APPROVED BY
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DATE 4/25/83

LOADING AND BRACING (CL) IN BOX CARS OF BULK EXPLOSIVES PACKED IN 50-POUND FIBERBOARD BOXES

INDEX

THIS DRAWING SUPERSEDES INTERIM PROCEDURAL DRAWING: D-AMXAC-4339, DATED JULY 1973.

DO NOT SCALE

REVISIONS			

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U.S. ARMY AMC DRAWING
JUNE 1986

CLASS	DIVISION	DRAWING	FILE
19	48	4202	5A1005

PROJECT FSA 133-73

GENERAL NOTES

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13 AND AUGMENTS TM 743-200-1 (CHAPTER 5).

B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THE OUTLOADING IN BOX CARS OF BULK EXPLOSIVES PACKED IN 50-POUND FIBERBOARD BOXES. THIS DRAWING SUPERSEDES INTERIM PROCEDURAL DRAWING D-AMXAC-4339, DATED JULY 1973.

C. BOX DATA:
DIMENSIONS (APPROX) ---------- 18" LONG X 15-1/2" WIDE X 7-1/2" HIGH
GROSS, WEIGHT---------- 54 TO 64 POUNDS (APPROX)
CUBE---------- 1.2 CUBIC FEET

D. THE LOADS DEPICTED HEREIN ARE BASED ON 50'-6" LONG BY 9'-2" AND 9'-4" WIDE BOX CARS THAT HAVE 8'-0" WIDE DOORS OF THE CONVENTIONAL SLIDING TYPE. SEE GENERAL NOTES "Q" AND "R".

E. THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE TO CARS WHICH ARE EQUIPPED WITH PLUG TYPE DOORS. HOWEVER, IF CARS WITH PLUG DOORS ARE USED, "DOORWAY PROTECTION", AS SPECIFIED IN THE "PROVISION FOR PLUG TYPE DOORS" PROCEDURES DEPICTED ON PAGES 8 AND 9, MUST BE USED IN THE "DOORWAY AREA" OF THE CAR, INSTEAD OF THE DOORWAY PROTECTION DUNNAGE SPECIFIED FOR THE TWO BASIC LOADS SHOWN. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN, EXCEPT TO A NAILING STRIP, IF A DOOR IS SO EQUIPPED, FOR SECURING SUCH ITEMS AS DOORWAY SPANNER DUNNAGE. ALSO, AFTER THE PLUG DOORS 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.

F. THE SELECTION OF RAIL CARS FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE CARRIER AND SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE OTHERWISE IN PROPER CONDITION TO SAFELY TRANSPORT THE LADING TO DESTINATION WITHOUT DAMAGE WILL BE SELECTED.

G. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE, FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE AND 2" X 4" IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.

H. PORTIONS OF THE DEPICTED CARS, SUCH AS A CAR SIDEWALL, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.

J. A "LOAD CHART" HAS BEEN FURNISHED ON PAGE 5 TO AID IN LOAD PLANNING. BOX WEIGHTS OF 54, 59, AND 64 POUNDS HAVE BEEN SHOWN IN A SEVEN THROUGH TWELVE-BOX HIGH CONFIGURATION. CAUTION: 54-POUND BOXES WILL NOT BE STACKED HIGHER THAN TWELVE BOXES HIGH. FIFTY-NINE AND 64-POUND BOXES WILL NOT BE STACKED HIGHER THAN 11 AND 10 BOXES HIGH, RESPECTIVELY.

K. ALL LOADS OF FIBERBOARD BOXES SHOULD CONTAIN FULL LAYERS THROUGHOUT THE LENGTH AND WIDTH OF THE LOAD. THE "LOAD CHART" SHOWN ON PAGE 5 IS BASED ON LEVEL LOADS, HOWEVER, IF IT IS NOT PRACTICAL TO SHIP A LEVEL LOAD, SEE THE "RISER ASSEMBLY" AND "APPLICATION OF RISER ASSEMBLY" DETAILS ON PAGES 5 AND 7.

L. WHEN TWO OR MORE LOTS MUST BE LOADED INTO THE SAME CAR, A DIVIDER MUST BE PROVIDED TO CLEARLY DEFINE SEPARATION BETWEEN LOTS. KRAFT PAPER MAY BE USED BETWEEN LOTS TO FACILITATE LOT IDENTIFICATION DURING UNLOADING OPERATIONS.

M. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT AS SHOWN, ONE (1) SEAL WITH TWO (2) PAIR OF CRIMPS MUST BE USED TO SEAL THE JOINT.

N. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

O. CAUTION: THE TOTAL WEIGHT OF A LOAD IN A CAR MUST NOT EXCEED THE LOAD LIMIT WHICH IS STENCILED ON THE SIDE OF THE CAR. ALSO, THE LOAD WEIGHT ON ONE TRUCK MUST NOT EXCEED ONE-HALF OF THE LOAD LIMIT OF THE CAR.

P. SEE USAMC DRAWING NUMBER 19-48-4016-5M1001 FOR SPECIFIC GUIDANCE THAT MUST BE USED WHEN SHIPPING LESS THAN CARLOAD (LCL) SHIPMENTS.

(GENERAL NOTES CONTINUED AT UPPER RIGHT)

MATERIAL SPECIFICATIONS

LUMBER---------- : TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.

PLYWOOD---------- : FED SPEC NN-P-530; GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.

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.

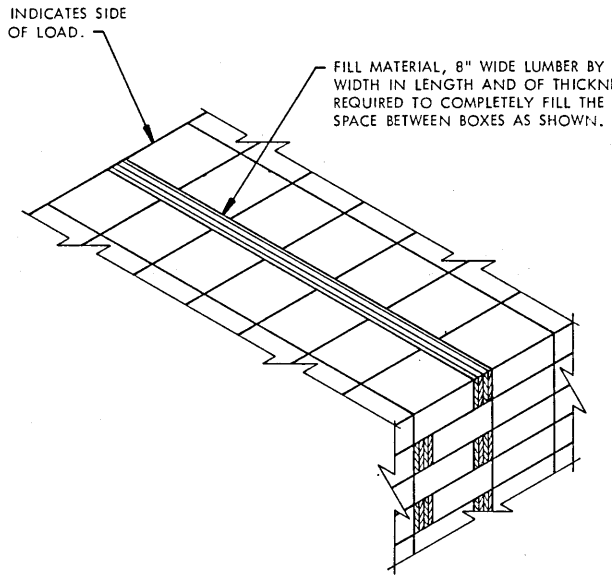
ANTI-CHAFING MATERIAL ---------- : FED SPEC PPP-F-320.

(GENERAL NOTES CONTINUED)

Q. CARS WHICH ARE A FEW INCHES LONGER OR SHORTER THAN 50'-6" MAY ALSO BE USED TO SHIP THE CARLOADS SPECIFIED WITHIN THIS DRAWING. ALSO, 40-FOOT BOXCARS CAN BE USED, PROVIDING THE LOADING AND BRACING SPECIFICATIONS SET FORTH FOR THE 50-FOOT CARS ARE APPLIED AND PROVIDED THE MAXIMUM LOAD HEIGHT AND OTHER CRITERIA CONTAINED HEREIN ARE SATISFIED.

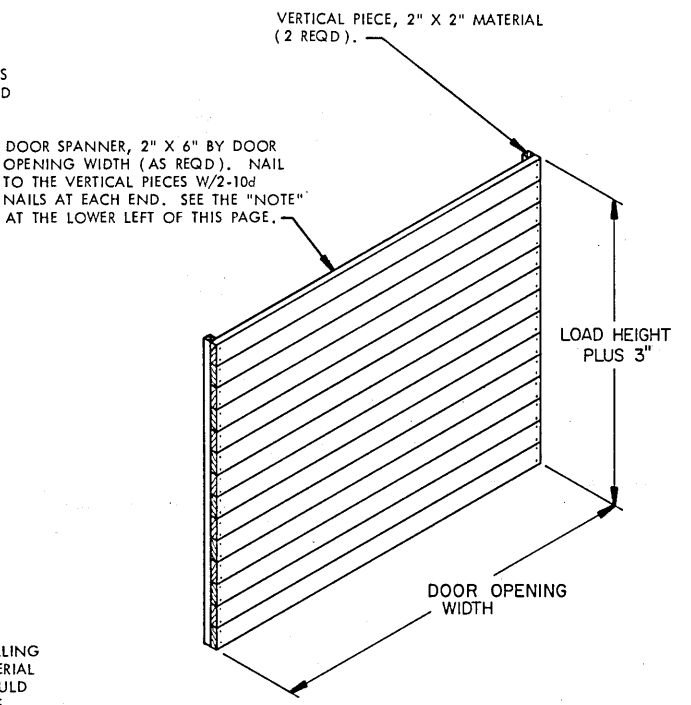
R. ALTHOUGH IT IS RECOMMENDED THAT CARS WHICH HAVE NARROW-WIDTH DOORS BE USED, CARS WITH DOORS WIDER THAN THOSE SHOWN IN THIS DRAWING CAN BE USED. ALSO, CARS WITH DIFFERENT STYLE DOORS, SUCH AS "PLUG" OR "STAGGERED" OR "COMBINATION SLIDING AND PLUG", CAN BE USED.

S. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENT MAY BE COMPUTED ON THE BASIS OF 1 INCH EQUALS 25.4 MM AND 1 POUND EQUALS 0.454 KG.



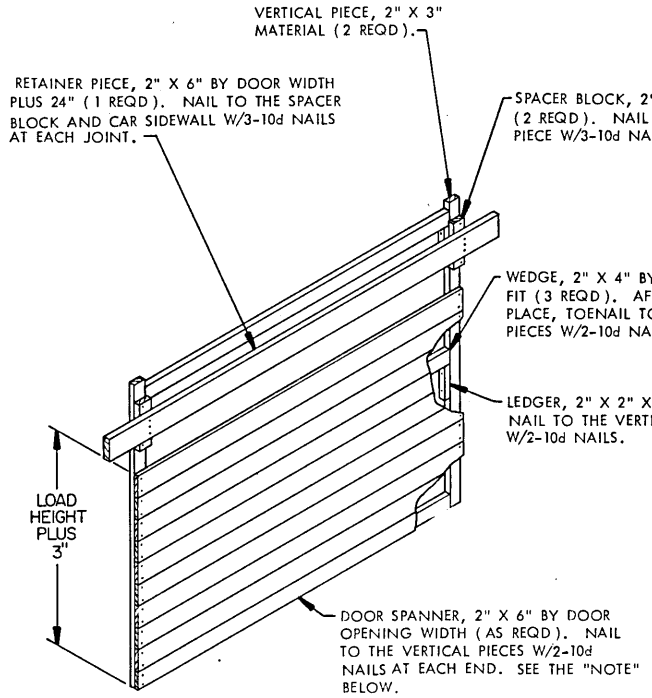
FILL DETAIL

THE DETAIL SHOWN ABOVE DEPICTS THE METHOD OF INSTALLING FILL MATERIAL IN EACH LAYER REQUIRING FILL. FILL MATERIAL MUST BE INSTALLED ALTERNATELY IN EACH LAYER AND SHOULD BE USED NEAR THE CENTER OF THE LOAD. FILL MATERIAL IS REQUIRED TO FILL ANY LONGITUDINAL VOID WITHIN THE LAYERS OF A LOAD.



DOORWAY PROTECTION

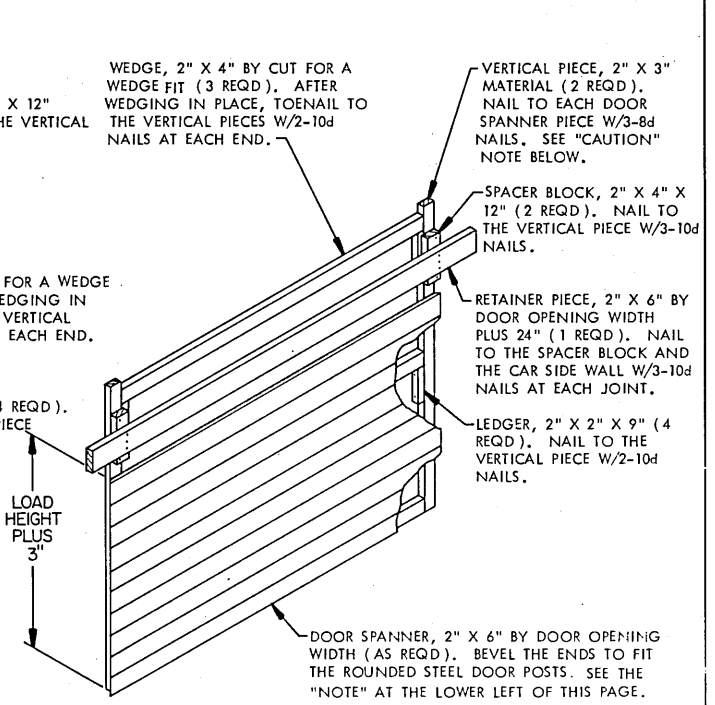
DOORWAY PROTECTION TO BE USED WHEN DOOR POSTS ARE WOOD OR NAILABLE METAL.



ALTERNATIVE DOORWAY PROTECTION A

DOORWAY PROTECTION TO BE USED WHEN DOOR POSTS ARE NOT NAILABLE.

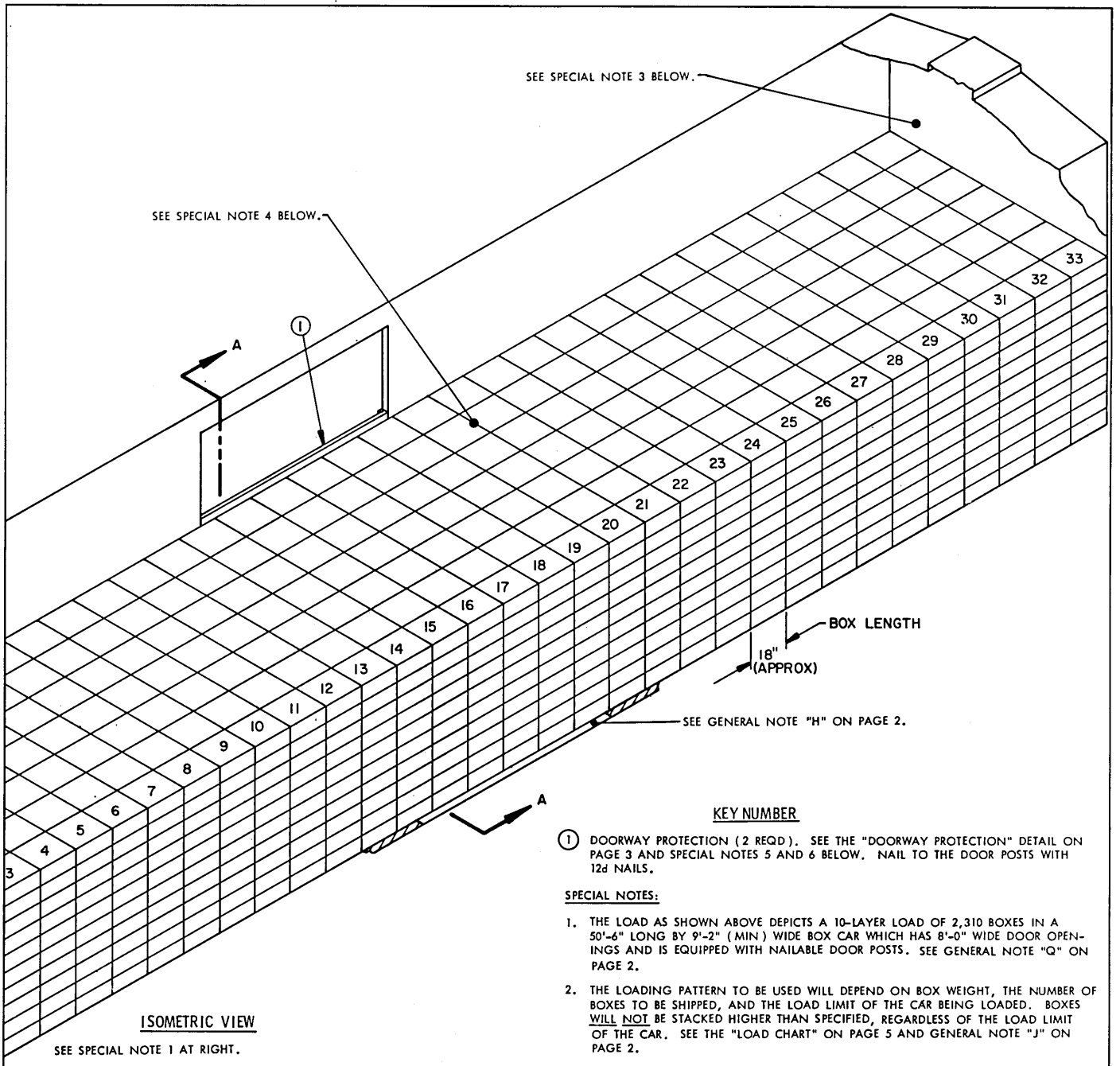
NOTE: ALTHOUGH 6" WIDE PIECES HAVE BEEN SPECIFIED FOR THE "DOOR SPANNER" PIECES, PIECES OF ANY WIDTH AND COMBINATIONS OF DIFFERENT WIDTHS CAN BE SUBSTITUTED, IF DESIRED, WHEN FABRICATING A "DOORWAY PROTECTION" GATE ASSEMBLY, PROVIDING THE PIECES USED ARE OF THE SPECIFIED THICKNESS (2") AND PROVIDING PIECES LESS THAN 3" WIDE ARE NOT USED.



ALTERNATIVE DOORWAY PROTECTION B

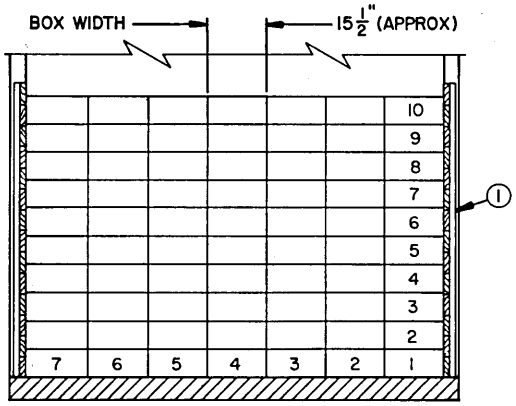
DOORWAY PROTECTION TO BE USED WHEN DOOR POSTS ARE ROUNDED STEEL, WITHOUT NAIL HOLES.

CAUTION: WHEN DRIVING THE NAILS THROUGH THE VERTICAL PIECE INTO THE DOOR SPANNERS, EXERCISE CARE SO AS TO NOT DRIVE A NAIL INTO THE LADING.



ISOMETRIC VIEW

SEE SPECIAL NOTE 1 AT RIGHT.



SECTION A-A

SEE SPECIAL NOTE 2 AT RIGHT.

KEY NUMBER

(1) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION" DETAIL ON PAGE 3 AND SPECIAL NOTES 5 AND 6 BELOW. NAIL TO THE DOOR POSTS WITH 12d NAILS.

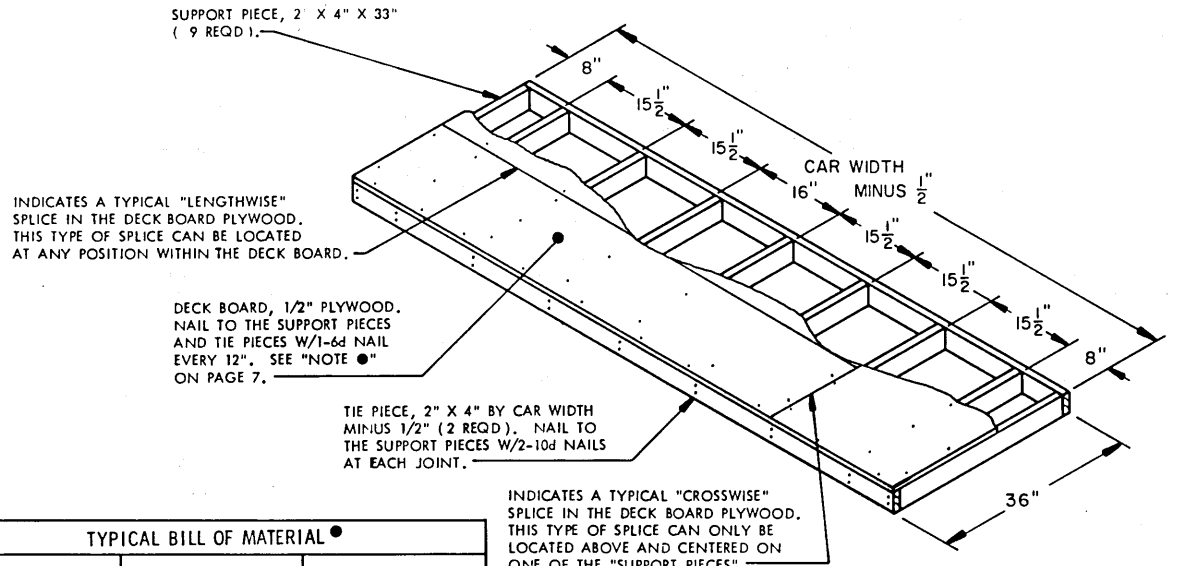
SPECIAL NOTES:

1. THE LOAD AS SHOWN ABOVE DEPICTS A 10-LAYER LOAD OF 2,310 BOXES IN A 50'-6" LONG BY 9'-2" (MIN) WIDE BOX CAR WHICH HAS 8'-0" WIDE DOOR OPENINGS AND IS EQUIPPED WITH NAILABLE DOOR POSTS. SEE GENERAL NOTE "Q" ON PAGE 2.
2. THE LOADING PATTERN TO BE USED WILL DEPEND ON BOX WEIGHT, THE NUMBER OF BOXES TO BE SHIPPED, AND THE LOAD LIMIT OF THE CAR BEING LOADED. BOXES WILL NOT BE STACKED HIGHER THAN SPECIFIED, REGARDLESS OF THE LOAD LIMIT OF THE CAR. SEE THE "LOAD CHART" ON PAGE 5 AND GENERAL NOTE "J" ON PAGE 2.
3. IF THE BOX CAR TO BE OUTLOADED HAS BOWED END WALLS, SEE THE "BULKHEAD FOR CARS WITH BOWED END WALLS" DETAIL ON PAGE 10, WHICH MUST BE USED. IF THIS ASSEMBLY IS USED AT ONE OR BOTH ENDS OF THE CAR, IT MAY NOT BE POSSIBLE TO LOAD A 33-BOX LONG LOAD IN A 50'-6" LONG BOX CAR.
4. AFTER THE LOADING OF EACH LAYER IS COMPLETED, A FIELD CHECK OF EACH LAYER MUST BE MADE AND ANY LONGITUDINAL VOIDS IN THAT LAYER MUST BE FILLED WITH DUNNAGE LUMBER. SEE THE "FILL DETAIL" DEPICTED ON PAGE 3 FOR SPECIFIC GUIDANCE WHICH MUST BE USED.
5. IF THE CAR HAS DOORPOSTS WHICH ARE NOT NAILABLE, SEE THE "ALTERNATIVE DOORWAY PROTECTION" DETAILS DEPICTED ON PAGE 3 FOR ADDITIONAL GUIDANCE WHICH MUST BE USED.
6. IF THE CAR HAS PLUG TYPE DOORS, SEE "DOORWAY PROTECTION FOR CARS EQUIPPED WITH PLUG TYPE DOORS" DETAILS ON PAGES 8 AND 9 FOR GUIDANCE WHICH MUST BE USED.
7. TO SATISFY THE NUMBER OF BOXES TO BE OUTLOADED, THE LOAD MAY BE INCREASED OR DECREASED BY MULTIPLES OF SEVEN (7) BOXES WITH THE INSTALLATION OF A RISER ASSEMBLY. SEE THE "RISER ASSEMBLY A" DETAIL ON PAGE 5. CAUTION: BOXES WILL NOT BE LOADED ON THEIR SIDES OR ENDS AS A MEANS FOR RETAINING A PARTIAL LAYER OR FOR ANY OTHER PURPOSE. BOXES WILL ONLY BE LOADED AS SHOWN WITH THE BOTTOM OF THE BOXES DOWN.

LOADING PATTERN A (9'-2" WIDE CAR)

LOAD CHART (50'-6" LONG CAR)					
CAR WIDTH	NO. OF LAYERS	NO. OF BOXES	TOTAL LADING WEIGHT ✳		
			54 LB BOX	59 LB BOX	64 LB BOX
9'-2" LOADING PATTERN A (DEPICTED ON PAGE 4) 231 BOXES/LAYER	7	1,617	87,318 LBS	95,403 LBS	103,488 LBS
	8	1,848	99,792 LBS	109,032 LBS	118,272 LBS
	9	2,079	112,266 LBS	122,661 LBS	133,056 LBS
	10	2,310	124,740 LBS	136,290 LBS	147,840 LBS
	11	2,541	137,214 LBS	149,919 LBS	
	12	2,772	149,688 LBS		
9'-4" LOADING PATTERN B (DEPICTED ON PAGE 6) 234 BOXES/LAYER	7	1,638	88,452 LBS	96,642 LBS	104,832 LBS
	8	1,872	101,088 LBS	110,448 LBS	119,808 LBS
	9	2,106	113,724 LBS	124,254 LBS	134,784 LBS
	10	2,340	126,360 LBS	138,060 LBS	149,760 LBS
	11	2,574	138,996 LBS	151,866 LBS	
	12	2,808	151,632 LBS		

✳ THIS WEIGHT DOES NOT INCLUDE DUNNAGE WEIGHT. SEE "BILL OF MATERIAL" BELOW FOR THE DUNNAGE WEIGHT. ALSO, THIS CHART IS BASED ON LEVEL LOADS THROUGHOUT THE LENGTH OF THE CAR. SEE GENERAL NOTE "K" ON PAGE 2.



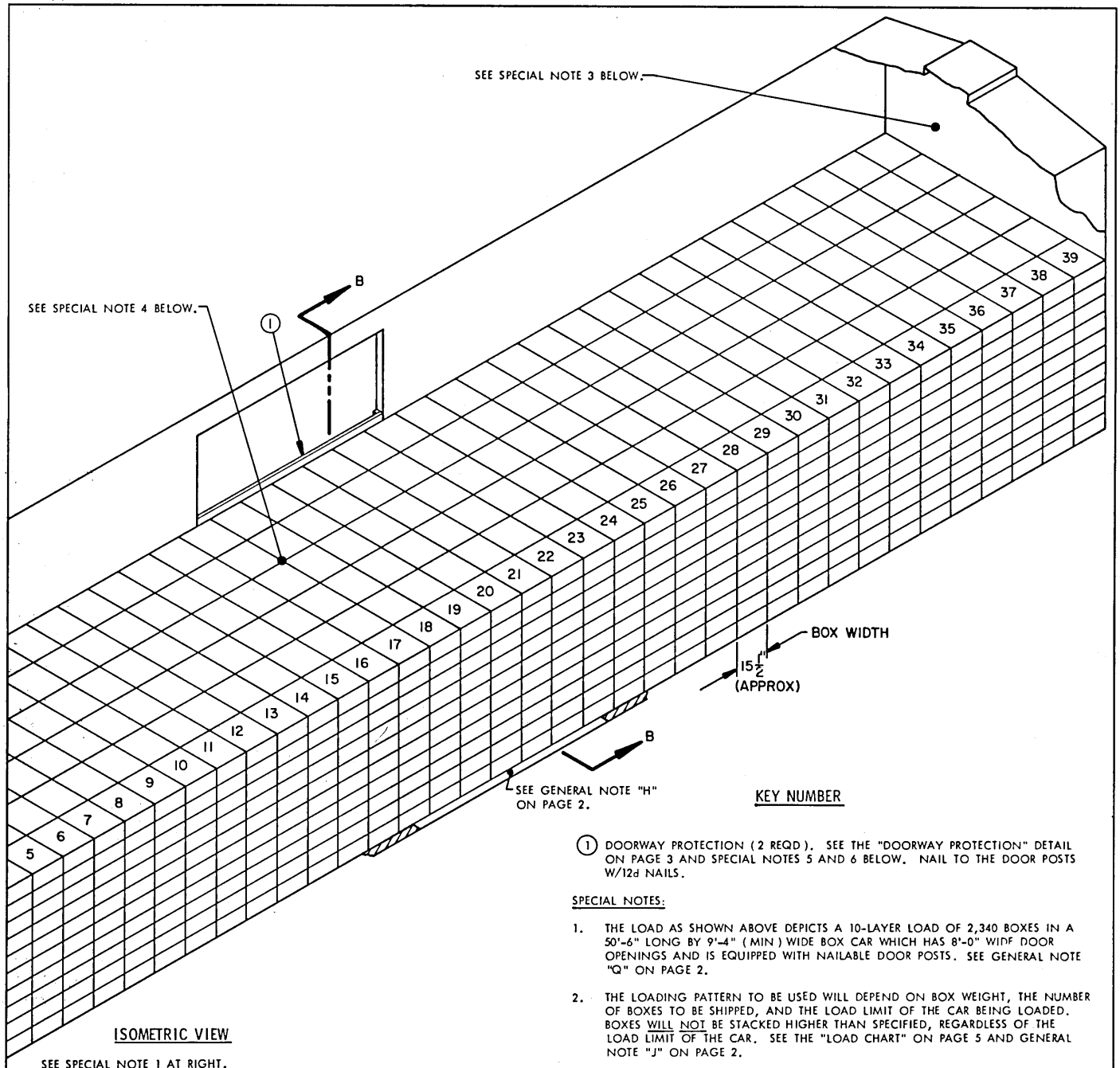
TYPICAL BILL OF MATERIAL ●		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	26	9
2" X 6"	224	224
NAILS	NO. REQD	POUNDS
10d (3")	112	2
12d (3-1/4")	40	3/4

● DUNNAGE WEIGHT - 586 POUNDS (APPROX). THIS WEIGHT IS CALCULATED FOR TWO (2) DOORWAY PROTECTION ASSEMBLIES, AND DOES NOT INCLUDE WEIGHT FOR ANY FILL MATERIAL OR BULKHEADS FOR BOX CARS WHICH HAVE BOWED END WALLS. THE "TYPICAL BILL OF MATERIAL" IS APPLICABLE TO THE LOAD DEPICTED ON PAGE 4 AND TO THE LOAD DEPICTED ON PAGE 6. NOTE THAT THE MATERIAL IS BASED ON CARS THAT HAVE EIGHT-FOOT WIDE DOORS.

RISER ASSEMBLY A

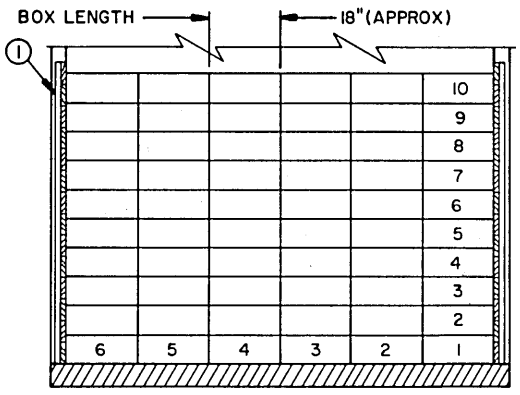
SEE "INSTALLATION OF RISER ASSEMBLY" DETAIL ON PAGE 7. THE ASSEMBLY SHOWN ABOVE IS DESIGNED TO RAISE TWO (2) STACKS. THIS IS THE MINIMUM NUMBER OF STACKS PERMITTED WHEN APPLYING A RISER IN A LOAD THAT IS LOADED IN ACCORDANCE WITH THE LOADING PATTERN SPECIFIED FOR THE LOAD DEPICTED ON PAGE 4.

LOADING PATTERN A (9'-2" WIDE CAR)



ISOMETRIC VIEW

SEE SPECIAL NOTE 1 AT RIGHT.



SECTION B-B

KEY NUMBER

(1) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION" DETAIL ON PAGE 3 AND SPECIAL NOTES 5 AND 6 BELOW. NAIL TO THE DOOR POSTS W/12d NAILS.

SPECIAL NOTES:

1. THE LOAD AS SHOWN ABOVE DEPICTS A 10-LAYER LOAD OF 2,340 BOXES IN A 50'-6" LONG BY 9'-4" (MIN) WIDE BOX CAR WHICH HAS 8'-0" WIDE DOOR OPENINGS AND IS EQUIPPED WITH NAILABLE DOOR POSTS. SEE GENERAL NOTE "Q" ON PAGE 2.

2. THE LOADING PATTERN TO BE USED WILL DEPEND ON BOX WEIGHT, THE NUMBER OF BOXES TO BE SHIPPED, AND THE LOAD LIMIT OF THE CAR BEING LOADED. BOXES WILL NOT BE STACKED HIGHER THAN SPECIFIED, REGARDLESS OF THE LOAD LIMIT OF THE CAR. SEE THE "LOAD CHART" ON PAGE 5 AND GENERAL NOTE "J" ON PAGE 2.

3. IF THE BOX CAR TO BE OUTLOADED HAS BOWED END WALLS, SEE THE "BULKHEAD FOR CARS WITH BOWED END WALLS" DETAIL ON PAGE 10, WHICH MUST BE USED. IF THIS ASSEMBLY IS USED AT ONE OR BOTH ENDS OF THE CAR, IT MAY NOT BE POSSIBLE TO LOAD A 39-BOX LONG LOAD IN A 50'-6" LONG BOX CAR.

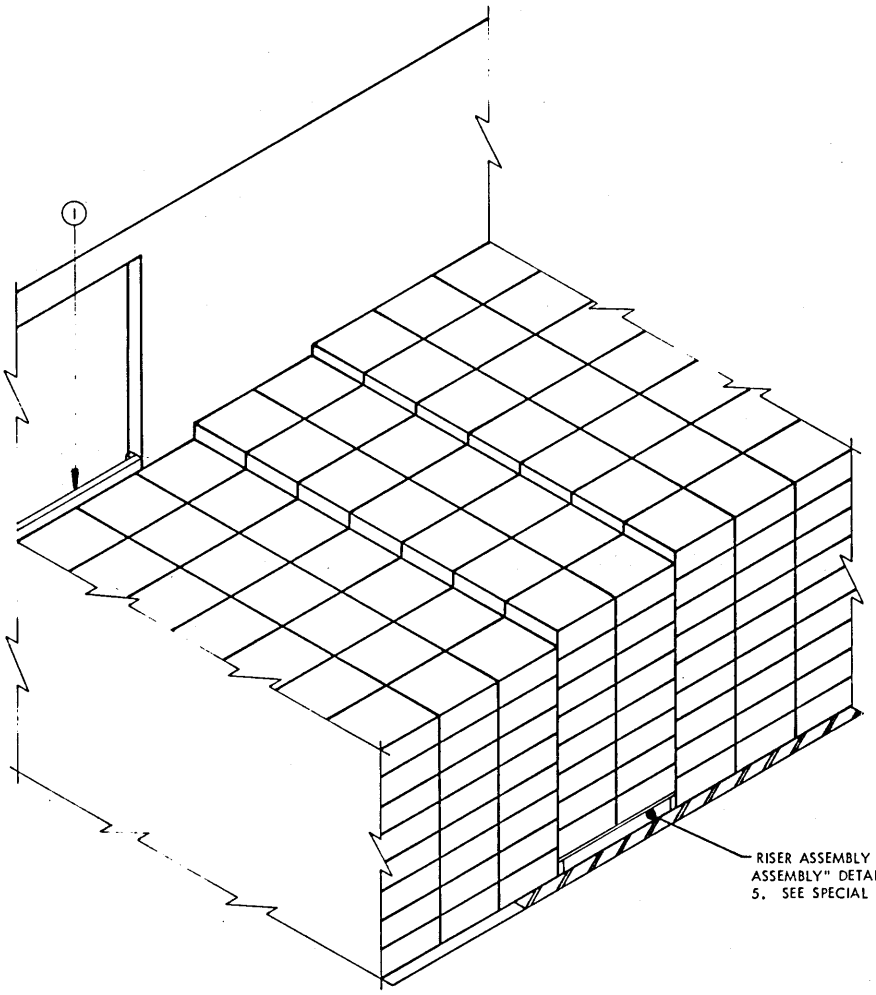
4. AFTER THE LOADING OF EACH LAYER IS COMPLETED, A FIELD CHECK OF EACH LAYER MUST BE MADE AND ANY LONGITUDINAL VOIDS IN THAT LAYER MUST BE FILLED WITH DUNNAGE LUMBER. SEE THE "FILL DETAIL" DEPICTED ON PAGE 3 FOR SPECIFIC GUIDANCE WHICH MUST BE USED.

5. IF THE CAR HAS DOOR POSTS WHICH ARE NOT NAILABLE, SEE THE "ALTERNATIVE DOORWAY PROTECTION" DETAILS DEPICTED ON PAGE 3 FOR ADDITIONAL GUIDANCE WHICH MUST BE USED.

6. IF THE CAR HAS PLUG TYPE DOORS, SEE "DOORWAY PROTECTION FOR CARS EQUIPPED WITH PLUG TYPE DOORS" DETAILS ON PAGES 8 AND 9 FOR GUIDANCE WHICH MUST BE USED.

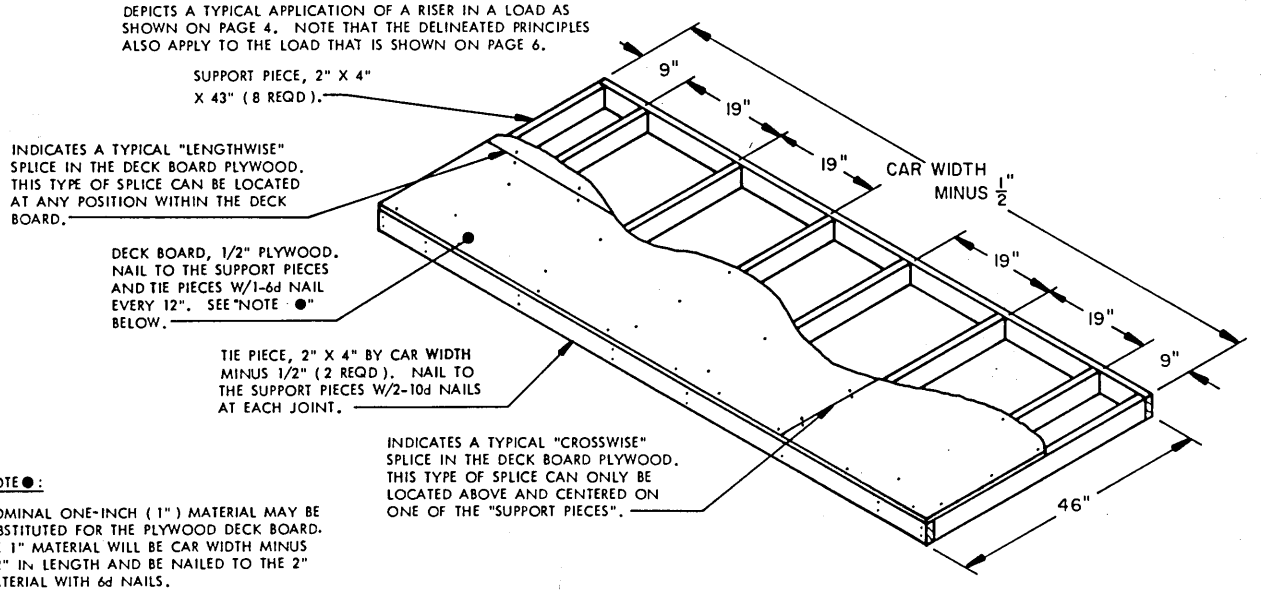
7. TO SATISFY THE NUMBER OF BOXES TO BE OUTLOADED, THE LOAD MAY BE INCREASED OR DECREASED BY MULTIPLES OF SIX (6) BOXES WITH THE INSTALLATION OF A RISER ASSEMBLY. SEE "RISER ASSEMBLY B" DETAIL ON PAGE 7. CAUTION: BOXES WILL NOT BE LOADED ON THEIR SIDES OR ENDS AS A MEANS FOR RETAINING A PARTIAL LAYER OR FOR ANY OTHER PURPOSE. BOXES WILL ONLY BE LOADED AS SHOWN WITH THE BOTTOM OF THE BOXES DOWN.

LOADING PATTERN B (9'-4" WIDE CAR)



INSTALLATION OF RISER ASSEMBLY

SEE SPECIAL NOTE 7 ON PAGES 4 AND 6. THE DETAIL ABOVE DEPICTS A TYPICAL APPLICATION OF A RISER IN A LOAD AS SHOWN ON PAGE 4. NOTE THAT THE DELINEATED PRINCIPLES ALSO APPLY TO THE LOAD THAT IS SHOWN ON PAGE 6.



NOTE ●:

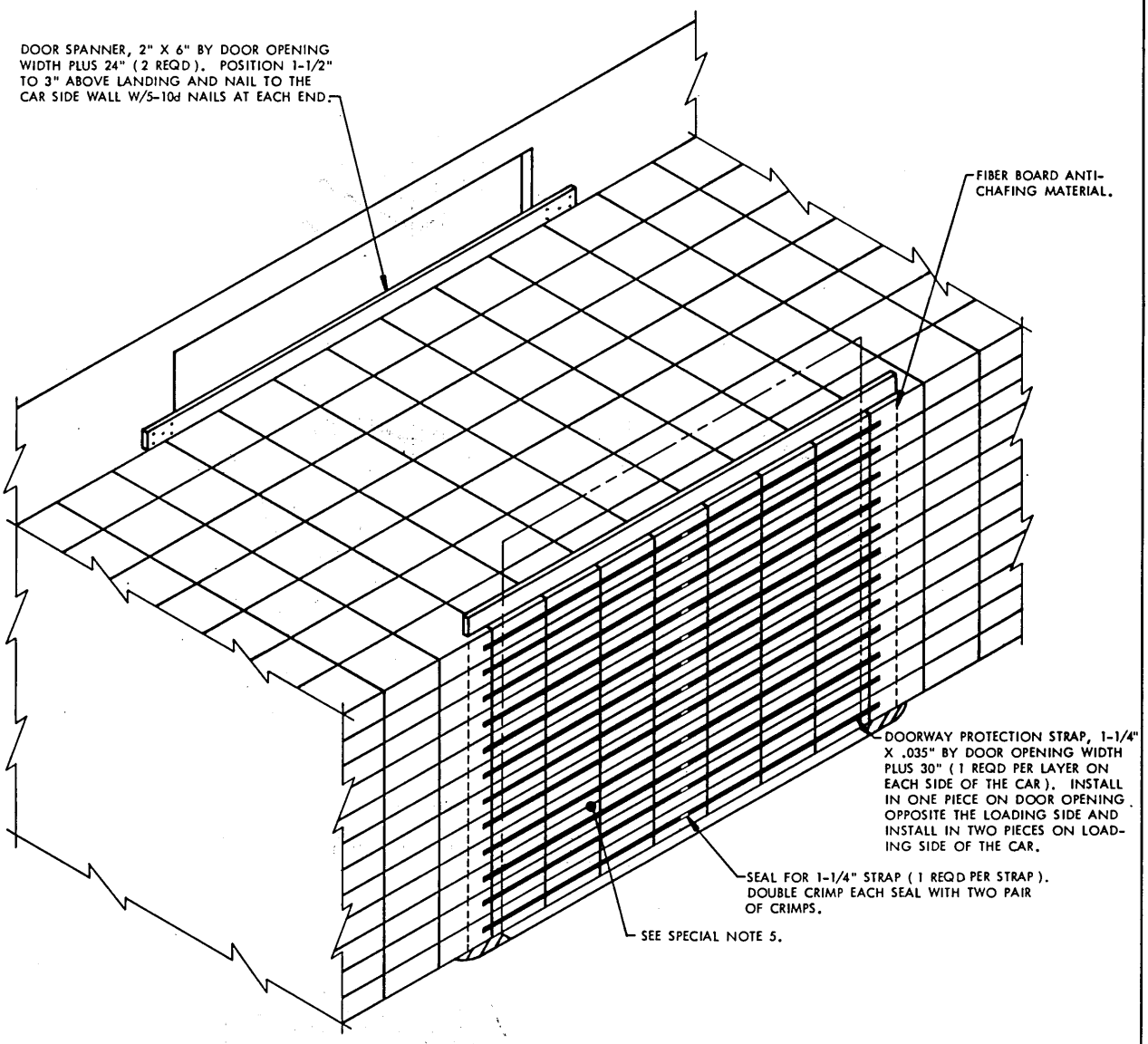
NOMINAL ONE-INCH (1") MATERIAL MAY BE SUBSTITUTED FOR THE PLYWOOD DECK BOARD. THE 1" MATERIAL WILL BE CAR WIDTH MINUS 1/2" IN LENGTH AND BE NAILED TO THE 2" MATERIAL WITH 6d NAILS.

NOTE ⊛:

THE RISER ASSEMBLY SHOWN ON THIS PAGE IS DESIGNED TO RAISE THREE (3) STACKS. THIS IS THE MINIMUM NUMBER OF STACKS PERMITTED WHEN APPLYING A RISER IN A LOAD THAT IS LOADED IN ACCORDANCE WITH THE LOADING PATTERN SPECIFIED FOR THE LOAD DEPICTED ON PAGE 6.

RISER ASSEMBLY B

SEE "INSTALLATION OF RISER ASSEMBLY" DETAIL ABOVE. ALSO, SEE "NOTE ⊛" AT THE LEFT.



DOORWAY PROTECTION FOR CARS EQUIPPED WITH PLUG TYPE DOORS

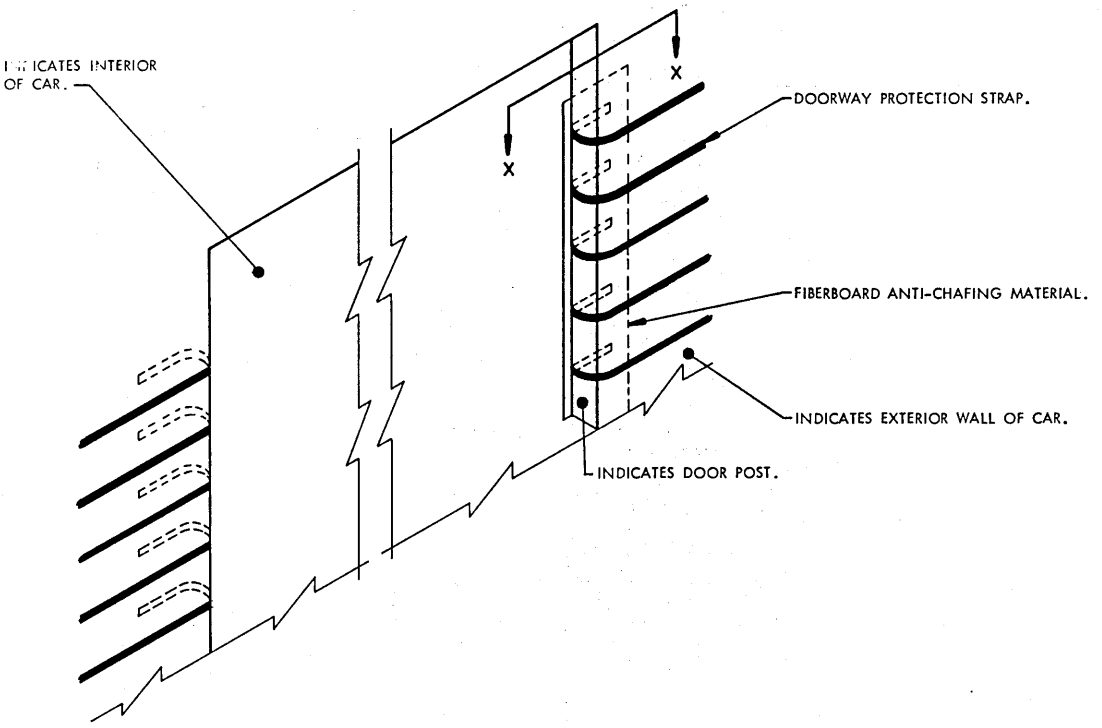
SEE "DOORWAY PROTECTION STRAP INSTALLATION" DETAIL ON PAGE 9.

SPECIAL NOTES:

1. THE ISOMETRIC VIEW ABOVE DEPICTS THE PROCEDURES THAT MUST BE USED WHEN OUTLOADING CARS EQUIPPED WITH PLUG TYPE DOORS. ONE STRAP WILL BE INSTALLED FOR EACH LAYER OF FIBERBOARD BOXES ON EACH SIDE OF THE CAR. SEE SPECIAL NOTE 2.
2. WHEN A CAR EQUIPPED WITH A COMBINATION OF CONVENTIONAL SLIDING DOORS AND PLUG TYPE DOORS, A COMBINATION OF TWO TYPES OF DOORWAY PROTECTION MUST BE USED. SEE "DOORWAY PROTECTION" DETAILS ON PAGE 3 FOR CONVENTIONAL SLIDING TYPE DOORS AND DETAIL ABOVE FOR PLUG TYPE DOORS. SEE GENERAL NOTE "E" ON PAGE 2 AND SPECIAL NOTE 4 BELOW.
3. THE DOORWAY PROTECTION STRAP OPPOSITE THE LOADING SIDE OF THE CAR MAY BE INSTALLED PRIOR TO LOADING OPERATIONS. THE STRAPS ON THE LOADING SIDE MUST BE NAILED PRIOR TO LOADING BOXES IN THE DOORWAY AREA, AND PLACED TO THE EXTERIOR OF THE CAR TO FACILITATE LOADING OPERATIONS. AFTER LOADING OPERATIONS ARE COMPLETED, THESE STRAPS MUST BE TENSIONED AND SEALED WITH ONE SEAL. SEE GENERAL NOTE "M" ON PAGE 2. IF NAIL-ON STRAPPING IS NOT AVAILABLE, NAILLESS STRAPPING MAY BE USED. IF NAILLESS STRAPPING IS USED, NAIL HOLES MUST BE DRILLED OR PUNCHED FOR SECURING THE STRAPPING TO THE DOOR POST.
4. CAUTION: WHEN LOADING A CAR EQUIPPED WITH A COMBINATION OF SLIDING DOORS AND PLUG TYPE DOORS, THE DOORWAY PROTECTION STRAP MUST SPAN BOTH, THE SLIDING DOOR AND THE PLUG TYPE DOOR. THEN, THE CONVENTIONAL DOORWAY PROTECTION WILL BE INSTALLED IN THE CONVENTIONAL DOORWAY OPENING IN CONJUNCTION WITH THE STRAPPING.

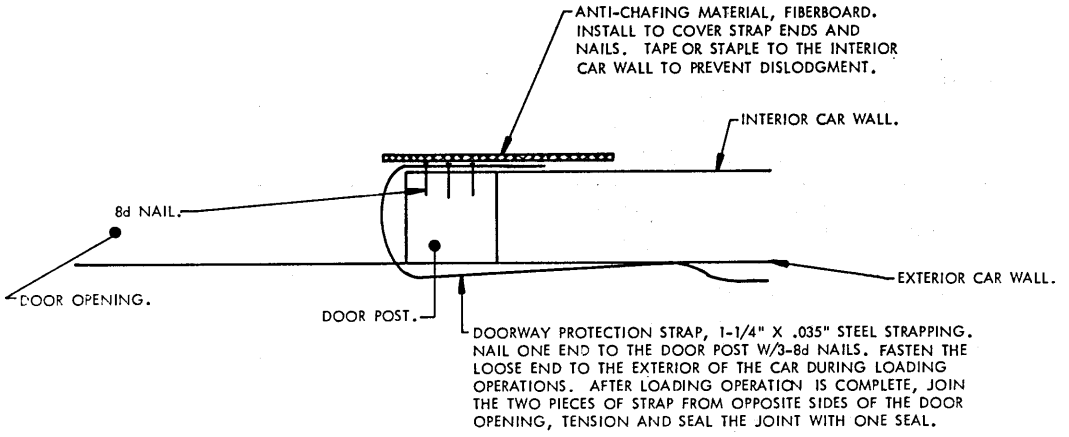
(SPECIAL NOTES CONTINUED)

5. ALTHOUGH NOT SHOWN IN THE DETAIL ABOVE FOR CLARITY PURPOSES, ANTI-CHAFING MATERIAL, SUCH AS SHEETS OF FIBERBOARD, MUST BE USED BETWEEN THE STEEL STRAPPING AND THE BOXES CONTAINING EXPLOSIVE. ONE ACCEPTABLE METHOD FOR PROVIDING ANTI-CHAFING IS TO DRAPE PIECES OF FIBERBOARD FROM SCRAPPED BOXES OVER THE STRAPPING.

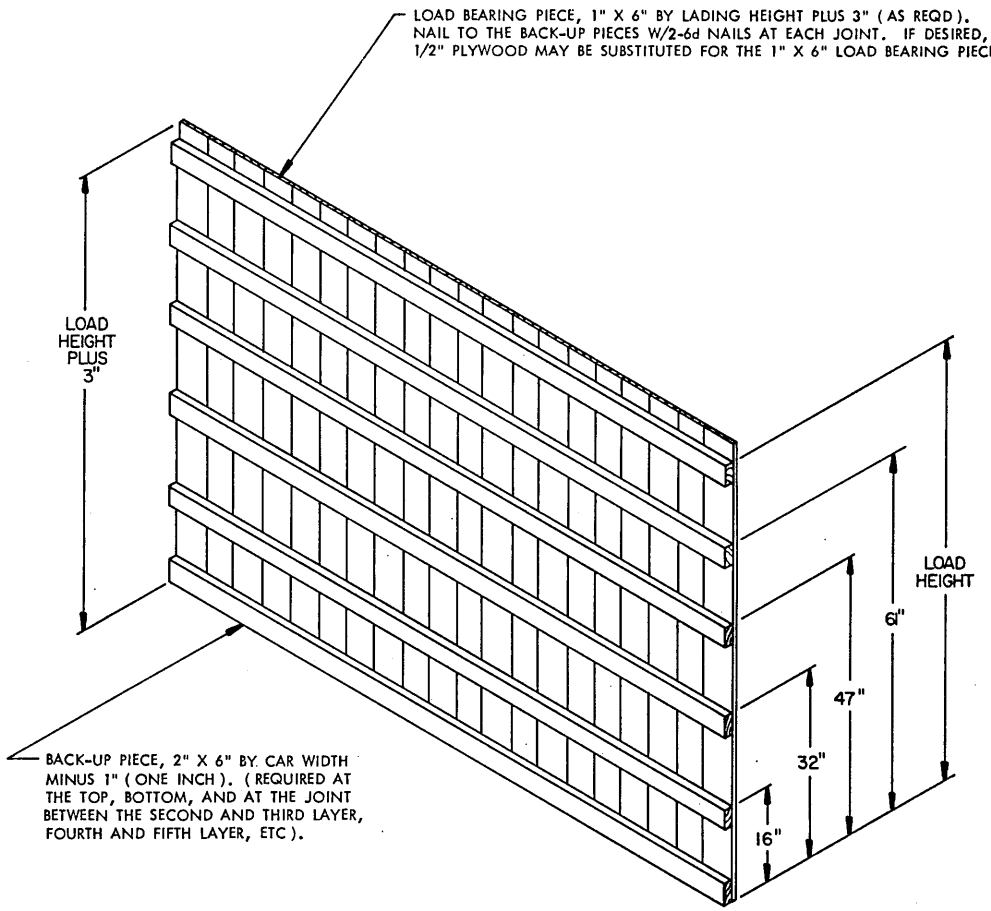


DOORWAY PROTECTION STRAP INSTALLATION

THE VIEW ABOVE DEPICTS THE LOADING SIDE OF THE CAR AFTER THE STRAPS HAVE BEEN NAILED TO THE DOOR POSTS OF THE CAR.



SECTION X-X



BULKHEAD FOR CARS WITH BOWED END WALLS

WHEN A BOX CAR HAS A BOWED END AMOUNTING TO 2" OR MORE, A BULKHEAD ASSEMBLY AS DEPICTED ABOVE MUST BE USED. ADDITIONAL SHIM MATERIAL MUST BE FABRICATED AND NAILED TO THE BACK-UP PIECES TO INSURE FULL BEARING ACROSS THE BOWED END OF THE CAR. THE NUMBER OF BACK-UP PIECES AS SHOWN MUST BE ADJUSTED AS REQUIRED FOR THE NUMBER OF LAYERS TO BE OUTLOADED. THE BULKHEAD AS SHOWN IS FOR A TEN-BOX HIGH LOAD. IF DESIRED, BULKHEADS AS SHOWN ABOVE CAN ALSO BE USED AS WALL LINING IN BOXCARS WHICH DO NOT HAVE LINING ON THE END WALLS.

☆ U.S. Government Printing Office: 1986—643-527