LOADING AND BRACING (TL & LTL) IN CLOSED OR OPEN TOP VAN TRAILERS OF NITROGUANIDINE OR OTHER EXPLOSIVE SOLIDS IN FIBERBOARD DRUMS (NOT UNITIZED), LESS THAN 100 POUNDS GROSS WEIGHT

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CAUTION: THE PROCEDURES SHOWN HEREIN FOR CONVENTIONAL VAN TRAILERS ARE ONLY APPLICABLE FOR HIGHWAY MOVEMENT, NOT TRAILER-ON-FLAT-CAR MOVEMENTS.

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GENERAL NOTES

- 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 DOCUMENT APPLY TO NITROGUANIDINE OR OTHER EXPLOSIVE SOLIDS IN FIBERBOARD DRUMS WITH A GROSS WEIGHT LESS THAN 100 POUNDS, FOR DRUMS HAVING A GROSS WEIGHT OF 100 POUNDS OR MORE THE PROCEDURES SPECIFIED IN AMC DRAWING 19-48-4174-11FN1000 WILL APPLY.
- C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DRAWING ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE VAN TRAILERS OF VARIOUS LENGTHS AND INSIDE WIDTHS. ALL METAL TRAILERS MAY BE USED, EXCEPT FOR LTL LOADS, AND TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS, WHICH REQUIRE TRAILERS TO HAVE NAILABLE FLOORS.
- D. ALL THE LOADS SHOWN HEREIN ARE BASED ON SHIPMENTS OF NITROGUANIDINE IN 15-7/8" DIAMETER BY 25" HIGH FIBERBOARD DRUMS WITH
 A GROSS WEIGHT OF 57 POUNDS AS TYPICALLY SHOWN IN THE DETAIL
 ON PAGE 3. HOWEVER, THE PROCEDURES APPLY TO LOADS OF FIBERBOARD DRUMS OF ANY DIAMETER OR HEIGHT AND LESS THAN 100
 POUNDS GROSS WEIGHT, ONE OF THE THREE LOADING PATTERNS
 SHOWN ON PAGE 3 WILL BE USED. THE DIAMETER OF THE DRUM AND
 THE INSIDE WIDTH OF THE TRAILER WILL DETERMINE THE LOADING
 PATTERN TO BE USED BY APPLYING THE "LOADING INSTRUCTIONS"
 PRESCRIBED ON PAGE 4. THE QUANTITY OF DRUMS THAT CAN BE
 SHIPPED WILL BE BASED ON THE WEIGHT OF THE DRUMS, THE LOADING
 PATTERN, THE LENGTH OF THE TRAILER AND THE WEIGHT CAPACITY OF
 THE TRAILER AND MAY REQUIRE LOADING OF A "PARTIAL LAYER" OF
 DRUMS IN ACCORDANCE WITH PROCEDURES SPECIFIED ON PAGES 10
- E. SELECTION OF A VEHICLE TO BE USED TO TRANSPORT THE DESIGNATED ITEMS MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL. THE SPECIFIED BRACING IS ADEQUATE FOR LOADS WEIGHING UP TO AND INCLUDING THE MAXIMUM WEIGHTS PERMITTED BY LAW.
- F. 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. THE TOTAL WEIGHT OF THE LADING, OF THE DUNNAGE, OF THE TRACTOR, AND OF THE SEMI TRAILER CARRYING THE LADING MUST NOT EXCEED THE MAXIMUM GROSS WEIGHT ALLOWED FOR THE STATE OR STATES THRU WHICH THE LOAD IS TO BE TRANSPORTED BY MOTOR CARRIER. LIKEWISE, THE GROSS WEIGHT ON A SINGLE OR TANDEM AXLE MUST NOT EXCEED THE MAXIMUM ALLOWABLE WEIGHT. IF THERE IS ANY DOUBT AS TO WHETHER THE TOTAL GROSS WEIGHT OR AXLE WEIGHT EXCEEDS THE MAXIMUM ALLOWED, WEIGHT SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- G. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH STATE WEIGHT LAWS. THE NUMBER OF LADING DRUMS 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.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH DRUMS OF EXPLOSIVE SOLIDS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCK-ING AND BRACING CRITERIA SPECIFIED HEREIN.
- J. THE 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, PIECE MARKED ①, AND POSITION THE DRUMS DIRECTLY AGAINST THE FORWARD PORTION OF THE TRAILER.
- K. WHEN STEEL STRAPPING IS SEALED AT AN END OVER END LAP JOINT, A MINI-MUM OF ONE (1) SEAL WITH TWO (2) PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH TYPE SEALER IS BEING USED. A MINI-MUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

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

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

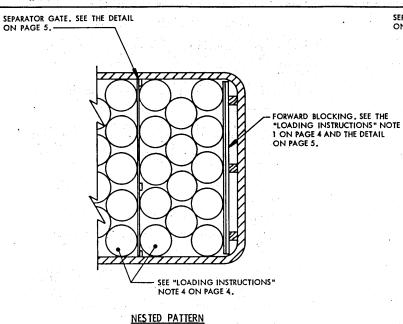
STRAPPING, STEEL ---- FED SPEC QQ-S-781; CLASS 1, TYPE I OR IV, HEAVY DUTY, FINISH A, B (GRADE 2), OR 'C.

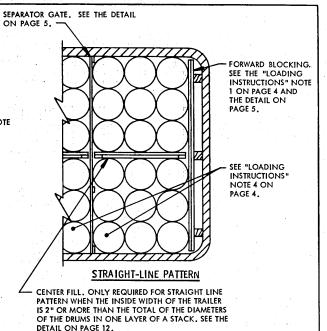
SEAL, STRAP -------: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR IV, CLASS H, FINISH A, B (GRADE 2), OR C.

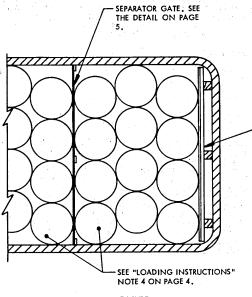
PLYWOOD ------ GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD,
INTERIOR WITH EXTERIOR GLUE, GRADE C-D, FED SPEC
NN-P-530. IF SPECIFIED GRADE IS NOT AVAILABLE, A
BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE
SUBSTITUTED.

(GENERAL NOTES CONTINUED)

- L. EXCEPT FOR PLYWOOD, 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. SEE NOTE "U" BELOW.
- M. 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 NA ILED 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, ONTO, OR RIGHT BESIDE A NAIL IN A LOWER PIECE. SEE GENERAL NOTE "N" BELOW.
- N. 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.
- O. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- P. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.
- Q. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCU-MENT 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.
- R. THE LOADING PROCEDURES SPECIFIED ON PAGES 10 AND 11 DEPICT
 PARTIAL THIRD LAYER LOADING. THE QUANTITY OF DRUMS IN THE LOAD
 AS SHOWN MAY BE INCREASED OR DECREASED TO SATISFY THE QUANTITY OF
 DRUMS TO BE SHIPPED. AS MANY DRUMS MAY BE ADDED TO THE THIRD
 LAYER AS THE LOAD CAPACITY OF THE TRAILER PERMITS, HOWEVER, ALL
 ADJUSTMENTS IN QUANTITIES WILL BE MADE ONLY AT THE FORWARD END OF
 THE THIRD LAYER. THE USE OF ONE OR MORE "OMITTED DRUM ASSEMBLIES" MAY BE
 NECESSARY TO ATTAIN THE EXACT QUANTITY OF DRUMS DESIRED. THE
 REQUIREMENTS SET FORTH IN NOTE "S" BELOW WILL APPLY.
- S. WITHIN THIS DRAWING, THE USE OF "OMITTED DRUM ASSEMBLIES" ARE TYPICALLY SHOWN IN VARIOUS LOAD VIEWS AND DETAILED ON PAGE 13. SUCH ASSEMBLIES WILL ONLY BE USED IN THE TOP LAYER OF A LOAD AND LOCATED ADJACENT TO A SEPARATOR GATE, STRAPPING GATE OR OTHER LOAD BEARING SURFACE BUT NOT IN THE FORWARD AND REARWARD STACK OF PARTIAL LAYERS. ALSO, AN "OMITTED DRUM ASSEMBLY" WILL NOT BE LOCATED ADJACENT TO ANOTHER SUCH ASSEMBLY, NOR ADJACENT TO THE "FORWARD BLOCKING ASSEMBLY" OR "REAR GATE.
- T. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS CAN BE USED BY APPLYING THE REAR-OF-LOAD PROCEDURES SPECIFIED ON PAGE 12 WHICH DEPICTS THE "NAILED HEADER" METHOD AND REQUIRES THE TRAILER TO HAVE A NAILABLE FLOOR
- U. IF DESIRED, OR IF PLYWOOD IS NOT AVAILABLE, THE GATES AND FORWARD BLOCKING ASSEMBLIES REQUIRED FOR A LOAD MAY BE CONSTRUCTED OF 1" NOMINAL THICK LUMBER BY RANDOM WIDTHS AND BY TRAILER WIDTH IN LENGTH MINUS 1/2" HOWEVER, THE EDGES OF THE TWO TOP BOARDS AND THE EDGES OF THE TWO BOTTOM BOARDS WILL BE BUTTED TOGETHER. THE REMAINING BOARDS MAY BE SPACED NOT MORE THAN 1-1/2" APART. EACH BOARD WILL BE NAILED TO THE VERTICAL OR TIE PIECES WITH NOT LESS THAN TWO NAILS AT EACH JOINT.
- V. CAUTION: BLOCKING WILL NOT BE NAILED TO THE TRAILER WALLS, ALL NAILING WILL BE WITHIN THE DUNNAGE.
- W. THE USE OF 1/2" THICK PLYWOOD SPECIFIED HEREIN FOR FABRICATION OF THE FORWARD BLOCKING, VARIOUS GATES AND OTHER ASSEMBLIES, IS BASED ON NORMALLY AVAILABLE STANDARD SIZE SHEETS SUCH AS 4'-0" WIDE BY 8'-0" OR 10'-0" LONG, AND WILL REQUIRE CUTTING AND SOME SPLICING, WITH NOMINAL SIZE LUMBER, TO OBTAIN THE SPECIFIED DIMENSIONS OF THE WIDTH, HEIGHT AND/OR LENGTH OF THE ASSEMBLIES. IN SOME LOCALITIES IT MAY BE POSSIBLE TO OBTAIN 1/2" PLYWOOD SPECIALLY MANUFACTURED AS ONE PIECE TO THE WIDTH AND LENGTH DIMENSIONS REQUIRED FOR AN ASSEMBLY, THUS ELIMINATING CUTTING, WASTE, AND USE OF NOMINAL SIZE LUMBER FOR SPLICING, INCLUDING THE LABOR REQUIRED THEREWITH. THE COST PER SQUARE FOOT FOR THE SPECIAL SIZED SHEETS WILL MOST LIKELY EXCEED THE SQUARE FOOT COST OF STANDARD SIZE SHEETS, HOWEVER, THE OVERALL COST FOR FABRICATING AN ASSEMBLY WOULD BE REDUCED.







-FORWARD BLOCKING, SEE
THE "LOADING INSTRUCTIONS"
NOTE 1 ON PAGE 4 AND THE
DETAIL ON PAGE 5.

TYPICAL FIBERBOARD DRUM LESS
THAN 100 POUNDS GROSS WEIGHT

SEE GENERAL NOTE "D" ON PAGE 2

OFF-SET NESTED PATTERN

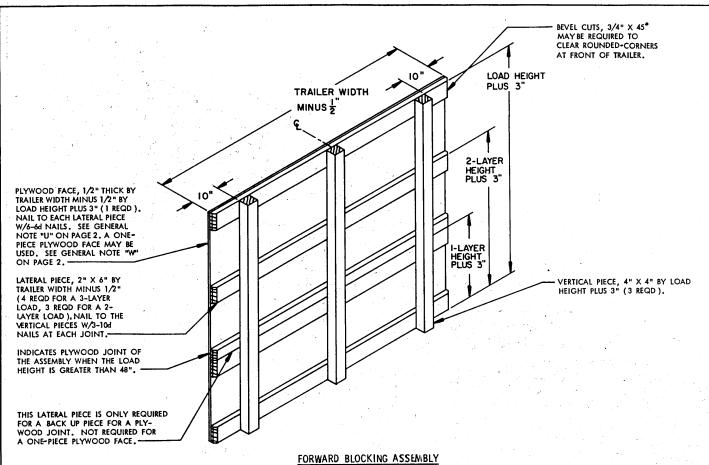
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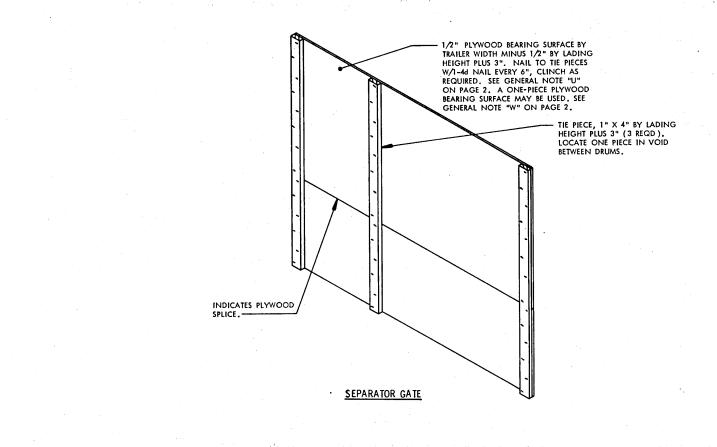
- 1. IN ALL LOADS, ALL DRUM STACKS MUST FORM STRAIGHT ROWS ACROSS THE WIDTH OF THE TRAILER. A FORWARD BLOCKING ASSEMBLY WILL BE REQUIRED AT THE FRONT WALL OF THE TRAILER AS SPECIFIED IN THE VARIOUS LOAD VIEWS DEPICTED HEREIN. SEE THE "FORWARD BLOCKING" DETAILS ON PAGE 5 AND GENERAL NOTE "J" ON PAGE 2, SEPARATOR GATES WILL BE USED THROUGHOUT THE LENGTH OF THE LOAD. SEE NOTE 4 BELOW AND THE "SEPARATOR GATE" DETAIL ON PAGE 5.
- 2. WHEN LOADING DRUMS IN A TRAILER, AS SHOWN IN THE "OFF-SET NESTED" PATTERN ON PAGE 3, POSITION THE FIRST DRUM TO CONTACT THE FORWARD BLOCKING AND TRAILER SIDE WALL. THE REMAINING DRUMS IN THAT STACK SHOULD BE POSITIONED TO CONTACT THE FORWARD BLOCKING AND AN ADJACENT DRUM. THE REMAINING SPACE BETWEEN THE LAST POSITIONED DRUM IN THAT STACK AND THE TRAILER SIDE WALL SHOULD BE EQUAL TO ONE-HALF (1/2), OF THE DRUM DIAMETER, EXAMPLE: IF THE DRUM DIAMETER, EXAMPLE: IF THE
 - A. IF THE REMAINING SPACE BETWEEN THE LAST POSITIONED DRUM AND THE TRAILER SIDE WALL IS LESS THAN ONE HALF (1/2) OF THE DRUM DIAMETER, THE "NESTED PATTERN" SHOULD BE SELECTED.
 - B. IF THE REMAINING SPACE BETWEEN THE LAST POSITIONED DRUM AND THE TRAILER SIDE WALL IS GREATER THAN ONE HALF (1/2) OF THE DRUM DIAMETER, MOVE THE DRUMS IN THAT ROW APART EQUAL DISTANCES UNTIL THE REMAINING SPACE BETWEEN THE LAST POSITIONED DRUM AND THE TRAILER WALL IS EQUAL TO ONE HALF (1/2) THE DRUM DIAMETER PLUS ONE HALF (1/2) OF THE EQUAL DISTANCE BETWEEN PREVIOUSLY POSITIONED ADJACENT DRUMS.
- 3. WHEN LOADING DRUMS IN A TRAILER, AS SHOWN IN THE "NESTED PATTERN" ON PAGE 3, POSITION THE OUTSIDE DRUMS TO CONTACT THE TRAILER SIDE WALL AND THE FORWARD BLOCKING. THE REMAINING DRUMS IN THAT STACK SHOULD BE POSITIONED TO CONTACT THE FORWARD BLOCKING AND WITH EQUAL DISTANCES BETWEEN ALL DRUMS IN THAT STACK.
- 4. PLYWOOD SEPARATOR GATES AND/OR STRAPPING GATES WILL BE USED FOR FIBER BOARD DRUMS. SEPARATOR GATES WILL BE REQUIRED TO PROVIDE LOAD BAYS OF NOT MORE THAN 5 OR 6 STACKS TO PRECLUDE EXCESSIVE MILLING AND TIPPING OF DRUMS.
 - A. SEPARATOR GATES MAY BE USED IN CONVENTIONAL TRAILERS TO INCREASE THE LOAD LENGTH, TO REDUCE THE AMOUNT OF DUNNAGE AT THE REAR OF THE LOAD, OR TO DISTRIBUTE THE LOAD WEIGHT OVER A LONGER AREA OF THE TRAILER LENGTH.
 - B. SEPARATOR GATES MAY BE USED TO ALTERNATE A LOADING PAT-TERN, TO CHANGE THE NUMBER OF DRUMS TO BE OUTLOADED.
 - C. EACH INSTALLED SEPARATOR GATE OR STRAPPING GATE WILL INCREASE THE LOAD LENGTH BY AN AMOUNT EQUAL TO THE "NEST"
 OF ADJACENT STACKS PLUS THE THICKNESS OF THE GATE. ALSO,
 WHEN A SEPARATOR GATE OR STRAPPING GATE IS USED THERE MUST
 BE AT LEAST TWO (2) STACKS ON EACH SIDE OF THE GATE TO
 PREVENT LATERAL SHIFTING OF THE DRUMS. DRUMS ON ONE SIDE
 OF A GATE MUST BE DIRECTLY OPPOSITE DRUMS ON THE SECOND
 SIDE OF A GATE, AS SHOWN IN THE "LOADING PATTERNS", FOR
 DRUMS ADJACENT TO GATES ON PAGE 3.

(CONTINUED AT RIGHT)

(INSTRUCTIONS CONTINUED FROM LEFT)

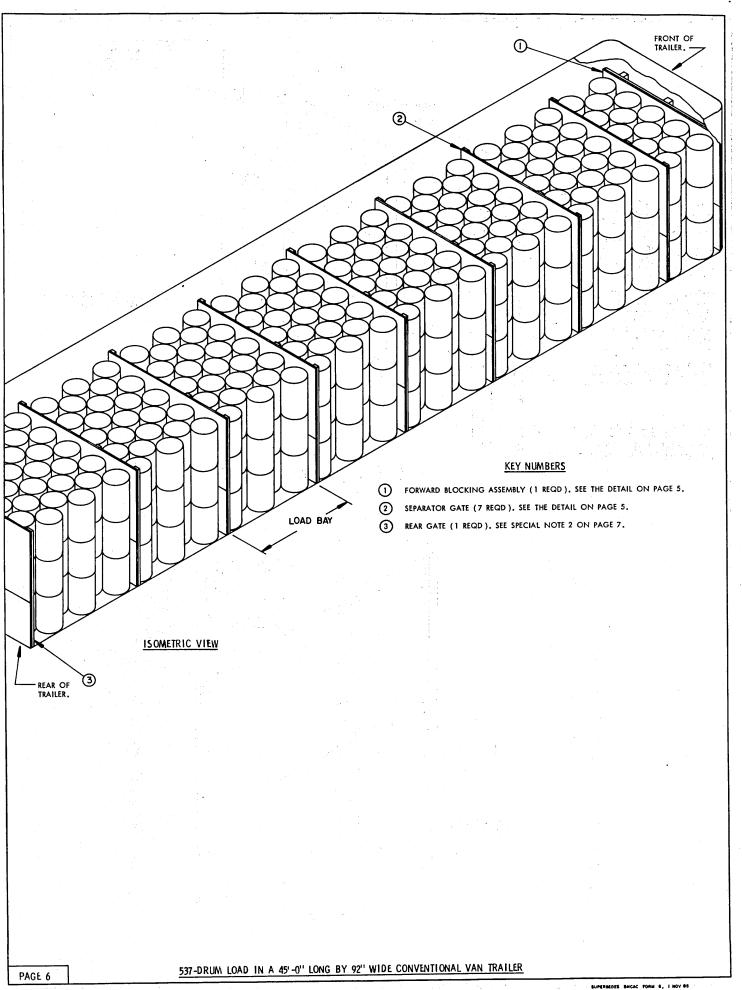
- 5. THE FOLLOWING PROCEDURES CAN BE USED TO HELP SELECT THE PROPER "NESTED" LOADING PATTERN FOR A DRUM SHIPMENT. THE FORMULAS OF THESE PROCEDURES CAN BE USED TO DETERMINE THE NUMBER OF DRUMS IN THE FIRST STACK TO BE LOADED INTO A TRAILER, HOW TO POSITION THESE DRUMS ACROSS THE WIDTH OF THE TRAILER BEING USED, AND HOW TO DETERMINE THE NUMBER OF STACKS THAT CAN BE LOADED INTO A BAY AND/OR A TRAILER. INCHES ARE TO BE USED FOR ALL CALCULATIONS.
 - A. TO DETERMINE CONFIGURATION OF A "FIRST" STACK:
 - (1) DIVIDE THE INSIDE WIDTH OF THE TRAILER TO BE USED BY THE DIAMETER OF THE DRIUM TO BE SHIPPED, TO OBTAIN THE NUMBER OF DRIUMS WHICH CAN BE LOADED ACROSS THE WIDTH OF THE TRAILER. DISREGARD THE FRACTIONAL PART OF THIS ANSWER AND RETAIN THE WHOLE NUMBER PART. EXCEPTION: IF THE FRACTIONAL PART OF ANSWER IS EXACTLY ONE-HALF (1/2), OR SLIGHTLY MORE, THE "OFF-SET NESTED PATTERN" MAY BE SELECTED IMMEDIATELY, AND THE FOLLOWING STEPS (2), (3) AND (4) DISREGARDED.
 - (2) MULTIPLY THE WHOLE NUMBER OF THE ANSWER FOUND BY (1)
 ABOVE BY THE DRUM DIAMETER TO OBTAIN THE TOTAL LOAD
 WIDTH, AND SUBTRACT THIS ANSWER FROM THE INSIDE WIDTH
 OF THE TRAILER TO FIND THE AMOUNT OF EXCESS (UNUSED) SPACE
 ACROSS THE WIDTH OF THE TRAILER.
 - (3) FOR A "NESTED PATTERN" SUCH AS THE 5-4-5 ARRANGEMENT SHOWN ON PAGE 3, DIVIDE THE EXCESS SPACE ANSWER FOUND BY (2) ABOVE BY ONE LESS THAN THE WHOLE NUMBER ANSWER FOUND BY (1) ABOVE, TO OBTAIN THE SPACE TO BE LEFT AT EACH LOCATION BETWEEN LATERAL ADJACENT DRUMS.
 - (4) FOR AN "OFF-SET NESTED PATTERN" SUCH AS THE 4-4-4 ARRANGEMENT SHOWN ON PAGE 3, SUBTRACT ONE HALF (1/2) OF THE
 DRUM DIAMETER FROM THE EXCESS SPACE ANSWER FOUND BY (2)
 ABOVE, AND DIVIDE THIS ANSWER BY ONE LESS THAN THE NUMBER OF DRUMS IN WIDTH PLUS ONE HALF (3.5 FOR A 4 DRUM WIDE
 LOAD) TO OBTAIN THE SPACE TO BE LEFT BETWEEN LATERALLY ADJACENT DRUMS.
 - B. TO DETERMINE NUMBER OF STACKS PER A CERTAIN LENGTH BAY AND/OR THE TOTAL LENGTH OF A TRAILER IT IS NECESSARY TO SELECT THE TYPE OF NESTED CONFIGURATION THAT WILL BE USED BY APPLYING PARAGRAPH A CRITERIA ABOVE. TO DETERMINE THE LENGTHWISE CENTER-TO-CENTER DISTANCE BETWEEN "NESTED STACKS":
 - (1) SQUARE THE DIAMETER OF THE DRUM.
 - (2) SQUARE THE SUM OF ONE-HALF DRUM DIAMETER AND ONE-HALF OF THE SPACE BETWEEN LATERALLY ADJACENT DRUMS.
 - (3) SUBTRACT THE ANSWER OF (2) ABOVE FROM (1) ABOVE.
 - (4) THE "SQUARE ROOT" OF THE ANSWER OF (3) ABOVE IS THE CENTER-TO-CENTER DISTANCE OF NESTED DRUMS.
 - (5) SUBTRACT THE DIAMETER OF ONE DRUM FROM THE PRE-SELECTED BAY LENGTH AND/OR TRAILER LENGTH. DIVIDE THIS RESULTANT ANSWER BY THE CENTER-TO-CENTER ANSWER FOUND BY (4) ABOVE, DROP THE FRACTIONAL PART OF THE ANSWER KEEPING THE WHOLE NUMBER PART, AND ADD ONE TO THE WHOLE NUMBER PART TO GET THE NUMBER-OF-STACKS ANSWER. WHERE CALCULATIONS ARE BASED ON A BAYED-LOAD, INCREASING THE NUMBER OF BAYS OR USING UNEVEN LENGTH BAYS WILL MAKE IT POSSIBLE TO PLAN AN EFFICIENT LOAD FOR THE GUANTITY OF DRUMS THAT ARE TO BE SHIPPED. MOTE, WHO SHIPPING A BAYED-LOAD OF DRUMS AND THE PATTERN BEING USED IS OF THE 5-4-5 TYPE, IT IS BEST TO BEGIN AND END A BAY WITH THE WIDER STACK, I.E. 5 FOR EXAMPLE USED HERE.





DETAILS

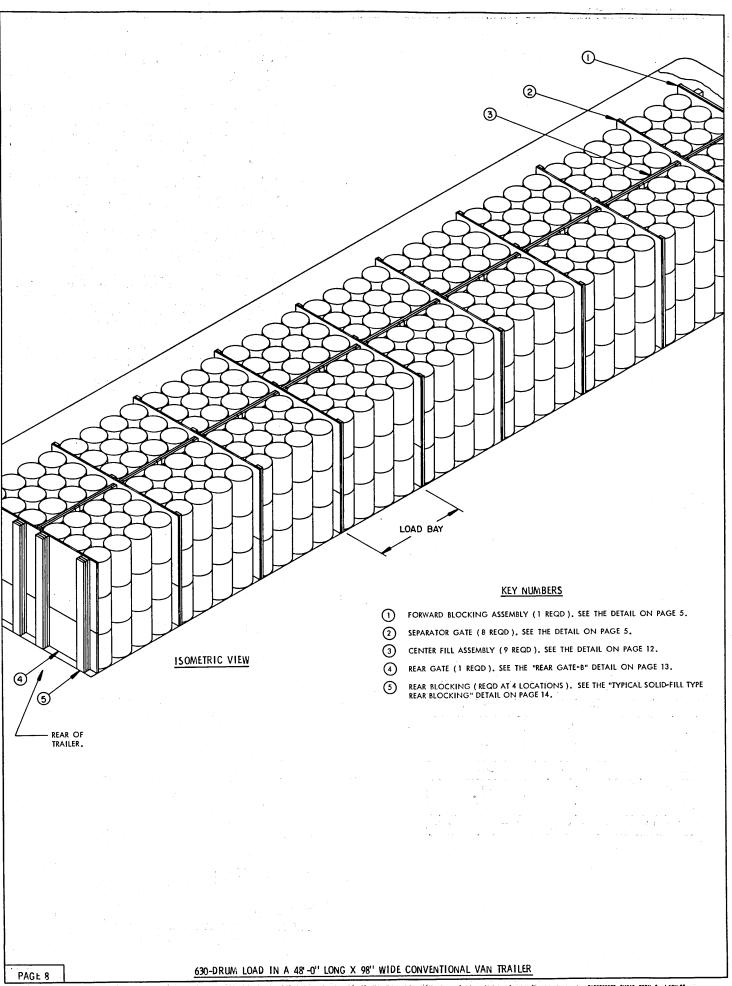
PAGE 5



- THE LOAD AS SHOWN IS BASED ON 15-7/8" DIAMETER DRUMS IN A 45'-0" LONG BY 92" WIDE (INSIDE DIMENSION) TRAILER EQUIPPED WITH ROUNDED CORNERS AT THE FORWARD END, A 537-DRUM LOAD IS DEPICTED USING A "NESTED" TYPE OF LOADING PATTERN, SEE GENERAL NOTE "D" ON PAGE 2.
- 2. FOR THE SPECIFIC TRAILER AND LOAD SHOWN ON PAGE 6, THE VOID BETWEEN THE REAR OF THE LOAD AND THE DOORS OF THE TRAILER WHEN CLOSED WILL BE APPROXIMATELY 1" AND A SEPARATOR GATE, AS DETAILED ON PAGE 5, MAY BE USED AS THE REAR GATE MARKED (3). IF THE VOID IS MORE THAN 1", THE REAR GATE-A AS DETAILED ON PAGE 13 MUST BE USED WITH SOLID FILL TYPE REAR BLOCKING AS DETAILED ON PAGE 14.
- 3. IF A 525-DRUM LOAD IS TO BE SHIPPED, OMIT THE REAR STACK OF 12 DRUMS AND USE REAR GATE-A WITH SOLID-FILL OR STRUT TYPE REAR BLOCKING AS APPLIES TO THE VOID REMAINING BETWEEN THE REAR OF THE LOAD AND THE DOORS OF THE TRAILER WHEN THEY ARE CLOSED.
- 4. THE DEPICTED PROCEDURES CAN ALSO BE USED FOR SHIPMENT OF A
 468 DRUM LOAD IN A 40'-0" LONG X 92" WIDE TRAILER BY OMITTING
 ONE LOAD BAY OF 5 STACKS FROM THE LOAD AS SHOWN. A REAR
 GATE-A WILL BE USED WITH SOLID-FILL TYPE REAR BLOCKING AS
 DETAILED ON PAGES 13 AND 14.
- 5. TO SATISFY A SLIGHTLY LESS THAN A FULL LOAD QUANTITY OF DRUMS TO BE SHIPPED, ONE OR MORE DRUMS MAY BE OMITTED FROM THE TOP LAYER BY USING "OMITTED-DRUM ASSEMBLIES" AS DETAILED ON PAGE 13. HOWEVER, THEIR USE AND LOCATION MUST COMPLY WITH THE REQUIREMENTS SPECIFIED IN GENERAL NOTE "S" ON PAGE 2. OMITTED DRUM ASSEMBLIES ARE TYPICALLY SHOWN WITHIN OTHER LOADS DEPICTED IN THIS DRAWING.
- 6. IF THE TRAILER IS EQUIPPED WITH A ROLL-UP TYPE DOOR, THE PRO-CEDURES SPECIFIED ON PAGE 12 MUST BE USED AT THE REAR OF THE LOAD. SEE GENERAL NOTE "C" ON PAGE 2.
- FOR SHIPMENT OF A PARTIAL-LAYER LOAD, SEE THE PROCEDURES SPECIFIED ON PAGES 10 AND 11 AND GENERAL NOTE "R" ON PAGE 2.

	BILL OF MATERIAL	
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	156	52
2" X 4"	8	5
2" X 6"	31	31
4" X 4"	20	27
NAILS	NO. REQD	POUNDS
4d (1-1/2")	312	1-1/4
6d (2")	30	1/4
10d (3")	45	3/4

LOAD AS SHOWN

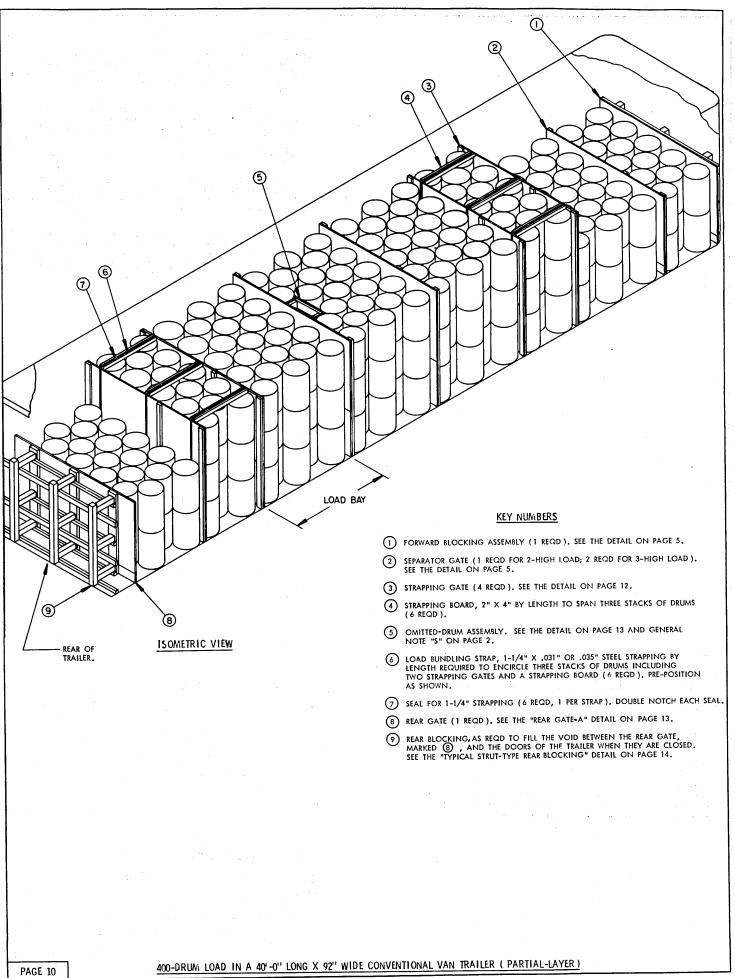


- 1. THE LOAD AS SHOWN IS BASED ON 15-7/8" DIAMETER DRUMS INA 48"-0" LONG BY 98" WIDE (INSIDE DIMENSION) TRAILER EQUIPPED WITH ROUNDED CORNERS AT THE FORWARD END. A 630-DRUM LOAD IS DEPICTED USING A "STRAIGHT-LINE" TYPE OF LOADING PATTERN. SEE GENERAL NOTE "D" ON PAGE 2.
- 2. IN A 98" WIDE TRAILER, CENTER FILL ASSEMBLIES, AS SHOWN, ARE REQUIRED TO FILL THE LATERAL VOID OF THE TRAILER. IF A 96" INSIDE WIDTH TRAILER IS CPERED FOR A SHIPMENT CENTER FILL ASSEMBLIES WILL NOT BE REQUIRED. IF THE TRAILER IS LESS THAN 96" WIDE INSIDE, A DIFFERENT LOADING PATTERN MUST BE DETERMINED FROM THE "LOADING INSTRUCTIONS" ON PAGE 4 FOR THE DEPICTED DRUM DIAMETER.
- 3. SHORTER TRAILERS NOT LESS THAN 96" WIDE INSIDE MAY BE USED BY REDUCING THE QUANTITY OF STACKS. THE TYPE OF REAR BLOCKING TO BE USED WILL BE BASED ON THE VOID BETWEEN THE REAR OF THE LOAD AND THE TRAILER DOORS, WHEN CLOSED, AS SPECIFIED IN THE DETAILS ON PAGE 14.
- 4. TO REDUCE THE QUANTITY OF DRUMS WITHIN A LOAD, OMITTED DRUM ASSEMBLIES MAY BE USED AS SPECIFIED IN GENERAL NOTE "S" ON PAGE 2. PARTIAL LAYERS MAY BE LOADED TO PROVIDE FOR LESSER QUANTITIES OF DRUMS TO BE SHIPPED. FOR PARTIAL LAYER BLOCKING AND BRACING REQUIREMENTS SEE THE PARTIAL LAYER LOAD DEPICTED ON PAGES 10 AND 11 FOR GUIDANCE AND GENERAL NOTE "R" ON PAGE 2.

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	491	164
1" X 6"	166	83
2" X 4"	9	6
2" X 6"	111	111
4" X 4"	20	27
NAILS	NO. REQD	POUNDS
4d (1-1/2")	916	3-1/4
6d (2")	82	1/2
10d (3")	101	1-1/2

LOAD AS SHOWN

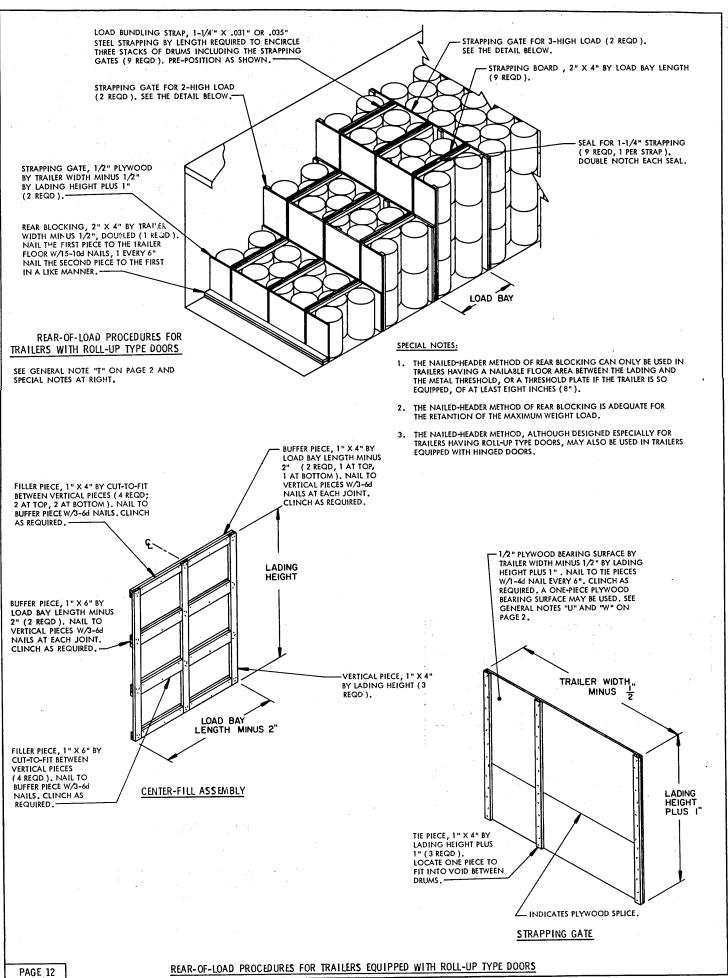
ITEM	QUANTITY	WEIGHT (APPROX)
	NIDINE)630	
	TOTAL WEIGHT	37,427 LBS

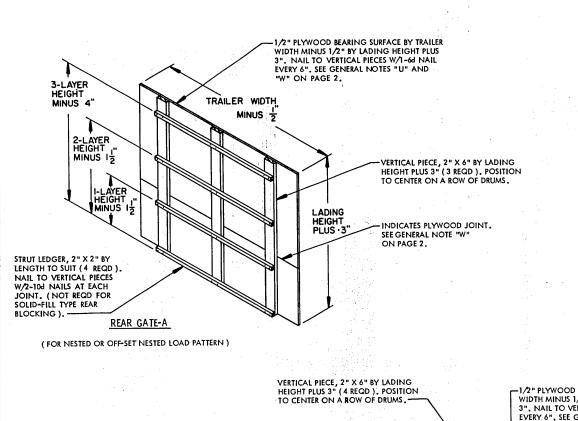


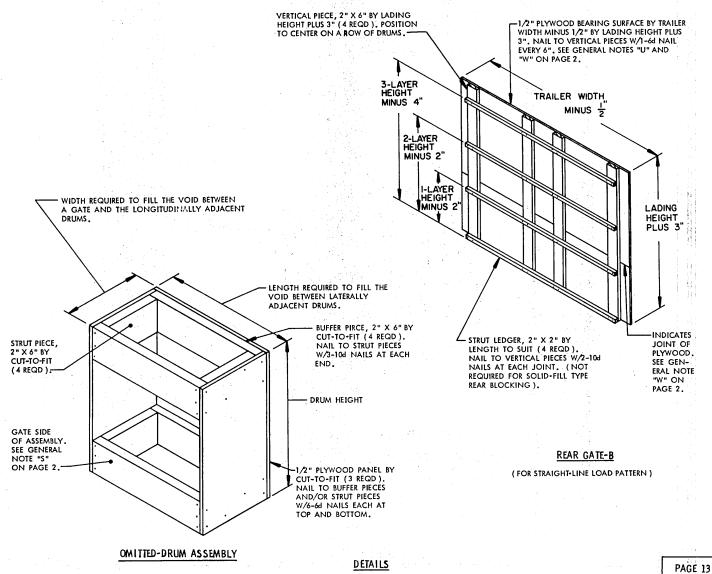
- THE LOAD AS SHOWN IS BASED ON 15-7/8" DIAMETER DRUMS IN A 40-0" LONG BY 92" WIDE (INSIDE DIMENSION.) TRAILER EQUIPPED WITH ROUNDED CORNERS AT THE FORWARD END. A 400 DRUM LOAD IS DEPICTED USING A NESTED TYPE OF LOADING PATTERN AND PARTIAL-LAYER BLOCKING AND BRACING PROCEDURES. SEE GENERAL NOTES "D" AND "R" ON PAGE 2.
- THE PARTIAL-LAYER BLOCKING AND BRACING PROCEDURES ARE TYPICALLY SHOWN AND WILL APPLY TO ANY LESS-THAN-FULL-LOAD QUANTITIES OF DRUMS OF ANY LOADING PATTERN IN TRAILERS OF ANY LENGTH AND WIDTH.
- 3. TO FURTHER REDUCE THE QUANTITY OF DRUMS WITHIN A LOAD, ONE OR MORE OMITTED-DRUM ASSEMBLIES, AS TYPICALLY SHOWN IN THE LOAD VIEW, MAY BE USED IN TOP LAYERS. THE REQUIREMENTS SPECIFIED IN GENERAL NOTE "S" ON PAGE 2, WILL APPLY.
- 4. STRUT TYPE REAR BLOCKING IS DEPICTED IN THE LOAD VIEW. IF THE VOID BETWEEN THE REAR OF THE LADING AND THE TRAILER DOORS WHEN THEY ARE CLOSED, IS 12" OR LESS, SOLID-FILL TYPE REAR BLOCKING SHOULD BE USED AS DETAILED ON PAGE 14.

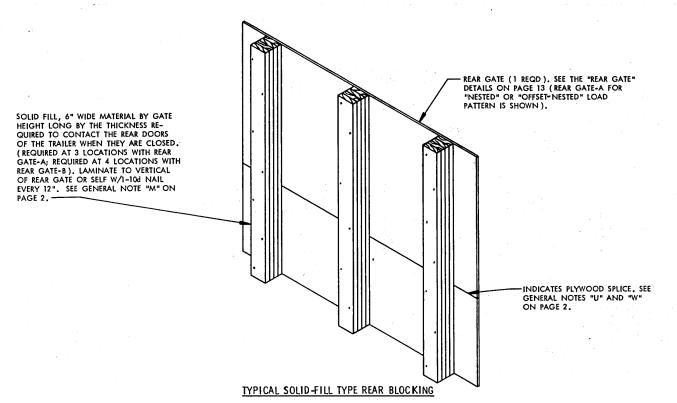
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	128	43
2" X 2"	24	8
2" X 4"	44	30
2" X 6"	47	47
4" X 4"	40	53
NAILS	NO. REQD	POUNDS
4d (1-1/2")	261	1
6d (2")	87	1/2
10d (3")	102	1-1/2
12d (3-1/4")	36	3/4

LOAD AS SHOWN

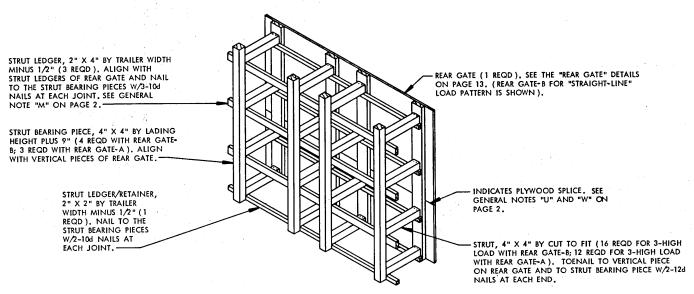








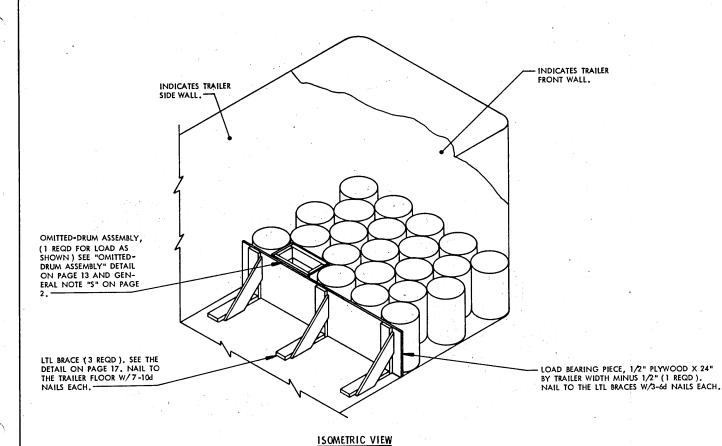
TO BE USED IN A TRAILER LOADED WITH DRUMS WHEN THE VOID BETWEEN THE LADING AND THE REAR DOORS OF THE TRAILER, WHEN CLOSED, MEASURES 12" OR LESS-WHEN THE VOID MEASURES MORE THAN 12" SEE "TYPICAL STRUT TYPE REAR BLOCKING" DETAIL BELOW.



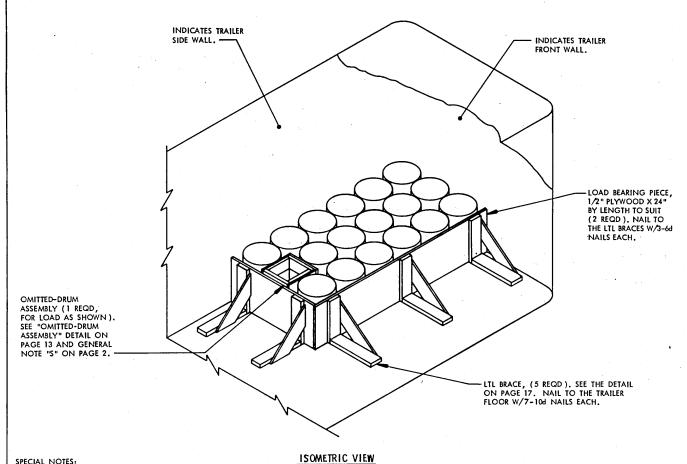
TYPICAL STRUT TYPE REAR BLOCKING

TO BE USED IN TRAILERS WHEN THE VOID BETWEEN THE LADING AND THE REAR DOORS OF THE TRAILER, WHEN CLOSED, MEASURES MORE THAN 12". WHEN THE VOID MEASURES 12" OR LESS, SEE "TYPICAL SOLID-FILL" DETAIL ABOVE.

PAGE 14 DETAILS

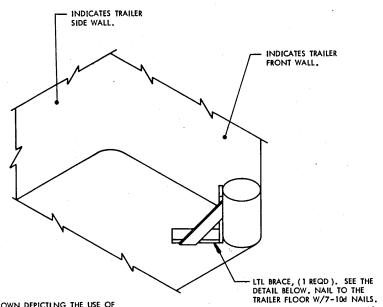


- THESE OUTLOADING PROCEDURES SHOW A "NESTED" LOAD PATTERN AND DEPICT BRACES IN A TRAILER EQUIPPED WITH A NAILABLE FLOOR, TRAILERS WITH ALL METAL FLOORS CANNOT BE USED. SEE "LOADING INSTRUCTIONS" ON PAGE 4.
- THE THREE (3) LTL BRACES AS SHOWN ARE ADEQUATE FOR RETAINING NOT MORE THAN 6,000 POUNDS OF LADING. NOT LESS THAN 3 LTL BRACES WILL BE USED ACROSS THE WIDTH OF THE TRAILER.
- 3. THE OMITTED-DRUM ASSEMBLY IS SHOWN IN THE LOAD VIEW TO SHOW A TYPICAL INSTALLATION AND MAY BE USED AS REQUIRED, TO ADJUST TO THE NUMBER OF DRUMS TO BE OUTLOADED. SEE GENERAL NOTE "S" ON PAGE 2.



- THESE OUTLOADING PROCEDURES SHOW A "STRAIGHT-LINE" LOAD PATTERN AND DEPICT THE USE OF LTL BRACES IN A TRAILER EQUIPPED WITH A NAILABLE FLOOR. TRAILERS WITH ALL METAL FLOORS CANNOT BE USED.
- EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING. NOT LESS THAN TWO (2) LTL BRACES WILL BE USED FOR LONGITUDINAL BRACING WHEN STACKS DO NOT FILL THE TOTAL WIDTOF THE TRAILER AS SHOWN, RELATIVE TO APPLYING LTL BRACES FOR LATERAL BLOCKING, BRACES WILL BE PLACED NOT MORE THAN 48" APART.
- THE OMITTED-DRUM ASSEMBLY IS SHOWN IN THE LOAD VIEW TO SHOW A TYPICAL INSTALLATION AND MAY BE USED AS REQUIRED TO ADJUST TO THE NUMBER OF DRUMS TO BE OUT-LOADED. SEE GENERAL NOTE "S" ON PAGE 2.

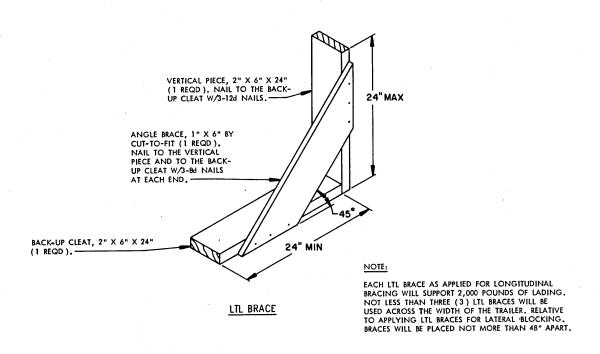
TYPICAL LTL (17-DRUM LOAD) IN A CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW

SPECIAL NOTES:

- THIS OUTLOADING PROCEDURE IS SHOWN DEPICTING THE USE OF AN LTL BRACE BLOCKING ONE (1) DRUM IN A TRAILER EQUIPPED WITH A NAILABLE FLOOR.
- 2. AN ADDITIONAL DRUM MAY BE LOADED IN THE OPPOSITE FORWARD CORNER OF THE TRAILER USING THE DEPICTED PROCEDURE.
- 3. IF THREE (3) OR MORE DRUMS ARE TO BE OUTLOADED, SEE THE PRO-CEDURES DEPICTED ON PAGES 15 OR 16.



PAGE 18