APPROVED BY U.S. COAST GUARD	APPROVED BY BUREAU OF EXPLOSIVES
M D Monmouth	J W Fleshman
DATE 6/12/86	SUPERVISOR, MILITARY & INTERMODAL SERVICES DATE 4/28/86

LOADING AND BRACING◑ IN MILVAN CONTAINERS⊕ OF COMPLETE ROUNDS PACKED IN T53 CYLINDRICAL METAL CONTAINERS (PALLETIZED)

◑ LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLAT CAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS. SEE "SPECIAL T/COFC NOTES" BELOW.

⊕ ONLY MILVAN CONTAINERS WHICH HAVE BEEN MODIFIED TO INCLUDE A MECHANICAL LOAD-BRACING SYSTEM THAT SATISFIES THE REQUIREMENTS OF THE BUREAU OF EXPLOSIVES PAMPHLET 6C WILL BE USED FOR THE MOVEMENT OF AMMUNITION BY T/COFC SERVICE. CAUTION: OTHER REQUIREMENTS OF PAMPHLET 6C ALSO APPLY.

MAXIMUM LOAD WEIGHT CRITERIA:

THE ITEMIZED LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALSO, THESE LISTED LOAD WEIGHTS IDENTIFY THE MAXIMUM COMBINED WEIGHT OF AMMUNITION LADING UNITS AND DUNNAGE THAT CAN BE PLACED INTO ONE (1) MILVAN CONTAINER WITHOUT VIOLATING ONE OR MORE OF THE "CAPABILITY FACTORS". SEE NOTES 1 AND 2.

39,100 LBS IN 20-FT CONTAINER (W/O CHASSIS) ABOARD CONTAINERSHIP
39,100 LBS IN CONTAINER ON 20-FT CHASSIS WITH DOUBLE BOGIE . SEE NOTE 3.
25,300 LBS IN CONTAINER ON 20-FT CHASSIS WITH SINGLE BOGIE . SEE NOTE 4.
21,300 LBS IN EACH CONTAINER ON 40-FT CHASSIS (COUPLED WITH DOUBLE BOGIE). SEE NOTE 3.

NOTE 1: DUNNAGE INCLUDES MATERIALS, OTHER THAN COMPONENTS OF THE MECHANICAL LOAD-BRACING SYSTEM, USED TO BLOCK AND BRACE A LOAD.

NOTE 2: ALTHOUGH THE HEAVIEST MAXIMUM LOAD IS DELINEATED ON PAGES 2 AND 3, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOAD CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. ADDITIONAL INSTRUCTIONS ARE UNDER THE "REDUCED-LOAD PROVISIONS" SECTION ON PAGES 6 AND 7.

NOTE 3: DEPENDING ON TRANSPORATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE MILVAN SYSTEM.

NOTE 4: BY SPECIAL AUTHORITY, IT MAY BE POSSIBLE TO MOVE HEAVIER LOADS ON SINGLE BOGIE CHASSIS WITHIN AN INSTALLATION.

SPECIAL T/COFC NOTES:

A. CAUTION: LOADED CONTAINERS MUST BE ON CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE, REGARDLESS OF LOAD WEIGHT WITHIN THE CONTAINERS.

B. LOAD LIMITS OF T/COFC RAIL CARS MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

C. CHASSIS/CONTAINERS COUPLED INTO A 40-FOOT TRAILER CONFIGURATION MUST BE PLACED AT THE B-END OF A TOFC RAIL CAR. THE REAR END OF THE 40-FOOT UNIT WILL OVER-HANG THE END OF THE CAR IF IT IS PLACED AT THE A-END. TWENTY-FOOT AND 40-FOOT UNITS CAN BE LOADED ON THE SAME CAR.

REVISIONS			

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JULY 1986	

CLASS	DIVISION	DRAWING	FILE
19	48	4214/2	15PM 1006

DO NOT SCALE

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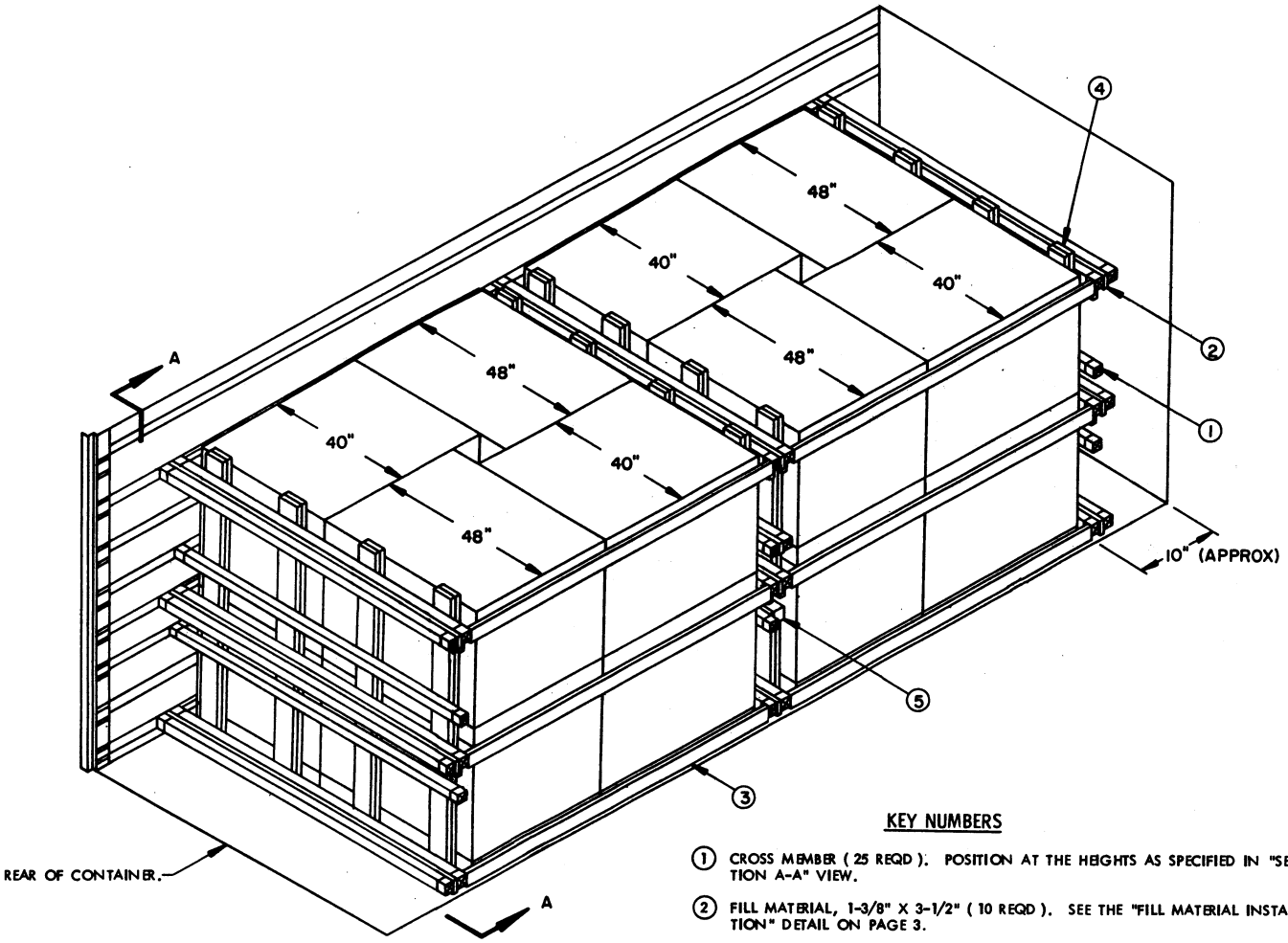


ISOMETRIC VIEW

KEY NUMBERS

(1) CROSS MEMBER (25 REQD). POSITION AT THE HEIGHTS AS SPECIFIED IN "SECTION A-A" VIEW.

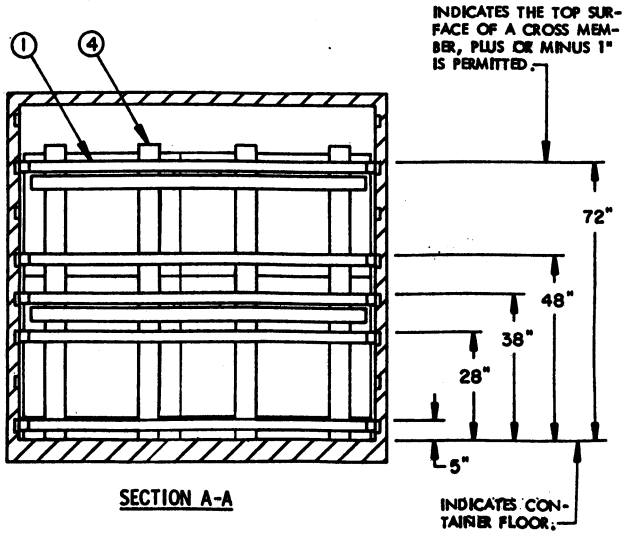
(2) FILL MATERIAL, 1-3/8" X 3-1/2" (10 REQD). SEE THE "FILL MATERIAL INSTALLATION" DETAIL ON PAGE 3.

(3) SIDE FILL, 2" X 4" X 7'-4" (12 REQD). RANDOM LENGTH PIECES MAY BE USED. WIRE TIE TO THE 5", 38", AND 72" HIGH BELT RAILS ON EACH SIDE OF THE CONTAINER. SEE THE "SIDE FILL" DETAIL ON PAGE 4.

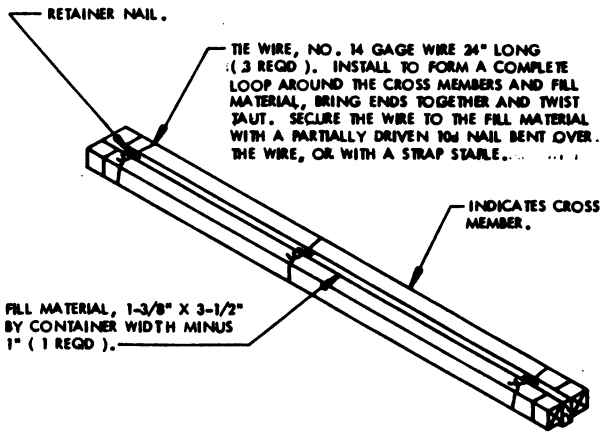
(4) LOAD BEARING GATE (4 REQD). POSITION WITH THE VERTICAL PIECES AGAINST THE PALLET UNITS. SEE THE "LOAD BEARING GATE" DETAIL ON PAGE 5.

(5) FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY" DETAIL ON PAGE 5.

NOTE: FOR REDUCED-LOAD PROVISIONS, SEE THE "ALTERNATIVE LOADING PATTERN" ON PAGES 6 AND 7.

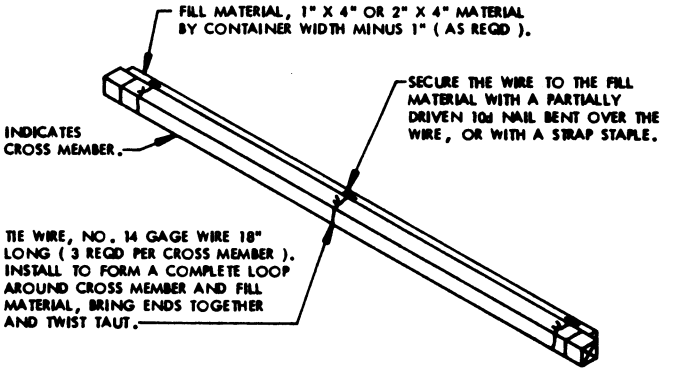


SECTION A-A



FILL MATERIAL INSTALLATION

SEE GENERAL NOTE "K" AT RIGHT.



FILL DETAIL

THIS DETAIL DEPICTS METHOD OF POSITIONING FILL MATERIAL BETWEEN CROSS MEMBER AND LADING WHEN THE VOID BETWEEN THE TWO IS GREATER THAN ONE INCH (1").

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
*1-3/8" X 3-1/2"	76	26
2" X 4"	146	97
2" X 6"	203	203
4" X 4"	7	9
NAILS	**NO. REQD**	**POUNDS**
10d (3")	188	3
PLYWOOD, 1/2" ---------- 2 SQ FT REQD ---------- 3 LBS		
NO. 14 GAGE WIRE ---------- 54' REQD ---------- 2 LBS		
CROSS MEMBER ---------- 25 REQD		

*SEE GENERAL NOTE "K" AT RIGHT.

MATERIAL SPECIFICATIONS

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

NAILS ----------: FED SPEC FF-N-105; COMMON.

WIRE ----------: FED SPEC QQ-W-461.

STAPLE, STRAP ---: COMMERCIAL GRADE.

PLYWOOD --------: GROUP 5, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR EXTERIOR GRADE MAY BE SUBSTITUTED; FED SPEC NN-P-530.

GENERAL NOTES

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).

B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO A LOAD OF 70-CONTAINER PALLET UNITS OF COMPLETE ROUNDS OF AMMUNITION PACKED IN T53 CYLINDRICAL METAL CONTAINERS. SUBSEQUENT REFERENCE TO UNIT MEANS THE PALLETIZED UNIT WITH AMMUNITION ITEMS. SEE PAGE 4 OF THIS DRAWING AND U.S. ARMY MATERIEL COMMAND (DARCOM) DRAWING NO. 19-48-4079/2-20PM1002 FOR DETAIL OF THE PALLETIZED UNIT. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE MAXIMUM GROSS WEIGHT OF 44,800 POUNDS MUST NOT BE EXCEEDED.

C. THE LOAD AS SHOWN IS BASED ON A 20' LONG BY 8' WIDE BY 8' HIGH MILVAN CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 87" HIGH. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC) SHIPMENT.

D. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES AS DESCRIBED WITHIN BUREAU OF EXPLOSIVES PAMPHLET 6C. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. THE HEIGHT DIMENSIONS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS CONFORM WITH BUREAU OF EXPLOSIVES PAMPHLET 6C, WITH THE EXCEPTION THAT TWO (2) ADDITIONAL BELT RAILS HAVE BEEN SHOWN; ONE AT 72" AND ONE AT 83" HIGH FROM THE CONTAINER FLOOR. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. EACH CROSS MEMBER WILL 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 CONTAINER). CROSS MEMBERS IN EMPTY CONTAINERS AND THOSE NOT USED IN LOADED CONTAINERS MUST BE FASTENED INTO BELT RAILS FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH CONTAINER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS. SEE THE "FILL DETAIL" AT THE LEFT, FOR THE DUNNAGING METHOD REQUIRED TO ELIMINATE AN EXCESSIVE LENGTHWISE VOID WITHIN A LOAD. THE LOAD BLOCKING COMPONENT DESIGNATED AS "CROSS MEMBER" HEREIN, IS IDENTIFIED AS BEAM ASSEMBLY WITHIN TM 85-8115-200-23 & P, DATED DECEMBER 1979. THE BEAM ASSEMBLY IS FURTHER IDENTIFIED AS NSN 8115-00-165-6623 (FSN 8115-165-6623).

E. DUNNAGE LUMBER SPECIFIED IS OF A NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.

F. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.

G. A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES 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.

H. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

J. THE THICKNESS OF SIDE FILL PIECES AS DEPICTED ON EACH SIDE OF THE LOAD MUST BE ADJUSTED, AS REQUIRED, TO COMPLY WITH THE DIMENSIONAL VARIANCE OF THE PALLET UNIT, SO AS TO NOT ALLOW MORE THAN ONE AND ONE-HALF INCH (1-1/2") VOID ACROSS THE WIDTH OF A BRACED LOAD. ADJUSTMENTS CAN BE MADE BY USING A DIFFERENT THICKNESS FILL PIECE OR BY LAMINATING ADDITIONAL PIECES TO THE SPECIFIED FILL PIECES ON ONE OR BOTH SIDES OF THE LOAD.

K. IF 1-3/8" THICK DIMENSIONAL LUMBER IS NOT AVAILABLE FOR THE SPECIFIED FILL MATERIAL, PIECES CAN BE MADE BY PLANING NOMINAL 2" X 4" MATERIAL TO THE PROPER THICKNESS. ALSO, STRIPS OF PLYWOOD CAN BE USED AS FILL MATERIAL. USE PLYWOOD OF DIFFERENT THICKNESS TO ACHIEVE THE SPECIFIED 1-3/8".

L. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENT MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454KG.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	16	35,968 LBS
DUNNAGE		678 LBS
CONTAINER		5,700 LBS
TOTAL GROSS WEIGHT		42,346 LBS

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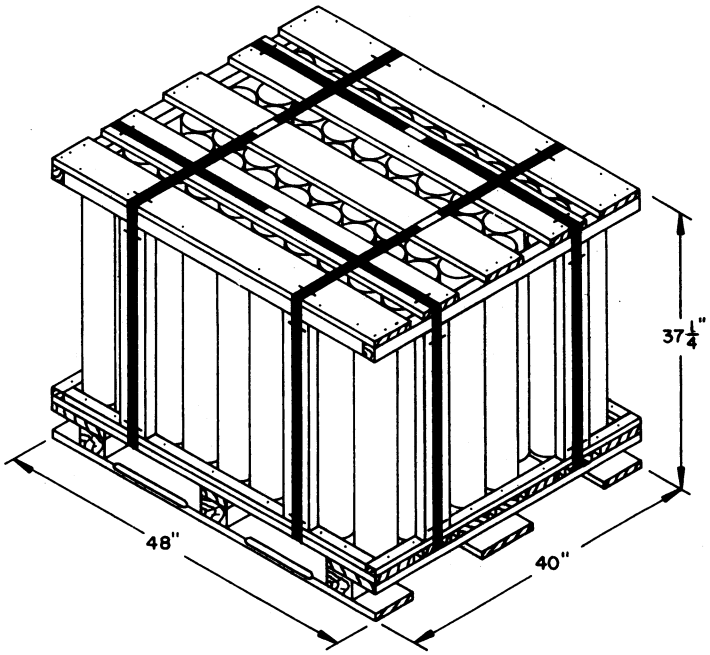
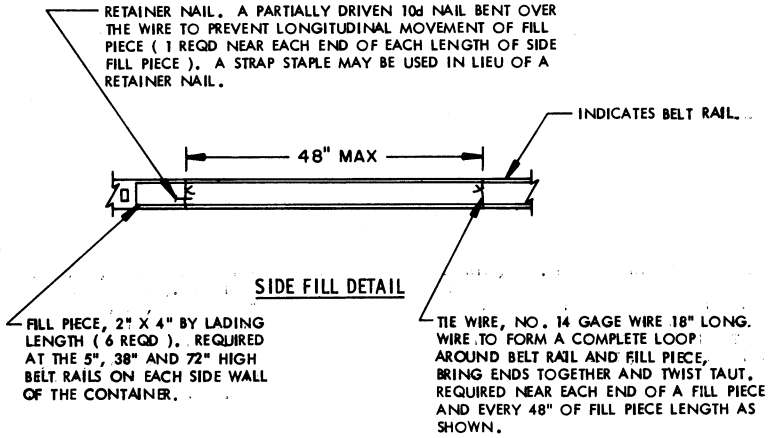
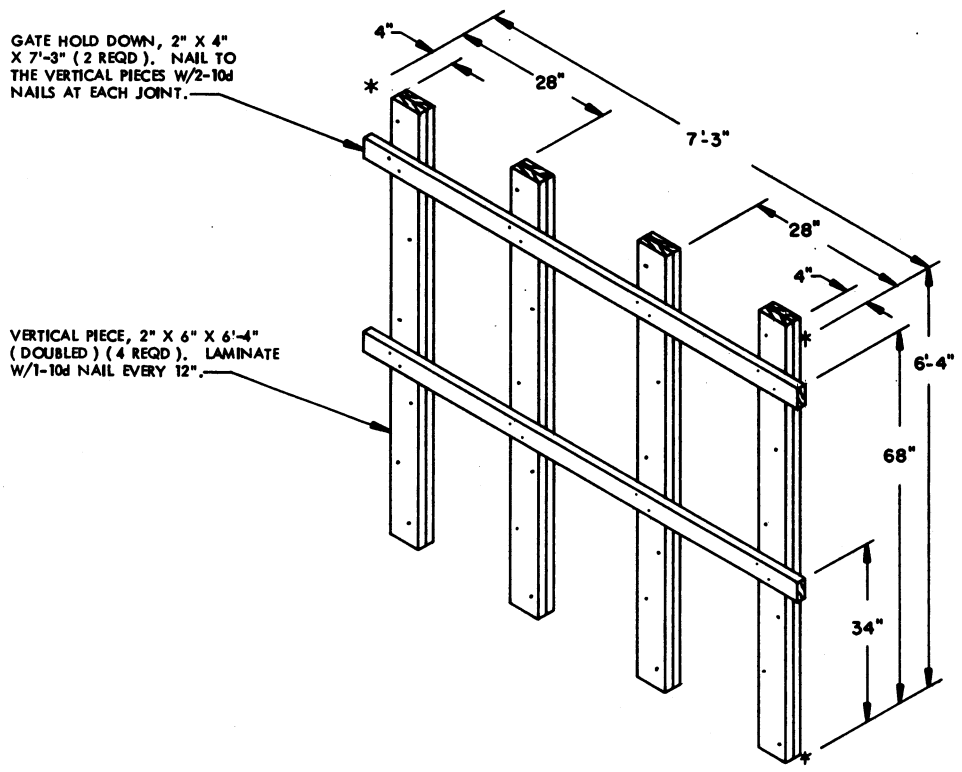


ISOMETRIC VIEW

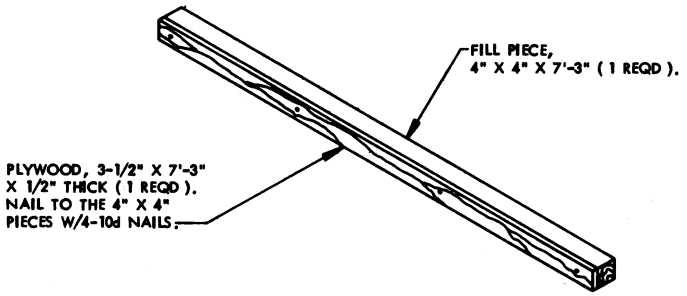
UNIT WEIGHT ---------- 2,248 LBS (APPROX)
CUBE ---------- 41.4 CU FT (APPROX)



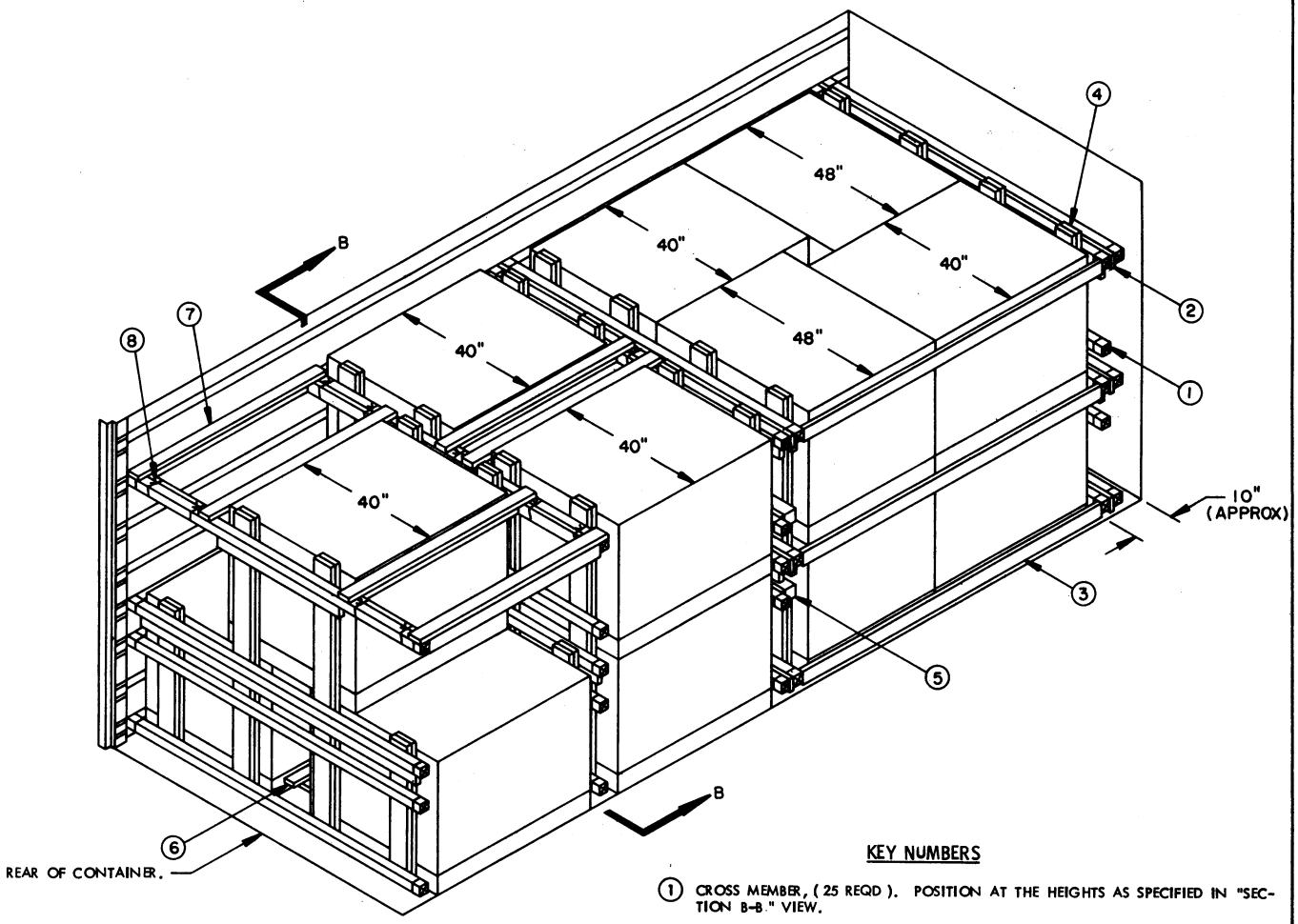
SIDE FILL DETAIL



LOAD BEARING GATE



FILLER ASSEMBLY



ISOMETRIC VIEW

KEY NUMBERS

(1) CROSS MEMBER, (25 REQD). POSITION AT THE HEIGHTS AS SPECIFIED IN "SECTION B-B." VIEW.

(2) FILL MATERIAL, 1-3/8" X 3-1/2" (6 REQD). SEE THE "FILL MATERIAL INSTALLATION" DETAIL ON PAGE 3.

(3) SIDE FILL, 2" X 4" X 7'-4" (6 REQD). RANDOM LENGTH PIECES MAY BE USED. WIRE TIE TO THE 5", 38", AND 72" HIGH BELT RAILS ON EACH SIDE OF THE CONTAINER. SEE THE "SIDE FILL" DETAIL ON PAGE 4.

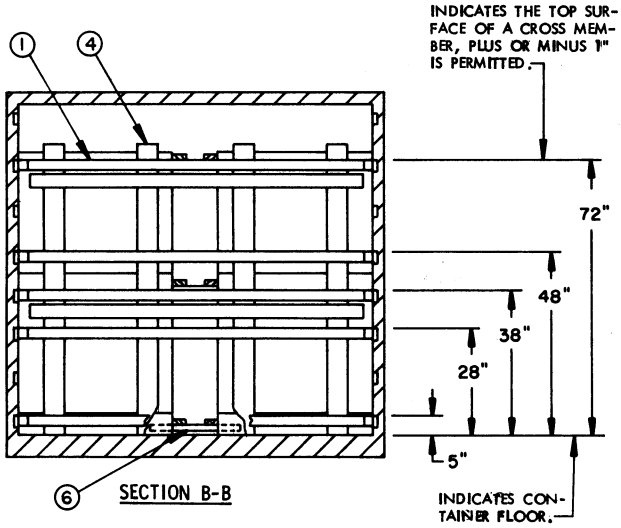
(4) LOAD BEARING GATE (4 REGULAR AND 2 MODIFIED REQD). POSITION WITH THE VERTICAL PIECES AGAINST THE PALLET UNITS. SEE THE "LOAD BEARING GATE" DETAIL ON PAGE 5 AND THE "MODIFIED LOAD BEARING GATE" DETAIL ON PAGE 7.

(5) FILLER ASSEMBLY (2 REQD). SEE THE "FILLER ASSEMBLY" DETAIL ON PAGE 5.

(6) LOWER ANTI-SWAY BRACE (3 REQD). SEE THE DETAIL ON PAGE 7.

(7) SPACER ASSEMBLY (3 REQD). SEE THE DETAIL ON PAGE 7.

(8) TIE WIRE, NO. 14 GAGE WIRE 18" LONG (10 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND THE SPACER ASSEMBLY AND CROSS MEMBER, BRING THE ENDS TOGETHER AND TWIST TAUT. SECURE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE OR WITH A STRAP STAPLE.



SECTION B-B

REDUCED-LOAD PROVISIONS

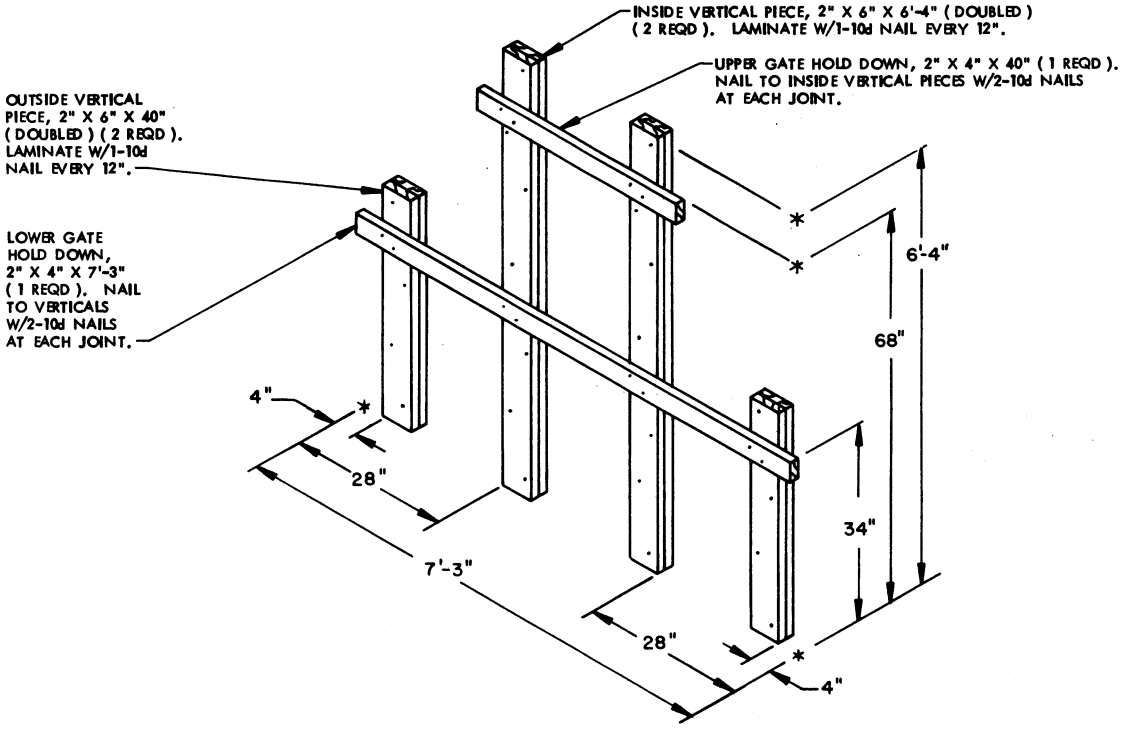
WHEN A MILVAN CONTAINER IS TO BE LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF A LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT IN A MILVAN AND THE FOLLOWING CRITERIA WILL APPLY.

A. IF A LOAD IS REDUCED BY ONLY A SMALL AMOUNT (ONE OR TWO LADING UNITS), LADING UNITS NORMALLY MAY BE ELIMINATED FROM THE REAR OF THE LOAD. THE REDUCED LOAD THEN MUST BE SHIFTED AFT, AS NECESSARY, TO ACHIEVE A SYMMETRICAL WEIGHT DISTRIBUTION.

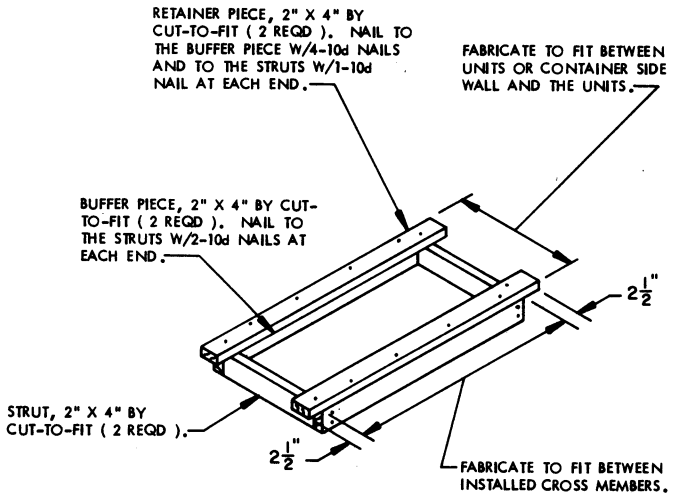
B. IF A LOAD IS REDUCED BY A LARGE AMOUNT (MORE THAN TWO LADING UNITS), LADING UNITS SHOULD BE ELIMINATED FROM LOCATIONS WITHIN THE LOAD OR LADING UNITS SHOULD BE ELIMINATED AS REQUIRED AND THE TOTAL LOAD SHIFTED, AS NECESSARY, FORE OR AFT, TO ACHIEVE A SYMMETRICAL WEIGHT DISTRIBUTION. THE DEPICTED PROCEDURES WILL BE FOLLOWED AS CLOSELY AS POSSIBLE, MAKING ONLY THOSE ADJUSTMENTS TO THE DUNNAGE WHICH ARE REQUIRED TO ACCOMODATE THE NUMBER OF UNITS TO BE SHIPPED.

C. COMBINATIONS OF THE VARIOUS DEPICTED LOADING PATTERNS MAY BE USED TO SATISFY THE NUMBER OF UNITS TO BE SHIPPED. EACH LOAD BAY, HOWEVER, WILL BE INDEPENDENTLY BLOCKED AS A SEPARATE LOAD BAY IN ACCORDANCE WITH THE DEPICTED PROCEDURES.

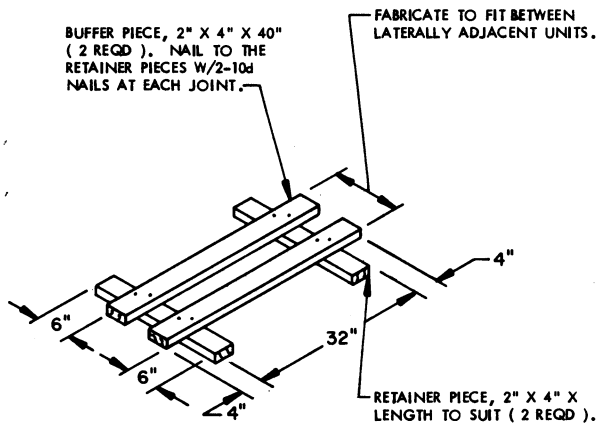
ALTERNATIVE LOADING PATTERN



MODIFIED LOAD BEARING GATE



TYPICAL SPACER ASSEMBLY



LOWER ANTI-SWAY BRACE

THIS ASSEMBLY MUST BE FABRICATED IN PLACE BETWEEN PALLETS.

ALTERNATIVE LOADING PATTERN

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