

# LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF PALLETIZED PROPELLING CHARGES PACKED IN CYLINDRICAL METAL CONTAINERS

## PA94 SERIES CONTAINERS

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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 CONTAINER/TRAILER-ON-FLAT-CAR MOVEMENTS.

DO NOT SCALE

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GENERAL NOTES

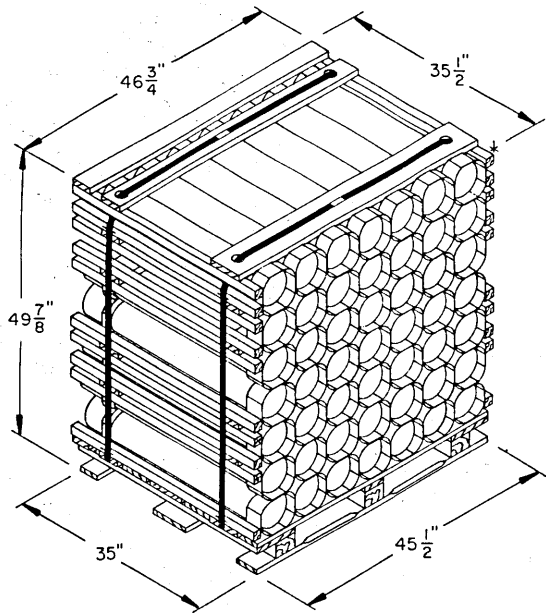
(GENERAL NOTES CONTINUED)

- 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 PA94 SERIES PROPELLING CHARGE CONTAINER ASSEMBLED ON THE 35" X 45-1/2" 4-WAY ENTRY PALLET. SEE THE PICTORIAL VIEWS ON PAGE 3 FOR SIZES AND WEIGHTS. REFER TO U.S. ARMY AMC (DARCOM) DRAWING 19-48-4042A/16-20PM1001 FOR UNITIZATION PROCEDURES FOR THE PA94 SERIES 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 EIGHTY-NINE INCHES (89") THRU NINETY-NINE (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 (1) 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.
- 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 OF 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 PROPELLING CHARGES, 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. ALL 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. SEE THE "SHIPMENT OF A PARTIAL PALLET UNIT" DETAIL AND SPECIAL NOTES ON PAGE 21. FOR "SHIPMENT OF LEFTOVER CONTAINERS", SEE THE DETAILS AND SPECIAL NOTES ON PAGE 22.
- M. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE (1) SEAL WITH TWO (2) PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 29 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 SENCO PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.
- Q. 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.
- R. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, END WALLS, 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.
- T. 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.
- U. THE PALLET UNITS DEPICTED ON PAGE 3 MAY BE LOADED AS A MIXED LOAD IN THE SAME TRAILER. FOR MIXED-HEIGHT LOADS, POSITION ALL PALLET UNITS OF ONE HEIGHT IN ONE LAYER, WITH THE TALLER UNITS BEING IN THE BOTTOM LAYER. IF FULL LAYERS OF ONE HEIGHT UNITS ARE NOT POSSIBLE FOR THE QUANTITY OF EACH SIZE TO BE SHIPPED, THE TALLER UNITS WILL BE LOADED IN THE FORWARD PORTION OF THE TRAILER WITH THE SHORTER HEIGHT UNITS IN THE REAR PORTION. CARE MUST BE EXERCISED WHEN SHIPPING MIXED HEIGHT UNITS IN TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES TO ENSURE THAT THE CROSS MEMBERS CONTACT THE PALLET DUNNAGE AND/OR INTERMEDIATE DUNNAGE ASSEMBLY OF A UNIT BY AT LEAST ONE-HALF THE SURFACE OF THE HEIGHT OF THE CROSS MEMBER. LOAD BEARING GATES MUST BE INSTALLED BETWEEN THE CROSS MEMBERS AND THE PALLET UNITS IF THE CROSS MEMBERS DO NOT ALIGN PROPERLY.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

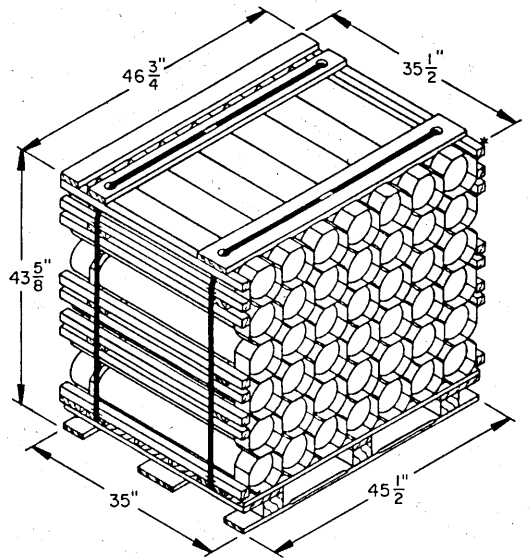
- LUMBER ----- : FED-SPEC MM-L-751. SEE TM 743-200-1, DUNNAGE LUMBER.
- NAILS ----- : FED SPEC FF-N-105; COMMON.
- STRAPPING STEEL ----- : FED SPEC QQ-S-781; CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B, (GRADE 2), OR C.
- SEAL, STRAP ----- : FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR IV, CLASS H, FINISH A, B, (GRADE 2), OR C.
- PLYWOOD ----- : GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D; FED SPEC NN-P-530. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.
- WIRE ----- : FED SPEC QQ-W-461.
- TYGARD ----- : POLYSTER YARN, 1,100 POUNDS/INCH OR WIDTH STRENGTH.
- ADHESIVE ----- : TYGARD ADHESIVE



**7-LAYER UNIT**

CONTAINER ----- 49 EACH @ 27 LBS ( APPROX )  
 CUBE ----- 47.9 CUBIC FEET ( APPROX )  
 GROSS WEIGHT ----- 1,473 LBS ( APPROX )

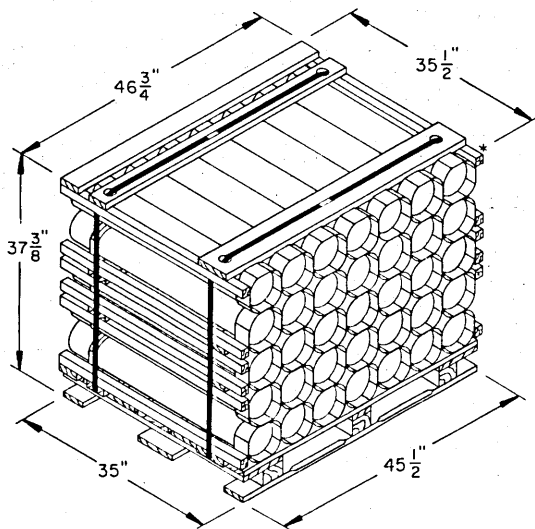
REFER TO PAGES 4 THRU 7 AND PAGES 16 AND 17 FOR  
 OUTLOADING PROCEDURES.



**6-LAYER UNIT**

CONTAINER ----- 42 EACH @ 27 LBS ( APPROX )  
 CUBE ----- 41.9 CUBIC FEET ( APPROX )  
 GROSS WEIGHT ----- 1,271 LBS ( APPROX )

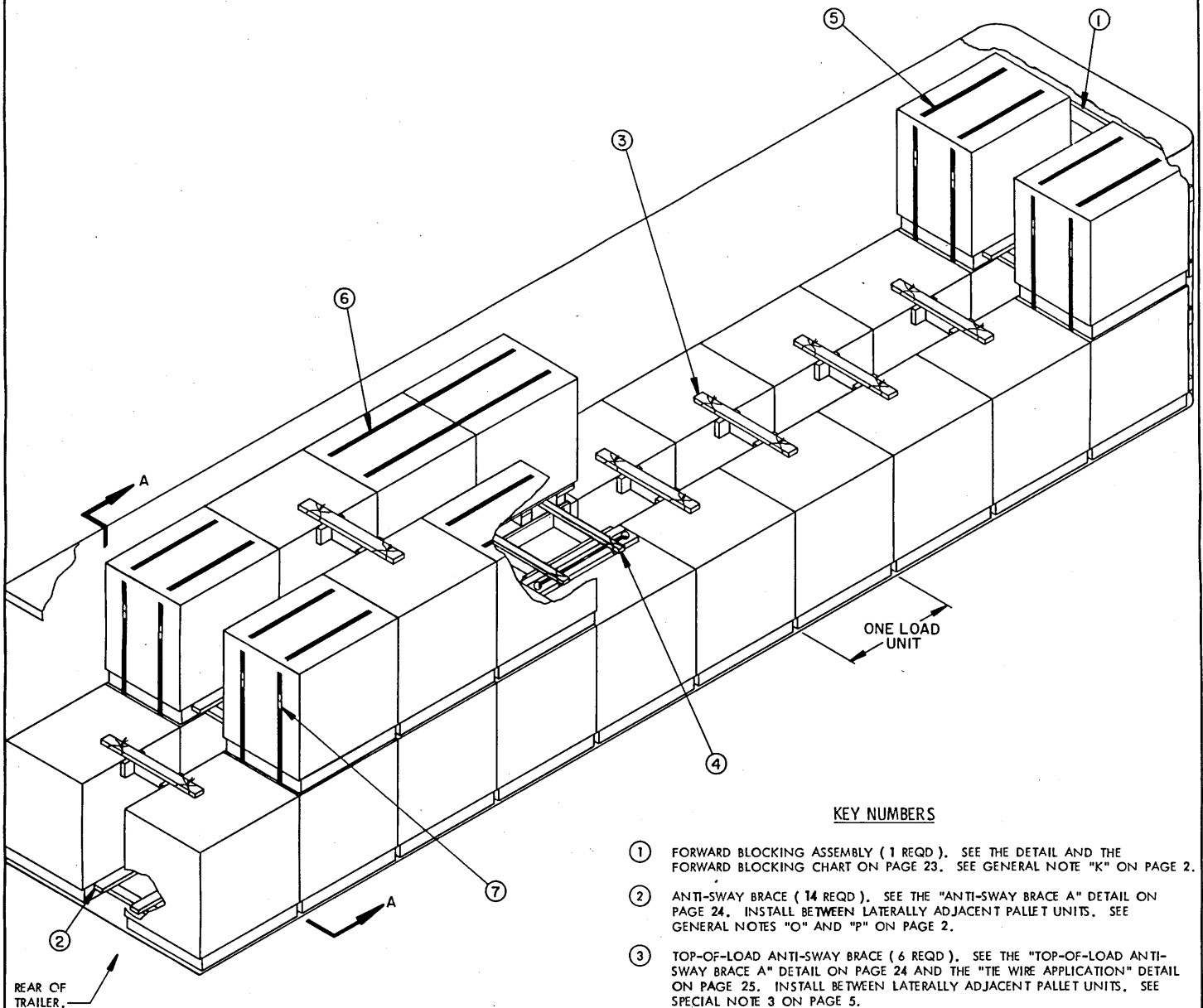
REFER TO PAGES 8 THRU 11 AND PAGES  
 16 AND 17 FOR OUTLOADING PROCEDURES.



**5-LAYER UNIT**

CONTAINER ----- 35 EACH @ 27 LBS ( APPROX )  
 CUBE ----- 35.9 CUBIC FEET ( APPROX )  
 GROSS WEIGHT ----- 1,078 LBS ( APPROX )

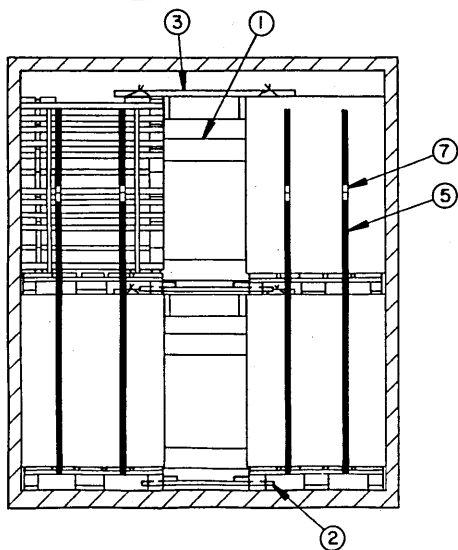
REFER TO PAGES 12 THRU 17 FOR OUTLOADING  
 PROCEDURES.



**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 24 AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 5.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE "B" (1 REQD). SEE THE DETAIL ON PAGE 24. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE TOP DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. SEE SPECIAL NOTE 4 ON PAGE 5.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (10 REQD). INSTALL SO AS TO ENCIROLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNIT. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 33'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIROLE TWO (2) COMPLETE STACKS. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNITS. SEE SPECIAL NOTE 6 ON PAGE 5.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "M" ON PAGE 2.

**ISOMETRIC VIEW**



**SECTION A-A**

(7-LAYER PALLET UNIT)

**29-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HIGH-VOLUME VAN TYPE TRAILER**

**SPECIAL NOTES:**

1. A 29-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE ( INSIDE DIMENSION ) HI-VOLUME VAN TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 8'-5", IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT. IF A TRAILER WHICH IS 7'-11" OR WIDER IS FURNISHED FOR LOADING, THE LOADING PATTERN DEPICTED ON PAGE 14 MAY BE USED IN LIEU OF THE PROCEDURES DEPICT ON PAGE 4.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 4 IS THE 7-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 49-7/8" HIGH AND WEIGHING APPROXIMATELY 1,473 POUNDS.
3. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ③ IN THE LOAD ON PAGE 4, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER, A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.
4. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED ④, IS ONLY REQUIRED FOR THE BRACING OF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "A" WILL BE INSTALLED IN LIEU OF PIECE MARKED ④.
5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. NOTE THAT WHEN THERE IS ONLY ONE FULL LOAD UNIT IN THE FRONT PORTION OF THE LOAD, EACH STACK IN THE LOAD UNIT MUST BE UNITIZED AS SHOWN. FOR THE DEPICTED LOAD, ONE STACK IS BUNDLED TO AN ADJACENT STACK IN LIEU OF UNITIZING. THE UNITIZING STRAPS, PIECE MARKED ⑤, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
6. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AND REAR BLOCKING IS REQUIRED AS SPECIFIED IN SPECIAL NOTE 8, BUNDLING STRAPS SHOWN AS PIECE MARKED ④, MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS IN EACH APPLICABLE ROW.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 24 AND SHOWN IN THE LOAD VIEW ON PAGE 4 AS PIECE MARKED ④ WILL BE INSTALLED IN ADDITION TO STACK UNITIZING STRAPS, PIECES MARKED ⑤.
8. IF THE VOID AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR, MEASURES 1-1/2" OR LESS, AS SHOWN, 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 ASSEMBLY "B" DETAILED ON PAGE 26. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE REAR BLOCKING ASSEMBLY "A" DETAILED ON PAGE 26. SEE SPECIAL NOTE 12.
9. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX (6) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS ON PAGE 22 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 AND 19.
12. 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 30 AND 31 FOR GUIDANCE. A NAILED-HEADER METHOD AND A TYGARD METHOD ARE SHOWN. FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILED-HEADER METHOD, IT WILL BE NECESSARY TO FORM NINE LOAD UNITS INSTEAD OF TEN, AS SHOWN. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

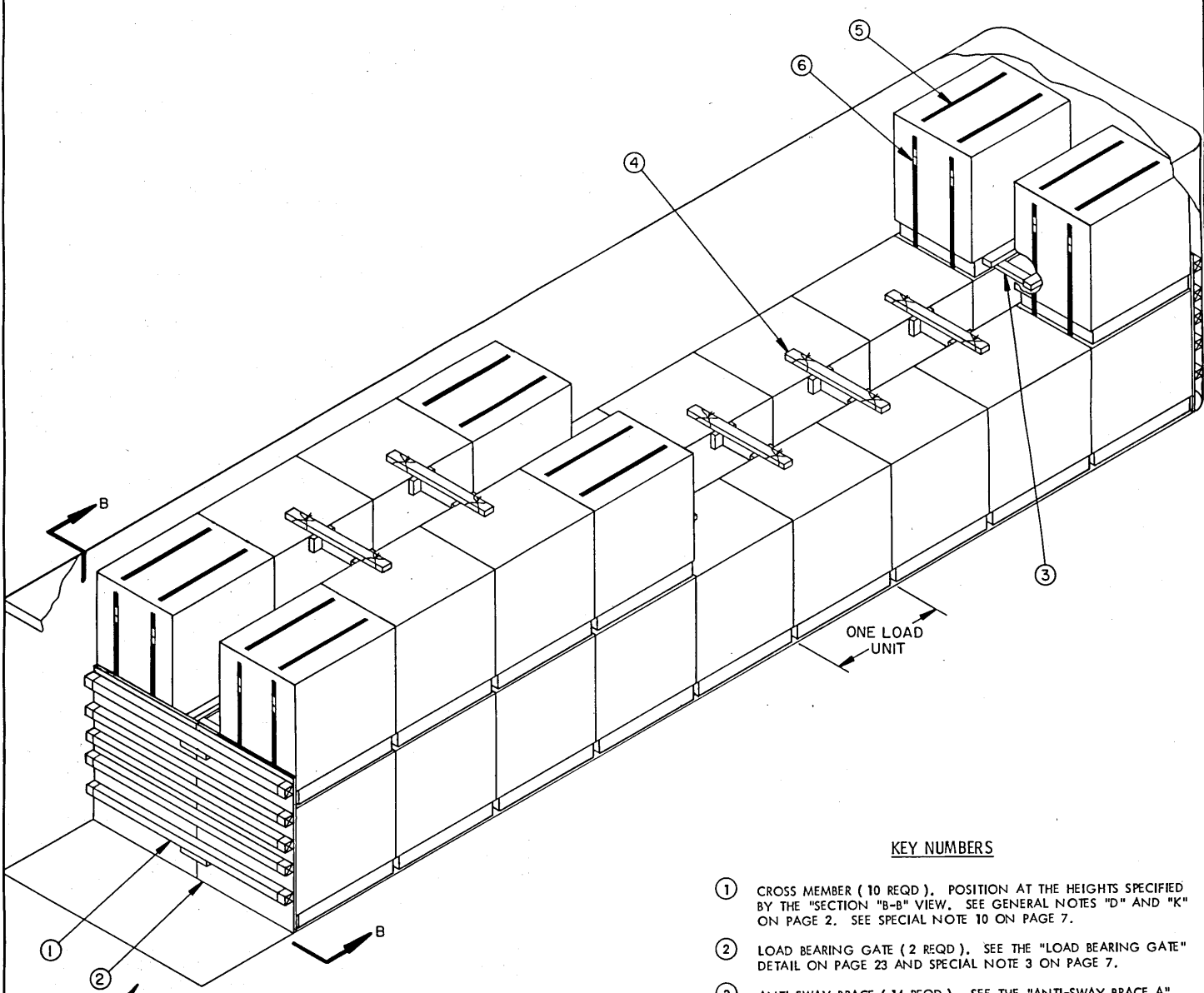
**BILL OF MATERIAL**

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	221	148
2" X 6"	82	82
NAILS	NO. REQD	POUNDS
10d (3")	336	5-1/4
STEEL STRAPPING, 1-1/4" X .035" OR .031"-----322' REQD-----46 LBS		
SEAL FOR 1-1/4" STRAPPING-----24 REQD----- 1 LB		
WIRE, NO. 14 GAGE-----56 REQD----- 1 LB		

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT ( APPROX )
PALLET UNIT-----	29-----	42,717 LBS
DUNNAGE-----	-----	514 LBS
TOTAL WEIGHT-----		43,231 LBS ( APPROX )

( 7-LAYER PALLET UNIT )  
 29-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME VAN TYPE TRAILER

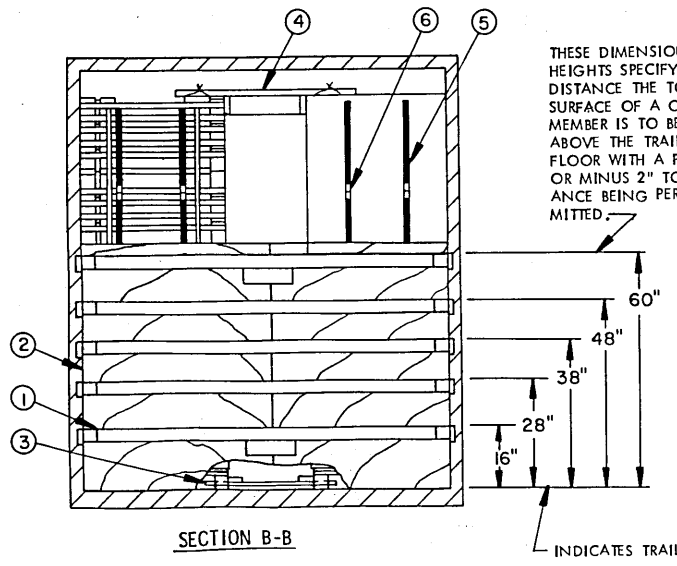


ISOMETRIC VIEW

**KEY NUMBERS**

- ① CROSS MEMBER ( 10 REQD ). POSITION AT THE HEIGHTS SPECIFIED BY THE "SECTION "B-B" VIEW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 10 ON PAGE 7.
- ② LOAD BEARING GATE ( 2 REQD ). SEE THE "LOAD BEARING GATE" DETAIL ON PAGE 23 AND SPECIAL NOTE 3 ON PAGE 7.
- ③ ANTI-SWAY BRACE ( 14 REQD ). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE ( 6 REQD ). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 24 AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 7.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING ( 12 REQD ). INSTALL SO AS TO ENCIRCLE A TOP LAYER PALLET UNIT AND THE DIRECTLY BELOW. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNIT. SEE SPECIAL NOTE 5 ON PAGE 7.
- ⑥ SEAL FOR 1-1/4" STRAPPING ( 24 REQD, 2 PER STRAP ). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

REAR OF TRAILER



SECTION B-B

THESE DIMENSIONED HEIGHTS SPECIFY THE DISTANCE THE TOP SURFACE OF A CROSS MEMBER IS TO BE ABOVE THE TRAILER FLOOR WITH A PLUS OR MINUS 2" TOLERANCE BEING PERMITTED.

INDICATES TRAILER FLOOR.

( 7-LAYER PALLET UNIT )

28-UNIT LOAD IN A 40'-0" LONG BY 7'-5" WIDE HI-VOLUME VAN TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES

SPECIAL NOTES:

1. A 28-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE ( INSIDE DIMENSION ) TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICE ( CROSS MEMBERS AND STATIONARY WALL MEMBERS ) AND ROUNDED CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 6 IS THE 7-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 49-7/8" HIGH AND WEIGHING APPROXIMATELY 1,473 POUNDS.
3. IF PLYWOOD IS NOT AVAILABLE FOR THE CONSTRUCTION OF LOAD BEARING GATES, OR IF DESIRED, PIECES MARKED ② MAY BE CONSTRUCTED FROM 1" LUMBER. SEE THE "ALTERNATIVE LOAD BEARING GATE" DETAIL ON PAGE 23.
4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ④ IN THE LOAD ON PAGE 6, ARE TO BE POSITIONED BETWEEN ALL Laterally ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, THE IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.
5. STACK UNITIZING STRAPS, PIECES MARKED ⑤, WILL BE APPLIED AROUND THE REARMOST COMPLETE STACK AND AROUND THE MOST FORWARD COMPLETE STACK IN EACH ROW WHERE THE NUMBER OF TIERS ( LAYERS IN THE LOAD ) CHANGES.
6. IF ONLY ONE PALLET UNIT IS LOADED IN THE SECOND LAYER, SPACER ASSEMBLY PROCEDURES AS SPECIFIED ON PAGE 20 MAY BE USED, OR THE TOP-OF-LOAD ANTI-SWAY BRACE "B" SHOWN AS PIECE MARKED ④ ON PAGE 4, AND STACK UNITIZING STRAPS SHOWN AS PIECE MARKED ⑤ ON PAGE 6 MAY BE USED.
7. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX ( 6 ) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 22 FOR GUIDANCE.
9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 20.
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 AND LOAD BEARING GATE PIECES MARKED ① AND ②, WILL BE OMITTED FROM THE FRONT OF THE LOAD; UNLESS THE TRAILER HAS A SQUARE FRONT, A FORWARD BLOCKING ASSEMBLY WILL BE REQUIRED. SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23.

**BILL OF MATERIAL**

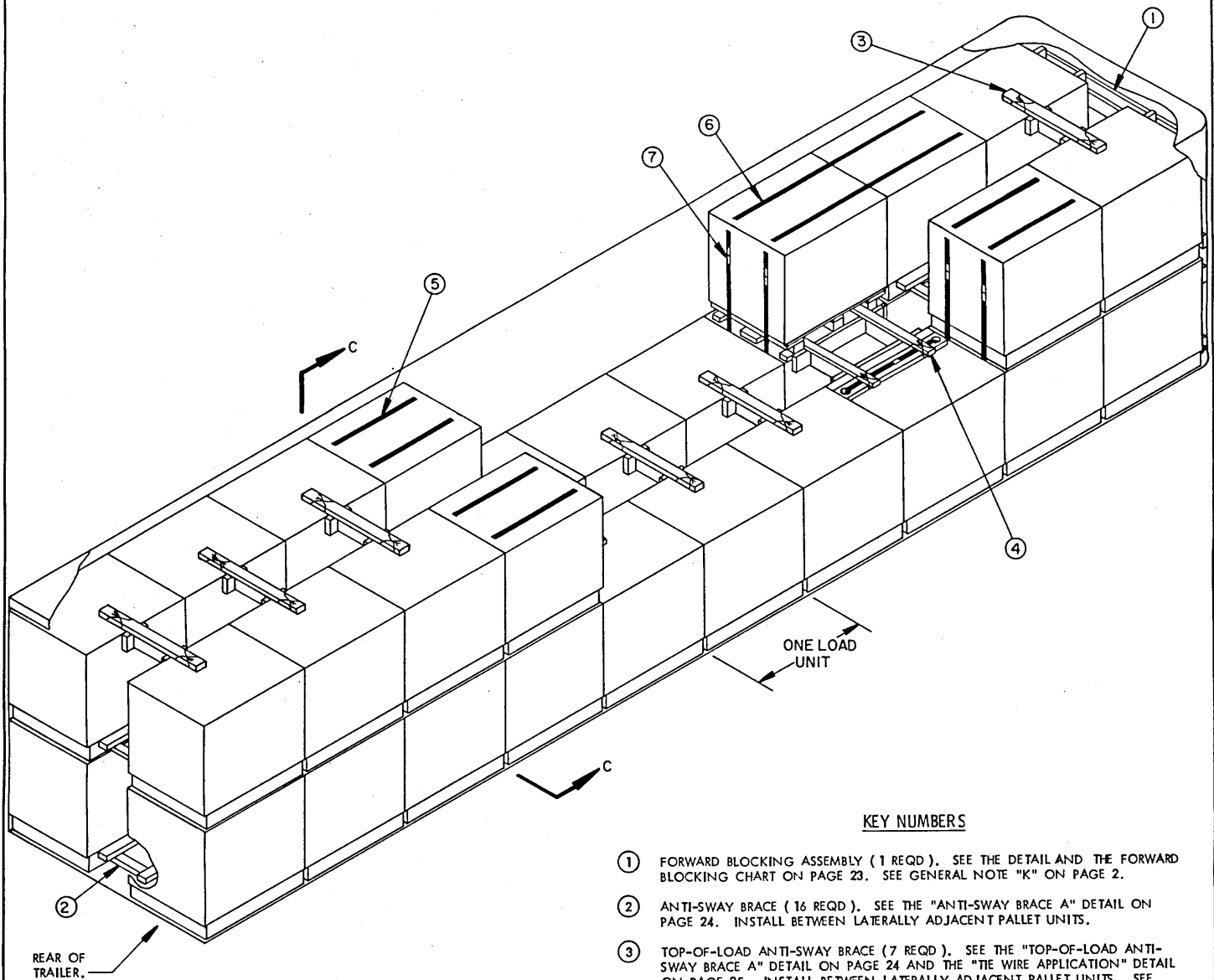
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	4	2
2" X 4"	185	124
2" X 6"	17	17
NAILS	NO. REQD	POUNDS
6d ( 2" )	24	NIL
10d ( 3" )	246	3-3/4
STEEL STRAPPING, 1-1/4" X .035" OR .031"--- 306' REQD----- 44 LBS		
SEAL FOR 1-1/4" STRAPPING----- 24 REQD----- 1 LB		
PLYWOOD, 1/2"----- 81 SQ FT REQD----- 112 LBS		
WIRE, NO. 14 GAGE----- 48' REQD----- 1 LB		
CROSS MEMBER----- 10 REQD		

LOAD AS SHOWN

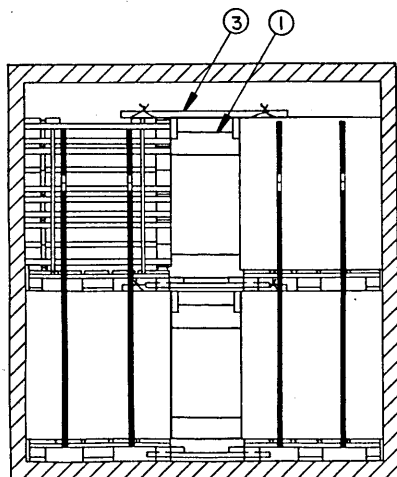
ITEM	QUANTITY	WEIGHT ( APPROX )
PALLET UNIT-----	28-----	41,244 LBS
DUNNAGE-----		448 LBS
TOTAL WEIGHT-----		41,692 LBS ( APPROX )

(7-LAYER PALLET UNIT)

28-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES



ISOMETRIC VIEW



SECTION C-C

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (16 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (7 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 24 AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 9.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 24. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE TOP DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. SEE SPECIAL NOTES 4 AND 7 ON PAGE 9.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-6" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNIT. SEE SPECIAL NOTE 5 ON PAGE 9.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 31'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) COMPLETE STACKS. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLIES OF THE UPPER PALLET UNITS. SEE SPECIAL NOTE 6 ON PAGE 9.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "M" ON PAGE 2.

(6-LAYER PALLET UNIT)

33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TYPE TRAILER



SPECIAL NOTES:

1. A 33-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 7'-5" IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT. IF A TRAILER WHICH IS 7'-11" OR WIDER IS FURNISHED FOR LOADING, THE LOADING PATTERN DEPICTED ON PAGE 14 MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 8.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 8 IS THE 6-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 43-5/8" HIGH AND WEIGHING APPROXIMATELY 1,271 POUNDS.
3. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (3) IN THE LOAD ON PAGE 8, ARE TO BE POSITIONED BETWEEN ALL Laterally ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER, A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.
4. THE TOP-OF-LOAD-ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED (4), IS ONLY REQUIRED FOR THE BRACING OF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "A" WILL BE INSTALLED IN LIEU OF PIECE MARKED (4).
5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY OR AT THE VERY REAR OF THE LOAD. NOTE THAT WHEN THERE IS ONLY ONE FULL LOAD UNIT IN THE FRONT PORTION OF THE LOAD, EACH STACK IN THE LOAD UNIT MUST BE UNITIZED. FOR THE DEPICTED LOAD, ONE STACK IS BUNDLED TO AN ADJACENT STACK IN LIEU OF UNITIZING. THE UNITIZING STRAPS, PIECE MARKED (5), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
6. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AND REAR BLOCKING IS REQUIRED AS SPECIFIED IN SPECIAL NOTE 8, BUNDLING STRAPS SHOWN AS PIECE MARKED (6), MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS IN EACH APPLICABLE ROW.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. A TOP-OF-LOAD ANTI-SWAY BRACE "B" SHOWN IN THE LOAD VIEW ON PAGE 8 AS PIECE MARKED (4) WILL BE INSTALLED IN ADDITION TO STACK UNITIZING STRAPS, PIECES MARKED (5).
8. IF THE VOID AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR, MEASURES 1-1/2" OR LESS AS SHOWN, REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THEN 1-1/2" BUT LESS THAN 9", USE REAR BLOCKING ASSEMBLY "B" DETAILED ON PAGE 26. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE REAR BLOCKING ASSEMBLY "A" DETAILED ON PAGE 26. SEE SPECIAL NOTE 12.
9. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX (6) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 22 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 AND 19.
12. 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 30 AND 31 FOR GUIDANCE. A NAILED-HEADER METHOD AND A TYGARD METHOD ARE SHOWN; FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILED-HEADER METHOD, IT WILL BE NECESSARY TO FORM NINE LOAD UNITS INSTEAD OF TEN, AS SHOWN. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	239	160
2" X 6"	92	92
NAILS	NO. REQD	POUNDS
10d (3)	373	5-3/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" --204' REQD-----		30 LBS
SEAL FOR 1-1/4" STRAPPING-----	16 REQD-----	1 LB
WIRE, NO. 14 GAGE-----	64' REQD-----	1 LB

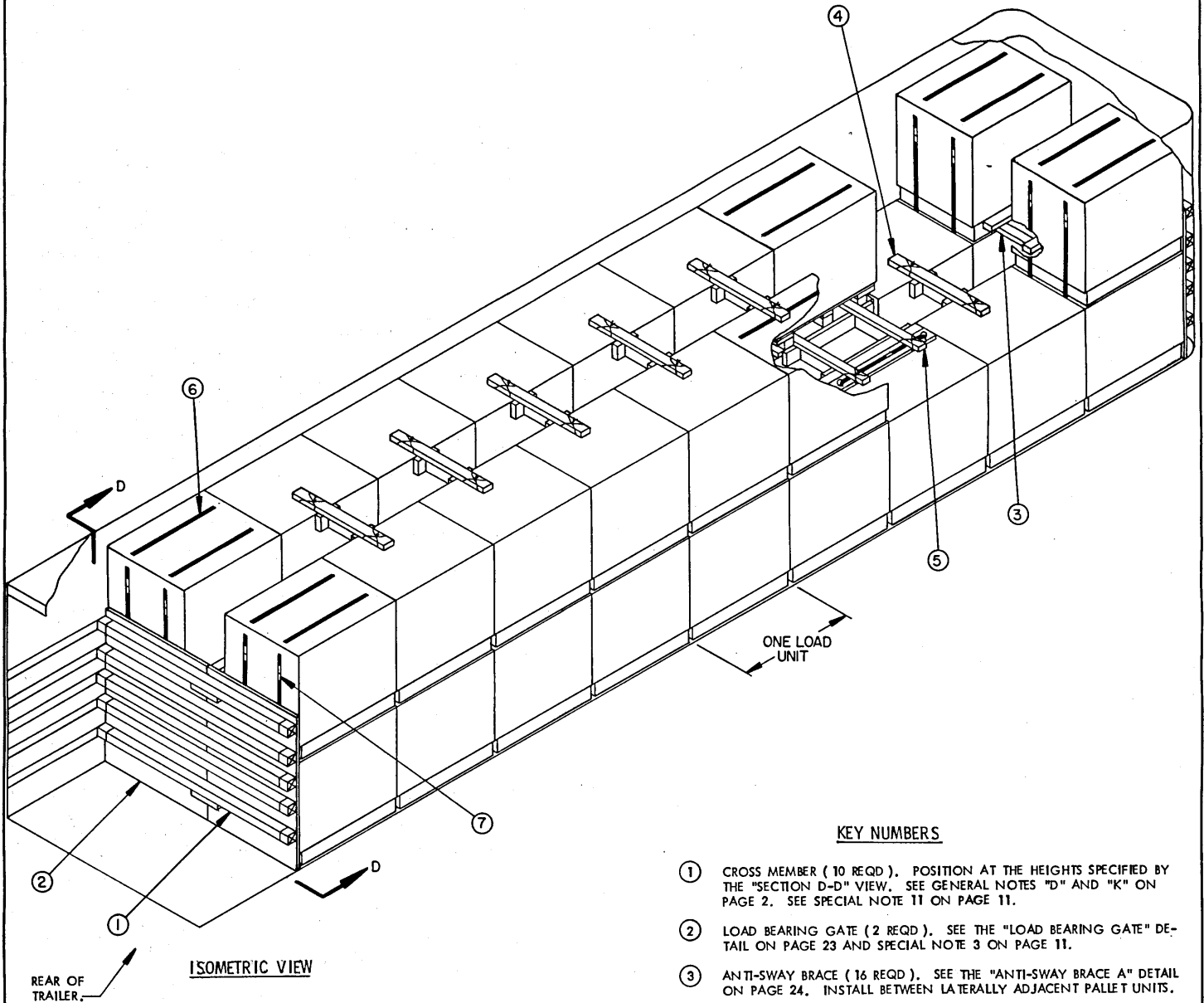
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT-----	33-----	41,943 LBS
DUNNAGE-----		542 LBS

TOTAL WEIGHT----- 42,485 LBS (APPROX)

(6-LAYER PALLET UNIT)

33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TYPE TRAILER

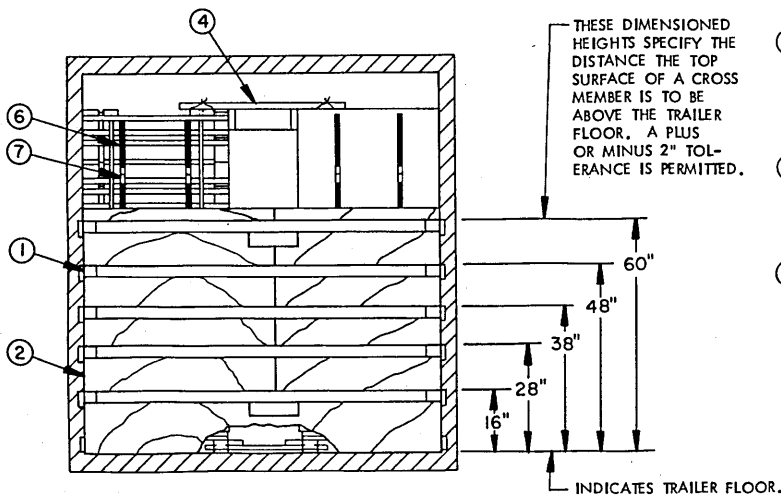


ISOMETRIC VIEW

REAR OF TRAILER

**KEY NUMBERS**

- ① CROSS MEMBER ( 10 REQD ), POSITION AT THE HEIGHTS SPECIFIED BY THE "SECTION D-D" VIEW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 11 ON PAGE 11.
- ② LOAD BEARING GATE ( 2 REQD ). SEE THE "LOAD BEARING GATE" DETAIL ON PAGE 23 AND SPECIAL NOTE 3 ON PAGE 11.
- ③ ANTI-SWAY BRACE ( 16 REQD ). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE ( 6 REQD ). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 24 AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 11.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE ( 1 REQD ). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 24. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE TOP DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. SEE SPECIAL NOTE 5 ON PAGE 11.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-6" LONG STEEL STRAPPING ( 12 REQD ). INSTALL SO AS TO ENIRCLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNIT. SEE SPECIAL NOTE 6 ON PAGE 11.
- ⑦ SEAL FOR 1-1/4" STRAPPING ( 24 REQD, 2 PER STRAP ). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION D-D

( 6-LAYER PALLET UNIT )

33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES

SPECIAL NOTES

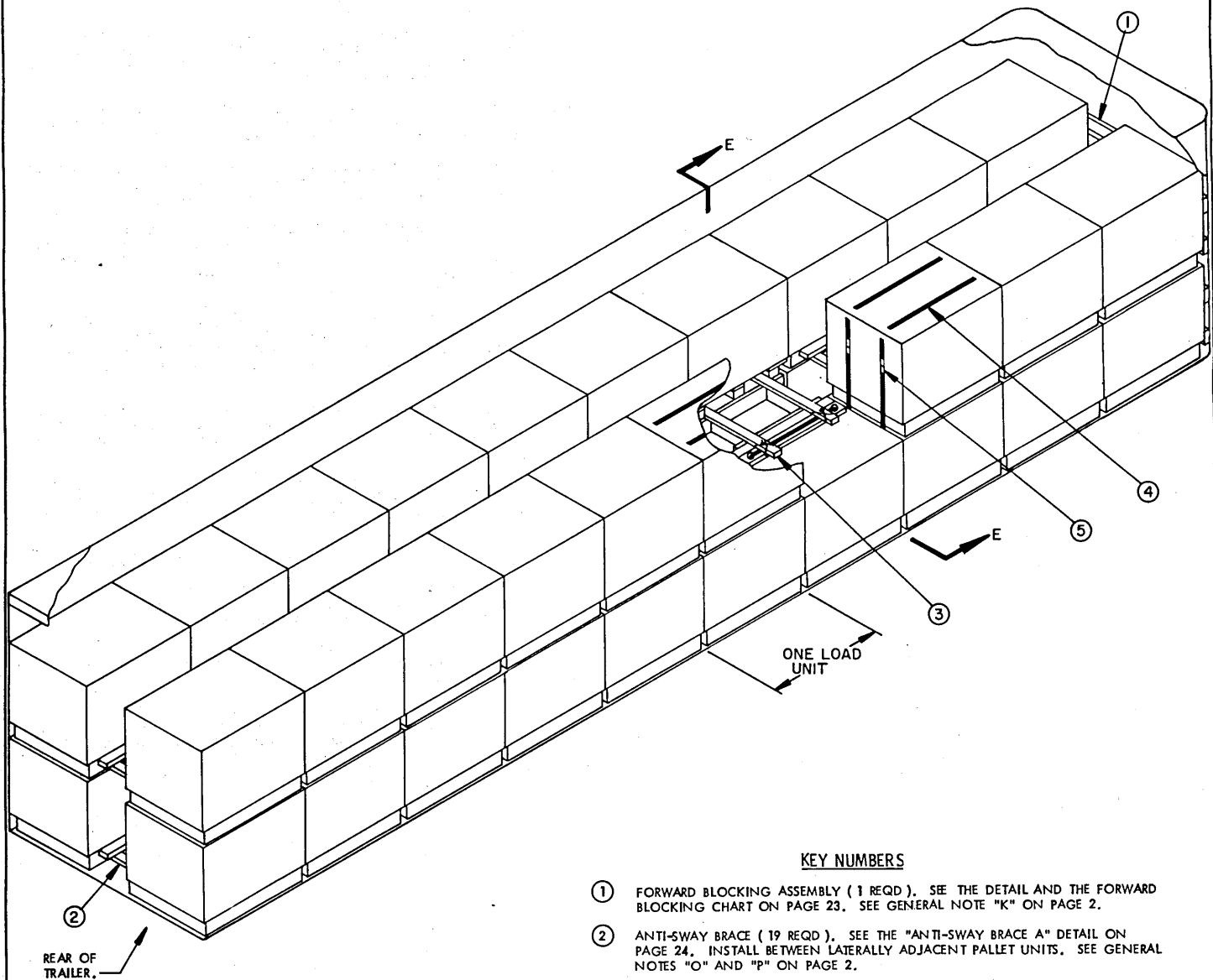
1. A 33-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE ( INSIDE DIMENSION ) TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES ( CROSS MEMBERS AND STATIONARY WALL MEMBERS ) AND ROUNDED CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 10 IS THE 6-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 43-5/8" HIGH AND WEIGHING APPROXIMATELY 1,271 POUNDS.
3. IF PLYWOOD IS NOT AVAILABLE FOR THE CONSTRUCTION OF LOAD BEARING GATES, OR IF DESIRED, PIECES MARKED (2) MAY BE CONSTRUCTED FROM 1" LUMBER. SEE THE "ALTERNATIVE LOAD BEARING GATE" DETAIL ON PAGE 23.
4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (4) IN THE LOAD ON PAGE 10, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.
5. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED (5), IS ONLY REQUIRED FOR THE BRACING OF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "A" WILL BE INSTALLED IN LIEU OF PIECE MARKED (5).
6. A STACK UNITIZING STRAP, PIECE MARKED (4), WILL BE APPLIED AROUND THE REAR MOST COMPLETE STACK AND AROUND THE MOST FORWARD COMPLETE STACK IN EACH ROW WHERE THE NUMBER OF TIERS (LAYERS IN THE LOAD) CHANGES.
7. IF ONLY ONE PALLET UNIT IS LOADED IN THE SECOND LAYER, SPACER ASSEMBLY PROCEDURES AS SPECIFIED ON PAGE 20, MAY BE USED, OR THE TOP-OF-LOAD ANTI-SWAY BRACE "B" AND STACK UNITIZING STRAPS, PIECES MARKED (5) AND (6) MAY BE USED AS SHOWN.
8. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX (6) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 22 FOR GUIDANCE.
10. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 20.
11. IF THE TRAILER BEING LOADED IS EQUIPPED ONLY WITH SHORT WALL MEMBERS AT THE REAR FOR ATTACHMENT OF THE CROSS MEMBERS, THE CROSS MEMBERS AND LOAD BEARING GATE PIECES MARKED (1) AND (2), WILL BE OMITTED FROM THE FRONT OF THE LOAD; THEN A FORWARD BLOCKING ASSEMBLY WILL BE REQUIRED, UNLESS THE TRAILER HAS A SQUARE FRONT. SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23.

**BILL OF MATERIAL**

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	4	2
2" X 4"	206	138
2" X 6"	25	25
NAILS	NO. REQD	POUNDS
6d (2")	24	NIL
10d (3")	296	4-1/2
PLYWOOD 1/2" (2 SHEETS)----- 79 SQ FT REQD----- 109 LBS		
STEEL STRAPPING, 1-1/4"----- 282' REQD----- 41 LBS		
SEAL FOR 1-1/4" STRAPPING----- 24 REQD----- 1 LB		
WIRE, NO. 14 GAGE----- 56' REQD----- 1 LB		
CROSS MEMBER----- 10 REQD----- NIL		

LOAD AS SHOWN

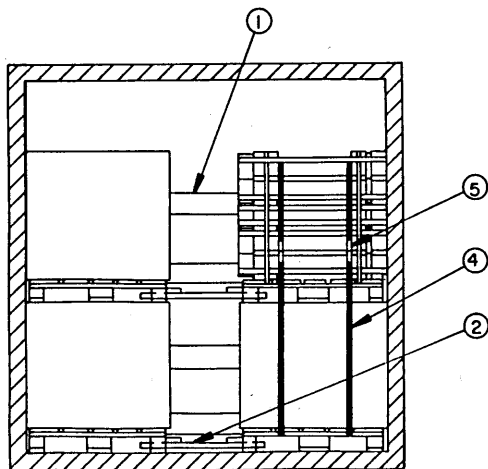
ITEM	QUANTITY	WEIGHT ( APPROX )
PALLET UNIT-----	33-----	41,943 LBS
DUNNAGE-----		487 LBS
TOTAL WEIGHT-----		42,430 LBS ( APPROX )



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY ( 1 REQD ). SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE ( 19 REQD ). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE ( 1 REQD ). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 24. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE TOP DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. SEE SPECIAL NOTE 3 ON PAGE 13.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 21'-6" LONG STEEL STRAPPING ( 4 REQD ). INSTALL SO AS TO ENCIROLE A TOP-LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNIT. SEE SPECIAL NOTE 5 ON PAGE 13.
- ⑤ SEAL FOR 1-1/4" STRAPPING ( 8 REQD, 2 PER STRAP ). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION E-E

(5-LAYER PALLET UNIT)

39-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TRAILER

(SPECIAL NOTES CONTINUED)

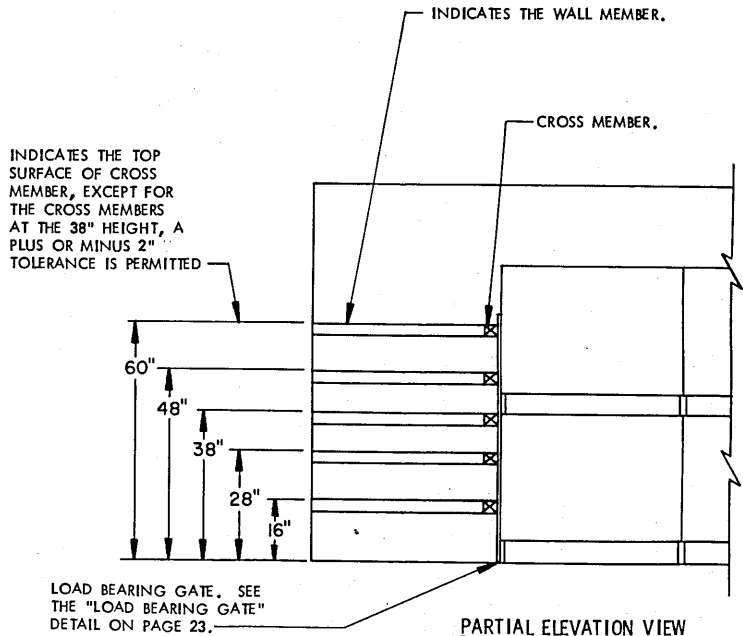
SPECIAL NOTES:

9. IF THE TRAILER BEING OUTLOADING CONTAINS MECHANICAL BRACING DEVICES, A LOAD BEARING GATE AS SHOWN IN THE "PARTIAL ELEVATION VIEW" ON THIS PAGE MUST BE USED BETWEEN THE CROSS MEMBERS AND THE REAR PALLET UNITS. IF THE TRAILER HAS ROUNDED CORNERS, INSTALL CROSS MEMBERS AT THE FRONT OF THE LOAD IN LIEU OF USING THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①. A LOAD BEARING GATE MUST BE USED BETWEEN THE CROSS MEMBERS AND THE FRONT PALLET UNITS.
10. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
11. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX (6), MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 22 FOR GUIDANCE.
12. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 AND 19 FOR CONVENTIONAL VAN TRAILERS AND PAGE 20 FOR MECHANICAL VAN TRAILERS.
13. 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 30 AND 31 FOR GUIDANCE. A NAILED-HEADER METHOD AND A TY-GARD METHOD ARE SHOWN; FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILED-HEADER METHOD, IT WILL BE NECESSARY TO FORM NINE LOAD UNITS INSTEAD OF TEN, AS SHOWN. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

1. A 39-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS ROUNDED FRONT CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED. IF A TRAILER WHICH IS 7'-11" OR WIDER IS FURNISHED FOR LOADING, THE LOADING PATTERN DEPICTED ON PAGE 14 MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 12.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 12 IS THE 5-LAYER UNIT, HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 37-3/8" HIGH AND WEIGHING APPROXIMATELY 1,078 POUNDS.
3. IN LIEU OF USING A TOP-OF-LOAD ANTI-SWAY BRACE "B" FOR THE BRACING OF A PALLET UNIT IN THE SECOND LAYER THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE, THE ODD PALLET MAY BE SECURED BY ENCIRCLING THAT STACK AND AN IMMEDIATELY ADJACENT STACK WITH BUNDLING STRAPS. SEE PIECES MARKED ⑥ ON PAGE 8 FOR A TYPICAL INSTALLATION OF THE BUNDLING STRAPS.
4. IF THE VOID AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR, MEASURES 1-1/2" OR LESS AS SHOWN, 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 ASSEMBLY "B" DETAILED ON PAGE 26. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE REAR BLOCKING ASSEMBLY "A" DETAILED ON PAGE 26. SEE SPECIAL NOTE 13.
5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS, PIECE MARKED ④, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
6. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AND REAR BLOCKING IS REQUIRED AS SPECIFIED IN SPECIAL NOTE 4, BUNDLING STRAPS SHOWN AS PIECE MARKED ⑥ ON PAGE 8, MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS IN EACH APPLICABLE ROW.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER, A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 24 AND SHOWN IN THE LOAD VIEW ON PAGE 12 AS PIECE MARKED ③ WILL BE INSTALLED IN ADDITION TO STACK UNITIZING STRAPS, PIECES MARKED ④.
8. IF THE TRAILER BEING OUTLOADED CONTAINS MECHANICAL BRACING DEVICES, SUCH AS WALL BELT RAILS AND LOAD BLOCKING CROSS MEMBERS, WHICH CONFORM TO SPECIFICATIONS SET FORTH WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C AND APPENDICES THERETO, THEY MAY BE USED AT THE REAR OF THE LOAD AS SHOWN IN THE "PARTIAL ELEVATION VIEW" ON THIS PAGE. THE MECHANICAL BRACING DEVICE SYSTEM OF A TRAILER MUST HAVE A LENGTH OF AT LEAST 35'-6" AS MEASURED FROM THE FRONT WALL OF THE TRAILER. SEE GENERAL NOTES "D" AND "K" ON PAGE 2.

(CONTINUED AT LEFT).

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	242	162
2" X 6"	64	64
NAILS	NO. REQD	POUNDS
10d (3)	318	5
STEEL STRAPPING, 1-1/4"	86' REQD	13 LBS
SEAL FOR 1-1/4" STRAPPING	8 REQD	NIL



THE VIEW SHOWN ABOVE INDICATES THE REAR PORTION OF THE LOAD SHOWN ON PAGE 12 WITH ONE LOAD UNIT OMITTED. SEE SPECIAL NOTES 8 AND 9 ON THIS PAGE.

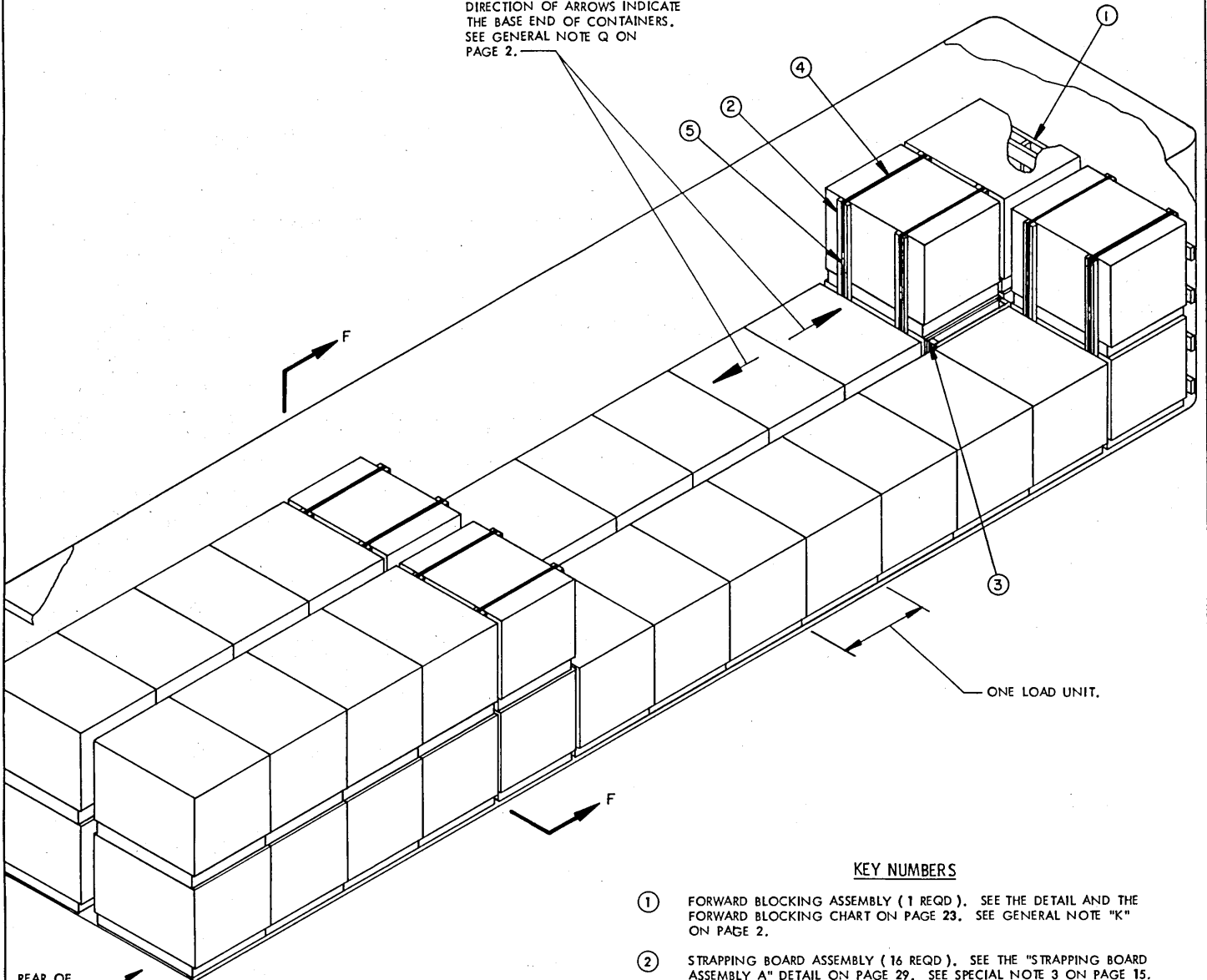
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	39	42,042 LBS
DUNNAGE		470 LBS
TOTAL WEIGHT		42,512 LBS (APPROX)

(5-LAYER PALLET UNIT)

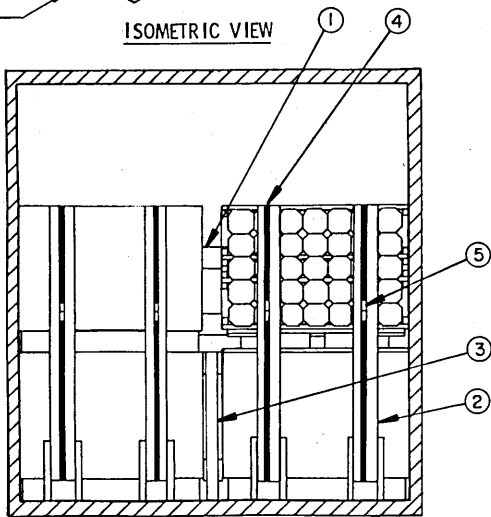
39-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TYPE TRAILER

DIRECTION OF ARROWS INDICATE THE BASE END OF CONTAINERS. SEE GENERAL NOTE Q ON PAGE 2.



REAR OF TRAILER.

ISOMETRIC VIEW



SECTION F-F

**KEY NUMBERS**

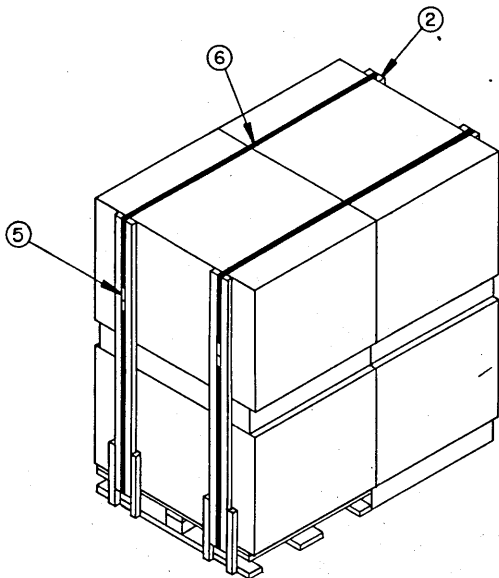
- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23. SEE GENERAL NOTE "K" ON PAGE 2.
- ② STRAPPING BOARD ASSEMBLY (16 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 29. SEE SPECIAL NOTE 3 ON PAGE 15.
- ③ ANTI-SWAY BRACE (1 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 25. WIRE TIE THE ANTI-SWAY BRACE TO A UNITIZING STRAP WITH NO. 14 GAGE WIRE. SEE GENERAL NOTES "O" AND "P" ON PAGE 2. SEE SPECIAL NOTE 4 ON PAGE 15.
- ④ STACK UNITIZING STRAPS, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (8 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ②, AS SHOWN. STAPLE TO UPPER PORTION OF STRAPPING BOARD ASSEMBLY W/1 STAPLE. SEE SPECIAL NOTE 5 ON PAGE 15.
- ⑤ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 26'-0" LONG STEEL STRAPPING (NOT SHOWN) (AS REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES. STAPLE TO UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY W/1 STAPLE. SEE "DETAIL A" AND SPECIAL NOTE 6 ON PAGE 15.

(5-LAYER PALLET UNIT)

39-UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TYPE TRAILER

**SPECIAL NOTES:**

1. A 39-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED, HOWEVER, IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 6'-4" IT WILL BE NECESSARY TO LIMIT THE REAR MOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 14 IS THE 5-LAYER UNIT, HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 37-3/8" HIGH AND WEIGHING APPROXIMATELY 1,078 POUNDS.
3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ②. SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 29.
4. ANTI-SWAY BRACE "B", SHOWN AS PIECE MARKED ③, MUST BE ADJUSTED IN THICKNESS WHEN TRAILERS OTHER THAN 8'-3" WIDE ARE BEING LOADED. REFER TO THE NOTE BENEATH THE DETAIL ON PAGE 25 FOR GUIDANCE. NOTE THAT PIECE MARKED ③, IS ONLY REQUIRED WHEN A 2-HIGH PALLET STACK IS LOADED LATERALLY ADJACENT TO A 1-HIGH PALLET STACK, AS SHOWN, TO PREVENT TIPPING OF THE 2-HIGH STACK.
5. THE STACK UNITIZING STRAPS MARKED ④ IN THE LOAD ON PAGE 14, WILL BE INSTALLED TO SECURE AN UNSUPPORTED PALLET UNIT IN THE SECOND LAYER TO A CORRESPONDING UNIT IN THE FIRST LAYER, EXCEPT AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
6. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IN A CONVENTIONAL VAN TRAILER IS TWO UNITS HIGH, AND REAR BLOCKING IS REQUIRED AS SPECIFIED IN SPECIAL NOTE 8, STRAPPING BOARD ASSEMBLIES MARKED ② WILL BE REQUIRED, AND BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑥ IN "DETAIL A", MUST BE INSTALLED SO AS TO ENCIRCLE THE REAR MOST TWO (2) STACKS IN EACH APPLICABLE ROW. NOTE THAT PIECE MARKED ⑥ MAY OR MAY NOT BE REQUIRED.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON TOP OF THE REAR MOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LATERAL BRACING BY INSTALLING PIECE MARKED ③, AND LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARDS AND UNITIZING STRAPS, PIECES MARKED ② AND ④.
8. 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 ASSEMBLY "B" DETAILED ON PAGE 26. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE REAR BLOCKING ASSEMBLY "C" OR "D" AS APPLICABLE. SEE DETAILS ON PAGE 27. SEE SPECIAL NOTE 12.
9. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX (6) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 22 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 AND 19.
12. 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 30 AND 31 FOR GUIDANCE. A NAILED-HEADER METHOD AND A TYGARD METHOD ARE SHOWN. FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILED-HEADER METHOD, IT WILL BE NECESSARY TO FORM TWELVE LOAD UNITS INSTEAD OF THIRTEEN, AS SHOWN. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.



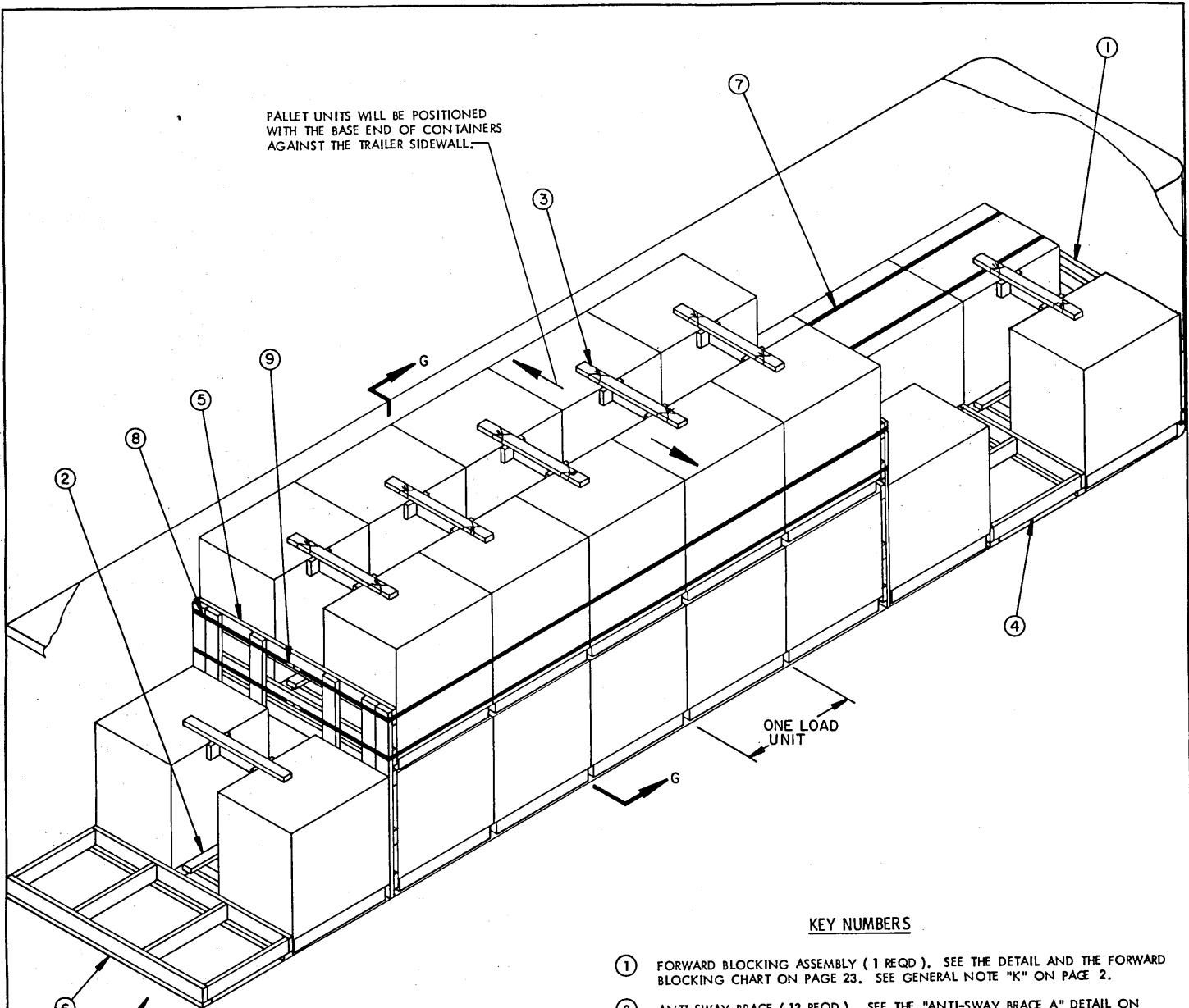
**DETAIL A**

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	12	6
2" X 2"	43	15
2" X 4"	29	20
2" X 6"	155	155
NAILS	NO. REQD	POUNDS
6d (2")	24	NIL
10d (3")	160	2-1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031" ----- 160' REQD --- 23 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 16 REQD --- 1 LB		
WIRE, NO. 14 GAGE ----- 4' REQD NIL		

**LOAD AS SHOWN**

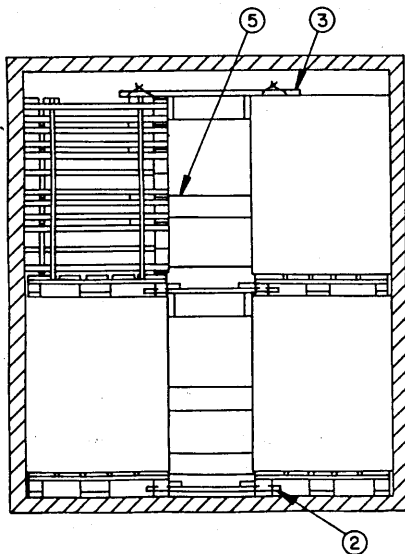
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	89	42,042 LBS
DUNNAGE		419 LBS
<b>TOTAL WEIGHT</b>		<b>42,461 LBS (APPROX)</b>

(5-LAYER PALLET UNIT)  
39-UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE VAN TYPE TRAILER



REAR OF TRAILER

ISOMETRIC VIEW



SECTION G-G

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY ( 1 REQD ). SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 23. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE ( 13 REQD ). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS IN EACH LAYER.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE ( 8 REQD ). SEE THE "TOP-OF-LOAD-ANTI-SWAY BRACE A" DETAIL ON PAGE 24 AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT UNITS. SEE SPECIAL NOTE 3 ON PAGE 17.
- ④ SPACER ASSEMBLY ( 1 REQD ). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 28. SEE SPECIAL NOTE 4 ON PAGE 17.
- ⑤ BULKHEAD GATE ( 2 REQD ). SEE THE DETAIL AND THE "BULKHEAD GATE CHART" ON PAGE 28.
- ⑥ REAR BLOCKING ( 1 REQD ). SEE THE REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 26. SEE SPECIAL NOTES 5 AND 6 ON PAGE 17.
- ⑦ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 25'-0" LONG STEEL STRAPPING ( 2 REQD ). POSITION STRAP SO AS TO EXTEND UNDER THE TOP DUNNAGE ASSEMBLY AND TO ENCIRCLE TWO PALLET UNITS. SEE SPECIAL NOTE 7 ON PAGE 17.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 57'-0" LONG STEEL STRAPPING ( 2 REQD ). INSTALL TO ENCIRCLE TEN UPPER-LAYER PALLET UNITS AS SHOWN.
- ⑨ SEAL FOR 1-1/4" STRAPPING ( 8 REQD, 2 PER STRAP ). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

ALTERNATIVE LOADING PROCEDURES FOR ALL UNITS  
27-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HIGH-VOLUME VAN TYPE TRAILER



**SPECIAL NOTES:**

1. A 27-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE ( INSIDE DIMENSION ) CONVENTIONAL VAN TYPE TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED. HIGH VOLUME-TRAILERS MAY BE REQUIRED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 16 IS THE 7-LAYER UNIT, HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 49-7/8" HIGH AND WEIGHING APPROXIMATELY 1,473 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
3. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECE MARKED ③ IN THE LOAD ON PAGE 16, ARE TO BE POSITIONED BETWEEN ALL Laterally ADJACENT PALLET UNITS IN EACH LAYER.
4. THE SPACER ASSEMBLY, SHOWN IN THE LOAD VIEW AS PIECE MARKED ④, IS ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION. IF A PALLET UNIT IS LOADED IN PLACE OF THE SPACER ASSEMBLY, THE BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑦, WILL NOT BE REQUIRED. NOTE THAT A SPACER ASSEMBLY MUST BE POSITIONED WHERE THERE WILL BE A PALLET UNIT AT EACH END; A SPACER ASSEMBLY MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY OR A BULKHEAD GATE, PIECES MARKED ① AND ⑤.
5. IF THE VOID AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOORS 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 ASSEMBLY "B" DETAILED ON PAGE 26. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, REAR BLOCKING ASSEMBLY "A" WILL BE USED AS SHOWN. SEE SPECIAL NOTE 6.
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 PAGES 30 AND 31 FOR GUIDANCE. A NAILED-HEADER METHOD AND A TYGARD METHOD ARE SHOWN. 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. A PALLET UNIT THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE MUST BE SECURED BY INSTALLING BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑦ IN THE LOAD ON PAGE 16, AROUND THAT PALLET UNIT AND THE PALLET UNIT IMMEDIATELY ADJACENT; A PALLET UNIT WILL NOT BE OMITTED FROM THE SECOND LAYER PORTION OF THE LOAD.
8. WHEN ONLY ONE ( 1 ) BUNDLING STRAP, PIECE MARKED ⑧ IS APPLIED, THE SECOND LAYER PORTION OF THE LOAD IS LIMITED TO NOT MORE THAN SIX ( 6 ) 7-LAYER PALLET UNITS, OR SIX ( 6 ) 6-LAYER UNITS, OR EIGHT ( 8 ) 5-LAYER PALLET UNITS. IF AN ADDITIONAL BUNDLING STRAP IS APPLIED AROUND THE SECOND LAYER PORTION ( POSITIONED SO AS TO EXTEND OVER THE NEXT LOWER LEVEL BULKHEAD GATE HORIZONTAL PIECE ), NOT MORE THAN TWELVE ( 12 ) 7-LAYER PALLET UNITS, OR FOURTEEN ( 14 ) 6-LAYER UNITS, OR EIGHTEEN ( 18 ) 5-LAYER UNITS MAY BE LOADED IN THE SECOND LAYER.
9. REFER TO PAGE 21 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED SIX ( 6 ) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 22 FOR GUIDANCE.

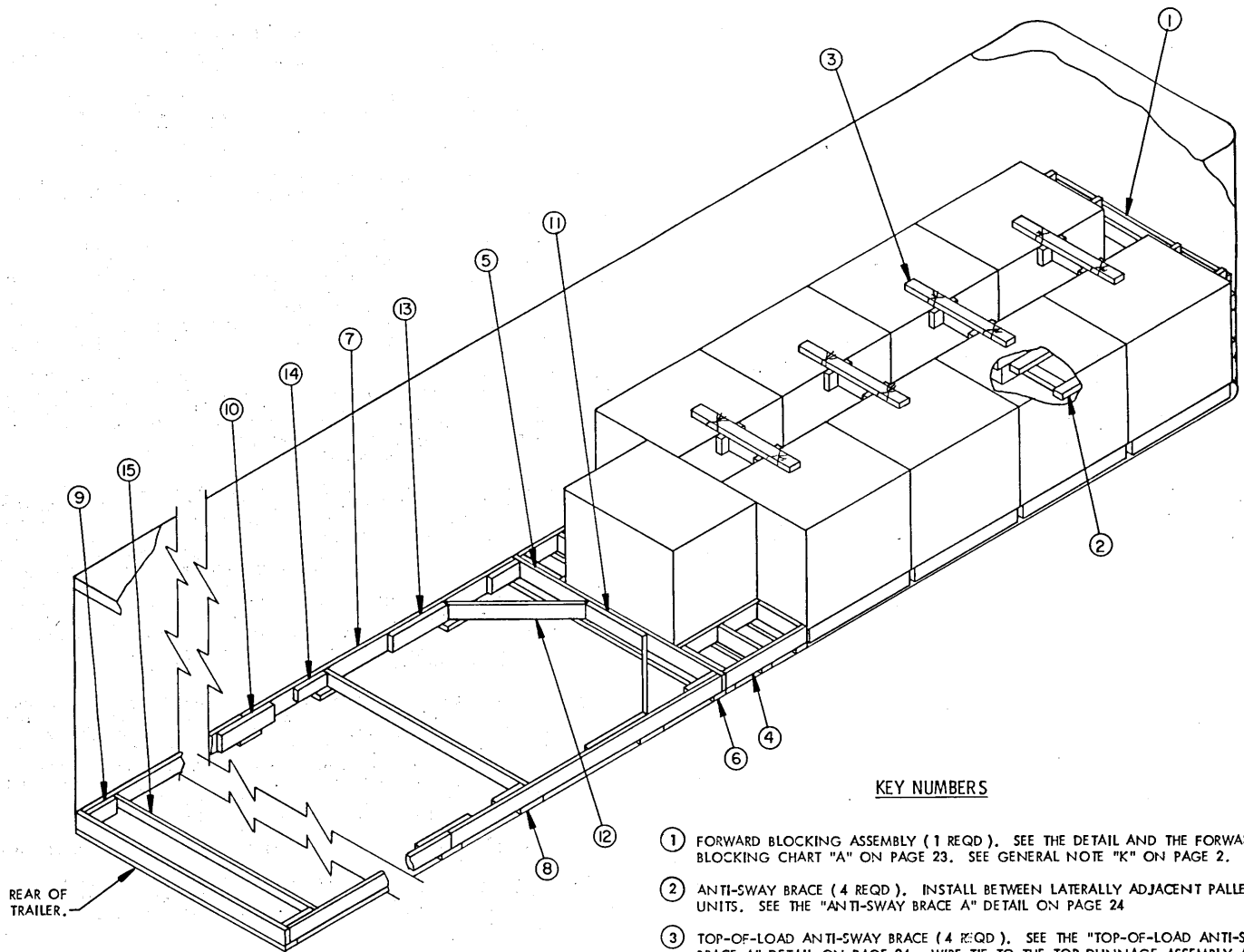
**BILL OF MATERIAL ( TYPICAL )**

LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	2	1
2" X 4"	219	146
2" X 6"	252	252
NAILS	NO. REQD	POUNDS
10d ( 3" )	552	8-1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031" ----- 164' REQD --- 24 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 8 REQD --- NIL		
WIRE, NO. 14 GAGE ----- 64' REQD --- 1 LB		

**LOAD AS SHOWN ( TYPICAL )**

ITEM	QUANTITY	WEIGHT ( APPROX )
PALLET UNIT-----	27	39,771 LBS
DUNNAGE-----		832 LBS
TOTAL WEIGHT-----		40,603 LBS ( APPROX )

ALTERNATIVE LOADING PROCEDURES FOR ALL UNITS  
 27-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HIGH-VOLUME VAN TYPE TRAILER



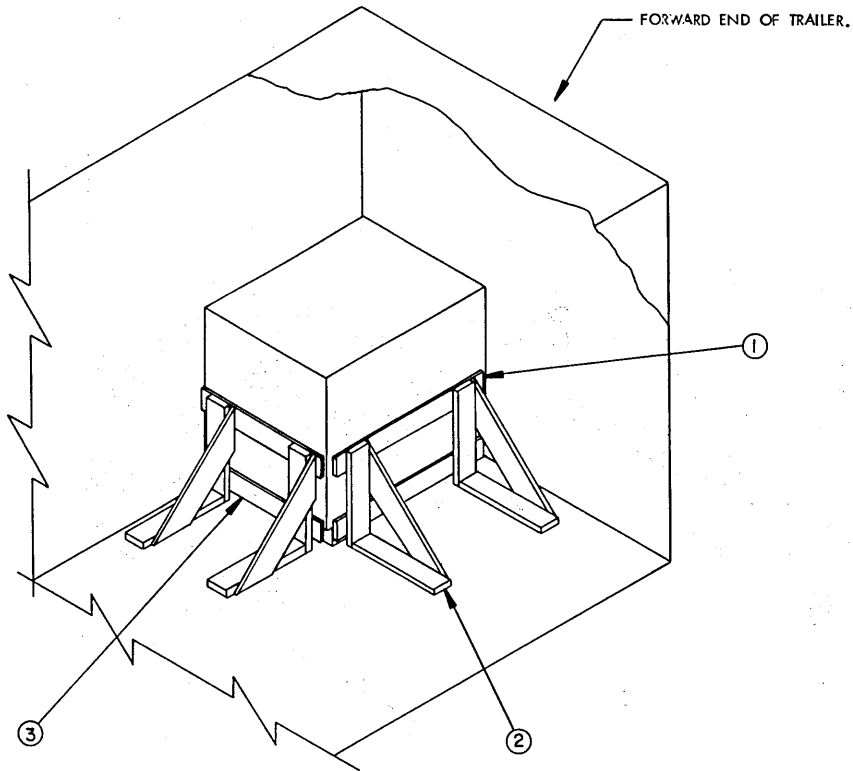
ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD.). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "A" ON PAGE 23. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (4 REQD.). INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 24
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (4 REQD.). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 24. WIRE TIE TO THE TOP DUNNAGE ASSEMBLY AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 25.
- ④ SPACER ASSEMBLY (2 REQD.). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 25. NAIL TO A HEADER, PIECE MARKED ⑤, W/2-10d NAILS.
- ⑤ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD.). SEE SPECIAL NOTE 5 AT LEFT.
- ⑥ 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 ⑤, W/1-10d NAIL EVERY 8".
- ⑦ SIDE STRUT, 2" X 6" BY CUT-TO-FIT BETWEEN THE FORWARD AND REAR HEADERS, PIECE MARKED ⑤ (2 REQD.).
- ⑧ RISER PIECE, 2" X 4" X 9" (AS REQD.). CENTER UNDER THE JOINTS OF PIECES MARKED ⑩ AND ⑬, ⑭ AND ⑮, AND UNDER THE SPLICE OF PIECES MARKED ⑦ 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 ⑤, W/3-12d 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.
- ⑪ CENTER CLEAT, 2" X 6" X 24" (1 REQD.). NAIL TO A HEADER, PIECE MARKED ⑤, W/6-10d NAILS.
- 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 ⑤ 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.
- ⑮ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQD.). POSITION ONE STRUT BRACE AT THE REAR OF TRAILER AND NAIL TO THE POCKET CLEAT, PIECES 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.

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES COVER THE USE OF BOTH "K-BRACE" AND NAILED FLOOR LINE BLOCKING IN A 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER WHICH IS EQUIPPED WITH OR WITHOUT NAILABLE FLOORS AND REAR CORNER POSTS. WIDER OR NARROWER TRAILERS MAY BE USED. SEE SPECIAL NOTES 5 AND 6.
2. THE PALLET UNIT SHOWN IS THE 6-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 43-5/8" HIGH AND WEIGHING APPROXIMATELY 1,271 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
3. TOP-OF-LOAD ANTI-SWAY BRACES WILL BE POSITIONED BETWEEN ALL LATERALLY ADJACENT 7 AND 6-LAYER PALLET UNITS. BRACES ARE NOT REQUIRED FOR THE 5-LAYER UNITS.
4. THE K-BRACE BLOCKING SHOWN AS PIECES MARKED ⑤ THRU ⑬ IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
5. 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 30 AND 31. A NAILED-HEADER METHOD AND A TYGARD METHOD ARE SHOWN. 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 ⑤ THRU ⑬ WHICH APPLY TO TRAILERS HAVING NON-NAAILABLE FLOORS. SEE SPECIAL NOTE 6.
6. WHEN THE NAILED-HEADER METHOD OF BRACING SHOWN ON PAGE 30 IS APPLIED FOR THE BRACING OF THE DEPICTED 9-UNIT LOAD OR ANY ODD NUMBERED QUANTITY, ONLY THE DOUBLED 2" X 4" PIECES ARE REQUIRED. OMIT THE REAR BLOCKING ASSEMBLY; WHEN SHIPPING AN EVEN NUMBERED QUANTITY, THE NAILED-HEADER METHOD WILL APPLY AS SHOWN.



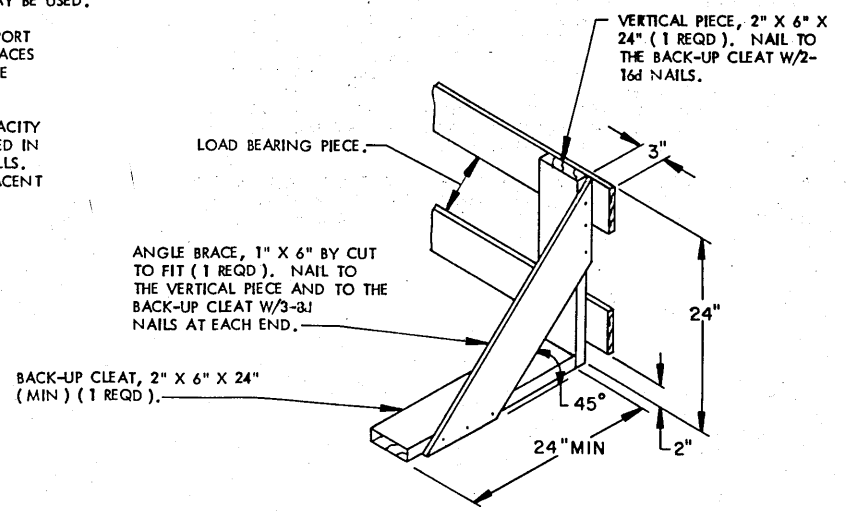
ISOMETRIC VIEW

**SPECIAL NOTES:**

1. A ONE-PALLET UNIT LOAD IS SHOWN DEPICTING THE USE OF LTL BRACES IN A CONVENTIONAL TYPE VAN TRAILER EQUIPPED WITH NAILABLE FLOORS. TRAILERS WITH ALL METAL FLOORS CANNOT BE USED.
2. THE PALLET UNIT SHOWN IS THE 6-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 43-5/8" HIGH AND WEIGHING APPROXIMATELY 1,271 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
3. IF THE TRAILER BEING LOADED HAS ROUNDED FRONT CORNERS, TWO (2) ADDITIONAL LTL BRACES, AND TWO (2) ADDITIONAL LOAD BEARING PIECES MAY BE POSITIONED AT THE FORWARD END OF THE LADING OR A FORWARD BLOCKING ASSEMBLY, SHOWN AS KEY NUMBER ① ON PAGE 18, MAY BE USED.
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.
5. MORE THAN ONE PALLET UNIT CAN BE SHIPPED PROVIDING THE CAPACITY OF THE LTL BRACES IS NOT EXCEEDED. THE LOAD SHOULD BE FORMED IN TWO ROW, WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDEWALLS. ANTI-SWAY BRACES WILL BE INSTALLED BETWEEN THE LATERALLY ADJACENT UNITS, AND TOP-OF-LOAD ANTI-SWAY BRACES, IF APPLICABLE.

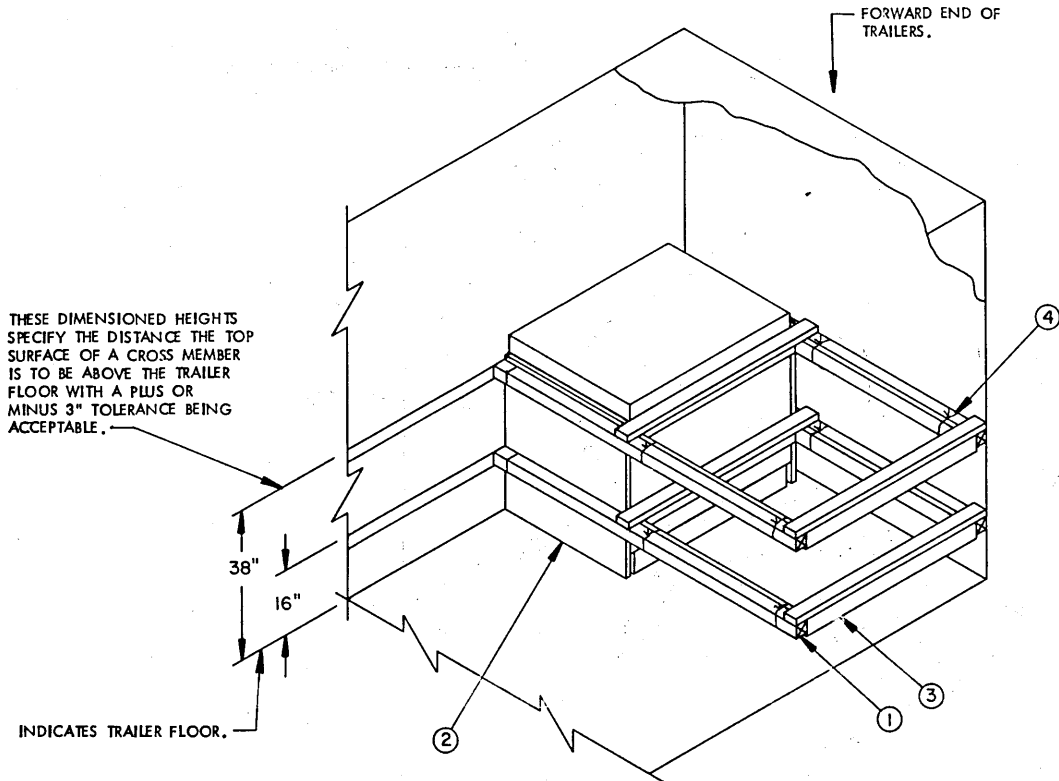
**KEY NUMBERS**

- ① LOAD BEARING PIECE, 1" X 6" X 43" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN "LTL BRACE" DETAIL. NAIL TO THE VERTICAL PIECES OF THE LTL BRACE W/4-6d NAILS AT EACH JOINT.
- ② LTL BRACE (4 REQD). SEE THE DETAIL BELOW. NAIL EACH LTL BRACE TO TRAILER FLOOR W/7-10d NAILS. SEE SPECIAL NOTE 4 AT LEFT.
- ③ LOAD BEARING PIECE, 1" X 6" X 35" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN DETAIL BELOW. NAIL TO THE VERTICAL PIECES OF THE LTL BRACE W/4-6d NAILS AT EACH JOINT.



LTL BRACE

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



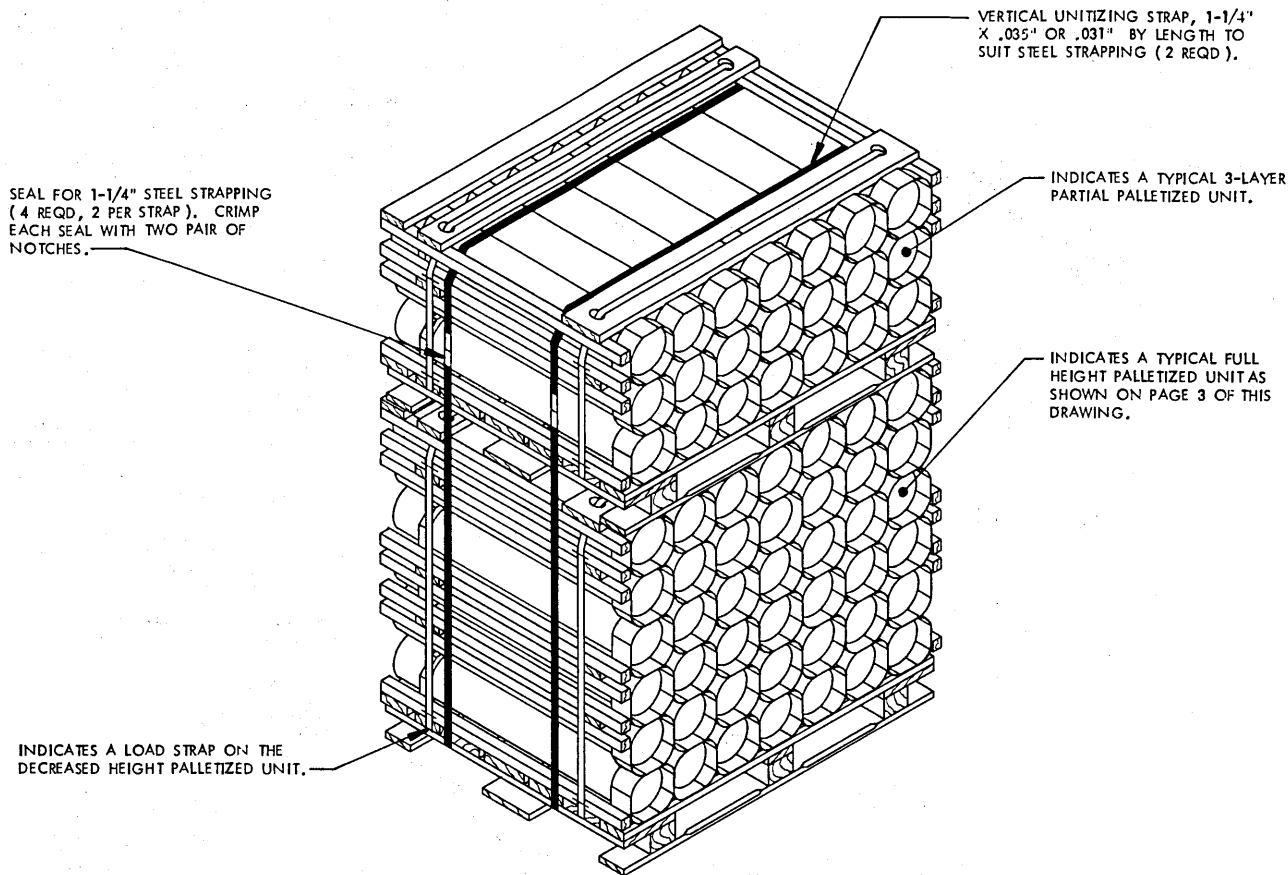
ISOMETRIC VIEW

**SPECIAL NOTES:**

1. THESE OUTLOADING PROCEDURES DEPICT A VAN TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES.
2. THE PALLET UNIT SHOWN IN THE TYPICAL LTL LOAD IS THE 6-LAYER UNIT HAVING OVERALL DIMENSIONS OF 35-1/2" LONG BY 46-3/4" WIDE BY 43-5/8" HIGH. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
3. THE SPECIFIED CROSS MEMBER LOCATION DIMENSIONS ARE APPLICABLE FOR THE 6-LAYER, AND 7-LAYER PALLET UNITS DEPICTED HEREIN. THE UPPER LEVEL CROSS MEMBER FOR THE 5-LAYER PALLET UNIT SHOULD BE LOCATED AT THE 28" HEIGHT, WITH A PLUS OR MINUS 3" BEING ACCEPTABLE.
4. 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 TIE WIRES SHOWN AS PIECES MARKED ③ AND ④. NOTE: WHEN LOADING TWO (2) PALLETIZED UNITS ACROSS THE WIDTH OF THE TRAILER, POSITION THE UNITS AGAINST THE FORWARD END WALL (UNLESS TRAILER HAS ROUNDED CORNERS) AND OMIT THE TWO CROSS MEMBERS AT THE FORWARD END. POSITION ONE ANTI-SWAY BRACE ASSEMBLY, SHOWN AS PIECE MARKED ③ ON PAGE 14, BETWEEN THE TWO PALLETIZED UNITS, AND ALSO A TOP-OF-LOAD ANTI-SWAY BRACE IF APPLICABLE FOR THE UNIT BEING SHIPPED. REPLACE PIECE MARKED ② WITH THE APPLICABLE LOAD BEARING GATE.
5. TWO (2) SPACER ASSEMBLIES, PIECE MARKED ③, ARE REQUIRED WHEN LOADING THE 6-LAYER OR 7-LAYER UNITS. WHEN LOADING THE 5-LAYER UNIT DEPICTED ON PAGE 3, A SPACER ASSEMBLY IS REQUIRED AT ONLY ONE LEVEL.

**KEY NUMBERS**

- ① CROSS MEMBER (4 REQD). POSITION AT THE HEIGHT AS SPECIFIED BY THE ISOMETRIC VIEW ABOVE. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ② PLYWOOD, 1/2" X 35" X 41" (2 REQD). POSITION BETWEEN THE PALLET UNIT AND THE CROSS MEMBERS.
- ③ SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 24. SEE SPECIAL NOTE 5 AT LEFT.
- ④ TIE WIRE; NO. 14 GAGE WIRE 24" LONG (8 REQD). 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.



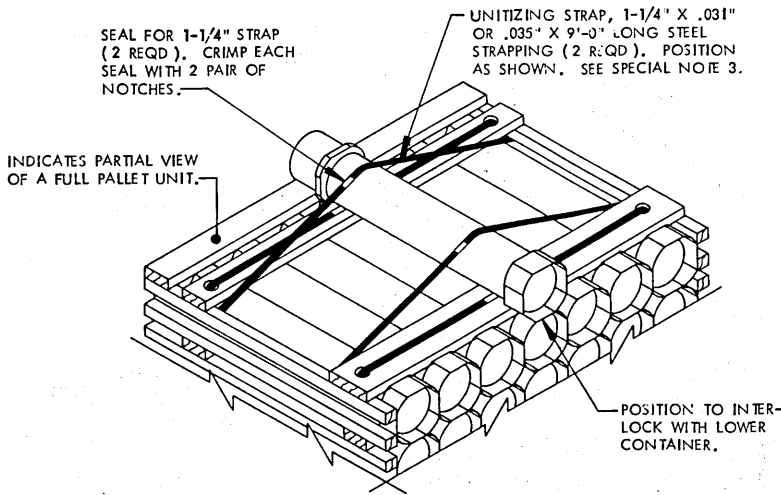
SECUREMENT OF A PARTIAL PALLET UNIT  
POSITIONED ON A FULL HEIGHT PALLET UNIT

SPECIAL NOTES:

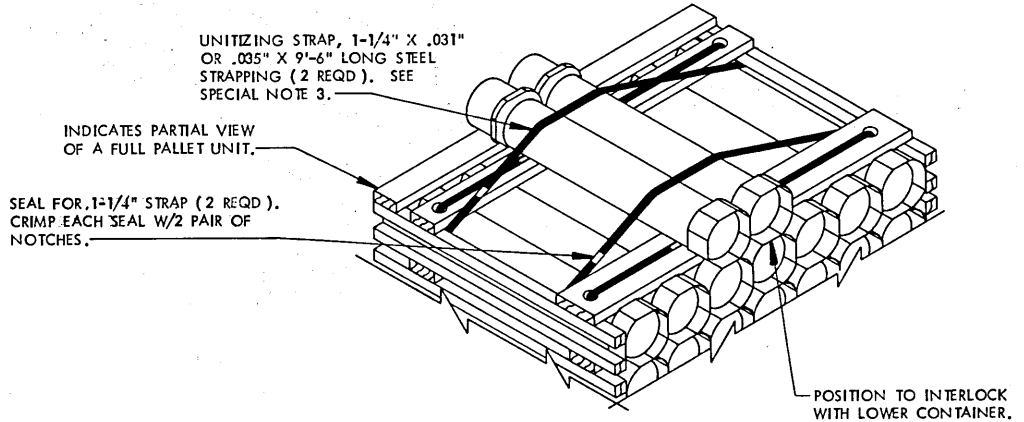
1. THE VIEW SHOWN ABOVE DEPICTS A PARTIAL 3-LAYER PALLET UNIT POSITIONED ON TOP OF A FULL-HEIGHT PALLET UNIT AND UNITIZED WITH TWO VERTICAL UNITIZING STRAPS. PLACEMENT WITHIN THE LOAD IS OPTIONAL, EXCEPT THAT IT WILL NOT BE POSITIONED WITHIN A GROUP WHICH IS BUNDLED TOGETHER OR WITHIN A STACK WHICH IS UNITIZED. THE PREFERRED LOCATION WOULD BE WITHIN A ONE-HIGH PORTION OF A LOAD (NOT IN THE REAR LOAD UNIT) IF AVAILABLE, OR WITHIN THE TOP LAYER OF A LOAD IF THE TRAILER HEIGHT PERMITS.
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.
3. THE "SHIPMENT OF A PARTIAL PALLET UNIT" PROCEDURES ON THIS PAGE ARE APPLICABLE FOR LOADS IN CONVENTIONAL TYPE VAN TRAILERS AND TRAILERS EQUIPPED WITH MECHANICAL BRACING DEVICES.
4. FOR SHIPMENT OF ONE THRU SIX "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 22 OF THIS DRAWING.

**SPECIAL NOTES:**

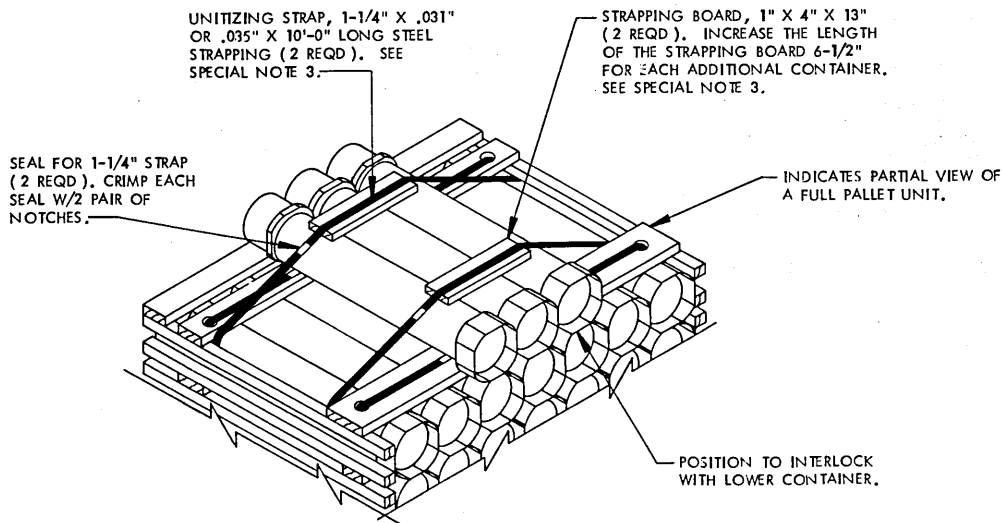
1. SHIPMENTS OF PROPELLING CHARGES SHOULD CONSIST OF FULL-HIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE, HOWEVER, THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION, MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS. LEFTOVER CONTAINERS ARE DESCRIBED AS 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 21.
2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS MOTOR CARRIER SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOTS 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 CARRIERS.
3. THE PROCEDURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SECUREMENT OF LEFTOVER CONTAINERS FOR SHIPMENT. THE VIEW AT LEFT DEPICTS ONE LEFTOVER CONTAINER SECURED TO A FULL-HEIGHT PALLET UNIT. THE VIEWS BELOW DEPICT TWO CONTAINERS, AND THREE CONTAINERS SECURED TO A FULL-HEIGHT PALLET UNIT. WHEN THREE THRU SIX LEFTOVER CONTAINERS ARE BEING SHIPPED, A STRAPPING BOARD WILL BE NEEDED. LEFTOVER CONTAINERS MUST BE SECURED WITH A MINIMUM OF TWO (2) PIECES OF STEEL STRAPPING. **NOTE:** THAT UNITIZING STRAPS WILL BE THREADED BEHIND THE 2" X 2" STOP. PIECES ON THE TOP DUNNAGE ASSEMBLY.
4. THE PREFERRED LOCATION FOR THE POSITIONING OF A PALLET UNIT HAVING ONE OR MORE CONTAINERS STRAPPED TO THE TOP WOULD BE WITHIN THE ONE-HIGH PORTION OF THE LOAD; IT MUST NOT HAVE A PALLET UNIT STACKED ON TOP.
5. THE PROCEDURES ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.



**SECUREMENT OF ONE CONTAINER**

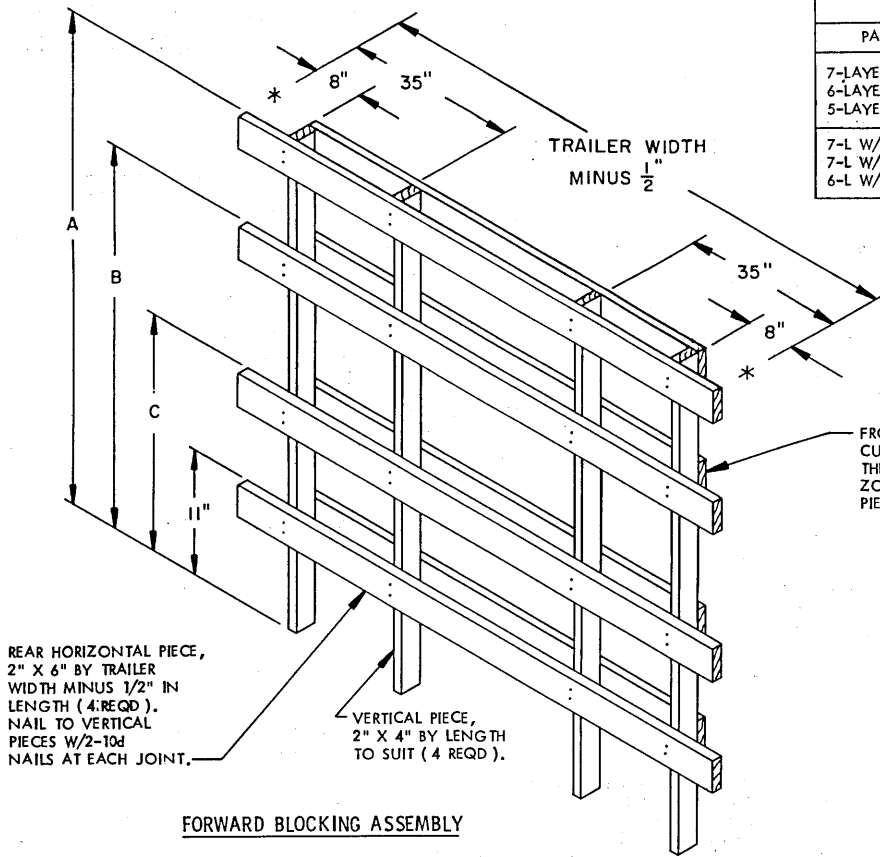


**SECUREMENT OF TWO CONTAINERS**



**SECUREMENT OF THREE CONTAINERS**

FORWARD BLOCKING CHART			
PALLET UNIT TYPE	A	B	C
7-LAYER UNIT	7'-6"	59"	40"
6-LAYER UNIT	7'-0"	53"	40"
5-LAYER UNIT	5'-5"	48"	28"
7-L W/6-L ON TOP	7'-6"	59"	40"
7-L W/5-L ON TOP	6'-3"	59"	40"
6-L W/5-L ON TOP	7'1"	55"	40"



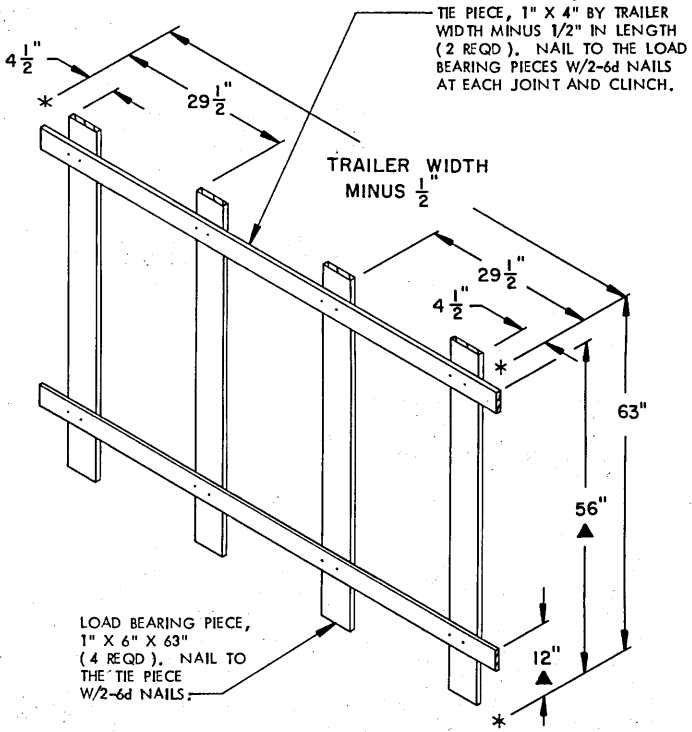
FRONT HORIZONTAL PIECE, 2" X 6" BY CUT TO FIT (4 REQD). POSITION AT THE SAME HEIGHT AS THE REAR HORIZONTAL PIECES. NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

REAR HORIZONTAL PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (4 REQD). NAIL TO VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 4" BY LENGTH TO SUIT (4 REQD).

**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 HAS LARGE-ANGLED FRONT CORNERS, REFER TO PAGE 32 FOR GUIDANCE.

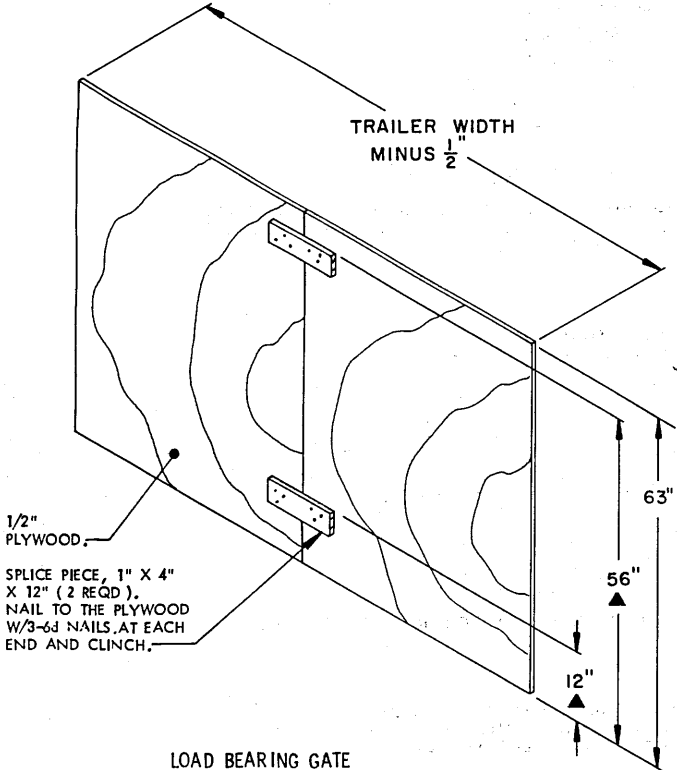


TIE PIECE, 1" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE LOAD BEARING PIECES W/2-6d NAILS AT EACH JOINT AND CLINCH.

LOAD BEARING PIECE, 1" X 6" X 63" (4 REQD). NAIL TO THE TIE PIECE W/2-6d NAILS.

**ALTERNATIVE LOAD BEARING GATE**

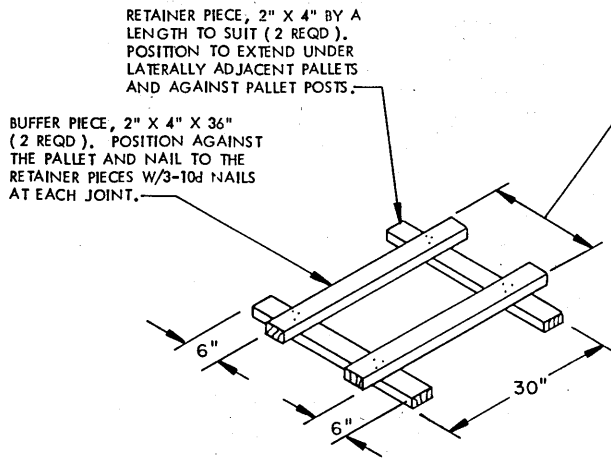
▲ THESE HEIGHTS MAY NEED TO BE ADJUSTED TO PROVIDE FOR CLEARANCE OF THE CROSS MEMBERS AT A MINUS TOLERANCE INSTALLATION.



1/2" PLYWOOD.  
 SPLICE PIECE, 1" X 4" X 12" (2 REQD). NAIL TO THE PLYWOOD W/3-6d NAILS AT EACH END AND CLINCH.

**LOAD BEARING GATE**

NOTE: IF PLYWOOD IS NOT AVAILABLE OR IF DESIRED, THE LOAD BEARING GATES MAY BE FABRICATED FROM NOMINAL ONE INCH LUMBER.



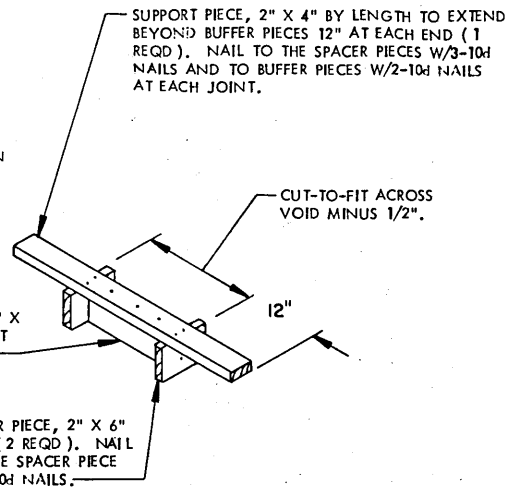
**ANTI-SWAY BRACE A**

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 BE INSTALLED INTO THE FORK-LIFT OPENING OF A LOADED PALLET PRIOR TO POSITIONING THE LATERALLY ADJACENT PALLET.

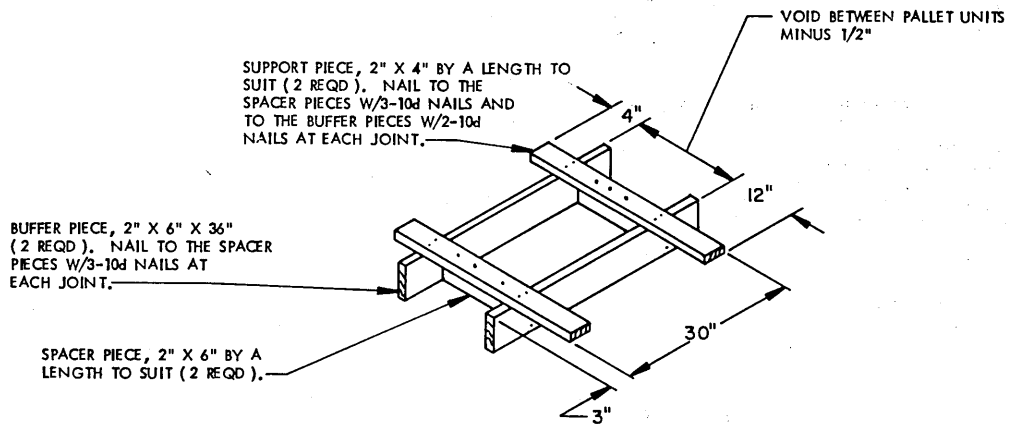
FABRICATE TO FIT BETWEEN THE POSTS OF LATERALLY ADJACENT PALLETS.

SPACER PIECE, 2" X 6" BY CUT-TO-FIT (1 REQD).

BUFFER PIECE, 2" X 6" X 8" (2 REQD). NAIL TO THE SPACER PIECE W/3-10d NAILS.

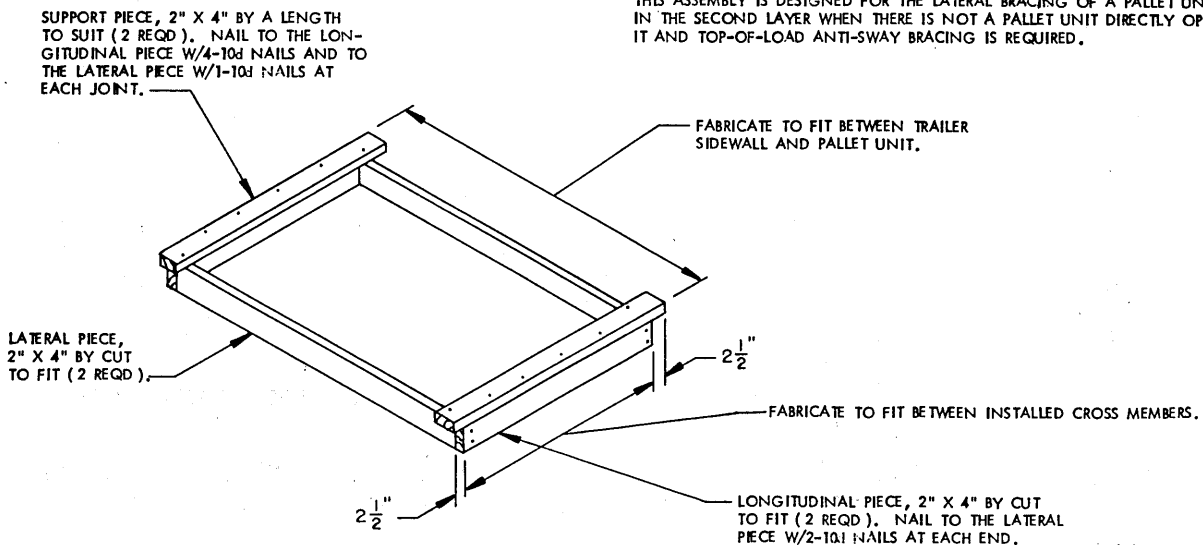


**TOP-OF-LOAD ANTI-SWAY BRACE A**



**TOP-OF-LOAD ANTI-SWAY BRACE B**

THIS ASSEMBLY IS DESIGNED FOR THE LATERAL BRACING OF A PALLET UNIT IN THE SECOND LAYER WHEN THERE IS NOT A PALLET UNIT DIRECTLY OPPOSITE IT AND TOP-OF-LOAD ANTI-SWAY BRACING IS REQUIRED.

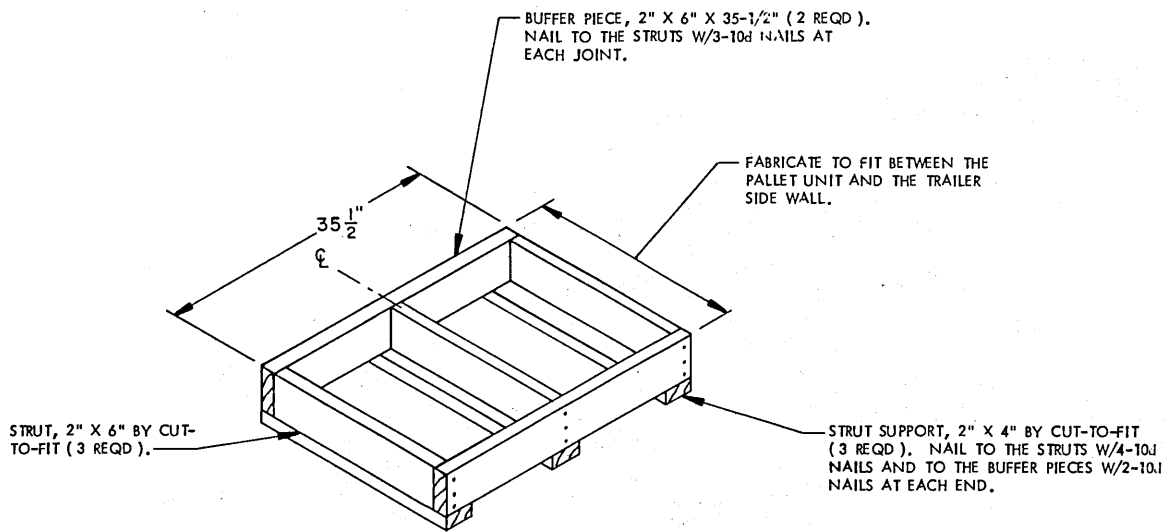


**SPACER ASSEMBLY C**

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING IN A TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES AS SHOWN IN THE TYPICAL LTL LOAD ON PAGE 20.

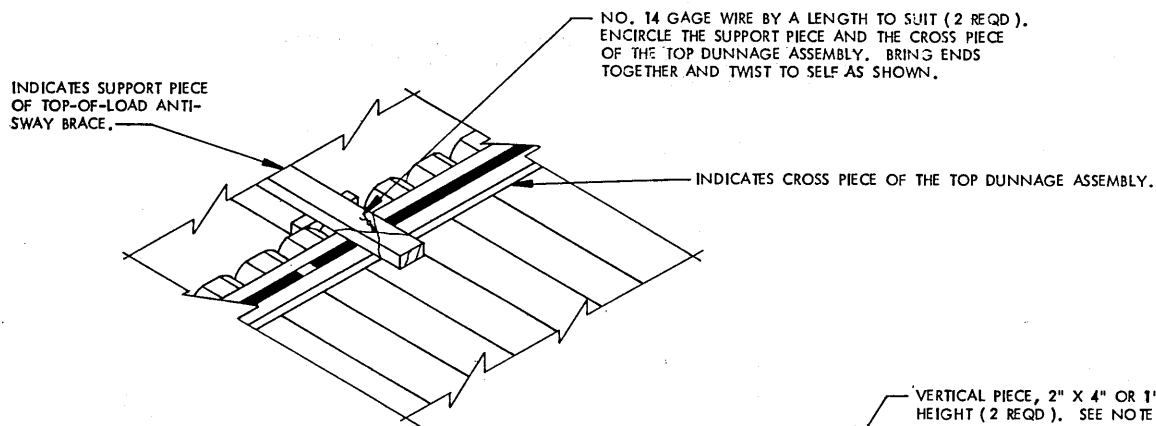
**DETAILS**



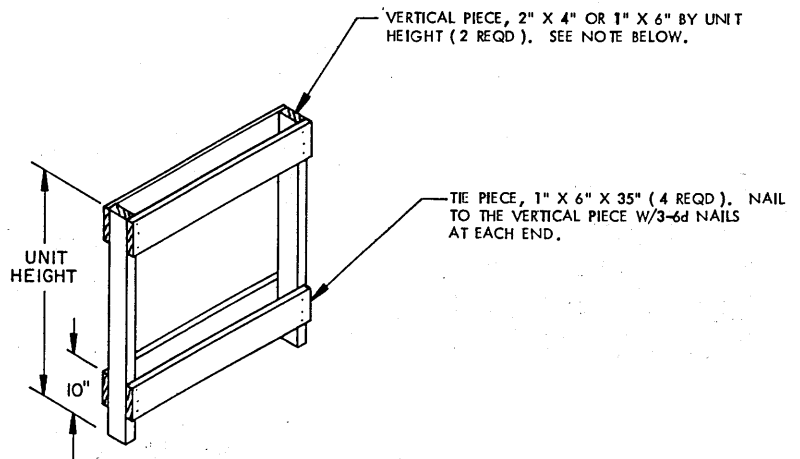


**SPACER ASSEMBLY B**

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING IN A CONVENTIONAL VAN TRAILER AS SHOWN IN THE TYPICAL LTL LOAD ON PAGE 18.

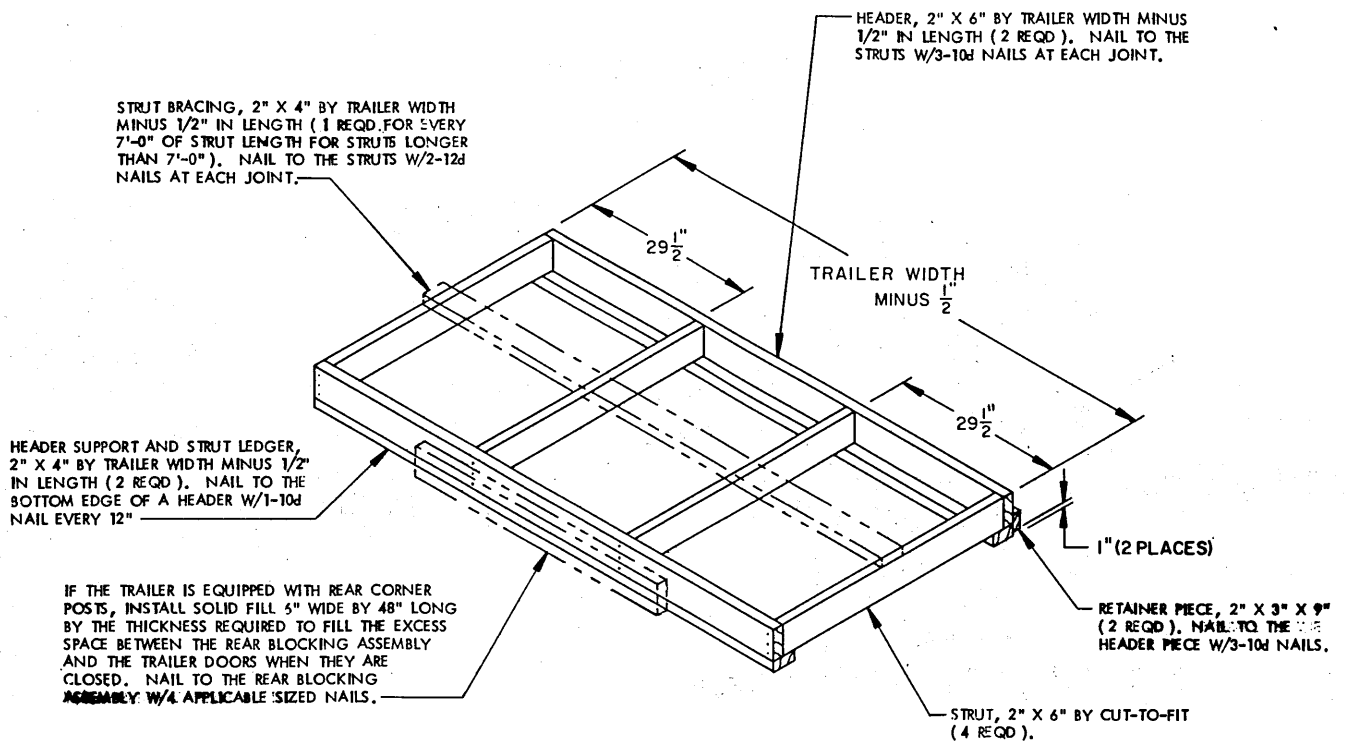


**TIE WIRE APPLICATION**



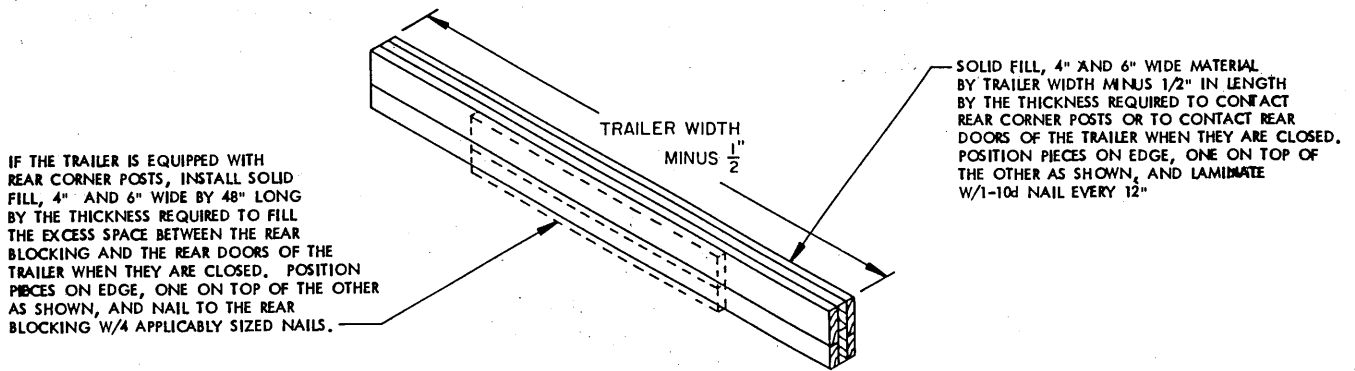
**ANTI-SWAY BRACE B**

THE ANTI-SWAY BRACE AS SHOWN IS ADEQUATE TO PROVIDE LATERAL BRACING IN TRAILERS WHICH ARE 98" OR 99" IN WIDTH. TO ADJUST THE THICKNESS OF THE ASSEMBLY FOR USE IN NARROWER TRAILERS, THE 2" X 4" VERTICAL PIECES CAN BE ROTATED 90°, OR 1" X 6" VERTICAL PIECES MAY BE USED TO FURTHER DECREASE THE THICKNESS.



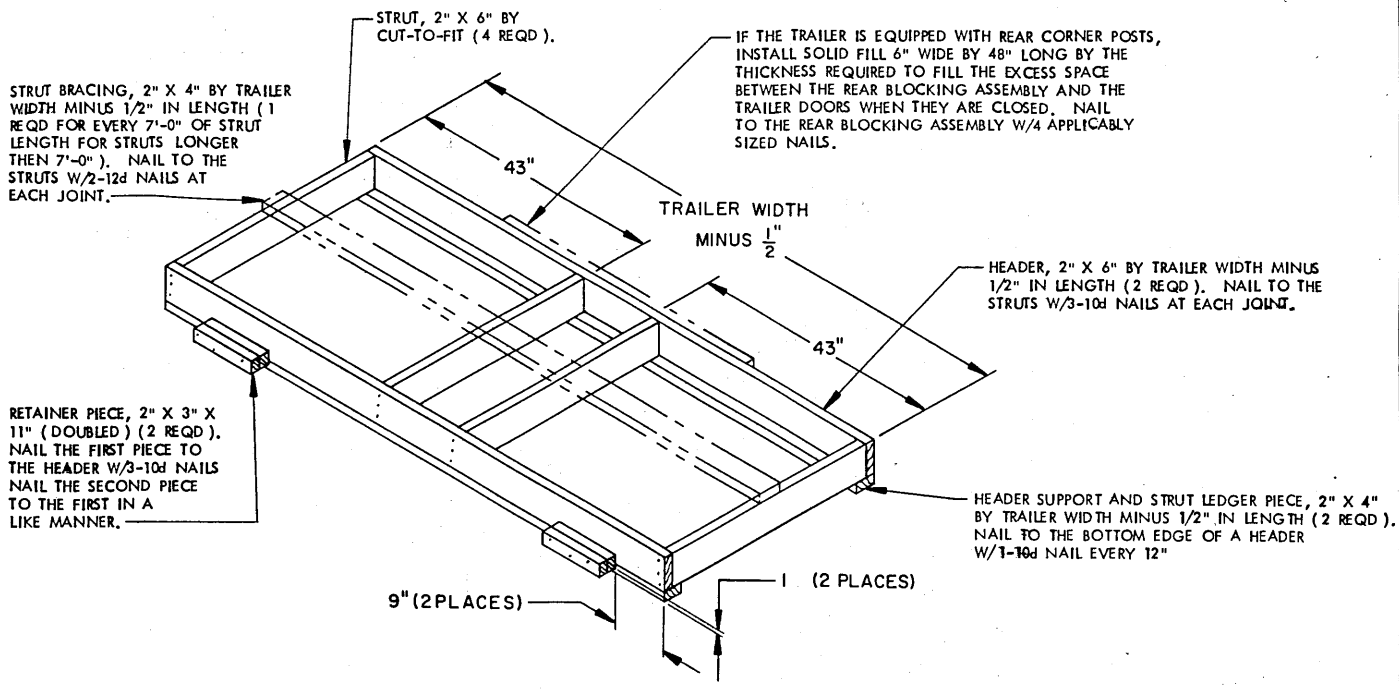
**REAR BLOCKING ASSEMBLY A**

THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF THE LOAD ON PAGES 4, 8, 12, AND 16 WHEN THE SPACE BETWEEN THE LADING THE TRAILER DOORS IS 9" OR GREATER.



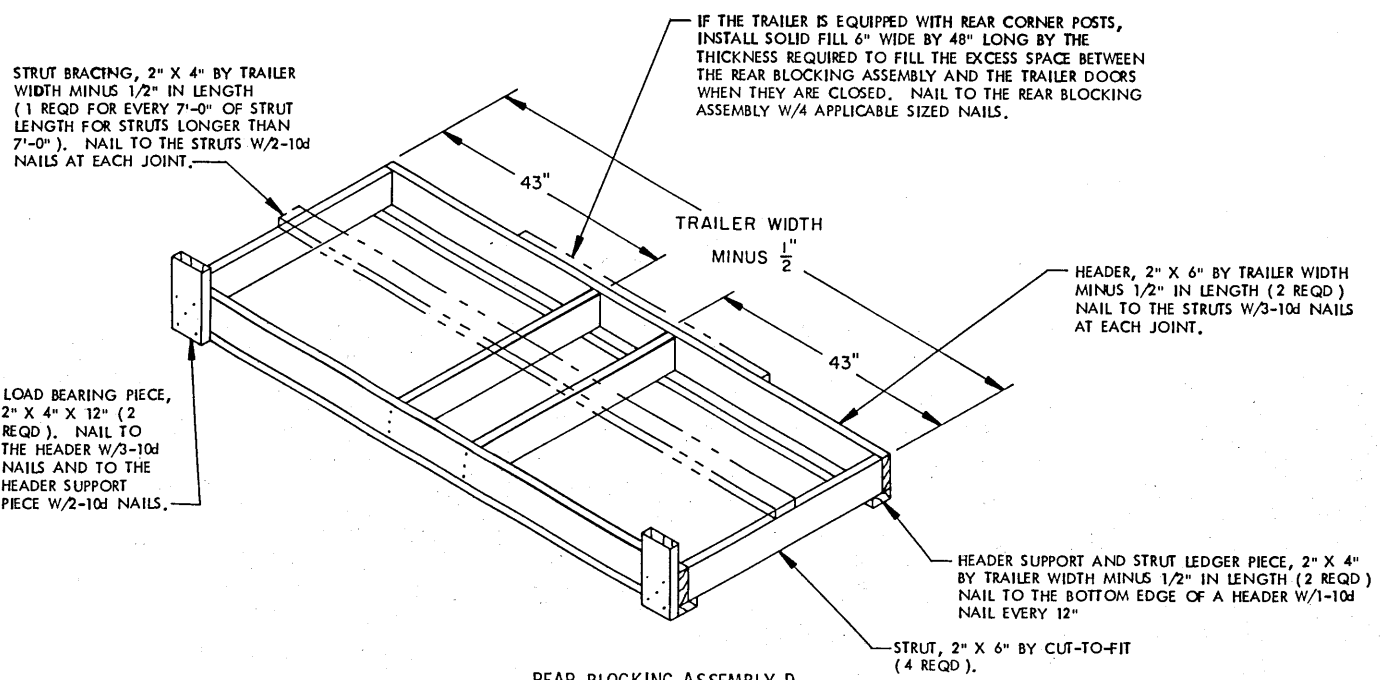
**REAR BLOCKING ASSEMBLY B**

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". NOTE THAT RETAINER PIECES, OR LOAD BEARING PIECES MUST BE INSTALLED ON THE LOAD BEARING SIDE OF THE REAR BLOCKING ABOVE. REFER TO REAR BLOCKING ASSEMBLY "A" ABOVE OR "C" AND "D" ON PAGE 27 FOR LOCATION AND NAILING GUIDANCE.



**REAR BLOCKING ASSEMBLY C**

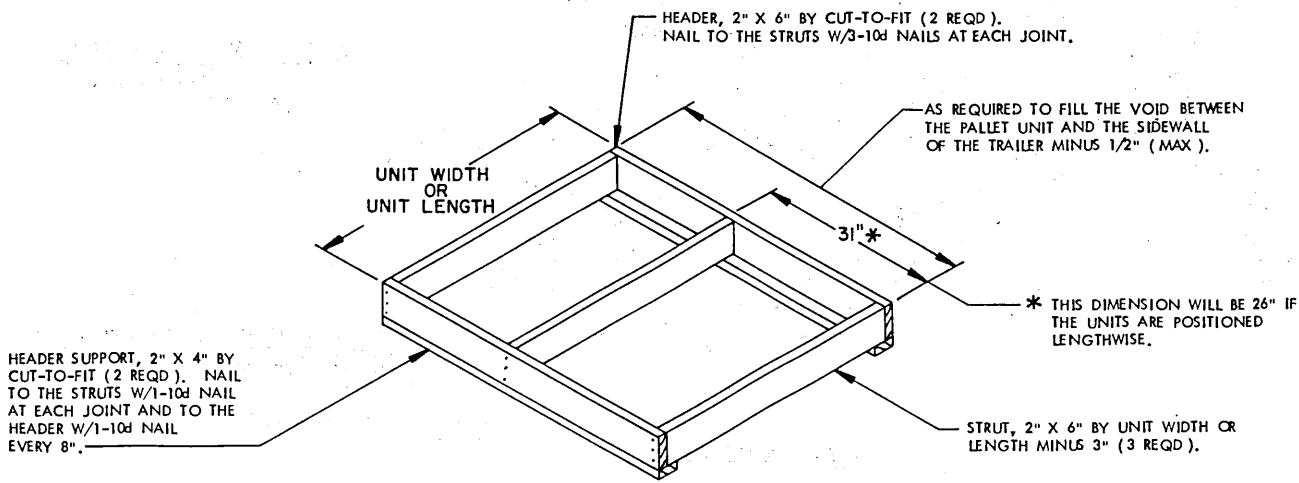
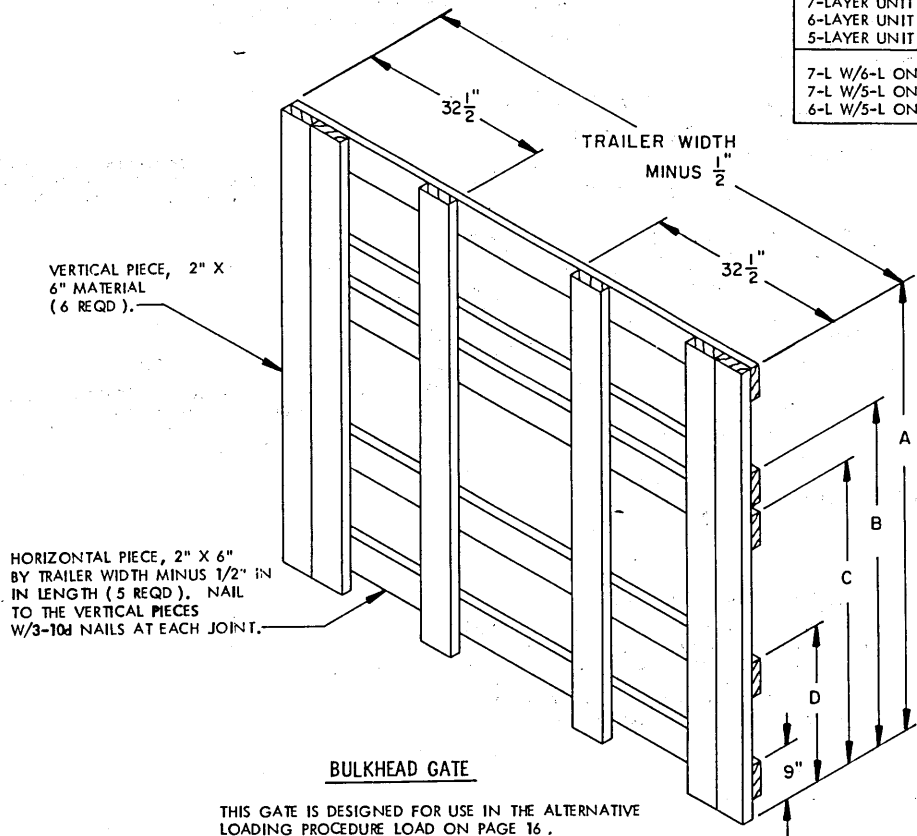
THIS ASSEMBLY IS FOR USE AT THE REAR OF THE LOAD ON PAGE 14 WHEN THE REARMOST LOAD UNIT IS ONE UNIT IN HEIGHT AND THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS 9" OR GREATER. NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.

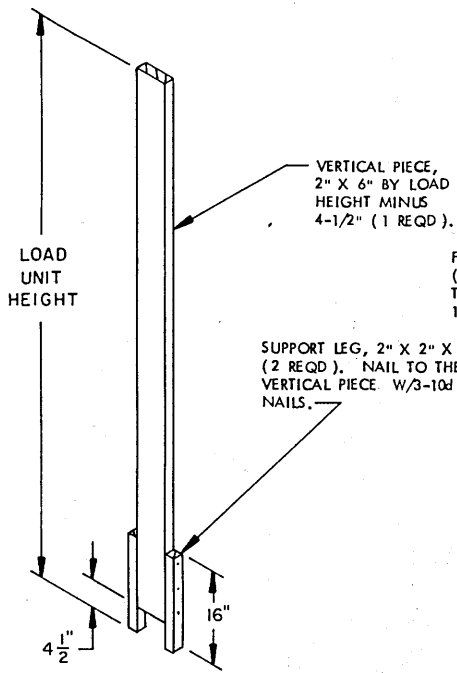


**REAR BLOCKING ASSEMBLY D**

THIS ASSEMBLY IS FOR USE AT THE REAR OF THE LOAD ON PAGE 14 WHEN THE REARMOST LOAD UNIT IS STACKED TWO UNITS IN HEIGHT AND THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS 9" OR GREATER. NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.

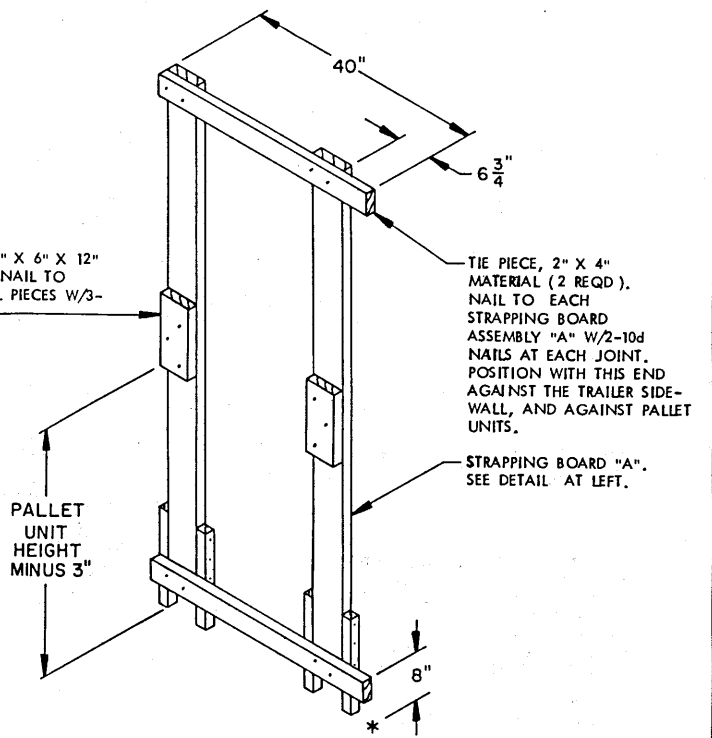
BULKHEAD GATE CHART				
PALLET UNIT TYPE	DIMENSIONS			
	A	B	C	D
7-LAYER UNIT	6'-5"	59"	50"	28"
6-LAYER UNIT	71"	53"	44"	28"
5-LAYER UNIT	65"	47"	38"	21"
7-L W/6-L ON TOP	6'-5"	59"	50"	28"
7-L W/5-L ON TOP	6'-0"	59"	50"	28"
6-L W/5-L ON TOP	71"	53"	44"	28"





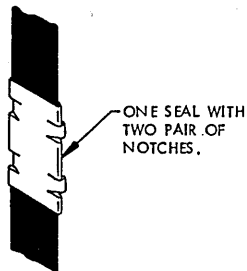
**STRAPPING BOARD ASSEMBLY A**

THIS ASSEMBLY IS FOR USE IN THE LOAD SHOWN ON PAGES 14 AND 15.



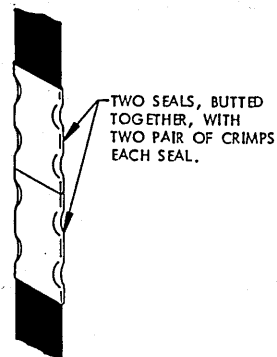
**STRAPPING BOARD ASSEMBLY B**

RIGHT HAND AND LEFT HAND ASSEMBLIES ARE REQUIRED.



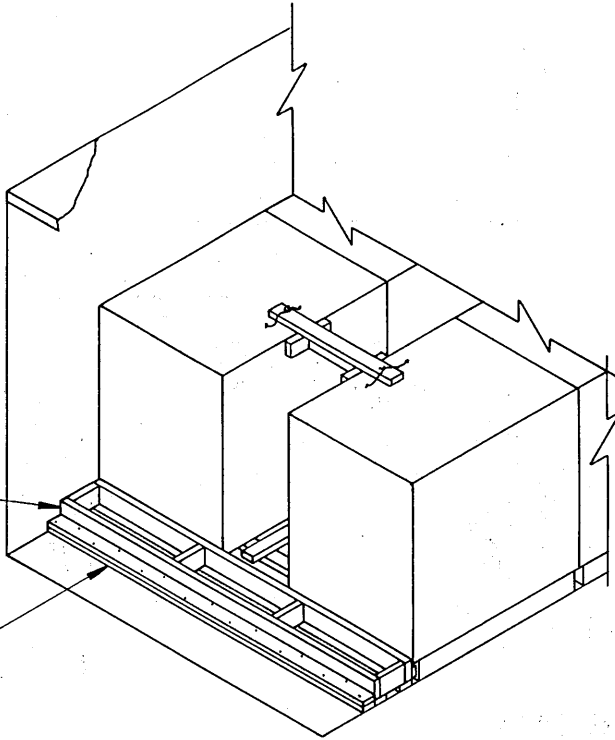
**STRAP JOINT**

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



**STRAP JOINT**

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



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

HEADER, 2" X 4" BY TRAILER WIDTH  
MINUS 1/2" IN LENGTH (DOUBLED)  
(1 REQD). POSITION AGAINST THE  
REAR BLOCKING ASSEMBLY. NAIL  
THE FIRST PIECE TO THE TRAILER  
FLOOR W/15-10# NAILS (1 EVERY 6").  
NAIL THE SECOND PIECE TO THE FIRST  
IN A LIKE MANNER AND TOENAIL TO  
THE REAR BLOCKING ASSEMBLY  
W/4-10# NAILS.

#### NAILED-HEADER METHOD

#### SPECIAL NOTES:

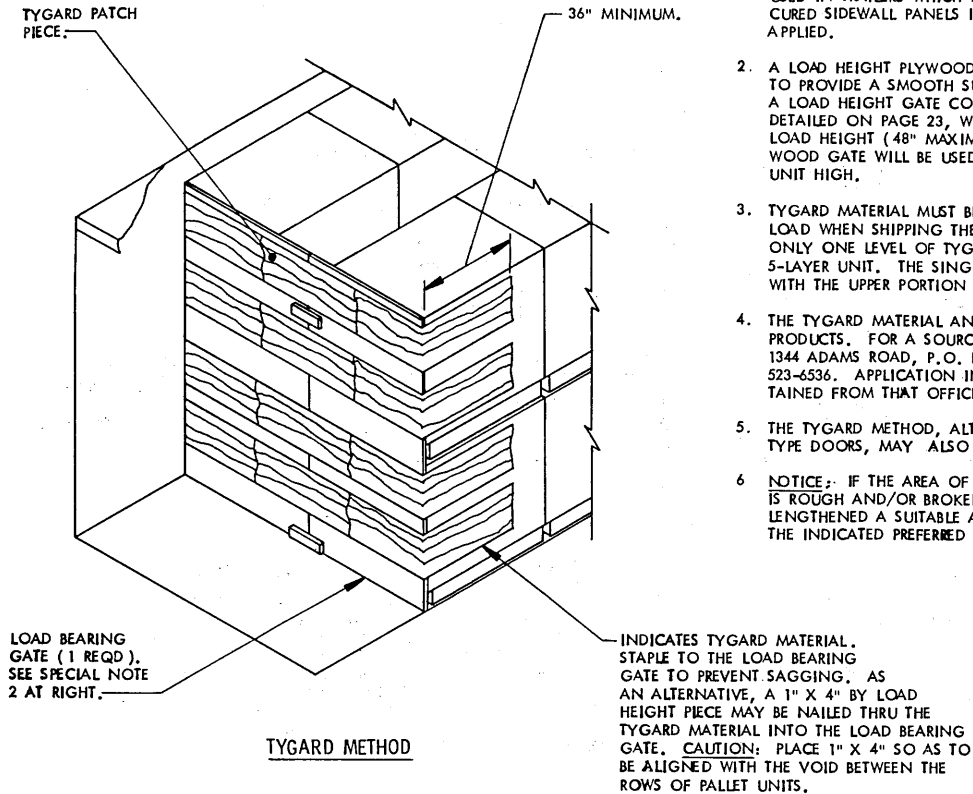
1. THE NAILED-HEADER METHOD OF REAR BLOCKING DEPICTED ABOVE CAN ONLY BE USED IN TRAILERS HAVING A AVAILABLE FLOOR AREA BETWEEN THE LADING AND THE METAL THRESHOLD, OR A THRESHOLD PLATE IF THE TRAILER IS SO EQUIPPED, OF AT LEAST FOURTEEN INCHES (14").
2. REAR BLOCKING ASSEMBLY "A" IS SHOWN FOR A TYPICAL 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.

#### NAILED-HEADER METHOD

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

SPECIAL NOTES:

1. THE TYGARD METHOD OF REAR BLOCKING DEPICTED AT LEFT 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.
2. A LOAD HEIGHT PLYWOOD GATE MUST BE INSTALLED AT THE REAR OF THE LOAD TO PROVIDE A SMOOTH SURFACE FOR THE TYGARD MATERIAL TO EXTEND AROUND. A LOAD HEIGHT GATE CONSTRUCTED SIMILAR TO "LOAD BEARING GATE", AS DETAILED ON PAGE 23, WILL BE USED WHEN THE REAR LOAD UNIT IS STACKED. A LOAD HEIGHT (48" MAXIMUM) BY TRAILER WIDTH MINUS 1/2" IN LENGTH PLYWOOD GATE WILL BE USED WHEN THE REAR LOAD UNIT IS ONLY ONE PALLET UNIT HIGH.
3. TYGARD MATERIAL MUST BE INSTALLED AT TWO LEVELS FOR EACH LAYER OF THE LOAD WHEN SHIPPING THE 7-LAYER OR 6-LAYER UNIT DEPICTED ON PAGE 3. ONLY ONE LEVEL OF TYGARD MATERIAL IS REQUIRED WHEN SHIPPING THE 5-LAYER UNIT. THE SINGLE LEVEL OF TYGARD MATERIAL SHOULD BE ALIGNED WITH THE UPPER PORTION OF A LAYER.
4. 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", BENSALEM, PA 19020-0860, PHONE 1-800-523-6536. APPLICATION INSTRUCTIONS AND GUIDANCE CAN ALSO BE OBTAINED FROM THAT OFFICE.
5. THE TYGARD METHOD, ALTHOUGH ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.
6. **NOTICE:** IF THE AREA OF A SIDEWALL WHERE THE TYGARD SHOULD BE ATTACHED IS ROUGH AND/OR BROKEN, THE APPLICABLE PIECE (-5) OF TYGARD CAN BE LENGTHENED A SUITABLE AMOUNT AND ATTACHED TO THE SIDEWALL AHEAD OF THE INDICATED PREFERRED LOCATION.



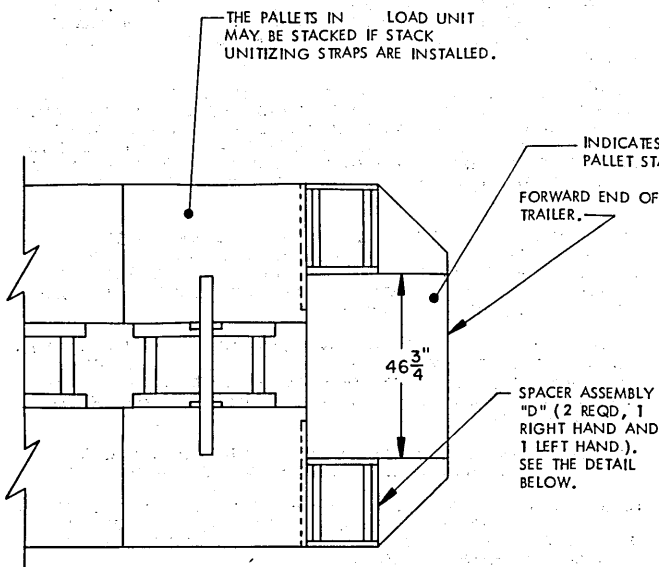
RECOMMENDED EQUIPMENT/INSTALLATION PROCEDURES

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

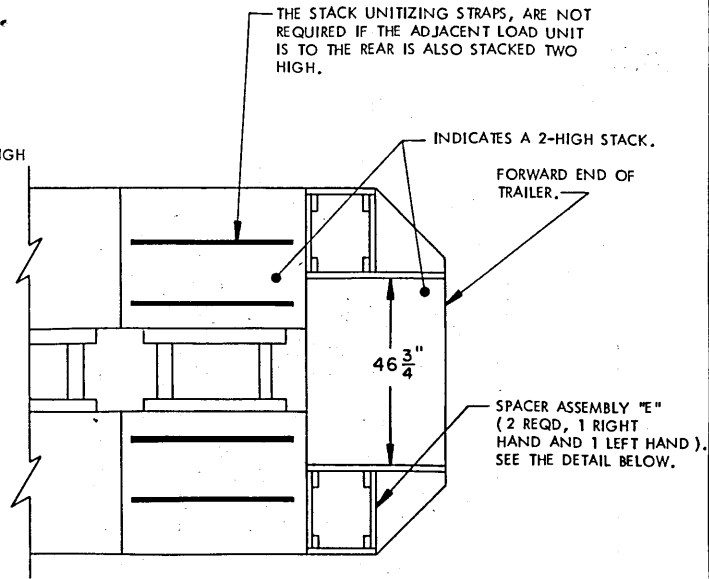
BASIC INSTALLATION GUIDANCE

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.
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.



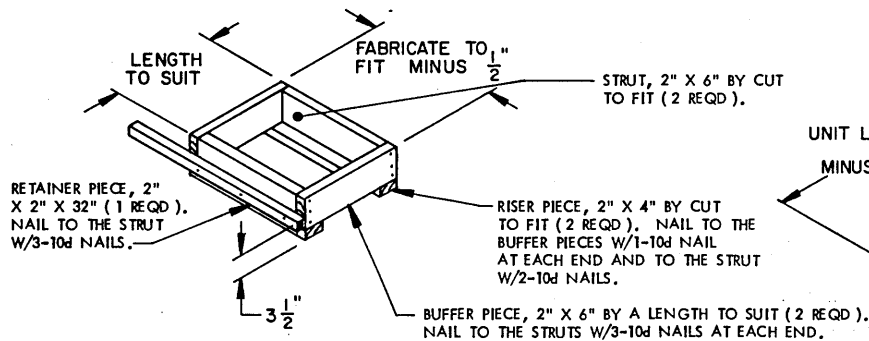
**ALTERNATIVE FORWARD LOADING PATTERN A**

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. THESE PROCEDURES ARE APPLICABLE FOR ALL OF THE UNITS DEPICTED ON PAGE 3.



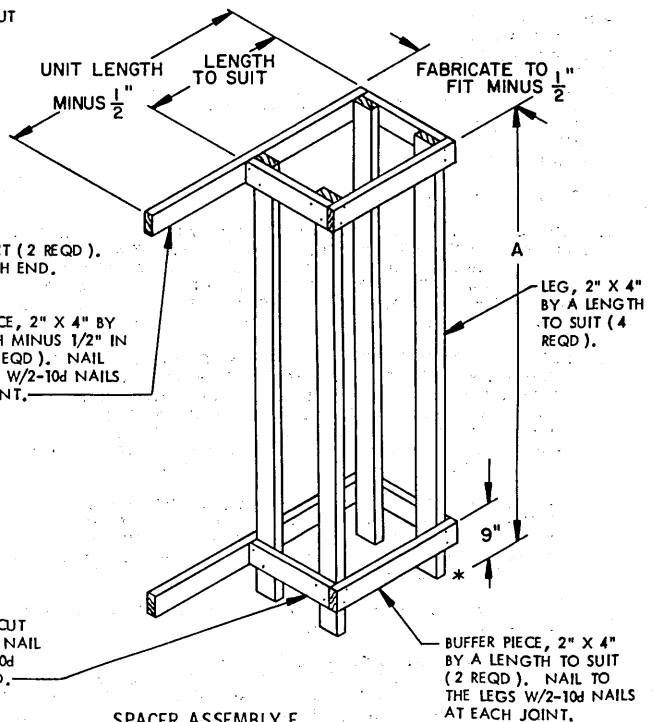
**ALTERNATIVE FORWARD LOADING PATTERN B**

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF A STACK OF TWO (2) PALLET UNITS 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. NOTE THAT IF THE LOAD UNIT BEHIND THE STACKED PALLET UNITS IN THE FRONT OF THE TRAILER IS ONLY ONE HIGH, TWO (2) STACK UNITIZING STRAPS AND FOUR (4) STRAPPING BOARD ASSEMBLIES MUST BE INSTALLED TO SECURE THOSE PALLET UNITS IN THE FRONT STACK. THESE PROCEDURES ARE APPLICABLE FOR ALL OF THE UNITS DEPICTED ON PAGE 3.



**SPACER ASSEMBLY D**

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 FORWARD LOADING PATTERN A" VIEW ABOVE. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.



**SPACER ASSEMBLY E**

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A 2-HIGH PALLET STACK 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 FORWARD LOADING PATTERN B" VIEW ABOVE. NOTE THAT THIS VIEW DEPICTS THE ASSEMBLY POSITIONED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED IN A LOAD. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.

SPACER ASSEMBLY E CHART	
PALLET UNIT TYPE	DIM A
7-LAYER UNIT	58"
6-LAYER UNIT	52"
5-LAYER UNIT	46"
7-L W/6-L ON TOP	58"
7-L W/5-L ON TOP	58"
6-L W/5-L ON TOP	52"



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