

# APPENDIX 60

## UNITIZATION PROCEDURES FOR AMMUNITION AND COMPONENTS PACKED IN CYLINDRICAL METAL OR PLASTIC CONTAINERS ON 4- WAY ENTRY METAL PALLETS

**2.75" HYDRA ROCKET, PACKED 4 PER PA150 CY-  
LINDRICAL METAL CONTAINER, UNITIZED 12 PER  
78-1/2" X 29-5/16" SPECIAL METAL PALLET; AP-  
PROX CONTAINER SIZE 78-1/2" L X 9-1/4" W X  
9-1/4" H**

**NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION  
PROCEDURES DRAWING 19-48-4231-20PA1006.**

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### U.S. ARMY MATERIEL COMMAND DRAWING

<p>APPROVED, COMBAT CAPABILITIES DEVELOPMENT COMMAND ARMAMENTS CENTER</p> <p>HANSSEN.JOSEP H.W.1376495538</p> <p><small>Digitally signed by HANSSEN.JOSEPH.W.13764955 38 Date: 2021.05.06 08:16:51 -05'00'</small></p>	<p><b>CAUTION: VERIFY PRIOR TO USE AT <a href="https://www.dau.edu/cop/ammo/Pages/Default.aspx">https://www.dau.edu/cop/ammo/Pages/Default.aspx</a> THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 4.</b></p>										
<p>APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND</p> <p>WARD.GINA. M.1369379808</p> <p><small>Digitally signed by WARD.GINA.M.1369379808 Date: 2021.05.06 10:33:14 -05'00'</small></p> <p style="text-align: right;">AMSJM-MLT</p>	<p><b>DO NOT SCALE</b></p>		<p><b>APRIL 1994</b></p>								
<p>APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</p> <p>BRAILSFORD.KEIT H.ANTHONY.10286 55661</p> <p><small>Digitally signed by BRAILSFORD.KEITH.ANTHONY. 1028655661 Date: 2021.05.06 14:07:14 -05'00'</small></p> <p style="text-align: center;">U.S. ARMY DEFENSE AMMUNITION CENTER</p>	<p>DESIGN ENGINEER</p> <p>ENGINEERING DIVISON</p> <p>TEST ENGINEER</p> <p>TEST REPORT</p> <p>EXPLOSIVE SAFETY DIRECTORATE</p>	<p>BASIC</p> <p>REV.</p> <p>FIEFFER.LAUR A.A.1230375727</p> <p>FELICIANO.AD IN.1259200373</p> <p>FAIRHURST.ROBER T.JOHN.1015766880</p> <p><small>Digitally signed by FIEFFER.LAURA.A.1230375727 Date: 2021.03.11 09:51:41 -06'00'</small></p> <p><small>Digitally signed by FELICIANO.ADIN.1259200373 Date: 2021.03.18 09:06:22 -05'00'</small></p> <p><small>Digitally signed by FAIRHURST.ROBERT.JOHN.10157 66880 Date: 2021.03.19 07:10:54 -05'00'</small></p>	<p>REVISION NO. 4</p> <p>MARCH 2021</p> <p style="text-align: center;"><b>SEE THE REVISION LISTING ON PAGE 2</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">CLASS</td> <td style="width: 15%;">DIVISION</td> <td style="width: 15%;">DRAWING</td> <td style="width: 15%;">FILE</td> </tr> <tr> <td style="text-align: center;">19</td> <td style="text-align: center;">48</td> <td style="text-align: center;">4231/60</td> <td style="text-align: center;">20PM1006</td> </tr> </table>	CLASS	DIVISION	DRAWING	FILE	19	48	4231/60	20PM1006
CLASS	DIVISION	DRAWING	FILE								
19	48	4231/60	20PM1006								

PALLET UNIT DATA				
ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATIBILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1340-				
01-379-7814	H165	1. 2. 1	E	2, 384
01-289-4719	H184	1. 2. 1	G	2, 149
01-379-6350	H464	1. 2. 1	E	2, 384
01-379-7797	H464	1. 2. 1	E	2, 384
01-506-4651	HA11	1. 2. 1	C	2, 384
01-446-4095	HA14	1. 2. 1	E	2, 384
01-446-4097	HA15	1. 2. 1	G	2, 149
01-663-4791	HB03	1. 2. 1	C	2, 384

\*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 MARCH 1996, CONSISTS OF CHANGES PER ECP M5T3003 INCLUDING:

1. ADDING ITEM BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA" CHART
2. CHANGING GENERAL NOTE "H" (PALLETS AND ADAPTERS) ON PAGE 3.

REVISION NO. 2, DATED FEBRUARY 1998, CONSISTS OF CHANGES PER ECP R8A3002 INCLUDING:

1. DELETING GENERAL NOTE RELATING TO STRAP CUTTER AND RE-LETTERING OTHER GENERAL NOTES.
2. CHANGING THE STORAGE DRAWING NOTE ON PAGE 3 TO REFLECT 19-48-4250/60-1-2-3-4-14-22PM1004.
3. ADDING ITEM BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA CHART" AND UPDATING THE HAZARD CLASS.

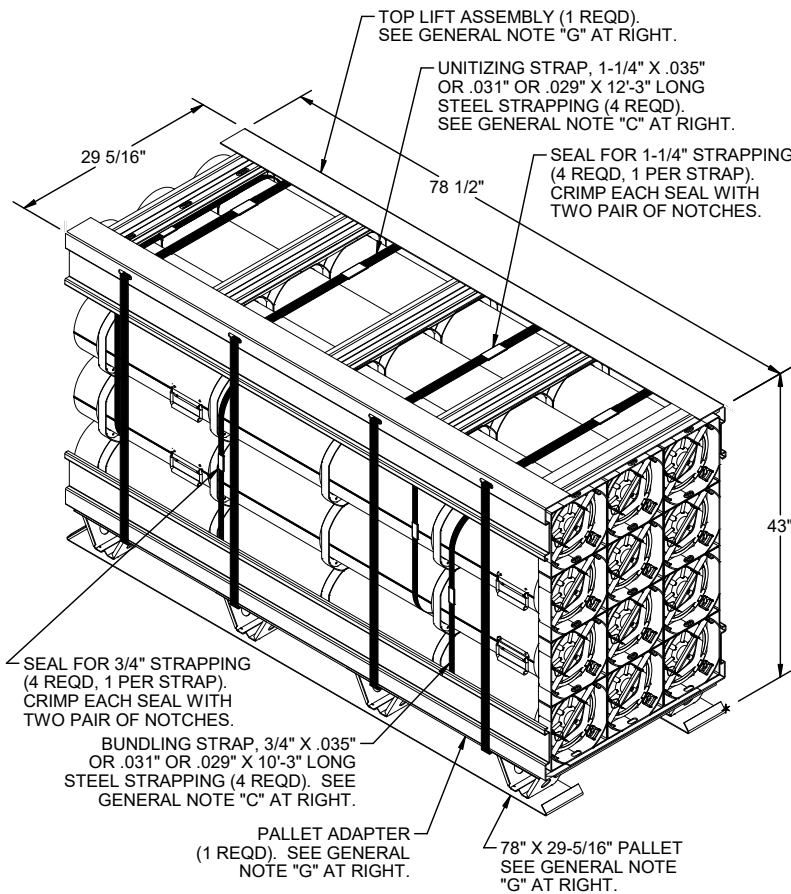
REVISION NO. 3, DATED DECEMBER 2000, CONSISTS OF CHANGES PER ECP R0K3004 (NUMBERS 1-3) AND ECP R1K9000 NOR 1 (NUMBER 4) INCLUDING:

1. CHANGING PALLET UNIT ON PAGE 3 TO SHOW 4 POSTS.
2. CHANGING TO NEW DRAWING FORMAT.
3. CHANGING GENERAL NOTE "J" ON PAGE 3.
4. DELETING THREE NATIONAL STOCK NUMBERS (TRAINING ROUNDS).

REVISION NO. 4, DATED MARCH 2021, CONSISTS OF CHANGES PER ECP R19K3011 (NUMBERS 1 AND 3) INCLUDING:

1. ADDING ITEMS BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA CHART."
2. UPDATING PALLET UNIT WEIGHTS AND HAZARD CLASS DATA.
3. ADDING .029" THICKNESS STRAPPING.

**GENERAL NOTES**



- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4231-20PA1006. 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. BUNDLING STRAPS MUST BE TENSIONED AND SEALED PRIOR TO THE APPLICATION OF THE UNITIZING STRAPS. BUNDLING STRAPS MUST ALSO BE INSTALLED AS CLOSE TO THE OUTER RINGS AS POSSIBLE, TO AVOID DAMAGE TO THE CONTAINER.
- D. ALTHOUGH THE CONTAINERS DEPICTED IN THE UNIT LOAD AT LEFT ARE CONSTRUCTED WITH INTERLOCKING DEVICES, THE INTERLOCKS WILL NOT FUNCTION PROPERLY UNLESS THE CONTAINERS ARE POSITIONED SO THAT THE "PINS" OF THE INTERLOCKS ARE FACING UPWARD. THIS ORIENTATION WILL AID IN THE PREVENTION OF CONTAINER MOVEMENT, BOTH Laterally AND LONGITUDINALLY, DURING SHIPMENT OF THE UNIT LOAD.
- E. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS APPENDIX.

CARLOADING	- - - -	19-48-4242/60-5PM1004
TRUCKLOADING	- - - -	19-48-4243/60-11PM1004
STORAGE	- - - -	19-48-4250/60-1-2-3-4-14-22PM1004
END OPENING ISO		
CONTAINER	- - - -	19-48-4245/60-15PM1009
MILVAN	- - - -	19-48-4244/60-15PM1008
SIDE OPENING ISO		
CONTAINER	- - - -	19-48-4272/60-15PM1016

- F. IF ITEMS COVERED HERIN ARE UNITIZED PRIOR TO ISSUANCE OF THIS REVISION TO THIS APPENDIX, THE CONTAINERS NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THIS REVISION.
- G. FOR DETAILS OF THE PALLET AND PALLET ADAPTERS, SEE DAC DRAWINGS ACV00156, MIL-A-70788 AND MIL-P-70786.
- H. THE UNITIZATION PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR UNITIZING 2.75" HYDRA ROCKETS WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS (NSN) THAN WHAT IS SHOWN ON PAGE 2, PROVIDED THE CONTAINER PACK DOES NOT VARY FROM WHAT IS DELINEATED HEREIN. THE EXPLOSIVE CLASSIFICATION OF OTHER ITEMS MAY BE DIFFERENT THAN WHAT IS SHOWN.
- J. EMPTY OR REJECT PA150 CONTAINERS WILL BE USED AS FILLER CONTAINERS AS NECESSARY. FILLER CONTAINERS MUST BE INSTALLED IN THE MIDDLE OF THE TOP LAYER(S) OF CONTAINERS. IF THREE FULL CONTAINERS ARE TO BE OMITTED, ONE FULL LAYER OF CONTAINERS WILL BE OMITTED. WHEN (EMPTY/REJECTED) FILLER CONTAINERS ARE USED IN PLACE OF OMITTED CONTAINERS TO COMPLETE A LAYER ON A PALLET, THEY WILL BE MARKED AS SPECIFIED IN ARDEC DRAWING NO. 12982865.
- K. FOR DETAILS OF THE PA150 CONTAINER SEE ARDEC DRAWING 12937865.

**PALLET UNIT**

SEE GENERAL NOTE "B" AT RIGHT.

12 CONTAINERS OF 2.75" HYDRA ROCKETS (4 PER CONTAINER) @ 174 LBS	- - - - -	2,088 LBS
DUNNAGE	- - - - -	186 LBS
PALLET	- - - - -	110 LBS
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TOTAL WEIGHT	- - - - -	2,384 LBS (APPROX)
CUBE	- - - - -	57.3 CU FT (APPROX)

**BILL OF MATERIAL**

METAL PALLET, 78-1/2" X 29-5/16"	- 1 REQD	- - - -	110 LBS
TOP ASSEMBLY	- - - - - 1 REQD	- - - -	90 LBS
BOTTOM ASSEMBLY	- - - - - 1 REQD	- - - -	85 LBS
STEEL STRAPPING, 3/4"	- - - - 41.00' REQD	- - - -	3.66 LBS
STEEL STRAPPING, 1-1/4"	- - - - 49.00' REQD	- - - -	7.00 LBS
SEAL FOR 3/4" STRAPPING	- - - - 4 REQD	- - - -	NIL
SEAL FOR 1-1/4" STRAPPING	- - - - 4 REQD	- - - -	NIL

