

# APPENDIX 61

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

**ROCKET, 2.75" HYDRA, PRACTICE, PACKED 4  
PER PA151 CYLINDRICAL METAL CONTAINER,  
UNITIZED 12 PER 29-1/4" X 70-3/4" PALLET\* ;  
APPROX CONTAINER SIZE 70-3/4" L X 9-1/4" W  
X 9-1/4" H**

\* SEE GENERAL NOTE "L" ON PAGE 3.

**NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH  
THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4326-20PM1012.**

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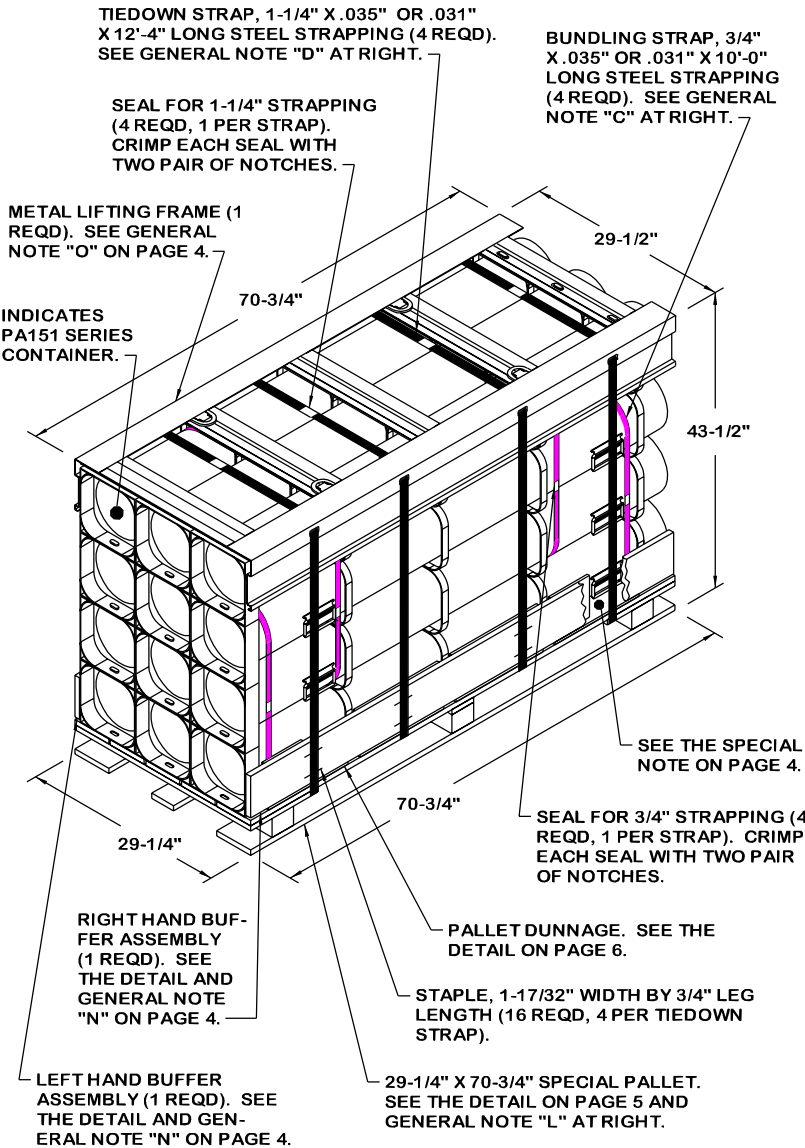
### U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY OPERATIONS SUPPORT COMMAND <i>MLH</i> <i>David A. Johnson</i> AMSTA-AR-WEP-RP	ENGINEER	BASIC	LAURA FIEFFER	DO NOT SCALE			
		REV.		WEBSITE: <a href="http://www.dac.army.mil">HTTP://WWW.DAC.ARMY.MIL</a>			
	TECHNICIAN	BASIC		<b>APRIL 2001</b>			
		REV.					
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND <i>Timothy J. Fore</i> AMSOS-TM <i>J. P. White</i> U.S. ARMY DEFENSE AMMUNITION CENTER	DRAFTSMAN	BASIC					
		REV.					
	TRANSPORTATION ENGINEERING DIVISION		<i>G. L. Willis</i>				
	VALIDATION ENGINEERING DIVISION		<i>Greg W. ...</i> TESTED	CLASS	DIVISION	DRAWING	FILE
	ENGINEERING DIRECTORATE		<i>William R. ...</i>	19	48	4326/ 61	20PM1012

PALLET UNIT DATA				
ITEMS INCLUDED		● HAZARD CLASS AND DIVISION		APPROX WEIGHT LBS
NSN	DODIC	QD CLASS	COMP GROUP	
1340-01-379-7993	H972	1. 2	G	2, 010
01-379-8048	H973	1. 2	G	2, 010
01-379-7118	H975	1. 2	G	2, 010
01-446-4094	HA13	1. 2	G	2, 010

● 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).

**GENERAL NOTES**



**PALLET UNIT**

SEE GENERAL NOTE "B" AT RIGHT.

12 CONTAINERS OF ROCKETS (4 PER CNTR) @ 147 LBS	- - - - -	1,764 LBS (APPROX)
DUNNAGE	- - - - -	141 LBS
PALLET	- - - - -	105 LBS
TOTAL WEIGHT		- - - - - 2,010 LBS (APPROX)
CUBE		- - - - - 52.6 CU FT (APPROX)

BILL OF MATERIAL		
NAILS	NO. REQD	POUNDS
6d (2")	48	0.28
SPECIAL PALLET	- - - - - 1 REQD	- - 105 LBS
STEEL STRAPPING, 3/4"	- - 40.00' REQD	- - 3.57 LBS
SEAL FOR 3/4" STRAPPING	- - - 4 REQD	- - - NIL
STEEL STRAPPING, 1-1/4"	- 49.33' REQD	- - 7.47 LBS
SEAL FOR 1-1/4" STRAPPING	- - 4 REQD	- - - NIL
PLYWOOD, 3/8"	- - - 14.80 SQ FT REQD	- 15.26 LBS
PLYWOOD, 3/4"	- - - 5.88 SQ FT REQD	- 12.12 LBS
STRAP STAPLE, 1-17/32" X 3/4"	- 16 REQD	- - - NIL
METAL LIFTING FRAME	- - - - - 1 REQD	- - 102 LBS

- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4326-20PM1012. 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 CONTAINERS AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.
- C. BUNDLING STRAPS MUST BE TENSIONED AND SEALED PRIOR TO THE APPLICATION OF THE TIEDOWN STRAPS. BUNDLING STRAPS MUST ALSO BE INSTALLED AS CLOSE TO THE OUTER RINGS AS POSSIBLE, TO AVOID DAMAGE TO THE CONTAINER HANDLES.
- 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 BUNDLING STRAPS HAVE BEEN TENSIONED AND SEALED.
- E. 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.
- F. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS APPENDIX.
 

CARLOADING	- - - -	19-48-4330/61-5PM1007
TRUCKLOADING	- - - -	19-48-4331/61-11PM1007
STORAGE	- - - -	19-48-4335/61-1-3-4-14-22PM1007
END OPENING ISO CONTAINER	- - - -	19-48-4333/61-15PM1024
MILVAN	- - - -	19-48-4332/61-15PM1023
SIDE OPENING ISO CONTAINER	- - - -	19-48-4334/61-15PM1025
- G. IF ITEMS COVERED HEREIN ARE UNITIZED PRIOR TO ISSUANCE OF THIS APPENDIX, THE CONTAINERS NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THIS APPENDIX.
- H. 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.
- J. 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.
- K. EMPTY OR REJECT PA151 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.
- L. THE SPECIAL PALLET WILL BE CONSTRUCTED AND ASSEMBLED IN ACCORDANCE WITH A MILITARY SPECIFICATION MIL-P-15011, STYLE 1A, TYPE 1, CLASS 1, PRESERVATIVE TREATED PALLET AND THE DETAILS ON PAGE 5.
- M. ALL DUNNAGE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH GENERAL NOTE "X" IN THE BASIC PROCEDURE.

(CONTINUED ON PAGE 4)

(GENERAL NOTES CONTINUED)

N. THE THICKNESS OF THE PLYWOOD BUFFER PIECES DEPICTED IN THE BUFFER ASSEMBLIES BELOW MUST BE ADJUSTED AS REQUIRED TO COMPLY WITH THE DIMENSIONAL VARIANCE OF THE PA151 CONTAINERS, SO AS TO COMPLETELY FILL OUT THE PALLET. NOTE: NOMINAL 1" X 6" MATERIAL MAY BE SUBSTITUTED FOR THE 3/4" THICK PLYWOOD IF IT WILL CAUSE THE PALLET UNIT DIMENSIONS TO BE EQUAL TO OR GREATER THAN 29-1/2". REDUCE THE THICKNESS OF THE 3/8" PLYWOOD FILL PIECES AS APPROPRIATE.

O. FOR DETAILS OF THE TOP LIFT ASSEMBLY, SEE DAC DRAWING NO. ACV00648 AND MILITARY SPECIFICATION MIL-A-70788.

P. WHEN ONE LAYER IS OMITTED FROM A PALLET UNIT, THE TWO BUNDLING STRAPS THAT SURROUND THE SECOND, THIRD, AND FOURTH LAYERS WILL BE OMITTED. THE REMAINING BUNDLING STRAPS WILL SURROUND THE FIRST THROUGH THIRD LAYERS. A UNIT WITH TWO LAYERS DOES NOT REQUIRE BUNDLING STRAPS.

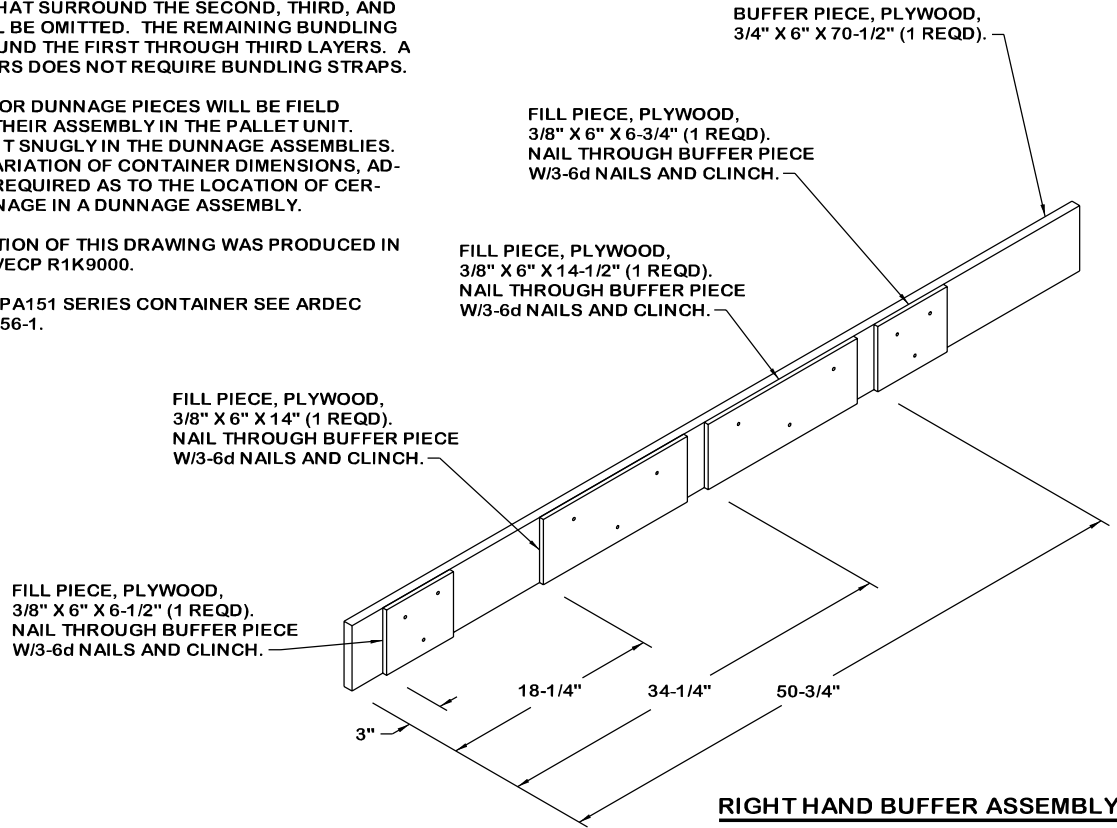
Q. DIMENSIONS GIVEN FOR DUNNAGE PIECES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY IN THE PALLET UNIT. CONTAINERS MUST FIT SNUGLY IN THE DUNNAGE ASSEMBLIES. ALSO, DUE TO THE VARIATION OF CONTAINER DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES OF DUNNAGE IN A DUNNAGE ASSEMBLY.

R. THE ORIGINAL ITERATION OF THIS DRAWING WAS PRODUCED IN ACCORDANCE WITH VECP R1K9000.

S. FOR DETAILS OF THE PA151 SERIES CONTAINER SEE ARDEC DRAWING NO. 12937856-1.

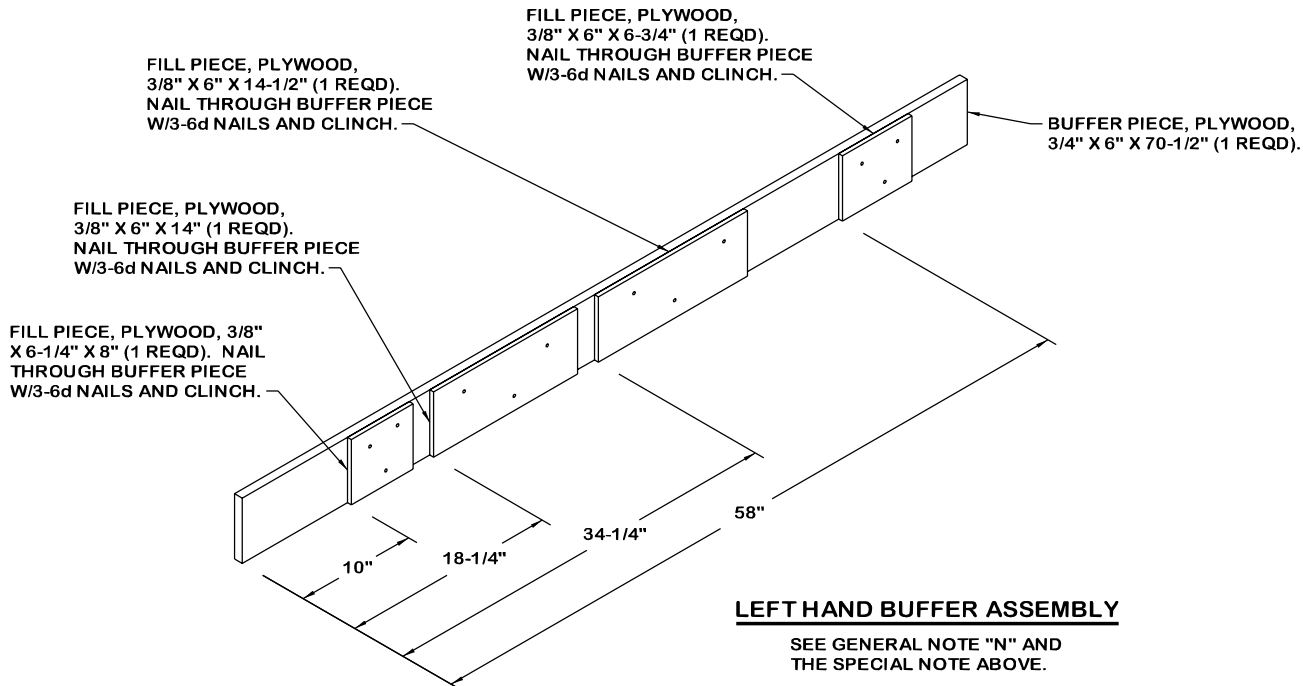
SPECIAL NOTE:

CARE MUST BE TAKEN TO AVOID CONTACT BETWEEN THE FILL PIECES AND THE HANDLES ON THE PA151 CONTAINERS. ADJUST THE SIZE AND/OR LOCATION OF THE FILL PIECES AS NECESSARY TO AVOID CONTACT.



**RIGHT HAND BUFFER ASSEMBLY**

SEE GENERAL NOTE "N" AND THE SPECIAL NOTE ABOVE.

