

APPROVED BY
 BUREAU OF EXPLOSIVES
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LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF 155MM COPPERHEAD SEPARATE LOADING PROJECTILES, PACKED ONE PER METAL CONTAINER, UNITIZED 6 CONTAINERS PER SPECIAL 4-WAY ENTRY PALLET

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

REVISIONS				DRAFTSMAN	PROJ ENG		
				BL	WRF/lew		
				CHECKER	LOG ENGINEER OFFICE		
				GRG	RN/OUT/...		
				APPROVED, U. S. ARMY ARMAMENT MATERIEL READINESS COMMAND			
				<i>John H. Smith</i>			
				APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND (DARCOM)			
				<i>John L. Smith</i>			
				U. S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL			
				U. S. ARMY DARCOM DRAWING			
				SEPTEMBER 1981			
				CLASS	DIVISION	DRAWING	FILE
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DO NOT SCALE

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 WITHIN THIS DRAWING ARE APPLICABLE TO THE 155MM COPPERHEAD SEPARATE LOADING PROJECTILE, PACKED 1 PER METAL SHIPPING AND STORAGE CONTAINER, UNITIZED 6 CONTAINERS PER SPECIAL 4-WAY ENTRY PALLET. SUBSEQUENT REFERENCE TO THE PALLET UNIT HEREIN MEANS THE PALLET WITH AMMUNITION ITEMS.
- C. FOR DETAILS OF THE PALLET UNIT, SEE PAGE 3 OF THIS DRAWING AND US ARMY DARCOM DRAWING 19-48-4159-20PM1003.
- DIMENSIONS ----- 33" LONG X 61" WIDE X 27-1/2" HIGH
GROSS WEIGHT ----- 1,358 POUNDS (APPROX)
- D. THIS ITEM IS A DOT CLASS "A" AND A COAST GUARD CLASS "VII" EXPLOSIVE. THE OUTLOADING PROCEDURES DELINEATED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED METAL CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.
- E. THE LOADS AS SHOWN HEREIN ARE FOR CLOSED OR OPEN TOP VAN TRAILERS WHICH ARE 89" TO 93" WIDE (INSIDE DIMENSION) AND OF VARIOUS LENGTHS, UP TO AND INCLUDING 45'-0" LONG. THEY ARE LIMITED TO HIGHWAY MOVEMENT ONLY. THE DEPICTED LOADS ARE BASED ON TRAILERS OF THE CONVENTIONAL TYPE OR ARE BASED ON TRAILERS WHICH ARE EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES (CROSS MEMBERS AND WALL MEMBERS) AND APPLY TO TRAILERS HAVING WOOD, WOOD AND METAL, OR METAL FLOORS. SEE GENERAL NOTE "U" AT RIGHT.
- F. THE OUTLOADING PROCEDURES DELINEATED ON PAGES 4 THRU 9 ARE FOR CONVENTIONAL TYPE VAN TRAILERS.
- G. THE OUTLOADING PROCEDURES DELINEATED ON PAGES 10 THRU 12 ARE FOR TRAILERS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES, AND ARE LIMITED TO HIGHWAY MOVEMENT ONLY. THE HEIGHT REQUIREMENTS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS ARE IDENTICAL TO THOSE RECOMMENDED BY THE BUREAU OF EXPLOSIVES PAMPHLET 6C. CAUTION: TRAILERS EQUIPPED WITH WALL MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.
1. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. EACH CROSS MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS AND AT EQUAL DISTANCES FROM THE END OF THE TRAILER).
 2. CROSS MEMBERS IN EMPTY TRAILERS AND THOSE NOT USED IN LOADED TRAILERS MUST BE SECURED FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH TRAILER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.
 3. ONE 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.
- H. SELECTION OF A VEHICLE TO BE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 213, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- J. 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, DUNNAGE, TRACTOR, AND SEMI-TRAILER CARRYING THE LADING MUST NOT EXCEED THE MAXIMUM GROSS WEIGHT ALLOWED FOR THE STATE OR STATES THRU WHICH THE LOAD IS TO BE TRANSPORTED BY MOTOR CARRIER. LIKEWISE, THE GROSS WEIGHT ON A SINGLE OR TANDEM AXLE MUST NOT EXCEED THE

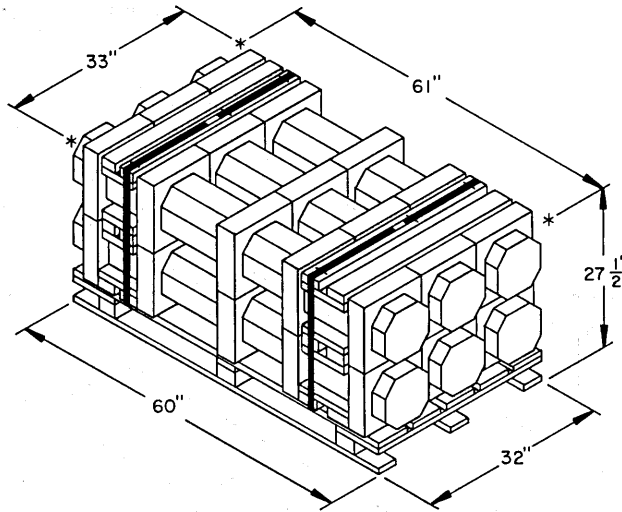
(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER -----: TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS -----: FED SPEC FF-N-105; COMMON.
- STRAPPING, STEEL -----: FED SPEC QQ-S-781; CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP -----: FED SPEC QQ-S-781, TYPE D, STYLE I, II, OR IV, CLASS H, FINISH A, B (GRADE 2), OR C.
- STAPLE, STRAP -----: FED SPEC FF-N-105; TYPE III, STYLE 3, 1-17/32" BY 3/4" LEG LENGTH, OR EQUIVALENT.
- STRAP ANCHOR PLATE -----: FSN 5340-252-3014 (FOR 1-1/4" STRAP).
- STRAP ANCHOR PLATE NAIL ---: FSN 5315-290-7140.
- WIRE -----: FED SPEC QQ-W-461.
- MATERIAL, ANTI-CHAFING ----: MIL SPEC MIL-B-121; NEUTRAL BARRIER MATERIAL.

(GENERAL NOTES CONTINUED)

- MAXIMUM ALLOWABLE WEIGHT. IF THERE IS ANY DOUBT AS TO WHETHER ANY AXLES ARE OVER-LOADED, OR ANY DOUBT AS TO WHETHER THE TOTAL GROSS WEIGHT EXCEEDS THE MAXIMUM ALLOWED, PROPER WEIGHT DISTRIBUTION SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- K. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO SUIT THE CAPACITY OF THE TRAILER BEING LOADED OR THE QUANTITY TO BE SHIPPED. HOWEVER, THE APPROVED METHODS SPECIFIED HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE LOADS.
- L. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEMS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED EQUAL TO THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- M. FOR TRAILERS NOT EQUIPPED WITH REAR CORNER POSTS, THE REAR BLOCKING MUST BE EXTENDED TO CONTACT THE REAR DOORS WHEN CLOSED.
- N. WHEN PALLETIZED UNITS ARE OFFERED FOR SHIPMENT, THESE UNITS SHOULD BE INSPECTED PRIOR TO LOADING INTO THE TRAILER, AND SHOULD HAVE ALL LOOSE OR DAMAGED STEEL STRAPPING REPLACED OR RETENSIONED, AS DEEMED APPROPRIATE.
- O. 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.
- P. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHENEVER 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. 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.
- Q. PORTIONS OF THE TRAILER BODIES DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- R. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO SEALS, BUTTED TOGETHER, WITH TWO PAIR OF NOTCHES PER SEAL, MUST BE USED TO SEAL THE JOINT.
- S. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS, WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.
- T. WHEN REFERRING TO THE PALLET UNIT LENGTH OR WIDTH, THE 33" DIMENSION OF THE UNIT CONSTITUTES THE LENGTH AND THE 61" DIMENSION OF THE UNIT CONSTITUTES THE WIDTH. SEE THE UNIT DETAIL ON PAGE 3.
- U. TO ACHIEVE SHIPMENTS OF MORE PALLET UNITS THAN DEPICTED IN THE FULL LOADS AS SHOWN WITHIN THIS DRAWING, LONGER TRAILERS, IF DESIRED, CAN BE USED BY UTILIZING THE SAME REAR BLOCKING AND MAKING ADJUSTMENTS, AS REQUIRED, TO THE OTHER OUTLOADING PROCEDURES. SEE GENERAL NOTES "E", "G", AND "J" AT LEFT.

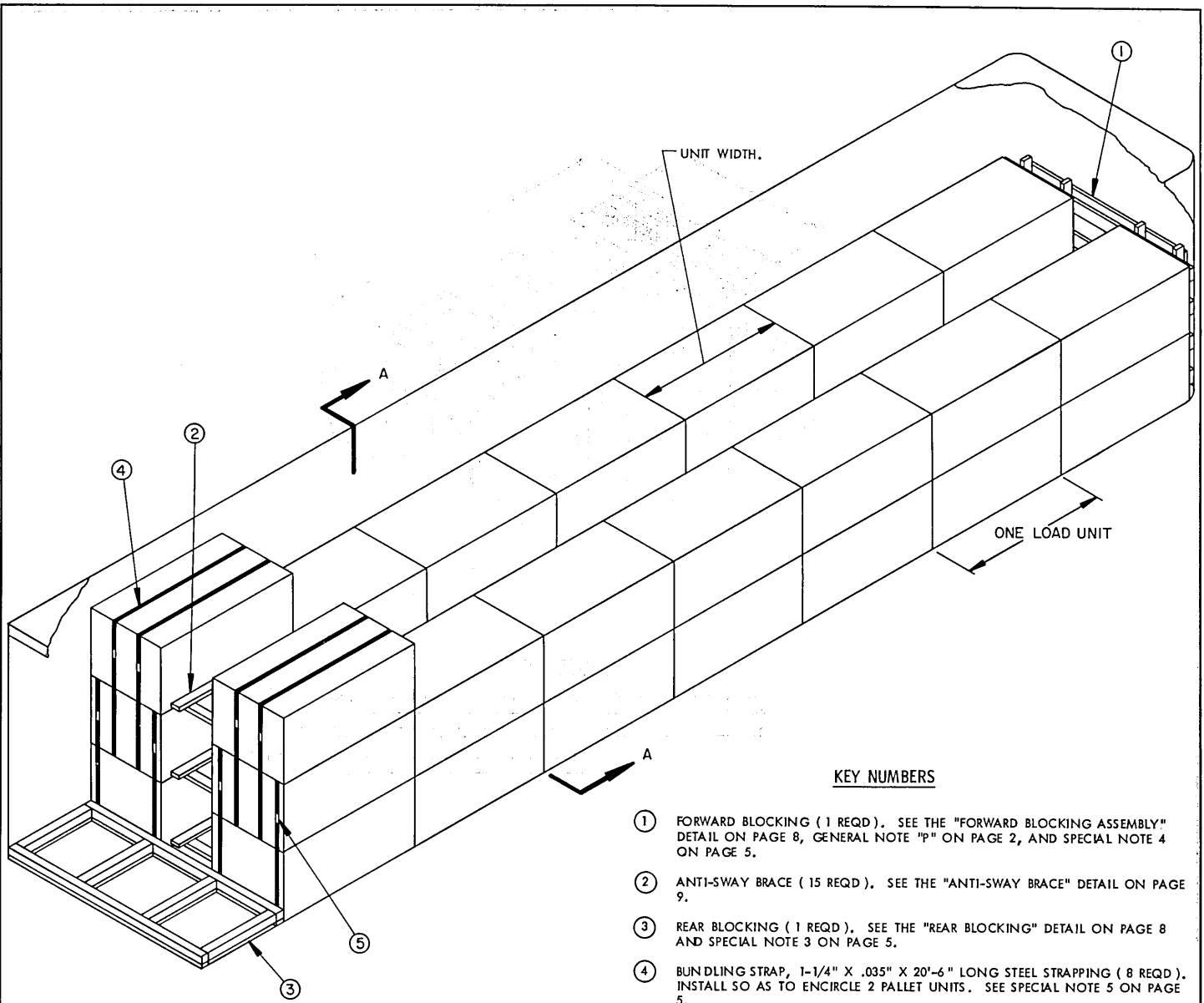


PALLET UNIT

6 EACH COPPERHEAD RDS IN CONTAINERS @ 206 LBS	-----	1,236 LBS
DUNNAGE	-----	70 LBS
PALLET	-----	52 LBS

TOTAL WEIGHT ----- 1,358 LBS (APPROX)
 CUBE ----- 32.0 CU FT (APPROX)

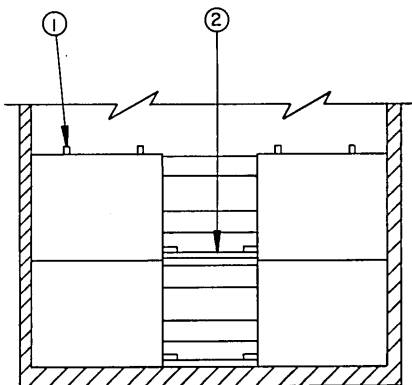
UNIT DETAIL



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 8, GENERAL NOTE "P" ON PAGE 2, AND SPECIAL NOTE 4 ON PAGE 5.
- ② ANTI-SWAY BRACE (15 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 9.
- ③ REAR BLOCKING (1 REQD), SEE THE "REAR BLOCKING" DETAIL ON PAGE 8 AND SPECIAL NOTE 3 ON PAGE 5.
- ④ BUNDLING STRAP, 1-1/4" X .035" X 20'-6" LONG STEEL STRAPPING (8 REQD). INSTALL SO AS TO ENCIRCLE 2 PALLET UNITS. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑤ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "R" ON PAGE 2.



SECTION A-A

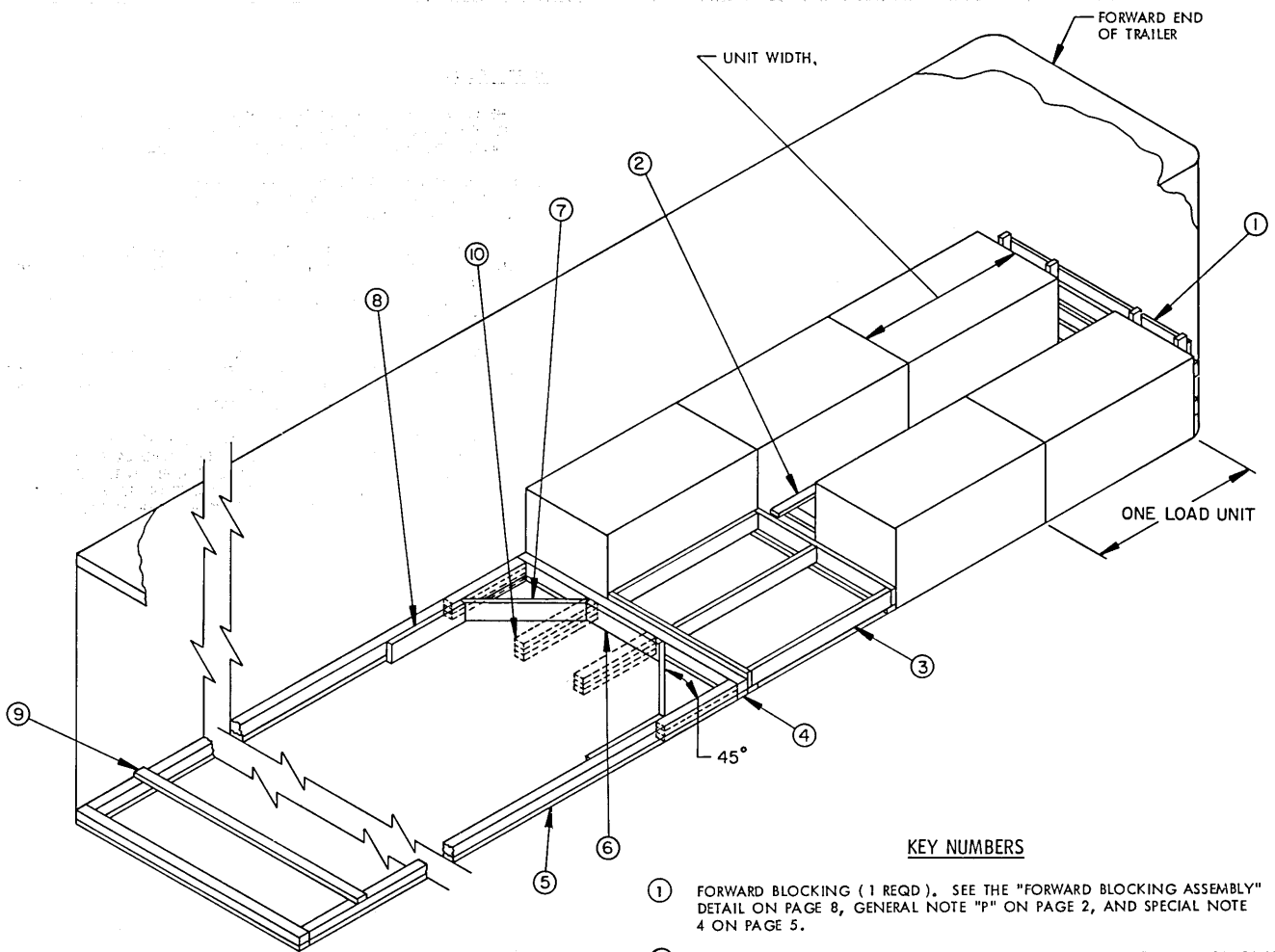
SPECIAL NOTES:

1. THE LOAD VIEWS AND "LOAD AS SHOWN" SECTION ON PAGES 4 AND 5 ARE FOR A LOAD OF 30 PALLET UNITS IN A 40'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER.
2. A WIDER OR NARROWER TRAILER THAN THAT SHOWN ON PAGE 4 MAY BE USED FOR SHIPPING THE DEPICTED LOAD BY ADJUSTING THE "ANTI-SWAY BRACE" ASSEMBLIES AS NECESSARY.
3. IF THE VOID AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE TRAILER DOORS, MEASURES 1-1/2" OR LESS NO REAR BLOCKING IS REQUIRED. IF THE VOID IS 12" OR GREATER AND 4" X 4" MATERIAL IS NOT READILY AVAILABLE, THE "ALTERNATIVE REAR BLOCKING" DEPICTED ON PAGE 9 WILL BE USED.
4. IF THE TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD, THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①, WILL BE OMITTED AND THE PALLET UNITS WILL BE POSITIONED DIRECTLY AGAINST THE FORWARD PORTIONS OF THE TRAILER.
5. AT ANY LOCATION WHERE A LOAD UNIT CONSISTS OF 6 PALLET UNITS (2 STACKS OF 3 PALLET UNITS EACH), THE THIRD LAYER PALLET UNITS MUST BE SECURED TO THE SECOND LAYER PALLET UNITS WITH 2 STEEL STRAPS EACH, AND THE SECOND LAYER PALLET UNITS MUST BE SECURED TO THE FIRST LAYER PALLET UNITS WITH 2 STEEL STRAPS EACH.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	271	181
2" X 6"	55	55
4" X 4"	27	36
NAILS	NO. REQD	POUNDS
10d (3")	280	4-1/2
16d (3-1/2")	16	1/2
STEEL STRAPPING, 1-1/4"	164' REQD	24 LBS
SEAL FOR 1-1/4" STRAPPING	16 REQD	3/4 LB

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT-----	30 -----	40,740 LBS
DUNNAGE -----		574 LBS
TOTAL WEIGHT -----		41,314 LBS



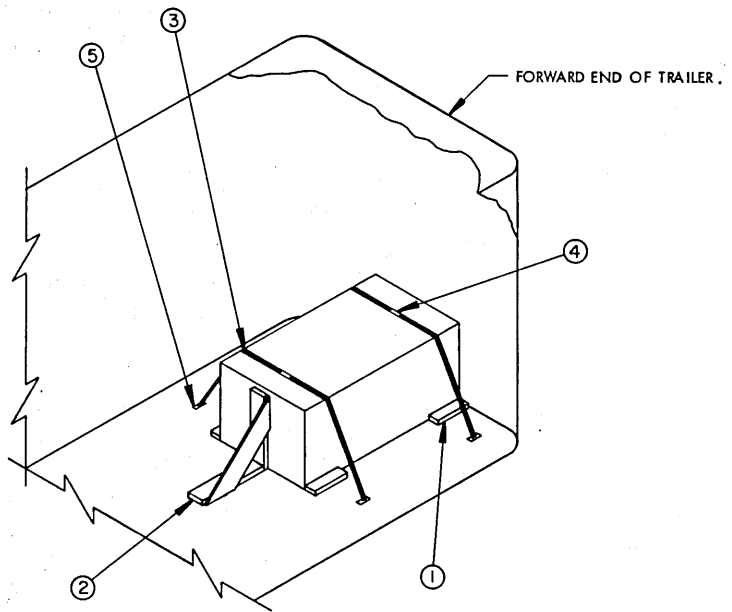
ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 8, GENERAL NOTE "P" ON PAGE 2, AND SPECIAL NOTE 4 ON PAGE 5.
- ② ANTI-SWAY BRACE (2 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 9.
- ③ FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY" DETAIL ON PAGE 9.
- ④ HEADER, 4" X 4" AND 2" X 4", BY INSIDE TRAILER WIDTH MINUS 1/2" (2 REQD). LAMINATE THE 2" X 4" TO THE 4" X 4" W/1-10d NAIL EVERY 8".
- ⑤ SIDE STRUT, 4" X 4" AND 2" X 4", BY CUT-TO-FIT BETWEEN THE FORWARD AND REAR HEADERS, PIECES MARKED ④ (2 REQD). TOENAIL TO THE HEADERS W/2-16d NAILS AT EACH END. LAMINATE THE 2" X 4" TO THE 4" X 4" W/1-10d NAIL EVERY 12". SEE SPECIAL NOTE 6 AT LEFT.
- ⑥ CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO A HEADER, PIECE MARKED ④, W/7-10d NAILS.
- ⑦ 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 A HEADER AND A SIDE STRUT, PIECES MARKED ④ AND ⑤, W/2-16d NAILS AT EACH END.
- ⑧ SIDE CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑤, W/8-10d NAILS.
- ⑨ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (MINIMUM OF ONE REQUIRED). POSITION NEAR REAR OF TRAILER AND NAIL TO THE SIDE STRUTS, PIECES MARKED ⑤, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 3 AT LEFT.
- ⑩ BACK-UP CLEAT, 2" X 4" X 30" (TRIPLED) (4 REQD). POSITION AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/7-12d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER. TOENAIL THE TOP PIECE TO A HEADER, PIECE MARKED ④, W/2-12d NAILS. SEE SPECIAL NOTE 2 AT LEFT.

SPECIAL NOTES:

1. THE OUTLOADING PROCEDURES ABOVE DEPICT THE USE OF K-BRACE BLOCKING IN A 7'-6" WIDE (INSIDE DIMENSION) VAN TRAILER WHICH IS EQUIPPED WITH OR WITHOUT NAILABLE FLOORS AND REAR CORNER POSTS.
2. THE BACK-UP CLEATS, PIECES MARKED ⑩, ARE FOR USE IN A TRAILER WHICH HAS A NAILABLE FLOOR AND SHOULD BE USED, IF POSSIBLE, IN LIEU OF PIECES MARKED ⑤ THRU ⑨ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. FOUR BACK-UP CLEATS, PIECES MARKED ⑩, ARE ADEQUATE FOR RETAINING A MAXIMUM SIZE LTL LOAD OF 20,000 POUNDS.
3. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, USING K-BRACE TYPE BLOCKING, REQUIRE ONE STRUT BRACE POSITIONED NEAR THE REAR OF THE TRAILER AND NAILED TO THE SIDE STRUTS. IF THE SIDE STRUTS, PIECES MARKED ⑤, ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE, PIECE MARKED ⑨, MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
4. THE "K-BRACE" BLOCKING, SHOWN AS PIECES MARKED ⑤ THRU ⑨, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 26,000 POUNDS.
5. FIVE PALLETIZED UNITS ARE SHOWN AS A TYPICAL LTL LOAD. THE NUMBER OF UNITS CAN BE ADJUSTED TO SUIT THE QUANTITY THAT IS TO BE SHIPPED.
6. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS, PIECES MARKED ⑤, MAY NEED TO BE FORMED FROM MORE THAN ONE PIECE OF MATERIAL. IF THIS IS THE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 4" X 24" PIECE ON TOP OF THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W/4-10d NAILS AT EACH END.



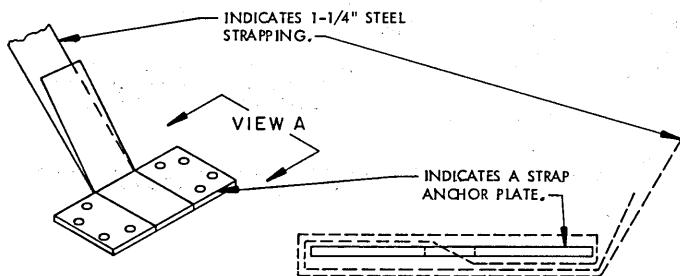
ISOMETRIC VIEW

SPECIAL NOTES:

1. THE LOAD ABOVE DEPICTS A 1-UNIT LOAD IN A ROUNDED FRONT TRAILER WHICH IS 7'-6" WIDE (INSIDE DIMENSION) AND WHICH IS EQUIPPED WITH A NAILABLE FLOOR. WIDER OR NARROWER TRAILERS, OR TRAILERS WITH SQUARE FRONTS MAY ALSO BE USED WITHOUT ANY MODIFICATIONS TO THE DEPICTED PROCEDURES.
2. THE DEPICTED PROCEDURES CAN BE USED FOR THE SHIPMENT OF A 2-UNIT LOAD BY REPEATING WHAT IS SHOWN FOR THE 1-UNIT LOAD.
3. EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING.
4. PIECES MARKED ①, ③, ④, AND ⑤ MAY BE REPLACED BY 4 ADDITIONAL LTL BRACES, PIECES MARKED ②, IF DEEMED APPROPRIATE. THESE 4 LTL BRACES WILL BE LOCATED IN THE SAME POSITIONS AS THE SIDE BLOCKING SHOWN IN THE VIEW ABOVE.

KEY NUMBERS

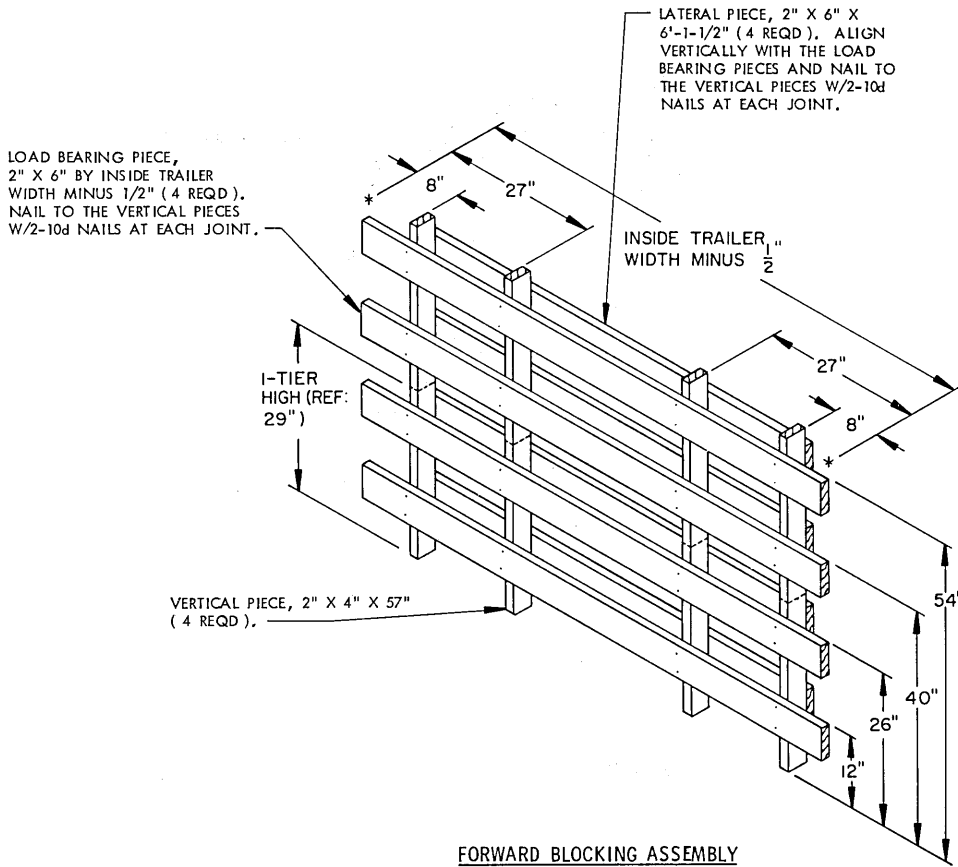
- ① SIDE BLOCKING, 2" X 4" X 12" (4 REQD). NAIL TO TRAILER FLOOR W/3-12d NAILS. SEE GENERAL NOTE "P" ON PAGE 2.
- ② LTL BRACE (1 REQD). SEE THE DETAIL ON PAGE 9. NAIL TO THE TRAILER FLOOR W/6-12d NAILS.
- ③ HOLD-DOWN STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD).
- ④ SEAL FOR 1-1/4" STRAP (4 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES. SEE GENERAL NOTE "R" ON PAGE 2.
- ⑤ STRAP ANCHOR PLATE (4 REQD). SEE "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL ON THIS PAGE. NAIL TO THE TRAILER FLOOR W/6 STRAP ANCHOR PLATE NAILS.



ISOMETRIC VIEW

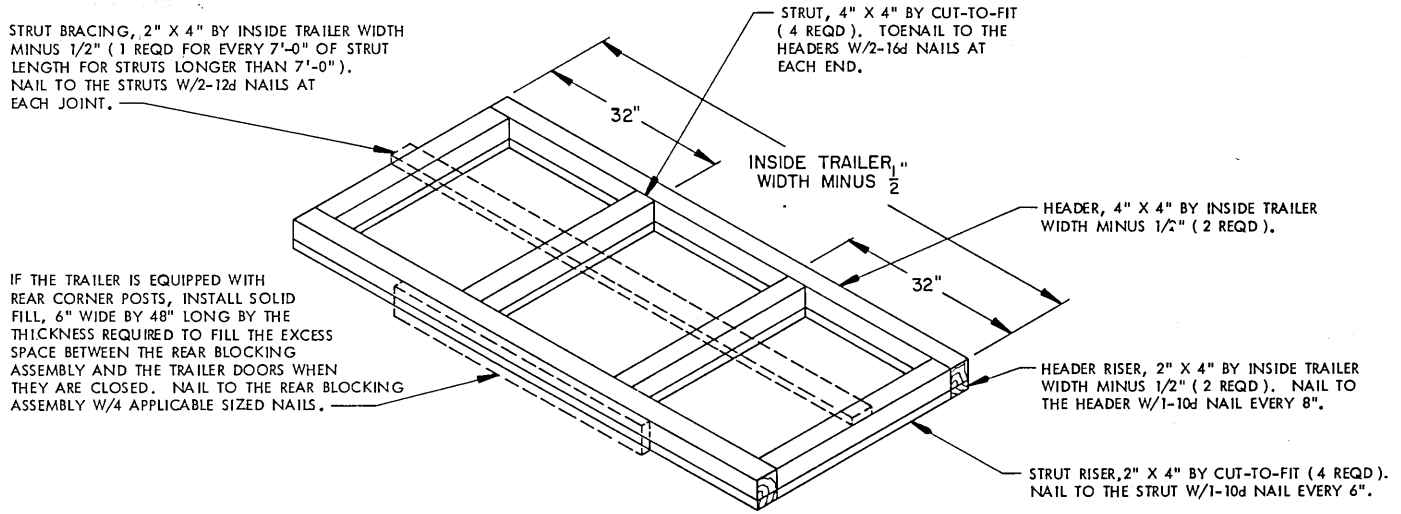
VIEW A

APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE



FORWARD BLOCKING ASSEMBLY

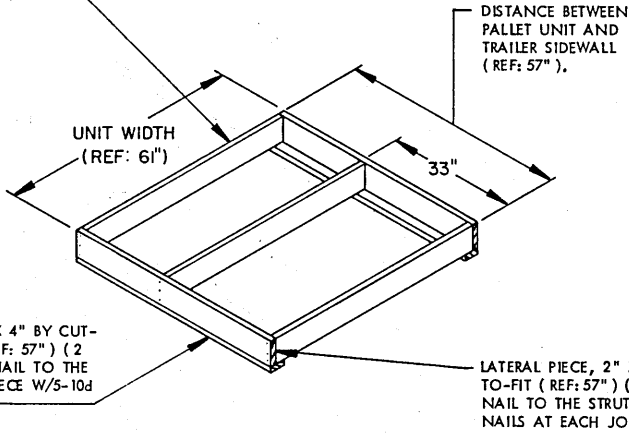
THE ASSEMBLY DEPICTED ABOVE IS DESIGNED FOR USE AT THE FRONT END OF A TRAILER HAVING ROUNDED CORNERS, AND IS APPLICABLE FOR A CORNER RADIUS OF NOT MORE THAN 6-1/2". IF THE RADIUS IS FROM 6-1/2" TO 8", 2" X 6" VERTICAL PIECES WILL BE USED IN LIEU OF THE 2" X 4" PIECES SHOWN.



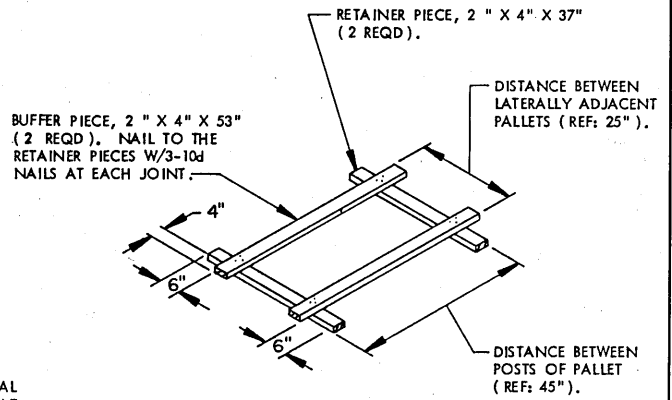
REAR BLOCKING

THE ASSEMBLY DEPICTED ABOVE IS DESIGNED FOR USE AT THE REAR OF THE LOAD WHEN THE EXCESS SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS 12" OR GREATER.

STRUT, 2" X 6" BY UNIT WIDTH MINUS 3" (REF: 58") (3 REQD).

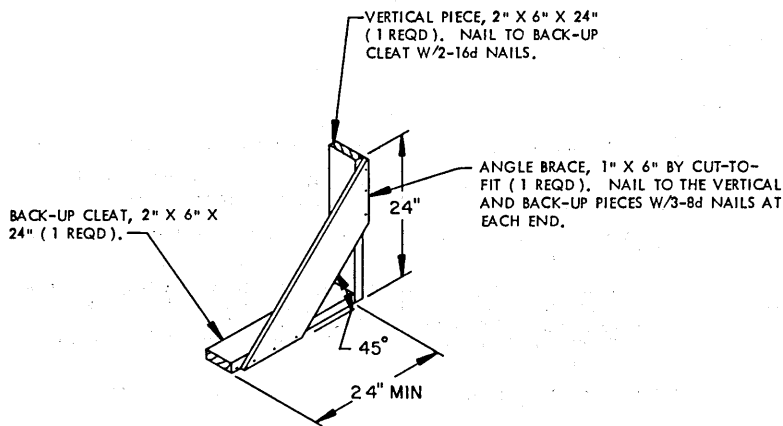


FILLER ASSEMBLY



ANTI-SWAY BRACE

THE ASSEMBLY DEPICTED ABOVE MUST BE FABRICATED IN PLACE BETWEEN THE PALLETS.



LTL BRACE

HEADER, 2" X 4" BY INSIDE TRAILER WIDTH MINUS 1/2" (TRIPLED) (2 REQD). LAMINATE W/1-10d NAIL EVERY 8".

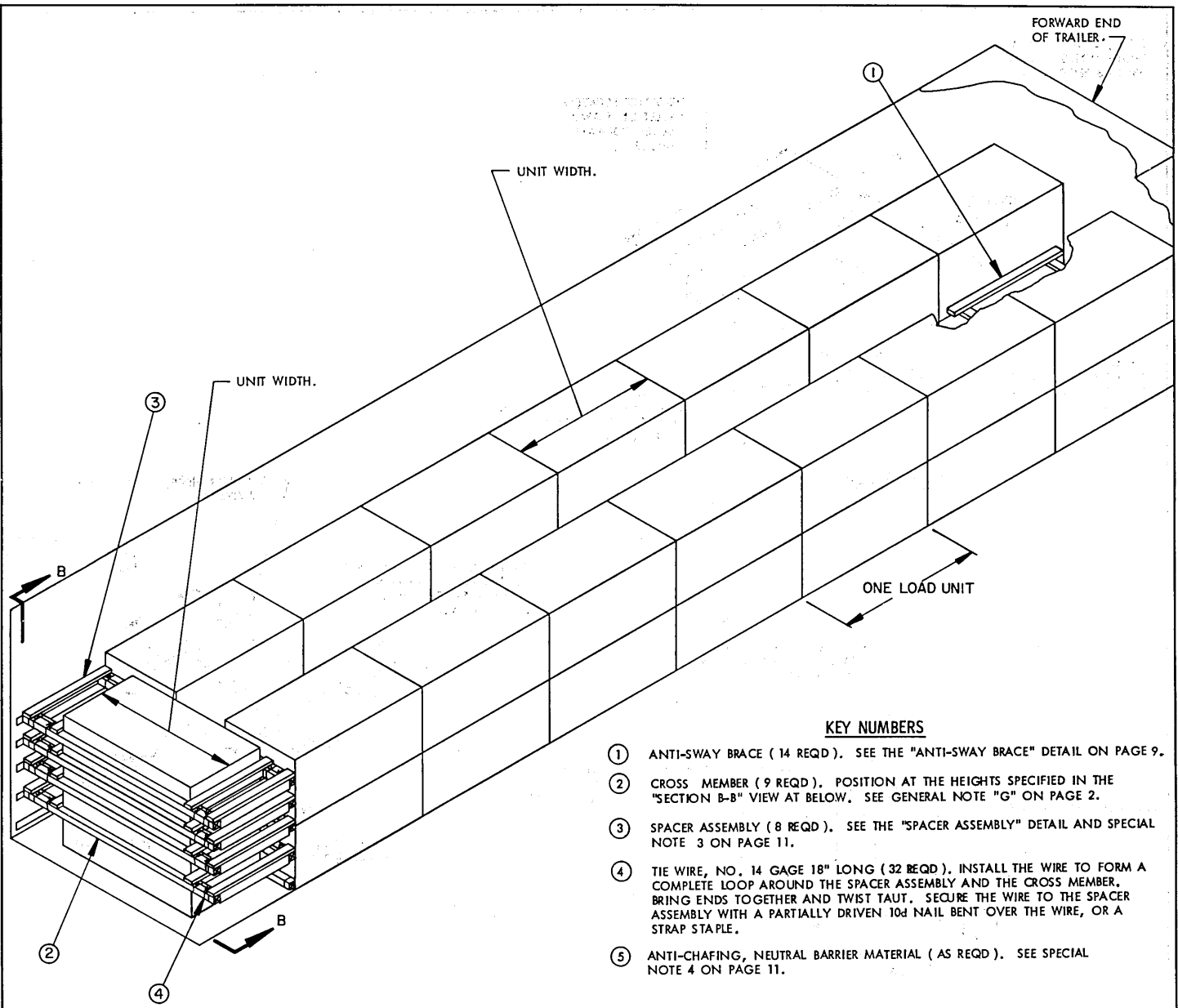
STRUT, 2" X 4" BY CUT-TO-FIT (TRIPLED) (4 REQD). LAMINATE W/1-10d NAIL EVERY 6" (MINIMUM OF 2 NAILS) AND TOENAIL TO THE HEADER W/2-12d NAILS AT EACH END.

HEADER RISER, 1" X 4" BY INSIDE TRAILER WIDTH MINUS 1/2" (2 REQD). NAIL TO THE HEADER W/1-6d NAIL EVERY 8".

STRUT RISER, 1" X 4" BY CUT-TO-FIT (4 REQD). NAIL TO THE STRUT W/1-6d NAIL EVERY 6" (MINIMUM OF 2 NAILS).

ALTERNATIVE REAR BLOCKING

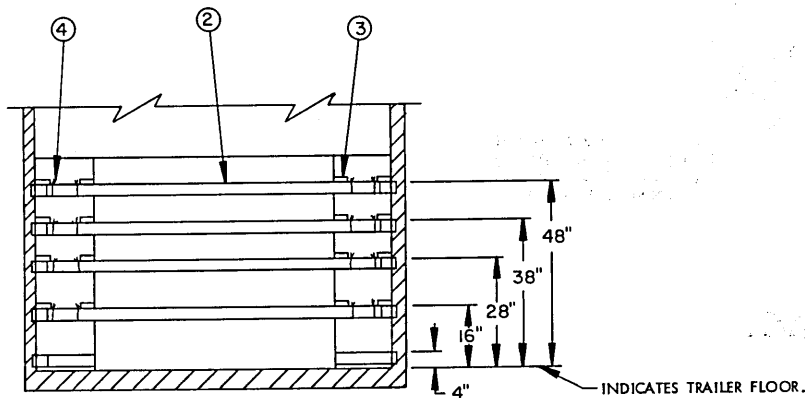
THE REAR BLOCKING DEPICTED ABOVE MAY BE USED IN LIEU OF THE "REAR BLOCKING" SHOWN ON PAGE 8 WHEN 4" X 4" MATERIAL IS NOT READILY AVAILABLE.



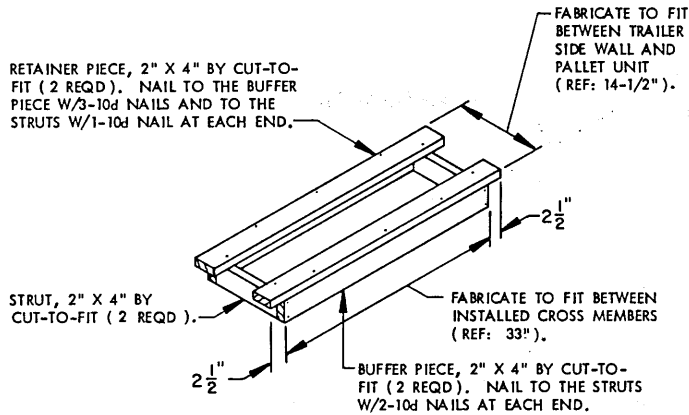
ISOMETRIC VIEW

KEY NUMBERS

- ① ANTI-SWAY BRACE (14 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 9.
- ② CROSS MEMBER (9 REQD), POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION B-B" VIEW AT BELOW. SEE GENERAL NOTE "G" ON PAGE 2.
- ③ SPACER ASSEMBLY (8 REQD). SEE THE "SPACER ASSEMBLY" DETAIL AND SPECIAL NOTE 3 ON PAGE 11.
- ④ TIE WIRE, NO. 14 GAGE 18" LONG (32 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND THE SPACER ASSEMBLY AND THE CROSS MEMBER. BRING ENDS TOGETHER AND TWIST TAUT. SECURE THE WIRE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR A STRAP STAPLE.
- ⑤ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REQD). SEE SPECIAL NOTE 4 ON PAGE 11.



SECTION B-B



SPACER ASSEMBLY

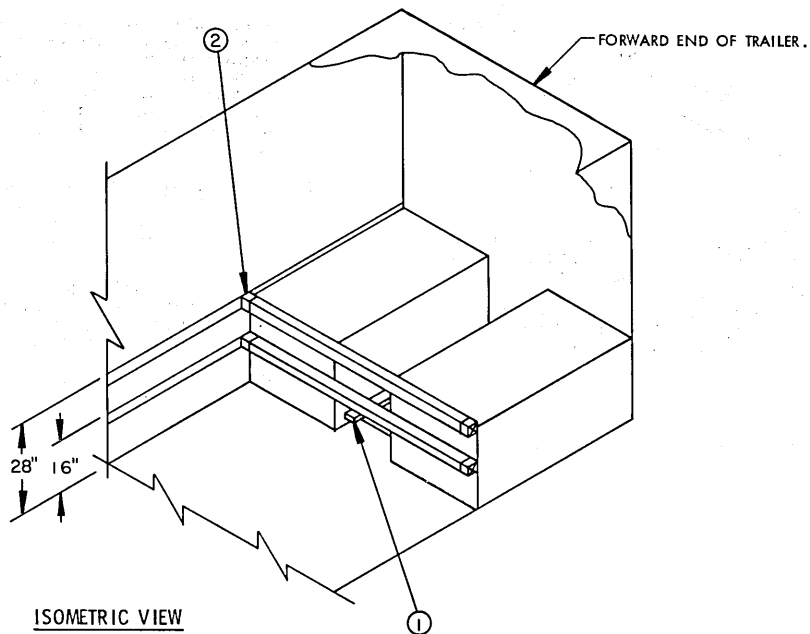
SPECIAL NOTES:

1. THE OUTLOADING PROCEDURES ON PAGES 10 AND 11 DEPICT A 30-UNIT LOAD IN A 7'-6" WIDE (INSIDE DIMENSION) BY 40'-0" LONG VAN TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES. TRAILERS OF OTHER WIDTHS CAN ALSO BE USED BY MODIFYING THE DUNNAGE ASSEMBLIES AS NECESSARY.
2. IF THE TRAILER BEING USED IS EQUIPPED WITH ROUNDED CORNERS AT THE FORWARD END, ADDITIONAL CROSS MEMBERS MUST BE POSITIONED AT THE FORWARD END OF THE TRAILER AT THE SAME HEIGHTS AS THOSE POSITIONED AT THE REAR OF THE LOAD. ADDITIONALLY, IF A 40'-0" LONG TRAILER EQUIPPED WITH ROUNDED CORNERS AT THE FORWARD END IS BEING USED, THE 2 PALLET UNITS POSITIONED CROSSWISE AT THE REAR OF THE LOAD MAY HAVE TO BE OMITTED DUE TO THE LENGTH OF THE MECHANICAL BRACING SYSTEM.
3. THE SPACER ASSEMBLY AS DETAILED AT LEFT NEED NOT BE FABRICATED FOR A DRIVE FIT. THE ASSEMBLY SHOULD BE FABRICATED SO THAT IT CAN BE EASILY INSTALLED. HOWEVER, IT MUST FIT TIGHT ENOUGH SO AS TO NOT ALLOW MORE THAN 1/2" VOID ACROSS THE WIDTH OF THE BRACED LOAD.
4. ALL CROSS MEMBERS WHICH CONTACT A METAL PART OF THE SHIPPING AND STORAGE CONTAINER, MUST BE COVERED WITH ANTI-CHAFING MATERIAL; SUCH AS TAPE, PAPER, CARDBOARD OR CLOTH. THIS MATERIAL MUST BE SECURED TO THE CROSS MEMBER WITH TAPE, WIRE, OR SOME SECUREMENT, SO AS TO PREVENT DISLODGEEMENT DURING LOADING AND SHIPPING OPERATIONS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	320	214
NAILS	NO. REQD	POUNDS
10d (3")	312	5
WIRE, NO. 14 GAGE -----	48' REQD -----	1 LB
CROSS MEMBERS -----		9 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT -----	30 -----	40,740 LBS
DUNNAGE -----		434 LBS
TOTAL WEIGHT -----		41,174 LBS



SPECIAL NOTES:

1. THE OUTLOADING PROCEDURES ABOVE DEPICT A TYPICAL 2-UNIT LTL IN A 7'-6" WIDE (INSIDE DIMENSION) TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES. TRAILERS OF OTHER WIDTHS CAN ALSO BE USED BY MODIFYING THE "ANTI-SWAY BRACE" ASSEMBLIES AS NECESSARY.
2. IN ADDITION TO BEING USED FOR SHIPMENTS OF TWO PALLET UNITS, THE PROCEDURES DEPICTED ABOVE CAN ALSO BE USED IN CONJUNCTION WITH THE OUTLOADING PROCEDURES ON PAGES 10 AND 11 FOR ADJUSTMENT OF A LOAD QUANTITY.
3. IF THE TRAILER BEING USED IS EQUIPPED WITH ROUNDED CORNERS AT THE FORWARD END, ADDITIONAL CROSS MEMBERS MUST BE POSITIONED AT THE FORWARD END OF THE TRAILER AT THE SAME HEIGHTS AS THOSE POSITIONED AT THE REAR OF THE LOAD.

KEY NUMBERS

- ① ANTI-SWAY BRACE (1 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 9.
- ② CROSS MEMBER (2 REQD). POSITION AT THE HEIGHTS SPECIFIED IN THE ISOMETRIC VIEW ABOVE. SEE GENERAL NOTE "G" ON PAGE 2.
- ③ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REQD). SEE SPECIAL NOTE 4 ON PAGE 11.