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

PA 75 SERIES CONTAINERS

INDEX

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

DO NOT SCALE

REVISIONS				DRAFTSMAN	TYPIST	CHECKER	TECHNICIAN	ENGINEER
		DEV DEO DE			TMM	GRG	PB	
		DEV DEO DE		SMCAC - DEV	SMCAC - DEO	SMCAC - DE		
		DEV DEO DE			W. Smith	W. Ernst		
		DEV DEO DE		APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND				
		DEV DEO DE		APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND (AMC)				
				U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL				
				U.S. ARMY MATERIEL COMMAND				
				JUNE 1990				
				CLASS	DIVISION	DRAWING	FILE	
				19	48	4042C/11	11PM 1000	

PROJECT FSA 43C/11-63

GENERAL NOTES

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).

B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE FOR THE PA75 SERIES PROPELLING CHARGE CONTAINER ASSEMBLED ON THE 35" X 45-1/2" 4-WAY ENTRY PALLET. SEE THE PICTORIAL VIEWS ON PAGES 4 AND 5 FOR SIZES AND WEIGHTS. REFER TO U.S. AMC (DARCOM) DRAWING 19-48-4042A/12-20PM1001 FOR UNITIZATION PROCEDURES FOR THE PA75 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 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.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER ----------: SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.

NAILS ----------: FED SPEC FF-N-105; COMMON.

STRAPPING, STEEL --: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OF IV, CLASS H, 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 OF WIDTH STRENGTH.

ADHESIVE ----------: TYGARD ADHESIVE.

(GENERAL NOTES CONTINUED)

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 27. FOR "SHIPMENT OF LEFTOVER CONTAINERS", SEE THE DETAILS AND SPECIAL NOTES ON PAGE 28.

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 35 FOR GUIDANCE.

N. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1 2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.

O. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

P. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED TRAILER LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-N-105 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.

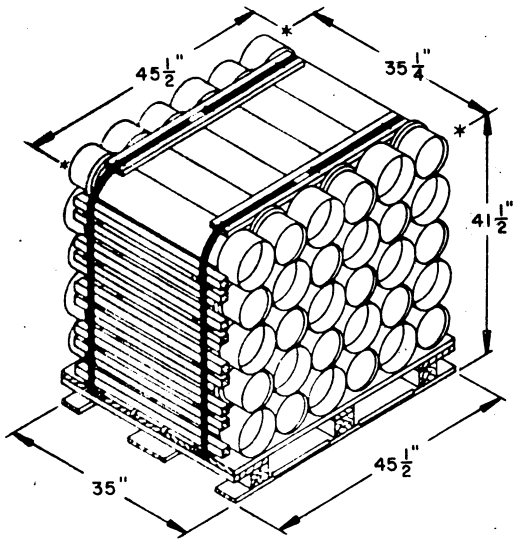
Q. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

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. ANY OF THE PALLET UNITS DEPICTED ON PAGES 4 AND 5 MAY BE LOADED AS A MIXED LOAD IN THE SAME TRAILER, INCLUDING THE BASIC HEIGHT UNITS WITH THE INCREASED OR DECREASED HEIGHT UNITS. FOR MIXED-HEIGHT LOADS, POSITION ALL PALLET UNITS OF ONE HEIGHT IN ONE LAYER, WITH THE TALLER UNITS IN THE BOTTOM LAYER. IF FULL LAYERS OF ONE HEIGHT UNITS ARE NOT POSSIBLE FOR THE QUANTITY OF EACH SIZE TO BE SHIPPED, THE TALLER UNITS WILL BE LOADED IN THE FORWARD PORTION OF THE BOTTOM LAYER AND THE SHORTER 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.

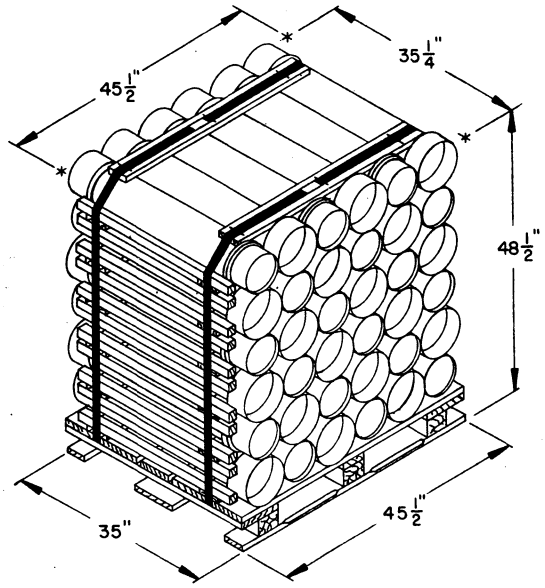
ITEMIZED INDEX



ALTERNATED CONTAINERS UNIT (BASIC HEIGHT)

CONTAINER ---------- 30 EACH @ 37 LBS (APPROX)
CUBE ---------- 38.5 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,240 LBS (APPROX)

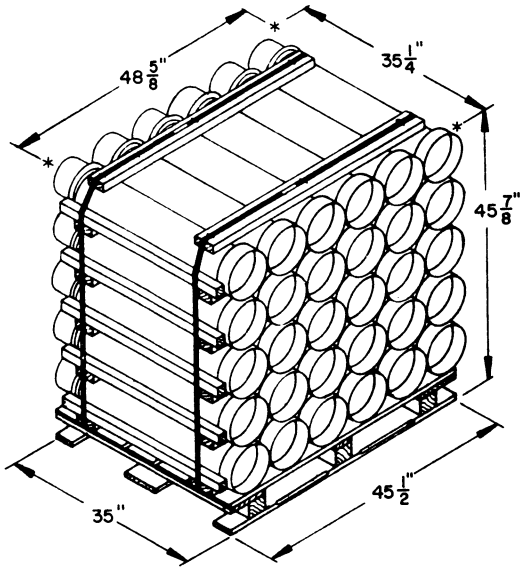
REFER TO PAGES 6 THRU 9 AND PAGES 22 AND 23 FOR OUTLOADING PROCEDURES.



ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT)

CONTAINER ---------- 36 EACH @ 37 LBS (APPROX)
CUBE ---------- 45.0 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,474 LBS (APPROX)

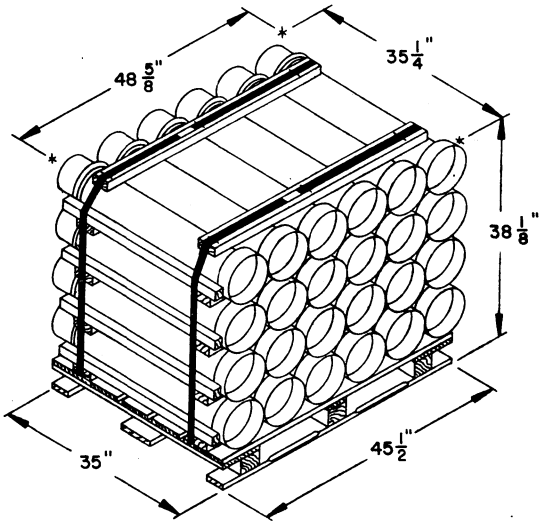
REFER TO PAGES 10 THRU 13 AND PAGES 22 AND 23 FOR OUTLOADING PROCEDURES.



FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT)

CONTAINER ---------- 30 EACH @ 37 LBS (APPROX)
CUBE ---------- 45.5 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,262 LBS (APPROX)

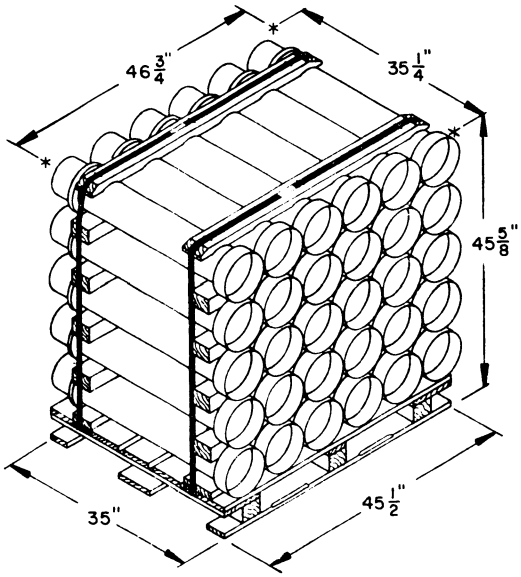
REFER TO PAGES 14 THRU 17 AND PAGES 22 AND 23 FOR OUTLOADING PROCEDURES.



FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT)

CONTAINER ---------- 24 EACH @ 37 LBS (APPROX)
CUBE ---------- 37.8 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,025 LBS (APPROX)

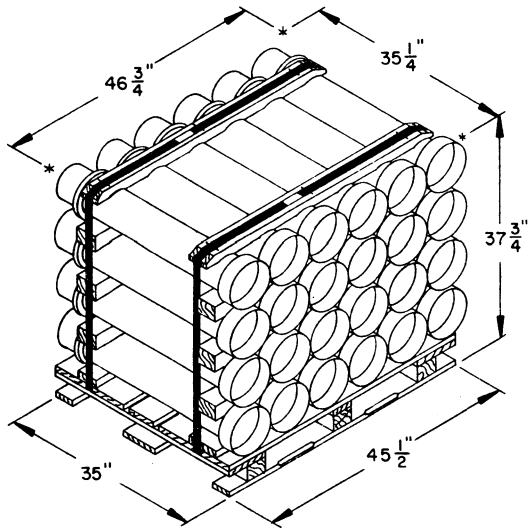
REFER TO PAGES 18 THRU 23 FOR OUTLOADING PROCEDURES.



ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)

CONTAINER ---------- 30 EACH @ 37 LBS (APPROX)
CUBE ---------- 43.5 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,263 LBS (APPROX)

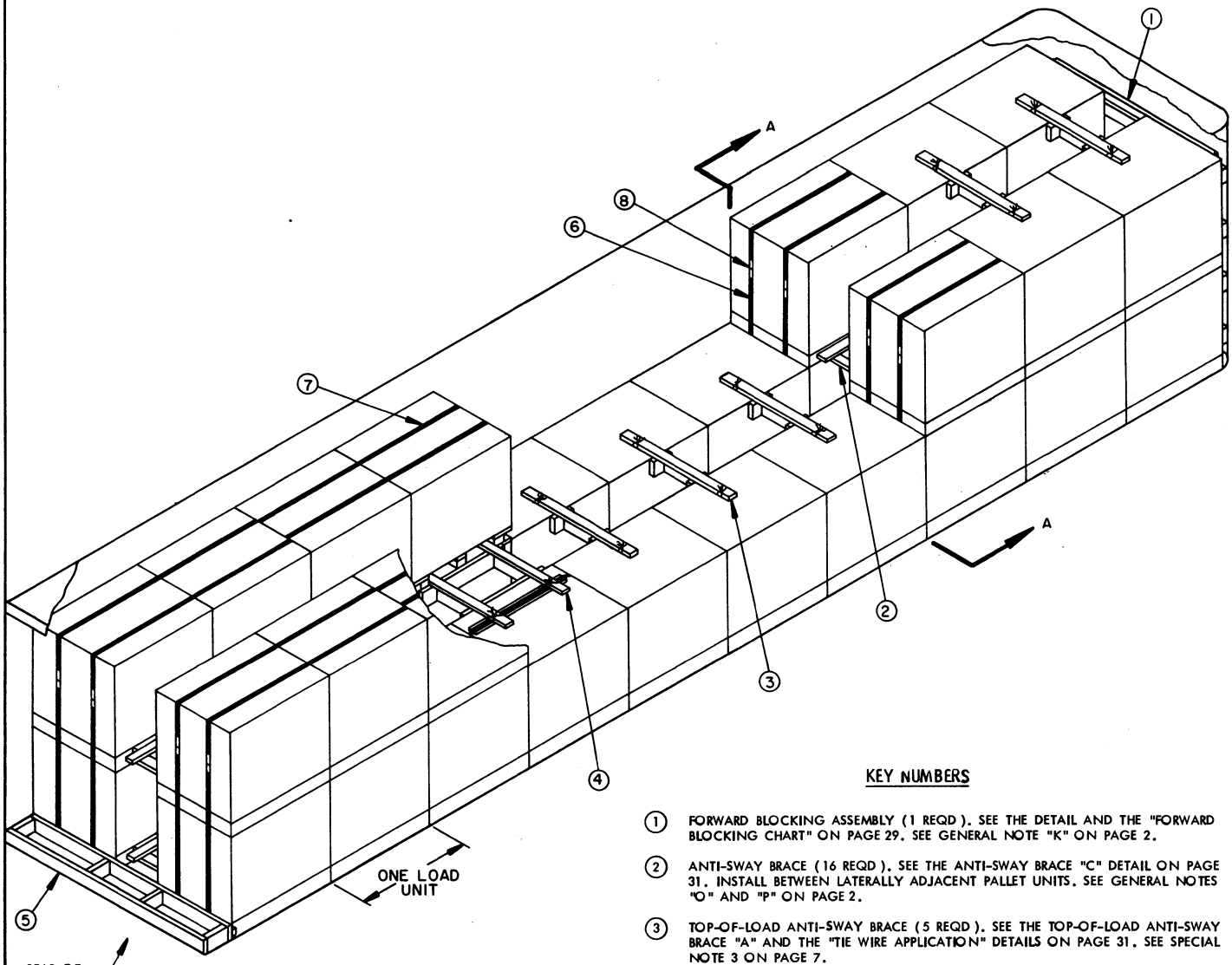
REFER TO PAGES 14 THRU 17 AND PAGES 22 AND 23 FOR OUTLOADING PROCEDURES.



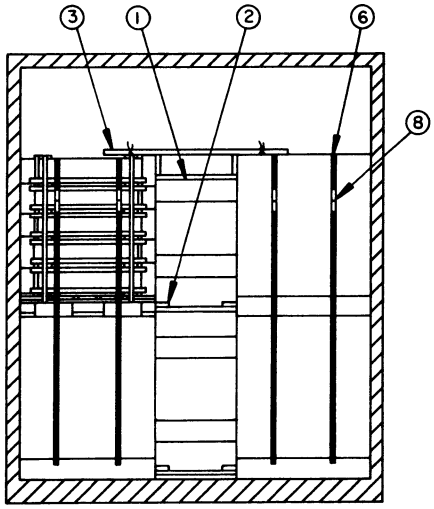
ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)

CONTAINER ---------- 24 EACH @ 37 LBS (APPROX)
CUBE ---------- 36.0 CUBIC FEET (APPROX)
GROSS WEIGHT ---------- 1,025 LBS (APPROX)

REFER TO PAGES 18 THRU 23 FOR OUTLOADING PROCEDURES



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

(1) FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 29. SEE GENERAL NOTE "K" ON PAGE 2.

(2) ANTI-SWAY BRACE (16 REQD). SEE THE ANTI-SWAY BRACE "C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (5 REQD). SEE THE TOP-OF-LOAD ANTI-SWAY BRACE "A" AND THE "TIE WIRE APPLICATION" DETAILS ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 7.

(4) TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" AND THE "TIE WIRE APPLICATION" DETAILS ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 7.

(5) REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 7.

(6) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 22'-6" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE A TOP LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. SEE SPECIAL NOTE 6 ON PAGE 7.

(7) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 30'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) COMPLETE STACKS. SEE SPECIAL NOTE 7 ON PAGE 7.

(8) SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "M" ON PAGE 2.

ALTERNATED CONTAINERS UNIT (BASIC HEIGHT)
33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TRAILER

SPECIAL NOTES:

1. A 33-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 6 IS THE ALTERNATED CONTAINERS UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 45-1/2" WIDE BY 41-1/2" HIGH AND WEIGHING APPROXIMATELY 1,240 POUNDS.

3. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECES MARKED ③ IN THE LOAD ON PAGE 6, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER, A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.

4. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", PIECE MARKED ④ , IS ONLY REQUIRED WHEN A PALLET UNIT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE IT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "C" WILL BE INSTALLED IN LIEU OF PIECE MARKED ④ .

5. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES LESS THAN 1-1/2", REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS 1-1/2" OR GREATER BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY D", DETAILED ON PAGE 35. IF THE VOID IS GREATER THAN 9", USE "REAR BLOCKING ASSEMBLY A" AS SHOWN. 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 IS MORE THAN ONE UNIT HIGH, AS IN THE DEPICTED LOAD, 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 THE REARMOST PALLET UNIT IN THE FIRST LAYER. A TOP-OF-LOAD ANTI-SWAY BRACE "B" SHOWN AS PIECE MARKED ④ WILL BE INSTALLED IN ADDITION TO THE UNITIZING STRAPS.

9. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

10. LEFTOVER CONTAINERS, IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 24 AND 25.

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 36 AND 37 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 CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

13. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 7'-0" IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT. IF THE SECOND LAYER AT THE REAR OF THE LOAD IS MOVED FORWARD, THE BUNDLING STRAPS, PIECE MARKED ⑦ , WILL NOT BE REQUIRED.

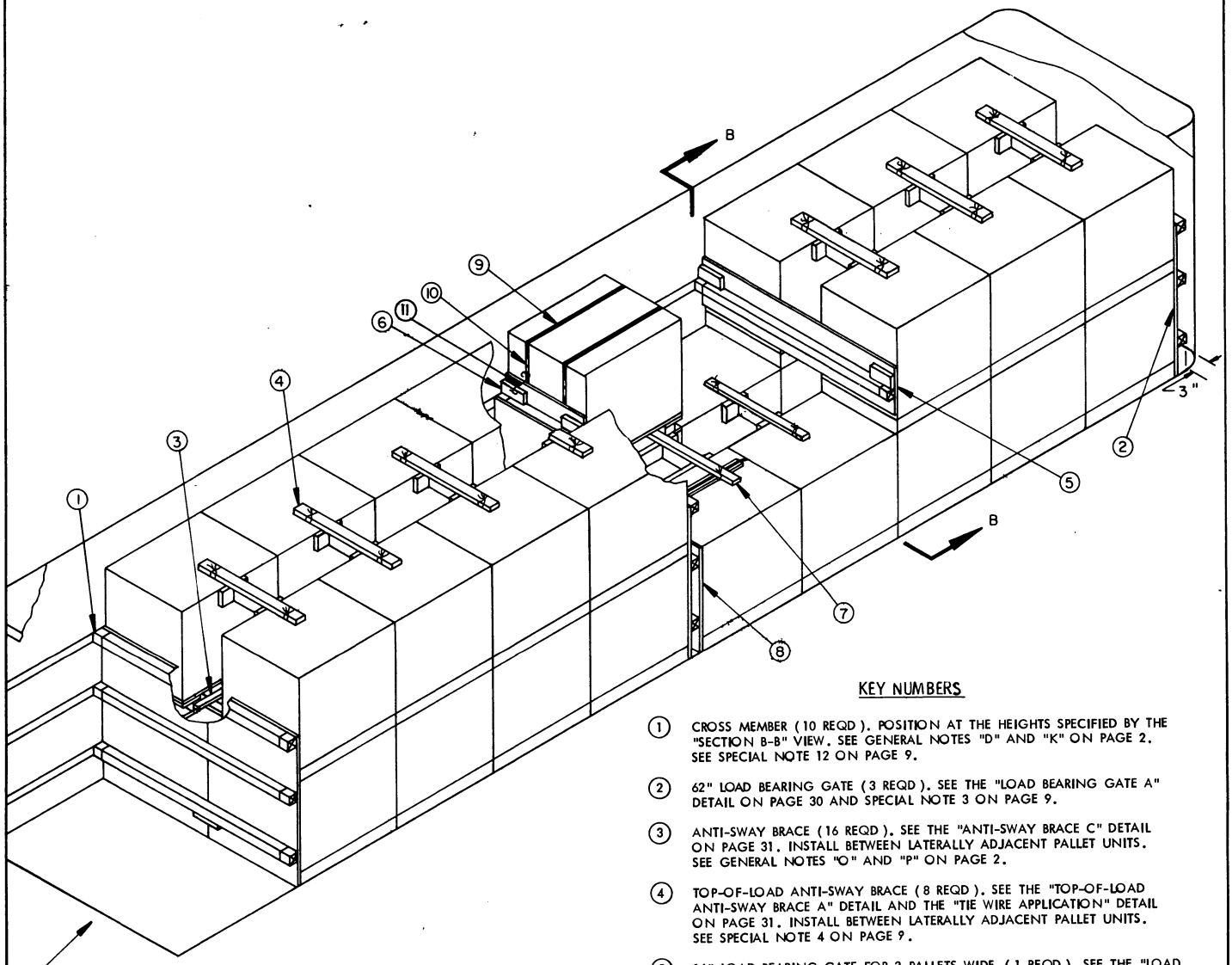
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 3" 2" X 4" 2" X 6"	2 233 96	1 156 96
NAILS	NO. REQD	POUNDS
10d (3")	377	6
STEEL STRAPPING, 1-1/4" X .035" OR .031" ----312' REQD ---- 45 LBS SEAL FOR 1-1/4" STRAPPING ---------- 24 REQD ---- 1 LB		

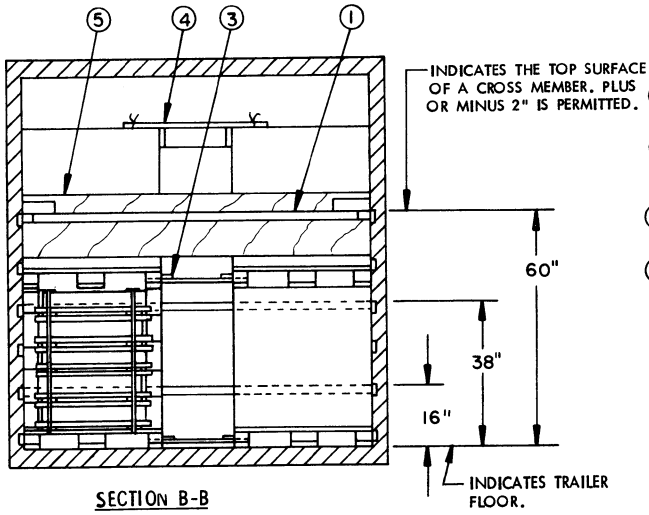
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT --------	33 ----------	40,920 LBS
DUNNAGE ----------		558 LBS
TOTAL WEIGHT --------		41,478 LBS

ALTERNATED CONTAINERS UNIT (BASIC HEIGHT)
33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW



SECTION B-B

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 12 ON PAGE 9.

(2) 62" LOAD BEARING GATE (3 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 30 AND SPECIAL NOTE 3 ON PAGE 9.

(3) ANTI-SWAY BRACE (16 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(4) TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 9.

(5) 16" LOAD BEARING GATE FOR 2 PALLETS WIDE (1 REQD). SEE THE "LOAD BEARING GATE "B" DETAIL ON PAGE 30.

(6) 16" LOAD BEARING GATE FOR 1 PALLET WIDE (1 REQD). SEE THE "LOAD BEARING GATE B" DETAIL ON PAGE 30. SEE KEY NUMBER 11.

(7) TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 31. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE PALLET UNIT STRAPPING BOARDS, USING 36" PIECES OF NO. 14 GAGE WIRE. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. SEE SPECIAL NOTE 5 ON PAGE 9.

(8) 42" LOAD BEARING GATE (1 REQD). SEE THE "LOAD BEARING GATE C" DETAIL ON PAGE 30.

(9) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 22'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 6 ON PAGE 9.

(10) SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

(11) TIE WIRE, NO. 14 GAGE WIRE 18" LONG (1 REQD). INSTALL AROUND A UNITIZING STRAP AND SECURE TO PIECE MARKED (6) WITH A PARTIALLY-DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

ALTERNATED CONTAINERS UNIT (BASIC HEIGHT)
33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES

SPECIAL NOTES:

1. A 33-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES (CROSS MEMBERS AND STATIONARY WALL MEMBERS) AND ROUNDED FRONT CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 8 IS THE ALTERNATED CONTAINERS UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 45-1/2" WIDE BY 41-1/2" HIGH AND WEIGHING APPROXIMATELY 1,240 POUNDS.

3. IF PLYWOOD IS NOT AVAILABLE FOR THE CONSTRUCTION OF LOAD BEARING GATES, OR IF DESIRED, PIECES MARKED ② , ⑤ , ⑥ , AND ⑧ MAY BE CONSTRUCTED FROM 1" AND/OR 2" LUMBER. SEE THE ALTERNATIVE LOAD BEARING GATE "A", "B", AND "C" DETAILS ON PAGE 30. NOTE THAT LOAD BEARING GATES ARE NOT REQUIRED IF 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 MEMBERS.

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 TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.

5. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED ⑦ , IS ONLY REQUIRED FOR THE BRACING OF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "C" WILL BE INSTALLED IN LIEU OF PIECE MARKED ⑦ .

6. THE UNITIZING STRAPS, PIECES MARKED ⑨ IN THE LOAD ON PAGE 8, WILL BE INSTALLED TO SECURE THE UNSUPPORTED PALLET UNIT IN THE SECOND LAYER TO THE CORRESPONDING UNIT IN THE FIRST LAYER.

7. IF A CROSS MEMBER AND A LOAD BEARING GATE "B", PIECE MARKED ⑥ , ARE POSITIONED AT THE FRONT OF THE ODD UNIT IN THE SECOND LAYER, THE STACK UNITIZING STRAPS, PIECES MARKED ⑨ , MAY BE OMITTED. WIRE TIE PIECE MARKED ⑥ TO INTERMEDIATE DUNNAGE OR UNIT LOAD STRAP.

8. IF ONLY ONE PALLET UNIT IS LOADED IN THE SECOND LAYER, SPACER ASSEMBLY PROCEDURES AS SPECIFIED ON PAGE 26 MAY BE USED IN LIEU OF THE TOP-OF-LOAD ANTI-SWAY BRACE "B" SHOWN ON PAGE 8.

9. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLETIZED UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 26.

12. 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, AT THE REAR OF FRONT PORTION OF THE TOP LAYER, AND THE CROSS MEMBERS BETWEEN THE FIFTH AND SIXTH LOAD UNITS WILL BE OMITTED. ALSO OMIT THE LOAD BEARING GATES "B" (ONE FOR 2-WIDE AND ONE FOR 1-WIDE) AND "C", PIECES MARKED ⑤ , ⑥ , AND ⑧ , RESPECTIVELY, AND TWO (2) LOAD BEARING GATES "A", PIECE MARKED ② . UNITIZE THE UNSUPPORTED PALLET UNITS AS DESCRIBED IN SPECIAL NOTE 6. AT THE REAR OF THE LOAD INSTALL A CROSS MEMBER, PIECE MARKED ① , AT THE 28" AND 48" HEIGHTS.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	6	2
2" X 4"	220	147
2" X 6"	31	31
NAILS	**NO. REQD**	**POUNDS**
6d (2")	48	1/2
10d (3")	323	5

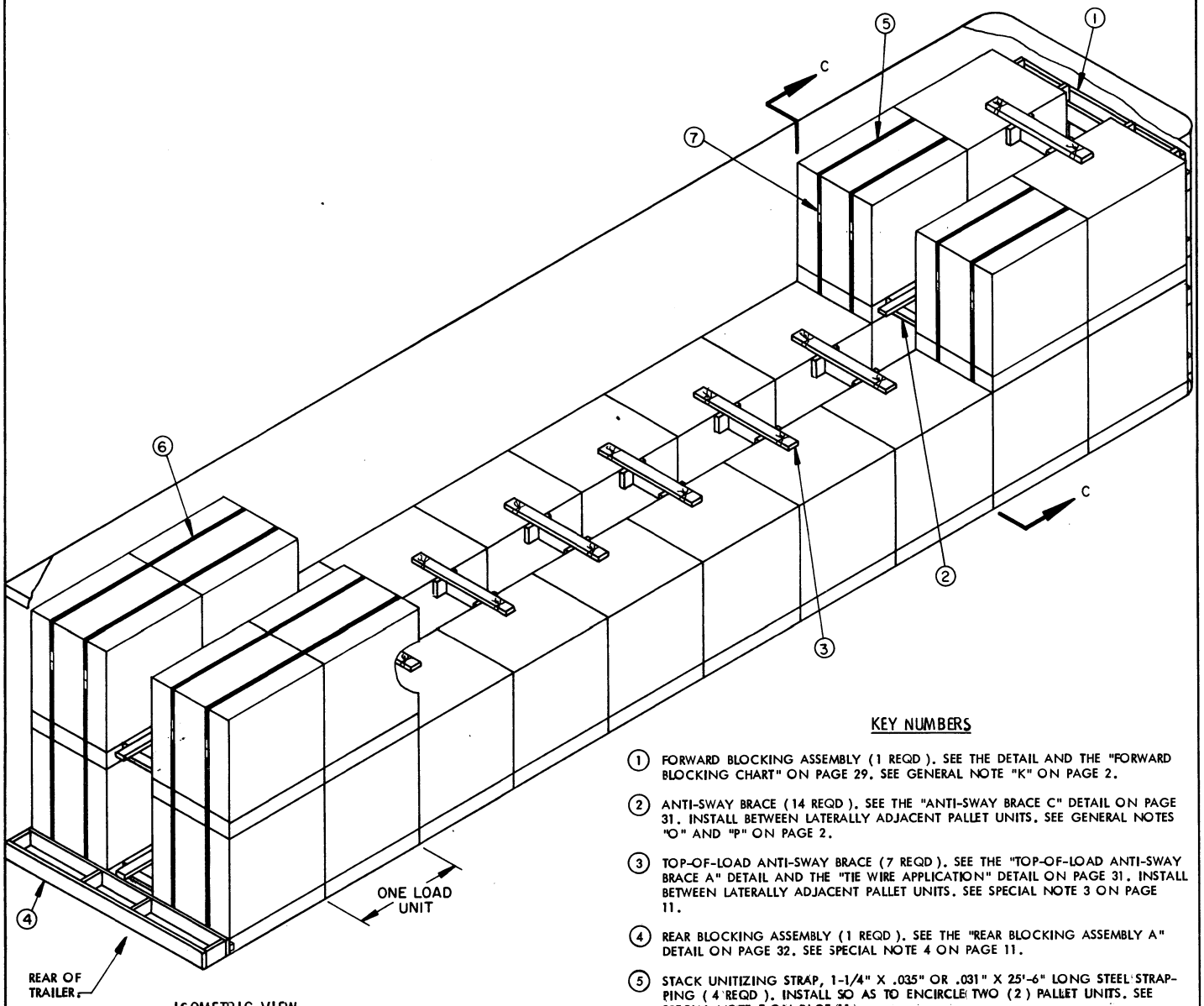
STEEL STRAPPING, 1-1/4" X .035" OR .031" -- 45' REQD ------ 7 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 4 REQD ------ NIL
PLYWOOD, 1/2 INCH ---------- 156 SQ FT REQD ---- 215 LBS
WIRE, NO. 14 GAGE ---------- 54' REQD ----- 1 LB

CROSS MEMBER ---------- 10 REQD

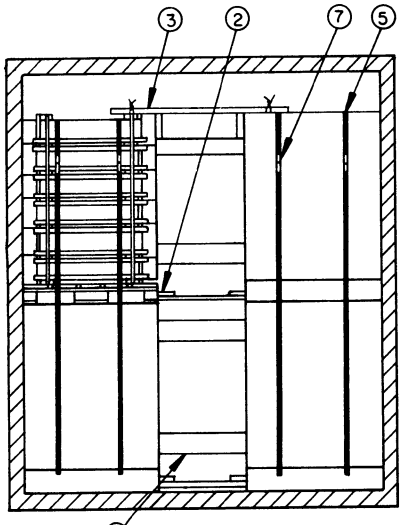
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	33	40,920 LBS
DUNNAGE		589 LBS
TOTAL WEIGHT		41,509 LBS

ALTERNATED CONTAINERS UNIT (BASIC HEIGHT)
33-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE 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 29. SEE GENERAL NOTE "K" ON PAGE 2.

(2) ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (7 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 11.

(4) REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32. SEE SPECIAL NOTE 4 ON PAGE 11.

(5) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS. SEE SPECIAL NOTE 5 ON PAGE 11.

(6) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 32'-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. SEE SPECIAL NOTE ● ON PAGE 11.

(7) SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT)
28-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME VAN TRAILER

SPECIAL NOTES:

1. A 28-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) HI-VOLUME VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 10 IS THE ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 45-1/2" WIDE BY 48-1/2" HIGH AND WEIGHING APPROXIMATELY 1,474 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 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 VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES LESS THAN 1-1/2" REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS 1-1/2" OR GREATER BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY D" AS DETAILED ON PAGE 35. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE REAR BLOCKING ASSEMBLY, PIECE MARKED ④ ON PAGE 10. SEE SPECIAL NOTE 11.

5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS, PIECE MARKED ⑤, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.

6. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, SUCH AS IS THE CASE IN THE DEPICTED LOAD, BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑥, MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS IN EACH APPLICABLE ROW.

7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 31 AND SHOWN IN THE LOAD VIEW ON PAGE 6 AS PIECE MARKED ④ WILL BE INSTALLED. WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. STACK UNITIZING STRAPS ARE REQUIRED.

8. IF A PALLET UNIT IS EITHER ADDED TO OR OMITTED FROM THE DEPICTED LOAD, THE PALLET UNIT IN THE SECOND LAYER THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE MUST BE SECURED BY INSTALLING A BUNDLING STRAP AROUND THAT STACK AND THE STACK IMMEDIATELY ADJACENT. ADDITIONALLY, A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 31 AND SHOWN IN THE LOAD ON PAGE 6 AS PIECE MARKED ④ MUST BE INSTALLED. WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31.

9. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

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 36 AND 37 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 CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

12. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 8'-2" IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT. IF THE SECOND LAYER AT THE REAR OF THE LOAD IS MOVED FORWARD, THE BUNDLING STRAPS, PIECE MARKED ⑥, WILL NOT BE REQUIRED.

13. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 24 AND 25.

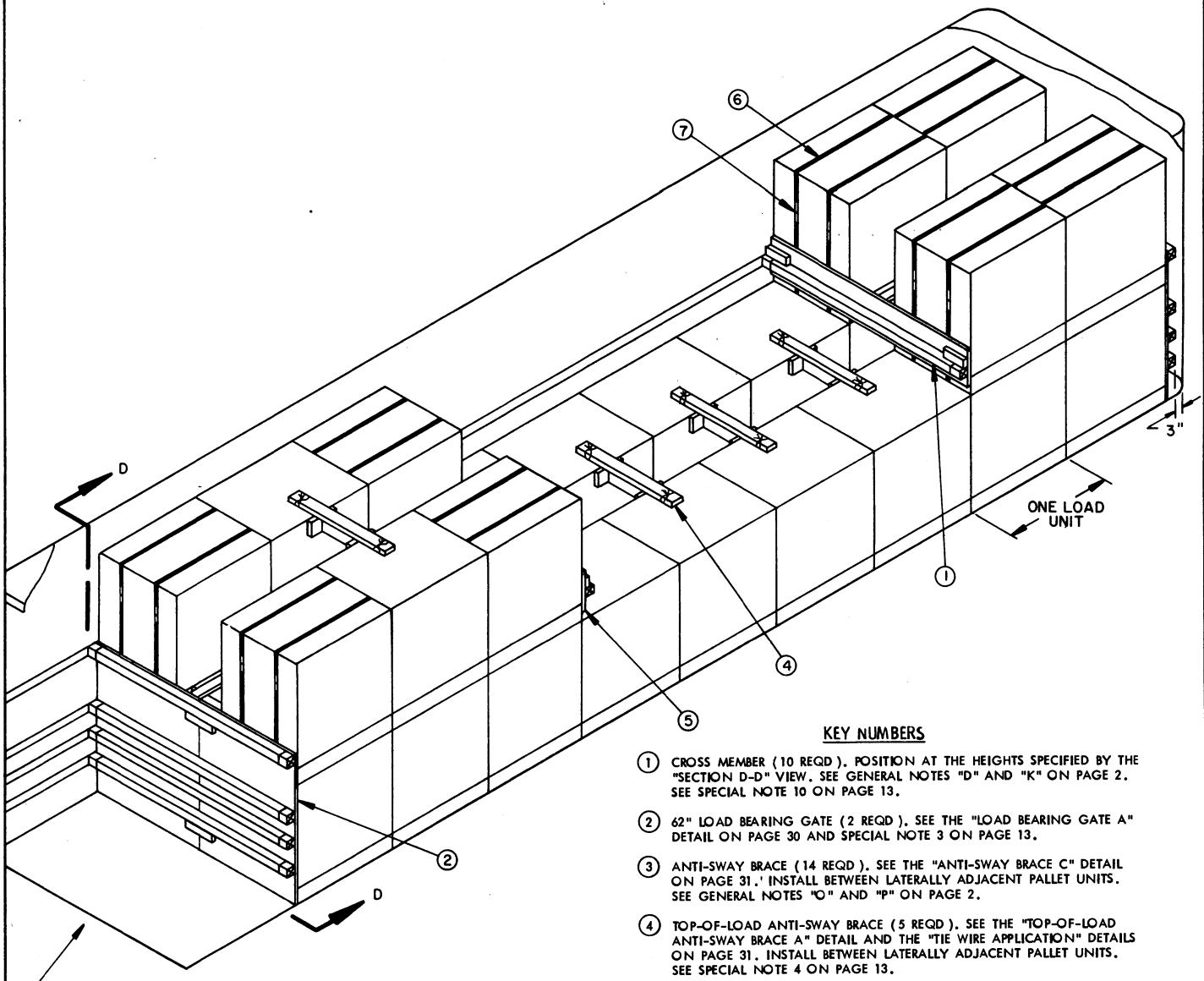
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 3" 2" X 4" 2" X 6"	2 221 95	1 148 95
NAILS	NO. REQD	POUNDS
10d (3")	353	5-1/2
STEEL STRAPPING, 1-1/4" X .031" OR .035" ------ 232' REQD -- 34 LBS SEAL FOR 1-1/4" STRAPPING ---------- 16 REQD -- 1 LB WIRE, NO. 14 GAGE ---------- 42' REQD -- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	20	41,272 LBS
DUNNAGE		528 LBS
TOTAL WEIGHT		41,800 LBS

ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT)
28-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME VAN TRAILER



ISOMETRIC VIEW

KEY NUMBERS

(1) CROSS MEMBER (10 REQD). POSITION AT THE HEIGHTS SPECIFIED BY THE "SECTION D-D" VIEW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 10 ON PAGE 13.

(2) 62" LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 30 AND SPECIAL NOTE 3 ON PAGE 13.

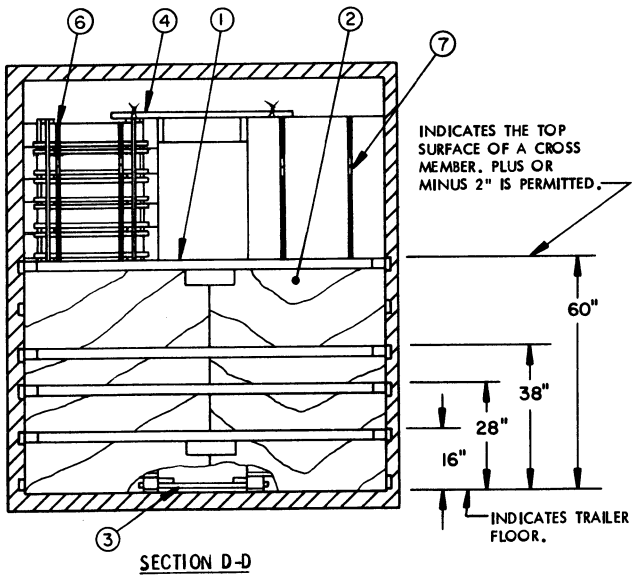
(3) ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31.' INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(4) TOP-OF-LOAD ANTI-SWAY BRACE (5 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND THE "TIE WIRE APPLICATION" DETAILS ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 13.

(5) 16" LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE B" DETAIL ON PAGE 30.

(6) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-0" LONG STEEL STRAPPING (16 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTES 5 AND 6 ON PAGE 13.

(7) SEAL FOR 1-1/4" STRAPPING (32 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION D-D

ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT)
28-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES

SPECIAL NOTES:

1. A 28-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) HI-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES (CROSS MEMBERS AND STATIONARY WALL MEMBERS) AND ROUNDED FRONT CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 12 IS THE ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 45-1/2" WIDE BY 45-1/2" HIGH AND WEIGHING APPROXIMATELY 1,474 POUNDS.

3. IF PLYWOOD IS NOT AVAILABLE FOR THE CONSTRUCTION OF LOAD BEARING GATES, OR IF DESIRED, PIECES MARKED ② AND ⑤ MAY BE CONSTRUCTED FROM 1" AND/OR 2" LUMBER. SEE THE ALTERNATIVE LOAD BEARING GATE "A" AND "B" DETAILS ON PAGE 30.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ④ IN THE LOAD ON PAGE 12, 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 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 26 MAY BE USED, OR THE TOP-OF-LOAD ANTI-SWAY BRACE "B" AND STACK UNITIZING STRAPS AS SHOWN ON PAGE 8 MAY BE USED.

7. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 26.

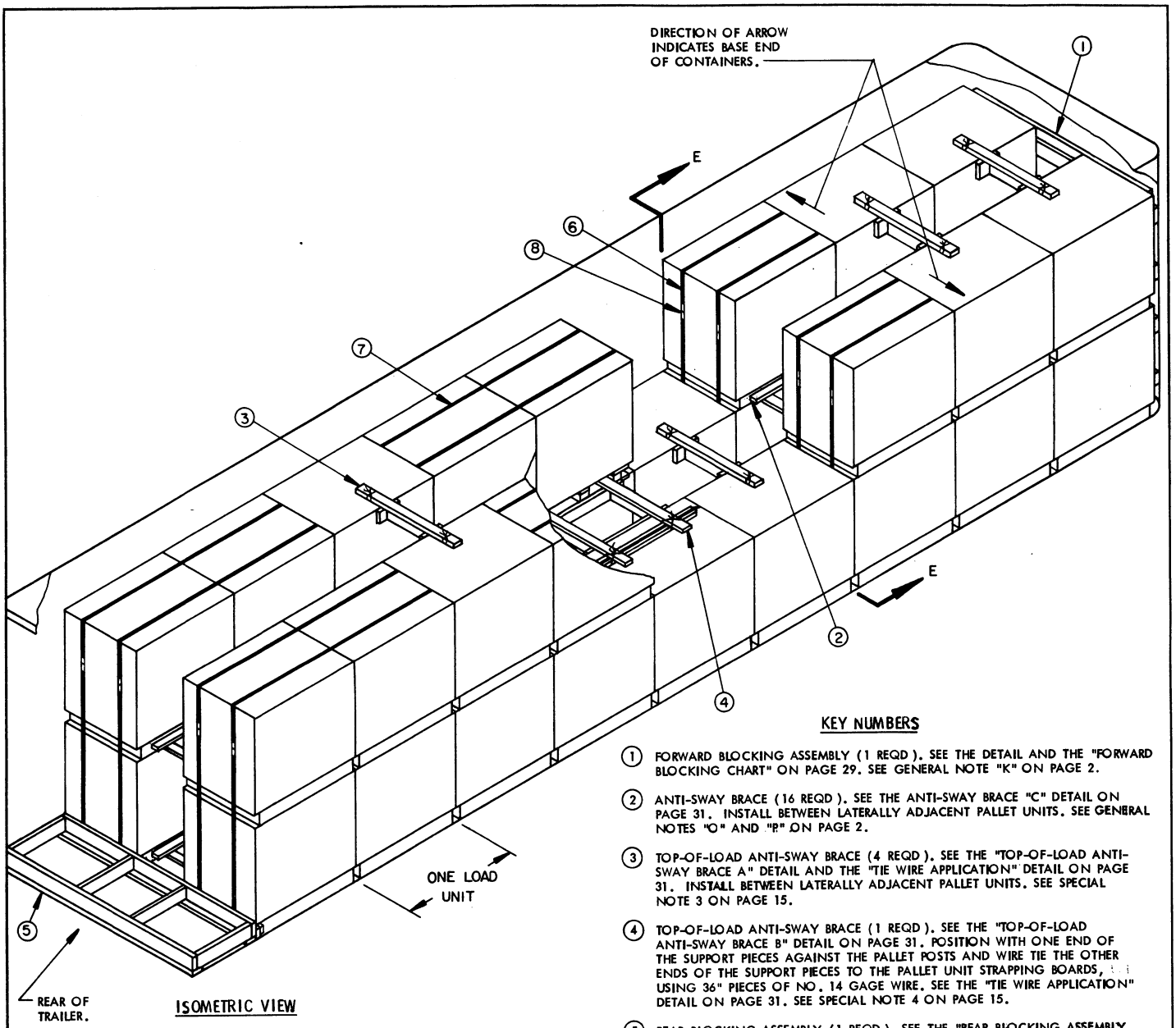
10. IF THE TRAILER BEING LOADED IS EQUIPPED ONLY WITH SHORT WALL MEMBERS AT THE REAR FOR ATTACHMENT OF THE CROSS MEMBERS, THE CROSS MEMBERS AND LOAD BEARING GATES "A", PIECES MARKED ① AND ② , WILL BE OMITTED FROM THE FRONT OF THE LOAD. ALSO, THE CROSS MEMBERS AND LOAD BEARING GATES "B", PIECES MARKED ① AND ⑤ , RESPECTIVELY, WILL BE OMITTED FROM THE REAR OF THE FRONT PORTION AND FROM THE FRONT OF THE REAR PORTION OF THE LOAD. AT THE REAR OF THE LOAD INSTALL AN ADDITIONAL CROSS MEMBER, PIECE MARKED ① , AT THE 48" HEIGHT.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4" 2" X 4" 2" X 6"	4 180 15	2 120 15
NAILS	NO. REQD	POUNDS
6d (2") 10d (3")	36 233	1/4 3-3/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" -- 400' REQD -- 58 LBS SEAL FOR 1-1/4" STRAPPING ---------- 32 REQD -- 2 LBS PLYWOOD, 1/2" ---------- 97 SQ FT REQD - 134 LBS WIRE, NO. 14 GAGE ---------- 30' REQD -- NIL		
CROSS MEMBER---------- 10 REQD		

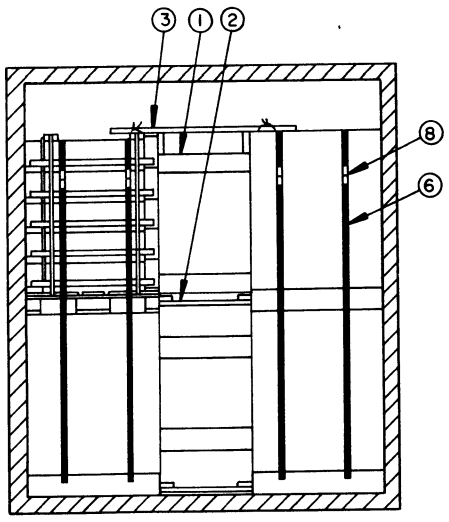
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	28	41,272 LBS
DUNNAGE		468 LBS
TOTAL WEIGHT		41,710 LBS

ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT)
28-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HI-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES



ISOMETRIC VIEW



SECTION E-E

KEY NUMBERS

(1) FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 29. SEE GENERAL NOTE "K" ON PAGE 2.

(2) ANTI-SWAY BRACE (16 REQD). SEE THE ANTI-SWAY BRACE "C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (4 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 15.

(4) TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 31. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE PALLET UNIT STRAPPING BOARDS, USING 36" PIECES OF NO. 14 GAGE WIRE. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 15.

(5) REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 15.

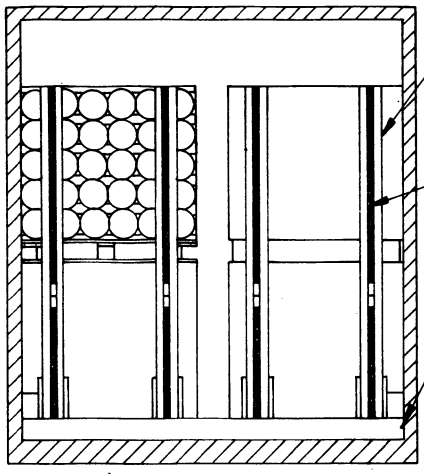
(6) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 24'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE A TOP LAYER PALLET UNIT AND THE UNIT DIRECTLY BELOW. SEE SPECIAL NOTE 6 ON PAGE 15.

(7) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 32'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) COMPLETE STACKS. SEE SPECIAL NOTE 7 ON PAGE 15.

(8) SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "M" ON PAGE 2.

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)
33-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HIGH-VOLUME VAN TRAILER

PROJECT FSA 43C/11-63



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

THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) IS SHOWN. THE PROCEDURES ARE ALSO APPLICABLE FOR THE FLAT DUNNAGE METHOD UNITS. BUNDLING STRAPS, AS SHOWN ABOVE WITH STRAPPING BOARD ASSEMBLIES, MUST BE APPLIED AROUND TWO (2) LONGITUDINALLY ADJACENT PALLET STACKS AT THE REAR OF THE LOAD WHEN THE REAR MOST LOAD UNIT IS TWO PALLETS IN HEIGHT. STACK UNITIZING STRAPS, 24'-6" LONG FOR BASIC HEIGHT AND 21'-6" LONG FOR DECREASED HEIGHT UNITS, WILL BE USED (WITH STRAPPING BOARD ASSEMBLIES) TO SECURE EACH PALLET STACK AT EACH END OF A 2-HIGH ROW WHICH IS LONGITUDINALLY ADJACENT TO A 1-HIGH PORTION OF THE LOAD. THE ABOVE PROCEDURES ARE APPLICABLE FOR TRAILERS WHICH ARE FROM 8'-1-1/2" TO 8'-3" WIDE (INSIDE DIMENSION), FOR ROUTED DUNNAGE METHOD UNITS, OR 8'-2" WIDE FOR FLAT DUNNAGE METHOD UNITS.

SPECIAL NOTES:

1. A 33-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) HI-VOLUME VAN TYPE TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD. IF A TRAILER WHICH IS 8'-2" OR WIDER IS FURNISHED FOR LOADING, THE LOADING PATTERN DEPICTED BY THE "TYPICAL REAR VIEW OF AN 8'-2" WIDE VAN" DETAIL AT LEFT MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 14.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 14 IS THE FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 48-5/8" WIDE BY 45-7/8" HIGH AND WEIGHING APPROXIMATELY 1,262 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 46-3/4" WIDE BY 45-5/8" HIGH AND WEIGHING APPROXIMATELY 1,263 POUNDS.
3. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ③ IN THE LOAD ON PAGE 14, ARE TO BE POSITIONED BETWEEL ALL LATERALLY ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.
4. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED ④ , IS ONLY REQUIRED FOR THE BRACINGOF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "C" WILL BE INSTALLED IN LIEU OF PIECE MARKED ④ .
5. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY D" AS DETAILED ON PAGE 35. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B", PIECE MARKED ⑤ ON PAGE 14. 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 AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AS IN THE DEPICTED LOAD, 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 THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING UNITIZING STRAPS, PIECES MARKED ⑥ . PROVIDE LATERAL BRACING BY INSTALLING A TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN AS PIECE MARKED ④ IN THE LOAD ON PAGE 14.
9. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 24 AND 25.
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 36 AND 37 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.

BILL OF MATERIAL (FLAT DUNNAGE)

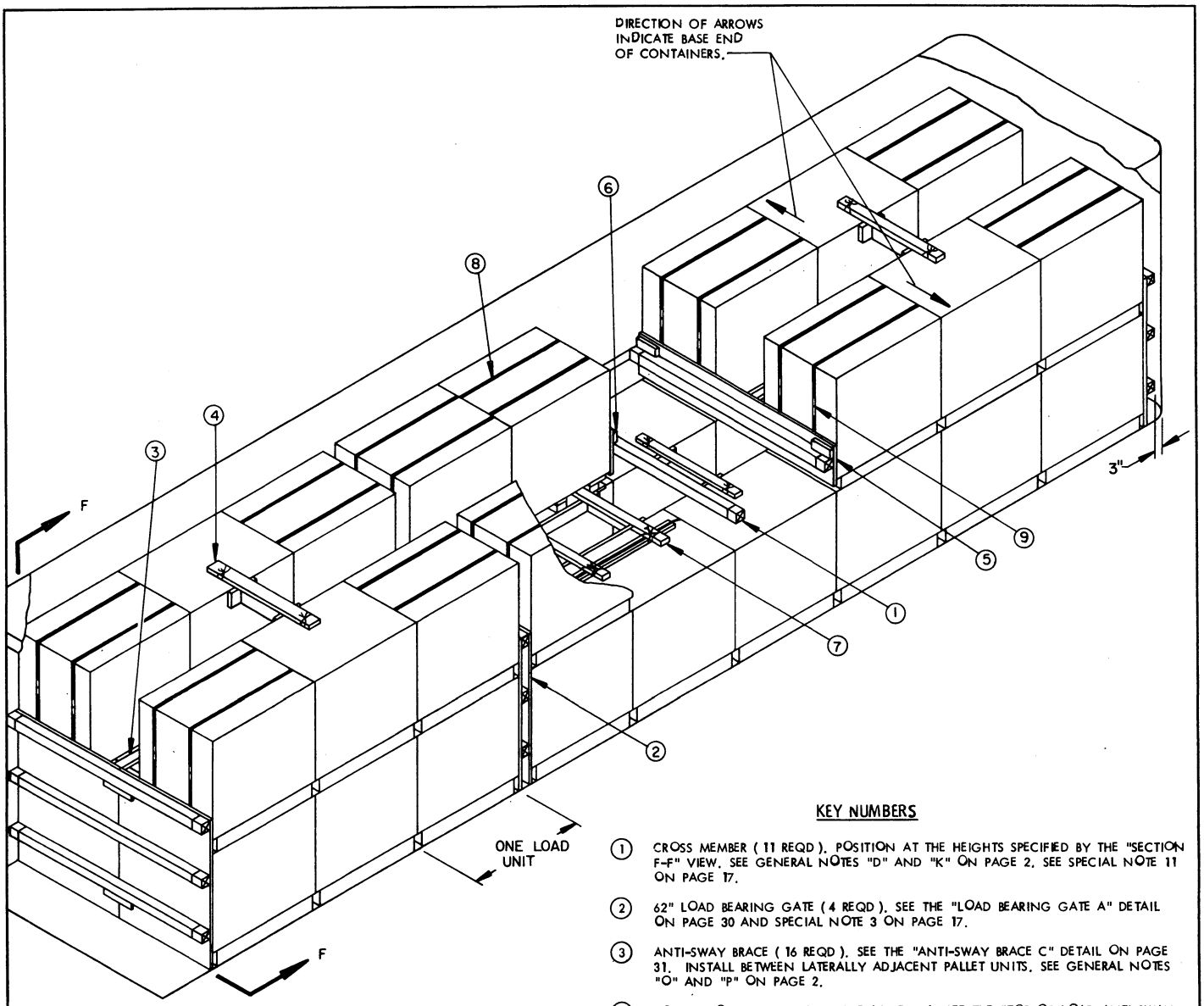
LUMBER	LINEAR FEET	BOARD FEET
2" X 3" 2" X 4" 2" X 6"	2 254 101	1 170 101
NAILS	NO. REQD	POUNDS
10d (3")	386	6

STEEL STRAPPING, 1-1/4" X .035" OR .031" -- 336' REQD ------ 48 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 24 REQD ------ 1 LB
WIRE, NO. 14 GAGE ---------- 30' REQD ------ NIL

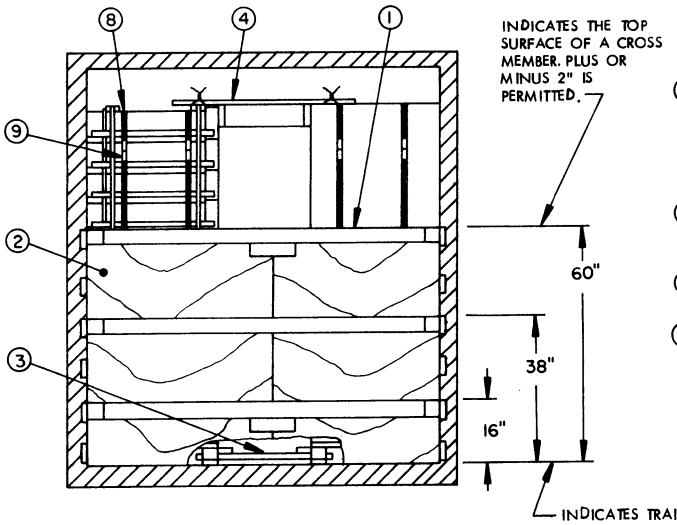
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	33	41,646 LBS *
DUNNAGE		599 LBS
TOTAL WEIGHT		42,246 LBS

* FLAT DUNNAGE METHOD UNIT SHOWN; 41,679 POUNDS FOR ROUTED DUNNAGE METHOD UNIT, PLUS 600 POUNDS OF DUNNAGE.



ISOMETRIC VIEW



SECTION F-F

KEY NUMBERS

(1) CROSS MEMBER (11 REQD). POSITION AT THE HEIGHTS SPECIFIED BY THE "SECTION F-F" VIEW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 11 ON PAGE 17.

(2) 62" LOAD BEARING GATE (4 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 30 AND SPECIAL NOTE 3 ON PAGE 17.

(3) ANTI-SWAY BRACE (16 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(4) TOP-OF-LOAD ANTI-SWAY BRACE (3 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 17.

(5) 16" LOAD BEARING GATE FOR 2 PALLETS WIDE (1 REQD). SEE THE "LOAD BEARING GATE B" DETAIL ON PAGE 30. SEE KEY NUMBER (10) .

(6) 16" LOAD BEARING GATE FOR 1 PALLET WIDE (1 REQD). SEE THE "LOAD BEARING GATE B" DETAIL ON PAGE 30. SEE KEY NUMBER (10).

(7) TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 31. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE PALLET UNIT STRAPPING BOARDS, USING 36" PIECES OF NO. 14 GAGE WIRE. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. SEE SPECIAL NOTE 5 ON PAGE 17.

(8) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 24'-0" LONG STEEL STRAPPING (22 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 6 ON PAGE 17.

(9) SEAL FOR 1-1/4" STRAPPING (44 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

(10) TIE WIRE, NO. 14 GAGE WIRE 18" LONG (1 REQD). INSTALL AROUND A UNITIZING STRAP AND SECURE TO PIECE MARKED (6) WITH A PARTIALLY-DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE. NOTE: KEY NUMBER (10) IS NOT SHOWN.

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)

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

SPECIAL NOTES:

1. A 33-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 FRONT CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 16 IS THE FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 48-5/8" WIDE BY 45-7/8" HIGH AND WEIGHING APPROXIMATELY 1,262 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 34-1/4" LONG BY 46-3/4" WIDE BY 45-5/8" HIGH AND WEIGHING APPROXIMATELY 1,263 POUNDS.

3. IF PLYWOOD IS NOT AVAILABLE FOR THE CONSTRUCTION OF LOAD BEARING GATES, OR IF DESIRED, PIECES MARKED ②, ⑤, AND ⑥ MAY BE CONSTRUCTED FROM 1" AND/OR 2" LUMBER. SEE THE ALTERNATIVE LOAD BEARING GATE "A" AND "B" DETAILS ON PAGE 30.

4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ④ IN THE LOAD ON PAGE 16, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT TOP-LAYER PALLET UNITS; HOWEVER, IF THE PALLET UNIT IN THE SECOND LAYER IS UNITIZED TO THE CORRESPONDING PALLET UNIT IN THE FIRST LAYER A TOP-OF-LOAD ANTI-SWAY BRACE WILL NOT BE REQUIRED.

5. THE TOP-OF-LOAD ANTI-SWAY BRACE "B", SHOWN IN THE LOAD AS PIECE MARKED ⑦, IS ONLY REQUIRED FOR THE BRACING OF AN ODD UNIT IN THE SECOND LAYER. IF ANOTHER PALLET UNIT IS POSITIONED OPPOSITE THE ODD UNIT, ANTI-SWAY BRACE "C" WILL BE INSTALLED IN LIEU OF PIECE MARKED ⑦.

6. THE STACK UNITIZING STRAPS, PIECES MARKED ⑧ IN THE LOAD ON PAGE 16, WILL BE INSTALLED TO SECURE AN UNSUPPORTED PALLET UNIT IN THE SECOND LAYER TO A CORRESPONDING UNIT IN THE FIRST LAYER.

7. IF ONLY ONE PALLET UNIT IS LOADED IN THE SECOND LAYER, SPACER ASSEMBLY PROCEDURES AS SPECIFIED ON PAGE 26, MAY BE USED IN LIEU OF THE TOP-OF-LOAD ANTI-SWAY BRACE "B" SHOWN ON PAGE 16.

8. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLETIZED UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

10. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGE 26.

11. IF THE TRAILER BEING LOADED IS EQUIPPED ONLY WITH SHORT WALL MEMBERS AT THE REAR FOR ATTACHMENT OF THE CROSS MEMBERS, THE CROSS MEMBERS AND THE LOAD BEARING GATES "A", PIECES MARKED ① AND ②, RESPECTIVELY, WILL BE OMITTED FROM BETWEEN THE SIXTH AND SEVENTH LOAD UNITS. ALSO OMIT THE CROSS MEMBERS AND LOAD BEARING GATE "A", PIECES MARKED ① AND ②, FROM THE FRONT OF THE TRAILER.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	8	3
2" X 4"	207	138
2" X 6"	19	19
NAILS	**NO. REQD**	**POUNDS**
6d (2")	73	1/2
10d (3")	257	4

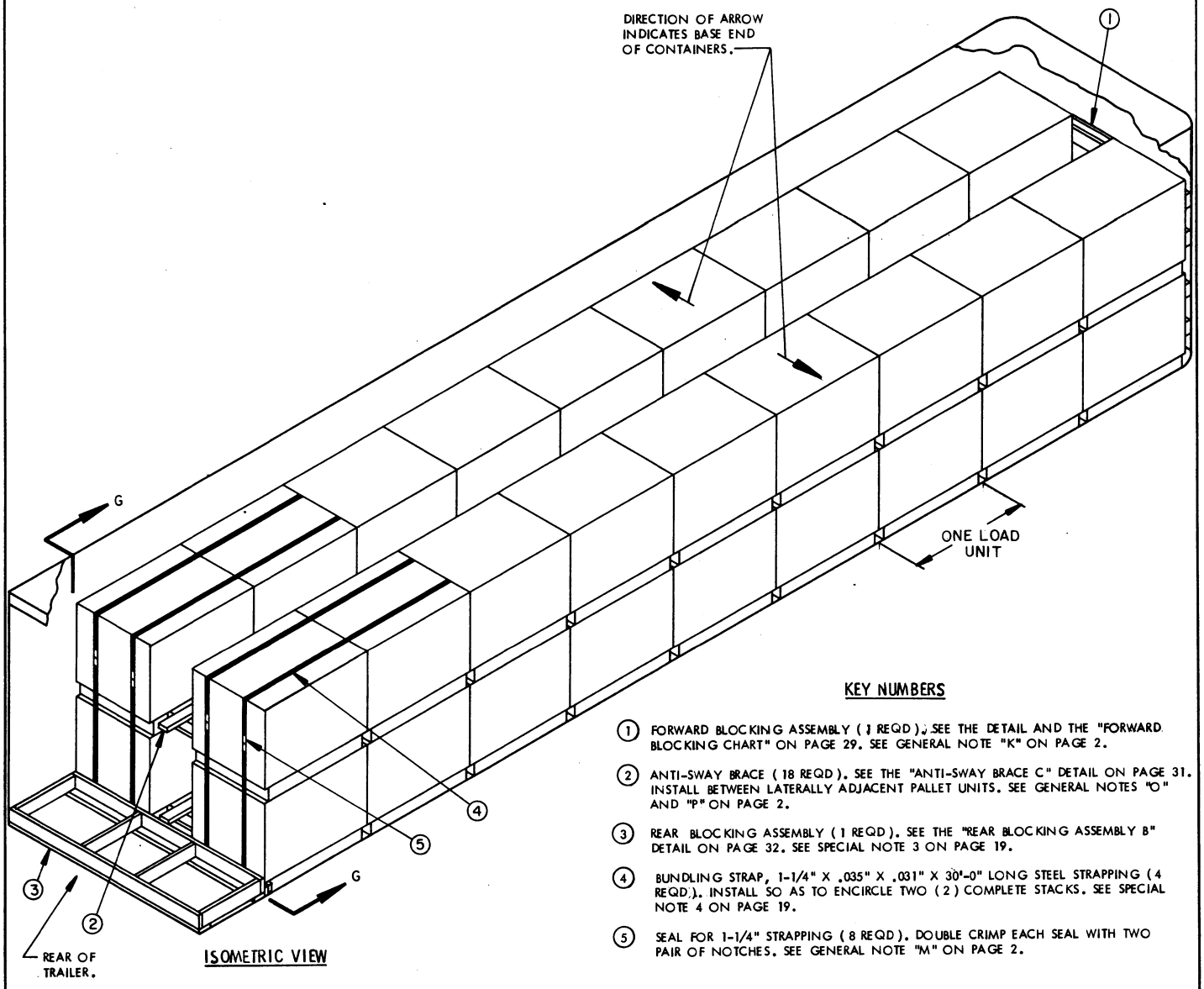
STEEL STRAPPING, 1-1/4" X .035" OR .031"	528'	REQD	76 LBS
SEAL FOR 1-1/4" STRAPPING	44	REQD	2 LBS
PLYWOOD, 1/2 INCH	172 SQ FT	REQD	237 LBS
WIRE, NO. 14 GAGE	24	REQD	NIL
CROSS MEMBER			11 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	33	41,646 LBS *
DUNNAGE		639 LBS
TOTAL WEIGHT		42,285 LBS

* FLAT DUNNAGE METHOD UNIT SHOWN; 41,679 POUNDS FOR ROUTED DUNNAGE METHOD UNIT.

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)
33-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE HIGH-VOLUME TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES



ISOMETRIC VIEW

KEY NUMBERS

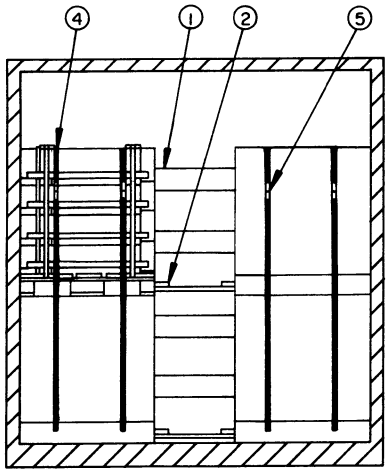
(1) FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 29. SEE GENERAL NOTE "K" ON PAGE 2.

(2) ANTI-SWAY BRACE (18 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(3) REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 3 ON PAGE 19.

(4) BUNDLING STRAP, 1-1/4" X .035" X .031" X 30'-0" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) COMPLETE STACKS. SEE SPECIAL NOTE 4 ON PAGE 19.

(5) SEAL FOR 1-1/4" STRAPPING (8 REQD). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION G-G

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)
36-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TRAILER

PROJECT FSA 43C/11-63

(SPECIAL NOTES CONTINUED)

7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING UNITIZING STRAPS, SHOWN AS PIECE MARKED (6) ON PAGE 14. PROVIDE LATERAL BRACING BY INSTALLING A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 31 AND SHOWN IN THE LOAD VIEW ON PAGE 14 AS PIECE MARKED (4). WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31.

8. IF THE TRAILER BEING OUTLOADED CONTAINS MECHANICAL BRACING DEVICES, SUCH AS WALL BELT RAILS AND LOAD BLOCKING CROSS MEMBERS, WHICH CONFORM TO SPECIFICATIONS SET FORTH WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C AND APPENDICES THERETO, THEY MAY BE USED AT THE REAR OF THE LOAD AS SHOWN IN THE "PARTIAL ELEVATION VIEW" ON THIS PAGE. THE MECHANICAL BRACING DEVICE SYSTEM OF A TRAILER MUST HAVE A LENGTH OF AT LEAST 37'-0" AS MEASURED FROM THE FRONT WALL OF THE TRAILER. SEE GENERAL NOTES "D" AND "K" ON PAGE 2.

9. IF THE TRAILER BEING OUTLOADED CONTAINS MECHANICAL BRACING DEVICES, A LOAD BEARING GATE "A" AS SHOWN IN THE "PARTIAL ELEVATION VIEW" ON THIS PAGE MUST BE USED BETWEEN THE CROSS MEMBERS AND THE REAR PALLET UNITS. IF THE TRAILER HAS ROUNDED FRONT CORNERS, INSTALL CROSS MEMBERS AT THE FRONT OF THE LOAD IN LIEU OF USING THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED (1). A LOAD BEARING GATE "A" MUST BE USED BETWEEN THE CROSS MEMBERS AND THE FRONT PALLET UNITS.

10. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

11. LEFTOVER CONTAINERS, IN AN AMOUNT NOT TO EXCEED FIVE (5), MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

12. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 24 AND 25 FOR CONVENTIONAL VAN TRAILERS AND PAGE 26 FOR MECHANICAL VAN TRAILERS.

13. 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 36 AND 37 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 CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

SPECIAL NOTES:

1. A 36-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) VAN TYPE TRAILER. WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD, IF A TRAILER WHICH IS 8'-0-1/2" OR WIDER IS FURNISHED FOR LOADING, THE LOADING PATTERN DEPICTED BY THE LOAD VIEW ON PAGE 20 MAY BE USED IN LIEU OF THE PROCEDURES DEPICTED ON PAGE 18.

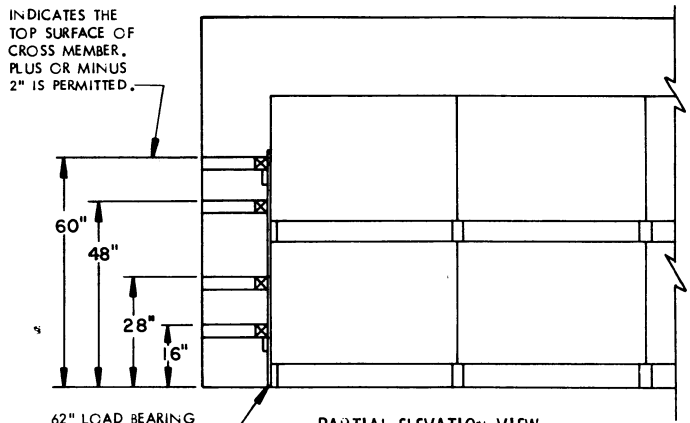
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 18 IS THE FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 48-5/8" WIDE BY 38-1/8" HIGH AND WEIGHING APPROXIMATELY 1,025 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 46-3/4" WIDE BY 37-3/4" HIGH AND WEIGHING APPROXIMATELY 1,025 POUNDS.

3. IF THE VOID AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR, MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY D" AS DETAILED ON PAGE 35. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE REAR BLOCKING ASSEMBLY, PIECE MARKED (3), ON PAGE 18. SEE SPECIAL NOTE 13.

4. 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 (4), MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS IN EACH APPLICABLE ROW.

5. IF THE SECOND LAYER OF THE LOAD IS NOT COMPLETE, 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. UNITIZING STRAPS, SIMILAR TO PIECE MARKED (6) ON PAGE 14, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.

6. IF ONE PALLET UNIT IS OMITTED FROM THE DEPICTED LOAD, OR IF THE SECOND LAYER OF ANY LOAD IS NOT COMPLETE AND THERE IS AN ODD QUANTITY IN THE SECOND LAYER, THE PALLET UNIT THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE MUST BE SECURED BY INSTALLING A TOP-OF-LOAD ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 31 AND SHOWN IN THE LOAD VIEW ON PAGE 14 AS PIECE MARKED (4). WIRE TIE AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. THE PALLET UNITS ADJACENT TO THE VOID FROM THE OMITTED UNIT MUST BE SECURED TO PALLET UNITS IN THE FIRST LAYER WITH UNITIZING STRAPS SIMILAR TO PIECE MARKED (6) ON PAGE 14.



PARTIAL ELEVATION VIEW

THE VIEW SHOWN ABOVE INDICATES THE REAR PORTION OF THE LOAD SHOWN ON PAGE 18. SEE SPECIAL NOTES 8 AND 9 ON THIS PAGE.

BILL OF MATERIAL (FLAT DUNNAGE)

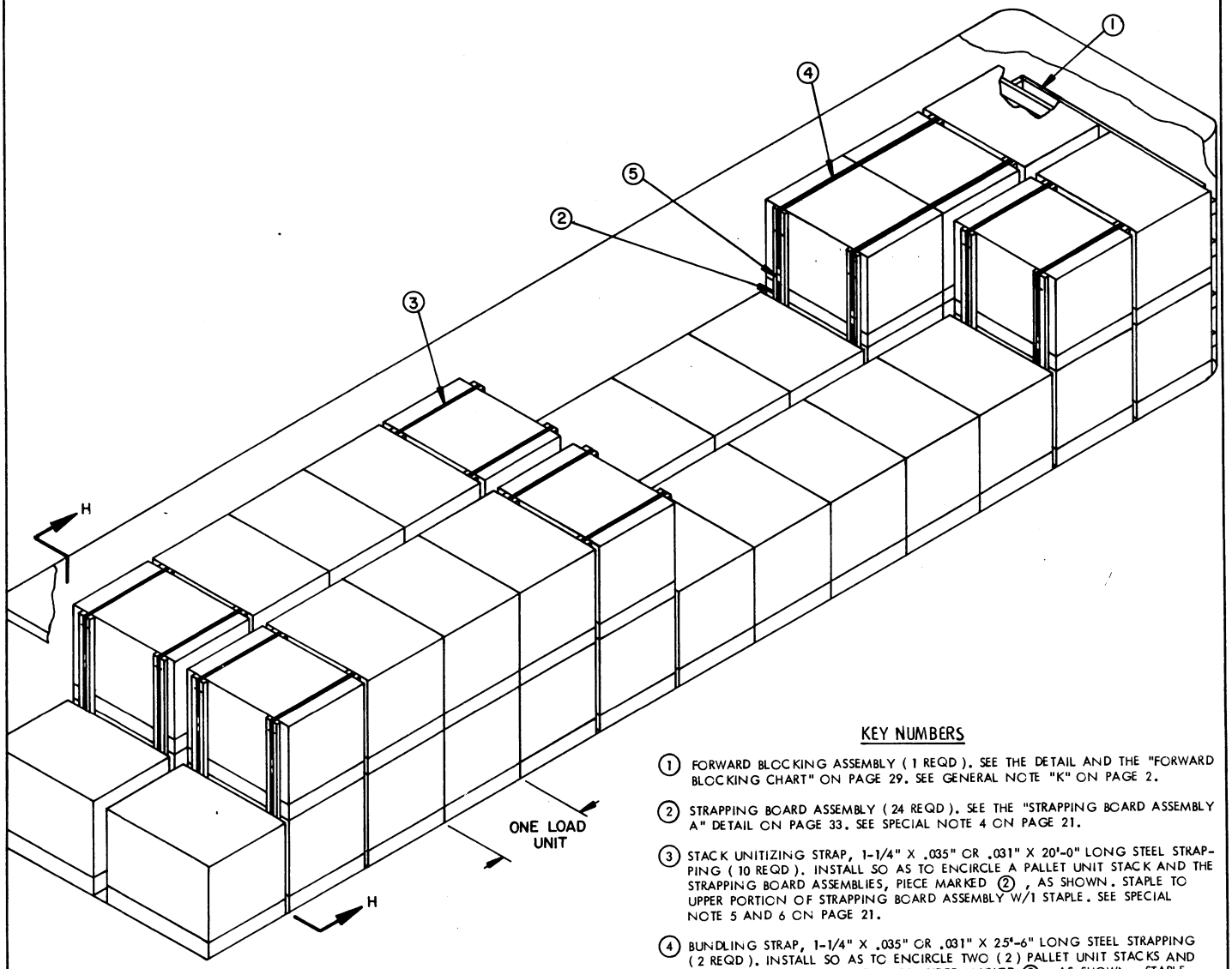
LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	2	1
2" X 4"	243	162
2" X 6"	78	78
NAILS	NO. REQD	POUNDS
10d (3")	332	5-1/4
STEEL STRAPPING, 1-1/4" X .035" OR .031" ----	120 REQD --	18 LBS
SEAL FOR 1-1/4" STRAPPING ----------	8 REQD --	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX.)
PALLET UNIT	36	36,900 LBS *
DUNNAGE		506 LBS
TOTAL WEIGHT		37,406 LBS

* FLAT DUNNAGE METHOD UNIT WEIGHT SHOWN; ROUTED DUNNAGE METHOD UNIT WEIGHT APPROXIMATELY THE SAME.

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)
36-UNIT LOAD IN A 40'-0" LONG BY 7'-6" WIDE CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW

KEY NUMBERS

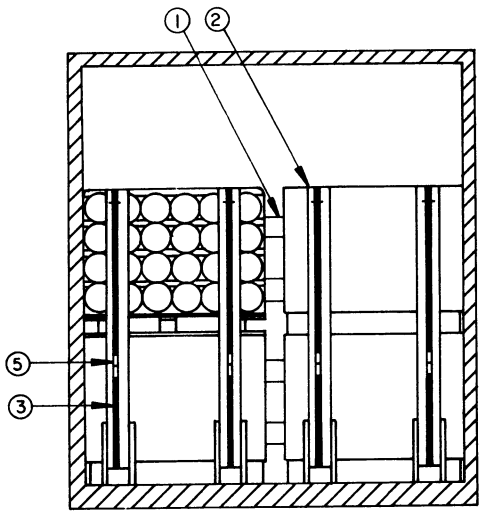
(1) FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 29. SEE GENERAL NOTE "K" ON PAGE 2.

(2) STRAPPING BOARD ASSEMBLY (24 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 33. SEE SPECIAL NOTE 4 ON PAGE 21.

(3) STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (10 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (2) , AS SHOWN. STAPLE TO UPPER PORTION OF STRAPPING BOARD ASSEMBLY W/1 STAPLE. SEE SPECIAL NOTE 5 AND 6 ON PAGE 21.

(4) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (2) , AS SHOWN. STAPLE TO UPPER PORTION OF STRAPPING BOARD ASSEMBLY W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 21.

(5) SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.



SECTION H-H

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)
41-UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TYPE TRAILER

PROJECT FSA 43C/11-63

SPECIAL NOTES:

1. A 41-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TYPE TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED. SEE SPECIAL NOTE 3.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 20 IS THE ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 46-3/4" WIDE BY 37-3/4" HIGH AND WEIGHING APPROXIMATELY 1,025 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 48-5/8" WIDE BY 38-1/8" HIGH AND WEIGHING APPROXIMATELY 1,025 POUNDS.

3. FOR THE DEPICTED LOAD, IT MAY BE NECESSARY TO CONSTRUCT TWELVE LOAD UNITS IN LIEU OF THIRTEEN AS SHOWN. NOTE THAT REAR BLOCKING WILL THEN BE REQUIRED. SEE SPECIAL NOTE 8.

4. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ② . SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 33.

5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. NOTE THAT WHEN THERE IS ONLY ONE FULL LOAD UNIT IN THE FRONT PORTION OF THE LOAD, EACH STACK IN THE LOAD UNIT MUST BE UNITIZED. FOR THE DEPICTED LOAD, ONE STACK IS BUNDLED TO AN ADJACENT STACK IN LIEU OF UNITIZING. THE UNITIZING STRAPS, PIECE MARKED ③ , AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED ② , MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.

6. 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 IN THE FIRST LAYER. PROVIDE LONGITUDINAL AND LATERAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED ② AND ③ . NOTE THAT TWO (2) 2" X 6" X PALLET WIDTH FILL PIECES WILL HAVE TO BE NAILED TO THE LOAD BEARING SIDE OF REAR BLOCKING "C" IF USED.

7. 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 ④ , MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO (2) STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ② , IN EACH APPLICABLE ROW.

8. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR MEASURES 1-1/2" OR LESS AS SHOWN, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE REAR BLOCKING ASSEMBLY "D" DETAILED ON PAGE 35. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, REAR BLOCKING ASSEMBLY "C" DETAILED ON PAGE 33 WILL BE USED. SEE SPECIAL NOTE 11.

9. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE (5) MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.

11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 24 AND 25.

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 36 AND 37. 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.

BILL OF MATERIAL

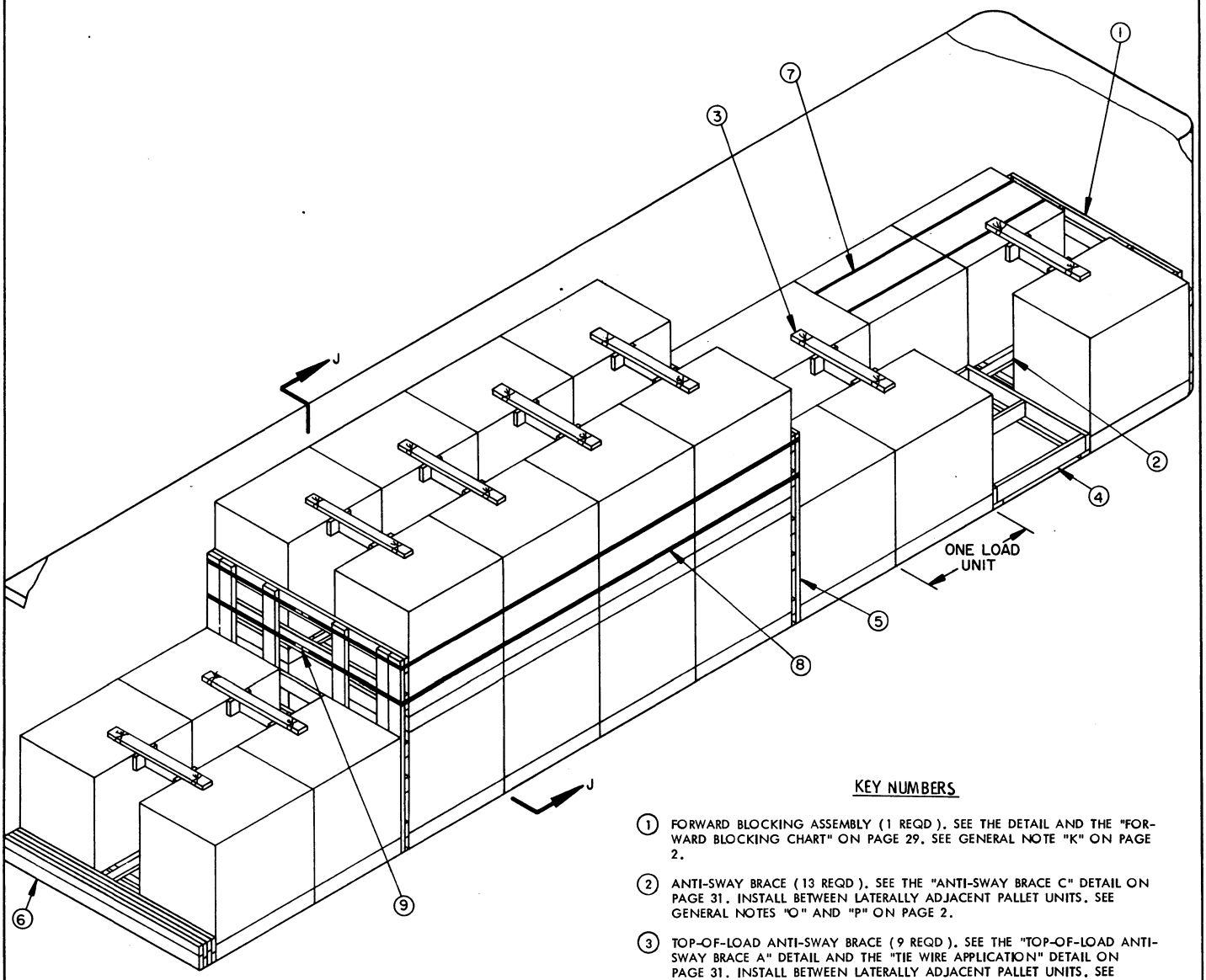
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	22
2" X 4"	23	16
2" X 6"	202	202
NAILS	**NO. REQD**	**POUNDS**
10d (3")	208	3-1/4

STEEL STRAPPING, 1-1/4" X .035" OR .031" ---- 251' REQD ---36 LBS
SEAL FOR 1-1/4" STRAPPING ---------- 24 REQD --- 1 LB
STAPLE ---------- 40 REQD --- NIL

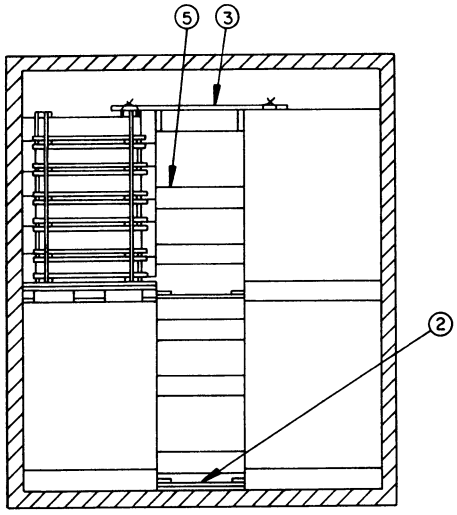
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	41	42,025 LBS
DUNNAGE		520 LBS
TOTAL WEIGHT		42,545 LBS

FLAT DUNNAGE/ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)
44-UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TYPE TRAILER



ISOMETRIC VIEW



SECTION J-J

KEY NUMBERS

(1) FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 29. SEE GENERAL NOTE "K" ON PAGE 2.

(2) ANTI-SWAY BRACE (13 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

(3) TOP-OF-LOAD ANTI-SWAY BRACE (9 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL AND THE "TIE WIRE APPLICATION" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE SPECIAL NOTE 3 ON PAGE 23.

(4) SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 34. SEE SPECIAL NOTE 4 ON PAGE 23.

(5) BULKHEAD GATE (2 REQD). SEE THE DETAIL AND THE "BULKHEAD GATE CHART" ON PAGE 34.

(6) REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY D" DETAIL ON PAGE 35. SEE SPECIAL NOTE 5 ON PAGE 23.

(7) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 24'-6" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO SECURE TWO PALLET UNITS. SEE SPECIAL NOTE 6 ON PAGE 23.

(8) BUNDLING STRAP, 1-1/4" X .035" OR .031" X 48'-6" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN. STAPLE TO EACH BULKHEAD GATE, PIECE MARKED (4), W/4 STAPLES PER STRAP. SEE SPECIAL NOTE 7 ON PAGE 23.

(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 ALL UNITS
27-UNIT LOAD IN A 7'-8-1/2" WIDE BY 40'-0" LONG HI-VOLUME VAN TRAILER

SPECIAL NOTES:

1. A 27-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) HI-VOLUME VAN TRAILER WHICH HAS ROUNDED FRONT CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.

2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 22 IS THE ALTERNATED CONTAINERS UNIT (INCREASE HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 45-1/2" WIDE BY 48-1/2" HIGH AND WEIGHING APPROXIMATELY 1,474 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGES 4 AND 5.

3. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ③ IN THE LOAD ON PAGE 22, ARE TO BE POSITIONED BETWEEN ALL LATERALLY ADJACENT TOP PALLET UNITS IN EACH LAYER FOR UNITS OVER 39" HIGH.

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, 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, PIECE MARKED ① OR ADJACENT TO A BULKHEAD GATE, PIECE MARKED 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 D" SHOWN IN THE LOAD ON PAGE 22. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE REAR BLOCKING ASSEMBLY "A" AS SHOWN IN THE LOAD ON PAGES 6 AND 10. USE REAR BLOCKING ASSEMBLY "B" DETAILED ON PAGE 32 IF THE FLAT/ROUTED DUNNAGE METHOD UNITS ARE BEING LOADED. SEE SPECIAL NOTE 10.

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 22, AROUND THAT PALLET UNIT AND THE PALLET UNIT IMMEDIATELY ADJACENT. NOTE THAT ONLY ONE STRAP IS REQUIRED WHEN A PALLET UNIT IS OMITTED FROM A LOAD OF DECREASED HEIGHT FLAT OR ROUTED DUNNAGE METHOD UNITS. A PALLET UNIT WILL NOT BE OMITTED FROM THE SECOND LAYER PORTION OF THE LOAD.

7. BUNDLING STRAPS SHOWN AS PIECES MARKED ⑧ MUST BE INSTALLED AROUND THE SECOND LAYER PORTION OF THE LOAD. REFER TO THE "BUNDLING STRAP CHART" AT LEFT FOR THE QUANTITY OF UNITS TO BE RETAINED USING ONE (1) OR TWO (2) BUNDLING STRAPS.

8. REFER TO PAGE 27 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

9. LEFTOVER CONTAINERS, IN AN AMOUNT NOT TO EXCEED FIVE (5), MAY BE SECURED TO THE TOP OF A FULL OR PARTIAL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 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 36 AND 37 THE NAILED-HEADER METHOD IS SHOWN ON PAGE 36 AND THE TYGARD METHOD IS SHOWN ON PAGE 37. FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILED HEADER METHOD, IT WILL BE NECESSARY TO FORM NINE LOAD UNITS INSTEAD OF TEN AS SHOWN. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BUNDLING STRAP CHART

PALLET UNIT TYPE	1-STRAP	2-STRAPS
ALTERNATED (BASIC)	8	16
ALTERNATED (INCREASED)	6	12
FLAT (BASIC)	8	14
FLAT (DECREASED)	8	18
ROUTED (BASIC)	8	14
ROUTED (DECREASED)	8	18

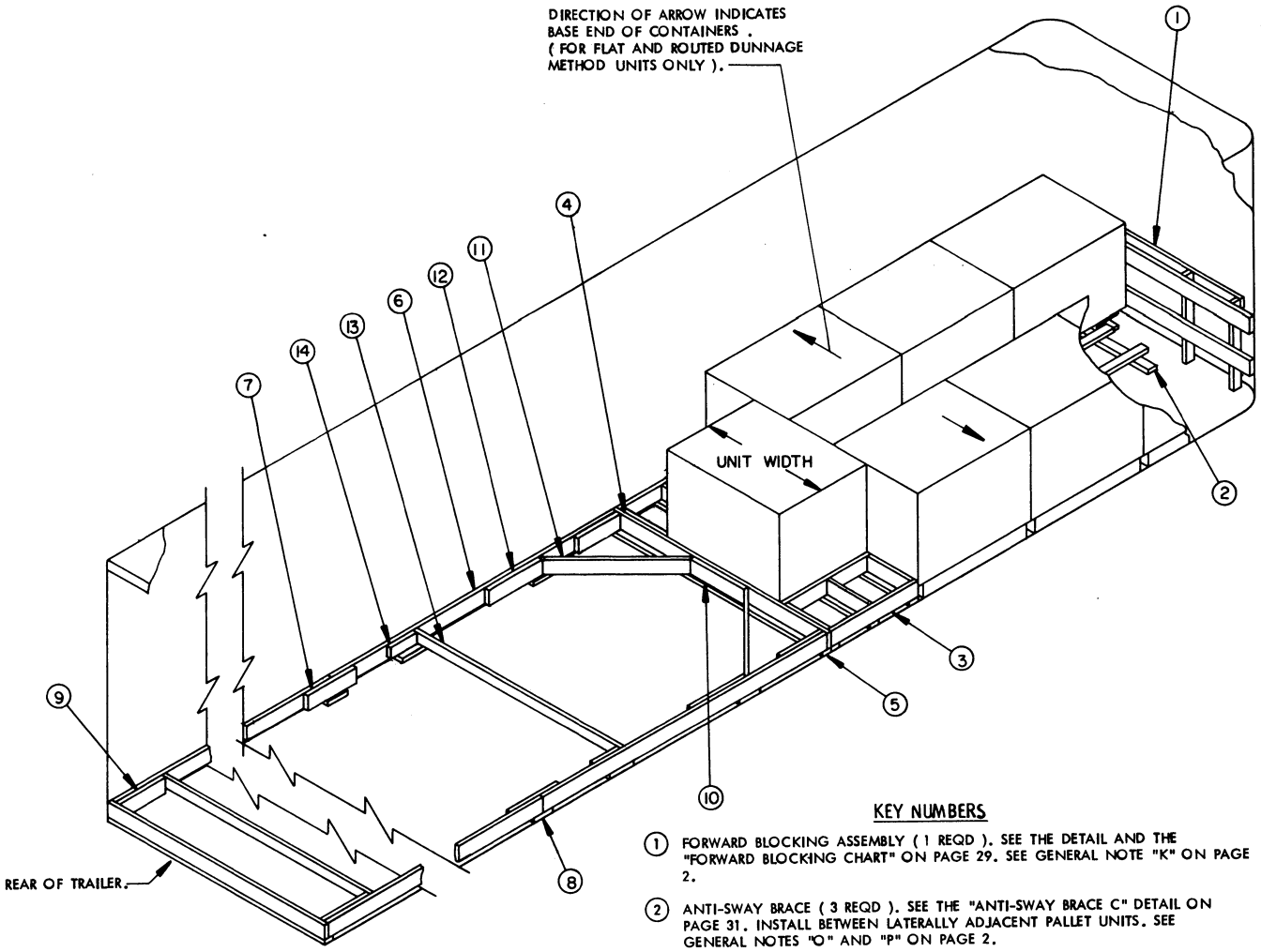
BILL OF MATERIAL (TYPICAL)

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	241	161
2" X 6"	260	160
NAILS	NO. REQD	POUNDS
10d (3")	559	9-1/4

STEEL STRAPPING, 1-1/4" X .031" OR .031"	146' REQD	----	21 LBS
SEAL FOR 1-1/4" STRAPPING	8 REQD	----	NIL
STAPLES FOR STEEL STRAPPING	16 REQD	----	NIL
WIRE, NO. 14 GAGE	54' REQD	----	1 LB

LOAD AS SHOWN (TYPICAL)

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	27	39,798 LBS
DUNNAGE		874 LBS
TOTAL WEIGHT		40,672 LBS



ISOMETRIC VIEW

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES COVER THE USE OF BOTH "K-BRACE" AND NAILED FLOOR LINE BLOCKING IN A 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER WHICH IS EQUIPPED WITH OR WITHOUT NAILABLE FLOORS AND REAR CORNER POSTS. WIDER OR NARROWER TRAILERS MAY BE USED. SEE SPECIAL NOTES 5 AND 6.

2. THE PALLET UNIT SHOWN IS THE FLAT DUNNAGE METHOD UNIT (DECERASED HEIGHT). THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGES 4 AND 5. NOTE THAT WHEN BRACING AGAINST THE PALLET UNIT WIDTH THE HEADER SUPPORT, AND THE RISER, PIECES MARKED ⑤ AND ⑧ CAN BE OMITTED.

3. TOP-OF-LOAD ANTI-SWAY BRACES, WILL BE POSITIONED BETWEEN ALL LATERALLY ADJACENT PALLET UNITS FOR THE INCREASED HEIGHT ALTERNATED CONTAINERS UNIT AND THE BASIC HEIGHT FLAT AND ROUTED DUNNAGE METHOD UNITS.

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 IN LIEU OF THE "K-BRACE" TYPE BLOCKING. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGES 36 AND 37 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 WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. SEE SPECIAL NOTE 6.

6. WHEN THE NAILED-HEADER METHOD OF BRACING SHOWN ON PAGE 36 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 HEADER ASSEMBLY. WHEN SHIPPING AN EVEN NUMBERED QUANTITY, THE NAILED-METHOD WILL APPLY AS IS.

7. IF DESIRED, IN TRAILERS EQUIPPED WITH NAILABLE FLOORS, THE NAILED-HEADER METHOD OF REAR BLOCKING MAY BE USED IN LIEU OF THE K-BRACE BLOCKING SHOWN AS PIECES MARKED ⑤ THRU ⑭ . REFER TO PAGE 36 FOR GUIDANCE. AS AN ALTERNATIVE IN NAILABLE FLOOR TRAILERS, OR IN TRAILERS HAVING NON-NAILABLE FLOORS, THE TYGARD METHOD DEPICTED ON PAGE 37 MAY BE USED.

KEY NUMBERS

① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 29. SEE GENERAL NOTE "K" ON PAGE 2.

② ANTI-SWAY BRACE (3 REQD). SEE THE "ANTI-SWAY BRACE C" DETAIL ON PAGE 31. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "O" AND "P" ON PAGE 2.

③ SIDE BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 34.

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 BOTTOM EDGE OF HEADER MARKED ④ W/ 1-10d NAIL EVERY 12".

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

⑦ SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON A JOINT OF PIECES MARKED ⑥ AND NAIL W/4-10d NAILS AT EACH END.

⑧ RISER PIECE, 2" X 4" X 9" (AS REQD). POSITION SO AS TO BE CENTERED UNDER THE JOINT OF A DIAGONAL BRACE AND A BACK-UP CLEAT, PIECES MARKED ⑪ AND ⑫ , UNDER THE JOINT OF THE STRUT BRACE AND THE STRUT BRACE RETAINING CLEAT, PIECES MARKED ⑬ AND ⑭ , AND UNDER THE SPLICED JOINT OF PIECES MARKED ⑥ , IF APPLICABLE NAIL TO A SIDE STRUT, PIECE MARKED ⑥ W/2-10d NAILS.

⑨ POCKET CLEAT 2" X 6" X 18" (4 REQD). NAIL TO A SIDE STRUT; PIECE MARKED ⑥ , W/5-10d NAILS. TOENAIL TO THE ADJACENT HEADER MARKED ④ W/3-12d NAILS.

⑩ CENTER CLEAT, 2" X 6" X 24" (1 REQD). NAIL TO HEADER MARKED ④ W/6-10d NAILS.

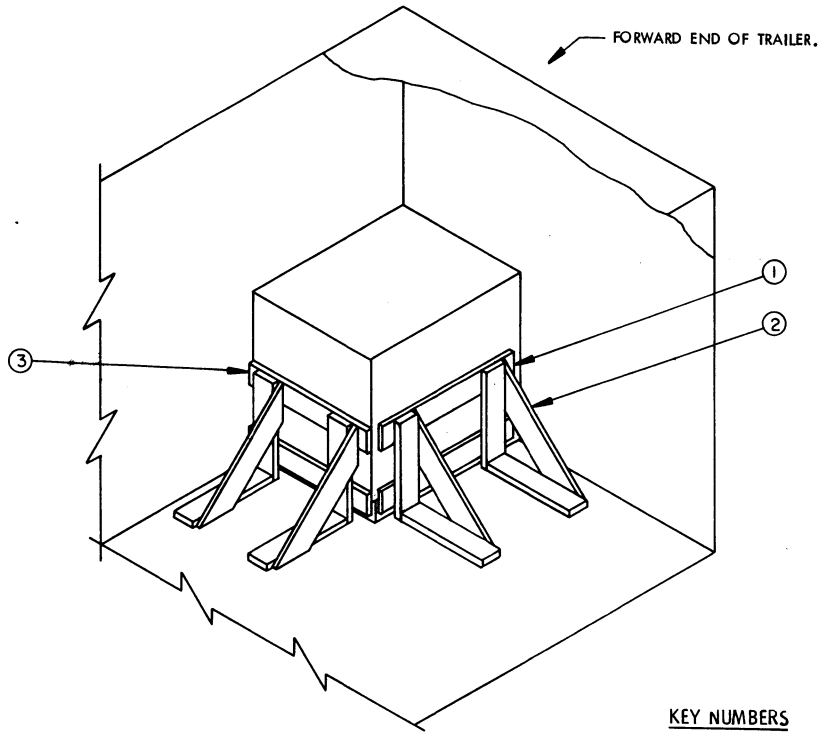
⑪ DIAGONAL BRACE, 2" X 6" BY CUT-TO-FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND TOENAIL TO THE ADJACENT HEADER MARKED ④ AND STRUT MARKED ⑥ W/2-10d NAILS AT EACH END.

⑫ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). POSITION AGAINST END OF DIAGONAL BRACE, PIECE MARKED ⑪ , AND NAIL TO A STRUT MARKED ⑥ W/8-10d NAILS.

⑬ STRUT BRACING, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT-TO-FIT) (MINIMUM OF 1 REQD). INSTALL ONE (1) STRUT BRACE AT THE REAR OF THE TRAILER AS SHOWN; ONE (1) ADDITIONAL PIECE REQUIRED FOR EVERY 7'-0" OF STRUT LENGTH. NAIL TO POCKET CLEATS, PIECES MARKED ⑨ , AND/OR TO STRUT BRACE RETAINING CLEATS, PIECES MARKED ④ , W/2-12d NAILS AT EACH END.

⑭ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑥ , W/3-10d NAILS.

TYPICAL LTL-7 PALLET UNITS IN A CONVENTIONAL TYPE VAN TRAILER



KEY NUMBERS

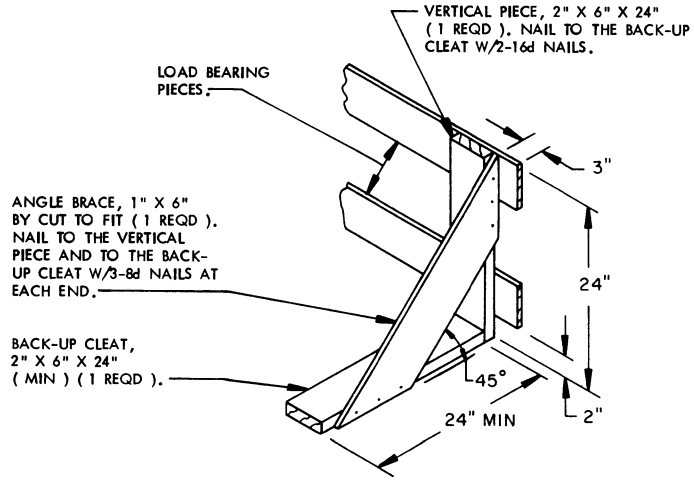
① LOAD BEARING PIECE, 1" X 6" X 42" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN DETAIL BELOW. NAIL TO PIECES MARKED ② W/4-6d NAILS AT EACH JOINT.

② LTL BRACE (4 REQD). SEE THE "LTL BRACE ASSEMBLY" DETAIL BELOW. NAIL EACH LTL BRACE TO TRAILER FLOOR W/7-10d NAILS. SEE SPECIAL NOTE 4 AT LEFT.

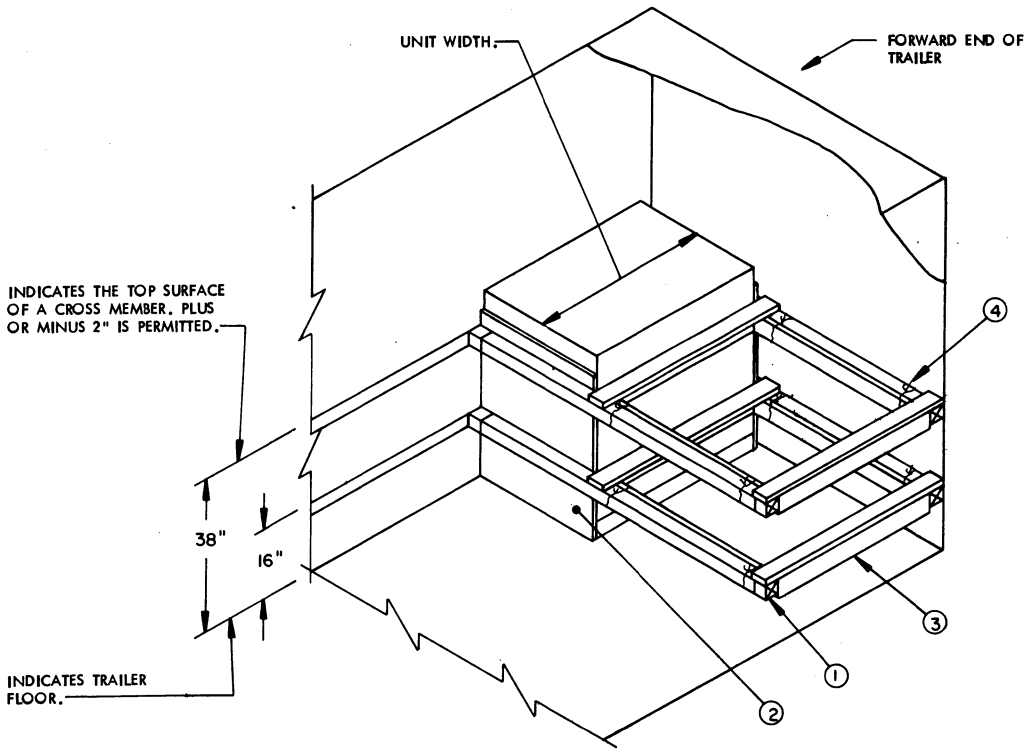
③ LOAD BEARING PIECE, 1" X 6" X 35" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN DETAIL BELOW. NAIL TO PIECES MARKED ② W/4-6d NAILS AT EACH JOINT.

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE USE OF LTL BRACE BLOCKING IN A CONVENTIONAL TYPE VAN TRAILER EQUIPPED WITH A NAILABLE FLOOR.
2. THE PALLET UNIT SHOWN IS THE ALTERNATED CONTAINERS UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 45-1/2" WIDE BY 41-1/2" HIGH AND WEIGHING APPROXIMATELY 1,240 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGES 4 AND 5.
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 24, 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 BRACE 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.



TYPICAL LTL-1 PALLET UNIT IN A CONVENTIONAL TYPE VAN TRAILER



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 7'-6" WIDE (INSIDE DIMENSION) VAN TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES IS SHOWN. TRAILERS OF OTHER WIDTHS MAY BE USED.

2. THE PALLET UNIT SHOWN IN THE TYPICAL LTL LOAD IS THE BASIC HEIGHT ROUTED DUNNAGE METHOD UNIT HAVING OVERALL DIMENSIONS OF 35-1/4" LONG BY 46-3/4" WIDE BY 45-5/8" HIGH. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER PALLET UNITS DEPICTED ON PAGES 4 AND 5.

3. THE SPECIFIED CROSS MEMBER LOCATION DIMENSIONS ARE APPLICABLE FOR ALL PALLET UNITS DEPICTED HEREIN WITH THE EXCEPTION OF THE DECREASED HEIGHT FLAT OR ROUTED DUNNAGE METHOD UNITS. REFER TO PAGE 19 FOR THE CROSS MEMBER LOCATION HEIGHTS FOR THOSE UNITS.

4. A TYPICAL LTL LOAD OF ONE (1) PALLET UNIT IS SHOWN. IF TWO (2) PALLET 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) PALLET UNITS ACROSS THE WIDTH OF THE TRAILER, POSITION THE UNITS AGAINST THE FORWARD END WALL (UNLESS THE TRAILER HAS ROUNDED CORNERS) AND OMIT THE TWO CROSS MEMBERS AT THE FORWARD END. INSTALL AN ANTI-SWAY BRACE BETWEEN UNITS, AND ALSO A TOP-OF-LOAD ANTI-SWAY BRACE WHEN SHIPPING THE BASIC HEIGHT FLAT/ROUTED DUNNAGE METHOD UNITS OR THE BASIC AND INCREASED HEIGHT ALTERNATED CONTAINERS UNITS.

5. TWO (2) SPACER ASSEMBLIES, PIECE MARKED ② , ARE REQUIRED WHEN LOADING THE BASIC HEIGHT FLAT DUNNAGE AND/OR ROUTED DUNNAGE METHOD UNITS, OR THE BASIC AND INCREASED HEIGHT ALTERNATED CONTAINERS UNITS. WHEN LOADING THE DECREASED HEIGHT FLAT DUNNAGE AND/OR ROUTED DUNNAGE METHOD UNITS, A SPACER ASSEMBLY IS REQUIRED AT ONLY ONE LEVEL.

KEY NUMBERS

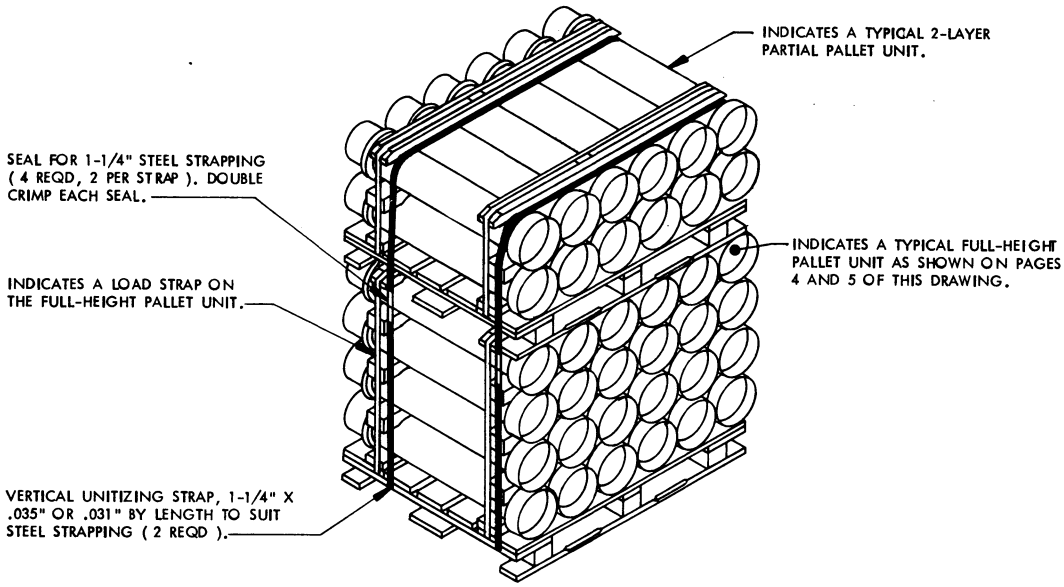
① CROSS MEMBER (4 REQD). POSITION AT THE HEIGHT AS SPECIFIED BY THE ISOMETRIC VIEW ABOVE. SEE GENERAL NOTES "D" AND "K" ON PAGE 2. SEE SPECIAL NOTE 3 ON THIS PAGE.

② PLYWOOD, 1/2" X 35" X 40" (2 REQD). POSITION BETWEEN THE PALLET UNIT AND THE CROSS MEMBERS.

③ SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 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 TAUT. SECURE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

TYPICAL LTL-1 PALLETIZED UNIT IN A TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES



SECUREMENT OF A PARTIAL PALLET UNIT
ON TOP OF A FULL 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 SHOULD 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. SHIPMENT 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 28 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.

3. THE "SHIPMENT OF A PARTIAL PALLET UNIT" PROCEDURES ON THIS PAGE ARE APPLICABLE FOR LOADS IN CONVENTIONAL TYPE VAN TRAILERS AND IN TRAILERS EQUIPPED WITH MECHANICAL BRACING DEVICES.

4. FOR SHIPMENT OF ONE THROUGH FIVE "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 28 OF THIS DRAWING.

SPECIAL NOTES:

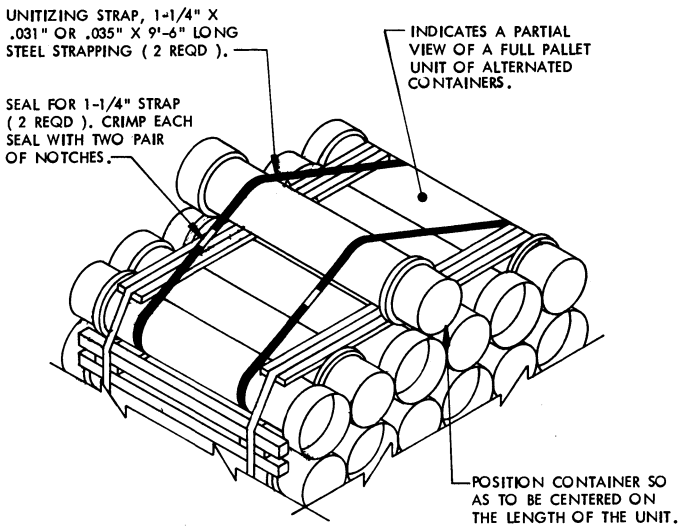
1. SHIPMENTS OF PROPELLING CHARGES SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS. LEFTOVER CONTAINERS ARE DESCRIBED AS A QUANTITY OF CONTAINERS WHICH IS INSUFFICIENT TO FORM A FULL-LAYERED PARTIAL UNIT FOR SECUREMENT ON TOP OF A FULL OR PARTIAL PALLET UNIT AS SHOWN ON PAGE 27.

2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS MOTOR CARRIER SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOTS TO POSTS, CAMPS, AND STATIONS, OR, UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, 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 ALTERNATED CONTAINERS METHOD PALLET UNIT. ONE VIEW BELOW DEPICTS TWO LEFTOVER CONTAINERS SECURED TO FULL-HEIGHT FLAT DUNNAGE METHOD PALLET UNIT. FOR THE ALTERNATED CONTAINERS UNIT AND FOR THE FLAT DUNNAGE METHOD UNIT THE UNITIZING STRAP MUST NOT GO AROUND THE INTERMEDIATE DUNNAGE ASSEMBLY; THE STRAP MUST BE THREADED BEHIND THE 2" X 2" PIECES OF THE ASSEMBLY. THE OTHER VIEW BELOW DEPICTS THREE LEFTOVER CONTAINERS SECURED TO A FULL-HEIGHT ROUTED DUNNAGE METHOD PALLET UNIT. WHEN THREE TO FIVE 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.

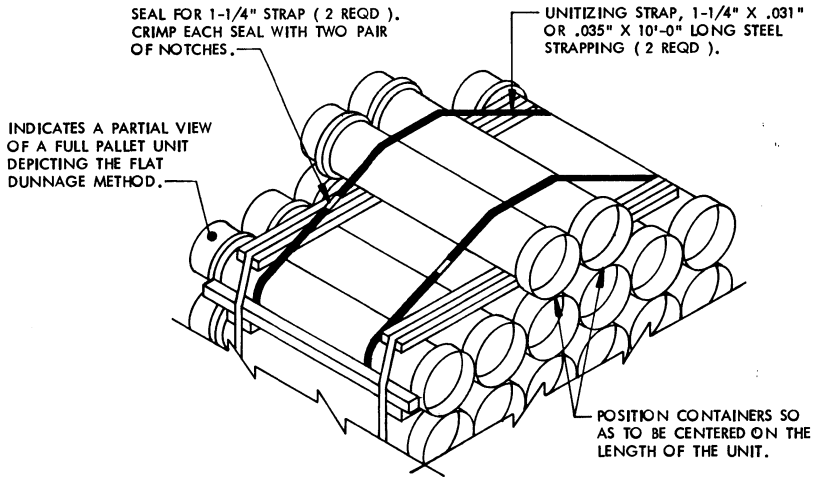
4. THE PREFERRED LOCATION FOR THE POSITIONING OF A PALLET UNIT HAVING ONE OR MORE CONTAINERS STRAPPED TO THE TOP WOULD BE WITHIN THE ONE-HIGH PORTION OF THE LOAD; IT MUST NOT HAVE A PALLET UNIT STACKED ON TOP.

5. THE PROCEDURES ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.



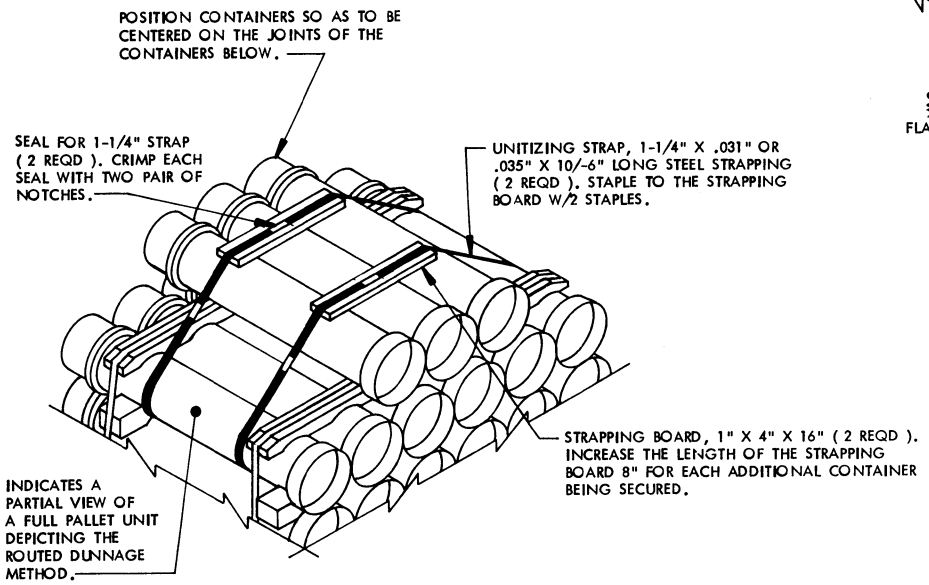
SECUREMENT OF ONE CONTAINER

ALTERNATED CONTAINERS UNIT SHOWN.



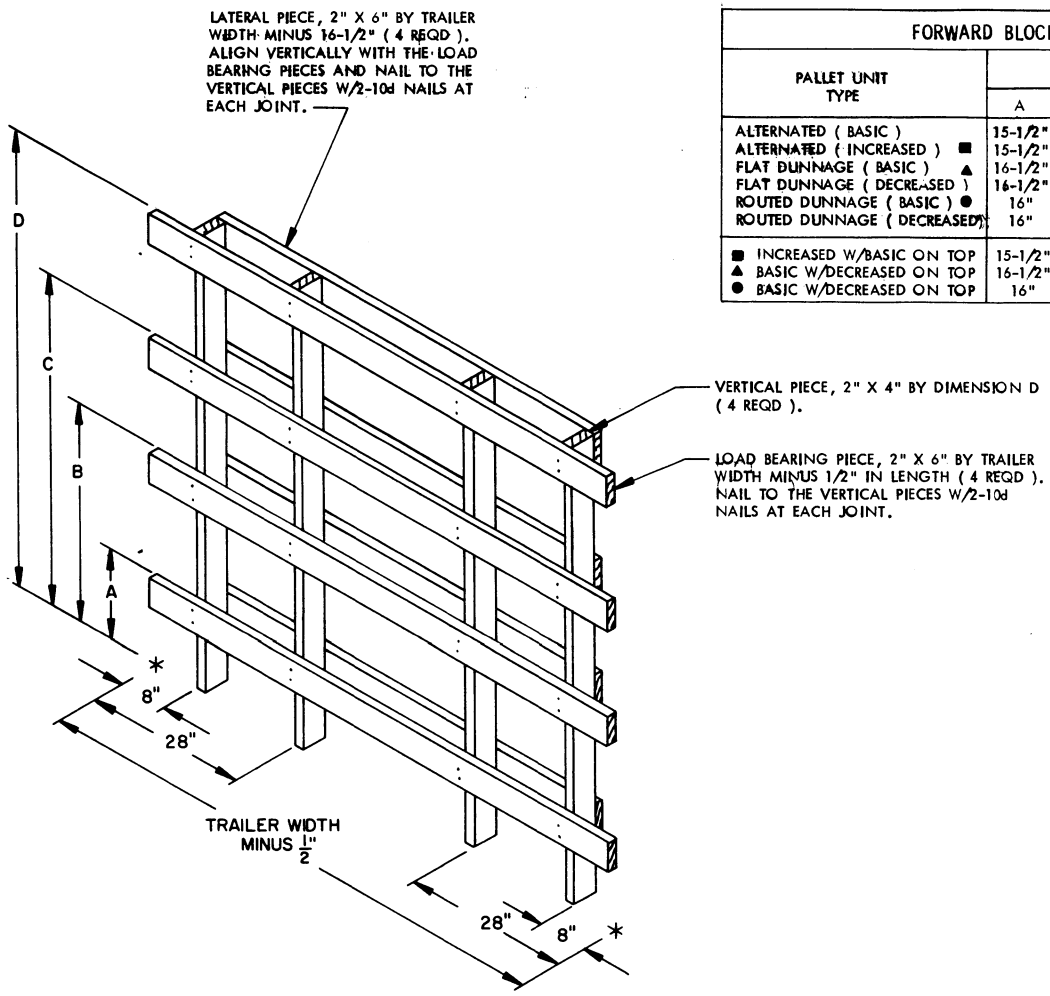
SECUREMENT OF TWO CONTAINERS

FLAT DUNNAGE METHOD UNIT SHOWN.



SECUREMENT OF THREE CONTAINERS

ROUTED DUNNAGE METHOD UNIT SHOWN.



FORWARD BLOCKING ASSEMBLY

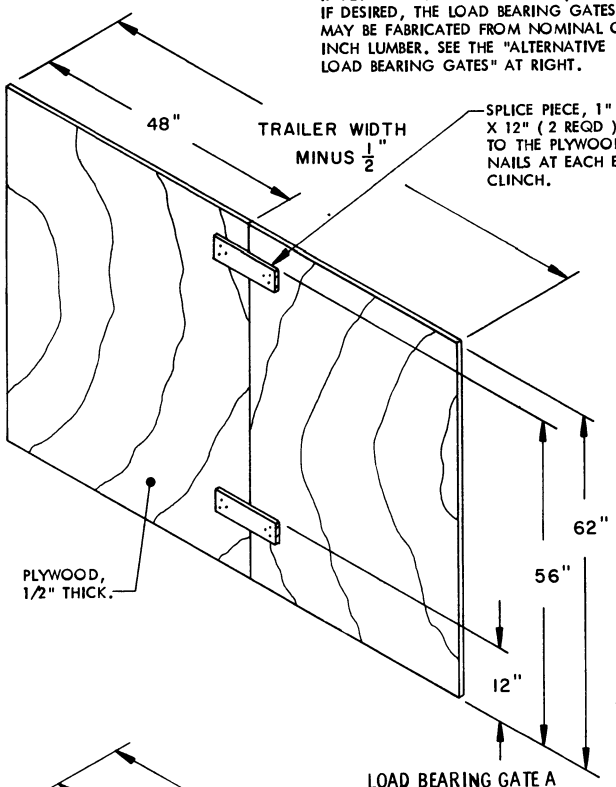
THIS ASSEMBLY IS DESIGNED FOR USE AT THE FRONT END OF A TRAILER HAVING ROUNDED CORNERS, AND IS APPLICABLE FOR A CORNER RADIUS OF NOT MORE THAN 6-1/2". IF THE RADIUS IS FROM 6-1/2" TO 8", 2" X 6" VERTICAL PIECES WILL BE USED IN LIEU OF THE 2" X 4" PIECES. IF THE TRAILER TO BE LOADED HAS LARGE-ANGLED CORNERS AT THE FORWARD END, REFER TO PAGE 38 FOR GUIDANCE.

FORWARD BLOCKING CHART

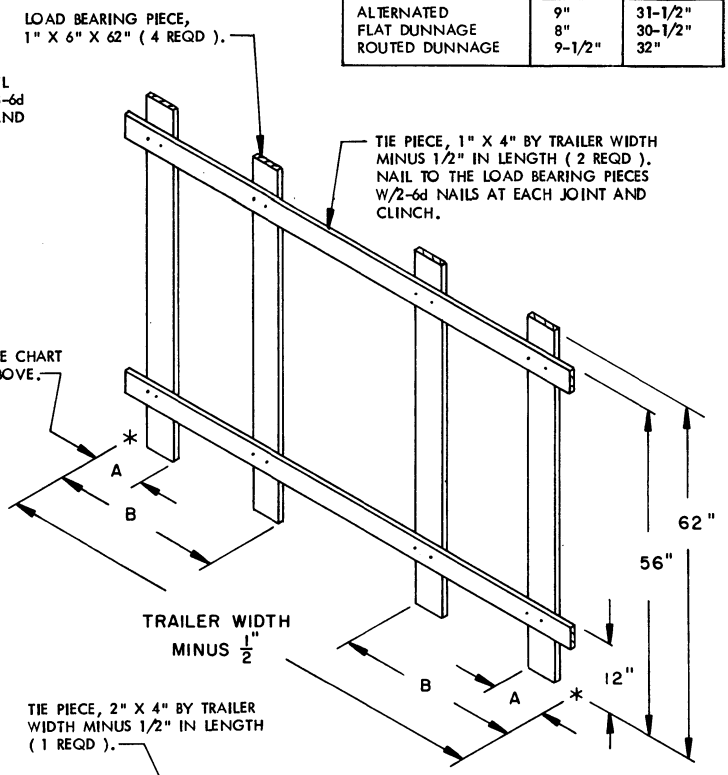
PALLET UNIT TYPE	DIMENSIONS			
	A	B	C	D
ALTERNATED (BASIC)	15-1/2"	37"	57"	6'-6"
ALTERNATED (INCREASED) ■	15-1/2"	44"	64"	7'-8"
FLAT DUNNAGE (BASIC) ▲	16-1/2"	40"	62-1/2"	7'-2"
FLAT DUNNAGE (DECREASED)	16-1/2"	32"	55"	5'-10-1/2"
ROUTED DUNNAGE (BASIC) ●	16"	39-1/2"	61"	7'-0"
ROUTED DUNNAGE (DECREASED)	16"	32"	53"	69"
■ INCREASED W/BASIC ON TOP	15-1/2"	44"	64"	7'-1"
▲ BASIC W/DECREASED ON TOP	16-1/2"	40"	62-1/2"	6'-6"
● BASIC W/DECREASED ON TOP	16"	39-1/2"	61-1/2"	6'-5"

NOTE ● :
IF PLYWOOD IS NOT AVAILABLE, OR IF DESIRED, THE LOAD BEARING GATES MAY BE FABRICATED FROM NOMINAL ONE INCH LUMBER. SEE THE "ALTERNATIVE LOAD BEARING GATES" AT RIGHT.

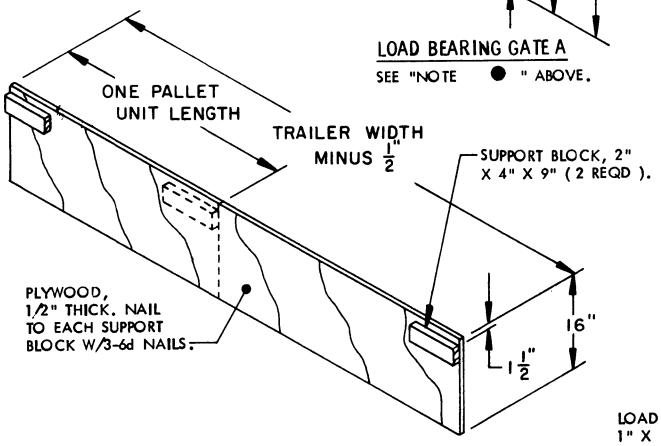
ALTERNATIVE LOAD BEARING GATE CHART		
PALLET UNIT TYPE	DIMENSION	
	A	B
ALTERNATED	9"	31-1/2"
FLAT DUNNAGE	8"	30-1/2"
ROUTED DUNNAGE	9-1/2"	32"



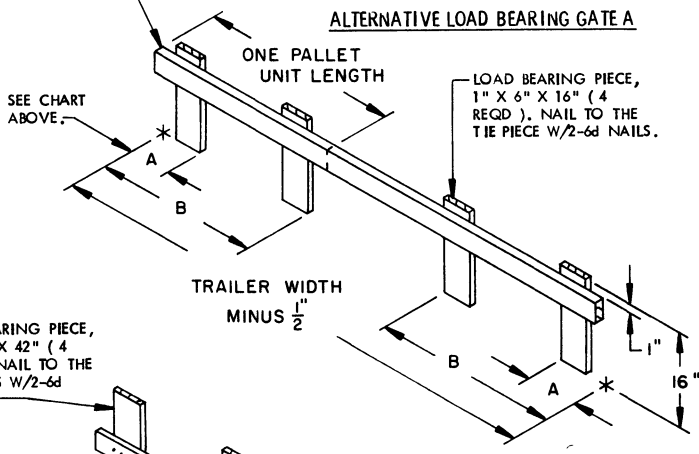
LOAD BEARING GATE A
SEE "NOTE ● " ABOVE.



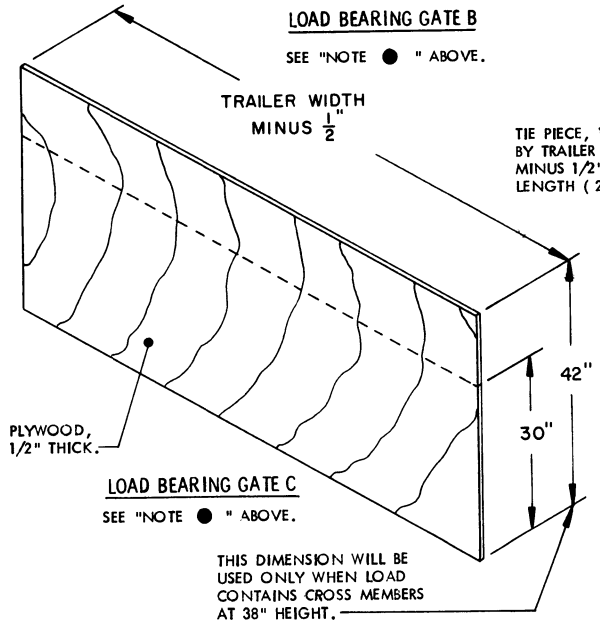
ALTERNATIVE LOAD BEARING GATE A



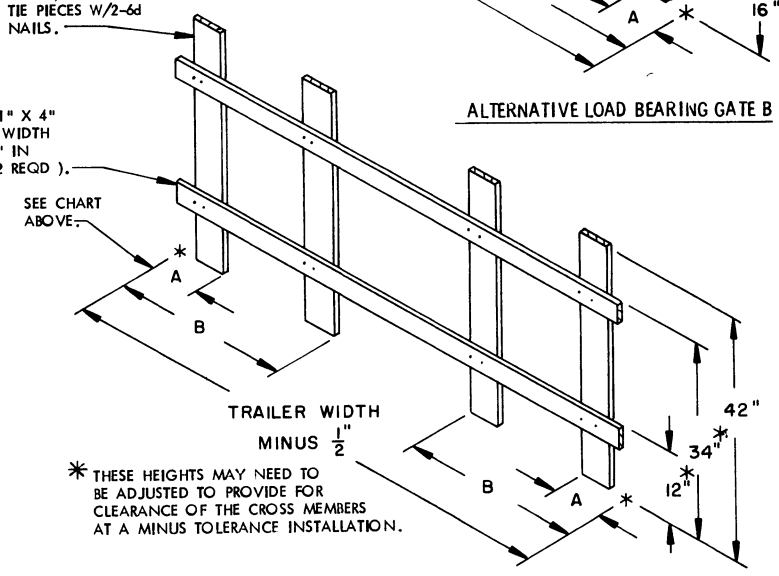
LOAD BEARING GATE B
SEE "NOTE ● " ABOVE.



ALTERNATIVE LOAD BEARING GATE B



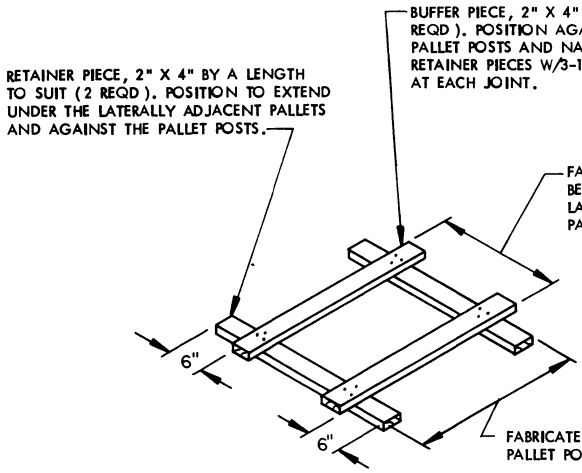
LOAD BEARING GATE C
SEE "NOTE ● " ABOVE.



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

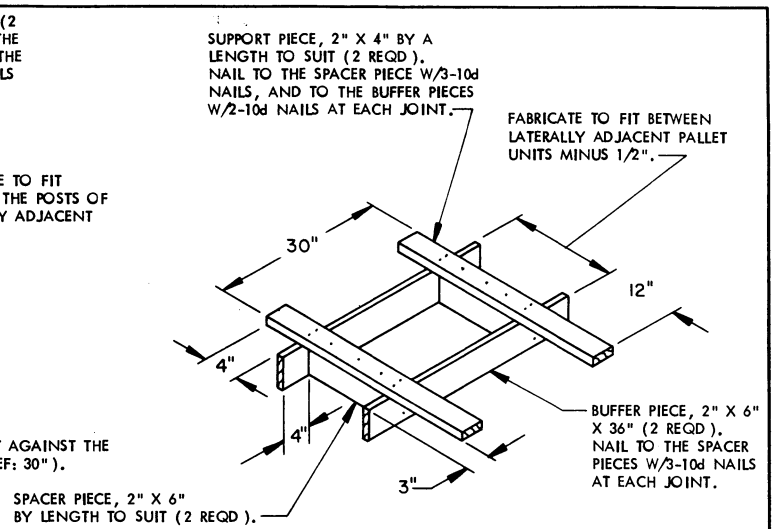
ALTERNATIVE LOAD BEARING GATE C

DETAILS



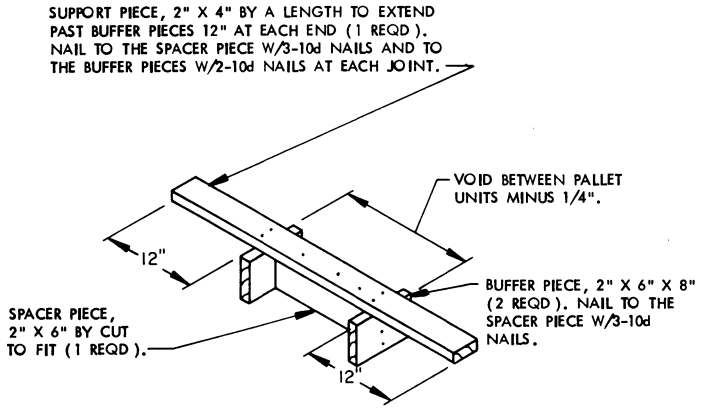
ANTI-SWAY BRACE C

THIS ANTI-SWAY BRACE MUST BE FABRICATED IN PLACE BETWEEN THE PALLETS.

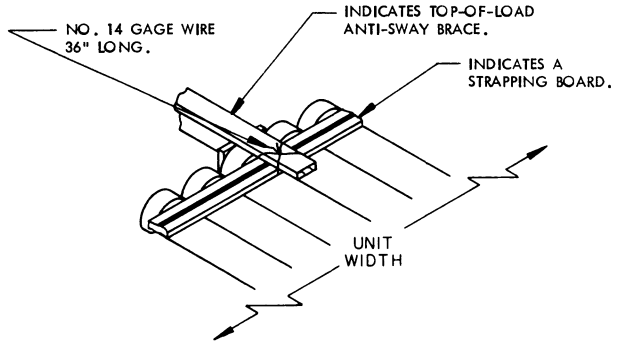


TOP-OF-LOAD ANTI-SWAY BRACE B

THIS ASSEMBLY IS DESIGNED FOR THE BRACING OF A PALLET UNIT IN THE SECOND LAYER WHEN THERE IS NOT A PALLET UNIT DIRECTLY OPPOSITE IT.

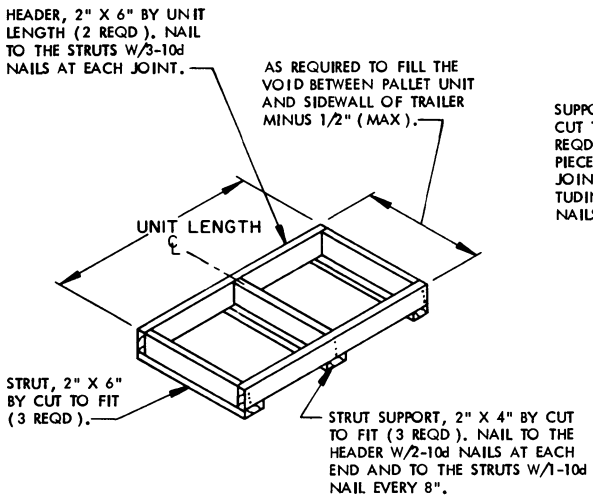


TOP-OF-LOAD ANTI-SWAY BRACE A

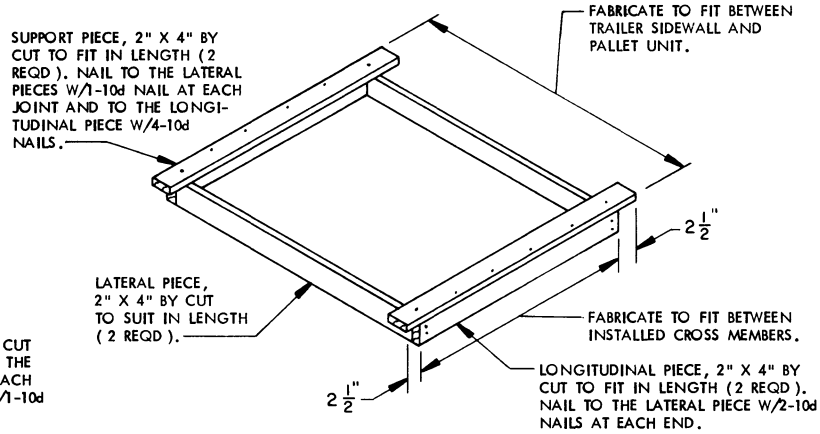


TIE WIRE APPLICATION

THIS VIEW DEPICTS THE SECUREMENT OF A TOP-OF-LOAD ANTI-SWAY BRACE TO THE TOP OF A PALLET UNIT BY WIRE TYING TO THE STRAPPING BOARD WITH NO. 14 GAGE WIRE.

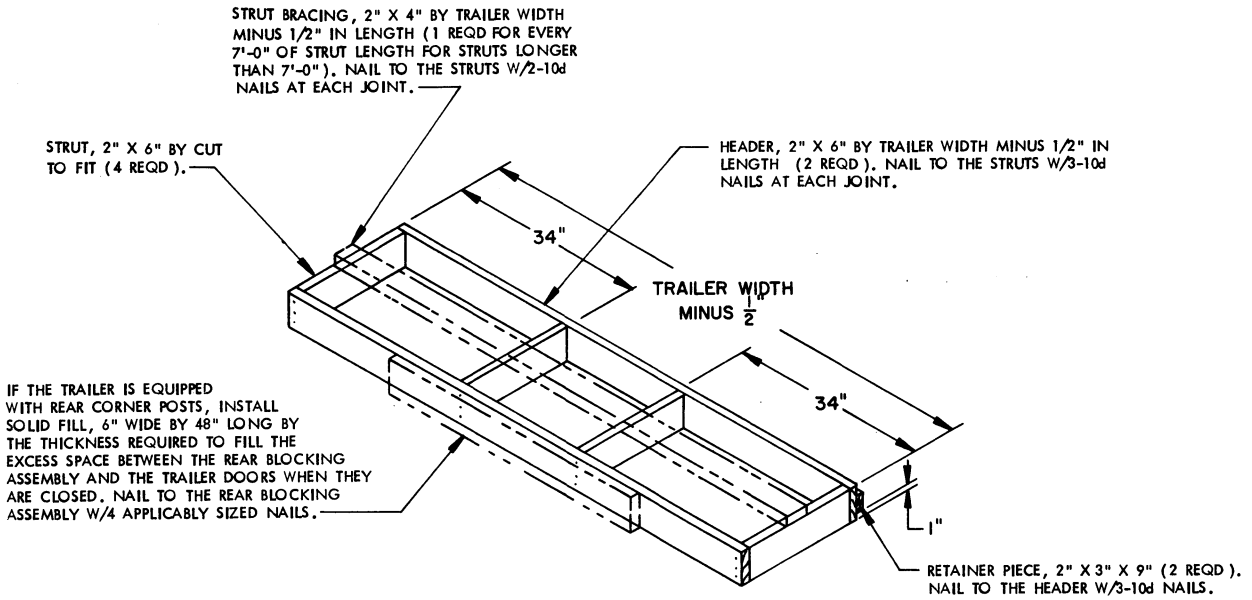


SIDE BLOCKING ASSEMBLY



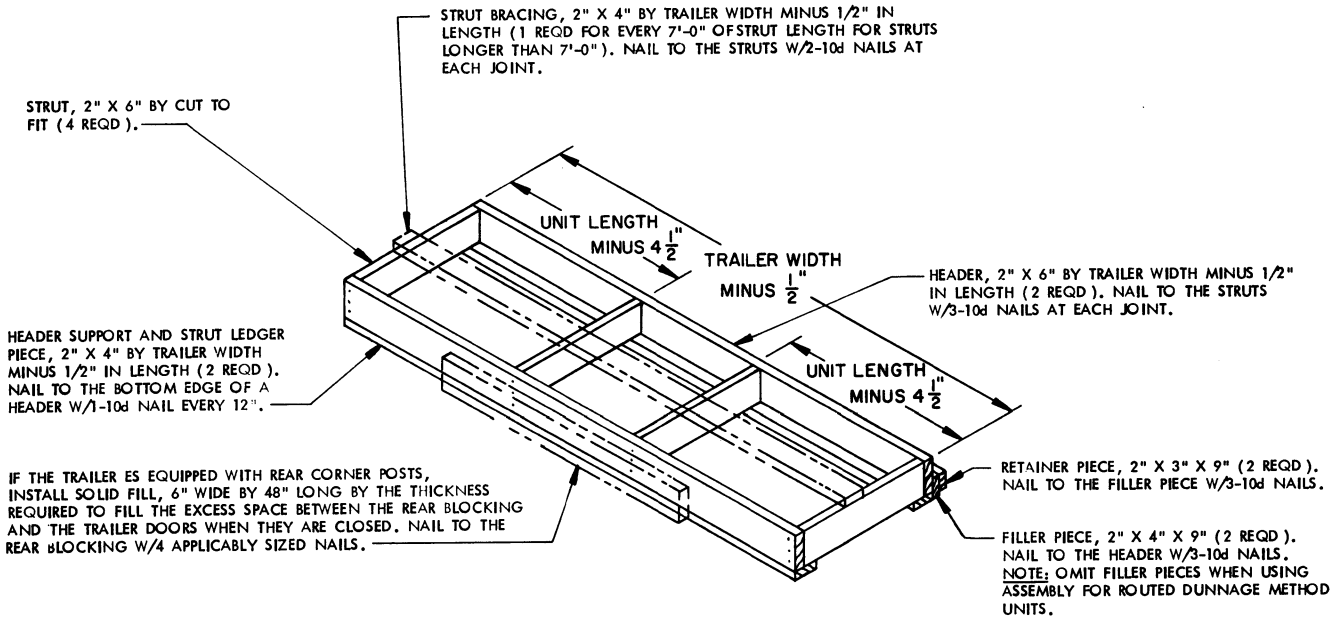
SPACER ASSEMBLY A

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 26.



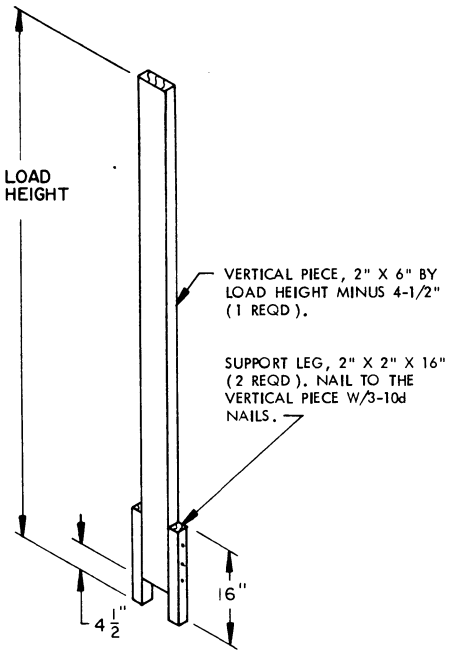
REAR BLOCKING ASSEMBLY A

THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF LOADS OF ALTERNATED CONTAINERS UNITS IN CONVENTIONAL VAN TRAILERS AS SHOWN ON PAGES 6 AND 10 WHEN THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS 9" OR GREATER.



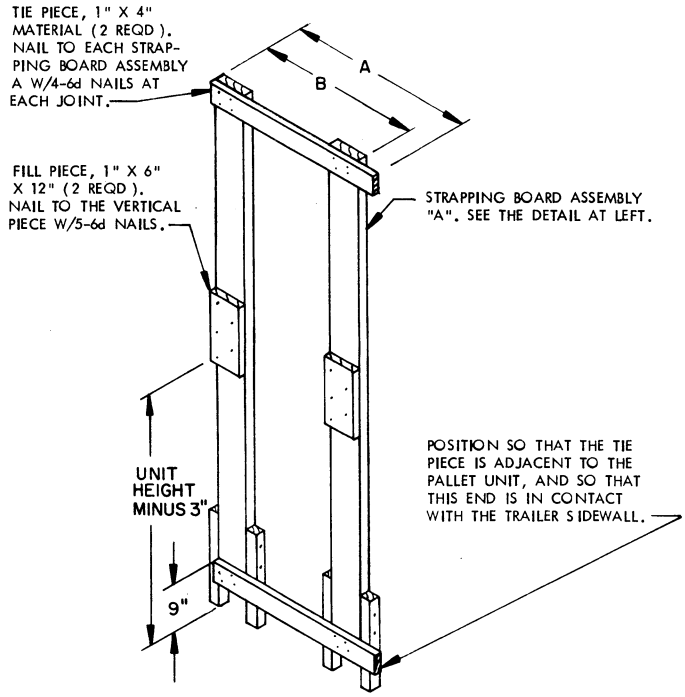
REAR BLOCKING ASSEMBLY B

THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF THE FLAT/ROUTED DUNNAGE METHOD UNIT LOADS SHOWN ON PAGES 14 AND 18 WHEN THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOOR IS 9" OR GREATER.



STRAPPING BOARD ASSEMBLY A

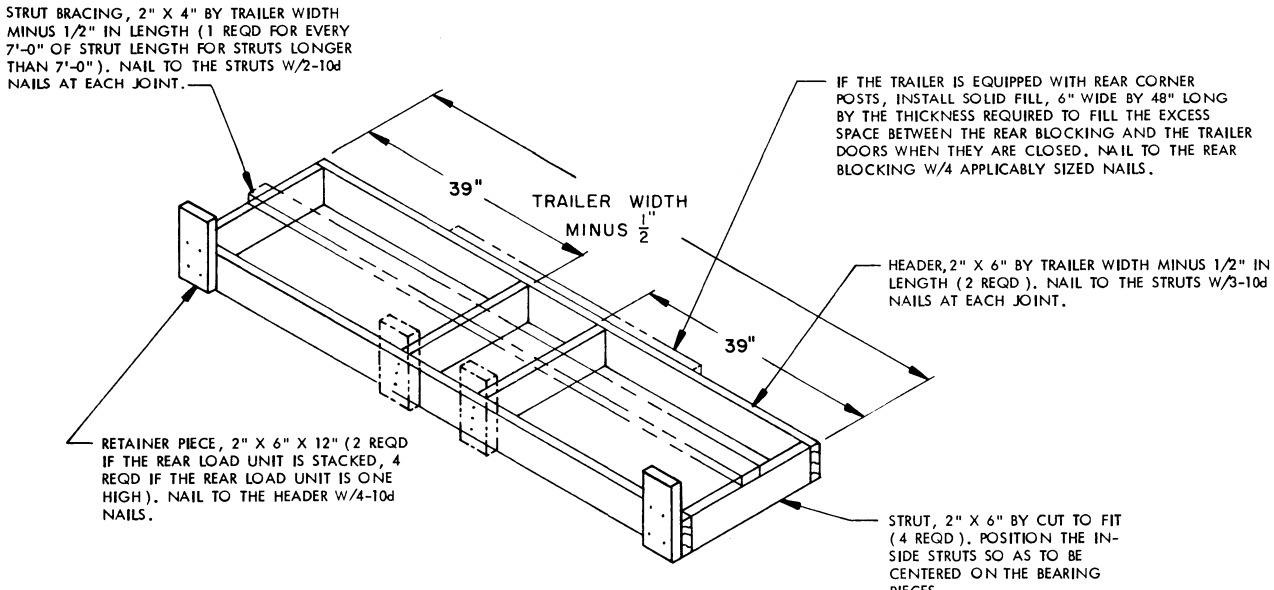
THIS ASSEMBLY IS FOR USE IN THE PROCEDURES DEPICTED BY THE "TYPICAL SECTION VIEW OF AN 8'-2" WIDE VAN" AS SHOWN ON PAGE 15 AND, IN THE LOAD VIEW ON PAGE 20. TO FACILITATE LOADING, THE "STRAPPING BOARD ASSEMBLY B" SHOWN AT RIGHT MAY BE USED IN LIEU OF EACH PAIR OF THE ASSEMBLIES DEPICTED ABOVE.



STRAPPING BOARD ASSEMBLY B

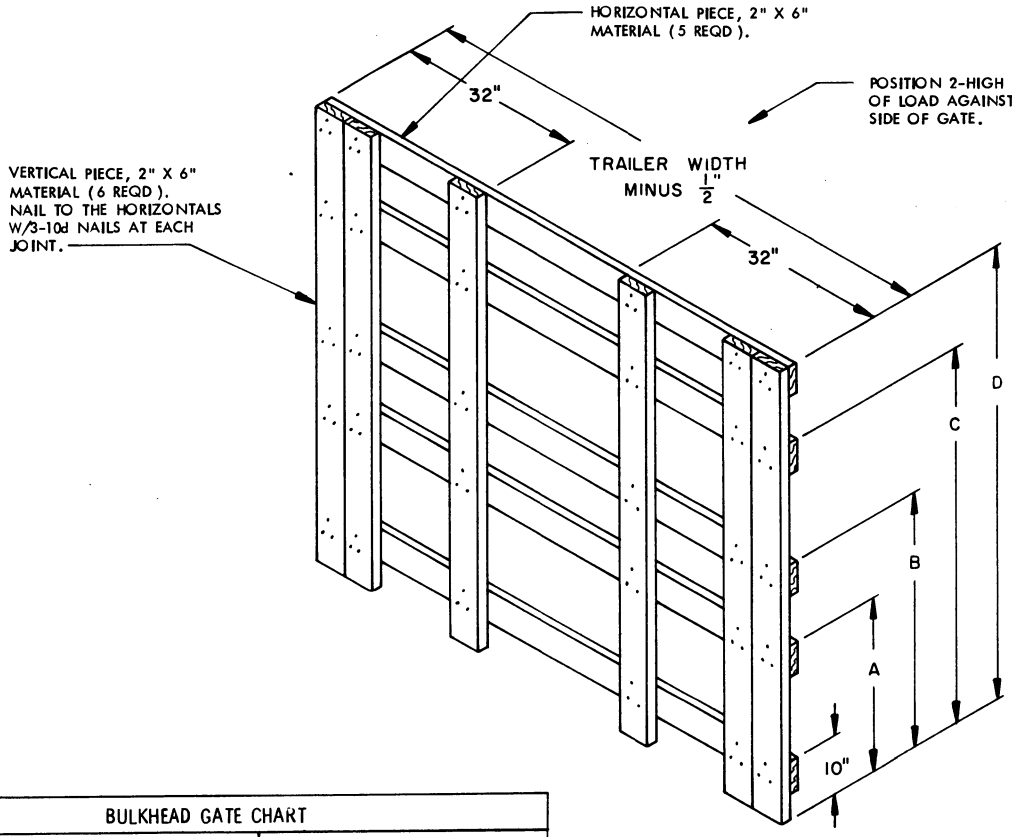
RIGHT HAND AND LEFT HAND ASSEMBLIES ARE REQUIRED.

STRAPPING BOARD CHART		
	DIMENSIONS	
PALLET UNIT TYPE	A	B
FLAT DUNNAGE METHOD	41"	33"
ROUTED DUNNAGE METHOD	39-3/8"	32"



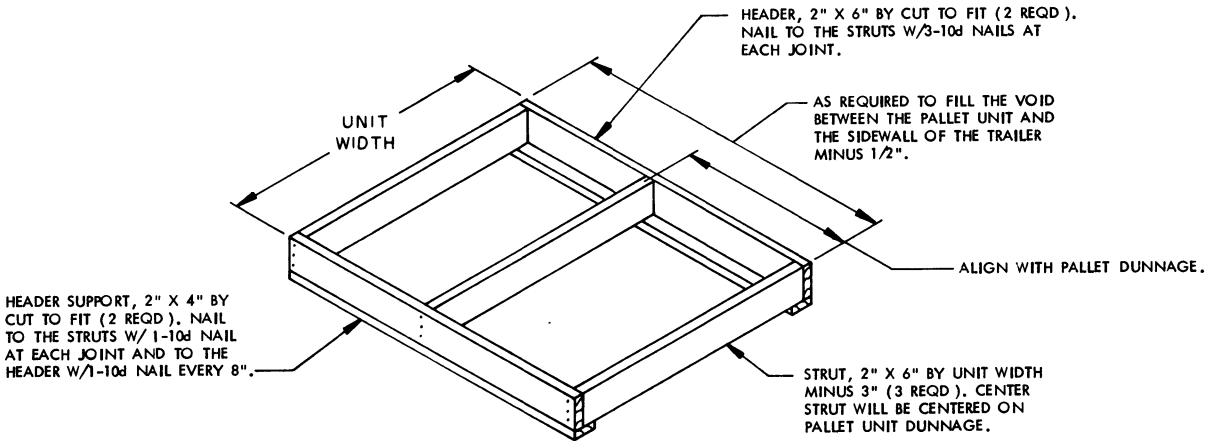
REAR BLOCKING ASSEMBLY C

THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF A FLAT/ROUTED DUNNAGE METHOD UNIT LOAD WHEN USING THE PROCEDURES DEPICTED BY THE "TYPICAL REAR VIEW OF AN 8'-2" WIDE VAN" AS SHOWN ON PAGE 15, AND IN THE LOAD VIEW SHOWN ON PAGE 20, WHEN THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOORS ARE MORE THAN 9". NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH THE REAR BLOCKING ASSEMBLY WILL BE INSTALLED.



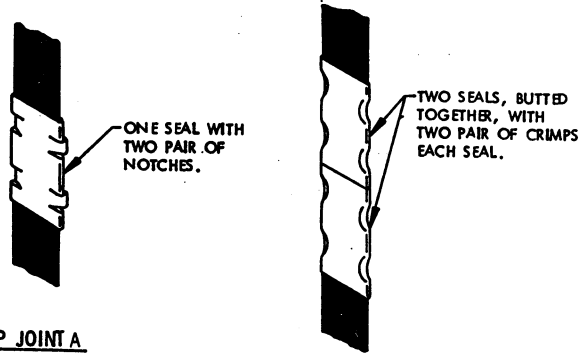
BULKHEAD GATE

BULKHEAD GATE CHART				
PALLET UNIT TYPE	DIMENSION			
	A	B	C	D
ALTERNATED (BASIC)	23"	37"	57"	71"
ALTERNATED (INCREASED) ■	30"	44"	64"	6'-6"
FLAT DUNNAGE (BASIC) ▲	24"	40"	63"	6'-6"
FLAT DUNNAGE (EDCREASED)	24"	33"	47"	63"
ROUTED DUNNAGE (BASIC) ●	24"	39"	61"	6'-5"
ROUTED DUNNAGE (DECREASED)	24"	32"	54"	62"
■ INCREASED W/BASIC ON TOP	30"	44"	64"	6'-6"
▲ BASIC W/DECREASED ON TOP	24"	40"	56"	71"
● BASIC W/DECREASED ON TOP	24"	32"	55"	70"



SPACER ASSEMBLY B

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING AS SHOWN IN THE LOAD ON PAGE 22.



STRAP JOINT A

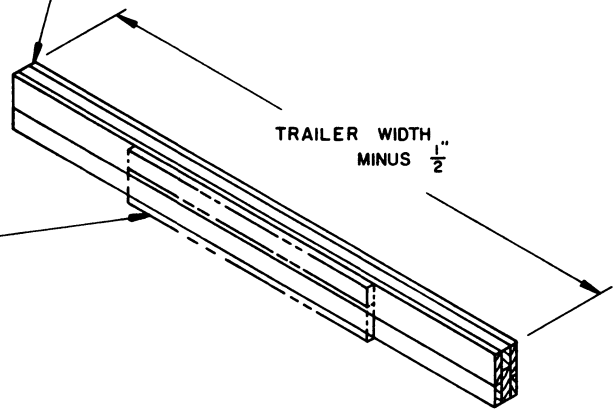
METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.

STRAP JOINT B

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

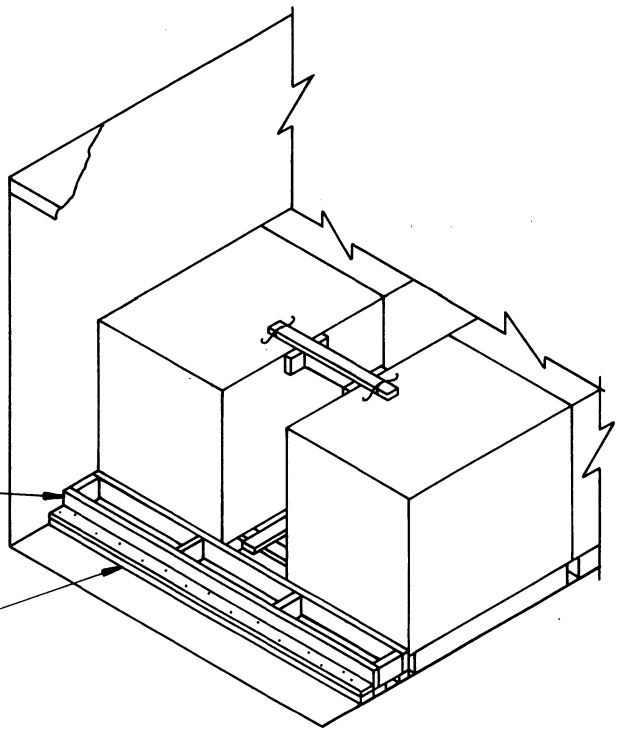
SOLID FILL, 4" AND 6" WIDE MATERIAL BY TRAILER WIDTH MINUS 1/2" IN LENGTH BY THE THICKNESS REQUIRED TO CONTACT REAR CORNER POSTS OR TO CONTACT REAR DOORS OF THE TRAILER WHEN THEY ARE CLOSED. POSITION PIECES ON EDGE, ONE ON TOP OF THE OTHER, ALTERNATELY AS SHOWN, AND LAMINATE W/1-10d NAIL EVERY 12".

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 APPLICABLY SIZED NAILS.



REAR BLOCKING ASSEMBLY D

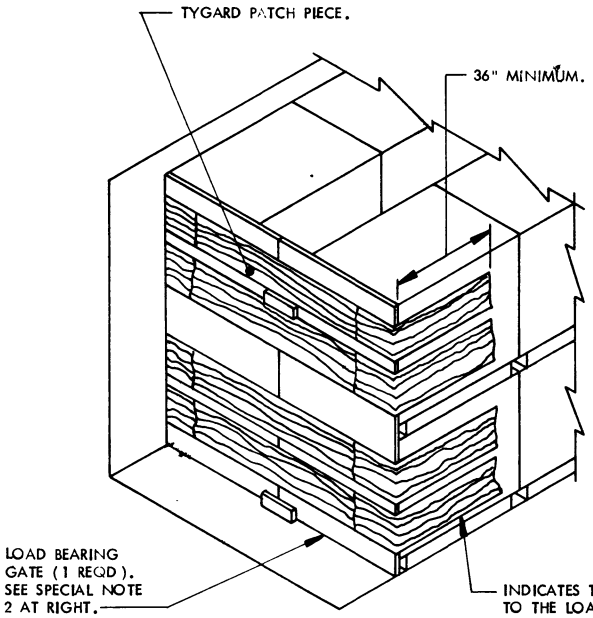
THIS REAR BLOCKING ASSEMBLY IS DESIGNED FOR USE AT THE REAR END OF A LOAD IN A CONVENTIONAL VAN TRAILER WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOOR IS LESS THAN 9" BUT AT LEAST 1-1/2". NOTE THAT RETAINER PIECES WILL BE REQUIRED ON THE LOAD BEARING SIDE OF REAR BLOCKING "D". SEE REAR BLOCKING "A" AND "B" ON PAGE 32, AND REAR BLOCKING "C" ON PAGE 33 FOR LOCATION AND NAILING GUIDANCE.



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 "B" 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.



TYGARD METHOD

SPECIAL NOTES:

1. THE TYGARD METHOD OF REAR BLOCKING DEPICTED AT LEFT CAN ONLY BE USED IN TRAILERS WHICH HAVE REASONABLY SMOOTH AND ADEQUATELY SECURED SIDEWALL PANELS IN THE AREA WHERE THE TYGARD MATERIAL IS TO BE APPLIED.
2. A LOAD HEIGHT PLYWOOD GATE MUST BE INSTALLED AT THE REAR OF THE LOAD TO PROVIDE A SMOOTH SURFACE FOR THE TYGARD MATERIAL TO EXTEND AROUND A LOAD HEIGHT GATE CONSTRUCTED SIMILAR TO "LOAD BEARING GATE A", AS DETAILED ON PAGE 30, WILL BE USED WHEN THE REAR LOAD UNIT IS STACKED. A LOAD HEIGHT (48" MAXIMUM) BY TRAILER WIDTH MINUS 1/2" IN LENGTH PLYWOOD GATE WILL BE USED WHEN THE REAR LOAD UNIT IS ONLY ONE PALLET UNIT HIGH.
3. TYGARD MATERIAL MUST BE INSTALLED AT TWO LEVELS FOR EACH LAYER OF THE LOAD WHEN SHIPPING THE BASIC HEIGHT OR INCREASED HEIGHT ALTERNATED CONTAINERS UNIT OR THE BASIC HEIGHT FLAT AND/OR ROUTED DUNNAGE METHOD UNITS. ONLY ONE LEVEL OF TYGARD MATERIAL IS REQUIRED WHEN SHIPPING ANY OF THE OTHER UNITS DEPICTED ON PAGES 4 AND 5 . THE SINGLE LEVEL OF TYGARD MATERIAL SHOULD BE ALIGNED WITH THE UPPER PORTION OF A LAYER.
4. THE TYGARD MATERIAL AND THE ADHESIVE FOR ATTACHING IT ARE COMMERCIAL PRODUCTS. FOR A SOURCE OF SUPPLY, CONTACT WALNUT INUDSTRIES, INC., 1344 ADAMS ROAD, P.O. BOX "E", BENSALEM, PA 19020-0860, PHONE 1-800-523-6536. APPLICATION INSTRUCTIONS AND GUIDANCE CAN ALSO BE OBTAINED FROM THAT OFFICE.
5. THE TYGARD METHOD, ALTHOUGH ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.
6. NOTICE: IF THE AREA OF A SIDEWALL WHERE THE TYGARD SHOULD BE ATTACHED IS ROUGH AND/OR BROKEN, THE APPLICABLE PIECE(S) OF TYGARD CAN BE LENGTHENED A SUITABLE AMOUNT AND ATTACHED TO THE SIDEWALL AHEAD OF THE INDICATED PREFERRED LOCATION.

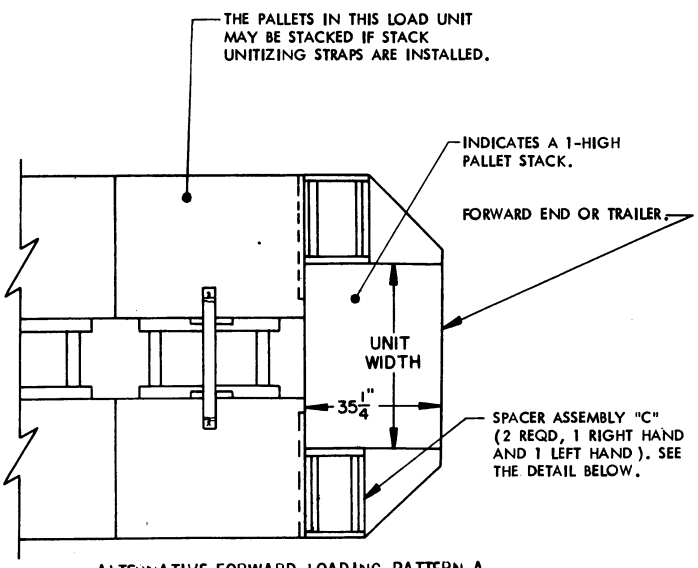
RECOMMENDED EQUIPMENT/INSTALLATION PROCEDURES

EQUIPMENT REQUIRED

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

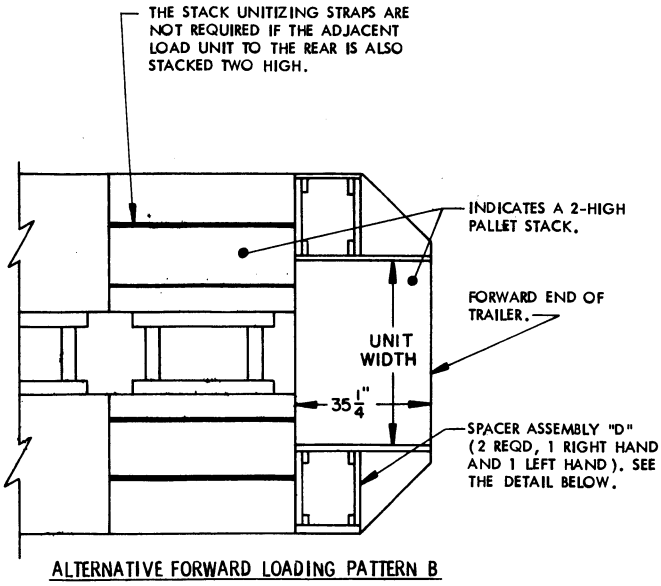
BASIC INSTALLATION GUIDANCE

1. CUT TO LENGTH THE REQUIRED NUMBER OF TYGARD PIECES (FROM 2 TO 8 DEPENDING UPON THE LOAD CONFIGURATION) FOR ATTACHMENT TO THE TRAILER SIDEWALL. PIECES WILL BE OF A LENGTH AS REQUIRED TO PROVIDE PROPER BONDING TO THE TRAILER SIDEWALL AND TO EXTEND 60" ACROSS THE REAR OF THE LOAD. ALSO, CUT 72" LONG "PATCH" PIECES OF TYGARD MATERIAL, ONE FOR EACH SET OF TWO PIECES PREVIOUSLY CUT.
2. PRIOR TO POSITIONING OF THE PALLETS IN THE REARMOST LOAD UNIT, APPLY TYGARD ADHESIVE TO THE PROPER PORTIONS OF THE TRAILER SIDEWALLS AND TO THE CORD SIDE OF A CORRESPONDING LENGTH OF EACH OF THE TYGARD PIECES THAT ARE TO BE ATTACHED TO THE SIDEWALLS OF THE TRAILER. ALLOW TIME FOR THE ADHESIVE TO "CURE" BEFORE PLACING A STRIP OF TYGARD ONTO A SIDEWALL (ADHESIVE WILL FEEL ALMOST DRY WHEN TOUCHED). NOTE: APPLICATION OF TYGARD IS SIMILAR TO THE APPLICATION OF "FORMICA".
3. APPLY THE TYGARD PIECES TO EACH SIDEWALL OF THE TRAILER SO THAT THE PIECES ARE PARALLEL OR NEARLY PARALLEL TO THE FLOOR. ROLL THE TYGARD WITH 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, 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.



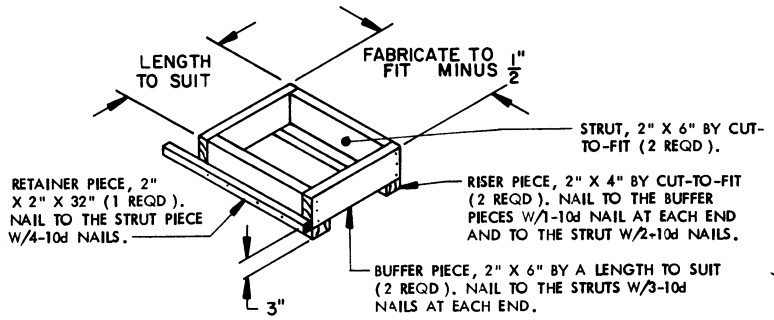
ALTERNATIVE FORWARD LOADING PATTERN A

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. THIS PROCEDURE IS APPLICABLE FOR ALL OF THE UNITS DEPICTED ON PAGES 4 AND 5.



ALTERNATIVE FORWARD LOADING PATTERN B

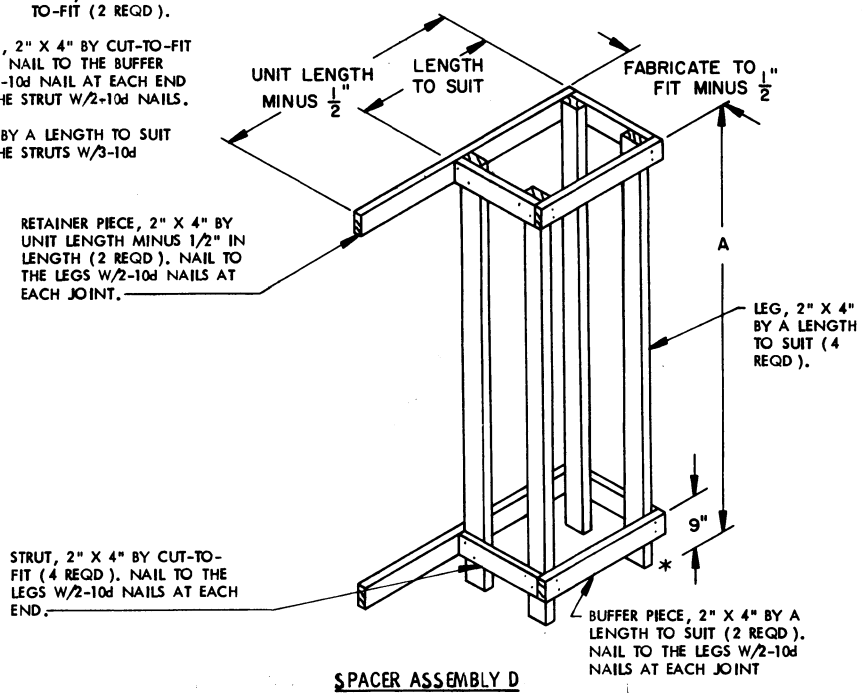
THIS PROCEDURE IS APPLICABLE TO THE LOADING OF A STACK OF TWO (2) PALLET UNITS IN THE FORWARD END OF A CONVENTIONAL VAN TRAILER HAVING LARGE ANGLED FRONT CORNERS (REF: 18"). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING SQUARE CORNERS, OR ROUNDED FRONT CORNERS, OR ANGLED CORNERS OF ANOTHER SIZE. NOTE THAT IF THE LOAD UNIT BEHIND THE STACKED PALLET UNITS IN THE FRONT OF THE TRAILER IS ONLY ONE HIGH, TWO (2) STACK UNITIZING STRAPS AND FOUR (4) STRAPPING BOARD ASSEMBLIES MUST BE INSTALLED AROUND THOSE PALLET UNITS IN THE FRONT STACK. THIS PROCEDURE IS APPLICABLE FOR ALL OF THE UNITS DEPICTED ON PAGES 4 AND 5.



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
ALTERNATED (BASIC)	50"
ALTERNATED (INCREASED) ■	57"
FLAT (BASIC) ▲	55"
FLAT (DECREASED)	47"
ROUTED (BASIC) ●	60"
ROUTED (DECREASED)	52"
■ INCREASED W/BASIC ON TOP	57"
▲ BASIC W/DECREASED ON TOP	61"
● BASIC W/DECREASED ON TOP	60"



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.