APPROVED BY
U.S COAST GUARD

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DATE 2/16/88

PATRIOT

LOADING AND BRACING ◑ WITH WOODEN DUNNAGE IN COMMERCIAL NETHERLANDS CONTAINERS OF THE COMPLETE ROUND IN MISSILE CANISTER (SHIPPING, STORAGE AND LAUNCH CONTAINER) W/O OVERPACK FOR SHIPMENT BY MOTOR OR WATER CARRIER

INDEX

◑ LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY MOTOR OR WATER CARRIERS ONLY. SEE GENERAL NOTE "N" ON PAGE 2.

DO NOT SCALE

REVISIONS			

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U.S. ARMY AMC DRAWING
MARCH 1988
DEF AMMO CEN & SCH DWG NO.
D-SMCAC-4486

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 HEREIN ARE APPLICABLE TO THE PATRIOT COMPLETE ROUND, WHEN PACKED IN THE MISSILE CANISTER (SHIPPING, STORAGE AND LAUNCH CONTAINER), W/O OVERPACK.

C. FOR DETAILS OF THE MISSILE CANISTER, SEE DRAWING NUMBER 11450000, AND THE "TYPICAL STACK DETAIL" ON PAGE 3.

CANISTER DIMENSIONS ---- 234" LONG BY 42-3/8" WIDE BY 38-3/4" HIGH
GROSS WEIGHT ----------3,750 POUNDS (APPROX)

D. THIS ITEM IS A DOT CLASS "A" EXPLOSIVE, AND A COAST GUARD CLASS X-C. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED IN THE DRAWING TITLE.

E. THE LOADS AS SHOWN ARE BASED ON A 5,000 POUND 20'-3" LONG BY 8'-0" WIDE BY 8'-0" HIGH INTERMODAL COMMERCIAL CONTAINER WITH INSIDE DIMENSIONS OF 19'-7" LONG BY 92" WIDE BY 86" HIGH. THE LOADS ARE DESIGNED FOR MOTOR AND WATER TRANSPORT ONLY. NOTICE: THE PROCEDURES CONTAINED WITHIN THIS DRAWING ONLY APPLY TO PATRIOT MISSILE LOADS THAT ARE TO BE SHIPPED IN A NETHERLANDS COMMERCIAL CONTAINER CONTAINING AN AERO-QUIP CORPORATION MECHANICAL BRACING SYSTEM INSTALLED IN THE REAR OF THE CONTAINER.

F. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES INCLUDING TWO VERTICAL BELT RAILS AND FIVE AERO QUIP CROSS MEMBERS. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS POSSIBLE. EACH CROSS MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS, AND AT EQUAL DISTANCES FROM THE END OF THE CONTAINER). CROSS MEMBERS IN EMPTY CONTAINERS AND THOSE NOT USED IN LOADED CONTAINERS MUST BE FASTENED INTO BELT RAILS FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH CONTAINER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS. SEE THE "FILL DETAIL" ON PAGE 12 FOR THE DUNNAGING METHOD REQUIRED TO ELIMINATE AN EXCESSIVE LENGTHWISE VOID WITHIN A LOAD.

G. WHEN LOADING THE CANISTERS, 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 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 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 AND VERTICAL PIECES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE WIDTH OF THE COMMERCIAL CONTAINER.

H. 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.

J. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES 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.

K. CAUTION: DO NOT NAIL DUNNAGE MATERIALS TO THE CONTAINER WALLS OR FLOOR, EXCEPT FOR THE ALIGNMENT PIECE SHOWN ON PAGE 4. ALL OTHER NAILING WILL BE WITHIN THE DUNNAGE.

L. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

M. DIMENSIONS GIVEN FOR DUNNAGE PIECES OR ASSEMBLIES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY AND INSTALLATION IN THE COMMERCIAL CONTAINER. DUNNAGE ASSEMBLIES MUST BE CONSTRUCTED SO THAT A SNUG FIT WITH THE MISSILE CANISTERS IS OBTAINED. ALSO, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES OF DUNNAGE IN AN ASSEMBLY IN ORDER FOR THE DUNNAGE ASSEMBLY TO CONTACT THE CANISTER AT ITS SHOCK ISOLATION FRAMES.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

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

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

WIRE ----------: FED SPEC QQ-W-461.

(GENERAL NOTES CONTINUED)

N. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS/MODIFIED FLAT BED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.

O. NOTICE: TO FACILITATE UNLOADING IN ACCORDANCE WITH THE METHOD DESCRIBED WITHIN THE NOTES ON PAGE 5, THE MISSILE CANISTERS MUST BE LOADED INTO A CONTAINER WITH THE AFT END OF THE CANISTER ADJACENT TO THE DOORS OF THE COMMERCIAL CONTAINER.

P. FOR SHIPMENT OF THE MISSILE CANISTERS IN A COMMERCIAL CONTAINER IT IS NECESSARY THAT THE SHOCK ISOLATION FRAMES AND SKIDS BE IN THE REVERSE POSITION (THE WOODEN SKIDS EXTENDING UNDER THE BODY OF THE CANISTER RATHER THAN PROTRUDING), THE OVERALL LENGTH OF THE CANISTER WILL BE REDUCED FROM 234" TO 216".

Q. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

R. 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.

S. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED 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, OR A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS, INCORPORATED.

T. MAXIMUM LOAD WEIGHT CRITERIA:

THE ITEMIZED LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALSO, THESE LISTED LOAD WEIGHTS IDENTIFY THE COMBINED WEIGHT OF AMMUNITION LADING UNITS AND DUNNAGE THAT CAN BE PLACED INTO ONE COMMERCIAL CONTAINER WITHOUT VIOLATING ONE OR MORE OF THE "CAPABILITY FACTORS". SEE NOTES 1 AND 2.

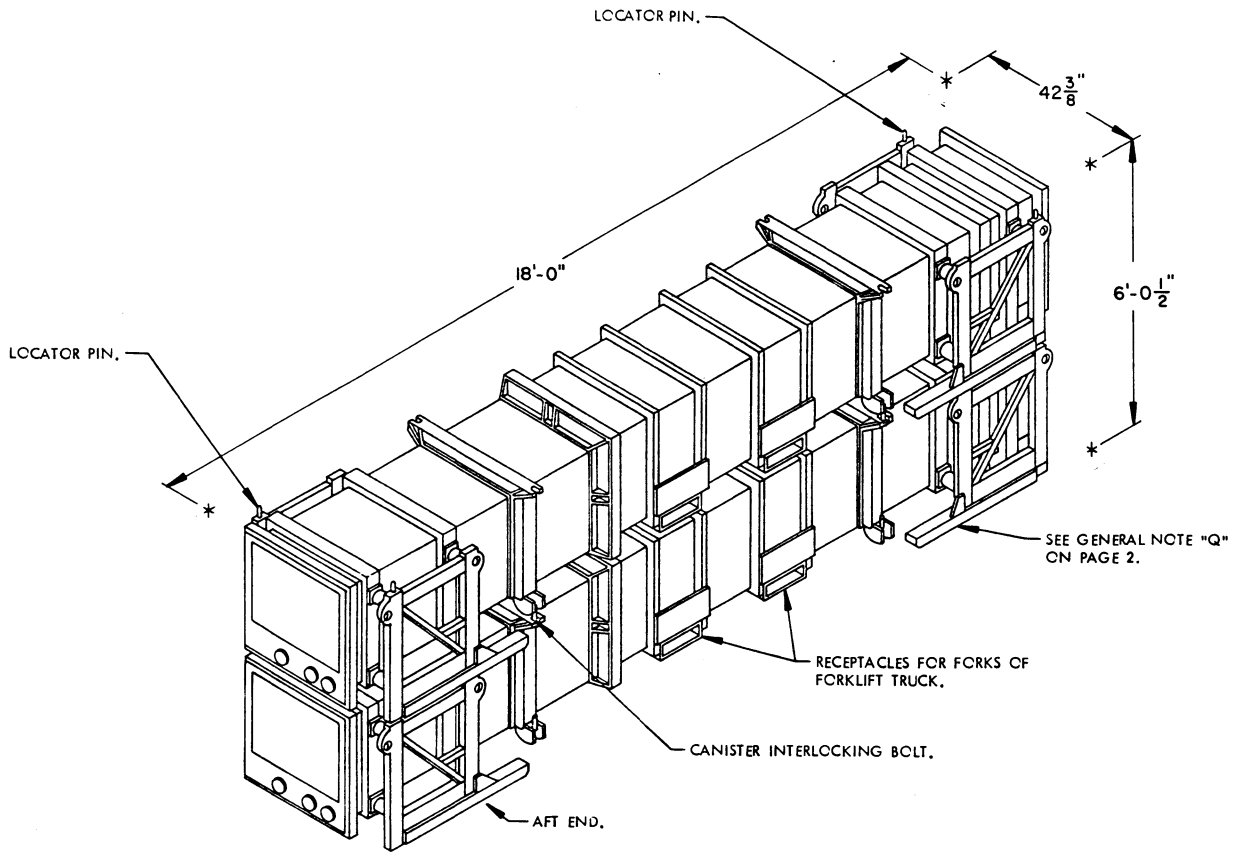
39,100 LBS IN 20-FT CONTAINER (W/O CHASSIS) ABOARD CONTAINERSHIP.
39,100 LBS IN CONTAINER ON 20-FT CHASSIS WITH DOUBLE BOGIE. SEE NOTE 3.
25,300 LBS IN CONTAINER ON 20-FT CHASSIS WITH SINGLE BOGIE. SEE NOTE 4.
21,300 LBS IN EACH CONTAINER ON 40-FT CHASSIS (COUPLED WITH DOUBLE BOGIE). SEE NOTE 3.

NOTE 1: DUNNAGE INCLUDES MATERIALS, OTHER THAN COMPONENTS OF THE MECHANICAL LOAD-BRACING SYSTEM, USED TO BLOCK AND BRACE A LOAD.

NOTE 2: 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. ADDITIONAL INSTRUCTIONS ARE FURNISHED IN THE "SPECIAL NOTE(S)" SECTION FOR EACH LOAD VIEW.

NOTE 3: DEPENDING 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 CONTAINER SYSTEM.

NOTE 4: BY SPECIAL AUTHORITY, IT MAY BE POSSIBLE TO MOVE HEAVIER LOADS ON SINGLE BOGIE CHASSIS WITHIN AN INSTALLATION.



TYPICAL STACK DETAIL

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. CANISTER OR CANISTER 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.

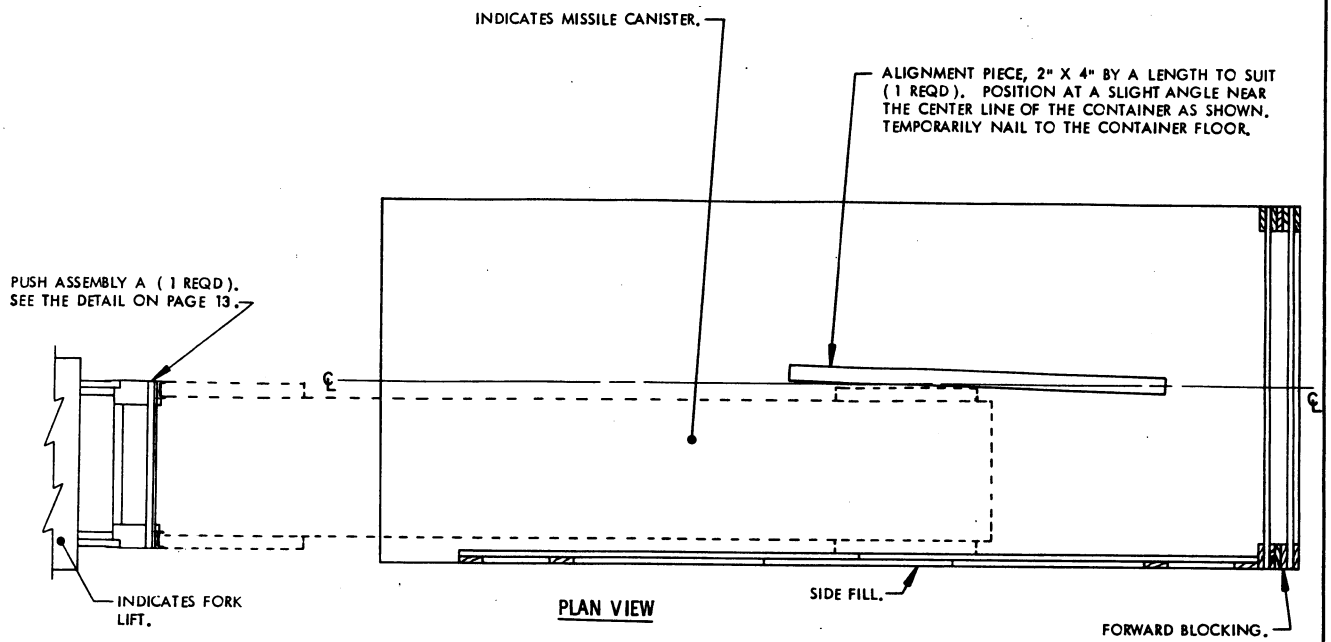
   (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

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

   B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CANISTERS 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 FLAT CAR 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, THEN THE LOWER CANISTER MUST FIRST BE PLACED WITH THE SKIDS ON THE FORWARD END PARTIALLY INTO THE OPEN END OF THE COMMERCIAL CONTAINER. THE SECOND CANISTER WILL THEN BE PLACED DIRECTLY ON TOP OF THE FIRST AND WILL BE UNITIZED ACCORDING TO THE INSTRUCTIONS CONTAINED IN 1 ABOVE.



PLAN VIEW

INTERMODAL CONTAINER LOADING PROCEDURES

1. PLACE FORWARD BLOCKING ASSEMBLIES AND CROSS BRACES IN THE FORWARD END OF THE COMMERCIAL CONTAINER.
2. PLACE THE SIDE FILL ASSEMBLIES ALONG THE CONTAINER SIDEWALLS. TO AID DURING CANISTER LOADING, THESE ASSEMBLIES MAY BE TOENAILED TO THE FORWARD BLOCKING ASSEMBLIES TO HOLD THEM UPRIGHT.
3. TEMPORARILY NAIL THE ALIGNMENT PIECE TO THE CONTAINER FLOOR AS SHOWN IN THE PLAN VIEW ABOVE.
4. PUSH STACK OF CANISTERS INTO POSITION UTILIZING A FORKLIFT TRUCK WITH A "PUSH ASSEMBLY A" PLACED ON THE FORK TINES. PUSH ASSEMBLY "A" MUST BE PLACED ON THE FORKS OF THE FORKLIFT TRUCK SO THAT THE CANISTER SKID IS "CAPTURED" BY THE "C" CHANNEL OF THE ASSEMBLY. SEE NOTE ON PAGE 13.
5. REMOVE THE ALIGNMENT PIECE AND PLACE THE CENTER FILL AGAINST THE FIRST STACK OF CANISTERS. THE CENTER FILL MAY BE WIRE TIED TO THE CANISTERS TO HOLD IT UPRIGHT DURING THE LOADING OF THE SECOND STACK OF CANISTERS.
6. PUSH THE SECOND STACK OF CANISTERS INTO POSITION USING THE SAME PROCEDURES AS STATED IN STEP 4.
7. PLACE THE REAR BLOCKING IN THE CONTAINER AS PER THE KEY NUMBERS APPLICABLE TO THE NUMBER OF CANISTERS LOADED.
8. THE ABOVE STEPS MAY BE MODIFIED AS NEEDED DEPENDING ON THE NUMBER OF CANISTERS LOADED.

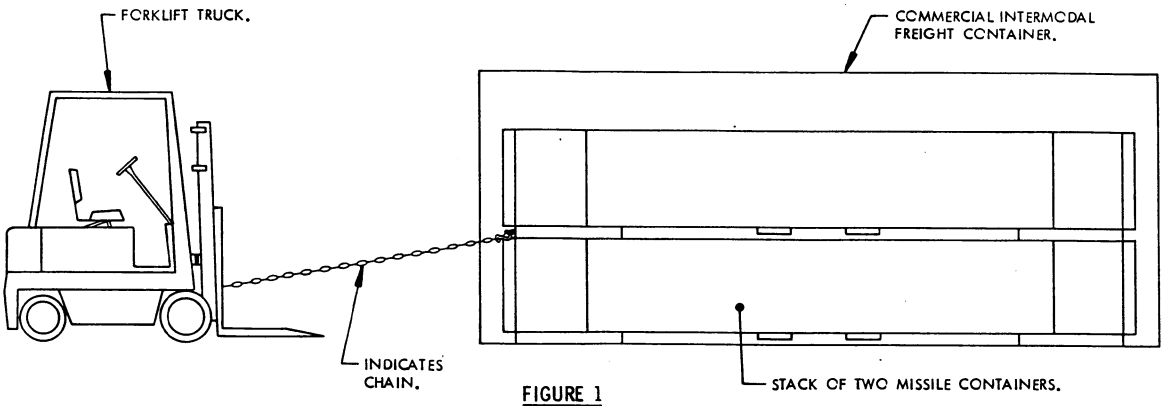


FIGURE 1

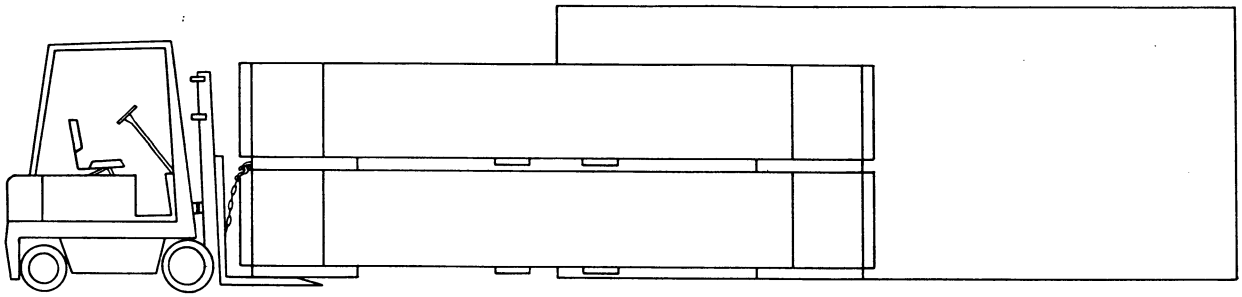


FIGURE 2

INTERMODAL CONTAINER UNLOADING PROCEDURES

1. REMOVE ALL REAR BLOCKING FROM THE COMMERCIAL CONTAINER.
2. ATTACH CHAIN FROM TIEDOWN RING ON BOTTOM CANISTER TO THE FORKLIFT TRUCK AS SHOWN IN FIGURE 1 ABOVE.
3. SLOWLY PULL A STACK OF CANISTERS FROM THE COMMERCIAL CONTAINER UNTIL APPROXIMATELY TWO-THIRDS OF THE SKID IS OUTSIDE OF THE CONTAINER.
4. DRIVE THE FORKLIFT FORWARD AND POSITION THE FORKS DIRECTLY BENEATH THE CANISTER SKIDS. IT IS RECOMMENDED THAT THE CHAIN BE LEFT ATTACHED AS A SAFETY PRECAUTION. SEE FIGURE 2 ABOVE.
5. RAISE CANISTERS SLIGHTLY AND SLOWLY PULL THEM FROM THE CONTAINER UNTIL THE TWO SKIDS ON THE OPPOSITE END ARE ALMOST OUTSIDE OF THE COMMERCIAL CONTAINER.
6. CANISTER STACK SHOULD THAN BE LOWERED ON TO A SHORT LENGTH OF DUNNAGE SO THAT THE AFT-END SKIDS ARE SUPPORTED BY THE DUNNAGE PIECE AND THE CANISTER STACK IS APPROXIMATELY LEVEL. CANISTER STACK MAY NOW BE HANDLED BY SLINGING, FORKLIFT TRUCK OR ANY OTHER MEANS; PROVIDING THEY ARE HANDLED IN ACCORDANCE WITH APPROVED PROCEDURES. SEE FIGURE 3 BELOW.
7. REPEAT THE ABOVE PROCEDURES FOR THE REMAINING STACK OF CANISTERS.

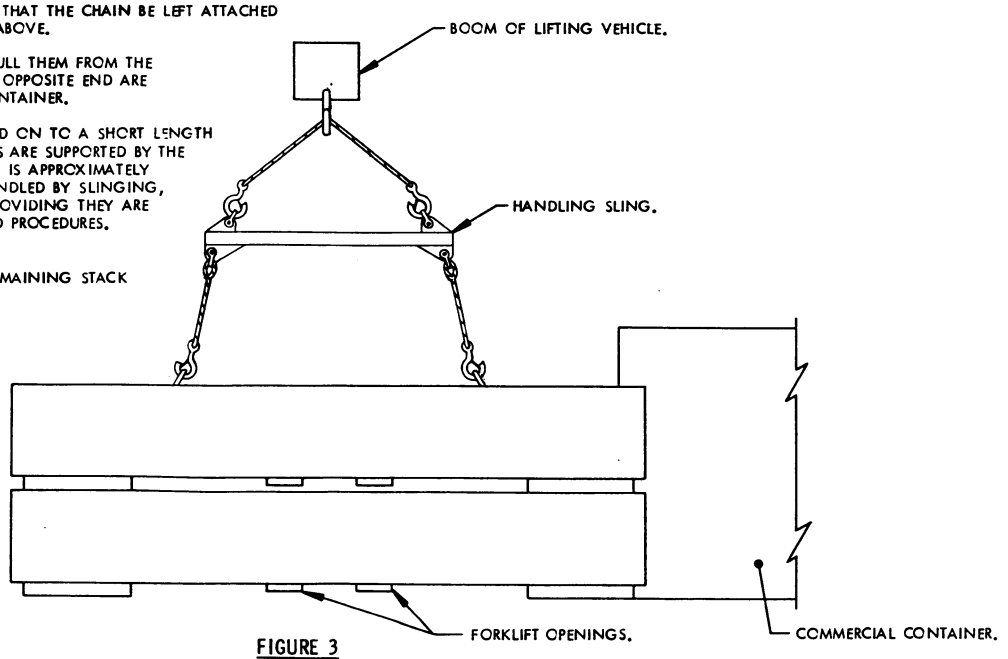
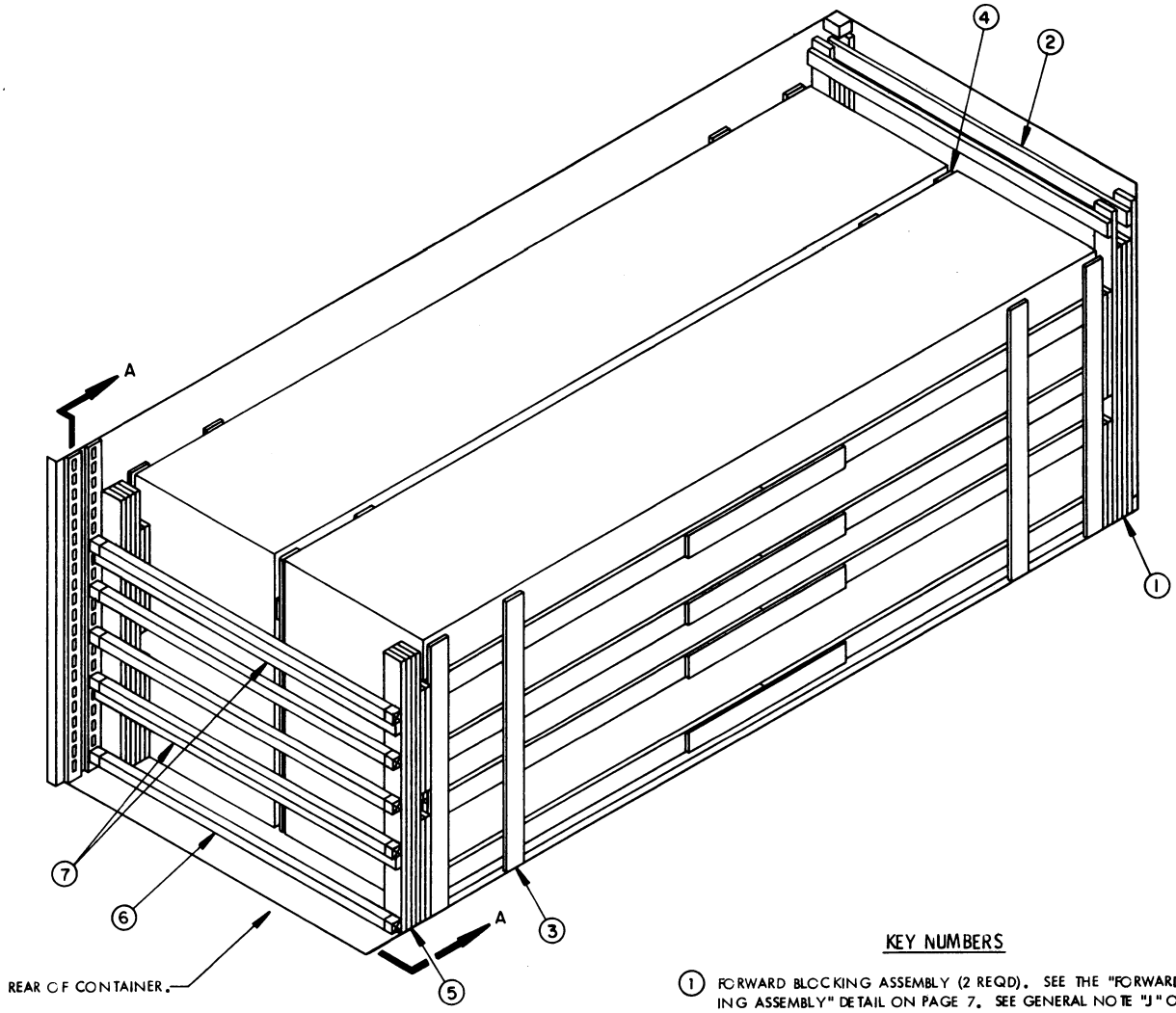
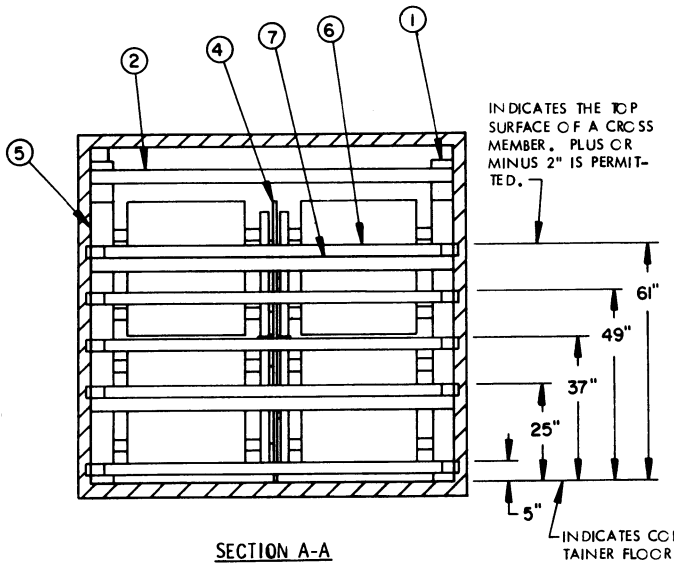


FIGURE 3



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

(1) FORWARD BLOCKING ASSEMBLY (2 REQD). SEE THE "FORWARD/REAR BLOCKING ASSEMBLY" DETAIL ON PAGE 7. SEE GENERAL NOTE "J" ON PAGE 2.

(2) SPREADER, 2" X 4" BY CONTAINER WIDTH MINUS 1/2" (3 REQD). NAIL TO PIECE MARKED (1) W/3-10d NAILS AT EACH END.

(3) SIDE FILL (2 REQD). SEE THE "SIDE FILL" DETAIL ON PAGE 11. SEE SPECIAL NOTE 3 ON PAGE 7.

(4) CENTER FILL (1 REQD). SEE THE "CENTER FILL" DETAIL ON PAGE 10. SEE SPECIAL NOTE 3 ON PAGE 7.

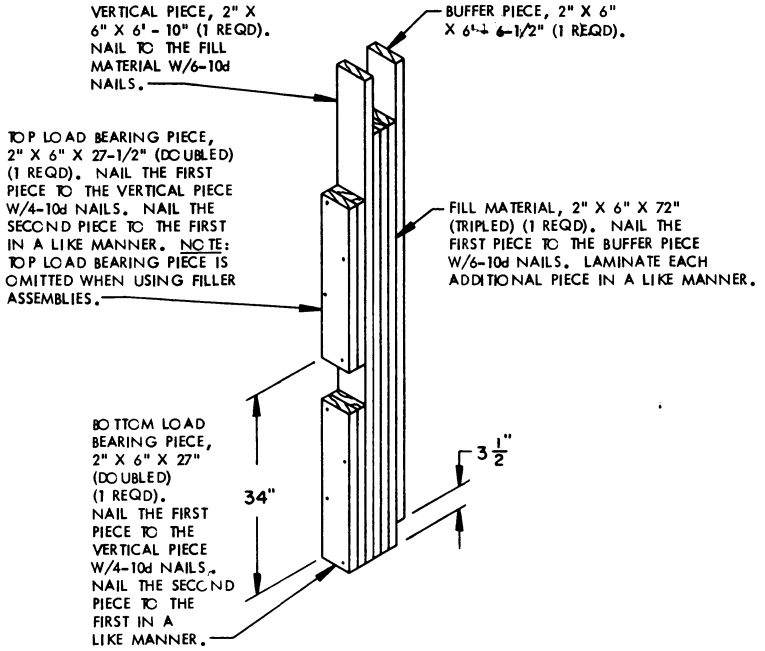
(5) REAR BLOCKING ASSEMBLY (2 REQD). SEE THE "REAR BLOCKING ASSEMBLY" DETAIL ON PAGE 7. SEE GENERAL NOTE "J" ON PAGE 2.

(6) CROSS MEMBER (5 REQD). POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION A-A" VIEW. SEE GENERAL NOTE "F" ON PAGE 2.

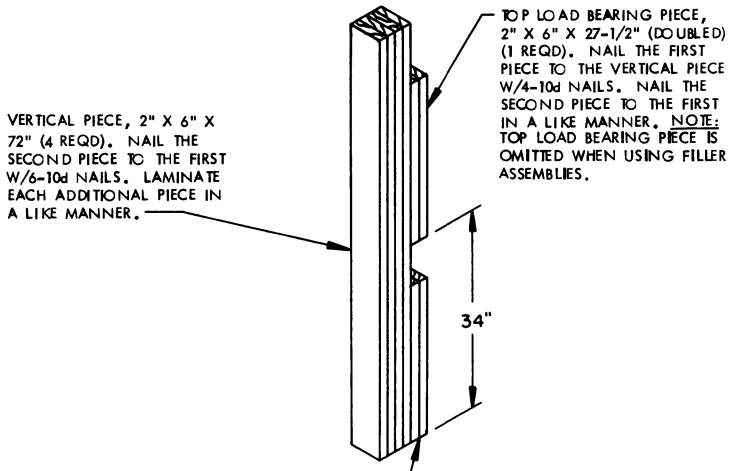
(7) SPREADER, 2" X 4" BY CONTAINER WIDTH MINUS 1/2" (2 REQD). PREPOSITION SO AS TO CONTACT THE BOTTOM OF THE CROSS MEMBERS AT THE 25" AND 61" LEVEL. NAIL TO PIECES MARKED (5) W/3-10d NAILS AT EACH END.

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 6 DELINEATES A FOUR-CANISTER LOAD IN A COMMERCIAL NETHERLANDS CONTAINER.
2. PRIOR TO LOADING THE MISSILE CANISTERS INTO THE INTERMODAL FREIGHT CONTAINER, SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
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 SIDEWALLS OF THE INTERMODAL FREIGHT CONTAINER DURING LOADING OPERATIONS. ALSO, IF DESIRED, THE CENTER FILL ASSEMBLY CAN BE WIRE TIED TO THE CANISTER 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, SPLICE PIECES AND RETENTION BLOCKS AGAINST THE CANISTERS THAT ARE ALREADY LOADED IN THE CONTAINER.



FORWARD/REAR BLOCKING ASSEMBLY



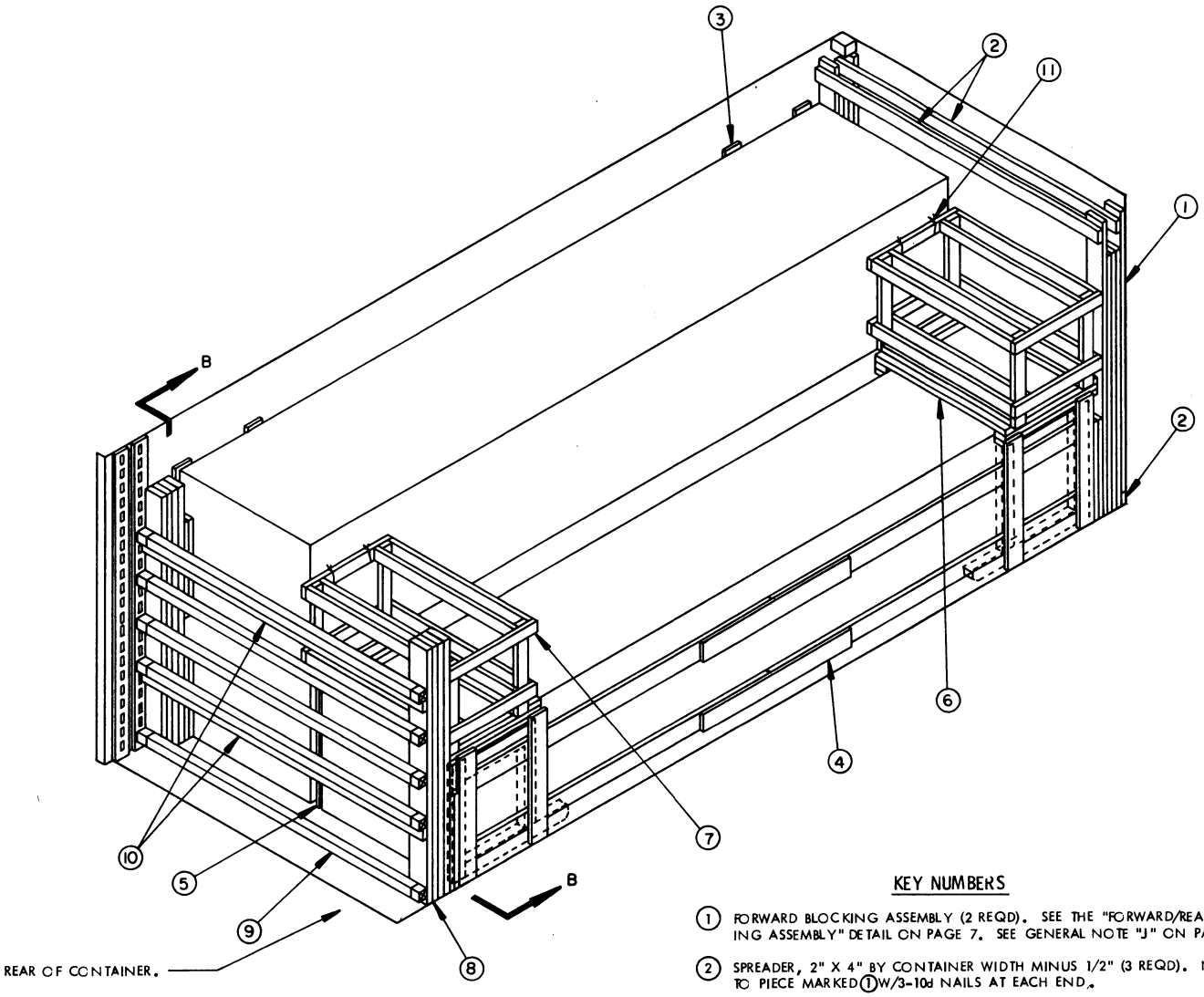
REAR BLOCKING ASSEMBLY

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	108	54
2" X 4"	35	23
2" X 6"	369	369
NAILS	NO. REQD	POUNDS
6d (2")	80	1/2
10d (3")	338	5-1/4
16d (3 1/2")	8	1/4
CROSS MEMBER ---------- 5 REQD		

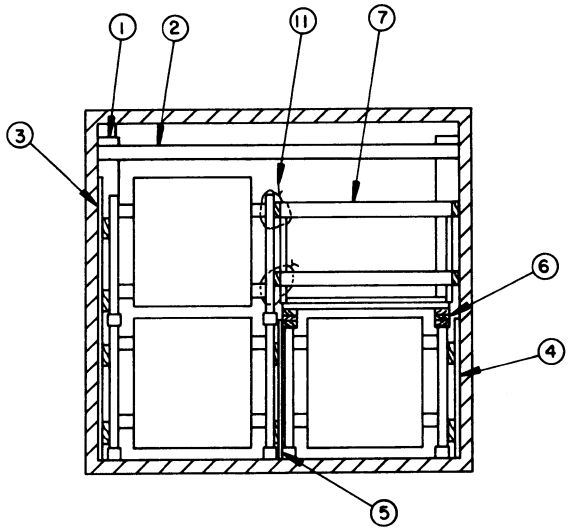
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
MISSILE CANISTER	4	15,000 LBS
DUNNAGE		898 LBS
COMMERCIAL CONTAINER		5,000 LBS
TOTAL WEIGHT		20,898 LBS

FOUR-CANISTER LOAD



ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

(1) FORWARD BLOCKING ASSEMBLY (2 REQD). SEE THE "FORWARD/REAR BLOCKING ASSEMBLY" DETAIL ON PAGE 7. SEE GENERAL NOTE "J" ON PAGE 2.

(2) SPREADER, 2" X 4" BY CONTAINER WIDTH MINUS 1/2" (3 REQD). NAIL TO PIECE MARKED (1) W/3-10d NAILS AT EACH END.

(3) SIDE FILL (FOR TWO HIGH LOAD) (1 REQD). SEE THE "SIDE FILL" DETAIL ON PAGE 11. SEE SPECIAL NOTE 3 ON PAGE 7.

(4) SIDE FILL (FOR ONE HIGH LOAD) (1 REQD). SEE THE "SIDE FILL" DETAIL ON PAGE 11. SEE SPECIAL NOTE 3 ON PAGE 7.

(5) CENTER FILL (FOR ONE HIGH LOAD) (1 REQD). SEE THE "CENTER FILL" DETAIL ON PAGE 10. SEE SPECIAL NOTE 3 ON PAGE 7.

(6) SPACER ASSEMBLY (2 REQD). SEE THE "SPACER ASSEMBLY" DETAIL ON PAGE 12. POSITION AS SHOWN SO AS TO REST ON THE SHOCK ISOLATION FRAMES.

(7) FILLER ASSEMBLY (2 REQD). SEE THE "FILLER ASSEMBLY" DETAIL ON PAGE 11. POSITION ON TOP OF AND NAIL TO PIECES MARKED (6) W/6-10d NAILS. WIRE TIE TO THE SHOCK ISOLATION FRAMES. SEE KEY NUMBER 11 BELOW.

(8) REAR BLOCKING ASSEMBLY (2 REQD). SEE THE "REAR BLOCKING ASSEMBLY" DETAIL ON PAGE 7. SEE GENERAL NOTE "J" ON PAGE 2.

(9) CROSS MEMBER, (5 REQD). POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION A-A" VIEW ON PAGE 6. SEE GENERAL NOTE "F" ON PAGE 2.

(10) SPREADER, 2" X 4" BY CONTAINER WIDTH MINUS 1/2" (2 REQD). PREPOSITION SO AS TO CONTACT THE BOTTOM OF THE CROSS MEMBERS AT THE 25" AND 61" LEVEL. NAIL TO PIECES MARKED (8) W/3-10d NAILS AT EACH END.

(11) TIE WIRE, NO. 14 GAGE, BLACK ANNEALED WIRE, 24" LONG (8 REQD). WIRE TIE FILLER ASSEMBLY TO THE ISOLATION FRAME.

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 8 DELINEATES A THREE-CANISTER LOAD IN A COMMERCIAL NETHERLANDS CONTAINER.

2. PRIOR TO LOADING THE MISSILE CANISTERS INTO THE INTERMODAL FREIGHT CONTAINER, SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

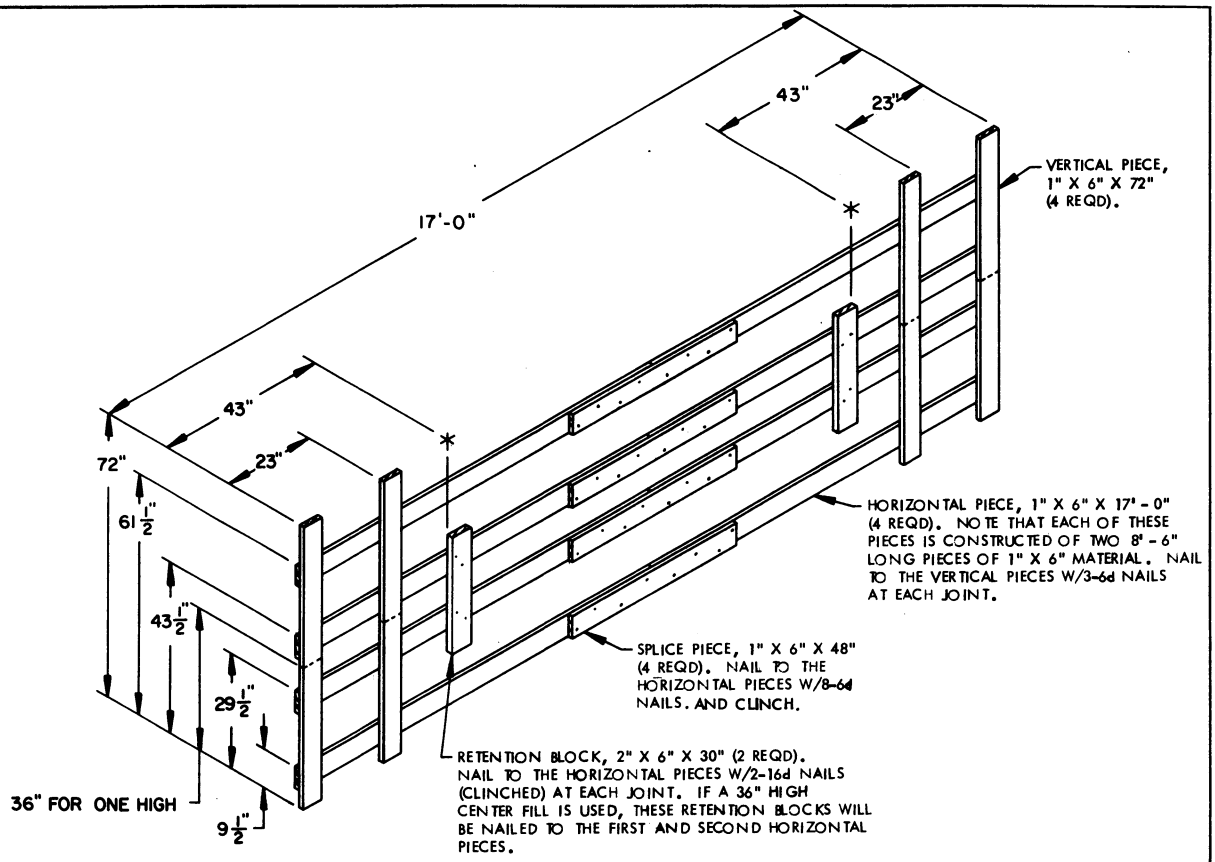
3. IF DESIRED, THE FORWARD END OF THE TWO SIDE FILL ASSEMBLIES CAN BE TOENAILED TO THE FORWARD BLOCKING ASSEMBLY TO HOLD THEM UPRIGHT AGAINST THE SIDEWALLS OF THE INTERMODAL FREIGHT CONTAINER DURING LOADING OPERATIONS. ALSO, IF DESIRED, THE CENTER FILL ASSEMBLY CAN BE WIRE TIED TO THE CANISTER THAT IS ALREADY LOADED TO HOLD IT UPRIGHT DURING LOADING OF THE STACK OF TWO CANISTERS. NOTICE: THE CENTER FILL ASSEMBLY IS TO BE POSITIONED WITH THE VERTICAL PIECES, SPLICE PIECES AND RETENTION BLOCKS AGAINST THE CANISTER THAT IS ALREADY LOADED INTO THE CONTAINER.

BILL OF MATERIAL

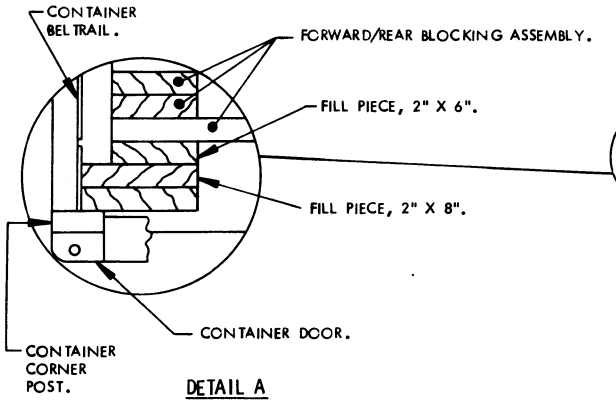
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	7	3
1" X 6"	54	27
2" X 4"	182	121
2" X 6"	329	329
NAILS	**NO. REQD**	**POUNDS**
6d (2")	72	1/2
10d (3")	504	7-3/4
16d (3 1/2")	8	1/4
WIRE, NO. 14 GAGE	16' REQD	1/4 LB
CROSS MEMBER		5 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
MISSILE CANISTER	3	11,250 LBS
DUNNAGE		969 LBS
COMMERCIAL CONTAINER		5,000 LBS
TOTAL WEIGHT		17,219 LBS

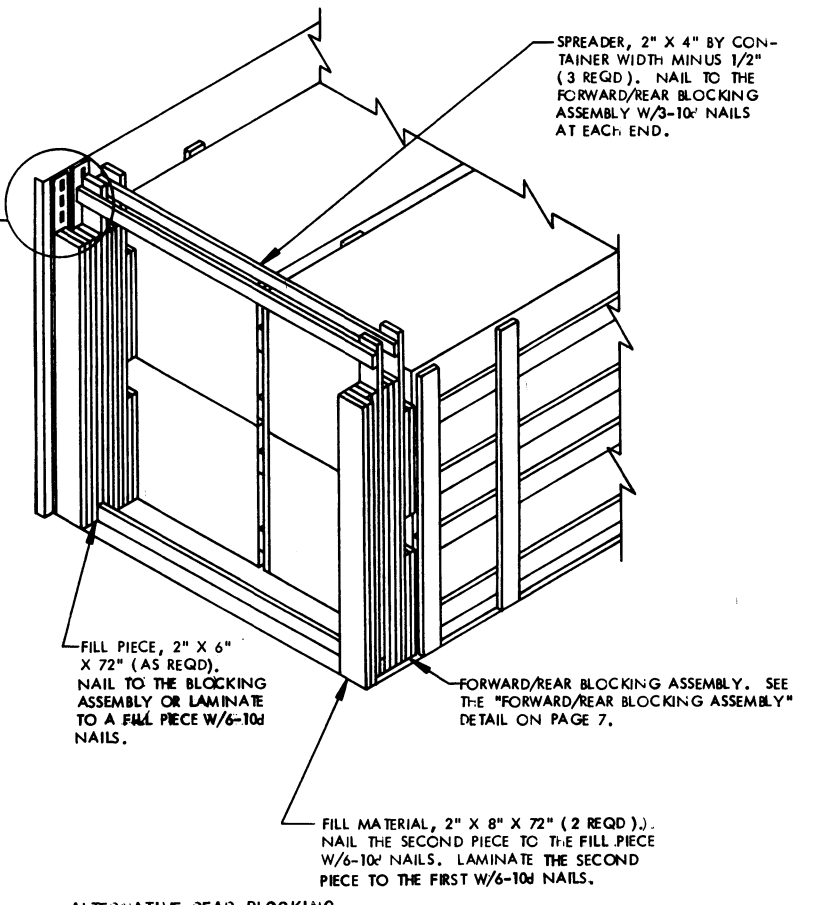


CENTER FILL

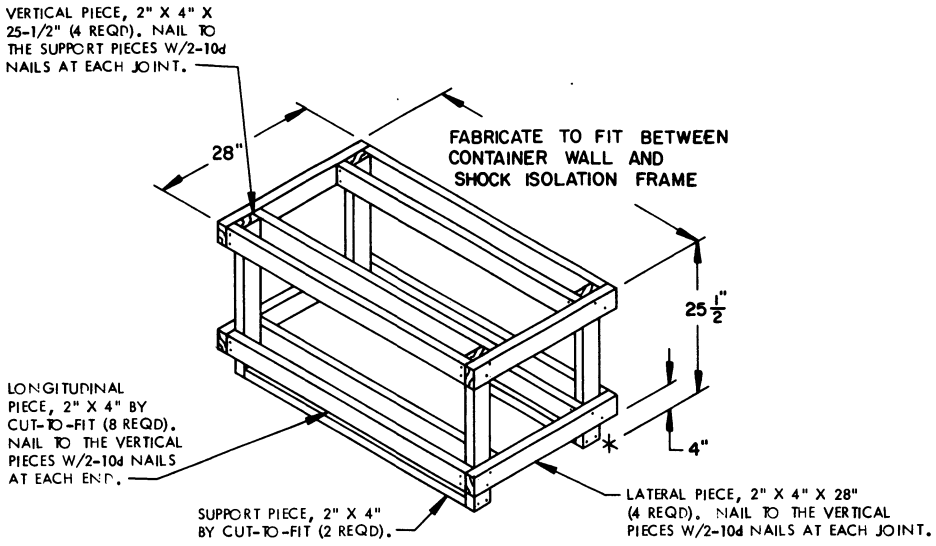


DETAIL A

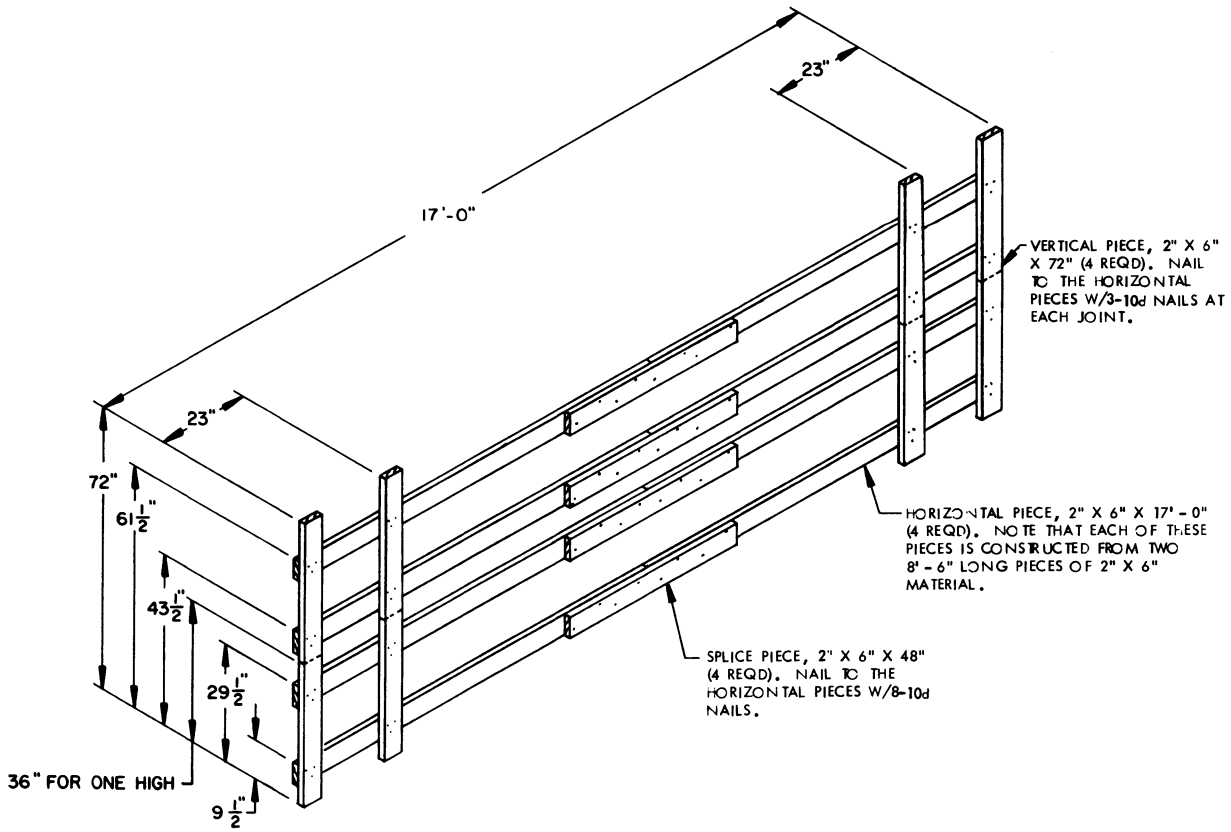
A PARTIAL PLAN VIEW OF THE LEFT REAR PORTION OF THE CONTAINER IS SHOWN DEPICTING THE PROPER POSITION OF THE REAR DUNNAGE PIECES.



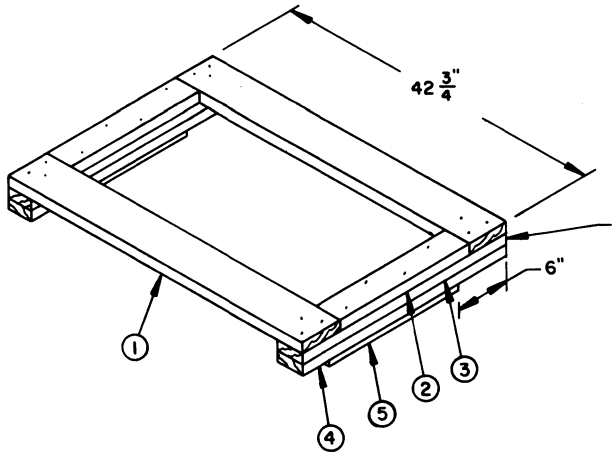
ALTERNATIVE REAR BLOCKING



FILLER ASSEMBLY



SIDE FILL



FABRICATE ASSEMBLY SO THAT PIECES MARKED ③ AND ④ ARE POSITIONED WITH THE HOLES AT THIS END OF THE ASSEMBLY. HOLES MUST BE ALIGNED SO THAT THEY WILL ACCEPT THE LOCATOR PINS OF THE SHOCK ISOLATION FRAMES.

SPACER ASSEMBLY

KEY NUMBERS

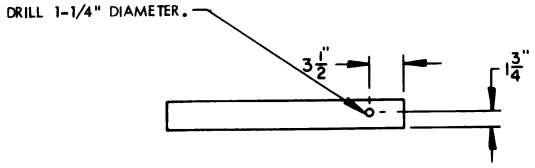
① 2" X 6" X 42-3/4" (2 REQD). NAIL TO PIECE MARKED ③ W/3-10d NAILS AT EACH END.

② 2" X 4" X 19" (2 REQD). NAIL TO PIECE MARKED ③ W/4-10d NAILS.

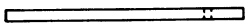
③ 2" X 4" X 30" (2 REQD). DRILL A 1-1/4" DIAMETER HOLE AS SHOWN BY THE DETAIL AT THE LEFT.

④ 2" X 4" X 30" (2 REQD). DRILL A 1-1/4" DIAMETER HOLE AS SHOWN BY THE DETAIL AT THE LEFT. NAIL TO PIECE MARKED ③ W/8-10d NAILS.

⑤ 1" X 4" X 19" (2 REQD). NAIL TO PIECE MARKED ④ W/8-6d NAILS.

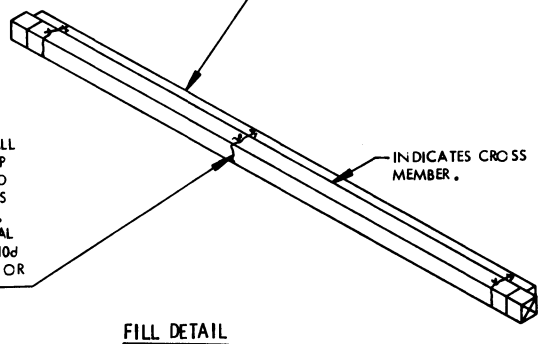


TOP VIEW



SIDE VIEW

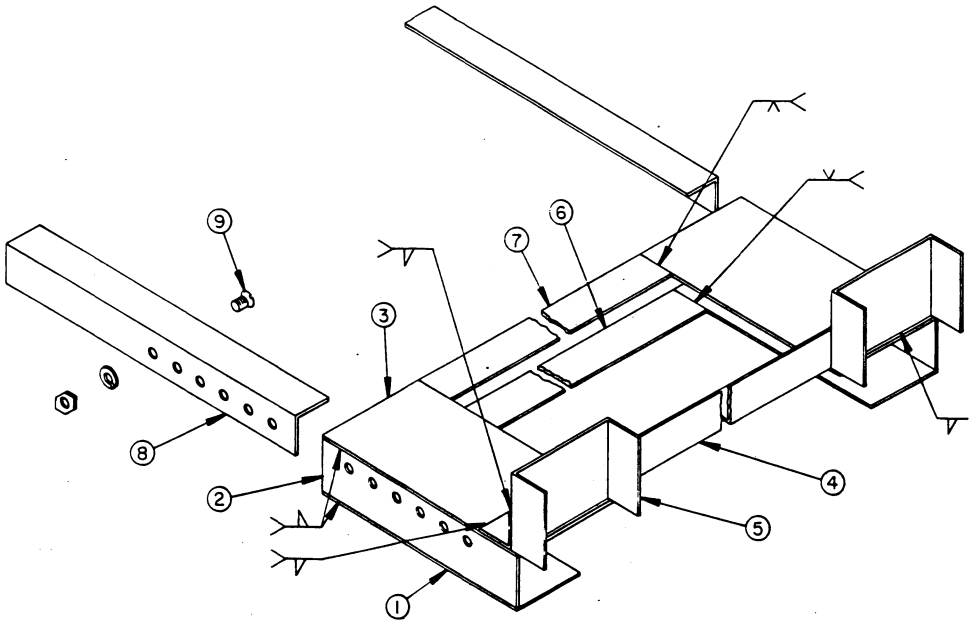
DETAIL: PIECE ③ AND ④



TIE WIRE, NO. 14 GAGE WIRE 18" LONG (3 REQD PER CROSS MEMBER). INSTALL TO FORM A COMPLETE LOOP AROUND FILL MATERIAL AND CROSS MEMBER, BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE FILL MATERIAL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

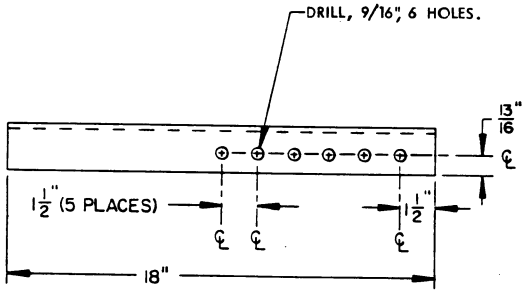
FILL DETAIL

THIS DETAIL DEPICTS METHOD OF POSITIONING FILL MATERIAL BETWEEN LOAD-BRACING CROSS MEMBER AND LADING WHEN THE VOID BETWEEN THE TWO IS GREATER THAN ONE INCH (1") FOR LONGITUDINAL BRACING.

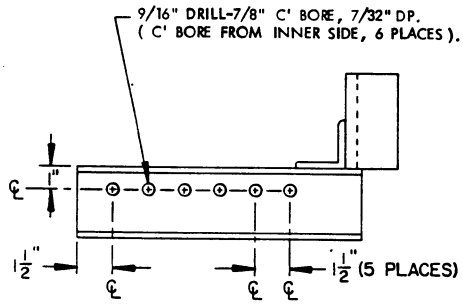


ISOMETRIC VIEW

PUSH ASSEMBLY A



PIECE (8)



SIDE VIEW

KEY NUMBERS

(1) BOTTOM, 4" X 12" X 3/16" STEEL (2 REQD). WELD TO PIECE (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 (2). .

(4) BRACE, ANGLE, 2" X 2" X 3/16" X 43-1/2" LONG. 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 (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.

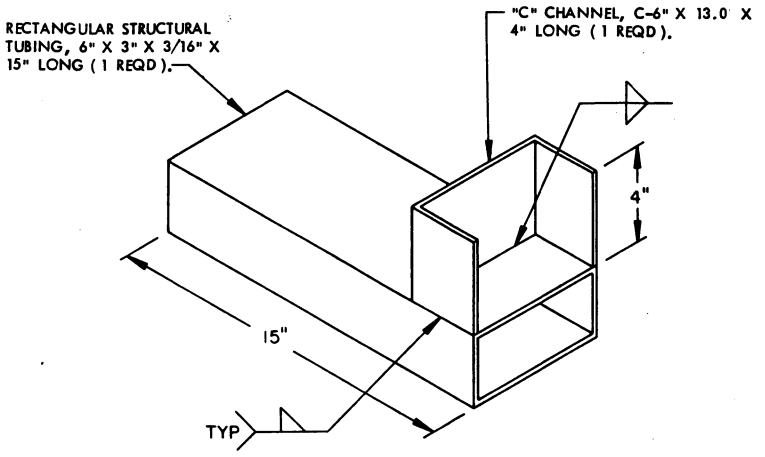
(8) EXTENSION, ANGLE, 2" X 2" X 3/16" X 18" LONG (2 REQD, IF USED). DRILL EACH PIECE W/6-9/16" DIA HOLES AS SHOWN. SEE NOTE BELOW.

(9) MACHINE SCREW, 1/2" X 1" LONG, FLAT HEAD, WITH LOCK WASHER AND NUT (4 REQD).

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.

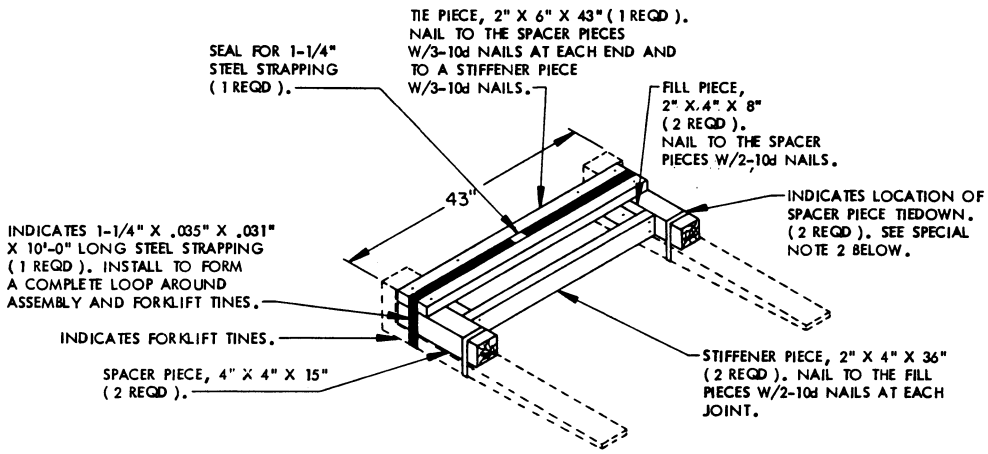
BILL OF MATERIAL

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	TOP SPACER, STEEL, SHEET, HOT ROLLED, LOW CARBON, COMMERCIAL QUALITY, 3/16", PER ASTM A569, FSC 9515	1
7	LOWER 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



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 MILVAN CONTAINER. 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 15 AND ABOVE, ARE THE PREFERRED HANDLING AIDS TO BE USED IN THE LOADING OF MISSILE CANISTERS INTO A MILVAN CONTAINER. 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" LONG 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, ETC.