

LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF MAVERICK MISSILES PACKED IN CNU-445/E AND CNU-447/E SHIPPING AND STORAGE CONTAINERS

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
CONTAINER DETAIL - - - - -	3
TYPICAL FULL LOADING PROCEDURES - - - - -	4-7
TYPICAL LTL PROCEDURES - - - - -	8-10
DETAILS - - - - -	11-15
PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS - - - - -	16

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

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND <i>Timothy R. Free</i>	DRAFTSMAN	TECHNICIAN	ENGINEER
	S. WILSON	P. BRIGHT	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND <i>William F Ernst</i>	VALIDATION ENGINEERING DIVISION	TRANSPORTATION ENGINEERING DIVISION	LOGISTICS ENGINEERING OFFICE
	<i>Am JHK</i>	<i>W. French</i>	<i>W F Ernst</i>
U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL			
FEBRUARY 1993			
CLASS	DIVISION	DRAWING	FILE
19	48	8504	SP11J15

DO NOT SCALE

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 MAVERICK MISSILES PACKED IN CNU-445/E OR CNU-447/E SHIPPING AND STORAGE CONTAINERS. SUBSEQUENT REFERENCE TO A CONTAINER HEREIN MEANS WITH AMMUNITION ITEMS. SEE THE CONTAINER DETAIL ON PAGE 3.
- C. 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. VAN TRAILERS WHICH ARE 40'-0" LONG BY 7'-8'-1/2" WIDE AND 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) HAVE 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.
- D. 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.
- E. 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, DUNNAGE, 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.
- F. 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.
- G. THE "LOAD AS SHOWN" FOR MOST OF THE FULL LOADS DEPICTED HEREIN IS BASED ON AN APPROXIMATE LADING WEIGHT OF 42,000 POUNDS. THE SPECIFIED BLOCKING AND BRACING FOR THE FULL LOADS IS ADEQUATE FOR THE RETENTION OF HEAVIER LOADS, IF IT IS DESIRED TO INCREASE THE LADING WEIGHT.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE 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. SOME 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 FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①, AND POSITION THE CONTAINERS DIRECTLY AGAINST THE FORWARD PORTION OF THE TRAILER.

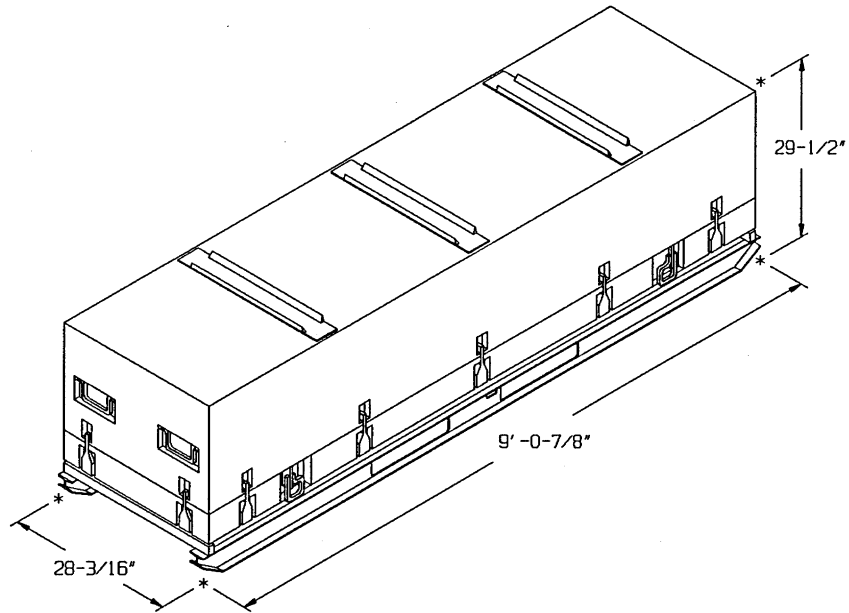
(GENERAL NOTES AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1 OR 2, HEAVY DUTY, COATED FINISH (ORGANIC), ZINC-COATED (GRADE 2), OR UNCOATED.
- SEAL, STRAP - - - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, TYPE D, STYLE I, II, OR IV.

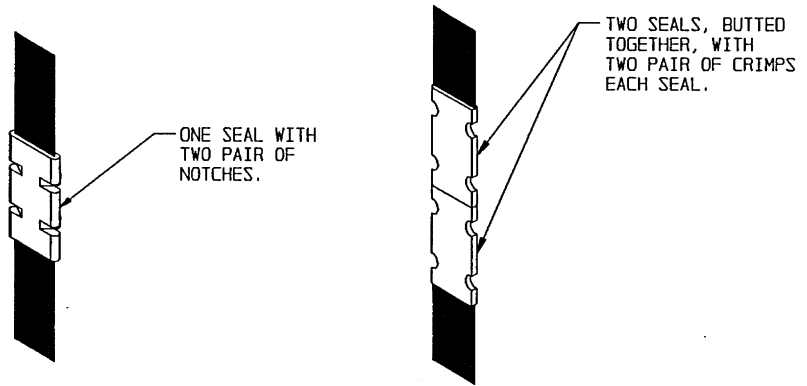
(GENERAL NOTES CONTINUED)

- K. 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 3 FOR GUIDANCE.
- L. 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.
- M. 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.
- N. 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.
- O. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- 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.



