

LOADING AND BRACING* IN MILVAN CONTAINERS[⊗] OF MAU-91 FIN ASSEMBLIES FOR M117 750-POUND BOMBS PACKED IN WIREBOUND PALLET BOXES

INDEX

ITEM	PAGE(S)
TYPICAL LOADING PROCEDURES - - - - -	2
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	3
PALLET UNIT DETAILS - - - - -	4
DETAILS - - - - -	5
LESS-THAN-FULL-LOAD PROCEDURES - - - - -	6

*THE PROCEDURES SHOWN HEREIN ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY CONTAINER-ON-FLATCAR (COFC) RAIL, MOTOR, OR WATER CARRIERS.

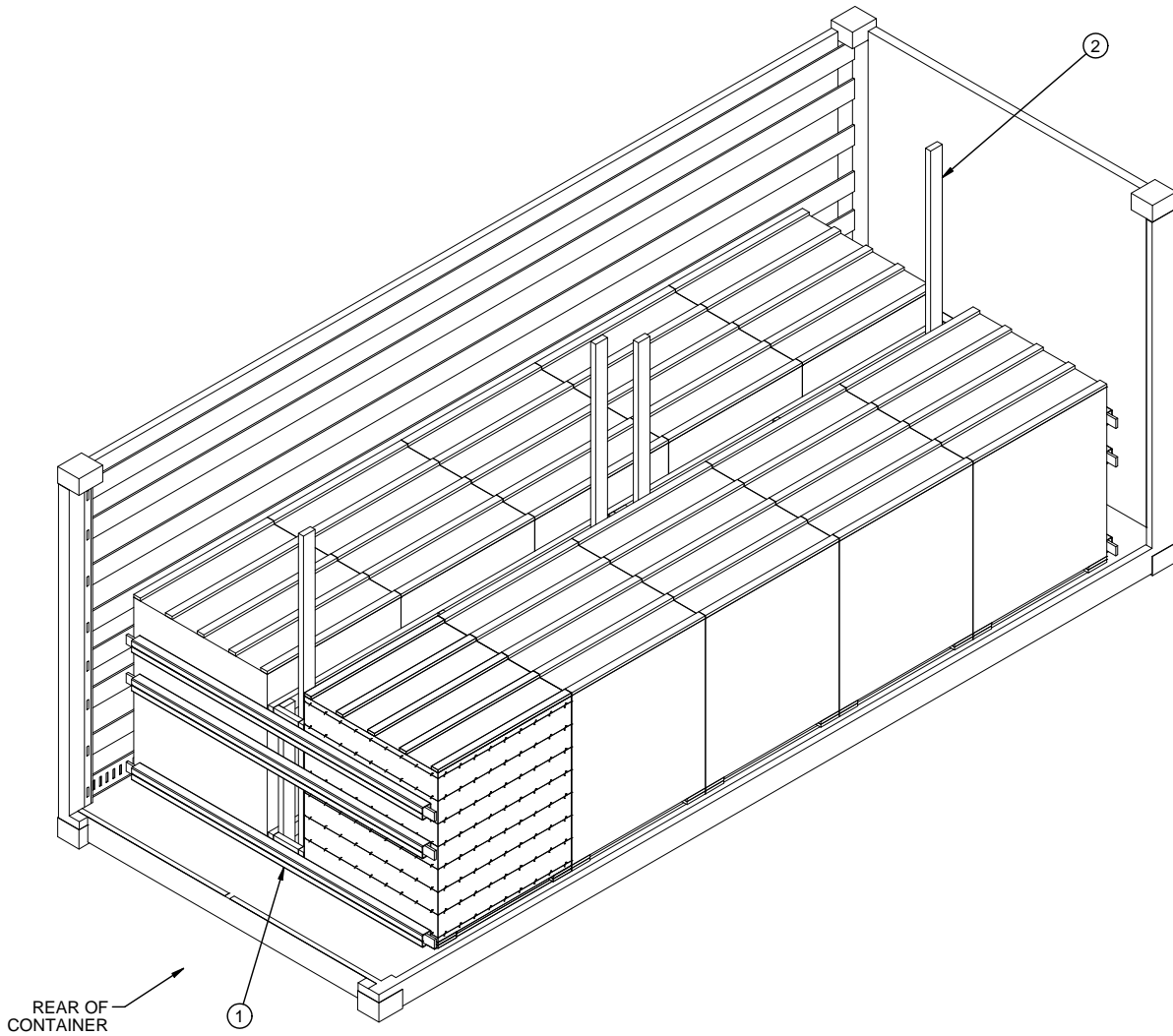
⊗ONLY MILVAN CONTAINERS WHICH HAVE BEEN MODIFIED TO INCLUDE A MECHANICAL LOAD BRACING SYSTEM THAT SATISFIES THE REQUIREMENTS OF THE BUREAU OF EXPLOSIVES PAMPHLET 6C WILL BE USED FOR THE MOVEMENT OF AMMUNITION BY T/COFC SERVICE.

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U.S. ARMY MATERIEL COMMAND DRAWING

<p>APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND</p> <p>RUS.ALLEN.J .1230354282</p> <small>Digitally signed by RUS.ALLEN.J.1230354282 DN: c=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=RUS.ALLEN.J.1230354282 Date: 2014.11.04 10:49:04 -06'00'</small>	<p>CAUTION: VERIFY PRIOR TO USE AT HTTPS://MHP.REDSTONE.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 6.</p>						
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	<p>ENGINEERING DIVISION</p>	<p>TEST ENGINEER</p>	<p>FIEFFER.LAUR A.A.1230375727</p>	<p>CLASS</p>			
	<p>TEST REPORT</p>	<p>EXPLOSIVE SAFETY DIRECTORATE</p>	<p>NA</p>	<p>FELICIANO.AD IN.1259200373</p>	<p>DIVISION</p>		
			<p>CAMBON.KIMBE RLY.K.1229953512</p>	<p>DRAWING</p>	<p>FILE</p>		
				<p>19</p>	<p>48</p>	<p>4319</p>	<p>15PA1011</p>



ISOMETRIC VIEW

KEY NUMBERS

- ① CROSS MEMBER (6 REQD). POSITION AS SHOWN IN THE DETAIL ABOVE AT THE 5", 28", AND 38" HEIGHTS. SEE THE "FILL DETAIL" ON PAGE 5.
- ② CENTER FILL ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	116	77
NAI LS	NO. REQD	POUNDS
10d (3")	80	1-1/4
CROSS MEMBER	----- 6 REQD	

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	10	6,460 LBS
DUNNAGE		156 LBS
CONTAINER		5,700 LBS
TOTAL WEIGHT		12,316 LBS (APPROX)

GENERAL NOTES

(GENERAL NOTES CONTINUED)

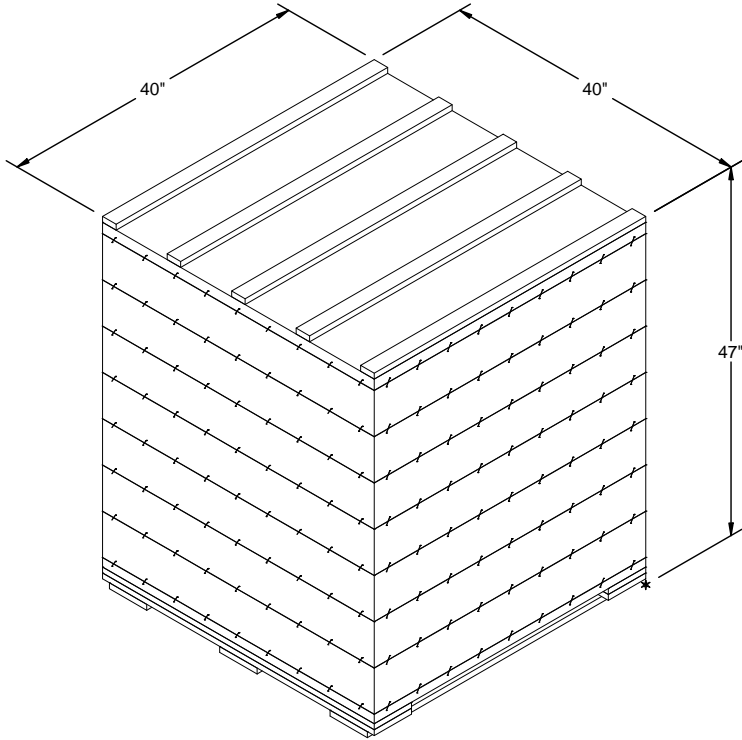
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF MAU-91 FIN ASSEMBLIES PACKED IN WIREBOUND PALLET BOXES. SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS PALLET UNIT WITH FIN ASSEMBLIES. SEE AIR FORCE TPO 00-933-6451 AND PAGE 4 FOR DETAILS OF THE PALLET UNIT. **CAUTION:** REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE MILVAN CONTAINER MUST NOT BE EXCEEDED.
- C. 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.
- D. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES AS DESCRIBED IN MIL-C-52661. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. 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. SEE THE "FILL DETAIL" ON PAGE 5 FOR ADDITIONAL GUIDANCE. 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 THERE WITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS. 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.
- E. WHEN LOADING PALLET UNITS, 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 CENTER FILL ASSEMBLIES W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE LENGTH OF THE LATERAL PIECES IN THE CENTER FILL ASSEMBLY MAY BE ADJUSTED, AS NECESSARY, TO FACILITATE VARIANCE IN THE CONTAINER SIZE.
- F. DUNNAGE LUMBER SPECIFIED IS OF 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.
- G. 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.
- H. **CAUTION:** DO NOT NAIL DUNNAGE MATERIAL TO THE MILVAN WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. 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.
- K. **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 OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

- L. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:
 1. **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.
 2. 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 RAILCAR. 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.
- M. WHETHER A CONTAINER IS FULL OR IS 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 CONTAINER.
- N. THE QUANTITY OF PALLET UNITS SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "LESS-THAN- FULL-LOAD PROCEDURES" ON PAGE 6.
- O. 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 25.4MM AND ONE POUND EQUALS 0.454 KG.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS - - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMS).
- WIRE, CARBON STEEL - - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.



PALLET UNIT

GROSS WEIGHT - - - - - 646 LBS (APPROX)
CUBE - - - - - 43.5 CU FT (APPROX)

LONGITUDINAL PIECE, 2" X 4" X 8'-4" (4 REQD).
 NAIL TO THE VERTICAL PIECES W/2-10d NAILS
 AT EACH END. NAIL TO THE CENTER LATERAL
 PIECE W/2-10d AT THE JOINT.

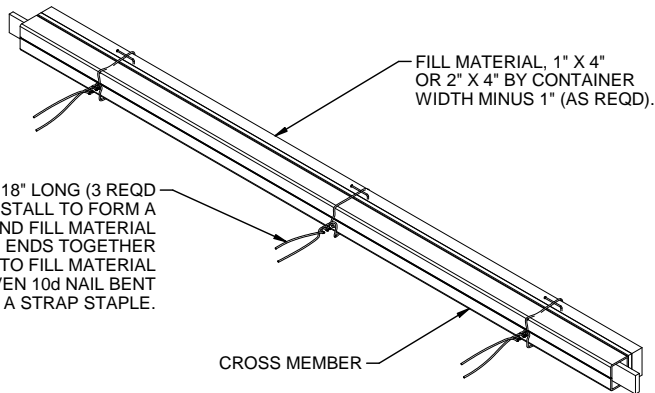
VERTICAL PIECE, 2" X 4" BY
 INSIDE CONTAINER HEIGHT
 MINUS 1" (REF: 7'-2") (2 REQD).

VERTICAL PIECE,
 2" X 4" X 38-1/2"
 (2 REQD).

2"

LATERAL PIECE, 2" X 4" X
 7-1/2" (6 REQD). NAIL THE
 OUTER LATERAL PIECES
 TO VERTICAL PIECES
 W/2-10d AT EACH END.

CENTER FILL ASSEMBLY



FILL MATERIAL, 1" X 4"
 OR 2" X 4" BY CONTAINER
 WIDTH MINUS 1" (AS REQD).

