

# LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF 8" WARHEAD ASSEMBLY METAL PARTS

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

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				CLASS	DIVISION
				DRAWING	FILE
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DO NOT SCALE

## GENERAL NOTES

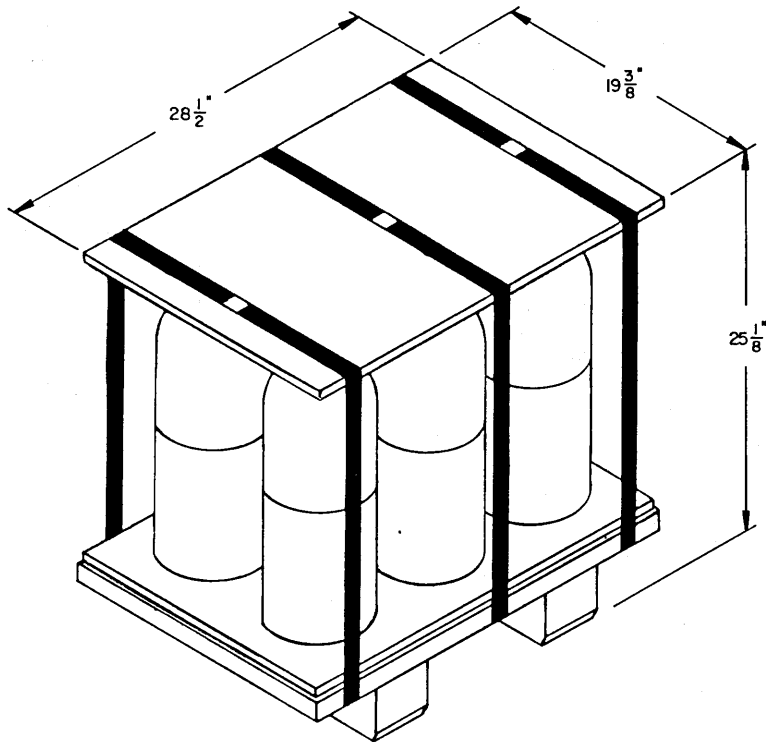
(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE FOR THE 8" WARHEAD ASSEMBLY METAL PARTS PALLET UNIT. SEE PICTORIAL VIEW ON PAGE 3 FOR SIZE AND WEIGHT.
- 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 OF A SINGLE OR TANDEM AXLE MUST NOT EXCEED THE MAXIMUM ALLOWABLE WEIGHT. IF THERE IS ANY DOUBT AS TO WHETHER THE TOTAL GROSS WEIGHT OF AXLE WEIGHT EXCEEDS THE MAXIMUM ALLOWED, WEIGHT SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- G. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH STATE WEIGHT LAWS. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED. COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED MAY BE USED; HOWEVER, THE APPROVED METHODS SHOWN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.
- H. THE "LOAD AS SHOWN" FOR MOST OF THE FULL LOADS DEPICTED HEREIN IS BASED ON AN APPROXIMATE LADING WEIGHT OF 42,000 POUNDS. THE SPECIFIED BLOCKING AND BRACING FOR THE FULL LOADS IS ADEQUATE FOR THE RETENTION OF HEAVIER LOADS, IF IT IS DESIRED TO INCREASE THE LADING WEIGHT.
- J. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH PALLET UNITS OF WARHEADS, 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. 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 3 FOR GUIDANCE.
- M. 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.
- N. **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.
- O. 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.
- P. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- Q. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.
- R. 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.

(CONTINUED AT RIGHT)

## MATERIAL SPECIFICATIONS

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



**8' WARHEAD**

UNIT WEIGHT ----- 653 LBS ( APPROX )  
 CUBE ----- 8.028 SQ FT ( APPROX )



ONE SEAL WITH  
 TWO PAIR OF  
 NOTCHES.

**STRAP JOINT A**

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

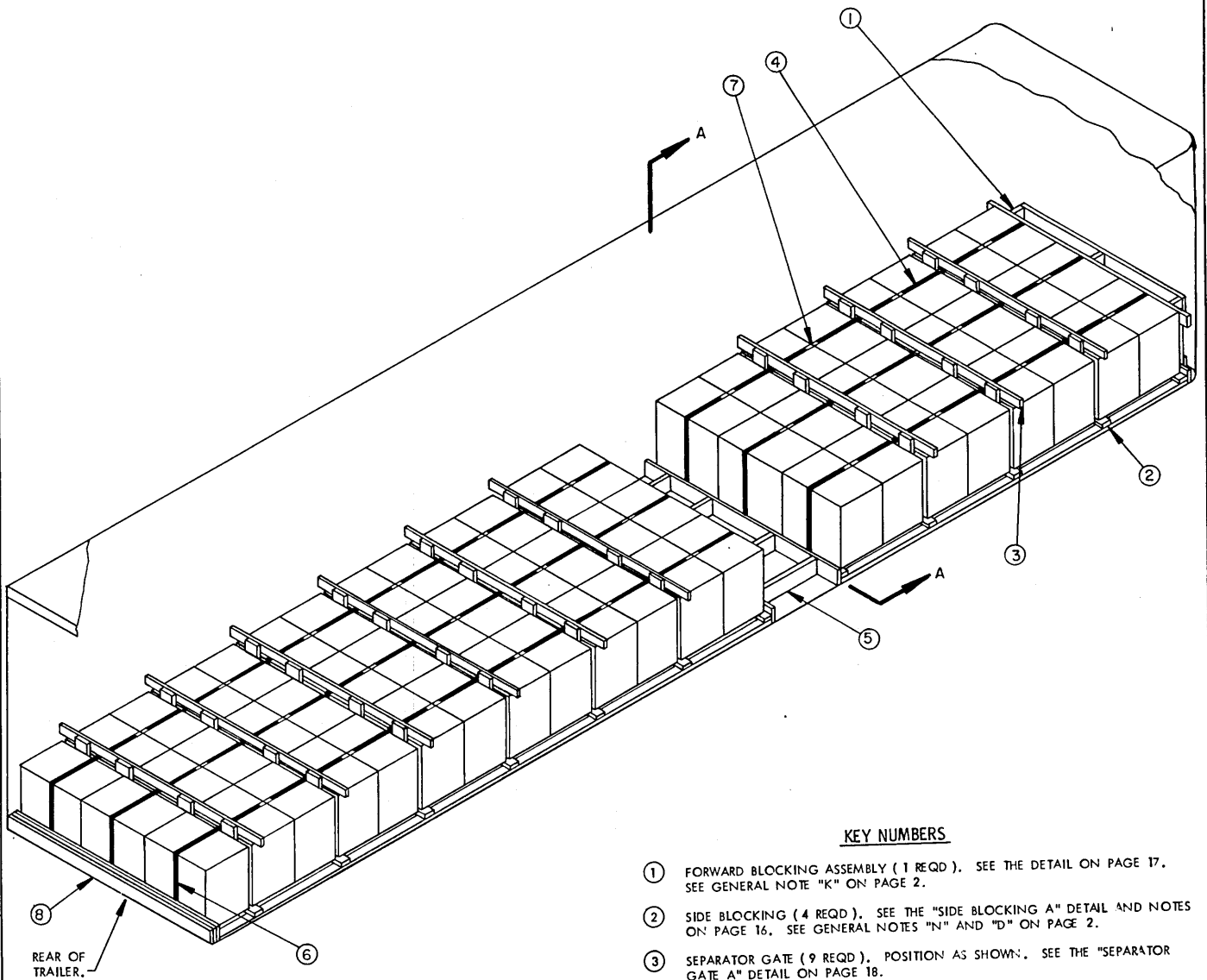


TWO SEALS, BUTTED  
 TOGETHER, WITH  
 TWO PAIR OF CRIMPS  
 EACH SEAL.

**STRAP JOINT B**

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

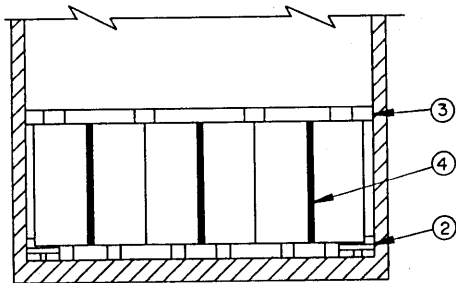
**DETAILS**



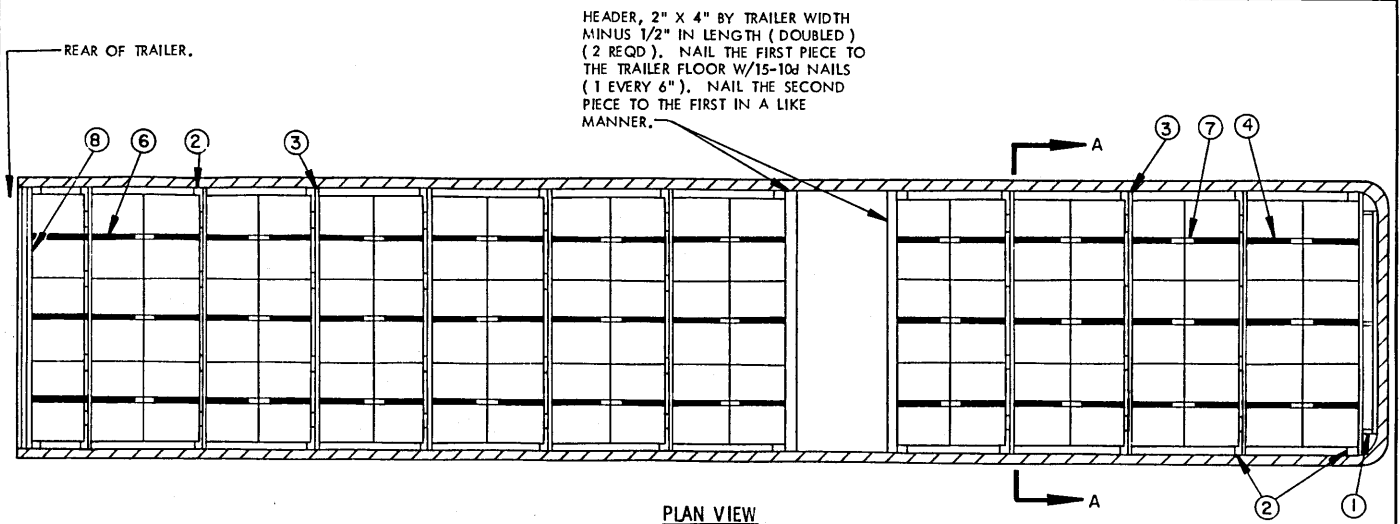
ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY ( 1 REQD ). SEE THE DETAIL ON PAGE 17. SEE GENERAL NOTE "K" ON PAGE 2.
- ② SIDE BLOCKING ( 4 REQD ). SEE THE "SIDE BLOCKING A" DETAIL AND NOTES ON PAGE 16. SEE GENERAL NOTES "N" AND "D" ON PAGE 2.
- ③ SEPARATOR GATE ( 9 REQD ). POSITION AS SHOWN. SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 18.
- ④ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 11'-6" LONG STEEL STRAPPING ( 27 REQD ). INSTALL AS SHOWN TO ENCIRCLE TWO PALLET UNITS.
- ⑤ SPACER ASSEMBLY ( 1 REQD ). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 19. SEE SPECIAL NOTE 3 ON PAGE 5.
- ⑥ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 14'-6" LONG STEEL STRAPPING ( 3 REQD ). INSTALL SO AS TO ENCIRCLE THREE ( 3 ) PALLET UNITS.
- ⑦ SEAL FOR 1-1/4" STRAPPING ( 60 REQD ). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑧ SOLID FILL, 6" WIDE MATERIAL BY TRAILER WIDTH MINUS 1/2" IN LENGTH BY THE THICKNESS REQUIRED TO FILL THE VOID BETWEEN THE REAR OF THE LOAD AND THE DOORS OF THE TRAILER WHEN THEY ARE CLOSED ( AS REQD ). LAMINATE W/1-APPLICABLY SIZED NAIL EVERY 12". SEE SPECIAL NOTE 4 ON PAGE 5.



SECTION A-A



**PLAN VIEW  
NAILABLE FLOOR METHOD**

THE ABOVE VIEW DEPICTS THE USE OF HEADERS WHICH MAY BE USED IN LIEU OF PIECE MARKED (5) WHEN THE TRAILER BEING USED HAS A NAILABLE FLOOR.

**SPECIAL NOTES:**

1. A 63-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. THE LOADING PROCEDURE SHOWN ON PAGE 4 IS APPLICABLE FOR TRAILERS WHICH HAVE ALL METAL FLOORS. THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING NAILABLE FLOORS IF NAILING TO THE TRAILER FLOOR IS NOT DESIRABLE. THE PLAN VIEW ABOVE DEPICTS A NAILABLE-FLOOR METHOD.
3. THE SPACER ASSEMBLY, SHOWN AS PIECE MARKED (5) IN THE LOAD ON PAGE 4 CAN BE USED TO ADJUST THE LOAD QUANTITY, THE LOAD WEIGHT, AND/OR FOR PROPER WEIGHT DISTRIBUTION, AND IS SHOWN AS TYPICAL ONLY. IF THE TRAILER TO BE LOADED IS LONGER THAN 40' THE LOCATION OF THE ASSEMBLY, AND/OR THE STRUT LENGTHS, MAY BE DIFFERENT FROM WHAT IS SHOWN. IF A SHORTER TRAILER IS USED FOR THE DEPICTED LOAD, THIS ASSEMBLY MAY NOT BE REQUIRED. NOTE THAT A SPACER ASSEMBLY MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED (1). SEE GENERAL NOTE "F" ON PAGE 2.
4. 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 "SOLID FILL MATERIAL", PIECE MARKED (8) ON PAGE 4. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "ALTERNATIVE REAR BLOCKING" AS DETAILED ON PAGE 19. SEE SPECIAL NOTE 6.
5. A LOAD CAN BE INCREASED OR DECREASED BY A MULTIPLE OF THREE (3) PALLET UNITS BY ADDING OR OMITTING ONE OR MORE FULL LOAD UNITS. IF IT IS NECESSARY TO OMIT ONE OR TWO PALLET UNITS FROM A LOAD UNIT, A "FILLER ASSEMBLY" MUST BE SUBSTITUTED FOR THE UNIT (S) OMITTED FROM THE MIDDLE ROW. SEE THE "FILLER ASSEMBLY A" AND THE "APPLICATION OF FILLER ASSEMBLY A" DETAILS ON PAGE 10 FOR GUIDANCE. NOTE THAT THE UNIT ADJACENT TO THE FILLER ASSEMBLY MUST BE UNITIZED TO THE TWO LONGITUDINALLY ADJACENT PALLET UNITS.
6. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGES 20 AND 21 FOR GUIDANCE. THE NAILABLE-HEADER METHOD IS SHOWN ON PAGE 20 AND THE TYGARD METHOD IS SHOWN ON PAGE 21. FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILABLE-HEADER METHOD, IT MAY BE NECESSARY TO OMIT SPACER ASSEMBLY "B", SHOWN AS PIECE MARKED (5), OR TO DECREASE THE LENGTH OF THE STRUTS ON THE ASSEMBLY, TO ACCOMMODATE NAILING OF THE SPECIAL REAR BLOCKING. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

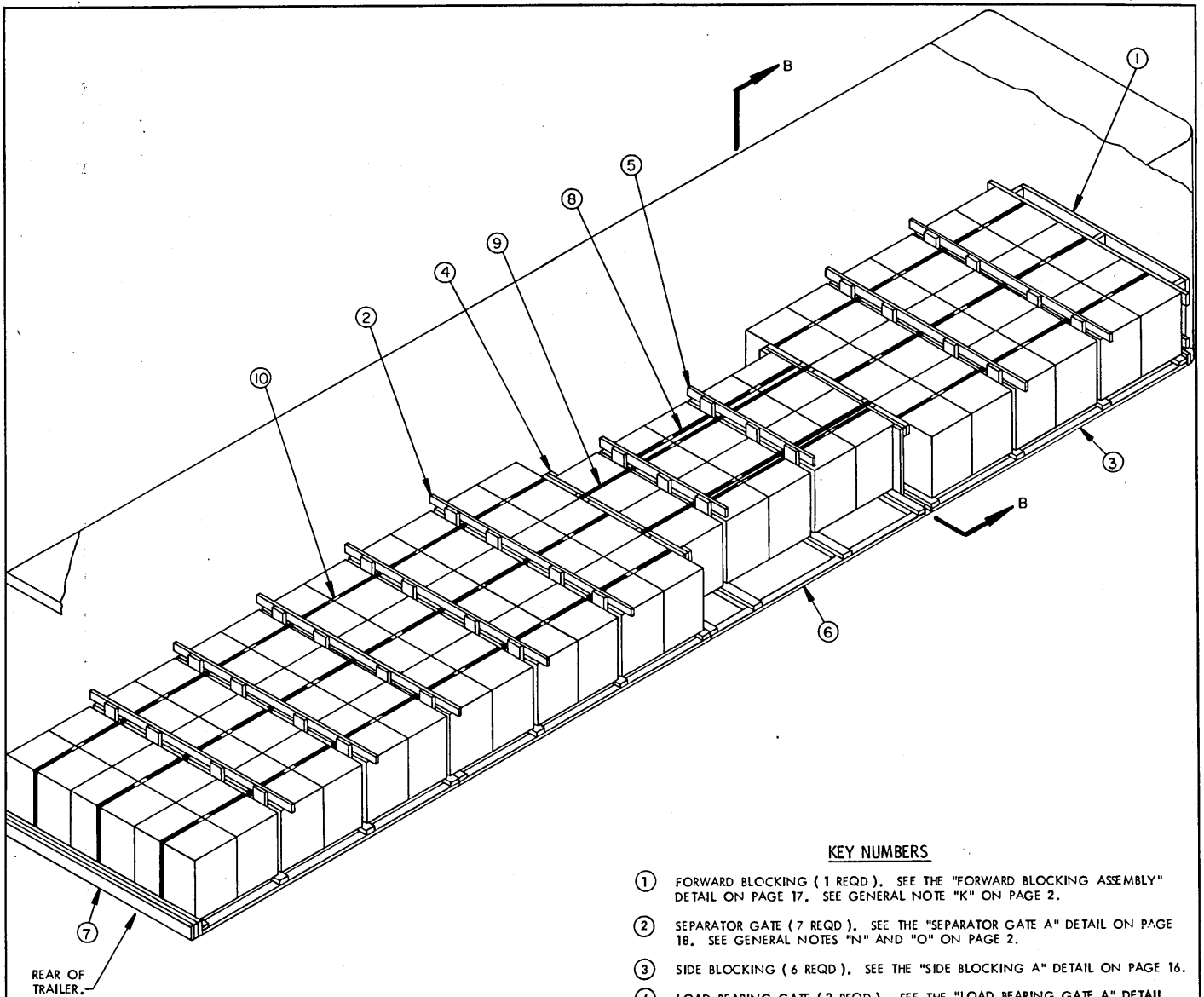
BILL OF MATERIAL (FOR PAGE 4)		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	69	23
1" X 6"	90	45
2" X 4"	165	110
2" X 6"	82	82
NAILS	NO. REQD	POUNDS
6d (2-1/2")	108	3/4
10d (3")	218	3-1/2
STEEL STRAPPING, 1-1/4" X .035"-----354' REQD-----51 LBS		
SEAL FOR 1-1/4" STRAPPING-----60 REQD-----3 LBS		

BILL OF MATERIAL (NAILABLE-FLOOR METHOD)		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	69	23
1" X 6"	90	45
2" X 4"	196	131
2" X 6"	51	51
NAILS	NO. REQD	POUNDS
6d (2-1/2")	108	3/4
10d (3")	254	4
STEEL STRAPPING, 1-1/4" X .035"-----354' REQD-----51 LBS		
SEAL FOR 1-1/4" STRAPPING-----60 REQD-----3 LBS		

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT-----	63	41,139 LBS
DUNNAGE-----		579 LBS *
TOTAL WEIGHT-----		41,718 LBS (APPROX)

\*DUNNAGE WEIGHT FOR NAILABLE-FLOOR METHOD IS 559 POUNDS.

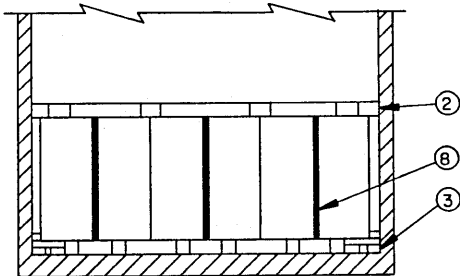


ISOMETRIC VIEW

REAR OF TRAILER

**KEY NUMBERS**

- ① FORWARD BLOCKING ( 1 REQD ). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 17. SEE GENERAL NOTE "K" ON PAGE 2.
- ② SEPARATOR GATE ( 7 REQD ). SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 18. SEE GENERAL NOTES "N" AND "O" ON PAGE 2.
- ③ SIDE BLOCKING ( 6 REQD ). SEE THE "SIDE BLOCKING A" DETAIL ON PAGE 16.
- ④ LOAD BEARING GATE ( 2 REQD ). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 17 AND SPECIAL NOTES 2 AND 3 ON PAGE 7.
- ⑤ SEPARATOR GATE ( 2 REQD ). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 18.
- ⑥ SIDE BLOCKING ( 2 REQD ). SEE THE "SIDE BLOCKING B" DETAIL ON PAGE 16.
- ⑦ SOLID FILL, 6" WIDE MATERIAL BY TRAILER WIDTH MINUS 1/2" IN LENGTH BY THE THICKNESS REQUIRED TO FILL THE VOID BETWEEN THE LADING AND THE REAR DOORS OF THE TRAILER WHEN THEY ARE CLOSED ( AS REQD ). LAMINATE WITH ONE APPLICABLY SIZED NAIL EVERY 12". SEE SPECIAL NOTE 4 ON PAGE 7.
- ⑧ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 11'-6" LONG STEEL STRAPPING ( 31 REQD ). INSTALL AS SHOWN TO ENCIRCLE TWO PALLET UNITS.
- ⑨ UNITIZING STRAP, 1-1/4" X .035" X 22'-6" LONG STEEL STRAPPING ( 2 REQD ). INSTALL TO ENCIRCLE FIVE PALLET UNITS AND TWO LOAD BEARING GATES, PIECES MARKED ④ . SEE SPECIAL NOTE 3 ON PAGE 7.
- ⑩ SEAL FOR 1-1/4" STRAPPING ( 66 REQD, 2 PER STRAP ). SEE GENERAL NOTE "L" ON PAGE 2.



SECTION B-B

**SPECIAL NOTES:**

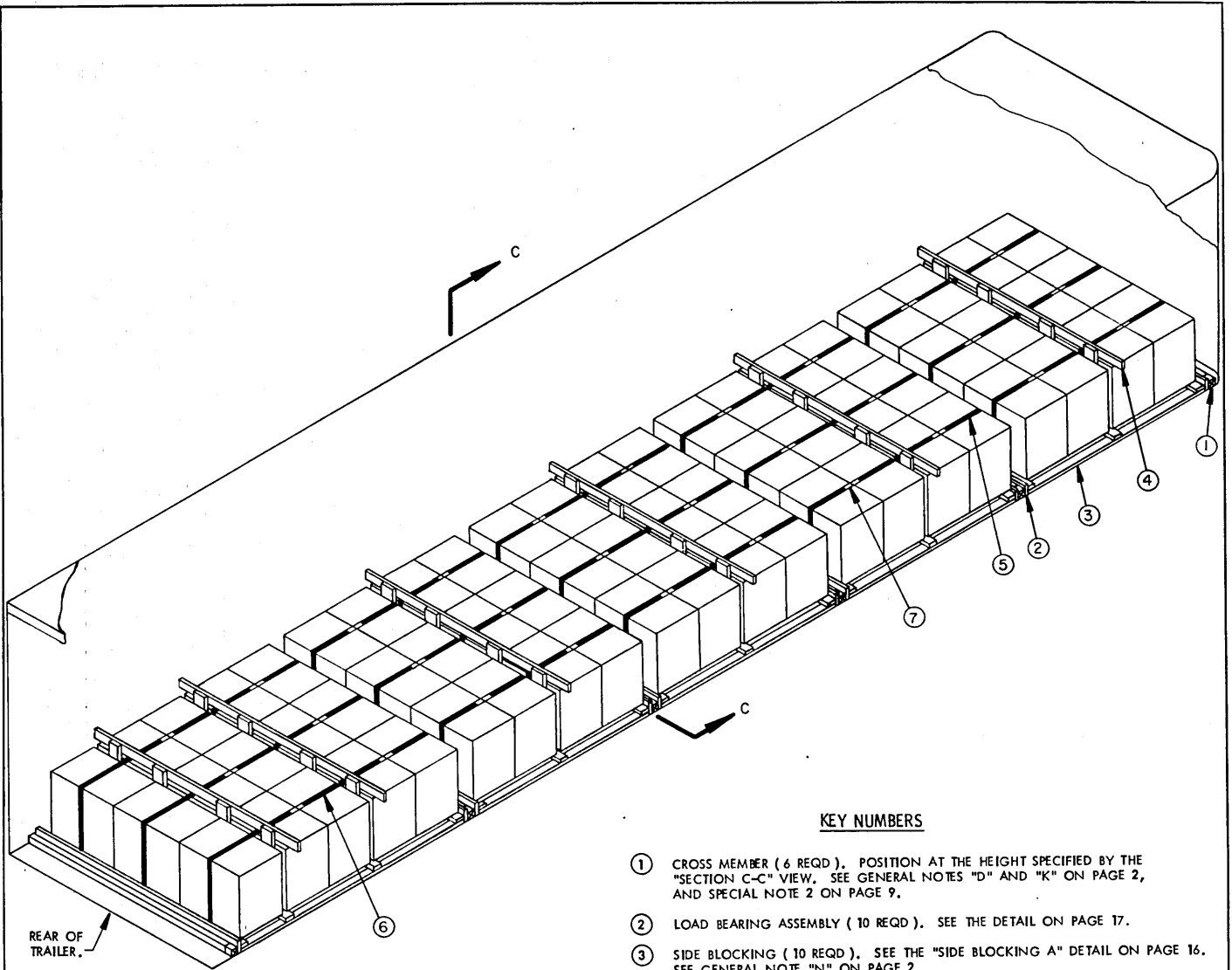
1. A 64-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. THE LOAD BEARING GATE, PIECE MARKED ④, WHICH IS POSITIONED WITHIN THE 2-WIDE PORTION, MUST HAVE FILL PIECES APPLIED TO BOTH THE UPPER AND LOWER HORIZONTAL PIECES. WHEN USED AT THE REAR OF THE LOAD, THE LOAD BEARING GATE MUST HAVE FILL PIECES APPLIED ONLY TO THE LOWER HORIZONTAL PIECE.
3. IF A LOAD PATTERN OTHER THAN SHOWN IS USED AND THE 2-WIDE PORTION IS MORE THAN 6 UNITS IN LENGTH, THAT 2-WIDE PORTION MUST BE SEPARATED INTO GROUPS. A LOAD BEARING GATE SHOWN AS PIECE MARKED ④ MUST BE LOCATED AT EACH END OF EACH GROUP, AND SECURED WITH UNITIZING STRAPS, PIECES MARKED ⑦.
4. 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 "SOLID FILL MATERIAL", PIECE MARKED ⑦ ON PAGE 6. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "ALTERNATIVE REAR BLOCKING ASSEMBLY", DETAILED ON PAGE 19. SEE SPECIAL NOTE 7.
5. A LOAD CAN BE INCREASED OR DECREASED BY ONE OR MORE PALLET UNITS BY INCREASING OR DECREASING THE LENGTH OF THE 3-WIDE PORTION AT THE FRONT AND/OR REAR OF THE LOAD AND DECREASING OR INCREASING THE LENGTH OF THE 2-WIDE PORTION. ADJUST THE LENGTH OF THE SIDE BLOCKING, PIECES MARKED ③ AND ⑥, AND THE QUANTITY OF PIECES MARKED ② AND ⑤, AS NECESSARY.
6. DEPENDING UPON THE TYPE AND WEIGHT OF THE TRAILER BEING LOADED, AND THE WEIGHT OF THE TRACTOR TO BE USED FOR TRANSPORTING THE LOADED TRAILER, IT MAY BE NECESSARY TO ADJUST THE QUANTITY OF UNITS IN THE 2-WIDE PORTION AND IN THE FORWARD AND/OR REAR PORTIONS OF THE LOAD IN ORDER TO COMPLY WITH WEIGHT DISTRIBUTION REQUIREMENTS; OR A SPACER ASSEMBLY, SHOWN AS PIECE MARKED ⑧ IN THE LOAD ON PAGE 4 MAY BE USED IN THE 3-WIDE PORTION OF THE LOAD. SEE SPECIAL NOTE 3 ON PAGE 5 AND GENERAL NOTE "F" ON PAGE 2.
7. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE "PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS" ON PAGE 20 AND 21 FOR GUIDANCE. THE NAILED-HEADER METHOD IS SHOWN ON PAGE 20 AND THE TYGARD METHOD IS SHOWN ON PAGE 21. FOR THE DEPICTED LOAD IN A 40'-0" LONG TRAILER WHEN USING THE NAILED-HEADER METHOD, IT WILL BE NECESSARY TO FORM TWENTY-TWO LOAD UNITS INSTEAD OF TWENTY-THREE, 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.

