

TM 4-48.18/TO 13C7-1-19



**Airdrop of Supplies and Equipment:
Rigging Forward Area Refueling Equipment (FARE) and
Advanced Aviation Forward Area Refueling Systems (AAFARS),
Fuel Drums**

MARCH 2016

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Airdrop of Supplies and Equipment: Rigging Forward Area Refueling Equipment (FARE) and Advanced Aviation Forward Area Refueling Systems (AAFARS), Fuel Drums

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Preface

TM 4-48.18/TO 13C7-1-19 provides doctrinal guidance and direction for United States Army and United States Air Force units conducting aerial delivery operations. This manual provides information on how to prepare and rig Forward Area Refueling Equipment (FARE) and Advanced Aviation Forward Area Refueling Systems (AAFARS), and fuel drums. They are rigged for airdrop from a C-130 or C-17 aircraft .

The principal audience for TM 4-48.18/TO 13C7-1-19 is all members of the profession of arms. Commanders and staffs of Army and Air Force headquarters serving as joint task force or multinational headquarters should also refer to applicable joint or multinational doctrine concerning the range of military operations and joint or multinational forces. Trainers and educators throughout the Army and Air Force will also use this publication.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers and Airmen operate in accordance with the law of war and the rules of engagement. (See FM 27-10).

TM 4-48.18/TO 13C7-1-19 does not implement any STANAGs.

TM 4-48.18/TO 13C7-1-19 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which TM 4-48.18/TO 13C7-1-19 is the proponent publication (the authority) are italicized in the text and marked with an asterisk (*) in the glossary. Terms and definitions for which TM 4-48.18/TO 13C7-1-19 is the proponent publication are boldfaced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

TM 4-48.18/TO 13C7-1-19 applies to the Active Army, Army National Guard/Army National Guard of the United States, United States Army Reserve, and the Air Force unless otherwise stated.

The proponent of TM 4-48.18/TO 13C7-1-19 is the United States Army Quartermaster School. The preparing agency is the G-3 Doctrine Division, USACASCOM. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, United States Army Combined Arms Support Command and Fort Lee, ATTN: ATCL-TS, 2221 A Avenue, Fort Lee, Virginia 23801 or submit an electronic DA Form 2028 by e-mail to: usarmy.lee.tradoc.mbx.lee-cascom-doctrine@mail.mil. In addition to submission of DA Form 2028, provide same comments and recommendations in MilWiki for rapid dissemination to doctrine authors and for universal review at <https://www.milsuite.mil>.

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Introduction

Publication of TM 4-48.18, supersedes FM 4-20.137, *Airdrop of Supplies and Equipment: Rigging Forward Area Refueling Equipment (FARE) and Advanced Aviation Forward Area Refueling Systems (AAFARS)*, 10 June 2003 and FM 10-564, *Airdrop of Supplies and Equipment: Rigging Fuel Drums*, 30 Jan 1998. This special revision to the technical manual (TM) publishing medium/nomenclature has been accomplished to comply with the Training and Doctrine Command doctrine restructuring requirements. The title and content of TM 4-48.18 is identical to that of the superseded FM 4-20.137 and FM 10-564.

This special revision does not integrate any changes in Army doctrine since 10 June 2003 and does alter the publication's original references. For the content/availability of specific subject matter, contact the appropriate proponent.

Chapter 1

Introduction to Fuel Systems Rigging

DESCRIPTION OF ITEMS

1-1. This manual shows and tells how to rig the forward area refueling equipment (FARE), to include the rigging of hazardous material-gasoline, jet propulsion (JP) 4, and diesel fuel. The FARE is rigged with the following:

- **Trailers.** M101, M101A1, $\frac{3}{4}$ -ton, two wheel trailers for low-velocity airdrop from C-130 and C-17 aircraft.
- **Two Fuel Drums.** Two 500-gallons collapsible fuels drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Seven Fuel Drums.** Seven 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Vehicle.** M998, 1 $\frac{1}{4}$ -ton truck high mobility multipurpose wheel vehicle for low-velocity airdrop from C-130 and C-17 aircraft.

This manual shows and tells how to rig the 4-inch, 350 gallons per minute wheel-mounted pumping assembly, to include the rigging hazardous material-gasoline, JP4, and diesel fuel. The 4-inch, 350-gallons-per-minute wheel-mounted pumping assembly is rigged with the following:

- **Pumps and Separators.** Two 4-inch, 350-gallons-per-minute wheel-mounted pumping assemblies and two separators are rigged for low-velocity airdrop from C-130 and C-17 aircraft.
- **Three Fuel Drums.** Three 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Four Fuel Drums.** Four 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Five Fuel Drums.** Five 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Six Fuel Drums.** Six 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.

This manual shows and tells how to rig the AAFARS, to include the rigging of hazardous material-gasoline, JP4, and diesel fuel. The AAFARS is rigged with the following:

- **Four Fuel Drums.** Four 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Five Fuel Drums.** Five 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Six Fuel Drums.** Six 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.
- **Seven Fuel Drums.** Seven 500-gallon collapsible fuel drums for low-velocity airdrop from C-130 and C-17 aircraft.

The following conditions must be met when rigging these loads:

CAUTION

There must be no more than 432 gallons of liquid in each drum when rigged for low-velocity airdrop. Do not pressurize drums with air.

Hazardous Material. When included as a part of these loads, fuel must be packaged, marked, and labeled as described in Air Force Manual (AFMAN) 24-204/Technical Manual (TM) 38-250/NAVSUP PUB505/MCO P4030.19#/DLAI 4145.3/ DCMAD1, CH3.4 (HM24).

Weight. Each drum of fuel **MUST** be weighed to learn its exact weight, as the drum has no gauge to measure the liquid content. For computing liquid weight per US gallon, 6 pounds are used for gasoline, 6.4 pounds for JP4 fuel, 6.7 pounds for JP8 fuel, and 6.68 pounds for diesel fuel. When empty, the drum weighs 250 pounds.

CAUTION

Because the fuel drum is flexible, it will rebound upon ground impact and the lashings may be broken. This could free the drum and allow it to roll off the platform and create a possible hazard in the immediate area.

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

NOTICE OF EXCEPTION

The procedures in this manual for installing the Suspension Sling Safety Ties may differ from those in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. An exception to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 is granted. The procedures in this manual **MUST** be followed.

The 500-gallon-capacity collapsible fabric fuel drums can be dropped with or without the 50-gallon-per-minute pumping assembly or liquid fuel/separator (filter) in the following configurations:

- Two to seven drums without a pumping assembly are rigged on a type V airdrop platform for low-velocity airdrop from C-130 or C-17 aircraft.
- Three, six, or seven drums with a pumping assembly on a type V airdrop platform for low-velocity airdrop from C-130 or C-17 aircraft.

SPECIAL CONSIDERATIONS

1-2. Special considerations for this manual are given below.

CAUTION

There must be no more than 432 gallons of liquid in each drum when the drum is rigged for low-velocity airdrop.

- These loads may contain hazardous materials-gasoline. JP-4 fuel or diesel fuel. Hazardous materials in these loads must be packaged, marked, and labeled in compliance with AFMAN 24-

204/TM 38-250/NAVSUP PUB505/MCO P4030.19H/DLAI 4145.3/ DCMAD1, CH3.4 (HM24).

- Gasoline, Jp-4 fuel, or diesel fuel may be airdropped using these procedures. Each drum must be weighed to learn its exact weight. For computing liquid weight per US gallon, use 6 pounds for gasoline, 6.6 pounds for JP-4 fuel, and 6.68 pounds for diesel fuel.
- The drum is flexible, and will rebound on impact. The lashings may break and cause the drum to roll off the platform and create a possible hazard in the area.
- A copy of this manual must be available to the joint airdrop inspectors during the before-and after-loading inspections.

WARNING

Do not add air to drums. Changes in pressurization can cause leaking or bursting. Failure to comply endangers mission and aircraft.

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Chapter 2

Rigging Drums for Low-Velocity Airdrop on a Type V Platform

DESCRIPTION OF ITEMS

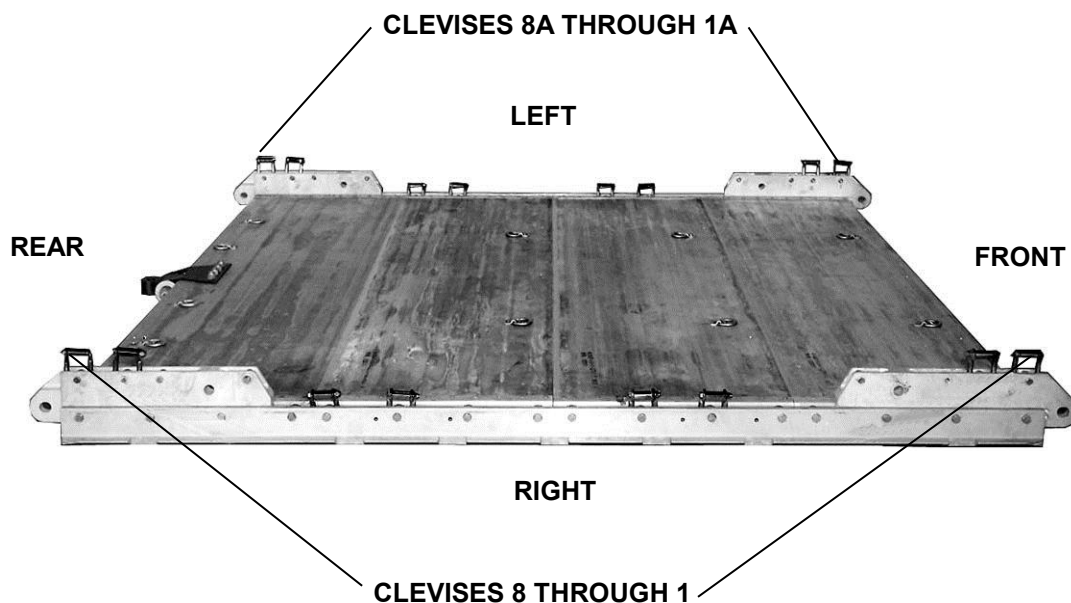
2-1. Two drums are rigged on an 8-foot, type V platform with two G-11B cargo parachutes. Filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 523 inches in diameter. Each drum weighs 250 pounds when empty.

Note. If the drums are filled with a fuel other than gasoline, the weight must be computed.

PREPARING PLATFORM

2-2. Prepare an 8-foot, type V airdrop platform using four tandem links and 16 clevises as shown in Figure 2-1.

Note. 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.



Steps:

1. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3. Install a tandem link on the rear of each platform side rail using holes 14, 15, and 16.
3. Install a clevis on bushings 1 and 2 of each front tandem link and on bushings 3 and 4 of each rear tandem link.
4. Starting at the front of the platform, install clevises on each platform side rail using the bushings bolted on holes 6, 7, 11, and 12.
5. Starting at the front of the platform, number the clevises bolted to the right side 1 through 8 and those bolted to the left side 1A through 8A.

Figure 2-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

2-3. Prepare and position the honeycomb stacks as shown in Figure 2-2.

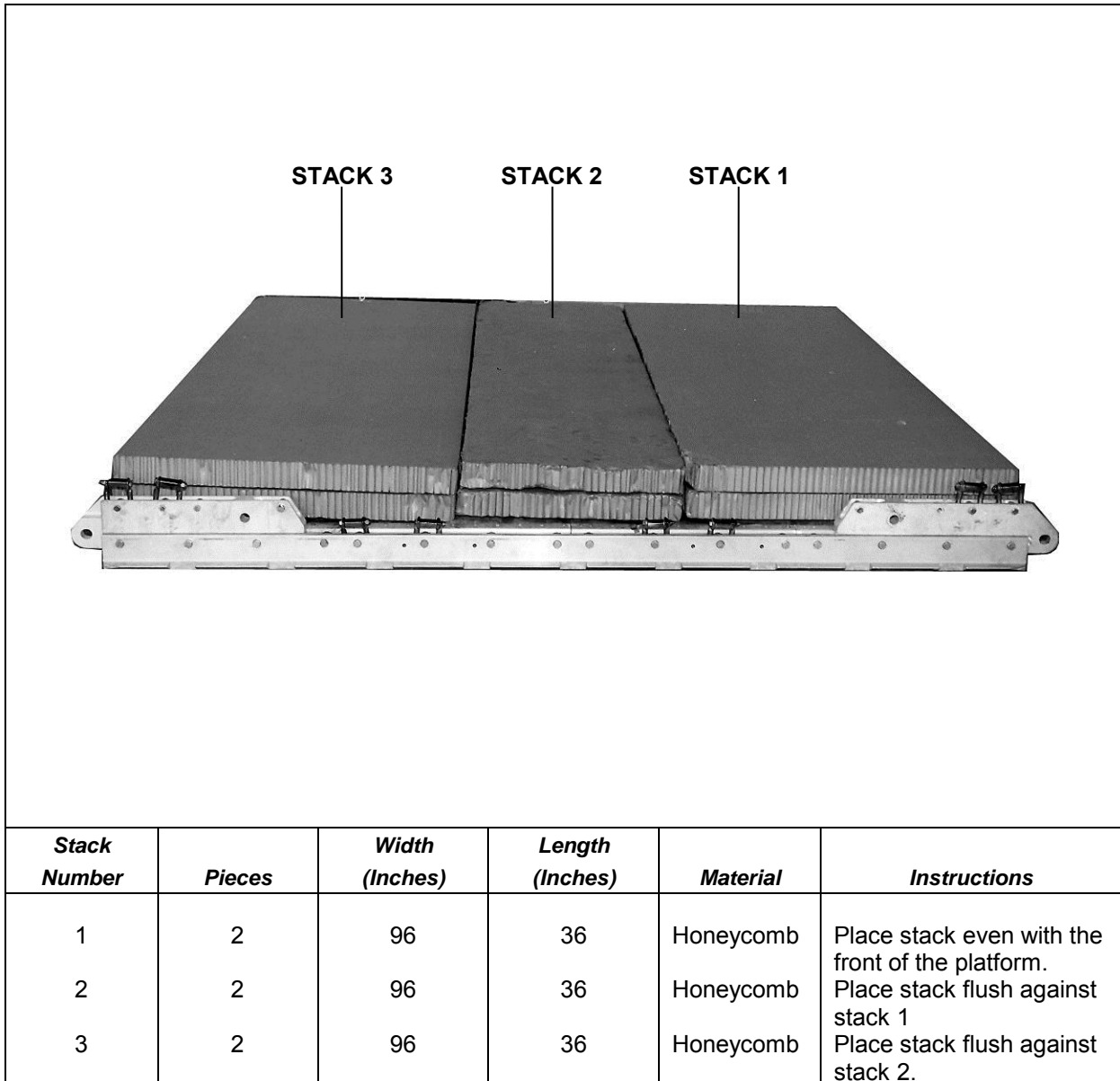
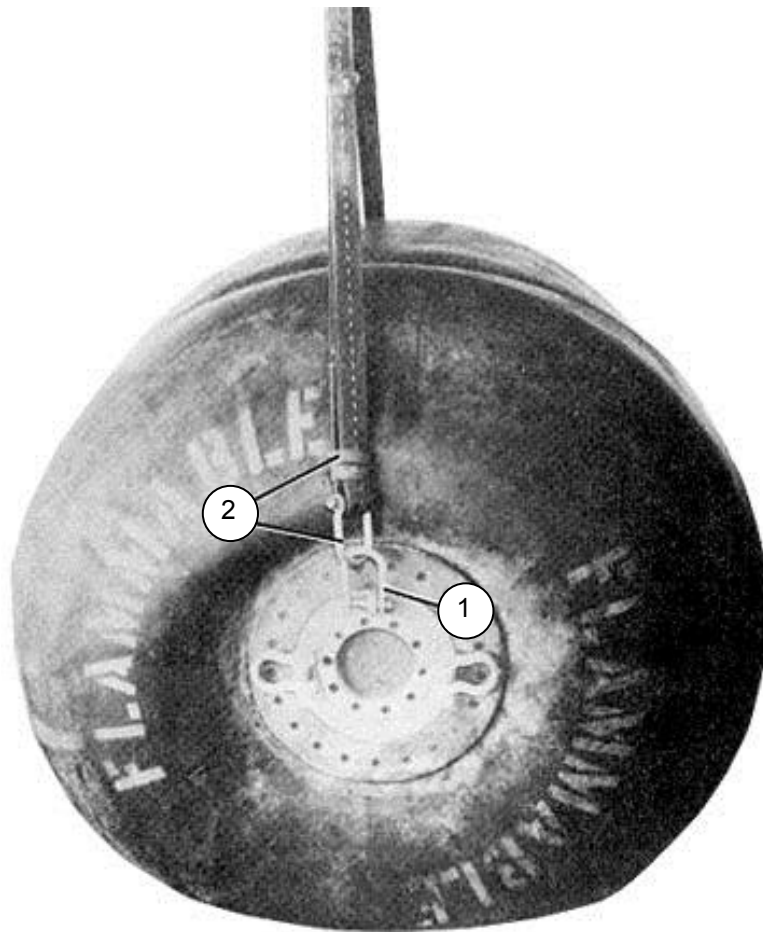


Figure 2-2. Honeycomb Stacks Positioned

INSTALLING LIFTING SLINGS

2-4. Install the lifting slings to each fuel drum using four load tiedown clevis and two 12-foot (2-loop), type XXVI nylon webbing slings as shown in Figure 2-3.



- Note.** 1. Remove tiedown clevises when not used for lashing purposes.
2. Make sure the drums and drum fittings are not leaking and that two D-ring clevises are on the swivel plate.
- ① Bolt a load tiedown clevis to the center shackle of the swivel plate.
 - ② Route a load tiedown clevis through the clevis bolted to the shackle. Bolt the clevis to a 12-foot sling.
 - ③ Repeat the above procedure on the opposite side of the fuel drum and to the remaining fuel drums (not shown).

Figure 2-3. Lifting Slings Installed

POSITIONING AND LASHING DRUMS

2-5. Position and lash the fuel drums as described below.

- Positioning Drums. Position the fuel drums on the platform as shown in Figure 2-4.

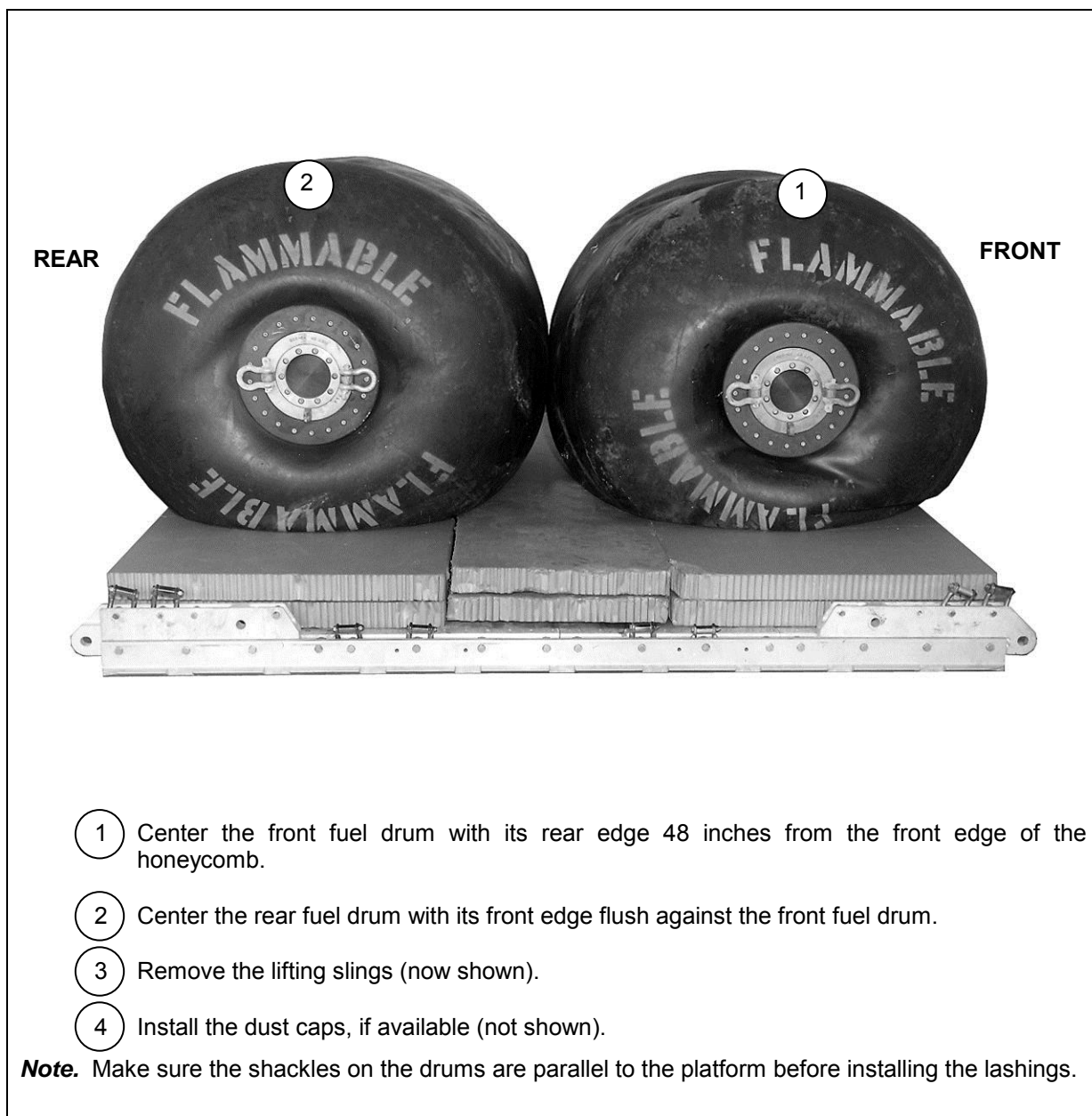


Figure 2-4. Fuel Drums Positioned

- **Lashing Drums.** Use eighteen 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 2-5 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

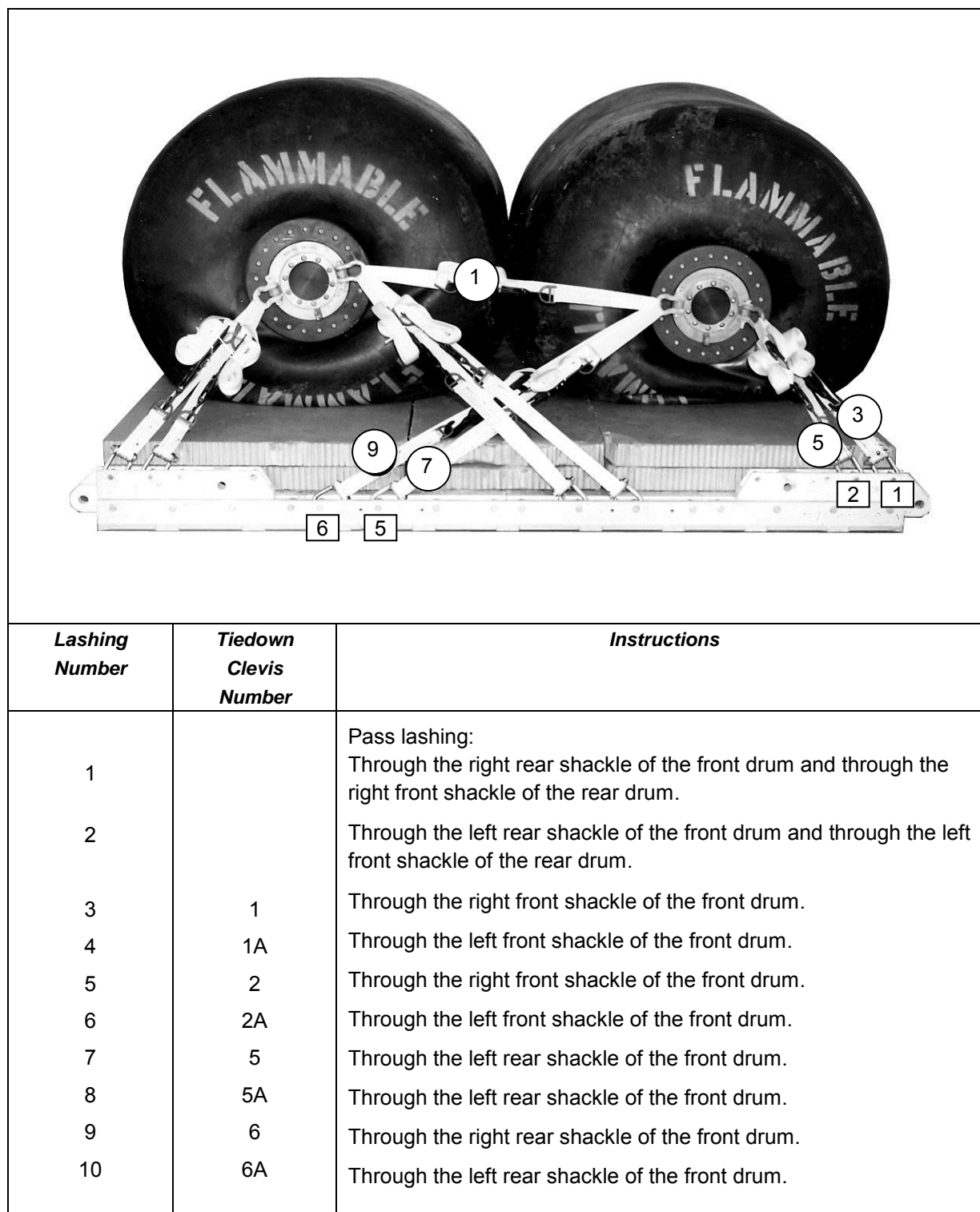


Figure 2-5. Fuel Drums Lashed to Platform

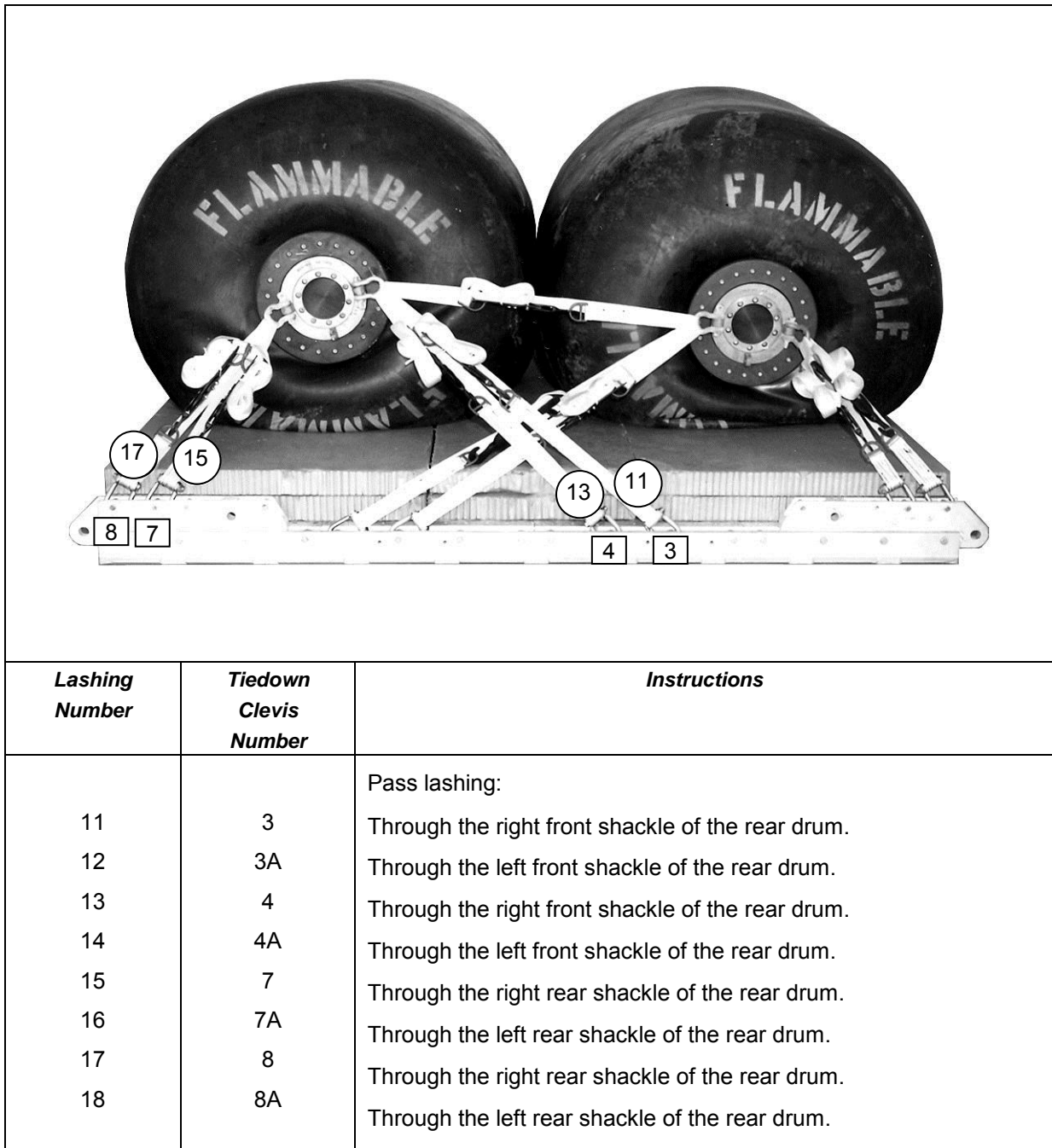


Figure 2-5. Fuel Drums Lashed to Platform (continued)

INSTALLING AND SAFETYING SUSPENSION SLINGS

2-6. Install and safety four 9-foot (3-loop), type X nylon webbing slings or four 9-foot (2-loop), type XXVI nylon webbing slings to the tandem links as shown in Figure 2-6.

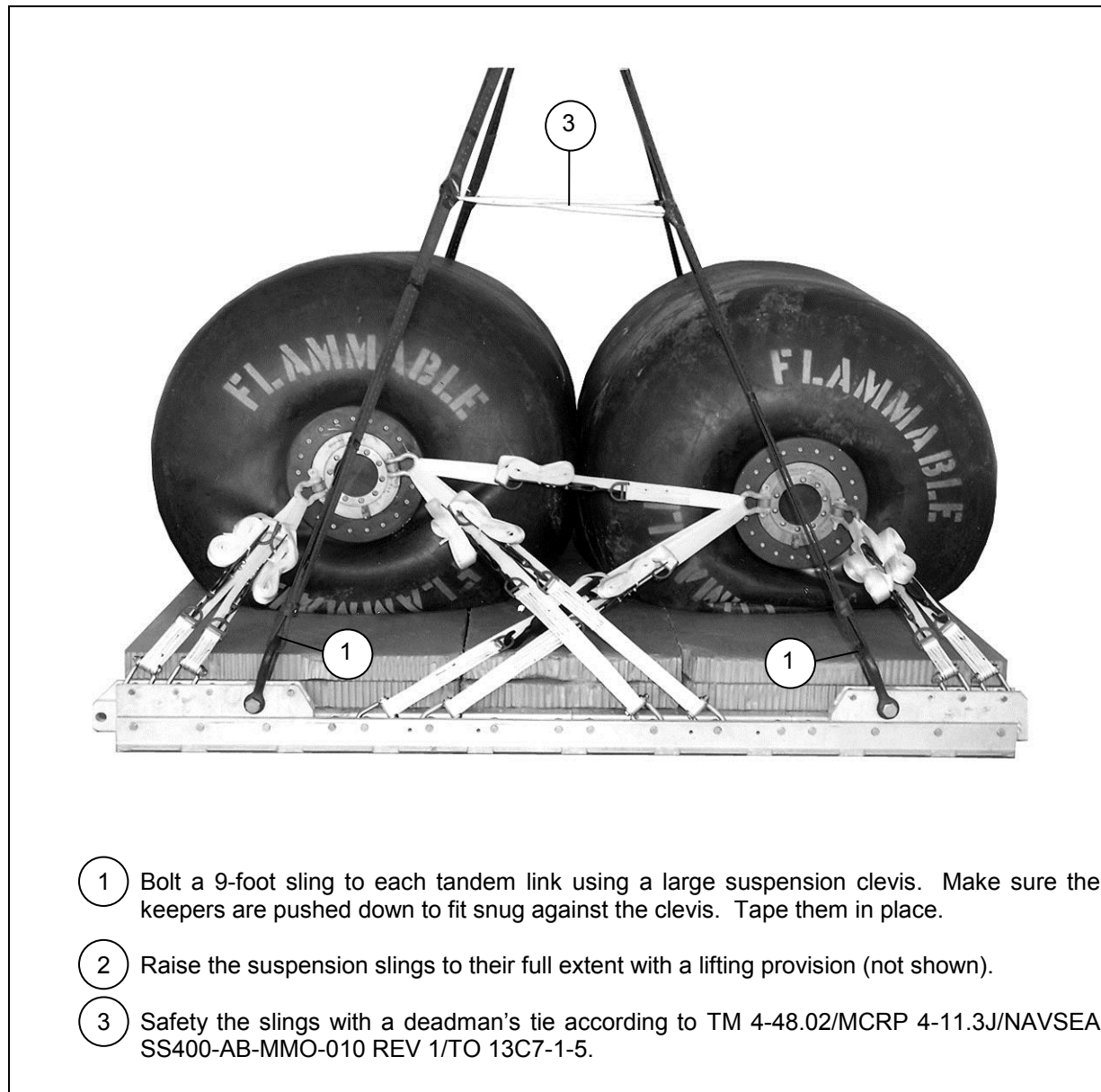
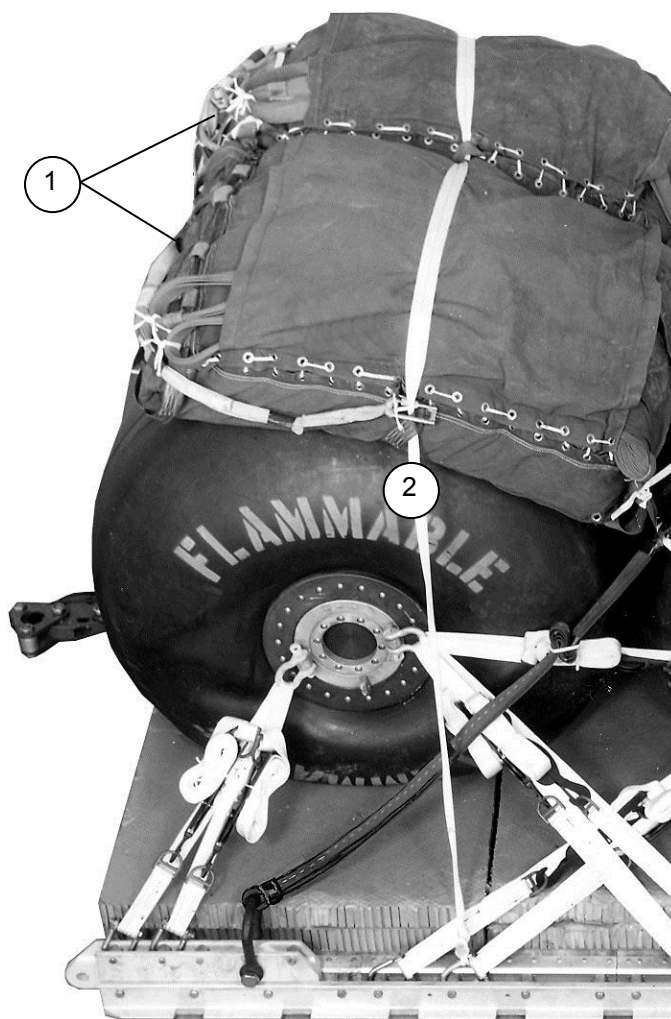


Figure 2-6. Suspension Slings Installed and Safetied

INSTALLING CARGO PARACHUTES

2-7. Install two G-11B cargo parachutes as shown in Figure 2-7 and as outlined in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

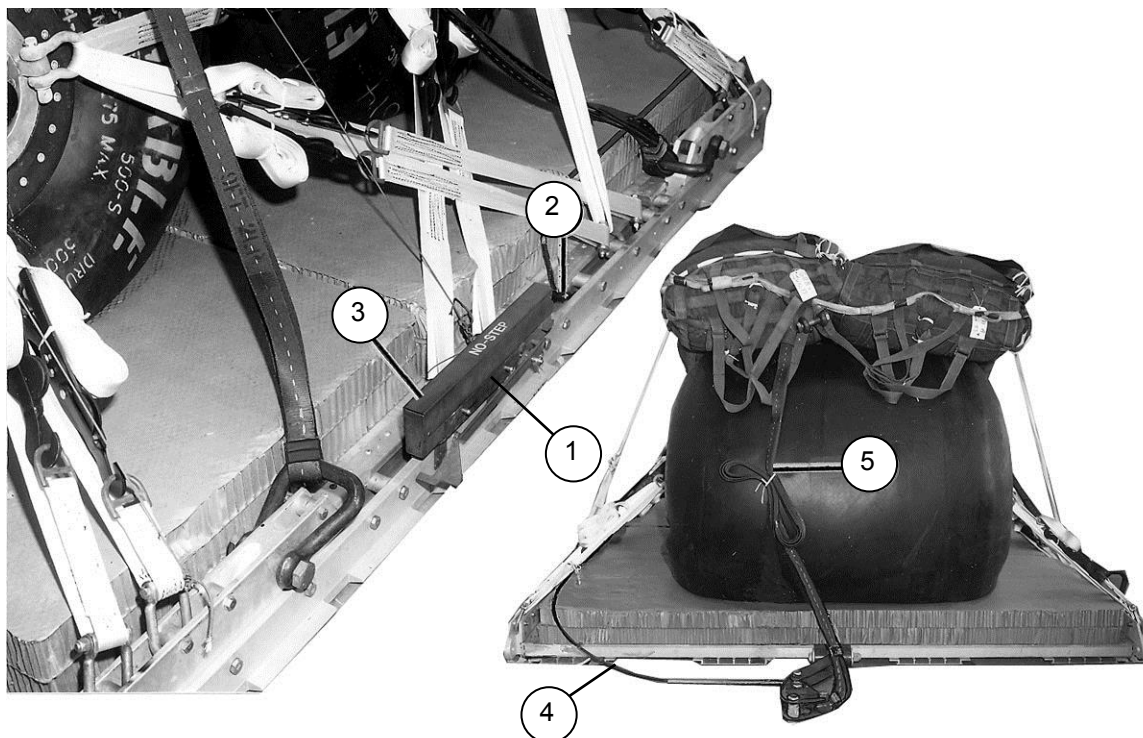


- 1 Position the two cargo parachutes on top of the rear drum. Install the parachute restraint strap as outlined in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 using clevises 5 and 5A.
- 2 Install the parachute release knives as outlined in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 2-7. Cargo Parachutes Stowed and Restrained

INSTALLING EXTRACTION SYSTEM

2-8. Install the extraction force transfer coupler (EFTC) extraction system according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 using clevises 5 and 5A and as shown in Figure 2-8.

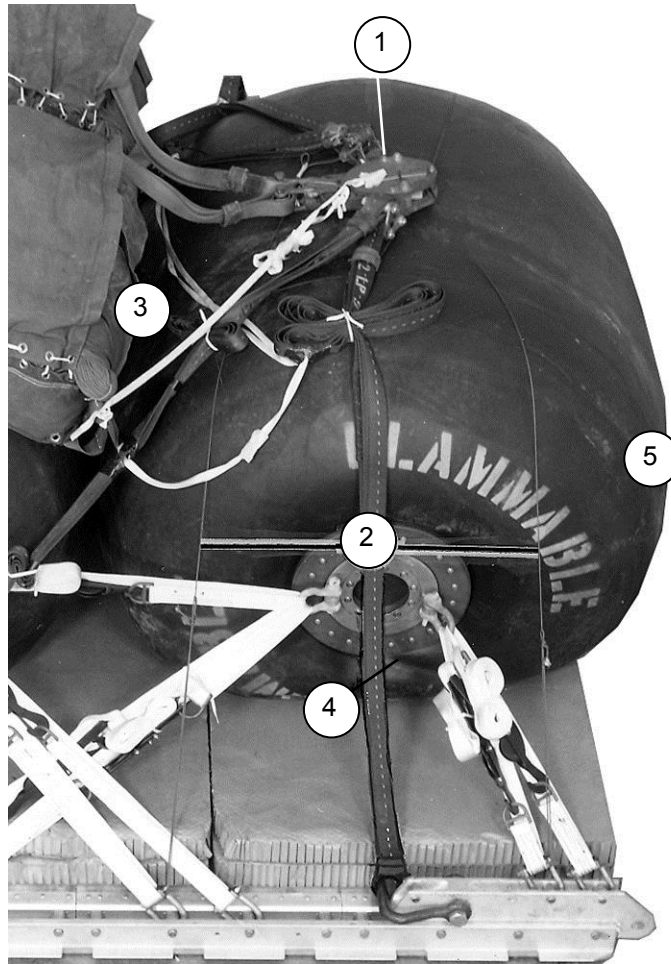


- ① Install the actuator mounting brackets to the front extraction force transfer coupling mounting holes on the left platform side rail.
- ② Install a 12-foot cable to the actuator assembly.
- ③ Bolt the actuator assembly to the mounting brackets.
- ④ Route the cable on top of the honeycomb. Secure it to the inside of the lashings with ¼-inch cotton webbing.
- ⑤ Use a 9-foot (2-loop), type XXVI nylon webbing sling for the deployment line. S-fold the excess line, and tie it with type I, ¼-inch cotton webbing.

Figure 2-8. Extraction Force Transfer Coupling Installed

INSTALLING PARACHUTE RELEASE

2-9. Prepare and attach an M-1 cargo parachute release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 2-9.



- ① Attach the M-1 release to the suspension slings as outlined in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place a 12- by 12-inch piece of felt or honeycomb under the M-1 release. Place and center the release on top of the front fuel drum.
- ② Secure the M-1 release to clevises 2 and 2A and 4 and 4A with lengths of type III nylon cord according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 2-9. Parachute Release Installed

PLACING EXTRACTION PARACHUTE

2-10. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

2-11. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

2-12. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 2-10. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, center of balance (CB), and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

2-13. Use the equipment listed in Table 2-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	*7,320 pounds
Maximum load allowed.....	8,000 pounds
Height.....	70 inches
Width	108 inches
Length	124 inches
Overhang: Front	4 inches
Rear	24 inches
CENTER OF BALANCE (CB) (from front edge of platform)	54 inches
Extraction System	Extraction Force Transfer Coupler

*Includes 432 gallons of gasoline in each drum.

Figure 2-10. Two Drums without Pumping Assembly Rigged on an 8-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 2-1. Equipment Required for Rigging Two Drums without Pumping Assembly on an 8-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-090-5354	Clevis, suspension, 1-inch (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer w/cable, 12-foot	1
1670-00-360-0328	Cover, clevis, large	1
8305-00-958-3685	Felt, ½-inch thick	As required
1670-01-183-2678	Leaf, extraction line	2
	Line, extraction:	
1670-01-064-4452	60-foot (1-loop), type XXVI nylon webbing	1
1670-01-107-7652	160-foot (1-loop), type XXVI nylon webbing	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-inch	6 sheets
	96- by 24-inch	(2)
	96- by 36-inch	(4)
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11B	2
	Cargo extraction:	
1670-00-052-1548	15-foot or	1
1670-01-063-3715	15-foot	1
	Platform, AD, type V, 8-foot	1
	Bracket:	
1670-01-162-2375	Inside Extraction force transfer actuator	1
1670-01-162-2374	Outside Extraction force transfer actuator	1
1670-01-162-2372	Clevis, load tiedown	20
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link	4
	Release, cargo parachute, M-1	1
	Sling, cargo airdrop:	
	For lifting:	
1670-00-062-6303	12-foot (2-loop), type XXVI nylon webbing	2
	For riser extension:	
1670-01-062-6302	20-foot (2-loop), type XXVI nylon webbing	2
	For suspension or deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	5

Table 2-1. Equipment Required for Rigging Two Drums without Pumping Assembly on an 8-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-00-040-8219	Strap, parachute release w fastener and release knife	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	18
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
	Nylon:	
8305-00-082-5752	Tubular, ½-inch, 1,000-pound, natural	As required
8305-00-263-3591	Type VIII, 3,600-pound	As required

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Chapter 3

Rigging Three Drums without Pumping Assembly on a 12-Foot Platform

DESCRIPTION OF LOAD

3-1. Three drums are rigged on a 12-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

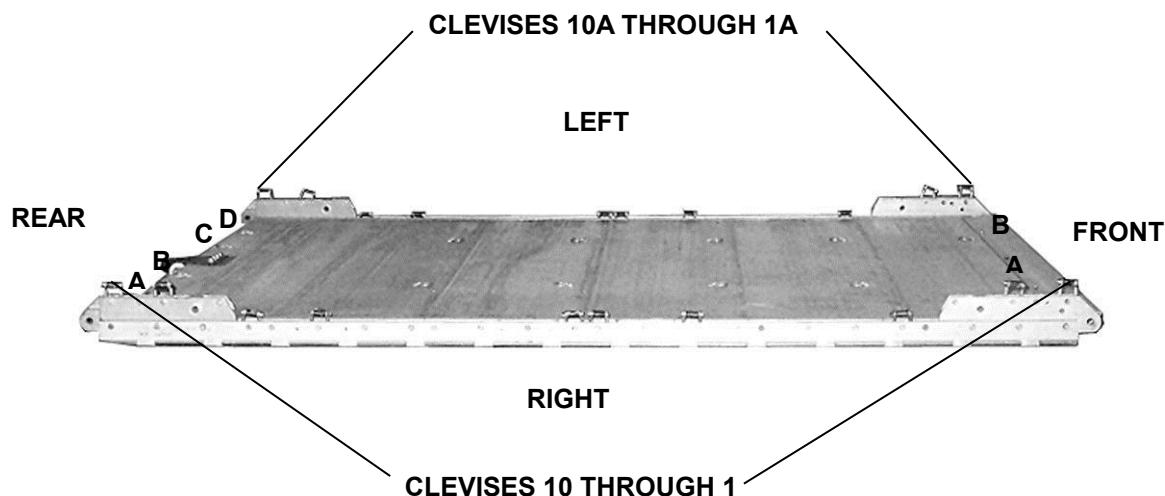
PREPARING PLATFORM

3-2. Prepare a 12-foot, type V airdrop platform using four tandem links and 20 clevises as shown in Figure 3-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.

