BUREAU OF EXPLOSIVES

A, J, Grasamuck

BATE 5/7/70

LOADING AND BRACING IN A VEHICLE EQUIPPED WITH A MECHANICAL BRACING SYSTEM OF CBU ITEMS PACKED IN THE CNU-123/E CONTAINER FOR CONTAINER/TRAILER-ON-FLAT-CAR (C/TOFC) SHIPMENT

INDEX

ITEM PAGE	<u>(S)</u>
GENERAL NOTES, AND MATERIAL SPECIFICATIONS	2
UNITIZATION AND HANDLING PROCEDURES	٠3
27-UNIT LOAD IN A 40'-0" LONG TRAILER4	,5
DETAILS	- 6

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GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO CBU ITEMS WHEN PACKED IN THE CNU-123/E CONTAINER. SUBSEQUENT REFERENCE TO "CONTAINER" HEREIN MEANS THE CNU-123/E CONTAINER WITH CONTENTS.
- D. THIS PROCEDURAL DRAWING IS APPLICABLE TO A TRAILER OR CONTAINER WHICH IS EQUIPPED WITH A MECHANICAL LOAD BRACING SYSTEM AS SPECIFIED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET NO. 6C AND APPENDICES THERETO. SUBSEQUENT REFERENCE TO A TRAILER THROUGHOUT THIS DOCUMENT MEANS A TRAILER OR CONTAINER. FOR TOFC AND/OR COFC SHIPMENTS, ONLY RAIL-CARS WHICH ARE SPECIFIED BY THE BUREAU OF EXPLOSIVES PAMPHLET NO. 6C, OR THE AFOREMENTIONED APPENDICES, WILL BE USED.
- E. THE LOAD AS SHOWN IS BASED ON A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) TRAILER WHICH HAS A WOOD OR A WOOD AND METAL, OR A METAL FLOOR. THE DELINEATED OUTLOADING PROCEDURES ARE ALSO APPLICABLE TO LONGER TRAILERS AND TO TRAILERS WHICH ARE EIGHTY-NINE INCHES (89") THROUGH NINETY-THREE INCHES (93") IN WIDTH.
- F. THE HEIGHT LOCATIONS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS ARE IDENTICAL TO THOSE RECOMMENDED IN THE BUREAU OF EXPLOSIVES PAMPHLET NO. 6C AND APPENDICES THERETO.

 CAUTION: TRAILERS EQUIPPED WITH FACILITIES WHICH DO NOT MEET THE LOCATION REQUIREMENTS SPECIFIED HEREIN MUST NOT BE USED.
 - VOIDS WITHIN THE LENGTH OF A LOAD MUST BE HELD TO A MINIMUM. CROSS
 MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. ALSO, EACH CROSS
 MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE
 IN "MATED" POSITIONS (AT EQUAL HEIGHTS AND AT EQUAL DISTANCES FROM
 THE END OF THE TRAILER).
 - CROSS MEMBERS IN EMPTY TRAILERS AND THOSE NOT USED IN LOADED TRAILERS MUST BE SECURED FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH TRAILER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.
 - 3. A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE LADING ON EITHER SIDE THAN AS SHOWN WITHIN THE LOAD.
- G. THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY. NOTICE: A SHIPMENT WILL BE POSITIONED IN A TRAILER CONSISTENT WITH THE WEIGHT LAWS OF THE STATES THROUGH WHICH THE TRAILER WILL BE TRANSPORTED BY HIGHWAY (MOTOR CARRIER).
- H. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS SHOWN HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCK-ING, BRACING, AND STAYING OF THE DESIGNATED ITEM.
- J. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PAR-TIALLY LOADED WITH THE DEPICTED ITEM, PROVIDING THE TOTAL LOAD IS COMPAT-IBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HERRIN.
- K. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH EMPTY DISPENSERS OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMEN-CLATURE THAN THE ITEMS DESIGNATED WITHIN THE DRAWING TITLE.
- L. ONE AND ONE-QUARTER INCH (1-1/4") STEEL STRAPPING WILL BE USED TO UNITIZE STACKED CONTAINERS AS SHOWN ON PAGE 3, AND AS SPECIFIED BY THE APPLICABLE OUTLOADING METHODS DEPICTED HEREIN. IF THE CAPACITY OF THE MATERIAL HANDLING EQUIPMENT USED TO LOAD THE CONTAINERS ABOARD THE TRAILER FERMITS, IT IS RECOMMENDED THAT THE CONTAINERS BE UNITIZED PRIOR TO PLACEMENT WITHIN THE TRAILER. NOTICE: IN SOME INSTANCES, CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITIZED STACKS SHOULD BE INSPECTED AND AS REQUIRED, LOOSE UNITIZING STEEL STRAPPING MUST BE REPLACED.
- M. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT AS SHOWN, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. <u>CAUTION</u>: EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO CONTAINERS.

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MATERIAL SPECIFICATIONS

LUMBER -----: SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.

NAILS -----:: COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105.

ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.

STRAPPING, STEEL: TYPE I OR IV, CLASS A OR B, FED SPEC QQ-S-781.

STRAP SEAL ---- : COMMERCIAL GRADE.

WIRE ---- : FED SPEC QQ-W- 461.

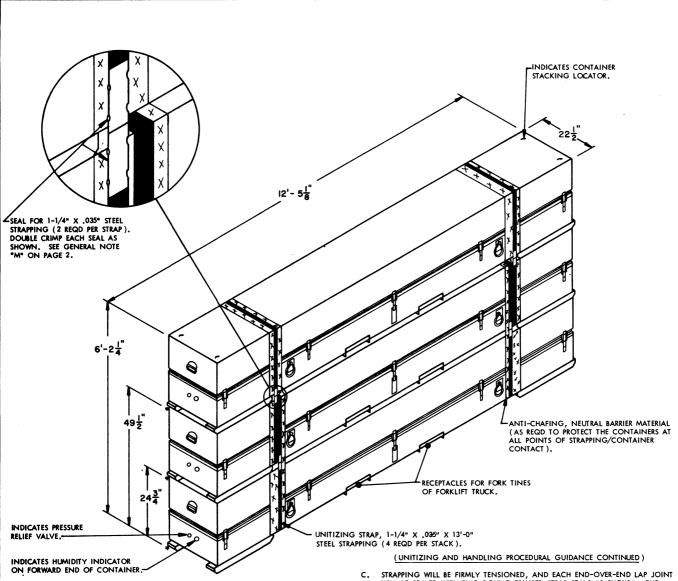
PLYWOOD -----: GROUP B OR C, GRADE * A-C (EXTERIOR) FOR 1/4", GRADE * C-D (EXTERIOR) FOR 1/2", FED SPEC NN-P-530.

* IF A SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.

PAGE 2

(GENERAL NOTES CONTINUED)

- N. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE.
- O. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSI-BLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES.
- P. DO NOT NAIL BLOCKING SHOWN HEREIN TO THE TRAILER WALLS OR FLOOR; ALL NAILING WILL BE ACCOMPLISHED WITHIN THE DUNNAGE.
- Q. PORTIONS OF THE TRAILER BODY DEPICTED WITHIN THIS PROCEDURAL DRAW-ING, SUCH AS ONE OF THE SIDE WALLS, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.
- R. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3, AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD



TYPICAL STACK DETAIL

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

- . STACKING CONTAINERS FOR UNITIZING.
 - THE UPPER CONTAINER WILL BE FULLY SEATED ON THE CONTAINER STACKING LOCATORS OF THE NEXT LOWER CONTAINER AND AS NEARLY AS POSSIBLE IN VERTICAL ALIGNMENT.
- POSITION THE FORWARD END OF AN UPPER CONTAINER ABOVE THE FORWARD END OF THE NEXT LOWER CONTAINER.
- 2. INSTALLATION OF 1-1/4" X .035" UNITIZING STEEL STRAPPING. SEE GENERAL NOTES "L" AND "M" ON PAGE 2.
- EACH OF THE TWO SETS OF UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN, AND PLACED SO THAT STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I. E., VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE CONTAINERS.
- PLACE ANTI-CHAFING MATERIAL UNDER THE STRAPPING AT ALL POINTS OF PLACE ANTI-CHAPING MATERIAL UNDER THE STRAPPING AT ALL POINTS OF STRAPPING/CONTAINER CONTACT, AND SECURE TO REVENT DISLODGEMENT DURING AND AFTER STRAP APPLICATION. STRIPS OF ANTI-CHAPING MATERIAL MAY BE TAPED OR STRING-TIED TO THE CONTAINERS OR TO THE STRAPPING, OR IT CAN BE FORMED INTO STRAP ENCIRCLING TUBES BY MINDING THE MATERIAL AROUND AND AROUND THE STRAPPING TO FORM A SELF-HOLDING

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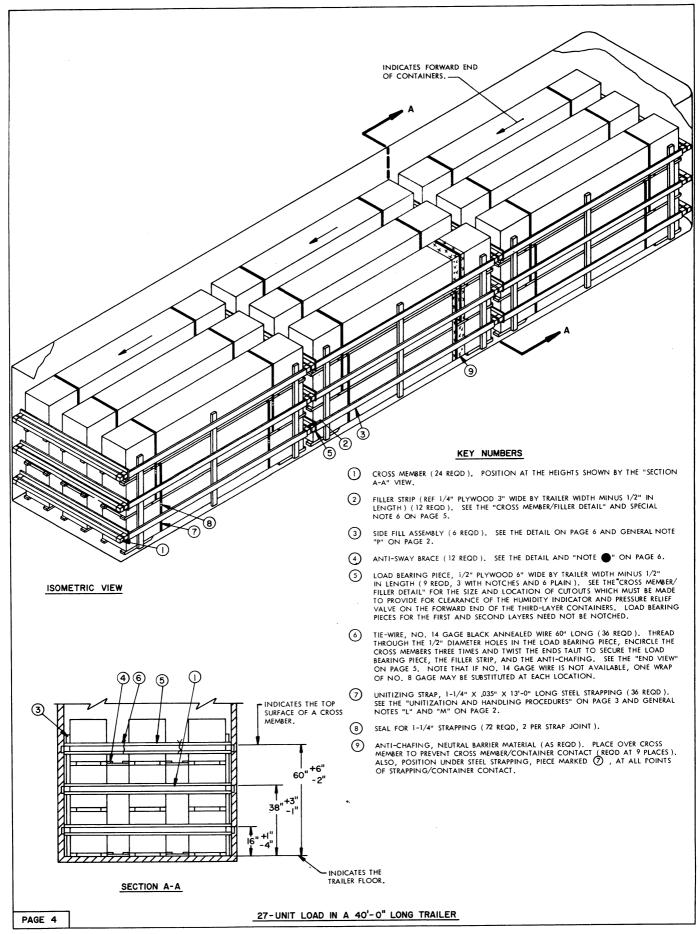
- STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE-CRIMPED STRAP SEALS AS SHOWN. THE STRAP JOINTS WILL BE MADE ALONG THE SIDE OF THE STACK SO THAT THE SEALS WILL NOT BE IN CONTACT WITH THE CONTAINERS. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE CONTAINERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.
- 3. CONTAINER OR CONTAINER STACK HANDLING.
 - NOTES:

 (1) APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.

 (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE
 - ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.
 - IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION WHEREVER POSSIBLE. CAUTION: THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED; HOWEVER, FORK TIMES MAY BE PLACED UNDER THE SKIDS FROM AN END POSITION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TIMES OR THE FORKLIFT PACKAGE GUARD, FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING TRAILER LOADING, A UNITIZED TWO OR THREE-HIGH CONTAINER STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK UNDER THE SECOND-LAYER CONTAINER. TRUCK UNDER THE SECOND-LAYER CONTAINER.
 - IF ONE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CONTAINER. HOWEVER, IF A TWO OR THREE-HIGH STACK IS HANDLED BY SLINGING, <u>DO NOT</u> ATTACH THE SLING TO THE LIFTING POINTS ON A CONTAINER. THE SLING USED MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER.

UNITIZATION AND HANDLING PROCEDURES

PAGE 3

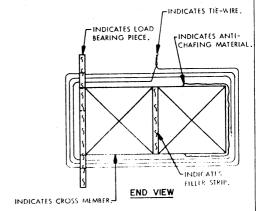


SPECIAL MOTES:

- A 27-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE CHISIDE DIMENSION) TRAILER WHICH IS EQUIPPED WITH A MECHANICAL LOAD BLOCKING SYSTEM THAT HAS A SYSTEM LENGTH OF NOT LESS THAN 38'-11", AND CONTAINS AT LEAST TWENTY-FOUR (24) CROSS MEMBERS.
- 2. IF A TRAILER BEING LOADED DOES NOT HAVE A SYSTEM LENGTH OF 38'-11"
 AND/OR DOES NOT CONTAIN AT LEAST TWENTY-FOUR (24) CROSS MEMBERS, A 27-UNIT LOAD CANNOT BE SHIPPED. HOWEVER, IF THE TRAILER
 BEING LOADED IS EQUIPPED WITH A MECHANICAL LOAD BLOCKING SYSTEM
 THAT IS AT LEAST 26'-1" AND CONTAINS AT LEAST EIGHTEEN (18) CROSS
 MEMBERS, TWO (2) LOAD UNITS (AN 18-UNIT LOAD) MAY BE SHIPPED
 USING THE PROCEDURES DEPICTED ON PAGE 4.
- WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD BY ADJUSTING THE WIDTH OF THE ANTI-SWAY BRACE, PIECE MARKED
- 4. IF ONE (1) OR TWO (2) CONTAINERS ARE TO BE OMITTED FROM THE LOAD SHOWN IN ORDER TO SATISFY THE QUANTITY TO BE SHIPPED, OMIT THE TOP CENTER CONTAINER FROM ONE OR TWO LOAD UNITS. WHEN A CONTAINER IS OMITTED, ONE OF THE TWO ANTI-SWAY BRACL'S WHICH ARE USED IN THE THIRD LAYER WILL ALSO BE OMITTED. THE LOAD BRARING PIECES OF THE REMAINING ASSEMBLY MUST BE EXTENDED TO CONTACT THE SKID'S OF THE CONTAINERS ADJACENT TO THE TRAILER SIDE WALLS AND THE LENGTH OF THE STOP PIECES MUST BE HICREASED SO AS TO EXTEND 3" UNDER THESE OUTER CONTAINERS.
- 5. IF THREE (3) CONTAINERS ARE TO BE OMITTED FROM THE DEPICTED LOAD, THE ENTIRE TOP LAYER OF A LOAD UNIT SHOULD BE LEFT OFF. INSTALL THE ANTI-SWAY BRACES BETWEEN THE SECOND-LAYER CONTAINERS, ADJUST THE HEIGHT OF THE SIDE FILL ASSEMBLIES, AND OMIT SIX (6) UNITIZING STRAPS, PIECE MARKED
- 6. A 1/4" THICK "FILLER STRIP" HAS BEEN SPECIFIED FOR THE DEPICTED LOAD. HOWEVER, IF THE VOID BETWEEN A PAIR OF LONGITUDINALLY ADJACENT CROSS MEMBERS IS GREATER THAN 1/4", FILLER MATERIAL OF A THICKNESS WHICH WILL COMPLETELY OCCUPY THE VOID SPACE BETWEEN THE TWO MEMBERS MUST BE USED.

TIF-WIRE, PIECE MARKED (6)
FILLER STRIP, PIECE MARKED ②
TRAILER WIDTH
MINUS 1/2
ANTI-CHAFING MATERIAL, PIECE MARKED ①
91,
REF 42"
V2" DIAMETER HOLE (8 REOD)
LOCATE AS SHOWN SO THAT THE
TIE-WIRE CAN BL THREADED AS SHOWN IN THE "END VIEW"
BELOW.
4" HIGH BY 5" WIDE NOTCH (3 REQD).
REQUIRED ONLY FOR THOSE CROSS MEMBER
ASSEMBLIES WHICH BEAR AGAINST THE THIRD 9 1/2
LOAD BEARING PIECE, PIECE MARKED 3
CROSS MEMBER/FILLER DETAIL

NOTE THAT THE LOAD BEARING PIECE MAY BE INSTALLED WITH THE "NOTCHES" UPWARD IF NECESSARY IN ORDER TO MISS THE HUMIDITY INDICATOR AND RELIEF VALVE ON A CONTAINER.



LTMBER LINLAR FEET BOARD FEE 1" X 4" 456 152 2 ' X 4" 165 110 NAILS NO. REQD POUNDS
2 · X 4" 165 110
NAILS NO. REQD POUNDS
6d (2") 450 2-3/4

LOAD AS SHOWN

27-UNIT LOAD IN A 40'-O" LONG TRAILER

PAGE 5

