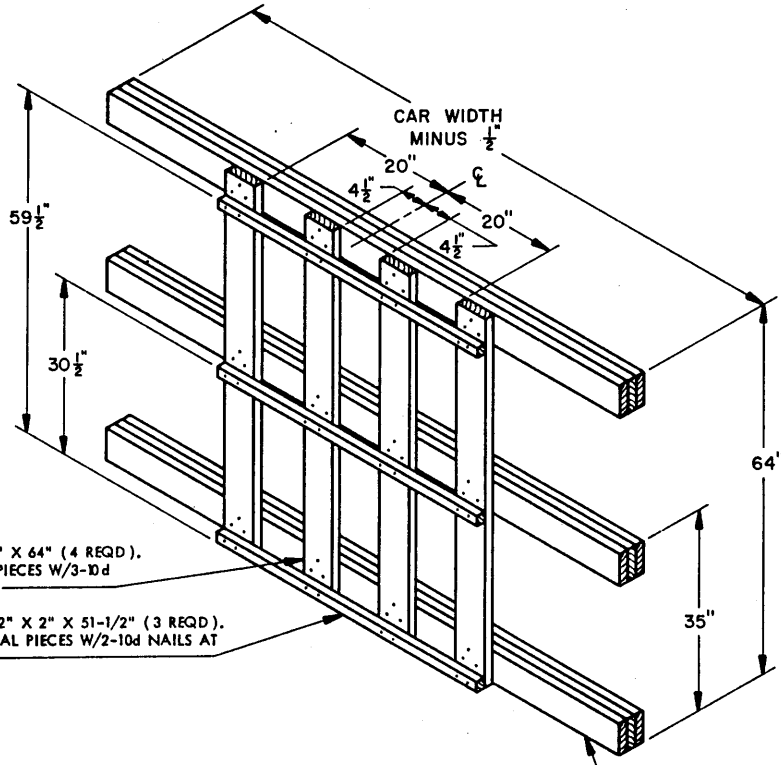
GATE A

STRUT LEDGER, 2" X 2" X CAR WIDTH MINUS 3-1/2" (2 REQD). NAIL TO VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 6" X 27-1/2" (1 REQD).

STRUT LEDGER, 2" X 2" X 26" (1 REQD). NAIL TO VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

HORIZONTAL PIECE, 2" X 6" X CAR WIDTH MINUS 1/2" (2 REQD).

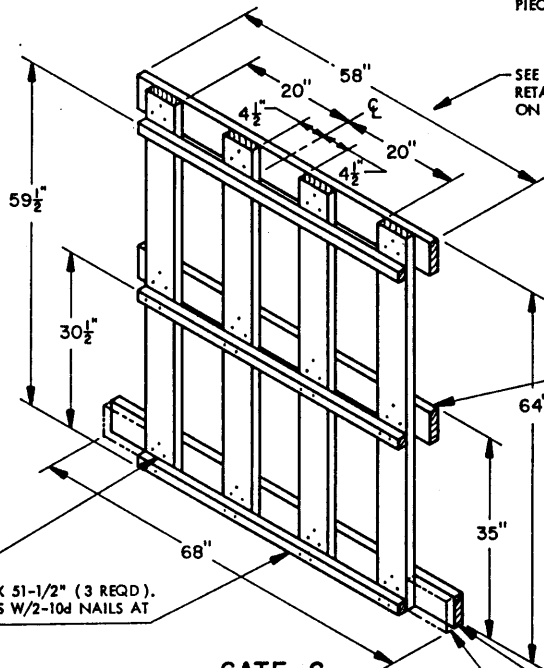


VERTICAL PIECE, 2" X 6" X 64" (4 REQD).
NAIL TO HORIZONTAL PIECES W/3-10d
NAILS AT EACH JOINT.

STRUT LEDGER, 2" X 2" X 51-1/2" (3 REQD).
NAIL TO VERTICAL PIECES W/2-10d NAILS AT
EACH JOINT.

GATE B

HORIZONTAL PIECE, 2" X 6" X CAR WIDTH MINUS 1/2"
(TRIPLED) (3 REQD). LAMINATE SECOND PIECE TO
FIRST W/1-10d NAIL EVERY 12". LAMINATE THIRD
PIECE TO SECOND IN A LIKE MANNER.



SEE "VIEW A" BELOW FOR LOCATION OF LATERAL
RETAINING BLOCK FOR GATE, PIECE MARKED ⑫
ON PAGE 6.

VERTICAL PIECE, 2" X 6" X 64"
(4 REQD). NAIL TO HORI-
ZONTAL PIECES W/3-10d NAILS
AT EACH JOINT.

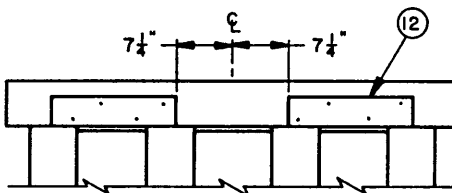
STRUT LEDGER, 2" X 2" X 51-1/2" (3 REQD).
NAIL TO VERTICAL PIECES W/2-10d NAILS AT
EACH JOINT.

GATE C

HORIZONTAL PIECE, 2" X 6" X 58" (2 REQD).

HORIZONTAL PIECE, 2" X 6" X 68" (1 REQD).

PIECE MARKED ⑭ ON PAGE 6.

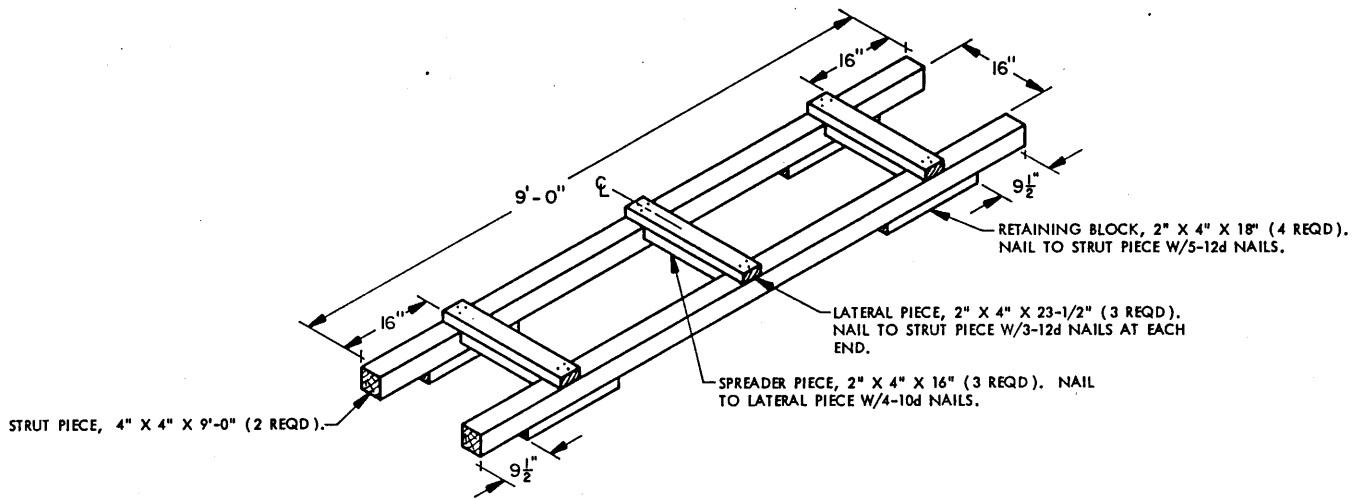


FILLER PIECE MARKED ⑧ OR
CENTER GATE MARKED ⑬.

VIEW A

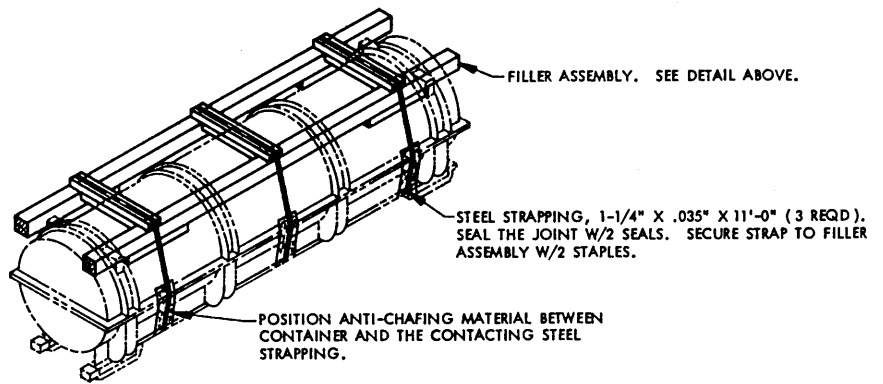
THIS VIEW SHOWS THE LOCATION OF THE LATERAL RE-
TAINING BLOCKS, PIECE MARKED ⑫ ON PAGE 6,
WHICH ARE TO BE APPLIED TO TOP FILLER PIECE MARKED
⑧ AND CENTER GATE MARKED ⑬.

DETAILS



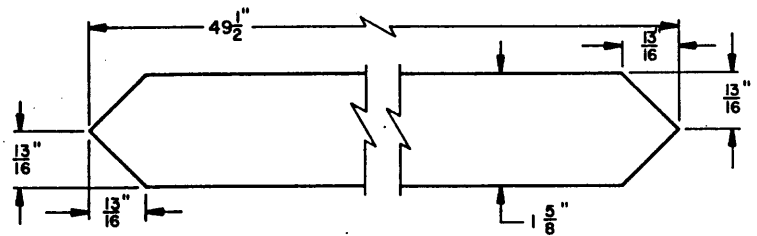
FILLER ASSEMBLY

ONE (1) REQD FOR EACH OMITTED CONTAINER



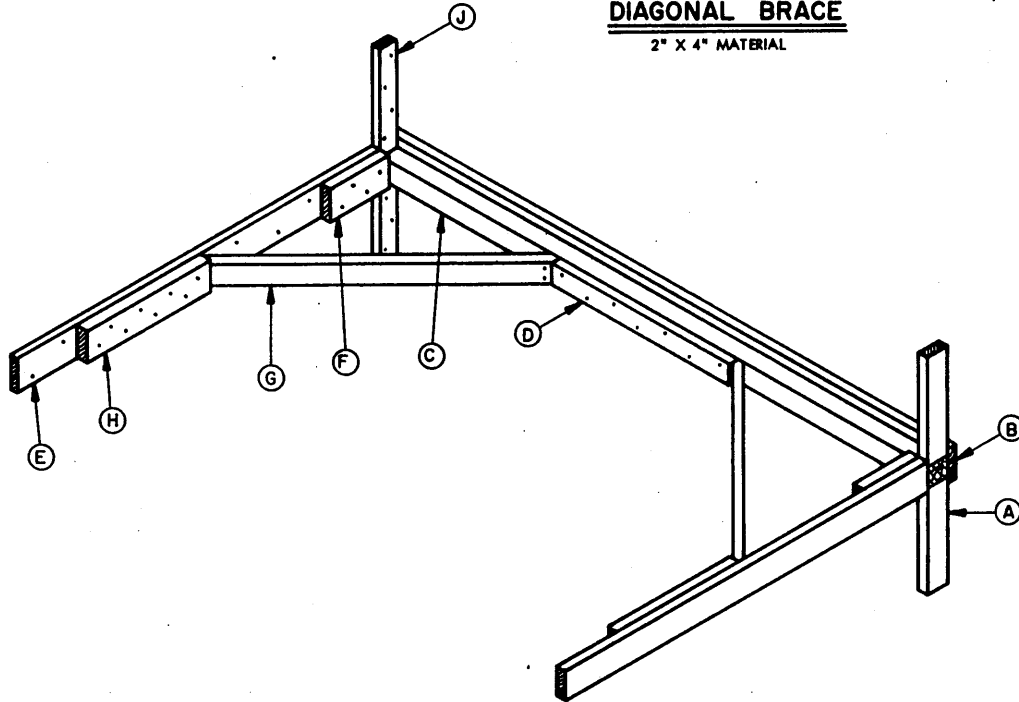
APPLICATION OF FILLER ASSEMBLY

IT MAY BE NECESSARY TO USE THE "APPLICATION OF FILLER ASSEMBLY" PROCEDURE SHOWN ABOVE FOR THE OMISSION OF ONE OR MORE CONTAINERS FROM THE LOADS SHOWN ON PAGES 4 AND 6. IT WILL NOT BE NECESSARY TO USE A FILLER ASSEMBLY IN A CAR EQUIPPED WITH MECHANICAL BRACING. REFER TO THE LCL PROCEDURES ON PAGES 14 AND 15 FOR A LESS THAN FULL LOAD-UNIT QUANTITY IN A MECHANICAL BRACING EQUIPPED CAR.



DIAGONAL BRACE

2" X 4" MATERIAL



K-BRACE ASSEMBLY

A K-BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A PARTIAL SECOND OR THIRD LAYER OF NOT MORE THAN THREE (3) CONTAINERS WITH CONTENTS. IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO DRAWING 19-48-4016-SM1001 FOR THE APPLICABLY SIZED K-BRACE TO USE AND THE DESIGN SPECIFICATIONS FOR THE BRACE. SEE "CAUTION" NOTE BELOW.

KEY LETTERS

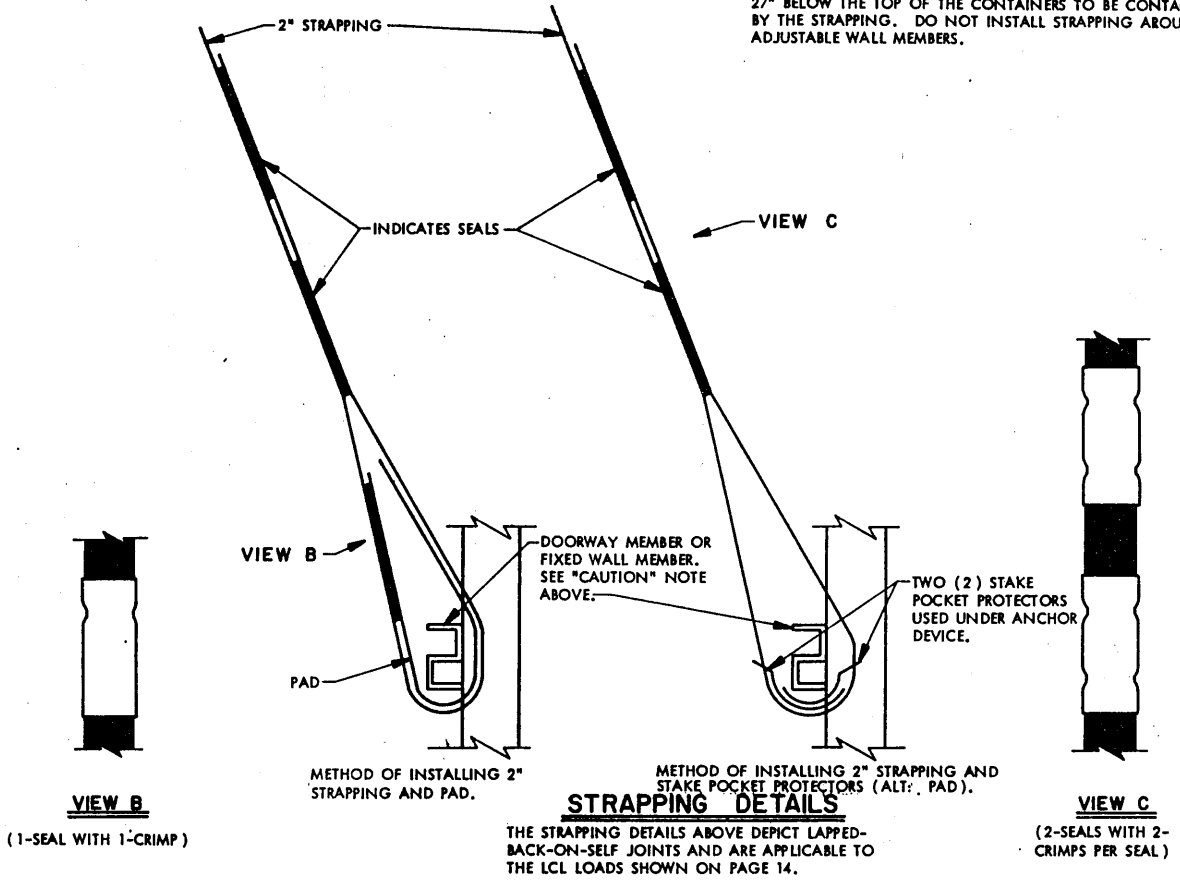
- (A) WALL CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO CAR SIDE WALL W/5-12d NAILS.
- (B) HORIZONTAL PIECE, 2" X 6" X CAR WIDTH (CUT TO FIT) (1 REQD). NAIL TO PIECE MARKED (C) W/1-12d NAIL EVERY 6".
- (C) CROSS CAR BRACE, 4" X 4" X CAR WIDTH (CUT TO FIT) (1 REQD).
- (D) CENTER CLEAT, 2" X 4" X 28" FOR AN 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 CAR SIDE WALL W/16-12d NAILS.
- (F) POCKET CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO PIECE MARKED (E) W/4-16d NAILS.
- (G) "DIAGONAL BRACE, 2" X 4" X 49-1/2" (2 REQD). SEE "DIAGONAL BRACE" DETAIL ON THIS PAGE. TO NAIL TO PIECE MARKED (C) AND TO PIECE MARKED (E) W/2-16d NAILS AT EACH END.
- (H) BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO PIECE MARKED (E) W/8-16d NAILS.
- (J) HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO CAR SIDE WALL W/4-12d NAILS.

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) OR THE COMPARABLE PIECES ON A HEAVIER BRACE MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDE WALL. IT IS ALRIGHT FOR THE END OF A DIAGONAL BRACE TO BEAR IN FRONT OF A DOOR OPENING; HOWEVER, THE ADJACENT PIECE MARKED (E) OR THE COMPARABLE PIECE ON A HEAVIER BRACE MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE.

DETAILS

CAUTION: INSTALL STRAPPING AROUND FIXED WALL MEMBERS OR DOORWAY MEMBERS WHICH ARE LOCATED A MINIMUM OF 27" BELOW THE TOP OF THE CONTAINERS TO BE CONTACTED BY THE STRAPPING. DO NOT INSTALL STRAPPING AROUND ADJUSTABLE WALL MEMBERS.



TYPICALLY INDICATES A BACK-UP CLEAT AS USED WITHIN THE LOADS DEPICTED ON PAGES 8 AND 9. NOTE THE NAILING PATTERN.

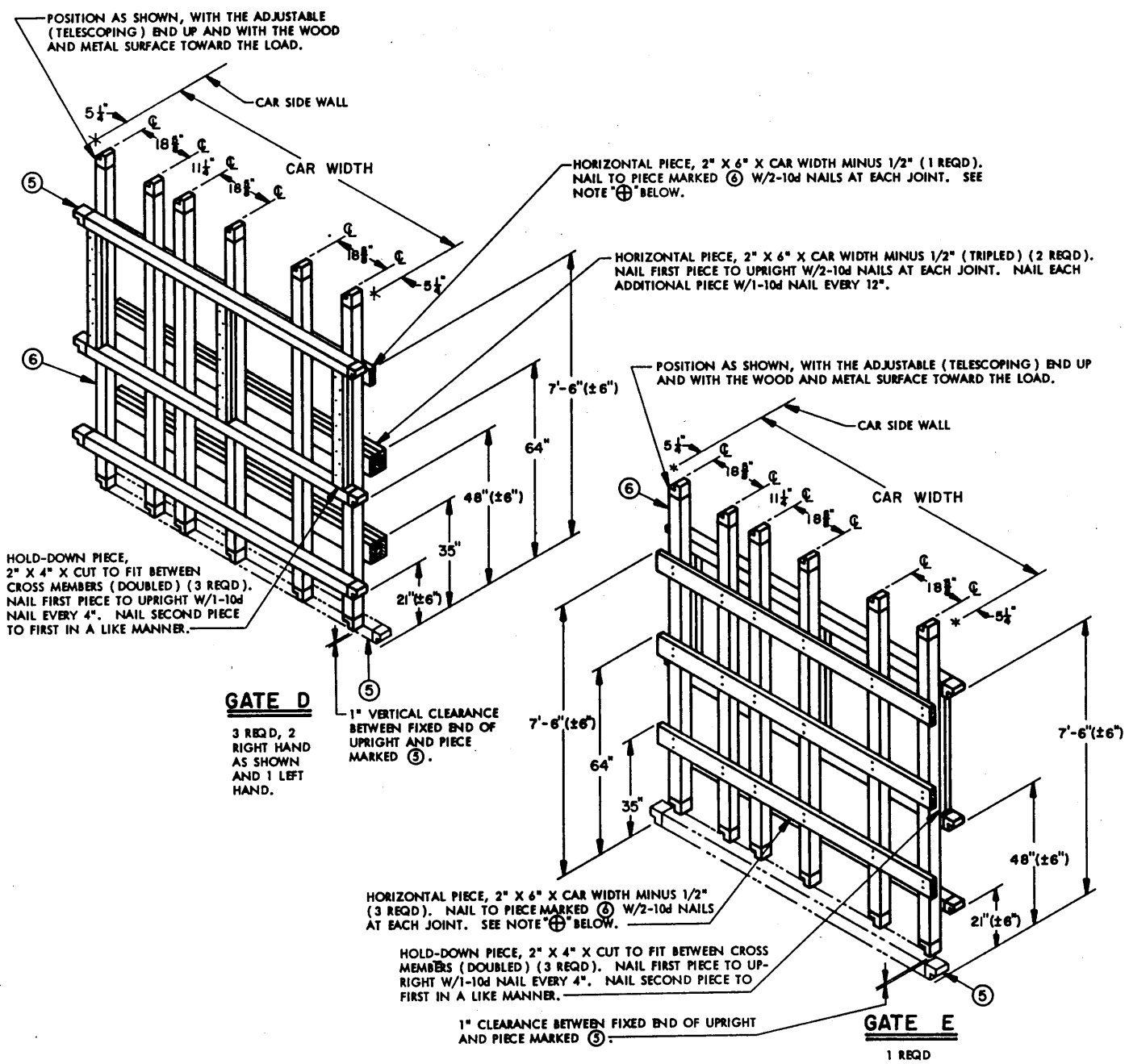
TYPICALLY INDICATES A 2" X 6" HEADER AS USED WITHIN THE LOADS DEPICTED ON PAGES 8 AND 9. IF THE LOCATION OF THE HEADER PIECE IN THE LENGTH OF THE CAR DOES NOT ALLOW FASTENING INTO THE NAILING CHANNELS IN THE CAR FLOOR, THE WIDTH OF THESE PIECES MAY BE INCREASED AS NECESSARY.

INDICATES NAILING CHANNELS RUNNING LATERALLY ACROSS THE CAR WIDTH APPROXIMATELY 8" ON CENTER.

TYPICALLY INDICATES A LATERAL BRACE AND/OR SIDE BLOCKING PIECE USED WITHIN THE DEPICTED LOADS. INCREASE THE MATERIAL FROM 2" X 4" TO 2" X 6" TO BETTER RECEIVE THE LARGER SIZE NAILS AND THE STRAIGHT-LINE NAILING PATTERN REQUIRED IN CARS EQUIPPED WITH NAILABLE METAL FLOORS. INSTALL PIECES TO CENTER OVER THE NAILING CHANNEL WHICH IS NEAREST THE CENTER OF THE SKID LENGTH.

NAILABLE METAL FLOOR

THIS VIEW DEPICTS A NAILABLE METAL FLOOR WITH WHICH SOME BOX CARS MAY BE EQUIPPED. IF A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDE WALL OF THE CAR THAT GUIDANCE SHOULD BE APPLIED. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED FOR THE NAILING OF BOTH LAYERS OF ALL HEADERS, LATERAL BRACING OR SIDE BLOCKING PIECES, AND BACK-UP CLEATS TO THE CAR FLOOR.



NOTE ⊕:
 THE TOP 2" X 6" HORIZONTAL PIECE OF GATES D AND E MUST BE POSITIONED TO MATCH THE HEIGHT OF DOORWAY MEMBER AND/OR FIXED WALL MEMBER.

