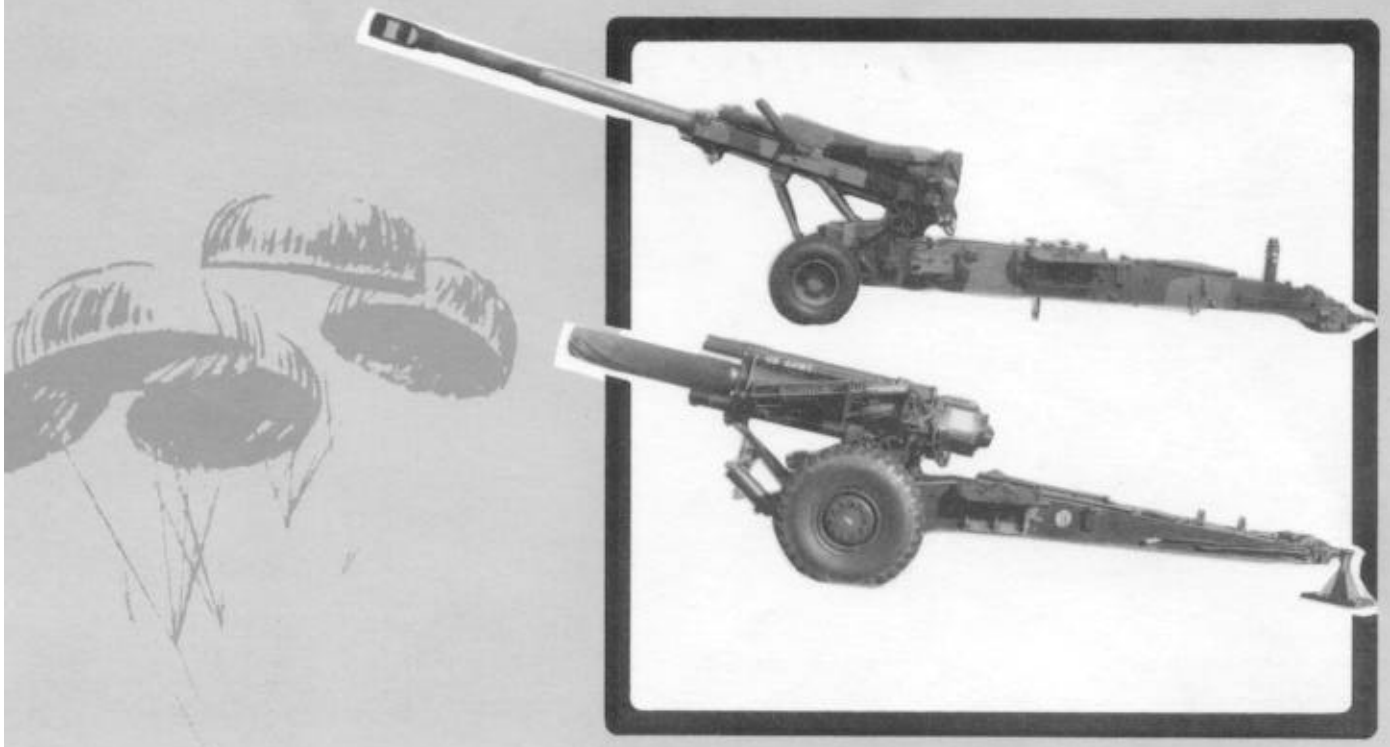
ARMY FM 10-527
AIR FORCE TO 13C7-10-191

AIRDROP OF SUPPLIES AND EQUIPMENT
RIGGING
155-MM HOWITZERS



DEPARTMENTS OF THE ARMY AND THE AIR FORCE

CHANGE
NO 3

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington, DC, 10 September 1993

AIRDROP OF SUPPLIES AND EQUIPMENT
RIGGING 155-MM HOWITZERS

This change modifies the procedures for rigging the M198, 155-mm howitzer with accompanying ammunition load on a type V platform for low-velocity and LAPE airdrop. Also with this change, the C-5 aircraft may be used for low-velocity airdrop. See FM 10-500-2 for guidance when rigging loads for the C-5 aircraft. Please make this change where it applies throughout the manual.

FM 10-527/TO 13C7-10-191, 30 September 1982, is changed as follows:

1. New or changed material is identified by a vertical bar in the margin opposite the changed material.

2. Remove old pages and insert new pages as indicated below.

Remove old pages	Insert new pages
i through v	i through v
5-35 through 5-83	5-35 through 5-84

3. File this transmittal sheet in front of the publication for reference purposes.

DISTRIBUTION UNLIMITED

DESTRUCTION NOTICE. Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

By Order of the Secretaries of the Army and the Air Force:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
05077

DISTRIBUTION:

Active Army, USAR, and ARNG: To be distributed in accordance with DA Form 12-11-E, requirements for FM 10-527, Airdrop of Supplies and Equipment: Rigging 155-MM Howitzers (Qty rqr block no. 0910).

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington, DC, 15 June 1992

AIRDROP OF SUPPLIES AND EQUIPMENT

RIGGING 155-MM HOWITZERS

This change adds procedures for rigging the M198, 155-mm howitzer with accompanying ammunition load on a type V platform for low-velocity and LAPE airdrop. Also with this change, the distribution statement and destruction notice must be added to the cover of the basic manual as shown below. Also change the distribution restriction statement on the change 1 transmittal page to agree with the statement below.

FM 10-527/TO 13C7-10-191, 30 September 1982, is changed as follows:

1. New or changed material is identified by a vertical bar in the margin opposite the changed material.

2. Remove old pages and insert new pages as indicated below:

Remove Pages	**Insert Pages**
i through vii	i through iv
4-31 and 4-32	4-31 and 4-32
	5-1 through 5-83
Glossary-1	Glossary-1
A-1	References-1

3. File this transmittal sheet in front of the publication.

DISTRIBUTION UNLIMITED

DESTRUCTION NOTICE: Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

CHANGE
NO 1

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington ,DC, 27 September 1988

AIRDROP OF SUPPLIES AND EQUIPMENT: RIGGING 155-MM HOWITZERS

This change adds the procedures for rigging the M198, 155-mm howitzer for low-velocity and LAPE airdrop on the type V platform.

FM 10-527/TO 13C7-10-191, 30 September 1982, is changed as follows:

1. Remove old pages and insert new pages as indicated below:

Remove pages	Insert pages
i through iv	i through vii
1-1 and 1-2	1-1 and 1-2
2-1 and 2-2	2-1 and 2-2
2-5 through 2-8	2-5 through 2-8
2-21 through 2-26	2-21 through 2-26
3-1 and 3-2	3-1 and 3-2
3-27 through 3-30	3-27 through 3-30
	4-1 through 4-52
A-1	A-1

2. New or changed material is identified by a vertical bar in the margin opposite the changed material.
3. File this transmittal sheet in front of the publication for reference purposes.

DISTRIBUTION UNLIMITED

DESTRUCTION NOTICE. Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

FIELD MANUAL
NO 10-527
TECHNICAL ORDER
NO 13C7-10-191

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington, DC, 30 September 1982

AIRDROP OF SUPPLIES AND EQUIPMENT
RIGGING 155-MM HOWITZERS

TABLE OF CONTENTS

		Paragraph	Page
PREFACE			v
CHAPTER 1	INTRODUCTION		
	Description of Items	1-1	1-1
	Special Considerations	1-2	1-1
CHAPTER 2	RIGGING M198, 155-MM HOWITZER ON TYPE II OR LAPE PLATFORM		
Section I	RIGGING HOWITZER FOR LOW-VELOCITY AIRDROP ON TYPE II PLATFORM		
	[redacted]	2-1	2-1
		2-2	2-1
		2-3	2-2
		2-4	2-5
		2-5	2-6
		2-6	2-13
	TYPE II PROCEDURES REMOVED	2-7	2-14
		2-8	2-14
		2-9	2-17
		2-10	2-18
		2-11	2-19
		2-11.1	2-21
		2-12	2-21

DISTRIBUTION UNLIMITED

DESTRUCTION NOTICE. Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

*This manual supersedes FM 10-527/TO 13C7-10-191, 15 August 1975.

		Paragraph	Page
	TYPE II PROCEDURES REMOVED	.2-13	2-22
		.2-14	2-23
		.2-15	2-23
SECTION II	**RIGGING HOWITZER FOR LAPE AIRDROP ON LAPE PLATFORM**		
	REMOVED: 95 MESSAGE TERMINATION OF LAPES	.2-16	2-26
		.2-17	2-26
		.2-18	2-26
		.2-19	2-26
		.2-20	2-30
		.2-21	2-30
		.2-22	2-30
		.2-23	2-30
		.2-24	2-34
		.2-25	2-36
		.2-26	2-36
		.2-27	2-36
CHAPTER 3	**RIGGING M114A1, 155-MM HOWITZER ON TYPE II OR LAPE PLATFORM**		
SECTION I	**RIGGING HOWITZER FOR LOW-VELOCITY AIRDROP ON TYPE II PLATFORM**		
	TYPE II PROCEDURES REMOVED	.3-1	3-1
		.3-2	3-1
		.3-3	3-2
		.3-4	3-8
		.3-5	3-10
		.3-6	3-11
		.3-7	3-16
		.3-8	3-17
		.3-9	3-17
		.3-10	3-20
		.3-11	3-21
		.3-12	3-23
		.3-13	3-25
		.3-14	3-25
		.3-15	3-26
		.3-16	3-26
		.3-17	3-27
Section II	**RIGGING HOWITZER FOR LAPE AIRDROP ON LAPE PLATFORM**		
	REMOVED: 95 MESSAGE TERMINATION OF LAPES	3-18	3-30
		3-19	3-30

		Paragraph	Page
	REMOVED: 95 MESSAGE TERMINATION OF LAPES	3-20	3-31
		3-21	3-36
		3-22	3-38
		3-23	3-38
		3-24	3-39
		3-25	3-39
		3-26	3-42
		3-27	3-43
		3-28	3-44
		3-29	3-45
		3-30	3-46
CHAPTER 4	**RIGGING M198, 155-MM HOWITZER ON TYPE V PLATFORM**		
Section I	**RIGGING HOWITZER FOR LOW-VELOCITY AIRDROP**		
	Description of Load	4-1	4-1
	Preparing Platform	4-2	4-1
	Building and Placing Honeycomb Stacks	4-3	4-3
	Stowing Accompanying Equipment	4-4	4-8
	Preparing Howitzer	4-5	4-10
	Installing Suspension Slings	4-6	4-21
	Setting Howitzer on Platform	4-7	4-22
	Lashing Howitzer	4-8	4-22
	Covering Load and Safetying Slings	4-9	4-24
	Stowing Cargo Parachutes	4-10	4-25
	Installing Extraction System	4-11	4-28
	Installing Emergency Restraint	4-12	4-28
	Installing Release System	4-13	4-30
	Placing Extraction Parachute	4-14	4-31
	Marking Rigged Load	4-15	4-32
	Equipment Required	4-16	4-33
Section II	**RIGGING HOWITZER FOR LAPE AIRDROP**		
	REMOVED: 95 MESSAGE TERMINATION OF LAPES	4-17	4-35
		4-18	4-35
		4-19	4-36
		4-20	4-41
		4-21	4-43
		4-22	4-43
		4-23	4-43
		4-24	4-44
		4-25	4-48
		4-26	4-50
		4-27	4-50
		4-28	4-51

		Paragraph	Page
CHAPTER 5	RIGGING M198, 155-MM HOWITZER WITH ACCOMPANYING AMMUNITION LOAD ON A TYPE V PLATFORM		
Section I	LOW-VELOCITY AIRDROP		
	Description of Load	5-1	5-1
	Preparing Platform	5-2	5-1
	Rigging Accompanying Ammunition Load	5-3	5-4
	Preparing and Positioning Honeycomb Stacks	5-4	5-14
	Stowing Accompanying Equipment	5-5	5-22
	Preparing Howitzer	5-6	5-29
	Installing Lifting Slings and Positioning Howitzer	5-7	5-29
	Lashing Howitzer	5-8	5-31
	Building and Installing Release Stowage Platform	5-9	5-36
	Covering Load	5-10	5-38
	Installing Suspension Slings and Deadman's Tie	5-11	5-40
	Stowing Cargo Parachutes	5-12	5-42
	Installing Extraction System	5-13	5-48
	Installing Release System	5-14	5-49
	Installing Provisions for Emergency Restraints	5-15	5-50
	Placing Extraction Parachute	5-16	5-50
	Marking Rigged Load	5-17	5-50
	Equipment Required	5-18	5-50
Section II	LAPE AIRDROP		
	[redacted]	5-19	5-55
		5-25	5-55
		5-21	5-57
		5-22	5-63
		5-23	5-71
		5-24	5-74
		5-25	5-74
		5-26	5-74
		5-27	5-76
		5-28	5-80
		5-29	5-82
		5-30	5-82
		5-31	5-82

REMOVED: 95 MESSAGE TERMINATION OF LAPES

GLOSSARY Glossary-1

REFERENCES References-1

PREFACE

SCOPE

This manual tells and shows how to rig the M198, 155-mm howitzer on the type II, type V, and LAPE platforms for low-velocity airdrop from C-130, C-141, and C-5 aircraft. This manual also tells and shows how to rig the M198, 155-mm howitzer on the LAPE and type V platforms for LAPE airdrop from C-130 aircraft. In addition, this manual tells and shows how to rig the M114A1, 155-mm howitzer on the type II and LAPE platforms for low-velocity airdrop from C-130 aircraft and on the LAPE platform for LAPE airdrop from C-130 aircraft. The procedures for rigging an accompanying ammunition load with the M198, 155-mm howitzer on a type V platform for low-velocity airdrop from the C-5 and C-141 aircraft and for LAPE airdrop from the C-130 and C-141 aircraft are given. This manual is designed for use by all parachute riggers.

USER INFORMATION

The proponent of this publication is HQ TRADOC. You are encouraged to report any errors or omissions and to suggest ways for making this a better manual. Army personnel, send your comments on DA Form 2028 directly to:

Commander
US Army Quartermaster Center and School
ATTN: ATSM-SPT-I
Fort Lee, Virginia 23801-5036

Air Force personnel, send your reports on AFTO Form 22 through:

HQ AMC/XOTT
402 Scott Drive, Unit 3A1
Scott AFB, Illinois 62225-5302

to:

Commander
US Army Quartermaster Center and School
ATTN: ATSM-SPT-I
Fort Lee, Virginia 23801-5036

Also send information copies of AFTO Form 22 to:

San Antonio ALC/LDILT
Kelly AFB, Texas 78241-5000

CHAPTER 1
INTRODUCTION

1-1. Description of Items

A description of the items is given below.

a. M198, 155-mm Howitzer. The unrigged M198, 155-mm howitzer (fig 1-1) weighs 15,810 pounds. The length of the howitzer is 486 inches (reducible to 293 inches). Its height is 114 inches (reducible to 88 inches). It is 110 inches wide.

b. M114A1, 155-mm Howitzer. The unrigged M114A1, 155-mm howitzer (fig 1-1) weighs 12,660 pounds. The length of the howitzer is 284 inches. It is 98 inches wide.

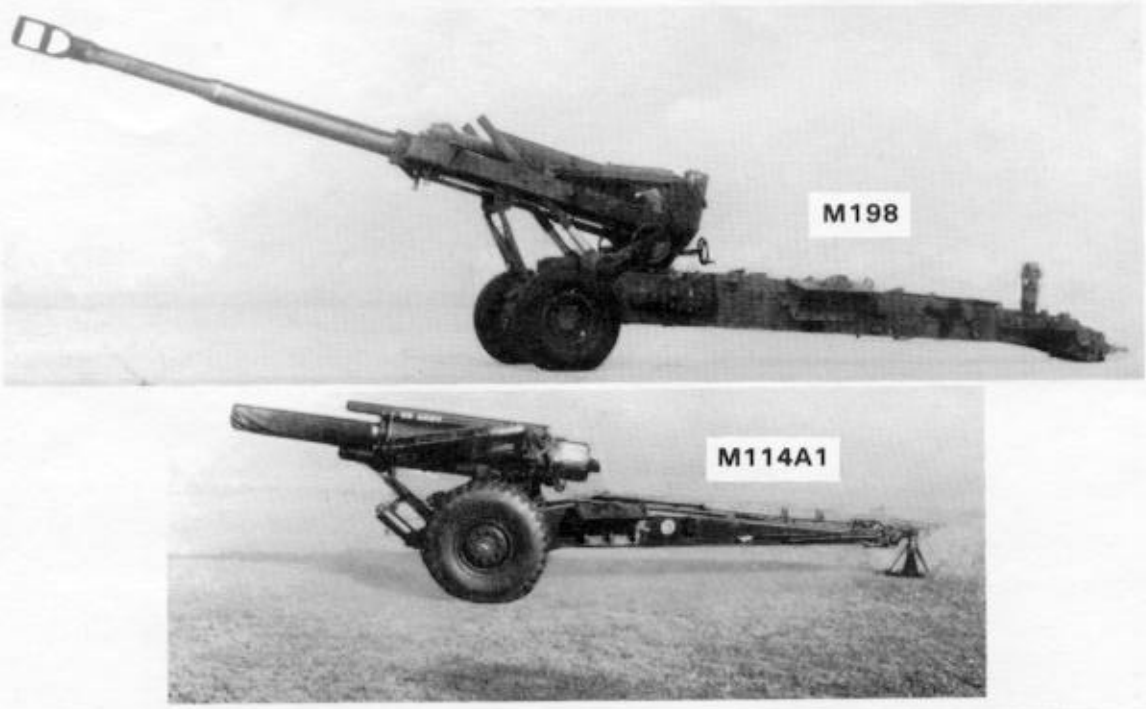


Figure 1-1. M198 and M114A1, 155-mm howitzers.

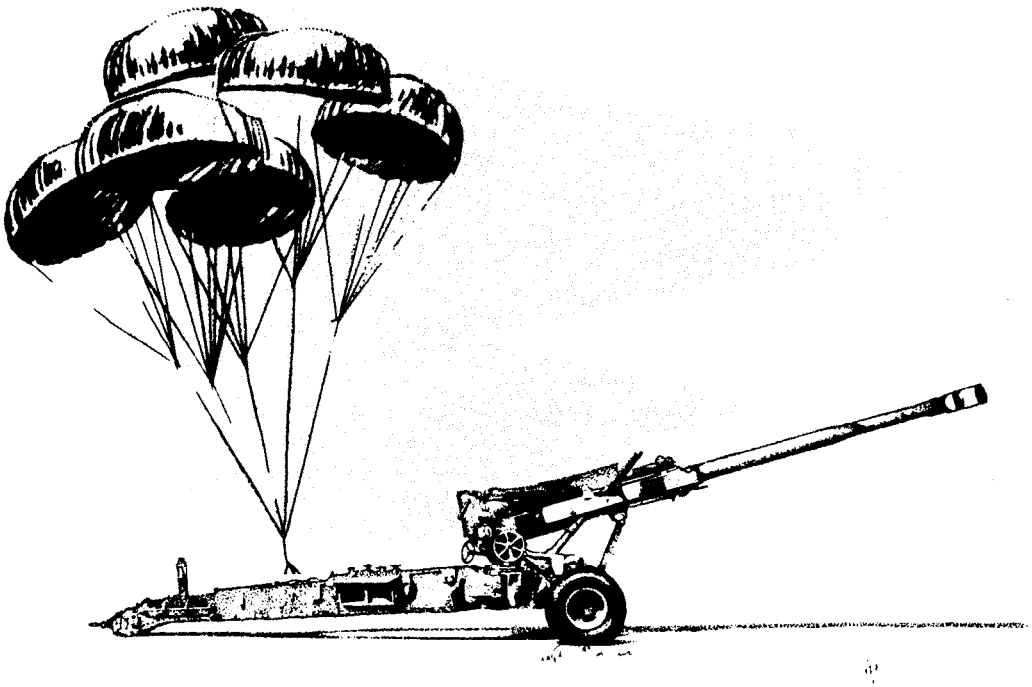
1-2. Special Considerations

Special considerations for these items are given below.

CAUTION
Only ammunition listed in FM 10-553/TO 13C7-18-41 may be airdropped.

a. The loads covered in this manual may include hazardous materials as defined in AFR 71-4/TM 38-250. If included, the hazardous material must be packaged, marked, and labeled as required by AFR 71-4/TM 38-250.

b. A copy of this manual must be available to the joint airdrop inspectors during the before- and after-loading inspections.



CHAPTER 4

RIGGING M198, 155-MM HOWITZER ON TYPE V PLATFORM

Section I
RIGGING HOWITZER FOR LOW-VELOCITY AIRDROP

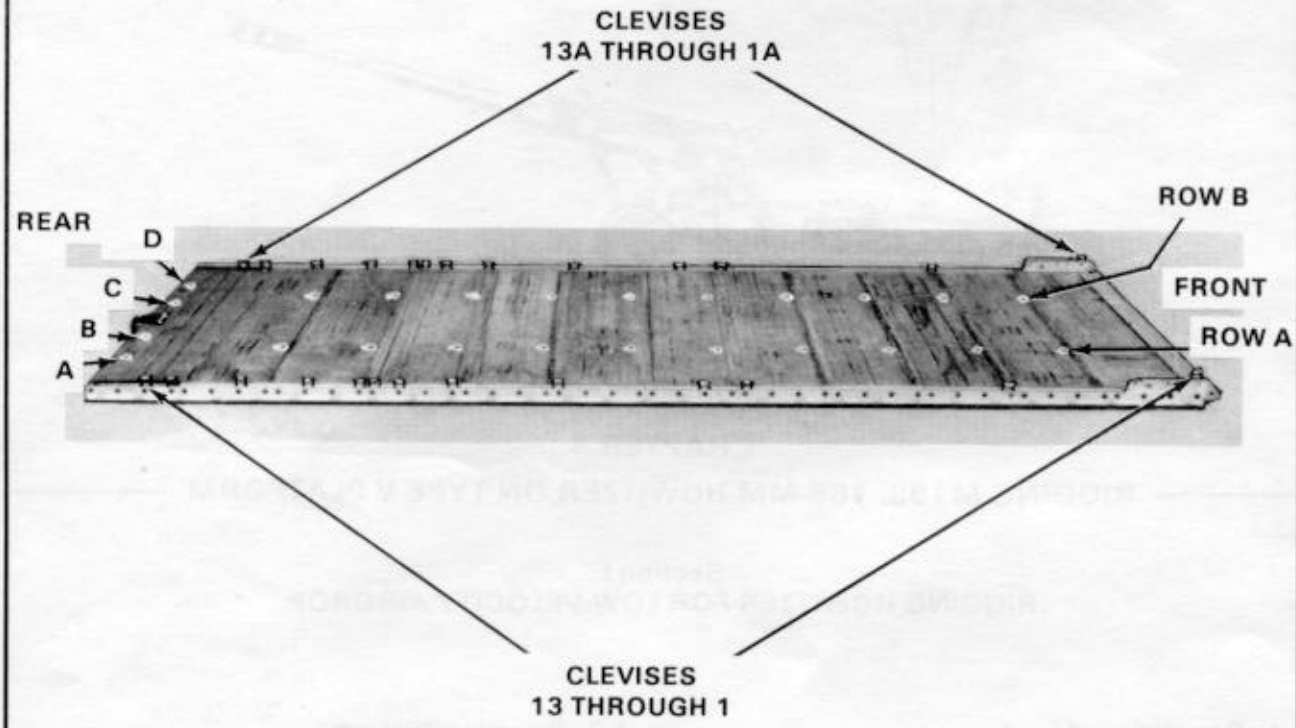
4-1. Description of Load

The M198, 155-mm howitzer is rigged on a 24-foot, type V airdrop platform for low-velocity airdrop from a C-130 or a C-141 aircraft. The M198, 155-mm howitzer is rigged with six G-11A cargo parachutes and other items of airdrop equipment. The accompanying equipment (section chest, camouflage net and poles, cleaning pail, and pioneer tools) may be rigged with the howitzer. The accompanying equipment rigged as a part of the load weighs 610 pounds.

4-2. Preparing Platform

a. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.

b. Bolt 26 tiedown clevises to the platform side rail bushings and number the clevises as shown in figure 4-1.



Step:

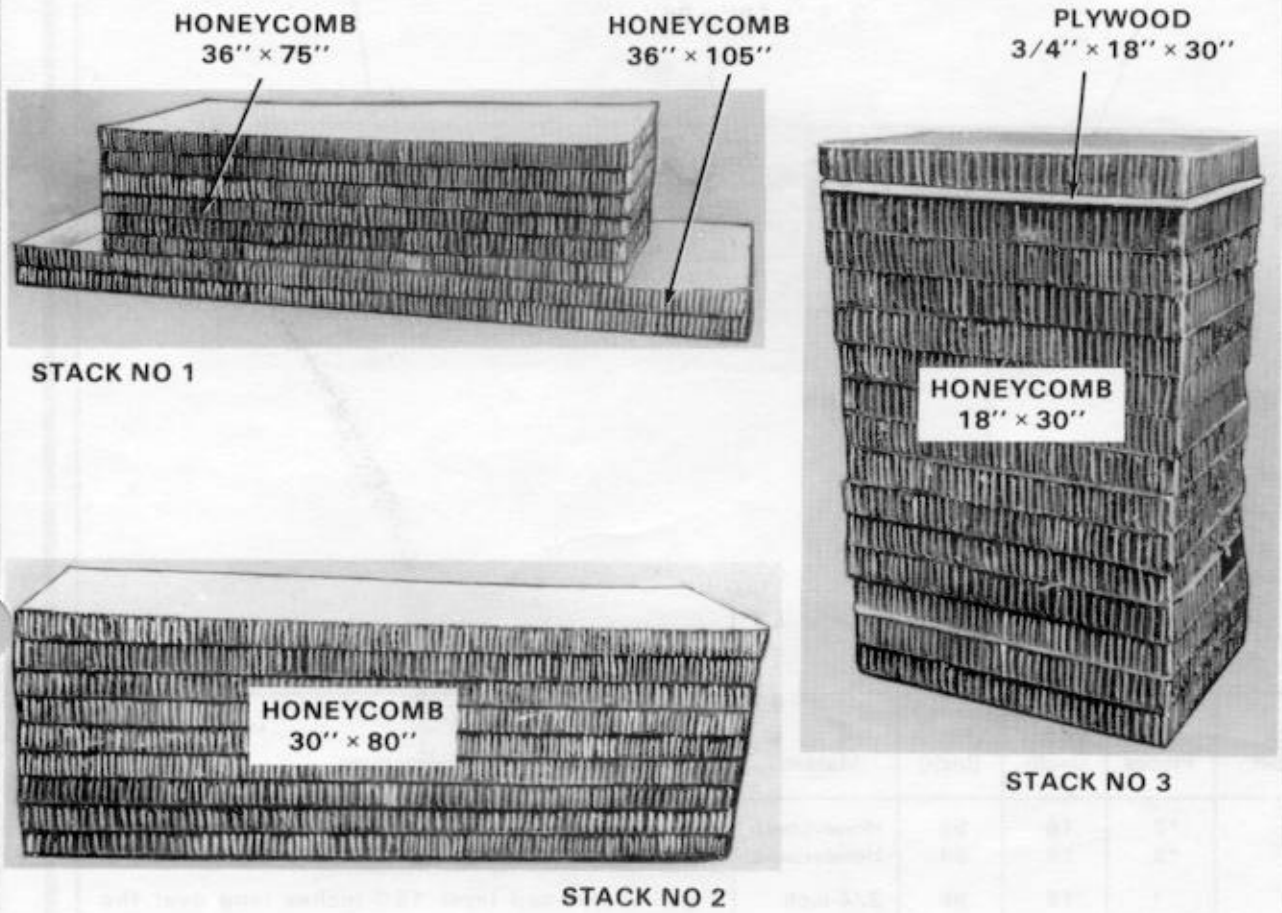
1. Install a multipurpose link on the front of each rail.
2. Bolt 13 load tiedown clevises to each platform side rail according to FM 10-500/TO 13C7-1-5. Starting at the front of each rail, bolt a tiedown clevis to the first bushing of the multipurpose link and to bushings 9, 20, 22, 28, 33, 35, 36, 37, 39, 42, 45, and 46.
3. Starting at the front of each rail, number the clevises bolted to the right rail from 1 through 13 and those bolted to the left rail from 1A through 13A.
4. Letter the rear row of four deck rings according to FM 10-500/TO 13C7-1-5.

Figure 4-1. Platform prepared.

4-3. Building and Placing Honeycomb Stacks

Build five honeycomb stacks and place them on the platform as shown in figures 4-2 through 4-6.

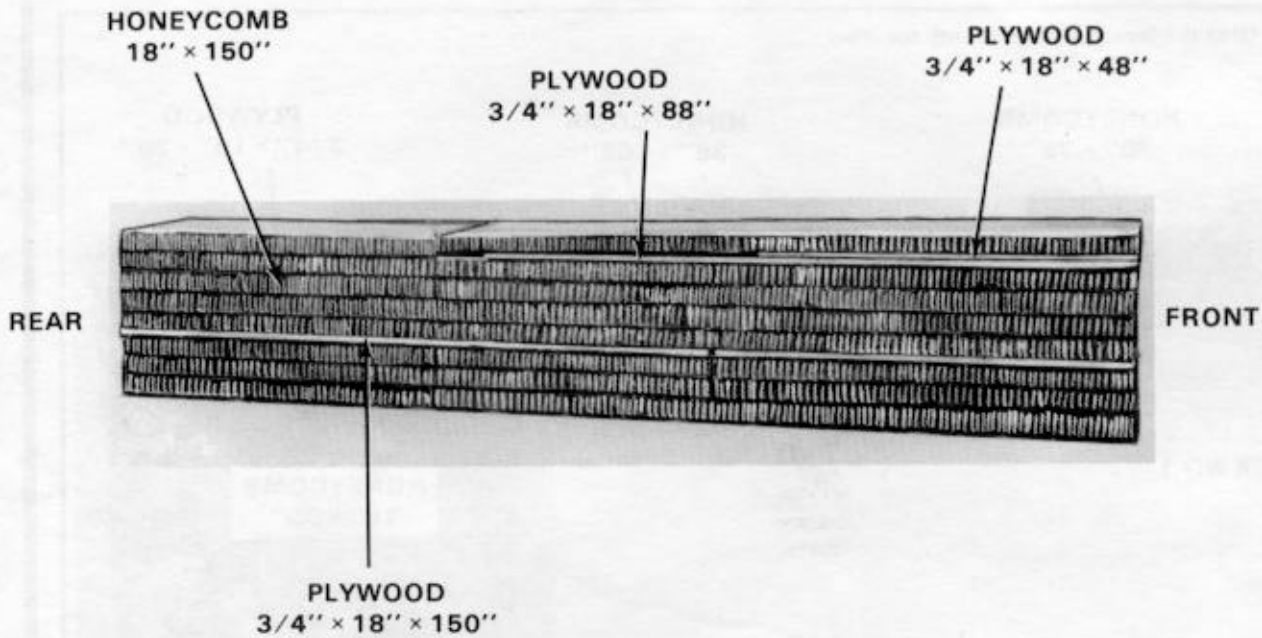
Note: Glue the layers of honeycomb together.



Stack Number	Pieces	Width (inch)	Length (inch)	Material	Instructions
1	*2 *2	36 36	9 96	Honeycomb Honeycomb	Use honeycomb to make a two-layer base 105 inches long.
	6	36	75	Honeycomb	Stack and center the 75-inch pieces on the base.
2	9	30	80	Honeycomb	Form a stack.
3	15 1	18 18	30 30	Honeycomb 3/4-inch plywood	Form a stack with the plywood under the top layer.

*Alternate the sizes of honeycomb in each layer.

Figure 4-2. Honeycomb stacks 1, 2, and 3 prepared.

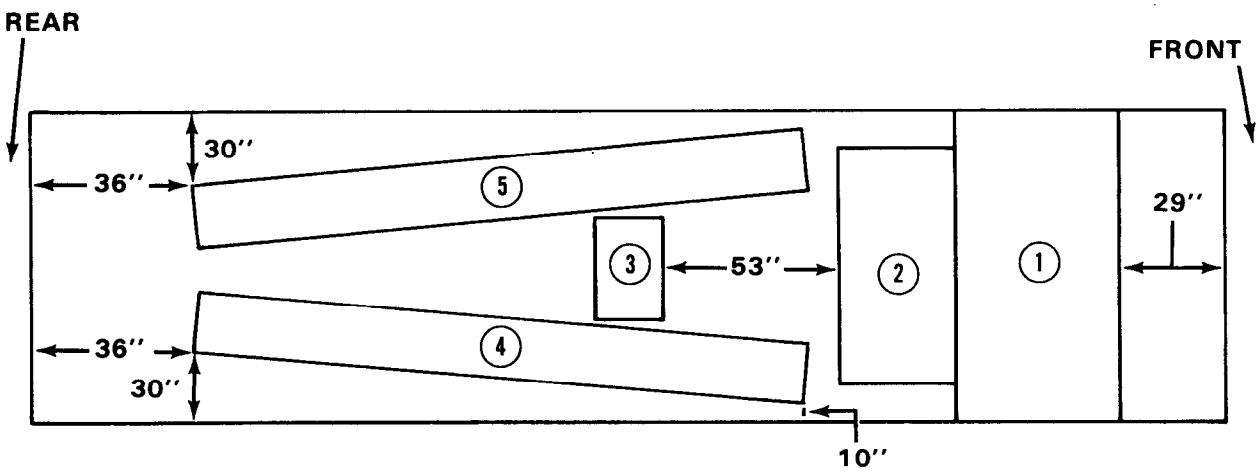


Stack Number	Pieces	Width (inch)	Length (inch)	Material	Instructions
4	*3 *3	18 18	96 54	Honeycomb Honeycomb	Use honeycomb to make a three-layer base 150 inches long.
	1 1	18 18	96 54	3/4-inch plywood 3/4-inch plywood	Form a plywood layer 150 inches long over the honeycomb base.
	*4 *4	18 18	96 54	Honeycomb Honeycomb	Use honeycomb to make four layers 150 inches long.
	1	18	88	3/4-inch plywood	Place plywood on top of the four layers of the honeycomb on the front edge of the stack.
	1	18	48	3/4-inch plywood	Place plywood on top of the 88-inch piece flush with the front of the stack.
	1 1	18 18	96 54	Honeycomb Honeycomb	Use honeycomb to make a layer 150 inches long, and place it on top of the stack.
5	Same as stack 4.				

*Alternate the sizes of honeycomb in each layer.

Figure 4-3. Honeycomb stacks 4 and 5 prepared.

Note: Not drawn to scale



Stack Number	Position of Stack on Platform
	Place stack:
1	29 inches from the front edge of the platform and centered between the side rails.
2	flush against stack No 1 and centered between the side rails.
3	53 inches from stack No 2 and centered between the side rails.
4	36 inches from the rear edge of the platform. Place the front outside corner 10 inches from the right rail. Place the rear outside corner 30 inches from the right rail.
5	36 inches from the rear edge of the platform. Place the front outside corner 10 inches from the left rail. Place the rear outside corner 30 inches from the left rail.

Figure 4-4. Honeycomb placed on platform.

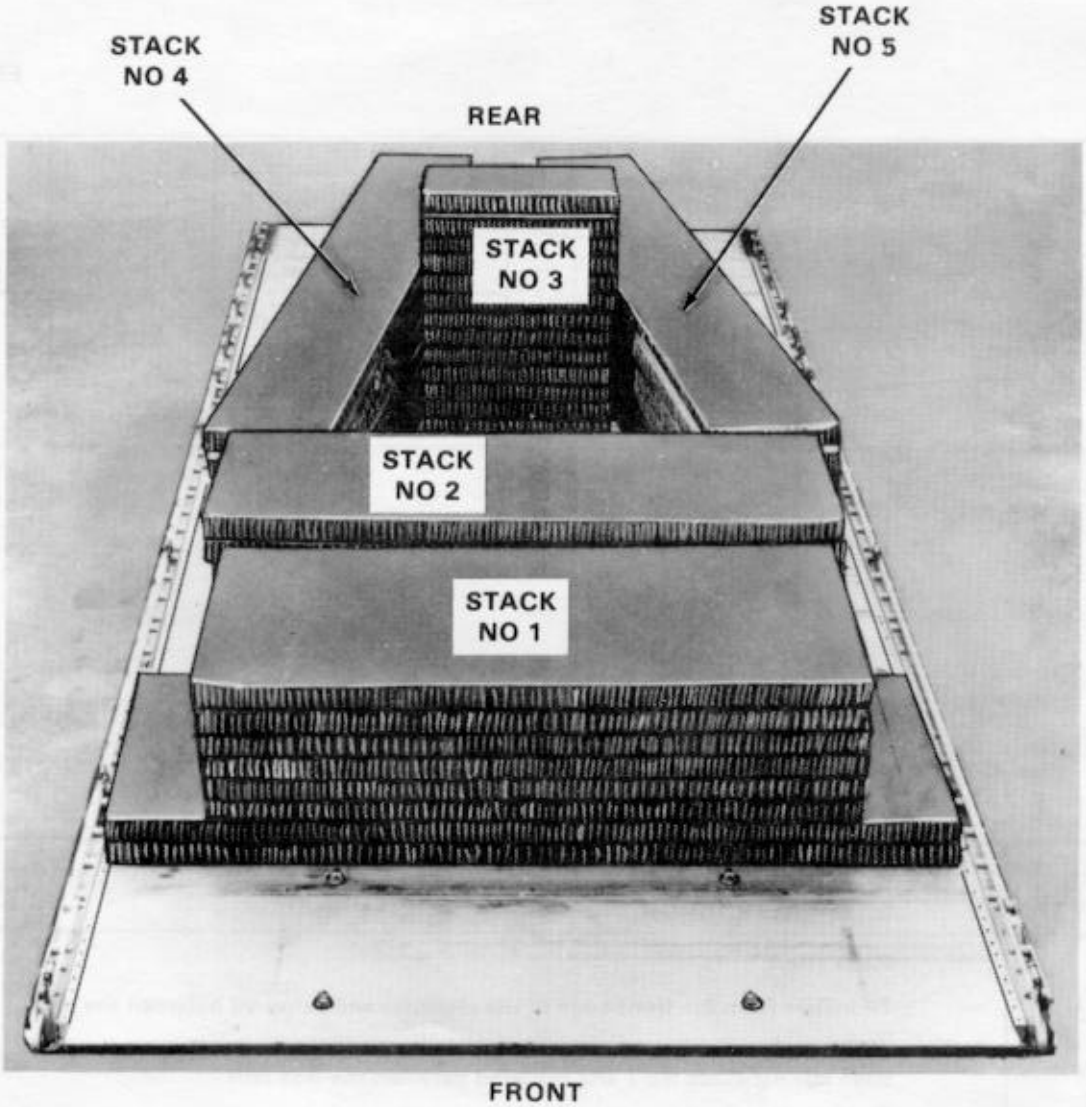


Figure 4-5. Front view of honeycomb stacks.

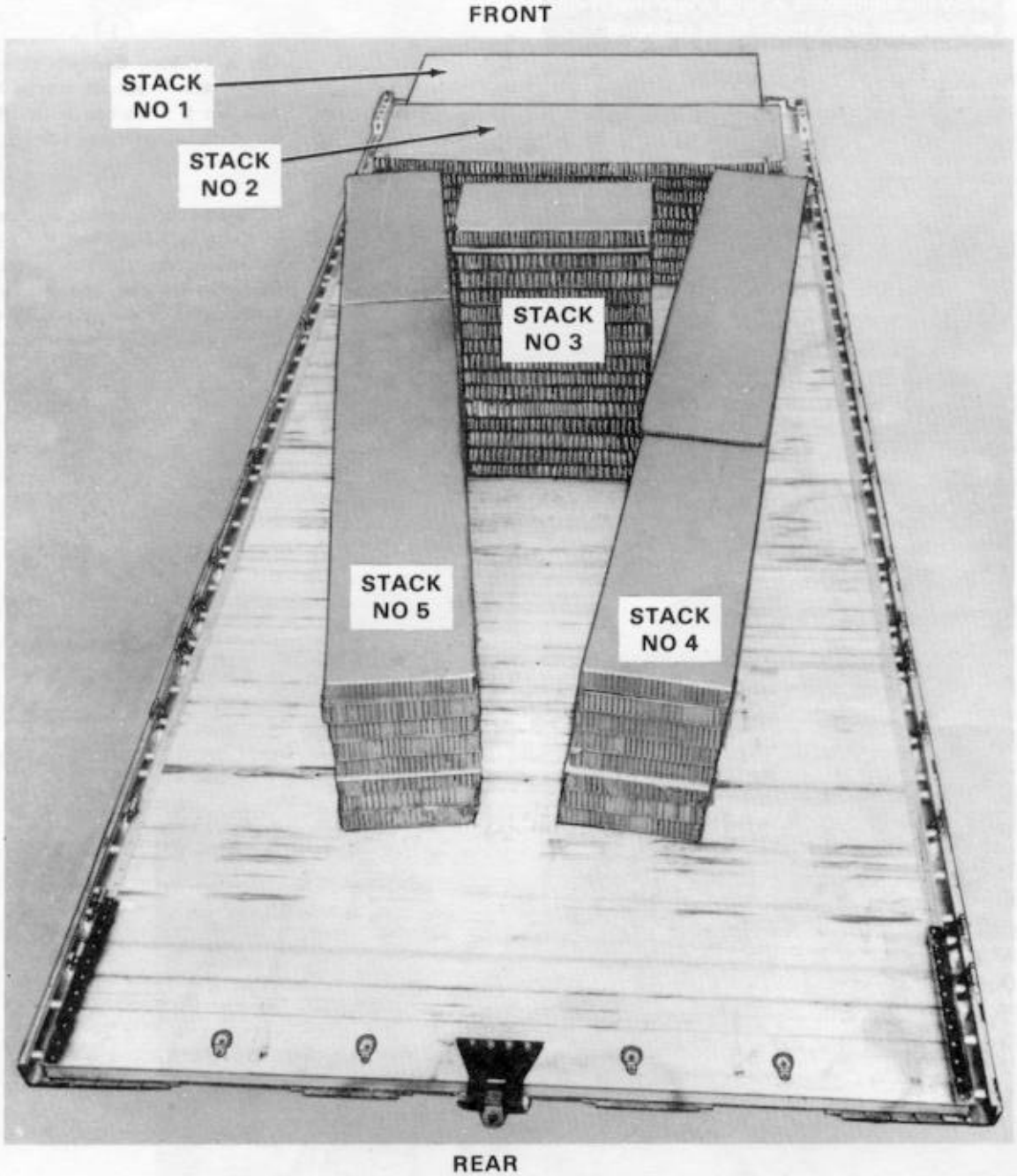


Figure 4-6. Rear view of honeycomb stacks.

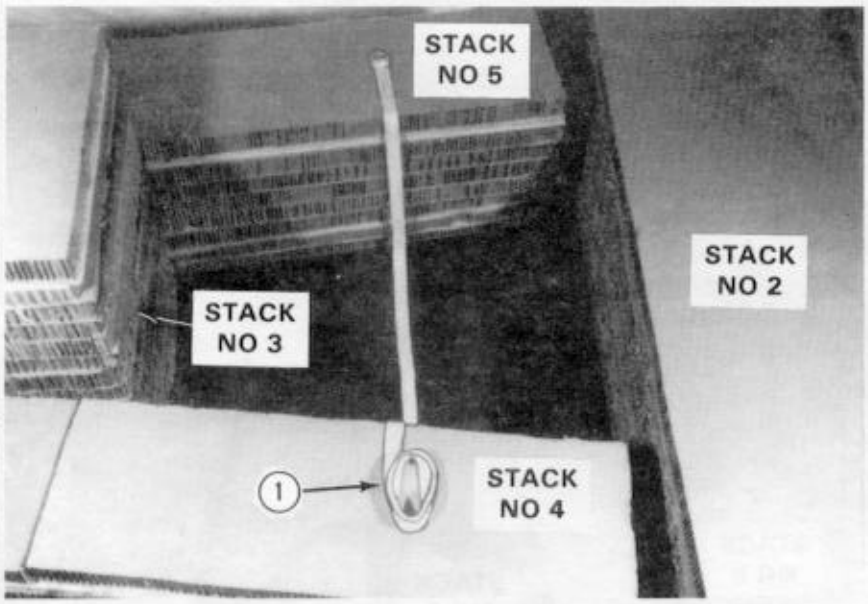
4-4. Stowing Accompanying Equipment

If the accompanying equipment (para 4-1) is to be dropped, stow it as shown in figure 4-7.

CAUTION
Stow the equipment in such a way that it will be no higher than stacks No 4 and No 5.

(1) Lay a 15-foot tiedown strap on the platform across stacks No 4 and No 5 with the ends of the strap on top of these stacks.

(2) Fit the accompanying equipment in the space between the stacks on top of the strap. If lumber is included in the accompanying equipment, stow it on its edge against stacks No 4 and No 5 as shown.



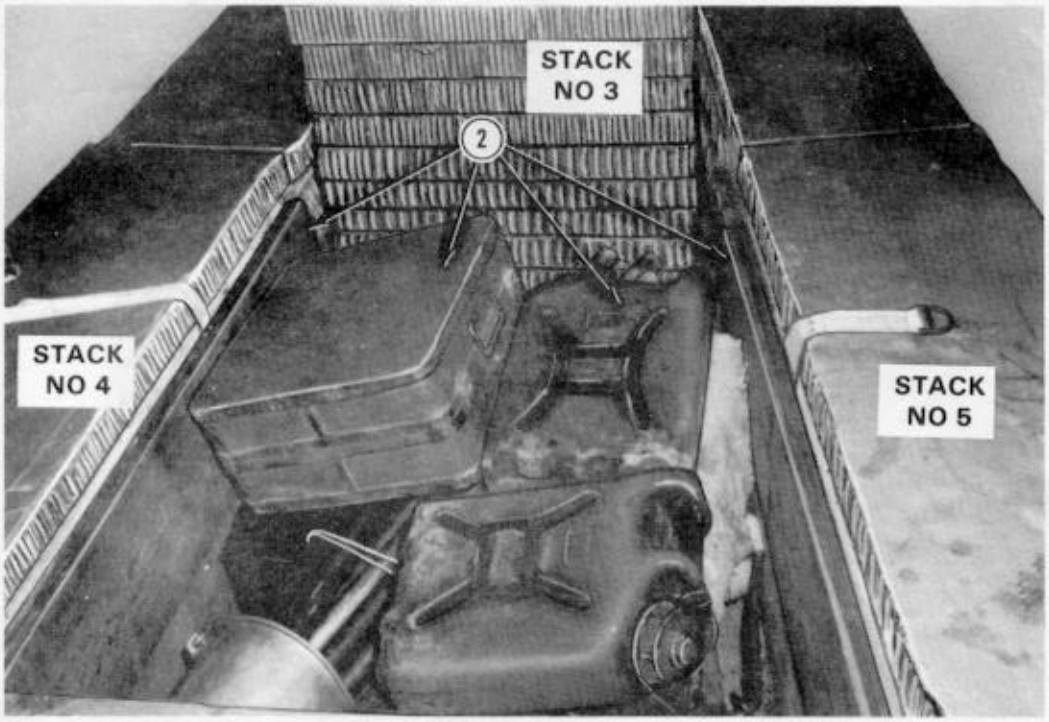
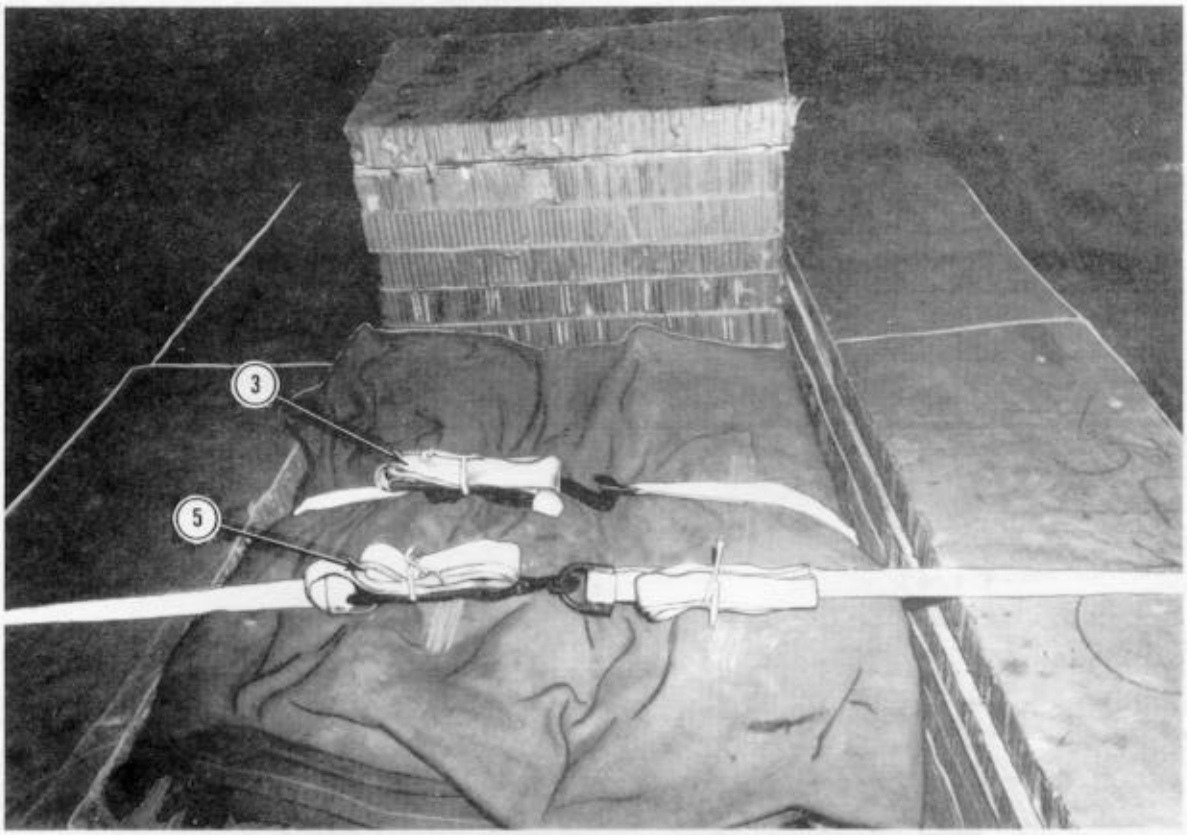


Figure 4-7. Accompanying equipment stowed.



(3) Bind the equipment with the 15-ft tiedown strap, a D-ring, and a load binder.

(4) Pass the free end of a 15-foot tiedown strap through clevis 4A and a second strap through clevis 4. Run each strap through its own D-ring, and pull the straps taut (not shown).

(5) Run these straps up over stacks No 4 and No 5, and hook the straps together with two D-rings and a load binder.

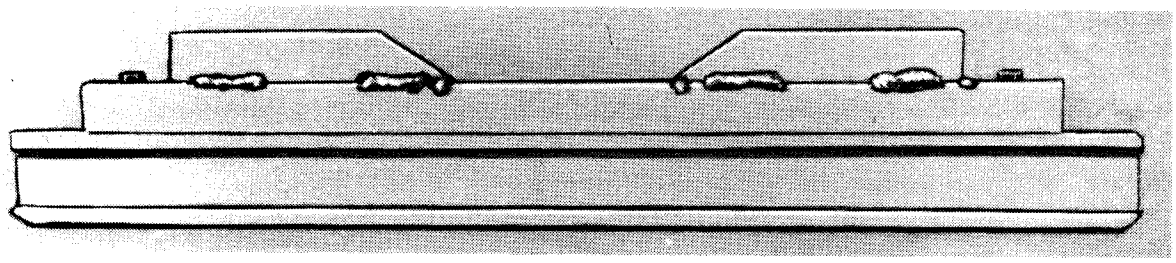
Figure 4-7. Continued.

4-5. Preparing Howitzer

a. Insure that the metal breechblock support bracket is available. A howitzer that has been previously airdropped should have its own breechblock support bracket. If a bracket is not available for the howitzer to be rigged, use the specifications given in figure 4-8 to construct one. The breechblock support is constructed of steel.

Note: Not drawn to scale

CAUTION
The breechblock support bracket must be fitted to the individual howitzer.



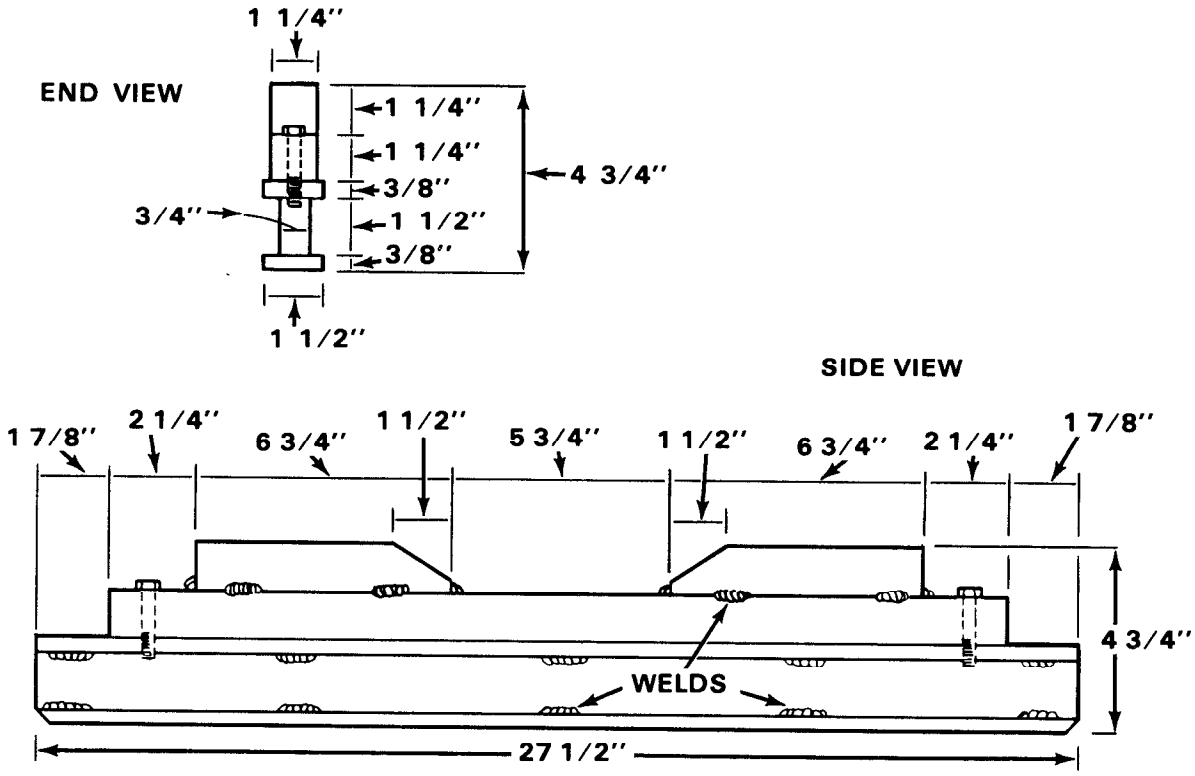


Figure 4-8. Breechblock support bracket constructed.

Note: The support is made to allow for metal shims to be inserted to insure a snug fit under the breechblock.

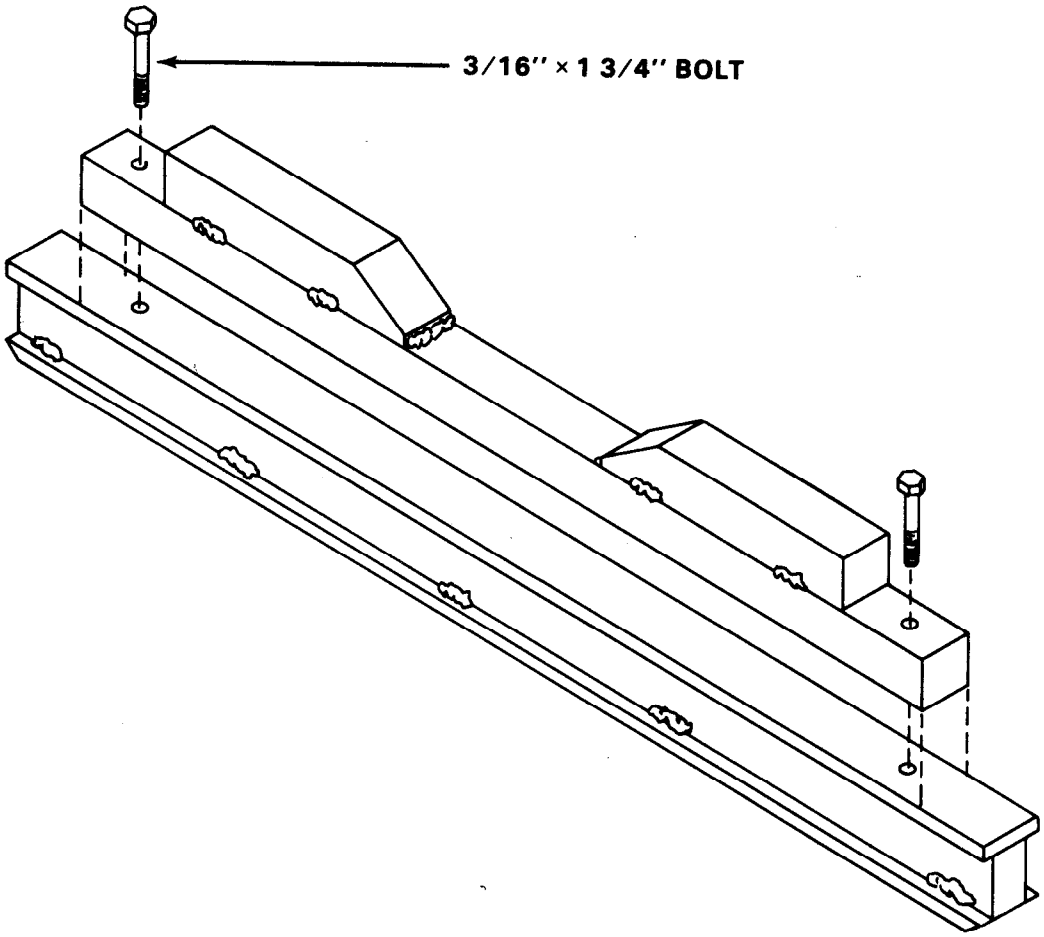
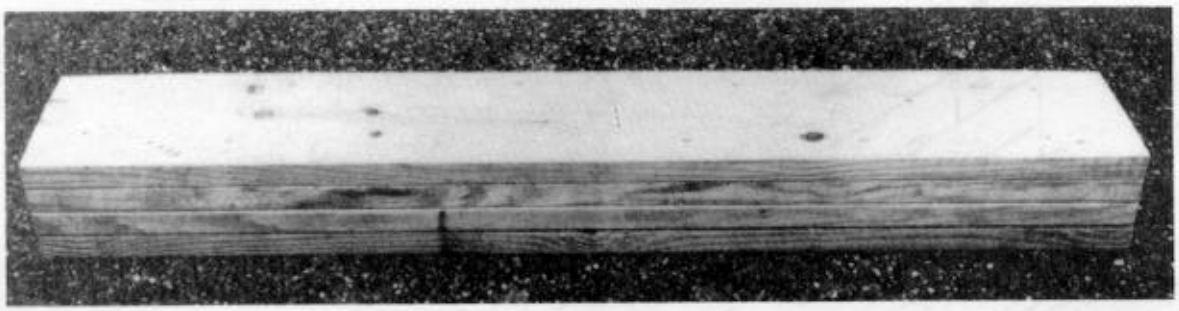


Figure 4-8. Continued.

b. Use 2- by 6-inch and 2- by 10-inch lumber to build the wooden support blocks (for the gun tube) according to details in figures 4-9 and 4-10.

Note: The actual width of 2- by 10-inch lumber is 9 1/4 inches.

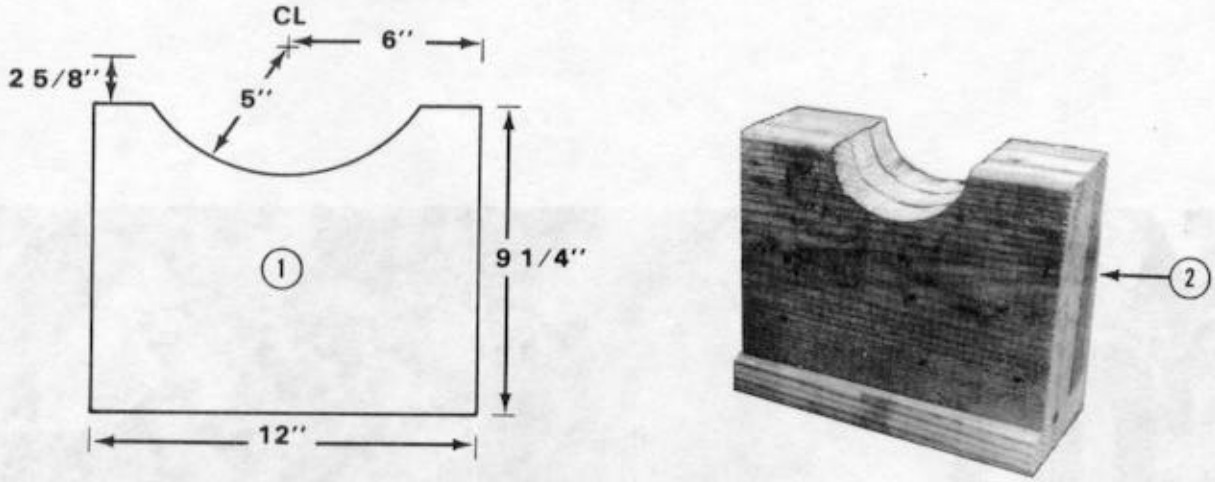


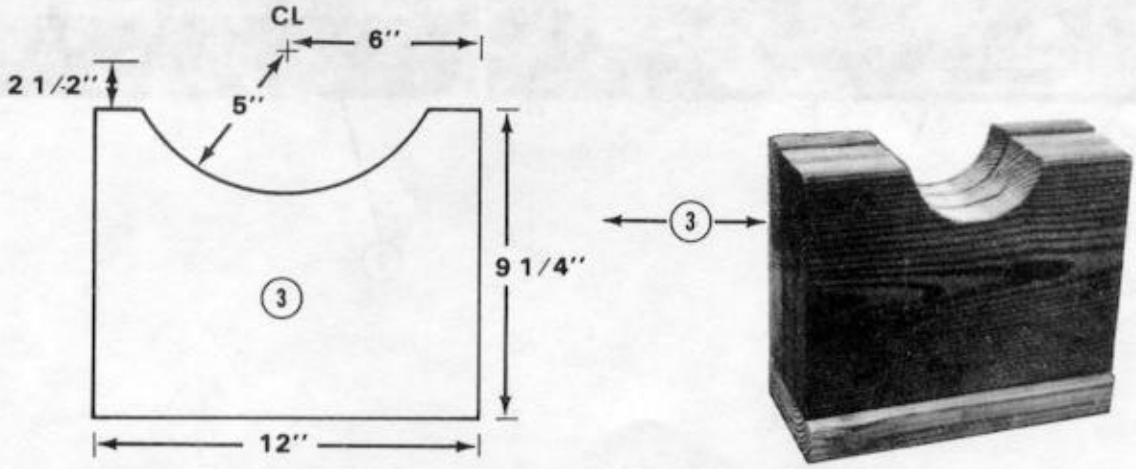
(1) Cut four 2- by 10- by 57-inch pieces of lumber.

(2) Nail the four pieces of lumber together with 20d nails.

Figure 4-9. Rear gun tube support block constructed.

Notes: a. These drawings are not drawn to scale.
b. The actual width of 2- by 6-inch lumber is 5 1/2 inches.
c. The actual width of 2- by 10-inch lumber is 9 1/4 inches.

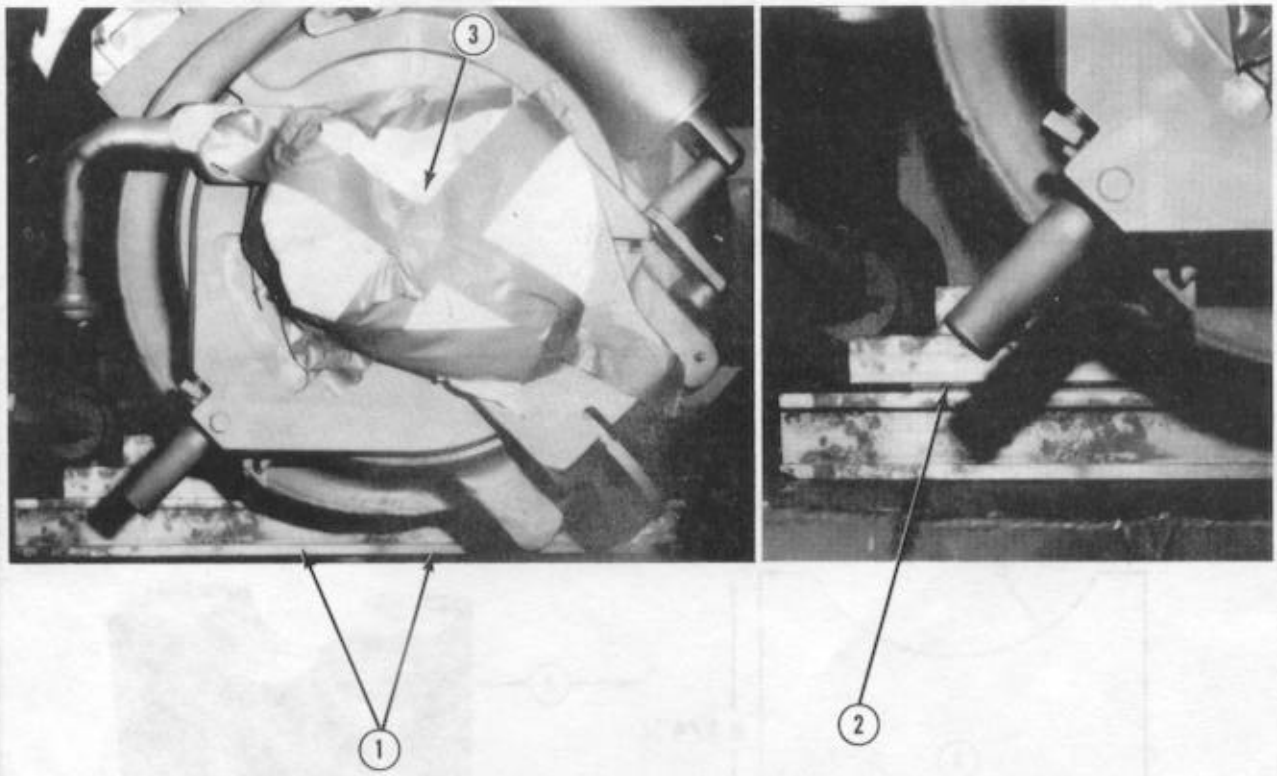




1. Make an arc-like cutout in three 2- by 10- by 12-inch pieces of lumber.
2. Nail the pieces together and to a 2- by 6- by 12-inch piece of lumber with 20d nails.
3. Make an arc-like cutout in three 2- by 10- by 12-inch pieces of lumber. Nail the pieces as in 2 above.

Figure 4-10. Forward gun tube support blocks constructed.

c. Prepare the howitzer as shown in figures 4-11 through 4-16. Place the gun tube in the stowed position before preparing the howitzer.

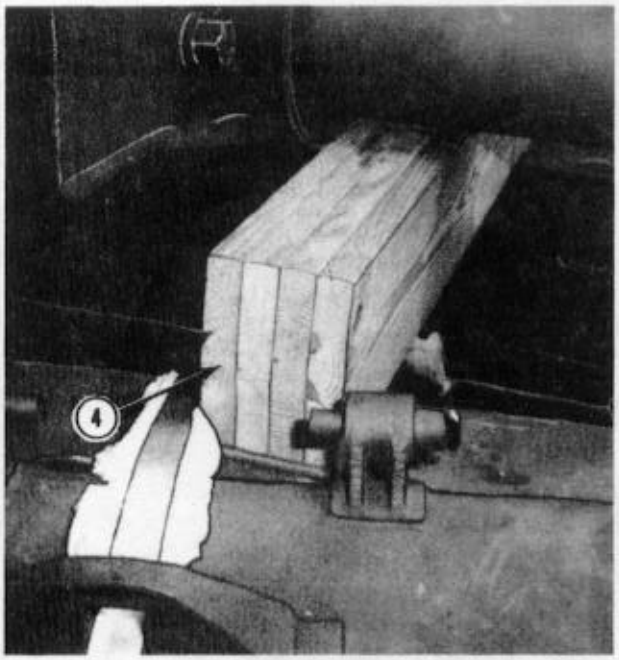


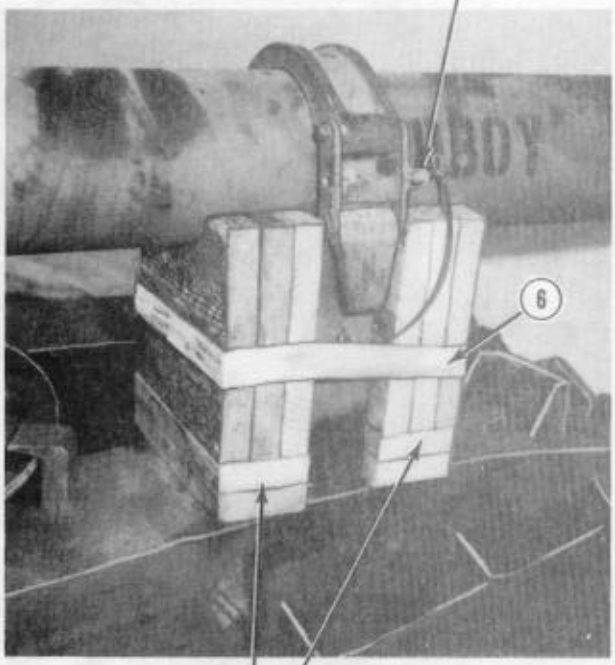
(1) Move the gun tube of the howitzer to the stowed position. Raise the tube, and place the metal support bracket (fig 4-8) under the breechblock.

(2) Be sure that the fit is snug. The bracket should not move when the breechblock rests on it. If necessary, remove and disassemble the bracket and place metal shims in the space provided. Reassemble and replace the bracket. A bracket with shims installed is shown in the photograph on the right above.

(3) Pad the end of the breechblock with cellulose wadding. Tape the wadding in place.

Figure 4-11. Gun tube prepared.





(4) Set the rear gun tube support block on the trails under the rear of the tube. If necessary, use plywood shims of the proper thickness between the block and the trails for a snug fit.

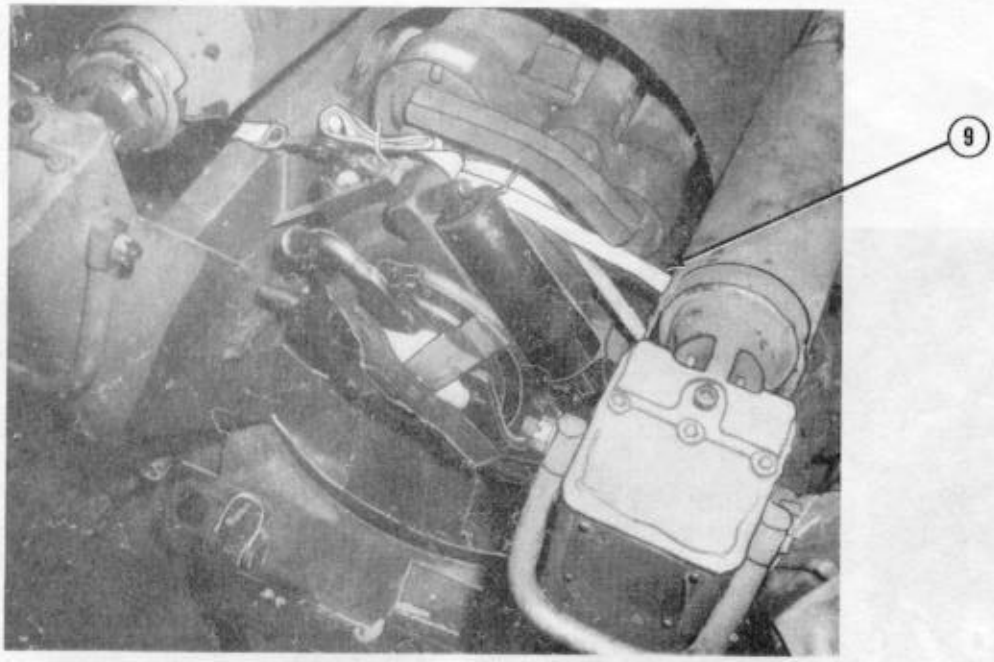
(5) Set the forward gun tube support blocks on the left trail against the gun tube travel lock. The block with the slightly deeper cut fits on the breech side of the tube travel lock. If necessary, place plywood or lumber shims between the trail and the block for a snug fit. (The gun shown needed an additional piece of 2- by 6-inch lumber on the base of each block.)

(6) Lash the support blocks to the gun tube travel lock with a 15-foot tiedown assembly.

(7) Close the gun tube travel lock, and secure it with the pin provided.

(8) Cover the muzzle and muzzle brake with plastic wrap, or insert the plug provided with the gun into the muzzle (not shown).

Figure 4-11. Continued.

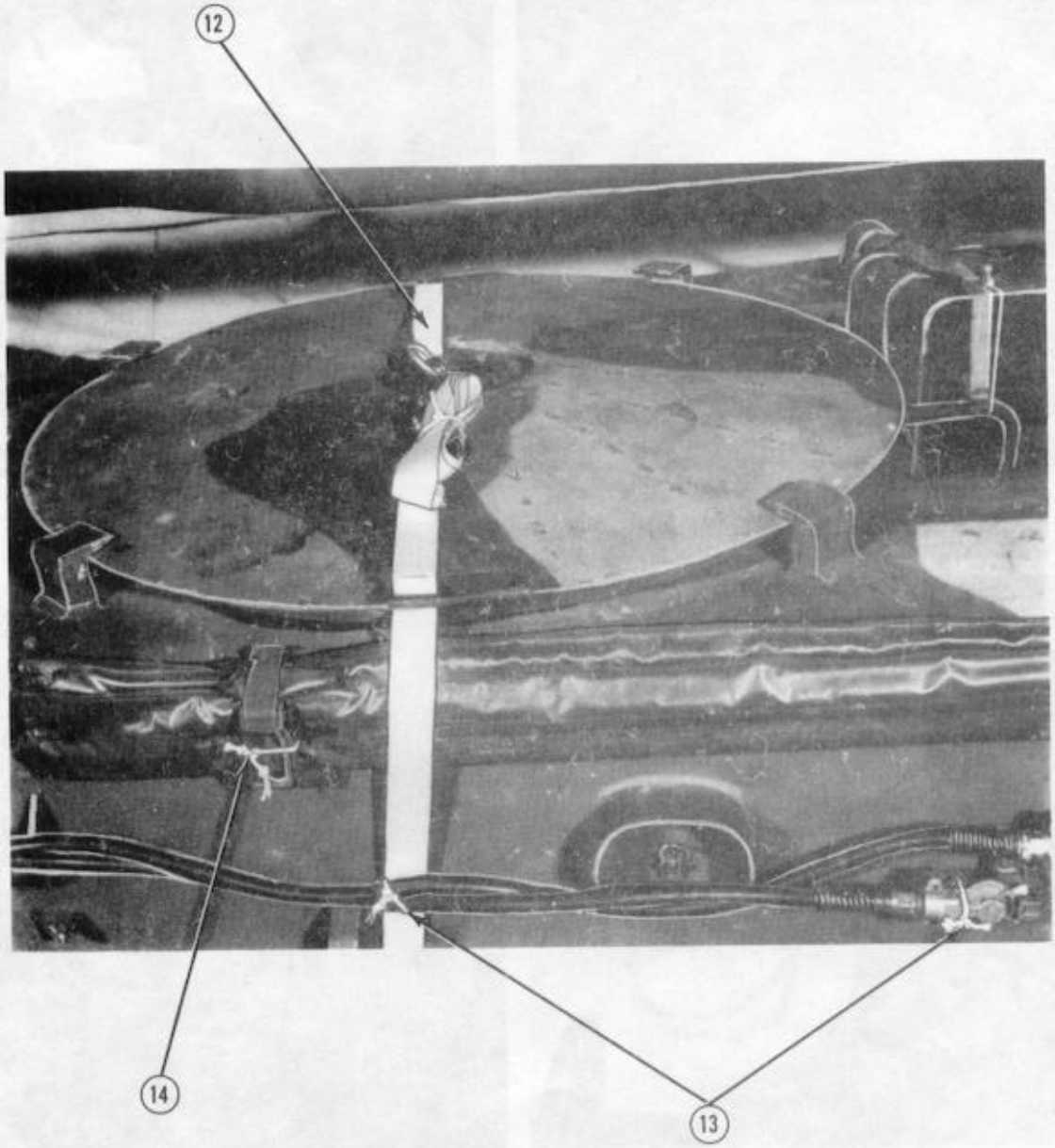


(9) Secure the breechblock with a 15-foot tiedown assembly. Run the strap under the cradle assembly, over the breechblock, and under the thermal warning device.

(10) Put the breechblock cover on the breechblock (not shown).

(11) Lash the gun tube to the left trail with two 15-foot tiedown assemblies. Run one strap around each support block.

Figure 4-12. Gun tube lashed.

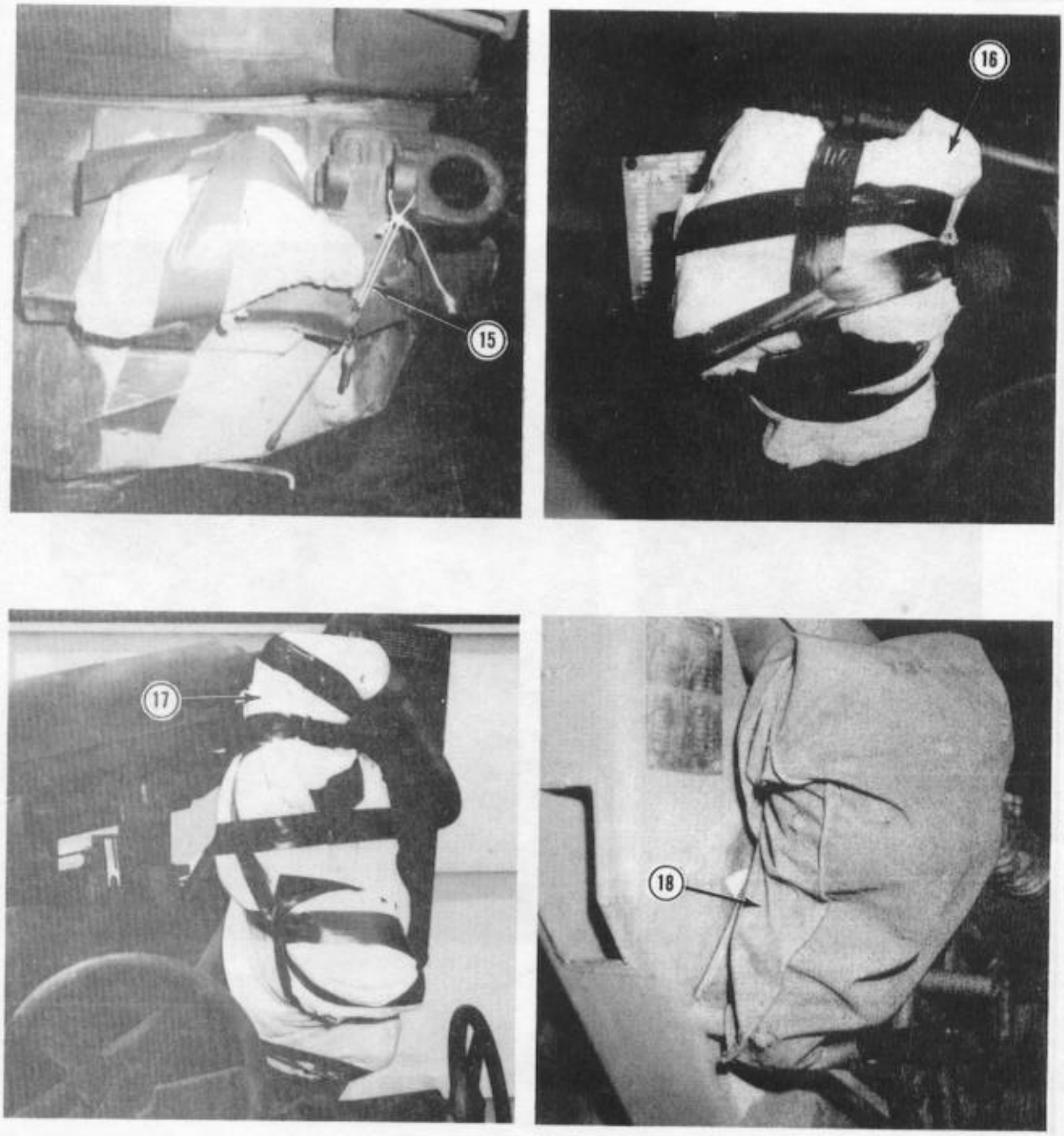


(12) Lash the firing baseplate in its stowed position with a 15-foot tiedown assembly.

(13) Tie the hose assemblies to the cleaning staff, to the lashing on the baseplate, and to the dummy couplings with type III nylon cord.

(14) Tie the hold-down latches on the aiming stakes bracket in the closed position with type III nylon cord. Tie the pump handles in place with type III nylon cord (not shown).

Figure 4-13. Baseplate, hoses, and aiming stakes secured.



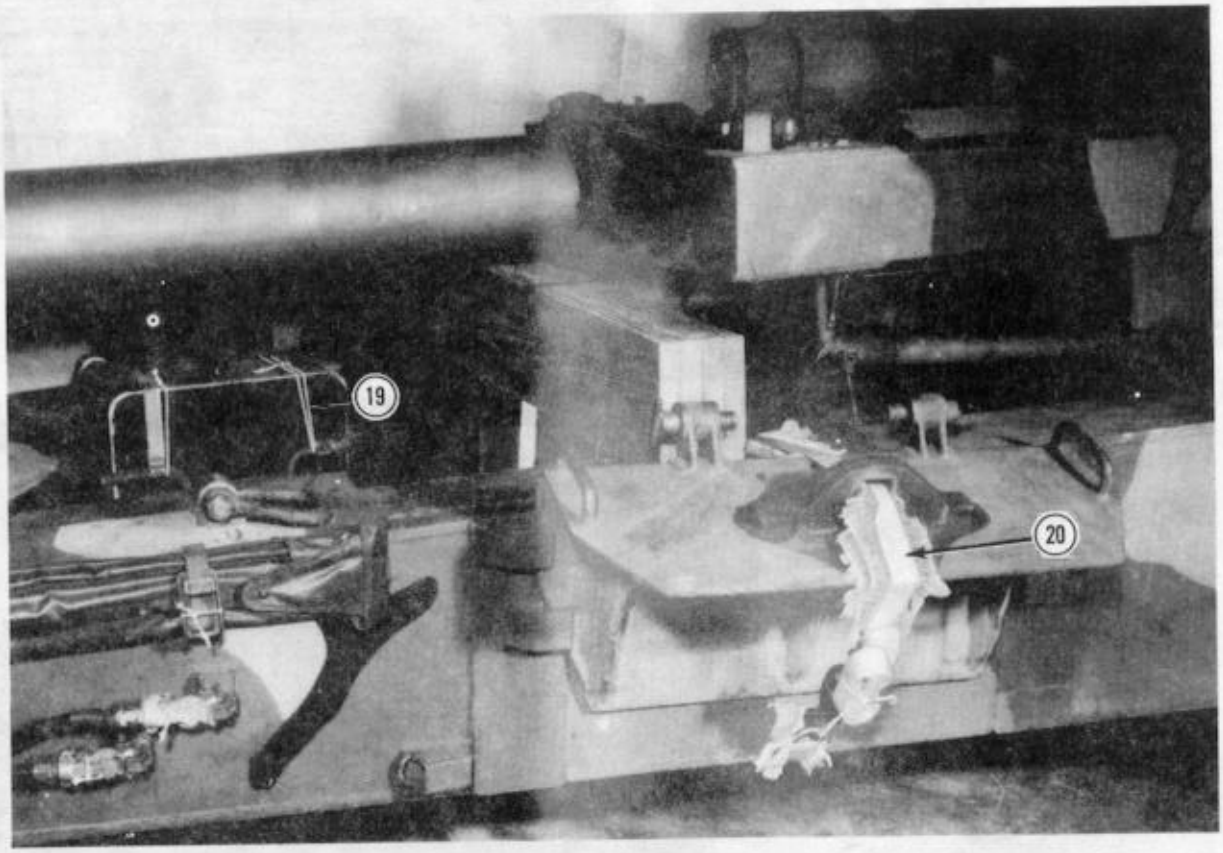
(15) Tie the lock-release lever to one side with type III nylon cord.

(16) Pad the manifold assembly with cellulose wadding, and tape the wadding in place.

(17) Pad the telescope and quadrant mounts (on either side of the howitzer) with cellulose wadding, and tape the wadding in place.

(18) Cover the padded mounts if covers are available.

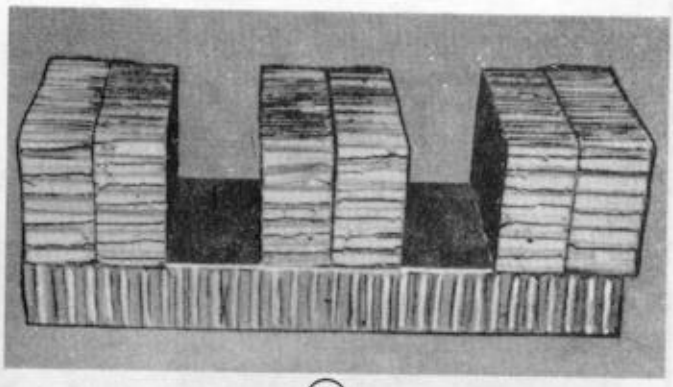
Figure 4-14. Manifold and quadrant mounts prepared.

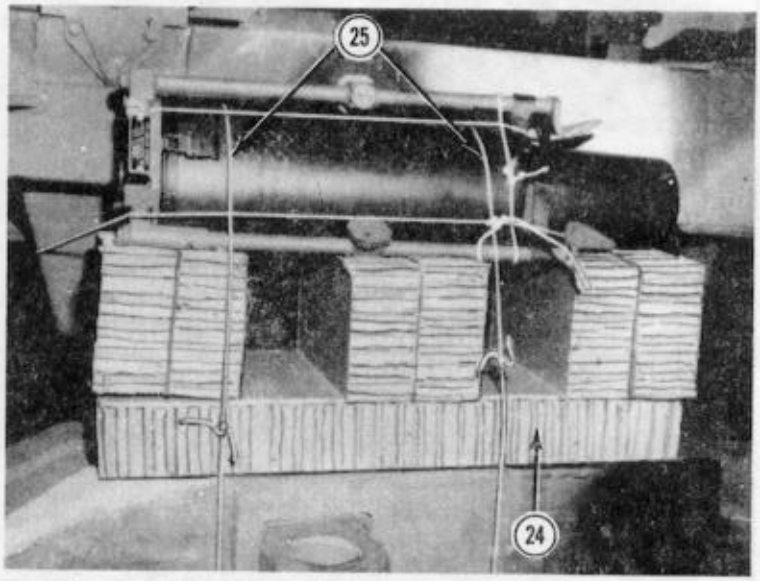


(19) Strap the fire control equipment carrying case in its bracket on the left trail. In addition, tie the case in place with two lengths of type III nylon cord.

(20) Lash each spade in its bracket (one on each trail) with a 15-foot tiedown assembly. Pad any sharp edges that may contact the strap.

Figure 4-15. Carrying case and spades stowed.





(21) Take the M1A1 collimator out of its case. Place the legs as shown, and tighten the locking knobs. Wrap the collimator with cellulose wadding, and tape the wadding in place.

(22) Put the collimator back in its case. Fold the legs up, and tie them in place with type III nylon cord.

(23) Glue six 6- by 10-inch pieces of honeycomb to a 10- by 26-inch piece of honeycomb as shown.

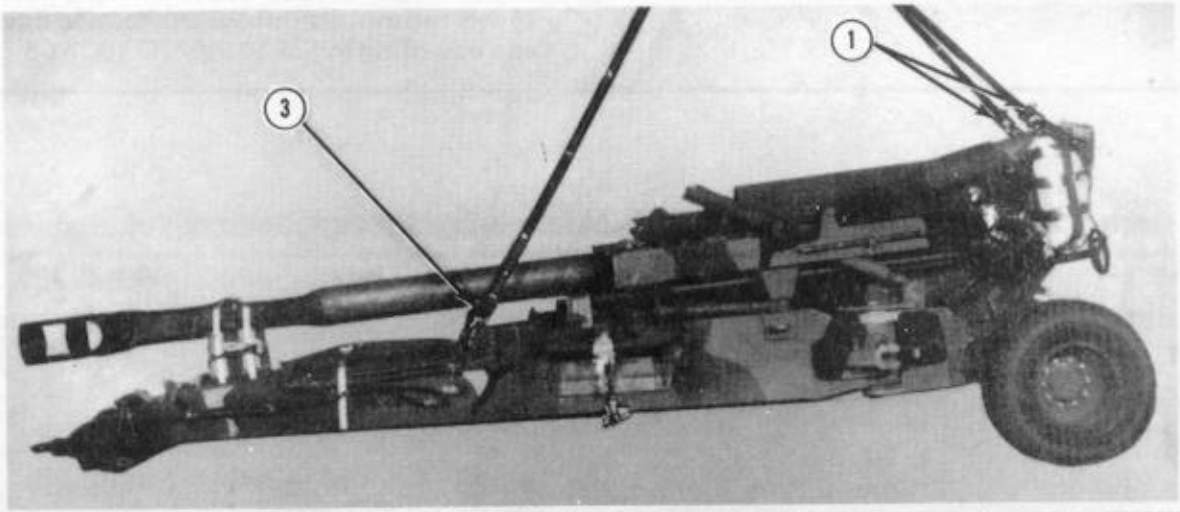
(24) Set the honeycomb stack on the left trail.

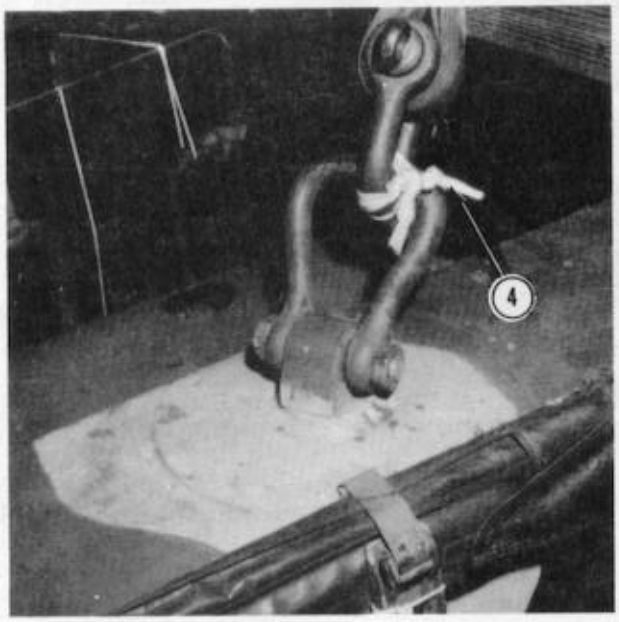
(25) Lay the collimator on the honeycomb stack. Tie the honeycomb and the collimator to the trail with lengths of type III nylon cord.

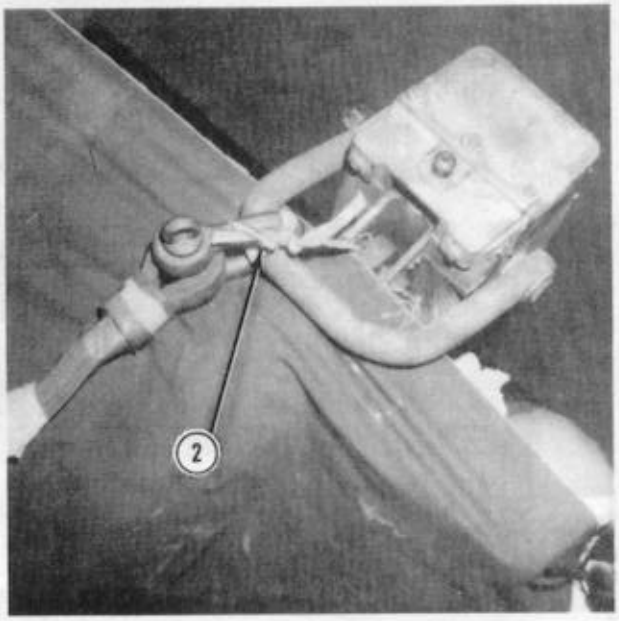
Figure 4-16. Collimator stowed.

4-6. Installing Suspension Slings

Install two 9-foot and two 12-foot (4-loop), type XXVI nylon webbing slings with four screw-pin clevises as shown in figure 4-17.







1. Bolt a 9-foot sling to each top carriage hoisting link with a screw-pin clevis.
2. Tie the screw-pin clevis to the hoisting link with a length of doubled 1/2-inch tubular nylon webbing.
3. Bolt a 12-foot sling to the lifting clevis on each trail with a screw-pin clevis.
4. Tie the screw-pin clevis to the lifting clevis with a length of doubled 1/2-inch tubular nylon webbing.

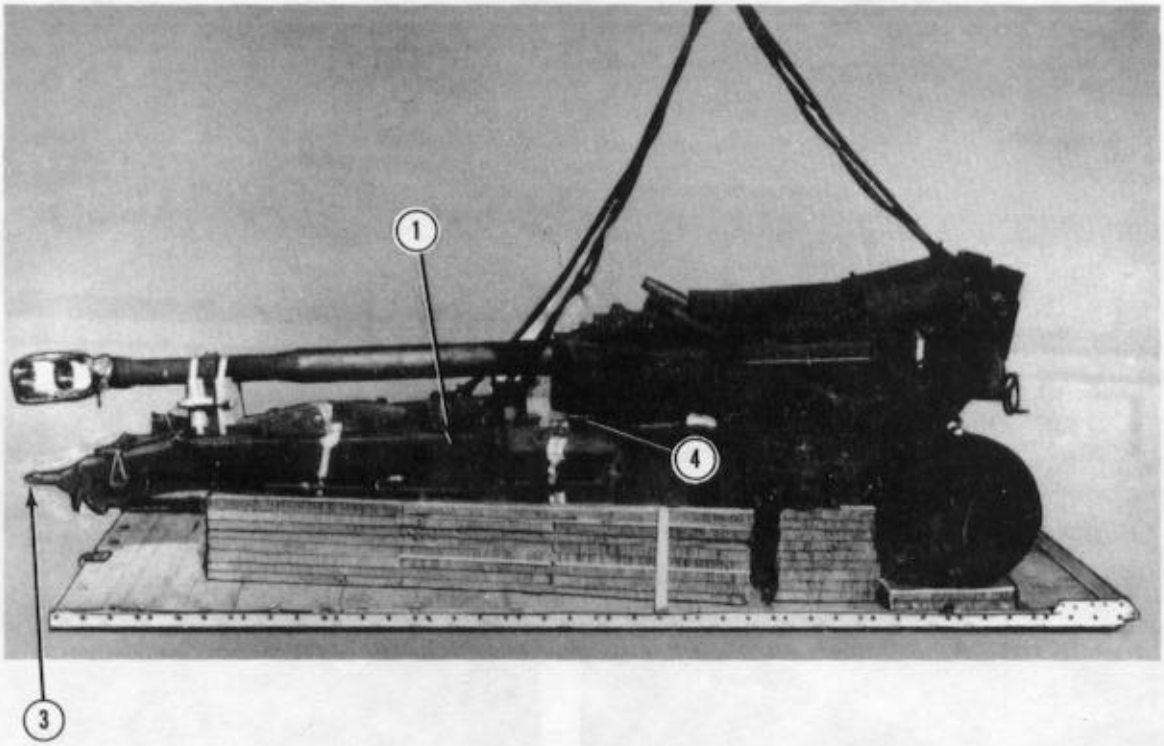
Figure 4-17. Suspension slings installed.

4-7. Setting Howitzer on Platform

Set the howitzer on the honeycomb stacks as shown in figure 4-18.

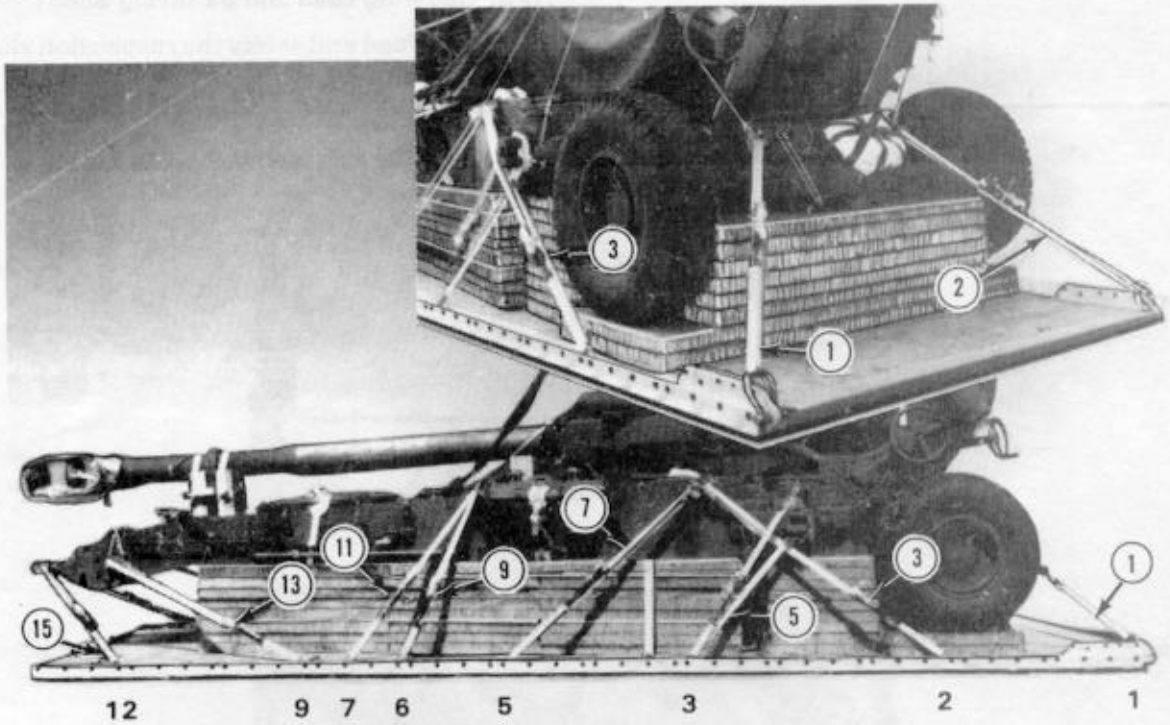
4-8. Lashing Howitzer

Lash the howitzer to the platform with sixteen 15-foot tiedown assemblies as shown in figure 4-19 and according to FM 10-500/TO 13C7-1-5.



1. Center the right trail on stack No 4.
2. Center the left trail on stack No 5 (not shown).
3. Let the lunette overhang the rear edge of the platform by 15 inches.
4. Insure the rear tube support blocks (fig 4-11) are resting solidly on stack No 3.

Figure 4-18. Howitzer sitting on platform.

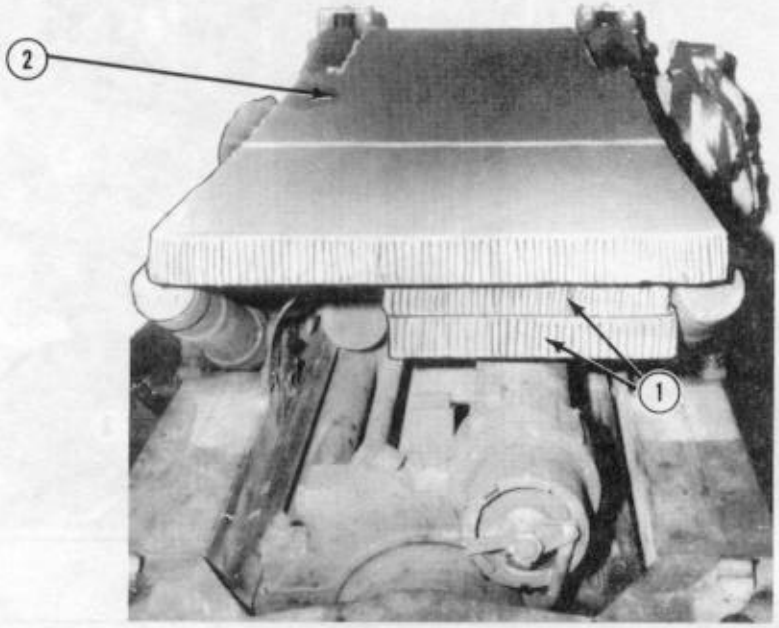


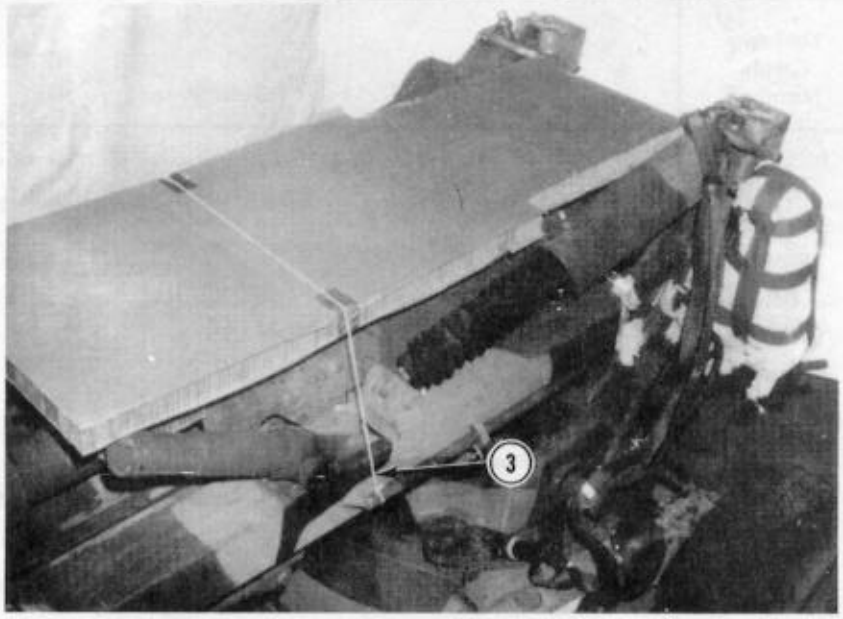
Lashing Number	Tiedown Clevis Number	Instructions
1	1	Through right front tiedown provision on lower carriage
2	1A	Through left front tiedown provision on lower carriage
3	2	Through tiedown provision on right trail
4	2A	Through tiedown provision on left trail
5	3	Around trail lock on right trail
6	3A	Around trail lock on left trail
7	5	Through tiedown provision on right trail
8	5A	Through tiedown provision on left trail
9	6	Through clevis on right corner of cradle assembly
10	6A	Through clevis on left corner of cradle assembly
11	7	Through clevis on right corner of cradle assembly
12	7A	Through clevis on left corner of cradle assembly
13	9	Through tiedown provision on right trail
14	9A	Through tiedown provision on left trail
15	12	Through lunette
16	12A	Through lunette

Figure 4-19. Lashings 1 through 16 installed.

4-9. Covering Load and Safetying Slings

Cover the load and safety the suspension slings as shown in figure 4-20.



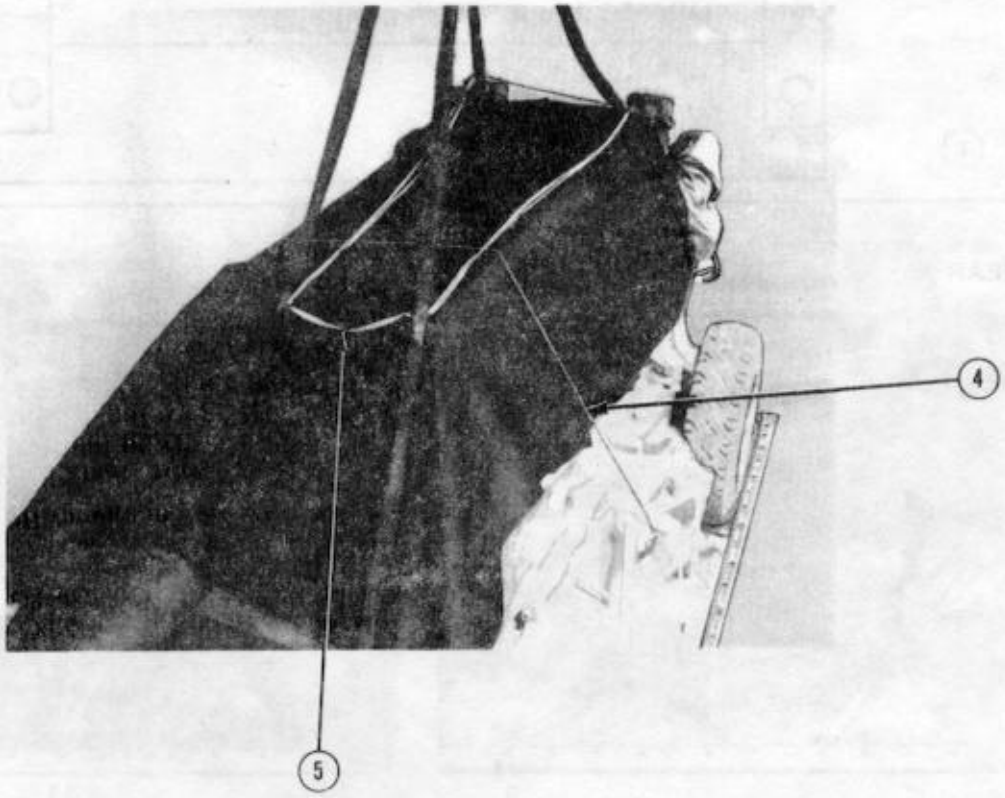


(1) Center two 12- by 18-inch pieces of honeycomb over the front of the recoil tube.

(2) Make two 3- by 36-inch cutouts in a 36- by 96-inch piece of honeycomb, and set the honeycomb on the cradle assembly.

(3) Tie the 36- by 96-inch piece of honeycomb in place with type III nylon cord. Tape the edges of the honeycomb where the nylon cord crosses.

Figure 4-20. Load covered and suspension slings safetied.



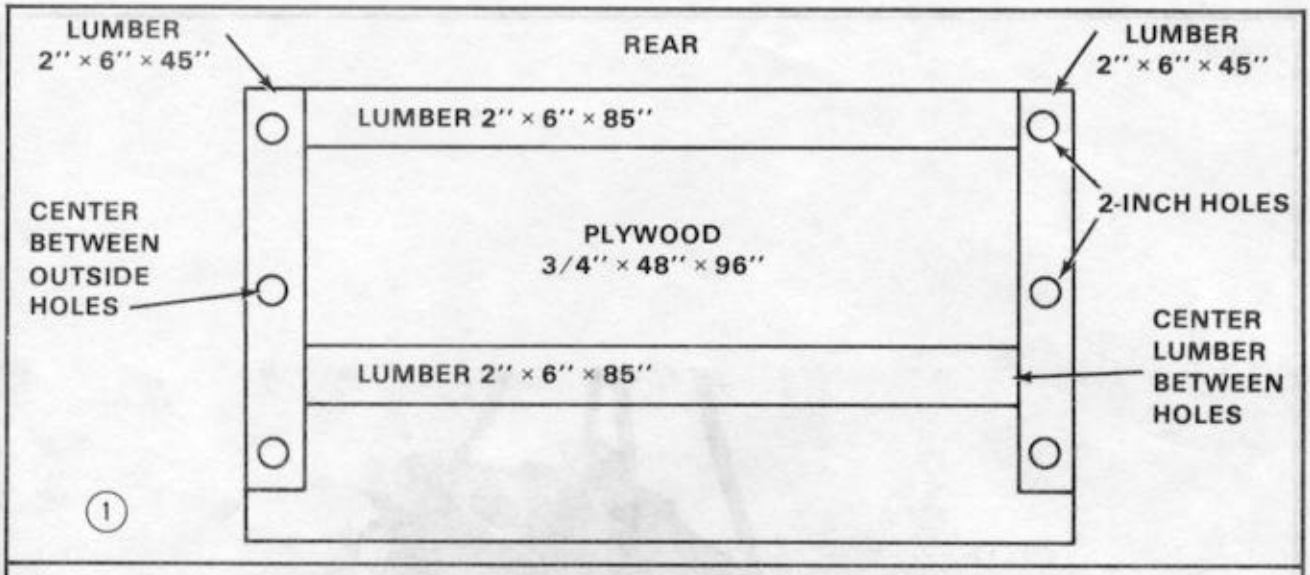
(4) Tie a 12- by 12-foot piece of cotton duck cloth over the load with lengths of type III nylon cord.

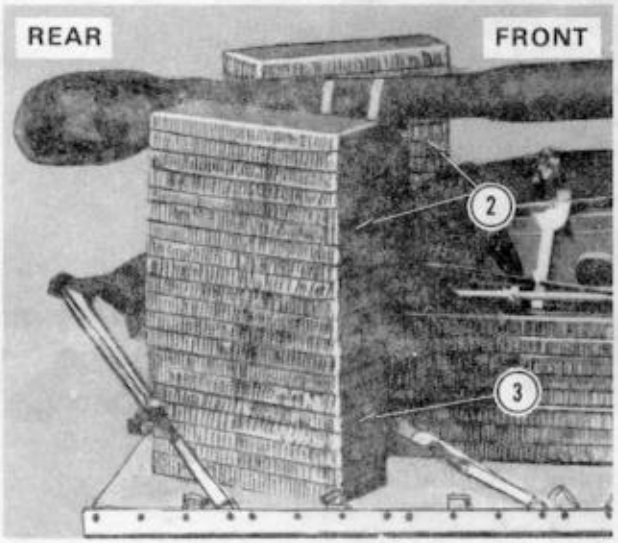
(5) Safety the suspension slings with a deadman's tie according to FM 10-500/TO 13C7-1-5.

Figure 4-20. Continued.

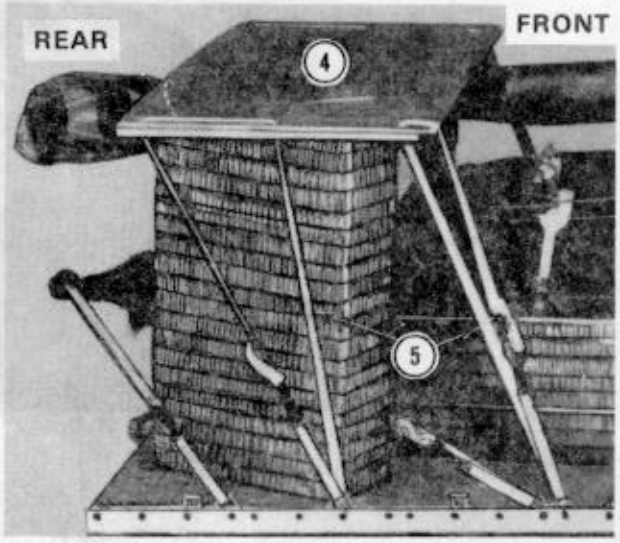
4-10. Stowing Cargo Parachutes

Install the parachute stowage platform as shown in figure 4-21. Prepare and stow six G-11A cargo parachutes as outlined in FM 10-500/TO 13C7-1-5 and as shown in figure 4-22.





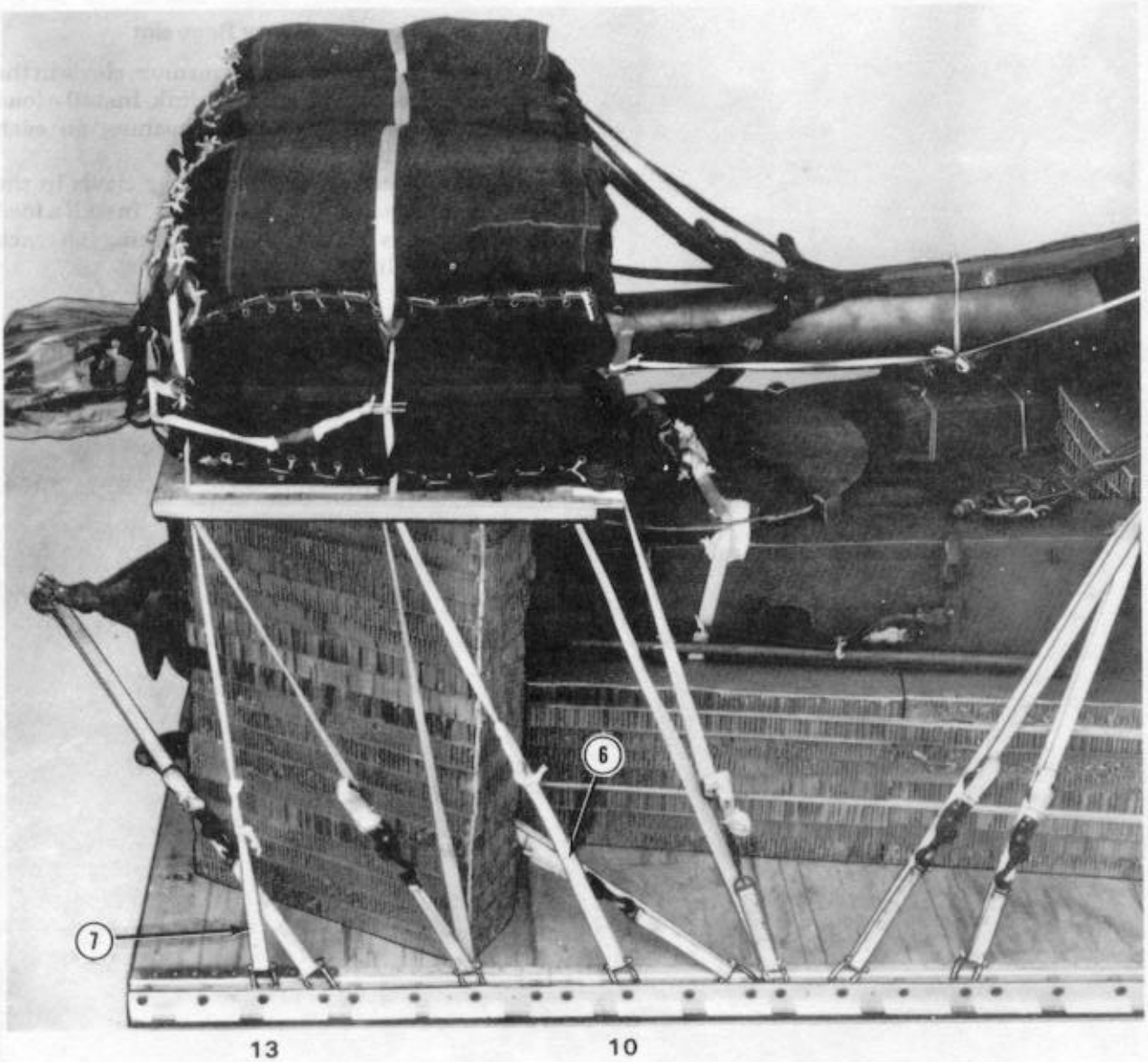
9



11 8

1. Construct the parachute stowage platform as shown. Drill 2-inch holes through the plywood and the end pieces of 2- by 6-inch lumber as shown. Use 8d nails.
2. Make two 20-layer stacks of 12- by 38-inch pieces of honeycomb.
3. Place a stack between the two last lashings on each side of the platform so that the outside rear corner is 5 inches from the rear edge of the platform and the inside front corner of the stack touches the lashing from clevis 9 or 9A.
4. Set the parachute stowage platform on the stacks with the 2- by 6-inch lumber facing down. The rear edge of the parachute stowage platform must be flush with the outside rear corners of the stacks.
5. Lash the parachute stowage platform to clevises 8, 8A, 11, and 11A with four 15-foot tiedown assemblies.

Figure 4-21. Parachute stowage platform installed.



(6) Tie the ends of the first restraint strap to load tiedown clevises 10 and 10A.

(7) Tie the ends of the second restraint strap to load tiedown clevises 13 and 13A.

Figure 4-22. Cargo parachutes stowed.

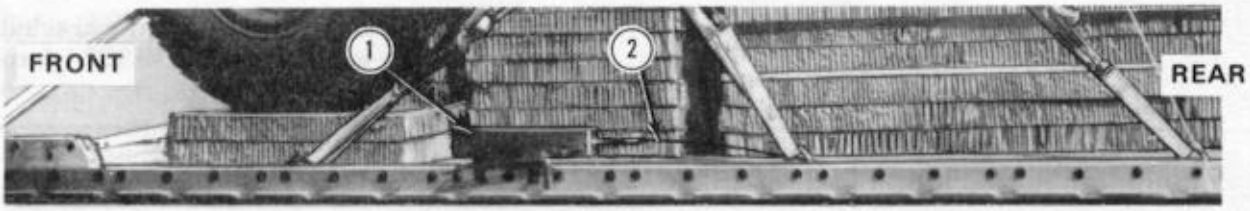
4-11. Installing Extraction System

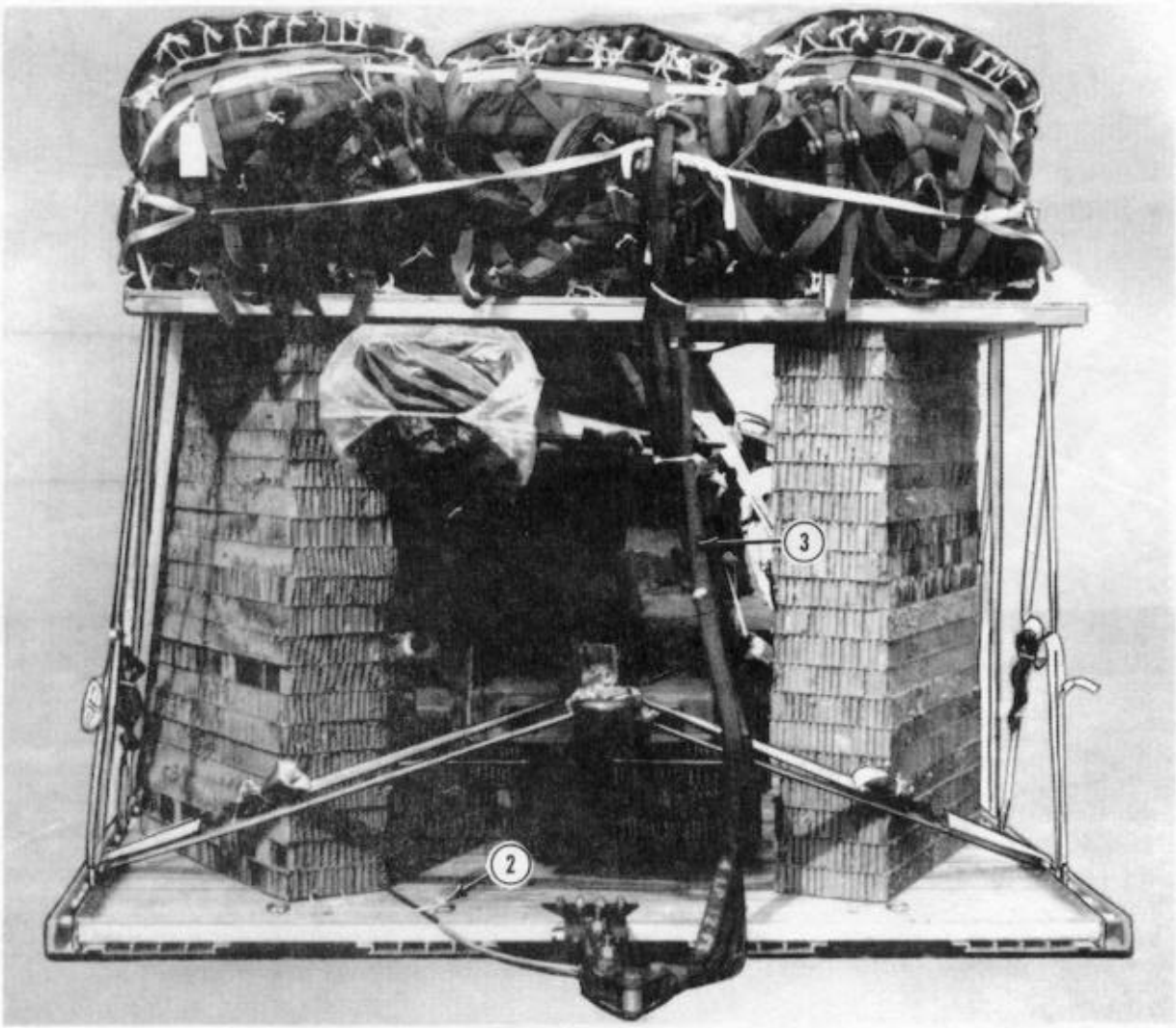
Use the EFTC extraction system on the type V platform. Install the EFTC extraction system according to FM 10-500/TO 13C7-1-5 and as shown in figure 4-23.

4-12. Installing Emergency Restraint

a. C-130 Aircraft. Install a medium clevis in the front hole of each multipurpose link. Install a load tiedown clevis to the second bushing on each multipurpose link.

b. C-141 Aircraft. Install a large clevis in the front hole of each multipurpose link. Install a load tiedown clevis to the second bushing on each multipurpose link.





(1) Bolt the actuator bracket to the rear pair of actuator holes in the left side rail.

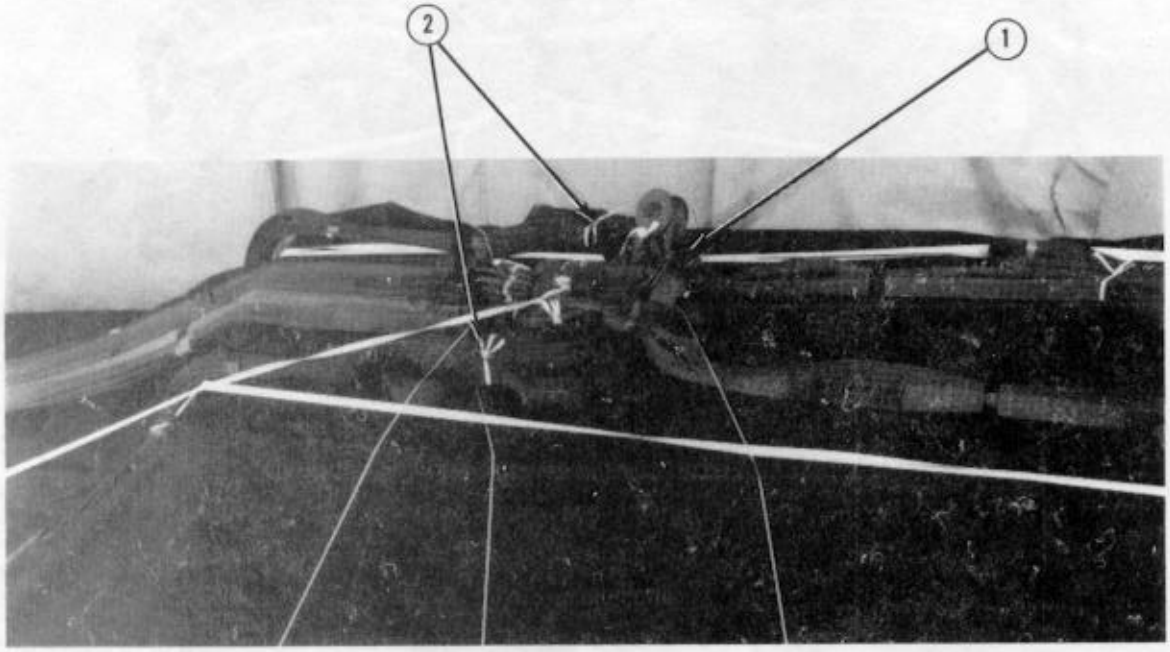
(2) Use a 20-foot cable. Run it rearward inside of the lashings and under the bushings, and tie the cable to deck ring C with 80-pound cotton webbing.

(3) Use a 12-foot (4-loop), type XXVI sling as the deployment line. Fold and tie the slack with 80-pound cotton webbing.

Figure 4-23. EFTC installed.

4-13. Installing Release System

Prepare and install an M-2 cargo parachute release according to FM 10-500/TO 13C7-1-5 and as shown in figure 4-24.



(1) Install the M-2 cargo parachute release according to FM 10-500/TO 13C7-1-5.

(2) Fold and tie the excess suspension slings.

(3) Tie the riser extension to the gun tube with 80-pound cotton webbing (not shown). DO NOT use tape on the gun tube. Note: If needed, one stow of riser extension may be removed from the riser extension compartment of each cargo parachute.

Figure 4-24. Cargo parachute release installed.

4-14. Placing Extraction Parachute

Place the extraction parachute as described below.

a. C-130 Aircraft. Place a 28-foot cargo extraction parachute and a 60-foot (3-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

b. C-141 Aircraft. Place a heavy-duty 28-foot cargo extraction parachute and a continuous 140-foot (3-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft. The extraction line is connected to the adapter web of the parachute with a 5 1/2-inch, two-point link assembly.

CAUTION

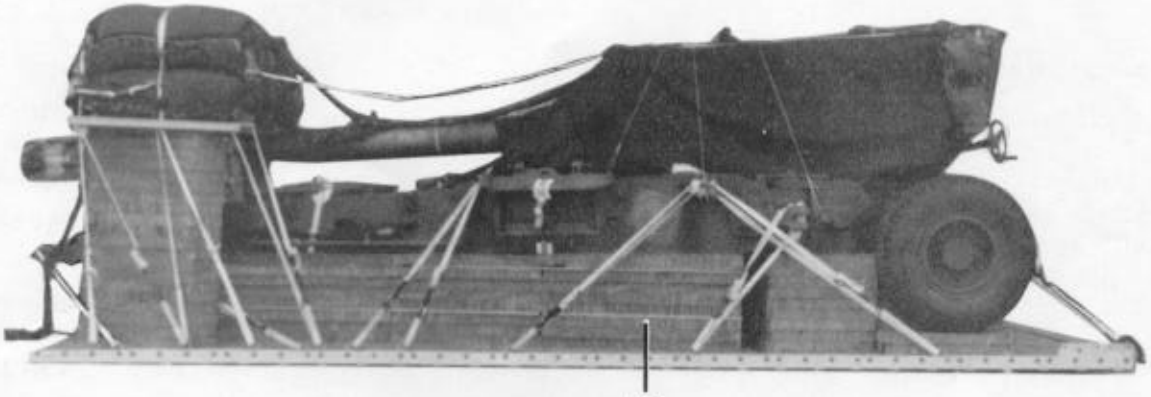
The light-duty 28-foot cargo extraction parachute must NOT be used when the load will be dropped from a C-141 aircraft.

4-15. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in figure 4-25. Complete DD Form 1387-2 (Special Handling Data/ Certification), and securely attach it to the load. If the load varies from that shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.



RIGGED LOAD DATA

* Weight:	Load shown	21,030 pounds
	Maximum load allowed	22,500 pounds
Height		96 inches
Width		108 inches
Length		311 inches
Overhang:	Front (tandem link)	5 inches
	Rear (extraction system)	18 inches
Center of Balance (from front edge of platform)		126 inches
Extraction system		EFTC

* Includes 610 pounds of accompanying equipment

Figure 4-25. M198, 155-mm howitzer rigged for low-velocity airdrop on type V platform.

4-16. Equipment Required

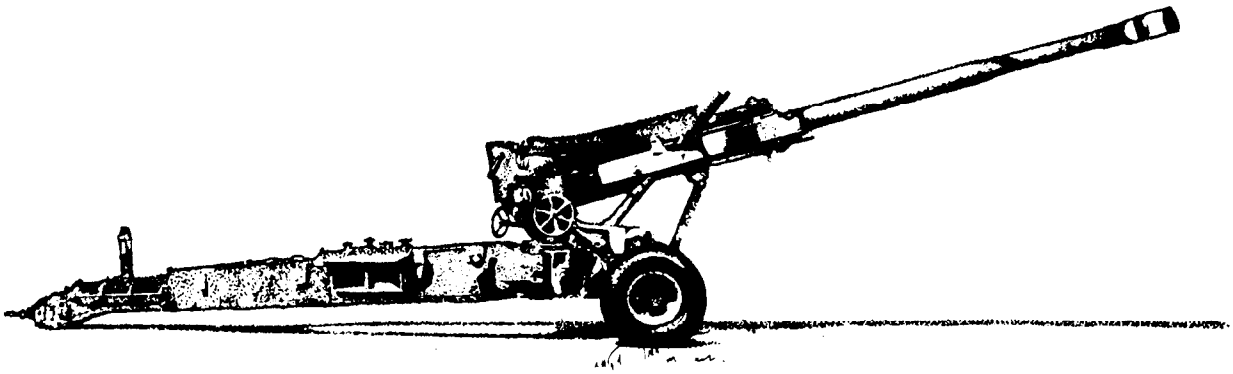
The equipment needed to prepare and rig the M198, 155-mm howitzer for a low-velocity airdrop on the type V platform is listed in table 4-1.

Table 4-1. Equipment required for rigging M198, 155-mm howitzer for low-velocity airdrop on the type V platform

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
1670-00-090-5354	Clevis Assembly, suspension, large, 1-in	5
4030-00-432-2516	Clevis, suspension, with screw pin and sleeve	4
8305-00-242-3593	Cloth, cotton duck, 60-in	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5787	Coupling, airdrop, extraction force transfer, with 20-ft cable	1
1670-00-360-0329	Cover, link (Add one for C-141 aircraft.)	19
8135-00-664-6958	Cushioning Material, packaging, cellulose wadding	As required
	Line, extraction, type XXVI nylon webbing:	
1670-01-062-6313	60-ft (3-loop) (for C-130)	1
1670-01-107-7651	140-ft (3-loop) (for C-141)	1
1670-00-783-5988	Link Assembly, type IV	18
	Link Assembly, two-point	1
5306-00-435-8994	Bolt, 1-in diam, 4-in long	(2)
5310-00-232-5165	Nut, 1-in	(2)
1670-00-003-1953	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
	Lumber:	
5510-00-220-6448	2- by 6- by 12-in	2
5510-00-220-6248	2- by 10- by 12-in	6
5510-00-220-6248	2- by 10- by 57-in	4
5315-00-164-5121	Nail, steel wire, common, 20d	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	34 sheets
	6- by 10-in	(6)
	9- by 36-in	(2)
	10- by 26-in	(1)
	12- by 18-in	(2)
	12- by 38-in	(40)
	18- by 30-in	(15)
	18- by 54-in	(16)
	18- by 96-in	(16)
	30- by 80-in	(9)
	36- by 75-in	(6)
	36- by 96-in	(3)
1670-01-183-2678	Panel, sling/extraction line	2
	Parachute:	
1670-00-269-1107	Cargo, G-11A	6
1670-00-040-8135	Cargo, extraction, 28-ft, heavy-duty (for all aircraft)	1
	Platform, airdrop, type V, 24-ft:	1
1670-01-162-2375	Bracket, inside EFTA	(1)
1670-01-162-2374	Bracket, outside EFTA:	(1)
5306-00-206-2865	Bolt, machine, 3/8-in diam, 1 9/16-in long	(2)
5310-00-950-0039	Nut	(2)
5310-00-167-0821	Washer, flat, 3/8-in diam	(4)

Table 4-1. Continued

National Stock Number	Item	Quantity
1670-01-162-2372	Clevis, load tiedown:	(26)
5306-00-156-2644	Bolt	(26)
5310-00-088-0552	Nut, self-locking	(26)
1670-01-162-2373	Spacer, clevis	(26)
5310-00-809-4061	Washer, flat	(26)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-162-2381	Multipurpose link	(2)
1670-01-162-2388	Pad, roller, 24-ft:	(4)
5306-00-206-2865	Bolt, machine, 3/8-in diam, 1 9/16-in long	(192)
5310-00-167-0821	Washer, flat, 3/8-in diam	(200)
1670-01-168-8397	Panel Assembly, main	(11)
1670-01-168-8398	Panel Assembly, rear	(1)
1670-01-162-2366	Rail, platform side, 24-ft:	(2)
5306-00-638-7718	Bolt, machine, 1/2-in diam, 3 13/64-in long	(96)
1670-01-162-2384	Bushing, side rail	(96)
5310-00-167-0823	Washer, flat, side rail, 7/16-in diam	(96)
5530-00-128-4981	Plywood, 3/4-in:	
	18- by 30-in	1
	18- by 48-in	2
	18- by 54-in	2
	18- by 88-in	2
	18- by 96-in	2
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop:	
	For deployment line:	
1670-01-062-6307	12-ft (4-loop), type XXVI nylon webbing	1
	or	
1670-00-823-5041	12-ft (3-loop), type X nylon webbing	1
	For suspension:	
1670-00-432-2501	9-ft (4-loop), type XXVI nylon webbing	2
1670-00-432-2506	12-ft (4-loop), type XXVI nylon webbing	2
	For riser extension:	
1670-00-753-3794	20-ft (2-loop), type X nylon webbing	24
	or	
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	24
	Stowage Platform:	
5510-00-220-6448	Lumber, 2- by 6- by 45-in	2
5510-00-220-6448	Lumber, 2- by 6- by 85-in	2
5315-00-010-4659	Nail, steel wire, common, 8d	As required
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in	1
1670-00-040-8219	Strap, parachute release, multicut	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tiedown Assembly, 15-ft:	28
1670-00-937-0272	Binder, load, 10,000-lb	(27)
5365-00-937-0147	D-ring, heavy-duty	(29)
1670-00-937-0273	Strap, 15-ft	(29)
	Webbing:	
8305-00-268-2411	Cotton, 80-lb	As required
8305-00-082-5752	Nylon, tubular, 1/2-in, 1,000-lb, natural	As required
8305-00-263-3591	Nylon, type VIII, 3,600-lb	As required



CHAPTER 5

RIGGING M198, 155-MM HOWITZER WITH ACCOMPANYING AMMUNITION LOAD ON A TYPE V PLATFORM

Section I
LOW-VELOCITY AIRDROP

5-1. Description of Load

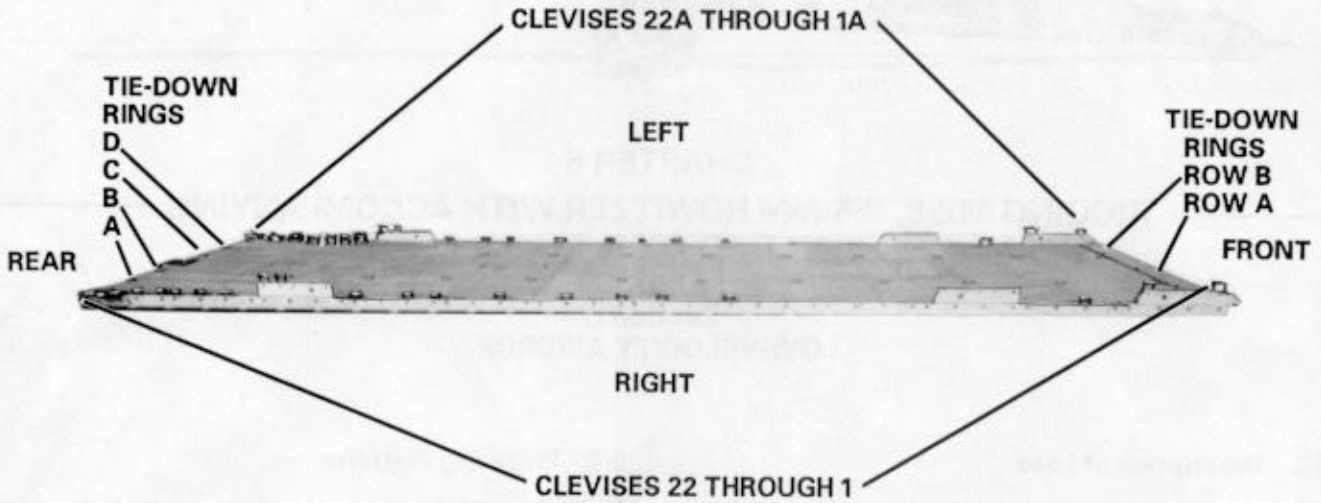
The M198, 155-mm howitzer is rigged on a 24-foot, type V airdrop platform for low-velocity airdrop from C-130 and C-141 aircraft. The howitzer is dropped with an accompanying load of ammunition, water cans, and gun equipment weighing 1,509 pounds. The load requires five G-11B cargo parachutes.

5-2. Preparing Platform

Prepare a 24-foot, type V airdrop platform using four suspension links, two tandem links, and 48 clevis assemblies as shown in Figure 5-1.

Notes: 1. The nose bumper may or may not be installed.

2. Measurements given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.



Step:

1. Inspect, or assemble and inspect, the platform according to TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a suspension link in holes 9, 10, and 11 on each platform side rail. Face the flat part of the link to the front of the rail.
3. Install a suspension link in holes 38, 39, and 40on each platform side rail. Face the flat part of the link to the rear of the rail.
4. Install a tandem link on each platform side rail using holes 1, 2, and 3.
5. Install a clevis on bushings 1 and 4 on each front tandem link.
6. Install a clevis on bushings 3 and 4 on each rear suspension link.
7. Starting at the front of each platform side rail, install clevises on each platform side rail using the bushings bolted on holes 6, 20, 23, 25, 27, 30, 33, 34, 36, 42, 43, 44, 45, and 46.
8. Install clevises in an inverted position on each platform side rail using the bushings bolted on holes 47 and 48. Attach two clevises to each inverted clevis.

Figure 5-1. Platform prepared

Note: When numbering the clevises, disregard the inverted clevises.

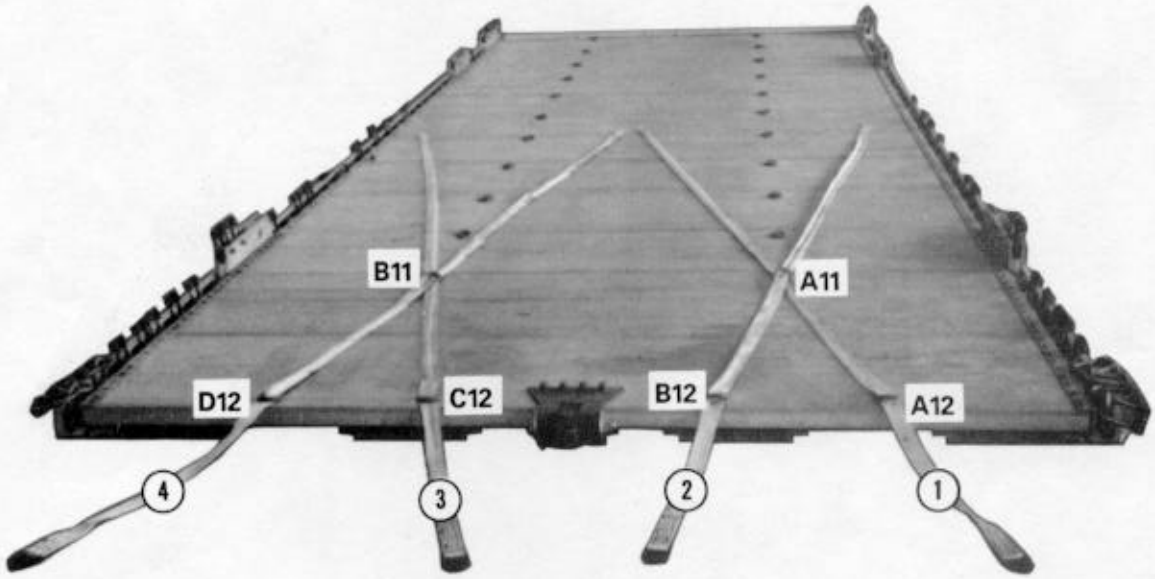
9. Starting at the front of each platform side rail, number the clevises bolted to the right side from 1 through 22 and those bolted to the left side from 1A through 22A.

10. Starting at the front of the platform, label the two tie-down rings in the first 11 panels A and B from right to left. Label the four tie-down rings in the last panel A, B, C, and D from right to left. Starting with the first panel, number the tie-down rings 1 through 12.

Figure 5-1. Platform prepared (continued)

5-3. Rigging Accompanying Ammunition Load

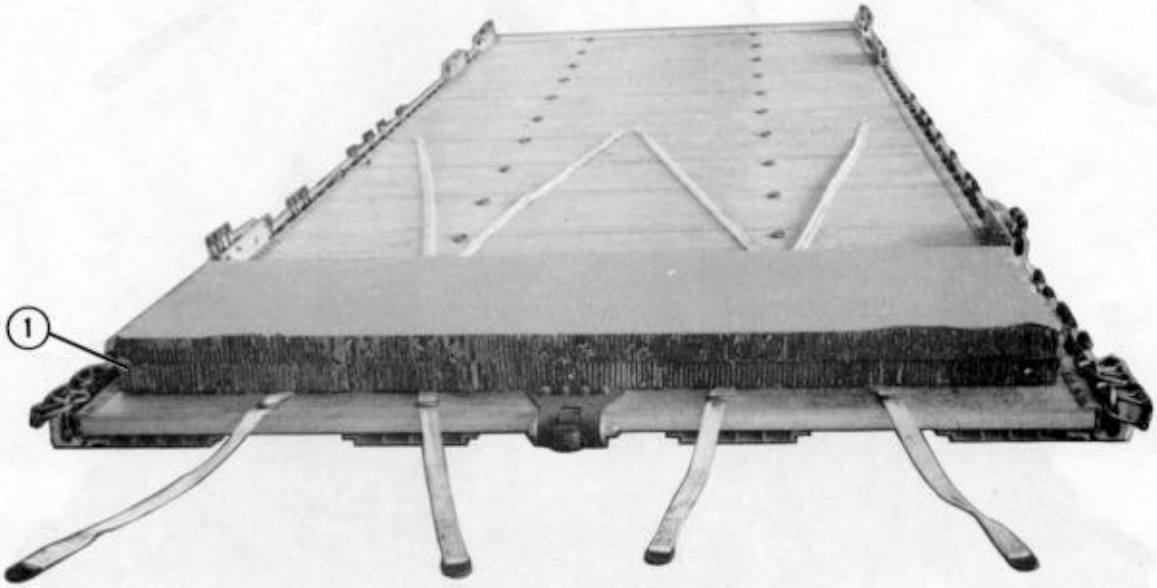
Rig the accompanying ammunition load (two groups of eight projectiles each) on the rear of the platform as shown in Figures 5-2 through 5-7.



REAR

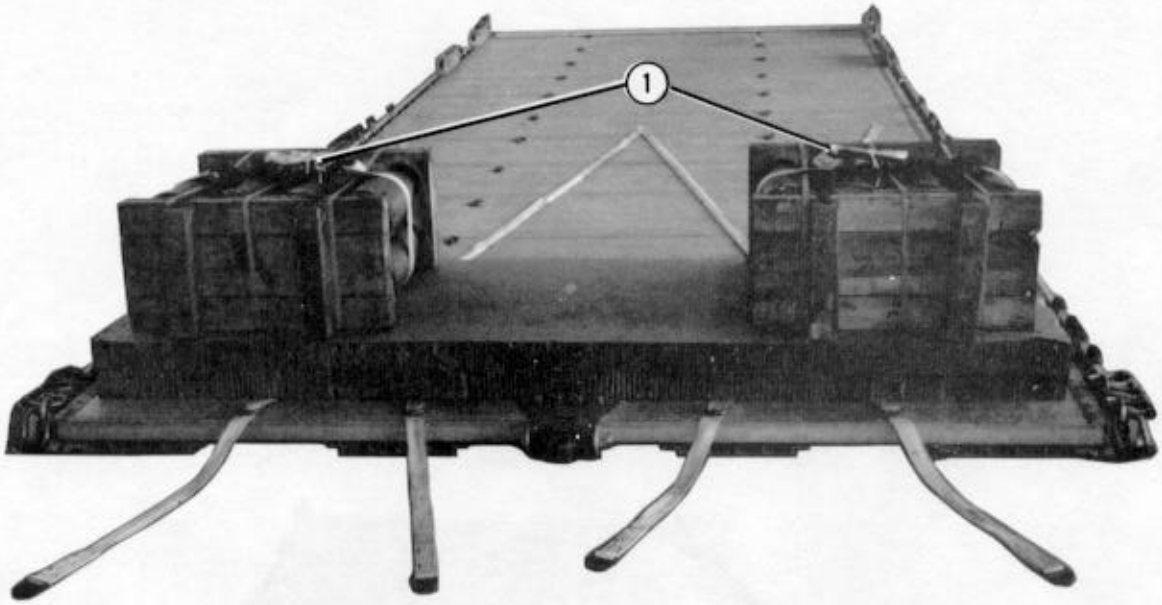
1. Pass a 15-foot lashing through tie-down rings A12 and A11.
2. Pass a 15-foot lashing through tie-down rings B12 and A11.
3. Pass a 15-foot lashing through tie-down rings C12 and B11.
4. Pass a 15-foot lashing through tie-down rings D12 and B11.

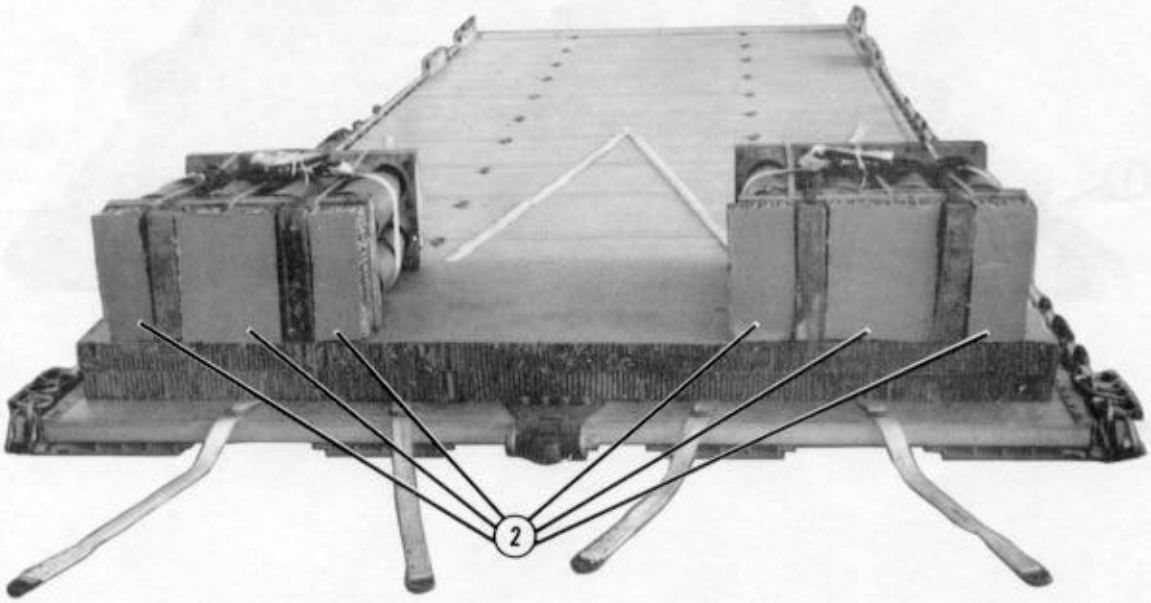
Figure 5-2. Lashings positioned



(1) Center two 96- by 31-inch pieces of honeycomb on top of the lashings 6 inches from the rear edge of the platform.

Figure 5-3. Honeycomb positioned



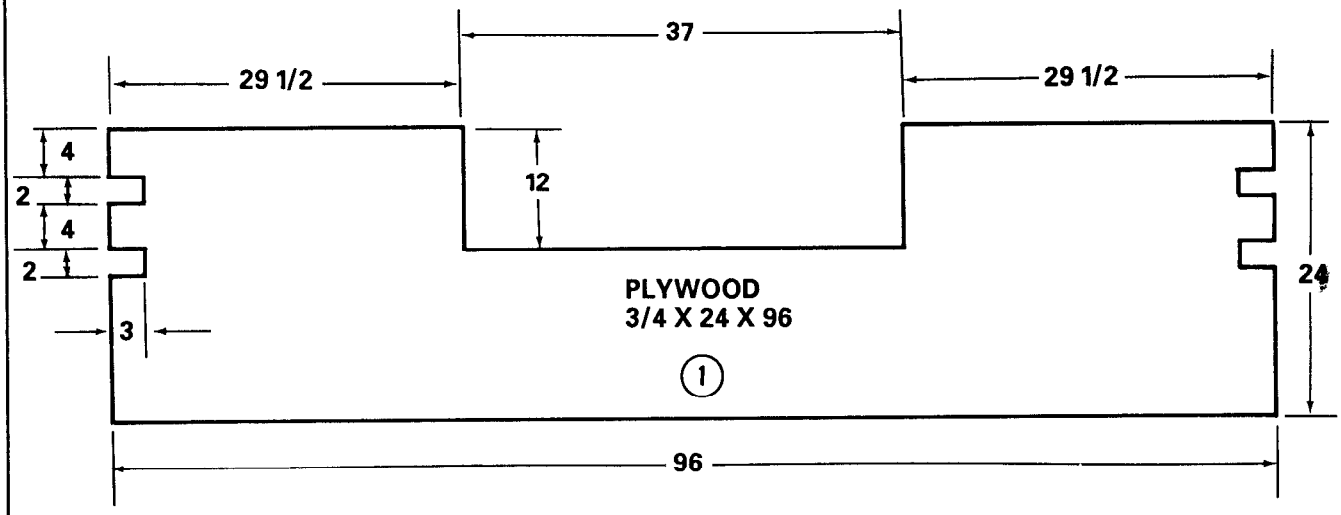


(1) Bind each group of projectiles together with a 15-foot lashing. Place one group of projectiles on each end of the honeycomb 3 inches from each side. Face the base ends of the projectiles to the rear of the platform.

(2) Cut four 5- by 13-inch pieces of honeycomb and two 10- by 13-inch pieces of honeycomb. Place the 10- by 13-inch pieces of honeycomb between the slots at the rear of the projectile groups. Place a 5- by 13-inch piece of honeycomb on each end of the rear of the projectile groups.

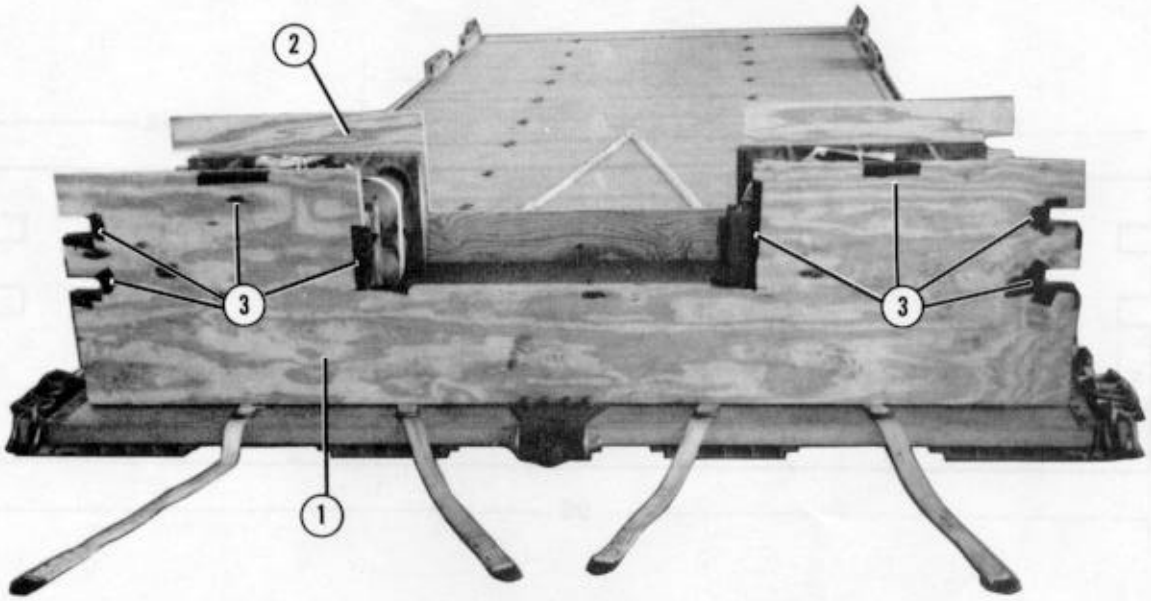
Figure 5-4. Projectiles positioned

Notes: 1. This drawing is not drawn to scale.
2. All measurements are given in inches.



(1) Cut three endboards as shown.

Figure 5-5. Endboards prepared

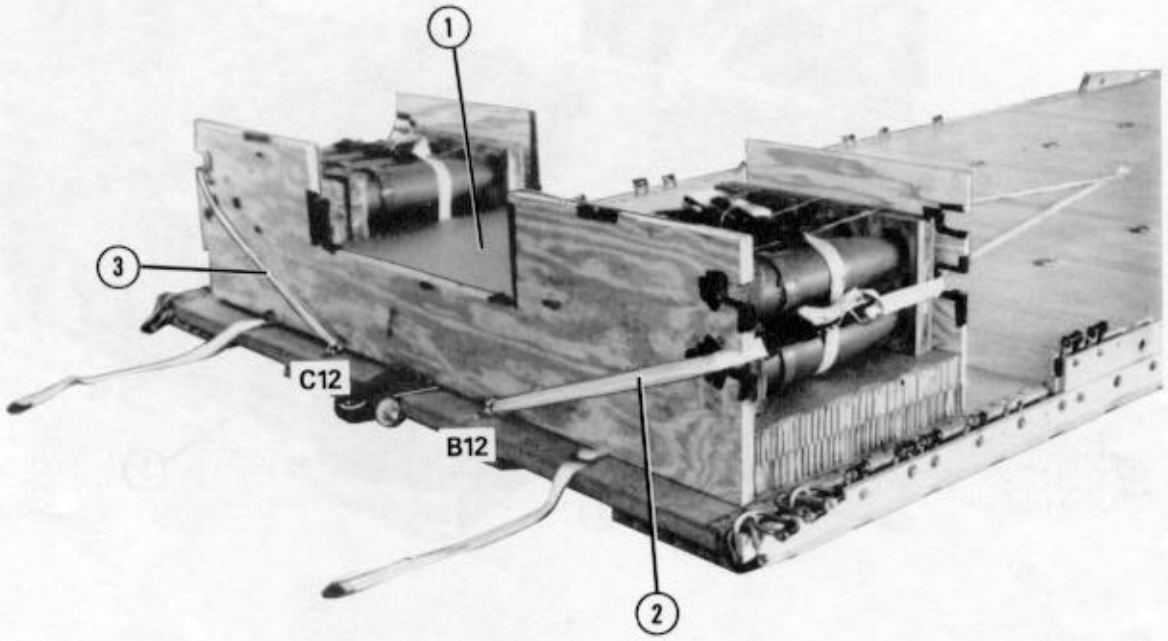


(1) Place two endboards against the rear of the load.

(2) Place one endboard against the front of the load.

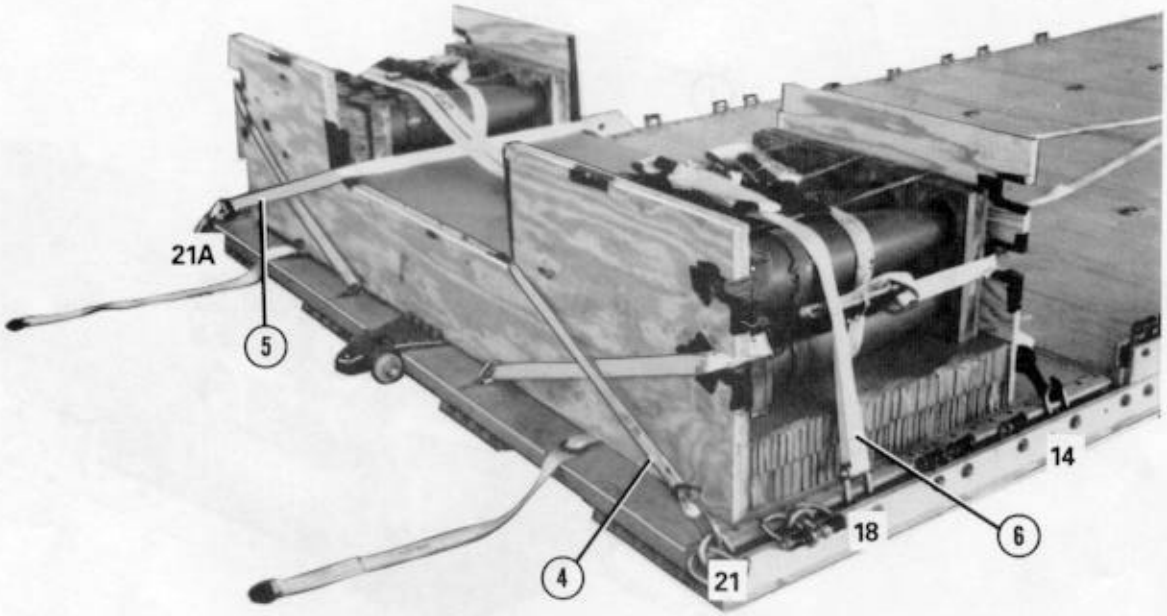
(3) Tape all cutouts and top edge on endboards.

Figure 5-6. Endboards positioned



1. Place two 36- by 31-inch pieces of honeycomb between the two projectile groups.
2. Pass the pre-positioned lashing in tie-down rings A11 and B12 through the lower cutouts in the right side of the endboards. Secure the lashing with a D-ring and a load binder on the right side of the projectiles.
3. Repeat step 2 for tie-down rings B11 and C12 for the left side of the endboards.

Figure 5-7. Projectiles lashed to platform



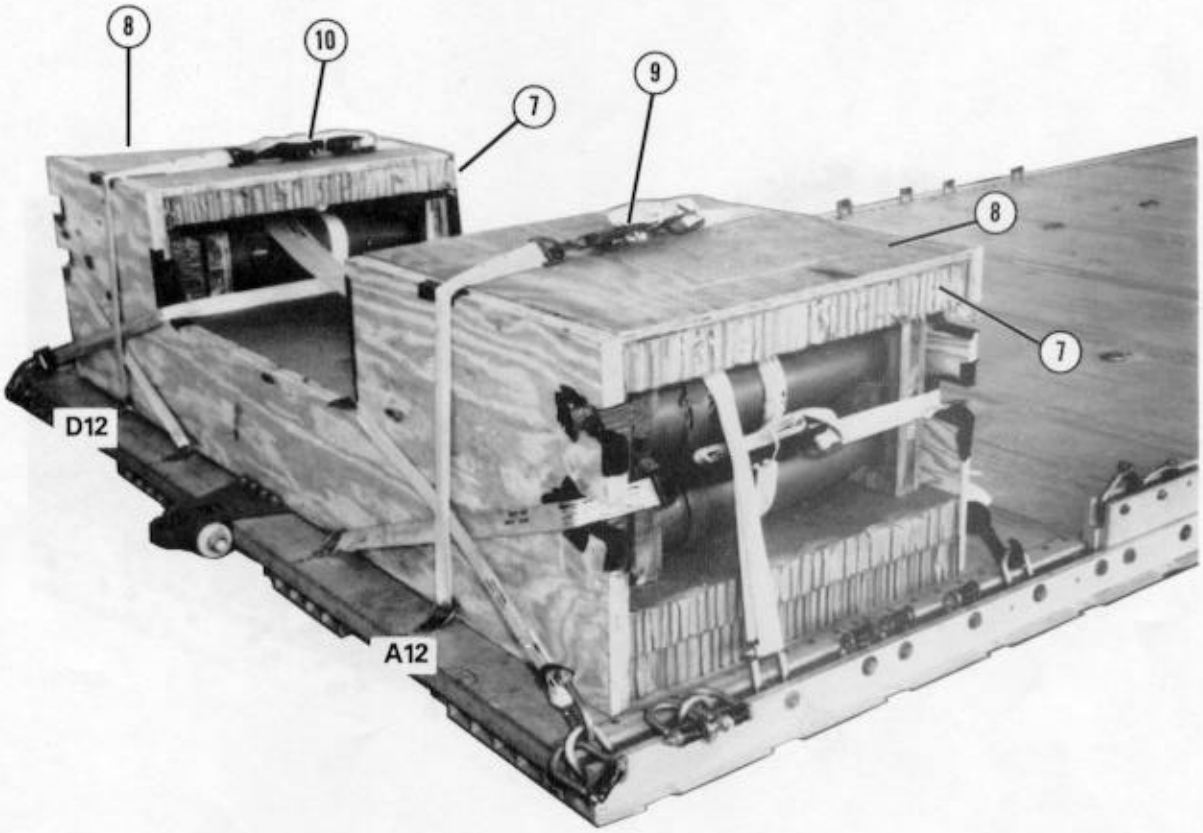
(4) Pass a 15-foot lashing through clevis 21 and through its own D-ring. Pass the lashing around the center cutouts of the endboards. Invert clevis 14, and secure the lashing with a D-ring and a load binder to clevis 14.

(5) Repeat step 4 for clevises 21A and 14A.

(6) Form a 30-foot lashing according to FM 10-500-2/TO 13C7-1-5. Pass one end of the lashing through clevis 18 and the other end through clevis 18A. Secure the ends of the lashing on top of the projectiles with two D-rings and a load binder.

Note: Leave a little slack in the lashing. When the howitzer is positioned on the platform, the lashing will tighten itself.

Figure 5-7. Projectiles lashed to platform (continued)



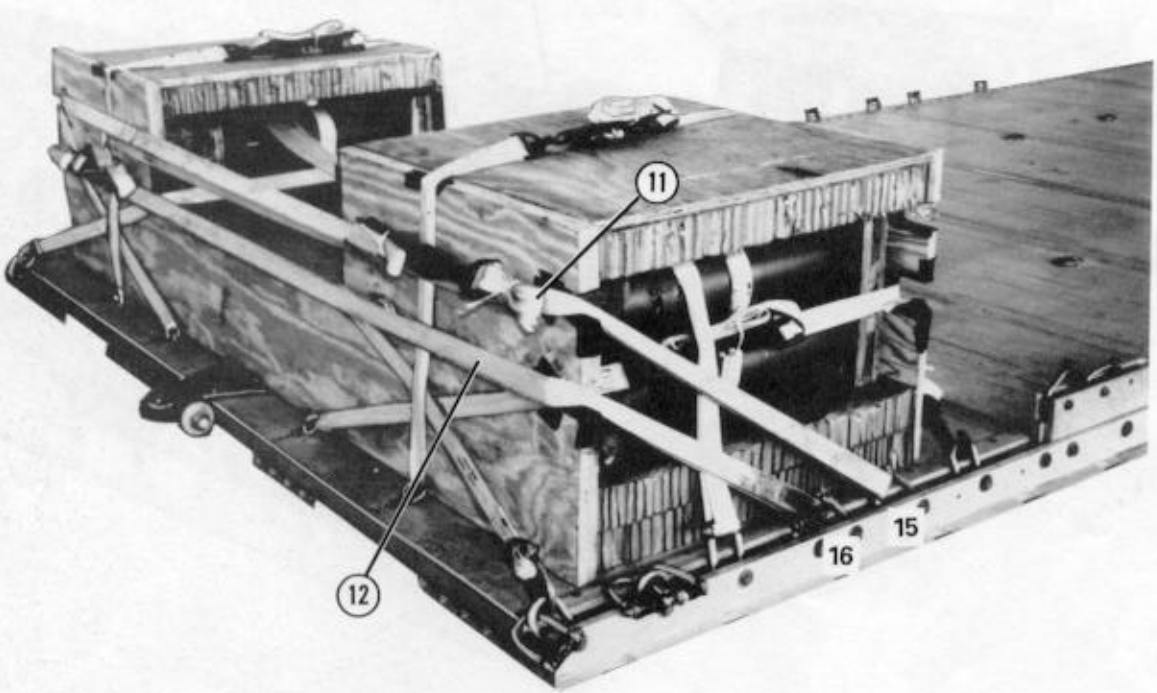
(7) Place a 29- by 31-inch piece of honeycomb flush on top of each projectile group.

(8) Place a 3/4- by 29- by 31-inch piece of plywood on top of each piece of honeycomb placed in step 7.

(9) Pass the pre-positioned lashing in tie-down rings A12 and A11 over the top of the right projectile group. Secure the lashing on top with a D-ring and a load binder.

(10) Repeat step 9 for tie-down rings D12 and B11 for the left projectile group.

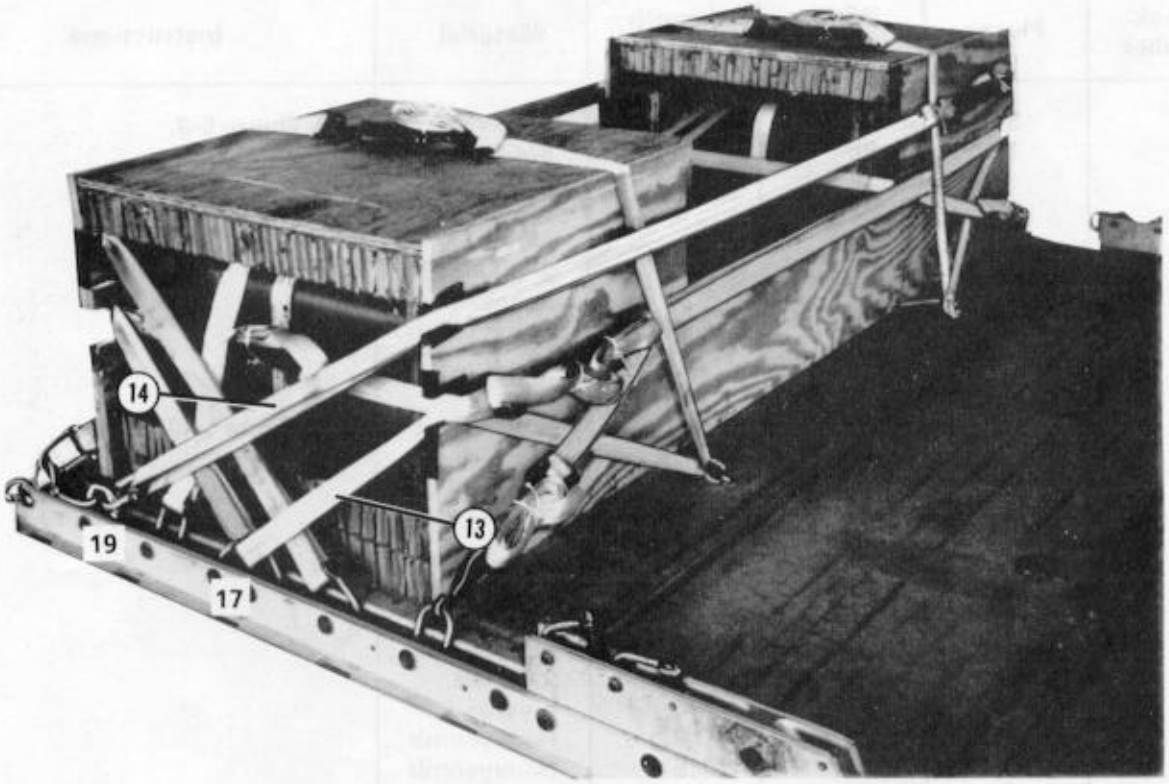
Figure 5-7. Projectiles lashed to platform (continued)



(11) Form a 30-foot lashing according to FM 10-500-2/TO 13C7-1-5. Run the lashing through clevises 15 and 15A and through the upper cutouts in the rear endboards. Secure the lashing on the right side of the rear endboards with two D-rings and a load binder.

(12) Form a 30-foot lashing according to FM 10-500-2/TO 13C7-1-5. Run the lashing through clevises 16 and 16A and through the lower cutouts in the rear endboards. Secure the lashing on the left side of the rear endboards with two D-rings and a load binder.

Figure 5-7. Projectiles lashed to platform (continued)



(13) Form a 30-foot lashing according to FM 10-500-2/TO 13C7-1-5. Run the lashing through clevises 17 and 17A and through the lower cutouts in the front endboard. Secure the lashing on the right side of the front endboard with two D-rings and a load binder.

(14) Form a 30-foot lashing according to FM 10-500-2/TO 13C7-1-5. Run the lashing through clevises 19 and 19A and through the upper cutouts in the front endboard. Secure the lashing on the left side of the front endboard with two D-rings and a load binder.

Figure 5-7. Projectiles lashed to platform (continued)

5-4. Preparing and Positioning Honeycomb Stacks

Prepare five honeycomb stacks as shown in Figures 5-8 through 5-11 using the materials listed in Table 5-1. Position the honeycomb stacks on the platform as shown in Figure 5-12.

Table 5-1. Materials needed to prepare honeycomb stacks

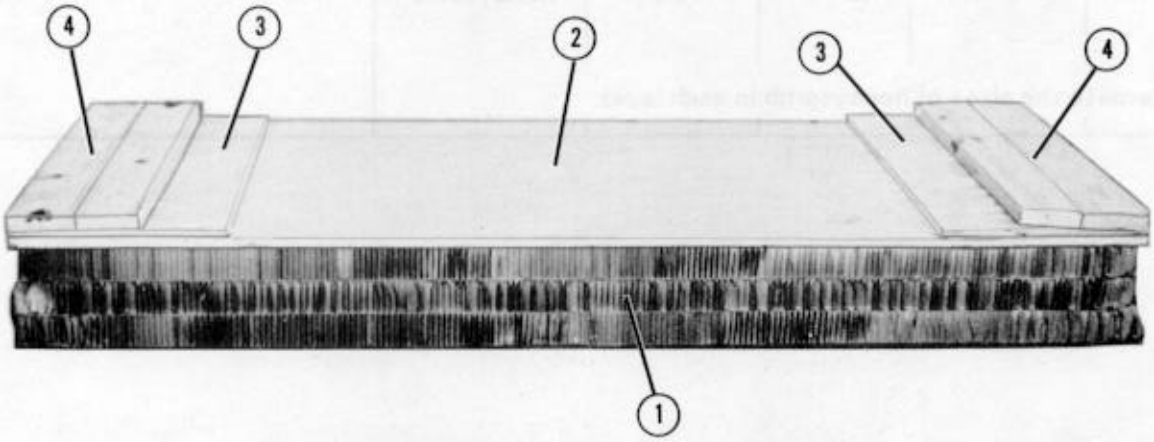
Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
1	3	96	36	Honeycomb	See Figure 5-8.
	1	96	36	3/4-inch plywood	
	2	18	36	3/4-inch plywood	
	4	6	36	2- by 6-inch lumber	
	4	58	36	Honeycomb	
2	7	80	30	Honeycomb	See Figure 5-9.
3	12	30	18	Honeycomb	See Figure 5-10.
	1	30	18	3/4-inch plywood	
	2	30	18	Honeycomb	
4	2*	18	96	Honeycomb	See Figure 5-11.
	2*	18	54	Honeycomb	
	1	18	96	3/4-inch plywood	
	1	18	54	3/4-inch plywood	
	3*	18	96	Honeycomb	
	3*	18	54	Honeycomb	
	1	18	88	3/4-inch plywood	
	1	18	48	3/4-inch plywood	
	1	18	96	Honeycomb	
	1	18	54	Honeycomb	
5	2*	18	96	Honeycomb	See Figure 5-11.
	2*	18	54	Honeycomb	
	1	18	96	3/4-inch plywood	

*Alternate the sizes of honeycomb in each layer.

Table 5-1. Materials needed to prepare honeycomb stacks (continued)

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
	1	18	54	3/4-inch plywood	
	3*	18	96	Honeycomb	
	3*	18	54	Honeycomb	
	1	18	88	3/4-inch plywood	
	1	18	48	3/4-inch plywood	
	1	18	96	Honeycomb	
	1	18	54	Honeycomb	

*Alternate the sizes of honeycomb in each layer.



(1) Place three 96- by 36-inch pieces of honeycomb as the base.

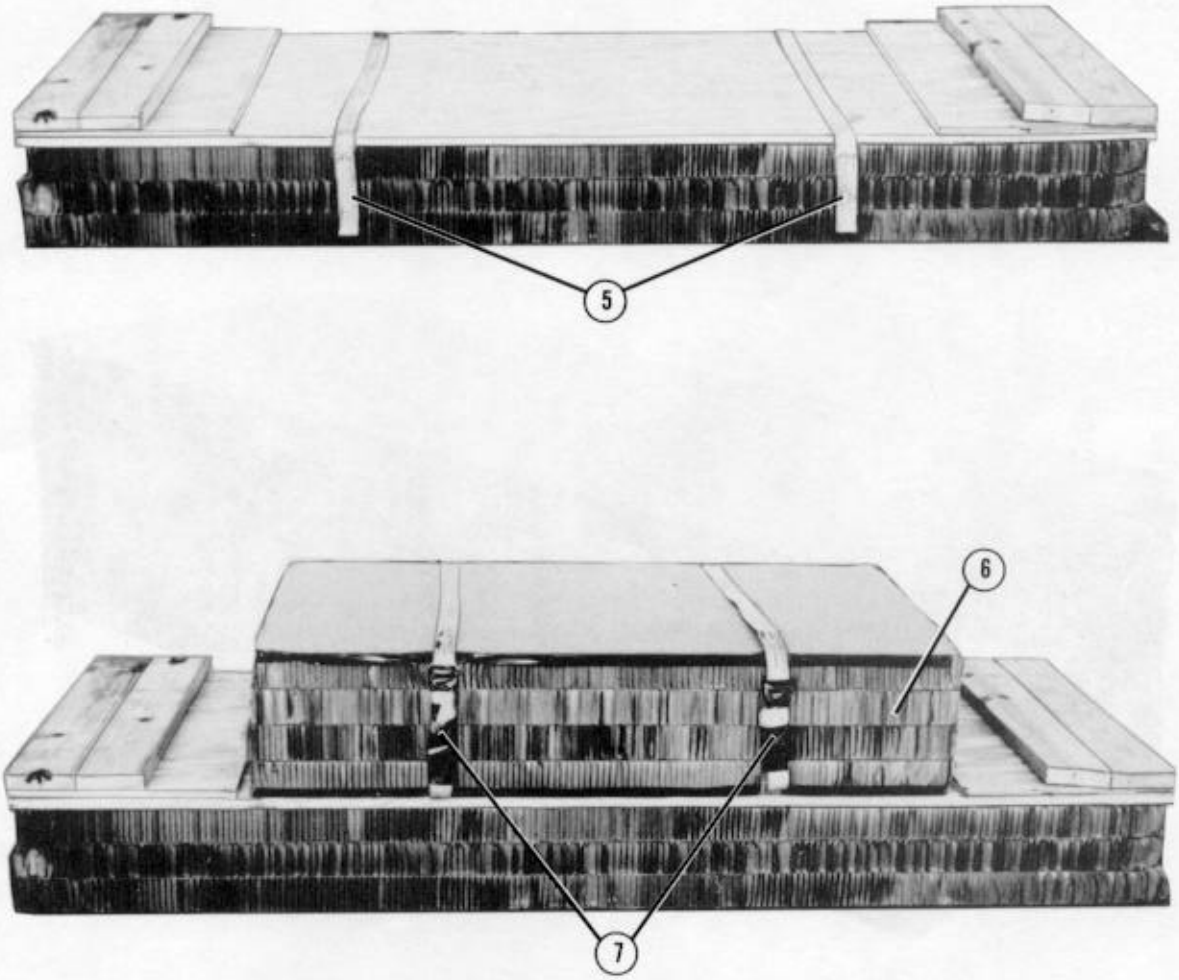
(2) Place a 3/4- by 96- by 36-inch piece of plywood on top of the base.

(3) Place one 3/4- by 18- by 36-inch piece of plywood on top of the 3/4- by 96- by 36-inch piece of plywood, flush with each side edge.

(4) Place two 2- by 6- by 36-inch pieces of lumber side by side. Place them on top of each 3/4- by 18- by 36-inch piece of plywood, flush with each side edge.

Note: Nail the pieces of plywood and lumber together using tenpenny nails.

Figure 5-8. Honeycomb stack 1 prepared



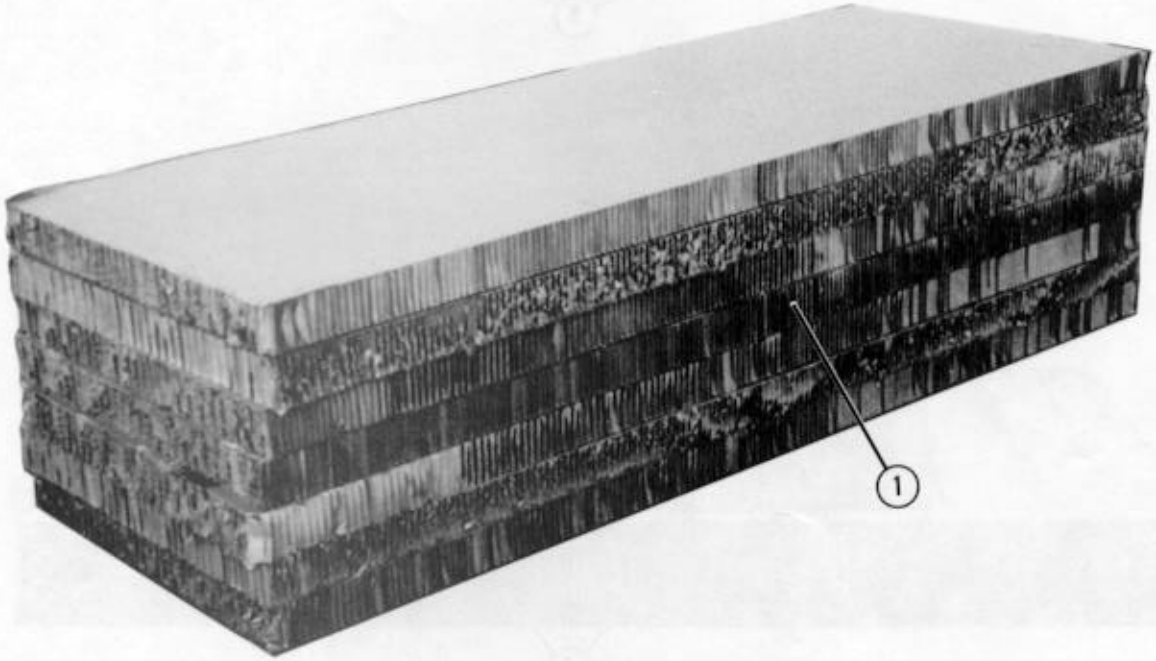
(5) Lay one 15-foot lashing on top of the base stack, 30 inches from each side.

(6) Center four 58- by 36-inch pieces of honeycomb on top of the lashings. Tape the front and rear edges of the top and bottom layers of the 58- by 38-inch honeycomb.

Note: Do NOT glue the 58- by 36-inch pieces of honeycomb to the plywood.

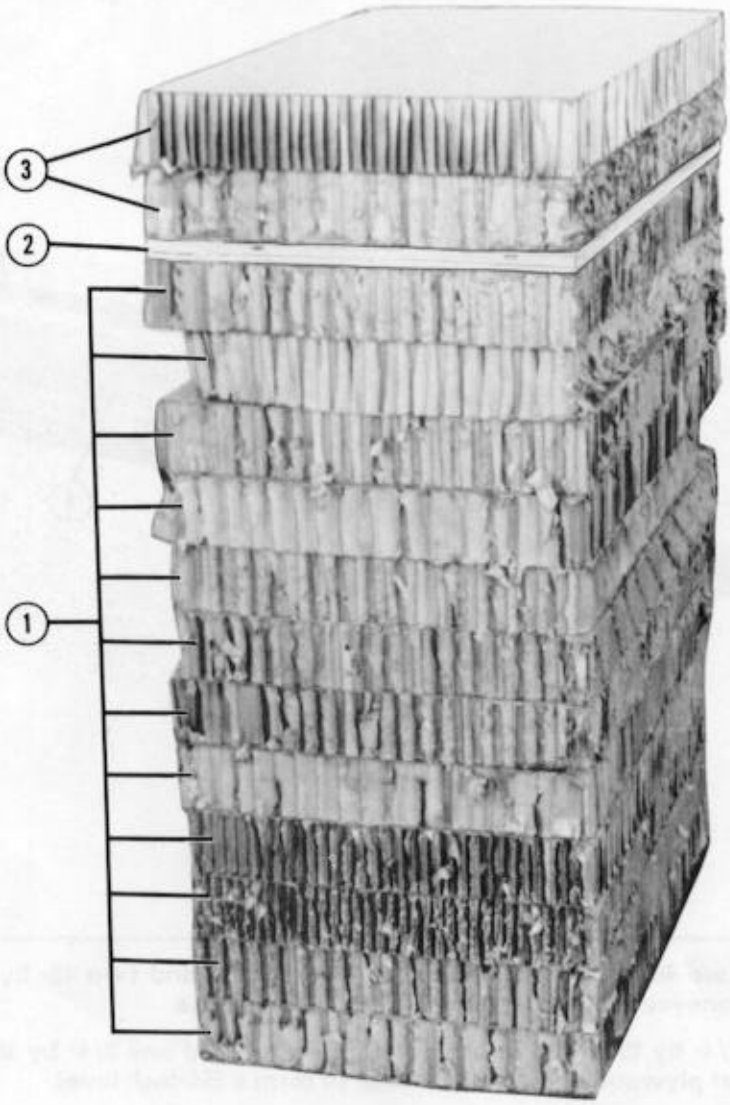
(7) Pass both lashings (step 5) over the stack. Pass the free ends through their own D-rings. Pull the lashings tight, and secure them on the front of the stack. Fold and tape the excess lashings.

Figure 5-8. Honeycomb stack 1 prepared (continued)



(1) Place seven 80- by 30-inch pieces of honeycomb to form the stack.

Figure 5-9. Honeycomb stack 2 prepared

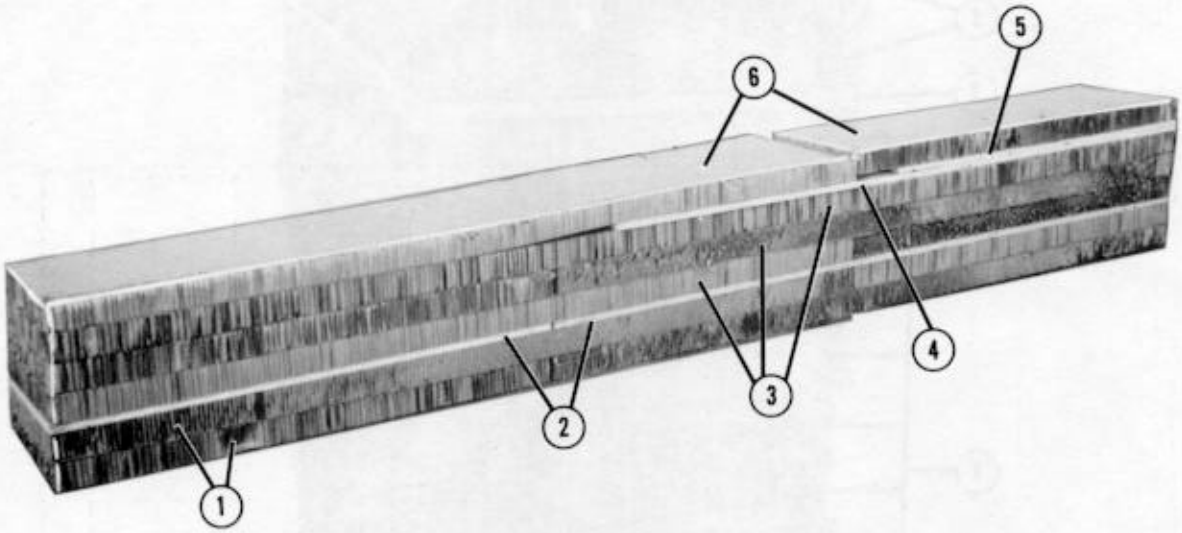


(1) Place twelve 30- by 18-inch pieces of honeycomb as the base.

(2) Place one 3/4- by 30- by 18-inch piece of plywood on top of the base.

(3) Place two 30- by 18-inch pieces of honeycomb on top of the plywood.

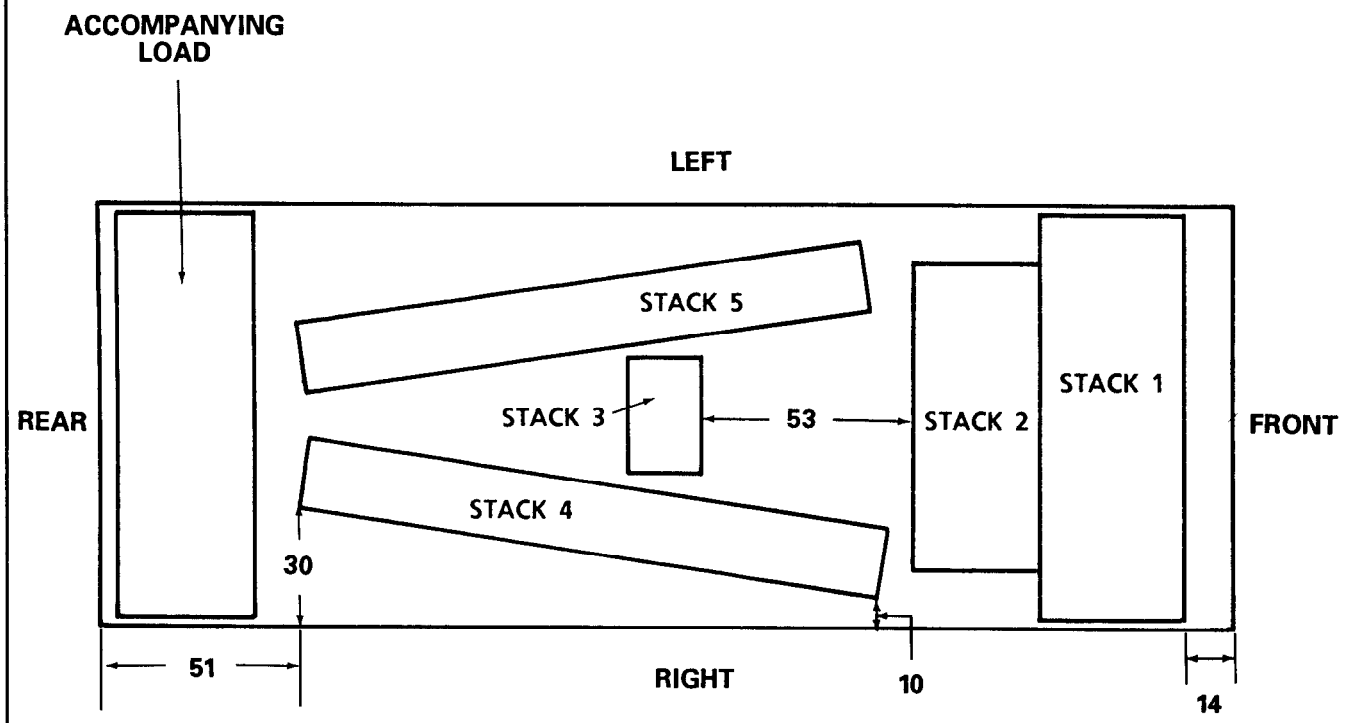
Figure 5-10. Honeycomb stack 3 prepared



1. Alternate two 18- by 96-inch pieces of honeycomb and two 18- by 54-inch pieces of honeycomb to form a two-layer 150-inch base.
2. Place one 3/4- by 18- by 96-inch piece of plywood and one 3/4- by 18- by 54-inch piece of plywood on top of the base to form a 150-inch layer.
3. Alternate three 18- by 96-inch pieces of honeycomb and three 18- by 54-inch pieces of honeycomb to form three 150-inch layers on top of the plywood.
4. Place one 3/4- by 18- by 88-inch piece of plywood on top of the honeycomb flush with the front edge of the stack.
5. Place one 3/4- by 18- by 48-inch piece of plywood on top of the 3/4- by 18- by 88-inch piece of plywood flush with the front edge of the stack.
6. Place one 18- by 96-inch piece of honeycomb and one 18- by 54-inch piece of honeycomb on top of the stack to form a 150-inch layer.
7. Repeat steps 1 through 6 for honeycomb stack 5.

Figure 5-11. Honeycomb stacks 4 and 5 prepared

Notes: 1. This drawing is not drawn to scale.
2. All measurements are given in inches.

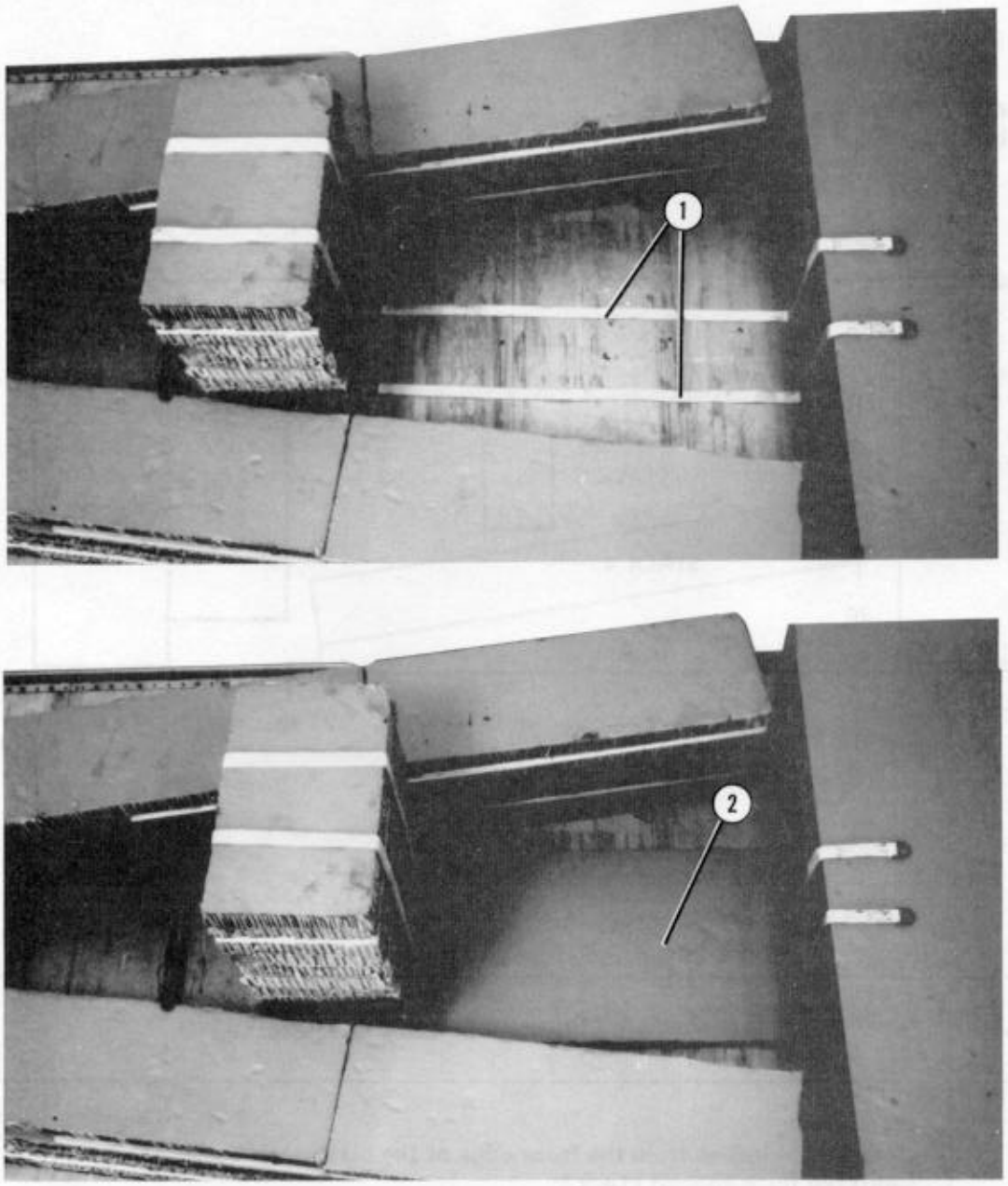


Stack Number	Position of Stack on Platform
	Place stack:
1	Centered 14 inches from the front edge of the platform.
2	Centered flush against stack 1.
3	Centered 53 inches from the rear edge of stack 2.
4	51 inches from the rear edge of the platform. Place the front right corner 10 inches from the right rail. Place the rear right corner 30 inches from the right rail.
5	51 inches from the rear edge of the platform. Place the front left corner 10 inches from the left rail. Place the rear left corner 30 inches from the left rail.

Figure 5-12. Honeycomb stacks positioned on platform

5-5. Stowing Accompanying Equipment

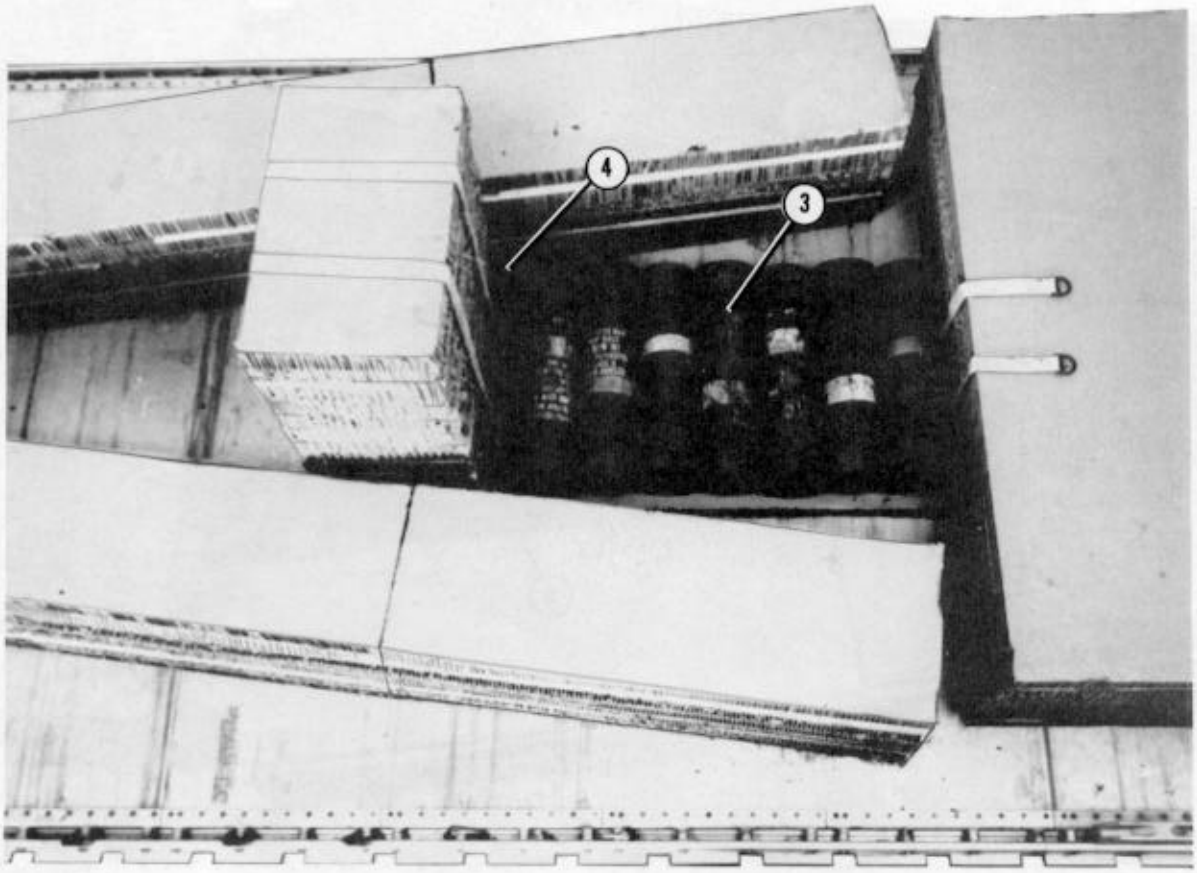
Stow the accompanying equipment as shown in Figures 5-13 and 5-14.



(1) Center two 15-foot lashings 18 inches apart between honeycomb stacks 2 and 3.

(2) Place one 30- by 53-inch piece of honeycomb on top of the lashings.

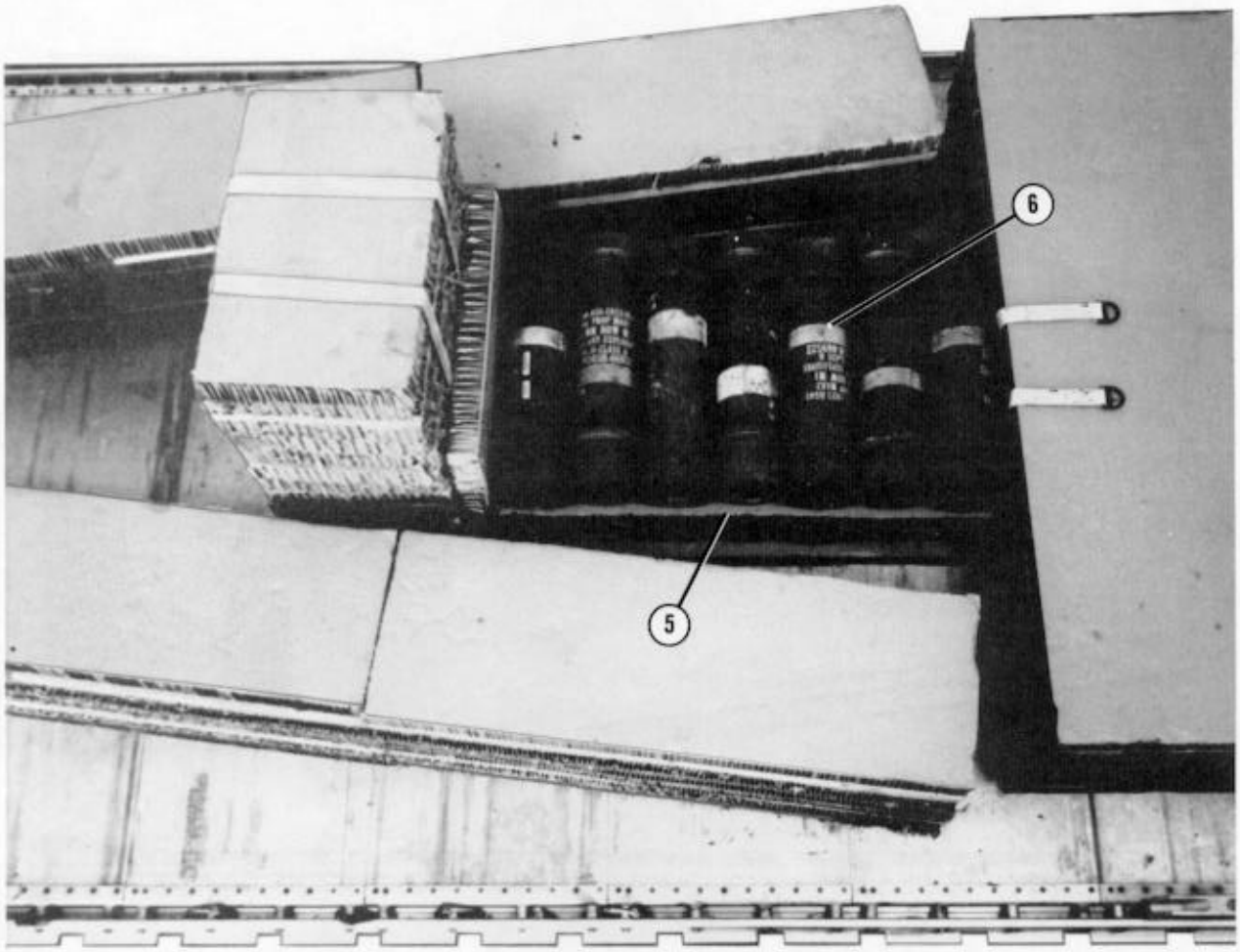
Figure 5-13. Accompanying equipment stowed



(3) Place seven powder canisters on top of the honeycomb.

(4) Wedge a 30- by 30-inch piece of honeycomb on its edge between the rear of the powder canisters and the front edge of honeycomb stack 3.

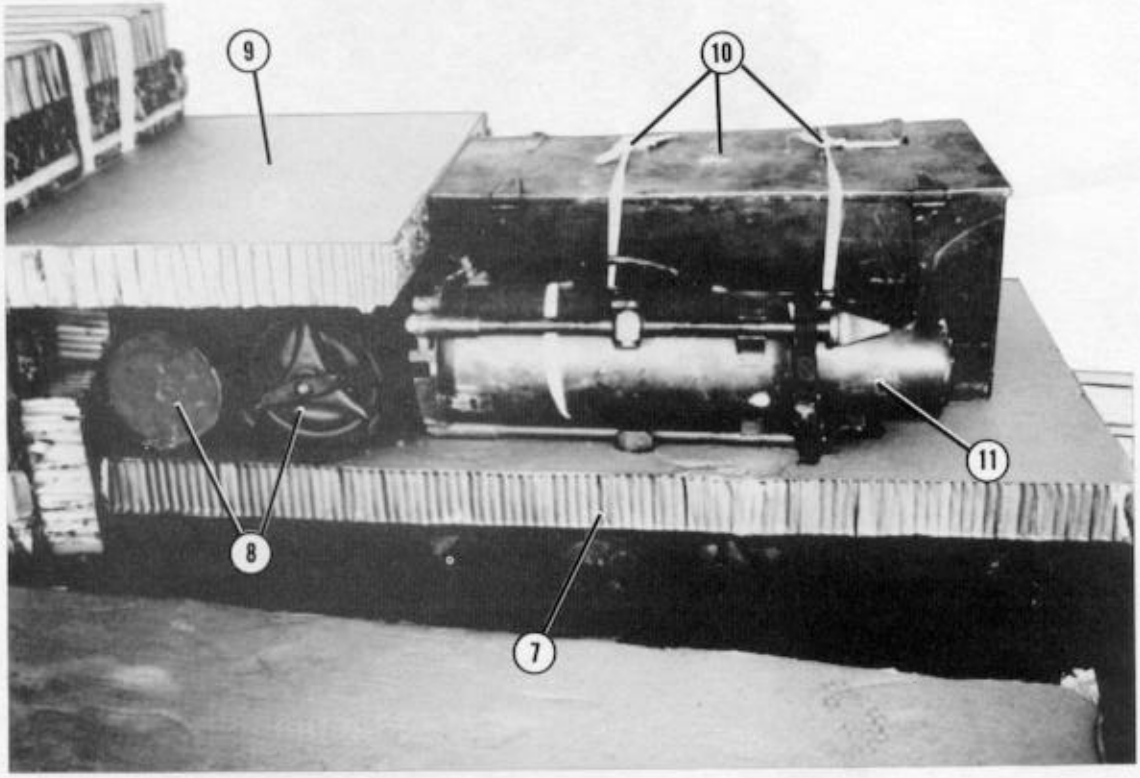
Figure 5-13. Accompanying equipment stowed (continued)



(5) Place a 30- by 50-inch piece of honeycomb on top of the seven powder canisters.

(6) Place seven powder canisters on top of the honeycomb.

Figure 5-13. Accompanying equipment stowed (continued)



(7) Place a 30- by 50-inch piece of honeycomb on top of the seven powder canisters.

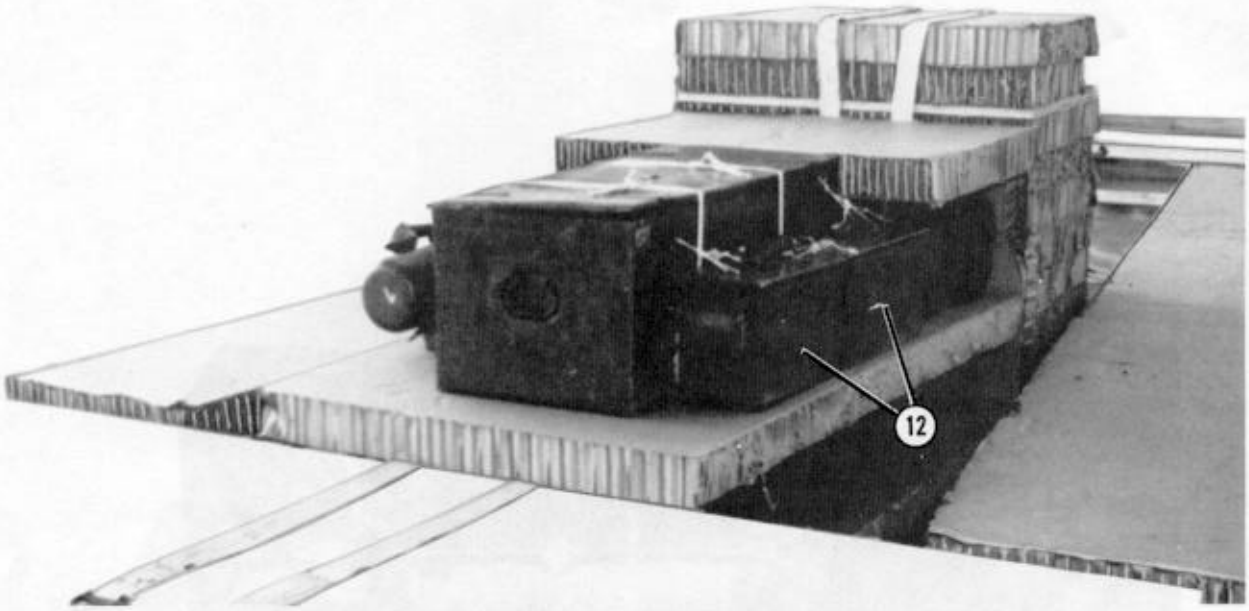
(8) Place two powder canisters side by side against the honeycomb placed in step 4.

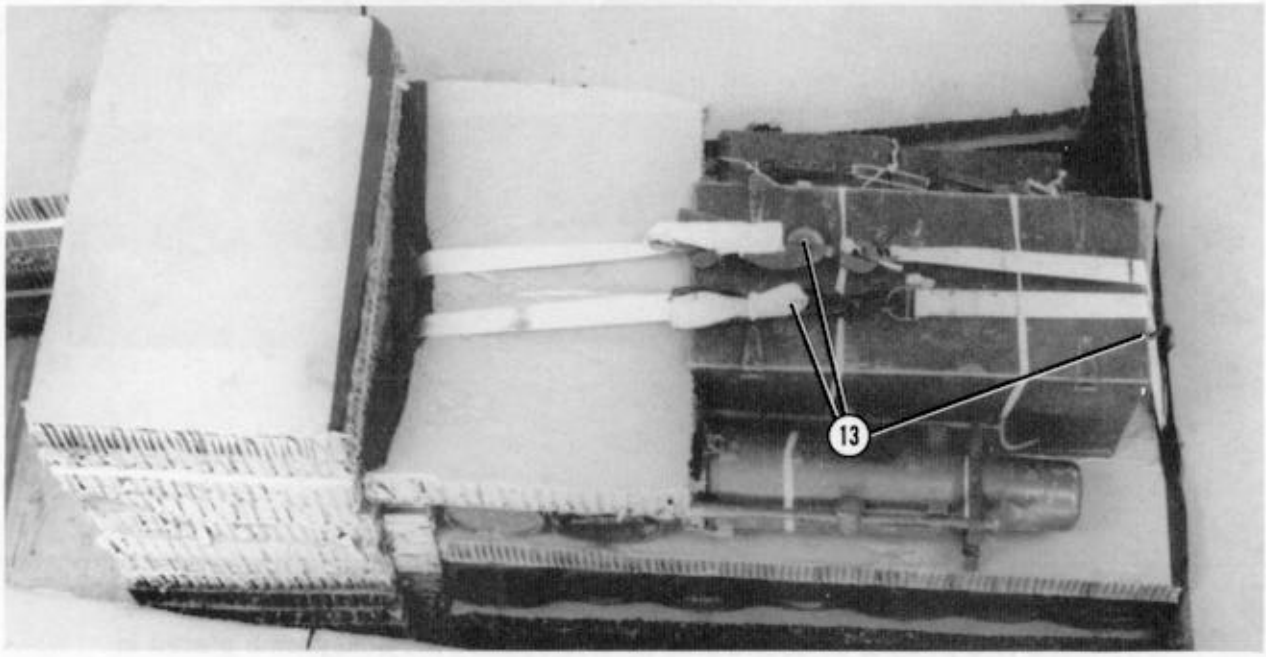
(9) Place a 20- by 30-inch piece of honeycomb on top of the two powder canisters.

(10) Tie the section chest closed with two lengths of 1/2-inch tubular nylon webbing. Center the section chest against the honeycomb placed in step 9.

(11) Tie the collimator to the ties on the right side of the section chest with 1/2-inch tubular nylon webbing.

Figure 5-13. Accompanying equipment stowed (continued)

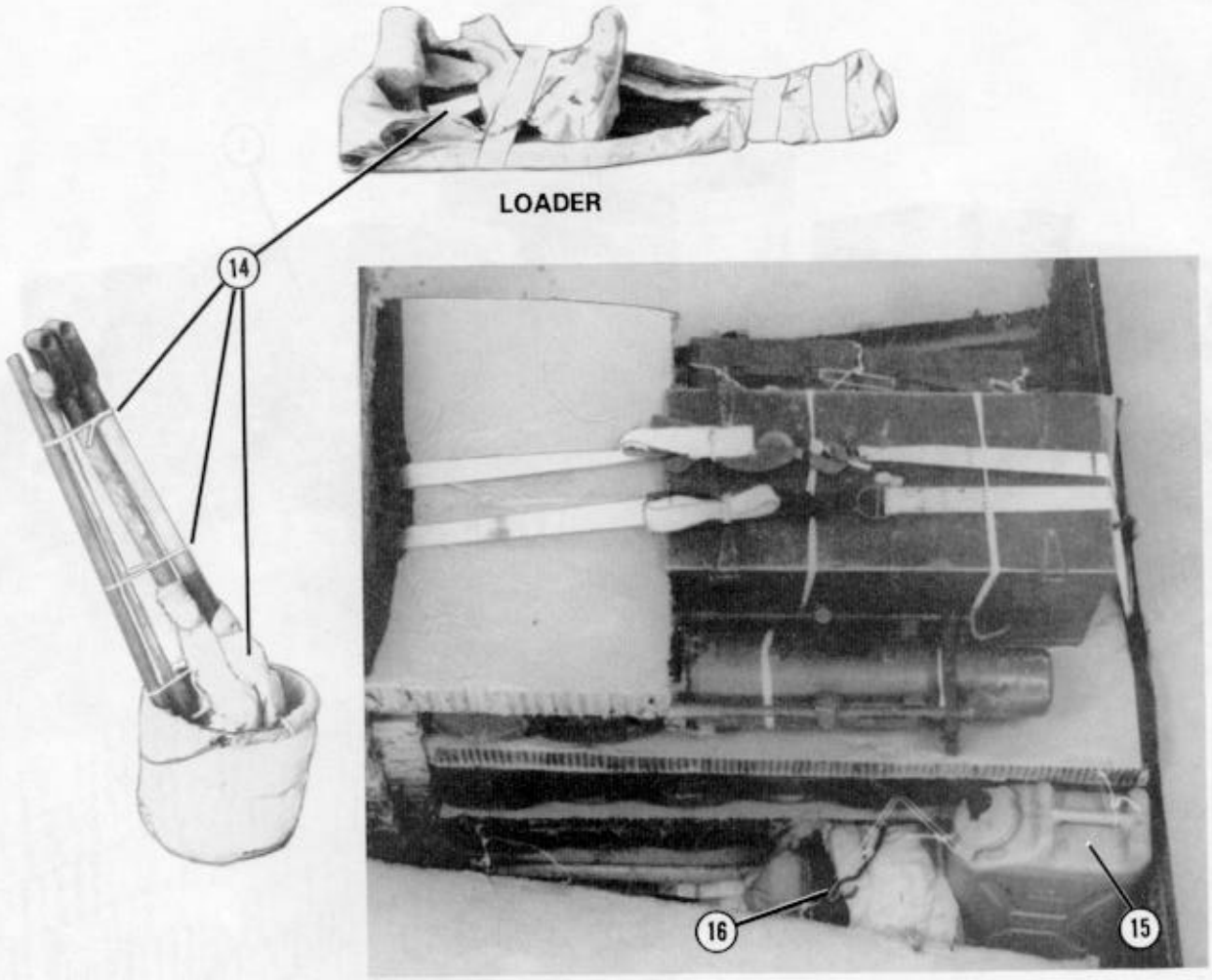




(12) Place two fuse boxes to the left of the section chest. Tie the handles of the fuse boxes together with type III nylon cord. Tie the fuse boxes to the section chest latches with type III nylon cord.

(13) Pass the 15-foot lashings (step 1) through the handles on the front of the section chest. Secure the lashings on top of the section chest with D-rings and load binders.

Figure 5-13. Accompanying equipment stowed (continued)



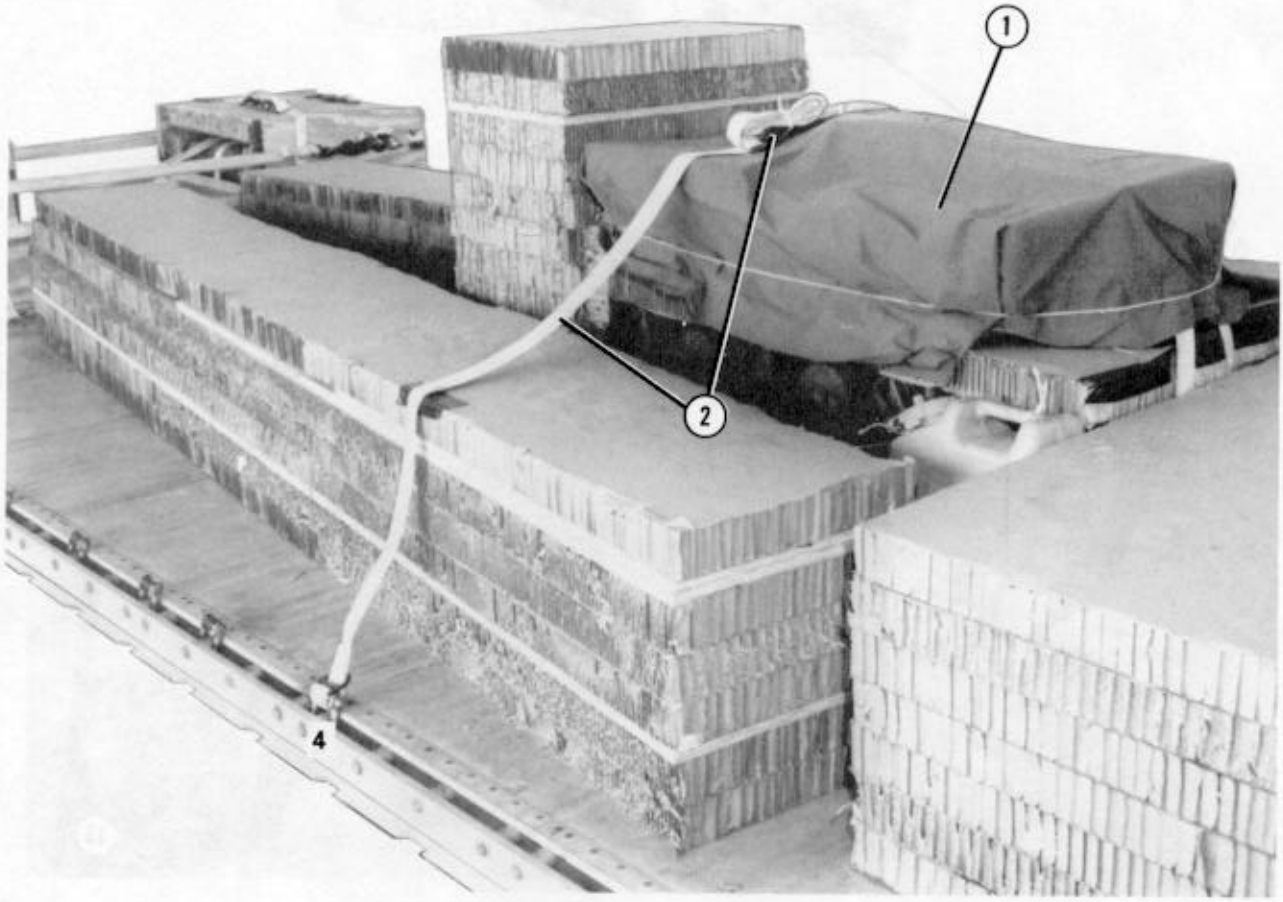
(14) Tape cellulose wadding around the shovels, ax, sledgehammer, pail, and loader. Place the shovels, ax, and sledgehammer inside the pail. Secure them together with type III nylon cord.

(15) Tape a piece of honeycomb (not shown) to the bottom of two water cans. Place one filled water can on each side of the powder canisters flush against honeycomb stack 2. Secure the water cans to the powder canisters with type III nylon cord.

(16) Place the shovels, ax, sledgehammer, and pail between the powder canisters and honeycomb stack 4. Secure them to the powder canisters with type III nylon cord.

(17) Place the loader between the powder canisters and honeycomb stack 5. Secure the loader to the powder canisters with type III nylon cord (not shown).

Figure 5-13. Accompanying equipment stowed (continued)



(1) Place a 60- by 60-inch canvas cover over the equipment. Secure it with type III nylon cord.

(2) Pass a 15-foot lashing through clevis 4 and through its own D-ring. Pass another 15-foot lashing through clevis 4A and through its own D-ring. Secure the lashings on top of the load with two D-rings and a load binder.

Note: Leave a little slack in the lashings. When the howitzer is positioned on the platform, the lashings will tighten themselves.

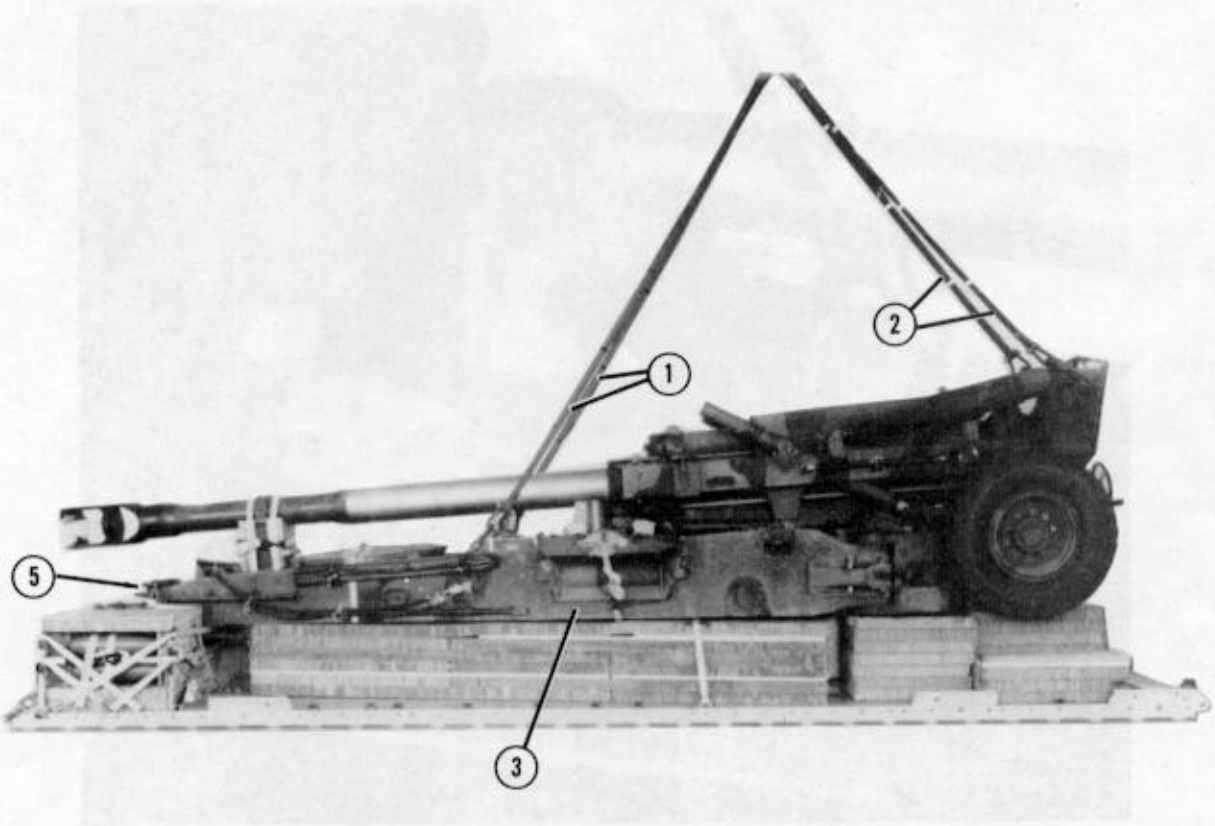
Figure 5-14. Accompanying equipment lashed to platform

5-6. Preparing Howitzer

Prepare the howitzer as shown in Figures 4-8 through 4-16.

5-7. Installing Lifting Slings and Positioning Howitzer

Install lifting slings and position the howitzer on the platform as shown in Figure 5-15.



(1) Bolt a 12-foot (4-loop), type XXVI nylon webbing sling to the lifting clevis on each trail with a large suspension clevis.

(2) Bolt a 9-foot (4-loop), type XXVI nylon webbing sling to each top carriage hoisting link with a large suspension clevis.

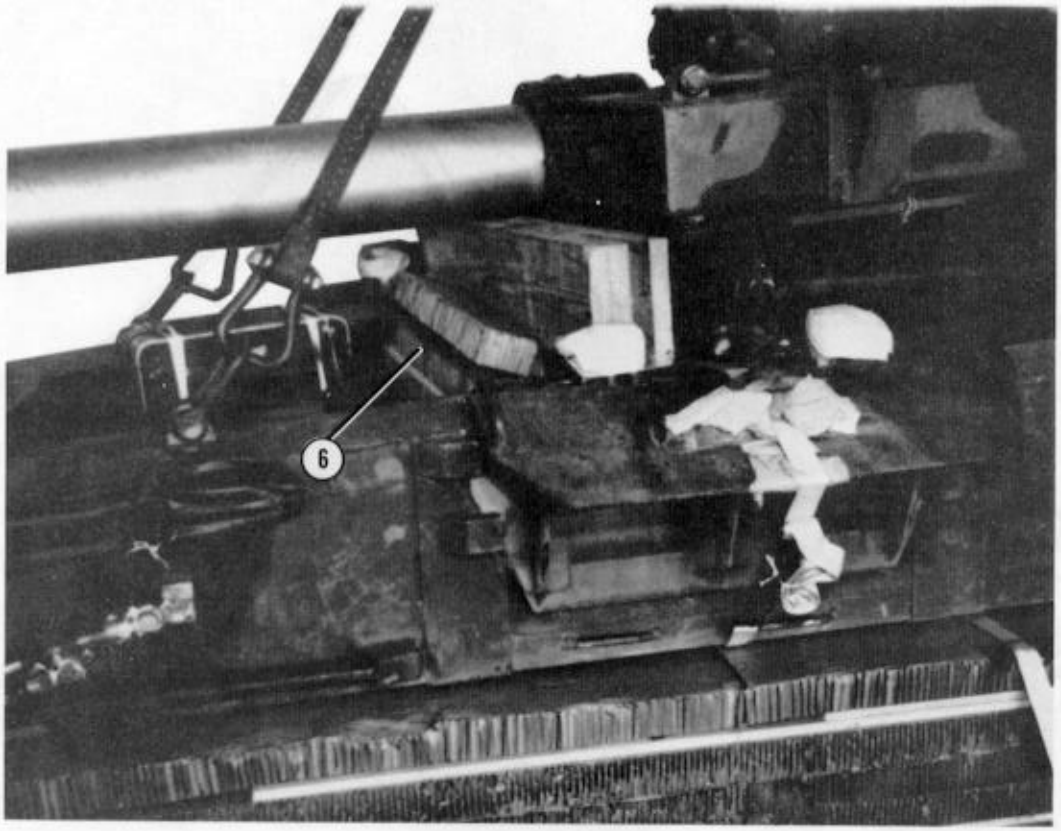
Note: Raise the wheels when the howitzer is lifted off the ground. Lock the wheels in the UP position.

(3) Center the right trail on honeycomb stack 4.

(4) Center the left trail on honeycomb stack 5 (not shown).

(5) Let the lunette overhang the rear of the platform by 5 inches.

Figure 5-15. Howitzer positioned



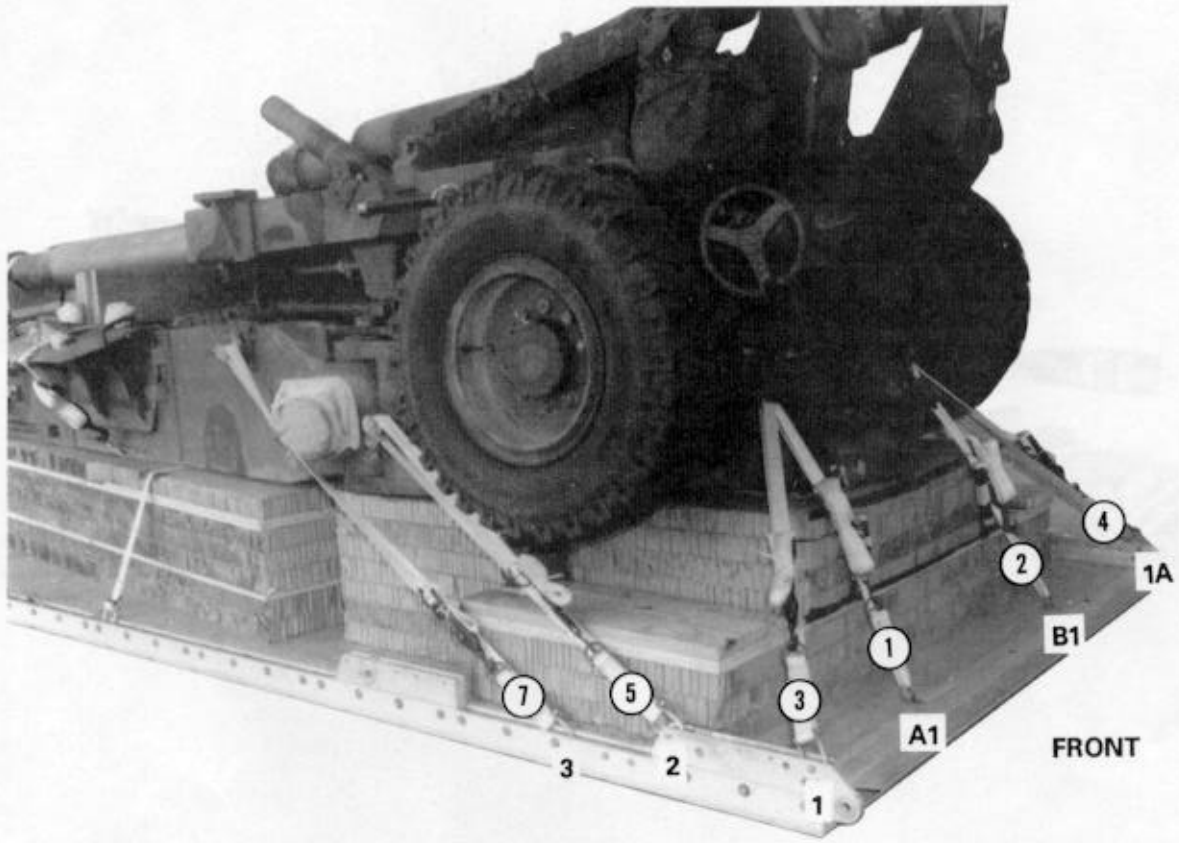
(6) Ensure the rear tube support blocks are resting solidly on honeycomb stack 3.

(7) Remove the lifting slings (not shown).

Figure 5-15. Howitzer positioned (continued)

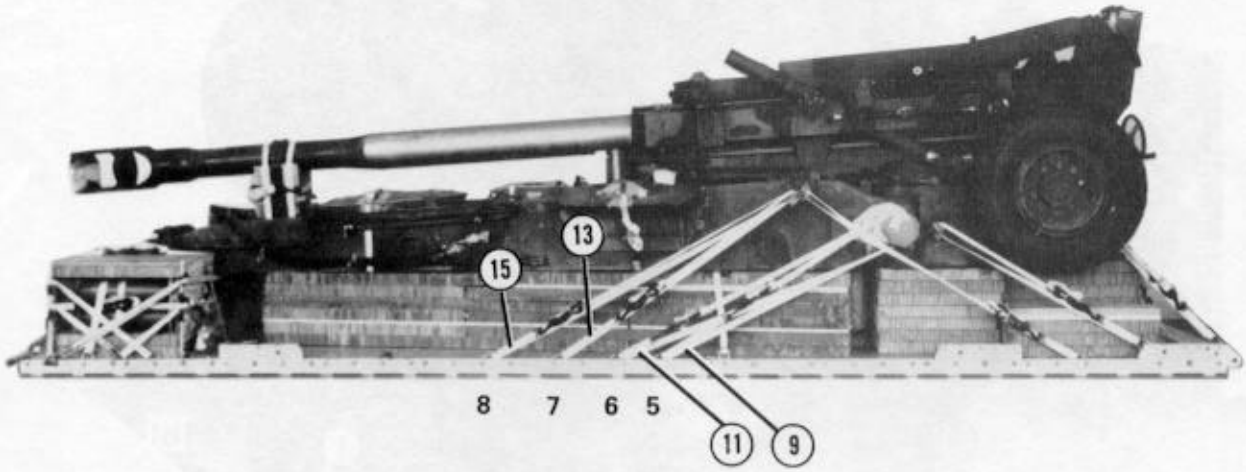
5-8. Lashing Howitzer

Lash the howitzer to the platform using thirty-two 15-foot tie-down assemblies. Install the lashings as shown in Figures 5-16 through 5-20.



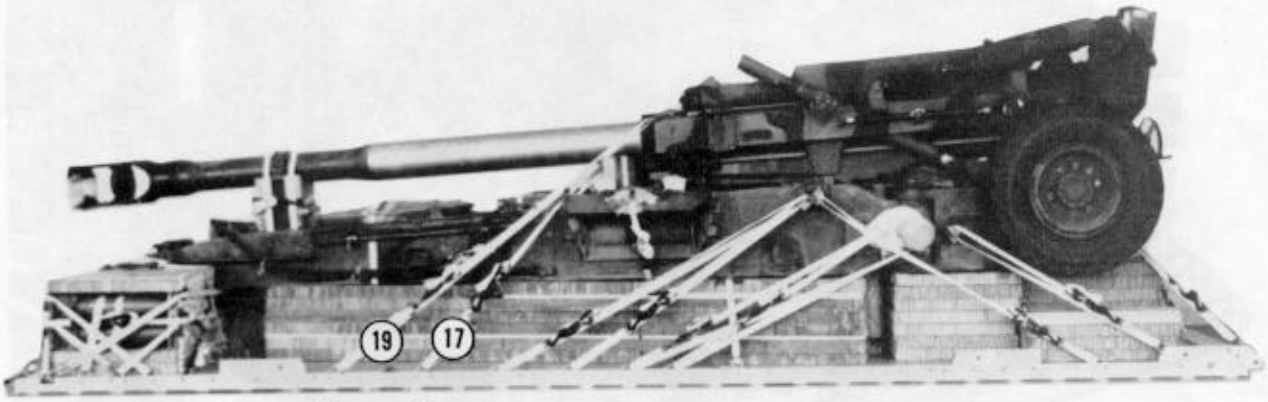
Lashing Number	Tie-down Ring/Clevis Number	Instructions
		Pass lashing:
1	A1	Through right front tie-down provision on lower carriage.
2	B1	Through left front tie-down provision on lower carriage.
3	1	Through right front tie-down provision on lower carriage.
4	1A	Through left front tie-down provision on lower carriage.
5	2	Through right locking plug hole on lower carriage.
6	2A	Through left locking plug hole on lower carriage.
7	3	Through tie-down provision on right trail.
8	3A	Through tie-down provision on left trail.

Figure 5-16. Lashings 1 through 8 installed



Lashing Number	Tie-down Clevis Number	Instructions
		Pass lashing:
9	5	Around trail lock on right trail.
10	5A	Around trail lock on left trail.
11	6	Around trail lock on right trail.
12	6A	Around trail lock on left trail.
13	7	Through tie-down provision on right trail.
14	7A	Through tie-down provision on left trail.
15	8	Through tie-down provision on right trail.
16	8A	Through tie-down provision on left trail.

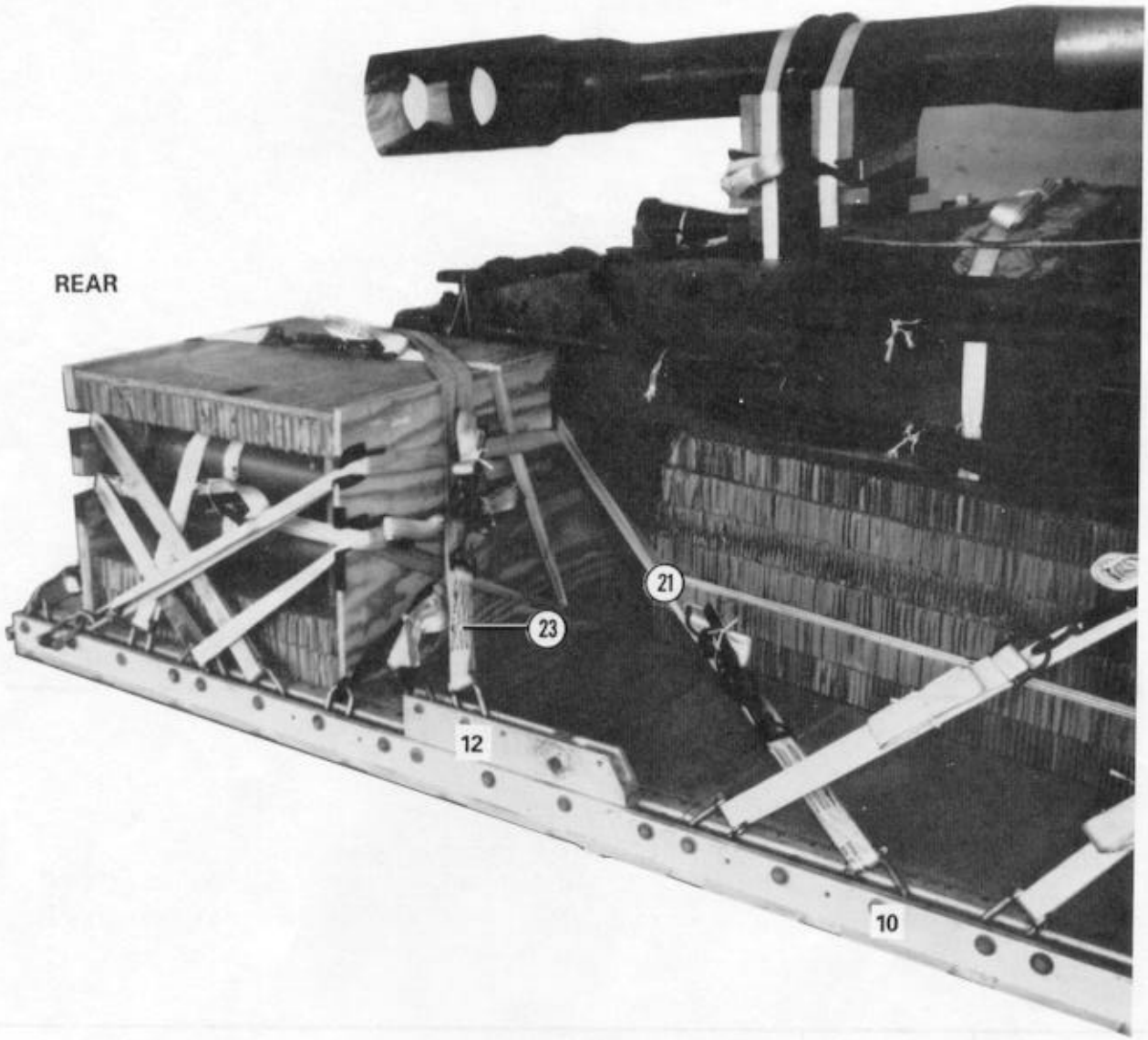
Figure 5-17. Lashings 9 through 16 installed



Lashing Number	Tie-down Clevis Number	Instructions
		Pass lashing:
17*	9	Through clevis on right corner of cradle assembly.
18*	9A	Through clevis on left corner of cradle assembly.
19*	11	Through clevis on right corner of cradle assembly.
20*	11A	Through clevis on left corner of cradle assembly.

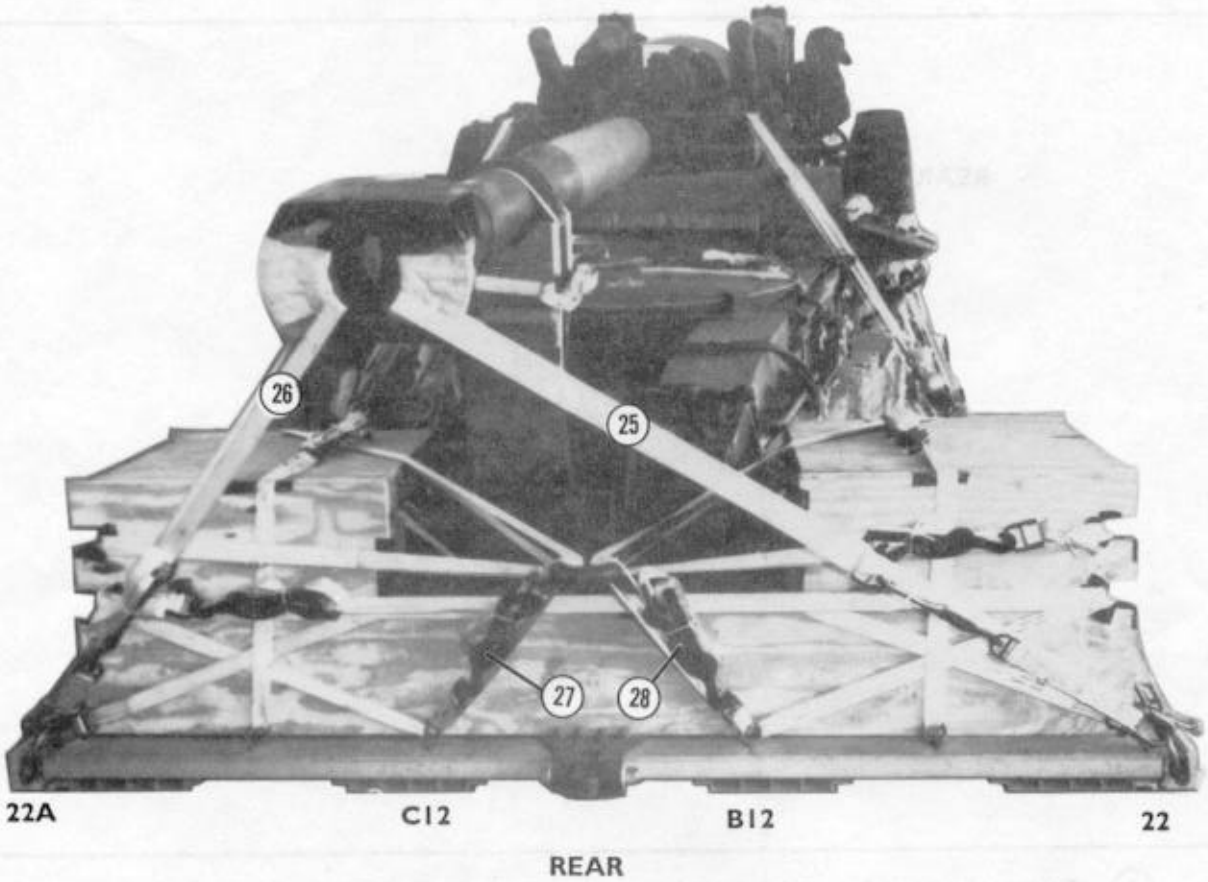
*30-foot lashing

Figure 5-18. Lashings 17 through 20 installed



Lashing Number	Tie-down Clevis Number	Instructions
		Pass lashing:
21	10	Through tie-down provision on right trail.
22	10A	Through tie-down provision on left trail.
23	12	Over ammunition load and through lunette.
24	12A	Over ammunition load and through lunette.

Figure 5-19. Lashings 21 through 24 installed

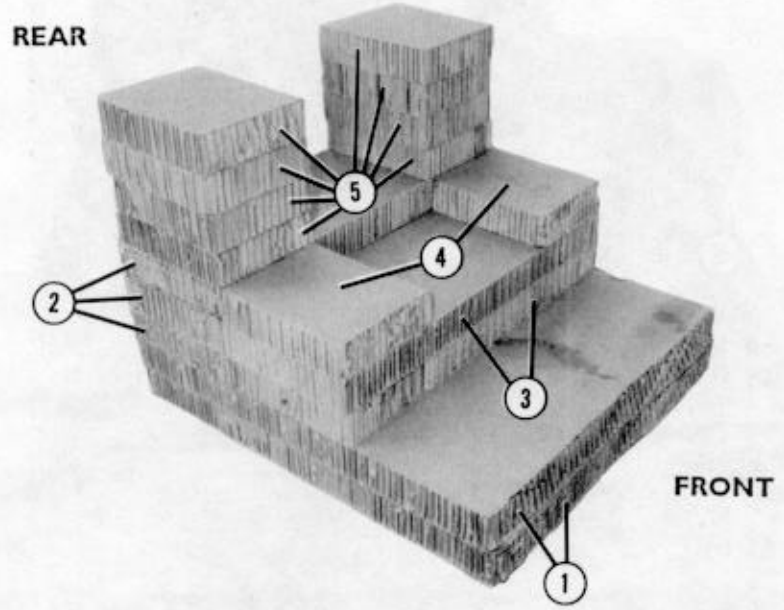


Lashing Number	Tie-Down Clevis/Ring Number	Instructions
		Pass lashing:
25	22	Through muzzle brake.
26	22A	Through muzzle brake.
27	B12	Through lunette.
28	C12	Through lunette.

Figure 5-20. Lashings 25 through 28 installed

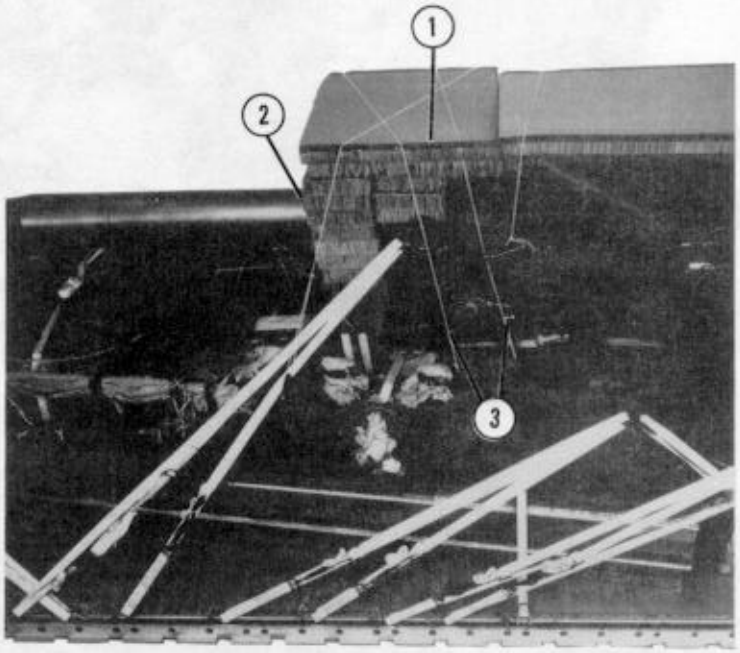
5-9. Building and Installing Release Stowage Platform

Build the release stowage platform as shown in Figure 5-21. Install the release stowage platform as shown in Figure 5-22.



1. Form a base with two 34- by 36-inch pieces of honeycomb.
2. Glue three 34- by 12-inch pieces of honeycomb flush with the rear of the base stack.
3. Glue two 34- by 12-inch pieces of honeycomb flush with the front of the third and fourth layers of honeycomb.
4. Glue a 10- by 12-inch piece of honeycomb flush with each corner of the fourth layer of honeycomb.
5. Glue two stacks of four 10- by 12-inch pieces of honeycomb. Place them flush with the left and right rear corners of the fifth layer of honeycomb.
6. Allow the platform to dry after it has been glued together.

Figure 5-21. Release stowage platform built



(1) Invert the platform. Place pressure-sensitive tape on the left and right top sides of the platform.

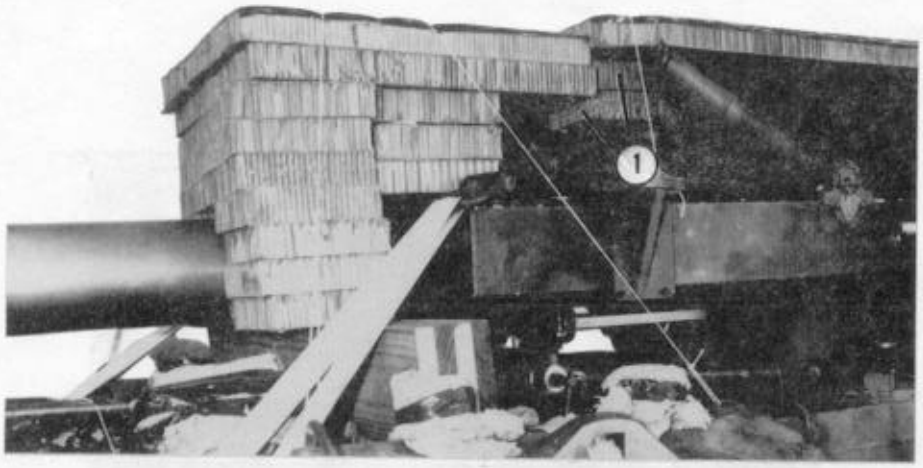
(2) Place the platform over the top of the gun tube, flush with the tube support lumber.

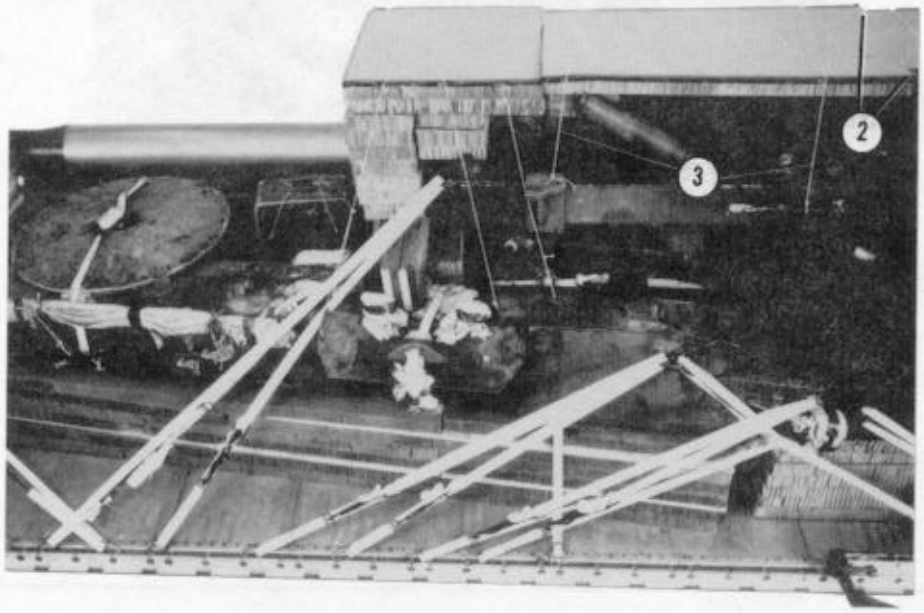
(3) Secure the stowage platform to the load with type III nylon cord at convenient points on the load.

Figure 5-22. Release stowage platform installed

5-10. Covering Load

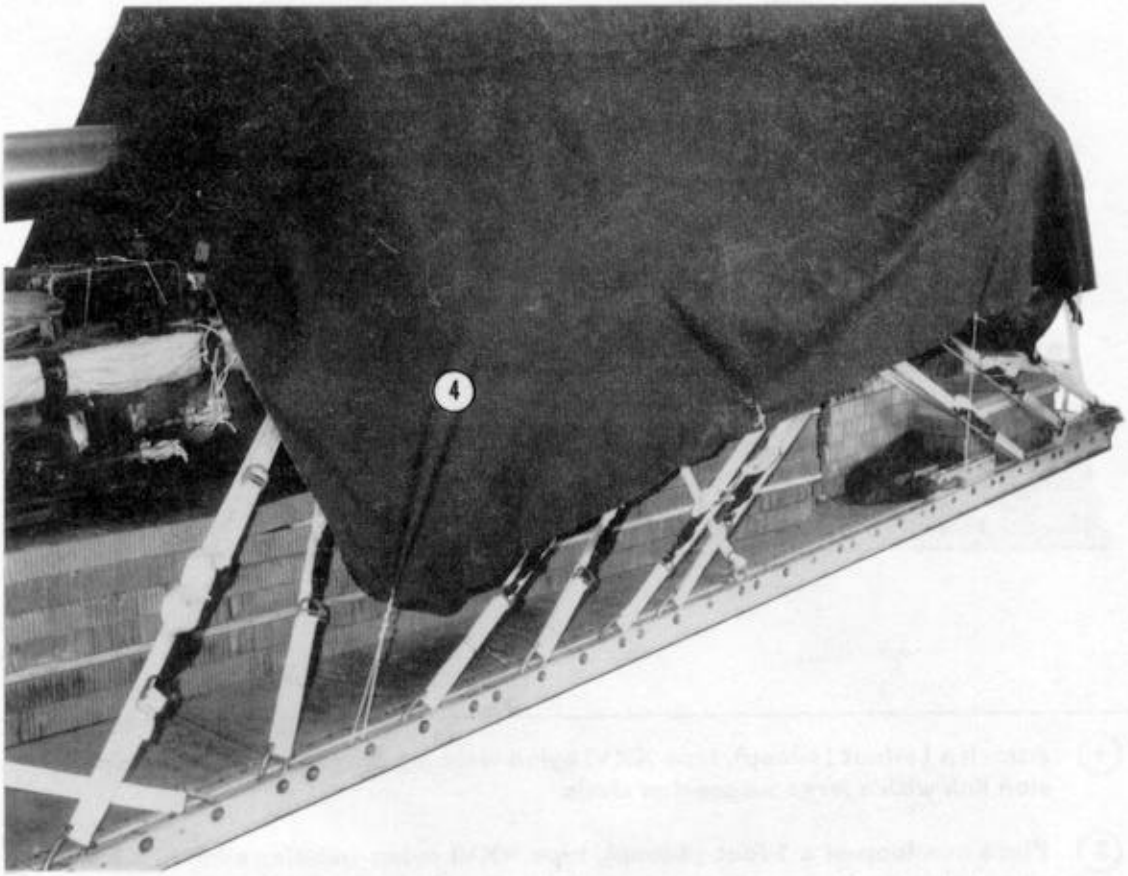
Cover the load as shown in Figure 5-23.





1. Center two 12- by 18-inch pieces of honeycomb over the recoil tube.
2. Make a 3- by 36-inch cutout in each front corner of a 36- by 96-inch piece of honeycomb. Place pressure-sensitive tape along the sides of the honeycomb. Set the honeycomb on the cradle assembly as shown.
3. Tie the 36- by 96-inch piece of honeycomb in place with type III nylon cord.

Figure 5-23. Load covered

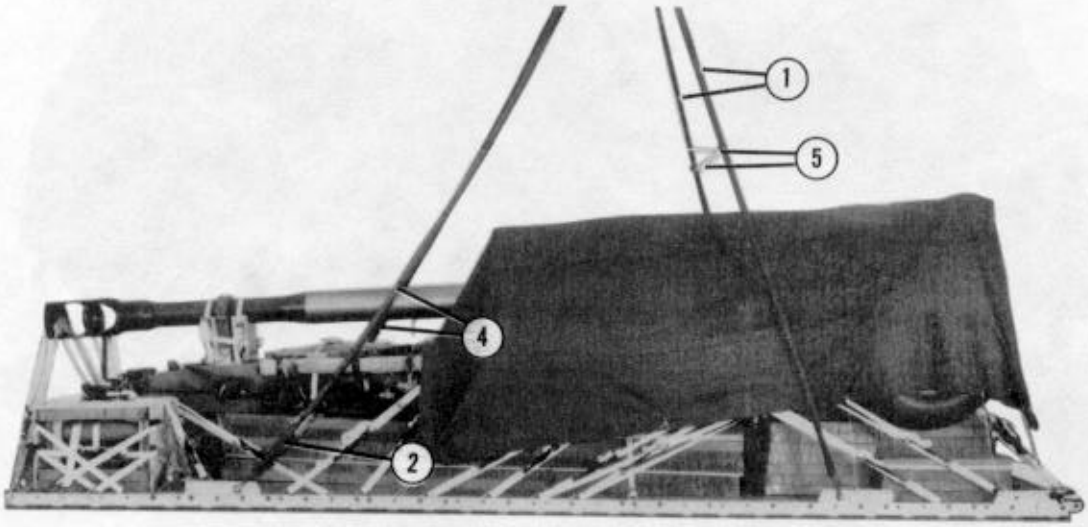


(4) **Tie a 15- by 16-foot piece of cotton duck cloth over the load with type III nylon cord. Tie the cord under the gun tube and to convenient points on the load.**

Figure 5-23. Load covered (continued)

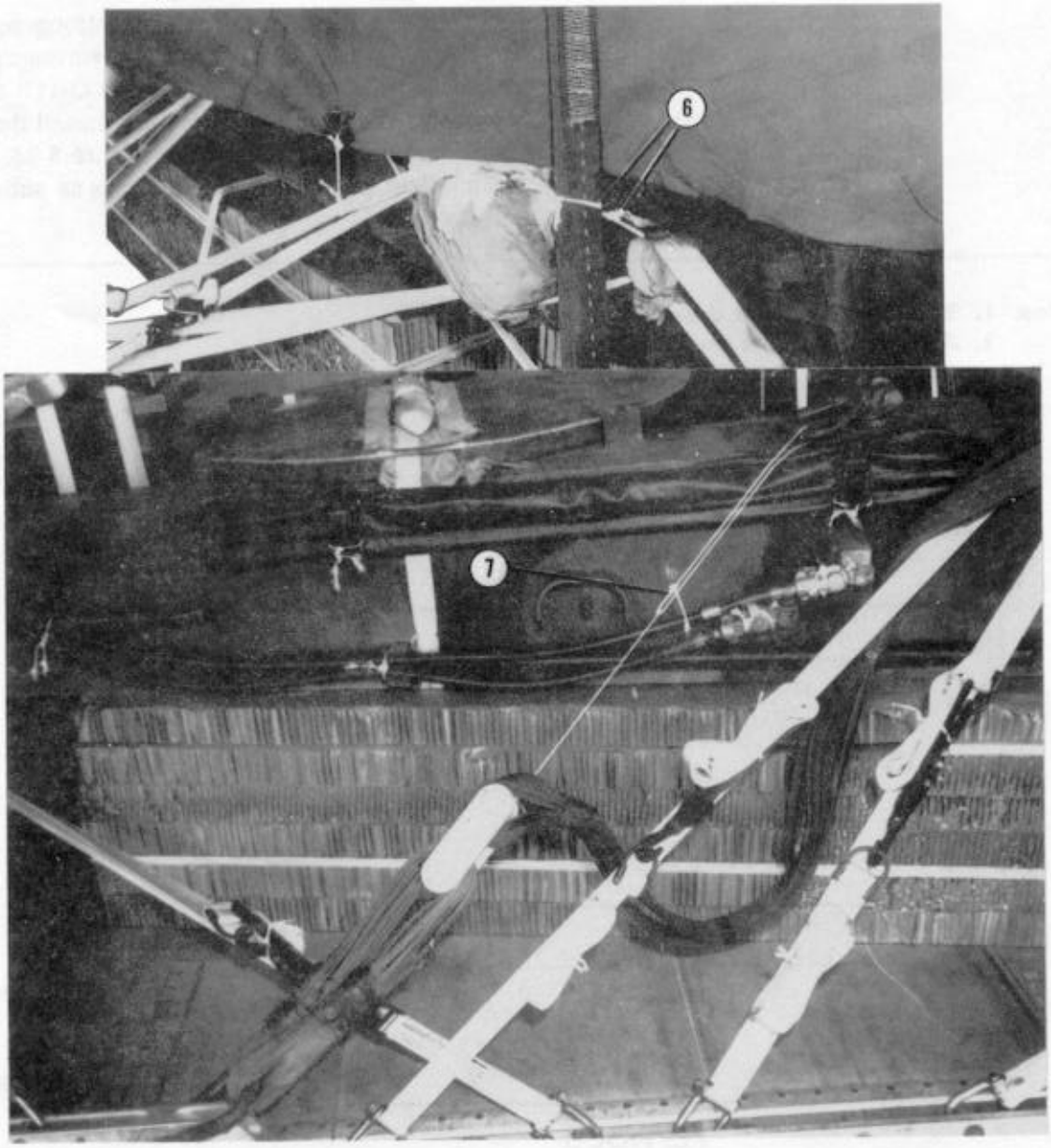
5-11. Installing Suspension Slings and Deadman's Tie

Install the suspension slings and the deadman's tie as shown in Figure 5-24.



1. Attach a 16-foot (4-loop), type XXVI nylon webbing sling to each front suspension link with a large suspension clevis.
2. Place one loop of a 3-foot (4-loop), type XXVI nylon webbing sling in a large suspension clevis. Pass the free end of the sling through a 5 1/2-inch, two-point link assembly. Place the remaining loop of the 3-foot sling into the large suspension clevis. Bolt the large suspension clevis to the right rear suspension link.
3. Repeat step 2 for the left rear suspension link (not shown).
4. Attach a 16-foot (4-loop), type XXVI nylon webbing sling to each 5 1/2-inch, two-point link assembly on the rear.
5. Raise the suspension slings. Install the deadman's tie according to FM 10-500-2/TO 13C7-1-5.

Figure 5-24. Suspension slings and deadman's tie installed



(6) Run a length of 1/2-inch tubular nylon webbing through each trail lock. Safety the front suspension slings to the 1/2-inch tubular nylon webbing with type I, 1/4-inch cotton webbing.

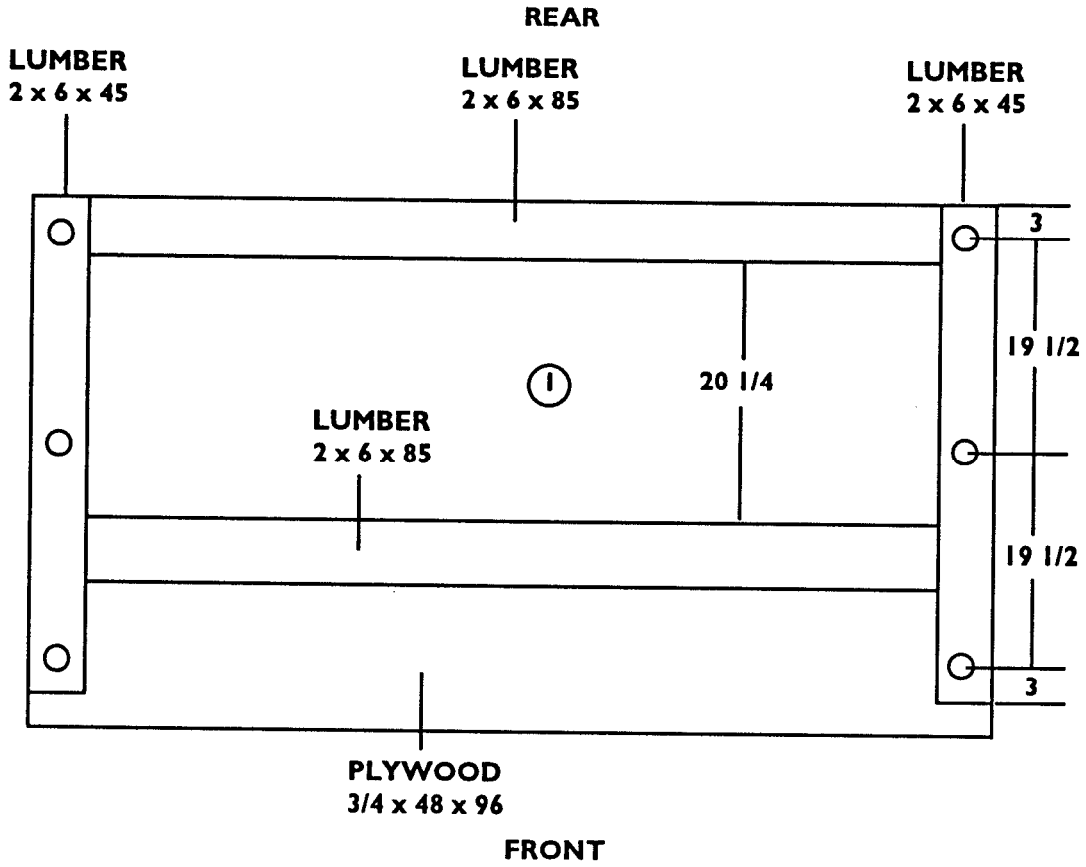
(7) Lower the suspension slings. Tie each 5 1/2-inch, two-point link assembly on the rear suspension slings to the lifting provision on the howitzer trail with type III nylon cord.

Figure 5-24. Suspension slings and deadman's tie installed (continued)

5-12. Stowing Cargo Parachutes

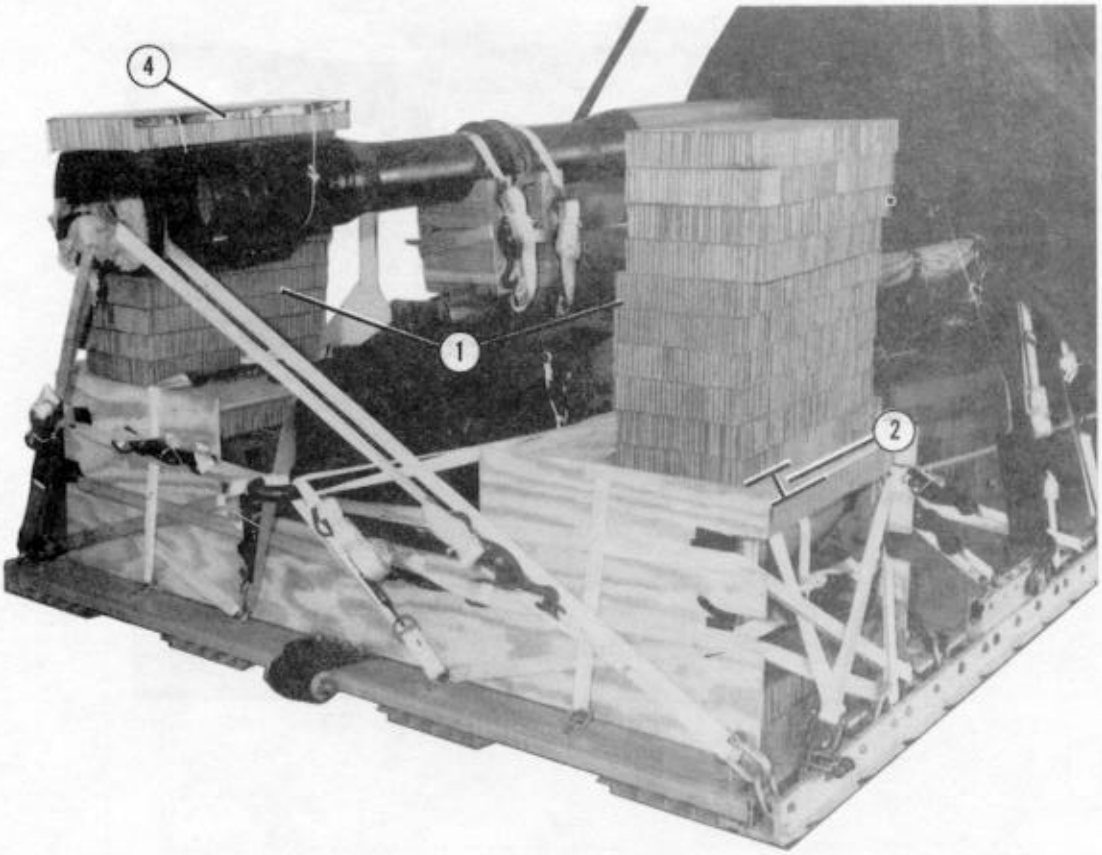
Build the parachute stowage platform as shown in Figure 5-25. Install the parachute stowage platform as shown in Figure 5-26. Stow five G-11B cargo parachutes as shown in Figure 5-27. Install the parachute restraint straps as shown in Figure 5-28. Install the multicut parachute release straps as shown in Figure 5-29.

Notes: 1. This drawing is not drawn to scale.
2. All measurements are given in inches.



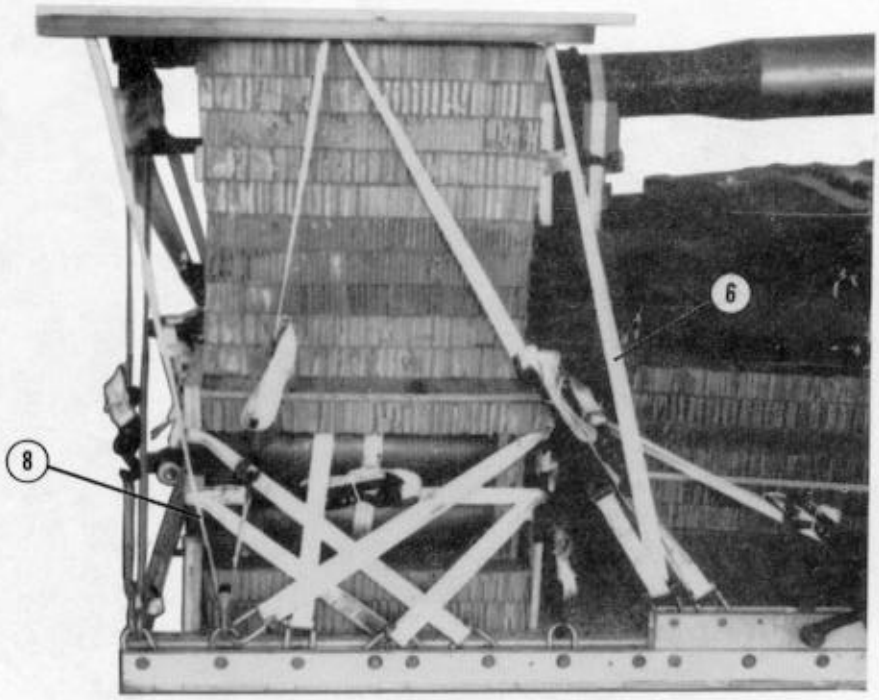
(1) Build the parachute stowage platform as shown using eightpenny nails. Drill 2-inch holes through the plywood and the end pieces of 2- by 6-inch lumber as shown.

Figure 5-25. Parachute stowage platform built



1. Make two 10-layer honeycomb supports using twenty 12- by 29-inch pieces of honeycomb.
2. Place one honeycomb support 5 inches from the right side and flush with the rear edge of the ammunition load.
3. Repeat step 2 for the left side.
4. Place a 14- by 29-inch piece of honeycomb on top of the muzzle brake. Tape the edges of the honeycomb where type III nylon cord will cross. Secure the honeycomb in place with two lengths of type III nylon cord.

Figure 5-26. Parachute stowage platform installed



(5) Center the parachute stowage platform on top of the honeycomb supports with the rear edge of the parachute storage platform flush with the rear edge of the platform.

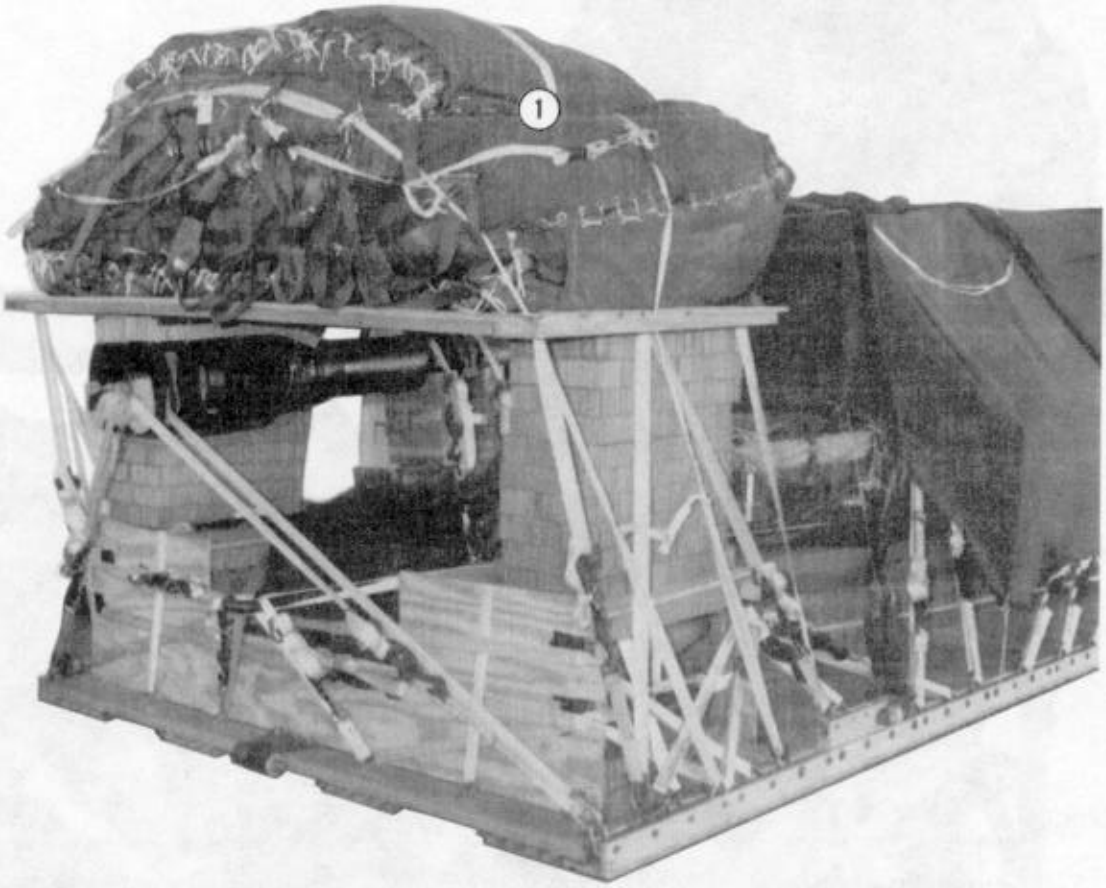
(6) Pass a 15-foot lashing through clevis 13, up through the right front hole, and down through the right center hole of the parachute stowage platform. Secure the ends of the lashing with a D-ring and a load binder.

(7) Repeat step 6 using clevis 13A (not shown) for the left side.

(8) Pass a 15-foot lashing through clevis 20, up through the right rear hole, and down through the right center hole of the parachute stowage platform. Secure the ends of the lashing with a D-ring and a load binder.

(9) Repeat step 8 using clevis 20A (not shown) for the left side.

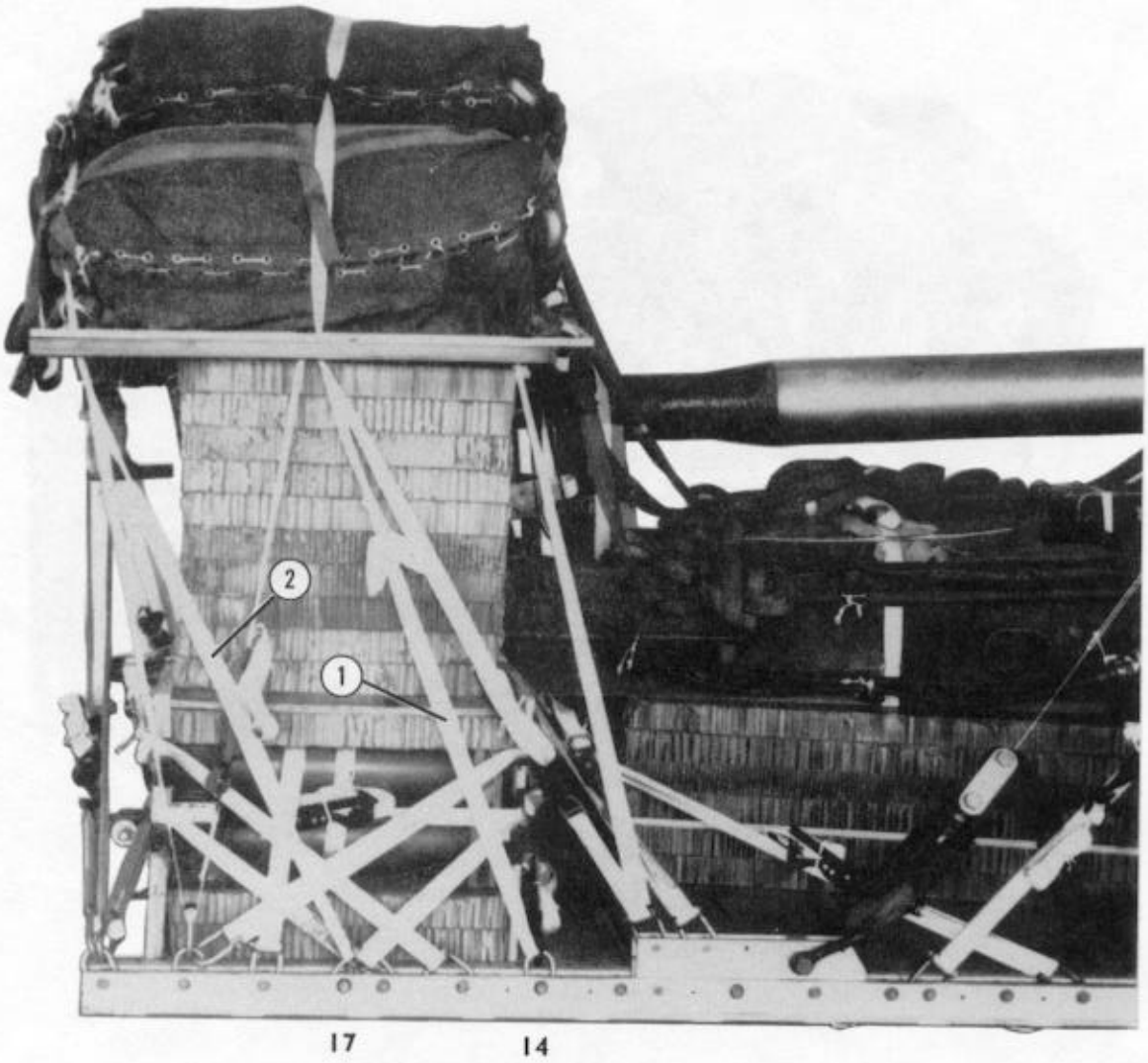
Figure 5-26. Parachute stowage platform installed (continued)



(1) Prepare and stow five G-11B cargo parachutes on the parachute stowage platform according to FM 10-500-2/TO 13C7-1-5.

Note: Unstow two of the riser extension stows on each parachute.

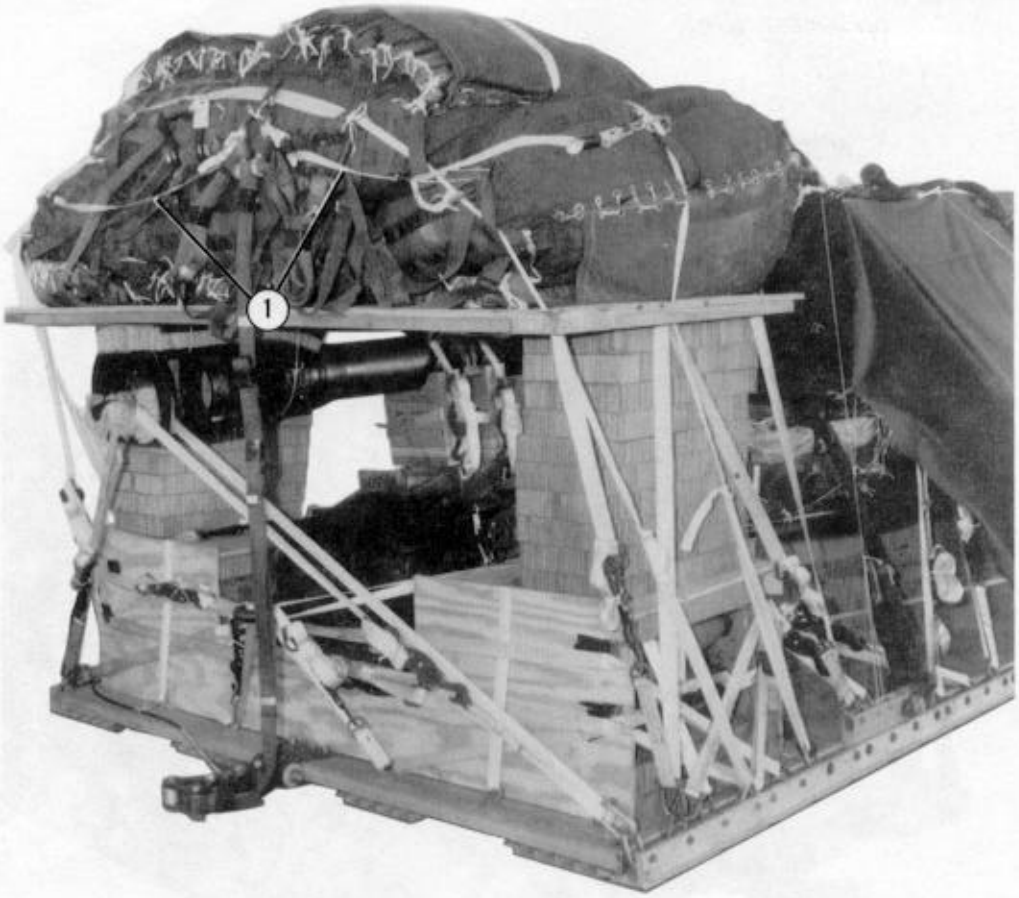
Figure 5-27. Cargo parachutes stowed



(1) Install the first parachute restraint strap through the center holes of the parachute stowage platform and to clevises 14 and 14A.

(2) Install the second parachute restraint strap through the rear holes of the parachute stowage platform and to clevises 17 and 17A.

Figure 5-28. Parachute restraint straps installed



(1) Install two multicut parachute release straps according to FM 10-500-2/ TO 13C7-1-5.

Figure 5-29. Multicut parachute release straps installed

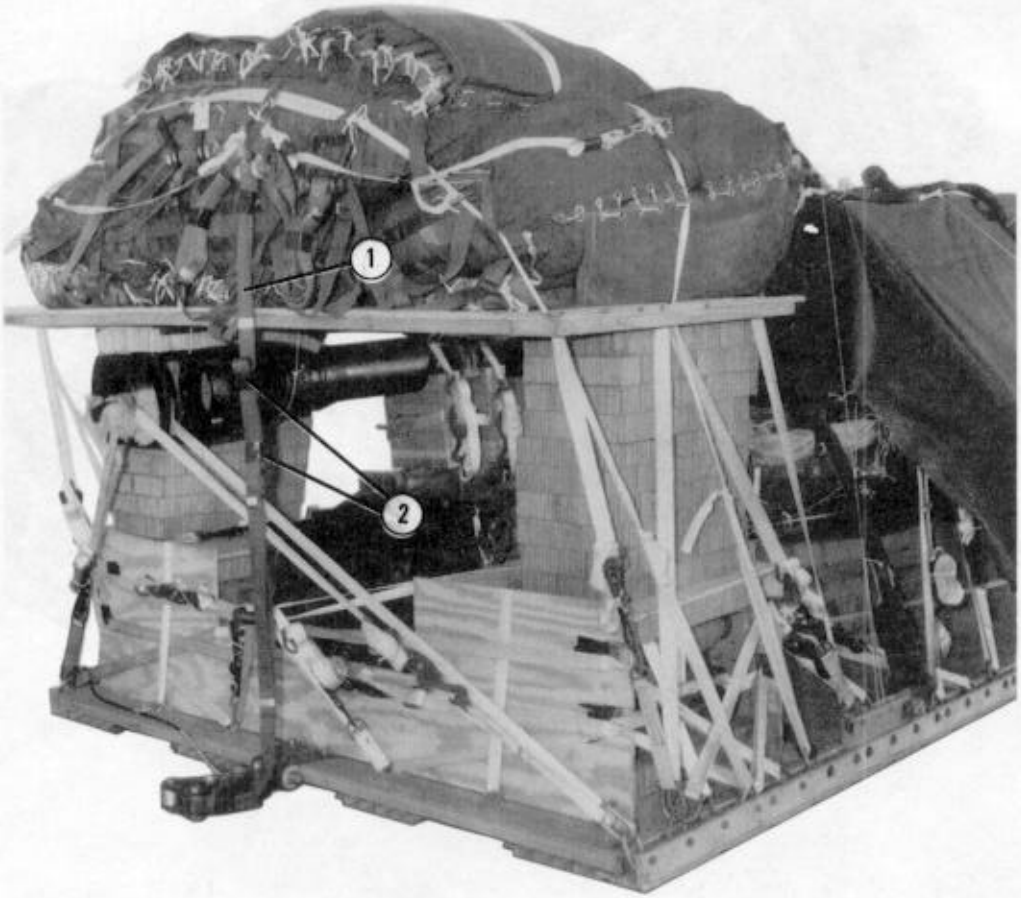
5-13. Installing Extraction System

Install the EFTC extraction system according to FM 10-500-2/TO 13C7-1-5 and as given below.

a. Install the actuator brackets to the rear mounting holes on the left platform side rail.

b. Attach a 24-foot cable to the actuator. Run the cable toward the rear of the load. Safety the cable to convenient points on the platform and to tie-down ring D12 with type I, 1/4-inch cotton webbing.

c. Install a deployment line as shown in Figure 5-30.



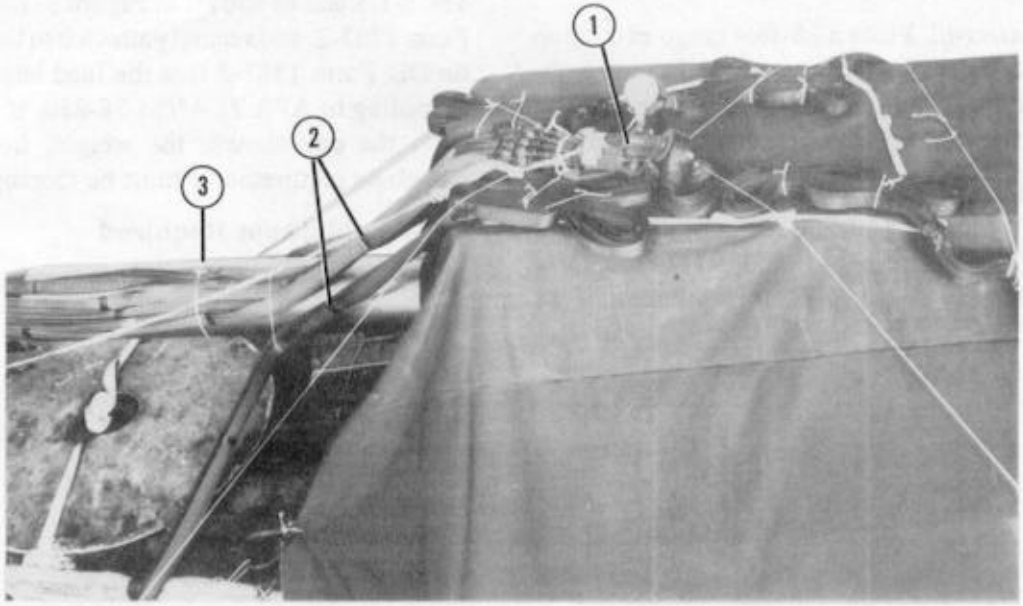
(1) **Install a 9-foot (2-loop), type XXVI nylon webbing sling as the deployment line.**

(2) **S-fold the deployment line. Tape or tie the fold in two places with type I, 1/4-inch cotton webbing.**

Figure 5-30. Deployment line installed

5-14. Installing Release System

Install an M-2 cargo parachute release according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-31.



(1) **Place the M-2 release on top of the load cover at the rear edge of the release stowage platform. Attach the suspension slings and parachute riser extensions according to FM 10-500-2/TO 13C7-1-5.**

CAUTION
The M-2 release requires a 25-foot arming wire lanyard when it is used on this load.

(2) **Group and tie the parachute rigger extensions with type I, 1/4-inch cotton webbing.**

(3) **Tie the parachute riser extensions to the gun tube with type I, 1/4-inch cotton webbing.**

Figure 5-31. M-2 release installed

5-15. Installing Provisions for Emergency Restraints

Install the provisions for the emergency restraints on the load according to FM 10-500-2/TO 13C7-1-5.

5-16. Placing Extraction Parachute

Place the extraction parachute as described below.

a. C-130 Aircraft. Place a 28-foot cargo extraction parachute; a 60-foot (3-loop), type XXVI nylon webbing extraction line; and a 5 1/2-inch, two-point link assembly on the load for installation in the aircraft.

b. C-141 Aircraft. Place a 28-foot, heavy-duty cargo extraction parachute; a 140-foot (3-loop), type XXVI nylon webbing extraction line; and a 5 1/2-inch, two-point link assembly on the load for installation in the aircraft.

c. C-5 Aircraft. See FM 10-500-2/TO 13C7-1-5 for extraction parachute requirements.

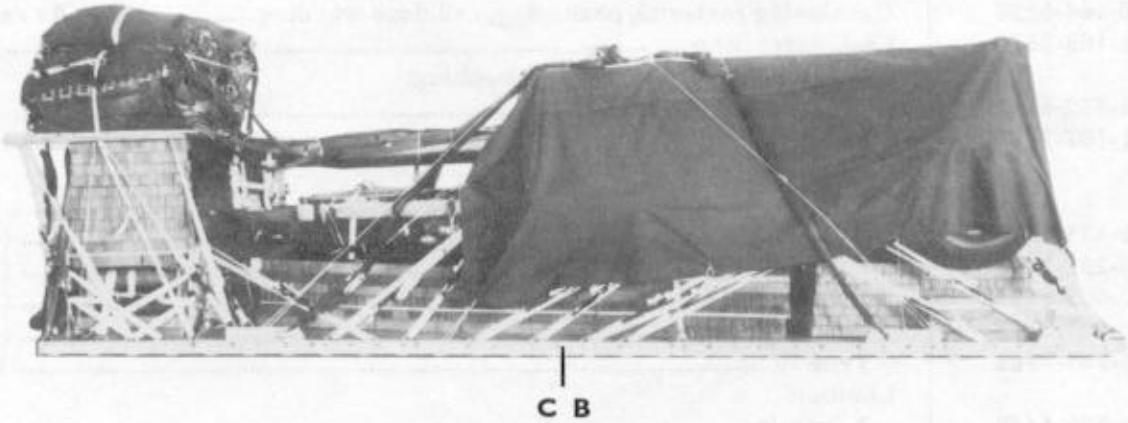
5-17. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-32. Complete DD Form 1387-2, and securely attach it to the load. Indicate on DD Form 1387-2 that the load has been prepared according to AFR 71-4/TM 38-250. If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

5-18. Equipment Required

Use the equipment listed in Table 5-2 to rig this load.

CAUTION
Make the final rigger inspection required by FM 10-500-2/ TO 13C7-1-5 before the load leaves the rigging site.



RIGGED LOAD DATA

Weight:	Load shown	23,400 pounds
	Maximum load allowed	24,000 pounds
Height		94 inches
Width		109 1/2 inches
Length		311 inches
Overhang:	Front	0 inches
	Rear	0 inches
CB (from front edge of platform)		128 inches
Extraction system		EFTC

Figure 5-32. M198, 155-mm howitzer with accompanying ammunition load rigged on a type V platform for low-velocity airdrop

Table 5-2. Equipment required for rigging the M198, 155-mm howitzer with accompanying ammunition load on a type V platform for low-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
	Clevis, suspension:	
4030-00-678-8562	3/4-in (medium)	4
4030-00-090-5354	1-in (large)	8
8305-00-242-3593	Cloth, cotton duck, 60-in	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5782	Coupling, airdrop, extraction force transfer w 24-ft cable	1
1670-00-360-0329	Cover, link assembly, type IV	16
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-01-183-2678	Leaf, extraction	2
	Line, extraction, XXVI nylon webbing:	
1670-01-062-6313	60-ft (3-loop) (for C-130)	1
1670-01-107-7651	140-ft (3-loop) (for C-141)	1
	Link assembly:	
	Two-point:	3
5306-00-435-8994	Bolt, 1-in diam, 4-in long	(6)
5310-00-232-5165	Nut, 1-in, hexagon	(6)
1670-00-003-1954	Plate, side, 5 1/2-in	(6)
5365-00-007-3414	Spacer, large	(6)
1670-00-783-5988	Type IV	14
	Lumber:	
5510-00-220-6448	2- by 6-in:	
	12-in	4
	45-in	2
	36-in	4
	45-in	2
	85-in	2
5510-00-220-6248	2- by 10-in:	
	12-in	6
	57-in	4
	Nail, steel wire, common:	
5315-00-010-4659	8d	As required
5315-00-010-4661	10d	As required
5315-00-064-5121	20d	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	40 sheets
	5- by 13-in	(4)
	6- by 10-in	(6)
	10- by 12-in	(10)
	10- by 13-in	(2)
	10- by 26-in	(1)
	12- by 18-in	(2)
	12- by 29-in	(20)
	12- by 34-in	(5)
	12- by 96-in	(20)

Table 5-2. Equipment required for rigging the M198, 155-mm howitzer with accompanying ammunition load on a type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
	14- by 29-in	(1)
	18- by 54-in	(12)
	18- by 96-in	(12)
	20- by 30-in	(1)
	29- by 31-in	(2)
	30- by 18-in	(14)
	30- by 30-in	(1)
	30- by 50-in	(2)
	30- by 53-in	(1)
	34- by 12-in	(5)
	34- by 36-in	(2)
	34- by 96-in	(2)
	36- by 31-in	(2)
	58- by 36-in	(4)
	80- by 30-in	(7)
	96- by 31-in	(2)
	96- by 36-in	(4)
	Parachute:	
1670-01-016-7841	Cargo, G-11B	5
1670-00-040-8135	Cargo extraction, 28-ft	1
	Platform, AD, type V, 24-ft:	1
	Bracket:	
1670-01-162-2375	Inside EFTA	(1)
1670-01-162-2374	Outside EFTA	(1)
1670-01-162-2372	Clevis assembly	(48)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-247-2389	Suspension link	(4)
1670-01-162-2381	Tandem link (multipurpose)	(2)
5530-00-128-4981	Plywood, 3/4-in:	
	18- by 36-in	2
	18- by 48-in	2
	18- by 54-in	2
	18- by 88-in	2
	18- by 96-in	2
	24- by 96-in	3
	29- by 31-in	2
	30- by 18-in	1
	48- by 96-in	1
	96- by 36-in	1
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo airdrop, type XXVI nylon webbing:	
	For deployment line:	
1670-01-062-6304	9-ft (2-loop) or	1
1670-01-062-6305	9-ft (4-loop)	1

Table 5-2. Equipment required for rigging the M198, 155-mm howitzer with accompanying ammunition load on a type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
	For lifting:	
1670-01-062-6305	9-ft (4-loop) or	2
1670-01-432-2501	9-ft (4-loop)	1
1670-01-062-6307	12-ft (4-loop)	2
	For riser extension:	
1670-01-062-6311	120-ft (2-loop)	7
	For suspension:	
1670-01-062-6306	3-ft (4-loop)	2
1670-01-062-6308	16-ft (4-loop)	4
1670-00-040-8219	Strap, parachute release, multicut (comes w 3 knives)	2
8305-00-074-5124	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	66
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
	Nylon:	
8305-00-082-5752	Tubular, 1/2-in, natural	As required
8305-00-263-3591	Type VIII	As required

GLOSSARY

AD	airdrop
AFB	Air Force base
AFR	Air Force regulation
AFTO	Air Force technical order
attn	attention
C	change
CB	center of balance
CL	center line
d	penny
DA	Department of the Army
DC	District of Columbia
DD	Department of Defense
diam	diameter
EFTA	extraction force transfer actuator
EFTC	extraction force transfer coupling
fig	figure
FM	field manual
ft	feet/foot
gal	gallon
HQ	headquarters
in	inch
LAPE	low-altitude parachute extraction
LAPES	low-altitude parachute extraction system
lb	pound
mm	millimeter
no	number
NSN	national stock number
para	paragraph
qty	quantity
rqr	required
SL/CS	static line/connector strap
TM	technical manual
TO	technical order
TRADOC	United States Army Training and Doctrine Command
US	United States
w	with
yd	yard

REFERENCES

These documents must be available to the intended users of this publication.

AFR 71-4/TM 38-250. *Packaging and Materials Handling: Preparing Hazardous Materials for Military Air Shipments*. 15 January 1988.

FM 10-500-2/TO 13C7-1-5. *Airdrop of Supplies and Equipment: Rigging Airdrop Platforms*. 1 November 1990.

FM 10-553/TO 13C7-18-41. *Airdrop of Supplies and Equipment: Rigging Ammunition*. 4 December 1981.

TM 9-1025-200-12. *Operator's and Organizational Maintenance Manual: Howitzer, Medium, Towed: 155-mm, M114, M114A1, and M114A2*. 25 March 1965.

TM 9-1025-211-10. *Operator's Manual (Crew) for Howitzer, Medium, Towed: 155-mm, M198*. 1 October 1979.

TM 10-1670-208-20&P/TO 13C3-4-12. *Organizational Maintenance Manual Including Repair Parts and Special Tools List for Platforms, Types II Modular and LAPES/Airdrop Modular*. 10 August 1978.

TM 10-1670-268-20&P/TO 13C7-52-22. *Organizational Maintenance Manual With Repair Parts and Special Tools List: Type V Airdrop Platform*. 1 June 1986.

TM 10-1670-286-20/TO 13C5-2-41. *Unit Maintenance Manual for Sling/Extraction Line Panel (Including Stowing Procedures)*. 1 April 1986.

AFTO Form 22. *Technical Order Publication Improvement Report*. April 1973.

DA Form 2028. *Recommended Changes to Publications and Blank Forms*. February 1974.

DD Form 1387-2. *Special Handling Data/Certification*. June 1986.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1992 O - 627-027/40188