

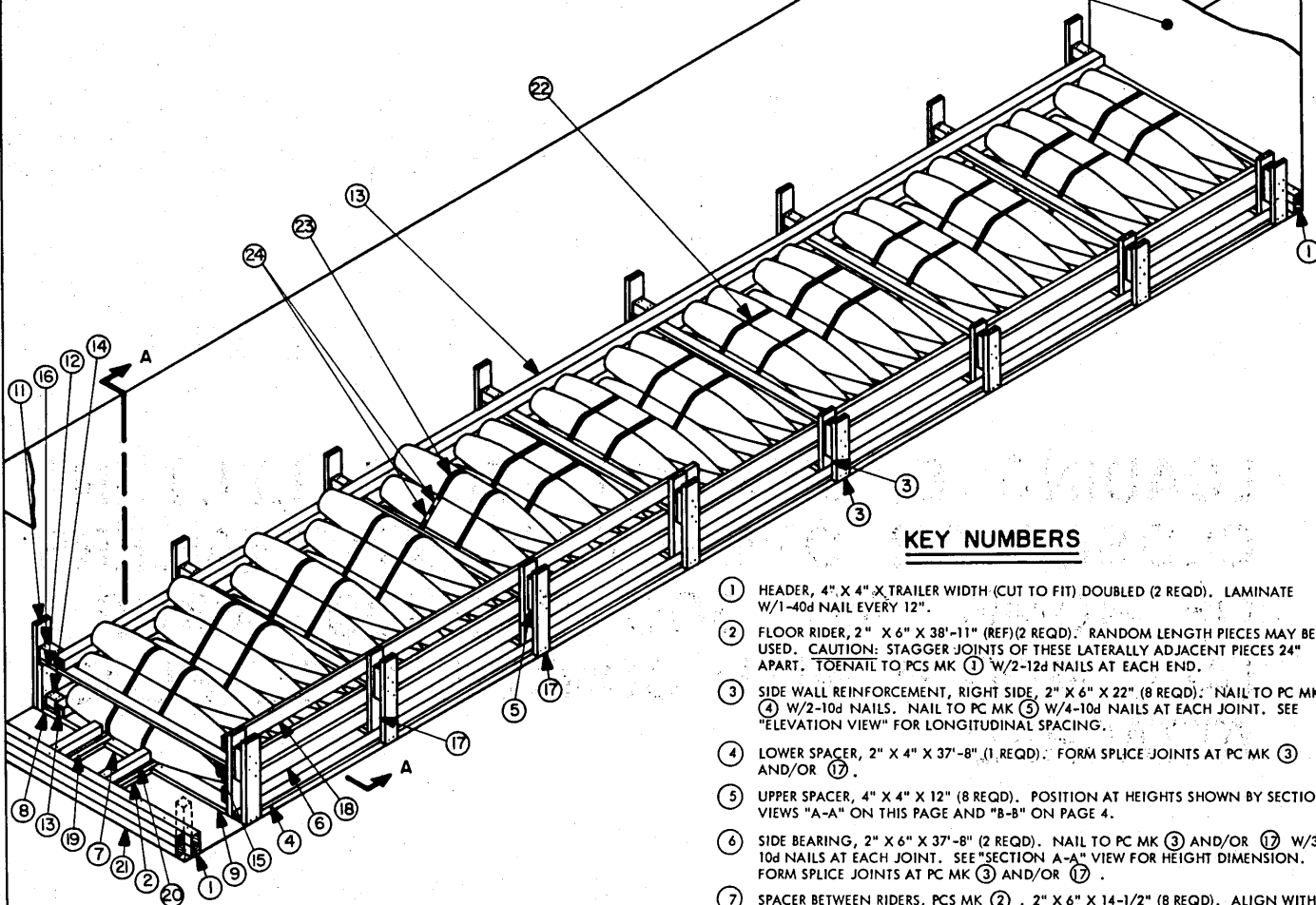
APPROVED  
 BUREAU OF EXPLOSIVES  
*W. J. Grassmuck*  
 MILITARY ASSISTANT  
 DATE 11/29/66

# LOADING & BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF BOMB, GP, 500 POUNDS, MK82 (ALL MOD'S) WITH CONICAL NOSE PLUG ATTACHED

DRAWN BY <b>RSH</b>	PROJ ENG <b>DIW/RNY</b>	APPR <b>PJS</b>	SUBMITTED <i>B. B. Adams</i>
CHECKED <i>[Signature]</i>	AME ANNO CTR <i>[Signature]</i>		COMMANDING OFFICER, SAVANNAH ARMY DEPOT
REVISIONS			EXAMINED AND APPROVED <i>Ralph Hall</i>
			AMMUNITION PROCUREMENT & SUPPLY AGENCY
			APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND
			<i>[Signature]</i>
			U. S. ARMY MATERIEL COMMAND
			<b>12 DECEMBER 1966</b>
			CLASS DIVISION DRAWING FILE
			<b>19 48 4060 IIB1003</b>

DO NOT SCALE

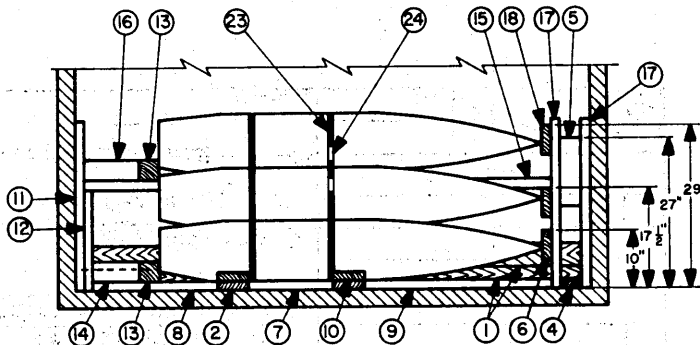
FOR A ROUND FRONT TRAILER,  
SEE "FORWARD BLOCKING"  
DETAILS ON PAGE 5.



**ISOMETRIC VIEW**

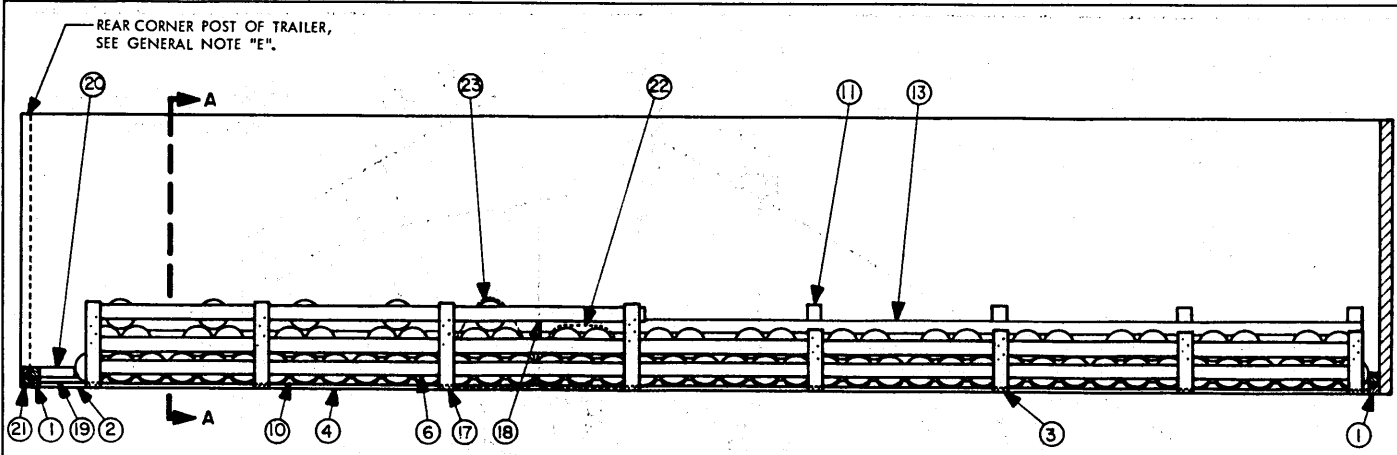
**KEY NUMBERS**

- ① HEADER, 4" X 4" X TRAILER WIDTH (CUT TO FIT) DOUBLED (2 REQD). LAMINATE W/1-40d NAIL EVERY 12".
- ② FLOOR RIDER, 2" X 6" X 38"-11" (REF) (2 REQD). RANDOM LENGTH PIECES MAY BE USED. CAUTION: STAGGER JOINTS OF THESE LATERALLY ADJACENT PIECES 24" APART. TOENAIL TO PCS MK ① W/2-12d NAILS AT EACH END.
- ③ SIDE WALL REINFORCEMENT, RIGHT SIDE, 2" X 6" X 22" (8 REQD). NAIL TO PC MK ④ W/2-10d NAILS. NAIL TO PC MK ⑤ W/4-10d NAILS AT EACH JOINT. SEE "ELEVATION VIEW" FOR LONGITUDINAL SPACING.
- ④ LOWER SPACER, 2" X 4" X 37"-8" (1 REQD). FORM SPLICE JOINTS AT PC MK ③ AND/OR ⑦.
- ⑤ UPPER SPACER, 4" X 4" X 12" (8 REQD). POSITION AT HEIGHTS SHOWN BY SECTION VIEWS "A-A" ON THIS PAGE AND "B-B" ON PAGE 4.
- ⑥ SIDE BEARING, 2" X 6" X 37"-8" (2 REQD). NAIL TO PC MK ③ AND/OR ⑦ W/3-10d NAILS AT EACH JOINT. SEE "SECTION A-A" VIEW FOR HEIGHT DIMENSION. FORM SPLICE JOINTS AT PC MK ③ AND/OR ⑦.
- ⑦ SPACER BETWEEN RIDERS, PCS MK ②, 2" X 6" X 14-1/2" (8 REQD). ALIGN WITH PCS MK ⑥ AND ⑨ AND TOENAIL TO PCS MK ② W/2-12d NAILS AT EACH END.
- ⑧ SPACER FOR RIDER, LEFT SIDE, 2" X 6" X 21-1/2" (8 REQD). ALIGN WITH PCS MK ⑦ AND ⑨ AND TOENAIL TO PCS MK ② AND ⑫ W/2-12d NAILS AT EACH END.
- ⑨ SPACER FOR RIDER, RIGHT SIDE, 2" X 6" X CUT TO FIT (8 REQD). POSITION AS SHOWN AND TOENAIL TO PCS MK ② AND ③ AND/OR ⑦ W/2-12 NAILS AT EACH JOINT.
- ⑩ BEVEL BLOCK, 2" X 6" X 6-3/8" (82 REQD). SEE "BLOCK A" DETAIL ON PAGE 5. POSITION TIGHTLY AGAINST BOMB AS LOADING PROGRESSES AND NAIL TO PCS MK ② W/2-12d NAILS.
- ⑪ SIDE WALL REINFORCEMENT, LEFT SIDE, 2" X 6" X 30" (8 REQD). ALIGN OPPOSITE PC MK ③ OR ⑦.
- ⑫ VERTICAL CLEAT, 2" X 6" X 17-1/2" (8 REQD). NAIL TO PC MK ⑪ W/3-10d NAILS.
- ⑬ SIDE BEARING, 4" X 4" X 37"-8" (2 REQD). TOENAIL TO PCS MK ⑧ OR ⑮ W/2-12d NAILS AT EACH JOINT. FORM SPLICE JOINTS AT PCS MK ⑭ AND/OR ⑯.
- ⑭ FILLER BLOCK, 4" X 4" X CUT TO FIT (8 REQD). POSITION ON PC MK ⑧ AND TOENAIL TO PC MK ⑫ AND ⑬ W/2-12d NAILS.
- ⑮ CROSS BRACE, 2" X 4" X CUT TO FIT (8 REQD). TOENAIL TO PCS MK ⑪ AND ③ AND/OR ⑦ W/2-12d NAILS AT EACH END.
- ⑯ FILLER BLOCK, 4" X 4" X CUT TO FIT (8 REQD). POSITION ON PC MK ⑮ AND TOENAIL TO PCS MK ⑪ AND ⑬ W/2-12d NAILS.
- ⑰ SIDE WALL REINFORCEMENT, 2" X 6" X 30" (8 REQD). NAIL TO PC MK ④ W/2-10d NAILS. SEE "ELEVATION VIEW" FOR LONGITUDINAL SPACING.
- ⑱ SIDE BEARING, 2" X 6" X 17'-0" (1 REQD). NAIL TO PC MK ⑦ W/3-10d NAILS AT EACH JOINT. SEE "SECTION A-A" VIEW FOR HEIGHT DIMENSION. FORM SPLICE JOINTS AT PCS MK ⑦.
- ⑲ BEVEL BLOCK, 2" X 6" X CUT TO FIT BETWEEN REAR BOMB AND REAR PC MK ① (2 REQD). SEE "BLOCK B" DETAIL ON PAGE 5. NAIL TO PC MK ② W/5-12d NAILS.
- ⑳ REAR BLOCKING, 4" X 4" X CUT TO FIT BETWEEN REAR BOMB AND REAR PC MK ① (2 REQD). TOENAIL TO PC MK ⑱ W/3-12d NAILS ON EACH SIDE. TOENAIL TO PC MK ① W/2-12d NAILS.



**SECTION A-A**

(KEY NUMBERS CONT'D ON NEXT PAGE)



**ELEVATION VIEW**

(KEY NUMBERS CONTINUED FROM PAGE 2)

- 21 SOLID FILL . ONLY REQUIRED FOR TRAILERS HAVING REAR CORNER POSTS. CUT TO FIT BETWEEN REAR CORNER POSTS AND OF A WIDTH TO CONTACT REAR DOORS WHEN CLOSED. NAIL TO PC MK 1 W/10d NAILS EVERY 12". FOR TRAILERS WITHOUT REAR CORNER POSTS, POSITION REAR PC MK 1 DIRECTLY AGAINST TRAILER DOORS, AND LENGTHEN PCS MK 2, 19 AND 20 ACCORDINGLY.
- 22 STEEL STRAPPING, 1-1/4" X .035" X 9'-0" (18 REQD).
- 23 STEEL STRAPPING, 1-1/4" X .035" X 11'-0" (10 REQD).
- 24 SEAL FOR 1-1/4" STEEL STRAPPING (56 REQD). SEE GENERAL NOTE "D".

**GENERAL NOTES**

- A. LOAD AS SHOWN ON PAGES 2 AND 3 IS BASED ON A CLOSED OR OPEN TOP VAN TRAILER 40'-0" LONG X 7'-6" (INSIDE) WIDE, WITH A WOOD OR A WOOD AND METAL OR A METAL FLOOR.
- B. DETAIL OF BOMB:  
DIMENSIONS ----- 10.75" DIA X 67.125" LONG.  
GROSS WEIGHT ----- 521 LBS (APPROX).
- C. THIS ITEM IS AN ICC CLASS "A" EXPLOSIVE.
- D. WHEN ANY STRAP IS SEALED, A MINIMUM OF TWO (2) SEALS WITH TWO (2) CRIMPS PER SEAL MUST BE USED.
- E. FOR TRAILERS NOT EQUIPPED WITH REAR CORNER POSTS, REAR BLOCKING MUST BE EXTENDED TO CONTACT THE REAR DOORS WHEN THEY ARE CLOSED.
- F. GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS AND THE SHIPPER WILL LOAD ACCORDINGLY.
- G. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER BEING LOADED OR THE QUANTITY TO BE SHIPPED. HOWEVER, THE APPROVED METHODS SPECIFIED HEREIN FOR BLOCKING AND BRACING FULL OR PARTIAL LOADS OF THE DESIGNATED ITEMS MUST BE FOLLOWED AS CLOSELY AS POSSIBLE.
- H. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE AND 4" X 4" IS ACTUALLY 3-5/8" THICK BY 3-5/8" WIDE.
- J. PORTIONS OF THE SEMITRAILER BODIES DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

**BILL OF MATERIAL**

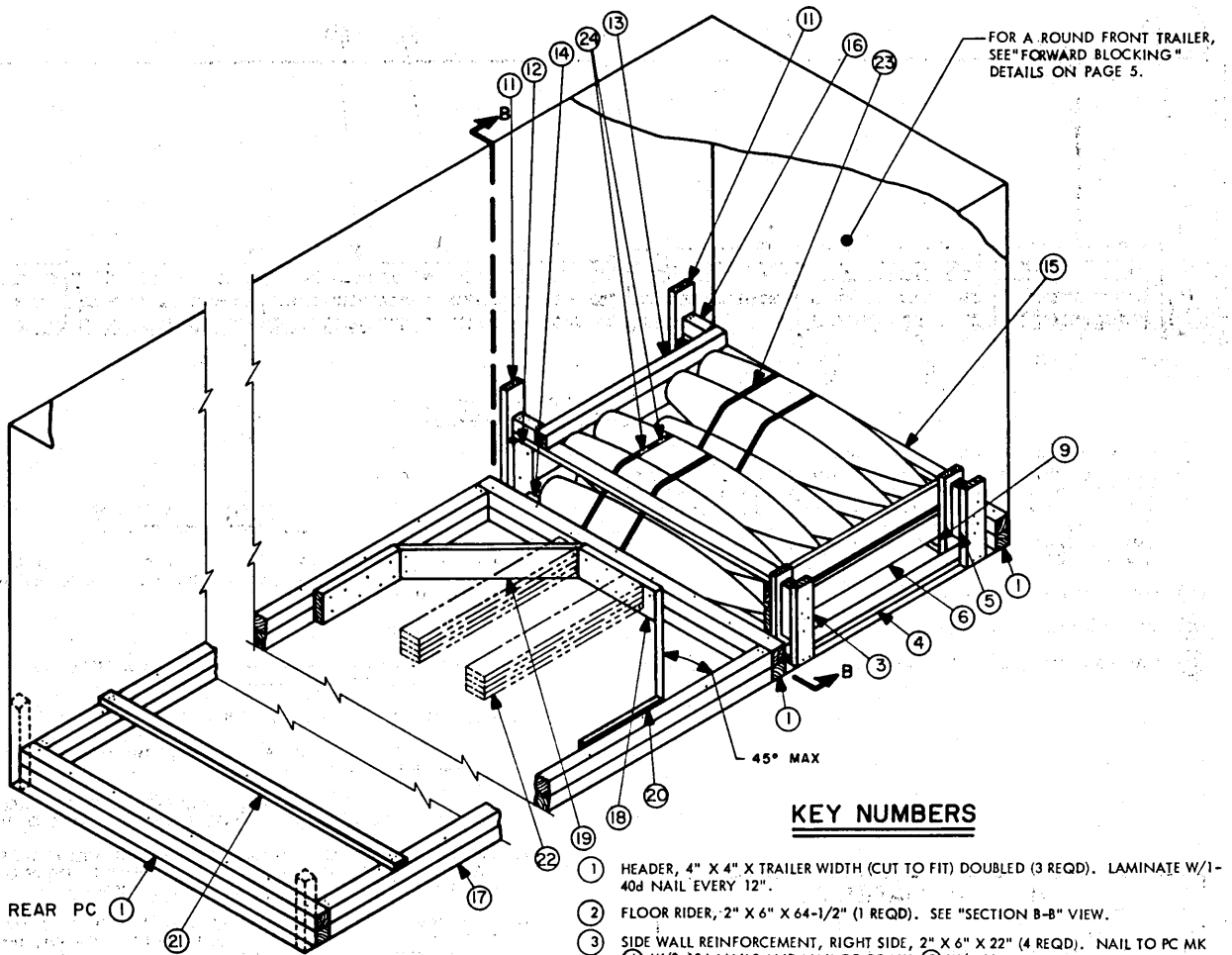
LUMBER	LINEAL FT	BOARD FT
2" X 4"	167	111
2" X 6"	292	292
4" X 4"	127	169
NAILS	NO. REQD	POUNDS
10d (3")	164	2-1/2
12d (3-1/4")	422	7
40d (5")	16	1
STEEL STRAPPING, 1-1/4" X .035" ----- 272' REQD		39 LBS
SEAL, FOR 1-1/4" STRAP ----- 56 REQD		NIL

**MATERIAL SPECIFICATIONS**

- LUMBER: ----- SEE TM 715-5500-1; DUNNAGE LUMBER, FED SPEC MM-L-751
- NAILS: ----- COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105. ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- STRAPPING, STEEL: ----- TYPE I OR IV, CLASS "A" OR "C"; FED SPEC QQ-5-781.

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
BOMB	75	37,500 LBS
DUNNAGE		1,480 LBS
TOTAL WEIGHT		38,980 LBS



FOR A ROUND FRONT TRAILER, SEE "FORWARD BLOCKING" DETAILS ON PAGE 5.

REAR PC ①

**TYPICAL LTL**

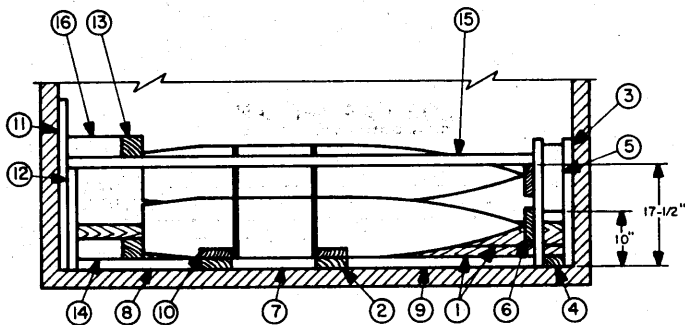
NOTE: FOR THE SHIPMENT OF A SMALL QUANTITY OF BOMBS, SEE LTL PROCEDURES ON PAGE 6.

NOTE ⊗: TWO (2) BACK-UP CLEATS, SHOWN AS PIECES MARKED ②②, ARE ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 10,000 POUNDS. "K-BRACE" BLOCKING, SHOWN AS REAR PC MK ① AND PCS MK ①⑦ THRU ②①, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 26,000 POUNDS.

**KEY NUMBERS**

- ① HEADER, 4" X 4" X TRAILER WIDTH (CUT TO FIT) DOUBLED (3 REQD). LAMINATE W/1-40d NAIL EVERY 12".
- ② FLOOR RIDER, 2" X 6" X 64-1/2" (1 REQD). SEE "SECTION B-B" VIEW.
- ③ SIDE WALL REINFORCEMENT, RIGHT SIDE, 2" X 6" X 22" (4 REQD). NAIL TO PC MK ④ W/2-10d NAILS AND NAIL TO PC MK ⑤ W/4-10d NAILS.
- ④ LOWER SPACER, 2" X 4" X 54" (1 REQD).
- ⑤ UPPER SPACER, 4" X 4" X 12" (2 REQD). SEE "SECTION B-B" VIEW FOR HEIGHT DIMENSION.
- ⑥ SIDE BEARING; 2" X 6" X 54" (2 REQD). NAIL TO PCS MK ③ W/3-10d NAILS AT EACH JOINT. POSITION AT HEIGHTS SHOWN BY "SECTION B-B" VIEW.
- ⑦ SPACER BETWEEN RIDERS, PCS MK ②, 2" X 6" X 14-1/2" (2 REQD). ALIGN WITH PCS MK ⑧ AND ⑨ AND TOENAIL TO PCS MK ② W/2-12d NAILS AT EACH END.
- ⑧ SPACER FOR RIDER, LEFT SIDE, 2" X 6" X 21-1/2" (2 REQD). ALIGN WITH PCS MK ⑦ AND ⑨ AND TOENAIL TO PCS MK ② AND ⑫ W/2-12d NAILS AT EACH END.
- ⑨ SPACER FOR RIDER, RIGHT SIDE, 2" X 6" X CUT TO FIT (2 REQD). ALIGN WITH PC MK ③ AND TOENAIL TO PCS MK ② AND ③ W/2-12d NAILS AT EACH END.
- ⑩ BEVEL BLOCK, 2" X 6" X 6-3/8" (10 REQD). SEE "BLOCK A" DETAIL ON PAGE 5.
- ⑪ SIDE WALL REINFORCEMENT, LEFT SIDE, 2" X 6" X 30" (2 REQD). ALIGN OPPOSITE PC MK ③.
- ⑫ VERTICAL CLEAT, 2" X 6" X 17-1/2" (2 REQD). NAIL TO PC MK ⑪ W/3-10d NAILS.
- ⑬ SIDE BEARING, 4" X 4" X 54" (2 REQD). TOENAIL TO PCS MK ⑧ AND/OR ⑮ W/2-12d NAILS AT EACH JOINT.
- ⑭ FILLER BLOCK, 4" X 4" X CUT TO FIT (2 REQD). POSITION ON PC MK ⑧ AND TOENAIL TO PCS MK ⑫ AND ⑬ W/2-12d NAILS AT EACH END.
- ⑮ CROSS BRACE, 2" X 4" X CUT TO FIT (2 REQD). TOENAIL TO PCS MK ③ AND ⑪ W/2-12d NAILS AT EACH END.
- ⑯ FILLER BLOCK, 4" X 4" X CUT TO FIT (2 REQD). POSITION ON PC MK ⑮ AND TOENAIL TO PCS MK ⑪ AND ⑬ W/2-12d NAILS AT EACH END.
- ⑰ SIDE BRACE, 4" X 4" X CUT TO FIT (DOUBLED) (2 REQD). LAMINATE W/1-40d NAIL EVERY 18". TOENAIL TO PCS MK ① W/2-12d NAILS AT EACH END.
- ⑱ CLEAT, 2" X 8" X 24" (1 REQD). NAIL TO PC MK ① W/7-12d NAILS.
- ⑲ DIAGONAL BRACE, 2" X 8" X CUT TO FIT (DOUBLED) (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. TOENAIL TO PCS MK ① AND ⑱ W/2-12d NAILS AT EACH END.
- ⑳ CLEAT, 2" X 8" X 24" (2 REQD). NAIL TO PC MK ⑱ W/8-12d NAILS.
- ㉑ CROSS BRACING, 2" X 4" X TRAILER WIDTH (CUT TO FIT) (MIN 1 REQD). POSITION EVERY 7'-0". NAIL TO PCS MK ⑱ W/3-12d NAILS AT EACH END.
- ㉒ BACK-UP CLEAT, 2" X 6" X 48" (QUADRUPLED) (2 REQD). FOR WOOD OR WOOD AND METAL FLOORED TRAILERS. DELETE REAR PC MK ① AND PCS MK ⑱ THRU ㉑. NAIL FIRST PIECE TO TRAILER FLOOR W/12-12d NAILS. NAIL EACH ADDITIONAL PIECE IN LIKE MANNER. TOENAIL TOP PIECE TO PC MK ① W/2-12d NAILS. SEE NOTE ⊗.

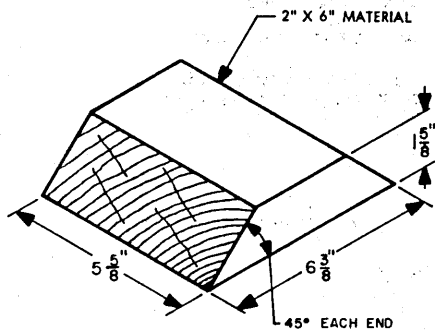
(KEY NUMBERS CONT'D ON NEXT PAGE)



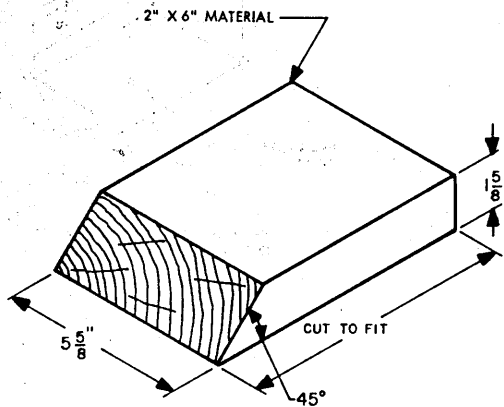
**SECTION B-B**

(KEY NUMBERS CONTINUED FROM PAGE 4)

- 23 STEEL STRAPPING, 1-1/4" X .035" X 9'-0" (4 REQD).
- 24 SEAL FOR 1-1/4" STEEL STRAPPING (8 REQD). SEE GENERAL NOTE "D" ON PAGE 3.

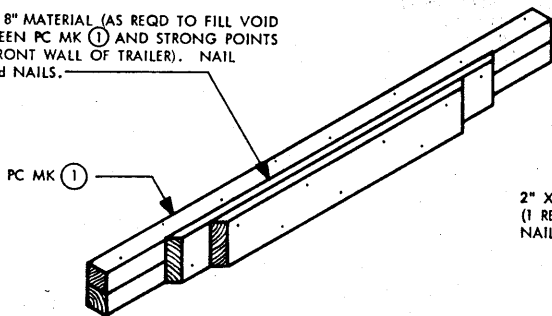


**BLOCK A**



**BLOCK B**

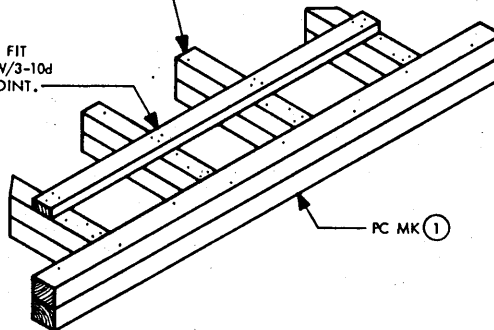
2" X 8" MATERIAL (AS REQD TO FILL VOID BETWEEN PC MK ① AND STRONG POINTS IN FRONT WALL OF TRAILER). NAIL W/10d NAILS.



**METHOD A**

4" X 4" X CUT TO FIT (DOUBLED) (4 REQD). LAMINATE W/40d NAILS. TOENAIL TO PC MK ① W/2-12d NAILS. POSITION AGAINST STRONG POINTS IN TRAILER FRONT WALL.

2" X 4" X CUT TO FIT (1 REQD). NAIL W/3-10d NAILS AT EACH JOINT.



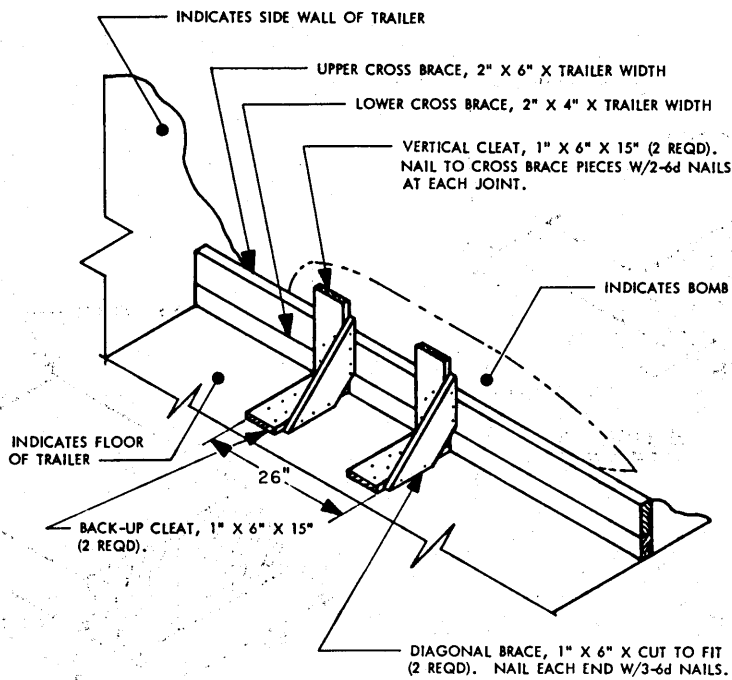
**METHOD B**

**FORWARD BLOCKING**

FOR USE IN ROUND FRONT TRAILERS

**NOTE:** THE METHOD WHICH BEST SUITS EXISTING CONDITIONS SHOULD BE SELECTED. CONTOUR OF TRAILER FRONT WALL, CONTACTING POINTS OF LADING VERSUS STRONG POINTS OF TRAILER FRONT WALL, AND SO FORTH SHOULD BE CONSIDERED.

**DETAILS**



**TYPICAL LTL (REAR BRACING ONLY)**

NOTE: FOR USE WHEN SHIPPING SMALL QUANTITIES IN TRAILERS WHICH HAVE NAILABLE FLOORS. REFER TO THE "TYPICAL LTL" PROCEDURES SPECIFIED ON PAGE 4 FOR WITHIN-LOAD DUNNAGE REQUIREMENTS, AND SUBSTITUTE THE REAR BRACING SHOWN ABOVE FOR THE INTERMEDIATE AND REAR PIECE MARKED ① AND PIECES MARKED ② THRU ④ ON PAGE 4. CAUTION: THE ABOVE TYPE BRACING IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF ONLY 4,000 POUNDS.