

CHAPARRAL

UNITIZATION PROCEDURES FOR GUIDED
MISSILE SAFE AND ARMING SECTION,
PACKED 1 PER METAL DRUM, UNITIZED
12 DRUMS PER 31" X 44-5/8" SPECIAL
PALLET; DRUM SIZE 14-3/4" DIA X
21-1/4" H

REVISIONS				DRAFTSMAN	PROJ ENG	ANSI-M-2000
				TRS	dh	LAF/WRE
				CHECKER		LOG ENGINE OFFICE
				GRG		m ² /0207
				APPROVED, U.S. ARMY MISSILE COMMAND		
1	AUG 85	WRE WRE	<i>Jim Brown</i> <i>William G. Ernst</i>	<i>Jim Brown</i>		
				APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIAL COMMAND (AMC)		
				<i>John H. (Sandy)</i>		
				U.S. ARMY AMC DRAWING		
				MAY 1985		
				CLASS	DIVISION	DRAWING
				19	48	5259
				FILE		
				GM 20CH6		

DO NOT SCALE

GENERAL NOTES

- 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. DIMENSIONS, CUBE AND WEIGHT OF A PALLET UNIT WILL VARY SLIGHTLY DEPENDING UPON THE ACTUAL DIMENSIONS OF THE DRUMS AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.
- C. FOR DETAILS OF THE MISSILE GUIDANCE SECTION METAL DRUM, SEE U.S. ARMY MISSILE COMMAND DRAWING NO. 10240516.
- CONTAINER DIMENSIONS-----14-3/4" DIA BY 21-1/4" HIGH.
GROSS WEIGHT----- 23 POUNDS (APPROX).
- D. DIMENSIONAL LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF A NOMINAL SIZE, UNLESS OTHERWISE SPECIFIED. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.
- E. IN ORDER TO OBTAIN COMPACT (SOUND) UNITS, ALL STRAPS SHALL BE LOCATED IN PROPER ALIGNMENT AND TENSIONED UNTIL THEY CUT INTO THE EDGE OF THE COVER ASSEMBLY AND THE PALLET DECK. AFTER TENSIONING, ALL STRAPS WILL BE SECURED USING ONE SEAL CRIMPED WITH TWO PAIR OF NOTCHES PER SEAL. ALL STRAPPING MUST BE STRAIGHT WITHIN 2" ON ANY SURFACE OF THE UNITIZED LOAD, I.E., TOP, BOTTOM, SIDES OR ENDS THAT IT ENCOMPASSES.
- F. WHEN ASSEMBLING A PALLET UNIT, CARE SHALL BE TAKEN TO INSURE THAT THE DRUMS ARE EVENLY ALIGNED SO THAT THE SIDES AND ENDS OF THE PALLET UNIT DO NOT EXCEED A 1/2" TOLERANCE.
- G. A PLUS OR MINUS 1/4" IS ALLOWED ON OVERALL DIMENSIONS OF ANY DUNNAGE ASSEMBLY. HOWEVER, SIMILAR PIECES IN AN ASSEMBLY MUST BE WITHIN 1/8" OF THE SAME DIMENSION.
- H. 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 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 FEEDWHEEL TYPE TENSIONING TOOL, MANUAL OR PNEUMATIC, AND THE APPLICATION OF ONE ADDITIONAL SEAL.
- J. CAUTION: STRAPPING LESS THAN 3/4" WIDE OR LESS THAN .031" THICK WILL NOT BE USED. IF THE SPECIFIED STRAPPING IS NOT AVAILABLE, STRAPPING WIDER THAN SPECIFIED AND AT LEAST .031" THICK MAY BE USED ON AN INTERIM BASIS UNTIL THE SPECIFIED STRAPPING CAN BE ACQUIRED.
- K. 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 25.4 MM, AND ONE POUND EQUALS 0.454 KG.
- L. FOR THE METHOD OF SECURING A STRAP CUTTER TO THE PALLET UNIT, SEE DARCOM DRAWING 19-48-4127-20P1000.
- M. INSTALL EACH HORIZONTAL STRAP TO ENCIRCLE A DUNNAGE ASSEMBLY AS SHOWN. HORIZONTAL STRAPS WILL BE TENSIONED AND SEALED PRIOR TO APPLICATION OF TIEDOWN STRAPS.
- N. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE TOP DECKBOARDS OF THE PALLET AND TO BE LOCATED AS SHOWN. TIEDOWN STRAPS WILL NOT BE APPLIED UNTIL THE HORIZONTAL STRAPS HAVE BEEN TENSIONED AND SEALED.
- O. THE UNITIZATION PROCEDURES DEPICTED IN THIS DRAWING WILL REQUIRE THE USE OF A SPECIAL PALLET. SPECIFICATIONS PERTAINING TO THE MATERIAL TO BE USED IN CONSTRUCTION OF THE PALLET UNIT ARE CONTAINED ON PAGE 3. FOR CONSTRUCTION SPECIFICATIONS, SEE THE "SPECIAL PALLET" AND "COVER ASSEMBLY" DETAILS AND KEY NUMBERS ON PAGE 5.
- P. FILLER ASSEMBLIES, TO BE USED IN PLACE OF OMITTED DRUMS, WILL ONLY BE PLACED IN THE CENTER STACK OF A PALLET UNIT. NOT MORE THAN FOUR FILLERS WILL BE INSTALLED IN ANY ONE PALLET UNIT. IF THE QUANTITY OF FOUR FILLER ASSEMBLIES IS INSUFFICIENT TO SATISFY OMITTED DRUM REQUIREMENTS, IT MAY BE NECESSARY TO CONSTRUCT TWO PALLET UNITS CONTAINING FILLER ASSEMBLIES.
- Q. THE LETTERS "PA" DENOTING PQ56 (COPPER-8-QUINOLINOLATE) OR "PB" DENOTING M-GARD W550 (ZINC NAPHTHENATE EMULSIFIABLE) MUST BE APPLIED TO A PRESERVATIVE TREATED PALLET AND DUNNAGE ASSEMBLY. THE LETTERS WILL BE AT LEAST ONE-INCH HIGH AND WILL BE APPLIED ON THE OUTER FACE OF THE CENTER PALLET POST ON THE 44-5/8" SIDES OF THE PALLET AND TO AN OUTER FACE OF THE DUNNAGE ASSEMBLY.

