BUREAU OF EXPLOSIVES

J. Gracomuck

SUPERVISOR, MILITARY & INTERMODAL SERVICES

DATE #130/76

LOADING AND BRACING IN VAN
TYPE TRAILERS EQUIPPED WITH
CONVEYORS AND A MECHANICAL
CARGO RESTRAINT SYSTEM, FOR
MIXED LOADS OF CHEMICAL
BEARING ITEMS (ONE-TON
CONTAINER, SMALL PACKAGE
AND AMMUNITION)

INDEX

<u>ITEM</u>	AGE (S)
GENERAL NOTES, AND MATERIAL SPECIFICATIONS	- 2
SIX ONE-TON CONTAINER LOAD	
SIX PALLET UNITS OF 155MM SEPARATE LOADING PROJECTILES AND TWO ONE-TON CONTAINER LOAD	- 6,7
ONE PALLET UNIT OF 105MM PROJECTILES AND ONE VIAL BOX LOAD	- 8, 9

REVIS	SIONS	TI FR		1/4		
		CHECKER	سور ا	TOTAL		
		Blut John tow				
/		US ARMY ARMAMENT				
		APPROVED MATERIEL	BY ORDER OF DEVELOPMENT	COMMANDING GEN AND READINESS CO	ERAL, U.S. ARMY OMMAND (DARCOM)	
		MAIEMEL DEVELOPMENT AND READINESS COMM				
		U.S. ARMY DERCOM DRAWING				
		APRIL 1976				
		CLASS	DIVISION	DRAWING	FILE	
		19	48	4605	IIM7	

DO NOT SCALE

GENERAL NOTES

- A THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, ALID ALL-METHS IM: 41-200 L (CHAPTER 5.).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN FOR THREE SEPARATE VAN LOADS ARE APPLICABLE TO THE ONE-TON CONTAINER, 8-ROUND PALLET UNIT OF 155 MM SEPARATE LOADING PROJECTILES, 86-ROUND PALLET UNIT OF 105 MM PROJECTILES AND A BOX-PACKED VIAL.
- C. FOR DETAIL OF THE ONE-TON CONTAINER, SEE TM 3-250 AND PAGE 3 OF THIS DRAWING.

ITEM DIMENSIONS ----- 6'-9-1/2" LONG X 30-1/2" DIAMETER, GROSS WEIGHT ------ 3,500 LBS ($\rm MAX$).

FOR DETAIL OF THE PALLET UNIT OF 155 MM SEPARATE LOADING PROJECTILES, SEE DRAWING NO. 7599275 AND PAGE 3 OF THIS DRAWING.

ITEM DIMENSIONS ------ 13-1/2" LONG X 27" WIDE X 31-1/2" HIGH. GROSS WEIGHT ------- 800 LBS (APPROX).

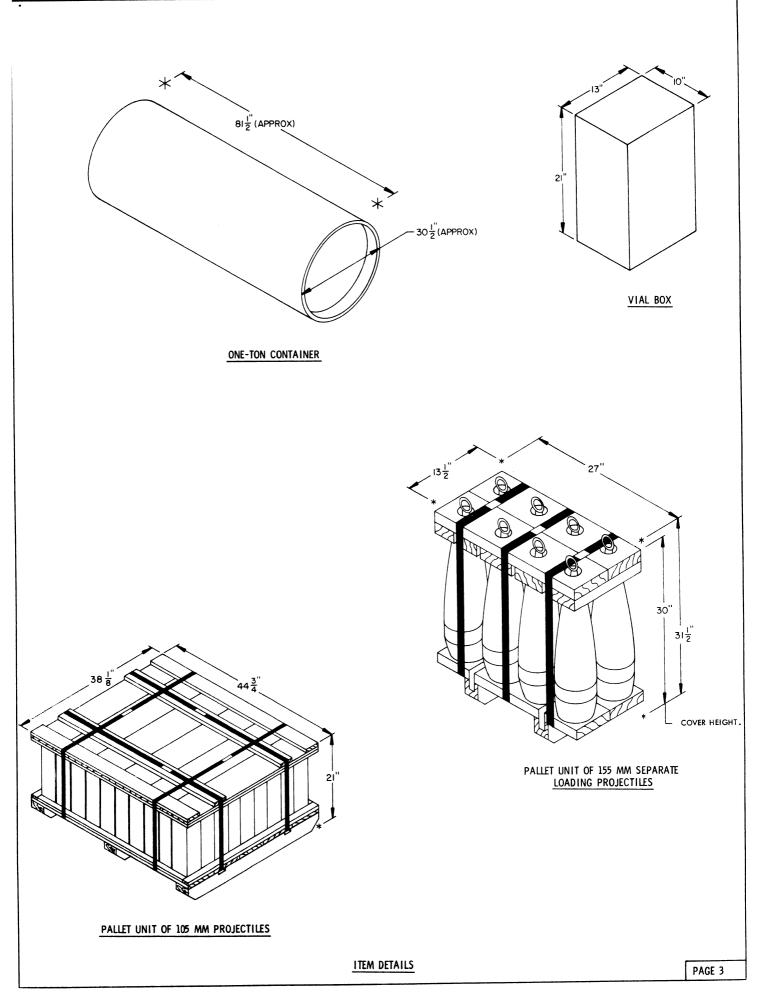
FOR DETAIL OF THE PALLET UNIT OF 105 MM PROJECTILES, SEE DRAWING NO. 8837835 AND PAGE 3 OF THIS DRAWING.

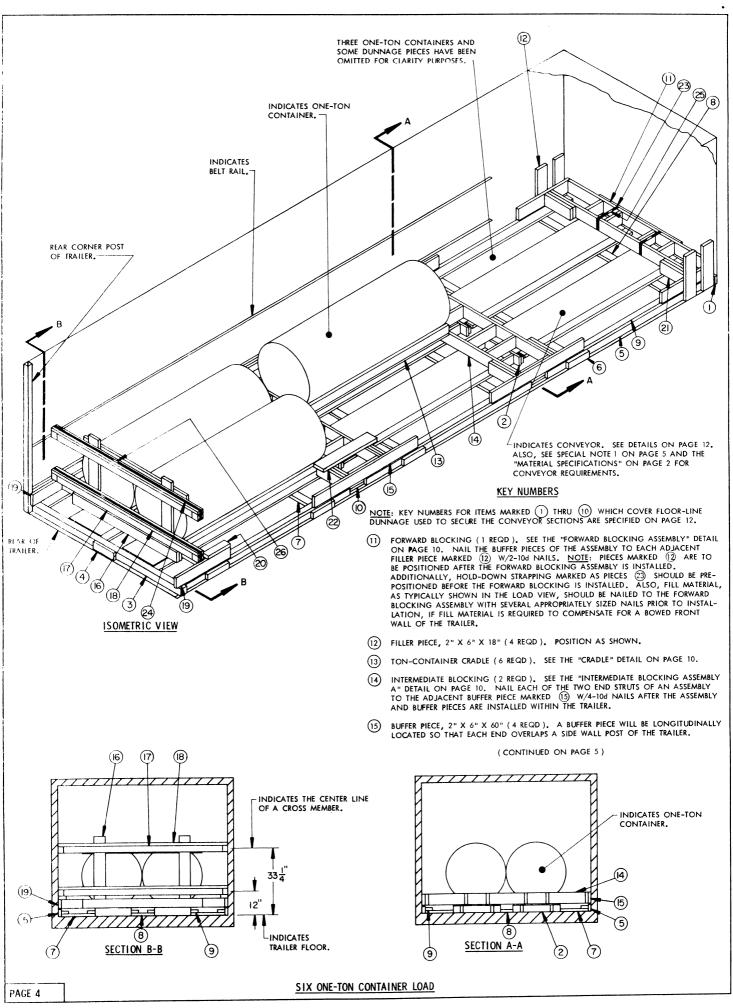
ITEM DIMENSIONS ----- 38-1/8" LONG X 44-3/4" WIDE X 21" HIGH. GROSS WEIGHT ----- 3,888 LBS (APPROX).

- D. THE DEPICTED PROCEDURES ARE BASED ON TRAILERS WITH INSIDE DIMENSIONS OF 25'-11" LONG BY 7'-2-1/2" WIDE (LESS THICKNESS OF SIDE WALL BELT RAILS) BY 6'-2" HIGH. THESE TRAILERS ARE EQUIPPED WITH BELT RAILS AT HEIGHTS OF 12" AND 33-1/4" AND TWO LOAD-BLOCKING CROSS MEMBERS. CROSS MEMBERS WILL NOT BE RELIED UPON TO RETAIN MORE LADING WEIGHT THAN AS SPECIFIED WITHIN THE DEPICTED LOADS. A CROSS MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL DISTANCES FROM THE END OF THE TRAILER). FOR OUTLOADING THE ONE-TON CONTAINERS THE TRAILER USED MUST BE EQUIPPED WITH ROLLER CONVEYORS. SEE PAGE 12 FOR CONVEYOR INSTALLATION GUIDANCE.
- E. $\frac{\text{CAUTION}\colon}{\text{TRAILER}}$ Non-compatible items must not be outloaded in the same trailer.
- F. UNLESS OTHERWISE SPECIFIED, DUNNAGE MATERIAL SPECIFIED THROUGHOUT THIS DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1–1/2" THICK BY 5–1/2" WIDE AND 4" X 4" MATERIAL IS ACTUALLY 3–1/2" THICK BY 3–1/2" WIDE.
- G. 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 LAMINATING DUNNAGE. THE NAILING PATTERN FOR A SECOND PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RICHT BESIDE A NAIL IN A FIRST PIECE.
- H. PORTIONS OF THE SEMITRAILER BODIES DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- J. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

MATERIAL SPECIFICATIONS

<u>LUMBER</u> :	SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
<u>NAILS</u> :	COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105. ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.
STEEL STRAPPING - :	CLASS I, TYPE I OR IV, HEAVY DUTY, FINISH A OR B (GRADE 2), FED SPEC QQ-S-781.
SEAL, STRAP :	COMMERCIAL GRADE.
<u>PLYWOOD</u> :	GROUP B OR C, GRADE C-D (EXTERIOR); FED SPEC NN-P-530. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.
CONVEYOR:	CONVEYOR, ROLLER, GRAVITY, STRAIGHT, 18 INCHES OVERALL WIDTH X 96 INCHES LONG, 2-1/2" OD ROLLERS, 4-INCH X 5.4 POUNDS PER FOOT CHANNEL SIDE RAILS, 800 POUNDS PER FOOT CAPACITY MINIMUM, FSC 3910.





(KEY NUMBERS CONTINUED)

- (6) LOAD-BEARING GATE (1 REQD), SEE THE "LOAD-BEARING GATE A" DETAIL ON PAGE 11.
- (7) CROSS MEMBER (2 REQD). INSTALL AT THE 12" AND 33-1/4" HEIGHTS AS SHOWN IN THE "SECTION B-B" VIEW ON PAGE 4. SEE THE "CROSS MEMBER SECUREMENT" DETAIL ON PAGE 11, WHICH APPLIES TO PIECES MARKED (1), (1), (2), AND (2).
- (18) STRAP RETAINER PIECE, 2" X 3" X 7'-0" (2 REQD).
- 19 REAR BUFFER PIECE, 2" X 6" X 30" (2 REQD). BEFORE NAILING A LOCK PIECE MARKED (20) TO ONE OF THESE PIECES, THE BUFFER PIECE WILL BE LONGITUDINALLY LOCATED SO THAT THE REAR END OVERLAPS ONE-HALF OF A REAR CORNER POST OF THE TRAILER.
- (20) LOCK PIECE, 2" X 4" X 12" (2 REQD). POSITION AFTER THE MOST REARWARD SIDE BLOCKING PIECES MARKED (2) HAVE BEEN INSTALLED AND NAIL TO A SIDE BLOCKING PIECE W/2-10d NAILS AND TO A BUFFER PIECE MARKED (9) W/3-10d NAILS.
- 2) SIDE BLOCKING, 2" X 6" MATERIAL CUT TO A LENGTH FOR A TIGHT FIT BETWEEN A BUFFER PIECE AND A 4" X 4" MEMBER OF A TON-CONTAINER CRADLE MARKED AS PIECE (13) (DOUBLED) (12 REQD). NAIL THE FIRST PIECE TO THE FORWARD BLOCKING ASSEMBLY OR TO THE LOAD-BEARING GATE W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-10d NAILS.
- (22) HOLD-DOWN FOR INTERMEDIATE BLOCKING ASSEMBLY, 2" X 6" X 30" (4 REQD).
 POSITION WITH ONE EDGE AGAINST THE OUTWARD SIDE WALLS OF TWO
 LONGITUDINALLY ADJACENT ONE-TON CONTAINERS. NAIL TO AN INTERMEDIATE BLOCKING ASSEMBLY MARKED (1) AND/OR TO THE ADJACENT SIDE
 BLOCKING PIECES MARKED (2) W/2-104 NAILS AT EACH END.
- (2) HOLD-DOWN STRAP, 3/4" X .035" OR .031" BY A LENGTH TO SUIT STEEL STRAPPING (2 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND THE TWO FORWARD ROLLS WITHIN A FRONT CONVEYOR SECTION AND THE FORWARD BLOCKING ASSEMBLY MARKED (1). THESE HOLD-DOWN STRAPS SHOULD ENCIRCLE THE FORWARD BLOCKING ASSEMBLY NEAR AN ASSEMBLY STRUT AS SHOWN WITHIN THE LOAD VIEW.
- (24) CROSS MEMBER RETAINING STRAP, 1-1/4" X .035" OR .031" X 16'-6" LONG STEEL STRAPPING (2 REQD). INSTALL STRAPPING TO FORM A COMPLETE LOOP AROUND A CROSS MEMBER MARKED (7), A STRAP RETAINER PIECE MARKED (18), AND A BELT RAIL ON EACH SIDE WALL OF THE TRAILER. BRING ENDS OF STRAPPING TOGETHER ON TOP OF ENCIRCLED COMPONENTS, TENSION AND SEAL. SECURE STRAPPING NEAR EACH END OF THE STRAP RETAINER PIECE MARKED (18) WITH TWO PARTIALLY DRIVEN 10d NAILS (ONE ON EACH SIDE OF STRAPPING). BEND A SET OF TWO NAILS OVER AND ACROSS THE STRAPPING TO SECURE IT.
- (25) SEAL FOR 3/4" STRAPPING (2 REQD). DOUBLE CRIMP EACH SEAL.
- 26) SEAL FOR 1-1/4" STRAPPING (2 REQD). DOUBLE CRIMP EACH SEAL.

BILL OF MATERIAL

BOARD FEET

10

LINEAR FEET

20

LUMBER

2" X 3"*

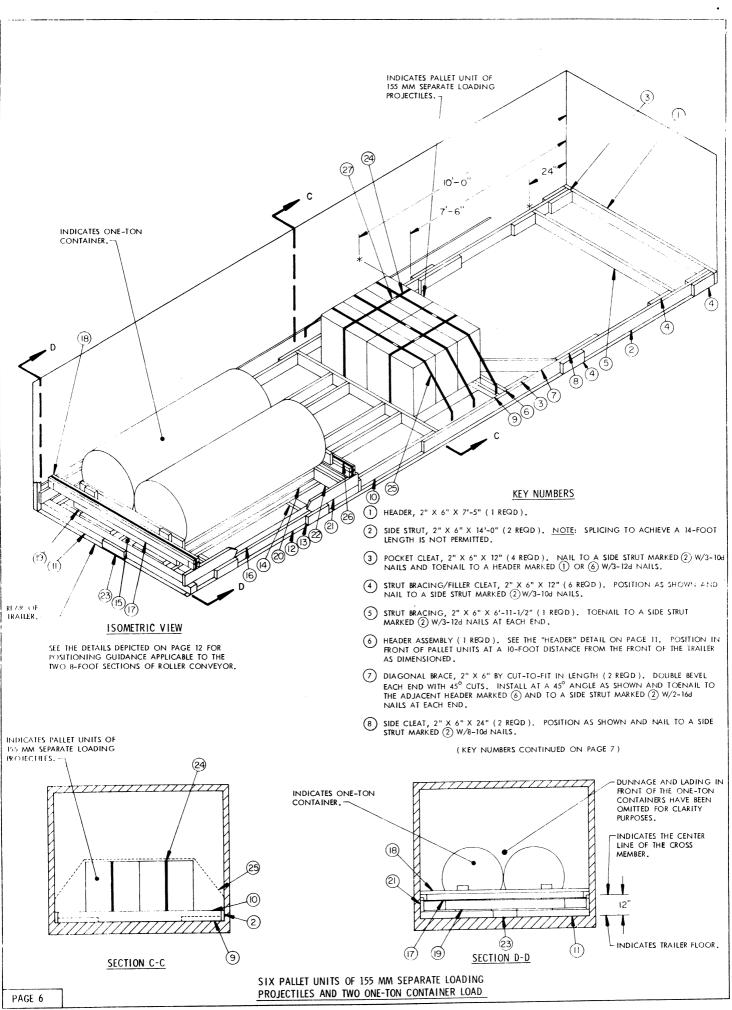
CROSS MEMBER -----

* TWO ACCEPTABLE WIDTH PIECES OF 2" X 3" MATERIAL CAN BE MADE BY RIPPING ONE PIECE OF 2" X 6" MATERIAL ON ITS CENTER LINE.

SPECIAL NOTES:

- THE LOAD SHOWN ON PAGE 4 DEPICTS A LOAD OF SIX ONE-TON CONTAINERS IN A 25'-11" LONG (INSIDE LENGTH) TRAILER. ALSO, THE TRAILER IS EQUIPPED WITH SIX 8-FOOT SECTIONS OF ROLLER CONVEYOR AND A MECHANICAL CARGO RESTRAINT SYSTEM.
- 2. PIECES MARKED 1 THROUGH 10 MUST BE INSTALLED IN THE TRAILER PRIOR TO THE PLACEMENT OF ANY CONTAINERS INTO THE TRAILER, AND PIECES MARKED 11 AND (2) AND (2) SHOULD BE INSTALLED PRIOR TO LOADING CONTAINERS.
- 3. TWO LATERALLY ADJACENT CONTAINERS MUST BE POSITIONED WITHIN A LOAD SO THAT THEY CONTACT EACH OTHER ALONG THER SIDE WALLS OR ARE WITHIN 1/4 INCH OF BEING IN CONTACT. THIS REQUIREMENT IS NECESSARY TO INSURE EFFECTIVE SIDE BLOCKING FROM THE DUNNAGE INSTALLED FOR THAT PURPOSE.
- 4. WHEN LOADING CONTAINERS, TWO CONTAINERS SHOULD BE LOADED SIDE-BY-SIDE AT THE REAR OF THE TRAILER, THEN PUSHED FORWARD TOGETHER TO THEIR SHIPPING LOCATION. NOTICE: TO FACILITATE LOADING OPERATIONS AND TO ENHANCE SAFETY, A MECHANICAL CROSS MEMBER CAN BE TEMPORARILY INSTALLED AT THE REAR OF A LOAD UNIT OF TWO CONTAINERS TO HOLD THE UNIT IN PLACE WHILE INSTALLING SUBSEQUENTLY REQUIRED DUNNAGE OR LOADING TWO MORE CONTAINERS.
- 5. IF APPROVED AND PROPERLY SIZED CRANE-TYPE MATERIALS HANDLING EQUIPMENT IS AVAILABLE, A TON-CONTAINER CAN BE LIFTED AND SET DOWN ON A CRADLE ASSEMBLY WHICH HAS BEEN PRE-POSITIONED ON ONE OF THE CONVEYOR SECTIONS AT THE REAR OF THE TRAILER, IF LOADING IS ACCOMPLISHED AT A FIXED OR PORTABLE LOADING DOCK FACILITY AND CRANE-TYPE EQUIPMENT IS NOT TO BE USED, ONE ADDITIONAL SECTION OF ROLLER CONVEYOR CAN BE ADVANTAGEOUSLY USED DURING LOADING OPERATIONS, THE ADDITIONAL CONVEYOR SECTION CAN BE PLACED ON THE DOCK IN ALIGNMENT WITH A CONVEYOR WITHIN THE TRAILER, AFTER A CRADLE AND A CONTAINER ARE PLACED ONTO THE EXTRA CONVEYOR SECTION BY USING APPROPRIATE HANDLING EQUIPMENT, THE CRADLE WITH ITS CONTAINER CAN BE PUSHED FORWARD FROM THE DOCK CONVEYOR ONTO A REAR-SECTION CONVEYOR WITHIN THE TRAILER.

LOAD AS SHOWN



(KEY NUMBERS CONTINUED)

- 9 SIDE BLOCKING FOR PALLETS, 2" X 3" BY CUT-TO-FIT IN LENGTH FOR A SNUG FIT BETWEEN A SIDE STRUT MARKED (2) AND A SKID ON A PALLET (4 REQD), NAIL TO THE HEADER MARKED (6) OR THE INTERMEDIATE BLOCKING MARKED (10) W/4-104 NAILS.
- (1) INTERMEDIATE BLOCKING (1 REQD), SEE THE "INTERMEDIATE BLOCKING ASSEMBLY B" DETAIL ON PAGE 11. NAIL TO THE SIDE STRUTS MARKED (2) W/3-104 NAILS AT EACH JOINT.
- TI REAR BLOCKING, 4" X 4" X 7'-5" (1 REQD). POSITION IMMEDIATELY IN FRONT OF REAR CORNER POSTS OF THE TRAILER. NOTE: THIS PIECE MUST BE INSTALLED BEFORE THE TWO CONVEYOR SECTIONS ARE INSTALLED.
- (2) SIDE BUFFER PIECE, 2" X 4" X 8"-0" (2 REQD). POSITION ON EDGE AT SIDE OF TRAILER AS SHOWN, ALIGNED WITH THE CONVEYOR SECTIONS.
- (3) SIDE FILLER PIECE, 2" X 4" X 12" (4 REQD). POSITION BETWEEN A PIECE MARKED (2) AND THE SIDE WALL OF THE TRAILER AT A LOCATION SHOWN, TO PROVIDE LATERAL SUPPORT IN LINE WITH A PIECE MARKED (4). NAIL TO A PIECE MARKED (2) W/2-10d NAILS.
- (4) SIDE STRUT FOR CONVEYOR, 2" X 4" X 19" (4 REQD). POSITION A STRUT BETWEEN A PIECE MARKED (B) AND THE WEB OF A CONVEYOR SECTION SIDE RAIL. A STRUT IS TO BE LOCATED 6" TO 18" FROM THE END OF A CONVEYOR SECTION AND SO AS TO ALIGN WITH A PIECE MARKED (B).
- (5) CENTER STRUT FOR CONVEYOR, 2" X 4" X 15" (2 REQD). POSITION TO ALIGN WITH A SET OF TWO PIECES MARKED (14) AND BETWEEN THE WEBS OF THE SIDE RAILS ON THE CONVEYOR SECTIONS. NOTE: THE CENTER STRUTS SHOULD BE PLACED BETWEEN THE CONVEYOR SECTIONS BEFORE THE SIDE STRUTS MARKED (14) ARE INSTALLED. THEY CAN BE MOVED LONGITUDINALLY TO ALIGN WITH THE SIDE STRUTS AFTER THE SIDE STRUTS ARE PROPERLY LOCATED.
- (6) STRINGER, 2" X 4" X 8'-0" (6 REQD), POSITION WITH ONE EDGE AGAINST A SIDE BUFFER PIECE MARKED (12) OR ABOUT ONE INCH UNDER THE TOP FLANGE OF THE SIDE RAIL ON THE ADJACENT CONVEYOR SECTION, AS APPLICABLE, NAIL TO A SIDE STRUT MARKED (14) OR A CENTER STRUT MARKED (15) W/2-104 NAILS AT EACH JOINT. TOENAIL A PIECE THAT IS ADJACENT TO A SIDE BUFFER PIECE MARKED (12) TO THE PIECE MARKED (13) W/2-104 NAILS AT EACH OF TWO PLACES. TOENAILING WILL BE ACCOMPLISHED NEAR THE SAME AREAS WHERE THE STRINGER PIECE IS NAILED TO THE SIDE STRUTS.
- (7) CROSS MEMBER (2 REQD). INSTALL AT THE 12" HEIGHT AS SHOWN IN THE "SECTION D-D" VIEW OF PAGE 6. SEE THE "CROSS MEMBER SECUREMENT" DETAIL ON PAGE 11, WHICH APPLIES TO PIECES MARKED (17), (18), (26), AND (27). NOTE: THE FORWARD CROSS MEMBER WILL BE INSTALLED SO THAT THE TON-CONTAINER SIDE IS ABOUT 6" BEHIND THE FRONT END OF THE CONVEYOR SECTIONS.
- (18) STRAP RETAINER PIECE, 2" X 3" X 7'-0" (2 REQD).
- (9) LOAD BEARING GATE (2 REOD), SEE THE "LOAD-BEARING GATE B" DETAIL ON PAGE 11. POSITION SO THAT THE DOUBLED GATE HOLD DOWN PIECE OF THE GATE ASSEMBLY IS LOCATED DIRECTLY UNDER A CROSS MEMBER MARKED (17).
- (20) TON-CONTAINER CRADLE (2 REQD). SEE THE "CRADLE" DETAIL ON PAGE 10.
- (2) BUFFER PIECE, 2" X 6" X 8'-4-1/2" (2 REQD). BEFORE THE SIDE BLOCKING PIECES MARKED (2) ARE TOENAILED TO A BUFFER PIECE, A BUFFER PIECE WILL BE LONGITUDINALLY LOCATED SO THAT ITS REAR END OVERLAPS ONE-HALF OF A REAR CORNER POST OF THE TRAILER.

(CONTINUED AT RIGHT)

	BILL OF MATERIAL	
LUMBER	LINEAR FEET	BOARD FEET
2" X 3" *	23	12
2" X 4"	80	54
2" X 6"	184	184
4" X 4"	. 35	47
NAILS	NO. REQD	POUNDS
6d (2")	56	1/2
10d (3")	251	4
12d (3-1/4")	18	1/2
16d (3-1/2")	8	1/4

* TWO ACCEPTABLE WIDTH PIECES OF 2" X 3" MATERIAL CAN BE MADE BY RIPPING ONE PIECE OF 2" X 6" MATERIAL ON ITS CENTER LINE.

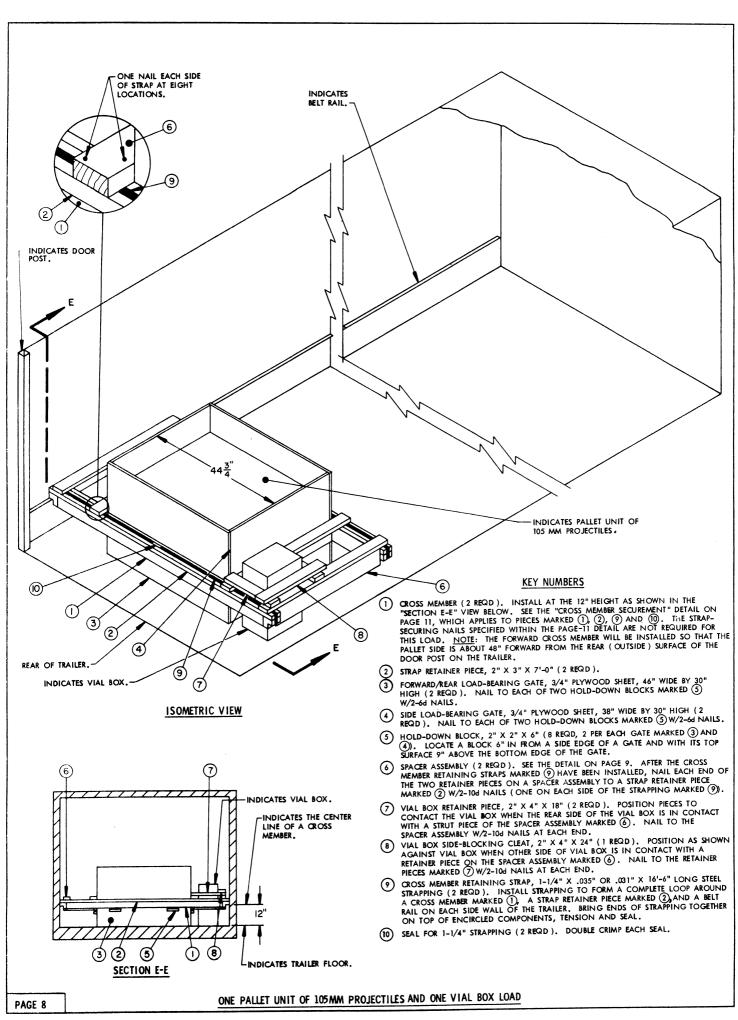
SPECIAL NOTES:

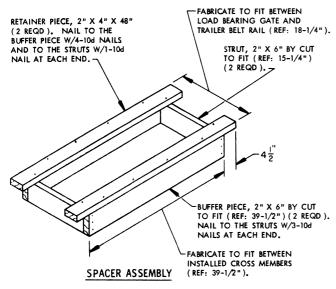
- THE LOAD SHOWN ON PAGE 6 DEPICTS A LOAD OF TWO ONE-TON CONTAINERS AND SIX PALLET UNITS OF 155MM SEPARATE LOADING PROJECTILES IN A 25'-11" LONG (INSIDE LENGTH) TRAILER. ALSO, THE TRAILER IS EQUIPPED WITH TWO 8-FOOT SECTIONS OF ROLLER CONVEYOR AND A MECHANICAL CARGO RESTRAINT SYSTEM.
- 2. PIECES MARKED (1) THROUGH (8) SHOULD BE INSTALLED IN THE TRAILER PRIOR TO THE PLACEMENT OF ANY PALLET UNITS INTO THE TRAILER. ALL DUNNAGE SPECIFIED FOR INSTALLATION FORWARD OF THE CONVEYOR SECTIONS, THE CONVEYOR BLOCKING DUNNAGE AND THE FORWARD CROSS MEMBER MARKED (17) AND THE FORWARD LOAD-EEARING GATE MARKED (19) SHOULD BE INSTALLED BEFORE PLACING THE TON-CONTAINERS INTO THE TRAILER.
- A HAND TRUCK OR A COMBINATION OF A HAND TRUCK AND A FORKLIFT TRUCK CAN BE USED EFFECTIVELY FOR LOADING AND UNLOADING THE PALLET UNITS OF PROJECTILES.
- 4. THE TWO ONE-TON CONTAINERS MUST BE POSITIONED WITHIN A LOAD SO THAT THEY CONTACT EACH OTHER ALONG THEIR SIDE WALLS OR ARE WITHIN 1/4 INCH OF BEING IN CONTACT. THIS REQUIREMENT IS NECESSARY TO ENSURE EFFECTIVE SIDE BLOCKING FROM THE DUNNAGE INSTALLED FOR THAT PURPOSE.
- 5. WHEN LOADING THE TON-CONTAINERS AND APPROVED AND PROPERLY SIZED CRANE-TYPE MATERIALS HANDLING EQUIPMENT IS AVAILABLE FOR USE, A CONTAINER CAN BE LIFTED AND SET DOWN ON A CRADLE ASSEMBLY WHICH HAS BEEN PRE-POSITIONED ON ONE OF THE CONVEYOR SECTIONS AT THE REAR OF THE TRAILER. IF LOADING IS ACCOMPLISHED AT A FIXED OR PORTABLE LOADING DOCK FACILITY AND CRANE-TYPE EQUIPMENT IS NOT TO BE USED TO LOAD A CONTAINER DIRECTLY INTO THE TRAILER, ONE ADDITIONAL SECTION OF ROLLER CONVEYOR CAN BE ADVANTAGEOUSLY USED DURING LOADING OPERATIONS, THE ADDITIONAL CONVEYOR SECTION CAN BE PLACED ON THE DOCK IN ALIGNMENT WITH A CONVEYOR WITHIN THE TRAILER. AFTER A CRADLE AND A CONTAINER ARE PLACED ONTO THE EXTRA CONVEYOR SECTION BY USING APPROPRIATE HANDLING EQUIPMENT, THE CRADLE WITH ITS CONTAINER CAN BE PUSHED FORWARD FROM THE DOCK CONVEYOR ONTO A CONVEYOR SECTION WITHIN THE TRAILER.

(KEY NUMBERS CONTINUED FROM LEFT)

- 22 SIDE BLOCKING, 2" X 6" MATERIAL CUT TO A LENGTH FOR A TIGHT FIT BETWEEN A BUFFER PIECE MARKED (2) AND A 4" X 4" MEMBER OF A TON-CONTAINER CRADLE MARKED AS PIECE (20) (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO A LOAD-BEARING GATE MARKED (19) W/5-104 NAILS AND NAIL THE SECOND PIECE TO THE FIRST W/5-104 NAILS. TOENAIL TO THE ADJACENT BUFFER PIECE W/2-104 NAILS.
- (23) REAR FILLER PIECE, 2" X 4" X 12" (1 REQD). CENTER ON LENGTH OF REAR BLOCKING PIECE MARKED (11) AS SHOWN AND NAIL TO PIECE MARKED (11) W/2-10d NAIL TO
- BUNDLING STRAP, 1-1/4" X .035" OR .031" X 13'-0" LONG STEEL STRAPPING (2 REGD). PRE-POSITION NEAR THE LATERAL LOCATION SHOWN BEFORE THE FIRST OF PALLETS TO BE STRAPPED TOGETHER IS LOADED AGAINST THE HEADER MARKED (6).
- (25) HOLD-DOWN STRAP, 1-1/4" X .035" OR .031" X 16'-0" LONG STEEL STRAPPING
 (3 REQD). INSTALL EACH STRAP FROM TWO 8-FOOT LONG PIECES. ATTACH ONE
 END OF AN 8-FOOT PIECE TO THE 8" HIGH RUB RAIL AT THE SIDE OF THE TRAILER.
 RUN THE STRAP BEHIND THE 12" HIGH BELT RAIL AND UP TO MEET ANOTHER 8-FOOT
 PIECE AT THE TOP OF THE PALLETS WHERE THE TWO 8-FOOT PIECES CAN BE
- (26) CROSS MEMBER RETAINING STRAP, 1-1/4" X .035" OR .031" X 16'-6" LONG STEEL STRAPPING (2 REQD). INSTALL STRAPPING TO FORM A COMPLETE LOOP AROUND A CROSS MEMBER MARKED (17), A STRAP RETAINER PIECE MARKED (18) AND A BELT RAIL ON EACH SIDE WALL OF THE TRAILER. BRING ENDS OF STRAPPING TOGETHER ON TOP OF ENCIRCLED COMPONENTS, TENSION AND SEAL. SECURE STRAPPING NEAR EACH END OF THE STRAP RETAINER PIECE MARKED (18) WITH TWO PARTIALLY DRIVEN 104 NAILS (ONE ON EACH SIDE OF STRAPPING). BEND A SET OF TWO NAILS OVER AND ACROSS THE STRAPPING TO SECURE IT.
- SEAL FOR 1-1/4" STRAPPING (13 REQD; 1 PER BUNDLING STRAP, 3 PER HOLD-DOWN STRAP AND 1 PER CROSS MEMBER RETAINING STRAP). DOUBLE CRIMP EACH SEAL.

LOAD AS SHOWN





SPECIAL NOTES:

- -FABRICATE TO HI BETWEEN
 LOAD BEARING GATE AND
 TRAILER BELT RAIL (REF: 18-1/4").

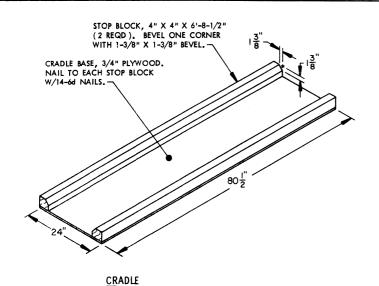
 1. THE LOAD SHOWN ON PAGE 8 DEPICTS A LOAD OF ONE PALLET UNIT OF 105MM PROJECTILES AND ONE VIAL BOX IN A 25'-11" LONG (INSIDE LENGTH)
 TRAILER. ALSO, THE TRAILER IS EQUIPPED WITH A MECHANICAL CARGO
 - 2. ONE SET OF PIECES MARKED ①, ②, ③ AND ⑩ AND ONE GATE ASSEMBLY CONSISTING OF PIECES MARKED ③ AND ⑤ SHOULD BE INSTALLED PRIOR TO THE PLACEMENT OF THE PALLET UNIT INTO THE TRAILER. AFTER THE PALLET UNIT IS LOADED, THE VIAL BOX SHOULD BE PLACED INTO THE TRAILER NEAR ITS SHIPPING LOCATION, PRIOR TO INSTALLING THE REMAINING DUNNAGE COMPONENTS.
 - THE VIAL BOX CAN BE LOADED MANUALLY. HOWEVER, AN APPROVED, APPROPRIATELY SIZED PALLET TRUCK AND/OR FORKLIFT TRUCK IS REQUIRED FOR LOADING THE PALLET UNIT INTO THE TRAILER.

	BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET		
2" X 2"	4	2		
2" X 3"₩	14	7		
2" X 4"	21	14		
2" X 6"	20	20		
NAILS	NO. REQD	POUNDS		
6d (2")	16	NIL		
10d (3")	84	1-1/4		
STEEL STRAPPING, 1	35 SQ -1/4" X .035"/.031" - 33 RAPPING 2 REG	' REQD 4 LBS		
CROSS MEMBER		2 REQD		

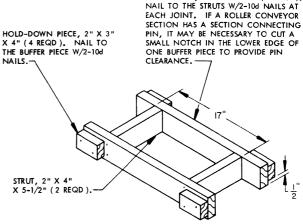
^{*}TWO ACCEPTABLE WIDTH PIECES OF 2" X 3" MATERIAL CAN BE MADE BY RIPPING ONE PIECE OF 2" X 6" MATERIAL ON ITS CENTER LINE.

LOAD AS SHOWN

ITEM	QUANTITY	WEI	GHT (APP	ROX)
VIAL BOX	NIT, 105MM 1 1 E	55		
	TOTAL WEIGHT	4, 104	LBS	



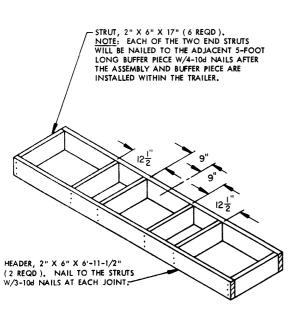
(6 ASSEMBLIES REQUIRED FOR LOAD SHOWN ON PAGE 4 AND 2 REQUIRED FOR LOAD SHOWN ON PAGE 6)



BUFFER PIECE, 2" X 4" X 24" (2 REQD).

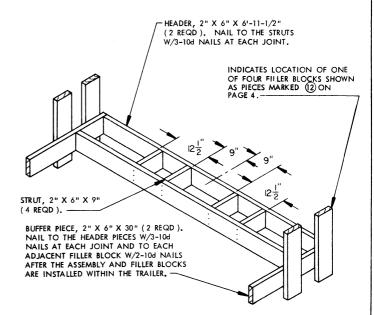
CONVEYOR SPACER

(4 ASSEMBLIES REQUIRED FOR LOAD SHOWN ON PAGE 4)



INTERMEDIATE BLOCKING ASSEMBLY A

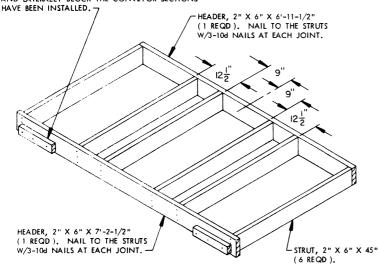
(2 ASSEMBLIES REQUIRED FOR LOAD SHOWN ON PAGE 4)



FORWARD BLOCKING ASSEMBLY

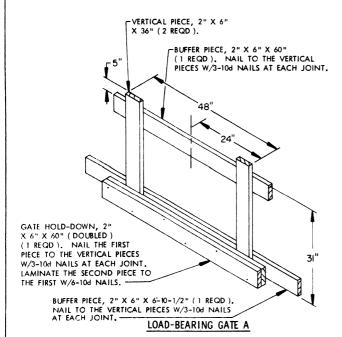
(1 ASSEMBLY REQUIRED FOR LOAD SHOWN ON PAGE 4)

HOLD-DOWN BLOCK, 2" X 3" X 12" (2 REQD).
INSTALL TO EXTEND INTO THE SIDE RAIL (CHANNEL)
OF THE CONVEYOR. NAIL TO THE HEADER W/3-10d
NAILS. HOWEVER, A HOLD-DOWN BLOCK IS NOT
TO BE NAILED IN PLACE UNTIL AFTER THE REMAINDER
OF THE ASSEMBLY IS INSTALLED WITHIN THE TRAILER
AND THE CENTER AND SIDE STRUTS WHICH LOCATE
AND LATERALLY BLOCK THE CONVEYOR SECTIONS

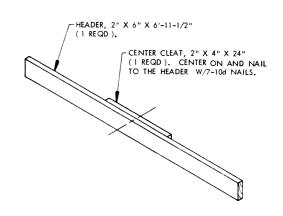


INTERMEDIATE BLOCKING ASSEMBLY B

(1 ASSEMBLY REQUIRED FOR LOAD SHOWN ON PAGE 6.) SEE SPECIAL NOTE 2 ON PAGE 7.

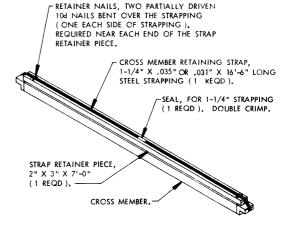


(1 ASSEMBLY REQUIRED FOR LOAD SHOWN ON PAGE 4)



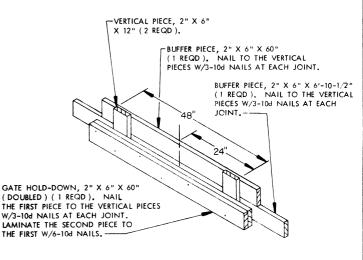
HEADER

(1 ASSEMBLY REQUIRED FOR LOAD SHOWN ON PAGE 6)



CROSS MEMBER SECUREMENT

(2 ASSEMBLIES REQUIRED FOR EACH OF THE LOADS SHOWN)

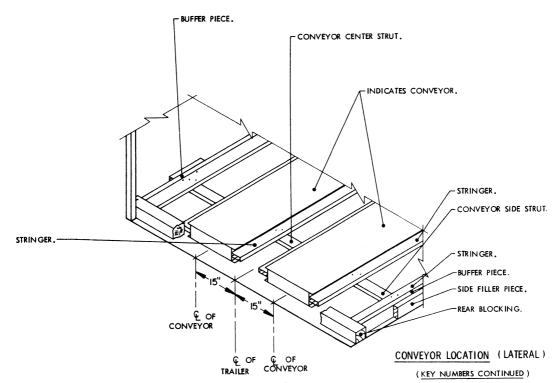


LOAD-BEARING GATE B

(2 ASSEMBLIES REQUIRED FOR LOAD SHOWN ON PAGE 6)

DETAILS

PAGE 11



KEY NUMBERS

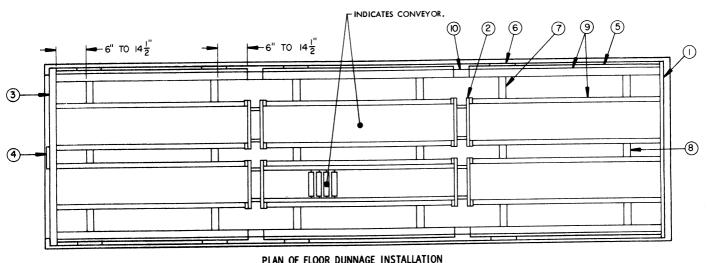
(1) THRU 10 FOR LOAD SHOWN ON PAGE 4).

- RONT BLOCKING, 2" X 4" X 7'-5" (1 REQD). POSITION ON EDGE ACROSS THE FRONT OF THE TRAILER BEFORE THE TWO FORWARD CONVEYOR SECTIONS ARE INSTALLED.
- CONVEYOR SPACER ASSEMBLY (4 REQD). SEE THE "CONVEYOR SPACER" DETAIL ON (2) PAGE 10.
- REAR BLOCKING, 4" X 4" X 7"-5" (1 REQD). POSITION IMMEDIATELY IN FRONT OF REAR CORNER POSTS OF THE TRAILER. <u>NOTE</u>: THIS PIECE MUST BE INSTALLED BEFORE THE TWO REAR SECTIONS OF ROLLER CONVEYOR ARE INSTALLED.
- MEAR FILER PIECE, 2" X 4" X 12" (1 REQD). CENTER ON LENGTH OF PIECE MARKED ③), AS SHOWN, AND NAIL TO PIECE MARKED ③ W/2-10d NAILS.
- 5 SIDE BUFFER PIECE, 2" X 4" X 8'-0" (6 REQD). POSITION ON EDGE AT SIDE OF TRAILER AS SHOWN (3 EACH SIDE ALIGNED WITH THE CONVEYOR SECTIONS).
- SIDE FILLER PIECE, 2" X 4" X 12" (8 REQD). POSITION BETWEEN A PIECE MARKED (3) AND THE SIDE WALL OF THE TRAILER AT A LOCATION SHOWN, TO PROVIDE LATERAL SUPPORT IN LINE WITH A PIECE MARKED (7). NAIL TO A PIECE MARKED (3)
- W/2- ING INAILS.

 SIDE STRUT FOR CONVEYOR, 2" X 4" X 19" (12 REQD). POSITION A STRUT BETWEEN A PIECE MARKED (3) AND THE WEB OF A CONVEYOR SECTION SIDE RAIL. A STRUT IS TO BE LOCATED 6" TO 18" FROM THE END OF A CONVEYOR SECTION, SO AS TO ALIGN WITH A SIDE WALL POST OF THE TRAILER OR A PIECE MARKED (6).

(CONTINUED AT RIGHT)

- CENTER STRUT FOR CONVEYOR, 2" X 4" X 15" (6 REQD). POSITION TO ALIGN WITH A SET OF TWO PIECES MARKED (2) AND BETWEEN THE WEBS OF THE SIDE RAILS ON TWO LATERALLY ADJACENT CONVEYOR SECTIONS. NOTE: TWO CENTER STRUTS SHOULD BE PLACED BETWEEN TWO LATERALLY ADJACENT CONVEYOR SECTIONS BEFORE THE SIDE (8) STRUTS FOR THOSE SECTIONS ARE INSTALLED. THEY CAN BE MOVED LONGITUDINALLY TO ALIGN WITH THE SIDE STRUTS AFTER THE SIDE STRUTS ARE PROPERLY LOCATED.
- STRINGER, 2" X 4" X 8"-0" (BASIC LENGTH) (18 REQD: 6, 8'-0" LONG PIECES FOR USE ALONG THE SIDE WALLS OF THE TRAILER; 8, 7'-10" LONG PIECES FOR USE ADJACENT TO THE TWO FRONT AND THE TWO REAR CONVEYOR SECTIONS; 4, 7'-8" LONG PIECES FOR USE ADJACENT TO THE TWO MIDDLE CONVEYOR SECTIONS). THE PIECES ALONG THE SIDE WALLS WILL BE POSITIONED AGAINST THE SIDE BUFFER PIECES MARKED (5) AND SO THAT A MONT PIECE IS IN CONTACT WITH THE MONT BLOCKING PIECE MARKED (1) SO THAT A FRONT PIECE IS IN CONTACT WITH THE FRONT BLOCKING PIECE MARKED ① AND A REAR PIECE IS IN CONTACT WITH THE REAR BLOCKING PIECE MARKED ③. A CENTER PIECE WILL BE APPROXIMATELY CENTERED LONGTUDINALLY BETWEEN THE END PIECES. THESE 8-FOOT LONG SIDE PIECES WILL BE NAILED TO THE SIDE STRUTS MARKED ② W/2-104 NAILS AT EACH JOINT AND TOENAILED TO THE PIECES MARKED ③ W/2-104 NAILS AT EACH JOINT AND TOENAILED TO THE PIECES MARKED ③ W/2-104 NAILS AT EACH OF TWO PLACES. TOENAILING WILL BE ACCOMPLISHED NEAR THE SAME AREAS WHERE THE PIECES ARE NAILED TO THE SIDE STRUTS. ALSO, AN END OF THESE PIECES, AS APPLICABLE, WILL BE NAILED TO A STRINGER TIE PIECE MARKED ⑩ W/3-104 NAILS. THE PIECES AD JACENT TO THE CONVEYOR SECTIONS WILL BE POSITIONED SO THAT ONE EDGE OF EACH PIECE EXTENDS ABOUT ONE INCH UNDER THE TOP FLANGE OF A SIDE RAIL ON A CONVEYOR SECTION. THESE PIECES WILL BE NAILED TO THE SIDE STRUTS MARKED ⑦ OR TO THE CENTER STRUTS MARKED ⑧ W/2-104 NAILS FER JOINT. STRUTS MARKED 7 OR TO THE CENTER STRUTS MARKED 8 W/2-10d NAILS PER JOINT.
- STRINGER TIE PIECE, 2" X 4" X 24" (4 REQD). POSITION AS SHOWN, UNDER AND AT A JOINT BETWEEN THE 8-FOOT LONG STRINGER PIECES MARKED 9 WHICH ARE ALONG THE SIDE WALLS OF THE TRAILER.



PLAN OF FLOOR DUNNAGE INSTALLATION

PAGE 12

DETAILS