# APPENDIX 11

# UNITIZING PROCEDURES FOR COMPLETE ROUNDS\*PACKED IN CYLINDRICAL METAL CONTAINERS ON 4-WAY ENTRY PALLETS

# M18 SERIES CONTAINER

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NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4079-20PM1002.

\*THE UNITIZATION PROCEDURES CONTAINED WITHIN THIS APPENDIX REFER TO DEMOLITION CRATERING CHARGES.

DISTRIBUTION STATEMENT A.

APPROVED FOR PUBLIC REALEASE;
DISTRIBUTION IS UNLIMITED.

MATERIEL COMMAND DRAWING U.S. ARMY DRAFTSMAN D. WHITMORE APPROVED, U.S. ARMY INDUSTRIAL OPERALIONS COMMAND NH ENGINEER JOHN SURDYK TRANSPORTATION VALIDATION ENGINEERING DIVISION SUPPLY ENGINEERING ENGINEERING NOIZIVIO DIVISION-AZZ-RA-ATZMA LMT-012MA APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND SEPTEMBER 1989 FILE CLASS NOISIVIO DRAWING U.S. ARMY DEFENSE AMMUNITION CENTER AND S REVISION NO. 3 **MARCH 1996** 4079/ 20PM 19 48 11 1002 SEE THE REVISION LISTING ON PAGE 2

DO NOT SCAFE

PALLET UNIT DATA						
ITEMS INCL	.UDED	HAZARD AND DIV	APPROX			
NZN	DODIC	OD CLASS	COMP GROUP	WEIGHT LBS		
1 375- 01-250-6029	M039	1 . 1	D	3,180 TO		
01-378-9669	M039	1.1	D	3,508 3,508		

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 AUGUST 1990, CONSISTS OF:

1. ADDING PALLET UNITS B AND C.

REVISION NO. 2, DATED SEPTEMBER 1993, CONSISTS OF:

- 1. REVISING GENERAL NOTE "H" ON PAGE 3.
- 2. ADDING GENERAL NOTE "P" ON PAGE 3.

REVISION NO. 3, DATED MARCH 1996, CONSISTS OF:

1. ADDING ITEM BY NATIONAL STOCK NUMBER (NSN) TO "PALLET UNIT DATA" CHART.

### **GENERAL NOTES**

- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4079-20PM1002. 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 CONTAINER AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITITED
- C. FOR OUTLOADING OF THE ITEMS COVERED BY THIS APPENDIX CONTACT THE U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL, ATTN: SIDAC-DET, SAVANNA, IL 61074-9639. FOR STORAGE OF THE ITEMS COVERED BY THIS APPENDIX, CONTACT THE U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL, ATTN: SMCAC-DES, SAVANNA, IL 61074-9639 FOR SPECIFIC PROCEDURAL GUIDANCE.
- D. IF ITEMS COVERED HEREIN ARE UNITIZED PRIOR TO ISSUANCE OF THIS APPENDIX, THE CONTAINERS NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THIS APPENDIX.
- E. FOR DETAILS OF THE M18 SERIES CONTAINER, SEE U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT CENTER DRAWING NO. 8880530.

CONTAINER DIMENSIONS - 26-9/32" LONG X 8-13/32" DIA.
CONTAINER CUBE - - - - 0.9 CUBIC FEET (APPROX)
CONTAINER WEIGHT
(WITH CHARGE) - - - 59 POUNDS (APPROX)

- F. THE UNITIZATION PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR UNITIZING DEMOLITION CRATERING CHARGES WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS (NSN) THAN THOSE SHOWN ON PAGE 2, PROVIDED THE ITEM IS PACKED IN THE SAME CONTAINER. THE EXPLOSIVE CLASSIFICATION OF OTHER ITEMS MAY BE DIFFERENT THAN WHAT IS SHOWN.
- G. THE MATERIALS USED TO ASSEMBLE THE PROTECTIVE ASSEMBLY ON PAGE 5 SHALL BE AS FOLLOWS. THE FILLER MATERIAL USED SHALL BE COMPOSITION BOARD, MIL-B-3106, TYPE I OR II, AND SHALL ONLY BE USED IF NEEDED TO FILL OUT THE PROTECTIVE ASSEMBLY. THE STRAPPING SPECIFIED SHALL BE IN ACCORDANCE WITH STRAPPING SPECIFIED IN ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), AND THE SEALS SPECIFIED SHALL BE IN ACCORDANCE WITH THE SEALS SPECIFIED IN ASTM D3953; CLASS H, FINISH B (GRADE 2), DOUBLE NOTCH TYPE, STYLE I, II, OR, IV.
- H. IN ORDER TO OBTAIN A COMPACT (SOUND) UNIT, ALL STRAPS SHALL BE LOCATED IN PROPER ALIGNMENT AND TENSIONED UNTIL THEY HAVE CUT INTO THE EDGE OF THE WOODEN PROTECTIVE ASSEMBLY (REFERENCE -1/4") WITHOUT CRACKING OR SPLINTERING THE WOODEN PROTECTIVE ASSEMBLY OR DAMAGING THE METAL CONTAINER OR ITS CONTENTS.
- J. THE STYLE 1 PALLET DELINEATED IN THE DETAIL ON PAGES 4, 6 AND 8 NEED NOT HAVE CHAMFERS OR STRAP SLOTS AS SPECIFICE WITHIN MILITARY SPECIFICATION MIL-P-15011 WHEN USED FOR THE UNITIZATION OF THE ITEMS COVERED BY THIS APPENDIX.
- K. FULL IDENTIFICATION MARKINGS IN ACCORDANCE WITH MIL-STD-129-1, TO INCLUDE NSN AND DODIC, OUANTITY AND NOMENCLATURE, LOT NUMBER, AND GROSS WEIGHT OF THE LOAD, SHALL BE MARKED ON ONE SIDE OF THE PROTECTIVE ASSEMBLY WITH THE MARKING PARALLEL TO THE LENGTH OF THE CONTAINER. THE INFORMATION SHALL ALSO BE MARKED ON TAGS LOCATED ON OPPOSITE UPPER CORNERS OF THE LOAD.
- L. BAR CODE LABELS ARE REQUIRED ON THE STRAPS OF OPPOSITE CORNERS. SEE MIL-STD-129-1.

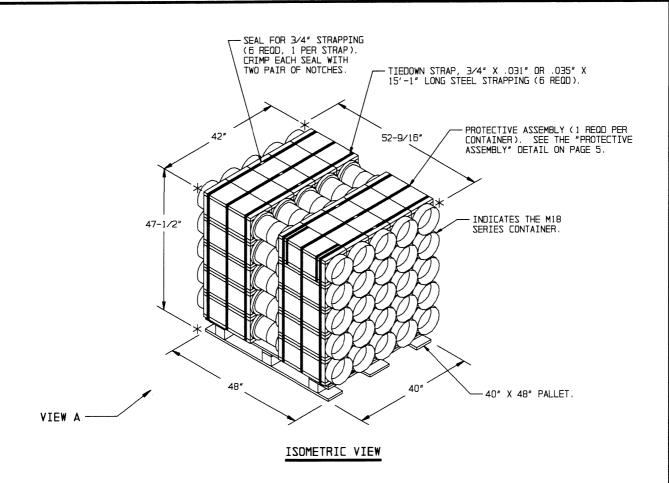
(CONTINUED AT RIGHT)

### (GENERAL NOTES CONTINUED)

- M. THE SPECIFIED UNITIZING PROCEDURES SHOWN HEREIN DEPICT THREE DIFFERENT METHODS OF UNITIZING THE M18 SERIES CONTAINER.
  - UNIT "A" DEPICTS CONTAINERS UNITIZED WITH PROTECTIVE COVERS. SEE THE DETAILS ON PAGES 4 AND 5.
  - 2. UNIT "B" DEPICTS CONTAINERS UNITIZED ON FLAT DUNNNAGE. SEE THE DETAILS ON PAGES 6 AND 7.
  - 3. UNIT "C" DEPICTS CONTAINERS UNITIZED ON ROUTED DUNNAGE. SEE THE DETAILS ON PAGES 8 AND 9.

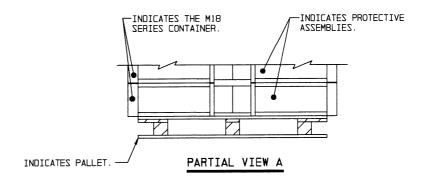
PALLET UNIT "A" IS THE PREFERRED METHOD OF UNITIZATION AND SHALL BE UTILIZED UNLESS OTHERWISE DIRECTED BY THE RESPONSIBLE COMMAND.

- N. IF DEEMED MORE ECONOMICAL FOR SHIPPING AND STORAGE BY THE RESPONSIBLE COMMAND, THE UNITS DEPICTED IN THE FOLLOWING PAGES MAY BE DECREASED BY ONE COMPLETE LAYER OF CONTAINERS. FOR FURTHER UNITIZATION GUIDANCE, SEE SPECIAL NOTE 1 ON PAGES 4, 6 AND 8.
- O. WHEN EMPTY CONTAINERS ARE USED TO ACHIEVE A FULL-LAYER CONFIGURATION THE BASIC PROCEDURES WILL BE FOLLOWED WITH ONE EXCEPTION. THE WORD "EMPTY" WILL BE STENCILED THREE TIMES ON THE OPENING END PORTION OF THE CONTAINER, 120 DEGREES APART, IN 1/2 INCH SIZED LETTERS.
- P. ALL DUNNAGE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH GENERAL NOTE "X" IN THE BASIC PROCEDURES.

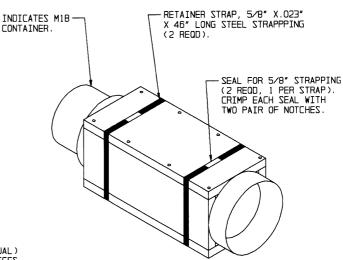


### SPECIAL NOTE:

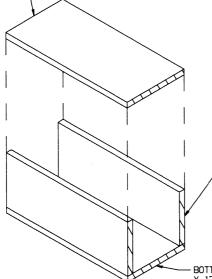
WHEN THE UNIT LOAD DEPICTED ABOVE IS TO BE USED FOR UNITIZING MARINE CORPS AMMUNITION, ONE LAYER OF CONTAINERS MUST BE OMITTED AND TIEDOWN STRAP LENGTHS MUST BE DECREASED TO 13'-9'. THIS WILL RESULT IN AN OVERALL UNIT HEIGHT OF 39-1/8", A GROSS UNIT WEIGHT OF 2,820 POUNDS, AND A UNIT CUBE OF 50.0 CUBIC FEET. ADDITIONALLY, THE UNIT MAY BE MODIFIED AS DESCRIBED WHEN BEING SHIPPED BY MILVAN OR COMMERCIAL INTERMODAL FREIGHT CONTAINER. THE DETERMINATION TO REDUCE THE LOAD BY A LAYER FOR TRANSPORTATION WILL BE MADE BY THE RESPONSIBLE COMMAND AND WILL BE BASED UPON ECONOMICS OF TRANSPORTATION AND HANDLING.



UNIT A (PROTECTIVE COVER)



-TOP PIECE, 25/32'' (ACTUAL) X 8-3/8''+1/8'' (ACTUAL) X 17-3/4''-1/8'' (1 REQD). NAIL TO THE SIDE PIECES W/4-5d NAILS ON EACH SIDE.



### CONTAINER ASSEMBLY

ASSEMBLE BOTTOM PIECE TO THE SIDE PIECES
OF THE PROTECTIVE ASSEMBLY. INSERT ONE
M18 CONTAINER. ADD FILLER MATERIAL AS
REQUIRED. INSTALL THE TOP PIECE OF THE
PROTECTIVE ASSEMBLY. INSTALL THE RETAINER
STRAPS. SEE GENERAL NOTES "G" AND "K" ON

SIDE PIECE, 1" X 6-7/8" +1/8" (ACTUAL) X 17-3/4" -1/8" (2 REQD).

BOTTOM PIECE, 1" X 8-3/8" +1/8" (ACTUAL) X 17-3/4" -1/8" (1 REQD). NAIL TO THE SIDE PIECES W/4-6d NAILS ON EACH SIDE.

### PROTECTIVE ASSEMBLY

(1 REQD PER CONTAINER)

BILL OF MATERIAL						
LUMBER	LINEAR FEET	BOARD FEET				
1" X 8" 1" X 10"	147.92 147.92	98.61 123.26				
NAILS	NO. REQD	2DNU09				
6d (2")	B00	4.79				

PALLET 40" X 48" - - - - - - - 1 REOD - - - - - 80 LBS STEEL STRAPPING, 5/8" - 383.33" REOD - - - -18.70 LBS SEAL FOR 5/8" STRAPPING - - 100 REOD - - - 2.27 LBS STEEL STRAPPING, 3/4" - - 90.5" REOD - - - 8.08 LBS SEAL FOR 3/4" STRAPPING - - - 6 REOD - - - - NIL

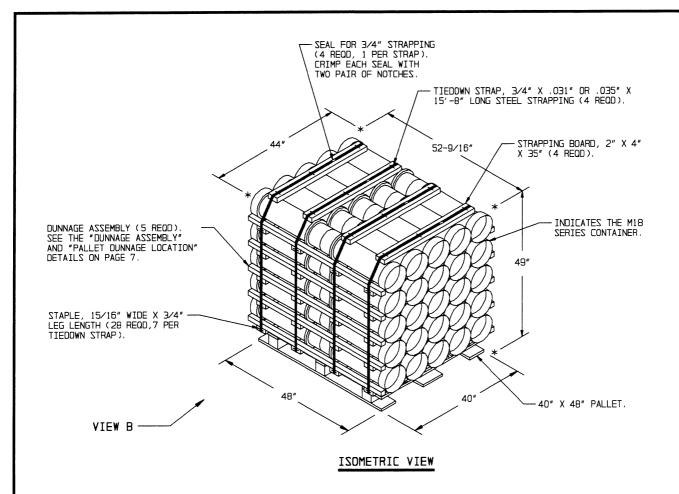
### UNIT DATA

WEIGHT

CONTAINER, M18 SERIES - - - 50 EA AT 59 LBS - - - - - 2.950 LBS (APPROX)
DUNNAGE - - - - - - - - - - - - - - - - - 478 LBS
PALLET - - - - - - - - - - - - - - - - - - 80 LBS

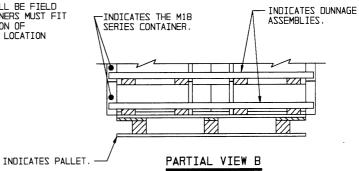
TOTAL WEIGHT - - - - - - - - - - - - 3,508 LBS (APPROX)
CUBE - - - - - - - - - - - 60.7 CU FT (APPROX)

UNIT A (PROTECTIVE COVER)

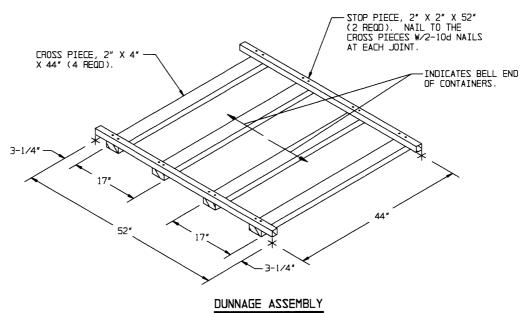


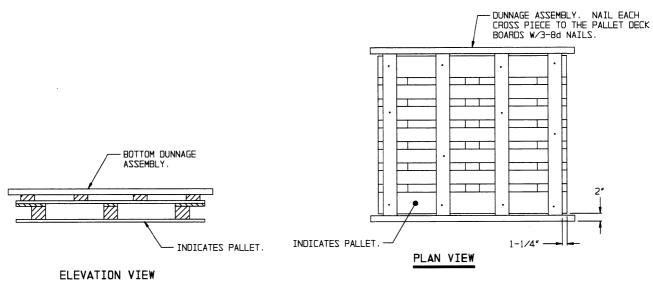
### SPECIAL NOTE:

- 1. WHEN THE UNIT LOAD DEPICTED ABOVE IS TO BE USED FOR UNITIZING MARINE CORPS AMMUNITION, ONE LAYER OF CONTAINERS MUST BE OMITTED AND TIEDOWN STRAP LENGTHS MUST BE DECREASED TO 14'-4". THIS WILL RESULT IN AN OVERALL UNIT HEIGHT OF 40-5/8", A GROSS UNIT WEIGHT OF 2,550 POUNDS, AND A UNIT CUBE OF 54.4 CUBIC FEET. ADDITIONALLY, THE UNIT MAY BE MODIFIED AS DESCRIBED WHEN BEING SHIPPED BY MILVAN OR COMMERCIAL INTERMODAL FREIGHT CONTAINER. THE DETERMINATION TO REDUCE THE LOAD BY A LAYER FOR TRANSPORTATION WILL BE MADE BY THE RESPONSIBLE COMMAND AND WILL BE BASED UPON ECONOMICS OF TRANSPORTATION AND HANDLING.
- 2. DIMENSION GIVEN FOR DUNNAGE PIECES OR DUNNAGE ASSEMBLIES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY TO THE PALLET UNIT. CONTAINERS MUST FIT SNUGLY IN THE DUNNAGE ASSEMBLIES. ALSO, DUE TO THE VARIATION OF CONTAINER DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES OF DUNNAGE IN A DUNNAGE ASSEMBLY.



UNIT B (FLAT DUNNAGE)





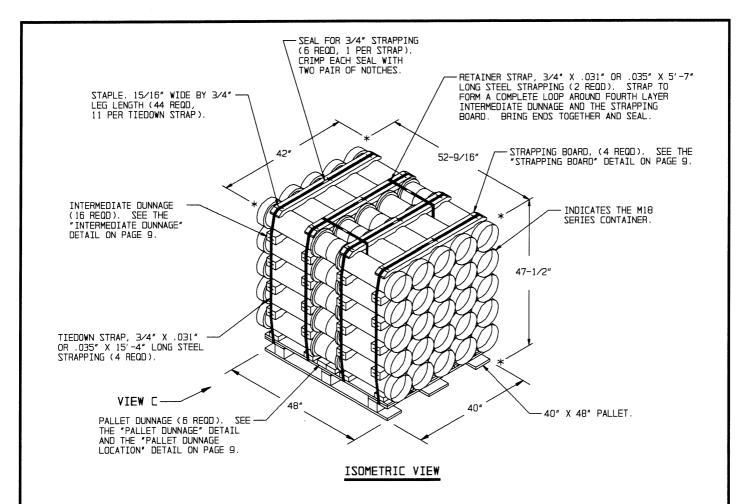
### PALLET DUNNAGE LOCATION

BILL OF MATERIAL							
LUMBER	LINEAR FEET BOARD FEET						
2" X 2" 2" X 4"	43.33 85.00	14.44 56.67					
SJIAN	NO. REOD	ZDNUO9					
8d (2-1/2") 10d (3")	12 80	0.13 1.23					

PALLET 40" X 48" - - - - - - 1 REOD - - - - - 80 LBS STEEL STRAPPING, 3/4" - 62.67' REOD - - - 5.60 LBS SEAL FOR 3/4" STRAPPING - - - 4 REOD - - - - NIL STRAP STAPLE, 15/16" X 3/4" - 28 REOD - - - - NIL

