

APPENDIX 28F

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

**CARTRIDGE, 60MM, PACKED 16 PER WIREBOUND
BOX, UNITIZED 27 BOXES PER 42" X 53" PALLET
OR 18 BOXES PER 35" X 45-1/2" PALLET;
APPROX BOX SIZE 14-15/16" L X 13-3/16" W X
17-3/4" H**

NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4116-20PA1002.

THIS DRAWING SUPERSEDES DRAWING 19-48-4116/28B-20PA1002 DATED FEBRUARY 1984.

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U.S. ARMY MATERIEL COMMAND DRAWING

| | | | | | | | | | | | | | |
|--|---|--|--|----------------------|--|-------|----------|---------|------|----|----|--------------|----------|
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| CLASS | DIVISION | DRAWING | FILE | | | | | | | | | | |
| 19 | 48 | 4116/ 28F | 20PA1002 | | | | | | | | | | |

| PALLET UNIT DATA | | | | | |
|------------------|-------|----------------------------|----------------------|---------------------|--------|
| ITEMS INCLUDED | | *HAZARD CLASS AND DIVISION | *COMPATIBILITY GROUP | APPROX WEIGHT (LBS) | |
| NSN | DODIC | | | UNIT A | UNIT B |
| 1310-01-022-7680 | B642 | 1. 2. 2 | E | 3, 127 | 2, 106 |
| 01-149-3185 | B643 | 1. 2. 2 | E | 3, 073 | 2, 070 |

*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 FEBRUARY 1982, CONSISTS OF:

1. CHANGING BOX DIMENSIONS.
2. CHANGING UNITIZATION PROCEDURES TO CONFORM TO NO. 1 ABOVE.

REVISION NO. 2, DATED APRIL 1984, CONSISTS OF:

1. CHANGING BOX DIMENSIONS.
2. ADDING ITEM BY NATIONAL STOCK NUMBER TO "PALLET UNIT" CHART.
3. ADDING SUPERSESSON NOTE.

REVISION NO. 3, DATED JUNE 1985, CONSISTS OF:

1. CHANGING BOX DIMENSIONS.
2. CHANGING UNITIZATION PROCEDURES TO CONFORM TO NO. 1 IMMEDIATELY ABOVE.
3. ADDING ALTERNATIVE UNITIZATION PROCEDURE.

REVISION NO. 4, DATED JUNE 1986, CONSISTS OF:

CHANGING BOX DIMENSIONS.

REVISION NO. 5, DATED APRIL 1996, CONSISTS OF:

1. ADDING ITEM BY NATIONAL STOCK NUMBER TO "PALLET UNIT DATA CHART".
2. DELETING DOT CLASS AND CG CLASS FROM "PALLET UNIT DATA" CHART.
3. DELETING GENERAL NOTE "F" ON PAGE 3 MOVING OTHER NOTES ACCORDINGLY.
4. ADDING GENERAL NOTES "L" AND "M".

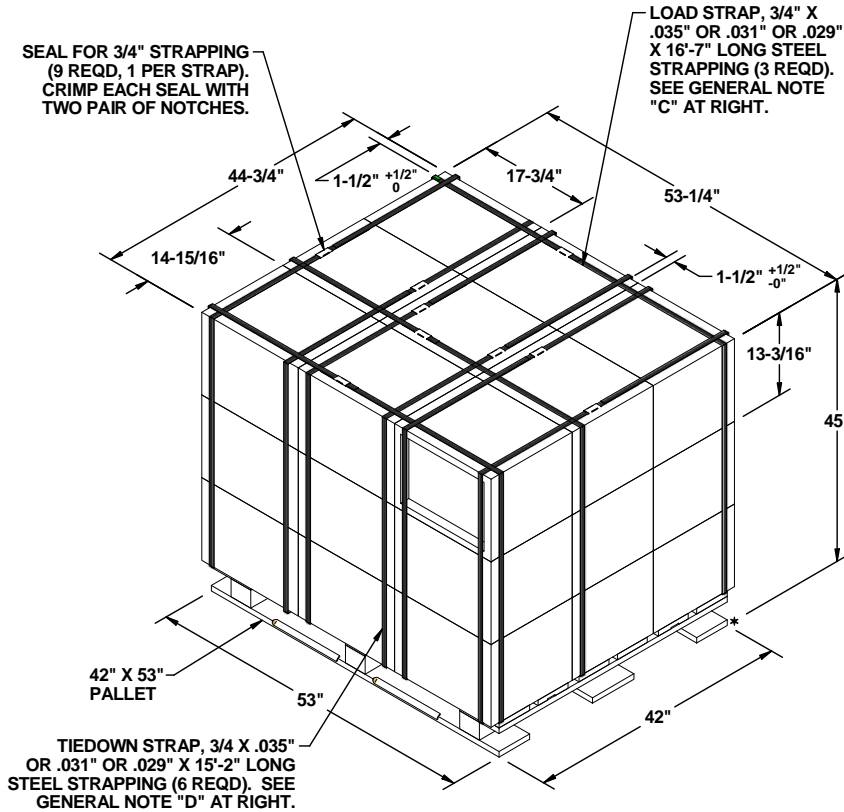
REVISION NO. 6, DATED AUGUST 2002, CONSISTS OF:

1. DELETING ITEM BY NATIONAL STOCK NUMBER FROM THE "PALLET UNIT DATA" CHART.
2. UPDATING DRAWING FORMAT AND CHANGING SEQUENCE OF NOTES.

REVISION NO. 7, DATED DECEMBER 2009, CONSISTS OF:

1. REMOVING GENERAL NOTE "M" (MARINE CORPS HEIGHT REDUCTION) AND RELETTERING REMAINING GENERAL NOTES, IAW ECP R07K3008.
2. ADDING .029" THICKNESS STRAPPING OPTION.

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 MUST BE PRE-POSITIONED ON THE PALLET DECK PRIOR TO PLACING BOXES ON THE PALLET. NOTE THAT THE LOAD STRAPS WILL BE LOCATED AS SHOWN. LOAD STRAPS MUST BE TENSIONED AND SEALED PRIOR TO APPLICATION OF TIEDOWN STRAPS.

D. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE DECK/STRINGER 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 60MM CARTRIDGES WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS 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. IF DIMENSIONAL VARIATION IN THE LENGTH OF THE BOX PERMITS, THE SPACER ASSEMBLY DEPICTED IN "PALLET UNIT B" MAY BE OMITTED, IF AND ONLY IF THE OMISSION OF THE SPACER ASSEMBLY WILL RESULT IN THE UNIT LOAD FILLING OUT THE PALLET.

J. THE 44-3/4" LENGTH DIMENSION OF THE LOAD DEPICTED AT LEFT IS AN EXCEPTION TO THE BASIC PROCEDURES. HOWEVER, THE EXCEPTION IS NECESSARY FOR THE AMMUNITION PACK COVERED BY THIS APPENDIX, TO MOST EFFECTIVELY GET AN ACCEPTABLE, COMPACT AND SOUND PALLET UNIT.

K. THE STYLE 1B PALLET DELINEATED IN THE DETAIL AT LEFT OR THE STYLE 1A PALLET ON PAGE 4 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.

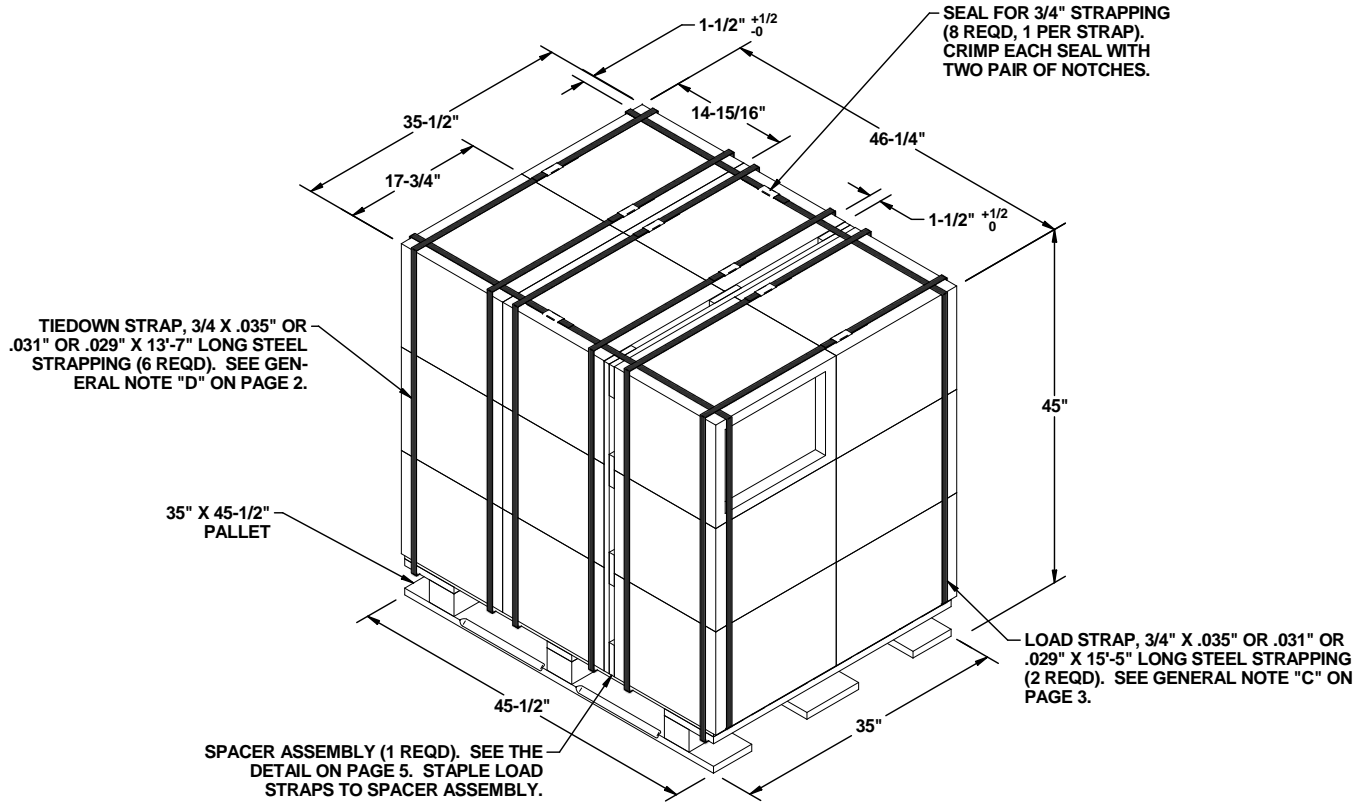
L. ALL DUNNAGE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH GENERAL NOTE "AA" IN THE BASIC PROCEDURES.

M. FOR DETAILS OF THE MIL-DTL-46506 WIREBOUND BOX SEE ARDEC DRAWING 9280108 OR 9293440.

PALLET UNIT A
SEE GENERAL NOTE "B" AT RIGHT.

| | | | |
|---|-------|------------|----------|
| 27 BOXES OF 60MM CARTRIDGE (16 PER BOX) @ 112 LBS | ----- | 3,024 LBS | (APPROX) |
| DUNNAGE | ----- | 13 LBS | |
| PALLET | ----- | 90 LBS | |
| <hr/> | | | |
| TOTAL WEIGHT | ----- | 3,127 LBS | (APPROX) |
| CUBE | ----- | 62.1 CU FT | (APPROX) |

| BILL OF MATERIAL | | | |
|-------------------------|-------|--------------|-----------------|
| PALLET, 42" X 53" | ----- | 1 REQD | ----- 90 LBS |
| STEEL STRAPPING, 3/4" | ----- | 140.75' REQD | ----- 12.57 LBS |
| SEAL FOR 3/4" STRAPPING | ----- | 9 REQD | ----- NIL |

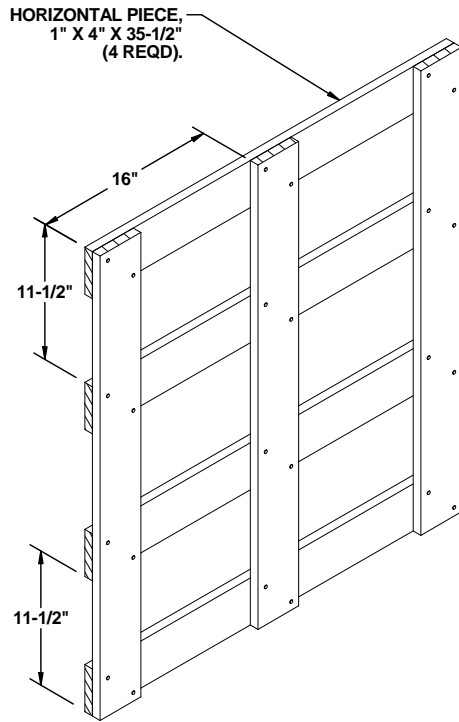


PALLET UNIT B

SEE GENERAL NOTE "B" ON PAGE 3.

| | | | |
|---|-------|------------|----------|
| 18 BOXES OF 60MM CARTRIDGE (16 PER BOX) @ 112 LBS | ----- | 2,016 LBS | (APPROX) |
| DUNNAGE | ----- | 25 LBS | |
| PALLET | ----- | 65 LBS | |
| <hr/> | | | |
| TOTAL WEIGHT | ----- | 2,106 LBS | (APPROX) |
| CUBE | ----- | 42.8 CU FT | (APPROX) |

| BILL OF MATERIAL | | |
|--|-------------|------------|
| LUMBER | LINEAR FEET | BOARD FEET |
| 1" X 4" | 21.71 | 7.24 |
| NAI LS | NO. REQD | POUNDS |
| 6d (2") | 24 | 0.14 |
| PALLET, 35" X 45-1/2" - - - - 1 REQD - - - - - 65 LBS | | |
| STEEL STRAPPING, 3/4" - 112.33' REQD - - - - - 10.02 LBS | | |
| SEAL FOR 3/4" STRAPPING - - - - 8 REQD - - - - - NI L | | |
| STAPLE, 15/16" X 3/4" - - - - 2 REQD - - - - - NI L | | |



HORIZONTAL PIECE,
1" X 4" X 35-1/2"
(4 REQD).

VERTICAL PIECE, 1" X 4"
X 39-1/2" (3 REQD). NAIL
TO HORIZONTAL PIECES
W/2-6d NAILS AT EACH
JOINT AND CLINCH.

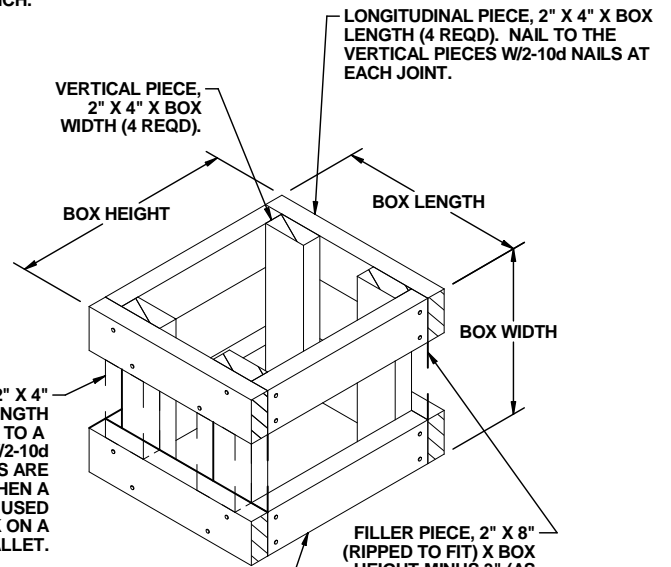
16"

11-1/2"

11-1/2"

SPACER ASSEMBLY

SEE GENERAL NOTE "H" ON PAGE 3.



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

VERTICAL PIECE,
2" X 4" X BOX
WIDTH (4 REQD).

BOX HEIGHT

BOX LENGTH

BOX WIDTH

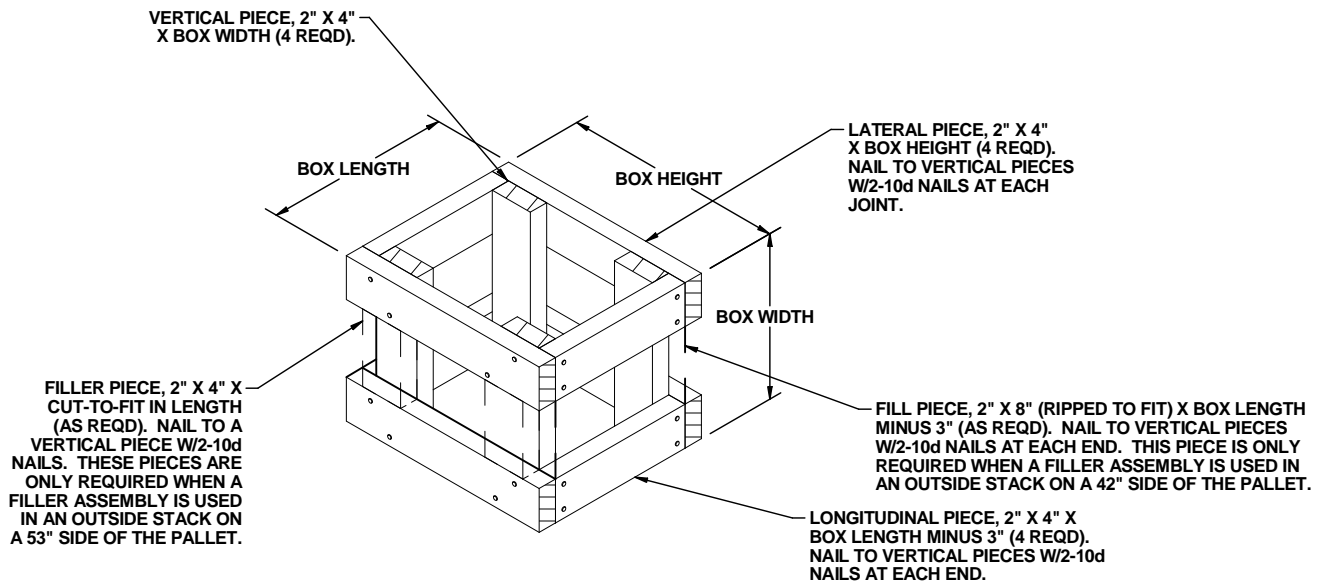
FILLER PIECE, 2" X 4"
X CUT-TO-FIT IN LENGTH
(AS REQD). NAIL TO A
VERTICAL PIECE W/2-10d
NAILS. THESE PIECES ARE
ONLY REQUIRED WHEN A
FILLER ASSEMBLY IS USED
IN AN OUTSIDE STACK ON A
45-1/2" SIDE OF THE PALLET.

FILLER PIECE, 2" X 8"
(RIPPED TO FIT) X BOX
HEIGHT MINUS 3" (AS
REQD). NAIL TO VERTI-
CAL PIECES W/2-10d
NAILS AT EACH END.
THIS PIECE IS ONLY RE-
QUIRED WHEN A FILLER
ASSEMBLY IS USED IN AN
OUTSIDE STACK ON A 35"
SIDE OF THE PALLET.

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

FILLER ASSEMBLY B

(FOR MINUS ONE BOX
ON PALLET UNIT "B")



VERTICAL PIECE, 2" X 4"
X BOX WIDTH (4 REQD).

BOX LENGTH

BOX HEIGHT

LATERAL PIECE, 2" X 4"
X BOX HEIGHT (4 REQD).
NAIL TO VERTICAL PIECES
W/2-10d NAILS AT EACH
JOINT.

BOX WIDTH

FILLER PIECE, 2" X 4" X
CUT-TO-FIT IN LENGTH
(AS REQD). NAIL TO A
VERTICAL PIECE W/2-10d
NAILS. THESE PIECES ARE
ONLY REQUIRED WHEN A
FILLER ASSEMBLY IS USED
IN AN OUTSIDE STACK ON
A 53" SIDE OF THE PALLET.

FILLER PIECE, 2" X 8" (RIPPED TO FIT) X BOX LENGTH
MINUS 3" (AS REQD). NAIL TO VERTICAL PIECES
W/2-10d NAILS AT EACH END. THIS PIECE IS ONLY
REQUIRED WHEN A FILLER ASSEMBLY IS USED IN
AN OUTSIDE STACK ON A 42" SIDE OF THE PALLET.

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

FILLER ASSEMBLY A

(FOR MINUS ONE BOX
ON PALLET UNIT "A")

