

LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF COMPLETE ROUNDS PACKED IN CYLINDRICAL METAL CONTAINERS AND UNITIZED ON A 40" X 44" WOODEN PALLET

PA117 SERIES CONTAINER

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THIS DOCUMENT INCLUDES OUTLOADING PROCEDURES FOR CONVENTIONAL TYPE TRAILERS AND FOR TRAILERS EQUIPPED WITH MECHANICAL BRACING DEVICES AS APPROVED BY THE BUREAU OF EXPLOSIVES, ASSOCIATION OF AMERICAN RAILROADS. CAUTION: THE PROCEDURES SHOWN HEREIN FOR BOTH TYPES OF TRAILERS, ARE ONLY APPLICABLE FOR HIGHWAY MOVEMENTS; NOT FOR TRAILER-ON-FLAT-CAR MOVEMENTS.

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND <i>Daniel E. Stachnick</i>	DRAFTSMAN	TECHNICIAN	ENGINEER
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		<i>[Signature]</i>	<i>[Signature]</i>
U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	FEBRUARY 1991		
	CLASS	DIVISION	DRAWING
	19	48	4213/ 9A
			FILE
			11PM 1003

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 FOR THE PA117 COMPLETE ROUND CONTAINER ASSEMBLED ON THE 40" X 44" 4-WAY ENTRY PALLET. SEE THE PICTORIAL VIEW ON PAGE 3 FOR SIZE AND WEIGHT. REFER TO U.S. ARMY AMC DRAWING 19-48-4079/8A-20PM1002 FOR UNITIZATION PROCEDURES FOR THE PA117 METAL AMMUNITION CONTAINERS.
- C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE VAN TRAILERS, AND FOR SHIPMENTS IN VAN TRAILERS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES (CROSS MEMBERS AND WALL MEMBERS) AND APPLY TO TRAILERS HAVING WOOD, OR WOOD AND METAL, OR ALL METAL FLOORS. VAN TRAILERS WHICH ARE 40'-0" LONG BY 7'-6" TO 7'-8-1/2" 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. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT FOR TRAILERS EQUIPPED WITH VARIOUS TYPES OF SELF CONTAINED MECHANICAL BRACING DEVICES ARE LIMITED TO HIGHWAY MOVEMENTS ONLY. THE HEIGHT REQUIREMENTS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS ARE IDENTICAL WITH THOSE RECOMMENDED BY THE BUREAU OF EXPLOSIVES PAMPHLET 6C, AND APPENDICES THERETO. CAUTION: TRAILERS EQUIPPED WITH WALL MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.
1. PALLET UNITS SHOULD BE LOADED TIGHTLY AGAINST EACH OTHER AND/OR AGAINST INSTALLED CROSS MEMBERS. VOIDS LENGTHWISE WITHIN A LOAD SHOULD BE MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE WALL MEMBER LOCKING HOLE SPACING PERMITS. EACH CROSS MEMBER WILL BE INSTALLED WITH EACH END ATTACHED AS NEARLY AS POSSIBLE IN A "MATED" POSITION (AT EQUAL HEIGHTS, AND AT EQUAL DISTANCES FROM THE END OF THE TRAILER).
 2. CROSS MEMBERS IN EMPTY TRAILERS AND THOSE UNUSED IN LOADED TRAILERS MUST BE "SECURED" FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH TRAILER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.
 3. ONE CROSS MEMBER WILL BE REQUIRED FOR EACH 10,000 POUNDS OF LADING AND SHOULD NOT BE RELIED UPON TO RETAIN A GREATER WEIGHT. CROSS MEMBERS WILL NOT BE DOUBLED, THAT IS, TWO CROSS MEMBERS AT THE SAME HEIGHT LOCATION WILL NOT BE PLACED SIDE BY SIDE.
- 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.

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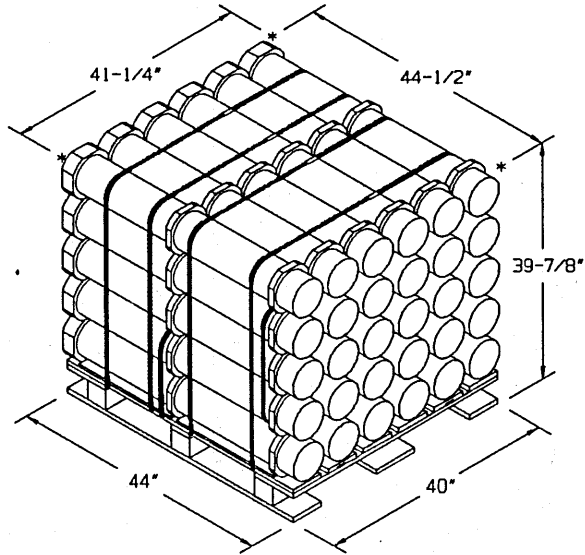
MATERIAL SPECIFICATIONS

LUMBER	---	SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
NAILS	---	FED SPEC FF-N-105; COMMON.
PLYWOOD	---	FED SPEC NN-P-530; GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.
STRAPPING, STEEL	---	FED SPEC QQ-S-781; CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
SEAL, STRAP	---	FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR IV, CLASS H, FINISH A, B (GRADE 2) OR C.
WIRE	---	FED SPEC QQ-W-461; ANNEALED, BLACK.
TYGARD	---	POLYESTER YARN, 1100 POUNDS/INCH OF WIDTH.
ADHESIVE	---	TYGARD ADHESIVE.

(GENERAL NOTES CONTINUED)

- 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 SEMI-TRAILER 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.
- H. 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.
- J. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH PALLET UNITS OF 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. 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 PALLET UNITS DIRECTLY AGAINST THE FORWARD PORTION OF THE TRAILER, OMIT CROSS MEMBERS IN THE FORWARD END OF MECHANICAL VAN TRAILERS HAVING A SQUARE FRONT.
- L. PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF ITEMS CAN BE TRANSPORTED. REFER TO U.S. ARMY AMC DRAWING 19-48-4079/8A-20PM1002 FOR LESS THAN FULL PALLET UNITS AND "SHIPMENT OF A PARTIAL PALLET UNIT" DETAIL AND SPECIAL NOTES ON PAGE 15. FOR "SHIPMENT OF LEFTOVER CONTAINERS", SEE THE DETAIL AND SPECIAL NOTES ON PAGE 14.
- 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 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.
- 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 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, ONTO, OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- P. 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 SENCOR PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.

(CONTINUED ON PAGE 3)

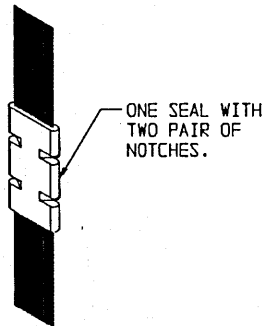


PALLET UNIT

CONTAINER - - - - -	30 EACH @ 57 LBS (APPROX)
CUBE - - - - -	42.4 CUBIC FEET (APPROX)
GROSS WEIGHT - - - - -	1,804 LBS (APPROX)

(GENERAL NOTES CONTINUED FROM PAGE 2)

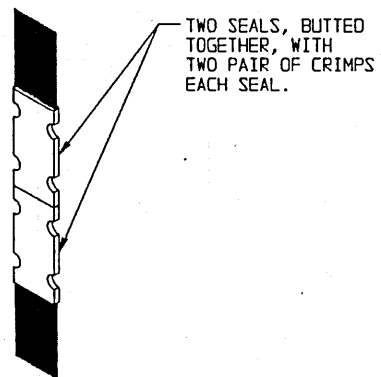
- D. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- R. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED UNLOADING METHODS.
- S. CONVERSION TO 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.
- T. LONGITUDINALLY ADJACENT PALLET UNITS IN A TRAILER WILL BE POSITIONED WITH THE BASE END AGAINST BASE END OR BELL END AGAINST BELL END. THE FRONT LOAD UNIT IN A TRAILER WILL BE POSITIONED WITH THE BASE END OF THE CONTAINERS TOWARD THE FRONT WALL OF THE TRAILER.



ONE SEAL WITH TWO PAIR OF NOTCHES.

STRAP JOINT A

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



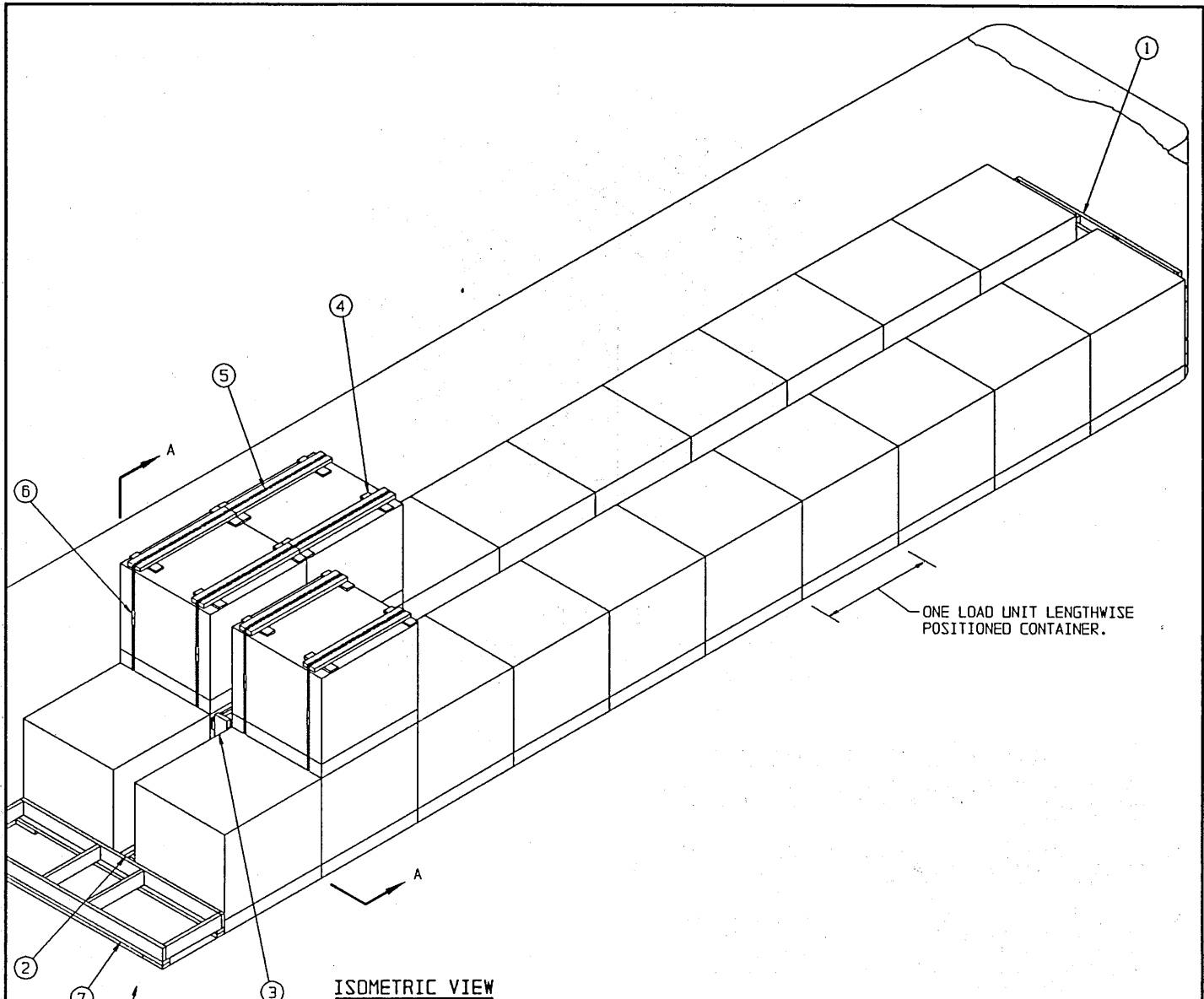
TWO SEALS, BUTTED TOGETHER, WITH TWO PAIR OF CRIMPS EACH SEAL.

STRAP JOINT B

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

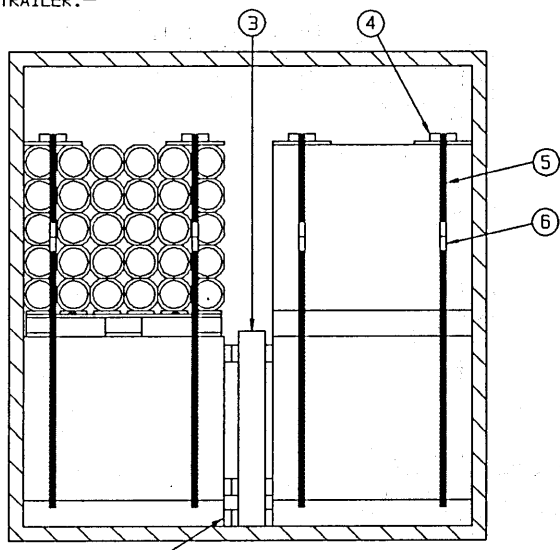
END-OVER-END LAP JOINT DETAILS

DETAILS



ISOMETRIC VIEW

REAR OF TRAILER.



SECTION A-A

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "A" ON PAGE 16. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (8 REQD). POSITION ON THE FLOOR BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17. SEE GENERAL NOTES "O" AND "P" ON PAGE 2, AND SPECIAL NOTE 2 ON PAGE 5.
- ③ CRIB FILL (2 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 17. SEE SPECIAL NOTES 3 AND 4 ON PAGE 5.
- ④ STRAPPING BOARD (6 REQD). SEE THE "STRAPPING BOARD" DETAIL ON PAGE 18.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-6" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENIRCLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW.
- ⑥ SEAL FOR 1-1/4" STRAPPING (12 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑦ REAR BLOCKING (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 19. SEE SPECIAL NOTES 6 AND 9 ON PAGE 5.