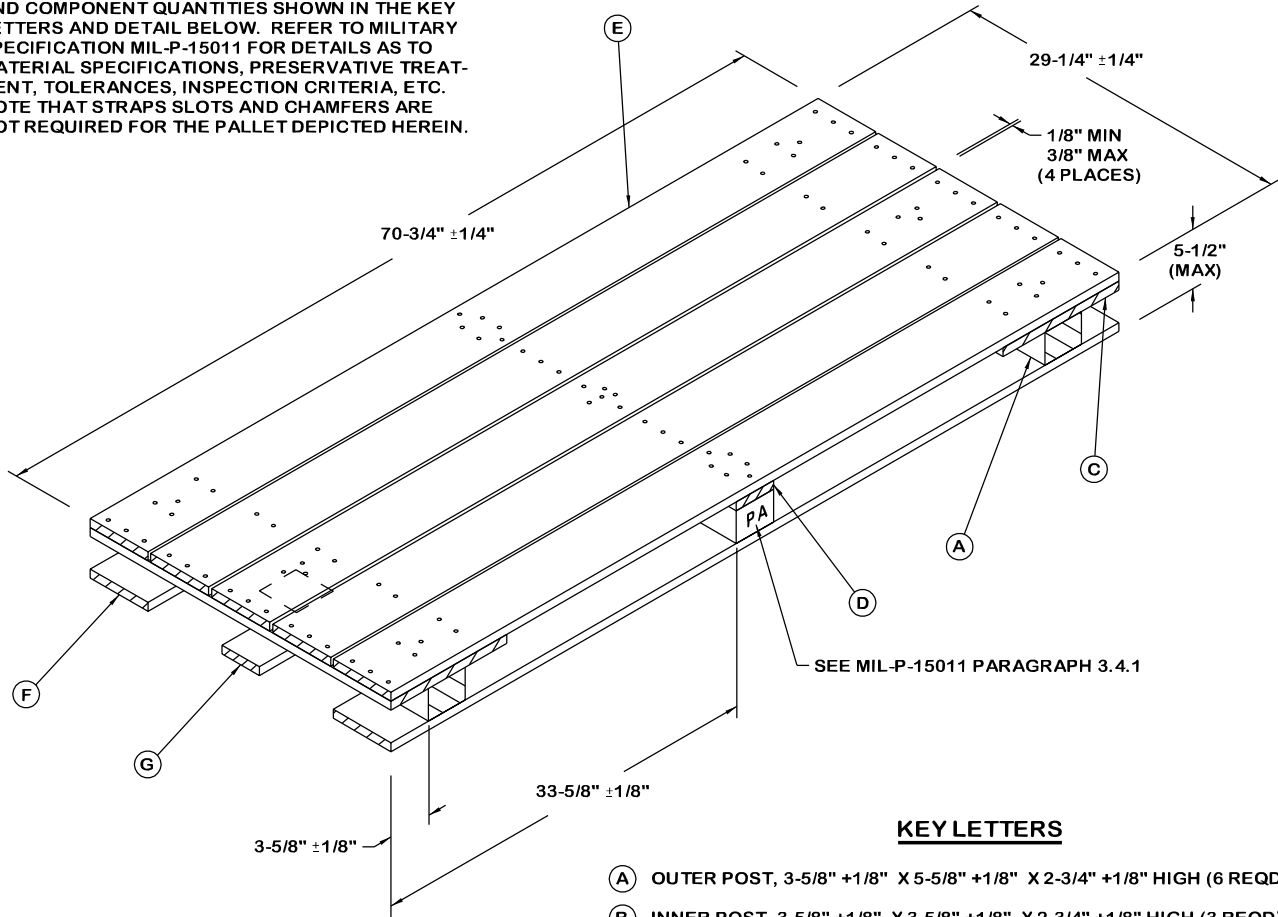


**LEFT HAND BUFFER ASSEMBLY**

SEE GENERAL NOTE "N" AND THE SPECIAL NOTE ABOVE.

**SPECIAL NOTE:**

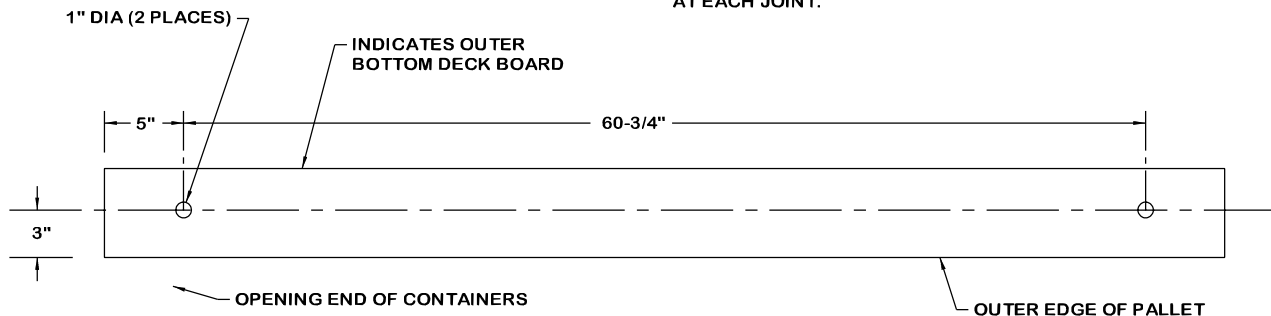
THE SPECIAL PALLET DEPICTED BELOW WILL BE CONSTRUCTED AND ASSEMBLED IN ACCORDANCE WITH A MILITARY SPECIFICATION MIL-P-15011, STYLE 1A, TYPE I, CLASS 1, PRESERVATIVE TREATED PALLET, EXCEPT FOR THE DIMENSION VARIANCES AND COMPONENT QUANTITIES SHOWN IN THE KEY LETTERS AND DETAIL BELOW. REFER TO MILITARY SPECIFICATION MIL-P-15011 FOR DETAILS AS TO MATERIAL SPECIFICATIONS, PRESERVATIVE TREATMENT, TOLERANCES, INSPECTION CRITERIA, ETC. NOTE THAT STRAPS SLOTS AND CHAMFERS ARE NOT REQUIRED FOR THE PALLET DEPICTED HEREIN.



**SPECIAL WOODEN PALLET DETAILS**

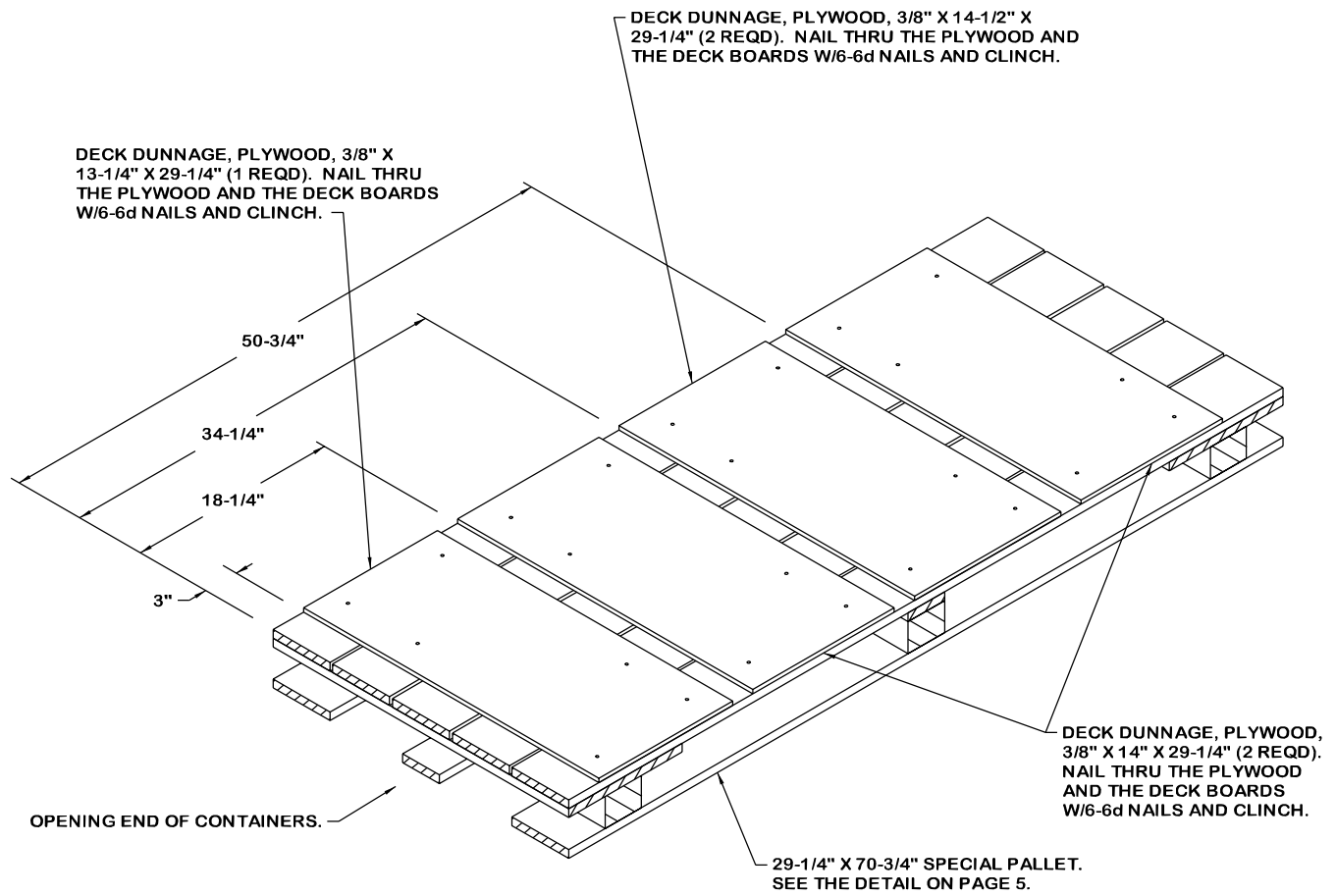
**KEY LETTERS**

- (A) OUTER POST, 3-5/8" +1/8" X 5-5/8" +1/8" X 2-3/4" +1/8" HIGH (6 REQD).
- (B) INNER POST, 3-5/8" +1/8" X 3-5/8" +1/8" X 2-3/4" +1/8" HIGH (3 REQD).
- (C) OUTER STRINGER, 13/16" +1/16" X 11-1/4" ±1/8" X 29-1/4" ±1/8" (2 REQD).
- (D) INNER STRINGER, 13/16" +1/16" X 3-5/8" +1/8" X 29-1/4" ±1/8" (1 REQD).
- (E) TOP DECK BOARD, 13/16" +1/16" X 5-5/8" +1/8" X 70-3/4" ±1/8" (5 REQD). NAIL ALL DECK BOARDS TO THE STRINGERS W/5 NAILS (1.5" LONG X 0.120" DIAMETER) AT EACH LOCATION. NAIL OUTSIDE AND CENTER DECK BOARDS THRU THE STRINGERS INTO THE POSTS W/3 NAILS (3.25" LONG X 0.135" DIAMETER) AT EACH LOCATION.
- (F) OUTER BOTTOM DECK BOARD, 13/16" +1/16" X 5-5/8" +1/8" X 70-3/4" ±1/8" (2 REQD). NAIL TO THE POSTS W/3 NAILS (2.25" LONG X 0.120" DIAMETER) AT EACH JOINT. SEE THE "OUTER BOTTOM DECK BOARD HOLE DETAIL" BELOW.
- (G) INNER BOTTOM DECK BOARD, 13/16" +1/16" X 3-5/8" +1/8" X 70-3/4" ±1/8" (1 REQD). NAIL TO THE POSTS W/3 NAILS (2.25" LONG X 0.120" DIAMETER) AT EACH JOINT.



**OUTER BOTTOM DECK BOARD HOLE DETAIL**

THE DETAIL ABOVE SHOWS THE OUTER DECK BOARD ON THE RIGHT SIDE (FACING THE OPENING ENDS OF THE CONTAINERS) OF THE PALLET. THE OUTER DECK BOARD FOR THE LEFT SIDE OF THE PALLET WILL BE A MIRROR IMAGE (LOCATE THE HOLES 3" FROM THE OUTSIDE OF THE BOARD).



**PALLET DUNNAGE LOCATION**