

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

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## PA97 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.

| REVISIONS  |  |  |  | DRAFTSMAN<br>320 | Dt       | PROJ ENG<br>PB/WRF          |              |
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|  |  |  |  | CHECKER<br>GRG   |          | LOG ENGRG OFFICE<br>Wolcott |              |
| APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND<br><i>Benjamin J. Hancock</i>   |  |  |  |                  |          |                             |              |
| APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND (AMC)<br><i>William S. Ernst</i><br>U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL |  |  |  |                  |          |                             |              |
| U.S. ARMY AMC DRAWING  |  |  |  |                  |          |                             |              |
| MARCH 1988   |  |  |  |                  |          |                             |              |
|  |  |  |  | CLASS            | DIVISION | DRAWING                     | FILE         |
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GENERAL NOTES

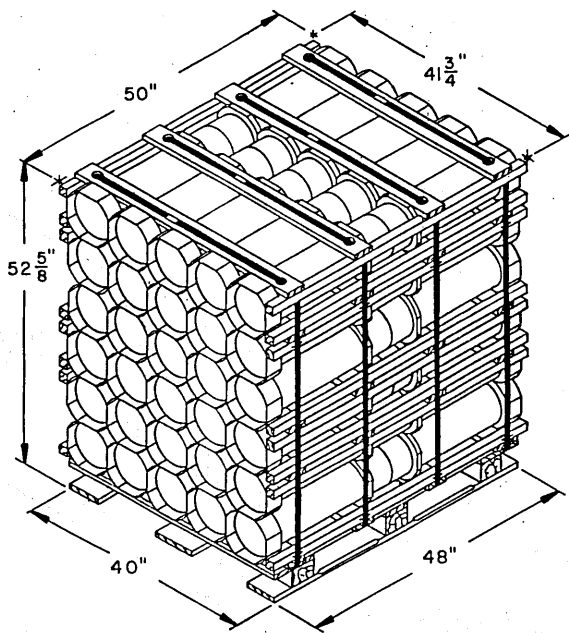
(GENERAL NOTES CONTINUED)

- 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 PA97 SERIES PROPELLING CHARGE CONTAINER ASSEMBLED ON THE 40" X 48" 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/19-20PM1001 FOR UNITIZATION PROCEDURES FOR THE PA97 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 INCHES (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 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 LOAD 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 16. FOR "SHIPMENT OF LEFTOVER CONTAINERS", SEE THE DETAILS AND SPECIAL NOTES ON PAGE 35.
- 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 22 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 TRAILS 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 ON TO 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. 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 OUTLOADING 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. 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 BASIC HEIGHT 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 BASIC HEIGHT UNITS WILL BE LOADED IN THE FORWARD PORTION OF THE TRAILER WITH THE DECREASED HEIGHT UNITS IN THE REAR PORTION.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

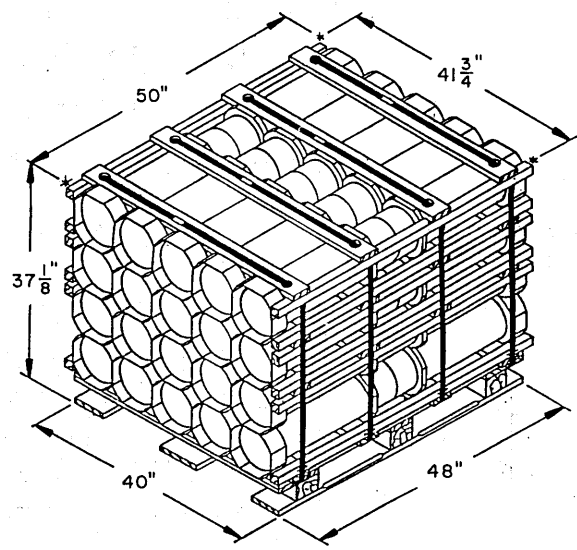
- LUMBER-----: SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS-----: COMMON, FED SPEC FF-N-105.
- STRAPPING, STEEL-----: FED SPEC QQ-S-781; CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP-----: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR IV, CLASS H, FINISH A, 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-----: POLYESTER YARN, 1,100 POUNDS/INCH OF WIDTH STRENGTH.
- ADHESIVE-----: TYGARD ADHESIVE.



PALLET UNIT ( BASIC HEIGHT )

|                   |                             |
|-------------------|-----------------------------|
| CONTAINER-----    | 60 EACH @ 29 LBS ( APPROX ) |
| CUBE-----         | 63.6 CUBIC FEET ( APPROX )  |
| GROSS WEIGHT----- | 1,924 LBS ( APPROX )        |

REFER TO PAGES 4 THRU 7 AND PAGES 14 AND 15 FOR OUTLOADING PROCEDURES.

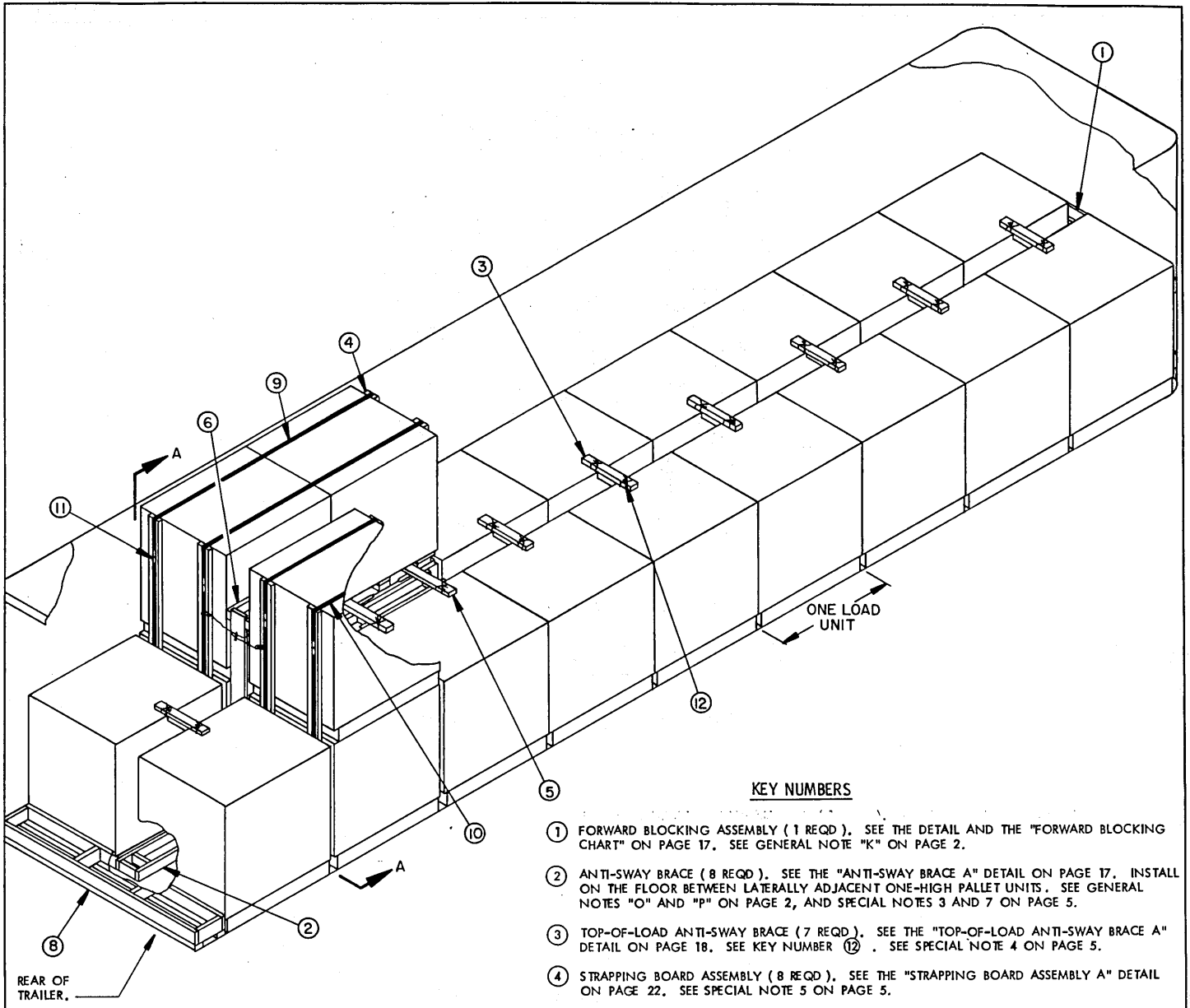


PALLET UNIT ( DECREASED HEIGHT )

|                   |                             |
|-------------------|-----------------------------|
| CONTAINER-----    | 40 EACH @ 29 LBS ( APPROX ) |
| CUBE-----         | 44.8 CUBIC FEET ( APPROX )  |
| GROSS WEIGHT----- | 1,322 LBS ( APPROX )        |

REFER TO PAGES 8 THRU 15 FOR OUTLOADING PROCEDURES.

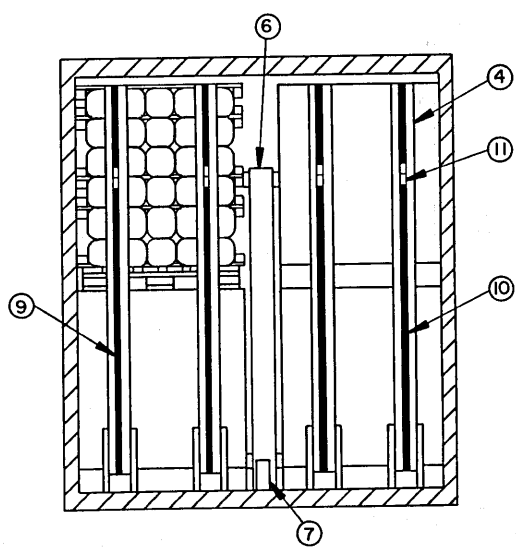
PALLET UNIT DETAILS



ISOMETRIC VIEW

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 17. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (8 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17. INSTALL ON THE FLOOR BETWEEN LATERALLY ADJACENT ONE-HIGH PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2, AND SPECIAL NOTES 3 AND 7 ON PAGE 5.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (7 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 18. SEE KEY NUMBER ⑫. SEE SPECIAL NOTE 4 ON PAGE 5.
- ④ STRAPPING BOARD ASSEMBLY (8 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 22. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 18. SEE KEY NUMBER ⑫. SEE SPECIAL NOTE 6 ON PAGE 5.
- ⑥ CRIB FILL (1 REQD). SEE THE DETAIL ON PAGE 17. INSTALL BETWEEN LATERALLY ADJACENT TWO-HIGH STACKS. SEE SPECIAL NOTE 12 ON PAGE 5.
- ⑦ SPACER PIECE, 2" X 4" X 8" (2 REQD). NAIL TO THE LOWER PART OF A VERTICAL PIECE OF A CRIB FILL, PIECE MARKED ⑥, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY.
- ⑧ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 19. SEE SPECIAL NOTE 8 ON PAGE 5.
- ⑨ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 36'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, AS SHOWN. STAPLE TO UPPER PORTION OF STRAPPING BOARD ASSEMBLY W/1 STAPLE. SEE SPECIAL NOTE 11 ON PAGE 5.
- ⑩ STACK INITIALIZING STRAP, 1-1/4" X .035" OR .031" X 27'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS. SEE SPECIAL NOTE 9 ON PAGE 5. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ②, W/1 STAPLE.
- ⑪ SEAL FOR 1-1/4" STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑫ TIE WIRE, NO. 14 GAGE WIRE (16 REQD AT 36" LONG, 1 REQD AT 72" LONG). INSTALL A 36" LONG PIECE TO FORM TWO COMPLETE LOOPS AROUND THE SUPPORT PIECE OF PIECE MARKED ③ AND TIE THE ENDS TO THE TOP DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 18. ALSO, INSTALL A 72" LONG PIECE TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF A CRIB FILL ASSEMBLY JUST BELOW THE TOP HORIZONTAL PIECES WITH THE CENTER PORTION OF THE WIRE AND TWIST. TIE EACH END TO THE ADJACENT STACK INITIALIZING STRAP AND/BUNDLING STRAP, PIECES MARKED ⑨ AND/OR ⑩. SECURE THE TIE WIRE TO THE CRIB FILL ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.



SECTION A-A

PALLET UNIT (BASIC HEIGHT)  
 21-UNIT LOAD IN A 40'-0" LONG BY 7'-8-1/2" WIDE HI-VOLUME VAN TRAILER

(SPECIAL NOTES CONTINUED)

SPECIAL NOTES:

- 14. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED NINE (9) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 15 FOR GUIDANCE.
- 15. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 12 AND 13.
- 16. 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 23 AND 24 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 23 AND THE TYGARD METHOD IS SHOWN ON PAGE 24. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

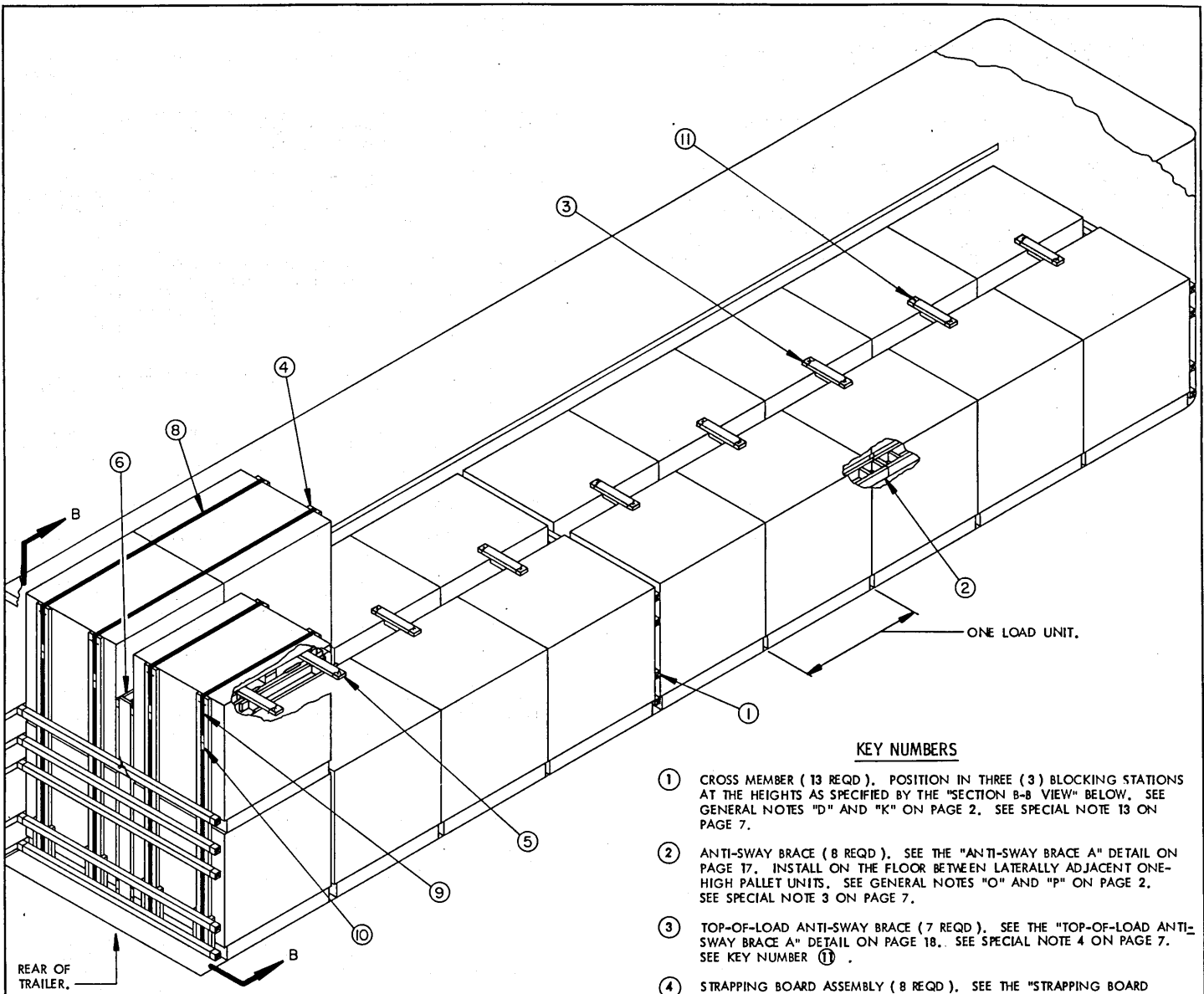
- 1. A 21-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) HI-VOLUME VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
- 2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 4 IS THE BASIC HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 52-5/8" HIGH AND WEIGHING APPROXIMATELY 1,924 POUNDS.
- 3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 18, MAY BE USED IN LIEU OF PIECE MARKED (6). THE SPACER PIECES, PIECE MARKED (7), WILL THEN NOT BE REQUIRED. ANTI-SWAY BRACE "B" MAY ALSO BE USED IN LIEU OF PIECE MARKED (2).
- 4. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECE MARKED (3) ARE TO BE POSITIONED BETWEEN ALL UPPER-LAYER PALLET UNITS, HOWEVER, IF THE PALLET UNITS IN THE SECOND LAYER ARE BRACED WITH CRIB FILL BETWEEN THE ROWS, WITH OR WITHOUT BEING UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER, A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED IN THAT LOAD UNIT.
- 5. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 22.
- 6. 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, CRIB FILL WILL BE INSTALLED IN LIEU OF PIECE MARKED (5).
- 7. IN LIEU OF USING ANTI-SWAY BRACE "A", PIECE MARKED (2), (OR THE ALTERNATIVE ANTI-SWAY BRACE "B") AND TOP-OF-LOAD ANTI-SWAY BRACE "A", PIECE MARKED (3), BETWEEN LATERALLY ADJACENT PALLET UNITS IN THE ONE-HIGH PORTION OF THE LOAD, CRIB FILL ASSEMBLIES MAY BE USED.
- 8. 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" AS DETAILED ON PAGE 19. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED (8) ON PAGE 4. SEE SPECIAL NOTE 16.
- 9. 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 (10), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
- 10. 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. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED (4) AND (10). PROVIDE LATERAL BRACING BY INSTALLING A TOP-OF-LOAD ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 18 AND SHOWN IN THE LOAD AS PIECE MARKED (5). WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 18.
- 11. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED (9), MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), IN EACH APPLICABLE ROW.
- 12. IF A TRAILER WHICH IS WIDER THAN 7'-8-1/2" IS FURNISHED FOR LOADING, THE ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 18, WILL BE USED IN LIEU OF THE CRIB FILL, PIECE MARKED (4), AND ALSO IN LIEU OF THE ANTI-SWAY BRACE "A", PIECE MARKED (2). THE SPACER PIECES, PIECE MARKED (7), WILL THEN NOT BE REQUIRED. NOTE THAT WHEN USING ANTI-SWAY BRACE "B", TOP-OF-LOAD ANTI-SWAY BRACES MUST BE INSTALLED BETWEEN THE TOPS OF ALL LATERALLY ADJACENT PALLET STACKS WHICH ARE NOT UNITIZED.
- 13. REFER TO PAGE 16 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

| BILL OF MATERIAL  |               |            |
|---|---------------|------------|
| LUMBER  | LINEAR FEET   | BOARD FEET |
| 2" X 2"   | 22            | 8          |
| 2" X 4"   | 166           | 11         |
| 2" X 6"   | 129           | 129        |
| NAILS   | NO. REQD      | POUNDS     |
| 10d (3")  | 319           | 5          |
| STEEL STRAPPING, 1-1/4" X .035" OR .031"-----127' REQD----- |               | 19 LBS     |
| SEAL FOR 1-1/4" STRAPPING-----                              | 8 REQD-----   | NIL        |
| NO. 14 GAGE WIRE-----                                       | 55' REQD----- | NIL        |
| STAPLE-----   | 8 REQD-----   | NIL        |

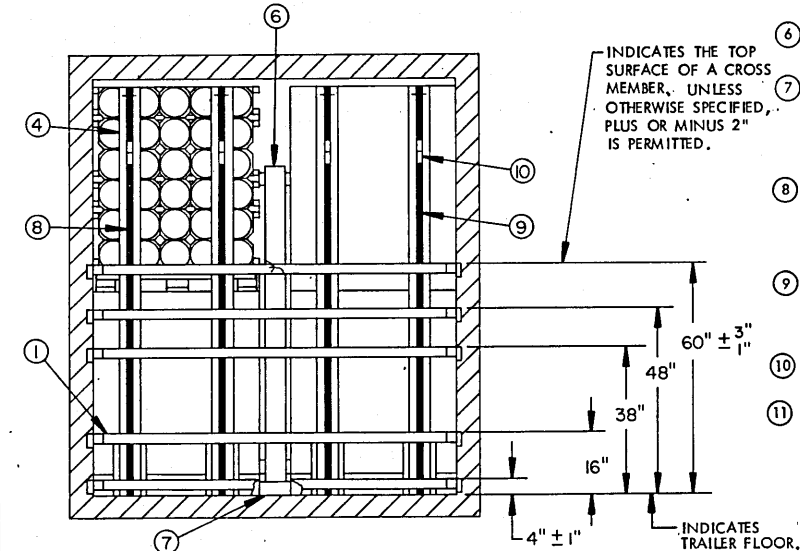
LOAD AS SHOWN

| ITEM              | QUANTITY | WEIGHT (APPROX) |
|-------------------|----------|-----------------|
| PALLET UNIT-----  | 21-----  | 40,404 LBS      |
| DUNNAGE-----      |          | 520 LBS         |
| TOTAL WEIGHT----- |          | 40,924 LBS      |

PALLET UNIT (BASIC HEIGHT)  
 21-UNIT LOAD IN A 40'-0" LONG BY 7'-8-1/2" WIDE HI-VOLUME VAN TRAILER



ISOMETRIC VIEW



SECTION B-B

PALLET UNIT (BASIC HEIGHT)

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

KEY NUMBERS

- ① CROSS MEMBER (13 REQD). POSITION IN THREE (3) BLOCKING STATIONS AT THE HEIGHTS AS SPECIFIED BY THE "SECTION B-B VIEW" BELOW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 13 ON PAGE 7.
- ② ANTI-SWAY BRACE (8 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17. INSTALL ON THE FLOOR BETWEEN LATERALLY ADJACENT ONE-HIGH PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2. SEE SPECIAL NOTE 3 ON PAGE 7.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (7 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 18. SEE SPECIAL NOTE 4 ON PAGE 7. SEE KEY NUMBER ①.
- ④ STRAPPING BOARD ASSEMBLY (8 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 22. SEE SPECIAL NOTE 5 ON PAGE 7.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 18. SEE SPECIAL NOTE 6 ON PAGE 7. SEE KEY NUMBER ①.
- ⑥ CRIB FILL (1 REQD). SEE THE DETAIL ON PAGE 17. INSTALL BETWEEN LATERALLY ADJACENT TWO-HIGH STACKS. SEE KEY NUMBER ①.
- ⑦ SPACER PIECE, 2" X 4" X 8" (2 REQD). NAIL TO THE LOWER PART OF EACH VERTICAL PIECE OF THE CRIB FILL, PIECE MARKED ⑥, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A", PIECE MARKED ②.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 36'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS IN THE SECOND LAYER AND TWO (2) UNITS DIRECTLY BELOW AS SHOWN. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE. SEE SPECIAL NOTE 8 ON PAGE 7.
- ⑨ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 21'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS. SEE SPECIAL NOTE 8 ON PAGE 7. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE.
- ⑩ SEAL FOR 1-1/4" STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑪ TIE WIRE, NO. 14 GAGE WIRE (17 REQD AT 36" LONG). INSTALL A WIRE TO FORM TWO COMPLETE LOOPS AROUND THE SUPPORT PIECE OF PIECE MARKED ③ AND/OR ⑤ AND TIE THE ENDS TO THE TOP DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 18. ALSO, INSTALL A 36" LONG PIECE TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF THE CRIB FILL AND THE TOP CROSS MEMBER. BRING ENDS TOGETHER AND TWIST TAUT.

**SPECIAL NOTES:**

1. A 21-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" 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 6 IS THE BASIC HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 52-5/8" HIGH AND WEIGHING APPROXIMATELY 1,924 POUNDS.
3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 18, MAY BE USED IN LIEU OF PIECE MARKED (2) . ONE ( 1 ) SPACER PIECE, PIECE MARKED (7) , WILL THAN NOT BE REQUIRED.
4. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECE MARKED (3) ARE TO BE POSITIONED BETWEEN ALL UPPER-LAYER PALLET UNITS, HOWEVER, IF THE PALLET UNITS IN THE SECOND LAYER ARE BRACED WITH CRIB FILL BETWEEN THE ROWS, WITH OR WITHOUT BEING UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER, A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.
5. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4) . SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 22.
6. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED (3) , IS ONLY REQUIRED FOR THE BRACING OF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, CRIB FILL WILL BE INSTALLED IN LIEU OF PIECE MARKED (3) .
7. IN LIEU OF USING ANTI-SWAY BRACE "A", PIECE MARKED (2) , ( OR THE ALTERNATIVE ANTI-SWAY BRACE "B" ) AND TOP-OF-LOAD ANTI-SWAY BRACE "A", PIECE MARKED (3) , BETWEEN LATERALLY ADJACENT PALLET UNITS IN THE ONE-HIGH PORTION OF THE LOAD, CRIB FILL ASSEMBLIES MAY BE USED.
8. 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 USING STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4) , AND EITHER BUNDLING STRAPS OR STACK UNITIZING STRAPS, PIECES MARKED (8) OR (9) .
9. REFER TO PAGE 16 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED NINE ( 9 ) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 15 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 14.
12. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 8'-11", IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT, OR TO LOCATE THE SECOND-LAYER PORTION FURTHER AHEAD IN THE LOAD.
13. 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 AT THE FRONT OF THE TRAILER AND THOSE LOCATED BETWEEN THE FIFTH AND SIXTH LOAD UNITS WILL BE OMITTED.

**BILL OF MATERIAL**

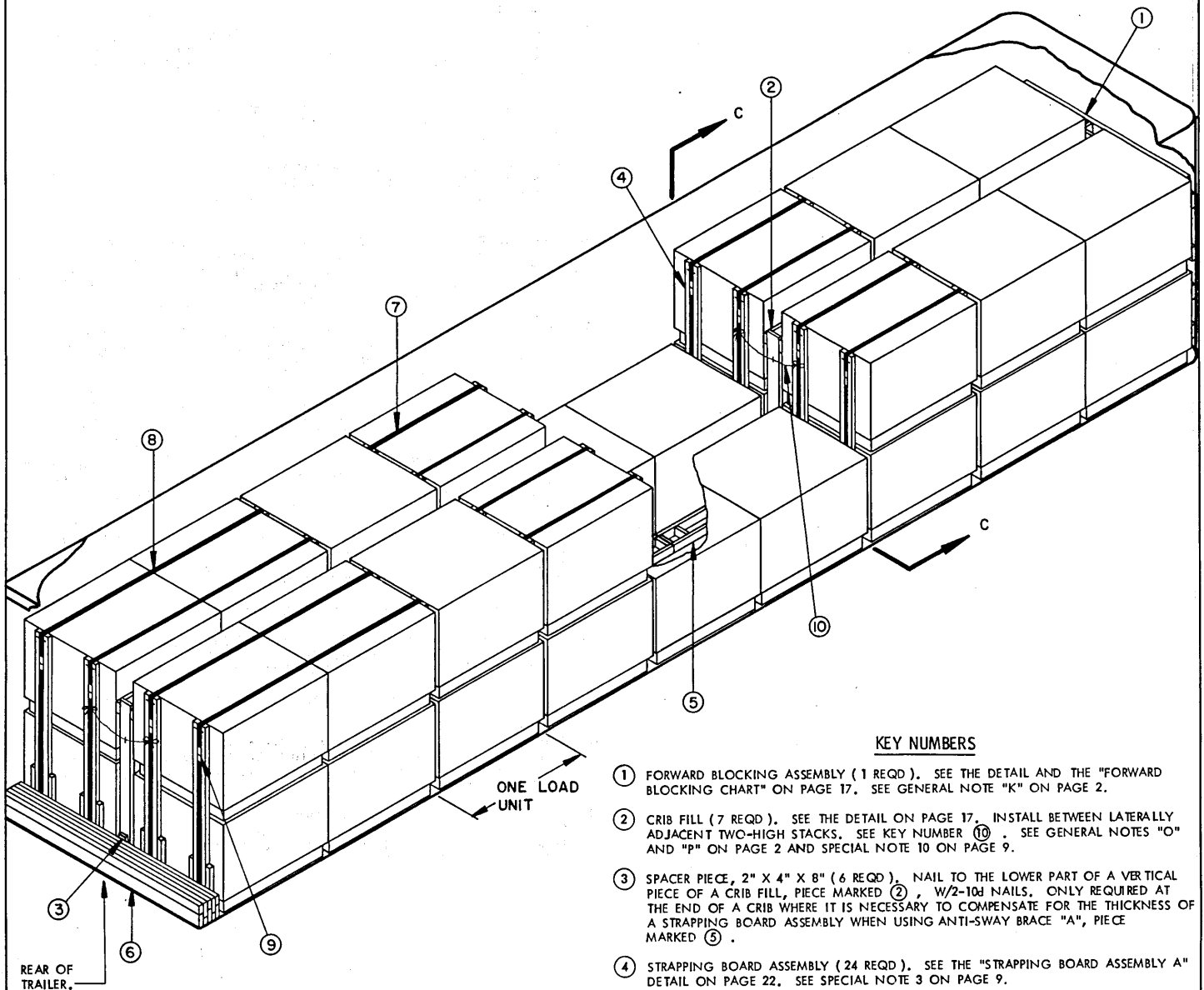
| LUMBER   | LINEAR FEET | BOARD FEET |
|--|-------------|------------|
| 1" X 4"  | 9           | 3          |
| 2" X 2"  | 22          | 8          |
| 2" X 4"  | 122         | 82         |
| 2" X 6"  | 82          | 82         |
| NAILS  | NO. REQD    | POUNDS     |
| 6d ( 2" )  | 8           | NIL        |
| 10d ( 3" )   | 229         | 3-1/2      |
| STEEL STRAPPING, 1-1/4" X .035" OR .031" -- 12' REQD--19 LBS |             |            |
| SEALS FOR 1-1/4" STRAPPING ----- 8 REQD--NIL                 |             |            |
| NO. 14 GAGE WIRE ----- 51' REQD--NIL                         |             |            |
| ST/PL ----- 8 REQD--NIL                                      |             |            |
| CROSS MEMBER----- 13 REQD                                    |             |            |

**LOAD AS SHOWN**

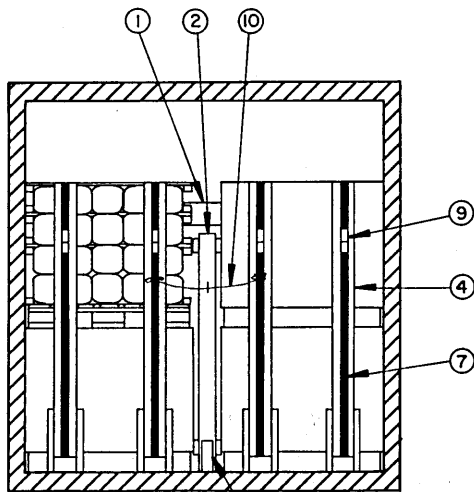
| ITEM              | QUANTITY | WEIGHT ( APPROX ) |
|-------------------|----------|-------------------|
| PALLET UNIT-----  | 21-----  | 40,404 LBS        |
| DUNNAGE-----      | -----    | 373 LBS           |
| TOTAL WEIGHT----- |          | 40,777 LBS        |

**PALLET UNIT ( BASIC HEIGHT )**

**21-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 17. SEE GENERAL NOTE "K" ON PAGE 2.
- ② CRIB FILL (7 REQD.). SEE THE DETAIL ON PAGE 17. INSTALL BETWEEN LATERALLY ADJACENT TWO-HIGH STACKS. SEE KEY NUMBER ⑩. SEE GENERAL NOTES "O" AND "P" ON PAGE 2 AND SPECIAL NOTE 10 ON PAGE 9.
- ③ SPACER PIECE, 2" X 4" X 8" (6 REQD.). NAIL TO THE LOWER PART OF A VERTICAL PIECE OF A CRIB FILL, PIECE MARKED ②, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A", PIECE MARKED ⑤.
- ④ STRAPPING BOARD ASSEMBLY (24 REQD.). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 22. SEE SPECIAL NOTE 3 ON PAGE 9.
- ⑤ ANTI-SWAY BRACE (2 REQD.). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17. INSTALL ON THE FLOOR BETWEEN LATERALLY ADJACENT ONE-HIGH PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 9.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD.). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 19. SEE SPECIAL NOTE 5 ON PAGE 9.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 22'-6" LONG STEEL STRAPPING (8 REQD.). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS. SEE SPECIAL NOTE 6 ON PAGE 9. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 30'-6" LONG STEEL STRAPPING (4 REQD.). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS IN THE SECOND LAYER AND TWO (2) UNITS DIRECTLY BELOW AS SHOWN. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 9.
- ⑨ SEAL FOR 1-1/4" STRAPPING (24 REQD., 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑩ TIE WIRE, NO. 14 GAGE WIRE 72" LONG (3 REQD.). INSTALL TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF A CRIB FILL JUST BELOW THE TOP HORIZONTAL PIECES WITH THE CENTER PORTION OF THE WIRE AND TWIST. TIE EACH END TO THE ADJACENT STACK UNITIZING STRAP, PIECE MARKED ⑦. SECURE TIE WIRE TO THE CRIB FILL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE. A TIE WIRE IS REQUIRED AT THE REAR OF EACH TWO-HIGH PORTION OF THE LOAD AND AT THE FRONT OF THE REAR PORTION.

PALLET UNIT (DECREASED HEIGHT)

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



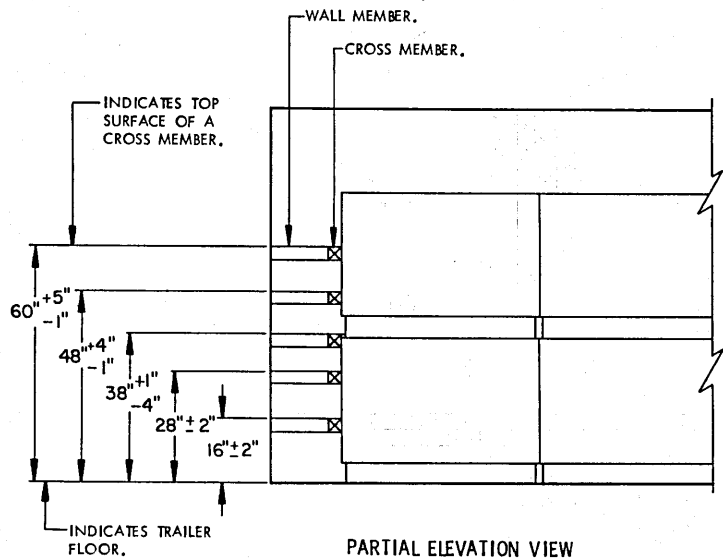
(SPECIAL NOTES CONTINUED)

9. IF A PALLET UNIT IS ADDED TO THE DEPICTED LOAD, REPLACE ONE PAIR OF UNITIZING STRAPS, PIECE MARKED (7), WITH A PAIR OF BUNDLING STRAPS, PIECE MARKED (8). POSITION THE STRAPPING BOARDS AT EACH END OF THE FOUR PALLET UNITS AND ENCIRCLE WITH THE BUNDLING STRAPS. IF A PALLET UNIT IS OMITTED FROM THE DEPICTED LOAD, THE STACK CONTAINING THE ODD PALLET UNIT MUST EITHER BE SECURED TO A LONGITUDINALLY ADJACENT STACK WITH TWO BUNDLING STRAPS OR ELSE A TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN AS PIECE MARKED (5) ON PAGE 4, MUST BE INSTALLED TO PROVIDE LATERAL BRACING FOR THE ODD UNIT IN LIEU OF USING THE CRIB FILL, PIECE MARKED (2).
10. IF A TRAILER WHICH IS WIDER THAN 7'-8-1/2" IS FURNISHED FOR LOADING, THE ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 18 WILL BE USED IN LIEU OF THE CRIB FILL, PIECE MARKED (2), AND ALSO IN LIEU OF THE ANTI-SWAY BRACE "A", PIECE MARKED (5). THE SPACER PIECE, PIECE MARKED (3), WILL THEN NOT BE REQUIRED.
11. IF THE TRAILER BEING OUTLOADED CONTAINS MECHANICAL BRACING DEVICES, SUCH AS WALL BELT RAIL 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 38'-6" AS MEASURED FROM THE FRONT WALL OF THE TRAILER. SEE GENERAL NOTES "D" AND "K" ON PAGE 2.
12. IF THE TRAILER BEING OUTLOADED CONTAINS MECHANICAL BRACING DEVICES AND THE TRAILER HAS ROUNDED FRONT CORNERS, INSTALL CROSS MEMBERS AT THE FRONT OF THE LOAD IN LIEU OF USING THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED (1).
13. REFER TO PAGE 16 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
14. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED NINE (9) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 15 FOR GUIDANCE.
15. FOR SHIPMENT OF LESS THAN FULL LOADS REFER TO THE APPLICABLE GUIDANCE ON PAGES 12 AND 13 FOR CONVENTIONAL VAN TRAILERS AND PAGE 14 FOR MECHANICAL VAN TRAILERS.
16. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED IN CONVENTIONAL VAN TRAILERS. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGES 23 AND 24 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 MAY BE NECESSARY TO FORM EIGHT LOAD UNITS INSTEAD OF NINE, AS SHOWN. ADJUST QUANTITIES OF DUNNAGE PIECES, AS NECESSARY. 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.

SPECIAL NOTES:

1. A 32-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 8 IS THE DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 37-1/8" HIGH AND WEIGHING APPROXIMATELY 1,322 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 (4). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 22.
4. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 18, MAY BE USED IN LIEU OF PIECE MARKED (5). TWO (2) SPACER PIECES, PIECE MARKED (3), WILL THEN NOT BE REQUIRED.
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" AS SHOWN. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", DETAILED ON PAGE 19. SEE SPECIAL NOTE 16.
6. 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 (7), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AS SHOWN, BUNDLING STRAPS, SHOWN AS PIECE MARKED (8), MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), IN EACH APPLICABLE ROW.
8. 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. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED (4) AND (7). PROVIDE LATERAL BRACING BY INSTALLING A TOP-OF-LOAD ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 18 AND SHOWN IN THE LOAD VIEW ON PAGE 4, AS PIECE MARKED (5). WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 18.

(CONTINUED AT LEFT)



PARTIAL ELEVATION VIEW

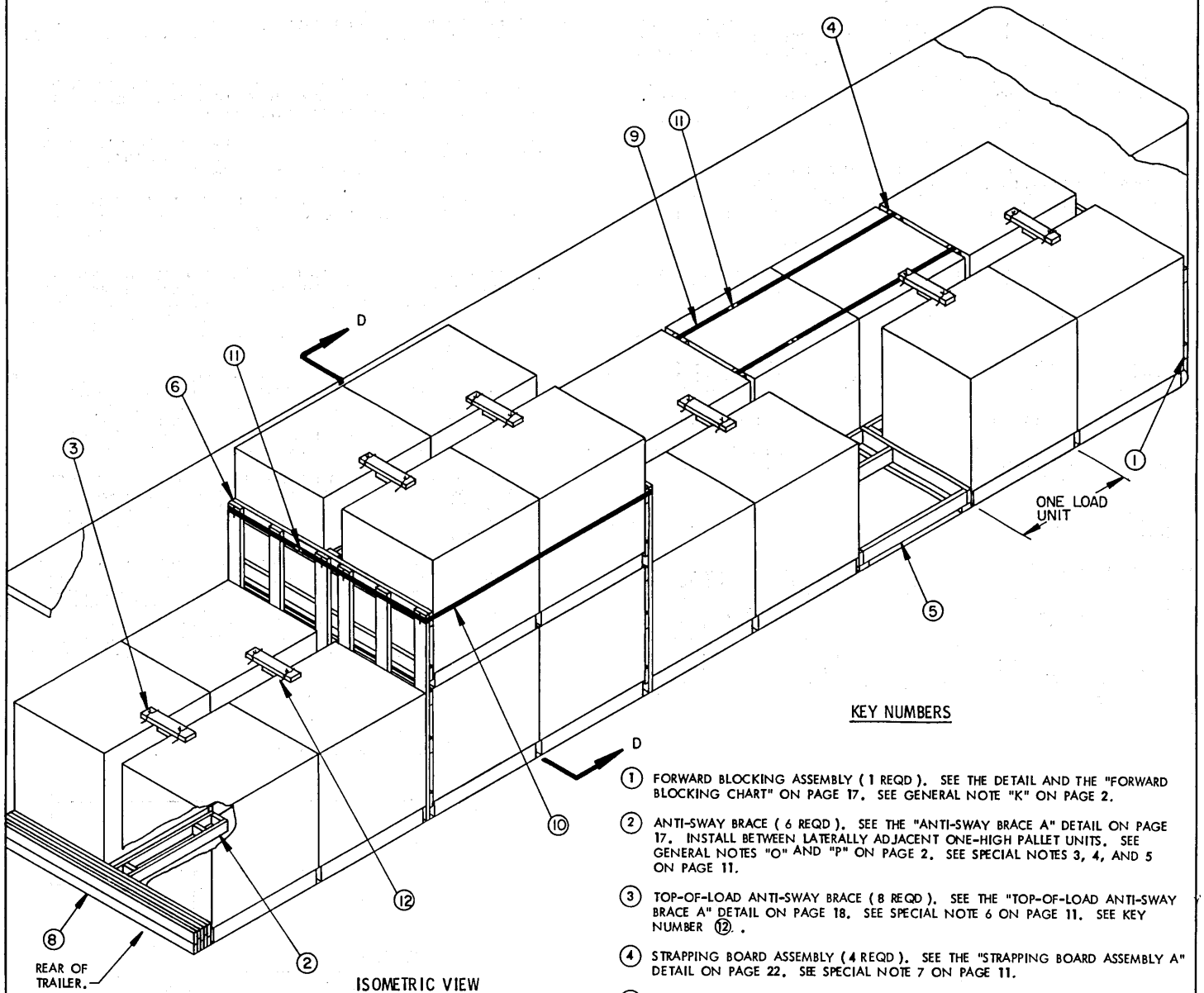
THE VIEW ABOVE INDICATES THE REAR PORTION OF THE LOAD SHOWN ON PAGE 8, SEE SPECIAL NOTES 11 AND 12 ON THIS PAGE.

| BILL OF MATERIAL  |             |            |
|---|-------------|------------|
| LUMBER  | LINEAR FEET | BOARD FEET |
| 2" X 2"   | 64          | 22         |
| 2" X 4"   | 204         | 136        |
| 2" X 6"   | 305         | 305        |
| NAILS   | NO. REQD    | POUNDS     |
| 10d (3")  | 420         | 6-1/2      |
| STEEL STRAPPING, 1-1/4" X .035" OR .031" --- 302' REQD---44 LBS |             |            |
| SEAL FOR 1-1/4" STRAPPING----- 24 REQD--- 1 LB                  |             |            |
| NO. 14 GAGE WIRE----- 18' REQD--- NIL                           |             |            |
| STAPLE----- 24 REQD--- NIL                                      |             |            |

LOAD AS SHOWN

| ITEM              | QUANTITY | WEIGHT ( APPROX ) |
|-------------------|----------|-------------------|
| PALLET UNIT-----  | 32-----  | 42,304 LBS        |
| DUNNAGE-----      | 9'8 LBS  |                   |
| TOTAL WEIGHT----- |          | 43,282 LBS        |

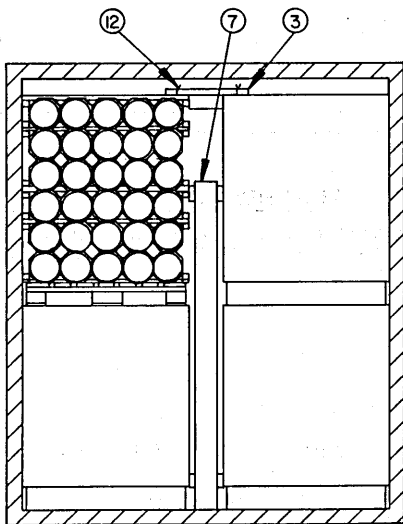
PALLET UNIT (DECREASED HEIGHT)  
32-UNIT LOAD IN A 40'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TYPE TRAILER



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 17. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (6 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 17. INSTALL BETWEEN LATERALLY ADJACENT ONE-HIGH PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2. SEE SPECIAL NOTES 3, 4, AND 5 ON PAGE 11.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 18. SEE SPECIAL NOTE 6 ON PAGE 11. SEE KEY NUMBER ⑫.
- ④ STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 22. SEE SPECIAL NOTE 7 ON PAGE 11.
- ⑤ SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 21. NAIL TO THE ANTI-SWAY BRACE, PIECE MARKED ②, W/2-10d NAILS. SEE SPECIAL NOTE 8 ON PAGE 11.
- ⑥ BULKHEAD GATE (2 REQD). SEE THE DETAIL AND THE "BULKHEAD GATE CHART" ON PAGE 21.
- ⑦ CRIB FILL (2 REQD). SEE THE DETAIL ON PAGE 17. INSTALL BETWEEN LATERALLY ADJACENT TWO-HIGH STACKS. SEE SPECIAL NOTE 4 ON PAGE 11.
- ⑧ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 19. SEE SPECIAL NOTE 9 ON PAGE 11.
- ⑨ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 27'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) ONE-HIGH PALLET UNITS. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE. SEE SPECIAL NOTE 10 ON PAGE 11.
- ⑩ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 35'-0" LONG STEEL STRAPPING (1 REQD). INSTALL SO AS TO ENCIRCLE THE TOP UNITS OF THE TWO-HIGH STACKS AND THE BULKHEAD GATES, PIECES MARKED ⑥. STAPLE TO EACH BULKHEAD GATE, PIECE MARKED ⑥, W/4 STAPLES.
- ⑪ SEAL FOR 1-1/4" STRAPPING (6 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑫ TIE WIRE, NO. 14 GAGE WIRE 36" LONG (16 REQD). INSTALL TO FORM TWO COMPLETE LOOPS AROUND THE SUPPORT PIECE OF PIECE MARKED ③ AND TIE THE ENDS TO THE TOP DUNNAGE ASSEMBLY OF UNITS. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 18.



SECTION D-D

ALTERNATIVE LOADING PROCEDURES FOR ALL UNITS  
21-UNIT LOAD IN A 40'-0" LONG BY 7'-8-1/2" WIDE HIGH-VOLUME VAN TYPE TRAILER

(SPECIAL NOTES CONTINUED)

- 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 23 AND 24 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.
- 13. REFER TO PAGE 16 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
- 14. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED NINE (9) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 15 FOR GUIDANCE.

SPECIAL NOTES:

- 1. A 21-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) HIGH-VOLUME VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
- 2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 10 IS THE BASIC HEIGHT UNIT, HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 52-5/8" HIGH AND WEIGHING APPROXIMATELY 1,924 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT UNIT.
- 3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 18 MAY BE USED IN LIEU OF PIECE MARKED ②.
- 4. IF A TRAILER WHICH IS WIDER THAN 7'-8-1/2" IS FURNISHED FOR LOADING, THE ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 18 WILL BE USED IN LIEU OF THE CRIB FILL, PIECE MARKED ⑦, AND MAY ALSO BE USED IN LIEU OF THE ANTI-SWAY BRACE "A", PIECE MARKED ②.
- 5. IN LIEU OF USING ANTI-SWAY BRACE "A", PIECE MARKED ② (OR THE ALTERNATIVE ANTI-SWAY BRACE "B") AND TOP-OF-LOAD ANTI-SWAY BRACE "A", PIECE MARKED ③, BETWEEN LATERALLY ADJACENT PALLET UNITS IN THE ONE-HIGH PORTION OF THE LOAD, CRIB FILL ASSEMBLIES MAY BE USED.
- 6. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECE MARKED ③, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT PALLET UNITS IN EACH TOP LAYER FOR THE BASIC HEIGHT UNITS. TOP-OF-LOAD ANTI-SWAY BRACES ARE NOT REQUIRED WHEN CRIB FILL IS USED BETWEEN THE ROWS OF PALLET UNITS.
- 7. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ④. SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 22.
- 8. THE SPACER ASSEMBLY SHOWN IN THE LOAD VIEW AS PIECE MARKED ⑤ IS ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION. IF A PALLET UNIT IS LOADED IN PLACE OF THE SPACER ASSEMBLY, THE BUNDLING STRAPS, PIECE MARKED ⑨, 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, PIECE MARKED ① OR ADJACENT TO A BULKHEAD GATE, PIECE MARKED ④.
- 9. 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" AS SHOWN. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", AS DETAILED ON PAGE 19. SEE SPECIAL NOTE 12.
- 10. A PALLET UNIT THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE MUST BE SECURED BY INSTALLING BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑨ IN THE LOAD ON PAGE 10, AROUND THAT PALLET UNIT AND THE PALLET UNIT IMMEDIATELY ADJACENT. NOTE THAT ONLY ONE BUNDLING STRAP IS REQUIRED WHEN A PALLET UNIT IS OMITTED FROM A LOAD OF DECREASED HEIGHT UNITS. A PALLET UNIT WILL NOT BE OMITTED FROM THE SECOND LAYER PORTION OF THE LOAD.
- 11. WHEN ONLY ONE (1) BUNDLING STRAP, PIECE MARKED ⑩, IS APPLIED, THE SECOND LAYER PORTION OF THE LOAD IS LIMITED TO NOT MORE THAN FOUR (4) BASIC HEIGHT UNITS OR SIX (6) DECREASED HEIGHT 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 TEN (10) BASIC HEIGHT UNITS OR FOURTEEN (14) DECREASED HEIGHT UNITS CAN BE LOADED WHEN THE ADDITIONAL BUNDLING STRAP IS APPLIED.

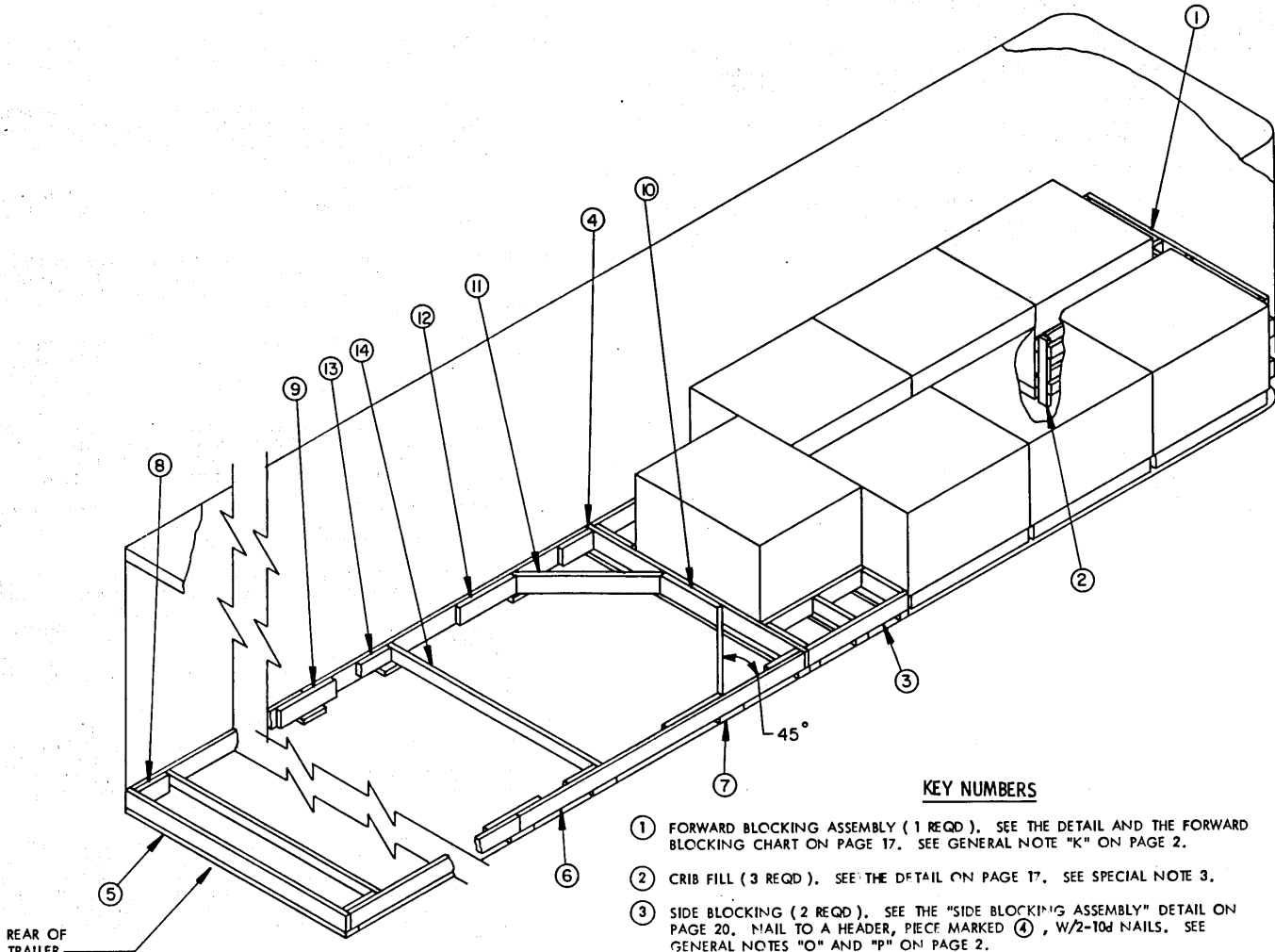
(CONTINUED AT LEFT)

BILL OF MATERIAL (TYPICAL)

| LUMBER   | LINEAR FEET | BOARD FEET |
|--|-------------|------------|
| 2" X 2"  | 11          | 4          |
| 2" X 4"  | 180         | 120        |
| 2" X 6"  | 292         | 292        |
| NAILS  | NO. REQD    | POUNDS     |
| 10d (3")   | 474         | 7-1/2      |
| STEEL STRAPPING, 1-1/4" X .035" OR .031"----- 90' REQD----- 13 LBS |             |            |
| SEAL FOR 1-1/4" STRAPPING----- 6 REQD----- NIL                     |             |            |
| WIRE, NO. 14 GAGE----- 48' REQD----- NIL                           |             |            |

LOAD AS SHOWN (TYPICAL)

| ITEM              | QUANTITY | WEIGHT (APPROX) |
|-------------------|----------|-----------------|
| PALLET UNIT-----  | 21-----  | 40,404 LBS      |
| DUNNAGE-----      |          | 853 LBS         |
| TOTAL WEIGHT----- |          | 41,257 LBS      |



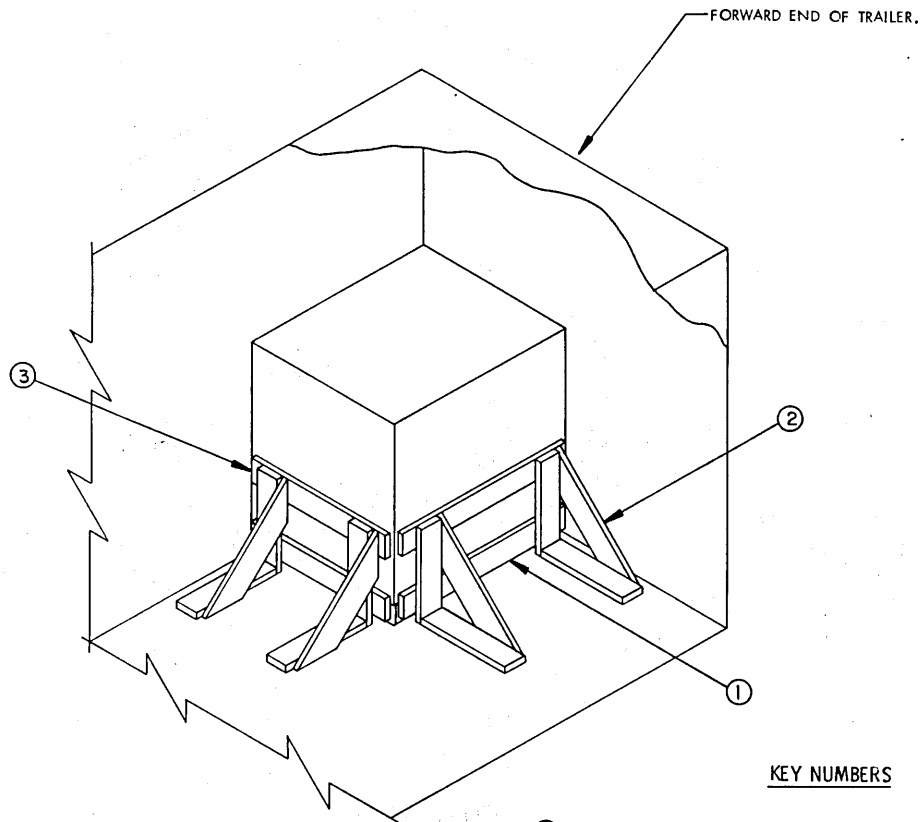
**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART ON PAGE 17. SEE GENERAL NOTE "K" ON PAGE 2.
- ② CRIB FILL (3 REQD). SEE THE DETAIL ON PAGE 17. SEE SPECIAL NOTE 3.
- ③ SIDE BLOCKING (2 REQD). SEE THE "SIDE BLOCKING ASSEMBLY" DETAIL ON PAGE 20. NAIL TO A HEADER, PIECE MARKED ④, W/2-10d NAILS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.
- ④ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD).
- 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 SIDE STRUT, 2" X 6" BY CUT-TO-FIT BETWEEN THE FORWARD AND REAR HEADERS, PIECE MARKED ④ (2 REQD).
- ⑦ RISER PIECE, 2" X 4" X 9" (AS REQD). CENTER UNDER THE JOINTS OF PIECES MARKED ⑪ AND ⑫, ⑬, AND ⑭, AND UNDER THE SPLICE OF PIECES MARKED ⑨ IF APPLICABLE. NAIL TO SIDE STRUT MARKED ⑥ W/2-10d NAILS.
- ⑧ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑥, W/3-10d NAILS. TOENAIL TO THE ADJACENT HEADER, PIECE MARKED ④, W/3-12d NAILS.
- ⑨ SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON JOINT OF PIECES MARKED ⑥ AND NAIL TO SIDE STRUT MARKED ⑥ W/4-10d NAILS AT EACH END.
- ⑩ CENTER CLEAT, 2" X 6" X 24" (1 REQD). NAIL TO A HEADER, PIECE MARKED ④, W/6-10d NAILS.
- ⑪ 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 ⑥, W/2-16d NAILS AT EACH END.
- ⑫ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑥, W/8-10d NAILS.
- ⑬ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑥, W/3-10d NAILS.
- ⑭ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). INSTALL ONE (1) AT THE REAR OF THE TRAILER AS SHOWN. ONE (1) ADDITIONAL PIECE REQUIRED FOR EVERY 7'-0" OF STRUT LENGTH. NAIL TO THE POCKET CLEATS, PIECES MARKED ⑧, AND/OR TO THE STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑬, W/2-12d NAILS AT EACH END.

**SPECIAL NOTES:**

**ISOMETRIC VIEW**

1. A 7-UNIT LOAD IS SHOWN IN A 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER WIDTHS CAN BE USED. SEE SPECIAL NOTES 5 AND 6.
2. THE PALLET UNIT SHOWN IS THE DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 37-1/8" HIGH AND WEIGHING APPROXIMATELY 1,322 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE BASIC HEIGHT UNIT DEPICTED ON PAGE 3.
3. WHEN LOADING TRAILERS WHICH ARE WIDER THAN 7'-6", ANTI-SWAY BRACES AND TOP-OF-LOAD ANTI-SWAY BRACES WILL BE POSITIONED BETWEEN LATERALLY ADJACENT BASIC HEIGHT PALLET UNITS IN LIEU OF USING CRIB FILL. FOR THE DECREASED HEIGHT UNIT, ANTI-SWAY BRACES ARE REQUIRED, TOP-OF-LOAD ANTI-SWAY BRACES ARE NOT.
4. THE "K-BRACE" BLOCKING, SHOWN AS PIECES MARKED ④ THRU ⑭, 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. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGES 23 AND 24 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, AND MAY BE USED IN LIEU OF PIECES MARKED ④ THRU ⑭.
6. IF DESIRED, IN TRAILERS EQUIPPED WITH NAILABLE FLOORS, THE NAILED-HEADER METHOD OF REAR BLOCKING MAY BE USED IN LIEU OF THE "K-BRACE" BLOCKING SHOWN AS PIECES MARKED ④ THRU ⑭. REFER TO PAGE 23 FOR GUIDANCE. AS AN ALTERNATIVE IN NAILABLE FLOOR TRAILERS, OR IN TRAILERS HAVING NON-NAILABLE FLOORS, THE TYGARD METHOD DEPICTED ON PAGE 24 MAY BE USED.



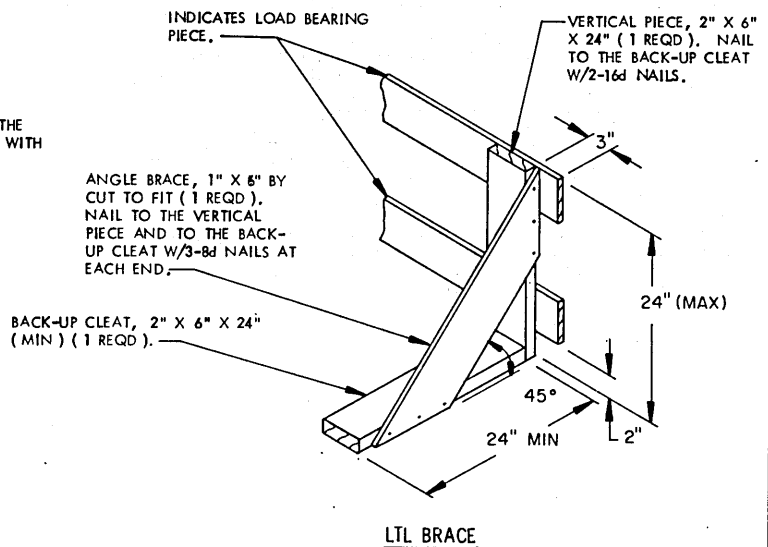
ISOMETRIC VIEW

KEY NUMBERS

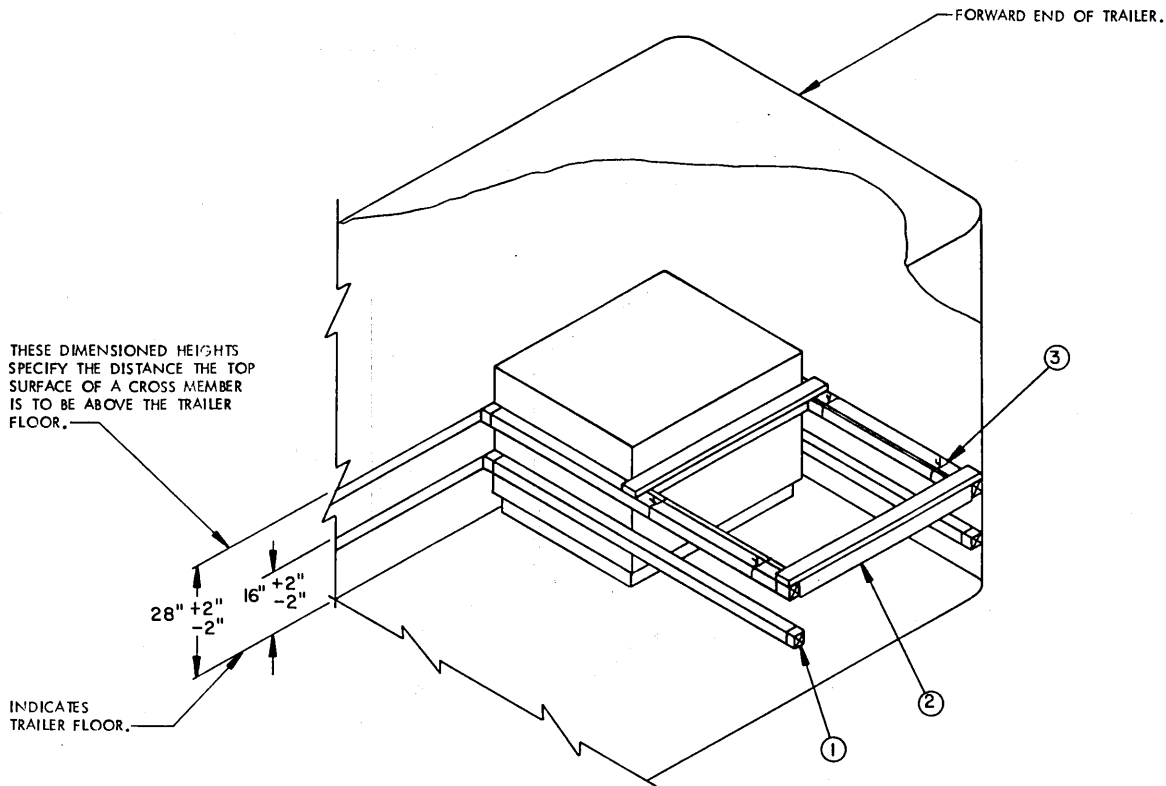
- ① LOAD BEARING PIECE, 1" X 6" X 48" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN "LTL BRACE" DETAIL BELOW. NAIL TO THE VERTICAL PIECES OF THE LTL BRACE W/4-6d NAILS AT EACH JOINT.
- ② LTL BRACE (4 REQD). SEE THE DETAIL BELOW. NAIL EACH LTL BRACE TO TRAILER-FLOOR W/7-10d NAILS. SEE SPECIAL NOTE 4 AT LEFT.
- ③ LOAD BEARING PIECE, 1" X 6" X 36" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN THE DETAIL BELOW. NAIL TO THE VERTICAL PIECES OF THE LTL BRACE W/4-6d NAILS AT EACH JOINT.

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE USE OF LTL BRACE BLOCKING IN A CONVENTIONAL VAN TYPE TRAILER EQUIPPED WITH A NAILABLE FLOOR. TRAILERS WITH ALL METAL FLOORS CANNOT BE USED.
2. THE PALLET UNIT SHOWN IS THE BASIC HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 52-5/8" HIGH AND WEIGHING APPROXIMATELY 1,924 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNIT 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 12, 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 ROWS, WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDEWALLS. ANTI-SWAY BRACES AND TOP-OF-LOAD ANTI-SWAY BRACES, IF APPLICABLE, WILL BE INSTALLED BETWEEN THE LATERALLY ADJACENT UNITS.



LTL BRACE



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 DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 41-3/4" LONG BY 50" WIDE BY 37-1/8" HIGH. THE PROCEDURES ARE ALSO APPLICABLE FOR THE BASIC HEIGHT UNIT DEPICTED ON PAGE 3.
3. THE SPECIFIED CROSS MEMBER LOCATION DIMENSIONS ARE APPLICABLE FOR THE DECREASED HEIGHT PALLET UNITS DEPICTED HEREIN. THE UPPER LEVEL CROSS MEMBER FOR THE BASIC HEIGHT PALLET UNITS SHOULD BE LOCATED AT THE 48" HEIGHT, WITH A PLUS OR MINUS 2" 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 ASSEMBLY AND TIE WIRES SHOWN AS PIECES MARKED ② AND ③. 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, BETWEEN THE TWO PALLETIZED UNITS, AND ALSO A TOP-OF-LOAD ANTI-SWAY BRACE, IF APPLICABLE, FOR THE UNIT BEING SHIPPED.
5. TWO (2) SPACER ASSEMBLIES, PIECE MARKED ②, ARE REQUIRED WHEN LOADING THE BASIC HEIGHT UNITS. WHEN LOADING THE DECREASED HEIGHT UNIT DEPICTED ON PAGE 3, A SPACER ASSEMBLY IS REQUIRED AT ONLY ONE LEVEL AS SHOWN ABOVE.

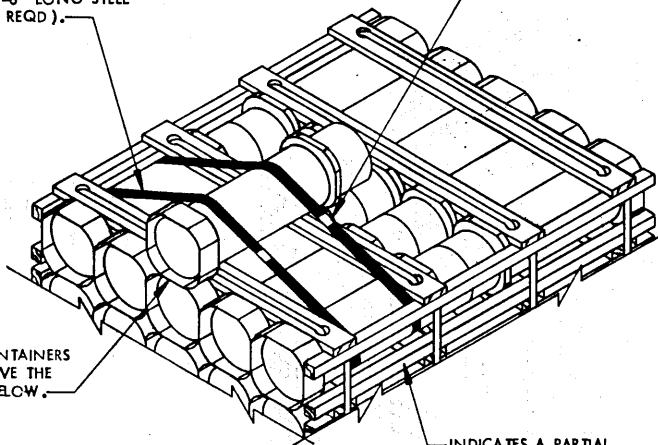
KEY NUMBERS

- 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 SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 20. SEE SPECIAL NOTE 5 AT LEFT.
- ③ TIE WIRE, NO. 14 GAGE WIRE 24" LONG (4 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.

UNITIZING STRAP, 1-1/4" X .031" OR .035" X 8'-6" LONG STEEL STRAPPING (2 REQD).

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

POSITION CONTAINERS DIRECTLY ABOVE THE CONTAINER BELOW.



INDICATES A PARTIAL VIEW OF A FULL PALLET UNIT.

SECUREMENT OF ONE CONTAINER

SPECIAL NOTES:

1. SHIPMENTS OF PROPELLING CHARGES 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 16.
2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND CONUS 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 CARRIER.
3. THE PROCEDURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SECUREMENT OF LEFTOVER CONTAINERS FOR SHIPMENT. THE VIEW AT TOP LEFT DEPICTS ONE LEFTOVER CONTAINER SECURED TO A FULL-HEIGHT PALLET UNIT. THE VIEWS BELOW DEPICT FOUR OR SIX LEFTOVER CONTAINERS SECURED TO A FULL-HEIGHT PALLET UNIT. WHEN THREE THRU FIVE LEFTOVER CONTAINERS ARE POSITIONED SIDE BY SIDE, STRAPPING BOARDS WILL BE NEEDED. LEFTOVER CONTAINERS MUST BE SECURED WITH A MINIMUM OF TWO (2) PIECES OF STEEL STRAPPING. NOTE THAT THE UNITIZING STRAPS MUST BE THREADED BEHIND THE 2" X 2" PIECES OF THE INTERMEDIATE AND TOP DUNNAGE ASSEMBLIES.
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.

UNITIZING STRAP, 1-1/4" X .031" OR .035" X 9'-8" LONG STEEL STRAPPING (4 REQD).

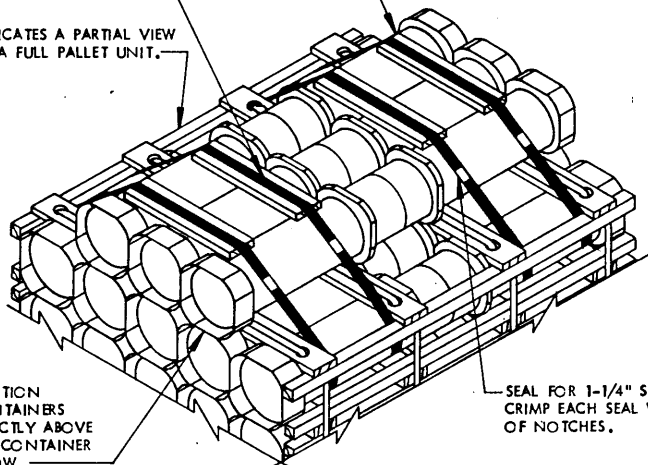
POSITION CONTAINERS DIRECTLY ABOVE THE CONTAINER BELOW.

INDICATES A PARTIAL VIEW OF A FULL PALLET UNIT.

STRAPPING BOARD, 1" X 4" X 16" (4 REQD). SEE SPECIAL NOTE 3.

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

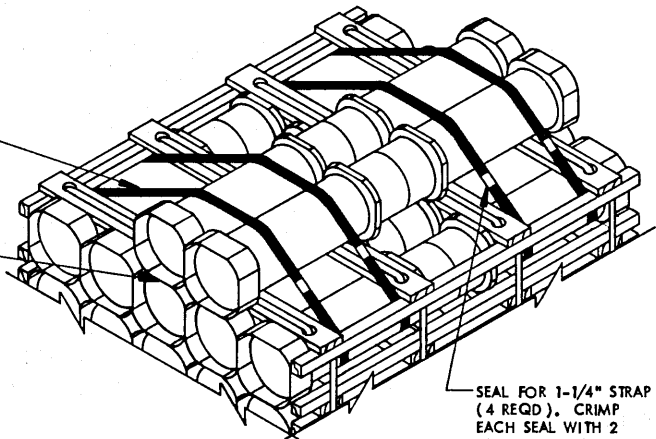
INDICATES A PARTIAL VIEW OF A FULL PALLET UNIT.



POSITION CONTAINERS DIRECTLY ABOVE THE CONTAINER BELOW.

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

SECUREMENT OF SIX CONTAINERS



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

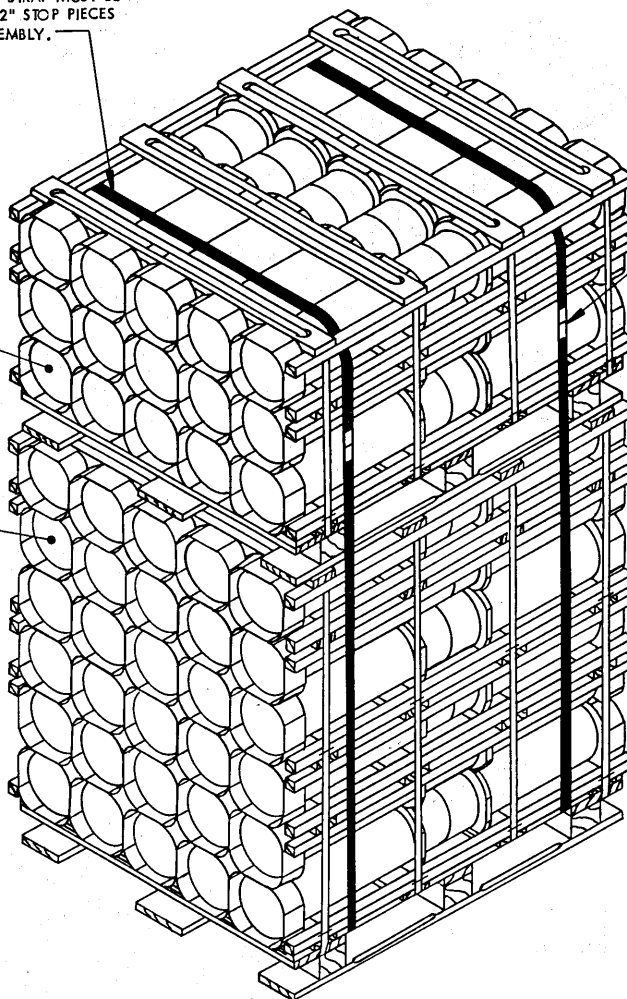
SECUREMENT OF FOUR CONTAINERS

VERTICAL UNITIZING STRAP, 1-1/4" X .031" OR .035" BY A LENGTH TO SUIT STEEL STRAPPING (2 REQD). NOTE THAT THE STRAP MUST BE THREADED BEHIND THE 2" X 2" STOP PIECES ON THE TOP DUNNAGE ASSEMBLY.

INDICATES A TYPICAL 3-LAYER PARTIAL PALLETIZED UNIT.

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

SEAL FOR 1-1/4" STEEL STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.



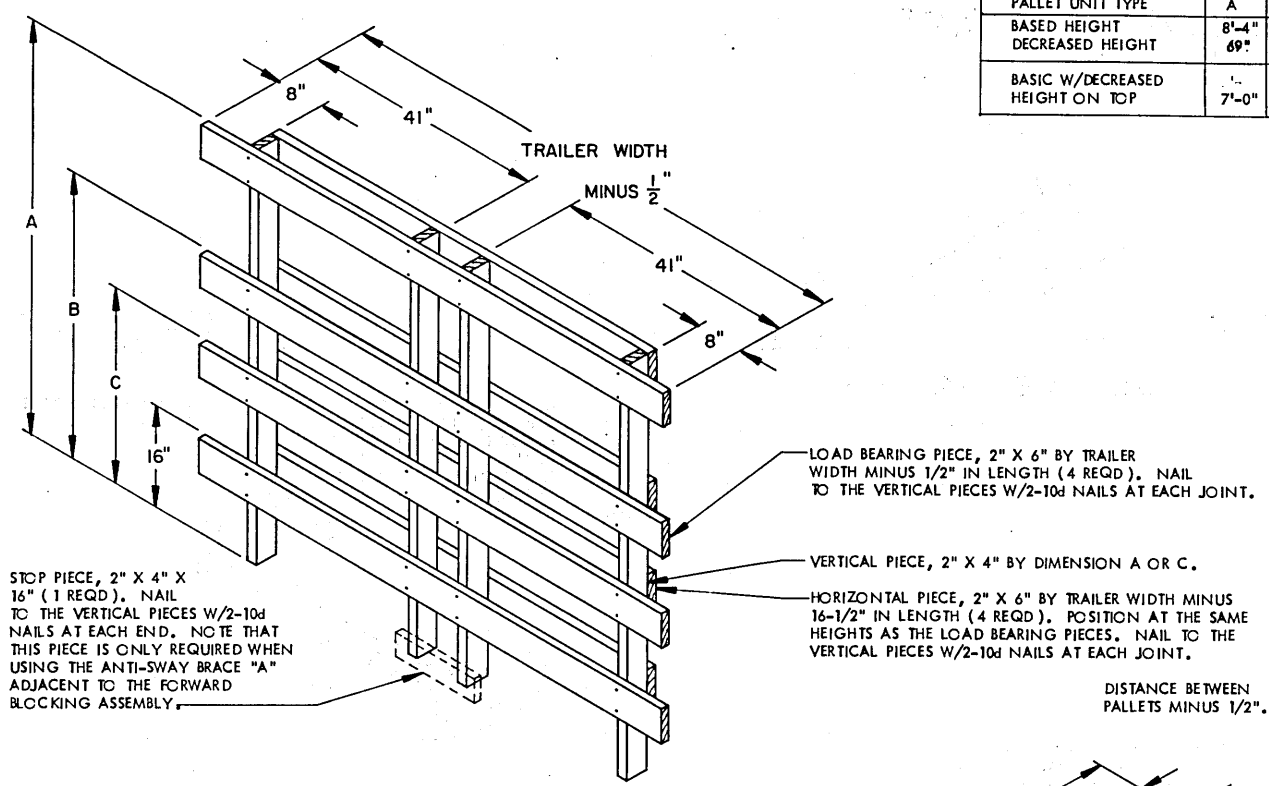
SECUREMENT OF A PARTIAL PALLET UNIT POSITIONED ON A FULL HEIGHT PALLET UNIT

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. THE PROCEDURES ON THIS PAGE AND ON PAGE 15 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 TRAILERS EQUIPPED WITH MECHANICAL BRACING DEVICES.
4. FOR SHIPMENT OF ONE THROUGH NINE "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 15 OF THIS DRAWING.

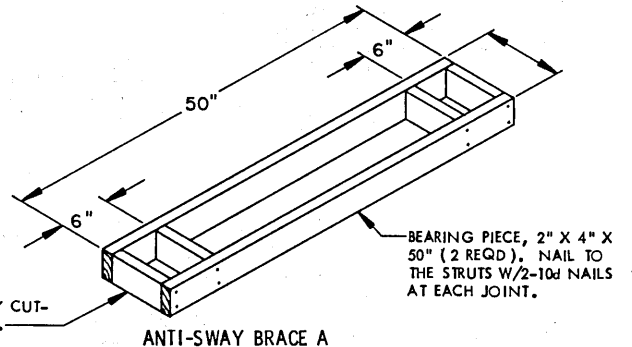


| FORWARD BLOCKING CHART          |       |     |     |
|---------------------------------|-------|-----|-----|
| PALLET UNIT TYPE                | A     | B   | C   |
| BASED HEIGHT                    | 8'-4" | 69" | 47" |
| DECREASED HEIGHT                | 69"   | 47" | 32" |
| BASIC W/DECREASED HEIGHT ON TOP | 7'-0" | 69" | 47" |

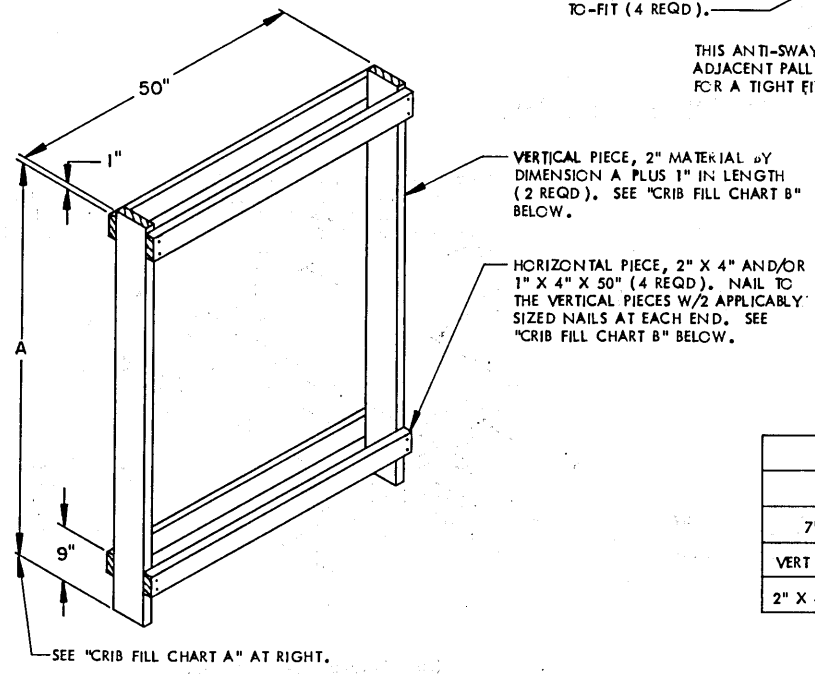


**FORWARD BLOCKING ASSEMBLY**

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 25 FOR GUIDANCE.



THIS ANTI-SWAY BRACE 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.



**CRIB FILL**

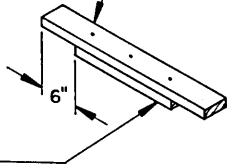
| CRIB FILL CHART A               |             |        |
|---------------------------------|-------------|--------|
| PALLET UNIT TYPE                | DIMENSION A |        |
|                                 | 1-HIGH      | 2-HIGH |
| BASIC HEIGHT                    | 31"         | 83"    |
| DECREASED HEIGHT                | 23"         | 60"    |
| BASIC W/DECREASED HEIGHT ON TOP | ---         | 6'-4"  |

| CRIB FILL CHART B |         |         |         |         |         |           |         |
|-------------------|---------|---------|---------|---------|---------|-----------|---------|
| TRAILER WIDTH     |         |         |         |         |         |           |         |
| 7'-6"             |         | 7'-7"   |         | 7'-8"   |         | 7'-8-1/2" |         |
| VERT              | HORIZ   | VERT    | HORIZ   | VERT    | HORIZ   | VERT      | HORIZ   |
| 2" X 4"           | 1" & 2" | 2" X 6" | 1" & 1" | 2" X 6" | 2" & 1" | 2" X 6"   | 2" & 2" |

**DETAILS**

SUPPORT PIECE, 2" X 4" BY A LENGTH TO EXTEND PAST SPACER PIECE 6" AT EACH END (1 REQD). NAIL TO SPACER PIECE W/3-10d NAILS.

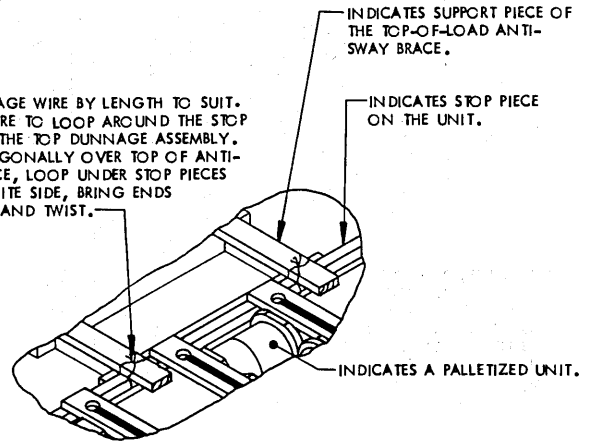
SPACER PIECE, 2" X 4" BY A LENGTH TO SUIT. REF: VOID BETWEEN UNITS MINUS 1/2" (1 REQD).



END VIEW

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

NO. 14 GAGE WIRE BY LENGTH TO SUIT. EXTEND WIRE TO LOOP AROUND THE STOP PIECE ON THE TOP DUNNAGE ASSEMBLY. CROSS DIAGONALLY OVER TOP OF ANTI-SWAY BRACE, LOOP UNDER STOP PIECES ON OPPOSITE SIDE, BRING ENDS TOGETHER AND TWIST.



INDICATES SUPPORT PIECE OF THE TOP-OF-LOAD ANTI-SWAY BRACE.

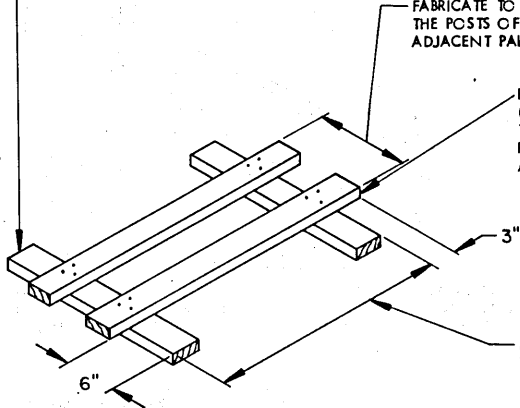
INDICATES STOP PIECE ON THE UNIT.

INDICATES A PALLETIZED UNIT.

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

FABRICATE TO FIT BETWEEN THE POSTS OF LATERALLY ADJACENT PALLETS.

BUFFER PIECE, 2" X 4" X 39" (2 REQD). POSITION AGAINST THE PALLET AND NAIL TO THE RETAINER PIECES W/3-10d NAILS AT EACH JOINT.



FABRICATE TO FIT AGAINST THE PALLET POSTS (REF: 33").

**ANTI-SWAY BRACE B**

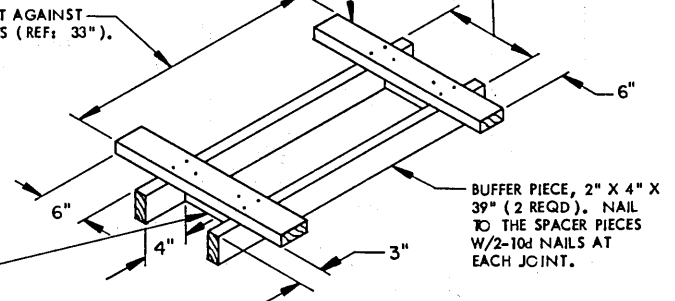
IF DESIRED, THE ANTI-SWAY BRACE CAN BE PARTIALLY PRE-ASSEMBLED; ONE BUFFER PIECE CAN BE NAILED TO BOTH RETAINER PIECES. THE LONG ENDS OF THE ASSEMBLY CAN BE INSTALLED INTO THE FORKLIFT OPENING OF A LOADED PALLET PRIOR TO POSITIONING THE LATERALLY ADJACENT PALLET.

SUPPORT PIECE, 2" X 4" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE SPACER PIECES W/3-10d NAILS AND TO THE BUFFER PIECES W/2-10d NAILS AT EACH JOINT.

VOID BETWEEN PALLET UNITS MINUS 1/2".

FABRICATE TO FIT AGAINST THE PALLET POSTS (REF: 33").

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

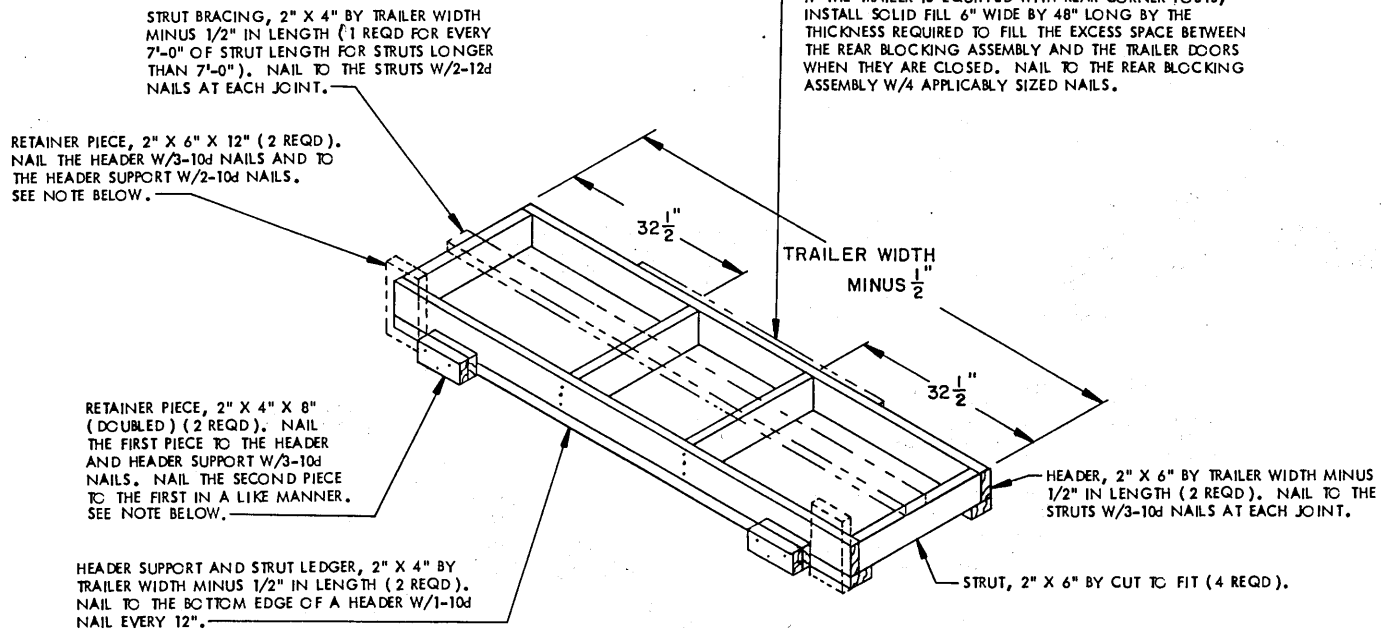


BUFFER PIECE, 2" X 4" X 39" (2 REQD). NAIL TO THE SPACER PIECES W/2-10d NAILS AT EACH JOINT.

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

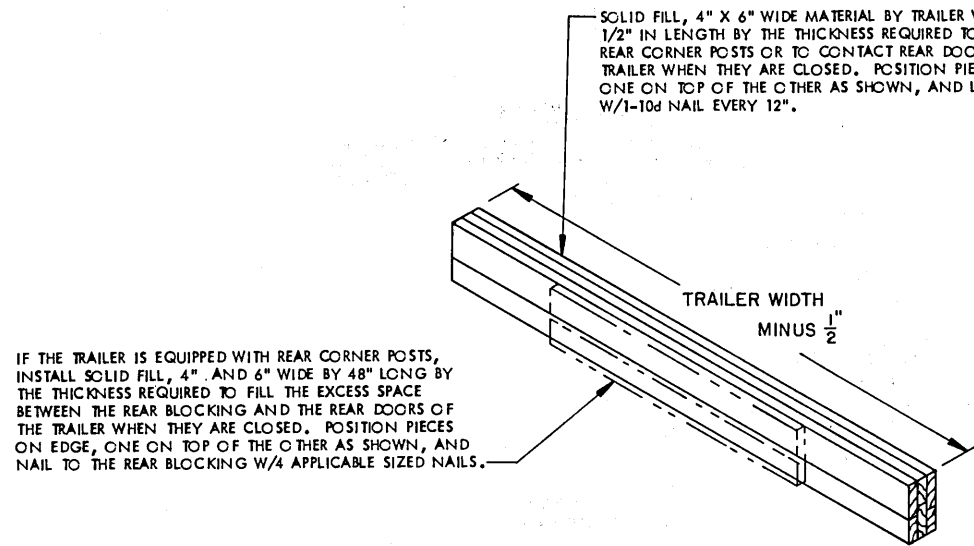
THIS ASSEMBLY IS DESIGNED FOR THE LATERAL BRACING OF A PALLET UNIT IN THE SECOND LAYER WHEN THERE IS NOT A PALLET UNIT DIRECTLY OPPOSITE IT AND TOP-OF-LOAD ANTI-SWAY BRACING IS REQUIRED.

DETAILS



**REAR BLOCKING ASSEMBLY A**

THIS ASSEMBLY IS FOR USE AT THE REAR OF THE LOAD 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. NOTE THAT THE DOUBLED 2" X 4" RETAINER PIECES WILL BE USED IF THE REAR LOAD UNIT IS 1-HIGH; THE DOTTED 2" X 6" RETAINER PIECES WILL BE USED IF THE REAR LOAD UNIT IS STACKED.

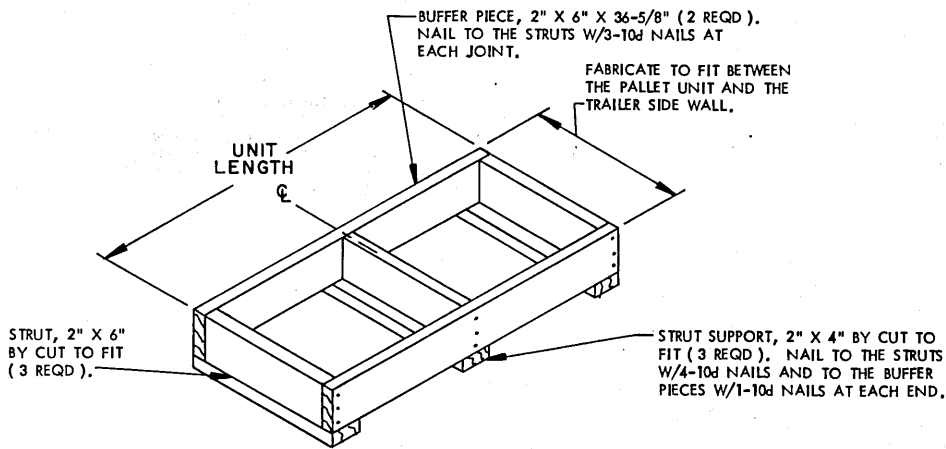


**NOTE ● :**

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

**REAR BLOCKING ASSEMBLY B**

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 ● " ABOVE.

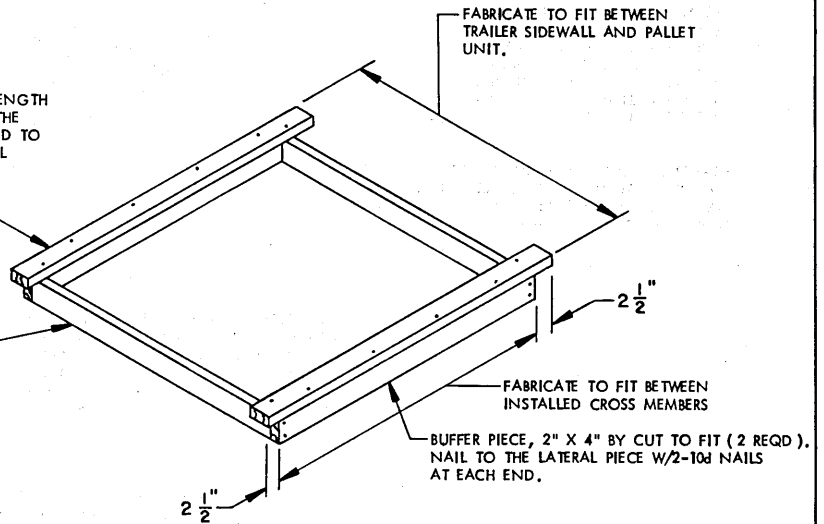


**SIDE BLOCKING ASSEMBLY**

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING IN THE TYPICAL LTL LOAD SHOWN ON PAGE 12.

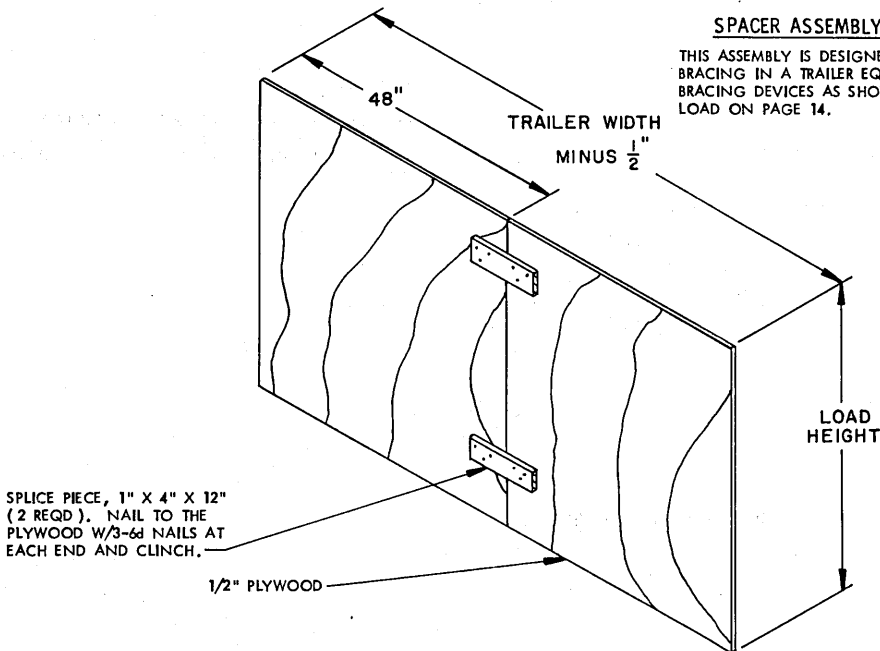
SUPPORT PIECE, 2" X 4" BY A LENGTH TO SUIT (2 REQD). NAIL TO THE BUFFER PIECE W/4-10d NAILS AND TO THE LATERAL PIECE W/1-10d NAIL AT EACH JOINT.

LATERAL PIECE, 2" X 4" BY CUT TO FIT (2 REQD).



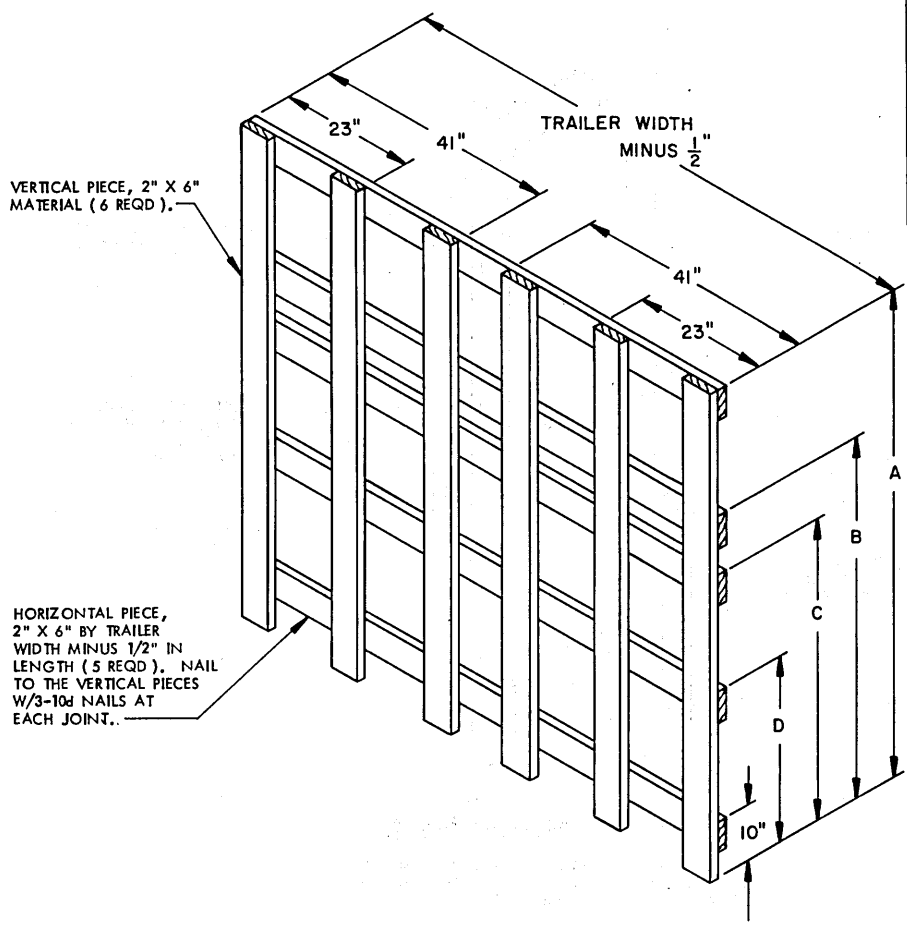
**SPACER ASSEMBLY A**

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 14.



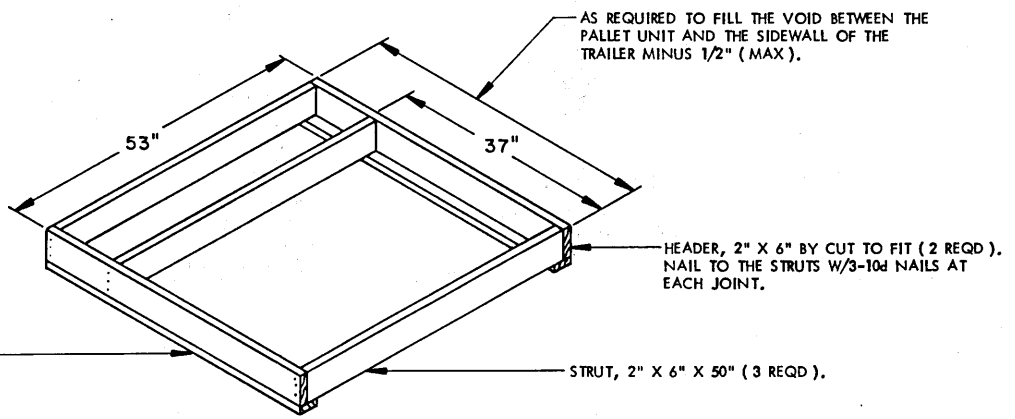
**LOAD BEARING GATE**

| BULKHEAD GATE CHART                 |            |     |     |     |
|-------------------------------------|------------|-----|-----|-----|
| PALLET UNIT TYPE                    | DIMENSIONS |     |     |     |
|                                     | A          | B   | C   | D   |
| BASIC HEIGHT                        | 7'-0"      | 62" | 52" | 32" |
| DECREASED HEIGHT                    | 5'-9"      | 47" | 37" | 24" |
| BASIC HT W/DECREASED HT UNIT ON TOP | 7'-0"      | 62" | 52" | 32" |



**BULKHEAD GATE**

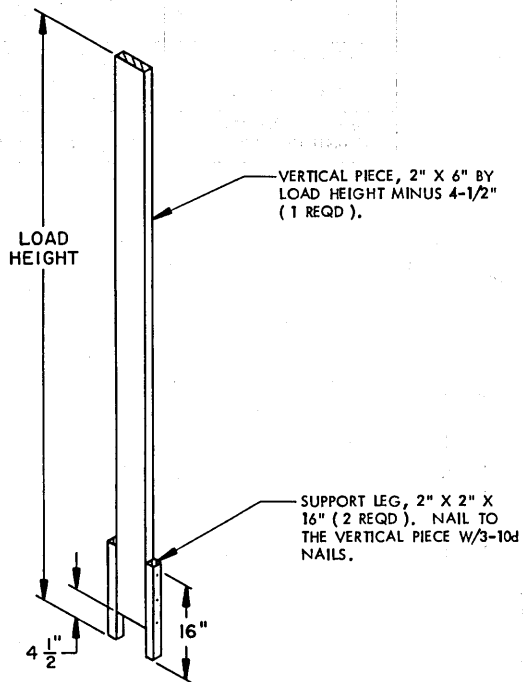
THIS GATE IS DESIGNED FOR USE IN THE ALTERNATIVE LOADING PROCEDURE LOAD ON PAGE 10.



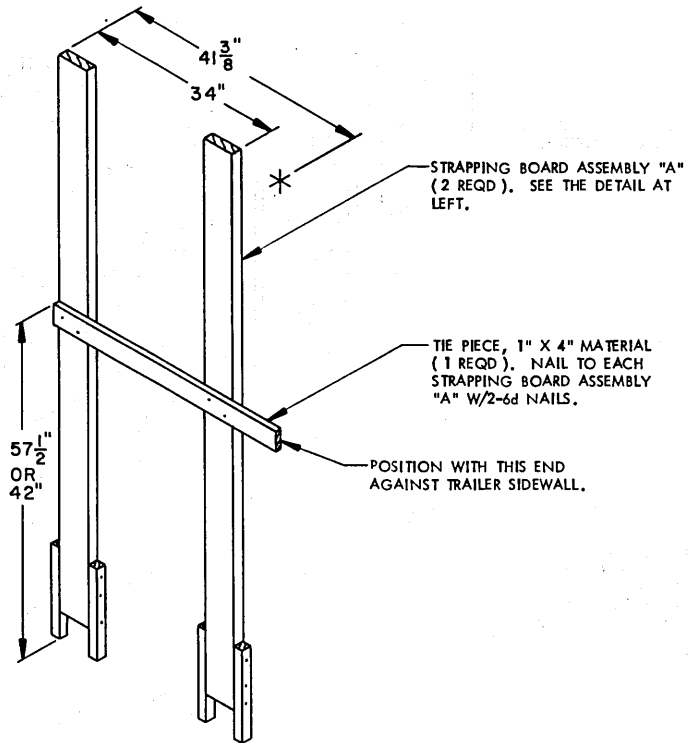
**SPACER ASSEMBLY B**

THIS ASSEMBLY IS DESIGNED FOR USE IN PLACE OF AN OMITTED PALLET UNIT, AS USED IN THE LOAD ON PAGE 10.

**DETAILS**

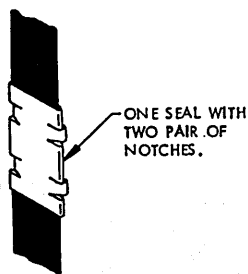


STRAPPING BOARD ASSEMBLY A



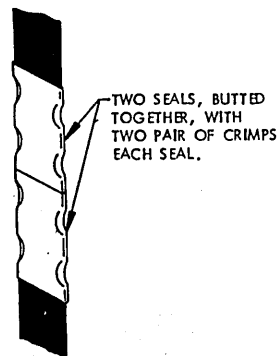
STRAPPING BOARD ASSEMBLY B

RIGHT HAND AND LEFT HAND ASSEMBLIES ARE REQUIRED. THIS ASSEMBLY IS AN ALTERNATIVE FOR A PAIR OF STRAPPING BOARD ASSEMBLIES "A".



STRAP JOINT A

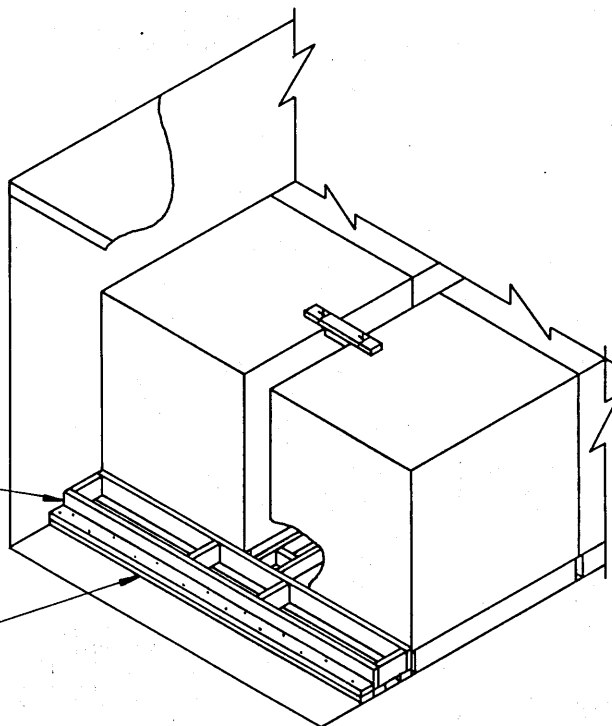
METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.



STRAP JOINT B

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

DETAILS



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/15-10P NAILS ( 1 EVERY 6" ). NAIL  
THE SECOND PIECE TO THE FIRST IN A  
LIKE MANNER AND TOENAIL TO THE  
REAR BLOCKING ASSEMBLY W/4-10P NAILS.

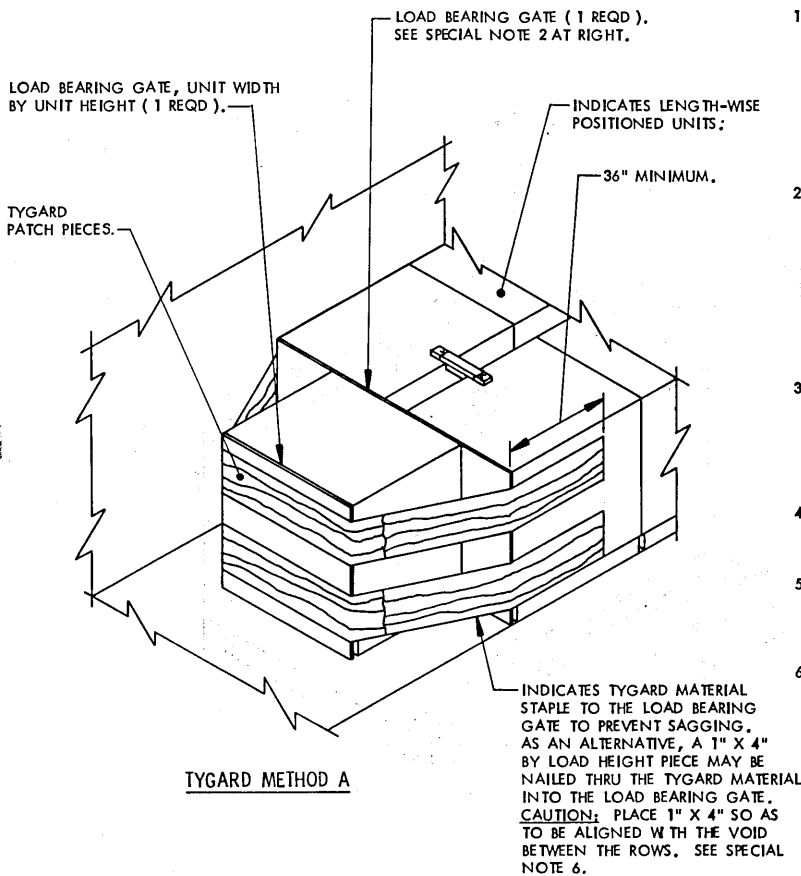
NAILED-HEADER METHOD

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, ALTHOUGH DESIGNED ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.
4. THE NAILED-HEADER METHOD OF REAR BLOCKING IS ADEQUATE FOR THE RETENTION OF THE MAXIMUM WEIGHT LOAD.

**SPECIAL NOTES:**

1. THE TYGARD METHOD OF REAR BLOCKING 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. TYGARD MATERIAL MUST BE INSTALLED AT TWO LEVELS FOR EACH LAYER OF THE REAR LOAD UNIT. WHEN SHIPPING THE BASIC HEIGHT UNIT; ONLY ONE LEVEL OF TYGARD MATERIAL IS REQUIRED WHEN SHIPPING THE DECREASED HEIGHT UNIT DEPICTED ON PAGE 3. THE SINGLE LEVEL OF TYGARD MATERIAL SHOULD BE ALIGNED WITH THE UPPER PORTION OF A LAYER.
2. A 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. IF THE REAR LOAD UNIT IS 1-WIDE ROTATE THE PALLET, INSTALL ONE (1) UNIT WIDTH GATE, AND ONE (1) TRAILER WIDTH MINUS 1/2" IN LENGTH GATE, AS SHOWN BY THE TYGARD METHOD "A" DETAIL AT LEFT. A LOAD HEIGHT GATE CONSTRUCTED SIMILAR TO THE "LOAD BEARING GATE" DETAILED ON PAGE 20 WILL BE USED WHEN THE REAR LOAD UNIT IS STACKED.
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, PO BOX "E", BENSALAM, PA 19020-0860, 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. IF A SHIPMENT CONTAINS AN ODD NUMBER OF PALLET UNITS, THE ODD UNIT MUST BE TURNED 90° AND CENTERED ACROSS THE WIDTH OF THE TRAILER AS SHOWN IN THE LOAD ON PAGE 16, AND AS SHOWN BY THE TYGARD METHOD "A" DETAIL AT LEFT. 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 SIDEWALL ON EACH SIDE OF THE LOAD.



**TYGARD METHOD A**

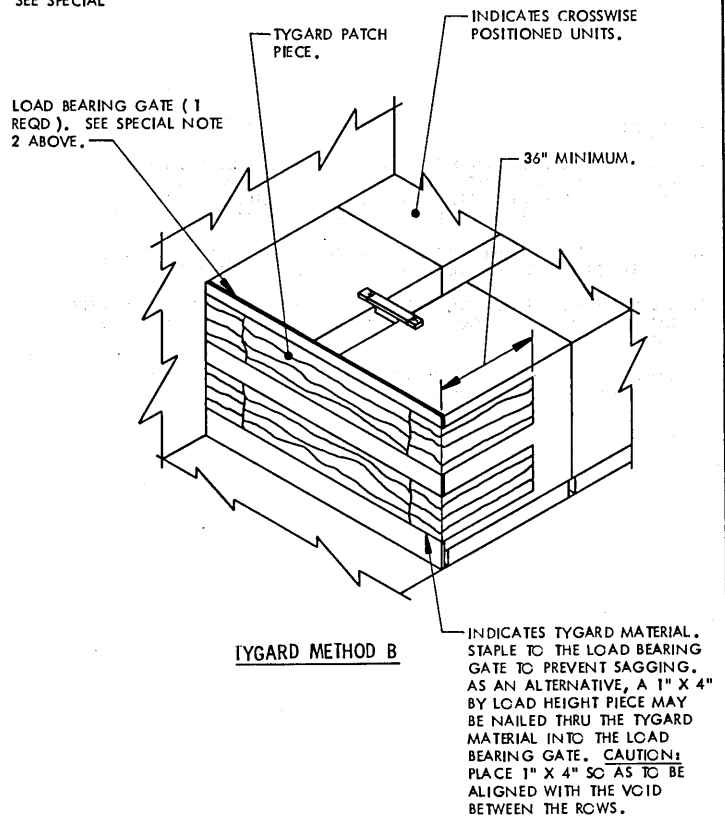
**RECOMMENDED EQUIPMENT/INSTALLATION PROCEDURES**

**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 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, AS APPLICABLE.
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.

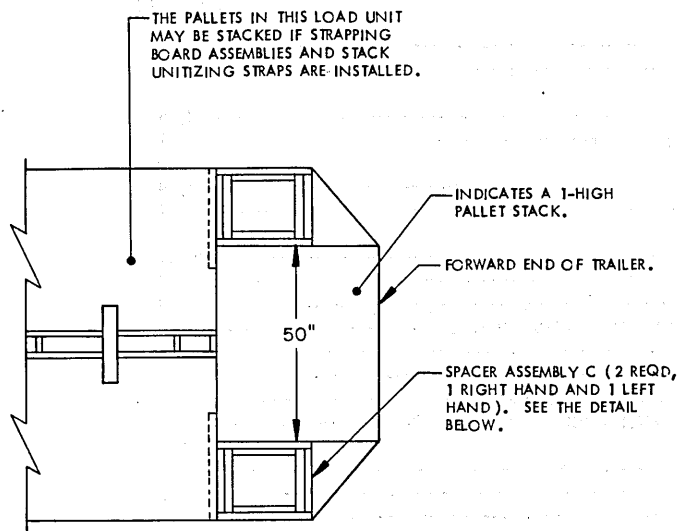


**TYGARD METHOD B**

**TYGARD METHOD**

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

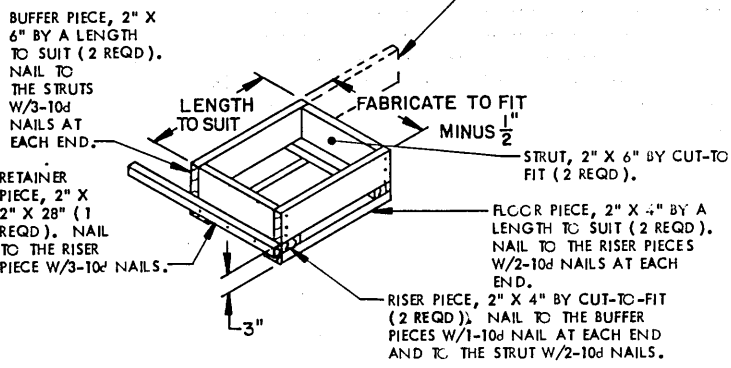




**ALTERNATIVE FORWARD LOADING PATTERN A**

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. THE BASIC HEIGHT UNIT IS SHOWN. THE PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT UNIT DEPICTED ON PAGE 3.

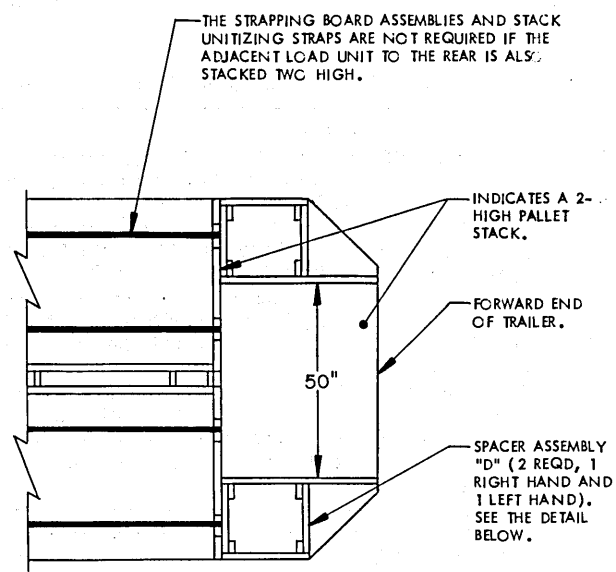
IF THE LONGITUDINALLY ADJACENT LOAD UNIT IS STACKED AND SECURED WITH STRAPPING AND STRAPPING BOARD ASSEMBLIES, THIS BUFFER PIECE MUST BE EXTENDED TO WITHIN 1/2" OF THE FRONT WALL OF THE TRAILER IN LIEU OF USING THE RETAINER PIECE.



**SPACER ASSEMBLY C**

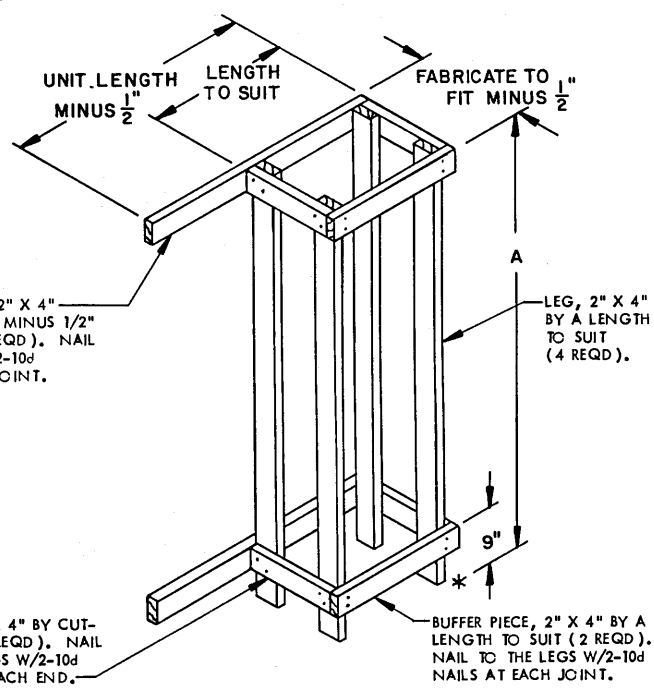
THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A SINGLE PALLET UNIT WHICH IS TURNED 90° FROM THE NORMAL LOADING ORIENTATION AND POSITIONED IN THE FRONT OF AN ANGLED-CORNER CONVENTIONAL VAN TRAILER AS SHOWN IN THE "ALTERNATIVE FORWARD LOADING PATTERN A" VIEW ABOVE. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES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

| SPACER ASSEMBLY D CHART  |       |
|--------------------------|-------|
| PALLET UNIT TYPE         | DIM A |
| BASIC HEIGHT             | 6'-4" |
| DECREASED HEIGHT         | 60"   |
| BASIC W/DECREASED ON TOP | 6'-4" |



**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 MUST BE INSTALLED AROUND THOSE PALLET UNITS IN THE FRONT STACK. THE BASIC HEIGHT UNIT IS SHOWN. THE PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT UNIT DEPICTED ON PAGE 3.



**SPACER ASSEMBLY D**

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.

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