REVISION

REVISION NO. 1, DATED AUGUST 1985, CONSISTS OF:

UPDATING MATERIAL SPECIFICATIONS TO CONFORM TO CURRENT STANDARDS.

MATERIAL SPECIFICATIONS FOR PALLET UNITS				
SPECIAL PALLET (SEE PAGE 5)				
NAME OF PART	KEY NO.	MATERIAL		SPEC NO.
		KIND	GRADE	
TOP DECK BOARD	1 & 2	WOOD CLASS 2 STRUCTURAL	GROUP I, II, OR III (SEE TABLE I)	MIL-STD-731
POST	5	WOOD CLASS 2 STRUCTURAL	GROUP II OR III (SEE TABLE I)	MIL-STD-731
STRINGER BOARD	3 & 8	WOOD CLASS 2 STRUCTURAL	GROUP II OR III (SEE TABLE I)	MIL-STD-731
RUNNER	4	WOOD CLASS 2 STRUCTURAL	GROUP III (SEE TABLE I)	MIL-STD-731
NAILS	1, 2, 4, 7 & 9	SEE KEY NUMBERS		FED SPEC FF-N-105
PRESERVATIVE		WOOD PRESERVATIVE, PQ56 (COPPER-8-QUINOLINOLATE) OR M-GARD W550 (ZINC NAPHTHENATE EMULSIFIABLE).		(SEE GENERAL NOTE "Q" ON PAGE 2).
PALLET UNIT ASSEMBLY				
NAME OF PART		MATERIAL		SPEC NO.
		KIND	GRADE	
LUMBER	DUNNAGE		SEE TM 743-200-1 DUNNAGE LUMBER	FED SPEC MM-L-751
NAILS	COMMON		ALT; ANNULAR RING TYPE NAIL OR PALLET TYPE (MECHANICALLY DEFORMED) NAIL OF THE SAME SIZE	FED SPEC FF-N-105
STRAPPING	STEEL, 3/4" X .035" OR .031"		CLASS 1, TYPE I OR IV HEAVY DUTY, FINISH B (GRADE 2)	FED SPEC QQ-S-781
SEAL	STEEL		TYPE D, STYLE I, II, OR IV, CLASS H, FINISH B (GRADE 2)	FED SPEC QQ-S-781
STAPLE	STEEL, 15/16" X 3/4" LEG LENGTH		TYPE III, STYLE 3	FED SPEC FF-N-105

FILLER ASSEMBLY			
MATERIAL			
KIND		GRADE	SPEC NO.
LUMBER		SEE TM 743-200-1, DUNNAGE LUMBER	FED SPEC MM-L-751
NAILS		COMMON, ALT: ANNULAR-RING TYPE NAIL OR PALLET TYPE (MECHANICALLY DEFORMED) NAIL OF THE SAME SIZE.	FED SPEC FF-N-105
PRESERVATIVE		WOOD PRESERVATIVE (SEE GENERAL NOTE "Q" ON PAGE 2).	

TABLE I WOOD GROUPS*		
GROUP I	GROUP II	GROUP III
TAMARACK HEMLOCK, WESTERN FIR, SILVER PINE, ALASKA FIR, DOUGLAS MAGNOLIA CEDAR ASPEN LARCH, WESTERN SPRUCE CHESTNUT COTTONWOOD FIR, WHITE PINE, PONDEROSA HEMLOCK, EASTERN	ELM, AMERICAN ASH (EXCEPT WHITE) PINE, SOUTHERN YELLOW GUM MAPLE, SOFT LARCH, WESTERN FIR, DOUGLAS (COAST) SYCAMORE TUPELO, WATER	HICKORY PECAN ELM, ROCK BIRCH, SWEET OR YELLOW HACKBERRY MAPLE, HARD ASH, WHITE BEECH LOCUST OAK

*THE WOOD GROUPS AS IDENTIFIED ABOVE ARE ONLY APPLICABLE TO THE FABRICATION OF THE SPECIAL PALLET.

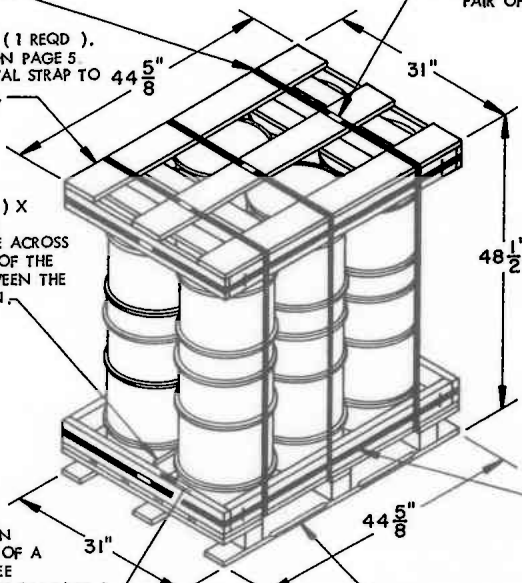
TIEDOWN STRAP, 3/4" X .035" OR .037" X 13'-5" LONG STEEL STRAPPING (3 REQD). SEE GENERAL NOTES "H" AND "N" ON PAGE 2.

COVER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 5. STAPLE HORIZONTAL STRAP TO COVER ASSEMBLY.

SPACER PIECE, 1" X 3" (ACTUAL) X 40-5/8" (1 REQD). LOCATE EDGEWISE ACROSS THE RISER PIECES OF THE PALLET UNIT BETWEEN THE DRUMS AS SHOWN.

TYPICAL LOCATION FOR SECUREMENT OF A STRAP CUTTER. SEE GENERAL NOTE "J" ON PAGE 2.

SEAL FOR 3/4" STRAPPING (5 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.



HORIZONTAL STRAP, 3/4" X .035" OR .037" X 13'-8" LONG STEEL STRAPPING (2 REQD). SEE GENERAL NOTES "H" AND "M" ON PAGE 2.

INDICATES SPECIAL PALLET. SEE THE DETAIL ON PAGE 5.

PALLET UNIT

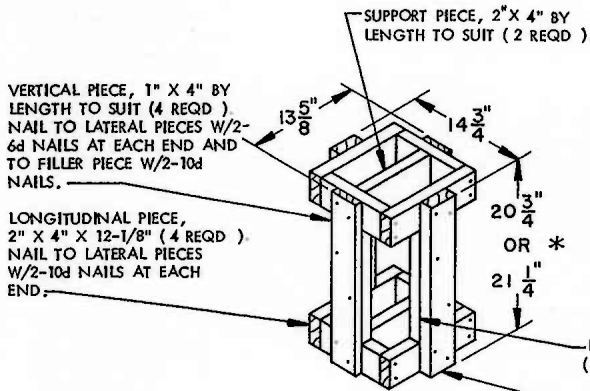
SEE GENERAL NOTE "B" ON PAGE 2.

12 DRUMS (SAFE AND ARMING DEVICE, 1 PER DRUM) @ 23 LBS-----276 LBS (APPROX)
 DUNNAGE----- 33 LBS
 PALLET----- 66 LBS

TOTAL WEIGHT-----375 LBS (APPROX)
 CUBE----- 38.8 CU FT (APPROX)

BILL OF MATERIAL

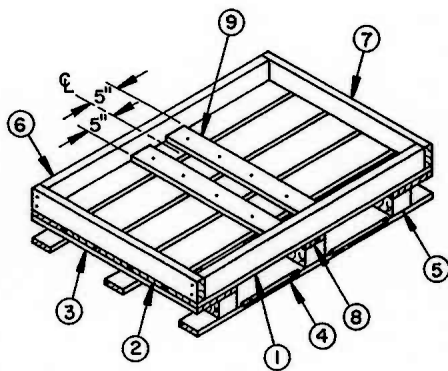
LUMBER	LINEAR FEET	BOARD FEET
1" X 3"	3.39	0.85
1" X 4"	22.19	7.40
1" X 6"	11.16	5.58
NAILS	NO. REQ'D	POUNDS
6d (2")	58	0.34
PALLET, 31" X 44-5/8"	1 REQD	66 LBS
STEEL STRAPPING, 3/4"	67.58 REQD	4.83 LBS
SEAL FOR 3/4" STRAPPING	5 REQD	NIL
STAPLE, 15/16" X 3/4"	8 REQD	NIL



*WHEN A FILLER ASSEMBLY IS USED IN A TOP LAYER, THE HEIGHT DIMENSION WILL BE 20-3/4". FOR USE IN THE BOTTOM LAYER, THE HEIGHT DIMENSION WILL BE 21-1/4".

FILLER ASSEMBLY

(FOR MINUS ONE DRUM)
 SEE GENERAL NOTE "P" ON PAGE 2.



SPECIAL PALLET

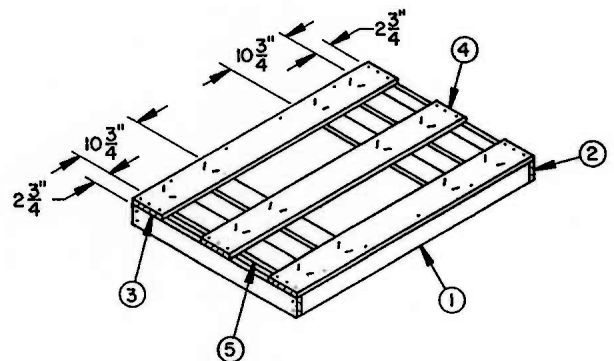
(SEE KEY NUMBERS AT RIGHT AND GENERAL NOTE "O" ON PAGE 2)

KEY NUMBERS

- ① TOP DECK BOARD, 1" X 6" X 44-5/8" (2 REQD). NAIL TO LONGITUDINAL PIECE W/4-6d NAILS AND TO LATERAL PIECES W/2-6d NAILS AT EACH END. POSITION AS SHOWN AND NAIL THRU STRINGER PIECE INTO POST W/3 NAILS (TYPE II-STYLE 18) 3" TO 3-1/4" LONG X 0.135" DIA AT EACH END USING A STAGGERED NAILING PATTERN.
- ② TOP DECK BOARD, 1" X 6" X 44-5/8" (3 REQD). NAIL TO LATERAL PIECES W/2-6d NAILS AT EACH END. POSITION AS SHOWN AND NAIL TO STRINGER PIECES W/3 NAILS (TYPE II - STYLE 18) 1-1/2" LONG X 0.120" DIA AT EACH JOINT USING A STAGGERED NAILING PATTERN. NOTE: USE 3" TO 3-1/4" X 0.135" DIA NAILS ON CENTER BOARDS TO PENETRATE THE CENTER POST.
- ③ OUTSIDE STRINGER, 1" X 8" X 31" (2 REQD). POSITION AS SHOWN.
- ④ RUNNER, 1" X 4" X 44-5/8" (3 REQD). POSITION AS SHOWN AND NAIL TO POST W/4 NAILS (TYPE II - STYLE 18) 2-1/4" LONG X 0.120" DIA AT EACH JOINT USING A STAGGERED NAILING PATTERN.
- ⑤ POST, 5-1/2" WIDE X 2-3/4" HIGH X 3-1/2" LONG (ACTUAL) (9 REQD).
- ⑥ LONGITUDINAL PIECE, 2" X 4" X 41-5/8" (2 REQD).
- ⑦ LATERAL PIECE, 2" X 4" X 31" (2 REQD). NAIL TO THE LONGITUDINAL PIECES W/2 - 10d NAILS AT EACH END.
- ⑧ CENTER STRINGER, 1" X 6" X 31" (1 REQD).
- ⑨ RISER, 1" X 4" X 28" (2 REQD). NAIL TO TOP DECK BOARDS W/1-6d NAIL AT EACH OF 4 JOINTS.

KEY NUMBERS

- ① LONGITUDINAL PIECE, 1" X 4" X 43-1/8" (2 REQD).
- ② LATERAL PIECE, 1" X 4" X 31" (2 REQD). NAIL TO LONGITUDINAL PIECES W/2-6d NAILS AT EACH END.
- ③ TIE PIECE, 1" X 6" X 44-5/8" (2 REQD). NAIL TO THE LONGITUDINAL PIECE W/4-6d NAILS AND TO THE LATERAL PIECES W/3-6d NAILS AT EACH END.
- ④ TIE PIECE, 1" X 6" X 44-5/8" (1 REQD). NAIL TO THE LATERAL PIECES W/3-6d NAILS AT EACH END.
- ⑤ FILLER PIECE, 1" X 4" X 29-1/2" (4 REQD). NAIL TO THE TIE PIECES W/2-6d NAILS AT EACH JOINT AND CLINCH.



COVER ASSEMBLY

(SEE KEY NUMBERS AT LEFT)

