APPROVED BY
BUREAU OF EXPLOSIVES

DATE 4-12-05

ATACMS

LOADING AND BRACING* WITH WOODEN DUNNAGE IN END OPENING ISO CONTAINERS OF MISSILE/LAUNCH POD ASSEMBLY (M/LPA) FOR ARMY TACTICAL MISSILE SYSTEM

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LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 18. DO NOT SCALE **DECEMBER 1991 MELVIN DAEUMER** BASIC ENGINEER OR **TECHNICIAN MELVIN SIX MAY 2005 REVISION NO. 2** APPROVED BY ORDER OF COMMANDING GENERAL, TRANSPORTATION **ENGINEERING** U.S. ARMY MATERIEL COMMAND SEE THE REVISION LISTING ON PAGE 2 DIVISION DIVISION VALIDATION DRAWING FILE ENGINEERINE DIVISION 48 GM15AT2 19 8182 ENGINEERING DIRECTORATE U.S. ARMY DEFENSE AMMUNITION CENTER

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCOR-DANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO THE ARMY TACTICAL MISSILE SYSTEM (ATACMS) COMPLETE ROUND, WHEN PACKED IN THE MISSILE/LAUNCH POD ASSEMBLY (M/LPA). SUBSEQUENT REFERENCE TO ASSEMBLY HEREIN MEANS THE M/LPA WITH MISSILE COMPONENTS.
- C. FOR DETAILS OF THE MISSILE/LAUNCH POD ASSEMBLY, SEE MICOM DRAWING NO. 13288205, 13283365 AND THE PICTORAL VIEW AND CHART ON PAGE 3.
- D. THE LOADS AS SHOWN ARE BASED ON 4,700 POUND 20' LONG 8' WIDE BY 8'-6" HIGH END OPENING ISO CONTAINERS WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 93" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE A TOTAL INSIDE HEIGHT OF 95", BUT A CLEAR HEIGHT UNDER THE ROOF BOWS OF 93", VERIFY INSIDE CONTAINER HEIGHT PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.
- E. WHEN LOADING THE ASSEMBLIES THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE FORWARD AND SIDE DUNNAGE ASSEMBLIES). ALTHOUGH A TOTAL OF ONE AND ONE-HALF INCHES (1-1/2") OF UNBLOCKED SPACE ACROSS THE WIDTH OF THE LOAD BAY IS PERMITTED, LATERAL VOIDS WITHIN THE LOAD ARE TO BE HELD TO A MINIMUM. EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL BEARING PIECES OF APPROPRIATE THICKNESS TO THE SIDE FILL ASSEMBLIES ON ONE OR BOTH SIDES OF THE CONTAINER. NAIL EACH ADDITIONAL PIECE TO THE BEARING PIECES W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE NUMBER AND THICKNESS OF THE BEARING PIECES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE WIDTH OF THE ISO CONTAINER.
- F. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- G. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSI-BLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEM-BLIES OR WHEN LAMINATING DUNNAGE. 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 ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- H. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE FORWARD WALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3" OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECUIDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE(S) IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER FORWARD WALL, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FORWARD LONGITUDINAL BLOCKING.
- J. <u>CAUTION</u>: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- K. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER ---: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.

NAILS - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR

NLCMMS).

RE ----: ASTM A853; ANNEALED AT FINISH, BLACK OXIDE

FINISH, .0800" DIA, GRADE 1006 OR BETTER.

PLYWOOD - - - - : COMMERCIAL ITEM DESCRIPTION A-A-55057,

INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.

(GENERAL NOTES CONTINUED)

- L. WHETHER A CONTAINER IS FULL OR IS LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE CONTAINER.
- M. MAXIMUM LOAD WEIGHT CRITERIA:

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING UP ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

- N. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:
 - A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
 - THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.
- O. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- P. SIX UNIVERSAL LOAD RETAINERS ARE DEPICTED IN THE LOAD ON PAGE 2. SIX UNIVERSAL LOAD RETAINERS ARE REQUIRED WHEN LOADING FOUR MISSILE/LAUNCH POD ASSEMBLIES; TWO UNIVERSAL LOAD RETAINERS ARE REQUIRED WHEN LOADING TWO MISSILE/LAUNCH POD ASSEMBLIES. REFER TO DEPARTMENT OF THE ARMY DAC DRAWING ACV00682 FOR DETAILS OF THE UNIVERSAL LOAD RETAINER CONSTRUCTION, AND TO DEPARTMENT OF THE ARMY DRAWING DA-116 FOR DETAILS FOR INSTALLATION TO THE DOOR POST VERTICAL, PLACEMENT INTO THE CONTAINER, AND FOR OTHER METHODS OF REAR OF LOAD RESTRAINT.
- Q. NEW STYLE MISSILE/LAUNCH POD ASSEMBLIES AS REFERENCED IN THE REVISION BLOCK ON THIS PAGE AND ON PAGE 3 HAVE END COVERS ON THE AFT END OF THE ASSEMBLY WHICH EXTEND SLIGHTLY BEYOND THE TOP AND BOTTOM RAILS. EXTREME CARE MUST BE EXERCISED DURING HANDLING OPERATIONS TO ENSURE THAT NO CONTACT OCCURS BETWEEN THE FORKLIFT TRUCK AND END COVER.
- R. THE DUNNAGE ASSEMBLIES SHOWN WITHIN THIS DRAWING ARE BASED ON THE DIMENSIONS FOR THE BLOCK IA AND BLOCK II MILPA'S, SOME DIMENSIONS WILL CHANGE SLIGHTLY. THESE CHANGES ARE NOTED IN THE DETAILED VIEWS OF THE DUNNAGE ASSEMBLIES.
- 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 0.454KG.

REVISIONS

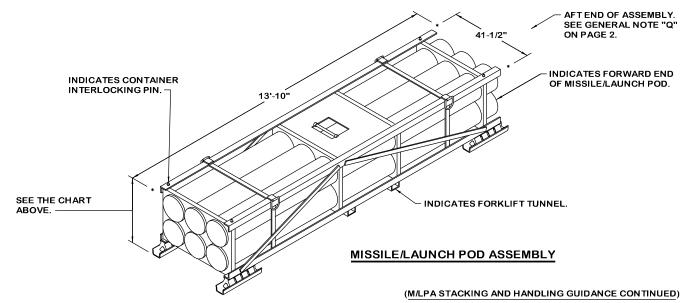
REVISION NO. 1, DATED APRIL 1999, CONSISTS OF:

- 1. ADDITION OF PLYWOOD SPACERS TO GATE ASSEMBLIES FOR USE WITH NEW STYLE MISSILE/LAUNCH POD ASSEMBLIES.
- 2. ADDING NEW WEIGHTS FOR ASSEMBLIES.
- 3. UPDATING DRAWING FORMAT.