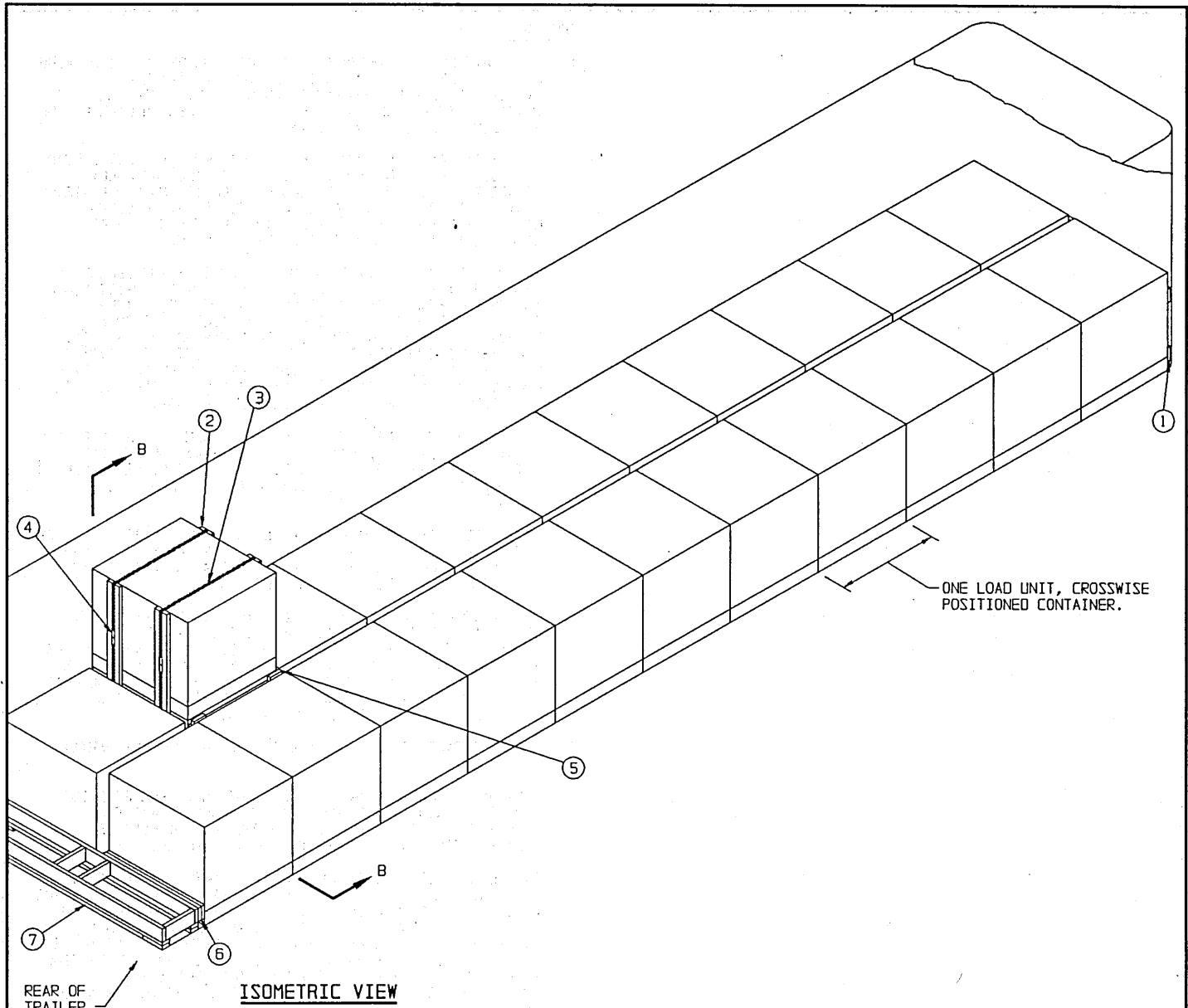
SPECIAL NOTES:

1. A 23-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER. TRAILERS OF OTHER DIMENSIONS CAN BE USED. NOTE THAT THE LOADING PATTERN SHOWN ON PAGE 6 MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 4.
2. ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ②, IN THE LOAD ON PAGE 4 ARE TO BE POSITIONED BETWEEN ALL Laterally ADJACENT PALLET UNITS. IF DESIRED, OR IF SPACE PERMITS, "ANTI-SWAY BRACE B" DETAILED ON PAGE 16 MAY BE USED IN LIEU OF PIECE MARKED ②, OR CRIB FILL SHOWN AS PIECE MARKED ③ CAN BE USED THROUGHOUT THE LOAD.
3. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW AS SHOWN, IT MUST NOT BE POSITIONED ON TOP OF THE REAR MOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARDS AND UNITIZING STRAPS, PIECES MARKED ④ AND ⑤. THE STRAPPING BOARD ASSEMBLIES AND THE UNITIZING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK. PROVIDE LATERAL BRACING BY INSTALLING CRIB FILL SHOWN IN THE LOAD VIEW ON PAGE 4, AS PIECE MARKED ③.
4. IF SPACE PERMITS OR IF DESIRED, ON (1) ANTI-SWAY BRACE "A" DETAILED ON PAGE 17, AND ONE (1) ANTI-SWAY BRACE "B" DETAILED ON PAGE 16 CAN BE USED IN LIEU OF PIECE MARKED ③ WHICH IS BETWEEN THE Laterally ADJACENT 2-HIGH PALLET UNITS.
5. IF THE QUANTITY OF UNITS IS REDUCED FROM WHAT IS SHOWN, OR THE TRAILER TO BE LOADED IS LONGER THAN 40', THE SPACER ASSEMBLY PROCEDURES SPECIFIED IN SPECIAL NOTE 3 ON PAGE 7 CAN ALSO BE USED FOR THE DEPICTED LOAD.
6. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING C" DETAILED ON PAGE 19. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE REAR BLOCKING ASSEMBLY, PIECE MARKED ⑦ ON PAGE 4.
7. REFER TO PAGE 15 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 14 FOR GUIDANCE.
9. 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 PAGES 20 THRU 22 FOR GUIDANCE. THE TYGARD METHOD IS SHOWN ON PAGES 20 AND 21, AND THE NAILED HEADER METHOD IS SHOWN ON PAGE 22. 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 4"	27	9
2" X 4"	141	94
2" X 6"	85	85
NAILS	NO. REQD	POUNDS
6d (2")	48	1/4
10d (3")	248	3-3/4
STEEL STRAPPING, 1-1/4" --- 135' REQD --- 20 LBS		
SEAL FOR 1-1/4" STRAPPING --- 12 REQD --- NIL		

LOAD AS SHOWN

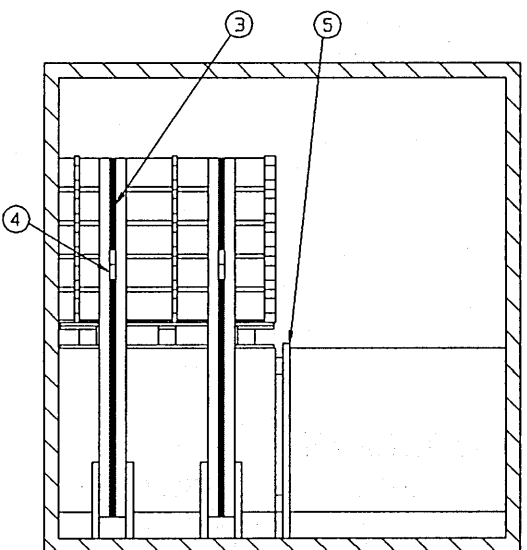
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	23	41,492 LBS
DUNNAGE		400 LBS
TOTAL WEIGHT		41,892 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

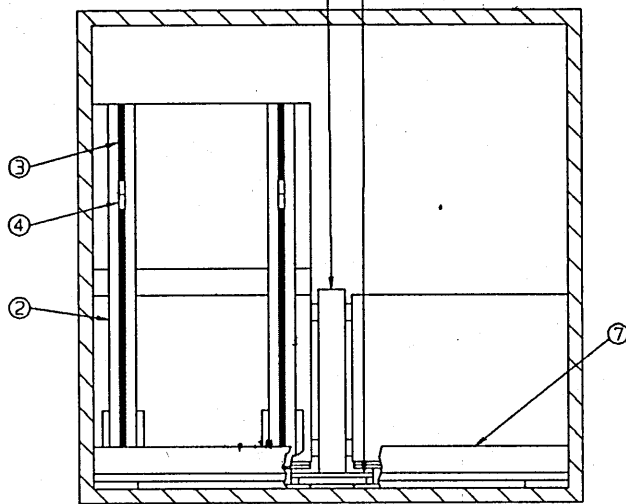
- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "B" ON PAGE 16. SEE GENERAL NOTE "K" ON PAGE 2.
- ② STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 24.
- ③ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. SEE SPECIAL NOTE 3 ON PAGE 7.
- ④ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑤ CRIB FILL (1 REQD). SEE THE "CRIB FILL B" DETAIL ON PAGE 18 AND SPECIAL NOTE 3 ON PAGE 7.
- ⑥ FILL PIECE, 2" X 6" X 44" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑦ REAR BLOCKING (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 19. SEE SPECIAL NOTES 5 AND 8 ON PAGE 7.



SECTION B-B

CRIB FILL (1 REGD). SEE SPECIAL NOTE 3 AT RIGHT.

ANTI-SWAY BRACE (10 REGD). SEE SPECIAL NOTE 2 AT RIGHT.



TYPICAL REAR VIEW OF AN 8'-2" WIDE VAN

SPECIAL NOTES:

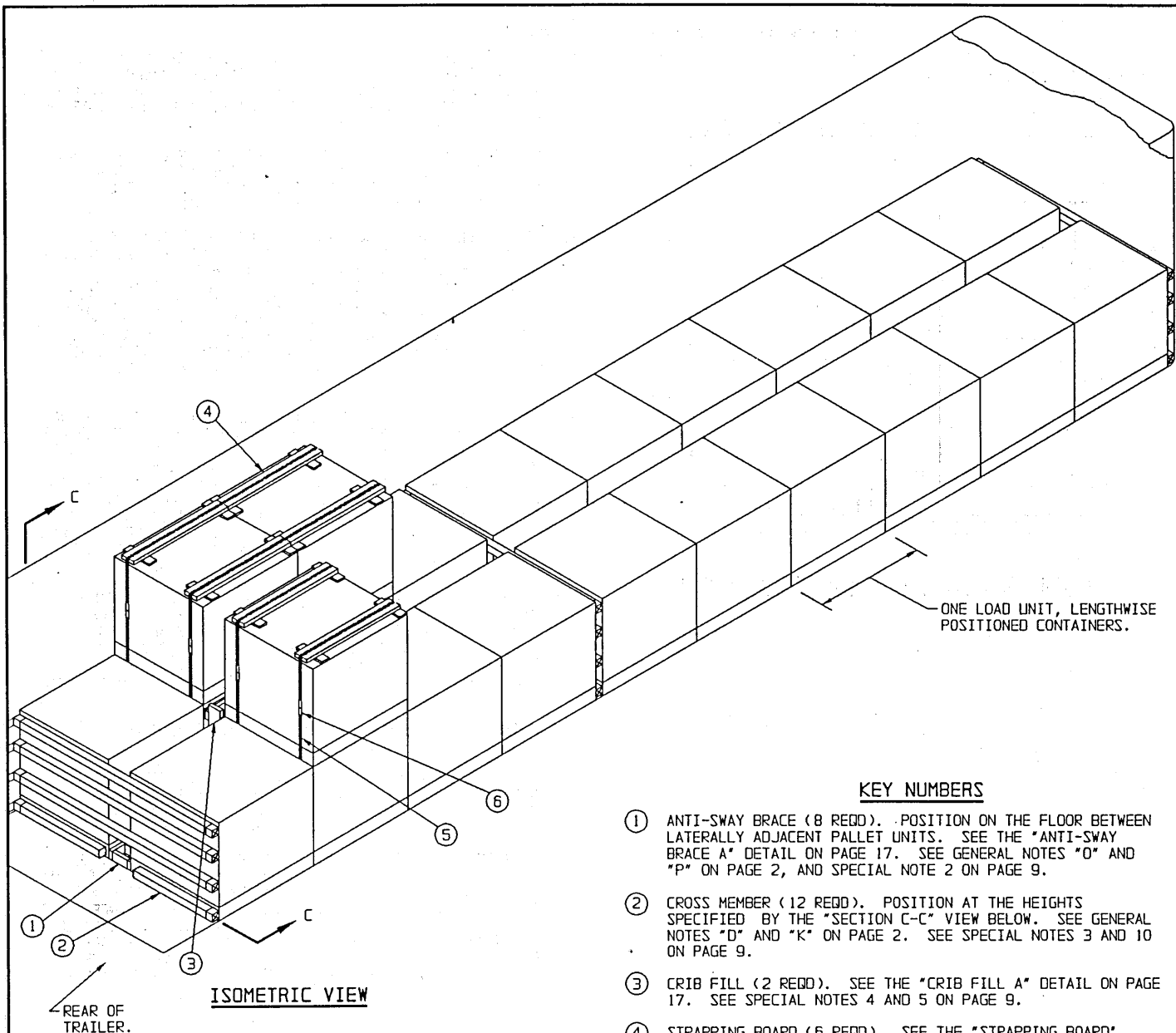
1. A 23-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER. TRAILERS OF OTHER DIMENSIONS CAN BE USED. NOTE THAT THE LOADING PATTERN SHOWN ON PAGE 6 MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 4.
2. IF THE LATERAL SPACE BETWEEN UNITS EXCEEDS 6", ANTI-SWAY BRACES OR CRIB FILL WILL BE REQUIRED BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE THE "ANTI-SWAY BRACE C" DETAIL OR THE "CRIB FILL B" DETAIL ON PAGE 18.
3. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW AS SHOWN, IT MUST NOT BE POSITIONED ON TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARDS AND UNITIZING STRAPS, PIECES MARKED ② AND ③. THE UNITIZING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK. IF THE LATERAL SPACE BETWEEN UNITS EXCEEDS 1" PROVIDE LATERAL BRACING BY INSTALLING CRIB FILL ⑤ SHOWN IN THE LOAD VIEW ON PAGE 6, AS PIECE MARKED ⑤.
4. IF THE QUANTITY OF UNITS IS DIFFERENT FROM WHAT IS SHOWN, OR THE TRAILER TO BE LOADED IS LONGER THAN 40', THE SPACER ASSEMBLY "A" DETAILED ON PAGE 16, AND/OR SPACER ASSEMBLY "B" DETAILED ON PAGE 17 CAN BE USED FOR THE PURPOSE OF PROVIDING FOR PROPER WEIGHT DISTRIBUTION, OR MAY BE USED IN LIEU OF ONE AND/OR TWO OMITTED UNITS. NOTE THAT THE SPACER ASSEMBLIES MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①, AND THEY MUST BE POSITIONED WHERE THERE WILL BE A PALLET UNIT AT EACH END OF EACH ASSEMBLY.
5. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR IS GREATER THAN 1-1/2' OR LESS THAN 9", USE REAR BLOCKING ASSEMBLY "C" AS DETAILED ON PAGE 19. IF THE SPACE AT THE REAR OF THE LOAD IS 9' OR GREATER, USE THE REAR BLOCKING ASSEMBLY "B" AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2' OR LESS, REAR BLOCKING IS NOT REQUIRED.
6. REFER TO PAGE 15 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
7. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 14 FOR GUIDANCE.
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 PAGES 20 THRU 22 FOR GUIDANCE. THE TYGARD METHOD IS SHOWN ON PAGES 20 AND 21, AND THE NAILED HEADER METHOD IS SHOWN ON PAGE 22. 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 4"	7	3
2" X 2"	11	4
2" X 3"	2	1
2" X 4"	34	23
2" X 6"	86	86
NAILS	NO REGD.	POUNDS
6d (2")	12	NIL
10d (3")	118	1-3/4
STEEL STRAPPING, 1-1/4"	44' REGD	7 LBS
SEAL FOR 1-1/4" STRAPPING	4 REGD	NIL

LOAD AS SHOWN

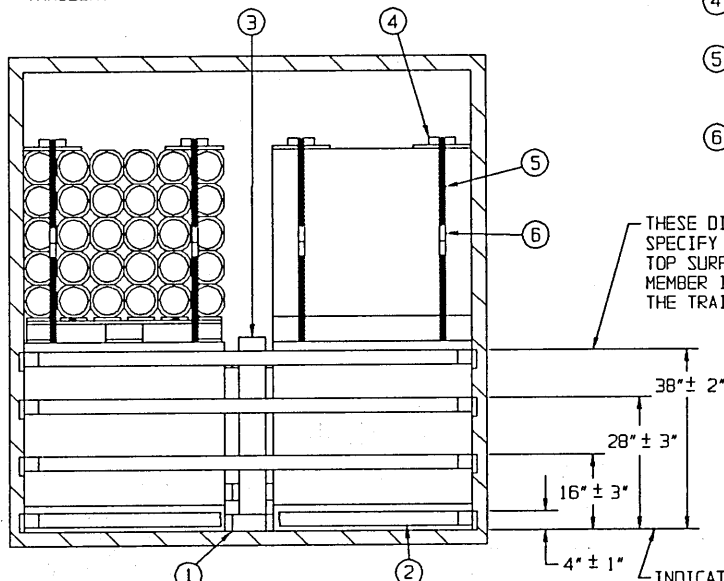
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	23	41,492 LBS
DUNNAGE		243 LBS
TOTAL WEIGHT		41,735 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① ANTI-SWAY BRACE (8 REQD). POSITION ON THE FLOOR BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17. SEE GENERAL NOTES "O" AND "P" ON PAGE 2, AND SPECIAL NOTE 2 ON PAGE 9.
- ② CROSS MEMBER (12 REQD). POSITION AT THE HEIGHTS SPECIFIED BY THE "SECTION C-C" VIEW BELOW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTES 3 AND 10 ON PAGE 9.
- ③ CRIB FILL (2 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 17. SEE SPECIAL NOTES 4 AND 5 ON PAGE 9.
- ④ STRAPPING BOARD (6 REQD). SEE THE "STRAPPING BOARD" DETAIL ON PAGE 18. SEE SPECIAL NOTE 6 ON PAGE 9.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 22'-6" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENCIRCLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW.
- ⑥ SEAL FOR 1-1/4" STRAPPING (12 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION C-C

THESE DIMENSIONED HEIGHTS SPECIFY THE DISTANCE THE TOP SURFACE OF A CROSS MEMBER IS TO BE ABOVE THE TRAILER FLOOR.

23-UNIT LOAD IN A

40'-0" LONG BY 7'-8-1/2" WIDE TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES

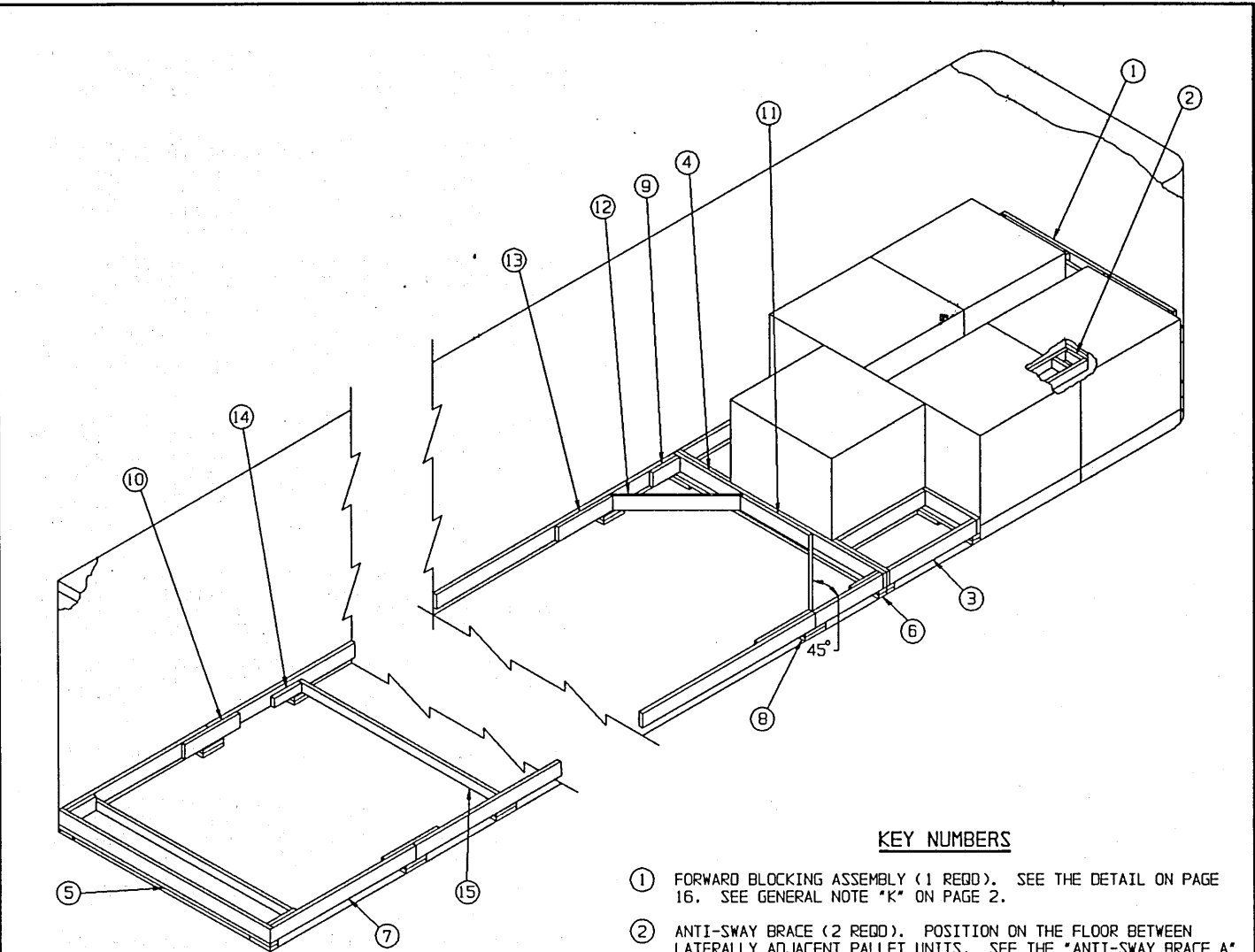
SPECIAL NOTES:

1. A 23-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ① IN THE LOAD ON PAGE 8, ARE TO BE POSITIONED BETWEEN ALL Laterally ADJACENT PALLET UNITS IF DESIRED, OR IF SPACE PERMITS, "ANTI-SWAY BRACE B" DETAILED ON PAGE 16 MAY BE USED IN LIEU OF PIECE MARKED ①, OR CRIB FILL SHOWN AS PIECE MARKED ③ CAN BE USED THROUGHOUT THE LOAD.
3. CROSS MEMBERS ARE REQUIRED AT THE 4" HEIGHT LOCATION TO PREVENT DISPLACEMENT OF THE ANTI-SWAY BRACE SHOWN AS PIECE MARKED ①. THESE CROSS MEMBERS, EXCEPT FOR THE ONE POSITIONED AT THE REAR OF THE LOAD, CAN BE OMITTED IF PALLET UNITS ARE POSITIONED AGAINST THE FORWARD END OF THE TRAILER, AND/OR IF THE CROSS MEMBERS ARE OMITTED FROM THE CENTER PORTION OF THE LOAD AS SPECIFIED IN SPECIAL NOTE 10.
4. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW AS SHOWN, IT MUST NOT BE POSITIONED ON TOP OF THE REAR MOST PALLET UNIT IN THE FIRST LAYER. THE SPACER ASSEMBLY PROCEDURES DEPICTED ON PAGE 13 MAY BE USED IN LIEU OF PIECES MARKED ③, ④ AND ⑤. NOTE THAT CROSS MEMBERS ARE REQUIRED AT BOTH ENDS OF THE UNIT, AND ONE (1) ADDITIONAL ANTI-SWAY BRACE, PIECE MARKED ①, WILL BE REQUIRED.
5. IF SPACE BETWEEN Laterally ADJACENT UNITS IN THE TOP LAYER PERMITS, ONE (1) ANTI-SWAY BRACE "A" DETAILED ON PAGE 17, AND ONE (1) ANTI-SWAY BRACE "B" DETAILED ON PAGE 16 CAN BE USED IN LIEU OF PIECE MARKED ③, IF DESIRED.
6. PALLET UNITS IN THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER USING STRAPPING BOARD ASSEMBLIES AND STACK UNITIZING STRAPS, PIECES MARKED ④ AND ⑤.
7. REFER TO PAGE 15 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 14 FOR GUIDANCE.
9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 13.
10. IF THE TRAILER BEING LOADED IS EQUIPPED ONLY WITH SHORT WALL MEMBERS AT THE REAR FOR ATTACHMENT OF THE CROSS MEMBERS, THE CROSS MEMBERS LOCATED NEAR THE CENTER PORTION OF THE LOAD LENGTH WILL BE OMITTED; THE THREE (3) TOP-LAYER PALLET UNITS WILL HAVE TO BE MOVED BACK ONE UNIT, AN ADDITIONAL CROSS MEMBER WILL BE INSTALLED AT THE 60" HEIGHT LOCATION, AND A 1/2" PLYWOOD GATE WHICH IS 63" HIGH BY TRAILER WIDTH MINUS 1/2" MUST BE INSTALLED AT THE REAR OF THE LOAD. IF THE TRAILER BEING LOADED IS LONGER THAN 40'-0" AND/OR IF LESS THAN 20 UNITS ARE TO BE TRANSPORTED, A SPACER ASSEMBLY WILL BE REQUIRED TO PROVIDE FOR PROPER WEIGHT DISTRIBUTION. POSITION BETWEEN THE SECOND AND THIRD, OR THIRD AND FOURTH LOAD UNITS, DEPENDING UPON THE LENGTH OF THE TRAILER, AND THE QUANTITY TO BE TRANSPORTED. SEE THE "SPACER ASSEMBLY "A" AND "B" DETAILS ON PAGES 16 AND 17, AND SPECIAL NOTE 4 ON PAGE 7.
11. THE LOADING PATTERN SHOWN ON PAGE 6 MAY BE USED IN LIEU OF THE DEPICTED PROCEDURES, IF DESIRED. OMIT PIECES MARKED ① AND ⑤ IN THE LOAD VIEW. INSTALL 1/2" PLYWOOD LOAD BEARING GATES WHICH ARE UNIT HEIGHT OR 48" BY TRAILER WIDTH MINUS 1/2". THREE GATES WILL BE REQUIRED FOR THE DEPICTED LOAD.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	27	9
2" X 4"	108	72
2" X 6"	36	36
NAILS	NO REQD.	POUNDS
6d (2")	48	1/4
10d (3")	160	2-1/2
STEEL STRAPPING, 1-1/4" ---	135' REQD ---	20 LBS
SEAL FOR 1-1/4" STRAPPING ---	12 REQD ---	NIL
CROSS MEMBER ---	---	12 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	23	41,492 LBS
DUNNAGE	---	257 LBS
TOTAL WEIGHT		41,749 LBS (APPROX)



REAR OF TRAILER.

ISOMETRIC VIEW

(KEY NUMBERS CONTINUED)

- ⑫ 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 AND SIDE STRUT, PIECES MARKED ④ AND ⑦, W/2-16d NAILS AT EACH END.
- ⑬ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑦, W/8-10d NAILS.
- ⑭ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑦, W/3-10d NAILS. SEE SPECIAL NOTE 4 ON PAGE 11.
- ⑮ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). NAIL TO THE POCKET CLEATS, PIECES MARKED ⑨ AND/OR TO THE STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑭, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 4 ON PAGE 11.

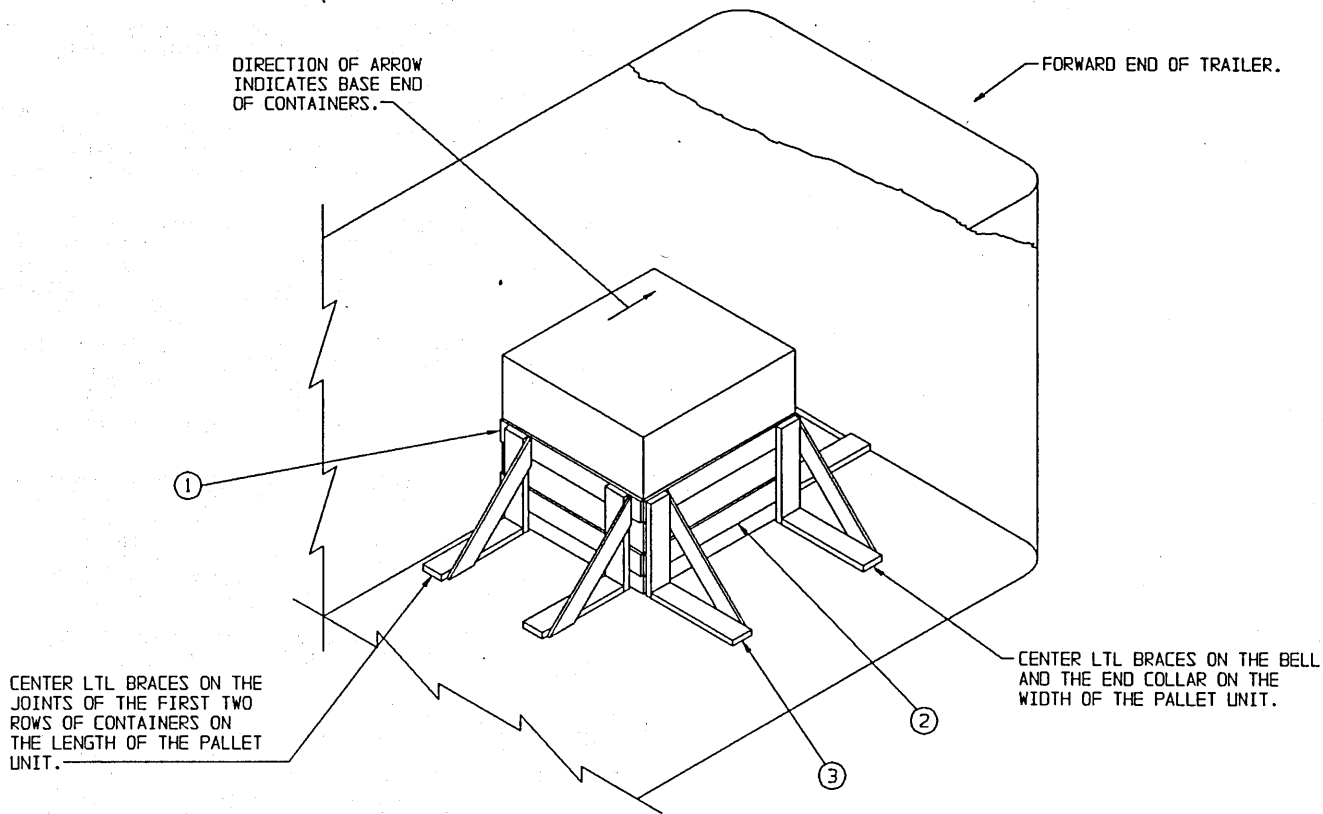
KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 16. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (2 REQD). POSITION ON THE FLOOR BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17.
- ③ SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 18. NAIL TO A HEADER, PIECE MARKED ④, W/2-10d NAILS. SEE SPECIAL NOTE 2 ON PAGE 11.
- ④ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). SEE SPECIAL NOTES 6 AND 7 ON PAGE 11.
- ⑤ HEADER AND SIDE STRUT SUPPORT, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF A HEADER, PIECE MARKED ④, W/1-10d NAIL EVERY 8".
- ⑥ RISER PIECE, 2" X 4" X 9" (4 REQD). POSITION UNDER EACH END OF HEADER AND SIDE STRUT SUPPORT PIECES MARKED ⑤. NAIL TO PIECE MARKED ⑤ W/2-10d NAILS.
- ⑦ SIDE STRUT, 2" X 6" BY CUT TO FIT BETWEEN THE FORWARD AND REAR HEADERS PIECES MARKED ④ (2 REQD). SEE SPECIAL NOTE 3 ON PAGE 11.
- ⑧ RISER PIECE, 2" X 4" X 9" (DOUBLED) (AS REQD). LAMINATE W/2-10d NAILS. CENTER UNDER THE JOINTS OF PIECES MARKED ⑫ AND ⑬, ⑭ AND ⑮ AND UNDER THE SPLICE OF PIECES MARKED ⑩ IF APPLICABLE. NAIL TO SIDE STRUT MARKED ⑦ W/2-10d NAILS.
- ⑨ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑦, W/3-10d NAILS. TOENAIL TO THE ADJACENT HEADER, PIECE MARKED ④, W/2-12d NAILS.
- ⑩ SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON JOINT OF PIECES MARKED ⑦ AND NAIL TO SIDE STRUT MARKED ⑦ W/4-10d NAILS AT EACH END. SEE SPECIAL NOTE 3 ON PAGE 11.
- ⑪ CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO A HEADER, PIECE MARKED ④, W/6-10d NAILS.

(CONTINUED AT RIGHT)

SPECIAL NOTES:

1. A 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. THE SPACER ASSEMBLIES, PIECE MARKED ③, ARE SHOWN ONLY TO DEPICT A TYPICAL INSTALLATION. SPACER ASSEMBLIES WILL BE USED WHEN A PALLET UNIT IS OMITTED, THEY MAY OR MAY NOT BE REQUIRED, DEPENDING ON THE QUANTITY OF PALLET UNITS TO BE SHIPPED.
3. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS, PIECES MARKED ⑦, MAY NEED TO BE FORMED FROM MORE THAN ONE PIECE OF MATERIAL. IF SUCH IS THE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W/4-10D NAILS AT EACH END. CAUTION: A RISER PIECE, PIECE MARKED ⑧, MUST BE POSITIONED UNDER EACH SPLICE JOINT. NOTE: IF DESIRED, THE STRUT BRACING PIECE(S), PIECE MARKED ⑮, MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑭.
4. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO PIECE, MARKED ⑨. IF THE SIDE STRUTS, PIECES MARKED ⑦, ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE, PIECE MARKED ⑮, AND TWO (2) STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑭, AND TWO (2) RISER PIECES MARKED ⑧, MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
5. THE "K-BRACE" BLOCKING, SHOWN AS PIECES MARKED ④ THRU ⑮, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
6. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL 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 PAGES 20 THRU 22 FOR GUIDANCE. THE TYGARD METHOD IS SHOWN ON PAGES 20 AND 21 AND THE NAILED HEADER METHOD IS SHOWN ON PAGE 22. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS, AND MAY BE USED IN LIEU OF PIECES MARKED ④ THRU ⑮ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.
7. 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 PIECES MARKED ④ THRU ⑮. REFER TO PAGE 22 FOR GUIDANCE. WHEN THE NAILED-HEADER METHOD OF BRACING IS APPLIED FOR THE BRACING OF THE DEPICTED 5-UNIT LOAD OR ANY ODD NUMBERED QUANTITY, OMIT THE REAR BLOCKING ASSEMBLY AND USE THE 2" X 4" HEADERS SHOWN IN THE "NAILED-HEADER METHOD" DETAIL ON PAGE 22. NOTE THAT THE HEADER WILL BE POSITIONED AGAINST THE PALLET. WHEN SHIPPING AN EVEN NUMBERED QUANTITY, THE NAILED-HEADER METHOD WILL APPLY AS IS; AS AN ALTERNATIVE IN NAILABLE FLOOR TRAILERS, OR IN TRAILERS HAVING NON-NAILABLE FLOORS, THE TYGARD METHOD DEPICTED ON PAGES 20 AND 21 MAY BE USED.
8. REFER TO PAGE 15 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 14 FOR GUIDANCE.



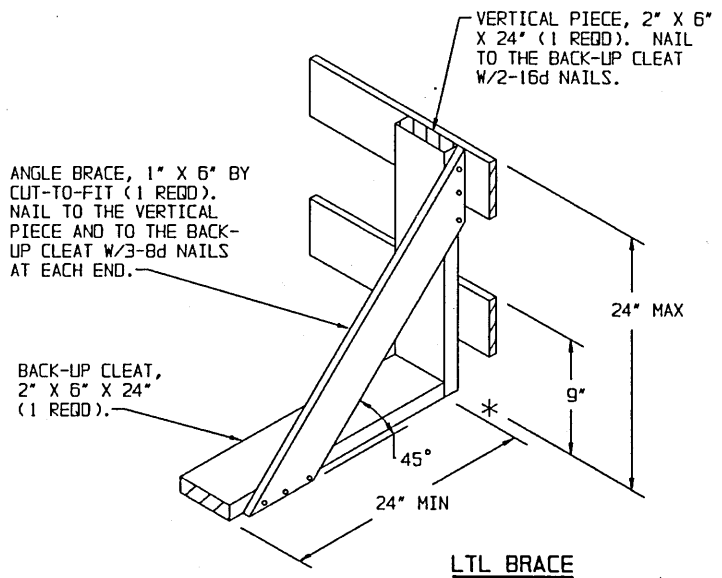
ISOMETRIC VIEW

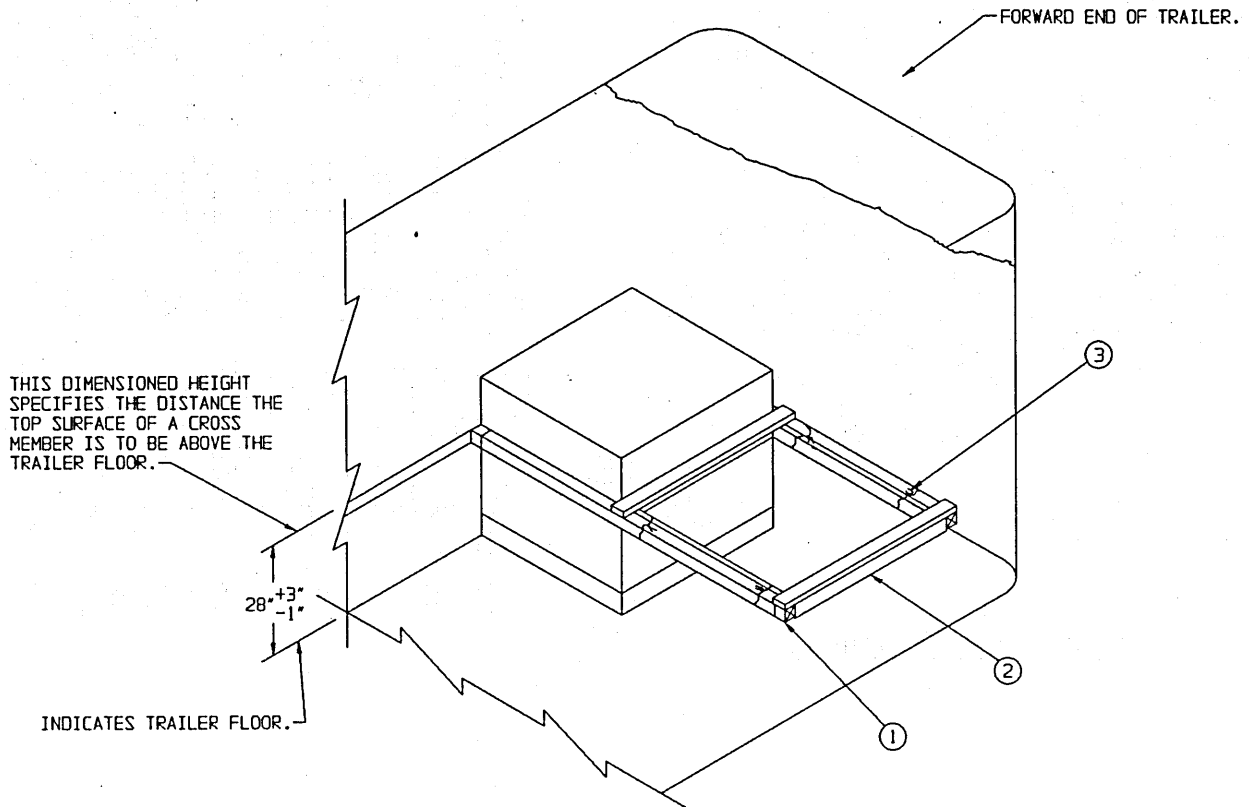
KEY NUMBERS

SPECIAL NOTES:

1. A 7'-6" WIDE (INSIDE DIMENSION) TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. THE POSITIONING OF A SINGLE PALLET UNIT IS OPTIONAL. IF THE TRAILER HAS A SQUARE FRONT, THE TWO (2) FORWARD LTL BRACES MAY BE OMITTED AND THE UNIT POSITIONED AGAINST THE END WALL.
3. MORE THAN ONE PALLET UNIT CAN BE SHIPPED PROVIDING THE CAPACITY OF THE LTL BRACES IS NOT EXCEEDED. THE LOAD SHOULD BE FORMED IN ROWS, WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDEWALLS. THE "ANTI-SWAY BRACE B", DETAILED ON PAGE 16 MUST BE INSTALLED BETWEEN LATERALLY ADJACENT UNITS.
4. EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING, HOWEVER, NOT LESS THAN TWO (2) BRACES WILL BE USED AGAINST EACH PALLET UNIT ACROSS THE WIDTH OF THE TRAILER. ADDITIONAL BRACES MAY BE INSTALLED FOR THE RETENTION OF A HEAVIER LOAD.

- ① LOAD BEARING PIECE, 1" X 6" X 38" (4 REQD). LOCATE AT THE HEIGHTS AS SPECIFIED IN THE "LTL BRACE" DETAIL BELOW. NAIL TO THE LTL BRACES W/4-6d NAILS AT EACH JOINT. SEE GENERAL NOTE "0" ON PAGE 2.
- ② LOAD BEARING PIECE, 1" X 6" X 44" (2 REQD). LOCATE AT THE HEIGHTS AS SPECIFIED IN THE "LTL BRACE" DETAIL BELOW. NAIL TO THE LTL BRACES W/4-6d NAILS AT EACH JOINT.
- ③ LTL BRACE (6 REQD). SEE THE "LTL BRACE" DETAIL BELOW. NAIL TO THE TRAILER FLOOR W/10-10d NAILS.





ISOMETRIC VIEW

SPECIAL NOTES:

1. A 7'-6" WIDE (INSIDE DIMENSION) VAN TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES IS SHOWN. TRAILERS OF OTHER WIDTHS MAY BE USED.
2. A TYPICAL LTL LOAD OF ONE (1) PALLETIZED UNIT IS SHOWN. IF TWO (2) PALLETIZED UNITS ARE TO BE TRANSPORTED, POSITION THE UNITS TWO ACROSS THE WIDTH OF THE TRAILER, OMIT THE SPACER ASSEMBLIES AND THE TIE WIRES SHOWN AS PIECES MARKED ② AND ③. NOTE: WHEN LOADING TWO (2) PALLETIZED UNITS ACROSS THE WIDTH OF THE TRAILER, OMIT THE TWO CROSS MEMBERS AT THE FORWARD END, AND POSITION ONE ANTI-SWAY BRACE, SHOWN AS PIECE MARKED ① ON PAGE 8, BETWEEN THE UNITS. NOTE THAT A CROSS MEMBER MUST BE POSITIONED AT THE 4" HEIGHT LOCATION TO PREVENT DISPLACEMENT OF ANTI-SWAY BRACE A. "ANTI-SWAY BRACE B" DETAILED ON PAGE 16 MAY BE USED IN LIEU OF PIECE MARKED ① ON PAGE 8; THEN THE CROSS MEMBER AT THE 4" HEIGHT WILL NOT BE REQUIRED.

KEY NUMBERS

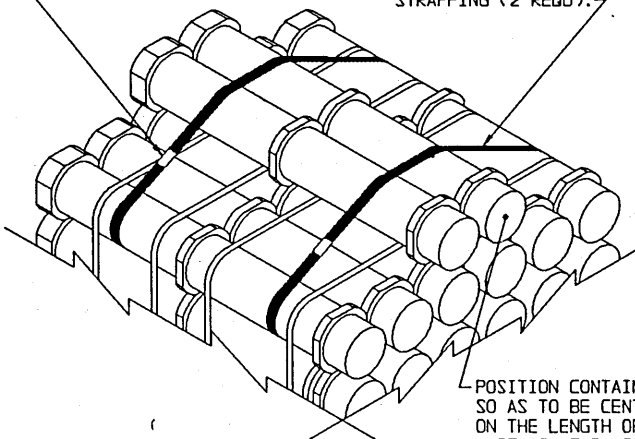
- ① CROSS MEMBER (2 REDD). POSITION AT THE HEIGHT SPECIFIED IN THE ISOMETRIC VIEW ABOVE. SEE GENERAL NOTES "D" AND "K" ON PAGE 2, AND SPECIAL NOTE 2 AT LEFT.
- ② SPACER ASSEMBLY (1 REDD). SEE THE SPACER ASSEMBLY "D" DETAIL ON PAGE 18.
- ③ TIE WIRE, NO. 14 GAGE WIRE 30" LONG (4 REDD). INSTALL TO FORM A COMPLETE LOOP AROUND THE CROSS MEMBER AND THE SPACER ASSEMBLY. BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

SPECIAL NOTES:

1. SHIPMENTS OF COMPLETE ROUNDS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION, MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS. LEFTOVER CONTAINERS ARE DESCRIBED AS A QUANTITY OF CONTAINERS WHICH IS INSUFFICIENT TO FORM A FULL-LAYERED PARTIAL UNIT FOR SECUREMENT ON TOP OF A FULL PALLET UNIT AS SHOWN ON PAGE 15.
2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS MOTOR CARRIER SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOT TO POSTS, CAMPS, AND STATIONS, OR UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLY, AND PACK PLANTS TO DEPOTS. CAUTION: A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A FULL OR PARTIAL UNIT, MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.
3. THE PROCEDURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SECUREMENT OF LEFT OVER CONTAINERS FOR SHIPMENT. THE VIEW AT TOP LEFT DEPICTS TWO LEFTOVER CONTAINERS SECURED TO A FULL-HEIGHT PALLET UNIT. THE VIEW BELOW DEPICTS THREE LEFTOVER CONTAINERS SECURED TO A FULL HEIGHT UNIT. NOTE THAT STRAPPING BOARDS ARE REQUIRED WHEN THREE OR MORE LEFTOVER CONTAINERS ARE TO BE TRANSPORTED. LEFTOVER CONTAINERS MUST BE SECURED WITH A MINIMUM OF TWO (2) PIECES OF STEEL STRAPPING.
4. THE PROCEDURES ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.

SEAL FOR 1-1/4" STRAP (2 RECD). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.

UNITIZING STRAP, 1-1/4" X .031" OR .035" X 9'-6" LONG STEEL STRAPPING (2 RECD).



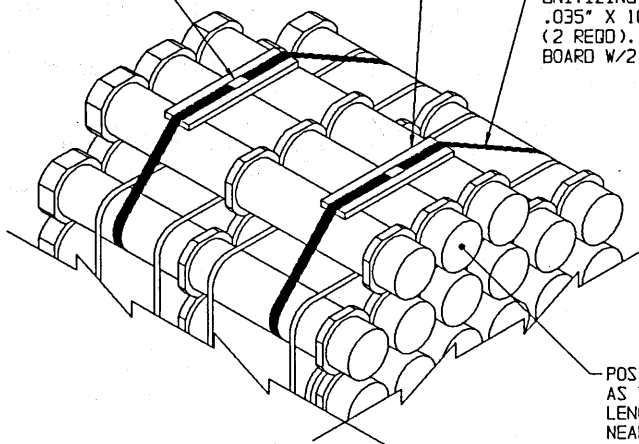
POSITION CONTAINERS SO AS TO BE CENTERED ON THE LENGTH OF THE UNIT AS NEAR AS PRACTICABLE.

SECUREMENT OF TWO CONTAINERS

SEAL FOR 1-1/4" STRAP (2 RECD). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.

STRAPPING BOARD, 1" X 4" X 16" (2 RECD). INCREASE THE LENGTH BY 7" FOR EACH ADDITIONAL CONTAINER. SEE SPECIAL NOTE 3 ABOVE.

UNITIZING STRAP, 1-1/4" X .031" OR .035" X 10'-0" LONG STEEL STRAPPING (2 RECD). STAPLE TO THE STRAPPING BOARD W/2 STAPLES.



POSITION CONTAINERS SO AS TO BE CENTERED ON THE LENGTH OF THE UNIT AS NEAR AS PRACTICABLE.

SECUREMENT OF THREE CONTAINERS

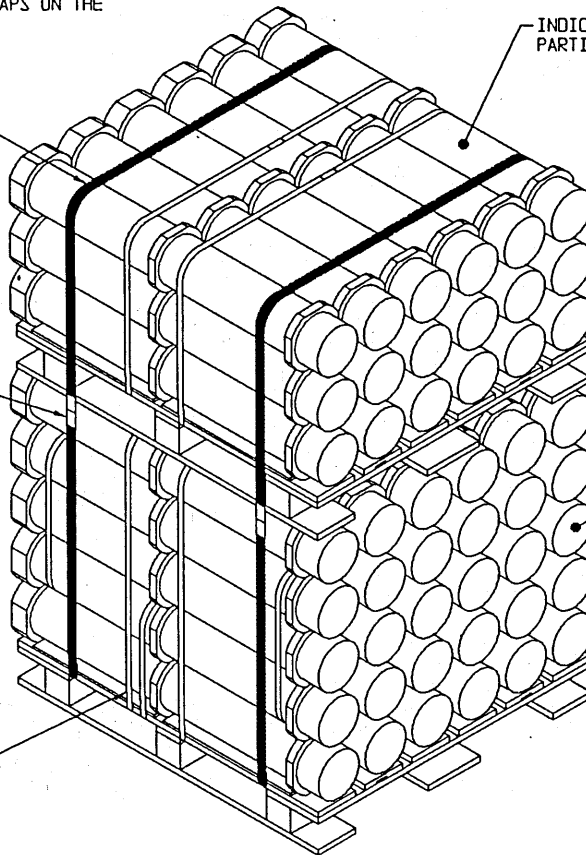
VERTICAL UNITIZING STRAP, 1-1/4" X .035" OR .031"
BY A LENGTH TO SUIT STEEL STRAPPING (2 REDD).
POSITION OVER THE OUTER TIEDOWN STRAPS ON THE
UNITS AS SHOWN.

INDICATES A TYPICAL 3-LAYER
PARTIAL PALLETIZED UNIT.

SEAL FOR 1-1/4" STEEL
STRAPPING (4 REDD).
DOUBLE CRIMP EACH
SEAL. SEE GENERAL
NOTE "M" ON PAGE 2.

INDICATES A TYPICAL
PALLETIZED UNIT AS
SHOWN ON PAGE 3 OF
THIS DRAWING.

INDICATES TIEDOWN
STRAP ON THE FULL
PALLETIZED UNIT.



SECUREMENT OF A PARTIAL PALLET UNIT
ON TOP OF A FULL PALLET UNIT

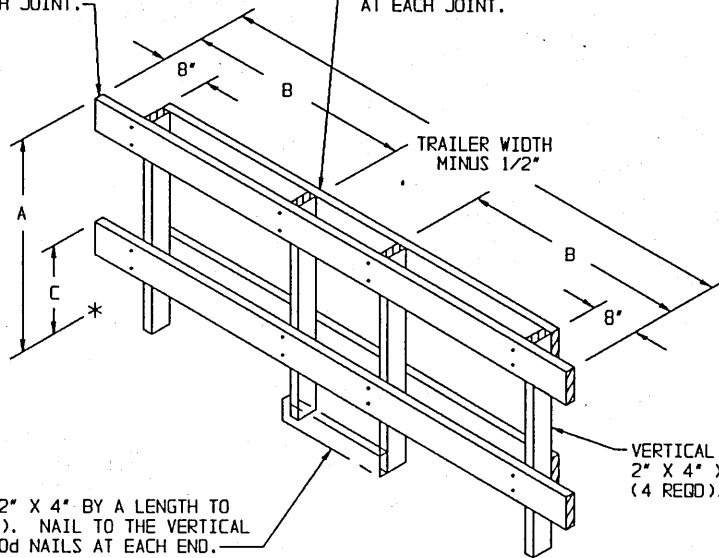
SPECIAL NOTES:

1. THE VIEW SHOWN ABOVE DEPICTS A PARTIAL 3-LAYER PALLET UNIT POSITIONED ON TOP OF A FULL-HEIGHT PALLET UNIT AND UNITIZED WITH TWO VERTICAL UNITIZING STRAPS. PLACEMENT WITHIN THE LOAD IS OPTIONAL, EXCEPT THAT IT WILL NOT BE POSITIONED IN THE REAR LOAD UNIT, OR ADJACENT TO THE SPACER ASSEMBLIES SPECIFIED BY SPECIAL NOTE 4 ON PAGE 7.
2. SHIPMENTS OF PALLET UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL PALLET UNITS WITHIN A LOAD. THE PROCEDURES ON THIS PAGE AND ON PAGE 14 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
3. THE "SHIPMENT OF A PARTIAL PALLET UNIT" PROCEDURES ON THIS PAGE ARE APPLICABLE FOR LOADS IN CONVENTIONAL TYPE VAN TRAILERS AND IN TRAILERS EQUIPPED WITH MECHANICAL BRACING DEVICES.
4. FOR SHIPMENT OF ONE THRU FIVE "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 14 OF THIS DRAWING.

LOAD BEARING PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REGD). NAIL TO VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

LATERAL PIECE, 2" X 6" BY TRAILER WIDTH MINUS 16-1/2" IN LENGTH (2 REGD). ALIGN VERTICALLY WITH LOAD BEARING PIECES AND NAIL TO VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

FORWARD BLOCKING CHART A*			
DIM	A	B	C
	36"	38"	15"



FORWARD BLOCKING CHART B*			
DIM	A	B	C
	33"	41"	9"

* FORWARD BLOCKING CHART "A" IS USED FOR LENGTHWISE POSITIONED CONTAINERS AS SHOWN IN THE LOAD ON PAGE 4. NOTE THAT THE STOP PIECE IS NOT REQUIRED IF "ANTI-SWAY BRACE B" IS INSTALLED BETWEEN LATERALLY ADJACENT UNITS. SEE THE DETAIL BELOW. IF THE CONTAINERS ARE POSITIONED CROSSWISE AS SHOWN IN THE LOAD ON PAGE 6, USE FORWARD BLOCKING CHART "B".

STOP PIECE, 2" X 4" BY A LENGTH TO SUIT (1 REGD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

VERTICAL PIECE, 2" X 4" X DIM A (4 REGD).

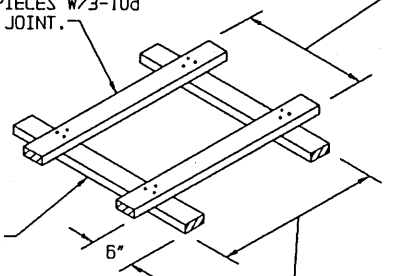
FORWARD BLOCKING ASSEMBLY

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", 2" X 6" VERTICAL PIECES WILL BE USED IN LIEU OF THE 2" X 4" PIECES. IF THE TRAILER TO BE LOADED HAS LARGE-ANGLED CORNERS AT THE FORWARD END, REFER TO PAGE 23 FOR GUIDANCE.

BUFFER PIECE, 2" X 4" X 36" (2 REGD). POSITION AGAINST THE PALLET POSTS AND NAIL TO THE RETAINER PIECES W/3-10d NAILS AT EACH JOINT.

FABRICATE TO FIT BETWEEN THE POSTS OF LATERALLY ADJACENT PALLET.

RETAINER PIECE, 2" X 4" BY A LENGTH TO SUIT (2 REGD). POSITION TO EXTEND UNDER THE LATERALLY ADJACENT PALLET AND AGAINST THE PALLET POSTS.

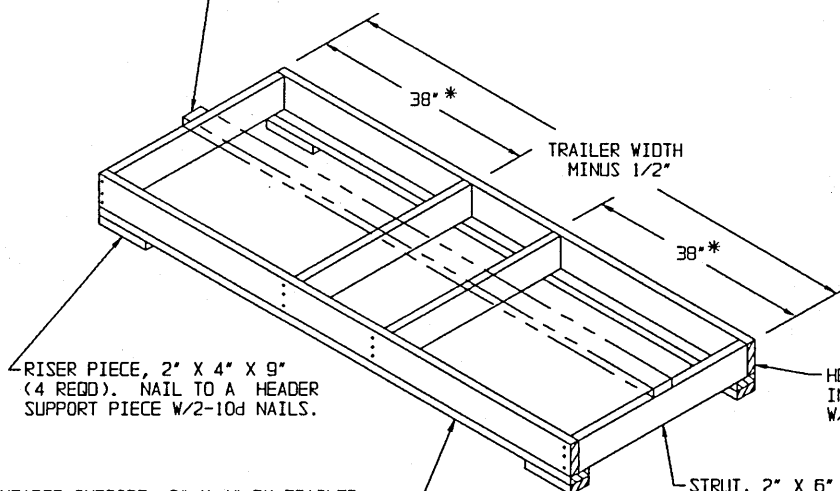


FABRICATE TO FIT AGAINST THE PALLET POSTS (REF: 29")

STRUT BRACING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REGD FOR EVERY 7'-0" OF STRUT LENGTH FOR STRUTS LONGER THAN 7'-0"). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.

ANTI-SWAY BRACE B

NOTE THAT THIS ASSEMBLY MUST BE FABRICATED IN PLACE BETWEEN PALLET.



RISER PIECE, 2" X 4" X 9" (4 REGD). NAIL TO A HEADER SUPPORT PIECE W/2-10d NAILS.

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

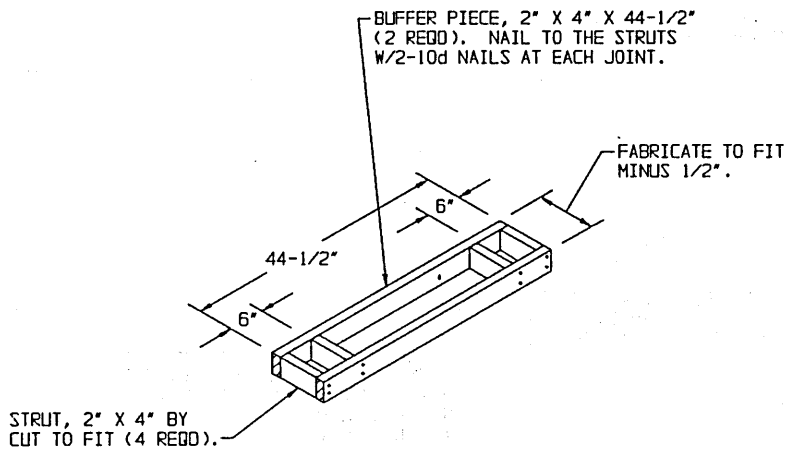
HEADER SUPPORT, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REGD). NAIL TO THE BOTTOM EDGE OF A HEADER W/1-10d NAIL EVERY 12".

STRUT, 2" X 6" BY CUT-TO-FIT (4 REGD).

SPACER ASSEMBLY A

* THIS DIMENSION WILL BE 41" IF CONTAINERS ARE POSITIONED CROSSWISE IN THE TRAILER.

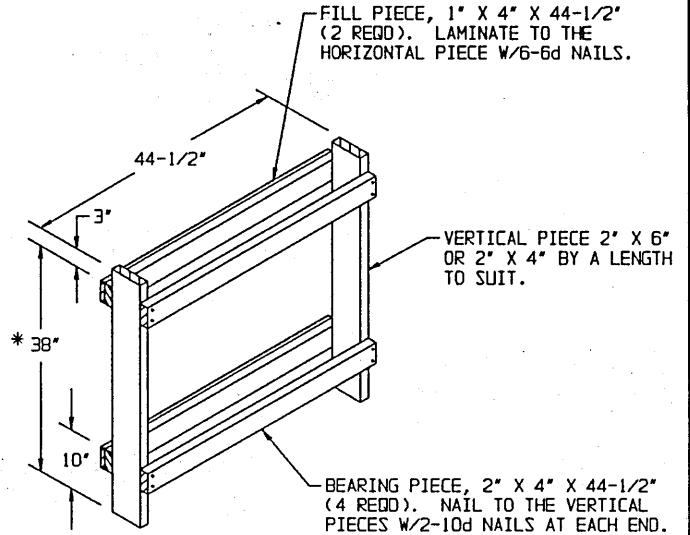
DETAILS



ANTI-SWAY BRACE A

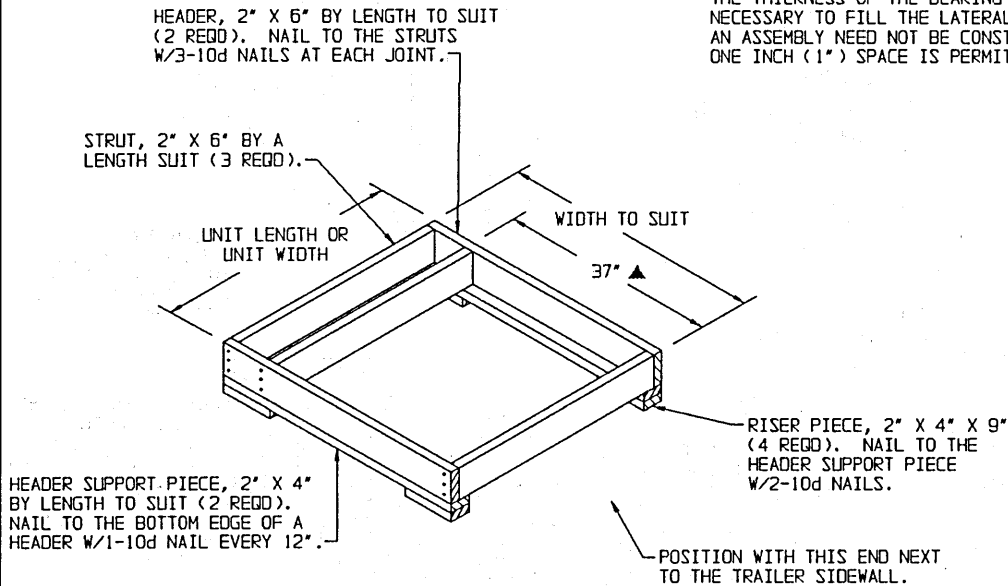
THIS ASSEMBLY IS DESIGNED FOR USE ON THE FLOOR BETWEEN LATERALLY ADJACENT PALLET UNITS. NOTE THAT AN ASSEMBLY NEED NOT BE CONSTRUCTED FOR A TIGHT FIT; UP TO ONE HALF INCH (1/2") SPACE IS PERMITTED.

* THE 38" DIMENSION SHOWN IS FOR USE AS LATERAL BRACING OF A PALLET UNIT IN THE SECOND LAYER. FOR USE BETWEEN FIRST LAYER UNITS THIS DIMENSION WILL BE 24".



CRIB FILL A

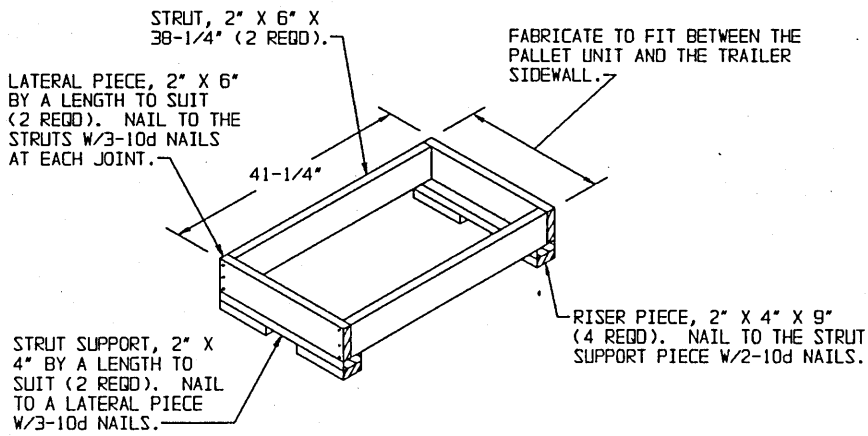
THE DEPICTED CRIB FILL CONSISTS OF 1" X 4", 2" X 4" AND 2" X 6" MATERIAL, AND IS DESIGNED FOR USE WHERE THE LATERAL VOID IS APPROXIMATELY 10". THE WIDTH OF THE VERTICAL PIECES, AND/OR THE THICKNESS OF THE BEARING PIECES CAN BE ALTERED AS NECESSARY TO FILL THE LATERAL VOID BETWEEN UNITS. NOTE THAT AN ASSEMBLY NEED NOT BE CONSTRUCTED FOR A TIGHT FIT; UP TO ONE INCH (1") SPACE IS PERMITTED.



SPACER ASSEMBLY B

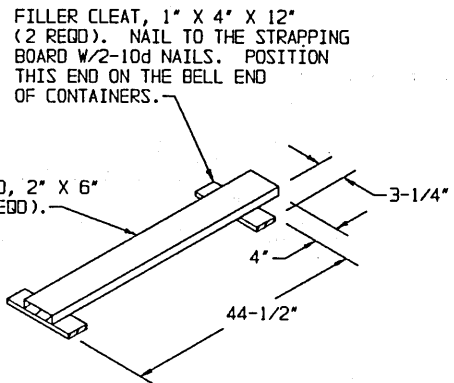
THIS ASSEMBLY IS DESIGNED FOR USE IN THE PLACE OF A PALLET UNIT WHICH IS OMITTED FROM THE LOAD IN A CONVENTIONAL VAN TRAILER, AS SPECIFIED BY SPECIAL NOTE 4 ON PAGE 7.

▲ THIS DIMENSION WILL BE 41" IF THE CONTAINERS ARE POSITIONED CROSSWISE.

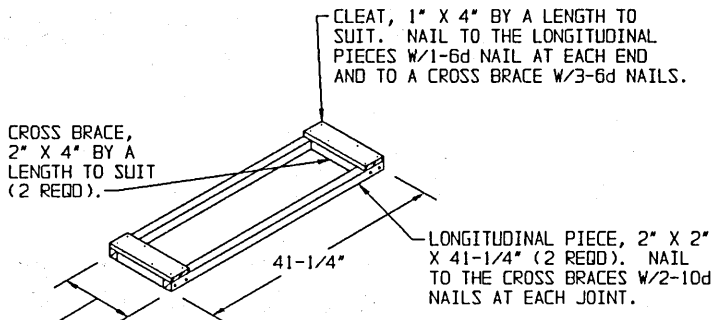


SPACER ASSEMBLY C

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING OF A SINGLE PALLET UNIT AS SHOWN IN THE LOAD ON PAGE 10.

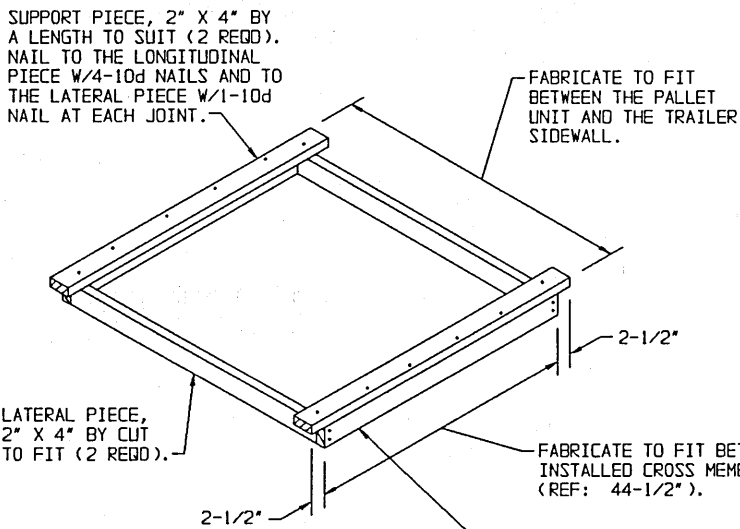


STRAPPING BOARD ASSEMBLY



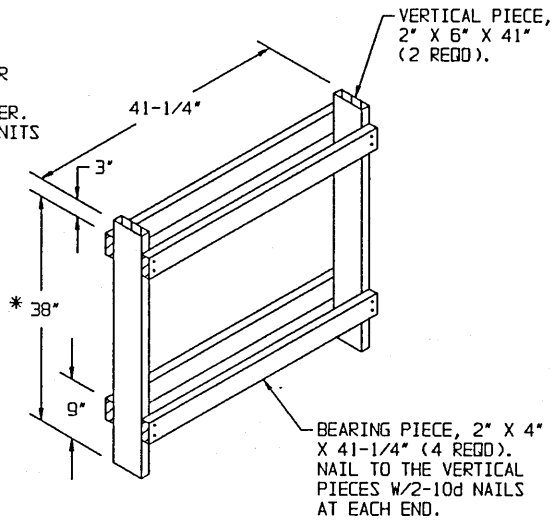
ANTI-SWAY BRACE C

* THE 38" DIMENSION SHOWN IS FOR USE AS LATERAL BRACING OF A PALLET UNIT IN THE SECOND LAYER. FOR USE BETWEEN FIRST-LAYER UNITS THIS DIMENSION WILL BE 24".



SPACER ASSEMBLY D

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING IN A TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES, AS SHOWN ON PAGE 13.



CRIB FILL B

THE DEPICTED CRIB FILL IS APPLICABLE FOR AN 8'-2" WIDE TRAILER. IF NARROWER TRAILERS ARE USED FOR THE DEPICTED LOAD THE WIDTH OF THE VERTICAL PIECES, AND/OR THE THICKNESS OF THE BEARING PIECES CAN BE ALTERED AS NECESSARY TO FILL THE LATERAL VOID BETWEEN UNITS. ALSO, THE BEARING PIECES CAN BE NAILED TO THE FLAT SURFACE OF THE VERTICALS W/3-APPLICABLY SIZED NAILS AT EACH JOINT. NOTE THAT AN ASSEMBLY NEED NOT BE CONSTRUCTED FOR A TIGHT FIT; UP TO ONE INCH (1") SPACE IS PERMITTED.

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.

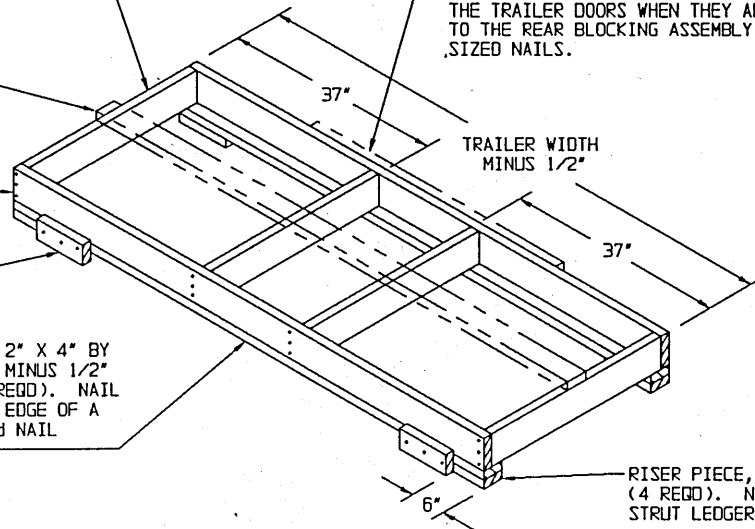
HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

RETAINER PIECE, 2" X 4" X 9" (2 REQD). NAIL TO THE STRUT LEDGER W/3-10d NAILS.

STRUT LEDGER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF A HEADER W/1-10d NAIL EVERY 12".

STRUT, 2" X 6" BY CUT-TO-FIT (4 REQD).

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 A

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.

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

STRUT, 2" X 6" BY CUT-TO-FIT (4 REQD).

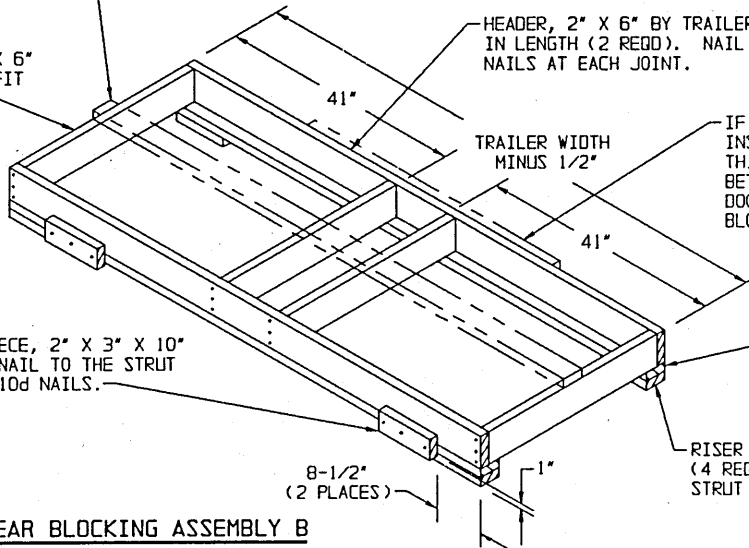
HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

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

RETAINER PIECE, 2" X 3" X 10" (2 REQD). NAIL TO THE STRUT LEDGER W/3-10d NAILS.

STRUT LEDGER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF A HEADER W/1-10d NAIL EVERY 12".

RISER PIECE, 2" X 4" X 9" (4 REQD). NAIL TO THE STRUT LEDGER W/2-10d NAILS.



REAR BLOCKING ASSEMBLY B

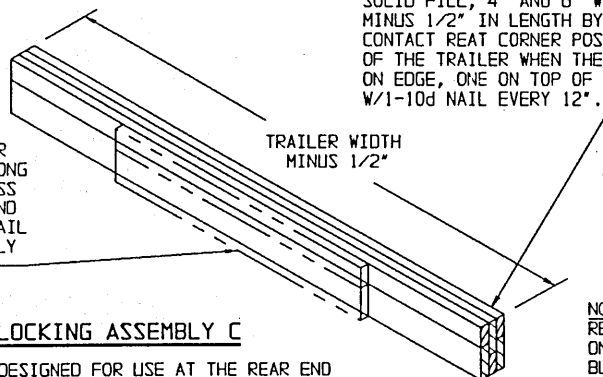
THIS ASSEMBLY IS FOR USE AT THE REAR END OF LENGTHWISE POSITIONED CONTAINERS WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS GREATER THAN 9". NOTE THAT THE ABOVE VIEW IS ROTATED 180°, FROM THE POSITION IN WHICH IT WILL BE INSTALLED.

SOLID FILL, 4" AND 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, ONE ON TOP OF THE OTHER AS SHOWN, 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 ASSEMBLY AND THE TRAILER DOORS WHEN THEY ARE CLOSED. NAIL TO THE REAR BLOCKING ASSEMBLY W/4 APPLICABLY SIZED NAILS.

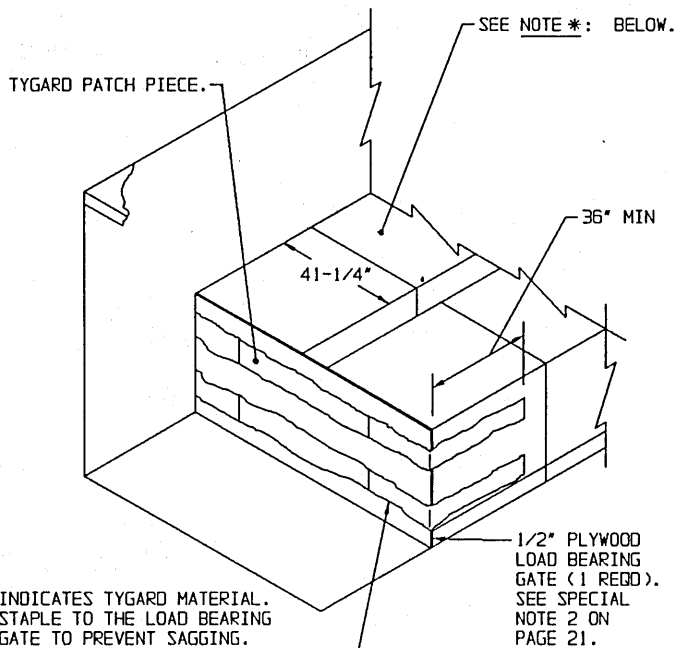
REAR BLOCKING ASSEMBLY C

THIS REAR BLOCKING IS DESIGNED FOR USE AT THE REAR END OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS LESS THAN 9". SEE "NOTE *" AT RIGHT.



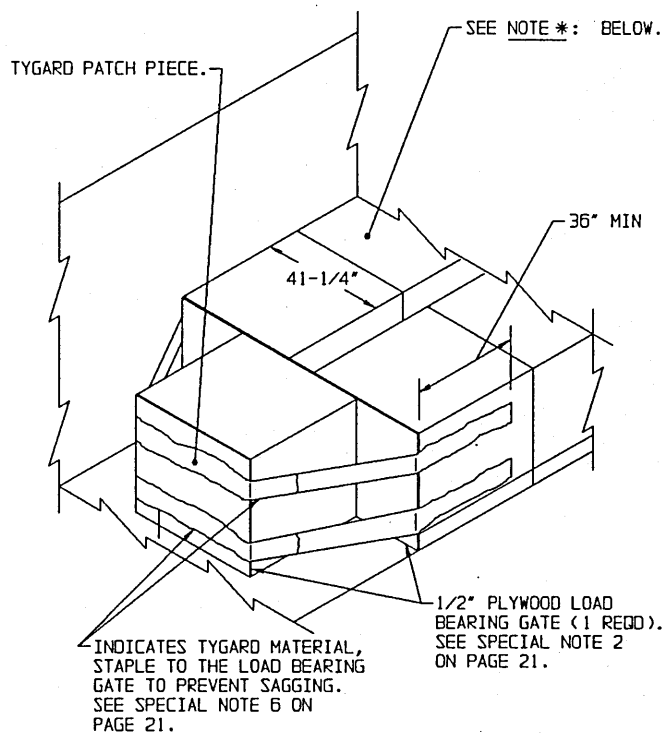
NOTE *: RETAINER PIECES WILL BE REQUIRED ON THE LOAD BEARING SIDE OF REAR BLOCKING ASSEMBLY "C". REFER TO REAR BLOCKING "A" OR "B" ABOVE FOR LOCATION AND NAILING GUIDANCE.

DETAILS



INDICATES TYGARD MATERIAL. STAPLE TO THE LOAD BEARING GATE TO PREVENT SAGGING. AS AN ALTERNATIVE, A 1" X 4" BY LOAD HEIGHT PIECE MAY BE NAILED THRU THE TYGARD MATERIAL INTO THE LOAD BEARING GATE. CAUTION: PLACE 1" X 4" SO AS TO BE ALIGNED WITH THE VOID BETWEEN THE ROWS OF PALLET UNITS.

TYGARD METHOD A



TYGARD METHOD B

NOTE *: PALLET UNITS MAY BE POSITIONED WITH THE 44-1/2" DIMENSION ACROSS THE WIDTH OF THE TRAILER, AS SHOWN ON PAGE 6, IF DESIRED.

RECOMMENDED EQUIPMENT/INSTALLATION PROCEDURES

EQUIPMENT REQUIRED

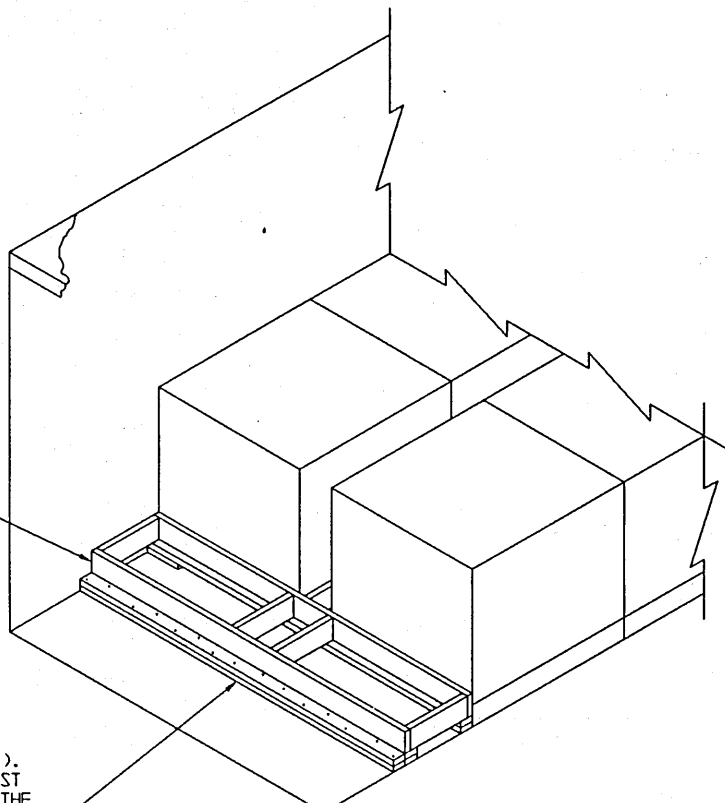
PAINT ROLLER, LATEX
PAINT ROLLER PAN
TENSIONING ROD/TOOL
PRESSURE ROLLER
RATCHET WRENCH (12" TO 15" HANDLE)
OPEN END OR BOX WRENCH (12" TO 15" HANDLE)
SCISSORS OR KNIFE
TYGARD (15" WIDE ROLL) TYGARD ADHESIVE

BASIC INSTALLATION GUIDANCE

1. CUT TO LENGTH THE REQUIRED NUMBER OF TYGARD PIECES (FROM 2 TO 8 DEPENDING UPON THE LOAD CONFIGURATION) FOR ATTACHMENT TO THE TRAILER SIDEWALL. PIECES WILL BE OF A LENGTH AS REQUIRED TO PROVIDE PROPER BONDING TO THE TRAILER SIDEWALL AND TO EXTEND 60" ACROSS THE REAR OF THE LOAD. ALSO CUT 72" LONG "PATCH" PIECES OF TYGARD MATERIAL, ONE FOR EACH SET OF TWO PIECES PREVIOUSLY CUT.
2. PRIOR TO POSITIONING OF THE PALLETS IN THE REARMOST LOAD UNIT, APPLY TYGARD ADHESIVE TO THE PROPER PORTIONS OF THE TRAILER SIDEWALLS AND TO THE CORD SIDE OF A CORRESPONDING LENGTH OF EACH OF THE TYGARD PIECES THAT ARE TO BE ATTACHED TO THE SIDEWALLS OF THE TRAILER. ALLOW TIME FOR THE ADHESIVE TO "CURE" BEFORE PLACING A STRIP OF TYGARD ONTO A SIDEWALL (ADHESIVE WILL FEEL ALMOST DRY WHEN TOUCHED). NOTE: APPLICATION OF TYGARD IS SIMILAR TO THE APPLICATION OF "FORMICA".
3. APPLY THE TYGARD PIECES TO EACH SIDEWALL OF THE TRAILER SO THAT THE PIECES ARE PARALLEL OR NEARLY PARALLEL TO THE FLOOR. ROLL THE TYGARD WITH THE PRESSURE ROLLER TO ENSURE PROPER BONDING IS ACHIEVED. TEMPORARILY SECURE THE LOOSE ENDS TO THE TRAILER SIDEWALL OR TO AN OPEN HINGED TYPE DOOR OR TO THE OUTSIDE WALL, AS APPLICABLE.
4. POSITION THE PALLETS OF THE REARMOST LOAD UNIT INTO THE TRAILER AND INSTALL THE SPECIFIED ANTI-SWAY BRACES, OR CRIB FILL.
5. UNDO THE PREVIOUSLY SECURED LOOSE ENDS AND BRING A SET OF TWO PIECES TOGETHER ACROSS THE REAR OF THE LOAD. POSITION THE TENSIONING ROD SO THAT THE LOOSE ENDS OF THE TYGARD MATERIAL EXTEND THRU THE SLOT IN ROD. USING THE TWO WRENCHES, ROLL UP THE TYGARD TO TENSION IT ACROSS REAR OF THE LOAD. POSITION A WRENCH SO AS TO MAINTAIN THE TENSION IN THE TYGARD PIECES. CUT OFF AND DISCARD EXCESS MATERIAL FROM ONE PIECE OF THE TYGARD.
6. APPLY TYGARD ADHESIVE TO THE TENSIONED TYGARD PIECES AND ALSO TO THE CORD SIDE OF THE PREVIOUSLY CUT "PATCH" PIECE. APPLY THE "PATCH" AND ROLL WITH THE PRESSURE ROLLER TO ENSURE PROPER BONDING.

SPECIAL NOTES:

1. THE TYGARD METHOD OF REAR BLOCKING DEPICTED, CAN ONLY BE USED IN TRAILERS WHICH HAVE REASONABLY SMOOTH AND ADEQUATELY SECURED SIDEWALL PANELS IN THE AREA WHERE THE TYGARD MATERIAL IS TO BE APPLIED NOTE THAT TYGARD MATERIAL MUST BE INSTALLED AT TWO LEVELS ON THE REAR LOAD UNIT.
2. A UNIT HEIGHT OR 48" HIGH PLYWOOD GATE MUST BE INSTALLED AT THE REAR OF THE LOAD TO PROVIDE A SMOOTH SURFACE FOR THE TYGARD MATERIAL TO EXTEND AROUND. IF THE REAR LOAD UNIT IS 2-WIDE INSTALL A GATE WHICH IS TRAILER WIDTH MINUS 1/2" IN LENGTH AS SHOWN BY THE "TYGARD METHOD A" DETAIL ON PAGE 20. IF THE REAR LOAD UNIT IS 1-WIDE, ROTATE THE PALLET, INSTALL ONE (1) PALLET WIDTH GATE, AND ONE (1) TRAILER WIDTH MINUS 1/2" IN LENGTH GATE, AS SHOWN BY THE "TYGARD METHOD B" DETAIL ON PAGE 20.
3. THE TYGARD MATERIAL AND THE ADHESIVE FOR ATTACHING IT ARE COMMERCIAL PRODUCTS. FOR A SOURCE OF SUPPLY, CONTACT WALNUT INDUSTRIES, INC., 1344 ADAMS ROAD, P.O. BOX "E", BENSLEM, PA. 10920-0860, PHONE 1-800-523- 6536. APPLICATION INSTRUCTIONS AND GUIDANCE CAN ALSO BE OBTAINED FROM THAT OFFICE.
4. THE TYGARD METHOD, ALTHOUGH ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS
5. NOTICE: IF THE AREA OF A SIDEWALL WHERE THE TYGARD SHOULD BE ATTACHED IS ROUGH AND/OR BROKEN, THE APPLICABLE PIECE(S) OF TYGARD CAN BE LENGTHENED A SUITABLE AMOUNT AND ATTACHED TO THE SIDEWALL AHEAD OF THE INDICATED PREFERRED LOCATION.
6. TYGARD MATERIAL MUST BE APPLIED TO THE WALL IN SUCH A LONGITUDINAL LOCATION THAT IT WILL HAVE A PALLET UNIT BEARING AGAINST IT. THE TYGARD MATERIAL WILL BE APPLIED TO DIRECTLY OPPOSITE PORTIONS OF THE TRAILER SIDEWALL; IT MUST BE APPLIED TO EXTEND AT LEAST 36" FORWARD OF THE LAST PALLET UNIT CONTACTING THE WALL ON EACH SIDE OF THE LOAD.



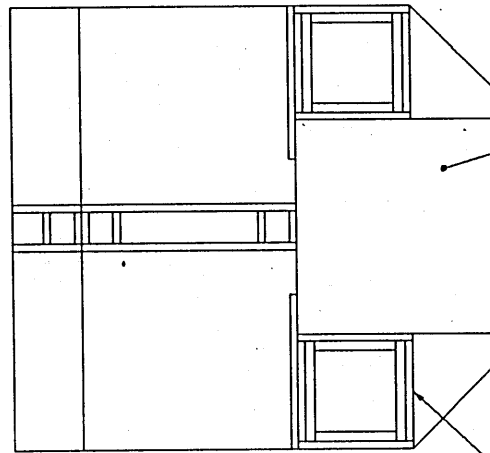
REAR BLOCKING ASSEMBLY
(1 REOD). SEE SPECIAL
NOTE 2 BELOW.

HEADER, 2" X 4" BY TRAILER WIDTH
MINUS 1/2" IN LENGTH (DOUBLED)
(1 REOD). POSITION AGAINST THE
REAR BLOCKING ASSEMBLY. 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 AND TOENAIL TO THE
REAR BLOCKING ASSEMBLY W/4-10d NAILS.

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 FOURTEEN INCHES (14").
2. REAR BLOCKING ASSEMBLY "A" IS SHOWN FOR A TYPICAL INSTALLATION. CONSTRUCT THE ASSEMBLY USING 6" (MINIMUM) LONG STRUTS.
3. THE NAILED-HEADER METHOD OF REAR BLOCKING IS ADEQUATE FOR THE RETENTION OF THE MAXIMUM WEIGHT LOAD.
4. THE NAILED-HEADER METHOD, ALTHOUGH DESIGNED ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.



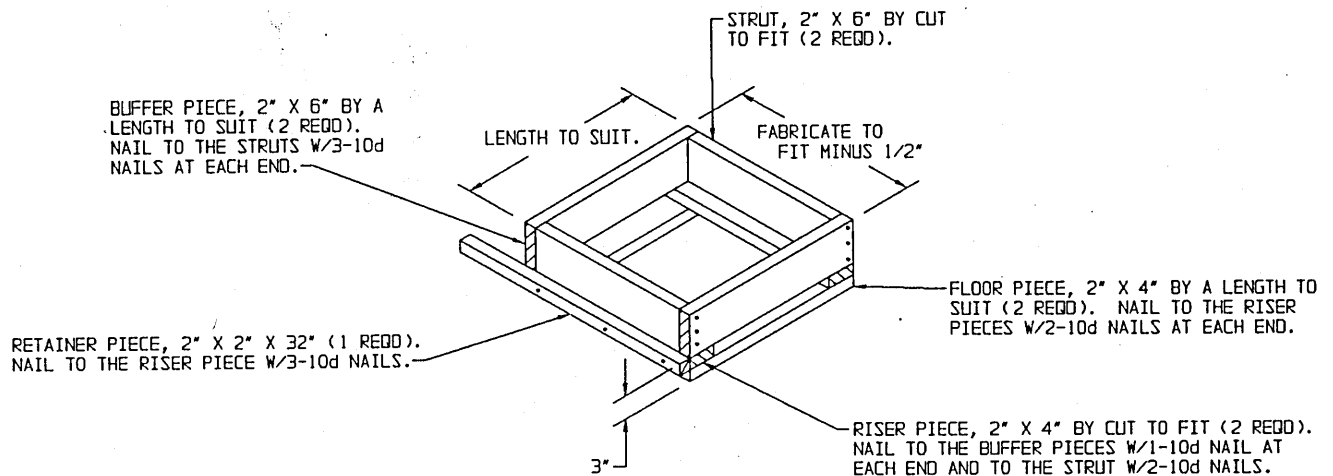
INDICATES A 1-HIGH PALLET STACK.

FORWARD END OF TRAILER.

SPACER ASSEMBLY E (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE DETAIL BELOW.

ALTERNATIVE FORWARD LOADING PATTERN

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF ONE (1) PALLET UNIT IN THE FORWARD END OF A CONVENTIONAL VAN TRAILER HAVING LARGE ANGLED FRONT CORNERS (REF: 18°). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING SQUARE CORNERS, OR ROUNDED FRONT CORNERS, OR ANGLED CORNERS OF ANOTHER SIZE.



BUFFER PIECE, 2" X 6" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH END.

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

LENGTH TO SUIT.

FABRICATE TO FIT MINUS 1/2"

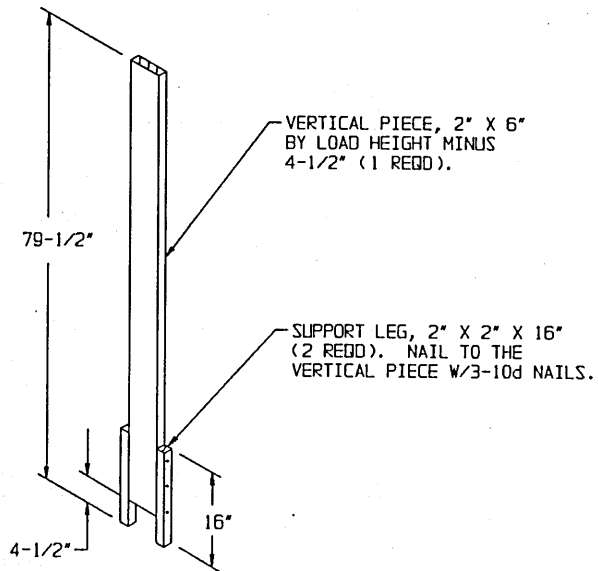
RETAINER PIECE, 2" X 2" X 32" (1 REQD). NAIL TO THE RISER PIECE W/3-10d NAILS.

FLOOR PIECE, 2" X 4" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE RISER PIECES W/2-10d NAILS AT EACH END.

RISER PIECE, 2" X 4" BY CUT TO FIT (2 REQD). NAIL TO THE BUFFER PIECES W/1-10d NAIL AT EACH END AND TO THE STRUT W/2-10d NAILS.

SPACER ASSEMBLY E

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A SINGLE PALLET UNIT WHICH IS TURNED 90° FROM THE NORMAL LOADING ORIENTATION AND POSITIONED IN THE FRONT OF AN ANGLED CORNER CONVENTIONAL VAN TRAILER AS SHOWN IN THE "ALTERNATIVE LOADING PATTERN" VIEW ABOVE. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.



STRAPPING BOARD ASSEMBLY A

THIS ASSEMBLY IS DESIGNED FOR USE IN THE LOAD SHOWN ON PAGE 6, AND ALSO FOR THE LOAD SHOWN BY THE "TYPICAL REAR VIEW OF AN 8'-2" WIDE VAN" DETAIL ON PAGE 7.