

APPROVED BY

BUREAU OF EXPLOSIVES

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# BATS

## LOADING AND BRACING (CL & LCL) ON FLAT CARS OF THE MAIN ASSEMBLAGE<sup>●</sup> IN 1-UNIT, 4-UNIT AND 8-UNIT PACKS

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**CAUTION:** THE LOAD AS SHOWN ON PAGES 6 AND 7 MAY REQUIRE CLEARANCE CONSIDERATION DUE TO EXCESSIVE LADING SIZE.

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

**DO NOT SCALE**

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## GENERAL NOTES

(GENERAL NOTES CONTINUED)

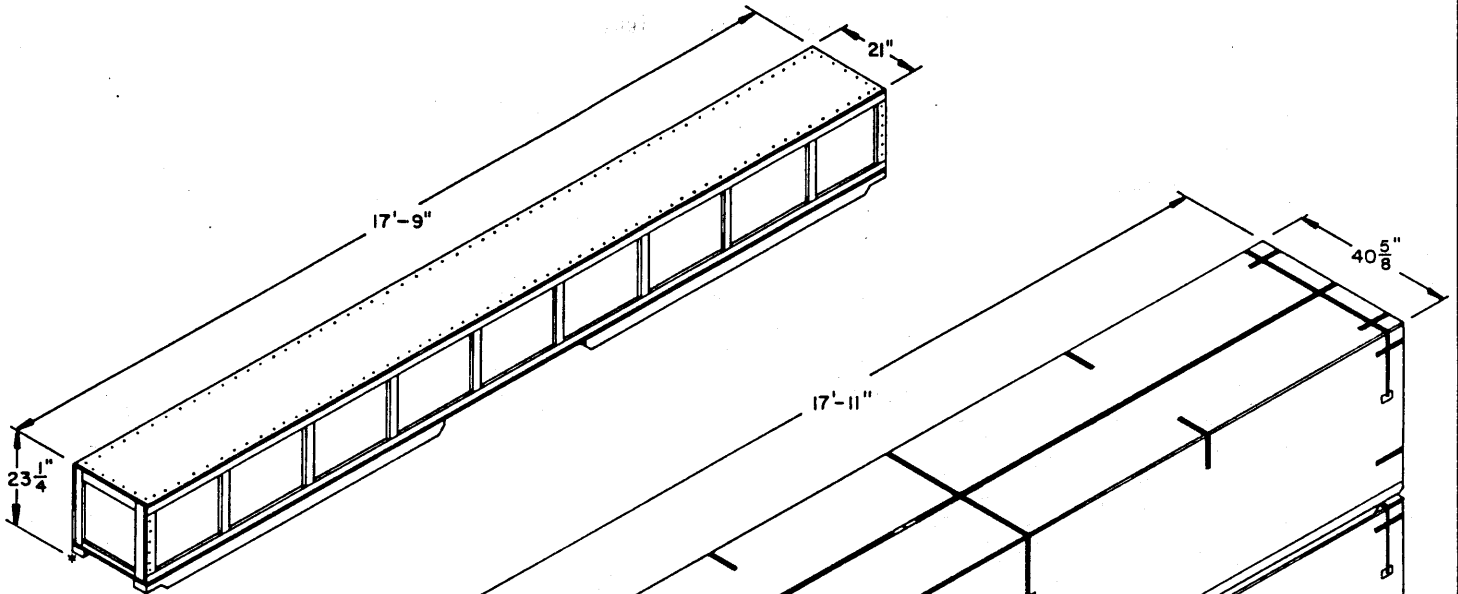
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED ARE APPLICABLE TO THE MAIN ASSEMBLAGE FOR THE BALLISTIC AERIAL TARGET SYSTEM (BATS), IN SHIPPING CONTAINERS OF 1-UNIT, 4-UNIT AND 8-UNIT PACKS. SUBSEQUENT REFERENCE TO CONTAINER MEANS THE CONTAINER WITH CONTENTS. SEE GENERAL NOTE "S" AT RIGHT.
- C. FOR DETAILS OF THE 1-UNIT PACK SEE THE PICTORIAL VIEW ON PAGE 3.  
CONTAINER DIMENSIONS ----- 213" LONG X 21" WIDE X 23-1/4" HIGH  
GROSS WEIGHT ----- 460 POUNDS (APPROX).
- D. FOR DETAILS OF THE 4-UNIT PACK SEE THE PICTORIAL VIEW ON PAGE 3.  
CONTAINER DIMENSIONS ----- 215" LONG X 40-5/8" WIDE X 44" HIGH.  
GROSS WEIGHT ----- 1,625 POUNDS (APPROX).
- E. FOR DETAILS OF THE 8-UNIT PACK SEE THE PICTORIAL VIEW ON PAGE 3.  
CONTAINER DIMENSIONS ----- 215" LONG X 40-5/8" WIDE X 80" HIGH.  
GROSS WEIGHT ----- 2,840 POUNDS (APPROX).
- F. THE LOADS AS SHOWN HEREIN ARE BASED ON FLAT CARS OF VARIOUS LENGTHS AND WIDTHS WITH STAKE POCKETS SPACED 42" ON CENTER. SEE THE "SPECIAL NOTES" SECTION ADJACENT TO AN OUTLOADING METHOD FOR SPECIFIC GUIDANCE. ALSO, SEE GENERAL NOTE "R" AT RIGHT.
- G. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE DESIGNATED ITEMS WILL BE IN ACCORDANCE WITH HAZARDOUS MATERIALS REGULATIONS OF DOT AND AR 55-355, CHAPTER 213, FOR EXPLOSIVES OR OTHER DANGEROUS ARTICLES, IN FULL.
- H. ONLY CARS WITH "SOUND" FLOORS WILL BE USED. CARS WITH STEEL FLOOR ENDS AND/OR EXPOSED STEEL BOLSTERS WHICH INTERFERE WITH PROPER POSITIONING OR NAILING OF THE DUNNAGE WILL NOT BE USED. SEE "TYPICAL END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS" DETAIL ON PAGE 21 FOR APPLICATION-OF-DUNNAGE METHODS WHICH PERMIT THE USE OF SOME CARS THAT HAVE EXPOSED STEEL COMPONENTS. IF THE CAR TO BE USED HAS SUCH EXPOSED STEEL COMPONENTS, THE CAR MAY NECESSARILY HAVE TO BE LONGER THAN THE ONE SPECIFIED FOR THE APPLICABLE LOAD.
- J. NOTICE: A SHIPMENT WILL BE POSITIONED ON THE RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE APPROVED METHODS FOR THE LOADS SPECIFIED MUST BE FOLLOWED. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE CAR TO BE LOADED OR THE QUANTITY TO BE SHIPPED. FOR A LOAD QUANTITY OTHER THAN SPECIFIED, THE APPROVED METHODS FOR BLOCKING, BRACING, AND STAYING MUST BE FOLLOWED AS CLOSELY AS POSSIBLE.
- K. IF THE CAPACITY OF THE MATERIALS HANDLING EQUIPMENT PERMITS, IT IS RECOMMENDED THAT THE 1-UNIT PACK CONTAINERS BE UNITIZED PRIOR TO PLACEMENT ABOARD THE FLAT CAR. SEE THE "UNITIZATION PROCEDURES" ON PAGES 4 AND 5.
- L. CAUTION: STAKE POCKETS ON FLAT CARS WILL BE USED FOR ANCHORING HOLD-DOWN STRAPPING WHENEVER POSSIBLE. DO NOT USE SWIVEL RING TYPE ANCHOR DEVICES. IF OTHER TYPES ARE USED, THEY MUST BE OF SUFFICIENT WIDTH TO RECEIVE 2" STRAPPING, AND ALSO BE OF A DESIGN WHICH WILL PROVIDE A BEARING SURFACE, ACROSS THE FULL WIDTH OF THE STRAPPING, THAT WILL NOT DEFORM A STRAP, ESPECIALLY AT THE EDGES, WHEN IT IS TENSIONED.
- M. OTHER TYPES OF LADING ITEMS MAY BE LOADED ON A CAR WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- N. 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.
- O. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, OR AS SHOWN IN "DETAIL A" OR "DETAIL B" ON PAGE 21, A MINIMUM OF 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 TO PREVENT DAMAGE TO CONTAINERS.
- P. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNITIZATION PROCEDURES" ON PAGES 4 AND 5 AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO A DEPICTED OUTLOADING METHOD.
- Q. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER 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. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. 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.
- R. NOTICE: ALTHOUGH THE LOADING AND BRACING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LONGER CARS, CONVENTIONAL FLAT CARS LONGER THAN 41'-6" SHOULD NOT BE ORDERED FOR THE SHIPMENT OF A 2-LOAD-UNIT LONG LOAD SUCH AS DEPICTED ON PAGES 6 AND 14. LIKEWISE, FOR CARS EQUIPPED WITH FIXED-END BULKHEADS, THE SHORTEST CAR SHOULD BE ORDERED THAT PROVIDES AT LEAST 36'-0" CLEARANCE BETWEEN BULKHEADS FOR TWO (2) LOAD UNITS OF THE 1-UNIT PACKS, AS SHOWN ON PAGE 12, OR FOR TWO (2) LOAD UNITS OF THE 4-UNIT AND/OR 8-UNIT PACKS, AS SHOWN ON PAGE 22. HOWEVER, LONGER CARS EQUIPPED WITH FIXED-END BULKHEADS MAY BE USED TO SHIP A 3-LOAD-UNIT LONG LOAD OF CONTAINERS PROVIDED THE MINIMUM CLEARANCE BETWEEN BULKHEADS IS 53'-6" FOR THE 1-UNIT PACKS OR 54'-0" FOR THE 4-UNIT AND/OR 8-UNIT PACKS. SEE THE "SPECIAL NOTES" ON PAGE 7, 13, 15 OR 23 AS APPLICABLE FOR ADDITIONAL GUIDANCE.
- S. CAUTION: FOR SHIPMENT ON FLAT CARS, IT IS REQUIRED THAT THE 4-UNIT AND 8-UNIT PACKS BE PROVIDED WITH ADDITIONAL PACKAGE REINFORCING STRAPS PRIOR TO LOADING ON THE CAR. SEE PAGE 3 FOR STRAP APPLICATION. EXERCISE CARE DURING HANDLING AND LOADING TO PREVENT BREAKING THE STRAPS.

(CONTINUED AT RIGHT)

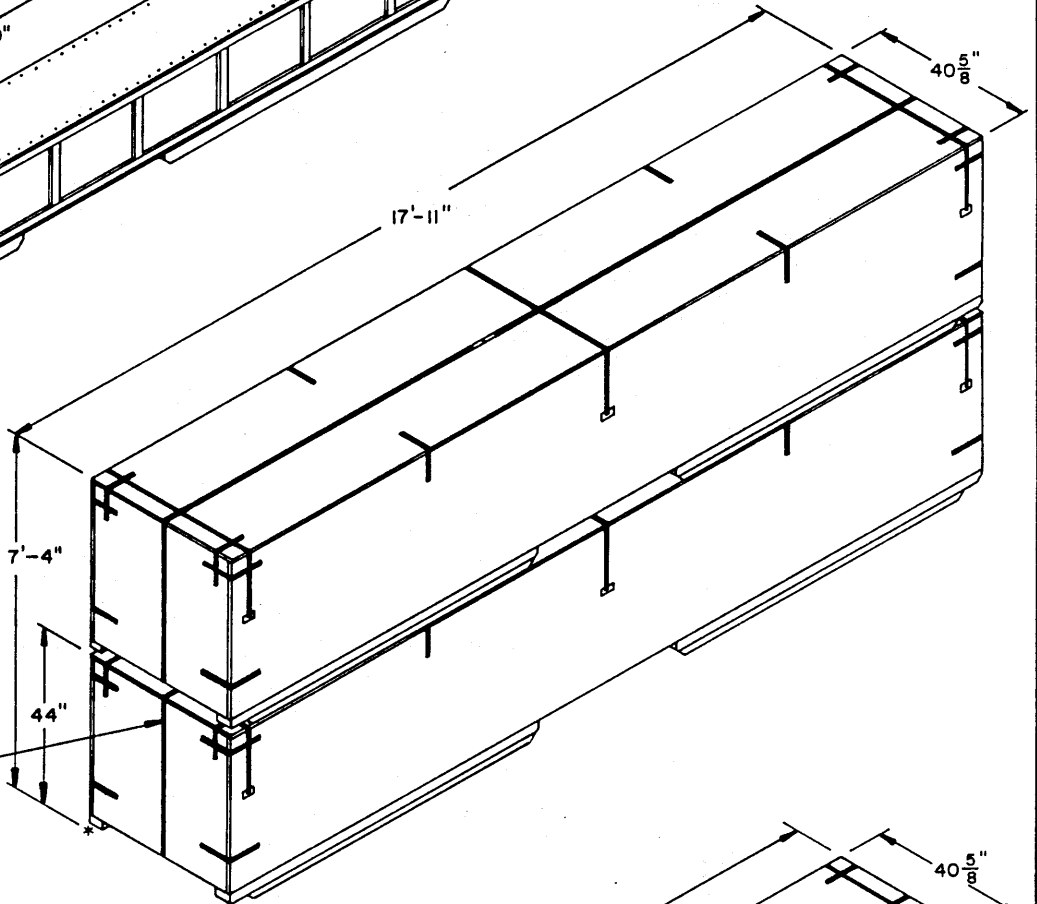
## MATERIAL SPECIFICATIONS

- 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, CLASS A, B, OR C FOR 2" STRAPPING;  
TYPE I OR IV, CLASS A OR B FOR 1-1/4" STRAPPING,  
FED SPEC QQ-5-781.

STRAP SEAL  
STRAP STAPLE, STAKE  
POCKET PROTECTOR--: COMMERCIAL GRADE.



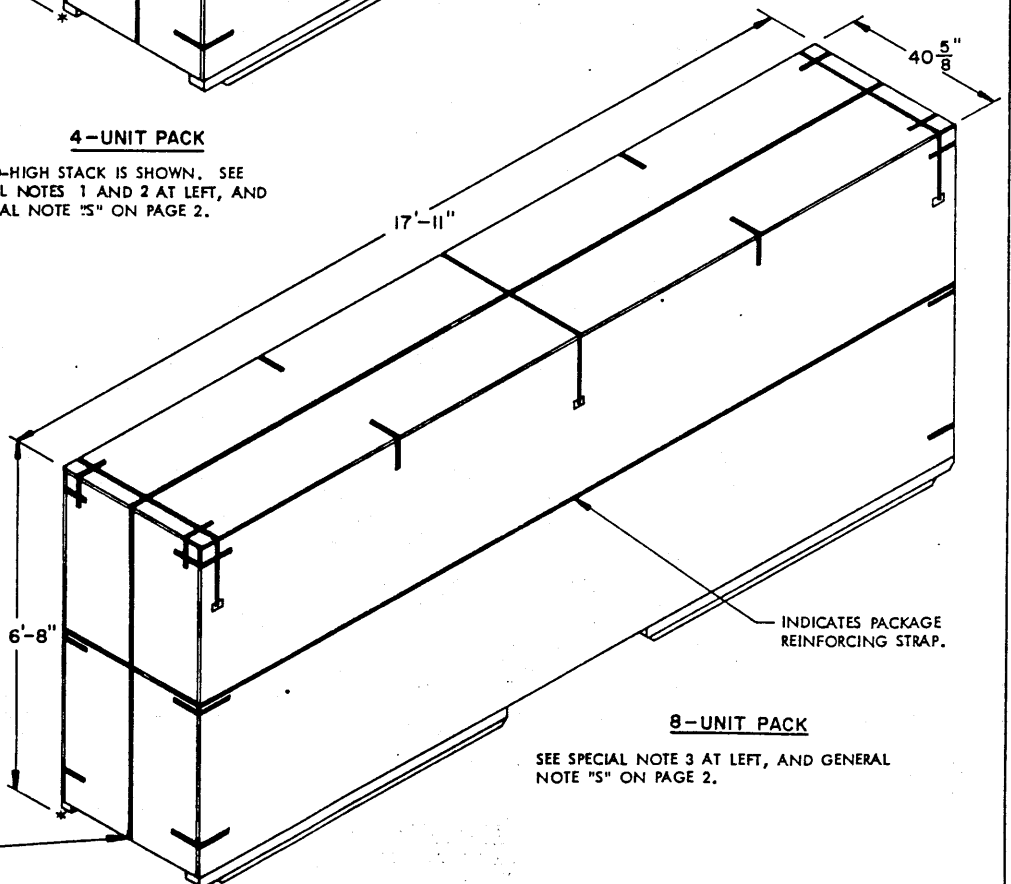
**1-UNIT PACK**



**4-UNIT PACK**

A TWO-HIGH STACK IS SHOWN. SEE SPECIAL NOTES 1 AND 2 AT LEFT, AND GENERAL NOTE "5" ON PAGE 2.

INDICATES PACKAGE REINFORCING STRAP.



**8-UNIT PACK**

SEE SPECIAL NOTE 3 AT LEFT, AND GENERAL NOTE "5" ON PAGE 2.

INDICATES PACKAGE REINFORCING STRAP.

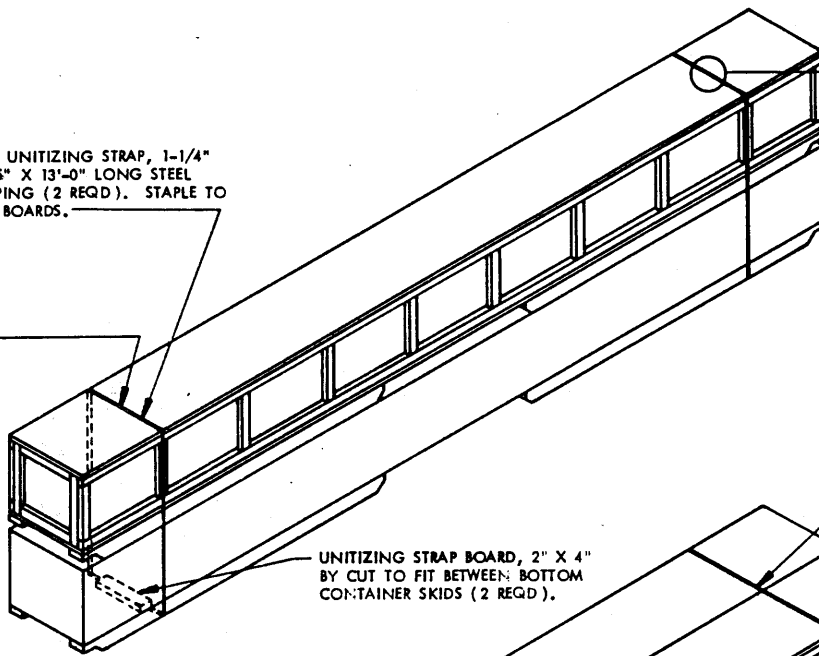
INDICATES PACKAGE REINFORCING STRAP.

**SPECIAL NOTES:**

1. EACH TWO HIGH STACK OF 4-UNIT PACKS MUST BE UNITIZED WITH THREE (3) STRAPS AS SPECIFIED IN THE LOADS DEPICTED ON PAGES 14, 16 AND 22. TO FACILITATE HANDLING, UNITIZING STRAPS SHOULD BE INSTALLED PRIOR TO LOADING.
2. PRIOR TO UNITIZING AND LOADING, EACH 4-UNIT PACK MUST BE PROVIDED WITH A PACKAGE REINFORCING STRAP OF 1-1/4" X .035" X 45'-0" LONG STEEL STRAPPING, AS SHOWN. SEAL THE JOINT WITH TWO (2) SEALS, BUTTED TOGETHER, WITH TWO PAIR OF CRIMPS PER SEAL.
3. PRIOR TO LOADING, EACH 8-UNIT PACK MUST BE PROVIDED WITH TWO (2) PACKAGE REINFORCING STRAPS AS SHOWN. STRAPS WILL BE 1-1/4" X .035" STEEL STRAPPING; ONE 45'-0" LONG AND ONE 51'-0" LONG. SEAL EACH JOINT WITH TWO (2) SEALS, BUTTED TOGETHER, WITH TWO PAIR OF CRIMPS PER SEAL.

STACK UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD). STAPLE TO STRAP BOARDS.

STRAP SEAL (4 REQD).



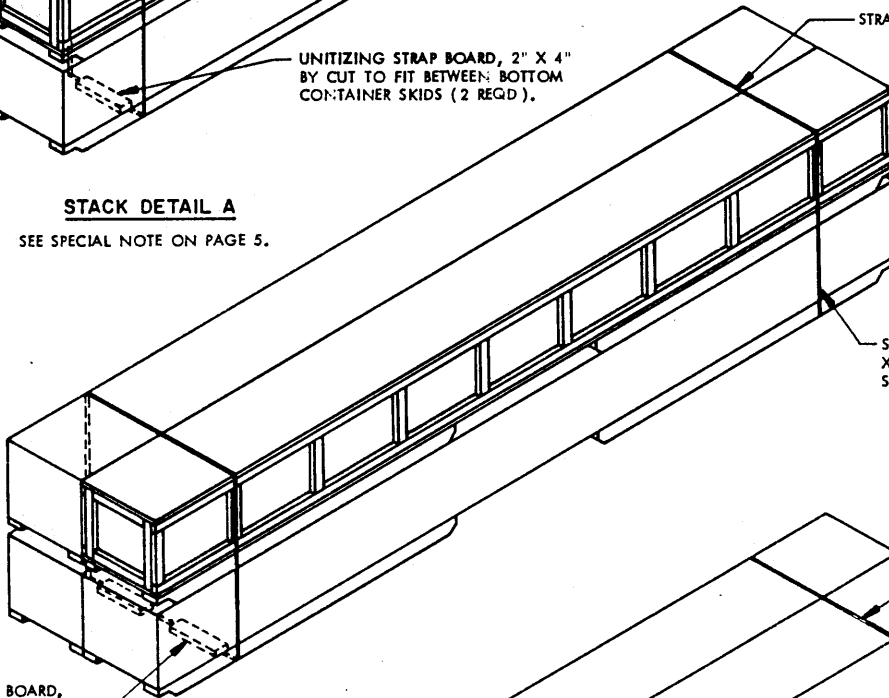
SEAL FOR 1-1/4" X .035" STEEL STRAPPING (2 REQD PER STRAP). DOUBLE CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS AS SHOWN. SEE GENERAL NOTE "O" ON PAGE 2.

UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN BOTTOM CONTAINER SKIDS (2 REQD).

STRAP SEAL (4 REQD).

**STACK DETAIL A**

SEE SPECIAL NOTE ON PAGE 5.

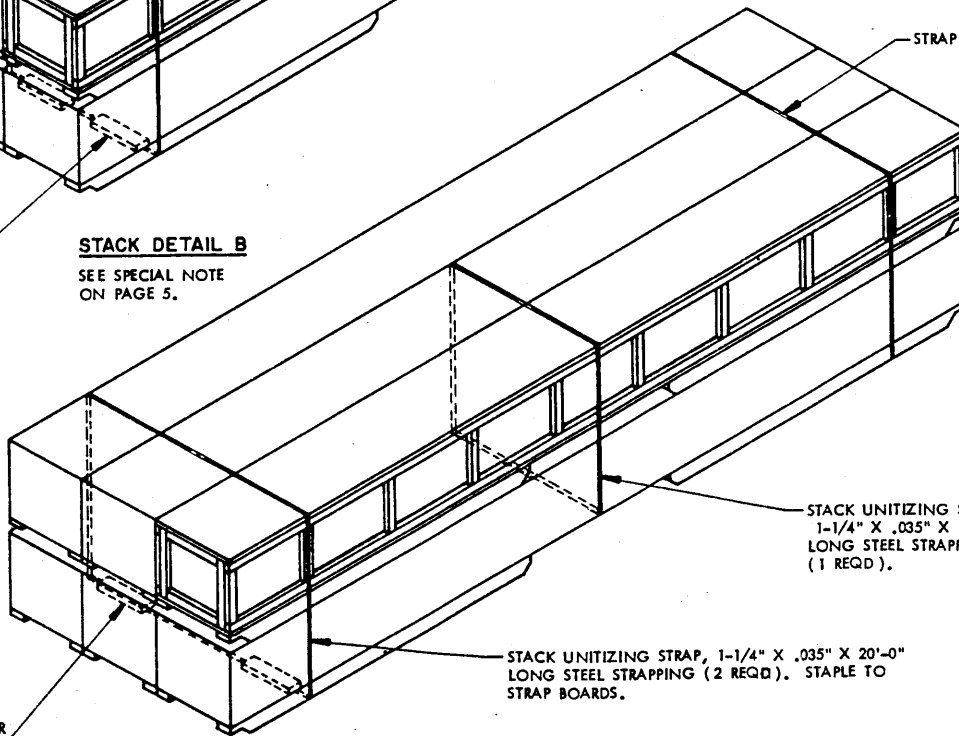


STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (2 REQD). STAPLE TO STRAP BOARDS.

UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN SKIDS OF EACH BOTTOM CONTAINER (4 REQD).

**STACK DETAIL B**

SEE SPECIAL NOTE ON PAGE 5.



STRAP SEAL (6 REQD).

STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (1 REQD).

UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN SKIDS OF EACH BOTTOM OUTER CONTAINER AS SHOWN (4 REQD).

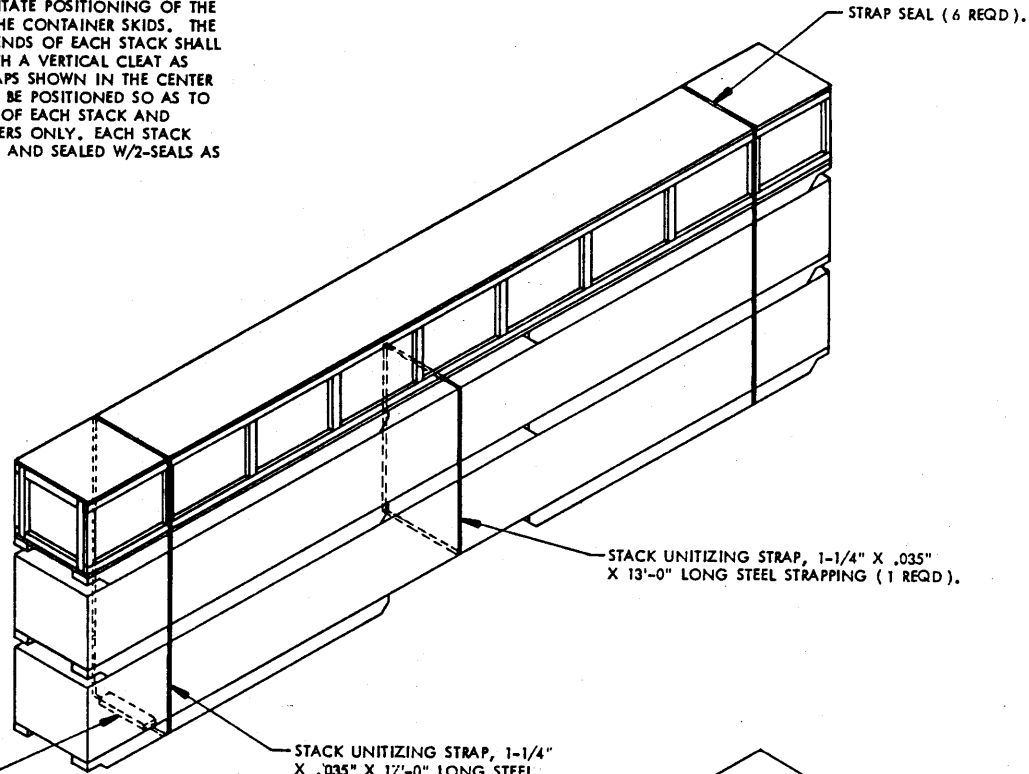
STACK UNITIZING STRAP, 1-1/4" X .035" X 20'-0" LONG STEEL STRAPPING (2 REQD). STAPLE TO STRAP BOARDS.

**STACK DETAIL C**

SEE SPECIAL NOTE ON PAGE 5.

**SPECIAL NOTE:**

IT IS RECOMMENDED THAT STACKS BE UNITIZED PRIOR TO LOADING. STACK UNITIZING STRAPS WILL BE STAPLED TO THE UNITIZING STRAP BOARDS W/2-STAPLES PER BOARD. STAPLES SHOULD NOT BE FASTENED TOO TIGHTLY TO FACILITATE POSITIONING OF THE UNITIZING STRAP BOARDS BETWEEN THE CONTAINER SKIDS. THE STACK UNITIZING STRAPS NEAR THE ENDS OF EACH STACK SHALL BE POSITIONED SO AS TO ALIGN WITH A VERTICAL CLEAT AS SHOWN. THE STACK UNITIZING STRAPS SHOWN IN THE CENTER OF STACK DETAILS "D" AND "E" WILL BE POSITIONED SO AS TO BE NEAR THE LONGITUDINAL CENTER OF EACH STACK AND ENCIRCLE THE BOTTOM TWO (2) LAYERS ONLY. EACH STACK UNITIZING STRAP WILL BE TENSIONED AND SEALED W/2-SEALS AS DEPICTED ON PAGE 4.

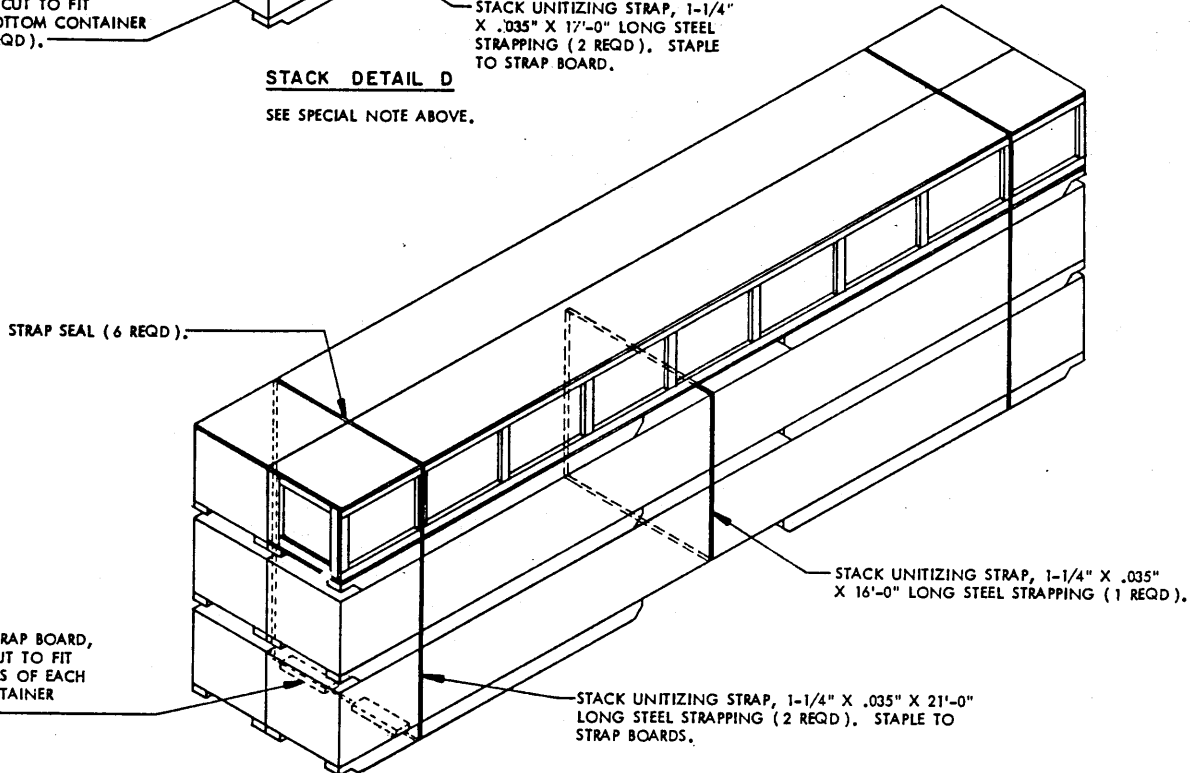


UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN BOTTOM CONTAINER SKIDS (2 REQD.).

STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (2 REQD.), STAPLE TO STRAP BOARD.

**STACK DETAIL D**

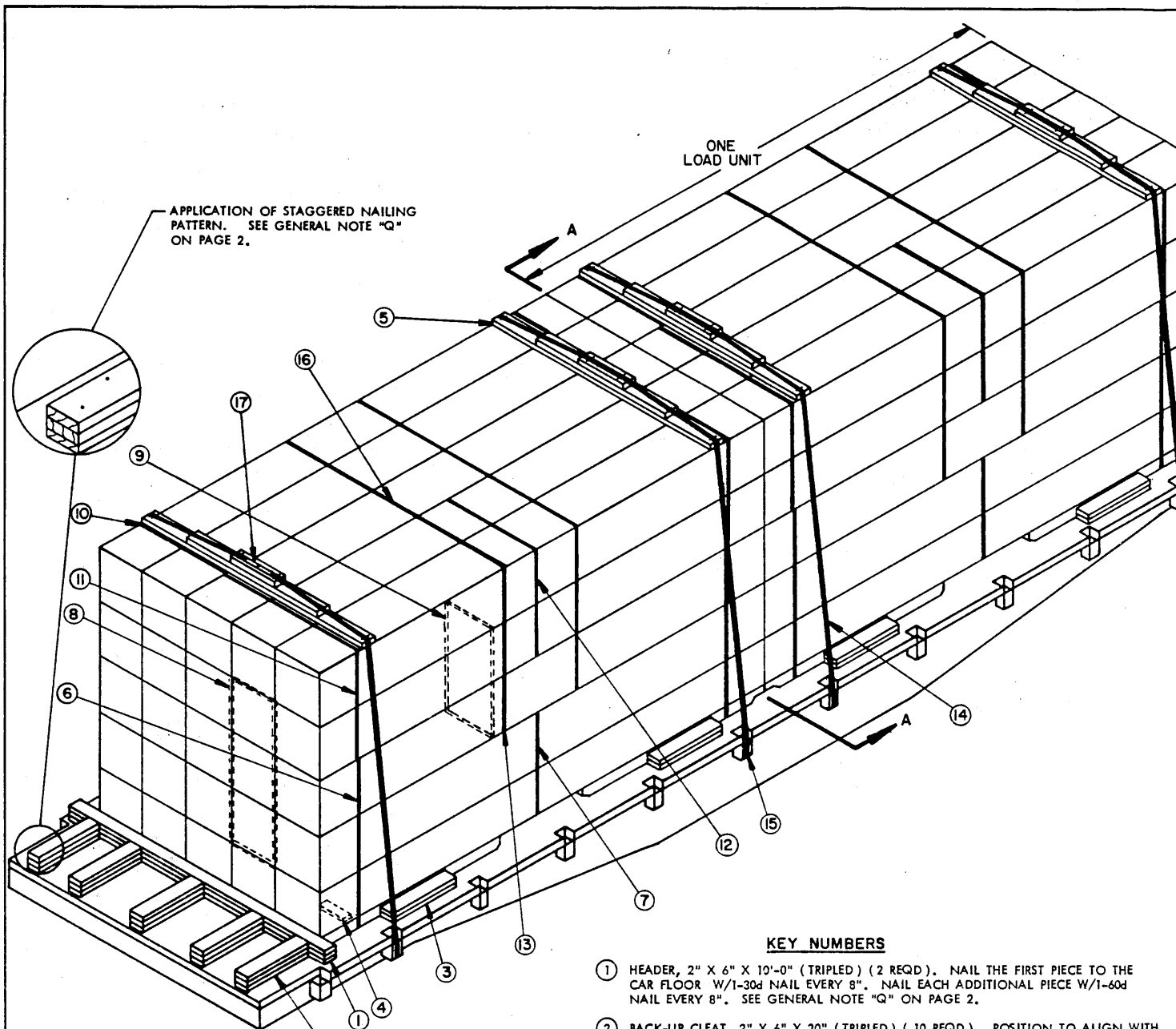
SEE SPECIAL NOTE ABOVE.



UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN SKIDS OF EACH BOTTOM CONTAINER (4 REQD.).

**STACK DETAIL E**

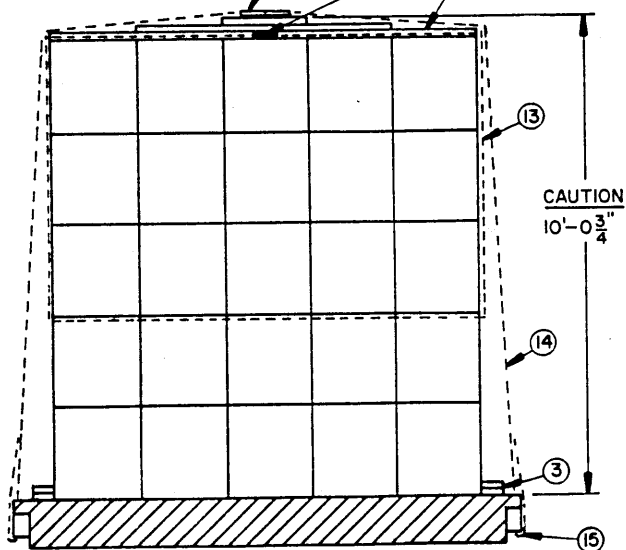
SEE SPECIAL NOTE ABOVE.



APPLICATION OF STAGGERED NAILING PATTERN. SEE GENERAL NOTE "Q" ON PAGE 2.

ONE LOAD UNIT

ISOMETRIC VIEW



SECTION A-A

CAUTION  
10'-0 3/4"

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 10'-0" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (10 REQD). POSITION TO ALIGN WITH CONTAINER SKIDS OR CENTERED BETWEEN CONTAINER SKIDS, AS APPLICABLE. NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 30" (DOUBLED) (8 REQD). CENTER ON CONTAINER SKID AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN SKIDS OF BOTTOM CONTAINER (5) OF EACH UNITIZED STACK (36 REQD). SEE THE "STACK DETAIL B AND C" ON PAGE 4 AND THE "STACK DETAIL D AND E" AND THE SPECIAL NOTE ON PAGE 5.
- ⑤ HOLD-DOWN STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 7.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" X 21'-0" LONG STEEL STRAPPING (8 REQD). SEE THE "STACK DETAIL E" ON PAGE 5.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" X 16'-0" LONG STEEL STRAPPING (4 REQD). SEE THE "STACK DETAIL E" ON PAGE 5.
- ⑧ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (4 REQD). SEE THE "STACK DETAIL D" ON PAGE 5.
- ⑨ STACK UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD). SEE "STACK DETAIL D" ON PAGE 5.
- ⑩ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (4 REQD). SEE THE "STACK DETAIL B" ON PAGE 4.
- ⑪ STACK UNITIZING STRAP, 1-1/4" X .035" X 20'-0" LONG STEEL STRAPPING (4 REQD). SEE THE "STACK DETAIL C" ON PAGE 4.

(CONTINUED ON PAGE 7)

50-CONTAINER LOAD ON A 41'-6" LONG BY 10'-6" WIDE CAR (1-UNIT PACK)

( KEY NUMBERS CONTINUED )

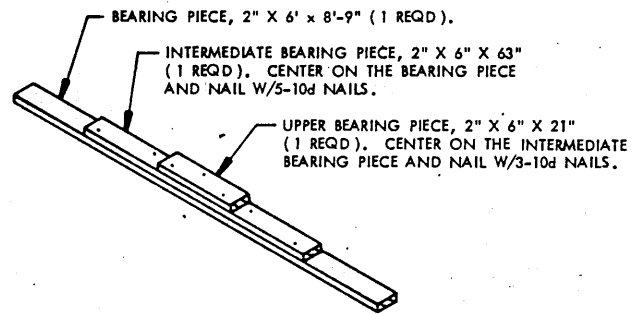
- ⑫ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK DETAIL C" ON PAGE 4.
- ⑬ BUNDLING STRAP, 1-1/4" X .035" X 31'-0" LONG STEEL STRAPPING (4 REQD). INSTALL TO ENCIRCLE THE TOP THREE (3) LAYERS OF CONTAINERS AS SHOWN.
- ⑭ HOLD-DOWN STRAP, 2" X .050" X 41'-0" LONG STEEL STRAPPING (4 REQD). INSTALL EACH STRAP FROM TWO (2) 20'-6" LONG PIECES. STAPLE TO PIECE MARKED ⑤ W/4-2" STAPLES.
- ⑮ PAD, 2" X .050" STEEL STRAPPING 24" LONG (8 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑭. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (16 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑯ SEAL FOR 1-1/4" STRAPPING (64 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.
- ⑰ SEAL FOR 2" STRAPPING (32 REQD, 8 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑮. SEE GENERAL NOTE "O" ON PAGE 2.

SPECIAL NOTES:

- 1. A 50-CONTAINER LOAD OF THE 1-UNIT PACK IS SHOWN ON A 41'-6" LONG BY 10'-6" WIDE (PLATFORM) FLAT CAR. SHORTER CARS AND/OR CARS LESS THAN 9'-9" WIDE CANNOT BE USED FOR SHIPMENT OF THE DEPICTED LOAD. THE LOAD CONSISTS OF TWO (2) LOAD UNITS. EACH LOAD UNIT CONTAINS FIVE (5) UNITIZED STACKS AS SHOWN IN THE "STACK DETAILS" ON PAGES 4 AND 5; TWO (2) AS "DETAIL E"; ONE (1) AS "DETAIL D"; ONE (1) AS "DETAIL B"; AND ONE (1) AS "DETAIL C". SEE GENERAL NOTE "R" ON PAGE 2.
- 2. IF THE CAR TO BE LOADED IS EQUIPPED WITH FIXED-END BULKHEADS, POSITION ONE LOAD UNIT OF CONTAINERS AGAINST EACH BULKHEAD AND USE THE HEADERS AND BACK-UP CLEATS, PIECES MARKED ① AND ② TO BLOCK AND BRACE EACH LOAD UNIT AT THE LONGITUDINAL CENTER OF THE CAR. SEE THE LOAD VIEW AND SPECIAL NOTES ON PAGES 12 AND 13 FOR GUIDANCE.
- 3. IF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS IS TO BE SHIPPED, ONE OR MORE LAYERS MAY BE OMITTED FROM ONE OR BOTH LOAD UNITS. PROCEDURES FOR 2-LAYER, 3-LAYER AND 4-LAYER LOAD UNITS ARE SPECIFIED ON PAGES 8 AND 12. ONE OR TWO CONTAINERS MAY BE OMITTED FROM THE TOP LAYER OF EACH LOAD UNIT BY SUBSTITUTING "FILLER ASSEMBLIES" IN THE PLACE OF EACH OMITTED CONTAINER. APPLICATION OF "FILLER ASSEMBLIES" IS SHOWN IN THE LOAD VIEW ON PAGE 8. A COMBINATION OF THE DEPICTED PROCEDURES MAY BE USED AS NECESSARY TO SATISFY A LESS-THAN-FULL-LOAD SHIPMENT.

BILL OF MATERIAL

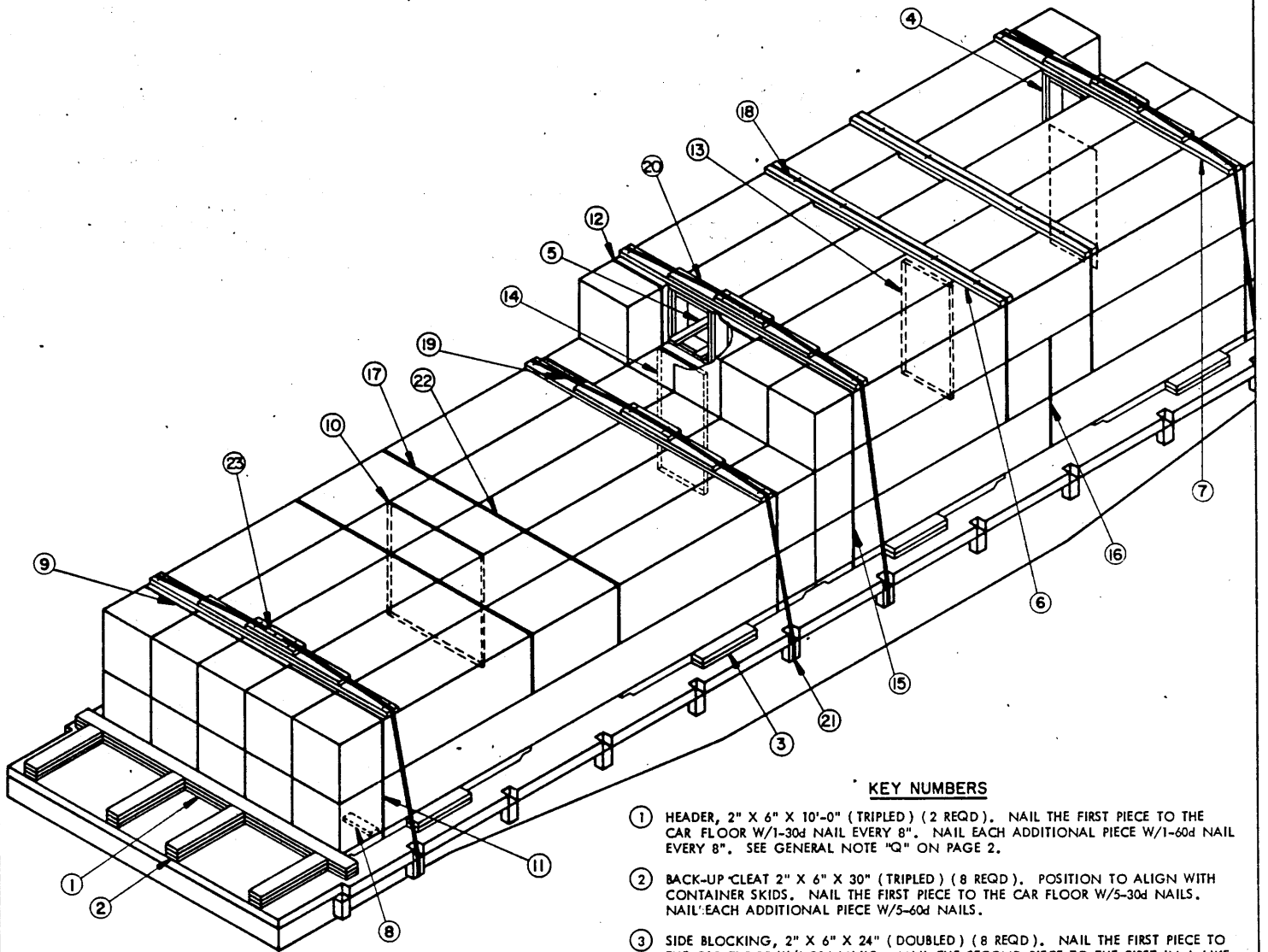
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	42	28
2" X 6"	238	238
NAILS	NO. REQD	POUNDS
10d (3")	32	1/2
30d (4-1/2")	160	8
60d (6")	160	16
STEEL STRAPPING, 1-1/4" X .035" -----	632' REQD -----	91 LBS
STEEL STRAPPING, 2" X .050" -----	180' REQD -----	60 LBS
SEAL FOR 1-1/4" STRAPPING -----	64 REQD -----	3 LBS
SEAL FOR 2" STRAPPING -----	32 REQD -----	7 LBS
STAPLE FOR 1-1/4" STRAP -----	72 REQD -----	NIL
STAPLE FOR 2" STRAP -----	16 REQD -----	NIL



STRAPPING BOARD ASSEMBLY

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
1-UNIT PACK-----	50-----	23,000 LBS
DUNNAGE-----	-----	851 LBS
TOTAL WEIGHT-----	-----	23,851 LBS



**ISOMETRIC VIEW**

(KEY NUMBERS CONTINUED)

- ⑮ STACK UNITIZING STRAP, 1-1/4" X .035" X 21'-0" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK DETAIL E" ON PAGE 5.
- ⑯ STACK UNITIZING STRAP, 1-1/4" X .035" X 16'-0" LONG STEEL STRAPPING (1 REQD). SEE THE "STACK DETAIL E" ON PAGE 5.
- ⑰ BUNDLING STRAP, 1-1/4" X .035" X 24'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TOP LAYER OF CONTAINERS AS SHOWN.
- ⑱ BUNDLING STRAP, 1-1/4" X .035" X 28'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TOP TWO (2) LAYERS OF CONTAINERS AS SHOWN. STAPLE TO THE BUNDLING SPACER ASSEMBLY, PIECE MARKED ⑥, W/4-1-1/4" STAPLES.
- ⑲ HOLD-DOWN STRAP, 2" X .050" X 29'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO (2) 14'-6" LONG PIECES. STAPLE TO THE HOLD-DOWN STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑦, W/4-2" STAPLES.
- ⑳ HOLD-DOWN STRAP, 2" X .050" X 33'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO (2) 16'-6" LONG PIECES. STAPLE TO THE HOLD-DOWN STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑦, W/4-2" STAPLES.
- ㉑ PAD, 2" X .050" STEEL STRAPPING 24" LONG (8 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑲ OR ⑳. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (16 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.

(CONTINUED ON PAGE 9)

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 10'-0" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT 2" X 6" X 30" (TRIPLED) (8 REQD). POSITION TO ALIGN WITH CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 24" (DOUBLED) (8 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ FILLER ASSEMBLY (2 REQD). POSITION AS SHOWN. SEE THE DETAIL ON PAGE 9.
- ⑤ TIE PIECE, 2" X 4" BY LENGTH TO EXTEND 3" BEYOND EACH FILLER ASSEMBLY MARKED ④. NAIL TO PIECES MARKED ④ W/3-10d NAILS AT EACH JOINT.
- ⑥ BUNDLING SPACER ASSEMBLY (2 REQD). POSITION AS SHOWN. SEE THE "BUNDLING SPACER ASSEMBLY A" DETAIL ON PAGE 9.
- ⑦ HOLD-DOWN STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 7. TOENAIL TO "FILLER ASSEMBLY" W/2-16d NAILS ON EACH SIDE, WHEN APPLICABLE.
- ⑧ UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN SKIDS OF BOTTOM CONTAINER(S) OF EACH UNITIZED STACK (18 REQD). SEE THE "STACK DETAIL A, B, C, D, AND E" ON PAGES 4 AND 5 AND THE SPECIAL NOTE ON PAGE 5.
- ⑨ STACK UNITIZING STRAP, 1-1/4" X .035" X 20'-0" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK DETAIL C" ON PAGE 4.
- ⑩ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (1 REQD). SEE THE "STACK DETAIL C" ON PAGE 4.
- ⑪ STACK UNITIZING STRAP 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK DETAIL B" ON PAGE 4.
- ⑫ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (4 REQD). SEE THE "STACK DETAIL D" ON PAGE 5.
- ⑬ STACK UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK DETAIL D" ON PAGE 5.
- ⑭ STACK UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD). SEE THE "STACK DETAIL A" ON PAGE 4.

(CONTINUED AT LEFT)

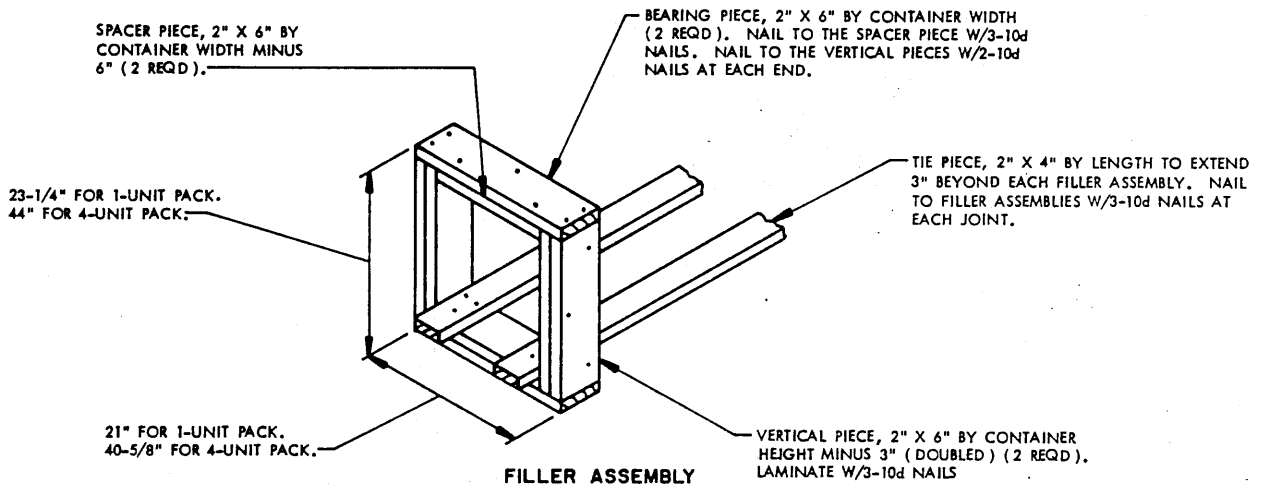


( KEY NUMBERS CONTINUED )

- ② SEAL FOR 1-1/4" STRAPPING (40 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.
- ③ SEAL FOR 2" STRAPPING (32 REQD, 8 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ②. SEE GENERAL NOTE "O" ON PAGE 2.

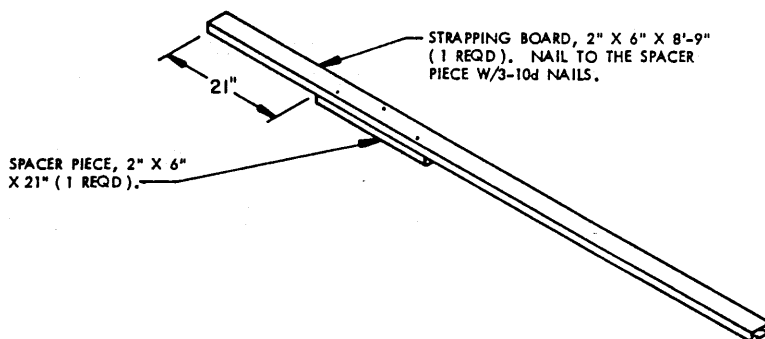
SPECIAL NOTES:

1. A 24-CONTAINER LOAD OF THE 1-UNIT PACK IS SHOWN ON A 41'-6" LONG BY 10'-6" WIDE ( PLATFORM ) FLAT CAR. SHORTER CARS AND/OR CARS LESS THAN 9'-9" WIDE CANNOT BE USED FOR SHIPMENT OF THE DEPICTED LOAD. THE ISOMETRIC VIEW SPECIFIES PROCEDURES FOR LCL SHIPMENT OF A 2-LAYER LOAD UNIT AND A 3-LAYER LOAD UNIT AND SHOWS THE USE OF FILLER ASSEMBLIES IN THE PLACE OF AN OMITTED CONTAINER. THE LOAD CONSISTS OF SIX ( 6 ) UNITIZED STACKS AS SHOWN IN THE "STACK DETAILS" ON PAGES 4 AND 5; ONE ( 1 ) AS "DETAIL C" AND ONE ( 1 ) AS "DETAIL B" FOR THE 2-LAYER LOAD UNIT; TWO ( 2 ) AS "DETAIL D", ONE ( 1 ) AS "DETAIL A" AND ONE ( 1 ) AS "DETAIL E" FOR THE 3-LAYER LOAD UNIT.
2. FOR SHIPMENT OF A 4-LAYER LOAD UNIT SEE THE PROCEDURES SPECIFIED ON PAGE 12.
3. THE FILLER ASSEMBLIES, PIECES MARKED ④ ARE SHOWN ONLY AS A TYPICAL APPLICATION FOR AN OMITTED CONTAINER. FILLER ASSEMBLIES CAN ONLY BE USED IN THE TOP LAYER OF A LOAD UNIT AND MUST BE IN CONTACT WITH A CONTAINER ON EACH SIDE. THEREFORE, IN A 5-CONTAINER WIDE LOAD UNIT, NOT MORE THAN TWO ( 2 ) CONTAINERS MAY BE OMITTED AND FILLER ASSEMBLIES USED IN THE PLACE OF THE OMITTED CONTAINERS.
4. FOUR BACK-UP CLEATS, SHOWN AS PIECES MARKED ②, ARE ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD.
5. IF THE CAR TO BE USED IS EQUIPPED WITH FIXED-END BULKHEADS, SEE THE PROCEDURES DEPICTED ON PAGE 12 FOR GUIDANCE.



**FILLER ASSEMBLY**

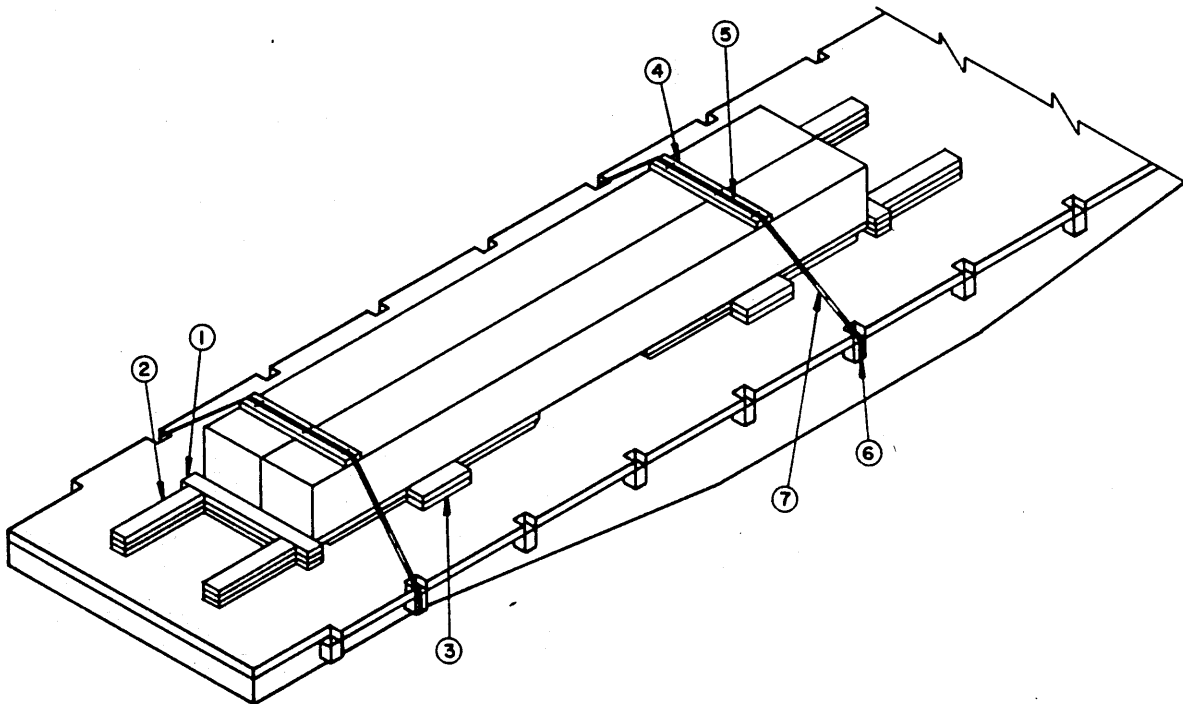
TWO ( 2 ) FILLER ASSEMBLIES AND TWO ( 2 ) TIE PIECES MUST BE USED IN THE PLACE OF EACH OMITTED CONTAINER.



**BUNDLING SPACER ASSEMBLY A**

**SPECIAL NOTES:**

1. A 2-CONTAINER LOAD OF THE 1-UNIT PACK IS SHOWN ON AN 8'-6" WIDE (PLATFORM) FLAT CAR. WIDER CARS MAY BE USED.
2. THESE PROCEDURES ARE ALSO APPLICABLE FOR SHIPMENT OF A 4-CONTAINER LOAD WHEN CONTAINERS ARE UNITIZED AS SHOWN IN THE "STACK DETAIL B" ON PAGE 4. THE LENGTH OF THE HOLD-DOWN STRAPS, PIECES MARKED ⑤, MUST BE ADJUSTED ACCORDINGLY.
3. TWO (2) BACK-UP CLEATS, SHOWN AS PIECES MARKED ②, ARE ADEQUATE FOR RETAINING A MAXIMUM LCL 2-CONTAINER WIDE, 2-LAYER LOAD.



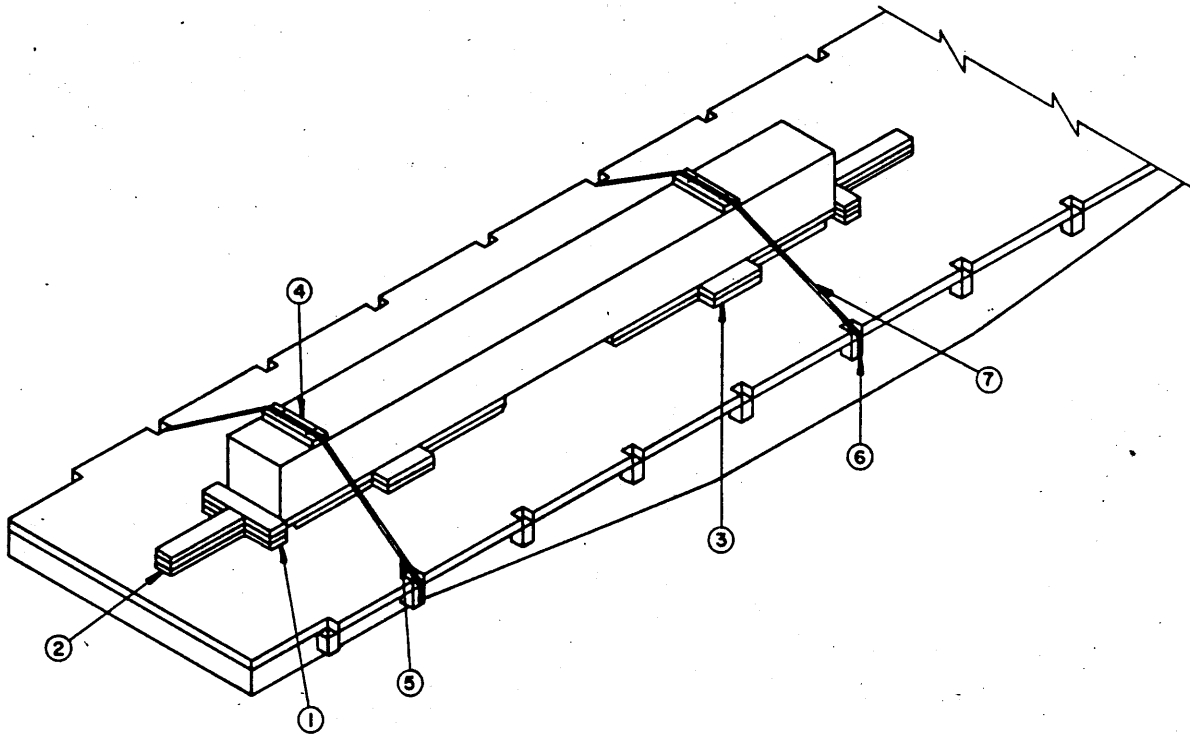
**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 48" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE W/6-60d NAILS. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (4 REQD). ALIGN WITH CONTAINER SKID AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 18" (DOUBLED) (4 REQD). CENTER ON CONTAINER SKID AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/3-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 42" (2 REQD).
- ⑤ HOLD-DOWN STRAP, 2" X .050" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM ONE (1) PIECE OF STRAPPING; ANCHOR IT TO THE STAKE POCKET ON ONE SIDE OF THE CAR, RUN IT OVER THE LOAD, PASS IT THROUGH THE STAKE POCKET ON THE OPPOSITE SIDE OF THE CAR, AND BRING IT BACK UP ABOVE THE CAR FLOOR WHERE IT CAN BE TENSIONED AND SEALED. STAPLE TO PIECE MARKED ④ W/3-2" STAPLES.
- ⑥ PAD, 2" X .050" X 24" LONG STEEL STRAPPING (4 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑤. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑦ SEAL FOR 2" STRAPPING (12 REQD, 6 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑥.

**SPECIAL NOTES:**

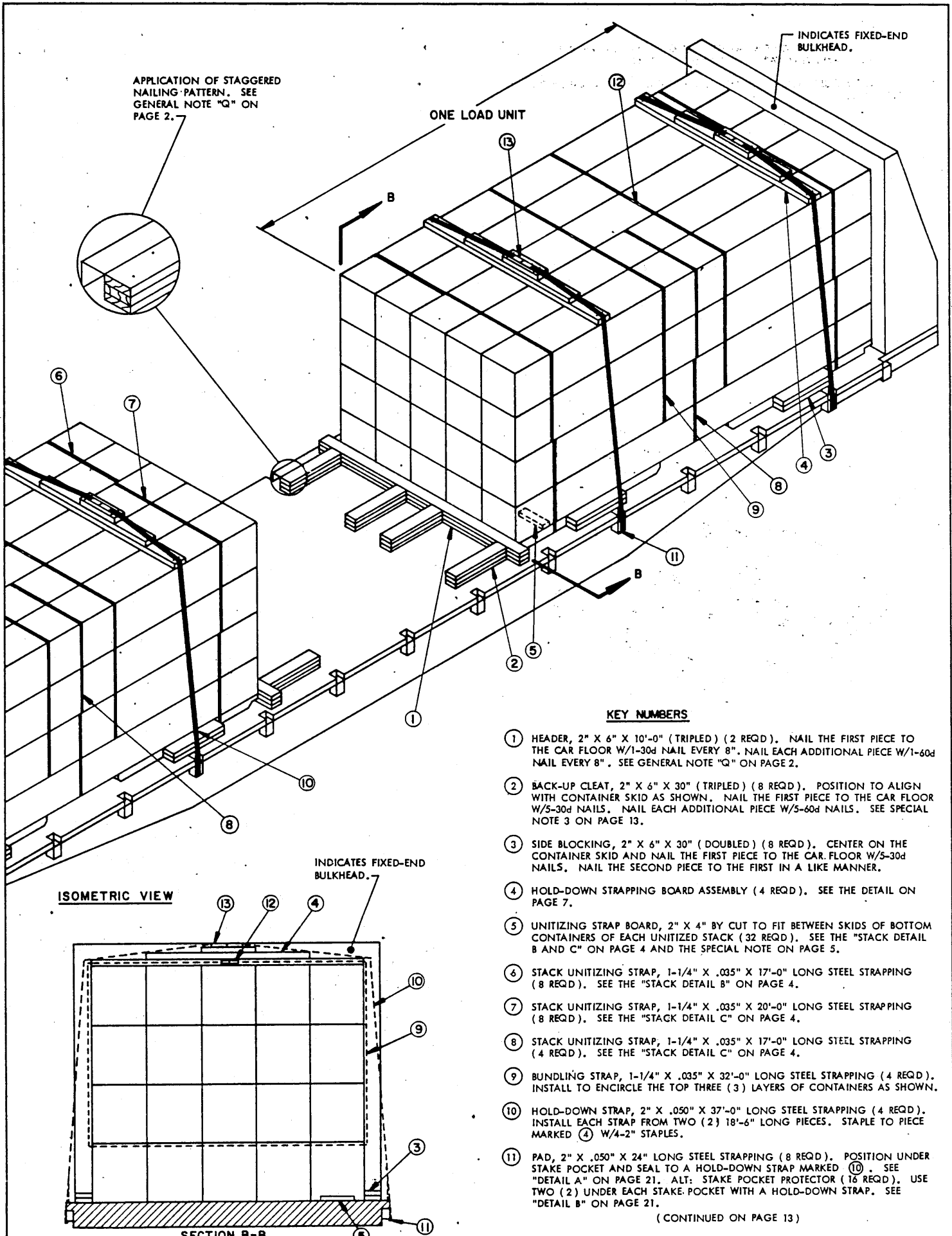
1. A 1-CONTAINER LOAD OF THE 1-UNIT PACK IS SHOWN ON AN 8'-6" WIDE (PLATFORM) FLAT CAR. WIDER CARS MAY BE USED.
2. CONTAINERS MUST NOT BE STACKED FOR SHIPMENT OF A 1-CONTAINER-WIDE LOAD.



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 27" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-30d NAILS. NAIL EACH ADDITIONAL PIECE W/4-60d NAILS. SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (2 REQD). POSITION AGAINST AND CENTER ON PIECE MARKED ①. NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 18" (DOUBLED) (4 REQD). CENTER ON CONTAINER SKID AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/3-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 21" (2 REQD).
- ⑤ HOLD-DOWN STRAP, 2" X .050" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM ONE (1) PIECE OF STRAPPING; ANCHOR IT TO THE STAKE POCKET ON ONE SIDE OF THE CAR, RUN IT OVER THE LOAD, PASS IT THROUGH THE STAKE POCKET ON OPPOSITE SIDE OF THE CAR, AND BRING IT BACK UP ABOVE THE CAR FLOOR WHERE IT CAN BE TENSIONED AND SEALED. STAPLE TO PIECE MARKED ④ W/2-2" STAPLES.
- ⑥ PAD, 2" X .050" X 24" LONG STEEL STRAPPING (4 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑤. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑦ SEAL FOR 2" STRAPPING (12 REQD, 6 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑥.



APPLICATION OF STAGGERED NAILING PATTERN. SEE GENERAL NOTE "Q" ON PAGE 2.

ONE LOAD UNIT

INDICATES FIXED-END BULKHEAD.

INDICATES FIXED-END BULKHEAD.

ISOMETRIC VIEW

SECTION B-B

40-CONTAINER LOAD ON 53'-6" LONG BY 10'-6" WIDE FIXED-END CAR (1-UNIT PACK)

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 10'-0" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (8 REQD). POSITION TO ALIGN WITH CONTAINER SKID AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS. SEE SPECIAL NOTE 3 ON PAGE 13.
- ③ SIDE BLOCKING, 2" X 6" X 30" (DOUBLED) (8 REQD). CENTER ON THE CONTAINER SKID AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ HOLD-DOWN STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 7.
- ⑤ UNITIZING STRAP BOARD, 2" X 4" BY CUT TO FIT BETWEEN SKIDS OF BOTTOM CONTAINERS OF EACH UNITIZED STACK (32 REQD). SEE THE "STACK DETAIL B AND C" ON PAGE 4 AND THE SPECIAL NOTE ON PAGE 5.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (8 REQD). SEE THE "STACK DETAIL B" ON PAGE 4.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" X 20'-0" LONG STEEL STRAPPING (8 REQD). SEE THE "STACK DETAIL C" ON PAGE 4.
- ⑧ STACK UNITIZING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (4 REQD). SEE THE "STACK DETAIL C" ON PAGE 4.
- ⑨ BUNDLING STRAP, 1-1/4" X .035" X 32'-0" LONG STEEL STRAPPING (4 REQD). INSTALL TO ENCIRCLE THE TOP THREE (3) LAYERS OF CONTAINERS AS SHOWN.
- ⑩ HOLD-DOWN STRAP, 2" X .050" X 37'-0" LONG STEEL STRAPPING (4 REQD). INSTALL EACH STRAP FROM TWO (2) 18'-6" LONG PIECES. STAPLE TO PIECE MARKED ④ W/4-2" STAPLES.
- ⑪ PAD, 2" X .050" X 24" LONG STEEL STRAPPING (8 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑩. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (1/2 REQD). USE TWO (2) UNDER EACH STAKE-POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.

(CONTINUED ON PAGE 13)

( KEY NUMBERS CONTINUED )

- 12 SEAL FOR 1-1/4" STRAPPING (48 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.
- 13 SEAL FOR 2" STRAPPING (32 REQD, 8 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED 11. SEE GENERAL NOTE "O" ON PAGE 2.

SPECIAL NOTES:

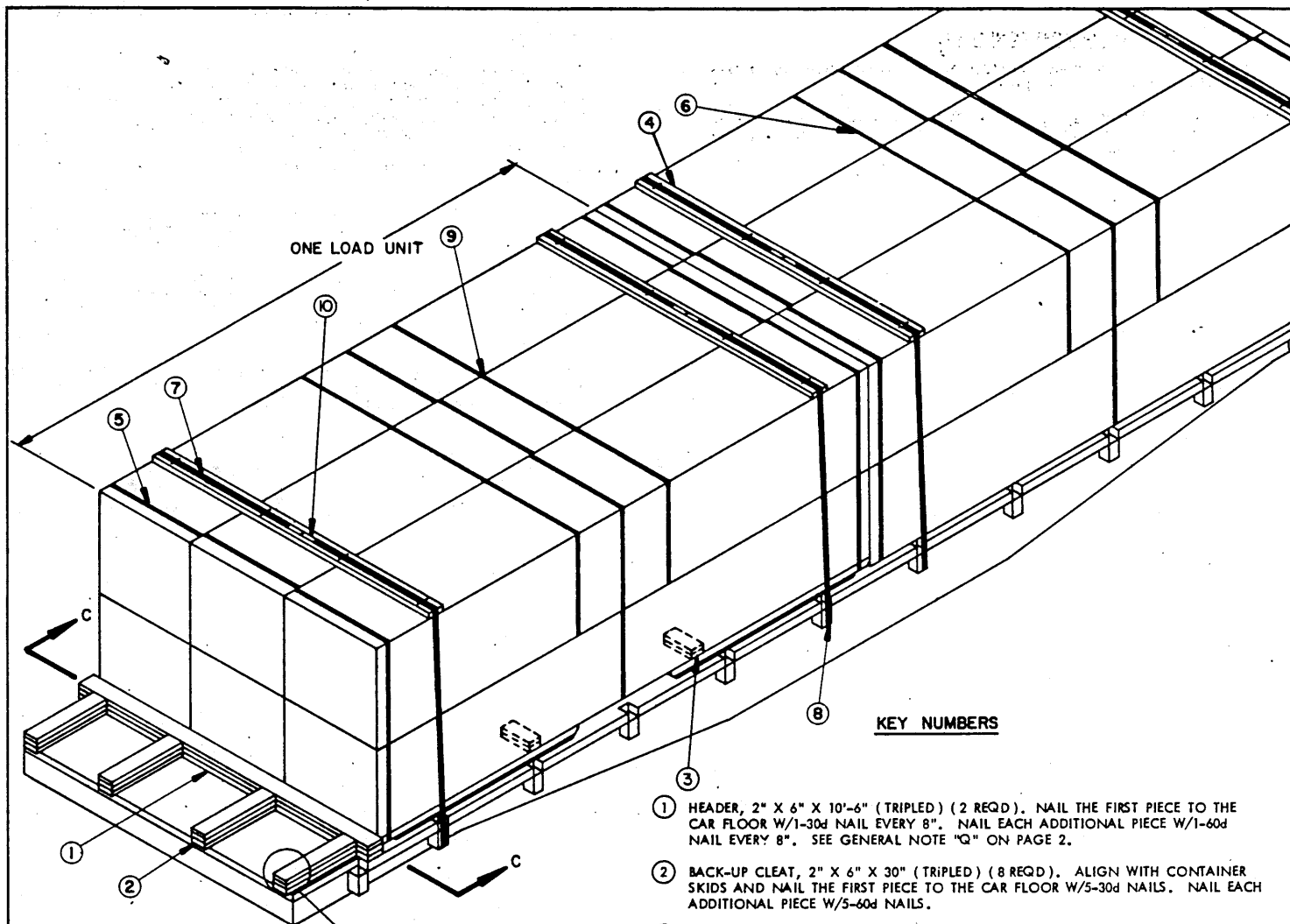
1. A 40-CONTAINER LOAD OF THE 1-UNIT PACK IS SHOWN ON A 48'-6" LONG (INSIDE LENGTH BETWEEN BULKHEADS) BY 10'-6" WIDE (PLATFORM) FLAT CAR EQUIPPED WITH FIXED-END BULKHEADS. A 9'-9" WIDE CAR IS THE MINIMUM WIDTH CAR THAT CAN BE USED. SHORTER OR LONGER CARS CAN BE USED, HOWEVER, THE LENGTH BETWEEN BULKHEADS CANNOT BE LESS THAN 36'-0" FOR SHIPMENT OF TWO (2) LOAD UNITS. IF THE CAR HAS A CLEARANCE OF 53'-6" OR MORE BETWEEN BULKHEADS, THREE (3) LOAD UNITS MAY BE SHIPPED ON THE CAR. SEE NOTE 3 BELOW.
2. THE DEPICTED METHOD IS ALSO APPLICABLE FOR SHIPMENT OF 5-CONTAINER HIGH LOAD UNITS, HOWEVER, BLOCKING AND BRACING PIECES WILL COMPLY WITH THOSE SPECIFIED IN THE KEY NUMBERS ON PAGE 6 AND THE PROVISIONS OF SPECIAL NOTE 2 ON PAGE 7.
3. THE ISOMETRIC VIEW DEPICTS FLOOR LINE BLOCKING PROCEDURES TO BE USED WHEN THE VOID SPACE BETWEEN TWO (2) LOAD UNITS MEASURES 72" OR MORE. WHEN THE SPACE BETWEEN LOAD UNITS IS LESS THAN 72", THE APPLICABLE "ALTERNATIVE METHOD A OR B" AS SHOWN ON PAGE 24 WILL BE USED.
4. THE QUANTITY OF CONTAINERS IN ANY LOAD UNIT MAY BE ADJUSTED AS REQUIRED TO SUIT THE QUANTITY TO BE SHIPPED. SEE PROCEDURES ON PAGES 6 THRU 9 FOR VARIOUS LOAD UNIT CONFIGURATIONS.

BILL OF MATERIAL

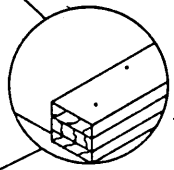
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	38	26
2" X 6"	223	223
NAILS	NO. REQD	POUNDS
10d (3")	32	1/2
30d (4-1/2")	150	7-1/2
60d (6")	140	14
STEEL STRAPPING, 1-1/4" X .035" -----	492' REQD -----	70 LBS
STEEL STRAPPING, 2" X .050" -----	164' REQD -----	55 LBS
SEAL FOR 1-1/4" STRAPPING -----	48 REQD -----	3 LBS
SEAL FOR 2" STRAPPING -----	32 REQD -----	7 LBS
STAPLE FOR 1-3/4" STRAP -----	64 REQD -----	NIL
STAPLE FOR 2" STRAP -----	16 REQD -----	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
1-UNIT PACK -----	40 -----	18,400 LBS
DUNNAGE -----	-----	780 LBS
TOTAL WEIGHT -----	-----	19,180 LBS



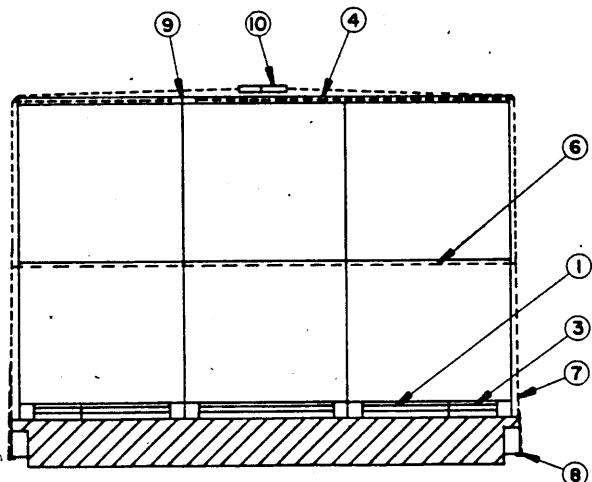
ISOMETRIC VIEW



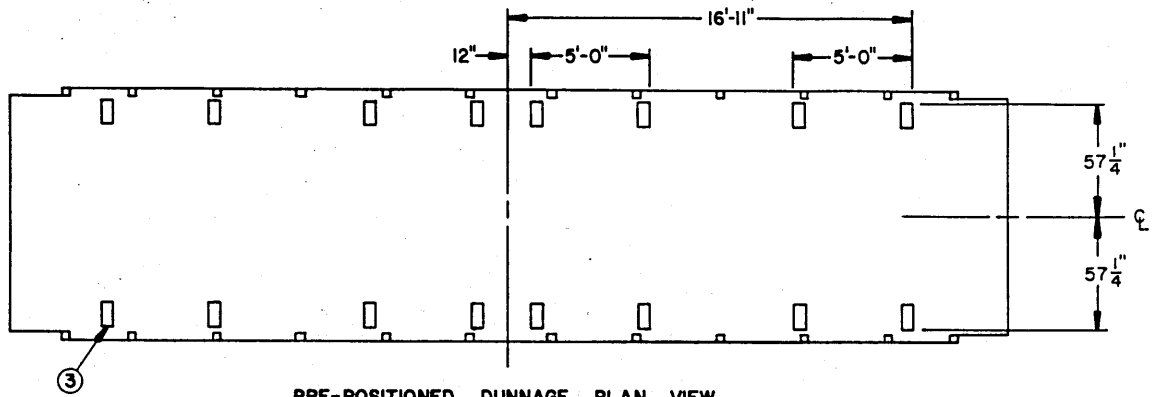
APPLICATION OF STAGGERED NAILING PATTERN. SEE GENERAL NOTE "Q" ON PAGE 2.

KEY NUMBERS

- ① HEADER, 2" X 6" X 10'-6" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (8 REQD). ALIGN WITH CONTAINER SKIDS AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (16 REQD). PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 15. NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 10'-2" (4 REQD).
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" X 23'-0" LONG STEEL STRAPPING (18 REQD, 3 PER STACK). INSTALL TO ENCIRCLE A FIRST AND A SECOND-LAYER CONTAINER AS SHOWN.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" X 29'-0" LONG STEEL STRAPPING (4 REQD). INSTALL TO ENCIRCLE THE LATERALLY ADJACENT TOP-LAYER CONTAINERS AS SHOWN.
- ⑦ HOLD-DOWN STRAP, 2" X .050" X 37'-0" LONG STEEL STRAPPING (4 REQD). INSTALL EACH STRAP FROM TWO (2) 18'-6" LONG PIECES. STAPLE TO PIECE MARKED ④ W/4-2" STAPLES.
- ⑧ PAD, 2" X .050" STEEL STRAPPING 24" LONG (8 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑦. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (16 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑨ SEAL FOR 1-1/4" STRAPPING (44 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.
- ⑩ SEAL FOR 2" STRAPPING (32 REQD, 8 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑧. SEE GENERAL NOTE "O" ON PAGE 2.



SECTION C-C



**PRE-POSITIONED DUNNAGE PLAN VIEW**

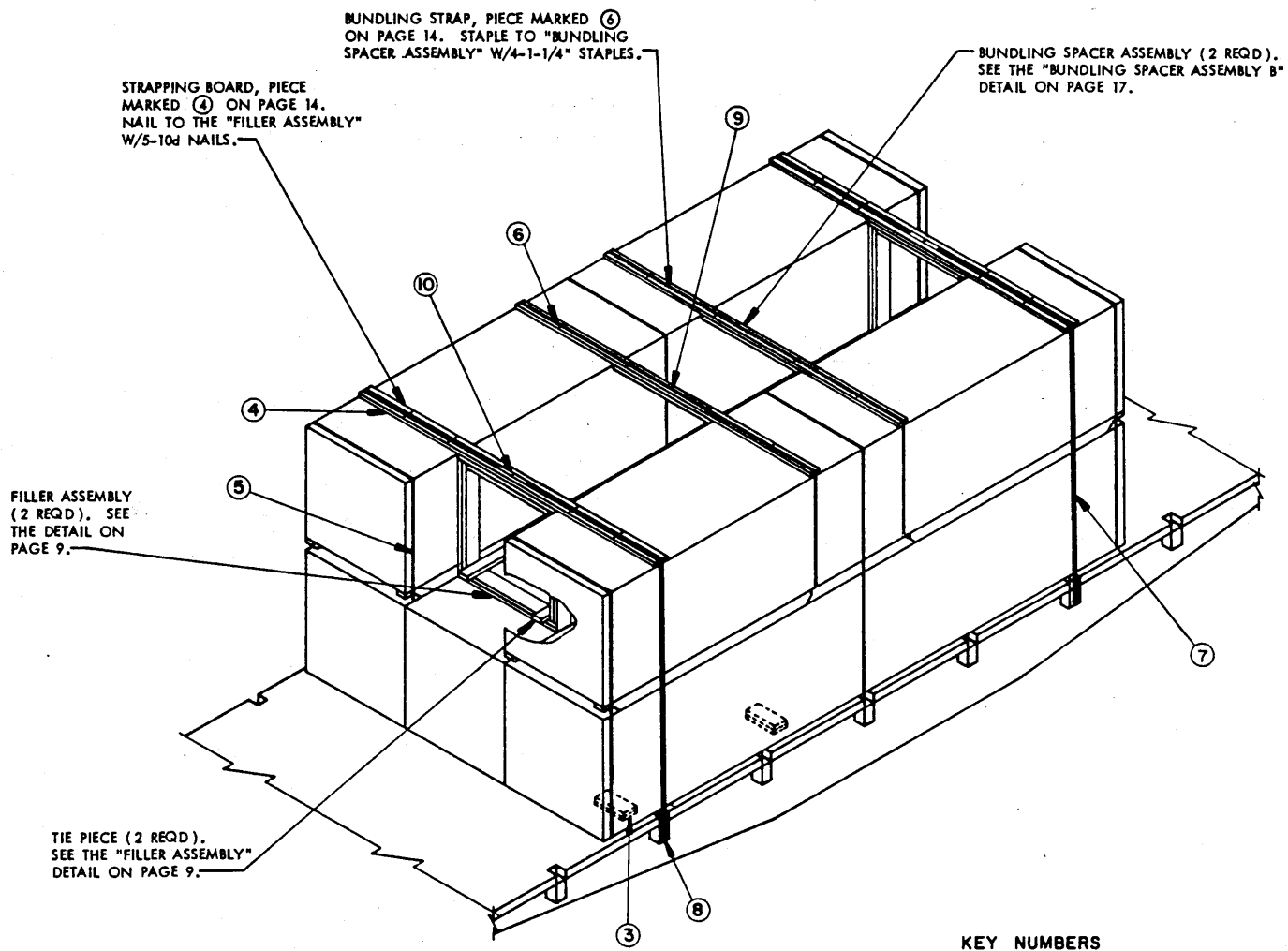
**SPECIAL NOTES:**

1. A 12-CONTAINER LOAD OF THE 4-UNIT PACK IS SHOWN ON A 41'-6" LONG BY 10'-6" WIDE (PLATFORM) FLAT CAR. SHORTER CARS CANNOT BE USED. A 10'-2" WIDE (PLATFORM) CAR IS THE MINIMUM WIDTH CAR THAT CAN BE USED FOR SHIPMENT OF THE DEPICTED LOAD. SEE GENERAL NOTE "R" ON PAGE 2 AND NOTE 5 BELOW.
2. IF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS IS TO BE SHIPPED, ONE CONTAINER MAY BE OMITTED FROM THE TOP LAYER OF THE CENTER STACK OF ONE OR MORE LOAD UNITS. FILLER ASSEMBLIES WILL BE USED IN THE PLACE OF EACH OMITTED CONTAINER AND PROCEDURES SPECIFIED ON PAGE 16 WILL APPLY. ALSO, THE TOP LAYER MAY BE OMITTED FROM ANY LOAD UNIT.
3. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO THE SHIPMENT OF A 6-CONTAINER LOAD OF 8-UNIT PACKS, EXCEPT THAT BUNDLING STRAPS, PIECES MARKED (6), MUST BE INCREASED TO 35'-0" LONG. STACK UNITIZING STRAPS, PIECES MARKED (5), WILL NOT BE REQUIRED.
4. IF DESIRED, A CAR EQUIPPED WITH FIXED-END BULKHEADS MAY BE USED AND THE PROCEDURES APPLIED AS SPECIFIED ON PAGES 22 AND 23.
5. ALTHOUGH NOT SHOWN IN THE LOAD VIEW ON PAGE 14, THE 4-UNIT OR 8-UNIT PACKS MUST BE PROVIDED WITH PACKAGE REINFORCING STRAPS AS REQUIRED BY GENERAL NOTE "S" ON PAGE 2 AND AS DELINEATED ON PAGE 3.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	196	196
NAILS	NO. REQD	POUNDS
30d (4-1/2")	136	7
60d (6")	144	14-1/2
STEEL STRAPPING, 1-1/4" X .035"	530' REQD	76 LBS
STEEL STRAPPING, 2" X .050"	164' REQD	55 LBS
SEAL FOR 1-1/4" STRAPPING	44 REQD	2 LBS
SEAL FOR 2" STRAPPING	32 REQD	7 LBS
STAPLE FOR 2" STRAP	16 REQD	NIL

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
4-UNIT PACK	12	19,500 LBS
DUNNAGE		652 LBS
<b>TOTAL WEIGHT</b>		<b>20,152 LBS</b>



**ISOMETRIC VIEW**

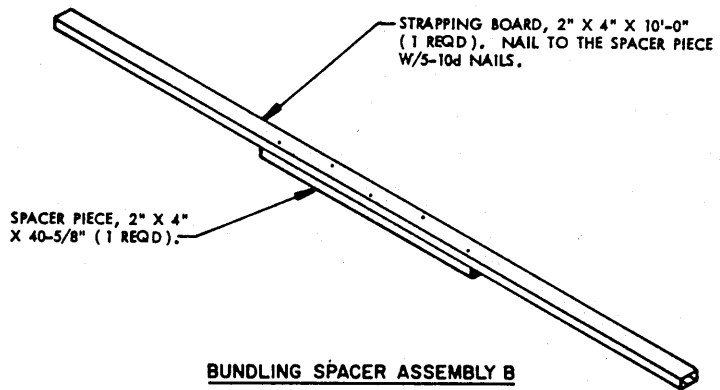
**KEY NUMBERS**

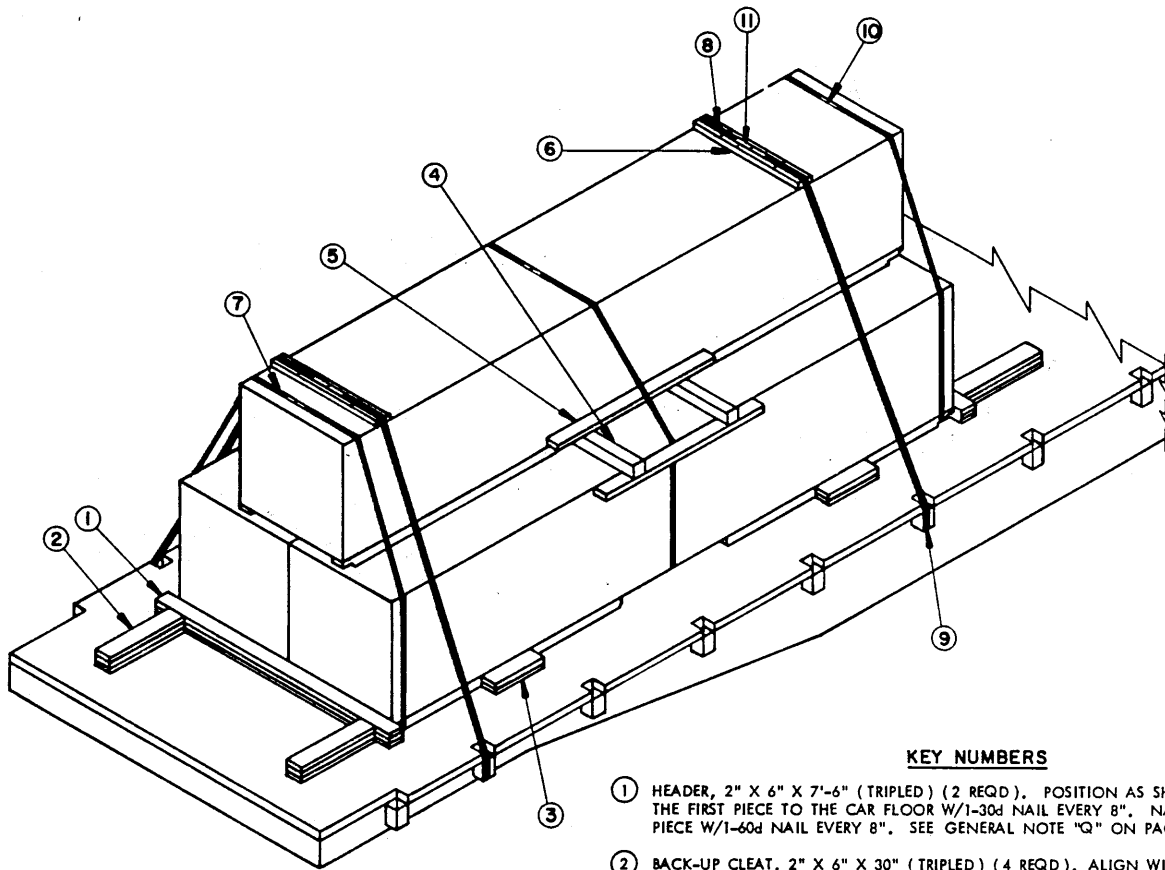
FOR KEY NUMBERS SHOWN SEE PAGE 14.

**SPECIAL NOTES:**

1. THE ISOMETRIC VIEW DEPICTS PROCEDURES FOR AN OMITTED CONTAINER WITHIN A LOAD UNIT. TWO (2) FILLER ASSEMBLIES AND TWO (2) TIE PIECES MUST BE USED IN THE PLACE OF EACH OMITTED CONTAINER. SEE NOTE 3 BELOW.
2. A CONTAINER CAN ONLY BE OMITTED FROM THE TOP LAYER OF THE CENTER STACK OF ONE OR MORE LOAD UNITS.
3. ALTHOUGH NOT SHOWN IN THE LOAD VIEW ABOVE, THE 4-UNIT PACKS MUST BE PROVIDED WITH PACKAGE REINFORCING STRAPS AS REQUIRED BY GENERAL NOTE "5" ON PAGE 2 AND AS DELINEATED ON PAGE 3.







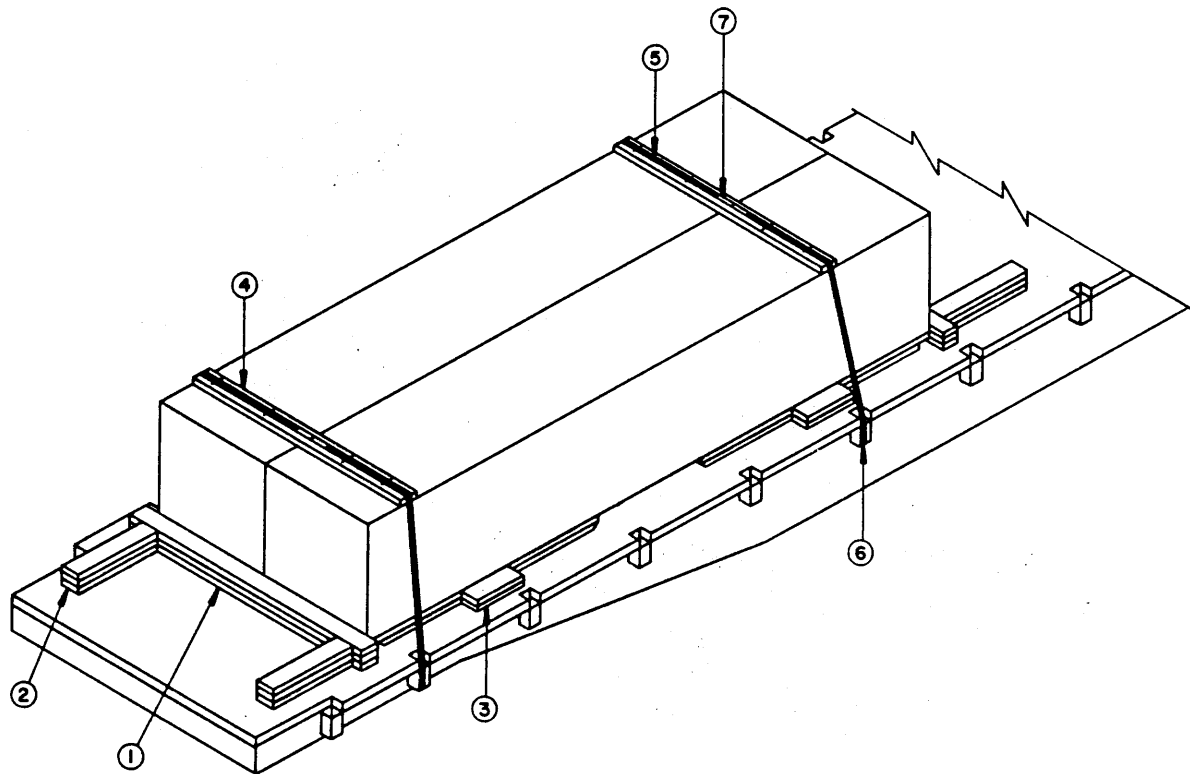
**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. A 3-CONTAINER LOAD OF THE 4-UNIT PACK IS SHOWN ON A 10'-6" WIDE (PLATFORM) FLAT CAR. A NARROWER CAR MAY BE USED. SEE NOTE 4 BELOW.
2. TWO (2) BACK-UP CLEATS, SHOWN AS PIECES MARKED ②, ARE ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 10,000 POUNDS.
3. IF THE CAR IS EQUIPPED WITH FIXED-END BULKHEADS, POSITION ONE END OF THE CONTAINERS AGAINST THE BULKHEAD AND OMIT ONE HEADER, PIECE MARKED ① AND TWO BACK-UP CLEATS, PIECES MARKED ②.
4. ALTHOUGH NOT SHOWN IN THE LOAD VIEW ABOVE, THE 4-UNIT PACKS MUST BE PROVIDED WITH PACKAGE REINFORCING STRAPS AS REQUIRED BY GENERAL NOTE "S" ON PAGE 2 AND AS DELINEATED ON PAGE 3.

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 7'-6" (TRIPLED) (2 REQD). POSITION AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (4 REQD). ALIGN WITH CONTAINER SKIDS AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 18" (DOUBLED) (4 REQD). CENTER ON THE CONTAINER SKIDS AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/3-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ SUPPORT PIECE, 4" X 4" X 7'-6" (2 REQD). POSITION UNDER TOP CONTAINER TO CONTACT INNER ENDS OF THE SKIDS.
- ⑤ TIE PIECE, 2" X 4" X 60" (4 REQD). POSITION TO CONTACT SIDE OF CONTAINERS AS SHOWN AND NAIL TO PIECES MARKED ④ W/3-10d NAILS AT EACH JOINT.
- ⑥ HOLD-DOWN STRAPPING BOARD, 2" X 6" X 40" (2 REQD).
- ⑦ BUNDLING STRAP, 1-1/4" X .035" X 27'-0" LONG STEEL STRAPPING (3 REQD). INSTALL TO ENCIRCLE THREE CONTAINERS AS SHOWN.
- ⑧ HOLD-DOWN STRAP, 2" X .050" X 32'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO (2) 16'-0" LONG PIECES. STAPLE TO PIECE MARKED ⑥ W/2-2" STAPLES.
- ⑨ PAD, 2" X .050" STEEL STRAPPING 24" LONG (4 REQD). POSITION UNDER STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP, PIECE MARKED ⑧. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑩ SEAL FOR 1-1/4" STRAPPING (6 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "O" ON PAGE 2.
- ⑪ SEAL FOR 2" STRAPPING (16 REQD, 8 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑨.



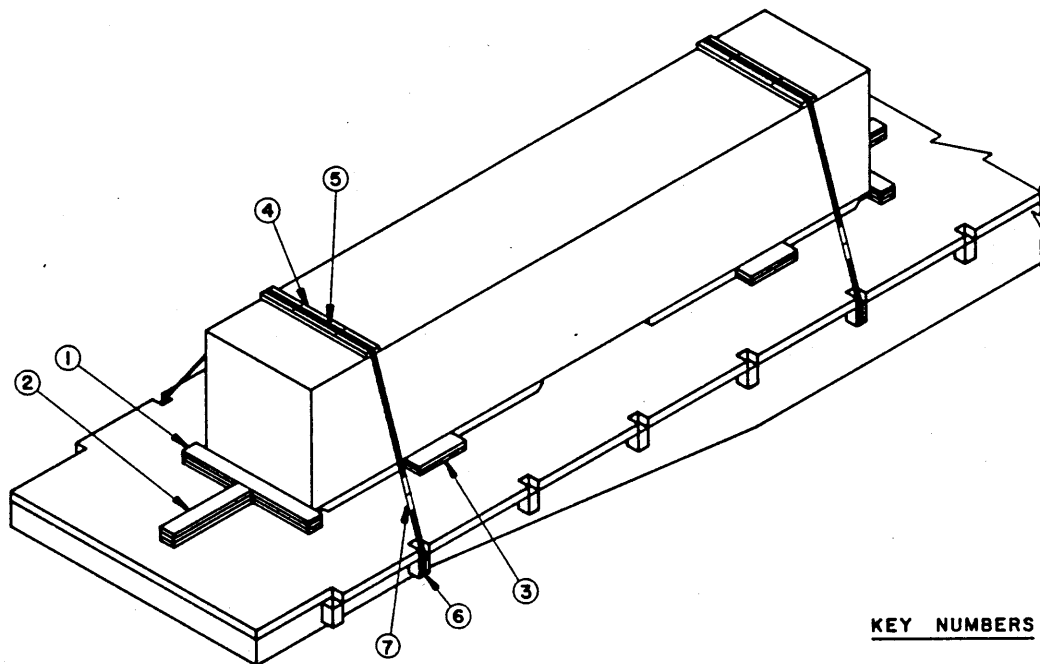
**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. A 2-CONTAINER LOAD OF THE 4-UNIT PACK IS SHOWN ON AN 8'-6" WIDE (PLATFORM) FLAT CAR. A WIDER CAR MAY BE USED. SEE NOTE 5 BELOW.
2. TWO (2) BACK-UP CLEATS, SHOWN AS PIECES MARKED ②, ARE ADEQUATE FOR RETAINING A MAXIMUM LCL 1-LAYER, 2-CONTAINER WIDE LOAD.
3. IF THE CAR IS EQUIPPED WITH FIXED-END BULKHEADS, POSITION ONE END OF THE CONTAINERS AGAINST THE BULKHEAD AND OMIT ONE HEADER, PIECE MARKED ① AND TWO BACK-UP CLEATS, PIECES MARKED ②.
4. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE SHIPMENT OF A 2-CONTAINER LOAD OF THE 8-UNIT PACK. HOWEVER, EACH HOLD-DOWN STRAP, PIECE MARKED ⑤, MUST BE INCREASED TO 35'-0" LONG. ALSO, SIDE BLOCKING PIECES MARKED ③ MUST BE 24" LONG AND EACH PIECE NAILED W/4-30d NAILS.
5. ALTHOUGH NOT SHOWN IN THE LOAD VIEW ABOVE, THE 4-UNIT OR 8-UNIT PACKS MUST BE PROVIDED WITH PACKAGE REINFORCING STRAPS AS REQUIRED BY GENERAL NOTE "5" ON PAGE 2 AND AS DELINEATED ON PAGE 3.

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 7'-6" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8".
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (4 REQD). ALIGN WITH CONTAINER SKIDS AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 18" (DOUBLED) (4 REQD). CENTER ON THE CONTAINER SKIDS AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/3-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 6'-9" (2 REQD).
- ⑤ HOLD-DOWN STRAP, 2" X .050" X 27'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO (2) 13'-6" LONG PIECES. STAPLE TO PIECE MARKED ④ W/4-2" STAPLES.
- ⑥ PAD, 2" X .050" X 24" LONG STEEL STRAPPING (4 REQD). POSITION UNDER THE STAKE POCKET AND SEAL TO THE HOLD-DOWN STRAP, PIECE MARKED ⑤. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑦ SEAL FOR 2" STRAPPING (16 REQD, 8 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑥.



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 48" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE W/6-60d NAILS.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (2 REQD). POSITION ON CENTER OF THE HEADER MARKED ① AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 18" (DOUBLED) (4 REQD). CENTER ON CONTAINER SKID AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/3-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 40" (2 REQD).
- ⑤ HOLD-DOWN STRAP, 2" X .050" X 26'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM ONE (1) PIECE OF STRAPPING; ANCHOR IT TO THE STAKE POCKET ON ONE SIDE OF THE CAR, RUN IT OVER THE LOAD, PASS IT THROUGH THE STAKE POCKET ON THE OPPOSITE SIDE OF THE CAR, AND BRING IT BACK UP ABOVE THE CAR FLOOR WHERE IT CAN BE TENSIONED AND SEALED. STAPLE TO PIECE MARKED ④ W/2-2" STAPLES.
- ⑥ PAD, 2" X .050" X 24" LONG STEEL STRAPPING (4 REQD). POSITION UNDER THE STAKE POCKET AND SEAL TO A HOLD-DOWN STRAP MARKED ⑤. SEE "DETAIL A" ON PAGE 21. ALT: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 21.
- ⑦ SEAL FOR 2" STRAPPING (12 REQD, 6 PER STRAP). DOUBLE CRIMP EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑥.

**SPECIAL NOTES:**

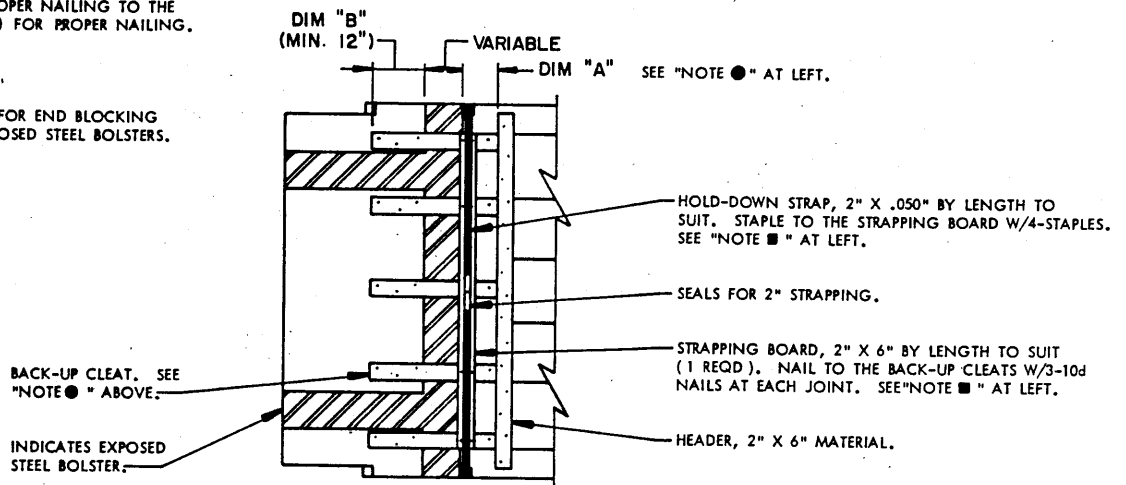
1. A 1-CONTAINER LOAD OF THE 4-UNIT PACK IS SHOWN ON AN 8'-6" WIDE (PLATFORM) FLAT CAR. A WIDER CAR MAY BE USED. SEE NOTE 3 BELOW.
2. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE SHIPMENT OF A 1-CONTAINER LOAD OF THE 8-UNIT PACK. HOWEVER, EACH HOLD-DOWN STRAP, PIECE MARKED ⑤, MUST BE INCREASED TO 33'-0" LONG.
3. ALTHOUGH NOT SHOWN IN THE LOAD VIEW ABOVE, THE 4-UNIT OR 8-UNIT PACKS MUST BE PROVIDED WITH PACKAGE REINFORCING STRAPS AS REQUIRED BY GENERAL NOTE "5" ON PAGE 2 AND AS DELINEATED ON PAGE 3.

**NOTE ● :**

WHEN LOADING CARS HAVING EXPOSED STEEL BOLSTERS, DIMENSION "B" MUST BE AT LEAST 12", AND THE TOTAL OF DIMENSIONS "A" AND "B" MUST BE EQUAL TO OR GREATER THAN THE LENGTH OF A BACK-UP CLEAT (PIECE MARKED ②) TO PROVIDE FOR PROPER NAILING TO THE CAR FLOOR. SEE PIECE MARKED ② FOR PROPER NAILING.

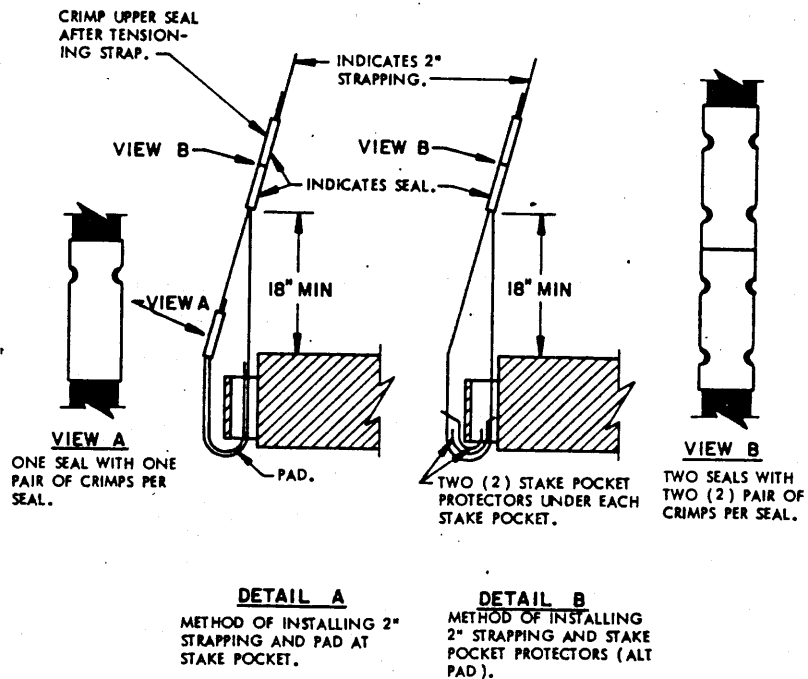
**NOTE ■ :**

THE OPTIONAL STRAP HOLD-DOWN FOR END BLOCKING IS FOR CARS WITH OR WITHOUT EXPOSED STEEL BOLSTERS.



**END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS**

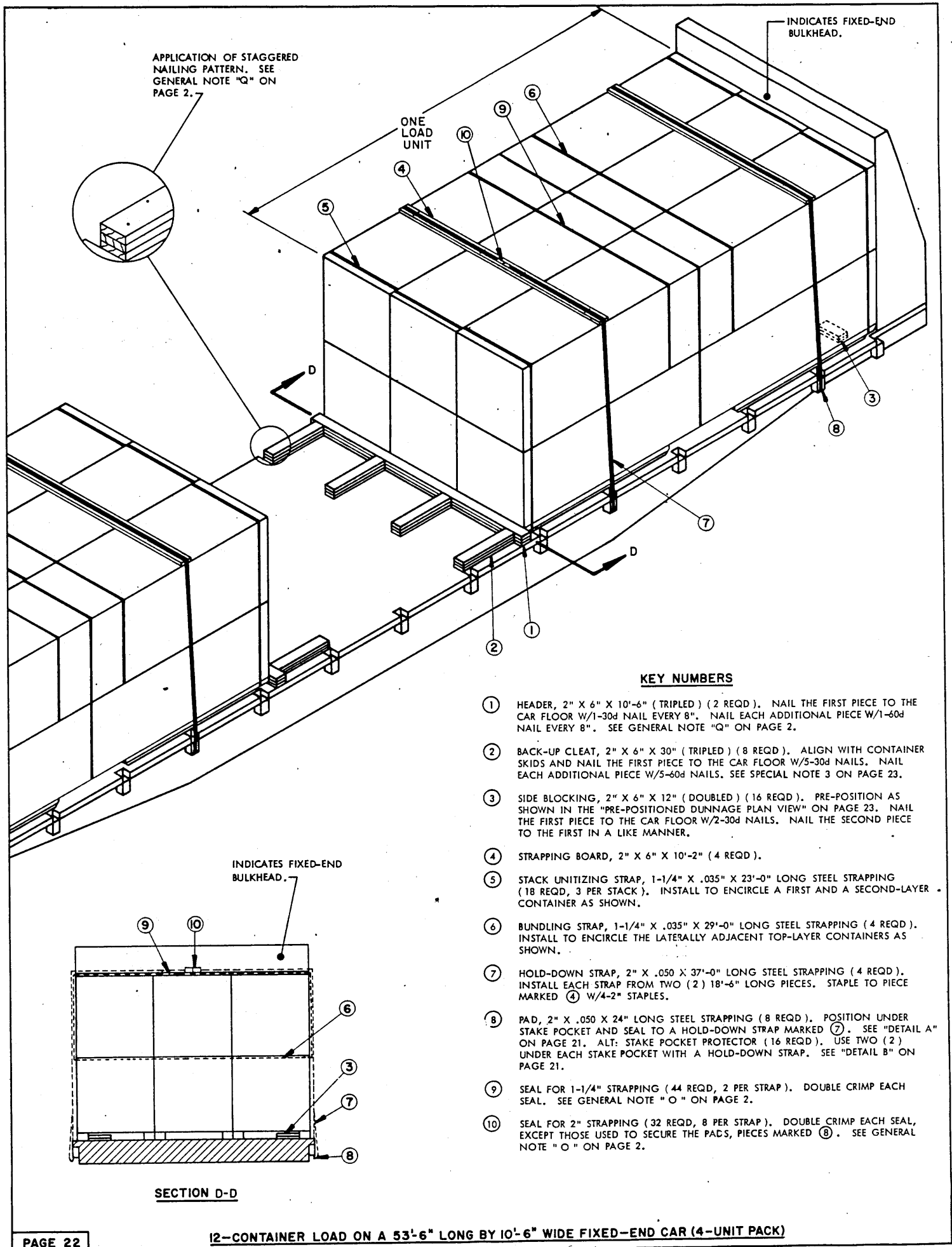
SEE GENERAL NOTE "H" ON PAGE 2.

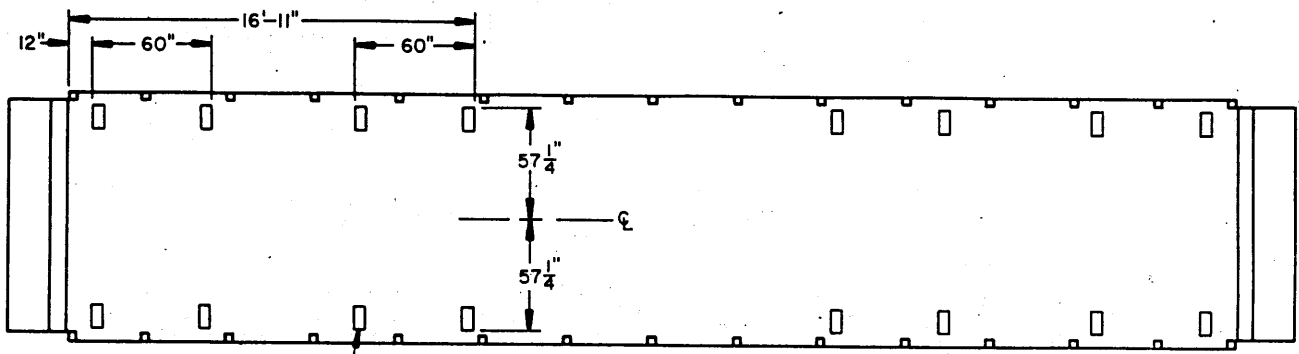


**DETAIL A**  
METHOD OF INSTALLING 2" STRAPPING AND PAD AT STAKE POCKET.

**DETAIL B**  
METHOD OF INSTALLING 2" STRAPPING AND STAKE POCKET PROTECTORS (ALT PAD).

**DETAILS**





**PRE-POSITIONED DUNNAGE PLAN VIEW**

**SPECIAL NOTES:**

1. A 12-CONTAINER LOAD OF THE 4-UNIT PACK IS SHOWN ON A 48'-6" LONG (INSIDE LENGTH BETWEEN BULKHEADS) BY 10'-6" WIDE (PLATFORM) FLAT CAR EQUIPPED WITH FIXED-END BULKHEADS. A 10'-2" WIDE CAR IS THE MINIMUM WIDTH CAR THAT CAN BE USED. SHORTER OR LONGER CARS CAN BE USED, HOWEVER, THE LENGTH BETWEEN BULKHEADS CANNOT BE LESS THAN 36'-0" FOR SHIPMENT OF TWO (2) LOAD UNITS. IF THE CAR HAS A CLEARANCE OF 54'-0" OR MORE BETWEEN BULKHEADS, THREE (3) LOAD UNITS MAY BE SHIPPED ON THE CAR. SEE NOTES 3 AND 5 BELOW.
2. IF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS IS TO BE SHIPPED, ONE CONTAINER MAY BE OMITTED FROM THE TOP LAYER OF THE CENTER STACK OF ONE OR MORE LOAD UNITS. FILLER ASSEMBLIES WILL BE USED IN THE PLACE OF EACH OMITTED CONTAINER AND PROCEDURES SPECIFIED ON PAGE 16 WILL APPLY. ALSO, THE TOP LAYER MAY BE OMITTED FROM ANY LOAD UNIT.
3. THE ISOMETRIC VIEW DEPICTS FLOOR LINE BLOCKING PROCEDURES TO BE USED WHEN THE VOID SPACE BETWEEN TWO (2) LOAD UNITS MEASURES 72" OR MORE. WHEN THE SPACE BETWEEN LOAD UNITS IS LESS THAN 72" THE APPLICABLE "ALTERNATIVE METHOD A OR B" AS SHOWN ON PAGE 24 WILL BE USED.
4. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO THE SHIPMENT OF A 6-CONTAINER LOAD OF THE 8-UNIT PACKS, EXCEPT THAT BUNDLING STRAPS, PIECES MARKED (4), MUST BE INCREASED TO 35'-0" LONG. STACK UNITIZING STRAPS, PIECES MARKED (5), WILL NOT BE REQUIRED.
5. ALTHOUGH NOT SHOWN IN THE LOAD VIEW ON PAGE 22, THE 4-UNIT OR 8-UNIT PACKS MUST BE PROVIDED WITH PACKAGE REINFORCING STRAPS AS REQUIRED BY GENERAL NOTE "5" ON PAGE 2 AND AS DELINEATED ON PAGE 3.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	196	196
NAILS	NO. REQD	POUNDS
30d ( 4-1/2" )	136	7
60d ( 6" )	144	14-1/2
STEEL STRAPPING, 1-1/4" X .035"	530' REQD	76 LBS
STEEL STRAPPING, 2" X .050"	164' REQD	55 LBS
SEAL FOR 1-1/4" STRAPPING	44 REQD	2 LBS
SEAL FOR 2" STRAPPING	32 REQD	7 LBS
STAPLE FOR 2" STRAP	16 REQD	NIL

**LOAD AS SHOWN**

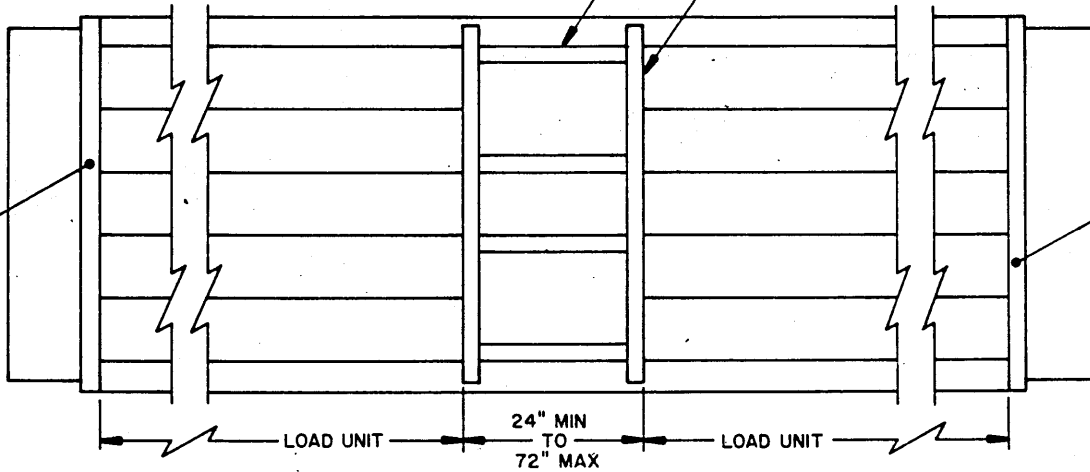
ITEM	QUANTITY	WEIGHT (APPROX)
4-UNIT PACK	12	19,500 LBS
DUNNAGE		652 LBS
<b>TOTAL WEIGHT</b>		<b>20,152 LBS</b>

STRUT, 2" X 6" BY CUT TO FIT BETWEEN HEADERS ( TRIPLED ) ( 4 REQD ).  
ALIGN WITH CONTAINER SKIDS AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 12" ( MINIMUM 3 NAILS ).  
NAIL EACH ADDITIONAL PEICE W/1-60d NAIL EVERY 12" ( MINIMUM 3 NAILS EACH PIECE ).

HEADER, PIECE MARKED ① .

INDICATES FIXED-END BULKHEAD.

INDICATES FIXED-END BULKHEAD.



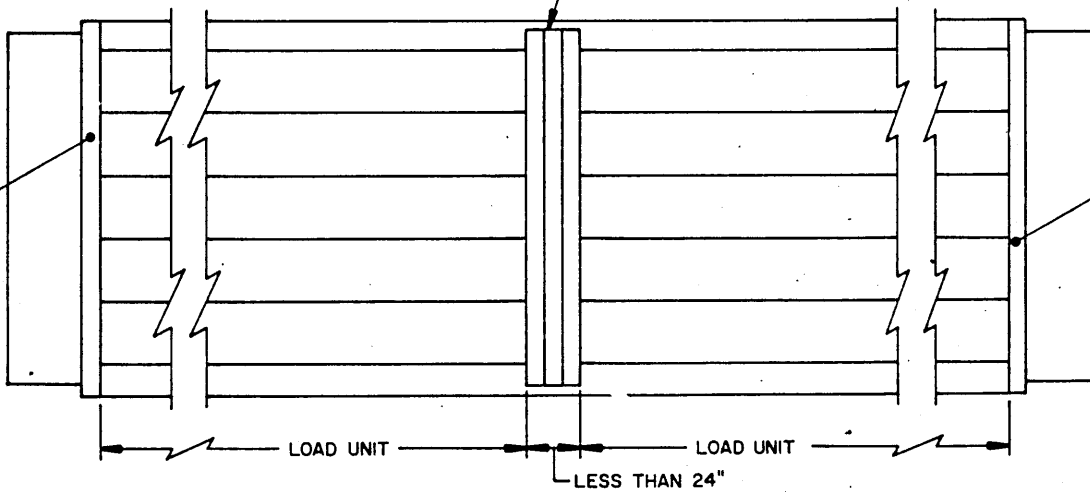
**PLAN VIEW FIXED-END CAR  
BLOCKING BETWEEN LOAD UNITS  
ALTERNATIVE METHOD A**

THIS PLAN VIEW DEPICTS A LOAD OF 1-UNIT PACKS AND SPECIFIES FLOOR-LINE BLOCKING TO BE USED BETWEEN LOAD UNITS WHEN THE VOID SPACE IS FROM 24" TO 72". THESE PROCEDURES ALSO APPLY TO A LOAD OF 4-UNIT AND/OR 8-UNIT PACKS.

SOLID FILL, 2" THICK MATERIAL BY LOAD WIDTH PLUS 4" IN LENGTH, AND OF WIDTH ( S ) REQUIRED TO FILL THE VOID BETWEEN LOAD UNITS ( TRIPLED ).  
NAIL THE FIRST PIECE ( S ) TO THE CAR FLOOR W/1-30d NAIL EVERY 8".  
NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8".

INDICATES FIXED-END BULKHEAD.

INDICATES FIXED-END BULKHEAD.



**PLAN VIEW FIXED-END CAR  
BLOCKING BETWEEN LOAD UNITS  
ALTERNATIVE METHOD B**

THIS PLAN VIEW DEPICTS A LOAD OF 1-UNIT PACKS AND SPECIFIES FLOOR-LINE BLOCKING TO BE USED BETWEEN LOAD UNITS WHEN THE VOID SPACE IS LESS THAN 24". THESE PROCEDURES ALSO APPLY TO A LOAD OF 4-UNIT AND/OR 8-UNIT PACKS.