

APPENDIX 14

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

**CARTRIDGE, CALIBER .50, PACKED VARIOUS
QUANTITIES PER M2 SERIES METAL BOX, 2 M2
SERIES METAL BOXES PER WIREBOUND BOX,
UNITIZED 48 BOXES PER 40" X 48" PALLET;
APPROX BOX SIZE 14-1/2" L X 12-3/4" W X 8-3/8" 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

APPROVED, COMBAT CAPABILITIES DEVELOPMENT COMMAND ARMAMENTS CENTER HANSEN.JO.1376 SEPH.W.1376 495538 <small>Digitally signed by HANSEN.JO.1376 Date: 2019.07.01 11:08:20 -05'00'</small> FCDD-ACE-LTP	CAUTION: VERIFY PRIOR TO USE AT https://www.dau.mil/cop/ammo/Pages/Default.aspx THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 4.			NOVEMBER 1979			
APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND RUS.ALLEN.J .1230354282 <small>Digitally signed by RUS.ALLEN.J.1230354282 Date: 2019.07.22 08:19:10 -05'00'</small> AMSJM-MLT	DO NOT SCALE	GEORGE B. FECKE QUYEN TRAN		REVISION NO. 20 JUNE 2019		SEE THE REVISION LISTING ON PAGE 2	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND SMITH.THERESA.ANN.1009147639 ANN.1009147639 <small>Digitally signed by SMITH.THERESA.ANN.1009147639 Date: 2019.09.13 07:31:40 -05'00'</small> U.S. ARMY DEFENSE AMMUNITION CENTER	DESIGN ENGINEER ENGINEERING DIVISON TEST ENGINEER TEST REPORT EXPLOSIVE SAFETY DIRECTORATE	BASIC REV. FIEFFER.LAUR A.A.1230375727 <small>Digitally signed by FIEFFER.LAUR.A.1230375727 Date: 2019.06.24 13:17:14 -05'00'</small> NA THOMAS.CARL.ANTHONY.1104621372 <small>Digitally signed by THOMAS.CARL.ANTHONY.1104621372 Date: 2019.06.27 12:53:23 -05'00'</small>	CLASS 19	DIVISION 48	DRAWING 4116/14	FILE 20PA1002	

PALLET UNIT DATA (CONTINUED)				
ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATIBILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1305-				
01-592-1710	-	1.4	C	3,262
01-596-7097	-	1.4	C	3,886
01-596-7099	-	1.4	C	3,886

*HAZARD CLASSIFICATION DATA CONTAINED IN THE CHART AT RIGHT 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).

#SEE GENERAL NOTE "L" ON PAGE 3.

*THESE ARE NAVY GENERATED NSNS, WHICH ARE MARKED AND PACKAGED IAW NAVY PACKING AND MARKING DRAWINGS, HOWEVER, THE NAVY DRAWINGS ARE SIMILAR TO ARDEC PACKING AND MARKING DRAWING 12576456.

REVISIONS

FOR DETAILS REGARDING EARLIER SEE PREVIOUS DRAWING REVISIONS.

REVISION NO. 13, DATED OCTOBER 2000, CONSISTS OF:

ADDING ITEMS BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART

REVISION NO. 14, DATED NOVEMBER 2002, CONSISTS OF:

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

REVISION NO. 15, DATED AUGUST 2005, CONSISTS OF:

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

REVISION NO. 16, DATED FEBRUARY 2014, CONSISTS OF CHANGES PER ECP R10K2004-1 (1-3) AND R11K3011 (1):

1. ADDING ITEMS BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART.
2. DELETING ITEMS BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART.
3. ADDING REFERENCE TO .029" THICKNESS STRAPPING TO LEADER CALLOUT IN PAGE 3 ISOMETRIC VIEW.
4. UPDATING BOX WEIGHTS IN "PALLET UNIT DATA" CHART.

REVISION NO. 17, DATED NOVEMBER 2016, CONSISTS OF CHANGES PER ECP R16K3022 (1):

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

REVISION NO. 18, DATED SEPTEMBER 2018, CONSISTS OF CHANGES PER ECP R17K3010, ECP R18K3004, AND ECP R18S2032:

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

REVISION NO. 19, DATED MARCH 2019, CONSISTS OF CHANGES PER ECP R18K2012 AND ECP R18S2032:

ADD ITEMS BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART.

REVISION NO. 20, DATED JUNE 2019, CONSISTS OF CHANGE PER ECP R18K2031:

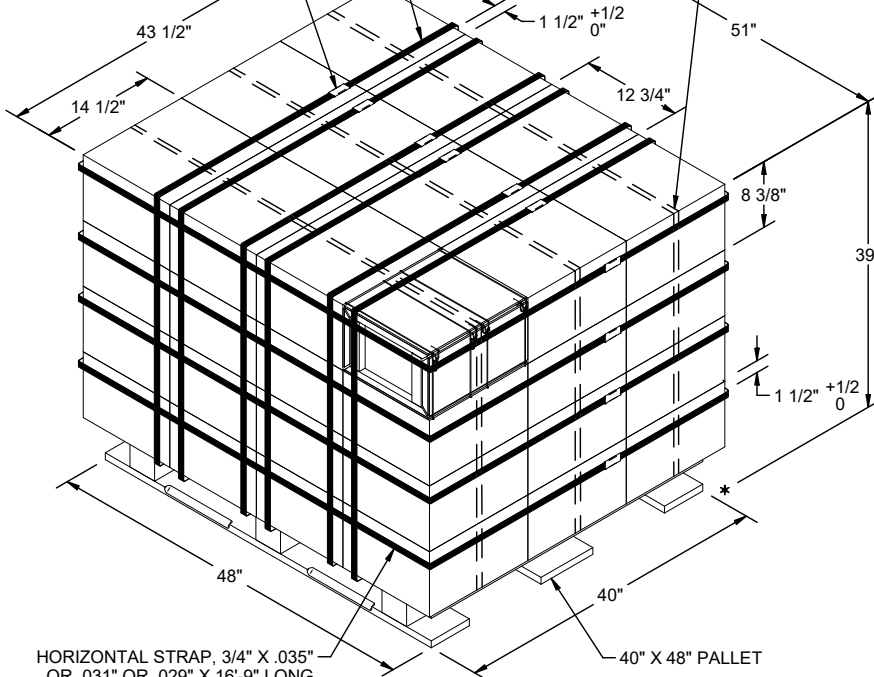
DELETING AND ADDING ITEMS BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART.

PALLET UNIT DATA				
ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATIBILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1305-				
01-332-8254	A518	1.4	C	3,790
00-764-8386	A520	1.4	C	3,406
00-028-6309	A527	1.4	C	3,742
00-096-3141	A527	1.4	C	3,790
00-028-6307	A528	1.4	C	3,790
00-028-6449	A531	1.4	G	3,886
01-582-7911	A531	1.4	G	3,886
01-659-2220	A531	1.4	G	3,886
00-028-6474	A533	1.4	G	3,694
00-028-6451	A534	1.4	G	3,694
00-028-6471	A540	1.4	G	3,694
00-935-2017	A540	1.4	G	3,790
00-585-5194	A541	1.4	G	3,886
01-659-2417	A541	1.4	G	3,886
00-028-6601	A543	1.4	G	3,790
00-555-4057	A545	1.4	G	3,790
00-585-5191	A552	1.4	C	3,886
01-591-4851	A552	1.4	C	3,886
01-662-6430	A552	1.4	C	3,886
00-028-6574	A555	1.4	C	3,790
01-591-4838	A555	1.4	C	3,790
01-658-2714	A555	1.4	C	3,790
01-370-2594	A557	1.4	C	3,790
01-591-4857	A557	1.4	C	3,790
01-658-2580	A557	1.4	C	3,790
00-028-6381	A560	INERT		3,262
00-028-6383	A560	INERT		2,974
00-028-6384	A560	INERT		3,886
00-305-0894	A564	1.4	G	3,790
00-585-5188	A571	1.4	C	3,886
00-028-6609	A572	1.4	C	3,790
00-935-6067	A574	1.4	C	3,790
00-126-3852	A575	1.4	C	3,694
01-557-2988	A575	1.4	C	3,886
00-028-6603	A576	1.4	G	3,790
01-659-2421	A576	1.4	G	3,790
00-028-6604	A577	1.4	G	3,790
00-618-2400	A585	1.4	G	3,790
01-659-2202	A585	1.4	G	3,790
00-585-1667	A587	1.4	G	3,790
00-689-4709	A589	1.4	G	3,406
00-752-7891	A589	1.4	G	3,646
00-689-4738	A590	1.4	G	3,454
00-689-4752	A593	1.4	C	3,454
01-127-7870	A595	1.4	S	1,630
01-078-4879	A598	1.4	C	3,790
01-085-5118	A599	1.4	C	3,406
01-126-6201	A602	1.4	S	1,630
00-935-2109	A605	1.4	C	3,406
01-671-6605	A606	1.2.2	G	3,886
01-249-6888	A607	1.2.2	G	3,790
01-671-9952	A607	1.2.2	G	3,790
01-473-4774	AA06*	1.2.2	G	3,790
01-671-9944	AA06*	1.2.2	G	3,790
01-462-0651	AA38	1.4	C	3,886
01-464-2541	AA41*	1.2.2	G	3,886
01-671-6603	AA41*	1.2.2	G	3,886
01-464-3218	AA42*	1.4	G	3,886
01-671-6579	AA42*	1.4	G	3,886
01-473-4766	AA50*	1.2.2	G	3,790
01-671-9946	AA50*	1.2.2	G	3,790
01-482-1053	AA58*	1.4	C	3,886
01-671-6602	AA58*	1.4	C	3,886
01-673-1262	AB30	1.4	G	3,694
01-557-7022	AB36	INERT		3,790
01-676-3628	AB36	INERT		3,790
01-568-5696	AB48	INERT		3,886
01-676-3652	AB48	INERT		3,886
01-658-9080	AC13	1.4	C	3,963#
01-658-9164	AC14	1.4	C	3,963#
01-659-0136	AC15	1.4	C	3,963#
01-659-0125	AC16	1.4	C	3,963#
01-675-3376	AC50	1.4	C	3,310

TIEDOWN STRAP, 3/4" X .035" OR .031" OR .029" X 13'-11" LONG STEEL STRAPPING (6 REQD). SEE GENERAL NOTES "D", "H", AND "J" AT RIGHT.

SEAL FOR 3/4" STRAPPING (10 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.

LOAD STRAP (ALTERNATIVE FOR HORIZONTAL STRAP), 3/4" X .035" OR .031" OR .029" X 15'-2" LONG STEEL STRAPPING (3 REQD). SEE GENERAL NOTE "N" BELOW.



HORIZONTAL STRAP, 3/4" X .035" OR .031" OR .029" X 16'-9" LONG STEEL STRAPPING (4 REQD). SEE GENERAL NOTE "C" AT RIGHT AND GENERAL NOTE "N" BELOW.

PALLET UNIT
SEE GENERAL NOTE "B" AT RIGHT.

48 BOXES OF .50 CAL CARTRIDGE (240 PER BOX) @ 79 LBS	-	3,792 LBS
DUNNAGE	-	14 LBS
PALLET	-	80 LBS

TOTAL WEIGHT	-	3,886 LBS (APPROX)
CUBE	-	50.1 CU FT (APPROX)

BILL OF MATERIAL		
PALLET, 40" X 48"	-	1 REQD - 80 LBS
STEEL STRAPPING, 3/4"	-	150.50' REQD - 13.44 LBS
SEAL FOR 3/4" STRAPPING	-	10 REQD - NIL

(GENERAL NOTES CONTINUED)

N. LOAD STRAPS MAY BE USED IN LIEU OF HORIZONTAL STRAPS. LOAD STRAPS WILL BE LOCATED AS SHOWN IN THE DETAIL ABOVE. LOAD STRAPS MAY BE PRE-POSITIONED ON THE PALLET DECK OR THREADED THROUGH THE STRAP SLOTS. **NOTICE:** WHEN LOAD STRAPS ARE BEING USED IN LIEU OF HORIZONTAL STRAPS, THE THREE OUTBOARD BOXES ON THE BOTTOM LAYER OF THE 40" SIDES OF THE PALLET WILL BE POSITIONED WITH THE TOPS DOWNWARD, AND THE THREE OUTBOARD BOXES ON THE TOP LAYER OF THE 40" SIDES OF THE PALLET WILL BE POSITIONED WITH THE TOPS UPWARD.

O. FOR DETAILS OF THE WIREBOUND BOX SEE ARDEC DRAWING 7553347.

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. NOTE THAT THE STRAPS WILL BE LOCATED AS SHOWN, NEAR THE TOP OF EACH LAYER. 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. NOTE THAT THE STRAPS WILL BE LOCATED AS SHOWN, NEAR THE SIDE CLEATS OF THE END PANELS OF THE BOX. 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 .50 CALIBER 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. FOUR 1-1/4" STRAPS MAY BE SUBSTITUTED FOR THE SIX 3/4" TIEDOWN STRAPS SPECIFIED IN THE "PALLET UNIT" AT LEFT. POSITION THE FOUR 1-1/4" STRAPS WHERE THE OUTWARD 3/4" STRAPS ARE POSITIONED. REFER TO GENERAL NOTE "CC" IN THE BASIC UNITIZATION DRAWING 19-48-4116-20PA1002 FOR ADDITIONAL GUIDANCE.
- J. WHEN THE TOTAL WEIGHT OF A 48-BOX UNIT IS 2,800 POUNDS OR LESS, ONLY FOUR TIEDOWN STRAPS WILL BE REQUIRED TO RETAIN THE BOXES ON THE PALLET. OMIT THE CENTER TWO TIEDOWN STRAPS.
- K. IF DEEMED MORE ECONOMICALLY FEASIBLE, THE ALTERNATIVE FILLER ASSEMBLY MAY BE SUBSTITUTED FOR THE FILLER ASSEMBLY TO COMPLETE A LAYER ON A PALLET.
- L. IF THE TOTAL WEIGHT OF A 48-BOX UNIT LOAD EXCEEDS 4,000 POUNDS, A SUFFICIENT NUMBER OF BOXES MUST BE REPLACED WITH "FILLER ASSEMBLIES", AS DEPICTED ON PAGE 4, SO THAT THE TOTAL UNIT WEIGHT IS EQUAL TO OR SLIGHTLY LESS THAN THE 4,000 POUND MAXIMUM ALLOWABLE UNIT WEIGHT.
- M. 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.

(CONTINUED AT LEFT)

