LOADING AND BRACING (TL & LTL) IN VAN TRAILERS® OF 2.75 INCH HYDRA ROCKETS PACKED IN CYLINDRICAL METAL CONTAINERS ON 4-WAY ENTRY WOODEN PALLETS WITH METAL TOP LIFT

PA151 SERIES CONTAINER

INDEV

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 <u>CAUTION:</u> THE PROCEDURES SHOWN HEREIN ARE <u>ONLY</u> APPLICABLE FOR HIGHWAY MOVEMENTS; <u>NOT</u> FOR TRAILER-ON-FLATCAR (TOFC) MOVEMENTS.

U.S. ARMY MATERIEL COMMAND DRAWING APPROVED IIS ARMY CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS JOINT MUNITIONS COMMAND THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 28. Digitally signed by RUS. RUS.ALLEN ALLEN.J.1230354282 DN: c=US, o=U.S. J.123035428 Government, ou=DoD, DO NOT SCALE **NOVEMBER 2008** ALLEN J.1230354282 **ENGINEER** BASIC **ADIN FELICIANO** 2 Date: 2009.04.17 11:47:39 -05'00' TECHNICIAN TRANSPORTATION FIEFFER.LAURA A 2300377 A A 123003757 Date: 2008.12.16.06.09.44.09.0007 Date: 2008.01.2.16.06.09.46.0007 Date: 2008.01.2.16.06.0007 Date: 2008.01.2.16.06.0007 Date: 2008.01.2.16.0007 Date: 2008.0 APPROVED BY ORDER OF COMMANDING **ENGINEERING** GENERAL, U.S ARMY MATERIEL COMMAND DIVISON CARNEY.GARY Digitally signed by CARNEY.GARY BURTON.1038708038 DRAWING FILE CLASS DIVISION BARICKMAN. PHILIP. Digitally signed by BARIC PHILIP.W. 1230202202 DN: CHIS, or-U.S. GOWER our-DGD, our-PKI, our-US on-BARICKMAN PHILP. VALIDATION BURTON.10387 DN: c=US, o=U.S. Governm ou=DoD, ou=PKI, ou=USA, **ENGINEERING** W.1230202202 W.123020202 W.12302001.13 15:05:03 -0800 DIVISON 08038 BURTON.1038708038 Date: 2009.04.27 11:06:31 -05'00' BEAVER.JERRY Diplially agreed by BEAVER.JERRY. W.1230949952 N. 123064962 Unit 23064962 Unit 23064962 Unit 23064962 Unit 23064962 Unit 230649692 Unit 230649692 Unit 230649690 Unit 2306496 19 48 4331/61 11PM1007 **ENGINEERING** U.S. ARMY DEFENSE AMMUNITION CENTER DIRECTORATE

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF 2.75 INCH HYDRA ROCKETS PACKED FOUR PER PA151 CYLIN-DRICAL METAL CONTAINER. FOR DETAILS OF THE PALLET UNIT, SEE U.S. ARMY MATERIEL COMMAND DRAWING 19-48-4326/61-20PM1012 AND PAGE 3.
- C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE VAN TRAILERS AND APPLY TO TRAILERS HAVING WOOD, OR WOOD AND METAL, OR ALL METAL FLOORS. REGARDLESS OF THE DIMENSIONS OF THE VAN TRAILERS SHOWN, THE PROCEDURES ARE ALSO APPLICABLE FOR TRAILERS WHICH ARE 89" THRU 99" IN WIDTH AND FOR TRAILERS OF OTHER LENGTHS FROM THE SHORTEST OT THE LONGEST AVAILABLE (REF: 24" TO 53"), AND FOR STRAIGHT TRUCK VANS. THE SPECIFIED BRACING IS ADEQUATE FOR LOADS WEIGHING UP TO AND INCLUDING THE MAXIMUM WEIGHTS PERMITTED BY LAW.
- D. SELECTION OF A VEHICLE FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY VEHICLES IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENTS WILL BE SELECTED FOR USE.
- E. THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY. THE TOTAL WEIGHT OF THE LADING, OF THE DUNNAGE, OF THE TRACTOR, AND OF THE SEMITRAILER CARRYING THE LADING MUST NOT EXCEED THE MAXIMUM GROSS WEIGHT ALLOWED FOR THE STATE OR STATES THRU WHICH THE LOAD IS TO BE TRANSPORTED BY MOTOR CARRIER. LIKEWISE, THE GROSS WEIGHT ON A SINGLE OR TANDEM AXLE MUST NOT EXCEED THE MAXIMUM ALLOWABLE WEIGHT. IF THERE IS ANY DOUBT AS TO WHETHER THE TOTAL GROSS WEIGHT OR AXLE WEIGHT EXCEEDS THE MAXIMUM ALLOWABLE WEIGHT SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- F. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH STATE WEIGHT LAWS. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED. COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED MAY BE USED, HOWEVER, THE APPROVED METHODS SHOWN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.
- G. THE "LOAD AS SHOWN" FOR MOST OF THE FULL LOADS DEPICTED HEREIN IS BASED ON AN APPROXIMATE LADING WEIGHT OF 43,000 POUNDS. THE SPECI-FIED BLOCKING AND BRACING FOR THE FULL LOADS IS ADEQUATE FOR THE RETENTION OF LOADS, UP TO 45,000 POUNDS, IF IT IS DESIRED TO INCREASE THE LADING WEIGHT.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH PALLET UNITS OF ROCKETS, 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.

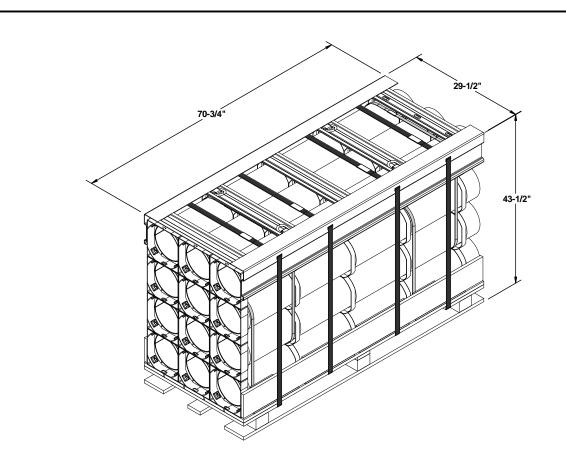
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MATERIAL SPECIFICATIONS

<u>LUMBER</u> :	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.			
<u>NAILS</u> :	ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).			
STRAPPING, STEEL:	ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B, (GRADE 2), OR C.			
SEAL, STRAP:	ASTM D3953; CLASS H, FINISH A, B, (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV .			

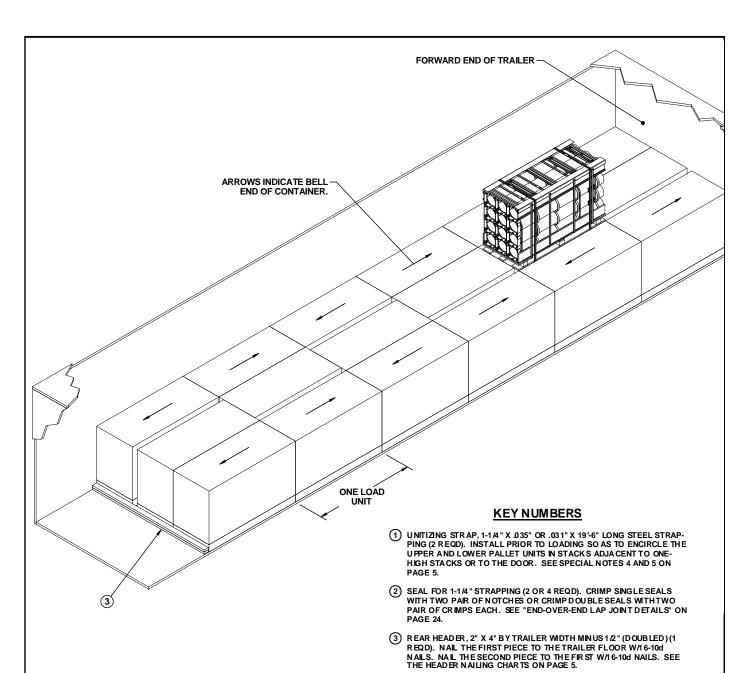
(GENERAL NOTES CONTINUED)

- J. SOME LOADS ARE SHOWN IN TRAILERS HAVING ROUNDED CORNERS AT THE FORWARD END. IF THE CONVENTIONAL VAN TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD, OMIT THE FOR-WARD BLOCKING ASSEMBLY AND POSITION THE PALLET UNITS DIRECTLY AGAINST THE FORWARD PORTION OF THE TRAILER.
- K. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINI-MUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 24 FOR GUIDANCE.
- L. 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 AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- M. 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 THE PIECE ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- N. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED TRAILER LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH ASTM F1667 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.
- O. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- P. THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 6". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE ANTI-SWAY BRACES. NAIL EACH ADDITIONAL PIECE TO THE BUFFER PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND LENGTH OF THE LUMBER USED IN THESE ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNIT.
- Q. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR MEASURES 1-1/2" OR LESS REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THE 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DEPICTED ON PAGE 21. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" OR "C", AS SHOWN ON PAGES 21 AND 22. NOTE: REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 4 AND THE HEADER NAILING CHARTS ON PAGE 5 FOR GUIDANCE. CAUTION: THE NAILED HEADER METHOD IS REQUIRED WHEN LOADING VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS.
- R. CAUTION: WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE AP-PLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, PALLET UNITS BE-ING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EX-IT BECOME NECESSARY.
- S. PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF ITEMS CAN BE TRANSPORTED. SEE THE "SHIPMENT OF A PARTIAL PALLET UNIT" DETAILS ON PAGE 26. FOR SHIPMENT OF LEFTOVER CONTAINERS SEE THE DETAILS ON PAGE 25.
- T. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF PALLET UNITS OF PA151 CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED ROCKET. OR WHEN THEY ARE EMPTY.
- U. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454 KG.



PALLET UNIT DETAIL

GROSS WEI GHT - - - - - - 2, 010 LBS (APPROX) CUBE - - - - - - - 52.6 CU FT (APPROX)



BILL OF MATERIAL				
LUMBER LI NEAR FEET BOARD FEET				
2" X 4"	16	11		
NAI LS	NO. REQD POUNDS			
10d (3")	32 1/2			
STEEL STRAPPING, 1-1/4" - 37' REQD -5.28 LBS				

LOAD AS SHOWN

PALLET UNIT - - - - 19 - - - - 38, 190 LBS DUNN AGE - - - - - - - - - 27 LBS

TOTAL WEIGHT - - - - 38,217 LBS (APPROX)

PAGE 4

19-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE VAN TRAILER

FORWARD HEADER NAILING CHART [®]			
#NAILS	MAX. LOAD WEIGHT (LBS)		
3 4 5 6 7 8 9	15,000 20,000 25,000 30,000 35,000 40,000 45,000		

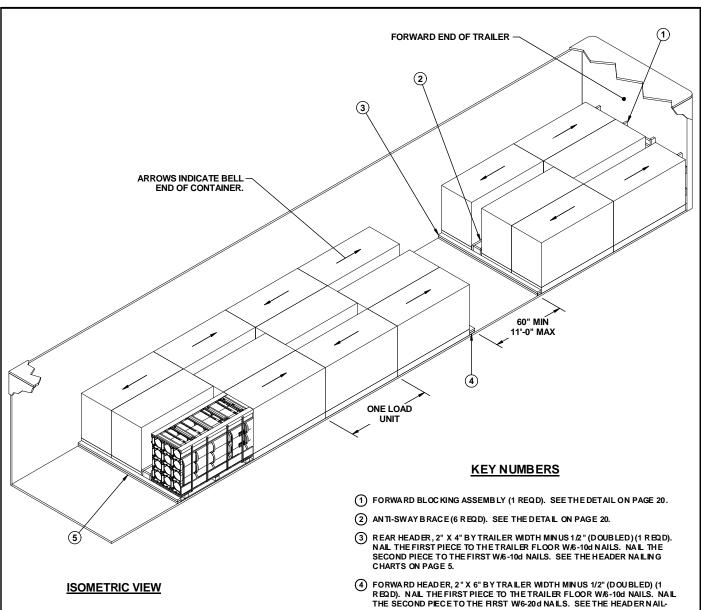
HEADERS AT THE FRONT END OF A LOAD OR AT THE FRONT END OF A DIVIDED LOAD WILL BE DOUBLED 2" X 6" MATERIAL. THE NUMBER OF NAILS INDICATED ABOVE REFERS TO THE NUMBER OF NAILS USED IN EACH LAMINATION OF A HEADER, FOR EXAMPLE 8 NAILS MEANS THE FIRST BOARD IS NAILED TO THE TRAILER FLOOR W/8-10d NAILS, AND THE SECOND BOARD IS LAMINATED TO THE FIRST W/8-20d NAILS, FOR A TOTAL OF 8-10d AND 8-20d NAILS PER HEADER. A MINIMUM OF 6 PAIRS OF NAILS WILL BE USED FOR TRAILER WIDTH HEADERS.

REAR HEADER NAILING CHART [*]			
#NAILS	MAX. LOAD WEIGHT (LBS)		
6 7 8 9 10 11 12 13 14 15 16 17	15,000 17,500 20,000 22,500 25,000 27,500 30,000 32,500 35,000 37,500 40,000 42,500		

* HEADERS AT THE REAR OF A FULL LOAD OR AT THE REAR END OF A DIVIDED LOAD WILL BE DOUBLED 2" X 4" MATERIAL. THE NUMBER OF NAILS INDICATED ABOVE REFERS TO THE NUMBER OF NAILS USED IN EACH LAMINATION OF A HEADER, FOR EXAMPLE 8 NAILS MEANS THE FIRST BOARD IS NAILED TO THE TRAILER FLOOR W8-10d NAILS, AND THE SECOND BOARD IS LAMINATED TO THE FIRST W/8-10d NAILS, FOR A TOTAL OF 16-10d NAILS. A MINIMUM OF 6 PAIRS OF NAILS WILL BE USED FOR TRAILER WIDTH HEADERS. NOTE: REAR HEADERS MAY BE HANDLED IN THE SAME MANNER AS FORWARD HEADERS, USING 2" X 6" MATERIAL WITH 10d AND 20d NAILS. IF DESIRED.

SPECIAL NOTES:

- 1. A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED. THE LOAD ON PAGE 4 IS DEPICTED IN A VAN TRAILER WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD. IF A TRAILER HAVING ROUNDED CORNERS IS TO BE LOADED, A FORWARD BLOCKING ASSEMBLY, AS DEPICTED ON PAGE 20, WILL BE REQUIRED.
- 2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
- 3. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. NOTE: IF THE TRAILER IS EQUIPPED WITH A METAL THRESHOLD PLATE AND IT INTERFERES WITH THE NAILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTALLED.
- 4. UNITIZING STRAPS MUST BE APPLIED AROUND THE TWO-HIGH STACKS WHICH ARE IMMEDIATELY ADJACENT EITHER LATERALLY OR LONGITUDINALLY TO THE ONE-HIGH UNITS. THE UNITIZING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
- 5. IF A STACK AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, UNITIZING STRAPS MUST BE INSTALLED AROUND EACH OF THE REARMOST STACKS IN EACH APPLICABLE ROW.
- 6. ALTERNATE THE POSITION OF THE LATERAL VOID IN THE LOAD TO ENSURE A UNIFORM LOAD. AS DEPICTED IN THE LOAD ON PAGE 4.
- 7. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF THREE UNITS BY OMITTING ONE OR MORE FULL LOAD UNITS FROM THE LOAD; OR, ONE OR MORE UNITS CAN BE ADDED TO OR OMITTED FROM THE LOAD.
- 8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
- 9. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.



BILL OF MATERIAL				
LUMBER	LINEAR FEET	BOARD FEET		
2" X 4" 2" X 6"				
NAI LS	NO. REQD	POUNDS		
10d (3") 20d (4")	196 6	3 1/4		

LOAD AS SHOWN

ING CHARTS ON PAGE 5.

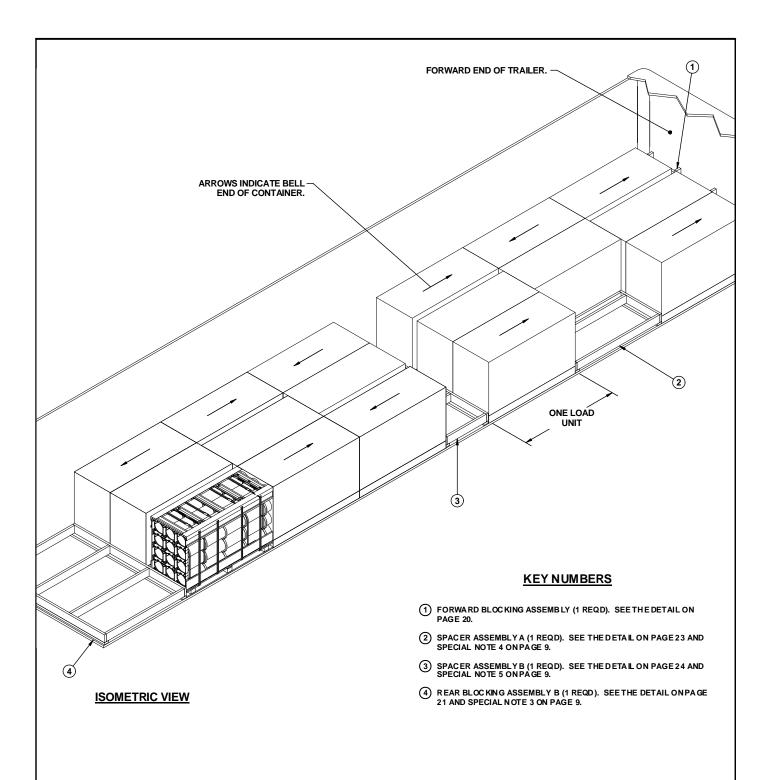
<u>I TEM</u>	QUANTI TY	WEI GHT	(APF	PROX)
PALLET UNIT DUNNAGE				
TOTAL V	VEIGHT	 - 36, 523	LBS	(APPROX)

(5) REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/11-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/I 1-10 d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 5.

18-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE VAN TRAILER

- 1. A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WITH ROUNDED FRONT CORNERS IS SHOWN. IF A TRAILER WITH SQUARE FRONT CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED (1) ON PAGE 6, MAY BE OMITTED. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
- ANTI-SWAY BRACES MAY BE OMITTED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS IS 6" OR LESS, AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
- 3. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE TRAILER IS EQUIPPED WITH A METAL THRESHOLD PLATE AND IT INTERFERES WITH THE NAILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTALLED.
- 4. ALTERNATE THE POSITION OF THE LATERAL VOID IN THE LOAD TO ENSURE A UNIFORM LOAD, AS DEPICTED IN THE LOAD ON PAGE 6.
- 5. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE REDUCED BY A MULTIPLE OF THREE UNITS BY OMITTING ONE OR MORE FULL LOAD UNITS FROM THE LOAD; OR, ONE OR MORE UNITS CAN BE ADDED TO THE TOP TIER.
- 6. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
- 7. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

18-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE VAN TRAILER



BILL OF MATERIAL					
LUMBER LINEAR FEET BOARD FEET					
2" X 4" 2" X 6"	51 113	34 113			
NAI LS	NO. REQD	POUNDS			
10d (3") 138 2-1/4					

LOAD AS SHOWN

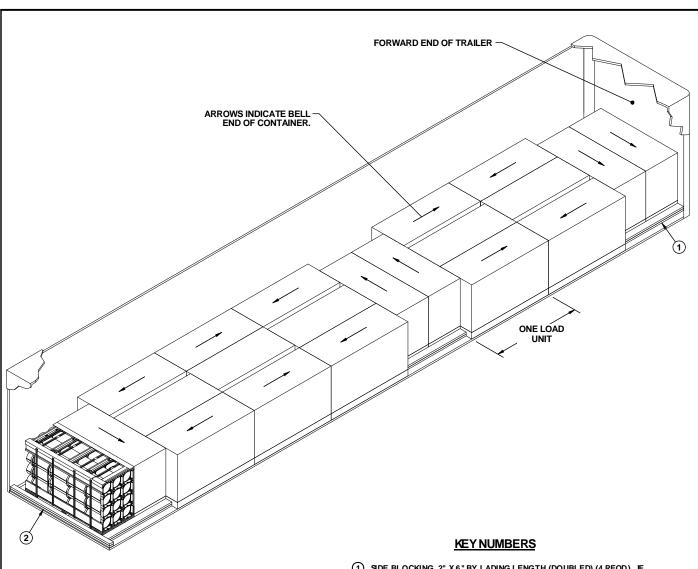
<u>I TEM</u>	QUANTI TY	WEI GHT	(APPROX)
	17		
TOTA	L WEIGHT	- 34, 465	LBS (APPROX)

IUIAL WEIGHT - - - - 34,405 LBS (APPRUX)

PAGE 8

17-UNIT LOAD IN A 45'-0" LONG BY 7'-8" WIDE VAN TRAILER

- 1. A 45'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WITH ROUNDED FRONT CORNERS IS SHOWN. IF A TRAILER WITH SQUARE FRONT CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ① ON PAGE 8, MAY BE OMITTED. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
- 2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER TO
- 3. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. NOTE: REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 4 AND THE HEADER NAILING CHARTS ON PAGE 5 FOR GUIDANCE.
- 4. SPACER ASSEMBLY "A", SHOWN IN THE LOAD ON PAGE 8, IS ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION. IF A PALLET UNIT IS LOADED IN PLACE OF THE SPACER ASSEMBLY "A", PIECE MARKED (2) WILL NOT BE REQUIRED. NOTE THAT A SPACER ASSEMBLY "A" MUST BE POSITIONED WHERE THERE WILL BE A PALLET UNIT AT EACH END. A SPACER ASSEMBLY "A" MUST NOT BE POSI-TIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY.
- 5. SPACER ASSEMBLY "B", SHOWN IN THE LOAD ON PAGE 8, IS TO BE USED FOR THE PURPOSE OF PROVIDING FOR PROPER WEIGHT DISTRIBUTION, AND IS SHOWN AS TYPICAL ONLY. IF THE TRAILER TO BE LOADED IS LONGER THAN 45', THE LOCATION OF THE ASSEMBLY, AND/OR THE STRUT LENGTHS, MAY BE DIFFERENT FROM WHAT IS SHOWN. IF A SHORTER TRAILER IS USED FOR THE DEPICTED LOAD, THIS ASSEMBLY MAY NOT BE REQUIRED. NOTE THAT A SPACER ASSEMBLY "B" MUST NOT BE POSITIONED ADJACENT TO THE FOR-WARD BLOCKING ASSEMBLY.
- ALTERNATE THE POSITION OF THE LATERAL VOID IN THE LOAD TO ENSURE A UNIFORM LOAD, AS DEPICTED IN THE LOAD ON PAGE 8.
- 7. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE REDUCED BY A MULTIPLE OF THREE UNITS BY OMITTING ONE OR MORE FULL LOAD UNITS FROM THE LOAD; OR, ONE OR MORE UNITS CAN BE ADDED TO OR OMITTED FROM THE LOAD.
- LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS
 MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER
 TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE
 25 FOR GUIDANCE.
- 9. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.



- (1) SIDE BLOCKING, 2" X 6" BY LADING LENGTH (DOUBLED) (4 REQD). IF NECESSARY DUE TO ROUNDED FRONT CORNERS, THE LENGTH OF THE FRONT SIDE BLOCKING PIECES MAY BE SHORTENED TO AVOID THE CORNER RADIUS. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-10d NAIL EVERY 24". LAMIN ATE THE SECOND PIECETO THE FIRST INA LIKE MANNER. INSTALLATION MAY BE MADE FROM R ANDOM LENGTH PIECES. SEE SPECIAL NOTE 4 ON PAGE 11.
- (2) HEADER, 2" X 4" BY TRAILER WIDTH MNUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/17-10d NAILS. LAMINATE THE SECOND PIECE TO THE FIRST W/17-10d NAILS. SEE SPECIAL NOTE 3 ON PAGE 11 AND THE HEADER NAILING CHARTS ON PAGE 5.

BILL OF MATERIAL					
LUMBER LI NEAR FEET BOARD FEET					
2" X 4" 2" X 6"	16 59	11 59			
NAI LS	NO. REQD	POUNDS			
10d (3")	70	1-1/2			

LOAD AS SHOWN

PALLET UNIT - - - 21 - - - - 42,210 LBS

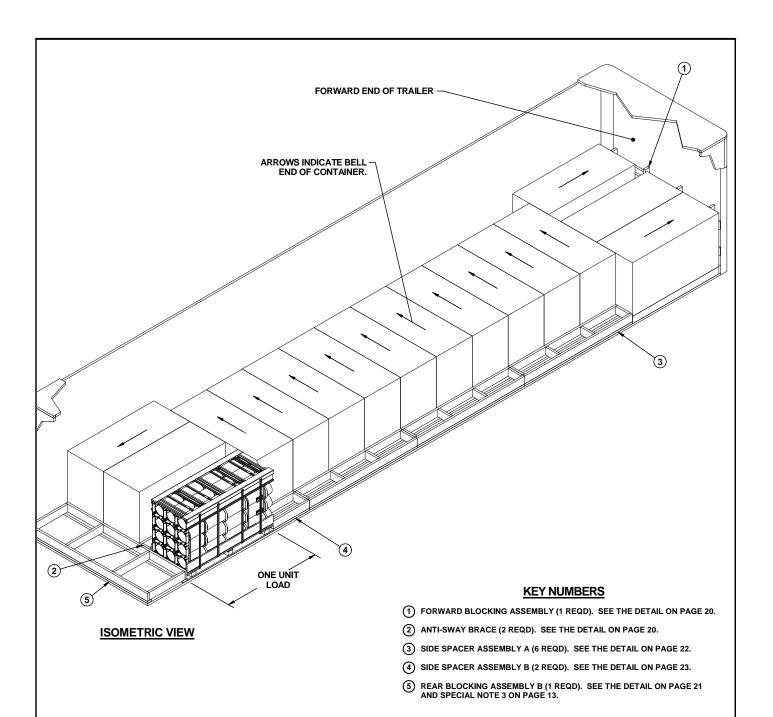
DUNNAGE - - - - - - - - - - - 42,349 LBS (APPROX)

TOTAL WEIGHT - - - - - 42,349 LBS (APPROX)

PAGE 10

21-UNIT COMBINATION LOAD IN A 45'-0" LONG BY 7'-8" WIDE VAN TRAILER

- A 45'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WITH ROUNDED CORNERS IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
- ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
- 3. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY C" AS DETAILED ON PAGE 22 OR A NAILED HEADER, AS SHOWN. IF THE TRAILER IS EQUIPPED WITH A METAL THRESHOLD PLATE AND IT INTERFERES WITH THE NAILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTALLED.
- 4. IF DESIRED, SIDE SPACER ASSEMBLIES "A" AND/OR "B", AS DEPICTED ON PAGES 22 AND 23, MAY BE USED IN LIEU OF THE SIDE BLOCKING. SEE THE LOAD ON PAGE 12 FOR DETAILS.
- 5. ALTERNATE THE POSITION OF THE LATERAL VOID IN THREE-WIDE LOAD UNITS TO ENSURE A UNIFORM LOAD, AS DEPICTED IN THE LOAD ON PAGE 10.
- 6. THE LOADING PROCEDURES SHOWN ON PAGE 10 ARE LIMITED TO 1-LAYER LOADS; PALLET UNITS WILL NOT BE STACKED.
- 7. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE INCREASED BY REPLACING SOME OF THE 1-WIDE UNITS WITH 3-WIDE UNITS, OR THE LOAD CAN BE REDUCED BY REPLACING 3-WIDE PORTIONS WITH SIN-GLE UNITS.
- 8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
- 9. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.



BILL OF MATERIAL				
LUMBER	LINEAR FEET	BOARD FEET		
2" X 4"	112	75		
2" X 6"	208	208		
NALLS	NO. REOD	POUNDS		

444

LOAD AS SHOWN

<u>I TEM</u>	QUANTI TY	١	MEI GHT	(APPR	(XOX)
	16				
TOTA	I WELCHT		222	LDC	CADDDON

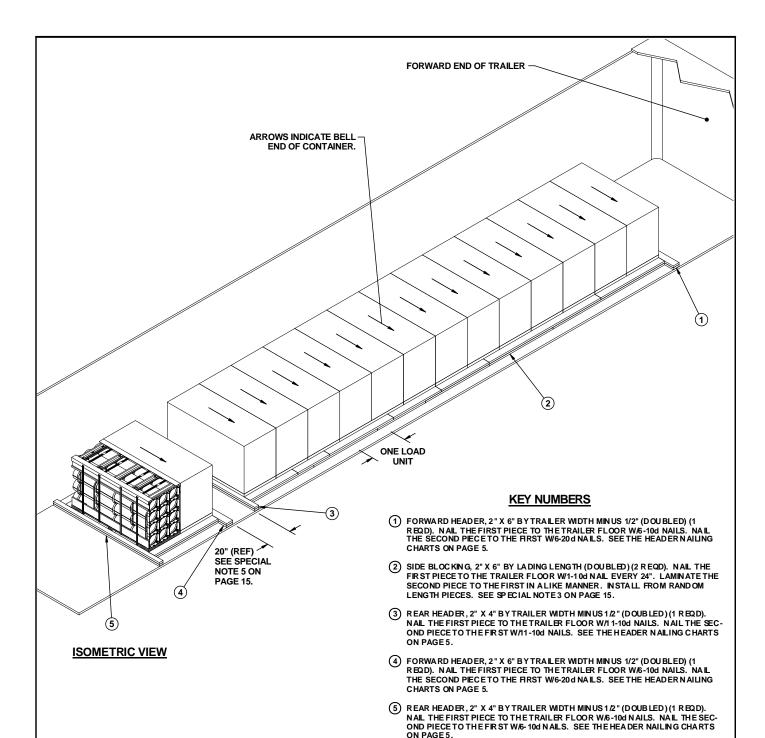
TOTAL WEIGHT - - - - - 32, 732 LBS (APPROX)

PAGE 12

10d (3")

16-UNIT COMBINATION LOAD IN A 40'-0" LONG BY 8'-2" WIDE VAN TRAILER

- 1. A 40'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WITH ROUNDED FRONT CORNERS IS SHOWN. IF A TRAILER WITH SQUARE FRONT CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ① ON PAGE 12, MAY BE OMITTED. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
- ANTI-SWAY BRACES MAY BE OMITTED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS IS 6" OR LESS, AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
- 3. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS SHOWN. NOTE: REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 4 AND THE HEADER NAILING CHARTS ON PAGE 5 FOR GUIDANCE.
- 4. IF THE TRAILER BEING LOADED IS EQUIPPED WITH A WOOD OR WOOD AND METAL FLOOR, AND IF DESIRED, NAILED SIDE BLOCKING MAY BE USED IN LIEU OF THE SIDE SPACER ASSEMBLIES. SIDE BLOCKING SHOULD BE DOUBLED 2" X 6" MATERIAL. SEE THE LOAD ON PAGE 10 FOR DETAILS.
- 5. ALTERNATE THE POSITION OF THE LATERAL VOID IN THREE-WIDE LOAD UNITS TO ENSURE A UNIFORM LOAD, AS DEPICTED IN THE LOAD ON PAGE 12.
- 6. THE LOADING PROCEDURES SHOWN ON PAGE 12 ARE LIMITED TO 1-LAYER LOADS: PALLET UNITS WILL NOT BE STACKED.
- 7. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE INCREASED BY REPLACING SOME OF THE 1-WIDE UNITS WITH 3-WIDE UNITS, OR THE LOAD CAN BE REDUCED BY REPLACING 3-WIDE PORTIONS WITH SINGLE UNITS.
- 8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
- 9. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.



BILL OF MATERIAL								
LUMBER	LI NEAR FEET	BOARD FEET						
2" X 4" 2" X 6"	33 180	22 180						
NAI LS	NO. REQD	POUNDS						
10d (3") 20d (4")	117 9	2 1/2						

LOAD AS SHOWN

LTE	M	QUANTITY		WEI	GHT	(APPR	OX)
	LETUNIT - NNAGE						
	TOTAL	WELCHT		20	CCC	I DC	CADDDO

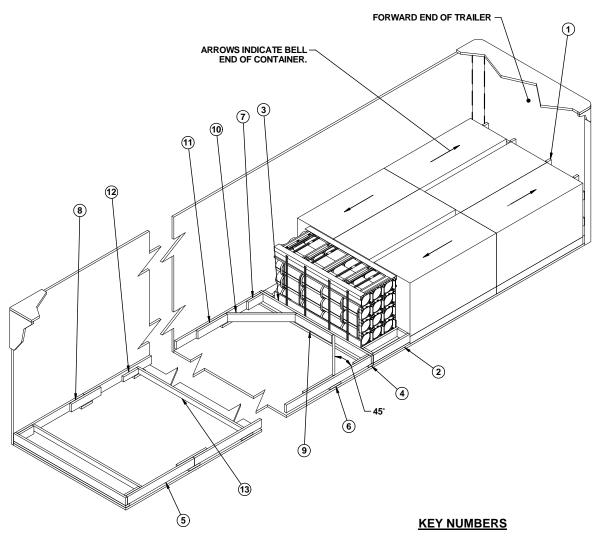
TOTAL WEIGHT - - - - - 30, 555 LBS (APPROX)

PAGE 14

15-UNIT (1-WIDE) LOAD IN A 53'-0" LONG VAN TRAILER

- A 53'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTION AL VANTRALLER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
- 2. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-12" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY C" AS DETAILED ON PAGE 22 OR A NAILED HEADER, AS SHOWN. IF THE TRAILER IS EQUIP FED WITH A METAL THRESHOLD PLATE AND IT IN TERFERES WITH THEN AILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTAILED.
- IF DES IRED, SIDE SPACER ASSEMBLIES "A" AND OR "B", AS DEPICTED ON PAGES 22 AND 23, MAY BE USED IN LIEU OF THE SIDE BLOCKING. SEE THE LOAD ON PAGE 12 FOR DETAILS.
- 4. THE LOADING PROCEDURES SHOWN ON PAGE 14 ARE LIMITED TO 1-LAYER LOADS; PALLET UNITS WILL NOT BE STACKED.
- 5. THE SPLIT IN THE LOAD CONFIGUR ATION ON PAGE 14 IS SHOWN AS TYPICAL ONLY. PALLETS MAY BE SHIFTED FORE OR AFT, THE QUANTITY IN EACH LOAD BAY MAY BE A DJUSTED, OR ALL THE PALLETS MAY BE GROUPED TOGETHER IN ONE LOAD BAY AS NEEDED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED OR THE SUPPLIED EQUIPMENT.
- 6. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE
- 7. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

15-UNIT (1-WIDE) LOAD IN A 53'-0" LONG VAN TRAILER



(KEY NUMBERS CONTINUED)

- (1) DIAGONAL BRACE, 2" X 6" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND TOENAIL TO THE ADJACENT HEADER AND SIDE STRUT W/2-16d NAILS AT EACH END.
- (1) BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT W/8-10d NAILS.
- (12) STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT W/3-10d NAILS. SEE SPECIAL NOTE 5 ON PAGE 17.
- (13) STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). NAIL TO THE POCKET CLEATS AND/OR TO THE STRUT BRACE RETAINING CLEATS, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 17.

- (1) FORWARD BLOCKING (1 REQD). SEE THE DETAIL ON PAGE 20.
- ② SIDE SPACER ASSEMBLY B (2 REQD). SEE THE DETAIL ON PAGE 23. SEE SPECIAL NOTE 3 ON PAGE 17.
- $\textcircled{3}\,$ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). SEE SPECIAL NOTE 7 ON PAGE 17.
- 4 HEADER AND SIDE STRUT SUPPORT, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF A HEADER W/1-10d NAIL EVERY 8".
- (5) SIDE STRUT, 2" X 6" BY CUT TO FIT BETWEEN THE FORWARD AND REAR HEADERS (2 REQD). SEE SPECIAL NOTE 4 ON PAGE 17.
- (6) RISER PIECE, 2" X 4" X 9" (AS REQD). CENTER UNDER THE JOINTS OF THE DIAGONAL BRACE AND BACK-UP CLEAT, AND UNDER THE JOINTS OF THE STRUT BRACE RETAINING CLEAT AND STRUT BRACE, AND UNDER THE SPLICE OF SIDE STRUT IF APPLICABLE. NAIL TO SIDE STRUT W/2-10d NAILS.
- 7 POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT W/3-10d NAILS. TOENAIL TO THE ADJACENT HEADER W/3-12d NAILS.
- 8 SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON JOINT OF PIECE AND NAIL TO SIDE STRUT W/4-10d NAILS AT EACH END. SEE SPECIAL NOTE 4 ON PAGE 17.
- (9) CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO A HEADER W/6-10d NAILS.

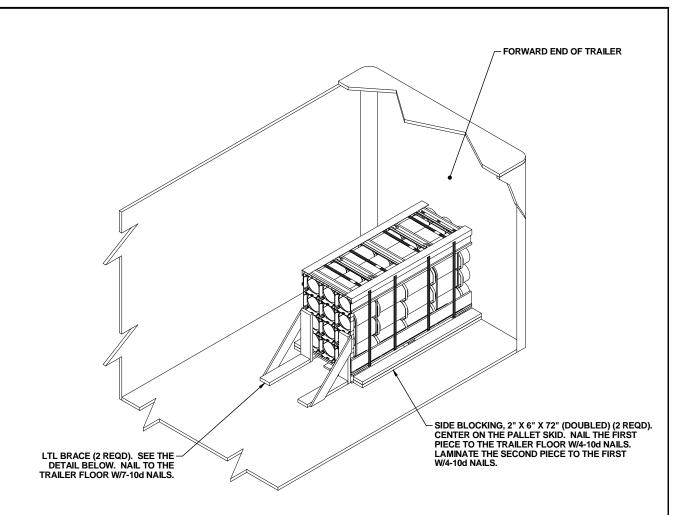
(CONTINUED AT LEFT)

PAGE 16

TYPICAL LTL (7-UNIT)

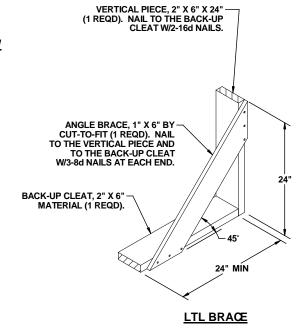
- A 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
- ANTI-SWAY BRACES ARE REQUIRED WHENTHE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PAILET ADAPTER.
- 3. THE SIDE SPACER ASSEMBLIES ARE SHOWN ONLY TO DEPICT A TYPIC AL INSTALLATION. SIDE SPACER ASSEMBLIES WILL BE USED WHEN A PALLET UNIT IS LOADED WITH THE CONTAINERS PARALLEL TO THE TRAILER WIDTH. THEY MAY OR MAY NOT BE REQUIRED, DEPENDING ON THE QUANTITY OF PALLET UNITS TO BE SHIP PED.
- 4. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS MAY NEED TO BE FORMED FROM MORE THAN ON EPIECE OF MATERIAL IF SUCH ISTHE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W4-10d NAILS AT EACH END. CAUTION: A RISER PIECE MUST BE POSITIONED UN DER EACH SPLICE JOINT. IF DESIRED, THE STRUT BRACE PIECE(S) MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE RETAINING CLEATS.
- 5. ALL LTL LOADS, REGAR DLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO POCKET CLEAT. IF THE SIDE STRUTS ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE, AND TWO STRUT BRACE RETAINING CLEATS, AND TWO RISER PIECES MUST BE AP-PLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
- 6. THE "K-BRACE" BLOCKING, SHOWN AS PIECES MARKED $\ \, (\ \,)$ THRU $\ \, (\ \,)$, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
- 7. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, THE NAILED-HEADER METH OD OF REAR BLOCKING MUST BE INSTALLED IN LIEU OF THE "K-BRACE" TYPE BLOCKING. REFER TO HECE MARKED ③ ON PAGE 4 AND THE HEADER NAILING CHARTS ON PAGE 5 FOR GUID ANCE. NOTE THAT THE NAILED-HEADER METH OD OF REAR BLOCKING MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS AND NAILA BLE FLOORS, AND MAY BE USED IN LIEU OF PIECES MARKED ③ THRU ③ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.
- 8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE
- REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

TYPICAL LTL (7-UNIT)

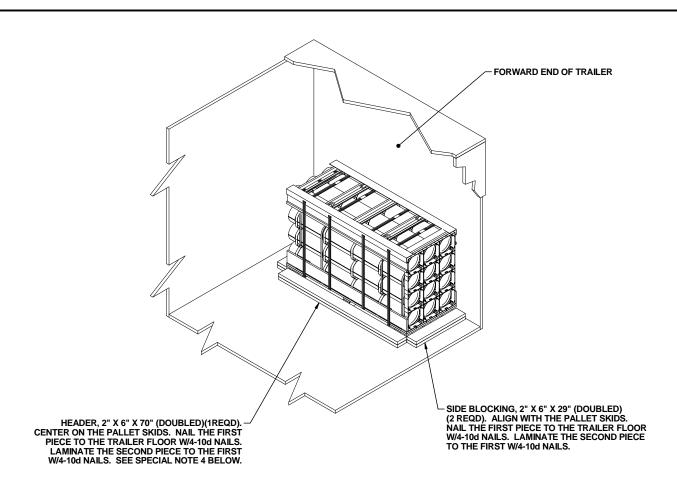


SPECIAL NOTES:

- A 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
- 2. THE POSITIONING OF A UNIT IS OPTIONAL. LTL BRACES MUST CONTACT EITHER THE AFT OR FORWARD END OF THE UNIT, NOT THE SIDES. UNITS MAY ALSO BE LOCATED IN THE CORNER OF THE TRAILER, IF DESIRED. IF THE TRAILER DOES NOT HAVE A SQUARE FRONT, A FORWARD BLOCKING ASSEMBLY MUST BE INSTALLED WHEN POSITIONING A UNIT IN THE CORNER OF THE TRAILER. SEE THE DETAIL ON PAGE 20.
- MORE THAN ONE PALLET UNIT CAN BE SHIPPED, PROVIDING THE CAPACITY OF THE LTL BRACES IS NOT EXCEEDED. THE LOAD SHOULD BE FORMED IN ROWS, WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDEWALLS. THE PROPER ANTI-SWAY BRACES, IF REQUIRED, WILL BE INSTALLED BETWEEN THE LATER-ALLY ADJACENT UNITS. SEE THE DETAIL ON PAGE 20.
- 4. EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING; HOWEVER, NOT LESS THAN TWO BRACES WILL BE USED AGAINST EACH PALLET UNIT ACROSS THE WIDTH OF THE TRAILER.



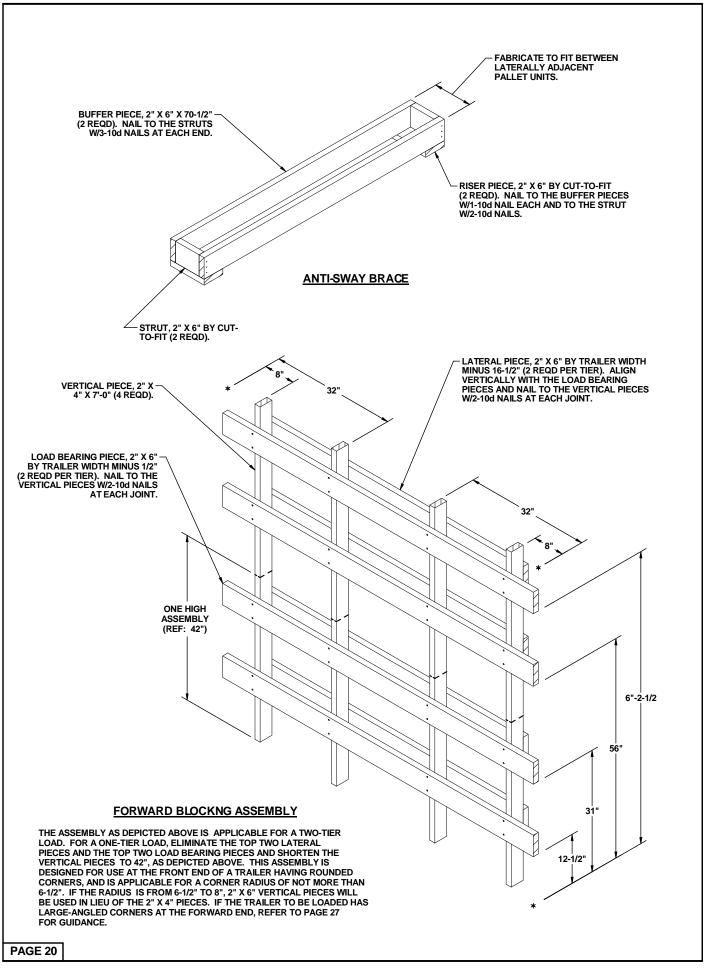
TYPICAL LTL (1-UNIT)

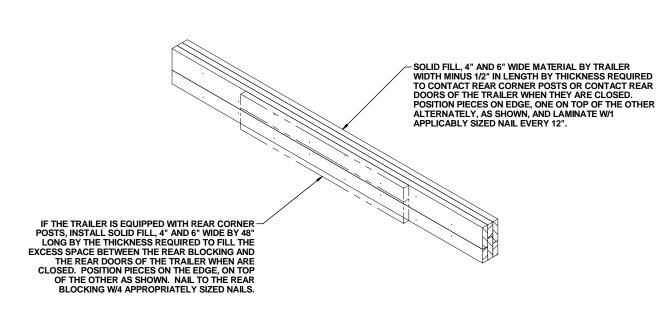


SPECIAL NOTES:

- 1. AN 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
- THE POSITIONING OF A UNIT IS OPTIONAL. UNITS MAY BE LOCATED IN THE CORNER OF THE TRAILER. IF THE TRAILER DOES NOT HAVE A SQUARE FRONT, A FORWARD BLOCKING ASSEMBLY MUST BE INSTALLED WHEN POSITIONING A UNIT IN THE CORNER OF THE TRAILER. SEE THE DETAIL ON PAGE 20.
- 3 MORE THAN ONE PALLET UNIT CAN BE SHIPPED. THE LOAD SHOULD BE FORMED IN ROWS, WITH THE UNIT'S POSITIONED AGAINST OPPOSITE SIDE-WALLS. THE PROPER ANTI-SWAY BRACES, IF REQUIRED, WILL BE INSTALLED BETWEEN THE LATERALLY ADJACENT UNITS. SEE THE DETAIL ON PAGE 20.
- 4. THE HEADER AS APPLIED ABOVE FOR LONGITUDINAL BRACING WILL SUPPORT 10,000 POUNDS OF LADING; A TRAILER WIDTH HEADER WILL SUPPORT UP TO A FULL TRAILER LOAD OF PALLET UNITS. SEE THE HEADER NAILING CHARTS ON PAGE 7

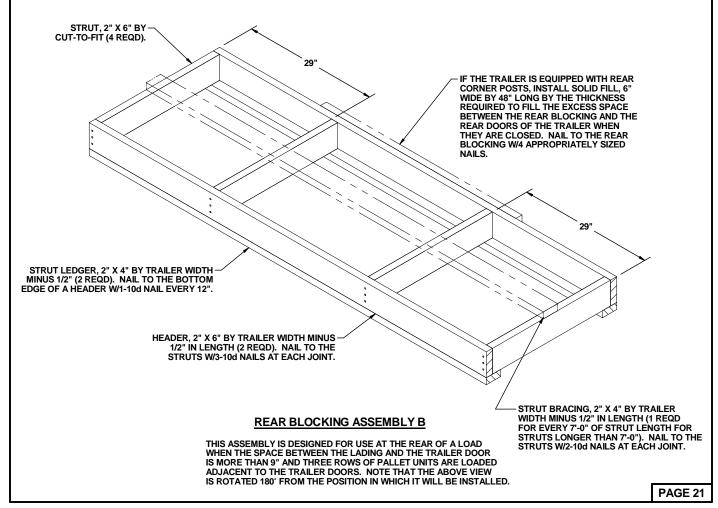
TYPICAL LTL (1-UNIT)

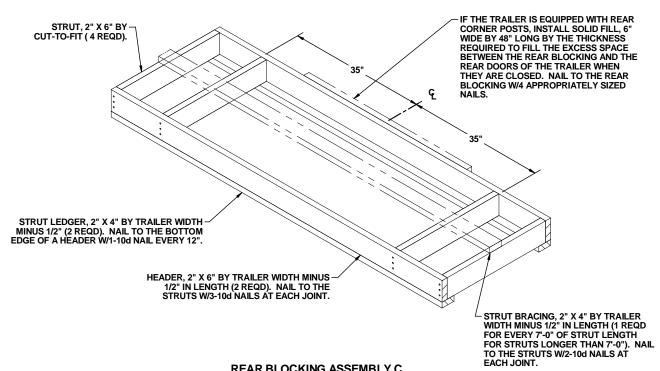




REAR BLOCKING ASSEMBLY A

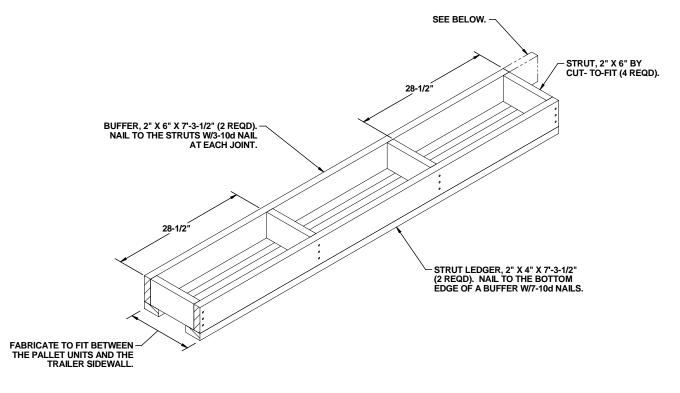
THIS REAR BLOCKING ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS GREATER THAN 1-1/2" BUT LESS THAN 9".





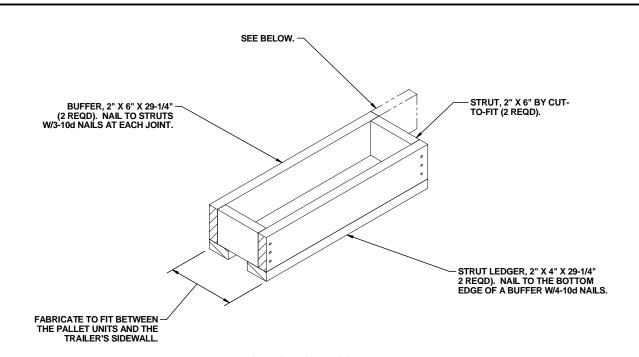
REAR BLOCKING ASSEMBLY C

THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOOR IS MORE THAN 9" AND ONE ROW OF CROSSWISE PALLET UNITS IS LOADED ADJACENT TO THE TRAILER DOORS. NOTE THAT THE ABOVE VIEW IS ROTATED 180' FROM THE POSITION IN WHICH IT



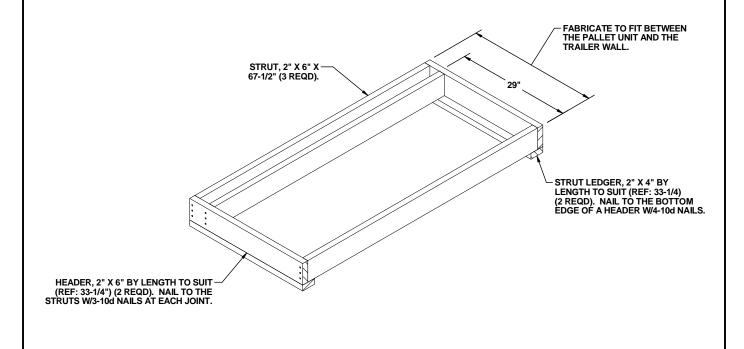
SIDE SPACER ASSEMBLY A

THIS ASSEMBLY IS THREE PALLET UNITS LONG. IF THE TRAILER BEING LOADED HAS ROUNDED CORNERS, AND THE ASSEMBLY IS TO BE USED ADJACENT TO THE FORWARD WALL, LENGTHEN ONE END OF ONE BUFFER PIECE BY 7", AS DEPICTED ABOVE.



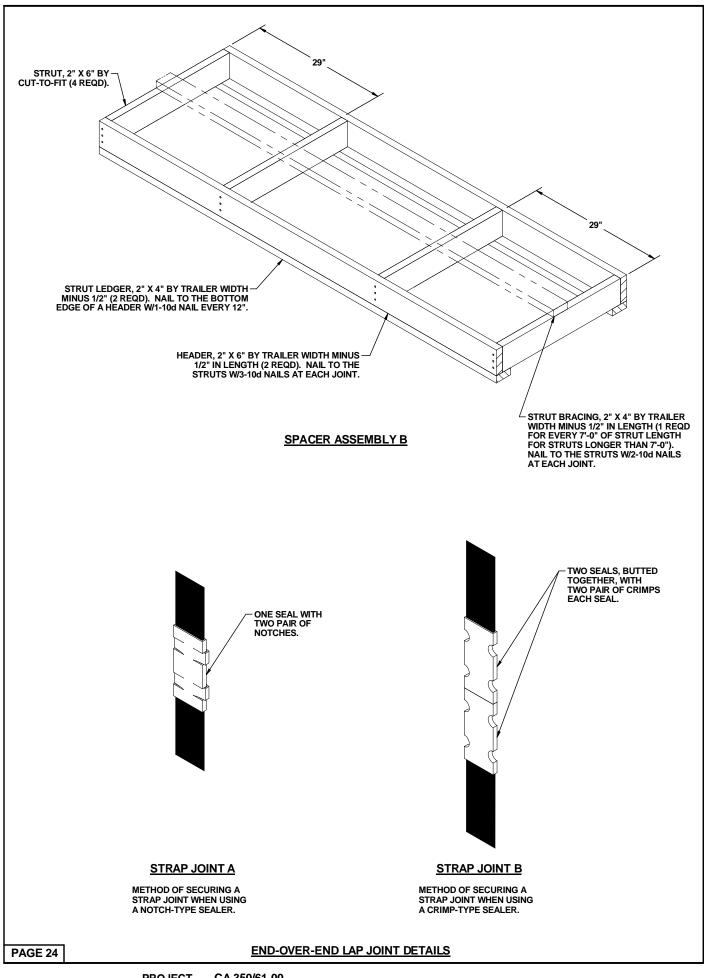
SIDE SPACER ASSEMBLY B

THIS ASSEMBLY IS ONE PALLET UNIT LONG. IF THE TRAILER BEING LOADED HAS ROUNDED CORNERS, AND THE ASSEMBLY IS TO BE USED ADJACENT TO THE FORWARD WALL, LENGTHEN ONE END OF ONE BUFFER PIECE BY 7", AS DEPICTED ABOVE.

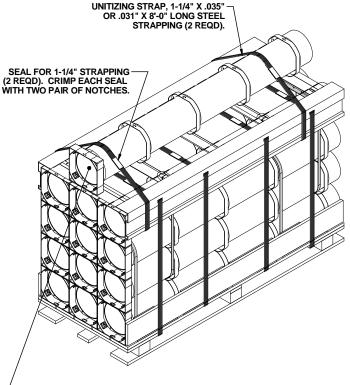


SPACER ASSEMBLY A

THIS ASSEMBLY IS DESIGNED TO REPLACE ONE PALLET UNIT.



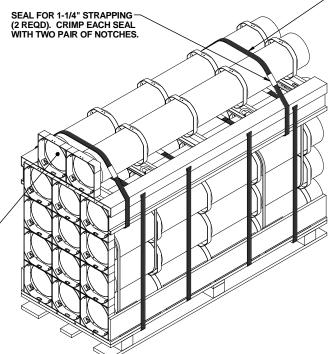
- 1. SHIPMENTS OF PALLET UNITS OF 2.75 INCH HYDRA ROCKETS SHOULD CONSIST OF FULL-HEIGHT UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS. LEFTOVER CONTAINERS ARE DESCRIBED AS ANY QUANTITY OF CONTAINERS BETWEEN ONE AND FIVE.
- 2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS MOTOR CARRIER SHIPMENTS FROM DEPOT TO DEPOT OF FROM DEPOTS TO POSTS, CAMPS, AND STATIONS, OR, UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLE, AND PACK PLANTS TO DEPOTS. CAUTION A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A FULL OR PARTIAL UNIT, MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.
- 3. THE PROCEDURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SECUREMENT OF LEFTOVER CONTAINERS FOR SHIPMENT. THE PROCEDURES ARE ALSO APPLICABLE FOR SECUREMENT OF LEFTOVER CONTAINERS TO PARTIAL PALLET UNITS FOR SHIPMENT ON TOP OF A LOAD. SEE SPECIAL NOTE 6 ON PAGE 26 FOR LIMITATIONS. IN ADDITION, THE PROCEDURES ARE APPLICABLE FOR SECURING LEFTOVER CONTAINERS TO A PARTIAL UNIT FOR SHIPMENT WITHIN A TIER.
- 4. THE PROCEDURES DEPICTED ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.



SECUREMENT OF ONE CONTAINER

- POSITION CONTAINERS SO AS TO BE CENTERED ON THE LENGTH OF THE UNIT AS NEAR AS PRACTICABLE.

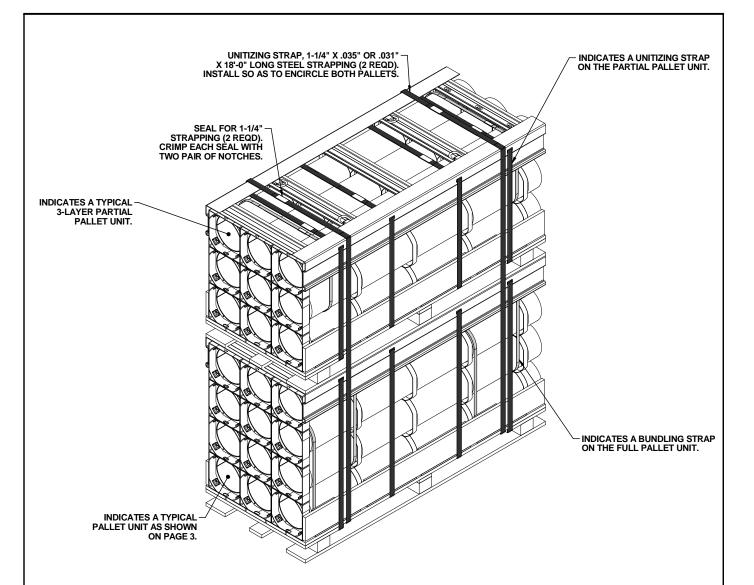
> POSITION CONTAINERS SO AS TO BE CENTERED ON THE LENGTH OF THE UNIT AS NEAR AS PRACTICABLE.



OR .031" X 9'-6" LONG STEEL STRAPPING (2 REQD).

SECUREMENT OF TWO CONTAINERS

PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS



SECUREMENT OF A PARTIAL PALLET UNIT ON TOP OF A FULL PALLET UNIT

SPECIAL NOTES:

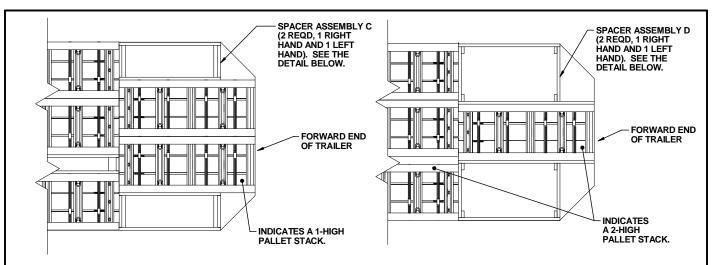
- 1. SHIPMENTS OF PALLET UNITS OF 2.75 INCH HYDRA ROCKETS SHOULD CON-SIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL PALLET UNITS WITHIN A LOAD. THE PROCE-DURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
- A PARTIAL PALLET UNIT MUST CONSIST OF BITHER TWO OR THREE FULL LAYERS IN ORDER FOR THE TOP AND BOTTOM PALLET AD APTER ASSEM-BILESTO PROPERLY FUNCTION. A LAYER MAY CONSIST OF EMPTY CON-TAINERS, THOU GH, AS DESCRIBED IN THE GENER AL NOTES OF A MC D RAW-INC 19-48-43 26/61-2 0PM101 2.
- 3. ELIMINATE THE TWO LOWER BUNDLING STRAPS WHEN UNITIZING A THREE-HIGH PARTIAL PALLET, AND ELIMINATE ALL FOUR BUNDLING STRAPS WHEN UNITIZING A TWO-HIGH PARTIAL PALLET UNIT.

(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

- 4. A LESS-THAN-FULL HEIGHT PALLET UNIT CAN BE SHIPPED BY POSITION-ING IT EITHER ON THE TOP TIER OF A LOAD OR ON THE TOP OF A LOWER PORTION OF A LOAD WHEN THE LOAD CONTANS A PARTIAL TIER IN THE END OF THE TRAILER. THE PARTIAL UNIT WILL BE STRAPPED TO THE PALLET UNIT DIRECTLY BELOW WITH TWO VERTICAL UNITZING STRAPS. SEE THE "SECUREMENT OF A PARTIAL UNIT ON TOP OF A FULL PALLET UNIT" VIEW ABOVE FOR GUID ANCE.
- 5. A PARTIAL PALLET UNIT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT INTHE LOAD.
- 6. LEFTOVER CONTAINERS, IN AN A MOUNT WHICH IS LESS THAN THE QUANTITY IN ONE LAYER OF A UNIT, CAN BE SECURED TO THE TOP OF A PARTIAL UNIT FOR SECUREMENT ON TOP OF A LOAD. THE LEFTOVER CONTAINERS MUST BE SECURED TO THE PARTIAL UNIT WITH THER OWN STRAPPING, SEPARATE FROM THE STRAPS FOR THE PARTIAL UNIT. SEE THE DETAILS ON PAGE 25 FOR GUID ANCE IN STRAP APPLICATION.

PROCEDURES FOR SHIPMENT OF PARTIAL PALLET UNITS

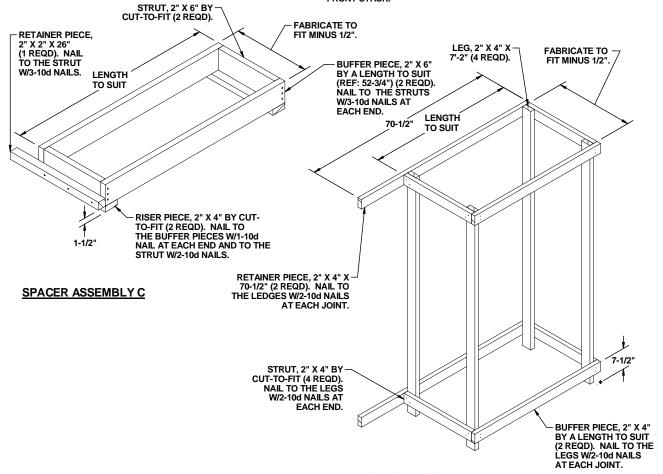


ALTERNATE FORWARD LOADING PATTERN A

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF TWO PALLET UNITS (2-WIDE, 1-HIGH) IN THE FORWARD END OF A VAN TRAILER HAVING LARGE-ANGLED FRONT CORNERS (REF: 18"). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING SQUARE CORNERS, OR ROUNDED FRONT CORNERS, OR ANGLED CORNERS OF ANOTHER SIZE. A 98" WIDE TRAILER IS SHOWN, NARROW TRAILERS CAN BE USED, AND ONE PALLET UNIT MAY BE LOADED IN THE FORWARD END OF THE TRAILER IN PLACE OF TWO.

ALTERNATIVE FORWARD LOADING PATTERN B

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF A STACK OF TWO (1-WIDE, 2-HIGH) PALLET UNITS IN THE FORWARD END OF A VAN TRAILER HAVING LARGE-ANGLED FRONT CORNERS (REF: 18"). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING SQUARE CORNERS, OR ROUDED FRONT CORNERS, OR ANGLED CORNERS OF ANOTHER SIZE. NOTE THAT IF THE LOAD UNIT BEHIND THE STACKED PALLET UNITS IN THE FRONT IS ONLY ONE HIGH, TWO UNITIZING STRAPS MUST BE INSTALLED AROUND THOSE PALLET UNITS IN THE FRONT STACK.



SPACER ASSEMBLY D

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A 2-HIGH PALLET STACK LOCATED IN THE FRONT OF AN ANGLED-CORNER CONVENTIONAL VAN TRAILER AS SHOWN IN THE "ALTERNATIVE FORWARD LOADING PATTERN B" VIEW ABOVE. NOTE THAT THIS VIEW DEPICTS THE ASSEMBLY POSITIONED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED IN A LOAD. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.

PROCEDURES FOR VAN TRAILERS EQUIPPED WITH LARGE-ANGLED FRONT CORNERS

