

BASIC PROCEDURES

UNITIZING PROCEDURES FOR AMMUNITION AND COMPONENTS PACKED IN METAL OR PLASTIC BOXES ON 4-WAY ENTRY METAL PALLET

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NOTICE:

THIS BASIC PROCEDURE DRAWING WILL BE AUGMENTED BY SEPARATELY ISSUED APPENDICES BEARING THE DRAWING AND FILE NUMBERS OF THIS DOCUMENT. AN APPENDIX WILL DELINEATE THE APPROVED CONFIGURATION OF A UNIT LOAD FOR ONE ITEM OF AMMUNITION OR FOR A CATEGORY OF AMMUNITION ITEMS. APPENDICES CANNOT STAND ALONE, BUT MUST BE USED IN CONJUNCTION WITH THIS BASIC PROCEDURE DRAWING. THE DRAWING NUMBER OF EACH APPENDIX WILL CONTAIN A SUB-NUMBER FOR IDENTIFICATION (E.G., THE DRAWING NUMBER FOR APPENDIX 3 WILL BE 19-48-4232/3-20PM1007). A BLOCK OF SUB-NUMBERS HAS BEEN SELECTED FOR EACH CLASS OF FSC GROUP 13 ITEMS: I.E., ONE BLOCK FOR CLASS 1305, ANOTHER BLOCK FOR CLASS 1310, ETC. IN SOME INSTANCES, AN ITEM MAY HAVE MORE THAN ONE STANDARD PACK, THUS REQUIRING MORE THAN ONE APPENDIX WHEN THE PACKAGE SIZES VARY APPRECIABLY. SUCH ADDITIONAL APPENDICES WILL BE IDENTIFIED BY ADDING A LETTER TO THE SUB-NUMBER (E.G., 19-48-4232/3A-20PM1007). APPENDICES WILL NOT NECESSARILY BE ISSUED BY NUMERICAL SEQUENCE. ALSO, SOME SUB-NUMBERS WITHIN THE BLOCK SELECTED FOR A CLASS OF ITEMS MAY NOT BE USED IF ALL APPLICABLE ITEMS WITHIN THAT CLASS ARE COVERED BY AN APPENDIX (E.G., IN THE SELECTED BLOCK OF SUB-NUMBERS OF 1 THRU 50, NUMBERS 48, 49, AND 50 MAY NOT BE USED, THUS SUB-NUMBER 51 WILL FOLLOW 47).

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APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION IS UNLIMITED.

U.S. ARMY MATERIEL COMMAND DRAWING

<p style="font-size: small;">APPROVED, U.S. ARMY FIELD SUPPORT COMMAND</p> <p style="font-size: x-small;">TPR <i>David G. Penhock</i> 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 6.</p>										
<p style="font-size: x-small;">AMSF5-ST <i>David [Signature]</i></p>	<p>DO NOT SCALE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: x-small;">ENGINEER OR TECHNICIAN</td> <td style="font-size: x-small;">BASIC REV.</td> <td style="text-align: center;">LAURA A. FIEFFER</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">LAURA A. FIEFFER</td> </tr> </table>	ENGINEER OR TECHNICIAN	BASIC REV.	LAURA A. FIEFFER			LAURA A. FIEFFER	<p style="font-size: x-large;">SEPTEMBER 1988</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: x-small;">REVISION NO. 2</td> <td style="font-size: x-small;">MARCH 2005</td> </tr> </table>		REVISION NO. 2	MARCH 2005
ENGINEER OR TECHNICIAN	BASIC REV.	LAURA A. FIEFFER									
		LAURA A. FIEFFER									
REVISION NO. 2	MARCH 2005										
<p style="font-size: x-small;">APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</p> <p style="font-size: x-small;">U.S. ARMY DEFENSE AMMUNITION CENTER</p> <p style="font-size: x-small;"><i>[Signature]</i></p>	<p style="font-size: x-small;">TRANSPORTATION ENGINEERING DIVISION</p> <p style="font-size: x-small;">ENGINEERING DIVISION</p> <p style="font-size: x-small;">ENGINEERING DIRECTORATE</p>	<p style="font-size: x-small;"><i>G. L. Willis</i></p> <p style="font-size: x-small;"><i>[Signature]</i></p> <p style="font-size: x-small;"><i>[Signature]</i></p>	<p style="font-size: x-small;">TESTED</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: x-small;">CLASS</td> <td style="font-size: x-small;">DIVISION</td> <td style="font-size: x-small;">DRAWING</td> <td style="font-size: x-small;">FILE</td> </tr> <tr> <td style="text-align: center;">19</td> <td style="text-align: center;">48</td> <td style="text-align: center;">4232</td> <td style="text-align: center;">20PM1007</td> </tr> </table>	CLASS	DIVISION	DRAWING	FILE	19	48	4232	20PM1007
CLASS	DIVISION	DRAWING	FILE								
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GENERAL NOTES

(GENERAL NOTES CONTINUED)

- 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. APPROVED SPECIFICATIONS, COVERING THE ASSEMBLAGE AND UNITIZATION OF BOX-PACKED AMMUNITION INTO UNIT LOADS, ARE SET FORTH IN THIS DRAWING. THIS DRAWING WILL BE CONSIDERED THE BASIC DOCUMENT FOR THE UNITIZATION OF AMMUNITION ITEMS PACKED IN METAL OR PLASTIC BOXES, EXCEPT FOR SOME RESTRICTED ITEMS, SUCH AS WP FILLED AMMUNITION. THIS DOCUMENT INCLUDES MATERIAL SPECIFICATIONS AND UNITIZING STANDARDS APPLICABLE TO UNITIZATION, PLUS INFORMATION RELATIVE TO TYPICAL POSITIONING OF BOXES ON A PALLET AND INSTALLATION OF PALLET ADAPTERS AND UNITIZING STEEL STRAPPING. FOR TYPICAL UNITIZATION PROCEDURES SEE PAGE 5.
- C. APPENDICES PERTAINING TO THIS BASIC DOCUMENT WILL BE ISSUED SEPARATELY. ALL APPENDICES, HOWEVER, ARE A PART OF THIS BASIC PROCEDURE DRAWING. EACH APPENDIX WILL COVER THE APPROVED CONFIGURATION FOR A UNIT LOAD, THE SPECIFIC UNITIZATION SPECIFICATIONS AND THE PERTINENT TABULAR DATA FOR ONE ITEM OF AMMUNITION OR FOR A CATEGORY OF AMMUNITION ITEMS.
- D. GENERALLY, UNIT LOADS SHOWN IN THE APPENDICES WILL CONFORM TO THE STANDARDS LISTED BELOW.
 - 1. GROSS WEIGHTS OF PALLETIZED UNIT LOADS ARE BASED ON AN OPTIMUM WEIGHT OF 2,464 POUNDS, DUE TO MATERIALS HANDLING EQUIPMENT CONSIDERATIONS. UNLESS SPECIFICALLY RESTRICTED BY ANOTHER AUTHORITY DOCUMENT, THE MAXIMUM GROSS WEIGHT OF AMMUNITION UNIT LOADS IS 2,500 POUNDS.
 - 2. UNIT LOADS SHOULD NOT EXCEED 44" IN LENGTH BY 50" IN WIDTH FOR TYPE I (44" X 40") PALLETS, 39" IN LENGTH BY 51-1/2" IN WIDTH FOR TYPE II (35" X 45-1/2") PALLETS, 44" IN LENGTH X 54" IN WIDTH FOR TYPE III (48" X 40") PALLETS OR 44" IN LENGTH BY 59" IN WIDTH FOR TYPE IV (42" X 53") PALLETS. UNIT LOAD HEIGHT, INCLUDING PALLET HEIGHT, SHOULD NOT EXCEED 54". ANY OR ALL OF THE STATED DIMENSIONS FOR THE LENGTH, WIDTH OR HEIGHT OF A UNIT LOAD, HOWEVER, CAN BE INCREASED OR DECREASED, DEPENDING UPON PECULIARITIES OF THE COMMODITY BEING UNITIZED AND IDENTIFIABLE FACTORS THAT INFLUENCE TOTAL COST EFFECTIVENESS THROUGHOUT THE AMMUNITION LOGISTICS SYSTEM.
 - 3. THE UNIT LOAD SHOULD EITHER BE FLUSH WITH OR SLIGHTLY OVERHANG THE PALLET ON ALL FOUR SIDES. OVERHANG IS DEFINED AS THE DISTANCE THAT THE AMMUNITION ITEM PACKAGE(S) AND OR PALLET ADAPTER EXTEND BEYOND THE EDGE OF THE PALLET.
 - 4. AN AMMUNITION BOX (EXTERIOR PACK) WILL NOT CONTAIN MORE THAN ONE LOT OF AMMUNITION PER BOX. UNIT LOADS WILL NOT CONTAIN MORE THAN TWO LOTS PER UNIT LOAD, EXCEPT WHERE REQUIRED FOR BALLISTIC SAMPLE SHIPMENT OR FOR TROOP USE AT POST, CAMP OR STATION. NOTICE: THE IMPOSED LIMIT OF NOT MORE THAN TWO LOTS PER PALLET UNIT IS INTENDED TO BE APPLIED TO PALLETIZING OPERATIONS BEING PERFORMED AT A LOAD, ASSEMBLE AND PACK PLANT OR TO MAJOR MAINTENANCE OPERATIONS BEING PERFORMED AT AN AMMUNITION DEPOT WHEN THE QUANTITY OF BOXES COMPRISING A LOT IS GREAT ENOUGH TO CONSTRUCT MORE THAN ONE PALLET UNIT. MULTIPLE (MORE THAN TWO) LOTS MAY BE PALLETIZED TOGETHER AS A UNIT LOAD WHEN A SINGLE LOT QUANTITY IS INSUFFICIENT TO COMPLETE ONE FULL-SIZE OR REDUCED-LAYER (TO SATISFY A SMALL-QUANTITY SHIPMENT) UNIT LOAD. MULTIPLE LOTS ON A PALLET WILL BE THE SAME NSN AND WILL BE UNITIZED IN ACCORDANCE WITH THE APPLICABLE APPENDIX FOR THE ITEM NSN INVOLVED. MULTIPLE-LOT UNIT LOADS WILL BE MARKED IN ACCORDANCE WITH DAC DRAWING ACV00561.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- PALLET - - - - - : MIL SPEC MIL-P-70786; 4-WAY ENTRY, TYPE I, II, III, OR IV.
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), SIZE 1-1/4" X .035" OR .031", BUNDLING STRAP SIZE 3/4" X .035" OR .031". BRITTE OR SLIT EDGES SHALL HAVE A 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.

- 5. LESS-THAN-FULL BOXES OF AN AMMUNITION ITEM (LIGHT BOXES) ARE LIMITED TO ONLY ONE LIGHT BOX PER ITEM LOT. A UNIT LOAD WILL NOT CONTAIN MORE THAN ONE LIGHT BOX PER ITEM LOT ON A PALLET. FOR SPECIFIC GUIDANCE, SEE GENERAL NOTE "O".
- 6. A UNIT LOAD, SUCH AS THE LAST UNIT LOAD FOR AN AMMUNITION LOT, CAN BE ASSEMBLED WITH LESS LAYERS THAN SPECIFIED FOR THE BASIC UNIT LOAD. HOWEVER, UNIT LOADS, INCLUDING PARTIAL UNIT LOADS, WILL NOT BE ASSEMBLED WITH A PARTIAL LAYER: EMPTY OR REJECT BOXES WILL BE USED TO ACHIEVE FULL-LAYER UNIT LOADS. FOR SPECIFIC GUIDANCE, SEE GENERAL NOTES "F" AND "O".
- E. ANY REQUEST FOR DEVIATION FROM THE STANDARDS DESCRIBED IN GENERAL NOTE "D" OR FROM THE PROCEDURES DELINEATED IN AN APPENDIX MUST BE DIRECTED TO THE COMMANDER, ARDEC, ATTN: AMSRD-AAR-AIL-TP, ROCK ISLAND, IL 61299-7300, FOR SPECIFIC APPROVAL. FOR EXAMPLE, SPECIFIC APPROVAL MUST BE OBTAINED FOR UNITIZATION OF AN ITEM WHEN PACKED IN BOXES WHICH ARE DIFFERENT IN SIZE THAN THOSE SHOWN IN THE APPENDIX FOR THAT ITEM, EVEN THOUGH THE UNIT LOAD MAY COMPLY WITH THE STANDARDS DESCRIBED IN GENERAL NOTE "D".
- F. UNIT LOADS MUST ONLY BE MADE UP WITH FULL LAYERS. FOR REDUCED QUANTITIES, HOWEVER, ONE OR MORE FULL LAYERS MAY BE OMITTED, AND/OR A FULL LAYER MAY CONSIST OF LOADED BOXES AND AN EMPTY BOX(ES). SEE GENERAL NOTE "O". ONLY ONE UNIT LOAD HAVING A REDUCED QUANTITY OF ITEMS SHOULD BE PERMITTED PER LOT OF THAT ITEM. EACH LAYER OF BOXES WILL BE POSITIONED AS APPROPRIATE WITHIN THE PALLET ADAPTER. CARE SHALL BE TAKEN TO INSURE THAT THE BOXES ARE EVENLY ALIGNED HORIZONTALLY AND VERTICALLY SO THAT THE SIDES AND ENDS OF THE UNIT LOAD DO NOT EXCEED A 1/2" TOLERANCE, RELATIVE TO THE PALLET DECK. SEE "ALLOWABLE TOLERANCES FOR ASSEMBLING UNITS" DETAILS ON PAGE 6.
- G. CAUTION: ROCKETS AND ROCKET MOTORS IN A PROPULSIVE STATE WILL BE POSITIONED IN THE UNIT LOAD WITH ALL NOSE ENDS IN ONE DIRECTION.
- H. IN ORDER TO OBTAIN COMPACT (SOUND) UNITS, ALL STRAPS SHALL BE LOCATED IN PROPER ALIGNMENT AND TENSIONED. AFTER TENSIONING, EACH STRAP WILL BE SECURED USING ONE SEAL AND TWO PAIR OF NOTCHES PER SEAL. SEE "ALLOWABLE TOLERANCES FOR ASSEMBLING UNITS" DETAILS ON PAGE 6. SEALS MAY BE LOCATED ON A SIDE OR ON THE TOP OF THE UNIT, AS REQUIRED BY OPERATIONAL NECESSITY.
- J. WHEN APPLYING ANY STRAP, CARE MUST BE EXERCISED TO ASSURE THAT THE END OF THE STRAP ON THE UNDERSIDE OF THE JOINT EXTENDS AT LEAST 6" BEYOND THE SEAL. THIS EXTRA MINIMUM LENGTH OF THE STRAP IS REQUIRED TO PERMIT SUBSEQUENT TIGHTENING OF LOOSENED STRAPPING. RETENSIONING CAN BE ACCOMPLISHED WITHOUT REPLACING STRAPPING OR SPLICING STRAPPING THROUGH THE USE OF A MANUAL OR PNEUMATIC FEEDWHEEL TYPE TENSIONING TOOL AND THE APPLICATION OF ONE ADDITIONAL SEAL. SEE "STRAP RETENSIONING TAB" DETAIL ON PAGE 5.
- K. DETERMINATION OF LENGTH OF STRAPPING. THE FOLLOWING DEFINITIONS APPLY:
 - L = LENGTH OF STRAP REQUIRED IN INCHES
 - A = LENGTH OF UNIT IN INCHES
 - W = WIDTH OF UNIT IN INCHES
 - H = HEIGHT OF UNIT, INCLUDING PALLET, IN INCHES

THE LENGTH OF A UNITIZING STRAP REQUIRED FOR A SPECIFIC UNIT, WHERE THE STRAP PASSES UNDER THE PALLET DECK, WILL BE DETERMINED BY USING THE FOLLOWING FORMULA: $L = 2A$ (OR $2W$) + $2H + 2"$. $2A$ WILL BE USED WHEN THE STRAP IS PARALLEL TO THE PALLET UNIT LENGTH, AND $2W$ WILL BE USED WHEN THE STRAP IS PERPENDICULAR TO THE PALLET UNIT LENGTH.

- L. PALLET UNIT LOADS SHALL BE INSPECTED FOR TORN, DETERIORATED OR LOOSENED STRAPPING PRIOR TO SHIPPING.
 - 1. TORN OR BROKEN STRAPS SHOULD BE REPLACED OR REPAIRED BY SPLICING IN A MANNER SIMILAR TO THAT DESCRIBED IN L4(B) ON PAGE 3.
 - 2. DETERIORATION DUE TO A MINOR AMOUNT OF RUST WILL NOT NECESSARILY BE CAUSE FOR REPLACING A STRAP. HOWEVER, AN EXTENSIVELY RUSTED/SCALED/PITTED STRAP IS CAUSE FOR REPLACING THE STRAP.
 - 3. A DAMAGED OR DEFECTIVE SEAL IS SUFFICIENT CAUSE FOR REPLACEMENT OF THE SEAL.

(CONTINUED ON PAGE 3)

4. LOOSE STRAPS SHOULD BE CHECKED FOR DEGREE OF LOOSENESS BY POSITIONING THE HOOK OF A SCALE COMMONLY KNOWN AS A FISH SCALE) BETWEEN THE STRAPS NEAR THE MIDPOINT AT THE TOP OR SIDE OF THE UNIT LOAD. PULL THE SCALE UNTIL A READING OF 20 POUNDS IS OBTAINED. THE DISTANCE BETWEEN THE TOP PALLET ADAPTER AND THE STRAP MUST NOT EXCEED 1-1/2". IF MEASUREMENT EXCEEDS 1-1/2", THE STRAP MUST BE TIGHTENED OR REPLACED. TIGHTENING CAN BE ACCOMPLISHED BY EITHER OF TWO METHODS.
- (A) A STRAP TENSIONING TOOL CAN BE USED IF THE STRAP HAS AT LEAST A 6" LONG TAB AT THE SEAL. SEE GENERAL NOTE "J" FOR GUIDANCE.
- (B) AN 18" OR LONGER STRAP CAN BE USED AS A SPLICE PIECE. CUT THE LOOSE STRAP ON BOTH SIDES OF THE ORIGINAL SEAL AND DISCARD THE CUT OUT SECTION. OVERLAP ONE END OF THE ORIGINAL STRAPPING SO AS TO PROTRUDE SLIGHTLY BEYOND THE END OF THE SEAL TO BE USED. POSITION AND SECURE SEAL TO OVERLAPPED SECTION WITH TWO PAIR OF NOTCHES. USING A STRAPPING TOOL, TENSION AND SEAL THE LENGTHENED STRAP. THE STRAP SPLICE PIECE MAY BE CUT FROM NEW STRAP OR USED STRAP, PROVIDED IT IS AT LEAST OF AS GOOD A QUALITY AS THE STRAP TO WHICH IT IS BEING SECURED. NOTE: ONLY ONE SPLICE PER STRAP IS ALLOWED ON UNIT LOADS OF AMMUNITION.
- (C) CAUTION: WHEN A STRAP IS REPLACED/SPLICED OR RETENSIONED, AND THE OTHER STRAPS ON A UNIT LOAD ARE NOT, CARE MUST BE EXERCISED TO INSURE THAT THE TENSION ON THE AFFECTED STRAP IS NEARLY THE SAME AS THAT OF THE OTHER STRAPS.
- M. AMMUNITION UNITIZED PRIOR TO DISTRIBUTION OF THIS REVISION TO DRAWING OR OF AN APPENDIX THERETO, NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THE STANDARDS SPECIFIED HEREIN OR TO THE METHOD SHOWN IN AN AUGMENTING APPENDIX, HOWEVER, BOX AND STRAP ALIGNMENT MUST CONFORM WITH THE TOLERANCE STANDARDS SPECIFIED ON PAGE 6 OF THIS DRAWING BEFORE A UNIT IS ACCEPTABLE FOR SHIPMENT. ALSO, THE CONDITION OF THE UNITIZING STRAPPING ON A UNIT LOAD MUST COMPLY WITH THE CRITERIA OF GENERAL NOTE "L".
- N. IF STRAP CUTTERS ARE SPECIFICALLY REQUIRED BY THE PROCURING ACTIVITY, REFER TO DARCOM DRAWING 19-48-4127-20P1000 FOR APPROPRIATE MEANS OF SECUREMENT TO THE PALLET UNIT.
- O. EMPTY BOXES, PREFERABLY "REJECTS", WILL BE USED TO ACHIEVE A FULL-LAYER PALLET UNIT. THE FOLLOWING PROVISIONS SET FORTH THE SPECIFICATIONS THAT MUST BE FOLLOWED WHEN EMPTY BOXES ARE USED TO ACHIEVE A FULL-LAYER PALLET UNIT.
1. EMPTY BOXES WILL BE POSITIONED IN THE TOP LAYER OF THE PALLET UNIT, AS DEPICTED IN THE DETAIL ON PAGE 5. EMPTY BOXES USED TO FILL OUT A LAYER MUST BE PAINTED AND MARKED AS SPECIFIED IN DAC DRAWING ACV00561 AND ARDEC DRAWING 12982865.
 2. LESS THAN FULL BOXES OF AMMUNITION (LIGHT BOXES) WILL BE PAINTED AND MARKED AS SPECIFIED IN DAC DRAWING ACV00561 AND ARDEC DRAWING 12982865. LIGHT BOXES WILL BE POSITIONED IN THE TOP LAYER OF THE PALLET UNIT, AS DEPICTED IN THE DETAIL ON PAGE 5. NOT MORE THAN ONE LIGHT BOX PER LOT WILL BE PLACED IN A UNIT LOAD. SEE GENERAL NOTE "O3" BELOW.
 3. TO SATISFY THE REQUIREMENTS FOR A FULL-LAYER UNIT, IT IS PERMISSIBLE TO USE A COMBINATION OF EMPTY AND LIGHT BOXES IN THE TOP LAYER. SEE GENERAL NOTE "D5".
 4. EACH PALLET UNIT CONTAINING EMPTY BOXES WILL HAVE A WEATHER RESISTANT PLACARD OR TAG APPLIED TO THE UNIT LOAD AS STATED IN DAC DRAWING ACV00561.
- P. IF UNITIZING OPERATIONS ARE BEING PERFORMED IN SUPPORT OF A SHIPMENT OF ITEMS FOR TROOP USE AT A CAMP, POST OR STATION, AND, IF IN ADDITION TO FULL LAYER UNITS SPECIFIED IN GENERAL NOTE "F", A FEW LOOSE BOXES ARE REQUIRED TO SATISFY THE QUANTITY REQUISITIONED, THE LOOSE BOXES NEED NOT BE UNITIZED, HOWEVER, THE METHOD FOR BRACING AND STAYING OF THE LOOSE BOXES WITHIN THE LOAD TO BE SHIPPED MUST COMPLY WITH THE METHODS SPECIFIED WITHIN THE APPLICABLE 19-48 SERIES OUTLOADING PROCEDURAL DRAWING.
- Q. 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.
- R. OUTLOADING AND STORAGE OF PALLET UNITS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH AMC DRAWINGS IDENTIFIED WITHIN AMC DRAWING 19-48-75-5, OR WITH APPLICABLE PROCEDURAL DRAWINGS AS IDENTIFIED IN THE APPENDICES FOR SPECIFIC UNITS. SOME OF THESE DRAWINGS ARE AVAILABLE ON THE INTERNET AT [HTTP://WWW.DAC.ARMY.MIL](http://www.dac.army.mil).
- S. WHEN ASSEMBLING A COMPLETE PALLET UNIT, CARE SHALL BE TAKEN TO INSURE THAT THE AMMUNITION ITEM PACKAGES AND PALLET ADAPTERS, AS APPLICABLE, ARE EVENLY ALIGNED SO THAT THE SIDES AND ENDS OF THE PALLET UNIT DO NOT EXCEED A 1/2" TOLERANCE, RELATIVE TO THE PALLET. SEE THE "ALLOWABLE TOLERANCES FOR ASSEMBLING UNITS" DETAILS ON PAGE 6.
- T. TWO METHODS ARE APPROVED FOR DETERMINING THE AVERAGE WEIGHT THAT IS TO BE SHOWN ON PALLETIZED UNITS OF AMMUNITION THAT ARE BEING PRODUCED AT LOAD, ASSEMBLE AND PACK PLANTS.
1. PREFERRED METHOD FOR DETERMINATION OF UNIT LOAD WEIGHT: THE WEIGHT OF AMMUNITION UNIT LOADS MAY BE DETERMINED BY RANDOMLY SELECTING FIVE UNIT LOADS FROM THE CURRENT MONTH'S PRODUCTION. EACH UNIT LOAD SHALL THEN BE WEIGHED. THE CALCULATED AVERAGE WEIGHT OF THE FIVE UNIT LOADS (TOTAL WEIGHT OF THE FIVE UNIT LOADS DIVIDED BY FIVE) WILL BE USED AS THE UNIT LOAD WEIGHT FOR WHICHEVER IS LESS, EITHER A 60-DAY PERIOD OR UNTIL A DIMENSIONAL OR CONFIGURATION CHANGE IS MADE TO THE UNIT LOAD.
 2. ALTERNATIVE METHOD FOR DETERMINATION OF UNIT LOAD WEIGHT: THE WEIGHT OF AMMUNITION UNIT LOADS MAY BE DETERMINED BY RANDOMLY SELECTING AND WEIGHING FIVE GROUPS OF UNIT LOAD COMPONENTS (PALLET, STRAPPING, SEALS, INTERMEDIATE ASSEMBLIES, ADAPTERS, ETC.) FROM THE CURRENT MONTH'S PRODUCTION AND ADDING TO IT THE WEIGHT OF THE LOADED BOXES TO BE PLACED ON THE PALLET. THE WEIGHT OF THE LOADED BOXES WILL BE DETERMINED BY USING THE FOLLOWING PROCEDURES:
 - (A) WEIGH FIVE LOADED BOXES INDIVIDUALLY AND RECORD THE TOTAL WEIGHT.
 - (B) WEIGH THREE INDIVIDUAL GROUPS OF FIVE LOADED BOXES EACH AND RECORD EACH GROUP WEIGHT.
 - (C) WEIGH THREE INDIVIDUAL GROUPS OF TEN LOADED BOXES EACH AND RECORD EACH GROUP WEIGHT.
 - (D) TOTAL ALL RECORDED WEIGHTS AND DIVIDE BY 50. THE RESULT IS THE APPROVED LOADED BOX GROSS WEIGHT.

THE APPROVED LOADED BOX WEIGHT WILL THEN BE MULTIPLIED BY THE QUANTITY OF BOXES TO BE PLACED ON THE PALLET AND ADDED TO EACH GROUP OF UNIT LOAD COMPONENTS. THE CALCULATED AVERAGE WEIGHT OF THE FIVE UNIT LOAD GROUPS (TOTAL WEIGHT OF THE FIVE UNIT LOAD GROUPS DIVIDED BY FIVE) WILL BE USED AS THE UNIT LOAD WEIGHT FOR WHICHEVER IS LESS, EITHER A 60-DAY PERIOD OR UNTIL A DIMENSIONAL OR CONFIGURATION CHANGE IS MADE TO THE UNIT LOAD.
- U. UNIT LOAD MARKING WILL BE ACCOMPLISHED IN ACCORDANCE WITH DAC DRAWING ACV00561, MARKING FOR SHIPMENT AND STORAGE, AMMUNITION AND EXPLOSIVES.

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REVISIONS

REVISION NO. 1, DATED MARCH 2000, CONSISTS OF:

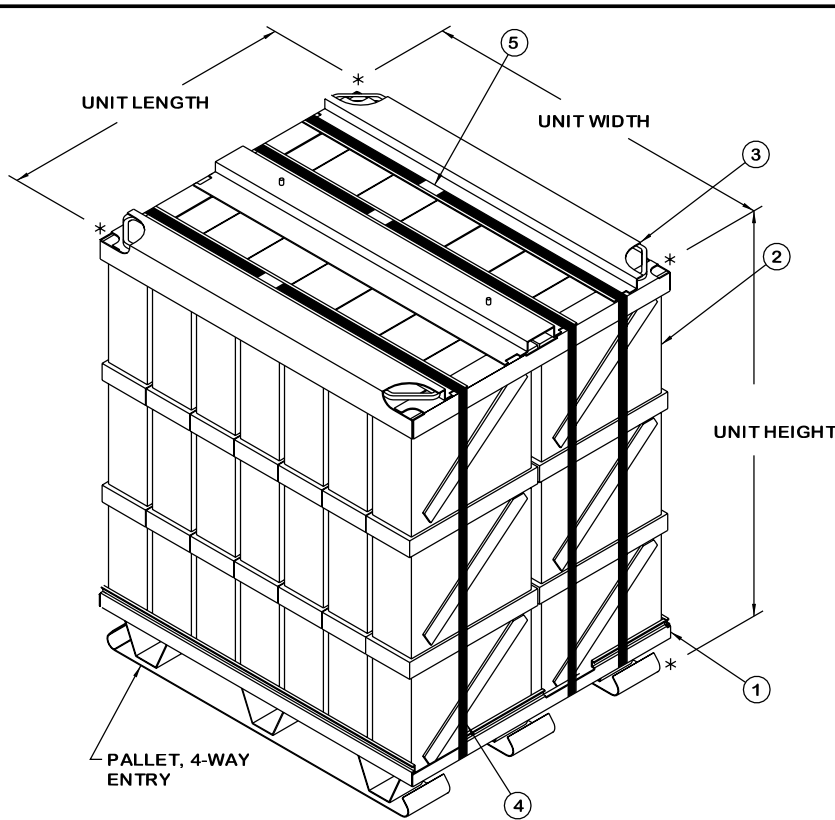
1. UPDATING MATERIAL SPECIFICATIONS AND STANDARDS.
2. UPDATING OFFICE SYMBOL.
3. ADDING REFERENCE TO USADAC WEB SITE.
4. UPDATING THE DRAWING FORMAT.

REVISION NO. 2, DATED MARCH 2005, CONSISTS OF:

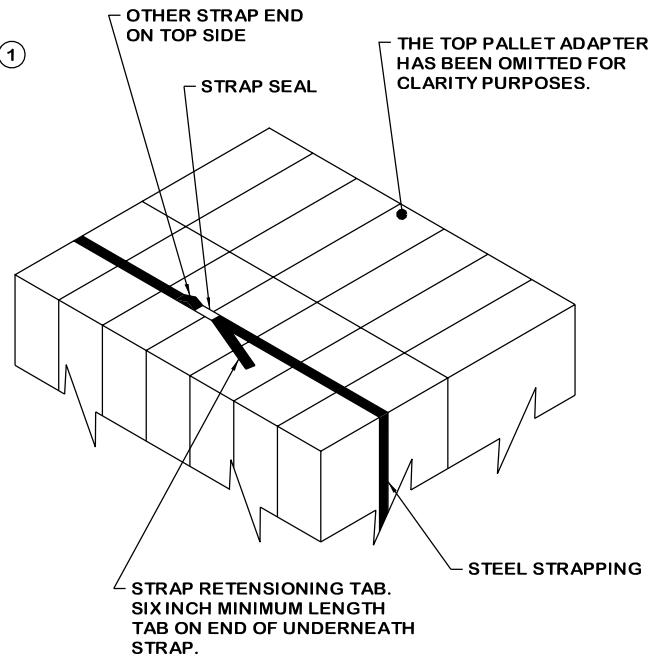
UPDATING GENERAL NOTES, SPECIAL NOTE 1H ON PAGE 6, AND MATERIAL SPECIFICATIONS.

UNITIZATION NOTES

- ① POSITION METAL BOTTOM ADAPTER SO THAT THE ALIGNMENT AIDS FIT PROPERLY IN THE PALLET.
- ② POSITION BOXES SO AS TO BE CENTERED LENGTHWISE AND WIDTHWISE IN THE PALLET ADAPTER.
- ③ POSITION METAL TOP ADAPTER ON THE TOP OF THE UNIT LOAD, IN PROPER ALIGNMENT WITH THE BOXES AND BOTTOM ADAPTER.
- ④ UNITIZING STRAP, 1-1/4" X .035" OR .031" BY LENGTH TO SUIT STEEL STRAPPING (AS REQUIRED). SEE GENERAL NOTES "H" AND "K" ON PAGE 2 AND "L" ON PAGE 3.
- ⑤ SEAL FOR 1-1/4" STRAPPING (AS REQUIRED, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "H" ON PAGE 2.

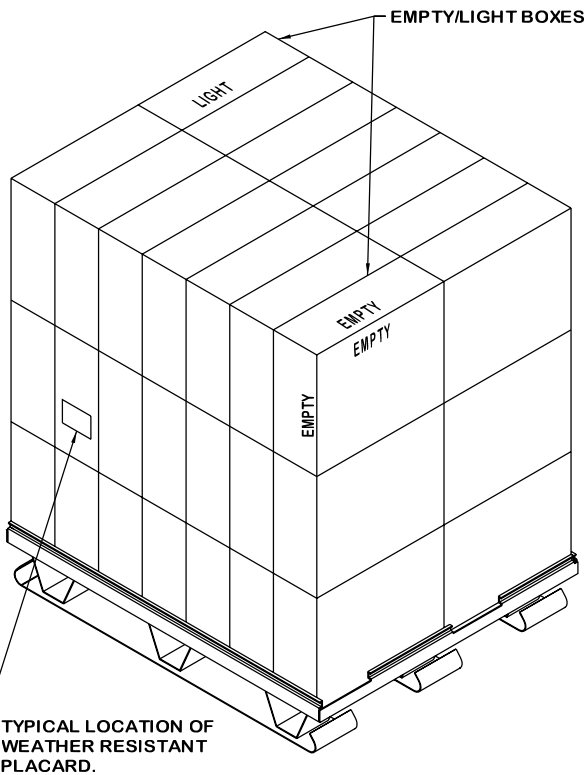


TYPICAL PALLET UNIT



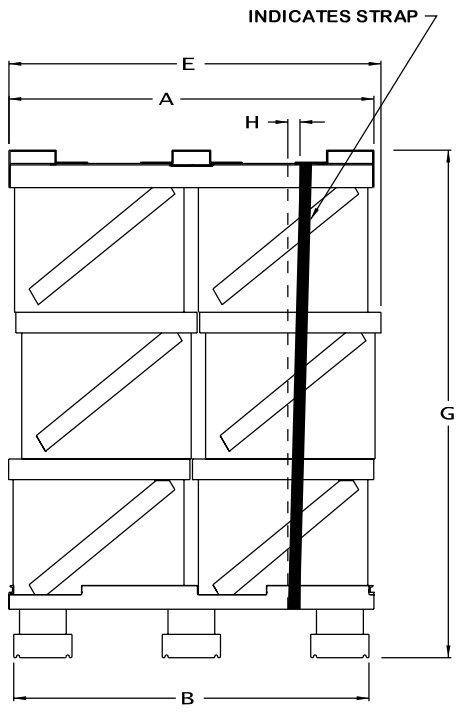
STRAP RETENSIONING TAB

SEE GENERAL NOTE "K" ON PAGE 2.

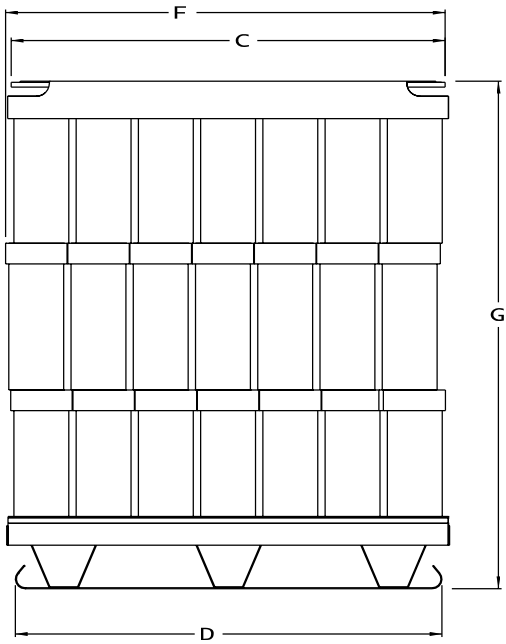


USE OF EMPTY BOXES TO ACHIEVE A FULL LAYER

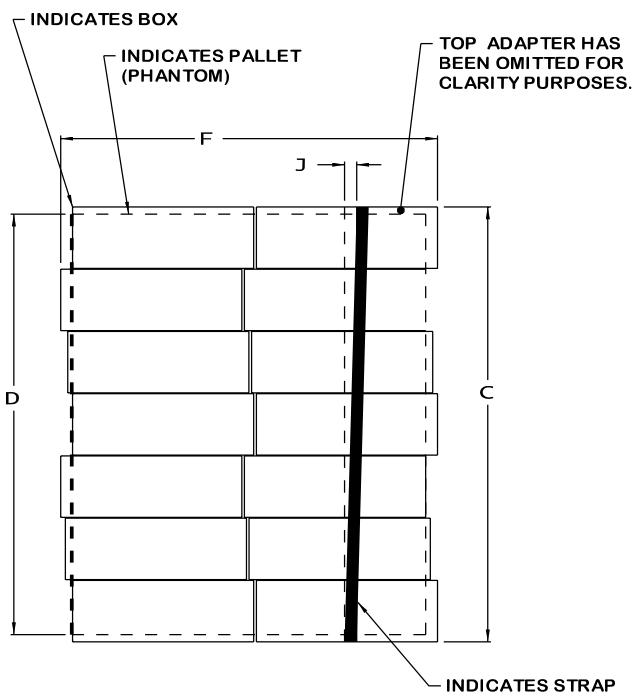
(UNITIZING STRAP AND METAL TOP ADAPTER HAVE BEEN OMITTED FROM THE DETAIL ABOVE FOR CLARITY PURPOSES).



UNIT LENGTH VIEW



UNIT WIDTH VIEW



UNIT TOP VIEW

SPECIAL NOTES:

1. DIMENSIONS APPLICABLE TO ALLOWABLE TOLERANCES ARE EXPRESSED IN INCHES AND IDENTIFIED BY LETTERS AS FOLLOWS.
 A = UNIT LENGTH
 B = PALLET LENGTH
 C = UNIT WIDTH
 D = PALLET WIDTH
 E = ALLOWABLE UNIT LENGTH = "A" PLUS 1/2" MAXIMUM
 F = ALLOWABLE UNIT WIDTH = "C" PLUS 1/2" MAXIMUM
 G = UNIT HEIGHT
 H = VERTICAL STRAP ALIGNMENT = $G/40$ = MAXIMUM INCHES FROM TRUE ALIGNMENT (E.G., IF $G = 50$, $H = 50/40 = 1-1/4$ " MAXIMUM.
 J = TRANSVERSE STRAP ALIGNMENT = $C/40$ = MAXIMUM INCHES FROM TRUE ALIGNMENT (E.G., IF $C = 55$, $J = 55/40 = 1-3/8$ " MAXIMUM.
2. BOX ALIGNMENT TOLERANCES APPLY TO EACH LAYER AND TO EACH STACK RELATIVE TO THE PALLET DECK. SEE GENERAL NOTE "F" ON PAGE 2 AND "S" ON PAGE 3.
3. STRAPPING TOLERANCES APPLY TO ALL STRAPS AND TO ALL SURFACES WHICH EACH ENCOMPASSES, I.E., TOP, BOTTOM, AND BOTH SIDES.