LOADING AND BRACING^{*} ON FLAT-RACK ISO CONTAINERS OF GBU-53 SMALL DIAMETER BOMB II PACKED ONE PER CNU-714 CONTAINER

<u>I NDEX</u>								
<u>I TEM</u>							ļ	PAGE(S)
GENERAL NOTES AND MAT CONTAINER DETAILS TYPICAL LOADING PROCE DETAILS		ECI FI 	CATIONS				- 3	2 3 4-5 , 5-8
DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE DISTRIBUTION IS UNLIMITED. U.S. A		BE SH WATE	PROCEDURES SHOWN HERE IIPPED BY TRAILER/CONTAIL R CARRIERS. ERIEL COMMAND	NER-ON	I-FLATCAR	(T/CC		
APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND	CAUTION: VERIFY PRIOR TO USE AT HTTPS://MHP.REDSTONE.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 8.							
RUS.ALLEN.J RUSALLEN.1203054282 DN: c=US, Gevernment, ou=DoD, 0u=PKI, ou=USA, m=RUSALLEN.1230354282	DC		NOT SCALE	JULY 2017				
.1230354282 on-RUS ALLEN J 123054282 Date: 2017.04.24 08:11:18-0500	DESIGN ENGINEER	BASIC REV.	QUYEN TRAN	}			20	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S ARMY MATERIEL COMMAND	ENGINEERING DIVISON		FIEFFER.LAUR Deltably signed by FIEFFER.LAURA (1930375727 Deltable Laura (1930375727 Deltable Laura (193037572 Deltable Laura (193037572 Deltable Laura (193037572 Deltable Laura (193037572 Deltable Laura (193037572					
SHIMP.UPTON Distally signed by SHIMP.UPTON R1231257183 DN c-US, Government, ou-Dob, u-PKI, Ou-USA, on-SHIMP.UPTONR.1231257183	TEST ENGIN	ieer NA	FELICIANO.AD IN.1259200373	CLASS	DIVISION	DRA	WING	FILE
U.S. ARMY DEFENSE AMMUNITION CENTER	EXPLOSIVE SAFETY DIRECTORATE		FIEFFER.LAUR Details sound by FIEFFER.LAUR Details and a Government, ou-Dob, DetPOI could be Government,	19	48	8886		SP15J179

