


LOADING AND BRACING (TL & LTL) ON FLAT BED TRAILERS OF BLU-107/B (DURANDAL) WEAPONS PACKED IN CNU-381/E METAL CONTAINERS

 **CAUTION:** THE OUTLOADING PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE TO HIGHWAY MOVEMENTS, NOT TRAILER-ON-FLAT-CAR MOVEMENTS.

DO NOT SCALE

REVISIONS				DRAFTSMAN	PROJ ENG
				<i>MM</i>	<i>MWD/WSE</i>
				CHECKER	LOG ENGRG OFFICE
				<i>GRG</i>	<i>W. J. Ernst</i>
				APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND	
				<i>S. D. Byrd</i>	
				APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND (AMC)	
				<i>William J. Ernst</i>	
				U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	
				U.S. ARMY AMC DRAWING	
				MAY 1988	
				CLASS	DIVISION
				DRAWING	FILE
				19	48
				7105	SP 11J5

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES CONTAINED HEREIN ARE APPLICABLE TO BLU-107/B (DURANDAL) WEAPONS PACKED IN CNU-381/E METAL CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-381/E CONTAINER WITH CONTENTS.
- C. FOR DETAILS OF THE CNU-381/E CONTAINER, SEE PAGE 3.
CONTAINER DIMENSIONS ----- 9'-2" LONG X 40" WIDE X 24" HIGH.
GROSS WEIGHT ----- 2050 POUNDS (APPROX).
- D. THE LOADS AS SHOWN HEREIN ARE BASED ON 8'-0" WIDE BY 40'-0" AND 45'-0" LONG FLAT BED TRAILERS. TRAILERS MUST HAVE WOOD OR WOOD AND METAL FLOORS. TRAILERS HAVING ALL-METAL FLOORS CANNOT BE USED. **CAUTION:** IF THE TRAILER FLOOR IS EQUIPPED WITH EXPOSED METAL DECKING ABOVE THE BOGIE ASSEMBLY, OR ELSEWHERE, FIELD MEASUREMENTS SHOULD BE MADE TO ENSURE THAT THE METAL DECKING DOES NOT INTERFERE WITH THE PROPER POSITIONING AND NAILING OF THE DUNNAGE AS SPECIFIED BY THE PROCEDURES SHOWN HEREIN.
- E. SELECTION OF A VEHICLE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- F. GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY.
- G. **NOTE:** A SHIPMENT WILL BE POSITIONED ON A TRAILER CONSISTENT WITH STATE WEIGHT LAWS.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED ON A TRAILER WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- J. LADING MAY BE SECURED BY CHAINS AND LOAD BINDERS. SEE NOTES "Q" AND "R".
- K. **CAUTION:** REGARDLESS OF THE TYPE OF TRAILER INVOLVED, ONLY THOSE TRAILERS HAVING TIE-DOWN STRAP ANCHORING FACILITIES WHICH PROVIDE HOLDING STRENGTH EQUAL TO OR GREATER THAN THE STRENGTH OF THE HOLD-DOWN STRAPS, AND WHICH ALIGN NEAR THE INDICATED LOCATIONS FOR THE HOLD-DOWN STRAPS, SHOULD BE USED. IF TRAILER STRAP ANCHOR DEVICES ARE NOT PROPERLY POSITIONED TO RECEIVE TWO INCH (2") STRAPPING AS SHOWN, OR IF THE STRAP ANCHOR DEVICES ARE NOT EQUAL TO OR GREATER THAN THE STRENGTH OF THE TIE-DOWN STRAPS, THE STRAPS MAY BE APPLIED TO FORM A COMPLETE LOOP WHICH ENCOMPASSES BOTH THE LADING AND THE TRAILER FRAME AND/OR BED. **CAUTION:** AVOID TRAILER WHEELS, FIFTH WHEEL PLATE, CONTROLS AND OTHER APPURTENANCES. USE EDGE PROTECTORS OR PADS ON ALL SHARP EDGES.
- L. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- M. A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. 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 BESIDE A NAIL IN A LOWER PIECE.

- N. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE (1) SEAL WITH TWO (2) PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 9.
- O. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO A DEPICTED OUTLOADING METHOD.
- P. **CONVERSION TO METRIC EQUIVALENTS:** DIMENSIONS WITHIN THIS DOCUMENT 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 0.454KG.
- Q. IF CHAINS AND LOAD BINDERS ARE BEING USED IN LIEU OF STEEL STRAPPING, THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWNS" ON PAGE 11 MUST BE APPLIED TO ENSURE ADEQUATE SECUREMENT OF THE LOAD PRIOR TO SHIPMENT. ALSO SEE THE "SPECIAL NOTES" ON PAGE 11.
- R. THE TRANSPORTING VEHICLE OPERATOR SHOULD BE INSTRUCTED TO PERIODICALLY INSPECT THE TIEDOWN CHAINS AND LOAD BINDERS DURING TRANSIT AND TIGHTEN IF NECESSARY.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER -----: TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.

NAILS -----: FED SPEC FF-N-105; COMMON.

STRAPPING, STEEL ---: FED SPEC QQ-S-781; CLASS I, TYPE I OR II, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.

