

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

PA 99 SERIES CONTAINERS

ITEM	INDEX	PAGE (S)
GENERAL NOTES, AND MATERIAL SPECIFICATIONS-----		2
PALLET UNIT DETAILS-----		3
TYPICAL FULL LOAD PROCEDURES-----		4-17
TYPICAL LTL PROCEDURES-----		18-21
PROCEDURES FOR SHIPMENT OF A PARTIAL PALLET UNIT-----		22
PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS-----		23
DETAILS-----		24-30
PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS-----		31,32
PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH LARGE-ANGLED FRONT CORNERS-----		33
ITEMIZED INDEX-----		34

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 DMM/ dh	PROJ. ENG. PB/WRE
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GENERAL NOTES

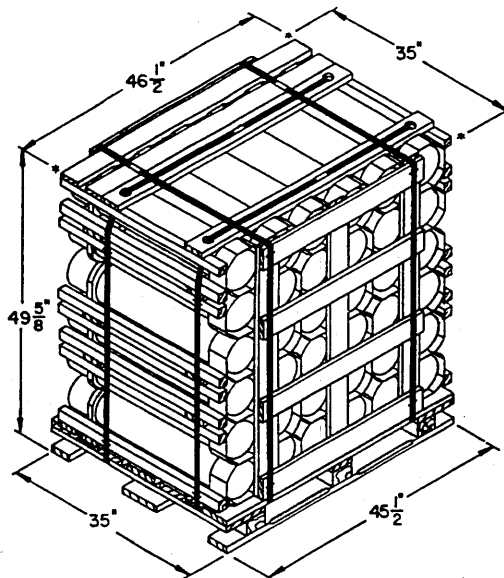
(GENERAL NOTES CONTINUED)

- 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 PA99 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/20-20PM1001 FOR UNITIZATION PROCEDURES FOR THE PA99 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 33'), 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 213, 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 22. FOR "SHIPMENT OF LEFTOVER CONTAINERS", SEE THE DETAILS AND SPECIAL NOTES ON PAGE 23.
- 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 30 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 SENCOC 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 0.453KG.
- 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. CARE MUST BE EXERCISED WHEN SHIPPING MIXED HEIGHT UNITS IN TRAILERS 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

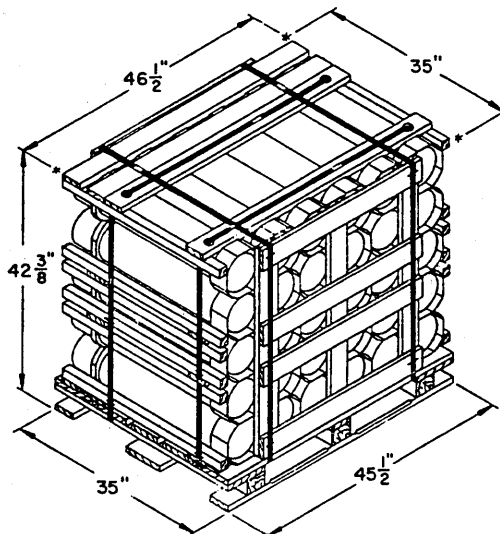
- LUMBER** -----: SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS** -----: COMMON, FED SPEC FF-N-105.
- STRAPPING, STEEL** -----: FED SPEC QQ-S-781; CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP** -----: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OF IV, CLASS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



PALLET UNIT (BASIC HEIGHT)

CONTAINER ----- 36 EACH @ 43 LBS (APPROX)
 CUBE ----- 46.7 CUBIC FEET (APPROX)
 GROSS WEIGHT ----- 1,715 LBS (APPROX)

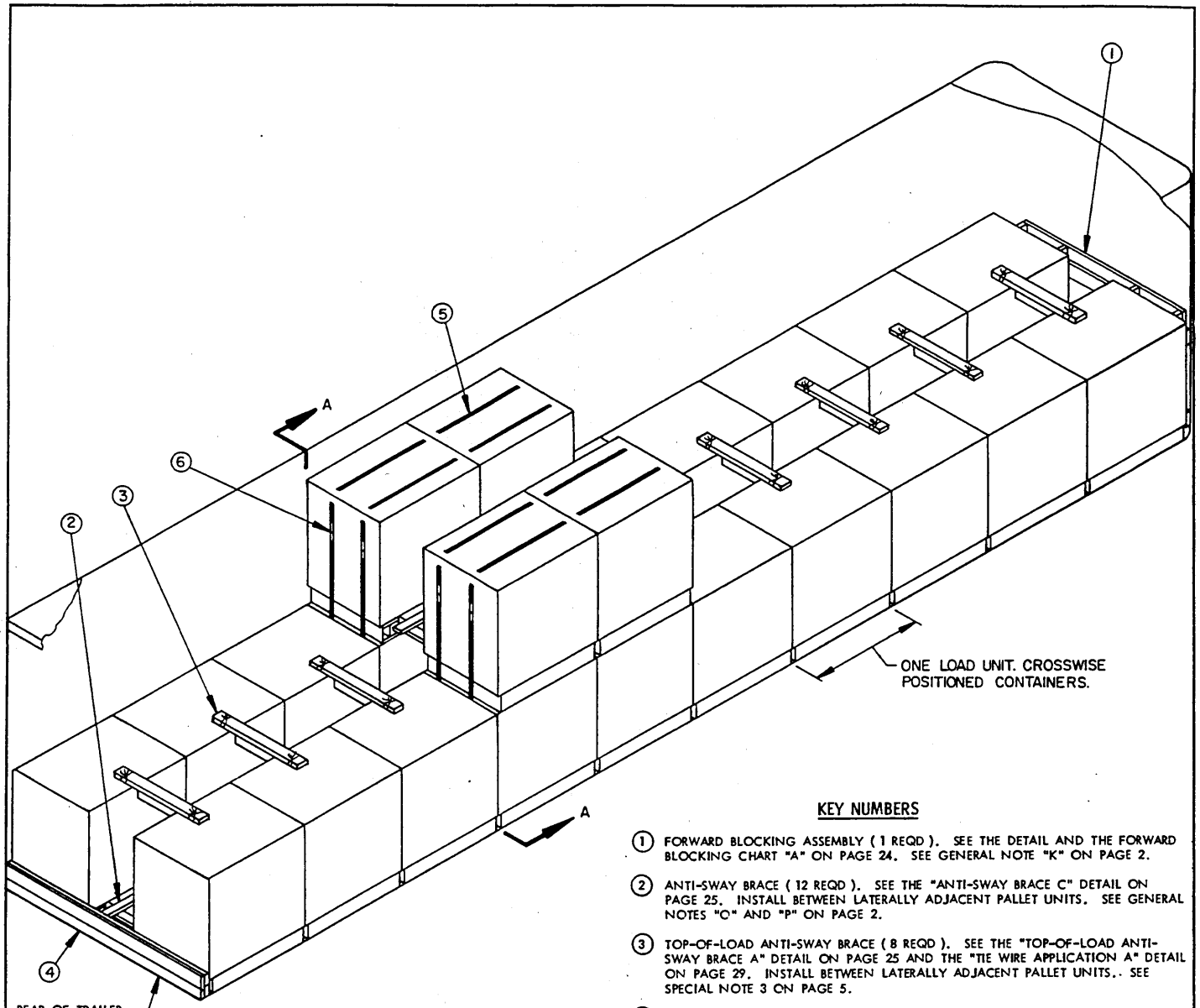
REFER TO PAGES 4 THRU 9 AND PAGES 16 AND 17 FOR OUTLOADING PROCEDURES.



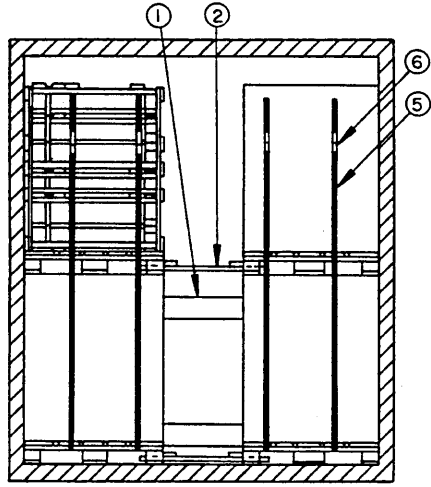
PALLET UNIT (DECREASED HEIGHT)

CONTAINER ----- 30 EACH @ 43 LBS (APPROX)
 CUBE ----- 39.9 CUBIC FEET (APPROX)
 GROSS WEIGHT ----- 1,442 LBS (APPROX)

REFER TO PAGES 10 THRU 17 FOR OUTLOADING PROCEDURES.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "A" ON PAGE 24. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (12 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 25 AND THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 29. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 5.
- ④ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 27. SEE SPECIAL NOTE 4 ON PAGE 5.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031 X 25'-0" LONG STEEL STRAPPING (8 REQD). THREAD STRAP THRU HOLES ON TOP DUNNAGE ASSEMBLY; INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑥ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

PALLET UNIT (BASIC HEIGHT)

24-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME VAN TYPE TRAILER

SPECIAL NOTES:

1. A 24-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 FOR SHIPMENT OF THE DEPICTED LOAD. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 8'-6" IT WILL BE NECESSARY TO LIMIT THE REAR MOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT. IF A TRAILER WHICH IS 8'-2" OR WIDER IS FURNISHED FOR LOADING, THE LOADING PATTERN DEPICTED ON PAGE 6 MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 4.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 4 IS THE BASIC HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 49-5/8" HIGH AND WEIGHING APPROXIMATELY 1,715 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. IF THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS MORE THAN 9", A STRUT TYPE OF REAR BLOCKING MUST BE USED. SEE THE "REAR BLOCKING ASSEMBLY C" DETAIL ON PAGE 27. IF THE SPACE IS LESS THAN 1-1/2" REAR BLOCKING IS NOT REQUIRED. SEE SPECIAL NOTE 11.
5. THE STACK UNITIZING STRAPS, PIECES MARKED ⑥ IN THE LOAD ON PAGE 4, 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. SEE SPECIAL NOTE 7.
6. 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 LONGITUDINAL BRACING BY INSTALLING UNITIZING STRAPS, PIECE MARKED ⑤. PROVIDE LATERAL BRACING BY INSTALLING A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 25 AND SHOWN AS PIECE MARKED ④ ON PAGE 10. WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 29.
7. IF A STACK AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS MUST BE INSTALLED SO AS TO ENCIRCLE THE REAR MOST TWO (2) STACKS IN EACH APPLICABLE ROW. SEE PIECE MARKED ⑦ ON PAGE 10 FOR A TYPICAL INSTALLATION.
8. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
10. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 THRU 20.
11. 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 31 AND 32 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 31 AND THE TYGARD METHOD IS SHOWN ON PAGE 32. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

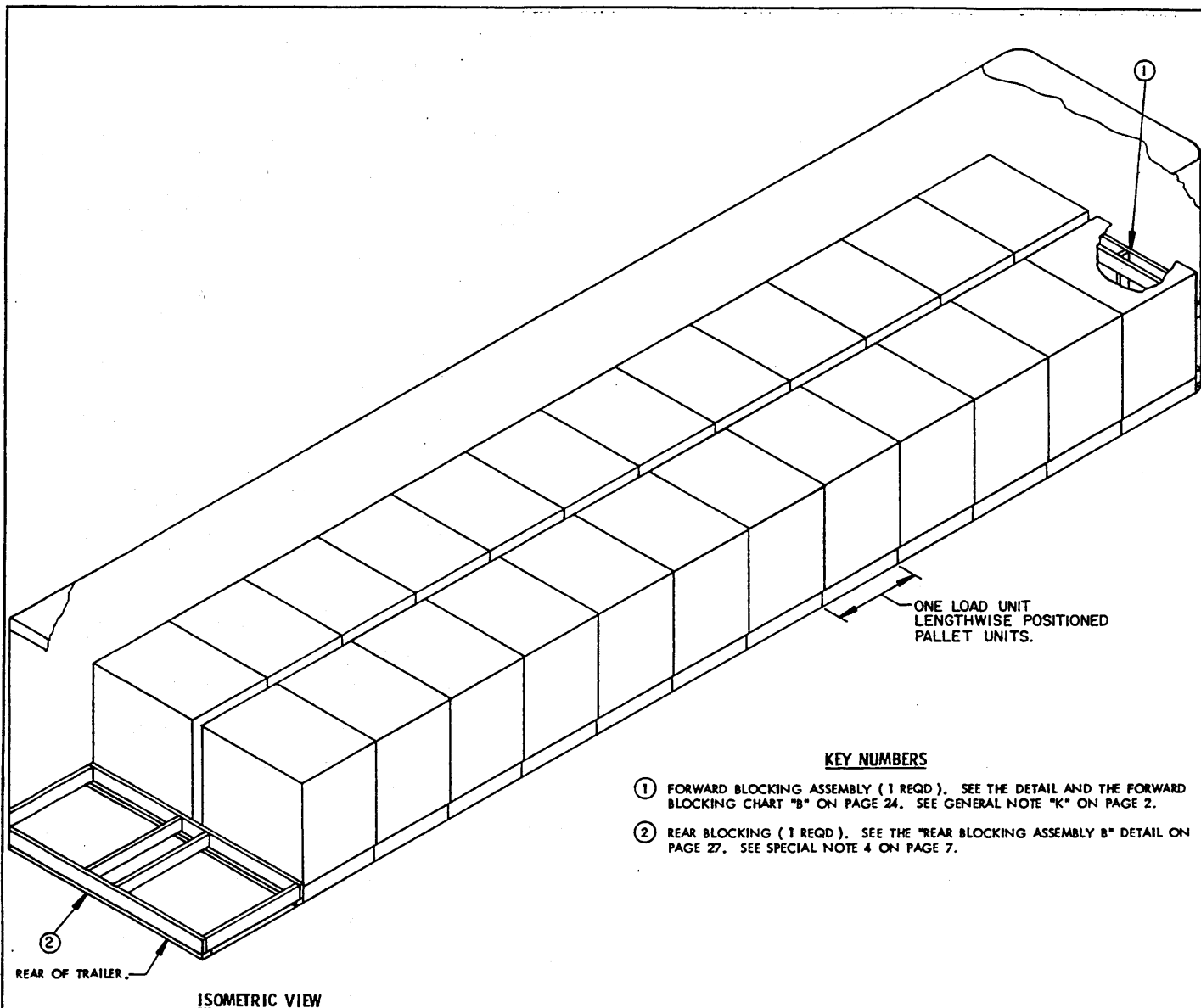
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	8	3
1" X 6"	8	4
2" X 4"	203	136
2" X 6"	36	36
NAILS	NO. REQD	POUNDS
6d (2")	14	NIL
10d (3")	220	3-1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031" 200' REQD ----- 29 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 16 REQD ----- NIL		
WIRE, NO. 14 GAGE ----- 35' REQD ----- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	24	41,160 LBS
DUNNAGE		391 LBS
TOTAL WEIGHT		41,551 LBS

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



SPECIAL NOTES:

1. A 24-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. NARROWER TRAILERS MAY BE USED. HOWEVER, IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 8'-6" IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 6 IS THE BASIC HEIGHT UNIT, HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 49-5/8" HIGH AND WEIGHING APPROXIMATELY 1,715 POUNDS.
3. NOTE THAT TWO (2) MORE PALLET UNITS CAN BE LOADED AT THE REAR OF THE TRAILER PROVIDING THE WEIGHT LIMITATION IS NOT EXCEEDED. IF PALLET UNITS ARE TO BE LOADED IN THE SECOND LAYER, REFER TO THE LOAD VIEW ON PAGE 12, AND SPECIAL NOTES 4 THRU 6 ON PAGE 13 FOR UNITIZATION AND BRACING PROCEDURES.
4. IF THE SPACE 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 SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2", BUT LESS THAN 9", USE REAR BLOCKING ASSEMBLY "A" DETAILED ON PAGE 27. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, REAR BLOCKING ASSEMBLY "B" WILL BE USED AS SHOWN.
5. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
6. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
7. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 THRU 20.
8. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGES 31 AND 32 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 31 AND THE TYGARD METHOD IS SHOWN ON PAGE 32. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

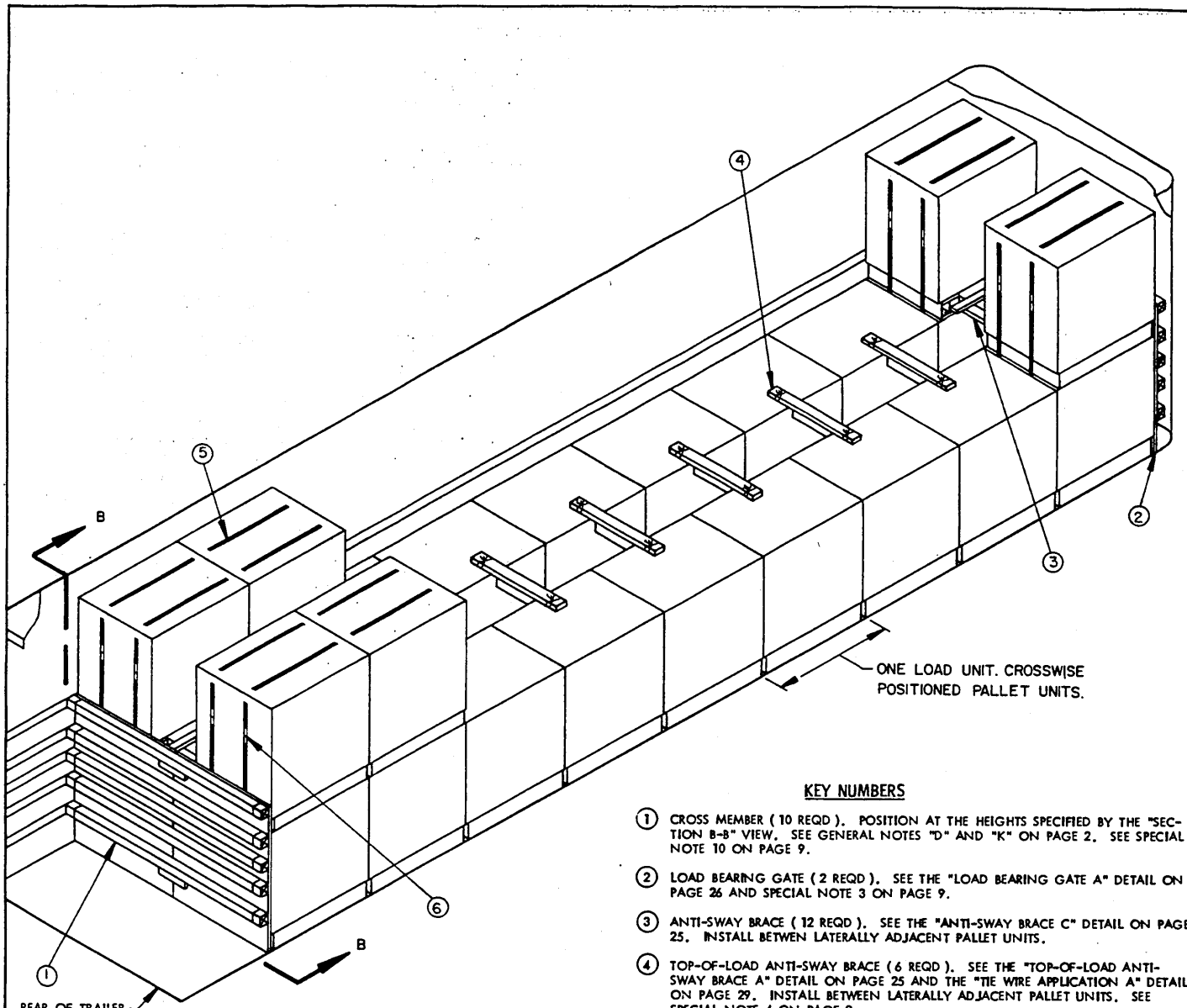
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	4	2
2" X 4"	29	19
2" X 6"	61	61
NAILS	NO. REQD	POUNDS
10d (3")	82	1-1/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	24	41,160 LBS
DUNNAGE		166 LBS
TOTAL WEIGHT		41,326 LBS

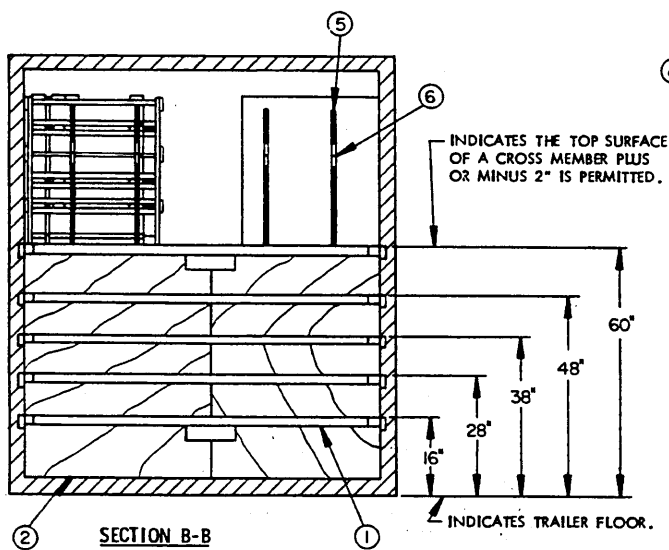
**PALLET UNIT (BASIC HEIGHT)
24-UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE VAN TYPE TRAILER**



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 9.
- ② LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 26 AND SPECIAL NOTE 3 ON PAGE 9.
- ③ ANTI-SWAY BRACE (12 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 25. 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 25 AND THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 29. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 9.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-0" LONG STEEL STRAPPING (12 REQD). THREAD THRU HOLES ON TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNITS. INSTALL TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 5 ON PAGE 9.
- ⑥ SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION B-B

PALLET UNIT (BASIC HEIGHT)

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

SPECIAL NOTES:

1. A 24-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 8 IS THE BASIC HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 49-5/8" HIGH AND WEIGHING APPROXIMATELY 1,715 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 "A" DETAIL ON PAGE 26.
4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (4) IN THE LOAD ON PAGE 8, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT 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. A STACK UNITIZING STRAP, 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 21 MAY BE USED, OR THE TOP-OF-LOAD ANTI-SWAY BRACE "B" AND STACK UNITIZING STRAPS AS SHOWN ON PAGE 14 MAY BE USED.
7. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 21.
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 "A" 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 "A" ON PAGE 24.

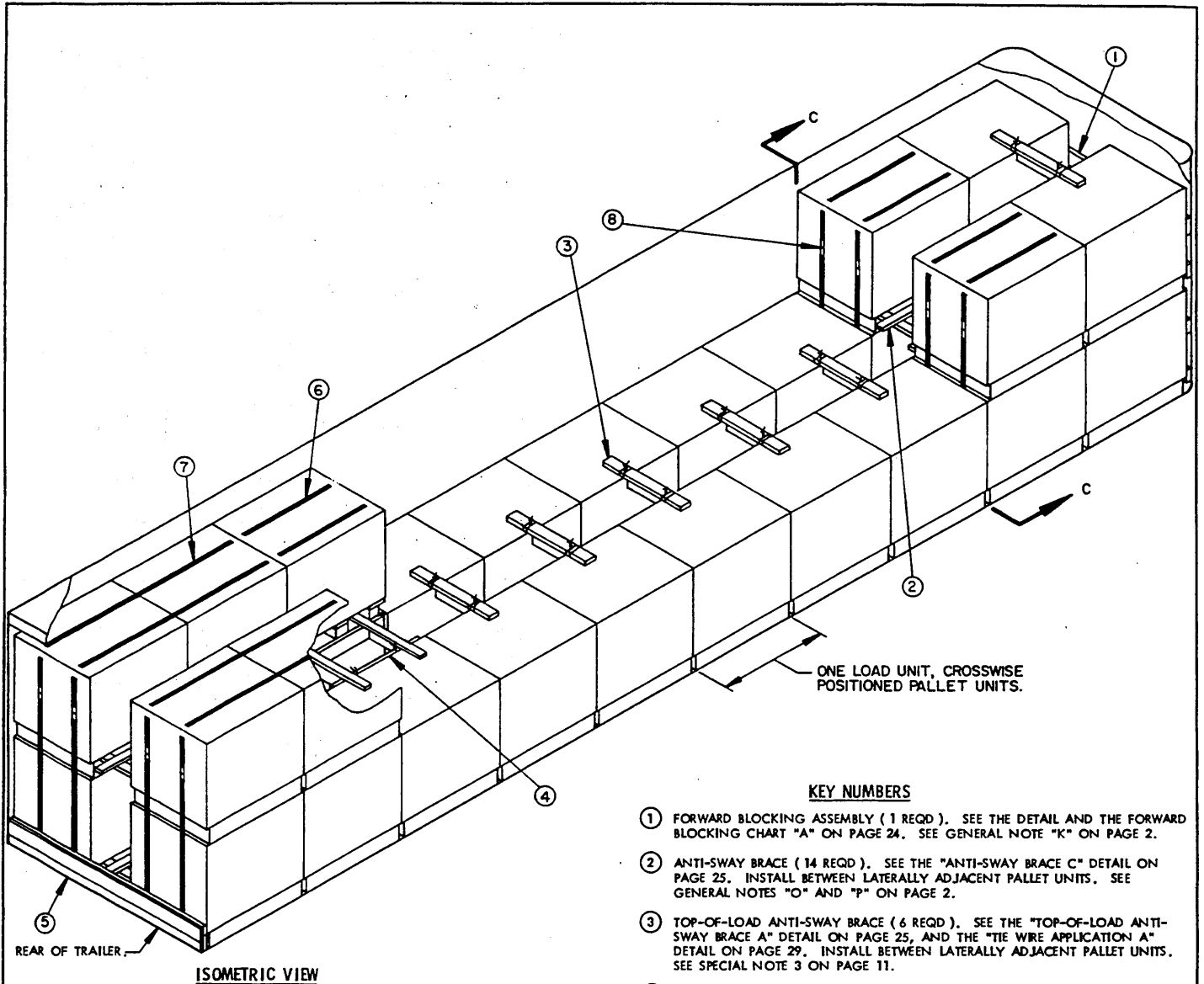
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	4	2
2" X 4"	170	114
NAILS	NO. REQD	POUNDS
6d (2")	24	NIL
10d (3")	168	2-3/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" 300' REQD ----- 43 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 24 REQD ----- 1 LB		
PLYWOOD, 1/2" ----- 75 SQ FT REQD ----- 104 LBS		
WIRE, NO. 14 GAGE ----- 48' REQD ----- 1 LB		
CROSS MEMBER ----- 10 REQD -----		

LOAD AS SHOWN

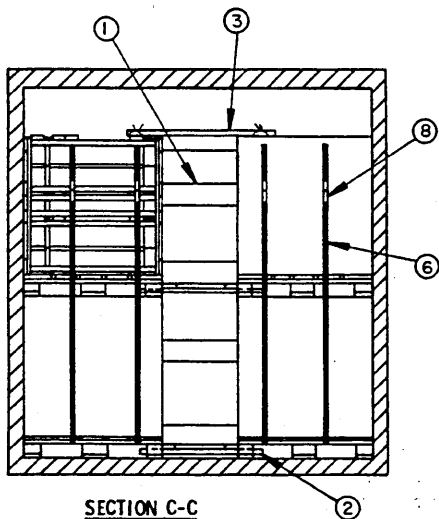
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	24	41,160 LBS
DUNNAGE		384 LBS
TOTAL WEIGHT		41,544 LBS

PALLET UNIT (BASIC HEIGHT)
 24-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES



KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "A" ON PAGE 24. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 25. 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 25, AND THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 29. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 11.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 25. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER END OF SUPPORT PIECES TO THE END DUNNAGE ASSEMBLY OF UNIT AS SHOWN BY THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 29. SEE SPECIAL NOTE 4 ON PAGE 11.
- ⑤ REAR BLOCKING (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 27. SEE SPECIAL NOTE 5 ON PAGE 11.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-0" LONG STEEL STRAPPING (6 REQD). THREAD THRU HOLES ON TOP DUNNAGE ASSEMBLY; INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 6 ON PAGE 11.
- ⑦ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 31'-0" LONG STEEL STRAPPING (4 REQD). THREAD THRU HOLES ON TOP DUNNAGE ASSEMBLY; INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS IN THE SECOND LAYER AND TWO (2) PALLET UNITS DIRECTLY BELOW AS SHOWN. SEE SPECIAL NOTE 7 ON PAGE 11.
- ⑧ SEAL FOR 1-1/4" STRAPPING (20 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



PALLET UNIT (DECREASED HEIGHT)
29-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TYPE TRAILER

SPECIAL NOTES:

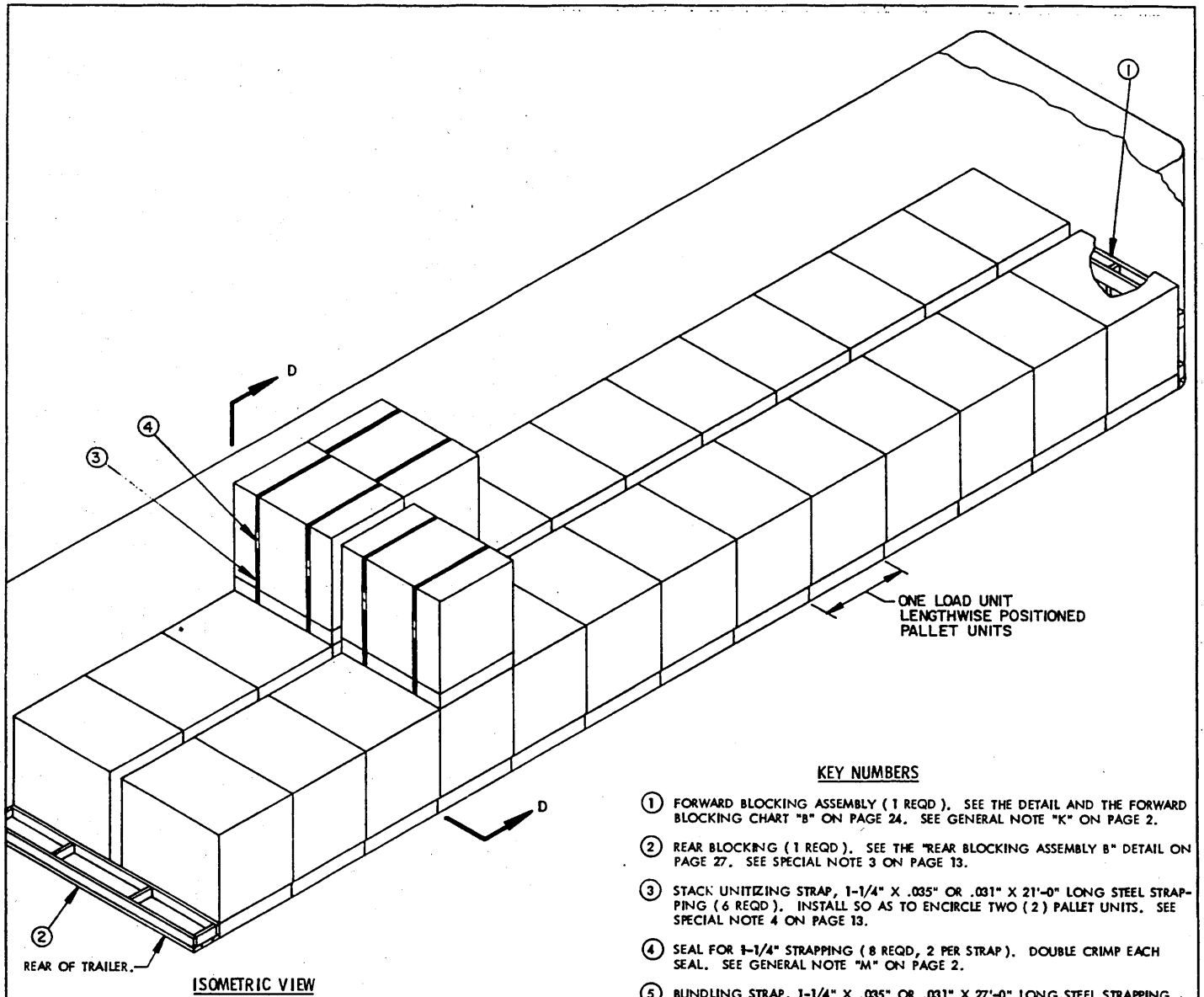
1. A 29-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 10 IS THE DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 42-3/8" HIGH AND WEIGHING APPROXIMATELY 1,442 POUNDS.
3. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ③ IN THE LOAD ON PAGE 10, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT 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. 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, THE ANTI-SWAY BRACE "C" WILL BE INSTALLED IN LIEU OF PIECE MARKED ④.
5. IF THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS MORE THAN 9", A STRUT TYPE OF REAR BLOCKING MUST BE USED. SEE THE "REAR BLOCKING ASSEMBLY C" DETAIL ON PAGE 27. IF THE SPACE IS LESS THAN 1-1/2" REAR BLOCKING IS NOT REQUIRED. SEE SPECIAL NOTE 12.
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 ⑥, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IN A CONVENTIONAL VAN TRAILER IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑦, MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS 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 TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING UNITIZING STRAPS, PIECE MARKED ⑥. PROVIDE LATERAL BRACING BY INSTALLING PIECE MARKED ④.
9. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 THRU 20.
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 31 AND 32 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 31 AND THE TYGARD METHOD IS SHOWN ON PAGE 32. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	8	3
1" X 6"	8	4
2" X 4"	233	156
2" X 6"	62	62
NAILS	NO. REQD	POUNDS
6d (2")	14	NIL
10d (3")	290	4-1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031"---274' REQD----- 40 LBS		
SEAL FOR 1-1/4" STRAPPING-----20 REQD----- 1 LB		
WIRE, NO. 14 GAGE-----35' REQD-----1/2 LB		

LOAD AS SHOWN

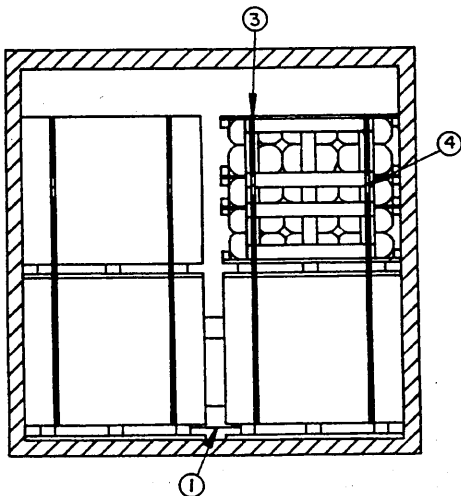
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	29	41,818 LBS
DUNNAGE		496 LBS
TOTAL WEIGHT		42,314 LBS

PALLET UNIT (DECREASED HEIGHT)
 29-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TYPE TRAILER

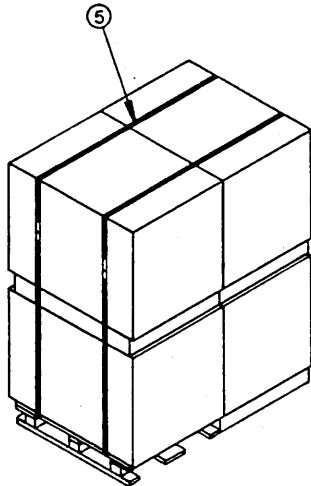


KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "B" ON PAGE 24. SEE GENERAL NOTE "K" ON PAGE 2.
- ② REAR BLOCKING (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 27. SEE SPECIAL NOTE 3 ON PAGE 13.
- ③ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 21'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 13.
- ④ SEAL FOR 1-1/4" STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 27'-0" LONG STEEL STRAPPING (AS REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS IN THE SECOND LAYER AND TWO (2) UNITS DIRECTLY BELOW. SEE DETAIL "A" AND SPECIAL NOTE 5 ON PAGE 13.



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



DETAIL A

SPECIAL NOTES:

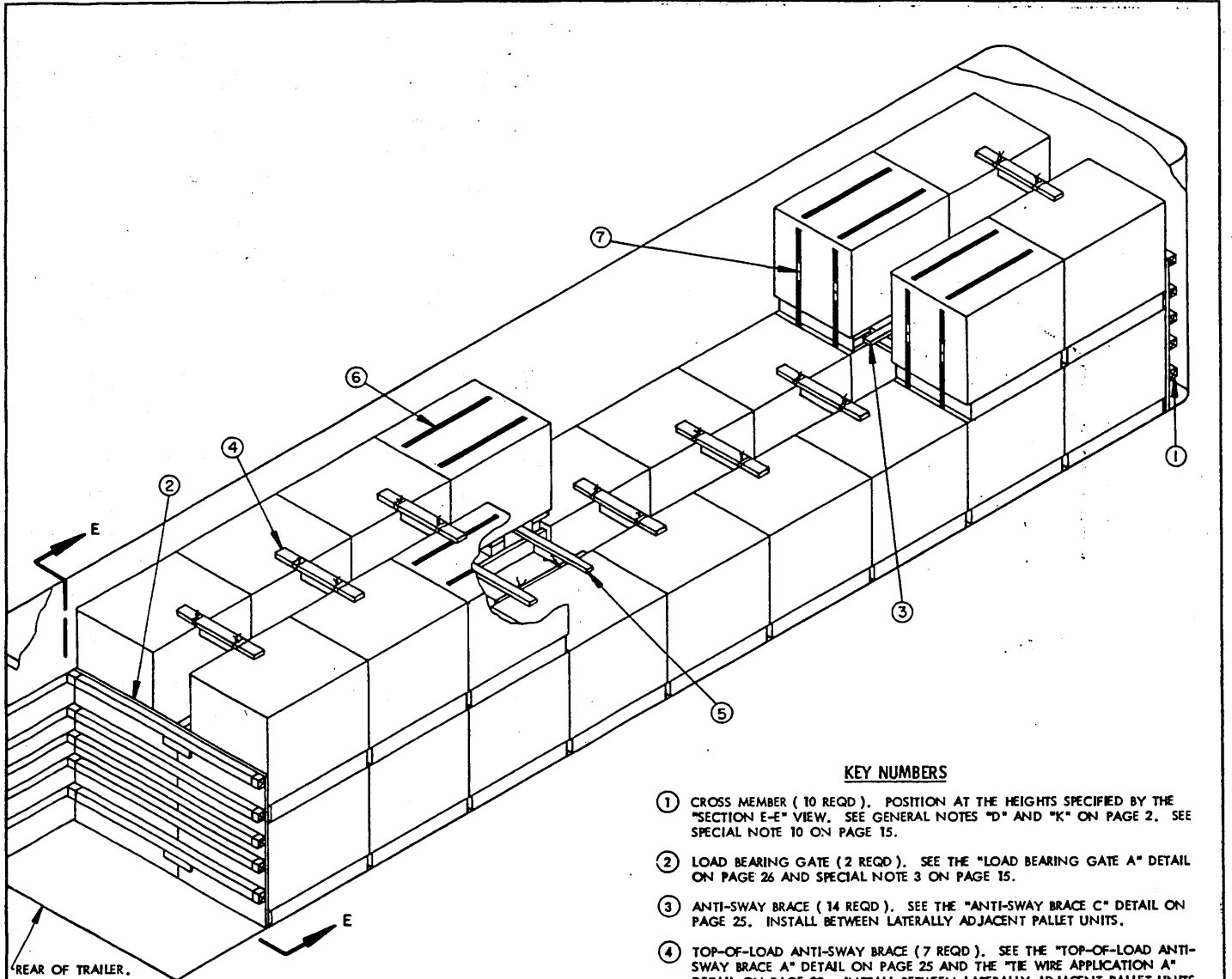
1. A 29-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 30 IS THE DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 42-3/8" HIGH AND WEIGHING APPROXIMATELY 1,442 POUNDS.
3. IF THE SPACE 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 SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE REAR BLOCKING ASSEMBLY "A" DETAILED ON PAGE 27. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, REAR BLOCKING ASSEMBLY "B" WILL BE USED AS SHOWN. SEE SPECIAL NOTE 10.
4. THE STACK UNITIZING STRAPS MARKED ③ IN THE LOAD ON PAGE 12, 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.
5. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IN A CONVENTIONAL VAN TRAILER IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑤ IN DETAIL "A", MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS IN EACH APPLICABLE ROW. NOTE THAT PIECE MARKED ⑤ MAY OR MAY NOT BE REQUIRED.
6. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, AS IN THE DEPICTED LOAD, IT MUST NOT BE POSITIONED ON TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING UNITIZING STRAPS, PIECE MARKED ③.
7. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 18 THRU 20.
10. 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 31 AND 32 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 31 AND THE TYGARD METHOD IS SHOWN ON PAGE 32. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	4	2
2" X 4"	27	18
2" X 6"	50	50
NAILS	NO. REQD	POUNDS
10d (3")	82	1-1/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" — 126' REQD ——— 18 LBS		
SEAL FOR 1-1/4" STRAPPING ——— 8 REQD ——— NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	29	41,818 LBS
DUNNAGE		160 LBS
TOTAL WEIGHT		41,978 LBS

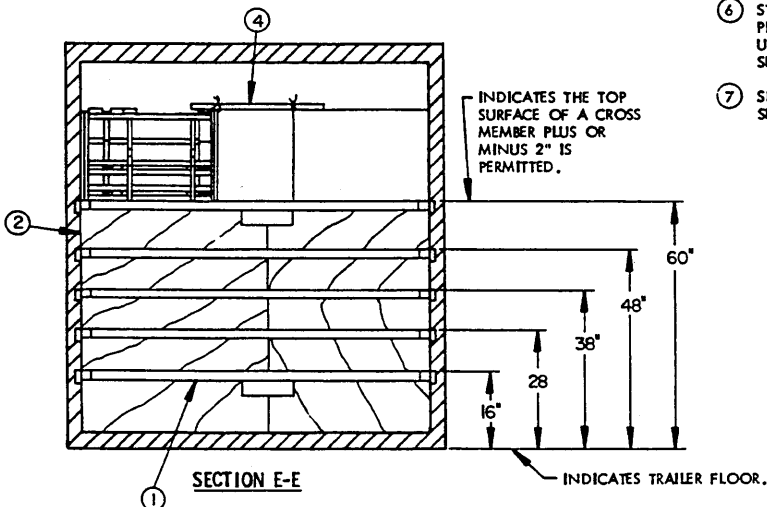
**PALLET UNIT (DECREASED HEIGHT)
29-UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TYPE TRAILER**



ISOMETRIC VIEW

KEY NUMBERS

- ① CROSS MEMBER (10 REQD). POSITION AT THE HEIGHTS SPECIFIED BY THE "SECTION E-E" VIEW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 10 ON PAGE 15.
- ② LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 26 AND SPECIAL NOTE 3 ON PAGE 15.
- ③ ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 25. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE (7 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 25 AND THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 29. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 15.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 25. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE END DUNNAGE ASSEMBLY OF UNIT. SEE THE "TIE WIRE APPLICATION B" DETAIL ON PAGE 29. SEE SPECIAL NOTE 6 ON PAGE 5.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-0" LONG STEEL STRAPPING (8 REQD). THREAD THRU HOLES ON TOP DUNNAGE ASSEMBLY OF THE UPPER PALLET UNITS. INSTALL TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 5 ON PAGE 15.
- ⑦ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION E-E

PALLET UNIT (DECREASED HEIGHT)

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

SPECIAL NOTES:

1. A 29-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 14 IS THE DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 42-3/8" HIGH AND WEIGHING APPROXIMATELY 1,442 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 "A" DETAIL ON PAGE 26.
4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED (4) IN THE LOAD ON PAGE 14, 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. STACK UNITIZING STRAPS, PIECES MARKED (6), 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.
6. IF ONLY ONE PALLET UNIT IS LOADED IN THE SECOND LAYER, SPACER ASSEMBLY PROCEDURES AS SPECIFIED ON PAGE 21 MAY BE USED, OR THE TOP-OF-LOAD ANTI-SWAY BRACE "B" AND STACK UNITIZING STRAPS AS SHOWN ON PAGE 14 MAY BE USED.
7. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 21.
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 "A" 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 "A" ON PAGE 24.

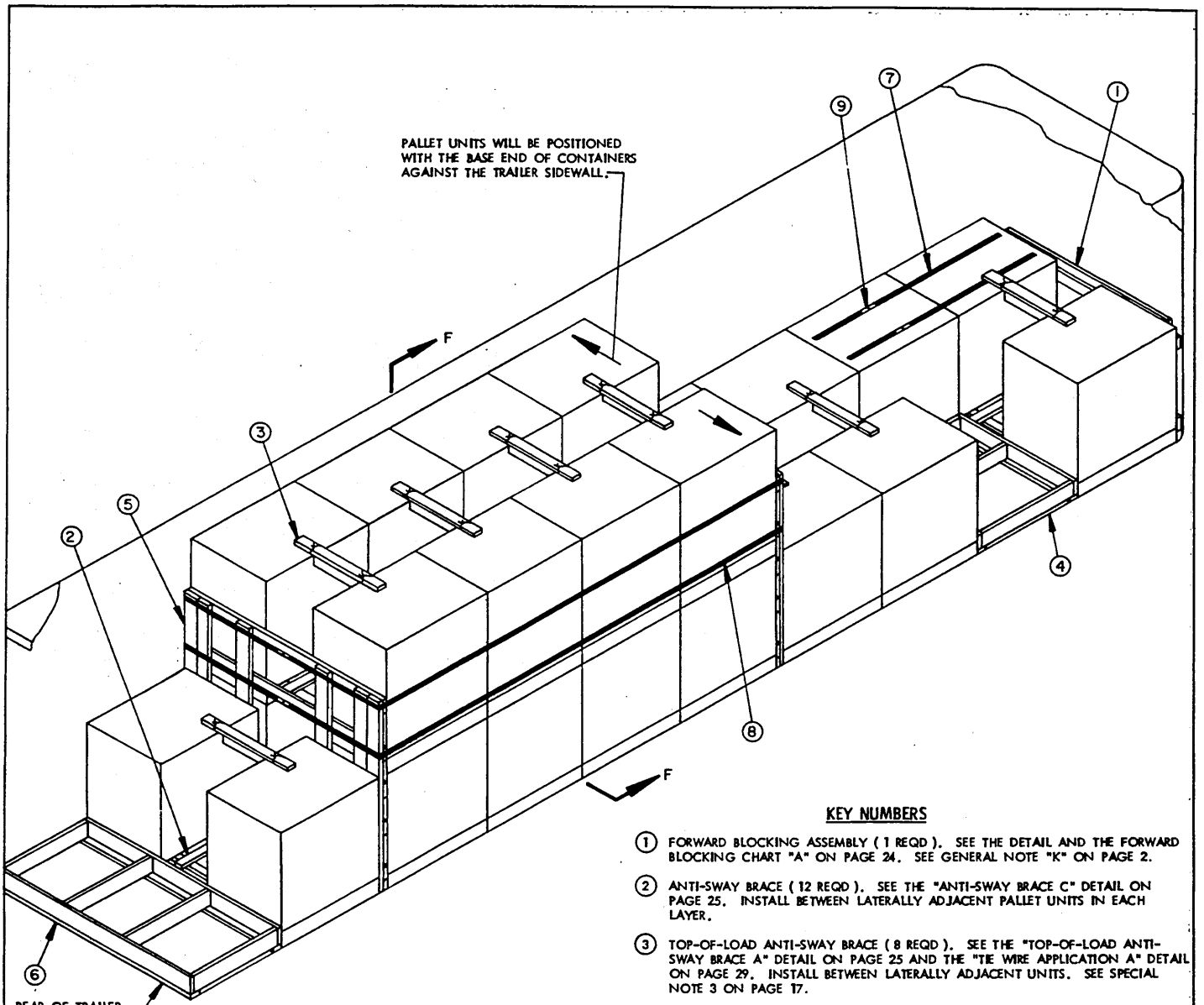
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	4	2
2" X 4"	206	138
NAILS	NO. REQD	POUNDS
6d (2")	24	NIL
10d (3")	218	3-1/2
STEEL STRAPPING, 1-1/4" X .035" OR .031"-----	200' REQD	29 LBS
SEAL FOR 1-1/4" STRAPPING -----	16 REQD	1 LB
PLYWOOD, 1/2"-----	150 SQ FT REQD	206 LBS
WIRE, NO. 14 GAGE -----	35' REQD	1/2 LB
CROSS MEMBER -----		10 REQD

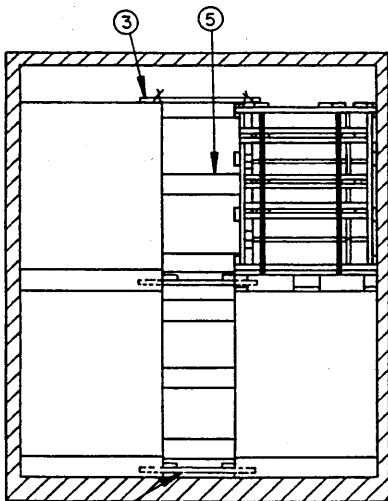
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT -----	29	41,818 LBS
DUNNAGE -----		519 LBS
TOTAL WEIGHT -----		42,337 LBS

PALLET UNIT (DECREASED HEIGHT)
29-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES



ISOMETRIC VIEW



SECTION F-F

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "A" ON PAGE 24. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (12 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 25. 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 25 AND THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 29. 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 24. 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 C" DETAIL ON PAGE 27. SEE SPECIAL NOTES 5 AND 10 ON PAGE 17.
- ⑦ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 24'-0" LONG STEEL STRAPPING (2 REQD). THREAD THRU HOLES ON TOP DUNNAGE ASSEMBLY AS SHOWN. INSTALL SO AS TO ENCIRCLE TWO PALLET UNITS. SEE SPECIAL NOTE 6 ON PAGE 17.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 49'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE EIGHT 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 PROCEDURE FOR BOTH UNITS

25-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME VAN TRAILER

SPECIAL NOTES:

1. A 25-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 BASIC HEIGHT UNIT, HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 49-5/8" HIGH AND WEIGHING APPROXIMATELY 1,715 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT UNIT.
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 "A" DETAILED ON PAGE 27. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, REAR BLOCKING ASSEMBLY "C" WILL BE USED AS SHOWN.
6. 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.
7. THE SECOND LAYER PORTION OF THE LOAD IS LIMITED TO NOT MORE THAN TEN (10) BASIC HEIGHT UNITS OR TWELVE (12) DECREASED HEIGHT UNITS. THE LOWER BUNDLING STRAP, PIECE MARKED ⑧, MAY BE OMITTED IF THE SECOND LAYER CONTAINS TWO OR FOUR PALLET UNITS.
8. REFER TO PAGE 22 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FOUR (4), MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 23 FOR GUIDANCE.
10. 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 31 AND 32 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 31 AND THE TYGARD METHOD IS SHOWN ON PAGE 32. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

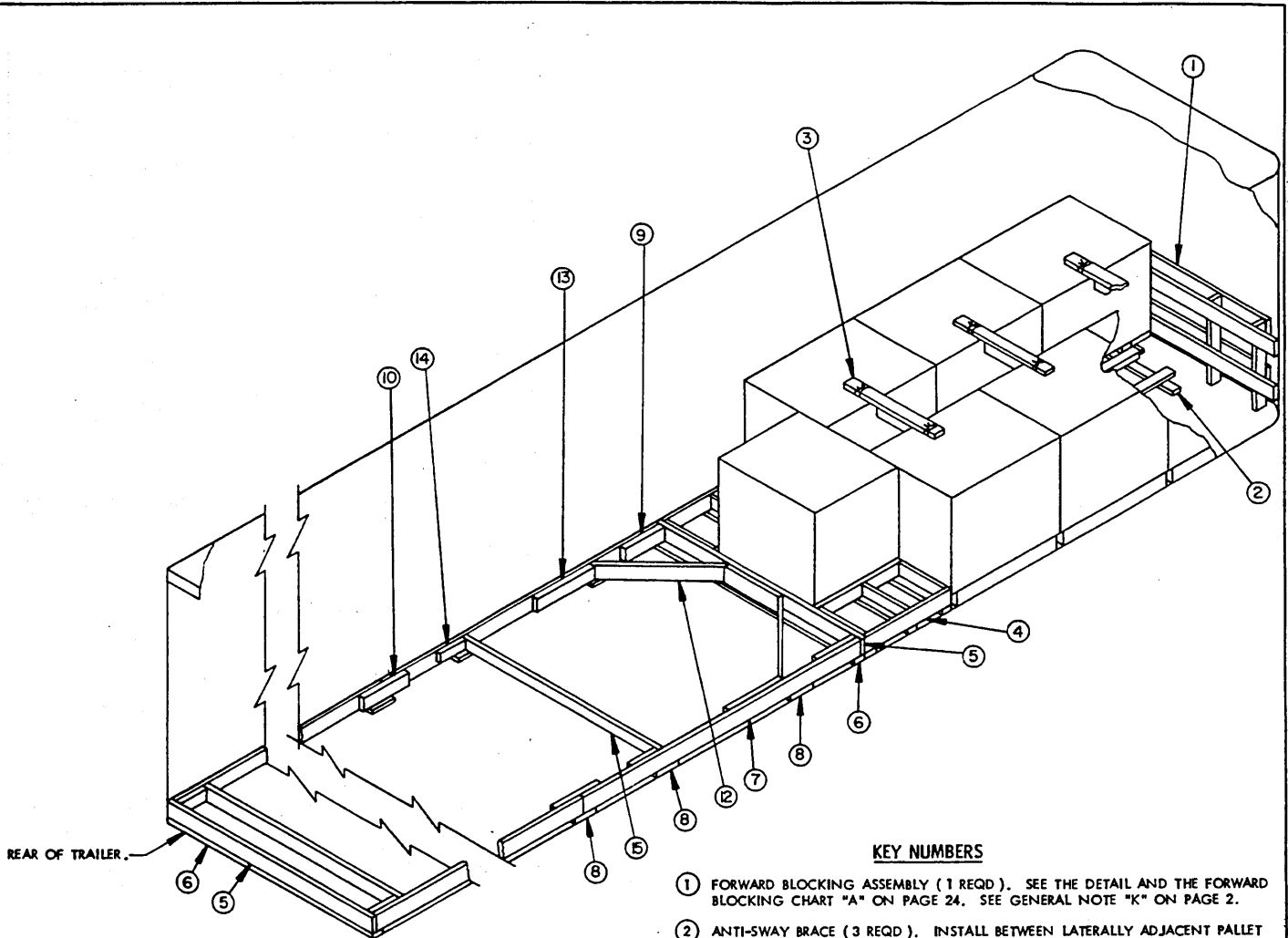
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	218	146
2" X 6"	235	235
NAILS	NO. REQD	POUNDS
10d (3")	460	7-1/4
STEEL STRAPPING, 1-1/4" X .035" OR .031"---146' REQD ---- 21 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 8 REQD ----- NIL		
WIRE, NO. 14 GAGE ----- 40' REQD ----- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT-----	25 -----	42,875 LBS
DUNNAGE-----	-----	791 LBS
TOTAL WEIGHT -----		43,666 LBS

ALTERNATIVE LOADING PROCEDURES FOR BOTH UNITS
25-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME VAN TRAILER



ISOMETRIC VIEW

(KEY NUMBERS CONTINUED)

- ⑭ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑦ , W/3-10d NAILS. SEE SPECIAL NOTE 6 ON PAGE 19.
- ⑮ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). NAIL TO THE POCKET CLEATS, PIECES MARKED ⑨ , AND/OR TO THE STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑭ , W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 6 ON PAGE 19.

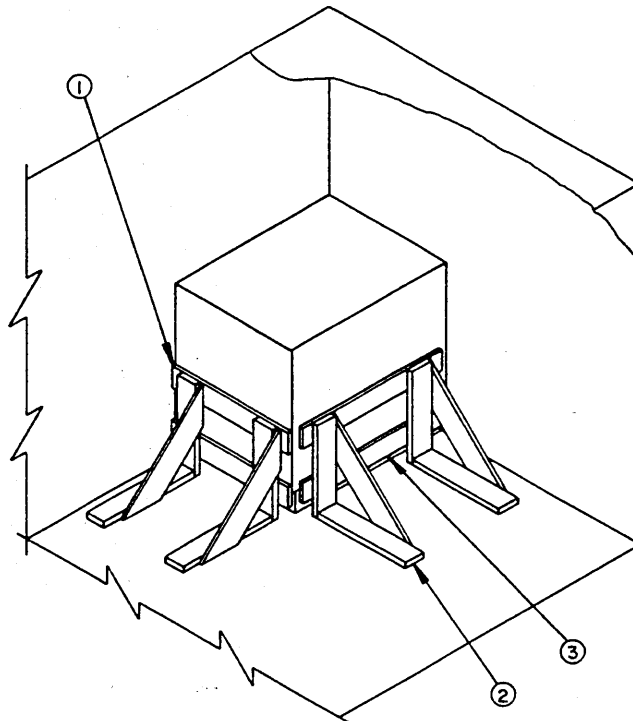
KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE FORWARD BLOCKING CHART "A" ON PAGE 24. SEE GENERAL NOTE "K" ON PAGE 2.
- ② ANTI-SWAY BRACE (3 REQD). INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 25.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (3 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 25. WIRE TIE TO THE TOP DUNNAGE ASSEMBLY AS SHOWN BY THE "TIE WIRE APPLICATION A" DETAIL ON PAGE 29.
- 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. SEE SPECIAL NOTE 4 ON PAGE 19.
- ⑤ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). SEE SPECIAL NOTE 9 ON PAGE 19.
- 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, PIECES MARKED ⑤ (2 REQD). SEE SPECIAL NOTE 5 ON PAGE 19.
- ⑧ RISER PIECE, 2" X 4" X 9" (AS REQD). CENTER UNDER THE JOINTS OF PIECES MARKED ⑫ 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. SEE SPECIAL NOTE 5 ON PAGE 19.
- 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.

(CONTINUED AT LEFT)

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 9 AND 10.
2. THE PALLET UNIT SHOWN IS THE DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 42-3/8" HIGH AND WEIGHING APPROXIMATELY 1,442 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE BASIC UNIT DEPICTED ON PAGE 3.
3. TOP-OF-LOAD ANTI-SWAY BRACES WILL BE POSITIONED BETWEEN ALL LATERALLY ADJACENT PALLET UNITS.
4. THE SPACER ASSEMBLIES, PIECE MARKED ④, ARE SHOWN ONLY TO DEPICT A TYPICAL INSTALLATION. SPACER ASSEMBLIES WILL BE USED WHEN A PALLET UNIT IS OMITTED. THEY MAY OR MAY NOT BE REQUIRED, DEPENDING ON THE QUANTITY OF PALLET UNITS TO BE SHIPPED.
5. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS, PIECES MARKED ⑦, MAY NEED TO BE FORMED FROM MORE THAN ONE PIECE OF MATERIAL. IF SUCH IS THE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W/4-10d NAILS AT EACH END. CAUTION: A RISER PIECE, PIECE MARKED ⑧, MUST BE POSITIONED UNDER EACH SPLICE JOINT. NOTE: IF DESIRED, THE STRUT BRACING PIECE (S), PIECE MARKED ⑮, MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑭.
6. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO PIECE MARKED ⑨. IF THE SIDE STRUTS, PIECES MARKED ⑦, ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE, PIECE MARKED ⑮, AND TWO (2) STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑭, AND TWO (2) RISER PIECES MARKED ⑧, MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
7. SEVEN (7) PALLET UNITS ARE SHOWN AS A TYPICAL LTL LOAD. THE NUMBER OF UNITS CAN BE ADJUSTED TO SUIT THE QUANTITY THAT IS TO BE SHIPPED. BASED ON THE WEIGHT OF THE UNITS TO BE SHIPPED, THE DEPICTED K-BRACE WILL RETAIN A MAXIMUM OF 11 BASIC HEIGHT, OR 13 DECREASED HEIGHT PALLET UNITS. FOR WEIGHT OF UNITS SEE PAGE 3.
8. THE K-BRACE BLOCKING SHOWN AS PIECES MARKED ⑤ THRU ⑮ IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
9. 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 31 AND 32. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 31 AND THE TYGARD METHOD IS SHOWN ON PAGE 32. 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 ⑮ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. SEE SPECIAL NOTE 10.
10. WHEN THE NAILED-HEADER METHOD OF BRACING SHOWN ON PAGE 31 IS APPLIED FOR THE BRACING OF THE DEPICTED 7-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 DECREASED HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 42-3/8" HIGH AND WEIGHING APPROXIMATELY 1,442 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 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 ROWS, 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.

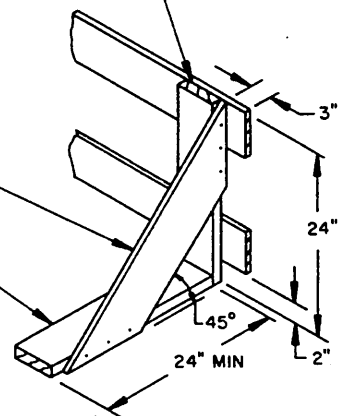
KEY NUMBERS

- ① LOAD BEARING PIECE, 1" X 6" X 35" (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 38" (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.

ANGLE BRACE, 1" X 6" BY CUT TO FIT (1 REQD). NAIL TO THE VERTICAL PIECE AND TO THE BACK-UP CLEAT W/3-8d NAILS AT EACH END.

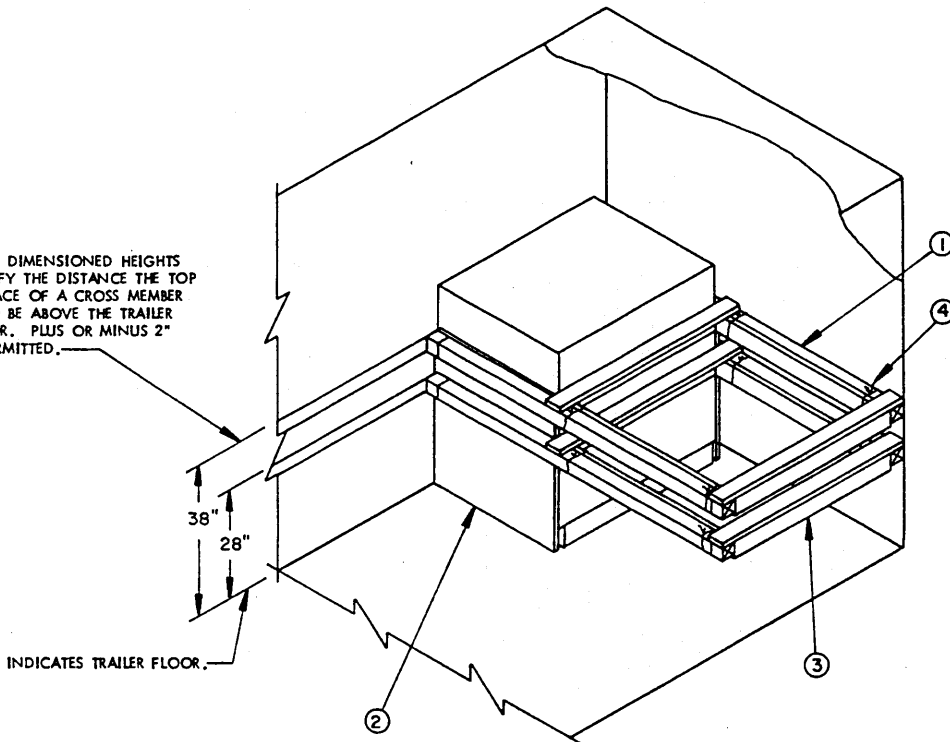
BACK-UP CLEAT, 2" X 6" X 24" (MIN) (1 REQD).

VERTICAL PIECE, 2" X 6" X 24" (1 REQD). NAIL TO THE BACK-UP CLEAT W/2-16d NAILS.



LTL BRACE

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



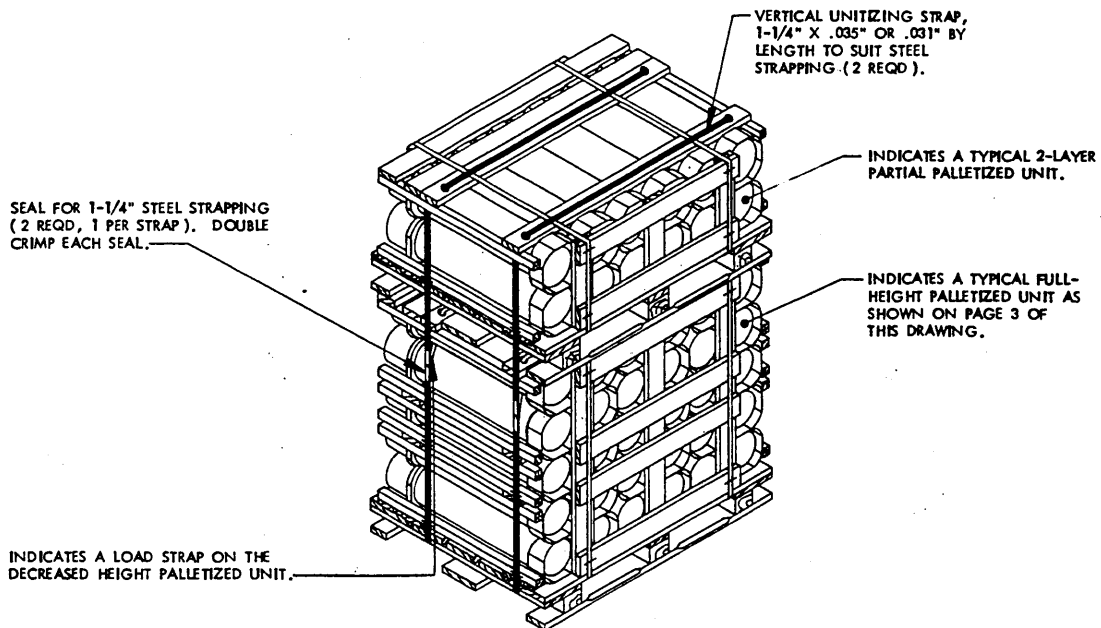
ISOMETRIC VIEW

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 BASIC HEIGHT UNIT HAVING OVERALL DIMENSIONS OF 35" LONG BY 46-1/2" WIDE BY 49-5/8" HIGH. THE PROCEDURES ARE ALSO APPLICABLE FOR THE DECREASED HEIGHT PALLET UNIT DEPICTED ON PAGE 3.
3. THE SPECIFIED CROSS MEMBER LOCATION DIMENSIONS ARE APPLICABLE FOR THE BASIC AND DECREASED HEIGHT PALLET UNITS 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 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 ② ON PAGE 4, 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 BASIC HEIGHT UNITS. WHEN LOADING THE DECREASED HEIGHT UNIT DEPICTED ON PAGE 3, ONE (1) SPACER ASSEMBLY IS REQUIRED AT THE 28" HEIGHT LOCATION.

KEY NUMBERS

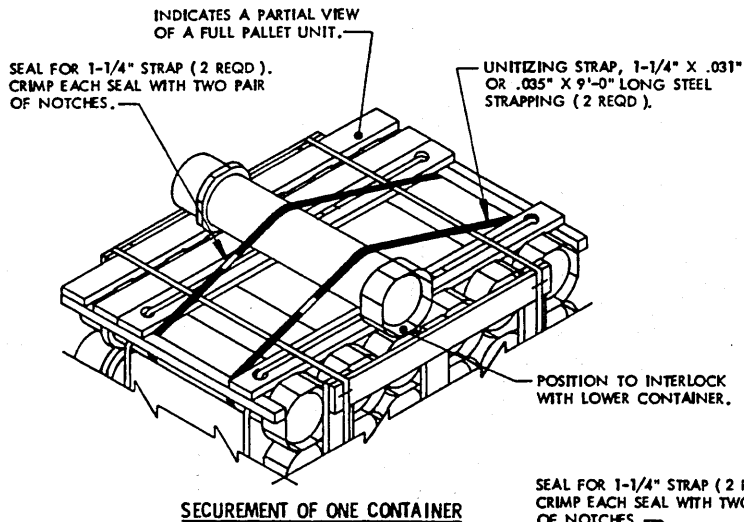
- ① CROSS MEMBERS (4 REQD). POSITION AT THE HEIGHT AS SPECIFIED BY THE ISOMETRIC VIEW ABOVE. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 3 ON THIS PAGE.
- ② PLYWOOD, 1/2" X 35" X 38" (2 REQD). POSITION BETWEEN THE PALLET UNIT AND THE CROSS MEMBERS. SEE SPECIAL NOTE 4 AT LEFT.
- ③ SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY C" DETAIL ON PAGE 29. 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 THE ENDS TOGETHER AND TWIST TIGHT. SECURE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.



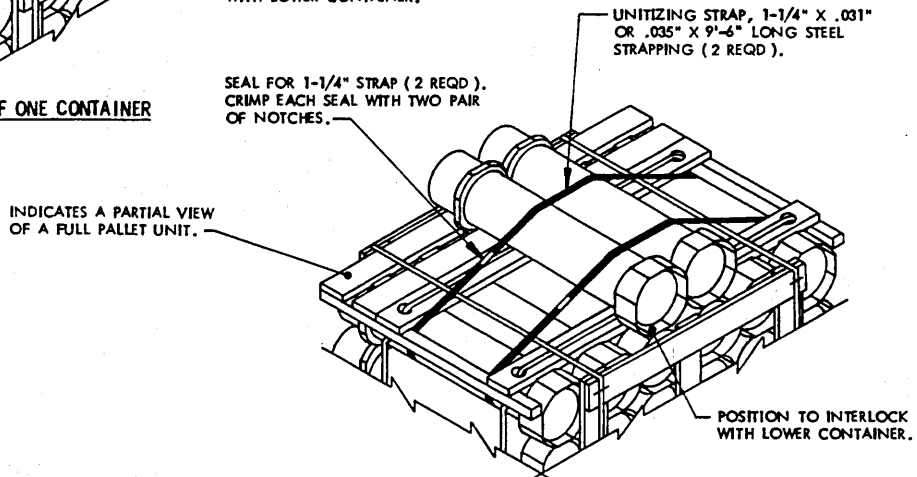
**SECUREMENT OF A PARTIAL PALLET UNIT
POSITIONED ON A FULL HEIGHT PALLET UNIT**

SPECIAL NOTES:

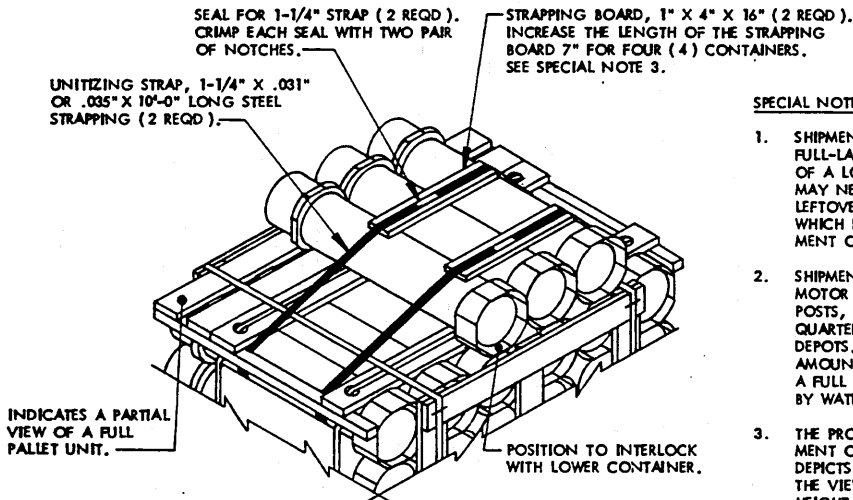
1. THE VIEW SHOWN ABOVE DEPICTS A PARTIAL 2-LAYER PALLET UNIT POSITIONED ON TOP OF A FULL-HEIGHT PALLET UNIT AND UNITIZED WITH TWO VERTICAL UNITIZING STRAPS. PLACEMENT WITHIN THE LOAD IS OPTIONAL, EXCEPT THAT IT WILL NOT BE POSITIONED WITHIN A GROUP WHICH IS BUNDLED TOGETHER OR WITHIN A STACK WHICH IS 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 THROUGH FOUR "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 23 OF THIS DRAWING.



SECUREMENT OF ONE CONTAINER



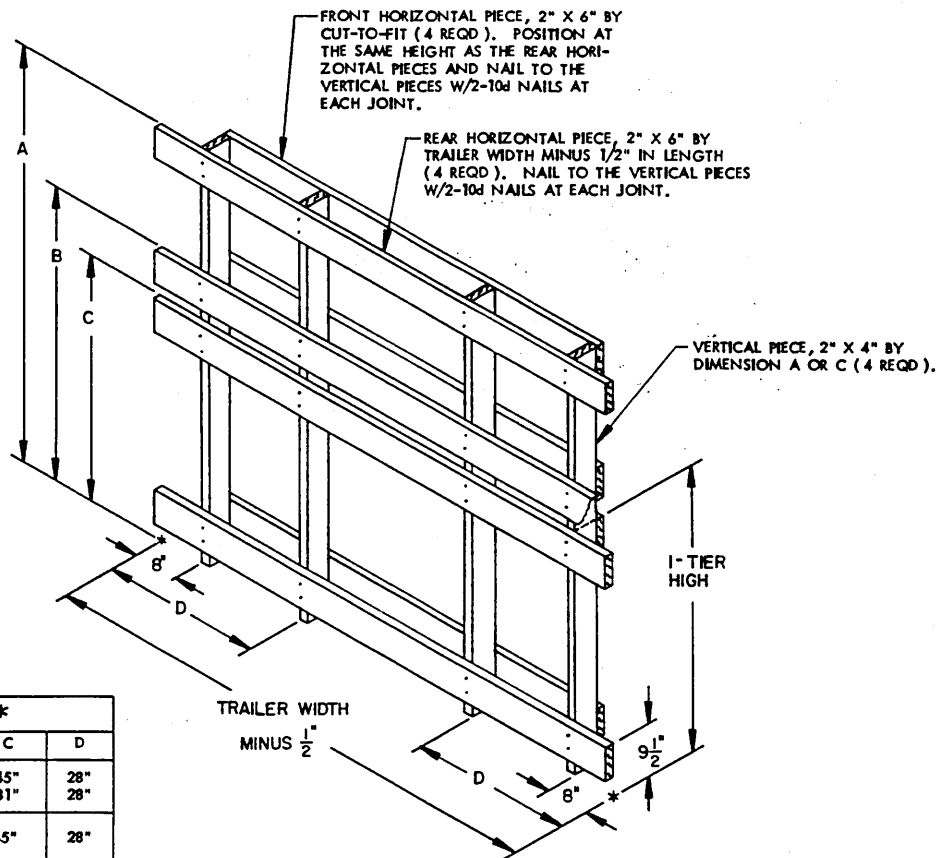
SECUREMENT OF TWO CONTAINERS



SECUREMENT OF THREE CONTAINERS

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 22.
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 HEAD-QUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLE, 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 VIEW ABOVE DEPICTS TWO LEFTOVER CONTAINERS SECURED TO A FULL-HEIGHT PALLET UNIT. THE BOTTOM LEFT VIEW DEPICTS THREE LEFTOVER CONTAINERS SECURED TO A FULL-HEIGHT PALLET UNIT. WHEN THREE OR FOUR 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 THE STRAPPING MUST NOT GO AROUND THE TOP DUNNAGE ASSEMBLY. THE STRAP MUST BE THREADED BEHIND THE 2" X 2" PIECES OF THE 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 LEFT-OVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.



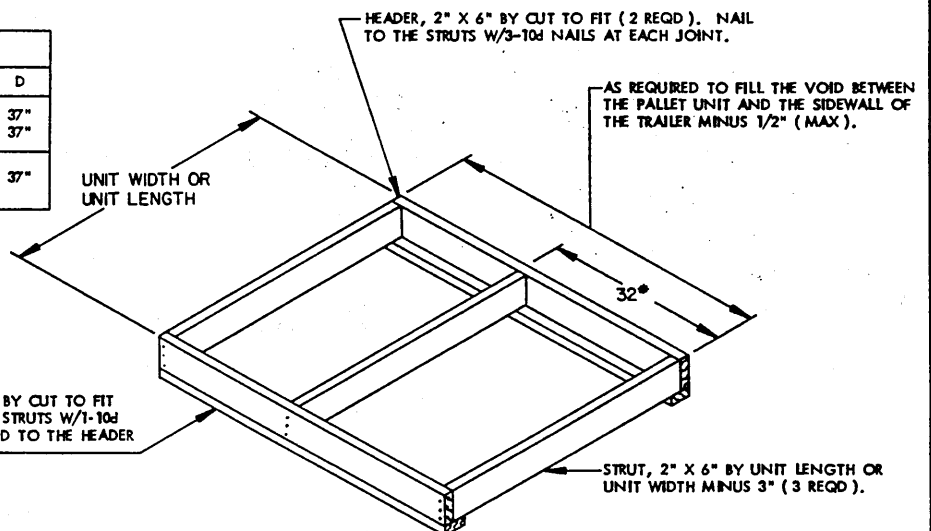
FORWARD BLOCKING ASSEMBLY

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.

FORWARD BLOCKING CHART A*				
PALLET UNIT TYPE	A	B	C	D
BASIC HEIGHT	7'-10"	59"	45"	28"
DECREASED HEIGHT	6'-1"	52"	31"	28"
BASIC W/DECREASED HEIGHT ON TOP	6'-8"	59"	45"	28"

* FORWARD BLOCKING CHART "A" IS USED FOR CROSSWISE POSITIONED PALLET UNITS AS SHOWN IN THE LOAD ON PAGE 4. IF THE UNITS ARE POSITIONED LENGTHWISE AS SHOWN IN THE LOAD ON PAGE 6, USE FORWARD BLOCKING CHART "B" BELOW.

FORWARD BLOCKING CHART B				
PALLET UNIT TYPE	A	B	C	D
BASIC HEIGHT	7'-3"	59"	38"	37"
DECREASED HEIGHT	6'-1"	52"	31"	37"
BASIC W/DECREASED HEIGHT ON TOP	6'-8"	59"	38"	37"

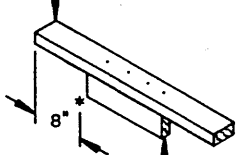


SPACER ASSEMBLY A

THIS ASSEMBLY IS DESIGNED FOR USE IN PLACE OF AN OMITTED UNIT, AS USED IN THE LOAD ON PAGE 16.

* THIS DIMENSION WILL BE 25" IF THE UNITS ARE POSITIONED LENGTHWISE.

SUPPORT PIECE, 2" X 4" BY A LENGTH TO SUIT (1 REQD). CENTER ON AND NAIL TO THE SPACER PIECE W/4-10d NAILS.

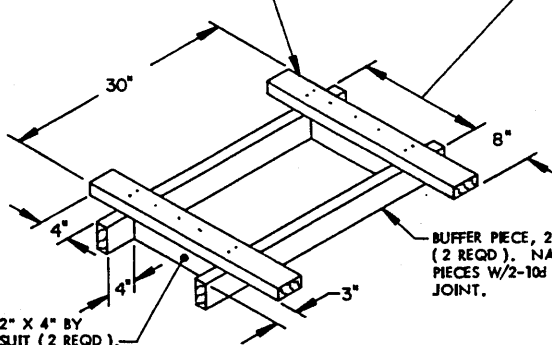


SPACER PIECE, 2" X 4" BY A LENGTH TO SUIT (1 REQD). REF: VOID BETWEEN UNIT MINUS 1/2".

TOP-OF-LOAD-ANTI-SWAY BRACE A



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".

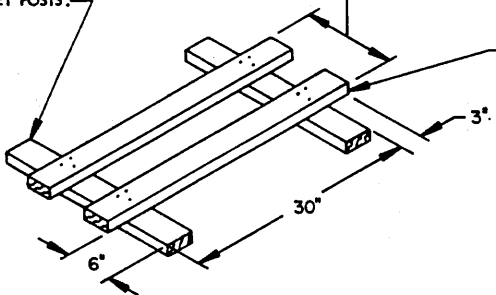
BUFFER PIECE, 2" X 4" X 36" (2 REQD). NAIL TO THE SPACER PIECES W/2-10d NAILS AT EACH JOINT.

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

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.

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



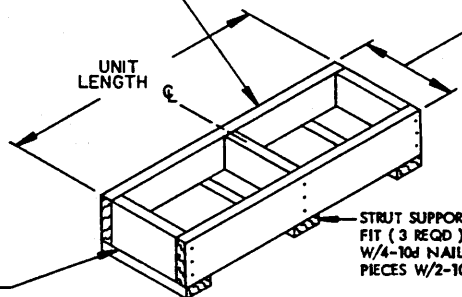
FABRICATE TO FIT BETWEEN THE POSTS OF LATERALLY ADJACENT PALLET.

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

ANTI-SWAY BRACE C

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.

BUFFER PIECE, 2" X 6" X 35" (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.



FABRICATE TO FIT BETWEEN THE PALLET UNIT AND THE TRAILER SIDEWALL.

STRUT, 2" X 6" BY CUT TO FIT (3 REQD).

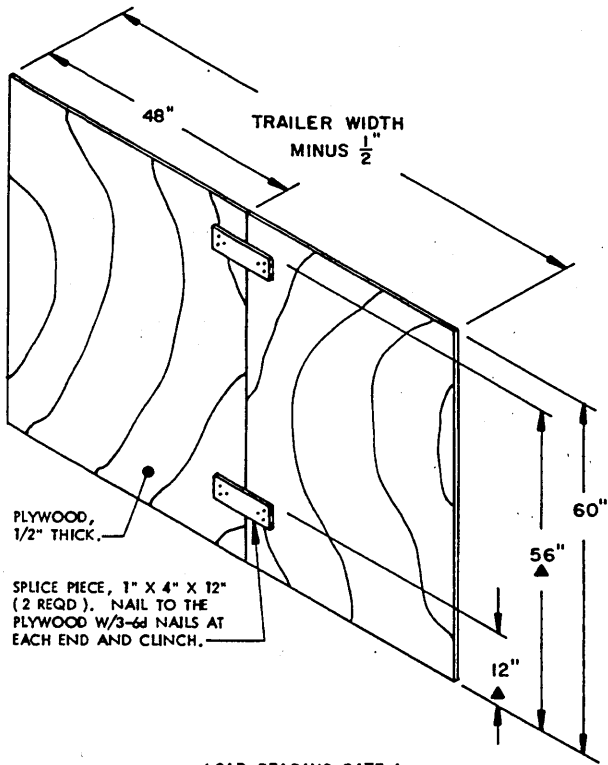
STRUT SUPPORT, 2" X 4" BY CUT TO FIT (3 REQD). NAIL TO THE STRUTS W/4-10d NAILS, AND TO THE BUFFER PIECES W/2-10d NAILS AT EACH END.

SPACER ASSEMBLY B

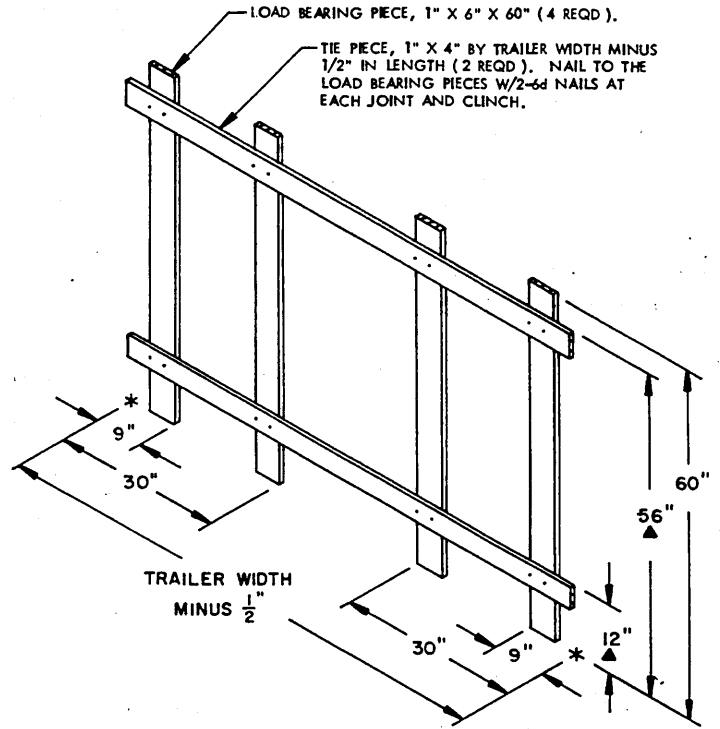
THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING IN THE TYPICAL LTL LOAD SHOWN ON PAGE 18.

NOTE ●:

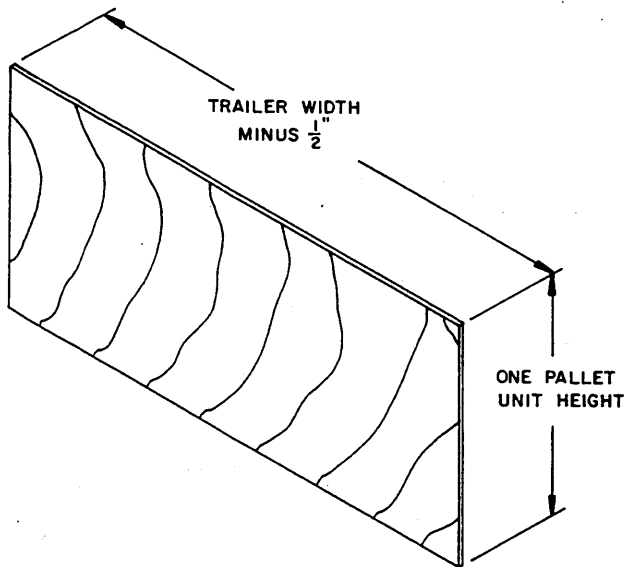
IF PLYWOOD IS NOT AVAILABLE, OR IF DESIRED, THE LOAD BEARING GATES MAY BE FABRICATED FROM NOMINAL ONE INCH AND/OR TWO INCH LUMBER. SEE THE ALTERNATIVE LOAD BEARING GATES BELOW.



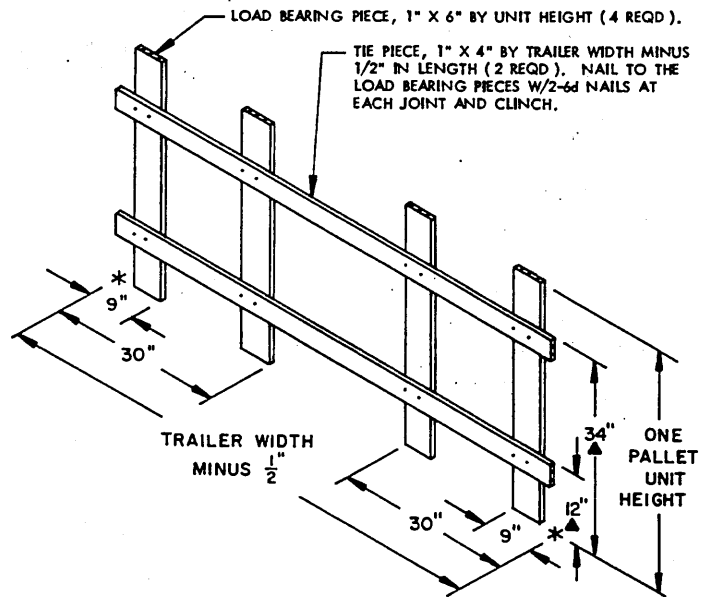
LOAD BEARING GATE A
SEE "NOTE ●" ABOVE.



ALTERNATIVE LOAD BEARING GATE A



LOAD BEARING GATE B
SEE "NOTE ●" ABOVE.



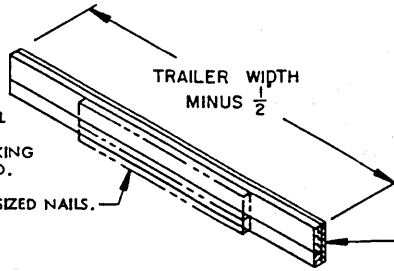
ALTERNATIVE LOAD BEARING GATE B

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

NOTE *:

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

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



SOLID FILL, 4" AND 6" WIDE MATERIAL BY TRAILER WIDTH MINUS 1/2" IN LENGTH BY THE THICKNESS REQUIRED TO CONTACT REAR CORNER POSTS OR TO CONTACT REAR DOORS OF THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE, ONE ON TOP OF THE OTHER AS SHOWN, AND LAMINATE W/1-10d NAIL EVERY 12".

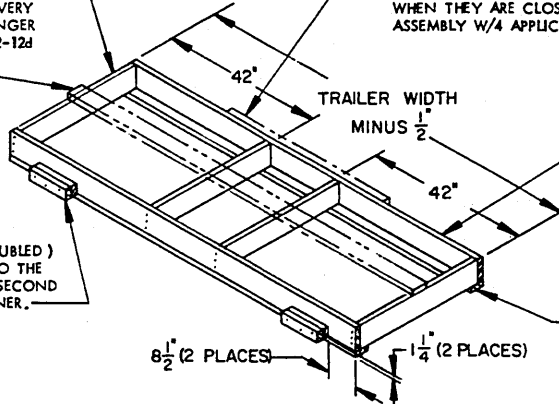
REAR BLOCKING ASSEMBLY A

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.

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

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

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



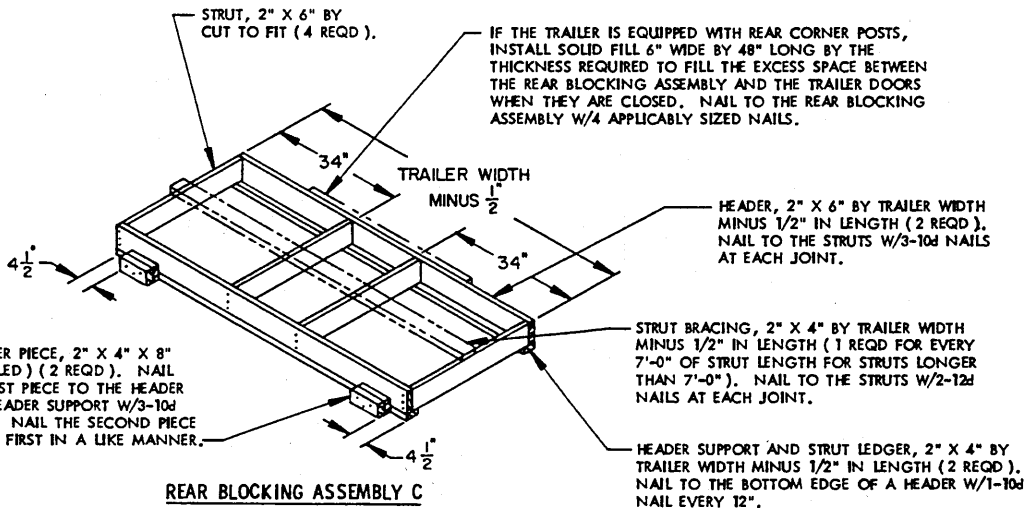
HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

* RETAINER PIECE, 2" X 3" X 11" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE HEADER W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

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

REAR BLOCKING ASSEMBLY B

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



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

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

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

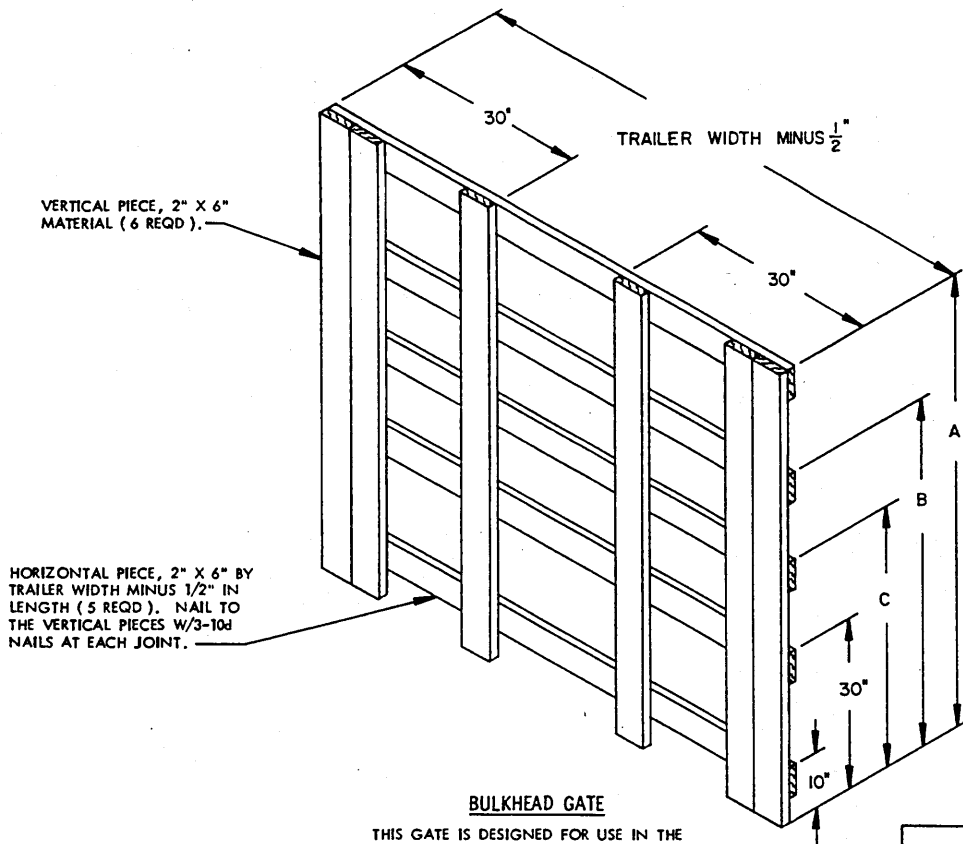
* RETAINER PIECE, 2" X 4" X 8" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE HEADER AND HEADER SUPPORT W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

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

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

REAR BLOCKING ASSEMBLY C

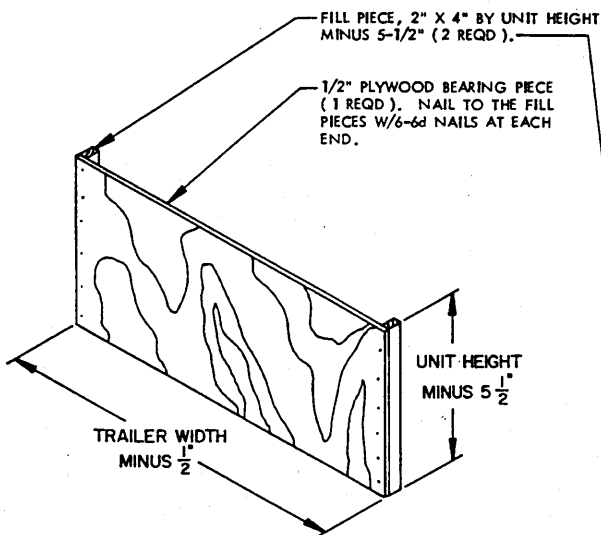
THIS ASSEMBLY IS FOR USE AT THE REAR END OF CROSSWISE POSITIONED UNITS WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS GREATER THAN 9". NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.



BULKHEAD GATE

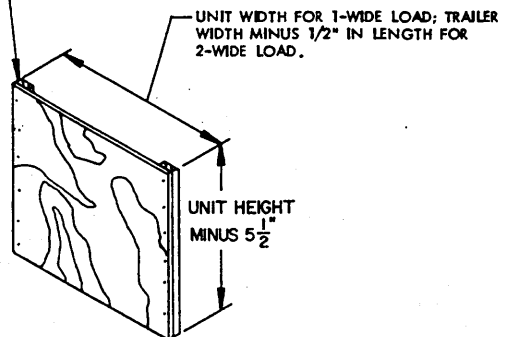
THIS GATE IS DESIGNED FOR USE IN THE ALTERNATIVE LOADING PROCEDURE LOAD ON PAGE 16.

BULKHEAD GATE CHART			
PALLET UNIT TYPE	DIMENSIONS		
	A	B	C
BASIC HEIGHT	6'-8"	60"	45"
DECREASED HEIGHT	6'-2"	52"	43"
BASIC HT W/DECREASED HT UNIT ON TOP	6'-8"	60"	45"



LOAD BEARING GATE C

NOTE THAT THE PLYWOOD BEARING PIECE IS NAILED TO THE 1-1/2" EDGE OF THE FILL PIECE.



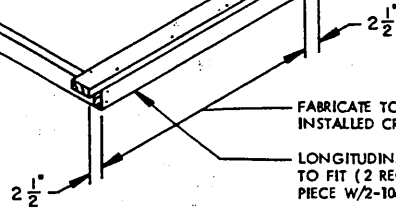
LOAD BEARING GATE D

NOTE THAT THE PLYWOOD BEARING PIECE IS NAILED TO THE 3-1/2" SURFACE OF THE FILL PIECE.

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

FABRICATE TO FIT BETWEEN TRAILER SIDEWALL AND PALLET UNIT.

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



FABRICATE TO FIT BETWEEN INSTALLED CROSS MEMBERS.

LONGITUDINAL PIECE, 2" X 4" BY CUT TO FIT (2 REQD). NAIL TO THE LATERAL PIECE W/2-10d NAILS AT EACH END.

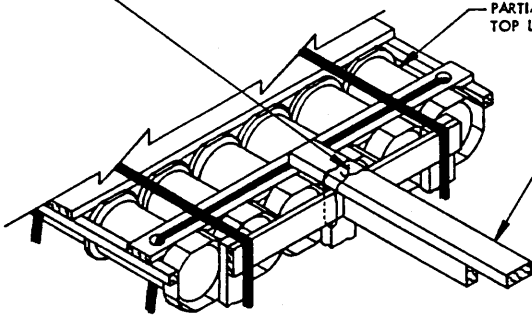
SPACER ASSEMBLY C

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 21.

NO. 14 GAGE WIRE BY A LENGTH TO SUIT. FORM A LOOP ACROSS TOP OF ANTI-SWAY BRACE, LOOP UNDER UNIT END DUNNAGE, BRING WIRE UP TO TOP OF BRACE, AND TWIST TO SELF AS SHOWN.

PARTIAL VIEW SHOWING TOP LAYER OF CONTAINERS.

TOP-OF-LOAD ANTI-SWAY BRACE.



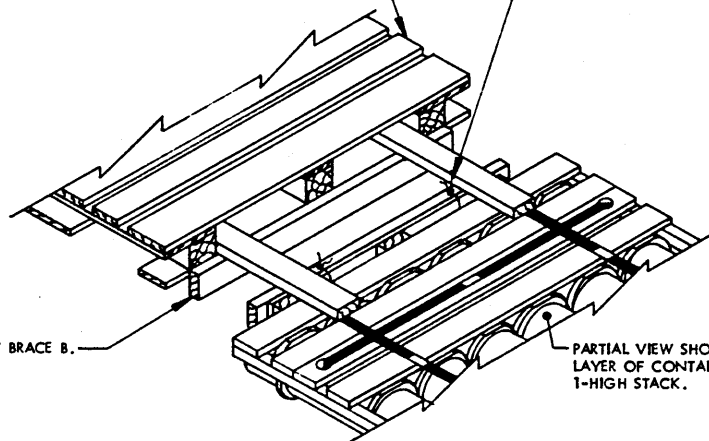
TIE WIRE APPLICATION A

NO. 14 GAGE WIRE BY LENGTH TO FORM TWO LOOPS AROUND THE ANTI-SWAY BRACE AND THE END DUNNAGE ASSEMBLY. TWIST TO SELF AS SHOWN.

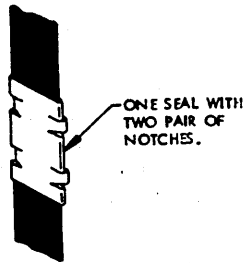
INDICATES PALLET OF 2-HIGH STACK.

ANTI-SWAY BRACE B.

PARTIAL VIEW SHOWING TOP LAYER OF CONTAINERS OF 1-HIGH STACK.



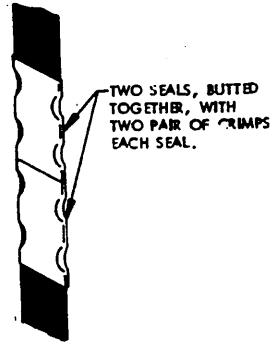
TIE WIRE APPLICATION B



ONE SEAL WITH
TWO PAIR OF
NOTCHES.

STRAP JOINT A

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



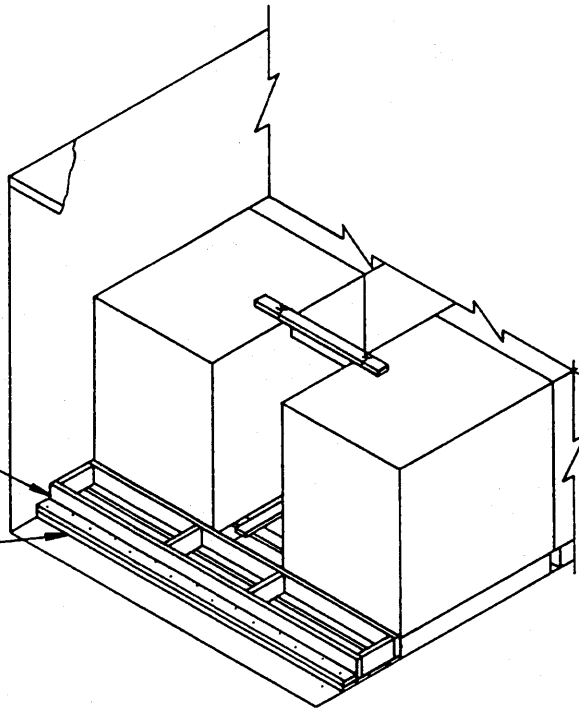
TWO SEALS, BUTTED
TOGETHER, WITH
TWO PAIR OF CRIMPS
EACH SEAL.

STRAP JOINT B

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

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

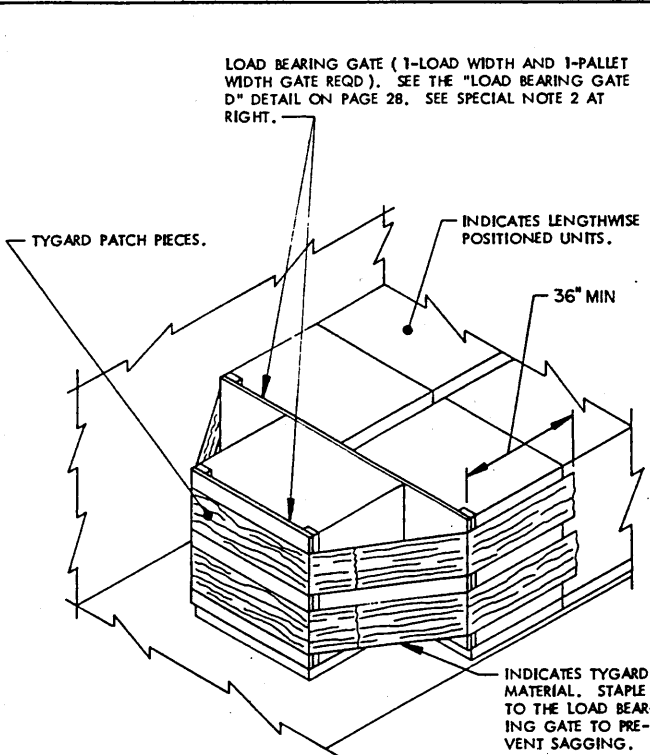
HEADER, 2" X 4" BY TRAILER WIDTH
MINUS 1/2" IN LENGTH (DOUBLED)
(1 REQD). POSITION AGAINST THE
REAR BLOCKING ASSEMBLY. NAIL
THE FIRST PIECE TO THE TRAILER FLOOR
W/15-10d NAILS (1 EVERY 6"). NAIL THE
SECOND PIECE TO THE FIRST IN A LIKE
MANNER AND TOENAIL TO THE REAR
BLOCKING ASSEMBLY W/4-10d NAILS.



NAILED-HEADER METHOD

SPECIAL NOTES:

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



TYGARD METHOD A

RECOMMENDED EQUIPMENT/INSTALLATION PROCEDURES

EQUIPMENT REQUIRED

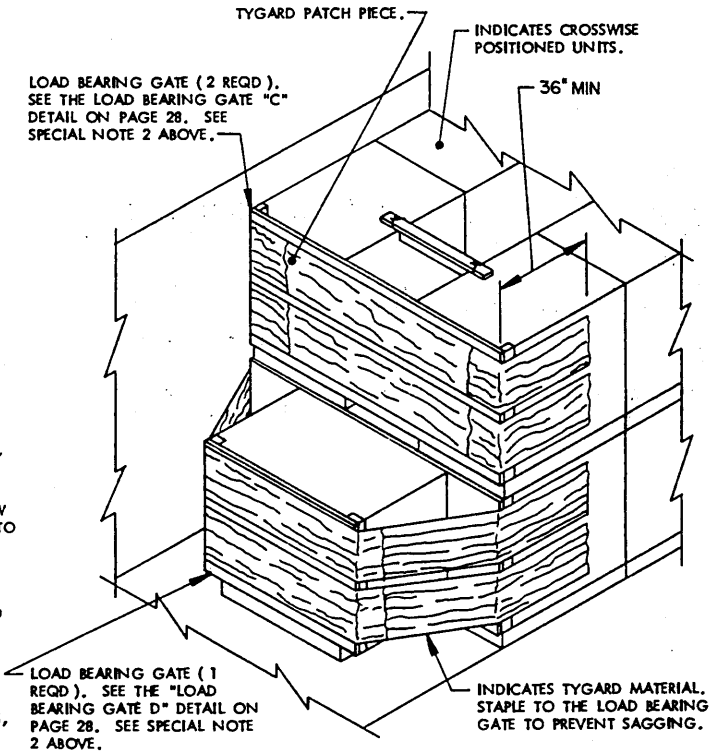
- PAINT ROLLER, LATEX
- PAINT ROLLER PAN
- TENSIONING ROD/TOOL
- PRESSURE ROLLER
- RATCHET WRENCH (12" TO 15" HANDLE)
- OPEN END OR BOX WRENCH (12" TO 15" HANDLE)
- SCISSORS OR KNIFE
- TYGARD (15" WIDE ROLL)
- TYGARD ADHESIVE

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 OR CONTAINERS, AS APPLICABLE, 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.

SPECIAL NOTES:

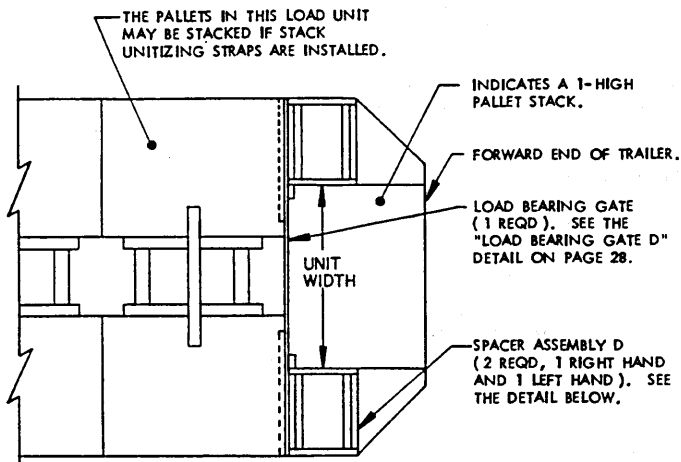
1. THE TYGARD METHOD OF REAR BLOCKING CAN ONLY BE USED IN TRAILERS WHICH HAVE REASONABLE SMOOTH AND ADEQUATELY SECURED SIDEWALL PANELS IN THE AREA WHERE THE TYGARD MATERIAL IS TO BE APPLIED, TYGARD MATERIAL MUST BE INSTALLED AT TWO LEVELS FOR EACH LAYER OF THE REAR LOAD UNIT.
2. A PLYWOOD GATE MUST BE INSTALLED FOR EACH LAYER 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) PALLET WIDTH GATE, AND ONE (1) TRAILER WIDTH MINUS 1/2" IN LENGTH GATE, AS SHOWN BY THE "TYGARD METHOD "A" AND "B" DETAILS; NOTE THAT PALLET ROTATION IS NOT REQUIRED IN METHOD "A".
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", BENSALEM, 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. THE TYGARD MATERIAL WILL BE APPLIED TO DIRECTLY OPPOSITE PORTIONS OF THE TRAILER SIDEWALL; IT MUST BE APPLIED TO EXTEND AT LEAST 36" FORWARD OF THE LAST PALLET UNIT CONTACTING THE WALL IN EACH LAYER ON EACH SIDE OF THE LOAD.



TYGARD METHOD B

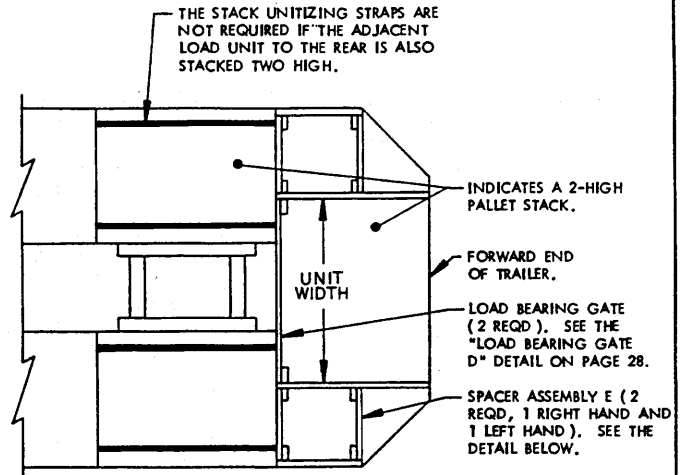
TYGARD METHODS "A" OR "B" CAN BE USED IN A 1-LAYER LOAD CONTAINING AN ODD NUMBER OF UNITS, OR IN A 2-LAYER LOAD WHEN THE REAR LOAD UNIT IN EITHER LAYER IS CENTERED ACROSS THE WIDTH OF THE TRAILER AS SHOWN ON THE FIRST LAYER ABOVE.

TYGARD METHOD PROCEDURES FOR CONVENTIONAL VAN-TRAILERS EQUIPPED WITH ROL-UP TYPE DOORS



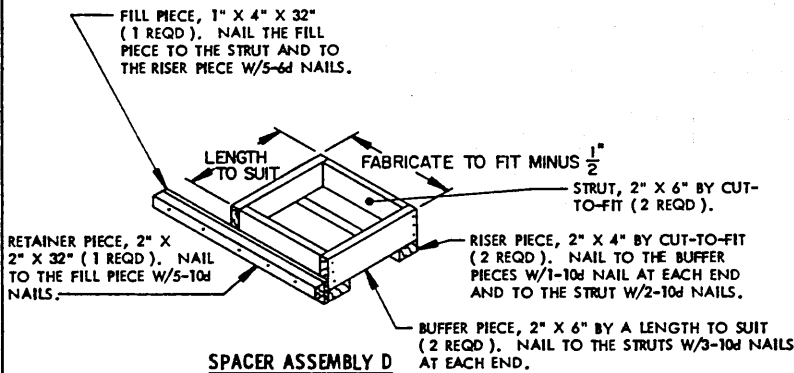
ALTERNATIVE FORWARD LOADING PATTERN A

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.



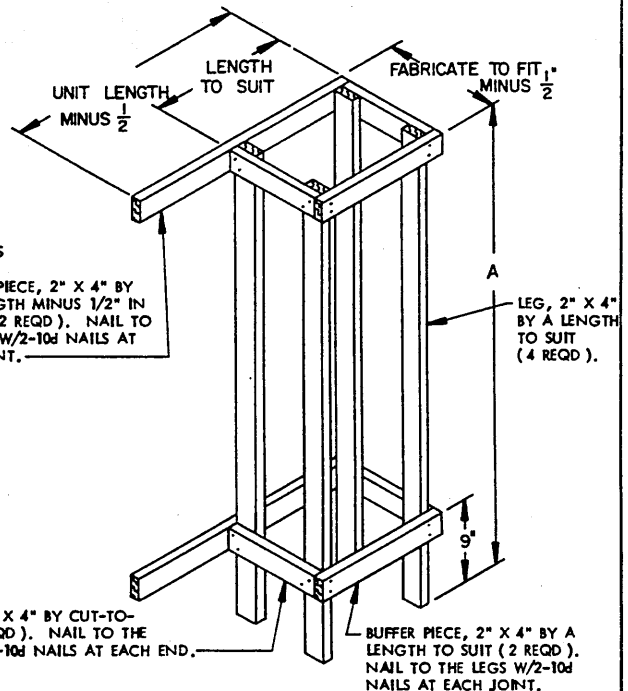
ALTERNATIVE FORWARD LOADING PATTERN B

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 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
BASIC HEIGHT	72"
DECREASED HEIGHT	64"
BASIC W/DECREASED ON TOP	72"

ITEMIZED INDEX

<u>ITEM</u>	<u>PAGE (S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS-----	2
PALLET UNIT DETAILS-----	3
PALLET UNIT (BASIC HEIGHT):	
HI-VOLUME CONVENTIONAL VAN TRAILER-----	4,7
HI-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES-----	8,9
PALLET UNIT (DECREASED HEIGHT):	
CONVENTIONAL VAN TRAILER-----	10-13
TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES-----	14,15
ALTERNATIVE LOADING PROCEDURE FOR ALL UNITS IN A HI-VOLUME VAN TRAILER-----	16,17
TYPICAL LTL - 7 PALLET UNITS IN A CONVENTIONAL VAN TRAILER-----	18,19
TYPICAL LTL - 1 PALLET UNIT IN A CONVENTIONAL TYPE VAN TRAILER-----	20
TYPICAL LTL - 1 PALLET UNIT IN A TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES-----	21
PROCEDURES FOR SHIPMENT OF A PARTIAL PALLET UNIT-----	22
PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS-----	23
DETAILS:	
ALTERNATIVE LOADING BEARING GATE A-----	26
ALTERNATIVE LOADING BEARING GATE B-----	26
ANTI-SWAY BRACE C-----	25
BULKHEAD GATE-----	28
FORWARD BLOCKING ASSEMBLY-----	24
LOADING BEARING GATE A-----	26
LOADING BEARING GATE B-----	26
LOADING BEARING GATE C-----	28
LOADING BEARING GATE D-----	28
LTL BRACE-----	20
REAR BLOCKING ASSEMBLY A-----	27
REAR BLOCKING ASSEMBLY B-----	27
REAR BLOCKING ASSEMBLY C-----	27
SPACER ASSEMBLY A-----	24
SPACER ASSEMBLY B-----	25
SPACER ASSEMBLY C-----	29
STRAP JOINT DETAILS-----	30
TIE WIRE APPLICATION-----	29
TOP-OF-LOAD ANTI-SWAY BRACE A-----	25
TOP-OF-LOAD ANTI-SWAY BRACE B-----	25
PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS-----	31,32
PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH LARGE-ANGLED FRONT CORNERS-----	33