**BILL OF MATERIAL**

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	111	37
1" X 6"	85	43
2" X 4"	202	135
2" X 6"	58	58
NAILS	NO. REQD	POUNDS
6d (2")	258	1-1/2
10d (3")	182	2-3/4
STEEL STRAPPING, 1-1/4" X .035"----- 402' REQD ---- 58 LBS		
SEAL FOR 1-1/4" STRAPPING----- 66 REQD----- 3 LBS		

**LOAD AS SHOWN**

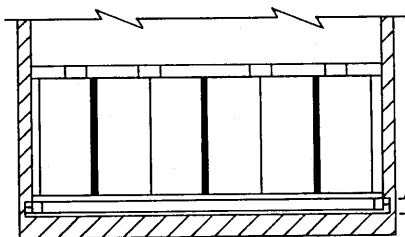
ITEM	QUANTITY	WEIGHT ( APPROX )
PALLET UNIT -----	64-----	41,792 LBS
DUNNAGE-----		613 LBS
TOTAL WEIGHT -----		42,405 LBS ( APPROX )



ISOMETRIC VIEW

KEY NUMBERS

- ① CROSS MEMBER ( 6 REQD ). POSITION AT THE HEIGHT SPECIFIED BY THE "SECTION C-C" VIEW. SEE GENERAL NOTES "D" AND "K" ON PAGE 2, AND SPECIAL NOTE 2 ON PAGE 9.
- ② LOAD BEARING ASSEMBLY ( 10 REQD ). SEE THE DETAIL ON PAGE 17.
- ③ SIDE BLOCKING ( 10 REQD ). SEE THE "SIDE BLOCKING A" DETAIL ON PAGE 16. SEE GENERAL NOTE "N" ON PAGE 2.
- ④ SEPARATOR GATE ( 6 REQD ). POSITION AS SHOWN. SEE THE "SEPARATOR GATE A" DETAIL ON PAGE 18. SEE GENERAL NOTES "N" AND "O" ON PAGE 2.
- ⑤ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 11'-6" LONG STEEL STRAPPING ( 27 REQD ). INSTALL TO ENCIRCLE TWO ( 2 ) PALLET UNITS AS SHOWN.
- ⑥ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 14'-6" LONG STEEL STRAPPING ( 3 REQD ). INSTALL TO ENCIRCLE THREE ( 3 ) PALLET UNITS AS SHOWN.
- ⑦ SEAL FOR 1-1/4" STRAPPING ( 60 REQD, 2 PER STRAP JOINT ). SEE GENERAL NOTE "L" ON PAGE 2.



SECTION C-C

INDICATES THE TOP SURFACE OF A CROSS MEMBER, PLUS 2" OR MINUS 1" IS PERMITTED.

INDICATES TRAILER FLOOR.



**SPECIAL NOTES:**

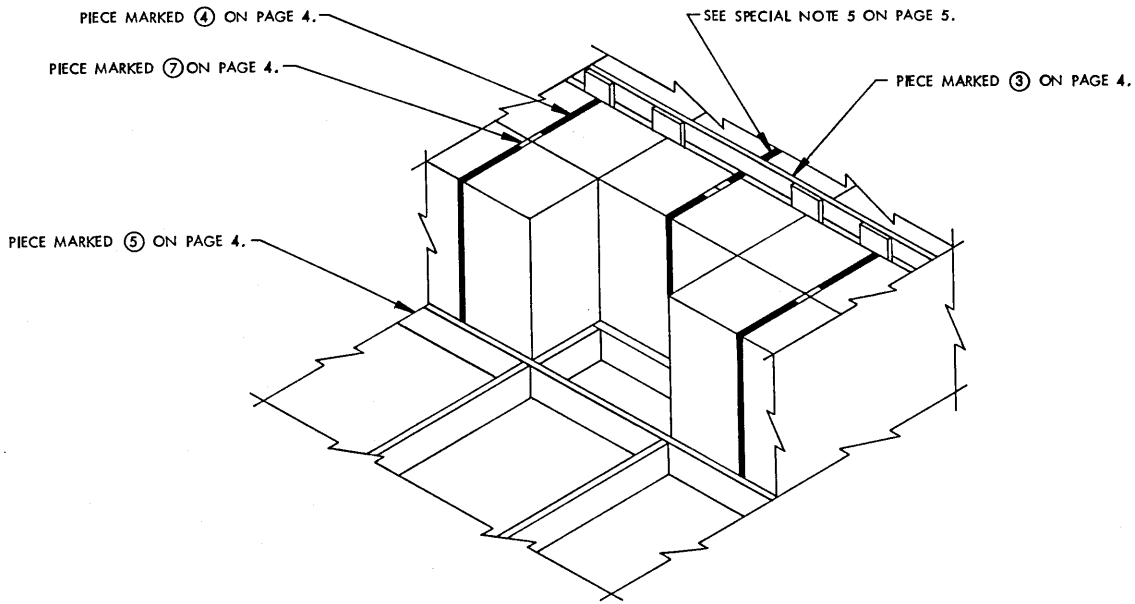
1. A 63-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE ( INSIDE DIMENSION ) TRAILER WHICH IS EQUIPPED WITH A MECHANICAL LOAD BRACING SYSTEM THAT CONTAINS AT LEAST NINE ( 9 ) CROSS MEMBERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. A TRAILER HAVING ROUNDED CORNERS AT THE FORWARD END IS SHOWN. IF THE TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT, THE CROSS MEMBER AND THE LOAD BEARING ASSEMBLY, PIECES MARKED ① AND ② , AT THE FRONT OF THE LOAD MAY BE OMITTED. POSITION THE PALLET UNITS DIRECTLY AGAINST THE TRAILER FRONT WALL.
3. PALLET UNITS WILL BE POSITIONED IN A TRAILER IN SUCH A MANNER THAT THERE WILL NOT BE LESS THAN 6 PALLET UNITS PER BAY ( 3 WIDE BY 2 LONG ). ALSO, NO MORE THAN 15 PALLET UNITS WILL BE POSITIONED IN ONE BAY. EACH 2-UNITS WITHIN A BAY SHALL BE COMPLETELY ENCIRCLED WITH A UNITIZING STRAP, PIECE MARKED ⑤ . IF A BAY CONSISTS OF 9 OR 15 UNITS, UNITIZING STRAPS SHOWN AS PIECE MARKED ⑥ MUST ENCIRCLE THE LAST 3 UNITS IN THE BAY.
4. A LOAD CAN BE INCREASED BY THREE ( 3 ) PALLET UNITS BY ADDING ONE FULL LOAD UNIT TO A 6-UNIT BAY. DO NOT POSITION MORE THAN 15 PALLET UNITS IN ONE BAY. A LOAD CAN BE DECREASED BY THREE ( 3 ) PALLET UNITS BY OMITTING ONE FULL LOAD UNIT FROM A 12 OR 15-UNIT BAY. DO NOT POSITION LESS THAN 6 PALLET UNITS IN ONE BAY. A LOAD UNIT CAN BE REDUCED BY ONE OR TWO UNITS BY INSTALLING A "FILLER ASSEMBLY A" IN THE PLACE OF A PALLET UNIT OMITTED FROM THE MIDDLE ROW OF THE LOAD. IF ONE PALLET UNIT IS OMITTED, IT MUST BE OMITTED FROM THE REARMOST LOAD UNIT IN THE BAY. EXCEPT AT THE REAR OF THE LOAD, THE UNIT ADJACENT TO THE FILLER ASSEMBLY MUST BE UNITIZED TO THE TWO LONGITUDINALLY ADJACENT PALLET UNITS. SEE "APPLICATION OF FILLER ASSEMBLY A" ON PAGE 10 FOR A TYPICAL INSTALLATION.
5. DEPENDING UPON THE TYPE AND WEIGHT OF THE TRAILER BEING LOADED, AND THE WEIGHT OF THE TRACTOR TO BE USED FOR TRANSPORTING THE LOADED TRAILER, IT MAY BE NECESSARY TO ADJUST THE QUANTITY OF UNITS IN THE FORWARD AND REAR PORTION OF THE LOAD, OR TO SHIFT THE LOCATIONS OF THE LOAD PORTIONS IN ORDER TO COMPLY WITH WEIGHT DISTRIBUTION REQUIREMENTS. CAUTION: THE VOID AREA WITHIN A LOAD MUST BE LOCATED NEAR THE CENTER OF THE TRAILER LENGTH. SEE GENERAL NOTE "F" ON PAGE 2.

**BILL OF MAIERIAL**

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	46	16
1" X 6"	60	30
2" X 2"	10	4
2" X 4"	163	109
2" X 6"	77	77
NAILS	NO. REQD	POUNDS
6d (2")	72	1/2
10d (3")	232	3-1/2
STEEL STRAPPING, 1-1/4" X .035"-----354' REQD ----- 51 LBS		
SEAL FOR 1-1/4" STRAPPING----- 60 REQD ----- 3 LBS		

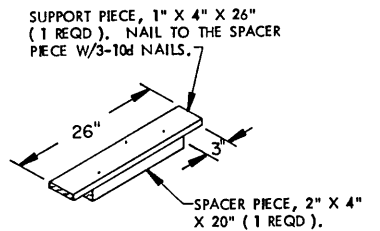
**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT ( APPROX )
PALLET UNIT-----	63-----	41,139 LBS
DUNNAGE-----	-----	530 LBS
TOTAL WEIGHT-----		41,669 LBS ( APPROX )

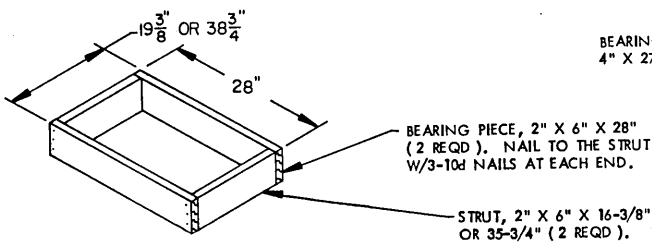


**APPLICATION OF FILLER ASSEMBLY**

THIS VIEW DEPICTS THE METHOD OF USING A "FILLER ASSEMBLY A" IN THE PLACE OF ONE OMITTED PALLET UNIT. THE METHOD IS ALSO APPLICABLE FOR THE OMISSION OF TWO PALLET UNITS FROM THE MIDDLE ROW OF THE LOAD SHOWN ON PAGES 4 AND 8.

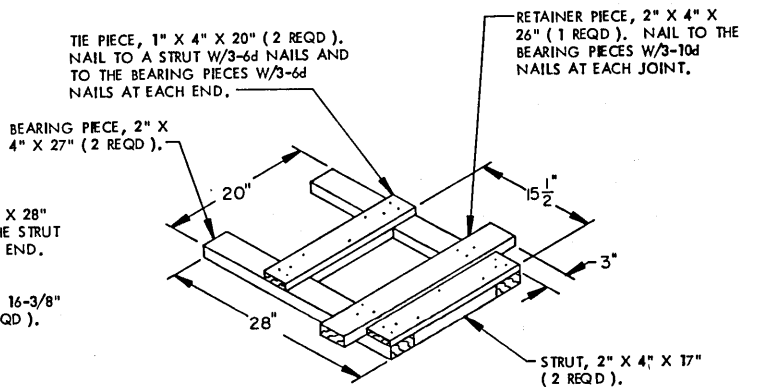


**SPACER A**



**FILLER ASSEMBLY A**

THIS ASSEMBLY IS FOR USE WITHIN THE LOAD SHOWN ON PAGE 4 TO REDUCE A LOAD BY ONE OR TWO PALLET UNITS. SEE THE "APPLICATION OF FILLER ASSEMBLY A" DETAIL ABOVE FOR GUIDANCE.

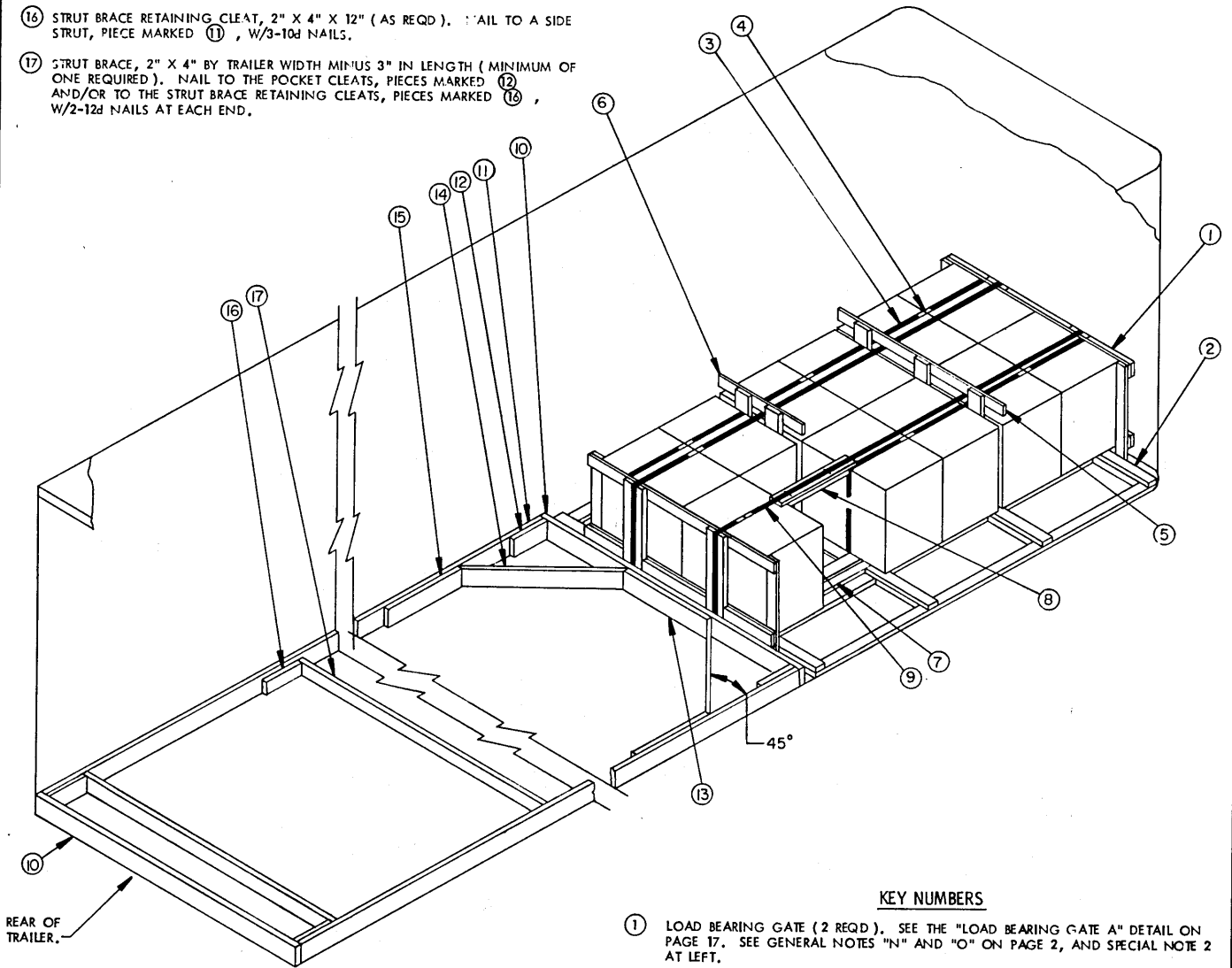


**FILLER ASSEMBLY B**

THIS ASSEMBLY, IN CONJUNCTION WITH THE "SPACER A" ABOVE, IS FOR USE IN OBTAINING AN UNEVEN QUANTITY OF PALLET UNITS. SEE THE LOAD VIEW ON PAGE 11 FOR A TYPICAL INSTALLATION. THESE ASSEMBLIES ARE ALSO FOR USE IN ADJUSTING THE QUANTITY OF UNITS IN A TRAILER EQUIPPED WITH MECHANICAL BRACING. SEE SPECIAL NOTE 4 ON PAGE 11.

(KEY NUMBERS CONTINUED)

- ⑮ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑪, W/8-10d NAILS.
- ⑯ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑪, W/3-10d NAILS.
- ⑰ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). NAIL TO THE POCKET CLEATS, PIECES MARKED ⑫, AND/OR TO THE STRUT BRACE RETAINING CLEATS, PIECES MARKED ⑯, W/2-12d NAILS AT EACH END.



ISOMETRIC VIEW

SPECIAL NOTES:

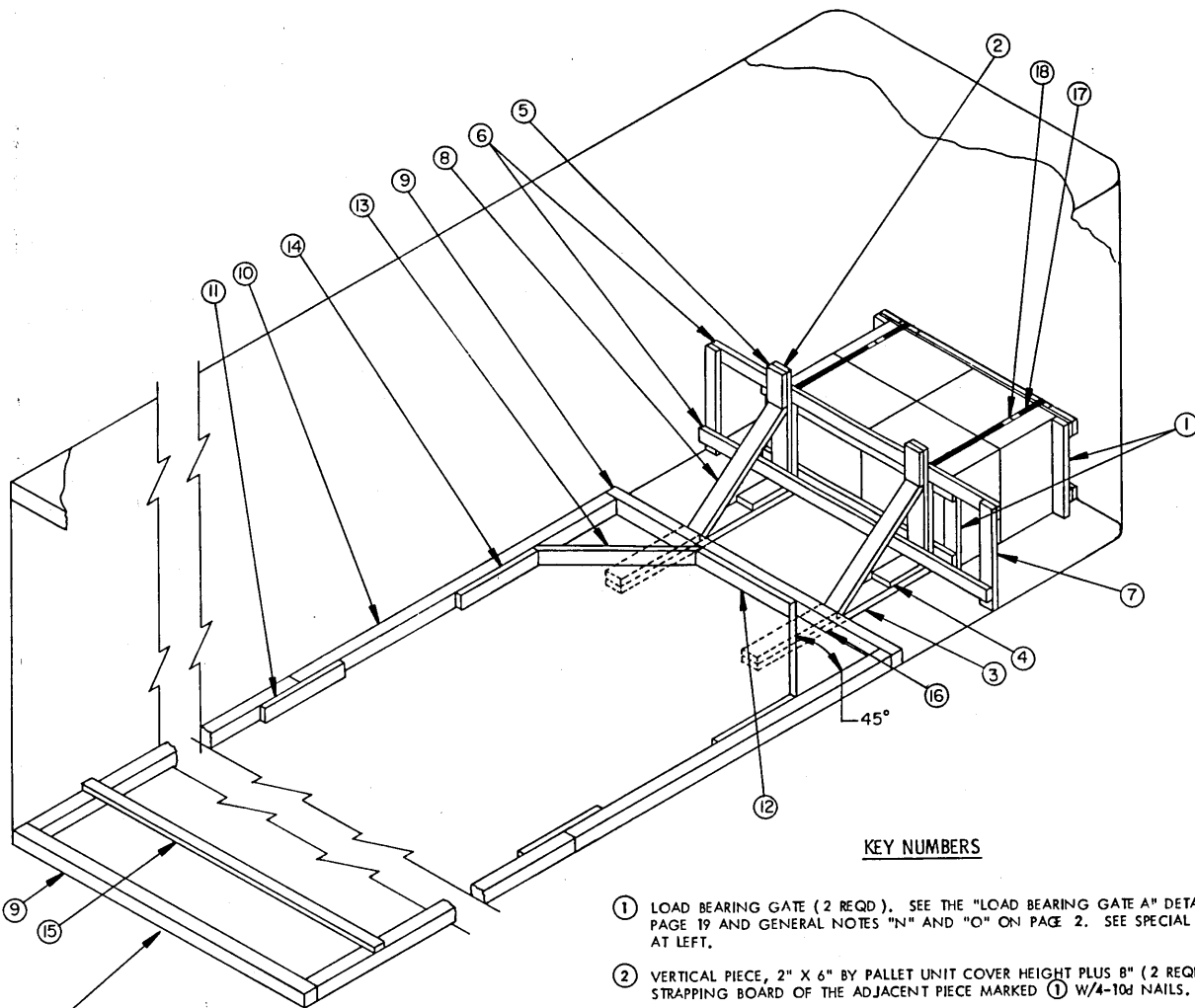
1. THESE OUTLOADING PROCEDURES DEPICT THE USE OF BOTH "K-BRACE" TYPE BLOCKING AND "NAILED-FLOOR-LINE" BLOCKING IN A 7'-8" WIDE CONVENTIONAL VAN TRAILER. WIDER OR NARROWER TRAILERS CAN BE USED.
2. THE LOAD BEARING GATE, PIECE MARKED ①, WHICH IS POSITIONED AGAINST THE FRONT WALL, REQUIRES FILL PIECES APPLIED TO BOTH THE UPPER AND LOWER HORIZONTALS, WHERE AS THE REAR LOAD BEARING GATE ONLY REQUIRES FILL PIECES ON THE LOWER HORIZONTAL.
3. THE "K-BRACE" TYPE BLOCKING, SHOWN AS PIECES MARKED ⑩ THRU ⑰, IS ADEQUATE FOR RETAINING NOT MORE THAN FIFTEEN (15) PALLET UNITS. NOTE THAT IN ORDER TO AVOID EXCESSIVE STRAP LENGTHS, LOADS OF MORE THAN 12 PALLET UNITS MUST BE UNITIZED IN TWO GROUPS. POSITION TWO LOAD BEARING GATES, PIECES MARKED ①, WITH FILL PIECES ADDED, BACK-TO-BACK BETWEEN THE GROUPS. ENCIRCLE EACH PALLET GROUP AND THE TWO GATES FOR THE GROUP WITH BUNDLING STRAPS, PIECES MARKED ⑨, OF AN APPROPRIATE LENGTH.
4. THE DEPICTED BLOCKING IS ALSO APPLICABLE FOR BRACING AN EVEN NUMBERED QUANTITY OF PALLET UNITS (A MINIMUM OF 6). THE FILLER ASSEMBLY AND SPACER, PIECES MARKED ⑦ AND ⑧, ARE ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION.
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 PAGE 20. A NAILED-HEADER METHOD IS SHOWN. PROVIDING THE TRAILER HAS NAILABLE FLOORS, 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 ⑩ THRU ⑰ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.

KEY NUMBERS

- ① LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 17. SEE GENERAL NOTES "N" AND "O" ON PAGE 2, AND SPECIAL NOTE 2 AT LEFT.
- ② SIDE BLOCKING (2 REQD). SEE THE "SIDE BLOCKING B" DETAIL ON PAGE 16.
- ③ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 11'-6" LONG STEEL STRAPPING (5 REQD). INSTALL SO AS TO ENCIRCLE TWO (2) PALLET UNITS AS SHOWN.
- ④ SEAL FOR 1-1/4" STRAPPING (14 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑤ SEPARATOR GATE (1 REQD). SEE THE "SEPARATOR GATE B" DETAIL ON PAGE 18.
- ⑥ SEPARATOR GATE (1 REQD). SEE THE "SEPARATOR GATE C" DETAIL ON PAGE 18.
- ⑦ FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY B" DETAIL ON PAGE 10. SEE SPECIAL NOTE 4 AT LEFT.
- ⑧ SPACER (1 REQD). SEE THE "SPACER A" DETAIL ON PAGE 10.
- ⑨ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE SIX AND/OR FIVE PALLET UNITS, AND TWO LOAD BEARING GATES, PIECES MARKED ①. THREAD UNDER PIECE MARKED ⑤ AND STAPLE TO PIECE MARKED ⑧ W/2 STAPLES.
- ⑩ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD).
- ⑪ SIDE STRUT, 2" X 6" BY CUT-TO-FIT BETWEEN THE FORWARD AND REAR HEADERS, PIECE MARKED ⑩ (2 REQD).
- ⑫ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED W/3-10d NAILS. TOENAIL TO THE ADJACENT HEADER PIECE MARKED ⑩ W/3-12d NAILS.
- ⑬ CENTER CLEAT, 2" X 6" X 24" (1 REQD). NAIL TO A HEADER, PIECE MARKED ⑩ W/6-10d NAILS.
- ⑭ DIAGONAL BRACE, 2" X 6" BY CUT-TO-FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND TOENAIL TO THE ADJACENT HEADER AND SIDE STRUT, PIECES MARKED ⑩ AND ⑪, W/2-6d NAILS AT EACH END.

(CONTINUED ABOVE)

TYPICAL LTL (11-UNIT LOAD) IN A CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW

REAR OF TRAILER.

**SPECIAL NOTES:**

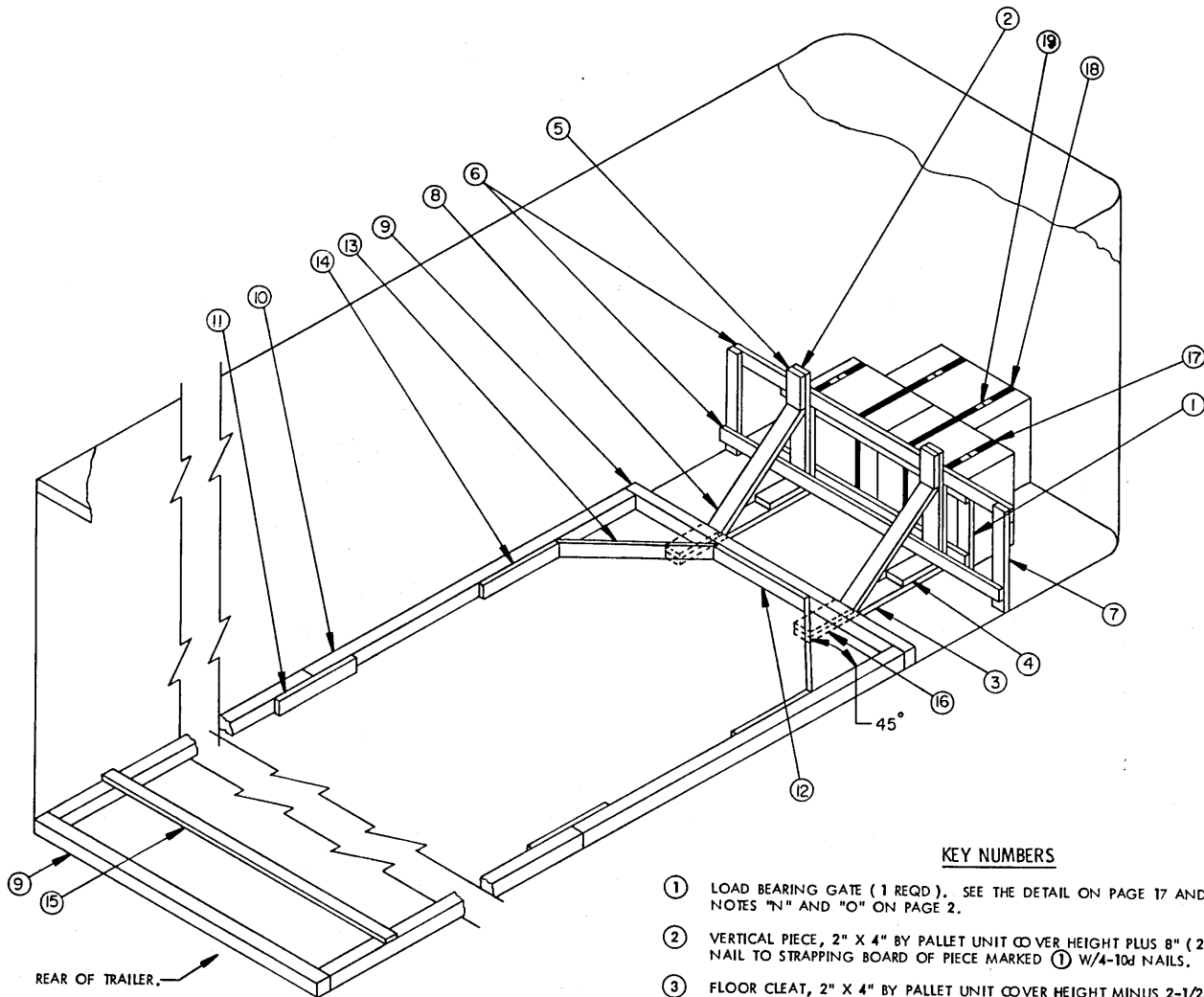
1. THESE OUTLOADING PROCEDURES DEPICT PROCEDURES DEPICT THE USE OF BOTH "K-BRACE" TYPE BLOCKING AND "NAILED-FLOOR-LINE" BLOCKING IN A 7'-8" WIDE CONVENTIONAL VAN TRAILER. WIDER OR NARROWER TRAILERS CAN BE USED.
2. THE LOAD BEARING GATE, PIECE MARKED ①, WHICH IS POSITIONED AGAINST THE TRAILER FRONT WALL MUST HAVE FILL PIECES APPLIED TO BOTH THE UPPER AND LOWER HORIZONTAL PIECES. FILL PIECES ARE NOT REQUIRED ON THE GATE AT THE REAR OF THE LOAD.
3. PIECES MARKED ⑬ ARE FOR USE IN A TRAILER WHICH HAS A NAILABLE FLOOR AND MAY BE USED, IF DESIRED, IN LIEU OF PIECES MARKED ⑦ THRU ⑮ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. WHEN USING "NAILED-FLOOR-LINE" BLOCKING, NAIL THE FLOOR CLEATS, PIECES MARKED ③, TO THE TRAILER FLOOR W/1-12d NAIL EVERY 6".

(KEY NUMBERS CONTINUED)

- ⑬ BACK-UP CLEAT, 2" X 6" X 24" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 3 ABOVE.
- ⑭ UNITIZING STRAP, 1-1/4" X .035" STEEL STRAPPING OF A LENGTH TO SUIT (2 REQD). INSTALL TO ENCIRCLE TWO PALLET UNITS AND TWO LOAD BEARING GATES, PIECES MARKED ①, AS SHOWN.
- ⑮ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP JOINT). SEE GENERAL NOTE "L" ON PAGE 2.

**KEY NUMBERS**

- ① LOAD BEARING GATE (2 REQD). SEE THE "LOAD BEARING GATE A" DETAIL ON PAGE 19 AND GENERAL NOTES "N" AND "O" ON PAGE 2. SEE SPECIAL NOTE 2 AT LEFT.
- ② VERTICAL PIECE, 2" X 6" BY PALLET UNIT COVER HEIGHT PLUS 8" (2 REQD). NAIL TO STRAPPING BOARD OF THE ADJACENT PIECE MARKED ① W/4-10d NAILS.
- ③ FLOOR CLEAT, 2" X 6" BY PALLET UNIT COVER HEIGHT MINUS 2-1/2" (2 REQD). SEE SPECIAL NOTE 3 AT LEFT.
- ④ POCKET CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO PIECE MARKED ③ W/3-10d NAILS. TOENAIL TO PIECE MARKED ② W/2-12d NAILS.
- ⑤ HOLD DOWN CLEAT, 2" X 6" X 9" (2 REQD). NAIL TO PIECE MARKED ② W/3-10d NAILS.
- ⑥ HORIZONTAL PIECE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO PIECES MARKED ② W/3-10d NAILS AT EACH JOINT.
- ⑦ BUFFER PIECE, 2" X 4" BY PALLET UNIT COVER HEIGHT PLUS 4" (2 REQD). NAIL TO PIECES MARKED ⑥ W/3-10d NAILS AT EACH JOINT.
- ⑧ KNEE BRACE, 2" X 6" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. TOENAIL TO PIECES MARKED ② AND ③ W/2-12d NAILS AT EACH END.
- ⑨ HEADER, 4" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). TOENAIL THE FORWARD PIECE TO PIECES MARKED ⑧ W/2-16d NAILS AT EACH JOINT.
- ⑩ SIDE STRUT, 4" X 4" BY CUT TO FIT BETWEEN THE TWO HEADERS (2 REQD). TOENAIL TO THE HEADERS W/2-16d NAILS AT EACH END.
- ⑪ SPLICE PIECE, 2" X 4" X 24" (AS REQD). CENTER ON A JOINT OF PIECES MARKED ⑩ AND NAIL W/4-12d NAILS AT EACH END.
- ⑫ CENTER CLEAT, 2" X 4" X 30" (1 REQD). NAIL TO THE FORWARD PIECE MARKED ⑨ W/7-12d NAILS.
- ⑬ DIAGONAL BRACE, 2" X 4" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND NAIL TO PIECES MARKED ⑨ AND ⑩ W/2-16d NAILS AT EACH END.
- ⑭ SIDE CLEAT, 2" X 4" X 24" (2 REQD). NAIL TO PIECE MARKED ⑩ W/6-12d NAILS.
- ⑮ STRUT BRACING, 2" X 4" BY TRAILER WIDTH IN LENGTH (CUT TO FIT) (MINIMUM OF 1 REQD). ONE (1) ADDITIONAL BRACE IS REQUIRED FOR EVERY 7'-0" OF SIDE STRUT LENGTH. NAIL TO PIECES MARKED ⑩ W/3-12d NAILS AT EACH END.



ISOMETRIC VIEW

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE USE OF BOTH "K-BRACE" TYPE BLOCKING AND "NAILED-FLOOR-LINE" BLOCKING IN A 7'-8" WIDE CONVENTIONAL VAN TRAILER. WIDER OR NARROWER TRAILERS CAN BE USED.
2. PIECES MARKED 16 ARE FOR USE IN A TRAILER WHICH HAS A NAILABLE FLOOR AND MAY BE USED, IF DESIRED, IN LIEU OF PIECES MARKED 9 THRU 15 WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. WHEN USING "NAILED-FLOOR LINE" BLOCKING, NAIL THE FLOOR CLEATS, PIECES MARKED 3, TO THE TRAILER FLOOR W/1-12d NAIL EVERY 6".

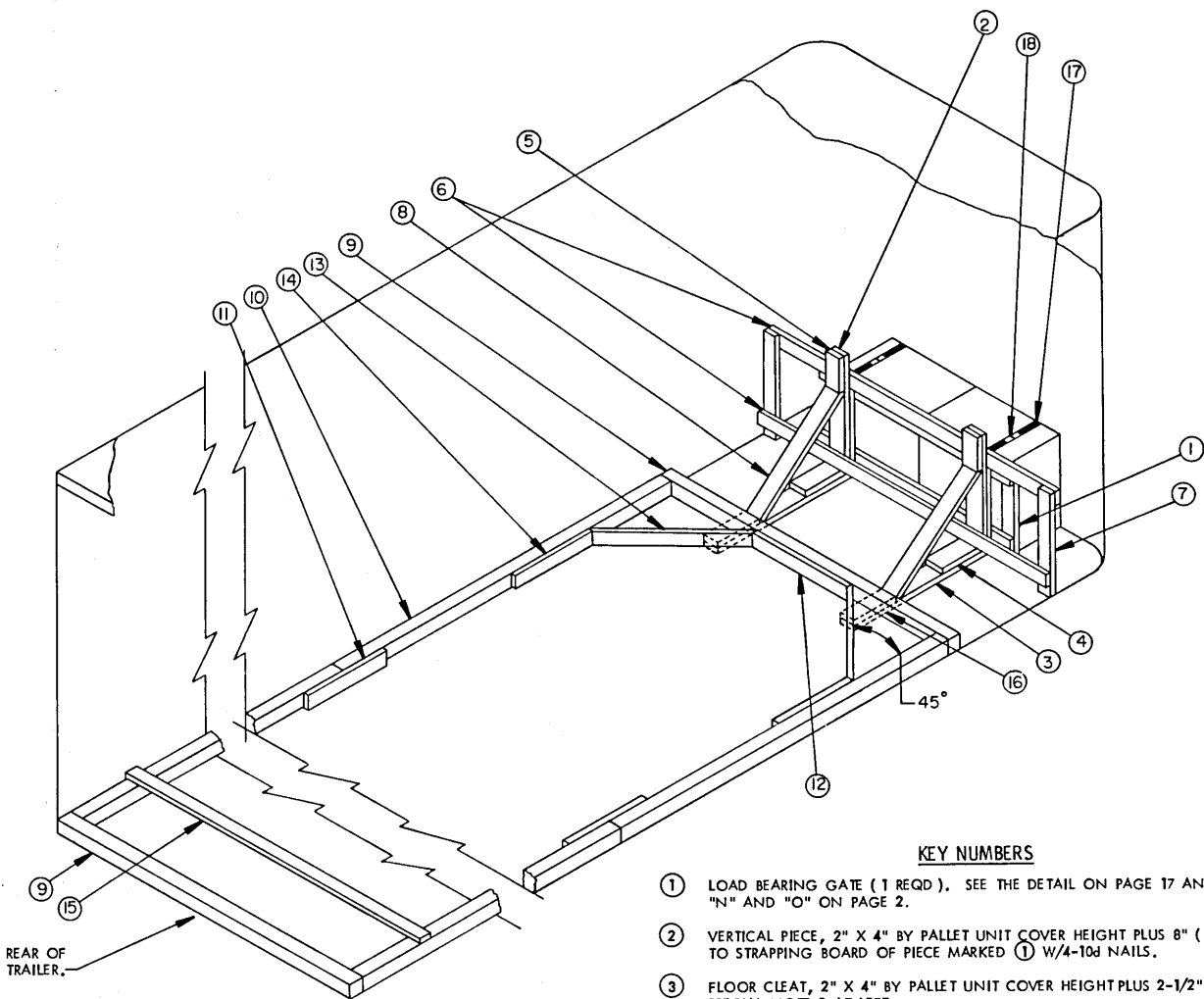
( KEY NUMBERS CONTINUED )

- 16 BACK-UP CLEAT, 2" X 4" X 12" ( DOUBLED ) ( 2 REQD ). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 2 ABOVE.
- 17 UNITIZING STRAP, 1-1/4" X .035" STEEL STRAPPING OF A LENGTH TO SUIT ( 2 REQD ). INSTALL TO ENCIRCLE TWO PALLET UNITS AS SHOWN.
- 18 UNITIZING STRAP, 1-1/4" X .035" STEEL STRAPPING OF A LENGTH TO SUIT ( 2 REQD ). INSTALL TO ENCIRCLE ONE PALLET UNIT AND THE LOAD BEARING GATE, PIECE MARKED 1, AS SHOWN.
- 19 SEAL FOR 1-1/4" STRAPPING ( 8 REQD, 2 PER STRAP JOINT ). SEE GENERAL NOTE "L" ON PAGE 2.

KEY NUMBERS

- 1 LOAD BEARING GATE ( 1 REQD ). SEE THE DETAIL ON PAGE 17 AND GENERAL NOTES "N" AND "O" ON PAGE 2.
- 2 VERTICAL PIECE, 2" X 4" BY PALLET UNIT COVER HEIGHT PLUS 8" ( 2 REQD ). NAIL TO STRAPPING BOARD OF PIECE MARKED 1 W/4-10d NAILS.
- 3 FLOOR CLEAT, 2" X 4" BY PALLET UNIT COVER HEIGHT MINUS 2-1/2" ( 2 REQD ). SEE SPECIAL NOTE 3 AT LEFT.
- 4 POCKET CLEAT, 2" X 4" X 12" ( 2 REQD ). NAIL TO PIECE MARKED 3 W/3-10d NAILS. TOENAIL TO PIECE MARKED 2 W/2-12d NAILS
- 5 HOLD-DOWN CLEAT, 2" X 4" X 9" ( 2 REQD ). NAIL TO PIECE MARKED 2 W/3-10d NAILS.
- 6 HORIZONTAL PIECE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH ( 2 REQD ). NAIL TO PIECES MARKED 2 W/3-10d NAILS AT EACH JOINT.
- 7 BUFFER PIECE, 2" X 4" BY PALLET UNIT COVER HEIGHT PLUS 4" ( 2 REQD ). NAIL TO PIECES MARKED 6 W/3-10d NAILS AT EACH JOINT.
- 8 KNEE BRACE, 2" X 4" BY CUT TO FIT ( 2 REQD ). DOUBLE BEVEL EACH END WITH 45° CUTS. TOENAIL TO PIECES MARKED 2 AND 3 W/2-12d NAILS AT EACH END.
- 9 HEADER, 4" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH ( 2 REQD ). TOENAIL THE FORWARD PIECE TO PIECES MARKED 8 W/2-16d NAILS AT EACH JOINT.
- 10 SIDE STRUT, 4" X 4" BY CUT TO FIT BETWEEN THE TWO HEADERS ( 2 REQD ). TOENAIL TO THE HEADERS W/2-16d NAILS AT EACH END.
- 11 SPLICE PIECE, 2" X 4" X 24" ( AS REQD ). CENTER ON A JOINT OF PIECES MARKED 10 AND NAIL W/4-12d NAILS AT EACH END.
- 12 CENTER CLEAT, 2" X 4" X 30" ( 1 REQD ). NAIL TO THE FORWARD PIECE MARKED 9 W/7-12d NAILS.
- 13 DIAGONAL BRACE, 2" X 4" BY CUT TO FIT ( 2 REQD ). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND NAIL TO PIECES MARKED 9 AND 10 W/2-16d NAILS AT EACH END.
- 14 SIDE CLEAT, 2" X 4" X 24" ( 2 REQD ). NAIL TO PIECE MARKED 10 W/6-12d NAILS.
- 15 STRUT BRACING, 2" X 4" BY TRAILER WIDTH IN LENGTH ( CUT TO FIT ) ( MINIMUM OF 1 REQD ). ONE ( 1 ) ADDITIONAL BRACE IS REQUIRED FOR EVERY 7'-0" OF SIDE STRUT LENGTH. NAIL TO PIECES MARKED 10 W/3-12d NAILS AT EACH END.

( CONTINUED AT LEFT )



ISOMETRIC VIEW

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE USE OF BOTH "K-BRACE" TYPE BLOCKING AND "NAILED-FLOOR-LINE" BLOCKING IN A 7'-6" WIDE CONVENTIONAL VAN TRAILER. WIDER OR NARROWER TRAILERS CAN BE USED.
2. PIECES MARKED 16 ARE FOR USE IN A TRAILER WHICH HAS A NAILABLE FLOOR AND MAY BE USED, IF DESIRED, IN LIEU OF PIECES MARKED 9 THRU 15 WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. WHEN USING "NAILED-FLOOR-LINE" BLOCKING, NAIL THE FLOOR CLEATS, PIECES MARKED 3, TO THE TRAILER FLOOR W/1-12d NAIL EVERY 6".

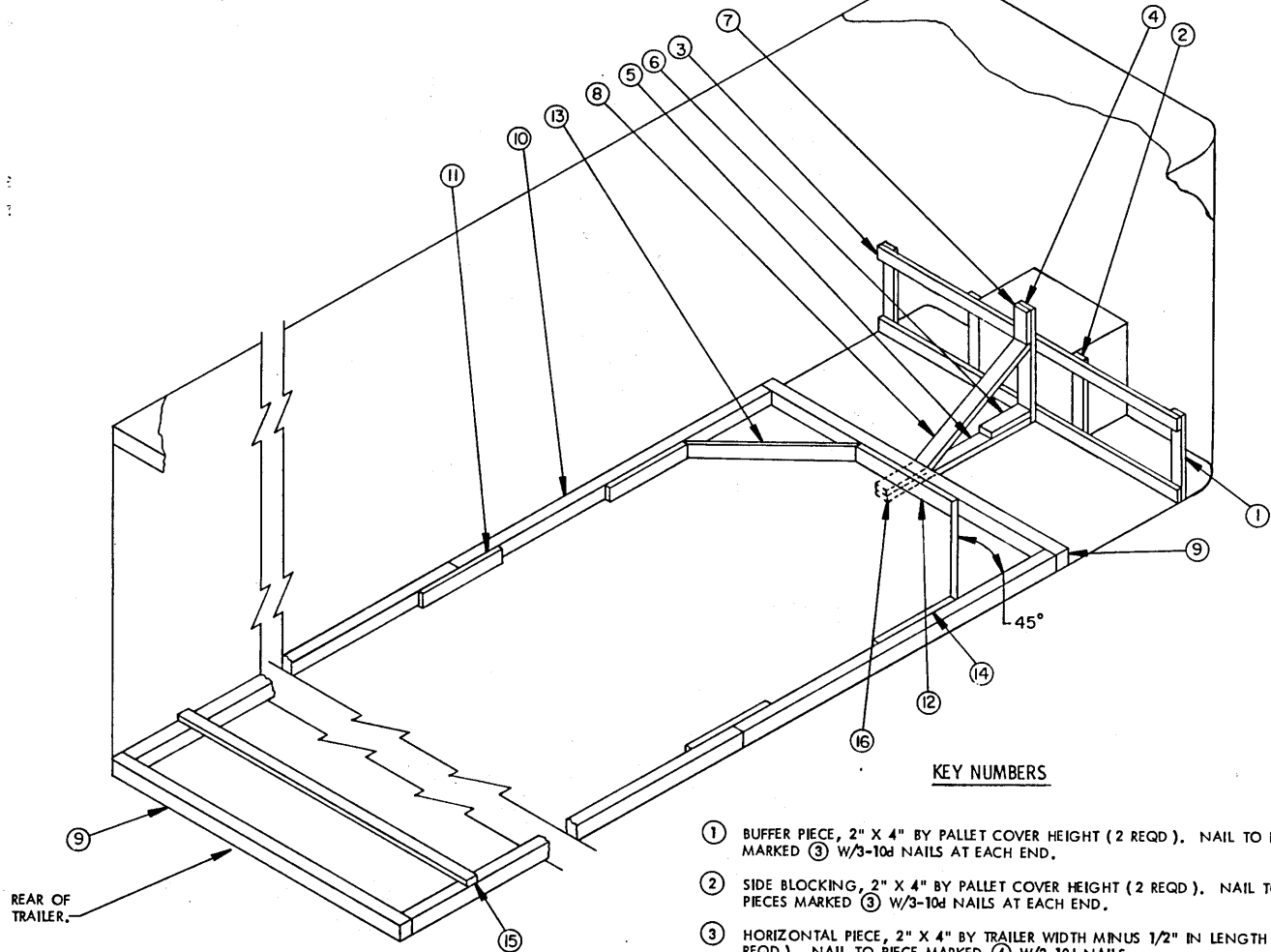
(KEY NUMBERS CONTINUED)

17. UNITIZING STRAP, 1-1/4" X .035" STEEL STRAPPING OF A LENGTH TO SUIT (2 REQD.). INSTALL TO ENCIRCLE ONE PALLET UNIT AND THE LOAD BEARING GATE, PIECE MARKED 1, AS SHOWN.
18. SEAL FOR 1-1/4" STRAPPING (4 REQD., 2 PER STRAP JOINT). SEE GENERAL NOTE "L" ON PAGE 2.

KEY NUMBERS

1. LOAD BEARING GATE (1 REQD.). SEE THE DETAIL ON PAGE 17 AND GENERAL NOTES "N" AND "O" ON PAGE 2.
2. VERTICAL PIECE, 2" X 4" BY PALLET UNIT COVER HEIGHT PLUS 8" (2 REQD.). NAIL TO STRAPPING BOARD OF PIECE MARKED 1 W/4-10d NAILS.
3. FLOOR CLEAT, 2" X 4" BY PALLET UNIT COVER HEIGHT PLUS 2-1/2" (2 REQD.). SEE SPECIAL NOTE 2 AT LEFT.
4. POCKET CLEAT, 2" X 4" X 12" (2 REQD.). NAIL TO PIECE MARKED 3 W/3-10d NAILS. TOENAIL TO PIECE MARKED 2 W/2-12d NAILS.
5. HOLD DOWN CLEAT, 2" X 4" X 9" (2 REQD.). NAIL TO PIECE MARKED 2 W/3-10d NAILS.
6. HORIZONTAL PIECE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD.). NAIL TO PIECES MARKED 2 W/3-10d NAILS AT EACH JOINT.
7. BUFFER PIECE, 2" X 4" BY PALLET UNIT COVER HEIGHT PLUS 4" (2 REQD.). NAIL TO PIECES MARKED 6 W/3-10d NAILS AT EACH JOINT.
8. KNEE BRACE, 2" X 4" BY CUT TO FIT (2 REQD.). DOUBLE BEVEL EACH END WITH 45° CUTS. TOENAIL TO PIECES MARKED 2 AND 3 W/2-12d NAILS AT EACH END.
9. HEADER, 4" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD.). TOENAIL THE FORWARD PIECE TO PIECES MARKED 8 W/2-16d NAILS AT EACH JOINT.
10. SIDE STRUT, 4" X 4" BY CUT TO FIT BETWEEN THE TWO HEADERS (2 REQD.). TOENAIL TO THE HEADERS W/2-16d NAILS AT EACH END.
11. SPLICE PIECE, 2" X 4" X 24" (AS REQD.). CENTER ON A JOINT OF PIECES MARKED 10 AND NAIL W/4-12d NAILS AT EACH END.
12. CENTER CLEAT, 2" X 4" X 30" (1 REQD.). NAIL TO THE FORWARD PIECE MARKED 9 W/7-12d NAILS.
13. DIAGONAL BRACE, 2" X 4" BY CUT TO FIT (2 REQD.). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND NAIL TO PIECES MARKED 9 AND 10 W/2-16d NAILS AT EACH END.
14. SIDE CLEAT, 2" X 4" X 24" (2 REQD.). NAIL TO PIECE MARKED 10 W/6-12d NAILS.
15. STRUT BRACING, 2" X 4" BY TRAILER WIDTH IN LENGTH (CUT TO FIT) (MINIMUM OF 1 REQD.). ONE (1) ADDITIONAL BRACE IS REQUIRED FOR EVERY 7'-0" OF SIDE STRUT LENGTH. NAIL TO PIECES MARKED 10 W/3-12d NAILS AT EACH END.
16. BACK-UP CLEAT, 2" X 4" X 12" (DOUBLED) (2 REQD.). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 2 AT LEFT.

(CONTINUED AT LEFT)



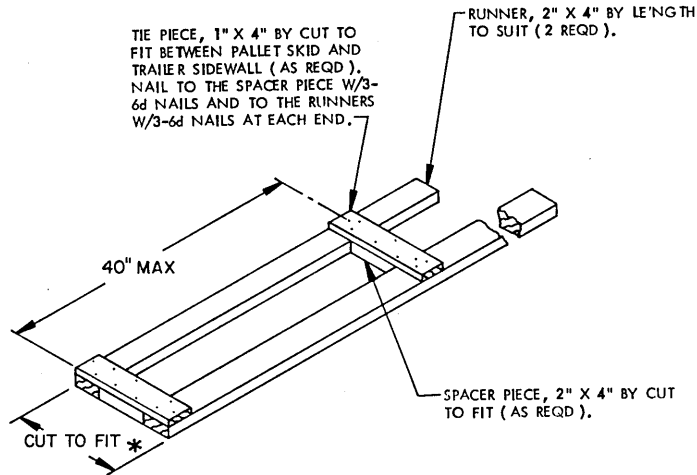
ISOMETRIC VIEW

KEY NUMBERS

- ① BUFFER PIECE, 2" X 4" BY PALLET COVER HEIGHT (2 REQD). NAIL TO PIECES MARKED ③ W/3-10d NAILS AT EACH END.
- ② SIDE BLOCKING, 2" X 4" BY PALLET COVER HEIGHT (2 REQD). NAIL TO PIECES MARKED ③ W/3-10d NAILS AT EACH END.
- ③ HORIZONTAL PIECE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO PIECE MARKED ④ W/3-10d NAILS.
- ④ VERTICAL PIECE, 2" X 4" X 33" (1 REQD).
- ⑤ FLOOR CLEAT, 2" X 4" BY PALLET UNIT COVER HEIGHT MINUS 2-1/2" (1 REQD). SEE SPECIAL NOTE 2 AT LEFT.
- ⑥ POCKET CLEAT, 2" X 4" X 12" (1 REQD). NAIL TO PIECE MARKED ④ W/2-12d NAILS.
- ⑦ HOLD DOWN CLEAT, 2" X 4" X 9" (1 REQD). NAIL TO PIECE MARKED ④ W/3-10d NAILS.
- ⑧ KNEE BRACE, 2" X 4" BY CUT TO FIT (1 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. TOENAIL TO PIECES MARKED ④ AND ⑤ W/2-12d NAILS AT EACH END.
- ⑨ HEADER, 4" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). TOENAIL THE FORWARD PIECE TO PIECE MARKED ⑧ W/2-16d NAILS.
- ⑩ SIDE STRUT, 4" X 4" BY CUT TO FIT BETWEEN THE TWO HEADERS (2 REQD). TOENAIL TO THE HEADERS W/2-16d NAILS AT EACH END.
- ⑪ SPLICE PIECE, 2" X 4" X 24" (AS REQD). CENTER ON A JOINT OF PIECES MARKED ⑩ AND NAIL W/4-12d NAILS AT EACH END.
- ⑫ CENTER CLEAT, 2" X 4" X 30" (1 REQD). NAIL TO THE FORWARD HEADER PIECE MARKED ⑨ W/7-12d NAILS.
- ⑬ DIAGONAL BRACE, 2" X 4" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND NAIL TO PIECES MARKED ⑨ AND ⑩ W/2-16d NAILS AT EACH END.
- ⑭ SIDE CLEAT, 2" X 4" X 24" (2 REQD). NAIL TO PIECE MARKED ⑩ W/6-12d NAILS.
- ⑮ STRUT BRACING, 2" X 4" BY TRAILER WIDTH IN LENGTH (CUT TO FIT) (MINIMUM OF 1 REQD). ONE (1) ADDITIONAL BRACE IS REQUIRED FOR EVERY 7'-0" OF SIDE STRUT LENGTH. NAIL TO PIECES MARKED ⑩ W/3-12d
- ⑯ BACK-UP CLEAT, 2" X 4" X 12" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 2 AT LEFT.

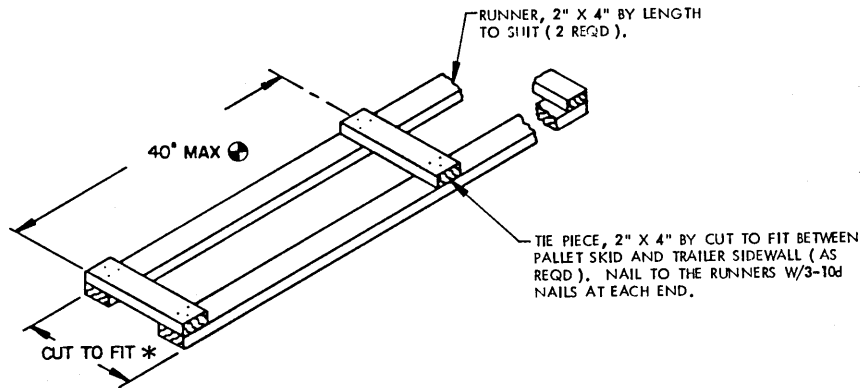
SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE USE OF BOTH "K-BRACE" TYPE BLOCKING AND "NAILED-FLOOR-LINE" BLOCKING IN A 7'-8" WIDE CONVENTIONAL VAN TRAILER. WIDER OR NARROWER TRAILERS CAN BE USED.
2. PIECE MARKED ⑯ IS FOR USE IN A TRAILER WHICH HAS A NAILABLE FLOOR AND MAY BE USED, IF DESIRED, IN LIEU OF PIECES MARKED ⑨ THRU ⑮ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. WHEN USING "NAILED-FLOOR-LINE" BLOCKING, NAIL THE FLOOR CLEAT, PIECE MARKED ⑤, TO THE TRAILER FLOOR W/1-12d NAIL EVERY 6".



**SIDE BLOCKING B**

THE ABOVE ASSEMBLY IS FOR USE AS LATERAL BLOCKING OF PALLET UNITS WHEN THE DISTANCE BETWEEN THE PALLET SKID AND THE TRAILER SIDEWALL IS GREATER THAN 12".



**SIDE BLOCKING A**

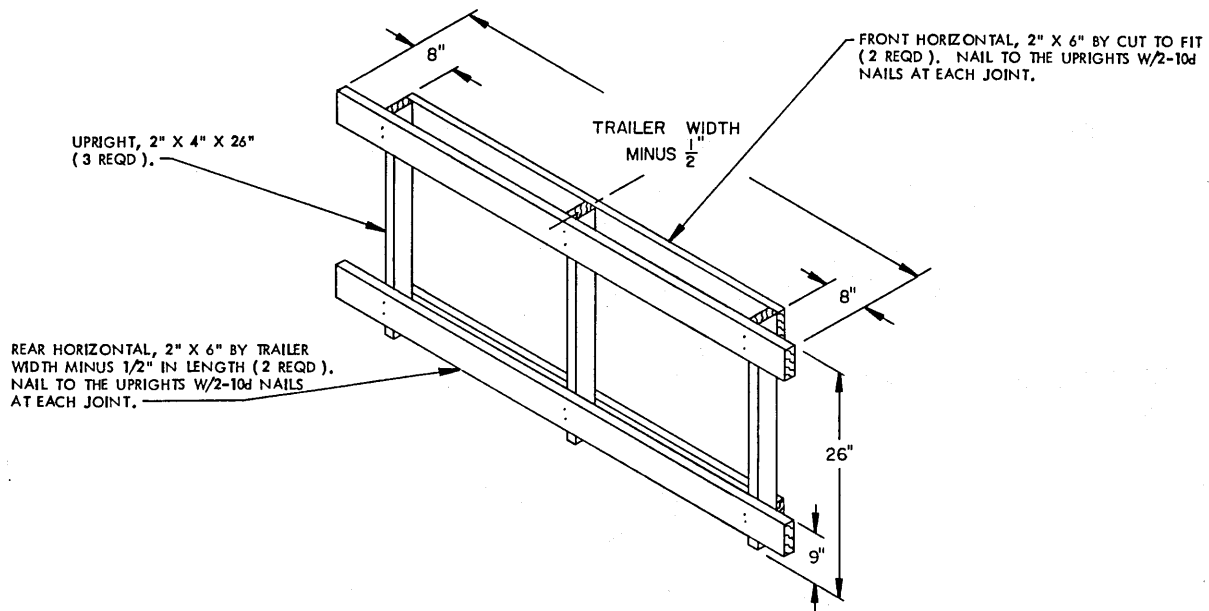
THE ABOVE ASSEMBLY IS FOR USE AS LATERAL BLOCKING OF PALLET UNITS WHEN THE DISTANCE BETWEEN THE PALLET SKID AND THE TRAILER SIDEWALL IS LESS THAN 12".

\* A 1/4" SPACE BETWEEN THE TRAILER SIDEWALL AND AN ASSEMBLY WHEN THE ASSEMBLY IS IN CONTACT WITH THE PALLET SKID IS ACCEPTABLE.

**NOTE:**

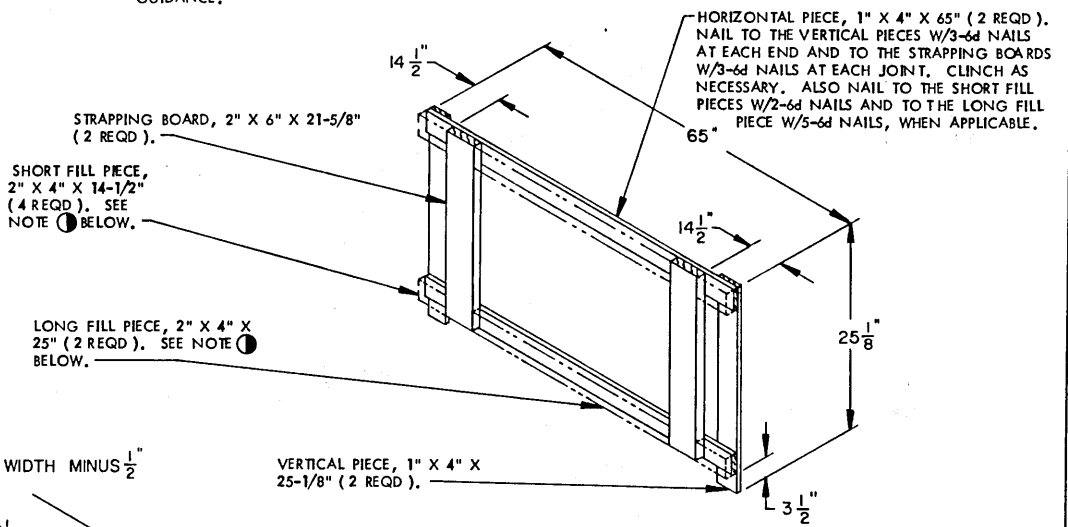
THE 40" MAX DIMENSION SHOWN SPECIFIES THAT MAXIMUM DIMENSION ALLOWED FOR LOCATION OF THE SPACER PIECES AND TIE PIECES FOR A SIDE BLOCKING ASSEMBLY OR PORTION OF AN ASSEMBLY WHICH, WHEN INSTALLED, WILL BE ADJACENT TO THE BUNDLED PORTION OF A LOAD. FOR THAT PART OF AN ASSEMBLY WHICH WILL BE ADJACENT TO THE PORTION OF A LOAD WHICH IS NOT BUNDLED, THE SPACER AND TIE PIECES MUST BE POSITIONED, AS A MINIMUM ON EVERY OTHER JOINT BETWEEN LONGITUDINALLY ADJACENT PALLET UNITS.





**FORWARD BLOCKING ASSEMBLY**

THIS ASSEMBLY IS FOR USE AT THE FORWARD END OF A TRAILER WITH ROUNDED CORNERS. IF THE ROUNDED CORNERS ARE OF A GREATER RADIUS THAN SIX INCHES, ADDITIONAL 6" WIDE MATERIAL MAY BE LAMINATED TO THE FRONT HORIZONTAL PIECE AND/OR 2" X 6" MATERIAL MAY BE USED IN LIEU OF THE 2" X 4" MATERIAL FOR THE UPRIGHTS. IF THE TRAILER TO BE LOADED HAS LARGE-ANGLED CORNERS AT THE FORWARD END, REFER TO PAGE 22 FOR GUIDANCE.

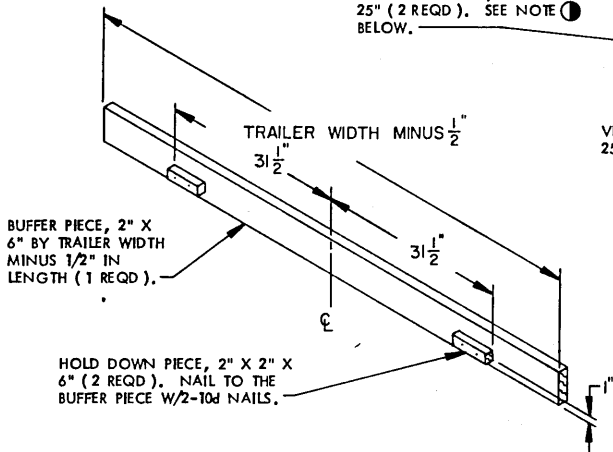


**LOAD BEARING GATE A**

THIS ASSEMBLY IS FOR USE IN ALL THE CONVENTIONAL TRAILER "METHOD 2" LOADS AND IN MOST OF THE LTL LOADS FOR CONVENTIONAL TRAILERS.

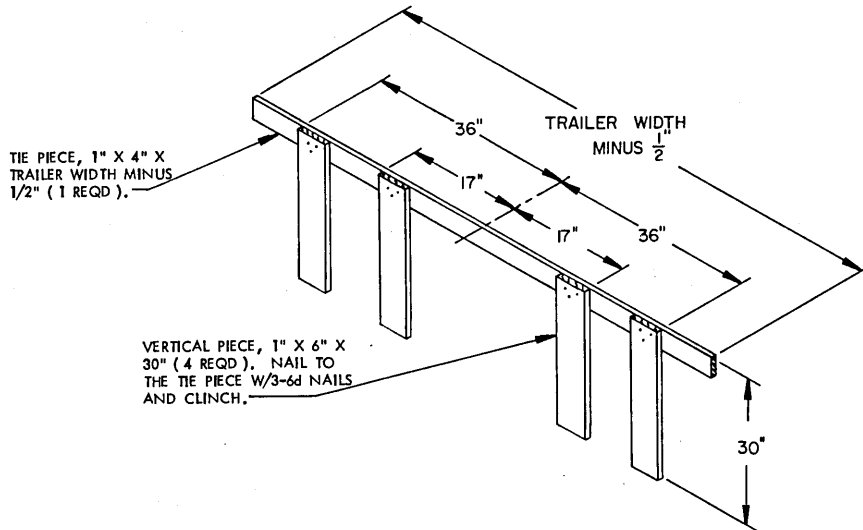
**NOTE**

THE SHORT AND LONG FILL PIECES INDICATED BY PHANTOM LINES AT THE TOP AND NEAR THE BOTTOM OF THE LOAD BEARING GATE ARE REQUIRED ON GATES TO BE POSITIONED AGAINST THE TRAILER FRONT WALL. AT THE REAR OF A LOAD, THE SHORT AND LONG FILL PIECES ARE REQUIRED ONLY AT THE BOTTOM LEVEL. WHEN LOAD BEARING GATES ARE USED WITHIN A LOAD, THE REQUIREMENTS FOR FILL PIECES WILL BE SPECIFIED IN THE SPECIAL NOTES SECTION WHICH IS IMMEDIATELY ADJACENT TO A DEPICTED LOAD.

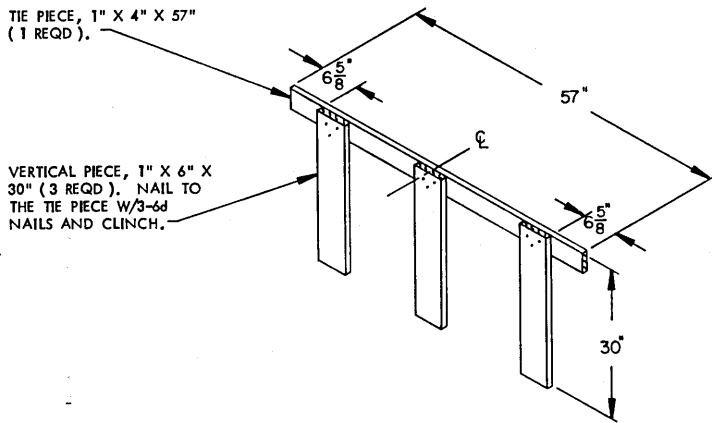


**LOAD BEARING ASSEMBLY**

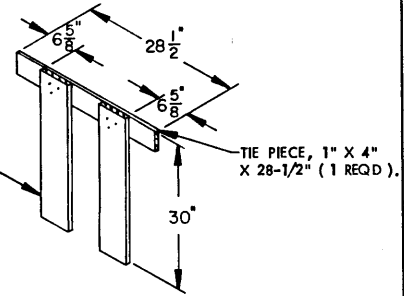
THIS ASSEMBLY IS FOR USE IN A TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES AND IS TO BE POSITIONED BETWEEN A LOAD-BLOCKING CROSS MEMBER AND THE PALLET UNITS. THE HOLD-DOWN PIECE IS DESIGNED TO FIT UNDERNEATH A PALLET DECK BETWEEN THE SKIDS OF THE PALLET.



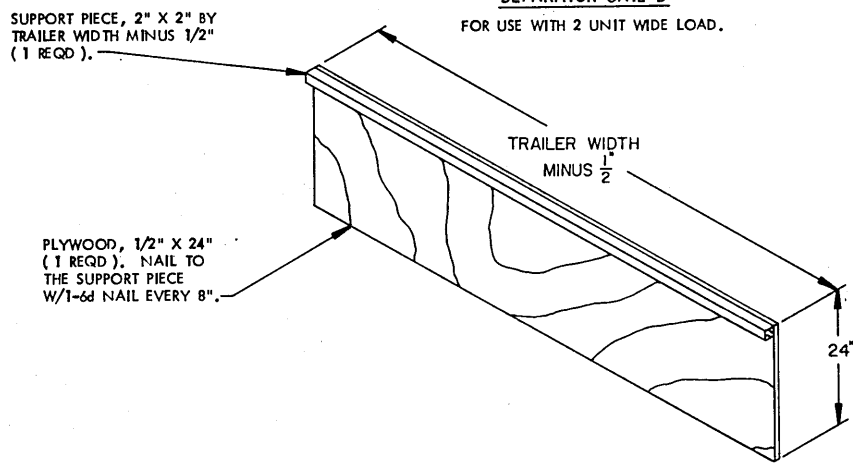
**SEPARATOR GATE A**  
FOR USE WITH THREE UNIT WIDE LOAD.



**SEPARATOR GATE B**  
FOR USE WITH 2 UNIT WIDE LOAD.

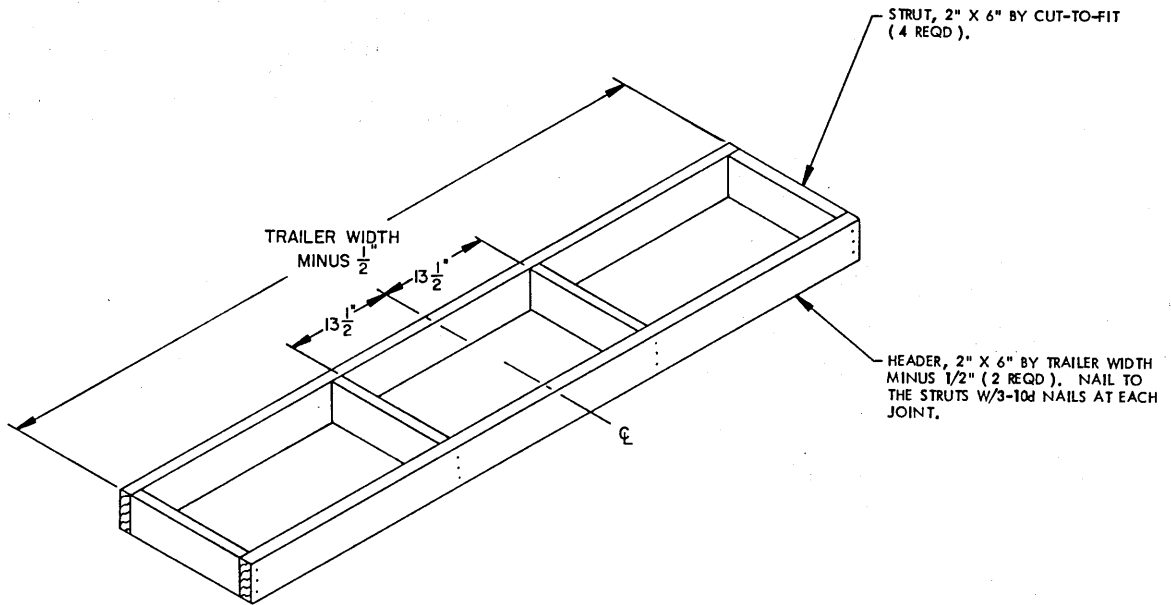


**SEPARATOR GATE C**  
FOR USE WITH 1 UNIT WIDE LOAD.

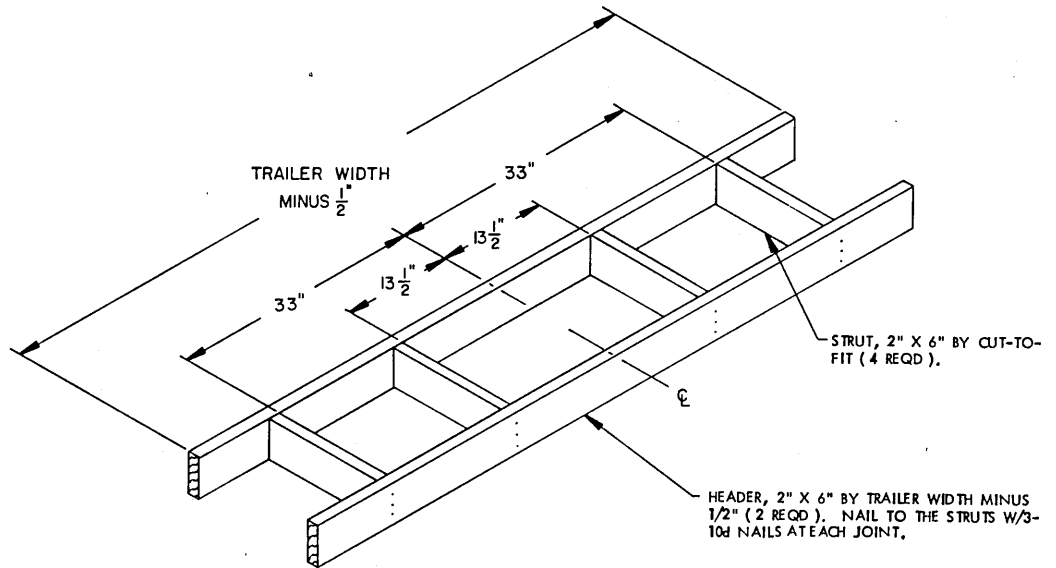


**ALTERNATIVE SEPARATOR GATE A**

DETAILS



ALTERNATIVE REAR BLOCKING



SPACER B

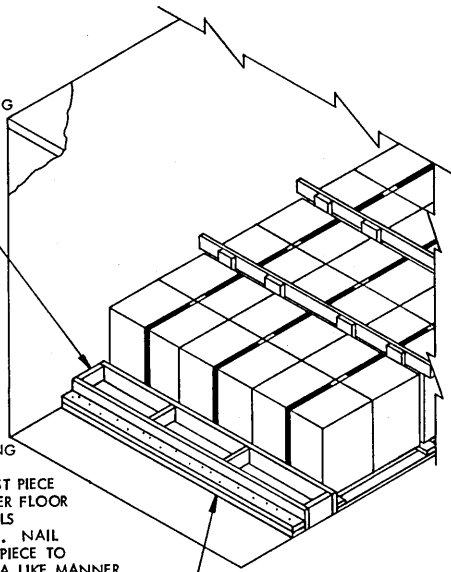
SPECIAL NOTES:

1. THE NAILED-HEADER METHOD OF A REAR BLOCKING DEPICTED AT LEFT 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 THIRTEEN INCHES ( 13" )
2. THE ALTERNATIVE REAR BLOCKING ASSEMBLY DETAILED ON PAGE 19 IS SHOWN FOR A TYPICAL INSTALLATION. CONSTRUCT THE ASSEMBLY USING 6" ( MINIMUM ) LONG STRUTS.
3. THE NAILED-HEADER METHOD OF REAR BLOCKING IS ADEQUATE FOR THE RETENTION OF THE MAXIMUM WEIGHT LOAD.
4. THE NAILED-HEADER METHOD, ALTHOUGH DESIGNED ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

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

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

NAILED-HEADER METHOD



TYGARD PATCH  
PIECE.

FILL PIECE, 1" X 4" X 26" (4 REQD).  
NAIL TO THE TIE PIECE W/3-10d  
NAILS. ADD TO THE REARMOST  
SEPARATOR GATE. SEE THE  
"SEPARATOR GATE A" DETAIL ON  
PAGE 18.

LOAD  
BEARING  
GATE (1 REQD)  
SEE SPECIAL  
NOTE 2 AT RIGHT.

36" MIN

INDICATES TYGARD MATERIAL.  
STAPLE TO THE LOAD BEARING  
GATE TO PREVENT SAGGING.  
AS AN ALTERNATIVE, A 1" X  
4" BY LOAD HEIGHT PIECE MAY  
BE NAILED THRU THE TYGARD  
MATERIAL INTO THE LOAD  
BEARING GATE. CAUTION; PLACE  
1" X 4" SO AS TO BE ALIGNED WITH  
A SUPPORT PIECE ON THE LOAD  
BEARING GATE.

### TYGARD METHOD

### 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

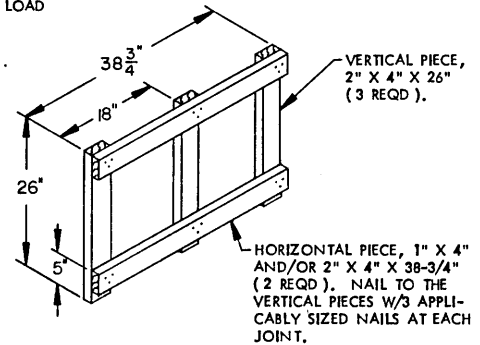
#### BASIC INSTALLATION GUIDANCE.

- 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.
- 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".
- APPLY THE TYGARD PIECES TO EACH SIDWALL OF THE TRAILER SO THAT THE PIECES ARE PARALLEL OR NEARLY PARALLEL TO THE FLOOR. ROLL THE TYGARD WITH THE PRESSURE ROLLER TO ENSURE PROPER BONDING IS ACHIEVED. TEMPORARILY SECURE THE LOOSE ENDS TO THE TRAILER SIDEWALL OR TO AN OPEN HINGED TYPE DOOR OR TO THE OUTSIDE WALL, AS APPLICABLE.
- POSITION THE THREE REARMOST BUNDLED UNITS INTO THE TRAILER AND INSTALL THE SPECIFIED CRIB FILL.
- 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.
- APPLY TYGARD ADHESIVE TO THE TENSIONED TYGARD PIECES AND ALSO TO THE CORD SIDE OF THE PREVIOUSLY CUT "PATCH" PIECE. APPLY THE "PATCH" AND ROLL WITH THE PRESSURE ROLLER TO ENSURE PROPER BONDING.

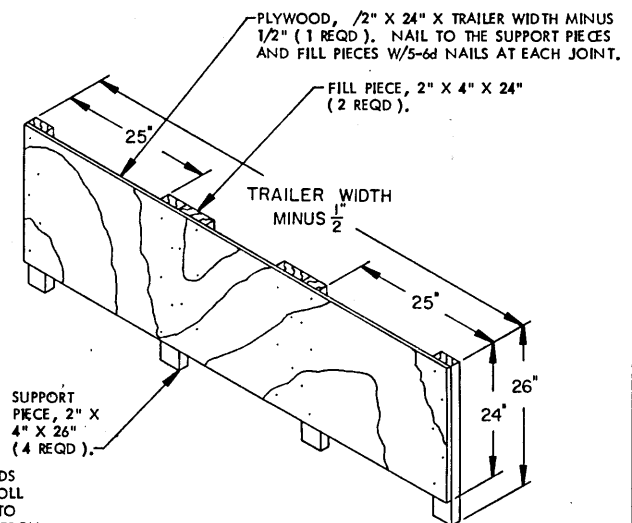
### TYGARD METHOD PROCEDURES FOR CONVENTIONAL VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS

#### SPECIAL NOTES:

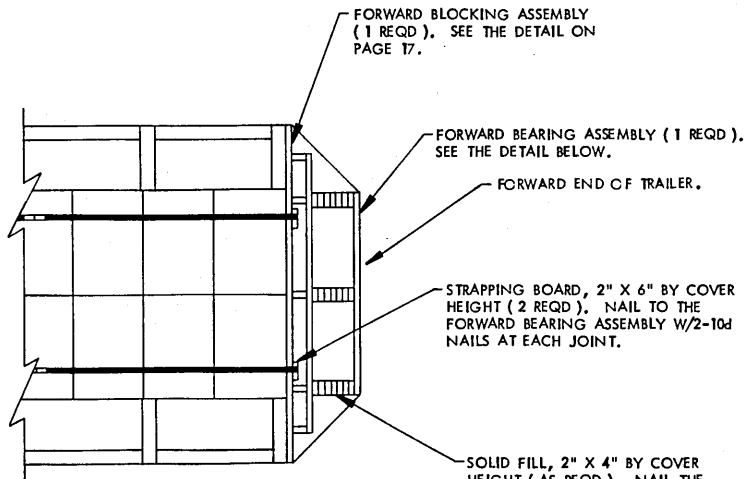
- THE TYGARD METHOD OF REAR BLOCKING DEPICTED AT LEFT CAN ONLY BE USED IN TRAILERS WHICH HAVE REASONABLY SMOOTH AND ADEQUATELY SECURED SIDEWALL PANELS IN THE AREA WHERE THE TYGARD MATERIAL IS TO BE APPLIED.
- A LOAD BEARING GATE MUST BE INSTALLED AT THE REAR OF THE LOAD TO PROVIDE A SMOOTH SURFACE FOR THE TYGARD MATERIAL TO EXTEND AROUND. SEE THE "LOAD BEARING GATE B" DETAIL BELOW.
- THE TYGARD MATERIAL AND THE ADHESIVE FOR ATTACHING IT ARE COMMERCIAL PRODUCTS. FOR A SOURCE OF SUPPLY, CONTACT WALNUT INDUSTRIES, INC., 1344 ADAMS ROAD, P.O. BOX "E", BENSALEM, PA 19020-0860, PHONE 1-800-523-6536. APPLICATION INSTRUCTIONS AND GUIDANCE CAN ALSO BE OBTAINED FROM THAT OFFICE.
- THE TYGARD METHOD, ALTHOUGH ESPECIALLY FOR TRAILERS HAVING ROLL-UP TYPE DOORS, MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.
- NOTICE: IF THE AREA OF A SIDEWALL WHERE THE TYGARD SHOULD BE ATTACHED IS ROUGH AND/OR BROKEN, THE APPLICABLE PIECE (5) OF TYGARD CAN BE LENGTHENED A SUITABLE AMOUNT AND ATTACHED TO THE SIDEWALL AHEAD OF THE INDICATED PREFERRED LOCATION.



### CRIB FILL



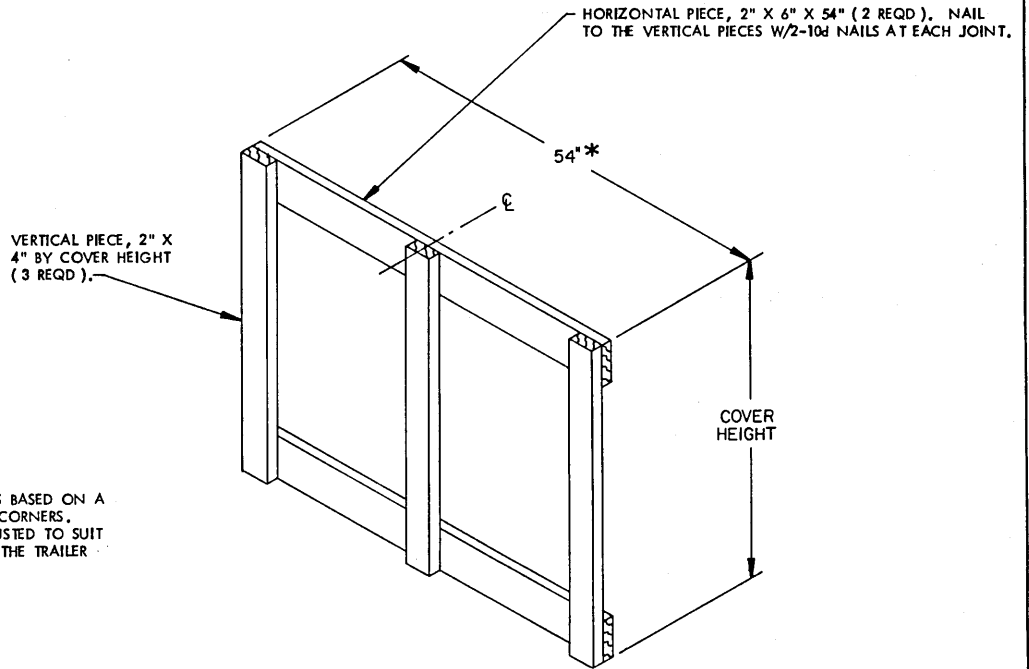
### LOAD BEARING GATE B



**ALTERNATIVE FORWARD LOADING PATTERN**

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF PALLET UNITS IN THE FORWARD END OF A CONVENTIONAL VAN TRAILER HAVING LARGE-ANGLED FRONT CORNERS (REF.). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING ANGLED CORNERS OF ANOTHER SIZE.

SOLID FILL, 2" X 4" BY COVER HEIGHT (AS REQD). NAIL THE FIRST PIECE TO THE VERTICAL PIECES OF THE FORWARD BEARING ASSEMBLY W/1-10d NAIL EVERY 12" LAMINATE EACH ADDITIONAL PIECE IN A LIKE MANNER.



\* THE 54" DIMENSION SHOWN IS BASED ON A TRAILER HAVING 18" ANGLED CORNERS, THIS DIMENSION MAY BE ADJUSTED TO SUIT THE SIZE OF THE CORNERS IN THE TRAILER BEING LOADED.

**FORWARD BEARING ASSEMBLY**