

APPENDIX 45

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

**CARTRIDGE, 105MM, PACKED TWO PER WOODEN
BOX, UNITIZED 24 BOXES PER 35" X 45-1/2" PAL-
LET; APPROX BOX SIZE 37-1/4" L X 11-15/16" W X
7-19/32" H**

**NOTICE: THIS DRAWING SUPERCEDES DRAWING 19-48-4116/45D-20PA1002, DATED JUNE 1983, AND REVISION NO. 1,
DATED DECEMBER 1984.**

**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 style="font-size: small;">APPROVED, U.S. ARMY FIELD SUPPORT COMMAND</p> <p style="font-size: x-large; font-family: cursive;"><i>David C. Krolnick</i></p> <p style="font-size: x-small; text-align: right;">TPB AMSRD-AAR-AIL-TP</p>	<p>CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 4.</p>		
<p style="font-size: x-large; font-family: cursive;"><i>Mat Carlson</i></p> <p style="font-size: x-small; text-align: right;">AMSFS-ST</p> <p style="font-size: small;">APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</p> <p style="font-size: x-large; font-family: cursive;"><i>J.P. White</i></p> <p style="font-size: x-small;">U.S. ARMY DEFENSE AMMUNITION CENTER</p>	<p>DO NOT SCALE</p>		<p style="font-size: x-large; font-weight: bold;">MARCH 1983</p>
	ENGINEER OR TECHNICIAN	BASIC REV.	WILLIAM R. FRERICHS LAURA A. FIEFFER
TRANSPORTATION ENGINEERING DIVISION	<i>Stewart A. Juffer</i>		SEE THE REVISION LISTING ON PAGE 2
VALIDATION ENGINEERING DIVISION	<i>Joseph W. [Signature]</i>	TESTED	CLASS DIVISION DRAWING FILE
ENGINEERING DIRECTORATE	<i>Joseph W. [Signature]</i>		19 48 4116/ 45 20PA1002

PALLET UNIT DATA

ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATI-BILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1315-				
00-028-4829	C442	1.2.1	K	2,954
00-322-6365	C442	1.2.1	K	2,954
00-926-1896	C443	1.2.1	E	2,954
00-926-4054	C443	1.2.1	E	2,954
00-926-9288	C443	1.2.1	E	2,954
00-926-9385	C443	1.2.1	E	2,954
00-028-4801	C444	1.2.1	E	2,954
00-028-4832	C444	1.2.1	E	2,954
00-028-4841	C444	1.2.1	E	2,954
00-028-4842	C444	1.2.1	E	2,954
00-028-4843	C444	1.2.1	E	2,954
00-028-4844	C444	1.2.1	E	2,954
00-146-6854	C444	1.2.1	E	2,954
00-769-0281	C444	1.2.1	E	2,954
00-965-0548	C444	1.2.1	E	2,954
00-965 0572	C444	1.2.1	E	2,954
00-965-0776	C444	1.2.1	E	2,954
00-965-0777	C444	1.2.1	E	2,954
00-028-4809	C445	1.2.1	E	2,954
00-028-4830	C445	1.2.1	E	2,954
00-028-4857	C445	1.2.1	E	2,954
00-028-4859	C445	1.2.1	E	2,954
00-028-4860	C445	1.2.1	E	2,954
00-028-4861	C445	1.2.1	E	2,954
00-145-7554	C445	1.2.1	E	2,954
00-146-6853	C445	1.2.1	E	2,954
00-215-8884	C445	1.2.1	E	2,954
00-215-8885	C445	1.2.1	E	2,954
00-215-8886	C445	1.2.1	E	2,954
00-231-4629	C445	1.2.1	E	2,954
00-926-4081	C445	1.2.1	E	2,954
00-028-4806	C448	1.1	E	2,954
00-028-4808	C448	1.1	E	2,954
00-028-4835	C448	1.1	E	2,954
00-113-6218	C448	1.1	E	2,954
00-186-0073	C448	1.1	E	2,954
00-186-0076	C448	1.1	E	2,954
00-262-3031	C448	1.1	E	2,954
00-344-2312	C448	1.1	E	2,954
00-028-4794	C449	1.2.1	G	2,954
00-028-4823	C449	1.2.1	G	2,954
00-782-5531	C449	1.2.1	G	2,954
00-926-9299	C449	1.2.1	G	2,954
01-300-2748	C449	1.2.1	G	2,954
00-028-4827	C450	1.2.1	E	2,954
00-305-0862	C450	1.2.1	E	2,954
00-324-1414	C450	1.2.1	E	2,954
00-028-4792	C451	1.2.1	G	2,954
00-028-4834	C451	1.2.1	G	2,954
00-028-4836	C451	1.2.1	G	2,954
00-028-4845	C451	1.2.1	G	2,954
00-028-4839	C452	1.2.1	G	2,954
00-028-4840	C452	1.2.1	G	2,954
00-028-4850	C452	1.2.1	G	2,954
00-143-6986	C452	1.2.1	G	2,954

(CONTINUED AT RIGHT)

PALLET UNIT DATA (CONTINUED)

ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATI-BILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1315-				
00-182-3156	C452	1.2.1	G	2,954
01-031-0713	C452	1.2.1	G	2,954
00-028-4828	C453	1.2.1	G	2,954
00-028-4846	C453	1.2.1	G	2,954
00-305-0860	C453	1.2.1	G	2,954
00-028-4793	C455	1.2.1	G	2,954
00-301-1782	C455	1.2.1	G	2,954
00-324-1413	C457	1.2.1	C	2,954
00-344-2311	C457	1.2.1	C	2,954
00-028-5043	C458		INERT	2,954
00-028-5045	C458		INERT	2,954
00-461-3323	C462	1.2.1	E	2,954
00-797-7199	C462	1.2.1	E	2,954
00-965-0739	C462	1.2.1	E	2,954
00-926-3968	C464	1.2.1	E	2,954
00-143-7128	C468	1.2.1	G	2,954
00-926-9327	C468	1.2.1	G	2,954
01-189-7764	C473	1.2.1	E	2,954
01-268-0384	C479	1.2.1	G	2,954
01-299-5858	C542	1.2.1	G	2,954
01-313-9759	C542	1.2.1	G	2,954

*HAZARD AND 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 MAY 1986, CONSISTS OF:

ADDING ITEM BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART.

REVISION NO. 2, DATED OCTOBER 1987, CONSISTS OF:

ADDING GENERAL NOTE "L".

REVISION NO. 3, DATED DECEMBER 1991, CONSISTS OF:

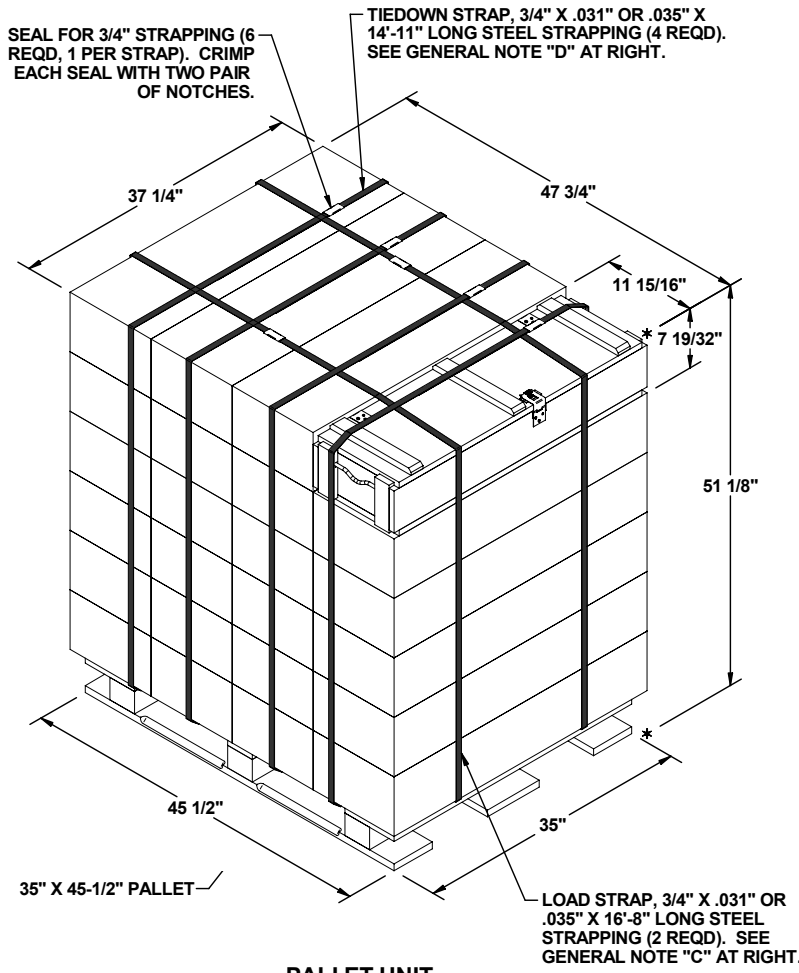
1. DELETING ITEM BY NATIONAL STOCK NUMBER (NSN) FROM "PALLET UNIT DATA" CHART.
2. CHANGING BOX WEIGHT.

REVISION NO. 4, DATED JUNE 2002, CONSISTS OF:

1. ADDING ITEMS BY NATIONAL STOCK NUMBER (NSN) TO "PALLET UNIT DATA" CHART.
2. DELETING ITEM BY NATIONAL STOCK NUMBER (NSN) FROM "PALLET UNIT DATA" CHART.

REVISION NO. 5, DATED APRIL 2006, CONSISTS OF:

1. DELETING ITEM BY NATIONAL STOCK NUMBER (NSN) FROM "PALLET UNIT DATA" CHART.
2. UPDATING WEBSITE CITATION.



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. THE LOAD STRAPS MAY BE THREADED THRU THE STRAP SLOTS OF A PALLET OR PRE-POSITIONED ON THE PALLET DECK PRIOR TO PLACING THE BOXES ON THE PALLET. LOAD 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 LOCATED AS SHOWN. TIEDOWN STRAPS WILL NOT BE APPLIED UNTIL THE LOAD STRAPS HAVE BEEN TENSIONED AND SEALED.
- E. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR UNLOADING 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 105MM CARTRIDGES 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. WHEN THE UNIT LOAD DEPICTED AT LEFT IS TO BE USED FOR UNITIZING MARINE CORPS AMMUNITION, TWO LAYERS OF BOXES MUST BE OMITTED, TIEDOWN STRAP LENGTHS MUST BE DECREASED TO 12'-5", AND LOAD STRAP LENGTHS MUST BE DECREASED TO 14'-2". THIS WILL RESULT IN AN OVERALL UNIT HEIGHT OF 35'-7/8", A GROSS UNIT WEIGHT OF 1,992 POUNDS, AND A UNIT CUBE OF 36.9 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.
- J. WHEN THE UNIT LOAD DEPICTED AT LEFT IS TO BE PLACED ABOARD A PRE-POSITIONED (PREPO) SHIP, ONE LAYER OF BOXES MUST BE OMITTED, TIEDOWN STRAP LENGTHS MUST BE DECREASED TO 13'-8", AND LOAD STRAP LENGTHS MUST BE DECREASED TO 15'-5". THIS WILL RESULT IN AN OVERALL UNIT HEIGHT OF 43'-1/2", A GROSS UNIT WEIGHT OF 2,473 POUNDS, AND A UNIT CUBE OF 44.8 CUBIC FEET.
- K. THE STYLE 1A PALLET DELINEATED IN THE DETAIL AT LEFT 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 APPENDIX.
- L. FOR DETAILS OF THE WOODEN BOX SEE ARDEC DRAWING 7549072.

24 BOXES OF 105MM CARTRIDGE (2 PER BOX) @ 120 LBS - - -	2,880 LBS
DUNNAGE - - - - -	9 LBS
PALLET - - - - -	65 LBS

TOTAL WEIGHT - - - - -	2,954 LBS (APPROX)
CUBE - - - - -	52.6 CU FT (APPROX)

BILL OF MATERIAL		
PALLET, 35" X 45-1/2"	- - - - 1 REQD	65 LBS
STEEL STRAPPING, 3/4"	- 93.00' REQD	8.30 LBS
SEAL FOR 3/4" STRAPPING	- - - 6 REQD	NIL

TIE PIECE, 1" X 4" X BOX WIDTH (3 REQD). NAIL TO LONGITUDINAL PIECES W/2-6d NAILS AT EACH END AND TO LATERAL PIECE W/1-6d NAIL.

VERTICAL PIECE, 2" X 4" X BOX HEIGHT MINUS 3/4" (4 REQD).

BOX WIDTH

BOX HEIGHT

BOX LENGTH

LONGITUDINAL PIECE, 2" X 8" (RIPPED TO BOX HEIGHT MINUS 3/4") X BOX LENGTH (2 REQD). NAIL TO VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

LATERAL PIECE, 2" X 8" (RIPPED TO BOX HEIGHT MINUS 3/4") X BOX WIDTH MINUS 3" (2 REQD). NAIL TO VERTICAL PIECES W/3-10d NAILS AT EACH END.

FILLER ASSEMBLY
(FOR MINUS ONE BOX)