CNU-445/E AND CNU-447/E CONTAINER

CONTAINER WEIGHT - - - 1,120 LBS (APPROX)
 CUBE - - - - - 52.4 CUBIC FEET (APPROX)



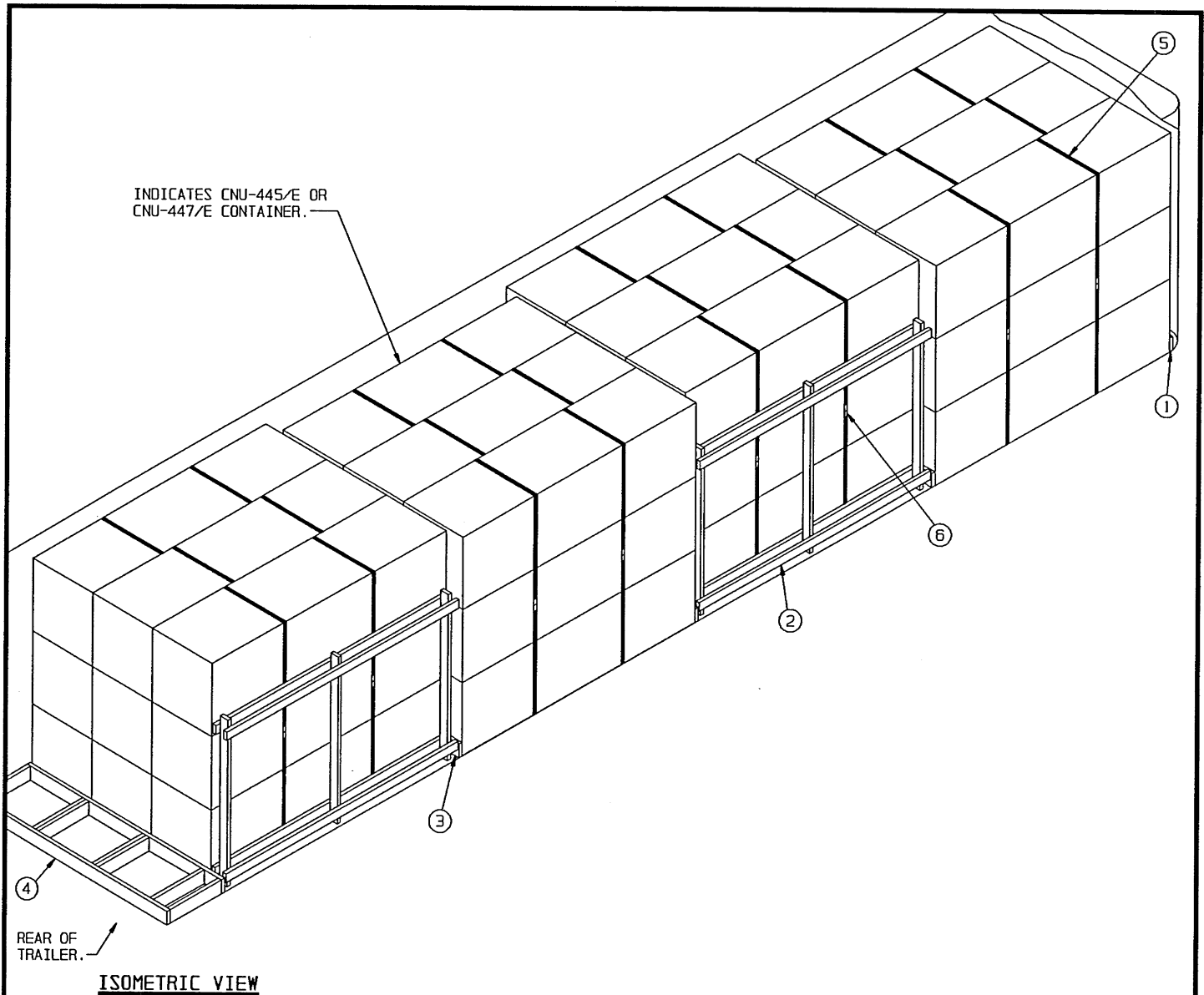
STRAP JOINT A

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



KEY NUMBERS

- ① FORWARD BLOCKING (1 REOD). SEE THE "FORWARD BLOCKING ASSEMBLY A" DETAIL ON PAGE 11 AND GENERAL NOTE "J" ON PAGE 2.
- ② SIDE FILL (4 REOD). SEE THE "SIDE FILL ASSEMBLY" DETAIL ON PAGE 11 AND SPECIAL NOTE 2 ON PAGE 5.
- ③ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (3 REOD). INSTALL BETWEEN LONGITUDINALLY ADJACENT LOAD BAYS TO SEPARATE CONTAINER SKIDS.
- ④ REAR BLOCKING (1 REOD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 12 AND SPECIAL NOTE 5 ON PAGE 5.
- ⑤ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (24 REOD, 2 PER STACK). INSTALL TO ENCIRCLE THREE CONTAINERS. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑥ SEAL FOR 1-1/4" STRAPPING (48 REOD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

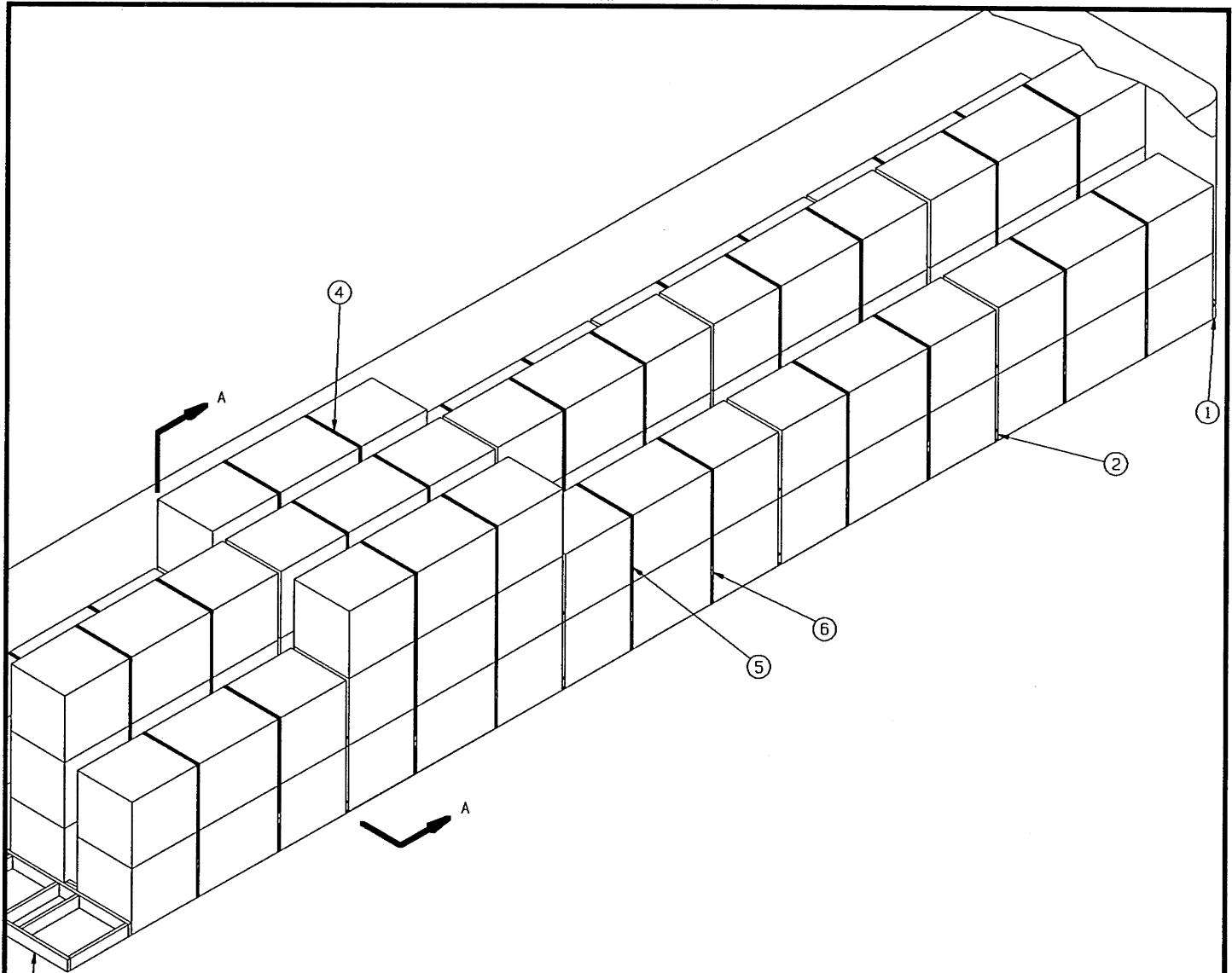
SPECIAL NOTES:

1. A 36-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. IF A WIDER TRAILER IS USED FOR THE DEPICTED LOAD, 1" X 4" AND/OR 2" X 4" FILL PIECES MAY BE LAMINATED TO THE HORIZONTAL PIECES OF THE SIDE FILL. LAMINATE WITH ONE APPROPRIATELY SIZED NAIL EVERY 12".
3. THE DEPICTED LOAD MAY BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED; THE TOP CONTAINER CAN BE OMITTED FROM ONE THRU FOUR CONTAINER STACKS WHICH ARE ADJACENT TO THE SIDE FILL, PIECE MARKED ②. NOTE THAT THE SIDE FILL WILL HAVE TO BE MODIFIED AS SPECIFIED BY "NOTE *" ON PAGE 11.
4. IF THE TRAILER TO BE LOADED IS MORE THAN 40'-0" LONG, A SPACER ASSEMBLY, CONSTRUCTED THE SAME AS "REAR BLOCKING ASSEMBLY A", CAN BE POSITIONED BETWEEN LONGITUDINALLY ADJACENT LOAD BAYS TO PROVIDE FOR PROPER WEIGHT DISTRIBUTION. TWO HEADERS, PIECE MARKED ③ MUST BE OMITTED.
5. 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 THAN 9", USE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 12. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", AS SHOWN. SEE SPECIAL NOTE 8.
6. THE UNITIZING STRAPS, PIECE MARKED ⑤ IN THE LOAD ON PAGE 4, WILL BE INSTALLED PRIOR TO PLACEMENT OF CONTAINERS INTO THE TRAILER. STRAPS SHOULD BE POSITIONED AS FAR APART AS THE FORK TINE OPENINGS PERMIT.
7. FOR SHIPMENT OF LESS THAN FULL LOAD, REFER TO THE APPLICABLE GUIDANCE ON PAGES 8 THRU 10.
8. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL 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 SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	7	4
2" X 4"	211	141
2" X 6"	79	79
NAILS	NO. REOD	POUNDS
6d (2")	6	NIL
10d (3")	148	2-1/2
STEEL STRAPPING, 1-1/4" - - 480' REOD - - 68.57 LBS		
SEAL FOR 1-1/4" STRAPPING - - 48 REOD - - 3.11 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-445/E OR		
CNU-447/E CNTR	36	40,320 LBS
DUNNAGE		297 LBS
TOTAL WEIGHT		40,617 LBS (APPROX)

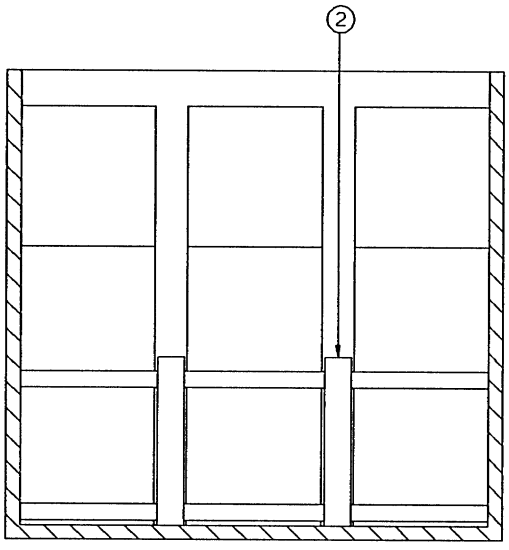


ISOMETRIC VIEW

REAR OF TRAILER.

KEY NUMBERS

- ① FORWARD BLOCKING (1 REOD). SEE THE "FORWARD BLOCKING ASSEMBLY B" DETAIL ON PAGE 13. SEE SPECIAL NOTE 7 ON PAGE 7.
- ② SEPARATOR GATE (4 REOD). SEE THE DETAIL ON PAGE 14.
- ③ REAR BLOCKING (1 REOD). SEE THE "REAR BLOCKING ASSEMBLY C" DETAIL ON PAGE 15, AND SPECIAL NOTE 3 ON PAGE 7.
- ④ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (14 REOD, 2 PER STACK). INSTALL TO ENCIRCLE THREE CONTAINERS. SEE SPECIAL NOTE 4 ON PAGE 7.
- ⑤ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 15'-6" LONG STEEL STRAPPING (16 REOD, 2 PER STACK). INSTALL TO ENCIRCLE TWO CONTAINERS.
- ⑥ SEAL FOR 1-1/4" STRAPPING (60 REOD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.



SECTION A-A

SPECIAL NOTES:

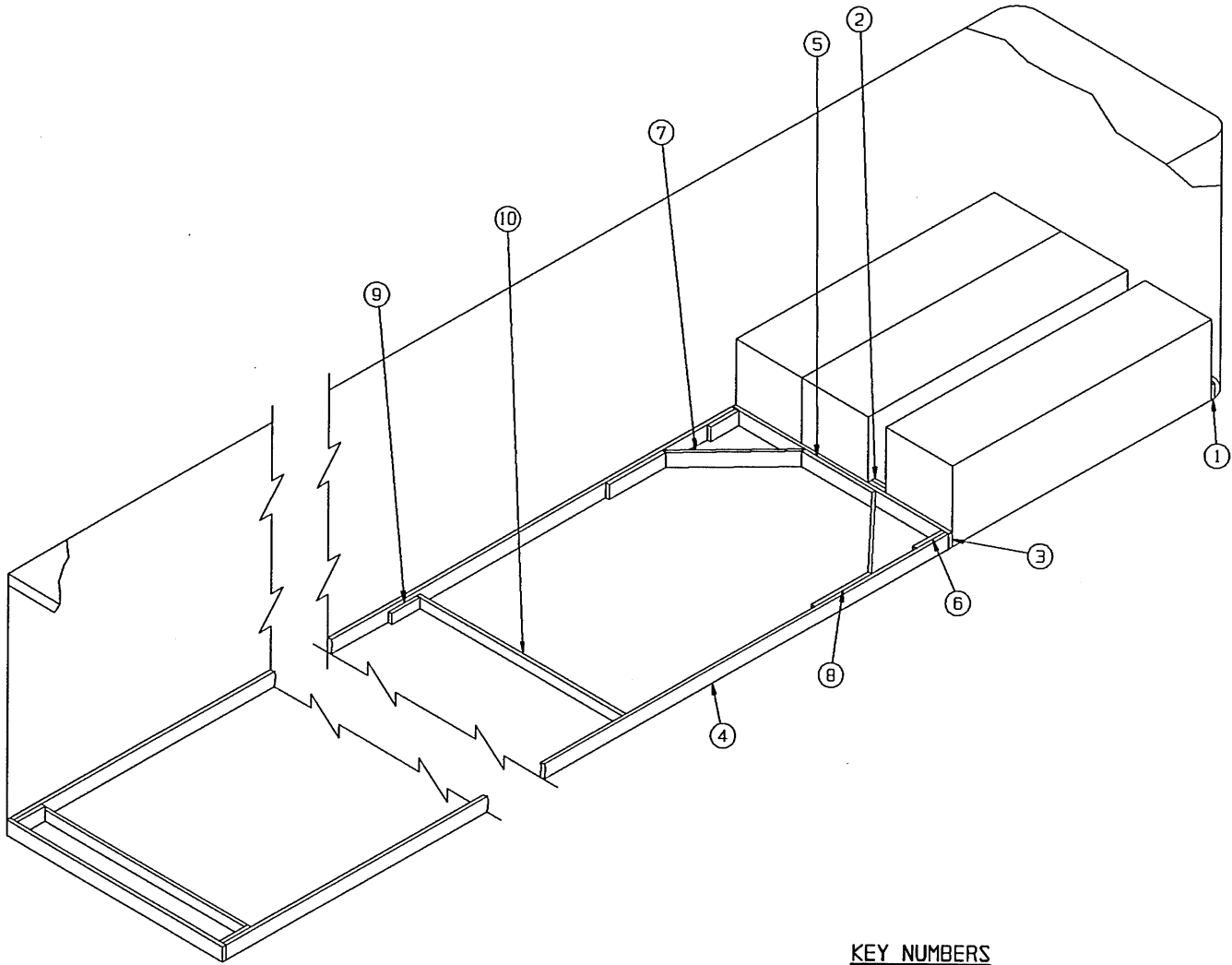
1. A 37-UNIT LOAD IS SHOWN IN A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, BY ADDING OR OMITTING CONTAINERS FROM THE TOP OF ONE OR MORE STACKS.
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 THAN 9" USE "REAR BLOCKING ASSEMBLY D" AS DETAILED ON PAGE 15. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY C" PIECE MARKED ③.
4. THE UNITIZING STRAPS, PIECE MARKED ④ AND ⑤ IN THE LOAD ON PAGE 6, WILL BE INSTALLED PRIOR TO PLACEMENT OF CONTAINERS INTO THE TRAILER. STRAPS SHOULD BE POSITIONED AS FAR APART AS THE FORK TINE OPENINGS PERMIT.
5. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 8 THRU 10.
6. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED HOWEVER, SPECIAL 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 SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.
7. IF THE TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT, OMIT THE LATERAL PIECES ON THE FORWARD BLOCKING PIECE MARKED ①, AND POSITION THE ASSEMBLY AGAINST THE FRONT WALL OF THE TRAILER.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	7	4
2" X 4"	66	44
2" X 6"	111	111
NAILS	NO. REQD	POUNDS
6d (2")	6	NIL
10d (3")	118	1-3/4
STEEL STRAPPING, 1-1/4" - - 528' REQD - - 76.00 LBS		
SEAL FOR 1-1/4" STRAPPING - - 60 REQD - - 3.00 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-445/E OR		
CNU-447/E CNTR	37	41,440 LBS
DUNNAGE		391 LBS
TOTAL WEIGHT		41,831 LBS (APPROX)



