

APPROVED BY
 BUREAU OF EXPLOSIVES
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 DATE: 4/1/75

LOADING AND BRACING (CL & LCL) IN BOX CARS OF 105MM HOWITZER AMMUNITION IN PA55 FIBER CONTAINER PACKED 39 PER WIREBOUND PALLET TYPE BOX

INDEX

<u>ITEM</u>	<u>PAGE (S)</u>
GENERAL NOTES, AND MATERIAL SPECIFICATIONS -----	2
UNIT DETAIL -----	3
54-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR -----	4, 5
51-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR -----	6
72-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE "HIGH-CAPACITY" BOX CAR ---	8, 9
70-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE "HIGH-CAPACITY" BOX CAR -----	10
68-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE "HIGH-CAPACITY" BOX CAR -----	11
DETAILS -----	7, 12-16

● THESE PROCEDURES ARE ALSO APPLICABLE FOR 105MM
 FIXED AMMUNITION PACKED IN PA71 FIBER CONTAINER.

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DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

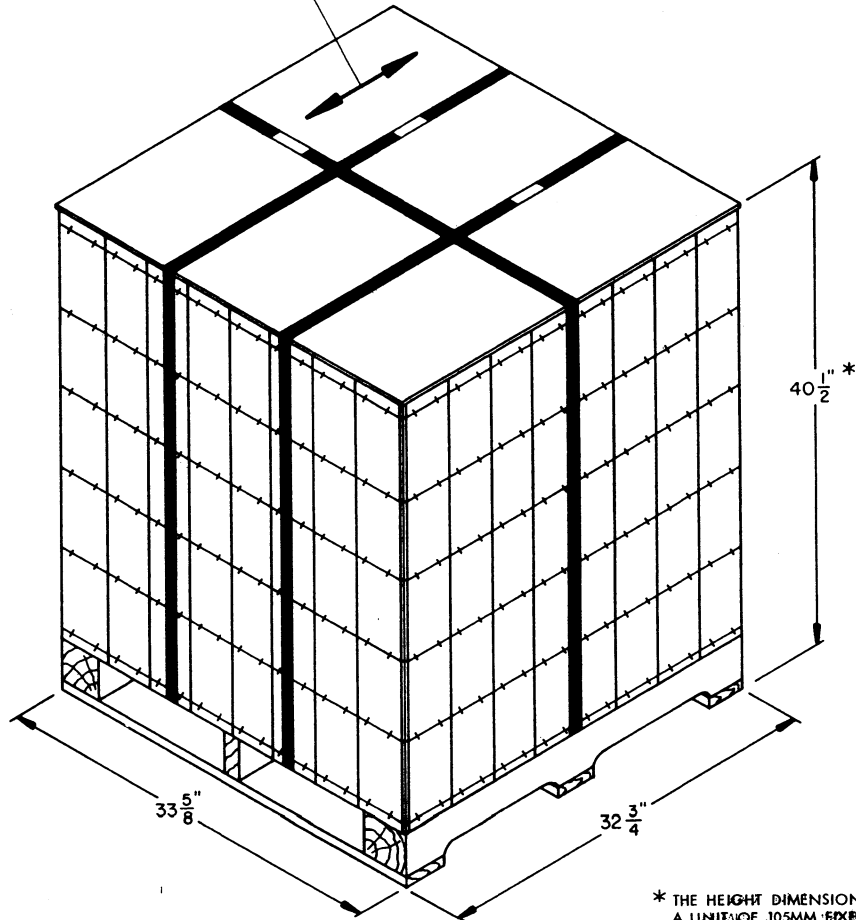
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO 105MM HOWITZER AMMUNITION IN PA55 FIBER CONTAINER PACKED 39 PER WIRE-BOUND PALLET TYPE BOX. WITH MODIFICATIONS AS SPECIFIED THE PROCEDURES ARE ALSO APPLICABLE TO 105MM FIXED AMMUNITION IN PA71 FIBER CONTAINER PACKED 39 PER WIREBOUND PALLET TYPE BOX. SUBSEQUENT REFERENCE TO CONTAINER MEANS THE PALLET TYPE BOX WITH CONTENTS.
- C. FOR DETAILS OF THE WIREBOUND PALLET TYPE BOX SEE "UNIT DETAIL" ON PAGE 3. CONTAINER DIMENSIONS -- 32-3/4" LONG BY 33-5/8" WIDE BY 40-1/2" HIGH. GROSS WEIGHT----- 1,960 POUNDS (APPROX).
- D. THE SELECTION OF RAIL CARS FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE PROPER CONDITION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENTS, WILL BE SELECTED.
- E. WHEN SELECTING RAIL CARS, EVERY EFFORT SHOULD BE MADE TO OBTAIN BOX CARS THAT DO NOT HAVE BOWED END WALLS. CARS WITH BOWED ENDS CAN BE USED, HOWEVER, IF AN END WALL IS BOWED OUTWARD MORE THAN TWO INCHES (2"), EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. REFER TO PAGE 16 FOR GUIDANCE.
- F. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE DOORS OF THE CONVENTIONAL SLIDING TYPE; 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, EXCEPT TO A NAILING STRIP IF A DOOR IS SO EQUIPPED. 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 TO "SEAL" THE CAR. THE WIRE WILL BE THREADED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- G. DOORWAY PROTECTION REQUIREMENTS WITHIN THE "DOORWAY AREA" OF A CAR ARE INCLUDED IN THE PROCEDURES AND ARE APPLICABLE TO CARS HAVING EITHER CONVENTIONAL SLIDING AND/OR PLUG TYPE DOORS. 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.
- H. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOXCAR 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. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. SEE GENERAL NOTE "K".
- J. FOR EASE OF LOADING AND UNLOADING IN THE DOORWAY AREA OF A CAR, AN OFFSET LOADING PATTERN (TWO OR MORE LOAD UNITS IN ONE END THAN IN THE OPPOSITE END) IS DEPICTED WITHIN THE LOADS HEREIN. OFFSET LOADING IS NOT MANDATORY, HOWEVER, AND LOADS MAY BE BUILT WITH AN EQUAL OR NEARLY EQUAL NUMBER OF LOAD UNITS IN EACH END OF THE CAR IF THE SIZE OF THE DOORWAY OPENINGS PERMITS.
- K. THE LOAD LIMIT OF A CAR MUST NOT BE EXCEEDED. LIKEWISE, THE LOAD IN ONE END OF A CAR MUST NOT EXCEED ONE-HALF OF THE LOAD LIMIT WHICH IS STENCILED ON THE OUTSIDE OF THE CAR. THE CENTER OF GRAVITY (CG) OF A LOAD HAVING AN EQUAL NUMBER OF UNITS IN EACH END OF THE CAR WILL BE AT THE LONGITUDINAL CENTER OF THE CAR AND THEREFORE THE TOTAL WEIGHT OF THE LADING AND DUNNAGE MAY EQUAL BUT MUST NOT EXCEED THE STENCILED LOAD LIMIT. HOWEVER, FOR A LOAD CONSTRUCTED IN AN OFFSET LOADING PATTERN, THE CG WILL BE LOCATED TOWARD THE LONG-LOAD END FROM THE LONGITUDINAL CENTER OF THE CAR SO NATURALLY THE LONG-LOAD END WILL BE THE HEAVIEST. THE TOTAL WEIGHT OF THE LADING AND DUNNAGE MUST THEN BE SOMETHING LESS THAN THE STENCILED LOAD LIMIT.
- L. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN BOXCARS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEM, 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.
- M. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE TITLE OF THIS DOCUMENT.
- N. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT AS SHOWN, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT.
- O. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE OR 1-5/8" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE OR 1-5/8" THICK BY 5-5/8" WIDE.
- P. 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 OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. 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.
- Q. IF THE CAR BEING USED 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.
- R. THROUGHOUT THIS PROCEDURAL DRAWING, PORTIONS OF THE DEPICTED CARS, SUCH AS A CAR SIDE WALL, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.
- S. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE FOR FULL LOADS AND NEARLY FULL LOADS IN CONVENTIONAL TYPE BOX CARS. LESS-THAN-CAR-LOAD PROCEDURES FOR SHIPMENT OF SMALLER QUANTITIES ARE DEPICTED IN U. S. ARMY MATERIEL COMMAND DRAWING 19-48-4020-1-2-5-11PA1000 AS WELL AS PROCEDURES FOR OUTLOADING IN CARS EQUIPPED WITH MECHANICAL BRACING DEVICES. FOR PROCEDURES APPLICABLE TO SHIPMENTS IN CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDERS, REFER TO U. S. ARMY MATERIEL COMMAND DRAWING 19-48-4101-5Q1000.
- T. ALTHOUGH THE LOADING AND BRACING SPECIFICATIONS DELINEATED WITHIN THIS DOCUMENT ARE BASED ON THE USE OF 50-FOOT CARS, THE SPECIFICATIONS ARE ALSO APPLICABLE TO 40-FOOT AND 60-FOOT CARS. SPECIFIC LOAD ARRANGEMENTS FOR THE 40-FOOT AND 60-FOOT CARS ARE DESCRIBED WITHIN THE "SPECIAL NOTES" SECTION ADJACENT TO EACH DEPICTED LOAD. THE USE OF 60-FOOT CARS IS SOMEWHAT RESTRICTED. REFER TO PAGE 6 FOR APPLICABLE GUIDANCE.

(CONTINUED AT RIGHT)

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 SAME SIZE.
- STRAPPING, STEEL ---- : TYPE I OR IV, FINISH A, B, OR C, FED SPEC QQ-5-781.
- STRAP SEAL ----- : COMMERCIAL GRADE.
- WIRE ----- : FED SPEC QQ-W-461.

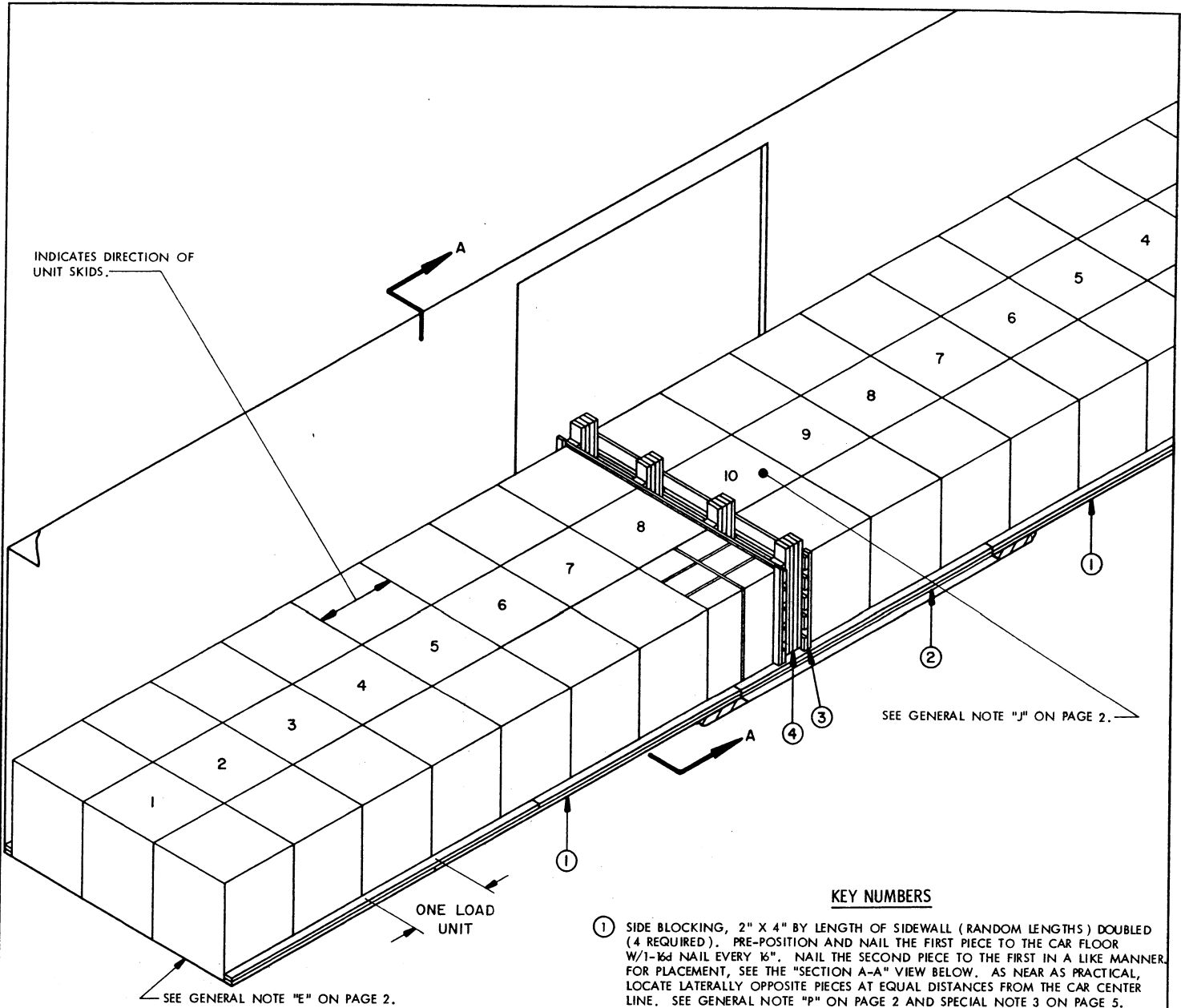
UNITS WILL BE POSITIONED IN A CAR
SO THAT THE SKIDS OF THE UNIT ARE
PARALLEL WITH THE SIDEWALL.



