

NOTICE OF
VALIDATION

INCH-POUND

MIL-STD-1320/65(OS)

NOTICE 2

30 SEPTEMBER 1988

MILITARY SPECIFICATION

TRUCKLOADING OF HAZARDOUS MATERIALS
BOMB CLUSTER MK 20 MODS 2,3, AND 4
IN CONTAINER MK 427 MOD 0 FLEET ISSUE UNIT LOAD

MIL-STD-1320/65(OS) dated 03 SEPT.1982, has been reviewed and determined to be valid for use in acquisition.

Preparing Activity:
Navy - OS

AMSC N/A

FSC 8140

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MIL-STD-1320-65 (NAVY)
Notice 1
3 September 1982

MILITARY STANDARD
TRUCKLOADING
BOMB CLUSTER MK 20 MODS 2, 3 & 4
IN CONTAINER MK 427 MOD 0
FLEET ISSUE UNIT LOAD

TO ALL HOLDERS OF MIL-STD-1320-65 (NAVY)

Page 1.

Title block. Add "and CBU-78/B (GATOR)".

Review Activities
NAVY - OS, AS

Preparing Activity:
NAVY - OS
(Project #8140-N569)

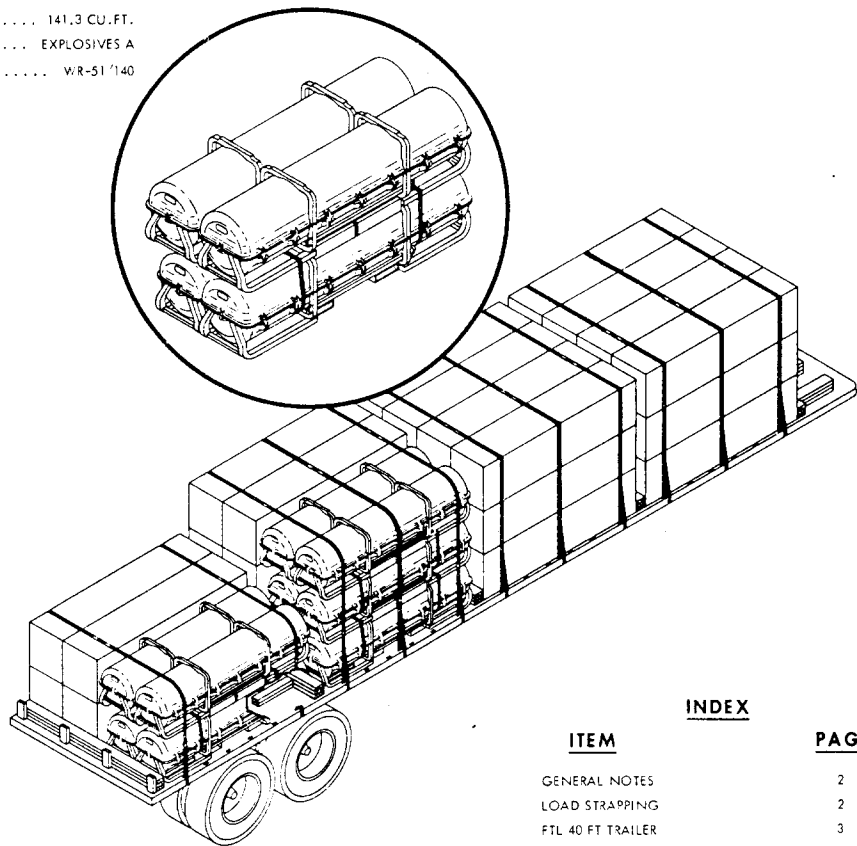
MILITARY STANDARD
TRUCKLOADING OF HAZARDOUS MATERIALS
BOMB CLUSTER MK 20 MODS 2,3,&4
IN CONTAINER MK 427 MOD 0
FLEET ISSUE UNIT LOAD

MIL-STD-1320-65
(NAVY)

7 JUNE 1974
 SUPERSEDING:
 WR-51/65A
 5 SEPTEMBER 1968

UNIT LOAD DATA

NUMBER OF BOMBS PER CONTAINER 1
 NUMBER OF CONTAINERS PER UNIT LOAD 4
 GROSS WEIGHT OF ONE CONTAINER 900 LBS.
 DIMENSIONS L-102 1/2, W-46 3/16, H-51 1/2
 WEIGHT (APPROX.) 3640 LBS.
 CUBE 141.3 CU.FT.
 D.O.T. HAZARD CLASSIFICATION EXPLOSIVES A
 UNIT LOAD DRAWING WR-51/140



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LTL 40 FT TRAILER	4 & 5
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NOTES:

- UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
- FOR CROSS REFERENCE TO ASSOCIATED PALLETIZING, CONTAINERLOADING AND CARLOADING MILITARY STANDARDS, REFER TO INDEX TO STANDARDS, MIL-HDBK-236 (NAVY).

