LOADING AND BRACING (TL & LTL) IN VAN TRAILERS® OF SPARROW (AIM-7F) MISSILES PACKED IN CNU-305/E SHIPPING AND STORAGE CONTAINERS

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 $^\oplus$ <u>Caution</u>: The outloading procedures shown herein are only applicable to highway movements, <u>Not</u> trailer-on-flatcar movements.

U.S. ARMY MATERIEL COMMAND DRAWING				
APPROVED, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND	DRAFT:	NAMZ	TECHNICIAN	ENGINEER
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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 FOR THE SPARROW (AIM-7F) MISSILES PACKED IN CNU-305/E SHIPPING AND STORAGE CONTAINERS.

CONTAINER DIMENSIONS - - 180" L X 45" W X 21" H
CONTAINER WEIGHT - - - - 2,855 LBS (APPROX)
CONTAINER CUBE - - - - 98.4 CUBIC FEET (APPROX)

- 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. VAN TRAILERS WHICH ARE 48'-O" LONG BY 8'-2" WIDE (INSIDE DIMENSION), AND 40'-O" LONG BY 7'-8" WIDE (INSIDE DIMENSION), AND 40'-O" LONG BY 7'-8" WIDE (INSIDE DIMENSION) HAVE BEEN SHOWN, HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR TRAILERS WHICH ARE 89" THRU 99" IN WIDTH AND FOR TRAILERS OF OTHER LENGTHS FROM THE SHORTEST TO 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 TO BE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- E. THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OFF 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 ALLOWED, 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. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEMS, 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.
- H. SOME LOADS ARE SHOWN IN TRAILERS HAVING ROUNDED CORNERS AT THE FORWARD END. IF THE CONVENTIONAL VAN TRAILER BEING USED IS EQUIPPED WITH A SOUARE FRONT OR WITH AN INSTALLED BULKHEAD, OMIT THE FORWARD BLOCKING ASSEMBLY B, PIECE MARKED (1) ON PAGE 6 AND REPLACE IT WITH A FORWARD BLOCKING ASSEMBLY A, SHOWN IN THE LOAD VIEW ON PAGE 4 AS PIECE MARKED (1) AND AS DETAILED ON PAGE 13.
- J. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM 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 15 FOR GUIDANCE.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER - - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.

NAILS - - - - - - : FED SPEC FF-N-105; COMMON.

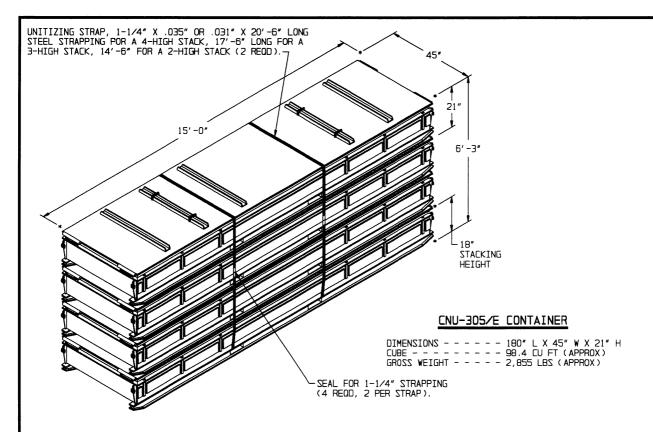
STRAPPING, STEEL - -: ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.

SEAL, STRAP - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.

PAGE 2

(GENERAL NOTES CONTINUED)

- K. 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.
- L. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH THE PIECE ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- M. 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 FEDERAL SPECIFICATION FF-N-105 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.
- N. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- O. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE CNU CONTAINERS AND THE REAR DOOR MEASURES LESS THE 9", USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 14. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", AS DEPICTED IN THE LOAD ON PAGES 4 AND B.
- P. CAUTION: WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE APPLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, CONTAINERS BEING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EXIT BECOME NECESSARY.
- O. 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 25.4 MM AND ONE POUND EQUALS 0.454 KG.
- R. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE OUTLOADING METHODS.



CONTAINER STACK DETAIL

(UNITIZING AND HANDLING GUIDANCE CONTINUED)

- 3. CONTAINER OR CONTAINER STACK HANDLING.
 - NOTES: (1) APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.
 - (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.
 - A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPLICED CONTAINERS.
 - B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER, TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING TRAILER LOADING, A UNITIZED CONTAINER STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORK RECEPTACLES OF AN UPPER CONTAINER. IF ONE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CONTAINER. HOWEVER, IF A TWO, THREE, OR FOUR-HIGH STACK IS HANDLED BY SLINGING, DO NOT ATTACH THE SLING TO THE LIFTING POINTS ON A CONTAINER. THE SLING USED MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER.
 - C. WHEN LOADING A CONTAINER OR CONTAINER STACK, THE CONTAINER OR STACK WILL BE PARTIALLY PLACED INTO THE END OF THE TRAILER BY HANDLING WITH A FORKLIFT FROM THE SIDE. THE FORKLIFT THEN MUST INSERT ITS TINES FROM THE END OF THE CONTAINER OR STACK, LIFT THE END SLIGHTLY, THEN PROCEED TO PUSH THE CONTAINER OR STACK INTO ITS FINAL POSITION WITHIN THE TRAILER. CARE MUST BE EXERCISED TO AVOID DAMAGE TO THE CONTAINER ENDS, ETC., DURING PUSHING OPERATIONS.
 - D. WHEN UNLOADING A CONTAINER OR CONTAINER STACK FROM THE TRAILER, THE FORKLIFT TIMES WILL BE INSERTED UNDER THE LOWER CONTAINER, THE FORKLIFT WILL THEN ELEVATE THE END SLIGHTLY ABOVE THE FLOOR, AND BEGIN DRAGGING THE CONTAINER OR STACK FROM THE TRAILER AFTER ATTACHING A CHAIN OR WEB STRAP FROM A LOWER CONTAINER LIFT POINT AROUND THE FORKLIFT MAST TO A LOWER LIFT POINT ON THE OPPOSITE SIDE OF THE CONTAINER.

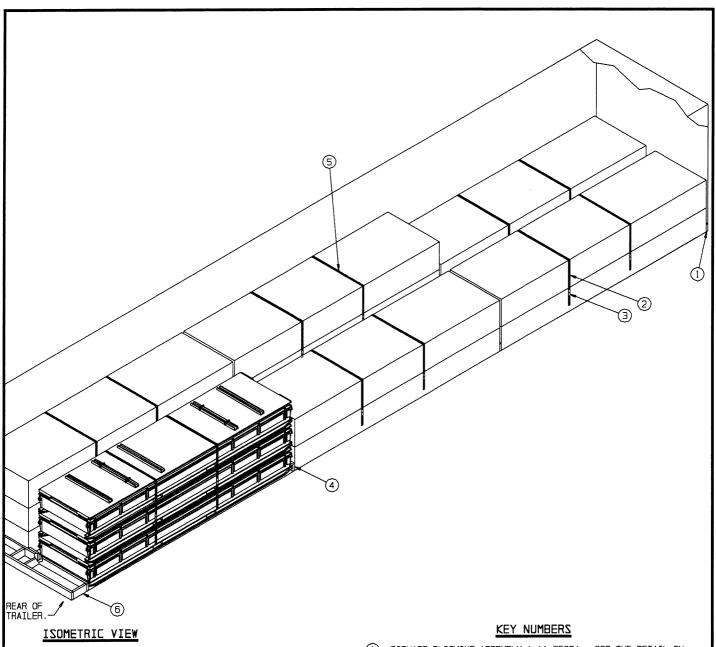
UNITIZING AND HANDLING GUIDANCE

- 1. STACKING CONTAINERS FOR UNITIZING.
 - A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLY IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.
 - B. POSITION THE AFT END OF AN UPPER CONTAINER ABOVE THE AFT END OF THE NEXT LOWER CONTAINER.
 - C. THE CONTAINER SKIDS OF AN UPPER CONTAINER SHOULD BE FULLY SEATED AGAINST THE SKID LOCATOR PIECES ON THE COVER OF THE NEXT LOWER CONTAINER.
- 2. INSTALLATION OF 1-1/4" X .035" OR .031" UNITIZING STRAPPING.
 - A. THE UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING THROUGH FORK RECEPTACLES OF A LOWER CONTAINER, AND SO THAT STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I.E., VERTICAL ALONG SIDES AND STRAIGHT ACROSS TOP AND BOTTOM OF THE STACK.
 - B. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH
 END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE
 CRIMPED STRAP SEALS AS SHOWN. THE LAP JOINTS WILL BE
 MADE ALONG THE SIDE OF THE STACK. DURING STRAP
 TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE
 CONTAINERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP
 ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT
 SEALS.

(CONTINUED AT RIGHT)

UNITIZING, STACKING AND HANDLING PROCEDURES

PAGE 3



- (1) FORWARD BLOCKING ASSEMBLY A (1 REOD). SEE THE DETAIL ON PAGE 13. SEE GENERAL NOTES "L" AND "M" ON PAGE 2. SEE SPECIAL NOTE 2 ON PAGE 5.
- (2) UNITIZING STRAP, 1-1/4" X .035" OR .031" X 14'-5" LONG STEEL STRAPPING (6 REQD). INSTALL THRU THE FORK POCKET OF THE BOTTOM CONTAINER AND TO ENCIRCLE A STACK OF TWO CONTAINERS. SEE THE "UNITIZING AND HANDLING GUIDANCE" ON PAGE 3. SEE SPECIAL NOTE 3 ON PAGE 5.
- 3 SEAL FOR 1-1/4" STEEL STRAPPING (24 REOD, 2 PER STRAP).
 DOUBLE CRIMP EACH SEAL. SEE THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15. SEE GENERAL NOTE "J" ON PAGE 2.
- (4) HEADER ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 13.
- (5) UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-6" LONG STEEL STRAPPING (6 REQD). INSTALL THRU THE FORK POCKET OF THE BOTTOM CONTAINER AND TO ENCIRCLE A STACK OF THREE CONTAINERS. SEE THE "UNITIZING AND HANDLING GUIDANCE" ON PAGE 3
- (6) REAR BLOCKING ASSEMBLY A (1 REOD). SEE THE DETAIL ON PAGE 13. SEE SPECIAL NOTES 4 AND 5 ON PAGE 5.

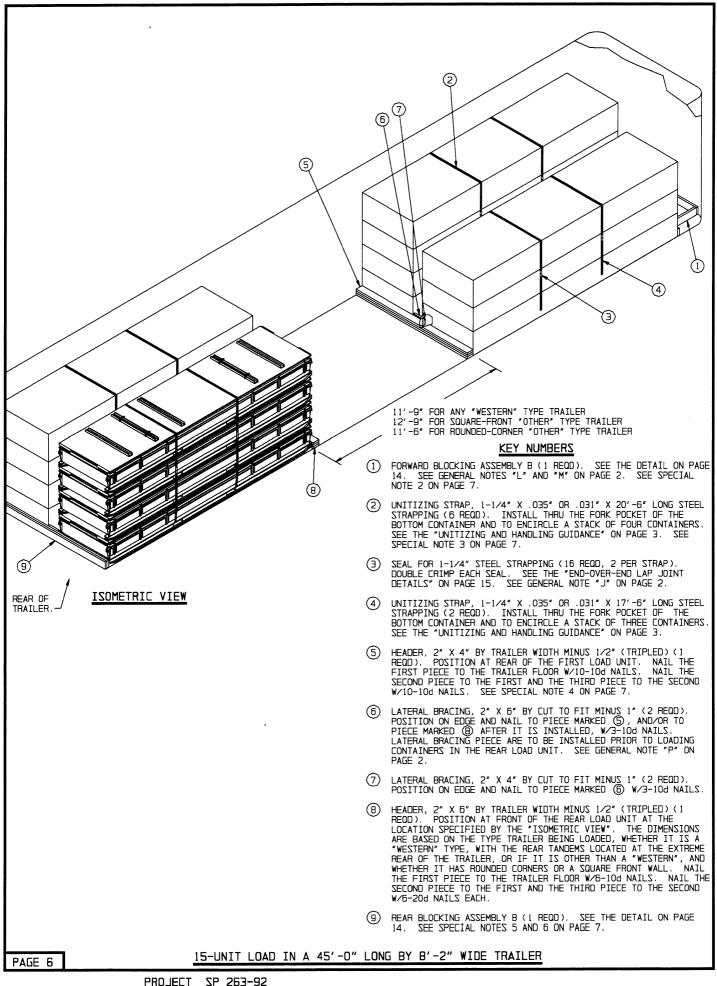
15-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE TRAILER

- A 15-UNIT LOAD IS SHOWN IN A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER. TRAILERS OF OTHER LENGTHS AND WIDTHS MAY BE USED.
- 2. THE TRAILER IS SHOWN WITH A SQUARE FRONT WALL. IF THE TRAILER TO BE LOADED HAS ROUNDED FRONT CORNERS, THE "FORWARD BLOCKING ASSEMBLY B" WILL BE USED. SEE THE DETAIL ON PAGE 14.
- 3. CONTAINERS MUST BE UNITIZED INTO STACKS OF TWO OR THREE CONTAINERS PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.
- 4. IF THE SPACE AT THE REAR OF THE LOAD IS LESS THAN 9", THE REAR BLOCKING ASSEMBLY B WILL BE USED IN LIEU OF THE DEPICTED REAR BLOCKING ASSEMBLY, PIECE MARKED (B). SEE THE DETAIL ON PAGE 14.
- 5. IF THE TRAILER HAS SUFFICIENT NAILING AREA AT THE REAR OF THE LOAD, A NAILED HEADER MAY BE USED IN LIEU OF A REAR BLOCKING ASSEMBLY. SEE PIECE MARKED (\$) ON PAGE 6 FOR GUIDANCE. THE HEADER WILL BE NAILED W/17-10d NAILS IN THE FIRST LAYER AND W/17-20d NAILS IN EACH OF THE SECOND AND THIRD LAYERS.
- 6. THE DEPICTED 15-UNIT LOAD CAN BE TRANSPORTED IN A TRAILER HAVING A SOUARE FRONT WALL PROVIDING THE TRACTOR "DRIVE" AXLES DO NOT WEIGH MORE THAN 16,400 POUNDS AND THE TRAILER AXLES DO NOT WEIGH MORE THAN 8,700 POUNDS. THIS LOAD PATTERN IS ADVISORY ONLY AND MAY BE ADJUSTED TO SUIT.
- 7. IF A TRAILER TO BE LOADED HAS ROUNDED FRONT CORNERS, THE LOAD PATTERN MUST BE CHANGED. FIVE CONTAINERS WILL BE PLACED IN THE FIRST LOAD UNIT, FOLLOWED BY A 15" LONG SPACER ASSEMBLY. SEE THE DETAIL ON PAGE 14. FOUR CONTAINERS WILL BE PLACED IN THE CENTER LOAD UNIT AND SIX WILL BE PLACED IN THE CENTER LOAD UNIT AND SIX WILL BE PLACED IN THE REAR LOAD UNIT. THE 15-UNIT LOAD CAN BE TRANSPORTED USING THIS LOADING PATTERN PROVIDING THE TRACTOR "DRIVE" AXLES DO NOT WEIGH MORE THAN 16,400 POUNDS AND THE TRAILER AXLES DO NOT WEIGH MORE THAN 8,700 POUNDS. THIS LOCATION/LOAD PATTERN IS ADVISORY ONLY AND MAY BE ADJUSTED TO SUIT. THE WEIGHT INFORMATION IS ALSO ADVISORY ONLY. THE AXLE WEIGHTS SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- 8. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. IF OMITTING ONE CONTAINER, THE TOP LAYER CONTAINER IN THE SECOND LOAD UNIT SHOULD BE LEFT OUT. ADDITIONAL CONTAINERS CAN BE OMITTED FROM THE REAR LOAD UNIT, AS DESIRED. ADJUST THE LENGTH OF THE APPLICABLE UNITIZING STRAPS.
- IF A 45'-0" OR 40'-0" LONG TRAILER IS FURNISHED FOR LOADING, REFER TO THE PROCEDURES ON PAGES 5 AND 8, RESPECTIVELY.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4" 2" X 6"	3 52	2 52
NAILS	NO. REQD	POUNDS
10d (3")	192	3
STEEL STRAPPING, 1-1/4" 192' REOD 28 LBS SEAL FOR 1-1/4" STRAPPING 24 REOD 1 LB		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
	15	
TOTAL W	FIGHT	- 42 965 LBS (APPROX)

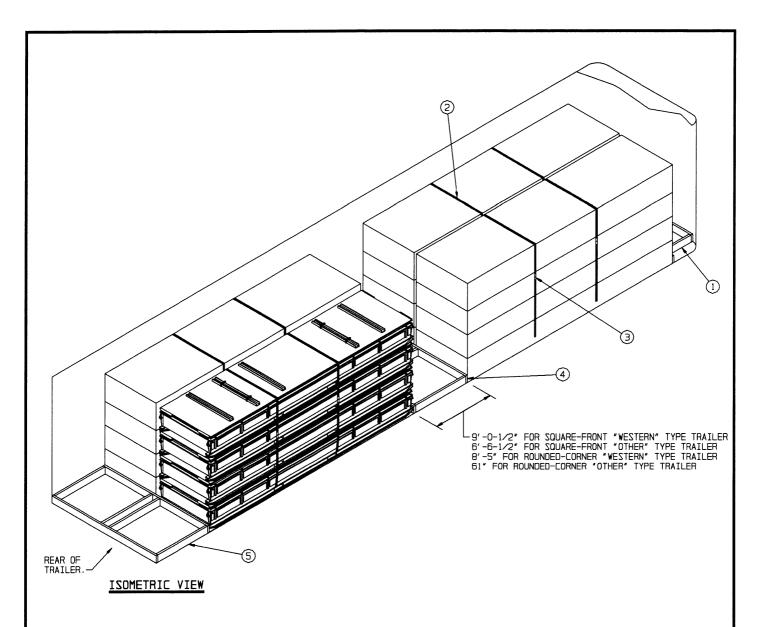


- 1. A 15-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER HAVING THE REAR TANDEMS LOCATED IN THE "WESTERN" POSITION. TRAILERS OF OTHER LENGTHS AND WIDTHS MAY BE USED. SEE SPECIAL NOTES 7 AND 8.
- 2. THE TRAILER IS SHOWN WITH ROUNDED FRONT CORNERS. THE DEPICTED "FORWARD BLOCKING ASSEMBLY B", WITH THE 23" LONG STRUT PIECES, WILL ALSO BE REQUIRED IN TRAILERS HAVING SQUARE FRONT WALLS, TO OBTAIN PROPER WEIGHT DISTRIBUTION.
- 3. CONTAINERS MUST BE UNITIZED INTO STACKS OF THREE OR FOUR CONTAINERS PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.
- 4. IN LIEU OF USING THE NAILED HEADERS, PIECES MARKED (\$) AND (\$), A SPACER ASSEMBLY MAY BE USED, IF DESIRED. SEE THE DETAIL ON PAGE 14. CONSTRUCT THE ASSEMBLY IN ACCORDANCE WITH THE DIMENSIONS SHOWN BY THE ISOMETRIC VIEW.
- 5. IF THE SPACE AT THE REAR OF THE LOAD IS MORE THAN 9", THE REAR BLOCKING ASSEMBLY "A" WILL BE USED IN LIEU OF THE DEPICTED REAR BLOCKING ASSEMBLY, PIECE MARKED (3). SEE THE DETAIL ON PAGE 13.
- 6. IF THE TRAILER HAS SUFFICIENT NAILING AREA AT THE REAR OF THE LOAD, A PIECE MARKED ⑤ ALONG WITH PIECES MARKED ⑥ AND ⑦ IF A WIDE TRAILER IS BEING LOADED, MAY BE USED IN LIEU OF THE REAR BLOCKING ASSEMBLY, PIECE MARKED ⑨.
- 7. A 16-UNIT LOAD, ONE MORE CONTAINER THAN SHOWN ON PAGE 6, CAN BE TRANSPORTED PROVIDING THE TRACTOR "DRIVE" AXLES DO NOT WEIGH MORE THAN 14,100 POUNDS AND THE TRAILER AXLES DO NOT WEIGH MORE THAN 8,150 POUNDS. THIS WEIGHT INFORMATION IS ADVISORY ONLY. THE AXLE WEIGHTS SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- B. IF A TRAILER TO BE LOADED HAS THE REAR TANDEMS LOCATED IN OTHER THAN IN THE "WESTERN" POSITION, A FORWARD BLOCKING ASSEMBLY "A" WILL BE USED IN LIEU OF THE DEPICTED FORWARD BLOCKING ASSEMBLY IF THE TRAILER HAS A SOUARE FRONT WALL. SEE THE DETAIL ON PAGE 13. IF THE TRAILER HAS ROUNDED FRONT CORNERS, THE DEPICTED ASSEMBLY WILL BE USED BUT THE STRUTS OF THE ASSEMBLY WILL BE 6" LONG IN LIEU OF 23". THIS LOAD PLACEMENT/PATTERN CAN BE USED PROVIDING THE TRACTOR "DRIVE" AXLES DO NOT WEIGH MORE THAN 14,000 POUNDS. THIS GUIDANCE IS ADVISORY ONLY AND MAY BE ADJUSTED TO SUIT.
- 9. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. IF OMITTING ONE CONTAINER, THE TOP LAYER CONTAINER IN THE FIRST LOAD UNIT SHOULD BE LEFT OUT. ADDITIONAL CONTAINERS CAN BE OMITTED FROM THE REAR LOAD UNIT, AS DESIRED. ADJUST THE LENGTH OF THE APPLICABLE UNITIZING STRAPS.
- 10. IF A 48'-0" OR 40'-0" LONG TRAILER IS FURNISHED FOR LOADING, REFER TO THE PROCEDURES ON PAGES 4 AND 8, RESPECTIVELY

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4" 2" X 6"	28 67	10 67
NAILS	NO. REQD	ZDNUO9
10d (3") 20d (4")	92 12	1-1/2 1/2
STEEL STRAPPING, 1-1/4' 182' REQD 26 LBS		

STEEL STRAPPING, 1-1/4" - - 182' REOD - - - - 26 LB SEAL FOR 1-1/4" STRAPPING - - 16 REOD - - - - 1 LB

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KEY NUMBERS

- (1) FORWARD BLOCKING ASSEMBLY B (1 REOD). SEE THE DETAIL ON PAGE 14. SEE GENERAL NOTES "L" AND "M" ON PAGE 2. SEE SPECIAL NOTE 2 ON PAGE 9.
- (2) UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-6" LONG STEEL STRAPPING (B REQD). INSTALL THRU THE FORK POCKET OF THE BOTTOM CONTAINER AND TO ENCIRCLE A STACK OF FOUR CONTAINERS. SEE THE "UNITIZING AND HANDLING GUIDANCE" ON PAGE 3. SEE SPECIAL NOTE 3 ON PAGE 9.
- 3 SEAL FOR 1-1/4" STEEL STRAPPING (16 REOD, 2 PER STRAP).

 DOUBLE CRIMP EACH SEAL. SEE THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15. SEE GENERAL NOTE "J" ON PAGE 2.
- 4 SPACER ASSEMBLY (1 REOD). SEE THE DETAIL ON PAGE 14. SEE SPECIAL NOTE 4 ON PAGE 9.
- (5) REAR BLOCKING ASSEMBLY A (1 REOD). SEE THE DETAIL ON PAGE 13. SEE SPECIAL NOTES 5 AND 6 ON PAGE 9.

- 1. A 16-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER HAVING THE REAR TANDEMS LOCATED IN OTHER THAN THE "WESTERN" POSITION. TRAILERS OF OTHER LENGTHS AND WIDTHS MAY BE USED.
- 2. THE TRAILER IS SHOWN WITH ROUNDED FRONT CORNERS. IF THE TRAILER TO BE LOADED IS EQUIPPED WITH A SQUARE FRONT WALL OR WITH AN INSTALLED BULKHEAD, THE FORWARD BLOCKING ASSEMBLY "A" WILL BE USED. SEE THE DETAIL ON PAGE 13.
- 3. CONTAINERS MUST BE UNITIZED INTO STACKS OF FOUR CONTAINERS PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.
- 4. IN LIEU OF USING THE SPACER ASSEMBLY, PIECE MARKED (4),
 NAILED HEADERS, PIECES MARKED (5) AND (8) ON PAGE 6, AND
 THE LATERAL BRACING PIECES MARKED (6) AND (7) ON PAGE 6,
 MAY BE USED, IF DESIRED. POSITION THE HEADER, PIECE MARKED
 (8), AT THE DISTANCE FROM THE FIRST CONTAINER STACK AS
 SPECIFIED BY THE ISOMETRIC VIEW, BASED ON THE TYPE TRAILER
 BEING LOADED, WHETHER IT IS A "WESTERN" TYPE WITH THE REAR
 TANDEMS LOCATED AT THE EXTREME REAR OF THE TRAILER OR IF IT
 IS OTHER THAN A "WESTERN", AND WHETHER IT HAS ROUNDED
 CORNERS OR A SQUARE FRONT WALL.
- 5. IF THE SPACE AT THE REAR OF THE LOAD IS LESS THAN 9°, THE REAR BLOCKING ASSEMBLY "B" WILL BE USED IN LIEU OF THE DEPICTED REAR BLOCKING ASSEMBLY, PIECE MARKED ⑤. SEE THE DETAIL ON PAGE 14.
- 6. IF THE TRAILER HAS SUFFICIENT NAILING AREA AT THE REAR OF THE LOAD, A PIECE MARKED ⑤ AS SHOWN ON PAGE 6, ALONG WITH PIECES MARKED ⑥ AND ⑦ IF A WIDE TRAILER IS BEING LOADED, MAY BE USED IN LIEU OF THE REAR BLOCKING ASSEMBLY, PIECE MARKED ⑤ ON PAGE 8.
- 7. THE DIMENSIONS GIVEN FOR THE LENGTH OF THE VOID BETWEEN LOAD UNITS, WHICH DETERMINES THE LENGTH OF THE SPACER ASSEMBLY, PIECE MARKED ②, OR THE PLACEMENT OF NAILED HEADERS AS PERMITTED BY SPECIAL NOTE 4 ABOVE, ARE NOT MANDATORY AND MAY BE ADJUSTED, AS DESIRED.
- B. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. IF OMITTING ONE CONTAINER, A TOP LAYER CONTAINER IN THE REAR LOAD UNIT SHOULD BE LEFT OUT IF LOADING IN A "WESTERN" TYPE TRAILER. OMIT A CONTAINER FROM THE FRONT LOAD UNIT IF LOADING IN OTHER THAN A "WESTERN" TYPE TRAILER. ADDITIONAL CONTAINERS CAN BE OMITTED FROM EITHER LOAD UNIT, AS DESIRED. ADJUST THE LENGTH OF THE UNITIZING STRAPS.
- 9. IF A 48'-0" OR 45'-0" LONG TRAILER IS FURNISHED FOR LOADING, REFER TO THE PROCEDURES ON PAGES 4 AND 6, RESPECTIVELY

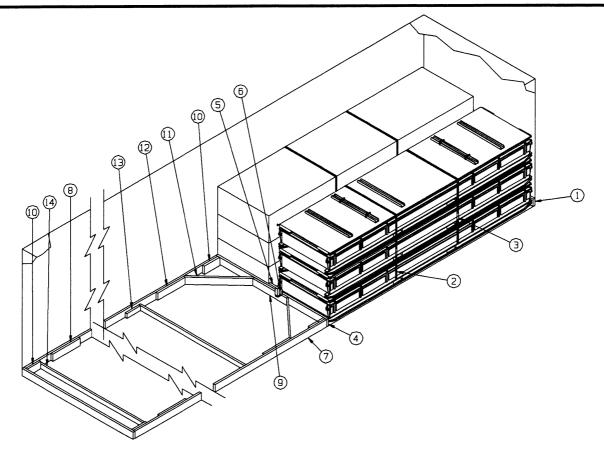
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	81	. 81
NAILS	NO. REQD	ZDNUOP
10d (3")	72	1-1/4
STEEL STRAPPING, 1-1/4" 164' REOD 24 LBS		

STEEL STRAPPING, 1-1/4" - - 164' REQD - - - - 24 LBS SEAL FOR 1-1/4" STRAPPING - - 16 REQD - - - 1 LB

NWOHZ ZA DAOJ

| TOTAL WEIGHT - - - - - - - - 45,869 LBS (APPROX)

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



ISOMETRIC VIEW

(KEY NUMBERS CONTINUED)

- (1) POCKET CLEAT, 2" X 6" X 12" (4 REOD). NAIL TO A SIDE STRUT, PIECE MARKED ⑦, W/5-10d NAILS. TOENAIL TO THE ADJACENT HEADER, PIECE MARKED ④, W/3-12d NAILS.
- (1) DIAGONAL BRACE, 2" X 6" BY CUT TO FIT (2 REOD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND TOENAIL TO THE ADJACENT HEADER, PIECE MARKED (4), AND/OR THE SIDE STRUT, PIECE MARKED (7), W/2-16d NAILS AT EACH END.
- (2) BACK-UP CLEAT, 2" X 6" X 24" (2 REOD). NAIL TO A SIDE STRUT, PIECE MARKED \bigcirc , W/B-10d NAILS.
- (3) STRUT BRACE RETAINER CLEAT, 2" X 4" X 12" (AS REOD). NAIL TO A SIDE STRUT, PIECE MARKED ⑦, W/3-10d NAILS. SEE SPECIAL NOTE 4 ON PAGE 11.
- (4) STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT TO FIT) (MINIMUM OF ONE REOD). NAIL TO THE POCKET CLEATS, PIECES MARKED (1), AND/OR TO THE STRUT BRACE RETAINER CLEATS, PIECES MARKED (1), W/2-12d NAILS AT EACH END.

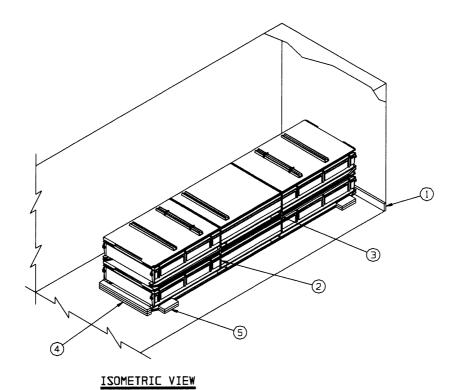
KEY NUMBERS

- (1) FORWARD BLOCKING ASSEMBLY A (1 REOD). SEE THE DETAIL ON PAGE 13. SEE GENERAL NOTES "L" AND "M" ON PAGE 2. SEE SPECIAL NOTE 2 ON PAGE 11.
- (2) UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-6" LONG STEEL STRAPPING (4 REDD). INSTALL THRU THE FORK POCKET OF THE BOTTOM CONTAINER AND TO ENCIRCLE A STACK OF THREE CONTAINERS. SEE THE "UNITIZING AND HANDLING GUIDANCE" ON PAGE 3. SEE SPECIAL NOTE 3 ON PAGE 11.
- 3 SEAL FOR 1-1/4" STEEL STRAPPING (8 REOD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "J" ON PAGE 2.
- 4) HEADER, 2" X 6" BY TRAILER WIDTH (CUT TO FIT) (2 REQD).
- (5) LATERAL BRACING, 2" X 6" BY CUT TO FIT MINUS 1" (1 REQD).
 NAIL TO THE FORWARD HEADER, PIECE MARKED (4), W/3-10d
 NAILS.
- (6) LATERAL BRACING, 2" X 4" BY CUT TO FIT MINUS 1" (1 REOD). NAIL TO THE 2" X 6" LATERAL BRACING, PIECE MARKED (5), W/3-10d NAILS.
- $\begin{picture}(2000)\put(0,0){\line(1,0){100}}\put(0,0)$
- B) SPLICE PIECE, 2" X 6" X 24" (AS REOD). POSITION SO AS TO CENTER ON THE JOINT OF THE SIDE STRUTS, PIECES MARKED ⑦, AND NAIL W/4-10d NAILS AT EACH END.
- (9) CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO THE FORWARD HEADER, PIECE MARKED (4), W/6-10d NAILS.

(CONTINUED AT LEFT)

TYPICAL LTL (6-UNIT LOAD)

- 1. A 6-UNIT LOAD IS SHOWN IN AN 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER. TRAILERS OF OTHER WIDTHS CAN BE USED.
- 2. A TRAILER EQUIPPED WITH A SQUARE FRONT IS SHOWN. IF THE TRAILER TO BE LOADED HAS ROUNDED FRONT CORNERS, THE FORWARD BLOCKING ASSEMBLY "B" MUST BE USED.
- 3. CONTAINERS MUST BE UNITIZED INTO STACKS OF THREE CONTAINERS PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.
- 4. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO THE POCKET CLEATS, PIECES MARKED ①. IF THE SIDE STRUTS, PIECES MARKED ①. ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE, PIECE MARKED ②. AND TWO STRUT BRACE RETAINING CLEATS, PIECES MARKED ③. MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
- 4. THE K-BRACE BLOCKING, SHOWN AS PIECES MARKED ④ AND PIECES MARKED ⑦ THRU ④, IS ADEQUATE FOR RETAINING A MAXIMUM OF 9 CNU-305∕E CONTAINERS.
- 5. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, THE NAILED-HEADER TYPE METHOD OF REAR BLOCKING, MUST BE INSTALLED IN LIEU OF THE "K-BRACE" TYPE BLOCKING, PIECES MARKED (4) AND PIECES MARKED (7) THRU (4). SEE PIECE MARKED (5) ON PAGE 6 FOR GUIDANCE. A HEADER WILL BE NAILED WITH NOT LESS THAN 6-10d NAILS IN EACH LAYER. A HEADER WITH 6 NAILS IS ADEQUATE FOR AN LTL LOAD OF NOT MORE THAN 5 CONTAINERS. ADD ANOTHER NAIL IN EACH LAYER OF THE HEADER FOR EACH CONTAINER ADDED TO THE LOAD. IF THE LOAD IS MORE THAN ONE LOAD UNIT IN LENGTH, POSITION A HEADER ASSEMBLY SHOWN AS PIECE MARKED (4) ON PAGE 4 BETWEEN THE LOAD UNITS.

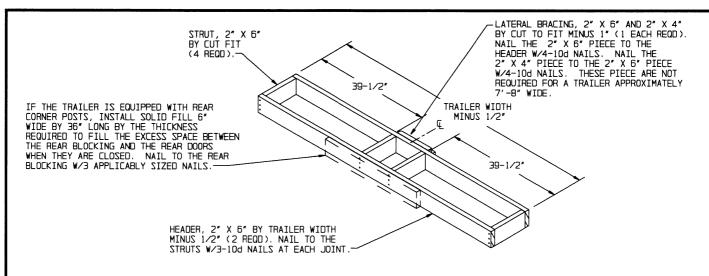


- 1. A 2-UNIT LOAD IS SHOWN IN A 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER. TRAILERS OF OTHER WIDTHS MAY BE USED.
- 2. THE CONTAINERS MUST BE UNITIZED PRIOR TO BEING MOVED INTO THE TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS
- 3. IF MORE THAN TWO CONTAINERS ARE BEING LOADED, THE NUMBER OF NAILS IN THE HEADER, PIECE MARKED (4), MUST BE INCREASED. ADD ONE NAIL IN EACH LAYER OF THE HEADER FOR EACH ADDED CONTAINER.

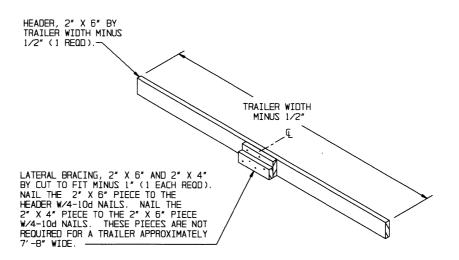
KEY NUMBERS

- (1) HEADER, 2" X 6" BY TRAILER WIDTH FOR A SQUARE FRONT TRAILER OR THE LENGTH OF THE FLAT PORTION OF THE FRONT WALL OF A ROUNDED CORNER TRAILER (1 REQD). POSITION ON EDGE.
- 2 UNITIZING STRAP, 1-1/4" X .035" OR .031" X 14'-6" LONG STEEL STRAPPING (2 REOD). INSTALL THRU THE FORK POCKET OF THE BOTTOM CONTAINER AND TO ENCIRCLE A STACK OF TWO CONTAINERS. SEE THE "UNITIZING AND HANDLING GUIDANCE" ON PAGE 3. SEE SPECIAL NOTE 2 AT LEFT.
- 3 SEAL FOR 1-1/4" STEEL STRAPPING (4 REOD, 2 PER STRAP).
 DOUBLE CRIMP EACH SEAL. SEE THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 15. SEE GENERAL NOTE "J" ON PAGE 2.
- 4 HEADER, 2" X 4" X 48" (TRIPLED) (1 REOD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST AND THE THIRD PIECE TO THE SECOND IN A LIKE MANNER. SEE GENERAL NOTE "L" ON PAGE 2.
- (5) SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (4 REQD). POSITION NEAR END OF CONTAINER AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/4-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

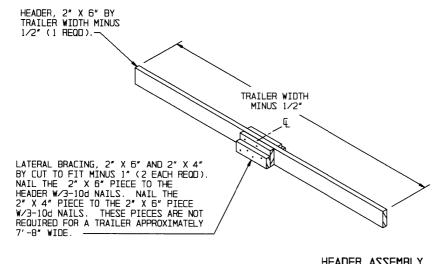
TYPICAL LTL (2-UNIT LOAD)



REAR BLOCKING ASSEMBLY A



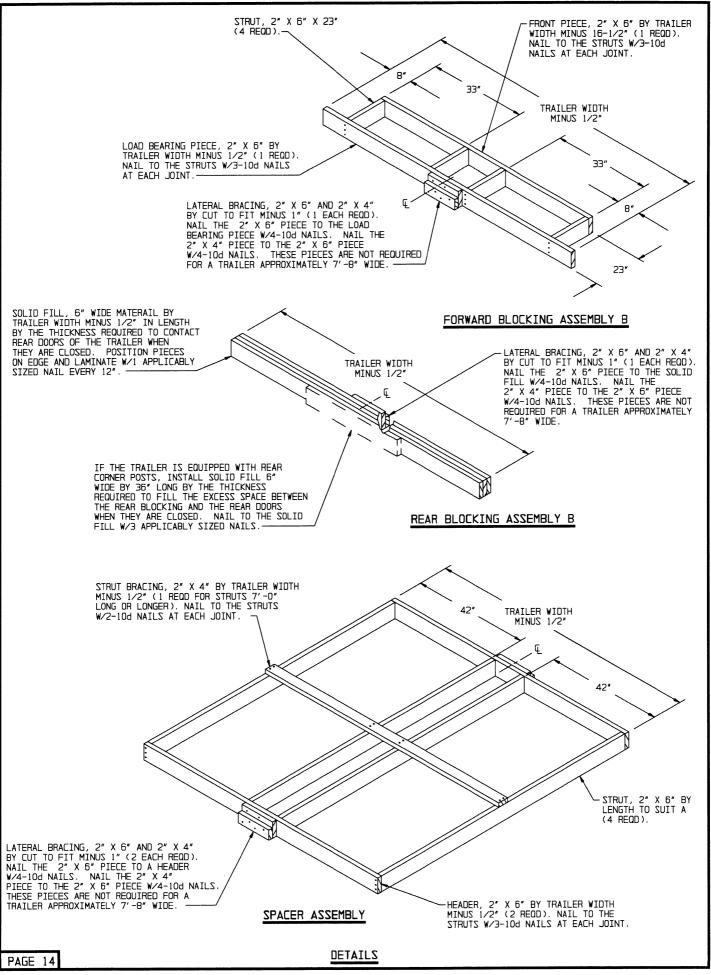
FORWARD BLOCKING ASSEMBLY A

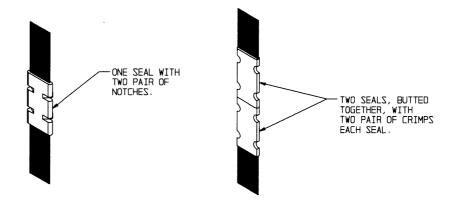


HEADER ASSEMBLY

DETAILS

PAGE 13





A TMIOL PARTZ

METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.

B TNIOL PARTS

METHOD OF SECURING A STRAP JOINT WHEN USING A CRIMP-TYPE SEALER.

END-OVER-END LAP JOINT DETAILS

DETAILS

