BUREAU OF EXPLOSIVES

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MILITARY ASSISTANY

DATE 3/8/69

# **CHAPARRAL**

# LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF COMPLETE ROUND IN THE M570 SHIPPING AND STORAGE CONTAINER

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THIS DOCUMENT INCLUDES
PROCEDURES FOR CONVENTIONAL
TYPE TRAILERS AND FOR TRAILERS
EQUIPPED WITH MECHANICAL BRACING
DEVICES AS APPROVED BY THE
BUREAU OF EXPLOSIVES, ASSOCIATION
OF AMERICAN RAILROADS.

# CAUTION:

PROCEDURES SHOWN HEREIN FOR MECHANICAL BRACING DEVICE EQUIPPED TRAILERS ARE ONLY APPLICABLE FOR HIGHWAY MOVEMENT; NOT FOR CONTAINER/TRAILER-ON-FLATCAR MOVEMENTS.

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# **GENERAL NOTES**

- 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 CLOSED OR OPEN TOP VAN SEMITRAILERS, AND ARE FOR THE CHAPARRAL MISSILE WHEN PACKAGED IN THE M570 SHIPPING AND STORAGE CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH CONTENTS.
- D. THE DESIGNATED ITEM IS A DOT CLASS "A" EXPLOSIVE. THE OUTLOADING PRO-CEDURES 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 WITH-IN THE TITLE OF THIS DOCUMENT.
- E. THE LOAD AS SHOWN ON PAGES 4 AND 5 IS BASED ON A 33'-0" LONG HIGHVOLUME VAN TRAILER WHICH DOES NOT HAVE REAR CORNER POSTS, WHICH IS
  7'-9" WIDE BY 8'-0" HIGH (INSIDE DIMENSIONS) AND WHICH HAS A WOOD, OR A
  WOOD AND METAL, OR A METAL FLOOR. <u>QUITION</u>: IF THE TRAILER BEING USED
  IS TO BE LOADED THROUGH THE REAR DOOR OPENING, THE HEIGHT OF THE DOOR
  OPENING, MEASURED FROM THE TRAILER FLOOR TO THE TOP FRAME MEMBER, MUST
  BE AT LEAST NINETY-FOUR INCHES (94") TO ALLOW FOR THE PLACEMENT OF THE
  TOP LAYER CONTAINERS OF THE REAR LOAD UNIT. THE DELINEATED PROCEDURES
  ARE ALSO APPLICABLE TO LONGER TRAILERS AND TO TRAILERS WHICH HAVE
  FOUR INCHES (94") AND UPWARD IN HEIGHT, AND TO TRAILERS WHICH HAVE
  REAR CORNER POSTS. HOWEVER, IF THE TRAILER BEING USED HAS REAR CORNER
  POSTS AND IS NOT AT LEAST 35'-0" LONG, THE 1" X 4" HORIZONTAL PIECES ON
  THE MOST REARWARD GATE IN THE LOAD CANNOT BE NAILED IN PLACE UNTIL
  AFTER THE "SEPARATOR ASSEMBLIES" OF THE GATE HAVE BEEN PLACED INTO
  POSITION.
- F. THE LOAD AS SHOWN ON PAGES 6 AND 7 IS BASED ON A 33'-0" LONG VAN TRAILER WHICH DOES NOT HAVE REAR CORNER POSTS, WHICH IS 7'-6" WIDE BY 7'-6" HIGH (INSIDE DIMENSIONS) AND WHICH HAS A WOOD, OR A WOOD AND METAL, OR A METAL FLOOR. THE DELINEATED PROCEDURES ARE ALSO APPLICABLE TO LONGER TRAILERS, TO TRAILERS OF ANY WIDTH, TO TRAILERS WHICH ARE SEVENTY-SIX INCHES (76") AND UPWARD IN HEIGHT AND TO TRAILERS WHICH HAVE REAR CORNER POSTS.
- G. IF A TRAILER IS BEING USED TO SHIP A 4-LAYER LOAD AND IT CONTAINS A MECHANICAL LOAD-BLOCKING SYSTEM WHICH CONFORMS TO SPECIFICATIONS SET FORTH WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET &C AND THE APPENDICES THERETO, THE MECHANICAL SYSTEM MAY BE USED IN ACCORDANCE WITH PROCE-DURES DELINEATED ON PAGE 7 OF THIS DOCUMENT, IN LIEU OF REAR-OF-LOAD BLOCKING SPECIFIED FOR THE LOADS DEPICTED HEREIN.
- H. SELECTION OF A VEHICLE TO BE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 213, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- J. 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. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH THE STATE WEIGHT LAWS.

(CONTINUED AT RIGHT)

#### (GENERAL NOTES CONTINUED)

- K. 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 SIZELOF THE VEHICLE TO BE LOADED OR THE GUARNITY TO BE SHIPPED, FOR A LOAD QUARNITY OTHER THAN SPECIFIED, THE APPROVED METHODS MUST BE FOLLOWED, AS CLOSELY AS POSSIBLE.
- FOR TRAILERS NOT EQUIPPED WITH REAR CORNER POSTS, REAR BLOCKING MUST CONTACT CLOSED DOORS.
- M. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN A TRAILER WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, 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.
- N. EXCEPT FOR PLYWOOD, DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCE-DURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE.
- O. 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.
- P. 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. ADDITIONALLY, A 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.
- R. PORTIONS OF THE TRAILER BODIES DEPICTED WITHIN THIS DOCUMENT, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- 5. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "CONTAINER HANDLING INSTRUCTIONS" ON PAGE 3 AND TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE OUTLOADING METHODS DELINEATED HEREIN.

# MATERIAL SPECIFICATIONS

EUMBER -----:

SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.

PLYWOOD ----:

GROUP B OR C, GRADE C-C (EXTERIOR); FED SPEC NN-P-S30.

\*IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.

NAILS -----:

COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105.

ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.

WIRE -----:

ANNEALED, BLACK; FED SPEC QQ-W-461.

STRAPPING, STEEL ----:

TYPE I OR IV, CLASS A OR B, FED SPEC QQ-S-781.

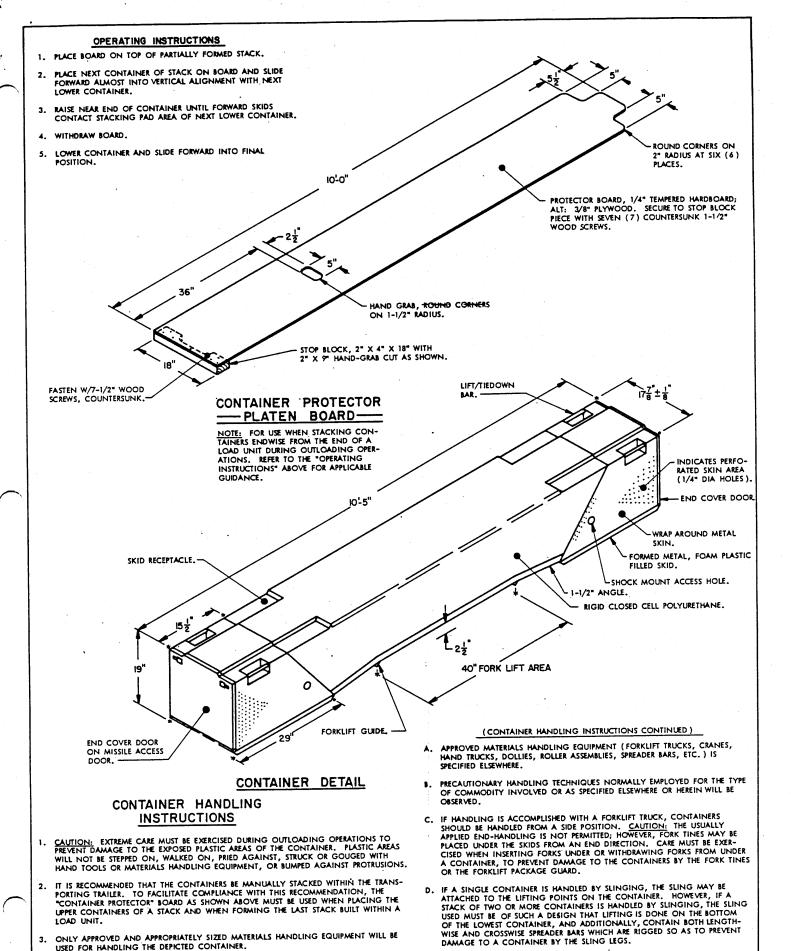
FOR FSN SEE SB-38-100.

ANTI-CHAFING MATERIAL: NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL).

HARDBOARD ------:

STRAP STAPLE -----:

COMMERCIAL GRADE.

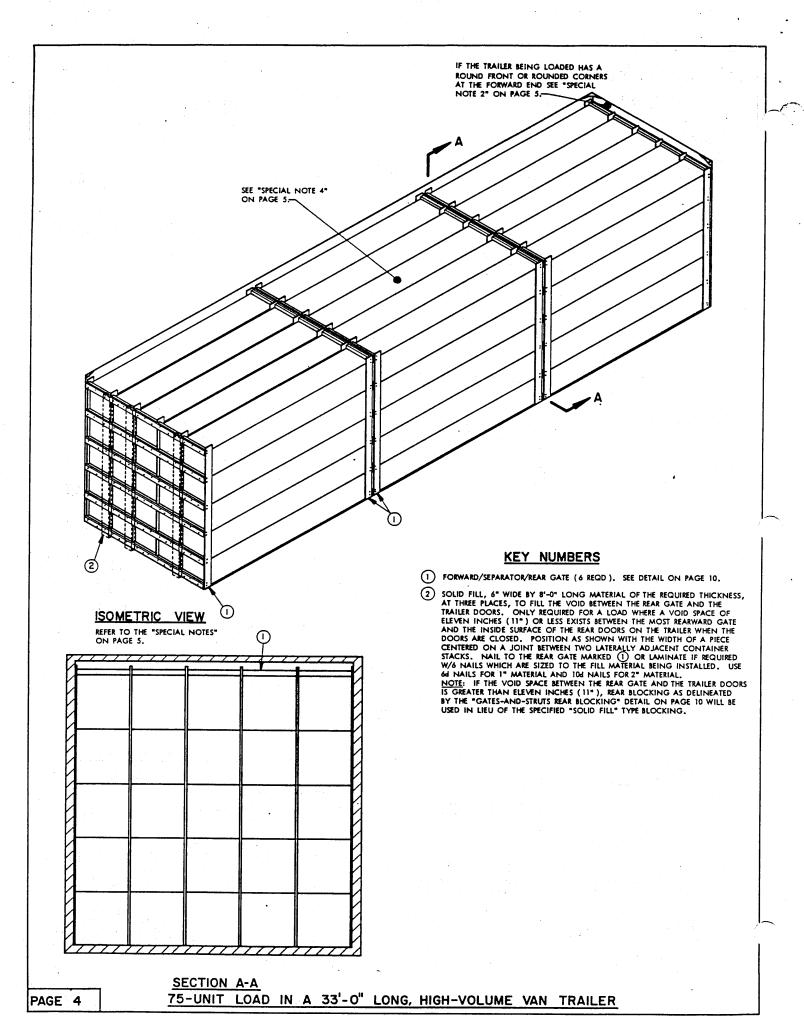


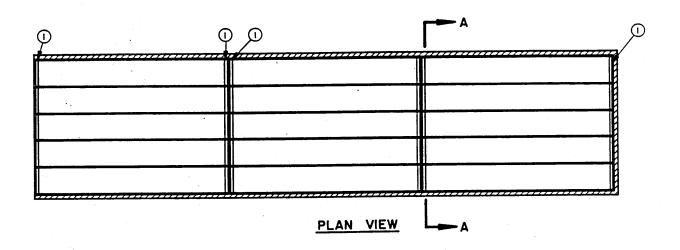
CONTAINER DETAIL AND HANDLING INSTRUCTIONS

LOAD UNIT.

ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE

USED FOR HANDLING THE DEPICTED CONTAINER.





#### SPECIAL NOTES

- A 33'-0" LONG TRAILER IS SHOWN WHICH IS 7'-9" WIDE BY 8'-4" HIGH (INSIDE DIMENSIONS), IS EQUIPPED WITH A SQUARE FRONT AND DOES NOT HAVE REAR CORNER POSTS. THE DEPICTED LOAD CAN BE SHIPPED IN A TRAILER WHICH IS LONGER THAN SHOWN.
- 2. A SQUARE FRONT TRAILER IS SHOWN IN THE LOAD VIEWS. IF THE TRAILER TO BE USED HAS ROUNDED CORNERS AT THE FORWARD END, THE MINIMUM LENGTH TRAILER THAT CAN BE USED IS 34"-0"; OR IF THE TRAILER HAS A ROUND FRONT, THE MINIMUM LENGTH TRAILER THAT CAN BE USED IS 36"-0". IF THE TRAILER HAS EITHER, A ROUND FRONT OR ROUNDED CORNERS AT THE FORWARD END, REFER TO PAGE 13 FOR "FORWARD BLOCKING" SPECIFICATIONS WHICH MUST BE USED.
- 3. IF THE TRAILER BEING LOADED IS EQUIPPED WITH REAR CORNER POSTS AND IS NOT AT LEAST 35"-0" LONG, THE 1" X 4" HORIZONTAL PIECES ON THE MOST REARWARD GATE IN THE LOAD CANNOT BE NAILED IN PLACE UNTIL AFTER THE "SEPARATOR ASSEMBLIES" OF THE GATE HAVE BEEN PLACED IN POSITION.
- 4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF TWENTY-FOUR (24) CONTAINERS INSTEAD OF THE TWENTY-FIVE (25) CONTAINERS AS SHOWN, TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, THE FOUR-HIGH CONTAINER STACK MUST CONTAIN A "FILLER ASSEMBLY" AS DEPICTED ON PAGE 14, IN PLACE OF EACH OMITTED CONTAINER. ALSO, FOR EACH OMITTED CONTAINER, TWO "FILLER BLOCKS", 2" X 4" X 18", MUST BE USED BETWEN THE "SEPARATOR ASSEMBLIES" OF THE GATES. NAIL TO THE "SPACER PIECE" OF THE GATES W/3-104 NAILS. THIS WILL PROVIDE SIDE BEARING FOR THE CONTAINER (S) LATERALLY ADJACENT TO THE "FILLER ASSEMBLY".

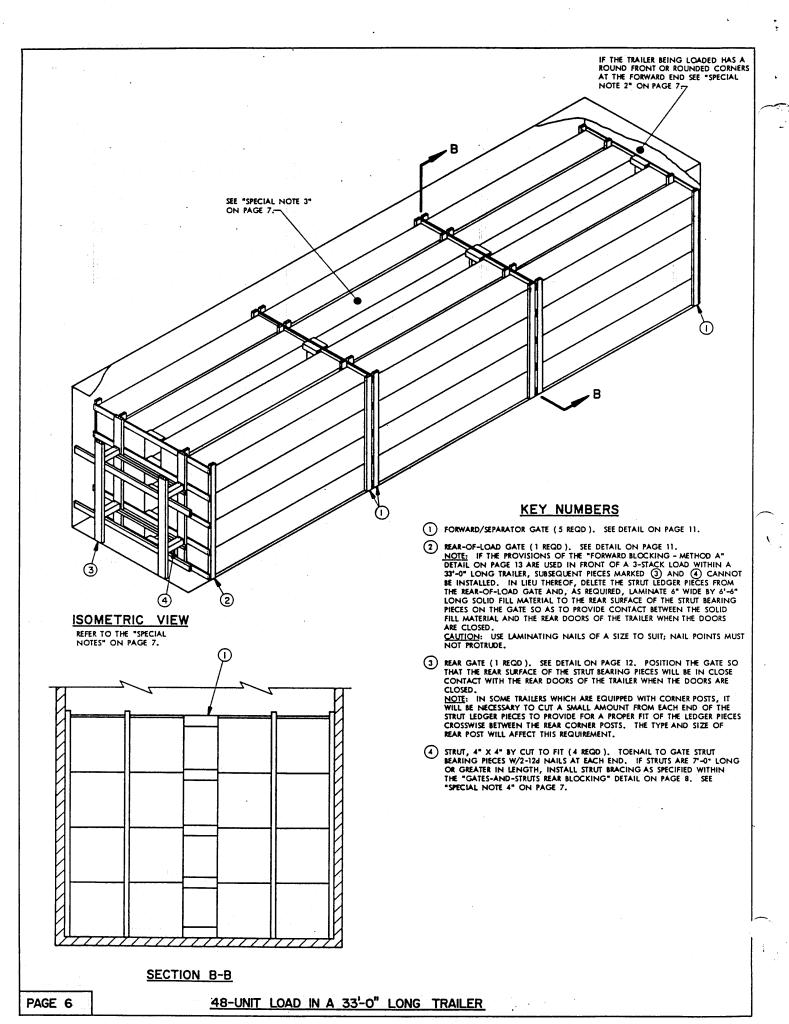
| BILL OF MATERIAL                       |                              |                          |
|--|------------------------------|--------------------------|
| LUMBER                                 | LINEAR FEET                  | BOARD FEET               |
| 1" X 4"                                | 278                          | , 93                     |
| 2" X 4"                                | 270                          | 180                      |
| NAILS                                  | NO. REQD                     | POUNDS                   |
| 6d (2")                                | 972                          | 5-3/4                    |
| PLYWOOD, 1/4" X 4<br>PLYWOOD, 1/2" X 4 | " X 8'-0" 12<br>" X 8'-0" 24 | REGD 23 LI<br>REGD 92 LI |

<sup>\*</sup>IF 1/2" PLYWOOD IS NOT AVAILABLE, SUBSTITUTE DOUBLED THICKNESS OF 1/4" PLYWOOD.

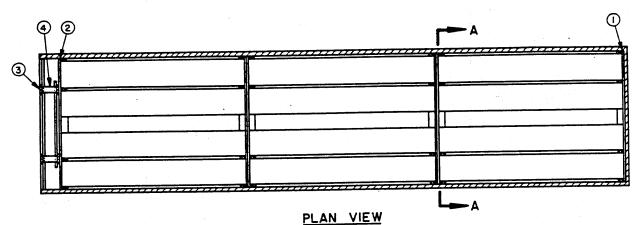
# LOAD AS SHOWN

| ITEM                        | QUANTITY     | WE            | IGHT (APPROX) |
|-----------------------------|--------------|---------------|---------------|
| CONTAINER W/MISSILE DUNNAGE | 75           | 21,000<br>804 | LBS<br>LBS    |
|                             | TOTAL WEIGHT |               | LBS           |

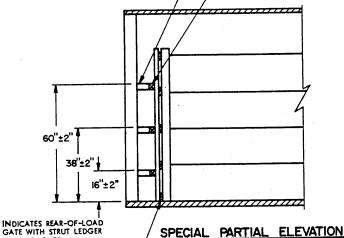
75-UNIT LOAD IN A 33-0" LONG, HIGH-VOLUME VAN TRAILER



PROJECT GM-586-67



# INDICATES BELT RAIL OF MECHANICAL LOAD BLOCKING SYSTEM. INDICATES LOAD BLOCKING CROSS MEMBER OF MECHANICAL LOAD BLOCKING SYSTEM (3 REQD).



SEE "SPECIAL NOTE 4".

| BILL OF MATERIAL |             |            |  |
|------------------|-------------|------------|--|
| LUMBER           | LINEAR FEET | BOARD FEET |  |
| 1" X 4"          | 225         | 75         |  |
| 2" X 2"          | 10          | 4          |  |
| 2" X 4"          | 172         | 115        |  |
| 2" X 6"          | 25          | 25         |  |
| 4" × 4"          | 34          | 46         |  |
| NAILS            | NO. REQD    | POUNDS     |  |
| 6d (2")          | 430         | 2-1/2      |  |
| 10d (3")         | 20          | 1/2        |  |
| 12d (3-1/4")     | 16          | NIL        |  |

PIECE REMOVED.

#### SPECIAL NOTES

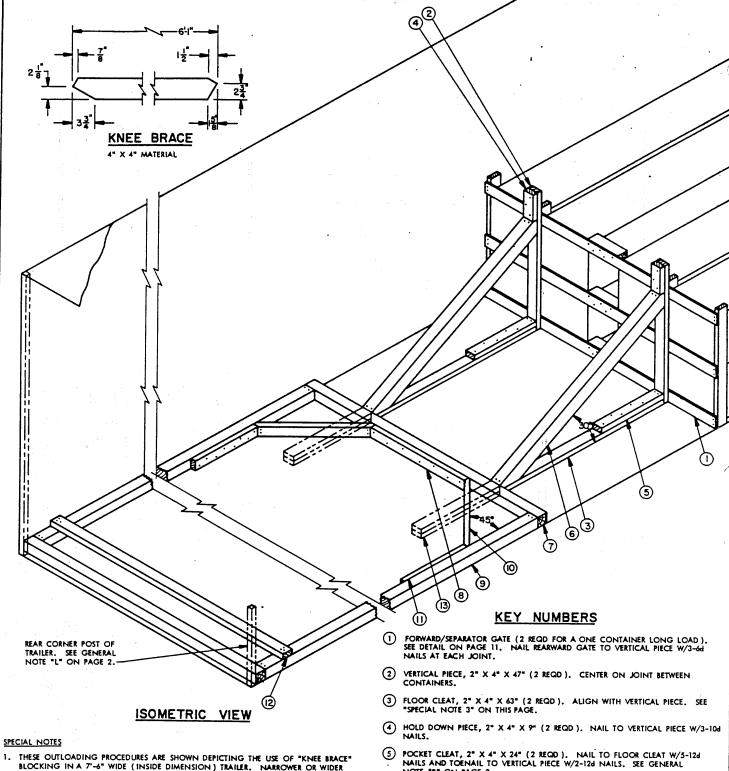
- . A 33'-0" LONG TRAILER IS SHOWN WHICH IS 7'-6" WIDE BY 7'-6" HIGH (INSIDE DIMENSIONS) AND WHICH DOES NOT HAVE REAR CORNER POSTS NOR A ROUND FRONT OR ROUNDED CORNERS AT THE FORWARD END. THE DEPICTED LOAD CAN BE SHIPPED IN A TRAILER WHICH IS WIDER, NARROWER OR LONGER.
- 2. A SQUARE FRONT TRAILER IS SHOWN IN THE LOAD VIEWS. IF THE TRAILER TO BE USED HAS ROUNDED CORNERS AT THE FORWARD END, THE MINIMUM LENGTH TRAILER THAT CAN BE USED IS 33'-0"; OR IF THE TRAILER HAS A ROUND FRONT, THE MINIMUM LENGTH TRAILER THAT CAN BE USED IS 33'-0". IF THE TRAILER HAS EITHER, A ROUND FRONT OR ROUNDED CORNERS AT THE FORWARD END, REFER TO PAGE 13 FOR "FORWARD BLOCKING" SPECIFICATIONS WHICH MUST BE USED.
- 3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR A SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF FIFTEEN (15) CONTAINERS INSTEAD OF THE SIXTEEN (16) CONTAINERS AS SHOWN, TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, THE THREE HIGH CONTAINER STACK MUST CONTAIN A "FILLER ASSEMBLY" AS DEPICTED ON PAGE 14, IN PLACE OF EACH OMITTED CONTAINER. ALSO FOR EACH OMITTED CONTAINER, TWO "FILLER BLOCKS", 2" X 4" X 18", MUST BE USED BETWEEN THE SPACER BLOCK AND A VERTICAL SEPARATOR PIECE OR BETWEEN TWO VERTICAL SEPARATOR PIECES OF THE GATE. NAIL THROUGH GATE LATERAL PIECE INTO THE "FILLER BLOCK" W/3-64 NAILS. THIS WILL PROVIDE SIDE BEARING FOR THE CONTAINER (S) LATERALLY ADJACENT TO THE "FILLER ASSEMBLY".
- "FILLER ASSEMBLY".

  4. IF THE TRAILER BEING OUTLOADED CONTAINS MECHANICAL BRACING DEVICES, SUCH AS A WALL BELT RAIL AND LOAD BLOCKING CROSS MEMBERS, WHICH CONFORMS TO SPECIFICATIONS SET FORTH WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C AND THE APPENDICES THERETO, THEY MAY BE USED AT THE REAR OF THE REAR-OF-LOAD GATE IN LIEU OF THE REAR GATE, STRUTS OR SOLID FILL. DELETE THE STRUT LEDGER PIECES AND POSITION CROSS MEMBERS TIGHTLY AGAINST VERTICAL 2" X 6"S OF THE REAR-OF-LOAD GATE. SEE "SPECIAL PARTIAL ELEVATION" VIEW FOR CROSS MEMBER LOCATION AND NUMBER REQUIRED. THE TRAILER EQUIPPED WITH MECHANICAL BRACING DEVICES MUST HAVE A SYSTEM LENGTH OF AT LEAST 31"-8" AS MEASURED FROM THE FRONT WALL OF THE TRAILER. TRAILERS HAVING A SHORTER MECHANICAL SYSTEM WILL BE LIMITED TO A LOAD OF NOT MORE THAN 32 CONTAINERS. IF THE TRAILER HAS ROUNDED CORNERS AT THE FORWARD END, POSITION THREE (3) CROSS MEMBERS AT THE FORM AND FINITE THE TRAILER AT HEIGHTS SPECIFIED IN THE "SPECIAL PARTIAL ELEVATION" VIEW. DELETE THE FORWARD GATE AND REPLACE WITH AN ADDITIONAL REAR-OF-LOAD GATE (MINUS STRUT LEDGERS) AGAINST THE CROSS MEMBERS. ALSO, THIS TRAILER MUST HAVE A SYSTEM LENGTH OF AT LEAST 31'-11".

# LOAD AS SHOWN

| ITEM      | QUANTITY     | WEIGHT (APPROX) |
|-----------|--------------|-----------------|
| CONTAINER | 48           | 13.440 LBS      |
| DUNNAGE - |              | - 665 LBS       |
|           | TOTAL WEIGHT | - 14.105 LBS    |

48-UNIT LOAD IN A 33'-O" LONG TRAILER

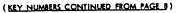


- BLOCKING IN A 7'-6" WIDE (INSIDE DIMENSION) TRAILER. NARROWER OR WIDER TRAILERS CAN BE USED.
- 2. THE "K-BRACE" BLOCKING AS SHOWN AS PIECES MARKED 7 THROUGH 10 , IS ADEQUATE FOR RETAINING NOT MORE THAN 18,000 POUNDS OF LADING.
- 3. PIECES MARKED (3) ARE FOR USE IN TRAILERS WHICH HAVE NAILABLE FLOORS, AND SHOULD BE USED IF POSSIBLE IN LIEU OF PIECES MARKED (2) THROUGH (2) WHICH APPLY TO TRAILERS HAVING NON-HAILABLE FLOORS. WHEN USING NAILED FLOOR (LINE DUNNAGE, NAIL THE FLOOR CLEAT, PIECE MARKED (3), TO THE TRAILER FLOOR W/1-12d NAIL EVERY 6". TWO (2) BACK-UP CLEATS, SHOWN AS PIECES MARKED (3), ARE ADEQUATE FOR RETAINING NOT MORE THAN 7,800 POLINDS OF LADING. POUNDS OF LADING.
- POCKET CLEAT, 2° X 4° X 24° (2 REGD ). NAIL TO FLOOR CLEAT W/5-12d NAILS AND TOENAIL TO VERTICAL PIECE W/2-12d NAILS. SEE GENERAL NOTE "P" ON PAGE 2.
- (6) KNEE BRACE, 4" X 4" X 6'-1"(2 REQD). SEE DETAIL FOR BEVEL CUTS REQUIRED. INSTALL AT 300 ANGLE AND NAIL TO VERTICAL PIECE AND FLOOR CLEAT W/2-16d NAILS AT EACH END.
- THEADER, 4" X 4" BY TRAILER WIDTH MINUS 1/2" (2 REQD).
- B CENTER CLEAT, 2" X 4" X 36" (1 REQD). NAIL TO HEADER W/7-12d NAILS.
- SIDE STRUT, 4" X 4" BY CUT TO FIT (2 REQD). TOENAIL TO HEADER W/2-16d NAILS AT EACH END. ⑨
- (1) DIAGONAL BRACE, 2" X 4" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45°CUTS. INSTALL AT A 45°ANGLE AS SHOWN AND TOENAIL TO A HEADER AND A SIDE STRUT W/2-16d NAILS AT EACH JOINT.
- (1) BACK-UP CLEAT, 2" X 4" X 24" (2 REQD). NAIL TO A SIDE STRUT W/8-12d NAILS.

(KEY NUMBERS CONTINUED AT TOP OF PAGE 9)

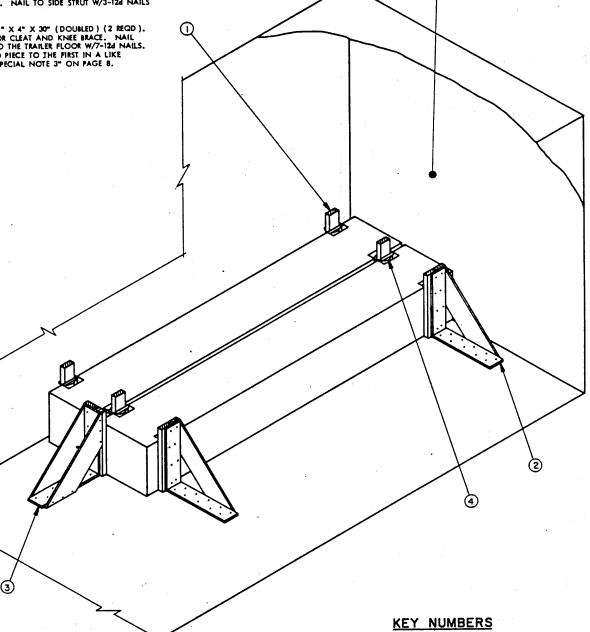
PAGE 8

TYPICAL LTL



STRUT BRACING, 2" X 4" BY TRAILER WIDTH (CUT TO FIT) (MINIMUM OF ONE (1) REQUIRED). INSTALL ONE (1) NEAR END OF SIDE STRUTS AS SHOWN. ONE (1) ADDITIONAL PIECE REQUIRED FOR EVERY 7"-0" 12 OF STRUT LENGTH. NAIL TO SIDE STRUT W/3-124 NAILS AT EACH END.

BACK-UP CLEAT, 2" X 4" X 30" (DOUBLED) (2 REGD).
ALIGN WITH FLOOR CLEAT AND KNEE BRACE. NAIL
THE FIRST PIECE TO THE TRAILER FLOOR W/7-12d NAILS.
NAIL THE SECOND PIECE TO THE FIRST IN A LIKE
MANNER. SEE "SPECIAL NOTE 3" ON PAGE 8.



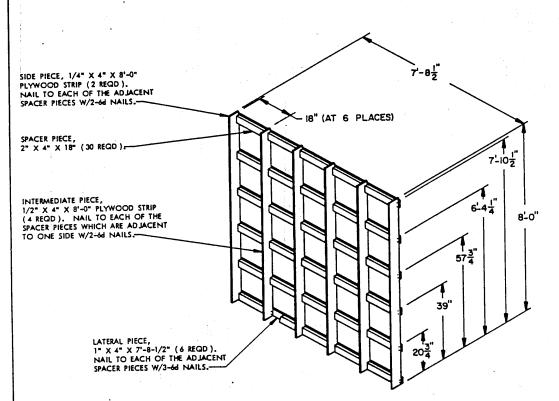
#### ISOMETRIC VIEW FOR TRAILERS WITH NAIL-ABLE FLOORS.

#### SPECIAL NOTES

- THE LOAD SHOWN DEPICTS THE METHOD FOR OUTLOADING A TWO CONTAINER LTL LOAD IN A TRAILER EQUIPPED WITH A NAILABLE FLOOR. THE LTL BRACE CAN ONLY BE USED TO SHIP A ONE CONTAINER HIGH LOAD. SEE "NOTE " ON PAGE 12.
- THIS OUTLOADING PROCEDURE IS ALSO APPLICABLE FOR A LTL LOAD OF THREE CONTAINERS. WHEN SHIPPING THREE CONTAINERS AN ADDITIONAL LTL BRACE, FOR END BLOCKING, TWO ANTI-CHAFING BOARDS AND TWO TIE WIRES WILL BE REQUIRED.
- IF DESIRED, AN LTL BRACE MAY BE POSITIONED AT THE FORWARD END OF THE LADING TO SATISFY A LOAD DISTRIBUTION REQUIREMENT OR FOR TRAILERS EQUIPPED WITH ROUNDED CORNERS OR A ROUND-FRONT AT THE FORWARD END.

SEE "SPECIAL NOTE 3".

- ANTI-CHAFING BOARD, 2" X 4" X 22" (4 REQD). POSITION ADJACENT TO A LIFT/TIEDOWN BAR AND SECURE TO CONTAINER WITH TIE WIRE.
- (2) LTL BRACE, FOR SIDE BLOCKING (2 REQD). SEE DETAIL ON PAGE 12. POSITION AGAINST THE METAL PART OF CONTAINER AND NAIL TO THE TRAILER FLOOR W/10-64 NAILS.
- (3) LTL SRACE, FOR END SLOCKING (1 REQD). SEE DETAIL ON PAGE 12. POSITION ON THE JOINT OF THE CONTAINERS AND NAIL TO THE TRAILER FLOOR W/10-64 NAILS.
- TIE WIRE, NO. 8 GAGE BLACK ANNEALED WIRE 15" LONG (4 REQD). SECURE AROUND LIFT/TIEDOWN BAR AND ANTI-CHAFING BOARD, BRING THE ENDS TOGETHER AND TWIST TAUT. IF NO. 8 GAGE BLACK ANNEALED WIRE IS NOT AVAILABLE, A NO. 14 GAGE BLACK ANNEALED WIRE 30" CAN BE SUBSTITUTED.



### NOTES:

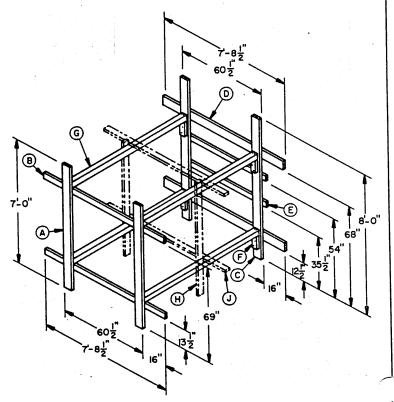
A GATE/STRUT TYPE OF REAR BLOCKING AS SHOWN BELOW WILL BE USED WITHIN A HIGH-VOLUME VAN TRAILER LOAD WHEN THE UNOCCUPIED SPACE BETWEEN THE MOST REARWARD GATE AND THE INSIDE SURFACE OF THE TRAILER DOORS MEASURES ELEVEN INCHES (11") OR MORE.

THE BLOCKING ASSEMBLY AS SHOWN IS DESIGNED FOR USE WITH A 5-LAYER LOAD. FOR A REDUCED HEIGHT LOAD, CONSTRUCT THE REAR BLOCKING TO SUIT, FOLLOWING THE DELINEATED PRINCIPLES. FOR A 3-LAYER OR 4-LAYER LOAD, THE STRUTS SHOULD ALIGN ON THE JOINTS BETWEEN THE FIRST AND SECOND LAYERS AND BETWEEN THE TOP AND THE NEXT-TO-TOP LAYERS. FOR A 2-LAYER LOAD, THE TWO UPPER LEVEL STRUTS SHOULD ALIGN ON THE JOINT BETWEEN LAYERS AND THE TWO LOWER LEVEL STRUTS SHOULD ALIGN ON THE JOINT BETWEEN LAYERS AND THE TWO LOWER LEVEL STRUTS WILL BE PLACED ON THE FLOOR OF THE TRAILER, WITHOUT STRUT LEDGERS, BUT WITH AN ADDITIONAL 2" X 4" BY TRAILER WIDTH PIECE PLACED ON EDGE ON TOP OF THE STRUTS AT THE REARWARD END AND NAILED TO THE VERTICAL PIECES OF THE REGAR GATE. REGARDLESS OF THE HEIGHT OF THE FORWARD GATE, THE TWO TOP/BOTTOM HORIZONTAL PIECES OF 2" X 6" X 7"-8-1/2" MATERIAL MUST ALWAYS BE USED, AND PLACED SO AS TO PROVIDE BEARING BEHIND THE FORWARD ENDS OF THE STRUTS; THE USE OF AND THE NUMBER OF INTERMEDIATE HORIZONTAL PIECES WILL DEPEND ON THE HEIGHT OF THE LOAD BEING ALOCKED.

# FORWARD/SEPARATOR/REAR GATE

# KEY LETTERS

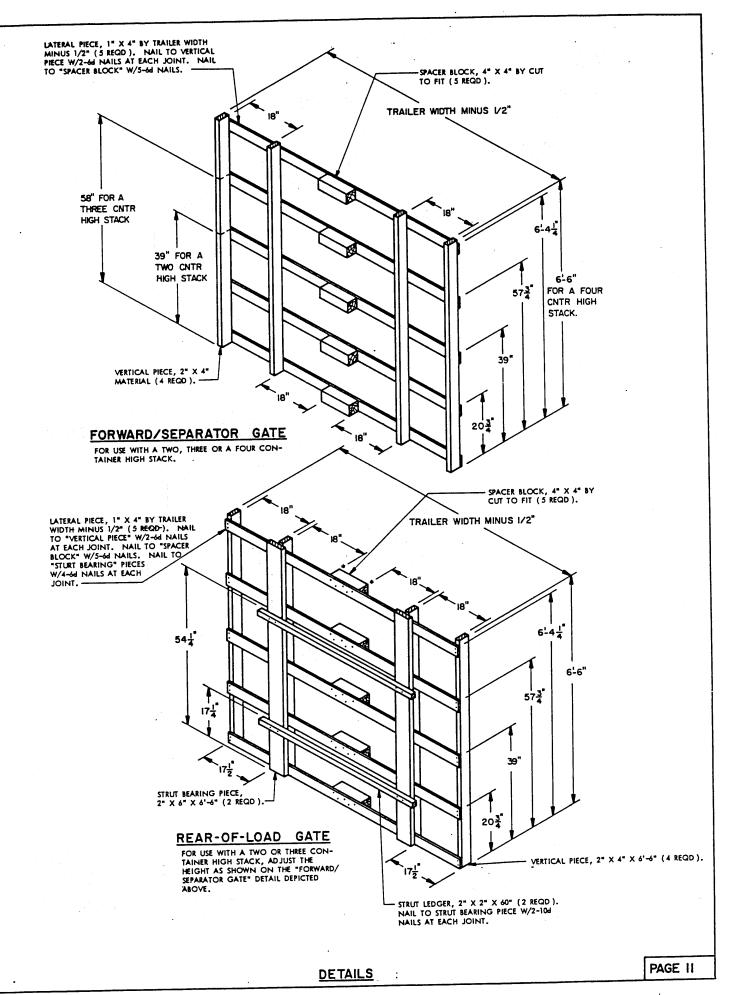
- A REAR GATE VERTICAL, 2" X 6" X 7"-0" (2 REQD).
- B REAR GATE STRUT LEDGER, 2" X 4" X 7"-8-1/2" (2 REQD). NAIL TO PIECES MARKED (A) W/3-104 NAILS AT EACH JOINT.
- (C) FORWARD GATE VERTICAL, 2" X 6" X 8'-0" (2 REQD ).
- (2 REQD). NAIL TO PIECES MARKED (W/3-10d NAILS AT EACH JOINT.
- (2 REQD). NAIL TO PIECES MARKED (2 W/3-10d NAILS AT EACH END.
- F STRUT LEDGER BLOCK, 2" X 4" X 9" (4 REQD). POSITION FOR HORIZONTAL ALIGNMENT OF A PIECE MARKED (©), AND NAIL TO A PIECE MARKED (©) W/3-10d NAILS.
- G STRUT, 4" X 4" MATERIAL OF A LENGTH TO SUIT (4 REQD).
  POSITION AS SHOWN AND TOENAIL TO THE VERTICAL PIECES
  ON THE FORWARD AND REAR GATES W/2-124 NAILS AT EACH
  END. THE STRUTS SHOULD BE OF A LENGTH SO THAT WHEN
  THEY ARE INSTALLED THE REAR SURFACE OF THE VERTICAL PIECES
  ON THE REAR GATE WILL BE IN CLOSE CONTACT WITH THE REAR
  DOORS OF THE TRAILER WHEN THE DOORS ARE CLOSED.
- H VERTICAL STRUT BRACING PIECE, 2" X 4" X 6"-6" (2 REQD).
  POSITION AS SHOWN AND NAIL TO THE STRUTS W/3-124 NAILS
  AT EACH JOINT. NOTE: THIS AND THE NEXT PIECE CALLED
  OUT ARE ONLY REQUIRED FOR STRUTS WHICH ARE 7"-0" LONG
  OR GREATER IN LENGTH. A SET OF STRUT BRACING IS REQUIRED
  FOR EVERY 7"-0" OF STRUT LENGTH.
- (J) LATERAL STRUT BRACING PIECE, 2" X 4" BY TRAILER WIDTH IN LENGTH (2 REQD). POSITION AS SHOWN AND NAIL TO THE STRUTS W/3-12d NAILS AT EACH JOINT.

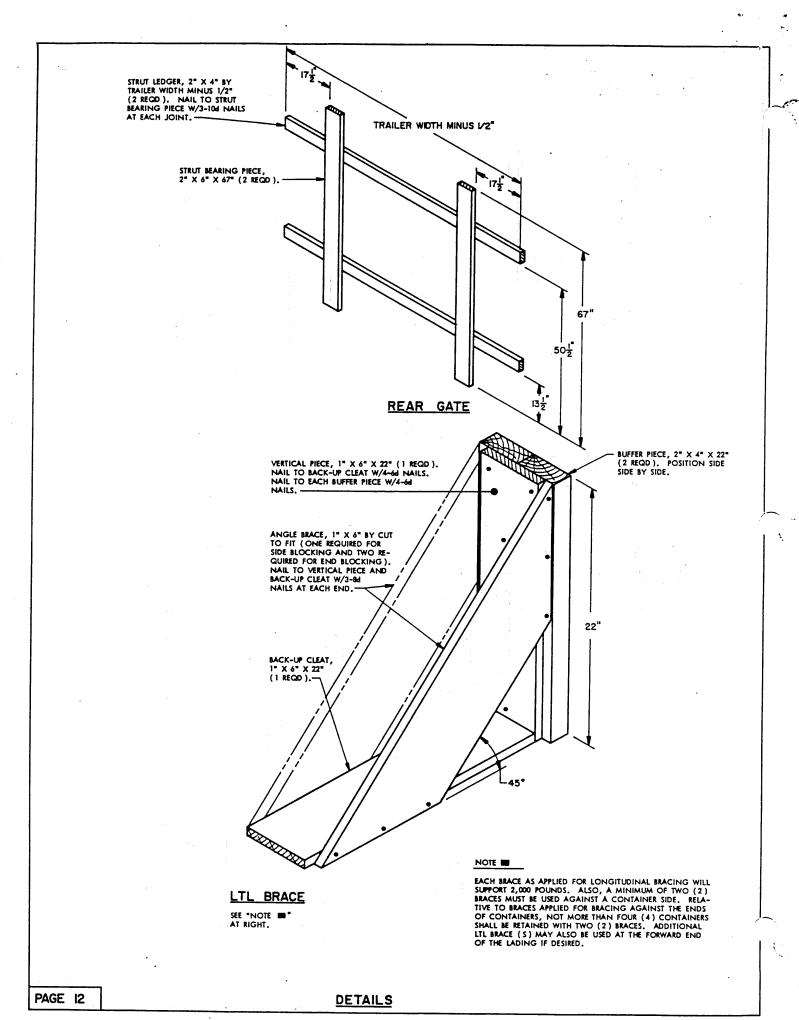


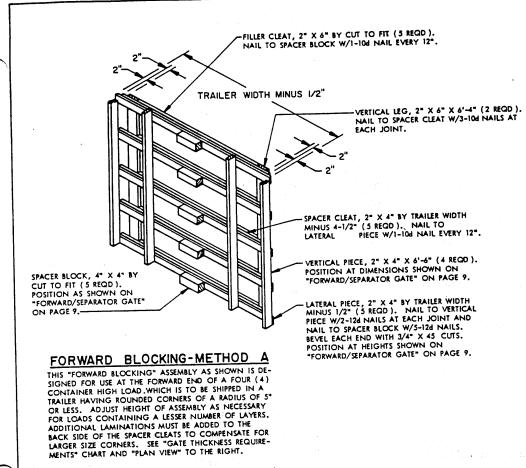
GATES-AND-STRUTS REAR BLOCKING

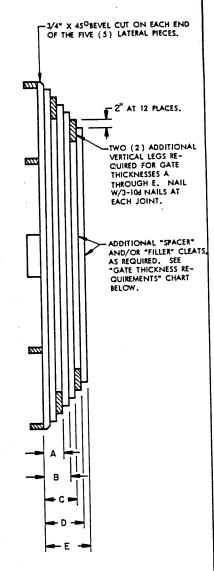
SEE NOTES ABOVE.

DETAILS .









# REARWARD VERTICAL PIECE, 2" X 6" X 6'-6" (4 REQD). FORWARD/SEPARATOR GATE, SEE DETAIL ON PAGE 19. STRUT LEDGER, 2" X 2" X 6" (8 REQD). NAIL TO FOR-WARD VERTICAL PIECE W/2-10d NAILS. FORWARD VERTICAL PIECE, 2" X 6" X 6'-6" (4 REQD). POSITION AGAINST STRONG POINTS IN TRAILER FRONT SPREADER PIECE, 2" X 4" BY CUT TO FIT (3 REQD). NAIL TO STRUTS W/3-104 NAILS AT EACH JOINT .-

# PLAN VIEW

| GATE THICKNESS REQUIREMENTS                                    |  |  |  |
|--|--|--|--|
| CORNER RADIUS (INSIDE)   |  |  |  |
| UP THRU 5"   |  |  |  |
| 5" THRU 7"   |  |  |  |
| 7" THRU 8"   |  |  |  |
| 8" THRU 10"  |  |  |  |
| 10" THRU 12"   |  |  |  |
| FOR OVER 12" USE<br>METHOD B PROCE-<br>DURES SHOWN<br>AT LEFT. |  |  |  |
|  |  |  |  |

-STRUT LEDGER, 2" X 2" BY CUT TO FIT (2 REQD). NAIL TO REARWARD VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

STRUT, 2" X 6" BY CUT TO FIT (DOUBLED) (12 REQD). LAMINATE W/10d NAILS. TOENAIL TO VERTICAL PIECES W/2-12d NAILS AT EACH END.

# FORWARD BLOCKING-METHOD B

THIS "FORWARD BLOCKING" ASSEMBLY AS SHOWN IS DESIGNED FOR USE AT THE FORWARD END OF A FOUR (4) CONTAINER HIGH LOAD WHICH IS TO BE SHIPPED IN A TRAILER HAVING A ROUND-FRONT OR HAVING ROUNDED CORNERS OF A RADIUS GREATER THAN 12". ADJUST HEIGHT OF ASSEMBLY AS NECESSARY FOR LOADS CONTAINING A LESSER NUMBER OF LAYERS.

DETAILS

