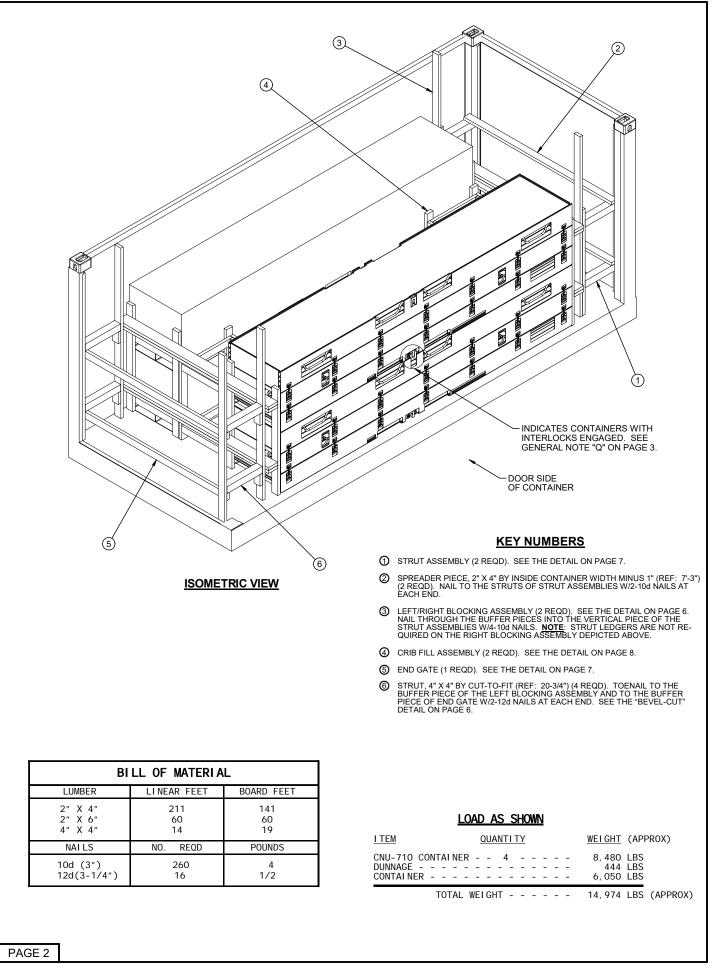
LOADING AND BRACING® IN SIDE **OPENING ISO CONTAINERS OF JSOW (AGM-154) MISSILE PACKED IN CNU-710 CONTAINERS**

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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 JSOW MISSILE PACKED IN CNU-710 CONTAINER. SUBSEQUENT REFRENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH AMMUNITION ITEMS. SEE PAGE 4 AND NAVSEA DRAWING 8411078 FOR DETAILS OF THE CON-TAINER. <u>CAUTION</u>: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CON-TAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-5-1/4" LONG BY 89-3/4" WIDE BY 88" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE DIFFERENT IN-SIDE MEASUREMENTS, VERIFY INSIDE CONTAINER DIMENSIONS PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, 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 CNU-710 CONTAINERS, 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 EX-CEED 1-1/2". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY AD-JUSTING THE LENGTH OF STRUTS OF THE CRIB FILL ASSEMBLIES, OR LAMI-NATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE VERTICAL PIECES ON THE CRIB FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". 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 ENDWALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE END GATE OR STRUT 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 APPRO-PRIATELY 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(S) 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 CON-TAINER ENDWALLS, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE 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. CAUTION: 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 INTER-MODAL CONTAINER SYSTEM.

- L. 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.
 - 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.

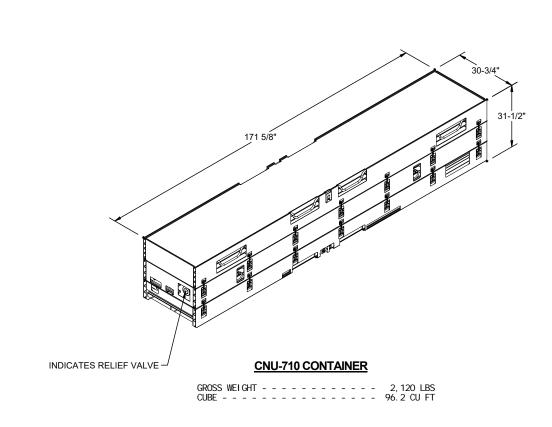
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(GENERAL NOTES CONTINUED)

- 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 COM-PUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454 KG.
- O. THE QUANTITY OF CONTAINERS SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "LESS-THAN-FULL LOAD PROCEDURE" ON PAGE 8.
- P. 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 AC-TUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- Q. THE TWO CNU CONTAINER INTERLOCKS LOCATED ON EITHER SIDE OF THE CONTAINERS CAN BE UTILIZED IN PLACE OF STEEL STRAPPING WHEN UNITIZ-ING CONTAINERS, AND HAS BEEN SHOWN AS THE PREFERED METHOD IN THE LOAD ON PAGES 2 AND 8. CONTAINERS MAY BE UNITIZED TWO HIGH US-ING INTERLOCKS. IF ANY OF THE CONTAINER INTERLOCKS ARE NOT FUNC-TIONING PROPERLY, THE CONTAINER MUST BE UNITIZED USING STEEL STRAPPING AS DEPICTED IN NAVY DRAWING 8411078. WHEN HANDLING IN-TERLOCKED CONTAINERS, LIFT BY BOTTOM CONTAINER ONLY. SEE THE "UNIT LOAD WITH INTERLOCK DETAIL" ON PAGE 5 AND NAVY DRAWING 8411078 FOR FURTHER DETAILS.
- R. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINI-MUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. RE-FER TO THE STRAP JOINT DETAILS ON PAGE 5 FOR GUIDANCE.
- S. RECOMMENDED SEQUENTIAL LOADING PROCEDURES
 - 1. PREFABRICATE TWO STRUTS ASSEMBLIES, TWO LEFT/RIGHT BLOCKING ASSEMBLIES, TWO CRIB FILL ASSEMBLIES, AND ONE END GATE.
 - 2. INSTALL TWO STRUT ASSEMBLIES AGAINST RIGHT END OF THE CON-TAINER AND INSTALL TWO SPREADER PIECES.
 - 3. INSTALL THE RIGHT BLOCKING ASSEMBLY.
 - 4. LOAD TWO CNU-710 CONTAINERS
 - 5. INSTALL THE LEFT BLOCKING ASSEMBLY.
 - 6. INSTALL TWO CRIB FILL ASSEMBLIES.
 - 7. LOAD TWO CNU-710 CONTAINERS.
 - 8. INSTALL END GATE AGAINST LEFT END OF THE CONTAINER.
 - 9. MEASURE AND INSTALL FOUR CUT-TO-FIT 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).
STRAPPING, STEEL:	ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B, (GRADE 2), OR C.
<u>SEAL, STRAP</u> -:	ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.



UNITIZATION AND HANDLING GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING:

- A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VER-TICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.
- B. POSITION THE AFT END OF AN UPPER CONTAINER ABOVE THE AFT END OF THE NEXT LOWER CONTAINER.
- C. THE CONTAINER SKIDS OF AN UPPER CONTAINER SHOULD BE FULLY SEAT-ED AGAINST THE SKID LOCATOR PIECES ON THE COVER OF THE NEXT LOW-ER CONTAINER.
- 2. UNITIZING PROCEDURE USING PREFERRED INTERLOCKING FEATURE (SHOWN ON PAGE 5).
 - A. DETACH QUICK RELEASE PIN (BOTH SIDES) ON CONTAINER TO BE PLACED ON TOP.
 - B. STACK TWO CONTAINERS AS SHOWN. BE SURE TO ALIGN THE STACKING FEATURES.
 - C. SECURE TOP CONTAINER TO BOTTOM CONTAINER USING INTERLOCKING FEATURE.
 - D. INSTALL QUICK RELEASE PIN (BOTH SIDES).
- 3. UNITIZING PROCEDURE USING OPTIONAL 1-1/4" BANDING STRAPS.
 - A. STACK TWO CONTAINERS AS SHOWN. BE SURE TO ALIGN THE STACKING FEATURES.
 - B. FEED UNITIZING STRAP THROUGH FORK POCKETS OF LOWER CONTAINER AND OVER TOP OF UPPER CONTAINER. LOCATE STRAPS AS CLOSE AS POS-SIBLE TO OUTER EDGES OF FORK POCKETS (2 PLACES).
 - C. PLACE EDGE PROTECTORS UNDERNEATH STRAP AT EACH OF THE FOUR EDGES (FOUR PER STRAP).
 - D. TENSION AND SECURE EACH STRAP WITH ONE DOUBLE-NOTCHED SEAL.

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PAGE 4

(UNITIZATION AND HANDLING GUIDANCE CONTINUED)

- 4. CONTAINER OR CONTAINER STACK HANDLING:
 - A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIAL HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS. APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.
 - B. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.
 - C. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAIN-ERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAIN-ER, TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. IF ONE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CONTAIN-ER. DO NOT HANDLE STACKED CONTAINERS WITH A SLING.
 - D. WHEN UNLOADING A CONTAINER OR CONTAINER STACK FROM THE END OPENING CONTIANER, THE FORKLIFT TINES WILL BE INSERTED UNDER THE LOWER CONTAINER, THE FORKLIFT WILL THEN ELEVEATE THE END SLIGHTLY ABOVE THE FLOOR, AND BEGIN DRAGGING THE CONTAINER OR STACK FROM THE TRAILER AFTER ATTACHING A CHAIN OR WEB STRAP FROM A LOWER CONTAINER LIFT POINT AROUND THE FORKLIFT MAST TO A LIFT POINT OF THE OPPOSITE SIDE OF THE CONTAINER.
 - E. THE MK45 HANDLIFT TRUCK IS PREFERRED FOR LIFTING AND MANUVERING THE CONTAINERS WITHIN THE END OPENING CONTIANER. THE MK45 HANDTRUCK CONSISTS OF A CAST ALUMINUM BODY MOUNTED ON TWO WHEELS WITH A LIFTING MECHANISM. THE MK45 LIFTING MECHANISM IS CONNECTED TO A RECESS IN THE END OF THE CONTAINER. THE HAND-TRUCK SHALL BE USED IN PAIRS WITH ONE MK45 POSITIONED AT EACH END OF THE CONTAINER. THE WEIGHT CAPACITY OF TWO MK45 MOD 2 HANDTRUCKS IS 6,000 POUNDS.

