BATS

LOADING AND BRACING (TL & LTL) IN VAN TRAILERS⌖ AND ON FLATBED TRAILERS⌖ OF BALLISTIC AERIAL TARGET SYSTEM MAIN ASSEMBLAGE● PACKED ONE PER SHIPPING CONTAINER

INDEX

⌖ CAUTION: THE PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE TO HIGHWAY MOVEMENTS, NOT TRAILER-ON-FLAT-CAR MOVEMENTS.

● THE OUTLOADING PROCEDURES SPECIFIED WITHIN THIS DRAWING ARE ONLY APPLICABLE TO ITEMS WHICH ARE EMPTY. NOTICE: THE ITEM PACKAGING AND THE SPECIFIED LOADING AND BRACING PROCEDURES WILL NOT BE USED FOR SHIPPING ITEMS CONTAINING EXPLOSIVES.

DO NOT SCALE

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY MISSILE COMMAND

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REVISION NO. 2	JULY 1994

SEE THE REVISION LISTING ON PAGE 2

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CLASS	DIVISION	DRAWING	FILE
19	48	5750	GM11TD3

PROJECT GM 629-70

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 IN THIS DRAWING ARE APPLICABLE FOR THE BALLISTIC AERIAL TARGET MAIN ASSEMBLAGE PACKED ONE PER SHIPPING AND STORAGE CONTAINER.

CONTAINER DIMENSIONS - - 207" L X 20-1/2" W X 22" H
CONTAINER WEIGHT - - - - 440 LBS (APPROX)
CONTAINER CUBE - - - - - 54.0 CUBIC FEET (APPROX)

C. SELECTION OF A VEHICLE TO BE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.

D. THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY.

E. NOTICE: A SHIPMENT WILL BE POSITIONED IN/ON THE TRAILER CONSISTENT WITH STATE WEIGHT LAWS. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED. COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED MAY BE USED, HOWEVER, THE APPROVED METHODS SHOWN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.

F. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO/ON TRAILERS WHICH ARE PARTIALLY LOADED WITH BALLISTIC AERIAL TARGET SYSTEM MAIN ASSEMBLAGE 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.

G. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 18 FOR GUIDANCE.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

H. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.

J NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH THE PIECE ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

K. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED TRAILER LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH FEDERAL SPECIFICATION FF-N-105 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.

L. PORTIONS OF THE VAN TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

M. 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 25.4 MM AND ONE POUND EQUALS 0.454 KG.

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

(CONTINUED ON PAGE 3)

MATERIAL SPECIFICATIONS

LUMBER - - - - - - - - :	SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
NAILS - - - - - - - - :	FED SPEC FF-N-105; COMMON.
STRAP, WEB - - - - - :	WEB SLING AND TIEDOWN ASSOCIATION RECOMMENDED STANDARD SPECIFICATION FOR SYNTHETIC WEB TIEDOWNS, FIRST PUBLISHED IN 1991.
STRAPPING, STEEL - - :	ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
SEAL, STRAP - - - - :	ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
WIRE, CARBON STEEL - :	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.
STAPLE, STRAP - - - :	COMMERCIAL GRADE.
STAKE POCKET PROTECTOR - - :	COMMERCIAL GRADE.
CHAIN - - - - - - - - :	NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.
LOAD BINDER - - - - :	FED SPEC GGG-B-325.

REVISIONS

REVISION NUMBER 1, DATED JANUARY 1979, CONSISTS OF:

1. CHANGING DRAWING FILE NUMBER FROM GM11A136 TO GM11TD3.
2. UPDATING THE GENERAL NOTES AND MATERIAL SPECIFICATIONS.
3. CHANGING PROCEDURES FOR A 4-UNIT WIDE LOAD.

REVISION NUMBER 2, DATED JULY 1994, CONSISTS OF:

1. CHANGING THE CONTAINER DIMENSIONS AND WEIGHT.
2. CHANGING THE VAN LOADING PROCEDURES TO COINCIDE WITH THE NEW CONTAINER DIMENSIONS.
3. ADDING PROCEDURES FOR FLATBED TRAILERS.

GENERAL NOTES

(FOR VAN TRAILERS)

O. THE OUTLOADING PROCEDURES DEPICTED ON PAGES 6 THRU 9 ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE VAN TRAILERS AND APPLY TO TRAILERS HAVING WOOD, OR WOOD AND METAL, OR ALL METAL FLOORS. VAN TRAILERS WHICH ARE 53'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) AND 45'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) HAVE BEEN SHOWN, HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR TRAILERS WHICH ARE 89" THRU 99" IN WIDTH AND FOR TRAILERS OF OTHER LENGTHS FROM THE SHORTEST TO THE LONGEST AVAILABLE (REF: 24' TO 53'), AND FOR STRAIGHT TRUCK VANS. THE LOADING AND BRACING PROCEDURES SPECIFIED HEREIN ARE ALSO ADEQUATE (CONFIGURATION WISE AND STRENGTH WISE) FOR LOADS IN SHORTER OR LONGER VANS AND IN NARROWER OR WIDER VANS THAN SHOWN. THE SPECIFIED BRACING IS ADEQUATE FOR LOADS WEIGHING UP TO AND INCLUDING THE MAXIMUM WEIGHTS PERMITTED BY LAW.

P. SOME LOADS ARE SHOWN IN TRAILERS HAVING ROUNDED CORNERS AT THE FORWARD END. IF THE CONVENTIONAL VAN TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD, OMIT THE FORWARD BLOCKING ASSEMBLY, AND POSITION THE MAIN ASSEMBLAGE SHIPPING CONTAINERS DIRECTLY AGAINST THE FORWARD PORTION OF THE TRAILER.

Q. THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 3". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY ADJUSTING THE LENGTH OF THE STRUTS OF THE SPACER ASSEMBLIES.

R. CAUTION: WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE APPLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, MAIN ASSEMBLAGE CONTAINERS BEING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EXIT BECOME NECESSARY.

GENERAL NOTES

(FOR FLATBED TRAILERS)

S. THE LOADS AS SHOWN ON PAGES 12 AND 14 ARE BASED ON 8'-6" WIDE BY 53'-0" LONG FLATBED TRAILERS. TRAILERS OF OTHER LENGTHS MAY BE USED. TRAILERS MUST HAVE WOOD OR WOOD AND METAL FLOORS. TRAILERS HAVING ALL-METAL FLOORS CANNOT BE USED. CAUTION: IF THE TRAILER FLOOR IS EQUIPPED WITH EXPOSED METAL DECKING ABOVE THE BOGIE ASSEMBLY, OR ELSEWHERE, FIELD MEASUREMENTS SHOULD BE MADE TO ENSURE THAT THE METAL DECKING DOES NOT INTERFERE WITH THE PROPER POSITIONING AND NAILING OF THE DUNNAGE AS SPECIFIED BY THE PROCEDURES SHOWN HEREIN.

T. CAUTION: REGARDLESS OF THE TYPE OF TRAILER INVOLVED, ONLY THOSE TRAILERS HAVING STAKE POCKETS WHICH PROVIDE HOLDING STRENGTH EQUAL TO OR GREATER THAN THE STRENGTH OF THE CHAINS SHOULD BE USED. THE CHAINS MAY NOT BE APPLIED TO FORM A COMPLETE LOOP WHICH ENCOMPASSES BOTH THE LADING AND THE TRAILER FRAME AND/OR BED. USE EDGE PROTECTORS OR PADS ON ALL SHARP EDGES.

U. THE TRANSPORTING VEHICLE OPERATOR SHOULD BE INSTRUCTED TO PERIODICALLY INSPECT THE TIEDOWN CHAINS AND LOAD BINDERS, OR THE WEB STRAP ASSEMBLIES, DURING TRANSIT AND TIGHTEN IF NECESSARY.

SPECIAL PROVISIONS FOR CHAIN TIEDOWN

BALLISTIC AERIAL TARGET SYSTEM MAIN ASSEMBLAGE CONTAINERS MAY BE SECURED TO THE FLATBED TRAILER BY CARRIER-OWNED CHAINS AND LOAD BINDERS, PROVIDED THE FOLLOWING CONDITIONS ARE MET AND THE PROCEDURES CONTAINED ON PAGE 14 ARE FOLLOWED.

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY WILL BE USED. ALL CHAINS AND LOAD BINDERS SHALL CONFORM TO THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.

2. ALL CHAINS SHALL BE MARKED AS PRESCRIBED BY THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975. AT LEAST ONE LINK IN EVERY 36 LINKS SHALL CARRY THE MANUFACTURER'S PERMANENT AND DISTINCTIVE MARK IDENTIFYING THE GRADE OF CHAIN. CHAINS NOT MARKED IN THIS MANNER SHALL NOT BE USED. IN ADDITION TO THE GRADE MARKING, THE CHAIN MAY ALSO CARRY LETTER MARKINGS OR SYMBOLS IDENTIFYING THE CHAIN MANUFACTURER. THE PRESENCE OF THE MANUFACTURER'S IDENTIFICATION MARKING IS NOT MANDATORY.

3. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION. CAUTION: EXTREME CARE MUST BE EXERCISED WHEN TENSIONING CHAINS TO PREVENT DAMAGE OR PERMANENT DEFORMATION TO THE LADING.

4. CHAIN SIZES AND GRADES APPROVED FOR USE WITH FLATBED TRAILER LOADS ARE AS FOLLOWS:

   A. 3/8", GRADE 43 HIGH TEST CHAIN
   B. 5/16", GRADE 70 BINDING CHAIN
   C. 3/8", GRADE 70 BINDING CHAIN
   D. 5/16", GRADE 80 ALLOY STEEL CHAIN
   E. 3/8", GRADE 80 ALLOY STEEL CHAIN

5. THE GRABHOOKS ON THE ENDS OF THE CHAIN MAY BE OF THE FOLLOWING TYPES WITH GRADE MARKINGS AS INDICATED.

   A. CLEVIS GRABHOOKS, 3/8" SIZE, DO NOT REQUIRE GRADE MARKING. ALLOY GRABHOOKS, 5/16" SIZE, SHALL CARRY THE MANUFACTURER'S GRADE MARK OF 7, 70, OR 700. THE HOOKS SHALL BE USED ON THE APPROPRIATE SIZE CHAIN.

   B. CLOSED EYE GRABHOOKS, 3/8" AND 5/16" SIZE, MAY BE USED ON THE APPROPRIATE SIZE CHAIN IF THEY ARE A PART OF A CHAIN ASSEMBLY WHICH WAS PROVIDED BY A CHAIN MANUFACTURER, AND THE CHAIN ASSEMBLY CARRIES THE CORRECT GRADE IDENTIFICATION MARKING AS PREVIOUSLY STATED. CLOSED EYE GRABHOOKS THAT FORM A PART OF THE CHAIN ASSEMBLY ARE EXEMPT FROM GRADE MARKINGS.

6. CONNECTING LINKS USED FOR CHAIN REPAIR MUST BE CORRECTLY MARKED AND BE EQUAL TO OR GREATER IN STRENGTH THAN THE CHAIN THEY ARE REPAIRING. CHAINS WITH UNMARKED CONNECTING LINKS SHALL NOT BE USED.

7. CHAIN AND FITTING OF A HIGHER GRADE MAY BE SUBSTITUTED FOR THE GRADES SPECIFIED IN NOTE 4 ABOVE.

8. LOAD BINDERS SHALL BE 5/16" TO 3/8" SIZE AND HAVE A MINIMUM BREAKING STRENGTH OF 16,200 POUNDS (WORKING LOAD LIMIT OF 5,400 POUNDS). OVERCENTER TYPE LOAD BINDERS SHALL BE SAFETY WIRED TO PREVENT ACCIDENTAL OPENING DURING TRANSPORT. LOAD BINDER SIZE SHALL BE COMPATIBLE WITH THE SIZE OF THE CHAIN BEING USED.

SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN

LADING MAY BE SECURED TO A FLATBED TRAILER BY WEB STRAP ASSEMBLIES IN LIEU OF STEEL STRAPPING OR CHAINS AND LOAD BINDERS, PROVIDED THE FOLLOWING CONDITIONS ARE MET.

1. ONLY WEB STRAPS OF GOOD QUALITY WILL BE USED. ALL WEB STRAPS AND ASSOCIATED HARDWARE SHALL CONFORM TO THE WEB SLING & TIEDOWN ASSOCIATION RECOMMENDED STANDARD SPECIFICATION FOR SYNTHETIC WEB TIEDOWNS, FIRST PUBLISHED IN 1991.

2. ALL WEB STRAP TIEDOWN ASSEMBLIES SHALL BE PERMANENTLY LABELED WITHIN 18" OF ONE END TO SHOW:

   A. NAME OR TRADEMARK OF MANUFACTURER

   B. WORKING LOAD LIMIT (WLL)

   C. DATE OF MANUFACTURE (MONTH AND YEAR)

   D. LOT NUMBER OF STRAP

3. WEB STRAP ASSEMBLY MINIMUM BREAKING STRENGTH WILL BE AT LEAST THREE TIMES THE WLL MARKED ON THE STRAP.

4. THE TOTAL BREAKING STRENGTH OF THE STRAPS USED TO RESTRAIN AMMUNITION ITEMS WILL BE AT LEAST 1-1/2 TIMES THE TOTAL WEIGHT OF THE ITEMS, WITH A MINIMUM OF TWO STRAPS POSITIONED OVER EACH LOAD UNIT ON A TRAILER.

5. CARRIERS MUST COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS APPLICABLE TO CARGO RESTRAINT USING WEB STRAPS.

6. WHEN USING STRAPS AND WINCHES FOR CARGO RESTRAINT, THE STRAPS WILL BE TENSIONED UNTIL TIGHT WITHOUT CAUSING DAMAGE TO THE CARGO. ONLY WINCH BARS WILL BE USED FOR OPERATING THE STRAP WINCHES.

7. BEFORE AND DURING INSTALLATION, THE WEB STRAP ASSEMBLIES SHALL BE INSPECTED FOR DEFECTS. STRAPS HAVING ANY OF THE FOLLOWING DEFECTS WILL NOT BE USED FOR THE RESTRAINT OF ANY AMMUNITION LOAD, WITH THE EXCEPTION OF ONE WITH FRAYED ENDS. A STRAP HAVING FRAYED ENDS CAN BE USED IF THE FRAYED END IS TRIMMED AND MELTED WITH HEAT OR FLAME UNTIL ALL STRANDS ARE SEIZED.

   A. STRAP ASSEMBLY HARDWARE: SHALL BE INSPECTED FOR BENT HOOKS, GOUGES, BENT RATCHETS OR WINCHES, WEAR, OR ANY OTHER NOTICEABLE DEFECTS.

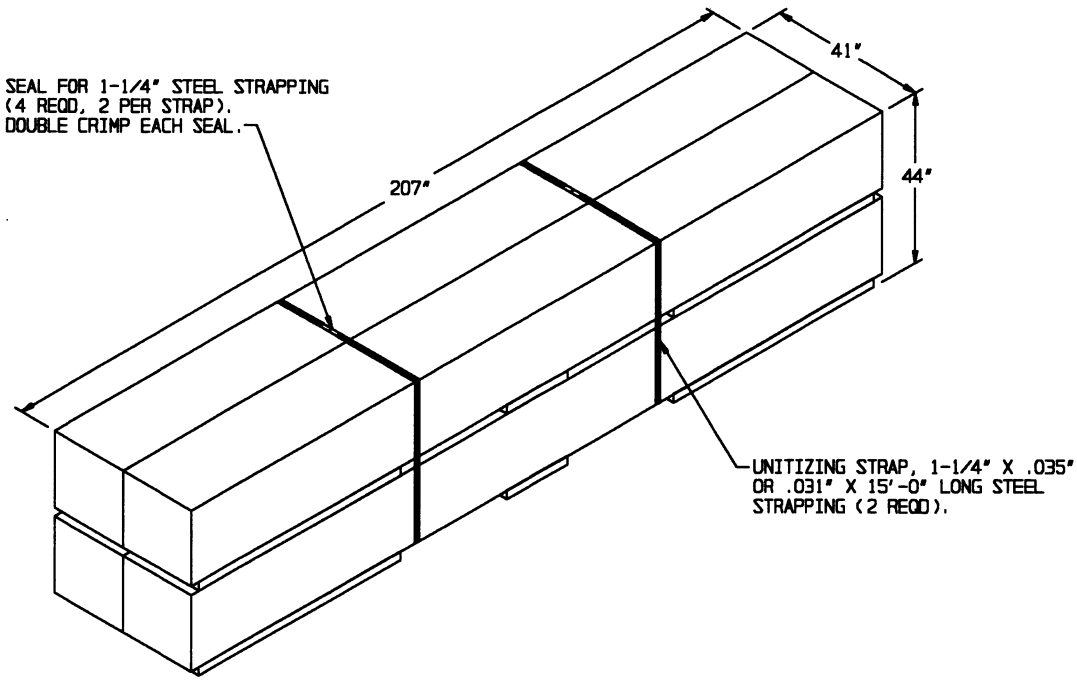
   B. STRAP WEBBING: SHALL BE INSPECTED FOR KNOTS, EXCESSIVE ABRASIVE WEAR, TEARS, PUNCTURES, CUTS, ACID OR CAUSTIC BURNS, BROKEN STITCHES, FRAYED ENDS, OIL OR GREASE SPOTS EXCEEDING 6 SQUARE INCHES, BLEACHING OF COLOR, INCREASED STIFFNESS, OR ANY OTHER NOTICEABLE DEFECTS.

8. RATCHET HANDLES MUST BE IN THE LOCKED POSITION AND/OR WINCH LOCKING DEVICES MUST BE FULLY SEATED IN THE TEETH OF THE WINCH.

9. IF THE WINCHES BEING USED ARE THE REMOVABLE TYPE HAVING A WELDED ANGLE AND BOLT FOR ATTACHMENT TO THE TRAILER, CARE MUST BE EXERCISED WHEN ATTACHING THE WINCHES TO THE TRAILER. IF EXCESSIVE FORCE IS EXERTED ON THE BOLT DURING TENSIONING, DEFORMATION OF THE WELDED ANGLE PIECE MAY OCCUR, AND SUBSEQUENTLY CAUSE FAILURE OF THE WINCH DURING TRANSPORT.

10. DRIVERS MUST BE INSTRUCTED TO PERIODICALLY CHECK THE TIGHTNESS OF THE WEB STRAP ASSEMBLIES AND RE-TIGHTEN, IF NECESSARY.

11. IF PROVIDED ON OR WITH THE WEB STRAP ASSEMBLIES, SCUFF SLEEVES/WEB PROTECTORS WILL BE USED WHEREVER THE STRAP PASSES OVER A SHARP CORNER OR IRREGULAR SURFACE. IF NOT PROVIDED, ANTI-CHAFING MATERIAL OF A SUITABLE THICKNESS WILL BE USED TO INSURE THAT THE STRAP WEBBING IS NOT DAMAGED DURING TRANSPORT OF THE LOAD.



BUNDLED UNIT DETAIL

UNITIZATION AND HANDLING GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING.

   A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.

   B. POSITION STACKED CONTAINERS SIDE BY SIDE AS CLOSE AS POSSIBLE IN LATERAL ALIGNMENT.

2. INSTALLATION OF 1-1/4" X .035" OR .031" UNITIZING STRAPPING.

   A. THE UNITIZING STRAP SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING THROUGH THE OPENINGS UNDER THE BOTTOM CONTAINERS NEAR THE ENDS OF THE LONG SKIDS, AND SO THAT STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I.E., VERTICAL ALONG SIDES AND STRAIGHT ACROSS TOP AND BOTTOM OF THE STACK.

   B. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE CRIMPED STRAP SEALS AS SHOWN. THE LAP JOINTS WILL BE MADE ON THE TOP OF THE STACK SO THAT THE SEALS WILL NOT BE IN CONTACT WITH THE CONTAINER SKIDS. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE CONTAINERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.

(CONTINUED AT RIGHT)

(UNITIZING AND HANDLING GUIDANCE CONTINUED)

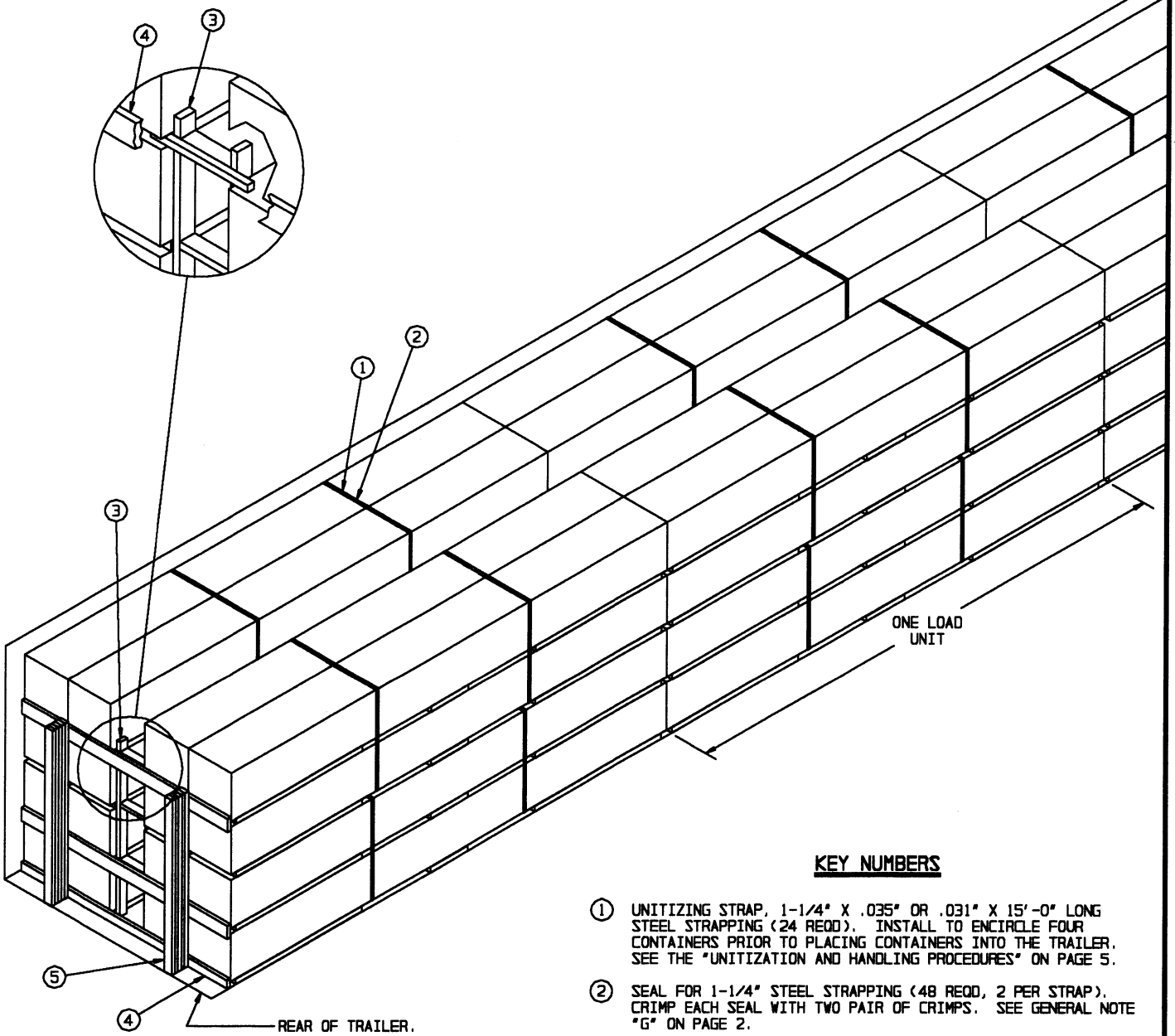
3. CONTAINER OR CONTAINER STACK HANDLING.

   NOTES: (1) APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.

   (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 CONTAINERS.

   B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER THE CONTAINERS, TO PREVENT DAMAGE TO THE CONTAINERS BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING TRAILER LOADING, A UNITIZED STACK MAY HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORK OPENINGS OF THE UPPER CONTAINERS. IF CONTAINERS ARE HANDLED BY SLINGING, THE SLING USED MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINERS.



ISOMETRIC VIEW

KEY NUMBERS

① UNITIZING STRAP, 1-1/4" X .035" OR .031" X 15'-0" LONG STEEL STRAPPING (24 REQD). INSTALL TO ENCIRCLE FOUR CONTAINERS PRIOR TO PLACING CONTAINERS INTO THE TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.

② SEAL FOR 1-1/4" STEEL STRAPPING (48 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS. SEE GENERAL NOTE "G" ON PAGE 2.

③ SPACER ASSEMBLY A (6 REQD). SEE THE DETAIL ON PAGE 16. INSTALL WITH THE RETAINER PIECES OF THE ASSEMBLY UNDER THE SECOND AND FOURTH LAYERS OF CONTAINERS, AGAINST THE CONTAINER SKIDS AND TOWARD THE CONTAINER END, I.E., THE FIRST ASSEMBLY FOR EACH LOAD UNIT WITH THE RETAINER PIECES ON THE FORWARD SIDE, AND THE SECOND ASSEMBLY WITH THE RETAINER PIECES ON THE REAR SIDE. SEE BLOW-UP VIEW FOR GUIDANCE. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.

④ REAR GATE (1 REQD). SEE THE DETAIL ON PAGE 16.

⑤ SOLID FILL, 4" WIDE MATERIAL, 72" LONG BY A THICKNESS TO SUIT (REQD AT TWO PLACES). NAIL THE FIRST PIECE TO THE VERTICAL PIECE OF THE REAR GATE, PIECE MARKED ④, W/4-10d NAILS. LAMINATE EACH ADDITIONAL PIECE TO THE FIRST W/4 APPLICABLY SIZED NAILS.

48-UNIT LOAD IN A 53'-0" LONG BY 8'-2" WIDE VAN TRAILER

SPECIAL NOTES:

1. A 48-UNIT LOAD IS SHOWN IN A 53'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER. TRAILERS OF OTHER WIDTHS MAY BE USED, HOWEVER, SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 48-UNIT LOAD.

2. IF THE TRAILER TO BE LOADED IS EQUIPPED WITH ROUNDED CORNERS AT THE FRONT END, A FORWARD BLOCKING ASSEMBLY MUST BE INSTALLED. SEE THE DETAIL ON PAGE 11.

3. CONTAINERS MUST BE UNITIZED INTO GROUPS OF FOUR CONTAINERS PRIOR TO LOADING INTO THE VAN TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5. THE UNITIZED CONTAINERS CAN THEN BE PICKED UP FROM THE SIDE AND POSITIONED WITH ONE END RESTING IN THE REAR END OF THE TRAILER. THE REAR END OF THE UNITIZED CONTAINERS CAN THEN BE PICKED UP WITH THE FORKLIFT TRUCK AND PUSHED INTO POSITION IN THE TRAILER.

4. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. ONE CONTAINER CAN BE OMITTED BY EMPLOYING THE PROCEDURES DEPICTED ON PAGE 17. THE 3-UNIT BUNDLE SHOULD BE POSITIONED SO THAT THE SPACER ASSEMBLY B IS NEXT TO THE TRAILER SIDEWALL AND SHOULD ALSO BE WITHIN THE MIDDLE LOAD UNIT. THE OMITTED UNIT MUST BE IN THE TOP LAYER. IF TWO CONTAINERS ARE TO BE OMITTED, THE SAME METHOD SHOULD BE APPLIED ON THE OPPOSITE SIDE OF THE LOAD. IF THREE CONTAINERS ARE TO BE OMITTED, EMPLOY THE OMISSION OF A SINGLE CONTAINER TO ONE SIDE OF THE LOAD AND OMIT TWO CONTAINERS FROM THE TOP OF THE OPPOSITE SIDE 4-UNIT BUNDLE. A COMBINATION OF THESE PROCEDURES CAN BE APPLIED FOR THE FURTHER REDUCTION OF THE LOAD.

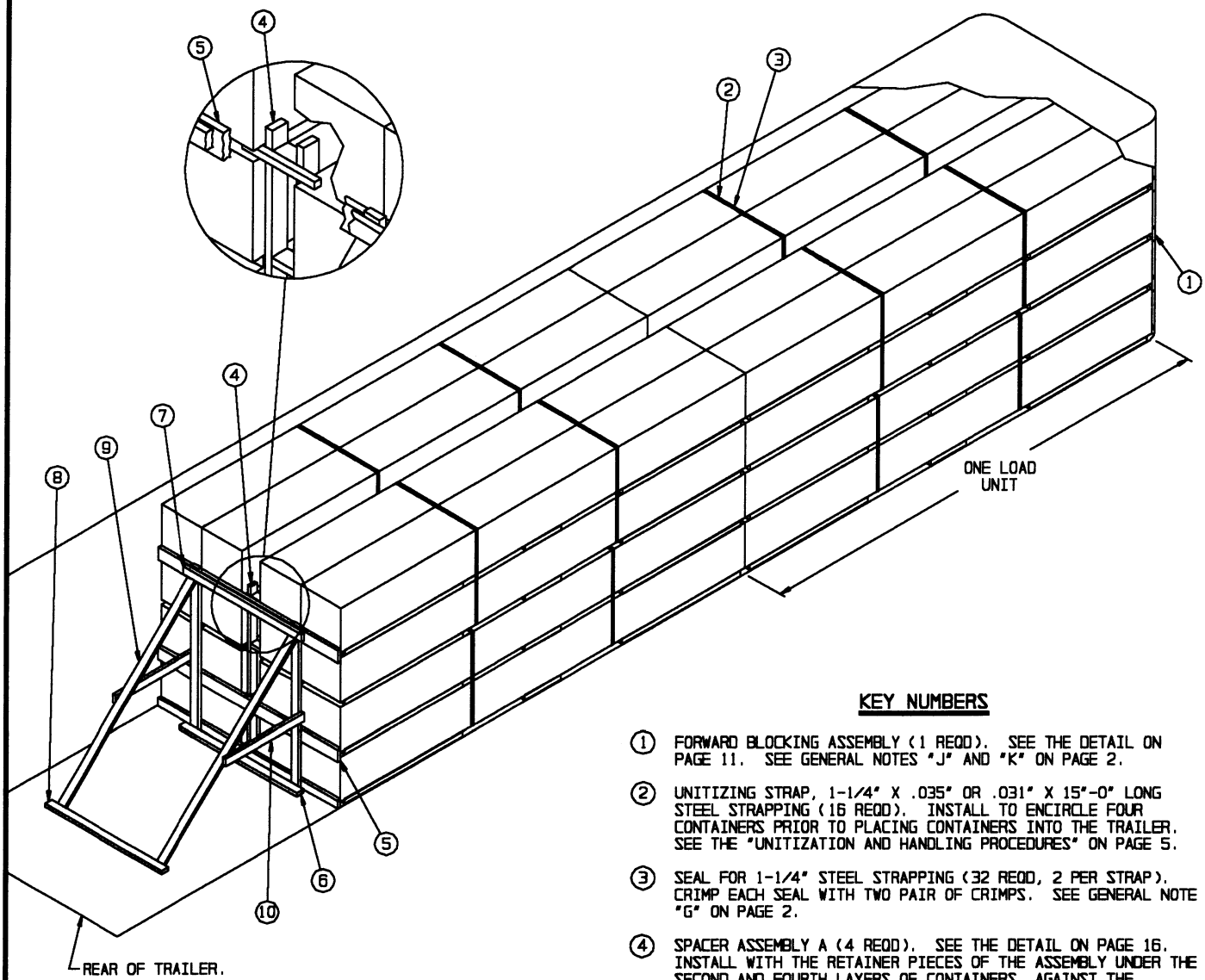
5. IF A TRAILER SHORTER THAN 53'-0" IS FURNISHED FOR LOADING, REFER TO THE PROCEDURES ON PAGES 8 AND 9 FOR GUIDANCE.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2" 2" X 4" 2" X 6"	24 160 17	8 107 17
NAILS	**NO. REQD**	**POUNDS**
10d (3")	170	2-3/4
STEEL STRAPPING, 1-1/4" - - 360' REQD - - - - 52 LBS SEAL FOR 1-1/4" STRAPPING - 48 REQD - - - - 3 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	48	21,120 LBS
DUNNAGE		322 LBS
TOTAL WEIGHT		21,442 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 11. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.

② UNITIZING STRAP, 1-1/4" X .035" OR .031" X 15'-0" LONG STEEL STRAPPING (16 REQD). INSTALL TO ENCIRCLE FOUR CONTAINERS PRIOR TO PLACING CONTAINERS INTO THE TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.

③ SEAL FOR 1-1/4" STEEL STRAPPING (32 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS. SEE GENERAL NOTE "G" ON PAGE 2.

④ SPACER ASSEMBLY A (4 REQD). SEE THE DETAIL ON PAGE 16. INSTALL WITH THE RETAINER PIECES OF THE ASSEMBLY UNDER THE SECOND AND FOURTH LAYERS OF CONTAINERS, AGAINST THE CONTAINER SKIDS AND TOWARD THE CONTAINER END, I.E., THE FIRST ASSEMBLY FOR EACH LOAD UNIT WITH THE RETAINER PIECES ON THE FORWARD SIDE, AND THE SECOND ASSEMBLY WITH THE RETAINER PIECES ON THE REAR SIDE. SEE BLOW-UP VIEW FOR GUIDANCE.

⑤ REAR GATE (1 REQD). SEE THE DETAIL ON PAGE 16. POSITION WITH THE HORIZONTAL PIECES AGAINST THE CONTAINERS.

⑥ FORWARD HEADER, 2" X 4" X 60" (1 REQD). NAIL TO THE TRAILER FLOOR W/2-10d NAILS NEAR EACH END. TOENAIL TO THE VERTICAL PIECES OF THE REAR GATE, PIECE MARKED ⑤, W/2-12d NAILS AT EACH JOINT. SEE SPECIAL NOTE 4 ON PAGE 9.

⑦ HOLD DOWN, 2" X 4" X 60" (1 REQD). POSITION 1" BELOW THE TOP OF THE VERTICAL PIECES OF THE REAR GATE, PIECE MARKED ⑤, AND NAIL W/3-10d NAILS AT EACH JOINT.

⑧ REAR HEADER, 2" X 4" X 60" (1 REQD). POSITION SO THERE IS 65" BETWEEN THE FORWARD HEADER, PIECE MARKED ⑥, AND THIS HEADER. NAIL TO THE TRAILER FLOOR W/3-10d NAILS NEAR EACH END.

⑨ DIAGONAL BRACE, 2" X 4" X 8'-0" (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. TOENAIL TO THE VERTICAL PIECES OF THE REAR GATE, PIECE MARKED ⑤, AND TO THE REAR HEADER, PIECE MARKED ⑧, OR THE TRAILER FLOOR W/2-12d NAILS AT EACH END.

⑩ BRACE PIECE, 2" X 4" X 40" (2 REQD). POSITION AS SHOWN AND NAIL TO THE VERTICAL PIECE OF THE REAR GATE, PIECE MARKED ⑤, AND TO THE DIAGONAL BRACE, PIECE MARKED ⑨, W/2-10d NAILS AT EACH END.

32-UNIT LOAD IN A 45'-0" LONG BY 7'-8" WIDE VAN TRAILER

SPECIAL NOTES:

1. A 32-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER. LONGER OR SHORTER TRAILERS (42'-0" MINIMUM) AND TRAILERS OF OTHER WIDTHS CAN BE USED.

2. IF THE TRAILER TO BE LOADED HAS A SQUARE FRONT WALL, THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①, WILL NOT BE REQUIRED.

3. CONTAINERS MUST BE UNITIZED INTO GROUPS OF FOUR CONTAINERS PRIOR TO LOADING INTO THE VAN TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5. THE UNITIZED CONTAINERS CAN THEN BE PICKED UP FROM THE SIDE AND POSITIONED WITH ONE END RESTING IN THE REAR END OF THE TRAILER. THE REAR END OF THE UNITIZED CONTAINERS CAN THEN BE PICKED UP WITH THE FORKLIFT TRUCK AND PUSHED INTO POSITION IN THE TRAILER.

4. IF THE TRAILER FURNISHED FOR LOADING IS 8'-2" WIDE (APPROX), THE FORWARD HEADER, HOLD DOWN, AND REAR HEADER, PIECES MARKED ⑥ THRU ⑧, MUST BE 66" LONG IN LIEU OF 60".

5. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. ONE CONTAINER CAN BE OMITTED BY EMPLOYING THE PROCEDURES DEPICTED ON PAGE 17. THE 3-UNIT BUNDLE SHOULD BE POSITIONED SO THAT THE SPACER ASSEMBLY B IS NEXT TO THE TRAILER SIDEWALL AND SHOULD ALSO BE WITHIN THE REAR LOAD UNIT. THE OMITTED UNIT MUST BE IN THE TOP LAYER. IF TWO CONTAINERS ARE TO BE OMITTED, THE SAME METHOD SHOULD BE APPLIED ON THE OPPOSITE SIDE OF THE LOAD. IF THREE CONTAINERS ARE TO BE OMITTED, EMPLOY THE OMISSION OF A SINGLE CONTAINER TO ONE SIDE OF THE LOAD AND OMIT TWO CONTAINERS FROM THE TOP OF THE OPPOSITE SIDE 4-UNIT BUNDLE. A COMBINATION OF THESE PROCEDURES CAN BE APPLIED FOR THE FURTHER REDUCTION OF THE LOAD.

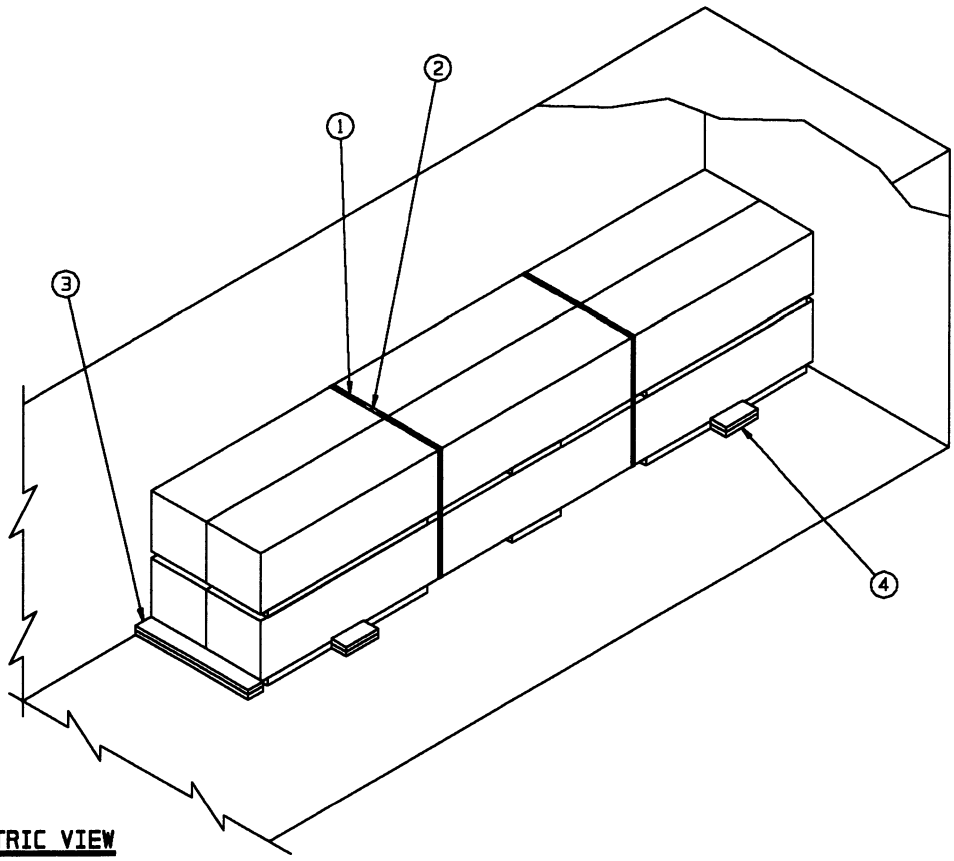
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	12	4
2" X 4"	131	88
2" X 6"	58	58
NAILS	**NO. REQD**	**POUNDS**
10d (3")	166	2-3/4
12d (3-1/4")	12	1/4
STEEL STRAPPING, 1-1/4" - - 240' REQD - -		35 LBS
SEAL FOR 1-1/4" STRAPPING - 32 REQD - -		1-1/2 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	32	14,080 LBS
DUNNAGE		340 LBS
TOTAL WEIGHT		14,420 LBS (APPROX)

32-UNIT LOAD IN A 45'-0" LONG BY 7'-8" WIDE VAN TRAILER



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 4-UNIT LOAD IS SHOWN IN A 7'-8" WIDE VAN TRAILER. TRAILERS OF OTHER WIDTHS MAY BE USED.
2. A SQUARE FRONT TRAILER IS SHOWN. IF THE TRAILER BEING LOADED IS EQUIPPED WITH ROUNDED CORNERS, POSITION THE CONTAINERS IN THE CENTER OF THE TRAILER WIDTH. INSTALL SIDE BLOCKING, PIECE MARKED ④ ON BOTH SIDES OF THE CONTAINERS.
3. IF TWO 4-UNIT BUNDLES ARE TO BE SHIPPED, THE ADDED 4-UNIT BUNDLE SHOULD BE PLACED AGAINST THE OPPOSITE WALL AND TWO PIECES MARKED ④ PLACED AGAINST THE SKIDS.
4. THE HEADER, PIECE MARKED ③, WITH THREE NAILS IN EACH LAYER IS ADEQUATE FOR THE RETENTION OF THREE 4-UNIT BUNDLES OF CONTAINERS.

KEY NUMBERS

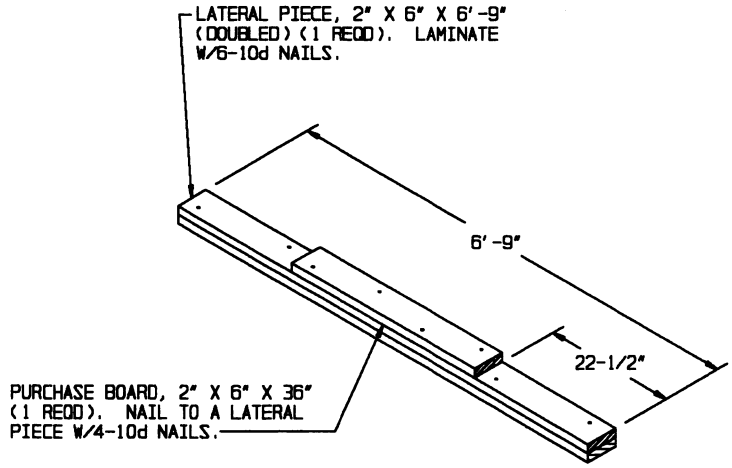
① UNITIZING STRAP, 1-1/4" X .035" OR .031" X 15'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE FOUR CONTAINERS PRIOR TO PLACING CONTAINERS INTO THE TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.

② SEAL FOR 1-1/4" STEEL STRAPPING (4 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS. SEE GENERAL NOTE "G" ON PAGE 2.

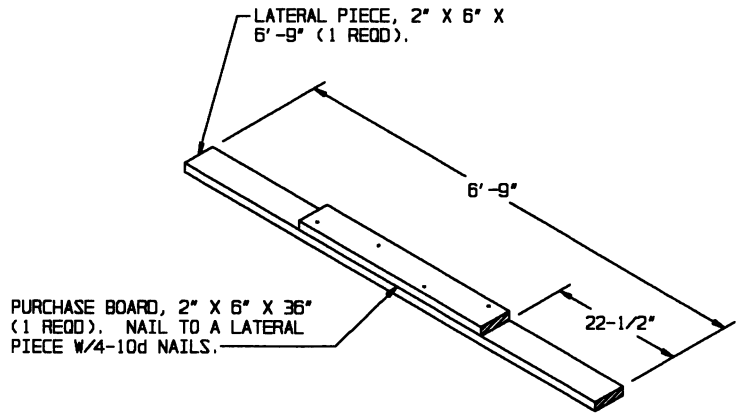
③ HEADER, 2" X 4" X 42" (DOUBLED) (1 REQD). POSITION AGAINST CONTAINER SKIDS. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "J" ON PAGE 2.

④ SIDE BLOCKING, 2" X 6" X 12" (2 REQD). POSITION AGAINST CONTAINER SKID. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/2-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

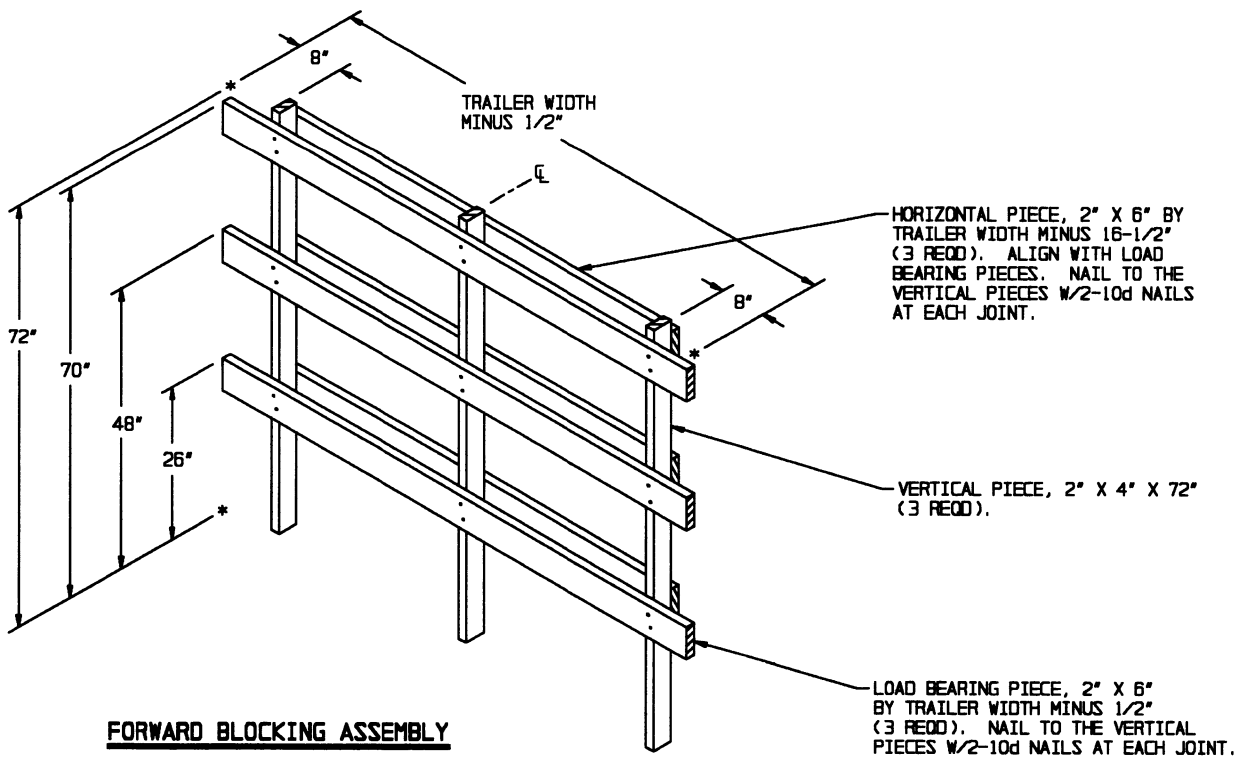
TYPICAL LTL (4-UNIT LOAD) IN A VAN TRAILER



CHAIN BOARD ASSEMBLY



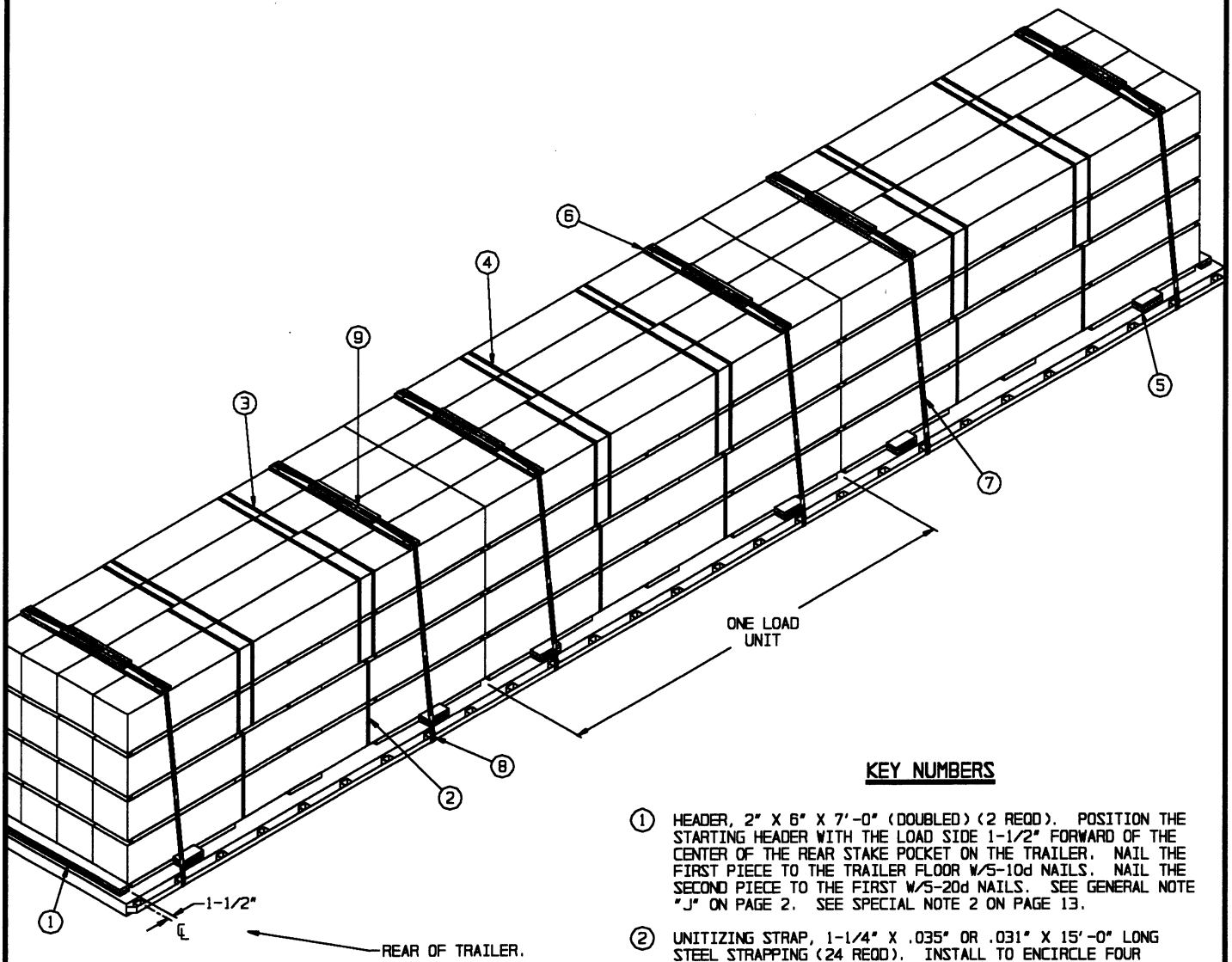
STRAPPING BOARD ASSEMBLY



FORWARD BLOCKING ASSEMBLY

DETAILS

PROJECT GM 629-70



ISOMETRIC VIEW

KEY NUMBERS

① HEADER, 2" X 6" X 7'-0" (DOUBLED) (2 REQD). POSITION THE STARTING HEADER WITH THE LOAD SIDE 1-1/2" FORWARD OF THE CENTER OF THE REAR STAKE POCKET ON THE TRAILER. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-20d NAILS. SEE GENERAL NOTE "J" ON PAGE 2. SEE SPECIAL NOTE 2 ON PAGE 13.

② UNITIZING STRAP, 1-1/4" X .035" OR .031" X 15'-0" LONG STEEL STRAPPING (24 REQD). INSTALL TO ENCIRCLE FOUR CONTAINERS PRIOR TO PLACING ON THE TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.

③ SEAL FOR 1-1/4" STEEL STRAPPING (60 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS. SEE GENERAL NOTE "G" ON PAGE 2.

④ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENCIRCLE THE TOP TWO LAYERS OF CONTAINERS.

⑤ SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (12 REQD). POSITION AGAINST A CONTAINER SKID. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/4-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

⑥ STRAPPING BOARD ASSEMBLY (6 REQD). SEE THE DETAIL ON PAGE 11.

⑦ HOLD-DOWN STRAP, 2" X .050" OR .044" X 31'-0" LONG STEEL STRAPPING (6 REQD). INSTALL EACH STRAP FROM TWO 15'-6" LONG PIECES. STAPLE TO THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑥, W/3 STAPLES. SEE SPECIAL NOTE 3 ON PAGE 13.

⑧ PAD, 2" X .050" OR .044" X 18" LONG STEEL STRAPPING (12 REQD). POSITION UNDER STAKE POCKET AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑦. SEE "DETAIL A" ON PAGE 18. ALT: STAKE POCKET PROTECTOR (24 REQD). USE TWO UNDER EACH STAKE POCKET WITH A HOLD-DOWN STRAP. SEE "DETAIL B" ON PAGE 18.

⑨ SEAL FOR 2" STEEL STRAPPING (36 REQD, 6 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑧.

48-UNIT LOAD ON A 53'-0" LONG BY 8'-6" WIDE FLATBED TRAILER

SPECIAL NOTES:

1. A 48-UNIT LOAD IS SHOWN ON A 53'-0" LONG BY 8'-6" WIDE FLATBED TRAILER. TRAILERS OF OTHER DIMENSIONS CAN BE USED, HOWEVER, SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 48-UNIT LOAD.

2. THE 53'-0" TRAILER SHOWN IS EQUIPPED WITH STAKE POCKETS SPACED 24" ON CENTER, WITH THE CENTER OF THE FIRST POCKET 6" FROM THE END OF THE TRAILER. THE STARTING HEADER, PIECE MARKED ①, WILL BE LOCATED 1-1/2" TOWARD THE FRONT FROM THE CENTER OF THE FIRST STAKE POCKET.

3. BASED ON THE END STAKE POCKETS BEING LOCATED 6" FROM EITHER END AND THE REMAINING POCKETS SPACED 24" ON CENTER, POCKETS NUMBER 2, 8, 11, 17, 20, AND 26, AS COUNTED FROM THE REAR, SHOULD BE USED FOR ATTACHMENT OF THE HOLD-DOWN STRAPS, PIECES MARKED ⑦. THE USE OF THESE POCKETS WILL ALIGN THE STRAPS AS NEARLY AS POSSIBLE WITH THE STRONG PORTIONS OF THE CONTAINERS. IF THE FIRST STAKE POCKETS ARE LOCATED 12" FROM THE ENDS, POCKETS NUMBER 19 AND 25 SHOULD BE USED IN LIEU OF POCKETS 20 AND 26.

4. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. ONE CONTAINER CAN BE OMITTED BY EMPLOYING THE PROCEDURES DEPICTED ON PAGE 17. THE 3-UNIT BUNDLE WILL BE POSITIONED SO THAT THE SPACER ASSEMBLY B IS TOWARD THE CENTER OF THE TRAILER WIDTH. IT MAY BE LOCATED IN ANY OF THE LOAD UNITS ON THE TRAILER. IF TWO CONTAINERS ARE TO BE OMITTED, THE SAME METHOD SHOULD BE APPLIED, EITHER ON THE OPPOSITE SIDE OF THE LOAD UNIT OR IN ONE OF THE OTHER LOAD UNITS, AS DESIRED. THIS METHOD CAN BE REPEATED FOR OMISSION OF THREE CONTAINERS. IF THE LOAD IS TO BE REDUCED BY FOUR CONTAINERS, OMIT THE ENTIRE TOP LAYER OF A LOAD UNIT.

5. CHAINS AND LOAD BINDERS MAY BE USED IN LIEU OF THE 2" HOLD-DOWN STRAPS, PADS, AND SEALS, PIECES MARKED ⑦ THRU ⑨. REFER TO THE PROCEDURES ON PAGES 14 AND 15 FOR GUIDANCE.

6. WEB STRAP ASSEMBLIES MAY BE USED IN LIEU OF THE 2" HOLD-DOWN STRAPS, PADS, AND SEALS, PIECES MARKED ⑦, ⑧, AND ⑨. THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑥, AND ALL THE REST OF THE DUNNAGE, PIECES MARKED ① THRU ⑤ WILL BE AS SHOWN. THE WEB STRAP ASSEMBLIES WILL BE APPLIED AT THE SAME LOCATIONS AS SPECIFIED FOR THE STEEL STRAPPING. SEE THE "SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN" ON PAGE 4.

BILL OF MATERIAL

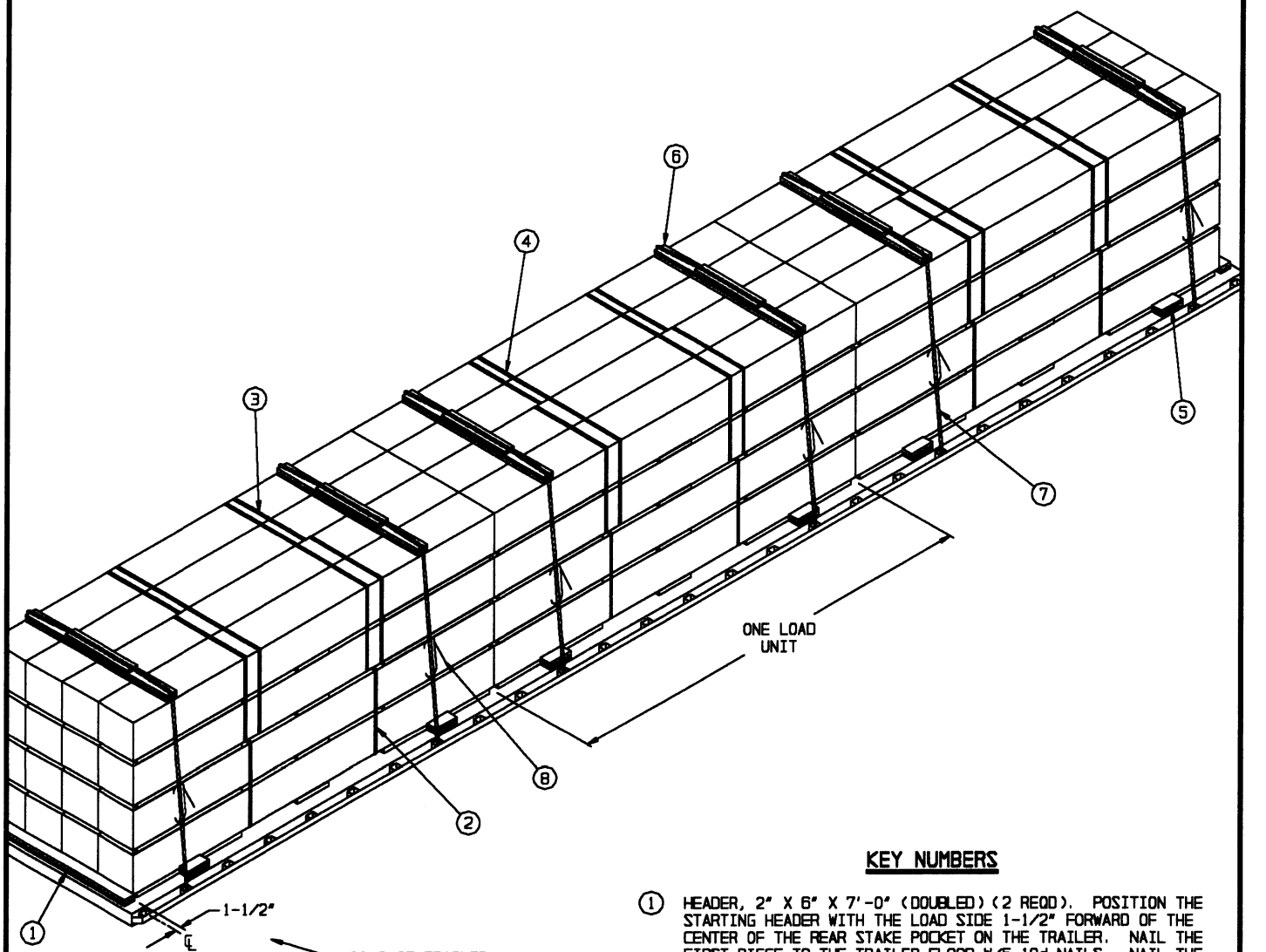
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	111	111
NAILS	**NO. REQD**	**POUNDS**
10d (3") 20d (4")	130 10	2 1/2

STEEL STRAPPING, 1-1/4"	492'	REQD	71 LBS
SEAL FOR 1-1/4" STRAPPING	60	REQD	3 LBS
STEEL STRAPPING, 2"	204'	REQD	68 LBS
SEAL FOR 2" STRAPPING	36	REQD	7 LBS
STAPLE FOR 2" STRAPPING	18	REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	48	21,120 LBS
DUNNAGE		374 LBS
TOTAL WEIGHT		21,494 LBS (APPROX)

48-UNIT LOAD ON A 53'-0" LONG BY 8'-6" WIDE FLATBED TRAILER



ISOMETRIC VIEW

KEY NUMBERS

① HEADER, 2" X 6" X 7'-0" (DOUBLED) (2 REQD). POSITION THE STARTING HEADER WITH THE LOAD SIDE 1-1/2" FORWARD OF THE CENTER OF THE REAR STAKE POCKET ON THE TRAILER. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/5-20d NAILS. SEE GENERAL NOTE "J" ON PAGE 2. SEE SPECIAL NOTE 2 ON PAGE 15.

② UNITIZING STRAP, 1-1/4" X .035" OR .031" X 15'-0" LONG STEEL STRAPPING (24 REQD). INSTALL TO ENCIRCLE FOUR CONTAINERS PRIOR TO PLACING ON THE TRAILER. SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.

③ SEAL FOR 1-1/4" STEEL STRAPPING (60 REQD, 2 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF CRIMPS. SEE GENERAL NOTE "G" ON PAGE 2.

④ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (6 REQD). INSTALL TO ENCIRCLE THE TOP TWO LAYERS OF CONTAINERS.

⑤ SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (12 REQD). POSITION AGAINST A CONTAINER SKID. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/4-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.

⑥ CHAIN BOARD ASSEMBLY (6 REQD). SEE THE DETAIL ON PAGE 11.

⑦ CHAIN, BINDING, 5/16", GRADE 70, BY A LENGTH TO SUIT (6 REQD). POSITION AS SHOWN. ATTACH TO A STAKE POCKET. DO NOT ATTACH TO A RUB RAIL. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 3. SEE SPECIAL NOTES 3 AND 5 ON PAGE 15.

⑧ LOAD BINDER, 5/16", OVER-CENTER TYPE (6 REQD, 1 PER CHAIN). WIRE TIE HANDLE TO PREVENT OPENING DURING TRANSPORT. FASTEN THE TENSIONED CHAIN, PIECE MARKED ⑦, TO THE CHAIN BOARD ASSEMBLY, PIECE MARKED ⑥, W/3-20d NAILS, ONE AT EACH END AND ONE IN THE MIDDLE, BY DRIVING EACH NAIL INTO THE LATERAL PIECE AND/OR PURCHASE PIECE OF THE ASSEMBLY THRU THE OPENING IN A CHAIN LINK AND BENDING IT OVER THE LINK.

48-UNIT LOAD ON A 53'-0" LONG BY 8'-6" WIDE FLATBED TRAILER (CHAIN TIEDOWN)

SPECIAL NOTES:

1. A 48-UNIT LOAD IS SHOWN ON A 53'-0" LONG BY 8'-6" WIDE FLATBED TRAILER. TRAILERS OF OTHER DIMENSIONS CAN BE USED, HOWEVER, SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 48-UNIT LOAD.

2. THE 53'-0" TRAILER SHOWN IS EQUIPPED WITH STAKE POCKETS SPACED 24" ON CENTER, WITH THE CENTER OF THE FIRST POCKET 6" FROM THE END OF THE TRAILER. THE STARTING HEADER, PIECE MARKED ①, WILL BE LOCATED 1-1/2" TOWARD THE FRONT FROM THE CENTER OF THE FIRST STAKE POCKET.

3. BASED ON THE END STAKE POCKETS BEING LOCATED 6" FROM EITHER END AND THE REMAINING POCKETS SPACED 24" ON CENTER, POCKETS NUMBER 2, 8, 11, 17, 20, AND 26, AS COUNTED FROM THE REAR, SHOULD BE USED FOR ATTACHMENT OF THE CHAINS, PIECES MARKED ⑦. THE USE OF THESE POCKETS WILL ALIGN THE CHAINS AS NEARLY AS POSSIBLE WITH THE STRONG PORTIONS OF THE CONTAINERS. IF THE FIRST STAKE POCKETS ARE LOCATED 12" FROM THE ENDS, POCKETS NUMBER 19 AND 25 SHOULD BE USED IN LIEU OF POCKETS 20 AND 26.

4. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. ONE CONTAINER CAN BE OMITTED BY EMPLOYING THE PROCEDURES DEPICTED ON PAGE 17. THE 3-UNIT BUNDLE WILL BE POSITIONED SO THAT THE SPACER ASSEMBLY B IS TOWARD THE CENTER OF THE TRAILER WIDTH. IT MAY BE LOCATED IN ANY OF THE LOAD UNITS ON THE TRAILER. IF TWO CONTAINERS ARE TO BE OMITTED, THE SAME METHOD SHOULD BE APPLIED, EITHER ON THE OPPOSITE SIDE OF THE LOAD UNIT OR IN ONE OF THE OTHER LOAD UNITS, AS DESIRED. THIS METHOD CAN BE REPEATED FOR OMISSION OF THREE CONTAINERS. IF THE LOAD IS TO BE REDUCED BY FOUR CONTAINERS, OMIT THE ENTIRE TOP LAYER OF A LOAD UNIT.

5. TWO-INCH STEEL STRAPPING, PADS, AND SEALS MAY BE USED IN LIEU OF THE CHAINS AND LOAD BINDERS, PIECES MARKED ⑦ AND ⑧. REFER TO THE PROCEDURES ON PAGES 12 AND 13 FOR GUIDANCE. NOTE THAT A STRAPPING BOARD ASSEMBLY, SPECIFIED ON PAGE 12 AS PIECE MARKED ⑥, MAY BE USED IN LIEU OF THE CHAIN BOARD ASSEMBLY SPECIFIED ON PAGE 14 AS PIECE MARKED ⑥.

6. WEB STRAP ASSEMBLIES MAY BE USED IN LIEU OF THE CHAINS AND LOAD BINDERS, PIECES MARKED ⑦, AND ⑧. THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑥ ON PAGE 12, MAY BE USED IN LIEU OF THE CHAIN BOARD ASSEMBLY SPECIFIED ON PAGE 14 AS PIECE MARKED ⑥. THE REST OF THE DUNNAGE, PIECES MARKED ① THRU ⑤ WILL BE AS SHOWN. THE WEB STRAP ASSEMBLIES WILL BE APPLIED AT THE SAME LOCATIONS AS SPECIFIED FOR THE CHAINS AND LOAD BINDERS. SEE THE "SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN" ON PAGE 4 FOR FURTHER GUIDANCE.

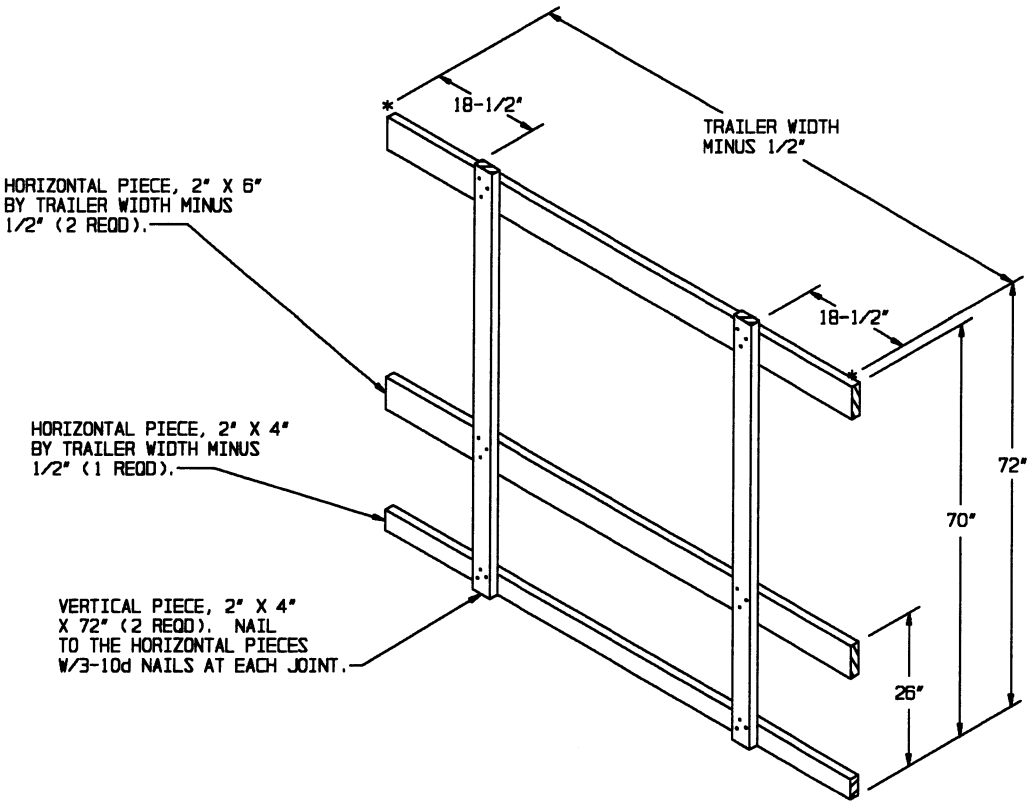
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	151	151
NAILS	NO. REQD	POUNDS
10d (3") 20d (4")	166 28	2-3/4 1

STEEL STRAPPING, 1-1/4"	492'	REQD	71 LBS
SEAL FOR 1-1/4" STRAPPING	60	REQD	3 LBS
CHAIN, BINDING, 5/16"	160'	REQD	192 LBS
LOAD BINDER, 5/16"	6	REQD	36 LBS

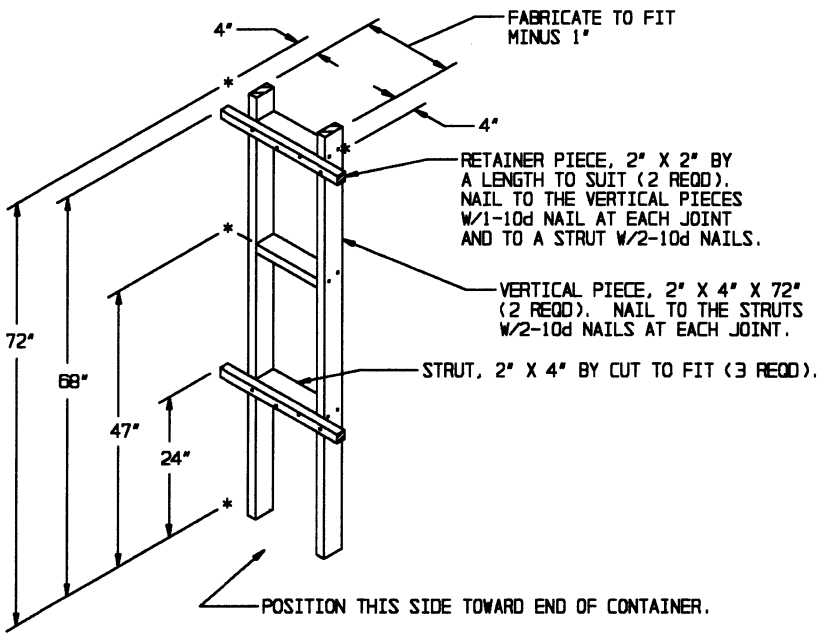
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER		21,120 LBS
DUNNAGE		608 LBS
TOTAL WEIGHT		21,728 LBS (APPROX)

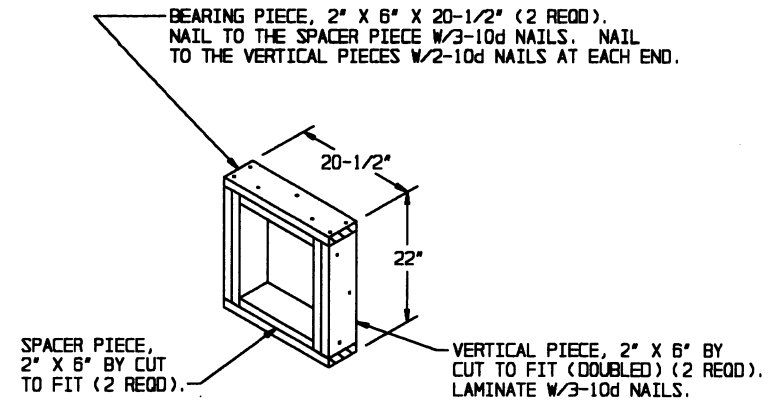
48-UNIT LOAD ON A 53'-0" LONG BY 8"-6" WIDE FLATBED TRAILER (CHAIN TIEDOWN)



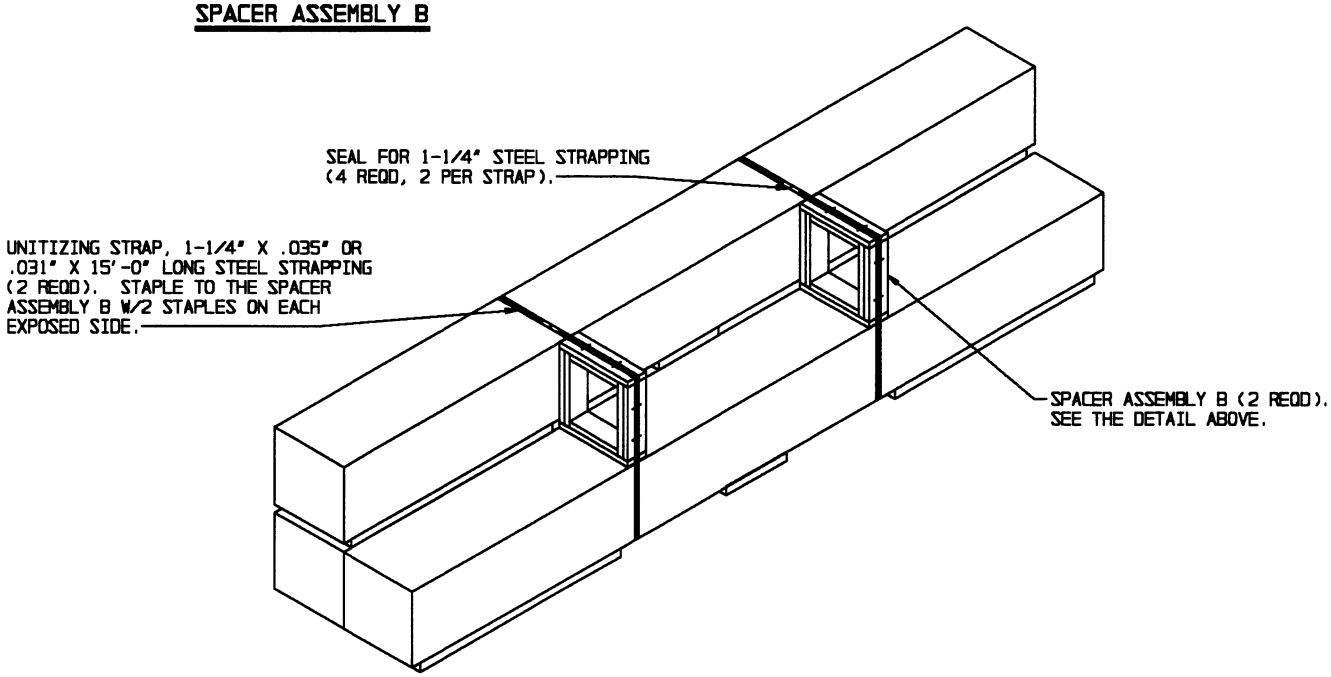
REAR GATE



SPACER ASSEMBLY A



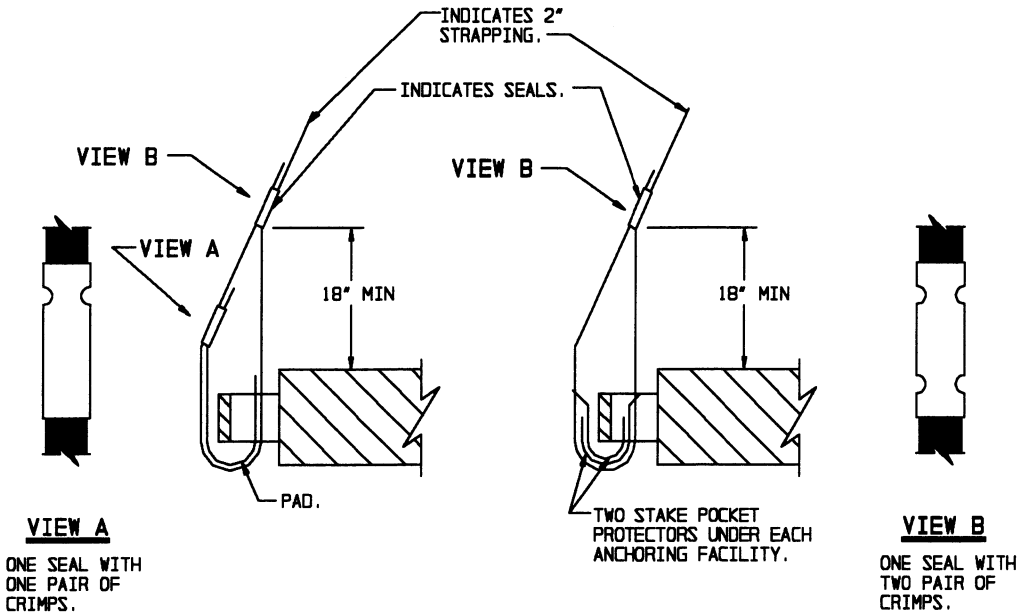
SPACER ASSEMBLY B



ISOMETRIC VIEW

SPECIAL NOTES:

1. THE PROCEDURES DEPICTED ON THIS PAGE ARE APPLICABLE FOR THE OMISSION OF A CONTAINER FROM A UNITIZED BUNDLE OF FOUR CONTAINERS. THIS METHOD MAY BE APPLIED FOR ANY OF THE LOADS DEPICTED WITHIN THIS DRAWING.
2. THE SPACER ASSEMBLY B WILL BE CONSTRUCTED AND PLACED ON A LOWER CONTAINER SO AS TO ALIGN APPROXIMATELY WITH THE END OF THE LONG CONTAINER SKID, ONE AT EACH END. THE UNITIZING STRAP WILL BE APPLIED TO EXTEND OVER THE SPACER ASSEMBLY AND WILL BE STAPLED TO IT WITH TWO STAPLES ON THE TOP AND TWO ON THE SIDE, AS SHOWN. THE SPACER ASSEMBLIES ARE TO BE SECURED TO THE BUNDLED UNIT PRIOR TO LOADING INTO THE TRAILER.
3. IF THE OMITTED CONTAINER PROCEDURES ARE TO BE USED IN A VAN TRAILER, THE BUNDLED UNIT WILL BE POSITIONED IN THE LOAD SO THE SPACER ASSEMBLIES ARE NEXT TO THE TRAILER SIDEWALL.
4. IF THE OMITTED CONTAINER PROCEDURES ARE TO BE USED ON A FLATBED TRAILER, THE BUNDLED UNIT WILL BE POSITIONED IN THE LOAD SO THAT THE SPACER ASSEMBLIES ARE NEXT TO THE CENTER OF THE LOAD WIDTH.



VIEW A

ONE SEAL WITH ONE PAIR OF CRIMPS.

VIEW B

ONE SEAL WITH TWO PAIR OF CRIMPS.

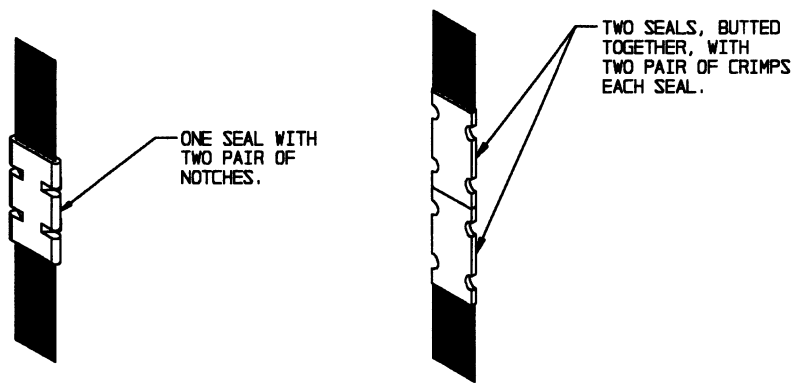
DETAIL A

METHOD OF INSTALLING 2" STRAPPING AND PAD AT ANCHORING FACILITY.

DETAIL B

METHOD OF INSTALLING 2" STRAPPING AND STAKE POCKET PROTECTORS (ALT PAD).

HOLD-DOWN STRAP ANCHORING DETAILS



STRAP JOINT A

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

STRAP JOINT B

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

END-OVER-END LAP JOINT DETAILS