APPROVED BY BUREAU OF EXPLOSIVES

Dr Herb DATE 6-29-95

TOW

LOADING AND BRACING IN MILVAN CONTAINERS OF GUIDED MISSILES PACKED ONE PER CNU-553/E CYLINDRICAL METAL CONTAINER

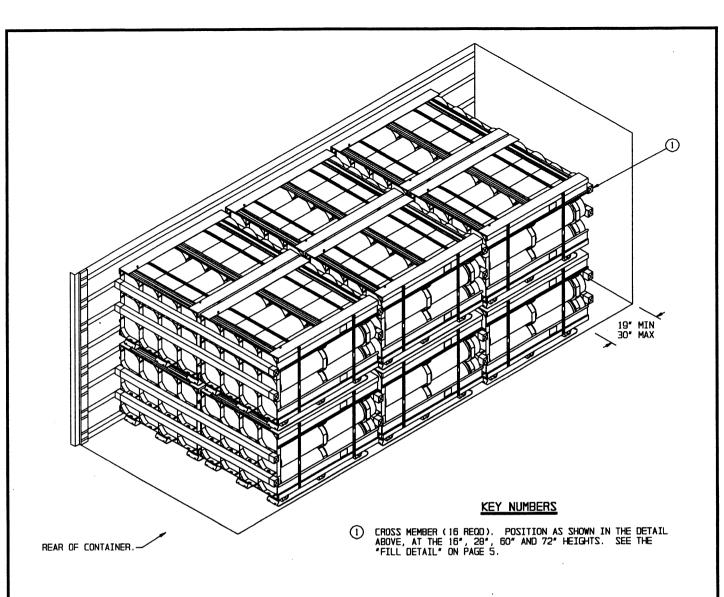
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- LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY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

	U.S. ARMY MATERI	EL C	OMMA	ND DR	AWING
	APPROVED, U.S. ARMY MISSILE COMMAND	DRAFT:	SMAN	TECHNICIAN	ENGINEER
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	William F Ernst	JUNE 1994			
	U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	CLASS	NOIZIVID	DRAWING	FILE
DO NOT SCALE		19	48	8213	GM15T07



ISOMETRIC VIEW

NWOHZ ZA CAOL

BILL OF MATERIAL

CROSS MEMBER - - - - - - - - - - 16 REQU

PAGE 2

12 PALLET UNIT LOAD

(GENERAL NOTES CONTINUED)

- K. PORTIONS OF THE MILVAN DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- L. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4 MM AND ONE POUND EQUALS 0.454 KG.
- M. TO MAKE LOADING EASIER, TO HELP ACHIEVE A TIGHT LOAD ACROSS A CONTAINER, AND TO PREVENT UNACCEPTABLE DAMAGE TO LADING UNITS WHEN LOADING A MILVAN, A SLIP-SHEET CAN BE USED EFFECTIVELY AS A "SHOEHORN" TYPE DEVICE. THE SLIP-SHEET WILL PROVIDE A SMOOTH SURFACE THAT WILL PREVENT UNIT STRAPS AND/OR CONTAINERS FROM INTERLOCKING OR CATCHING ON OTHER PROJECTIONS WHEN LATERALLY ADJACENT LADING UNITS ARE BEING LOADED. A SLIP-SHEET WILL BE USED AFTER ONE-HALF OF A STACK IS LOADED WITH ONE OF ITS SIDES IN TIGHT CONTACT AT ONE SIDE OF THE MILVAN. THE SLIP-SHEET IS TO BE PLACED AGAINST THE OTHER SIDE OF THE HALF-STACK BEFORE THE LAST HALF OF THE STACK IS LOADED. AFTER A STACK IS COMPLETED, THE SLIP-SHEET IS TO BE REMOVED FOR SUBSEQUENT USE WITH THE NEXT STACK. A SLIP-SHEET OF SUITABLE SIZE CAN BE MADE FROM A SHEET OF 1/8" TEMPERED HARDBOARD (MASONITE) OR FROM A SHEET OF ANY OTHER MATERIAL THAT WILL SATISFY THE REQUIREMENTS.

N. MAXIMUM LOAD WEIGHT CRITERIA:

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION 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 TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

O. SPECIAL T/COFC NOTES:

- CAUTION: LOADED CONTAINERS MUST BE ON CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE, REGARDLESS OF THE LOAD WEIGHT WITHIN THE CONTAINER.
- 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.
- 3. 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 OVERHANG 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.
- P. WHEN LOADING CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 1-1/2°. EXCESSIVE SLACK CAN BE ELIMINATED BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE LONGITUDINAL PIECES ON THE CRIB FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO THE VERTICAL PIECE W/I APPROPRIATELY SIZED NAIL EVERY 12°. ADDITIONALLY, THE LENGTH OF THE LATERAL PIECES IN THE CRIB FILL ASSEMBLY MAY BE ADJUSTED, AS NECESSARY, TO FACILITATE VARIANCE IN THE CONTAINER SIZE.
- O. THE QUANTITY OF CONTAINERS SHOWN IN THE LOADS ON PAGES 2, 4, AND 6 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "LESS-THAN-FULL-LOAD" DETAILS ON PAGE 8. WHEN A MILVAN IS TO BE LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE MILVAN.
- R. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE CNU-553/E CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED GUIDED MISSILE, OR WHEN THEY ARE FMPTY
- ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN PALLET UNITS, AND BETWEEN PALLET UNITS AND THE MILVAN, IF DESIRED, TO PREVENT CHAFING DAMAGE TO PAINT AND MARKINGS.

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS IM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO THE TOW GUIDED MISSILE PACKED ONE PER CNU-553/E CYLINDRICAL METAL CONTAINER. SUBSECUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MISSILE COMPONENTS. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE MILVAN MUST NOT BE EXCEEDED.
- C. FOR DETAIL OF THE PALLET UNIT, SEE U.S. ARMY MATERIEL COMMAND DRAWING NO. 19-48-5268-GM20T02 AND PAGE 3.
 - PALLET DIMENSIONS - - 45-1/2" LONG X 58-15/16" WIDE X 38-7/16" HIGH (APPROX)

 GROSS WEIGHT - - 1,542 POUNDS (APPROX)

 CUBE - - - - 59.7 CUBIC FEET (APPROX)
- D. THE LOADS AS SHOWN ARE 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 LOADS ARE DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT.
- E. 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 WEIGHT DIMENSIONS SPECIFIED
 WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS
 CONFORM WITH THE BUREAU OF EXPLOSIVES PAMPHLET 6C, WITH THE
 EXCEPTION THAT TWO ADDITIONAL BELT RAILS HAVE BEEN HAVE BEEN
 CONNOWN: 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 HEIGHT 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 LUNUSED DURING SOME SHIPMENTS.
 SEE THE "FILL DETAIL" ON PAGE 5 FOR THE DUNNAGING METHOD
 REOUIRED 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 55-8115-200-23 & P, DATED DECEMBER 1979. THE BEAM
 ASSEMBLY IS FURTHER IDENTIFIED AS NSN 8115-00-165-6623.
- F. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN MILVANS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THAT 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.
- G. DUNNAGE LUMBER SPECIFIED IS OF A NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- H. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE MILVAN WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER 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.

(CONTINUED AT LEFT)

MATERIAL SPECIFICATIONS

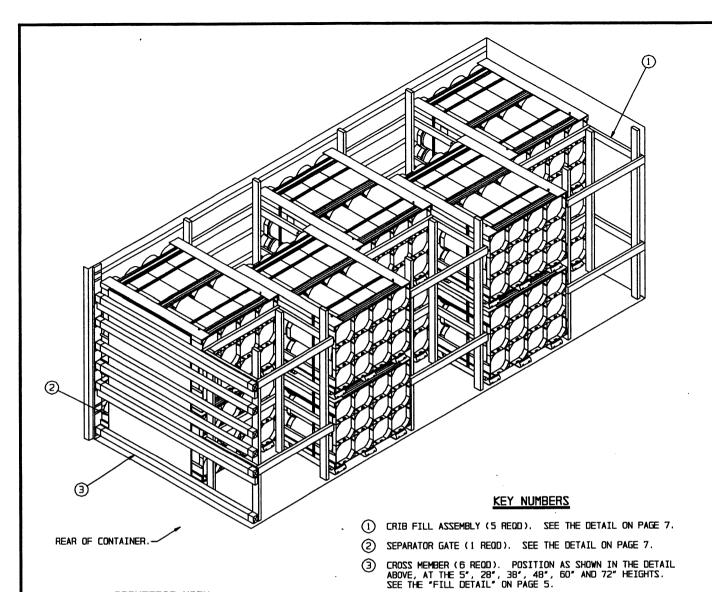
NAILS ----: FED SPEC FF-N-105; COMMON.

PLYWOOD ----: COMMERCIAL ITEM DESCRIPTION A-A-55057,
TYPE A, CONSTRUCTION AND INDUSTRIAL
PLYWOOD, INTERIOR WITH EXTERIOR GLUE,
GRADE C-D. IF SPECIFIED GRADE IS NOT
AVAILABLE, A BETTER INTERIOR OR AN
EXTERIOR GRADE MAY BE SUBSTITUTED.

ANTI-CHAFING

MATERIAL - - - - - : MIL-B-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.

PAGE 3



ISOMETRIC VIEW

BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
2" X 4"	271	181	
NAILS	NO. REOD	SONDO	
6d (2") 10d (3")	12 160	1/4 2-1/2	
PLYWOOD, 1/2" 25.33 SO FT REOD 34.83 LBS			
CROSS MEMBER 6 REQD			

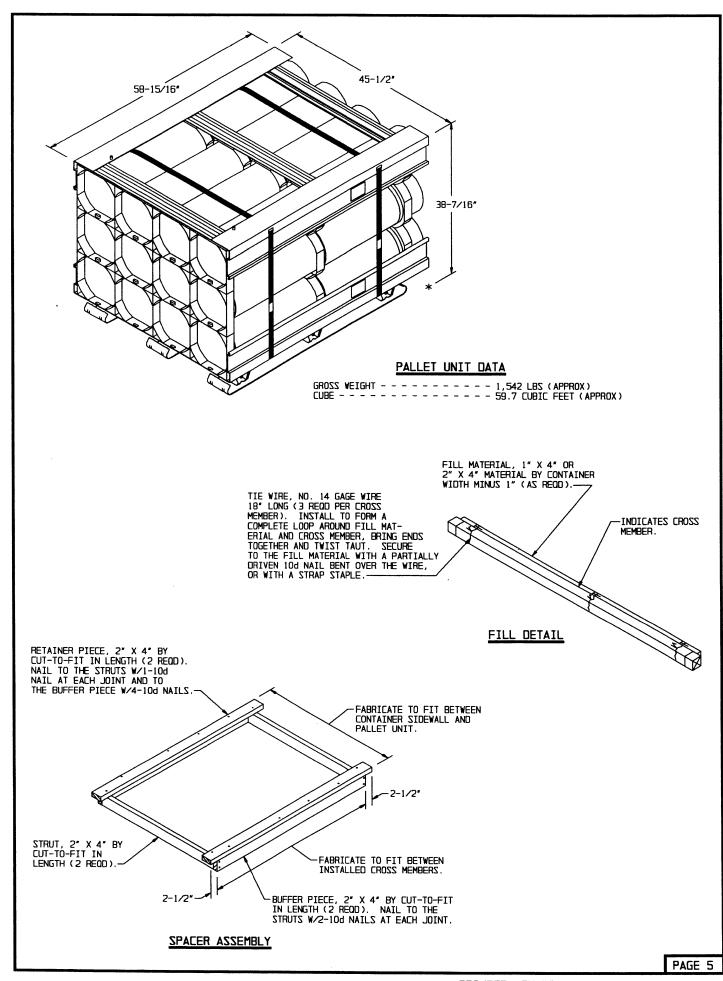
LOAD AS SHOWN

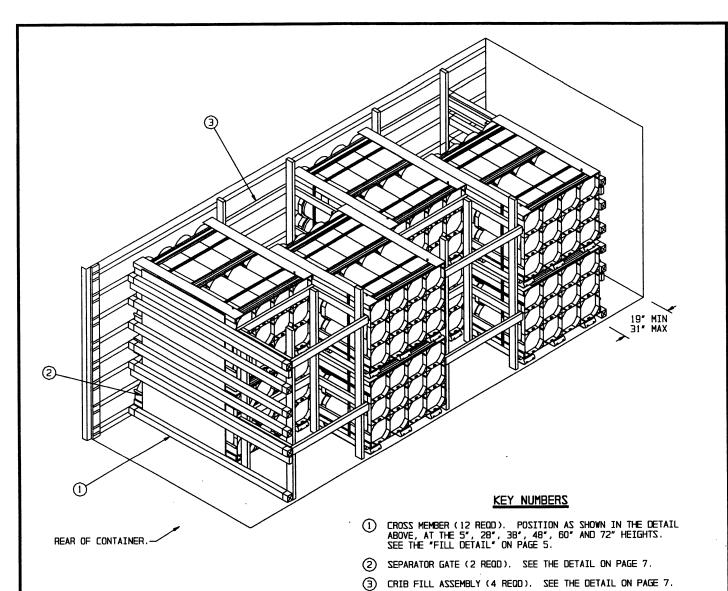
ITEM	QUANTITY	WEIGHT (APPROX)
DUNNAGE	10	400 LBS

TOTAL WEIGHT - - - - - - 21,520 LBS (APPROX)

PAGE 4

10 PALLET UNIT LOAD





ISOMETRIC VIEW

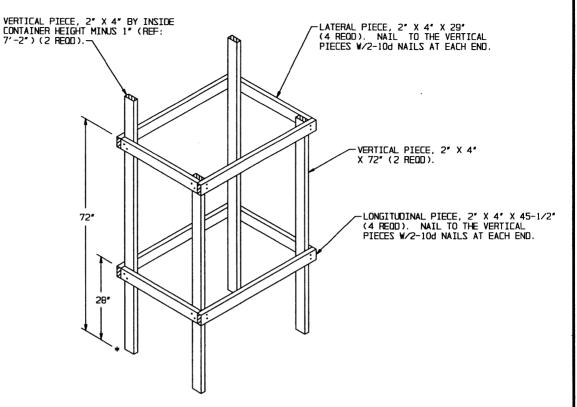
BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
2" X 4"	235	157	
NAILS	NO. REQD	POUNDS	
6d (2") 10d (3")	24 128	1/4 2	
PLYWOOD, 1/2" 50.67 SQ FT REQD 69.67 LBS			
CROSS MEMBER 12 REOD			

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
DUNNAGE		- 386 LBS

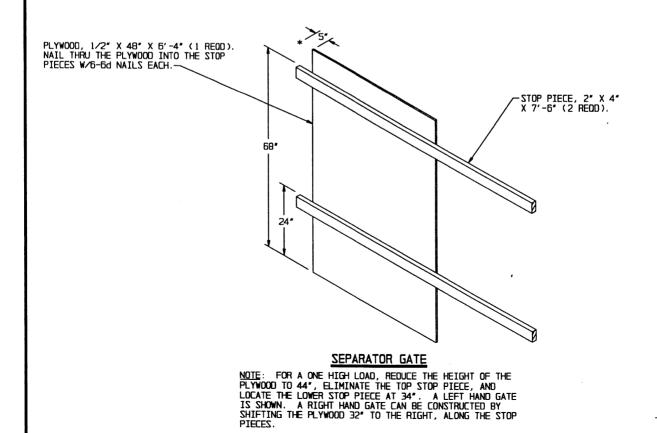
TOTAL WEIGHT - - - - - - 18,422 LBS (APPROX)

PAGE 6 EIGHT PALLET UNIT LOAD

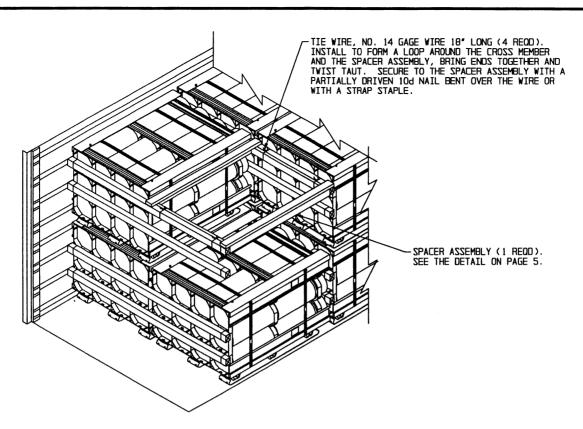


CRIB FILL ASSEMBLY

NOTE: FOR A ONE HIGH LOAD, REPOSITION THE TOP TWO LONGITUDINAL PIECES AND THE TOP TWO LATERAL PIECES AT 38", AND REPOSITION THE LOWER TWO LONGITUDINAL PIECES AND THE LOWER TWO LONGITUDINAL PIECES AND THE LOWER TWO LATERAL PIECES AT 18". SHORTEN THE 72" VERTICAL PIECES APPROPRIATELY. THE LENGTH OF THE LATERAL PIECES IS DEPENDENT ON THE VOID BETWEEN THE PALLET UNIT AND THE CONTAINER SIDEWALL.

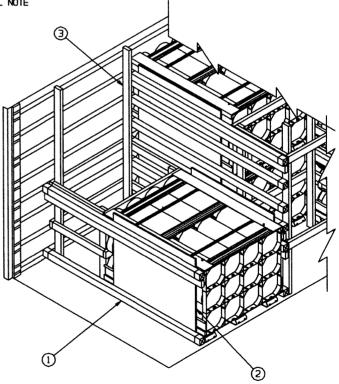


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LESS-THAN-FULL-LOAD PROCEDURE

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL CONTAINER LOAD WHEN LOADED IN THE PATTERN DEPICTED ON PAGE 2 (LESS THAN 12 UNITS). SEE GENERAL NOTE "O" ON PAGE 3.



LESS-THAN-FULL-LOAD PROCEDURE

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL CONTAINER LOAD WHEN LOADED IN THE PATTERN DEPICTED ON PAGES 4 OR 6 (LESS THAN 10 UNITS). KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 6. NOTE THAT THE DUNNAGE ASSEMBLIES USED WITH THE SINGLE PALLET UNIT HAVE BEEN MODIFIED AS DESCRIBED ON PAGE 7. SEE GENERAL NOTE "O" ON PAGE 3.