

REV NO. 1 APPROVED
 BUREAU OF EXPLOSIVES
B. F. Dracovich
 MILITARY ASSISTANT
 DATE 10/17/64

LOADING & BRACING (CL & LCL) ON FLAT CARS OF CONTROL SURFACE KIT, IN WOODEN CONTAINER, M31, FOR THE NIKE-HERCULES GUIDED MISSILE

<u>ITEM</u>	<u>INDEX</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS-----		2
TYPICAL LCL METHODS-----		3
18 UNIT LOAD, 42'-6"L X 8'-6"W FLAT CAR-----		4
27 UNIT LOAD, 42'-6"L X 8'-6"W FLAT CAR-----		5
36 UNIT LOAD, 42'-6"L X 10'-6" W FLAT CAR-----		6
DETAILS-----		7 & 8

**LOADING & BRACING (CL & LCL) ON FLAT CARS
 OF CONTROL SURFACE KIT, IN WOODEN
 CONTAINER, M31, FOR THE NIKE-HERCULES
 GUIDED MISSILE**

DRAFTERMAN R.H.W.	AMCPA-HE-SK <i>RHS</i>	ENGINEER DIW / AGE	SUBMITTED <i>B. S. Strano</i>
CHECKER <i>GNP</i>	CHECKER <i>RHS</i>	ENGINEER AAL	COMMANDER, SAVANNA ARMY DEPOT
REVISIONS			APPROVED
1	15 JULY 64	FRW GNP	<i>Andrew W. Heid</i> ARMY MISSILE COMMAND
			APPROVED BY ORDER OF COMMANDER, ARMY MATERIEL COMMAND
			<i>Henry J. Holly</i> ARMY SUPPLY & MAINTENANCE COMMAND
MATERIEL COMMAND U.S.A.			
21 NOVEMBER 1957			
	CLASS	DIVISION	DRAWING
	19	48	5095
			FILE
			GM5A43

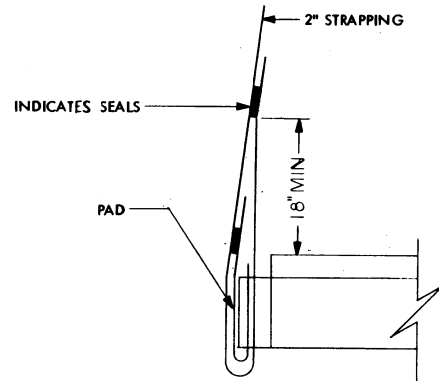
DO NOT SCALE

GENERAL NOTES

- A. LOADS AS SHOWN ON PAGES 4 AND 5 ARE BASED ON A FLAT CAR 42'-6" LONG X 8'-6" WIDE (PLATFORM) WITH STAKE POCKETS SPACED 42" ON CENTER. LARGER CARS MAY BE USED; HOWEVER, CARS LONGER THAN 42'-6" SHOULD NOT BE ORDERED FOR THE SHIPMENT OF THIS ITEM.
- B. LOAD AS SHOWN ON PAGE 6 IS BASED ON A FLAT CAR 42'-6" LONG X 10'-6" WIDE (PLATFORM) WITH STAKE POCKETS SPACED 42" ON CENTER. LARGER CARS MAY BE USED; HOWEVER, CARS LONGER THAN 42'-6" SHOULD NOT BE ORDERED FOR THE SHIPMENT OF THIS ITEM.
- C. SELECTION OF RAIL CARS FOR THE TRANSPORT OF THIS ITEM WILL BE IN ACCORDANCE WITH PARAGRAPH 8,300.4, ORDM 3-4, VOL 3.
- D. **NOTICE:** A SHIPMENT WILL BE POSITIONED ON THE RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE RAIL CAR CONCERNED, OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS CONTAINED HEREIN, FOR FULL OR PARTIAL CARLOAD, MUST BE FOLLOWED FOR BLOCKING, BRACING AND STAYING OF THIS ITEM.
- E. 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 "END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS" DETAIL, PAGE 7.
- F. FOR DETAIL OF CONTAINER SEE DRAWING NO. 8524211.
CONTAINER DIMENSIONS - 147-1/2" LONG X 29" WIDE X 42-1/8" HIGH.
GROSS WEIGHT - 1,050 POUNDS (APPROX).
TARE WEIGHT - 545 POUNDS (APPROX).
- G. 1-1/4" X .035" STEEL STRAPPING, WILL BE USED TO UNITIZE CONTAINERS AS SHOWN. IF THE CAPACITY OF THE MHE PERMITS, IT IS RECOMMENDED THAT CONTAINERS BE UNITIZED PRIOR TO PLACEMENT ABOARD THE FLAT CAR.
- H. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS WITH TWO (2) CRIMPS PER SEAL MUST BE USED.
CAUTION: EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO CONTAINERS.
- J. **CAUTION:** STAKE POCKETS WILL BE USED FOR ALL TIE 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" STRAP. **NOTE:** ONLY ONE (1) STRAP MAY BE ANCHORED INTO ANY ONE (1) CAR STAKE POCKET.
- K. SPECIFIED OUTLOADING PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE EMPTY OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.
- L. WHEN OUTLOADING A SHIPMENT WHICH CONTAINS A SMALLER QUANTITY OF ITEMS THAN SHOWN FOR THE LOADS SHOWN HEREIN AND ALL OF THE STACKS WITHIN A LOAD UNIT DO NOT CONTAIN AN EQUAL NUMBER OF CONTAINERS, SPACER ASSEMBLIES MUST BE INSTALLED IN THE TOP LAYER AS REQUIRED TO PROVIDE A "SQUARE" PROFILE. SEE "SPACER ASSEMBLY" AND "APPLICATION OF SPACER ASSEMBLY" DETAILS, PAGE 8, FOR FABRICATION AND INSTALLATION SPECIFICATIONS.
- M. THE WORDS "ANTI-SKID PLATES" WILL BE STENCILED IN ONE INCH (1") LETTERS ON BOTH SIDES OF THE CONTAINERS TO SHOW THE LOCATIONS OF THESE PLATES.

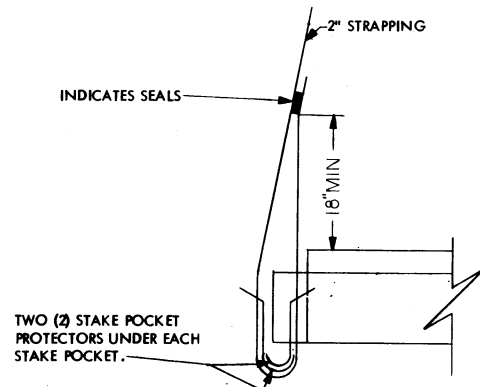
MATERIAL SPECIFICATIONS

- LUMBER: SEE PARAGRAPH 8400, ORDM 3-4, VOL 3.
- NAILS: COMMON, CEMENT COATED, FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- STRAPPING, STEEL: TYPE 1 CLASS "A" OR "C", FED SPEC QQ-5-781. FOR FSN SEE 58-38-100.



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).

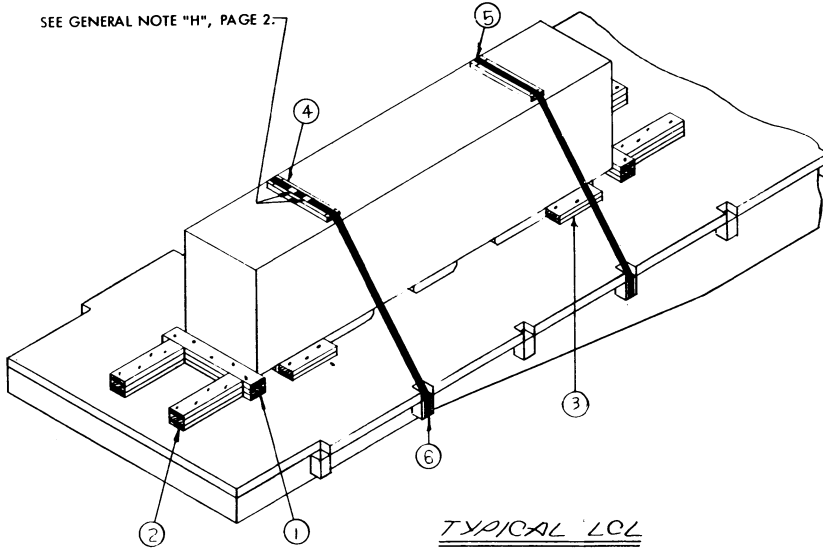
NOTE:

THE TWO (2) BACK UP CLEATS SHOWN AS PIECE (2) ARE ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 10,000 LBS.

KEY NUMBERS

- ① 2" X 6" X 35" (TRIPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ② 2" X 6" X 24" (TRIPLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-30d NAILS. NAIL EACH ADDITIONAL PIECE W/4-60d NAILS. SEE NOTE "B".
- ③ 2" X 6" X 18" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-30d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 4" X 25" (2 REQD).
- ⑤ STEEL STRAPPING, 2" X .050" X 23'-0" (2 REQD). STAPLE TO (4) W/2-2" STAPLES. SEE GENERAL NOTE "J", PAGE 2.
- ⑥ PAD, 2" X .050" STRAP 24" LONG (4 REQD). POSITION UNDER AND SEAL TO (5). SEE DETAIL "A", PAGE 2. ALT: STAKE POCKET PROTECTORS, SIGNODE NO. 1 (OR EQUAL) (8 REQD). TWO USED UNDER EACH STAKE POCKET WITH (5). SEE DETAIL "B", PAGE 2.

SEE GENERAL NOTE "H", PAGE 2.



TYPICAL LCL

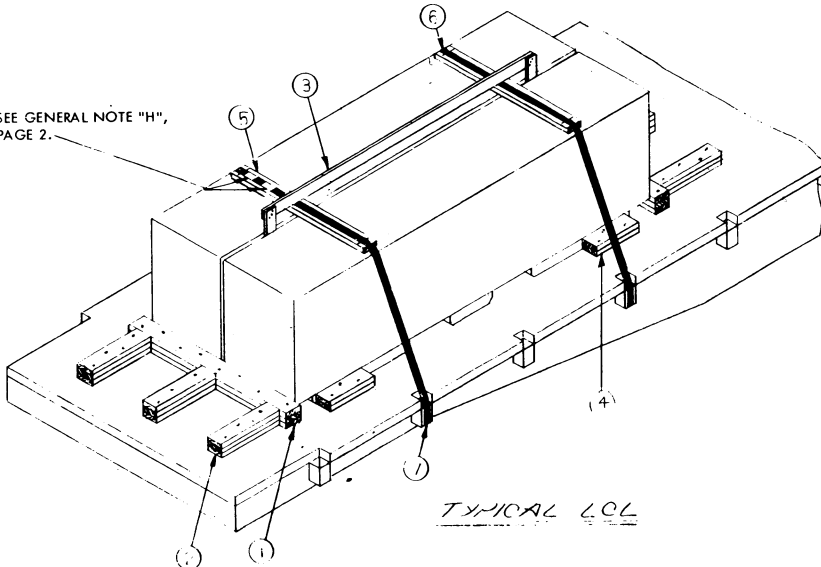
NOTE:

THE THREE (3) BACK UP CLEATS SHOWN AS PIECE (2) ARE ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 15,000 LBS.

KEY NUMBERS

- ① 2" X 6" X 64" (TRIPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8".
- ② 2" X 6" X 24" (TRIPLED) (6 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-30d NAILS. NAIL EACH ADDITIONAL PIECE W/4-60d NAILS. SEE NOTE "B".
- ③ ANTI-CHAFING ASSEMBLY (1 REQD). SEE DETAIL, PAGE 7.
- ④ 2" X 6" X 18" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/3-30d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- ⑤ STRAPPING BOARD, 2" X 4" X 57" (2 REQD).
- ⑥ STEEL STRAPPING, 2" X .050" X 25'-0" (2 REQD). STAPLE TO (5) W/2-2" STAPLES. SEE GENERAL NOTE "J", PAGE 2.
- ⑦ PAD, 2" X .050" STRAP 24" LONG (4 REQD). POSITION UNDER AND SEAL TO (5). SEE DETAIL "A", PAGE 2. ALT: STAKE POCKET PROTECTORS, SIGNODE NO. 1 (OR EQUAL) (8 REQD). TWO USED UNDER EACH STAKE POCKET WITH (5). SEE DETAIL "B", PAGE 2.

SEE GENERAL NOTE "H", PAGE 2.

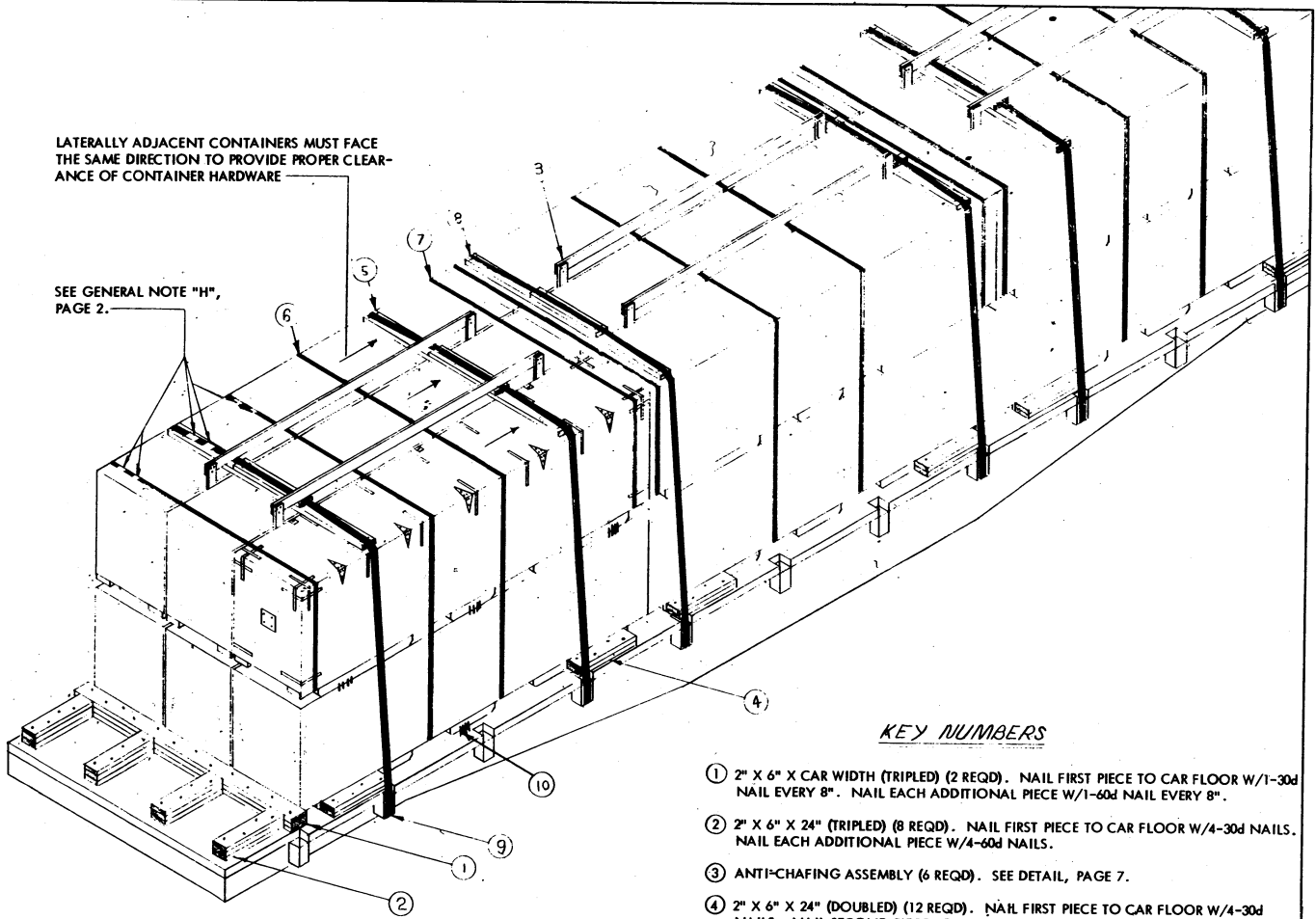


TYPICAL LCL

TYPICAL LCL METHODS

LATERALLY ADJACENT CONTAINERS MUST FACE THE SAME DIRECTION TO PROVIDE PROPER CLEARANCE OF CONTAINER HARDWARE

SEE GENERAL NOTE "H", PAGE 2.



ISOMETRIC VIEW

KEY NUMBERS

- ① 2" X 6" X CAR WIDTH (TRIPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8".
- ② 2" X 6" X 24" (TRIPLED) (8 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-30d NAILS. NAIL EACH ADDITIONAL PIECE W/4-60d NAILS.
- ③ ANTI-CHAFING ASSEMBLY (6 REQD). SEE DETAIL, PAGE 7.
- ④ 2" X 6" X 24" (DOUBLED) (12 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-30d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- ⑤ STRAPPING BOARD (6 REQD). SEE DETAIL, PAGE 7.
- ⑥ STEEL STRAPPING, 1-1/4" X .035" X 21'-0" (18 REQD).
- ⑦ STEEL STRAPPING, 1-1/4" X .035" X 24'-0" (6 REQD).
- ⑧ STEEL STRAPPING, 2" X .050" X 34'-0" (6 REQD). STAPLE TO ⑤ W/4-2" STAPLES, SEE GENERAL NOTE "J", PAGE 2.
- ⑨ PAD, 2" X .050" STRAP 24" LONG (12 REQD). POSITION UNDER AND SEAL TO ⑧. SEE DETAIL "A", PAGE 2.
ALT: STAKE POCKET PROTECTORS, SIGNODE NO. 1 (OR EQUAL) (24 REQD). TWO (2) USED UNDER EACH STAKE POCKET WITH ⑧. SEE DETAIL "B", PAGE 2.
- ⑩ ANTI-SKID PLATES (108 REQD). POSITION UNDER SKIDS OF ALL CONTAINERS. SIX (6) REQUIRED PER CONTAINER. SEE GENERAL NOTE "M", PAGE 2.

BILL OF MATERIAL

LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	148	50
2" X 6"	205	205
NAILS	NO. REQD	POUNDS
6d (2")	36	1/4
10d (3")	24	1/2
30d (4-1/2")	152	7-1/2
60d (6")	112	11-1/2
STRAPPING, STEEL, 1/4" X .035"-----522' REQD-----		75 LBS
STRAPPING, STEEL, 2" X .050"-----228' REQD-----		76 LBS
STAPLES FOR 2" STRAPPING-----24 REQD-----		1/4 LBS
ANTI-SKID PLATES-----108 REQD-----		27 LBS

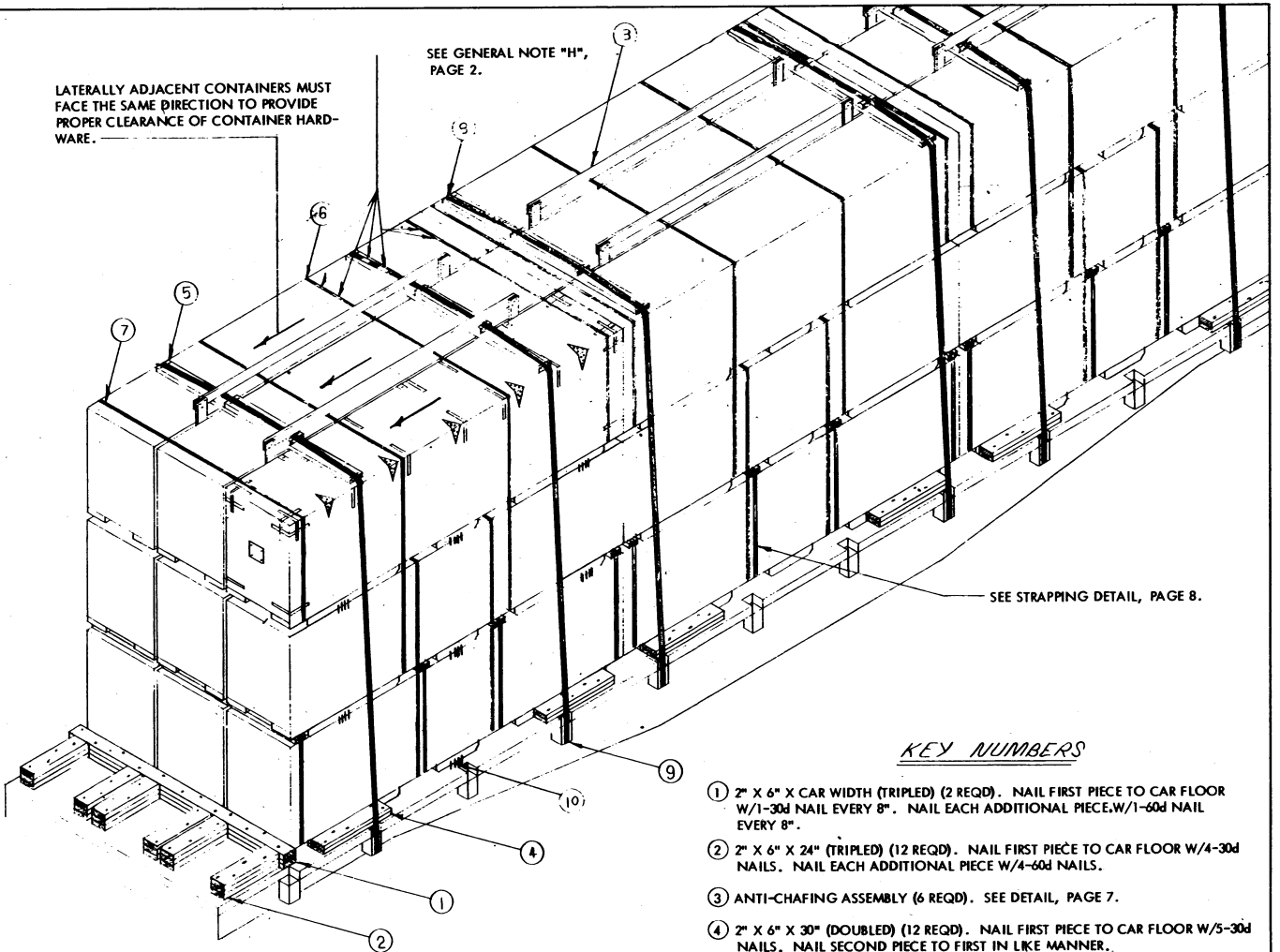
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTROL SURFACE KIT-----	18-----	18,900 LBS
DUNNAGE-----	-----	835 LBS
TOTAL WEIGHT-----	-----	19,735 LBS (APPR Q)

18 UNIT LOAD
42'-6" L x 8'-6" W FLAT CAR

LATERALLY ADJACENT CONTAINERS MUST FACE THE SAME DIRECTION TO PROVIDE PROPER CLEARANCE OF CONTAINER HARDWARE.

SEE GENERAL NOTE "H", PAGE 2.



SEE STRAPPING DETAIL, PAGE 8.

ISOMETRIC VIEW

KEY NUMBERS

- ① 2" X 6" X CAR WIDTH (TRIPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8".
- ② 2" X 6" X 24" (TRIPLED) (12 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-30d NAILS. NAIL EACH ADDITIONAL PIECE W/4-60d NAILS.
- ③ ANTI-CHAFING ASSEMBLY (6 REQD). SEE DETAIL, PAGE 7.
- ④ 2" X 6" X 30" (DOUBLED) (12 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-30d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- ⑤ STRAPPING BOARD (6 REQD). SEE DETAIL, PAGE 7.
- ⑥ STEEL STRAPPING, 1-1/4" X .035" X 21'-0" (36 REQD).
- ⑦ STEEL STRAPPING, 1-1/4" X .035" X 24'-0" (6 REQD).
- ⑧ STEEL STRAPPING, 2" X .050" X 40'-0" (6 REQD). STAPLE TO ⑤ W/4-2" STAPLES. SEE GENERAL NOTE "J", PAGE 2.
- ⑨ PAD, 2" X .050" STRAP 24" LONG (12 REQD). POSITION UNDER AND SEAL TO ⑧. SEE DETAIL "A", PAGE 2.
ALT: STAKE POCKET PROTECTORS, SIGNODE NO. 1 (OR EQUAL) (24 REQD). TWO USED UNDER EACH STAKE POCKET WITH ⑧. SEE DETAIL "B", PAGE 2.
- ⑩ ANTI-SKID PLATES (162 REQD). POSITION UNDER SKIDS OF ALL CONTAINERS. SIX (6) REQUIRED PER CONTAINER. SEE GENERAL NOTE "M", PAGE 2.

BILL OF MATERIAL

LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	190	63
2" X 4"	84	56
2" X 6"	237	237
NAILS	NO. REQD	POUNDS
6d (2")	36	1/4
10d (3")	24	1/2
30d (4-1/2")	192	9-3/4
60d (6")	144	14-1/2
STRAPPING, STEEL, 1-1/4" X .035"	1368' REQD	196 LBS
STRAPPING, STEEL, 2" X .050"	264' REQD	88 LBS
STAPLES FOR 2" STRAP	96 REQD	3/4 LBS
ANTI-SKID PLATES	162 REQD	41 LBS

MATERIAL FOR "STRAPPING DETAIL", PAGE 8, INCLUDED IN BILL OF MATERIAL.

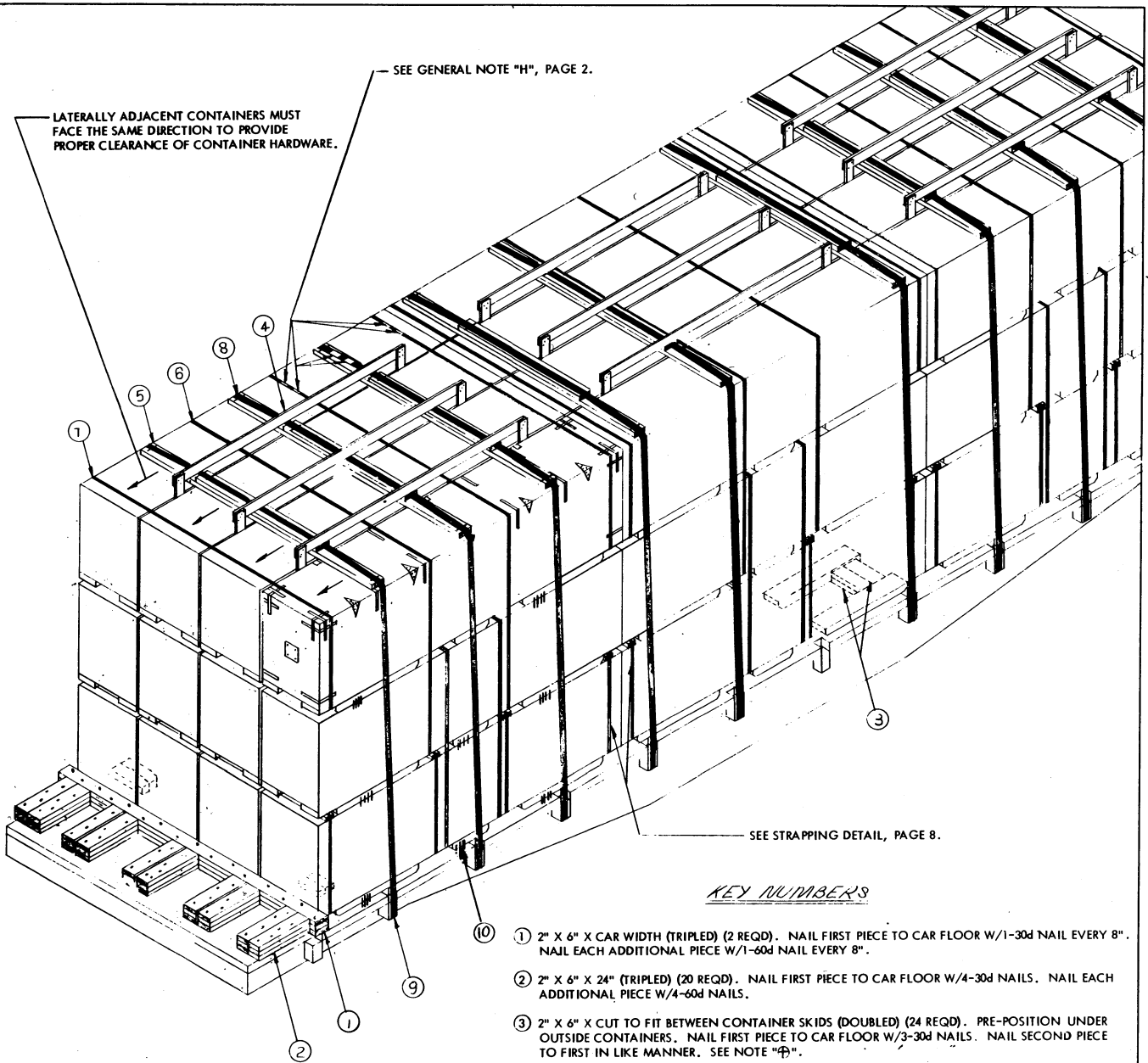
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTROL SURFACE KIT	27	28,350 LBS
DUNNAGE		1,200 LBS
TOTAL WEIGHT		29,550 LBS (APPROX)

27 UNIT LOAD
42'-6" L X 8'-6" W FLAT CAR

LATERALLY ADJACENT CONTAINERS MUST FACE THE SAME DIRECTION TO PROVIDE PROPER CLEARANCE OF CONTAINER HARDWARE.

SEE GENERAL NOTE "H", PAGE 2.



SEE STRAPPING DETAIL, PAGE 8.

KEY NUMBERS

- ① 2" X 6" X CAR WIDTH (TRIPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8".
- ② 2" X 6" X 24" (TRIPLED) (20 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-30d NAILS. NAIL EACH ADDITIONAL PIECE W/4-60d NAILS.
- ③ 2" X 6" X CUT TO FIT BETWEEN CONTAINER SKIDS (DOUBLED) (24 REQD). PRE-POSITION UNDER OUTSIDE CONTAINERS. NAIL FIRST PIECE TO CAR FLOOR W/3-30d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER. SEE NOTE "A".
- ④ ANTI-CHAFING ASSEMBLY (9 REQD). SEE DETAIL, PAGE 7.
- ⑤ STRAPPING BOARD (9 REQD). SEE DETAIL, PAGE 7.
- ⑥ STEEL STRAPPING, 1-1/4" X .035" X 21'-0" (48 REQD).
- ⑦ STEEL STRAPPING, 1-1/4" X .035" X 28'-0" (6 REQD).
- ⑧ STEEL STRAPPING, 2" X .050" X 42'-0" (9 REQD). STAPLE TO ⑤ W/4-2" STAPLES. SEE GEN GENERAL NOTE "J", PAGE 2.
- ⑨ PAD, 2" X .050" STRAP 24" LONG (18 REQD). POSITION UNDER AND SEAL TO ⑧. SEE DETAIL "A", PAGE 2.
ALT: STAKE POCKET PROTECTOR, SIGNODE NO. 1 (OR EQUAL) (36 REQD). TWO (2) USED UNDER EACH STAKE POCKET WITH ⑧. SEE DETAIL "B", PAGE 2.
- ⑩ ANTI-SKID PLATES (216 REQD). POSITION UNDER SKIDS OF ALL CONTAINERS. SIX (6) REQUIRED PER CONTAINER. SEE GENERAL NOTE "M", PAGE 2.

ISOMETRIC VIEW

BILL OF MATERIAL

LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	285	95
2" X 4"	112	75
2" X 6"	370	370
NAILS		
	NO. REQD	POUNDS
6d (2")	54	1/2
10d (3")	36	1/2
30d (4-1/2")	258	13
60d (6")	228	23
ANTI-SKID PLATES-----	216 REQD-----	54 LBS
STEEL STRAPPING, 1-1/4" X .035"-----	1814' REQD-----	260 LBS
STEEL STRAPPING, 2" X .050"-----	14' REQD-----	138 LBS
STAPLES FOR 2" STRAPPING-----	132 REQD-----	1-1/4 LBS

MATERIAL FOR "STRAPPING DETAIL", PAGE 8 INCLUDED IN BILL OF MATERIAL

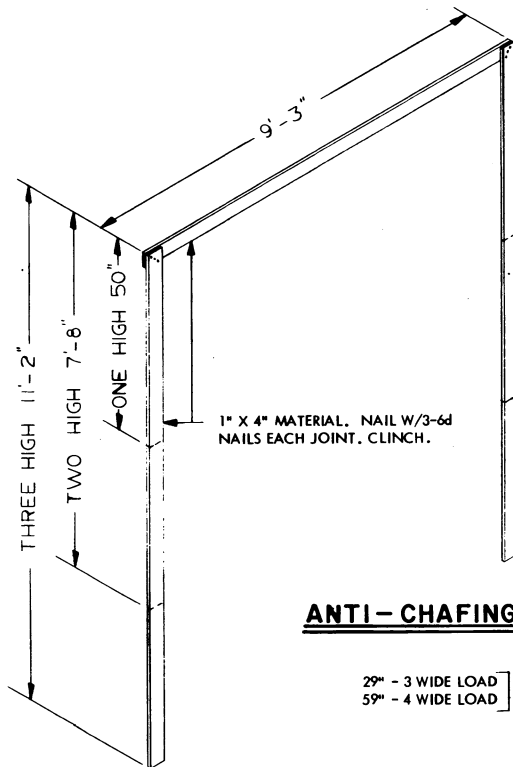
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTROL SURFACE KIT-----	36-----	37,800 LBS
DUNNAGE-----	-----	1,841 LBS
TOTAL WEIGHT-----	-----	39,641 LBS (APPROX)

NOTE:

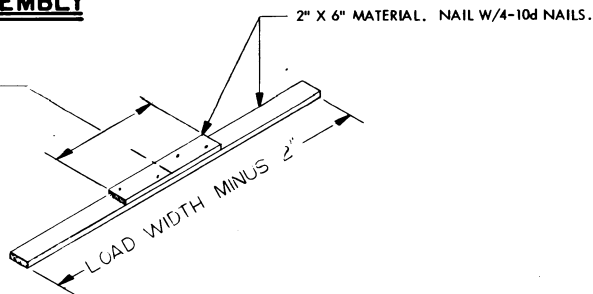
BECAUSE LATERAL DISTANCE BETWEEN A SET OF CONTAINER SKIDS MAY VARY, THE DISTANCE BETWEEN EACH SET OF CONTAINER SKIDS MUST BE "FIELD CHECKED" AND THE CORRESPONDING PIECES MARKED ③ CUT TO FIT. ONE-QUARTER INCH MAXIMUM FREE FIT IS PERMISSIBLE, HOWEVER, NOTHING GREATER.

36 UNIT LOAD, 42'-0" L X 10'-6" W FLAT CAR



ANTI-CHAFING ASSEMBLY

29" - 3 WIDE LOAD
59" - 4 WIDE LOAD



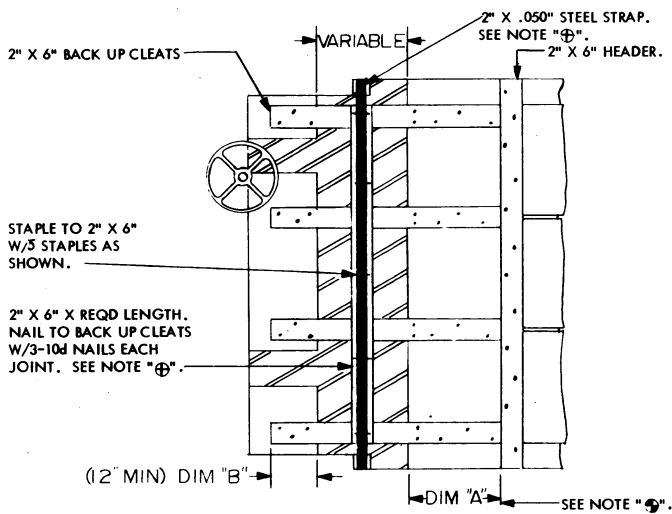
STRAPPING BOARD

NOTE "Ⓢ"

OPTIONAL STRAP HOLD DOWN FOR END BLOCKING, FOR CARS WITH OR WITHOUT EXPOSED STEEL BOLSTERS.

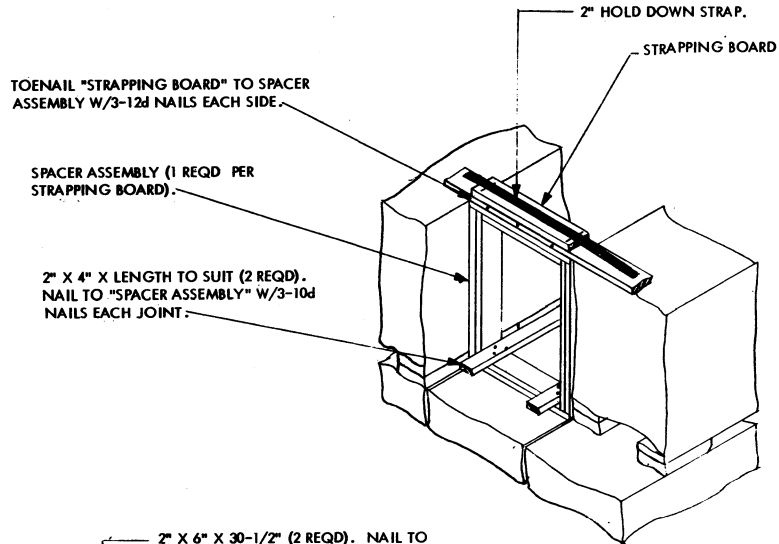
NOTE "Ⓣ"

WHEN LOADING CARS WITH EXPOSED STEEL BOLSTERS, TOTAL OF DIMENSION "A" AND "B" (MIN 12") MUST EQUAL AT LEAST THE LENGTH OF BACK UP CLEATS, TO PROVIDE FOR PROPER NAILING TO CAR FLOOR. ADJUST QUANTITY OF NAILS REQUIRED TO SATISFY LENGTH OF BACK UP CLEATS.



TYPICAL END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS

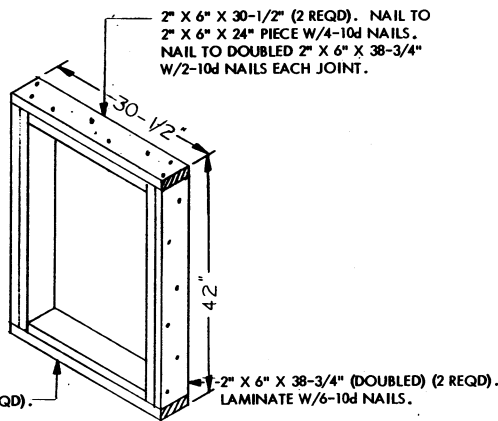
SEE GENERAL NOTE "E", PAGE 2.



APPLICATION OF SPACER ASSEMBLY

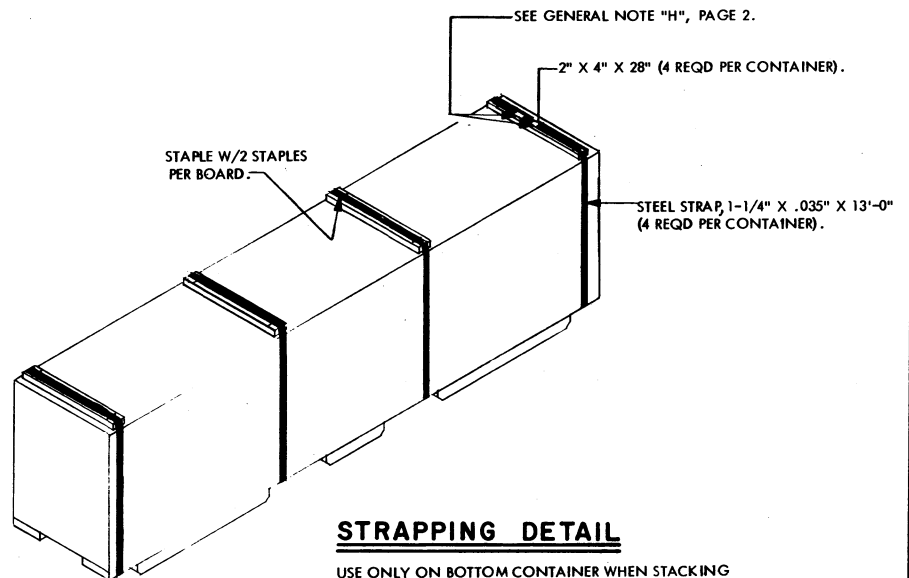
NOTE:

AN ASSEMBLY CAN ONLY BE INSTALLED WITH A CONTAINER ON EACH SIDE, AND TWO ASSEMBLIES MUST NOT BE POSITIONED TOGETHER LATERALLY.



SPACER ASSEMBLY

ONE REQD FOR EACH STRAPPING BOARD FOR EACH CONTAINER OMITTED.



STRAPPING DETAIL

USE ONLY ON BOTTOM CONTAINER WHEN STACKING OVER 2 HIGH.

DETAILS