

APPROVED BY
TEA, MTMTS

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MTT-GDP

DATE 17 March 1971

TOW

LOADING AND BRACING (CL & LCL) IN BOX CARS OF COMPONENTS FOR LAUNCHER EQUIPMENT PACKED ONE SET PER WOODEN BOX

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REVISIONS			APPROVED <i>Merrill Johnson</i>
			APPROVED BY CHIEF OF COMBINING GENERAL U. S. ARMY MATERIEL COMMAND
			<i>S. D. Heil</i>
			U. S. ARMY MATERIEL COMMAND
			APRIL 1971
			CLASS DIVISION DRAWING FILE
			19 48 7175 GSE 5TOI

DO NOT SCALE

GENERAL NOTES

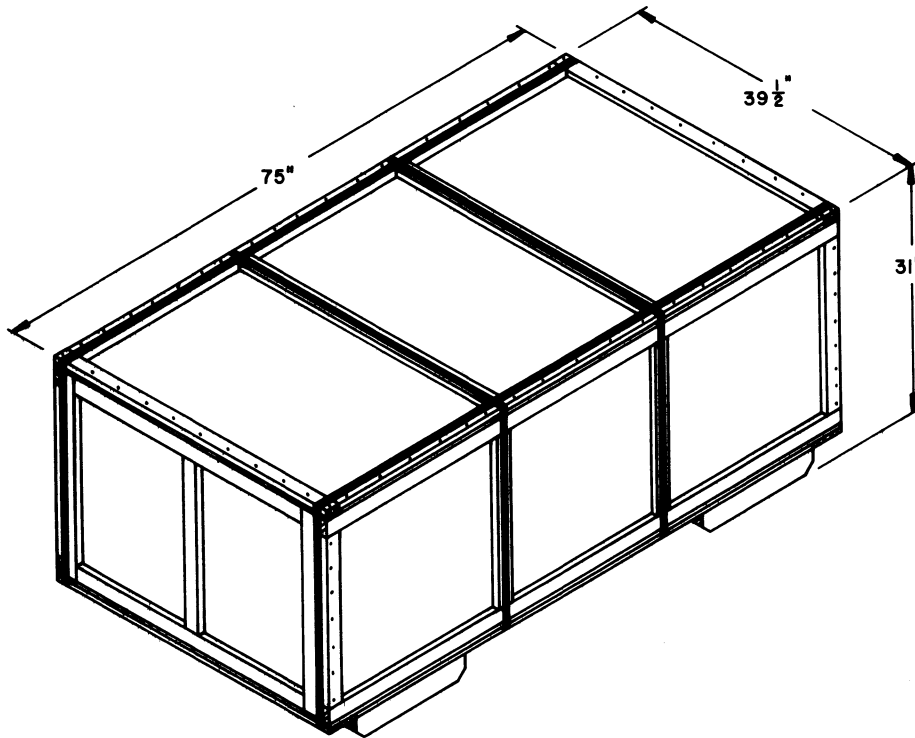
(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THE COMPONENTS FOR TOW LAUNCHER EQUIPMENT PACKED ONE (1) SET PER WOODEN BOX. SUBSEQUENT REFERENCE TO UNIT MEANS TOW LAUNCHER KIT IN WOODEN BOX WITH COMPONENTS.
- C. FOR DETAILS OF BOX UNIT SEE U. S. ARMY MATERIEL COMMAND DRAWING NO. 19-48-5211-GSE20M2.
- BOX DIMENSIONS --- 75" LONG X 39-1/2" WIDE X 31" HIGH.
GROSS WEIGHT ----- 500 POUNDS.
- D. OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE FOR CONVENTIONAL TYPE BOX CARS OF VARIOUS LENGTH AND WIDTH COMBINATIONS.
- E. 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, EXCEPT TO A NAILING STRIP IF A DOOR IS SO EQUIPPED, FOR SECURING SUCH ITEMS AS GATE HOLD DOWN OR DOORWAY SPANNER DUNNAGE; ALSO, 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.
- F. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE APPROVED BLOCKING, BRACING AND STAYING METHODS FOR THE LOADS SPECIFIED IN THIS DRAWING 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 THE CARS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED.
- H. REFER TO ASSOCIATION OF AMERICAN RAILROADS CIRCULAR NO. 42-D, "GENERAL RULES COVERING LOADING OF CARLOAD SHIPMENTS OF COMMODITIES IN CLOSED CARS", FOR APPLICABLE LOADING RULES.
- I. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED.
- J. 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 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE.
- K. 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.
- 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 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.
- M. IF THE CAR USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDE WALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED FOR THE NAILING OF THE APPLICABLE DUNNAGE PIECES. IF A NAIL SIZE IS NOT SPECIFIED, 30d NAILS SHOULD BE USED.
- N. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNIT DETAIL" ON PAGE 3 AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO DEPICTED OUTLOADING METHODS.

(GENERAL NOTES CONTINUED AT RIGHT)

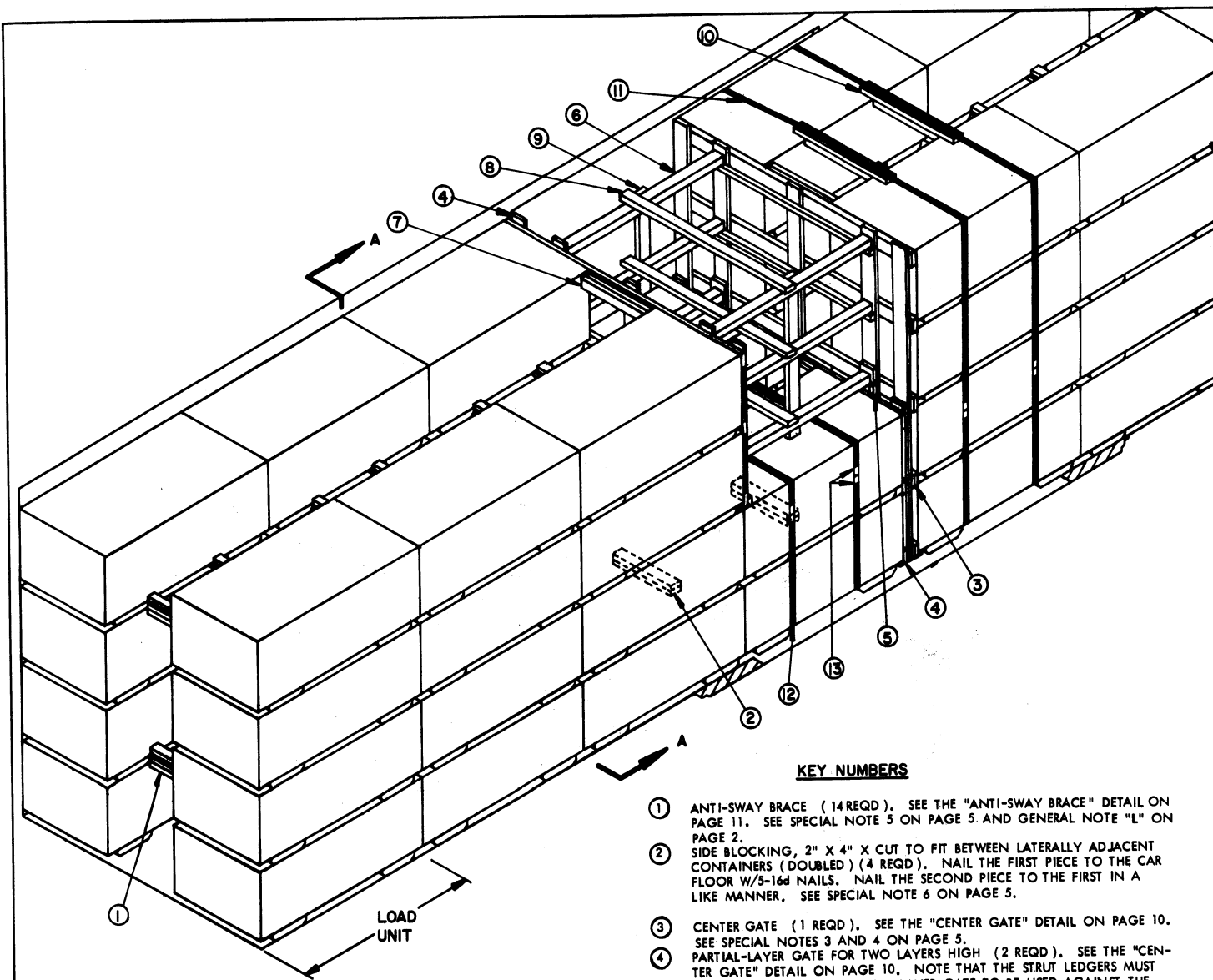
MATERIAL SPECIFICATIONS

- LUMBER ----- : SEE TM 743-200-1, DUNNAGE LUMBER, FED SPEC MM-L-751.
- NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED,
FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.
- STRAPPING, STEEL : TYPE 1 OR 1V, CLASS A OR B,
FED SPEC QQ-S-781.
- STRAP SEALS,
STAPLES ----- : COMMERCIAL GRADE.

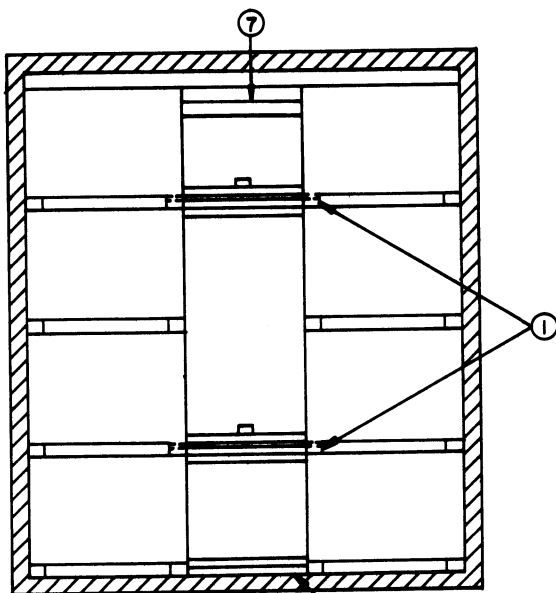


ISOMETRIC VIEW

FOR DETAILS OF THE PACKING BOX AND INSTRUCTIONS
FOR ASSEMBLY AND LOADING OF PACKING BOX, REFER
TO U. S. ARMY MATERIEL COMMAND DRAWING NO. 19-
48-5211 -GSE20M2



ISOMETRIC VIEW



SECTION A-A

NOTE THAT THIS PIECE ② SHOWN IS LOCATED IN THE DOORWAY AREA BETWEEN BOXES IN THE 2-HIGH LOAD UNIT.

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

KEY NUMBERS

- ① ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 11. SEE SPECIAL NOTE 5 ON PAGE 5 AND GENERAL NOTE "L" ON PAGE 2.
- ② SIDE BLOCKING, 2" X 4" X CUT TO FIT BETWEEN LATERALLY ADJACENT CONTAINERS (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 6 ON PAGE 5.
- ③ CENTER GATE (1 REQD). SEE THE "CENTER GATE" DETAIL ON PAGE 10. SEE SPECIAL NOTES 3 AND 4 ON PAGE 5.
- ④ PARTIAL-LAYER GATE FOR TWO LAYERS HIGH (2 REQD). SEE THE "CENTER GATE" DETAIL ON PAGE 10. NOTE THAT THE STRUT LEDGERS MUST BE OMITTED FROM THE PARTIAL-LAYER GATE TO BE USED AGAINST THE FIRST AND SECOND LAYERS. SEE SPECIAL NOTES 3 AND 4 ON PAGE 5.
- ⑤ SOLID FILL, 6" WIDE MATERIAL BY 72" LONG BY A THICKNESS AS REQUIRED TO FILL THE VOID BETWEEN THE CENTER GATE AND THE LOWER PARTIAL-LAYER GATE (REQUIRED AT TWO PLACES). NAIL TO THE VERTICAL PIECE OF THE GATE AND/OR TOGETHER W/3-10d NAILS.
- ⑥ STRUT, 4" X 4" BY CUT TO FIT (6 REQD). TOENAIL TO VERTICAL PIECES OF THE GATES W/3-12d NAILS AT EACH END. SEE SPECIAL NOTE 8 ON PAGE 5.
- ⑦ GATE LOCATOR CLEAT, 2" X 4" BY CUT TO FIT BETWEEN LATERALLY ADJACENT CONTAINERS (DOUBLED) (3 REQD). NAIL THE FIRST PIECE TO THE TOP HORIZONTAL PIECE OF A GATE W/4-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑧ HORIZONTAL STRUT BRACING, 2" X 4" X 6'-6" (3 REQD EVERY 48"). NAIL TO STRUTS W/3-10d NAILS AT EACH END.
- ⑨ VERTICAL STRUT BRACING, 2" X 4" X 64" (2 REQD EVERY 48"). NAIL TO STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑩ STRAPPING BOARD (4 REQD). SEE THE "STRAPPING BOARD" DETAIL ON PAGE 11.
- ⑪ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 41'-0" STEEL STRAPPING (2 REQD). POSITION AS SHOWN TO ENCIRCLE THE FULL LOAD UNIT. SEE GENERAL NOTE "I" ON PAGE 2. SECURE TO STRAPPING BOARD W/2 STAPLES.
- ⑫ DOORWAY PROTECTION STRAP, 1-1/4" X .035" X 31'-0" STEEL STRAPPING (2 REQD). POSITION AS SHOWN TO ENCIRCLE THE PARTIAL LOAD UNIT. SECURE TO STRAPPING BOARD W/2 STAPLES.
- ⑬ SEAL FOR 1-1/4" STEEL STRAPPING (8 REQD, 2/STRAP).

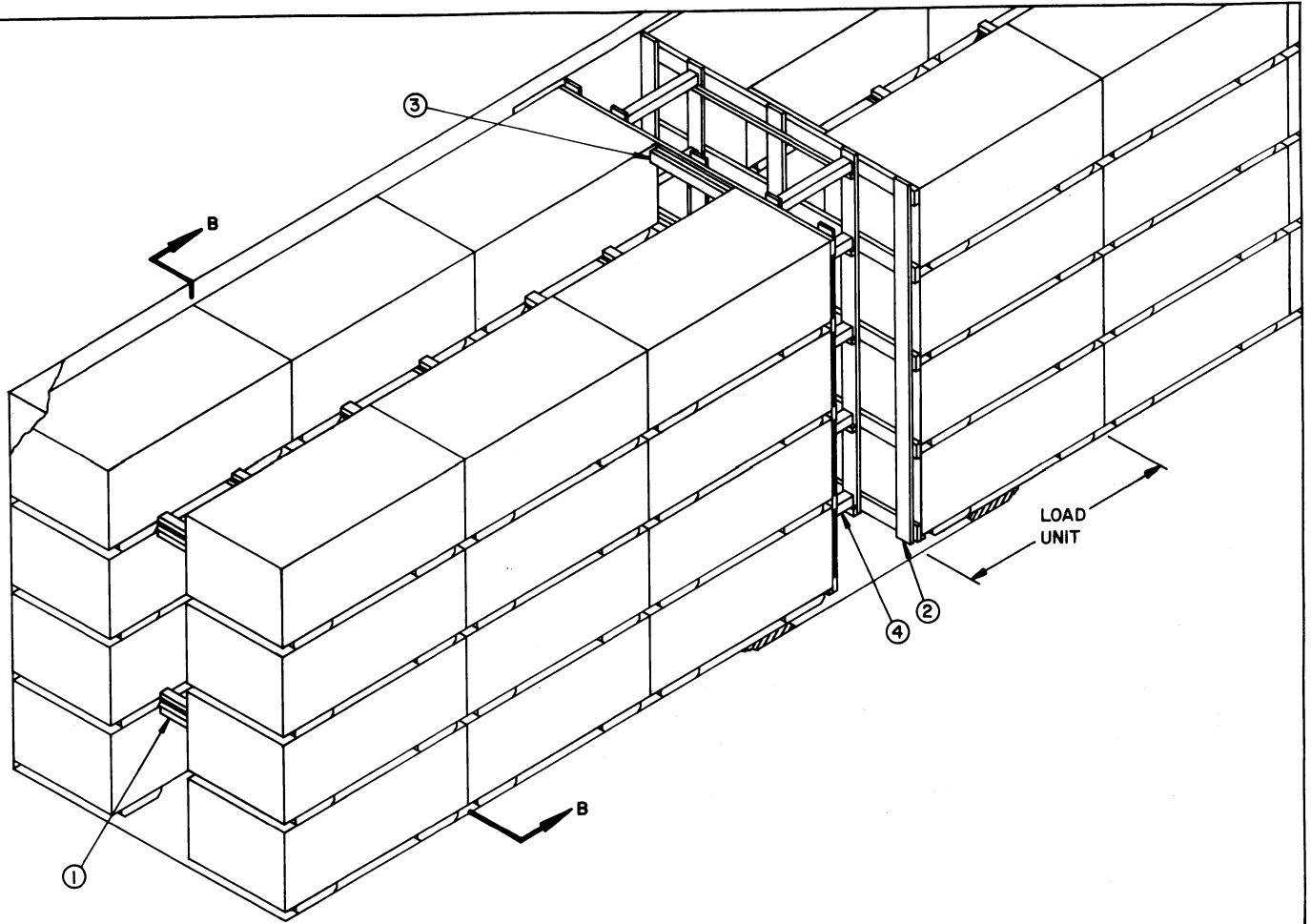
SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE BY 11'-0" HIGH BOX CAR IS SHOWN. WIDER CARS MAY BE USED; HOWEVER, NARROWER CARS ARE NOT RECOMMENDED. CARS WHICH ARE LESS THAN 10'-6" HIGH WILL BE LIMITED TO LOADS OF NOT MORE THAN THREE (3) LAYERS. SEE SPECIAL NOTE 5.
2. THE DEPICTED CAR IS EQUIPPED WITH DOOR OPENINGS WHICH ARE 12'-0" WIDE BY 10'-6" HIGH. TO FACILITATE LOADING AND UNLOADING, WIDER OR STAGGERED DOORS ARE RECOMMENDED. IF THE DOOR OPENINGS ARE LESS THAN 10'-6" HIGH, LOADING IN THE DOORWAY AREA WILL BE LIMITED TO THREE LAYERS.
3. FOR SHIPMENT OF SIXTY (60) BOXES IN A 50'-6" LONG CAR, AS SHOWN ON PAGE 4, IT WILL BE NECESSARY TO OMIT THE LOWER THREE (3) STRUT LEDGERS FROM THE CENTER GATE, PIECE MARKED ③. ALSO, OMIT ALL OF THE STRUT LEDGERS FROM THE PARTIAL-LAYER GATE, PIECE MARKED ④, WHICH IS USED IN CONJUNCTION WITH SOLID FILL FOR BRACING THE BOTTOM TWO LAYERS OF THE LOAD.
4. IF EIGHT (8) LOAD UNITS CANNOT BE LOADED IN A CAR BECAUSE OF VARIATIONS IN CONTAINER LENGTH, CAR LENGTH, OR DOOR SIZE, SEVEN (7) LOAD UNITS MAY BE SHIPPED. THESE SEVEN LOAD UNITS WILL BE BRACED WITH TWO (2) CENTER GATES, PIECE MARKED ⑤, AND TEN (10) STRUTS, PIECE MARKED ⑥. ADJUST QUANTITIES OF OTHER PIECES, AS NECESSARY.
5. IF A THREE-LAYER LOAD IS BEING SHIPPED, INSTALL THE TOP LEVEL OF ANTI-SWAY BRACE ASSEMBLIES BETWEEN THE SECOND AND THIRD LAYERS OF THE LOAD. ADJUST THE HEIGHT OF THE CENTER GATES AS SPECIFIED IN THE "GATE CONSTRUCTION CHART" ON PAGE 10.
6. IF THE CAR OFFERED FOR THE SHIPMENT OF THE TOW LAUNCHER SET IS EQUIPPED WITH STAGGERED AND/OR PLUG DOORS, IT MAY BE USED. HOWEVER, IF A LOAD UNIT EXTENDS 30" INTO THE DOORWAY AREA AT EITHER SIDE OF THE LOAD UNIT, THAT END OF THE LOAD UNIT MUST BE SECURED BY INSTALLING PIECES MARKED ②, ⑩, ⑪ AND ⑬. IF A LOAD UNIT EXTENDS 60" INTO THE DOORWAY AREA AT EITHER SIDE OF THE LOAD UNIT, BOTH ENDS OF THE LOAD UNIT MUST BE SO SECURED. SEE GENERAL NOTE "O" ON PAGE 2.
7. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF LESS BOXES THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 11, MUST BE SUBSTITUTED FOR EACH OMITTED BOX. THE TOP BOX OF A STACK IN ONE OF THE TWO END LOAD UNITS IS A PREFERRED LOCATION. A "FILLER ASSEMBLY" MUST NOT BE USED IN THE DOORWAY AREA. IF THE QUANTITY TO BE SHIPPED CANNOT READILY BE ACHIEVED BY SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES, A K-BRACE ASSEMBLY MAY BE INSTALLED TO RETAIN THE PARTIAL LAYER. REFER TO PAGE 8 FOR THE K-BRACE SPECIFICATIONS AND A TYPICAL INSTALLATION.
8. IF 4" X 4" MATERIAL IS NOT AVAILABLE FOR STRUTS, 2" X 4" MATERIAL MAY BE SUBSTITUTED. LAMINATE W/1-10d NAIL EVERY 6" AND TOENAIL TOP PIECE TO VERTICAL PIECES OF THE GATES W/3-12d NAILS AT EACH END.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	92	31
1" X 6"	107	54
2" X 2"	33	11
2" X 3"	6	3
2" X 4"	370	247
2" X 6"	113	113
4" X 4"	39	52
NAILS	NO. REQD	POUNDS
6d (2")	443	2-3/4
10d (3")	498	7-3/4
12d (3-1/4")	36	3/4
16d (3-1/2")	40	1
STRAPPING, STEEL, 1-1/4" X .035" ----- 144'-0"----- 20-1/2 LBS		
SEALS FOR 1-1/4" STRAPPING ----- 8 REQD ----- 1/2 LB		
STAPLE FOR 1-1/4" STRAPPING ----- 8 REQD ----- NIL		

LOAD AS SHOWN

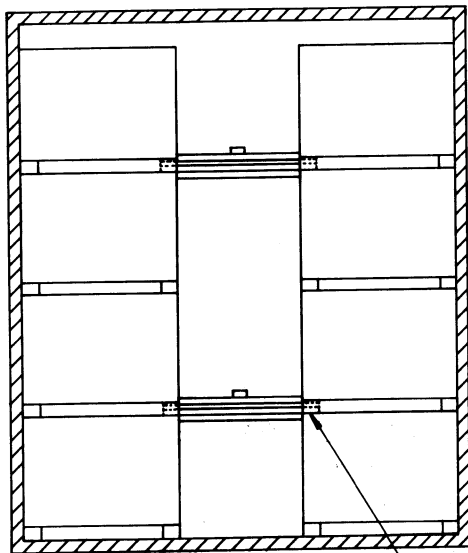
ITEM	QUANTITY	WEIGHT
TOW LAUNCHER SET		
(BOXED) -----	60 -----	30,000 LBS
DUNNAGE -----		1,311 LBS
TOTAL WEIGHT -----		31,311 LBS



ISOMETRIC VIEW

KEY NUMBERS

- ① ANTI-SWAY BRACE (12 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 11. SEE SPECIAL NOTE 3 ON PAGE 7 AND GENERAL NOTE "L" ON PAGE 2.
- ② CENTER GATE (2 REQD). SEE THE "CENTER GATE" DETAIL ON PAGE 10.
- ③ GATE LOCATOR CLEAT, 2" X 4" BY CUT TO FIT BETWEEN LATERALLY ADJACENT CONTAINERS (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE TOP HORIZONTAL PIECE OF CENTER GATE W/4-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ STRUT, 4" X 4" BY CUT TO FIT (10 REQD). TOENAIL TO THE VERTICAL PIECES OF THE CENTER GATES W/3-12d NAILS AT EACH END. NOTE THAT IF 4" X 4" MATERIAL IS NOT AVAILABLE, DOUBLED 2" X 4" MATERIAL MAY BE SUBSTITUTED. LAMINATE W/1-10d NAIL EVERY 6".



SECTION B-B

48-UNIT LOAD IN A 40'-6" LONG BY 9'-2" WIDE BOX CAR

SPECIAL NOTES:

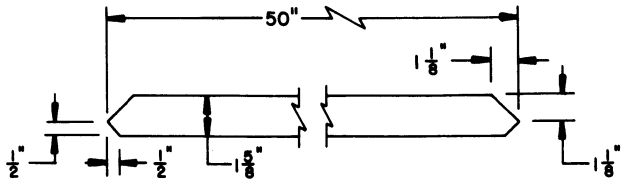
1. A 40'-6" LONG BY 9'-2" WIDE BY 11'-0" HIGH BOX CAR IS SHOWN. WIDER CARS MAY BE USED; HOWEVER, NARROWER CARS ARE NOT RECOMMENDED. CARS WHICH ARE LESS THAN 10'-6" HIGH WILL BE LIMITED TO LOADS OF NOT MORE THAN THREE (3) LAYERS. SEE SPECIAL NOTE 3.
2. THE DEPICTED CAR IS EQUIPPED WITH DOOR OPENINGS WHICH ARE 6'-0" WIDE BY 10'-6" HIGH. TO FACILITATE LOADING AND UNLOADING, WIDER DOORS ARE RECOMMENDED. SEE SPECIAL NOTE 4. IF THE DOOR OPENINGS ARE LESS THAN 10'-6" HIGH, LOADING IN THE DOORWAY AREA WILL BE LIMITED TO THREE LAYERS.
3. IF A THREE-LAYER LOAD IS BEING SHIPPED, INSTALL THE TOP LEVEL OF ANTI-SWAY BRACE ASSEMBLIES BETWEEN THE SECOND AND THIRD LAYERS OF THE LOAD. ADJUST THE HEIGHT OF THE CENTER GATES AS SPECIFIED IN THE "GATE CONSTRUCTION CHART" ON PAGE 10.
4. IF THE CAR OFFERED FOR THE SHIPMENT OF THE TOW LAUNCHER SET IS EQUIPPED WITH WIDER, STAGGERED, AND/OR PLUG DOORS, IT MAY BE USED. HOWEVER, IF A LOAD UNIT EXTENDS 30" INTO THE DOORWAY AREA AT EITHER SIDE OF THE LOAD UNIT, THAT END OF THE LOAD UNIT MUST BE SECURED BY INSTALLING THE PIECES MARKED ②, ⑩, ⑪ AND ⑬ SHOWN ON PAGE 4. IF A LOAD EXTENDS 60" INTO THE DOORWAY AREA AT EITHER SIDE OF THE LOAD UNIT, BOTH ENDS OF THE LOAD UNIT MUST BE SO SECURED. SEE GENERAL NOTE "O" ON PAGE 2.
5. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF LESS BOXES THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 11, MUST BE SUBSTITUTED FOR EACH OMITTED BOX. THE TOP BOX OF A STACK IN ONE OF THE TWO END LOAD UNITS IS A PREFERRED LOCATION. A "FILLER ASSEMBLY" MUST NOT BE USED WITHIN THE DOORWAY AREA. IF THE QUANTITY TO BE SHIPPED CANNOT READILY BE ACHIEVED BY SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES, A K-BRACE ASSEMBLY MAY BE INSTALLED TO RETAIN THE PARTIAL LAYER. REFER TO PAGE 8 FOR THE K-BRACE SPECIFICATIONS AND A TYPICAL INSTALLATION.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	78	26
1" X 6"	105	53
2" X 2"	54	18
2" X 3"	12	6
2" X 4"	249	166
2" X 6"	92	92
4" X 4"	25	38
NAILS	NO. REQD	POUNDS
6d (2")	269	1-3/4
10d (3")	370	5-3/4
12d (3-1/4")	60	1

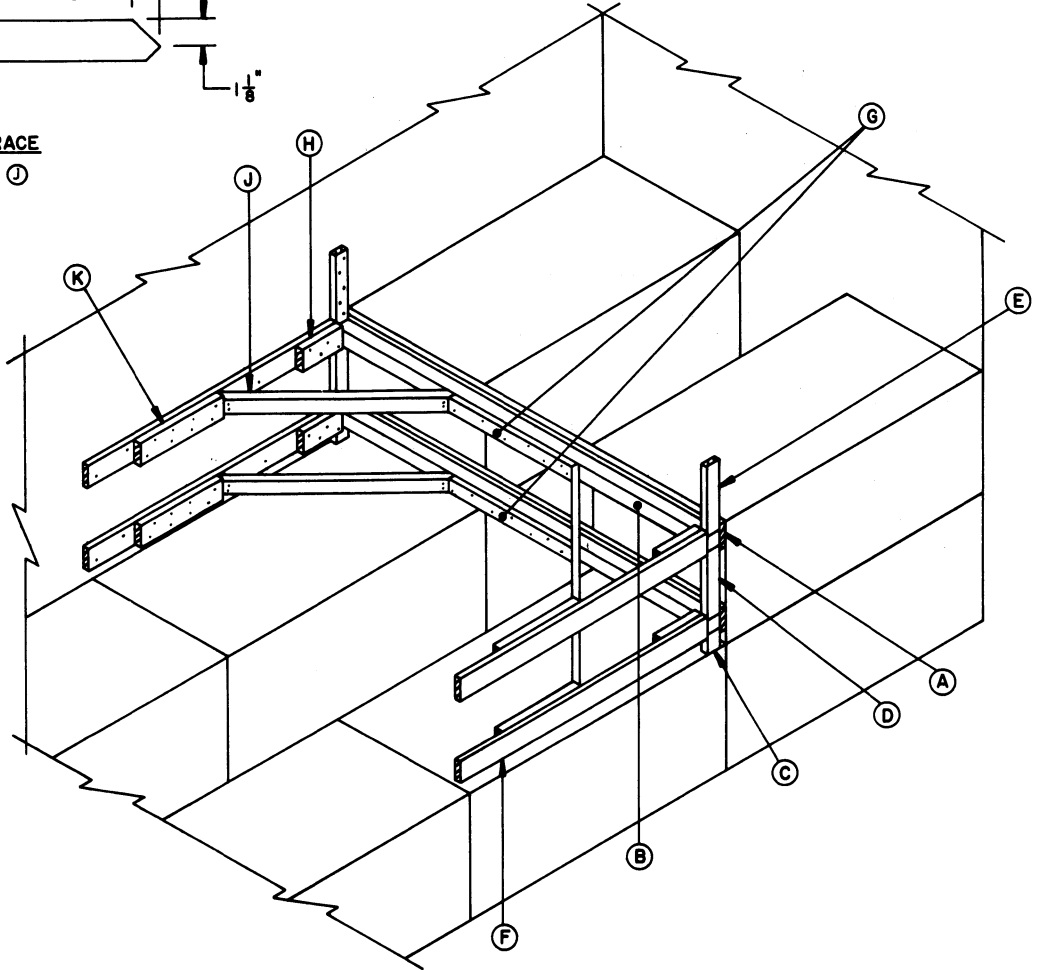
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
TOW LAUNCHER SET (BOXED)	48	24,000 LBS
DUNNAGE		1,000 LBS
TOTAL WEIGHT		25,000 LBS

48-UNIT LOAD IN A 40'-6" LONG BY 9'-2" WIDE BOX CAR



DIAGONAL BRACE
PIECE MARKED **J**



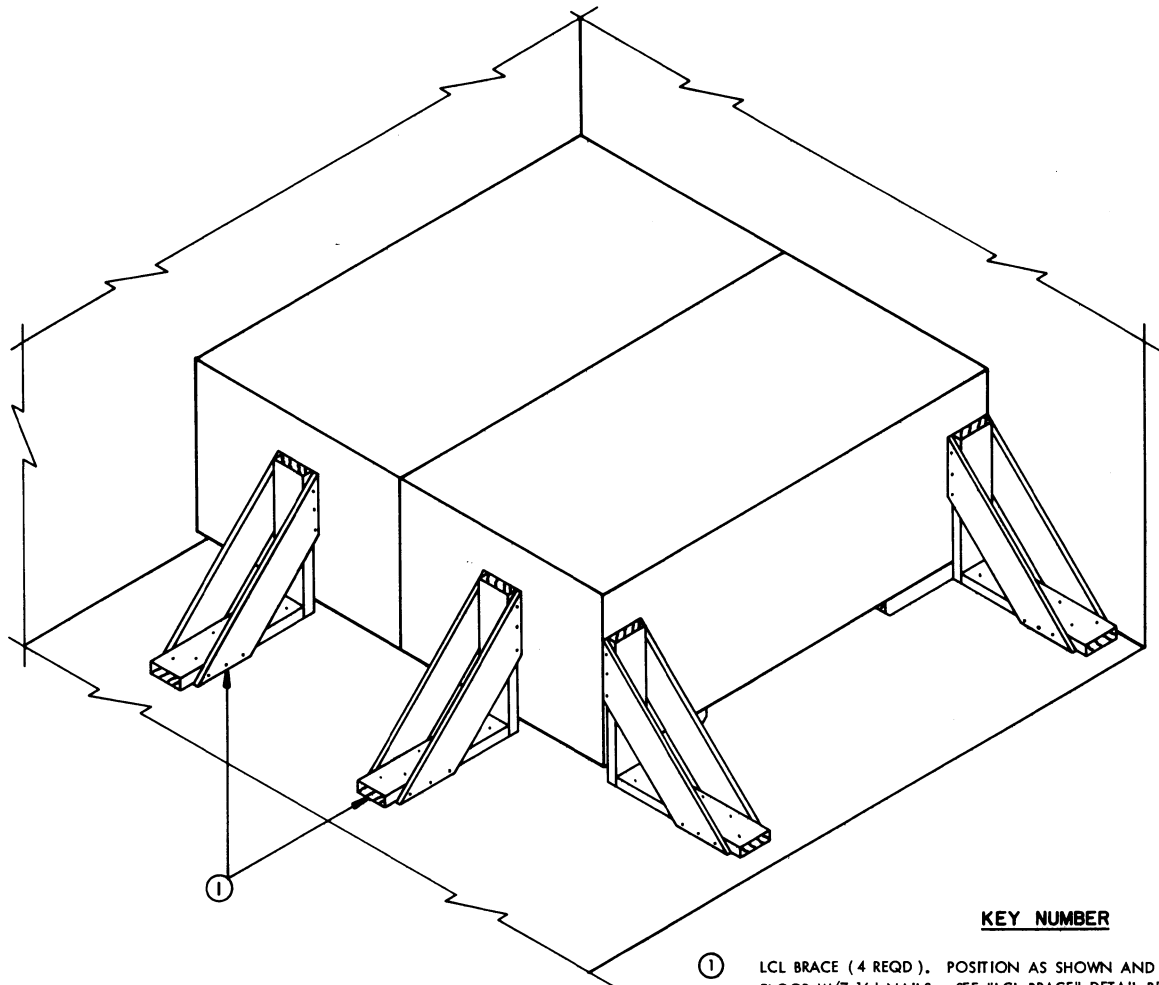
ISOMETRIC VIEW

KEY LETTERS

SPECIAL NOTES:

1. A 9'-2" WIDE (INSIDE CLEARANCE) CONVENTIONAL TYPE CAR IS SHOWN.
2. A K-BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A MAXIMUM PARTIAL LAYER LOAD OF 8,000 POUNDS. **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**, **D**, **E** AND **H** 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 **F** MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE.
3. THE K-BRACE ASSEMBLY IS SHOWN INSTALLED AGAINST BOXES IN AN END OF A CAR. IF DESIRED, THE ASSEMBLY MAY BE CONSTRUCTED IN THE END OF A CAR AND USED FOR THE BRACING OF THE BALANCE OF THE LAYER OF BOXES. MULTIPLES OF TWO BOXES UP TO AND INCLUDING FOURTEEN MAY BE BRACED IN THIS MANNER. A "FILLER ASSEMBLY" MUST BE INSTALLED TO OBTAIN AN UNEVEN QUANTITY.

- A** BUFFER, 2" X 6" X CAR WIDTH (2 REQD). NAIL TO PIECE MARKED **B** W/1-12d NAIL EVERY 12".
- B** CROSS CAR BRACE, 4" X 4" X CAR WIDTH (2 REQD).
- C** WALL CLEAT, 2" X 4" X 5" (2 REQD). NAIL TO CAR SIDE WALL W/2-12d NAILS.
- D** SPACER CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO CAR SIDE WALL W/5-12d NAILS.
- E** WALL CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO CAR WALL W/5-12d NAILS.
- F** HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REQD). NAIL TO CAR SIDE WALL W/16-12d NAILS.
- G** 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. NAIL TO PIECE MARKED **B** W/7-12d NAILS.
- H** POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO PIECE MARKED **F** W/4-16d NAILS.
- J** DIAGONAL BRACE, 2" X 4" X 50" (4 REQD). SEE "DIAGONAL BRACE" DETAIL ABOVE. TOENAIL TO PIECES MARKED **B** AND **F** W/2-16d NAILS AT EACH END.
- K** BACK-UP CLEAT, 2" X 6" X 24" (4 REQD). NAIL TO PIECE MARKED **F** W/8-16d NAILS.



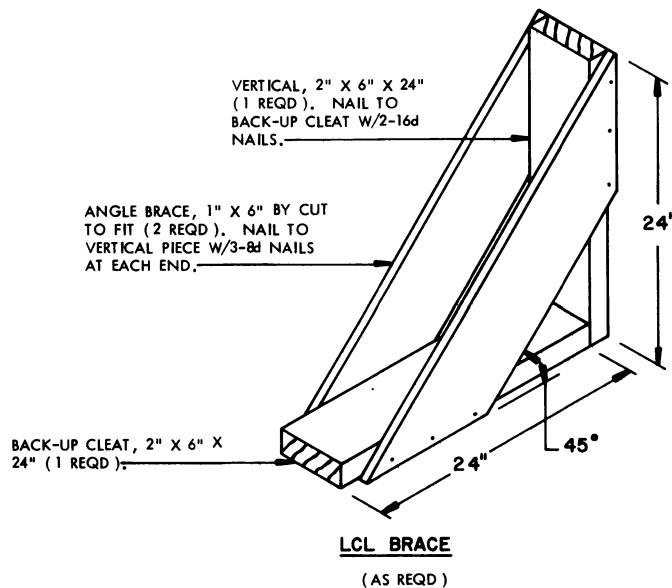
KEY NUMBER

- ① LCL BRACE (4 REQD). POSITION AS SHOWN AND NAIL TO CAR FLOOR W/7-16d NAILS. SEE "LCL BRACE" DETAIL BELOW AND SPECIAL NOTE AT LEFT.

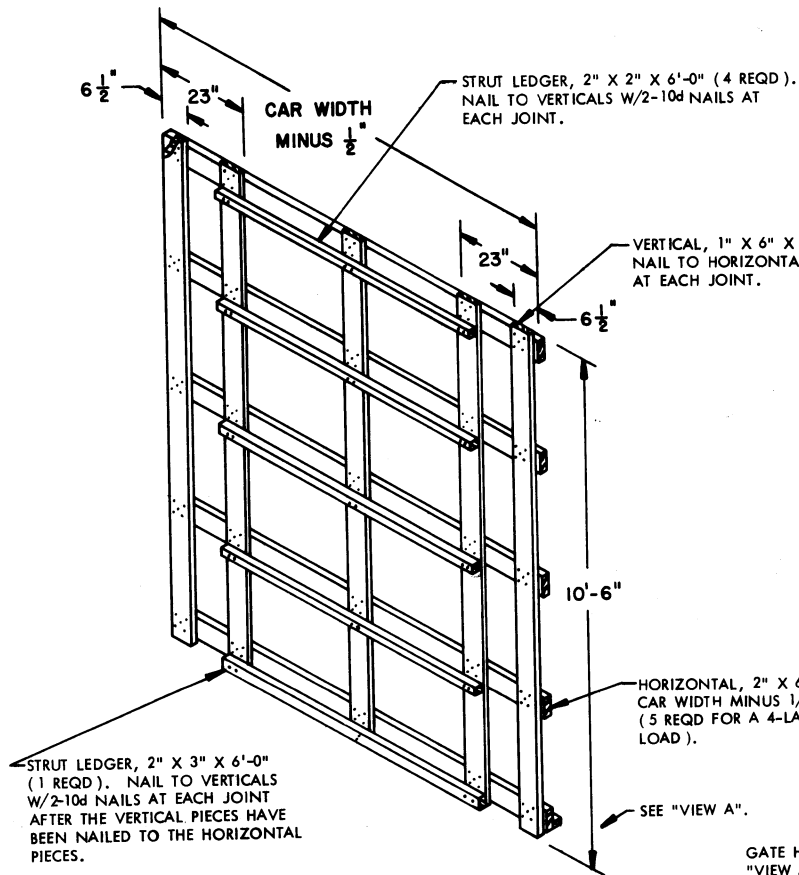
SPECIAL NOTE:

ISOMETRIC VIEW

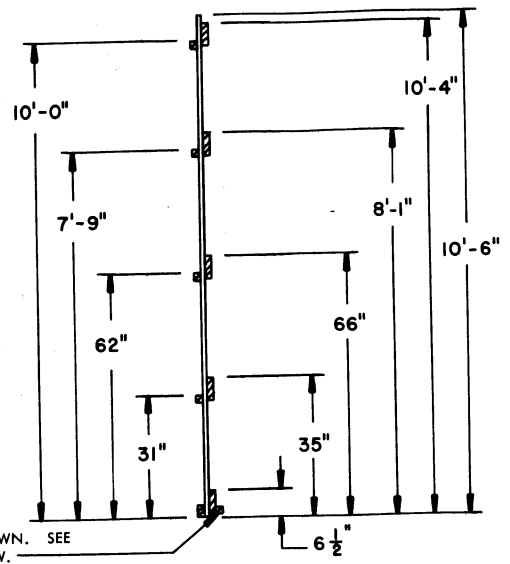
- 1. A 2-UNIT LOAD IN A 9'-2" WIDE CAR IS SHOWN. EACH BRACE AS APPLIED FOR LONGITUDINAL OR LATERAL BRACING WILL SUPPORT 2,000 POUNDS OR 8,000 POUNDS OF LADING, RESPECTIVELY.