WIREBOUND PALLET TYPE BOX

UNIT WEIGHT ----- 1,960 - 2,200 LBS (APPROX)
 CUBE OF 40-1/2" HIGH UNIT ----- 25.8 CUBIC FEET (APPROX)
 CUBE OF 44-3/8" HIGH UNIT ----- 28.3 CUBIC FEET (APPROX)

* THE HEIGHT DIMENSION WILL BE 44-3/8" FOR
A UNIT OF 105MM FIXED AMMUNITION. DETAILS OF THE
WIREBOUND PALLET TYPE BOX FOR 105MM FIXED AMMUNI-
TION PACKED IN PA71 FIBER CONTAINERS ARE DELINEATED
IN DRAWING NO. 9277353.



INDICATES DIRECTION OF UNIT SKIDS.

SEE GENERAL NOTE "E" ON PAGE 2.

SEE GENERAL NOTE "J" ON PAGE 2.

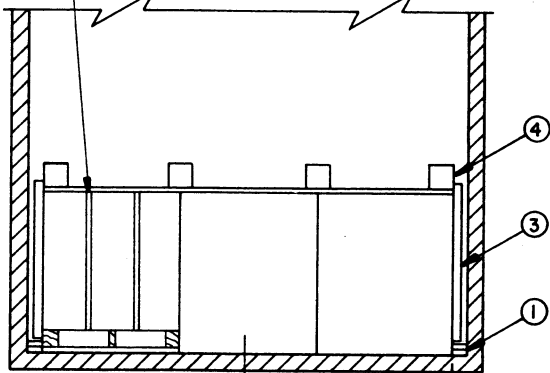
ONE LOAD UNIT

ISOMETRIC VIEW

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 4" BY LENGTH OF SIDEWALL (RANDOM LENGTHS) DOUBLED (4 REQUIRED). PRE-POSITION AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. FOR PLACEMENT, SEE THE "SECTION A-A" VIEW BELOW. AS NEAR AS PRACTICAL, LOCATE LATERALLY OPPOSITE PIECES AT EQUAL DISTANCES FROM THE CAR CENTER LINE. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 5.
- ② DOORWAY PROTECTION, 2" X 4" BY DOOR OPENING WIDTH (REF: 10'-0") DOUBLED (2 REQUIRED). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 12". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ CENTER GATE (2 REQUIRED). SEE THE "CENTER GATE A" DETAIL ON PAGE 7. NOTE THAT ONE GATE IS CONSTRUCTED WITH SHORTER VERTICAL PIECES TO PERMIT NAILING OF THE SOLID FILL, PIECES MARKED ④.
- ④ SOLID FILL, 6" WIDE BY 48" LONG MATERIAL (54" FOR 105MM FIXED) BY THE THICKNESS REQUIRED TO FILL THE VOID BETWEEN THE VERTICAL PIECES OF THE CENTER GATES (REQUIRED AT 4 PLACES). NAIL THE FIRST PIECE TO THE LONG CENTER GATE VERTICAL W/4 APPLICABLY SIZED NAILS. NAIL EACH ADDITIONAL PIECE, IF APPLICABLE, W/4-10d NAILS. SEE SPECIAL NOTE 5 ON PAGE 5.

INDICATES UNIT STRAPS.



SEE SPECIAL NOTE 3 ON PAGE 5.

SECTION A-A

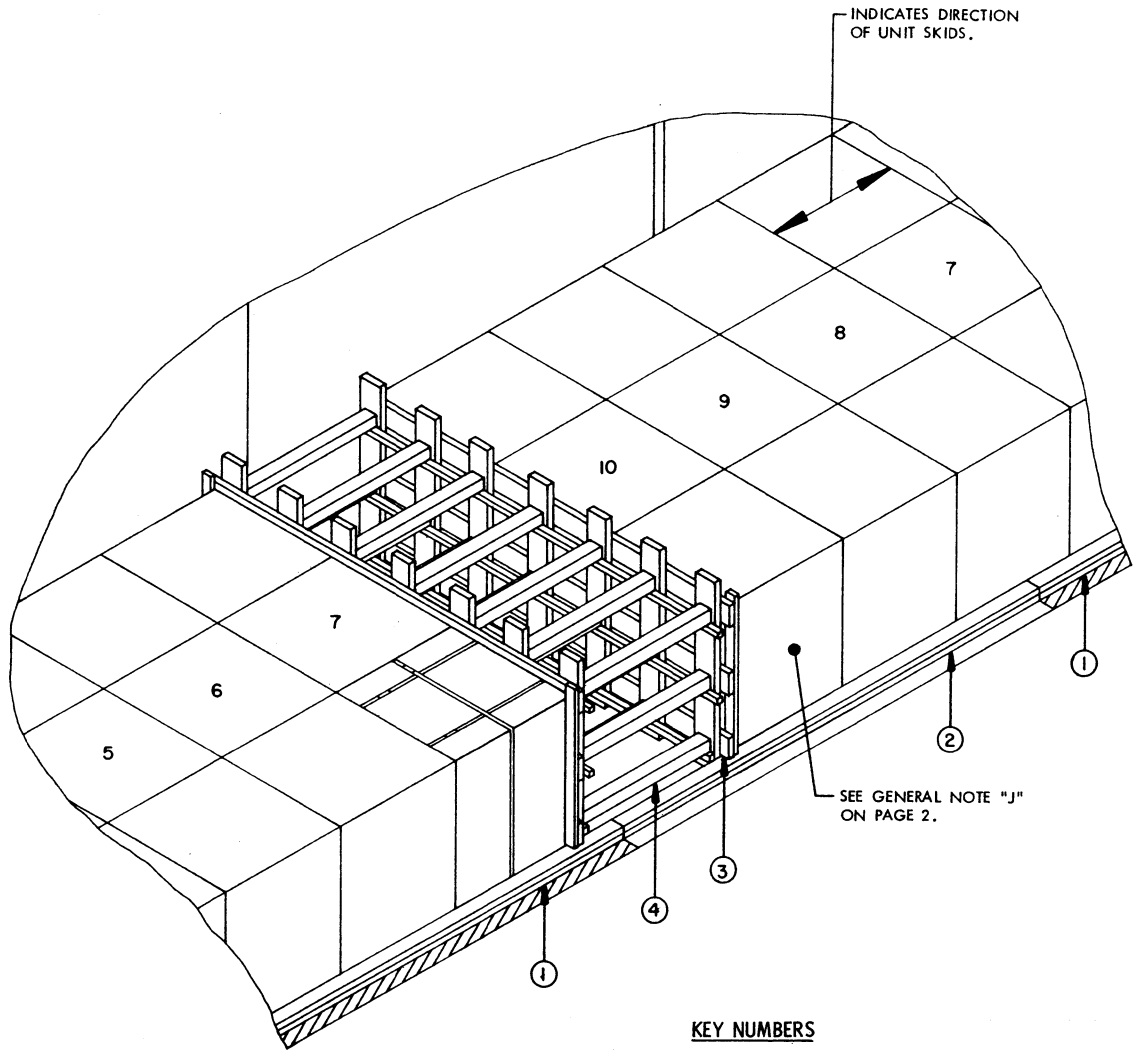
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS, CARS SLIGHTLY LONGER (SIXTY FOOT CARS WILL NOT BE USED), AND/OR CARS WITH OTHER WIDTH DOOR OPENINGS CAN BE USED.
2. A 54-UNIT LOAD IS SHOWN AS TYPICAL. IF THE LOAD LENGTH INCREASES DURING LOADING TO SUCH AN EXTENT THAT THE DEPICTED SOLID FILL BLOCKING CANNOT BE INSTALLED, IT WILL BE NECESSARY TO OMIT ONE LOAD UNIT OF THREE CONTAINERS. THE STRUT TYPE CENTER BLOCKING SHOWN ON PAGE 6 WILL THEN BE USED.
3. THE SIDE BLOCKING, SPECIFIED AS PIECES MARKED ①, IS APPLICABLE FOR USE IN A 9'-2" WIDE CAR. LOCATING THE PIECES 51-1/2" FROM THE LONGITUDINAL CENTER LINE OF THE CAR WILL POSITION THE PIECES AGAINST EACH CAR SIDEWALL. IF A 9'-6" WIDE CAR IS FURNISHED FOR LOADING, SUBSTITUTE DOUBLED 2" X 6" MATERIAL LOCATED 51-1/2" FROM THE CENTER LINE. THESE WILL ALSO BE IN CONTACT WITH THE CAR SIDEWALLS. HOWEVER, IN ORDER TO BE IN CONTACT WITH SIDEWALLS IF CAR FURNISHED IS 9'-4" WIDE, DOUBLED 2" X 4" MATERIAL LOCATED 52-1/2" FROM THE CAR CENTER LINE WILL BE USED ON ONE SIDE AND DOUBLED 2" X 6" MATERIAL LOCATED 50-1/2" FROM THE CENTER LINE WILL BE USED ON THE OPPOSITE SIDE OF THE CAR. IF THE CAR FURNISHED IS OF SOME OTHER WIDTH (9'-2" MIN), EITHER THE SIDE BLOCKING PIECES MUST BE RIPPED TO A WIDTH TO PROVIDE CONTACT WITH THE SIDEWALLS, OR ELSE 2" X 4" MATERIAL CAN BE USED BUT WITH THE NAILING INCREASED TO 1-16d NAIL EVERY 12" IN LIEU OF EVERY 16".
4. THE DEPICTED CENTER BLOCKING IS ADEQUATE FOR SHIPMENTS OF HEAVIER UNITS, UP TO AND INCLUDING 2,200 POUNDS.
5. IF THE VOID SPACE BETWEEN THE LADING IN EACH END OF THE CAR MEASURES APPROXIMATELY 24" OR MORE, THE STRUT TYPE OF CENTER BLOCKING AS DEPICTED IN THE LOAD VIEW ON PAGE 6 (PIECES MARKED ③ AND ④) WILL BE USED IN LIEU OF THE SOLID FILL TYPE CENTER BLOCKING SHOWN IN THE LOAD VIEW ON PAGE 4.
6. FORTY-TWO (42) UNITS CAN BE LOADED IN A 40'-6" LONG CAR, SIX LONG IN ONE END AND EIGHT LONG IN THE OPPOSITE END. THE STRUT TYPE CENTER BLOCKING AS SHOWN ON PAGE 6 WILL BE EMPLOYED IN LIEU OF THE SOLID FILL TYPE WITHIN THE LOAD DEPICTED ON PAGE 4, IF THE SPACE AT THE CENTER OF THE CAR IS APPROXIMATELY 24" IN LENGTH.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	19	10
2" X 4"	220	147
2" X 6"	168	168
NAILS	NO. REQD	POUNDS
10d (3")	236	3-3/4
16d (3-1/2")	160	3-1/2

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER -----	54 -----	105,840 LBS
DUNNAGE -----		820 LBS
TOTAL WEIGHT -----		106,660 LBS



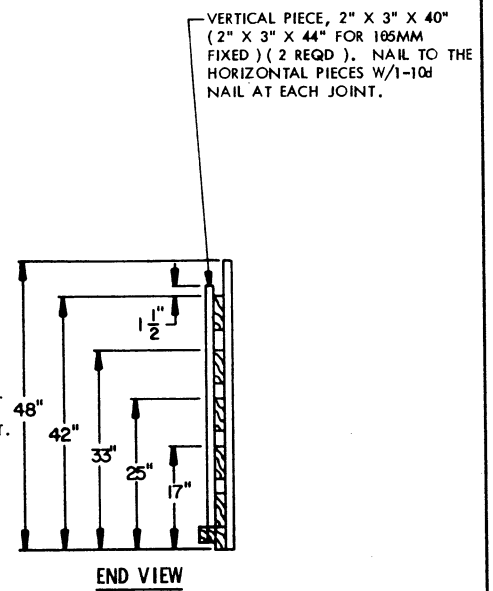
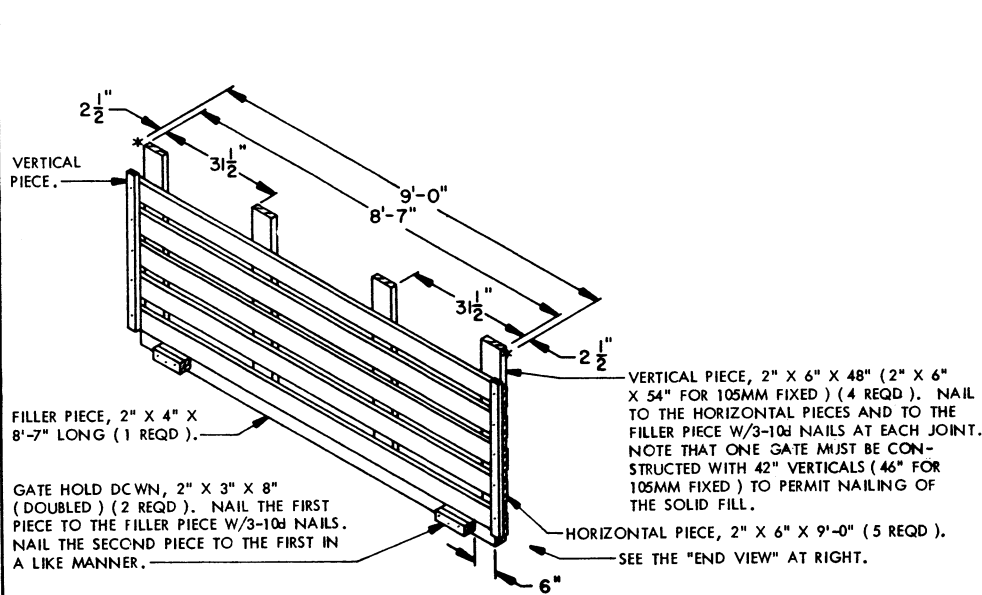
ISOMETRIC VIEW

SPECIAL NOTES:

1. THE CENTER PORTION OF A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS, CARS OF OTHER LENGTHS, AND/OR CARS WITH OTHER WIDTH DOOR OPENINGS CAN BE USED.
2. A 51-UNIT LOAD IS SHOWN AS TYPICAL. THE NUMBER OF LOAD UNITS CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED OR THE LENGTH OF THE CAR TO BE LOADED. SEE SPECIAL NOTE 4.
3. THE DEPICTED STRUT TYPE CENTER BLOCKING IS APPLICABLE FOR USE WHEN THE VOID SPACE BETWEEN THE LADING IN THE ENDS OF THE CAR IS APPROXIMATELY 24" OR GREATER IN LENGTH. FOR A SPACE OF LESS THAN 24", REFER TO THE PROCEDURES ON PAGE 4.
4. STRUT TYPE BLOCKING AS SHOWN IS ADEQUATE FOR SHIPMENTS IN 50'-6" LONG CARS OF HEAVIER UNITS, UP TO AND INCLUDING 2,200 POUNDS. THE DEPICTED STRUTTING IS ALSO APPLICABLE FOR SHIPMENTS IN 60' LONG CARS, PROVIDING THE UNITS DO NOT WEIGH MORE THAN 1,960 POUNDS, AND ALSO PROVIDING THEY ARE LOADED IN SUCH A MANNER AS TO BE NOT MORE THAN ELEVEN (11) UNITS LONG IN EITHER END OF THE CAR.
5. LOAD-BLOCKING STRUTS WHICH ARE LONGER THAN 48" MUST BE STIFFENED BY THE APPLICATION OF VERTICAL AND HORIZONTAL STRUT BRACING. SEE THE "STRUT BRACING" DETAIL ON PAGE 16 FOR GUIDANCE.
6. FORTY-TWO (42) UNITS CAN BE LOADED IN A 40'-6" LONG CAR, SIX LONG IN ONE END AND EIGHT LONG IN THE OPPOSITE END. SIXTY-THREE (63) UNITS CAN BE LOADED IN A 60' LONG CAR, TEN LONG IN ONE END AND ELEVEN IN THE OPPOSITE, PROVIDING THE UNITS DO NOT WEIGH MORE THAN 1,960 POUNDS EACH.

KEY NUMBERS

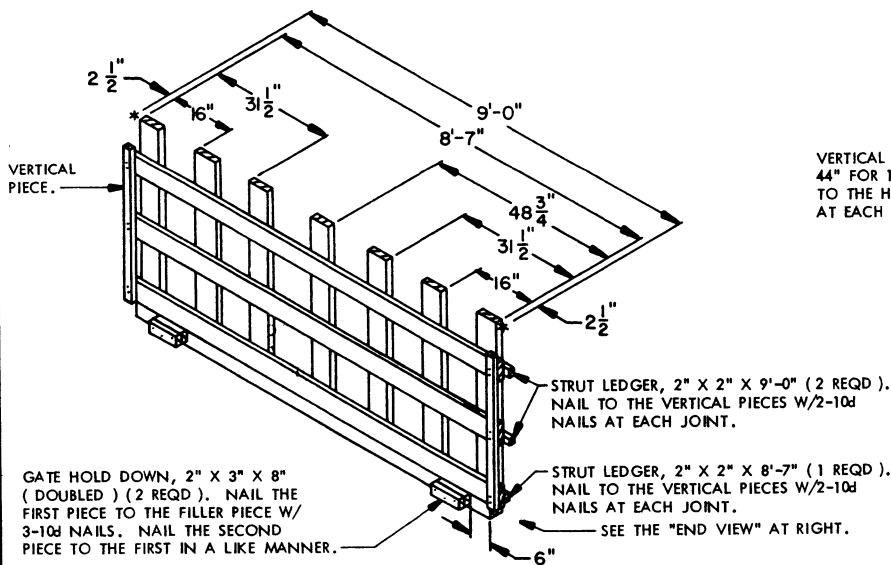
- ① SIDE BLOCKING, 2" X 4" BY LENGTH OF CAR SIDEWALL (RANDOM LENGTHS) DOUBLED (4 REQD). PRE-POSITION AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 16". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. FOR PLACEMENT, SEE THE "SECTION A-A" VIEW ON PAGE 4. AS NEAR AS PRACTICAL, LOCATE OPPOSITE PIECES AT EQUAL DISTANCES FROM THE CAR CENTER LINE. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 5.
- ② DOORWAY PROTECTION, 2" X 4" BY DOOR OPENING WIDTH (REF: 10'-0") DOUBLED (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-16d NAIL EVERY 12". NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ CENTER GATE (2 REQD). SEE THE "CENTER GATE B" DETAIL ON PAGE 7.
- ④ STRUT, 4" X 4" BY CUT TO FIT (2I REQD). TOENAIL TO THE CENTER GATES W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT" AND "STRUT INSTALLATION" DETAILS ON PAGE 12. SEE SPECIAL NOTES 4 AND 5 AT LEFT.



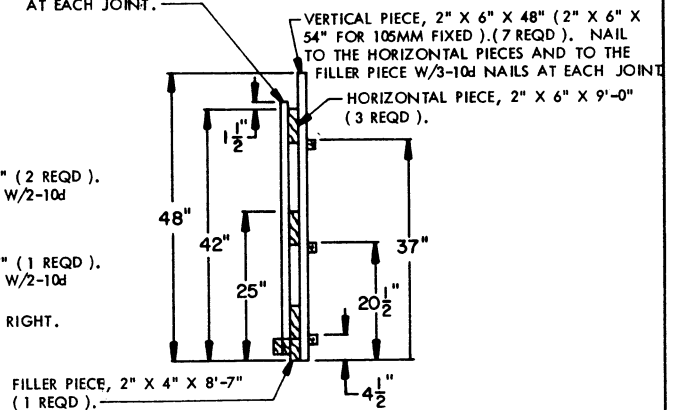
CENTER GATE A

THIS GATE IS DESIGNED FOR USE WITHIN THE 1-LAYER LOAD SHOWN ON PAGE 4 AND IS IDENTIFIED AS KEY NUMBER ③.

THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 54", AND THE HORIZONTAL PIECES WILL BE AT 18", 27-1/2", 37", AND 46".



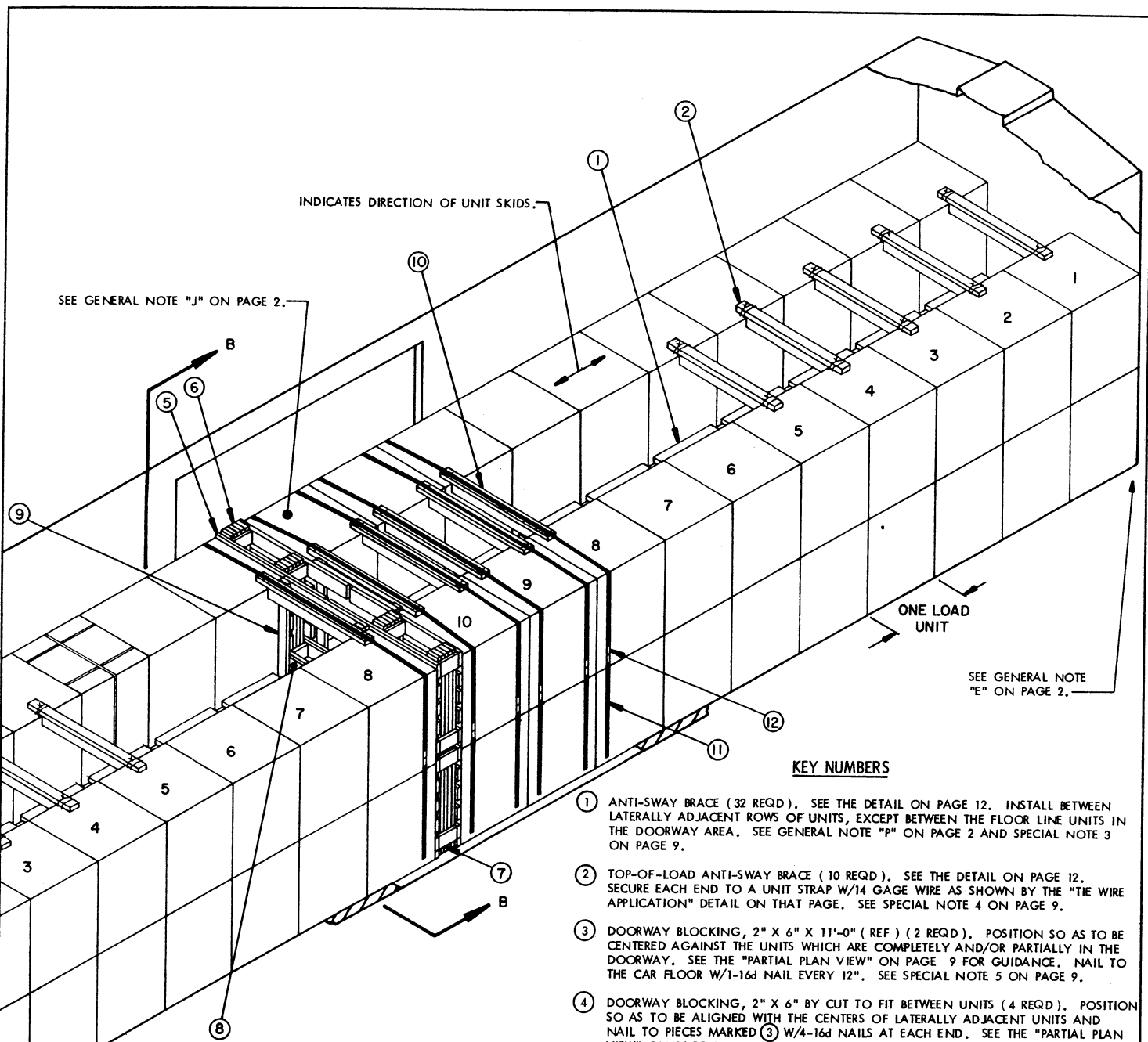
VERTICAL PIECE, 2" X 3" X 40" (2" X 3" X 44" FOR 105MM FIXED) (2 REQD). NAIL TO THE HORIZONTAL PIECES W/2-10d NAILS AT EACH JOINT.