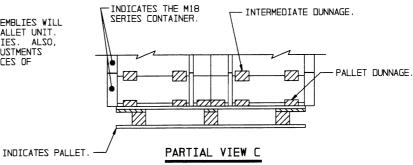
UNIT DAT	<u>'A</u>						METI	<u>I He</u>	
DUNNAGE -	M18 SERIES -	 	 	-	 	-	150	<b>LB2</b>	(APPROX)
	TOTAL WEIGHT								(APPROX)

UNIT B (FLAT DUNNAGE)

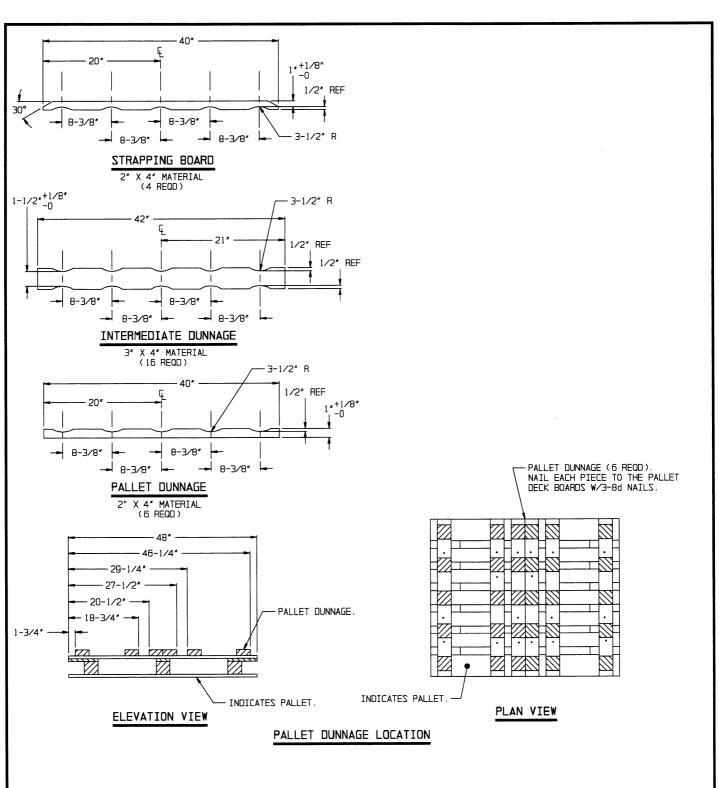


### SPECIAL NOTE:

- 1. WHEN THE UNIT LOAD DEPICTED ABOVE IS TO BE USED FOR UNITIZING MARINE CORPS AMMUNITION, ONE LAYER OF CONTAINERS MUST BE OMITTED, FOUR INTERMEDIATE DUNNAGE PIECES MUST BE OMITTED, AND TIEDOWN STRAP LENGTHS MUST BE DECREASED TO 13-11". THIS WILL RESULT IN AN OVERALL UNIT HEIGHT OF 40-1/4", A GROSS UNIT WEIGHT OF 2,574 POUNDS, AND A UNIT CUBE OF 51.4 CUBIC FEET. ADDITIONALLY, THE UNIT MAY BE MODIFIED AS DESCRIBED WHEN BEING SHIPPED BY MILVAN OR COMMERCIAL INTERMODAL FREIGHT CONTAINER. THE DETERMINATION TO REDUCE THE LOAD BY A LAYER FOR TRANSPORTATION WILL BE MADE BY THE RESPONSIBLE COMMAND AND WILL BE BASED UPON ECONOMICS OF TRANSPORTATION AND HANDLING.
- IF DESIRED, A 2" X 6" PIECE CAN BE SUBSTITUTED FOR THE ONE SET OF TWO (SIDE BY SIDE) 2" X 4" PIECES OF PALLET DUNNAGE LOCATED AT THE CENTER OF PALLET DECK ON THE 48" SIDES OF THE PALLET. THE 2" X 6" PIECE WILL BE NAILED TO THE PALLET W/6-8d NAILS.
- 3. DIMENSION GIVEN FOR DUNNAGE PIECES OR DUNNAGE ASSEMBLIES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY TO THE PALLET UNIT. CONTAINERS MUST FIT SNUGLY IN THE DUNNAGE ASSEMBLIES. ALSO, DUE TO THE VARIATION OF CONTAINER DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES OF DUNNAGE IN A DUNNAGE ASSEMBLY.



UNIT C (ROUTED DUNNNAGE)

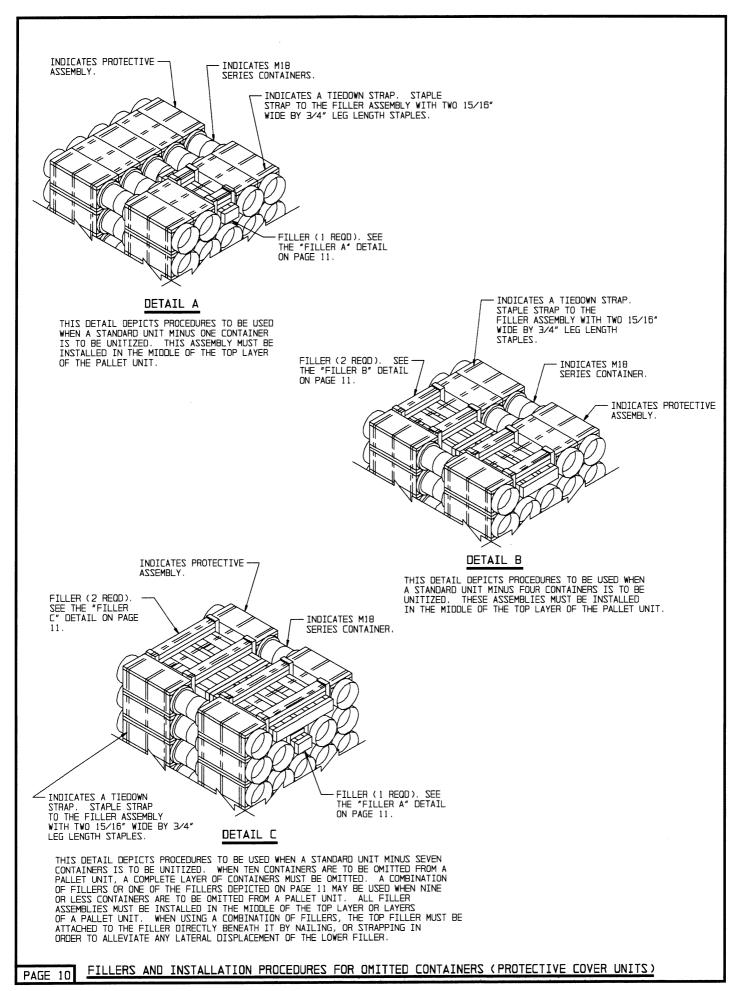


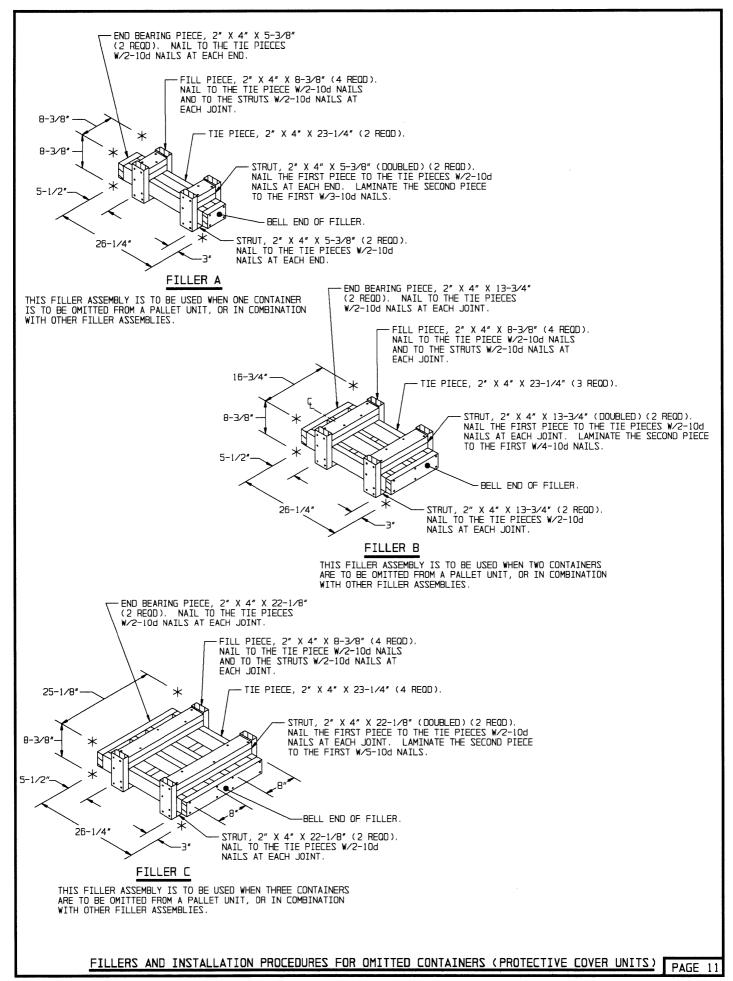
BILL OF MATERIAL						
LUMBER	LINEAR FEET BOARD FEET					
2" X 4" 3" X 4"	33.33 56.00	22.22 56.00				
ZJIAN	NO. REQD	ZDNUOP				
8d (2-1/2")	18 0.19					

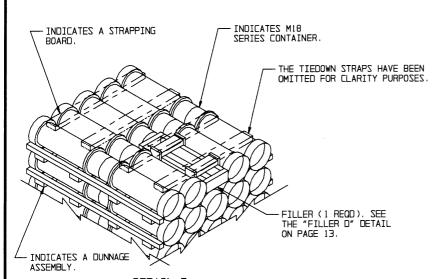
PALLET, 40" X 48" - - - - - - 1 REOD - - - - 80 LBS STEEL STRAPPING, 3/4" - 72.50' REOD - - - 6.47 LBS SEAL FOR 3/4" STRAPPING - - - 6 REOD - - - - NIL STRAP STAPLE, 15/16" X 3/4" - 44 REOD - - - - NIL

UNIT DATA	WEIGHT
CONTAINER, M18 SERIES 50 EA AT 59 LBS DUNNAGE	164 LBS
TOTAL WEIGHT	

UNIT C (ROUTED DUNNAGE)

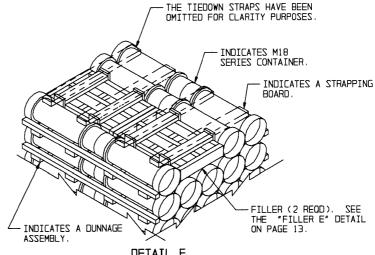






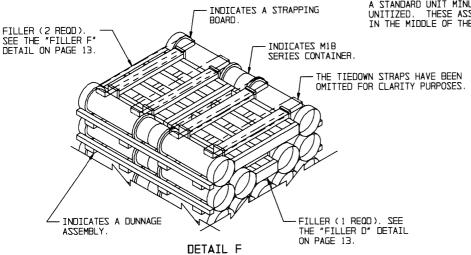
## DETAIL D

THIS DETAIL DEPICTS PROCEDURES TO BE USED WHEN A STANDARD UNIT MINUS ONE CONTAINER IS TO BE UNITIZED. THIS ASSEMBLY MUST BE INSTALLED IN THE MIDDLE OF THE TOP LAYER OF THE PALLET UNIT.



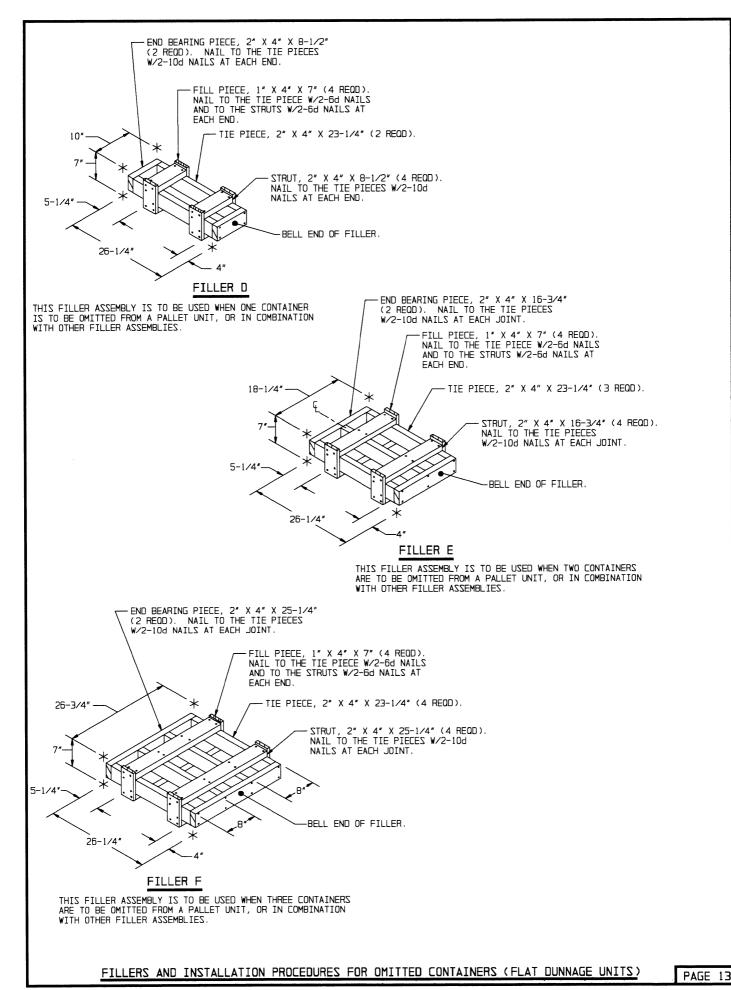
### DETAIL E

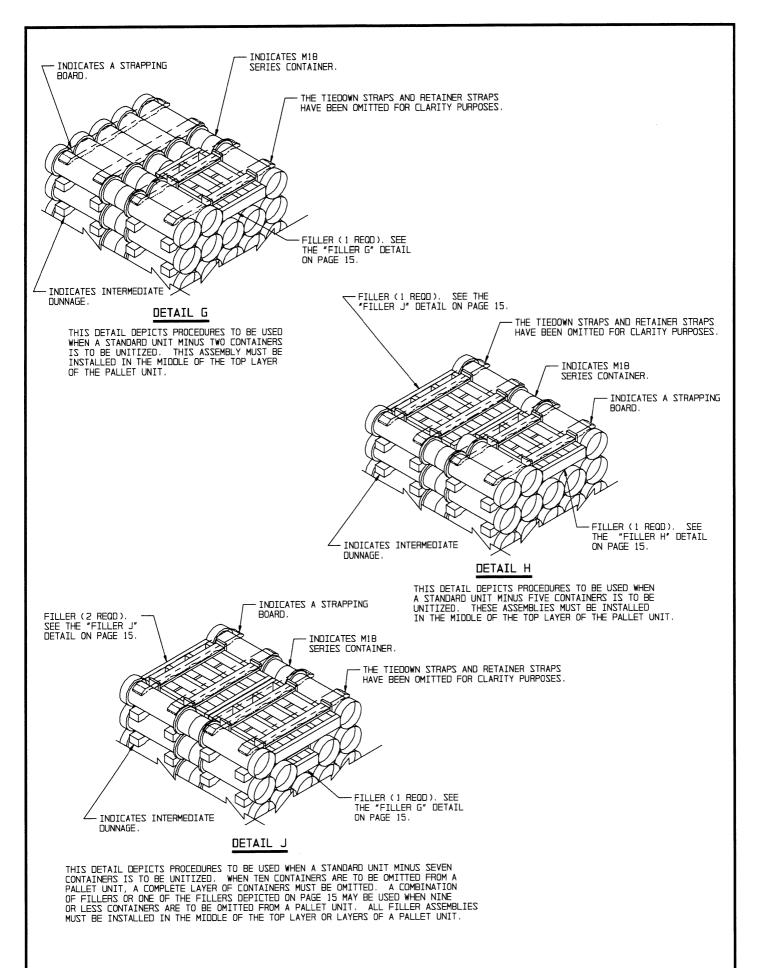
THIS DETAIL DEPICTS PROCEDURES TO BE USED WHEN A STANDARD UNIT MINUS FOUR CONTAINERS IS TO BE UNITIZED. THESE ASSEMBLIES MUST BE INSTALLED IN THE MIDDLE OF THE TOP LAYER OF THE PALLET UNIT.



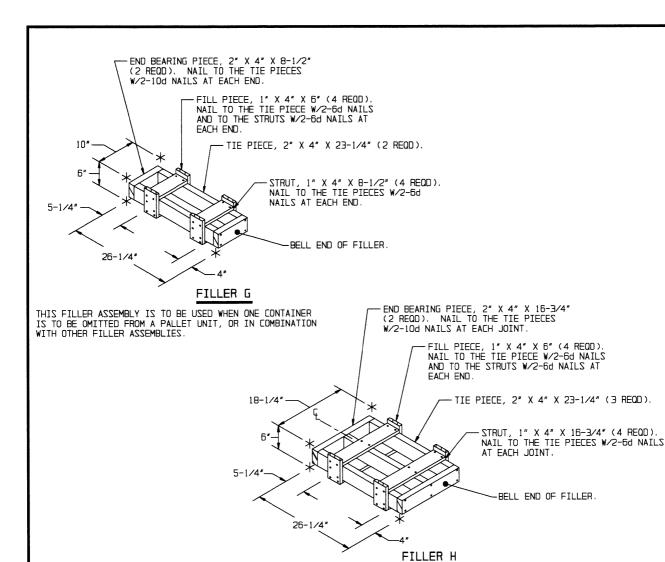
THIS DETAIL DEPICTS PROCEDURES TO BE USED WHEN A STANDARD UNIT MINUS SEVEN CONTAINERS IS TO BE UNITIZED. WHEN TEN CONTAINERS ARE TO BE OMITTED FROM A PALLET UNIT, A COMPLETE LAYER OF CONTAINERS MUST BE OMITTED. A COMBINATION OF FILLERS OR ONE OF THE FILLERS DEPICTED ON PAGE 13 MAY BE USED WHEN NINE OR LESS CONTAINERS ARE TO BE OMITTED FROM A PALLET UNIT. ALL FILLER ASSEMBLIES MUST BE INSTALLED IN THE MIDDLE OF THE TOP LAYER OR LAYERS OF A PALLET UNIT.

FILLERS AND INSTALLATION PROCEDURES FOR OMITTED CONTAINERS (FLAT DUNNAGE UNITS)

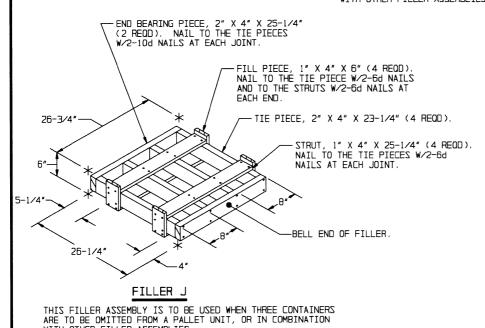




FILLERS AND INSTALLATION PROCEDURES FOR OMITTED CONTAINERS (ROUTED DUNNAGE UNITS)



THIS FILLER ASSEMBLY IS TO BE USED WHEN TWO CONTAINERS ARE TO BE OMITTED FROM A PALLET UNIT, OR IN COMBINATION WITH OTHER FILLER ASSEMBLIES.



WITH OTHER FILLER ASSEMBLIES.

FILLERS AND INSTALLATION PROCEDURES FOR OMITTED CONTAINERS (ROUTED DUNNAGE UNITS)

