

WR-52/76A
Change Notice 1
20 October 1969

NAVAL ORDNANCE SYSTEMS COMMAND
DEPARTMENT OF THE NAVY
WEAPONS REQUIREMENT, CARLOADING

500 lb. L.D. Bomb Mk 82 and Mods, Palletized
Domestic Unit Load WR-53/702
with Plastic Nose Plugs

This notice forms a part of WR-52/76A dated 7 August 1968
and is mandatory for use by establishments of the Naval
Systems Command within the Naval Material Command.

Page 1

1. Delete title "500 lb. L.D. Bomb Mk 82 and Mods, Palletized Domestic
Unit Load WR-53/702 with Plastic Nose Plugs" and substitute

Bomb, General Purpose, Mk 82 and Mods (500 lb.)
with Plastic Nose Plugs
Domestic Unit Load

2. Add "Superseding WR-52/76 21 July 1967" under date.

Page 6

1. Delete Detail C Separator Gate and substitute Detail B Separator
Gate on page 2 except that "107" inch dimension will become "car width -1".

Distribution

WR-51 and WR-52
distribution list

Preparing Activity

NAD Earle (NWHL)

Code Ident
10001

Naval Ordnance Systems Command
Department of the Navy

WR-52/76 A

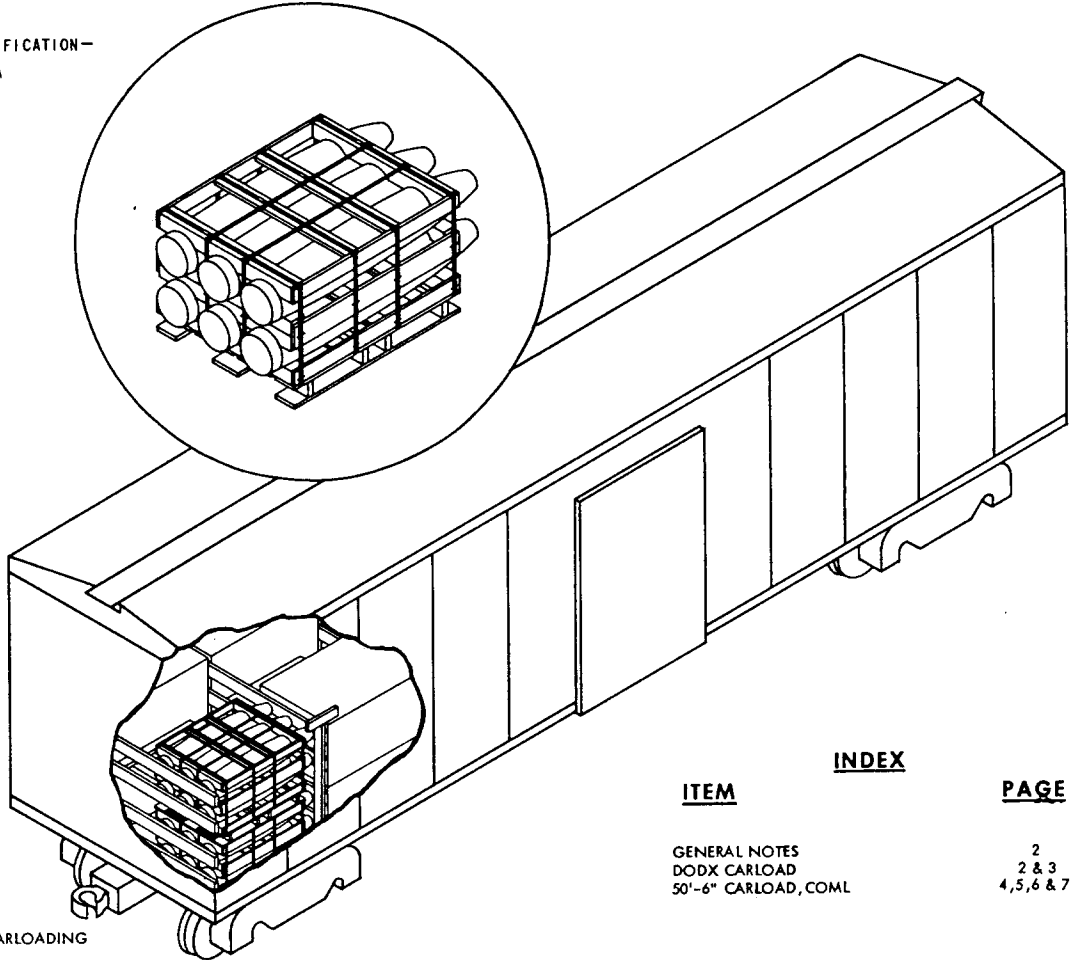
7 AUGUST 1968

WEAPONS REQUIREMENT, CARLOADING
500 LB. L.D. BOMB MK 82 & MODS, PALLETIZED
DOMESTIC UNIT LOAD WR-53/702
WITH PLASTIC NOSE PLUGS

UNIT LOAD DATA

WEIGHT - 3100 LBS.
DIMENSIONS - 61 3/4 L x 40 W x 30 1/4 H
CUBE - 43.2 CU. FT.

DOT HAZARD CLASSIFICATION -
EXPLOSIVES A



THIS WR SUPERSEDES
AND CANCELS ALL PRIOR
DRAWINGS COVERING CARLOADING
OF THIS ITEM.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.

ITEM	INDEX	PAGE
GENERAL NOTES		2
DODX CARLOAD		2 & 3
50'-6" CARLOAD, COML		4, 5, 6 & 7

51/36	TRUCKLOADING						
53/702	PALLETIZING						
51/35	TRUCKLOADING	TOFC OR COFC					
WR NO.	ASSOCIATED PROCESS						
AUTHORIZED AND RELEASED FOR GENERAL USE			APPROVED BY BUREAU OF EXPLOSIVES				
<i>J.E. Kelly</i> <i>NWHL</i> <i>2/15/67</i> SIGNATURE TECHNICAL DIRECTING ACTIVITY (TDA) DATE			<i>A. F. Grammuck</i> MILITARY ASSISTANT <i>2/11/67</i> SIGNATURE DATE				
<i>E.H. Rothman</i> AIR-53442A <i>3/29/67</i> SIGNATURE (AIR) SYSKOM, BY DIRECTION DATE			ORIGINATOR <i>C.P. Troutman</i> <i>2/14/67</i> SIGNATURE				
			NAVAL WEAPONS HANDLING LABORATORY U.S.N.A.D. EARLE, NEW JERSEY				
			PAGE 1 OF 7				

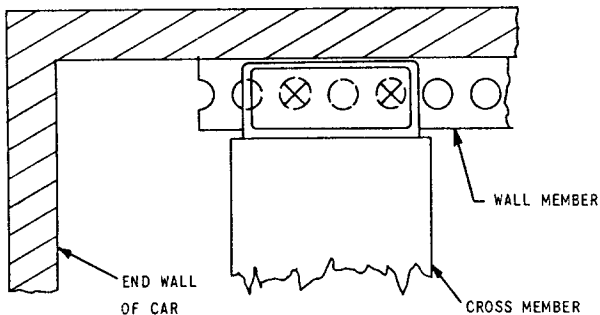
GENERAL NOTES

1. FOR GENERAL INFORMATION CONCERNING ORDERING, INSPECTING, AND PREPARING CARS, AND FOR DUNNAGING MATERIALS, DESIGN AND INSTALLATION OF DUNNAGE SEE THE GENERAL DOCUMENT WR-52 "CARLOADING OF WEAPONS AND MAJOR WEAPON SYSTEM COMPONENTS."
2. WHEN PLANNING SHIPMENTS ORDER THE MINIMUM NUMBER OF CARS OF THE CAPACITY REQUIRED FOR THE SHIPMENT. UTILITY LOADER CARS SHALL BE SERIES DODX 28000.
3. LOADING PLANS SHOWN ARE FOR DODX UTILITY LOADER CAR WITH 50 FT. 6 INCHES INSIDE LENGTH, 107 3/4 INCHES INSIDE WIDTH BETWEEN RAILS (111 INCHES INSIDE WIDTH BETWEEN SIDE WALLS). AND COMMERCIAL BOXCARS WITH 50 FT 6 INCHES INSIDE LENGTH, 110 INCHES INSIDE WIDTH.
4. THE LOAD CONSISTS OF 500 LB. L. D. BOMBS MK 82 & MODS PALLETIZED IN ACCORDANCE WITH DOMESTIC UNIT LOAD WR-53/702.
5. THE UNIT LOADS ARE HANDLED AND LOADED WITH A SUITABLE FORKLIFT TRUCK.
6. UNLESS OTHERWISE SPECIFIED NAILING SHALL BE IN ACCORDANCE WITH WR-52.
7. AFTER BLOCKING AND BRACING HAS BEEN INSPECTED ATTACH SHIPPING DOCUMENTS INSIDE THE CAR IN AN ACCESSABLE AREA, CLOSE AND SEAL BOXCAR DOORS, AND ATTACH APPLICABLE PLACARDS TO THE OUTSIDE OF CAR AS PRESCRIBED IN OP 2165 (VOL. I).

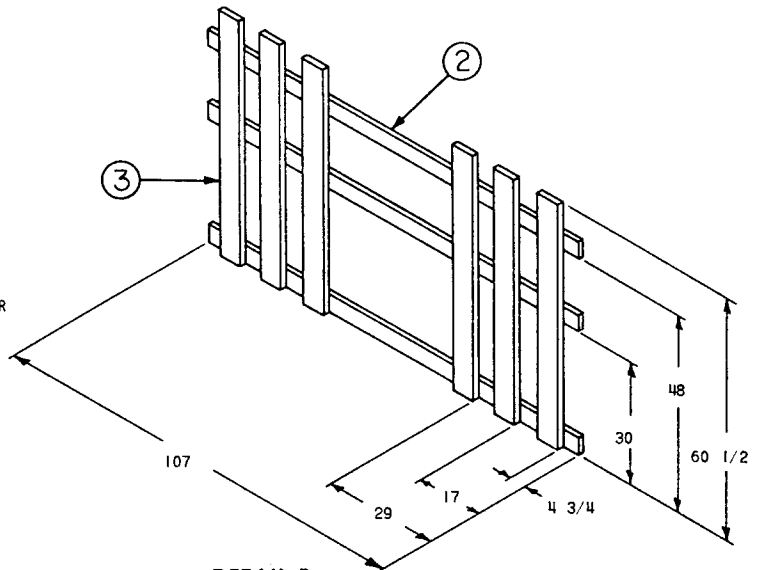
50 FT. 6 IN. BOXCAR, DODX

LOADING AND DUNNAGING PROCEDURE-THE CARLOAD CONSISTS OF 32 PALLETIZED UNIT LOADS. A DETAILED DESCRIPTION AND OPERATING INSTRUCTIONS FOR THE UTILITY LOADER ARE CONTAINED IN OP 1750.

