

APPROVED BY
 BUREAU OF EXPLOSIVES
A. J. Grasmuck
 MILITARY ASSISTANT
 DATE 3/18/69

CHAPARRAL

LOADING AND BRACING (CL & LCL) IN BOX CARS OF COMPLETE ROUND IN THE M570 SHIPPING AND STORAGE CONTAINER

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DRAFTSMAN <i>ROT</i>	PROJ ENG <i>CBE</i>	GWP <i>WUW</i>	AMSMI-XCC <i>DN</i>	SUBMITTED <i>[Signature]</i>
CHECKER <i>JDS</i>	ANC AMB <i>JDS</i>	ANC AMB <i>JDS</i>	AMSMI-SMMP <i>DN</i>	APPROVED <i>[Signature]</i> COMMANDING OFFICER, SAVANNAH ARMY DEPOT
REVISIONS				APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL COMMAND
U. S. ARMY MATERIEL COMMAND				
28 APRIL 1969				
CLASS	DIVISION	DRAWING	FILE	
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DO NOT SCALE

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 SHIPMENTS LOADED WITHIN VARIOUS SIZES OF RAIL CARS, AND ARE FOR THE CHAPARRAL MISSILE WHEN PACKAGED IN THE M570 SHIPPING AND STORAGE CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH CONTENTS.
- C. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE VARIOUS WIDTH DOORS OF THE CONVENTIONAL SLIDING TYPE. THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE TO CARS WHICH ARE EQUIPPED WITH PLUG DOORS.
CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN, AND SPECIAL PROVISIONS MUST BE IMPLEMENTED AS DIRECTED WITHIN THE "SPECIAL NOTES" SECTION WHICH APPLIES TO THE BASIC LOAD INVOLVED. ALSO, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF "CAR SEALS", A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED IN ADDITION TO, AND IN CONJUNCTION WITH, EACH CAR SEAL USED TO "SEAL" THE CAR. THE WIRE WILL BE THREADED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- D. FOR DETAILS OF THE CONTAINER, SEE DRAWING NO. 11074804.
CONTAINER DIMENSIONS ---- 125" LONG X 18" WIDE X 19" HIGH.
GROSS WEIGHT ----- 280 POUNDS (APPROX).
TARE WEIGHT ----- 95 POUNDS (APPROX).
CUBE ----- 24.74 CUBIC FEET.
- E. THIS ITEM IS A DOT CLASS "A" EXPLOSIVE. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE EMPTY OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE TITLE OF THIS DOCUMENT.
- F. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE APPROVED BLOCKING, BRACING, AND STAYING METHODS FOR THE LOADS SPECIFIED HEREIN MUST BE FOLLOWED. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE CAR TO BE LOADED, OR THE QUANTITY TO BE SHIPPED. FOR A LOAD QUANTITY OTHER THAN SPECIFIED, THE APPROVED METHODS MUST BE FOLLOWED, AS CLOSELY AS POSSIBLE.
- G. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN BOX CARS WHICH ARE PARTIALLY LOADED WITH ITEMS PACKED IN THESE CONTAINERS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- H. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE DESIGNATED ITEM WILL BE IN ACCORDANCE WITH HAZARDOUS MATERIALS REGULATIONS OF DOT AND AR 55-355, CHAPTER 213, FOR EXPLOSIVES OR OTHER DANGEROUS ARTICLES, IN FULL.
- J. 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 THE NAIL SIZE IS NOT SPECIFIED, 30d NAILS SHOULD BE USED.
- K. EXCEPT FOR PLYWOOD, DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE AND 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-5/8" WIDE.
- L. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OR A SIDE WALL OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

MATERIAL SPECIFICATIONS

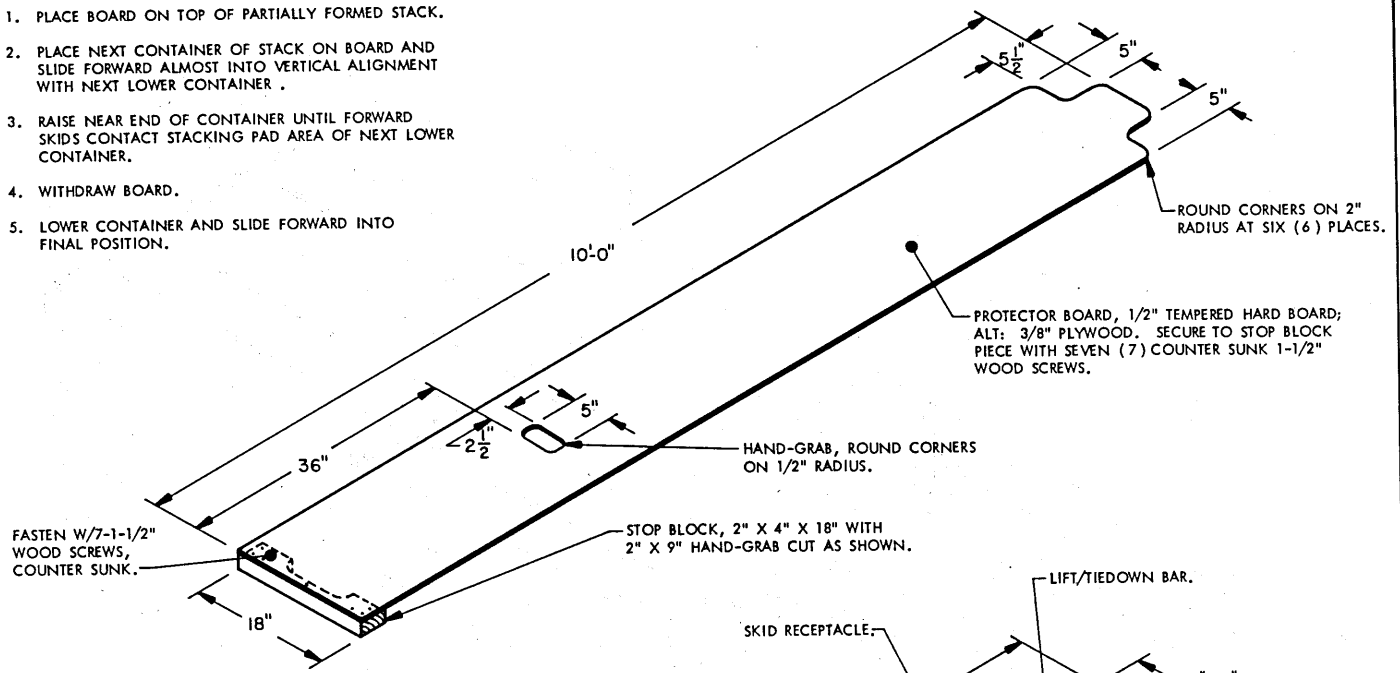
- LUMBER ----- : SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- PLYWOOD ----- : GROUP B OR C, GRADE *C-C (EXTERIOR); FED SPEC NN-P-530.
FSN 5530-051-1198.
* IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.
- NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED,
FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- STRAPPING, STEEL ----- : TYPE I OR IV, CLASS A OR B, FED SPEC QQ-S-781.
FOR FSN SEE 58-38-100.
- ANTI-CHAFING MATERIAL: NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL).
- HARDBOARD ----- : FED SPEC LLL-H-35.
- STRAP SEALS,
STRAP STAPLES ----- : COMMERCIAL GRADE.

(GENERAL NOTES CONTINUED)

- M. FOR SPECIFIC GUIDANCE, ATTENTION IS DIRECTED TO THE CONTAINER DETAIL AND HANDLING INSTRUCTIONS ON PAGE 3 AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO DEPICTED OUTLOADING METHODS.
- N. 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.
- O. IT IS THE RESPONSIBILITY OF A SHIPPER TO PROVIDE THE "CONTAINER PROTECTOR" ASSEMBLY AS DETAILED ON PAGE 3.
CAUTION: OUTLOADING MUST NOT BE ATTEMPTED WITHOUT USING A CONTAINER PROTECTOR BOARD.

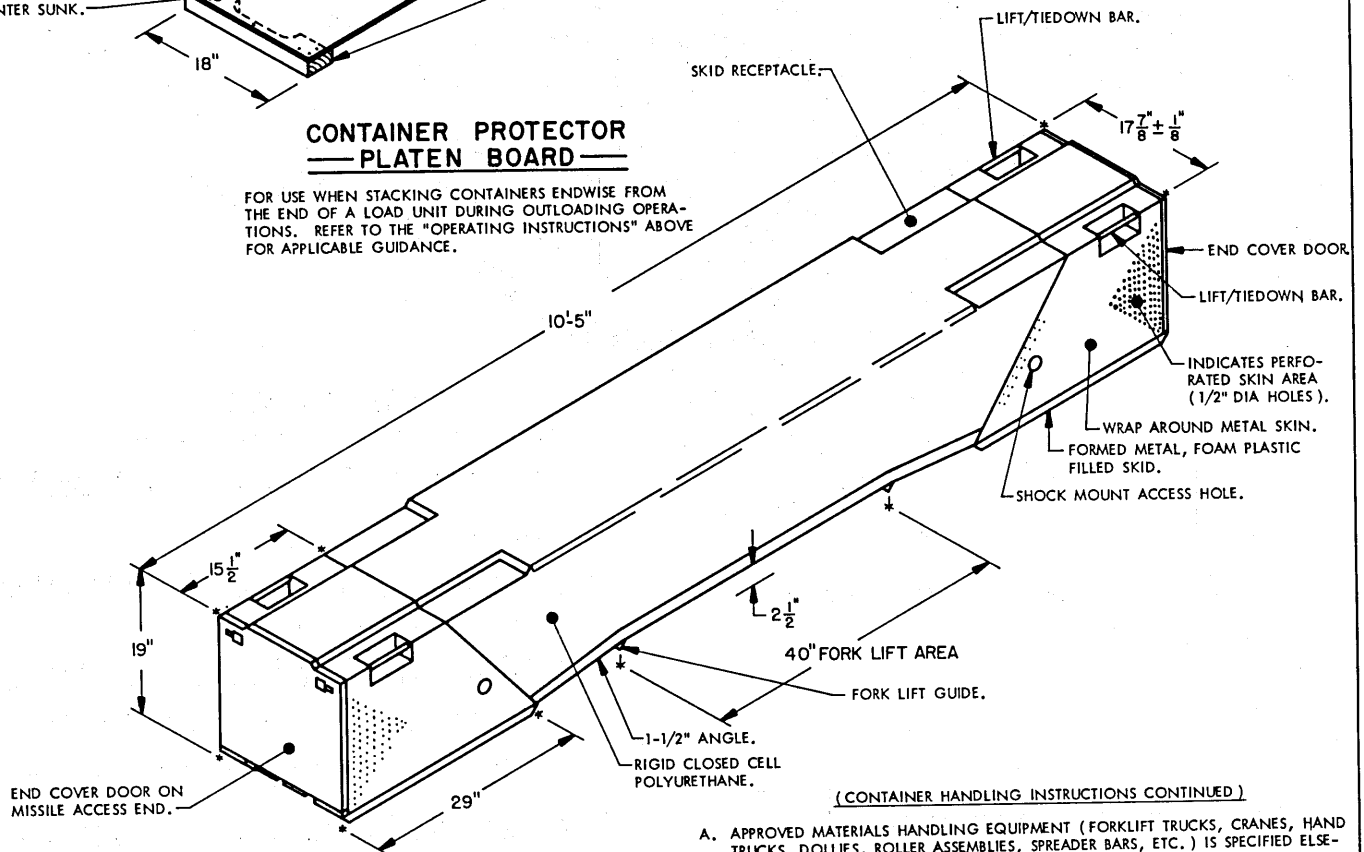
OPERATING INSTRUCTIONS

1. PLACE BOARD ON TOP OF PARTIALLY FORMED STACK.
2. PLACE NEXT CONTAINER OF STACK ON BOARD AND SLIDE FORWARD ALMOST INTO VERTICAL ALIGNMENT WITH NEXT LOWER CONTAINER.
3. RAISE NEAR END OF CONTAINER UNTIL FORWARD SKIDS CONTACT STACKING PAD AREA OF NEXT LOWER CONTAINER.
4. WITHDRAW BOARD.
5. LOWER CONTAINER AND SLIDE FORWARD INTO FINAL POSITION.



CONTAINER PROTECTOR — PLATEN BOARD —

FOR USE WHEN STACKING CONTAINERS ENDWISE FROM THE END OF A LOAD UNIT DURING UNLOADING OPERATIONS. REFER TO THE "OPERATING INSTRUCTIONS" ABOVE FOR APPLICABLE GUIDANCE.



CONTAINER DETAIL

CONTAINER HANDLING INSTRUCTIONS:

1. **CAUTION:** EXTREME CARE MUST BE EXERCISED DURING UNLOADING OPERATIONS TO PREVENT DAMAGE TO THE EXPOSED PLASTIC AREAS OF THE CONTAINER. PLASTIC AREAS WILL NOT BE STEPPED ON, WALKED ON, PRIED AGAINST, STRUCK OR GOUGED WITH HAND TOOLS OR MATERIALS HANDLING EQUIPMENT, OR BUMPED AGAINST PROTRUSIONS.
2. IT IS RECOMMENDED THAT THE CONTAINERS BE MANUALLY STACKED WITHIN THE RAIL CAR. TO FACILITATE COMPLIANCE WITH THIS RECOMMENDATION, THE "CONTAINER PROTECTOR" BOARD AS SHOWN ABOVE MUST BE USED WHEN PLACING THE UPPER CONTAINERS OF A STACK AND WHEN FORMING THE LAST STACK BUILT WITHIN A LOAD UNIT.
3. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINER.

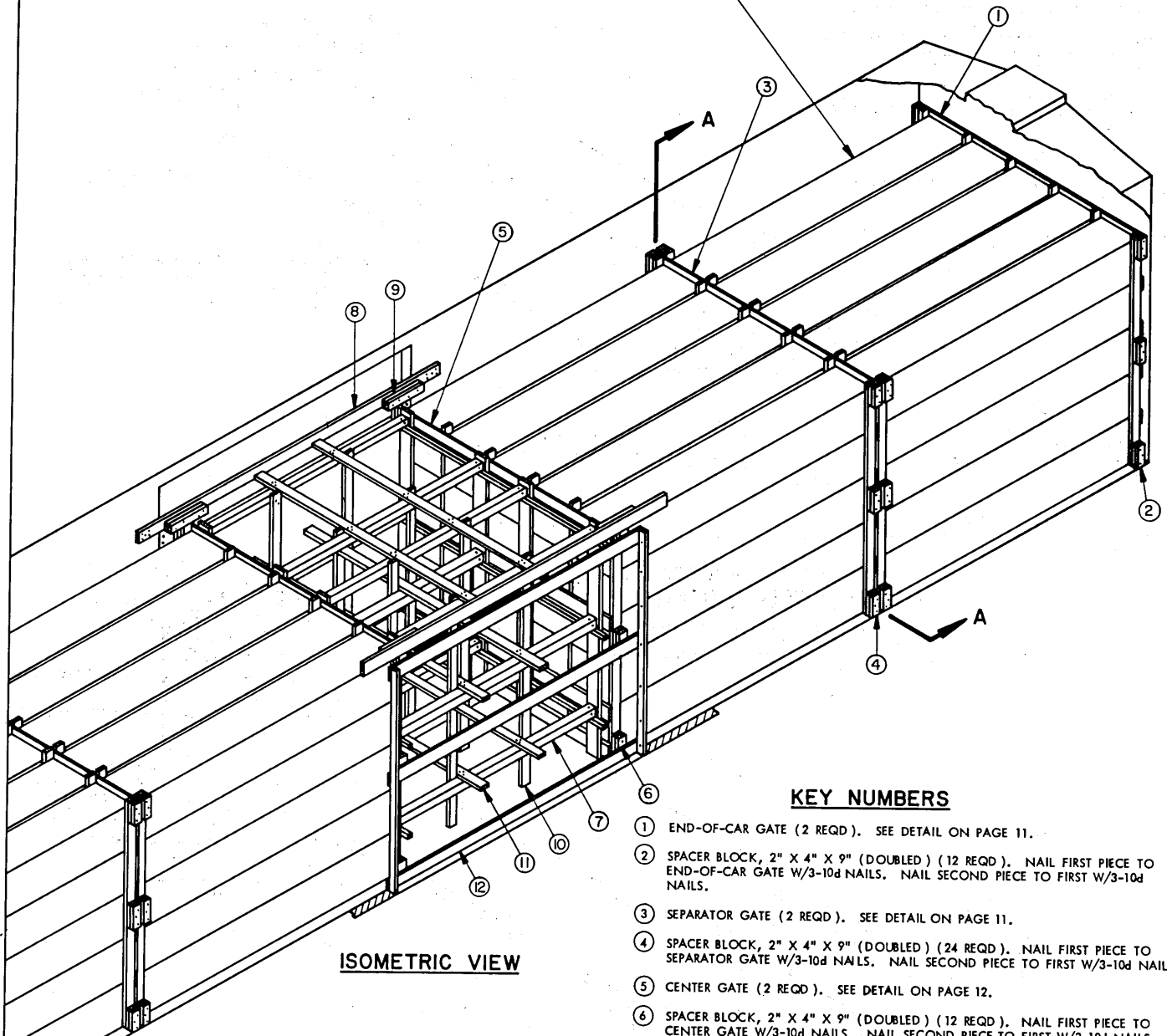
(CONTAINER HANDLING INSTRUCTIONS CONTINUED)

- A. APPROVED MATERIALS HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.
- B. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED FOR THE TYPE OF COMMODITY EMPLOYED OR AS SPECIFIED ELSEWHERE OR HEREIN WILL BE OBSERVED.
- C. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION. **CAUTION:** THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED; HOWEVER, FORK TINES MAY BE PLACED UNDER THE SKIDS FROM AN END DIRECTION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER OR WITHDRAWING FORKS FROM UNDER A CONTAINER, TO PREVENT DAMAGE TO THE CONTAINERS BY FORK TINES OR THE FORKLIFT PACKAGE GUARD.
- D. IF A SINGLE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CONTAINER. HOWEVER, IF A STACK OF TWO OR MORE CONTAINERS IS HANDLED BY SLINGING, THE SLING USED MUST BE OF SUCH A DESIGN THAT LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER, AND ADDITIONALLY, CONTAIN BOTH LENGTHWISE AND CROSSWISE SPREADER BARS WHICH ARE RIGGED SO AS TO PREVENT DAMAGE TO A CONTAINER BY THE SLING LEGS.

CONTAINER DETAIL AND HANDLING INSTRUCTIONS

PAGE 3

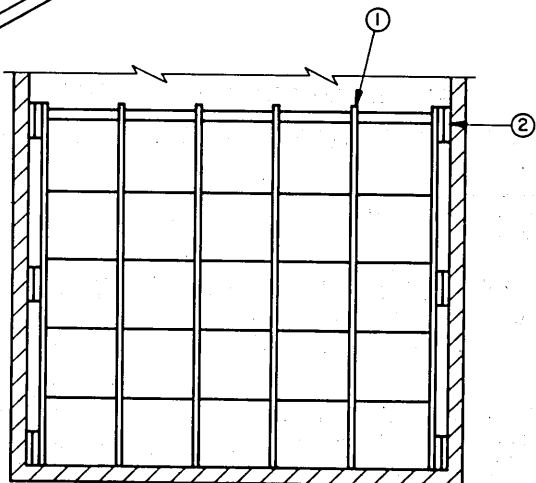
SEE SPECIAL NOTE 3 ON PAGE 5.



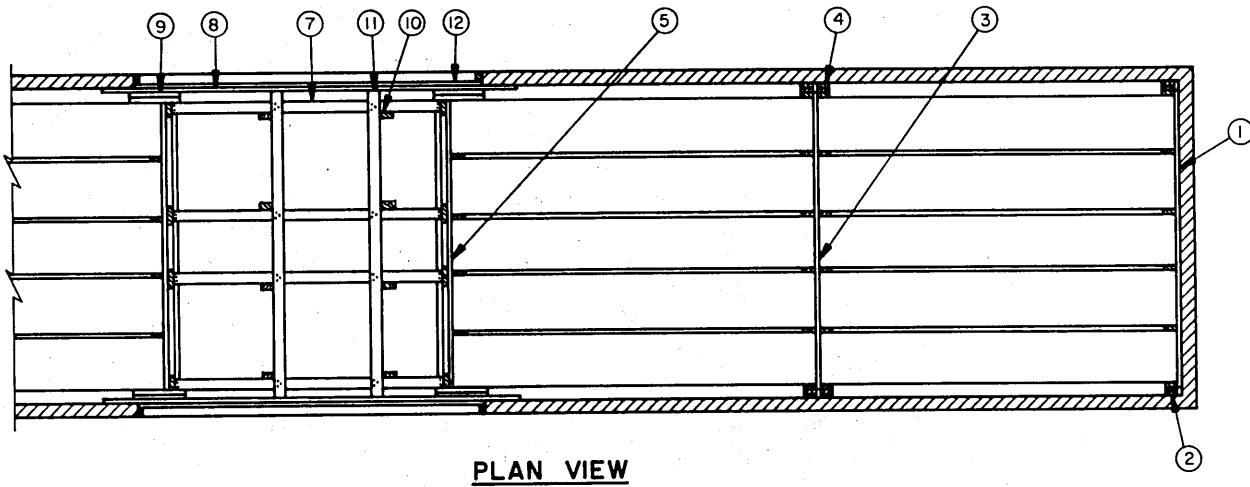
ISOMETRIC VIEW

KEY NUMBERS

- ① END-OF-CAR GATE (2 REQD). SEE DETAIL ON PAGE 11.
- ② SPACER BLOCK, 2" X 4" X 9" (DOUBLED) (12 REQD). NAIL FIRST PIECE TO END-OF-CAR GATE W/3-10d NAILS. NAIL SECOND PIECE TO FIRST W/3-10d NAILS.
- ③ SEPARATOR GATE (2 REQD). SEE DETAIL ON PAGE 11.
- ④ SPACER BLOCK, 2" X 4" X 9" (DOUBLED) (24 REQD). NAIL FIRST PIECE TO SEPARATOR GATE W/3-10d NAILS. NAIL SECOND PIECE TO FIRST W/3-10d NAILS.
- ⑤ CENTER GATE (2 REQD). SEE DETAIL ON PAGE 12.
- ⑥ SPACER BLOCK, 2" X 4" X 9" (DOUBLED) (12 REQD). NAIL FIRST PIECE TO CENTER GATE W/3-10d NAILS. NAIL SECOND PIECE TO FIRST W/3-10d NAILS.
- ⑦ STRUTS, 4" X 4" BY CUT TO FIT (12 REQD). TOENAIL TO CENTER GATE W/2-12d NAILS AT EACH END.
- ⑧ GATE HOLD-DOWN, 2" X 6" BY DOOR WIDTH PLUS 24" (2 REQD). NAIL TO CAR SIDE WALL W/5-10d NAILS AT EACH END.
- ⑨ GATE HOLD-DOWN BLOCK, 2" X 4" X 18" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO GATE HOLD-DOWN W/4-10d NAILS. NAIL SECOND PIECE TO FIRST W/4-10d NAILS.
- ⑩ VERTICAL STRUT BRACING, 2" X 4" BY CUT TO FIT (8 REQD). NAIL TO STRUT W/3-10d NAILS AT EACH JOINT.
- ⑪ LATERAL STRUT BRACING, 2" X 4" BY CAR WIDTH (6 REQD). NAIL TO STRUT W/3-10d NAILS AT EACH JOINT.
- ⑫ DOORWAY PROTECTION GATE (2 REQD). SEE DETAIL ON PAGE 12. NAIL TO DOOR POST W/12d NAILS.



SECTION A-A



PLAN VIEW

SPECIAL NOTES:

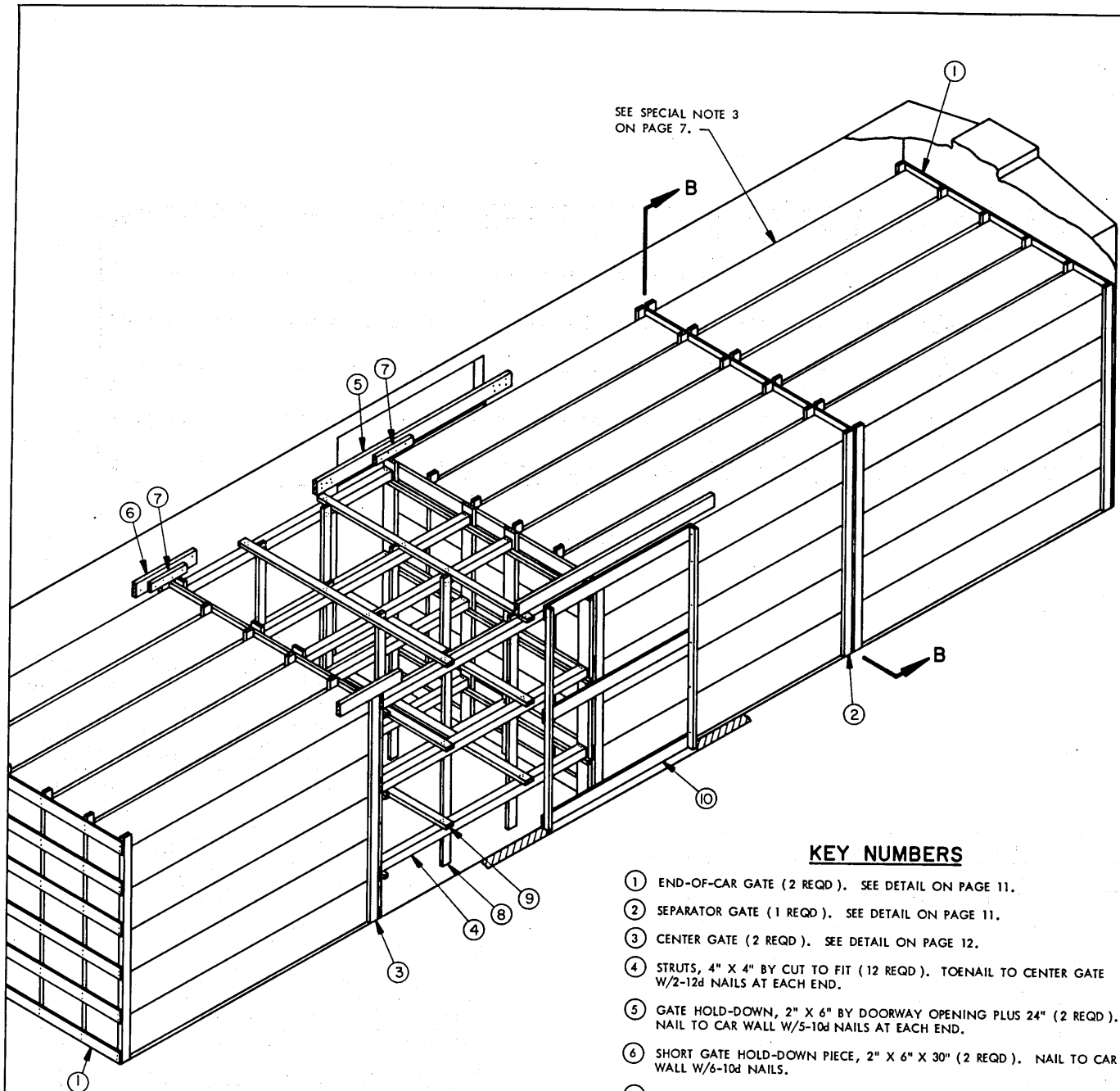
1. A 50'-6" LONG X 9'-2" WIDE (INSIDE CLEARANCE) CONVENTIONAL TYPE BOX CAR EQUIPPED WITH A 10'-0" WIDE SINGLE DOOR OPENING IS SHOWN. A FULL CARLOAD CANNOT BE LOADED INTO A CAR WHICH HAS DOOR OPENINGS LESS THAN 10'-0".
2. A WIDER OR NARROWER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD. A 8'-6" WIDE BOX CAR IS THE PREFERRED WIDTH CAR FOR SHIPPING THIS ITEM. IF A DIFFERENT WIDTH CAR IS USED, THICKNESS OR NUMBER OF THE SPACER BLOCKS, PIECES MARKED ②, ④, AND ⑥ MUST BE ADJUSTED TO PROVIDE FOR A "TIGHT" LOAD ACROSS THE WIDTH OF THE CAR.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF TWENTY-FOUR (24) INSTEAD OF TWENTY-FIVE (25) ITEMS AS SHOWN, TO SATISFY A LESS-THAN-CARLOAD QUANTITY, THE FOUR HIGH CONTAINER STACK MUST CONTAIN A "FILLER ASSEMBLY", AS DEPICTED ON PAGE 14, IN PLACE OF EACH OMITTED CONTAINER. ALSO, FOR EACH OMITTED CONTAINER, TWO "FILLER BLOCKS", 2" X 4" X 18-1/4", MUST BE USED BETWEEN THE VERTICAL PIECES OF THE END-OF-CAR GATE AND THE SEPARATOR GATE. NAIL THRU THE GATE HORIZONTAL PIECES INTO THE "FILLER BLOCK" W/5-6d NAILS.
4. SEVENTY-FIVE (75) CONTAINERS CAN BE LOADED IN A 40'-6" LONG X 9'-2" WIDE BOX CAR, AND BLOCKED AND BRACED FOR SHIPMENT BY THE DELINEATED PROCEDURES. ADJUST QUANTITIES OF BLOCKING MATERIAL TO SATISFY THE REQUIREMENTS OF THE SHORTER CAR. **NOTE:** CARS WITH 8'-0" WIDE OR WIDER DOOR OPENINGS CAN BE USED.
5. A CAR EQUIPPED WITH STAGGERED DOOR OPENING MAY BE USED TO SHIP THE DEPICTED LOAD. IF A CAR IS EQUIPPED WITH PLUG DOORS, SEE "DOORWAY PROTECTION PROVISIONS FOR CARS EQUIPPED WITH PLUG DOORS" DETAILS ON PAGE 13. WHEN THIS DETAIL IS USED, DELETE CONVENTIONAL TYPE DOORWAY PROTECTION AND SPACER BLOCKS, 2" X 4" X 9", FROM CENTER GATES AS REQUIRED. SEE GENERAL NOTE "C" ON PAGE 2.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	262	131
2" X 2"	51	17
2" X 3"	32	16
2" X 4"	587	391
2" X 6"	156	156
4" X 4"	97	129
NAILS	NO. REQD	POUNDS
6d (2")	24	NIL
10d (3")	772	12
12d (3-1/4")	224	3-3/4
16d (3-1/2")	96	2