REVISION NO. 2, DATED MAY 2005, CONSISTS OF:

- 1. ADDING WEIGHTS AND NSN'S.
- 2. UPDATING DRAWING WITH UNIVERSAL LOAD RETAINER.

GROSS WEIGHT, DIMENSIONS, AND CUBE OF GUIDED MISSILE LAUNCHING ASSEMBLIES							
NSN	DODIC	TYPE	LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	CUBE (CU FT)
1427-00-000-0195	PL81	BLOCK I	13' -10"	41-1/2"	32-5/8"	5, 105	129. 7
1427-01-274-3904	PL81	BLOCK I	13' -10"	41-1/2"	32-5/8"	4, 814	129. 7
1427-01-386-3113	PL81	BLOCK I	13' -10"	41-1/2"	32-5/8"	5, 111	129. 7
1427-01-398-6538	PL38	BLOCK IA	13' -10"	41-1/2"	33-3/4"	4, 640	134. 6
1427-01-463-0001	PL38	BLOCK IA	13' -10"	41-1/2"	33-3/4"	4, 640	134.6
1427-01-439-8639	PL47	BLOCK II	13' -10"	41-1/2"	33-3/4"	4, 985	134. 6
1427-01-481-1620	N/A	TACMS 2K	13' -10"	41-1/2"	33-3/4"	4, 985	134. 6
1427-01-480-8516	PL65	IA UNITARY	13' -10"	41-1/2"	33-3/4"	4, 682	134. 6



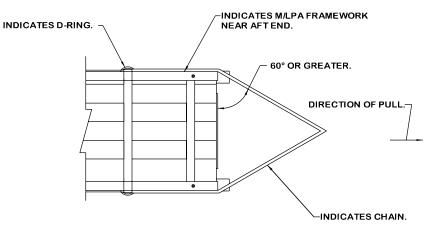
M/LPA STACKING AND HANDLING GUIDANCE

- 1. ASSEMBLY STACKING FOR OUTLOADING PURPOSES.
 - A. THE UPPER ASSEMBLY SHOULD BE PLACED AS CLOSELY AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE LOWER ASSEMBLY
 - B. WHEN STACKING THESE ASSEMBLIES, CARE MUST BE EXERCISED TO INSURE THAT THE INTERLOCKING HOLES IN THE BOTTOM OF THE ASSEMBLY SKIDS ALIGN CORRECTLY WITH THE INTERLOCKING PINS ON THE TOP OF THE ASSEMBLY FRAME. THIS WILL PRECLUDE DAMAGE TO THE SKIDS AND INSURE PROPER FUNCTIONING OF THE ASSEMBLY INTERLOCKS.
- 2. ASSEMBLY OR ASSEMBLY STACK HANDLING.
 - NOTES: (1) MATERIALS HANDLING EQUIPMENT (MHE) IS INTENDED TO MEAN EQUIPMENT, SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, AND SPREADER BARS, THAT CAN BE USED TO HANDLE THE DEPICTED ASSEMBLIES.
 - (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.
 - A. ONLY APPROVED AND APPROPRIATELY SIZED MHE WILL BE USED FOR HANDLING THE DEPICTED ASSEMBLIES.
 - B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE ASSEMBLIES MUST BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING THE FORKS UNDER THE ASSEMBLY INTO THE FORKLIFT TUNNELS TO PREVENT DAMAGE TO THE ASSEMBLY BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.

(CONTINUED AT RIGHT)

- C. THE DUNNAGE ASSEMBLIES AT THE FRONT AND ALONG THE SIDE-WALLS OF THE INTERMODAL FREIGHT CONTAINER MUST BE PRE-POSITIONED PRIOR TO LOADING THE FIRST STACK OF ASSEMBLIES
 - INTO IT. ONCE THE FIRST STACK OF ASSEMBLIES IS IN POSITION, THE SECOND STACK CAN BE LOADED INTO THE CONTAINER SUBSEQUENT TO THE INSTALLATION OF THE CENTER FILL ASSEMBLY.
- D. WHEN REMOVING AN ASSEMBLY OR ASSEMBLY STACK FROM A CONTAINER BY ATTACHING CHAINS TO THE FRAME AND DRAGGING THE ASSEMBLY OR ASSEMBLY STACK PARTIALLY OUT OF THE CONTAINER, CARE MUST BE TAKEN TO ENSURE THAT THE PULL ANGLE OF EACH OF THE TWO CHAIN LEGS IS 60° OR GREATER. IF THE CHAIN IS ATTACHED SO THAT THE PULL ANGLE IS LESS THAN 60° STRUCTURAL FAILURE OF THE MILPA FRAME COULD OCCUR. SEE THE "MILPA TOW ANGLE" DETAIL ON PAGE 4. CHAINS WILL BE ATTACHED ONLY TO BOTTOM-LAYER MILPA UNITS, AND SHACKLES WILL BE USED TO ATTACH THE DRAG CHAINS TO THE D-RINGS. A FORKLIFT TRUCK IS TO BE USED FOR DRAGGING THE UNITS. THE TINES OF THE TRUCK CAN BE INSERTED A SHORT DISTANCE UNDER THE AFT END OF THE BOTTOM MILPA AND THE AFT END OF THE MILPA UNIT LIFTED ENOUGH TO JUST CLEAR THE CONTAINER FLOOR BEFORE ACTUAL DRAGGING IS BEGUN. CAUTION: FORKLIFT TRUCK TINES MUST ONLY BEAR ON THE BOTTOM SURFACE OF A BULKHEAD BRACE ASSEMBLY AT THE AFT END OF THE BOTTOM MILPA UNIT DURING A DRAGGING OPERATION. NOTICE: WIRE ROPE CABLE CAN BE SUBSTITUTED FOR THE CHAIN SPECIFIED HEREIN.
- E. WHEN M/LPA'S ARE HANDLED WITH A FORKLIFT TRUCK, A 1" X 4" MATERIAL BUFFER BOARD MUST BE PLACED ACROSS THE FORKLIFT TRUCK TINES SUCH THAT THE TINES DO NOT CONTACT THE BOTTOM SURFACE OF THE FRAME MEMBERS.
- F. M/LPA'S WILL BE PUSHED INTO THE CONTAINERS USING A PUSHER ASSEMBLY OR A 4" X 4" BUFFER BOARD WILL BE POSITIONED BETWEEN THE HEELS OF THE FORKLIFT TRUCK TINES AND THE M/LPA FRAME. THE PUSHER ASSEMBLY DEPICTED ON PAGE 4 MAY ALSO BE USED IN PLACE OF A 4" X 4" BUFFER BOARD TO PUSH THE M/LPA'S INTO THE CONTAINER.