1. POSITION DETACHABLE WALL MEMBERS AT THE FOLLOWING HEIGHTS FROM THE CAR FLOOR: 12", 24", 42", AND 54".
2. POSITION CROSS MEMBERS AT ABOVE HEIGHTS LOCATING PINS IN DETACHABLE WALL MEMBERS AS SHOWN IN DETAIL D.
3. PREFABRICATE SEPARATOR GATE, DETAIL B USING 6d NAILS AND POSITION AGAINST CROSS MEMBERS WITH VERTICAL MEMBERS OF GATE AGAINST BOMBS.
4. PLACE THE FIRST STACK AGAINST THE SEPARATOR GATE AND SIDES OF BOXCAR WITH LONG DIMENSION OF PALLET PLACED LENGTHWISE IN THE CAR AS SHOWN.
5. POSITION LATERAL BRACE (PIECE 1) DOUBLED, AS SHOWN IN SECTION A-A. NAIL FIRST PIECE TO FLOOR WITH 16d NAILS STAGGERED EVERY EIGHT INCHES AND SECOND PIECE TO FIRST IN LIKE MANNER.
6. PREFABRICATE PIECES 4 AND 5 OF SWAY BRACE ASSEMBLY USING SIX 12d NAILS (SEE DETAIL C). POSITION THESE BRACES BETWEEN PALLETS OF ADJACENT LOADS AS SHOWN AND NAIL SPREADERS (PIECE 6) TO THEM WITH THREE 10d NAILS AT EACH JOINT.
7. PLACE A SEPARATOR GATE, DETAIL B, AGAINST BOMBS WITH VERTICAL MEMBERS OF GATE AGAINST BOMBS.
8. POSITION CROSS MEMBERS AGAINST SEPARATOR GATE AT 12", 24", 42" AND 54" HEIGHTS.
9. REPEAT STEPS 3, 4, 5, 6, 7 AND 8 UNTIL THREE STACKS ARE LOADED IN EACH END OF THE CAR. LOADING BOTH ENDS OF THE CAR SIMULTANEOUSLY IS PERMITTED.
10. INSTALL DOORWAY MEMBERS IN THE DOORWAY FARTHEST FROM THE LOADING PLATFORM AT THE 12", 24", 42" AND 54" HEIGHTS.
11. PLACE THE LAST TWO STACKS IN THE DOORWAY AREA REPEATING STEPS 3, 4, 5, 6 AND 7.
12. INSTALL DOORWAY MEMBERS IN THE DOORWAY NEAREST THE LOADING PLATFORM AT THE 12", 24", 42" AND 54" HEIGHTS.
13. POSITION CROSS MEMBERS AGAINST SEPARATOR GATE AS IN STEP 8.
14. TO PREVENT UNUSED "DF" EQUIPMENT FROM BECOMING DISLODGED DURING TRANSIT OF DODX CARS SECURE IT AT ANY LOCATION IN THE BOXCAR WHICH WILL NOT INTERFERE WITH UNLOADING.
15. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN DODX BOXCARS THE SAME PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE. ANY BAYS OR PORTION THEREOF MAY BE USED PROVIDING THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR ARE COMPLIED WITH (SEE WR-52). EACH CROSSMEMBER WILL BE USED IN SUCH A MANNER THAT IT WILL RETAIN NOT MORE THAN 3200 LBS. OF THE LADING.

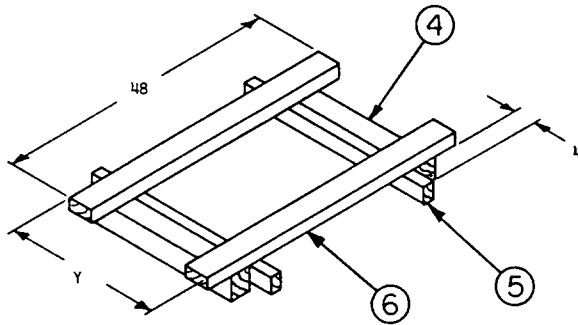


DETAIL D

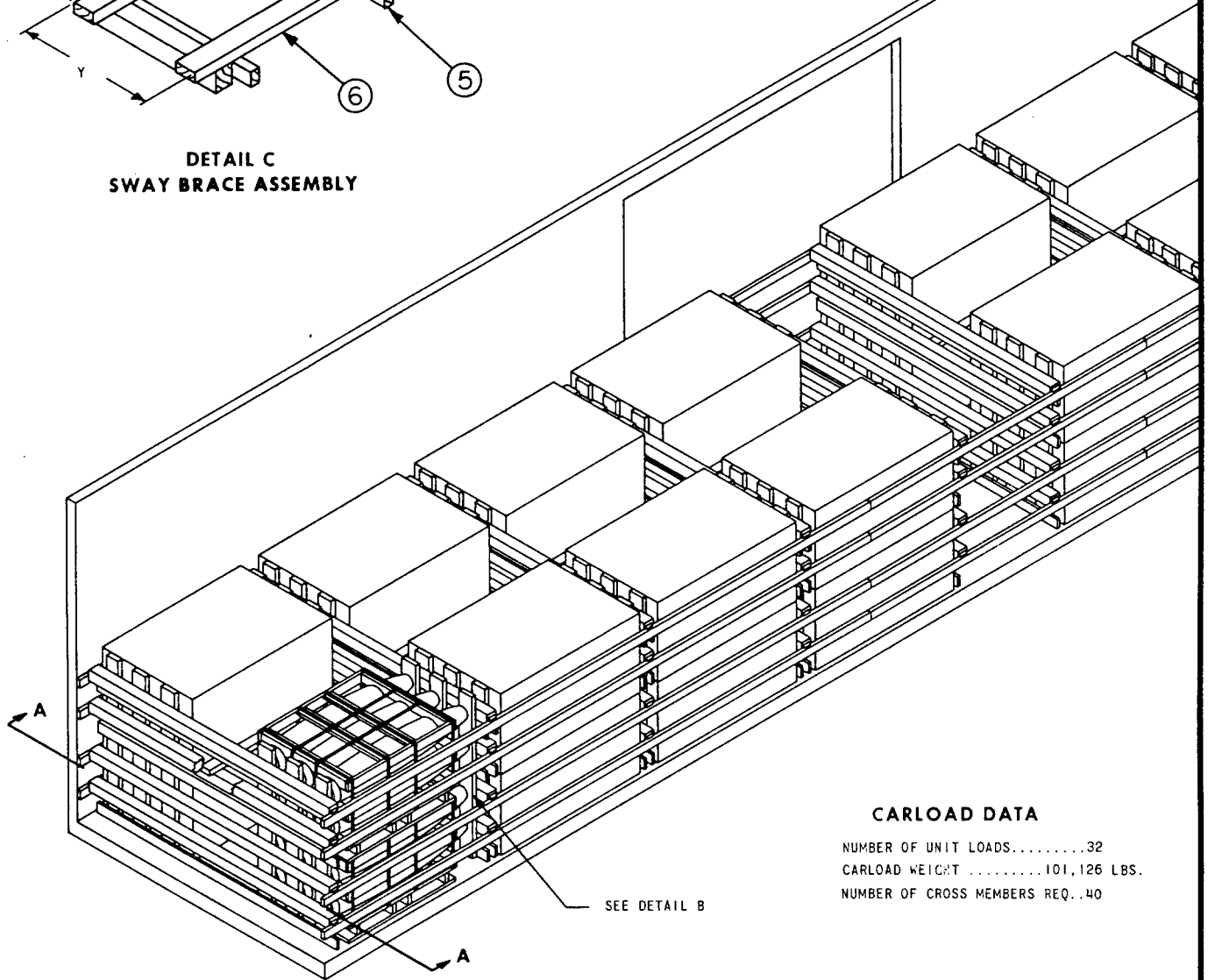


DETAIL B
SEPARATOR GATE

(SEE ALTERNATE SEPARATOR GATE, PAGE 7)



DETAIL C
SWAY BRACE ASSEMBLY

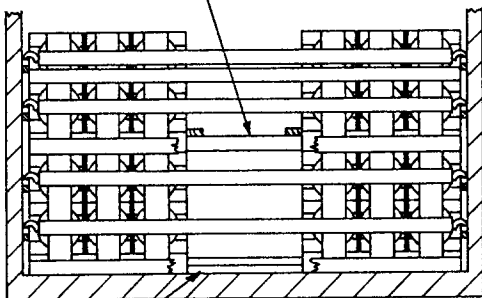


CARLOAD DATA

NUMBER OF UNIT LOADS.....32
 CARLOAD WEIGHT101,126 LBS.
 NUMBER OF CROSS MEMBERS REQ..40

Y = DISTANCE BETWEEN PALLETS ACROSS CAR

SEE DETAIL C



SECTION A-A

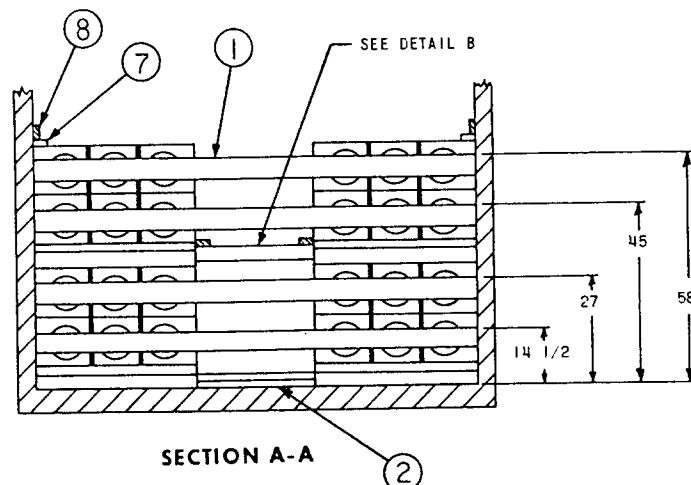
16	6	SPREADER	WOOD	MM-L-751	2 X 4 X 48
16	5	LOCKING PIECE	WOOD	MM-L-751	2 X 3 X (Y+8)
16	4	CROSS BRACE	WOOD	MM-L-751	4 X 4 X Y
96	3	VERTICAL MEMBER	WOOD	MM-L-751	2 X 6 X 60 1/2
48	2	HORIZONTAL MEMBER	WOOD	MM-L-751	1 X 4 X 107
32	1	LATERAL BRACE	WOOD	MM-L-751	2 X 6 X Y
REQ.	ITEM	DESCRIPTION	MAT'L.	MAT'L. SPEC.	DIMENSIONS

LIST OF MATERIALS

50 FT. 6 IN. BOXCAR, COMMERCIAL

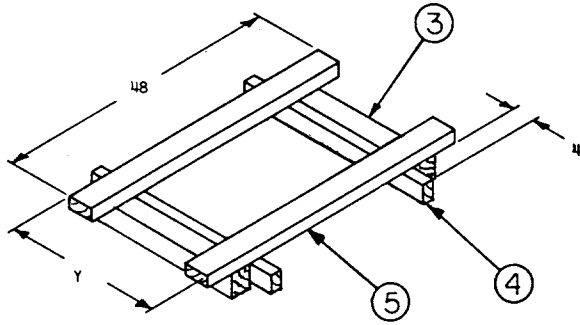
LOADING AND DUNNAGING PROCEDURE - THE CARLOAD CONSISTS OF 36 PALLETIZED UNIT LOADS. THE FOLLOWING PROCEDURE IS TO BE USED.

1. POSITION BATTEN (PIECE 1) ON THE END WALL OF CAR AS SHOWN IN SECTION A-A. NAIL TO WALL WITH ONE 10d NAIL EVERY TWELVE INCHES.
2. PLACE THE FIRST STACK AGAINST THE END WALL BATTENS AND SIDES OF BOXCAR WITH LONG DIMENSION OF PALLET PLACED LENGTHWISE IN THE CAR AS SHOWN.
3. POSITION LATERAL BRACE (PIECE 2) DOUBLED, BETWEEN THE PALLET POSTS ON LATERALLY ADJACENT PALLETS AS SHOWN IN SECTION A-A. NAIL FIRST PIECE TO FLOOR WITH FIVE 16d NAILS STAGGERED EVERY EIGHT INCHES, AND SECOND PIECE TO FIRST IN LIKE MANNER.
4. PREFABRICATE PIECES 3 AND 4 OF SWAY BRACE ASSEMBLY USING SIX 12d NAILS (SEE DETAIL B). POSITION THESE BRACES BETWEEN PALLETS OF ADJACENT LOADS AS SHOWN AND NAIL SPREADERS (PIECE 5) TO THEM WITH THREE 10d NAILS AT EACH JOINT.
5. PREFABRICATE SEPARATOR GATE, DETAIL C, USING THREE 10d NAILS EACH JOINT AND POSITION AGAINST BOMBS WITH VERTICAL MEMBER (PIECE 7) TOWARDS NOSE END OF BOMB.
6. POSITION GATE HOLD DOWN (PIECE 8) DIRECTLY ABOVE SEPARATOR GATE AS SHOWN AND NAIL TO SIDE WALL OF CAR WITH FIVE 10d NAILS EACH PIECE.
7. PLACE THE SECOND STACK AGAINST THE SEPARATOR GATE AND CONTINUE LOADING THE REMAINDER OF THE CAR IN A SIMILAR MANNER AND AS SHOWN UNTIL THERE ARE FOUR STACKS OF BOMB PALLETS IN EACH END OF THE CAR. ALL BOMB NOSES MUST FACE TOWARD THE DOORWAY AREA OF THE CAR.
8. PREFABRICATE DOORWAY PROTECTION USING THREE 6d NAILS EACH JOINT FOR DOORWAY FARTHEST FROM THE LOADING PLATFORM (SEE DETAIL E) POSITION AND NAIL TO DOOR POSTS WITH 12d NAILS.
9. PLACE DOORWAY STACK IN POSITION AND REPEAT STEPS 3 AND 4.
10. PREFABRICATE CENTER GATES AS SHOWN IN DETAIL D AND POSITION AGAINST BOMBS.
11. POSITION STRUTS (PIECE 14) ON STRUT LEDGER (PIECE 13). LAMINATE SECOND PIECE TO FIRST WITH ONE 10d NAIL EVERY FIVE INCHES AND LAMINATE THIRD PIECE TO SECOND IN A LIKE MANNER. TOENAIL THIRD PIECE TO VERTICAL GATE MEMBER (PIECE 9) WITH TWO 12d NAILS AT EACH END. DO NOT NAIL GATES OR STRUTS TO CAR FLOOR OR WALL.
12. POSITION CENTER GATE HOLD DOWN (PIECE 15) IN DOORWAY AREA AND AGAINST THE END VERTICAL (PIECE 12) OF GATE ASSEMBLIES. NAIL TO WALLS OF CAR WITH FIVE 10d NAILS AT EACH END.
13. NAIL HOLD DOWN CLEATS (PIECE 16) TO GATE HOLD DOWN (PIECE 15) DIRECTLY ABOVE GATE ASSEMBLIES WITH FOUR 10d NAILS PER CLEAT.
14. PREFABRICATE DOORWAY PROTECTION USING THREE 6d NAILS EACH JOINT FOR DOORWAY NEAREST THE LOADING PLATFORM (SEE DETAIL E). POSITION AND NAIL TO DOOR POSTS WITH 12d NAILS.
15. WHEN LESS THAN CARLOAD (LCL) QUANTITIES ARE REQUIRED TO BE SHIPPED IN COMMERCIAL BOXCARS AND A PARTIAL LAYER RESULTS, THE PARTIAL LAYER OF LADING SHALL BE BRACED BY MEANS OF END BRACING AND/OR PARTIAL LAYER BRACING CONSTRUCTED IN ACCORDANCE WITH DETAILS PAGES 8, 9, AND 10 OF WR-52/100. SELECT THE TYPE OF BRACE TO COMPLY WITH THE WEIGHT OF THE UNITS TO BE RETAINED. THE CENTER GATE HEIGHT SHOULD BE ADJUSTED AS REQUIRED.
16. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 10 FT. WIDE DOORWAY OPENINGS AND ARE EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE APPLICABLE TO BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING TYPE DOORS. OTHER THAN 10 FT. WIDE PROVIDING THE LENGTH OF PIECE 15 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING.
17. THE DEPICTED PROCEDURES AND METHODS OF BLOCKING ARE ALSO APPLICABLE TO BOXCARS EQUIPPED WITH PLUG-TYPE DOORS PROVIDING THE LENGTH OF PIECE 15 IS ADJUSTED AS REQUIRED TO SUIT THE PARTICULAR DOORWAY OPENING. DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER MAIN OR AUXILIARY. IF LUMBER OF SUFFICIENT LENGTH TO SPAN PLUG DOORS IS NOT AVAILABLE, RANDOM LENGTH MATERIAL, DOUBLED AND SPLICED, BUT WITH JOINTS OF SPLICES OFFSET, MAY BE USED. THE STACKS THAT ARE IN THE DOORWAY AREA MUST BE UNITIZED WITH TWO LATERALLY APPLIED 1 1/4" STEEL STRAPS PER STACK, EACH TENSIONED AND SEALED WITH TWO DOUBLE CRIMPED SEALS. SPACERS, DETAIL G, MUST BE INSTALLED BETWEEN ROWS IN DOORWAY AREA AS SHOWN IN DETAIL H. SECURELY CLOSE DOORS AND WIRE TOGETHER WITH A STRONG FLEXIBLE STEEL WIRE INSERTED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES AND THE WIRE ENDS TWISTED TOGETHER.

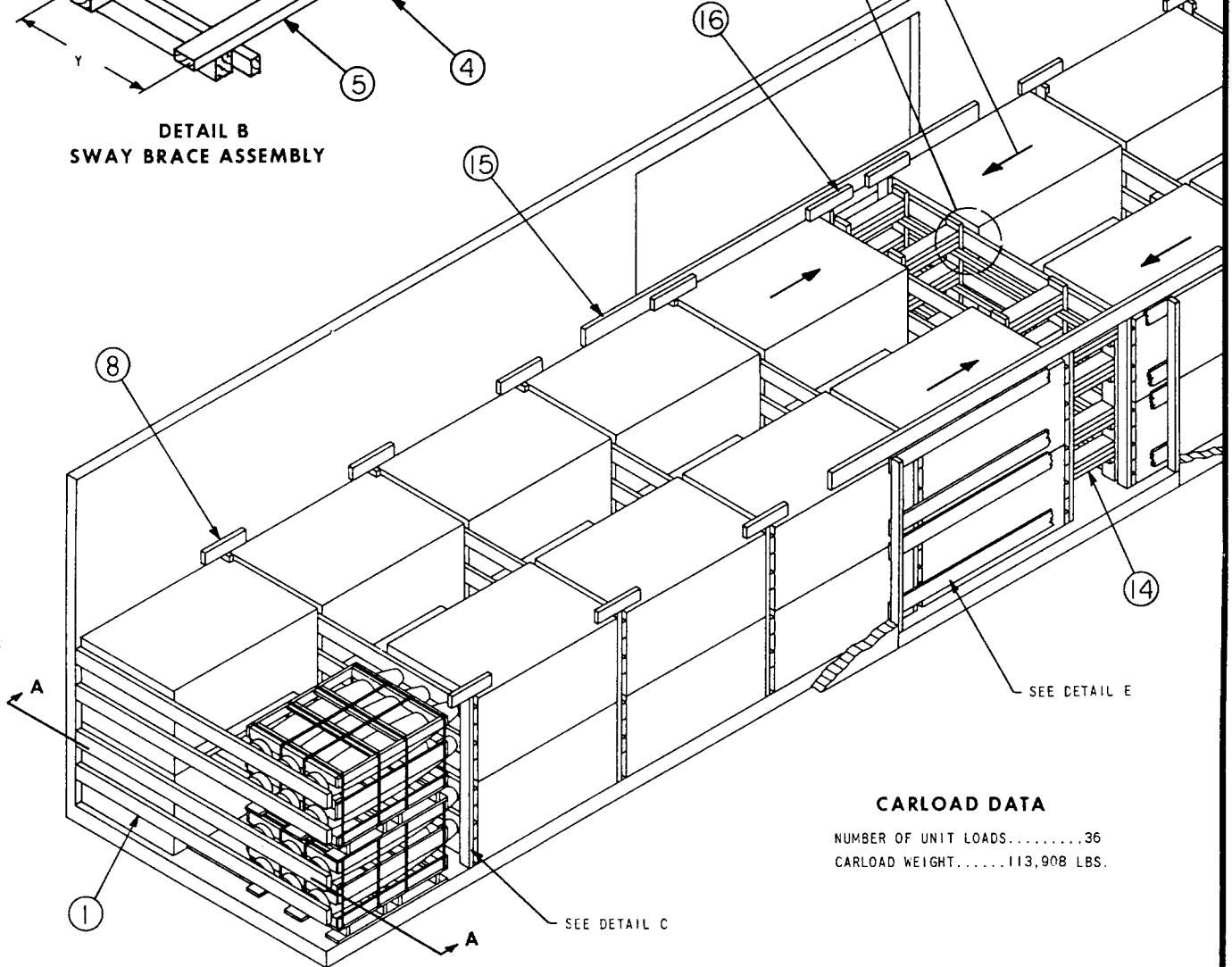


WR-52/76 A

NOSE END OF BOMB MUST FACE TOWARD THE DOORWAY AREA OF CAR.



DETAIL B
SWAY BRACE ASSEMBLY



CARLOAD DATA

NUMBER OF UNIT LOADS.....36
CARLOAD WEIGHT.....113,908 LBS.

NOTE:

FOR THOSE CARS WHICH DO NOT HAVE A HAILABLE FLOOR, SUBSTITUTE A SWAY BRACE ASSEMBLY, DETAIL B, FOR TWO DOUBLED LATERAL BRACES (PIECE 2).

Y = DISTANCE BETWEEN PALLETS ACROSS CAR

4	18	DOORWAY VERTICAL	WOOD	MM-L-751	2 x 3 x 62	8	9	VERTICAL	WOOD	MM-L-751	2 x 6 x 60
8	17	DOORWAY HORIZONTAL	WOOD	MM-L-751	1 x 6 x DOOR WIDTH	12	8	GATE HOLD DOWN	WOOD	MM-L-751	2 x 4 x 18
6	16	HOLD DOWN CLEAT	WOOD	MM-L-751	2 x 4 x 18	14	7	VERTICAL	WOOD	MM-L-751	2 x 4 x 62
2	15	CENTER GATE HOLD DOWN	WOOD	MM-L-751	2 x 6 x DOOR WIDTH-48	28	6	HORIZONTAL	WOOD	MM-L-751	2 x 6 x CAR WIDTH
48	14	STRUT	WOOD	MM-L-751	2 x 6 x WEDGE FIT	18	5	SPREADER	WOOD	MM-L-751	2 x 4 x 48
8	13	STRUT LEDGER	WOOD	MM-L-751	2 x 2 x CAR WIDTH-10	18	4	LOCKING PIECE	WOOD	MM-L-751	2 x 3 x (Y+8)
4	12	END VERTICAL	WOOD	MM-L-751	2 x 4 x 62	18	3	CROSS BRACE	WOOD	MM-L-751	4 x 4 x Y
2	11	LOWER HORIZONTAL	WOOD	MM-L-751	2 x 4 x CAR WIDTH	36	2	LATERAL BRACE	WOOD	MM-L-751	2 x 6 x Y
8	10	HORIZONTAL	WOOD	MM-L-751	2 x 6 x CAR WIDTH	8	1	BATTEN	WOOD	MM-L-751	2 x 6 x CAR WIDTH

REQ	ITEM	DESCRIPTION	MAT'L	SPEC	DIMENSIONS
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LIST OF MATERIALS

REQ	ITEM	DESCRIPTION	MAT'L	SPEC	DIMENSIONS
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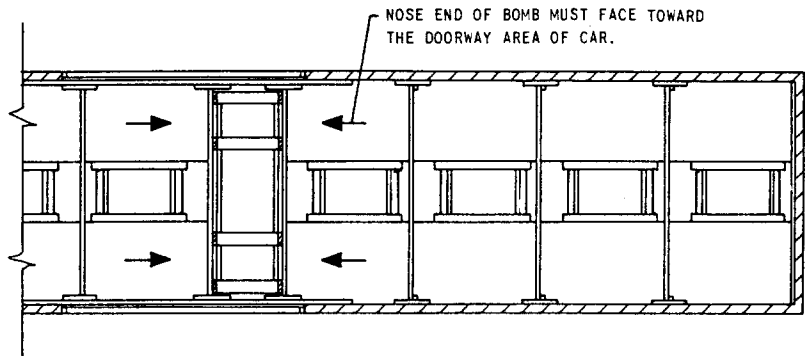
LIST OF MATERIALS

CONSTRUCTION DETAILS

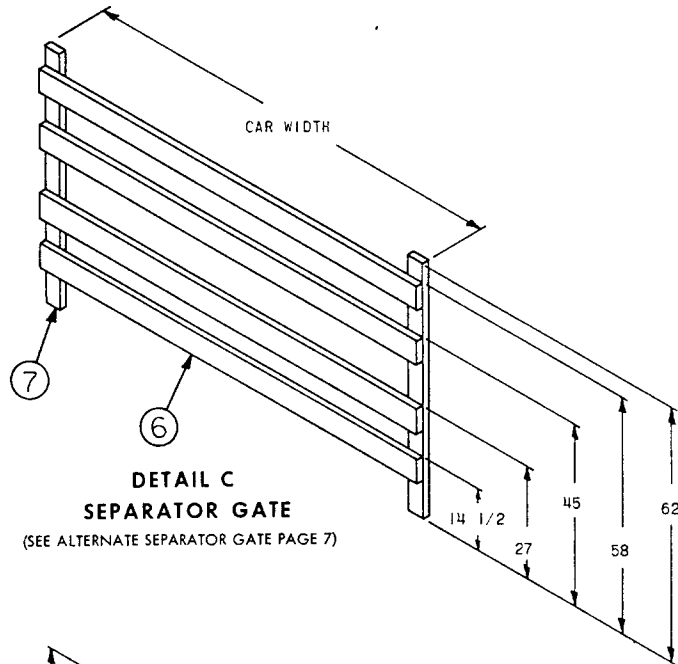
SPECIAL NOTE:

A K-BRACE TYPE OF BLOCKING CAN BE USED FOR BRACING A PARTIAL LAYER WITHIN A LOAD. REFER TO WR-52 FOR THE APPLICABLY SIZED K-BRACE TO USE AND THE DESIGN SPECIFICATIONS.

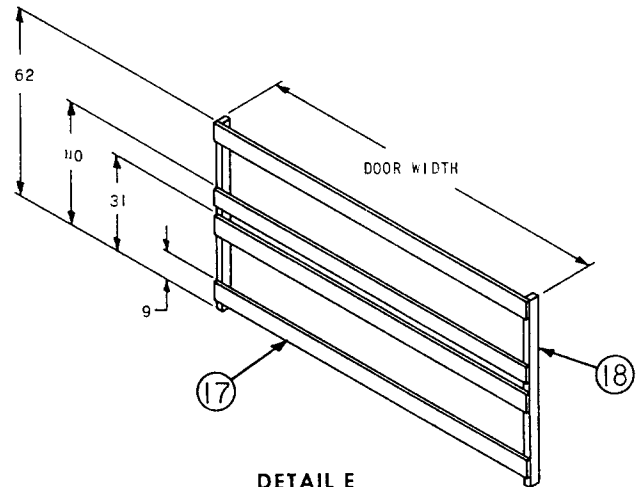
CAUTION: EACH LAYER OF BOMBS ON A PALLET MUST BE HELD BY A K-BRACE ASSEMBLY (A MINIMUM OF TWO ASSEMBLIES ARE REQUIRED).



PARTIAL PLAN VIEW

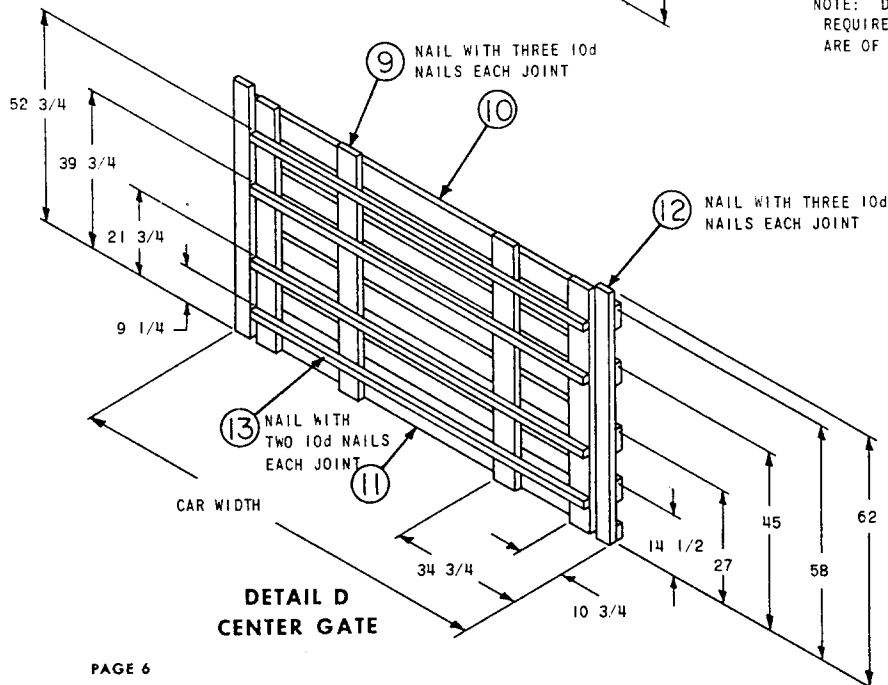


DETAIL C
SEPARATOR GATE
(SEE ALTERNATE SEPARATOR GATE PAGE 7)



DETAIL E
DOORWAY PROTECTION

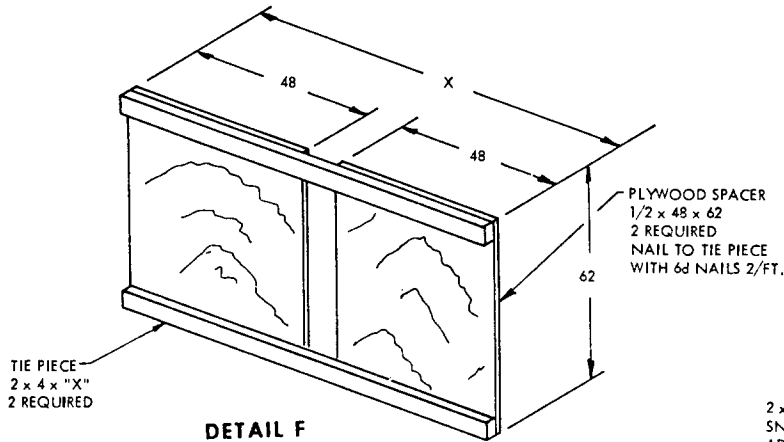
NOTE: DOORWAY PROTECTION DUNNAGE IS NOT REQUIRED IF ALL OF THE DOORS IN A CAR ARE OF THE PLUG TYPE.



DETAIL D
CENTER GATE

CAUTION:

THE EFFECTIVENESS OF THE OUTLOADING PROCEDURES DEPENDS ON THE "TIGHTNESS" OF THE LOAD, ESPECIALLY IN THE LONGITUDINAL DIRECTION. THEREFORE, AS EACH PALLET UNIT IS PLACED IN POSITION WITHIN THE CAR, EACH BOMB OF THAT UNIT MUST BE PRESSED TIGHTLY AGAINST A BATTEN ON THE END WALL OR AGAINST A SEPARATOR GATE ASSEMBLY. SELF-PROPELLED MATERIALS HANDLING EQUIPMENT (MHE) CAN BE USED FOR THIS PURPOSE; HOWEVER, A BUFFER BOARD MUST BE USED BETWEEN THE MHE AND THE BOMBS, TO PREVENT DAMAGING THE BOMBS.

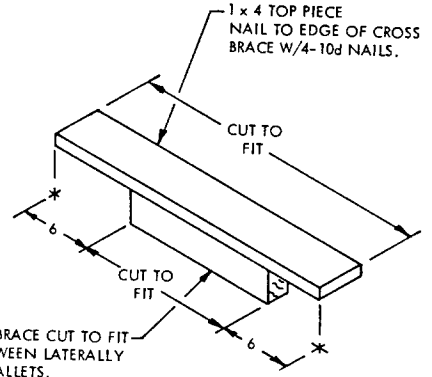


TIE PIECE
2 x 4 x "X"
2 REQUIRED

PLYWOOD SPACER
1/2 x 48 x 62
2 REQUIRED
NAIL TO TIE PIECE
WITH 6d NAILS 2/FT.

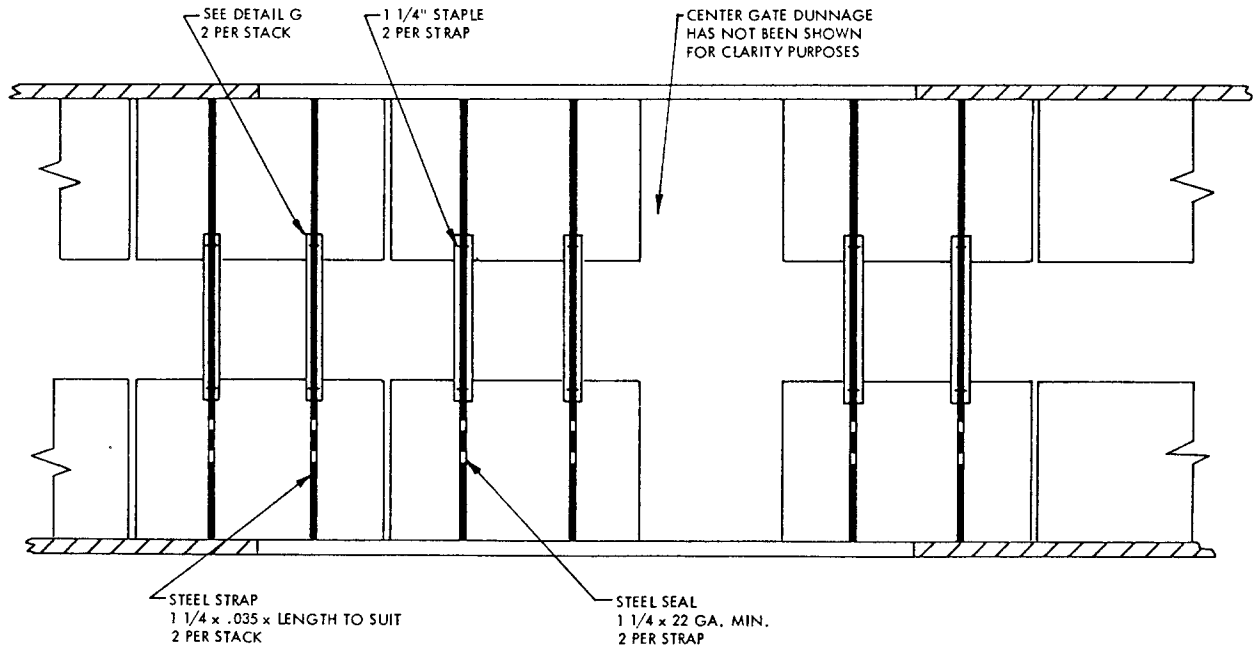
DETAIL F

ALTERNATE SEPARATOR GATE
"X" = 107" FOR DODX CAR; CAR WIDTH-1 FOR COMMERCIAL CAR



2 x 4 CROSS BRACE CUT TO FIT
SNUGLY BETWEEN LATERALLY
ADJACENT PALLETS.

DETAIL G
SPACER



SEE DETAIL G
2 PER STACK

1 1/4" STAPLE
2 PER STRAP

CENTER GATE DUNNAGE
HAS NOT BEEN SHOWN
FOR CLARITY PURPOSES

STEEL STRAP
1 1/4 x .035 x LENGTH TO SUIT
2 PER STACK

STEEL SEAL
1 1/4 x 22 GA. MIN.
2 PER STRAP

DETAIL H
PARTIAL PLAN VIEW
PROVISION FOR PLUG-TYPE DOORS