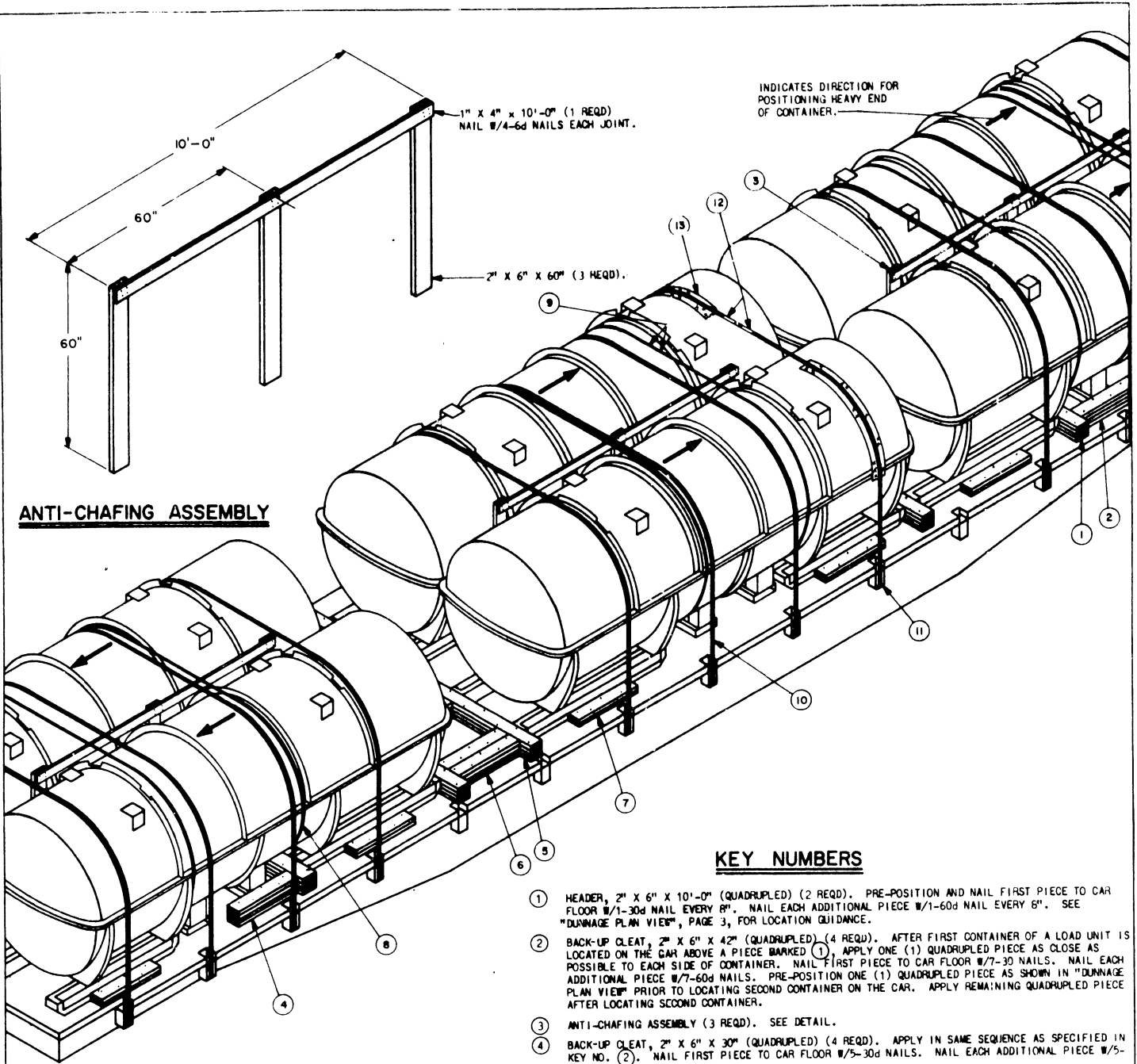


APPROVED  
 BUREAU OF EXPLOSIVES  
*A. F. Grossmuck*  
 MILITARY ASSISTANT  
 DATE 7/20/66

# LOADING & BRACING ON FLAT CAR OF TMU-28/B SPRAY TANK IN CNU-77/E23 CONTAINER

DESIGNER <b>R.G.M.</b>	DESIGN / R.N.N.A.P.A. <b>DIW/RCM</b>	SUBMITTER <i>B. B. Abrams</i>
CHECKER <b>DBH/RHA</b>	DATE TESTED CTR <b>9-2</b>	COMPARING OFFICER, SAVANNAH ARMY DEPOT <i>Ralph Hall</i>
REVISIONS		APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND <i>Paul [Signature]</i>
		U. S. ARMY MATERIEL COMMAND
		8 AUGUST 1966
		CLASS DIVISION DRAWING FILE
		19 48 4553 CB 5 MI

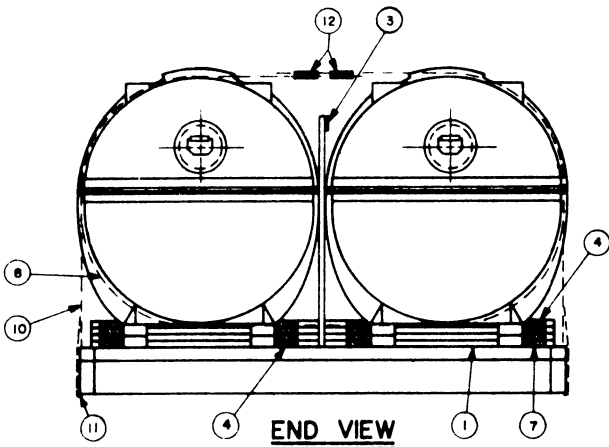
DO NOT SCALE



**ANTI-CHAFING ASSEMBLY**

**ISOMETRIC VIEW**

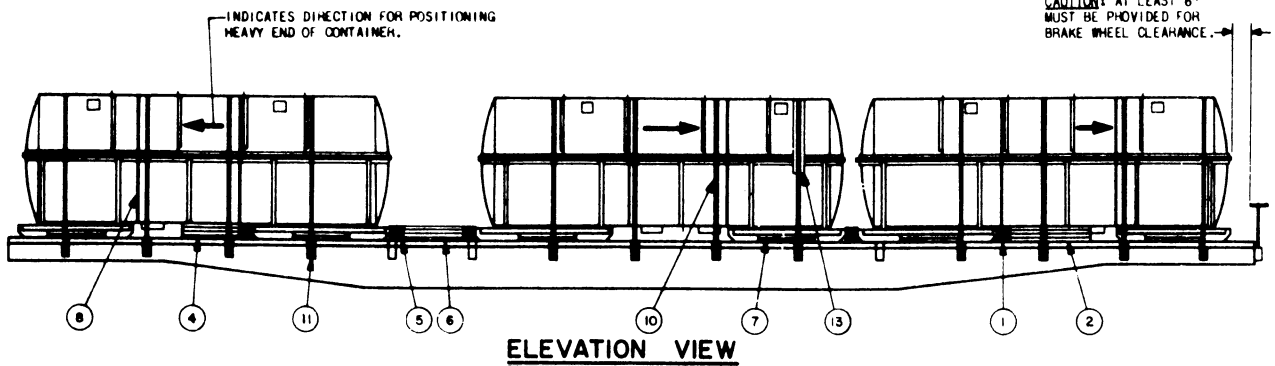
54'-0" LONG X 10'-6" WIDE CAR



**END VIEW**

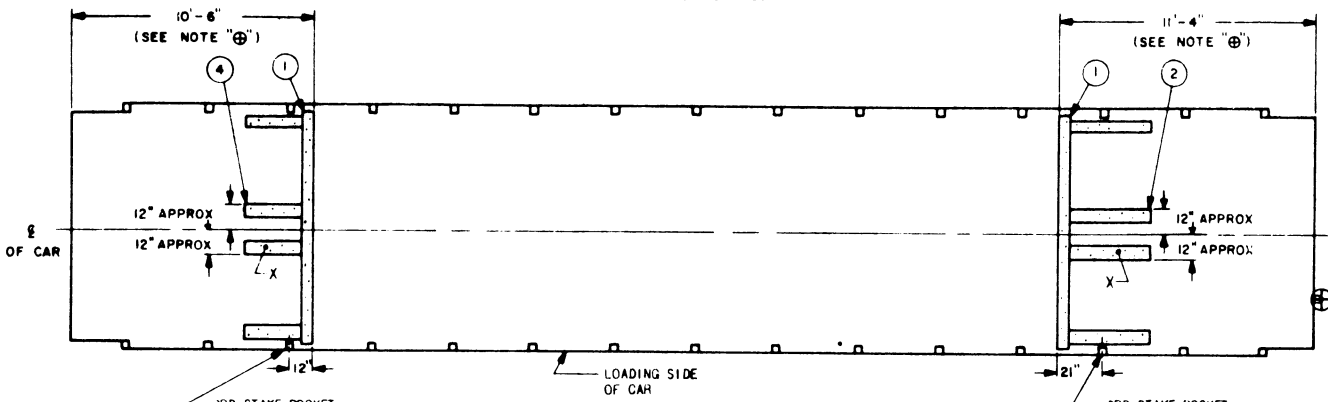
**KEY NUMBERS**

- ① HEADER, 2" X 6" X 10'-0" (QUADRUPLED) (2 REQD). PRE-POSITION AND NAIL FIRST PIECE TO CAR FLOOR  $\#1-30d$  NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE  $\#1-60d$  NAIL EVERY 8". SEE "DUNNAGE PLAN VIEW", PAGE 3, FOR LOCATION GUIDANCE.
- ② BACK-UP CLEAT, 2" X 6" X 42" (QUADRUPLED) (4 REQD). AFTER FIRST CONTAINER OF A LOAD UNIT IS LOCATED ON THE CAR ABOVE A PIECE MARKED ①, APPLY ONE (1) QUADRUPLED PIECE AS CLOSE AS POSSIBLE TO EACH SIDE OF CONTAINER. NAIL FIRST PIECE TO CAR FLOOR  $\#7-30$  NAILS. NAIL EACH ADDITIONAL PIECE  $\#7-60d$  NAILS. PRE-POSITION ONE (1) QUADRUPLED PIECE AS SHOWN IN "DUNNAGE PLAN VIEW" PRIOR TO LOCATING SECOND CONTAINER ON THE CAR. APPLY REMAINING QUADRUPLED PIECE AFTER LOCATING SECOND CONTAINER.
- ③ ANTI-CHAFING ASSEMBLY (3 REQD). SEE DETAIL.
- ④ BACK-UP CLEAT, 2" X 6" X 30" (QUADRUPLED) (4 REQD). APPLY IN SAME SEQUENCE AS SPECIFIED IN KEY NO. ②. NAIL FIRST PIECE TO CAR FLOOR  $\#5-30d$  NAILS. NAIL EACH ADDITIONAL PIECE  $\#5-60d$  NAILS.
- ⑤ HEADER, 2" X 6" X 10'-0" (QUADRUPLED) (3 REQD). NAIL FIRST PIECE TO CAR FLOOR  $\#1-30d$  NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE  $\#1-60d$  NAIL EVERY 8".
- ⑥ STRUT, 2" X 6" X CUT TO FIT BETWEEN PIECES ⑤ (REF: 31") (QUADRUPLED) (8 REQD). NAIL FIRST PIECE TO CAR FLOOR  $\#5-30d$  NAILS. NAIL EACH ADDITIONAL PIECE  $\#5-60d$  NAILS.
- ⑦ SIDE BLOCKING, 2" X 6" X 30" (DOUBLED) (12 REQD). NAIL FIRST PIECE TO CAR FLOOR  $\#5-30d$  NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- ⑧ STEEL STRAPPING, 1-1/4" X .035" X 29'-0" (6 REQD). SEE GENERAL NOTE "E", PAGE 3.
- ⑨ SEALS FOR 1-1/4" STRAPPING (12 REQD).
- ⑩ STEEL STRAPPING, 2" X .050" X 32'-0" (12 REQD). SEE GENERAL NOTE "E", PAGE 3.
- ⑪ PAD, 2" X .050" STRAP 24" LONG (24 REQD). POSITION UNDER AND SEAL TO ⑩. SEE DETAIL "A", PAGE 4. ALT: STAKE POCKET PROTECTOR, SIGNODE NO. 1 (OR EQUAL) (48 REQD). TWO (2) USED UNDER EACH STAKE POCKET WITH ⑩. SEE DETAIL "B", PAGE 4.
- ⑫ SEALS FOR 2" STRAPPING (96 REQD).
- ⑬ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT ALL POINTS OF CONTACT WITH CONTAINER.



**ELEVATION VIEW**

**NOTE ⊕:**  
 FOR A CAR HAVING STAKE POCKETS POSITIONED DIFFERENTLY THAN WHAT IS SHOWN, IT IS PERMISSIBLE TO ADJUST THE LOCATION OF THE PIECES MARKED ① A FEW INCHES IN EITHER LONGITUDINAL DIRECTION, AS REQUIRED TO PROVIDE FOR A MORE EFFECTIVE PLACEMENT OF THE TIE DOWN STRAPS MARKED ②. **CAUTION:** THE LOAD UNITS LOADED ON EACH END OF THE CAR MUST BE POSITIONED AS SHOWN TO FACILITATE PLACEMENT OF THE PIECES MARKED ①. HOWEVER, THE MID-CAR LOAD UNIT MAY BE TURNED 180° FROM THE LOADING POSITION SPECIFIED IF THAT WILL PROVIDE FOR A MORE EFFECTIVE PLACEMENT OF THE TIE DOWN STRAPS.



**DUNNAGE PLAN VIEW**

3RD STAKE POCKET FROM END OF CAR. 12" DIM IS BASED ON STAKE POCKETS BEING LOCATED 42" APART.

FOR PRE-POSITIONING PIECES MARKED ① AND ONE (1) EACH OF PIECES MARKED ② AND ④, AS INDICATED BY THE SYMBOLS "X".

3RD STAKE POCKET FROM END OF CAR. 21" DIM IS BASED ON STAKE POCKETS BEING LOCATED 42" APART.

BILL OF MATERIAL		
LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	30	10
2" X 6"	484	484
NAILS	NO. REQD	POUNDS
6d (2")	36	1/4
30d (4-1/2")	293	14-1/4
60d (6")	499	49
STEEL STRAPPING, 1-1/4" X .035"	174' REQD	25 LBS
SEALS FOR 1-1/4" STRAPPING	12 HEQD	1 LB
STEEL STRAPPING, 2" X .050"	432' HEQD	144 LBS
SEALS FOR 2" STRAPPING	96 HEQD	20 LBS
ANTI-CHAFING MATERIAL	AS HEQD	NIL

**MATERIAL SPECIFICATIONS**

- \* LUMBER -----:SEE TM 715-5500-1; DUNNAGE LUMBER, FED SPEC MM-L-751.
- NAILS -----:COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105. ALT: ANULAIR-RING TYPE NAIL OF SAME SIZE.
- STRAPPING, STEEL -----:TYPE I OR IV, CLASS "A", "B" OR "C", FED SPEC QQ-S-781.
- ANTI-CHAFING MATERIAL -----:NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL).

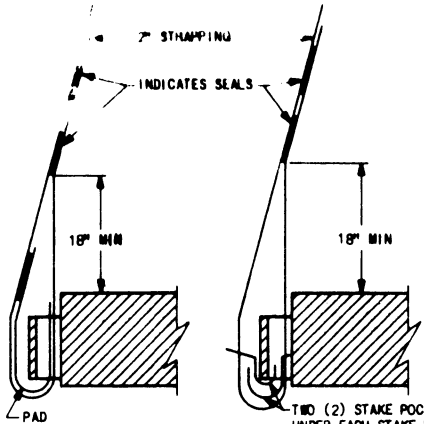
\* ALL DUNNAGE LUMBER SPECIFIED HEREIN IS OF NOMINAL SIZE. FOR EXAMPLE 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE.

**GENERAL NOTES**

- A. LOAD AS SHOWN IS BASED ON A FLAT CAR 54'-0" LONG X 10'-6" WIDE (PLATFORM) WITH STAKE POCKETS SPACED 42" ON CENTER.
- B. **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.
- C. 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.
- D. **DETAIL OF CONTAINER:**  
 CONTAINER DIMENSIONS - 19'3" LONG X 62" WIDE X 73" HIGH  
 GROSS WEIGHT - 6,100 POUNDS (APPROX)  
 TARE WEIGHT - 4,000 POUNDS (APPROX)
- E. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT OR AS SHOWN IN DETAILS "A" AND "B" ON PAGE 4, A MINIMUM OF TWO (2) SEALS WITH TWO (2) CRIMPS PER SEAL MUST BE USED.
- F. **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 IN ANY ONE (1) CAR STAKE POCKET.
- G. IF RAIL CAR IS NOT EQUIPPED WITH PLACARD BOARDS ON BOTH ENDS AND BOTH SIDES, 16" X 24" BOARDS MUST BE PROVIDED, AS REQUIRED. **CAUTION:** BOARDS OR BOARD MOUNTING BRACKETS MUST NOT BE NAILED TO LADING.

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
CNTR W/CONTENTS	6	36,600 LBS
DUNNAGE		1,489 LBS
<b>TOTAL WEIGHT</b>		<b>38,089 LBS</b>

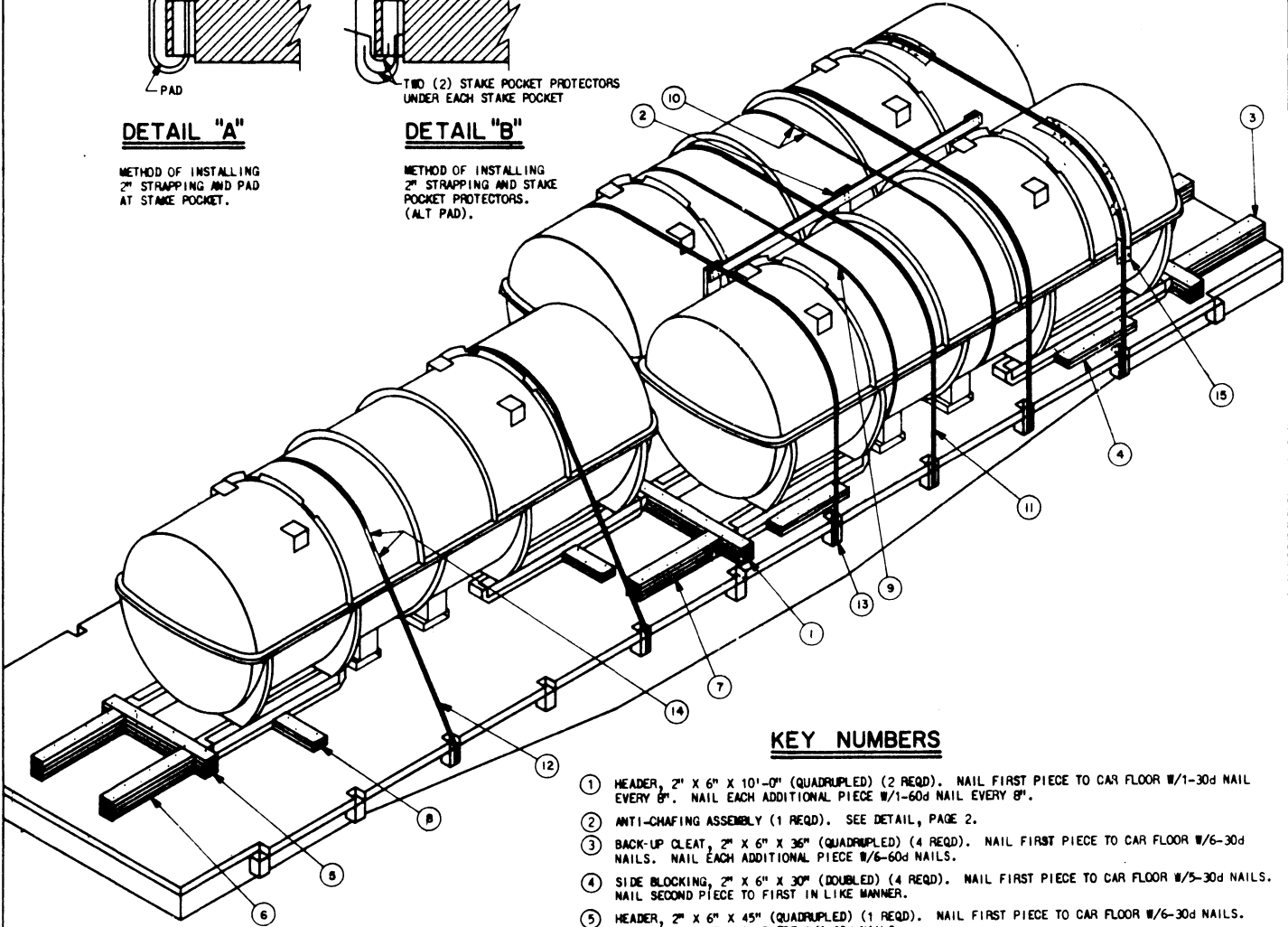


**DETAIL "A"**

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

**DETAIL "B"**

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



**ISOMETRIC VIEW**

40'-6" LONG X 10'-6" WIDE CAR SHOWN

**BILL OF MATERIAL**

LUMBER	LINEAL FEET	BOARD FEET
1" X 4"	10	4
2" X 6"	238	238
NAILS		NO. REQD
6d (2")	12	1/4
30d (4-1/2")	148	7-1/2
60d (8")	252	25-1/4
STEEL STRAPPING, 1-1/4" X .035"	58' REQD	9 LBS
SEALS FOR 1-1/4" STRAPPING	4 REqd	1 LB
STEEL STRAPPING, 2" X .050"	206' REQD	69 LBS
SEALS FOR 2" STRAPPING	48 REqd	10 LBS
ANTI-CHAFING MATERIAL	AS. REQD	NIL

**KEY NUMBERS**

- ① HEADER, 2" X 6" X 10'-0" (QUADRUPLED) (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 ANTI-CHAFING ASSEMBLY (1 REQD). SEE DETAIL, PAGE 2.
- ③ BACK-UP CLEAT, 2" X 6" X 36" (QUADRUPLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE W/6-60d NAILS.
- ④ SIDE BLOCKING, 2" X 6" X 30" (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-30d NAILS. NAIL SECOND PIECE TO FIRST IN LIKE MANNER.
- ⑤ HEADER, 2" X 6" X 45" (QUADRUPLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE W/6-60d NAILS.
- ⑥ BACK-UP CLEAT, 2" X 6" X 36" (QUADRUPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE W/6-60d NAILS.
- ⑦ BACK-UP CLEAT, 2" X 6" X 36" (QUADRUPLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE W/6-60d NAILS.
- ⑧ SIDE BLOCKING, 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.
- ⑨ STEEL STRAPPING, 1-1/4" X .035" X 29'-0" (2 REQD). SEE GENERAL NOTE "E", PAGE 3.
- ⑩ SEALS FOR 1-1/4" STRAP (4 REQD).
- ⑪ STEEL STRAPPING, 2" X .050" X 32'-0" (4 REQD). SEE GENERAL NOTE "E", PAGE 3.
- ⑫ STEEL STRAPPING, 2" X .050" X 27'-0" (2 REQD). SEE GENERAL NOTE "E", PAGE 3.
- ⑬ PAD, 2" X .050" STRAP 24" LONG (12 REQD). POSITION UNDER AND SEAL TO ⑪ AND/OR ⑫. SEE DETAIL "A". ALT: STAKE POCKET PROTECTOR, SIGNODE NO. 1 (OR EQUAL) (24 REQD). TWO (2) USED UNDER EACH STAKE POCKET WITH ⑪ AND ⑫. SEE DETAIL "B".
- ⑭ SEALS FOR 2" STRAPPING (48 REQD).
- ⑮ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL. PLACE UNDER ALL STRAPPING AT ALL POINTS OF CONTACT WITH CONTAINER.

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
CONTN W/CONTENT	3	18,300 LBS
LASHING		727 LBS
<b>TOTAL WEIGHT</b>		<b>19,027 LBS</b>

**TYPICAL LCL**