

HAWK

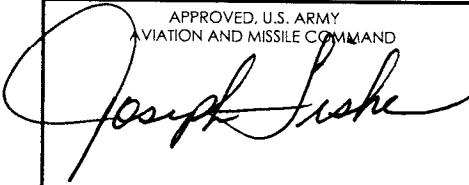
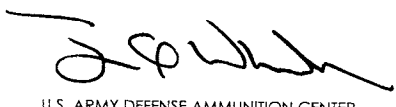

LOADING AND BRACING (TL & LTL) ON FLATBED TRAILER* OF COMPLETE ROUND IN M430 OR M611 CONTAINER

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*CAUTION: THE PROCEDURES HEREIN ARE ONLY APPLICABLE TO HIGHWAY MOVEMENTS;
NOT FOR TRAILER-ON-FLATCAR MOVEMENTS.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND 	CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL/DET THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 16.				
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  U.S. ARMY DEFENSE AMMUNITION CENTER	DO NOT SCALE		AUGUST 1959		
	ENGINEER OR TECHNICIAN	BASIC REV.	DONALD WILLIS		
			KEVIN SNODGRASS		
	TRANSPORTATION ENGINEERING DIVISION		 TESTED		
VALIDATION ENGINEERING DIVISION		CLASS	DIVISION	DRAWING	FILE
ENGINEERING DIRECTORATE		19	48	5581	GM11HA5

PROJECT GM 244-59

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 THE HAWK COMPLETE ROUND WHEN PACKED IN THE M430 OR M611 CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MISSILE COMPONENTS.
- C. FOR DETAIL OF M430 CONTAINER, SEE DRAWING NO. 9073970. FOR DETAIL OF M611 CONTAINER, SEE DRAWING NO. 8035841.

CONTAINER DIMENSIONS-----216" LONG BY 28-3/4" OR 29-7/8" WIDE BY 41-1/4" HIGH.
GROSS WEIGHT (M430 CNTR)--- 3,225 POUNDS (APPROX)
GROSS WEIGHT (M611 CNTR)--- 3,345 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 OF OTHER LENGTHS AND WIDTHS MAY BE USED. 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. CAUTION: LOADING OF THE DEPICTED ITEM IS RESTRICTED TO NOT MORE THAN TWO LAYERS DUE TO THE OVERALL LOAD HEIGHT.
- 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. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS CONTAINED HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING AND STAYING OF THE DESIGNATED ITEMS.
- 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. IF THE CAPACITY OF THE MATERIALS HANDLING EQUIPMENT PERMITS, IT IS RECOMMENDED THAT CONTAINERS BE UNITIZED PRIOR TO PLACEMENT ABOARD THE TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : ASTM F1667; COMMON STEEL (NLCMS OR NLCMS).
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP - - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
- STRAP, WEB, COMMERCIAL - - - - : WEB SLING AND TIEDOWN ASSOCIATION RECOMMENDED STANDARD SPECIFICATION FOR SYNTHETIC WEB TIEDOWN REVISED 1998.
- WIRE - - - - - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.
- STAKE POCKET PROCTER - - - - : COMMERCIAL GRADE.
- ANTI-CHAFING MATERIAL - - - - : MIL-B-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.
- CHAIN - - - - - : NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOV 1999.
- LOAD BINDER - - - - : FED SPEC GGG-B-325.

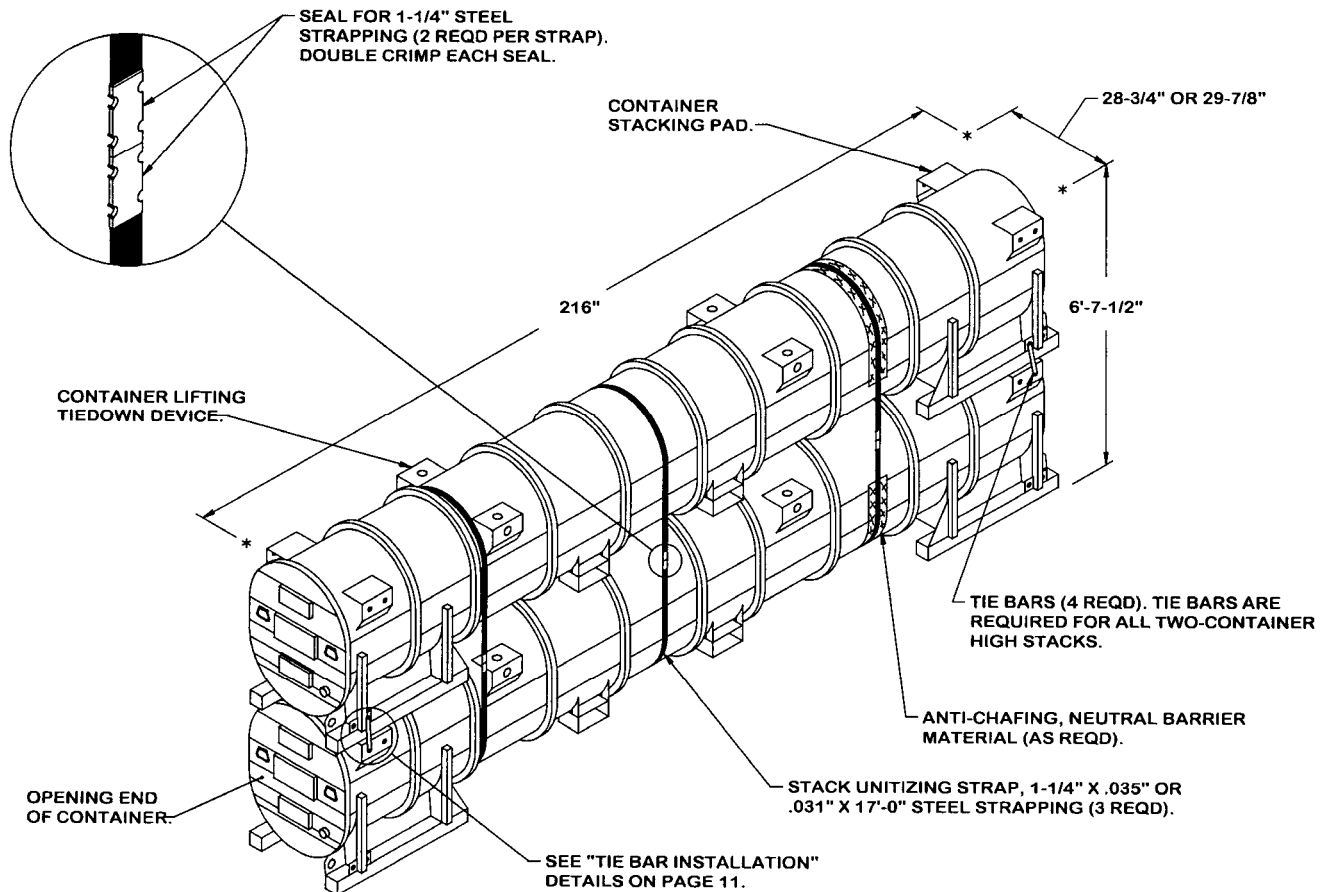
(GENERAL NOTES CONTINUED)

- K. 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.
- L. CAUTION: REGARDLESS OF THE TYPE OF TRAILER INVOLVED, ONLY THOSE TRAILERS HAVING TIE-DOWN ANCHORING FACILITIES WHICH PROVIDE HOLDING STRENGTH EQUAL TO OR GREATER THAN THE STRENGTH OF THE HOLD-DOWN STRAPS OR THE CHAINS, AND WHICH ALIGN NEAR THE INDICATED LOCATIONS FOR THE HOLD-DOWN STRAPS OR CHAINS, SHOULD BE USED. IF TRAILER ANCHOR DEVICES ARE NOT EQUAL TO OR GREATER THAN THE STRENGTH OF THE HOLD-DOWN STRAPS OR CHAINS, THE STRAPS MAY BE APPLIED TO FORM A COMPLETE LOOP WHICH ENCOMPASSES BOTH THE LADING AND THE TRAILER FRAME AND/OR BED. THE FIFTH WHEEL PLATE, TRAILER WHEELS, CONTROLS, AND OTHER ACCESSORIES SHOULD BE AVOIDED, AND EDGE PROTECTORS SHOULD BE USED ON ALL SHARP EDGES. THE CHAINS WILL NOT BE APPLIED TO FORM A COMPLETE LOOP WHICH ENCOMPASSES BOTH THE LADING AND THE TRAILER FRAME AND/OR BED.
- M. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM 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 PAIRS 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 13.
- N. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- O. NOTICE: 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 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.
- P. THE LOADS ARE SHOWN WITH THE CENTER STACKS OF CONTAINERS FACING WITH THE OPENING END FACING IN THE FORWARD DIRECTION AND THE OUTER STACKS WITH THE OPENING END FACING IN THE REAR DIRECTION. THIS WILL FACILITATE THE REMOVAL OF THE HANDLING SLING FROM THE CONTAINERS DURING LOADING OPERATIONS.
- Q. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND TO THE SPECIAL NOTES SECTIONS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.
- R. 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 0.454 KG.

REVISIONS

- REVISION NO. 1, DATED JULY 1967, CONSISTS OF:
 1. ADDITION OF "TIE BAR INSTALLATION" DETAILS.
 2. ADDITION OF "ANTI-CHAFING ASSEMBLY PLACEMENT" DETAIL.
 3. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
- REVISION NO. 2, DATED DECEMBER 1974, CONSISTS OF:
 1. ADDITION OF PROVISIONS FOR SHIPPING THE M611 CONTAINER.
 2. ADDITION OF "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
 3. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
 4. CHANGING DRAWING FILE NO. FROM GM11A71 TO GM11HA5.
- REVISION NO. 3, DATED APRIL 1979, CONSISTS OF:
 1. CHANGING WIDTH OF M611 CONTAINER FROM 30" TO 28-3/4".
 2. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
- REVISION NO. 4, DATED OCTOBER 1993, CONSISTS OF:
 1. ADDING CHAIN TIEDOWN METHOD.
 2. REMOVING BACK-UP CLEATS FROM DEPICTED LOADS.
 3. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
- REVISION NO. 5, DATED APRIL 2003, CONSISTS OF:

INCORPORATION OF MISSILE INFORMATION NOTICE (MIN) 02-11 TO ENHANCE AND REFINE LOADING AND TRANSPORTATION PROCEDURES TO INCREASE LOAD STABILITY AND RELIABILITY.



TYPICAL STACK DETAIL
(THE M430 CONTAINER IS SHOWN)

UNITIZATION AND HANDLING PROCEDURAL GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING.
 - A. THE UPPER CONTAINER SHOULD BE PLACED AS CLOSELY AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE LOWER CONTAINER.
 - B. POSITION THE OPENING END OF THE UPPER CONTAINER ABOVE THE OPENING END OF THE LOWER CONTAINER.
 - C. THE CONTAINER SKIDS OF THE UPPER CONTAINER MUST BE FULLY SEATED UPON THE STACKING PADS OF THE LOWER CONTAINER.
2. APPLICATION OF CONTAINER TIE BARS.
 - A. TIE BARS ARE LOCATED ON THE SIDE OF THE CONTAINER.
 - B. INSTALL FOUR TIE BARS, TWO ON EACH SIDE OF A TWO-CONTAINER HIGH STACK.
3. INSTALLATION OF 1-1/4" UNITIZING STEEL STRAPPING.
 - A. EACH OF THE THREE UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING SO THAT IT LAYS FLAT AND STRAIGHT WITH THE CONTOUR OF THE CONTAINERS: I.E. VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE STACK.
 - B. PLACE ANTI-CHAFING NEUTRAL BARRIER MATERIAL UNDER THE STRAPPING AT ALL POINTS OF CONTACT WITH CONTAINER AND SECURE TO PREVENT DISLODGEEMENT DURING AND AFTER STRAP APPLICATION. STRIPS OF ANTI-CHAFING MATERIAL MAY BE TAPED OR STRING-TIED TO THE CONTAINER OR STRAPPING, OR IT CAN BE FORMED INTO STRAP ENCIRCLING TUBES BY WINDING THE MATERIAL AROUND THE STRAPPING TO FORM A SELF-HOLDING UNIT.

(CONTINUED AT RIGHT)

(UNITIZATION AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

- C. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE CRIMPED STRAP SEALS AS SHOWN. SEE GENERAL NOTE "M" ON PAGE 2. THE LAP 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.

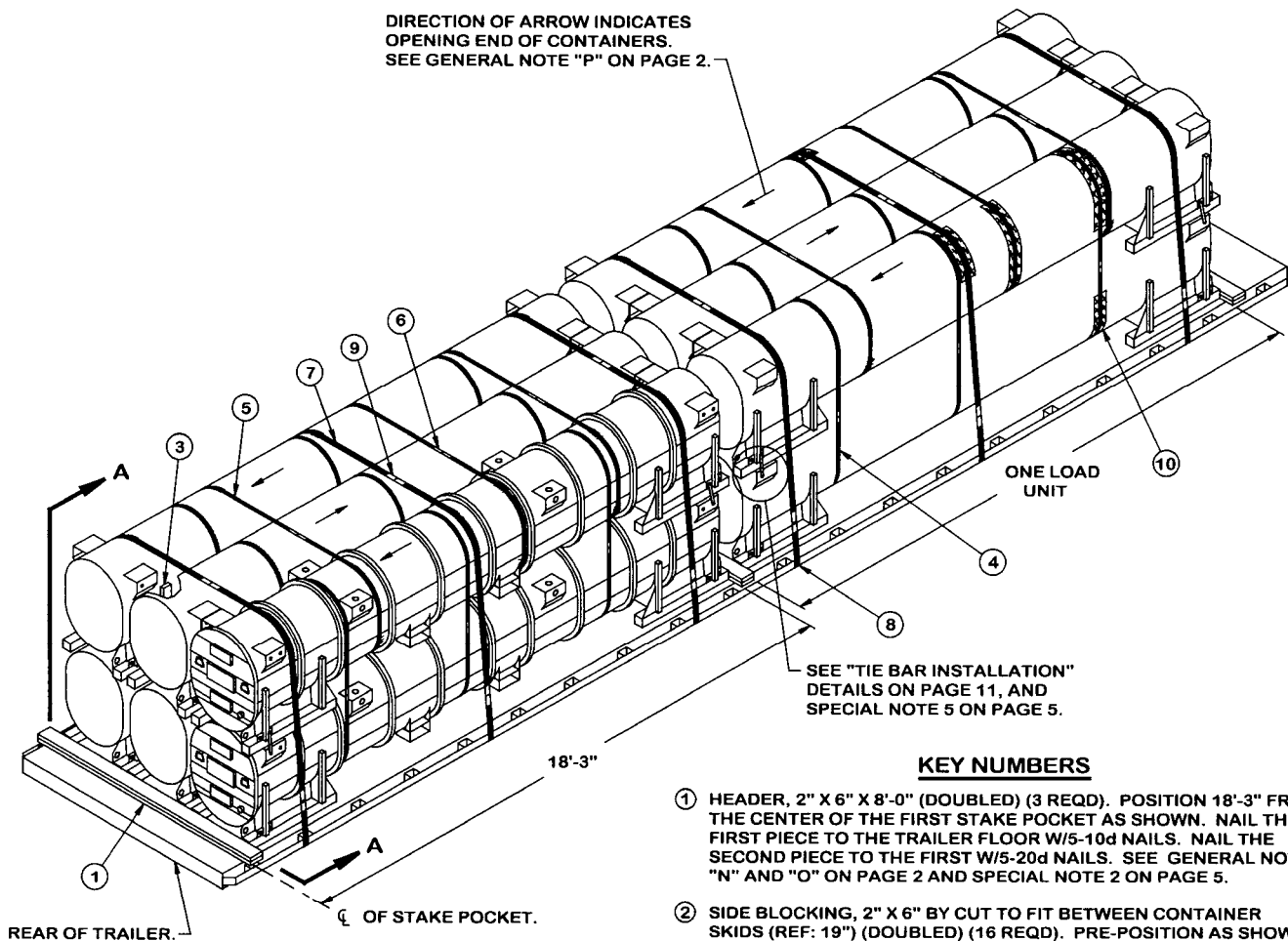
4. CONTAINER OR CONTAINER STACK HANDLING.

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.

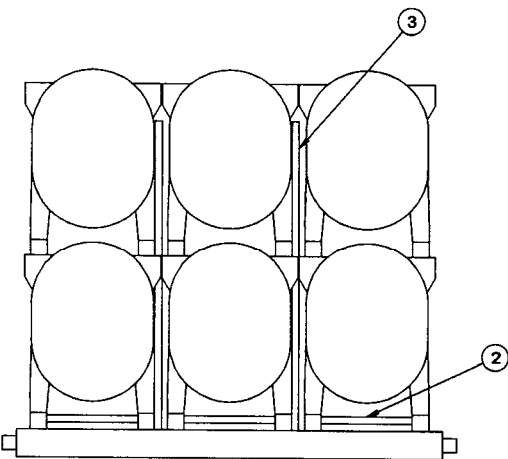
(2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

- A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.
- B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING TRAILER LOADING, A TWO-HIGH CONTAINER STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORK RECEPTACLES OF THE UPPER CONTAINER.
- C. IF A ONE-HIGH OR TWO-HIGH CONTAINER STACK IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING DEVICES OF THE TOP CONTAINER.

DIRECTION OF ARROW INDICATES
OPENING END OF CONTAINERS.
SEE GENERAL NOTE "P" ON PAGE 2.



ISOMETRIC VIEW



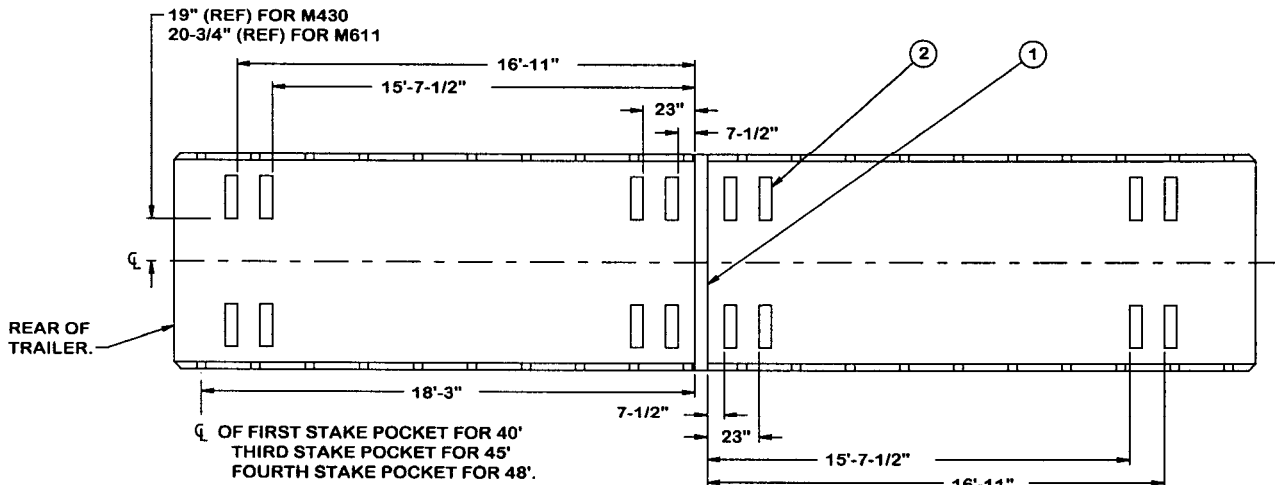
SECTION A-A

STRAPPING OMITTED FOR CLARITY.

SEE "TIE BAR INSTALLATION"
DETAILS ON PAGE 11, AND
SPECIAL NOTE 5 ON PAGE 5.

KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-0" (DOUBLED) (3 REQD). POSITION 18'-3" FROM THE CENTER OF THE FIRST STAKE POCKET AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-20d NAILS. SEE GENERAL NOTES "N" AND "O" ON PAGE 2 AND SPECIAL NOTE 2 ON PAGE 5.
- ② SIDE BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN CONTAINER SKIDS (REF: 19") (DOUBLED) (16 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ ANTI-CHAFING ASSEMBLY (8 REQD). SEE THE DETAIL ON PAGE 15. SEE THE "ANTI-CHAFING ASSEMBLY PLACEMENT" DETAIL ON PAGE 15 FOR POSITIONING.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-0" LONG STEEL STRAPPING (18 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND SPECIAL NOTE 3 ON PAGE 5.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENCIRCLE THE LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER, AS SHOWN. SEE SPECIAL NOTE 4 ON PAGE 5.
- ⑥ SEAL FOR 1-1/4" STEEL STRAPPING (48 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑦ HOLD-DOWN STRAP, 2" X .050" OR .044" X 30'-0" LONG STEEL STRAPPING (6 REQD). INSTALL EACH STRAP FROM TWO 15'-0" LONG PIECES.
- ⑧ PAD, 2" X .050" OR .044" X 18" LONG STEEL STRAPPING (12 REQD). POSITION UNDER STAKE POCKET AND SEAL TO HOLD-DOWN STRAP MARKED ⑦. SEE "DETAIL A" ON PAGE 16. ALT: STAKE POCKET PROTECTOR (24 REQD). USE TWO UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 16.
- ⑨ SEAL FOR 2" STEEL STRAPPING (36 REQD, 6 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑧.
- ⑩ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINERS.



PRE-POSITIONED DUNNAGE PLAN VIEW

SPECIAL NOTES:

1. A 12-UNIT LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER. LONGER AND/OR WIDER TRAILERS MAY BE USED. LOADS MUST BE CENTERED, SIDE TO SIDE.
2. FOR THE DEPICTED LOAD ON A 45'-0" LONG TRAILER, LOCATE THE CENTER HEADER 18'-3" FROM THE CENTER OF THE THIRD STAKE POCKET FROM THE REAR OF THE TRAILER. IF A 48'-0" LONG TRAILER IS FURNISHED FOR LOADING, LOCATE THE CENTER HEADER 18'-3" FROM THE CENTER OF THE FOURTH STAKE POCKET FROM THE REAR OF THE TRAILER. THESE POSITIONS FOR THE LOADS SHOULD PROVIDE PROPER WEIGHT DISTRIBUTION ON BOTH THE DRIVE AXLES AND THE TRAILER TANDEMS. THE LOCATIONS MAY BE ADJUSTED AS NECESSARY TO IMPROVE WEIGHT DISTRIBUTION.
3. THE STACK UNITIZING STRAPS, THE BUNDLING STRAPS, AND THE HOLD-DOWN STRAPS, PIECES MARKED ④, ⑤, AND ⑦, MUST NOT BE INSTALLED OVER THE RIBS ON THE CONTAINER. SUCH POSITIONING WILL ALLOW THE CHANCE OF LOOSE STRAPS IF THEY SHOULD SLIP OFF THE RIBS.
4. THE LOAD BUNDLING STRAPS, PIECE MARKED ⑥, MUST BE INSTALLED WITH CARE SO AS NOT TO HAVE AN EDGE-TO-EDGE CONTACT WITH THE STACK UNITIZING STRAPS, PIECES MARKED ④.

(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

5. IF THE CONTAINERS ARE NOT EQUIPPED WITH TIE BARS, THE 2-HIGH LOADING PROCEDURES CAN BE USED. HOWEVER, AN ADDITIONAL STACK UNITIZING STRAP MUST BE APPLIED, AND SPECIAL POSITIONING OF THE STRAPS MUST BE IMPLEMENTED. STACK UNITIZING STRAPS ARE TO BE APPLIED IMMEDIATELY ADJACENT TO, AND AS NEAR AS POSSIBLE TO BEING IN CONTACT WITH, THE CONTAINER RIBS. TWO STRAPS ARE TO BE APPLIED AT THE LEFT HAND SIDE OF TWO RIBS AND TWO ARE TO BE APPLIED AT THE RIGHT HAND SIDE OF TWO RIBS. PROPER PLACEMENT OF THESE UNITIZING STRAPS WILL PERMIT SHIPMENT OF THE STACKED COMPLETE ROUNDS WHICH ARE NOT EQUIPPED WITH TIE BARS.
6. THE DEPICTED LOAD MAY BE ADJUSTED TO SATISFY THE QUANTITY OF ITEMS TO BE SHIPPED. TO REDUCE THE LOAD BY ONE CONTAINER, SEE THE "PROCEDURES FOR OMITTED CONTAINER" ON PAGE 10 FOR GUIDANCE. USE THOSE PROCEDURES IN BOTH LOAD UNITS TO REDUCE THE LOAD BY TWO CONTAINERS. IF THE LOAD IS TO BE REDUCED BY THREE CONTAINERS, OMIT THE TOP THREE CONTAINERS FROM THE FRONT LOAD UNIT. NOTE THAT THE LOCATION OF THE LOAD UNITS MAY NEED TO BE ADJUSTED IN ORDER TO OBTAIN PROPER WEIGHT DISTRIBUTION WHEN OMITTING THREE CONTAINERS FROM THE FRONT LOAD UNIT.

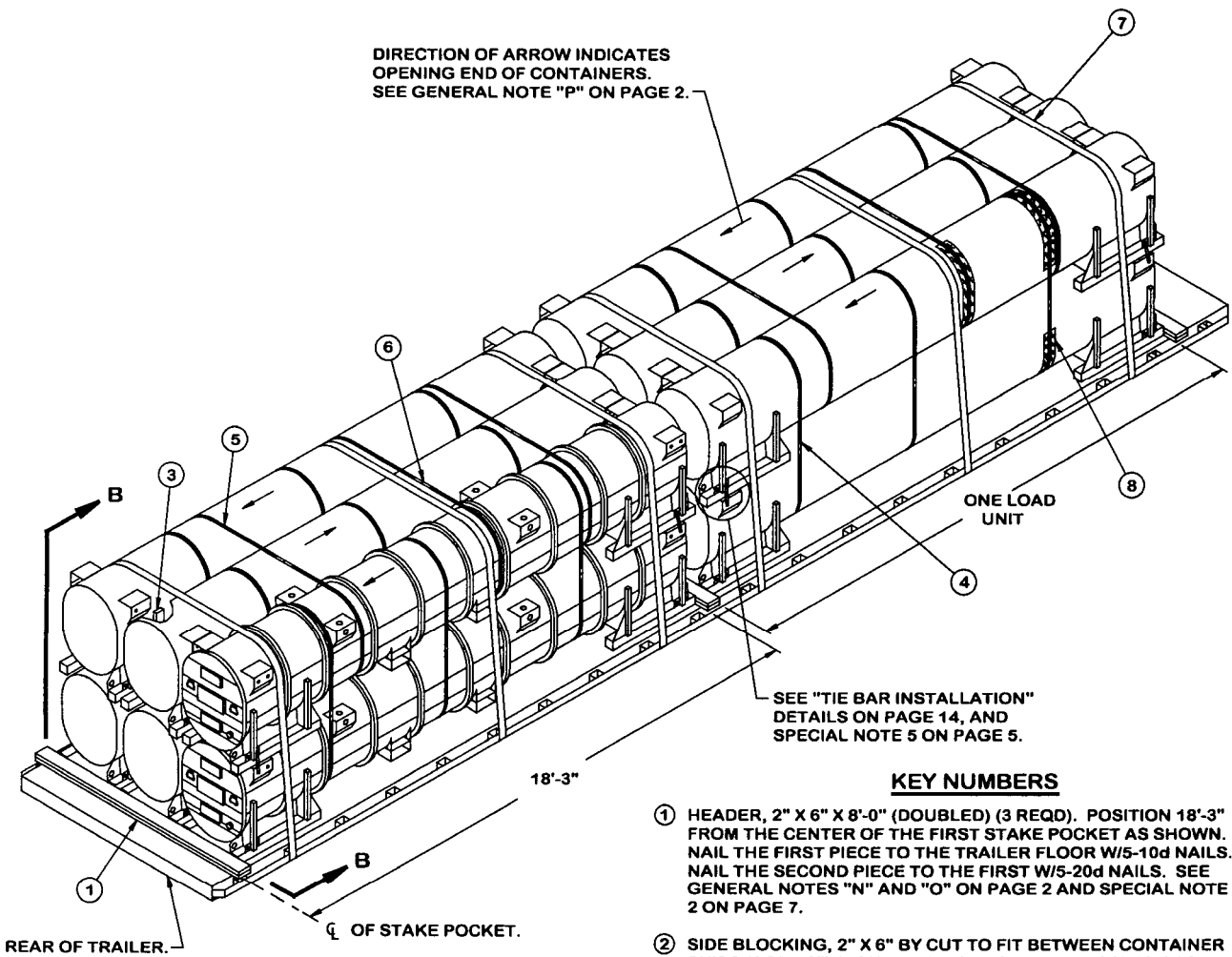
LOAD AS SHOWN

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	52	35
2" X 6"	99	99
NAILS	NO. REQD	POUNDS
10d (3")	199	3-1/4
20d (4")	15	3/4
STEEL STRAPPING, 1-1/4"	438' REQD	63 LBS
SEAL FOR 1-1/4" STRAPPING	48 REQD	2 LBS
STEEL STRAPPING, 2"	198' REQD	66 LBS
SEAL FOR 2" STRAPPING	36 REQD	7 LBS
ANTI-CHAFING MATERIAL	AS REQD	NIL

ITEM	QUANTITY	WEIGHT (APPROX)
M430 CONTAINER	12	38,700 LBS
DUNNAGE	-	410 LBS
TOTAL WEIGHT		39,110 LBS (APPROX)

ITEM	QUANTITY	WEIGHT (APPROX)
M611 CONTAINER	12	40,140 LBS
DUNNAGE	-	410 LBS
TOTAL WEIGHT		40,550 LBS (APPROX)

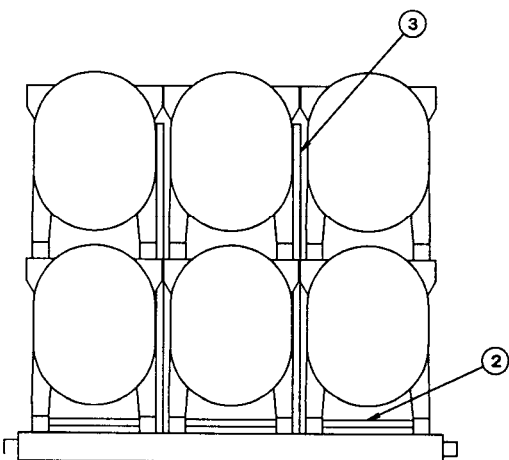
DIRECTION OF ARROW INDICATES
OPENING END OF CONTAINERS.
SEE GENERAL NOTE "P" ON PAGE 2.



ISOMETRIC VIEW

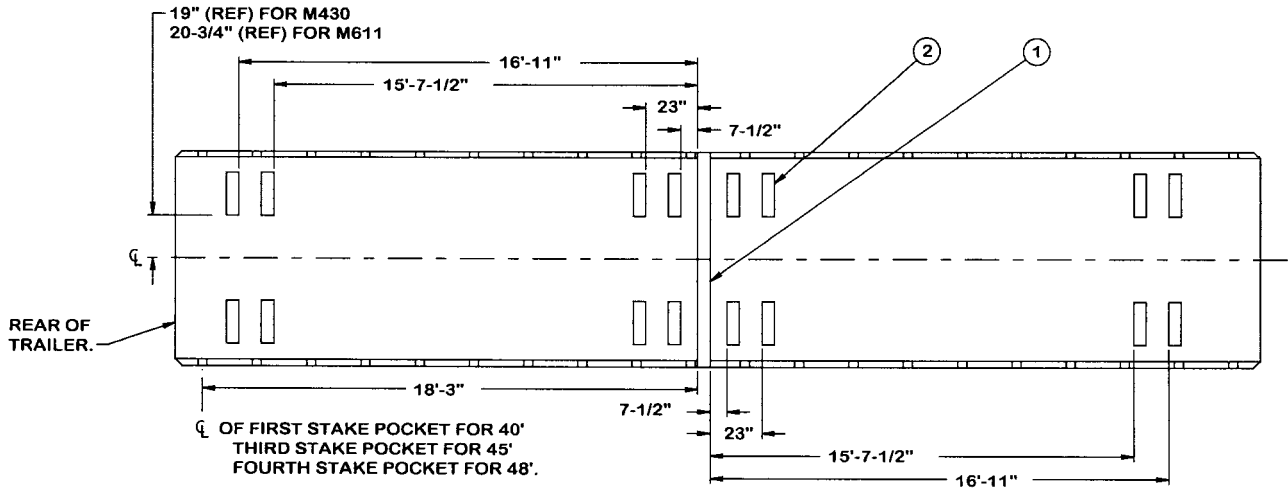
KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-0" (DOUBLED) (3 REQD). POSITION 18'-3" FROM THE CENTER OF THE FIRST STAKE POCKET AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-20d NAILS. SEE GENERAL NOTES "N" AND "O" ON PAGE 2 AND SPECIAL NOTE 2 ON PAGE 7.
- ② SIDE BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN CONTAINER SKIDS (REF: 19") (DOUBLED) (16 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 7. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ ANTI-CHAFING ASSEMBLY (8 REQD). SEE THE DETAIL ON PAGE 15. SEE THE "ANTI-CHAFING ASSEMBLY PLACEMENT" DETAIL ON PAGE 15 FOR POSITIONING.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-0" LONG STEEL STRAPPING (18 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND SPECIAL NOTE 3 ON PAGE 7.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENIRCLE THE LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER, AS SHOWN. SEE SPECIAL NOTE 4 ON PAGE 7.
- ⑥ SEAL FOR 1-1/4" STEEL STRAPPING (48 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑦ WEB TIEDOWN STRAP, 3" WIDE (6 REQD). POSITION TO EXTEND FROM A WINCH ON ONE SIDE OF THE TRAILER, OVER THE CONTAINERS, TO AN ATTACHMENT POINT ON THE OPPOSITE SIDE. SEE THE "SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN" ON PAGE 12.
- ⑧ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINERS.



SECTION B-B

STRAPPING OMITTED FOR CLARITY.



PRE-POSITIONED DUNNAGE PLAN VIEW

SPECIAL NOTES:

1. A 12-UNIT LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLAT-BED TRAILER. LONGER AND/OR WIDER TRAILERS MAY BE USED. LOADS MUST BE CENTERED, SIDE TO SIDE.
2. FOR THE DEPICTED LOAD ON A 45'-0" LONG TRAILER, LOCATE THE CENTER HEADER 18'-3" FROM THE CENTER OF THE THIRD STAKE POCKET FROM THE REAR OF THE TRAILER. IF A 48'-0" LONG TRAILER IS FURNISHED FOR LOADING, LOCATE THE CENTER HEADER 18'-3" FROM THE CENTER OF THE FOURTH STAKE POCKET FROM THE REAR OF THE TRAILER. THESE POSITIONS FOR THE LOADS SHOULD PROVIDE PROPER WEIGHT DISTRIBUTION ON BOTH THE DRIVE AXLES AND THE TRAILER TANDEMS. THE LOCATIONS MAY BE ADJUSTED AS NECESSARY TO IMPROVE WEIGHT DISTRIBUTION.
3. THE STACK UNITIZING STRAPS AND THE BUNDLING STRAPS, PIECES MARKED (4), AND (5), MUST NOT BE INSTALLED OVER THE RIBS ON THE CONTAINER. SUCH POSITIONING WILL ALLOW THE CHANCE OF LOOSE STRAPS IF THEY SHOULD SLIP OFF THE RIBS.
4. THE LOAD BUNDLING STRAPS, PIECE MARKED (5), MUST BE INSTALLED WITH CARE SO AS NOT TO HAVE AN EDGE-TO-EDGE CONTACT WITH THE STACK UNITIZING STRAPS, PIECES MARKED (4).

(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

5. IF THE CONTAINERS ARE NOT EQUIPPED WITH TIE BARS, THE 2-HIGH LOADING PROCEDURES CAN BE USED. HOWEVER, AN ADDITIONAL STACK UNITIZING STRAP MUST BE APPLIED, AND SPECIAL POSITIONING OF THE STRAPS MUST BE IMPLEMENTED. STACK UNITIZING STRAPS ARE TO BE APPLIED IMMEDIATELY ADJACENT TO, AND AS NEAR AS POSSIBLE TO BEING IN CONTACT WITH, THE CONTAINER RIBS. TWO STRAPS ARE TO BE APPLIED AT THE LEFT HAND SIDE OF TWO RIBS AND TWO ARE TO BE APPLIED AT THE RIGHT HAND SIDE OF TWO RIBS. PROPER PLACEMENT OF THESE UNITIZING STRAPS WILL PERMIT SHIPMENT OF THE STACKED COMPLETE ROUNDS WHICH ARE NOT EQUIPPED WITH TIE BARS.
6. THE DEPICTED LOAD MAY BE ADJUSTED TO SATISFY THE QUANTITY OF ITEMS TO BE SHIPPED. TO REDUCE THE LOAD BY ONE CONTAINER, SEE THE "PROCEDURES FOR OMITTED CONTAINER" ON PAGE 10 FOR GUIDANCE. USE THOSE PROCEDURES IN BOTH LOAD UNITS TO REDUCE THE LOAD BY TWO CONTAINERS. IF THE LOAD IS TO BE REDUCED BY THREE CONTAINERS, OMIT THE TOP THREE CONTAINERS FROM THE FRONT LOAD UNIT. NOTE THAT THE LOCATION OF THE LOAD UNITS MAY NEED TO BE ADJUSTED IN ORDER TO OBTAIN PROPER WEIGHT DISTRIBUTION WHEN OMITTING THREE CONTAINERS FROM THE FRONT LOAD UNIT.

LOAD AS SHOWN

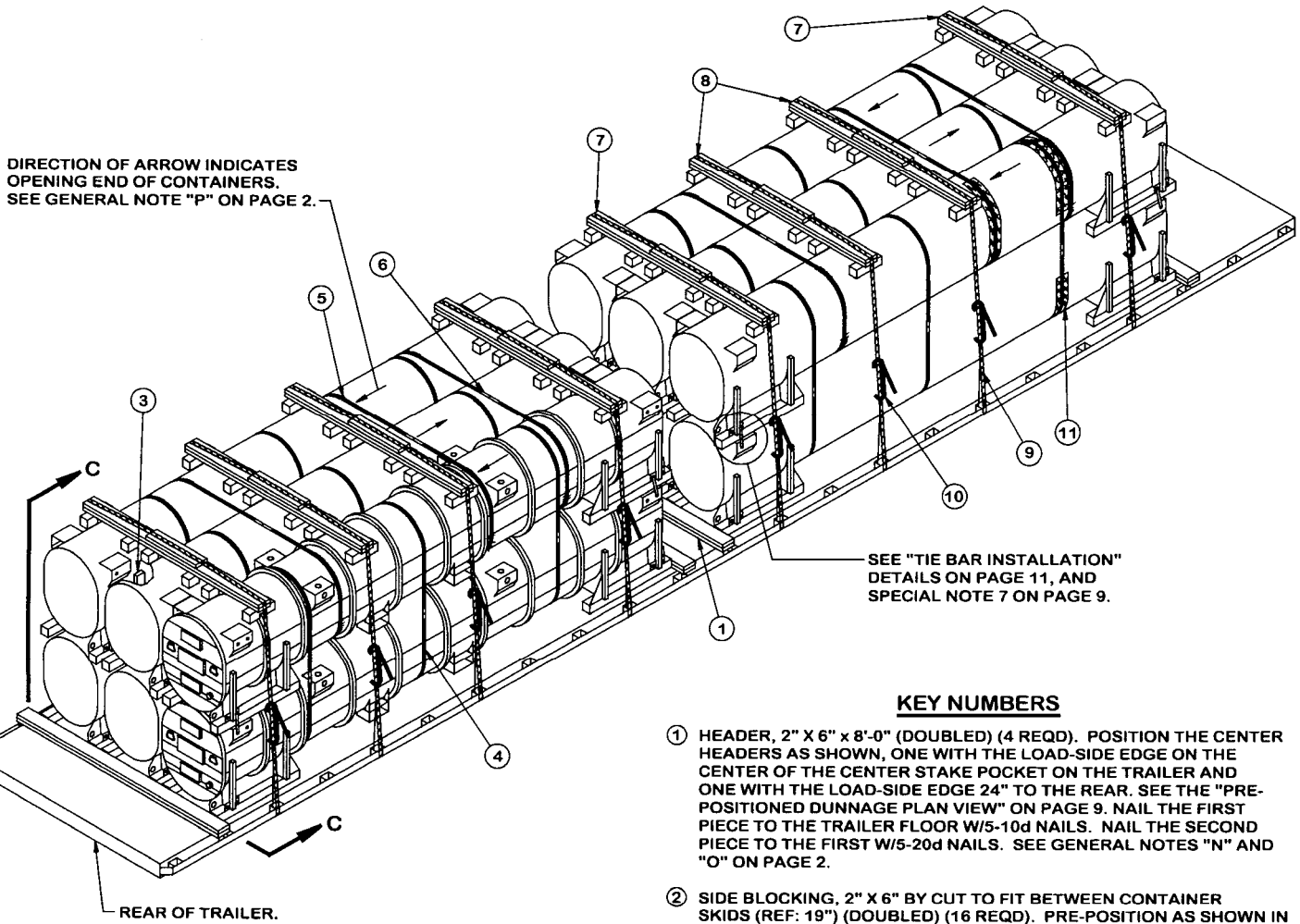
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 4"	52	35
2" x 6"	99	99
NAILS	NO. REQD	POUNDS
10d (3")	199	3-1/4
20d (4")	15	3/4
WEB STRAPS, 3"	4 REQD	46 LBS
STEEL STRAPPING, 1-1/4"	438' REQD	63 LBS
SEAL FOR 1-1/4" STRAPPING	48 REQD	2 LBS
ANTI-CHAFING MATERIAL	AS REQD	NIL

ITEM	QUANTITY	WEIGHT (APPROX)
M430 CONTAINER	12	38,700 LBS
DUNNAGE		382 LBS
TOTAL WEIGHT		39,082 LBS (APPROX)

ITEM	QUANTITY	WEIGHT (APPROX)
M611 CONTAINER	12	40,140 LBS
DUNNAGE		382 LBS
TOTAL WEIGHT		40,522 LBS (APPROX)

12-UNIT LOAD ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER (WEB STRAP TIEDOWN METHOD)

DIRECTION OF ARROW INDICATES
OPENING END OF CONTAINERS.
SEE GENERAL NOTE "P" ON PAGE 2.

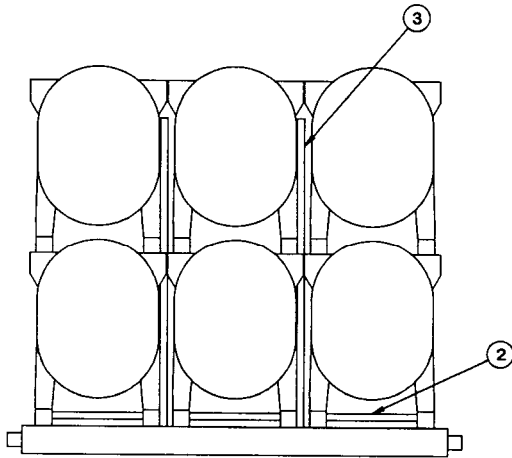


ISOMETRIC VIEW

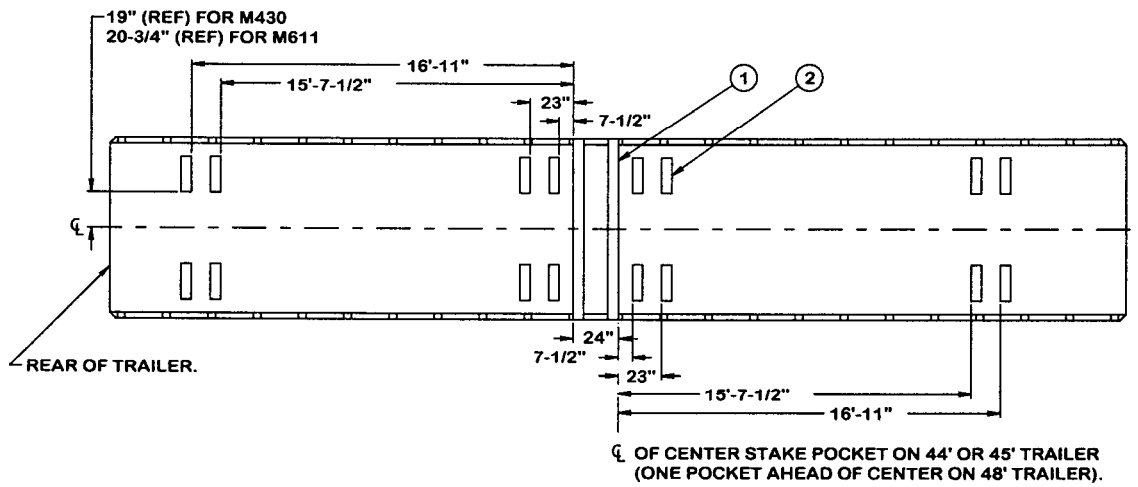
SEE "TIE BAR INSTALLATION"
DETAILS ON PAGE 11, AND
SPECIAL NOTE 7 ON PAGE 9.

KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-0" (DOUBLED) (4 REQD). POSITION THE CENTER HEADERS AS SHOWN, ONE WITH THE LOAD-SIDE EDGE ON THE CENTER OF THE CENTER STAKE POCKET ON THE TRAILER AND ONE WITH THE LOAD-SIDE EDGE 24" TO THE REAR. SEE THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 9. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-20d NAILS. SEE GENERAL NOTES "N" AND "O" ON PAGE 2.
- ② SIDE BLOCKING, 2" X 6" BY CUT TO FIT BETWEEN CONTAINER SKIDS (REF: 19") (DOUBLED) (16 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 9. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 5 ON PAGE 9.
- ③ ANTI-CHAFING ASSEMBLY (8 REQD). SEE THE DETAIL ON PAGE 15. SEE THE "ANTI-CHAFING ASSEMBLY PLACEMENT" DETAIL ON PAGE 15 FOR POSITIONING.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-0" LONG STEEL STRAPPING (18 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND SPECIAL NOTE 3 ON PAGE 9.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENCIRCLE THE LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER AS SHOWN. SEE SPECIAL NOTES 3 AND 4 ON PAGE 9.
- ⑥ SEAL FOR 1-1/4" STEEL STRAPPING (48 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑦ CHAIN BOARD ASSEMBLY (4 REQD). SEE THE "CHAIN BOARD ASSEMBLY A" DETAIL ON PAGE 13. POSITION ON CONTAINER RIBS AT EACH END OF A CONTAINER STACK. SEE SPECIAL NOTES 6 AND 7 ON PAGE 9.
- ⑧ CHAIN BOARD ASSEMBLY (4 REQD). SEE THE "CHAIN BOARD ASSEMBLY B" DETAIL ON PAGE 13. POSITION AS SHOWN.
- ⑨ CHAIN, BINDING, 5/16", GRADE 70 BY A LENGTH-TO-SUIT (8 REQD). POSITION AS SHOWN. ATTACH TO A TRAILER STAKE POCKET, NOT TO A RUB RAIL. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIE DOWN" ON PAGE 13 AND SPECIAL NOTE 10 ON PAGE 9.
- ⑩ LOAD BINDER, 5/16", OVER-CENTER TYPE (8 REQD, 1 PER CHAIN). WIRE TIE HANDLE TO PREVENT OPENING DURING TRANSPORT. FASTEN THE TENSIONED CHAIN, PIECES MARKED ⑨, TO THE CHAIN BOARD ASSEMBLY, PIECE MARKED ⑦ OR ⑧, W/4-20d NAILS BY DRIVING EACH NAIL INTO THE ASSEMBLY THRU AN OPENING IN A CHAIN LINK AND BENDING IT OVER THE LINK.
- ⑪ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). PLACE UNDER ALL STRAPS AT POINTS OF CONTACT WITH CONTAINERS.



SECTION C-C
STRAPPING OMITTED FOR CLARITY.



PRE-POSITIONED DUNNAGE PLAN VIEW

SPECIAL NOTES:

1. A 12-UNIT LOAD IS SHOWN ON A 45'-0" LONG BY 8'-0" WIDE FLAT-BED TRAILER EQUIPPED WITH STAKE POCKETS SPACED 24" ON CENTER. LONGER AND/OR WIDER TRAILERS AND TRAILERS HAVING STAKE POCKETS SPACED OTHER THAN 24" ON CENTER MAY BE USED. A TRAILER MUST BE AT LEAST 44'-0" LONG FOR THE SHIPMENT OF A 12-UNIT LOAD. LOADS MUST BE CENTERED, SIDE TO SIDE.
2. THE FORWARDMOST CENTER HEADER, PIECE MARKED ①, FOR A LOAD ON A 44'-0" OR 45'-0" LONG TRAILER WILL BE PLACED SO THE LOAD SIDE IS ON THE CENTER OF THE MIDDLE STAKE POCKET ON THE TRAILER. IF A 48'-0" LONG TRAILER IS FURNISHED FOR LOADING, THE FORWARDMOST CENTER HEADER WILL BE PLACED SO THE LOAD SIDE IS CENTERED ON THE STAKE POCKET WHICH IS ONE POCKET AHEAD OF THE CENTER POCKET. THESE HEADER POSITIONS SHOULD PROVIDE FOR PROPER WEIGHT DISTRIBUTION ON BOTH THE DRIVE AXLES AND THE TRAILER TANDEM. ON A 48'-0" TRAILER THE HEADER LOCATIONS MAY BE ADJUSTED OR THE HEADERS MAY BE PLACED FARTHER APART. THE FORWARDMOST CENTER HEADER MAY BE MOVED 24" AHEAD OR 48" TO THE REAR CENTER HEADER MAY BE MOVED 24" OR 48" TO THE REAR.
3. THE STACK UNITIZING STRAPS AND THE BUNDLING STRAPS, PIECES MARKED ④ AND ⑤, MUST NOT BE INSTALLED OVER THE RIBS ON THE CONTAINER. SUCH POSITIONING WILL ALLOW THE CHANCE OF LOOSE STRAPS IF THEY SHOULD SLIP OFF THE RIBS.
4. THE BUNDLING STRAPS, PIECES MARKED ⑤, SHOULD BE INSTALLED WITH CARE SO AS NOT TO HAVE AN EDGE-TO-EDGE CONTACT WITH THE STACK UNITIZING STRAPS, PIECES MARKED ④.

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(SPECIAL NOTES CONTINUED)

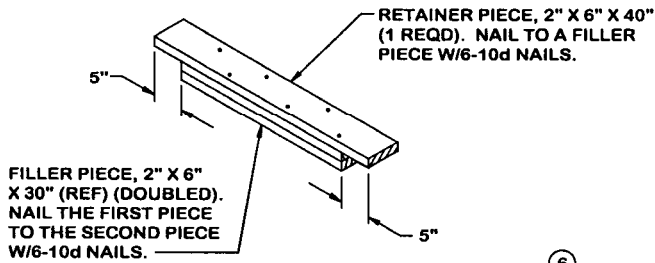
5. THE LOCATION DIMENSIONS FOR THE CONTAINER BEARING PIECES ON THE CHAIN BOARD ASSEMBLY "A" AND CHAIN BOARD ASSEMBLY "B" SHOULD BE FIELD CHECKED TO ENSURE THAT THE PIECES WILL CONTACT ALL CONTAINERS WHEN THE ASSEMBLY IS INSTALLED. ADJUST LOCATIONS AS NECESSARY. ALSO, THE CUT-OUT IN THE CONTAINER BEARING PIECE OF CHAIN BOARD ASSEMBLY "A" SHOULD BE CHECKED TO ENSURE THAT THE BEARING PIECES WILL FIT OVER THE CONTAINER RIBS.
6. THE CHAIN BOARD ASSEMBLY "A", PIECE MARKED ⑦, IS DESIGNED FOR USE OVER THE RIBS OF THE CONTAINERS. THE LOCATIONS OF THE CONTAINERS MAY REQUIRE AN ADJUSTMENT TO THE QUANTITIES OF PIECES MARKED ⑦ AND THE CHAIN BOARD ASSEMBLIES "B", PIECES MARKED ⑧.
7. IF THE CONTAINERS ARE NOT EQUIPPED WITH TIE BARS, THE 2-HIGH LOADING PROCEDURES CAN BE USED. HOWEVER, AN ADDITIONAL STACK UNITIZING STRAP MUST BE APPLIED, AND SPECIAL POSITIONING OF THE STRAPS MUST BE IMPLEMENTED. STACK UNITIZING STRAPS ARE TO BE APPLIED IMMEDIATELY ADJACENT TO, AND AS NEAR AS POSSIBLE TO BEING IN CONTACT WITH, THE CONTAINER RIBS. TWO STRAPS ARE TO BE APPLIED AT THE LEFT HAND SIDE OF TWO RIBS AND TWO ARE TO BE APPLIED AT THE RIGHT HAND SIDE OF TWO RIBS. PROPER PLACEMENT OF THESE UNITIZING STRAPS WILL PERMIT SHIPMENT OF THE STACKED COMPLETE ROUNDS WHICH ARE NOT EQUIPPED WITH TIE BARS.
8. THE DEPICTED LOAD MAY BE ADJUSTED TO SATISFY THE QUANTITY OF ITEMS TO BE SHIPPED. A LOAD MAY BE REDUCED BY ONE OR TWO UNITS BY APPLYING THE "PROCEDURE FOR OMITTED CONTAINER" SPECIFIED ON PAGE 10. A LOAD MAY BE REDUCED BY THREE CONTAINERS BY OMITTING THE TOP LAYER FROM THE FRONT LOAD UNIT.
9. THE TRANSPORTING VEHICLE OPERATOR SHOULD BE INSTRUCTED TO PERIODICALLY INSPECT THE TIEDOWN CHAINS AND LOAD BINDERS DURING TRANSPORT AND TIGHTEN IF NECESSARY.

LOAD AS SHOWN

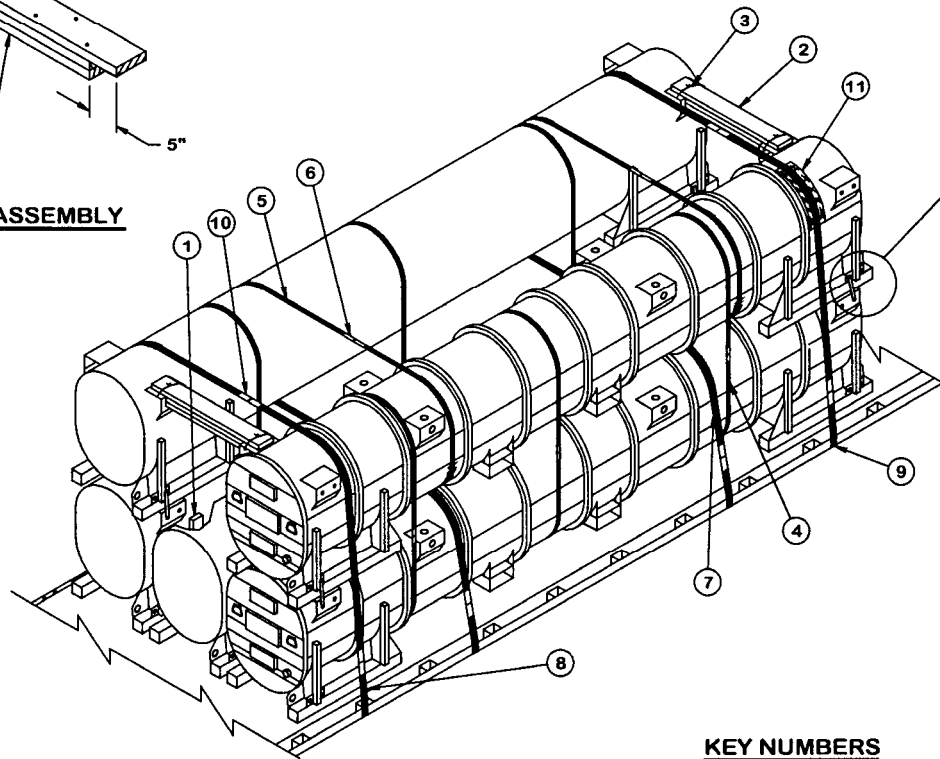
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	52	35
2" X 6"	243	243
NAILS	NO. REQD	POUNDS
10d (3")	292	4-1/2
20d (4")	164	6
STEEL STRAPPING, 1-1/4"	438' REQD	63 LBS
SEAL FOR 1-1/4" STRAPPING	48 REQD	2 LBS
CHAIN, BINDING, 5/16"	220' REQD	264 LBS
BINDER, LOAD	8 REQD	48 LBS
ANTI-CHAFING MATERIAL	AS REQD	NIL

ITEM	QUANTITY	WEIGHT (APPROX)
M430 CONTAINER	12	38,700 LBS
DUNNAGE		1,002 LBS
TOTAL WEIGHT		39,702 LBS (APPROX)

ITEM	QUANTITY	WEIGHT (APPROX)
M611 CONTAINER	12	40,140 LBS
DUNNAGE		1,002 LBS
TOTAL WEIGHT		41,142 LBS (APPROX)



SPACER ASSEMBLY



ISOMETRIC VIEW

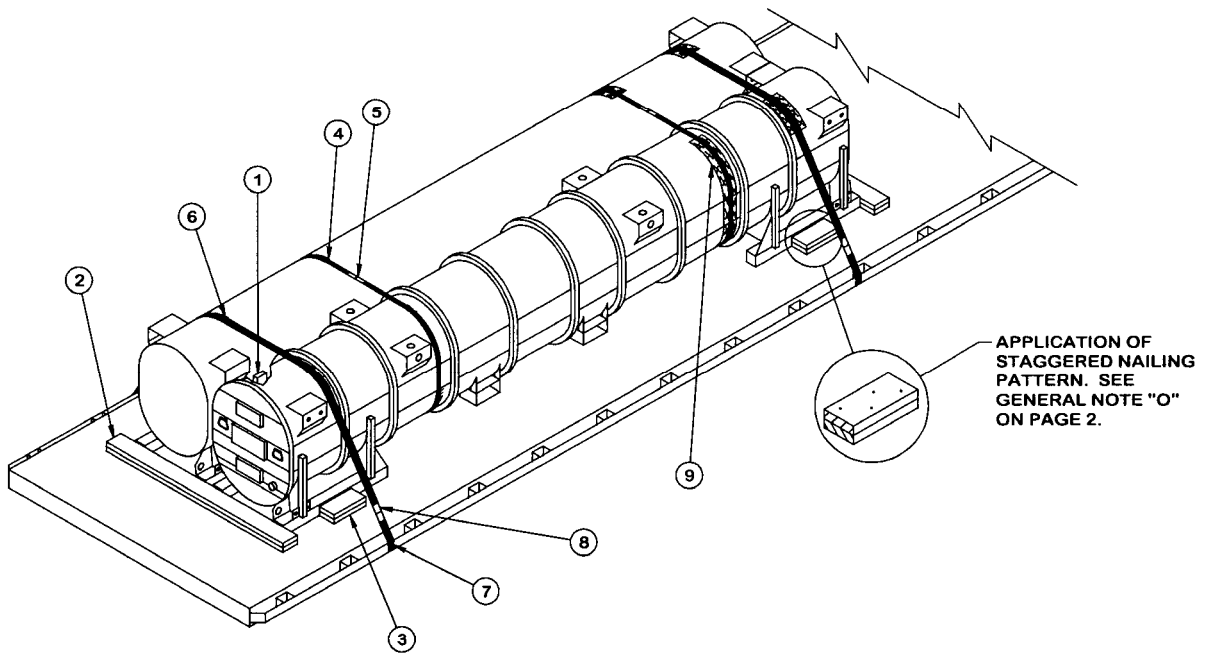
SEE "TIE BAR
INSTALLATION"
DETAILS ON
PAGE 11, AND
SPECIAL NOTE
5 ON PAGE 5.

KEY NUMBERS

- ① ANTI-CHAFING ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 15. SEE THE "ANTI-CHAFING ASSEMBLY PLACEMENT" DETAIL ON PAGE 15 FOR POSITIONING. SEE GENERAL NOTE "O" ON PAGE 2.
- ② SPACER ASSEMBLY (2 REQD). SEE THE DETAIL ABOVE.
- ③ TIE WIRE, 0.0800" DIAMETER WIRE 24" LONG (4 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND SPACER ASSEMBLY AND CONTAINER STACKING PAD. BRING ENDS TOGETHER AND TWIST TAUT. SECURE THE WIRE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-0" LONG STEEL STRAPPING (6 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND SPECIAL NOTES 2 AND 3 AT LEFT.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE CONTAINERS IN THE TOP LAYER AS SHOWN.
- ⑥ SEAL FOR 1-1/4" STEEL STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑦ HOLD-DOWN STRAP, 2" X .050" OR .044" X 23'-0" LONG STEEL STRAPPING (2 REQD). INSTALL FROM ONE PIECE OF STRAPPING. SEE SPECIAL NOTE 4 AT LEFT.
- ⑧ HOLD-DOWN STRAP, 2" X .050" OR .044" X 30'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO 15'-0" LONG PIECES.
- ⑨ PAD, 2" X .050" OR .044" X 18" LONG STEEL STRAPPING (8 REQD). POSITION UNDER STAKE POCKET AND SEAL TO HOLD DOWN STRAP MARKED ⑦ AND/OR ⑧. SEE "DETAIL A" ON PAGE 16. ALT: STAKE POCKET PROTECTOR (16 REQD). USE TWO UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 16.
- ⑩ SEAL FOR 2" STEEL STRAPPING (20 REQD, 4 PER HOLD-DOWN STRAP MARKED ⑦ AND 6 PER HOLD-DOWN STRAP MARKED ⑧). SEE "DETAIL A" AND "DETAIL B" ON PAGE 16. DOUBLE CRIMP EACH SEAL EXCEPT THOSE USED TO SECURE THE PADS. PIECES MARKED ⑨.
- ⑪ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER.

SPECIAL NOTES:

1. A 5-CONTAINER LOAD UNIT IS SHOWN ON AN 8'-0" WIDE TRAILER. THIS LOAD UNIT MAY BE SUBSTITUTED FOR A 6-CONTAINER LOAD UNIT TO PROVIDE FOR THE SHIPMENT OF LESS THAN A FULL LOAD. HEADERS AND SIDE BLOCKING WILL BE INSTALLED AS SPECIFIED IN THE LOADS ON PAGES 4 AND 8.
2. THE STACK UNITIZING STRAPS, THE BUNDLING STRAPS, AND THE HOLD-DOWN STRAPS, PIECES MARKED ④, ⑤, ⑦, AND ⑧ MUST NOT BE INSTALLED OVER THE RIBS ON THE CONTAINER. SUCH POSITIONING WILL ALLOW THE CHANCE OF LOOSE STRAPS IF THEY SHOULD SLIP OFF THE RIBS.
3. BUNDLING STRAPS, PIECE MARKED ⑤, MUST BE INSTALLED WITH CARE SO AS NOT TO HAVE AN EDGE-TO-EDGE CONTACT WITH THE STACK UNITIZING STRAPS, PIECES MARKED ④.
4. EACH HOLD-DOWN STRAP, PIECE MARKED ⑦, WILL BE ANCHORED TO A TIE-DOWN FACILITY ON ONE SIDE OF THE TRAILER, RUN OVER THE TOP OF THE CONTAINERS IN THE BOTTOM LAYER, PASSED THROUGH A TIE-DOWN FACILITY ON THE OPPOSITE SIDE OF THE TRAILER, AND BROUGHT BACK UP ABOVE THE TRAILER FLOOR WHERE IT CAN BE TENSIONED AND SEALED.



ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

1. A TYPICAL 2-UNIT LOAD IS SHOWN ON AN 8'-0" WIDE TRAILER. OTHER WIDTH TRAILERS MAY BE USED.
2. THE BUNDLING STRAPS, PIECES MARKED ④, MUST NOT BE INSTALLED OVER THE RIBS ON THE CONTAINER. SUCH POSITIONING WILL ALLOW THE CHANCE OF LOOSE STRAPS IF THEY SHOULD SLIP OFF THE RIBS.
3. TWO 12" LONG SIDE BLOCKING PIECES, PIECES MARKED ③ ARE ADEQUATE FOR RETAINING A MAXIMUM OF THREE CONTAINERS. FOR A LOAD UNIT OF FOUR CONTAINERS, 2" X 6" X 24" LONG PIECES W/6-10d NAILS IN EACH LAYER WILL BE REQUIRED. FOR A LOAD UNIT OF FIVE OR SIX CONTAINERS, USE TWO 2" X 6" X 30" LONG PIECES W/8-10d NAILS IN EACH LAYER. NOTE THAT AN 8'-6" WIDE TRAILER IS REQUIRED TO ACCOMODATE SIDE BLOCKING ON THE OUTSIDE OF THE SKIDS. FOR NARROWER TRAILERS, USE PIECES MARKED ② AS SHOWN ON PAGE 4.
4. IF CHAINS ARE TO BE USED FOR LOAD SECUREMENT, CHAIN BOARD ASSEMBLIES MUST BE USED IN CONJUNCTION WITH THE CHAIN. SEE THE "CHAIN BOARD ASSEMBLY A" AND/OR "CHAIN BOARD ASSEMBLY B" DETAIL ON PAGE 13. SEE KEY NUMBERS ⑦ THRU ⑨ ON PAGE 8 FOR ADDITIONAL GUIDANCE. TWO CHAINS WITH BINDERS AND CHAIN BOARD ASSEMBLIES ARE ADEQUATE FOR A SHIPMENT OF TWO OR THREE CONTAINERS. THREE CHAINS ARE REQUIRED FOR A LOAD UNIT OF FOUR CONTAINERS. FOUR CHAINS, BINDERS, AND CHAIN BOARD ASSEMBLIES ARE REQUIRED FOR A LOAD UNIT OF FIVE OR SIX CONTAINERS.

- ① ANTI-CHAFING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 15. SEE THE "ANTI-CHAFING ASSEMBLY PLACEMENT" DETAIL ON PAGE 15 FOR POSITIONING. SEE GENERAL NOTES "N" AND "O" ON PAGE 2.
- ② HEADER, 2" X 6" X 66" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/3-20d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/4-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 3 AT LEFT.
- ④ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 16'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE LATERALLY ADJACENT CONTAINERS AS SHOWN. SEE SPECIAL NOTE 2 AT LEFT.
- ⑤ SEAL FOR 1-1/4" STEEL STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑥ HOLD-DOWN STRAP, 2" X .050" OR .044" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM ONE PIECE OF STRAPPING. ANCHOR IT TO A TIE-DOWN FACILITY ON ONE SIDE OF THE TRAILER, RUN IT OVER THE LOAD, PASS IT THROUGH A TIE-DOWN FACILITY ON THE OPPOSITE SIDE OF THE TRAILER, AND BRING IT BACK UP ABOVE THE TRAILER FLOOR WHERE IT CAN BE TENSIONED AND SEALED.
- ⑦ PAD, 2" X .050" OR .044" X 18" LONG STEEL STRAPPING (4 REQD). POSITION UNDER STAKE POCKET AND SEAL TO HOLD-DOWN STRAP MARKED ⑥. SEE "DETAIL A" ON PAGE 16. ALT: STAKE POCKET PROTECTORS (8 REQD). USE TWO UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 16.
- ⑧ SEAL FOR 2" STEEL STRAPPING (8 REQD, 4 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑦.
- ⑨ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH CONTAINERS.

SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN

LADING MAY BE SECURED TO A FLATBED TRAILER BY WEB STRAP ASSEMBLIES IN LIEU OF STEEL STRAPPING OR CHAINS AND LOAD BINDERS, PROVIDED THE FOLLOWING CONDITIONS ARE MET.

1. ONLY WEB STRAPS OF GOOD QUALITY WILL BE USED. ALL WEB STRAPS AND ASSOCIATED HARDWARE SHALL CONFORM TO THE WEB SLING & TIEDOWN ASSOCIATION RECOMMENDED STANDARD SPECIFICATION FOR SYNTHETIC WEB TIEDOWNS, FIRST PUBLISHED IN 1991.
2. ALL WEB STRAP TIEDOWN ASSEMBLIES SHALL BE PERMANENTLY LABELED WITHIN 18" OF ONE END TO SHOW:
 - A. NAME OR TRADEMARK OF MANUFACTURER
 - B. WORKING LOAD LIMIT (WLL)
 - C. DATE OF MANUFACTURE (MONTH AND YEAR)
3. WEB STRAP ASSEMBLY MINIMUM BREAKING STRENGTH WILL BE AT LEAST THREE TIMES THE WLL MARKED ON THE STRAP.
4. THE TOTAL MINIMUM BREAKING STRENGTH (MBS) OF THE STRAPS USED TO RESTRAIN AMMUNITION ITEMS WILL BE AT LEAST 1-1/2 TIMES THE TOTAL WEIGHT OF THE ITEMS, WITH A MINIMUM OF TWO STRAPS POSITIONED OVER EACH LOAD UNIT ON A TRAILER. WRITTEN PROOF OF THE MBS OF THE STRAPS SHALL BE PROVIDED BY THE CARRIER TO THE SHIPPING ACTIVITY IF REQUESTED.
5. CARRIERS MUST COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS APPLICABLE TO CARGO RESTRAINT USING WEB STRAPS.
6. WHEN USING STRAPS AND WINCHES FOR CARGO RESTRAINT, THE STRAPS WILL BE TENSIONED UNTIL TIGHT WITHOUT CAUSING DAMAGE TO THE CARGO. ONLY WINCH BARS WILL BE USED FOR OPERATING THE STRAP WINCHES.
7. BEFORE AND DURING INSTALLATION, THE WEB STRAP ASSEMBLIES SHALL BE INSPECTED FOR DEFECTS. STRAPS HAVING ANY OF THE FOLLOWING DEFECTS WILL NOT BE USED FOR THE RESTRAINT OF ANY AMMUNITION LOAD, WITH THE EXCEPTION OF ONE WITH FRAYED ENDS. A STRAP HAVING FRAYED ENDS CAN BE USED IF THE FRAYED END IS TRIMMED AND MELTED WITH HEAT OR FLAME UNTIL ALL STRANDS ARE SEIZED.
 - A. STRAP ASSEMBLY HARDWARE: SHALL BE INSPECTED FOR BENT HOOKS, GOUGES, CORROSION, SIGNS OF REPAIR, BENT RATCHETS OR WINCHES, WEAR, OR ANY OTHER NOTICEABLE DEFECTS.
 - B. STRAP WEBBING: SHALL BE INSPECTED FOR KNOTS, EXCESSIVE ABRASIVE WEAR, TEARS, PUNCTURES, CUTS, ACID OR CAUSTIC BURNS, BROKEN STITCHES, FRAYED ENDS, OIL OR GREASE SPOTS EXCEEDING 6 SQUARE INCHES, BLEACHING OF COLOR, INCREASED STIFFNESS, SPLICES, VISIBLE WEAR INDICATOR THREADS, OR ANY OTHER NOTICEABLE DEFECTS.

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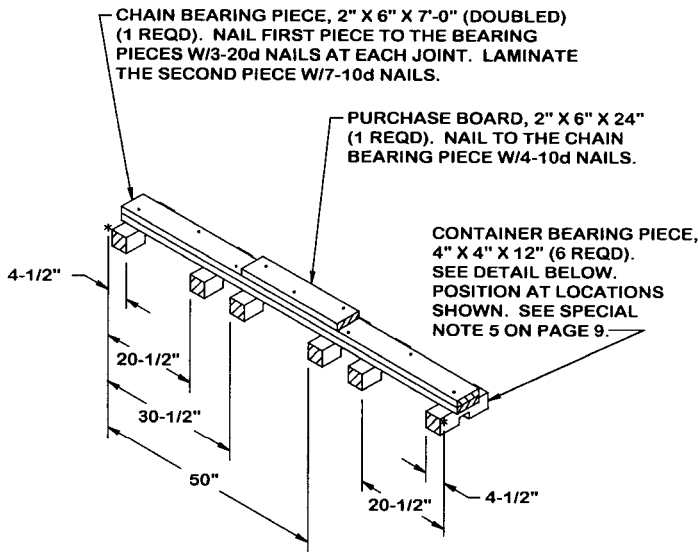
(SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN CONTINUED)

8. RATCHET HANDLES MUST BE IN THE LOCKED POSITION AND/OR WINCH LOCKING DEVICES MUST BE FULLY SEATED IN THE TEETH OF THE WINCH.
9. IF THE WINCHES BEING USED ARE THE REMOVABLE TYPE HAVING BOLTS FOR ATTACHMENT TO THE TRAILER, CARE MUST BE EXERCISED WHEN ATTACHING THE WINCHES TO THE TRAILER. IF EXCESSIVE FORCE IS EXERTED ON THE BOLT DURING TENSIONING, DEFORMATION OF THE WINCH BRACKET MAY OCCUR, AND SUBSEQUENTLY CAUSE FAILURE OF THE WINCH BRACKET DURING TRANSPORT. WINCHES MUST BE FASTENED TO THE TRAILER WITH A MINIMUM OF TWO BOLTS.
10. DRIVERS MUST BE INSTRUCTED TO PERIODICALLY CHECK THE TIGHTNESS OF THE WEB STRAP ASSEMBLIES AND RETIGHTEN, IF NECESSARY.
11. IF PROVIDED ON OR WITH THE WEB STRAP ASSEMBLIES, SCUFF SLEEVES/WEB PROTECTORS WILL BE USED WHEREVER THE STRAP PASSES OVER A SHARP CORNER OR IRREGULAR SURFACE. IF NOT PROVIDED, ANTI-CHAFING MATERIAL OF A SUITABLE THICKNESS WILL BE USED TO INSURE THAT THE STRAP WEBBING IS NOT DAMAGED DURING TRANSPORT OF THE LOAD.
12. THE HARDWARE FITTING OF THE TIEDOWN ASSEMBLIES MUST BE ATTACHED TO THE TRAILER IN SUCH A MANNER THAT THEY WILL REMAIN IN PLACE IF SLACK DEVELOPS IN THE STRAP DURING TRANSPORT.

SPECIAL PROVISIONS FOR CHAIN TIEDOWN

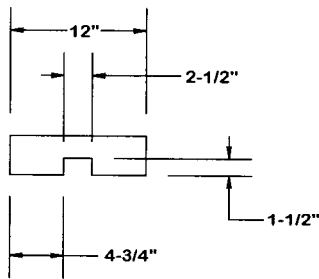
LADING MAY BE SECURED TO THE FLATBED TRAILER BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED STRAPPING, PROVIDED THE FOLLOWING CONDITIONS ARE MET AND THE PROCEDURES CONTAINED ON PAGES 8 AND 9 ARE FOLLOWED.

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 1999.
2. ALL CHAINS SHALL BE MARKED AS PRESCRIBED BY THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1999. 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 MARKINGS 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.

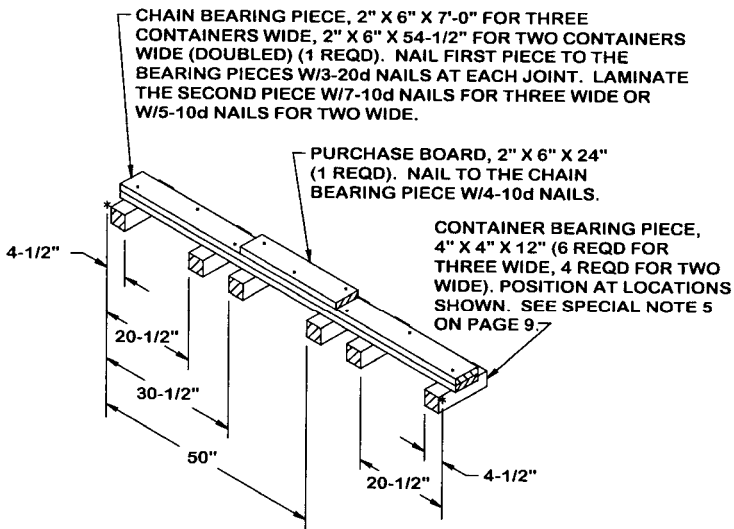


CHAIN BOARD ASSEMBLY A

FOR USE UNDER CHAINS THAT WILL PASS OVER THE CONTAINER RIBBS.

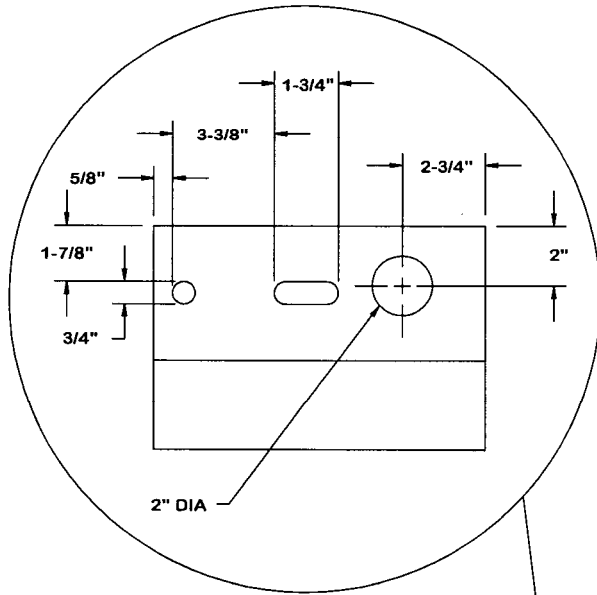


CONTAINER BEARING PIECE



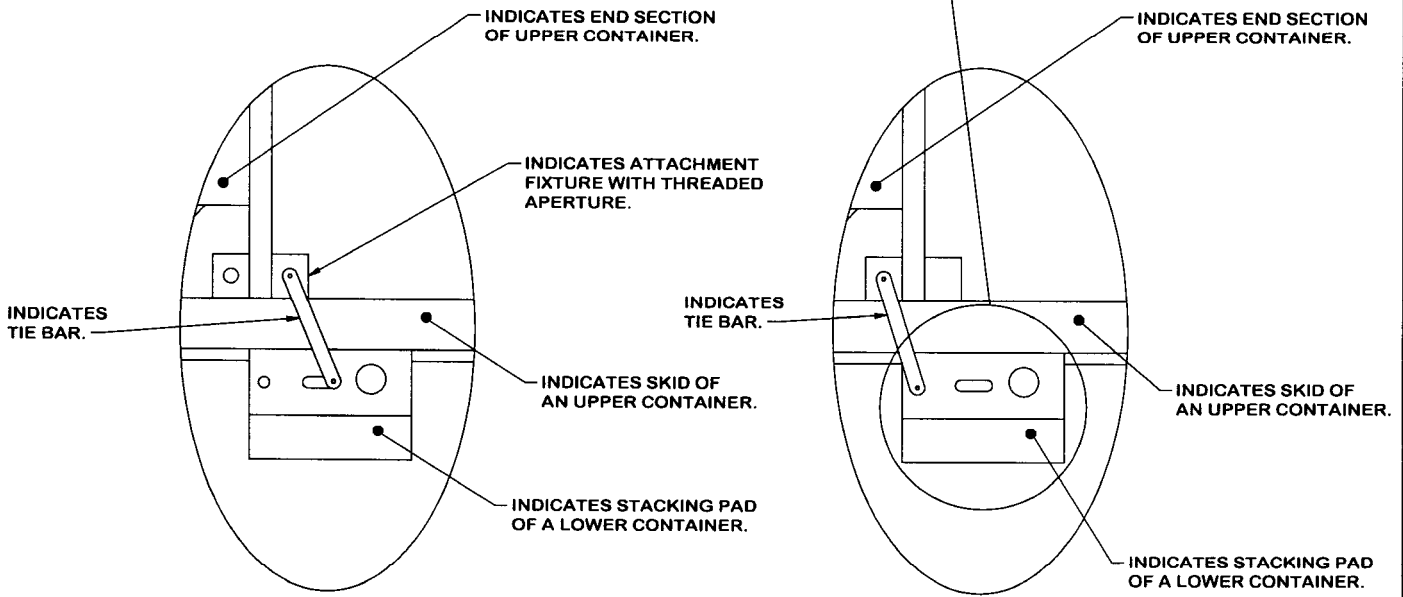
CHAIN BOARD ASSEMBLY B

SPECIAL PROVISIONS FOR CHAIN TIEDOWN



DETAIL A

BRACKET AT OTHER END OF
CONTAINER IS OPPOSITE HAND.

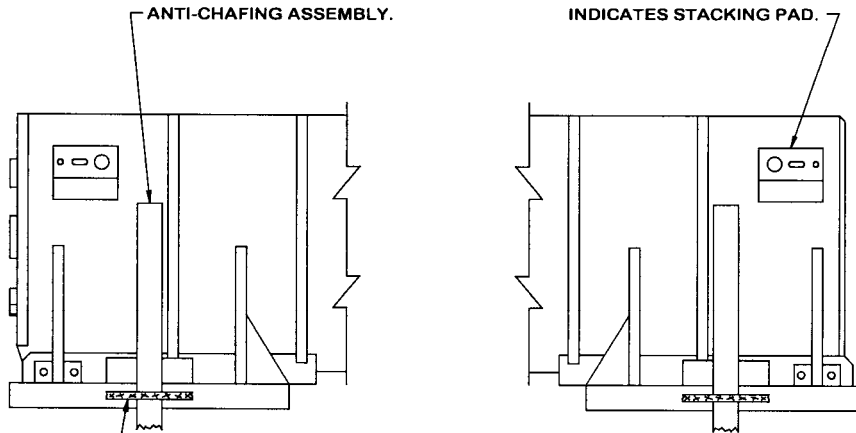


PREFERRED METHOD

ALTERNATIVE METHOD

TIE BAR INSTALLATION

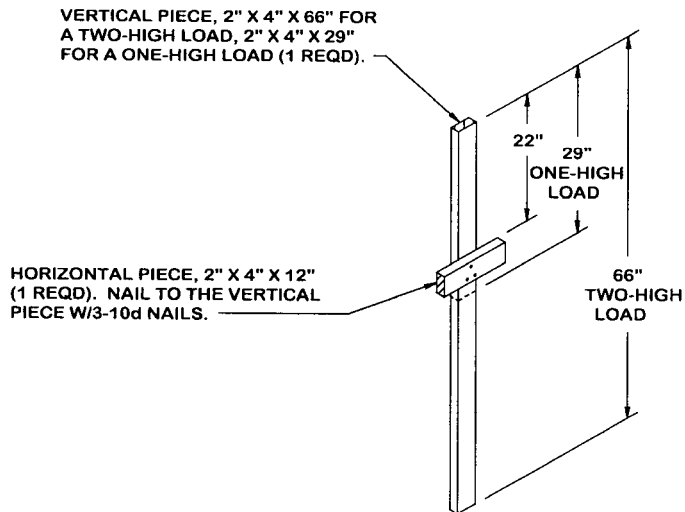
NOTE: AT THE OTHER END OF A STACK, THE TIE BAR WILL ANGLE UPWARD IN A DIRECTION OPPOSITE TO THAT SHOWN ABOVE AND TOWARD THE ADJACENT END SECTION OF THE UPPER CONTAINER. INSTALL TIE BARS WITH BOLT HEADS ON THE OUTSIDE OF TIE BARS AND NUTS ON THE INSIDE OF THE BRACKET.



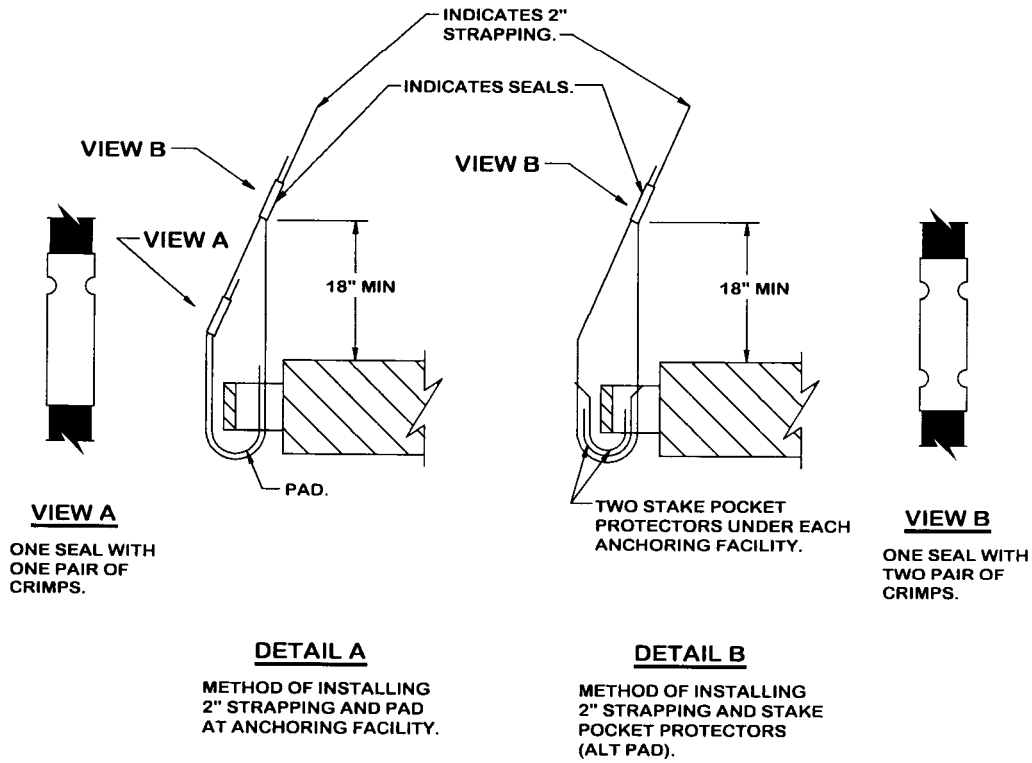
TO PREVENT DISPLACEMENT DURING LOADING OPERATIONS, THE ANTI-CHAFING ASSEMBLY MAY BE TAPED TO AN UPPER CONTAINER SKID AS SHOWN.

ANTI-CHAFING ASSEMBLY PLACEMENT

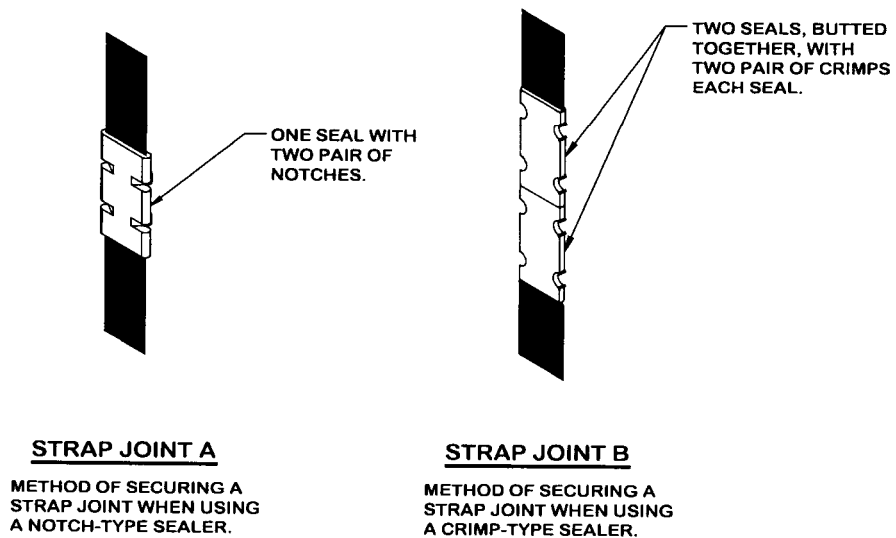
THE ANTI-CHAFING ASSEMBLY WILL BE PLACED AS SHOWN WHEN LOADING THE M430 CONTAINER OR THE M611 CONTAINER. ANTI-CHAFING ASSEMBLY MUST EXTEND TO TRAILER FLOOR.



ANTI-CHAFING ASSEMBLY



HOLD-DOWN STRAP ANCHORING DETAILS



END-OVER-END LAP JOINT DETAILS