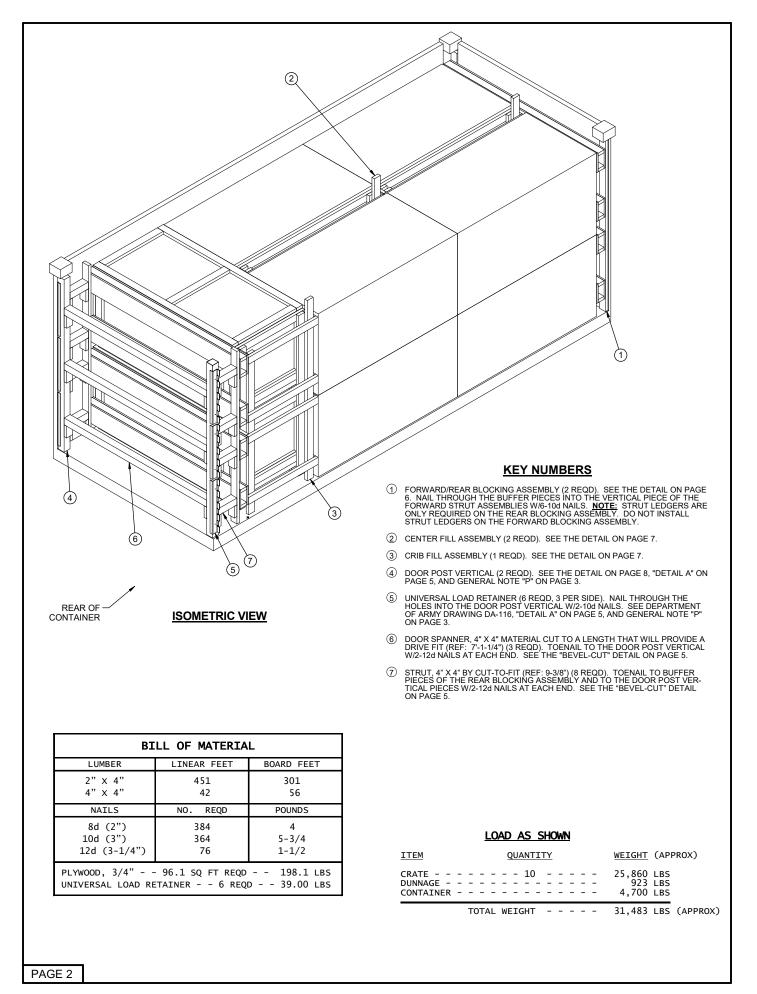
ATACMS

LOADING AND BRACING[®] IN END OPENING ISO CONTAINERS OF ROCKET MOTOR, M124, PACKED IN SHIPPING CRATE

INDEX

ITEM 10 UNIT LOAD GENERAL NOTES AND MATER SEVEN UNIT LOAD CRATE DETAIL DETAILS	IAL SPECI	 	ATIONS				AGE(S) 2 3 4 5 5-8
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GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF ATACMS SOLID ROCKET MOTORS PACKED IN SHIPPING CRATES. SUBSE-QUENT REFERENCE TO CRATE HEREIN MEANS THE CRATE WITH AMMUNITION ITEMS. SEE PAGE 4 AND ARC DRAWING CA0267005 FOR DETAILS OF THE CRATE. <u>CAUTION</u>: REGARDLESS OF THE QUANTITY OF CRATES TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE END OPENING ISO CON-TAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 4,700 POUND 20' LONG BY 8' WIDE BY 8'-6' HIGH END OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92' WIDE BY 93' HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE A TOTAL INSIDE HEIGHT OF 95'', BUT A CLEAR HEIGHT UNDER THE ROOF BOWS OF 93'', VERIFY INSIDE CONTAINER HEIGHT PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DE-SIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEV-ER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. <u>NOTICE</u>: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.
- D. WHEN LOADING CRATES, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 1-12". EX-CESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDI-TIONAL PIECES OF APPROPRIATE THICKNESS TO THE HORIZONTAL PIECES ON THE CENTER OR CRIB FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE LENGTH OF THE LATERAL PIECES IN THE CRIB OR CENTER FILL ASSEMBLIES MAY BE AD-JUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CRATE. THE LOADS MUST BE AS TIGHT AS POSSIBLE LONGITUDINALLY, BUT THE VOID MUST NOT EXCEED 3/4" OVERALL. EXCESSIVE SLACK CAN BE ELIMINATED BY INCREASING THE LENGTH OF THE STRUTS.
- E. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES OR WHEN LAMI-NATING DUNNAGE. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BE-SIDE A NAIL IN A LOWER PIECE.
- F. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE FORWARD WALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3" OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECLUDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE IS IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER FORWARD WALL ARE SHOUTH DE USED FOR FORWARD LONGITUDINAL BLOCKING.
- G. WHETHER A CONTAINER IS FULL OR IS LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE CON-TAINER.
- H. <u>CAUTION</u>: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

K. MAXIMUM LOAD WEIGHT CRITERIA:

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE IN-TERMODAL CONTAINER SYSTEM.

- ... REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOL-LOW:
 - 1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BO-GIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
- 2. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

- M. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRE-CLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- N. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCU-MENT 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.
- O. THE QUANTITY OF CRATES SHOWN IN THE LOAD ON PAGE 2 MAY BE RE-DUCED FOR SHIPMENT, IF DESIRED. SEE THE FILLER ASSEMBLY ON PAGE 8 AND THE LOAD ON PAGE 4.
 - IF A LOAD IS REDUCED BY ONLY A SMALL AMOUNT (ONE OR TWO LAD-ING UNITS), LADING UNITS NORMALLY MAY BE ELIMINATED FROM THE CENTER OF THE LOAD.
 - 2. IF A LOAD IS REDUCED BY A LARGE AMOUNT (MORE THAN TWO LADING UNITS), LADING UNITS SHOULD BE ELIMINATED AS REQUIRED AND THE TOTAL LOAD SHIFTED FORE OR AFT, AS NECESSARY, TO ACHIEVE A SYMMETRICAL WEIGHT DISTRIBUTION. THE DEPICTED PROCEDURES WILL BE FOLLOWED AS CLOSELY AS POSSIBLE, MAKING ONLY THOSE ADJUSTMENTS TO THE DUNNAGE WHICH ARE REQUIRED TO ACCOM-MODATE THE NUMBER OF UNITS TO BE SHIPPED.
- P. SIX UNIVERSAL LOAD RETAINERS, AS DEPICTED IN THE LOADS ON PAGES 2 AND 4, ARE REQUIRED WHEN LOADING TWO LAYERS OF WOODEN CRATES. FOUR ARE REQUIRED WHEN LOADING A ONE LAYER LOAD. REFER TO DAC DRAWING ACV00682 FOR DETAILS OF THE UNIVERSAL LOAD RETAINER CONSTRUCTION, AND TO DEPARTMENT OF THE ARMY DRAWING DA-116 FOR DETAILS FOR INSTALLATION TO THE DOOR POST VERTICAL, PLACE-MENT INTO THE CONTAINER, AND FOR OTHER METHODS OF REAR-OF-LOAD RESTRAINT.
- Q. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- R. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:
 - 1. PREFABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, TWO CENTER FILL ASSEMBLIES, AND ONE CRIB FILL ASSEMBLY.
 - 2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
 - 3. LOAD TWO CRATES, INSTALL ONE CENTER FILL ASSEMBLY, AND LOAD TWO MORE CRATES.
 - 4. REPEAT STEP 4.
 - 5. LOAD TWO CRATES.
 - 6. INSTALL CRIB FILL ASSEMBLY.
 - 7. INSTALL REAR BLOCKING ASSEMBLY.
 - 8. INSTALL TWO DOOR POST VERTICALS WITH UNIVERSAL LOAD RETAINERS.
 - 9. INSTALL DOOR SPANNERS.
- 10. INSTALL STRUTS.

MATERIAL SPECIFICATIONS

<u>LUMBER</u> :	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOL- UNTARY PRODUCT STANDARD PS 20.
<u>NAILS</u> :	ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).
<u>PLYWOOD</u> :	COMMERCIAL ITEM DESCRIPTION A-A-55057, IN- DUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EX- TERIOR GRADE MAY BE SUBSTITUTED.
WIRE, CARBON STEEL -:	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.
STEEL, <u>STRUCTURAL</u> :	ASTM A36; 36,000 PSI MINIMUM YIELD OR BET- TER.