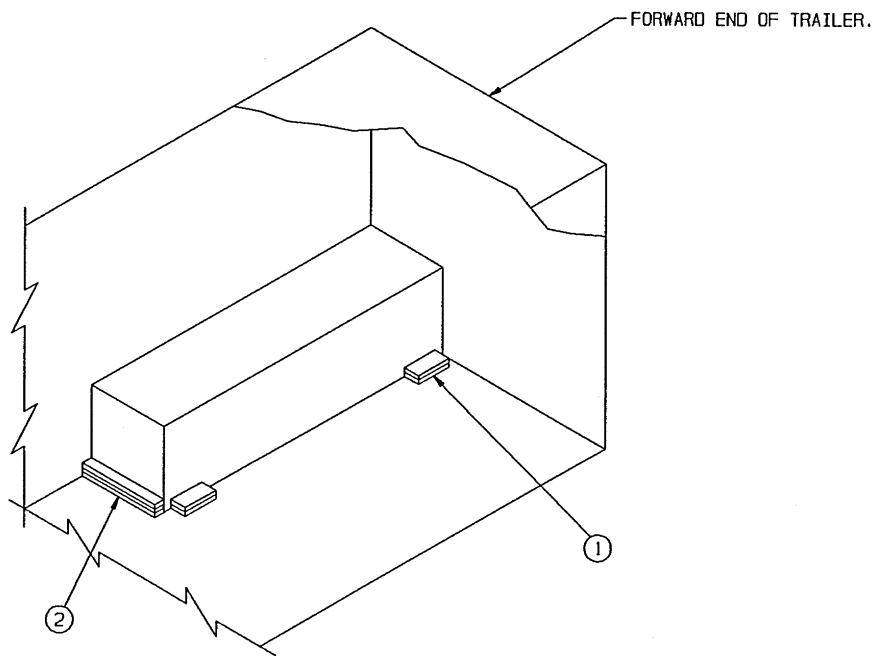
ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING (1 REOD). SEE THE "FORWARD BLOCKING ASSEMBLY B" DETAIL ON PAGE 13. SEE SPECIAL NOTE 7 ON PAGE 9.
- ② BEARING PIECE, 2" X 6" BY DISTANCE BETWEEN CONTAINER SKIDS MINUS 1" (DOUBLED) (1 REOD). NAIL THE FIRST PIECE TO PIECE MARKED ③ W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ HEADER, 2" X 6" BY TRAILER WIDTH (CUT TO FIT) (2 REOD).
- ④ SIDE STRUT, 2" X 6" BY CUT TO FIT BETWEEN HEADERS MARKED ③ (2 REOD). SEE SPECIAL NOTE 3 ON PAGE 9.
- ⑤ CENTER CLEAT, 2" X 6" X 30" (1 REOD). NAIL TO HEADER PIECE MARKED ③, W/6-10d NAILS.
- ⑥ POCKET CLEAT, 2" X 6" X 12" (4 REOD). NAIL TO 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" (2 REOD). 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 REOD). NAIL TO A SIDE STRUT, PIECE MARKED ④, W/8-10d NAILS.
- ⑨ STRUT BRACE RETAINER CLEAT, 2" X 4" X 12" (AS REOD). NAIL TO SIDE STRUT, PIECE MARKED ④, W/3-10d NAILS. SEE SPECIAL NOTE 4 ON PAGE 9.
- ⑩ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT TO FIT) (MINIMUM OF ONE REOD). NAIL TO PIECES MARKED ⑨ W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 4 ON PAGE 9.

SPECIAL NOTES:

1. A 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. THE K-BRACE BLOCKING SHOWN AS PIECES MARKED ③ THRU ⑩ WILL RETAIN A MAXIMUM OF 20,000 POUNDS.
3. 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.
4. 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.
6. IF DESIRED, IN TRAILERS, EQUIPPED WITH NAILABLE FLOORS, THE NAILED HEADER METHOD OF REAR BLOCKING MAY BE USED IN LIEU OF THE K-BRACE BLOCKING SHOWN AS PIECE MARKED ③ THRU ⑩. REFER TO PAGE 16 FOR GUIDANCE.
7. IF THE TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT, OMIT THE LATERAL PIECES ON THE FORWARD BLOCKING, PIECE MARKED ①, AND POSITION THE ASSEMBLY AGAINST THE FRONT WALL OF THE TRAILER.



