

# PATRIOT

## LOADING AND BRACING ( TL & LTL ) IN VAN TRAILER\* OF THE COMPLETE ROUND IN MISSILE CANISTER ( SHIPPING, STORAGE AND LAUNCH CONTAINER ), W/O OVERPACK AND W/OVERPACK

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● CAUTION: THE PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE FOR HIGHWAY MOVEMENTS; NOT FOR TRAILER-ON-FLATCAR MOVEMENTS.

U. S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY MISSILE COMMAND  	DRAFTSMAN	TECHNICIAN	ENGINEER
	P. BELLICH	R. ARNOLD	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	VALIDATION ENGINEERING DIVISION	TRANSPORTATION ENGINEERING DIVISION	LOGISTICS ENGINEERING OFFICE
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CLASS	DIVISION	DRAWING	FILE
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DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- 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 THE PATRIOT COMPLETE ROUND WHEN PACKED IN MISSILE CANISTER (SHIPPING, STORAGE AND LAUNCH CONTAINER), W/O OVERPACK AND W/OVERPACK. REFERENCE TO CANISTER HEREIN MEANS THE CANISTER WITH MISSILE COMPONENTS.
- C. FOR DETAILS OF THE MISSILE CANISTER, SEE DRAWING NUMBER 11450000, AND THE "TYPICAL STACK DETAIL" ON PAGE 4.  
  
CONTAINER DIMENSIONS - - - 19'-6" LONG X 42-3/8" WIDE X 38-3/4" HIGH.  
CONTAINER WEIGHT - - - - 3,750 LBS (APPROX).  
  
FOR DETAILS OF THE OVERPACK (FOR CANISTER), SEE DRAWING NUMBER D-SARAC 4500, AND THE "TYPICAL STACK DETAIL" ON PAGE 5.  
  
OVERPACK DIMENSIONS - - - - 20'-8" LONG X 47-1/4" WIDE X 49-3/4" HIGH.  
  
GROSS WEIGHT (W/CANISTER) - 5,268 LBS (APPROX).
- D. 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 45'-0" LONG BY 7'-8-1/2" OR 8'-2" 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 LOADING AND BRACING PROCEDURES SPECIFIED HEREIN ARE ALSO ADEQUATE (CONFIGURATION WISE AND STRENGTH WISE) FOR LOADS IN SHORTER OR LONGER VANS AND IN NARROWER OR WIDER VANS THAN SHOWN. THE SPECIFIED BRACING IS ADEQUATE FOR LOADS WEIGHING UP TO AND INCLUDING THE MAXIMUM WEIGHTS PERMITTED BY LAW.
- E. THE PROCEDURES CONTAINED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF CANISTERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE, OR WHEN THEY ARE EMPTY.

(CONTINUED AT RIGHT)

- F. 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.
- G. 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 ALLOWED, WEIGHT SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- H. 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.
- J. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH PATRIOT COMPLETE ROUNDS, 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.
- K. 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 "END-OVER-END LAP JOINT DETAILS" ON PAGE 18 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.

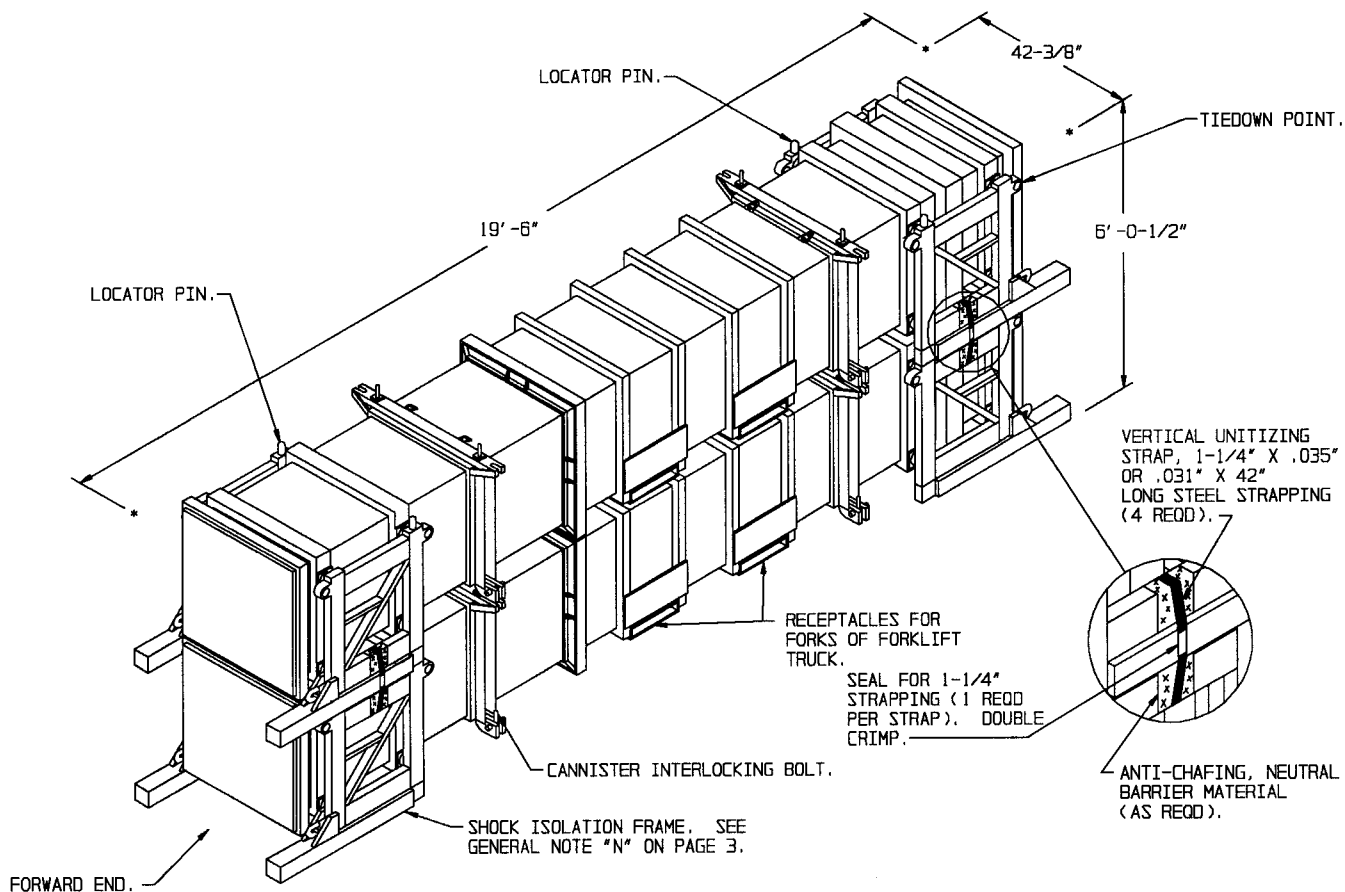
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MATERIAL SPECIFICATIONS

- 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.
- WIRE, CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.
- ANTI-CHAFING MATERIAL - - - - - : MIL-B-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.

(GENERAL NOTES CONTINUED)

- M. 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.
- N. IF THE MISSILE CANISTER HAS THE SHOCK ISOLATION FRAMES AND SKIDS REVERSED, THE OVERALL LENGTH OF THE CANISTER WILL BE REDUCED FROM 19'-6" TO 18'-3". REFER TO SPECIAL NOTE 9 ON PAGE 7, SPECIAL NOTE 9 ON PAGE 11, AND SPECIAL NOTE 5 ON PAGE 12 FOR GUIDANCE IN THE BLOCKING AND BRACING OF THE CANISTER IN THIS CONFIGURATION..
- O. THE MISSILE CANISTERS WILL BE LOADED WITH THE FORWARD END OF THE MISSILE FACED TOWARD THE REAR OF THE TRAILER.
- P. 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.
- Q. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- R. FOR A LOAD OF CANISTERS WITHOUT OVERPACK, THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 3". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL FILL MATERIAL OF APPROPRIATE THICKNESS TO THE "ANTI-SWAY BRACE A" ASSEMBLIES. NAIL EACH ADDITIONAL 12" PIECE TO THE FILL PIECES WITH APPROPRIATELY SIZED NAILS. IF AN 8'-2" WIDE TRAILER IS BEING LOADED, USE ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 16.
- S. 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.



**TYPICAL STACK DETAIL**

(UNITIZATION AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

3. CANISTER OR CANISTER STACK HANDLING.

NOTES: (1) APPROVED MATERIAL HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.

(2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

**UNITIZATION AND HANDLING PROCEDURAL GUIDANCE**

1. CANISTER STACKING FOR OUTLOADING PURPOSES.

- A. THE SKIDS OF THE UPPER CANISTER MUST BE FULLY SEATED UPON THE LOCATOR PINS OF THE LOWER CANISTER.
- B. POSITION THE FORWARD END OF THE UPPER CANISTER ABOVE THE FORWARD END OF THE LOWER CANISTER.
- C. CANISTER INTERLOCKING BOLTS MUST BE TIGHTENED AS SECURELY AS POSSIBLE WITH A NORMAL SIZE HAND TOOL WRENCH (REF 60 FOOT-POUNDS).

2. INSTALLATION OF 1-1/4" UNITIZING STRAP (REQUIRED ONLY WHEN CANISTER INTERLOCKING BOLTS ARE MISSING OR NOT USED).

- A. EACH OF THE FOUR UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE SHOCK ISOLATION FRAMES AS SHOWN. PLACE STRAPPING SO THAT IT LAYS FLAT AND STRAIGHT.
- B. PLACE ANTI-CHAFING NEUTRAL BARRIER MATERIAL UNDER THE STRAPPING WHEREVER THE STRAPPING CONTACTS SHARP EDGES AND SECURE TO PREVENT DISLODGE MENT DURING AND AFTER STRAP APPLICATION.
- C. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH ONE DOUBLE CRIMPED SEAL AS SHOWN. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE CANISTERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEAL. SEE THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 18.