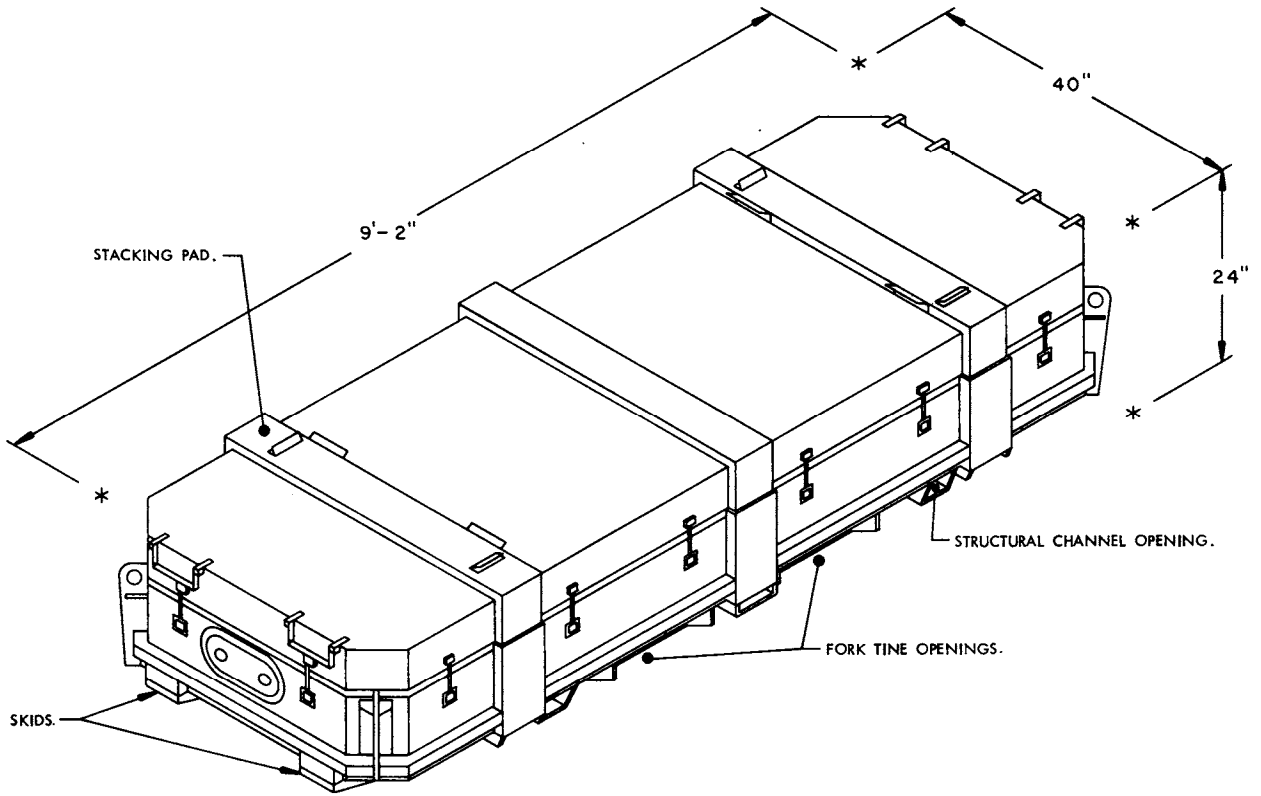
SEAL, STRAP -----: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR III, CLASS H, FINISH A, B (GRADE 2), OR C.

ANTI-CHAFING MATERIAL -----: MIL-B-121 (OR EQUAL): NEUTRAL BARRIER MATERIAL.

STAPLE, STRAP -----: COMMERCIAL GRADE.

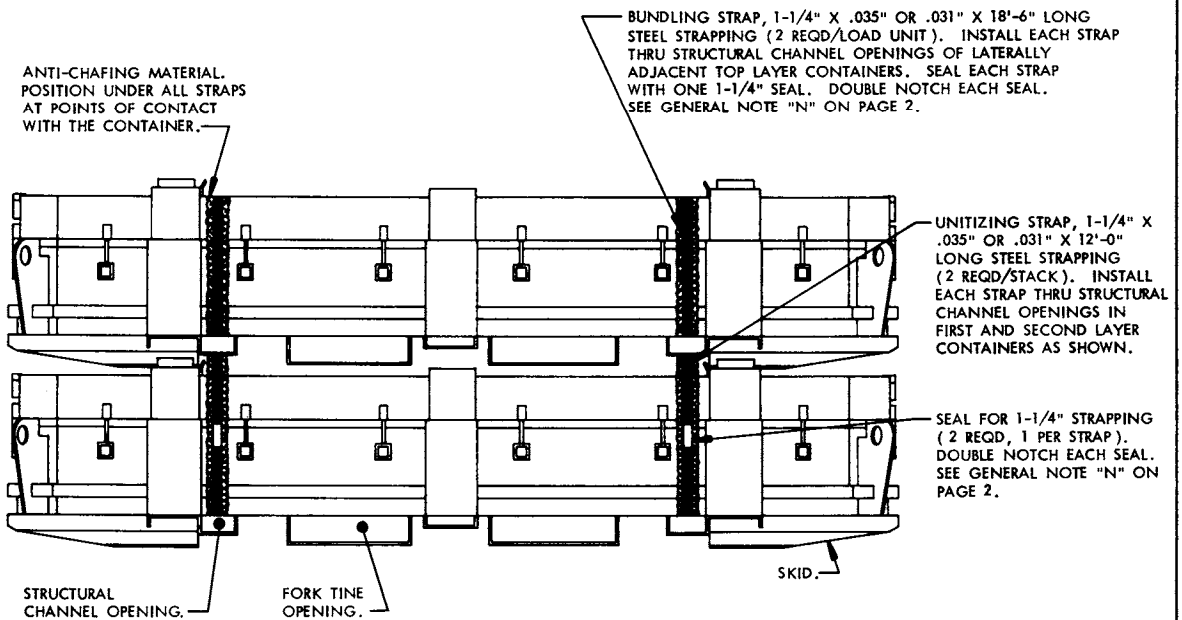
CHAIN -----: NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.

BINDER, LOAD ----: NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.

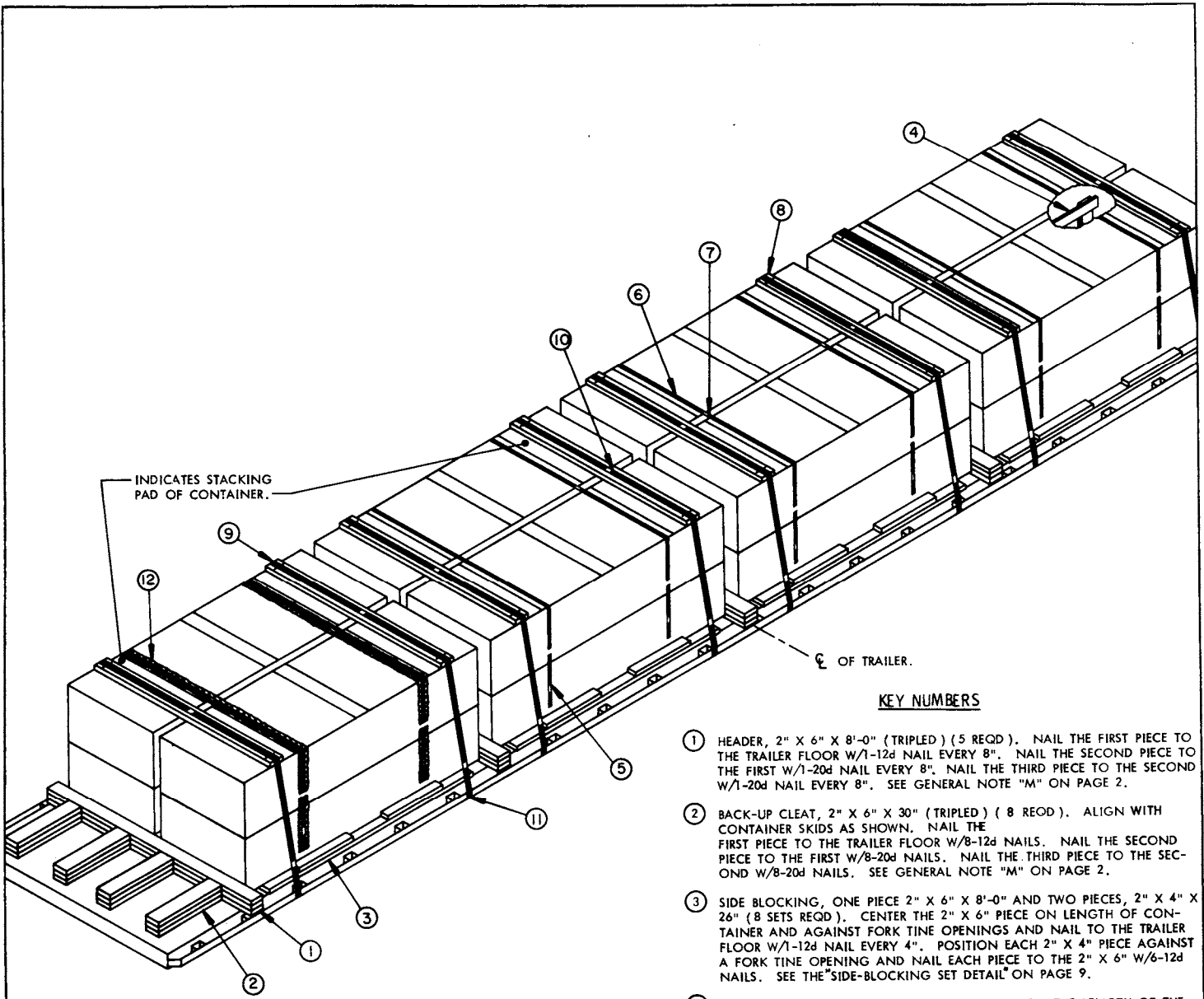


CNU-381/E CONTAINER DETAIL

(STACKING HEIGHT 22-5/8")
 GROSS WEIGHT -- 2050 LBS
 CUBE ----- 61.2 CU. FT.



STACK STRAPPING DETAILS



ISOMETRIC VIEW

KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-0" (TRIPLED) (5 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8". SEE GENERAL NOTE "M" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (8 REQD). ALIGN WITH CONTAINER SKIDS AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/8-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/8-20d NAILS. NAIL THE THIRD PIECE TO THE SECOND W/8-20d NAILS. SEE GENERAL NOTE "M" ON PAGE 2.
- ③ SIDE BLOCKING, ONE PIECE 2" X 6" X 8'-0" AND TWO PIECES, 2" X 4" X 26" (8 SETS REQD). CENTER THE 2" X 6" PIECE ON LENGTH OF CONTAINER AND AGAINST FORK TINE OPENINGS AND NAIL TO TRAILER FLOOR W/1-12d NAIL EVERY 4". POSITION EACH 2" X 4" PIECE AGAINST A FORK TINE OPENING AND NAIL EACH PIECE TO THE 2" X 6" W/6-12d NAILS. SEE THE "SIDE-BLOCKING SET DETAIL" ON PAGE 9.
- ④ ANTI-CHAFING ASSEMBLY (4 REQD). CENTER ON THE LENGTH OF THE CONTAINER. SEE THE DETAIL ON PAGE 9.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (16 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (8 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (24 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑧ STRAPPING BOARD, 2" X 6" X LENGTH TO SPAN LATERALLY ADJACENT TOP LAYER CONTAINERS (8 REQD). POSITION ADJACENT TO CONTAINER STACKING PADS AS SHOWN.
- ⑨ HOLD-DOWN STRAP, 2" X .050" X 24'-0" LONG STEEL STRAPPING (8 REQD). INSTALL EACH STRAP FROM TWO 12'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑧, W/2 STAPLES. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑩ SEAL FOR 2" STEEL STRAPPING (40 REQD, 5 PER STRAP). DOUBLE NOTCH EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑪. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 9.
- ⑪ PAD, 2" X .050" X 18" LONG STEEL STRAPPING (16 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑨. ALT: STAKE POCKET PROTECTOR (32 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD-DOWN STRAP. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" ON PAGE 9.
- ⑫ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER.

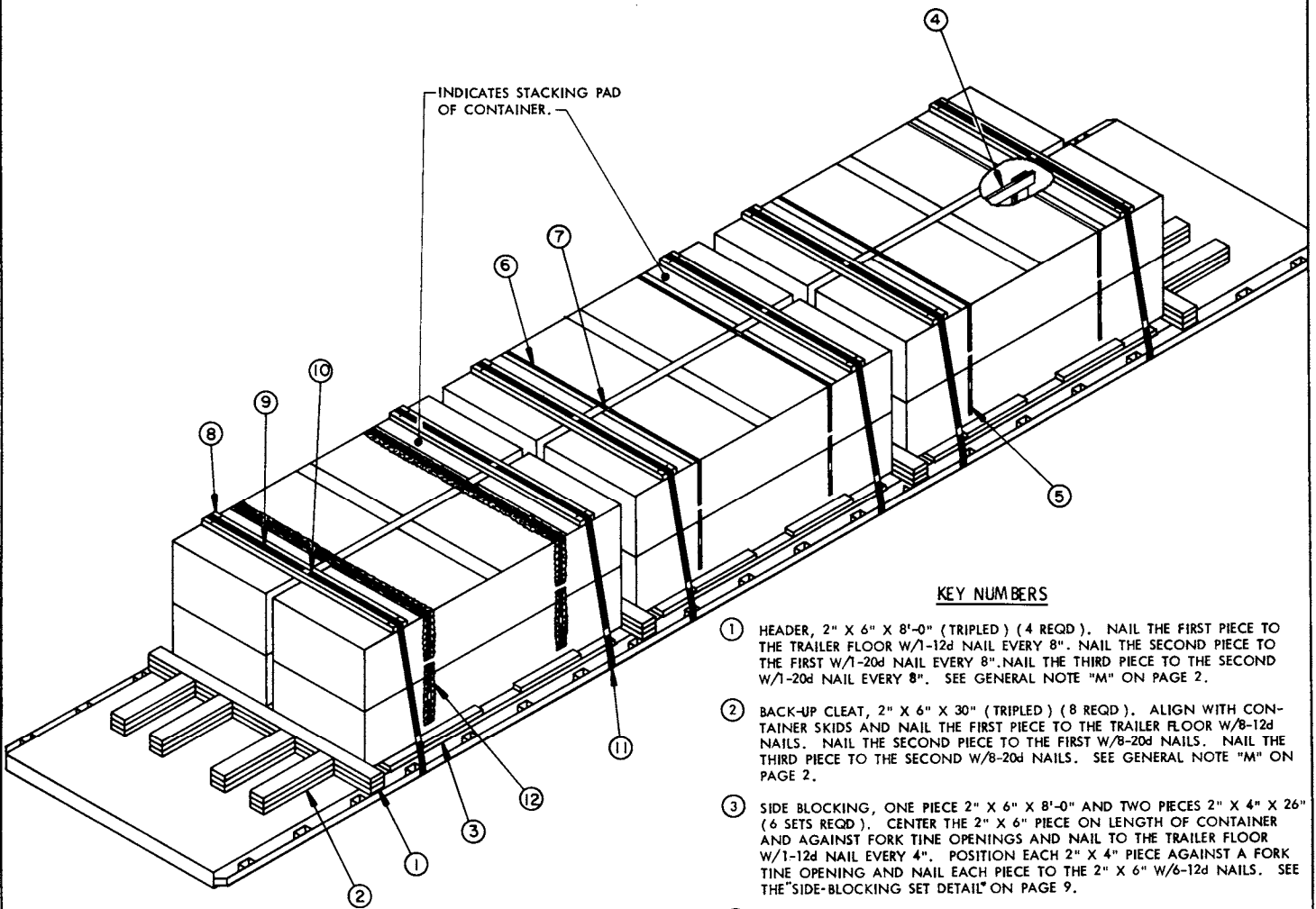
SPECIAL NOTES:

1. A 16-CONTAINER LOAD IS SHOWN ON A 45'-0" LONG BY 8'-0" WIDE FLAT BED TRAILER. SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 16-CONTAINER LOAD.
2. IF DESIRED, AND THE CAPACITY OF THE MHE PERMITS, TWO CONTAINERS MAY BE STACKED AND UNITIZED WITH TWO STEEL STRAPS, AS SPECIFIED, PRIOR TO PLACEMENT ON THE TRAILER.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	53	18
1" X 6"	77	39
2" X 4"	35	24
2" X 6"	300	300
NAILS	NO. REQD	POUNDS
6d (2")	132	1
12d (3-1/4")	412	7
20d (4")	248	9
STEEL STRAPPING, 1-1/4" X .035" OR D31" ---	340' REQD	-- 49 LBS
STEEL STRAPPING, 2" X .050" -----	216' REQD	-- 72 LBS
SEAL FOR 1-1/4" STRAPPING -----	24 REQD	-- 1 LB
SEAL FOR 2" STRAPPING -----	40 REQD	-- 8 LBS
STAPLE FOR 2" STRAPPING -----	16 REQD	-- NIL
ANTI-CHAFING MATERIAL -----	AS REQD	-- NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-381/E CONTAINER		
W/BLU-107/B WEAPONS -- 16 -----		32,800 LBS
DUNNAGE -----		909 LBS
TOTAL WEIGHT -----		33,709 LBS



ISOMETRIC VIEW

KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-0" (TRIPLED) (4 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8". SEE GENERAL NOTE "M" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (8 REQD). ALIGN WITH CONTAINER SKIDS AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/8-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/8-20d NAILS. NAIL THE THIRD PIECE TO THE SECOND W/8-20d NAILS. SEE GENERAL NOTE "M" ON PAGE 2.
- ③ SIDE BLOCKING, ONE PIECE 2" X 6" X 8'-0" AND TWO PIECES 2" X 4" X 26" (6 SETS REQD). CENTER THE 2" X 6" PIECE ON LENGTH OF CONTAINER AND AGAINST FORK TINE OPENINGS AND NAIL TO THE TRAILER FLOOR W/1-12d NAIL EVERY 4". POSITION EACH 2" X 4" PIECE AGAINST A FORK TINE OPENING AND NAIL EACH PIECE TO THE 2" X 6" W/6-12d NAILS. SEE THE "SIDE-BLOCKING SET DETAIL" ON PAGE 9.
- ④ ANTI-CHAFING ASSEMBLY (3 REQD). CENTER ON THE LENGTH OF THE CONTAINER. SEE THE DETAIL ON PAGE 9.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (12 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (6 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (18 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑧ STRAPPING BOARD, 2" X 6" X LENGTH TO SPAN LATERALLY ADJACENT TOP LAYER CONTAINERS (6 REQD). POSITION ADJACENT TO CONTAINER STACKING PADS AS SHOWN.
- ⑨ HOLD-DOWN STRAP, 2" X .050" X 24'-0" LONG STEEL STRAPPING (6 REQD). INSTALL EACH STRAP FROM TWO 12'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑧, W/2 STAPLES. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑩ SEAL FOR 2" STEEL STRAPPING (30 REQD, 5 PER STRAP). DOUBLE NOTCH EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑪. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 9.
- ⑪ PAD, 2" X .050" X 18" LONG STEEL STRAPPING (12 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑨. ALT: STAKE POCKET PROTECTOR (24 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD-DOWN STRAP. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" ON PAGE 9.
- ⑫ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER.

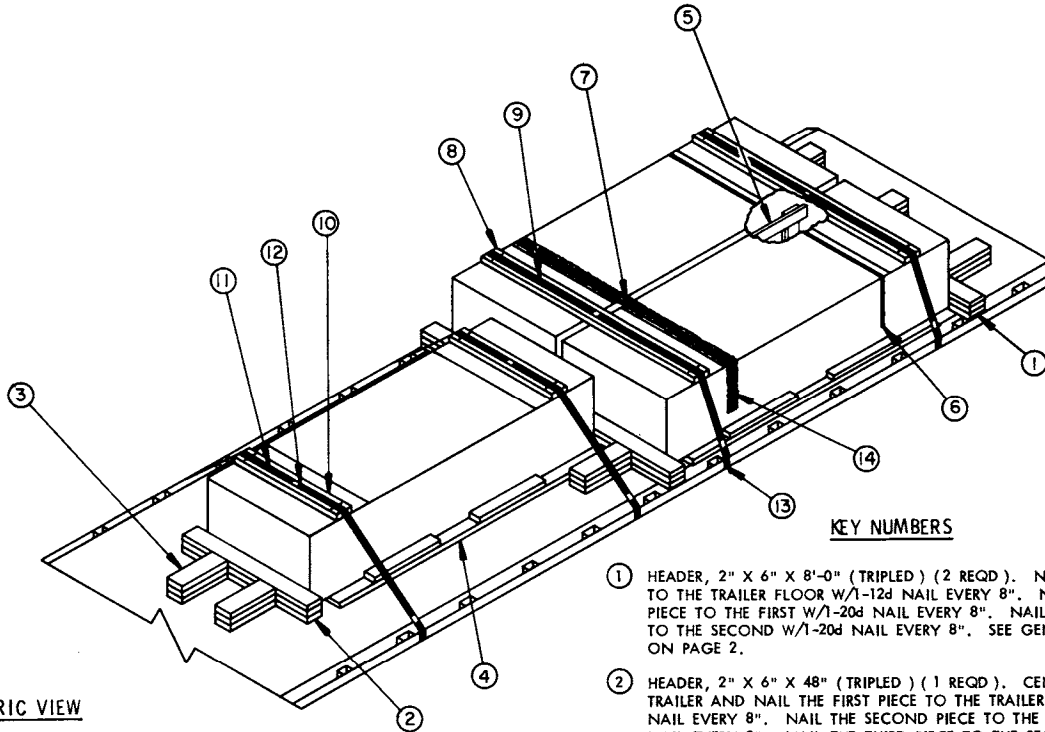
SPECIAL NOTES:

1. A 12" CONTAINER LOAD IS SHOWN ON A 40'-0" BY 8'-0" WIDE FLAT BED TRAILER. SHORTER TRAILERS, BUT NOT LESS THAN 35'-0" LONG, MAY BE USED FOR THE DEPICTED LOAD.
2. IF DESIRED, AND THE CAPACITY OF THE MHE PERMITS, TWO CONTAINERS MAY BE STACKED AND UNITIZED WITH TWO STEEL STRAPS, AS SPECIFIED, PRIOR TO PLACEMENT ON THE TRAILER.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	40	14
1" X 6"	58	29
2" X 4"	26	18
2" X 6"	246	246
NAILS	NO. REQD	POUNDS
6d (2")	99	3/4
12d (3-1/4")	328	5-1/2
20d (4")	224	8
STEEL STRAPPING, 1-1/4" X .035" OR .031" --	255' REQD	-- 37 LBS
STEEL STRAPPING, 2" X .050" -----	162' REQD	-- 54 LBS
SEAL FOR 1-1/4" STRAPPING -----	18 REQD	-- 1 LB
SEAL FOR 2" STRAPPING -----	30 REQD	-- 6 LBS
STAPLE FOR 2" STRAPPING -----	12 REQD	-- NIL
ANTI-CHAFING MATERIAL -----	AS REQD	-- NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-381/E CONTAINER		
W/BLU-107/B WEAPONS - 12 -----		24,600 LBS
DUNNAGE -----		727 LBS
TOTAL WEIGHT -----		25,327 LBS



ISOMETRIC VIEW

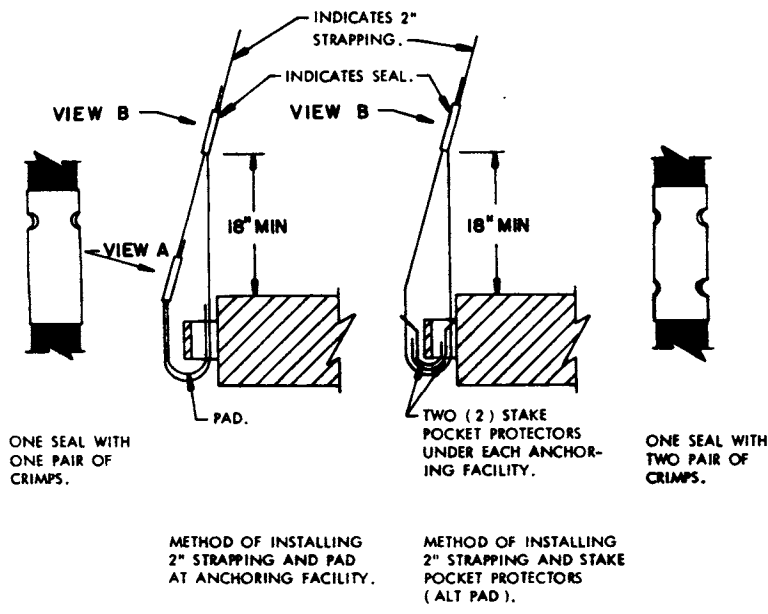
(KEY NUMBERS CONTINUED)

- ⑩ STRAPPING BOARD, 2" X 6" X CONTAINER COVER WIDTH IN LENGTH (2 REQD). POSITION ADJACENT TO CONTAINER STACKING PADS AS SHOWN.
- ⑪ HOLD-DOWN STRAP, 2" X .050" X 18'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO 9'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑩, W/2 STAPLES.
- ⑫ SEAL FOR 2" STEEL STRAPPING (20 REQD, 5 PER STRAP). DOUBLE NOTCH EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑬. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 9.
- ⑬ PAD, 2" X .050" X 18" LONG STEEL STRAPPING (8 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑨ OR ⑪. ALT: STAKE POCKET PROTECTOR (16 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD-DOWN STRAP. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" ON PAGE 9.
- ⑭ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER.

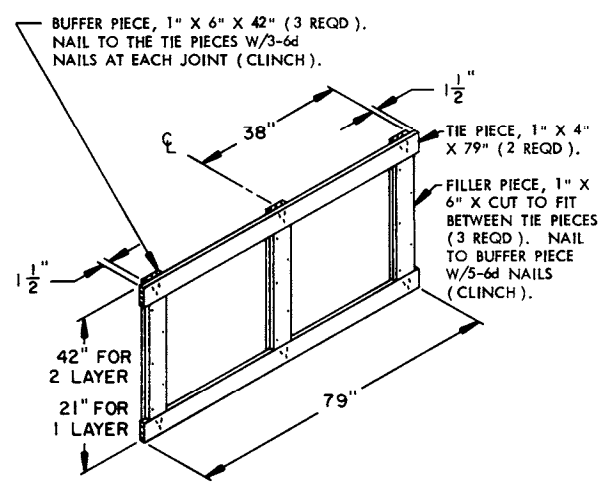
KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-0" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8". SEE GENERAL NOTE "M" ON PAGE 2.
- ② HEADER, 2" X 6" X 48" (TRIPLED) (1 REQD). CENTER ON WIDTH OF TRAILER AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8".
- ③ BACK-UP CLEAT, 2" X 6" X 18" (TRIPLED) (7 REQD). ALIGN WITH CONTAINER SKIDS AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-20d NAILS. NAIL THE THIRD PIECE TO THE SECOND W/5-20d NAILS. SEE GENERAL NOTE "M" ON PAGE 2.
- ④ SIDE BLOCKING, ONE PIECE 2" X 6" X 8'-0" AND TWO PIECES 2" X 4" X 26" (4 SETS REQD). CENTER THE 2" X 6" PIECE ON LENGTH OF CONTAINER AND AGAINST FORK TINE OPENINGS AND NAIL TO THE TRAILER FLOOR W/1-12d NAIL EVERY 4". POSITION EACH 2" X 4" PIECE AGAINST A FORK TINE OPENING AND NAIL EACH PIECE TO THE 2" X 6" W/6-12d NAILS. SEE THE "SIDE-BLOCKING SET DETAIL" ON PAGE 9.
- ⑤ ANTI-CHAFING ASSEMBLY (1 REQD). CENTER ON THE LENGTH OF THE CONTAINER. SEE THE DETAIL ON PAGE 9. HEIGHT OF THE ASSEMBLY TO BE 21".
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3 FOR GUIDANCE.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑧ STRAPPING BOARD, 2" X 6" X LENGTH TO SPAN LATERALLY ADJACENT CONTAINERS (2 REQD). POSITION ADJACENT TO CONTAINER STACKING PADS AS SHOWN.
- ⑨ HOLD-DOWN STRAP, 2" X .050" X 20'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO 10'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑧, W/2 STAPLES. SEE GENERAL NOTE "N" ON PAGE 2.

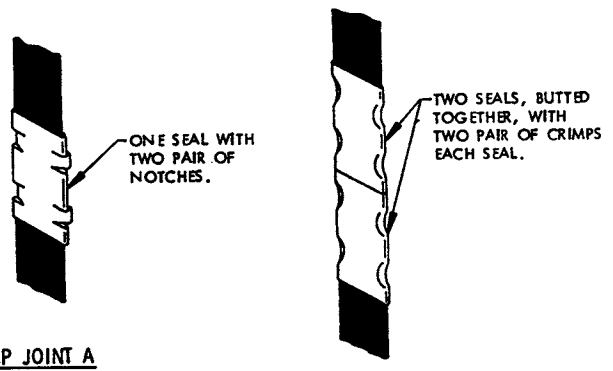
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HOLD DOWN STRAP ANCHORING DETAILS



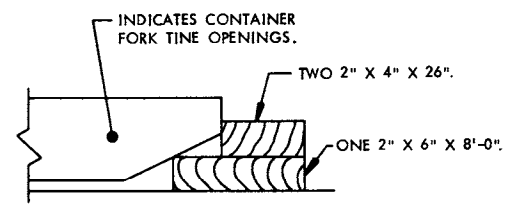
ANTI-CHAFING ASSEMBLY



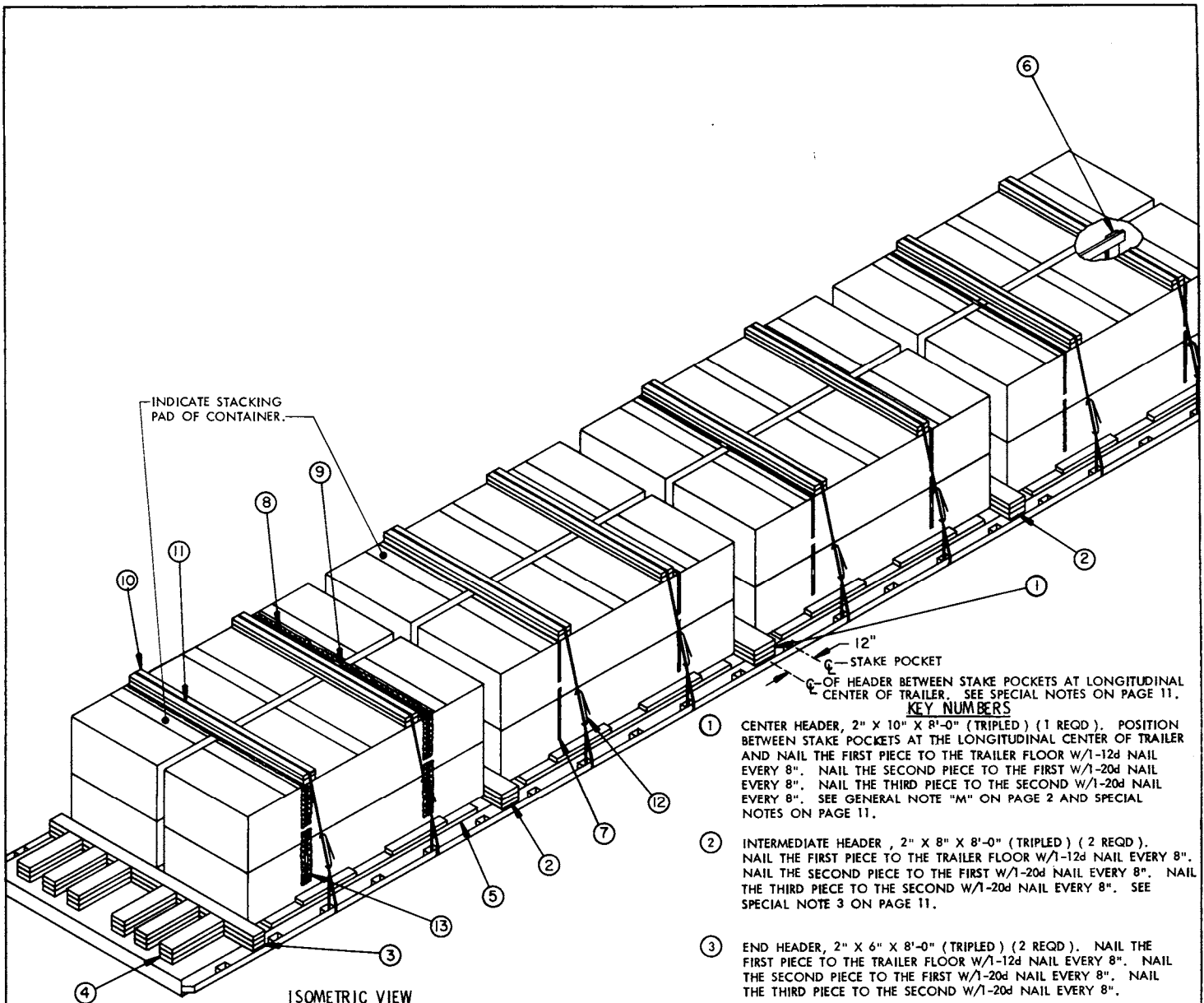
METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.

METHOD OF SECURING A STRAP JOINT WHEN USING A CRIMP-TYPE SEALER.

END-OVER-END LAP JOINT DETAILS



SIDE BLOCKING SET DETAIL



ISOMETRIC VIEW

(KEY NUMBERS CONTINUED)

- ⑪ CHAIN, BINDING 5/16" GRADE 70 BY A LENGTH TO SUIT (8 REQD). POSITION AS SHOWN ABOVE, FASTENING THE CHAIN GRABHOOKS TO THE TRAILER STAKE POCKETS. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIE DOWN" ON PAGE 11.
- ⑫ LOAD BINDER, 5/16" OVERCENTER TYPE (8 REQD, 1 PER CHAIN). WIRE TIE HANDLE TO PREVENT OPENING DURING TRANSPORT. FASTEN THE TENSIONED CHAIN, PIECE MARKED ⑪, TO THE STRAPPING BOARD, PIECE MARKED ⑩, W/1-16d NAIL AT EACH END, BENDING OVER TO FORM A LOOP AROUND THE CHAIN LINK. SEE "SPECIAL PROVISIONS FOR CHAIN TIE DOWN" ON PAGE 11.
- ⑬ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINERS.

- ① CENTER HEADER, 2" X 10" X 8'-0" (TRIPLED) (1 REQD). POSITION BETWEEN STAKE POCKETS AT THE LONGITUDINAL CENTER OF TRAILER AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8". SEE GENERAL NOTE "M" ON PAGE 2 AND SPECIAL NOTES ON PAGE 11.
- ② INTERMEDIATE HEADER, 2" X 8" X 8'-0" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8". SEE SPECIAL NOTE 3 ON PAGE 11.
- ③ END HEADER, 2" X 6" X 8'-0" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL THE SECOND PIECE TO THE FIRST W/1-20d NAIL EVERY 8". NAIL THE THIRD PIECE TO THE SECOND W/1-20d NAIL EVERY 8".
- ④ BACK-UP CLEAT, 2" X 6" X 24" (TRIPLED) (12 REQD). AS APPLICABLE, ALIGN WITH CONTAINER SKIDS AND AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/6-20d NAILS. NAIL THE THIRD PIECE TO THE SECOND W/6-20d NAILS. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑤ SIDE BLOCKING, ONE PIECE 2" X 6" X 8'-0" AND TWO PIECES 2" X 4" X 26" (8 SETS REQD). CENTER THE 2" X 6" PIECE ON LENGTH OF CONTAINER AND AGAINST FORK TINE OPENINGS AND NAIL TO THE TRAILER FLOOR W/1-12d NAIL EVERY 4". POSITION EACH 2" X 4" PIECE AGAINST A FORK TINE OPENING AND NAIL EACH PIECE TO THE 2" X 6" W/6-12d NAILS. SEE THE "SIDE-BLOCKING SET DETAIL" ON PAGE 9.
- ⑥ ANTI-CHAFING ASSEMBLY (4 REQD). CENTER ON THE LENGTH OF THE CONTAINER. SEE THE DETAIL ON PAGE 9.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (16 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (8 REQD). SEE THE "STACK STRAPPING DETAILS" ON PAGE 3.
- ⑨ SEAL FOR 1-1/4" STEEL STRAPPING (24 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑩ STRAPPING BOARD, 2" X 6" X LENGTH TO SPAN LATERALLY ADJACENT TOP LAYER CONTAINERS (DOUBLED) (8 REQD). LAMINATE W/1-10d NAIL EVERY 8". POSITION ADJACENT TO A CONTAINER STACKING PAD AS SHOWN AND IN ALIGNMENT WITH A STAKE POCKET OF THE TRAILER.

(CONTINUED AT LEFT)

SPECIAL NOTES:

1. A 16-CONTAINER LOAD IS SHOWN ON A 45'-0" LONG BY 8'-0" WIDE FLAT BED TRAILER HAVING 22 STAKE POCKETS ON EACH SIDE AND SPACED 24" ON CENTERS. SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 16-CONTAINER LOAD. SEE NOTE 3 BELOW.
2. THE PROCEDURES DEPICTED ON PAGE 10 AND 11 CAN BE USED FOR ANY LOADS SHOWN HEREIN. **NOTE:** THE CHAINS MUST BE ATTACHED TO THE TRAILER STAKE POCKETS AND VERTICALLY IN LINE WITH THE STRAPPING BOARDS. THE STRAPPING BOARDS CAN BE SHIFTED LEFT OR RIGHT BUT MUST NOT BE POSITIONED CLOSER THAN 6" FROM THE CONTAINER ENDS TO PROVIDE FOR VERTICAL ALIGNMENT. IT MAY BE NECESSARY IN SOME LOADS TO SHIFT THE CONTAINERS WITH DUNNAGE TO COMPLY WITH THIS LOADING REQUIREMENT. SEE GENERAL NOTES "Q" AND "R" ON PAGE 2.
3. NOTE THAT THE HEADERS, PIECES MARKED ①, ② AND ③, ARE OF DIFFERENT WIDTH MATERIAL. THESE DIFFERENT WIDTHS ARE NECESSARY SO AS TO PROPERLY LOCATE THE CONTAINERS IN RELATION TO THE STAKE POCKETS OF THE TRAILER TO ASSURE COMPLIANCE WITH THE REQUIREMENTS OF NOTE 2 ABOVE AS PERTAINS TO VERTICAL ALIGNMENT OF CHAINS STRAPPING BOARDS AND TRAILER STAKE POCKETS. THEREFORE, PRIOR TO PLACING CONTAINERS ON THE TRAILER FOR THE LOAD AS SHOWN ON PAGE 10, THE CENTER HEADER, PIECE MARKED ① MUST FIRST BE INSTALLED AND CENTERED BETWEEN THE STAKE POCKETS AT THE LONGITUDINAL CENTER OF THE TRAILER AS SHOWN.
4. IF DESIRED, AND THE CAPACITY OF THE MHE PERMITS, TWO CONTAINERS MAY BE STACKED AND UNITIZED WITH TWO STEEL STRAPS, AS SPECIFIED PRIOR TO PLACEMENT ON THE TRAILER.

SPECIAL PROVISIONS FOR CHAIN TIE DOWN

LADING MAY BE SECURED TO THE FLATBED TRAILER BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED STRAPPING, PROVIDED THE FOLLOWING CONDITIONS ARE MET AND THE PROCEDURES CONTAINED ON PAGES 10 AND 11 ARE FOLLOWED.

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY WILL BE USED. ALL CHAINS AND LOAD BINDERS SHALL CONFORM TO THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.
2. ALL CHAINS SHALL BE MARKED AS PRESCRIBED BY THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975. AT LEAST ONE LINK IN EVERY 36 LINKS SHALL CARRY THE MANUFACTURER'S PERMANENT AND DISTINCTIVE MARK IDENTIFYING THE GRADE OF CHAIN. CHAINS NOT MARKED IN THIS MANNER SHALL NOT BE USED. IN ADDITION TO THE GRADE MARKING, THE CHAIN MAY ALSO CARRY LETTER MARKINGS OR SYMBOLS IDENTIFYING THE CHAIN MANUFACTURER. THE PRESENCE OF THE MANUFACTURER'S IDENTIFICATION MARKING IS NOT MANDATORY.
3. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION. **CAUTION:** EXTREME CARE MUST BE EXERCISED WHEN TENSIONING CHAINS TO PREVENT DAMAGE OR PERMANENT DEFORMATION TO THE LADING.
4. CHAIN SIZES AND GRADES APPROVED FOR USE WITH FLATBED TRAILER LOADS ARE AS FOLLOWS:
 - A. 3/8", GRADE 43 HIGH-TEST CHAIN.
 - B. 5/16", GRADE 70 BINDING CHAIN.
 - C. 3/8", GRADE 70 BINDING CHAIN.
 - D. 5/16", GRADE 80 ALLOY STEEL CHAIN.
 - E. 3/8", GRADE 80 ALLOY STEEL CHAIN.
5. THE GRABHOOKS ON THE ENDS OF THE CHAIN MAY BE OF THE FOLLOWING TYPES WITH GRADE MARKINGS AS INDICATED.
 - A. CLEVIS GRABHOOKS, 3/8" SIZE, DO NOT REQUIRE GRADE MARKING. ALLOY GRABHOOKS, 5/16" SIZE, SHALL CARRY THE MANUFACTURER'S GRADE MARK OF 7, 70, OR 700. THE HOOKS SHALL BE USED ON THE APPROPRIATE SIZE CHAIN.
 - B. CLOSED EYE GRABHOOKS, 3/8" AND 5/16" SIZE, MAY BE USED ON THE APPROPRIATE SIZE CHAIN IF THEY ARE A PART OF A CHAIN ASSEMBLY WHICH WAS PROVIDED BY A CHAIN MANUFACTURER, AND THE CHAIN ASSEMBLY CARRIES THE CORRECT GRADE IDENTIFICATION MARKING AS PREVIOUSLY STATED. CLOSED EYE GRABHOOKS THAT FORM A PART OF THE CHAIN ASSEMBLY ARE EXEMPT FROM GRADE MARKINGS.
6. CONNECTING LINKS USED FOR CHAIN REPAIR MUST BE CORRECTLY MARKED AND BE EQUAL TO OR GREATER IN STRENGTH THAN THE CHAIN THEY ARE REPAIRING. CHAINS WITH UNMARKED CONNECTING LINKS SHALL NOT BE USED.
7. CHAIN AND FITTING OF A HIGHER GRADE MAY BE SUBSTITUTED FOR THE GRADES SPECIFIED IN NOTE 4 ABOVE.
8. LOAD BINDERS SHALL BE 5/16" TO 3/8" SIZE AND HAVE A MINIMUM BREAKING STRENGTH OF 16,200 POUNDS (WORKING LOAD LIMIT OF 5,400 POUNDS). OVERCENTER TYPE LOAD BINDERS SHALL BE SAFETY WIRED TO PREVENT ACCIDENTAL OPENING DURING TRANSPORT. LOAD BINDER SIZE SHALL BE COMPATIBLE WITH THE SIZE OF THE CHAIN BEING USED.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	53	18
1" X 6"	78	39
2" X 4"	35	24
2" X 6"	296	296
2" X 8"	48	64
2" X 10"	24	40
NAILS	NO. REQD	POUNDS
6d (2")	132	1
10d (3")	80	1-1/4
12d (3-1/4")	420	7
16d (3-1/2")	16	1/2
20d (4")	264	9-1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031" - 340' REQD - 49 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 24 REQD - 1 LB		
ANTI-CHAFING MATERIAL ----- AS REQD - NIL		
CHAIN, BINDING, 5/16" ----- 160' REQD - 192 LBS		
BINDER, LOAD ----- 8 REQD - 48 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-381/E CONTAINER		
W/BLU-107/B WEAPONS - 16	-----	32,800 LBS
DUNNAGE	-----	1,272 LBS
TOTAL WEIGHT		----- 34,072 LBS