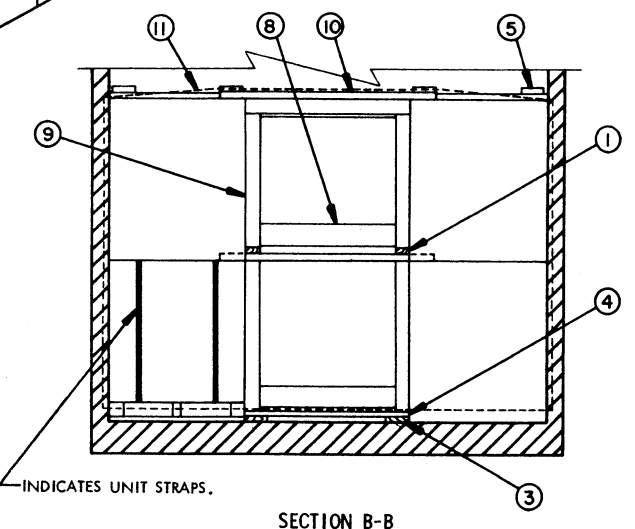
CENTER GATE B

THIS GATE IS DESIGNED FOR USE WITHIN THE LOAD SHOWN ON PAGE 6 AND IS IDENTIFIED AS KEY NUMBER ③.

THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 54", THE HORIZONTAL PIECES WILL BE AT 27-1/2" AND 46", AND THE STRUT LEDGERS WILL BE LOCATED AT 4-1/2", 23", AND 41" HEIGHTS.



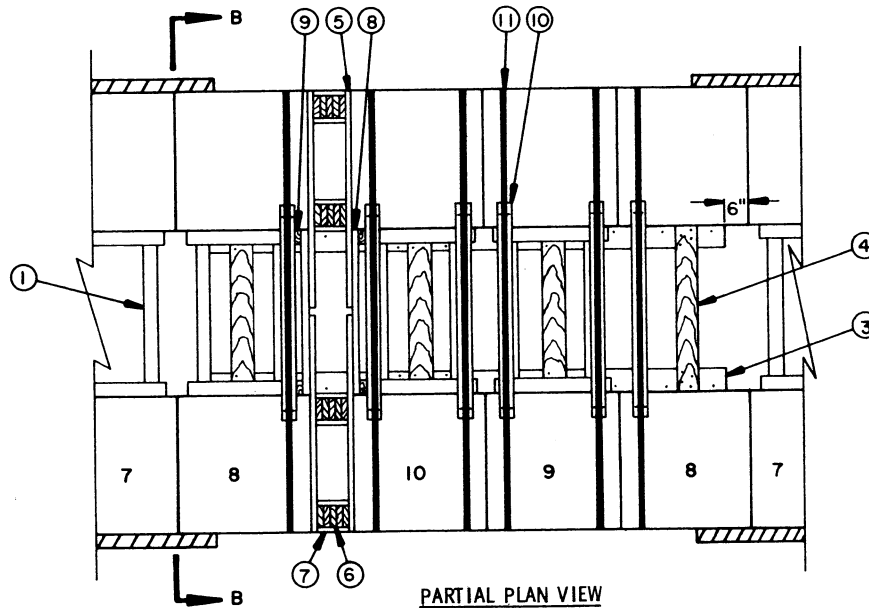
ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

- ① ANTI-SWAY BRACE (32 REQD). SEE THE DETAIL ON PAGE 12. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF UNITS, EXCEPT BETWEEN THE FLOOR LINE UNITS IN THE DOORWAY AREA. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 9.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (10 REQD). SEE THE DETAIL ON PAGE 12. SECURE EACH END TO A UNIT STRAP W/1/4 GAGE WIRE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON THAT PAGE. SEE SPECIAL NOTE 4 ON PAGE 9.
- ③ DOORWAY BLOCKING, 2" X 6" X 11'-0" (REF) (2 REQD). POSITION SO AS TO BE CENTERED AGAINST THE UNITS WHICH ARE COMPLETELY AND/OR PARTIALLY IN THE DOORWAY. SEE THE "PARTIAL PLAN VIEW" ON PAGE 9 FOR GUIDANCE. NAIL TO THE CAR FLOOR W/1-1/4" NAIL EVERY 12". SEE SPECIAL NOTE 5 ON PAGE 9.
- ④ DOORWAY BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN UNITS (4 REQD). POSITION SO AS TO BE ALIGNED WITH THE CENTERS OF LATERALLY ADJACENT UNITS AND NAIL TO PIECES MARKED ③ W/4-1/4" NAILS AT EACH END. SEE THE "PARTIAL PLAN VIEW" ON PAGE 9.
- ⑤ CENTER GATE (4 REQD, 2 RIGHT HAND AND 2 LEFT HAND). SEE THE "CENTER GATE C" DETAIL ON PAGE 13. SEE SPECIAL NOTE 8 ON PAGE 9.
- ⑥ SOLID FILL, 6" WIDE BY 42" LONG MATERIAL (.45" FOR 105MM FIXED) BY THE THICKNESS REQUIRED TO FILL THE VOID BETWEEN THE VERTICAL PIECES OF THE CENTER GATES (REQUIRED AT 8 PLACES).
- ⑦ SOLID FILL TIE PIECE, 1" X 6" BY CUT TO FIT (24 REQD). NAIL TO THE VERTICAL PIECES OF THE CENTER GATES AND TO EACH PIECE OF SOLID FILL W/2-6d NAILS AT EACH JOINT.
- ⑧ CENTER GATE TIE PIECE, 2" X 6" BY CUT TO FIT BETWEEN LATERALLY ADJACENT UNITS (6 REQD). NAIL TO PIECES MARKED ⑤ W/4-10d NAILS AT EACH JOINT.
- ⑨ GATE LATERAL BLOCKING CLEAT, 2" X 4" X 7'-0" (7'-6" FOR 105MM FIXED) (4 REQD). POSITION SO BOTTOM END IS FLUSH WITH THE LOWER EDGE OF THE BOTTOM TIE PIECE AND NAIL TO PIECES MARKED ⑥ W/3-10d NAILS AT EACH JOINT.
- ⑩ SPACER (6 REQD). CONSTRUCT SAME AS THE TOP-OF-LOAD ANTI-SWAY BRACE DETAIL ON PAGE 12. SEE SPECIAL NOTE 6 ON PAGE 9.
- ⑪ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 34'-0" LONG STEEL STRAPPING (36'-0" FOR 105MM FIXED) (6 REQD). SECURE TO PIECE MARKED ⑩ W/2 STAPLES.
- ⑫ SEAL FOR 1-1/4" STRAPPING (12 REQD, 2 PER STRAP). SEE GENERAL NOTE "N" ON PAGE 2.



PARTIAL PLAN VIEW

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE HIGH-CAPACITY CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS, CARS SLIGHTLY LONGER (SIXTY FOOT CARS WILL NOT BE USED), AND/OR CARS WITH OTHER WIDTH DOOR OPENINGS CAN BE USED.
2. A 72-UNIT LOAD IS SHOWN AS TYPICAL. IF THE LOAD LENGTH INCREASES DURING LOADING TO SUCH AN EXTENT THAT THE DEPICTED SOLID FILL BLOCKING CANNOT BE INSTALLED, IT WILL BE NECESSARY TO OMIT ONE LOAD UNIT OF FOUR CONTAINERS. THE STRUT TYPE CENTER BLOCKING SHOWN ON PAGE 11 WILL THEN BE USED.
3. THE SPECIFIED QUANTITY OF ANTI-SWAY BRACES, PIECES MARKED (1), IS AT RIGHT, APPLICABLE FOR THE DEPICTED LOAD IN A 50'-6" LONG CAR EQUIPPED WITH THRU DOORS OF WIDTHS FROM 6 FOOT TO 12 FOOT. THE QUANTITY WILL VARY IF THE CAR IS EQUIPPED WITH STAGGERED DOORS. SEE SPECIAL NOTE 5 AT RIGHT.
4. FIVE (5) TOP-OF-LOAD ANTI-SWAY BRACES, PIECES MARKED (2), WILL ALSO BE REQUIRED IN EACH END OF A LOAD SHIPPED IN A 40'-6" LONG CAR.

(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

5. THE DOORWAY BLOCKING, PIECES MARKED (3), SHOULD BE OF A LENGTH TO EXTEND TO A POINT WHICH IS 6" FROM LOAD UNIT NUMBER 7 IN EACH END OF THE CAR. THIS PROCEDURE WILL APPLY IN 50'-6" CARS HAVING FROM 6 FOOT TO 12 FOOT WIDE THRU DOOR OPENINGS. IN A CAR EQUIPPED WITH STAGGERED DOORS, THE DOORWAY BLOCKING PIECES MUST CONTACT ALL LOAD UNITS IN THE DOORWAY AREA WHICH ARE NOT SUPPORTED BY AT LEAST 16-1/2" OF SIDEWALL ON BOTH SIDES OF THE CAR. THE BLOCKING PIECES MUST BE OF A LENGTH TO EXTEND TO A POINT WHICH IS 6" FROM THE LAST UNIT IN EACH END WHICH IS SUPPORTED BY 16-1/2" OR MORE OF CAR SIDEWALL, AND COULD BE AS LONG AS TWENTY-FOUR FEET IN SOME CARS. NOTE THAT ANTI-SWAY BRACES WILL BE OMITTED FROM BETWEEN THE LATERALLY ADJACENT UNITS BRACED WITH DOORWAY BLOCKING PIECES. SEE SPECIAL NOTE 6 BELOW.
6. DOORWAY PROTECTION STRAPPING AND SPACERS (PIECES (11) AND (10) ON PAGE 8) MUST BE PROVIDED FOR ALL LOAD UNITS IN THE DOORWAY AREA WHICH ARE NOT SUPPORTED BY AT LEAST 16-1/2" OF SIDEWALL ON BOTH SIDES OF THE CAR. TWO (2) EACH STRAPS AND SPACERS ARE REQUIRED FOR LOAD UNITS COMPLETELY IN THE DOORWAY OR RETAINED BY 6" OR LESS OF CAR SIDEWALL, AND ONE (1) EACH ARE REQUIRED FOR UNITS SUPPORTED BY OVER 6" BUT NOT MORE THAN 16-1/2" OF SIDEWALL.
7. THE DEPICTED CENTER BLOCKING IS ADEQUATE FOR SHIPMENTS OF HEAVIER UNITS, UP TO AND INCLUDING 2,200 POUNDS.
8. IF THE VOID SPACE BETWEEN THE LADING IN EACH END OF THE CAR MEASURES APPROXIMATELY 24" OR MORE, THE STRUT TYPE OF CENTER BLOCKING AS DEPICTED IN THE LOAD VIEW ON PAGE 11 (PIECES MARKED (5) AND (6)) WILL BE USED IN LIEU OF THE SOLID FILL TYPE CENTER BLOCKING SHOWN IN THE LOAD VIEW ON PAGE 8.
9. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED. IF TWO UNITS ARE TO BE OMITTED, REFER TO PROCEDURES SHOWN ON PAGE 10; THE PROCEDURES ON PAGE 11 WILL APPLY IF A MULTIPLE OF FOUR UNITS IS TO BE OMITTED.
10. CAUTION: THE CAR TO BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD MUST HAVE A LOAD LIMIT OF NOT LESS THAN 143,500 POUNDS.
11. FIFTY-SIX (56) UNITS CAN BE LOADED IN A 40'-6" LONG CAR, SIX LONG IN ONE END AND EIGHT LONG IN THE OPPOSITE END. IF THE SPACE AT THE CENTER OF THE CAR IS LESS THAN 24" LONG, EITHER THE SOLID FILL TYPE BLOCKING SHOWN IN THE DEPICTED LOAD OR THE COMBINATION SOLID FILL AND STRUT TYPE BLOCKING SHOWN ON PAGE 10 WILL BE USED. IF THE SPACE IS 24" OR GREATER, REFER TO THE STRUT TYPE CENTER BLOCKING PROCEDURES ON PAGE 11 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	15	8
2" X 3"	6	3
2" X 4"	482	322
2" X 6"	334	334
4" X 4"	56	75
NAILS	NO. REQD.	POUNDS
6d (2")	240	1-1/2
10d (3")	776	12
12d (3-1/4")	80	1-1/2
16d (3-1/2")	54	1-1/4
STEEL STRAPPING, 1-1/4" X .035"	204' REQD	- 30 LBS
SEAL FOR 1-1/4" STRAPPING	12 REQD	- NIL
STAPLES FOR 1-1/4" STRAPPING	12 REQD	- NIL
14 GAGE WIRE	60' REQD	- 1 LB

LOAD AS SHOWN

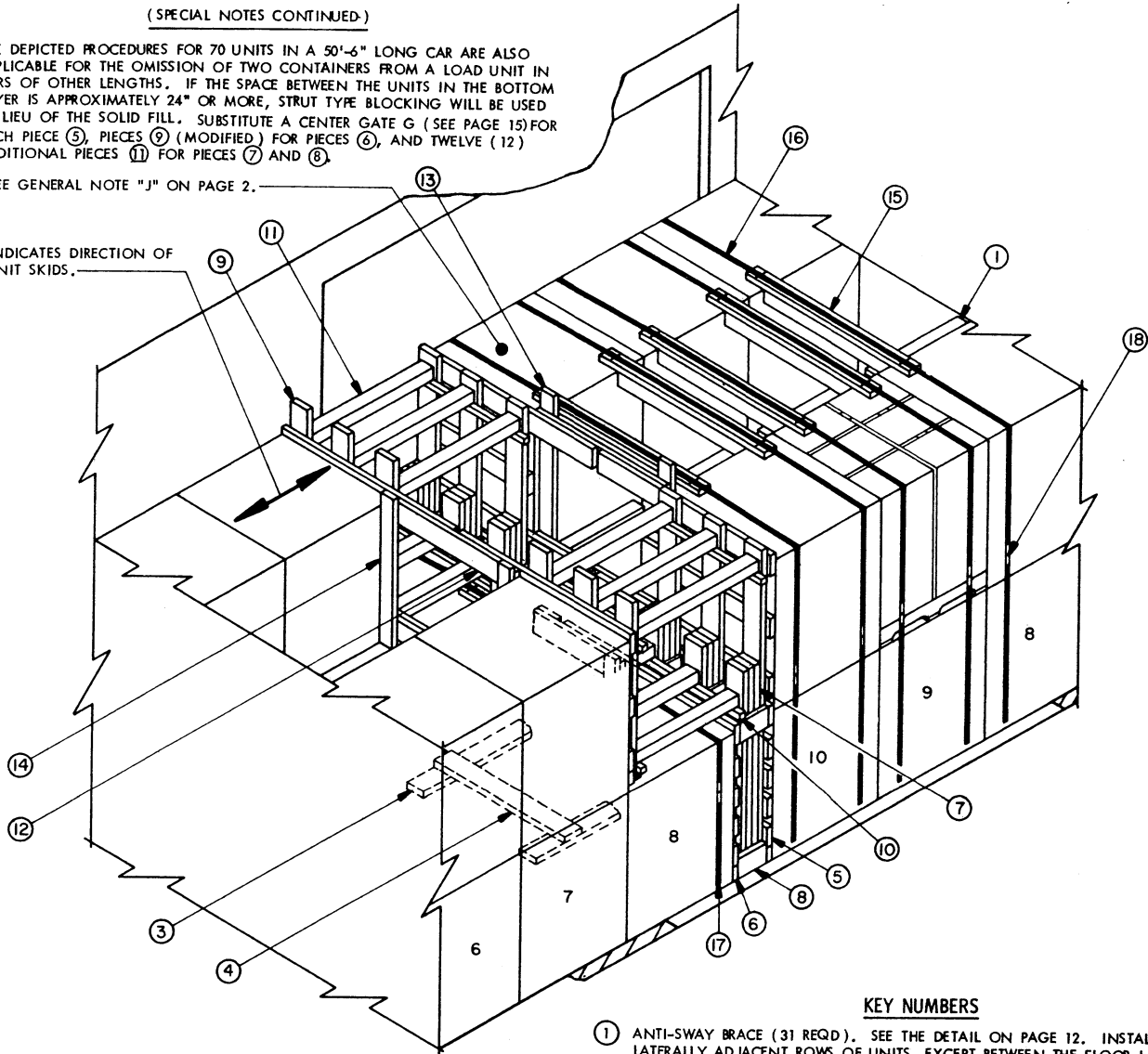
ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	72	141,120 LBS
DUNNAGE		1,900 LBS
TOTAL WEIGHT		143,020 LBS

(SPECIAL NOTES CONTINUED)

2. THE DEPICTED PROCEDURES FOR 70 UNITS IN A 50'-6" LONG CAR ARE ALSO APPLICABLE FOR THE OMISSION OF TWO CONTAINERS FROM A LOAD UNIT IN CARS OF OTHER LENGTHS. IF THE SPACE BETWEEN THE UNITS IN THE BOTTOM LAYER IS APPROXIMATELY 24" OR MORE, STRUT TYPE BLOCKING WILL BE USED IN LIEU OF THE SOLID FILL. SUBSTITUTE A CENTER GATE G (SEE PAGE 15) FOR EACH PIECE 5, PIECES 9 (MODIFIED) FOR PIECES 6, AND TWELVE (12) ADDITIONAL PIECES 11 FOR PIECES 7 AND 8.

SEE GENERAL NOTE "J" ON PAGE 2.

INDICATES DIRECTION OF UNIT SKIDS.



ISOMETRIC VIEW

(KEY NUMBERS CONTINUED)

- 13 GATE LATERAL BLOCKING CLEAT, 2" X 4" X 7'-0" (7'-6" FOR 105MM FIXED) (2 REQD). POSITION SO BOTTOM END IS FLUSH WITH THE LOWER EDGE OF THE BOTTOM TIE PIECE AND NAIL TO PIECES MARKED 12 W/3-10d NAILS AT EACH JOINT.
- 14 GATE LATERAL BLOCKING CLEAT, 2" X 4" X 40" (42" FOR 105MM FIXED) (4 REQD). POSITION SO BOTTOM END IS FLUSH WITH THE LOWER EDGE OF THE BOTTOM TIE PIECE AND NAIL TO PIECES MARKED 12 W/3-10d NAILS AT EACH JOINT.
- 15 SPACER (6 REQD). CONSTRUCT SAME AS THE TOP-OF-LOAD ANTI-SWAY BRACE DETAIL ON PAGE 12. SEE SPECIAL NOTE 6 ON PAGE 9.
- 16 DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 34'-0" LONG STEEL STRAPPING (36'-0" FOR 105MM FIXED) (5 REQD). SECURE TO PIECE MARKED 15 W/2 STAPLES.
- 17 DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 27'-0" LONG STEEL STRAPPING (28'-0" FOR 105MM FIXED) (1 REQD). SECURE TO PIECE MARKED 15 W/2 STAPLES.
- 18 SEAL FOR 1-1/4" STEEL STRAPPING (12 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "N" ON PAGE 2.

SPECIAL NOTES:

1. THE CENTER PORTION OF A 50'-6" LONG BY 9'-2" WIDE HIGH-CAPACITY CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS, CARS SLIGHTLY LONGER (SIXTY FOOT CARS WILL NOT BE USED), AND/OR CARS WITH OTHER WIDTH DOOR OPENINGS CAN BE USED.

(CONTINUED ABOVE)

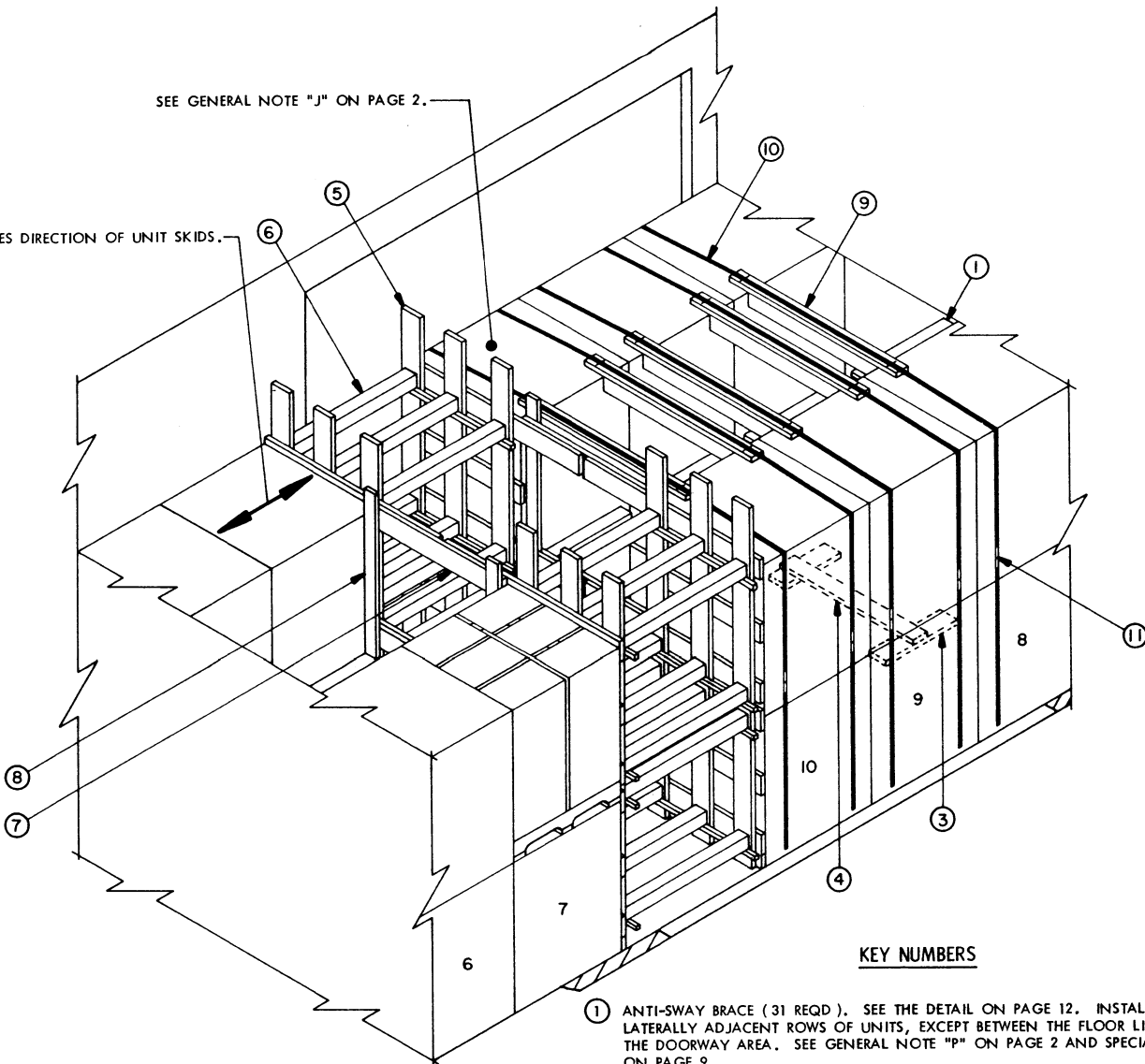
KEY NUMBERS

- 1 ANTI-SWAY BRACE (31 REQD). SEE THE DETAIL ON PAGE 12. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF UNITS, EXCEPT BETWEEN THE FLOOR LINE UNITS IN THE DOORWAY AREA. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 9.
- 2 TOP-OF-LOAD ANTI-SWAY BRACE (NOT SHOWN). SEE PAGE 8.
- 3 DOORWAY BLOCKING. SEE PAGE 8.
- 4 DOORWAY BLOCKING. SEE PAGE 8.
- 5 CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "CENTER GATE E" DETAIL ON PAGE 14.
- 6 CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "CENTER GATE D" DETAIL ON PAGE 13. SEE SPECIAL NOTE 2 AT LEFT ABOVE.
- 7 SOLID FILL, 6" WIDE BY 54" LONG MATERIAL (60" FOR 105MM FIXED) BY THE THICKNESS REQUIRED TO FILL THE VOID BETWEEN THE VERTICAL PIECES OF THE CENTER GATES, PIECES MARKED 5 AND 6 (REQD AT 6 PLACES).
- 8 SOLID FILL TIE PIECE, 1" X 6" BY CUT TO FIT (16 REQD). NAIL TO THE VERTICAL PIECES OF THE CENTER GATES, PIECES MARKED 5 AND 6, AND TO EACH PIECE OF SOLID FILL W/2-6d NAILS AT EACH JOINT.
- 9 CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "CENTER GATE F" DETAIL ON PAGE 14.
- 10 STRUT LEDGER, 2" X 2" X 36" (2 REQD). POSITION WITH TOP 4-1/2" ABOVE BOTTOM UNIT AND NAIL TO PIECE MARKED 7 W/2-10d NAILS AT EACH JOINT.
- 11 STRUT, 4" X 4" BY CUT TO FIT (12 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED 5 AND 9 AND/OR TO CENTER GATE, PIECE MARKED 6, AND TO SOLID FILL, PIECE MARKED 7, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 6.
- 12 CENTER GATE TIE PIECE, 2" X 6" BY CUT TO FIT BETWEEN LATERALLY ADJACENT UNITS (7 REQD). NAIL TO PIECES MARKED 5, 6 AND/OR 9 W/4-10d NAILS AT EACH JOINT.

(CONTINUED AT LEFT)

SEE GENERAL NOTE "J" ON PAGE 2.

INDICATES DIRECTION OF UNIT SKIDS.



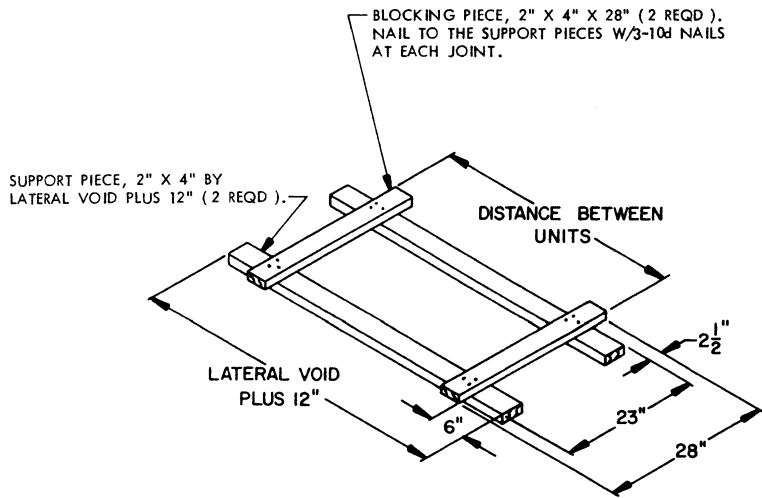
ISOMETRIC VIEW

SPECIAL NOTES:

1. THE CENTER PORTION OF A 50'-6" LONG BY 9'-2" WIDE "HIGH-CAPACITY" CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER CARS, CARS SLIGHTLY LONGER (60 FOOT CARS WILL NOT BE USED), AND/OR CARS WITH OTHER WIDTH DOOR OPENINGS CAN BE USED.
2. A 68-UNIT LOAD IS SHOWN AS TYPICAL. THE NUMBER OF UNITS CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED OR THE LENGTH OF THE CAR TO BE LOADED.
3. THE DEPICTED STRUT TYPE CENTER BLOCKING IS APPLICABLE FOR USE WHEN THE VOID SPACE BETWEEN THE LADING IN THE ENDS OF THE CAR IS APPROXIMATELY 24" OR GREATER IN LENGTH. FOR A SPACE OF LESS THAN 24", REFER TO THE PROCEDURES ON PAGE 8.
4. STRUT TYPE BLOCKING AS SHOWN IS ADEQUATE FOR SHIPMENTS IN 50'-6" LONG CARS OF HEAVIER UNITS, UP TO AND INCLUDING 2,200 POUNDS.
5. LOAD-BLOCKING STRUTS WHICH ARE LONGER THAN 48" MUST BE STIFFENED BY THE APPLICATION OF VERTICAL AND HORIZONTAL STRUT BRACING. SEE THE "STRUT BRACING" DETAIL ON PAGE 16.
6. FIFTY-SIX (56) UNITS CAN BE LOADED IN A 40'-6" LONG CAR, SIX LONG IN ONE END AND EIGHT LONG IN THE OPPOSITE.

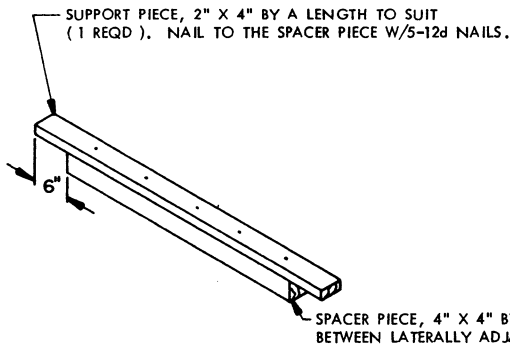
KEY NUMBERS

- ① ANTI-SWAY BRACE (31 REQD). SEE THE DETAIL ON PAGE 12. INSTALL BETWEEN LATERALLY ADJACENT ROWS OF UNITS, EXCEPT BETWEEN THE FLOOR LINE UNITS IN THE DOORWAY AREA. SEE GENERAL NOTE "P" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 9.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (NOT SHOWN). SEE PAGE 8.
- ③ DOORWAY BLOCKING, 2" X 6" X 9'-0" (2 REQD). POSITION SO AS TO BE AGAINST THE UNITS WHICH ARE COMPLETELY AND/OR PARTIALLY IN THE DOORWAY. SEE THE "PARTIAL PLAN VIEW" ON PAGE 9 FOR GUIDANCE. NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 12". SEE SPECIAL NOTE 5 ON PAGE 9.
- ④ DOORWAY BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN UNITS (3 REQD). POSITION SO AS TO BE ALIGNED WITH THE CENTERS OF LATERALLY ADJACENT UNITS AND NAIL TO PIECES MARKED ⑤ W/4-16d NAILS AT EACH END. SEE THE "PARTIAL PLAN VIEW" ON PAGE 9.
- ⑤ CENTER GATE (4 REQD). SEE THE "CENTER GATE G" DETAIL ON PAGE 15.
- ⑥ STRUT, 4" X 4" BY CUT TO FIT (24 REQD). TOENAIL TO THE CENTER GATES, PIECES MARKED ⑤, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 AT LEFT.
- ⑦ CENTER GATE TIE PIECE, 2" X 6" BY CUT TO FIT BETWEEN LATERALLY ADJACENT UNITS (6 REQD). NAIL TO PIECES MARKED ⑤ W/4-10d NAILS AT EACH JOINT.
- ⑧ GATE LATERAL BLOCKING CLEAT, 2" X 4" X 7'-0" (7'-6" FOR 105MM FIXED) (4 REQD) POSITION SO BOTTOM END IS FLUSH WITH THE LOWER EDGE OF THE BOTTOM TIE PIECE AND NAIL TO PIECES MARKED ⑦ W/3-10d NAILS AT EACH JOINT.
- ⑨ SPACER (5 REQD). CONSTRUCT SAME AS TOP-OF-LOAD ANTI-SWAY BRACE DETAIL ON PAGE 12. SEE SPECIAL NOTE 6 ON PAGE 9.
- ⑩ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 34'-0" LONG STEEL STRAPPING (36'-0" FOR 105MM FIXED) (5 REQD). INSTALL SO AS TO ENCIRCLE THE LOAD UNITS IN THE DOORWAY AREA. SECURE TO PIECE MARKED ⑨ W/2 STAPLES.
- ⑪ SEAL FOR 1-1/4" STRAPPING (10 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "N" ON PAGE 2.



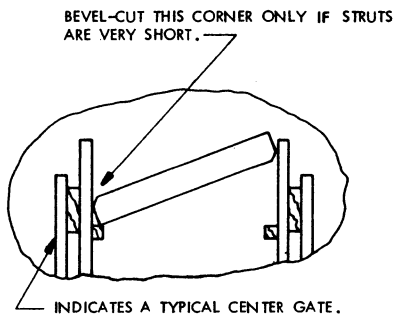
ANTI-SWAY BRACE

ANTI-SWAY BRACES SHOULD BE ASSEMBLED IN PLACE IN
ORDER TO OBTAIN A SNUG FIT BETWEEN THE LADING
AND THE BLOCKING PIECES OF THE BRACE.

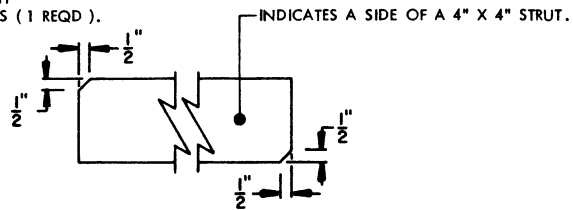


TOP-OF-LOAD ANTI-SWAY BRACE

THIS ASSEMBLY IS ALSO FOR USE AS A SPACER UNDER DOORWAY
PROTECTION STRAPS.

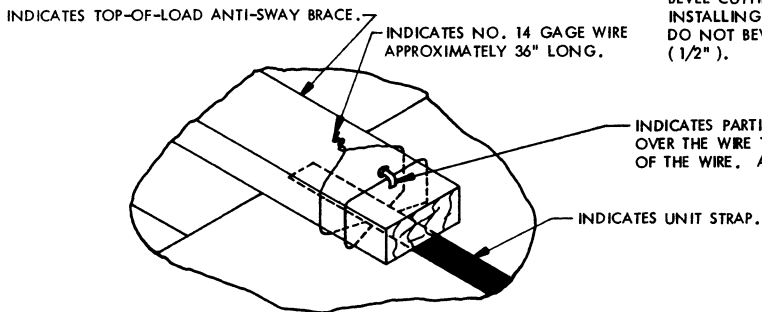


STRUT INSTALLATION



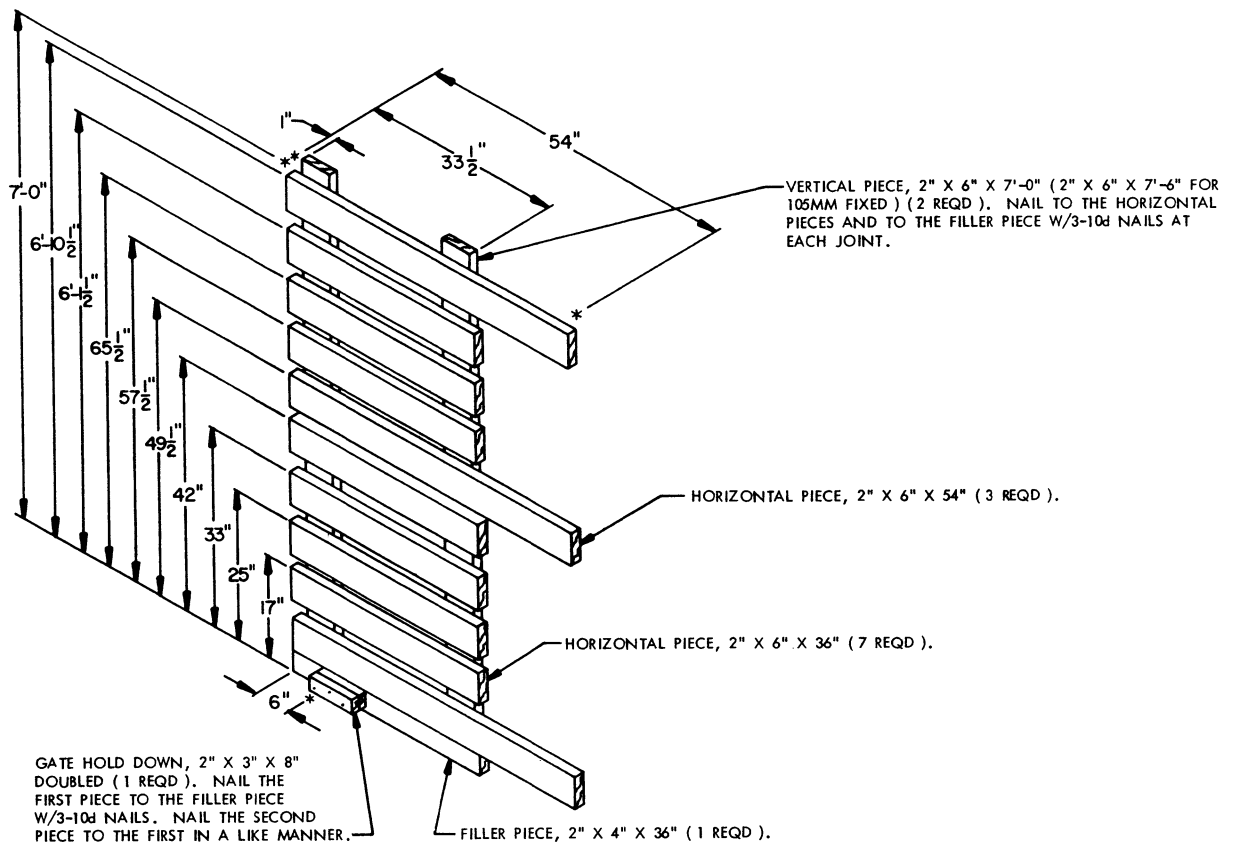
BEVEL CUT

BEVEL CUTTING THE STRUTS AS SPECIFIED WILL FACILITATE
INSTALLING THE STRUTS WITH A "DRIVE FIT". **CAUTION:**
DO NOT BEVEL A CORNER MORE THAN ONE-HALF INCH
(1/2").



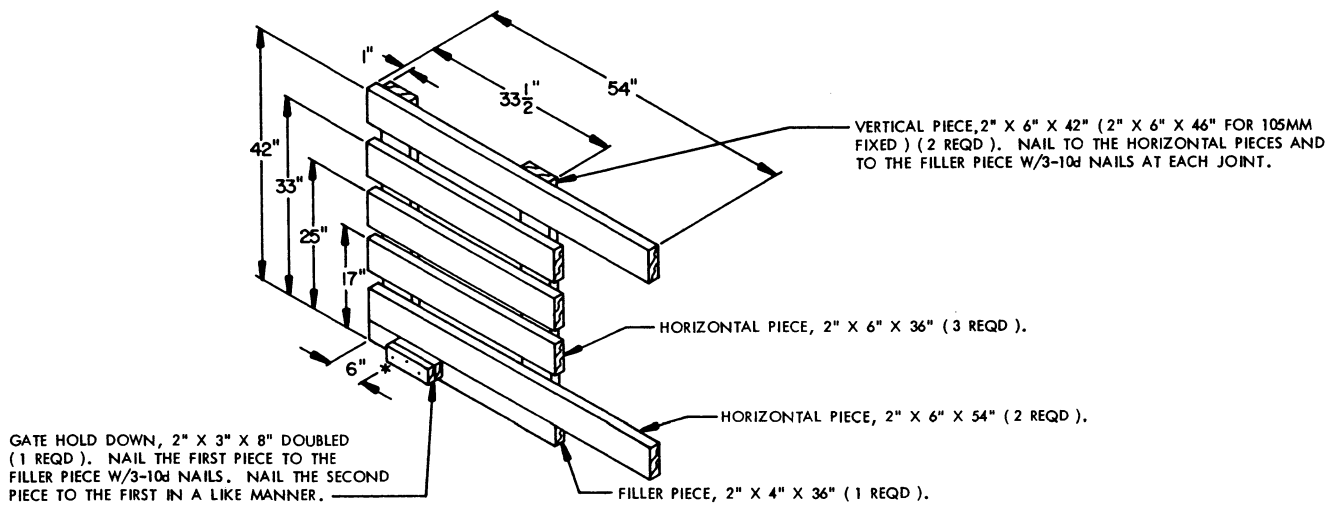
TIE WIRE APPLICATION

THIS VIEW DEPICTS THE SECUREMENT OF ONE END OF A TOP-OF-LOAD
ANTI-SWAY BRACE TO A UNIT STRAP. BOTH ENDS WILL BE SECURED.



CENTER GATE C

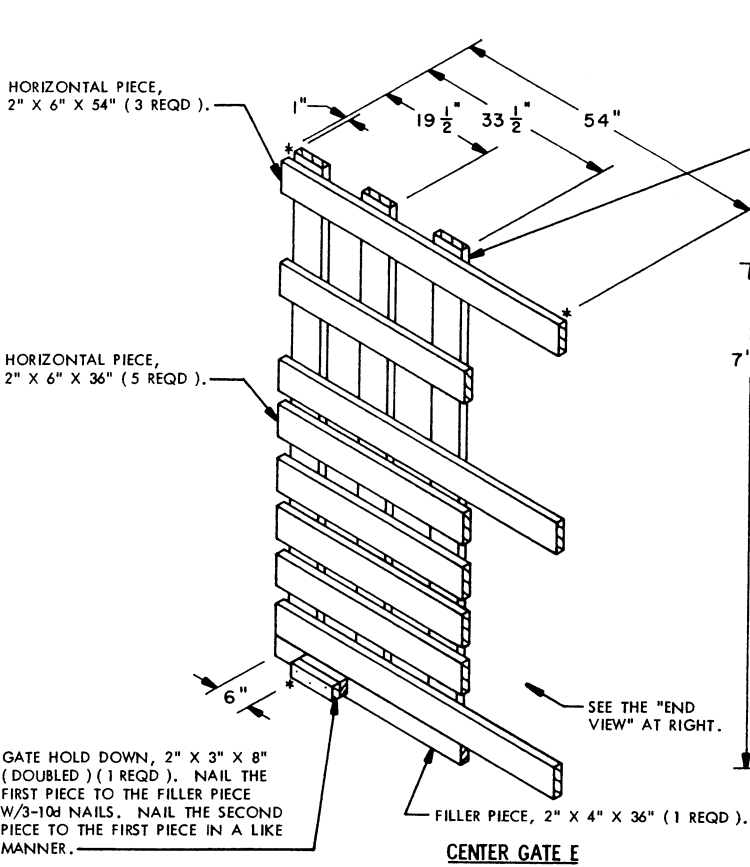
THIS GATE IS DESIGNED FOR USE WITHIN THE 2-LAYER LOAD SHOWN ON PAGE 8 AND IS IDENTIFIED AS KEY NUMBER ⑤ . THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 8'-0" AND THE HORIZONTALS WILL BE AT 18", 27-1/2", 37", 46", 53-1/2", 62-1/2", 72", 6'-9-1/2", AND 7'-6-1/2". NOTE THAT TWO (2) RIGHT HAND GATES AS SHOWN AND TWO (2) LEFT HAND GATES ARE REQUIRED TO FORM A 2-GATE BLOCKING ARRANGEMENT.



CENTER GATE D

THIS GATE IS DESIGNED FOR USE AGAINST THE 1-HIGH BOTTOM LAYER OF THE 2-LAYER LOAD SHOWN ON PAGE 10 AND IS IDENTIFIED AS KEY NUMBER ⑥ . THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE HEIGHTS WILL BE 18", 27-1/2", 37", AND 46". NOTE THAT ONE (1) RIGHT HAND GATE AS SHOWN AND ONE (1) LEFT HAND GATE ARE REQUIRED.

DETAILS

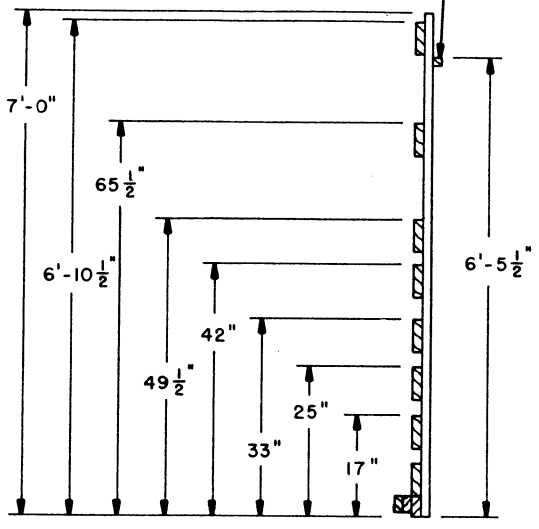


CENTER GATE E

THIS GATE IS DESIGNED FOR USE AGAINST THE 2 - HIGH END OF THE 2 - LAYER LOAD SHOWN ON PAGE 10 AND IS IDENTIFIED AS KEY NUMBER (5). NOTE THAT ONE (1) RIGHT HAND GATE AS SHOWN AND ONE (1) LEFT HAND GATE ARE REQUIRED.

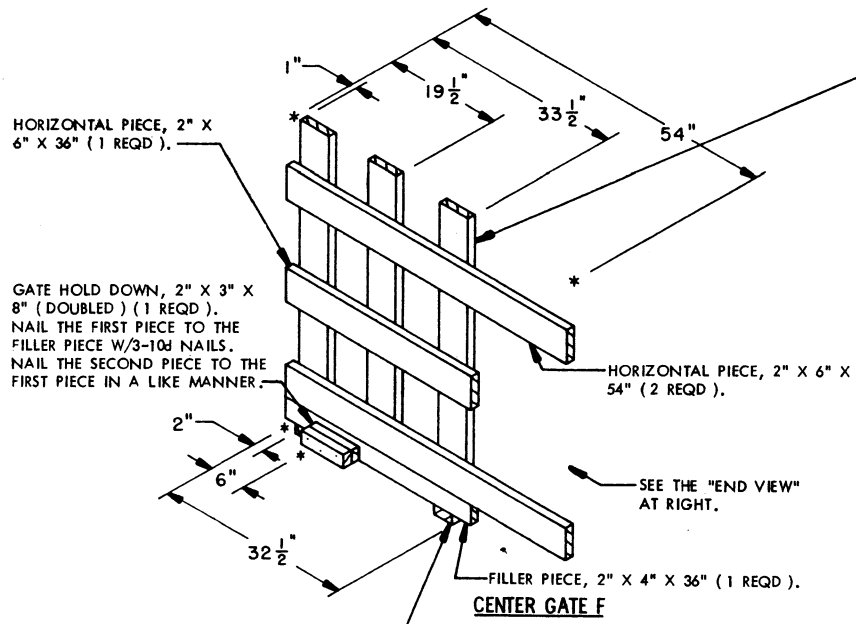
VERTICAL PIECE, 2" X 6" X 7'-0" (2" X 6" X 8'-0" FOR 105MM FIXED) (3 REQD.). NAIL TO THE HORIZONTAL PIECES AND TO THE FILLER PIECE W/3-10d NAILS AT EACH JOINT.

STRUT LEDGER, 2" X 2" X 36" (1 REQD.). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.



END VIEW

THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 8'-0", THE HORIZONTAL PIECES WILL BE AT 18", 27-1/2", 37", 46", 53-1/2", 72" AND 7'-6-1/2", AND THE STRUT LEDGER WILL BE LOCATED AT 7'-1-1/2".

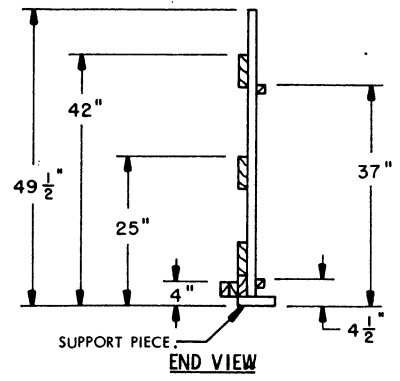


CENTER GATE F

SUPPORT PIECE, 2" X 4" X 6" (2 REQD.). NAIL TO THE FILLER PIECE AND TO A VERTICAL PIECE W/2-10d NAILS AT EACH JOINT.

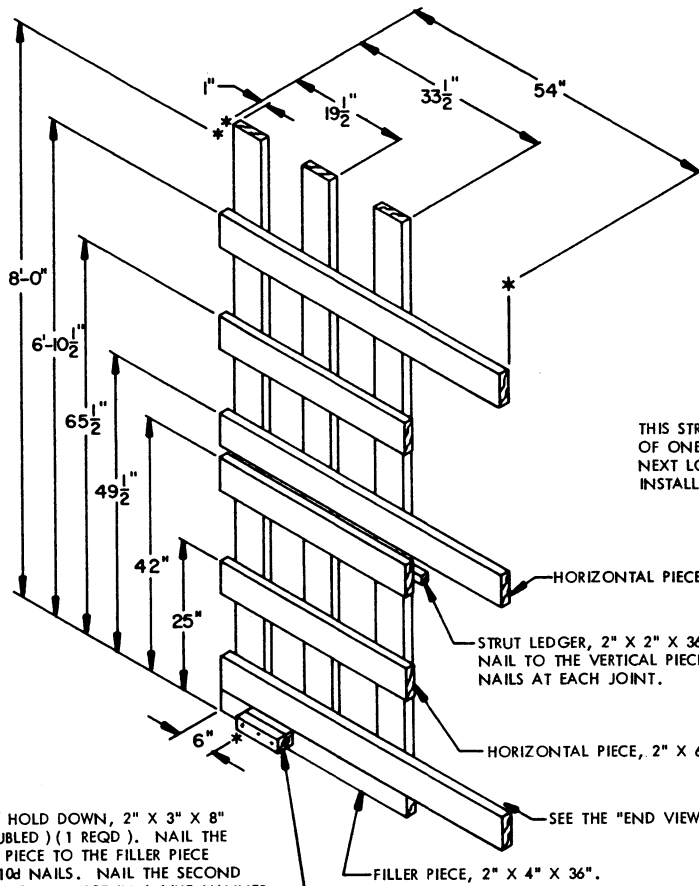
THIS GATE IS DESIGNED FOR USE AGAINST THE 1-HIGH TOP LAYER OF THE 2-LAYER LOAD SHOWN ON PAGE 10 AND IS IDENTIFIED AS KEY NUMBER (9). THIS GATE CAN ALSO BE USED FOR STRUTTING THE BOTTOM LAYER OF THAT LOAD IF THE VOID SPACE IS APPROXIMATELY 2" OR GREATER. THE OVERALL HEIGHT MUST BE REDUCED TO 43-1/2" FOR 105MM HOWITZER AMMUNITION, OR TO 48" IF SHIPPING 105MM FIXED. NOTE THAT ONE (1) RIGHT HAND GATE AS SHOWN AND ONE (1) LEFT HAND GATE ARE REQUIRED.

VERTICAL PIECE, 2" X 6" X 48" (2" X 6" X 54" FOR 105MM FIXED) (3 REQD.). NAIL TO THE HORIZONTAL PIECES AND TO THE FILLER PIECE W/3-10d NAILS AT EACH JOINT.



END VIEW

THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 55-1/2", THE HORIZONTAL PIECES WILL BE AT 27-1/2" AND 46", AND THE STRUT LEDGERS WILL BE LOCATED AT 4-1/2" AND 41". THE HEIGHT LOCATION FOR THE GATE HOLD DOWN IS APPLICABLE FOR EITHER UNIT.



GATE HOLD DOWN, 2" X 3" X 8" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE FILLER PIECE W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

CENTER GATE G

THIS GATE IS DESIGNED FOR USE WITHIN THE 2-LAYER LOAD SHOWN ON PAGE 11 AND IS IDENTIFIED AS KEY NUMBER ⑤. THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 9'-0", AND THE HORIZONTAL PIECES WILL BE AT 27-1/2", 46", 53-1/2", 72", AND 7'-6-1/2". NOTE THAT TWO (2) RIGHT HAND GATES AS SHOWN AND TWO (2) LEFT HAND GATES ARE REQUIRED TO FORM A 2-GATE BLOCKING ARRANGEMENT.

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

THIS STRUT LEDGER MUST BE LEFT OFF OF ONE PAIR OF GATES UNTIL THE NEXT LOWER LEVEL OF STRUTS HAS BEEN INSTALLED.

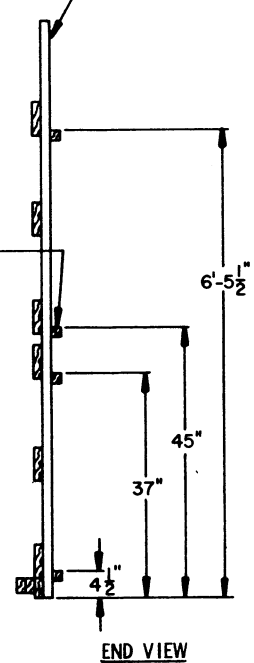
HORIZONTAL PIECE, 2" X 6" X 54" (3 REQD).

STRUT LEDGER, 2" X 2" X 36" (4 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

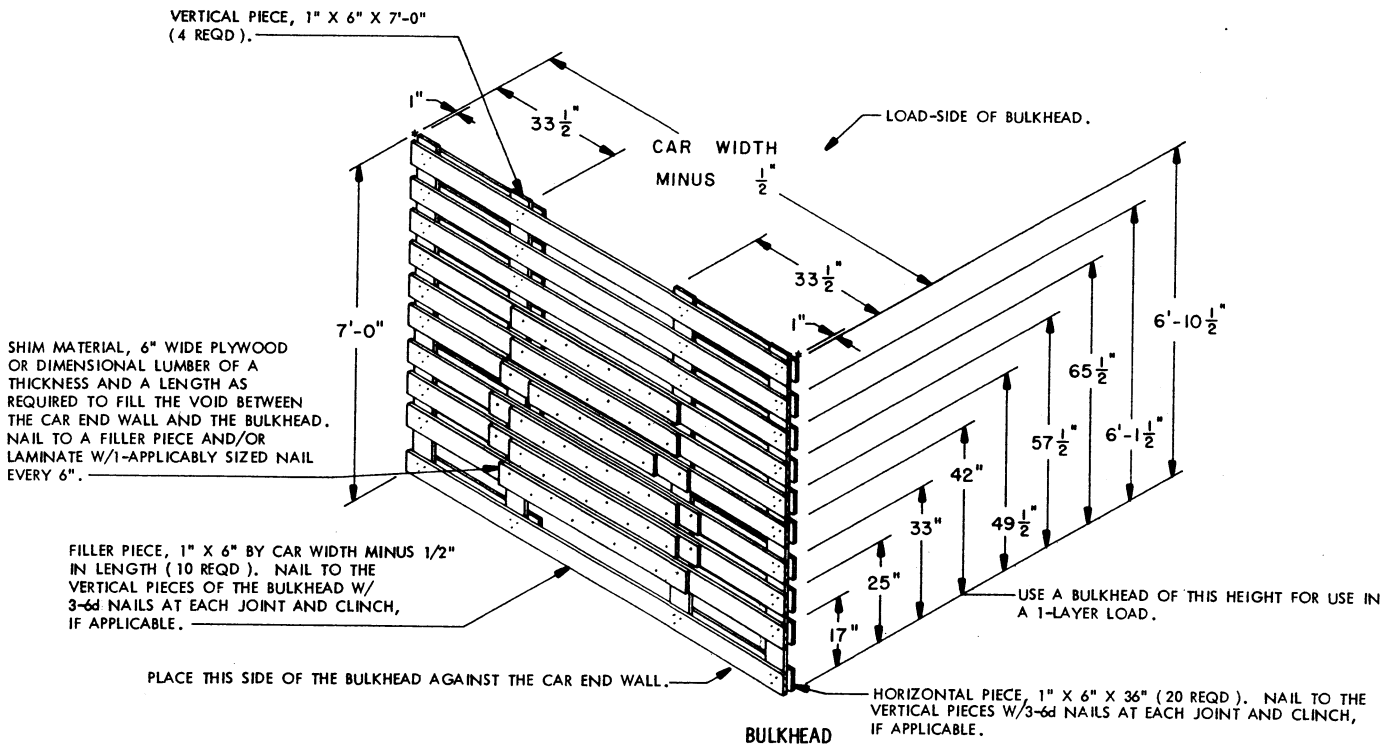
HORIZONTAL PIECE, 2" X 6" X 36" (3 REQD).

SEE THE "END VIEW" AT RIGHT.

FILLER PIECE, 2" X 4" X 36".

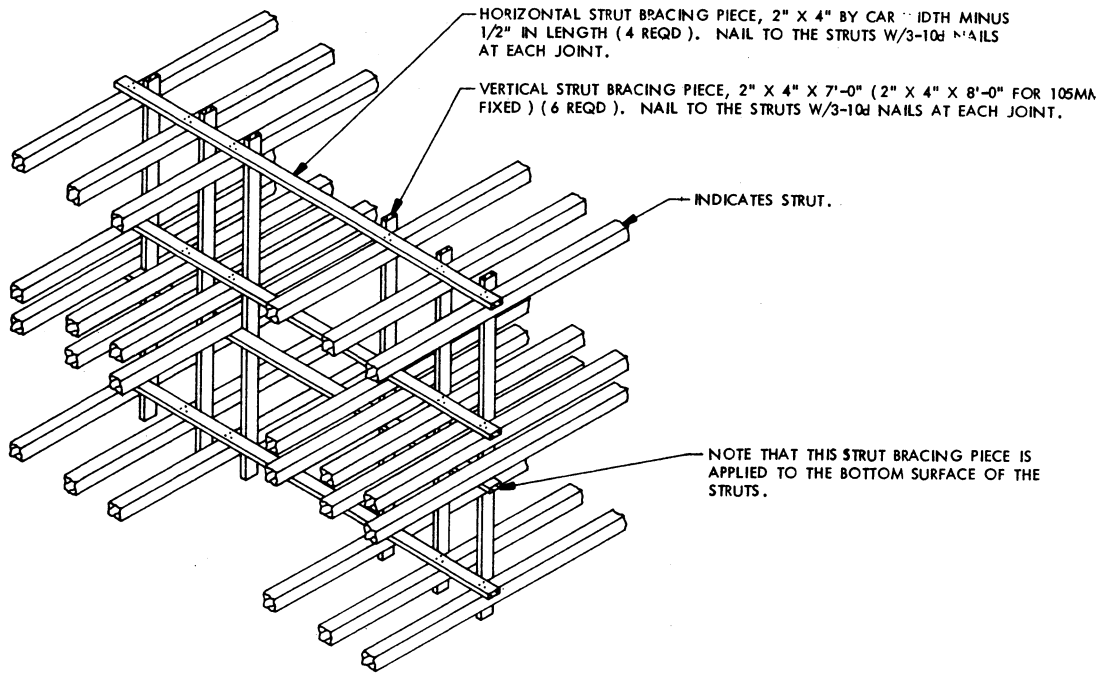


THE SPECIFIED STRUT LEDGER HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE STRUT LEDGERS WILL BE AT 4-1/2", 41", 49", AND 7'-1-1/2".



BULKHEAD

THIS BULKHEAD IS DESIGNED FOR USE IN THE END OF A CAR TO PROVIDE FOR A SQUARED END. THE SPECIFIED HEIGHT DIMENSIONS ARE APPLICABLE FOR 105MM HOWITZER AMMUNITION. WHEN SHIPPING 105MM FIXED, THE OVERALL HEIGHT WILL BE 8'-0", AND THE HORIZONTAL PIECES AND FILLER PIECES WILL BE AT 18", 27-1/2", 37", 46", 53-1/2", 62-1/2", 72", 6'-9-1/2", AND 7'-6-1/2".



STRUT BRACING

THE STRUT BRACING SHOWN IS APPLICABLE FOR USE IN A 2-LAYER LOAD WHEN THE STRUTS ARE LONGER THAN 48". APPLY ADDITIONAL BRACING PIECES (MAX 48" SPACING) WHEN STRUTS ARE LONGER THAN 8'-0". THE PRINCIPLES SHOWN MAY BE APPLIED FOR THE BRACING OF STRUTS IN A 1-LAYER LOAD.