


LOADING AND BRACING (TL & LTL) ON FLAT BED TRAILERS OF AGM-45 ALL-UP-ROUND MISSILE PACKED IN CNU 449/E CONTAINERS

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

DO NOT SCALE

REVISIONS			TRG	TRM	TRB	TRH	TRG
REV							
DES							
DC							
REV							
DES							
DC							
REV							
DES							
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			APPROVED BY ORDER OF COMMANDER GENERAL, U.S. ARMY MATERIEL COMMAND (AMC) <i>John X. Syrod</i> U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL				
			U.S. ARMY MATERIEL COMMAND DECEMBER 1989				
			CLASS	DIVISION	DRAWING	FILE	
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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 OUTLOADING PROCEDURES CONTAINED HEREIN, ARE APPLICABLE TO AGM-45 MISSILES PACKED IN CNU-449/E METAL CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-449/E CONTAINER WITH CONTENTS.
- C. FOR DETAILS OF THE CNU-449/E CONTAINER, SEE AIR FORCE DRAWING NO. X879570 AND THE CONTAINER DETAIL ON PAGE 3.
- CONTAINER DIMENSIONS ----- 12'-1-1/2" LONG X 42-1/8" WIDE X 18-3/8" HIGH.
GROSS WEIGHT ----- 2,200 POUNDS (APPROX).
- D. THE LOADS AS SHOWN HEREIN ARE BASED ON 8'-0" WIDE BY 40'-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. **NOTICE:** 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.

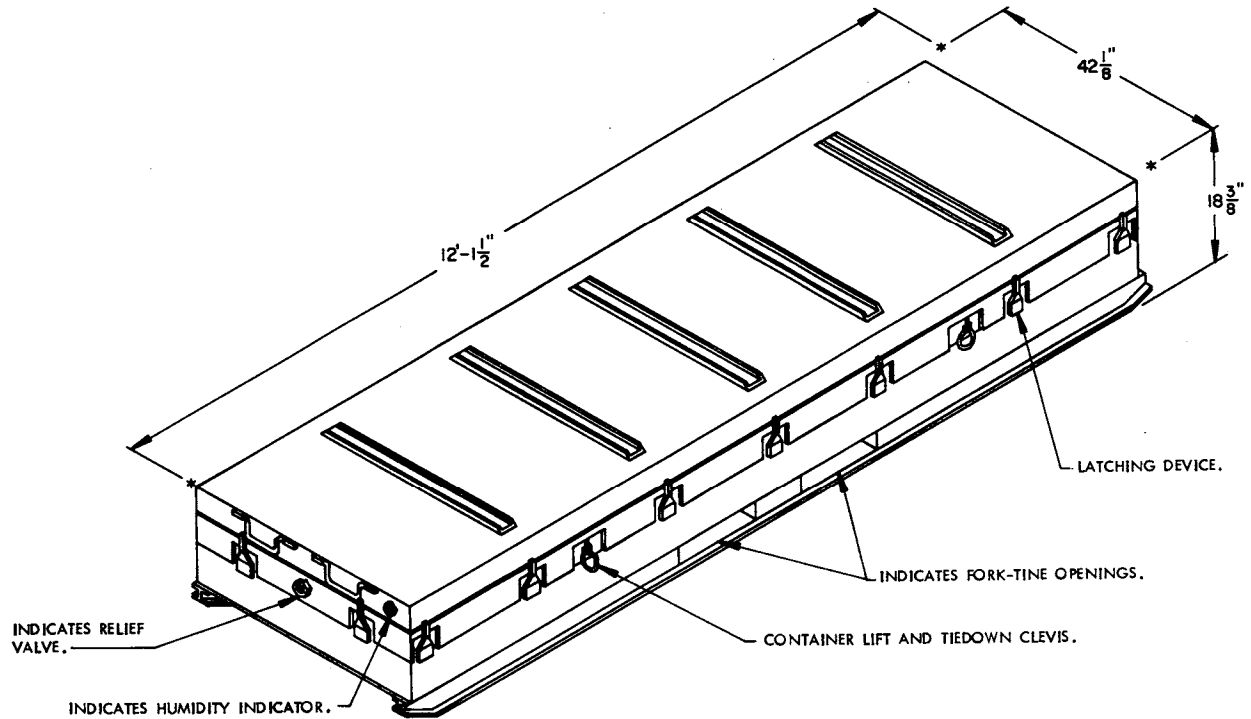
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MATERIAL SPECIFICATIONS

- 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 IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP** -----: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR IV, 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.

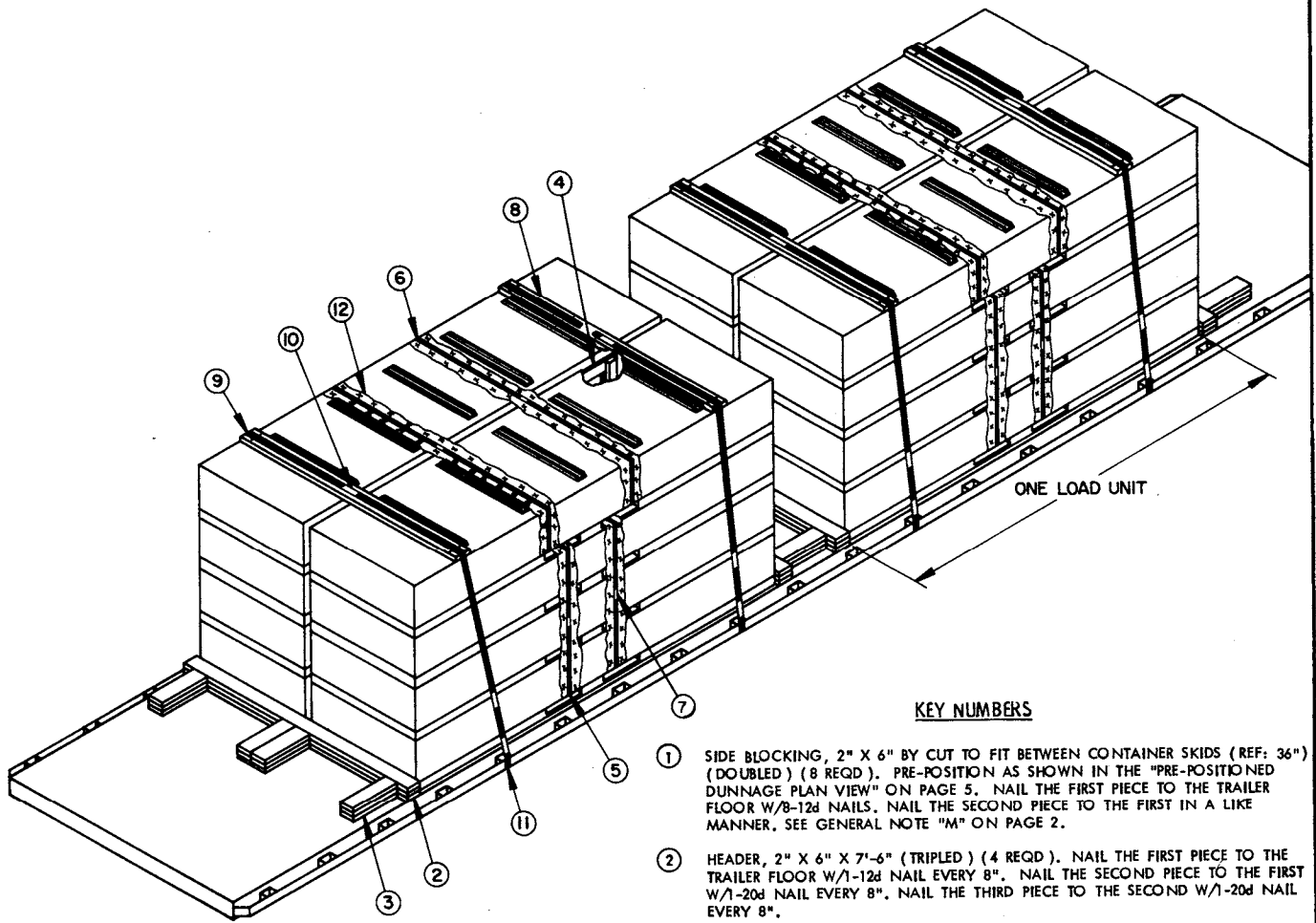
(GENERAL NOTES CONTINUED)

- 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 10.
- 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 TIEDOWN" ON PAGE 9 AND THE LOAD SHOWN ON PAGE 8 MUST BE APPLIED TO ENSURE ADEQUATE SECUREMENT OF THE LOAD PRIOR TO SHIPMENT.
- R. THE TRANSPORTING VEHICLE OPERATOR SHOULD BE INSTRUCTED TO PERIODICALLY INSPECT THE TIEDOWN CHAINS AND LOAD BINDERS DURING TRANSIT AND TIGHTEN IF NECESSARY.



CNU 449/E CONTAINER

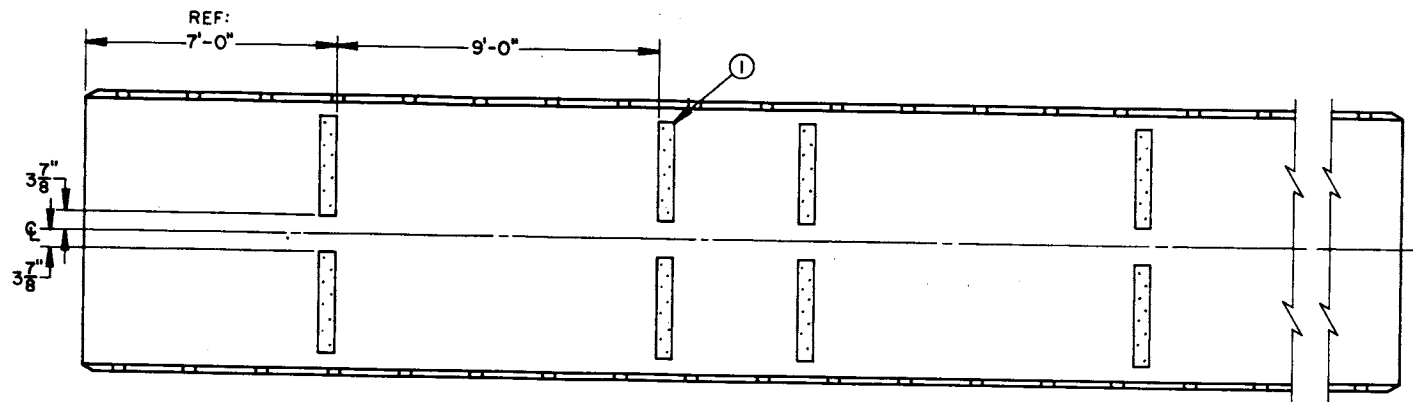
WEIGHT: 2,200 LBS (APPROX)
CUBE: 65.2 CU FT (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN CONTAINER SKIDS (REF: 36") (DOUBLED) (8 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/8-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "M" ON PAGE 2.
- ② HEADER, 2" X 6" X 7'-6" (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".
- ③ BACK-UP CLEAT, 2" X 6" X 18" (TRIPLED) (12 REQD), POSITION TO ALIGN WITH CONTAINER SKIDS. 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.
- ④ ANTI-CHAFING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 10.
- ⑤ VERTICAL UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-0" LONG STEEL STRAPPING (8 REQD, 2 PER STACK). INSTALL THROUGH FORK TINE OPENINGS OF UPPER AND LOWER CONTAINERS. STRAPS SHOULD BE POSITIONED AS FAR APART AS THE FORK TINE OPENINGS PERMIT. SEE SPECIAL NOTE 2 ON PAGE 5.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 19'-0" LONG STEEL STRAPPING (4 REQD, 2 PER LOAD UNIT). INSTALL THROUGH FORK TINE OPENINGS OF TWO LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER, AS SHOWN. STRAPS SHOULD BE POSITIONED AS FAR APART AS THE FORK TINE OPENINGS PERMIT.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (12 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "N" ON PAGE 2 AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 10.
- ⑧ STRAPPING BOARD, 2" X 6" X 7'-2" (4 REQD).
- ⑨ HOLD-DOWN STRAP, 2" X .044" OR .050" X 28'-0" LONG STEEL STRAPPING (4 REQD). INSTALL EACH STRAP FROM TWO 14'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑧ W/2 STAPLES. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑩ SEAL FOR 2" STRAPPING (20 REQD, 5 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES, 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 10.
- ⑪ PAD, 2" X .044" OR .050" X 18" LONG STEEL STRAPPING (8 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑨. 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 10.
- ⑫ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER, EXCEPT FORK TINE OPENINGS.



PRE-POSITIONED DUNNAGE PLAN VIEW

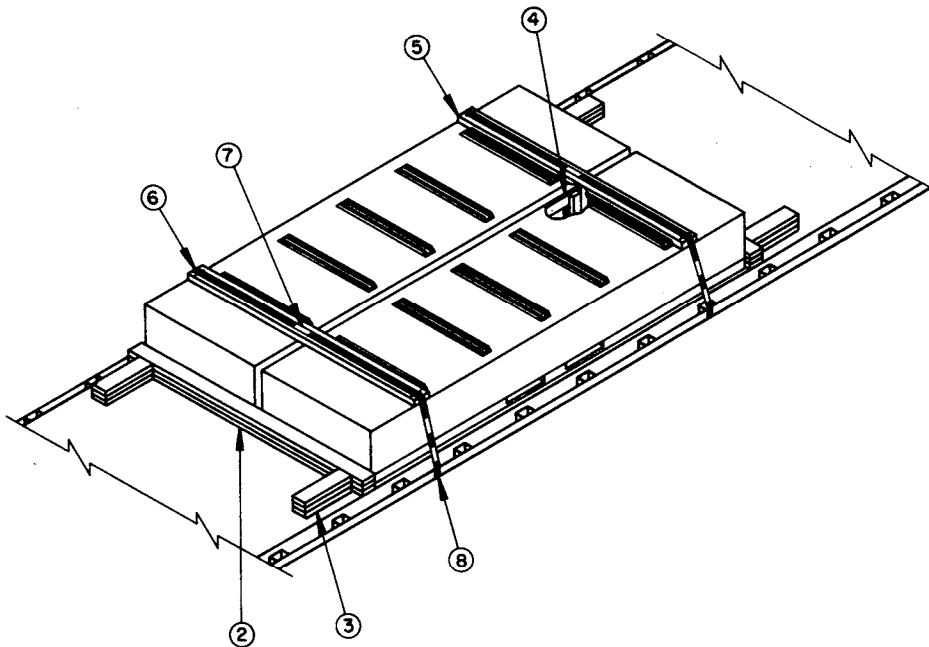
SPECIAL NOTES:

1. A 16-CONTAINER LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLAT BED TRAILER. SHORTER AND/OR LONGER TRAILERS MAY BE USED FOR SHIPMENT OF A 16-CONTAINER LOAD.
2. IF DESIRED, AND THE CAPACITY OF THE FORKLIFT TRUCK PERMITS, TWO, THREE, OR FOUR CONTAINERS MAY BE STACKED AND UNITIZED WITH STEEL STRAPS, AS SPECIFIED PRIOR TO PLACEMENT ON THE TRAILER.
3. THE DEPICTED PROCEDURES ALSO APPLY TO TWO AND THREE LAYER LOADS. THE HOLD-DOWN STRAPS WILL BE 25' FOR THREE LAYER (2 WIDE) LOADS AND 22' FOR TWO LAYER (2 WIDE) LOADS.
4. **CAUTION:** THE BUNDLING STRAPS, PIECES MARKED ④, MUST BE INSTALLED SO AS NOT TO HAVE EDGE-TO-EDGE CONTACT WITH THE VERTICAL UNITIZING STRAPS, PIECES MARKED ⑤.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	36	12
1" X 6"	32	16
2" X 4"	35	23
2" X 6"	218	218
NAILS	NO. REQD	POUNDS
6d (2")	102	3/4
12d (3-1/4")	236	4
20d (4")	216	7-3/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" -- 220'	REQD	31 LBS
STEEL STRAPPING, 2" X .044" OR .050" ----- 124'	REQD	41 LBS
SEAL FOR 1-1/4" STRAPPING ----- 12	REQD	1/2 LB
SEAL FOR 2" STRAPPING ----- 20	REQD	5 LBS
STAPLE FOR 2" STRAPPING ----- 8	REQD	NIL
ANTI-CHAFING MATERIAL ----- AS	REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU 449/E CONTAINER -----	16	35,200 LBS
DUNNAGE -----		628 LBS
TOTAL WEIGHT -----		35,828 LBS



ISOMETRIC VIEW

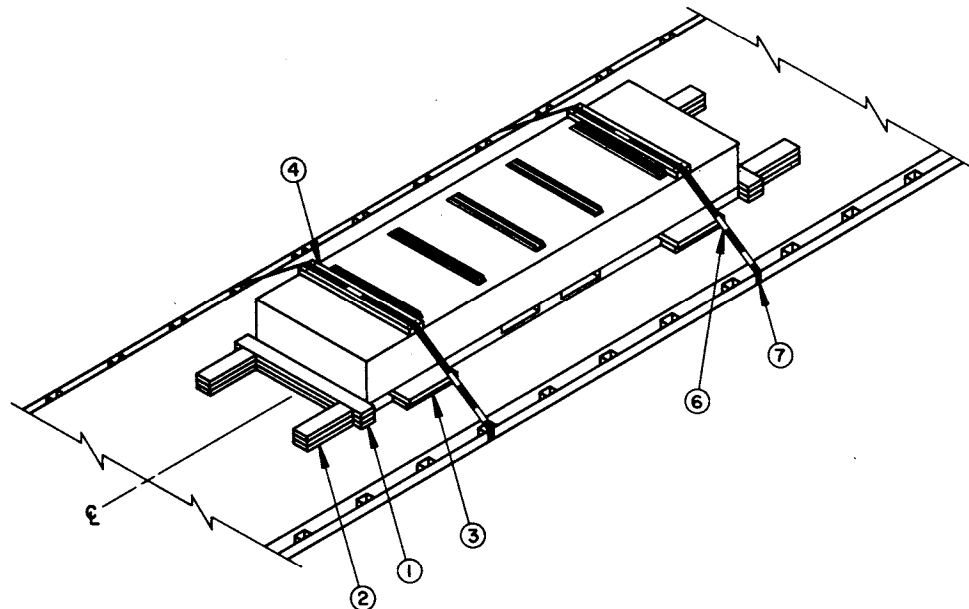
SPECIAL NOTES:

1. THE TYPICAL LTL ABOVE DEPICTS A 2-CONTAINER LOAD ON AN 8'-0" WIDE FLAT BED TRAILER HAVING A NAILABLE FLOOR.
2. TWO BACK-UP CLEATS, SHOWN AS PIECES MARKED ③, ARE ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 10,000 POUNDS.

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN CONTAINER SKIDS (REF: 36") (DOUBLED) (4 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/8-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "M" ON PAGE 2.
- ② HEADER, 2" X 6" X 7'-6" (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".
- ③ BACK-UP CLEAT, 2" X 6" X 18" (TRIPLED) (4 REQD). POSITION TO ALIGN WITH CONTAINER SKIDS. 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.
- ④ ANTI-CHAFING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 10.
- ⑤ STRAPPING BOARD, 2" X 6" X 7'-2" (2 REQD).
- ⑥ HOLD-DOWN STRAP, 2" X .044" OR .050" X 20'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO 10'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑤, W/2 STAPLES. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑦ SEAL FOR 2" STEEL STRAPPING (10 REQD, 5 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑧. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 10.
- ⑧ PAD, 2" X .044" OR .050" X 18" LONG STEEL STRAPPING (4 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑥. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD-DOWN STRAP. SEE "HOLD DOWN STRAP ANCHORING DETAILS" ON PAGE 10.

TYPICAL LTL (2-CONTAINER LOAD)



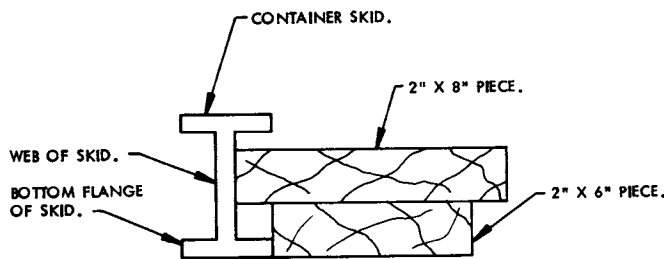
ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

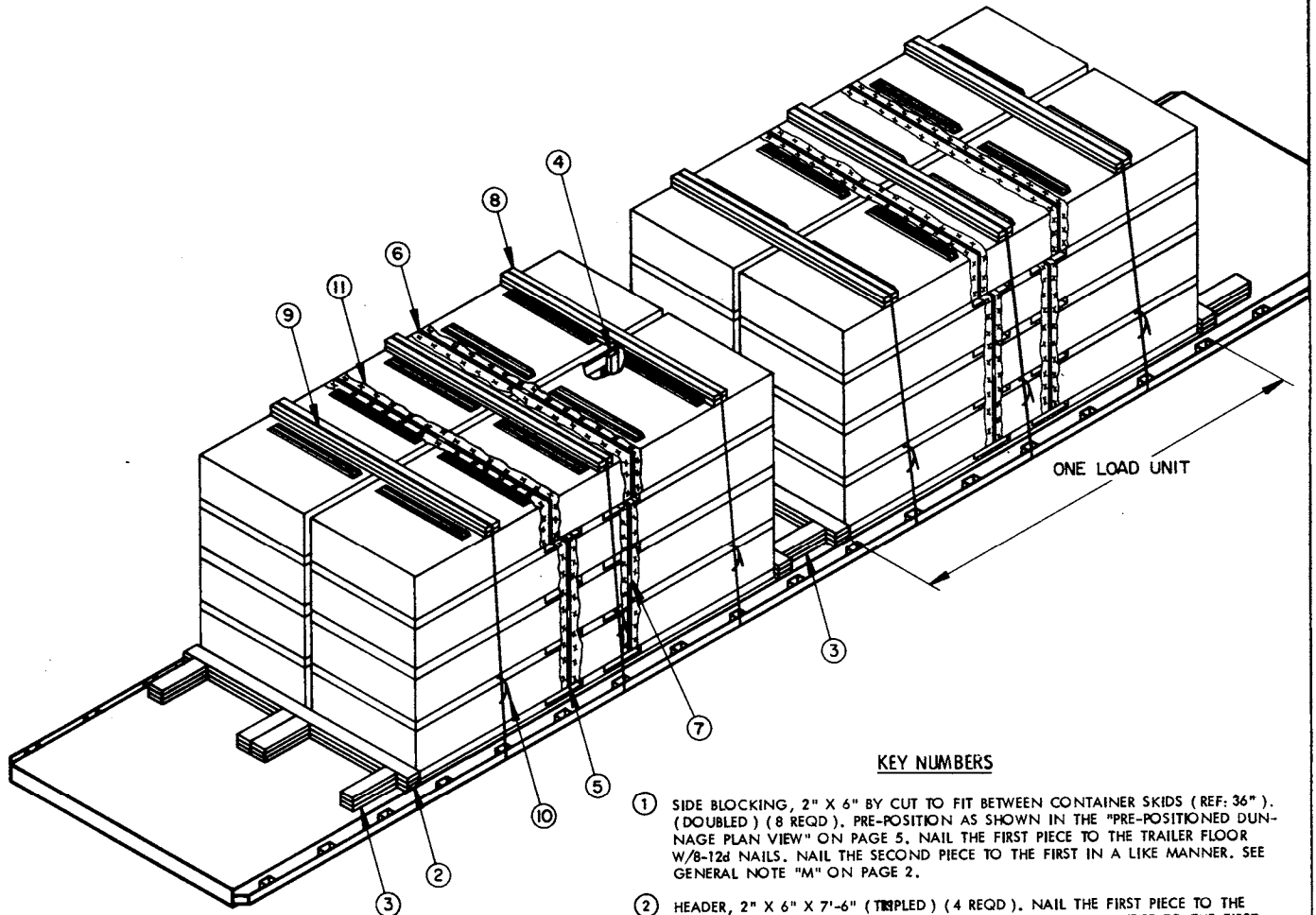
1. THE TYPICAL LTL ABOVE DEPICTS A 1-CONTAINER LOAD ON AN 8'-0" WIDE FLAT BED TRAILER HAVING A NAILABLE FLOOR.
2. TWO BACK-UP CLEATS, SHOWN AS PIECES MARKED ②, ARE ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 10,000 POUNDS.

- ① HEADER, 2" X 6" X 48" (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 BACK-UP CLEAT, 2" X 6" X 18" (TRIPLED) (4 REQD). POSITION TO ALIGN WITH CONTAINER SKIDS. 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.
- ③ SIDE BLOCKING, 2" X 6" X 18" AND 2" X 8" X 18" (4 REQD). POSITION THE 2" X 6" PIECE AGAINST THE BOTTOM FLANGE OF THE CONTAINER SKID AND NAIL TO THE TRAILER FLOOR W/5-12d NAILS. POSITION THE 2" X 8" PIECE ON TOP OF THE 2" X 6" PIECE AND AGAINST THE WEB OF THE CONTAINER SKID. NAIL TO THE 2" X 6" W/5-12d NAILS. SEE THE "SIDE BLOCKING DETAIL" ON THIS PAGE.
- ④ STRAPPING BOARD, 2" X 6" X 42" (2 REQD).
- ⑤ HOLD-DOWN STRAP, 2" X .044" OR .050" X 14'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO 7'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ④, W/2 STAPLES. SEE GENERAL NOTE "N" ON PAGE 2.
- ⑥ SEAL FOR 2" STRAPPING (10 REQD, 5 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑦. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 10.
- ⑦ PAD, 2" X .044" OR .050" X 18" LONG STEEL STRAPPING (4 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑤. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD-DOWN STRAP. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" ON PAGE 10.



SIDE BLOCKING DETAIL

TYPICAL LTL (1-CONTAINER LOAD)



ISOMETRIC VIEW

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN CONTAINER SKIDS (REF: 36") . (DOUBLED) (8 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/8-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "M" ON PAGE 2.
- ② HEADER, 2" X 6" X 7'-6" (TRIPLED) (4 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-20d 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) (12 REQD). POSITION TO ALIGN WITH CONTAINER SKIDS. 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.
- ④ ANTI-CHAFING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 10.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-0" LONG STEEL STRAPPING (8 REQD, 2 PER STACK). INSTALL THROUGH FORK TINE OPENINGS OF UPPER AND LOWER CONTAINERS. STRAPS SHOULD BE POSITIONED AS FAR APART AS THE FORK TINE OPENINGS PERMIT. SEE SPECIAL NOTE 3 ON PAGE 9.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 19'-0" LONG STEEL STRAPPING (4 REQD, 2 PER LOAD UNIT). INSTALL TO ENCIRCLE, THRU FORK TINE OPENINGS, TWO LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER, AS SHOWN. STRAPS SHOULD BE POSITIONED AS FAR APART AS THE FORK TINE OPENINGS PERMIT.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (12 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "N" ON PAGE 2 AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 10.
- ⑧ STRAPPING BOARD, 2" X 6" X 7'-2" (DOUBLED) (6 REQD). LAMINATE W/1-10d NAIL EVERY 8".
- ⑨ CHAIN, BINDING, 5/16" GRADE 70 BY A LENGTH TO SUIT (6 REQD). POSITION AS SHOWN ABOVE, FASTENING THE CHAIN GRABHOOKS TO THE TRAILER STAKE POCKETS. SEE "SPECIAL PROVISIONS FOR CHAIN TIEDOWNS" ON PAGE 9.
- ⑩ LOAD BINDER, 5/16", OVERCENTER TYPE (6 REQD, 1 PER CHAIN). WIRE THE HANDLE TO PREVENT OPENING DURING TRANSPORT. FASTEN THE TENSIONED CHAIN, PIECE MARKED ⑨, TO THE STRAPPING BOARD, PIECE MARKED ⑧, W/1-16d NAIL AT EACH END, BENDING OVER TO FORM A LOOP AROUND THE CHAIN LINK. SEE "SPECIAL PROVISIONS FOR CHAIN TIEDOWNS" ON PAGE 9.
- ⑪ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER, EXCEPT FORK TINE OPENINGS.

SPECIAL NOTES:

1. A 16-CONTAINER LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLAT BED TRAILER. SHORTER AND/OR LONGER TRAILERS MAY BE USED FOR SHIPMENT OF A 16-CONTAINER LOAD.
2. THE PROCEDURES DEPICTED ON PAGES 8 AND 9 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. IF DESIRED, AND THE CAPACITY OF THE FORKLIFT TRUCK PERMITS, TWO, THREE, OR FOUR CONTAINERS MAY BE STACKED AND UNITIZED WITH STEEL STRAPS, AS SPECIFIED, PRIOR TO PLACEMENT ON THE TRAILER.
4. **CAUTION:** THE BUNDLING STRAPS, PIECES MARKED ④, MUST BE INSTALLED SO AS NOT TO HAVE EDGE-TO-EDGE CONTACT WITH THE VERTICAL UNITIZING STRAPS, PIECES MARKED ⑤.

SPECIAL PROVISIONS FOR CHAIN TIEDOWN

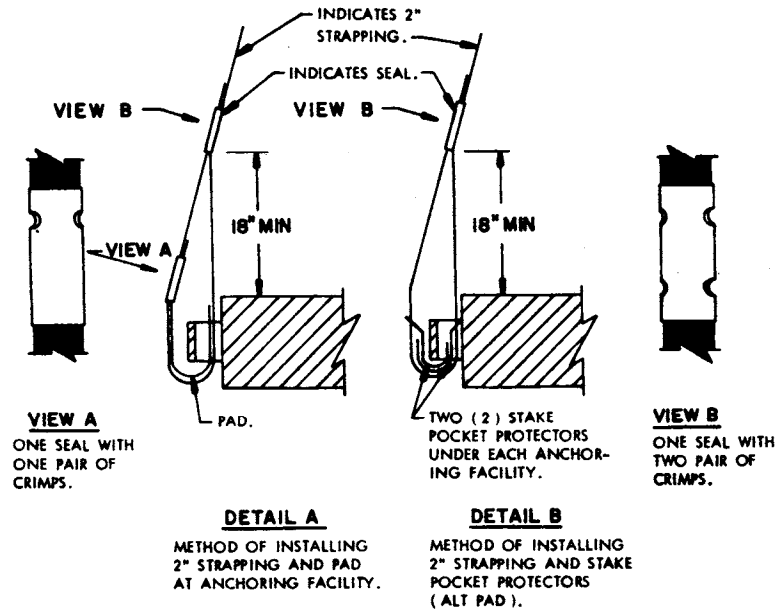
LADING MAY BE SECURED TO THE FLATBED TRAILER BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED STRAPPING, PROVIDED THE FOLLOWING CONDITIONS ARE MET AND THE PROCEDURES CONTAINED ON PAGES 8 AND 9 ARE FOLLOWED.

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.

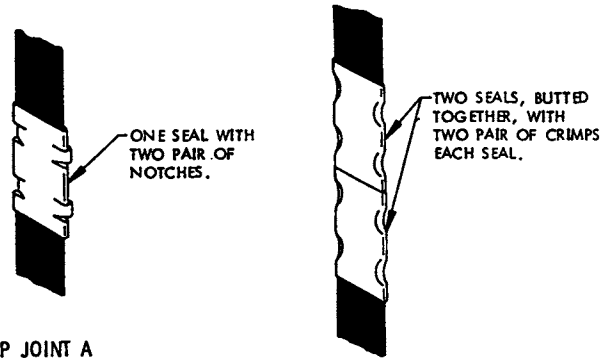
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	36	12
1" X 6"	32	16
2" X 4"	35	23
2" X 6"	275	275
NAILS	NO. REQD	POUNDS
6d (2")	102	3/4
10d (3")	66	1
12d (3-1/4")	236	4
20d (4")	216	7-3/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" -220'	REQD	31 LBS
SEAL FOR 1-1/4" STRAPPING	12 REQD	1/2 LB
ANTI-CHAFING MATERIAL	AS REQD	NIL
CHAIN, BINDING, 5/16"	132' REQD	159 LBS
BINDER, LOAD	6 REQD	36 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU 449/E CONTAINER	- 16	35,200 LBS
DUNNAGE		892 LBS
TOTAL WEIGHT		36,092 LBS



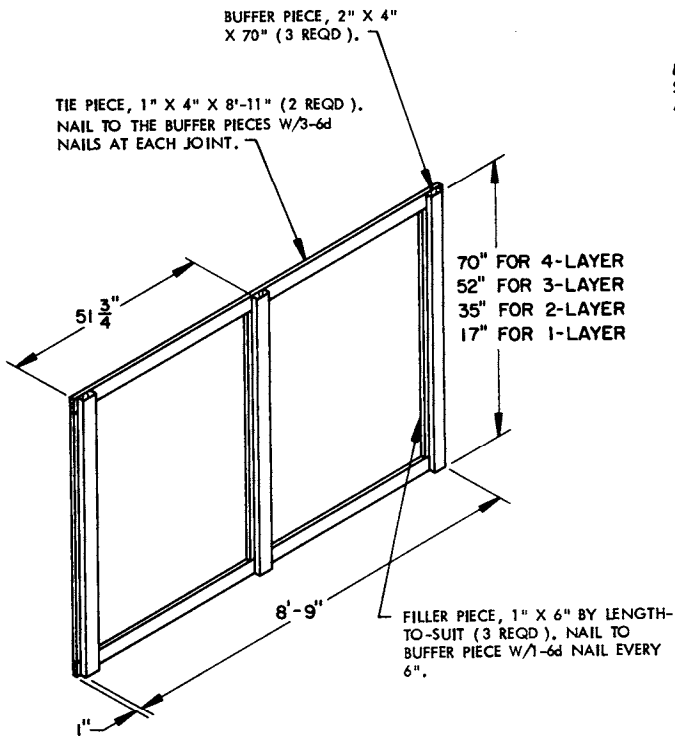
HOLD-DOWN STRAP ANCHORING DETAILS



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



ANTI-CHAFING ASSEMBLY