

APPROVED BY
 BUREAU OF EXPLOSIVES
C. F. [Signature]
 MILITARY ASSISTANT
 DATE *8/20/70*

CHAPARRAL

LOADING AND BRACING (CL & LCL) IN MECHANICAL CARS OF COMPLETE ROUND IN THE M570 SHIPPING AND STORAGE CONTAINER

INDEX

| <u>ITEM</u> | <u>PAGE (S)</u> |
|--|-----------------|
| GENERAL NOTES, AND MATERIAL SPECIFICATIONS ----- | 2 |
| CONTAINER DETAIL, AND HANDLING INSTRUCTIONS ----- | 3 |
| 120-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR ----- | 4, 5 |
| REDUCED QUANTITY PROCEDURES ----- | 6 |
| TYPICAL LCL PROCEDURES ----- | 7 |
| DETAILS ----- | 8-10 |

⊙ THE TERM MECHANICAL CARS APPLIES TO BOX CARS HAVING MECHANICAL BRACING DEVICES OF VARIOUS DESIGN AND MANUFACTURE, USUALLY CONSISTING OF WALL MEMBERS, CROSS MEMBERS, AND DOORWAY MEMBERS.

DO NOT SCALE

| | | | | |
|---------------------------|----------------------------------|----------------|---|----------|
| DRAFTSMAN <i>es/ce</i> | PROJ. ENG. <i>C.F./New</i> | <i>ROF</i> | SUBMITTED <i>[Signature]</i> | |
| CHECKER <i>TR5/JDS</i> | AMC AMMO CTR <i>John Boyd</i> | <i>WES/MEJ</i> | APPROVED <i>Andrew W. Heid</i> | |
| REVISIONS | | | COMMANDING OFFICER, SAVANNAH ARMY DEPOT | |
| | | | ARMY MISSILE COMMAND | |
| | | | APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND <i>S. W. Heid</i> | |
| | | | U. S. ARMY MATERIEL COMMAND | |
| | | | FEBRUARY 1971 | |
| | | | CLASS | DIVISION |
| | | | 19 | 48 |
| | | | DRAWING | FILE |
| | | | 5483 | GM 5K3 |

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO SHIPMENTS LOADED WITHIN VARIOUS SIZES OF RAIL CARS, AND ARE FOR THE CHAPARRAL MISSILE WHEN PACKED IN THE M570 SHIPPING AND STORAGE CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH CONTENTS.
- C. FOR DETAIL OF THE CONTAINER, SEE DRAWING NO. 11074804.
CONTAINER DIMENSIONS ----- 125" LONG BY 18" WIDE BY 19" HIGH.
GROSS WEIGHT ----- 280 POUNDS (APPROX).
TARE WEIGHT ----- 95 POUNDS (APPROX).
CUBE ----- 24.74 CUBIC FEET.
- D. OUTLOADING PROCEDURES SPECIFIED ARE FOR BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES, AND MAY BE ADAPTED AS REQUIRED TO FACILITATE THE USE OF BOX CARS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES. HOWEVER, FIXED OR ADJUSTABLE WALL MEMBERS AND DOORWAY MEMBERS WITHIN THESE CARS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED HEREIN. **CAUTION:** BOX CARS EQUIPPED WITH MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.
1. FOR BLOCKING THE LOADS WHICH ARE DEPICTED HEREIN, A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE LADING ON EITHER SIDE THAN AS SHOWN. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM AND CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE SPACING OF THE LOCKING HOLES IN THE WALL MEMBERS PERMIT. LOCKING BARS (LEVER JACKS) SHOULD BE USED FOR THIS PURPOSE. AN ADDITIONAL 1/2" OF ADJUSTMENT CAN BE MADE BY TURNING A CROSS MEMBER END-FOR-END WHEN LOCKING PINS ON THE MEMBER ARE OFF-CENTER. **NOTE:** IT IS RECOMMENDED THAT EACH CROSS MEMBER 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 CAR).
2. **CAUTION:** ALL BLOCKING AND BRACING COMPONENTS IN EMPTY CARS AND ALL UNUSED COMPONENTS IN LOADED CARS MUST BE "SECURED" FOR SHIPMENT ---ADJUSTABLE WALL MEMBERS TO VERTICAL WALL ATTACHMENT RAILS, AND CROSS MEMBERS TO ADJUSTABLE WALL MEMBERS OR TO FIXED HORIZONTAL WALL MEMBERS OR TO DOORWAY MEMBERS, AND DOORWAY MEMBERS TO DOOR POSTS. COMPONENTS ASSIGNED TO EACH CAR MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.
3. IF A CAR HAS A "BOWED END", RATHER THAN SQUARING OFF THE END BY INSTALLING DUNNAGE, ADDITIONAL CROSS MEMBERS CAN BE INSTALLED NEAR THE END WALL OF THE CAR TO PROVIDE A "SQUARED" END. THESE CROSS MEMBERS SHOULD BE INSTALLED AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS BLOCKING MEMBERS.
- E. THIS ITEM IS A DOT CLASS "A" EXPLOSIVE. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE EMPTY OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE TITLE OF THIS DOCUMENT.
- F. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE APPROVED BLOCKING, BRACING, AND STAYING METHODS FOR THE LOADS SPECIFIED HEREIN MUST BE FOLLOWED. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE CAR TO BE LOADED, OR THE QUANTITY TO BE SHIPPED. FOR A LOAD QUANTITY OTHER THAN SPECIFIED, THE APPROVED METHODS MUST BE FOLLOWED AS CLOSELY AS POSSIBLE.
- G. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN BOX CARS WHICH ARE PARTIALLY LOADED WITH ITEMS PACKED IN THESE CONTAINERS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- H. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE DESIGNATED ITEM WILL BE IN ACCORDANCE WITH HAZARDOUS MATERIALS REGULATIONS OF DOT AND AR 55-355, CHAPTER 213, FOR EXPLOSIVES OR OTHER DANGEROUS ARTICLES, IN FULL.
- J. EXCEPT FOR PLYWOOD, DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE AND 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-5/8" WIDE.
- K. **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 OR THE WALLS OF THE TRANSPORTING VEHICLE, 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.
- L. FOR SPECIFIC GUIDANCE, ATTENTION IS DIRECTED TO THE CONTAINER DETAIL AND HANDLING INSTRUCTIONS ON PAGE 3 AND TO THE SPECIAL NOTES SECTION WHICH IS IMMEDIATELY ADJACENT TO DEPICTED OUTLOADING METHODS.
- M. THROUGHOUT THIS PROCEDURAL DRAWING PORTIONS OF THE BLOCKING COMPONENTS AND OF THE DEPICTED CARS, SUCH AS A CAR SIDE WALL, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.
- N. IT IS THE RESPONSIBILITY OF A SHIPPER TO PROVIDE THE "CONTAINER PROTECTOR" ASSEMBLY AS DETAILED ON PAGE 3. **CAUTION:** OUTLOADING MUST NOT BE ATTEMPTED WITHOUT USING A CONTAINER PROTECTOR BOARD.
- O. **CAUTION:** CONTAINERS WITH MISSILES WILL NOT BE STACKED MORE THAN FIVE (5) HIGH FOR SHIPMENT.

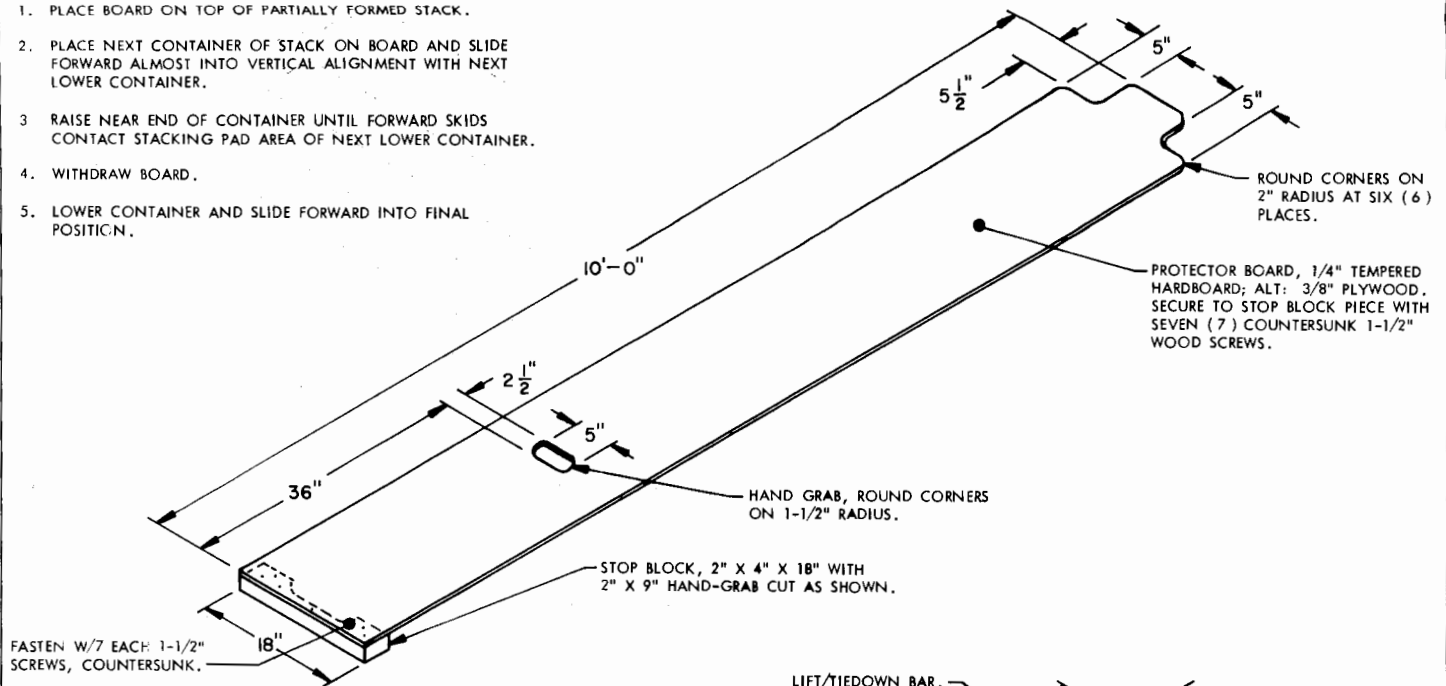
(CONTINUED AT THE RIGHT).

MATERIAL SPECIFICATIONS

- LUMBER** ----- : SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- PLYWOOD** ----- : GROUP B OR C, GRADE* C-D (EXTERIOR); FED SPEC NN-P-530.
- NAILS** ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED,
FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- STRAPPING, STEEL** ----- : TYPE I OR IV, CLASS A OR B, FED SPEC QQ-5-781.
FOR FSN SEE 58-38-100.
- ANTI-CHAFING MATERIAL** : NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL).
- HARDBOARD** ----- : FED SPEC LLL-H-35.
- STRAP SEALS, SCREWS,
STRAP STAPLES** ----- : COMMERCIAL GRADE.
- WIRE** ----- : ANNEALED, BLACK, FED SPEC QQ-W-461.
*IF SPECIFIED GRADE IS NOT AVAILABLE, A
BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.

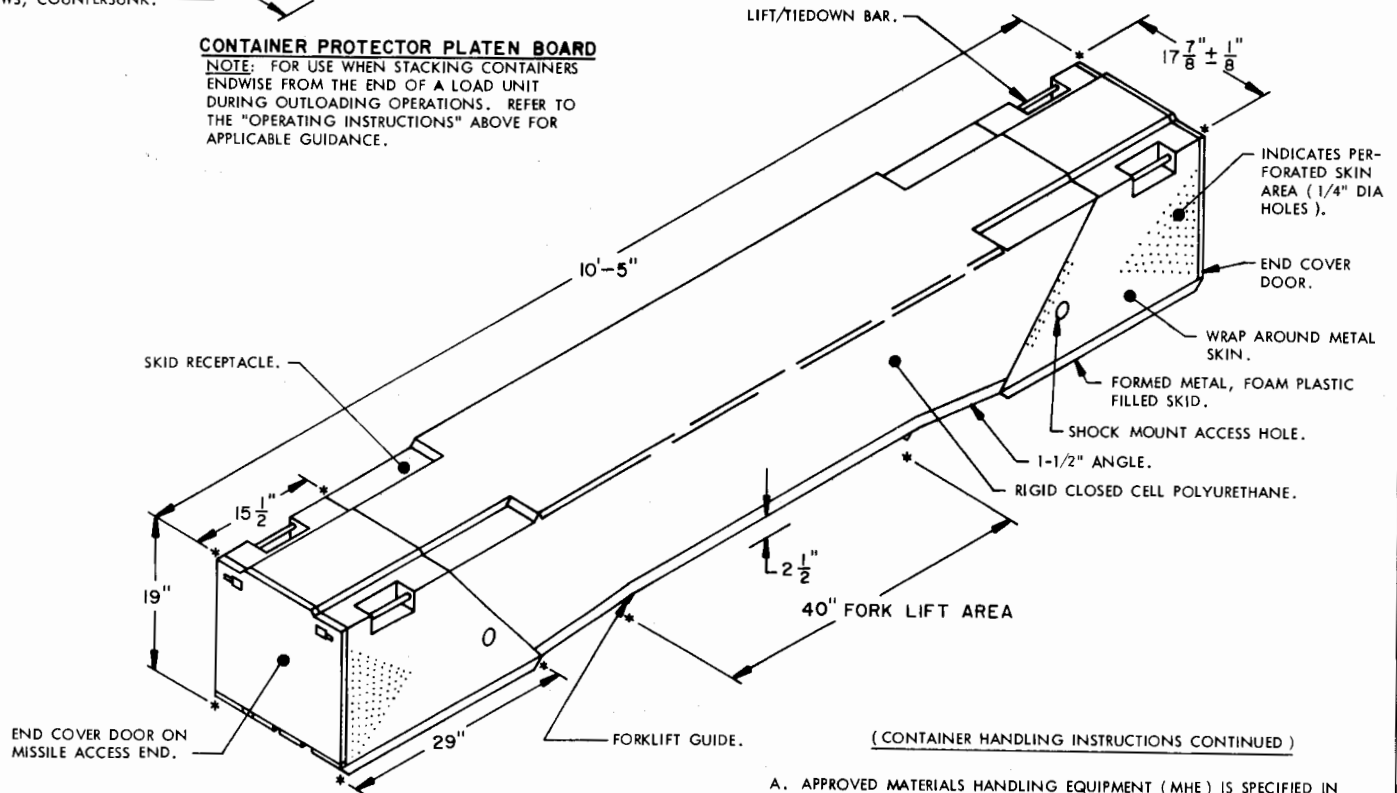
OPERATING INSTRUCTIONS

1. PLACE BOARD ON TOP OF PARTIALLY FORMED STACK.
2. PLACE NEXT CONTAINER OF STACK ON BOARD AND SLIDE FORWARD ALMOST INTO VERTICAL ALIGNMENT WITH NEXT LOWER CONTAINER.
3. RAISE NEAR END OF CONTAINER UNTIL FORWARD SKIDS CONTACT STACKING PAD AREA OF NEXT LOWER CONTAINER.
4. WITHDRAW BOARD.
5. LOWER CONTAINER AND SLIDE FORWARD INTO FINAL POSITION.



CONTAINER PROTECTOR PLATEN BOARD

NOTE: FOR USE WHEN STACKING CONTAINERS ENDWISE FROM THE END OF A LOAD UNIT DURING OUTLOADING OPERATIONS. REFER TO THE "OPERATING INSTRUCTIONS" ABOVE FOR APPLICABLE GUIDANCE.



CONTAINER DETAIL

(CONTAINER HANDLING INSTRUCTIONS CONTINUED)

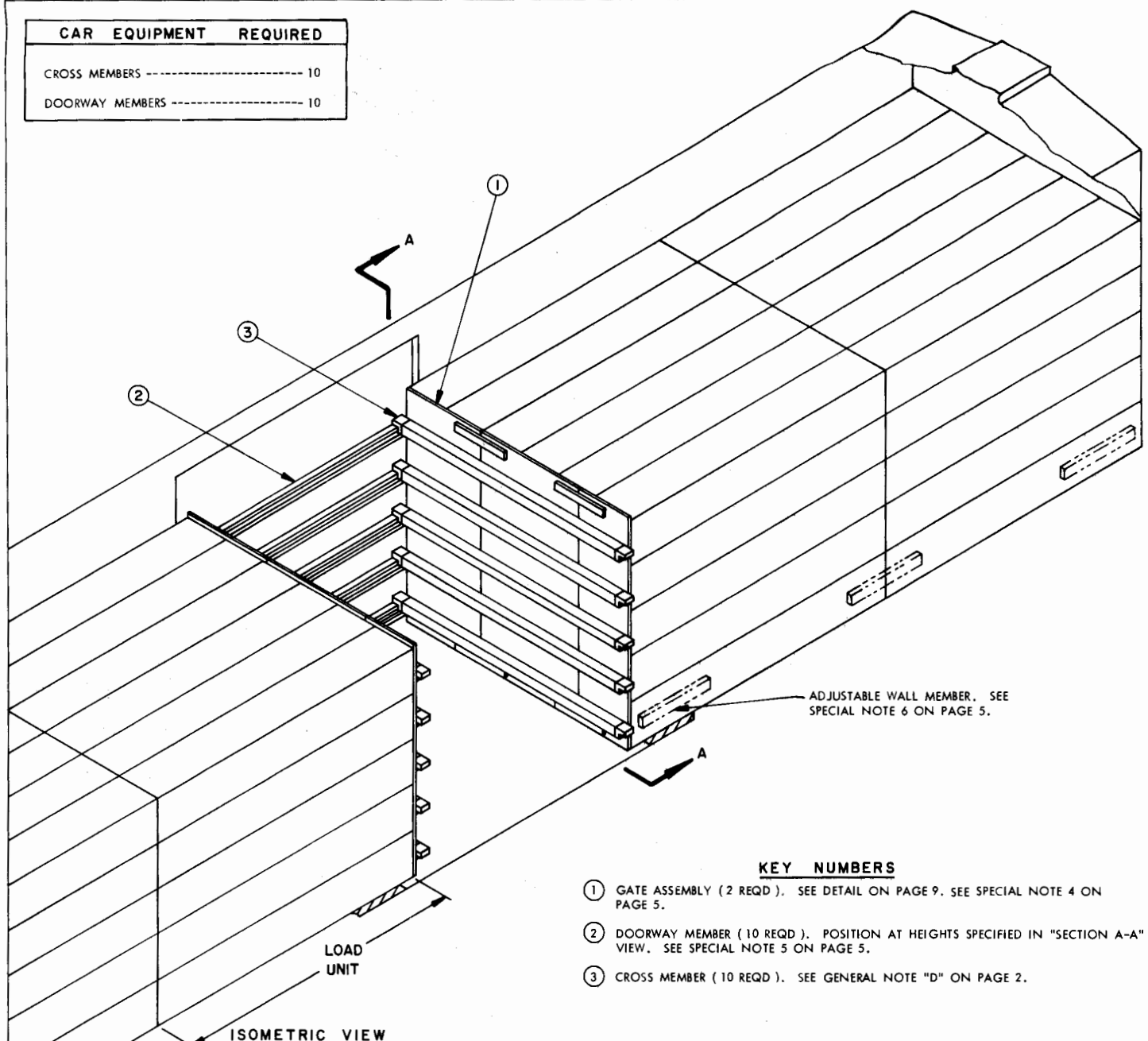
CONTAINER HANDLING INSTRUCTIONS

1. CAUTION: EXTREME CARE MUST BE EXERCISED DURING OUTLOADING OPERATIONS TO PREVENT DAMAGE TO THE EXPOSED PLASTIC AREAS OF THE CONTAINER. PLASTIC AREAS WILL NOT BE STEPPED ON, WALKED ON, PRIED AGAINST, STRUCK OR GOUGED WITH HAND TOOLS OR MATERIALS HANDLING EQUIPMENT, OR BUMPED AGAINST PROTRUSIONS.
2. IT IS RECOMMENDED THAT THE CONTAINERS BE MANUALLY STACKED WITHIN THE RAILROAD CAR. TO FACILITATE COMPLIANCE WITH THIS RECOMMENDATION, THE "CONTAINER PROTECTOR" BOARD AS SHOWN ABOVE MUST BE USED WHEN PLACING THE UPPER CONTAINERS OF A STACK AND WHEN FORMING THE LAST STACK BUILT WITHIN A LOAD UNIT. CAUTION: CONTAINERS WILL NOT BE STACKED MORE THAN FIVE (5) HIGH.
3. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINER.

(CONTINUED AT THE RIGHT)

- A. 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.
- B. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED FOR THE TYPE OF COMMODITY INVOLVED OR AS SPECIFIED ELSEWHERE OR HEREIN WILL BE OBSERVED.
- C. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION. CAUTION: THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED; HOWEVER, FORK TINES MAY BE PLACED UNDER THE SKIDS FROM AN END DIRECTION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER OR WITHDRAWING FORKS FROM UNDER A CONTAINER, TO PREVENT DAMAGE TO THE CONTAINERS BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.
- D. IF A SINGLE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CONTAINER. HOWEVER, IF A STACK OF TWO OR MORE CONTAINERS IS HANDLED BY SLINGING, THE SLING USED MUST BE OF SUCH A DESIGN THAT LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER, AND ADDITIONALLY, CONTAIN BOTH LENGTHWISE AND CROSSWISE SPREADER BARS WHICH ARE RIGGED SO AS TO PREVENT DAMAGE TO A CONTAINER BY THE SLING LEGS.

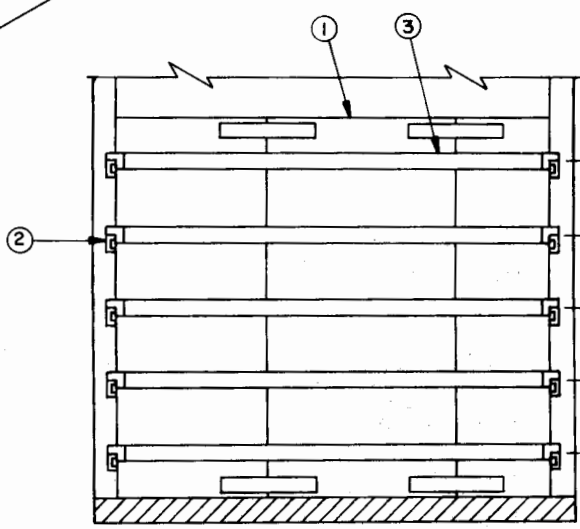
| CAR EQUIPMENT REQUIRED | |
|------------------------|----|
| CROSS MEMBERS ----- | 10 |
| DOORWAY MEMBERS ----- | 10 |



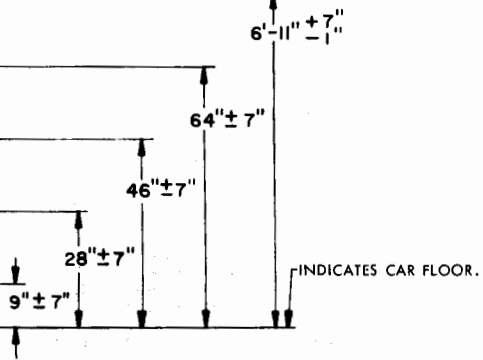
KEY NUMBERS

- ① GATE ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 9. SEE SPECIAL NOTE 4 ON PAGE 5.
- ② DOORWAY MEMBER (10 REQD). POSITION AT HEIGHTS SPECIFIED IN "SECTION A-A" VIEW. SEE SPECIAL NOTE 5 ON PAGE 5.
- ③ CROSS MEMBER (10 REQD). SEE GENERAL NOTE "D" ON PAGE 2.

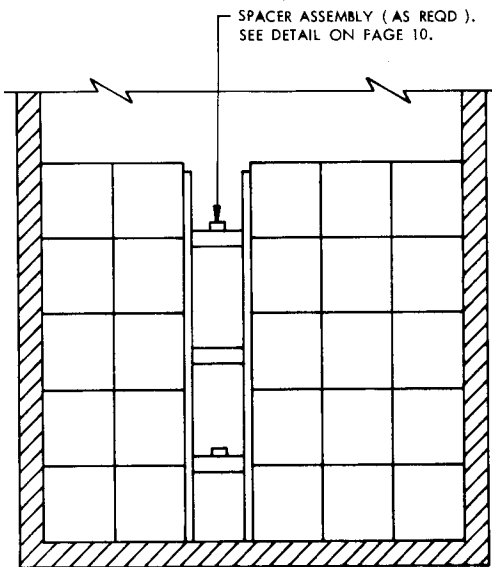
ISOMETRIC VIEW



EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER AND/OR A DOORWAY MEMBER MARKED ② IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.



SECTION A-A



DETAIL A

THE SECTION VIEW SHOWN ABOVE DEPICTS THE USE OF A "SPACER ASSEMBLY" TO BE USED WHEN THE INSIDE WIDTH OF THE BOX CAR IS LESS THAN 9'-0" WIDE. SEE SPECIAL NOTE 3 ON THIS PAGE AND "SPACER ASSEMBLY" DETAIL ON PAGE 10.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. A FULL CARLOAD CANNOT BE LOADED INTO A CAR WHICH HAS DOOR OPENINGS LESS THAN 10'-0". A CAR WITH WIDER OR STAGGERED DOOR OPENINGS MAY BE USED.
2. A WIDER CAR CAN BE USED FOR SHIPPING THE DEPICTED LOAD.
3. IF A BOX CAR HAVING AN INSIDE WIDTH OF LESS THAN 9'-0" IS USED, LOAD AS SHOWN IN "DETAIL A" ON THIS PAGE.
4. A GATE ASSEMBLY IS REQUIRED TO PROTECT THE CONTAINERS AND HELP DISTRIBUTE THE LOAD WEIGHT AGAINST THE CROSS MEMBERS.
5. IF THE BOX CAR BEING LOADED ONLY HAS EIGHT (8) DOORWAY MEMBERS, OMIT THE TOP SIX (6) CONTAINERS FROM EACH STACK WHICH EXTENDS INTO THE DOORWAY AREA. THE TOP LAYER OF CONTAINERS ON THE STACKS AT EACH END OF THE BOX CAR MUST BE RETAINED BY A CROSS MEMBER, WITH A GATE BETWEEN THE CROSS MEMBER AND THE CONTAINERS, AS SHOWN IN THE "TYPICAL LCL" LOAD ON PAGE 7.
6. IF ANY METAL ON THE SIDE WALL CONTACTS THE CONTAINER, WALL MEMBERS MUST BE POSITIONED AT EACH END OF THE CONTAINER AND AT EACH LAYER TO PREVENT DAMAGE TO THE CONTAINER. SEE THE "ISOMETRIC VIEW" ON PAGE 4 FOR A TYPICAL INSTALLATION.
7. THE DEPICTED OUTLOADING METHOD CAN BE ADJUSTED AND USED FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS UNITS THAN SHOWN. IT IS THE PREROGATIVE OF THE SHIPPER TO CHOOSE FROM THE FOLLOWING PROCEDURES A METHOD WHICH BEST SUITS FOR THE QUANTITY TO BE SHIPPED.
 - A. MULTIPLES OF TWELVE (12) CONTAINERS CAN BE OMITTED BY LEAVING OFF AN ENTIRE TOP LAYER IN ONE END OF THE CAR.
 - B. SIX (6) CONTAINERS CAN BE LEFT OFF OF A LOAD UNIT NEAR THE DOOR AND A GATE AND A CROSS MEMBER INSTALLED AGAINST THE REMAINING SIX (6) CONTAINERS IN THE LAYER IN THAT END OF THE CAR. REFER TO THE TYPICAL LCL PROCEDURES ON PAGE 7 FOR GUIDANCE IN THE BLOCKING AND BRACING OF THESE SIX CONTAINERS.
 - C. IF LESS THAN SIX (6) CONTAINERS ARE TO BE OMITTED FROM THE DEPICTED LOAD, REFER TO "DETAILS B THRU D" ON PAGE 6 FOR SOME RECOMMENDED LOADING AND BRACING METHODS FOR ACCOMPLISHING THIS WITHOUT THE NECESSITY OF "BAYING OFF" THE LOAD WITH ADDITIONAL PLYWOOD GATES AND CROSS MEMBERS AS SHOWN AT THE TOP OF PAGE 6.
 - (1) "DETAIL B" DEPICTS A PROCEDURE FOR OMITTING AN UNEVEN NUMBER OF CONTAINERS, SUCH AS 3, 5, OR 7.
 - (2) "DETAIL C" DEPICTS A PROCEDURE FOR OMITTING AN EVEN QUANTITY, SUCH AS 2, 4, 6, OR 8.
 - (3) "DETAIL D" DEPICTS A PROCEDURE FOR THE OMISSION OF ANY QUANTITY, INCLUDING A SINGLE CONTAINER.
 - (4) NOTE THAT IF ONLY ANTI-SWAY BRACES (NO FILLER ASSEMBLIES) ARE USED IN PLACE OF OMITTED CONTAINERS AND THE ADJACENT LOAD UNIT DOES NOT CONSIST OF THE SAME QUANTITY OF CONTAINERS IN THE SAME RELATIVE POSITION, IT WILL BE NECESSARY TO INSTALL AN ADDITIONAL TWO (2) GATES AND A SET OF FIVE (5) CROSS MEMBERS. REFER TO THE DETAIL AT THE TOP OF PAGE 6 WHICH DELINEATES A SIMILAR ARRANGEMENT, FOR GUIDANCE.
8. **CAUTION:** CONTAINERS WILL NOT BE STACKED MORE THAN FIVE (5) HIGH.
9. NINETY (90) CONTAINERS CAN BE LOADED IN A 40'-6" LONG BY 9'-2" WIDE CAR AND BLOCKED AND BRACED FOR SHIPMENT BY THE DELINEATED PROCEDURES. **NOTE:** 40'-6" CARS HAVING 8'-0" WIDE OR WIDER DOOR OPENINGS CAN BE USED.

BILL OF MATERIAL

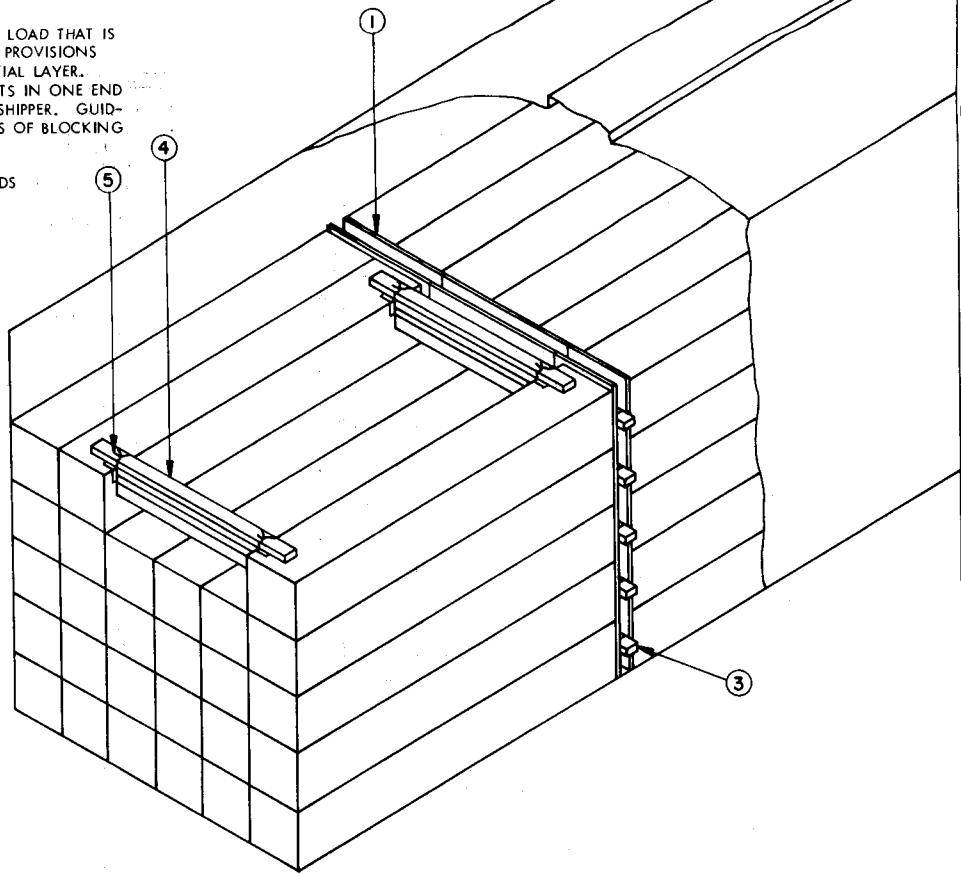
| LUMBER | LINEAR FEET | BOARD FEET |
|---------------------------------------|-------------|------------|
| 1" X 4" | 16 | 6 |
| NAILS | NO. REQD | POUNDS |
| 6d (2") | 64 | 1/2 |
| PLYWOOD, 1/2" ----- 147 SQ. FT. ----- | | 211 LBS |

LOAD AS SHOWN

| ITEM | QUANTITY | WEIGHT (APPROX) |
|------------------------------|-----------|-----------------|
| CONTAINER WITH MISSILE ----- | 120 ----- | 33,600 LBS |
| DUNNAGE ----- | | 227 LBS |
| TOTAL WEIGHT ----- | | 33,827 LBS |

SPECIAL NOTES:

1. THE ISOMETRIC VIEW AT THE RIGHT DEPICTS THE SAME LOAD THAT IS SHOWN ON PAGE 4, EXCEPT FOR THE "BAYING-OFF" PROVISIONS WHICH PROVIDE ONE METHOD FOR BLOCKING A PARTIAL LAYER. HOWEVER, DIVIDING (BAYING-OFF) TWO LOAD UNITS IN ONE END OF A CAR IS NOT REQUIRED UNLESS DESIRED BY THE SHIPPER. GUIDANCE IS PROVIDED BELOW FOR ALTERNATIVE METHODS OF BLOCKING LOADS OF "REDUCED QUANTITIES".
2. REFER TO "DETAILS B, C, AND D" BELOW FOR METHODS OF ADJUSTING QUANTITIES WHEN THE LOAD IN ONE END OF THE CAR IS NOT "BAYED OFF" WITH GATES AND CROSS MEMBERS BETWEEN THE LOAD UNITS.
3. IF NO. 8 GAGE BLACK ANNEALED WIRE IS NOT AVAILABLE, TWO (2) WRAPS OF NO. 14 GAGE BLACK ANNEALED WIRE MAY BE SUBSTITUTED AT EACH LOCATION.



ISOMETRIC VIEW

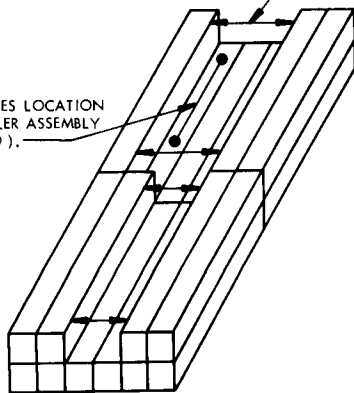
KEY NUMBERS

FOR KEY NUMBERS ①, ② AND ③ SEE PAGE 4.

- ④ ANTI-SWAY BRACE (2 REQD). SEE SPECIAL NOTE 2 ON THIS PAGE AND DETAIL ON PAGE 9.
- ⑤ TIE-WIRE, NO. 8 GAGE (4 REQD). TIE PIECE MARKED ④ TO HANDLES ON CONTAINER. SEE SPECIAL NOTE 3 ON THIS PAGE.

INDICATES LOCATION FOR ANTI-SWAY BRACE (4 REQD).

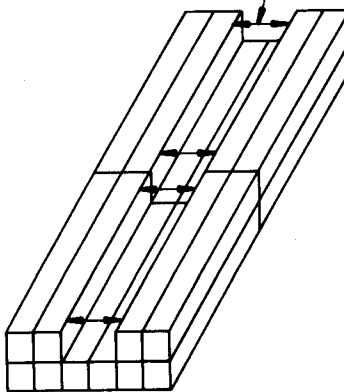
INDICATES LOCATION FOR FILLER ASSEMBLY (1 REQD).



DETAIL B (ODD QUANTITY)

THIS DETAIL SHOWS A METHOD FOR OMITTING FIVE (5) CONTAINERS FROM A LOAD IN ONE END OF THE CAR. THIS METHOD IS ALSO APPLICABLE FOR THE OMISSION OF THREE (3) CONTAINERS, OR SEVEN (7) CONTAINERS, IF DESIRED. NOTE THAT A FILLER ASSEMBLY IS REQUIRED TO RETAIN THE "ODD" CONTAINER AGAINST LONGITUDINAL MOVEMENT.

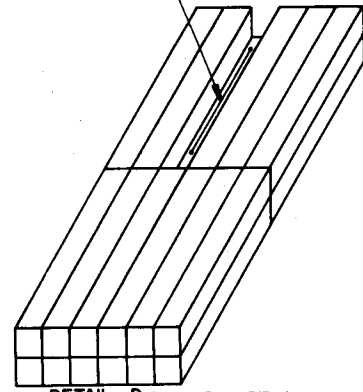
INDICATES LOCATION FOR ANTI-SWAY BRACE (4 REQD).



DETAIL C (EVEN QUANTITY)

THIS DETAIL SHOWS A METHOD FOR OMITTING FOUR (4) CONTAINERS FROM A LOAD IN ONE END OF THE CAR. THIS METHOD IS ALSO APPLICABLE FOR THE OMISSION OF TWO (2) CONTAINERS. IF DESIRED, THIS METHOD CAN BE USED TO OMIT SIX (6) OR EIGHT (8) CONTAINERS IN LIEU OF USING THE GATE/CROSS MEMBER PROCEDURE SHOWN ON PAGE 7 (REF: SPECIAL NOTE 7B ON PAGE 5).

INDICATES LOCATION FOR FILLER ASSEMBLY (1 REQD FOR EACH OMITTED CONTAINER).



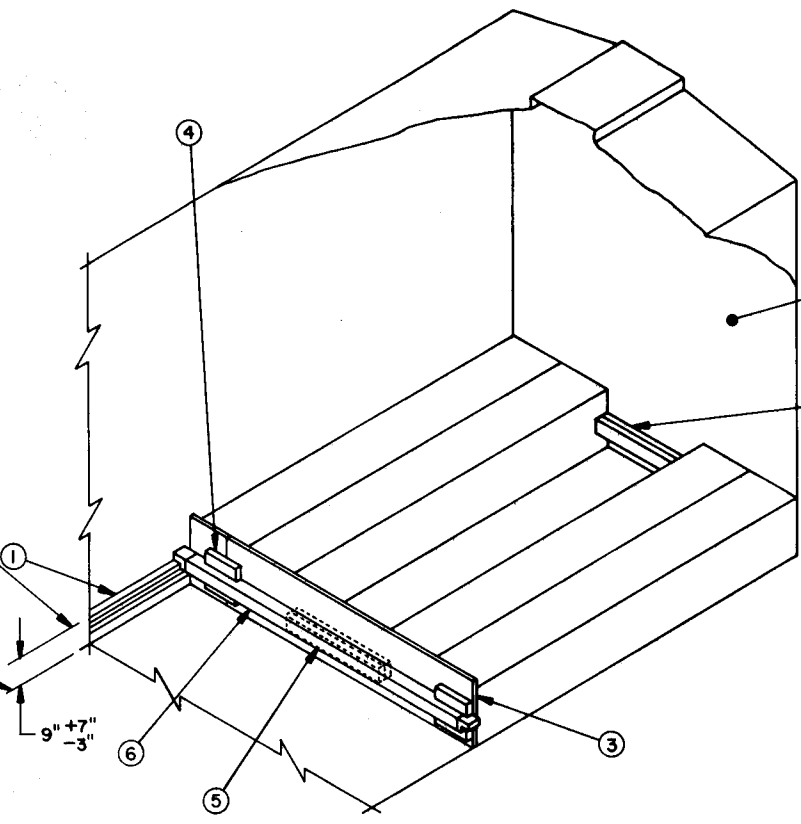
DETAIL D (ANY QUANTITY)

THIS DETAIL SHOWS A METHOD FOR OMITTING ONE (1) CONTAINER FROM A LOAD. ANY NUMBER OF CONTAINERS CAN BE OMITTED BY REPLACING AN OMITTED CONTAINER WITH A FILLER ASSEMBLY. SEE THE "FILLER ASSEMBLY" AND THE "APPLICATION OF FILLER ASSEMBLY" DETAILS ON PAGE 8.

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.

INDICATES CAR FLOOR.

INDICATES CAR END WALL.



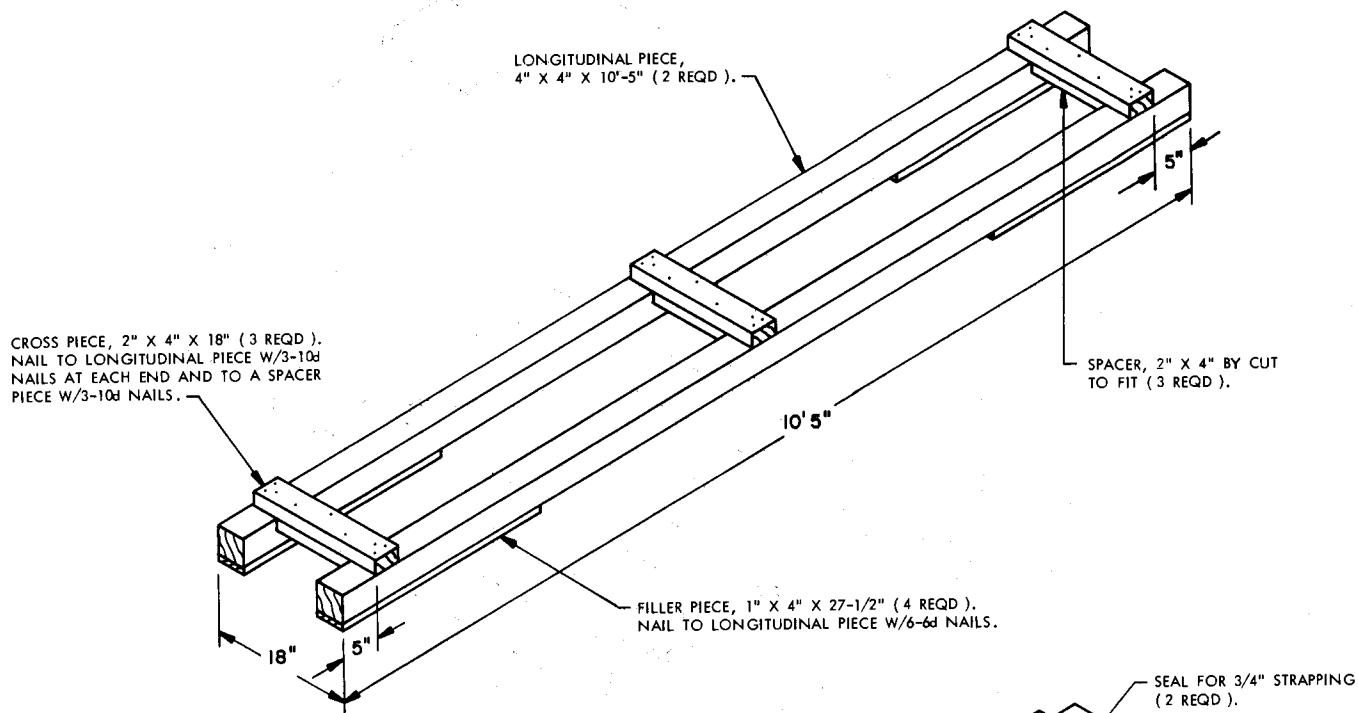
ISOMETRIC VIEW

SPECIAL NOTES:

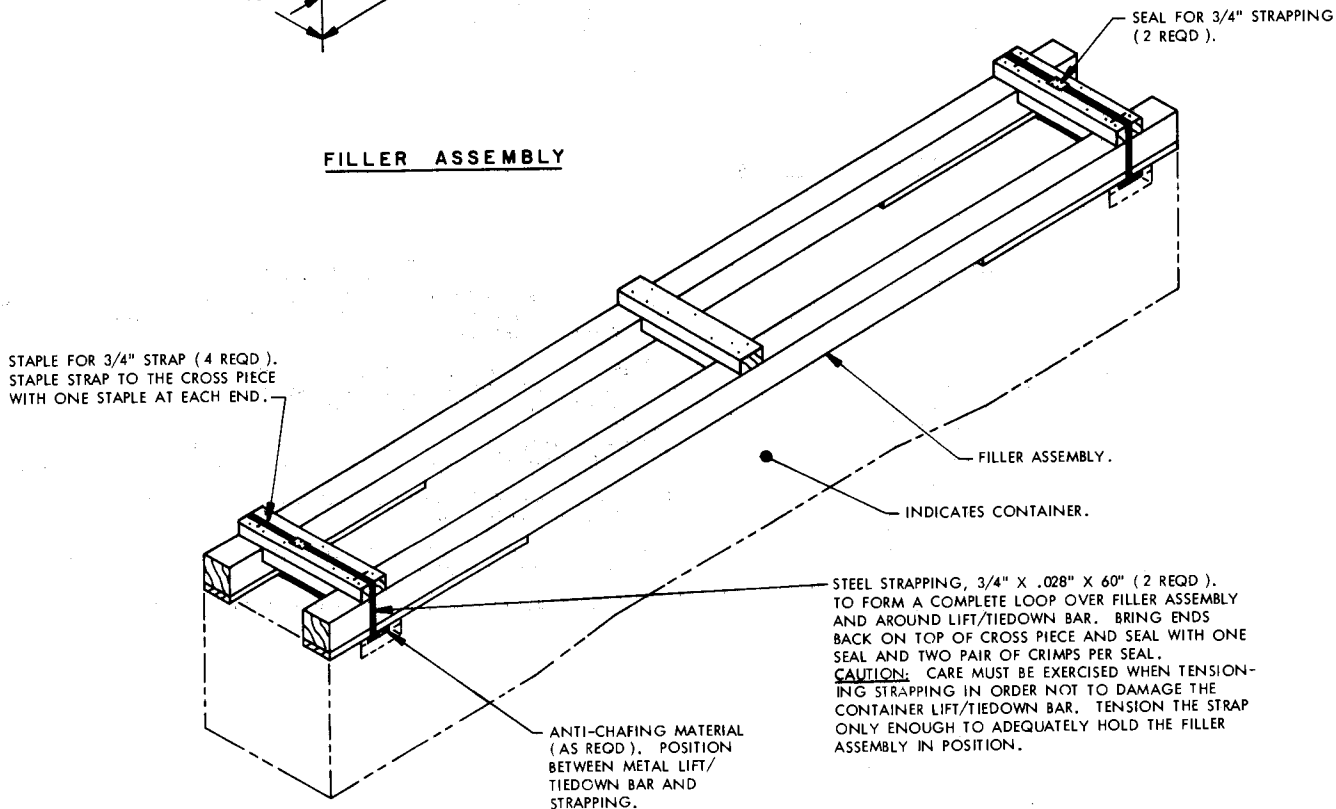
1. A 9'-2" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS IS SHOWN.
2. A WIDER OR A NARROWER CAR CAN BE USED.
3. A 4-UNIT LCL LOAD IS SHOWN AS A TYPICAL LOAD. THE NUMBER OF UNITS MAY BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED. A LAYER/LOAD UNIT BRACED AS SHOWN MUST CONTAIN AT LEAST TWO UNITS. SEE SPECIAL NOTE 7.
4. THE DEPICTED PROCEDURE MAY ALSO BE APPLIED FOR THE ADJUSTMENT OF A LOAD QUANTITY IN THE FULL LOAD SHOWN ON PAGE 4. FOR EXAMPLE, IF THE LOAD UNIT AT THE END OF THE CAR WAS A LAYER HIGHER THAN THE SECOND LOAD UNIT, THE QUANTITY IN THAT FIRST LOAD UNIT COULD BE ADJUSTED BY APPLYING THESE PROCEDURES RATHER THAN APPLYING SPECIFICATIONS SHOWN ON PAGE 6.
5. IF ANY METAL ON THE CAR SIDE WALL CONTACTS THE CONTAINER, WALL MEMBERS MUST BE POSITIONED AT EACH END OF THE CONTAINER TO PREVENT DAMAGE TO THE CONTAINER. SEE THE "ISOMETRIC VIEW" ON PAGE 4 FOR A TYPICAL INSTALLATION.
6. TO HOLD THE GATE IN PLACE, PIECES MARKED (4) WILL BE POSITIONED SO AS TO CONTACT THE TOP OR BOTTOM SURFACES OF THE CROSS MEMBER, WHEREVER THE CROSS MEMBER MAY BE LOCATED WITHIN THE TOLERANCED DIMENSION. AS REQUIRED, TWO ADJACENT PIECES MARKED (4) MAY BE LOCATED TO FORM A SPLICE WITHIN THE GATE, AS SHOWN.
7. FOR THE SHIPMENT OF A 1-UNIT LOAD, THE CONTAINER SHOULD BE POSITIONED IN THE CENTER OF THE WIDTH OF A BAY AND BLOCKING SIMILAR TO PIECES MARKED (2) AND (3) INSTALLED ON EACH SIDE.

KEY NUMBERS

- (1) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHT ABOVE THE CAR FLOOR TO PROVIDE FOR ALIGNMENT OF CROSS MEMBER MARKED (6).
- (2) SPACER, 2" X 4" BY CUT TO FIT BETWEEN CONTAINERS (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE CAR END WALL W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- (3) GATE, 1/2" PLYWOOD, LOAD HEIGHT PLUS 3" BY CAR WIDTH (1 REQD). NAIL TO PIECE MARKED (5) W/5-6d NAILS. NAIL TO PIECE MARKED (4) W/3-6d NAILS.
- (4) CLEAT, 2" X 4" X 12" (4 REQD). POSITION TWO (2) ON TOP AND TWO (2) UNDER PIECE MARKED (6).
- (5) SPACER, 2" X 4" BY CUT TO FIT BETWEEN CONTAINERS (DOUBLED) (1 REQD). LAMINATE W/5-10d NAILS.
- (6) CROSS MEMBER (1 REQD). SEE GENERAL NOTE "D" ON PAGE 2.



FILLER ASSEMBLY

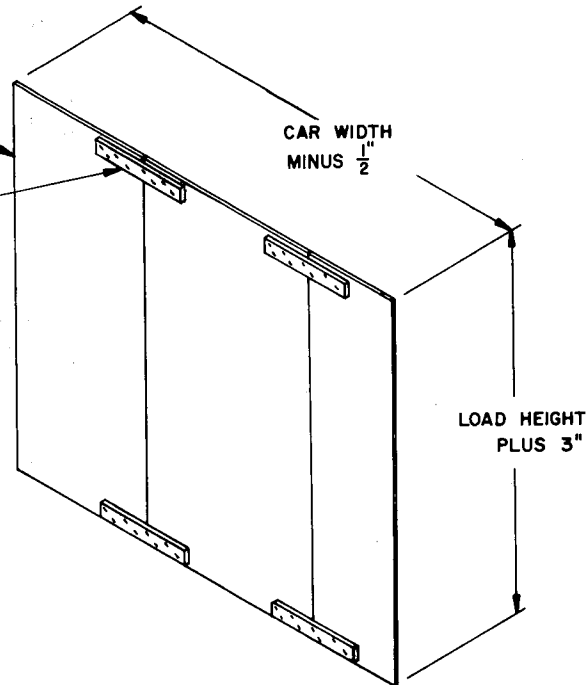


APPLICATION OF FILLER ASSEMBLY

THE "FILLER ASSEMBLY" IS TO BE USED IN THE TOP LAYER ONLY. A FILLER ASSEMBLY REPLACES ONE OMITTED CONTAINER. ASSEMBLIES MAY BE USED SIDE BY SIDE OR END TO END. AN INSTALLED FILLER ASSEMBLY WILL PROVIDE LONGITUDINAL BRACING FOR THE ADJACENT CONTAINER AND LATERAL BRACING FOR ADJACENT CONTAINERS WITHOUT THE USE OF ANTI-SWAY BRACES IF AN ASSEMBLY IS USED FOR EACH OMITTED CONTAINER ACROSS A LOAD UNIT. A FILLER ASSEMBLY WILL ONLY BE USED IN CONJUNCTION WITH ANTI-SWAY BRACES WHEN OMITTING AN UNEVEN QUANTITY OF CONTAINERS AS SHOWN IN "DETAIL B" ON PAGE 6.

PLYWOOD, 1/2" THICK BY LENGTH AND HEIGHT TO SUIT (AS REQD). NAIL TO THE CLEAT W/4-6d NAILS AND CLINCH. SEE "NOTE 1" BELOW.

CLEAT, 1" X 4" X 24" (4 REQD). SEE "NOTE 1" BELOW.

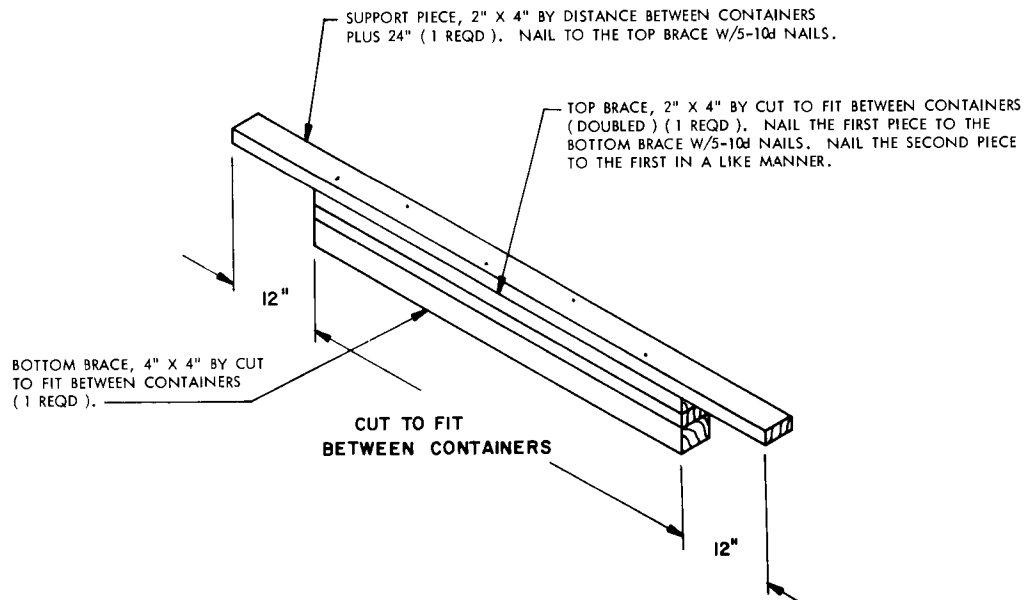


NOTE 1 :

IT IS PREFERRED THAT THE GATE ASSEMBLY BE FORMED FROM ONE PIECE OF PLYWOOD. HOWEVER, IF THIS IS NOT POSSIBLE, USE PIECES AS SHOWN AT RIGHT AND TIE TOGETHER WITH CLEATS. POSITION THE BOTTOM CLEAT AS SHOWN IN "SECTION A-A" VIEW ON PAGE 4. CLEATS SHOULD BE LOCATED AS NEAR THE TOP AND AS NEAR THE BOTTOM OF A GATE AS POSSIBLE. THE LOCATION MAY BE ADJUSTED SO THAT A CLEAT WILL NOT BE IN CONTACT WITH AN INSTALLED CROSS MEMBER.

GATE ASSEMBLY

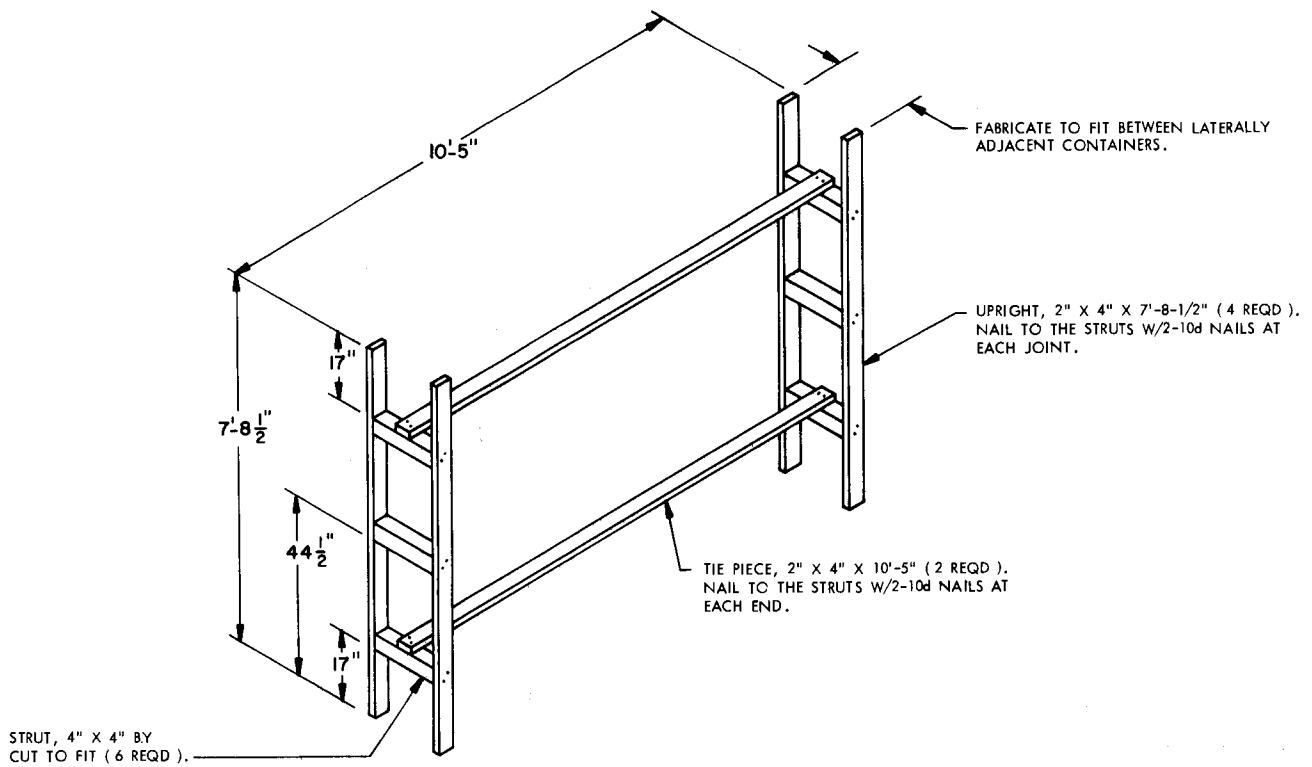
SEE SPECIAL NOTE 4 ON PAGE 5.



ANTI-SWAY BRACE ASSEMBLY

IF ANTI-SWAY BRACES ARE TO BE USED WITHIN THE LOAD ON PAGE 4, THE BRACES MUST BE INSTALLED IN SETS OF FOUR (4). IF ANTI-SWAY BRACES ARE TO BE USED WITHIN A "BAYED-OFF" LOAD AS SHOWN WITHIN THE TYPICAL LCL AT THE TOP OF PAGE 6, ONLY TWO BRACES WILL BE USED FOR THE OMISSION OF FROM ONE TO FOUR CONTAINERS. **CAUTION:** DO NOT WALK ON THE CONTAINERS WHEN INSTALLING THE ANTI-SWAY BRACE ASSEMBLIES; WALK ON THE CONTAINER PROTECTOR PLATEN BOARD OR OTHER SUITABLE MATERIAL.

DETAILS



SPACER ASSEMBLY

THE "SPACER ASSEMBLY" SHOWN ABOVE IS FOR USE BETWEEN STACKS WHICH ARE FIVE CONTAINERS HIGH AS SHOWN IN "DETAIL A" ON PAGE 5. MAKE NECESSARY ADJUSTMENTS WHEN IT IS USED BETWEEN STACKS OF LESSER HEIGHTS. THE STRUTS MUST BE POSITIONED IN SUCH A MANNER THAT THEY WILL PROVIDE SUPPORT FOR EACH LAYER OF CONTAINERS.