

BASIC PROCEDURES

UNITIZATION PROCEDURES FOR AMMUNITION AND COMPONENTS PACKED IN CYLINDRICAL METAL CONTAINERS ON 4-WAY METAL OR RESIN TREATED PALLETS

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NOTICE:

THIS BASIC PROCEDURE DOCUMENT 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 PROCEDURES DRAWING. THE DRAWING NUMBER OF EACH APPENDIX WILL CONTAIN A SUB-NUMBER FOR IDENTIFICATION (E.G., THE DRAWING NUMBER FOR APPENDIX 3 WILL BE 19-48-4231/3-20PM1006). 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. 19-48-4231/13A-20PM1006). 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 THE SUB NUMBER 51 WILL FOLLOW 47).

DISTRIBUTION STATEMENT A:

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U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, COMBAT CAPABILITIES DEVELOPMENT COMMAND ARMAMENTS CENTER HANSENEN.JO Digitally signed by HANSENEN.JOSEPH.W. SEPH.W.1376 1376495538 495538 Date: 2020.05.11 09:37:59 -05'00' FCDD-ACE-LTP	CAUTION: VERIFY PRIOR TO USE AT https://www.dau.edu/cop/ammo/Pages/Default.aspx THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 6.		
APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND WARD.GINA. Digitally signed by WARD.GINA.M.1369379808 M.1369379808 Date: 2020.05.13 08:03:11 -05'00' AMSJM-LIT	DO NOT SCALE	<h1 style="margin: 0;">JUNE 1988</h1>	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND SMITH.THERESA. Digitally signed by SMITH.THERESA.ANN.1009147 ANN.1009147639 Date: 2020.05.13 10:41:20 -05'00' U.S. ARMY DEFENSE AMMUNITION CENTER	DESIGN ENGINEER BASIC LAURA A. FIEFFER REV. MADELINE BANKS	REVISION NO. 4 APRIL 2020	SEE THE REVISION LISTING ON PAGE 3
	ENGINEERING DIVISON FIEFFER.LAURA Digitally signed by .A.1230375727 Date: 2020.04.06 13:47:38 -05'00'	TEST ENGINEER TEST REPORT NA	CLASS DIVISION DRAWING FILE
	EXPLOSIVE SAFETY DIRECTORATE THOMAS.CARL.ANTHONY.110 Digitally signed by THONY.110462137 Date: 2020.04.17 14:22:17 -05'00'	19	48
		4231	20PM1006

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 ASSEMBLY AND UNITIZATION OF CYLINDRICAL CONTAINERS 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 CYLINDRICAL METAL CONTAINERS, 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 CONTAINERS ON A PALLET AND INSTALLATION OF PALLET ADAPTERS AND UNITIZING STEEL STRAPPING. FOR TYPICAL UNITIZATION PROCEDURES SEE PAGE 4
- C. APPENDICES PERTAINING TO THIS BASIC DOCUMENT WILL BE ISSUED SEPARATELY. ALL APPENDICES, HOWEVER, ARE A PART OF THIS BASIC PROCEDURES 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 MATERIAL HANDLING EQUIPMENT CONSIDERATIONS. UNLESS SPECIFICALLY RESTRICTED BY ANOTHER AUTHORITATIVE 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") PALLET, 39" IN LENGTH BY 51- 1/2" IN WIDTH FOR TYPE II (45-1/2" X 35") PALLET, 44" IN LENGTH X 54" IN WIDTH FOR TYPE III (48" X 40") PALLET OR 44" IN LENGTH BY 59" IN WIDTH FOR TYPE IV (53" X 42") PALLET. 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. 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 CONTAINERS 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, RDECOM-ARDEC, ATTN: RDAR-EIL-TP, ROCK ISLAND, IL 61299-7300, FOR SPECIFIC APPROVAL. FOR EXAMPLE, SPECIFIC APPROVAL MUST BE OBTAINED FOR UNITIZATION OF AN ITEM WHEN PACKED IN CONTAINERS 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".

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

PALLET - - - - - : MIL SPEC MIL-P-70786; OR ITEM SPEC QAT-1420

STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), SIZE 1-1/4" X .035" OR .031" OR .029", BUNDLING STRAP SIZE 3/4" X .035" OR .031" OR .029". **NOTE:** IF EDGES DO NOT MEET THE PREECE TEST FOR GRADE 2, ANY BRITTE OR SLIT EDGES SHALL HAVE FINISH A OVERLAY APPLIED.

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.

- 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 CONTAINERS AND AN EMPTY CONTAINER(S). 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 CONTAINERS WILL BE POSITIONED AS APPROPRIATE WITHIN THE PALLET ADAPTER. CARE SHALL BE TAKEN TO INSURE THAT THE CONTAINERS 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 4(B) BELOW.
 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.
 4. LOOSE STRAPS SHOULD BE CHECKED FOR DEGREE OF LOOSENESS BY POSITIONING THE HOOK OF A SCALE (COMMONLY KNOWN AS A FISH SCALE) BEHIND 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. SEE PAGE 5 FOR GUIDANCE. 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.

(CONTINUED ON PAGE 3)

(GENERAL NOTES CONTINUED FROM PAGE 2)

(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 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, CONTAINER 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 CONTAINERS, 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 CONTAINERS ARE USED TO ACHIEVE A FULL-LAYER PALLET UNIT.

1. EMPTY CONTAINERS WILL BE POSITIONED IN THE TOP LAYER OF THE PALLET UNIT, AS DEPICTED IN THE DETAIL ON PAGE 5. EMPTY OR REJECT CONTAINERS MUST BE INSTALLED IN THE MIDDLE OF THE TOP LAYER(S) OF CONTAINERS. IF THE QUANTITY OF CONTAINERS TO BE OMITTED EQUALS ONE FULL LAYER, ONE FULL LAYER OF CONTAINERS WILL BE OMITTED. WHEN (REJECTED) FILLER CONTAINERS ARE USED IN PLACE OF OMITTED CONTAINERS TO COMPLETE A LAYER ON A PALLET, THEY WILL BE PAINTED AND MARKED AS SPECIFIED IN DAC DRAWING ACV00561 AND ARDEC DRAWING NO. 12982865. FOR HYDRA-70 CONFIGURATION ONLY, PAINT AND MARK AS SPECIFIED IN AMCOM DRAWING 13643712.

2. EACH PALLET UNIT CONTAINING EMPTY CONTAINERS WILL HAVE A WEATHER RESISTANT PLACARD APPLIED TO ONE SIDE AND ONE END OF THE UNIT. THE PLACARDS WILL BE STENCILED WITH A CONTRASTING COLOR, USING LETTERS THAT ARE AS LARGE AS PRACTICAL BUT NOT LESS THAN 1/2" IN SIZE, TO READ: "THIS UNIT LOAD CONTAINS-(NUMBER) EMPTY CONTAINER(S)".

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 CONTAINERS ARE REQUIRED TO SATISFY THE QUANTITY REQUISITIONED, THE LOOSE CONTAINERS NEED NOT BE UNITIZED, HOWEVER, THE METHOD FOR BRACING AND STAYING OF THE LOOSE CONTAINERS WITHIN THE LOAD TO BE SHIPPED MUST COMPLY WITH THE METHODS SPECIFIED WITHIN THE APPLICABLE 19-48 SERIES OUTLOADING PROCEDURAL DRAWING.

Q. OUTLOADING AND STORAGE OF PALLET UNITS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE APPLICABLE PROCEDURAL DRAWINGS AS IDENTIFIED IN THE APPENDICES FOR SPECIFIC UNITS. SOME OF THESE DRAWINGS ARE AVAILABLE ON THE INTERNET AT [HTTPS://WWW3.DAC.ARMY.MIL/DET](https://www3.dac.army.mil/det).

R. 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.

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.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

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, SPACER ASSEMBLIES, ADAPTERS, ETC.) FROM THE CURRENT MONTH'S PRODUCTION AND ADDING TO IT THE WEIGHT OF THE LOADED CONTAINERS TO BE PLACED ON THE PALLET. THE WEIGHT OF THE LOADED CONTAINERS WILL BE DETERMINED BY USING THE FOLLOWING PROCEDURES:

(A) WEIGH FIVE LOADED CONTAINERS INDIVIDUALLY AND RECORD THE TOTAL WEIGHT.

(B) WEIGH THREE INDIVIDUAL GROUPS OF FIVE LOADED CONTAINERS EACH AND RECORD EACH GROUP WEIGHT.

(C) WEIGH THREE INDIVIDUAL GROUPS OF TEN LOADED CONTAINERS EACH AND RECORD EACH GROUP WEIGHT.

(D) TOTAL ALL RECORDED WEIGHTS AND DIVIDE BY 50. THE RESULT IS THE APPROVED LOADED CONTAINER GROSS WEIGHT.

U. UNIT LOAD MARKING WILL BE ACCOMPLISHED IN ACCORDANCE WITH DAC DRAWING ACV00561, UNIT LOAD MARKING FOR SHIPMENT AND STORAGE, AMMUNITION AND EXPLOSIVES. BAR CODES SHALL BE APPLIED AS SPECIFIED IN DAC DRAWING ACV00561.

REVISIONS

REVISION NO. 1, DATED JANUARY 2001, CONSISTS OF CHANGES PER ECP R7K3011 INCLUDING:

1. CHANGING THE TITLE OF THE DRAWING.
2. REVISING THE TITLE BLOCK.
3. REVISING THE GENERAL NOTES AND MATERIAL SPECIFICATIONS.
4. ADDING DRAWING NUMBER TO EACH PAGE.
5. ADDING RESIN-TREATED PALLET DETAIL.

REVISION NO. 2, DATED SEPTEMBER 2002, CONSISTS OF CHANGES PER ECP R2K3006 INCLUDING:

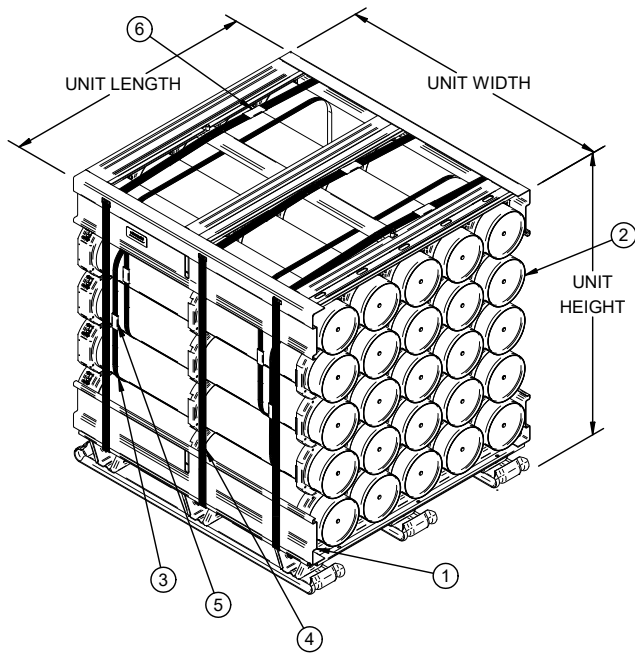
1. UPDATING COVER PAGE (CHECK WEB FOR LATEST REVISION).
2. FIX TYPOS ON NOTE D.2 ON PAGE 2.
3. MODIFYING MATERIAL SPECIFICATION FOR STEEL STRAPPING.
4. CORRECT "ALLOWABLE TOLERANCE FOR ASSEMBLY UNITS" ON PAGE 6.

REVISION NO. 3, DATED NOVEMBER 2011, CONSISTS OF CHANGES PER ECP R07K3013 INCLUDING:

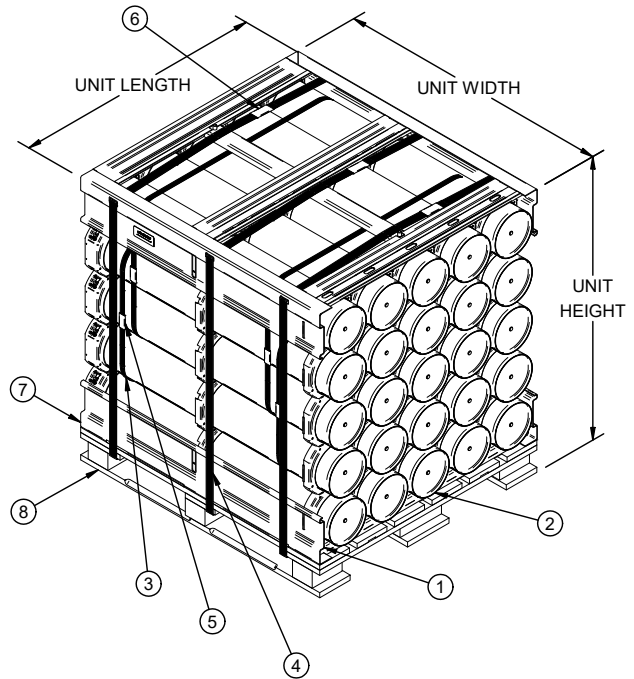
1. ADDING SPECIFICATION FOR .029" THICK STRAPPING.
2. UPDATING DRAWING FORMAT.

REVISION NO. 4, DATED APRIL 2020, CONSISTS OF CHANGES PER ECP MI-P1690-2 INCLUDING:

UPDATING THE GENERAL NOTE "O.1" (EMPTY CONTAINER MARKING) ON PAGE 3.



TYPICAL METAL PALLET UNIT

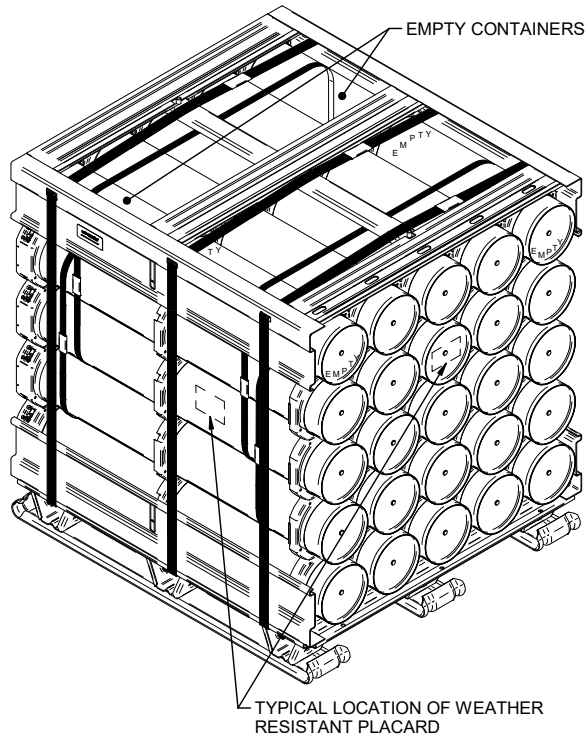


TYPICAL RESIN-TREATED PALLET UNIT

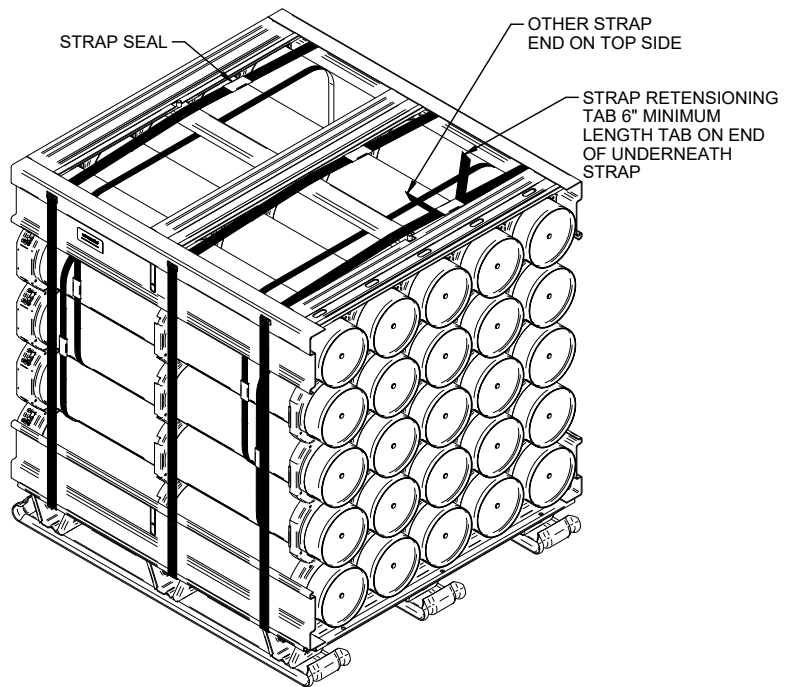
UNITIZATION NOTES

- ① POSITION BOTTOM PALLET ADAPTER SO THAT THE ALIGNMENT AIDS FIT PROPERLY ON THE PALLET.
- ② POSITION CONTAINERS WITH THE STACKING AIDS UPWARDS SO AS TO BE CENTERED LENGTHWISE AND WIDTHWISE IN THE PALLET ADAPTER.
- ③ BUNDLING STRAP, 3/4" X .035" OR .031" OR .029" BY LENGTH TO SUIT STEEL STRAPPING (AS REQD). SEE GENERAL NOTES "H", "K", AND "L" ON PAGE 2.
- ④ UNITIZING STRAP, 1-1/4" X 0.35" OR .031" OR .029" BY LENGTH TO SUIT STEEL STRAPPING (AS REQD). SEE GENERAL NOTES "H", "K", AND "L" ON PAGE 2.
- ⑤ SEAL FOR 3/4" STRAPPING (AS REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "H" ON PAGE 2.
- ⑥ SEAL FOR 1-1/4" STRAPPING (AS REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "H" ON PAGE 2.
- ⑦ SEE DAC DRAWING ACV00409 FOR ADAPTER MODIFICATIONS.
- ⑧ RESIN-TREATED (ENHANCED WOOD) PALLET. SEE DAC DRAWING ACV00248.

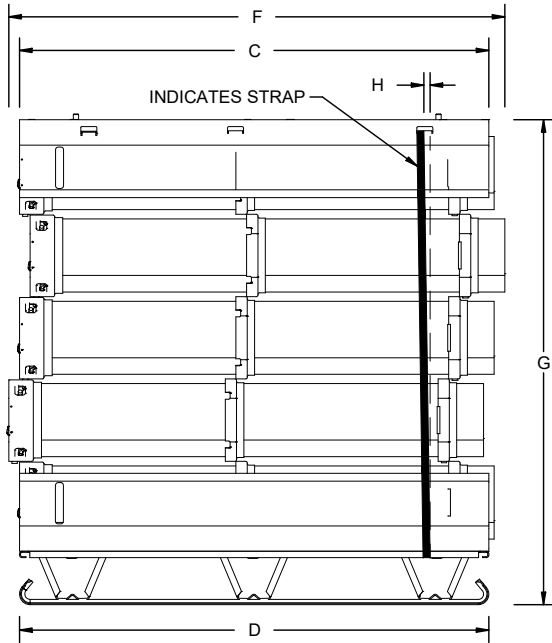
TYPICAL UNITIZATION PROCEDURES



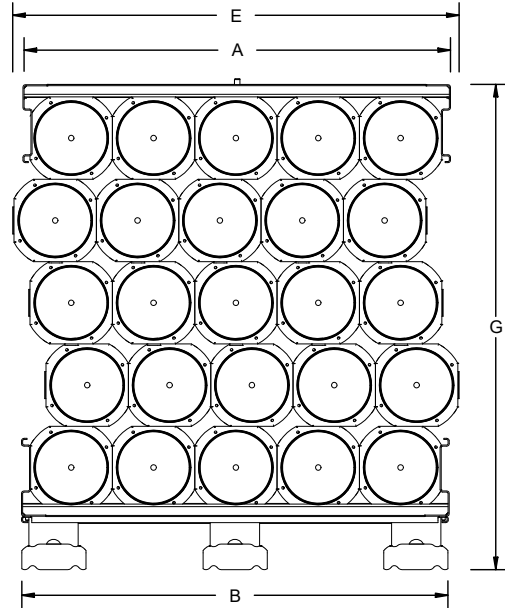
USE OF EMPTY CONTAINERS TO ACHIEVE A FULL LAYER



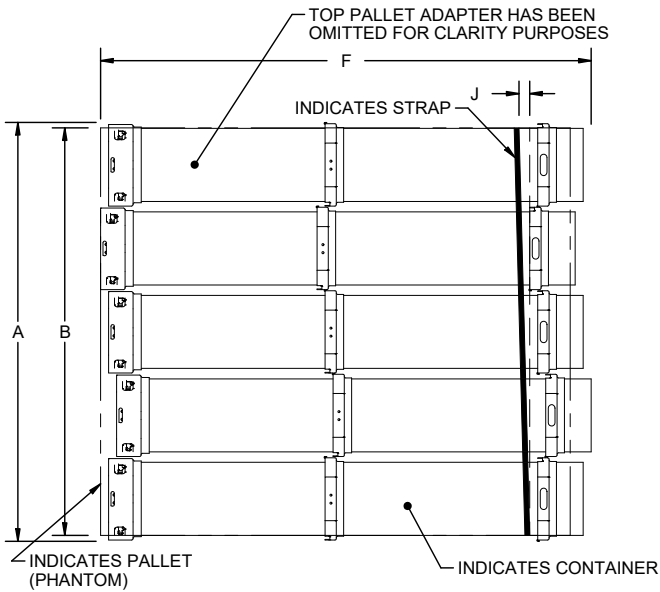
STRAP RETENSIONING TAB
SEE GENERAL NOTE "J" ON PAGE 2



UNIT WIDTH VIEW



UNIT LENGTH 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 = $A/40$ = MAXIMUM INCHES FROM TRUE ALIGNMENT (E.G., IF $A = 50"$, $J = 50/40 = 1-1/4"$ MAXIMUM).

2. CONTAINER ALIGNMENT TOLERANCES APPLY TO EACH LAYER AND TO EACH STACK RELATIVE TO THE PALLET DECK. SEE GENERAL NOTES "F" ON PAGE 2 AND "S" ON PAGE 3.

3. STRAPPING TOLERANCES APPLY TO ALL STRAPS AND TO ALL SURFACES WHICH EACH STRAP ENCOMPASSES, I.E., TOP, BOTTOM, AND BOTH SIDES.