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. ALL LOADS SHIPPED BY THE PROCEDURES DEPICTED IN THIS DRAWING MUST BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN TITLE 49, THE UNITED STATES CODE OF FEDERAL REGULATIONS; AR 55-355/AFM 75-2; DOD 4500.32-R; DOD 5100.76-M; DOD 6055.9-STD; AS WELL AS ANY AND ALL OTHER APPLICABLE SERVICE REGULATIONS.
- C. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF GBU-53 SMALL DIAMETER BOMB II PACKED ONE PER CNU-714 CONTAINER. SEE PAGE 3 AND RAYTHEON DRAWING 2239994 FOR DETAILS OF THE CON-TAINER. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE FLATRACK ISO CONTAINER MUST NOT BE EXCEEDED.
- D. THE LOAD AS SHOWN IS BASED ON A 5,700 POUND 20' LONG BY 8' WIDE FLATRACK ISO CONTAINER WITH FULL HEIGHT ENDWALLS, AND INSIDE DI-MENSIONS OF 19'-4" LONG BY 86' WIDE. THE LOAD IS DESIGNED FOR TRAILER/ CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT; HOWEVER, THE LOAD AS DE-SIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.
- E. WHEN LOADING CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD BETWEEN THE END BLOCKING ASSEMBLY AND THE LADING. ALTHOUGH A TOTAL OF 1" OF UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD IS PERMITTED, LONGITUDINAL VOIDS WITHIN THE LOAD ARE TO BE HELD TO A MINIMUM, NOT EXCEEDING 1/2". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY INCREASING THE LENGTH OF THE STRUTS.
- F. 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.
- G. 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.
- H. WHEN INSTALLING END BLOCKING ASSEMBLIES AND ENDWALL GATES, THE ASSEMBLIES MUST BE POSITIONED SO AS TO BE SUPPORTED AND IN LINE WITH THE STRONG POINTS OF THE FLATRACK ENDWALLS. **MOTE**: SOME FLATRACK ENDWALLS WILL REQUIRE FILL PIECES TO BE INSTALLED ON THE END WALL GATES TO PROVIDE A UNIFORM LOAD BEARING SURFACE. NAIL THESE FILL PIECES TO THE END WALL GATES W/1 APPROPRIATELY SIZED NAIL EVERY SIX INCHES. THESE PIECES ARE NOT REQUIRED IF THE ENDWALL IS SMOOTH (IF THE HINGES DO NOT PROTRUDE).
- J. WHEN STEEL STRAPPING IS SEALED IN 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 A" AND "STRAP JOINT B" DETAILS ON PAGE 3 FOR GUIDANCE.
- K. THE 2" STRAPPING USED FOR LOAD SECUREMENT, I.E., HOLD-DOWN STRAPS, WILL ONLY BE FASTENED TO THE FLATRACK CONTAINER BY UTILIZING TIEDOWN PROVISIONS LOCATED ON THE TOP OR ALONG THE SIDE OF THE FLATRACK BOTTOM SIDE RAILS. <u>CAUTION</u>: THE LOAD SECUREMENT STRAPS WILL NOT BE POSITIONED AROUND THE UNDERSIDE OR THROUGH THE FORK-LIFT POCKETS OF THE FLATRACK CONTAINER. ADDITIONALLY, THE FLATRACK TIEDOWN PROVISIONS MUST BE AT LEAST AS STRONG AS THE 2" LOAD SE-CUREMENT STRAPPING BEING USED; AND BE OF A SUFFICIENT WIDTH TO RE-CEIVE THE 2" STRAPPING AND BE OF A DESIGN WHICH WILL PROVIDE A BEAR-ING SURFACE ACROSS THE FULL WIDTH OF THE 2" STRAPPING SO THAT THE STRAPPING WILL NOT BE DEFORMED, ESPECIALLY AT ITS EDGES, WHEN PROPERLY TENSIONED.
- L. REFER TO ASSOCIATION OF AMERICAN RAILROADS MANUAL "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS" FOR APPLICABLE LOADING RULES AS FOLLOWS: PREFACE, 1, 2, 3, 5, 7, 10, 12, 13, 14, AND 15. NOTE THAT ALL STRAPPING USED FOR LOAD SECUREMENT, I.E., HOLD-DOWN STRAPS, MUST BE MARKED AS SPECIFIED IN LOADING RULE 15.
- M. 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.
- N. PORTIONS OF THE FLATRACK DEPICTED WITHIN THIS DRAWING, SUCH AS THE ENDWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PUR-POSES.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

O. MAXIMUM LOAD WEIGHT CRITERIA:

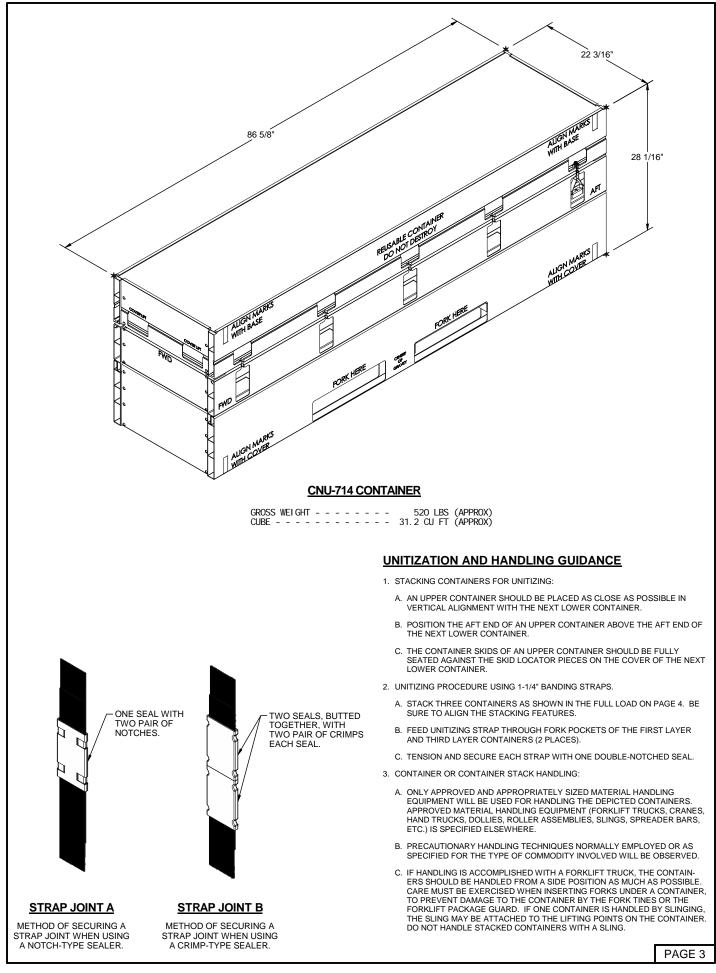
THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION 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.

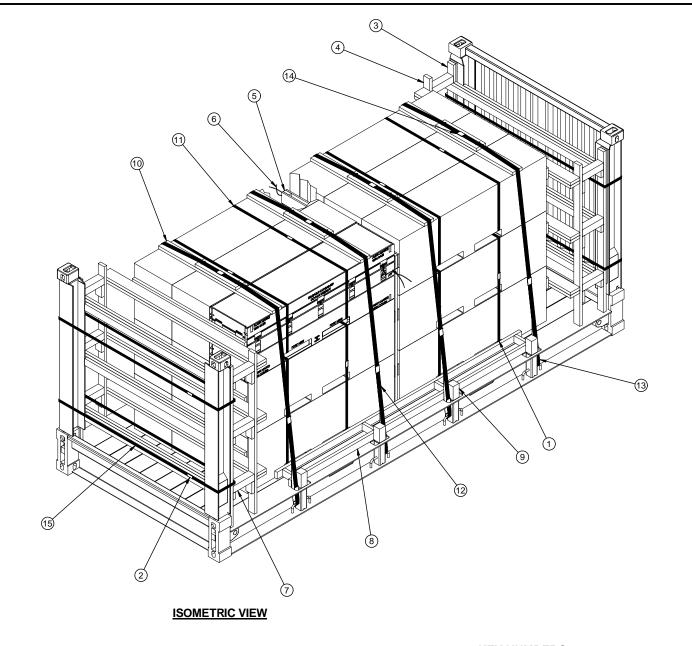
- P. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOL-LOW:
 - 1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BO-GIE ASSEMBLIES WHEN BEING MOVED 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.
- Q. 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.
- R. THE LOAD AS SHOWN ON PAGE 4 MAY BE REDUCED BY ONE OR TWO LAYERS FOR A SHIPMENT OF TWELVE OR SIX CONTAINERS, RESPECTIVE-LY, IF DESIRED.
- S. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTI-LIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NO-MENCLATURE THAN THE ITEM DESIGNATED IN THE DRAWING TITLE.
- T. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BE-TWEEN CNU CONTAINERS, IF DESIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARKINGS.
- U. 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.

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.
<u>STAPLE, STRAP</u> :	COMMERCIAL GRADE.
<u>ANTI-CHAFING</u> MATERIAL:	MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.

PAGE 2





(KEY NUMBERS CONTINUED)

- (9) STAKE, 4" X 4" X 18" (8 REQD). INSTALL THE STAKE INTO THE FLATRACK STAKE POCKETS WITH A TIGHT (SNUG) FIT. NOTE: REFERENCE DIMENSIONS FOR A TIGHT FITTING STAKE ARE 3-1/4" (ACTUAL) X 3-1/4" (ACTUAL). XII 1-200 NAIL THROUGH THE HOLE PROVIDED IN THE FACE OF THE FLATRACK STAKE POCKET AND INTO THE STAKE. BEND THE PROTRUDING HEAD OF THE NAIL OVER AND AGAINST THE STAKE POCKET. TOENAIL TWO END STAKES TO THE SIDE BLOCK-ING ASSEMBLY W/2-120 NAILS EACH ON BOTH SIDES.
- (10) STRAPPING BOARD ASSEMBLY (4 REQD). POSITION VERTICALLY IN LINE WITH THE FLATRACK TIEDOWN POINTS AND ON THE FLAT SURFACE OF THE CONTAINER LIDS. SEE THE DETAIL ON PAGE 5.
- (1) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 15'-8" (4 REQD). INSTALL TO ENCIRCLE LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER.
- (2) HOLD-DOWN STRAP, 2" X .050" OR .044" X 22'-6" LONG STEEL STRAPPING (4 REQD). INSTALL EACH STRAP FROM TWO PIECES, EACH 11'-3" LONG. FASTEN TO A TIEDOWN PROVISION ON THE SIDE OF THE FLATRACK AND BRING UP TO THE TOP OF THE LOAD WHERE THEY CAN BE TENSIONED AND SEALED. STAPLE TO STRAP-PING BOARD W/2 STAPLES EACH.
- (13) PAD, STRAPPING 2" X .050" OR .044" X 18" (8 REQD). PRE-POSITION THE PAD BE-TWEEN THE HOLD-DOWN STRAP AND THE FLATRACK TIEDOWN PROVISIONS. SEE THE "TIEDOWN DETAIL" ON PAGE 8.
- (4) SEAL FOR 2" STRAPPING (20 REQD, 5 PER STRAP). FASTEN 2" HOLD DOWN STRAP WITH ONE SEAL AT EACH LOCATION CRIMPED WITH TWO PAIR OF NOTCHES. FAS-TEN PAD WITH ONE SEAL CRIMPED WITH ONE PAIR OF NOTCHES. SEE THE "STRAP JOINT A" AND (STRAP JOINT B" DETAILS ON PAGE 3 AND THE "TIEDOWN DETAIL" ON PAGE 8.
- (15) GATE STRAP, 1-1/4" X .035" OR .031" BY A LENGTH TO SUIT (REF: 18'-0") (4 REQD). INSTALL STRAPPING AROUND ENDWALL AND ENDWALL GATE AS SHOWN.

PAGE 4

KEY NUMBERS

- (1) UNITIZING STRAP, 1-1/4" X .035" X .031" X 13'-0" (12 REQD, 2 PER STACK). IN-STALL STRAPPING THROUGH THE FORK POCKETS OF THE FIRST LAYER AND THIRD LAYER CONTAINERS. STRAPS SHOULD BE POSITIONED AS FAR APART AS POSSIBLE. SEE "UNITIZATION AND HANDLING GUIDANCE" ON PAGE 3.
- (2) SEAL FOR 1-1/4" STRAPPING (20 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE THE "STRAP JOINT A" AND "STRAP JOINT B" DE-TAILS ON PAGE 3.
- (3) ENDWALL GATE (2 REQD). SEE THE DETAIL ON PAGE 7.
- (4) END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6.
- (5) CENTER GATE ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 7.
- (6) TIE WIRE, 0800" DIA BY 24" LONG (2 REQD). INSTALL TO FORM A LOOP AROUND THE VERTICAL PIECE OF CENTER GATE ASSEMBLY AND A CNU CON-TAINER HANDLE. BRING ENDS TOGETHER AND TWIST TAUT. INSTALL ON OP-POSITE SIDES OF THE ASSEMBLY.
- (7) STRUT, 4" X 4" BY CUT-TO-FIT (REF: 12-1/2") (12 REQD). TOENAIL TO THE BUFFER PIECE OF THE END BLOCKING ASSEMBLY AND THE VERTICAL PIECE OF THE ENDWALL GATE W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 5.
- (8) SIDE BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6.

(CONTINUED AT LEFT)

PROJECT SP 585-16