TYPICAL LCL (2-UNIT LOAD)



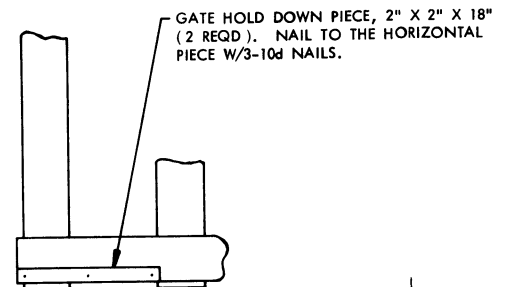
CENTER GATE
(2 REQD)



END VIEW

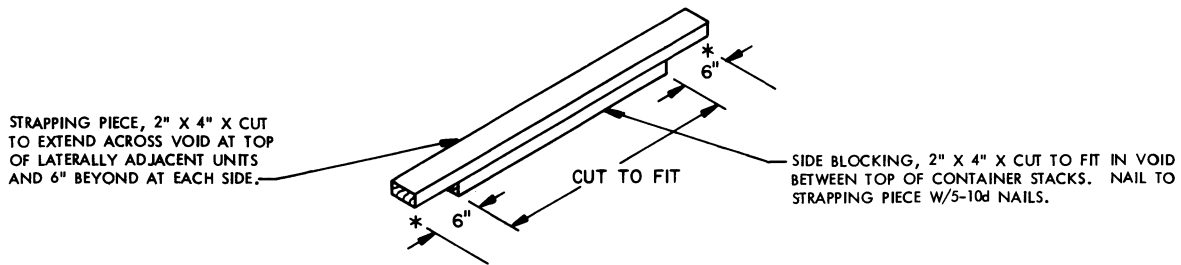
THIS VIEW SHOWS THE HEIGHTS FOR THE LOCATIONS OF THE HORIZONTAL PIECES AND THE STRUT LEDGERS FOR A 4-LAYER LOAD. SEE THE "GATE CONSTRUCTION CHART" AT THE LEFT FOR GUIDANCE IN THE BUILDING OF A GATE FOR LOADS OF OTHER THAN FOUR LAYERS.

GATE CONSTRUCTION CHART			
LOAD HEIGHT	GATE HEIGHT	TOP HORIZONTAL	TOP STRUT LEDGER
1 LAYER	36"	31"	26-1/2"
2 LAYERS	64-1/2"	62"	57-1/2"
3 LAYERS	8'-0"	7'-9"	7'-4-1/2"

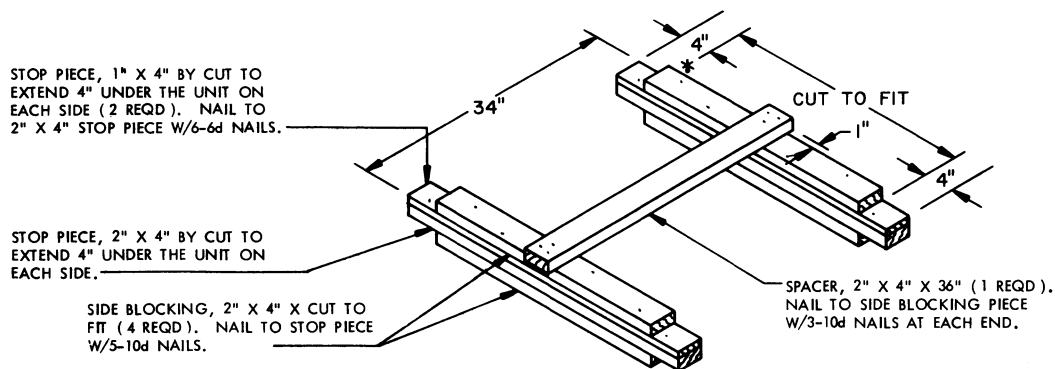


VIEW A

THIS VIEW SHOWS THE LOCATION OF THE GATE HOLD DOWN PIECE.

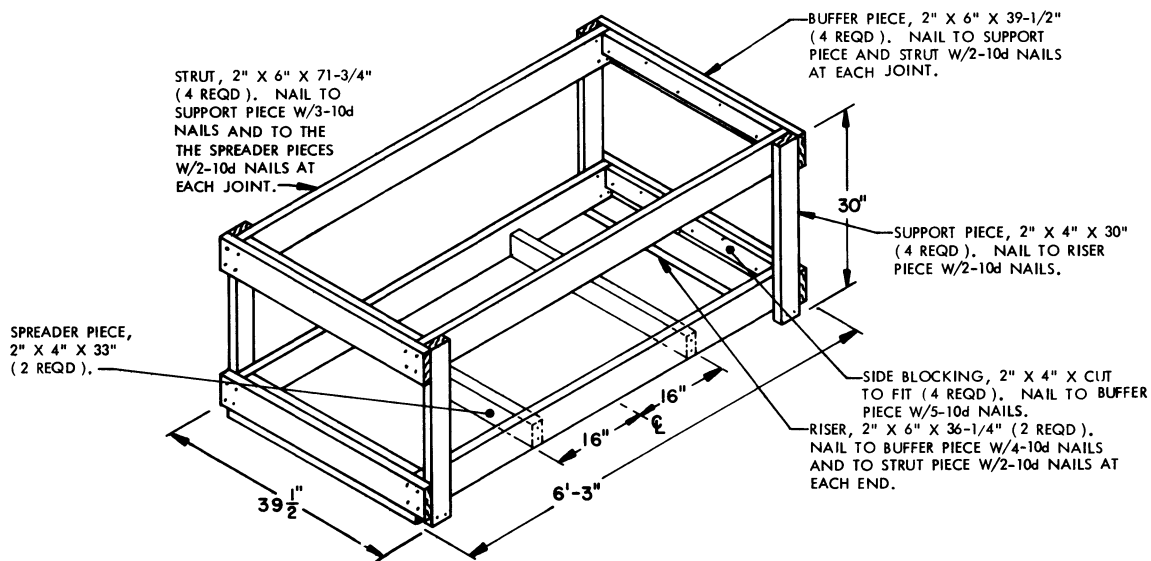


STRAPPING BOARD
(AS REQD)



ANTI-SWAY BRACE

NOTE THAT FINAL ASSEMBLY OF THE ANTI-SWAY BRACE MUST BE ACCOMPLISHED IN-PLACE. ALSO, WHEN THE ANTI-SWAY BRACE IS TO BE USED IN A LOAD UNIT WHICH CONTAINS A FILLER ASSEMBLY, THE END OF THE 1" X 4" STOP PIECE WHICH IS ADJACENT TO THE FILLER MUST BE CUT FLUSH WITH THE END OF THE UPPER SIDE BLOCKING PIECE.



FILLER ASSEMBLY