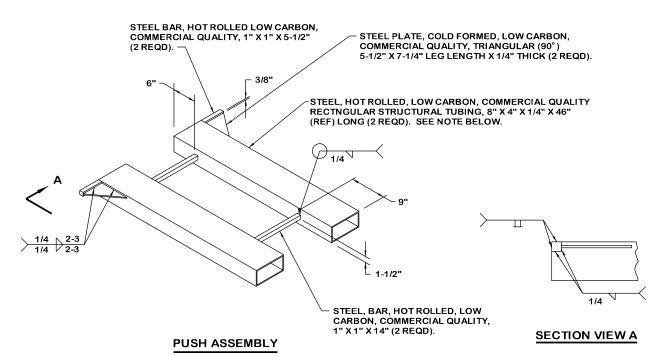
ASSEMBLY DETAIL AND HANDLING GUIDANCE



M/LPA TOW ANGLE

(PARTIAL PLAN VIEW)

NOTE: TOW CHAIN MUST NOT DAMAGE M/LPA.



NOTE: THE FORK TINES MUST EXTEND AN ADDITIONAL 13" BEYOND THE END OF THE PUSH ASSEMBLY. THE LENGTH OF THE 8" X 4" RECTANGULAR TUBING MAY BE VARIED AS NECESSARY TO ACCOMODATE VARIOUS LENGTH OF FORK TINES.

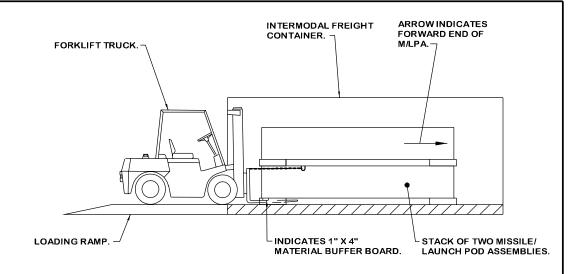


FIGURE 1

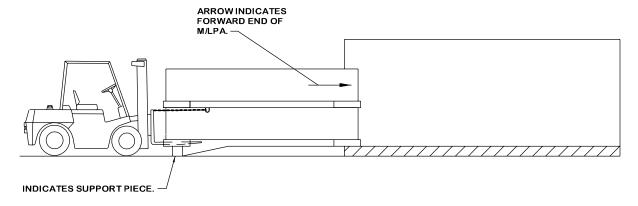
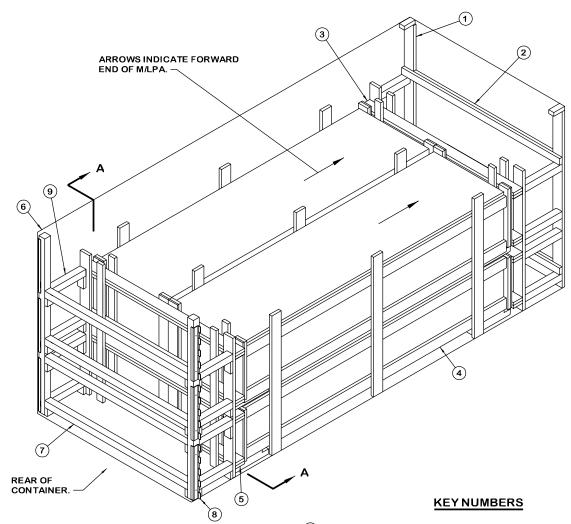


FIGURE 2

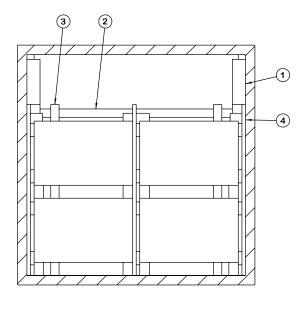
INTERMODAL FREIGHT CONTAINER UNLOADING PROCEDURES

- 1. REMOVE ALL REAR BLOCKING FROM THE INTERMODAL FREIGHT CONTAINER.
- 2. ATTACH CHAIN FROM D-RINGS ON BOTTOM M/LPA TO THE FORKLIFT TRUCK AS SHOWN IN FIGURE 1 ABOVE (SEE NOTE 2.D ON PAGE 3).
- 3. INSERT THE FORKLIFT TINES WITH A 1" X 4" MATERIAL BUFFER BOARD PLACED ACROSS THE FORK TINES (TO INSURE THAT THE TINES DO NOT CONTACT THE BOTTOM OF THE LONGITUDINAL FRAME MEMBERS) UNDER THE AFT END OF THE BOTTOM M/LPA.
- 4. LIFT THE AFT END OF THE M/LPA STACK ENOUGH TO JUST CLEAR THE CONTAINER FLOOR BEFORE ACTUAL DRAGGING IS BEGUN.
- 5. SLOWLY PULL THE M/LPA STACK FROM THE CONTAINER UNTIL THE TWO SKIDS ON THE OPPOSITE (FORE) END ARE ALMOST OUTSIDE THE CONTAINER.
- 6. THE M/LPA STACK SHOULD THEN BE LOWERED ONTO A SHORT LENGTH OF DUNNAGE SO THAT THE AFT-END SKIDS ARE SUPPORTED BY THE DUNNAGE PIECE AND THE M/LPA STACK IS APPROXIMATELY LEVEL. THE M/LPA STACK MAY NOW BE HANDLED BY SLINGING, FORKLIFT TRUCK, OR ANY OTHER MEANS; PROVIDING THEY ARE HANDLED IN ACCORDANCE WITH APPROVED PROCEDURES.
- 7. REPEAT THE ABOVE PROCEDURES FOR THE REMAINING M/LPA STACK.

UNLOADING PROCEDURES



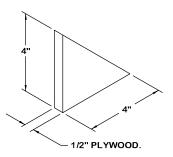
ISOMETRIC VIEW



SECTION A-A

- TORWARD STRUT ASSEMBLY A (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE DETAIL ON PAGE 8. POSITION THE ASSEMBLY WITH THE 4" X 4" STRUTS AGAINST THE CONTAINER SIDEWALL, AS SHOWN ABOVE. AFTER PIECE MARKED ③ IS INSTALLED AND CENTERED ON THE WIDTH OF THE CONTAINER, NAIL THROUGH THE REAR BUFFER PIECE OF EACH FORWARD STRUT ASSEMBLY INTO EACH BEAM ASSEMBLY OF PIECE MARKED ③ W/2-12d NAILS AT EACH JOINT.
- 2 SPREADER ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 7. PO-SITION AS SHOWN, IMMEDIATELY ABOVE THE TOP AND BOTTOM STRUTS AND NAIL TO THE FORWARD STRUT ASSEMBLY W/2-10d NAILS AT EACH JOINT.
- (3) FORWARD BLOCKING ASSEMBLY A (1 REQD). SEE THE DETAIL ON
- 4 SIDE/CENTER FILL A (3 REQD). SEE THE DETAIL ON PAGE 9 AND SPECIAL NOTE 3 ON PAGE 7.
- (5) REAR BLOCKING ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 9.
- (6) DOOR POST VERTICAL A (2 REQD). SEE THE DETAIL ON PAGE 17.
- (7) UNIVERSAL LOAD RETAINER (6 REQD, 3 PER SIDE). NAIL THROUGH THE HOLES INTO THE DOOR POST VERTICAL "A" W/2-10d NAILS. SEE DEPARTMENT OF ARMY DRAWING DA-116, DAC DRAWING ACV00682. AND "DETAIL A" ON PAGE 17.
- 8 DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A DRIVE FIT (REF: 7'-1-1/4") (4 REQD). TOENAIL TO THE DOOR POST VERTICALS W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 17. AFTER INSTALLING THE BOTTOM AND THE TOP SPANNERS, THE STRUTS, PIECES MARKED (8) ARE TO BE INSTALLED.
- 9 STRUT, 4" X 4" BY CUT TO FIT (REF: 20") (8 REQD). TOENAIL TO THE BUFFER PIECE OF THE REAR BLOCKING ASSEMBLY AND THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 17.

FOUR ASSEMBLY LOAD

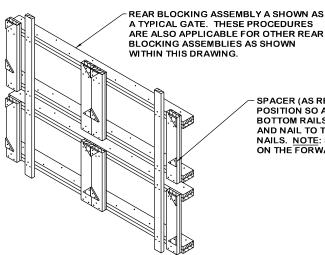


SPACER

TO PROVIDE ADDITION SPACE BETWEEN THE NEW STYLE AFT END COVER AND THE REAR BLOCKING ASSEMBLY, SPACER PIECES, AS DEPICTED ABOVE MUST BE USED. THE SPACER PIECES SHALL BE LOCATED SO THAT THEY CONTACT EITHER THE BOTTOM OR TOP RAIL OF THE MILPA. NOTE: SPACERS ARE ONLY REQUIRED AT THE AFT END OF THE ASSEMBLIES. SEE THE "TYPICAL VIEW A" DETAIL BELOW.

SPECIAL NOTES:

- 1. THE LOAD AS SHOWN ON PAGE 6 DELINEATES A FOUR ASSEMBLY LOAD IN AN END OPENING ISO CONTAINER.
- PRIOR TO LOADING THE MISSILE ASSEMBLIES IN THE ISO CON-TAINER, SEE THE "M/LPA STACK HANDLING AND PROCEDURAL GUIDANCE" ON PAGE 3 FOR HANDLING OF THE ASSEMBLY STACKS.
- 3. IF DESIRED THE FORWARD END OF THE TWO SIDE FILL ASSEMBLIES CAN BE TOENAILED TO THE FORWARD BLOCKING ASSEMBLY TO HOLD THEM UPRIGHT AGAINST THE SIDE WALLS OF THE CONTAINER DURING LOADING OPERATIONS. ALSO, IF DESIRED, THE CENTER FILL ASSEMBLY CAN BE WIRE TIED TO THE M/LPA STACK THAT IS ALREADY LOADED TO HOLD IT UPRIGHT DURING LOADING OF THE SECOND STACK. NOTICE: THE CENTER FILL ASSEMBLY IS TO BE POSITIONED WITH THE VERTICAL PIECES OF THE ASSEMBLY AGAINST THE M/LPA UNITS THAT ARE ALREADY LOADED IN THE CONTAINER. THE LOAD VIEWS SHOW THE ASSEMBLY AS THOUGH THE LEFT SIDE STACK WAS LOADED INTO THE CONTAINER FIRST.
- 4. THE LOAD AS SHOWN IS BASED ON "BLOCK II" M/LPA'S. WHEN SHIPPING "BLOCK IA" M/LPA'S THE WEIGHT OF THE LADING WILL CHANGE. WHEN SHIPPING "BLOCK I" M/LPA'S, BOTH THE UNIT WEIGHT AND SOME DIMENSIONS ON THE DUNNAGE ASSEMBLIES WILL CHANGE. THESE DIMENSIONAL CHANGES ARE NOTED IN THE VARIOUS VIEWS WITHIN THIS DRAWING.



SPACER (AS REQD). SEE THE DETAIL ABOVE. POSITION SO AS TO CONTACT THE TOP AND BOTTOM RAILS ON THE AFT END OF THE M/LPA AND NAIL TO THE LOAD BEARING PIECE W/2-6d NAILS. NOTE: SPACERS ARE NOT REQUIRED ON THE FORWARD END OF THE M/LPA.

BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
1" X 6" 2" X 4" 2" X 6" 4" X 4"	38 75 409 74	19 50 409 98	
NAILS	NO. REQD	POUNDS	
6d (2") 10d (3") 12d (3-1/4") 16d (3-1/2")	32 386 48 96	1/2 6 3/4 2-1/4	
D. 17 100D 1 /211	1 00 57 5505	1 1 /4 : 20	

TYPICAL VIEW A

PLYWOOD, 1/2" - - - - 1 SQ FT REQD - - - - - 1-1/4 LBS UNIVERSAL LOAD RETAINER - - 6 REQD - - - - - 39 LBS

5"	SPREADER PIECE, 2" X 4" X 6'-9" (1 REQD). LAMINATE TO THE RE- TAINER PIECE W/7-10d NAILS.
RETAINER PIECE, 2" X 4" X 7'-7" (1 REQD).	5"

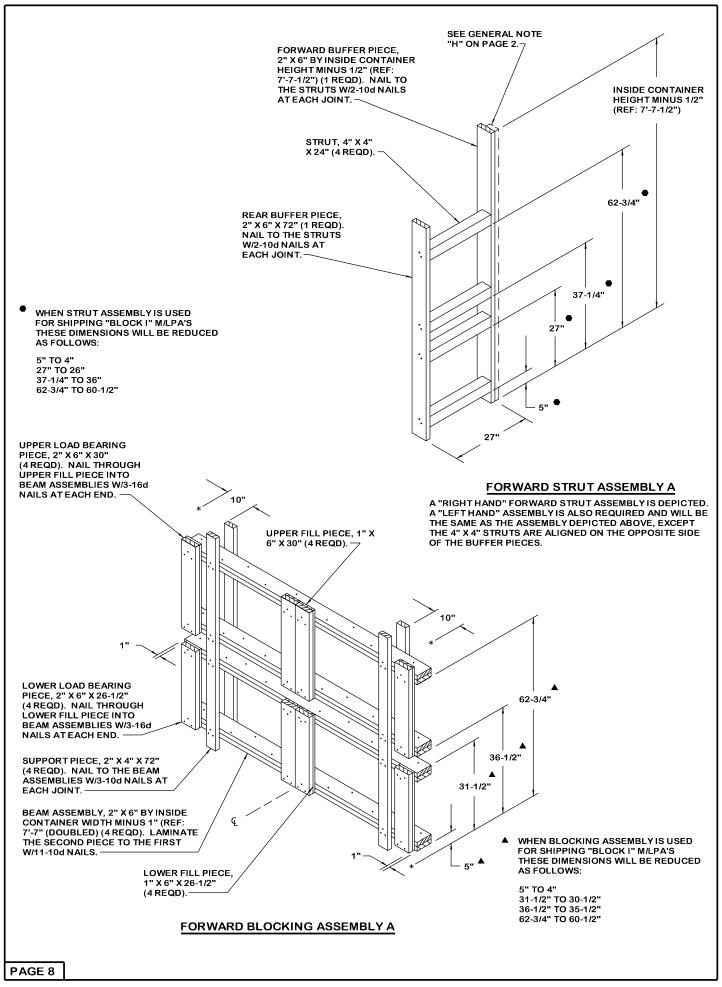
SPREADER ASSEMBLY

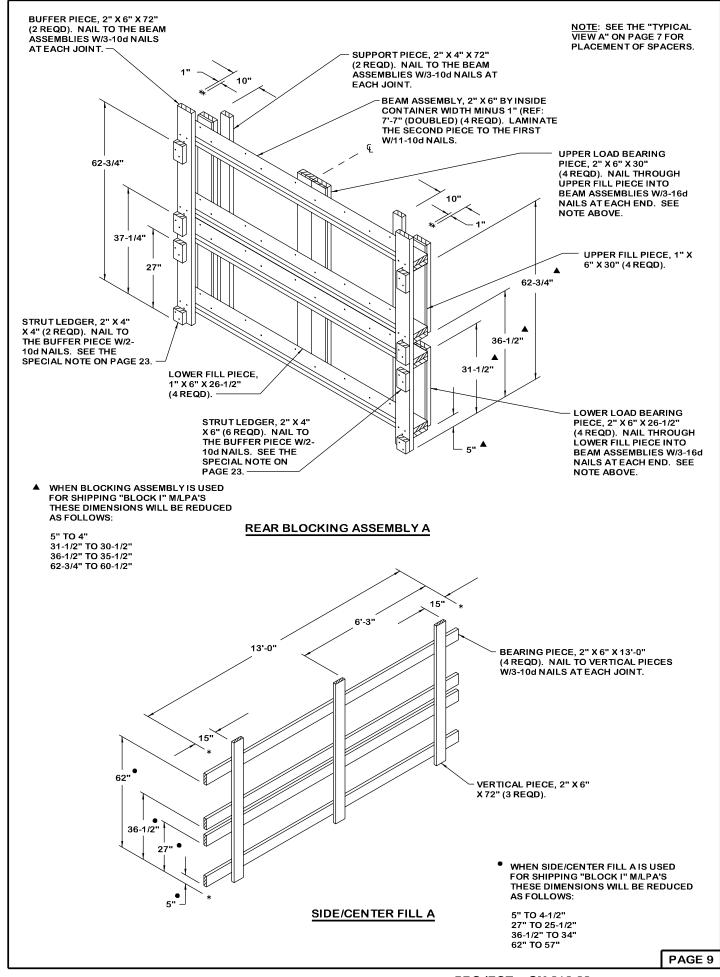
LOAD AS SHOWN

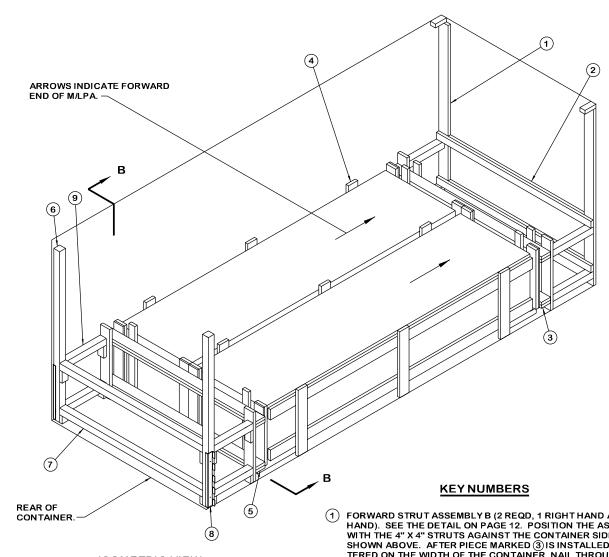
ITEM	QUANTITY	WEIGHT (APPROX)
DUNNAGE	4	1,200 LBS
ТОТ	AL WEIGHT	26, 383 LBS (APPROX)

*SEE SPECIAL NOTE 4 ABOVE.

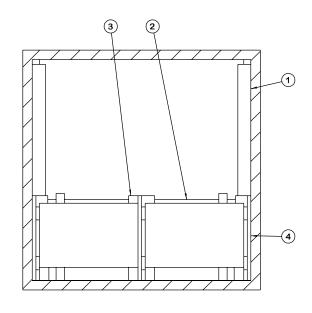
FOUR ASSEMBLY LOAD







ISOMETRIC VIEW



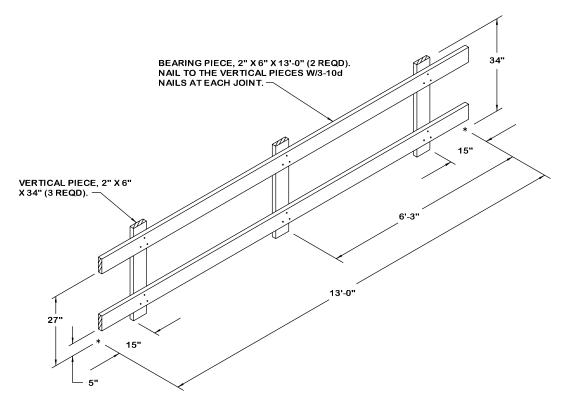
SECTION B-B

- FORWARD STRUT ASSEMBLY B (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE DETAIL ON PAGE 12. POSITION THE ASSEMBLY WITH THE 4" X 4" STRUTS AGAINST THE CONTAINER SIDEWALL, AS SHOWN ABOVE. AFTER PIECE MARKED (3) IS INSTALLED AND CEN-TERED ON THE WIDTH OF THE CONTAINER, NAIL THROUGH THE REAR BUFFER PIECE OF EACH FORWARD STRUT ASSEMBLY INTO EACH BEAM ASSEMBLY OF PIECE MARKED ③ W/2-12d NAILS AT EACH JOINT.
- (2) SPREADER ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 7. POSI-TION AS SHOWN, IMMEDIATELY ABOVE THE TOP AND BOTTOM STRUTS AND NAIL TO THE FORWARD STRUT ASSEMBLY W/2-10d NAILS AT EACH JOINT.
- (3) FORWARD BLOCKING ASSEMBLY B (1 REQD). SEE THE DETAIL ON **PAGE 12.**
- 4 SIDE/CENTER FILL B (3 REQD). SEE THE DETAIL ON PAGE 11 AND SPECIAL NOTE 3 ON PAGE 11.
- (5) REAR BLOCKING ASSEMBLY B (1 REQD). SEE THE DETAIL ON PAGE
- (6) DOOR POST VERTICAL B (2 REQD). SEE THE DETAIL AND "TYPICAL **DETAIL A" ON PAGE 17.**
- UNIVERSAL LOAD RETAINER (2 REQD, 1 PER SIDE). NAIL THROUGH THE HOLES INTO THE DOOR POST VERTICAL "B" W/2-10d NAILS. SEE DEPARTMENT OF ARMY DRAWING DA-116, DAC DRAWING ACV00682, AND "DETAIL A" ON PAGE 17.
- (8) DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A DRIVE FIT (REF: 7'-1-1/4") (2 REQD). TOENAIL TO THE DOOR POST VERTICALS W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 17. AFTER INSTALLING THE DOOR SPANNERS, THE STRUTS, PIECES MARKED (8), ARE TO BE INSTALLED.
- STRUT, 4" X 4" BY CUT TO FIT (REF: 20") (4 REQD). TOENAIL TO THE BUFFER PIECE OF THE REAR BLOCKING ASSEMBLY AND THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" **DETAIL ON PAGE 17.**

TWO ASSEMBLY LOAD

SPECIAL NOTES:

- 1. THE LOAD AS SHOWN ON PAGE 10 DEPICTS A TWO ASSEMBLY LOAD IN AN END OPENING ISO CONTAINER.
- 2. PRIOR TO LOADING THE MISSILE ASSEMBLIES IN THE ISO CONTAINER, SEE THE MILPA STACK HANDLING AND PROCEDURAL GUIDANCE" ON PAGE 3 FOR HANDLING OF THE ASSEMBLY STACKS.
- 3. IF DESIRED, THE FORWARD END OF THE TWO SIDE FILL ASSEMBLIES CAN BE TOENAILED TO THE FORWARD BLOCKING ASSEMBLY TO HOLD THEM UPRIGHT AGAINST THE SIDE WALLS OF THE CONTAINER DURING LOADING OPERATIONS. ALSO, IF DESIRED, THE CENTER FILL ASSEMBLY CAN BE WIRE TIED TO THE MILPA STACK THAT IS ALREADY LOADED TO HOLD IT UPRIGHT DURING LOADING OF THE SECOND STACK. NOTICE: THE CENTER FILL ASSEMBLY IS TO BE POSITIONED WITH THE VERTICAL PIECES OF THE ASSEMBLY AGAINST THE MILPA UNITS THAT ARE ALREADY LOADED IN THE CONTAINER. THE LOAD VIEWS SHOW THE ASSEMBLY AS THOUGH THE LEFT SIDE STACK WAS LOADED INTO THE CONTAINER FIRST.
- 4. THE LOAD AS SHOWN IS BASED ON BLOCK I M/LPA'S. WHEN SHIPPING BLOCK IA AND BLOCK II M/LPA'S BOTH THE UNIT WEIGHT AND SOME DIMENSIONS ON THE DUNNAGE ASSEMBLIES WILL CHANGE. THESE DIMENSIONAL CHANGES ARE NOTED IN THE VARIOUS VIEWS WITHIN THIS DRAWING.



SIDE/CENTER FILL B

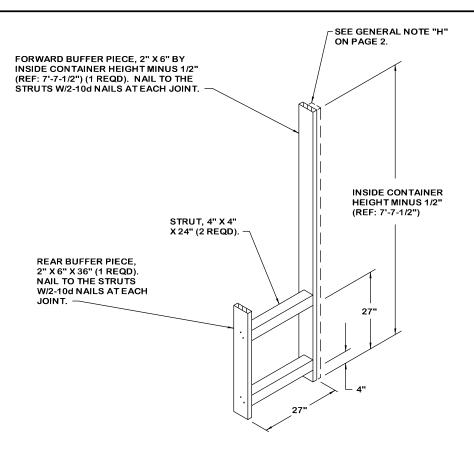
BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
1" X 6" 2" X 4" 2" X 6" 4" X 4"	20 52 213 45	10 35 213 60	
NAILS	NO. REQD	POUNDS	
6d (2") 10d (3") 12d (3-1/4") 16d (3-1/2")	NIL 3-1/2 1/2 1-1/4		
PLYWOOD, 1/2" 1/2 SQ FT REQD 3/4 LBS UNIVERSAL LOAD RETAINER 2 REQD 13 LBS			

LOAD AS SHOWN

<u>ITEM</u>	_QUANTITY	WEIGHT (APPROX)
DUNNAGE	2	652 LBS
TOTA	L WEIGHT	15,574 LBS (APPROX)

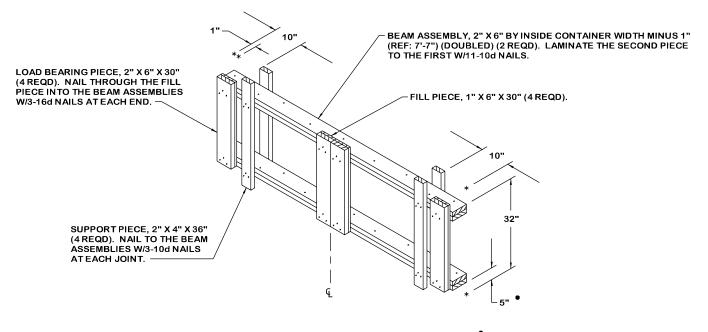
* SEE SPECIAL NOTE 4 ABOVE.

TWO ASSEMBLY LOAD



FORWARD STRUT ASSEMBLY B

A "RIGHT HAND" FORWARD STRUT ASSEMBLY IS DEPICTED. A "LEFT HAND" ASSEMBLY IS ALSO REQUIRED AND WILL BE THE SAME AS THE ASSEMBLY DEPICTED ABOVE, EXCEPT THE 4" X 4" STRUTS ARE ALIGNED ON THE OPPOSITE SIDE OF THE BUFFER PIECE.



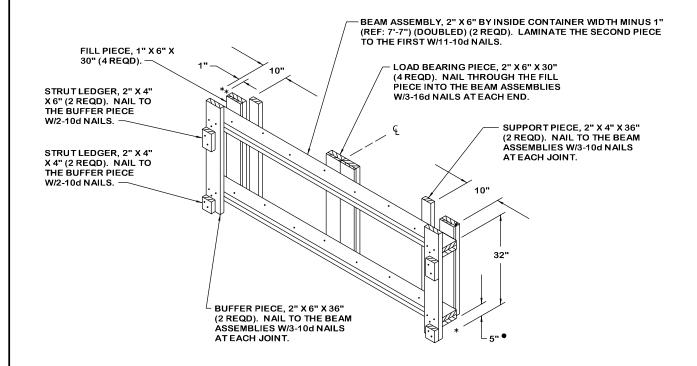
PAGE 12

 WHEN FORWARD BLOCKING ASSEMBLY "B" IS USED FOR SHIPPING "BLOCK I" M/LPA'S THESE DIMENSIONS WILL BE REDUCED AS FOLLOWS:

5" TO 4"

FORWARD BLOCKING ASSEMBLY B

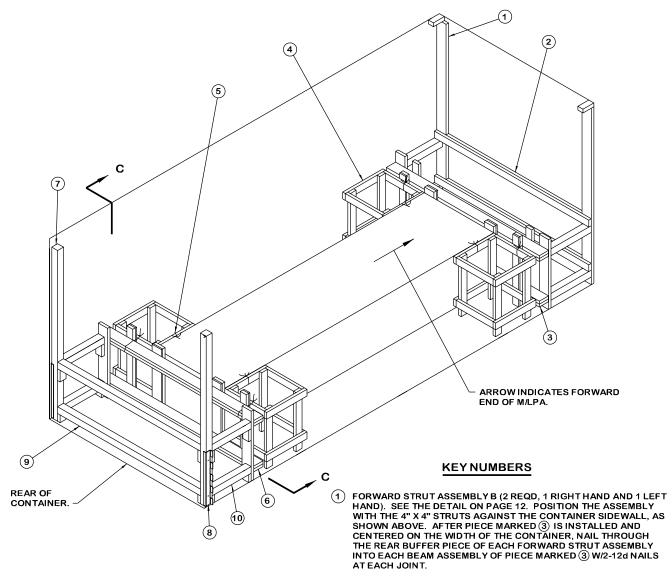
NOTE: SEE THE "TYPICAL VIEW A" ON PAGE 7 FOR PLACEMENT OF SPACERS.



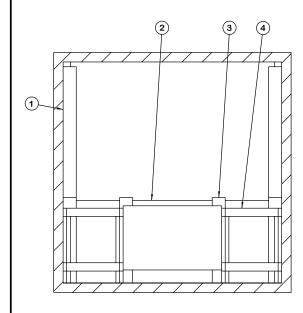
REAR BLOCKING ASSEMBLY B

WHEN REAR BLOCKING ASSEMBLY "B" IS USED FOR SHIPPING "BLOCK I" M/LPA'S THIS DIMENSION WILL BE REDUCED AS FOLLOWS:

5" TO 4"



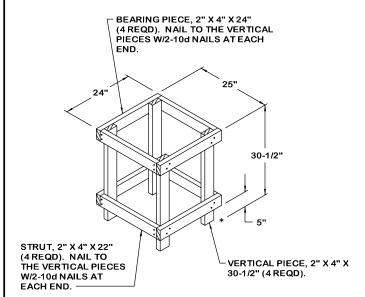
ISOMETRIC VIEW



SECTION C-C

- 2 SPREADER ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 7. POSITION AS SHOWN, IMMEDIATELY ABOVE THE TOP AND BOTTOM STRUTS AND NAIL TO THE FORWARD STRUT ASSEMBLY W/2-10d NAILS AT EACH JOINT.
- (3) FORWARD BLOCKING ASSEMBLY C (1 REQD). SEE THE DETAIL ON PAGE 16.
- (4) FILLER ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 15.
- (5) TIE WIRE, .0800" DIA WIRE 24" LONG (8 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND THE FILLER AND PIECE MARKED ③ AND THE FILLER AND THE M/LPA AS SHOWN.
- (6) REAR BLOCKING ASSEMBLY C (1 REQD). SEE THE DETAIL ON PAGE 16.
- (7) DOOR POST VERTICAL B (2 REQD). SEE THE DETAIL AND "DETAIL A" ON PAGE 17.
- (8) UNIVERSAL LOAD RETAINER (2 REQD, 1 PER SIDE). NAIL THROUGH THE HOLES INTO THE DOOR POST VERTICAL "B" W/2-10d NAILS. SEE DEPARTMENT OF ARMY DRAWING DA-116, DAC DRAWING ACV00682, AND "DETAIL A" ON PAGE 17.
- 9 DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A DRIVE FIT (REF: 7'-1-1/4") (2 REQD). TOENAIL TO THE DOOR POST VERTICALS W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 17. AFTER INSTALLING THE DOOR SPANNERS, THE STRUTS, PIECES MARKED 10, ARE TO BE INSTALLED.
- (10) STRUT, 4" X 4" BY CUT TO FIT (REF: 20") (4 REQD). TOENAIL TO THE BUFFER PIECE OF THE REAR BLOCKING ASSEMBLY AND THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVELCUT" DETAIL ON PAGE 17.

ONE ASSEMBLY LOAD



FILLER ASSEMBLY

BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
1"	12 15 154 103 45	4 8 103 103 60	
NAILS	NO. REQD	POUNDS	
6d (2") 10d (3") 12d (3-1/4") 16d (3-1/2")	24 290 24 36	NIL 4-1/2 1/2 1	
WIRE, .0800" DIA 16' REQD 1/4 LB PLYWOOD, 1/2" 1/2 SQ FT REQD 3/4 LB UNIVERSAL LOAD RETAINER 1 REQD 6-1/2 LBS			

SPECIAL NOTES:

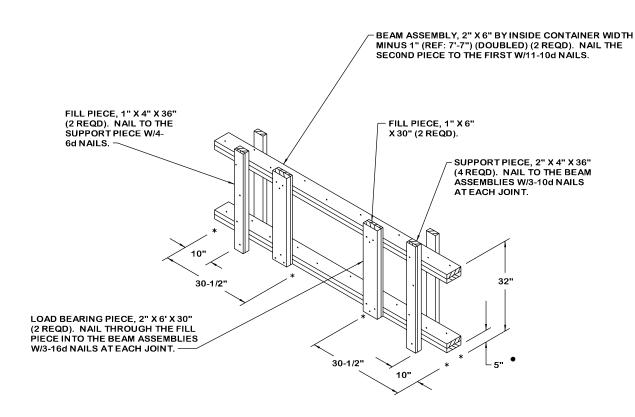
- 1. THE LOAD AS SHOWN ON PAGE 14 DEPICTS A ONE ASSEMBLY LOAD IN AN END OPENING ISO CONTAINER.
- 2. PRIOR TO LOADING THE MISSILE ASSEMBLY INTO THE ISO CONTAINER, SEE THE "M/LPA STACKING AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3 FOR HANDLING OF THE ASSEMBLY.
- 3. THE LOAD AS SHOWN IS BASED ON BLOCK I M/LPA'S. WHEN SHIP-PING BLOCK 1A AND BLOCK II M/LPA'S BOTH THE UNIT WEIGHT AND SOME DIMENSIONS ON THE DUNNAGE ASSEMBLIES WILL CHANGE. THESE DIMENSIONAL CHANGES ARE NOTED IN THE VARIOUS VIEWS WITHIN THIS DRAWING.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
DUNNAGE		5,111 LBS* 566 LBS 4,700 LBS
TOTA	L WEIGHT	10,384 LBS (APPROX)

* SEE SPECIAL NOTE 3 ABOVE.

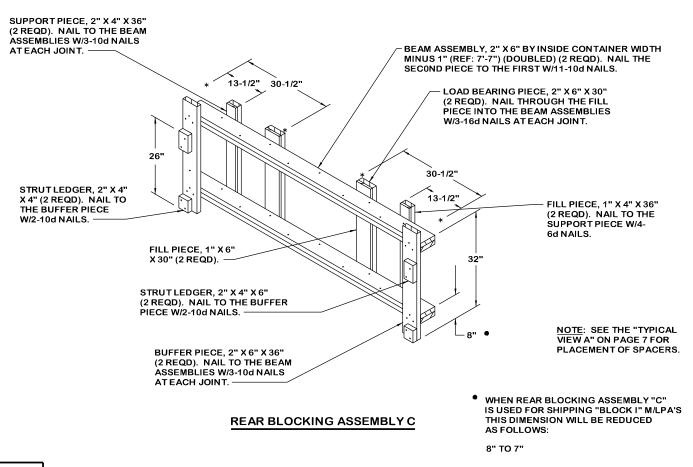
ONE ASSEMBLY LOAD

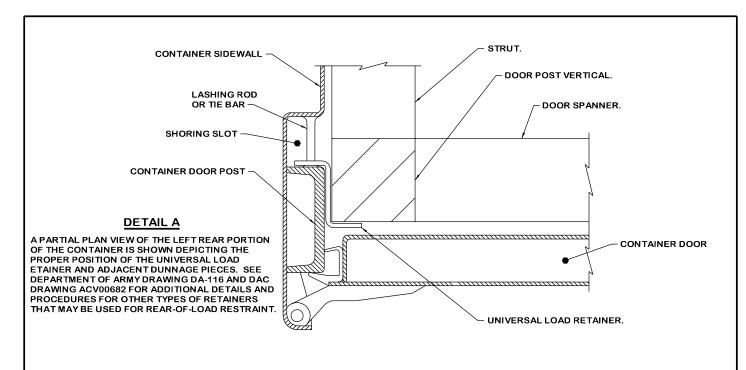


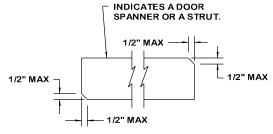
FORWARD BLOCKING ASSEMBLY C

 WHEN FORWARD BLOCKING ASSEMBLY "C" IS USED FOR SHIPPING "BLOCK I" M/LPA'S THIS DIMENSION WILL BE REDUCED AS FOLLOWS:

5" TO 4"

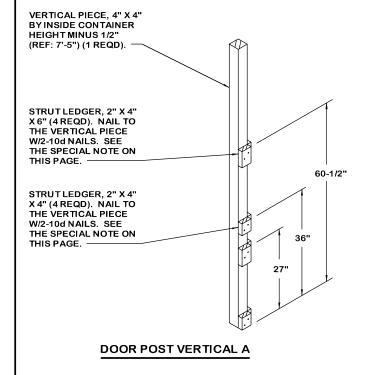






BEVEL-CUT

IF DESIRED, EACH END OF A DOOR SPANNER PIECE OR A STRUT MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE THE ACHIEVEMENT OF A TIGHT DOOR-POST-TO-DOOR-POST FIT OR A TIGHT REAR-OF-LOAD FIT.



VERTICAL PIECE, 4" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1/2" (REF: 7'-5") (1 REQD). STRUT LEDGER, 2" X 4" X 6" (2 REQD). NAIL TO THE VERTICAL PIECE W/2-10d NAILS. SEE THE SPECIAL NOTE ON THIS PAGE. STRUT LEDGER, 2" X 4" X 4" (2 REQD). NAIL TO 27 THE VERTICAL PIECE W/2-10d NAILS. SEE THE SPECIAL NOTE ON THIS PAGE.

SPECIAL NOTE:

THE STRUT LEDGERS CAN ONLY BE PRE-NAILED TO THE DOOR POST VERTICAL ON ONE SIDE OF THE CONTAINER FOR THE DOOR SPANNER PIECES. ALSO, THE STRUT LEDGERS FOR THE STRUTS CAN ONLY BE PRE-NAILED TO THE REAR BLOCKING ASSEMBLY OR THE DOOR POST VERTICAL AT THE LOWEST POSITION.

DOOR POST VERTICAL B