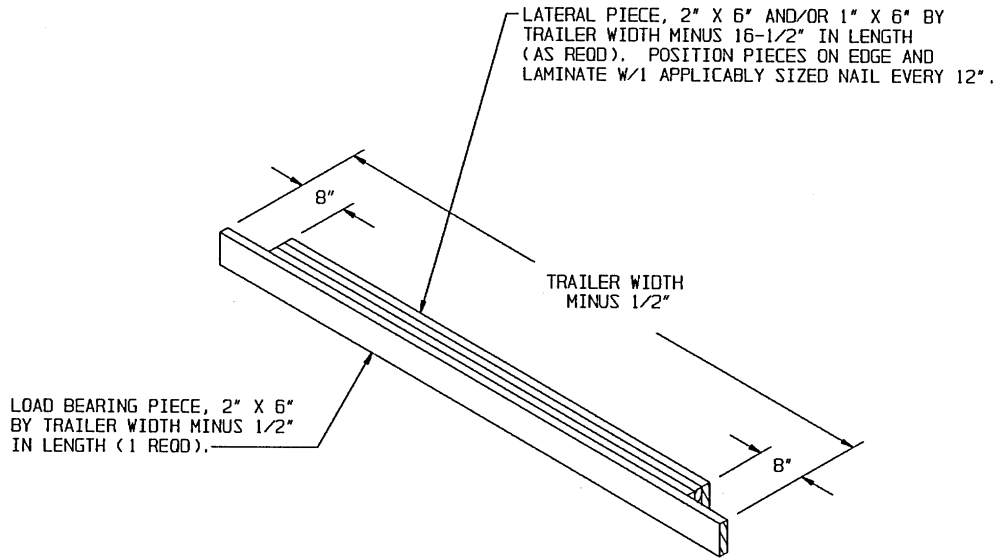
ISOMETRIC VIEW

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, SHOWN AS PIECE MARKED ① ABOVE MUST BE INSTALLED BETWEEN LATERALLY ADJACENT 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.

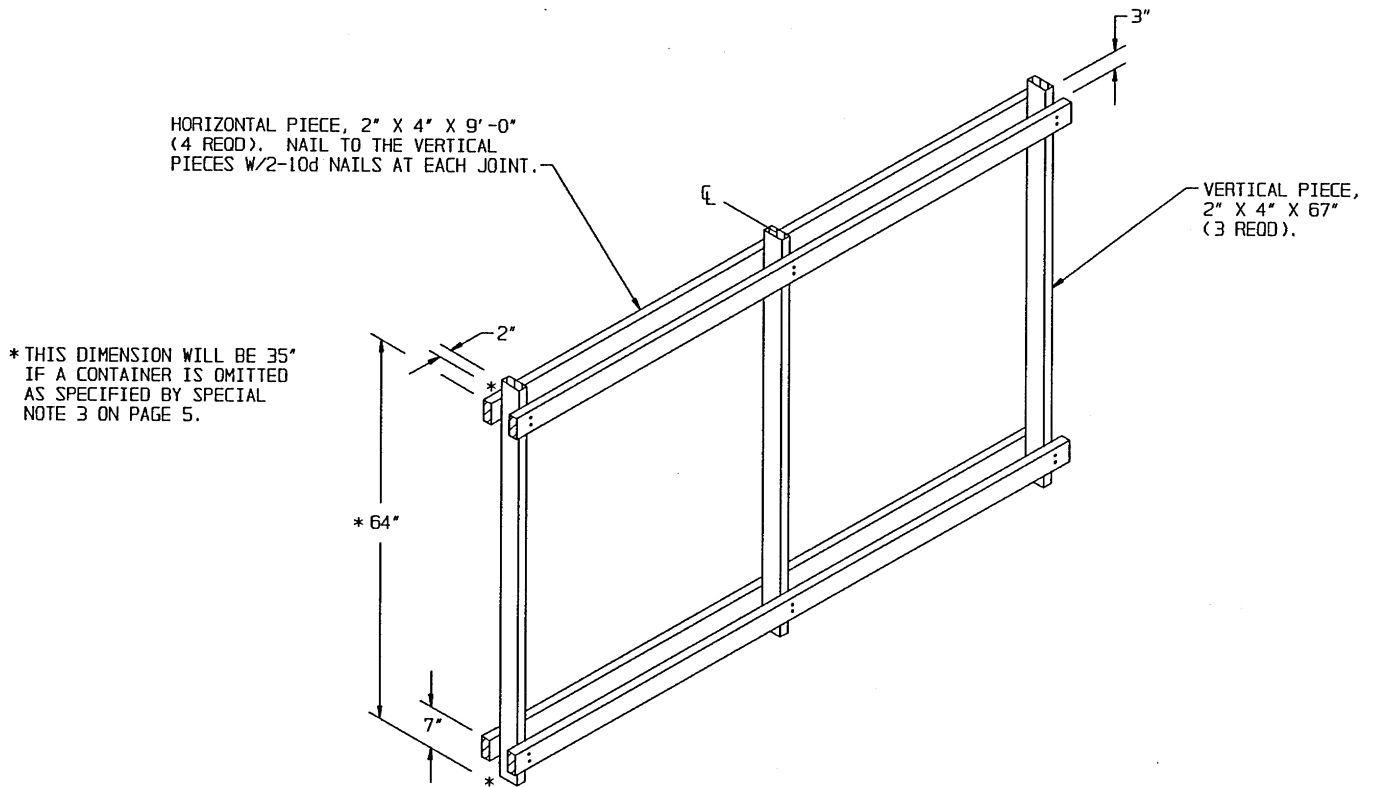
KEY NUMBERS

- ① SIDE BLOCKING 2" X 6" X 12" (DOUBLED) (2 REOD). 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 NOTE "M" ON PAGE 2.
- ② HEADER, 2" X 4" X 28" (TRIPLED) (1 REOD). POSITION AGAINST THE CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST AND THIRD PIECE TO THE SECOND IN A LIKE MANNER. SEE SPECIAL NOTE 2 AT LEFT.



FORWARD BLOCKING ASSEMBLY A

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 LATERAL PIECES WILL BE USED.



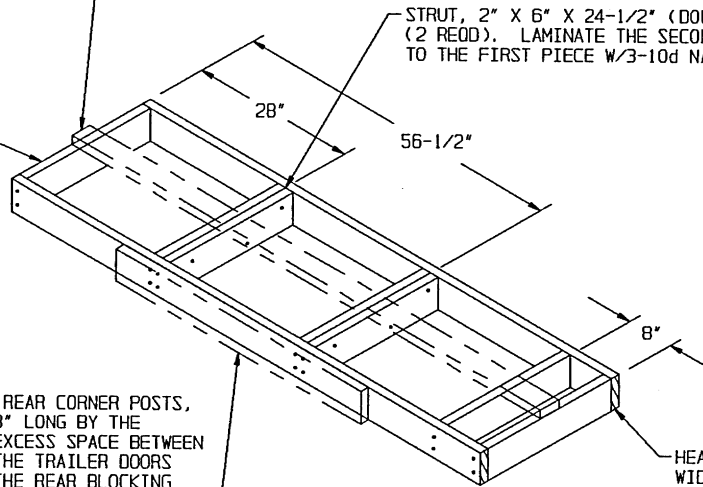
SIDE FILL ASSEMBLY

CONSTRUCT SIDE FILL ASSEMBLIES TO BE 1" TO 2" LESS IN WIDTH THAN THE DISTANCE BETWEEN CONTAINERS AND TRAILER SIDEWALL.

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

STRUT, 2" X 6" X 24-1/2" (3 REOD).

STRUT, 2" X 6" X 24-1/2" (DOUBLED) (2 REOD). LAMINATE THE SECOND PIECE TO THE FIRST PIECE W/3-10d NAILS.



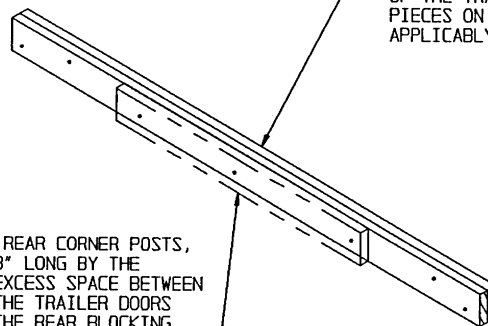
IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE TRAILER DOORS WHEN THEY ARE CLOSED. NAIL TO THE REAR BLOCKING ASSEMBLY W/4 APPLICABLY SIZED NAILS.

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

REAR BLOCKING ASSEMBLY A

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

SOLID FILL, 6" WIDE MATERIAL BY TRAILER WIDTH MINUS 1/2" IN LENGTH BY THE THICKNESS REQUIRED TO CONTACT REAR CORNER POSTS, OR THE REAR DOORS OF THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE AS SHOWN, 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 ASSEMBLY AND THE TRAILER DOORS WHEN THEY ARE CLOSED. NAIL TO THE REAR BLOCKING ASSEMBLY W/4 APPLICABLY SIZED NAILS.

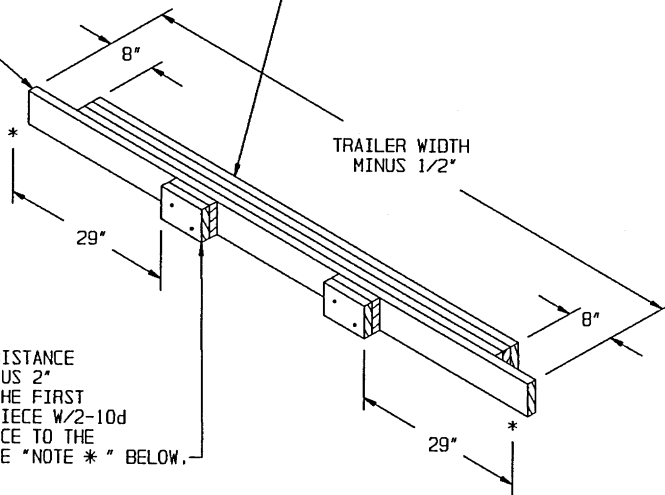
REAR BLOCKING ASSEMBLY B

THIS ASSEMBLY IS FOR USE AT THE REAR END OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS LESS THAN 9".

LOAD BEARING PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD).

LATERAL PIECE, 2" X 6" AND/OR 1" X 6" BY TRAILER WIDTH MINUS 16-1/2" IN LENGTH (AS REQD). POSITION PIECES ON EDGE AND LAMINATE W/1- APPLICABLY SIZED NAIL EVERY 12". SEE SPECIAL NOTE 7 ON PAGE 7 OR 9.

BEARING PIECE, 2" X 6" BY DISTANCE BETWEEN CONTAINER SKIDS MINUS 2" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE LOAD BEARING PIECE W/2-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE "NOTE *" BELOW.

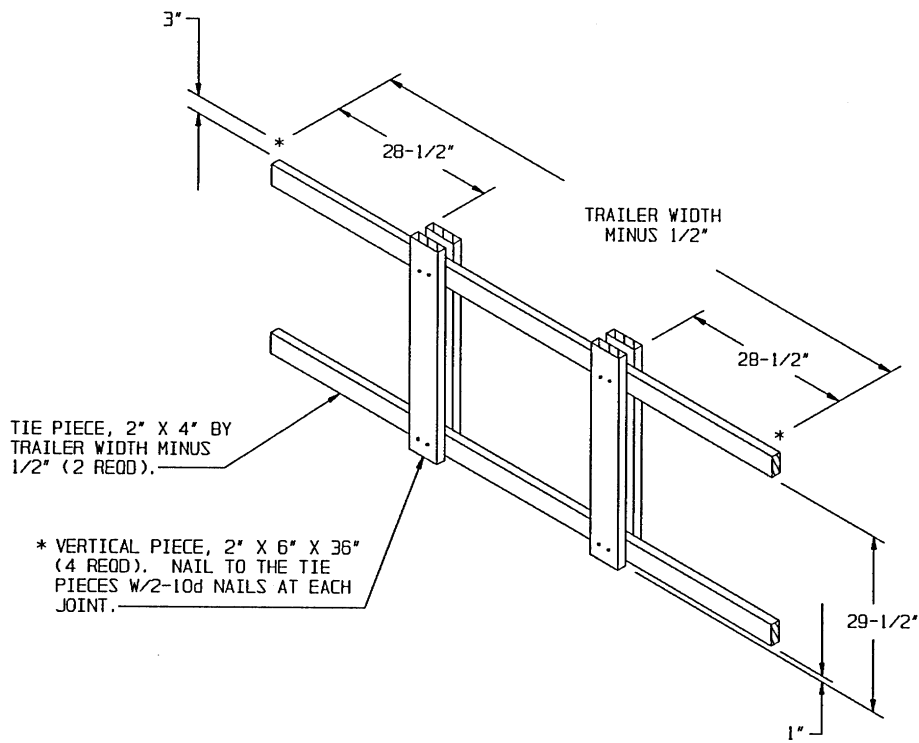


FORWARD BLOCKING ASSEMBLY B

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 LATERAL PIECES WILL BE USED.

NOTE * :

WHEN USING "FORWARD BLOCKING ASSEMBLY B" FOR THE TYPICAL LTL LOAD ON PAGE 8, THIS LOAD BEARING PIECE MUST BE OMITTED.



SEPARATOR GATE

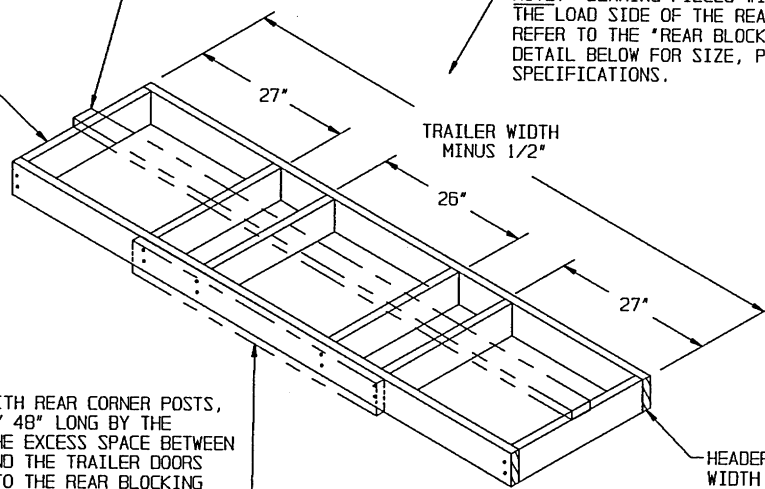
* IF THE TRAILER TO BE LOADED IS LESS THAN 8'-2" WIDE, 2" X 4" VERTICAL PIECES MAY BE USED IN LIEU OF 2" X 6" MATERIAL.

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

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

NOTE: BEARING PIECES WILL BE REQUIRED ON THE LOAD SIDE OF THE REAR BLOCKING ASSEMBLY. REFER TO THE "REAR BLOCKING ASSEMBLY D" DETAIL BELOW FOR SIZE, PLACEMENT AND NAILING SPECIFICATIONS.

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 ASSEMBLY AND THE TRAILER DOORS WHEN THEY ARE CLOSED. NAIL TO THE REAR BLOCKING ASSEMBLY W/4 APPLICABLY SIZED NAILS.



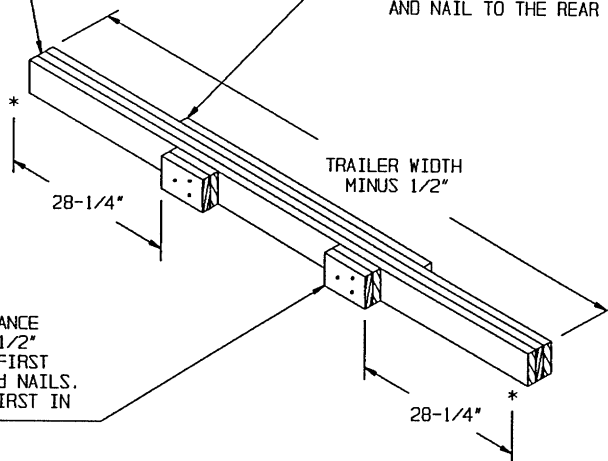
HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REOD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.

REAR BLOCKING ASSEMBLY C

THIS ASSEMBLY IS FOR USE AT THE REAR END OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS 9" OR GREATER AS SHOWN IN THE LOAD ON PAGE 6. SEE THE NOTE ABOVE.

SOLID FILL, 2" X 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/1-10d NAIL EVERY 12".

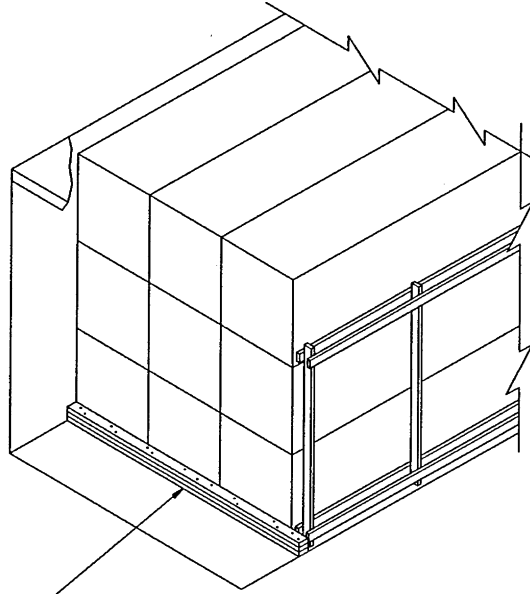
IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL, 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING AND THE DOORS ON THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE AND NAIL TO THE REAR BLOCKING W/4 APPLICABLY SIZED NAILS.



BEARING PIECE, 2" X 6" BY DISTANCE BETWEEN CONTAINER SKIDS MINUS 1/2" (DOUBLED) (2 REOD). NAIL THE FIRST PIECE TO THE SOLID FILL W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

REAR BLOCKING ASSEMBLY D

THIS ASSEMBLY IS FOR USE AT THE REAR END OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS LESS THAN 9". NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.



HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (TRIPLED) (1 REED). POSITION AGAINST THE CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/15-10d NAILS (1 EVERY 6"). NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. NAIL THE THIRD PIECE TO THE SECOND 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 NATLABLE 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.

NAILED HEADER METHOD

PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS