HAWK

LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILER● OF COMPLETE ROUND, PACKED IN M430 OR M611 CONTAINER

INDEX

●CAUTION: THE OUTLOADING PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE FOR HIGHWAY MOVEMENTS; NOT FOR TRAILER-ON-FLATCAR MOVEMENTS.

U.S. ARMY MATERIEL COMMAND DRAWING

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DO NOT SCALE

PROJECT GM 844-91

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 SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THE COMPLETE ROUND IN THE M430 OR M611 CONTAINER. SUBSEQUENT REFERENCE TO A CONTAINER HEREIN MEANS THE CONTAINER WITH COMPLETE ROUND.

C. FOR DETAIL OF THE M430 CONTAINER, SEE DRAWING NO. 9073970.

FOR DETAIL OF THE M611 CONTAINER, SEE DRAWING NO. 8035841.

CONTAINER DIMENSIONS - - 216" LONG BY 28-3/4" OR 29-7/8" WIDE BY 41-1/2" HIGH.

GROSS WEIGHT (M430) - - 3,225 POUNDS (APPROX).

GROSS WEIGHT (M611) - - 3,345 POUNDS (APPROX).

D. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE VAN TRAILERS, AND APPLY TO TRAILERS HAVING WOOD, OR WOOD AND METAL, OR ALL METAL FLOORS. A VAN TRAILER WHICH IS 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) HAS BEEN SHOWN, HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR TRAILERS WHICH ARE 89" THRU 99" IN WIDTH AND FOR TRAILERS OF OTHER LENGTHS FROM THE SHORTEST TO THE LONGEST AVAILABLE (REF: 24' TO 53'), AND FOR STRAIGHT TRUCK VANS. THE LOADING AND BRACING PROCEDURES SPECIFIED HEREIN ARE ALSO ADEQUATE (CONFIGURATION WISE AND STRENGTH WISE) FOR LOADS IN SHORTER OR LONGER VANS AND IN NARROWER OR WIDER VANS THAN SHOWN. THE SPECIFIED BRACING IS ADEQUATE FOR LOADS WEIGHING UP TO AND INCLUDING THE MAXIMUM WEIGHTS PERMITTED BY LAW.

E. SELECTION OF A VEHICLE TO BE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.

F. THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY. THE TOTAL WEIGHT OF THE LADING, OF THE DUNNAGE, OF THE TRACTOR, AND OF THE SEMITRAILER CARRYING THE LADING MUST NOT EXCEED THE MAXIMUM GROSS WEIGHT ALLOWED FOR THE STATE OR STATES THRU WHICH THE LOAD IS TO BE TRANSPORTED BY MOTOR CARRIER. LIKEWISE, THE GROSS WEIGHT ON A SINGLE OR TANDEM AXLE MUST NOT EXCEED THE MAXIMUM ALLOWABLE WEIGHT. IF THERE IS ANY DOUBT AS TO WHETHER THE TOTAL GROSS WEIGHT OR AXLE WEIGHT EXCEEDS THE MAXIMUM ALLOWED, WEIGHT SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.

G. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH STATE WEIGHT LAWS. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED. COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED MAY BE USED, HOWEVER, THE APPROVED METHODS SHOWN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER - - - - - - - -	FED SPEC MM-L-751; SEE TM 743-200-1 (DUNNAGE LUMBER).
NAILS - - - - - - - -	FED SPEC FF-N-105; COMMON.
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.
STAPLE, STRAP - - -	COMMERCIAL GRADE.
ANTI-CHAFING MATERIAL - - - -	MIL-B-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.

(GENERAL NOTES CONTINUED)

H. CONTAINERS AND CONTAINER STACKS ARE SHOWN THROUGHOUT THE DRAWING WITH THE CLOSED END OF THE CONTAINER TOWARDS THE REAR OF THE VAN TRAILER. THE CENTER OF BALANCE OF THE CONTAINER IS APPROXIMATELY 13" TOWARD THE OPENING END FROM THE LONGITUDINAL CENTER OF THE CONTAINER. CONTAINERS MAY BE LOADED INTO THE TRAILER WITH EITHER THE OPENING ENDS OR THE CLOSED ENDS TOWARDS THE REAR OF THE TRAILER. ALL CONTAINERS IN A TRAILER LOAD, HOWEVER, ARE TO BE POSITIONED IN THE SAME DIRECTION.

J. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH COMPLETE ROUNDS, 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.

K. MOST LOADS ARE SHOWN IN TRAILERS HAVING ROUNDED CORNERS AT THE FORWARD END. IF THE CONVENTIONAL VAN TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD, OMIT THE LATERAL PIECES FROM THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①.

L. 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 PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 15 FOR GUIDANCE.

M. 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.

N. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, 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 THE PIECE ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

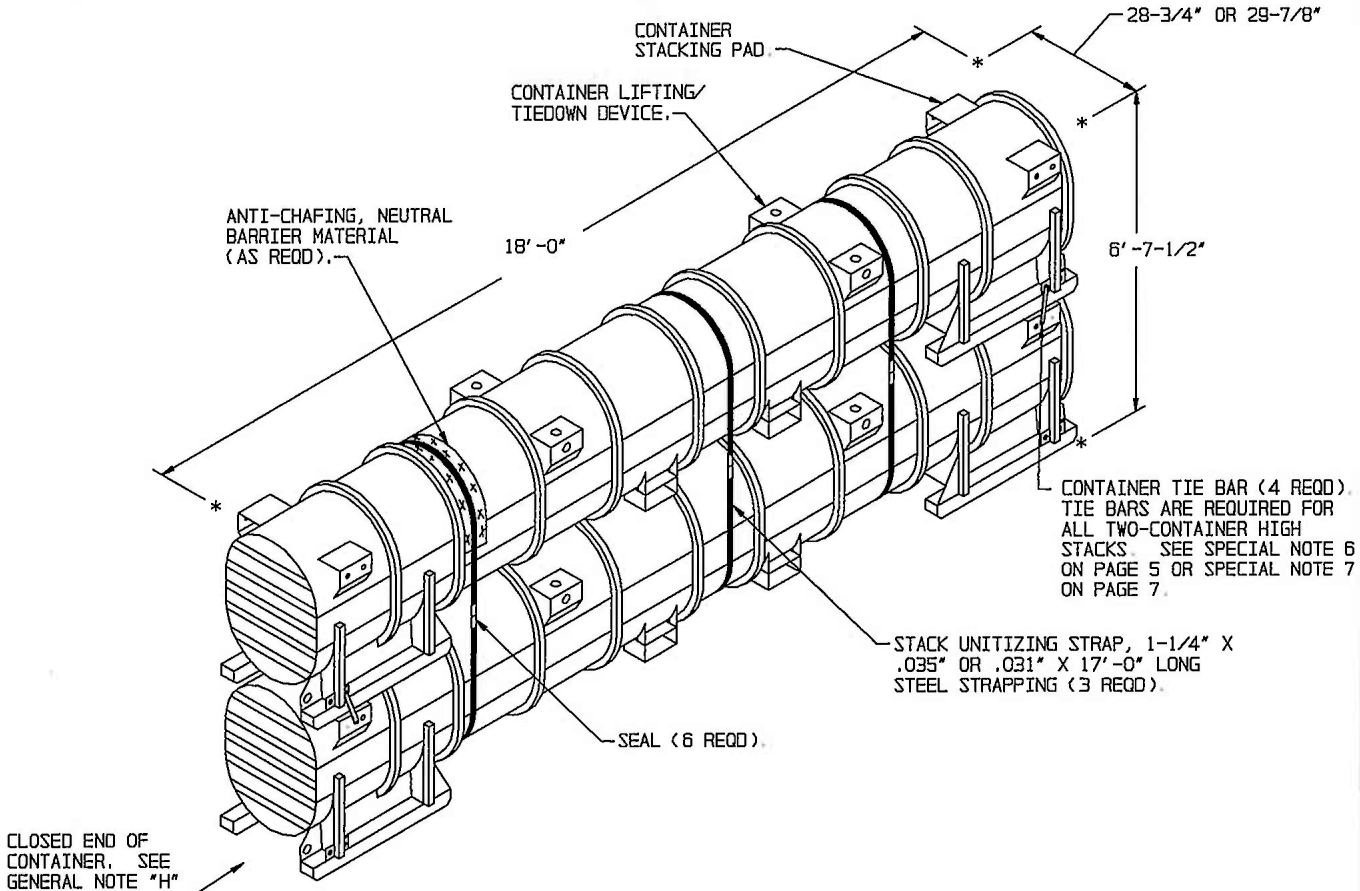
O. CAUTION: WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE APPLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, CONTAINERS BEING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EXIT BECOME NECESSARY.

O. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED TRAILER LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-N-105 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED.
NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.

Q. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED, HOWEVER, THE NAILED-HEADER METHOD OF REAR BLOCKING MUST BE INSTALLED. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGE 16 FOR GUIDANCE. NOTE THAT THE NAILED-HEADER METHOD OF REAR BLOCKING MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

R. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

S. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.



STACK DETAIL

(A STACK OF M430 CONTAINERS IS SHOWN.)

UNITIZING AND HANDLING PROCEDURES

1. STACKING CONTAINERS FOR UNITIZING.

   A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.

   B. POSITION THE OPENING END OF AN UPPER CONTAINER ABOVE THE OPENING END OF THE NEXT LOWER CONTAINER.

   C. THE CONTAINER SKIDS OF AN UPPER CONTAINER SHOULD BE FULLY SEATED UPON THE STACKING PADS OF THE NEXT 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. SEE THE "TIE BAR INSTALLATION" DETAILS ON PAGE 14.

3. INSTALLATION OF 1-1/4" X .035" OR .031" 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 DISLODGEMENT 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)

(UNITIZING AND HANDLING PROCEDURES 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 THE "END-OVER-END LAP JOINT" DETAIL ON PAGE 15 AND GENERAL NOTE "L" 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 MATERIAL 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.

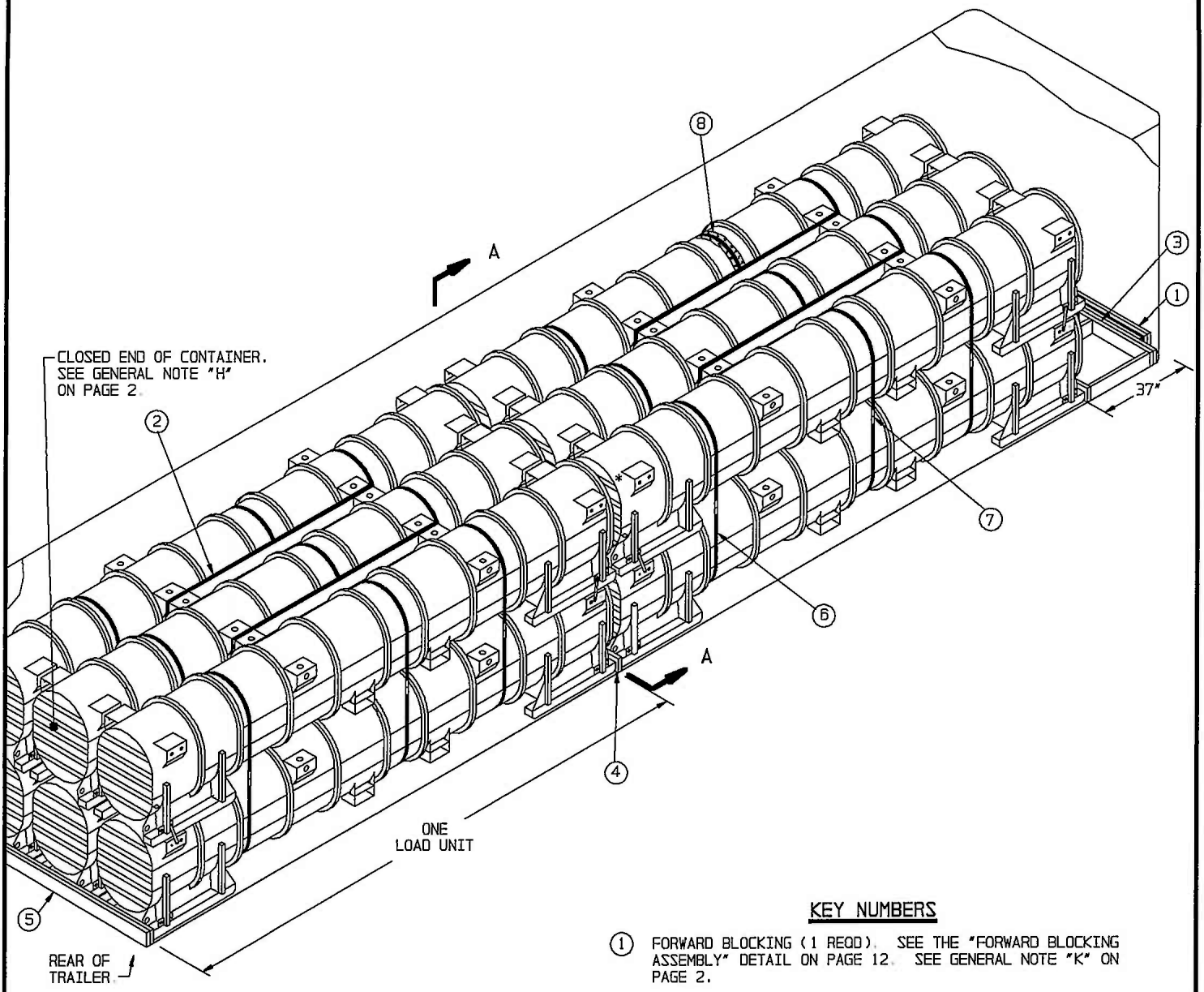
   (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

   A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.

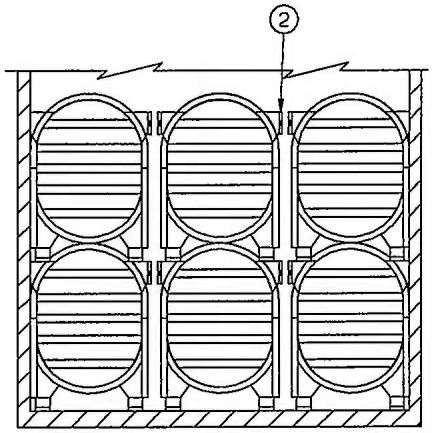
   B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.

   C. A CONTAINER OR A CONTAINER STACK SHOULD BE HANDLED FROM A SIDE POSITION. POSITION THE CONTAINER(S) PREFERABLY WITH THE CLOSED END(S) PARTIALLY IN THE DOORWAY AREA OF THE VAN TRAILER. THEN, A FORKLIFT TRUCK, WITH A BUFFER BOARD ACROSS THE FORK TINES (4" X 4", ETC.), CAN LIFT THE LOWER CONTAINER OR STACK AND SLIDE THE CONTAINER OR STACK INTO PROPER LOCATION. CONTAINER(S) MAY HAVE TO BE PRIED INTO FINAL LOCATION WITH A PRY BAR.

   D. SLINGING OF A CONTAINER STACK WILL BE ACCOMPLISHED IN ACCORDANCE WITH APPROVED PROCEDURES.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

1. FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 12. SEE GENERAL NOTE "K" ON PAGE 2.
2. ANTI-CHAFING (16 REQD). SEE THE "ANTI-CHAFING ASSEMBLY" DETAIL AND SPECIAL NOTES ON PAGE 11.
3. SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY" DETAIL ON PAGE 12, AND SPECIAL NOTE 2 ON PAGE 5.
4. INTERMEDIATE HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (1 REQD). POSITION ON EDGE BETWEEN LONGITUDINALLY ADJACENT CONTAINERS AS SHOWN.
5. REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 13. SEE SPECIAL NOTE 3 ON PAGE 5, AND GENERAL NOTE "Q" ON PAGE 2.
6. 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. SEE SPECIAL NOTE 6 ON PAGE 5.
7. SEAL FOR 1-1/4" STEEL STRAPPING (36 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.
8. ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER STRAPPING AT ALL POINTS OF CONTACT WITH THE CONTAINER.

(M430 CONTAINER)

12-UNIT LOAD IN A 40'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TRAILER

PROJECT GM 844-91

SPECIAL NOTES:

1. A 12-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED. SEE SPECIAL NOTE 5 BELOW.

2. THE SPACER ASSEMBLY SHOWN AS PIECE MARKED ③ IN THE LOAD ON PAGE 4 IS USED FOR THE PURPOSE OF PROVIDING FOR PROPER WEIGHT DISTRIBUTION. THE DEPICTED LOAD WITH THE SPACER ASSEMBLY SHOWN AT THE FRONT OF THE LOAD IS APPLICABLE FOR TRAILERS WHICH HAVE THE REAR TANDEMS LOCATED IN THE "WESTERN" POSITION (AT THE EXTREME REAR OF THE TRAILER). IF THE TRAILER HAS THE REAR TANDEMS LOCATED OTHER THAN AT THE EXTREME REAR, THE SPACER ASSEMBLY SHOULD BE PLACED EITHER BETWEEN THE LOAD UNITS OR AT THE REAR OF THE LOAD, AS DESIRED. IF THE TRAILER FURNISHED FOR LOADING IS 45-FOOT OR 48-FOOT LONG, EITHER THE "WESTERN" TYPE OR OTHER THAN "WESTERN", THE SPACER ASSEMBLY SHOULD BE PLACED BETWEEN THE LOAD UNITS. THE GUIDANCE FOR LOCATION OF THE SPACER ASSEMBLY IS ADVISORY AND MAY BE CHANGED TO SUIT.

3. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE CONTAINERS AND THE REAR DOOR MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAT 9", USE "REAR BLOCKING ASSEMBLY A", PIECE MARKED ⑤. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY B", AS DETAILED ON PAGE 13.

4. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 6 THRU 10.

5. NOTE THAT AN 8'-0" WIDE (INSIDE DIMENSION) OR WIDER TRAILER IS REQUIRED FOR SHIPMENT OF THE M611 CONTAINER.

6. IF TIE BARS ARE NOT AVAILABLE FOR SECUREMENT OF AN UPPER CONTAINER TO A LOWER CONTAINER IN A STACK, THE 2-HIGH LOADING PROCEDURES CAN BE USED. AN ADDITIONAL STACK UNITIZING STRAP, HOWEVER, 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 CONTAINERS WHICH ARE NOT FURNISHED WITH TIE BARS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M611 CONTAINER	12	40,140 LBS
DUNNAGE		381 LBS
TOTAL WEIGHT		40,521 LBS (APPROX)

BILL OF MATERIAL

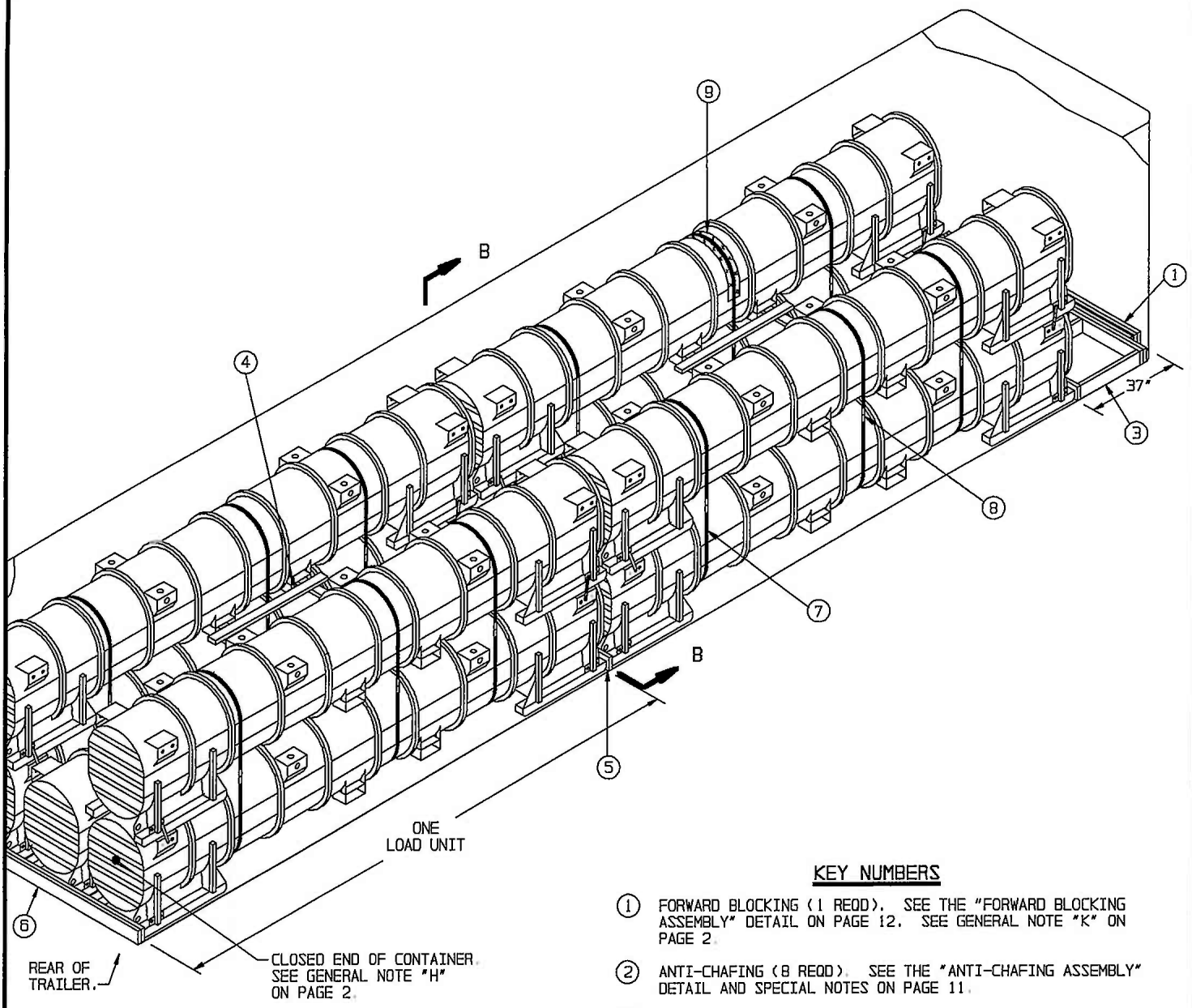
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	135	68
2" X 6"	79	79
NAILS	**NO. REQD**	**POUNDS**
6d (2")	6	NIL
10d (3")	63	1

STEEL STRAPPING, 1-1/4" X .031" OR .035"	586' REQD	84 LBS
SEAL FOR 1-1/4" STRAPPING	36 REQD	2 LBS
STAPLE, 1-1/4"	32 REQD	NIL
ANTI-CHAFING MATERIAL	AS REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M430 CONTAINER	12	38,700 LBS
DUNNAGE		381 LBS
TOTAL WEIGHT		39,081 LBS (APPROX)

(M430 CONTAINER)
12-UNIT LOAD IN A 40'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TRAILER



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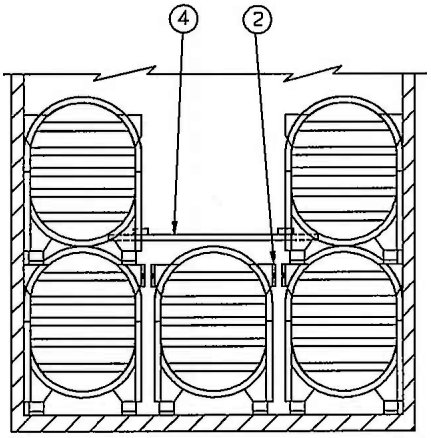


SECTION B-B

KEY NUMBERS

(1) FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 12. SEE GENERAL NOTE "K" ON PAGE 2.

(2) ANTI-CHAFING (8 REQD). SEE THE "ANTI-CHAFING ASSEMBLY" DETAIL AND SPECIAL NOTES ON PAGE 11.

(3) SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY" DETAIL ON PAGE 12, AND SPECIAL NOTE 2 ON PAGE 7.

(4) ANTI-SWAY BRACE (2 REQD). POSITION BETWEEN LATERALLY ADJACENT CONTAINERS IN THE TOP LAYER. SEE THE "ANTI-SWAY BRACE ASSEMBLY" DETAIL ON ON PAGE 15.

(5) INTERMEDIATE HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (1 REQD). POSITION ON EDGE BETWEEN LONGITUDINALLY ADJACENT CONTAINERS AS SHOWN.

(6) REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 13. SEE SPECIAL NOTE 4 ON PAGE 7, AND GENERAL NOTE "Q" ON PAGE 2.

(7) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-0" LONG STEEL STRAPPING (12 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3. SEE SPECIAL NOTE 7 ON PAGE 7.

(8) SEAL FOR 1-1/4" STEEL STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.

(9) ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER STRAPPING AT ALL POINTS OF CONTACT WITH THE CONTAINER.

(M430 CONTAINER)

PAGE 6 TYPICAL LTL (10-UNIT LOAD) IN A 40'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TRAILER

PROJECT GM 844-91

SPECIAL NOTES:

1. A 10-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED. SEE SPECIAL NOTE 6 BELOW.

2. THE SPACER ASSEMBLY SHOWN AS PIECE MARKED ③ IN THE LOAD ON PAGE 6 IS TYPICALLY SHOWN AT THE FRONT OF THE LOAD. THE SPACER ASSEMBLY MAY BE POSITIONED BETWEEN THE LOAD UNITS, IF DESIRED, IN LIEU OF THE INTERMEDIATE HEADER, PIECE MARKED ⑤. THERE WILL NOT BE A WEIGHT DISTRIBUTION PROBLEM FOR THE SHIPMENT OF A 10-UNIT LOAD REGARDLESS OF THE LOCATION OF THE SPACER ASSEMBLY.

3. THE ANTI-SWAY BRACE, SHOWN AS PIECE MARKED ④, IS REQUIRED FOR THE LATERAL BRACING WHEN THE CENTER CONTAINER IS OMITTED FROM A LAYER. THE ANTI-SWAY BRACE SHOWN IN THE PLACE OF A CONTAINER OMITTED FROM THE SECOND LAYER MAY ALSO BE USED BETWEEN CONTAINERS IN THE FIRST LAYER WHEN THE CENTER CONTAINER IS OMITTED.

4. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE CONTAINERS AND THE REAR DOOR MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAT 9", USE "REAR BLOCKING ASSEMBLY A", PIECE MARKED ⑥. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY B", AS DETAILED ON PAGE 13.

5. THE DEPICTED LOAD CAN BE INCREASED BY ADDING A CENTER CONTAINER IN EITHER LOAD UNIT. THE LOAD MAY BE DECREASED BY ONE CONTAINER BY OMITTING THE CONTAINERS IN THE SECOND LAYER OF ONE LOAD UNIT AND ADDING A CENTER CONTAINER IN THE OTHER LOAD UNIT. THE LOAD MAY BE DECREASED BY TWO CONTAINERS BY OMITTING THE SECOND LAYER FROM EITHER LOAD UNIT. NOTE THAT A SINGLE CONTAINER IS NOT TO BE PLACED IN THE SECOND LAYER OF A LOAD UNIT. FOR GUIDANCE IN THE SHIPMENT OF SMALLER QUANTITIES, REFER TO PAGES 8 THRU 10.

6. NOTE THAT AN 8'-0" WIDE (INSIDE DIMENSION) OR WIDER TRAILER IS REQUIRED FOR SHIPMENT OF THE M611 CONTAINER.

7. IF TIE BARS ARE NOT AVAILABLE FOR SECUREMENT OF AN UPPER CONTAINER TO A LOWER CONTAINER IN A STACK, THE 2-HIGH LOADING PROCEDURES CAN BE USED. AN ADDITIONAL STACK UNITIZING STRAP, HOWEVER, 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 CONTAINERS WHICH ARE NOT FURNISHED WITH TIE BARS.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M611 CONTAINER	10	33,450 LBS
DUNNAGE		326 LBS
TOTAL WEIGHT		33,776 LBS (APPROX)

BILL OF MATERIAL

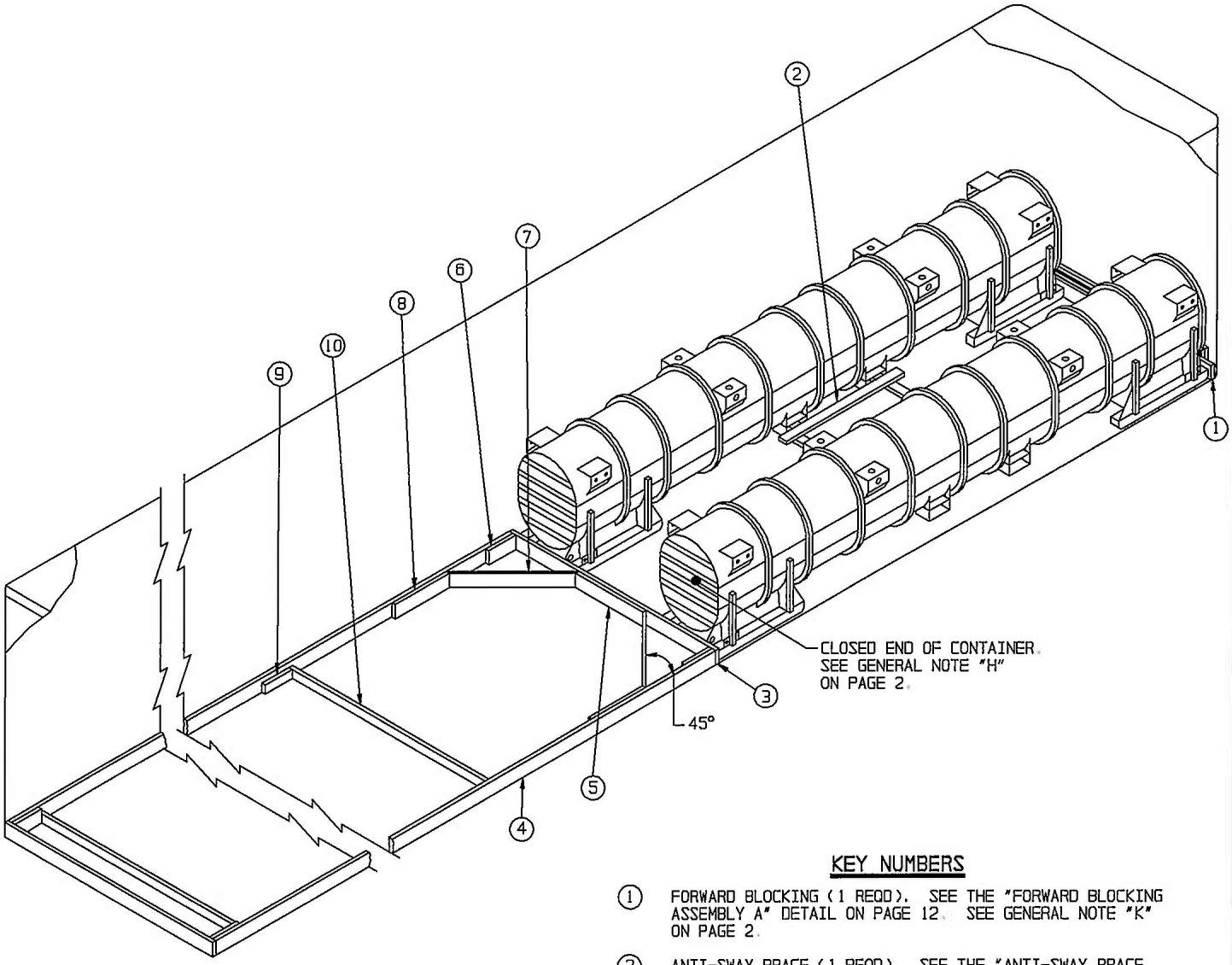
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	71	36
2" X 4"	32	22
2" X 6"	79	79
NAILS	**NO. REQD**	**POUNDS**
6d (2")	6	NIL
10d (3")	87	1-1/2

STEEL STRAPPING, 1-1/4" X .031" OR .035"	344' REQD	49 LBS
SEAL FOR 1-1/4" STRAPPING	24 REQD	1 LB
STAPLE, 1-1/4"	16 REQD	NIL
ANTI-CHAFING MATERIAL	AS REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
M430 CONTAINER	10	32,250 LBS
DUNNAGE		326 LBS
TOTAL WEIGHT		32,576 LBS (APPROX)

(M430 CONTAINER)
TYPICAL LTL (10-UNIT LOAD) IN A 40'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW

KEY NUMBERS

① FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY A" DETAIL ON PAGE 12. SEE GENERAL NOTE "K" ON PAGE 2.

② ANTI-SWAY BRACE (1 REQD). SEE THE "ANTI-SWAY BRACE ASSEMBLY" DETAIL ON PAGE 15, AND SPECIAL NOTE 2 ON PAGE 9.

③ HEADER, 2" X 6" BY TRAILER WIDTH (CUT TO FIT) (2 REQD).

④ SIDE STRUT, 2" X 6" BY CUT TO FIT BETWEEN THE HEADERS, PIECE MARKED ③, (2 REQD). SEE SPECIAL NOTE 4 ON PAGE 9.

⑤ CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO HEADER, PIECE MARKED ③, W/6-10d NAILS.

⑥ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ④, W/5-10d NAILS. TOENAIL TO THE ADJACENT HEADER, PIECE MARKED ③, W/3-12d NAILS.

⑦ DIAGONAL BRACE, 2" X 6" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND TOENAIL TO THE ADJACENT HEADER, PIECE MARKED ③, AND SIDE STRUT, PIECE MARKED ④, W/2-16d NAILS AT EACH END.

⑧ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ④, W/8-10d NAILS.

⑨ STRUT BRACE RETAINER CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ④, W/3-10d NAILS. SEE SPECIAL NOTE 5 ON PAGE 9.

⑩ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT TO FIT) (MINIMUM OF ONE REQD). NAIL TO PIECES MARKED ⑥, AND/OR TO THE STRUT BRACE RETAINER CLEATS, PIECES MARKED ⑨, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 9.

TYPICAL LTL (2-UNIT LOAD) IN A CONVENTIONAL VAN TRAILER

SPECIAL NOTES:

1. A 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.

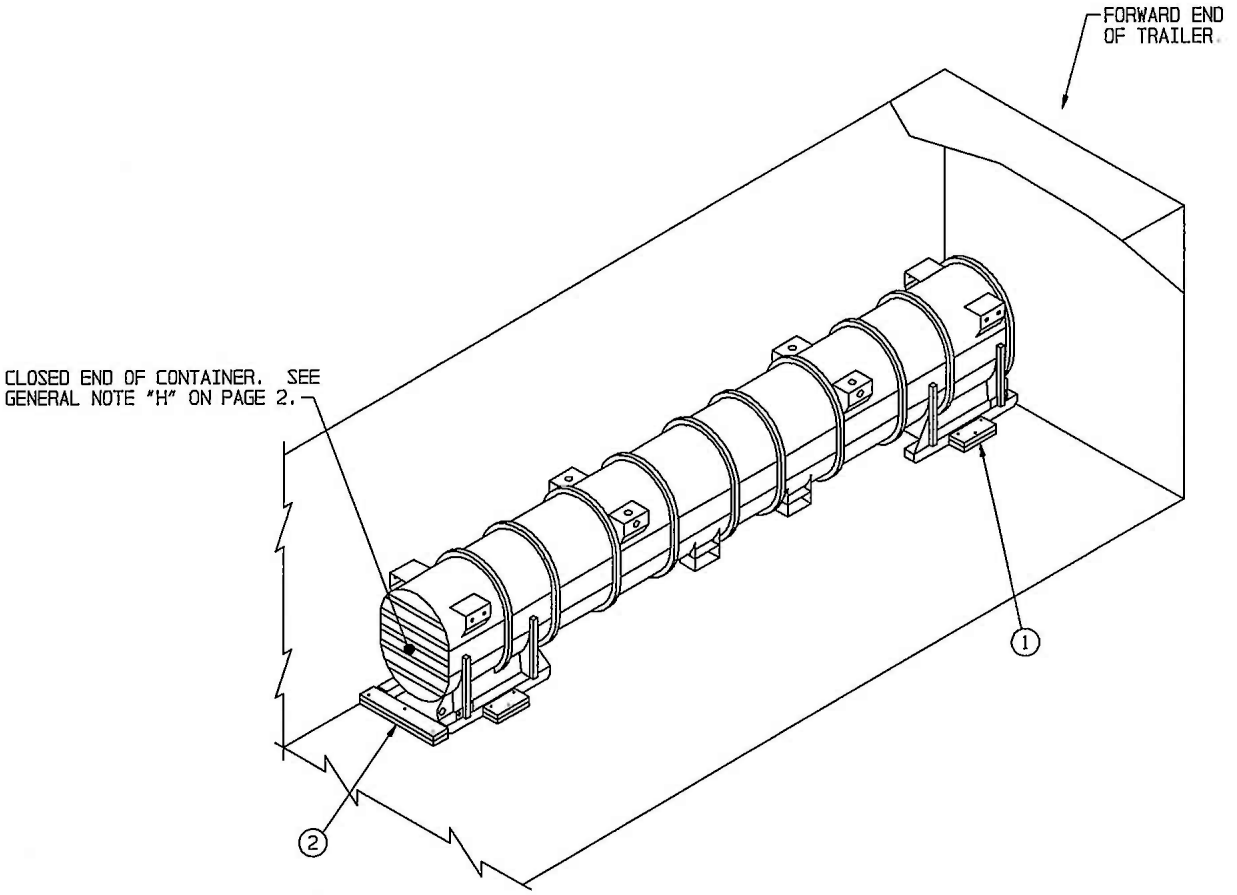
2. THE ANTI-SWAY BRACE, PIECE MARKED ②, IS SHOWN AS TYPICAL ONLY. IF THREE CONTAINERS ARE TO BE LOADED, THE ANTI-CHAFING DETAILED ON PAGE 11 WILL BE USED IN LIEU OF PIECE MARKED ②.

3. THE K-BRACE BLOCKING SHOWN AS PIECES MARKED ③ THRU ⑩ WILL RETAIN A MAXIMUM OF 20,000 POUNDS.

4. IF THE SIDE STRUTS SHOWN AS PIECE MARKED ④ ARE FORMED FROM MORE THAN ONE PIECE OF MATERIAL, THEY MAY BE SPLICED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING W/4-10d NAILS AT EACH END. IF DESIRED, THE STRUT BRACING PIECE(S), PIECE MARKED ⑩, MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE RETAINER CLEATS, PIECES MARKED ⑨.

5. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO PIECE MARKED ⑥. IF THE SIDE STRUTS, PIECE MARKED ④, ARE LONGER THAN 7'-0" AN ADDITIONAL STRUT BRACE, PIECE MARKED ⑩, AND TWO STRUT BRACE RETAINER CLEATS, PIECE MARKED ⑨, MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.

5. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, THE NAILED-HEADER METHOD OF REAR BLOCKING MUST BE INSTALLED IN LIEU OF THE "K-BRACE" TYPE BLOCKING. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGE 16 FOR GUIDANCE. NOTE THAT THE NAILED HEADER METHOD OF REAR BLOCKING MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS, AND MAY BE USED IN LIEU OF PIECES MARKED ③ THRU ⑩ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 7-6" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.

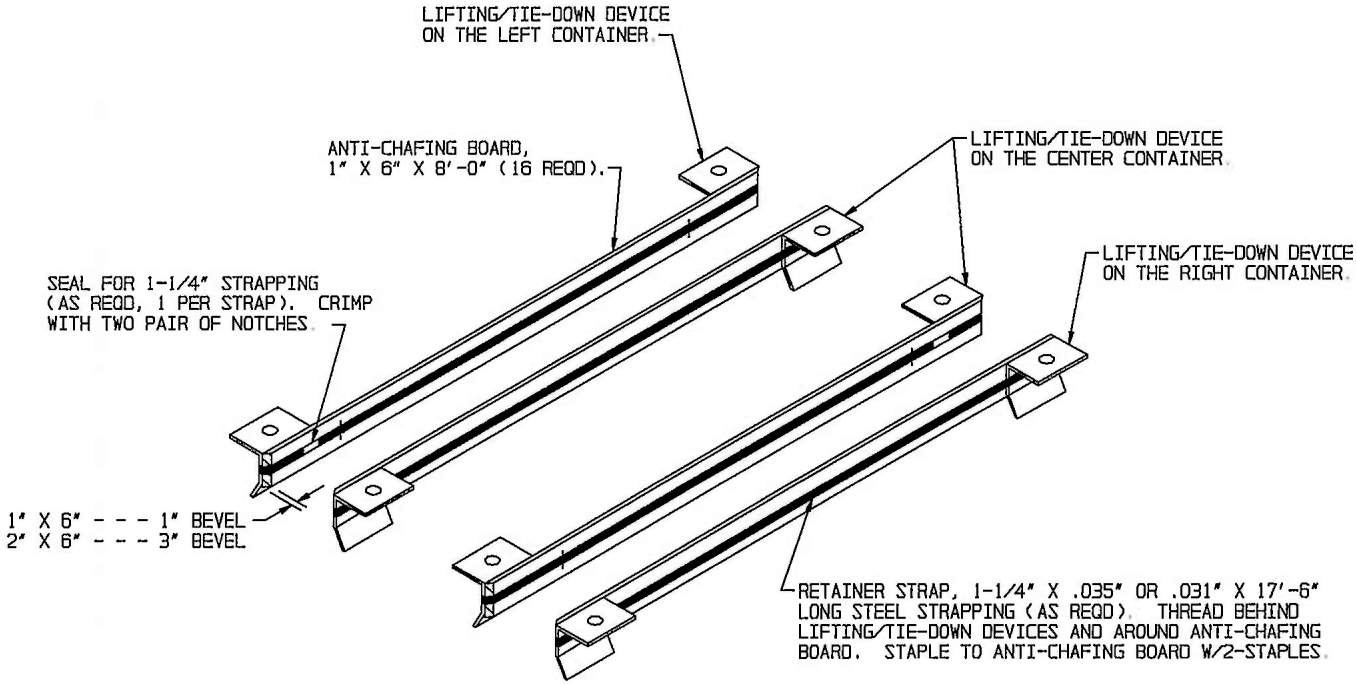
2. IF MORE THAN ONE CONTAINER IS TO BE TRANSPORTED, THE LOAD SHOULD BE FORMED IN ROWS, WITH THE CONTAINERS POSITIONED AGAINST OPPOSITE SIDEWALLS. SIDE BLOCKING AND HEADER, SHOWN AS PIECES MARKED ① AND ② ABOVE, MUST BE INSTALLED FOR THE ADDED CONTAINERS. IF THE TRAILER HAS ROUNDED CORNERS AT THE FORWARD END, MOVE THE CONTAINERS BACK A SUITABLE DISTANCE TO CLEAR THE CORNERS AND INSTALL AN ADDITIONAL HEADER, PIECE MARKED ②.

KEY NUMBERS

① SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (2 REQD). POSITION AGAINST THE CONTAINER SKIDS AS SHOWN ABOVE. NAIL THE FIRST PIECE TO THE FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTES "N" AND "O" ON PAGE 2.

② HEADER, 2" X 4" X 28" (DOUBLED) (1 REQD). POSITION AGAINST THE CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 2 AT LEFT.

TYPICAL LTL (1-UNIT LOAD) IN A CONVENTIONAL VAN TRAILER

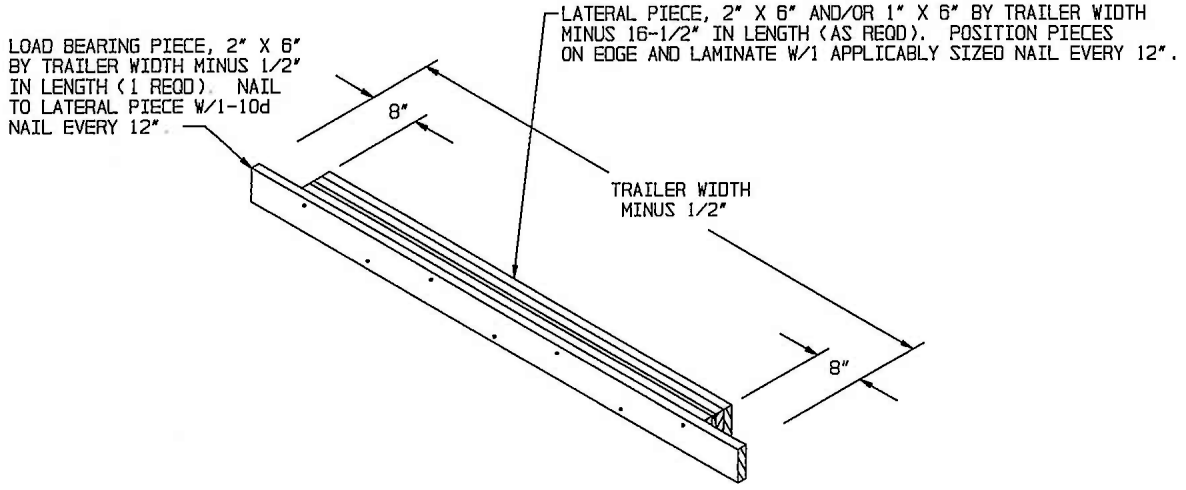


ANTI-CHAFING ASSEMBLY

THIS INSTALLATION MUST BE MADE AT BOTH LAYERS IN THE LOAD AS SHOWN ON PAGE 4. SEE SPECIAL NOTES BELOW.

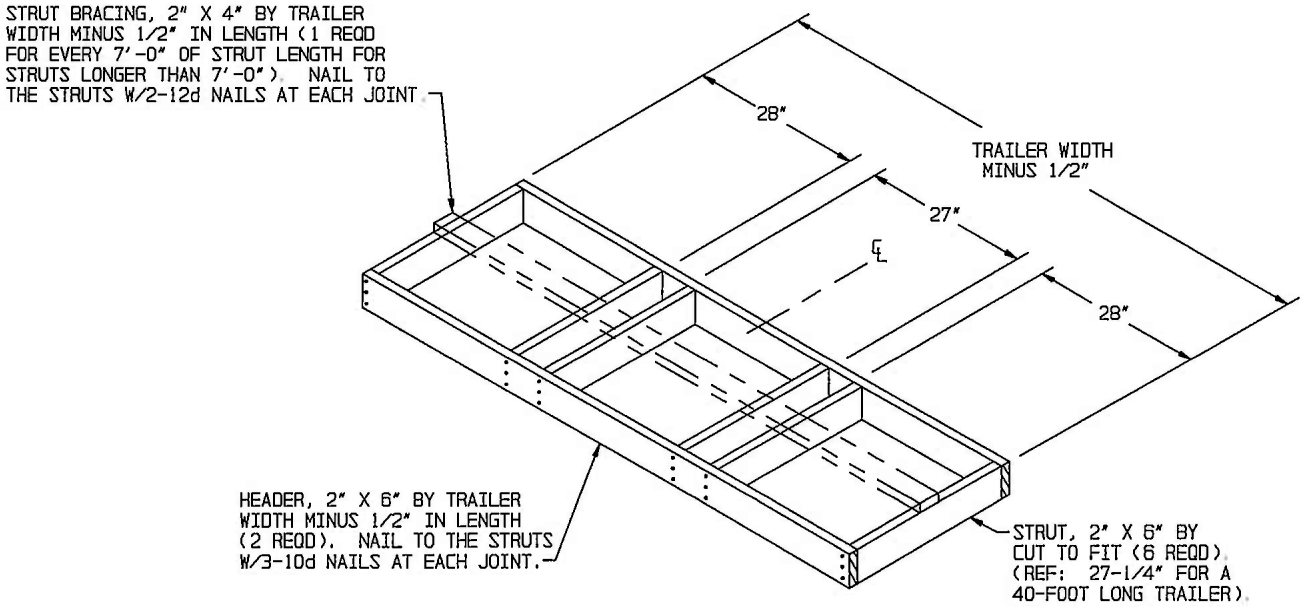
SPECIAL NOTES:

1. PRIOR TO LOADING THE CONTAINERS INTO THE TRAILER, SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
2. THE THICKNESS OF THE ANTI-CHAFING, BETWEEN THE CONTAINER LIFTING/TIE-DOWN DEVICES, MUST BE ADJUSTED TO COMPLY WITH THE DIMENSIONAL VARIANCE OF THE CONTAINER WIDTH, AND/OR THE WIDTH OF THE TRAILER TO BE LOADED. CONSTRUCT THE ASSEMBLY SO AS TO ALLOW NO MORE THAN 4" VOID ACROSS THE WIDTH OF THE TRAILER AFTER THE ANTI-CHAFING IS IN PLACE. ADJUSTMENTS CAN BE MADE BY USING A DIFFERENT THICKNESS ANTI-CHAFING BOARD OR BY LAMINATING AN ADDITIONAL PIECE TO ONE OR MORE ANTI-CHAFING BOARDS.
3. WHEN USING THE ANTI-CHAFING DEPICTED ABOVE, INSTALLATION MUST BE MADE PRIOR TO LOADING CONTAINERS INTO THE TRAILER. ALSO, THE RETAINER STRAPS SHOULD BE LOCATED SO THE SEALS ON THE STRAPS DO NOT INTERFERE WITH EACH OTHER WHEN LOADING CONTAINERS INTO THE TRAILER.



FORWARD BLOCKING ASSEMBLY

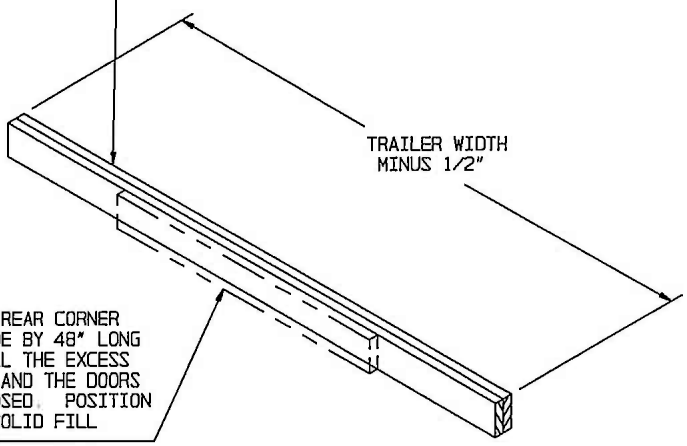
THIS ASSEMBLY IS DESIGNED FOR USE AT THE FRONT END OF A TRAILER HAVING ROUNDED CORNERS, AND IS APPLICABLE FOR A CORNER RADIUS OF NOT MORE THAN 6-1/2". IF THE RADIUS IS FROM 6-1/2" TO 8", ADDITIONAL FILL PIECES WILL BE USED.



SPACER ASSEMBLY

THIS ASSEMBLY IS DESIGNED TO PROVIDE FOR PROPER WEIGHT DISTRIBUTION AS TYPICALLY SHOWN IN THE LOAD ON PAGE 4.

SOLID FILL, 6" WIDE MATERIAL BY TRAILER WIDTH MINUS 1/2" IN LENGTH BY THE THICKNESS REQUIRED TO CONTACT REAR CORNER POSTS OR TO CONTACT REAR DOORS OF THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE AND LAMINATE W/1 APPLICABLY SIZED NAIL EVERY 12".

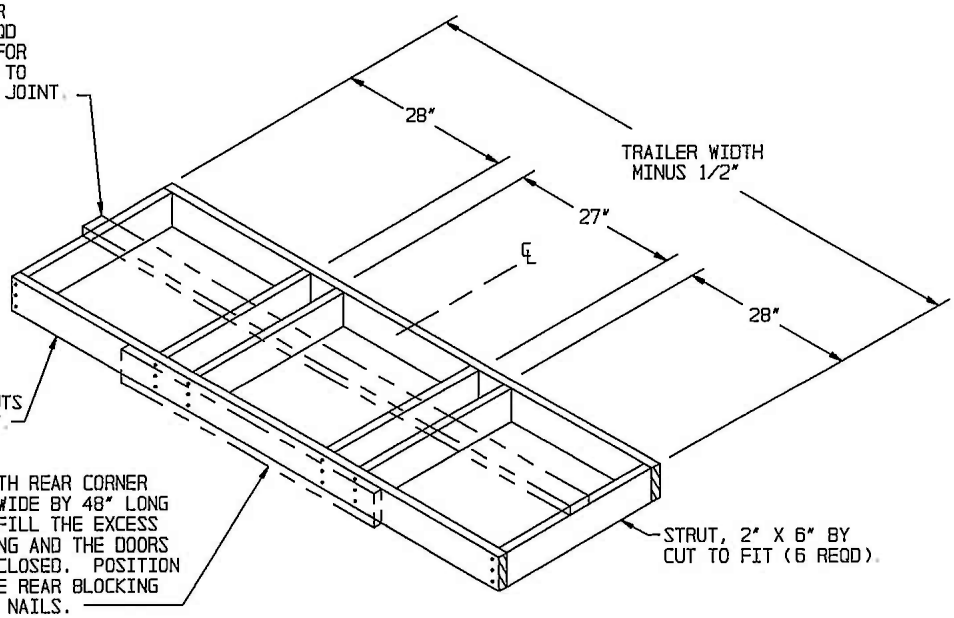


IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING AND THE DOORS ON THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE AND NAIL TO THE SOLID FILL W/4 APPLICABLY SIZED NAILS.

REAR BLOCKING ASSEMBLY A

THIS REAR BLOCKING IS DESIGNED FOR USE AT THE REAR OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS LESS THAN 9" BUT 1-1/2" OR MORE, AS TYPICALLY SHOWN IN THE LOAD ON PAGE 4.

STRUT BRACING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD FOR EVERY 7'-0" OF STRUT LENGTH FOR STRUTS LONGER THAN 7'-0"). NAIL TO THE STRUTS W/2-12d NAILS AT EACH JOINT.



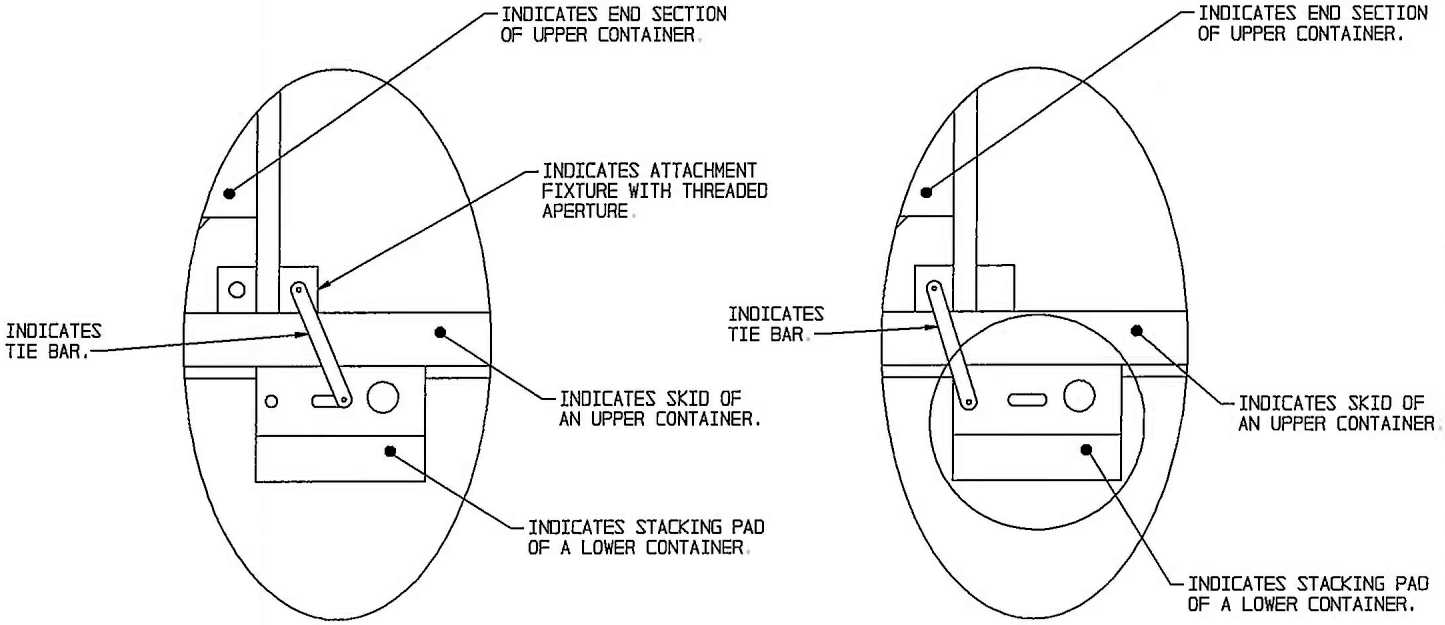
HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING AND THE DOORS ON THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE AND NAIL TO THE REAR BLOCKING ASSEMBLY W/4 APPLICABLY SIZED NAILS.

STRUT, 2" X 6" BY CUT TO FIT (6 REQD).

REAR BLOCKING ASSEMBLY B

THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF A LOAD WHEN THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS 9" OR GREATER.



PREFERRED METHOD

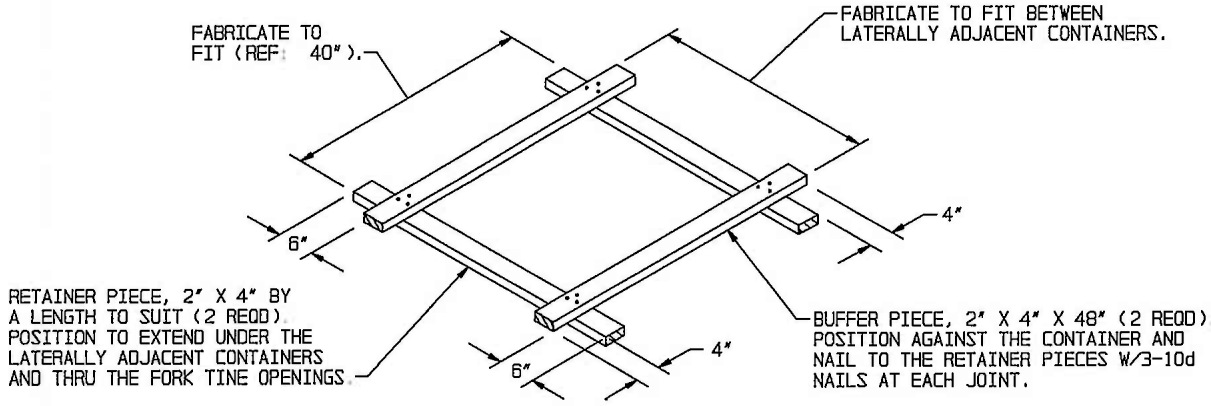
SEE NOTE 1 BELOW.

ALTERNATE METHOD

TIE BAR INSTALLATION

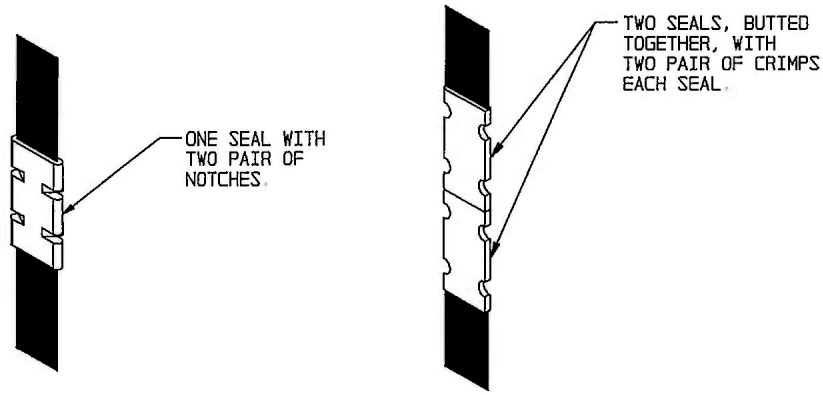
NOTE 1: AT THE OTHER END OF A STACK, THE TIE BAR WILL ANGLE UPWARD IN A DIRECTION OPPOSITE TO THAT SHOWN ABOVE AND TOWARD THE ADJACENT END SECTION OF THE UPPER CONTAINER.

NOTE 2: IF TIE BARS ARE NOT AVAILABLE, 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 SIDE OF TWO RIBS AND TWO ARE TO BE APPLIED AT THE RIGHT SIDE OF TWO RIBS. PROPER PLACEMENT OF THESE UNITIZING STRAPS WILL PERMIT SHIPMENT OF THE STACKED CONTAINERS WHICH ARE NOT FURNISHED WITH TIE BARS.



ANTI-SWAY BRACE ASSEMBLY

IF DESIRED, THE ANTI-SWAY BRACE CAN BE PARTIALLY PRE-ASSEMBLED, ONE BUFFER PIECE CAN BE NAILED TO BOTH RETAINER PIECES. THE LONG ENDS OF THE ASSEMBLY CAN THEN BE INSTALLED INTO THE FORKLIFT OPENING OF A LOADED CONTAINER PRIOR TO POSITIONING THE LATERALLY ADJACENT CONTAINER.



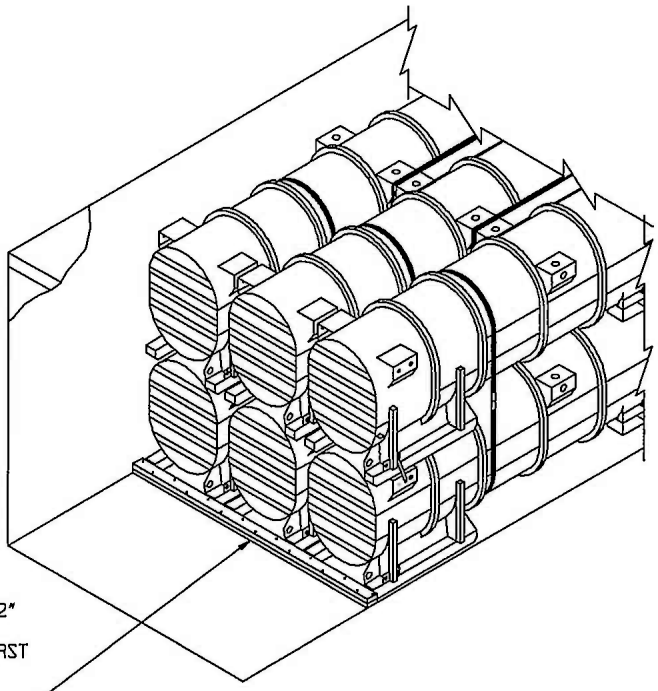
STRAP JOINT A

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

STRAP JOINT B

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

END-OVER-END LAP JOINT DETAILS



HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (DOUBLED) (1 REQD). POSITION AGAINST THE CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/16-10d NAILS (1 EVERY 6"). NAIL THE SECOND PIECE TO THE FIRST PIECE IN A LIKE MANNER.

NAILED-HEADER METHOD

SPECIAL NOTES:

1. THE NAILED-HEADER METHOD OF REAR BLOCKING DEPICTED ABOVE CAN ONLY BE USED IN TRAILERS HAVING A NAILABLE FLOOR AREA BETWEEN THE LADING AND THE METAL THRESHOLD, OR A THRESHOLD PLATE IF THE TRAILER IS SO EQUIPPED, OF AT LEAST 6".

2. THE NAILED-HEADER METHOD OF REAR BLOCKING IS ADEQUATE FOR THE RETENTION OF THE MAXIMUM WEIGHT LOAD.

3. THE NAILED-HEADER METHOD, ALTHOUGH DESIGNED ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.