**Steps:**

1. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.
2. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3. Install a tandem link on the rear of each platform side rail using holes 22, 23, and 24.
3. Bolt a clevis on bushings 1 and 3 of each front tandem link, and on bushings 2 and 4 of each rear tandem link.
4. Starting at the front of the platform, install clevises on each platform side rail using the bushings bolted on holes 5, 10, 12, 13, 19 and 21.
5. Starting at the front of the platform, number the clevises bolted to the right side 1 through 10, and those bolted to the left side 1A and 10A.
6. Label the tiedown rings according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 3-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

3-3. Prepare and position the honeycomb stacks as shown in Figure 3-2.

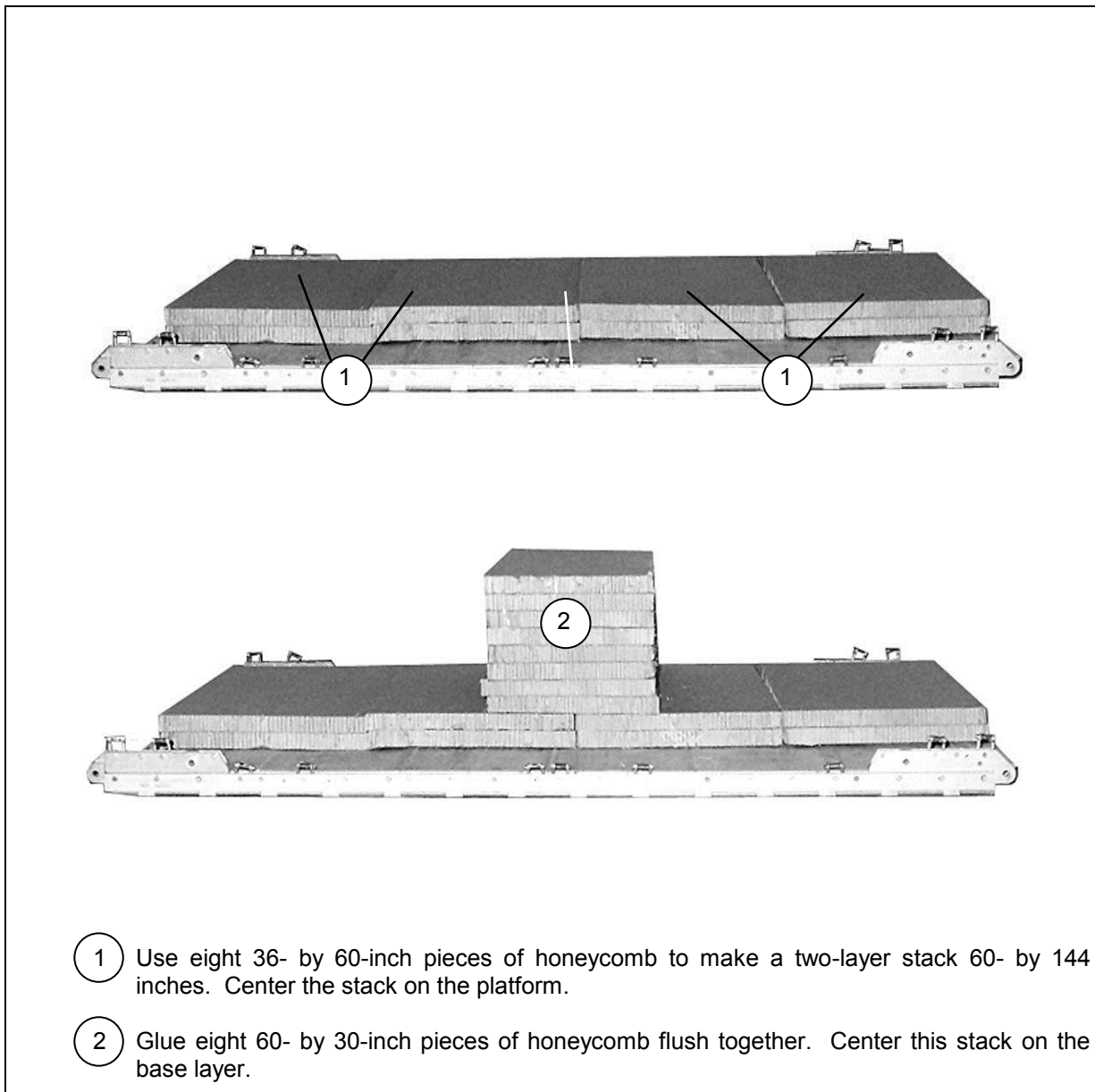


Figure 3-2. Honeycomb Stacks Positioned

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

3-4. Lift the drums and position them on the honeycomb as shown in Figure 3-3.

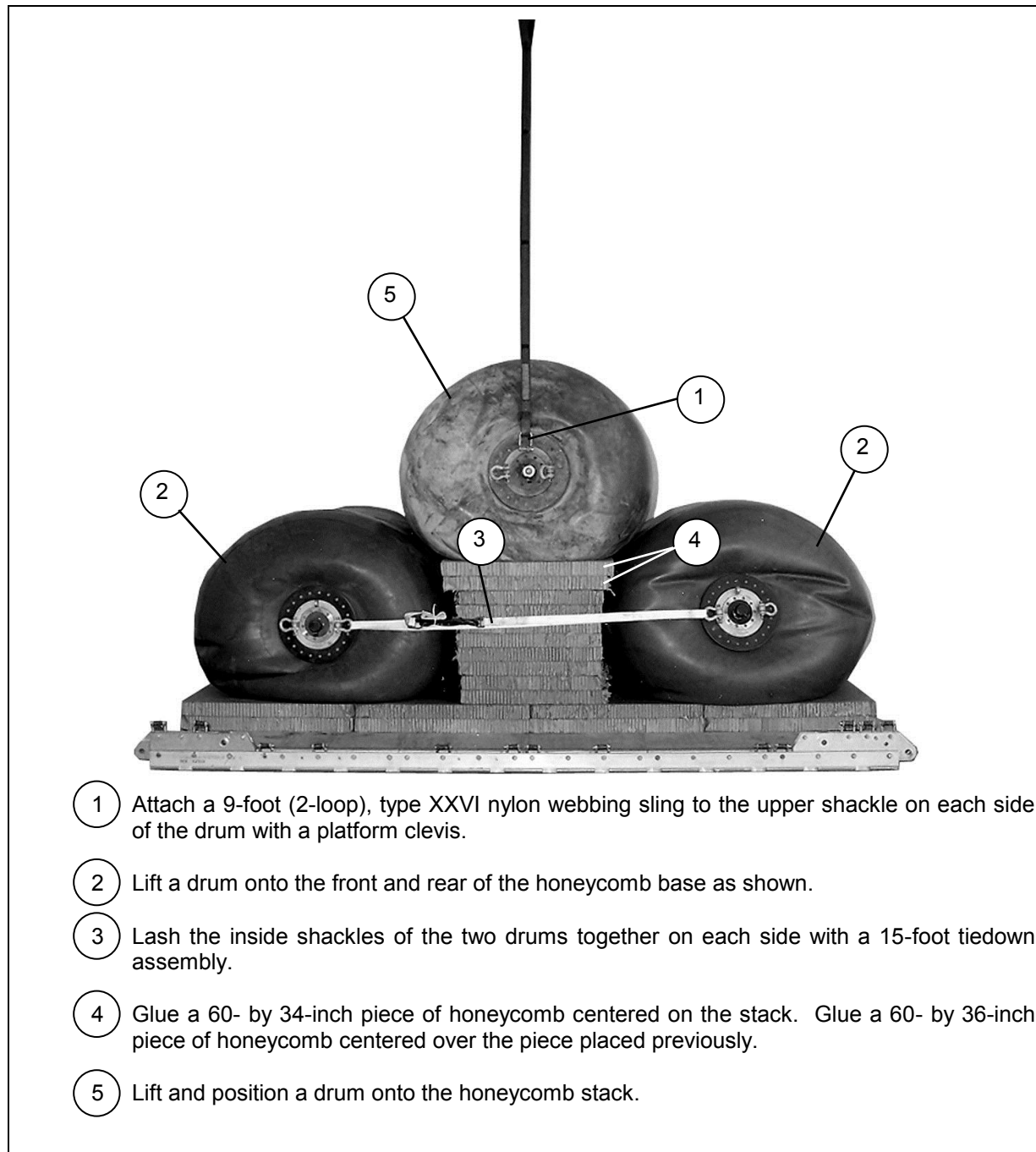


Figure 3-3. Fuel Drums Positioned

INSTALLING DRUMS

3-5. Use twenty 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 3-4 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

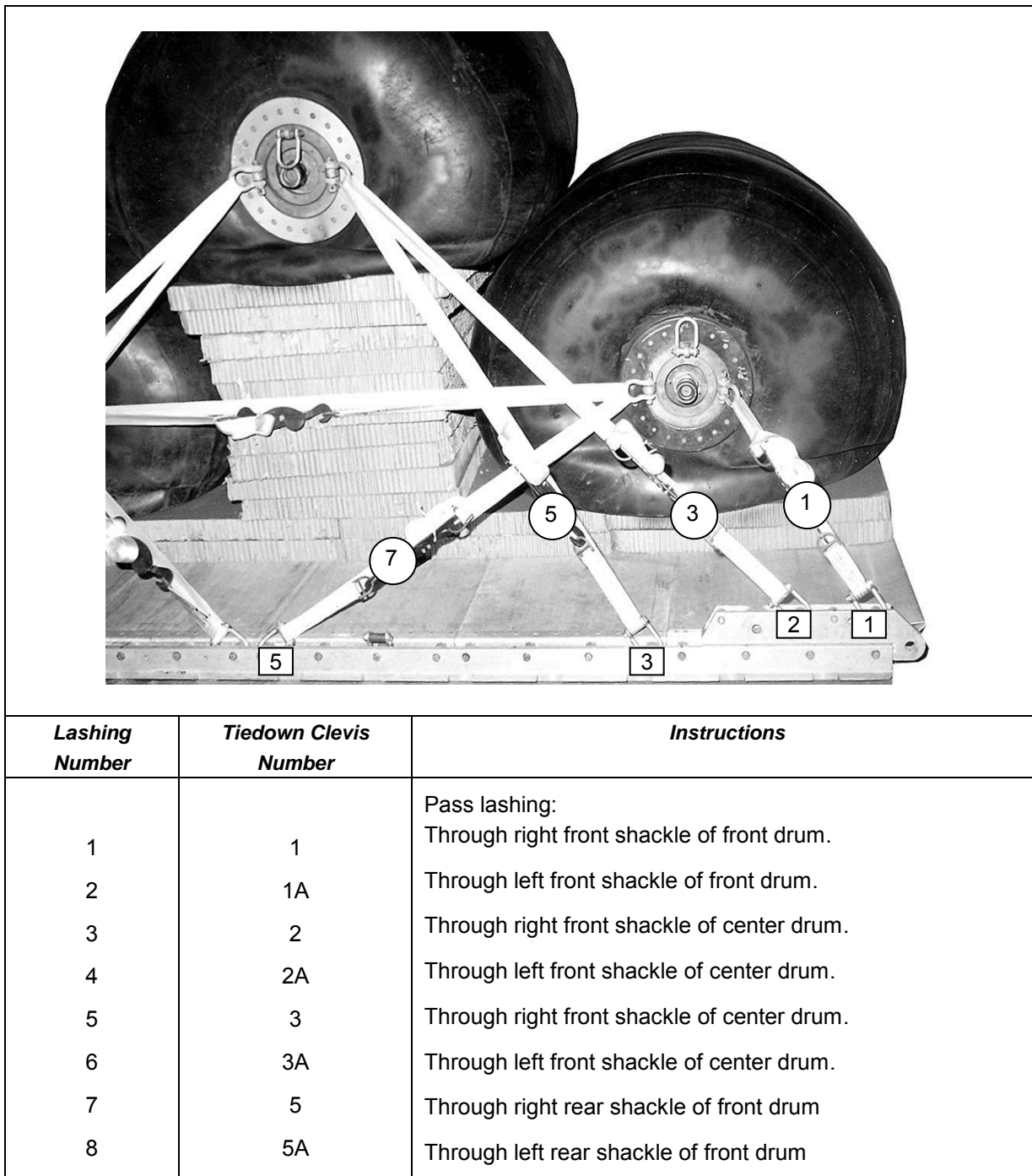


Figure 3-4. Fuel Drums Lashed to Platform

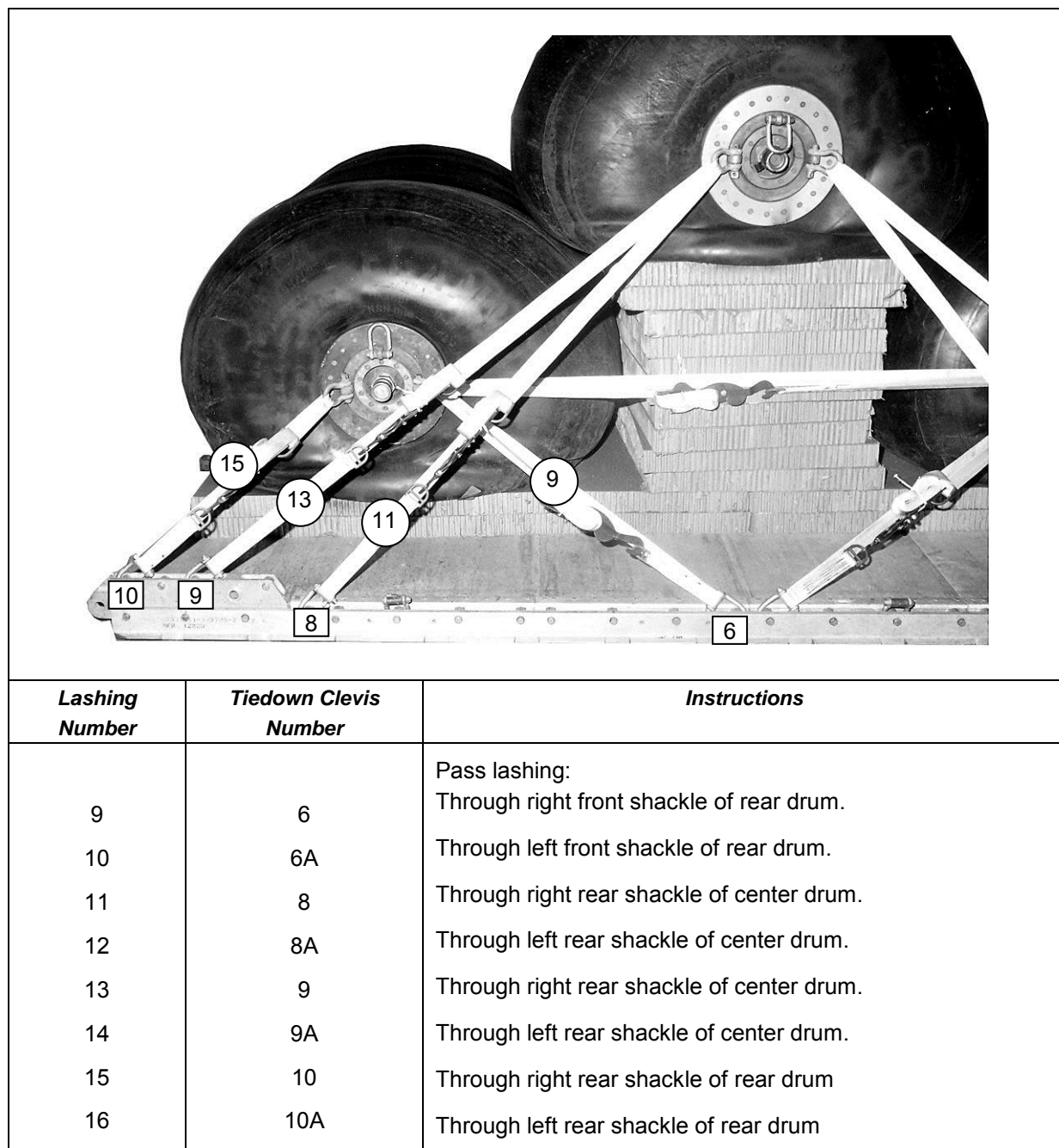
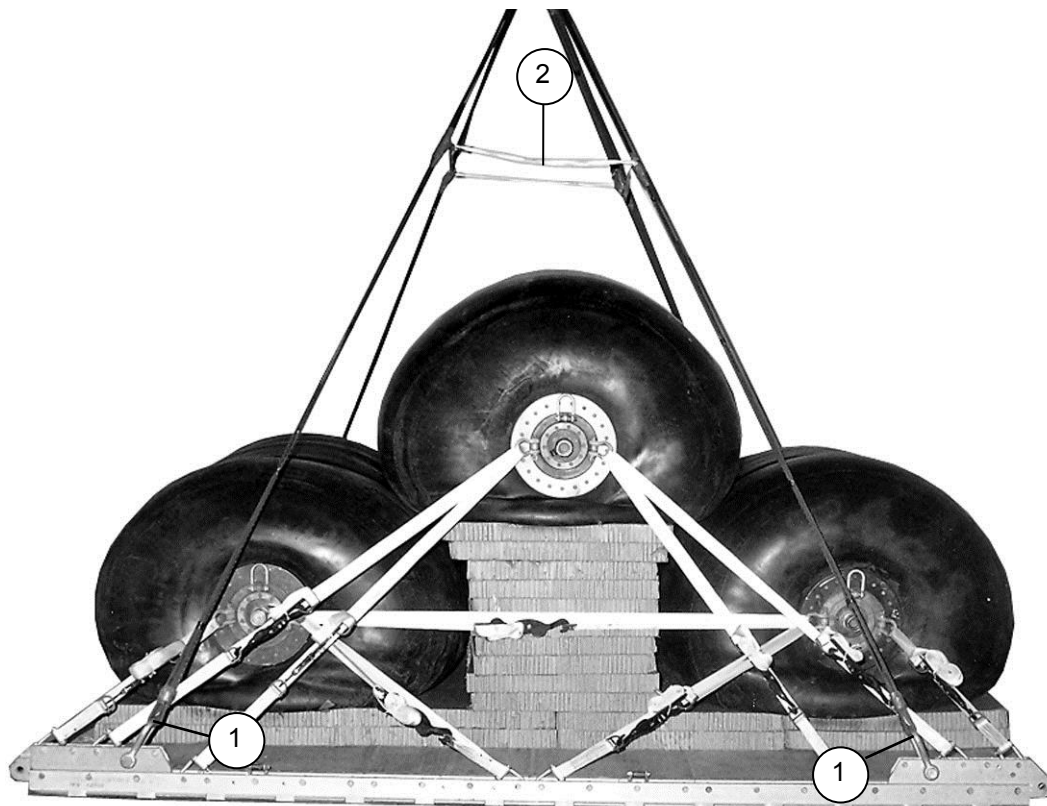


Figure 3-4. Fuel Drums Lashed to Platform (continued)

INSTALLING AND SAFETYING SUSPENSION SLINGS

3-6. Install and safety four 12-foot (2-loop), type XXVI nylon webbing slings to the tandem links as shown in Figure 3-5.



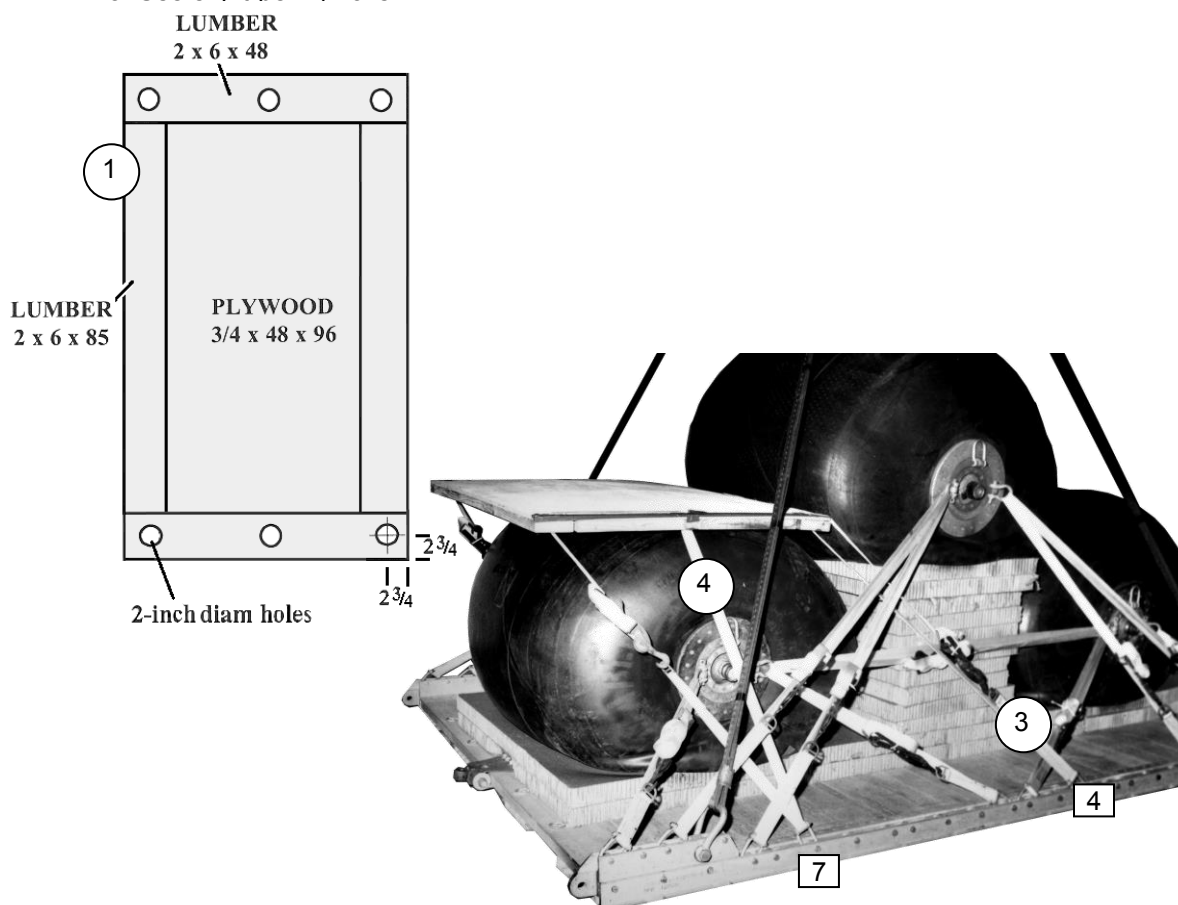
- ① Place the end loop of a 12-foot (2-loop), type XXVI nylon webbing sling in the bell portion of a large clevis. Bolt the clevis to a tandem link. Repeat for the other three tandem links.
- ② Raise the slings and install the deadman's tie according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 3-5. Suspension Slings Installed and Safetied

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

3-7. Build the parachute stowage platform and lash it to the load with four 15-foot lashings as shown in Figure 3-6.

- Notes.** 1. This drawing is not to scale.
2. All dimensions are given in inches.
3. Use eight-penny nails.

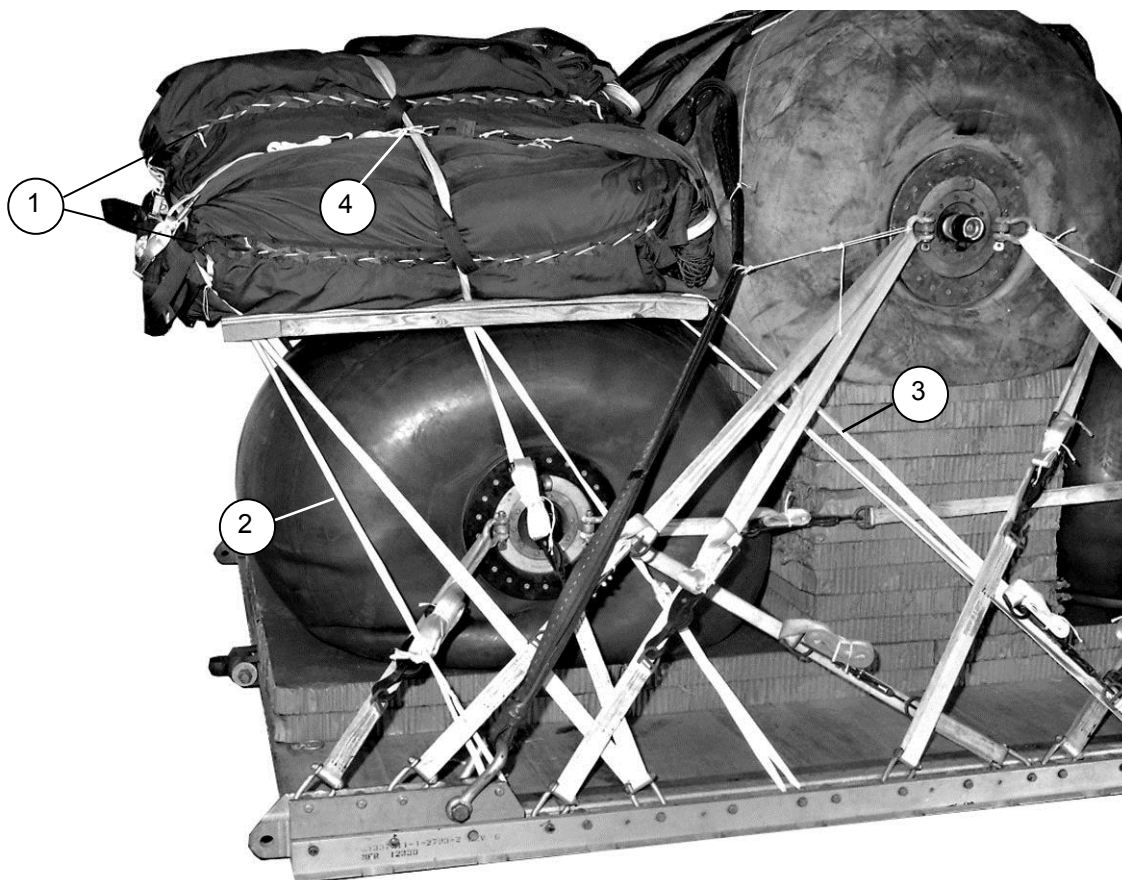


- 1 Build the parachute stowage platform as shown. Nail the 2- by 6-inch pieces of lumber to the edges of the plywood and drill 2-inch holes for the lashings.
- 2 Center a piece of honeycomb 48 inches wide and 26 inches long over the rear drum (not shown).
- 3 Place the parachute stowage platform over the honeycomb and the rear drum. Lash the front holes to clevises 4 and 4A.
- 4 Lash the center and rear holes to clevises 7 and 7A.

Figure 3-6. Parachute Stowage Platform Built and Lashed

INSTALLING CARGO PARACHUTES

3-8. Install three G-11B cargo parachutes as shown in Figure 3-7 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

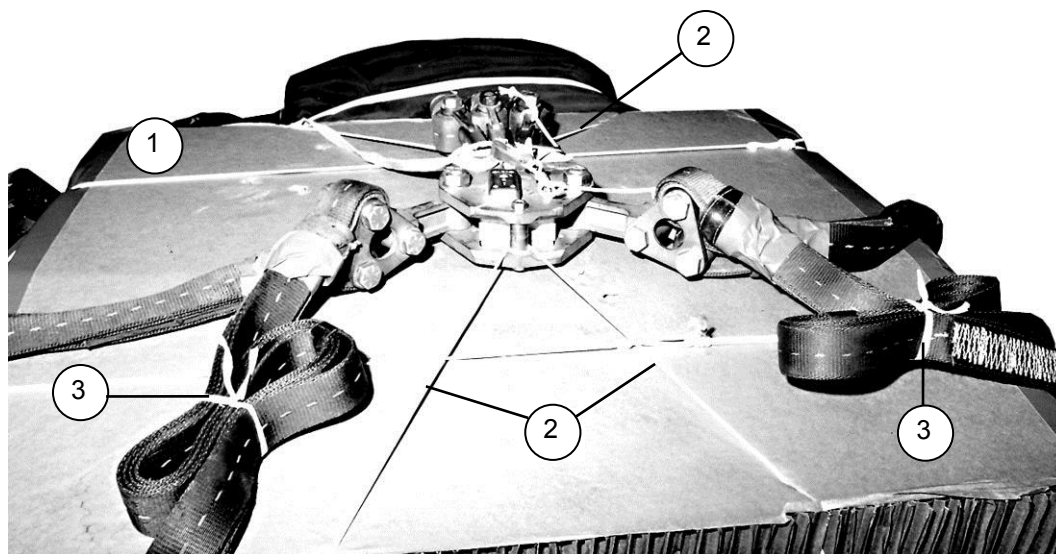


- 1 Cluster three G-11 cargo parachutes on the parachute stowage platform.
- 2 Pass the rear restraint strap through the rear holes in the parachute stowage platform, and tie the ends to the first bushing on the rear tandem links.
- 3 Pass the front restraint strap through the center holes in the parachute stowage platform, and tie the ends to the 17th bushing on each side of the platform.
- 4 Install the parachute release knives according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 3-7. G-11B Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

3-9. Prepare and attach an M-1 cargo parachute release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 3-8.



- ① Center a 36- by 36-inch piece of honeycomb over the upper drum. Secure the honeycomb to the drum shackles with type III nylon cord.
- ② Attach the suspension slings and riser extensions to the M-1 release according to TM 4-48.02/TO 13C7-1-5. Secure the release to the shackles on the lower drums with type III nylon cord.
- ③ S-fold the suspension slings and tie the folds with type I, 1/4-inch cotton webbing.

Figure 3-8. M-1 Release Installed

INSTALLING EXTRACTION SYSTEM

3-10. Install the EFTC extraction system according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 using clevises 5 and 5A and as shown in Figure 3-9.

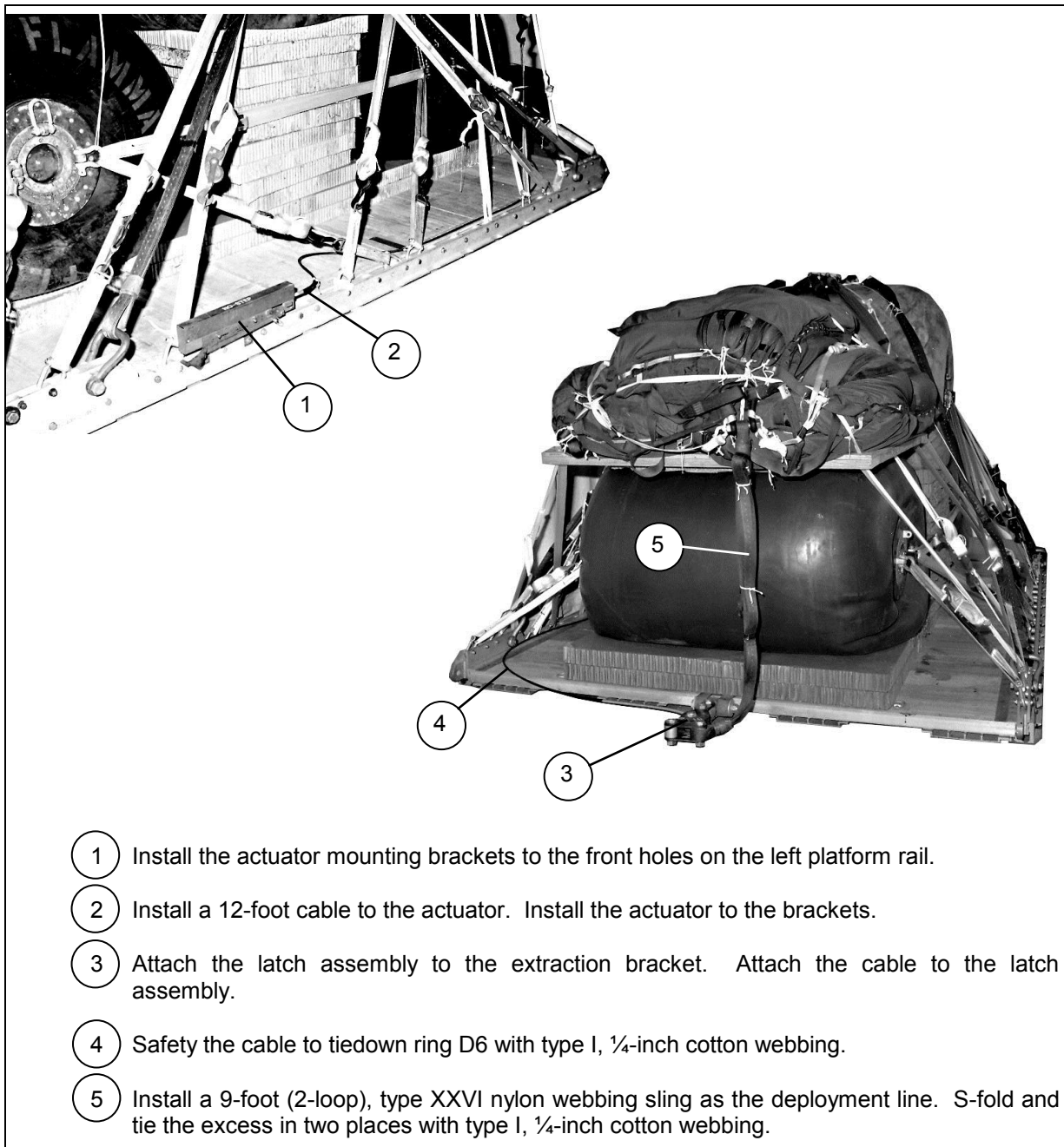


Figure 3-9. Extraction Force Transfer Coupling Installed

PLACING EXTRACTION PARACHUTE

3-11. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

3-12. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

3-13. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 3-10. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

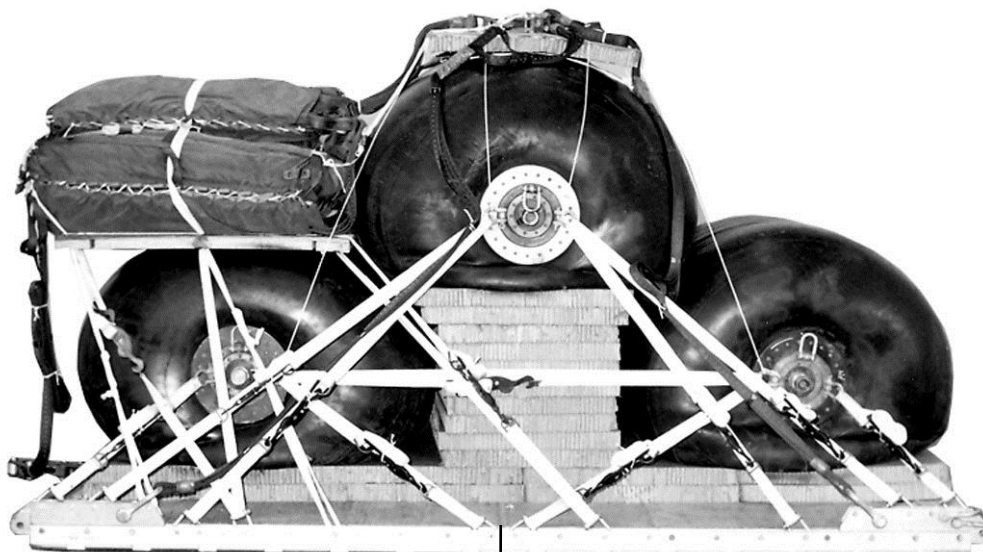
3-14. Use the equipment listed in Table 3-1 to rig this load.

CAUTION

The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	10,960 pounds
Maximum load allowed.....	13,940 pounds
Height.....	86.5 inches
Width	108 inches
Length	144 inches
Overhang: Front	5 inches
Rear	17 inches
CENTER OF BALANCE (from front edge of platform)	
.....	75 inches
Extraction System	Extraction Force Transfer
Coupler	

Figure 3-10. Three Drums without Pumping Assembly Rigged on a 12-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 3-1. Equipment Required for Rigging Three Drums without Pumping Assembly on a 12-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	4
4030-00-090-5354	Clevis, suspension, 1-inch (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer with cable, 12-foot	1
	Cover:	
1670-00-360-0328	Clevis, large	1
1670-01-183-2678	Leaf, extraction line (line bag)	2
	Line, drogue (for C-17)	
1670-01-062-6316	60-foot (3-loop), type XXVI	1
	Line extraction:	
1670-01-062-6316	60-foot (3-loop), type XXVI (for C-130)(Use w/140-foot for C-5)	1
1670-01-107-7651	140-foot (3-loop), type XXVI (for C-141B, C-5, or C-17)	1
	Link Assembly:	
	Two-point:	
5306-00-435-8994	Bolt, 1-inch diameter, 4-inch long	2
5310-00-232-5165	Nut, 1-inch, hexagonal	2
1670-00-003-1953	Plate, side, 3 ¾-inches	2
5365-00-007-3414	Spacer, large	2
	Lumber:	
5510-00-220-6148	2- by 6- by 85-inches	2
	By 48-inches	2
5315-00-010-4659	Nail, steel wire, 8-penny	As required
1670-00-753-3928	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	14 sheets
	Parachute	
	Cargo:	
1670-01-016-7841	G-11B	3
	Cargo extraction:	
1670-01-063-3716	22-foot:	1
	Drogue (for C-17)	
1670-01-063-3715	15-foot	1

Table 3-1. Equipment Required for Rigging Three Drums without Pumping Assembly on a 12-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 12-foot	
	Bracket Assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	20
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	4
5530-00-128-4981	Plywood, ¾- by 48- by 96-inches	1 sheet
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6303	12-foot (2-loop), type XXVI nylon webbing	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	20-foot (2-loop), type XXVI nylon webbing	6
5340-00-040-8219	Strap, parachute release, multi-cut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tie-down assembly, 15-foot	18
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

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Chapter 4

Rigging Three Drums with Pumping Assembly on a 12-Foot Platform

DESCRIPTION OF LOAD

4-1. Three drums are rigged with a pumping assembly on a 12-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

PREPARING PLATFORM

4-2. Prepare a 12-foot, type V airdrop platform using four tandem links and 26 clevises as shown in Figure 4-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.

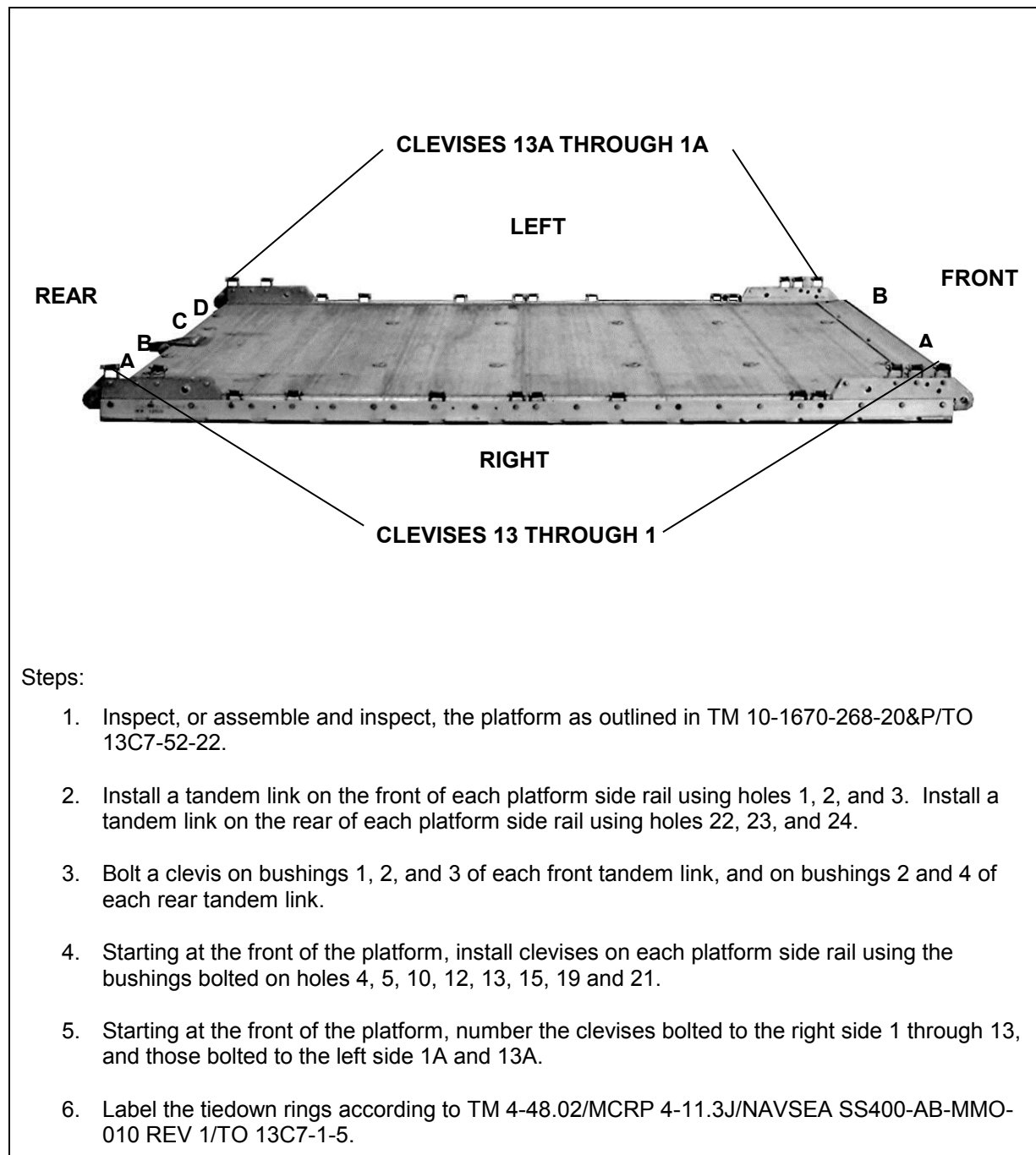


Figure 4-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

4-3. Prepare and position the honeycomb stacks as shown in Figure 4-2.

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

4-4. Lift the drums and position them on the honeycomb as shown in Figure 4-3.

LASHING DRUMS

4-5. Use twenty-six 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 4-2 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

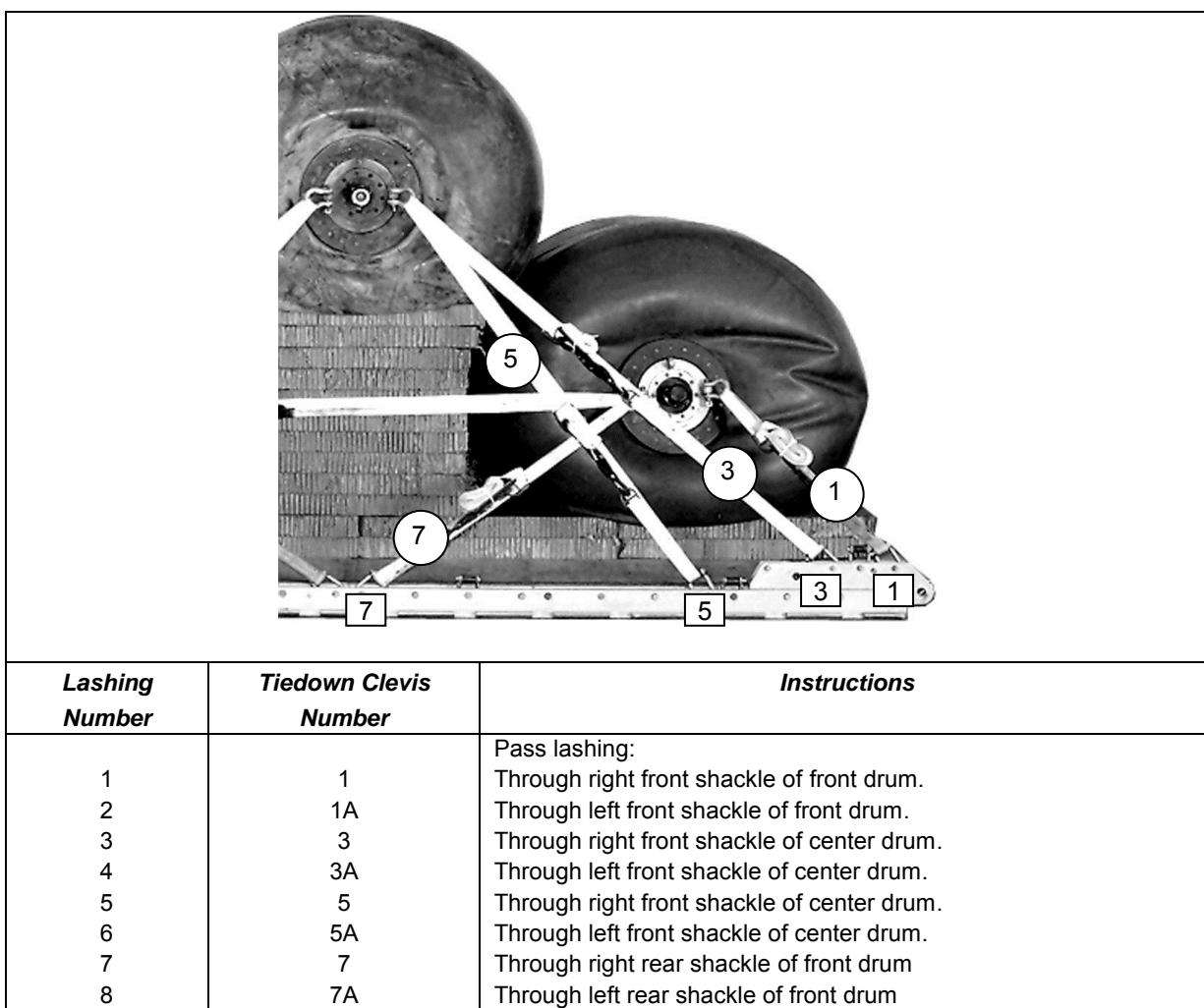


Figure 4-2. Fuel Drums Lashed to Platform

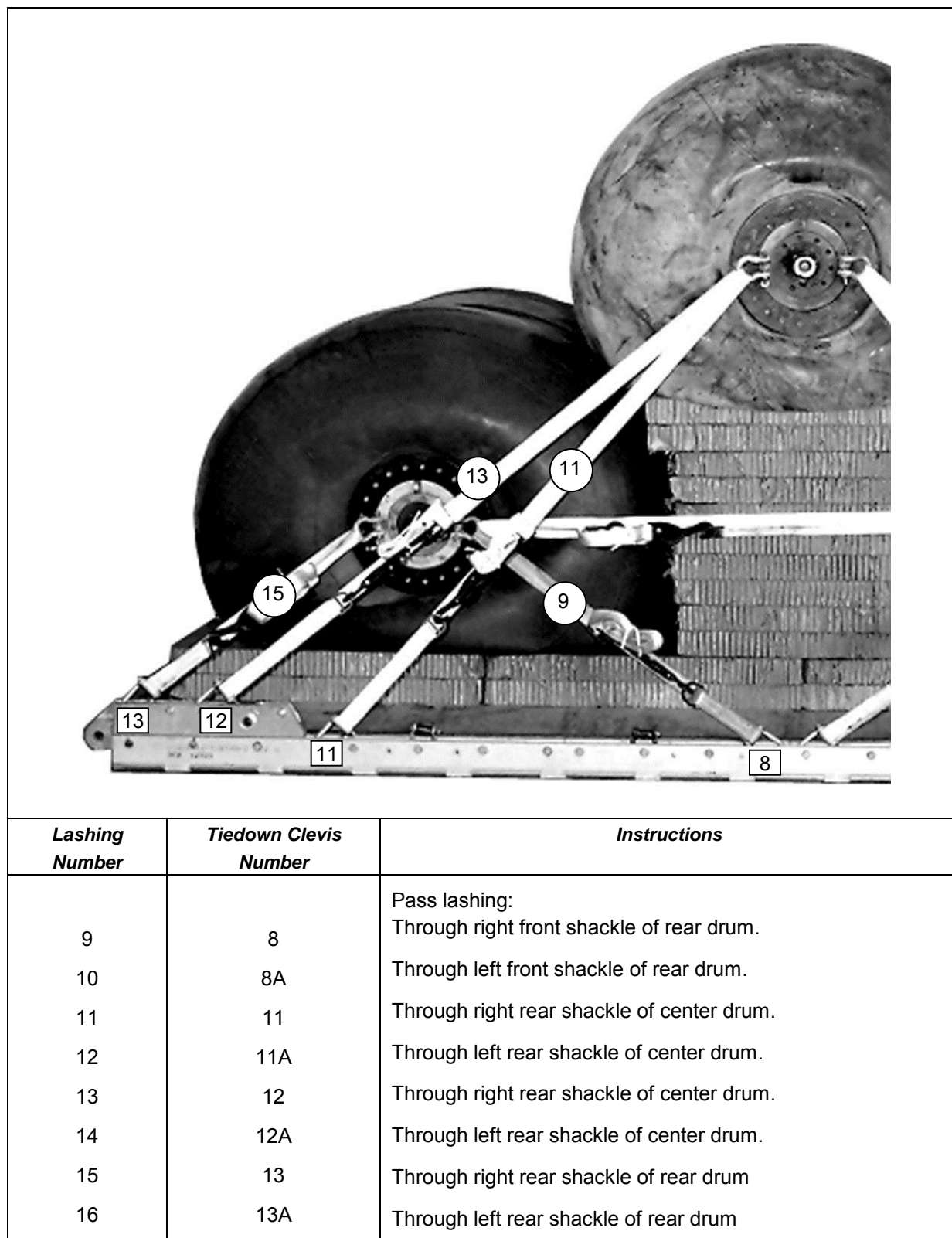


Figure 4-2. Fuel Drums Lashed to Platform (continued)

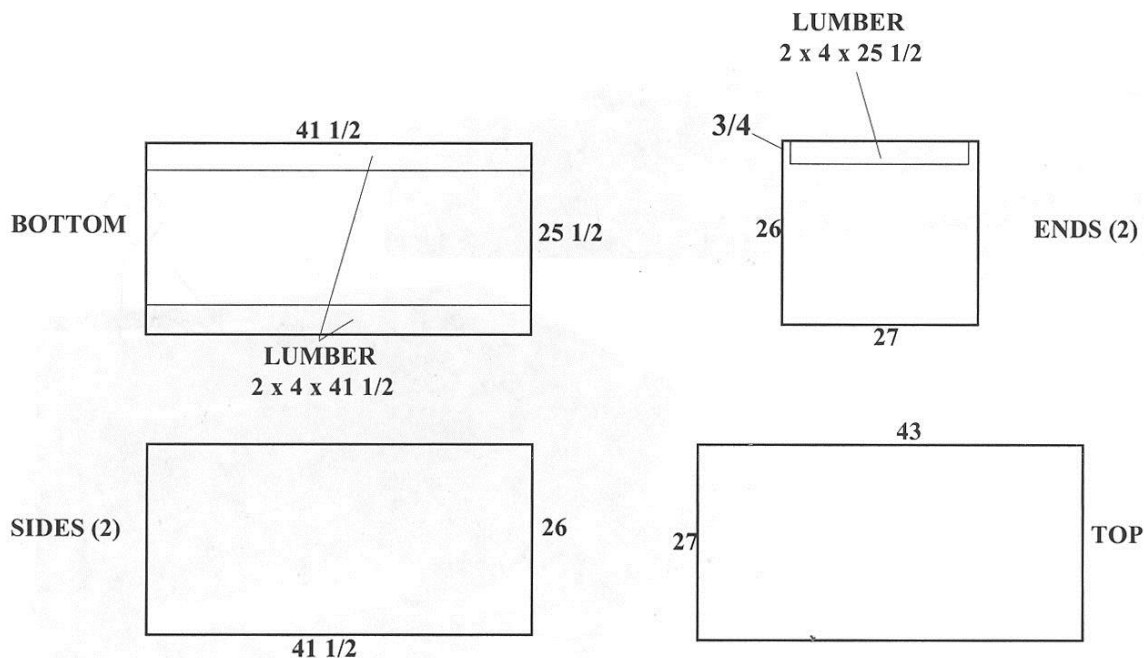
PREPARING PUMP ASSEMBLY

4-6. Build the box for the pump assembly as shown in Figure 4-3. Pack the pump, hoses, and equipment in the box as shown in Figure 4-4.

LASHING PUMP ASSEMBLY TO PLATFORM

4-7. Place the pump assembly box on the load and lash it to the platform as shown in Figure 4-5.

Note: 1. These drawings are not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



Steps:

1. Cut the bottom of the box from 3/4-inch plywood 41 1/2 inches long and 25 1/2-inches wide. Nail a 41 1/2-inch length of 2- by 4-inch lumber flat side down and flush along each lone edge of the bottom. The top of the box is 43- by 27-inches.
2. Cut the sides of the box from 3/4-inch plywood 41 1/2-inches long and 26 inches high. Place the sides flush with the bottom. Nail into the 2- by 4-inch pieces of lumber.
3. Cut the ends of the box from 3/4-inch plywood 27 inches wide and 26 inches high. Nail a piece of 2- by 4-inch lumber flat side down, centered, and flush with the top edge of each end piece. Nail the ends flush to the bottom and sides. Nail the sides to the 2- by 4-inch pieces of lumber on the ends.

Figure 4-3. Pump Assembly Box Built

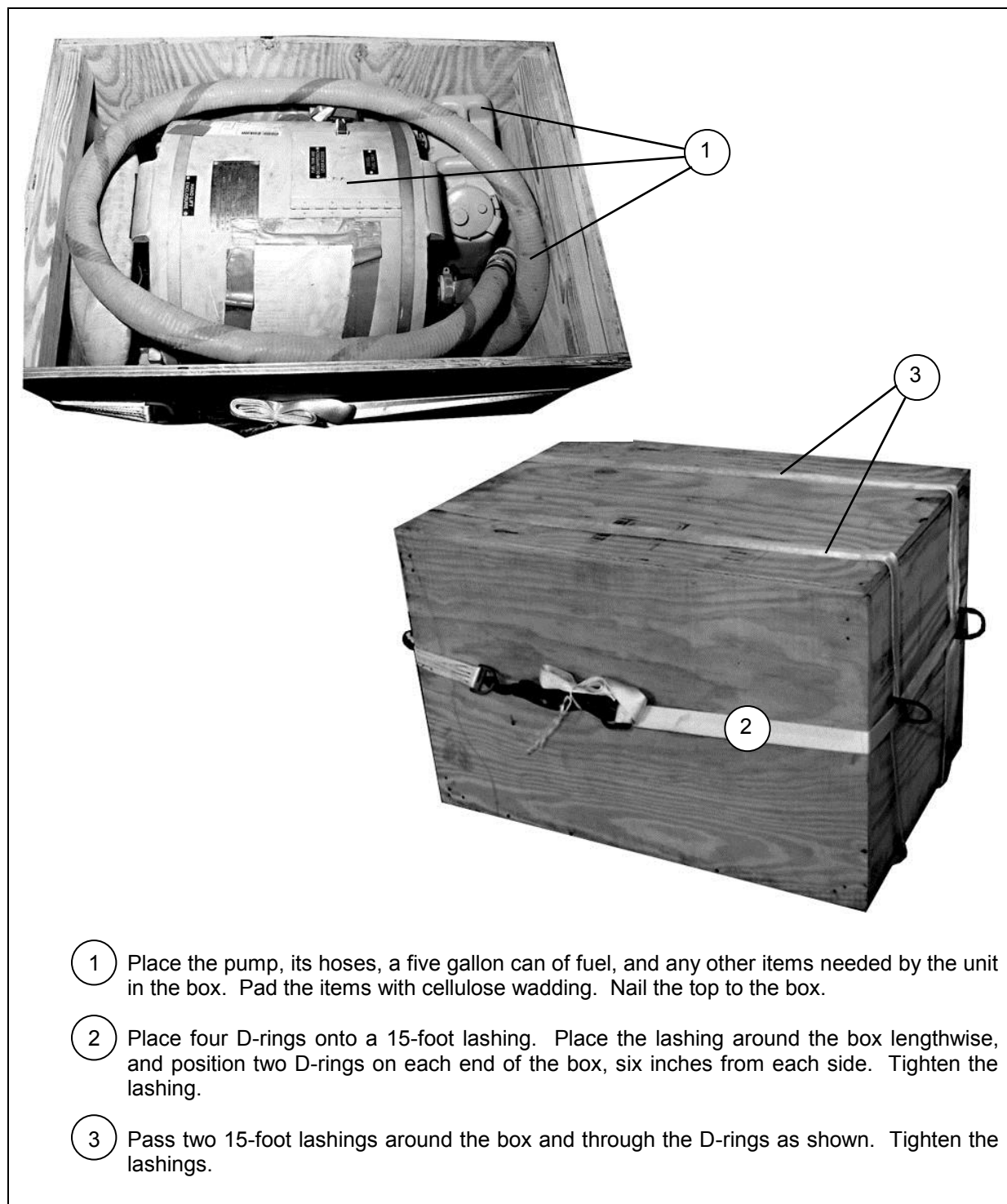


Figure 4-4. Pump Assembly Box Packed

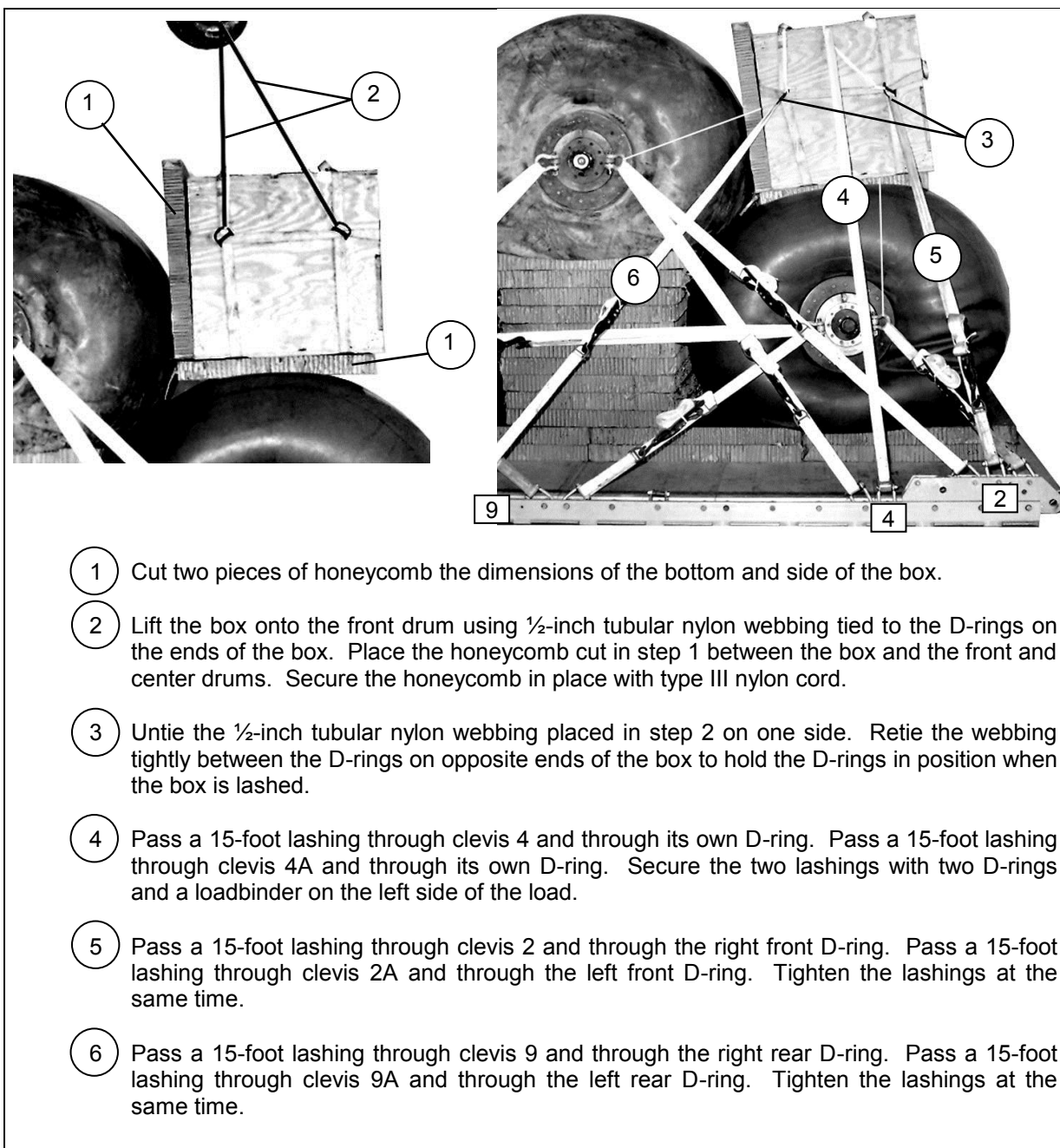


Figure 4-5. Pump Assembly Box Lashed to Platform

INSTALLING AND SAFETYING SUSPENSION SLINGS

4-8. Install and safety four 12-foot (2-loop), type XXVI nylon webbing slings to the tandem links as shown in Figure 3-5.

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

4-9. Build the parachute stowage platform and lash it to the load as shown in Figure 3-6.

INSTALLING CARGO PARACHUTES

4-10. Install three G-11 cargo parachutes as shown in Figure 3-7 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

INSTALLING PARACHUTE RELEASE

4-11. Prepare and install an M-1 cargo parachute release as shown in Figure 3-8 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

INSTALLING EXTRACTION SYSTEM

4-12. Prepare and install the EFTC extraction system as shown in Figure 3-9 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

CAUTION

The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

PLACING EXTRACTION PARACHUTE

4-13. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

4-14. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

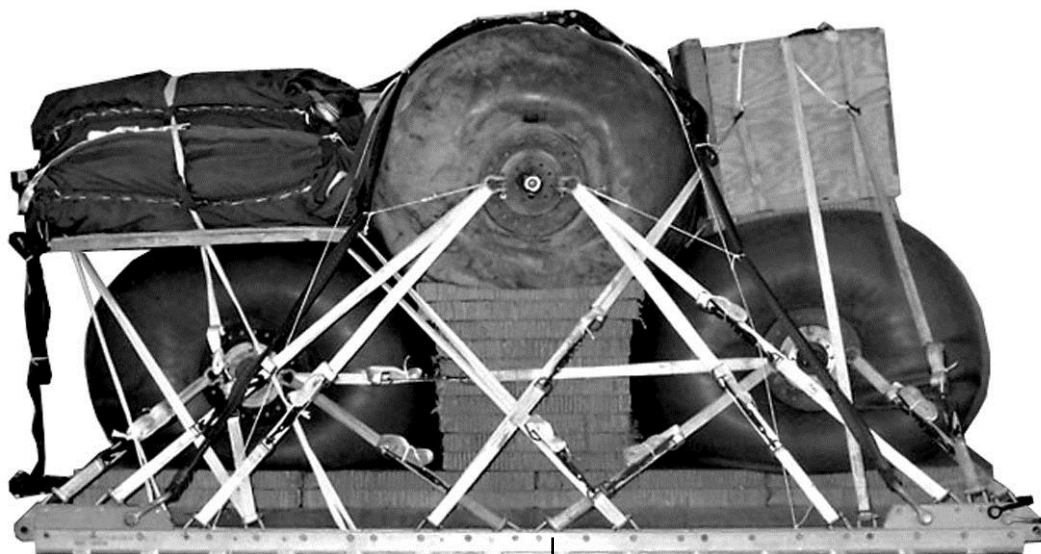
4-15. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 4-6. Comply with the Shipper's requirements for completing form AMC IMT 1033, 20050204, V1, Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

4-16. Use the equipment listed in Table 4-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	11,200 pounds
Maximum load allowed.....	14,180 pounds
Height.....	86.5 inches
Width	108 inches
Length	144 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)74 inches
Extraction System	Extraction Force Transfer Coupler

Figure 4-6. Three Drums with Pumping Assembly Rigged on a 12-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 4-1. Equipment Required for Rigging Three Drums with Pumping Assembly on a 12-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	4
4030-00-090-5354	Clevis, suspension, 1-inch (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer with cable, 12-foot	1
1670-00-360-0328	Cover:	1
1670-01-183-2678	Clevis, large	2
	Leaf, extraction line (line bag)	
1670-01-062-6316	Line, drogue (for C-17)	
	60-foot (3-loop), type XXVI	1
1670-01-062-6316	Line, extraction:	
1670-01-107-7651	60-foot (3-loop), type XXVI (for C-130)	1
	140-foot (3-loop), type XXVI (C-17)	1
	Link assembly:	
5306-00-435-8994	Two-point:	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	
1670-00-003-1953	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 3 ¾-inch	2
	Spacer, large	2
5510-00-220-6146	Lumber:	2
	2- by 4- by:	
	41 ½-inches	2
5510-00-220-6148	25 ½-inches	2
	2- by 6- by:	
	85-inches	2
5315-00-010-4659	48-inches	2
1670-00-753-3928	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	15 sheets
	Parachute:	
1670-01-016-7841	Cargo:	
	G-11B	3
1670-01-063-3716	Cargo extraction:	
	22-foot	1
1670-01-063-3715	Drogue (for C-17)	
	15-foot	1

Table 4-1. Equipment Required for Rigging Three Drums with Pumping Assembly on a 12-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 12-foot	
	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	26
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	4
5530-00-128-4981	Plywood, ¾- by 48- by 96-inches	2 sheets
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6303	12-foot (2-loop), type XXVI nylon webbing	
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6302	9-foot (2-loop) type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	20-foot (2-loop), type XXVI nylon webbing	6
5340-00-040-8219	Strap, parachute release, multi-cult, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	29
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

Chapter 5

Rigging Four Drums without Pumping Assembly on a 20-Foot Platform

DESCRIPTION OF LOAD

5-1. Four drums are rigged on a 20-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

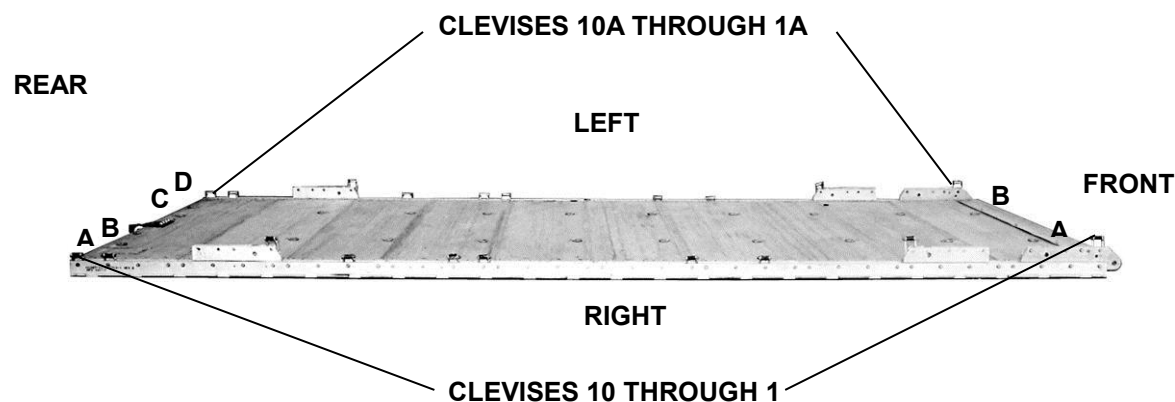
PREPARING PLATFORM

5-2. Prepare a 20-foot, type V airdrop platform using two tandem links, four suspension links, and 20 clevises as shown in Figure 5-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.

**Steps:**

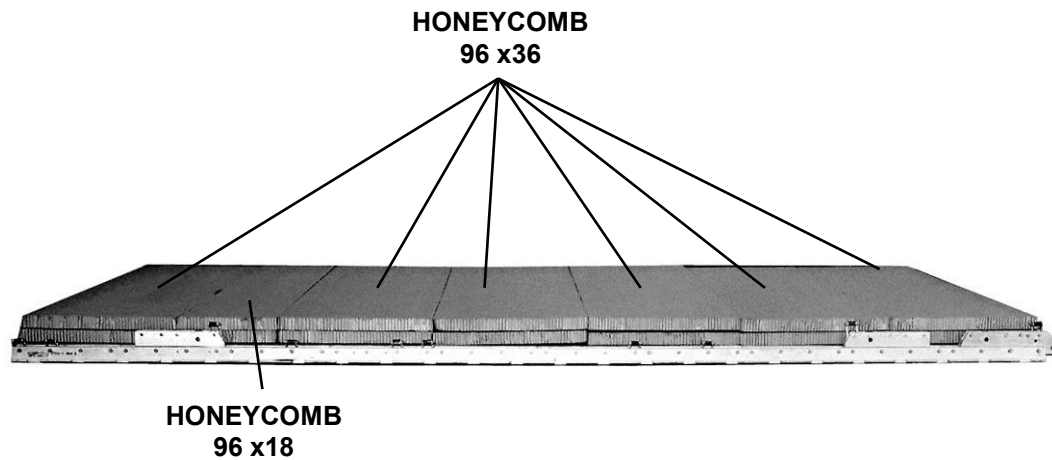
1. Inspect, or assemble and inspect, the platform as outlined in TM 10-1670-268-20 & P/TO 13C7-52-22.
2. Install a suspension link on each platform side rail using holes 6, 7, and 8.
3. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
4. Install a suspension link on each platform side rail using holes 33, 34, and 35.
5. Bolt a clevis on bushing 1 of each front tandem link, on bushing 4 of each first suspension link, and on bushing 1 of each rear suspension link.
6. Starting at the front of the platform, install clevises on each platform side rail using the bushings bolted on holes 14, 17, 25, 26, 30, 39, and 40.
7. Starting at the front of the platform, number the clevises bolted to the right side 1 through 10, and those bolted to the left side 1A through 10A.
8. Label the tiedown rings according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 5-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

5-3. Prepare and position the honeycomb stacks as shown in Figure 5-2.

Note: All dimensions are in inches.



- 1 Use 12 full sheets of honeycomb and two 18- by 96 inch pieces to form a two-layer stack 234 inches long and 96 inches wide. Center the stack on the platform 3 inches from the front edge.

Note. Place the 18-inch section inside the stack.

Figure 5-2. Honeycomb Stack Positioned

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

5-4. Lift the drums and position them on the honeycomb as shown in Figure 5-3.

LASHING DRUMS

5-5. Use twenty 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 5-4 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

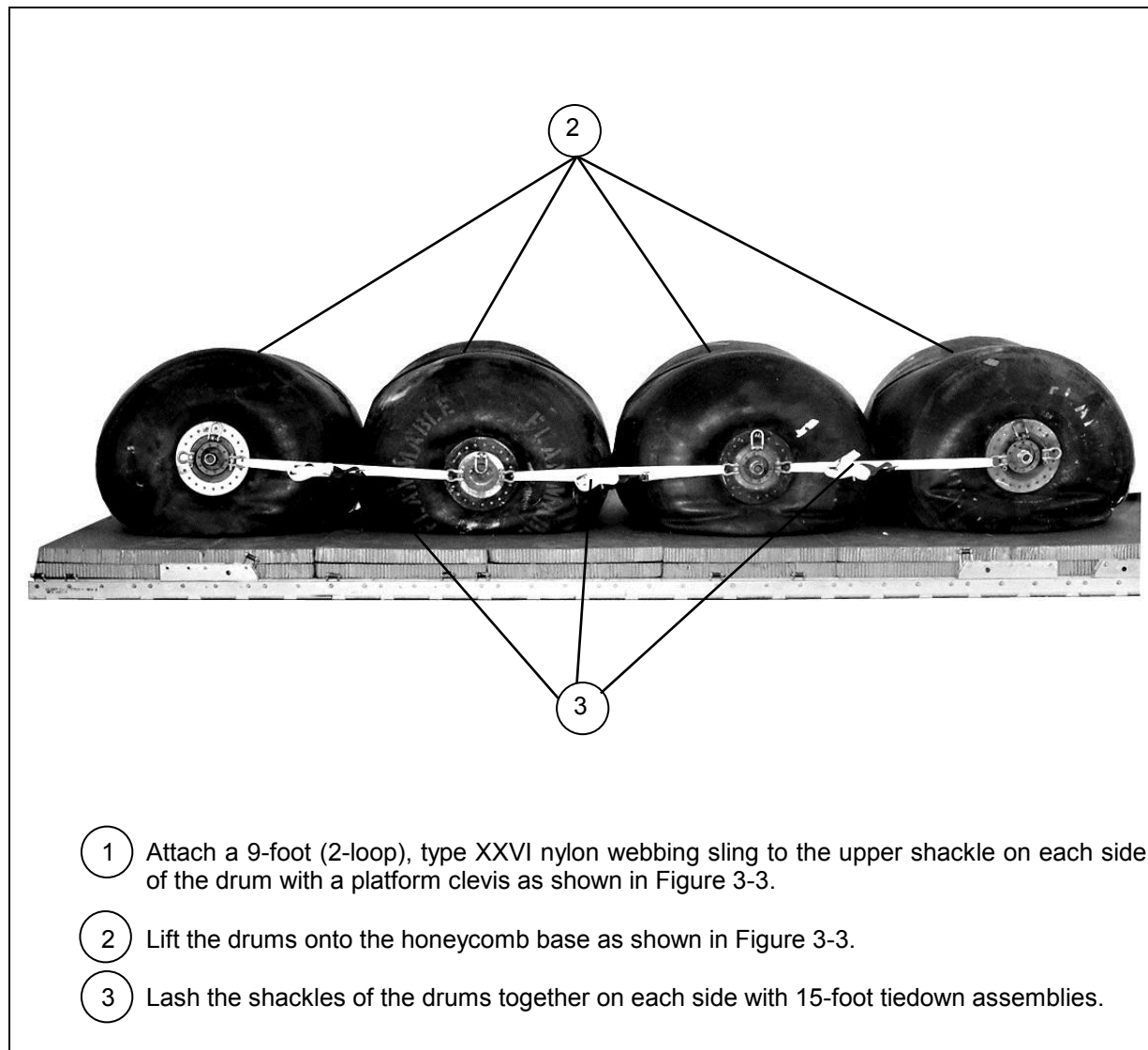


Figure 5-3. Fuel Drums Positioned

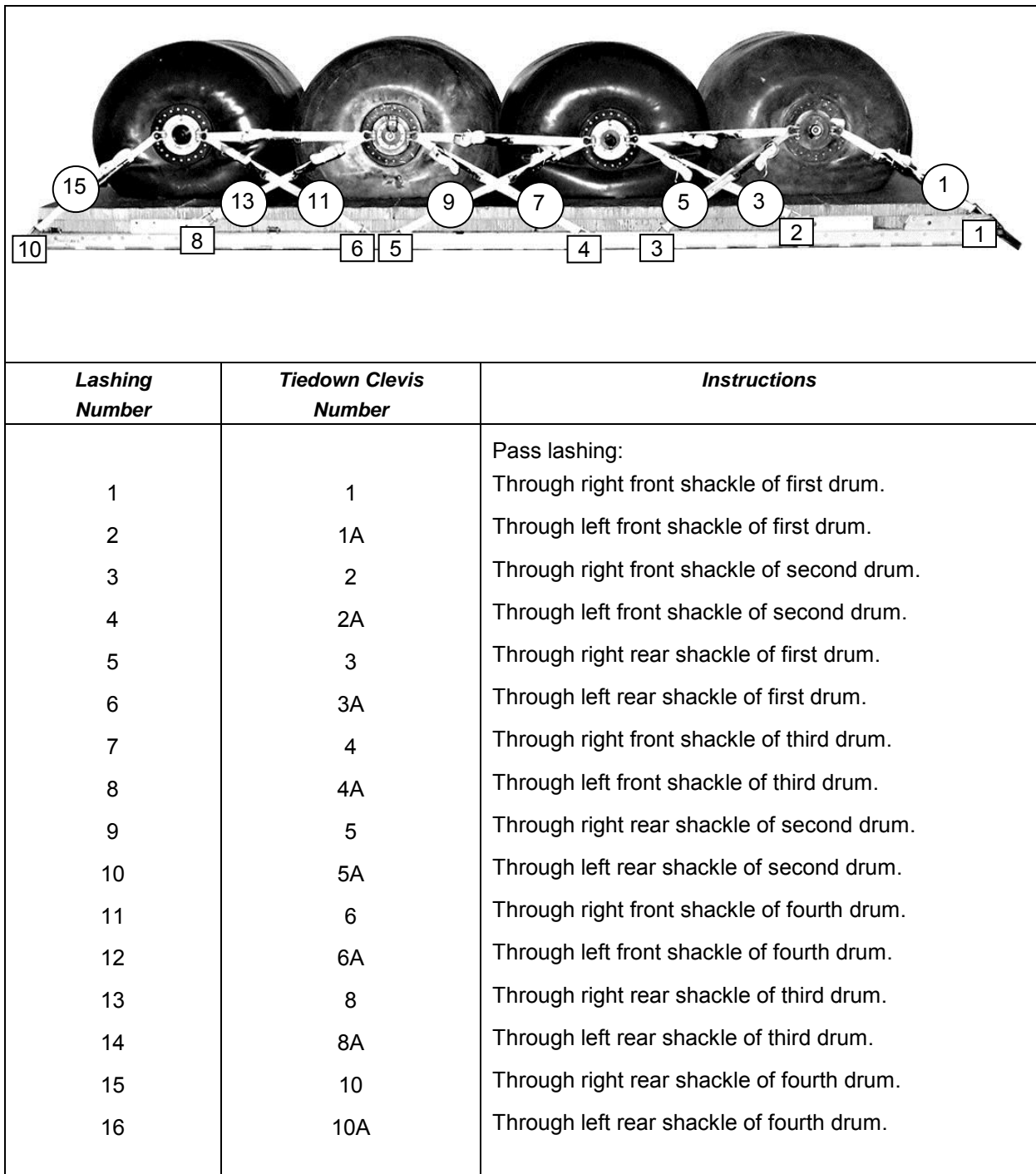


Figure 5-4. Fuel Drums Lashed to Platform

INSTALLING AND SAFETYING SUSPENSION SLINGS

5-6. Install and safety four 16-foot (4-loop), type XXVI nylon webbing slings to the suspension links as shown in Figure 5-5.

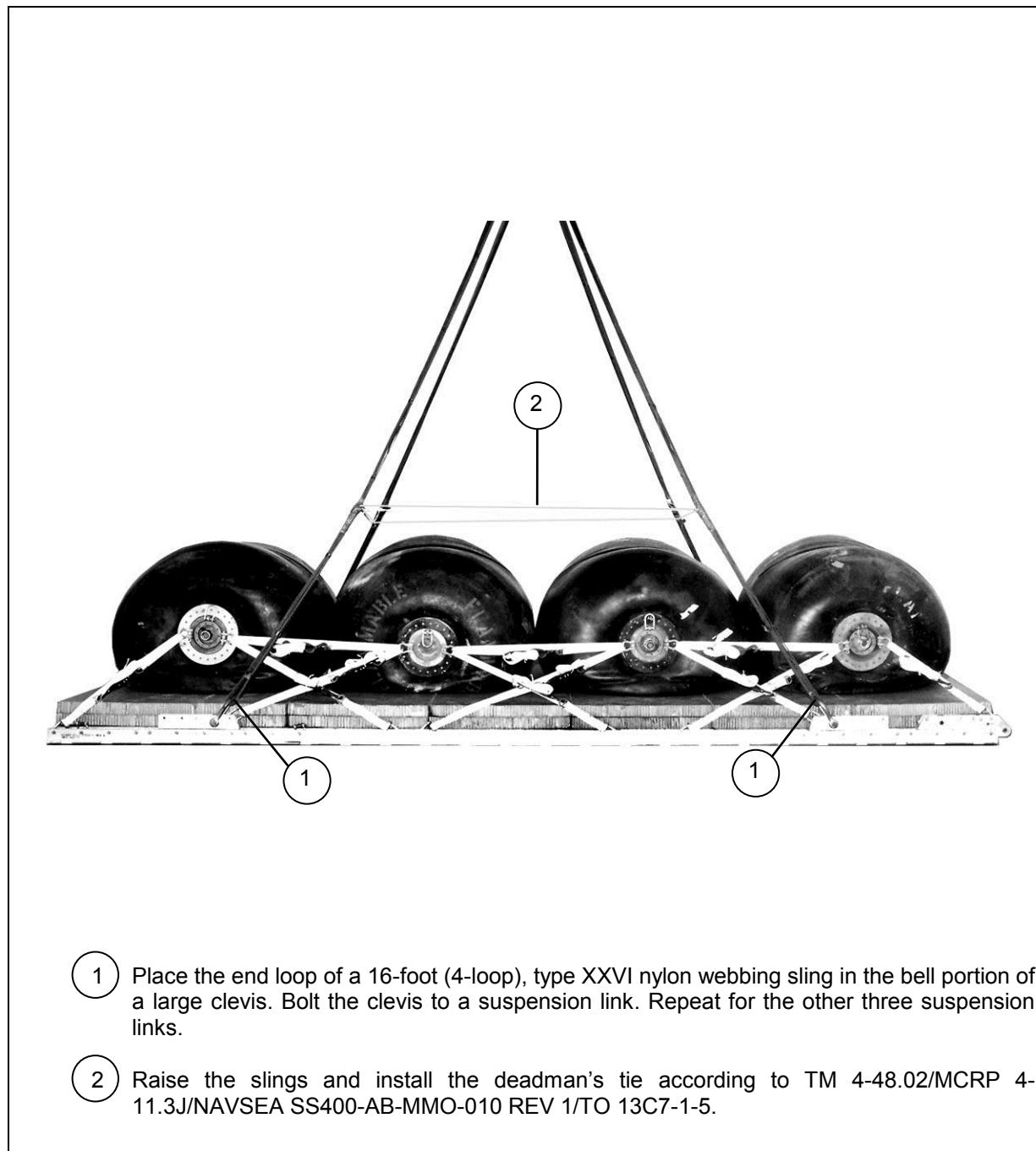
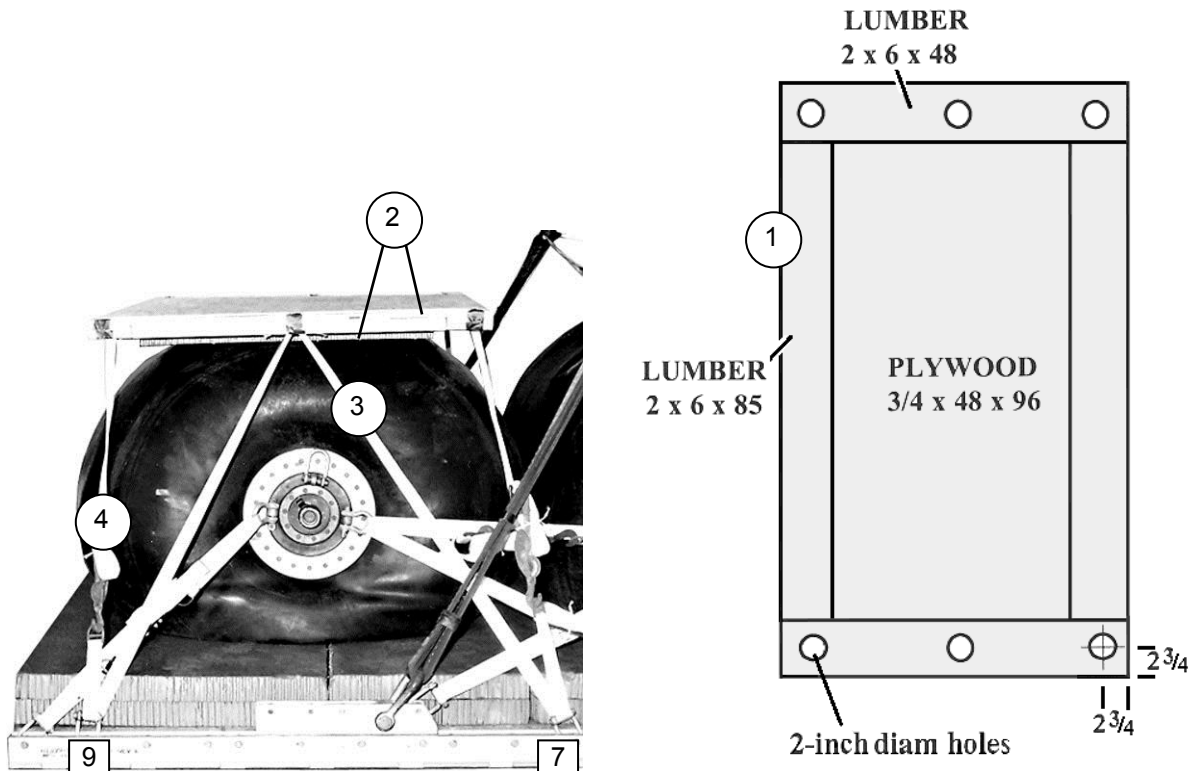


Figure 5-5. Suspension Slings Installed and Safetied

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

5-7. Build the parachute stowage platform and lash it to the load with four 15-foot lashings as shown in Figure 5-6.

Note: 1. These drawings are not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



- 1 Build the parachute stowage platform as shown. Nail the 2- by 6-inch pieces of lumber to the edges of the plywood and drill 2-inch holes for the lashings.
- 2 Center a 36- by 85-inch piece of honeycomb over the rear drum. Place the parachute stowage platform on the drum over the honeycomb.
- 3 Lash the two front holes in the parachute stowage platform to clevises 7 and 7A.
- 4 Lash the two rear holes in the parachute stowage platform to clevises 9 and 9A.

Figure 5-6. Parachute Stowage Platform Built and Lashed

INSTALLING CARGO PARACHUTES

5-8. Install four G-11 cargo parachutes as shown in Figure 5-7 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

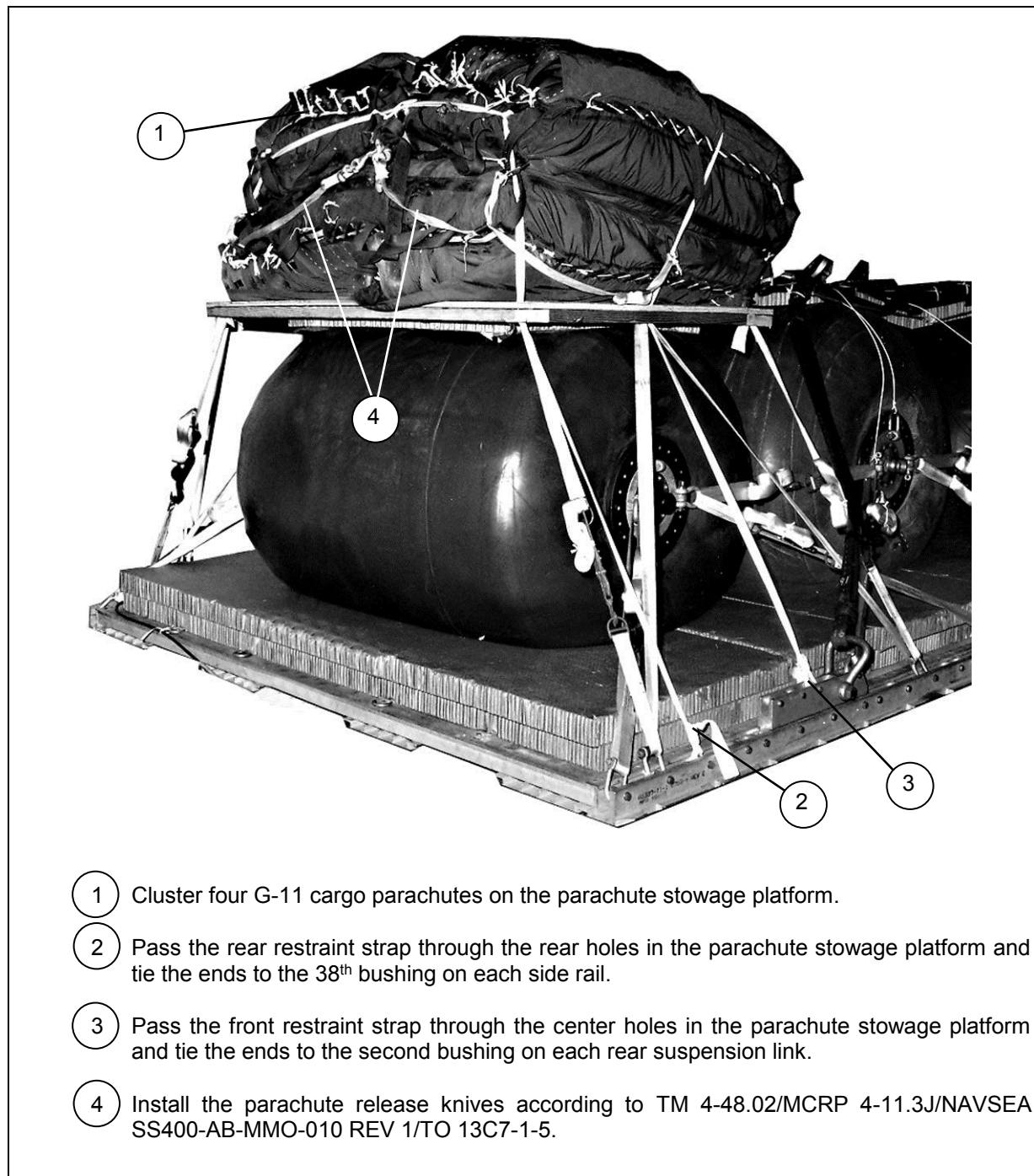
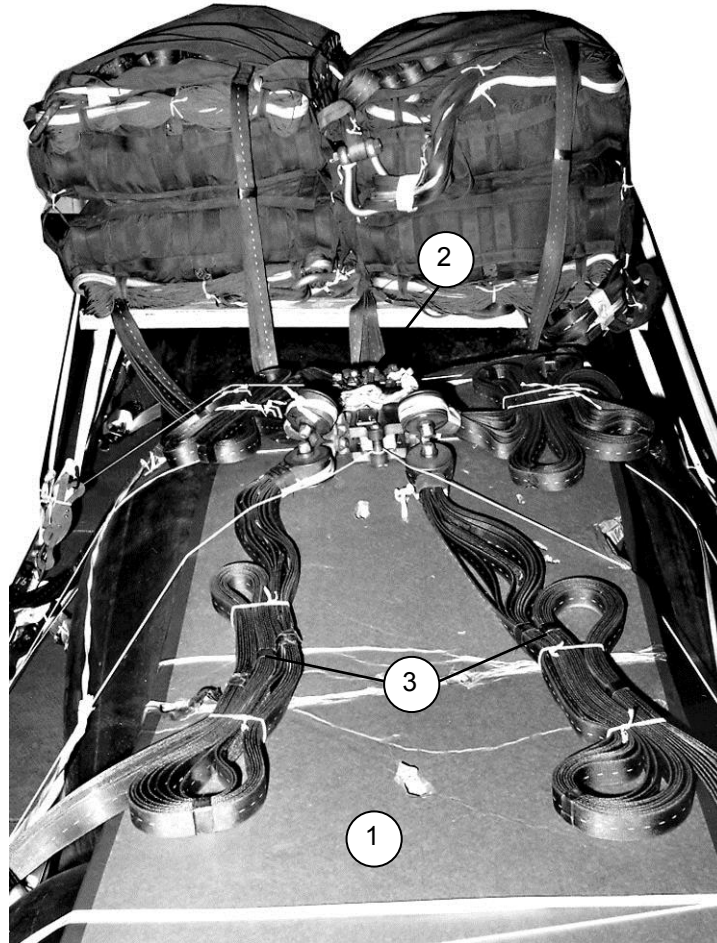


Figure 5-7. G-11 Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

5-9. Prepare and install an M-2 cargo parachute release as shown in Figure 5-8 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

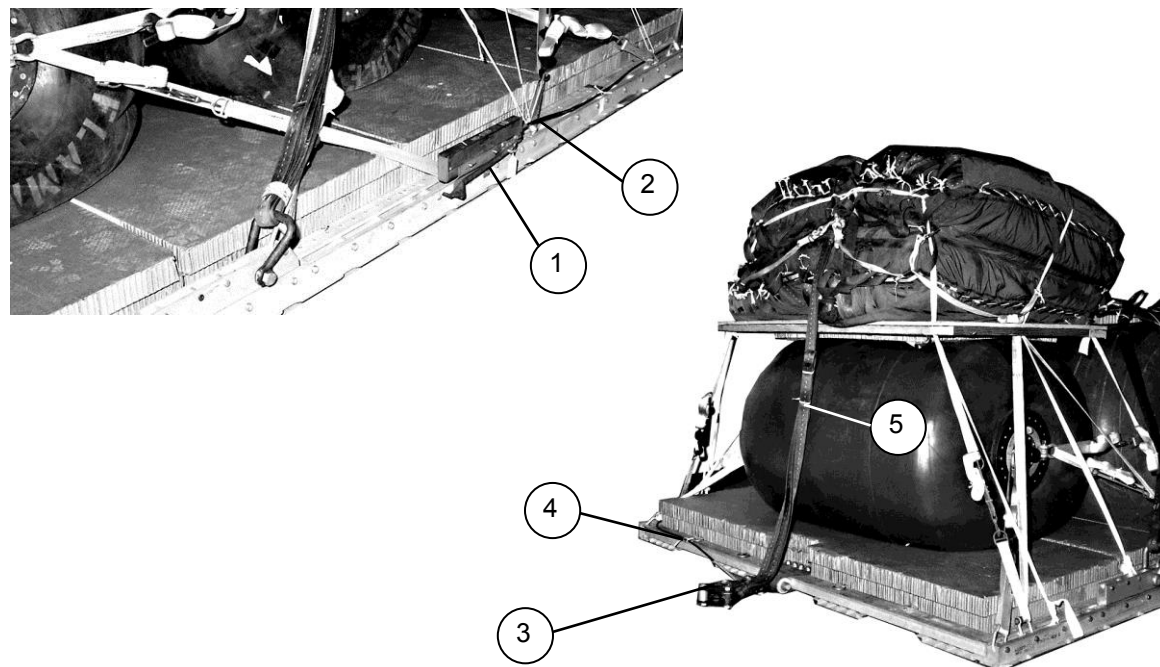


- 1 Center a 36- by 96-inch piece of honeycomb over the second and third drums. Secure the honeycomb to the platform with type III nylon cord.
- 2 Attach the suspension slings and the riser extensions to the M-2 release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the release to the platform with type III nylon cord.
- 3 S-fold the suspension slings and tie the folds with type I, 1/4-inch cotton webbing.

Figure 5-8. M-2 Release Installed

INSTALLING EXTRACTION SYSTEM

5-10. Prepare and install the extraction force transfer coupling extraction system as shown in Figure 5-9 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.



- 1 Install the actuator mounting brackets to the front holes on the left platform rail.
- 2 Install a 20-foot cable to the actuator. Install the actuator to the brackets.
- 3 Attach the latch assembly to the extraction bracket. Attach the cable to the latch assembly.
- 4 Safety the cable to tiedown ring D10 with type I, 1/4-inch cotton webbing.
- 5 Install a 9-foot (2-loop), type XXVI nylon webbing sling as the deployment line. S-fold and tie the excess in two places with type I, 1/4-inch cotton webbing.

Figure 5-9. Extraction Force Transfer Coupling Installed

PLACING EXTRACTION PARACHUTE

5-11. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

5-12. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

5-13. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 5-10. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

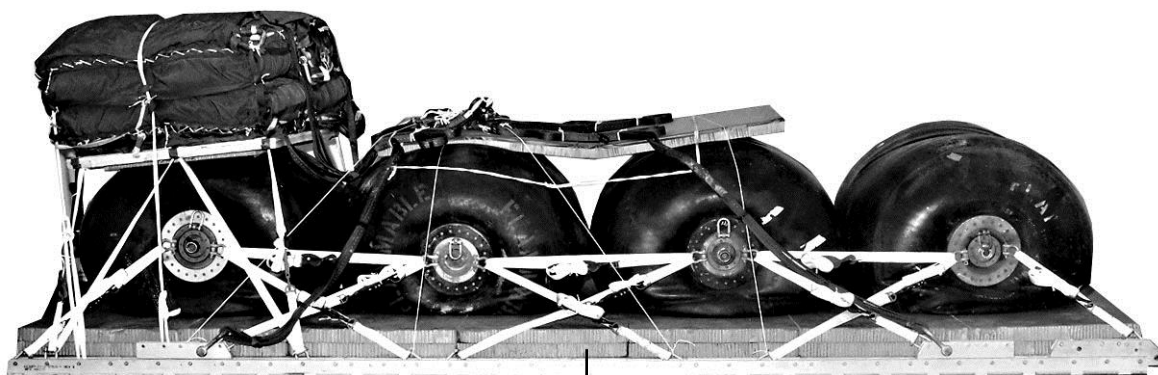
The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

EQUIPMENT REQUIRED

5-14. Use the equipment listed in Table 5-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	14,426 pounds
Maximum load allowed.....	18,400 pounds
Height.....	90.5 inches
Width	108 inches
Length	240 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)	
.....	125 inches
Extraction System	Extraction Force Transfer Coupler

Figure 5-10. Four Drums Rigged on a 20-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 5-1. Equipment Required for Rigging Four Drums without Pumping Assembly on a 20-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5787	Coupling, airdrop, extraction force transfer with cable, 20-foot	1
1670-00-360-0328	Cover:	
1670-01-183-2678	Clevis, large	1
	Leaf, extraction line (line bag)	2
1670-01-062-6316	Line, drogue (for C-17)	1
	60-foot (3-loop), type XXVI	
1670-01-062-6316	Line, extraction:	1
1670-01-107-7651	60-foot (3-loop), type XXVI (for C-130)	
	140-foot (3-loop), type XXVI (C-17)	1
	Link assembly:	
5306-00-435-8994	Two-point:	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1954	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 5 ½-inches	2
	Spacer, large	2
5510-00-220-6148	Lumber:	
	2- by 6-by:	
	85-inches	2
	48-inches	2
5315-00-010-4659	Nail, steel wire, 8-penny	As required
1670-00-753-3928	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	15 sheets
	Parachute:	
1670-01-016-7841	Cargo:	
	G-11B	4
1670-00-040-8135	Cargo extraction:	
	28-foot (for C-130 and C-17)	1
1670-01-063-3715	Drogue (for C-17)	
	15-foot	1

Table 5-1. Equipment Required for Rigging Four Drums without Pumping Assembly on a 20-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
	Platform, airdrop, type V, 20-foot	
1670-01-353-8425	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	20
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	2
1670-01-247-2389	Suspension link	4
5530-00-128-4981	Plywood, ¾- by 48- by 96-inches	1 sheet
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6308	16-foot (4-loop), type XXVI webbing	4
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	20-foot (2-loop), type XXVI nylon webbing	8
5340-00-040-8219	Strap, parachute release, multi-cut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inches	As required
1670-00-937-0271	Tiedown assembly, 15-foot	26
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

Chapter 6

Rigging Five Drums without Pumping Assembly on a 20-Foot Platform

DESCRIPTION OF LOAD

6-1. Five drums are rigged on a 20-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

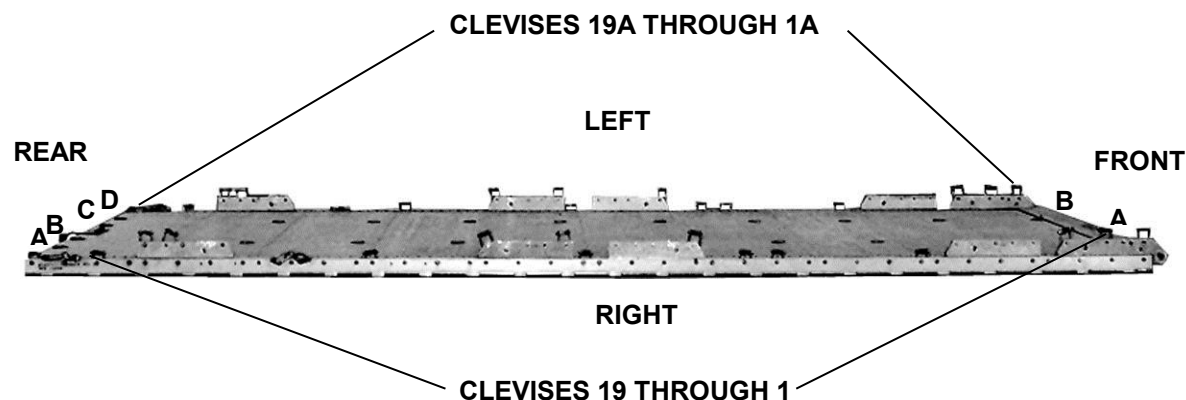
PREPARING PLATFORM

6-2. Prepare a 20-foot, type V airdrop platform using two tandem links, eight suspension links, and 42 clevises as shown in Figure 6-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.



Steps:

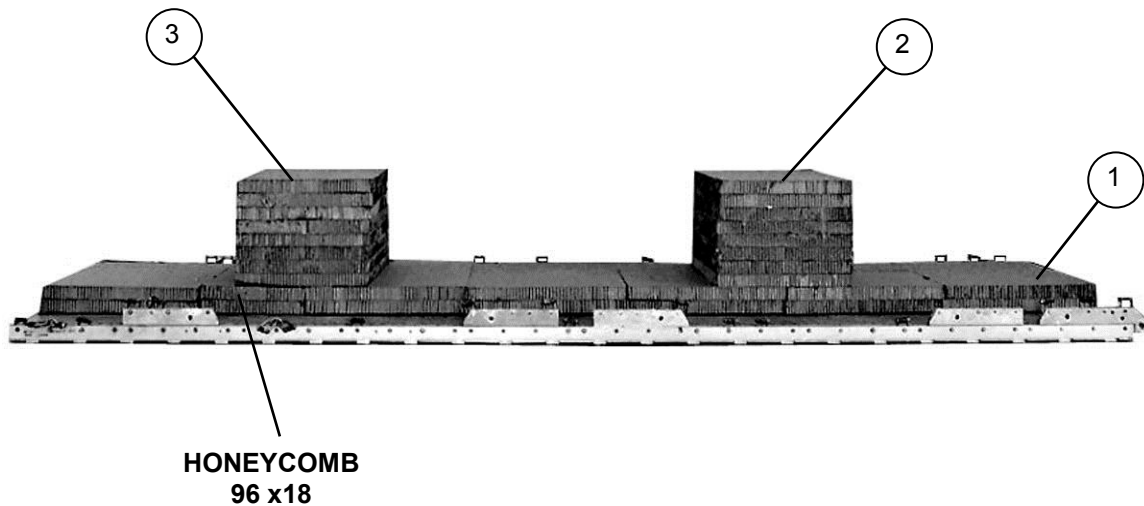
1. Inspect or assemble and inspect the platform as outline in TM 10-1670-268-20 & P/TO 13C7-52-22.
2. Install suspension links on each platform side rail using holes 17, 18, and 19, and holes 5, 6, and 7.
3. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
4. Install suspension links on each platform side rail using holes 22, 23, 24, and holes 34, 35, and 36.
5. Bolt clevises on bushings 1, 2, and 3 of each front tandem link on bushing 1 of each second suspension link on bushing 1 and 4 of each third suspension link and on bushings 3 and 4 of each rear suspension link.
6. Install clevises on bushings 31 and 39 in an inverted position on each platform side rail. Bolt two additional clevises to each inverted clevis.
7. Starting at the front of the platform install clevises on each platform side rail using the bushings bolted on holes 9, 14, 15, 21, 28, 38, and 40.
8. Starting at the front of the platform, number the clevises bolted to the right side 1 through 19, and those bolted to the left side 1A through 19A.
9. Label the tiedown rings according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 6-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

6-3. Prepare and position the honeycomb stacks as shown in Figure 6-2.

Note: All dimensions are in inches.



- 1 Use 12 full sheets of honeycomb and two 18- by 96 inch pieces to form a two-layer stack 234 inches long and 96 inches wide. Center the stack on the platform 3 inches from the front edge.

Note. Place the 18-inch section inside the stack.

- 2 Make two 8-layer stacks of honeycomb 60- by 30 inches. Center one stack on the base layer 62 ½ inches from the front edge of the base.
- 3 Center the other stack on the base layers 55 ½ inches to the rear of the stack placed in step 2 above.

Figure 6-2. Honeycomb Stack Positioned

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

6-4. Lift the drums and position them on the honeycomb as shown in Figure 6-3.

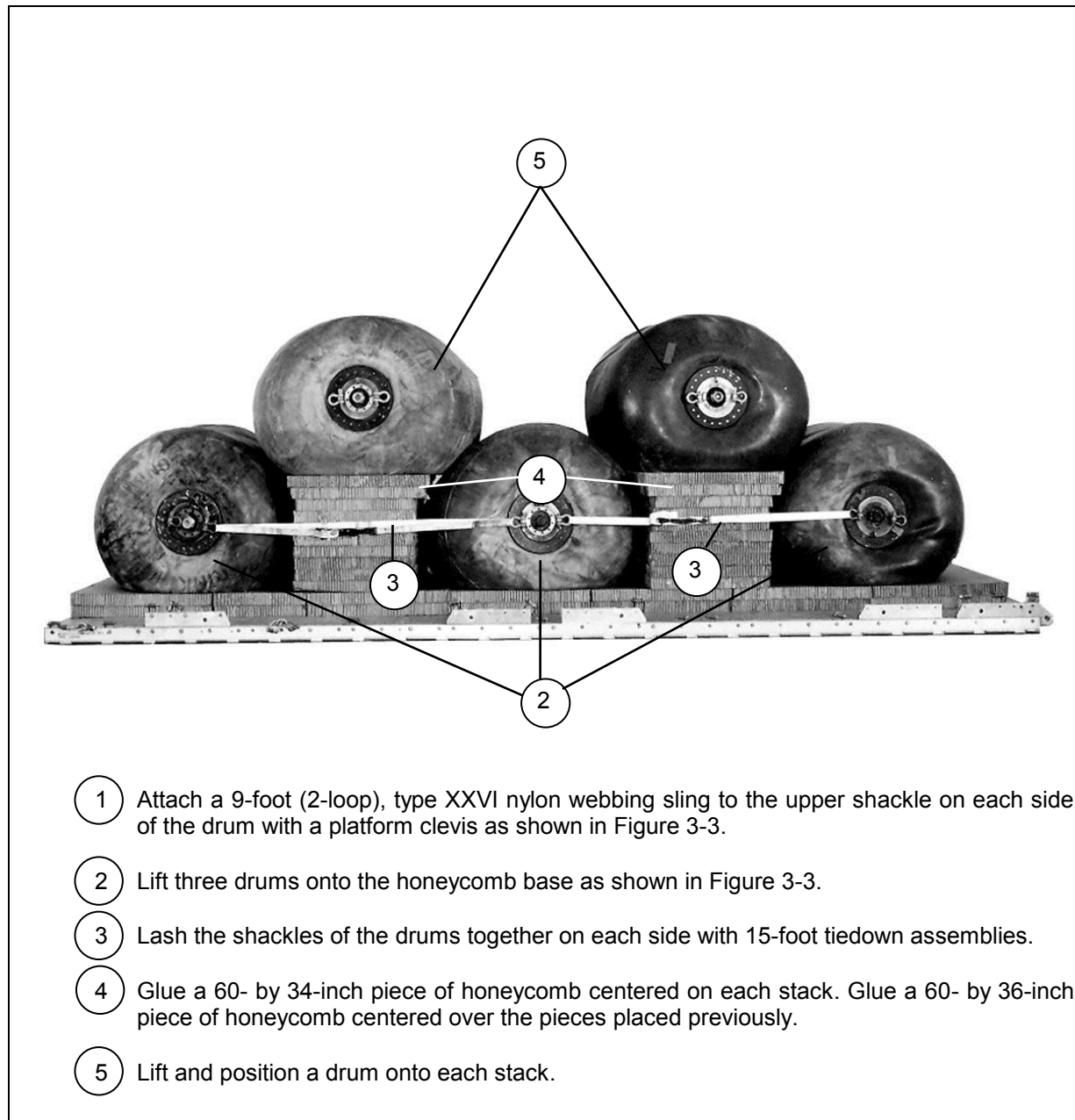


Figure 6-3. Fuel Drums Positioned

LASHING DRUMS

6-5. Use thirty 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 6-4 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

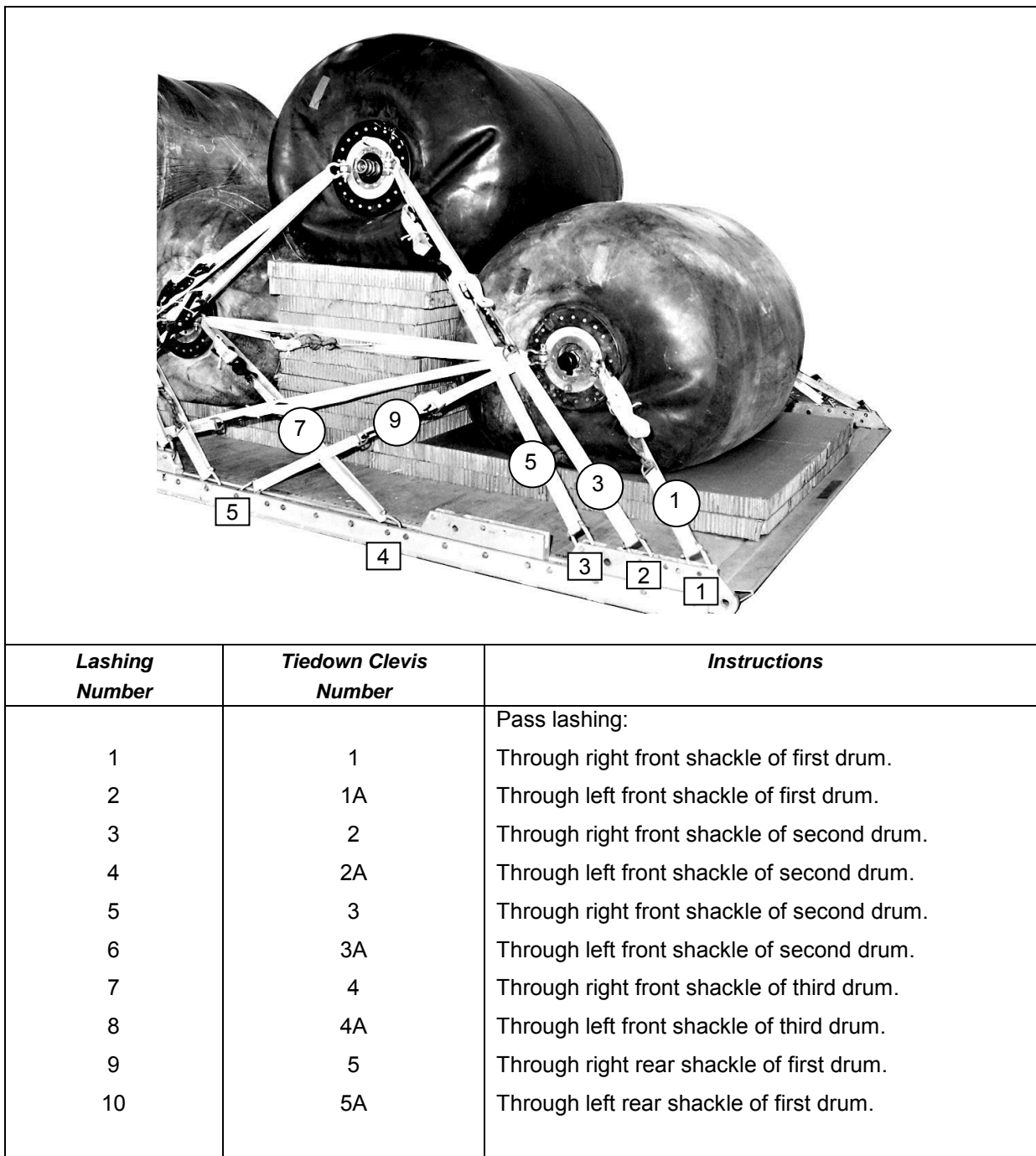


Figure 6-4. Fuel Drums Lashed to Platform

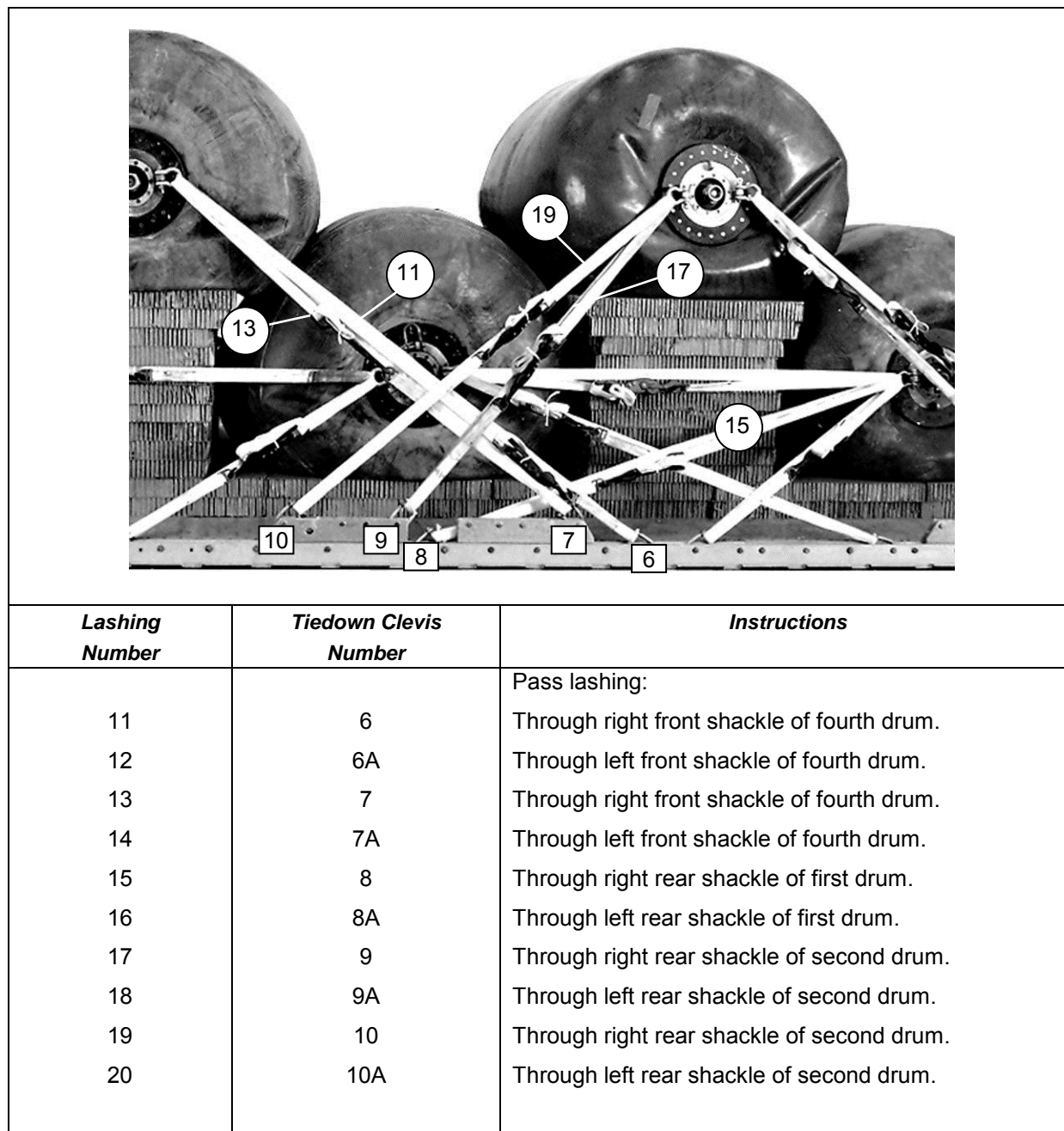


Figure 6-4. Fuel Drums Lashed to Platform (continued)

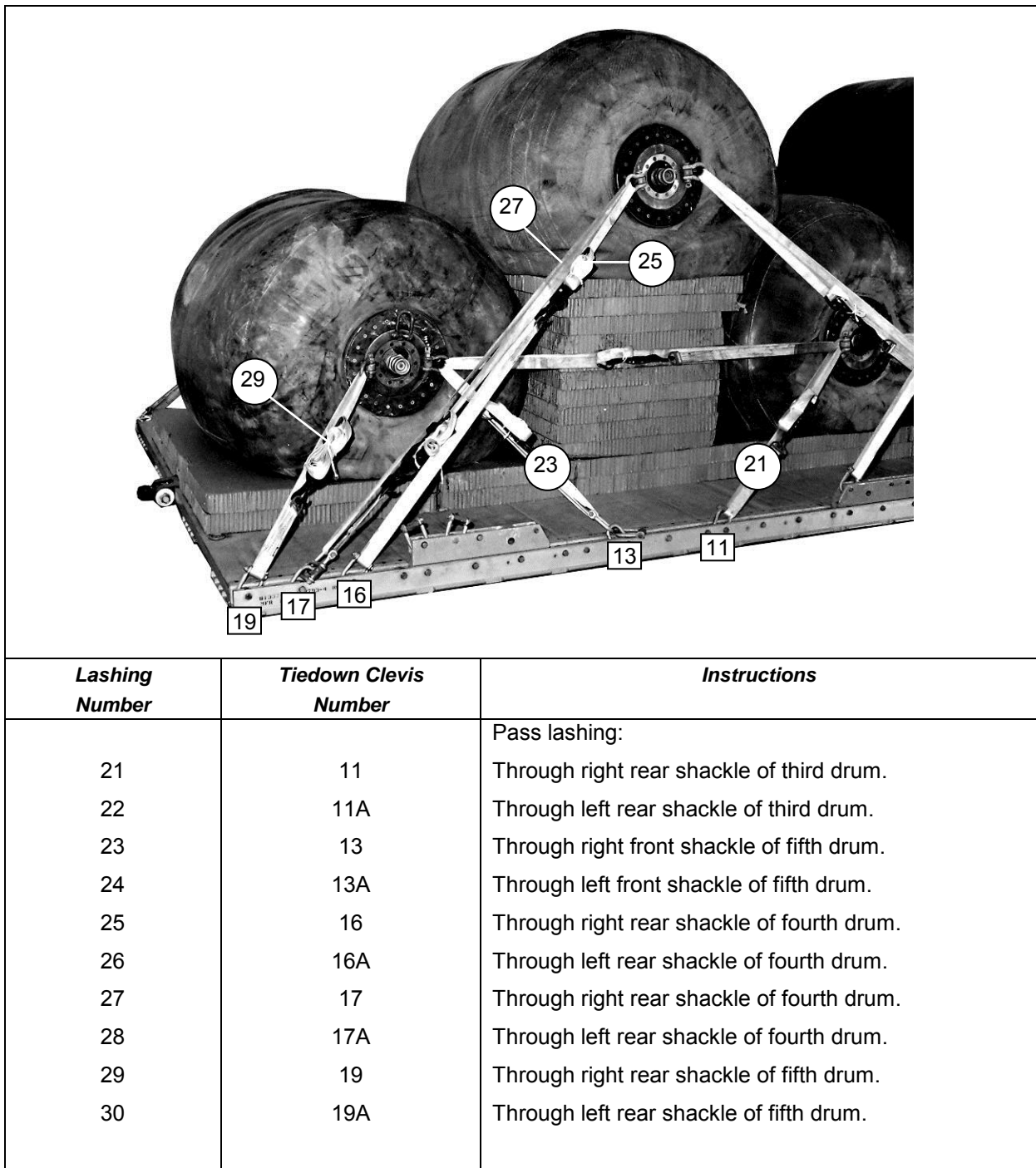
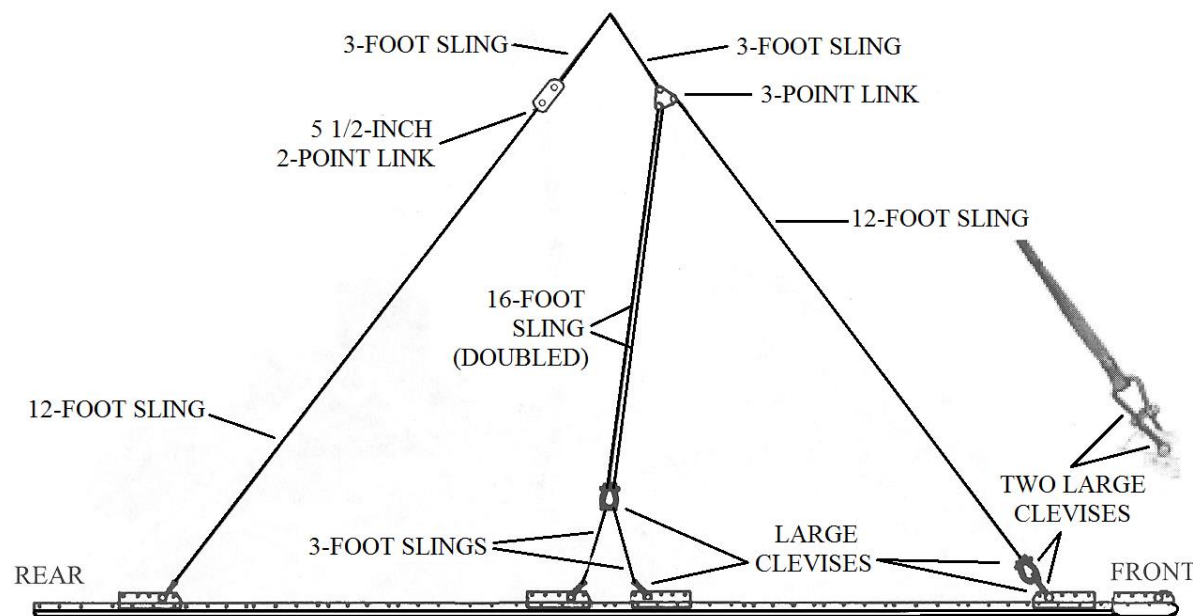


Figure 6-4. Fuel Drums Lashed to Platform (continued)

INSTALLING AND SAFETYING SUSPENSION SLINGS

6-6. Install the components of the centerline suspension system according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 6-5. Safety the suspension slings as shown in Figure 6-6.

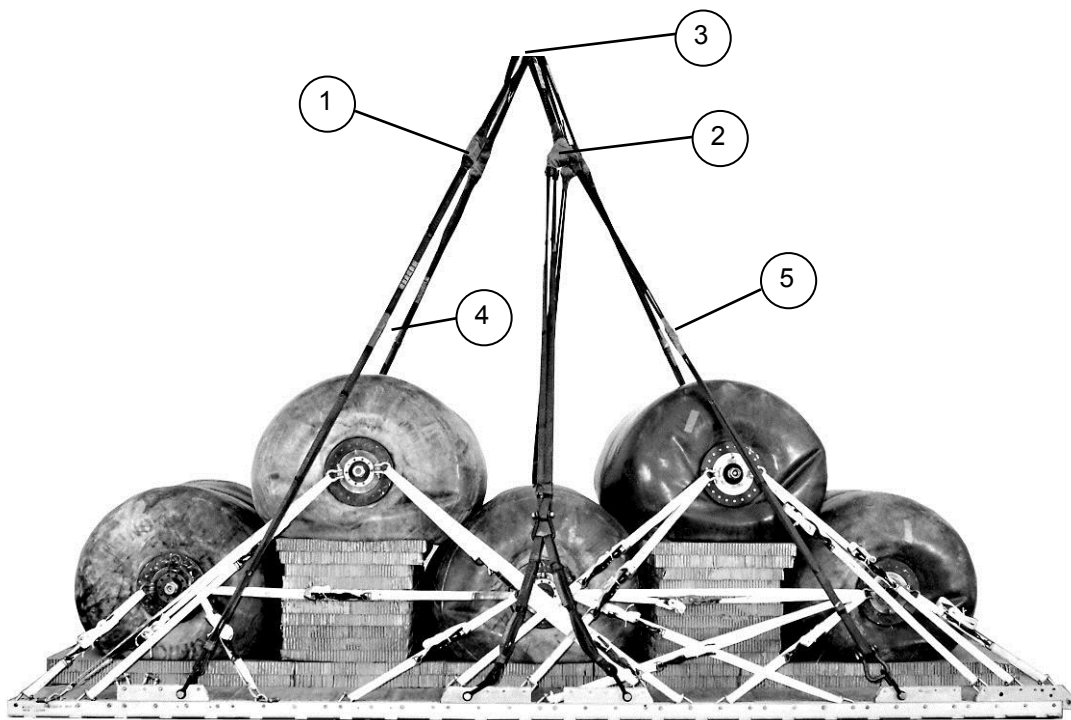
- Note.** 1. This drawing is not to scale.
 2. All slings are type XXVI nylon.
 3. Instructions are for one side. Repeat for other side of the load.



Steps:

1. Place the end loop of a 12-foot (4-loop) sling in the bell portion of a large clevis. Bolt the clevis to the rear suspension link. Connect the free end of the 12-foot sling to a 3-foot (4-loop) sling with a 5 1/2-inch two-point link.
2. Attach a 3-foot (4-loop) sling to each center suspension link with a large clevis. Place both 3-foot slings in the bell portion of a large clevis. Pass a 16-foot (2-loop) sling through one spool of a three-point link. Place both end loops of the 16-foot sling in the bolt of the large clevis.
3. Place the end loop of a 12-foot (4-loop) sling in the bell portion of a large clevis. Place the bolt of the clevis in the bell of a second large clevis. Bolt the second clevis to the front suspension link. Bolt the free end of the 12-foot sling to the three-point link on the center suspension sling. Bolt a 3-foot (4-loop) sling to the remaining spool of the three-point link.

Figure 6-5. Suspension Slings Installed



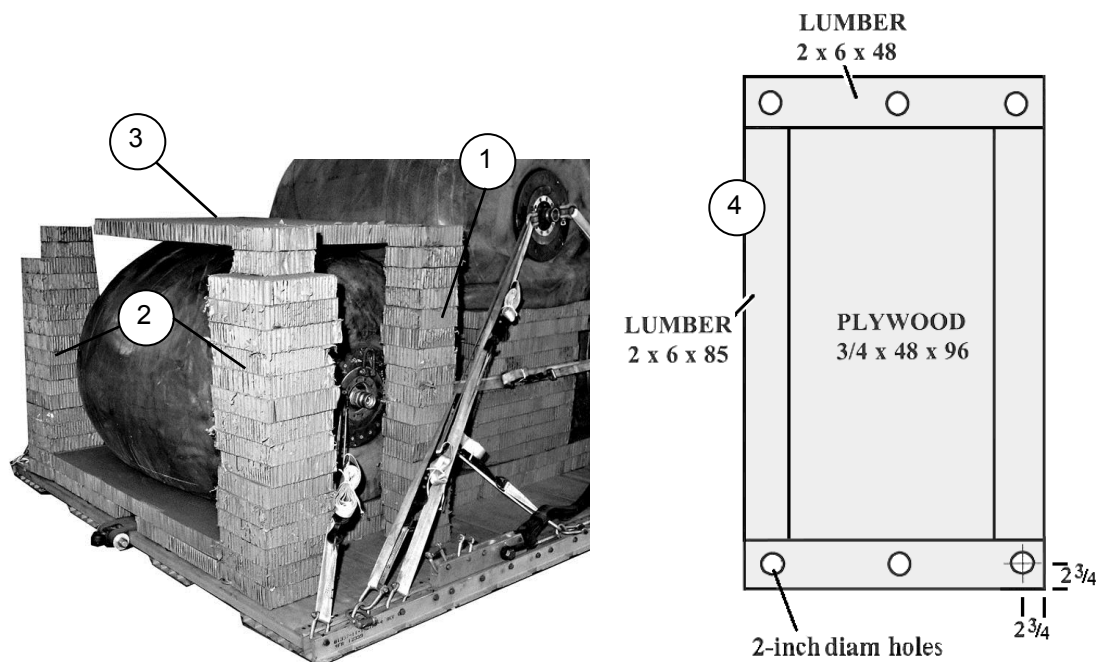
- 1 Pad the two-point links with felt taped in place.
- 2 Pad the three-point links with felt taped in place.
- 3 Attach the 3-foot slings from the two- and three-point links to the crane hook. Raise the suspension slings.
- 4 Tie the rear suspension slings to each other 12 inches above the load with a double length of ½-inch tubular nylon webbing.
- 5 Tie the front suspension slings to each other in the same way.

Figure 6-6. Suspension Slings Safetied

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

6-7. Build the parachute stowage platform and its supports as shown in Figure 6-7. Lash the parachute stowage platform to the load with four 15-foot lashings as shown in Figure 6-8.

Note: 1. These drawings are not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



- 1 Make two 17 layer stacks of 8- by 8-inch honeycomb. Place one stack on each side flush with the edge of the honeycomb supporting the rear drum and 29 inches from the rear edge of the platform.
- 2 Make two 15 layer stacks of 12- by 12-inch honeycomb. Glue two 8- by 8-inch pieces of honeycomb on top of each stack flush with the inside front corners. Place the stacks on each side of the rear drum flush with the rear edge of the honeycomb base layer.
- 3 Center a 48- by 26-inch piece of honeycomb over the rear drum.
- 4 Build the parachute stowage platform as shown. Nail the 2- by 6-inch piece of lumber to the edges of the plywood and drill 2-inch holes for the lashings.

Figure 6-7. Supports Placed and Parachute Stowage Platform Constructed

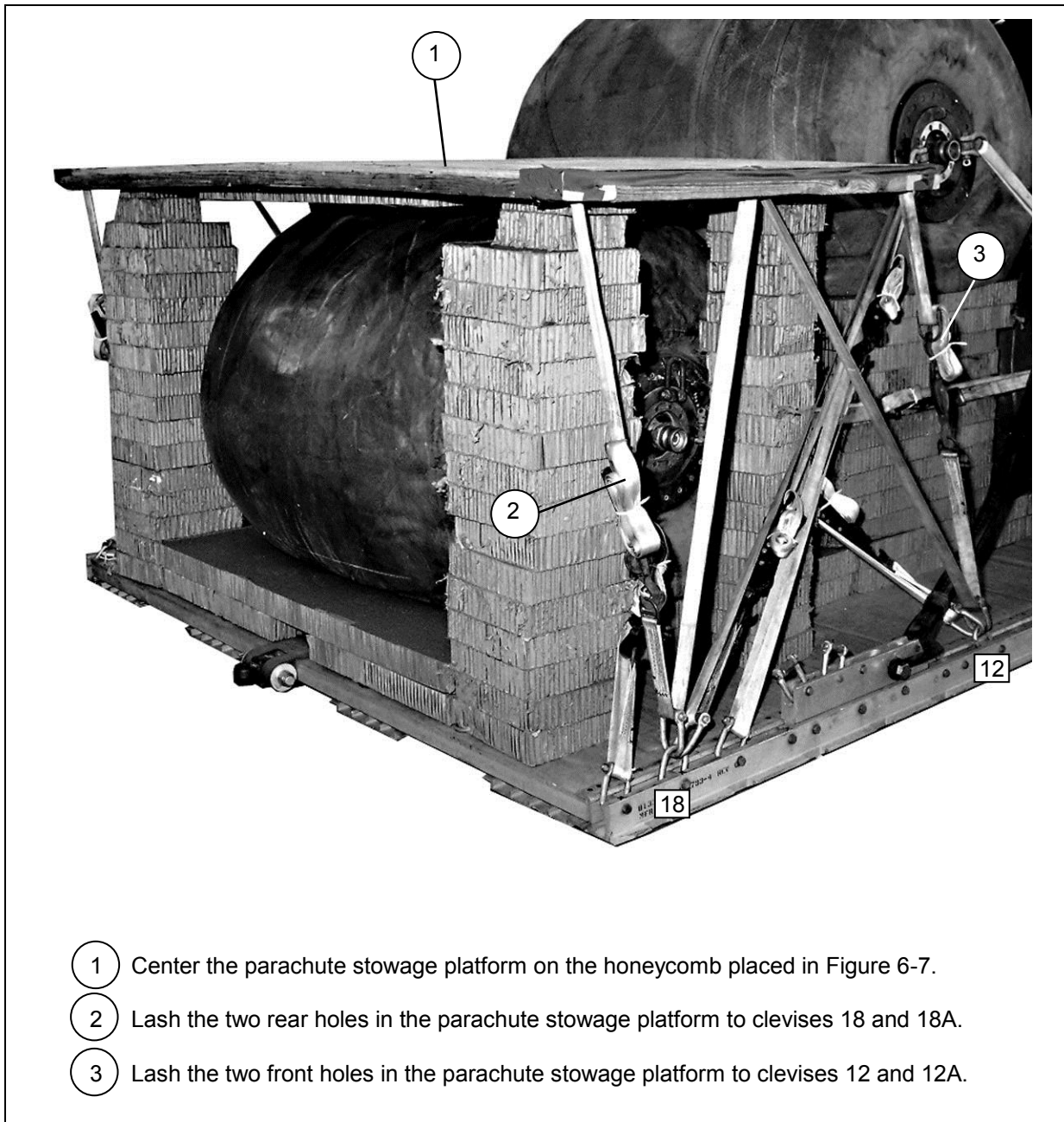


Figure 6-8. Parachute Stowage Platform Lashed to Platform Rails

INSTALLING CARGO PARACHUTES

6-8. Install five G-11 cargo parachutes as shown in Figure 6-9 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

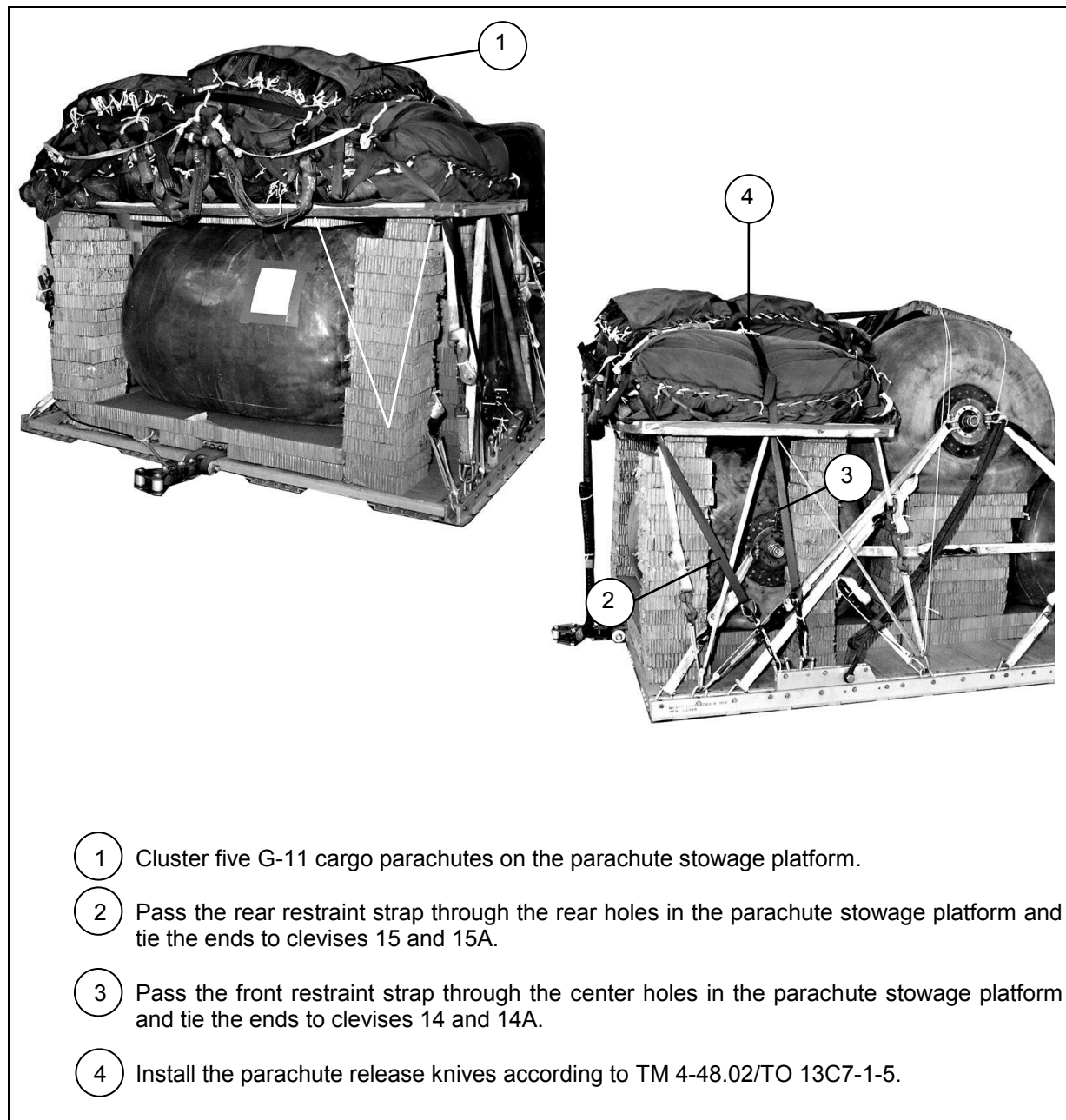
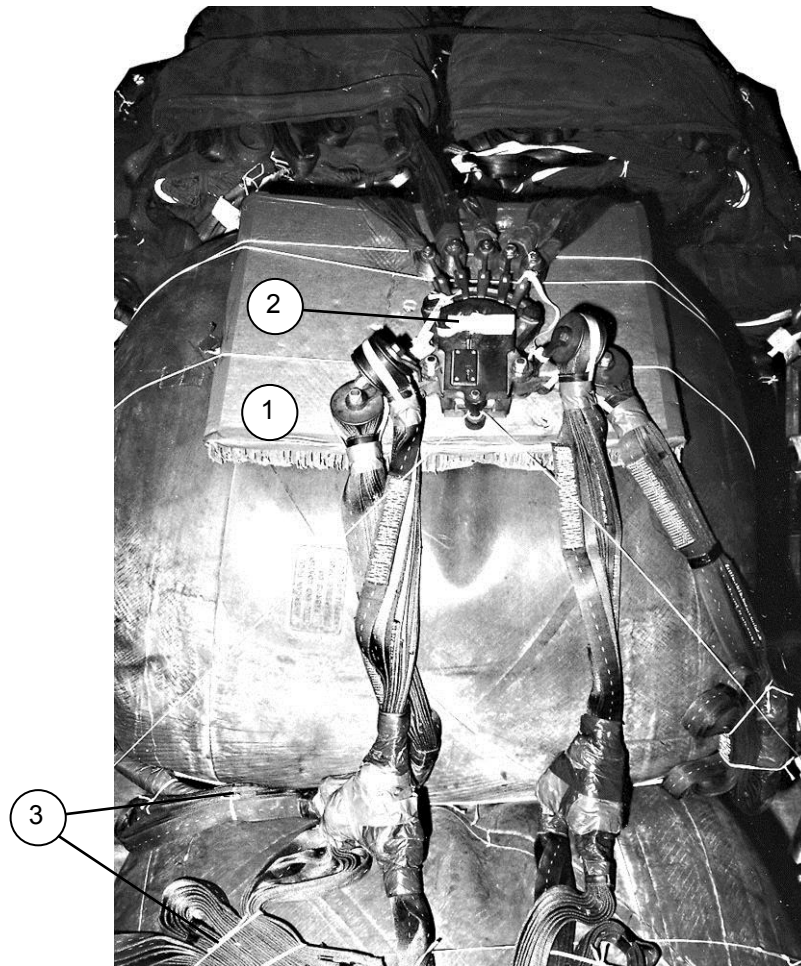


Figure 6-9. G-11 Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

6-9. Prepare and install an M-2 cargo parachute release as shown in Figure 6-10 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.



- (1) Center a 36- by 36-inch piece of honeycomb over the fourth drum. Secure the honeycomb to the platform with type III nylon cord.
- (2) Attach the suspension slings and the riser extensions to the M-2 release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the release to the platform with type III nylon cord.
- (3) S-fold the suspension slings and tie the folds with type I, 1/4-inch cotton webbing

Figure 6-10. M-2 Release Installed

INSTALLING EXTRACTION SYSTEM

6-10. Prepare and install the extraction force transfer coupling extraction system as shown in Figure 6-11 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

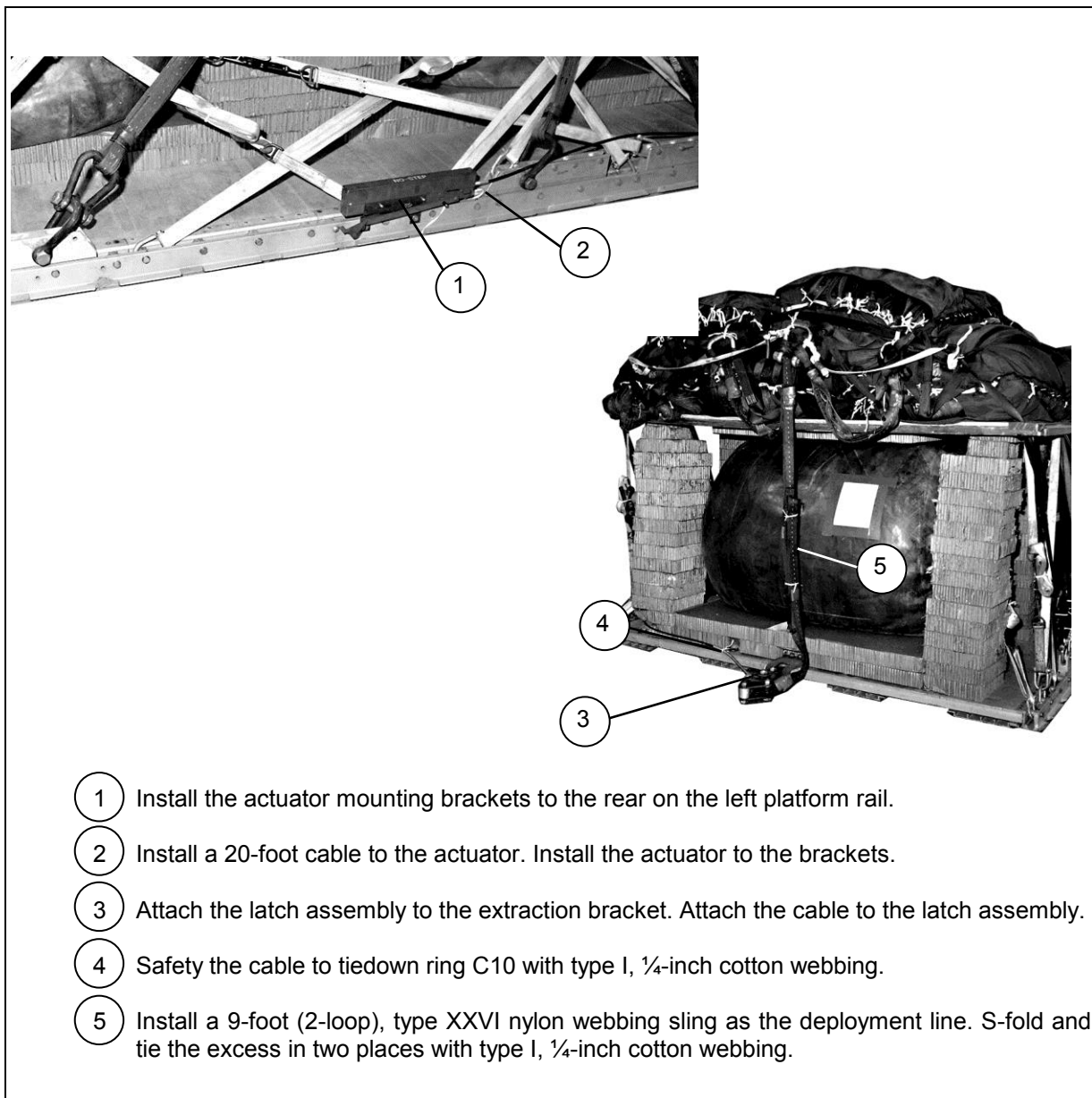


Figure 6-11. Extraction Force Transfer Coupling Installed

PLACING EXTRACTION PARACHUTE

6-11. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

6-12. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

6-13. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 6-12. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

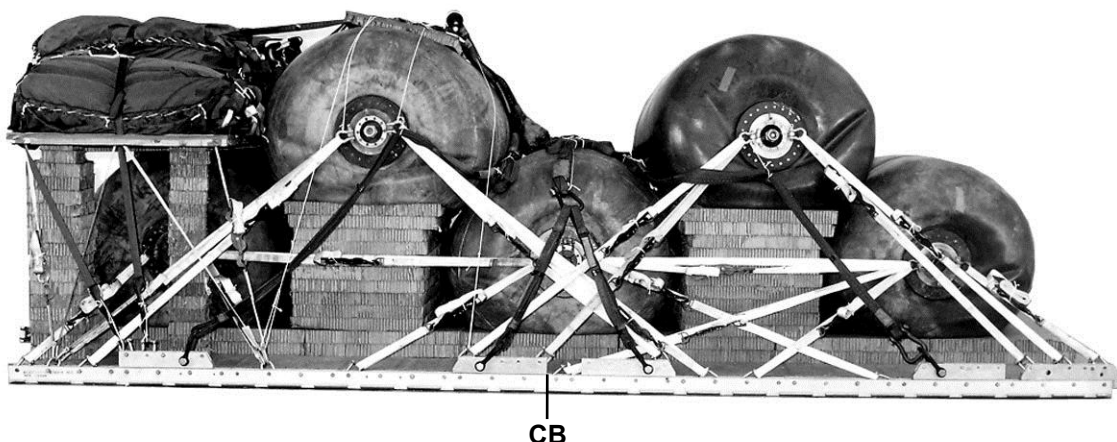
The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

EQUIPMENT REQUIRED

6-14. Use the equipment listed in Table 6-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).

**Rigged Load Data**

Weight: Load shown.....	18,492 pounds
Maximum load allowed.....	23,460 pounds
Height.....	84 ¾ inches
Width	108 inches
Length	240 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)	
.....	126 inches
Extraction System	Extraction Force Transfer
Coupler	

Figure 6-12. Five Drums Rigged on a 20-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 6-1. Equipment Required for Rigging Five Drums without Pumping Assembly on a 20-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	16
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5787	Coupling, airdrop, extraction force transfer with cable, 20-foot	1
1670-00-360-0328	Cover:	
8305-00-958-3685	Clevis, large	1
1670-01-183-2678	Leaf, extraction line (line bag)	As required
	Line, drogue (for C-17)	
1670-01-062-6316	60-foot (3-loop), type XXVI	2
1670-01-107-7651	Line, extraction:	
	60-foot (3-loop), type XXVI (for C-130)	1
1670-01-307-0155	140-foot (3-loop), type XXVI (C-17)	1
	Link assembly:	
5306-00-435-8994	Two-point:	2
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	6
1670-00-003-1954	Nut, 1-inch, hexagonal	6
5365-00-007-3414	Plate, side, 5 ½-inches	6
5510-00-220-6148	Spacer, large	6
	Lumber:	
	2- by 6-by:	
5315-00-010-4659	85-inches	2
1670-00-753-3928	48-inches	2
	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	24 sheets
1670-01-016-7841	Parachute:	
	Cargo:	
1670-00-040-8135	G-11B	5
	Cargo extraction:	
1670-01-063-3715	28-foot (for C-130 and C-17)	1
	Drogue (for C-17)	
	15-foot	1

Table 6-1. Equipment Required for Rigging Five Drums without Pumping Assembly on a 20-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 20-foot	
1670-01-162-2372	Bracket assembly, coupling	1
1670-01-162-2376	Clevis assembly, type V	42
1670-01-162-2381	Extraction bracket assembly	1
1670-01-247-2389	Tandem link assembly (Multipurpose link)	2
	Suspension link	8
5530-00-128-4981	Plywood, 3/4- by 48-by 96-inches	1 sheet
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	8
1670-01-062-6307	12-foot (4-loop), type XXVI nylon webbing	4
1670-01-063-7761	16-foot (2-loop), type XXVI nylon webbing	2
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	20-foot (2-loop), type XXVI nylon webbing	5
1670-01-062-6213	60-foot (2-loop), type XXVI nylon webbing	5
5340-00-040-8219	Strap, parachute release, multi-cut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	38
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-inch	As required
8305-00-263-3591	Type VIII	As required

Chapter 7

Rigging Six Drums without Pumping Assembly on a 24-Foot Platform

DESCRIPTION OF LOAD

7-1. Six drums are rigged on a 24-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

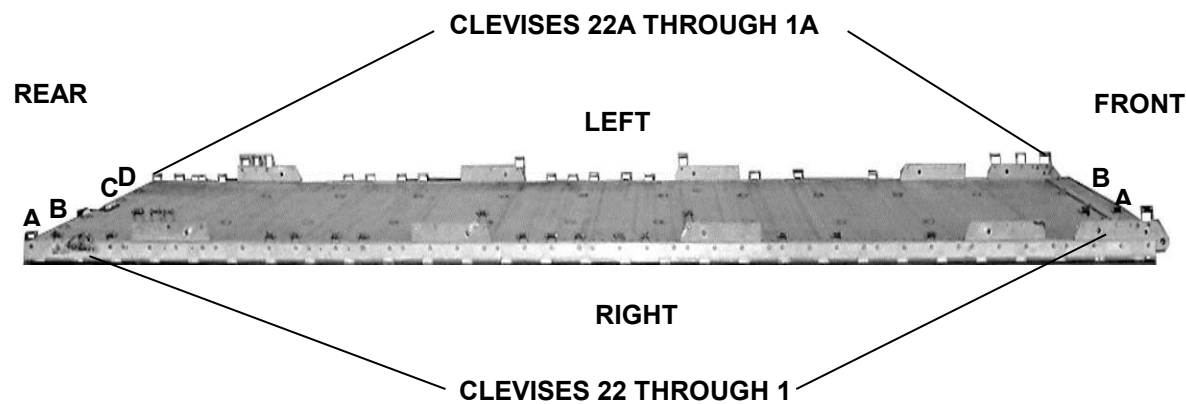
PREPARING PLATFORM

7-2. Prepare a 24-foot, type V airdrop platform using two tandem links, eight suspension links, and 46 clevises as shown in Figure 7-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.



Steps:

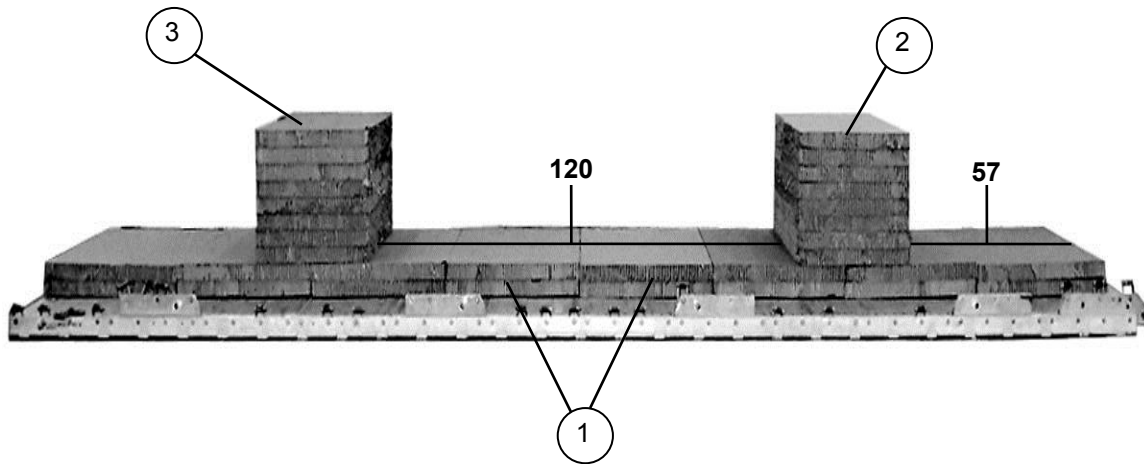
1. Inspect or assemble and inspect the platform as outline in TM 10-1670-268-20 & P/TO 13C7-52-22.
2. Install suspension links on each platform side rail using holes 18, 19, and 20, and holes 6, 7, and 8.
3. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
4. Install suspension links on each platform side rail using holes 29, 30, 31, and holes 41, 42, and 43.
5. Bolt clevises on bushings 1, 2, and 4 of each front tandem link, on bushing 4 of each second suspension link, on bushing 1 of each third suspension link and on bushings 2, 3, and 4 of each rear suspension link.
6. Install clevises on bushing 46 in an inverted position on each platform side rail. Bolt two additional clevises to each inverted clevis.
7. Starting at the front of the platform install clevises on each platform side rail using the bushings bolted on holes 10, 14, 22, 23, 26, 27, 35, 37, 38, 45, 47, and 48.
8. Starting at the front of the platform, number the clevises bolted to the right side 1 through 22, and those bolted to the left side 1A through 22A.
9. Label the tiedown rings according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 7-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

7-3. Prepare and position the honeycomb stacks as shown in Figure 7-2.

Note: All dimensions are in inches.



- 1 Use 16 sheets of 36- by 60-inch honeycomb to form a two-layer stack 288 inches long and 60 inches wide. Center the stack on the platform flush with the front edge.
- 2 Make two 8-layer stacks of 60- by 30-inch honeycomb. Center one stack on the base layer 57 inches from the front edge of the base.
- 3 Center the other stack on the base layers 120 inches to the rear of the stack placed in step 2 above

Figure 7-2. Honeycomb Stack Positioned

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

7-4. Lift the drums and position them on the honeycomb as shown in Figure 7-3.

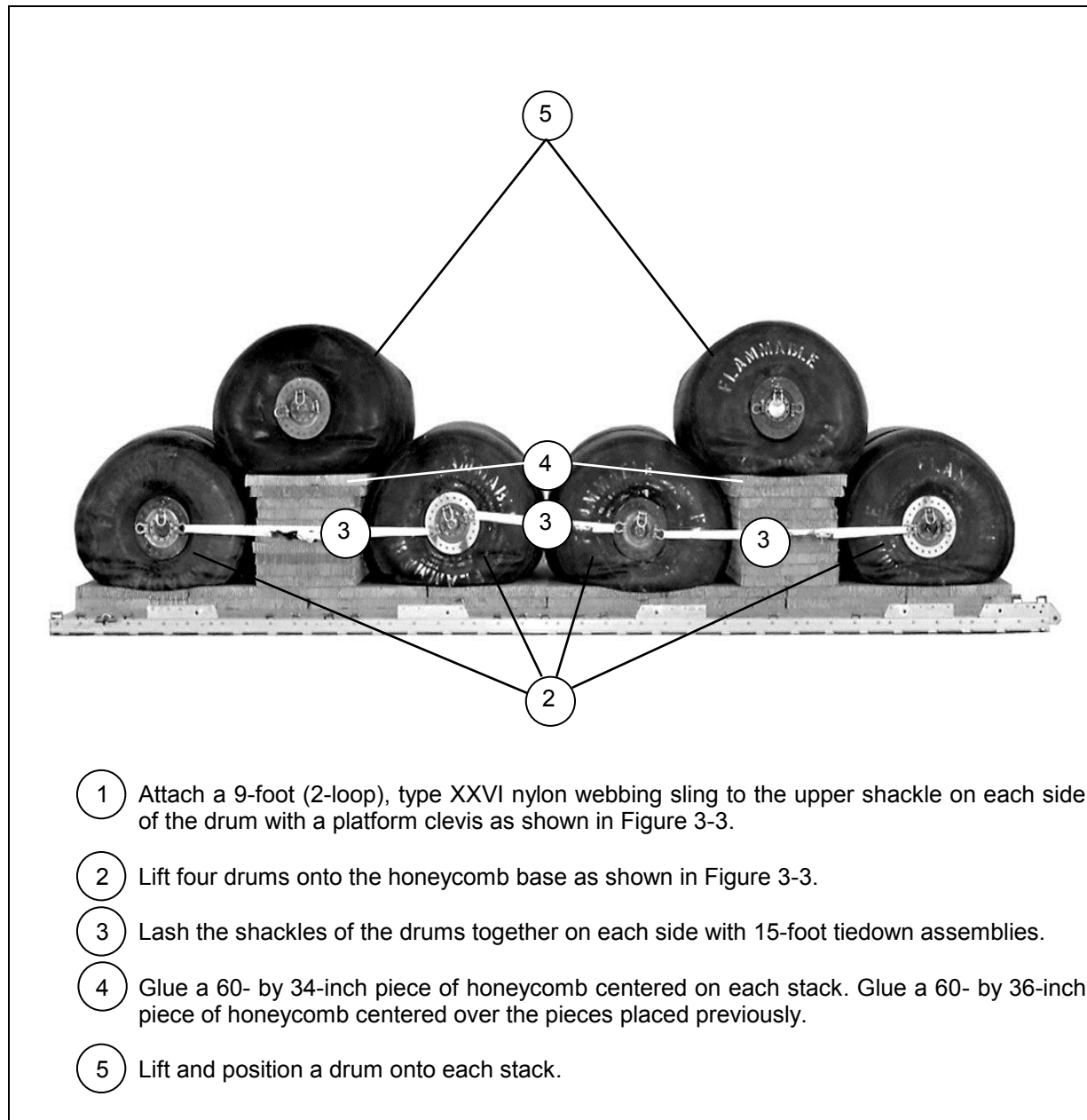


Figure 7-3. Fuel Drums Positioned

LASHING DRUMS

7-5. Use thirty-four 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 7-4 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

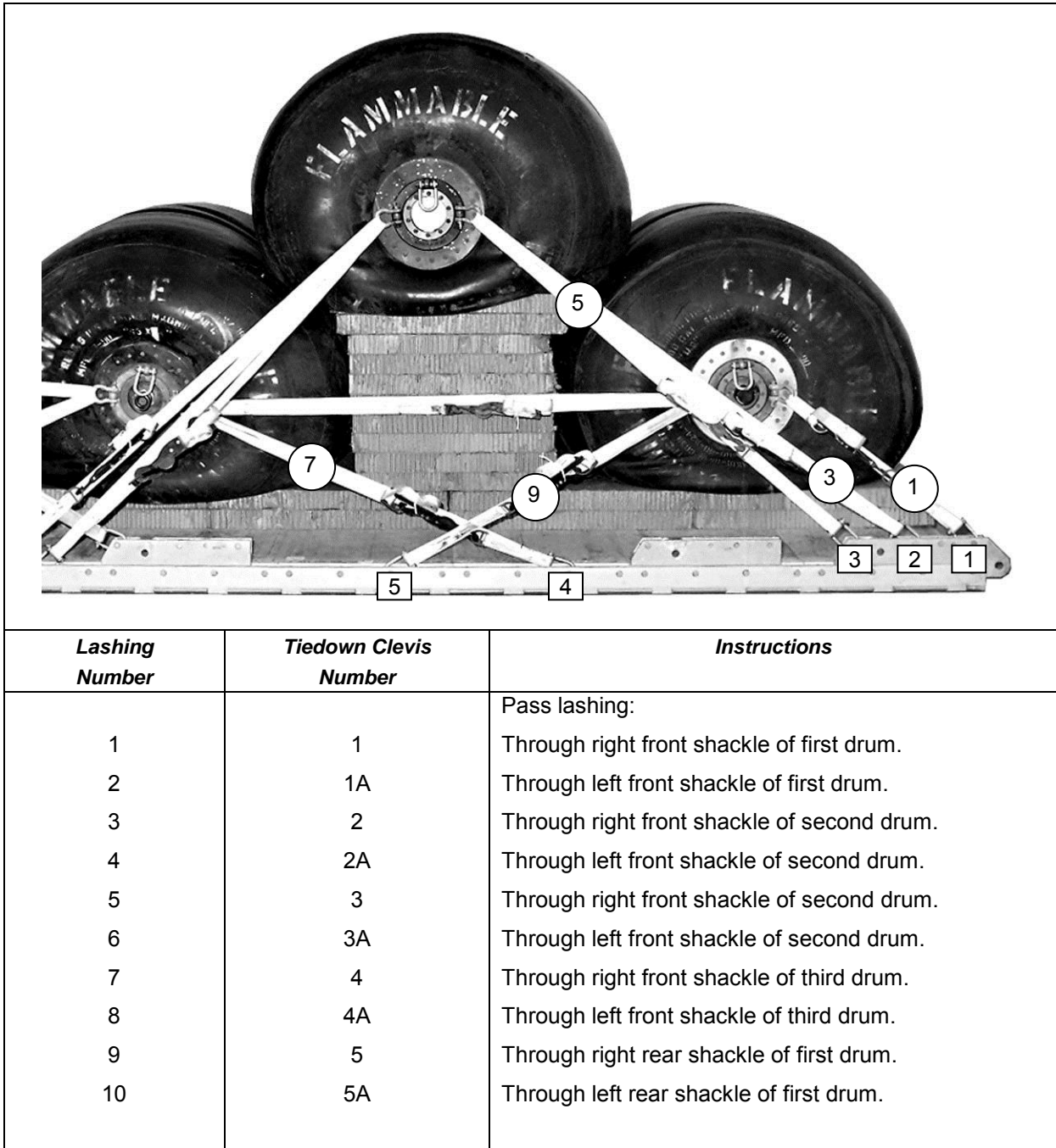
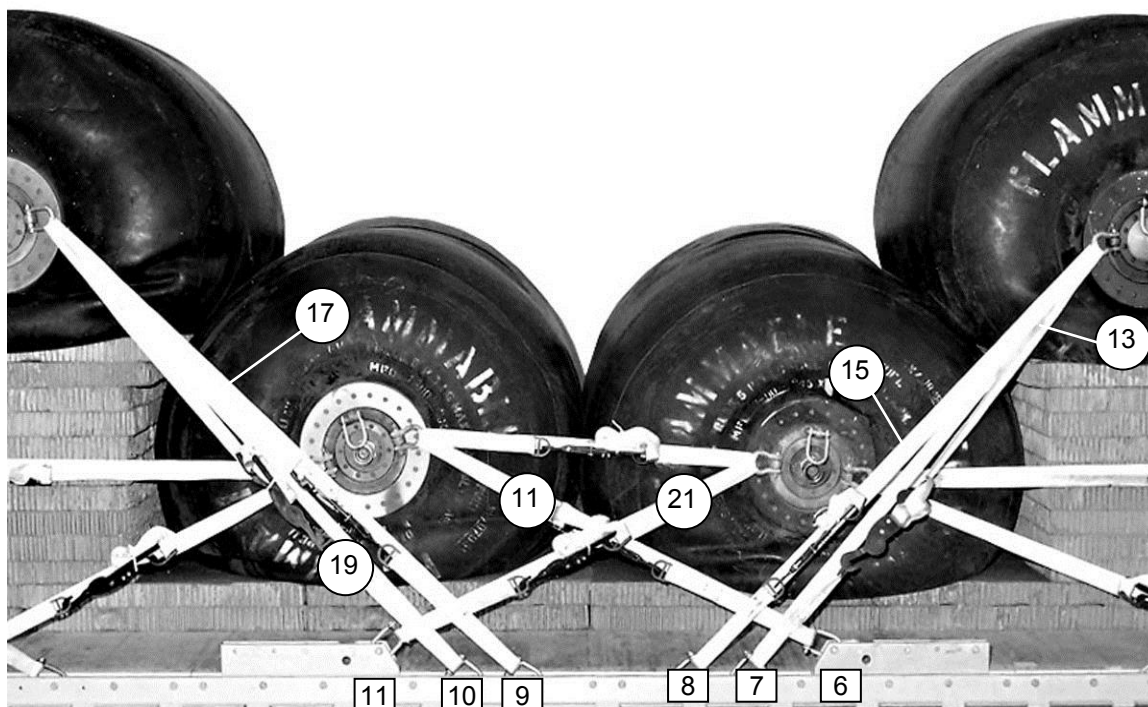


Figure 7-4. Fuel Drums Lashed to Platform



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
11	6	Pass lashing:
12	6A	Through right front shackle of fourth drum.
13	7	Through left front shackle of fourth drum.
14	7A	Through right rear shackle of second drum.
15	8	Through left rear shackle of second drum.
16	8A	Through right rear shackle of second drum.
17	9	Through left rear shackle of second drum.
18	9A	Through right front shackle of fifth drum.
19	10	Through left front shackle of fifth drum.
20	10A	Through right front shackle of fifth drum.
21	11	Through left front shackle of fifth drum.
22	11A	Through right rear shackle of third drum.
		Through left rear shackle of third drum.

Figure 7-4. Fuel Drums Lashed to Platform (continued)

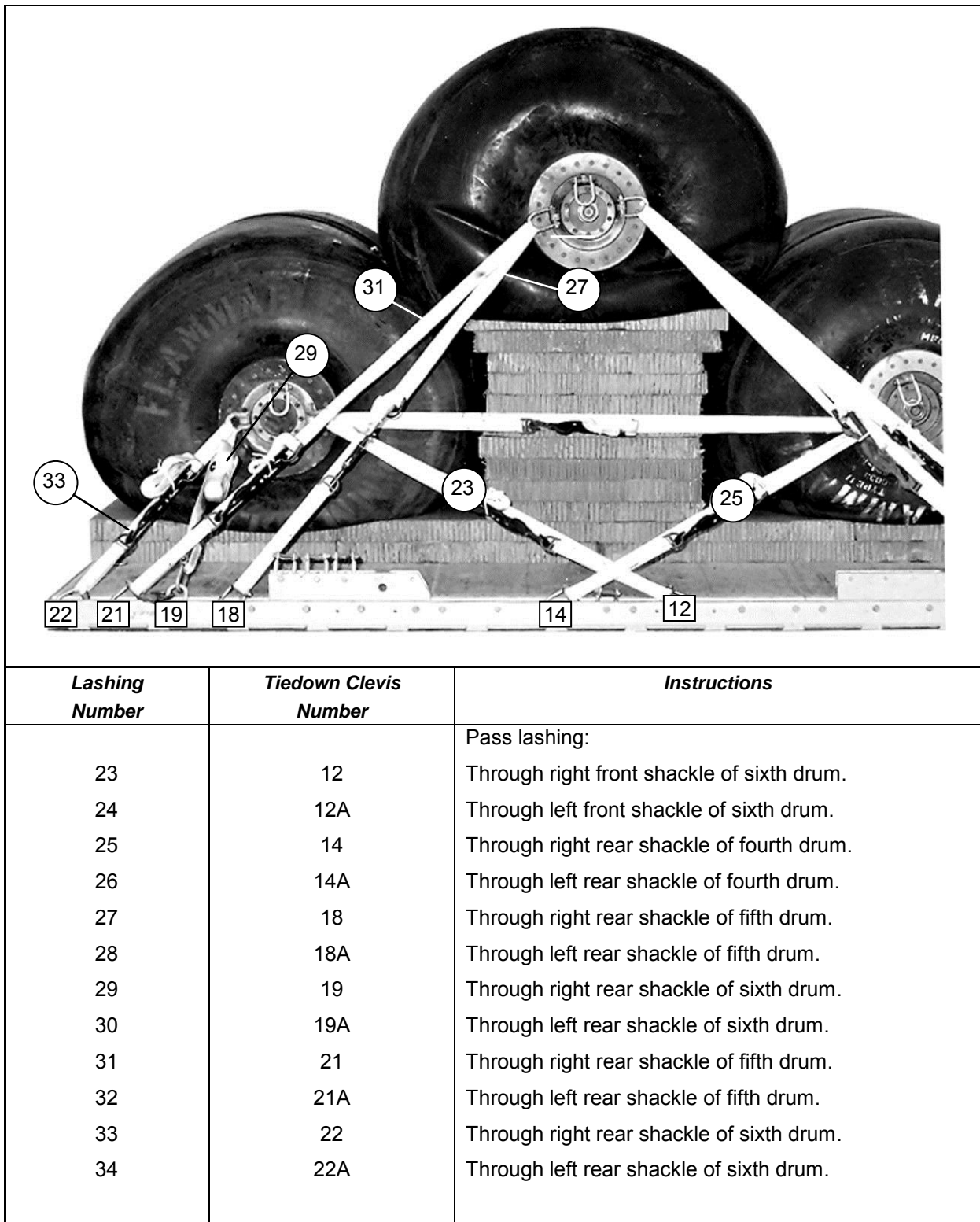
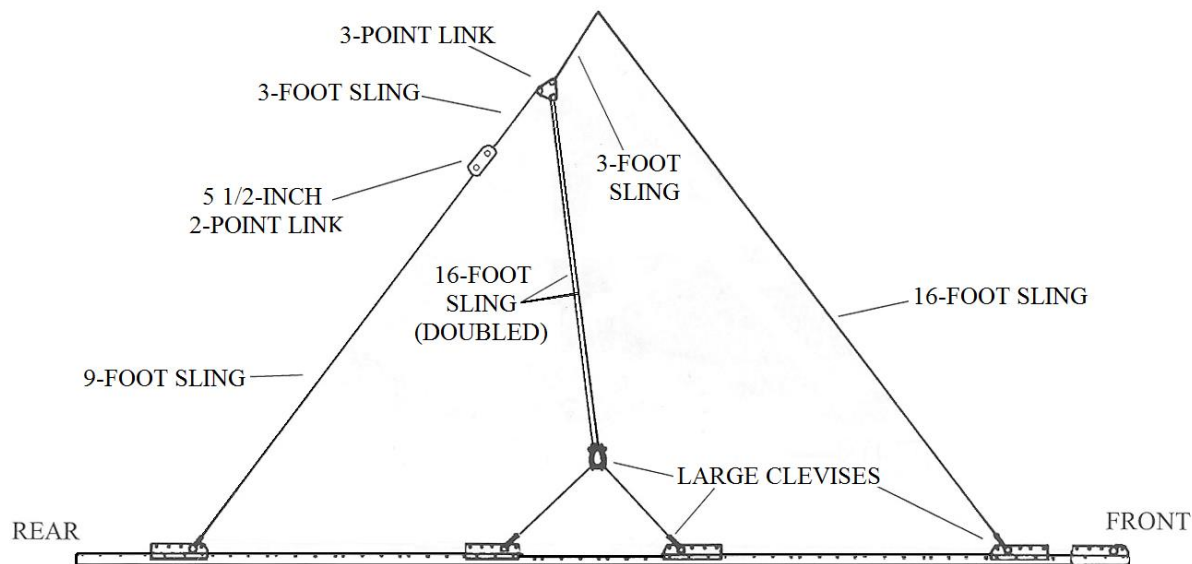


Figure 7-4. Fuel Drums Lashed to Platform (continued)

INSTALLING AND SAFETYING SUSPENSION SLINGS

7-6. Install the components of the centerline suspension system according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 7-5. Safety the suspension slings as shown in Figure 7-6.

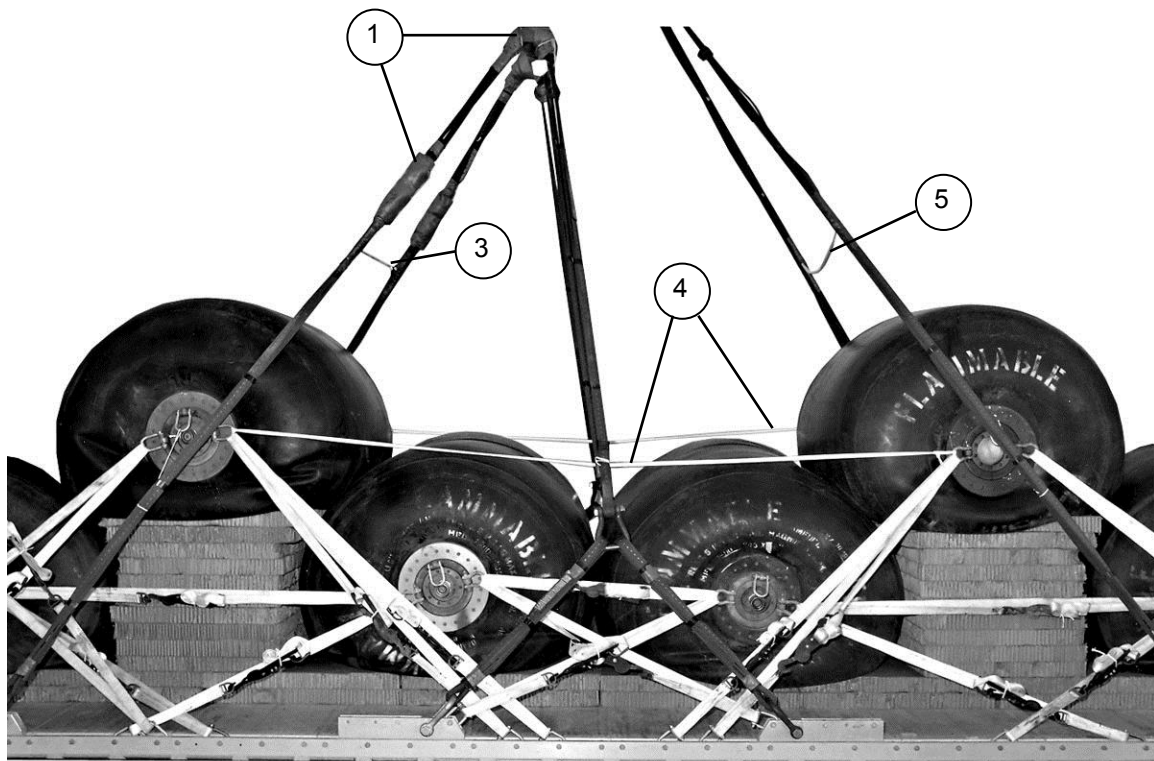
- Note.** 1. This drawing is not to scale.
 2. All slings are type XXVI nylon.
 3. Instructions are for one side of the load. Repeat for other side of the load.



Steps:

1. Place the end loop of a 9-foot (4-loop) sling in the bell portion of a large clevis. Bolt the clevis to the rear suspension link. Connect the free end of the 9-foot sling to a 3-foot (4-loop) sling with a 5 1/2-inch two-point link.
2. Attach a 3-foot (4-loop) sling to each center suspension link with a large clevis. Place both 3-foot slings in the bell portion of a large clevis. Pass a 16-foot (2-loop) sling through one spool of a three-point link. Place both end loops of the 16-foot sling in the bolt of the large clevis.
3. Bolt the free end of the rear suspension sling to the three-point link placed in step 2 so that the remaining spool of the three-point link points upward. Bolt a 3-foot (4-loop) sling to the remaining spool.
4. Place the end of loop of a 16-foot (4-loop) sling in the bell portion of a large clevis. Bolt the clevis to the front suspension link.

Figure 7-5. Suspension Slings Installed



- 1 Pad the two-point and three point links with felt taped in place.
- 2 Attach the front suspension slings and the 3-foot slings from the three-point links to the crane hook. Raise the suspension slings (not shown).
- 3 Tie the rear suspension slings to each other 12 inches above the load with a double length of $\frac{1}{2}$ -inch tubular nylon webbing. Tie the front suspension slings to each other in the same way.
- 4 Tie a length of $\frac{1}{2}$ -inch tubular nylon webbing between the shackles of the second and fifth drums and under the center suspension slings. Make this tie as taunt as possible.

Figure 7-6. Suspension Slings Safetied

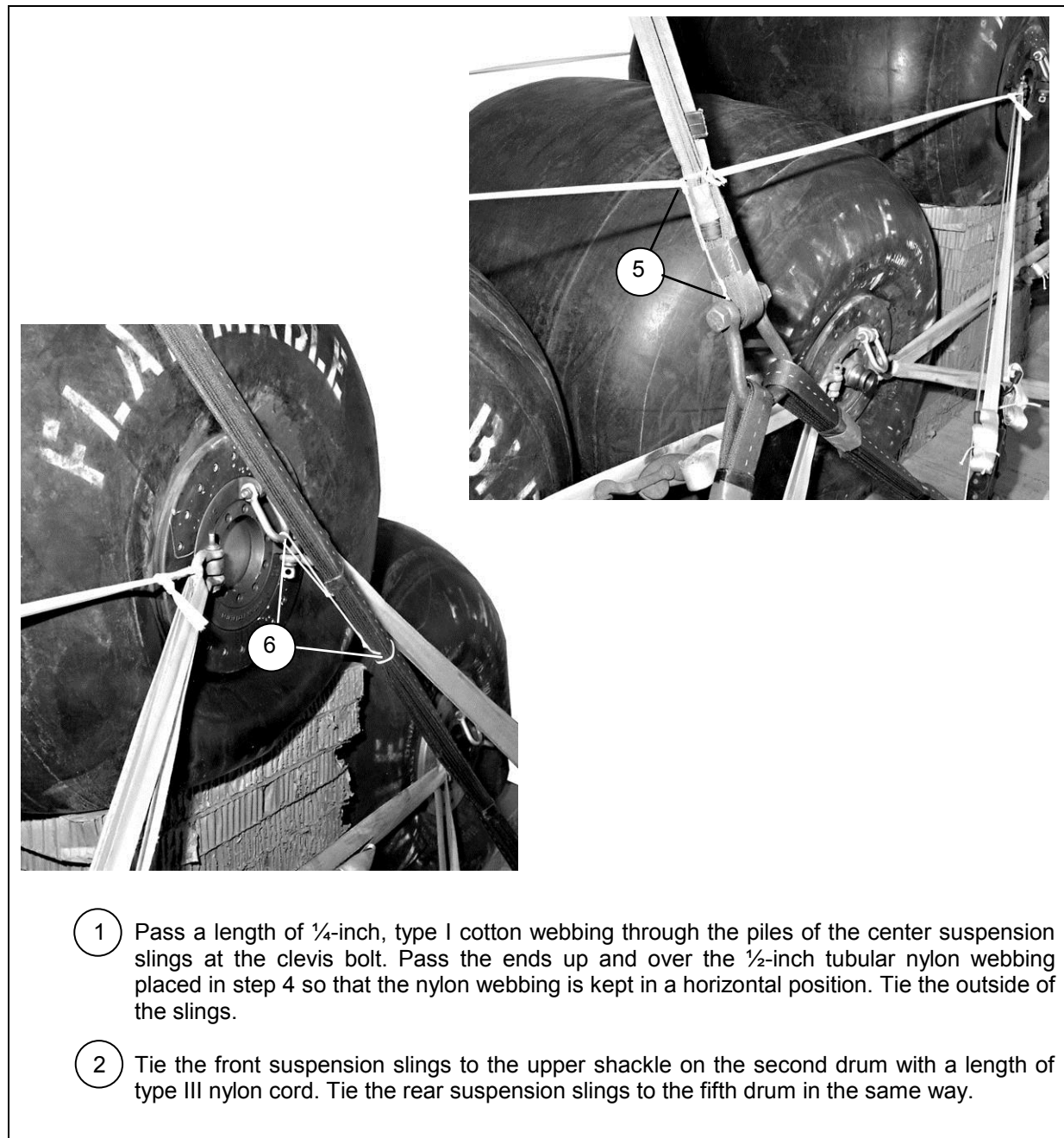
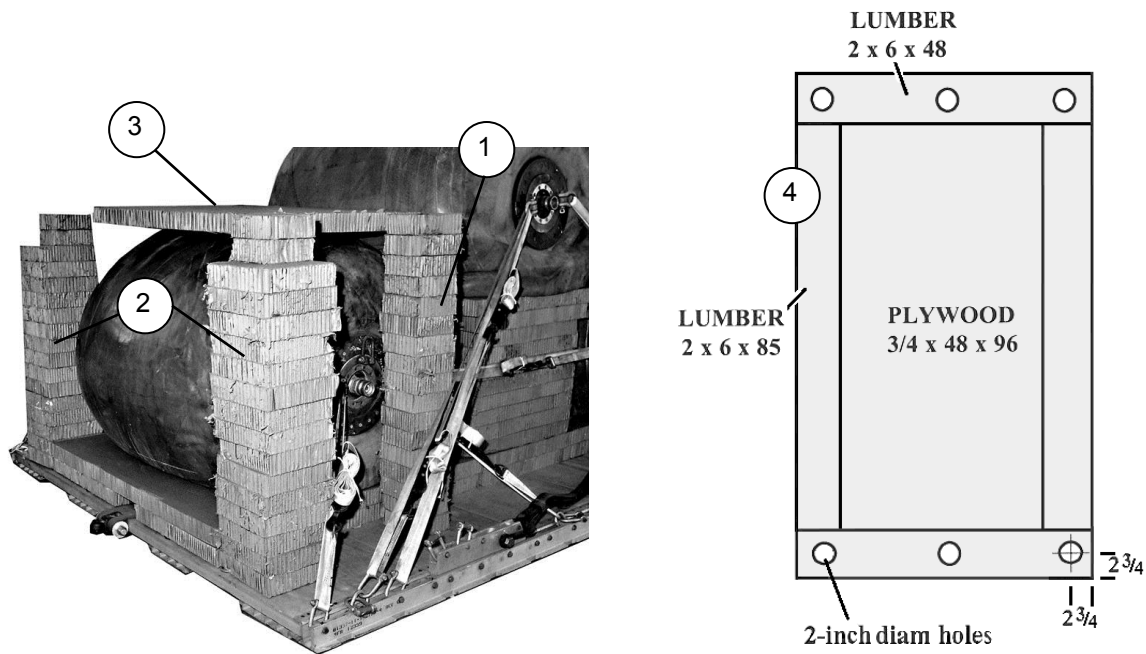


Figure 7-6. Suspension Slings Safetied (continued)

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

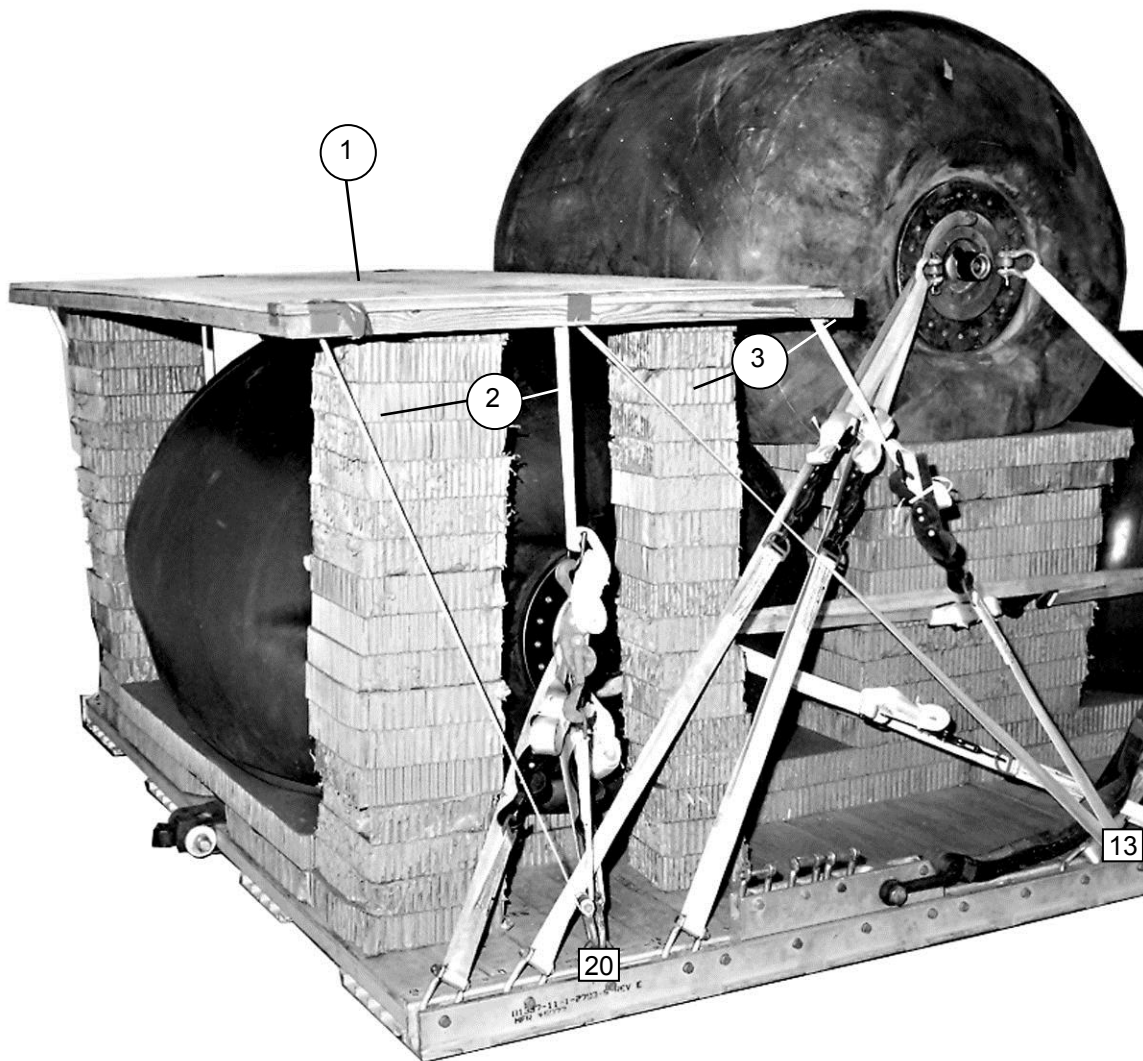
7-7. Build the parachute stowage platform and its supports as shown in Figure 7-7. Lash the parachute stowage platform to the load with four 15-foot lashings as shown in Figure 7-8.

Note: 1. These drawings are not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



- 1 Make two 17 layer stacks of 8- by 8-inch honeycomb. Place one stack on each side flush with the edge of the honeycomb supporting the rear drum and 29 inches from the rear edge of the platform.
- 2 Make two 15 layer stacks of 12- by 12-inch honeycomb. Glue two 8- by 8-inch pieces of honeycomb on top of each stack flush with the inside front corners. Place the stacks on each side of the rear drum flush with the rear edge of the honeycomb base layer.
- 3 Center a 48- by 26-inch piece of honeycomb over the rear drum.
- 4 Build the parachute stowage platform as shown. Nail the 2- by 6-inch piece of lumber to the edges of the plywood and drill 2-inch holes for the lashings.

Figure 7-7. Supports Placed and Parachute Stowage Platform Constructed



- ① Center the parachute stowage platform on the honeycomb placed in Figure 7-8.
- ② Lash the two rear holes in the parachute stowage platform to clevises 20 and 20A.
- ③ Lash the two front holes in the parachute stowage platform to clevises 13 and 13A.

Figure 7-8. Parachute Stowage Platform Lashed to Platform Rails

INSTALLING CARGO PARACHUTES

7-8. Install Six G-11 cargo parachutes as shown in Figure 7-9 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

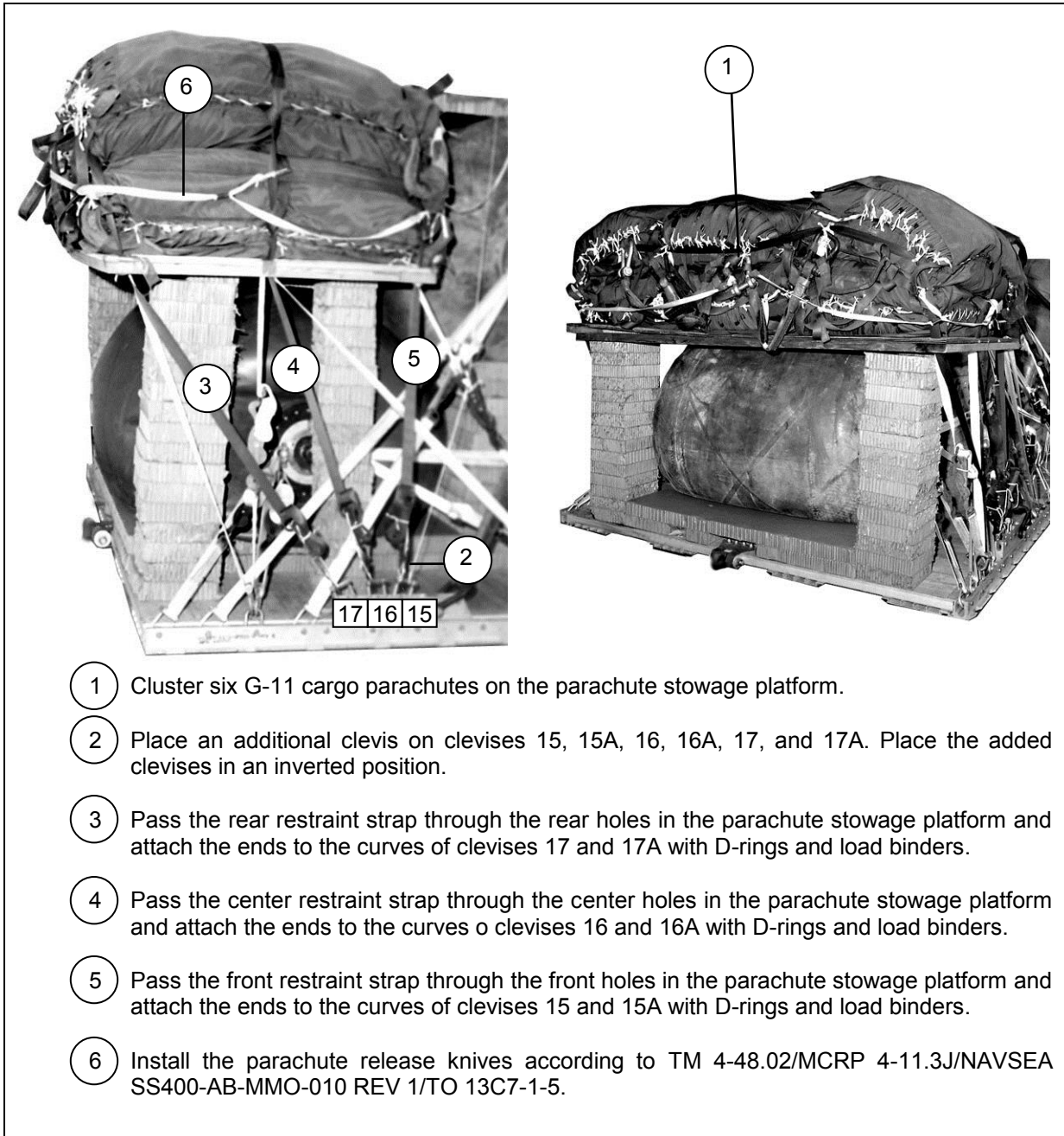


Figure 7-9. G-11 Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

7-9. Prepare and install an M-2 cargo parachute release as shown in Figure 7-10 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

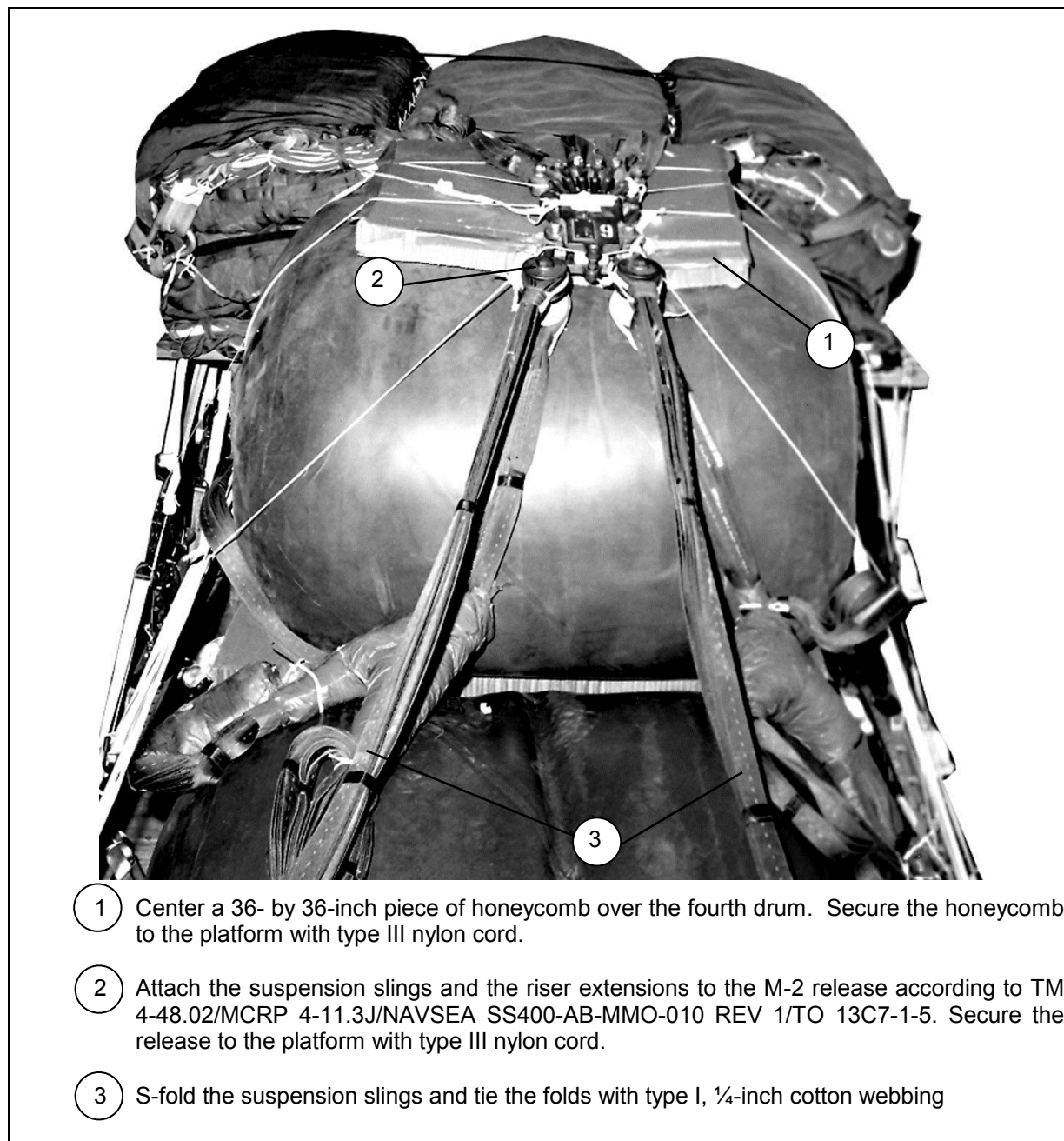


Figure 7-10. M-2 Release Installed

INSTALLING EXTRACTION SYSTEM

7-10. Prepare and install the extraction force transfer coupling extraction system as shown in Figure 7-11 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

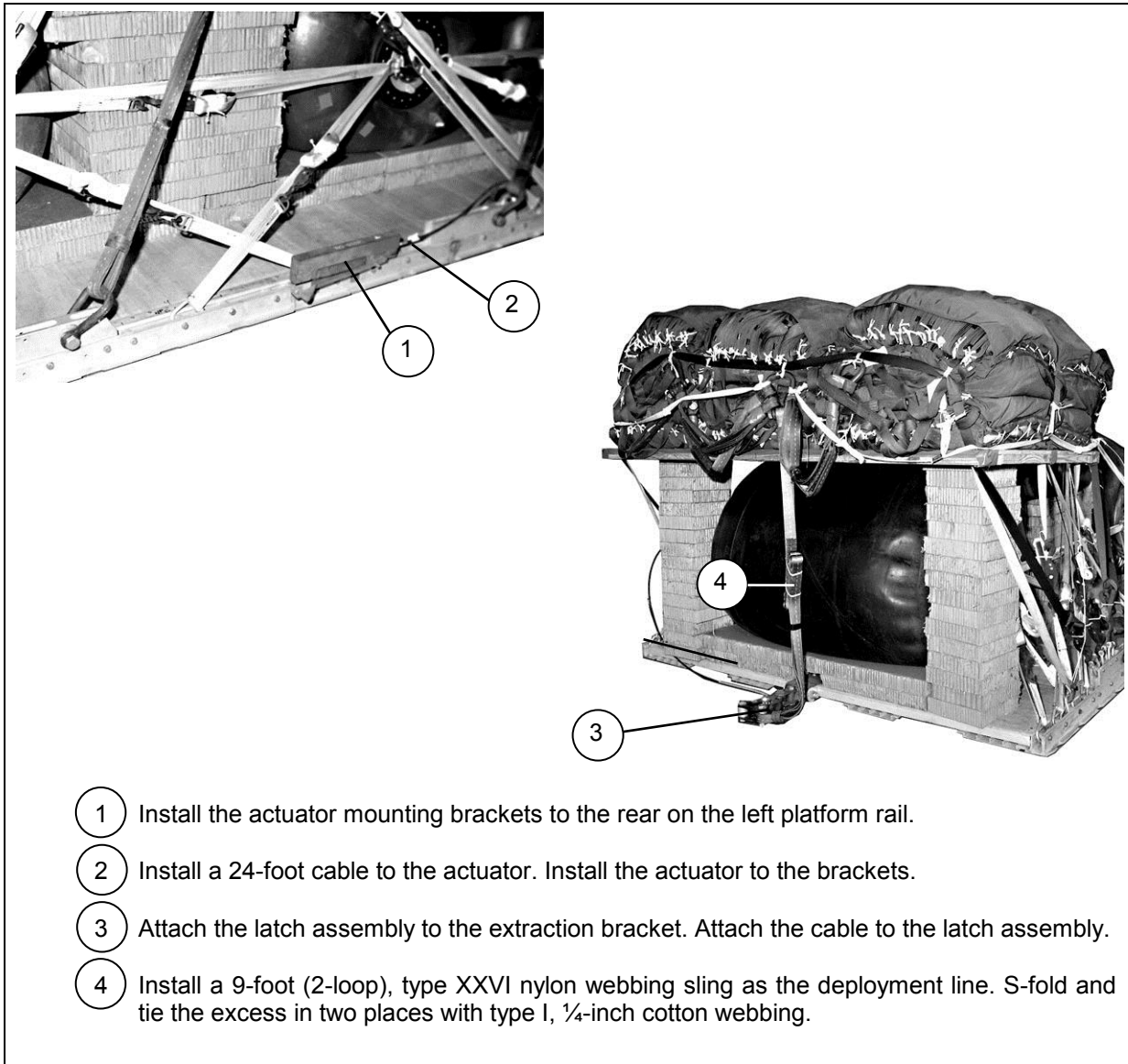


Figure 7-11. Extraction Force Transfer Coupling Installed

PLACING EXTRACTION PARACHUTE

7-11. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

7-12. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

7-13. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 7-12. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

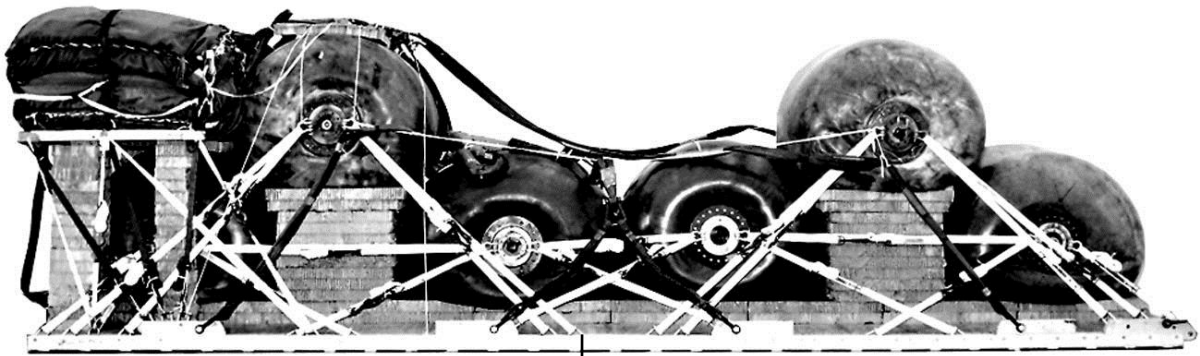
The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

EQUIPMENT REQUIRED

7-14. Use the equipment listed in Table 7-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	22,158 pounds
Maximum load allowed.....	28,120 pounds
Height.....	85 inches
Width	108 inches
Length	288 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)	
.....	153 inches
Extraction System	Extraction Force Transfer Coupler

Figure 7-12. Six Drums Rigged on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 7-1. Equipment Required for Rigging Six Drums without Pumping Assembly on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	14
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5782	Coupling, airdrop, extraction force transfer with cable, 24-foot	1
1670-00-360-0328	Cover:	
8305-00-360-0328	Clevis, large	1
1670-01-183-2678	Felt, ½-inch thick	As required
	Leaf, extraction line (line bag)	2
1670-01-062-6316	Line, drogue (for C-17)	
	60-foot (3-loop), type XXVI	1
1670-01-062-6316	Line, extraction:	
1670-01-107-7651	60-foot (3-loop), type XXVI (for C-130)	1
	140-foot (3-loop), type XXVI (C-17)	1
1670-01-307-0155	Link assembly:	
	Three-point	2
5306-00-435-8994	Two-point:	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	6
1670-00-003-1954	Nut, 1-inch, hexagonal	6
5365-00-007-3414	Plate, side, 5 ½-inch	6
	Spacer, large	6
5510-00-220-6148	Lumber, 2- by 6-by:	
	85-inches	2
5315-00-010-4659	48-inches	2
1670-00-753-3928	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	26 sheets
1670-01-016-7841	Parachute:	
	Cargo:	
1670-00-040-8135	G-11C	6
	Cargo extraction:	
1670-01-063-3715	28-foot	1
	Drogue (for C-17)	
	15-foot	1

Table 7-1. Equipment Required for Rigging Six Drums without Pumping Assembly on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 24-foot	
	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	48
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem Link assembly (Multipurpose link)	2
1670-01-247-2389	Suspension link	8
5530-00-097-2389	Plywood, ¾- by 48-by 96-inches	1 sheet
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	8
1670-01-062-6305	9-foot (4-loop), type XXVI nylon webbing	2
1670-01-063-7761	16-foot (2-loop), type XXVI nylon webbing	4
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2-loop), type XXVI nylon webbing	6
5340-00-040-8219	Strap, parachute release, multicut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tie-down assembly, 15-foot	40
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-261-8584	Type X	As required

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Chapter 8

Rigging Six Drums with Pumping Assembly on a 24-Foot Platform

DESCRIPTION OF LOAD

8-1. Six drums are rigged on a 24-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

PREPARING PLATFORM

8-2. Prepare a 24-foot, type V airdrop platform using two tandem links, eight suspension links, and 46 clevises as shown in Figure 8-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.

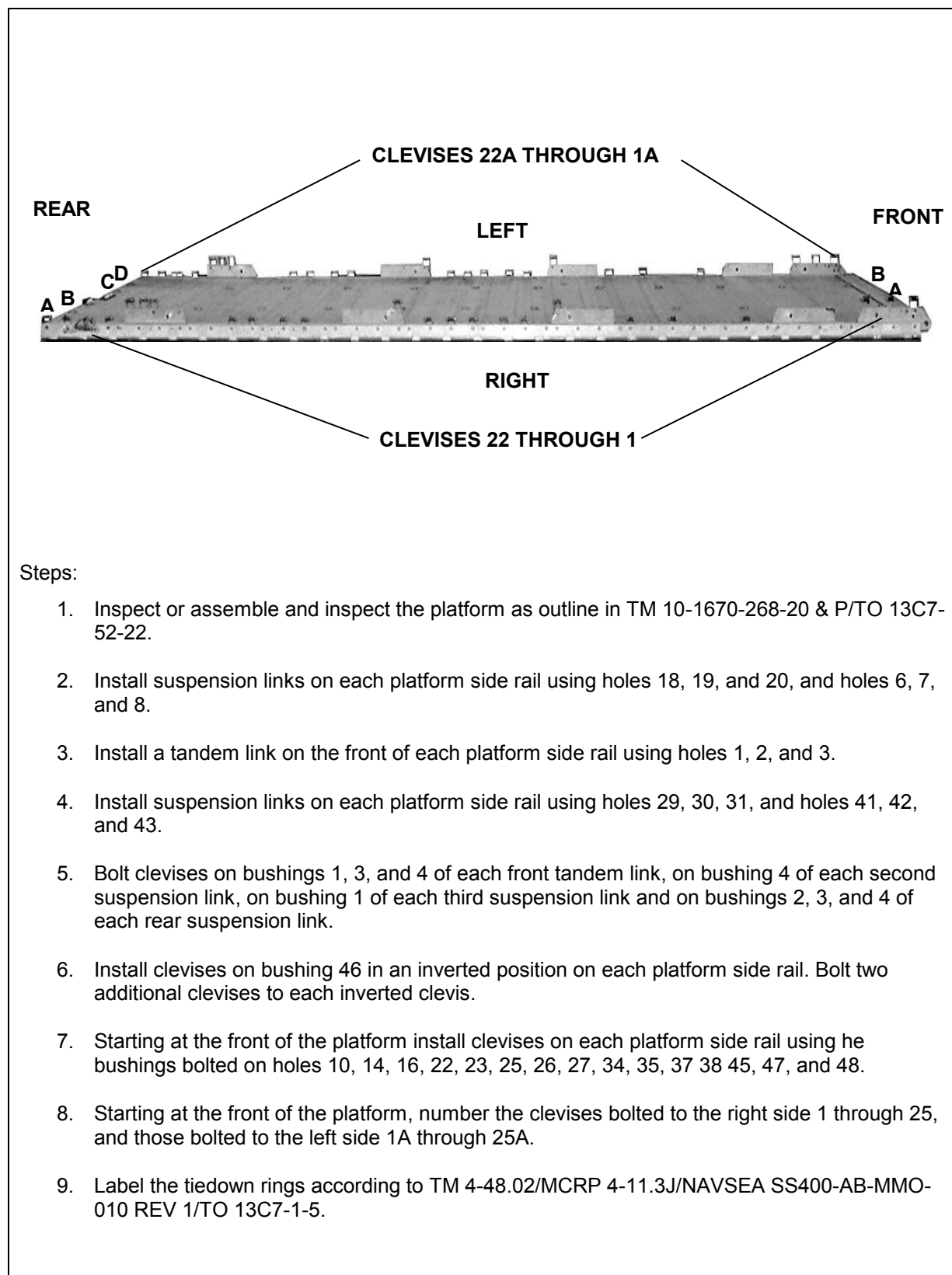


Figure 8-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

8-3. Prepare and position the honeycomb stacks as shown in Figure 8-2.

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

8-4. Lift the drums and position them on the honeycomb as shown in Figure 8-2.

LASHING DRUMS

8-5. Use fifty 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 8-2 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

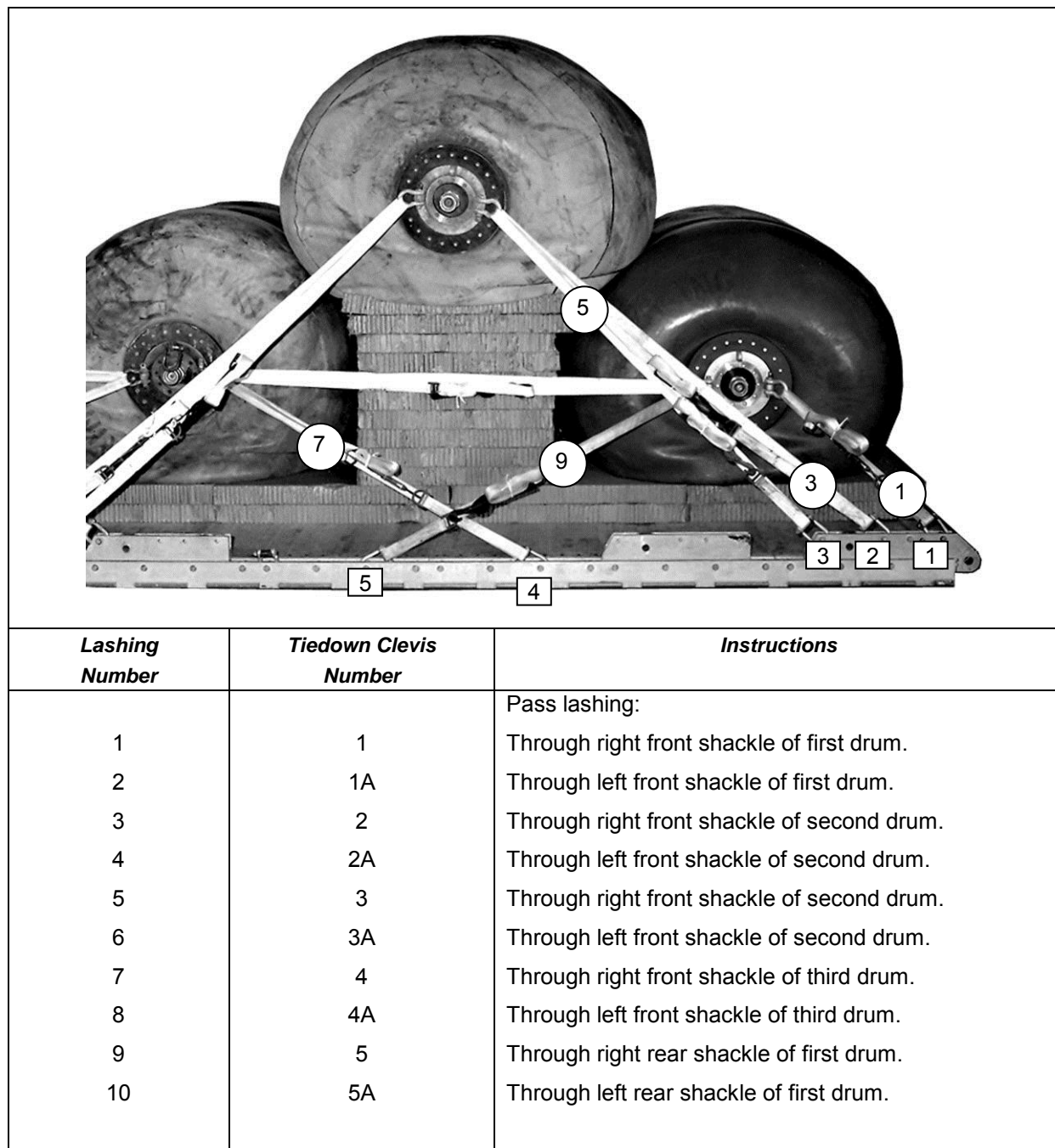


Figure 8-2. Fuel Drums Lashed to Platform

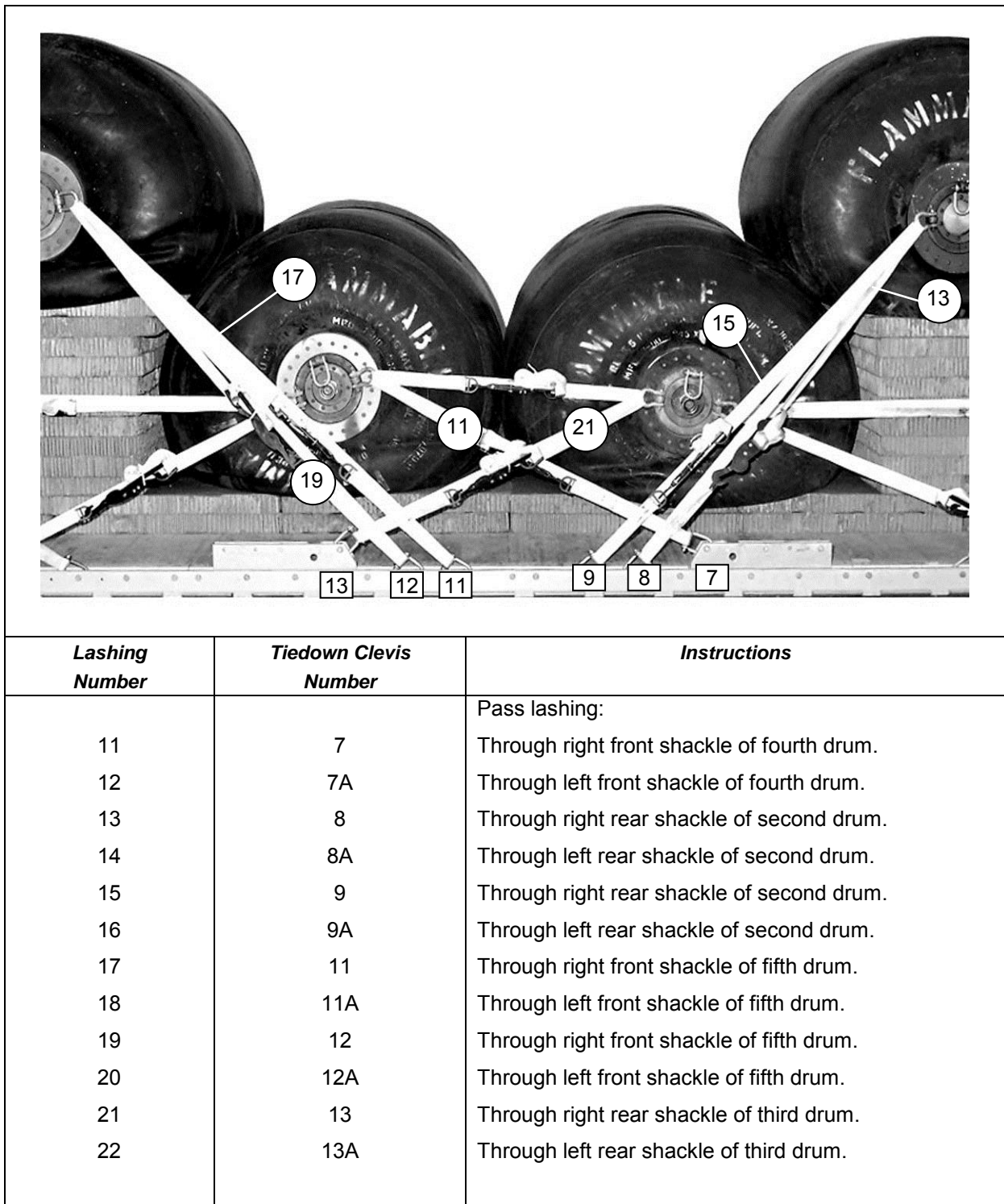


Figure 8-2. Fuel Drums Lashed to Platform (continued)

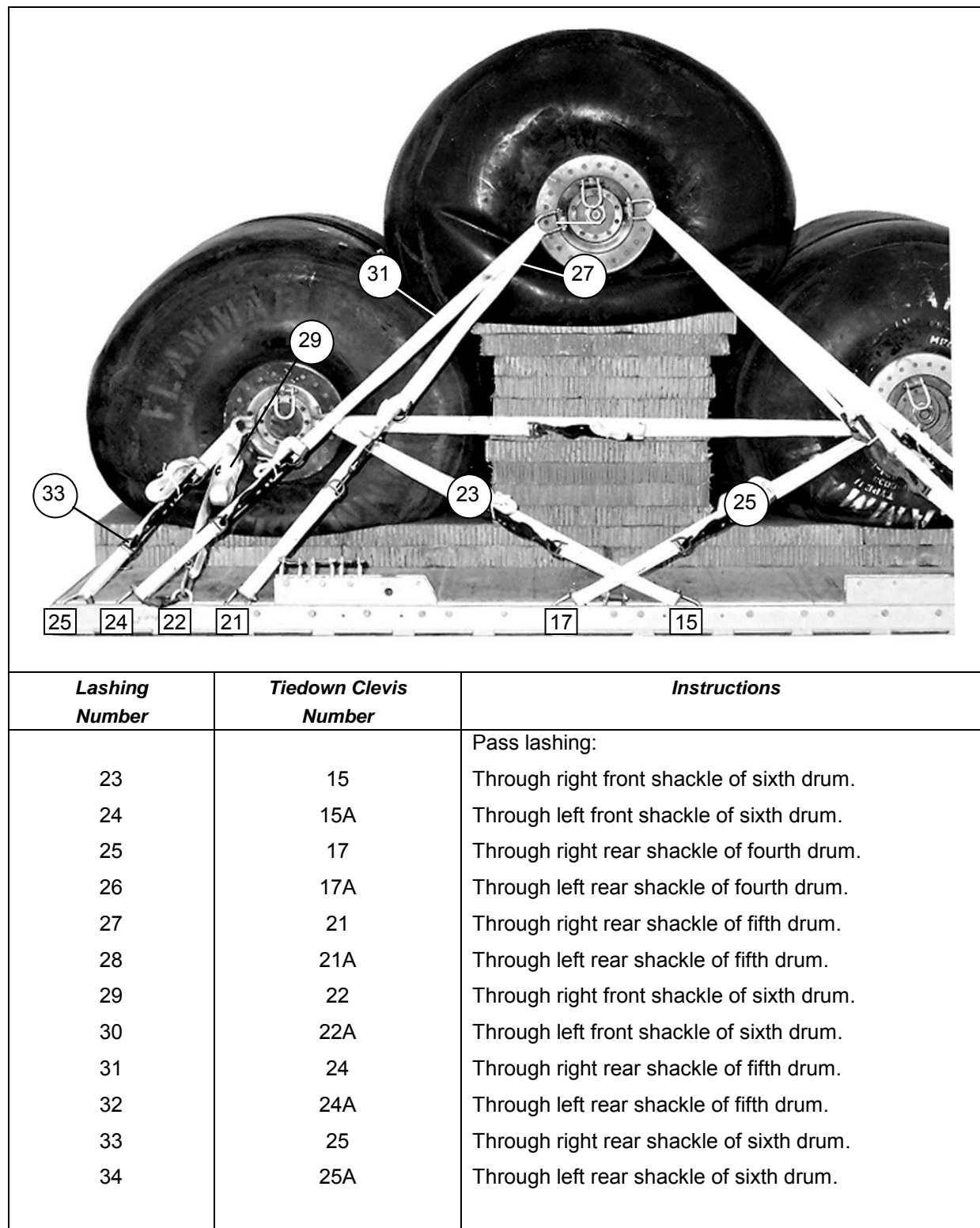


Figure 8.2. Fuel Drums Lashed to Platform (continued)

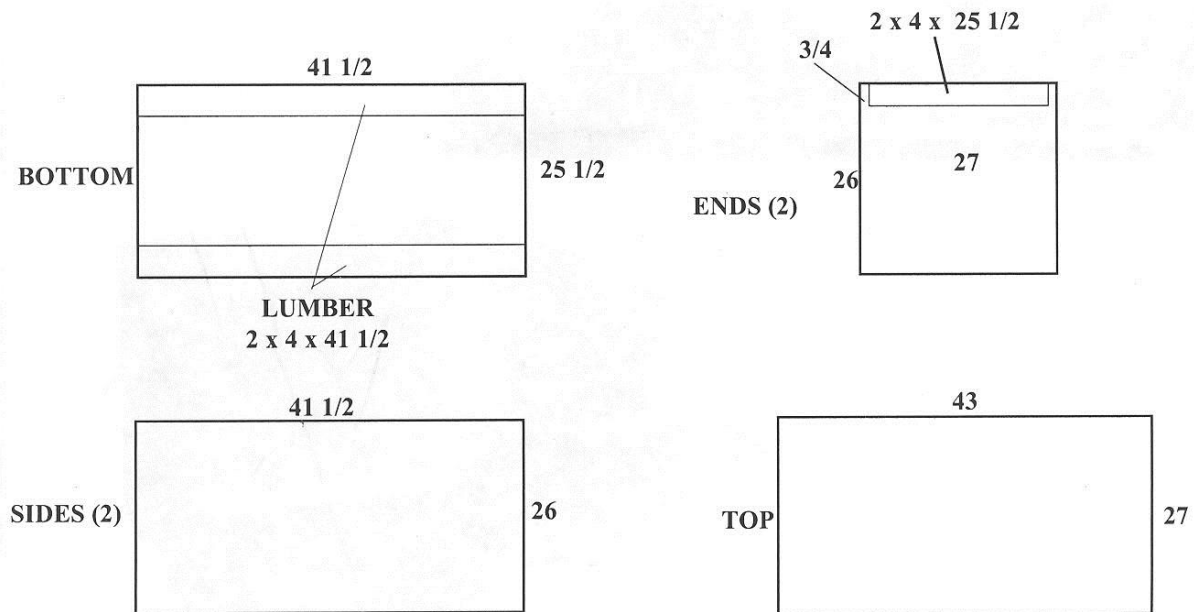
PREPARING PUMP ASSEMBLY

8-6. Build the box for the pump assembly as shown in Figure 8-3. Pack the pump assembly and hoses in the box as shown in Figure 8-4.

LASHING PUMP ASSEMBLY TO PLATFORM

8-7. Place the pump assembly box on the load and lash it to the platform as shown in Figure 8-5.

Note. 1. This drawing is not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



Steps:

1. Cut the bottom of the box from 3/4-inch plywood 41 1/2 inches long and 25 1/2 inches wide. Nail a 41 1/2-inch length of 2- by 4-inch lumber flat side down and flush along each long edge of the bottom. The top of the box is 43- by 27 inches.
2. Cut the sides of the box from 3/4-inch plywood 41 1/2 inches long and 26 inches high. Place the sides flush with the bottom. Nail into the 2- by 4-inch pieces of lumber.
3. Cut the ends of the box from 3/4-inch plywood 27 inches wide and 26 inches high. Nail a piece of 2- by 4-inch lumber flat side down, centered, and flush with the top edge of each end piece. Nail the ends flush to the bottom and sides. Nail the sides to the 2- by 4-inch pieces of lumber on the ends.

Figure 8-3. Pump Assembly Box Built

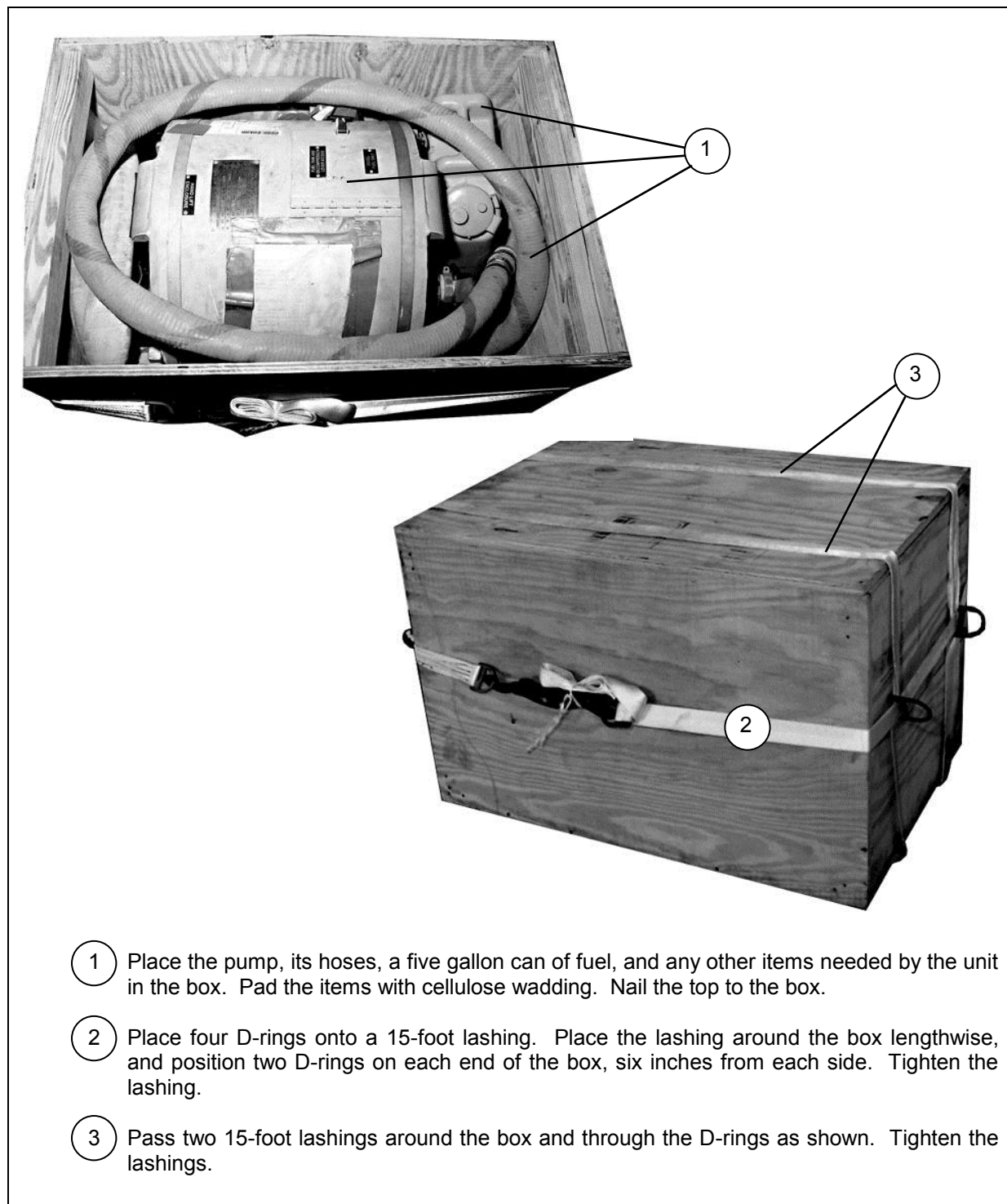


Figure 8-4. Pump Assembly Box Packed

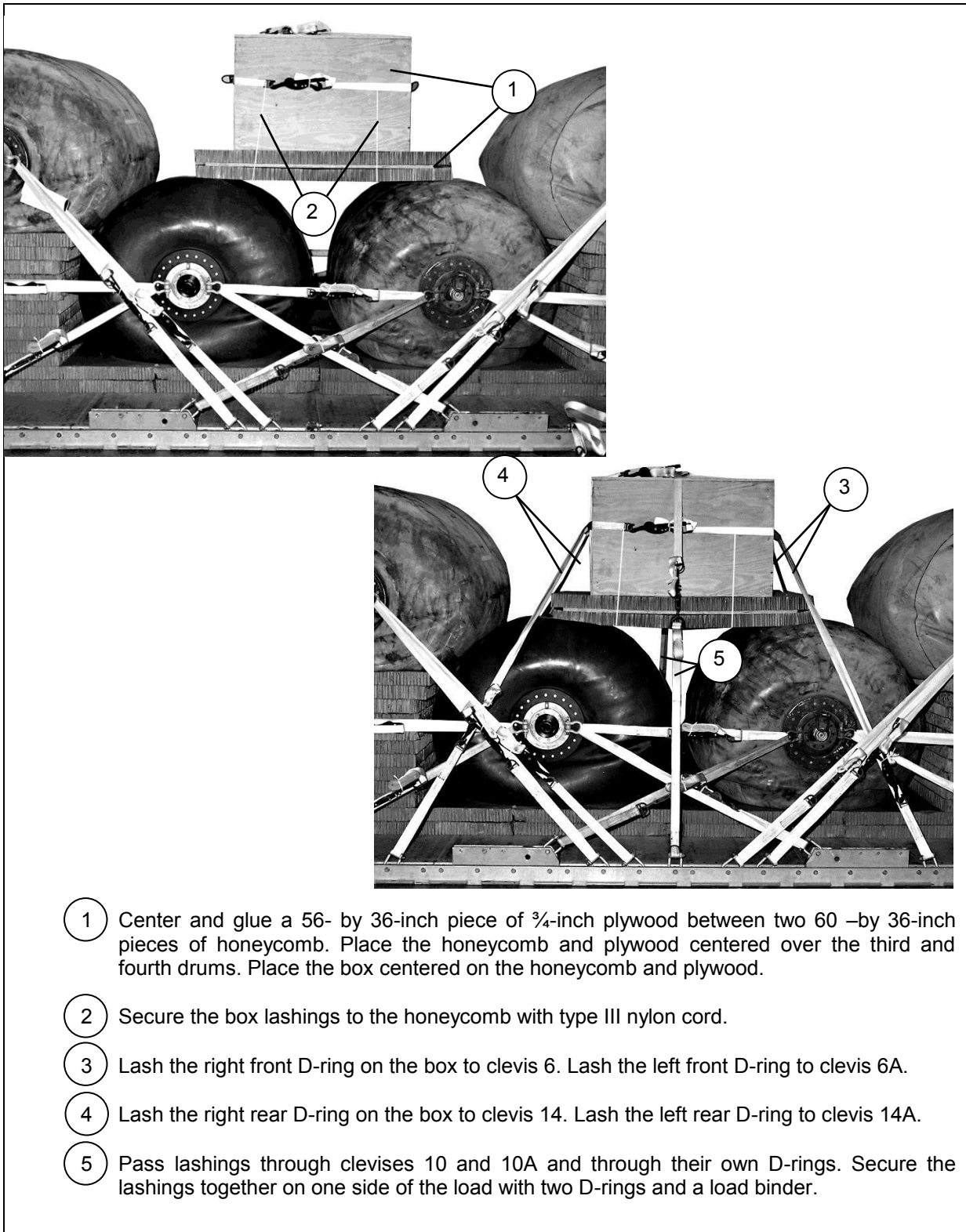


Figure 8-5. Pump Assembly Box Packed

INSTALLING AND SAFETYING SUSPENSION SLINGS

8-8. Install the components of the centerline suspension system according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 7-5. Safety the suspension slings as shown in Figure 8-6.

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

8-9. Build the parachute stowage platform and its supports as shown in Figure 8-7. Lash the parachute stowage platform to the load with four 15-foot lashings as shown in Figure 8-6.

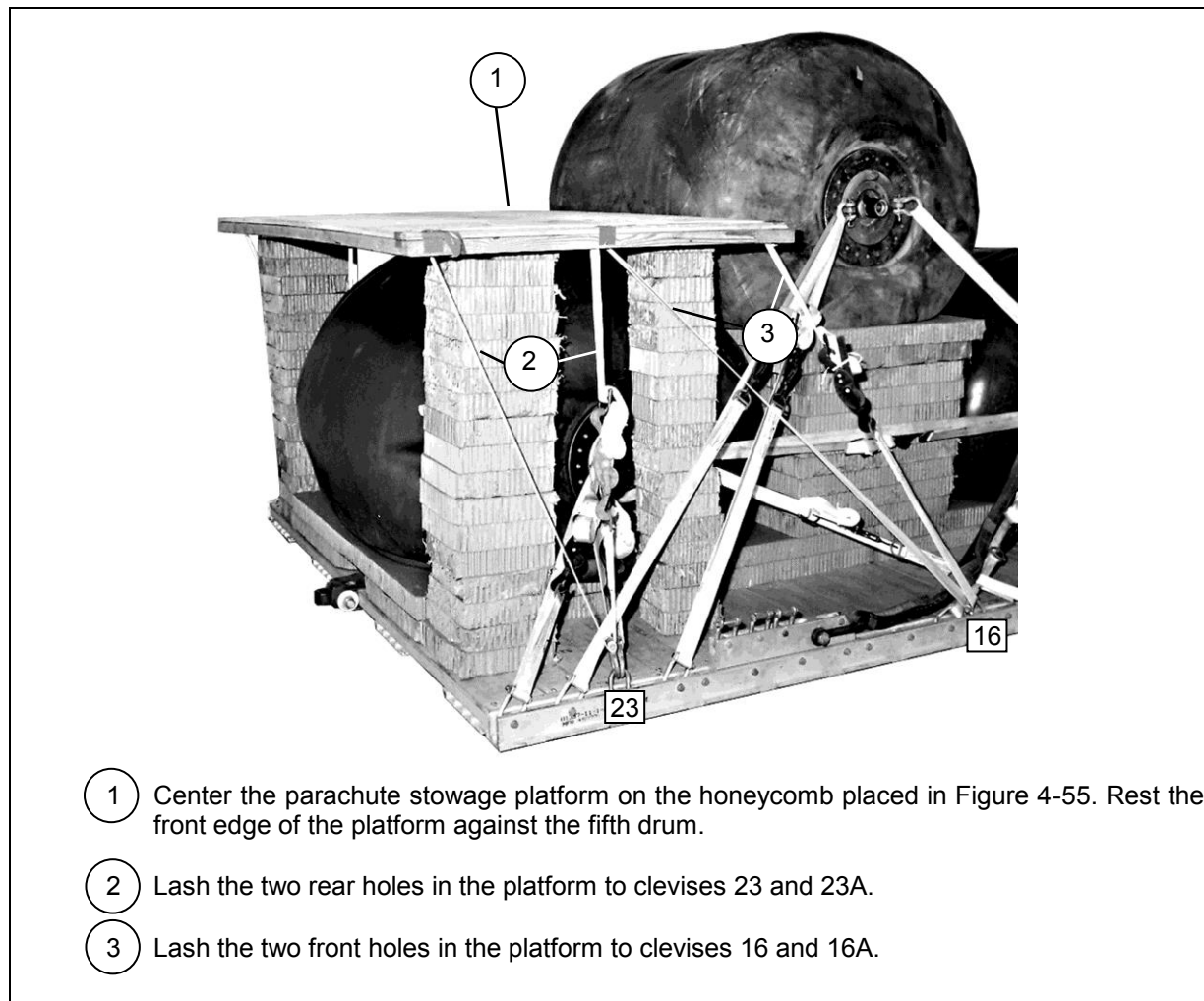


Figure 8-6. Parachute Stowage Platform Lashed to Platform Rails

INSTALLING CARGO PARACHUTES

8-10. Install Six G-11 cargo parachutes as shown in Figure 8-7 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

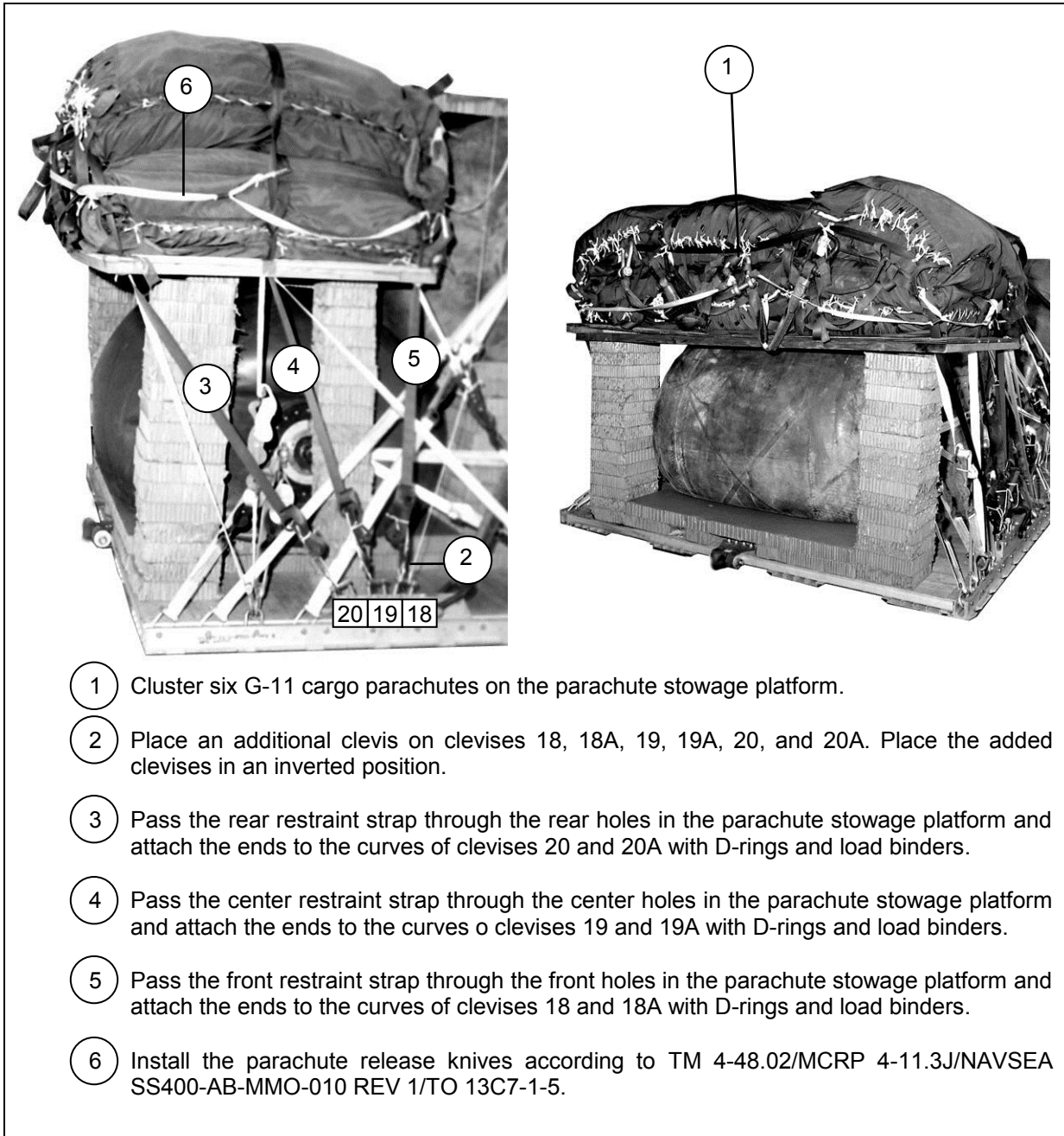


Figure 8-7. G-11 Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

8-11. Prepare and install an M-2 cargo parachute release as shown in Figure 8-8 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.



- 1 Center a 36- by 36-inch piece of honeycomb over the fourth drum. Secure the honeycomb to the platform with type III nylon cord.
- 2 Attach the suspension slings and the riser extensions to the M-2 release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the release to the platform with type III nylon cord.
- 3 S-fold the suspension slings and tie the folds with type I, ¼-inch cotton webbing

Figure 8-8. M-2 Release Installed

INSTALLING EXTRACTION SYSTEM

8-12. Prepare and install the EFTC extraction system as shown in Figure 7-11 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

PLACING EXTRACTION PARACHUTE

8-13. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

8-14. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

8-15. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 8-9. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

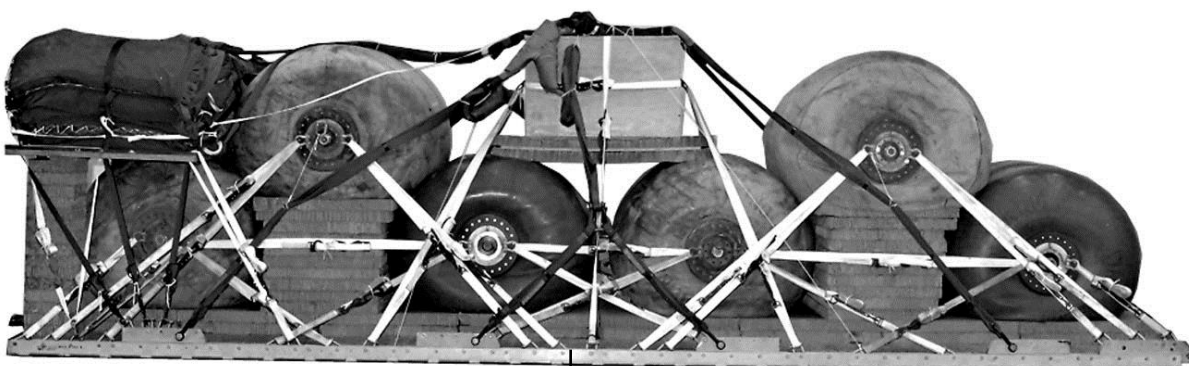
The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

EQUIPMENT REQUIRED

8-16. Use the equipment listed in Table 8-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	22,548 pounds
Maximum load allowed.....	28,420 pounds
Height.....	92 inches
Width	108 inches
Length	288 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)	
.....	150 inches
Extraction System	Extraction Force Transfer
Coupler	

Figure 8-9. Six Drums Rigged with Pump Assembly on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 8-1. Equipment Required for Rigging Six Drums with Pumping Assembly on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	14
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5782	Coupling, airdrop, extraction force transfer w cable, 24-foot cover:	1
1670-00-360-0328	Clevis, large	1
8305-00-958-3685	Felt, ½-inch thick	2
1670-01-183-2678	Leaf, extraction line (line bag)	As required
	Line, drogue (for C-17)	
1670-01-062-6316	60-foot (3-loop), type XXVI	2
	Line, extraction:	
1670-01-062-6316	60-foot (3-loop), type XXVI (for C-130)	1
1670-01-107-7651	140-foot (3-loop), type XXVI (C-17)	1
	Link assembly:	
1670-01-307-0155	Three-point	1
	Two-point:	2
5306-00-435-8994	Bolt, 1-inch diameter, 4-inches long	6
5310-00-435-8994	Nut, 1-inch, hexagonal	6
5310-00-232-5165	Plate, side, 5 ½-inch	6
5365-00-007-3414	Spacer, large	6
	Lumber	
5510-00-220-6146	2- by 4- by:	
	25 ½-inches	2
	41 ½-inches	2
5510-00-220-6148	2- by 6- by:	
	85-inches	2
5315-00-010-4659	48-inches	2
1670-00-753-3928	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	28 sheets
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11C	6
	Cargo extraction:	
1670-00-040-8135	28-foot	1
1670-01-063-3715	Drogue (for C-17)	
	15-foot	1

Table 8-1. Equipment Required for Rigging Six Drums with Pumping Assembly on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 24-foot	
	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	52
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	2
1670-01-247-2389	Suspension link	8
5530-00-128-4981	Plywood, 3/4- by 48-by 96-inch	2 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	8
1670-01-062-6305	9-foot (4-loop), type XXVI nylon webbing	2
1670-01-062-6308	16-foot (2-loop), type XXVI nylon webbing	4
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2-loop), type XXVI nylon webbing	6
5340-00-040-8219	Strap, parachute release, multicut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	59
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-inch	As required
8305-00-261-8584	Type X	As required

Chapter 9

Rigging Seven Drums without Pumping Assembly on a 28-Foot Platform

DESCRIPTION OF LOAD

9-1. Seven drums are rigged on a 28-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

PREPARING PLATFORM

9-2. Prepare a 28-foot, type V airdrop platform using two tandem links, eight suspension links, and 50 clevises as shown in Figure 9-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.

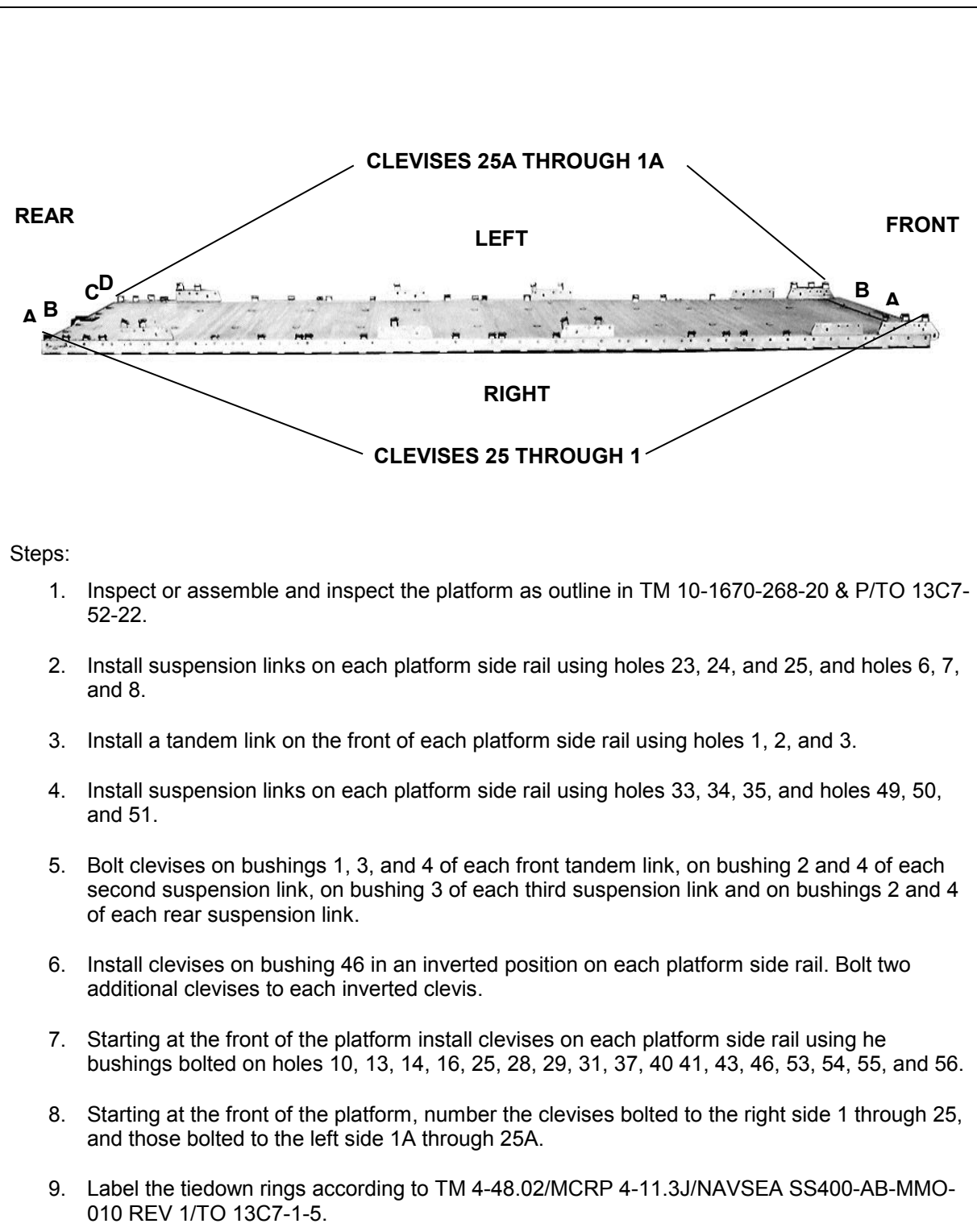
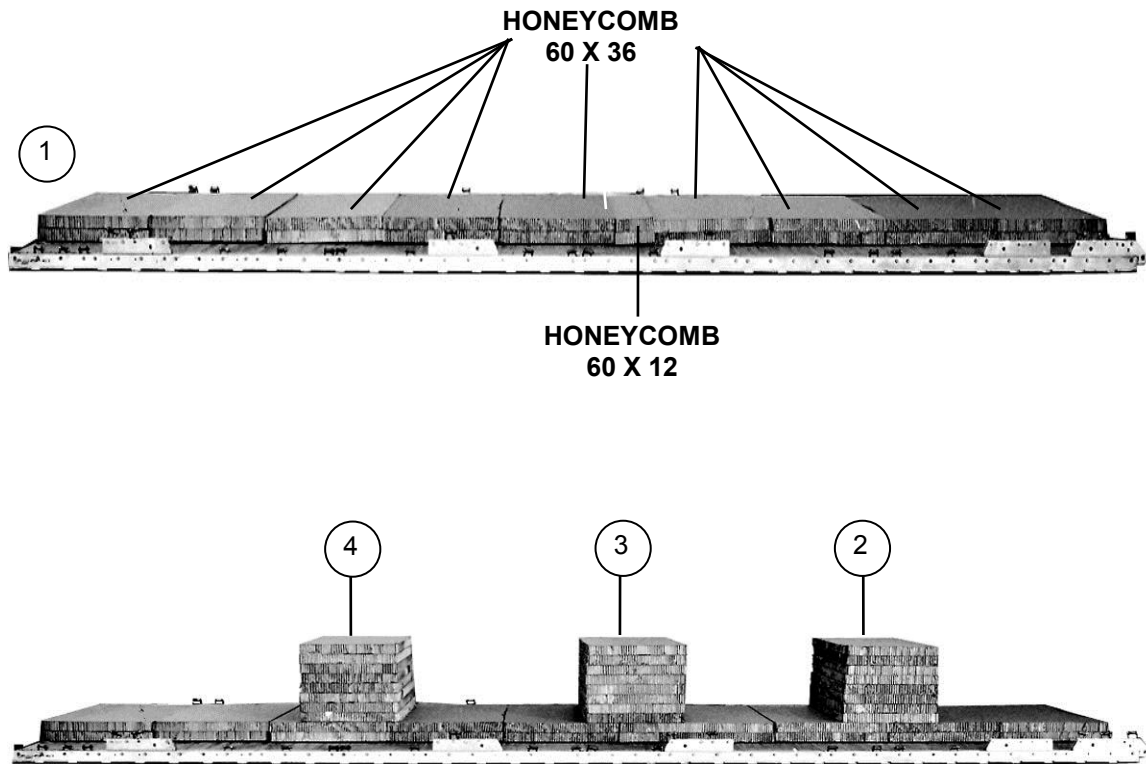


Figure 9-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

9-3. Prepare and position the honeycomb stacks as shown in Figure 9-2.

Note: All dimensions are in inches.



- ① Use 18 pieces of 36- by 60-inch honeycomb and two 12- by 60-inch pieces of honeycomb to form a two-layer stack 336 inches long and 60 inches wide. Center the stack on the platform flush with the front edge.

Note. Place the 12-inch section inside the stack.

- ② Make three 8-layer stacks of 60- by 30-inch honeycomb. Center a stack on the base layer 57 inches from the front edge of the base.
- ③ Center a second 8-layer stack of honeycomb 57 inches to the rear of the first.
- ④ Center the third 8-layer stack of honeycomb on the base layers 57 inches to the rear of the stack placed in step 3 above.

Figure 9-2. Honeycomb Stack Positioned

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

9-4. Lift the drums and position them on the honeycomb as shown in Figure 9-3.

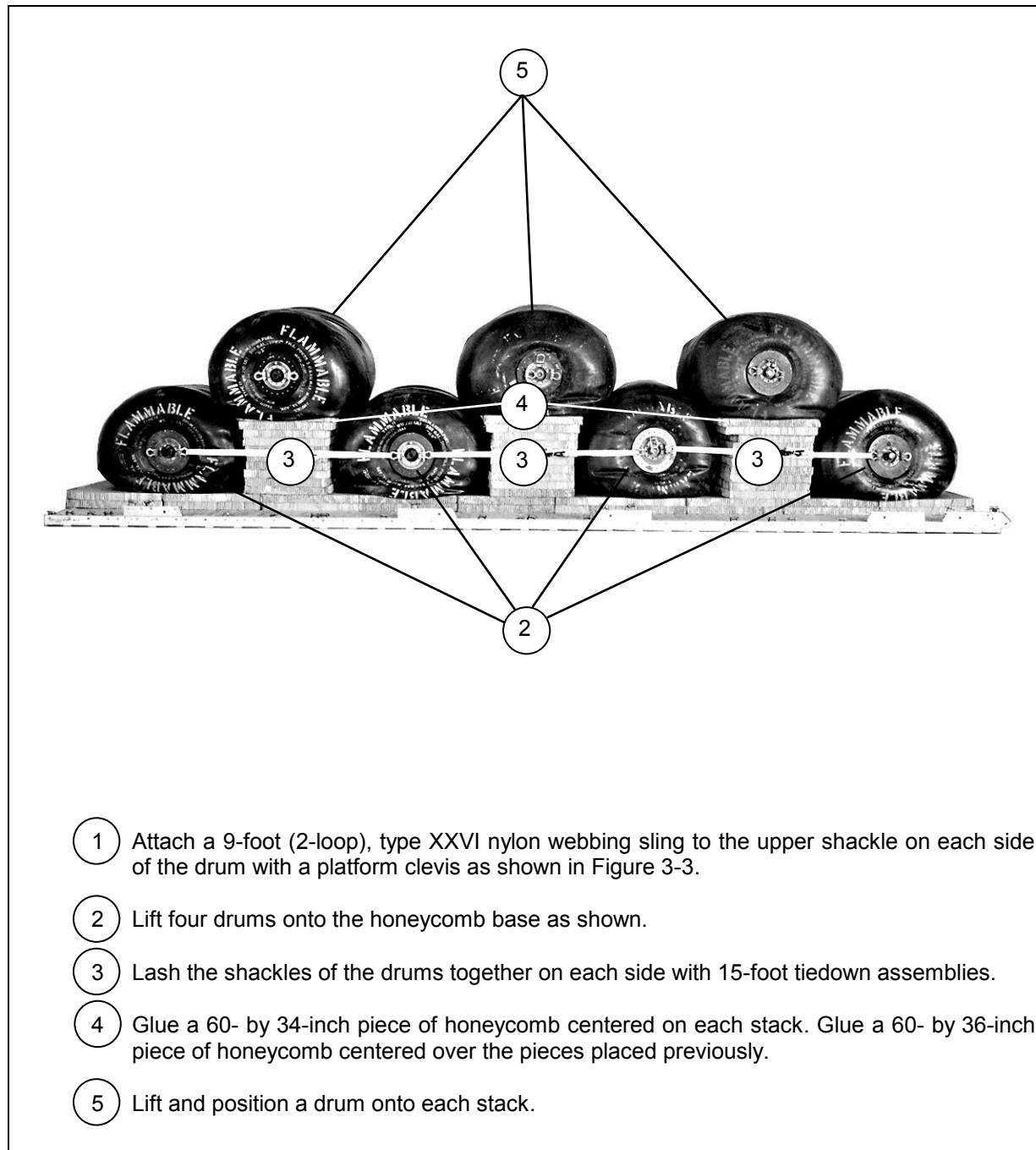


Figure 9-3. Fuel Drums Positioned

LASHING DRUMS

9-5. Use fifty 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 9-4 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

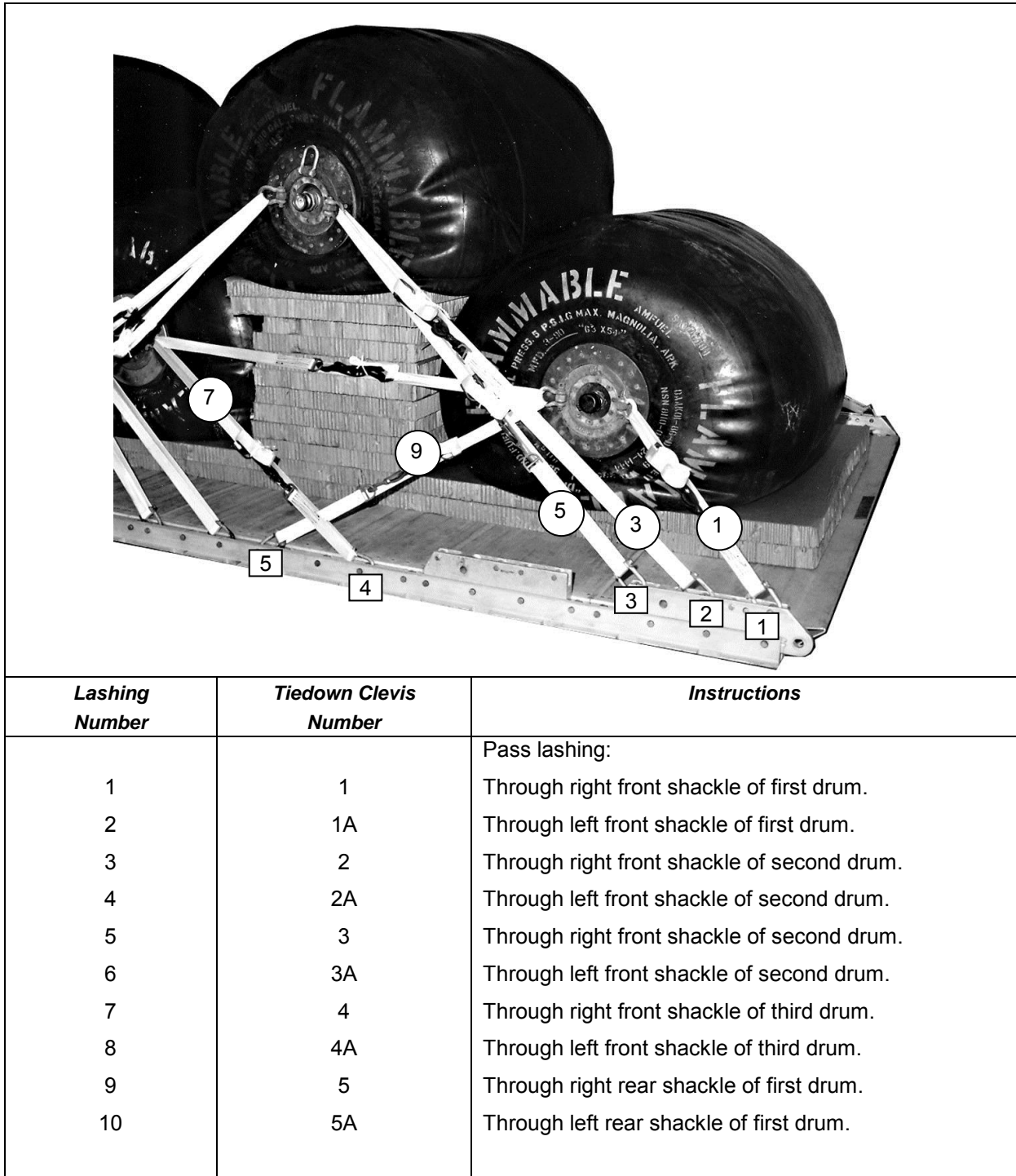
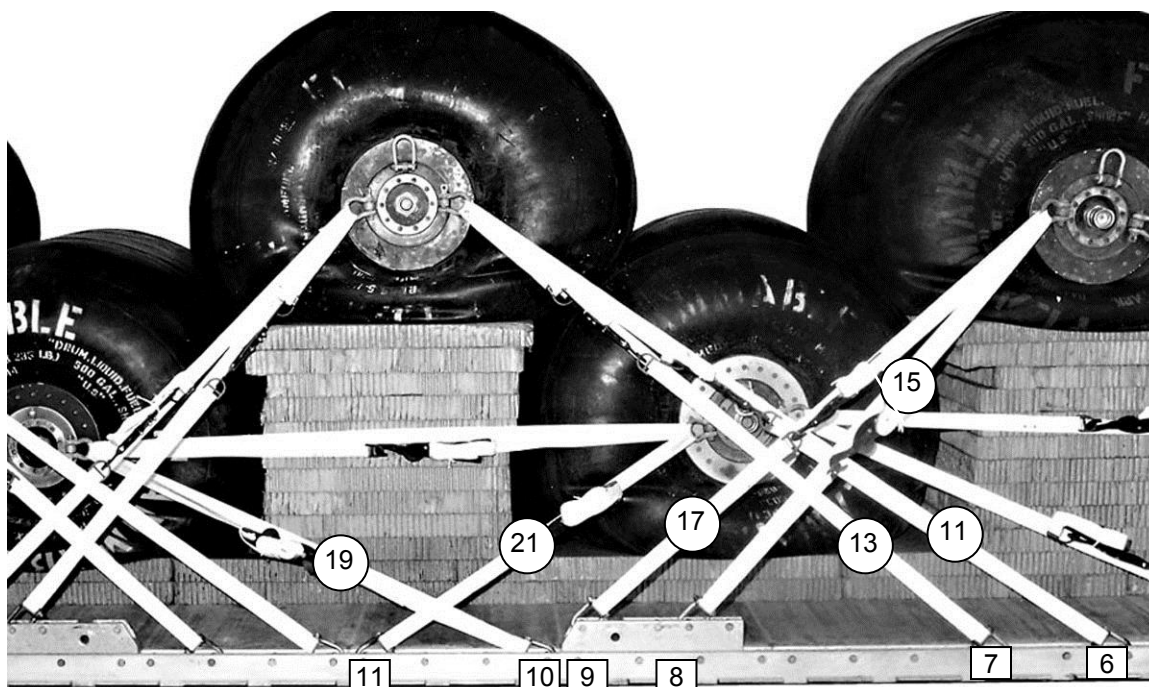
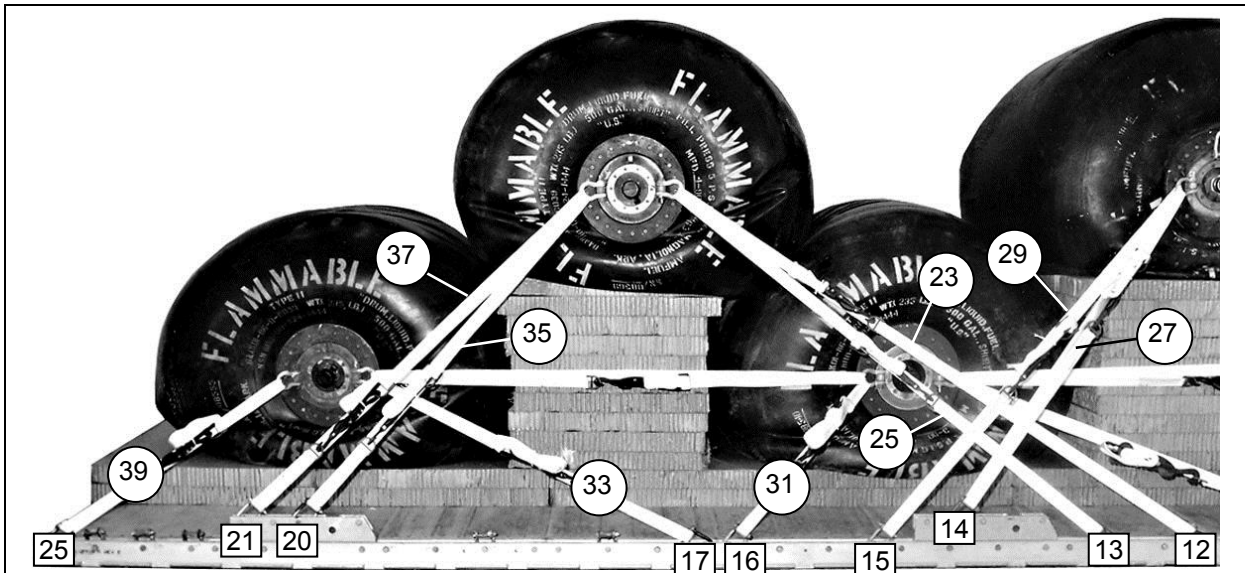


Figure 9-4. Fuel Drums Lashed to Platform



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
11	6	Pass lashing:
12	6A	Through right front shackle of fourth drum.
13	7	Through left front shackle of fourth drum.
14	7A	Through right front shackle of fourth drum.
15	8	Through left front shackle of fourth drum.
16	8A	Through right rear shackle of second drum.
17	9	Through left rear shackle of second drum.
18	9A	Through right rear shackle of second drum.
19	10	Through left rear shackle of second drum.
20	10A	Through right front shackle of fifth drum.
21	11	Through left front shackle of fifth drum.
22	11A	Through right rear shackle of third drum.
		Through left rear shackle of third drum.

Figure 9-4. Fuel Drums Lashed to Platform (continued)



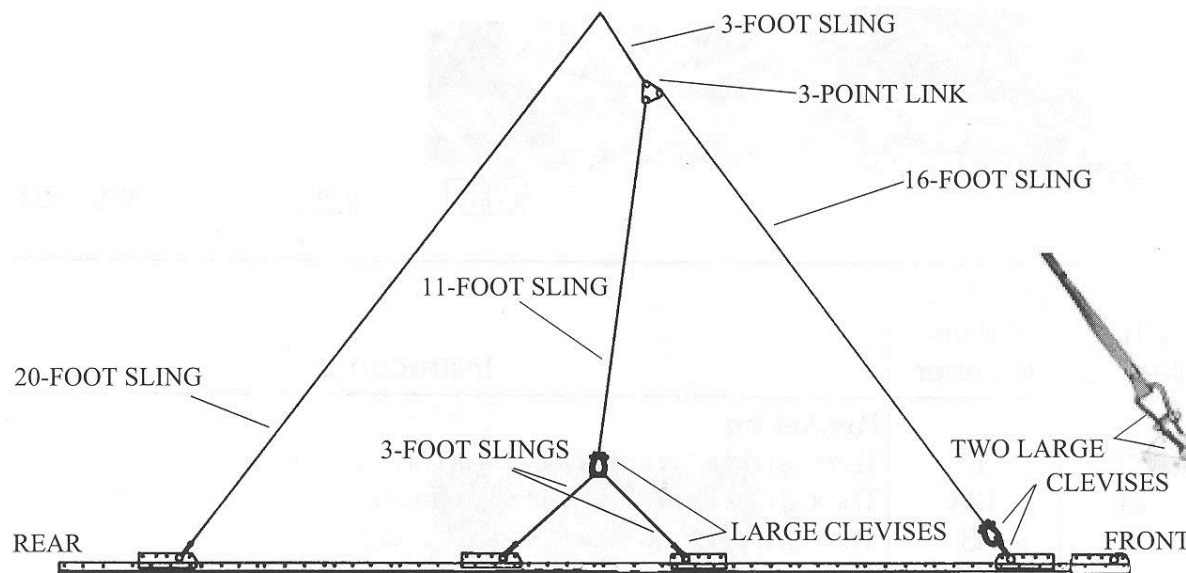
<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
23	12	Pass lashing:
24	12A	Through right front shackle of sixth drum.
25	13	Through left front shackle of sixth drum.
26	13A	Through right front shackle of sixth drum.
27	14	Through left front shackle of sixth drum.
28	14A	Through right rear shackle of fourth drum.
29	15	Through left rear shackle of fourth drum.
30	15A	Through right rear shackle of fourth drum.
31	16	Through left rear shackle of fourth drum.
32	16A	Through right rear shackle of fifth drum.
33	17	Through left rear shackle of fifth drum.
34	17A	Through right front shackle of seventh drum.
35	20	Through left front shackle of seventh drum.
36	20A	Through right rear shackle of sixth drum.
37	21	Through left rear shackle of sixth drum.
38	21A	Through right rear shackle of sixth drum.
39	25	Through left rear shackle of sixth drum.
40	25A	Through right rear shackle of seventh drum.
		Through left rear shackle of seventh drum.

Figure 9-4. Fuel Drums Lashed to Platform (continued)

INSTALLING AND SAFETYING SUSPENSION SLINGS

9-6. Install the components of the centerline suspension system according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 9-5. Safety the suspension slings as shown in Figure 9-6.

- Note.** 1. This drawing is not to scale.
 2. All slings are type XXVI nylon.
 3. Instructions are for one side of the load. Repeat for other side of the load.



Steps:

1. Place the end loop of a 20-foot (4-loop) sling in the bell portion of a large clevis. Bolt the clevis to the rear suspension link.
2. Attach a 3-foot (4-loop) sling to each center suspension link with a large clevis. Place both 3-foot slings in the bell portion of a large clevis. Place an end loop of an 11-foot (4-loop) sling through one spool of a three-point link. Place the other end loop of the 11-foot sling in the bolt of the large clevis.
3. Place the end loop of a 16-foot (4-loop) sling in the bell portion of a large clevis. Place the bolt of the clevis in the bell of a second large clevis. Bolt the second clevis to the front suspension link. Bolt the free end of the 16-foot sling to the three-point link on the center suspension sling. Bolt a 3-foot (4-loop) sling to the remaining spool of the three-point link.

Figure 9-5. Suspension Slings Installed

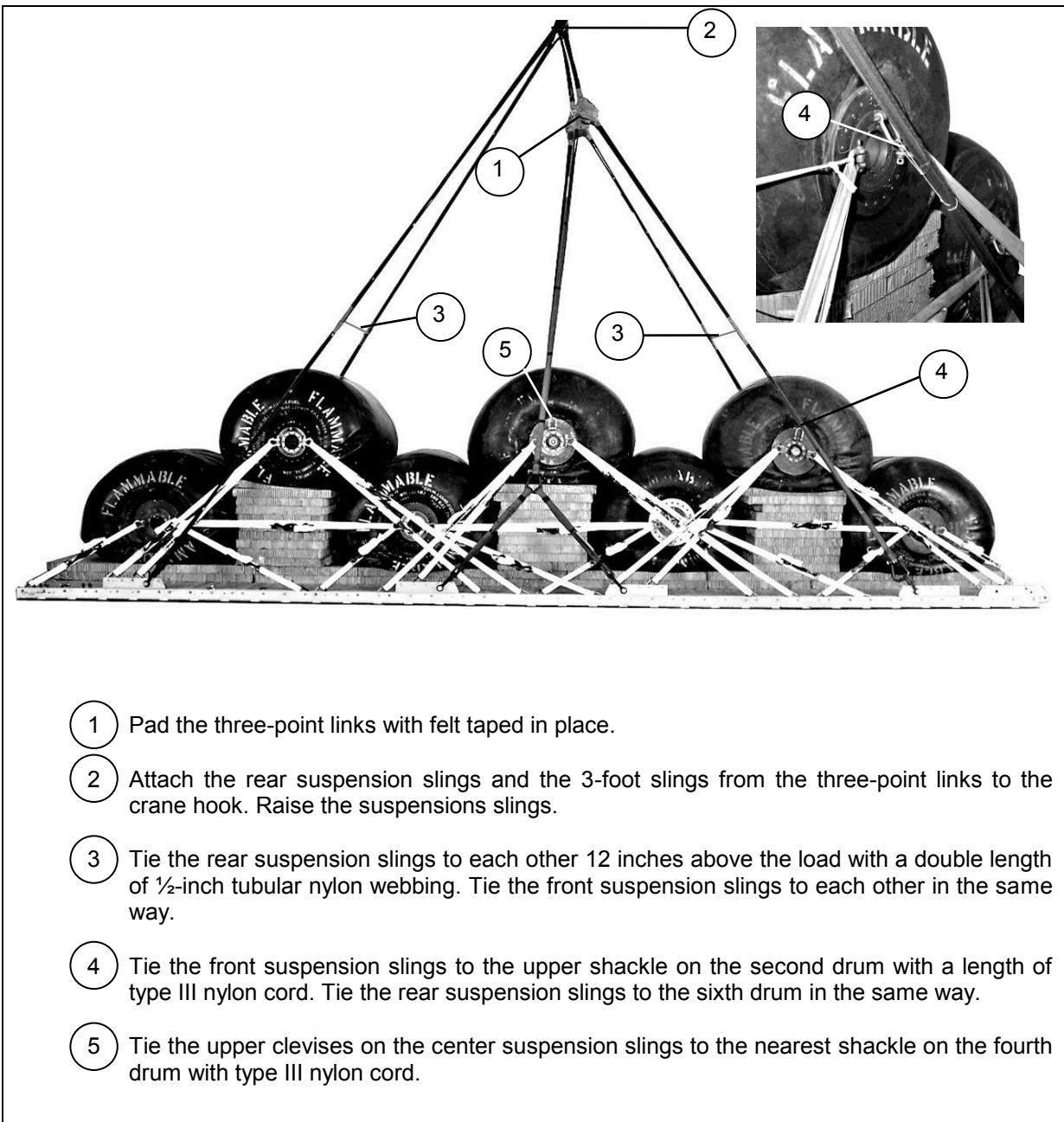
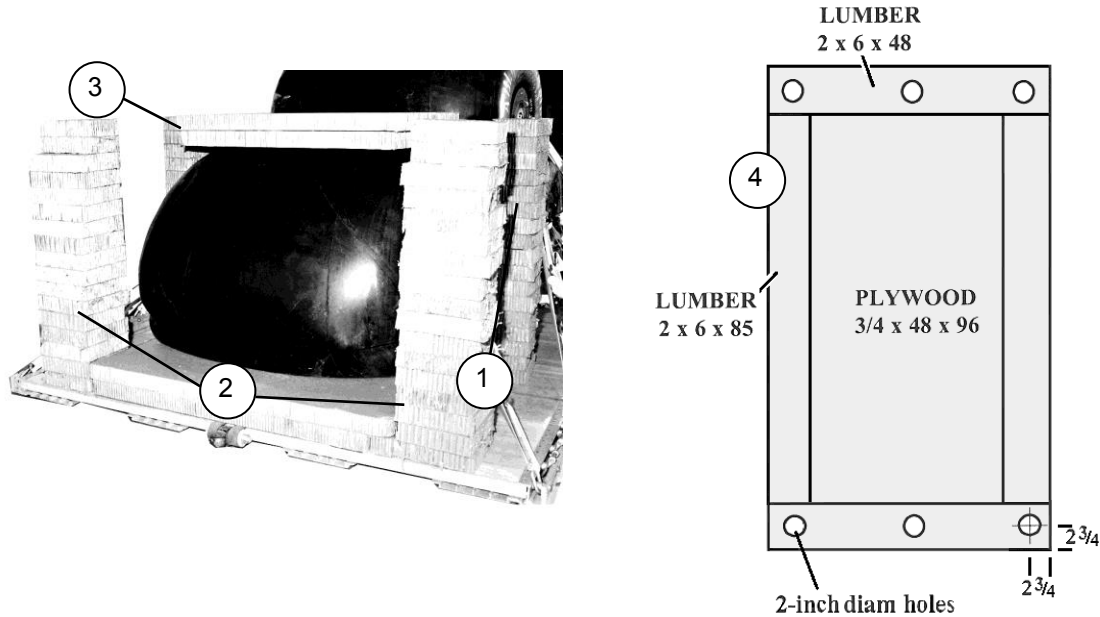


Figure 9-6. Suspension Slings Safetied

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

9-7. Build the parachute stowage platform and its supports as shown in Figure 9-7. Lash the parachute stowage platform to the load with four 15-foot lashings as shown in Figure 9-8.

Note: 1. These drawings are not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



- 1 Make two 17 layer stacks of 8- by 8-inch honeycomb. Place one stack on each side flush with the edge of the honeycomb supporting the rear drum and 29 inches from the rear edge of the platform.
- 2 Make two 15 layer stacks of 12- by 12-inch honeycomb. Glue two 8- by 8-inch pieces of honeycomb on top of each stack flush with the inside front corners. Place the stacks on each side of the rear drum flush with the rear edge of the honeycomb base layer.
- 3 Center one or two 48- by 26-inch piece of honeycomb over the rear drum.
- 4 Build the parachute stowage platform as shown. Nail the 2- by 6-inch piece of lumber to the edges of the plywood and drill 2-inch holes for the lashings.

Figure 9-7. Supports Placed and Parachute Stowage Platform Constructed

INSTALLING CARGO PARACHUTES

9-8. Install seven G-11 cargo parachutes as shown in Figure 9-9 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

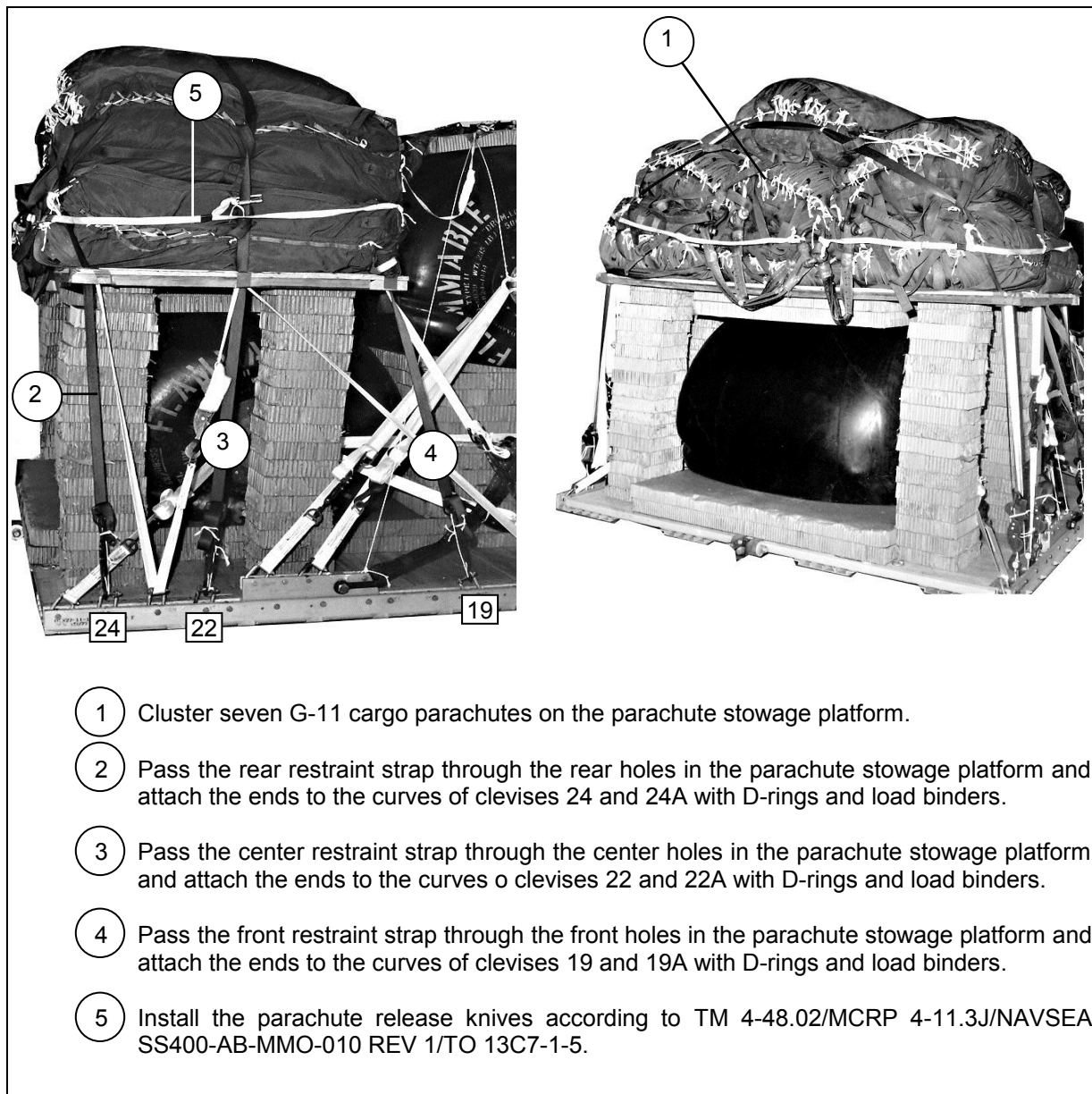
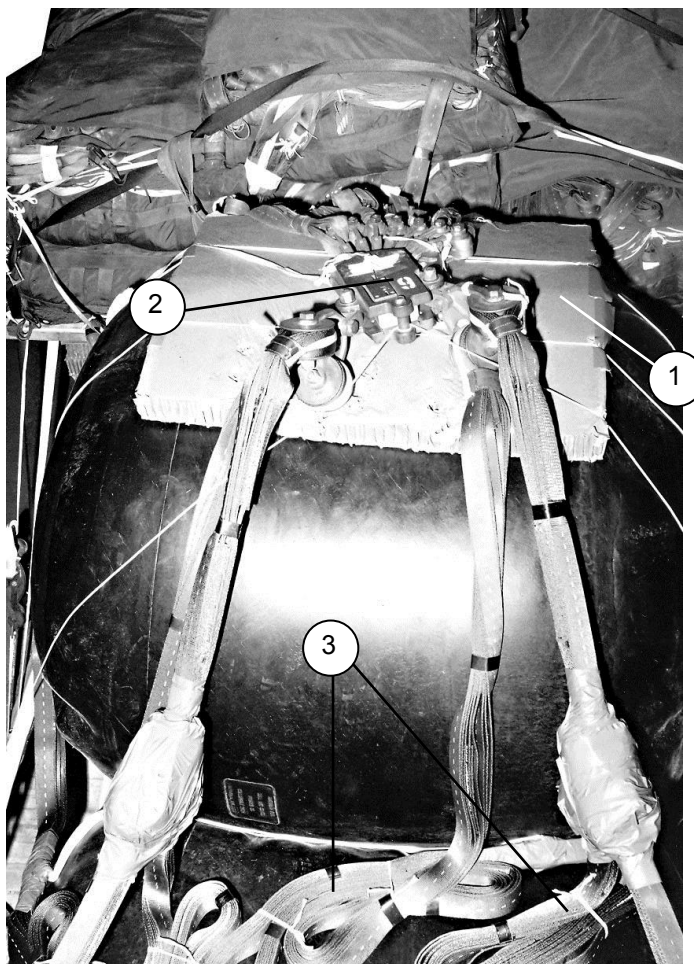


Figure 9-9. G-11 Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

9-9. Prepare and install an M-2 cargo parachute release as shown in Figure 9-10 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.



- 1 Center a 36- by 36-inch piece of honeycomb over the fourth drum. Secure the honeycomb to the platform with type III nylon cord.
- 2 Attach the suspension slings and the riser extensions to the M-2 release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the release to the platform with type III nylon cord.
- 3 S-fold the suspension slings and tie the folds with type I, 1/4-inch cotton webbing.

Figure 9-10. M-2 Release Installed

INSTALLING EXTRACTION SYSTEM

9-10. Prepare and install the extraction force transfer coupling extraction system as shown in Figure 9-11 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

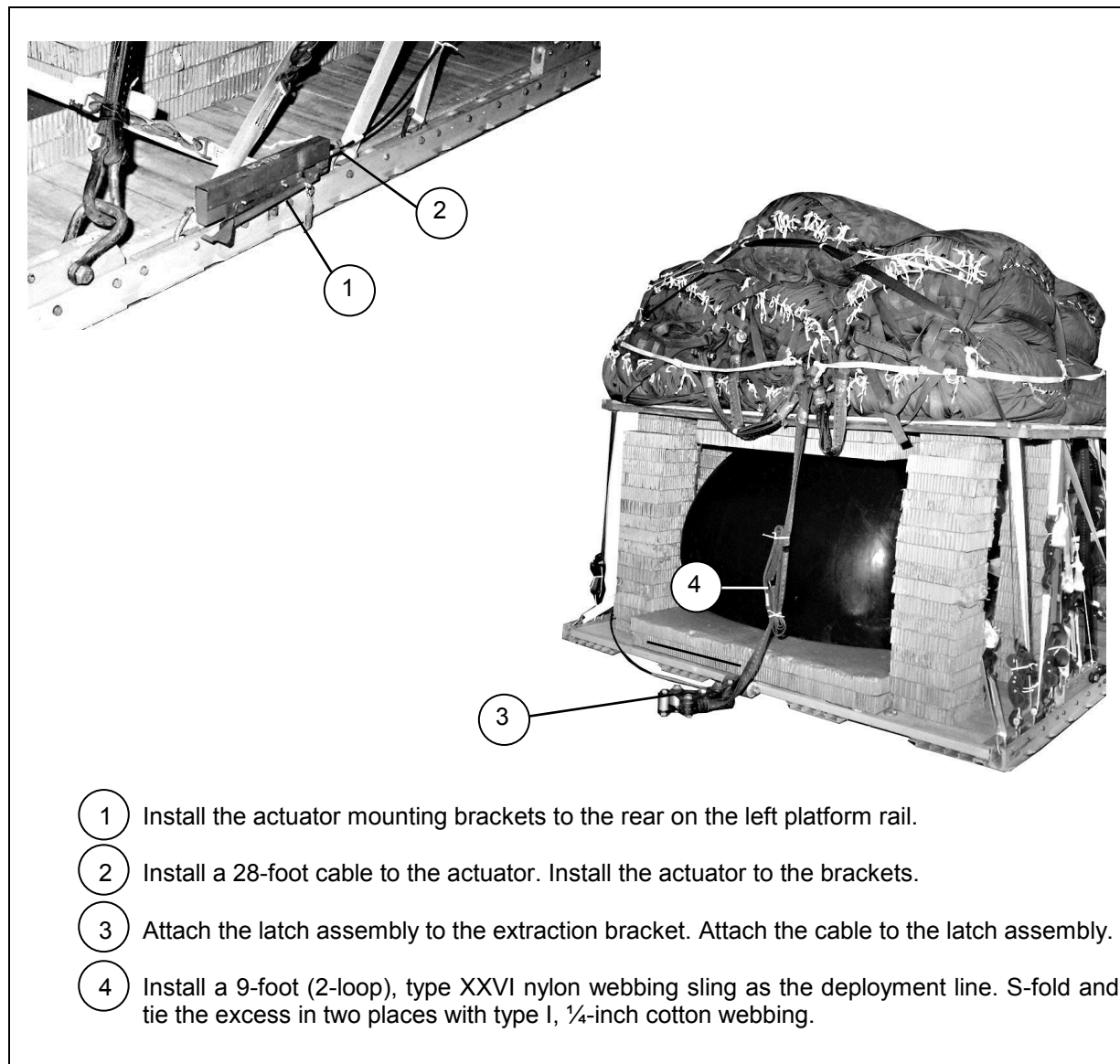


Figure 9-11. Extraction Force Transfer Coupling Installed

PLACING EXTRACTION PARACHUTE

9-11. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

9-12. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

9-13. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 9-12. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

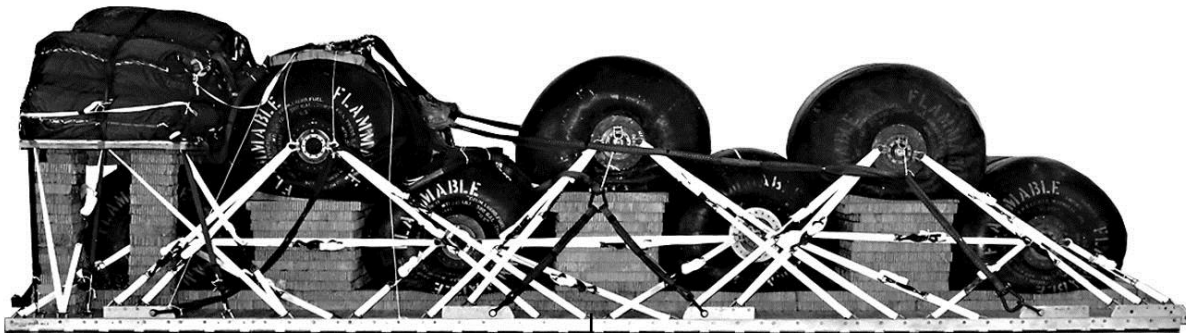
The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

EQUIPMENT REQUIRED

9-14. Use the equipment listed in Table 9-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	24,781 pounds
Maximum load allowed.....	31,735 pounds
Height.....	90 inches
Width	108 inches
Length	336 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)	
.....	176 inches
Extraction System	Extraction Force Transfer Coupler

Figure 9-12. Seven Drums Rigged on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 9-1. Equipment Required for Rigging Seven Drums without Pumping Assembly on a 28-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	16
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-01-326-7309	Coupling, airdrop, extraction force transfer w/ cable, 28-foot	1
1670-00-360-0328	Cover:	1
8305-00-958-3685	Clevis, large	
1670-01-183-2678	Felt, ½-inch thick	As required
	Leaf, extraction line (line bag)	2
1670-01-062-6313	Line, drogue (for C-17)	
	60-foot (3-loop), type XXVI	1
1670-01-064-4454	Line, extraction:	
NO NSN	60-foot (6-loop), type XXVI (for C-130)	
	140-foot (6-loop), type XXVI (C-17)	1
1670-01-307-0155	Link assembly:	1
1670-00-783-5988	Three-point	
1670-00-006-2752	Type IV	2
	Four-point	8
5510-00-220-6148	Lumber	1
	2- by 6- by:	
	25 ½-inch	2
5510-00-220-6148	41 ½-inch	2
	2- by 6- by:	
	85-inch	2
5315-00-010-4659	48-inch	2
1670-00-753-3928	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	32 sheets
	Parachute:	
1670-01-016-7841	Cargo:	
	G-11C	7
1670-00-040-8135	Cargo extraction:	
	28-foot	2
1670-01-063-3715	Drogue (for C-17)	
	15-foot	1

Table 9-1. Equipment Required for Rigging Seven Drums without Pumping Assembly on a 28-Foot, Type V Airdrop Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
	Platform, airdrop, type V, 28-foot	
1670-01-353-8425	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	5
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	2
1670-01-247-2389	Suspension link	8
5530-00-128-4981	Plywood, ¾- by 48-by 96-inches	1 sheet
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	6
1670-01-062-6310	11-foot (4-loop), type XXVI nylon webbing	2
1670-01-062-6308	16-foot (4-loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4-loop)m type XXVI nylon webbing	2
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2-loop), type XXVI nylon webbing	7
5340-00-040-8219	Strap, parachute release, multicut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	46
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-261-8584	Type X	As required

Chapter 10

Rigging Seven Drums with Pumping Assembly on a 28-Foot Platform

DESCRIPTION OF LOAD

10-1. Seven drums are rigged on a 28-foot, type V platform filled with 432 gallons of gasoline, each drum weighs 2,842 pounds and is 62 inches long and 53 inches in diameter. An empty drum weighs 250 pounds.

Note. Fill drums with no more than 432 gallons fuel. If the drums are filled with a fuel other than gasoline, the drum weight must be computed.

PREPARING PLATFORM

10-2. Prepare a 28-foot, type V airdrop platform using two tandem links, eight suspension links, and 54 clevises as shown in Figure 10-1.

Note. 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.

WARNING

Do not add air to drums. Pressurization changes will cause leaking or bursting.

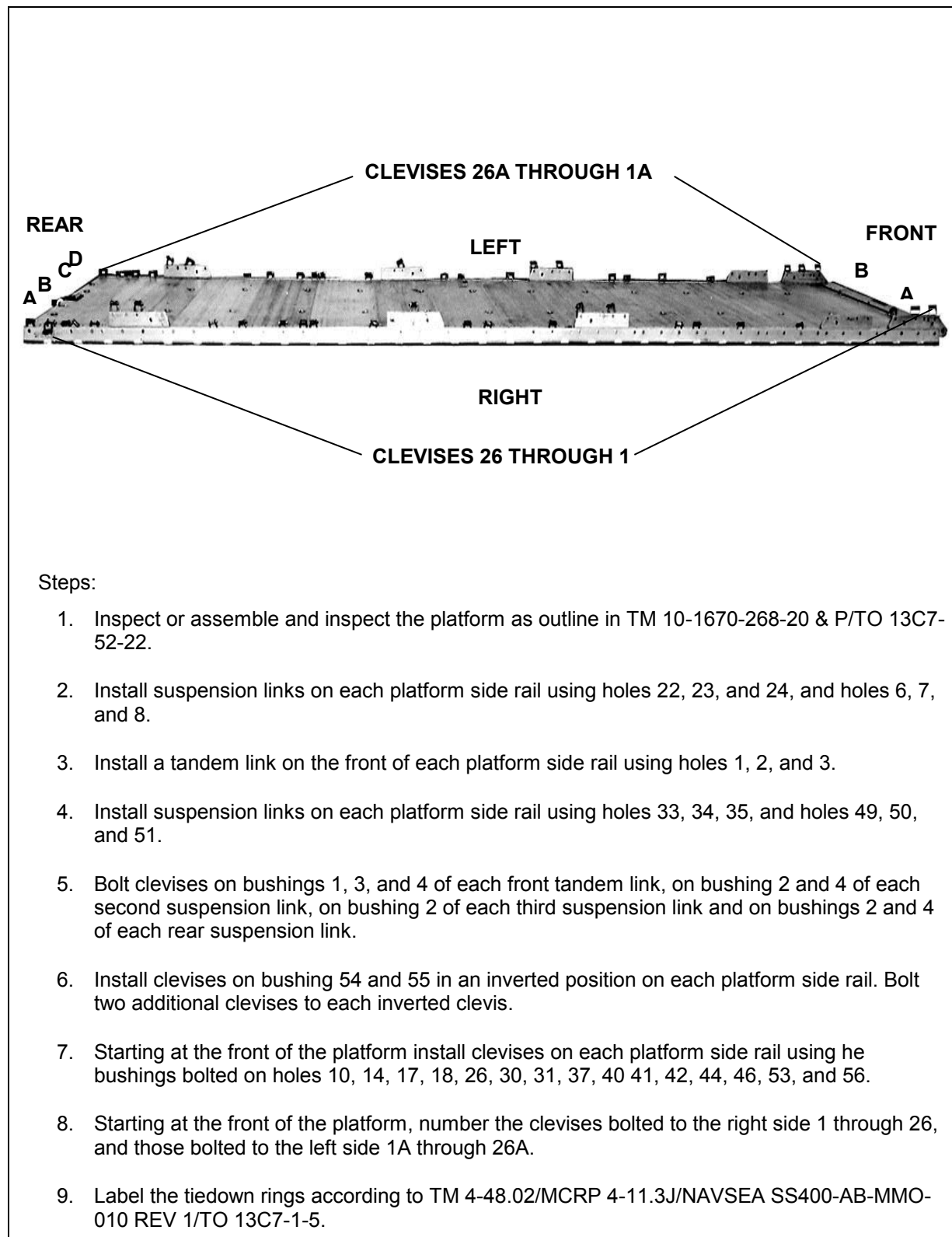
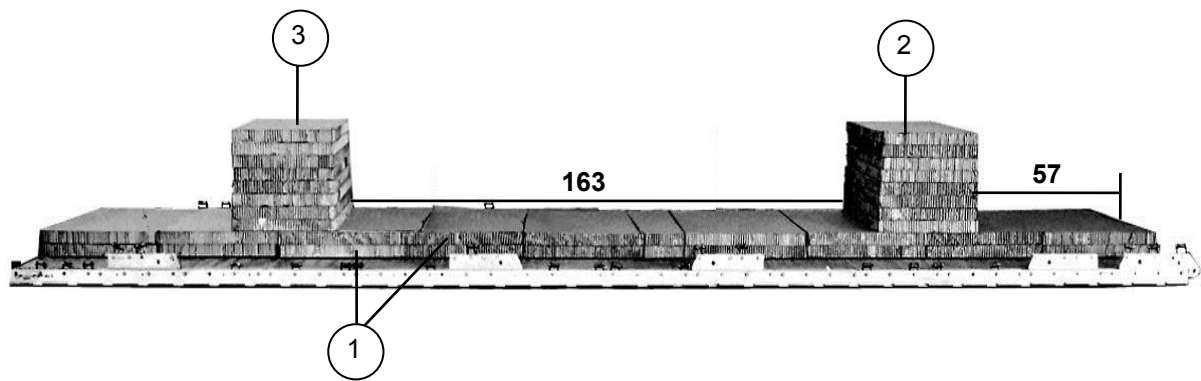


Figure 10-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

10-3. Prepare and position the honeycomb stacks as shown in Figure 10-2.

Note: All dimensions are in inches.



- ① Use 18 pieces of 36- by 60-inch honeycomb and two 12- by 60-inch pieces of honeycomb to form a two-layer stack 336 inches long and 60 inches wide. Center the stack on the platform flush with the front edge.

Note. Place the 12-inch section inside the stack.

- ② Make two 8-layer stacks of 60- by 30-inch honeycomb. Center a stack on the base layer 57 inches from the front edge of the base.
- ③ Center the other 8-layer stack of honeycomb on the base layers 163 inches to the rear of the stack placed in step 2 above.

Figure 10-2. Honeycomb Stack Positioned

INSTALLING LIFTING SLINGS AND POSITIONING DRUMS

10-4. Lift the drums and position them on the honeycomb as shown in Figure 10-3.

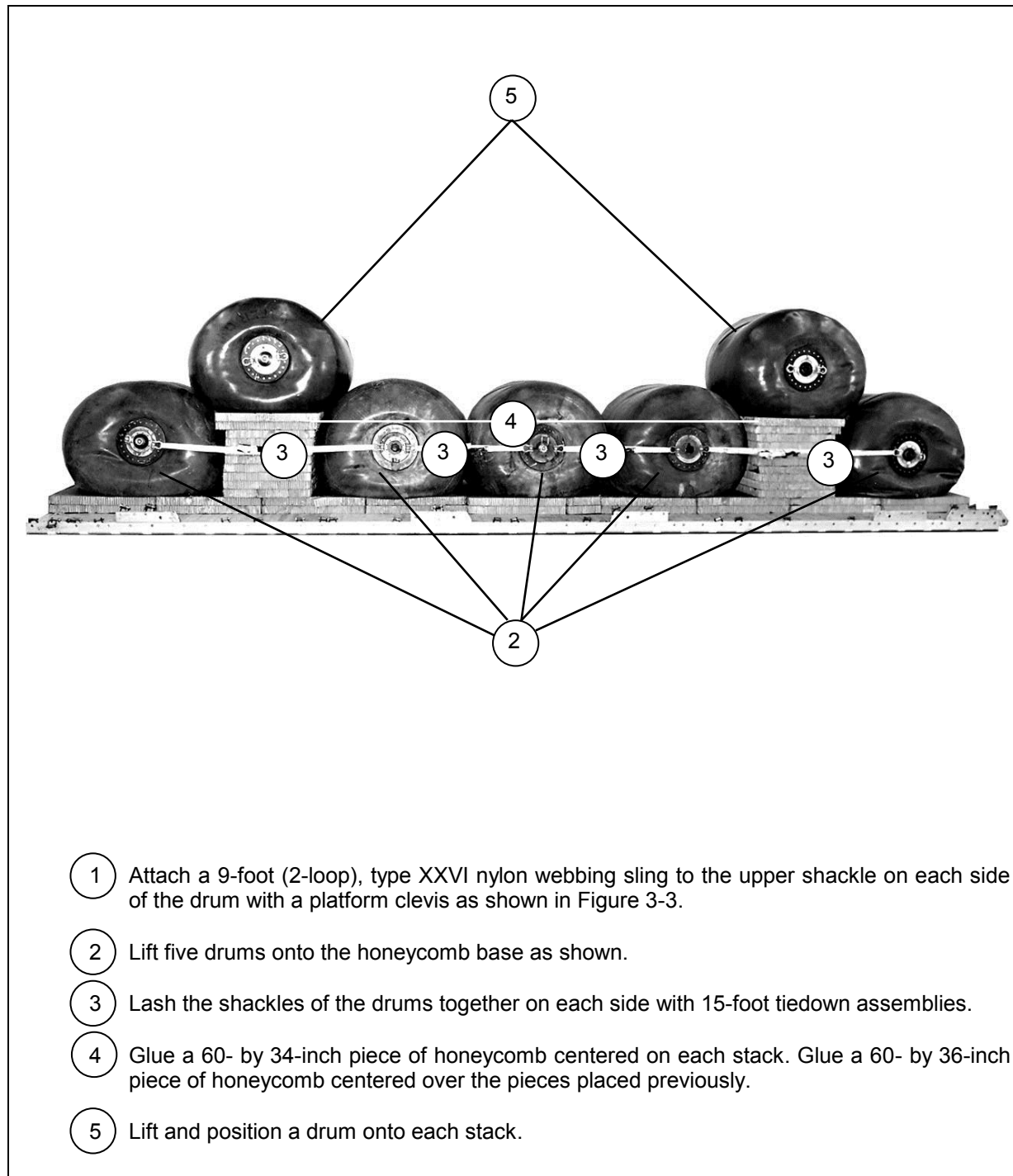


Figure 10-3. Fuel Drums Positioned

LASHING DRUMS

10-5. Use thirty-eight 15-foot tiedown assemblies to lash the fuel drums to the platform as shown in Figure 10-4 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

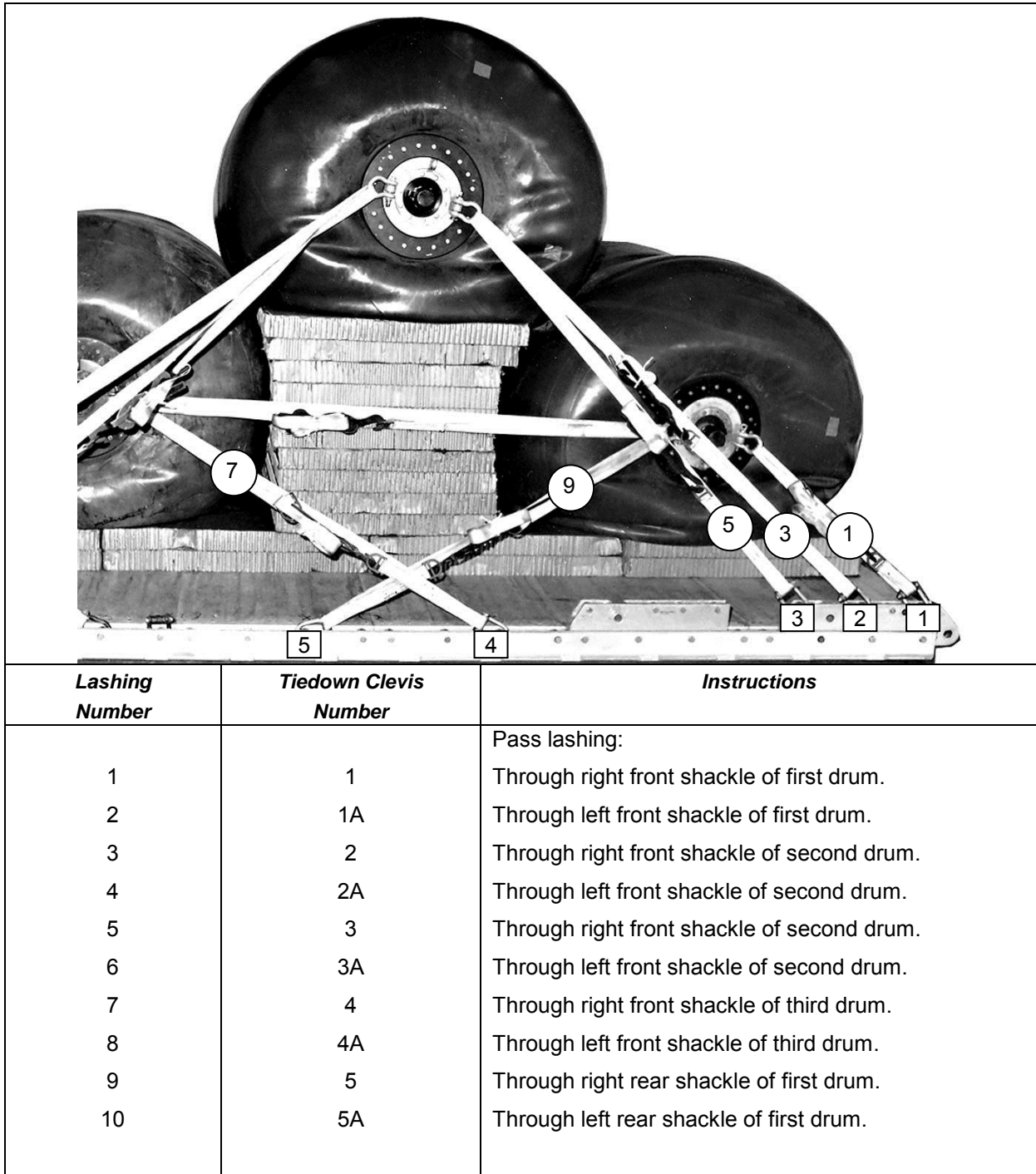
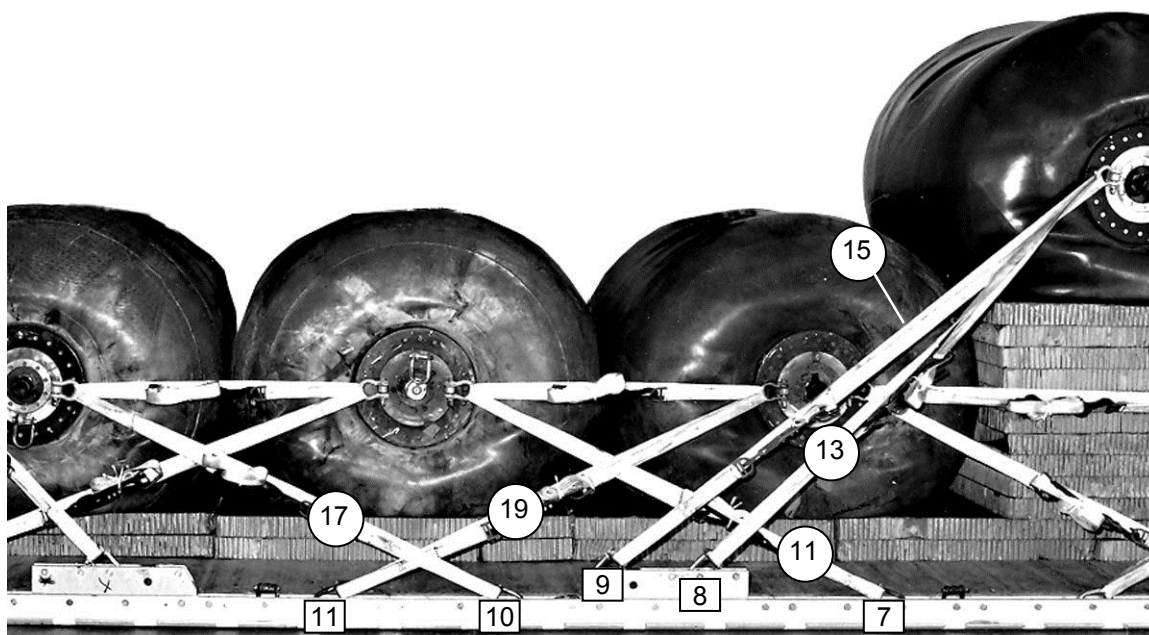


Figure 10-4. Fuel Drums Lashed to Platform



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
11	7	Pass lashing: Through right front shackle of fourth drum.
12	7A	Through left front shackle of fourth drum.
13	8	Through right rear shackle of second drum.
14	8A	Through left rear shackle of second drum.
15	9	Through right rear shackle of second drum.
16	9A	Through left rear shackle of second drum.
17	10	Through right front shackle of fifth drum.
18	10A	Through left front shackle of fifth drum.
19	11	Through right rear shackle of third drum.
20	11A	Through left rear shackle of third drum.

Figure 10-4. Fuel Drums Lashed to Platform (continued)

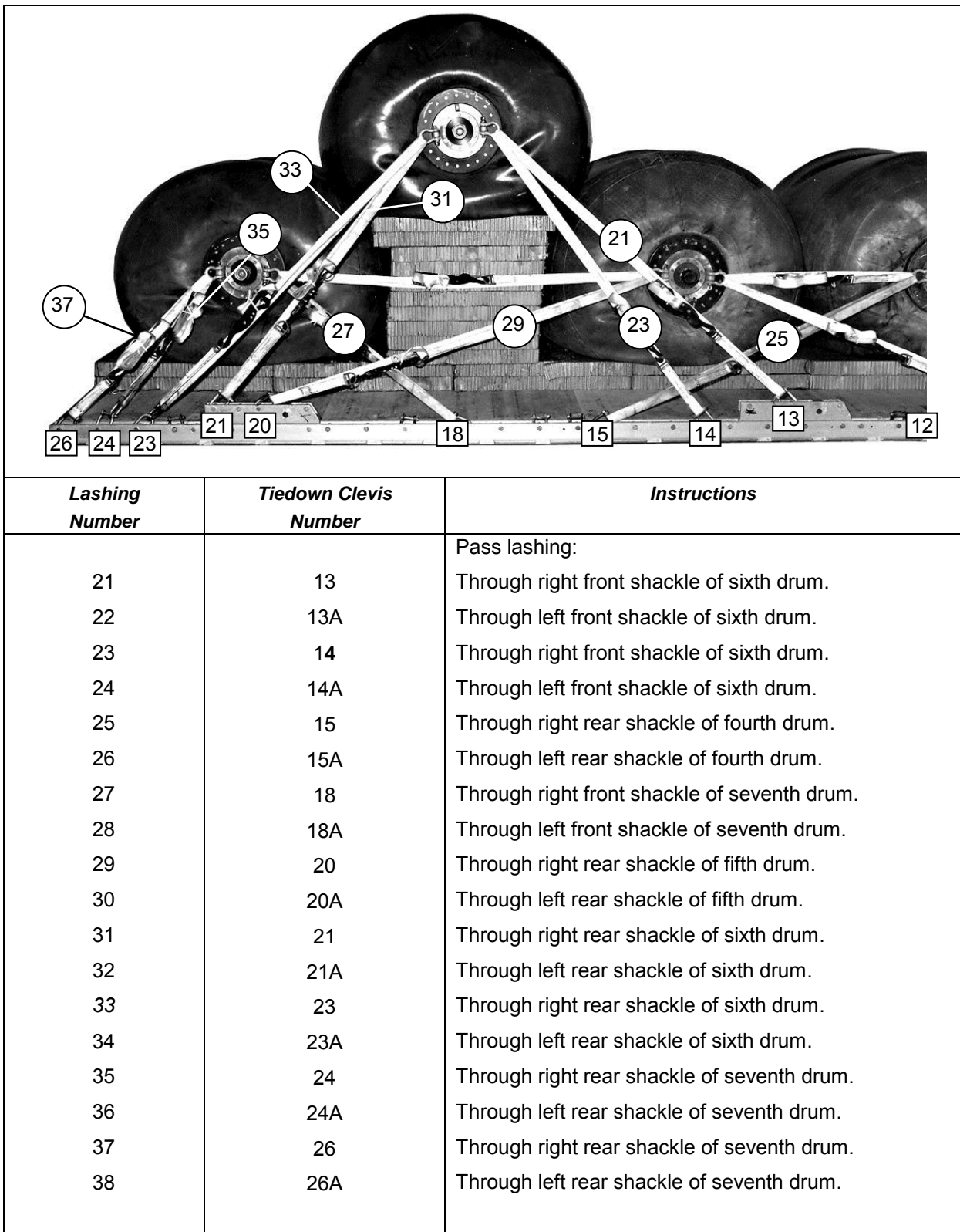


Figure 10-4. Fuel Drums Lashed to Platform (continued)

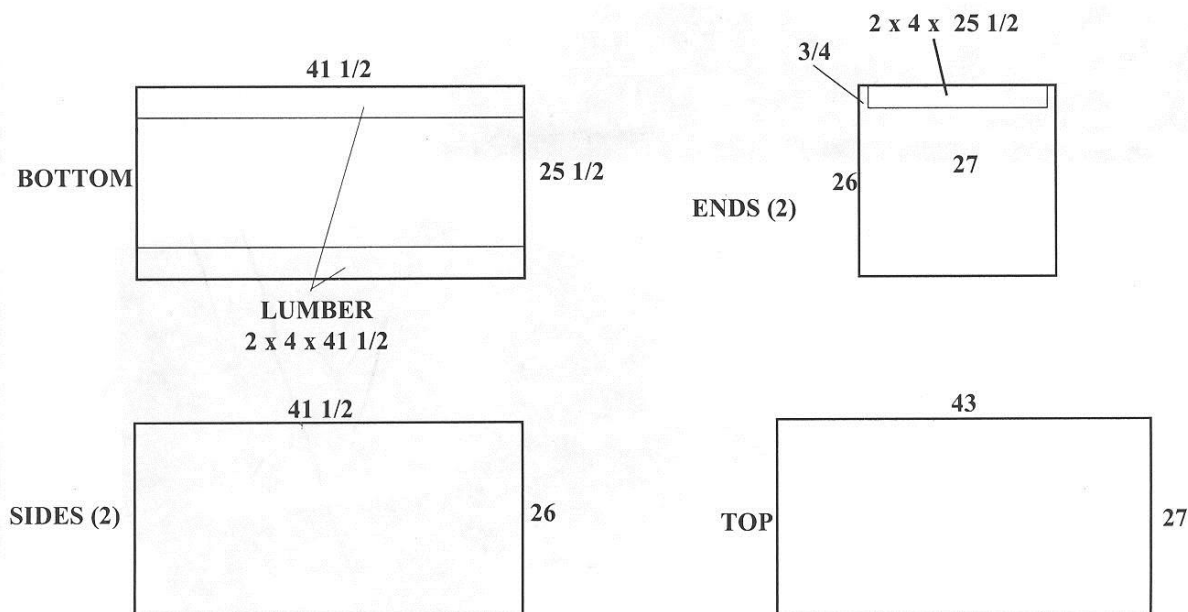
PREPARING PUMP ASSEMBLY

10-6. Build the box for the pump assembly as shown in Figure 10-5. Pack the pump assembly and hoses in the box as shown in Figure 10-6.

LASHING PUMP ASSEMBLY TO PLATFORM

10-7. Place the pump assembly box on the load and lash it to the platform as shown in Figure 10-7.

Note. 1. This drawing is not to scale.
2. Use 8-penny nails.
3. All dimensions are in inches.



Steps:

1. Cut the bottom of the box from 3/4-inch plywood 41 1/2 inches long and 25 1/2 inches wide. Nail a 41 1/2-inch length of 2- by 4-inch lumber flat side down and flush along each long edge of the bottom. The top of the box is 43- by 27 inches.
2. Cut the sides of the box from 3/4-inch plywood 41 1/2 inches long and 26 inches high. Place the sides flush with the bottom. Nail into the 2- by 4-inch pieces of lumber.
3. Cut the ends of the box from 3/4-inch plywood 27 inches wide and 26 inches high. Nail a piece of 2- by 4-inch lumber flat side down, centered, and flush with the top edge of each end piece. Nail the ends flush to the bottom and sides. Nail the sides to the 2- by 4-inch pieces of lumber on the ends.

Figure 10-5. Pump Assembly Box Built

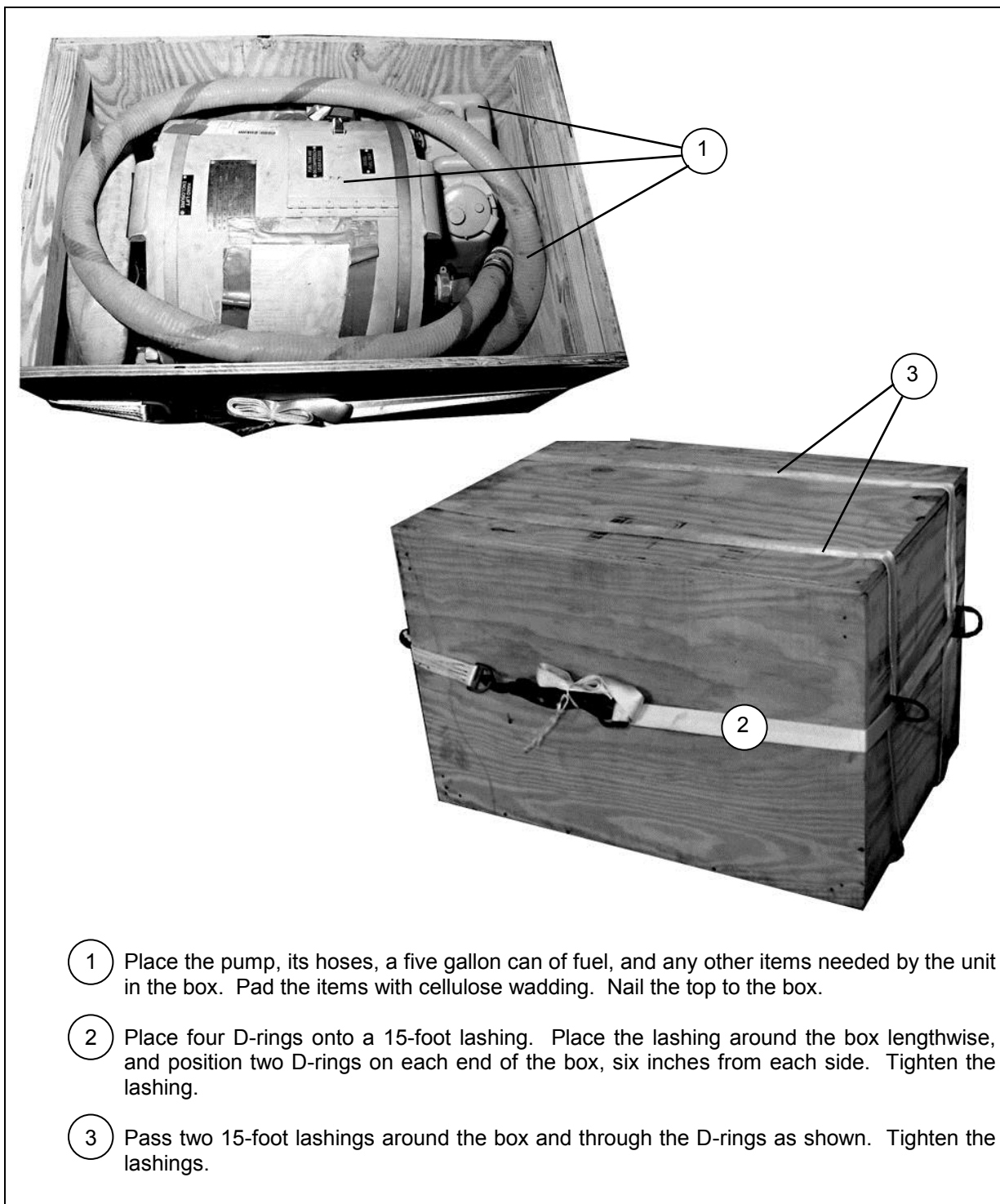
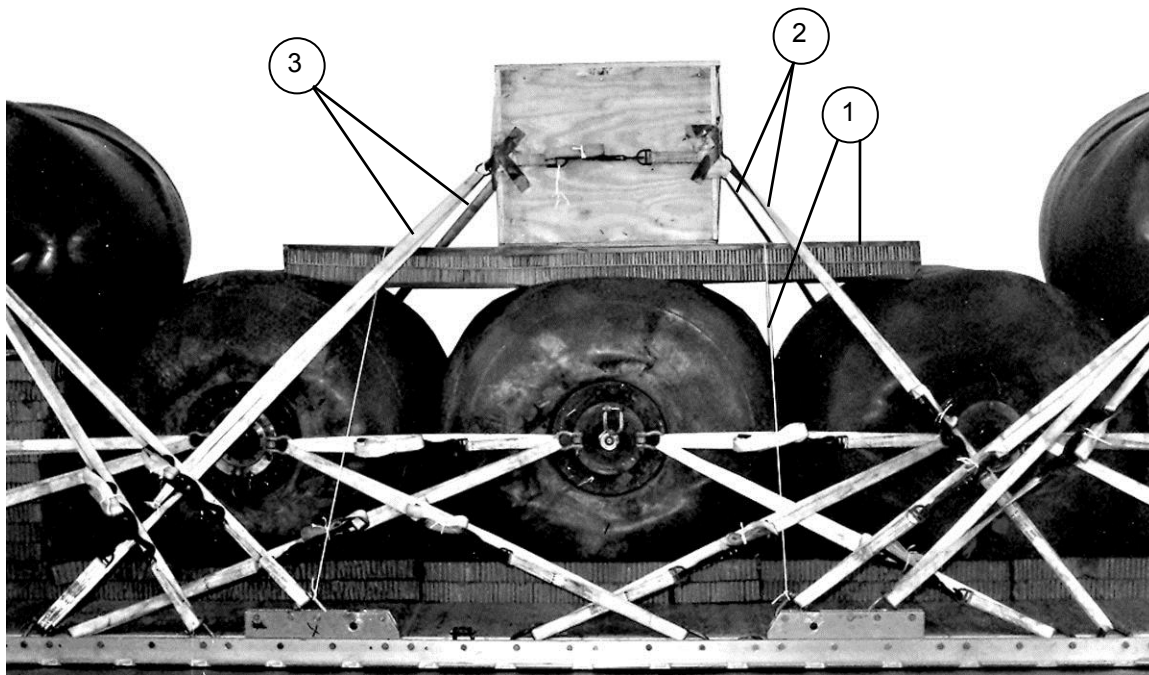


Figure 10-6. Pump Assembly Box Packed



- ① Center two 96- by 36-inch pieces of honeycomb over the third, fourth, and fifth drums. Tape the edges of the honeycomb and secure the honeycomb to the load with type III nylon cord. Center the pump box on the honeycomb with D-rings facing the front and rear.
- ② Lash the right front D-ring on the box to clevis 6. Lash the left front D-ring to clevis 6A.
- ③ Lash the right rear D-ring on the box to clevis 16. Lash the left rear D-ring to clevis 16A.

Figure 10-7. