

# APPENDIX 108C

## UNITIZATION PROCEDURES FOR BOXED AMMUNITION AND COMPO- NENTS ON 4-WAY ENTRY PALLETS

**SIGNAL, SMOKE OR ILLUMINATION, GROUND,  
PACKED 24 PER METAL BOX, M548, UNITIZED 36  
BOXES PER 40" X 48" PALLET; APPROX BOX SIZE  
18-19/32" L X 8-19/64" W X 14-19/32" H**

**NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION  
PROCEDURES DRAWING 19-48-4116-20PA1002.**

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### U.S. ARMY MATERIEL COMMAND DRAWING

<p><b>APPROVED, U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND</b></p> <p><b>PENNOCK.AM</b> ANDA.C.13800 42157</p> <p><small>Digitally signed by PENNOCK.AMANDA.C.1380042157 DN: cn=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=PENNOCK.AMANDA.C.13800421 57 Date: 2017.10.03 08:49:50 -05'00'</small></p> <p style="text-align: right;"><b>RDAR-EIL-TP</b></p>	<p><b>CAUTION: VERIFY PRIOR TO USE AT <a href="https://MHP.REDSTONE.ARMY.MIL">HTTPS://MHP.REDSTONE.ARMY.MIL</a> THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 4.</b></p>		<p style="font-size: 24pt; font-weight: bold;">APRIL 1992</p>															
<p><b>APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND</b></p> <p><b>RUS.ALLEN.J</b> .1230354282</p> <p><small>Digitally signed by RUS.ALLEN.J.1230354282 DN: cn=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=RUS.ALLEN.J.1230354282 Date: 2017.10.04 16:43:23 -05'00'</small></p> <p style="text-align: right;"><b>AMSJM-MMT</b></p>	<p><b>DO NOT SCALE</b></p>	<p style="font-size: 24pt; font-weight: bold;">REVISION NO. 2</p> <p style="font-size: 24pt; font-weight: bold;">SEPTEMBER 2017</p>																
<p><b>APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</b></p> <p><b>SHIMP.UPTON</b> .R.1231257183</p> <p><small>Digitally signed by SHIMP.UPTON.R.1231257183 DN: cn=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=SHIMP.UPTON.R.1231257183 Date: 2017.10.06 11:42:17 -05'00'</small></p> <p style="text-align: right;"><b>U.S. ARMY DEFENSE AMMUNITION CENTER</b></p>	<p><b>DESIGN ENGINEER</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">BASIC</td> <td style="width: 80%;">SANDRA M. SCHULTZ</td> </tr> <tr> <td>REV.</td> <td>QUYEN TRAN</td> </tr> </table> <p><b>ENGINEERING DIVISION</b></p> <p><b>TEST ENGINEER</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">TEST REPORT</td> <td style="width: 80%;">NA</td> </tr> </table> <p><b>EXPLOSIVE SAFETY DIRECTORATE</b></p>	BASIC	SANDRA M. SCHULTZ	REV.	QUYEN TRAN	TEST REPORT	NA	<p><b>FIEFFER.LAUR</b> A.A.1230375727</p> <p><small>Digitally signed by FIEFFER.LAURA.A.1230375727 DN: cn=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FIEFFER.LAURA.A.1230375727 Date: 2017.09.19 07:53:21 -05'00'</small></p> <p><b>FELICIANO.AD</b> IN.1259200373</p> <p><small>Digitally signed by FELICIANO.ADIN.1259200373 DN: cn=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FELICIANO.ADIN.1259200373 Date: 2017.09.25 10:44:25 -05'00'</small></p> <p><b>THOMAS.CARLAN</b> THONY.1104621372</p> <p><small>Digitally signed by THOMAS.CARL_ANTHONY.1104621372 DN: cn=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=THOMAS.CARL_ANTHONY.1104621372 Date: 2017.09.26 07:44:08 -05'00'</small></p>	<p style="font-weight: bold;">SEE THE REVISION LISTING ON PAGE 2</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">CLASS</td> <td style="width: 25%;">DIVISION</td> <td style="width: 25%;">DRAWING</td> <td style="width: 25%;">FILE</td> </tr> <tr> <td style="text-align: center; font-weight: bold;">19</td> <td style="text-align: center; font-weight: bold;">48</td> <td style="text-align: center; font-weight: bold;">4116/ 108C</td> <td style="text-align: center; font-weight: bold;">20PA1002</td> </tr> </table>		CLASS	DIVISION	DRAWING	FILE	19	48	4116/ 108C	20PA1002
BASIC	SANDRA M. SCHULTZ																	
REV.	QUYEN TRAN																	
TEST REPORT	NA																	
CLASS	DIVISION	DRAWING	FILE															
19	48	4116/ 108C	20PA1002															

PALLET UNIT DATA				
ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATIBILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1370-				
01-342-6872	L305	1.3	G	2,143
01-654-7693	L305	1.3	G	2,143
01-343-1966	L306	1.3	G	2,143
01-624-2851	L306	1.3	G	2,143
01-345-4300	L307	1.3	G	2,143
01-653-2854	L307	1.3	G	2,143
01-343-1965	L311	1.3	G	2,143
01-341-5159	L312	1.3	G	2,143
01-652-9144	L312	1.3	G	2,143
01-341-6282	L314	1.3	G	2,143
01-652-2300	L314	1.3	G	2,143
01-342-3842	L323	1.3	G	2,143
01-341-6283	L324	1.3	G	2,143
01-651-5159	LA80	1.3	G	2,143

\*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).

### REVISIONS

REVISION NO. 1, DATED APRIL 1993, CONSISTS OF:

REVISING QD CLASS IN "PALLET UNIT DATA" CHART.

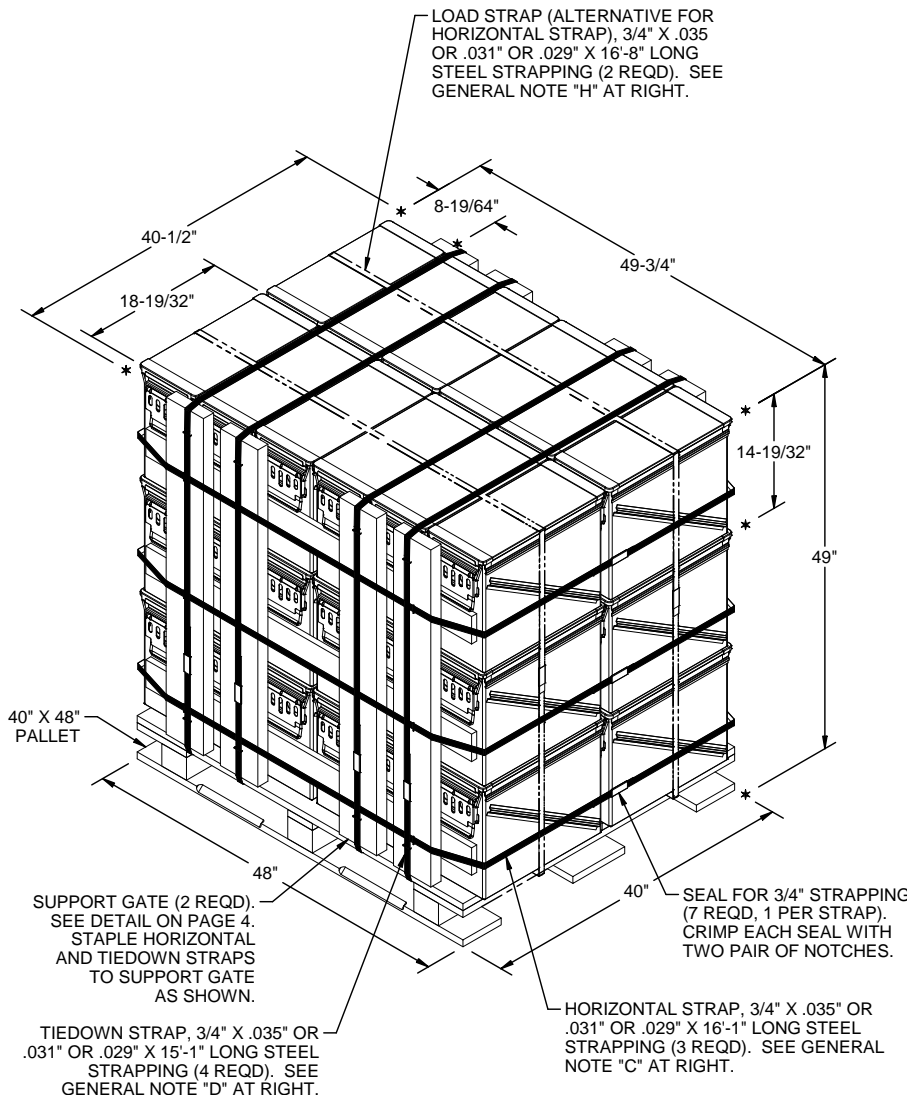
REVISION NO. 2, DATED SEPTEMBER 2017, CONSISTS OF:

1. ADDING ITEMS BY NATIONAL STOCK NUMBERS TO "PALLET UNIT DATA" CHART.
2. UPDATING DRAWING TO CURRENT FOUR-PAGE FORMAT.
3. UPDATING GENERAL NOTES.

**GENERAL NOTES**

- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4116-20PA1002. TO PRODUCE AN APPROVED UNIT LOAD, ALL PERTINENT PROCEDURES, SPECIFICATIONS AND CRITERIA SET FORTH WITHIN THE BASIC DRAWING WILL APPLY TO THE PROCEDURES DELINEATED IN THIS APPENDIX. ANY EXCEPTIONS TO THE BASIC PROCEDURES ARE SPECIFIED IN THIS APPENDIX.
- 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. INSTALL EACH HORIZONTAL STRAP TO ENCIrcLE A LAYER OF BOXES ON THE PALLET AND TO BE ALIGNED WITH THE HORIZONTAL PIECES OF THE "SUPPORT GATE" AS SHOWN. HORIZONTAL STRAPS MUST BE TENSIONED AND SEALED PRIOR TO THE APPLICATION OF TIEDOWN STRAPS.
- D. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE TOP DECK BOARDS OF THE PALLET AND TO BE ALIGNED WITH THE VERTICAL PIECES OF THE "SUPPORT GATE" AS SHOWN. TIEDOWN STRAPS WILL NOT BE APPLIED UNTIL THE HORIZONTAL STRAPS HAVE BEEN TENSIONED AND SEALED.
- E. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS APPENDIX.
 

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
- F. IF ITEMS COVERED HEREIN ARE UNITIZED PRIOR TO ISSUANCE OF THIS REVISION TO THIS APPENDIX, THE BOXES NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THIS REVISION.
- G. THE UNITIZATION PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR UNITIZING SIGNAL 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.
- H. LOAD STRAPS MAY BE USED IN LIEU OF HORIZONTAL STRAPS. LOAD STRAPS WILL BE LOCATED AS SHOWN IN THE DETAIL AT LEFT. LOAD STRAPS MAY BE PRE-POSITIONED ON THE PALLET DECK OR THREADED THROUGH THE STRAP SLOTS. LOAD STRAPS MUST BE TENSIONED AND SEALED PRIOR TO THE APPLICATION OF TIEDOWN STRAPS.
- J. WHEN THE UNIT LOAD DEPICTED AT LEFT IS TO BE USED FOR UNITIZING MARINE CORPS AMMUNITION, ONE LAYER OF CONTAINERS MUST BE OMITTED, SUPPORT GATE HEIGHT MUST BE DECREASED TO 28-1/2", AND THE UPPER SUPPORT GATE HORIZONTAL PIECE MUST BE OMITTED. ALSO, TIEDOWN STRAP LENGTHS MUST BE DECREASED TO 12'-8", AND THE UPPERMOST HORIZONTAL STRAP MUST BE OMITTED. THIS WILL RESULT IN AN OVERALL UNIT HEIGHT OF 34-1/2", A GROSS UNIT WEIGHT OF 1,454 POUNDS, AND A UNIT CUBE OF 40.2 CUBIC FEET. ADDITIONALLY, THE UNIT MAY BE MODIFIED AS DESCRIBED WHEN BEING SHIPPED BY MILVAN OR ISO INTERMODAL FREIGHT CONTAINER, VAN TRAILER, OR BOXCAR. THE DETERMINATION TO REDUCE THE LOAD BY A LAYER FOR TRANSPORTATION WILL BE MADE BY THE RESPONSIBLE COMMAND AND WILL BE BASED UPON ECONOMICS OF TRANSPORTATION AND HANDLING.
- K. THE STYLE 1 PALLET DELINEATED IN THE DETAIL AT LEFT NEED NOT HAVE CHAMFERS OR STRAP SLOTS AS SPECIFIED WITHIN MILITARY SPECIFICATION MIL-DTL-15011 WHEN USED FOR THE UNITIZATION OF ITEMS COVERED BY THIS APPENDIX.
- L. FOR DETAILS OF THE M548 CONTAINER SEE ARDEC DRAWING 12900009.

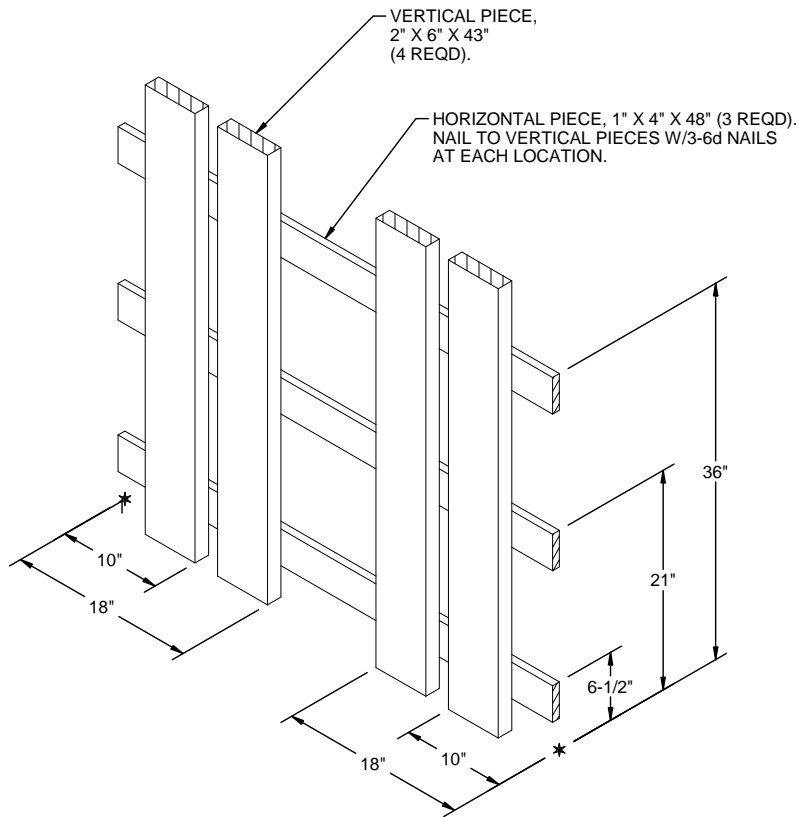


**PALLET UNIT**

SEE GENERAL NOTE "B" AT RIGHT.

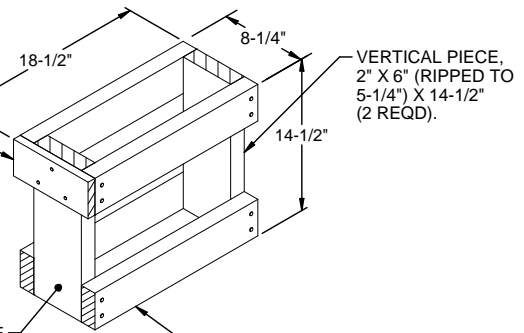
36 BOXES OF SIGNALS (24 PER BOX) @ 55 LBS	- - - - -	1,980 LBS
DUNNAGE	- - - - -	83 LBS
PALLET	- - - - -	80 LBS
<hr/>		
TOTAL WEIGHT	- - - - -	2,143 LBS (APPROX)
CUBE	- - - - -	57.1 CU FT (APPROX)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	24.00	8.00
2" X 6"	28.67	28.67
NAI LS	NO. REQD	POUNDS
6d (2")	72	0.43
PALLET, 40" X 48" - - - - - 1 REQD - - - - - 80 LBS		
STEEL STRAPPING, 3/4" - 108.59' REQD - - - - - 9.28 LBS		
SEAL FOR 3/4" STRAPPING - - - 7 REQD - - - - - NIL		
STAPLE - - - - - 28 REQD - - - - - NIL		



**SUPPORT GATE**  
(2 REQD)

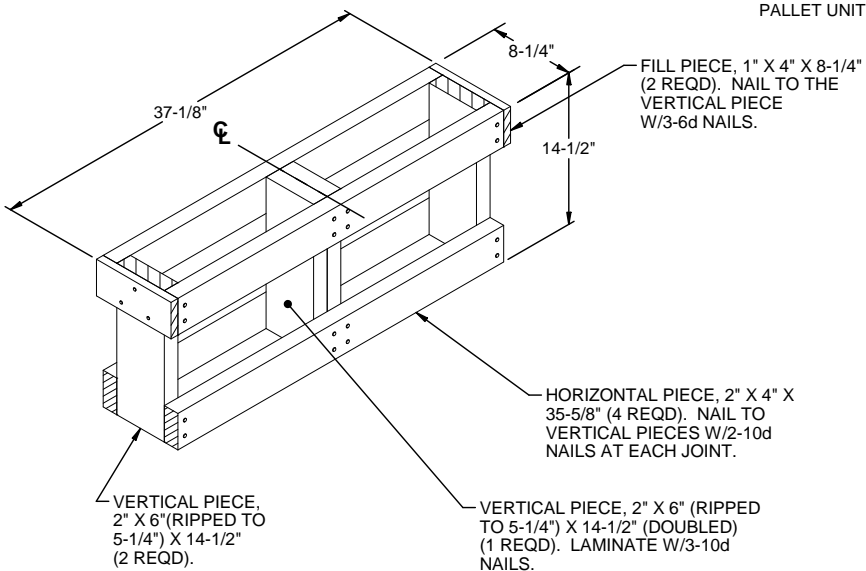
FILL PIECE, 1" X 4" X 8-1/4"  
(1 REQD). NAIL TO A VERTICAL  
PIECE W/3-6d NAILS.



INSTALL WITH THIS SIDE  
TOWARD OUTSIDE OF  
PALLET UNIT.

HORIZONTAL PIECE, 2" X 4" X 17-3/4"  
(4 REQD). NAIL TO VERTICAL  
PIECES W/2-10d NAILS  
AT EACH END.

**FILLER ASSEMBLY A**  
(FOR MINUS ONE BOX)



FILL PIECE, 1" X 4" X 8-1/4"  
(2 REQD). NAIL TO THE  
VERTICAL PIECE  
W/3-6d NAILS.

HORIZONTAL PIECE, 2" X 4" X  
35-5/8" (4 REQD). NAIL TO  
VERTICAL PIECES W/2-10d  
NAILS AT EACH JOINT.

VERTICAL PIECE,  
2" X 6" (RIPPED TO  
5-1/4") X 14-1/2"  
(2 REQD).

VERTICAL PIECE, 2" X 6" (RIPPED  
TO 5-1/4") X 14-1/2" (DOUBLED)  
(1 REQD). LAMINATE W/3-10d  
NAILS.

**FILLER ASSEMBLY B**  
(FOR MINUS TWO BOXES)