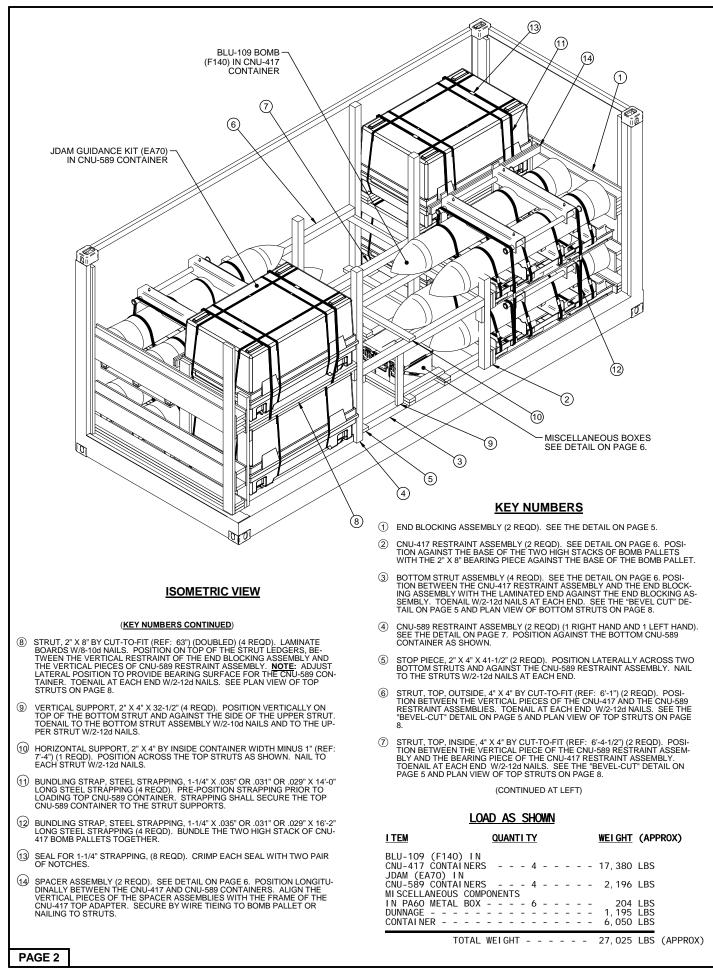
LOADING AND BRACING[®] IN SIDE **OPENING ISO CONTAINERS OF** 2,000 POUND GUIDED BOMB UNITS **GBU-31(V)3, COMPLETE ROUND**

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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 2,000 LB, GBU-31(V)3 BOMBS AND ASSOCIATED COMPONENTS IN A SIDE OPEN-ING CONTAINERS, SUBSEQUENT REFERENCE TO CONTAINERS HEREIN MEANS THAT CONTAINERS WITH THE GBU-31(V)3 COMPONENTS. SEE PAGE 4 FOR DETAILS OF THE COMPONENTS. <u>CAUTION</u>: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER 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'-6-1/4" LONG BY 90" WIDE BY 89" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE DIFFERENT INSIDE MEASUREMENTS, VERIFY INSIDE CONTAINER DIMENSIONS PRIOR TO FABRI-CATING 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 UNITS, 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 1-1/2". EX-CESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDI-TIONAL PIECES OF APPROPRIATE THICKNESS TO THE HORIZONTAL PIECES ON THE SPACER ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRI-ATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS, LENGTH AND/OR QUANTITY OF THE DUNNAGE LUMBER USED MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER.
- 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. 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. 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 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 APPROPRI-ATELY 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 POR-TIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER ENDWALLS, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FOR-WARD LONGITUDINAL BLOCKING.
- H. 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.
- J. <u>CAUTION</u>: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- K. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

(CONTINUED AT RIGHT)

BILL OF MATERIAL				
LUMBER	LINEAR FEET	BOARD FEET		
1″ X 4″	69	23		
2″X4″	128	85		
2″X6″	178	178		
2″X8″	73	97		
4" X 4"	119	158		
NALLS	NO. REQD	POUNDS		
6d (2")	230	1-1/2		
8d (2-1/2")	24	1/2		
10d (3")	188	2-3/4		
12d (3-1/4")	270	4-1/2		
16d (3-1/2")	16	1/2		
PLYWOOD, 3/4" STEEL STRAPPING, SEAL FOR 1-1/4" S WIRE, .0800" DIA	1-1/4" 61' R STRAPPING 4 R	EQD - 8.62 LBS EQD NIL		

(GENERAL NOTES CONTINUED)

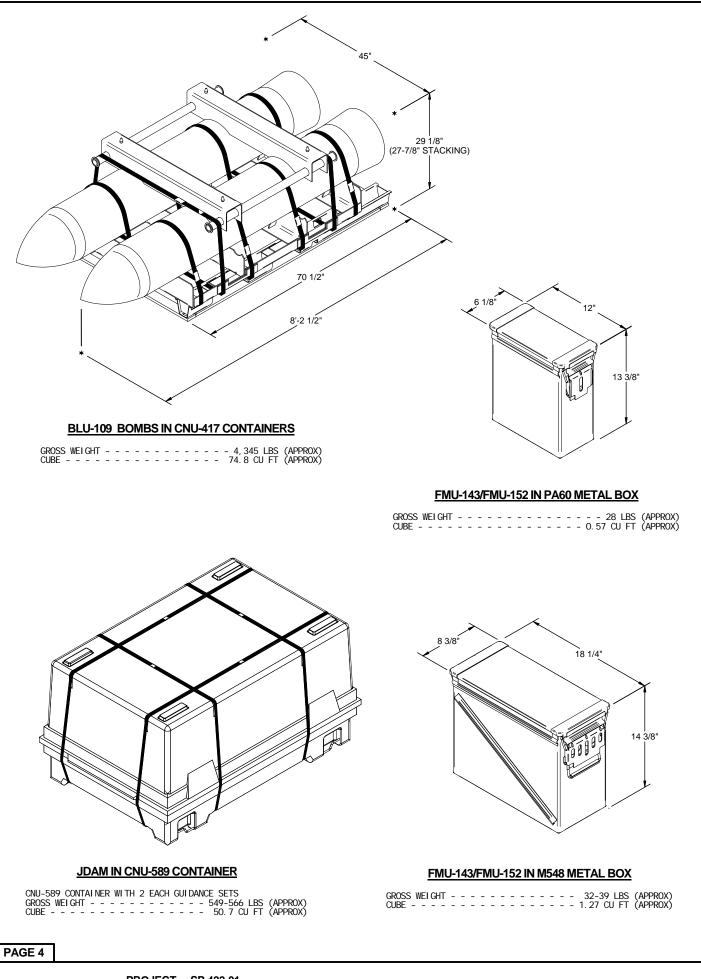
L. MAXIMUM LOAD WEIGHT CRITERIA:

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.

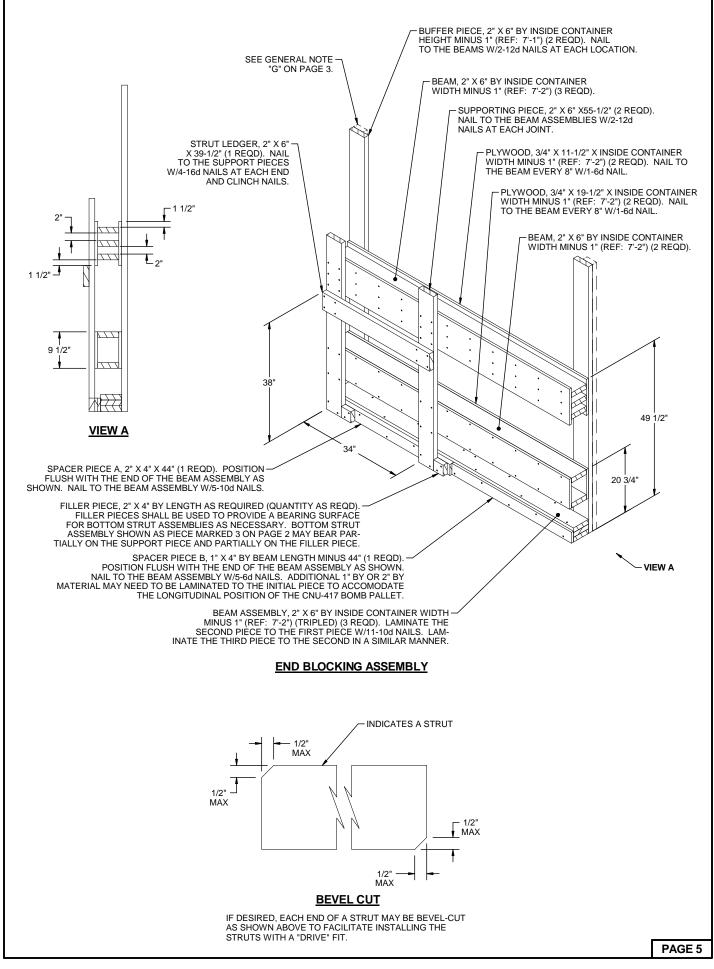
- M. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOL-LOW:
 - 1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BO-GIE ASSEMBLIES WHEN BEING MOVED 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.
- N. 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.
- O. 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.
- P. AS REQUIRED BY THE ASSOCIATION OF AMERICAN RAILROADS (AAR), ALL 1-1/4" AND 2" STEEL STRAPPING USED FOR LOAD RESTRAINT MUST BE MARKED AS SPECIFIED WITHIN THE APPLICABLE AAR RULES GOVERNING LOADING, BLOCKING AND BRACING OF FREIGHT WITHIN THE CONVEY-ANCE. FOR THE SPECIFIC MARKING SIZE, FREQUENCY, ETC., REQUIRED, REFER TO THE APPROPRIATE AAR LOADING RULES.
- Q. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN IN THE LOAD ON PAGE 2. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0' OR MORE IN LENGTH, IT WILL BE NECES-SARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIEC-ES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUT AS DEPICTED. STRUT BRACING WILL BE EQUALY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.
- R. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BE-TWEEN CONTAINERS, BETWEEN CONTAINERS AND THE SIDE OPENING CONTAINER, AND BETWEEN CONTAINERS AND STEEL STRAPPING, IF DE-SIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARK-INGS.

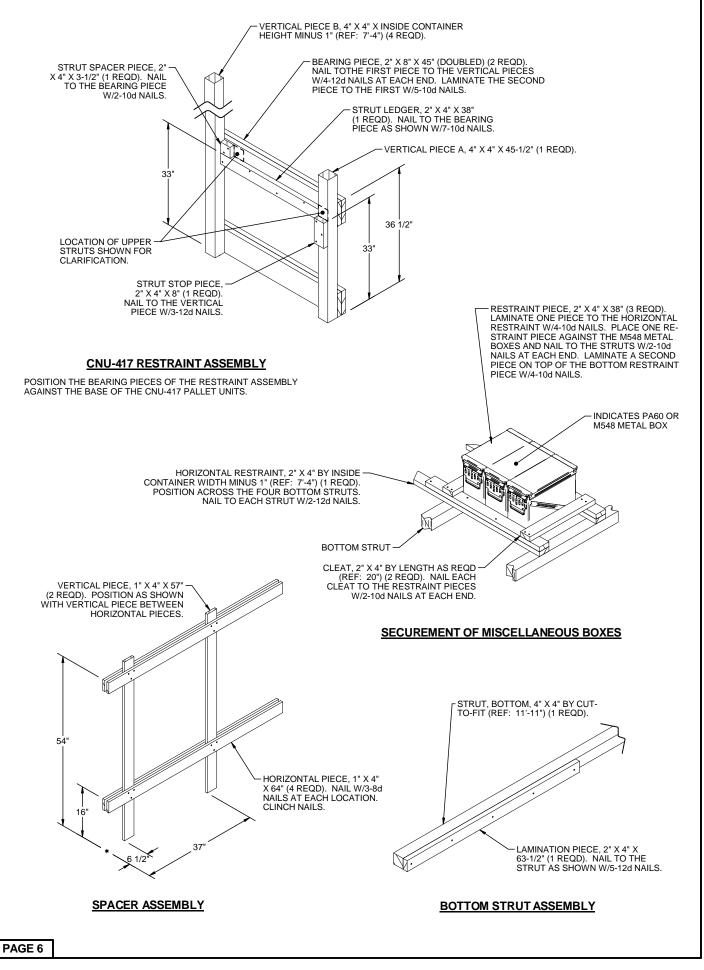
MATERIAL SPECIFICATIONS

<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.
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.
WIRE, CARBON STEEL -:	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.
HARDBOARD:	ANSI/AHA A135.4, CLASS 1.
ANTI-CHAFING <u>MATERIAL</u> :	MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.

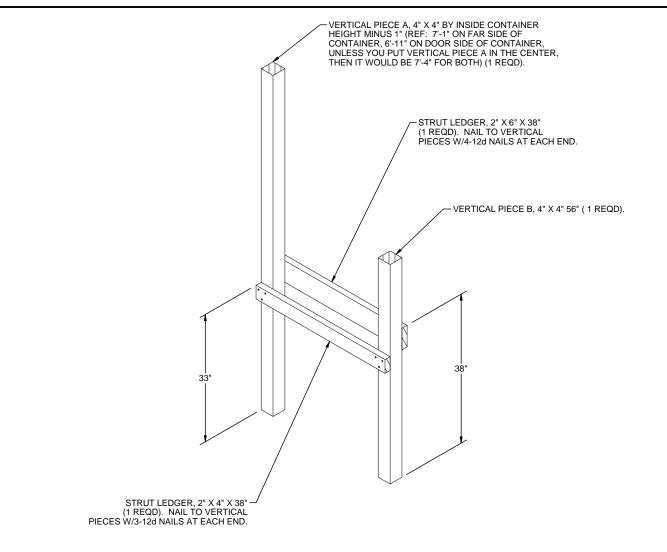


PROJECT SP 422-01





PROJECT SP 422-01



CNU-589 RESTRAINT ASSEMBLY

POSITION THE RESTRAINT ASSEMBLY AGAINST THE BOTTOM CNU-589 CONTAINER WITH THE 38" HIGH STRUT SUPPORT AGAINST THE CONTAINER.

	LOAD	1 CONFIGURA	TION				
		TOTAL	QUANTITY PER	CONTAINER			
NSN	NOMENCLATURE	PER ISO	UNIT PACK	QUANTITY	CONTAINE		
1325015260309	KMU-557C/B JDAM SAASM/AJ	8	2	4	CNU-589		
13250 15733873	BLU-109 (/B, B/B, C/B)	8	2	4	CNU-417		
1325015068828	FMU-152A/B FUZE SYSTEM	12	6	2	PA60		
1325013239171	FM U-143B/B	8	2	4	PA60		
	LOAD	2 CONFIGURA	TION				
NSN	NOMENCLATURE	PER ISO	UNIT PACK	QUANTITY	CONTAINE		
1325015260309	KMU-557C/B JDAM SAASM/AJ	8	2	4	CNU-589		
1325015733873	BLU-109 (/B, B/B, C/B)	8	2	4	CNU-417		
1325015068828	FMU-152A/B FUZE SYSTEM	12	6	2	M 548		
1325013239171	FM U-143B/B	8	2	4	M 548		
		3 CONFIGURA					
NSN	NOMENCLATURE	TOTAL	QUANTITY PER	CONTAINER	CONTAINE		
1325015260307	KMU-557B/B JDAM SAASM/AJ	8	2	4	CNU-589		
13250 1573 3873	BLU-109 (/B, B/B, C/B)	8	2	4	CNU-417		
1325015068828	FMU-152A/B FUZE SYSTEM	12	6	2	M 548		
1325013239171	FMU-143B/B	8	2	4	M 548		