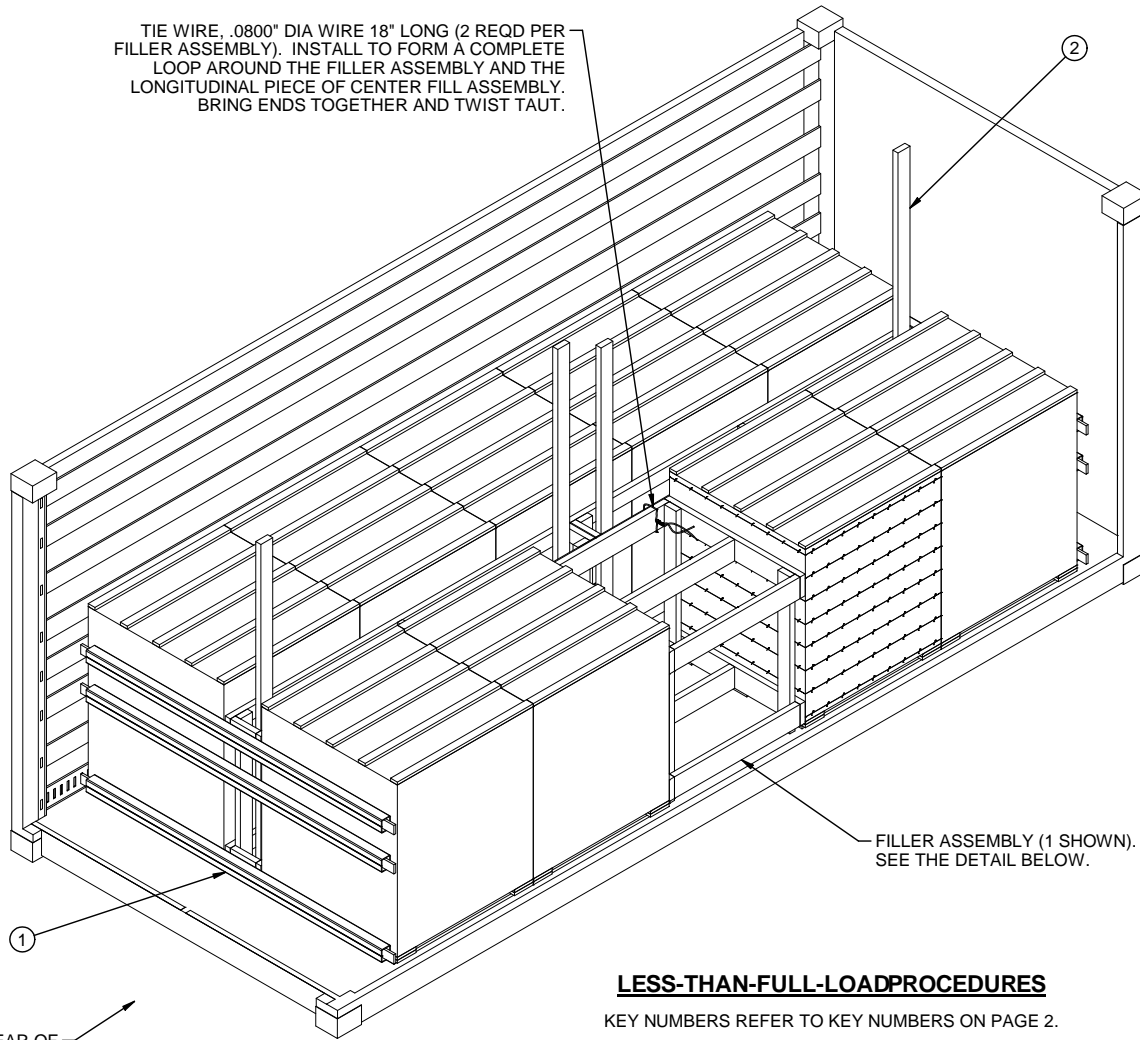
TIE WIRE, 0.0800" DIA WIRE 18" LONG (3 REQD
 PER CROSSMEMBER). INSTALL TO FORM A
 COMPLETE LOOP AROUND FILL MATERIAL
 AND CROSS MEMBER, BRING ENDS TOGETHER
 AND TWIST TAUT. SECURE TO FILL MATERIAL
 WITH A PARTIALLY DRIVEN 10d NAIL BENT
 OVER THE WIRE, OR WITH A STRAP STAPLE.

CROSS MEMBER

FILL DETAIL

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

TIE WIRE, .0800" DIA WIRE 18" LONG (2 REQD PER FILLER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE FILLER ASSEMBLY AND THE LONGITUDINAL PIECE OF CENTER FILL ASSEMBLY. BRING ENDS TOGETHER AND TWIST TAUT.

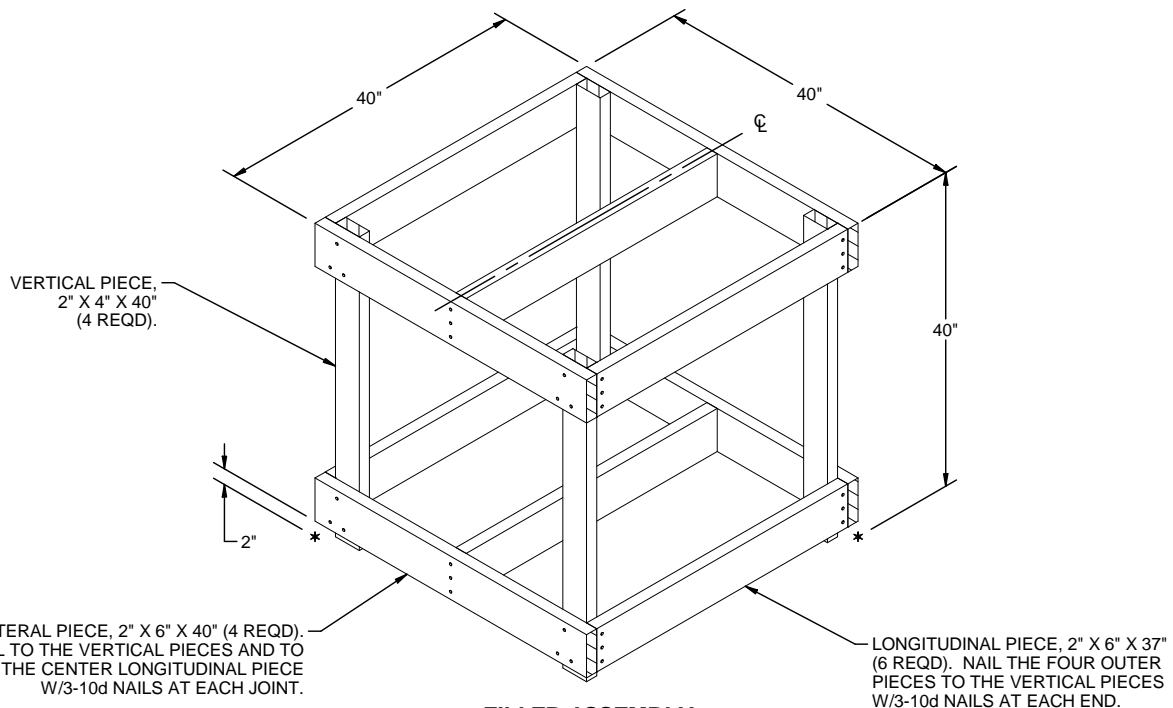


FILLER ASSEMBLY (1 SHOWN). SEE THE DETAIL BELOW.

LESS-THAN-FULL-LOADPROCEDURES

KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2.

REAR OF CONTAINER



VERTICAL PIECE, 2" X 4" X 40" (4 REQD).

LATERAL PIECE, 2" X 6" X 40" (4 REQD). NAIL TO THE VERTICAL PIECES AND TO THE CENTER LONGITUDINAL PIECE W/3-10d NAILS AT EACH JOINT.

LONGITUDINAL PIECE, 2" X 6" X 37" (6 REQD). NAIL THE FOUR OUTER PIECES TO THE VERTICAL PIECES W/3-10d NAILS AT EACH END.

FILLER ASSEMBLY

THIS ASSEMBLY IS FOR USE IN PLACE OF AN OMITTED PALLET UNIT. DO NOT INSTALL A FILLER ASSEMBLY IMMEDIATELY ADJACENT TO ANOTHER FILLER ASSEMBLY.