

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)

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.

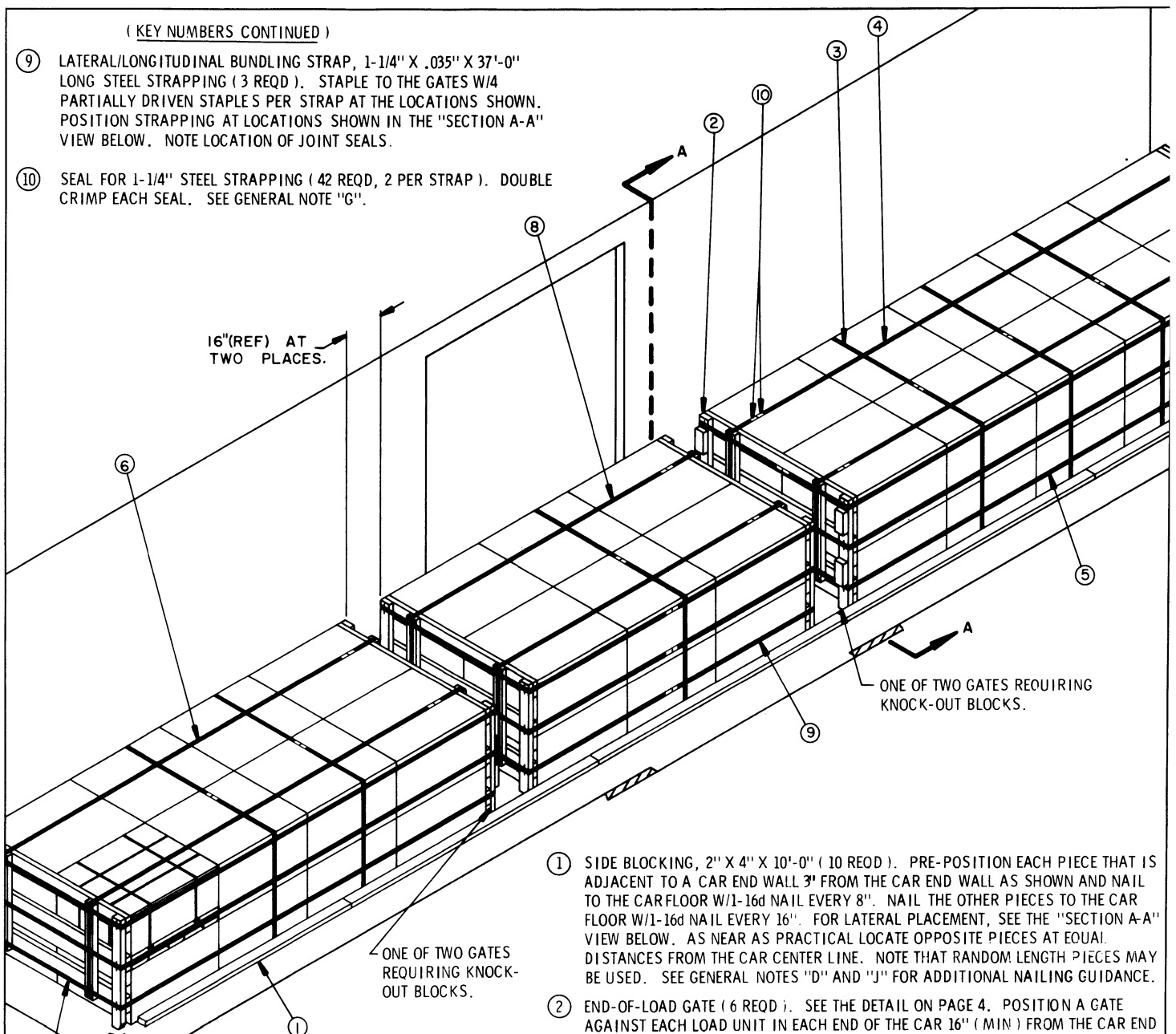
REVISIONS			DRAFTSMAN <i>[Signature]</i>	PROJ ENG DIV <i>[Signature]</i>
			CHECKER <i>[Signature]</i>	LDC ENGRS OFFICE <i>[Signature]</i>
	/		APPROVED <i>[Signature]</i> U. S. ARMY MUNITIONS COMMAND	
	/		APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND <i>[Signature]</i> U.S. ARMY MATERIEL COMMAND	
	/		DATE: MARCH 1973	
	/		AMC AMMO CEN DWG NO	
	/		D-AMXAC-4337	

DO NOT SCALE

PROJECT _____

(KEY NUMBERS CONTINUED)

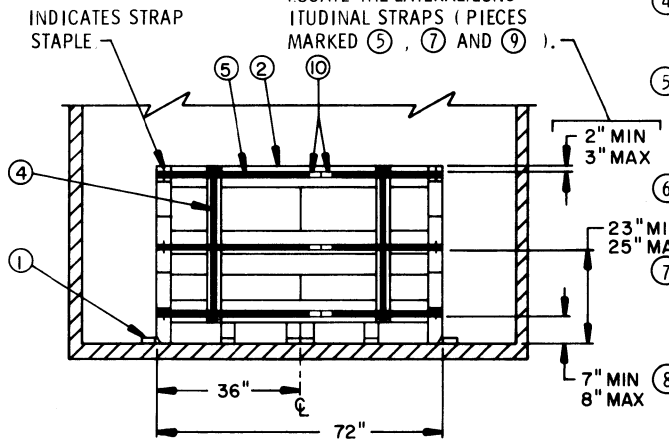
- ⑨ LATERAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 37'-0" LONG STEEL STRAPPING (3 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN. POSITION STRAPPING AT LOCATIONS SHOWN IN THE "SECTION A-A" VIEW BELOW. NOTE LOCATION OF JOINT SEALS.
- ⑩ SEAL FOR 1-1/4" STEEL STRAPPING (42 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G".



- ① SIDE BLOCKING, 2" X 4" X 10'-0" (10 REQD). PRE-POSITION EACH PIECE THAT IS ADJACENT TO A CAR END WALL 3' FROM THE CAR END WALL AS SHOWN AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". NAIL THE OTHER PIECES TO THE CAR FLOOR W/1-16d NAIL EVERY 16". 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 4. POSITION A GATE AGAINST EACH LOAD UNIT IN EACH END OF THE CAR 16" (MIN) FROM THE CAR END WALL AS SHOWN. POSITION THE OTHER GATES AS SHOWN
- ③ BUNDLING STRAP, 1-1/4" X .035" X 20'-6" LONG STEEL STRAPPING (6 REQD). ALTHOUGH IT IS NOT MANDATORY, IT IS SUGGESTED THAT A STRAP BE PRE-POSITIONED PRIOR TO LOADING A STACK SO THAT THE STRAP WILL ENCIRCLE THE STACK AS SHOWN WHEN IT IS TENSIONED AND SEALED. SEAL EACH STRAP JOINT W/2 SEALS PER STRAP. SEE GENERAL NOTE "G" FOR ADDITIONAL GUIDANCE.
- ④ VERTICAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 45'-0" LONG STEEL STRAPPING (2 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN.
- ⑤ LATERAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 51'-6" 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.
- ⑥ VERTICAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 39'-0" LONG STEEL STRAPPING (2 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 43'-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 VERTICAL/LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 31'-6" LONG STEEL STRAPPING (2 REQD). STAPLE TO THE GATES W/4 PARTIALLY DRIVEN STAPLES PER STRAP AT THE LOCATIONS SHOWN.

ISOMETRIC VIEW

INDICATED DIMENSIONS LOCATE THE LATERAL/LONGITUDINAL STRAPS (PIECES MARKED ⑤ , ⑦ AND ⑨).



SECTION A-A

PIECE MARKED ③ OMITTED FOR CLARITY.

(CONTINUED AT UPPER LEFT)

(GENERAL NOTES CONTINUED)

GENERAL NOTES

- 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.
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.

- 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 48-UNIT LOAD DEPICTED HEREIN IS BASED ON A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR THAT HAS 8'-0" WIDE THROUGH DOORS OF THE CONVENTIONAL SLIDING TYPE AND HAS A LOAD LIMIT OF NOT LESS THAN 130,000 POUNDS. WHEN SHIPPING A 48-UNIT LOAD, A CAR THAT HAS A LOAD LIMIT LESS THAN 130,000 POUNDS MUST NOT BE USED. HOWEVER, ANY WIDTH CAR 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 8'-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. 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: EXERCISE CARE DURING TENSIONING OF PIECES MARKED (3) TO PREVENT DAMAGE TO THE PALLET UNITS. DURING STRAP TENSIONING OF PIECES MARKED (4) THROUGH (9), ENSURE 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.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	192	128
2" X 6"	144	144
NAILS	NO. REQD	POUNDS
10d (3")	16	1/4
16d (3-1/2")	400	8-3/4
STEEL STRAPPING, 1-1/4" X .035" --- 749' REQD --- 107 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 42 REQD --- 2 LBS		
STAPLE, 1-3/8" X 3/4" ----- 60 REQD --- 1/2 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.

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LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	48	113,280 LBS
DUNNAGE		799 LBS
TOTAL WEIGHT		114,079 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.

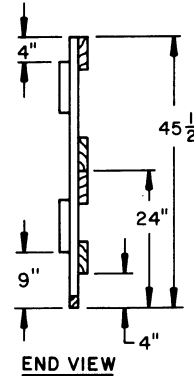
STRAPPING PIECE, 2" X 4" X 41-1/2" (2 REQD).
 NAIL TO THE HORIZONTAL PIECES W/3-16d NAILS
 AT EACH JOINT. CLINCH NAILS.

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

SEE "NOTE" BELOW.

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 PRO-
 VIDED WITHIN THE LOAD. THIS SPACE CAN BE
 GAINED BY HAMMERING OR PRYING THE KNOCK-
 OUT BLOCKS FROM ONE OF THE GATES.

END-OF-LOAD GATE



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.