



## 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 WITHIN THIS DRAWING ARE APPLICABLE TO THE MXU-650/B AIRFOIL GROUPS PACKAGED IN 55-GALLON METAL DRUMS AND THE MXU-651/B AIRFOIL GROUPS PACKAGED IN 80-GALLON METAL DRUMS. THESE PROCEDURES WILL ALSO APPLY TO OTHER ITEMS WHEN PACKAGED IN 55-GALLON OR 80-GALLON METAL DRUMS. SUBSEQUENT REFERENCE TO CONTAINER MEANS DRUM WITH CONTENTS.
- C. FOR DETAILS OF THE MXU-650/B AIRFOIL GROUPS PACKAGED IN THE 55-GALLON METAL DRUMS, SEE US AIR FORCE DRAWING NO. 763559 AND "CONTAINER" DETAIL ON PAGE 3 OF THIS DRAWING.
- CONTAINER DIMENSIONS ---- 25-1/2" DIAMETER BY 34-1/4" HIGH.  
GROSS WEIGHT ----- 150 POUNDS ( APPROX ).
- D. FOR DETAILS OF THE MXU-651/B AIRFOIL GROUPS PACKAGED IN THE 80-GALLON METAL DRUM, SEE US AIR FORCE DRAWING NO. 763559 AND "CONTAINER" DETAIL ON PAGE 3 OF THIS DRAWING.
- CONTAINER DIMENSIONS ---- 33-1/8" DIAMETER BY 41-1/2" HIGH.  
GROSS WEIGHT ----- 196 POUNDS ( APPROX ).
- E. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOX CARS, FOR SHIPMENTS IN BOX CARS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES, AND FOR SHIPMENTS IN CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
- F. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE. IF THOSE MEMBERS SPECIFICALLY IDENTIFIED AS "STRUTS" WITHIN THE KEY NUMBERS OF A DEPICTED LOAD ARE SPECIFIED TO BE 4" X 4" MATERIAL, IT IS PERMISSIBLE TO USE TWO LAMINATED PIECES OF 2" X 6" MATERIAL IN LIEU OF EACH 4" X 4" STRUT. DOUBLE 2" X 6" STRUTS WILL BE LAMINATED W/1-10d NAIL EVERY 6".
- G. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OR SIDEWALL 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 OR SIDEWALL 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.
- H. PORTIONS OF THE BOX CARS DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, AND PORTIONS OF THE BLOCKING AND BRACING COMPONENTS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- J. BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS HAVE BEEN SHOWN. HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR CARS EQUIPPED WITH PLUG DOORS. **CAUTION:** DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN. ALSO, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF CAR SEALS, A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED IN ADDITION TO, AND IN CONJUNCTION WITH, EACH CAR SEAL USED TO SEAL THE CAR. THE WIRE WILL BE THREADED THRU THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- K. THE SELECTION OF RAIL CARS FOR THE TRANSPORT OF THE DESIGNATED ITEMS IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE PROPER CONDITION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENT, WILL BE SELECTED. WHEN SELECTING RAIL CARS, EVERY EFFORT SHOULD BE MADE TO OBTAIN BOX CARS THAT DO NOT HAVE BOWED END WALLS. CARS WITH BOWED ENDS CAN BE USED, HOWEVER, IF AN END WALL IS BOWED OUTWARD MORE THAN TWO INCHES ( 2" ), EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. REFER TO PAGE 41 FOR GUIDANCE.

( CONTINUED AT RIGHT )

## MATERIAL SPECIFICATIONS

- LUMBER** -----: TM 743-200-1 ( DUNNAGE LUMBER ) FED SPEC MM-L-751.
- NAILS** -----: FED SPEC FF-N-105; COMMON.
- WIRE** -----: FED SPEC QQ-W-461.

## ( GENERAL NOTES CONTINUED )

- L. **NOTICE:** WHEN POSITIONING DRUMS IN A CAR THEY SHOULD BE PLACED TIGHTLY AGAINST A CAR SIDEWALL AND ARE TO BE PRESSED TIGHTLY TOGETHER LENGTHWISE SO AS TO ACHIEVE A TIGHT LOAD. TO AID IN ACHIEVING TIGHTNESS LENGTHWISE IN A FULL LOAD, A LOAD-COMPRESSING JACK MAY BE EMPLOYED IN THE AREA OF THE CENTER GATES TO MOVE THE UNITS INTO THEIR FINAL SHIPPING POSITION. A HYDRAULIC JACK IS RECOMMENDED FOR THIS OPERATION. **CAUTION:** WHEN USING A JACK TO COMPACT A LOAD, THE JACK MUST BE USED AGAINST STRONG POINTS OF THE DRUMS, SUCH AS THE ROLLING HOOPS. PADDING, OF 2-INCH ( 2" ) THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE DRUMS.
- M. THE NUMBER OF DRUMS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOX CAR BEING LOADED OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS SPECIFIED HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE UNITS. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE RAIL CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR.
- N. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEMS, 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.
- O. IF THE CAR BEING USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDEWALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING TO THE CAR FLOOR OF THE LCL BRACES AND KNEE BRACE ASSEMBLIES IN THE LESS-THAN-FULL LOADS. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED IN LIEU OF THOSE SPECIFIED IN THE APPLICABLE KEY NUMBERS. SEE GENERAL NOTE "G" ON THIS PAGE.
- P. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN BY KEY NUMBERS ⑥ AND ⑦ ON PAGE 22. THESE PIECES ARE NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE ( APPROX 18" MINIMUM ), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUTS AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.
- Q. TO ACHIEVE A TIGHTLY-BLOCKED LOAD, A STRUT WILL BE CUT SLIGHTLY LONGER THAN THE MEASURED DISTANCE BETWEEN THE STRUT BEARING AREAS ON THE TWO CENTER GATES. ONE END OF THE STRUT WILL BE POSITIONED AT ITS BEARING AREA JUST ABOVE THE STRUT LEDGER ON ONE GATE, THEN THE OTHER END, WHICH CAN BE BEVELLED ON THE LOWER CORNER IF DESIRED, WILL BE DRIVEN DOWNWARD UNTIL IT CONTACTS THE STRUT LEDGER ON THE OTHER GATE. EACH END OF THE STRUT WILL BE TOENAILED TO THE ADJACENT CENTER GATE, AS SPECIFIED WITHIN THE KEY NUMBERS FOR A LOAD, IN SUCH A MANNER SO THAT AS NEARLY AS PRACTICAL EQUAL LENGTHS OF A NAIL ARE EMBEDDED IN THE STRUT AND IN THE VERTICAL PIECE OF THE CENTER GATE. SEE THE "BEVEL CUT" DETAIL ON PAGE 41 FOR BEVELLING INSTRUCTIONS AND THE "STRUT INSTALLATION" DETAIL ON THAT PAGE FOR A PICTORIAL VIEW SHOWING THE PROPER POSITIONING OF A BEVELED STRUT FOR INSTALLATION. NOTE THAT THE UPPER CORNER NEEDS TO BE BEVELED ONLY IF THE STRUTS ARE VERY SHORT. IF ONLY ONE END IS BEVELLED-CUT, THE BEVELED EDGE WILL BE PLACED IN THE DOWNWARD POSITION SO THAT IT WILL ALLOW THE STRUT END TO SLIDE MORE FREELY DOWN THE FACE OF THE VERTICAL PIECE ON THE ADJACENT CENTER GATE AS THE STRUT IS DRIVEN DOWN INTO ITS FINAL BLOCKING POSITION.
- R. ALL THE LOADS SHOWN HEREIN ARE TYPICAL. BECAUSE OF THIS FACT, IT IS MOST LIKELY THAT THE ACTUAL QUANTITY TO BE SHIPPED WILL NOT BE DEPICTED IN ANY OF THE LOADING PROCEDURES HEREIN. A LOAD PLAN SHOULD BE DEVELOPED WHICH WILL BE THE MOST EFFICIENT AS TO THE AMOUNT OF DUNNAGE REQUIRED AND THE EASE OF LOADING FOR THE QUANTITY TO BE SHIPPED.
- S. THE 55-GALLON METAL DRUM IS DESIGNED TO "NEST" WHEN STACKED, THEREFORE NO DECKING IS REQUIRED BETWEEN LAYERS OF A TWO-HIGH LOAD.
- T. THE 80-GALLON METAL DRUM IS AN OPEN HEAD TYPE THAT WILL NOT "NEST". DECKING IS REQUIRED BETWEEN LAYERS OF A TWO-HIGH LOAD.
- U. THE OUTLOADING PROCEDURES FOR BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES MAY BE ADAPTED AS REQUIRED TO FACILITATE THE USE OF BOX CARS EQUIPPED WITH VARIOUS TYPE OF SELF-CONTAINED MECHANICAL BRACING DEVICES. HOWEVER, FIXED OR ADJUSTABLE WALL MEMBERS AND DOORWAY MEMBERS WITHIN THESE CARS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. **CAUTION:** BOX CARS EQUIPPED WITH MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.

( CONTINUED ON PAGE 3 )

(GENERAL NOTES CONTINUED)

1. FOR BLOCKING THE LOADS WHICH ARE DEPICTED, A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE LADING ON EITHER SIDE THAN AS SHOWN. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM AND CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE SPACING OF THE LOCKING HOLES IN THE WALL MEMBERS PERMIT. LOCKING BARS (LEVER JACKS) SHOULD BE USED FOR THIS PURPOSE. AN ADDITIONAL 1/2" OF ADJUSTMENT CAN BE MADE BY TURNING A CROSS MEMBER END-FOR-END WHEN LOCKING PINS ON THE MEMBER ARE OFF-CENTER. **NOTE:** IT IS RECOMMENDED THAT EACH CROSS MEMBER BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS AND AT EQUAL DISTANCES FROM THE END OF THE CAR).

2. **CAUTION:** ALL BLOCKING AND BRACING COMPONENTS IN EMPTY CARS AND ALL UNUSED COMPONENTS IN LOADED CARS MUST BE "SECURED" FOR SHIPMENT—ADJUSTABLE WALL MEMBERS TO VERTICAL WALL ATTACHMENT RAILS, AND CROSS MEMBERS TO ADJUSTABLE WALL MEMBERS OR TO FIXED HORIZONTAL WALL MEMBERS OR TO DOORWAY MEMBERS, AND DOORWAY MEMBERS TO DOOR POSTS. COMPONENTS ASSIGNED TO EACH CAR MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.

3. IF A CAR HAS A "BOWED END", RATHER THAN SQUARING OFF THE END BY INSTALLING DUNNAGE, ADDITIONAL CROSS MEMBERS CAN BE INSTALLED NEAR THE END OF THE CAR TO PROVIDE A "SQUARED" END. THESE CROSS MEMBERS MUST BE INSTALLED IN THE SAME QUANTITY AND AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS LOAD BLOCKING MEMBERS.

V. IN A CAR EQUIPPED WITH ADJUSTABLE WALL MEMBERS, PROVIDING THE FIXED WALL MEMBERS WHICH ARE PRESENT IN SOME "ADJUSTABLE" CARS ARE NOT PROPERLY POSITIONED TO PROVIDE SIDE BEARING SURFACES BETWEEN THE UNITS AND THE CAR SIDEWALLS, ADJUSTABLE WALL MEMBERS (AS REQUIRED) MUST BE INSTALLED TO PROVIDE A MINIMUM OF ONE SURFACE AREA FOR SIDE BEARING AT SOME LOCATION WITHIN THE UPPER HALF OF EACH UNIT.

W. THE OUTLOADING PROCEDURES SPECIFIED ON PAGES 14, 15, 26 AND 27 ARE FOR CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH OR WITHOUT ADJUSTABLE SIDE FILLERS. **CAUTION:** ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSCO ARE NOT ACCEPTABLE, WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. ALSO, ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST FIFTEEN INCHES (15") OF TRAVEL ARE ACCEPTABLE. **CAUTION:** THE WEIGHT OF THE LOAD TO BE RETAINED BY ONE LOAD DIVIDER BULKHEAD MUST NOT EXCEED ONE-HALF OF THE LOAD LIMIT WHICH IS STENCILED ON THE SIDE OF THE CAR. THE DEPICTED PROCEDURES ARE APPLICABLE FOR CARS OF VARIOUS LENGTHS AND WIDTHS. THE AAR MECHANICAL DESIGNATION CLASS FOR THESE CARS, AS IDENTIFIED IN THE "OFFICIAL RAILWAY EQUIPMENT REGISTER", WILL BE RBL, XL, OR XLI.

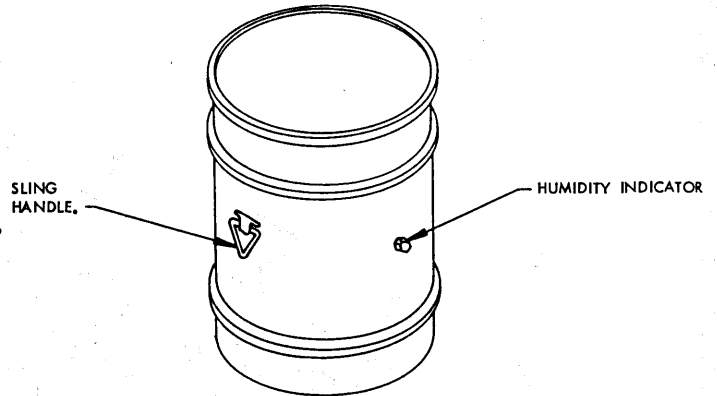
X. THE USE OF LOAD DIVIDER EQUIPPED CARS WILL ELIMINATE THE NEED FOR CENTER GATES AND STRUTS, AND GATE HOLD DOWNS (WHEN APPLICABLE) WHICH ARE REQUIRED IN CONVENTIONAL BOX CAR LOADS. THIS WILL ACCOUNT FOR A CONSIDERABLE SAVING IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF AMMUNITION ITEMS.

Y. IF NAILING TO A CAR SIDEWALL IS NOT REQUIRED, BOX CARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8" OR THICKER PANELS MAY BE USED. HOWEVER, THESE SIDE FILLERS MUST NOT BE USED FOR LATERAL BLOCKING; THEY MUST BE RETRACTED AND LOCKED AGAINST THE CAR SIDEWALL. A "FILL PIECE" MUST BE INSTALLED IN THE VOID BETWEEN THE CAR SIDEWALL AND THE SIDE FILLER PANEL. SEE THE "TYPICAL TYPE A" VIEW ON PAGE 39 FOR GUIDANCE. IF THE BACK OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 39, THE "FILL PIECE" MATERIAL IS NOT REQUIRED. **NOTE:** DUNNAGE MATERIALS MUST NOT BE NAILED TO SIDE FILLERS.

Z. **NOTICE:** AFTER THE LOAD DIVIDER BULKHEADS ARE POSITIONED AGAINST THE LADING, AND THE LOCKING PINS ARE ENGAGED IN THE HOLES OF THE RAILS, THE LOWER LOCKING PINS MUST BE INSPECTED TO ENSURE THAT THE PINS ARE FULLY ENGAGED IN THE LOCKING HOLES. IF THE PINS ARE NOT FULLY SEATED IN THE LOCKING HOLES, THE LINKAGE MECHANISM WILL BE ADJUSTED AS REQUIRED SO THAT THE PINS WILL BE FULLY SEATED INTO THE LOCKING HOLES OF THE LOWER RAILS. IF PRESENT, DEBRIS MUST BE REMOVED FROM BENEATH THE LOCKING HOLES WHICH HAVE BEEN SELECTED FOR SECURING A LOAD DIVIDER BULKHEAD.

AA. **NOTICE:** FOR MAXIMUM LOADS WITHIN THIS DRAWING, 50'-6" LONG BOX CARS ARE SHOWN. HOWEVER, THE BLOCKING AND BRACING PROCEDURES USED ARE ALSO ADEQUATE FOR MAXIMUM LOADS IN BOX CARS WHICH ARE 60'-8" LONG, OR OF OTHER LENGTHS.

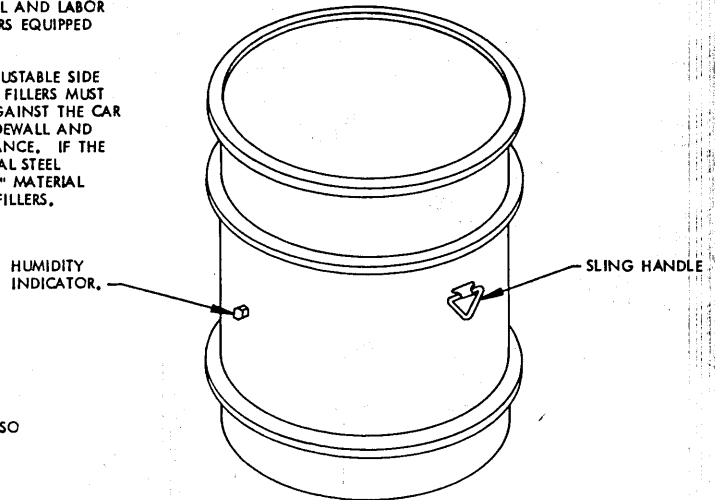
BB. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.



**MXU-650/B AIRFOIL GROUPS PACKAGED  
IN THE 55-GALLON METAL DRUM**

CONTAINER DIMENSIONS ----- 25-1/2" DIAMETER BY 34-1/4" HIGH  
GROSS WEIGHT ----- 150 POUNDS (APPROX)

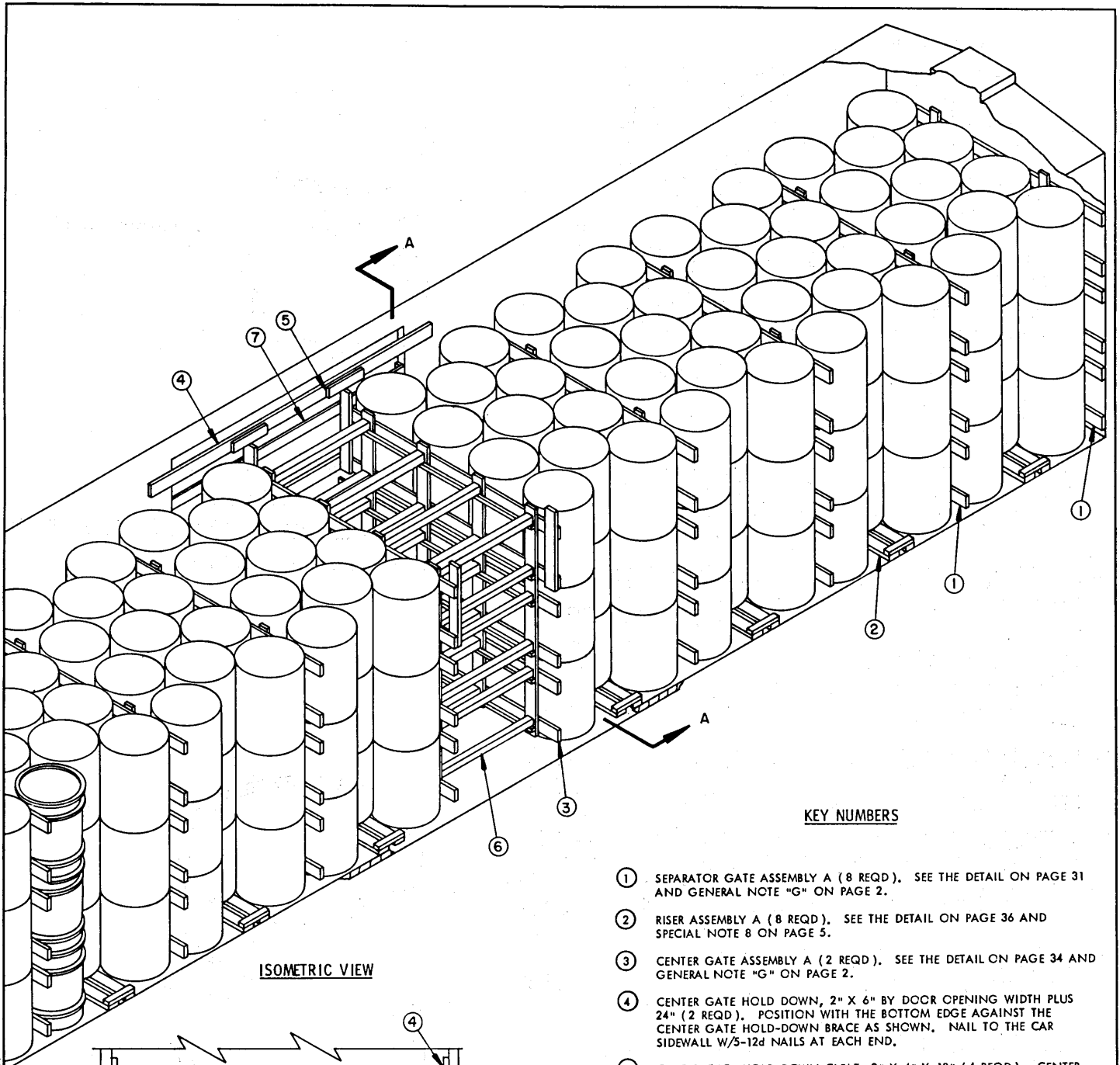
SEE GENERAL NOTES "C" AND "5" ON PAGE 2.



**MXU-651/B AIRFOIL GROUPS PACKAGED IN THE  
80-GALLON METAL DRUM**

CONTAINER DIMENSIONS ----- 33-1/8" DIAMETER BY 41-1/2" HIGH  
GROSS WEIGHT ----- 196 POUNDS (APPROX)

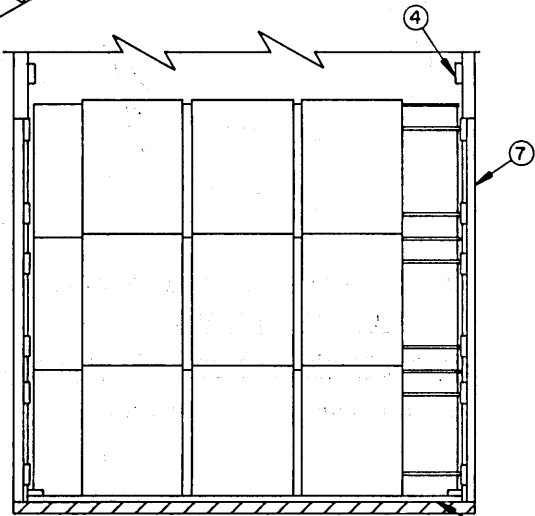
SEE GENERAL NOTES "D" AND "T" ON PAGE 2.



ISOMETRIC VIEW

KEY NUMBERS

- ① SEPARATOR GATE ASSEMBLY A (8 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A (8 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 5.
- ③ CENTER GATE ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 34 AND GENERAL NOTE "G" ON PAGE 2.
- ④ CENTER GATE HOLD DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). POSITION WITH THE BOTTOM EDGE AGAINST THE CENTER GATE HOLD-DOWN BRACE AS SHOWN. NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END.
- ⑤ CENTER GATE HOLD DOWN CLEAT, 2" X 4" X 18" (4 REQD). CENTER THE CLEATS ABOVE THE "CENTER GATE HOLD-DOWN BRACES" ON THE CENTER GATE AND NAIL TO THE CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT (24 REQD). TOENAIL TO PIECES MARKED ③ W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "F", "P", AND "Q" ON PAGE 2.
- ⑦ DOORWAY PROTECTION ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 35 AND SPECIAL NOTE 2 ON PAGE 5.



SECTION A-A

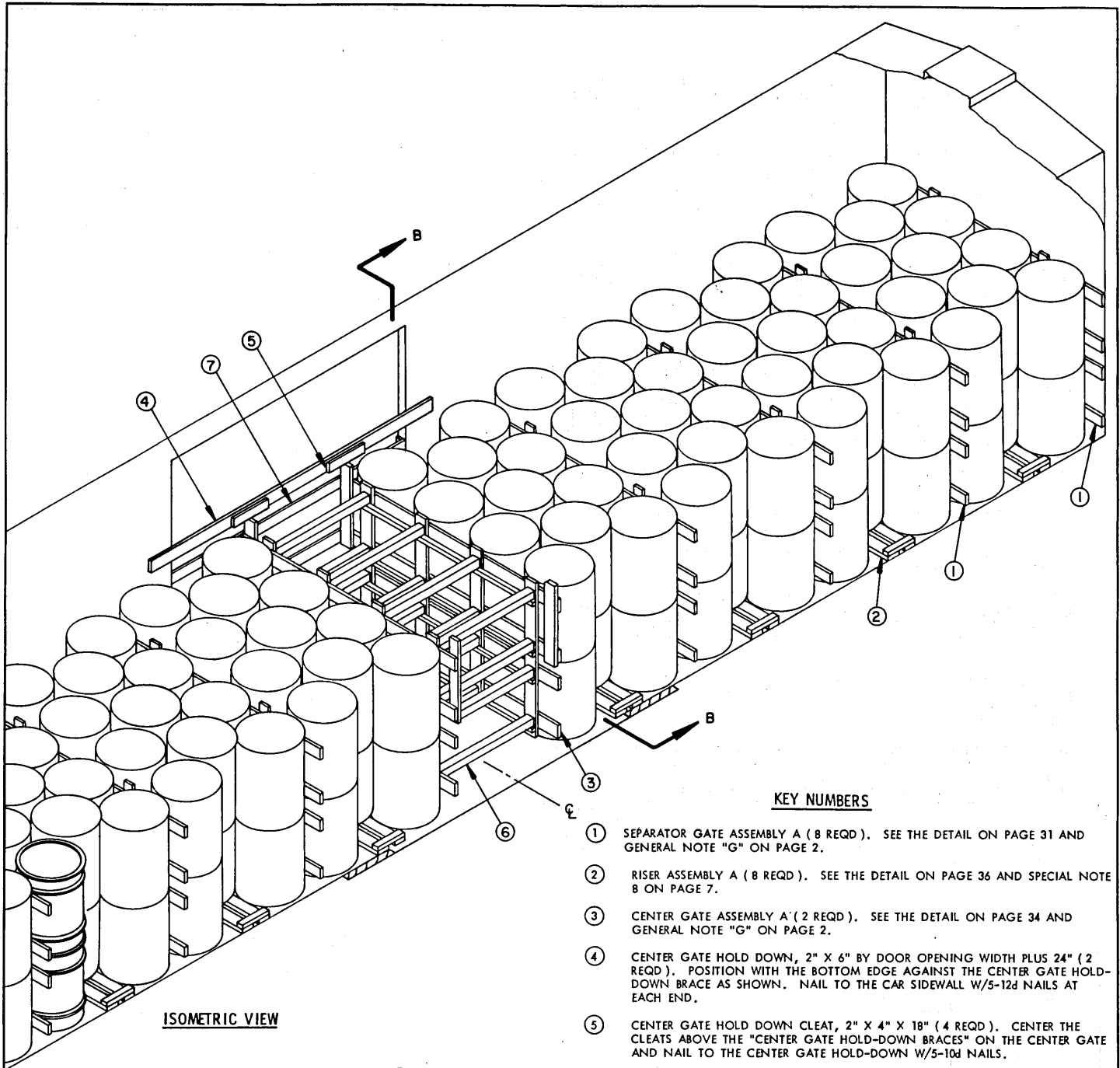
**SPECIAL NOTES:**

1. A FULL LOAD OF 264 MKU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. DOORWAY PROTECTION IS REQUIRED FOR ALL METAL DRUMS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-FOURTH OR MORE OF THE DRUM DIAMETER. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OR "THRU" PLUG DOORS, DELETE "DOORWAY PROTECTION ASSEMBLY A" AND USE DOORWAY PROTECTION AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 40. SEE GENERAL NOTE "J" ON PAGE 2.
3. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN, IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 12, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A THIRD LAYER OF A NINE DRUM STACK, WHICH SITS ON TOP OF A RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME STACK.
4. FOR SHIPMENT OF LESS-THAN-CAR-LOADS, SEE THE PROCEDURES ON PAGES 6 THROUGH 13 FOR GUIDANCE. ALSO, IF DESIRED OR TO SATISFY THE QUANTITY OF METAL DRUMS TO BE SHIPPED, THE ENTIRE THIRD LAYER MAY BE OMITTED FROM THE LOAD ON PAGE 4. SEE THE LOADING PROCEDURES ON PAGE 6 FOR METHOD OF BLOCKING A TWO-LAYER LOAD. NOTE: WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 4, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE. THAT IS, THE LOAD MUST BE SEPARATED BY POSITIONING A "SEPARATE GATE ASSEMBLY A" PIECE MARKED ①, EVERY THREE STACKS. ALTERNATE STACKS ON SIX DRUMS MUST HAVE A "RISER ASSEMBLY A", PIECE MARKED ②, POSITIONED UNDER THE STACK.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 14 AND 15.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES ON PAGES 16 THROUGH 19.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2" ) OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF NINE DRUMS ( THREE ACROSS AND THREE HIGH ) AS SHOWN IN THE LOAD ON PAGE 4. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 4 AND PROCEED WITH THE REMAINDER OF THE LOAD.

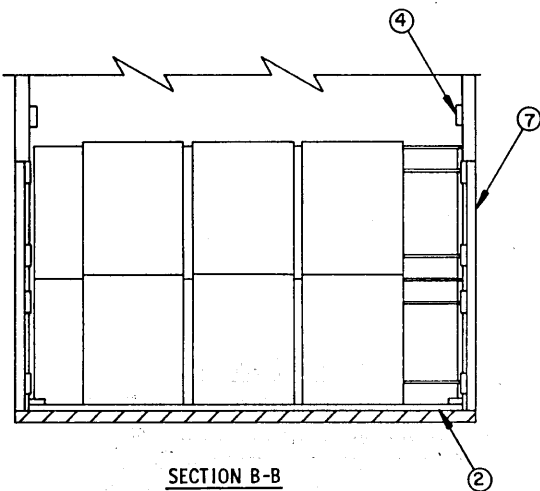
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	90	30
2" X 3"	33	17
2" X 4"	37	25
2" X 6"	1042	1042
4" X 4"	96	128
NAILS	NO. REQD	POUNDS
10d (3")	776	12
12d (3-1/4")	68	1-1/4
16d (3-1/2")	96	2-1/4

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
55-GALLON DRUM-----	264-----	39,600 LBS
DUNNAGE-----		2,500 LBS
<b>TOTAL WEIGHT-----</b>		<b>42,100 LBS</b>



**ISOMETRIC VIEW**



**SECTION B-B**

**KEY NUMBERS**

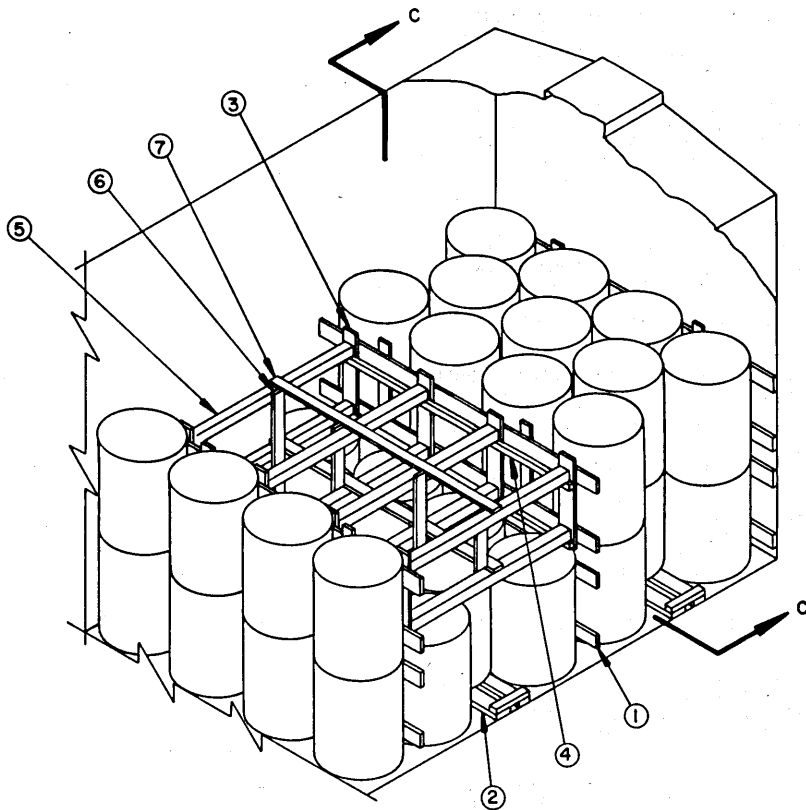
- ① SEPARATOR GATE ASSEMBLY A ( 8 REQD ). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A ( 8 REQD ). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 7.
- ③ CENTER GATE ASSEMBLY A' ( 2 REQD ). SEE THE DETAIL ON PAGE 34 AND GENERAL NOTE "G" ON PAGE 2.
- ④ CENTER GATE HOLD DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" ( 2 REQD ). POSITION WITH THE BOTTOM EDGE AGAINST THE CENTER GATE HOLD-DOWN BRACE AS SHOWN. NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END.
- ⑤ CENTER GATE HOLD DOWN CLEAT, 2" X 4" X 18" ( 4 REQD ). CENTER THE CLEATS ABOVE THE "CENTER GATE HOLD-DOWN BRACES" ON THE CENTER GATE AND NAIL TO THE CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT ( 16 REQD ). TO NAIL TO PIECES MARKED ③ W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "F", "P", AND "Q" ON PAGE 2.
- ⑦ DOORWAY PROTECTION ASSEMBLY A ( 2 REQD ). SEE THE DETAIL ON PAGE 35 AND SPECIAL NOTE 2 ON PAGE 7.

**SPECIAL NOTES:**

1. A FULL LOAD OF 176 MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. DOORWAY PROTECTION IS REQUIRED FOR ALL METAL DRUMS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-FOURTH OR MORE OF THE DRUM DIAMETER. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OR "THRU" PLUG DOORS, DELETE "DOORWAY PROTECTION ASSEMBLY A" AND USE DOORWAY PROTECTION AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 40. SEE GENERAL NOTE "J" ON PAGE 2.
3. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 12, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A SECOND LAYER OF A SIX DRUM STACK WHICH SITS ON TOP OF A RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME STACK.
4. FOR SHIPMENT OF LESS-THAN-CAR-LOADS, SEE THE PROCEDURES ON PAGES 8 THROUGH 13 FOR GUIDANCE. ALSO, IF DESIRED OR TO SATISFY THE QUANTITY OF METAL DRUMS TO BE SHIPPED, THE ENTIRE SECOND LAYER MAY BE OMITTED FROM THE LOAD ON PAGE 6. SEE THE LOADING PROCEDURES ON PAGE 10 FOR METHOD OF BLOCKING A ONE-LAYER LOAD. NOTE: WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 6, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE. THAT IS, THE LOAD MUST BE SEPARATED BY POSITIONING A "SEPARATE GATE ASSEMBLY A", PIECE MARKED ①, EVERY THREE STACKS. ALTERNATE STACKS OF SIX DRUMS MUST HAVE A "RISER ASSEMBLY A", PIECE MARKED ②, POSITIONED UNDER THE STACK.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 14 AND 15.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES ON PAGES 16 THROUGH 19.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF SIX DRUMS (THREE ACROSS AND TWO HIGH) AS SHOWN IN THE LOAD ON PAGE 6. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 6 AND PROCEED WITH THE REMAINDER OF THE LOAD.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	60	20
2" X 3"	22	11
2" X 4"	37	25
2" X 6"	751	751
4" X 4"	64	86
NAILS	NO. REQD	POUNDS
10d (3")	540	8-1/2
12d (3-1/4")	20	1/2
16d (3-1/2")	64	1-1/2

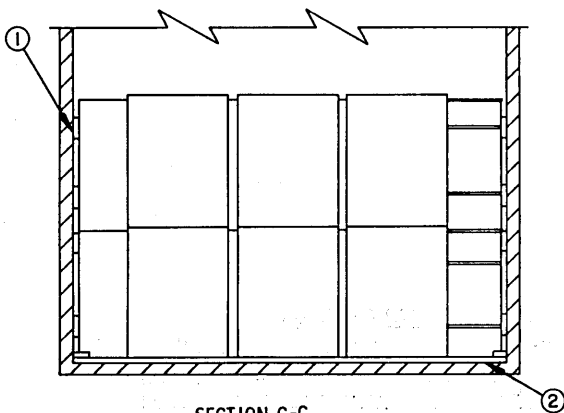
LOAD AS SHOWN		
ITEM	QUANTITY	WEIGHT ( APPROX )
55-GALLON DRUM	----- 176 -----	26,400 LBS
DUNNAGE	-----	1,797 LBS
TOTAL WEIGHT -----		28,197 LBS



ISOMETRIC VIEW

KEY NUMBERS

- ① SEPARATOR GATE ASSEMBLY A (3 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE B ON PAGE 7.
- ③ STRUT BEARING PIECE, 2" X 6" X 32" (8 REQD). POSITION EACH PIECE IN LINE WITH THE CENTER OF A METAL DRUM AND EXTENDING 3" ABOVE THE TOP LOAD BEARING PIECE ON THE SEPARATOR GATE ASSEMBLY A. NAIL TO THE SEPARATOR GATE ASSEMBLY A W/3-10d NAILS AT EACH JOINT. SEE "DETAIL A" ON PAGE 9.
- ④ STRUT LEDGER, 2" X 2" BY CUT-TO-FIT (4 REQD). NAIL TO THE STRUT BEARING PIECES W/2-10d NAILS AT EACH JOINT. SEE "DETAIL A" ON PAGE 9.
- ⑤ STRUT, 4" X 4" BY CUT-TO-FIT (8 REQD). TOENAIL TO THE STRUT BEARING PIECES MARKED ③ W/2-16d NAILS AT EACH END.
- ⑥ VERTICAL STRUT BRACING, 2" X 4" X 30" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO THE STRUT W/3-10d NAILS AT EACH JOINT.

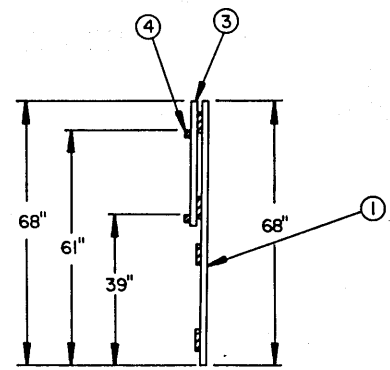
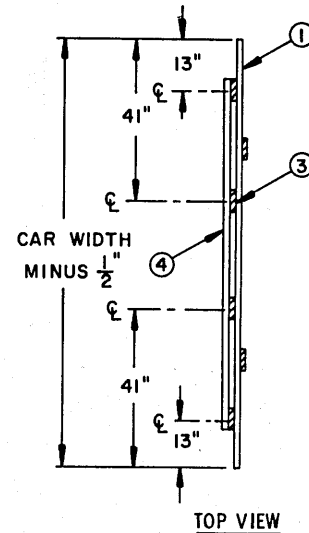


SECTION C-C



**SPECIAL NOTES:**

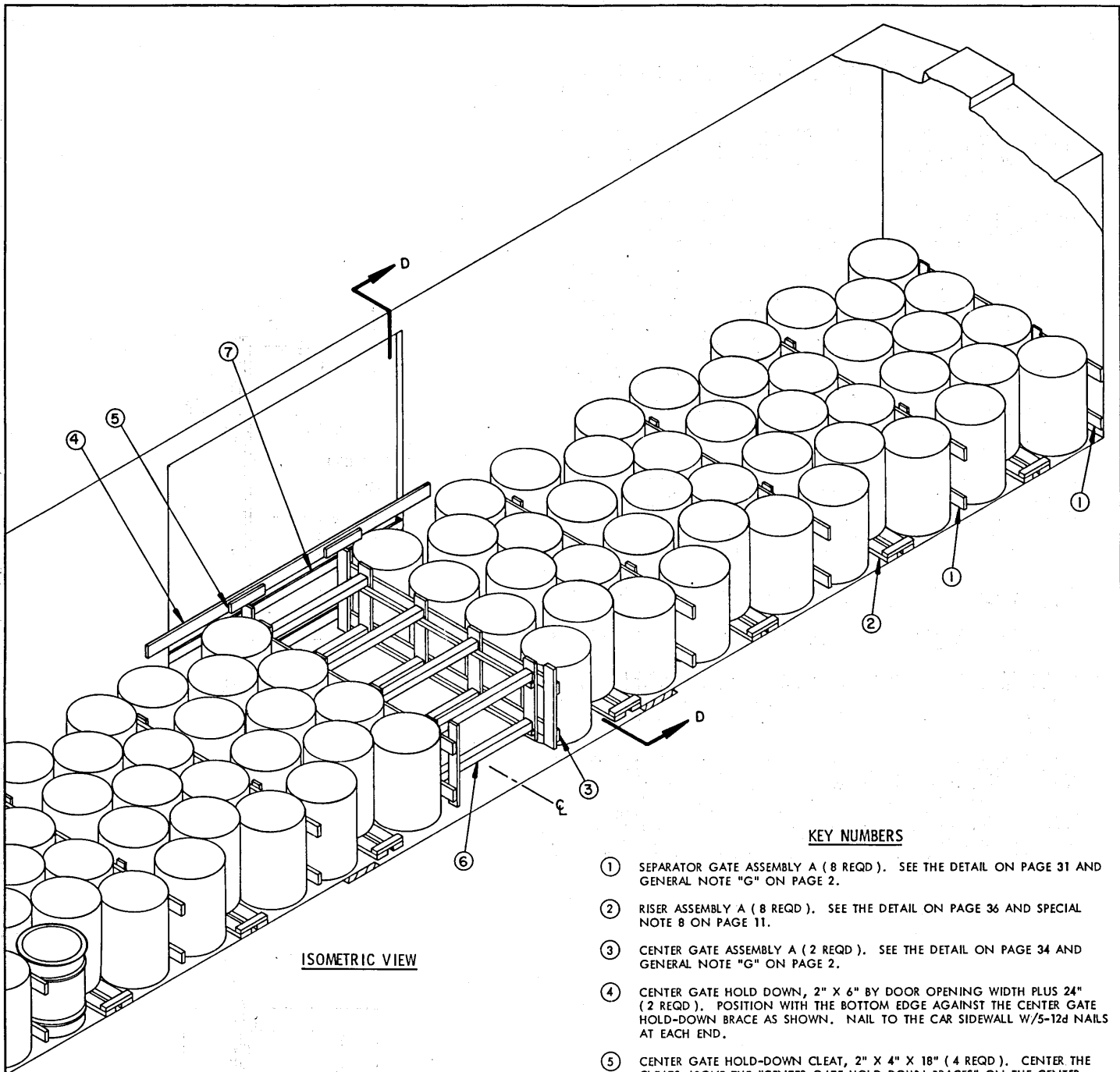
1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BRACING A PARTIAL SECOND LAYER OF MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS, IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR. CARS OF OTHER DIMENSIONS MAY BE USED.
2. ONLY A PARTIAL ISOMETRIC VIEW OF THE LOAD ON PAGE 6, SHOWING THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO FABRICATE A PARTIAL SECOND LAYER LOAD, IS SHOWN. REFER TO THE PROCEDURES SHOWN ON PAGE 6 FOR BLOCKING AND BRACING REQUIREMENTS FOR THE REST OF THE LOAD.
3. THE PARTIAL LOAD SHOWN ON PAGE 8 DEPICTS A STRUTTED GATE METHOD OF PARTIAL SECOND LAYER BRACING. THIS METHOD COULD BE USED AT ONE END OR BOTH ENDS OF THE CAR, IN THE SECOND LAYER OF THE LOAD SHOWN ON PAGE 6, WHEN THE QUANTITY OF DRUMS IS NOT ENOUGH FOR A FULL LOAD.
4. THE PARTIAL LAYER BLOCKING METHOD SHOWN ON PAGE 8 IS ONLY FOR USE WHEN OMITTING FOUR (4) OR ELEVEN (11), DRUMS FROM THE SECOND LAYER OF A LOAD, THE PROCEDURES ON PAGE 8 SHOW ELEVEN DRUMS OMITTED FROM THE SECOND LAYER. WHEN OMITTING FOUR DRUMS FROM THE SECOND LAYER POSITION A "SEPARATOR GATE ASSEMBLY A" WITH PIECES MARKED ③ AND ④ NAILED IN PLACE, AGAINST A STACK OF EIGHT DRUMS, POSITION FOUR DRUMS ON THE CAR FLOOR ACROSS THE WIDTH OF THE CAR AND AGAINST THE "SEPARATOR GATE ASSEMBLY A", POSITION A SECOND "SEPARATOR GATE ASSEMBLY A" WITH PIECES MARKED ③ AND ④ NAILED IN PLACE AGAINST THE FOUR DRUMS, POSITION A STACK OF EIGHT DRUMS AGAINST THE SECOND "SEPARATOR GATE ASSEMBLY A" AND PROCEED WITH THE REMAINDER OF THE LOAD AS SHOWN ON PAGE 6. POSITION EIGHT STRUTS BETWEEN THE FIRST AND SECOND SEPARATOR GATE ASSEMBLIES AND NAIL IN PLACE. **NOTE:** THESE STRUTS WILL NOT REQUIRE ANY HORIZONTAL OR VERTICAL STRUT BRACING. SEE SPECIAL NOTE 3 ON THIS PAGE.
5. IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 12, IN PLACE OF EACH OMITTED DRUM IN THE SECOND LAYER. THIS ASSEMBLY MAY BE USED ALONG WITH THE PARTIAL-LAYER BRACING SHOWN ON PAGE 8 TO HELP ADJUST THE LOAD QUANTITY. ALSO, IF DESIRED OR TO SATISFY THE LOAD QUANTITY, THE ENTIRE SECOND LAYER MAY BE OMITTED FROM THE LOAD. SEE THE LOADING PROCEDURES ON PAGE 10 FOR METHOD OF BLOCKING A ONE-LAYER LOAD.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 14 AND 15.
7. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 16 THROUGH 19.
8. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 8 AND PROCEED WITH THE REMAINDER OF THE LOAD.



**SIDE VIEW**

**DETAIL A**

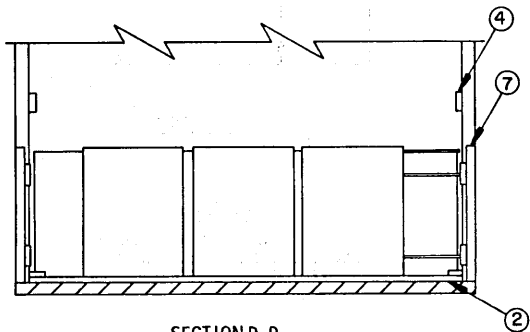
THE "SIDE VIEW" AND "TOP VIEW" SHOWN ABOVE DEPICT THE LOCATION OF PIECES MARKED ③ AND ④ IN THE LOAD SHOWN ON PAGE 8.



ISOMETRIC VIEW

**KEY NUMBERS**

- ① SEPARATOR GATE ASSEMBLY A ( 8 REQD ). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A ( 8 REQD ). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 11.
- ③ CENTER GATE ASSEMBLY A ( 2 REQD ). SEE THE DETAIL ON PAGE 34 AND GENERAL NOTE "G" ON PAGE 2.
- ④ CENTER GATE HOLD DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" ( 2 REQD ). POSITION WITH THE BOTTOM EDGE AGAINST THE CENTER GATE HOLD-DOWN BRACE AS SHOWN. NAIL TO THE CAR SIDEWALL W/5-10d NAILS AT EACH END.
- ⑤ CENTER GATE HOLD-DOWN CLEAT, 2" X 4" X 18" ( 4 REQD ). CENTER THE CLEATS ABOVE THE "CENTER GATE HOLD-DOWN BRACES" ON THE CENTER GATE AND NAIL TO THE CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑥ STRUT 4" X 4" BY CUT-TO-FIT ( 8 REQD ). TOENAIL TO PIECES MARKED ③ W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "F", "P", AND "Q" ON PAGE 2.
- ⑦ DOORWAY PROTECTION ASSEMBLY A ( 2 REQD ). SEE THE "DOORWAY PROTECTION ASSEMBLY A" DETAIL ON PAGE 35 AND SPECIAL NOTE 2 ON PAGE 11.



SECTION D-D

**SPECIAL NOTES:**

1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BRACING A ONE-LAYER LOAD OF MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS, IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. DOORWAY PROTECTION IS REQUIRED FOR ALL METAL DRUMS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-FOURTH OR MORE OF THE DRUM DIAMETER. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS, OR "THRU" PLUG DOORS, DELETE "DOORWAY PROTECTION ASSEMBLY A" AND USE DOORWAY PROTECTION AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 40. SEE GENERAL NOTE "J" ON PAGE 2.
3. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 12, IN PLACE OF EACH OMITTED DRUM. DRUMS SHOULD ONLY BE OMITTED FROM A THREE DRUM ROW WHICH SITS ON TOP OF THE RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME ROW.
4. THE PROCEDURES SHOWN ON PAGE 10 DEPICT THE USE OF "CENTER GATES" AND "STRUTS" IN A ONE-LAYER LOAD OF EIGHTY-EIGHT DRUMS. IF THE SPACE IN THE CENTER OF THE CAR IS FOURTEEN FEET OR MORE, AFTER THE DRUMS ARE LOADED, USE "KNEE-BRACE ASSEMBLIES" AS SHOWN IN THE LOAD ON PAGE 12, IN LIEU OF THE "CENTER GATES" AND "STRUTS". ONE KNEE BRACE ASSEMBLY MAY BE USED FOR EACH END OF THE CAR.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 14 AND 15.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 16 THROUGH 19.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY ROW OF THREE DRUMS, AS SHOWN IN THE LOAD ON PAGE 10. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 10 AND PROCEED WITH THE REMAINDER OF THE LOAD.

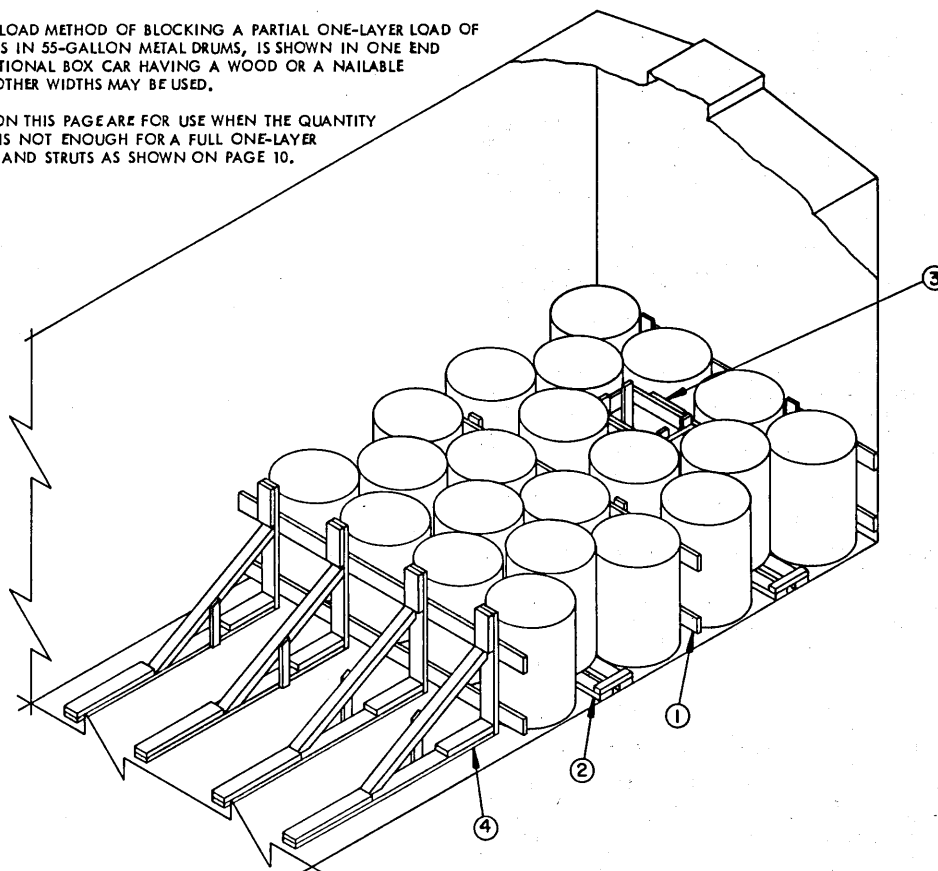
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	15	5
2" X 3"	12	6
2" X 4"	25	17
2" X 6"	433	433
4" X 4"	32	43
NAILS	NO. REQD	POUNDS
10d (3")	272	4-1/4
12d (3-1/4")	20	1/2
16d (3-1/2")	32	3/4

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT ( APPROX )
55-GALLON DRUM	88	13,200 LBS
DUNNAGE		1,014 LBS
<b>TOTAL WEIGHT</b>		<b>14,214 LBS</b>

**SPECIAL NOTES:**

1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BLOCKING A PARTIAL ONE-LAYER LOAD OF MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS, IS SHOWN IN ONE END OF A 9'-2" WIDE CONVENTIONAL BOX CAR HAVING A WOOD OR A NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS MAY BE USED.
2. THE PROCEDURES SHOWN ON THIS PAGE ARE FOR USE WHEN THE QUANTITY OF DRUMS TO BE SHIPPED IS NOT ENOUGH FOR A FULL ONE-LAYER LOAD WITH CENTER GATES AND STRUTS AS SHOWN ON PAGE 10.



**ISOMETRIC VIEW**

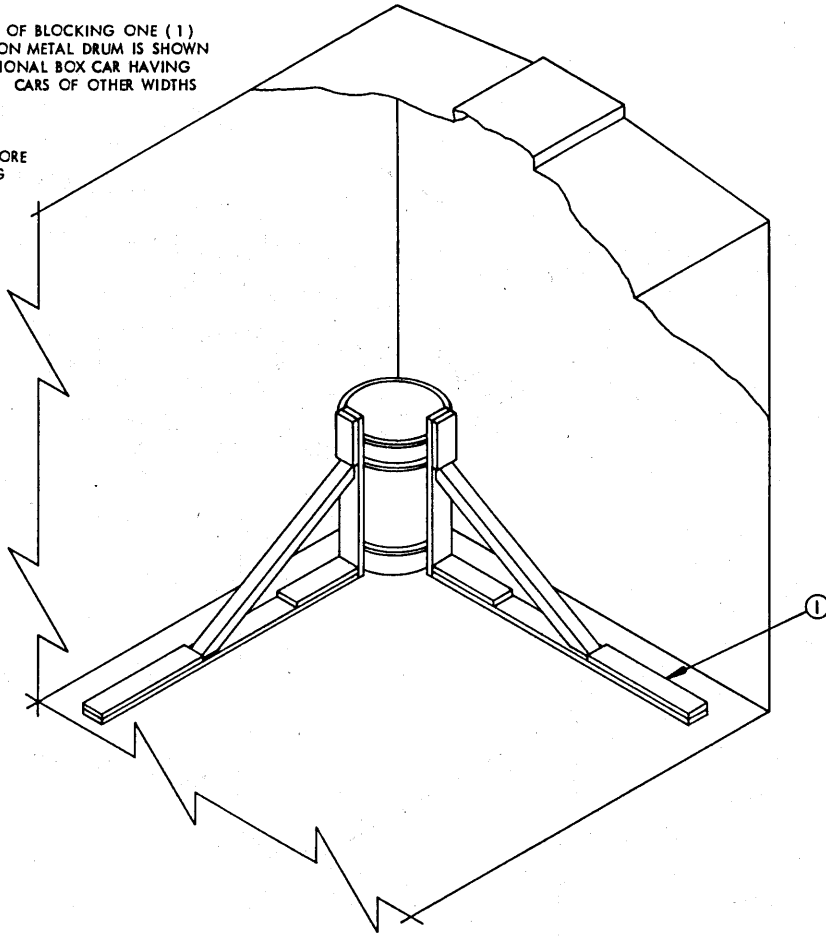
3. THE PROCEDURES SHOWN ON THIS PAGE DEPICT THE USE OF A "KNEE-BRACE ASSEMBLY" TO RETAIN A PARTIAL ONE LAYER LOAD OF TWENTY-ONE DRUMS. THE QUANTITY OF DRUMS SHOWN IS TYPICAL ONLY AND THE "KNEE-BRACE ASSEMBLY A" SHOWN AS PIECE MARKED ④, IS ADEQUATE FOR RETAINING A PARTIAL ONE LAYER LOAD OF 4 THROUGH 106 DRUMS (16,000 POUNDS MAXIMUM).  
NOTE: IF THE SPACE IN THE CENTER OF THE CAR IS FOURTEEN FEET OR MORE, AFTER THE DRUMS ARE LOADED, TWO KNEE-BRACE ASSEMBLIES MAY BE USED TO BLOCK THE LOAD AT EACH END OF THE CAR. WHEN FABRICATING THE KNEE-BRACE ASSEMBLY FIELD CHECK THE DIMENSIONS TO ASSURE THAT EACH BRACE IS IN LINE WITH THE CENTER OF A METAL DRUM.
4. ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, SHOWN AS PIECE MARKED ③ IN THE LOAD ON THIS PAGE, MAY BE USED WITHIN A LOAD TO HELP ADJUST THE LOAD QUANTITY. DRUMS SHOULD ONLY BE OMITTED FROM A THREE DRUM ROW WHICH SITS ON TOP OF THE RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME ROW.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 14 AND 15.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 16 THROUGH 19.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY ROW OF THREE DRUMS, AS SHOWN IN THE LOAD ON THIS PAGE. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON THIS PAGE AND PROCEED WITH THE REMAINDER OF THE LOAD.

**KEY NUMBERS**

- ① SEPARATOR GATE ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON THIS PAGE.
- ③ OMITTED DRUM FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 4 ON THIS PAGE.
- ④ KNEE-BRACE ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 37 AND SPECIAL NOTE 3 ON THIS PAGE.

**SPECIAL NOTES:**

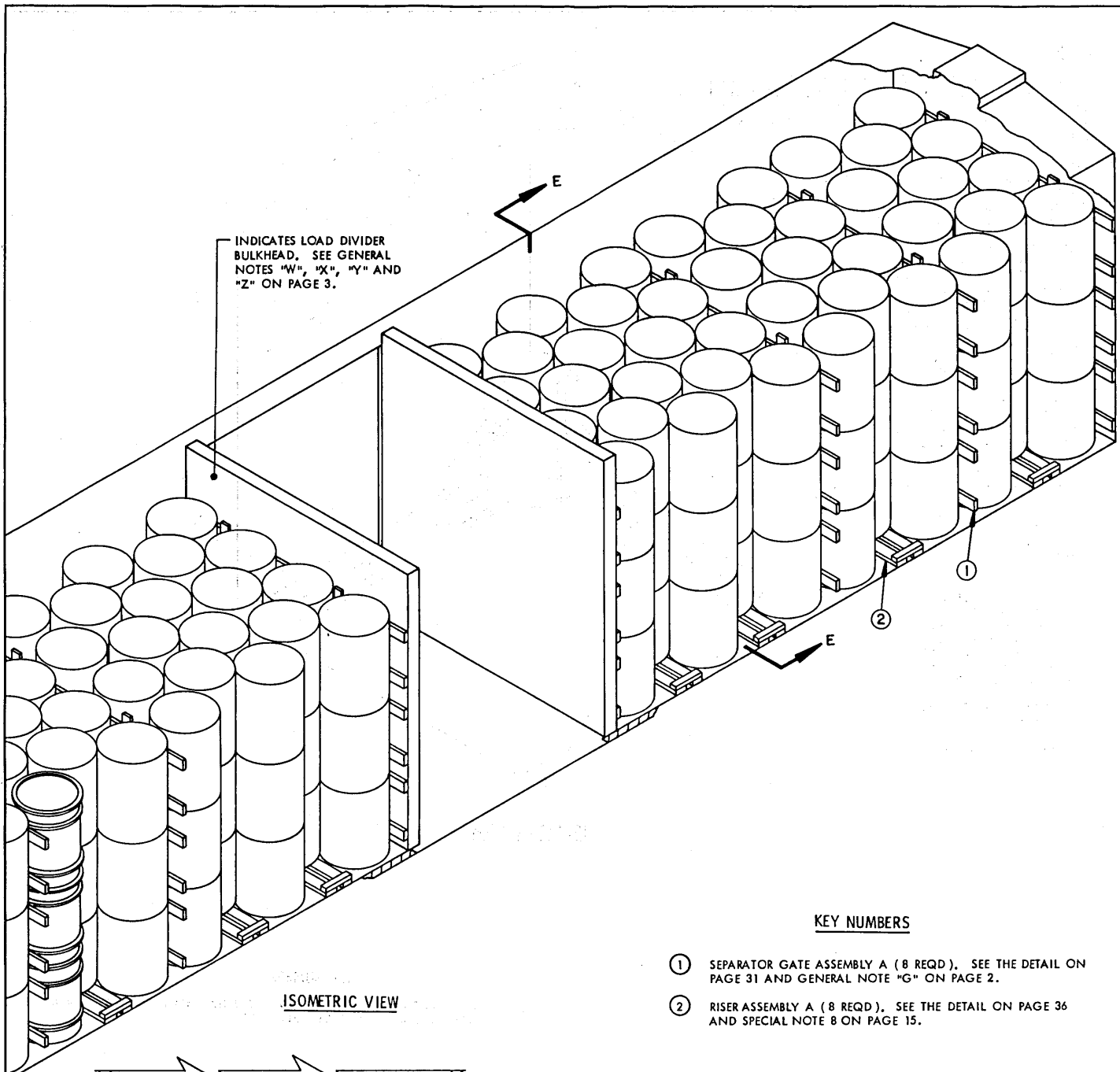
1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BLOCKING ONE (1) MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUM IS SHOWN IN ONE END OF A 9'-2" WIDE CONVENTIONAL BOX CAR HAVING A WOOD OR A NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. ONE (1) METAL DRUM IS SHOWN AS A TYPICAL LOAD QUANTITY. HOWEVER, MORE THAN ONE DRUM MAY BE SHIPPED USING THE METHOD SHOWN ON THIS PAGE FOR EACH DRUM. IF TWO DRUMS ARE TO BE SHIPPED, POSITION BOTH DRUMS SIDE-BY-SIDE IN ONE CORNER AND AGAINST THE CAR END WALL POSITION ONE KNEE-BRACE ASSEMBLY A AGAINST EACH DRUM, LONGITUDINALLY. THE KNEE BRACE USED FOR SIDE BLOCKING MAY BE SHORTENED TO FIT BETWEEN A DRUM AND THE CAR SIDE WALL. ALSO, IF DESIRED ONE OR MORE DRUMS MAY BE POSITIONED AGAINST THE CAR SIDE WALL ANYWHERE WITHIN THE LENGTH OF THE CAR AND BLOCKED BY POSITIONING ONE KNEE-BRACE ASSEMBLY A AGAINST EACH END DRUM FOR LONGITUDINAL BRACING, AND ONE KNEE-BRACE ASSEMBLY A AGAINST EACH DRUM IN THE ROW FOR SIDE BRACING. ALSO SEE THE LOAD SHOWN ON PAGE 12 WHEN SHIPPING THREE OR MORE DRUMS. A COMBINATION OF THE METHOD SHOWN ON PAGE 12 AND THE METHOD SHOWN ON THIS PAGE, MAY BE USED.
3. EACH KNEE-BRACE ASSEMBLY A SHOWN AS PIECE MARKED ①, IS ADEQUATE FOR RETAINING A LOAD OF 4,000 POUNDS. POSITION EACH KNEE-BRACE ASSEMBLY IN LINE WITH THE CENTER OF A METAL DRUM.
4. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 16 THROUGH 19.



ISOMETRIC VIEW

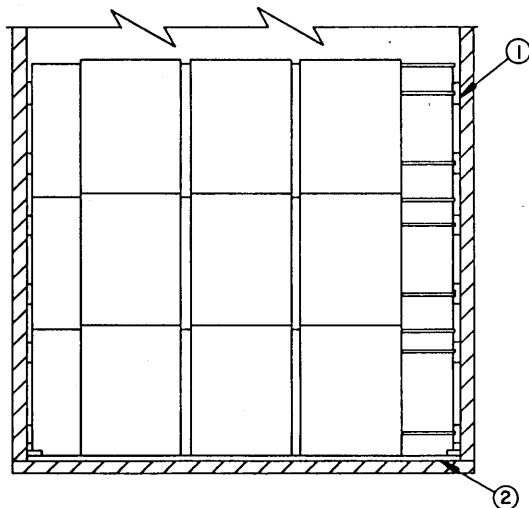
**KEY NUMBER**

- ① KNEE BRACE ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 37 AND SPECIAL NOTES 2 AND 3 ON THIS PAGE.



KEY NUMBERS

- ① SEPARATOR GATE ASSEMBLY A (8 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A (8 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 15.



**SPECIAL NOTES:**

1. A LOAD OF 240 MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND 8'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER DOOR OPENINGS CAN BE USED.
2. LADING MUST NOT BE LOADED IN THE DOORWAY AREA AND THE LOAD DIVIDER BULKHEADS MUST BE SECURED AND LOCKED AGAINST THE LADING TO THE REAR OF THE DOOR POSTS OF THE CAR.
3. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN, IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 12, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A THIRD LAYER OF A NINE LAYER STACK WHICH SITS ON TOP OF A RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME STACK.
4. FOR SHIPMENT OF LESS-THAN-CAR LOADS THE LOAD SHOWN ON PAGE 14 MAY BE REDUCED IN QUANTITY BY OMITTING TWENTY-ONE METAL DRUMS AT A TIME. THE TWENTY-ONE DRUMS WILL CONSIST OF ONE STACK OF TWELVE DRUMS AND ONE STACK OF NINE DRUMS. ALSO, THE ENTIRE THIRD LAYER MAY BE OMITTED FROM ONE OR BOTH ENDS OF THE CAR. SEE THE LOADING PROCEDURES ON PAGE 10 FOR METHOD OF BLOCKING A ONE LAYER LOAD. NOTE: WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 14, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE. THAT IS, THE LOAD MUST BE SEPARATED BY POSITIONING A "SEPARATOR GATE ASSEMBLY A", PIECE MARKED ①, EVERY THREE OR FIVE STACKS. ALSO, A SEPARATOR GATE ASSEMBLY MUST BE POSITIONED AGAINST THE END WALL AND AGAINST THE LOAD DIVIDER BULKHEAD. ALTERNATIVE STACKS OF NINE DRUMS MUST HAVE A "RISER ASSEMBLY A", PIECE MARKED ②, POSITIONED UNDER THE STACK.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES ON PAGE 16 THROUGH 19.
6. IF A CONVENTIONAL TYPE BOX CAR IS BEING LOADED SEE THE PROCEDURES ON PAGES 4 THROUGH 13.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-FLOOR, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF NINE DRUMS (THREE ACROSS AND THREE HIGH) AS SHOWN IN THE LOAD ON PAGE 14. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 14 AND PROCEED WITH THE REMAINDER OF THE LOAD.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	19	13
2" X 6"	720	720
NAILS	NO. REQD	POUNDS
10d	384	6

**LOAD AS SHOWN**

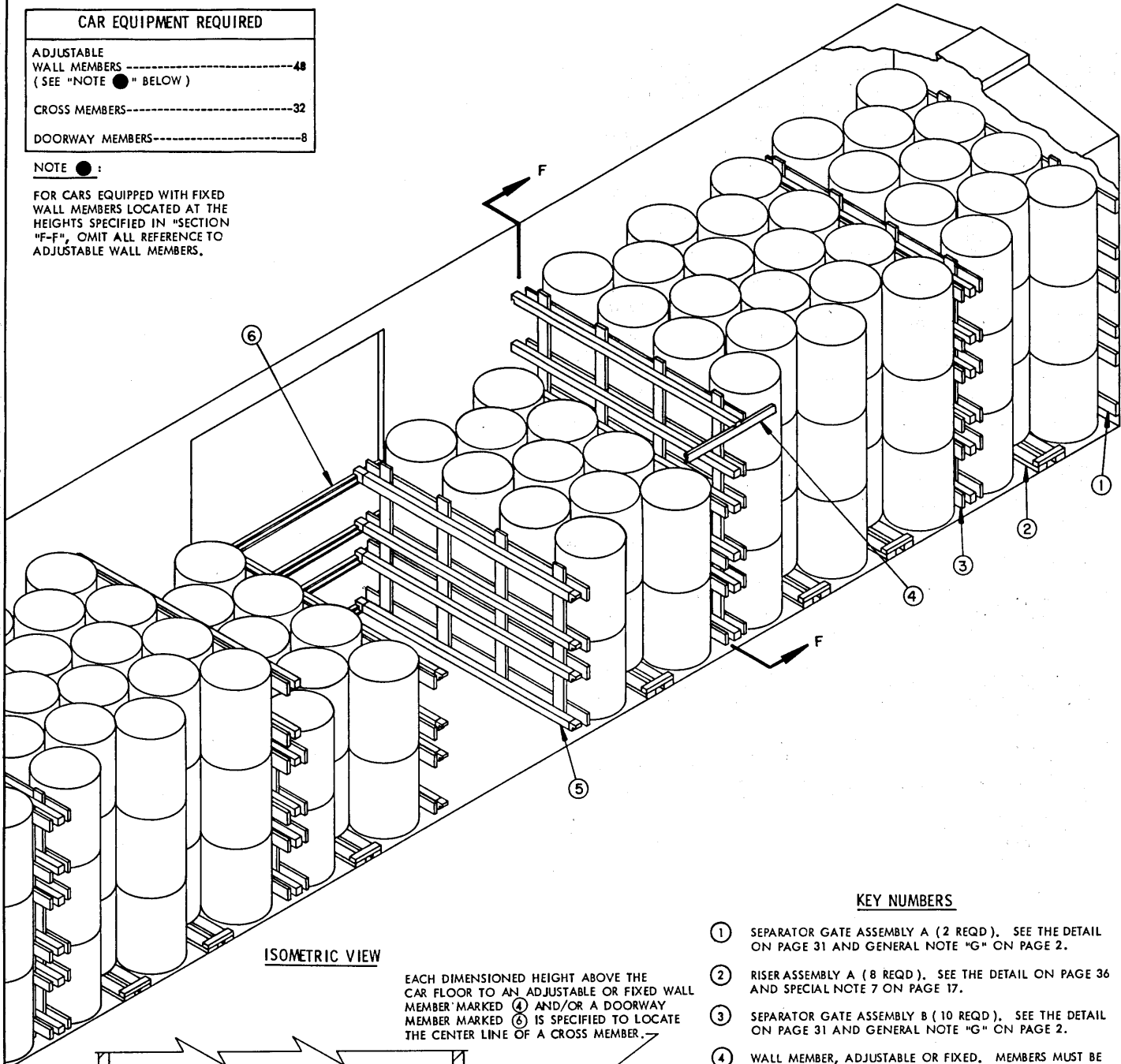
ITEM	QUANTITY	WEIGHT (APPROX)
55-GALLON DRUMS	240	36,000 LBS
DUNNAGE		1,472 LBS
TOTAL WEIGHT		37,472 LBS

**CAR EQUIPMENT REQUIRED**

ADJUSTABLE WALL MEMBERS (SEE "NOTE 1" BELOW)	48
CROSS MEMBERS	32
DOORWAY MEMBERS	8

**NOTE 1:**

FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION F-F", OMIT ALL REFERENCE TO ADJUSTABLE WALL MEMBERS.

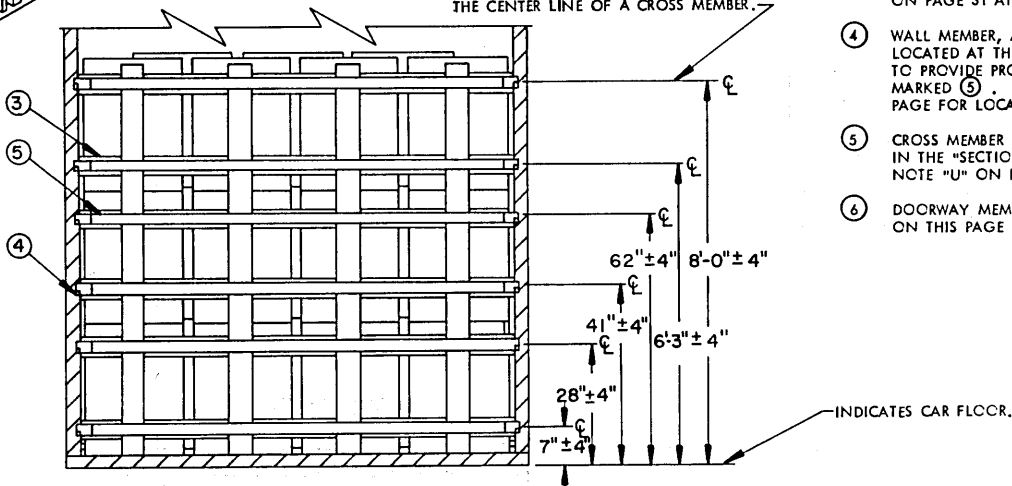


**ISOMETRIC VIEW**

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED 4 AND/OR A DOORWAY MEMBER MARKED 6 IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.

**KEY NUMBERS**

- 1 SEPARATOR GATE ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- 2 RISER ASSEMBLY A (8 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 7 ON PAGE 17.
- 3 SEPARATOR GATE ASSEMBLY B (10 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- 4 WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED 5. SEE THE "SECTION F-F" VIEW ON THIS PAGE FOR LOCATION GUIDANCE.
- 5 CROSS MEMBER (32 REQD). POSITION AT HEIGHTS SHOWN IN THE "SECTION F-F" VIEW ON THIS PAGE. SEE GENERAL NOTE "U" ON PAGE 3.
- 6 DOORWAY MEMBER (8 REQD). SEE THE "SECTION F-F" VIEW ON THIS PAGE FOR HEIGHT LOCATIONS.



**SECTION F-F**



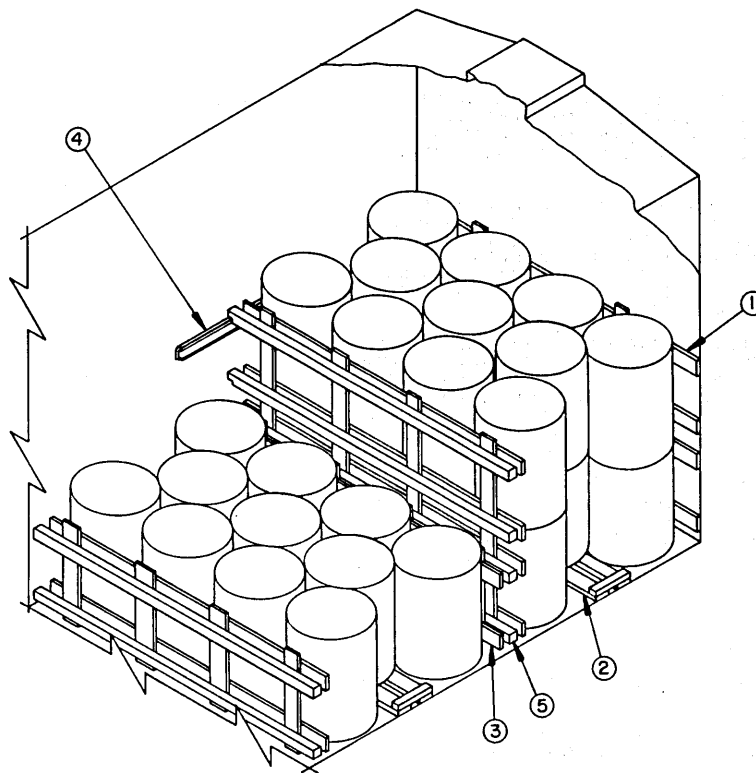
**SPECIAL NOTES:**

1. A LOAD OF 218 MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 8'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN, IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 12, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A THIRD LAYER OF A NINE DRUM STACK WHICH SITS ON TOP OF A RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME STACK.
3. FOR SHIPMENT OF LESS-THAN-CAR LOADS THE LOAD SHOWN ON PAGE 16 MAY BE REDUCED IN QUANTITY BY OMITTING TWENTY-ONE METAL DRUMS AT A TIME FROM A BAY. THE TWENTY-ONE DRUMS WILL CONSIST OF ONE STACK OF TWELVE DRUMS AND ONE STACK OF NINE DRUMS. ALSO THE THIRD LAYER MAY BE OMITTED FROM ONE OR MORE BAYS, OR THE ENTIRE THIRD LAYER MAY BE OMITTED FROM ONE OR BOTH ENDS OF THE CAR. SEE THE LOAD ON PAGES 18 AND 19 FOR MORE LESS-THAN-CAR LOAD PROCEDURES. NOTE: WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 16, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE. THAT IS, THE LOAD MUST BE SEPARATED INTO COMPARTMENTS (BAYS), SEPARATOR GATE ASSEMBLIES SHOWN AS PIECES MARKED ① AND ③ MUST BE POSITIONED AT END WALLS AND BETWEEN "CROSS MEMBERS" MARKED ⑤ AND METAL DRUMS. ALTERNATE STACKS OF NINE DRUMS MUST HAVE A "RISER ASSEMBLY A" PIECE MARKED ②, POSITIONED UNDER THE STACK, AND ALL "CROSS MEMBERS" MUST BE POSITIONED AT THE HEIGHTS SHOWN IN "SECTION F-F".
4. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 14 AND 15.
5. IF A CONVENTIONAL TYPE BOX CAR IS BEING LOADED, SEE THE PROCEDURES SHOWN ON PAGES 6 THROUGH 13.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2" OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, SEE GENERAL NOTE "U" ON PAGE 3.
7. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF NINE DRUMS (THREE ACROSS AND THREE HIGH) AS SHOWN IN THE LOAD ON PAGE 16. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
8. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 16 AND PROCEED WITH THE REMAINDER OF THE LOAD.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	19	13
2" X 6"	1,059	1,059
NAILS	NO. REQD	POUNDS
10d (3")	792	12-1/4

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
55-GALLON DRUM-----	218-----	32,700 LBS
DUNNAGE-----		2,157 LBS
TOTAL WEIGHT-----		34,857 LBS



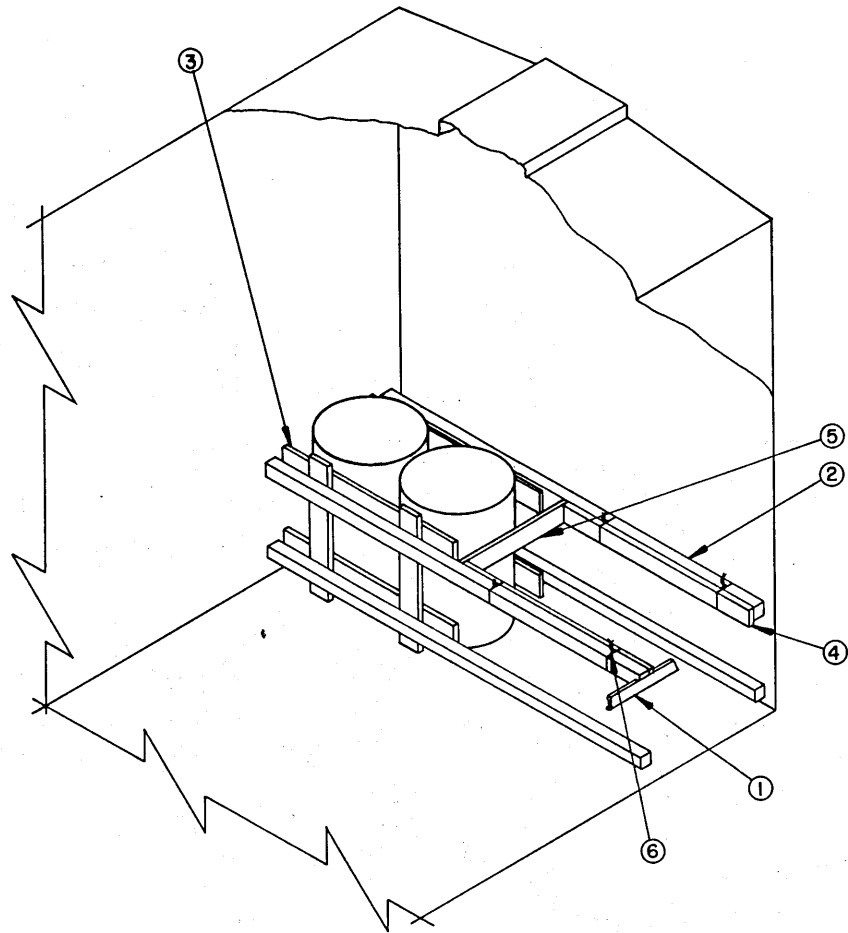
ISOMETRIC VIEW

**SPECIAL NOTES:**

1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BLOCKING A PARTIAL SECOND LAYER OF MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS, IS SHOWN IN ONE END OF A 9'-2" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS.
2. ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, SHOWN AS PIECE MARKED (3) IN THE LOAD ON PAGE 12, MAY BE USED WITHIN A LOAD TO HELP ADJUST THE LOAD QUANTITY. DRUMS SHOULD ONLY BE OMITTED FROM A THREE DRUM ROW WHICH SITS ON TOP OF THE RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME ROW.
3. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 14 AND 15.
4. IF A CONVENTIONAL TYPE BOX CAR IS BEING LOADED SEE THE PROCEDURES SHOWN ON PAGES 6 THROUGH 13.
5. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, SEE GENERAL NOTE "U" ON PAGE 3.
6. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF SIX DRUMS (THREE ACROSS AND TWO HIGH) AS SHOWN IN THE LOAD ON THIS PAGE. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
7. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY A AGAINST ONE END WALL. POSITION THE FIRST FOUR BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY A, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM THREE DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST FOUR DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON THIS PAGE AND PROCEED WITH THE REMAINDER OF THE LOAD.

**KEY NUMBERS**

- (1) SEPARATOR GATE ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- (2) RISER ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 6 ON THIS PAGE.
- (3) SEPARATOR GATE ASSEMBLY B (3 REQD) (ONE SEPARATOR GATE FOR A TWO-HIGH LOAD AND TWO SEPARATOR GATES FOR A ONE-HIGH LOAD). SEE THE DETAIL ON PAGE 31 AND GENERAL NOTE "G" ON PAGE 2.
- (4) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED (5). SEE THE "SECTION F-F" VIEW ON PAGE 16 FOR LOCATION AND GUIDANCE.
- (5) CROSS MEMBER (6 REQD). POSITION AT HEIGHTS SHOWN IN THE "SECTION F-F" VIEW ON PAGE 16. SEE GENERAL NOTE "U" ON PAGE 3.



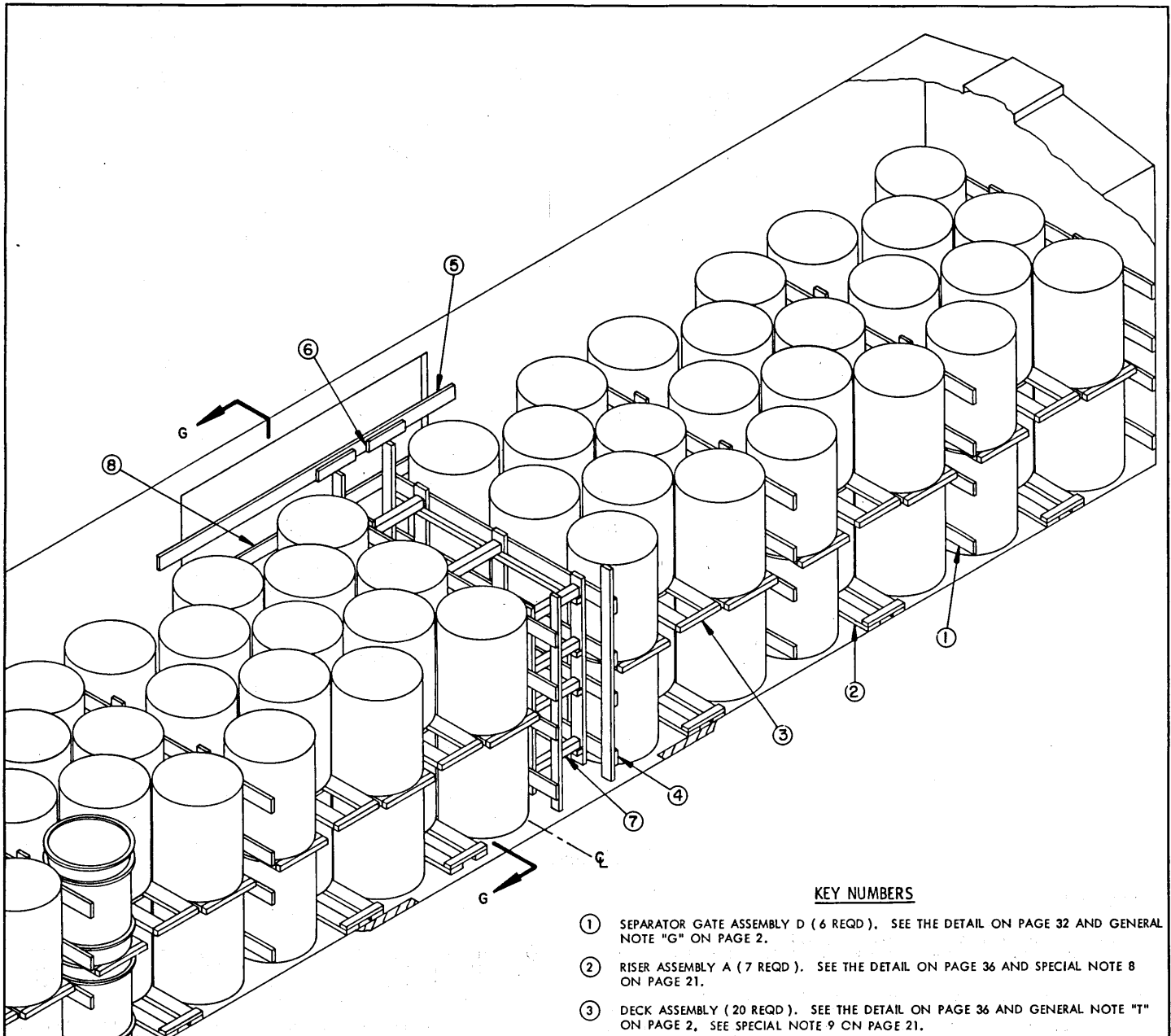
ISOMETRIC VIEW

SPECIAL NOTES:

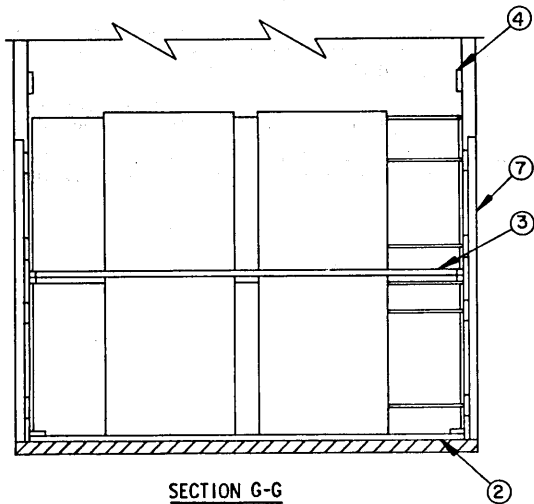
1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BLOCKING TWO (2) MXU-650/B AIRFOIL GROUPS IN 55-GALLON METAL DRUMS, IS SHOWN IN ONE END OF A 9'-2" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS.
2. TWO (2) METAL DRUMS ARE SHOWN AS A TYPICAL LOAD QUANTITY. HOWEVER, MORE THAN TWO DRUMS MAY BE SHIPPED USING THE SAME METHOD SHOWN ON THIS PAGE. ALSO THIS METHOD MAY BE USED FOR SHIPPING ONE METAL DRUM. DUNNAGE ASSEMBLIES WILL HAVE TO BE ADJUSTED TO SUIT THE QUANTITY OF METAL DRUMS BEING SHIPPED.
3. THE METHOD SHOWN ON THIS PAGE MAY BE USED ANYWHERE WITHIN THE CAR LENGTH.

KEY NUMBERS

- ① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED ②. SEE THE "SECTION F-F" VIEW ON PAGE 16 FOR LOCATION AND GUIDANCE.
- ② CROSS MEMBER (4 REQD). POSITION AT HEIGHTS SHOWN IN THE "SECTION F-F" VIEW ON PAGE 16. SEE GENERAL NOTE "U" ON PAGE 3.
- ③ SEPARATOR GATE ASSEMBLY C (2 REQD). SEE THE DETAIL ON PAGE 32 AND GENERAL NOTE "G" ON PAGE 2.
- ④ LATERAL SUPPORT PIECE, 2" X 4" X CUT-TO-FIT (2 REQD). WIRE-TIE TO THE CROSS MEMBER WITH NO. 14 GAGE WIRE AFTER THE LOAD BEARING PIECE MARKED ⑤ HAS BEEN NAILED IN PLACE.
- ⑤ LOAD BEARING PIECE, 2" X 4" BY CUT-TO-FIT (1 REQD). NAIL TO THE LATERAL SUPPORT PIECES MARKED ④ W/2-10d NAILS AT EACH END.
- ⑥ TIE-WIRE, NO. 14 GAGE WIRE BY LENGTH TO SUIT (AS REQD). WRAP AROUND PIECES MARKED ② AND ④ AND TWIST ENDS TOGETHER.



ISOMETRIC VIEW



SECTION G-G

**KEY NUMBERS**

- ① SEPARATOR GATE ASSEMBLY D ( 6 REQD ). SEE THE DETAIL ON PAGE 32 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A ( 7 REQD ). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 21.
- ③ DECK ASSEMBLY ( 20 REQD ). SEE THE DETAIL ON PAGE 36 AND GENERAL NOTE "T" ON PAGE 2. SEE SPECIAL NOTE 9 ON PAGE 21.
- ④ CENTER GATE ASSEMBLY B ( 2 REQD ). SEE THE DETAIL ON PAGE 34 AND GENERAL NOTE "G" ON PAGE 2.
- ⑤ CENTER GATE HOLD DOWN, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" ( 2 REQD ). POSITION WITH THE BOTTOM EDGE AGAINST THE CENTER GATE HOLD-DOWN BRACE AS SHOWN. NAIL TO THE CAR SIDEWALL W/5-12d NAILS AT EACH END.
- ⑥ CENTER GATE HOLD DOWN CLEAT, 2" X 4" X 18" ( 4 REQD ). CENTER THE CLEATS ABOVE THE "CENTER GATE HOLD-DOWN BRACES" ON THE CENTER GATE AND NAIL TO THE CENTER GATE HOLD-DOWN W/5-10d NAILS.
- ⑦ STRUT 4" X 4" BY CUT-TO-FIT ( 12 REQD ). TOBNAIL TO PIECES MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "F", "P", AND "Q" ON PAGE 2.
- ⑧ DOORWAY PROTECTION ASSEMBLY B ( 2 REQD ). SEE THE DETAIL ON PAGE 35 AND SPECIAL NOTE 2 ON PAGE 21.

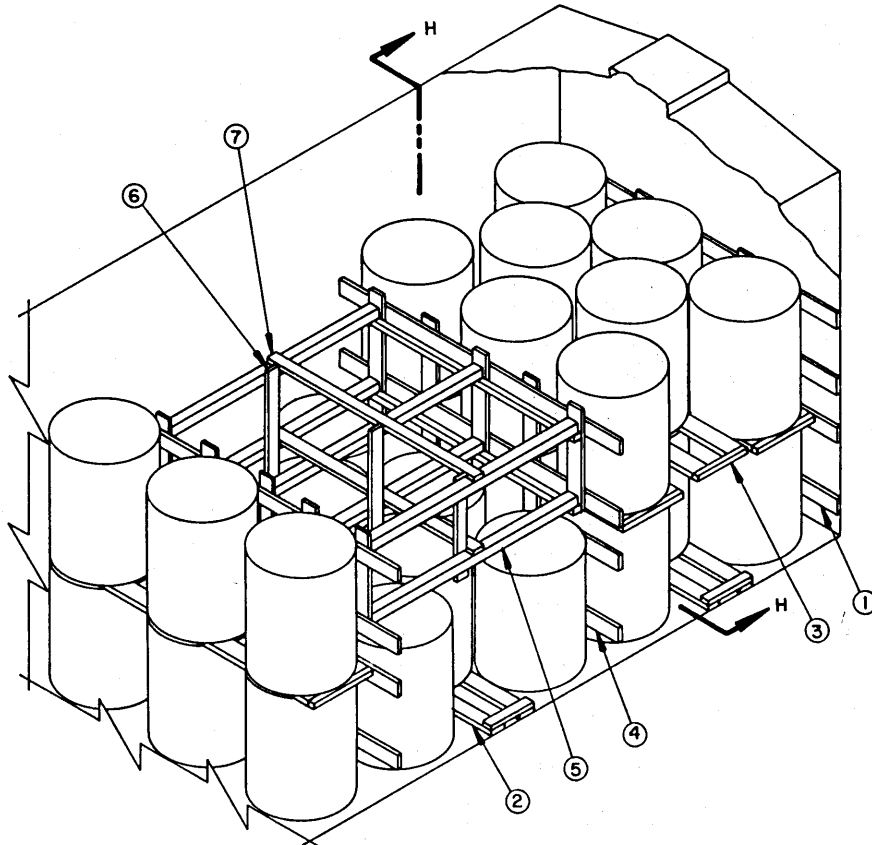
**SPECIAL NOTES:**

1. A FULL LOAD OF 106 MXU-651/B AIRFOIL GROUPS IN 80-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. DOORWAY PROTECTION IS REQUIRED FOR ALL METAL DRUMS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-FOURTH OR MORE OF THE DRUM DIAMETER. IF THE CAR BEING LOADED HAS STAGGERED PLUG DOORS OR "THRU" PLUG DOORS, DELETE "DOORWAY PROTECTION ASSEMBLY A" AND USE DOORWAY PROTECTION AS SHOWN IN THE "PLUG DOOR PROCEDURES" ON PAGE 40. SEE GENERAL NOTE "J" ON PAGE 2.
3. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 24, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A SECOND LAYER OF A FOUR DRUM STACK WHICH SITS ON TOP OF A RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME STACK.
4. FOR SHIPMENT OF LESS-THAN-CAR-LOADS, SEE THE PROCEDURES ON PAGES 22 THROUGH 25 FOR GUIDANCE. ALSO, IF DESIRED OR TO SATISFY THE QUANTITY OF METAL DRUMS TO BE SHIPPED, THE ENTIRE SECOND LAYER MAY BE OMITTED FROM THE LOAD ON PAGE 20. WHEN OMITTING THE ENTIRE SECOND LAYER ALL SEPARATOR GATE ASSEMBLIES MARKED ①, CENTER GATE ASSEMBLIES MARKED ④, AND DOORWAY PROTECTION ASSEMBLIES MARKED ⑧, MUST BE REDUCED IN HEIGHT TO A "ONE-HIGH LOAD", AS SHOWN IN THE DETAIL FOR THESE ASSEMBLIES ON PAGES 32, 34, AND 35. ONLY THE BOTTOM SIX STRUTS MARKED ⑦ WILL BE REQUIRED AND OMIT ALL DECK ASSEMBLIES MARKED ③. SEE THE LOAD ON PAGE 11 FOR EXAMPLE. **NOTE:** WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 20, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE; THAT IS, THE LOAD MUST BE SEPARATED BY POSITIONING A "SEPARATOR GATE ASSEMBLY D", PIECE MARKED ①, EVERY THREE STACKS, ALTERNATE STACKS OF FOUR DRUMS MUST HAVE A "RISER ASSEMBLY A", PIECE MARKED ②, POSITIONED UNDER THE STACK, DECK ASSEMBLIES MARKED ③, MUST BE USED FOR TWO LAYER LOADS, AND DOORWAY PROTECTION ASSEMBLIES MARKED ⑧ MUST BE USED.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES ON PAGES 26 AND 27.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES ON PAGES 28 THROUGH 30.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 40 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF FOUR DRUMS (TWO ACROSS AND TWO HIGH). AS SHOWN IN THE LOAD ON PAGE 20. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. THE DECK ASSEMBLY, SHOWN AS PIECE MARKED ③, IS REQUIRED WHEN STACKING "OPEN HEAD" TYPE DRUMS THAT DO NOT "NEST". IF DESIRED, OR IF THE 2" X 2" "TIE-PIECES" ON THE DECK ASSEMBLY ARE "SPLITTING" OUT WHEN NAILING, THE "ALTERNATIVE DECK ASSEMBLY" SHOWN ON PAGE 44 MAY BE USED.
10. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY D AGAINST ONE END WALL. POSITION THE FIRST THREE BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY D, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM TWO DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST THREE DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 20 AND PROCEED WITH THE REMAINDER OF THE LOAD.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	121	41
2" X 3"	26	13
2" X 4"	57	38
2" X 6"	1,006	1,006
4" X 4"	24	32
NAILS	NO. REQD	POUNDS
10d (3")	460	7-1/4
12d (3-1/4")	180	3
16d (3-1/2")	48	1-1/4

**LOAD AS SHOWN**

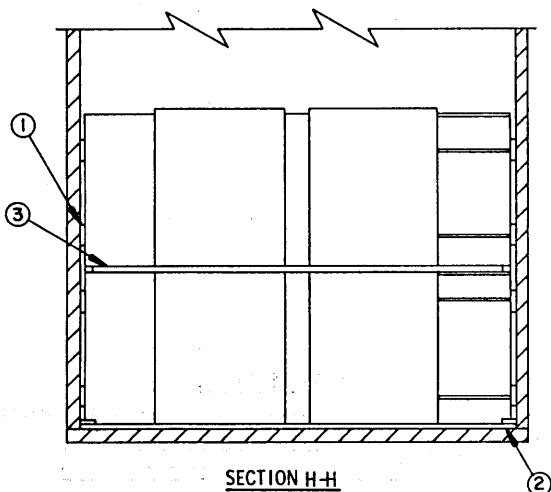
ITEM	QUANTITY	WEIGHT (APPROX)
80-GALLON DRUM	106	20,776 LBS
DUNNAGE		2,272 LBS
<b>TOTAL WEIGHT</b>		<b>23,048 LBS</b>



**ISOMETRIC VIEW**

**KEY NUMBERS**

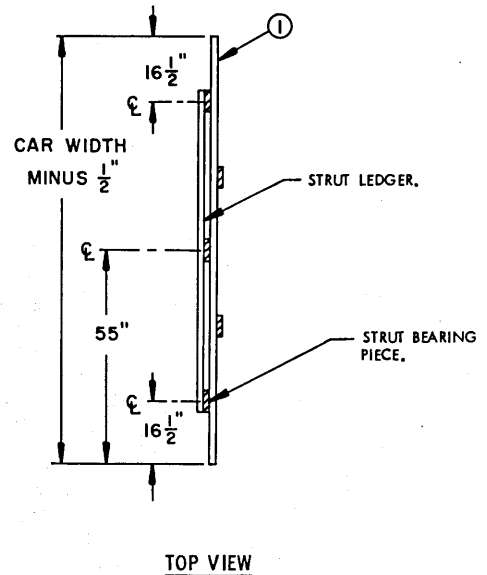
- ① SEPARATOR GATE ASSEMBLY D (AS REQD). SEE THE DETAIL ON PAGE 32 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A (AS REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 23.
- ③ DECK ASSEMBLY (AS REQD). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE "T" ON PAGE 2. SEE SPECIAL NOTE 9 ON PAGE 20.
- ④ SEPARATOR ASSEMBLY (2 REQD). SEE DETAIL "B" ON PAGE 23.
- ⑤ STRUT, 4" X 4" BY CUT-TO-FIT (6 REQD). TOENAIL TO PIECES MARKED ③ W/2-16d NAILS AT EACH END. SEE GENERAL NOTES "F", "P", AND "Q" ON PAGE 2.
- ⑥ VERTICAL STRUT BRACING, 2" X 4" X 34" (3 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "P" ON PAGE 2.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" X CUT-TO-FIT (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT. SEE GENERAL NOTE "P" ON PAGE 2.



**SECTION H-H**

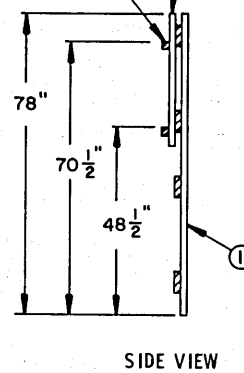
**SPECIAL NOTES:**

1. A TYPICAL LESS-THAN-CAR LOAD METHOD OF BRACING A PARTIAL SECOND LAYER OF MXU-651/B AIRFOIL GROUPS IN 80-GALLON METAL DRUMS, IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOX CAR. CARS OF OTHER DIMENSIONS MAY BE USED.
2. ONLY A PARTIAL ISOMETRIC VIEW OF THE LOAD ON PAGE 22, SHOWING THE BLOCKING AND BRACING PIECES WHICH ARE NECESSARY TO FABRICATE A PARTIAL SECOND LAYER LOAD, IS SHOWN. REFER TO THE PROCEDURES SHOWN ON PAGE 20 FOR BLOCKING AND BRACING REQUIREMENTS FOR THE REST OF THE LOAD.
3. THE PARTIAL LOAD SHOWN ON PAGE 22 DEPICTS A STRUTTED GATE METHOD OF PARTIAL SECOND LAYER BRACING. THIS METHOD COULD BE USED AT ONE END OR BOTH ENDS OF THE CAR, IN THE SECOND LAYER OF THE LOAD SHOWN ON PAGE 20, WHEN THE QUANTITY OF DRUMS IS NOT ENOUGH FOR A FULL LOAD.
4. THE PARTIAL LAYER BLOCKING METHOD SHOWN ON PAGE 22 IS ONLY FOR USE WHEN OMITTING THREE (3) OR EIGHT (8), DRUMS FOR THE SECOND LAYER OF A LOAD. THE PROCEDURES ON PAGE 22 SHOW EIGHT DRUMS OMITTED FROM THE SECOND LAYER. WHEN OMITTING THREE DRUMS FROM THE SECOND LAYER POSITION A "SEPARATOR ASSEMBLY" AGAINST A STACK OF SIX DRUMS, POSITION THREE DRUMS ON THE CAR FLOOR ACROSS THE WIDTH OF THE CAR AND AGAINST THE "SEPARATOR ASSEMBLY", POSITION A SECOND "SEPARATOR ASSEMBLY" AGAINST THE THREE DRUMS, POSITION A STACK OF SIX DRUMS AGAINST THE SECOND "SEPARATOR ASSEMBLY" AND PROCEED WITH THE REMAINDER OF THE LOAD AS SHOWN ON PAGE 20. POSITION SIX STRUTS BETWEEN THE FIRST AND SECOND SEPARATOR ASSEMBLIES AND NAIL IN PLACE. NOTE: THESE STRUTS WILL NOT REQUIRE ANY HORIZONTAL OR VERTICAL STRUT BRACING. SEE SPECIAL NOTE 3 ON THIS PAGE.
5. IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 24 IN PLACE OF EACH OMITTED DRUM IN THE SECOND LAYER. THIS ASSEMBLY MAY BE USED ALONG WITH THE PARTIAL-LAYER BRACING SHOWN ON PAGE 22 TO HELP ADJUST THE LOAD QUANTITY. ALSO, IF DESIRED OR TO SATISFY THE LOAD QUANTITY, THE ENTIRE SECOND LAYER MAY BE OMITTED FROM THE LOAD. SEE THE LOADING PROCEDURES ON PAGE 24 FOR METHOD OF BLOCKING A ONE-LAYER LOAD.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 26 AND 27.
7. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 28 THROUGH 30.
8. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY D AGAINST ONE END WALL. POSITION THE FIRST THREE BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY D, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM TWO DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST THREE DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 22 AND PROCEED WITH THE REMAINDER OF THE LOAD.



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

STRUT BEARING PIECE, 2" X 6" X 34" (3 REQD). POSITION EACH PIECE IN LINE WITH THE CENTER OF A METAL DRUM AND EXTENDING 3" ABOVE THE TOP LOAD BEARING PIECE ON THE SEPARATOR GATE ASSEMBLY D. NAIL TO THE SEPARATOR GATE ASSEMBLY D W/3-10d NAILS AT EACH JOINT. SEE KEY NUMBER ① ON PAGE 22.

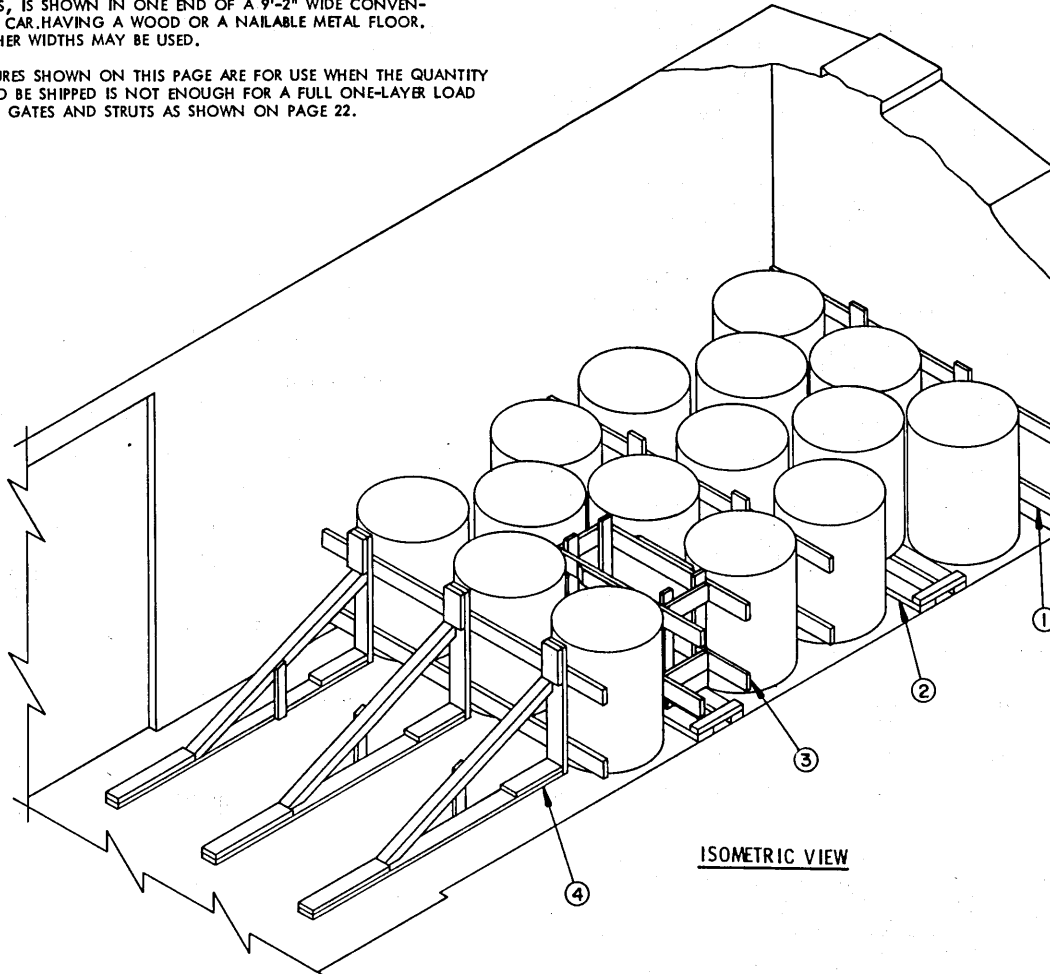


**DETAIL B**

THIS DETAIL DEPICTS THE SEPARATOR ASSEMBLY SHOWN AS PIECE MARKED ④ IN THE LOAD ON PAGE 22.

**SPECIAL NOTES:**

1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BLOCKING A PARTIAL ONE-LAYER LOAD OF MXU-651/B AIRFOIL GROUPS IN 80-GALLON METAL DRUMS, IS SHOWN IN ONE END OF A 9'-2" WIDE CONVENTIONAL BOX CAR HAVING A WOOD OR A NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS MAY BE USED.
2. THE PROCEDURES SHOWN ON THIS PAGE ARE FOR USE WHEN THE QUANTITY OF DRUMS TO BE SHIPPED IS NOT ENOUGH FOR A FULL ONE-LAYER LOAD WITH CENTER GATES AND STRUTS AS SHOWN ON PAGE 22.



**ISOMETRIC VIEW**

3. THE PROCEDURES SHOWN ON THIS PAGE DEPICT THE USE OF A "KNEE-BRACE ASSEMBLY" TO RETAIN A PARTIAL ONE LAYER LOAD OF FIFTEEN DRUMS. THE QUANTITY OF DRUMS SHOWN IS TYPICAL ONLY AND THE "KNEE-BRACE ASSEMBLY B" SHOWN AS PIECE MARKED ④, IS ADEQUATE FOR RETAINING A PARTIAL ONE LAYER LOAD OF 3 THROUGH 61 DRUMS ( 12,000 POUNDS MAXIMUM ).  
NOTE: IF THE SPACE IN THE CENTER OF THE CAR IS FIFTEEN FEET OR MORE, AFTER THE DRUMS ARE LOADED, TWO KNEE-BRACE ASSEMBLIES MAY BE USED TO BLOCK THE LOAD AT EACH END OF THE CAR. WHEN FABRICATING THE KNEE BRACE ASSEMBLY FIELD CHECK THE DIMENSIONS TO ASSURE THAT EACH BRACE IS IN LINE WITH THE CENTER OF A METAL DRUM.
4. ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, SHOWN AS PIECE MARKED ③ IN THE LOAD ON THIS PAGE, MAY BE USED WITHIN A LOAD TO HELP ADJUST THE LOAD QUANTITY. DRUMS SHOULD ONLY BE OMITTED FROM A TWO DRUM ROW WHICH SITS ON TOP OF THE RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME ROW.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 26 AND 27.
6. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 28 THROUGH 30.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD ( 2" ) OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY ROW OF TWO DRUMS, AS SHOWN IN THE LOAD ON THIS PAGE. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.

( SPECIAL NOTES CONTINUED AT RIGHT )

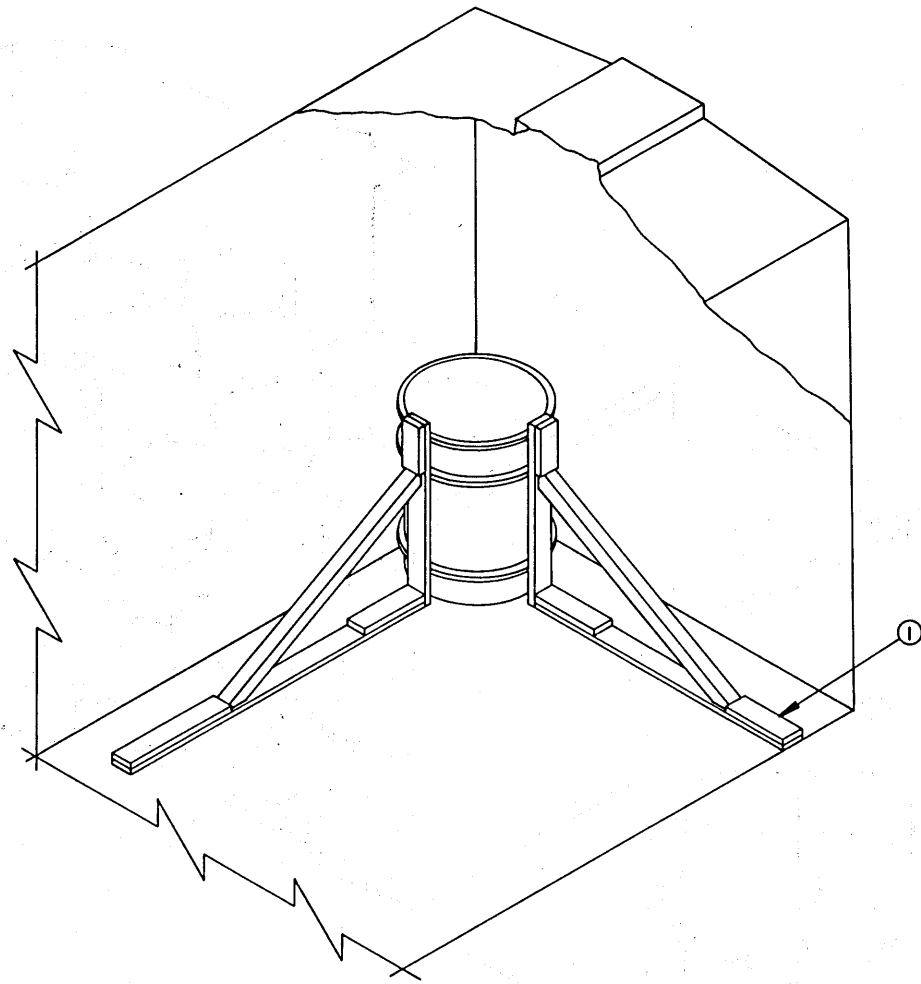
**KEY NUMBERS**

- ① SEPARATOR GATE ASSEMBLY D ( 2 REQD ). SEE THE DETAIL ON PAGE 32 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A ( 2 REQD ). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON THIS PAGE.
- ③ OMITTED DRUM FILLER ASSEMBLY ( 1 REQD ). SEE THE DETAIL ON PAGE 40 AND SPECIAL NOTE 4 ON THIS PAGE.
- ④ KNEE BRACE ASSEMBLY B ( 1 REQD ). SEE THE DETAIL ON PAGE 38 AND SPECIAL NOTE 3 ON THIS PAGE.

**( SPECIAL NOTES CONTINUED )**

9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY D AGAINST ONE END WALL. POSITION THE FIRST THREE DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY D, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE TWO DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST THREE DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON THIS PAGE AND PROCEED WITH THE REMAINDER OF THE LOAD.





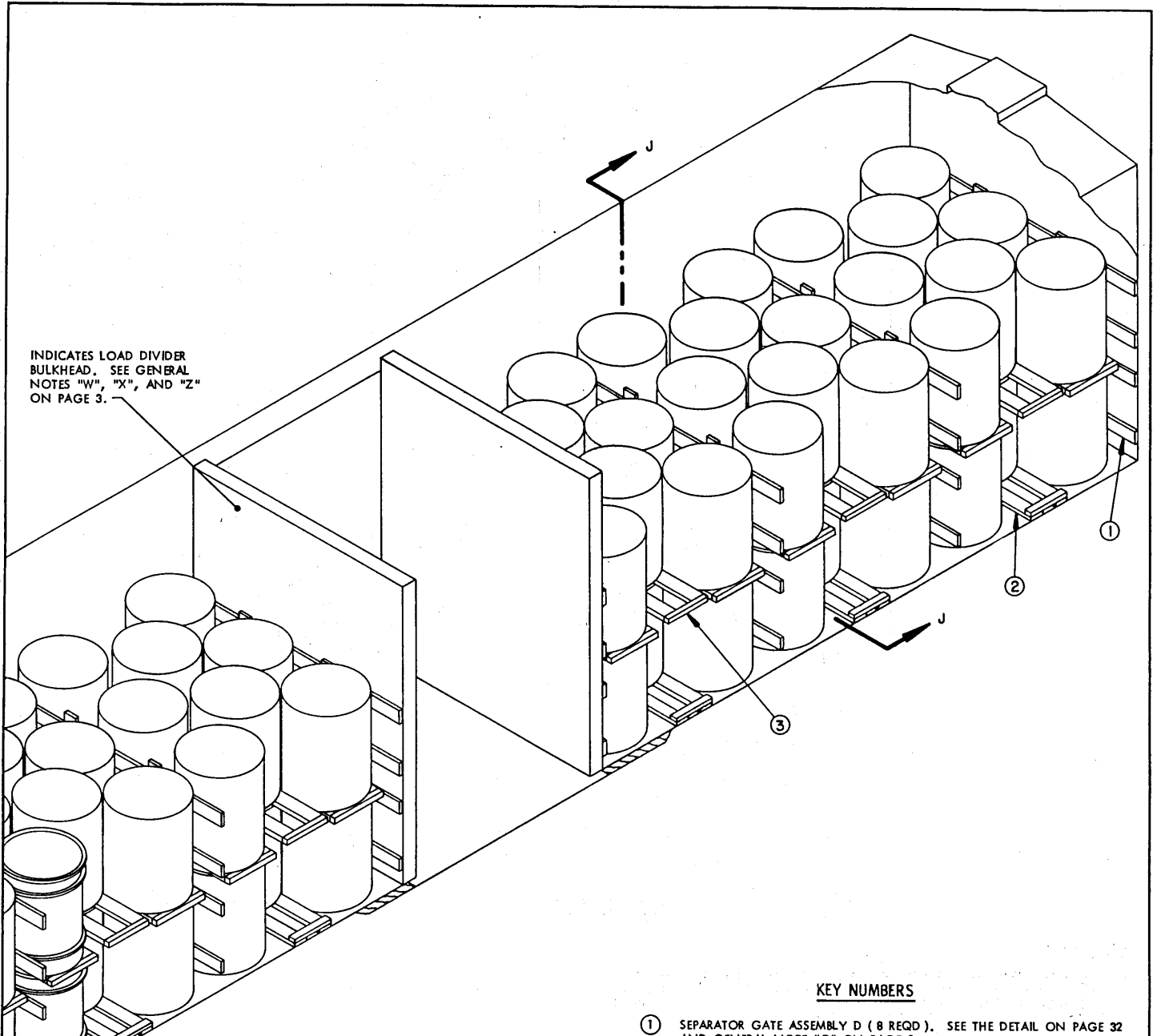
ISOMETRIC VIEW

SPECIAL NOTES:

1. A TYPICAL LESS-THAN-CARLOAD METHOD OF BLOCKING ONE (1) MXU-651/B AIRFOIL GROUPS IN 80-GALLON METAL DRUM, IS SHOWN IN ONE END OF A 9'-2" WIDE CONVENTIONAL BOX CAR HAVING A WOOD OR A NAILABLE METAL FLOOR. CARS OF OTHER WIDTHS CAN BE USED.
2. ONE (1) METAL DRUM IS SHOWN AS A TYPICAL LOAD QUANTITY. HOWEVER, MORE THAN ONE DRUM MAY BE SHIPPED USING THE METHOD SHOWN ON THIS PAGE FOR EACH DRUM. IF TWO DRUMS ARE TO BE SHIPPED, POSITION BOTH DRUMS SIDE-BY-SIDE IN ONE CORNER AND AGAINST THE CAR END WALL, POSITION ONE KNEE ASSEMBLY B AGAINST EACH DRUM, LONGITUDINALLY. THE KNEE BRACE USED FOR SIDE BLOCKING MAY BE SHORTENED TO FIT BETWEEN A DRUM AND THE CAR SIDE WALL. ALSO, IF DESIRED, ONE OR MORE DRUMS MAY BE POSITIONED AGAINST THE CAR SIDE WALL ANYWHERE WITHIN THE LENGTH OF THE CAR AND BLOCKED BY POSITIONING ONE KNEE BRACE ASSEMBLY B AGAINST EACH END DRUM FOR LONGITUDINAL BRACING, AND ONE KNEE BRACE ASSEMBLY B AGAINST EACH DRUM IN THE ROW FOR SIDE BRACING. ALSO SEE THE LOAD SHOWN ON PAGE 24 WHEN SHIPPING THREE OR MORE DRUMS. A COMBINATION OF THE METHOD SHOWN ON PAGE 24 AND THE METHOD SHOWN ON THIS PAGE, MAY BE USED.
3. EACH KNEE BRACE ASSEMBLY B, SHOWN AS PIECE MARKED ①, IS ADEQUATE FOR RETAINING A LOAD OF 4,000 POUNDS. POSITION EACH KNEE BRACE ASSEMBLY IN LINE WITH THE CENTER OF A METAL DRUM.
4. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES SHOWN ON PAGES 28 THROUGH 30.

KEY NUMBER

- ① KNEE BRACE ASSEMBLY B (2 REQD). SEE THE DETAIL ON PAGE 38 AND SPECIAL NOTES 2 AND 3 ON THIS PAGE.

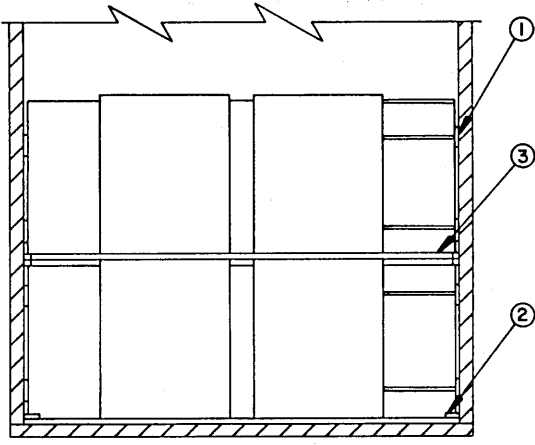


INDICATES LOAD DIVIDER BULKHEAD. SEE GENERAL NOTES "W", "X", AND "Z" ON PAGE 3.

**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① SEPARATOR GATE ASSEMBLY D ( 8 REQD ). SEE THE DETAIL ON PAGE 32 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A ( 6 REQD ). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 8 ON PAGE 27.
- ③ DECK ASSEMBLY ( 18 REQD ). SEE THE DETAIL ON PAGE 36 AND GENERAL NOTE "T" ON PAGE 2. SEE SPECIAL NOTE 9 ON PAGE 27.



**SECTION J-J**

**SPECIAL NOTES:**

1. A LOAD OF 96 MXU-651/B AIRFOIL GROUPS IN 80-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CUSHIONED BOX CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND 8'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER DOOR OPENINGS CAN BE USED.
2. LADING MUST NOT BE LOADED IN THE DOORWAY AREA AND THE LOAD DIVIDER BULKHEADS MUST BE SECURED AND LOCKED AGAINST THE LADING TO THE REAR OF THE DOOR POSTS OF THE CAR.
3. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 24, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A SECOND LAYER OF A FOUR DRUM STACK WHICH SITS ON TOP OF A RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME STACK.
4. FOR SHIPMENT OF LESS-THAN-CAR LOADS THE LOAD SHOWN ON PAGE 26 MAY BE REDUCED IN QUANTITY BY OMITTING TEN METAL DRUMS AT A TIME. THE TEN DRUMS WILL CONSIST OF ONE STACK OF SIX DRUMS AND ONE STACK OF FOUR DRUMS. ALSO, THE ENTIRE SECOND LAYER MAY BE OMITTED FROM ONE OR BOTH ENDS OF THE CAR. SEE THE LOADING PROCEDURES ON PAGE 22 FOR METHOD OF BLOCKING A ONE LAYER LOAD. NOTE: WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 26, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE. THAT IS, THE LOAD MUST BE SEPARATED BY POSITIONING A "SEPARATOR GATE ASSEMBLY D", PIECE MARKED ①, EVERY THREE STACKS. ALSO, A SEPARATOR GATE ASSEMBLY MUST BE POSITIONED AGAINST THE END WALL AND AGAINST THE LOAD DIVIDER BULKHEAD. ALTERNATE STACKS OF FOUR DRUMS MUST HAVE A "RISER ASSEMBLY A", PIECE MARKED ②, POSITIONED UNDER THE STACK.
5. IF THE CAR BEING LOADED IS EQUIPPED WITH MECHANICAL BRACING DEVICES, SEE THE PROCEDURES ON PAGES 28 THROUGH 30.
6. IF A CONVENTIONAL TYPE BOX CAR IS BEING LOADED SEE THE PROCEDURES ON PAGES 20 THROUGH 25.
7. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE THE DETAIL ON PAGE 41 AND GENERAL NOTE "K" ON PAGE 2.
8. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF FOUR DRUMS ( TWO ACROSS AND TWO HIGH ) AS SHOWN IN THE LOAD ON PAGE 26. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
9. THE DECK ASSEMBLY, SHOWN AS PIECES MARKED ③, IS REQUIRED WHEN STACKING "OPEN HEAD" TYPE DRUMS THAT DO NOT "NEST". IF DESIRED, OR IF THE 2" X 2" "TIE-PIECES" ON THE DECK ASSEMBLY ARE "SPLITTING" OUT WHEN NAILING, THE "ALTERNATIVE DECK ASSEMBLY" SHOWN ON PAGE 44 MAY BE USED.
10. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY D AGAINST ONE END WALL. POSITION THE FIRST THREE BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY D, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM TWO DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST THREE DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 26 AND PROCEED WITH THE REMAINDER OF THE LOAD.

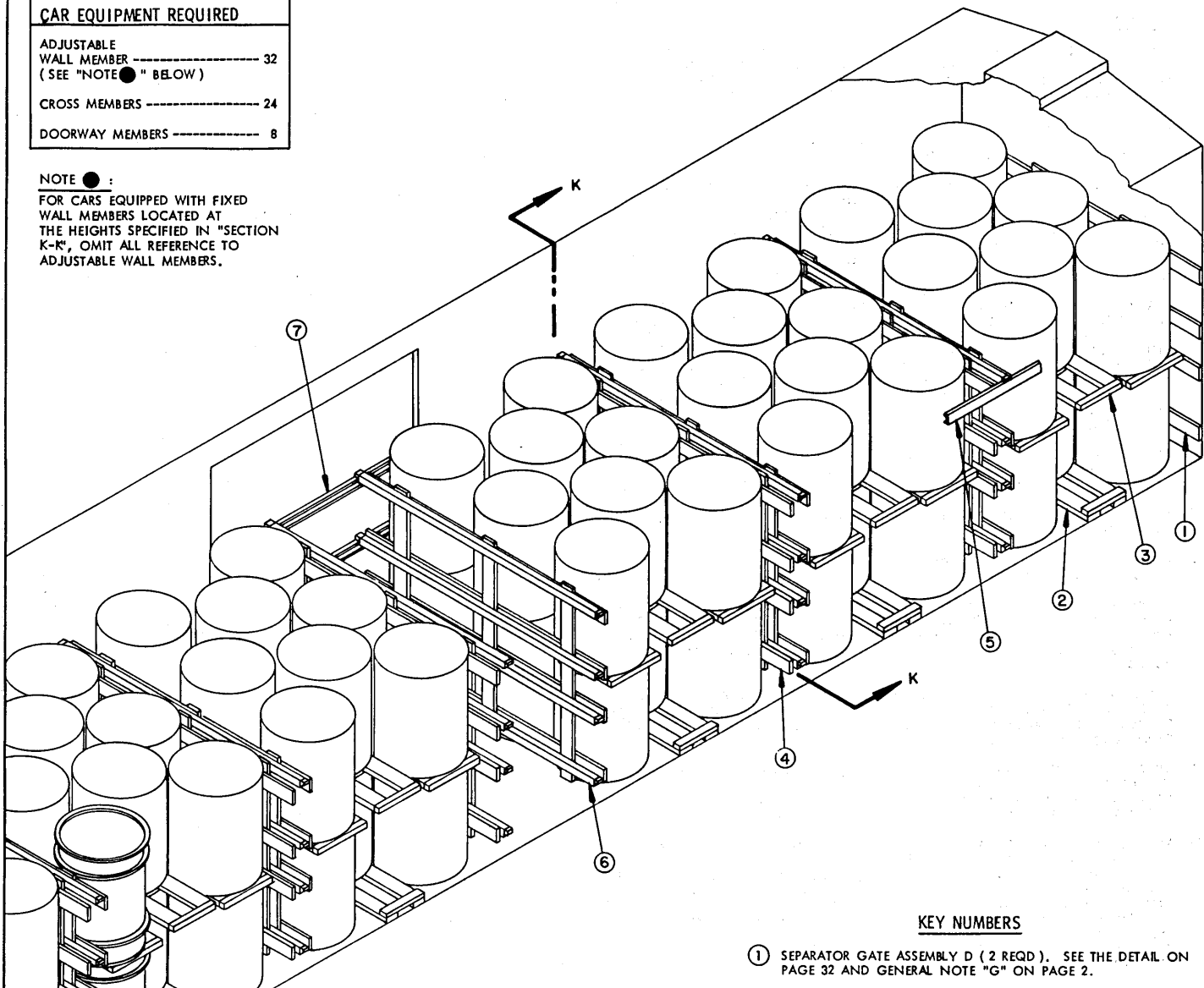
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	60	20
2" X 4"	18	12
2" X 6"	834	834
NAILS	NO. REQD	POUNDS
10d ( 3" )	264	4-1/4
12d ( 3-1/4" )	144	2-1/2

LOAD AS SHOWN		
ITEM	QUANTITY	WEIGHT ( APPROX )
80-GALLON DRUM	96	18,816 LBS
DUNNAGE		1,739 LBS
TOTAL WEIGHT		20,555 LBS

**CAR EQUIPMENT REQUIRED**

ADJUSTABLE WALL MEMBER -----	32
(SEE "NOTE ●" BELOW)	
CROSS MEMBERS -----	24
DOORWAY MEMBERS -----	8

**NOTE ● :**  
 FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION K-K", OMIT ALL REFERENCE TO ADJUSTABLE WALL MEMBERS.

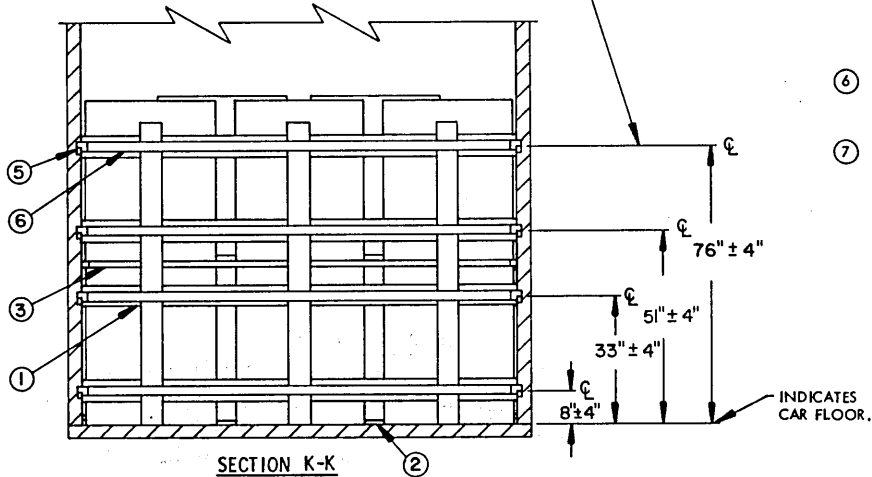


**ISOMETRIC VIEW**

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED ⑤ AND/OR A DOORWAY MEMBER MARKED ⑦ IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.