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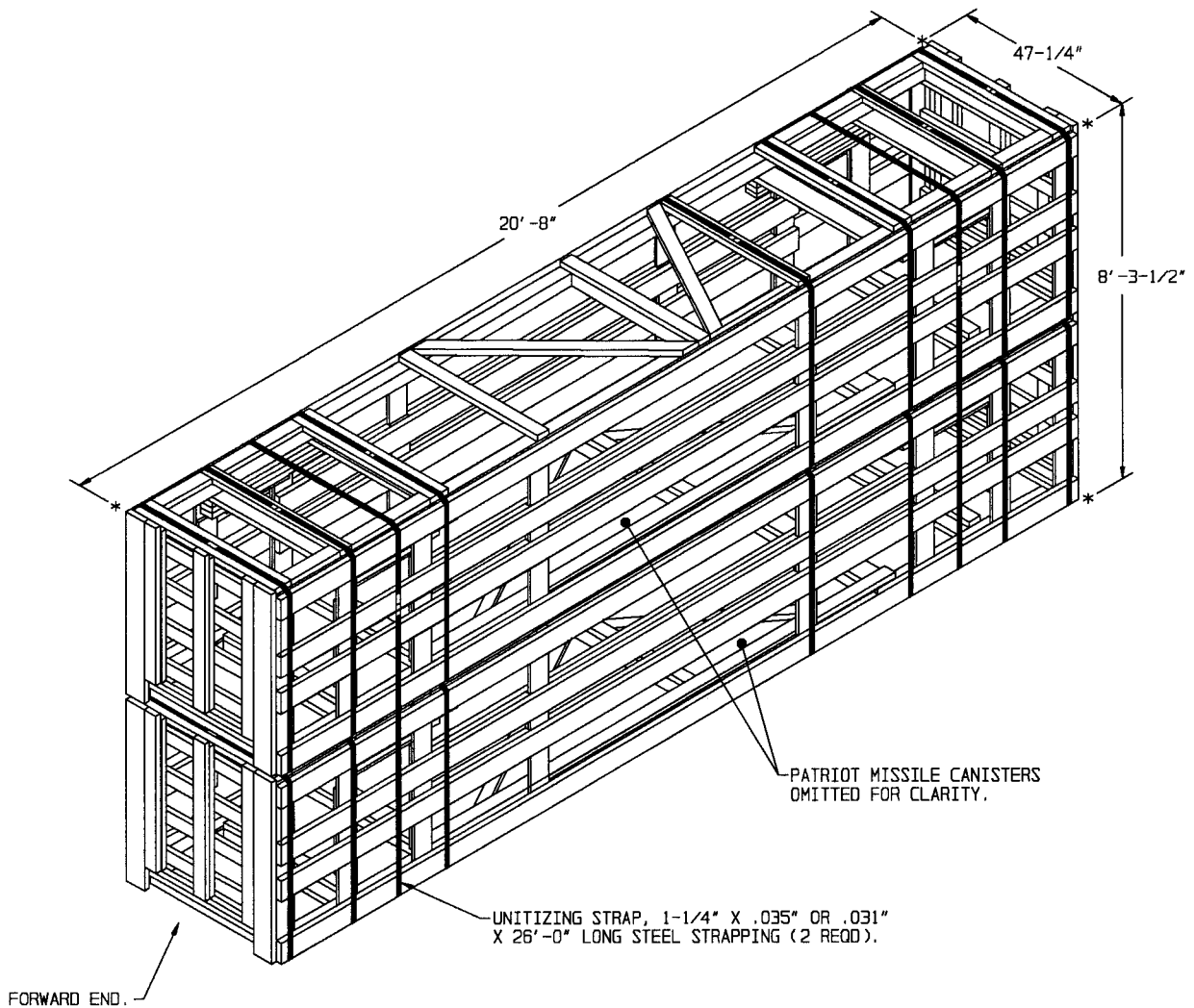
A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.

B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CANISTER SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CANISTER, TO PREVENT DAMAGE TO THE CANISTER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING TRAILER LOADING, A TWO-HIGH CANISTER STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORK RECEPTACLES OF THE UPPER CANISTER.

C. SLINGING OF A CANISTER OR A CANISTER STACK WILL BE ACCOMPLISHED IN ACCORDANCE WITH APPROVED PROCEDURES.

D. IF AVAILABLE MHE DOES NOT HAVE THE CAPACITY TO LIFT A STACK OF UNITIZED CANISTERS, THE LOWER CANISTER MUST FIRST BE PLACED WITH THE SKIDS ON THE AFT END PARTIALLY INTO THE DOOR OPENING OF THE TRAILER. THE SECOND CANISTER WILL THEN BE PLACED DIRECTLY ON TOP OF THE FIRST AND WILL BE UNITIZED ACCORDING TO THE INSTRUCTIONS CONTAINED IN NOTE 1 OR 2 AT LEFT, AS APPLICABLE. WHEN LIFTING A STACK OF CANISTERS FROM THE END TO PUSH IT INTO THE TRAILER, A PUSHER ASSEMBLY MUST BE USED. SEE THE DETAILS ON PAGES 13 AND 14.

E. DUE TO THE SIZE AND WEIGHT OF THE CANISTERS, A FORKLIFT TRUCK HAVING A MINIMUM CAPACITY OF 6,000 POUNDS AND A SIDE-SHIFT CAPABILITY SHOULD BE USED FOR HANDLING/LOADING THE CANISTERS INTO A TRAILER.



**TYPICAL STACK DETAIL**

**UNITIZATION AND HANDLING PROCEDURAL GUIDANCE**

1. STACKING UNITS FOR UNITIZING.
  - A. THE UPPER UNIT SHOULD BE PLACED AS CLOSELY AS POSSIBLE IN A VERTICAL ALIGNMENT WITH THE LOWER UNIT.
  - B. POSITION THE FORWARD END OF THE UPPER UNIT ABOVE THE FORWARD END OF THE LOWER UNIT.
2. INSTALLATION OF 1-1/4" UNITIZING STRAP.
  - A. EACH OF THE TWO UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE UNITS AS SHOWN. PLACE STRAPPING SO THAT IT LAYS FLAT AND STRAIGHT; I.E. VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE 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 OR WITH ONE DOUBLE-NOTCHED SEAL. SEE THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 18. SEE GENERAL NOTE "K" ON PAGE 2. THE LAP JOINT WILL BE MADE ALONG THE SIDE OF THE STACK. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE UNITS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.

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**(UNITIZATION AND HANDLING PROCEDURAL GUIDANCE CONTINUED)**

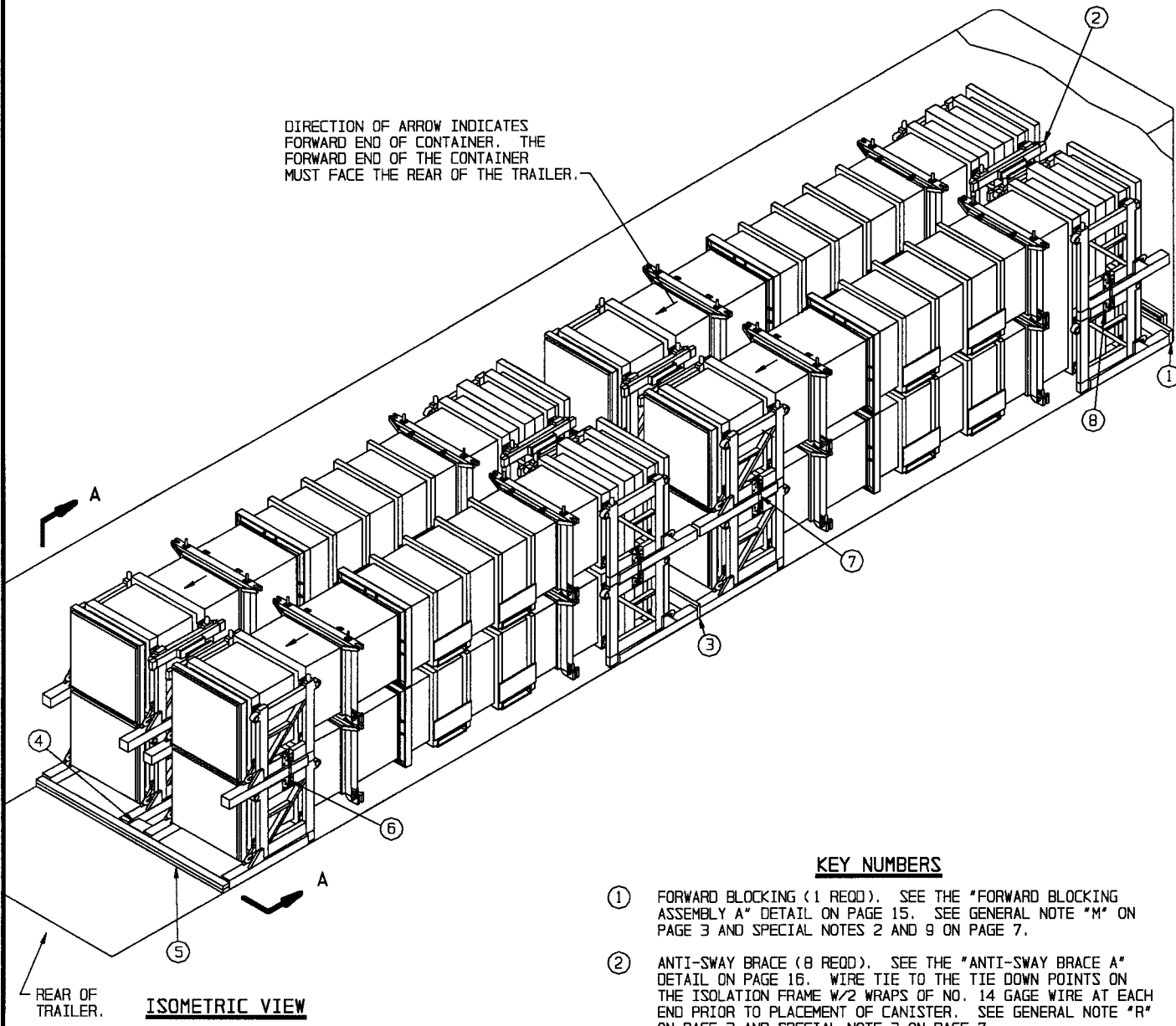
3. UNIT OR UNIT STACK HANDLING.

**NOTES:** (1) APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.

(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 DEPICTED UNITS.
- B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE UNITS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A UNIT, TO PREVENT DAMAGE TO THE OVERPACK BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING TRAILER LOADING, A TWO-HIGH UNIT STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORK RECEPTACLES OF THE UPPER MISSILE CANISTER.
- C. SLINGING OF A UNIT OR A UNIT STACK WILL BE ACCOMPLISHED IN ACCORDANCE WITH APPROVED PROCEDURES.

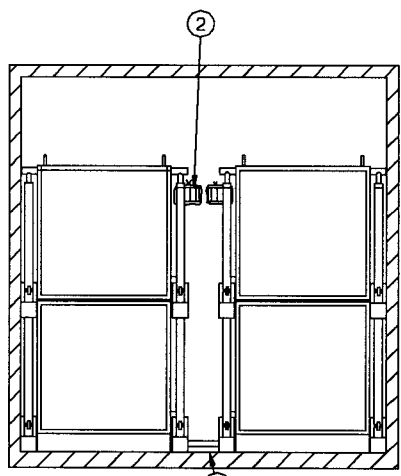
DIRECTION OF ARROW INDICATES FORWARD END OF CONTAINER. THE FORWARD END OF THE CONTAINER MUST FACE THE REAR OF THE TRAILER.



ISOMETRIC VIEW

**KEY NUMBERS**

- ① FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY A" DETAIL ON PAGE 15. SEE GENERAL NOTE "M" ON PAGE 3 AND SPECIAL NOTES 2 AND 9 ON PAGE 7.
- ② ANTI-SWAY BRACE (8 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 16. WIRE TIE TO THE TIE DOWN POINTS ON THE ISOLATION FRAME W/2 WRAPS OF NO. 14 GAGE WIRE AT EACH END PRIOR TO PLACEMENT OF CANISTER. SEE GENERAL NOTE "R" ON PAGE 3 AND SPECIAL NOTE 3 ON PAGE 7.
- ③ INTERMEDIATE HEADER (1 REQD). SEE THE "INTERMEDIATE HEADER A" DETAIL ON PAGE 16.
- ④ SIDE BLOCKING, 2" X 6" BY CUT TO FIT (REF: 7-1/2") (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑤ REAR BLOCKING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/12-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 4 ON PAGE 7.
- ⑥ VERTICAL UNITIZING STRAP, 1-1/4" X .035" OR .031" X 42" LONG STEEL STRAPPING (16 REQD). INSTALL STRAPS AROUND THE SHOCK ISOLATION FRAMES OF AN UPPER AND LOWER CANISTER AS SHOWN. SEE THE "UNITIZATION AND HANDLING PROCEDURES (W/O OVERPACK)" ON PAGE 4.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (16 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 18.
- ⑧ ANTI-CHAFING MATERIAL, NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CANISTERS.



SECTION A-A

8-UNIT LOAD (W/O OVERPACK)

IN A 45'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TRAILER

**SPECIAL NOTES:**

1. AN 8-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. IF THE VAN TRAILER BEING LOADED HAS A SQUARE FRONT OR AN INSTALLED BULKHEAD, INSTALL FORWARD BLOCKING ASSEMBLY "C" IN LIEU OF FORWARD BLOCKING ASSEMBLY "A". SEE THE DETAIL ON PAGE 15.
3. THE DEPICTED PROCEDURES CAN ALSO BE USED FOR A LOAD IN AN 8'-2" WIDE VAN. ANTI-SWAY BRACE "B", DETAILED ON PAGE 16, MUST BE USED IN LIEU OF ANTI-SWAY BRACE "A", SHOWN AS PIECE MARKED ② IN THE LOAD ON PAGE 6.
4. IF DESIRED, OR IF THE TRAILER HAS A NON-NAILABLE FLOOR, "REAR BLOCKING ASSEMBLY A", DETAILED ON PAGE 17, MAY BE USED IN LIEU OF PIECE MARKED ⑤ IN THE LOAD ON PAGE 6.
5. THE PROCEDURES DEPICTED ON PAGE 6 WILL NEED TO BE ADJUSTED IF THE CANISTER SKIDS AND SHOCK ISOLATION FRAMES ARE IN THE REVERSE POSITION (THE WOODEN SKIDS EXTENDING UNDER THE BODY OF THE CANISTER RATHER THAN PROTRUDING). SEE SPECIAL NOTE 9 FOR GUIDANCE.
6. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO PAGES 10 THRU 12 FOR GUIDANCE.
7. FOR ADDITIONAL GUIDANCE, REFER TO THE "UNITIZATION AND HANDLING PROCEDURES (W/O OVERPACK)" ON PAGE 4 AND THE "PUSH ASSEMBLY DETAILS" ON PAGES 13 AND 14.
8. EIGHT UNITS AS SHOWN, WITH THE SKIDS EXTENDING BEYOND THE END OF THE CONTAINER, CAN BE LOADED IN A 40'-0" LONG TRAILER PROVIDING THE TRAILER HAS A SQUARE FRONT. AT THE REAR OF THE LOAD, INSTALL 1" X 6" AND/OR 2" X 6" MATERIAL ON EDGE TO FILL THE SPACE BETWEEN THE LADING AND THE TRAILER REAR DOORS WHEN THEY ARE CLOSED. LAMINATE, IF APPLICABLE, W/4 APPLICABLY SIZED NAILS.
9. IF THE MISSILE CANISTERS HAVE THE SHOCK ISOLATION FRAMES AND SKIDS REVERSED, THE LOAD CAN BE SHIPPED IN A 40'-0" OR LONGER TRAILER, HOWEVER, SPECIAL BLOCKING MUST BE INSTALLED AT THE FRONT OF THE LOAD. OMIT THE SPACER PIECE FROM PIECE MARKED ①, OR FROM "FORWARD BLOCKING ASSEMBLY C", WHICHEVER IS USED. ADD "FORWARD BLOCKING ASSEMBLY D", AS DETAILED ON PAGE 19. SO AS TO BE IN CONTACT WITH THE FORWARD BLOCKING ASSEMBLY USED, AND WITH THE SPACER PIECE ON THE REAR SIDE. OMIT PIECE ③ FROM BETWEEN THE LOAD UNITS AND REPLACE WITH "INTERMEDIATE HEADER B", AS DETAILED ON PAGE 19. AT THE REAR OF THE LOAD, INSTALL THE SAME "FORWARD BLOCKING ASSEMBLY D" AS USED AT THE FRONT OF OF THE LOAD BUT POSITION SO THE SPACER PIECE IS ON THE FRONT SIDE. THEN INSTALL PIECE MARKED ⑤ IN CONTACT WITH THAT ASSEMBLY.

**BILL OF MATERIAL**

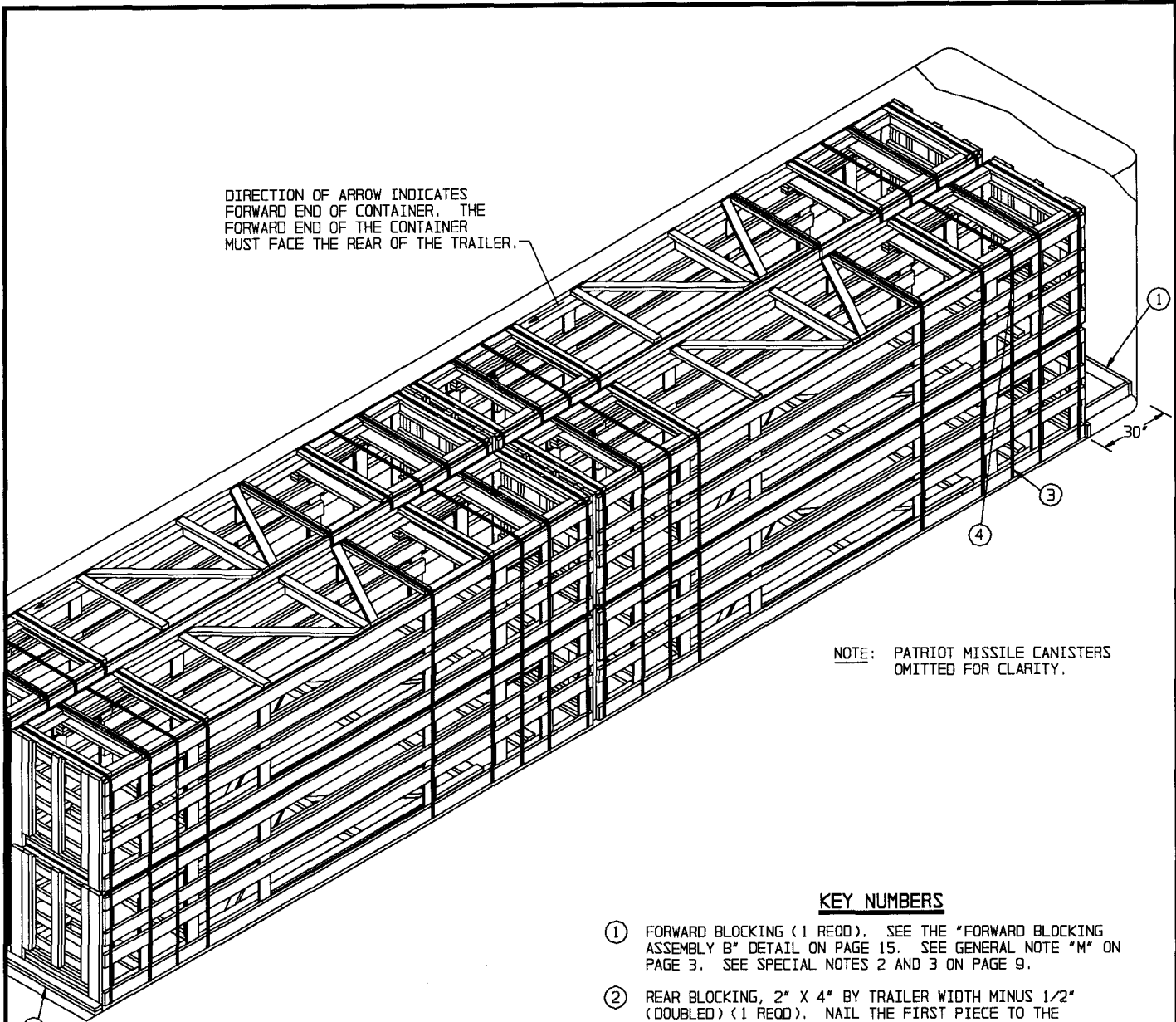
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	8	3
1" X 6"	7	4
2" X 4"	48	32
2" X 6"	40	40
NAILS	NO. REQD	POUNDS
6d (2")	46	1/2
10d (3")	92	1-1/2
STEEL STRAPPING, 1-1/4"		
X .031" OR .035" - - - - -	56' REQD - - - - -	8 LBS
SEAL FOR 1-1/4" STRAPPING - - - - -	16 REQD - - - - -	1 LB
WIRE, NO. 14 GAGE - - - - -	32' REQD - - - - -	1/2 LB
ANTI-CHAFING MATERIAL - - - - -	AS REQD - - - - -	NIL

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
CANISTER - - - - -	8 - - - - -	30,000 LBS
(W/O OVERPACK)		
DUNNAGE - - - - -		170 LBS

TOTAL WEIGHT - - - - - 30,170 LBS (APPROX)

**8-UNIT LOAD (W/O OVERPACK)  
IN A 45'-0" LONG BY 7'-8-1/2" WIDE CONVENTIONAL VAN TRAILER**



DIRECTION OF ARROW INDICATES FORWARD END OF CONTAINER. THE FORWARD END OF THE CONTAINER MUST FACE THE REAR OF THE TRAILER.

NOTE: PATRIOT MISSILE CANISTERS OMITTED FOR CLARITY.

ISOMETRIC VIEW

REAR OF TRAILER.

KEY NUMBERS

- ① FORWARD BLOCKING (1 REOD). SEE THE "FORWARD BLOCKING ASSEMBLY B" DETAIL ON PAGE 15. SEE GENERAL NOTE "M" ON PAGE 3. SEE SPECIAL NOTES 2 AND 3 ON PAGE 9.
- ② REAR BLOCKING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REOD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/17-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ③ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 26'-0" LONG STEEL STRAPPING (8 REOD). SEE THE "UNITIZATION AND HANDLING PROCEDURES (W/OVERPACK)" ON PAGE 5.
- ④ SEAL FOR 1-1/4" STEEL STRAPPING (16 REOD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2 AND THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 18.

8-UNIT LOAD (W/OVERPACK)  
 IN A 45'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER



SPECIAL NOTES:

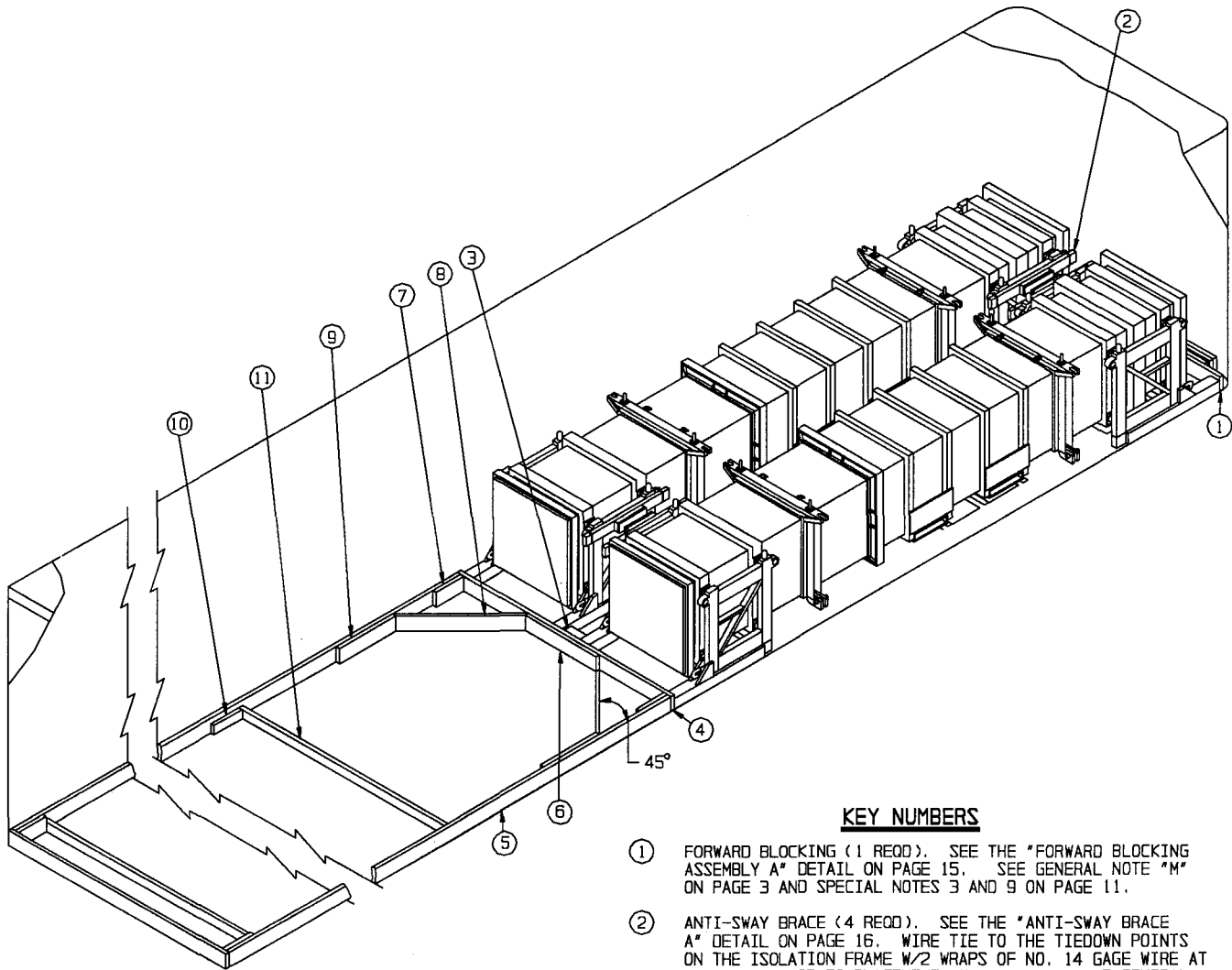
1. AN 8-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER HAVING ROUNDED FRONT CORNERS. LONGER TRAILERS CAN BE USED AND TRAILERS OF OTHER WIDTHS CAN BE USED, PROVIDING THEY ARE AT LEAST 8'-0" WIDE. SEE SPECIAL NOTE 3.
2. THE FORWARD BLOCKING, PIECE MARKED ①, IS REQUIRED AT THE FRONT OF A TRAILER TO PROVIDE PROPER WEIGHT DISTRIBUTION. THE DEPICTED 30" LONG ASSEMBLY IS ADEQUATE FOR USE IN A 45'-0" LONG TRAILER HAVING THE TRAILER AXLES LOCATED IN THE "WESTERN" POSITION OR IN A POSITION OTHER THAN THE "WESTERN" POSITION.
3. IF A 48'-0" LONG TRAILER IS FURNISHED FOR LOADING, A 52" LONG FORWARD BLOCKING ASSEMBLY IS RECOMMENDED FOR USE AT THE FRONT OF THE TRAILER. THE LENGTH OF THE ASSEMBLY MAY BE ADJUSTED, AS DESIRED, TO OBTAIN PROPER WEIGHT DISTRIBUTION.
4. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO PAGES 10 THRU 12 FOR GUIDANCE.
5. FOR ADDITIONAL GUIDANCE, REFER TO THE "UNITIZATION AND HANDLING PROCEDURES (W/OVERPACK)" ON PAGE 5.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	16	11
2" X 6"	24	24
NAILS	NO. REQD	POUNDS
10d (3")	56	1
STEEL STRAPPING, 1-1/4"		
X .031" OR .035" -----	208' REQD -----	30 LBS
SEAL FOR 1-1/4" STRAPPING -	16 REQD -----	1 LB

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CANISTER -----	8 -----	42,144 LBS
(W/OVERPACK)		
DUNNAGE -----		102 LBS
TOTAL WEIGHT -----		42,246 LBS (APPROX)

8-UNIT LOAD (W/OVERPACK)  
 IN A 45'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER



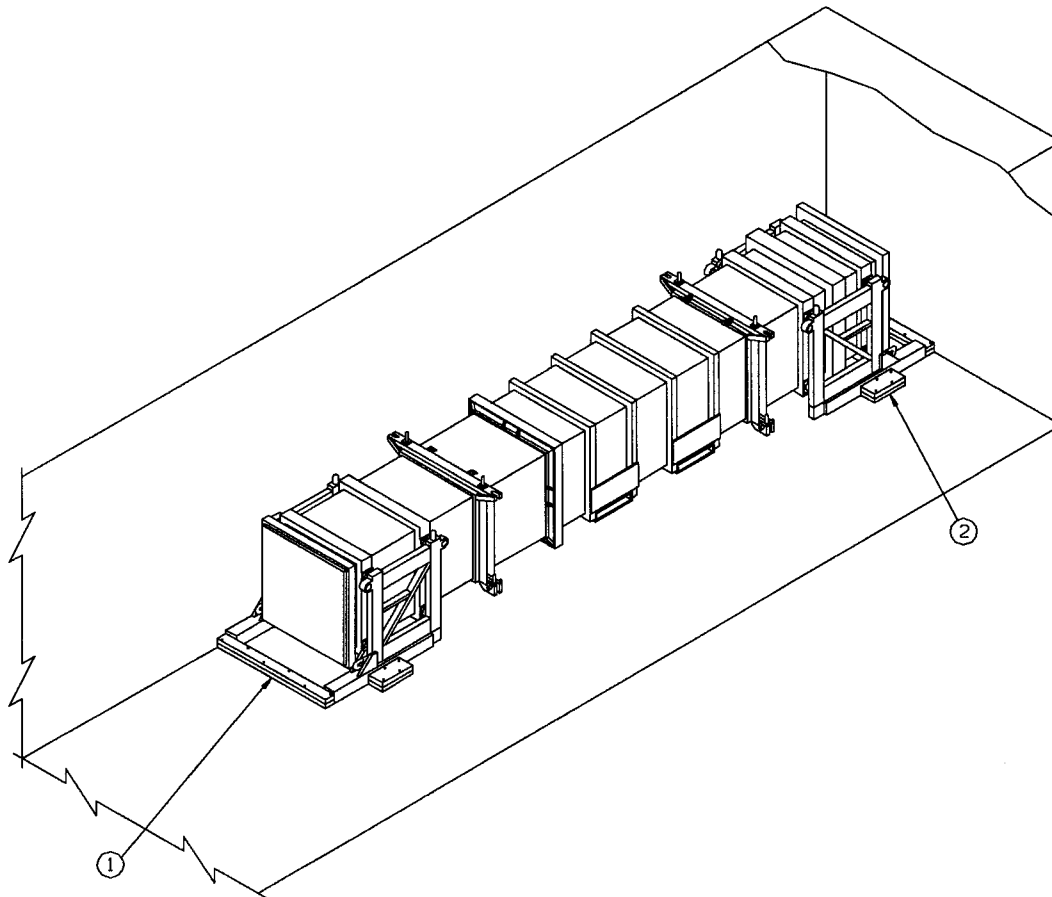
**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① FORWARD BLOCKING (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY A" DETAIL ON PAGE 15. SEE GENERAL NOTE "M" ON PAGE 3 AND SPECIAL NOTES 3 AND 9 ON PAGE 11.
- ② ANTI-SWAY BRACE (4 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 16. WIRE TIE TO THE TIEDOWN POINTS ON THE ISOLATION FRAME W/2 WRAPS OF NO. 14 GAGE WIRE AT EACH END PRIOR TO PLACEMENT OF CANISTER. SEE GENERAL NOTE "R" ON PAGE 3.
- ③ SIDE BLOCKING, 2" X 6" BY CUT TO FIT (REF: 7-1/2") (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ HEADER, 2" X 6" BY TRAILER WIDTH (CUT TO FIT) (2 REQD).
- ⑤ SIDE STRUT, 2 X 6" BY CUT TO FIT BETWEEN THE HEADERS, PIECE MARKED ④ (2 REQD). SEE SPECIAL NOTE 4 ON PAGE 11.
- ⑥ CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO THE HEADER, PIECE MARKED ④, W/6-10d NAILS.
- ⑦ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑤, W/5-10d NAILS. TOENAIL TO THE ADJACENT HEADER, PIECE MARKED ④, W/3-12d NAILS.
- ⑧ 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, PIECE MARKED ④, AND TO A SIDE STRUT, PIECE MARKED ⑤, W/2-16d NAILS AT EACH END.
- ⑨ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑤, W/8-10d NAILS.
- ⑩ STRUT BRACE RETAINER CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑤, W/3-10d NAILS. SEE SPECIAL NOTE 5 ON PAGE 11.
- ⑪ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT TO FIT) (MINIMUM OF ONE REQD). NAIL TO PIECES MARKED ⑦, AND/OR TO THE STRUT BRACE RETAINER CLEATS, PIECES MARKED ⑩, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 11.

SPECIAL NOTES:

1. A 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. THE K-BRACE BLOCKING SHOWN AS PIECES MARKED ④ THRU ① WILL RETAIN A MAXIMUM OF 20,000 POUNDS.
3. IF THE VAN TRAILER BEING LOADED HAS A SQUARE FRONT OR AN INSTALLED BULKHEAD, INSTALL FORWARD BLOCKING ASSEMBLY "C" IN LIEU OF FORWARD BLOCKING ASSEMBLY "A". SEE THE DETAIL ON PAGE 15.
4. IF THE SIDE STRUTS, SHOWN AS PIECE MARKED ⑤, ARE FORMED FROM MORE THAN ONE PIECE OF MATERIAL, THEY MAY BE SPLICED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING W/4-10d NAILS AT EACH END. IF DESIRED, THE STRUT BRACING PIECE(S), PIECE MARKED ①, MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE RETAINER CLEATS, PIECE MARKED ⑩.
5. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO PIECE MARKED ⑦. IF THE SIDE STRUTS, PIECES MARKED ⑤, ARE LONGER THAN 7'-0" AN ADDITIONAL STRUT BRACE, PIECE MARKED ①, AND TWO STRUT BRACE RETAINER CLEATS, PIECES MARKED ⑩, MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
6. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, THE NAILED-HEADER METHOD OF REAR BLOCKING MUST BE INSTALLED IN LIEU OF THE "K-BRACE" TYPE BLOCKING. NOTE THAT THE NAILED HEADER METHOD OF REAR BLOCKING MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS, AND MAY BE USED IN LIEU OF PIECES MARKED ④ THRU ① WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS. SEE PIECE MARKED ⑤ IN THE LOAD ON PAGE 6 FOR ADDITIONAL GUIDANCE.
7. THE PROCEDURES SHOWN FOR BLOCKING AND BRACING OF CANISTERS WITHOUT THE OVERPACK MAY ALSO BE APPLIED FOR THE BLOCKING AND BRACING OF CANISTERS WITH THE OVERPACK, PROVIDING THE TRAILER IS AT LEAST 8'-0" WIDE INSIDE. IF THE TRAILER HAS ROUNDED FRONT CORNERS, OMIT THE SPACER PIECE FROM THE FORWARD BLOCKING ASSEMBLY "A". IF THE TRAILER HAS A SQUARE FRONT, POSITION THE OVERPACK UNITS DIRECTLY AGAINST THE TRAILER FRONT WALL. OMIT PIECES MARKED ② AND ③. THE K-BRACE BLOCKING, SHOWN AS PIECES MARKED ④ THRU ①, IS APPLICABLE AS SHOWN.
8. REFER TO THE "CANISTER OR CANISTER STACK HANDLING" PARAGRAPH ON PAGE 4 FOR GUIDANCE IN LOADING OF THE CANISTERS.
9. IF THE MISSILE CANISTERS HAVE THE SHOCK ISOLATION FRAMES AND SKIDS REVERSED, SPECIAL BLOCKING MUST BE INSTALLED. OMIT THE SPACER PIECE FROM PIECE MARKED ①, OR FROM "FORWARD BLOCKING ASSEMBLY C", WHICHEVER IS USED. ADD "FORWARD BLOCKING ASSEMBLY D", AS DETAILED ON PAGE 19, SO AS TO BE IN CONTACT WITH THE FORWARD BLOCKING ASSEMBLY USED, AND WITH THE SPACER PIECE ON THE REAR SIDE. AT THE REAR OF THE LOAD, INSTALL THE SAME "FORWARD BLOCKING ASSEMBLY D" AS USED AT THE FRONT OF THE LOAD BUT POSITION SO THE SPACER PIECE IS ON THE FRONT SIDE. THEN INSTALL PIECES MARKED ④ THRU ①.



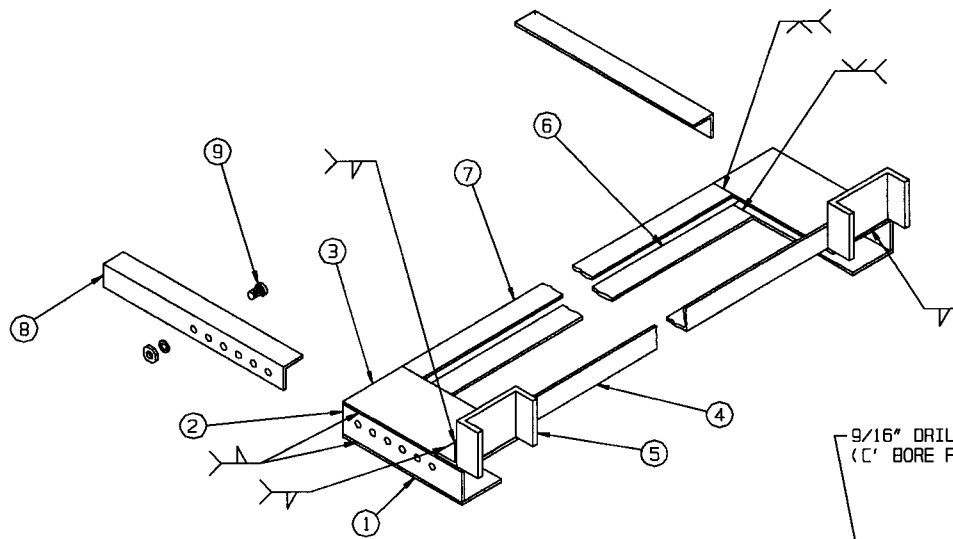
**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. A 7'-8-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. IF MORE THAN ONE CANISTER IS TO BE TRANSPORTED, REFER TO THE LOAD ON PAGE 6. FORWARD BLOCKING ASSEMBLY "A", PIECE MARKED ①, AND SIDE BLOCKING, PIECE MARKED ④, ON THAT PAGE WILL BE USED IN LIEU OF THE HEADER AND SIDE BLOCKING, PIECES MARKED ① AND ②, SHOWN IN THE LOAD ABOVE. IF A SQUARE FRONT TRAILER IS TO BE LOADED, USE FORWARD BLOCKING ASSEMBLY "C", AS DETAILED ON PAGE 15, IN LIEU OF FORWARD BLOCKING ASSEMBLY "A".
3. THE PROCEDURES SHOWN FOR BLOCKING AND BRACING OF A CANISTER WITHOUT THE OVERPACK MAY ALSO BE APPLIED FOR THE BLOCKING AND BRACING OF A CANISTER WITH THE OVERPACK. NOTE THAT THE HEADER MUST BE INCREASED TO 48" AND WILL NOT BE REQUIRED AT THE FRONT OF THE TRAILER UNLESS A ROUNDED CORNER TRAILER IS BEING LOADED.
4. REFER TO THE "CANISTER OR CANISTER STACK HANDLING" PARAGRAPH ON PAGE 4 FOR GUIDANCE IN LOADING OF THE CANISTER. REFER TO THE "UNIT OR UNIT STACK HANDLING" PARAGRAPH ON PAGE 5 FOR GUIDANCE IN LOADING OF THE CANISTER W/OVERPACK.
5. IF THE MISSILE CANISTERS HAVE THE SHOCK ISOLATION FRAMES AND SKIDS REVERSED, SPECIAL BLOCKING MUST BE INSTALLED. AT THE FRONT OF THE LOAD, PRE-POSITION A PIECE MARKED ① SO THE LOAD BEARING SIDE IS APPROXIMATELY 8" FROM THE TRAILER FRONT WALL. AT THE REAR OF THE LOAD, INSTALL ONE-HALF OF THE WIDTH OF A "FORWARD BLOCKING ASSEMBLY D", AS DETAILED ON PAGE 19, UNDER THE CANISTER IN CONTACT WITH THE ISOLATION FRAME, THEN INSTALL PIECE MARKED ① AGAINST THAT ASSEMBLY. TOENAIL TO THE ASSEMBLY W/3-12d NAILS IN ADDITION TO NAILING TO THE TRAILER FLOOR.

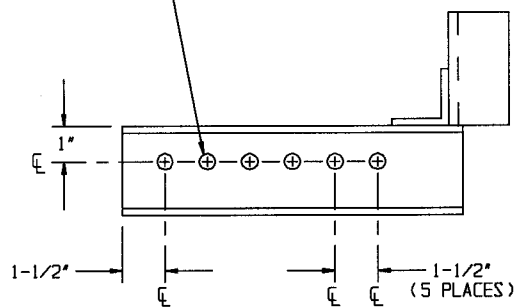
**KEY NUMBERS**

- ① HEADER, 2" X 4" X 42" (DOUBLED) (2 REQD). POSITION AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTES 2 AND 5 AT LEFT.
- ② SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (2 REQD). POSITION AGAINST THE CANISTER SKIDS AS SHOWN. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "M" ON PAGE 3.

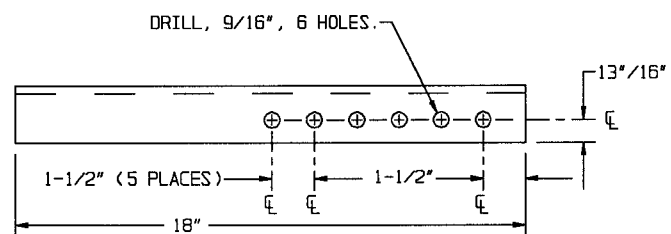


**ISOMETRIC VIEW**

9/16" DRILL-7/8" C' BORE, 7/32" DP.  
(C' BORE FROM INNER SIDE, 6 PLACES).



**SIDE VIEW**



**PIECE (B)**

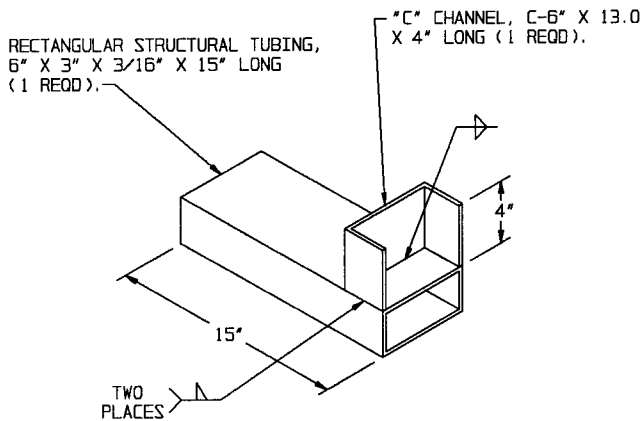
**PUSH ASSEMBLY A**

**KEY NUMBERS**

- ① BOTTOM, 4" X 12" X 3/16" STEEL (2 REQD). WELD TO PIECE MARKED ②.
- ② SIDE, 2-5/8" X 12" X 3/16" STEEL (2 REQD). DRILL AND COUNTERSINK EACH PIECE W/6-9/16" DIA HOLES AS SHOWN.
- ③ TOP, 6" X 12" X 3/16" STEEL (2 REQD). WELD TO PIECE MARKED ②.
- ④ BRACE, ANGLE, 2" X 2" X 3/16" X 43-1/2" LONG (1 REQD). POSITION 3/4" BACK FROM END OF PIECES MARKED ③ AND WELD TO PIECES MARKED ③.
- ⑤ POCKET, "C" CHANNEL, C-6" X 13.0 X 4" LONG (2 REQD). POSITION AS SHOWN AND WELD TO PIECES MARKED ③ AND ④.
- ⑥ BOTTOM SPACER, 2" X 35-1/2" X 3/16" (1 REQD). WELD TO PIECES MARKED ① AT EACH END.
- ⑦ TOP SPACER, 2" X 31-1/2" X 3/16" (1 REQD). WELD TO PIECES MARKED ③ AT EACH END.
- ⑧ EXTENSION, STEEL, ANGLE, BAR SIZE, 2 INCH X 2 INCH X 3/16 INCH, PER ASTM A36, FSC 9520.
- ⑨ MACHINE SCREW, 1/2" X 1" LONG, FLAT HEAD, WITH LOCK WASHER AND NUT (4 REQD).

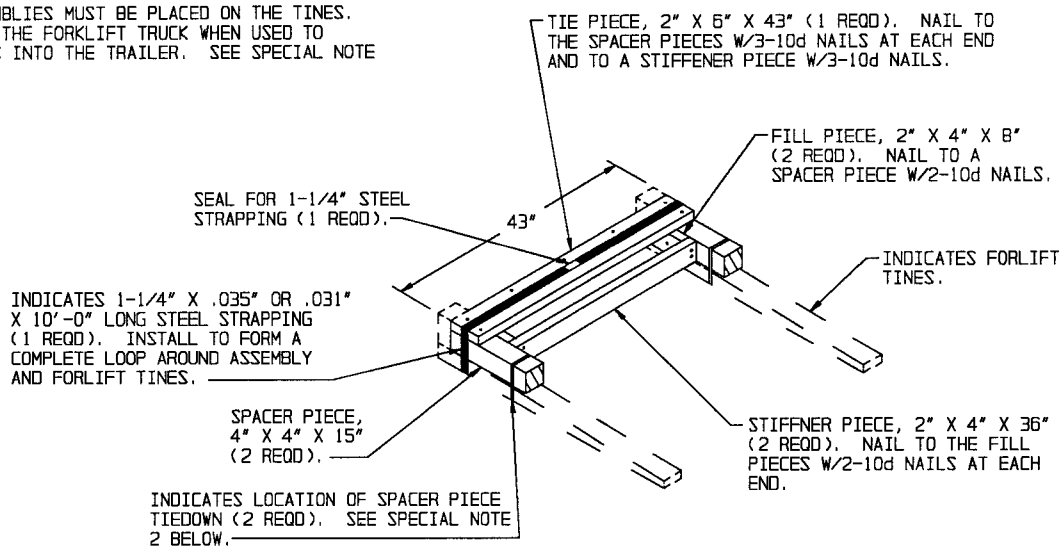
BILL OF MATERIAL		
KEY NO.	NOMENCLATURE	QTY REQD
1	BOTTOM, STEEL, SHEET, HOT ROLLED, LOW CARBON, COMMERCIAL QUALITY, 3/16", PER ASTM A569, FSC 9515	2
2	SIDE, STEEL, HOT ROLLED, LOW CARBON, COMMERCIAL QUALITY, 3/16", PER ASTM A569, FSC 9515	2
3	TOP, STEEL, HOT ROLLED, LOW CARBON, COMMERCIAL QUALITY, 3/16", PER ASTM A569, FSC 9515	2
4	BRACE, STEEL, ANGLE, BAR SIZE, 2 INCH X 2 INCH X 3/16 INCH, PER ASTM A36, FSC 9520	1
5	POCKET, STEEL CHANNEL, STRUCTURAL, 6 INCH @ 13.0 LBS/FT PER ASTM A36, FSC 9520	2
6	BOTTOM SPACER, STEEL, SHEET, HOT ROLLED, LOW CARBON, COMMERCIAL QUALITY, 3/16", PER ASTM A569, FSC 9515	1
7	TOP SPACER, STEEL, SHEET, HOT ROLLED, LOW CARBON, COMMERCIAL QUALITY, 3/16" PER ASTM A569, FSC 9515	1
8	EXTENSION, STEEL, ANGLE, BAR SIZE, 2 INCH X 2 INCH X 3/16 INCH, PER ASTM A36, FSC 9520	1
9	MACHINE SCREW, 82° FLAT COUNTERSUNK HEAD, CROSS RECESSED, 1/2-13 UNC-2A X 1 INCH LONG, MS 35190-342, FSC 5305	4
	WASHER, LOCK, 1/2 INCH NOMINAL, MS 35338-48, FSC 5310	4
	NUT, PLAIN, HEXAGON, 1/2-13 UNC-2B, FSC 5310	4

NOTE: PUSH ASSEMBLY "A" HAS BEEN DESIGNED SO AS TO BE ADJUSTABLE DEPENDING ON THE LENGTH OF THE FORKLIFT TINES. PIECES MARKED ⑧ SHALL BE BOLTED TO PIECES MARKED ② WITH TWO MACHINE SCREWS ON EACH SIDE SO AS TO ALLOW APPROXIMATELY 24" OF THE FORKLIFT TINES TO EXTEND PAST THE END OF THE PUSH ASSEMBLY. PIECES MARKED ⑧ MAY BE OF A LONGER OR SHORTER DIMENSION THAN THAT SPECIFIED IN THE KEY NUMBERS ABOVE, PROVIDED THAT THE FORKLIFT TINES EXTEND BEYOND THE END APPROXIMATELY 24", AS SPECIFIED. SEE THE SPECIAL NOTES ON PAGE 14 FOR GUIDANCE.



### PUSH ASSEMBLY B

TWO OF THESE ASSEMBLIES MUST BE PLACED ON THE TINES.  
(ONE PER TINE) OF THE FORKLIFT TRUCK WHEN USED TO  
PUSH THE CANISTERS INTO THE TRAILER. SEE SPECIAL NOTE  
1 BELOW.



### PUSH ASSEMBLY C

THIS ASSEMBLY IS SHOWN AS AN ALTERNATIVE TO PUSH  
ASSEMBLIES "A" AND "B" AND MAY BE USED IF THE MATERIALS  
FOR EITHER OF THE OTHER ASSEMBLIES ARE NOT AVAILABLE.  
SEE SPECIAL NOTE 2 AT LEFT.

#### SPECIAL NOTES:

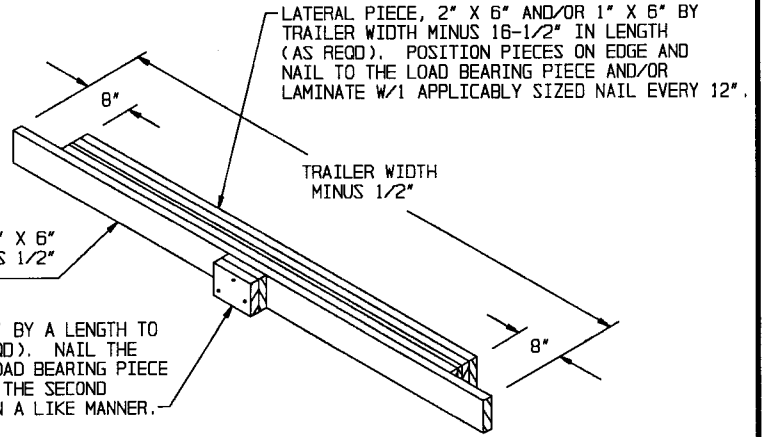
1. PUSH ASSEMBLIES "A" AND "B", AS DETAILED ON PAGE 13 AND ABOVE, ARE THE PREFERRED HANDLING AIDS TO BE USED IN THE LOADING OF MISSILE CANISTERS INTO A TRAILER. PUSH ASSEMBLY "A" HAS BEEN DESIGNED TO BE COMPATIBLE WITH MOST FORKLIFT TRUCKS COMMONLY USED FOR CANISTER HANDLING. PUSH ASSEMBLY "B" IS DESIGNED FOR USE WITH A FORKLIFT TRUCK HAVING A TINE LENGTH OF 40" AND A TINE WIDTH OF 4" TO 5-1/2".
2. PUSH ASSEMBLY "C" IS ALSO DESIGNED FOR USE WITH A FORKLIFT TRUCK HAVING 40" TINES. THIS ASSEMBLY, HOWEVER, WILL NOT BE USED UNLESS MATERIAL TO CONSTRUCT ASSEMBLIES "A" AND "B" IS UNAVAILABLE OR THESE PREFERRED ASSEMBLIES CANNOT BE CONSTRUCTED IN TIME TO SUPPORT CANISTER OUTLOADING OPERATIONS. EXTREME CAUTION MUST BE EXERCISED WHEN USING PUSH ASSEMBLY "C" TO AVOID CAUSING DAMAGE TO THE CANISTERS. NOTE: PRIOR TO THE USE OF ASSEMBLY "C" FOR CANISTER LOADING OPERATIONS, THE ASSEMBLY MUST BE SECURED TO THE FORKLIFT TRUCK TINES IN THREE LOCATIONS AS DEPICTED IN THE DETAIL AT RIGHT. SECUREMENT MAY BE ACCOMPLISHED BY UTILIZING STEEL STRAPPING, WEB STRAPPING, PLASTIC STRAPPING, WIRE, ETC., PROVIDED THAT THE MOVEMENT OF THE ASSEMBLY DURING CANISTER LOADING IS MINIMAL.
3. DURING FABRICATION OF ALL PUSH ASSEMBLIES DETAILED HEREIN, STRICT DIMENSIONAL ADHERENCE MUST BE MAINTAINED FOR ALL REQUIRED ASSEMBLY PIECES TO ENSURE PROPER CLEARANCE BETWEEN CANISTER ENDS AND FORKLIFT TRUCK MASTS, PACKAGE GUARDS, HYDRAULIC LINES, ETC.

**NOTE ▲:**

FORWARD BLOCKING ASSEMBLIES "A" AND "B" ARE DESIGNED FOR USE AT THE FRONT END OF A TRAILER HAVING ROUNDED CORNERS, AND ARE APPLICABLE FOR A CORNER RADIUS OF NOT MORE THAN 6-1/2". IF THE RADIUS IS FROM 6-1/2" TO 8", ADDITIONAL FILL PIECES WILL BE REQUIRED ON FORWARD BLOCKING ASSEMBLY "A".

LOAD BEARING PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD).

SPACER PIECE, 2" X 6" BY A LENGTH TO SUIT (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE LOAD BEARING PIECE W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

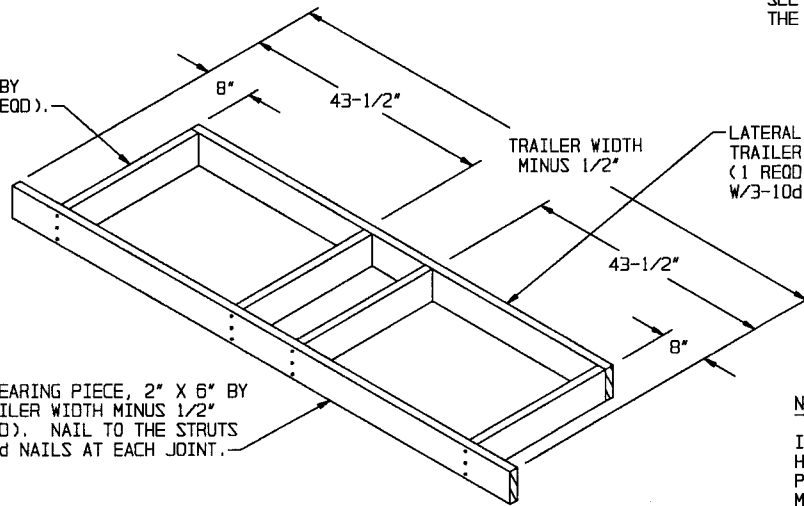


**FORWARD BLOCKING ASSEMBLY A**

SEE "NOTE ▲" AT LEFT AND THE LOAD ON PAGE 6.

STRUT, 2" X 6" BY CUT TO FIT (4 REQD).

LOAD BEARING PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (1 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.



LATERAL PIECE, 2" X 6" BY TRAILER WIDTH MINUS 16-1/2" (1 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

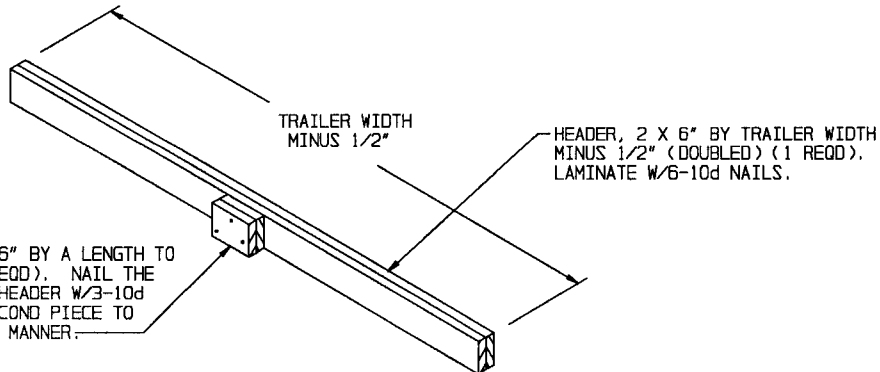
**NOTE ●:**

IF THE TRAILER BEING LOADED HAS A SQUARE FRONT, THE LATERAL PIECE WILL BE TRAILER WIDTH MINUS 1/2" AND THE OUTSIDE STRUTS WILL BE POSITIONED AT EACH END OF THE ASSEMBLY.

**FORWARD BLOCKING ASSEMBLY B**

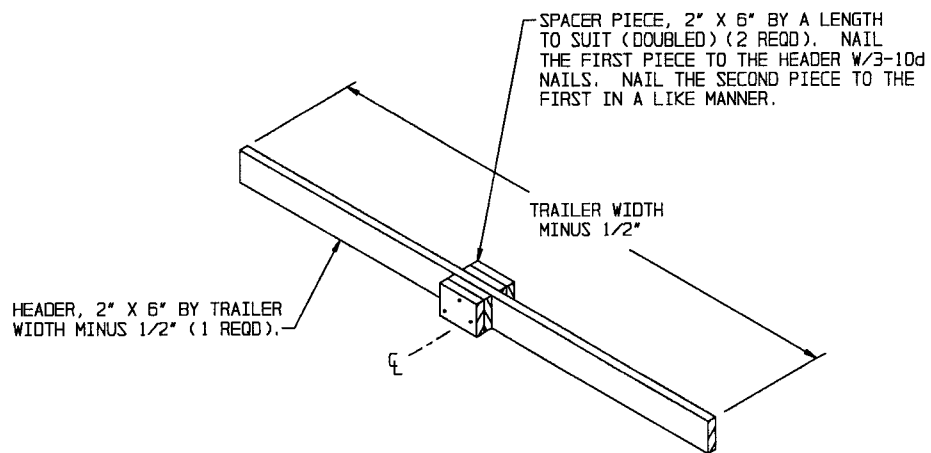
SEE "NOTE ●" ABOVE AND THE LOAD ON PAGE 8.

SPACER PIECE, 2" X 6" BY A LENGTH TO SUIT (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE HEADER W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

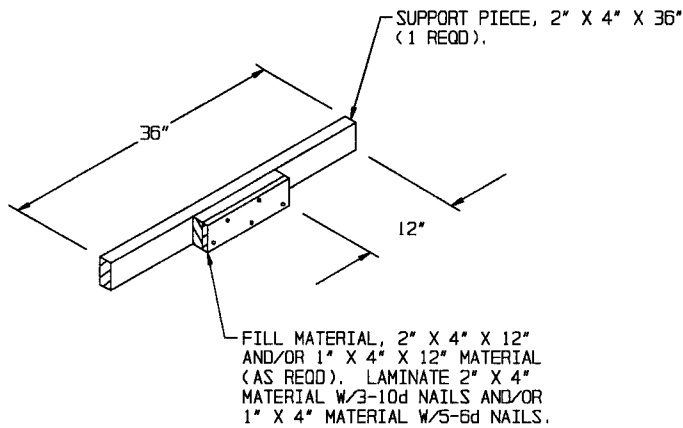


**FORWARD BLOCKING ASSEMBLY C**

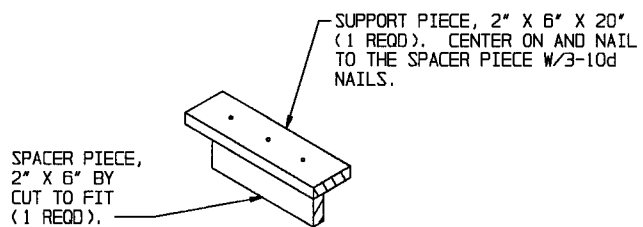
THIS ASSEMBLY IS FOR USE IN A TRAILER WITH A SQUARE FRONT FOR THE LOAD ON PAGE 6.



**INTERMEDIATE HEADER A**



**ANTI-SWAY BRACE A**



**ANTI-SWAY BRACE B**

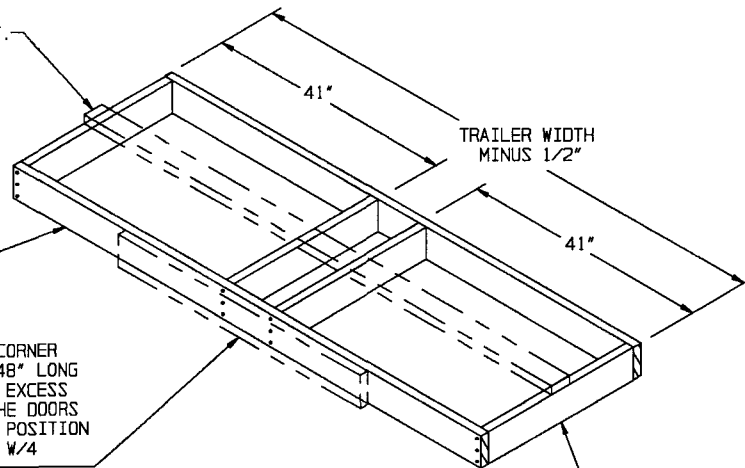
WIRE TIE EACH END OF THE SUPPORT PIECE TO BOTH TIEDOWN POINTS ON THE ISOLATION FRAME OF A CANISTER. SECURE THE WIRE TO THE SUPPORT PIECE WITH A STAPLE OR A BENT-OVER NAIL.



STRUT BRACING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD FOR EVERY 7'-0" OF STRUT LENGTH FOR STRUTS LONGER THAN 7'-0"). NAIL TO THE STRUTS W/2-12d NAILS AT EACH JOINT.

HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING AND THE DOORS ON THE TRAILER WHEN THEY ARE CLOSED. POSITION ON EDGE AND NAIL TO THE REAR BLOCKING W/4 APPLICABLY SIZED NAILS.



STRUT, 2" X 6" BY CUT TO FIT (4 REQD).

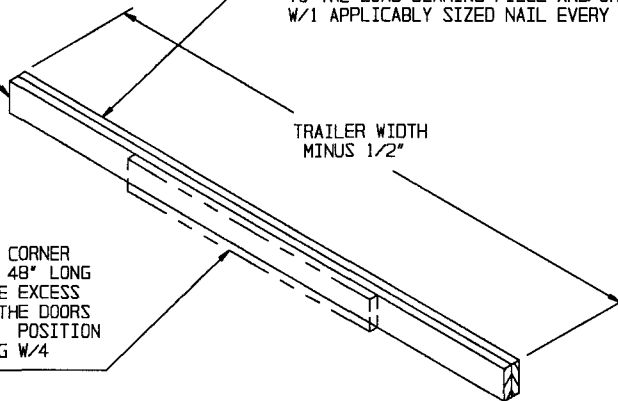
### REAR BLOCKING ASSEMBLY A

THIS ASSEMBLY MAY BE USED IN LIEU OF NAILED REAR BLOCKING, PIECE MARKED ⑤, IN THE LOAD ON PAGE 6.

LOAD BEARING PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD).

SOLID FILL, 1" X 6" AND/OR 2" X 6" BY TRAILER WIDTH MINUS 1/2" (AS REQD). NAIL TO THE LOAD BEARING PIECE AND/OR LAMINATE W/1 APPLICABLY SIZED NAIL EVERY 12".

TRAILER WIDTH MINUS 1/2"



IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING AND THE DOORS ON THE TRAILER WHEN THEY ARE CLOSED. POSITION ON EDGE AND NAIL TO THE REAR BLOCKING W/4 APPLICABLY SIZED NAILS.

### REAR BLOCKING ASSEMBLY B

WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS LESS THAN 9", THIS ASSEMBLY MAY BE USED IN LIEU OF THE REAR BLOCKING IN THE LOAD ON PAGE 8, SHOWN AS PIECE MARKED ②.



ONE SEAL WITH  
TWO PAIR OF  
NOTCHES.

STRAP JOINT A

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

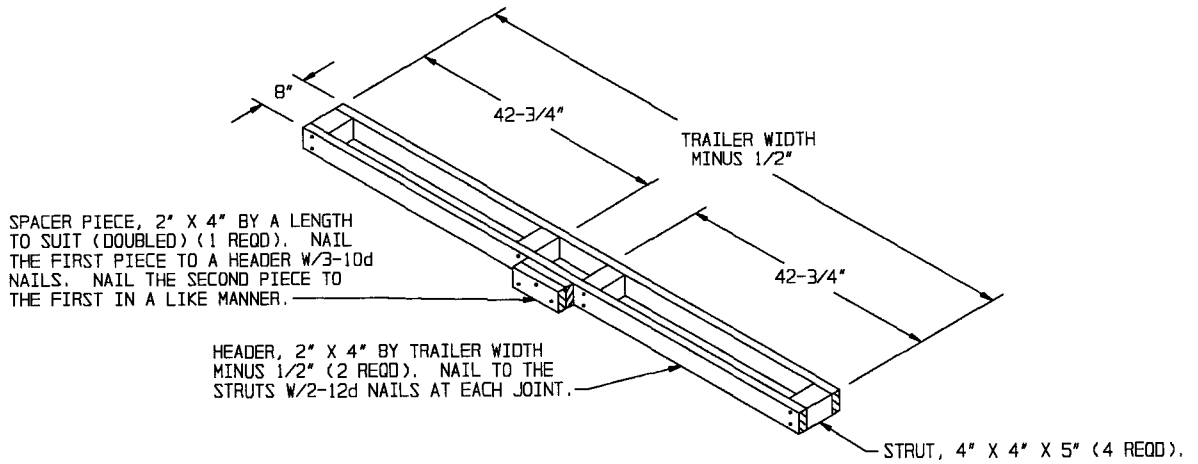


TWO SEALS, BUTTED  
TOGETHER, WITH  
TWO PAIR OF CRIMPS  
EACH SEAL.

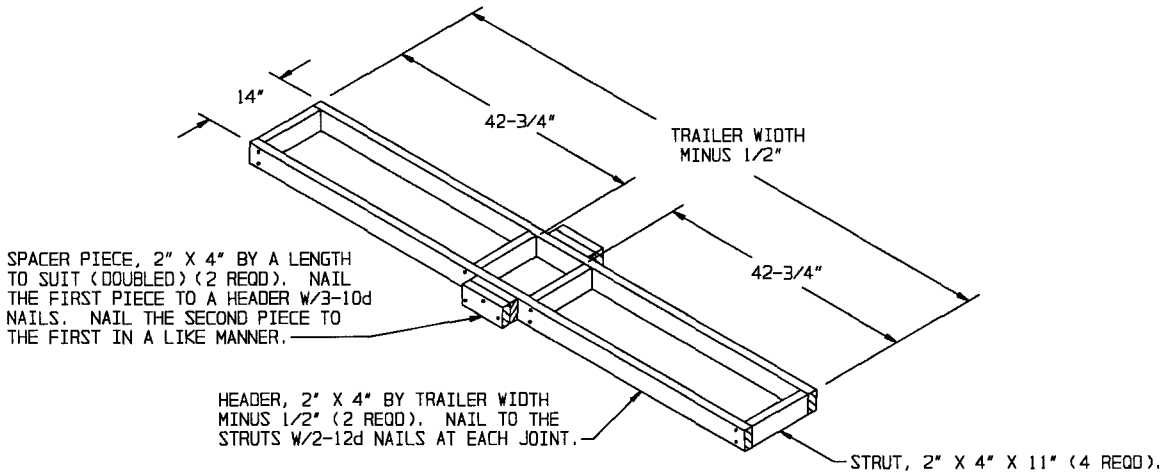
STRAP JOINT B

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

END-OVER-END LAP JOINT DETAILS



**FORWARD BLOCKING ASSEMBLY D**



**INTERMEDIATE HEADER B**