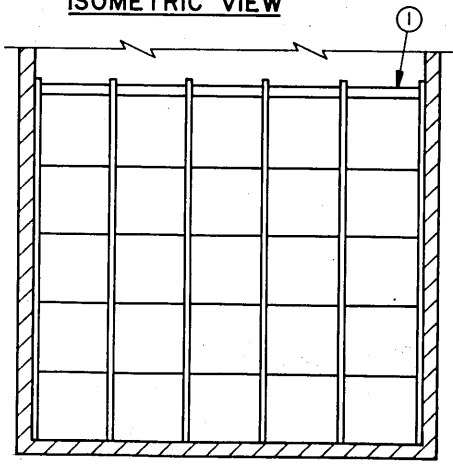
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER WITH MISSILE	100	28,000 LBS
DUNNAGE		2,116 LBS
TOTAL WEIGHT		30,116 LBS



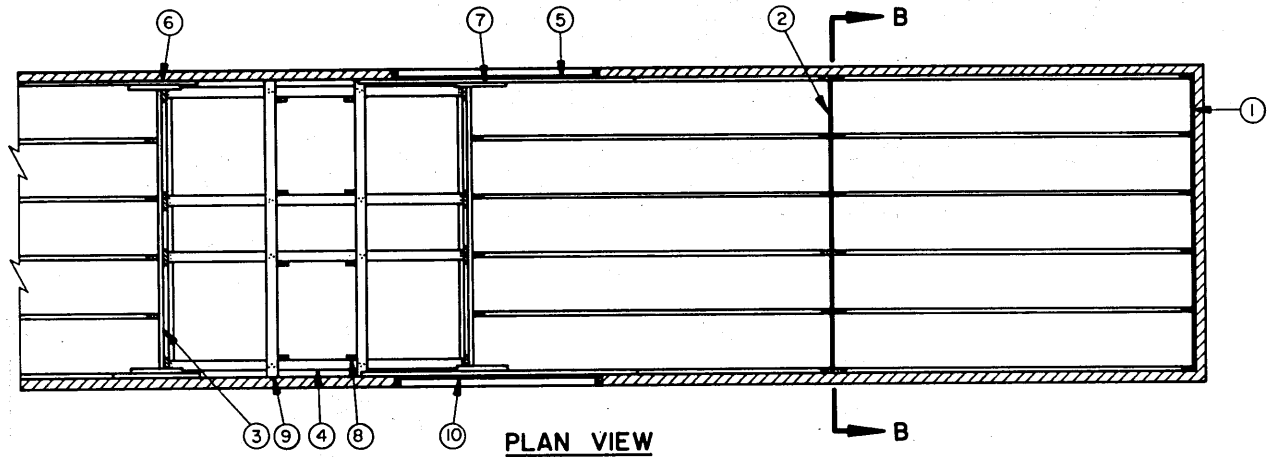
SEE SPECIAL NOTE 3
ON PAGE 7.

ISOMETRIC VIEW



KEY NUMBERS

- ① END-OF-CAR GATE (2 REQD). SEE DETAIL ON PAGE 11.
- ② SEPARATOR GATE (1 REQD). SEE DETAIL ON PAGE 11.
- ③ CENTER GATE (2 REQD). SEE DETAIL ON PAGE 12.
- ④ STRUTS, 4" X 4" BY CUT TO FIT (12 REQD). TOENAIL TO CENTER GATE W/2-12d NAILS AT EACH END.
- ⑤ GATE HOLD-DOWN, 2" X 6" BY DOORWAY OPENING PLUS 24" (2 REQD). NAIL TO CAR WALL W/5-10d NAILS AT EACH END.
- ⑥ SHORT GATE HOLD-DOWN PIECE, 2" X 6" X 30" (2 REQD). NAIL TO CAR WALL W/6-10d NAILS.
- ⑦ GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (4 REQD). NAIL TO GATE HOLD-DOWN PIECE AND/OR SHORT GATE HOLD-DOWN PIECE W/4-10d NAILS.
- ⑧ VERTICAL STRUT BRACING, 2" X 4" BY CUT TO FIT (8 REQD). NAIL TO STRUT W/3-10d NAILS AT EACH JOINT.
- ⑨ LATERAL STRUT BRACING, 2" X 4" BY CAR WIDTH (6 REQD). NAIL TO STRUT W/3-10d NAILS AT EACH JOINT.
- ⑩ DOORWAY PROTECTION (2 REQD). SEE DETAIL ON PAGE 12.



PLAN VIEW

SPECIAL NOTES:

1. A 40'-6" LONG X 8'-6" WIDE (INSIDE CLEARANCE) CONVENTIONAL TYPE BOX CAR EQUIPPED WITH A 6'-0" WIDE SINGLE DOOR OPENING IS SHOWN.
2. A WIDER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD. A 8'-6" WIDE BOX CAR IS THE PREFERRED WIDTH CAR FOR SHIPPING THIS ITEM. IF A WIDER CAR IS USED, SPACER BLOCKS AS DEPICTED ON PAGES 4 AND 5 MUST BE USED TO PROVIDE FOR A "TIGHT" LOAD ACROSS THE WIDTH OF THE CAR.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF TWENTY-FOUR (24) INSTEAD OF TWENTY-FIVE (25) ITEMS AS SHOWN, TO SATISFY A LESS-THAN-CARLOAD QUANTITY, THE FOUR HIGH CONTAINER STACK MUST CONTAIN A "FILLER ASSEMBLY", AS DEPICTED ON PAGE 14, IN PLACE OF EACH OMITTED CONTAINER. ALSO, FOR EACH OMITTED CONTAINER, TWO FILLER BLOCKS, 2" X 4" X 18-1/4", MUST BE USED BETWEEN THE VERTICAL PIECES OF THE END-OF-CAR GATE AND THE SEPARATOR GATE IN PLACE OF THE OMITTED CONTAINER. NAIL THRU THE GATE HORIZONTAL PIECES INTO THE "FILLER BLOCK" W/5-6d NAILS.
4. A CAR EQUIPPED WITH WIDER DOORS OR STAGGERED DOOR OPENING MAY BE USED TO SHIP THE DEPICTED LOAD. WHEN OUTLOADING THE DEPICTED LOAD IN A CAR EQUIPPED WITH PLUG DOORS, USING DOORWAY PROTECTION DEPICTED ON PAGE 13, THE CAR MUST BE AT LEAST 8'-10" WIDE. "SPACER BLOCKS", 2" X 4" X 9", WILL THEN BE REQUIRED ON END-OF-CAR GATES AND THE SEPARATOR GATE TO FILL THE WIDTH OF THE CAR AS DEPICTED ON PAGES 4 AND 5. SEE GENERAL NOTE "C" ON PAGE 2.. SPACER BLOCKS MAY BE REQUIRED ON THE CENTER GATES, ALSO.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	188	94
2" X 2"	51	17
2" X 3"	32	16
2" X 4"	409	270
2" X 6"	153	153
4" X 4"	103	137
NAILS	NO. REQD	POUNDS
6d (2")	24	NIL
10d (3")	552	8-1/2
12d (3-1/4")	80	1-1/2
16d (3-1/2")	90	2

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER WITH MISSILE	75	21,000 LBS
DUNNAGE		1,730 LBS
TOTAL WEIGHT		22,730 LBS

75-UNIT LOAD IN A 40'-6" LONG X 8'-6" WIDE BOX CAR

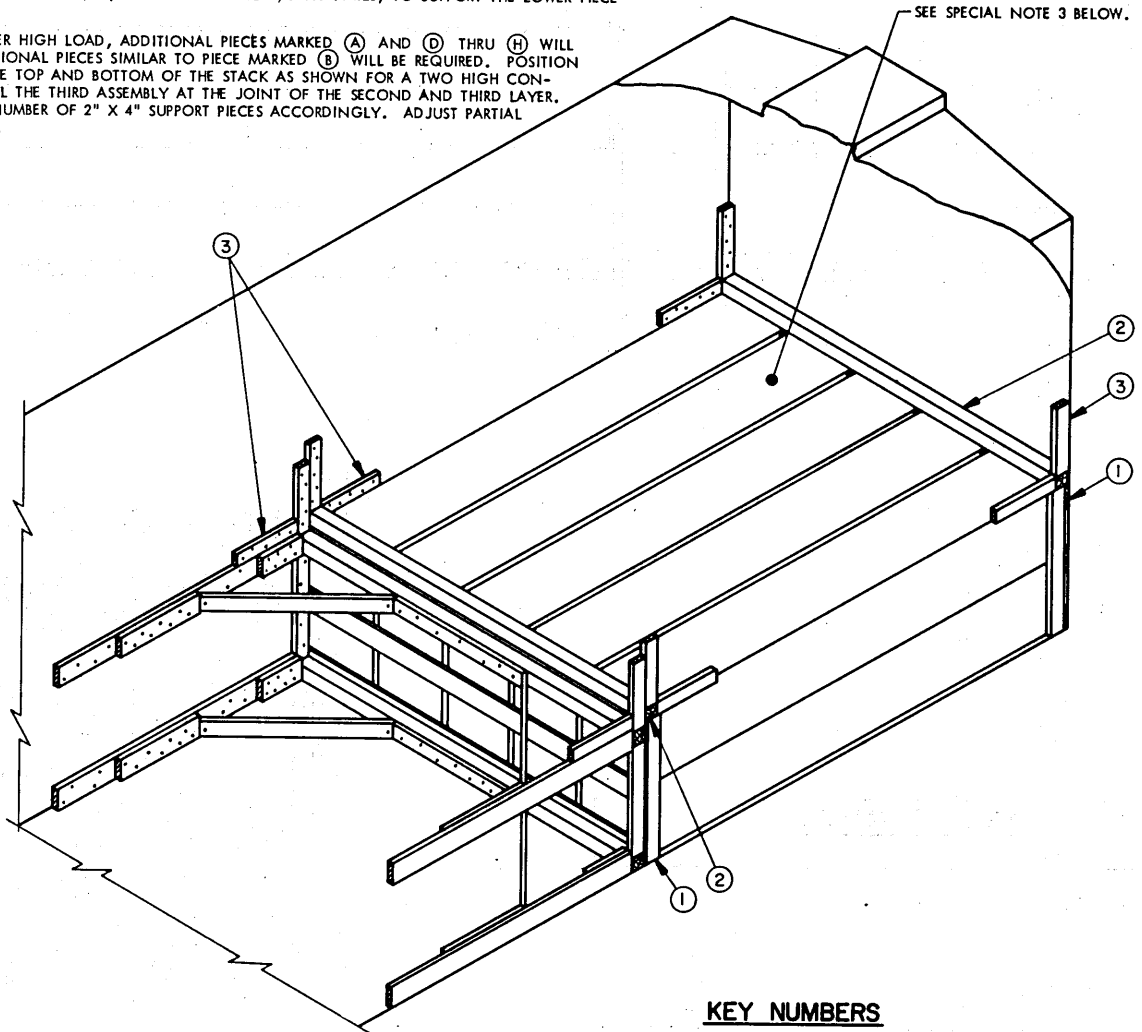
NOTE

A K-BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A MAXIMUM PARTIAL LAYER LOAD OF 6,000 POUNDS. **NOTE:** IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO DRAWING 19-48-4016-5M1001 FOR THE APPLICABLY SIZED K-BRACE TO USE AND THE DESIGN SPECIFICATIONS FOR THE BRACE.

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), AND (E) 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 (D) OR THE COMPARABLE PIECE ON A HEAVIER BRACE MUST BE DOUBLED AND EXTEND ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE.

FOR A THREE (3) CONTAINER HIGH LOAD INCREASE THE LENGTH OF PIECE MARKED (B) TO 32" AND POSITION PIECE MARKED (A) AT THE TOP OF THE THIRD LAYER AND AT THE JOINT BETWEEN THE FIRST AND SECOND LAYERS. NAIL A SUPPORT PIECE, 2" X 4" X 16-3/4", TO THE CAR WALL W/5-10d NAILS, TO SUPPORT THE LOWER PIECE MARKED (A).

FOR A FOUR (4) CONTAINER HIGH LOAD, ADDITIONAL PIECES MARKED (A) AND (D) THRU (H) WILL BE REQUIRED. ALSO, ADDITIONAL PIECES SIMILAR TO PIECE MARKED (B) WILL BE REQUIRED. POSITION A PIECE MARKED (A) AT THE TOP AND BOTTOM OF THE STACK AS SHOWN FOR A TWO HIGH CONTAINER STACK, AND INSTALL THE THIRD ASSEMBLY AT THE JOINT OF THE SECOND AND THIRD LAYER. ADJUST THE LENGTH AND NUMBER OF 2" X 4" SUPPORT PIECES ACCORDINGLY. ADJUST PARTIAL LAYER GATE ACCORDINGLY.



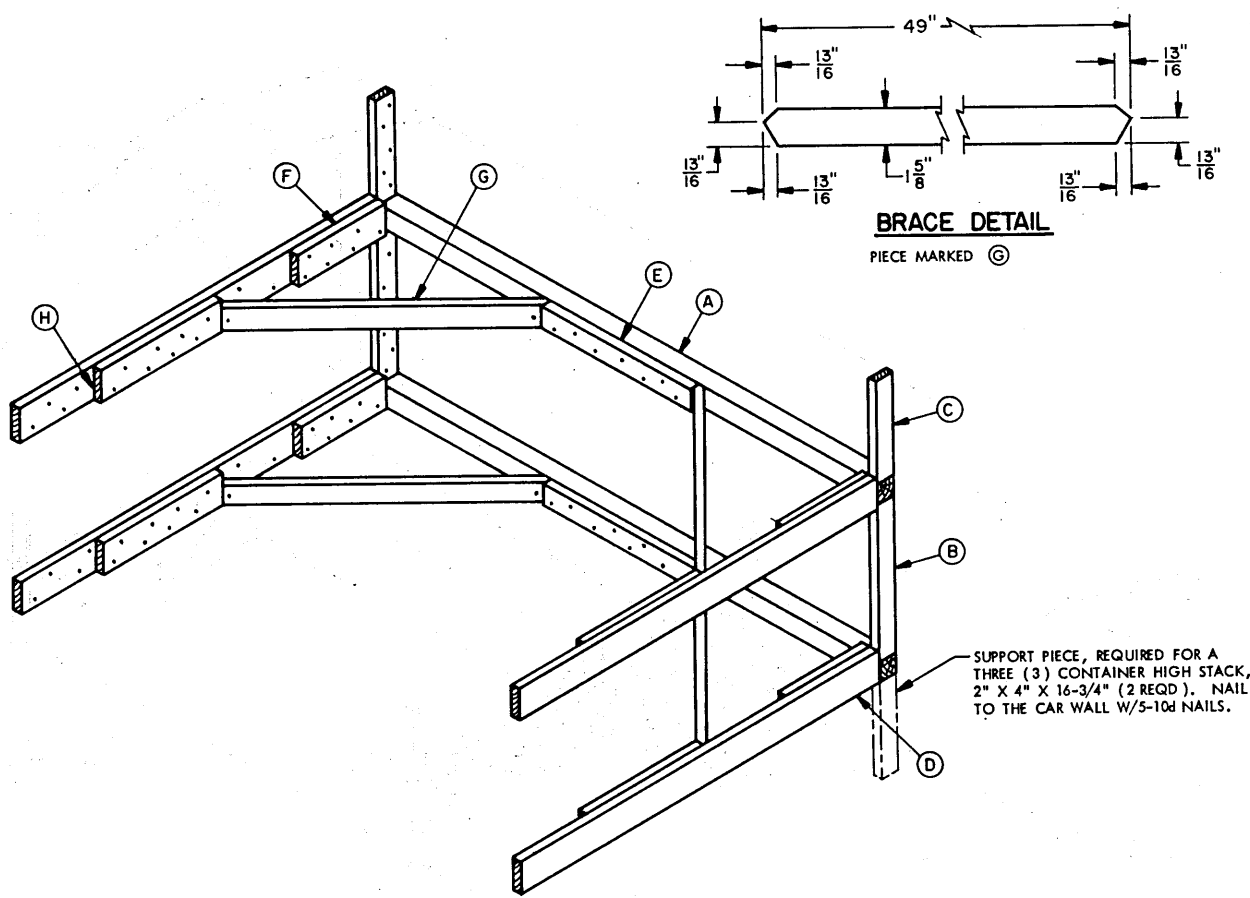
ISOMETRIC VIEW

SPECIAL NOTES:

1. A TEN-UNIT LOAD IS DEPICTED IN AN 8'-6" WIDE (INSIDE CLEARANCE) CONVENTIONAL TYPE BOX CAR. THE LOAD IS BASED ON A 40'-6" LONG (INSIDE CLEARANCE) WITH AN 6'-0" DOOR OPENING. FOR CARS WITH GREATER WIDTH DOOR OPENINGS SEE "CAUTION" NOTE ABOVE.
2. A WIDER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD. A 8'-6" WIDE BOX CAR IS THE PREFERRED WIDTH CAR FOR SHIPPING THIS ITEM. IF A WIDER CAR IS USED, SPACER BLOCKS AS DEPICTED ON PAGES 4 AND 5 MUST BE USED TO PROVIDE FOR A "TIGHT" LOAD ACROSS THE WIDTH OF THE CAR.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF NINE (9) INSTEAD OF TEN (10) ITEMS AS SHOWN, TO SATISFY A LESSER LCL QUANTITY, THE ONE HIGH CONTAINER STACK CONTAIN A "FILLER BLOCK", AS DEPICTED ON PAGE 14, IN PLACE OF EACH OMITTED CONTAINER. ALSO, FOR EACH OMITTED CONTAINER, TWO SPACER BLOCKS, 2" X 4" X 18-1/4", MUST BE USED BETWEEN THE VERTICAL PIECES OF THE PARTIAL LAYER GATES. NAIL THRU THE GATE HORIZONTAL PIECES INTO THE SPACER BLOCK W/5-6d NAILS.

KEY NUMBERS

- 1 PARTIAL LAYER GATE (2 REQD). SEE DETAIL ON PAGE 9.
- 2 CONTAINER HOLD-DOWN, 4" X 4" BY CAR WIDTH (2 REQD).
- 3 POCKET CLEAT, 2" X 4" X 18" (10 REQD). NAIL TO CAR SIDE WALL W/5-10d NAILS EACH.
- 4 K-BRACE (1 REQD). SEE DETAIL AND NOTES ON PAGE 9 AND ABOVE.

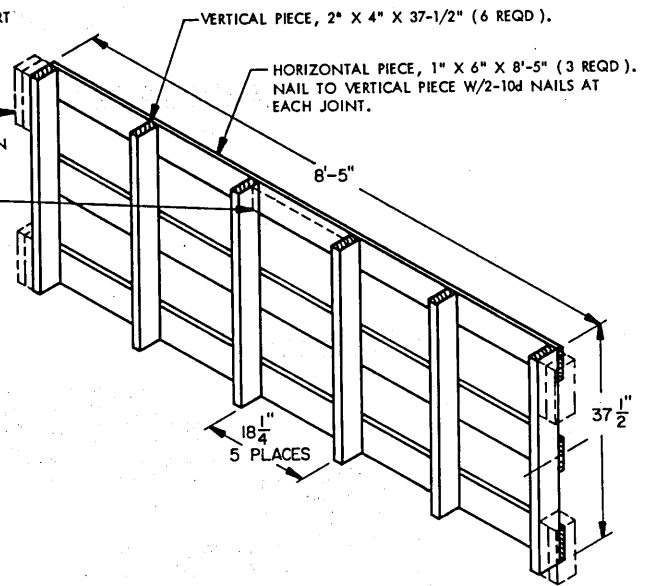


K-BRACE

SEE K-BRACE LUMBER AND NAILING CHART BELOW AND "NOTE ①" ON PAGE 8.

LOCATION OF SPACER BLOCKS, IF REQUIRED.

LOCATION OF "FILLER BLOCK" WHEN USED WITH "FILLER ASSEMBLY" TO SATISFY PROVISIONS IN "SPECIAL NOTE 3" ON PAGE 8.

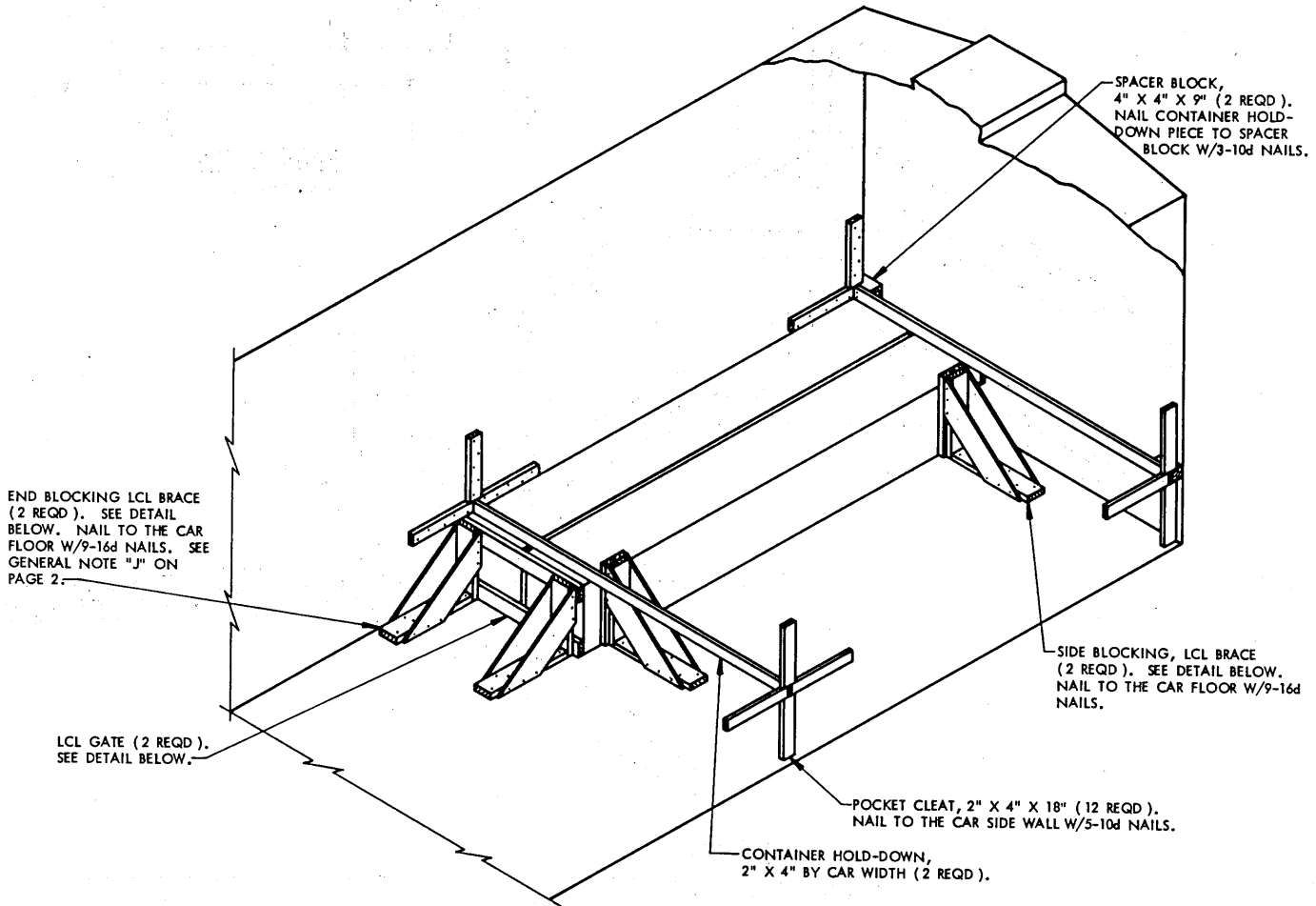


K-BRACE LUMBER AND NAILING DATA				
PC MK	LUMBER SIZE	NO. REQD	NAIL TO	NUMBER AND SIZE OF NAILS
(A)	4" X 4" BY CAR WIDTH	2	---	---
(B)	2" X 4" X 30"	2	CAR WALL	6-10d
(C)	2" X 4" X 18"	2	CAR WALL	5-10d
(D)	2" X 6" X 72"	4	CAR WALL	16-12d
(E)	SEE * BELOW	2	(A)	7-12d
(F)	2" X 6" X 18"	4	(D)	7-16d
(G)	2" X 4" MATERIAL SEE BRACE DETAIL ABOVE	4	(A) & (D)	1-16d EACH END
(H)	2" X 6" X 30"	4	(D)	8-16d

* 30" FOR 8'-6" WIDE CAR
 38" FOR 9'-2" WIDE CAR
 40" FOR 9'-4" WIDE CAR

PARTIAL LAYER GATE

FOR A TWO CONTAINER HIGH STACK
 SEE "NOTE ②" ON PAGE 11. AND
 SPECIAL NOTE 2 ON PAGE 8.



ISOMETRIC VIEW
TWO-UNIT LOAD

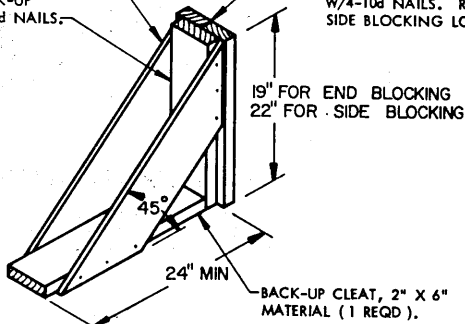
NOTE Ⓢ:

EACH BRACE AS APPLIED FOR LONGITUDINAL OR LATERAL BRACING WILL SUPPORT 2,000 OR 8,000 POUNDS OF LADING RESPECTIVELY. A MINIMUM OF TWO (2) BRACES MUST BE USED IN THEIR RESPECTIVE DIRECTIONS. FOR A THREE OR FOUR WIDE LOAD THREE LCL BRACES MUST BE USED FOR END BLOCKING. FOR A FIVE WIDE LOAD FOUR LCL BRACES MUST BE USED FOR END BLOCKING. MODIFY LCL GATE AS REQUIRED.

ANGLE BRACE, 1" X 6" X CUT TO FIT (2 REQD).
NAIL TO VERTICAL AND BACK-UP CLEAT W/3-8d
NAILS AT EACH END.

VERTICAL, 2" X 6"
MATERIAL (1 REQD).
NAIL TO BACK-UP
CLEAT W/2-16d NAILS.

BUFFER PIECE, 2" X 4" X 22"
(2 REQD). POSITION PIECES
SIDE BY SIDE, AND NAIL EACH
PIECE TO THE VERTICAL PIECE
W/4-10d NAILS. REQUIRED FOR
SIDE BLOCKING LCL BRACE ONLY.

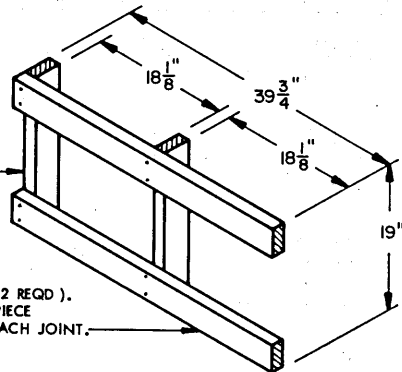


LCL BRACE

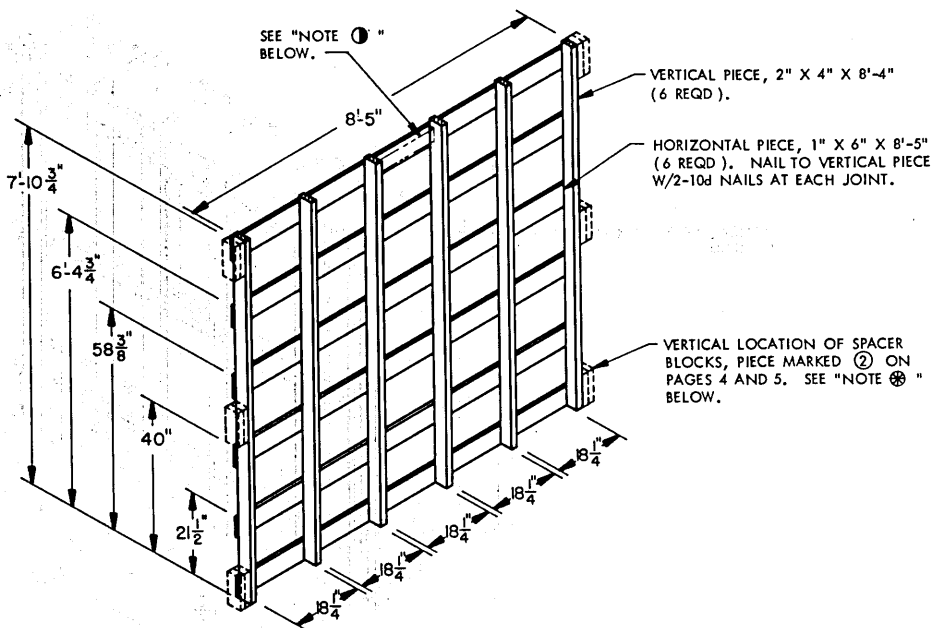
USE FOR ONE (1) CONTAINER
HIGH LOADS ONLY.

VERTICAL PIECE,
2" X 4" X 19"
(2 REQD).

HORIZONTAL PIECE,
2" X 4" X 39-3/4" (2 REQD).
NAIL TO VERTICAL PIECE
W/2-12d NAILS AT EACH JOINT.



LCL GATE



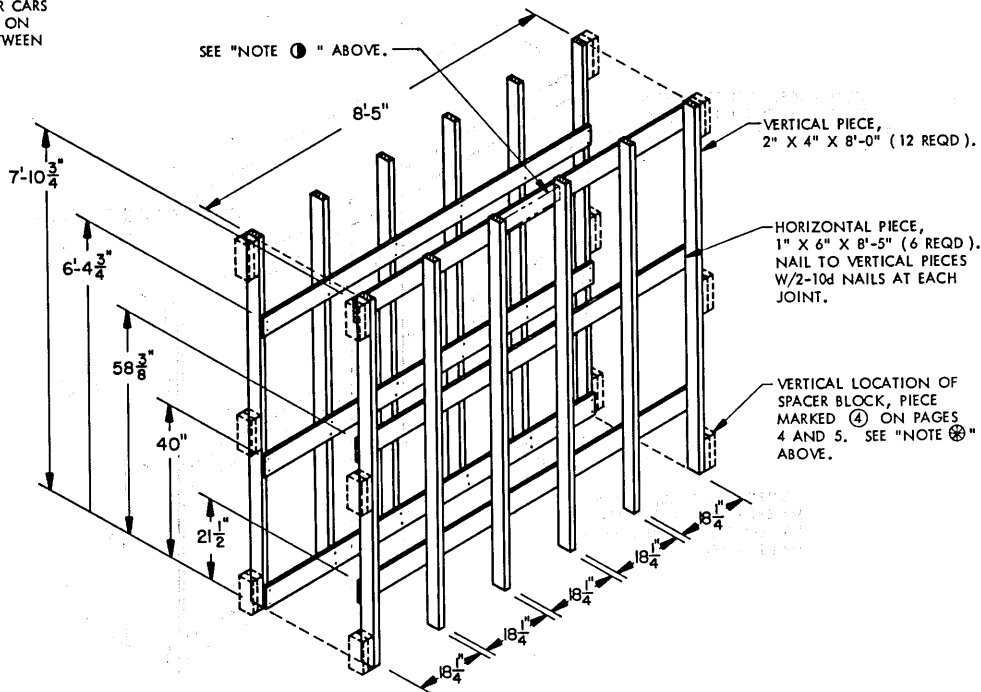
END-OF-CAR GATE

NOTE 3

SPACER BLOCKS, 2" X 4" X 9" ARE REQUIRED TO FILL THE VOID IN CARS THAT ARE GREATER THAN 8'-6" WIDE. THE NUMBER AND THICKNESS OF THESE BLOCKS CAN BE VARIED IN DIFFERENT WIDTH CARS TO MAINTAIN ONE INCH (1") OR LESS VOID ACROSS THE WIDTH OF A CAR, EXCEPT FOR GATES IN A CAR EQUIPPED WITH PLUG DOORS. WHEN USING "DOORWAY PROTECTION PROVISIONS FOR CARS EQUIPPED WITH PLUG DOORS" DETAIL DEPICTED ON PAGE 13 THE GATES WILL FORM A SNUG FIT BETWEEN THE DOOR SPANNER PIECES.

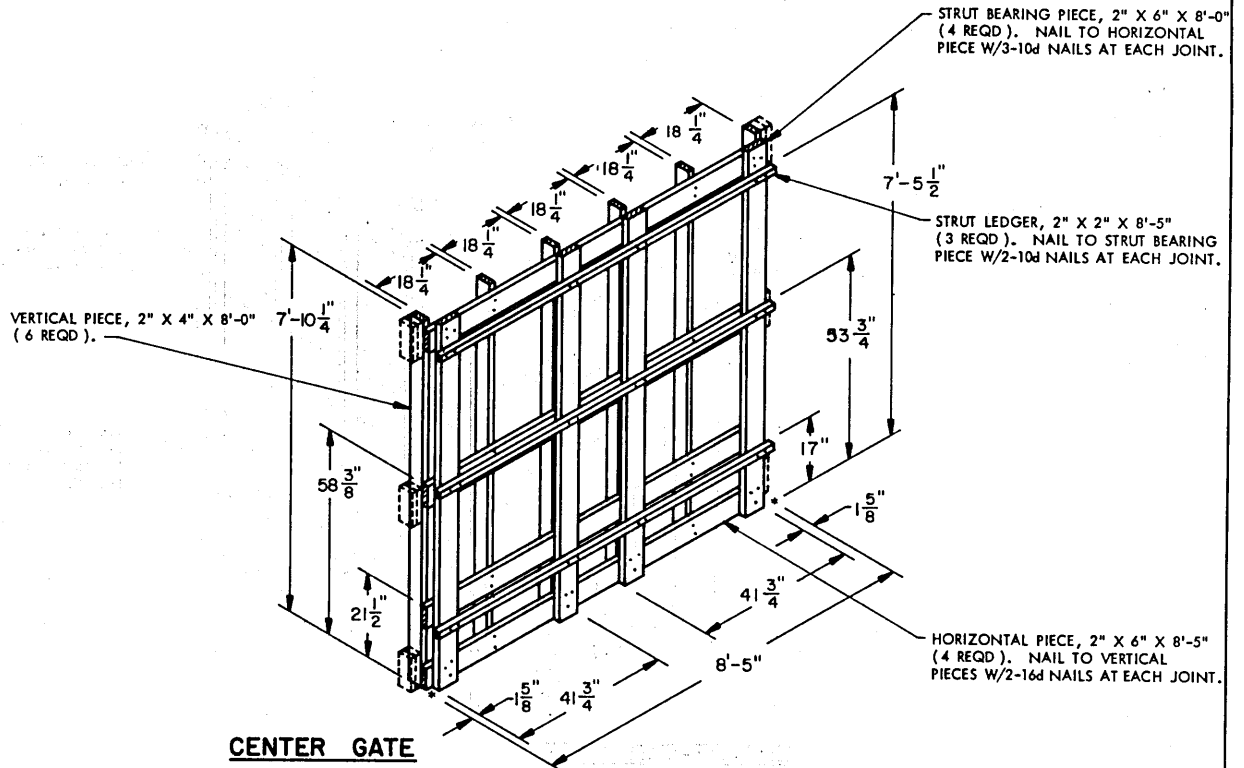
NOTE 1

LOCATION OF "FILLER BLOCK" WHEN USED WITH "FILLER ASSEMBLY" TO SATISFY PROVISIONS IN "SPECIAL NOTE 3" ON PAGES 5 AND 7.

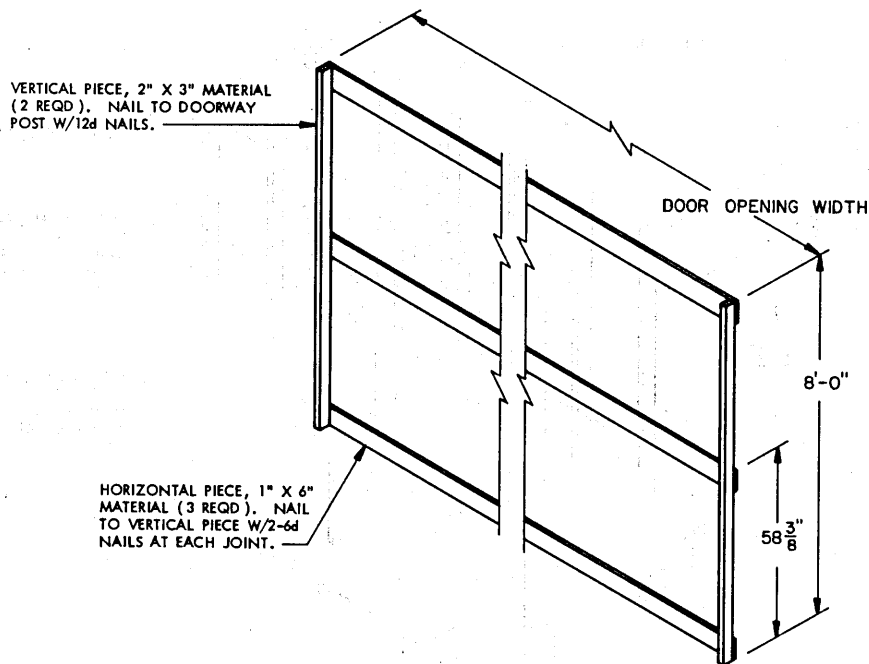


SEPARATOR GATE

NOTE: THE SEPARATOR GATE IS TO BE CONSTRUCTED IN TWO PARTS AND POSITIONED IN THE CAR BACK TO BACK AS SHOWN.



CENTER GATE



DOORWAY PROTECTION GATE

NOTE: DOORWAY PROTECTION DUNNAGE AS SHOWN IS NOT REQUIRED IF ALL OF THE DOORS IN A CAR ARE OF THE PLUG TYPE; HOWEVER, THE CRITERIA SET FORTH WITHIN GENERAL NOTE "D" ON PAGE 2 WILL APPLY.

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

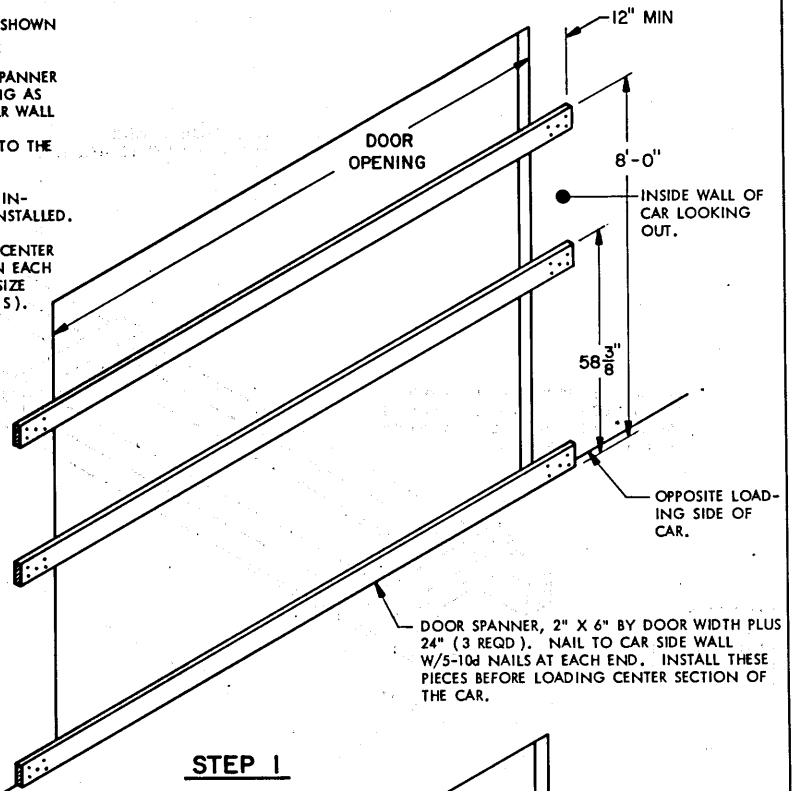
NOTE:

WHEN OUTLOADING BOX CARS EQUIPPED WITH PLUG DOORS, PROVISIONS AS SHOWN BELOW MUST BE USED.

STEP 1 - PRIOR TO LOADING IN THE DOOR AREA, POSITION THREE DOOR SPANNER PIECES, 2" X 6" BY DOOR WIDTH PLUS 24", ACROSS DOOR OPENING AS DEPICTED ON OPPOSITE LOADING SIDE OF CAR. NAIL TO THE CAR WALL W/5-10d NAILS AT EACH END. LOCATE LOCATOR BLOCKS ON LOADING SIDE OF CAR AND NAIL TO THE CAR WALL.

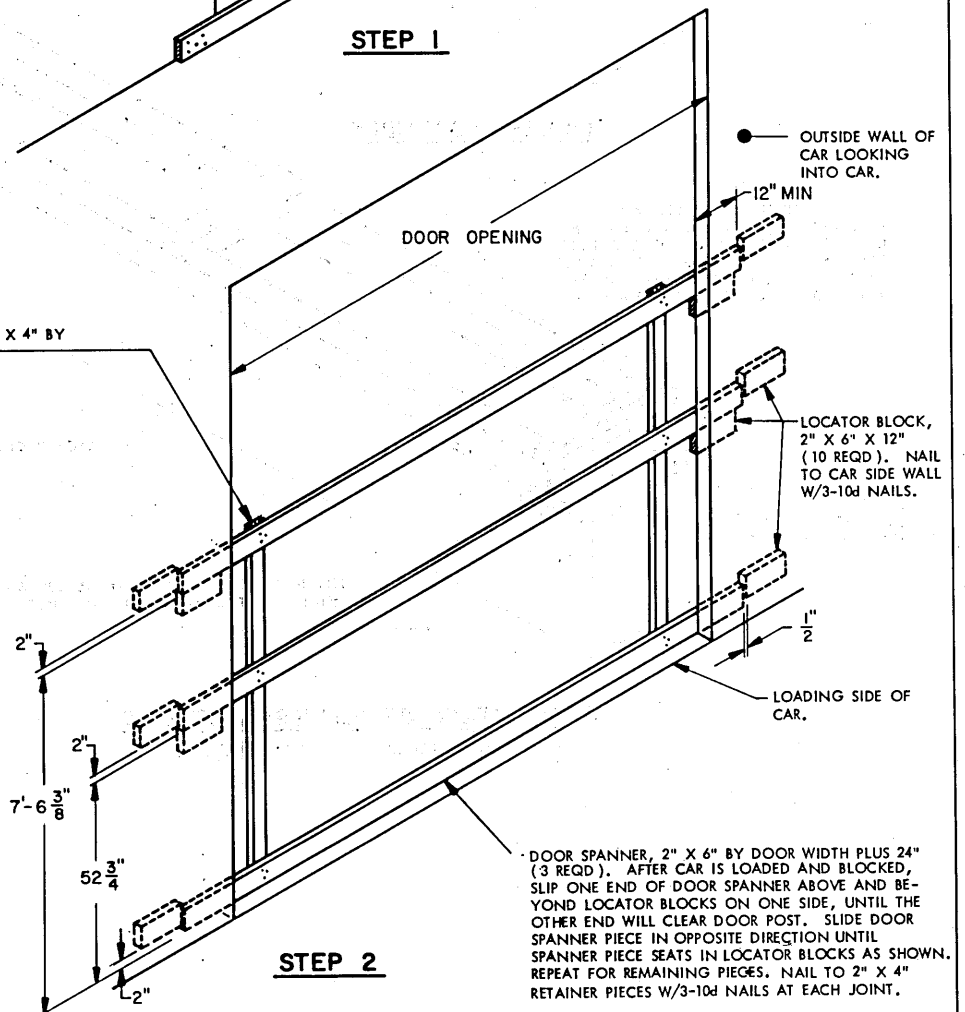
STEP 2 - AFTER ALL CONTAINERS ARE LOADED AND ALL CENTER BLOCKING INSTALLED, THE DOOR SPANNER PIECES SHOWN IN STEP 2 CAN BE INSTALLED.

CAUTION: CARE MUST BE EXERCISED TO ASSURE A TIGHT FIT FOR CENTER GATE (S) ACROSS THE WIDTH BETWEEN DOOR SPANNER PIECES ON EACH SIDE OF CAR. THIS CAN BE ACCOMPLISHED BY INCREASING THE SIZE OR NUMBER OF SPACER BLOCKS ATTACHED TO THE CENTER GATE (S). SEE GENERAL NOTE "C" ON PAGE 2.

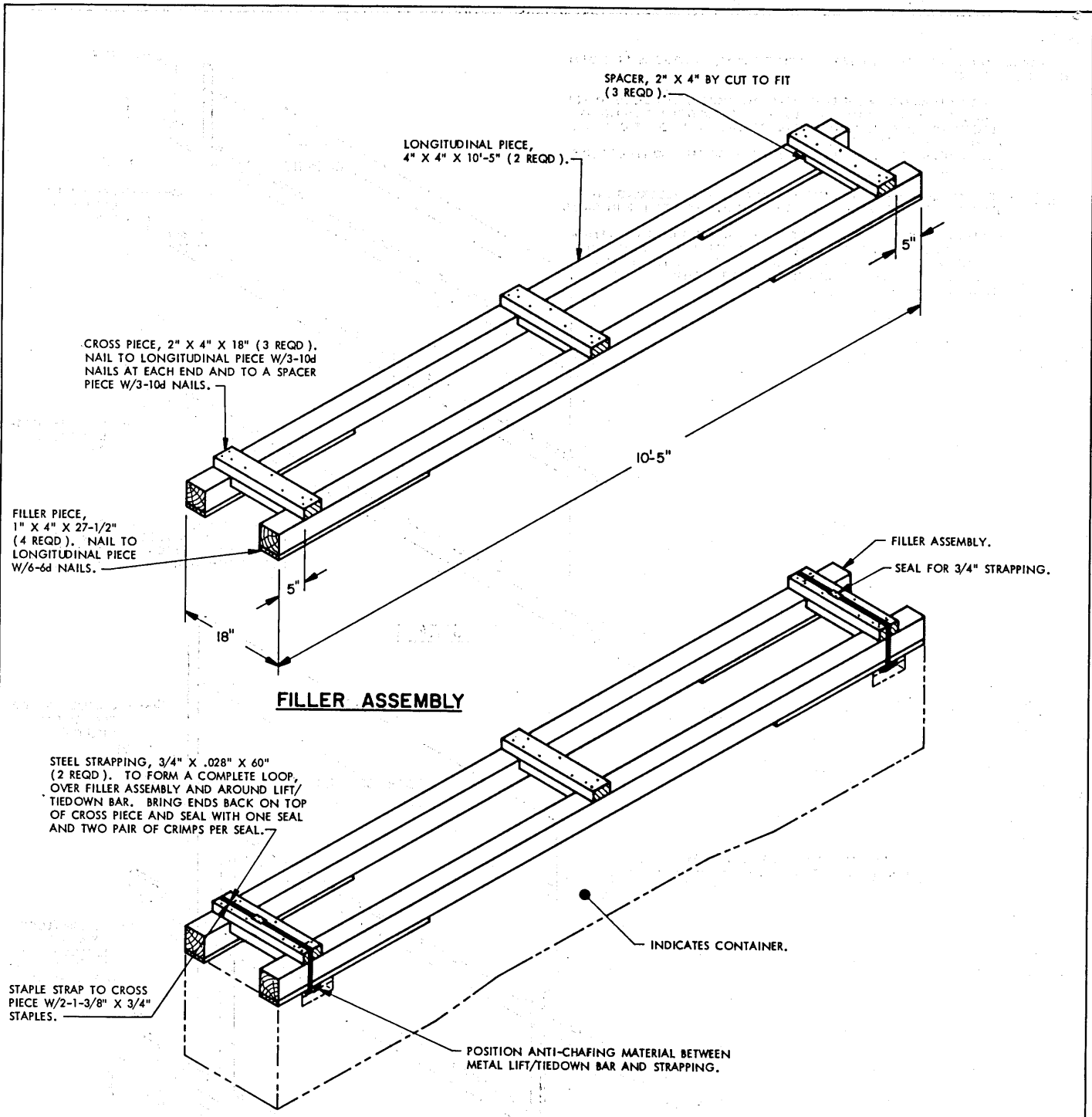


STEP 1

DOOR SPANNER RETAINER, 2" X 4" BY LENGTH TO SUIT (2 REQD).



STEP 2



APPLICATION OF FILLER ASSEMBLY

TO BE USED IN THE TOP LAYER OF A LOAD ONLY.