

UNITIZATION PROCEDURES FOR BRADLEY ARMOR TILE COMBINA- TION PALLET, PACKED VARIOUS QUANTITIES IN VARIOUS WOODEN BOXES, UNITIZED 16 BOXES PER 40" X 48" PALLET; BOX SIZE VARIES

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U.S. ARMY MATERIEL COMMAND DRAWING

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VALIDATION ENGINEERING DIVISION		BARICKMAN. PHILIP.W.123 0202202 <small>Digitally signed by BARICKMAN PHILIP W.12302202 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=BARICKMAN.PHILIP.W.12302202 Date: 2010.10.11 14:18:40 -0500</small>		TESTED	
ENGINEERING DIRECTORATE		BEAVER.JERRY W.1230949952 <small>Digitally signed by BEAVER JERRY W.1230949952 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=BEAVER.JERRY.W.1230949952 Date: 2010.12.10 11:21:59 -0500</small>		CLASS 19	DIVISION 48
U.S. ARMY DEFENSE AMMUNITION CENTER		DRAWING 4221/9	FILE 20PA1009		

PALLET UNIT DATA					
ITEMS INCLUDED			●HAZARD CLASS AND DIVISION	●COMPATIBILITY GROUP	APPROX WEIGHT (LBS)
TILE	NSN	DODIC			
	1375-				
M3A2	01-516-1625	MN92*	1. 2. 3	D	- - -
M5A2	01-516-1642	ML95*	1. 2. 3	D	- - -
M6A1	01-410-7415	ML98*	1. 4	D	- - -
M7A1	01-410-7417	ML99*	1. 4	D	- - -

●HAZARD CLASSIFICATION DATA CONTAINED IN THE ABOVE CHART IS FOR GUIDANCE AND INFORMATIONAL PURPOSES ONLY. VERIFICATION OF THE SPECIFIED DATA SHOULD BE MADE BY CONSULTING THE MOST RECENT JOINT HAZARD CLASSIFICATION SYSTEM LISTING OR OTHER APPROVED LISTING(S).

*THIS UNIT IS PART OF A SET, FOR NSN INFORMATION PLEASE CONSULT COMBINATION OF ADOPTED ITEMS DRAWING 13004403.

REVISIONS

REVISION NO. 1, DATED MAY 2004, CONSISTS OF:

1. ADD NSNS AND TILE IDENTIFICATION TO PALLET UNIT DATA CHART ABOVE.
2. CHANGE MODEL NUMBERS FROM M3AE1 AND M5AE1 TO M3A2 AND M5A2 RESPECTIVELY.
3. ADD BOX OF BOLTS AND MODIFY FILLER ASSEMBLIES.
4. CHANGE BOX NUMBERS IN GENERAL NOTES.
5. DELETE HORIZONTAL STRAPS AND UPDATE GENERAL NOTES.
6. UPDATE M3A2 QUANTITY TO NINE FULL BOXES FROM EIGHT FULL/ONE LIGHT.

REVISION NO. 2, DATED AUGUST 2004, CONSISTS OF:

1. MODIFY FILLER ASSEMBLIES "C" AND "F" ON PAGES 5 AND 6 RESPECTIVELY.
2. ADD TWO ADDITIONAL TIEDOWN STRAPS.
3. UPDATE BILL OF MATERIAL AND PALLET UNIT DATA.
4. CHANGE GENERAL NOTE "D".
5. ADD NEW GENERAL NOTE "O" AND UPDATE GENERAL NOTES.

REVISION NO. 3, DATED DECEMBER 2010, CONSISTS OF CHANGES PER ECP R09M2021 INCLUDING:

1. MODIFYING DUNNAGE TO ACCOMMODATE NEW DIMENSIONS OF THE BOXES PER ECP R09T2018 AND ADDING FILLER ASSEMBLY "G".
2. ELIMINATING THE BOLT BOX AND ALL REFERENCES THERETO.

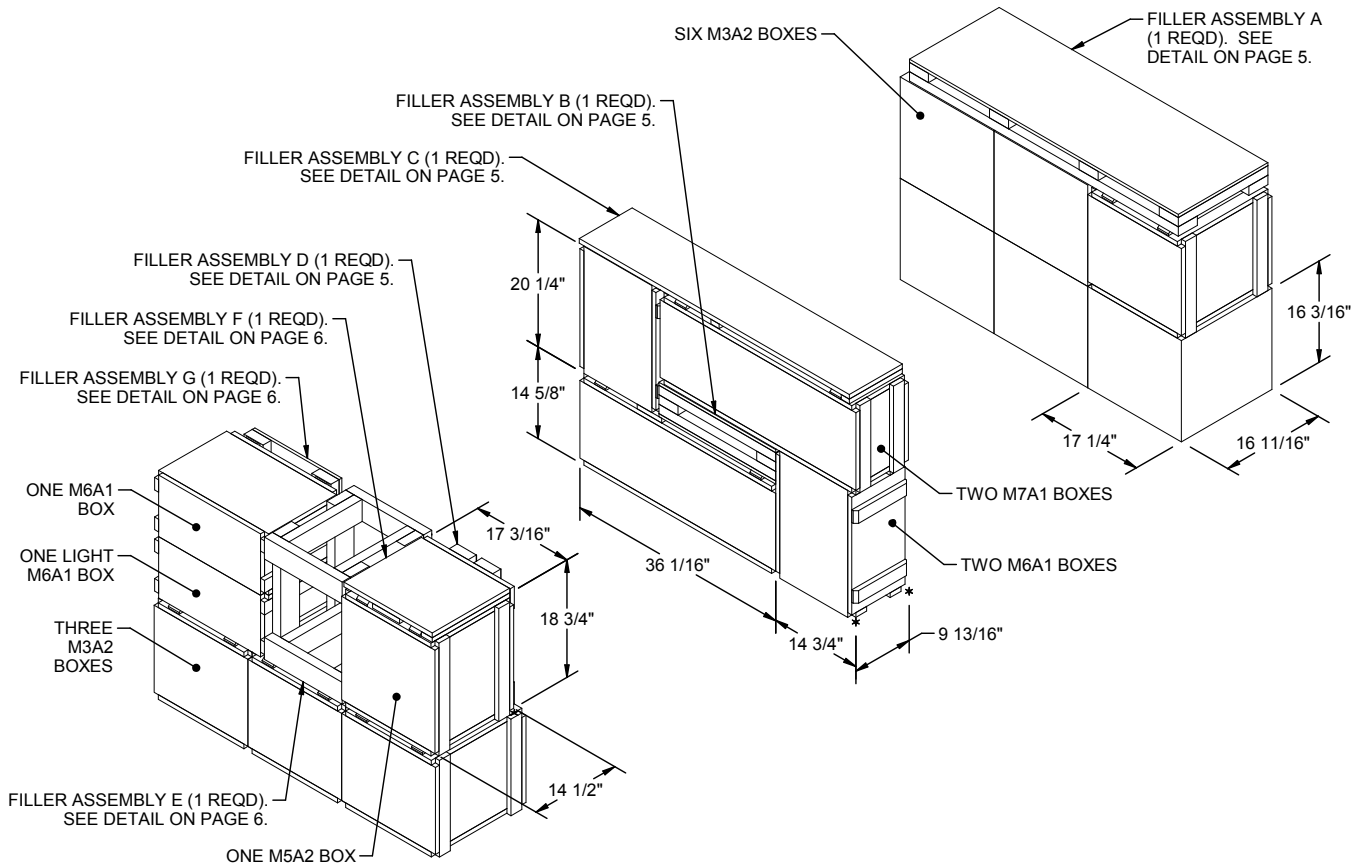
GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5) AND CONFORMS TO MIL-STD-1660.
- B. DIMENSIONS, CUBE AND WEIGHT OF A PALLET UNIT WILL VARY SLIGHTLY DEPENDING UPON THE ACTUAL DIMENSIONS OF THE BOXES AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.
- C. 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.
- D. THE LOAD STRAPS MUST BE PRE-POSITIONED ON THE PALLET DECK PRIOR TO PLACING BOXES ON THE PALLET. LOAD STRAPS MUST BE TENSIONED AND SEALED PRIOR TO APPLICATION OF TIEDOWN STRAPS.
- E. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE DECK/STRINGER BOARDS OF THE PALLET AND TO BE LOCATED AS SHOWN. TIEDOWN STRAPS WILL NOT BE APPLIED UNTIL THE LOAD STRAPS HAVE BEEN TENSIONED AND SEALED.
- F. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS DRAWING.
 - CARLOADING - - - - 19-48-4115-5PA1002
 - TRUCKLOADING - - - - 19-48-4117-11PA1003
 - STORAGE - - - - 19-48-4118-1-2-3-4-14-22PA1002
 - END OPENING ISO
 - CONTAINER - - - - 19-48-4153-15PA1002
 - MILVAN - - - - 19-48-4166-15PA1003
 - SIDE OPENING ISO
 - CONTAINER - - - - 19-48-4267-15PA1009
- G. IF ITEMS COVERED HEREIN ARE UNITIZED PRIOR TO ISSUANCE OF THIS REVISION TO THIS DRAWING, THE BOXES NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THIS REVISION.
- H. THE UNITIZATION PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR UNITIZING ARMOR TILES WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS (NSN) THAN WHAT IS SHOWN ON PAGE 2. PROVIDED THE BOX PACK DOES NOT VARY FROM WHAT IS DELINEATED HEREIN. THE EXPLOSIVE CLASSIFICATION OF OTHER ITEMS MAY BE DIFFERENT THAN WHAT IS SHOWN.
- J. ALL WOODEN DUNNAGE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH GENERAL NOTE "AA" IN AMC DRAWING 19-48-4116-20PA1002, AND HEAT TREATED IN ACCORDANCE WITH GENERAL NOTE "JJ" IN AMC DRAWING 19-48-4116-20PA1002.
- K. THE WOODEN BOXES ARE MIL-DTL-2427 BOXES. FOR DETAILS OF THE BOXES SEE THE FOLLOWING ARDEC DRAWINGS: M3A2 - 13004396, M5A2 - 12590209, M6A1 - 12590330, M7A1 - 12590323.
- L. DIMENSIONS GIVEN FOR DUNNAGE (FILLER ASSEMBLIES) WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY. THIS GUIDANCE MUST BE APPLIED PRIOR TO BEGINNING A PALLETIZING OPERATION BECAUSE DEMENSIONS OF WOODEN BOXES WILL VARY. DUE TO VARIATION OF PACKAGE DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION AND/OR SIZE OF CERTAIN PIECES ON DUNNAGE ASSEMBLIES. THIS DRAWING USES ADVISORY OUTSIDE DIMENSIONS PROVIDED IN THE BOX DRAWINGS LISTED IN GENERAL NOTE "K".
- M. UNIT LOAD MARKINGS WILL BE ACCOMPLISHED IN ACCORDANCE WITH DAC DRAWING ACV00561, UNIT LOAD MARKING FOR SHIPMENT AND STORAGE, AMMUNITION AND EXPLOSIVES.
- N. COOLER NAILS MAY BE SUBSTITUTED FOR THE COMMON NAILS AS SPECIFIED BY APPLYING THE FOLLOWING GUIDANCE: THE NUMBER OF COOLER NAILS TO BE USED WILL BE THE NUMBER OF COMMON NAILS MULTIPLIED BY 1.2 AND ROUNDED UP TO THE NEXT WHOLE NUMBER. THE SIZE OF THE COOLER NAILS TO BE USED WILL BE THE SAME AS SPECIFIED FOR THE COMMON NAILS (4d, 6d, 10d, ETC.) BUT WILL CONFORM TO THE SIZE AND WEIGHT TOLERANCES SPECIFIED WITHIN ASTM F1667 FOR COOLER NAILS.
- O. THE STYLE 1 PALLET DELINEATED IN THE DETAIL ON PAGE 4 NEED NOT HAVE CHAMFERS OR STRAP SLOTS AS SPECIFIED WITHIN MILITARY SPECIFICATION MIL-P-15011 WHEN USED FOR THE UNITIZATION OF ITEMS COVERED BY THIS DRAWING.

MATERIAL SPECIFICATIONS

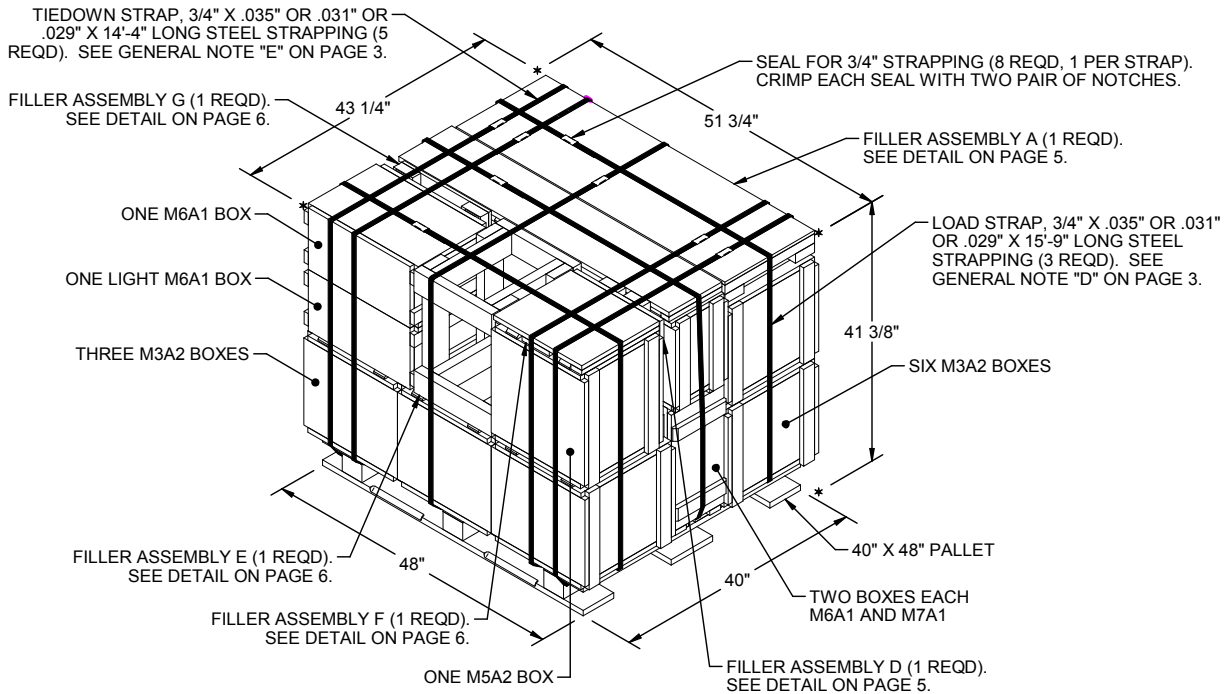
- PALLET** - - - - - : MIL SPEC MIL-P-15011; 4-WAY ENTRY, STYLE 1, TYPE 1, CLASS 1, PRESERVATIVE AND HEAT TREATED. SEE GENERAL NOTE "J".
- LUMBER** - - - - - : SEE TM743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20. PRESERVATIVE AND HEAT TREATMENT REQUIRED. SEE GENERAL NOTE "J".
- NAILS** - - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS). ALT: UNDERLAYMENT NAIL (NLUL), PALLET NAIL (NLPL), OR COOLER NAIL (NLCL) OF SAME SIZE. SEE GENERAL NOTE "N".
- PLYWOOD** - - - - - : COMMERCIAL ITEM DESCRIPTION A-A-55057, 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.
- STRAPPING, STEEL** - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), SIZE 3/4" X .035" OR .031" OR .029", **NOTE:** IF EDGES DO NOT MEET THE PRECEE TEST FOR GRADE 2, ANY BRITE OR SLIT EDGES MUST HAVE FINISH A OVERLAY.
- SEAL, STRAP** - - - - - : ASTM D3953; CLASS H, FINISH B (GRADE 2) DOUBLE NOTCH TYPE, STYLE I, II, III OR IV. ALTERNATIVE SEAL FINISH: SIGNODE OR DELTA PAINTED SEALS MAY BE USED AS AN ALTERNATIVE IF ALL SURFACES ARE PAINTED. GRITTED BACKING IS NOT PERMITTED.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 2"	1.63	0.27
1" X 4"	4.77	1.59
2" X 4"	47.85	31.90
NAILS	NO. REQD	POUNDS
6d (2")	52	0.31
10d (3")	70	1.08
PALLET, 40" X 48" - - - - - 1 REQD - - - - - 80 LBS		
STEEL STRAPPING, 3/4" - 118.42' REQD - - - - - 10.57 LBS		
SEAL FOR 3/4" STRAPPING - - - 8 REQD - - - - - NIL		
PLYWOOD, 1/2" - - - - 10.78 SQ FT REQD - - - - - 14.83 LBS		
PLYWOOD, 3/4" - - - - 5.65 SQ FT REQD - - - - - 11.65 LBS		



EXPLODED VIEW OF PALLET UNIT

ARRANGEMENT OF BOXES AND DUNNAGE SHOWN. PALLET AND STRAPPING OMITTED.



PALLET UNIT

16 BOXES OF TILES	2,122 LBS (APPROX)
DUNNAGE	106 LBS
PALLET	80 LBS
TOTAL WEIGHT	2,308 LBS (APPROX)
CUBE	53.6 CU FT (APPROX)

PLYWOOD, 1/2" X 16-1/2" X 49-1/2" (1 REQD). NAIL TO THE LATERAL PIECES W/3-6d NAILS AT EACH LOCATION.

FILLER PIECE A, 2" X 4" BY CUT TO FIT (REF: 11-1/4") (2 REQD). NAIL TO THE LONGITUDINAL PIECE W/2-10d NAILS.

FILLER PIECE B, 2" X 4" BY CUT TO FIT (REF: 13") (1 REQD). NAIL TO THE LONGITUDINAL PIECE W/2-10d NAILS.

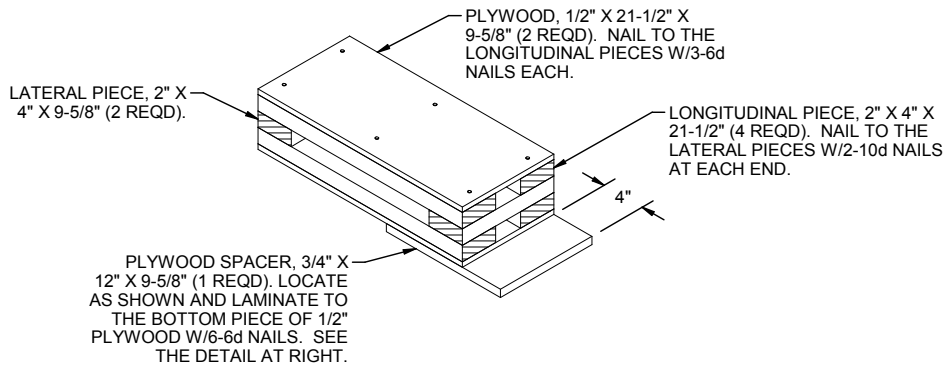
LONGITUDINAL PIECE, 2" X 4" X 49-1/2" (2 REQD). NAIL TO THE LATERAL PIECES W/2-10d NAILS AT EACH LOCATION.

POSITION THIS SIDE ON THE OUTER EDGE OF THE PALLET UNIT.

LATERAL PIECE, 2" X 4" X 16-1/2" (4 REQD).

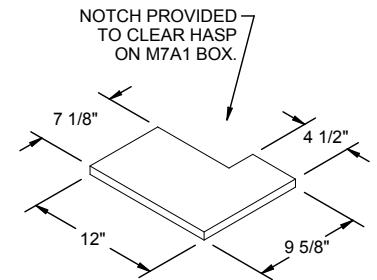
FILLER ASSEMBLY A

POSITION ON TOP OF THE STACK OF SIX M3A2 BOXES.

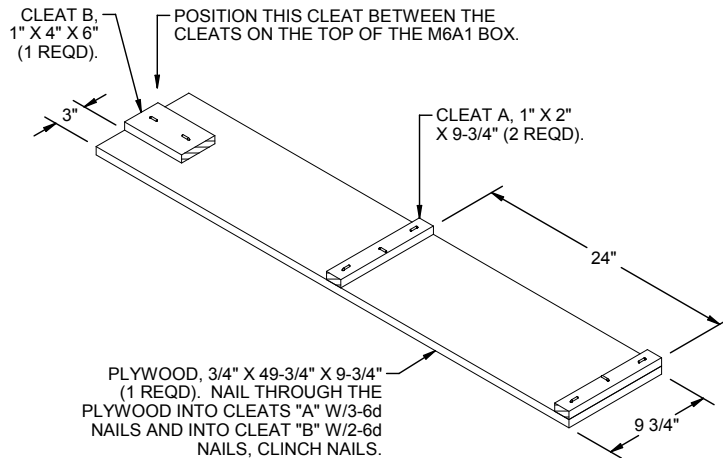


FILLER ASSEMBLY B

POSITION IN THE CENTER OF THE STACK BETWEEN THE M6A1 AND M7A1 BOXES. THE 3/4" PLYWOOD SPACER EXTENDS UNDER AND SUPPORTS THE M6A1 BOX.

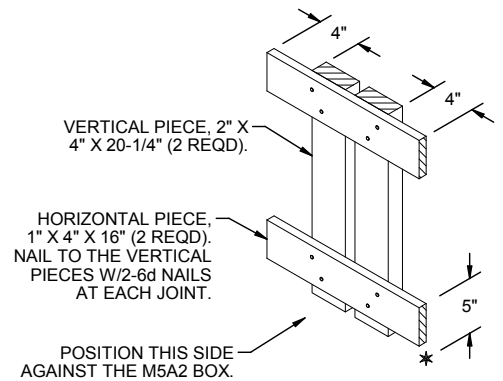


3/4" PLYWOOD SPACER DETAIL



FILLER ASSEMBLY C

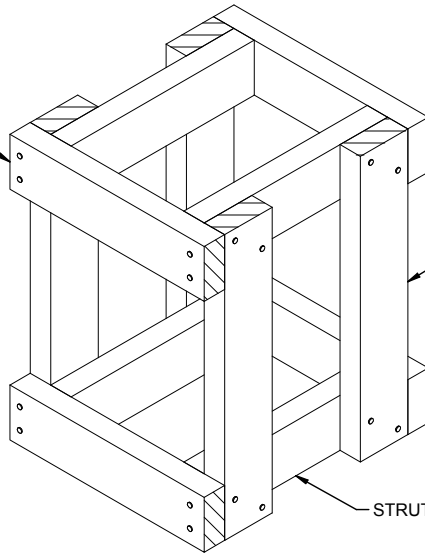
ASSEMBLY SHOWN INVERTED. POSITION ON TOP OF THE STACK OF M6A1 AND M7A1 BOXES.



FILLER ASSEMBLY D

POSITION ON TOP OF THE THREE M3A2 BOXES, BETWEEN THE M5A2 BOX AND THE M7A1 BOX.

HORIZONTAL PIECE, 2" X 4" X 14-5/16"
(4 REQD). NAIL TO THE VERTICAL
PIECES W/2-10d NAILS AT EACH END.



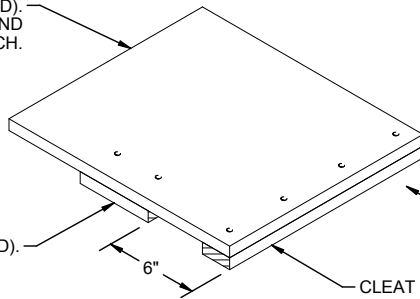
VERTICAL PIECE, 2" X 4" X 19-1/2"
(4 REQD). NAIL TO THE STRUTS
W/2-10d NAILS AT EACH END.

STRUT, 2" X 4" X 13-1/2" (4 REQD).

FILLER ASSEMBLY E

POSITION BETWEEN THE M5A2 BOX
AND THE TWO M6A1 BOXES.

PLYWOOD, 3/4" X 14-1/4" X 16-1/4" (1 REQD).
NAIL THROUGH CLEAT "A" W/4-6d NAILS AND
THROUGH CLEAT "B" W/2-6d NAILS AND CLINCH.



CLEAT B, 1" X 4" X 5" (1 REQD).

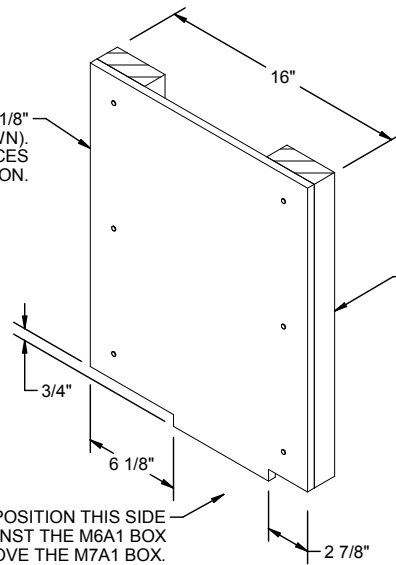
POSITION THIS SIDE ON THE OUTER
EDGE OF THE PALLET UNIT.

CLEAT A, 1" X 4" (RIPPED TO 2")
X 14-1/4" (1 REQD).

FILLER ASSEMBLY F

POSITION ON TOP OF THE M5A2 BOX WITH
THE CLEAT "A" NEXT TO THE BOX CLEAT.

PLYWOOD, 1/2" X 16" X 20-1/8"
(1 REQD, NOTCH AS SHOWN).
NAIL TO THE VERTICAL PIECES
W/3-6d NAILS AT EACH LOCATION.



VERTICAL PIECE, 2" X
4" X 19-3/8" (2 REQD).

POSITION THIS SIDE
AGAINST THE M6A1 BOX
ABOVE THE M7A1 BOX.

FILLER ASSEMBLY G

POSITION ON TOP OF THE THREE M3A2 BOXES, BETWEEN THE M6A1 BOXES.