FSC 8140

**AUTHORIZED AND RELEASED
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M.S. Gray *5/2/74*
 SIGNATURE TECHNICAL DIRECTION AGENT (TDA) DATE
J.E. Kelly *5/2/74*
 SIGNATURE AIRSYSCOM BY DIRECTION DATE

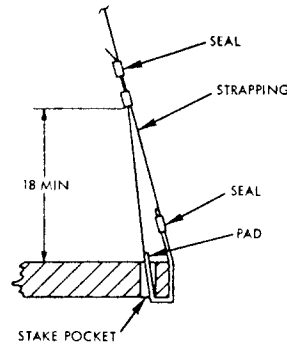
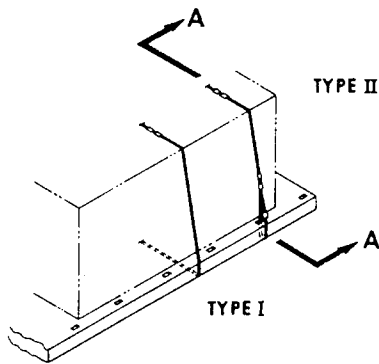
ORIGINATOR *Charles Mc Bride* *5/2/74*
 SIGNATURE

NAVAL WEAPONS HANDLING LABORATORY
N A D EARLE, NEW JERSEY

GENERAL NOTES

1. THIS DOCUMENT GIVES DETAILED INSTRUCTIONS FOR TRUCKLOADING THE CLUSTER BOMB MK 20 AND MODS 2, 3, & 4 IN CONTAINER MK 427 MOD 0. CONTAINERS SHALL BE UNITIZED FORMING THE FLEET ISSUE UNIT LOAD, WR-54 140.
2. THE PROCEDURES AND PRACTICES DESCRIBED HEREIN ARE INTENDED FOR 40 FT FLATBED TRAILERS WITH THE TRAILER 5 TANDEM AXLES LOCATED IN THE "WESTERN POSITION" (AT THE EXTREME REAR OF THE TRAILER). DO NOT USE TRAILERS WITH METAL FLOORS.
3. WHEN REQUIRED BY THIS STANDARD, TWO ADDITIONAL CONTAINERS ARE STRAPPED TO A FLEET ISSUE UNIT LOAD. WHEN THE TRUCK TRANSPORTATION CYCLE IS COMPLETED, THE TOP TWO CONTAINERS ARE REMOVED BY CUTTING THE TOP STRAPS AND REMOVING THE RESTRAINER. THE LOOSE CONTAINERS ARE UNITIZED PER WR-54 140 FORMING A FLEET ISSUE UNIT LOAD.
4. FOR STACKING AND STRAPPING PROCEDURE SECURING THE TWO CONTAINERS TO THE FLEET ISSUE UNIT LOAD, SEE PAGE 6.
5. CHAINS AND STEEL STRAPS MAY BE USED INTERCHANGEABLY FOR TIE-DOWNS ON A 1 TO 1 BASIS.
6. STEEL STRAPS SHALL BE 2 x .050 AND APPLIED AS SPECIFIED BY THE LOAD STRAPPING REQUIREMENTS BELOW.
7. WHEN USING CHAIN, INSERT A PROTECTOR BOARD (LAMINATED DOUBLE 2 x 6 BETWEEN CHAIN AND LADING). SECURE CHAIN TO THE BOARD WITH FOUR 20d NAILS BY DRIVING THE NAIL THROUGH THE CHAIN INTO THE BOARD AND CLINCHING IT OVER THE CHAIN.
8. THE CHAINS AND LOAD BINDERS SHALL MEET THE FOLLOWING CONDITIONS:
 - a. CHAIN AND FITTINGS SHALL BE 3/8 INCH AND LOAD BINDERS 3/8 INCH CAPACITY.
 - b. CHAINS, FITTINGS, AND LOAD BINDERS SHALL HAVE MINIMUM SAFE WORKING LOAD OF 5000 LBS.
 - c. LOAD BINDERS SHALL BE SAFETY WIRED WITH 16 GAUGE SOFT ANNEALED IRON WIRE OR SECURED USING THE END PIECE OF THE 3/8 CHAIN.
9. PRIOR TO LOADING THE TRAILER AND DURING THE PRELOADING INSPECTION REQUIRED BY NAVORD OP 2165 AND REPORTED ON DD FORM 626, THE CHAINS, FITTINGS, AND LOAD BINDERS SHALL BE INSPECTED FOR STRETCH, GOUGING, BENT LINKS, WEAR AND ANY OTHER NOTICEABLE DEFECTS. THE INSPECTOR SHALL CONFIRM THAT THE CHAINS AND LOAD BINDERS HAVE BEEN INSPECTED AND SHALL SO NOTE IN ITEM NO. 22 OF DD FORM 626. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER.
10. THE MAXIMUM GROSS WEIGHT OF THE TRACTOR-TRAILER AND THE ALLOWABLE AXLE WEIGHTS ARE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THESE LIMITATIONS AND THE SHIPPER SHALL LOAD THE TRAILER IN SUCH A MANNER THAT THE TRACTOR-TRAILER WILL NOT EXCEED THESE LIMITATIONS.
11. AFTER BLOCKING AND BRACING HAS BEEN INSPECTED, ATTACH SHIPPING DOCUMENTS TO AN ACCESSIBLE AREA AND ATTACH "EXPLOSIVES A" PLACARD TO BOTH SIDES, FRONT AND BACK OF TRAILER.
12. APPLICABLE MATERIAL SPECIFICATIONS: DUNNAGE LUMBER, MM-L-751; NAILS, FF-N-105, TYPE II, STYLE 10, COMMON BRIGHT, OR STRAPPING QQ-S-781, TYPE I, CLASS A.
13. FOR GENERAL TRUCKLOADING PROCEDURES REFER TO THE GENERAL TRUCKLOADING DOCUMENT, MIL-STD-1320

LOAD STRAPPING



SECTION A-A

TIE DOWN STRAPPING

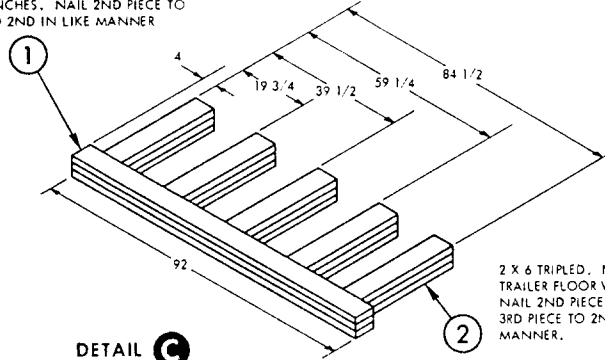
THE FOLLOWING TWO METHODS OF TIE-DOWN STRAPPING ARE APPROVED FOR USE WITH THE SHIPMENT OF LOADS ON FLATBED TRAILERS. STEEL STRAPPING SHALL BE IN ACCORDANCE WITH FEDERAL SPECIFICATION QQ-S-781. STRAP JOINTS SHALL HAVE A MINIMUM TENSILE STRENGTH EQUAL TO 75 PER CENT OF THE STRAP STRENGTH. FOR EACH OF THE TYPES ILLUSTRATED ABOVE IT IS PREFERRED TO POSITION, TENSION AND DOUBLE CRIMP THE STRAP SEALS AT THE TOP OF THE LOAD, IF PRACTICABLE.

TYPE I - CONTINUOUS STRAPPING AROUND THE FLATBED AND THE LOAD.

TYPE II - THE STRAPPING IS SECURED TO THE STAKE POCKETS, ONE PIECE ON EACH SIDE OF THE TRAILER, AND IS BROUGHT UP OVER THE LOAD, TENSIONED, AND SEALED WITH TWO DOUBLE-CRIMPED SEALS ON THE TOP. METHOD OF SECURING STRAPPING TO STAKE POCKET IS SHOWN IN SECTION A-A. THE SHORT END IS ON THE INSIDE AND IS SECURED WITH TWO DOUBLE-CRIMPED SEALS AT A MINIMUM OF 18 INCHES ABOVE THE TRAILER BED. A STAKE POCKET PAD (A SHORT PIECE OF THE SAME STRAPPING 18 INCHES LONG) IS INSERTED BETWEEN THE MAIN STRAP AND THE STAKE POCKET AND IS SECURED TO THE MAIN STRAP WITH A SEAL AS SHOWN.

MIL-STD-1320-65 (NAVY)

2 X 6 TRIPLED CENTERED ACROSS TRAILER. NAIL 1ST PIECE TO TRAILER FLOOR W 1-16d NAIL EVERY 8 INCHES. NAIL 2ND PIECE TO 1ST AND 3RD TO 2ND IN LIKE MANNER



DETAIL C

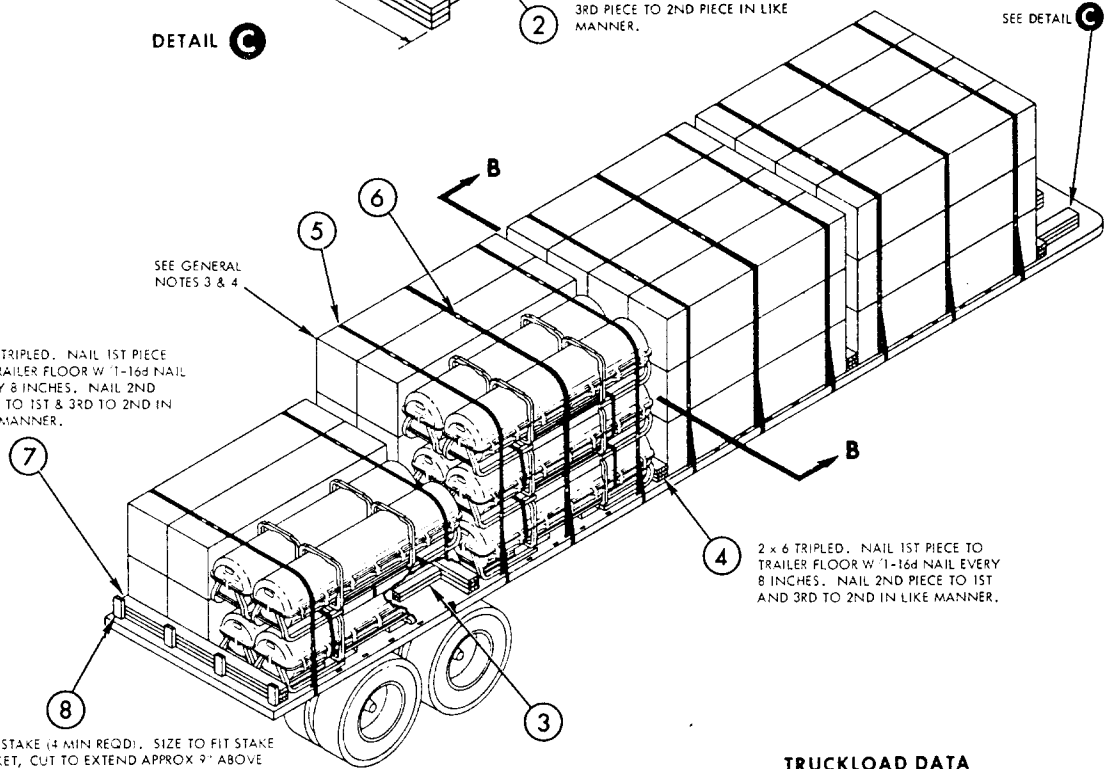
NOTE

THIS FTL ILLUSTRATES THE USE OF STRAPS AS TIE-DOWNS. CHAINS AND LOAD BINDERS ARE A AUTHORIZED ALTERNATE (SEE GENERAL NOTES 5, 7, 8 & 9) AND SHOULD BE APPLIED AS SHOWN ON PAGE 5.

2 X 6 TRIPLED. NAIL 1ST PIECE TO TRAILER FLOOR W/6-16d NAILS. NAIL 2ND PIECE TO 1ST PIECE AND 3RD PIECE TO 2ND PIECE IN LIKE MANNER.

SEE DETAIL C

2 X 6 TRIPLED. NAIL 1ST PIECE TO TRAILER FLOOR W 1-16d NAIL EVERY 8 INCHES. NAIL 2ND PIECE TO 1ST & 3RD TO 2ND IN LIKE MANNER.

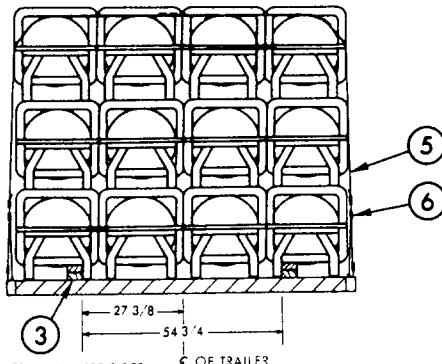


STUB STAKE (4 MIN REQD). SIZE TO FIT STAKE POCKET, CUT TO EXTEND APPROX 9" ABOVE TRAILER FLOOR AND 3" BELOW STAKE POCKET. DRIVE 1-20d NAIL INTO STAKE BELOW STAKE POCKET ALLOWING APPROX 1" TO PROTRUDE TO PREVENT STAKE FROM WORKING OUT OF PLACE.

2 X 6 TRIPLED. NAIL 1ST PIECE TO TRAILER FLOOR W 1-16d NAIL EVERY 8 INCHES. NAIL 2ND PIECE TO 1ST AND 3RD TO 2ND IN LIKE MANNER.

TRUCKLOAD DATA

NUMBER OF BOMBS 44
WEIGHT (APPROX.) 40,160 LBS.



2 X 4 DOUBLED. NAIL 1ST PIECE TO TRAILER FLOOR W 6-20d NAILS. NAIL 2ND PIECE TO 1ST IN LIKE MANNER.

SECTION B-B

PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQD	NAIL TO	NUMBER	SIZE
8	STUB STAKE	TO SUIT	4 MIN.		SEE FIELD NOTE	
7	AFT CROSSMEMBER	2 x 6 x 92	3		SEE FIELD NOTE	
6	SEAL	2 x 22 GA. MIN.	88	-	-	-
5	STRAP	2 x .050 LENGTH TO SUIT	11	-	-	-
4	SEPARATOR	2 x 6 x 92	9		SEE FIELD NOTE	
3	SLEEPER	2 x 4 x 24	32		SEE SECTION B-B	
2	CLEAT	2 x 6 x 30	15		SEE DETAIL C	
1	FWD CROSSMEMBER	2 x 6 x 92	3		SEE DETAIL C	

LIST OF MATERIALS AND NAILING DATA

LTL 40 FT TRAILER (FLATBED)

1. WHEN REQUIRED TO SHIP LESS-THAN-TRUCKLOAD, SELECT THE CORRECT LOAD PATTERN FOR THE NUMBER OF UNIT LOADS TO BE SHIPPED FROM TABLE I AND POSITION THE UNIT LOADS ON THE TRAILER ACCORDINGLY.
2. WHEN LOADING 8, 9 OR 10 UNIT LOADS, BLOCK AND BRACE AS SHOWN ON PAGE 3, ADJUSTING THE NUMBER OF UNIT LOADS AS REQUIRED.

NOTE

STACKS 3 CONTAINERS HIGH REQUIRE 3 TIE-DOWN CHAINS OR STRAPS.
ALL OTHER STACKS REQUIRE 2 TIE-DOWNS.

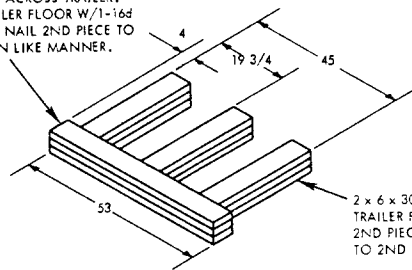
3. WHEN LOADING 7 UNIT LOADS, BLOCK AND BRACE AS SHOWN ON PAGE 5.
4. WHEN LOADING 6 OR LESS UNIT LOADS BLOCK AND BRACE USING THE PRINCIPLES SHOWN ON PAGE 5. USE DETAIL C, PAGE 3, OR DETAIL D, PAGE 4 AT THE REAR OF THE LOAD AS APPROPRIATE.
5. WHEN THE LOAD PLAN REQUIRES THE STACK TO BE 1.5 UNIT LOADS HIGH (THREE CONTAINERS HIGH), THEY SHALL BE STRAPPED TOGETHER AS SHOWN ON PAGE 6. BLOCK, BRACE AND TIE-DOWN AS SPECIFIED ON PAGE 3.
6. THE LTL SHOWN ON PAGE 5 IS FOR SEVEN UNIT LOADS AND SHOWS THE CORRECT BLOCKING, BRACING AND USE OF TIEDOWNS FOR A LOAD OF THIS QUANTITY.
7. ACTUAL SHIPPING REQUIREMENTS WILL DETERMINE THE NUMBER OF UNIT LOADS TO BE SHIPPED. THE LOAD PATTERN, BLOCKING, BRACING AND TIE-DOWNS SHALL BE IN ACCORDANCE WITH THE APPROPRIATE PARTS OF THIS MILITARY STANDARD AND THE GENERAL TRUCKLOADING DOCUMENT, MIL-STD-1320 (NAVY).

TABLE I

NO. OF UNIT LOADS	LOAD PATTERN*	FWD	NO. OF UNIT LOADS	LOAD PATTERN*	FWD	NO. OF UNIT LOADS	LOAD PATTERN*	FWD
10			7			4		
9			6			3		
8			5			2		
						1		

* LOAD PATTERN IS THE FLOOR PLAN FOR THE LOAD. THE NUMBER IN THE BLOCKS IS THE NUMBER OF LAYERS OF UNIT LOADS IN THE STACK. THE NUMBER 1.5 INDICATES THAT THE STACK IS 1.5 UNIT LOADS HIGH (OR THREE CONTAINERS HIGH - SEE GENERAL NOTES 3 & 4, PAGE 2).

2 x 6 TRIPLED CENTERED ACROSS TRAILER.
NAIL 1ST PIECE TO TRAILER FLOOR W/1-16d
NAIL EVERY 8 INCHES. NAIL 2ND PIECE TO
1ST AND 3RD TO 2ND IN LIKE MANNER.



2 x 6 x 30 TRIPLED. NAIL 1ST PIECE TO
TRAILER FLOOR W/6-16d NAILS. NAIL
2ND PIECE TO 1ST PIECE AND 3RD PIECE
TO 2ND PIECE IN LIKE MANNER.

DETAIL D

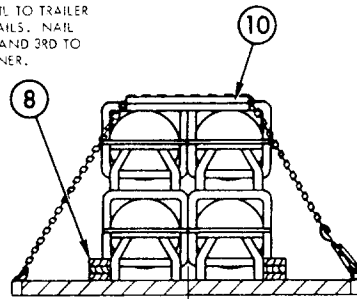
FRONT AND REAR BLOCKING
(SEE LTL NOTE 4)

MIL-STD-1320-65 (NAVY)

NOTE

THIS LTL ILLUSTRATES THE USE OF CHAINS AS TIE-DOWNS. STEEL STRAPS ARE A AUTHORIZED ALTERNATE (SEE GENERAL NOTES 5 AND 6).

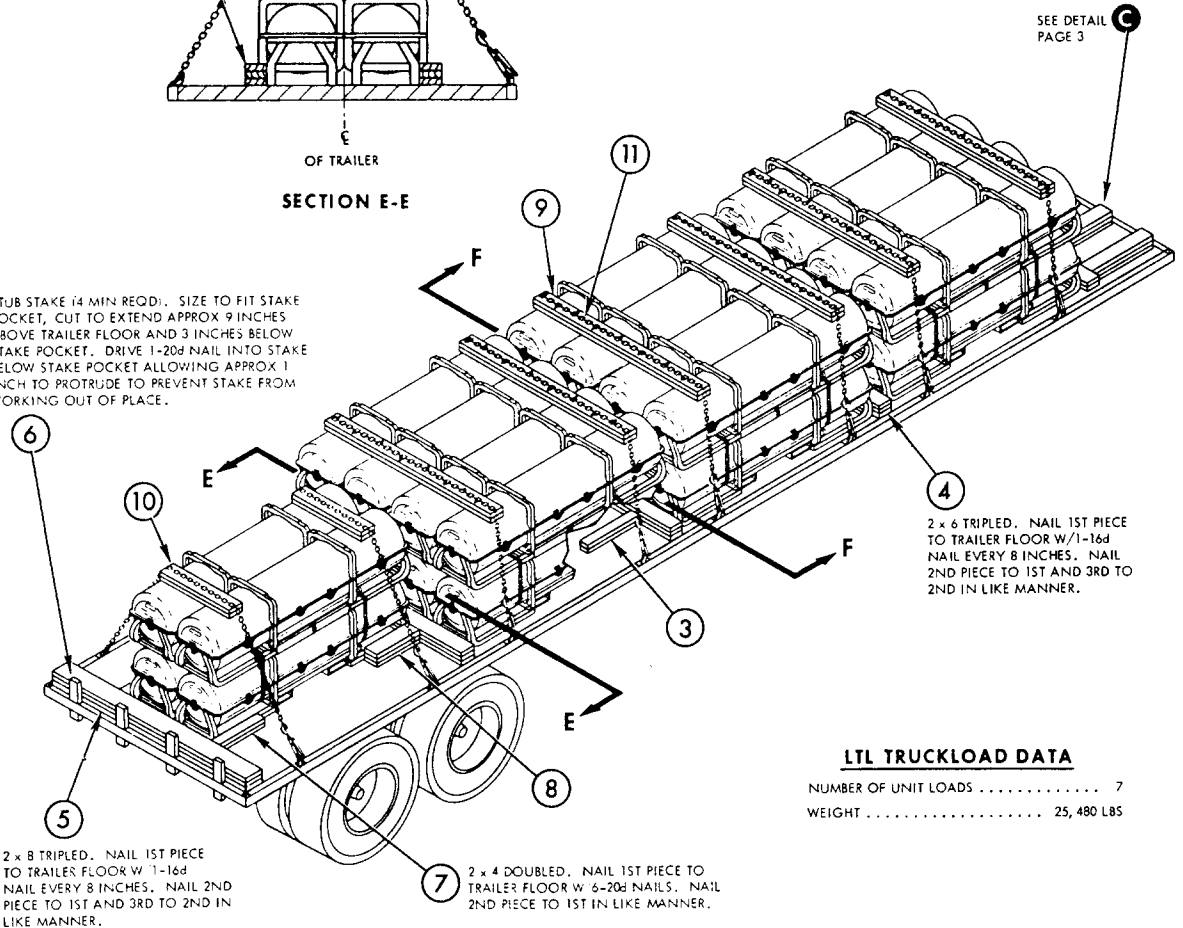
2 x 6 TRIPLED. NAIL TO TRAILER FLOOR W/ 6-16d NAILS. NAIL 2ND PIECE TO 1ST AND 3RD TO 2ND IN LIKE MANNER.



OF TRAILER

SECTION E-E

STUB STAKE (4 MIN REQD). SIZE TO FIT STAKE POCKET, CUT TO EXTEND APPROX 9 INCHES ABOVE TRAILER FLOOR AND 3 INCHES BELOW STAKE POCKET. DRIVE 1-20d NAIL INTO STAKE BELOW STAKE POCKET ALLOWING APPROX 1 INCH TO PROTRUDE TO PREVENT STAKE FROM WORKING OUT OF PLACE.



SEE DETAIL C PAGE 3

2 x 6 TRIPLED. NAIL 1ST PIECE TO TRAILER FLOOR W/1-16d NAIL EVERY 8 INCHES. NAIL 2ND PIECE TO 1ST AND 3RD TO 2ND IN LIKE MANNER.

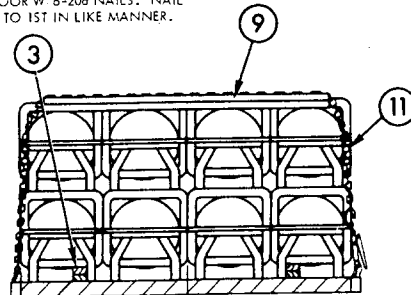
2 x 8 TRIPLED. NAIL 1ST PIECE TO TRAILER FLOOR W/ 1-16d NAIL EVERY 8 INCHES. NAIL 2ND PIECE TO 1ST AND 3RD TO 2ND IN LIKE MANNER.

2 x 4 DOUBLED. NAIL 1ST PIECE TO TRAILER FLOOR W/ 6-20d NAILS. NAIL 2ND PIECE TO 1ST IN LIKE MANNER.

LTL TRUCKLOAD DATA

NUMBER OF UNIT LOADS 7
WEIGHT 25,480 LBS

2 x 4 DOUBLED. NAIL 1ST PIECE TO TRAILER FLOOR W/ 6-20d NAILS. NAIL 2ND PIECE TO 1ST IN LIKE MANNER.



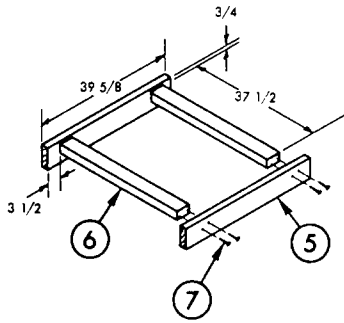
27 3/8
54 3/4
OF TRAILER

SECTION F-F

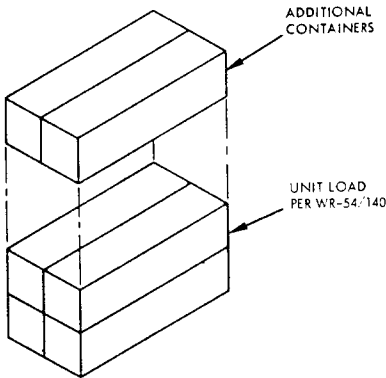
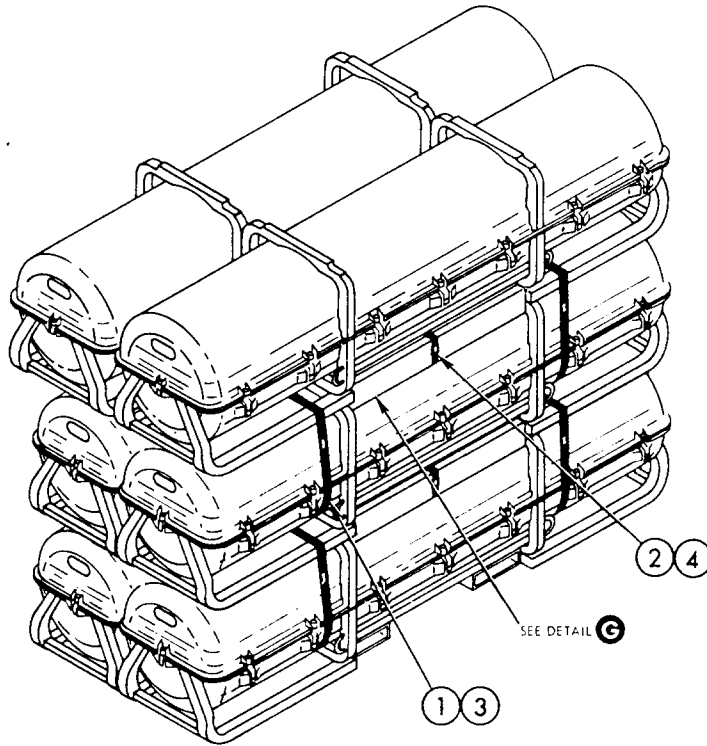
PIECE NO.	DESCRIPTION	SIZE	NO. PCS REQD	NAIL TO	NUMBER	SIZE
11	CHAIN & BINDER	3/8 INCH	8	-	-	-
10	PROTECTOR BOARD	2 x 6 x 34	4	DOUBLE LAMINATE	4	8d
9	PROTECTOR BOARD	2 x 6 x 80	12	DOUBLE LAMINATE	6	8d
8	BACK UP	2 x 6 x 20	6	SEE SECTION E-E		
7	SLEEPER	2 x 4 x 24	4	SEE FIELD NOTE		
6	STUB STAKE	TO SUIT	4 MIN.	SEE FIELD NOTE		
5	AFT CROSSMEMBER	2 x 8 x 92	3	SEE FIELD NOTE		
4	SEPARATOR	2 x 6 x 92	9	SEE FIELD NOTE		
3	SLEEPER	2 x 4 x 24	24	SEE SECTION F-F		
2	CLEAT	2 x 6 x 30	15	SEE DETAIL C PAGE 3		
1	FWD CROSSMEMBER	2 x 6 x 92	3	SEE DETAIL C PAGE 3		
LIST OF MATERIALS AND NAILING DATA						

STACKING AND STRAPPING PROCEDURE

1. POSITION TWO (2) CONTAINERS ON TOP OF UNIT LOAD OF CONTAINERS USING CARE TO ALIGN STACKING BANDS. (SEE DETAIL H AND MAIN VIEW.)
2. POSITION STRAPPING (ITEM 1) UNDER THE BODY OF THE CENTER LAYER OF CONTAINERS AND OVER SKIDS OF TOP TWO CONTAINERS. TENSION AND DOUBLE CRIMP SEAL (ITEM 3).
3. PARTIALLY ASSEMBLE RESTRAINER (DETAIL G) AS SHOWN. INSERT RESTRAINER SPACERS THROUGH FORK LIFT POCKETS IN TOP TWO CONTAINERS. ASSEMBLE REMAINING PIECE (ITEM 5). STRAP ITEM 5 TOGETHER WITH STRAPPING (ITEM 2) THREADING STRAP BETWEEN LAYERS OF CONTAINERS. TENSION STRAPPING AND DOUBLE CRIMP SEAL (ITEM 4).



DETAIL G
RESTRAINER
1 REQUIRED



DETAIL H

REVIEW ACTIVITY:
NAVY - OS, AS

PREPARING ACTIVITY:
NAVY - OS
(PROJECT NO. 8140-N 233)

* .031 COLD ROLLED, HEAT TREATED MAY BE SUBSTITUTED.

REQ.	ITEM	DESCRIPTION	MAT'L.	MAT'L SPEC.	DIMENSIONS
8	7	NAIL	STEEL CEMENT CTD	FF-N-105	10d
2	6	RESTRAINER SPACER	WOOD DRESSED	MIL-STD-731	2 x 4 x 39 1/8
2	5	RESTRAINER	WOOD DRESSED	MIL-STD-731	2 x 6 x 39 5/8
1	4	SEAL	STEEL ZINC CTD	COM'L	3/4 x 22 GA., MIN.
2	3	SEAL	STEEL ZINC CTD	COM'L	1 1/4 x 22 GA., MIN.
1	2	STRAPPING	STEEL ZINC CTD	QQ-5-781 TY, 1 CL. B	3 4 x .035 X x 9 FT., 6
2	1	STRAPPING	STEEL ZINC CTD	QQ-5-781 TY, 1 CL. B	1 1/4 x .035 X x 12 FT., 6

LIST OF MATERIALS