

METHOD FOR 50-FOOT CARS

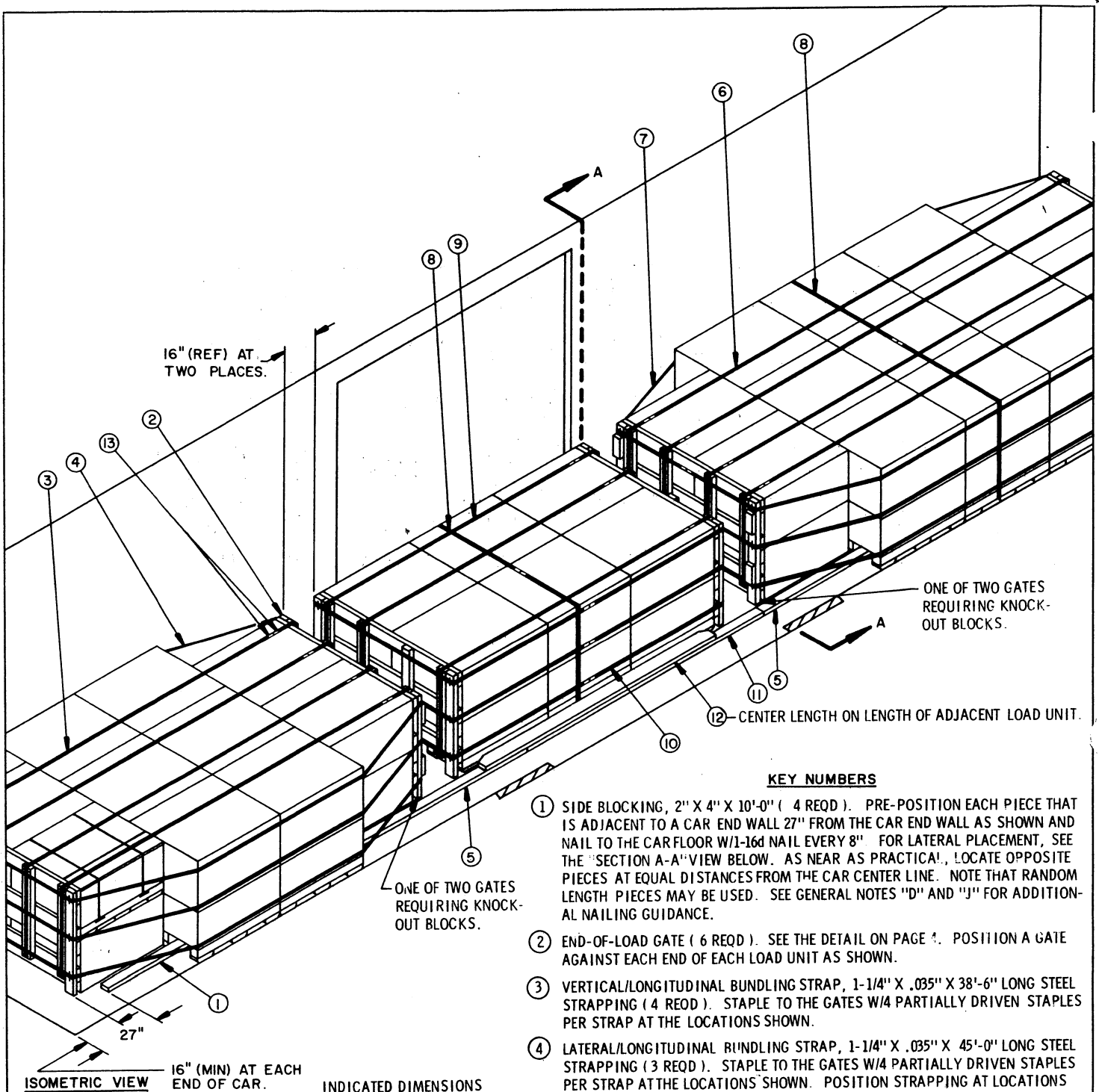
FLOATING-LOAD PROCEDURES FOR LOADING AND BRACING (CL) IN BOXCAR[⊕] OF PALLETIZED EMPTY 105MM PROJECTILES[●] (M1 HE PROJ PACKED IN WIREBOUND BOX PLT)

⊕ WHEN THE SPECIFICATIONS OF THIS DRAWING ARE USED, ONLY "HIGH CAPACITY" CUSHIONED BOXCARS CAN BE USED FOR SHIPPING THE SPECIFIED ITEM. NON-CUSHIONED CARS MUST NOT BE USED. CARS HAVING SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST 15" OF TRAVEL ARE ACCEPTABLE.

● THE OUTLOADING PROCEDURES SPECIFIED WITHIN THIS DRAWING ARE ONLY APPLICABLE TO ITEMS WHICH ARE EMPTY. NOTICE: THE SPECIFIED LOADING AND BRACING PROCEDURES WILL NOT BE USED FOR SHIPPING ITEMS CONTAINING EXPLOSIVES.

DO NOT SCALE

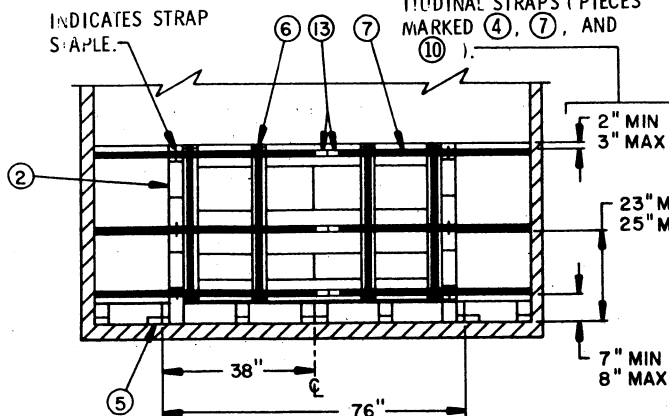
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ISOMETRIC VIEW

INDICATED DIMENSIONS LOCATE THE LATERAL/LONGITUDINAL STRAPS (PIECES MARKED 4, 7, AND 10).

INDICATES STRAP STAPLE.



SECTION A-A

PIECE MARKED 8 OMITTED FOR CLARITY.

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 4" X 10'-0" (4 REQD). PRE-POSITION EACH PIECE THAT IS ADJACENT TO A CAR END WALL 27" FROM THE CAR END WALL AS SHOWN AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8" FOR LATERAL PLACEMENT, SEE THE "SECTION A-A" VIEW BELOW. AS NEAR AS PRACTICAL, LOCATE OPPOSITE PIECES AT EQUAL DISTANCES FROM THE CAR CENTER LINE. NOTE THAT RANDOM LENGTH PIECES MAY BE USED. SEE GENERAL NOTES "D" AND "J" FOR ADDITIONAL NAILING GUIDANCE.
- ② END-OF-LOAD GATE (6 REQD). SEE THE DETAIL ON PAGE 1. POSITION A GATE AGAINST EACH END OF EACH LOAD UNIT AS SHOWN.
- ③ VERTICAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 38'-6" LONG STEEL STRAPPING (4 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN.
- ④ LATERAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 45'-0" LONG STEEL STRAPPING (3 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN. POSITION STRAPPING AT LOCATIONS SHOWN IN THE "SECTION A-A" VIEW TO THE LEFT.
- ⑤ SIDE BLOCKING, 2" X 4" X 8'-0" (4 REQD). POSITION EACH PIECE AS SHOWN AND NAIL W/1-16d NAIL EVERY 16". FOR LATERAL PLACEMENT, SEE THE "SECTION A-A" VIEW TO THE LEFT. NOTE THAT RANDOM LENGTH PIECES MAY BE USED.
- ⑥ VERTICAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 46'-0" LONG STEEL STRAPPING (4 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN.
- ⑦ LATERAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 53'-0" LONG STEEL STRAPPING (3 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN. POSITION STRAPPING AT LOCATIONS SHOWN IN THE "SECTION A-A" VIEW TO THE LEFT.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" STEEL STRAPPING (2 REQD; ONE 27'-0" LONG AND ONE 21'-0" LONG). POSITION AS SHOWN.
- ⑨ VERTICAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 31'-6" LONG STEEL STRAPPING (3 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN.

(CONTINUED ON PAGE 3)

(GENERAL NOTES CONTINUED)

GENERAL NOTES

- 1. ONLY EMPTY PROJECTILES ARE ACCEPTABLE. PROJECTILES CONTAINING EXPLOSIVE FILLER OR OTHER TYPES OF FILLER ARE NOT TO BE SHIPPED BY THE DELINEATED PROCEDURES.
- 2. A PALLET UNIT OF PROJECTILES THAT WEIGHS MORE THAN 2,360 POUNDS IS NOT ACCEPTABLE.
- 3. PROJECTILES THAT ARE LONGER THAN THE M1 HE PROJECTILE ARE NOT ACCEPTABLE. ALSO, PROJECTILES THAT ARE MORE THAN 1-1/4" SHORTER THAN THE M1 HE PROJECTILE ARE NOT ACCEPTABLE. IF PROJECTILES THAT ARE SHORTER THAN THE M1 HE ARE TO BE SHIPPED, WOODEN OR OTHER SUITABLE "HARD" FILLER MATERIAL MUST BE USED TO FILL THE VOID BETWEEN THE TOP OF THE PROJECTILES AND THE INSIDE SURFACE OF THE PALLET UNIT COVER ASSEMBLY. ALSO, IF THE PROJECTILES DO NOT FULLY OCCUPY THE INTERIOR SPACE OF A PALLET UNIT AS THE M1 HE PROJECTILES DO, THE SAME TYPE OF FILLER MATERIAL MUST BE USED TO FILL VOIDS AT THE SIDES AND/OR ENDS OF THE PALLET LOAD BETWEEN THE PROJECTILES AND THE SIDE/END PANELS OF THE PALLET UNIT.

(KEY NUMBERS CONTINUED FROM PAGE 2)

- ⑩ LATERAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 37'-0" LONG STEEL STRAPPING (3 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN. POSITION STRAPPING AT LOCATIONS SHOWN IN THE "SECTION A-A" VIEW ON PAGE 2.
- ⑪ SIDE BLOCKING, 2" X 4" X 10'-0" (2 REQD). POSITION EACH PIECE AS SHOWN AND NAIL W/1-16d NAIL EVERY 16". FOR LATERAL PLACEMENT, SEE THE "SECTION A-A" VIEW ON PAGE 2. NOTE THAT RANDOM LENGTH PIECES MAY BE USED.
- ⑫ UPPER SIDE BLOCKING, 2" X 6" X 10'-0" (2 REQD). POSITION 1/4" AWAY FROM PALLET SKIDS AND NAIL TO PIECES MARKED ⑤ AND ⑪ W/1-16d NAIL EVERY 16". SEE DETAIL ON PAGE 4 FOR BEVEL CUTS.
- ⑬ SEAL FOR 1-1/4" STEEL STRAPPING (44 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G". NOTE LOCATION OF JOINT SEALS ON STRAPS (PIECES MARKED ⑩) AROUND THE MIDDLE LOAD UNIT.

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE "INTERIM PROCEDURES" APPLICABLE TO THE OUTLOADING OF PALLETIZED EMPTY 105MM PROJECTILES. THIS DRAWING WILL BE USED UNTIL CANCELLED AND/OR SUPERSEDED BY A USAMC 19-48 SERIES DRAWING.
- C. PALLET UNIT DATA:
DIMENSIONS (APPROX) --- 43-1/4" LONG X 35-3/4" WIDE X 22-3/4" HIGH.
GROSS WEIGHT (APPROX) - 2,360 POUNDS.
- D. THE 58-UNIT LOAD DEPICTED HEREIN IS BASED ON A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOXCAR THAT HAS 10'-0" WIDE THROUGH DOORS OF THE CONVENTIONAL SLIDING TYPE AND HAS A LOAD LIMIT OF NOT LESS THAN 157,000 POUNDS. WHEN SHIPPING A 58-UNIT LOAD, A CAR THAT HAS A LOAD LIMIT LESS THAN 157,000 POUNDS MUST NOT BE USED. HOWEVER, WIDER CARS MAY BE USED, AND CARS WITH ANY TYPE OR WIDTH DOOR CAN BE USED, BUT TO FACILITATE LOADING OPERATIONS CARS THAT HAVE DOOR OPENINGS LESS THAN 10'-0" WIDE SHOULD NOT BE USED. IF A CAR WITH PLUG DOORS IS USED, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF "CAR SEALS", A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED IN ADDITION TO, AND IN CONJUNCTION WITH EACH CAR SEAL USED TO "SEAL" THE CAR. THE WIRE WILL BE THREADED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER. ALSO, ALL-METAL CARS CAN BE USED. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDEWALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING OF THE APPLICABLE DUNNAGE PIECES. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. IF 30d NAILS CANNOT BE DRIVEN PROPERLY, THEN 20d NAILS SHOULD BE USED. NAILS OF A LESSER SIZE ARE NOT ACCEPTABLE.
- E. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE PROPER CONDITION TO SAFELY TRANSPORT THE LADING TO DESTINATION WITHOUT DAMAGE WILL BE SELECTED.
- F. WHEN LOADING THE CAR, THE 2-WIDE PORTIONS OF THE LOAD ARE TO BE CENTERED AS NEAR AS PRACTICAL ON THE WIDTH OF THE CAR. ADDITIONALLY, PALLET UNITS ARE TO BE PLACED INTO A LOAD AS CLOSE TOGETHER AS POSSIBLE THROUGHOUT THE LENGTH OF THE LOAD BAYS TO ACHIEVE A "TIGHT" LOAD.
- G. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. CAUTION: DURING STRAP TENSIONING, EXCEPT FOR PIECE MARKED ⑧, INSURE THAT THE STRAPPING IS DRAWN AS TAUT AS PRACTICAL.
- H. 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 OR 1-5/8" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE OR 1-5/8" THICK BY 5-5/8" WIDE. ALTHOUGH NOMINAL SIZE LUMBER IS SPECIFIED HEREIN, "ROUGH CUT" LUMBER OF EQUAL OR GREATER STRENGTH CAN BE SUBSTITUTED, PROVIDING NAIL SIZES ARE ADJUSTED ACCORDINGLY.
- J. A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES OR WHEN LAMINATING DUNNAGE.
- K. PORTIONS OF THE DEPICTED CAR, SUCH AS A CAR SIDEWALL, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.
- L. NOTICE: IF AUTHORIZED BY THE U. S. ARMY MUNITIONS COMMAND, JOLIET, ILLINOIS, ON A CASE BY CASE BASIS, THE LOADING AND BRACING SPECIFICATIONS OF THIS DRAWING CAN ALSO BE USED FOR SHIPPING OTHER EMPTY PROJECTILES. THESE OTHER PROJECTILES ARE IDENTIFIED WITHIN A TABULAR DATA TABLE IN PA DRAWING 8837835, IN ADDITION TO THE M1 HE PROJECTILE. HOWEVER, THE FOLLOWING CRITERIA WILL APPLY.

(CONTINUED AT UPPER LEFT)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	224	150
2" X 6"	164	164
NAILS	NO. REQD	POUNDS
10d (3")	16	1/4
16d (3-1/2")	556	12-1/4
STEEL STRAPPING, 1-1/4" X .035" -----	888 REQD -----	127 LBS
SEAL FOR 1-1/4" STRAPPING-----	44 REQD -----	2 LBS
STAPLE, 1-3/8" X 3/4"-----	80 REQD -----	3/4 LB

MATERIAL SPECIFICATIONS

- LUMBER-----: SEE TM 743-200-1, 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 THE SAME SIZE.
- STRAPPING, STEEL--: TYPE I OR IV, CLASS A, B, OR C; FED SPEC QQ-S-781.
- STAPLE, STRAP;
SEAL, STRAP-----: COMMERCIAL GRADE.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT -----	58 -----	136,880 LBS
DUNNAGE-----	-----	874 LBS

TOTAL WEIGHT----- 137,754 LBS

SIDE PIECE, 2" X 4" X 45-1/2" (2 REQD).
 NAIL TO THE HORIZONTAL PIECES W/3-16d
 NAILS AT EACH JOINT. CLINCH NAILS.

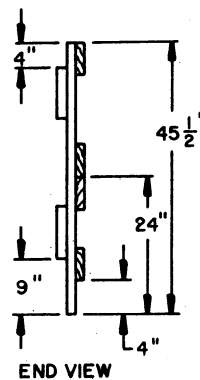
STRAPPING PIECE, 2" X 4" X 41-1/2" (4 REQD). NAIL TO THE
 HORIZONTAL PIECES W/3-16d NAILS AT EACH JOINT.
 CLINCH NAILS.

HORIZONTAL PIECE, 2" X 6" X 72" (4 REQD).

KNOCK-OUT BLOCK, 2" X
 4" X 9" (4 REQD). NAIL TO SIDE
 PIECES W/2-10d NAILS. ONLY REQUIRED
 ON THE INSIDE GATES OF THE TWO (2)
 FLOATING LOAD UNITS THAT ARE ADJACENT
 TO THE CAR END WALLS AS SHOWN IN THE
 ISOMETRIC VIEW ON PAGE 2. KNOCK-OUT
 BLOCKS ARE REQUIRED AS SPECIFIED TO
 FACILITATE UNLOADING AT DESTINATION.
 IF THE FLOATING LOAD UNITS HAVE JAMMED
 TIGHTLY TOGETHER DURING TRANSIT, THE
 FIRST PALLET UNITS CANNOT BE REMOVED
 WITHOUT DAMAGE, UNLESS SPACE IS
 PROVIDED WITHIN THE LOAD. THIS SPACE
 CAN BE GAINED BY HAMMERING OR PRYING
 THE KNOCK-OUT BLOCKS FROM ONE OF THE
 GATES.

SEE "NOTE"
 BELOW.

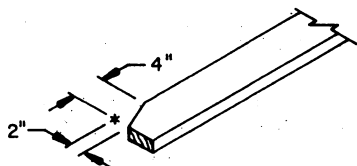
END-OF-LOAD GATE



END VIEW

NOTE:

IF DESIRED, ONE FULL-WIDTH 2" X 8" PIECE MAY BE USED AT THE
 INDICATED LOCATION IN LIEU OF THE TWO 2" X 6" PIECES WHICH
 ARE SHOWN. IF ONE 2" X 8" PIECE IS USED, IT WILL BE CENTERED
 ON THE SPECIFIED 24" HEIGHT DIMENSION.



UPPER SIDE BLOCKING

THE DETAIL ABOVE SPECIFIES A BEVEL
 CUT THAT IS TO BE MADE ON EACH END
 OF EACH PIECE MARKED ⑫.