**KEY NUMBERS**

- ① SEPARATOR GATE ASSEMBLY D ( 2 REQD ). SEE THE DETAIL ON PAGE 32 AND GENERAL NOTE "G" ON PAGE 2.
- ② RISER ASSEMBLY A ( 6 REQD ). SEE THE DETAIL ON PAGE 36 AND SPECIAL NOTE 7 ON PAGE 29.
- ③ DECK ASSEMBLY ( 18 REQD ). SEE THE DETAIL ON PAGE 36 AND GENERAL NOTE "T" ON PAGE 2. SEE SPECIAL NOTE 8 ON PAGE 29.
- ④ SEPARATOR GATE ASSEMBLY E ( 10 REQD ). SEE THE DETAIL ON PAGE 33 AND GENERAL NOTE "G" ON PAGE 2.
- ⑤ WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED ⑥. SEE THE "SECTION K-K" VIEW ON THIS PAGE FOR LOCATION GUIDANCE.
- ⑥ CROSS MEMBER ( 24 REQD ). POSITION AT HEIGHTS SHOWN IN THE "SECTION K-K" VIEW ON THIS PAGE. SEE GENERAL NOTE "U" ON PAGE 3.
- ⑦ DOORWAY MEMBER ( 8 REQD ). SEE THE "SECTION K-K" VIEW ON THIS PAGE FOR HEIGHT LOCATIONS.



**SECTION K-K**

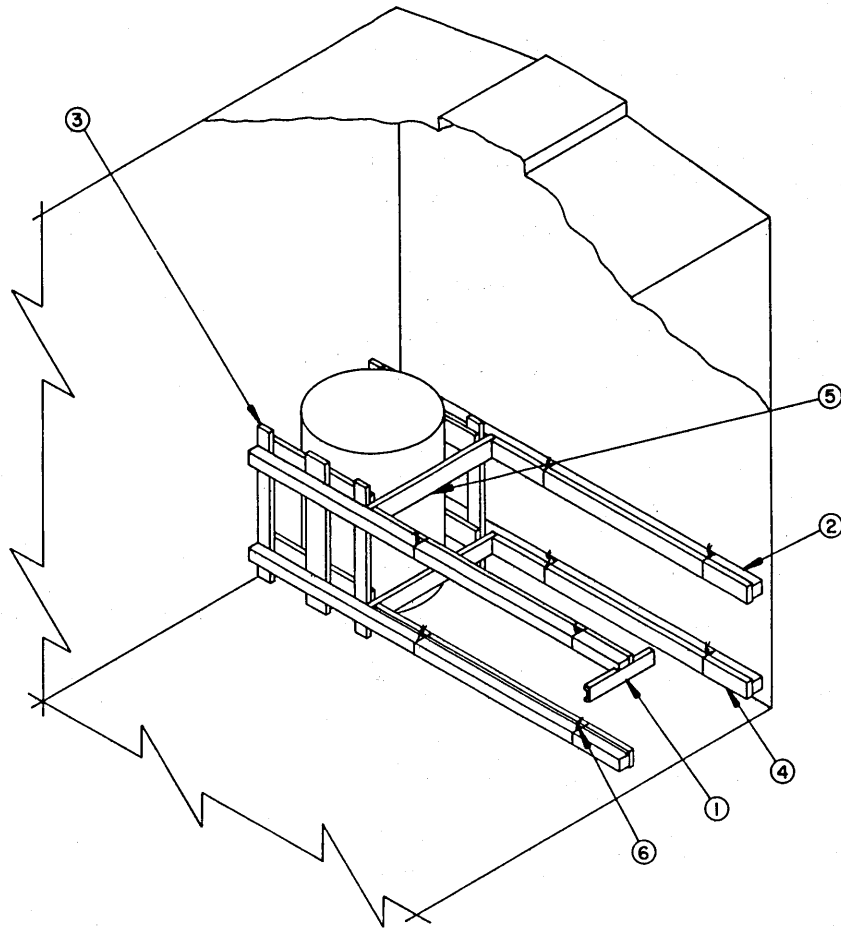
**SPECIAL NOTES:**

1. A LOAD OF 96 MXU-651/B AIRFOIL GROUPS IN 80-GALLON METAL DRUMS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE (INSIDE CLEARANCE), BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 8'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. FOR SHIPMENT OF A LOAD WHICH CONTAINS LESS DRUMS THAN SHOWN IT IS PERMISSIBLE TO USE ONE OR MORE OMITTED DRUM FILLER ASSEMBLIES, AS SHOWN IN THE LOAD ON PAGE 24, IN PLACE OF EACH OMITTED DRUM. THE "OMITTED DRUM FILLER ASSEMBLY" CAN ONLY BE USED IN THE TOP LAYER OF A BOX CAR LOAD. DRUMS SHOULD ONLY BE OMITTED FROM A TWO DRUM ROW WHICH SITS ON TOP OF THE RISER ASSEMBLY. DO NOT POSITION TWO OMITTED DRUM ASSEMBLIES SIDE-BY-SIDE WITHIN THE SAME ROW.
3. FOR SHIPMENT OF LESS-THAN-CAR LOADS THE LOAD SHOWN ON PAGE 28 MAY BE REDUCED IN QUANTITY BY OMITTING TEN METAL DRUMS AT A TIME FROM A BAY. THE TEN DRUMS WILL CONSIST OF ONE STACK OF SIX DRUMS AND ONE STACK OF FOUR DRUMS. ALSO, THE SECOND LAYER MAY BE OMITTED FROM ONE OR MORE BAYS, OR THE ENTIRE SECOND LAYER MAY BE OMITTED FROM ONE OR BOTH ENDS OF THE CAR. **NOTE:** WHEN INCREASING OR REDUCING THE QUANTITY OF METAL DRUMS SHOWN IN THE LOAD ON PAGE 28, THE SAME BLOCKING AND BRACING PROCEDURES MUST BE RETAINED TO THE FULLEST EXTENT POSSIBLE. THAT IS, THE LOAD MUST BE SEPARATED INTO COMPARTMENTS (BAYS), SEPARATOR GATE ASSEMBLIES SHOWN AS PIECES MARKED ① AND ③ MUST BE POSITIONED AT END WALLS AND BETWEEN "CROSS MEMBERS" MARKED ④ AND METAL DRUMS. DECKING SHOWN AS PIECES MARKED ⑤ MUST ALWAYS BE POSITIONED BETWEEN TOP LAYER AND BOTTOM LAYER DRUMS. ALTERNATE STACKS OF FOUR DRUMS MUST HAVE A "RISER ASSEMBLY A", SHOWN AS PIECES MARKED ②, POSITIONED UNDER THE STACK, AND ALL "CROSS MEMBERS" MUST BE POSITIONED AT THE HEIGHTS SHOWN IN "SECTION K-K".
4. IF THE CAR BEING LOADED IS EQUIPPED WITH LOAD DIVIDER BULKHEADS, SEE THE PROCEDURES SHOWN ON PAGES 26 AND 27.
5. IF A CONVENTIONAL TYPE BOX CAR IS BEING LOADED, SEE THE PROCEDURES ON PAGES 20 THROUGH 25.
6. IF THE CAR BEING LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD (2") OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, SEE GENERAL NOTE "U" ON PAGE 3.
7. A RISER ASSEMBLY MUST BE POSITIONED UNDER EVERY STACK OF FOUR DRUMS (TWO ACROSS AND TWO HIGH) AS SHOWN IN THE LOAD ON PAGE 28. THIS ASSEMBLY IS REQUIRED TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.
8. THE DECK ASSEMBLY, SHOWN AS PIECES MARKED ③, IS REQUIRED WHEN STACKING "OPEN HEAD" TYPE DRUMS THAT DO NOT "NEST". IF DESIRED, OR IF THE 2" X 2" "TIE-PIECES" ON THE DECK ASSEMBLY ARE "SPLITTING" OUT WHEN NAILING, THE "ALTERNATIVE DECK ASSEMBLY" SHOWN ON PAGE 44 MAY BE USED.
9. WHEN LOADING THE BOX CAR POSITION A SEPARATOR GATE ASSEMBLY D AGAINST ONE END WALL. POSITION THE FIRST THREE BOTTOM DRUMS ON THE FLOOR OF THE CAR AND AGAINST THE SEPARATOR GATE ASSEMBLY D, WITH THE TWO OUTSIDE DRUMS AGAINST THE CAR SIDE WALL AND EQUAL SPACE BETWEEN THE DRUMS ACROSS THE CAR. POSITION ONE RISER ASSEMBLY A ON THE FLOOR OF THE CAR. POSITION THE BOTTOM TWO DRUMS IN THE SECOND ROW ON TOP OF THE RISER ASSEMBLY A AND NESTED BETWEEN THE FIRST THREE DRUMS. MAKE ADJUSTMENTS AS NECESSARY TO FORM THE CONFIGURATION SHOWN IN THE "ISOMETRIC VIEW" ON PAGE 28 AND PROCEED WITH THE REMAINDER OF THE LOAD.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	60	20
2" X 4"	18	12
2" X 6"	1097	1097
NAILS	NO. REQD	POUNDS
10d (3")	480	7-1/4
12d (3-1/4")	144	2-1/2

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
80-GALLON DRUM	96	18,816 LBS
DUNNAGE		2,268 LBS
<b>TOTAL WEIGHT</b>		<b>21,084 LBS</b>



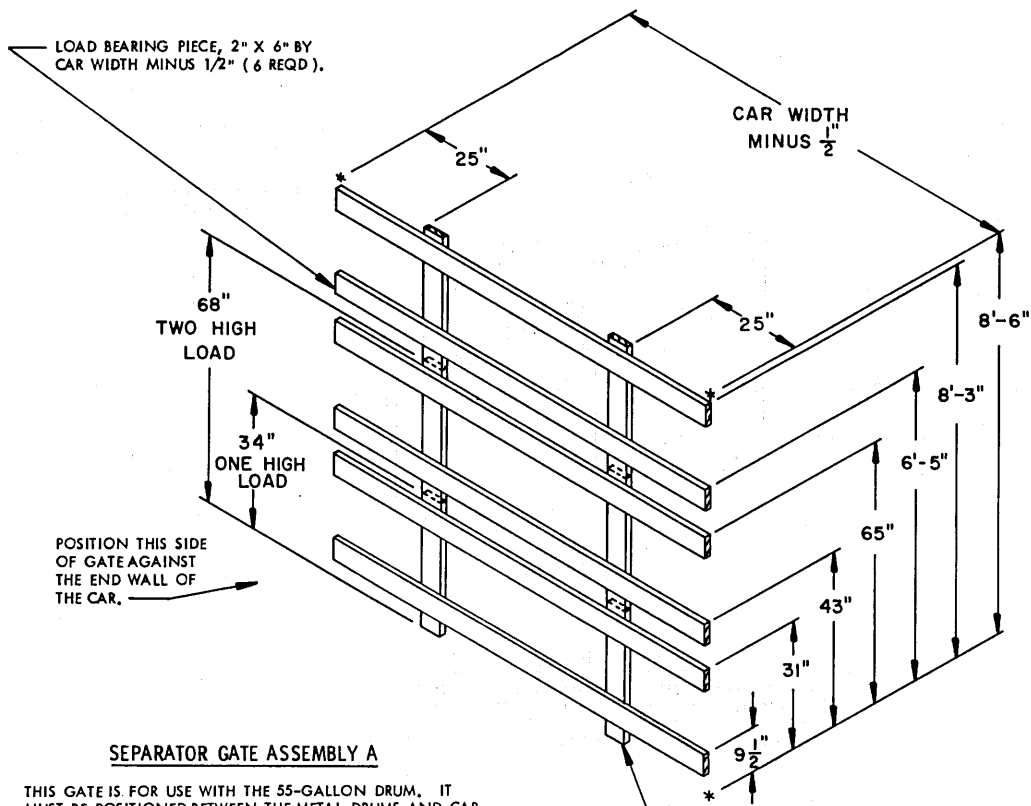
ISOMETRIC VIEW

SPECIAL NOTES:

1. A TYPICAL LESS-THAN-CAR LOAD METHOD OF BLOCKING ONE (1) MXU-651/B AIRFOIL GROUP IN 80-GALLON METAL DRUMS, IS SHOWN IN ONE END OF A 9'-2" WIDE (INSIDE CLEARANCE) BOX CAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS.
2. ONE METAL DRUM IS SHOWN AS A TYPICAL LOAD QUANTITY. HOWEVER, MORE THAN ONE DRUM MAY BE SHIPPED USING THE SAME METHOD SHOWN ON THIS PAGE. DUNNAGE ASSEMBLIES WILL HAVE TO BE ADJUSTED TO SUIT THE QUANTITY OF METAL DRUMS BEING SHIPPED.
3. THE METHOD SHOWN ON THIS PAGE MAY BE USED ANYWHERE WITHIN THE CAR LENGTH.

KEY NUMBERS

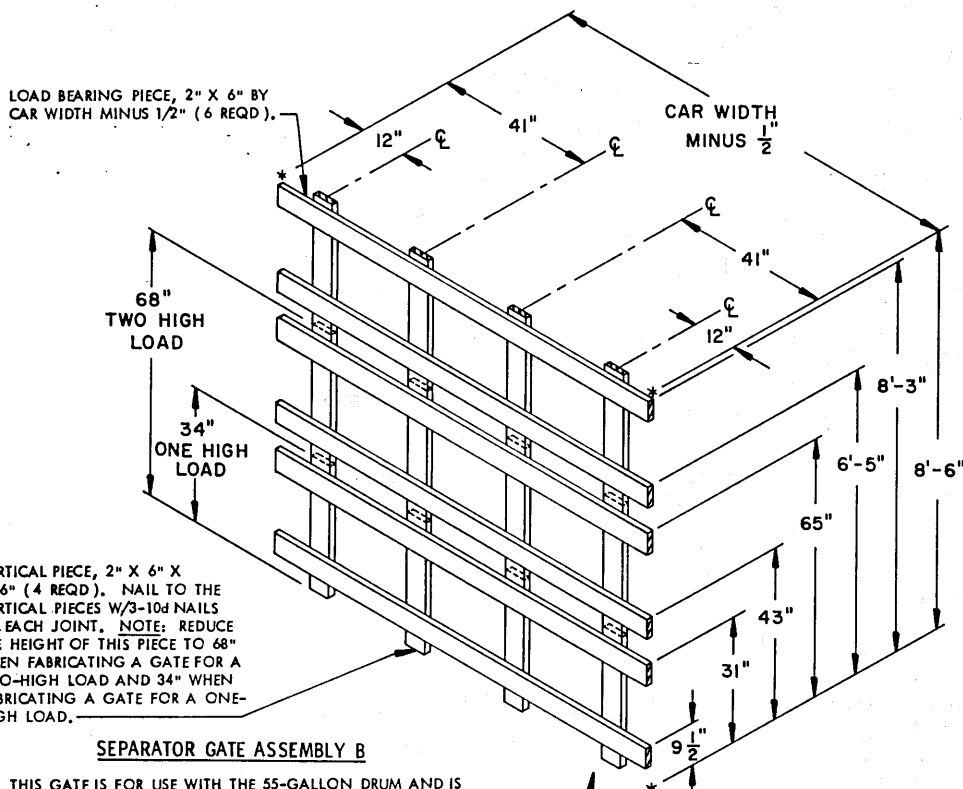
- ① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED ②. SEE THE "SECTION K-K" VIEW ON PAGE 28 FOR LOCATION AND GUIDANCE.
- ② CROSS MEMBER (4 REQD). POSITION AT HEIGHTS SHOWN IN THE "SECTION K-K" VIEW ON PAGE 28. SEE GENERAL NOTE "U" ON PAGE 3.
- ③ SEPARATOR GATE ASSEMBLY F (2 REQD). SEE THE DETAIL ON PAGE 33 AND GENERAL NOTE "G" ON PAGE 2.
- ④ LATERAL SUPPORT PIECE, 2" X 4" BY CUT-TO-FIT (4 REQD). WIRE-TIE TO THE CROSS MEMBER WITH NO. 14 GAGE WIRE AFTER THE LOAD BEARING PIECE MARKED ⑤ HAS BEEN NAILED IN PLACE.
- ⑤ LOAD BEARING PIECE, 2" X 4" BY CUT-TO-FIT (2 REQD). NAIL TO THE LATERAL SUPPORT PIECES MARKED ④ W/2-10d NAILS AT EACH END.
- ⑥ TIE-WIRE, NO. 14 GAGE WIRE BY LENGTH TO SUIT (AS REQD). WRAP AROUND PIECES MARKED ② AND ④ AND TWIST ENDS TOGETHER.



**SEPARATOR GATE ASSEMBLY A**

THIS GATE IS FOR USE WITH THE 55-GALLON DRUM. IT MUST BE POSITIONED BETWEEN THE METAL DRUMS AND CAR END WALL AND BETWEEN BAYS OF METAL DRUMS WITHIN THE LOAD. IT WILL PREVENT THE PROTRUDING COVERS ON THE DRUM FROM CONTACTING THE END WALL AND/OR EACH OTHER. SEE PAGES 6 THROUGH 18.

VERTICAL PIECE, 2" X 6" X 8'-6" (2 REQD), NAIL TO THE LOAD BEARING PIECES W/3-10d NAILS AT EACH JOINT. NOTE: REDUCE THE HEIGHT OF THIS PIECE TO 68" WHEN FABRICATING A GATE FOR A TWO-HIGH LOAD AND 34" WHEN FABRICATING A GATE FOR A ONE-HIGH LOAD.

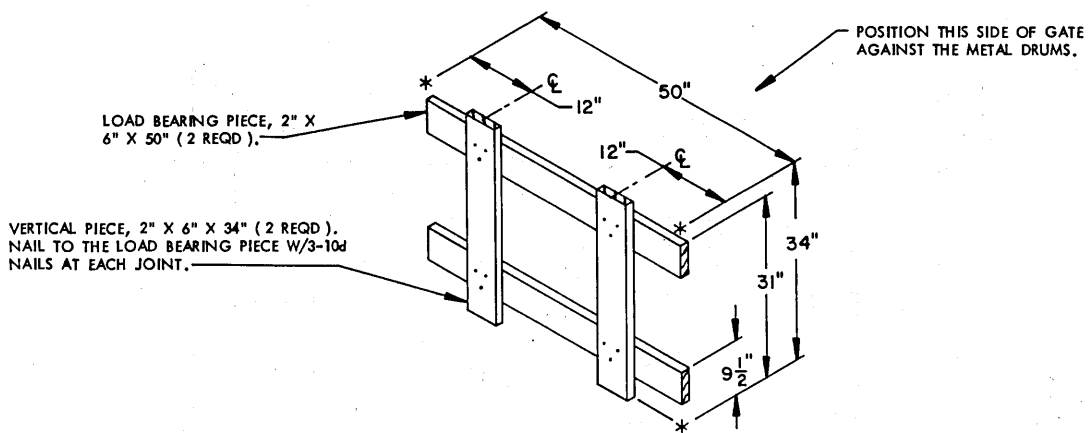


**SEPARATOR GATE ASSEMBLY B**

THIS GATE IS FOR USE WITH THE 55-GALLON DRUM AND IS ONLY TO BE USED IN BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES. IT MUST BE POSITIONED BETWEEN METAL DRUMS AND CROSS MEMBERS. WHEN FABRICATING THIS GATE FIELD CHECK DIMENSIONS TO ASSURE THAT EACH VERTICAL PIECE IS IN ALIGNMENT WITH THE CENTER OF A DRUM. SEE PAGES 16 THROUGH 18.

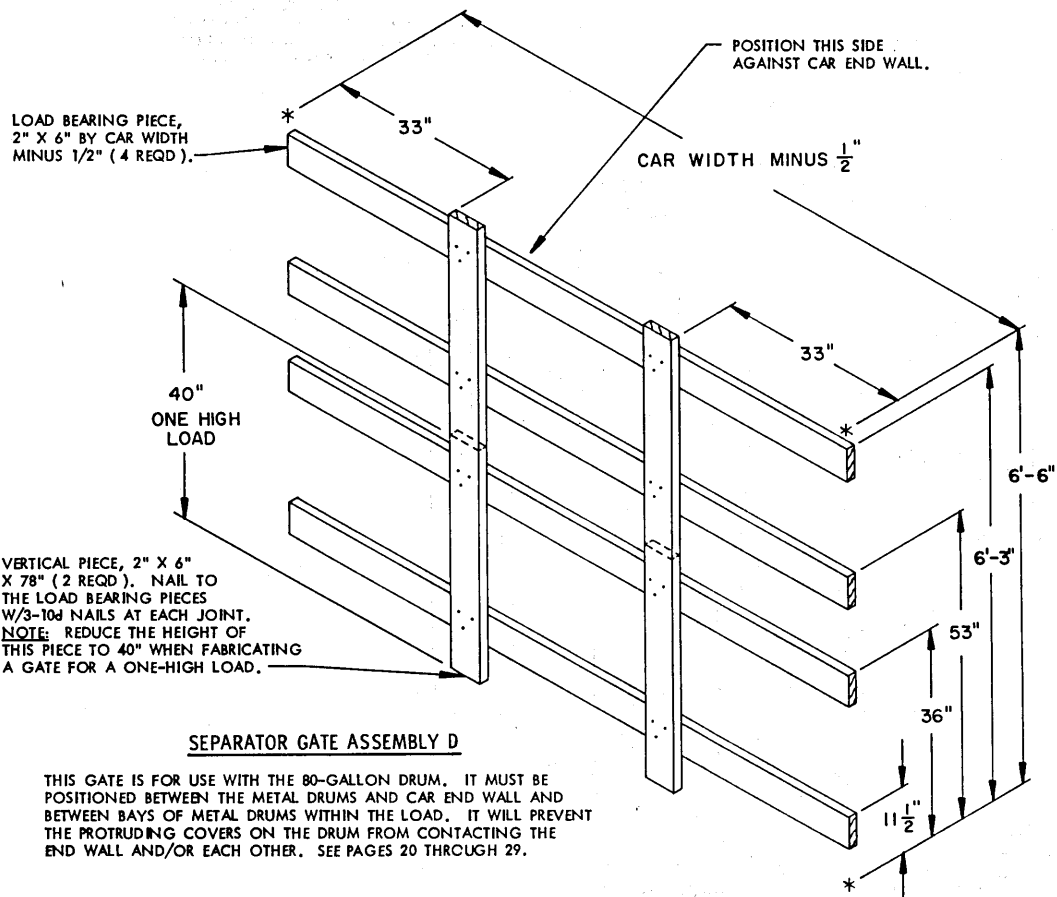
POSITION THIS SIDE OF GATE AGAINST THE METAL DRUMS.

DETAILS



**SEPARATOR GATE ASSEMBLY C**

THIS GATE IS FOR USE WITH THE 55-GALLON DRUM AND IS ONLY TO BE USED IN BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES. IT MUST BE POSITIONED BETWEEN METAL DRUMS AND CROSS MEMBERS. SEE PAGE 30.

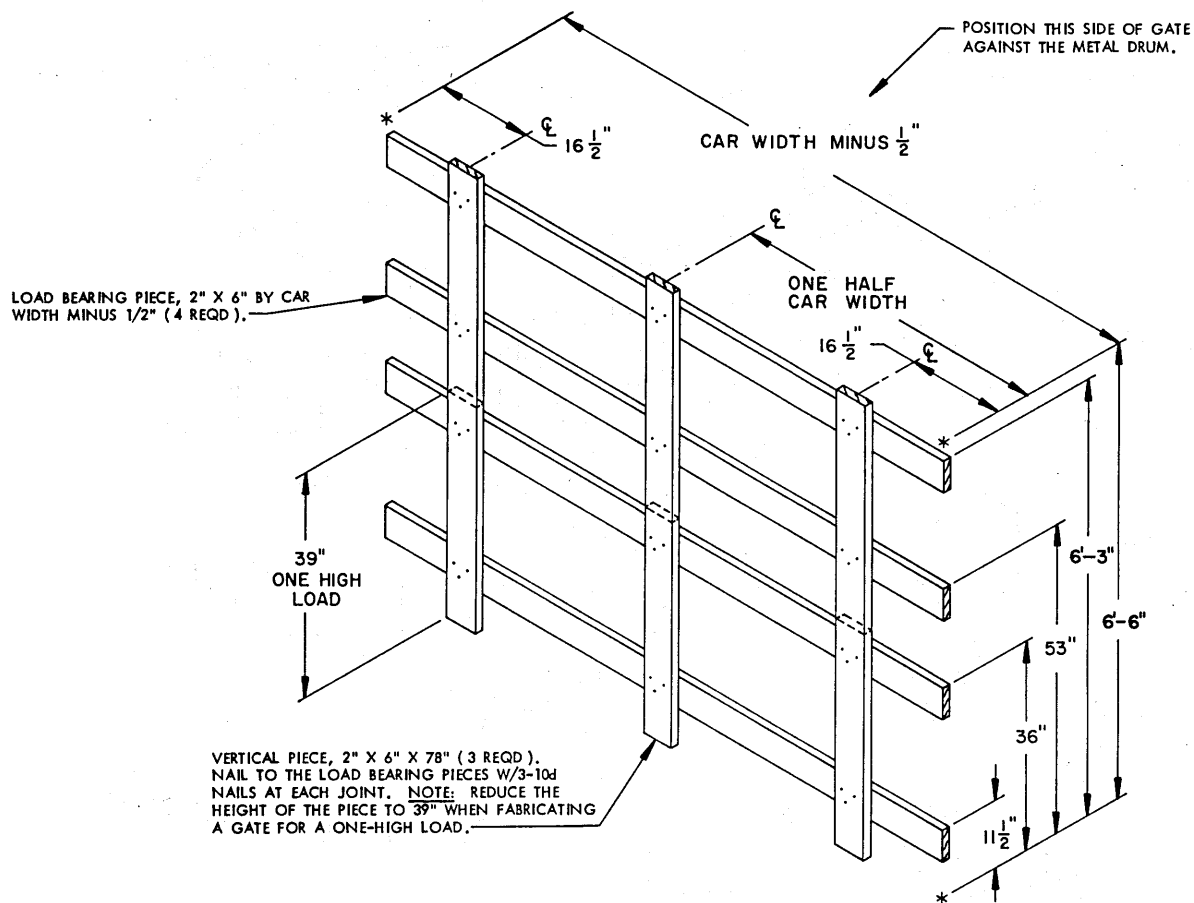


**SEPARATOR GATE ASSEMBLY D**

THIS GATE IS FOR USE WITH THE 80-GALLON DRUM. IT MUST BE POSITIONED BETWEEN THE METAL DRUMS AND CAR END WALL AND BETWEEN BAYS OF METAL DRUMS WITHIN THE LOAD. IT WILL PREVENT THE PROTRUDING COVERS ON THE DRUM FROM CONTACTING THE END WALL AND/OR EACH OTHER. SEE PAGES 20 THROUGH 29.

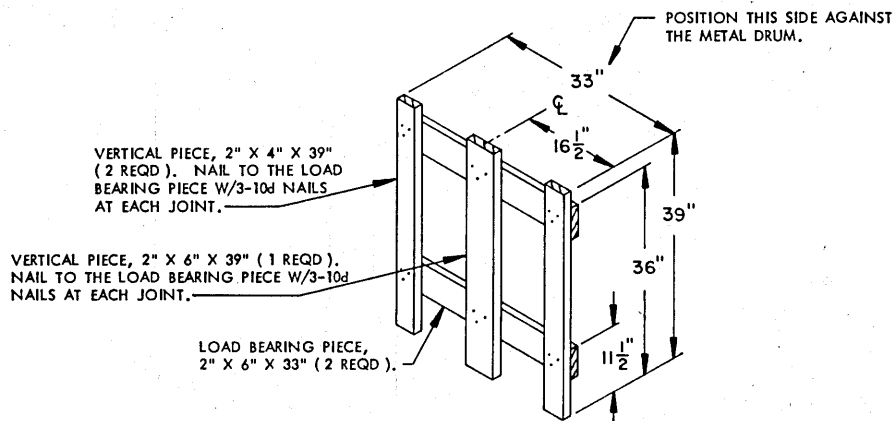
DETAILS





**SEPARATOR GATE ASSEMBLY E**

THIS GATE IS FOR USE WITH THE 80-GALLON DRUM AND IS ONLY TO BE USED IN BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES. IT MUST BE POSITIONED BETWEEN METAL DRUMS AND CROSS MEMBERS. WHEN FABRICATING THIS GATE FIELD CHECK DIMENSIONS TO ASSURE THAT EACH VERTICAL PIECE IS IN ALIGNMENT WITH THE CENTER OF A DRUM. SEE PAGES 28 AND 29.



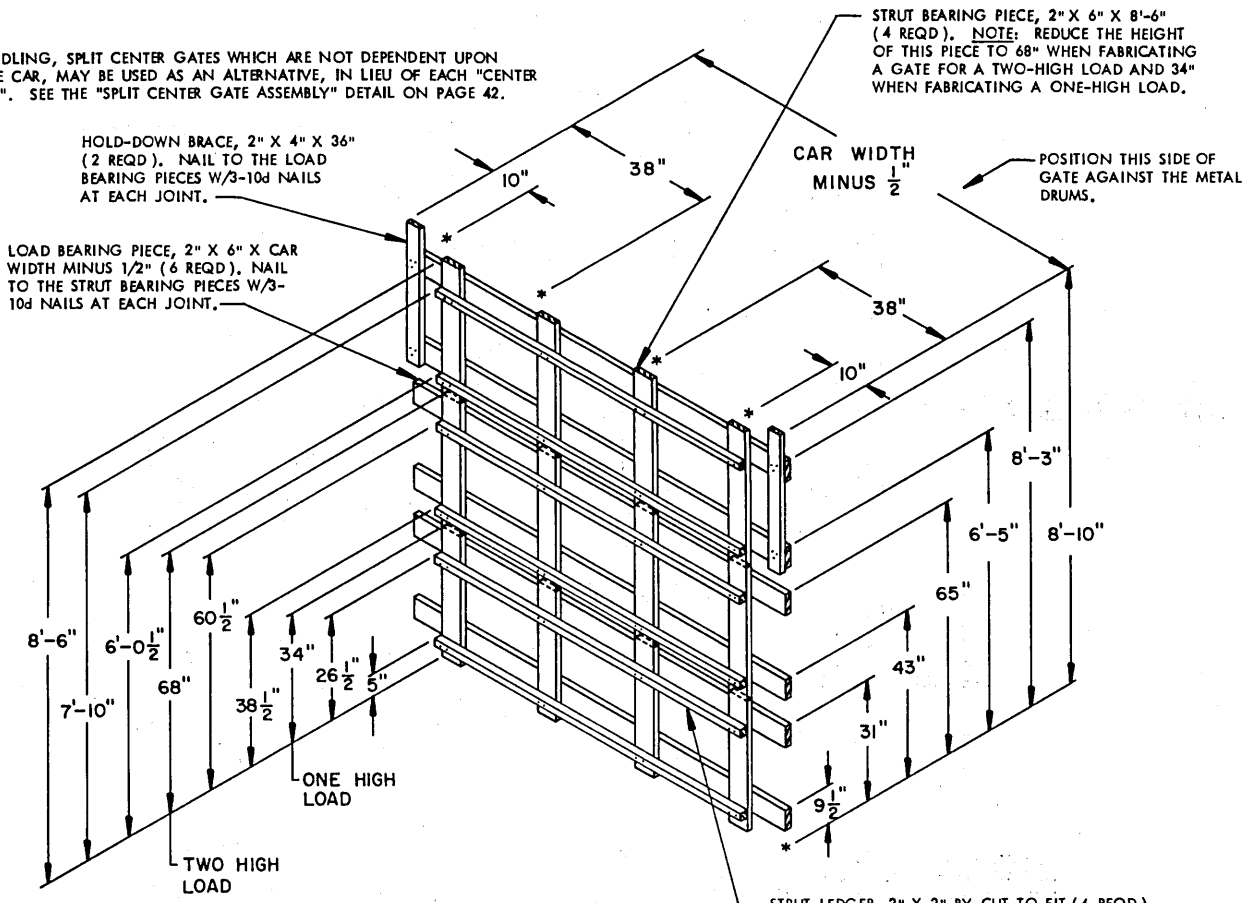
**SEPARATOR GATE ASSEMBLY F**

THIS GATE IS FOR USE WITH THE 80-GALLON DRUM AND IS ONLY TO BE USED IN BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES. IT MUST BE POSITIONED BETWEEN METAL DRUMS AND CROSS MEMBERS. SEE PAGE 30.

**DETAILS**

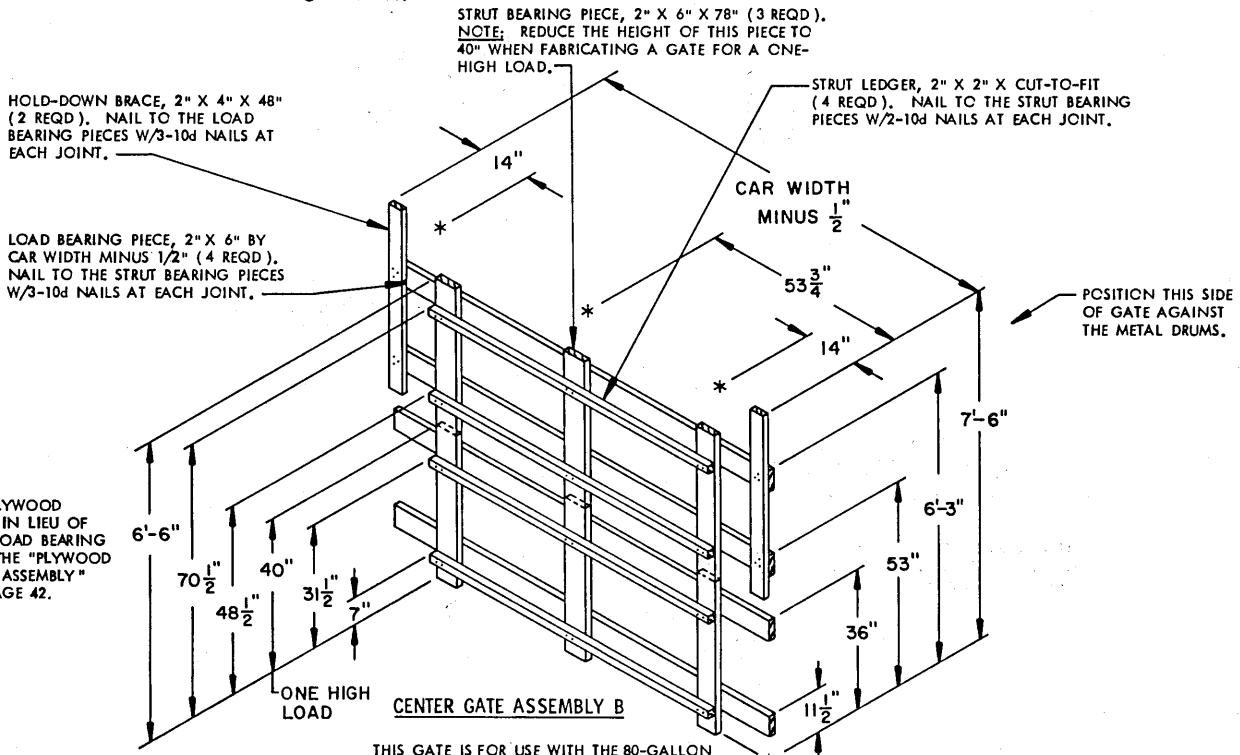
**NOTE ⊕:**

FOR EASE OF HANDLING, SPLIT CENTER GATES WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE, IN LIEU OF EACH "CENTER GATE ASSEMBLY A". SEE THE "SPLIT CENTER GATE ASSEMBLY" DETAIL ON PAGE 42.



**CENTER GATE ASSEMBLY A**

THIS GATE IS FOR USE WITH THE 55-GALLON DRUM. WHEN FABRICATING THIS GATE FIELD CHECK DIMENSIONS TO ASSURE THAT EACH STRUT BEARING PIECE IS IN ALIGNMENT WITH CENTER OF A DRUM. SEE PAGES 6 THROUGH 11. SEE "NOTE ⊕" ABOVE AND "NOTE ●" AT LEFT.



**CENTER GATE ASSEMBLY B**

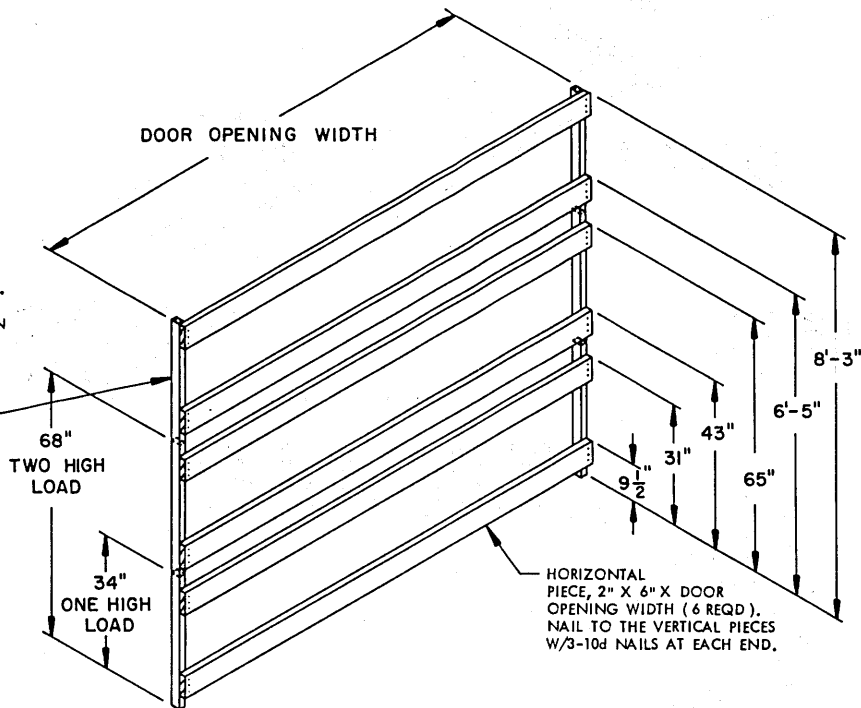
THIS GATE IS FOR USE WITH THE 80-GALLON DRUM. WHEN FABRICATING THIS GATE FIELD CHECK DIMENSIONS TO ASSURE THAT EACH STRUT BEARING PIECE IS IN ALIGNMENT WITH THE CENTER OF A DRUM. SEE PAGES 20 AND 21. SEE "NOTE ●" AT LEFT.

**NOTE ●:**

IF DESIRED, PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" LOAD BEARING PIECES. SEE THE "PLYWOOD CENTER GATE ASSEMBLY" DETAIL ON PAGE 42.

**DETAILS**

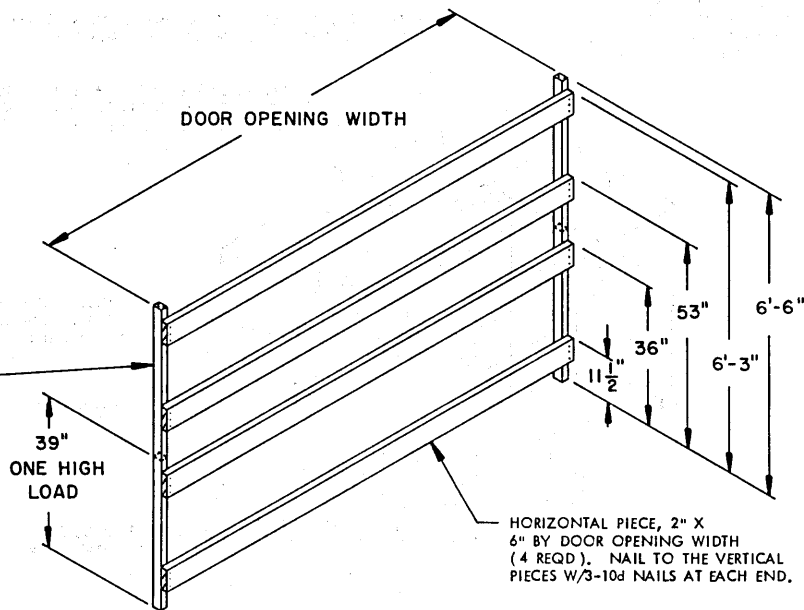
VERTICAL PIECE, 2" X 3" X 8'-3" (2 REQD). NAIL TO A DOOR POST W/12d NAILS.  
NOTE: REDUCE THE HEIGHT OF THIS PIECE TO 68" WHEN FABRICATING A GATE FOR A TWO-HIGH LOAD AND TO 34" WHEN FABRICATING A GATE FOR A ONE-HIGH LOAD.



**DOORWAY PROTECTION ASSEMBLY A**

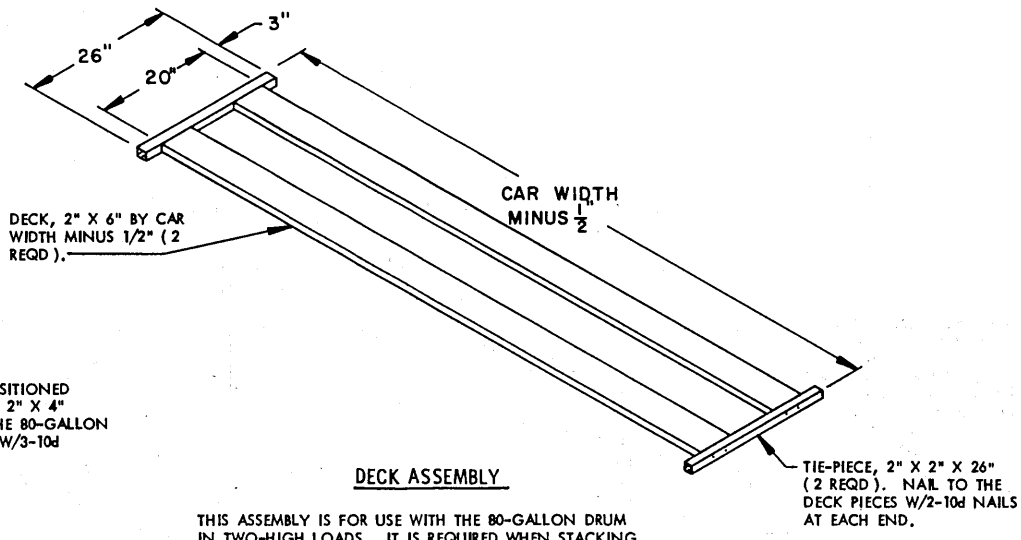
THIS ASSEMBLY IS FOR USE IN LOADS OF 55- GALLON DRUMS STACKED THREE HIGH. SEE PAGES 4 THROUGH 11.

VERTICAL PIECE, 2" X 3" X 78" (2 REQD). NAIL TO A DOOR POST W/12d NAILS.  
NOTE: REDUCE THE HEIGHT OF THIS PIECE TO 39" WHEN FABRICATING A GATE FOR A ONE-HIGH LOAD.



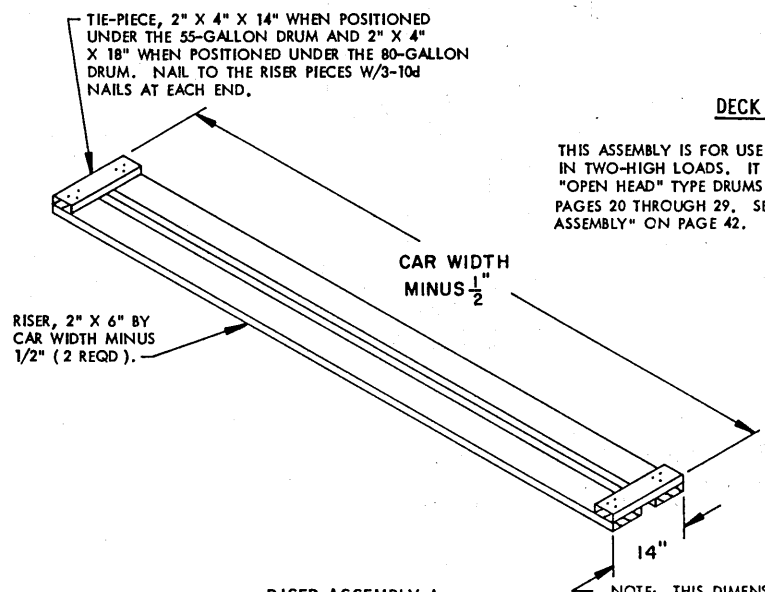
**DOORWAY PROTECTION ASSEMBLY B**

THIS GATE IS FOR USE WITH THE 80-GALLON DRUM. SEE PAGES 20 AND 21.



**DECK ASSEMBLY**

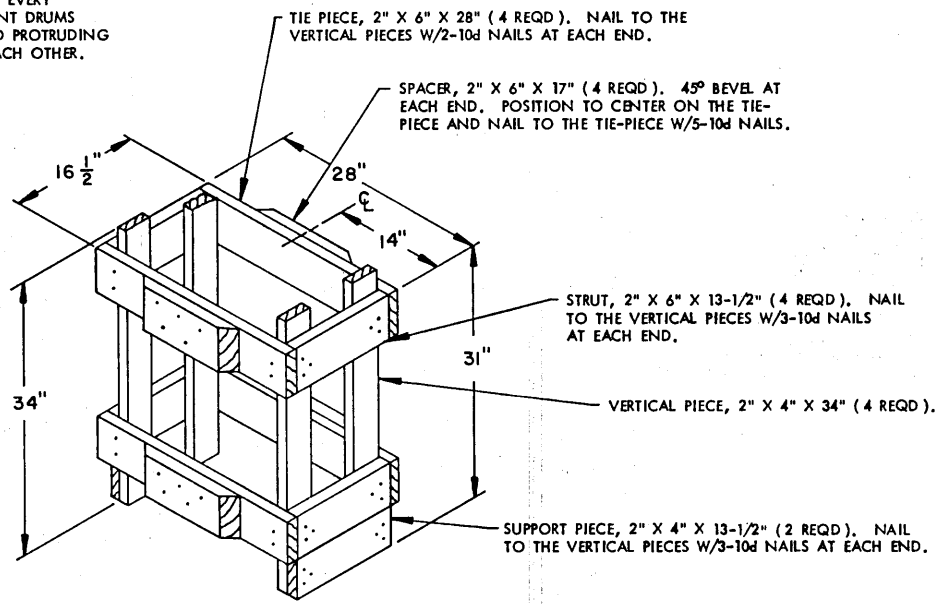
THIS ASSEMBLY IS FOR USE WITH THE 80-GALLON DRUM IN TWO-HIGH LOADS. IT IS REQUIRED WHEN STACKING "OPEN HEAD" TYPE DRUMS THAT DO NOT "NEST". SEE PAGES 20 THROUGH 29. SEE THE "ALTERNATIVE DECK ASSEMBLY" ON PAGE 42.



**RISER ASSEMBLY A**

THIS RISER IS FOR USE WITH THE 55-GALLON METAL DRUM OR THE 80-GALLON METAL DRUM. THIS ASSEMBLY IS REQUIRED UNDER EVERY OTHER STACK OF DRUMS TO PREVENT DRUMS WHICH HAVE ROLLING HOOPS AND PROTRUDING COVERS FROM "RIDING" UP ON EACH OTHER.

NOTE: THIS DIMENSION WILL BE 18" WHEN USED UNDER THE 80-GALLON DRUMS, AND 14" WHEN USED UNDER THE 55-GALLON DRUMS.



**OMITTED DRUM FILLER ASSEMBLY**

THIS ASSEMBLY IS FOR USE WITH THE 55-GALLON DRUM. IT IS TO BE USED IN PLACE OF AN OMITTED DRUM TO HELP ADJUST THE LOAD QUANTITY. SEE THE LOAD ON PAGE 12 AND SPECIAL NOTE 4 ON PAGE 12. WHEN FABRICATING THIS ASSEMBLY FIELD CHECK DIMENSIONS AND MAKE SMALL ADJUSTMENTS AS NECESSARY TO ASSURE THAT THE ASSEMBLY WILL FIT IN THE VOID SPACE AS SHOWN IN THE LOAD ON PAGE 12.

LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" (2 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

DIAGONAL BRACE SUPPORT, 2" X 4" BY CUT-TO-FIT (4 REQD). POSITION AT CENTER OF DIAGONAL BRACE AND NAIL TO THE DIAGONAL BRACE AND THE FLOOR CLEAT W/2-12d NAILS AT EACH END.

DIAGONAL BRACE, 4" X 4" X 55" (4 REQD). SEE THE "DIAGONAL BRACE" DETAIL BELOW FOR BEVEL CUTS REQUIRED. POSITION TIGHT AGAINST THE HOLD-DOWN CLEAT AND IN LINE WITH ONE EDGE OF THE FLOOR CLEAT TO FACILITATE POSITIONING OF THE DIAGONAL BRACE SUPPORT PIECE. TOENAIL TO THE VERTICAL PIECE AND THE FLOOR CLEAT W/2-16d NAILS AT EACH END.

CAR WIDTH MINUS 1/2"

HOLD-DOWN CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO THE VERTICAL PIECE W/3-10d NAILS. POSITION THIS PIECE BEFORE POSITIONING THE DIAGONAL BRACE.

VERTICAL PIECE, 2" X 6" X 41" (4 REQD). THESE PIECES MUST BE CENTERED ON THE CENTER OF THE DRUMS.

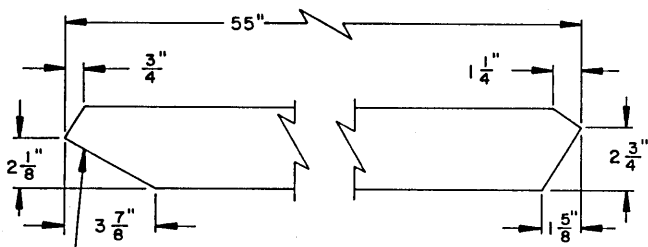
BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). POSITION AGAINST THE DIAGONAL BRACE AND NAIL TO THE FLOOR CLEAT W/7-40d NAILS. POSITION THIS PIECE AFTER THE DIAGONAL BRACE IS IN PLACE.

SUPPORT CLEAT, 2" X 6" X 18" (4 REQD). POSITION AGAINST THE VERTICAL PIECE. NAIL TO THE FLOOR CLEAT W/4-16d NAILS AND TOENAIL TO THE VERTICAL PIECE W/2-12d NAILS.

FLOOR CLEAT, 2" X 6" X 6'-6" (4 REQD). ALIGN WITH VERTICAL PIECES AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "G" ON PAGE 2.

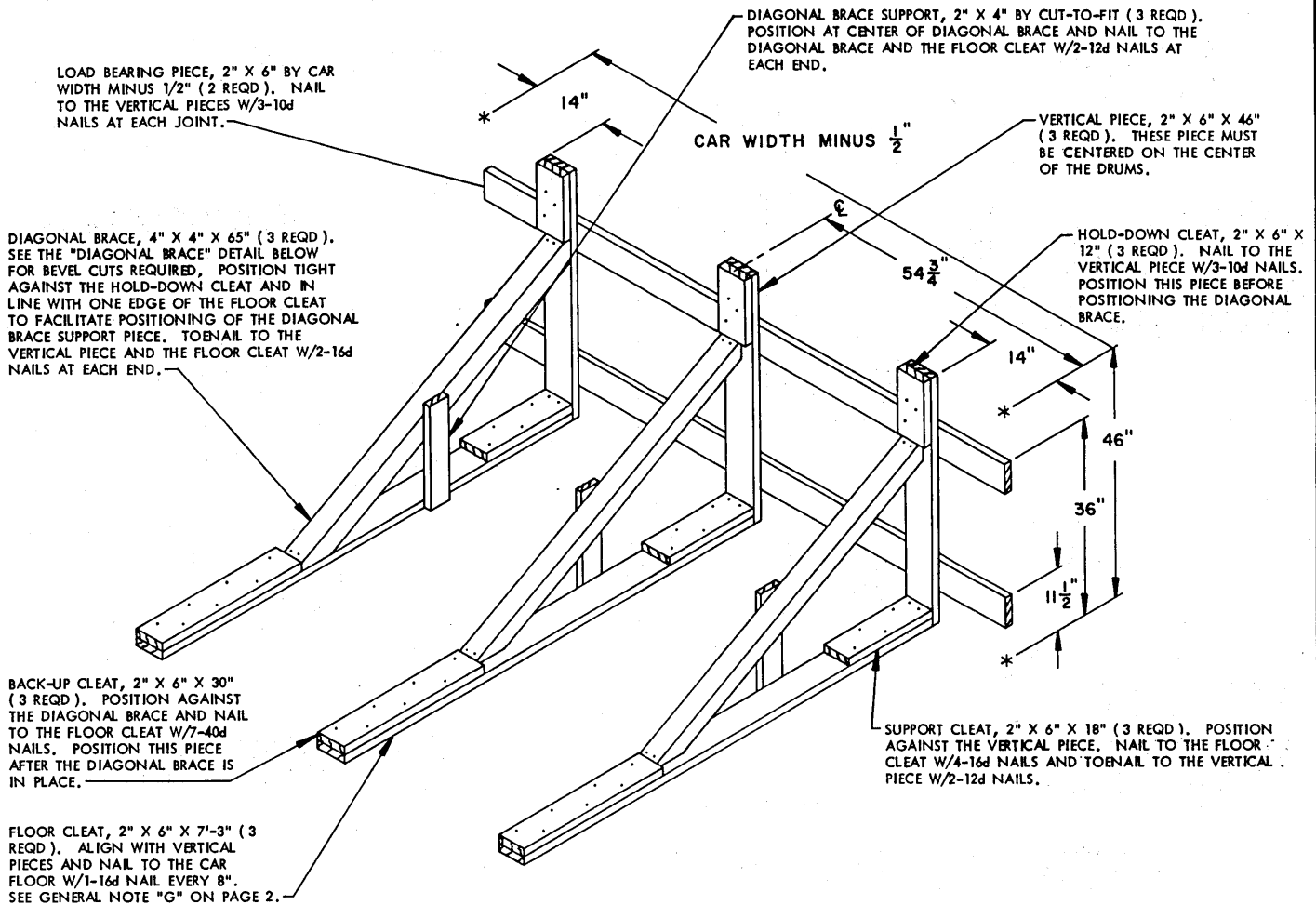
**KNEE BRACE ASSEMBLY A**

THIS KNEE BRACE IS FOR USE WITH THE 55-GALLON DRUM WHEN LOADED IN BOX CARS HAVING A WOOD OR A NAILABLE METAL FLOOR. ONE KNEE BRACE ASSEMBLY AS SHOWN ABOVE WILL RETAIN A LOAD OF 16,000 POUNDS ( 106 METAL DRUMS ). WHEN FABRICATING THIS ASSEMBLY FIELD CHECK DIMENSIONS TO ASSURE THAT EACH VERTICAL PIECE IS IN ALIGNMENT WITH THE CENTER OF A DRUM. SEE PAGE 12.



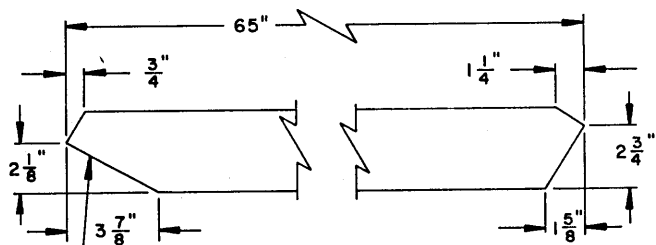
**DIAGONAL BRACE**  
( 4 X 4 MATERIAL )

THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE FLOOR CLEAT.



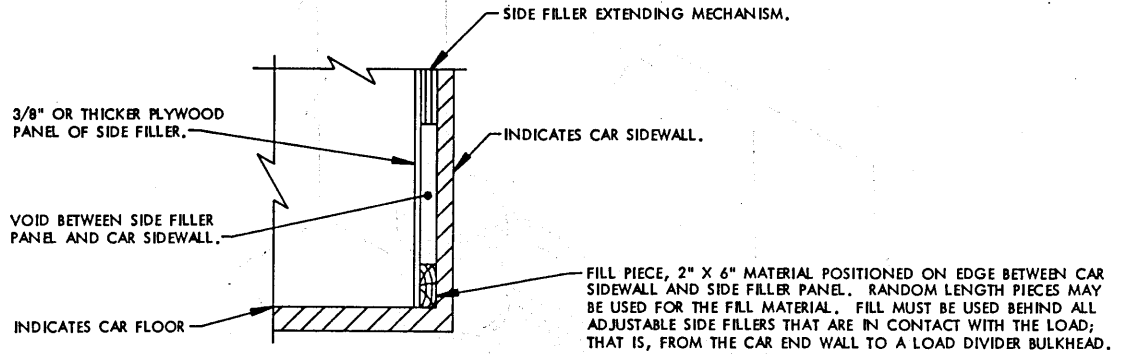
**KNEE BRACE ASSEMBLY B**

THIS KNEE BRACE IS FOR USE WITH THE 80-GALLON DRUM WHEN LOADED IN BOX CARS HAVING A WOOD OR A AVAILABLE METAL FLOOR. ONE KNEE BRACE ASSEMBLY AS SHOWN ABOVE WILL RETAIN A LOAD OF 12,000 POUNDS (61 METAL DRUMS). WHEN FABRICATING THIS ASSEMBLY FIELD CHECK DIMENSIONS TO ASSURE THAT EACH VERTICAL PIECE IS IN ALIGNMENT WITH THE CENTER OF A DRUM. SEE PAGE 24.



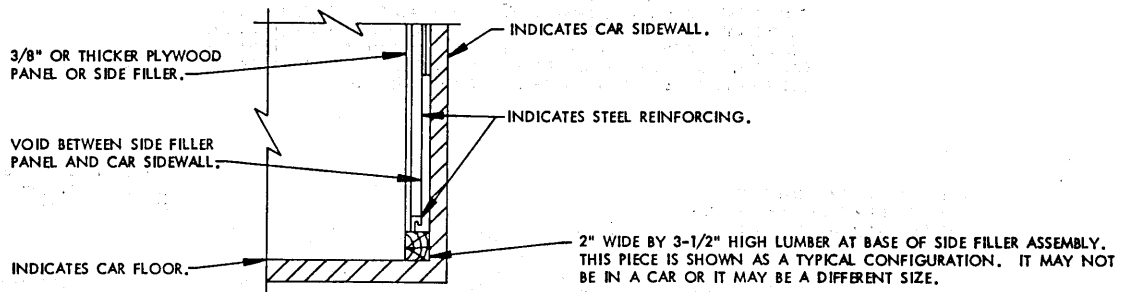
**DIAGONAL BRACE**  
(4 X 4 MATERIAL)

THIS BRACE MUST BE INSTALLED SO THAT THIS BEARING WILL BE IN CONTACT WITH THE FLOOR CLEAT.



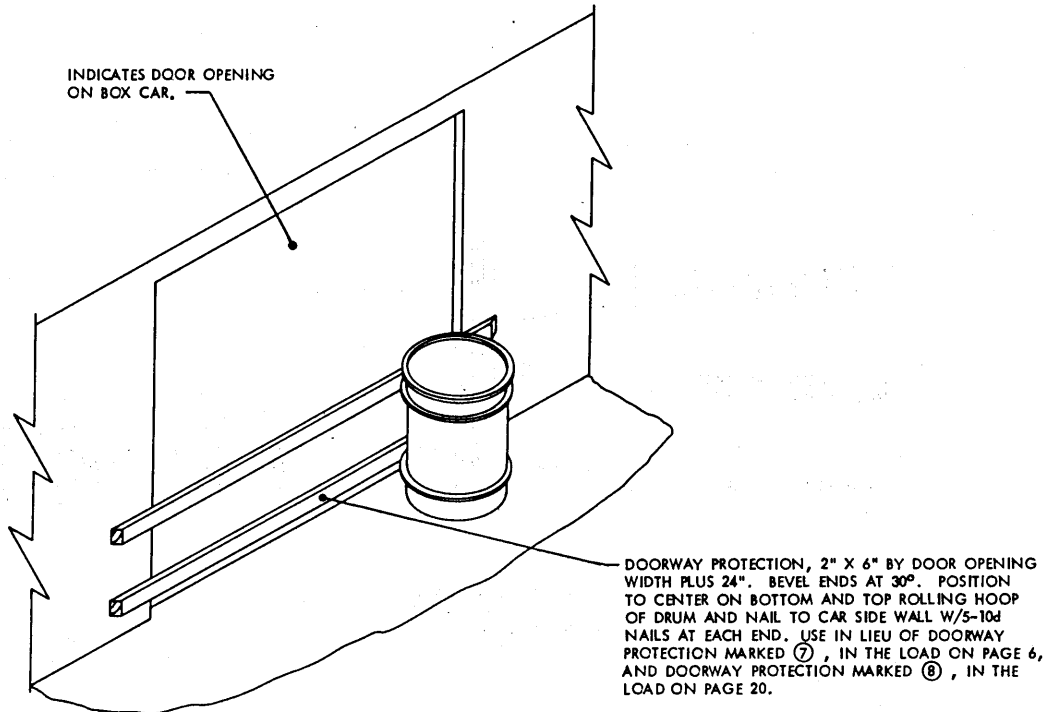
**TYPICAL TYPE A**

THIS VIEW SHOWS THE INSTALLATION OF A "FILL PIECE" IN A CAR EQUIPPED WITH A STANDARD ADJUSTABLE SIDE FILLER. SEE GENERAL NOTE "Y" ON PAGE 3.



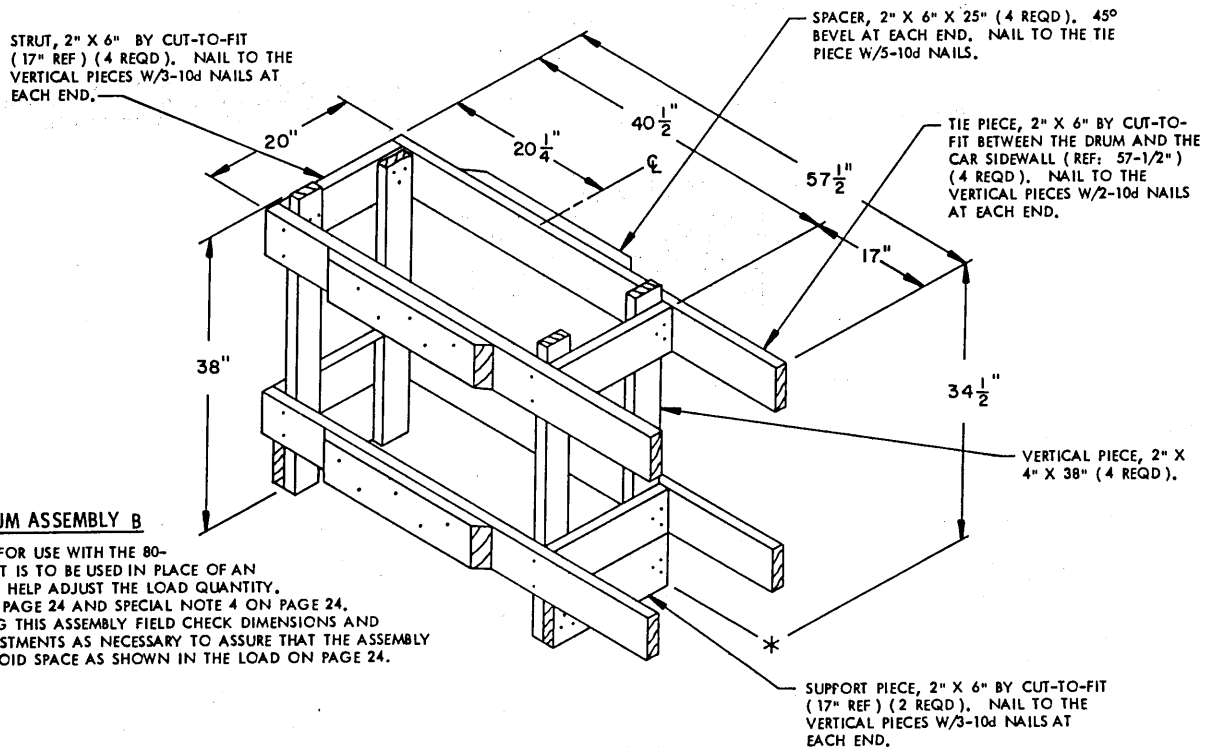
**TYPICAL TYPE B**

THIS VIEW SHOWS A TYPICAL SECTION OF A CAR EQUIPPED WITH HEAVY DUTY, STEEL REINFORCED, ADJUSTABLE SIDE FILLER. A "FILL PIECE", AS SHOWN IN THE "TYPICAL TYPE A" DETAIL ABOVE, IS NOT REQUIRED IN CARS SO EQUIPPED. SEE GENERAL NOTE "Y" ON PAGE 3.



**PLUG DOOR PROCEDURES**

THESE PROCEDURES WILL APPLY TO PLUG DOORS, WHETHER AUXILIARY OR MAIN, WHEN STEEL DRUMS EXTEND ONE-FOURTH OR MORE OF THEIR DIAMETER PAST A DOOR POST INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR BEING LOADED. NOTE: THE LOAD BEARING PIECES ON THE CENTER GATE ASSEMBLY A, MARKED ③ IN THE LOAD ON PAGE 6, AND THE LOAD BEARING PIECES ON THE CENTER GATE ASSEMBLY B, MARKED ④ IN THE LOAD ON PAGE 20 MUST BE CAR WIDTH MINUS 3-1/2" IN LENGTH IN LIEU OF CAR WIDTH MINUS 1/2" IN LENGTH WHEN USING THE PLUG DOOR PROCEDURES SHOWN ABOVE. SEE SPECIAL NOTE 2 ON PAGES 7 AND 21.

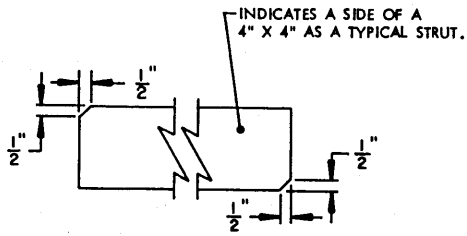


**OMITTED DRUM ASSEMBLY B**

THIS ASSEMBLY IS FOR USE WITH THE 80-GALLON DRUM. IT IS TO BE USED IN PLACE OF AN OMITTED DRUM TO HELP ADJUST THE LOAD QUANTITY. SEE THE LOAD ON PAGE 24 AND SPECIAL NOTE 4 ON PAGE 24. WHEN FABRICATING THIS ASSEMBLY FIELD CHECK DIMENSIONS AND MAKE SMALL ADJUSTMENTS AS NECESSARY TO ASSURE THAT THE ASSEMBLY WILL FIT IN THE VOID SPACE AS SHOWN IN THE LOAD ON PAGE 24.

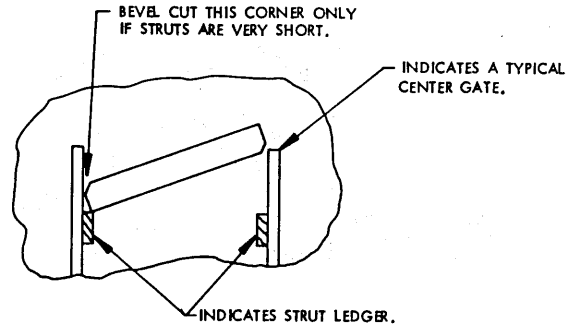
**DETAILS**





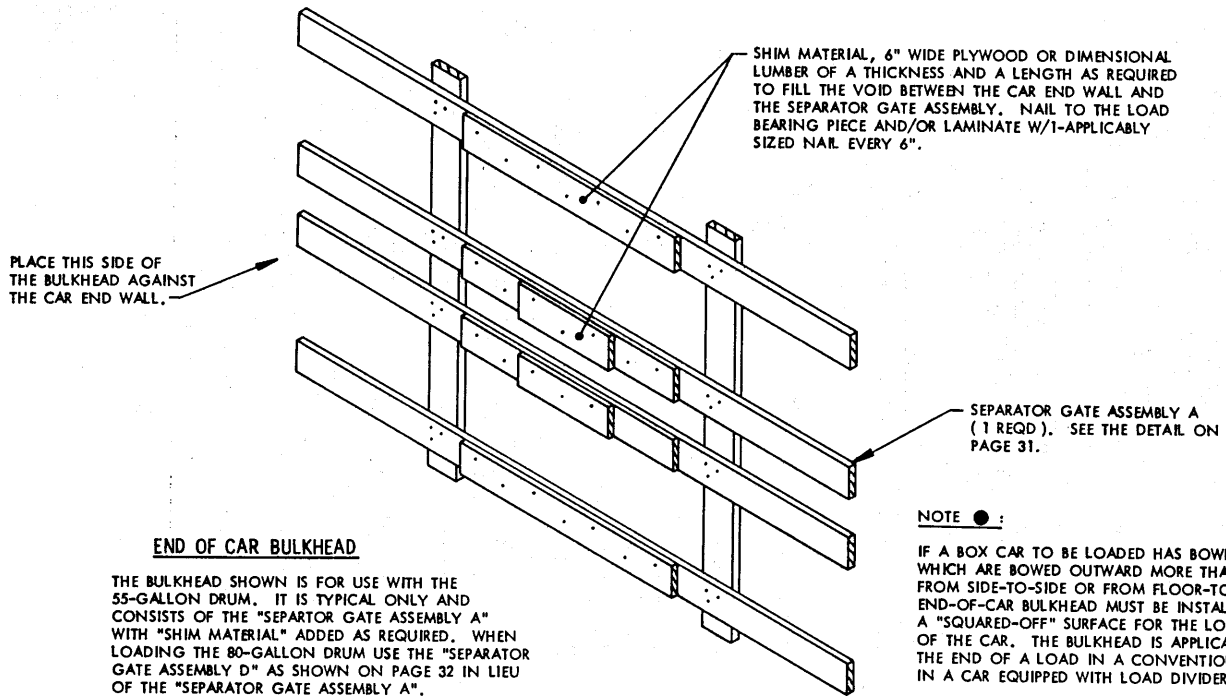
**BEVEL CUT**

BEVEL CUTTING THE STRUTS AS SPECIFIED WILL FACILITATE INSTALLING THE STRUTS WITH A "DRIVE-FIT". CAUTION: DO NOT BEVEL A CORNER MORE THAN ONE-HALF INCH (1/2"). SEE THE "STRUT INSTALLATION" AT RIGHT.



**STRUT INSTALLATION**

SEE GENERAL NOTE "Q" ON PAGE 2 FOR ADDITIONAL STRUT INSTALLATION GUIDANCE.

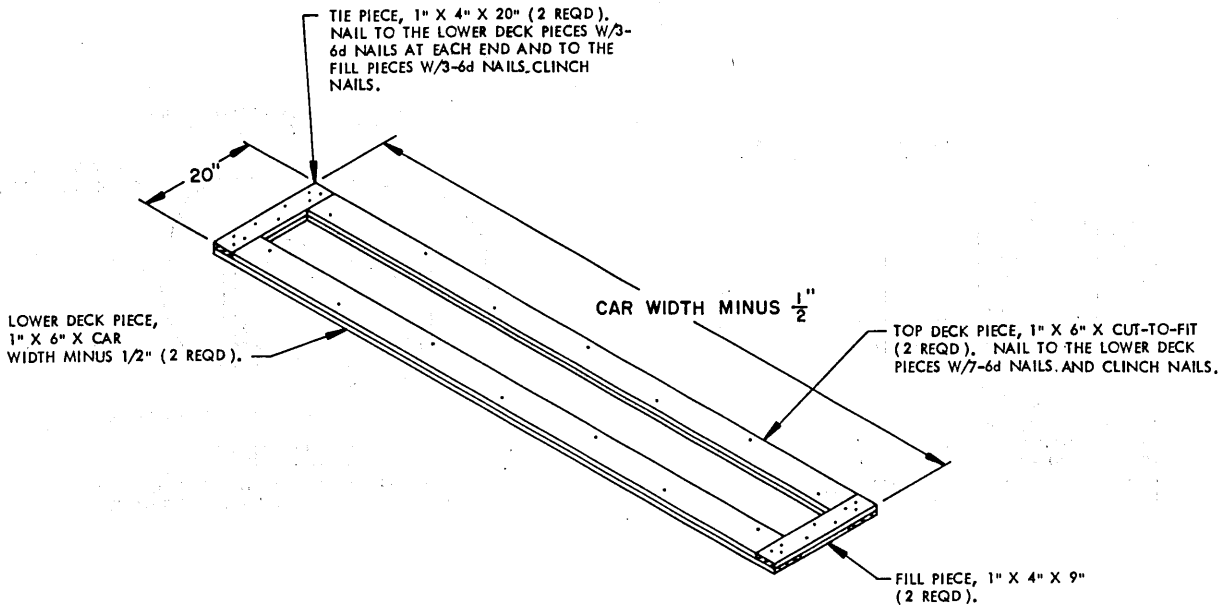


**END OF CAR BULKHEAD**

THE BULKHEAD SHOWN IS FOR USE WITH THE 55-GALLON DRUM. IT IS TYPICAL ONLY AND CONSISTS OF THE "SEPARATOR GATE ASSEMBLY A" WITH "SHIM MATERIAL" ADDED AS REQUIRED. WHEN LOADING THE 80-GALLON DRUM USE THE "SEPARATOR GATE ASSEMBLY D" AS SHOWN ON PAGE 32 IN LIEU OF THE "SEPARATOR GATE ASSEMBLY A".

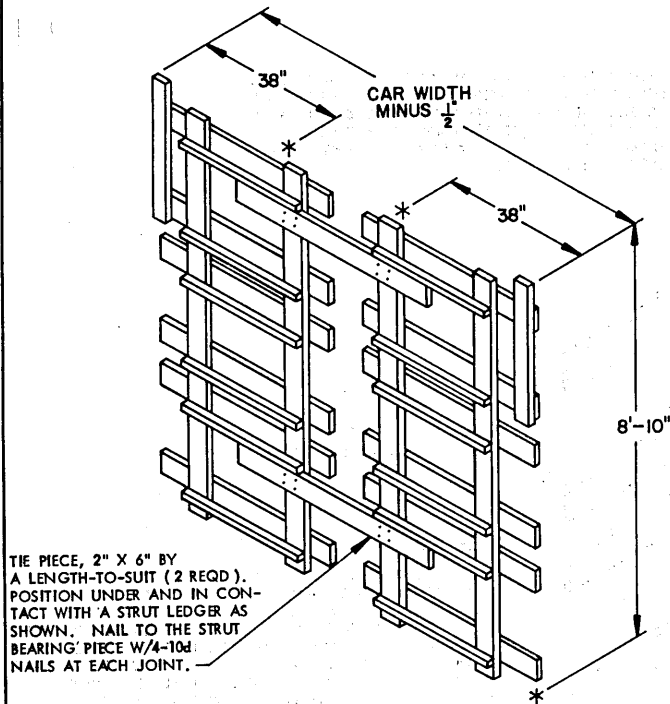
**NOTE ● :**

IF A BOX CAR TO BE LOADED HAS BOWED END WALLS WHICH ARE BOWED OUTWARD MORE THAN (2"), EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED-OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. THE BULKHEAD IS APPLICABLE FOR USE AT THE END OF A LOAD IN A CONVENTIONAL BOX CAR OR IN A CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS.



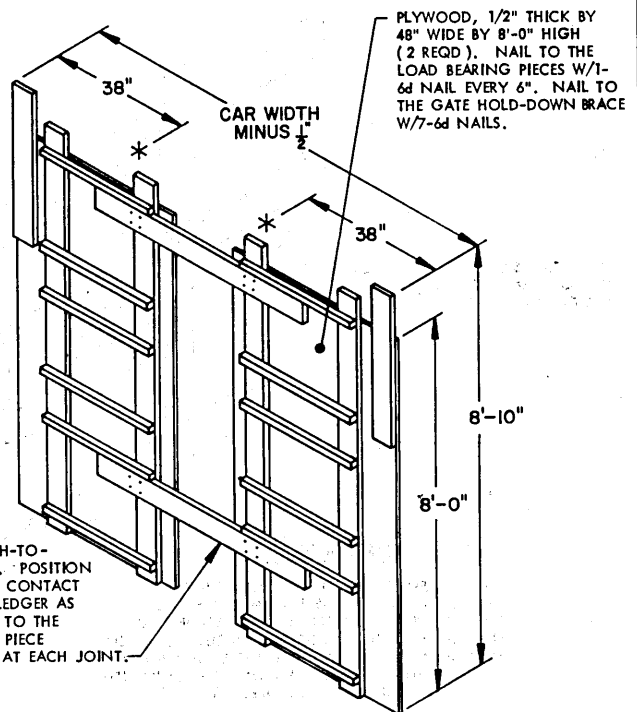
**ALTERNATIVE DECK ASSEMBLY**

THE DECK ASSEMBLY SHOWN ABOVE MAY BE USED IN LIEU OF THE DECK ASSEMBLY SHOWN AS PIECE MARKED ③ IN THE LOAD ON PAGES 20, 22, 26, AND 28. THIS ASSEMBLY IS FOR USE WITH THE 80-GALLON DRUM.



**SPLIT CENTER GATE ASSEMBLY**

FOR EASE OF HANDLING SPLIT CENTER GATES WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE. IN LIEU OF A FULL CAR WIDTH CENTER GATE, INSTALL TWO (2) SPLIT GATES. A MODIFIED "CENTER GATE A" HAS BEEN SHOWN ABOVE, AS TYPICAL. SEE THE "CENTER GATE ASSEMBLY A" DETAIL ON PAGE 34. NOTE: THE TIE PIECES SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED.



**PLYWOOD CENTER GATE ASSEMBLY**

PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" LOAD BEARING PIECES ON ANY CENTER GATE. FOR EASE OF HANDLING SPLIT CENTER GATES WILL BE USED AS AN ALTERNATIVE. IN LIEU OF A FULL CAR WIDTH CENTER GATE, INSTALL TWO (2) SPLIT GATES. A MODIFIED "CENTER GATE A" HAS BEEN SHOWN ABOVE, AS TYPICAL. SEE THE "CENTER GATE ASSEMBLY A" DETAIL ON PAGE 34. NOTE: THE TIE PIECE SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED.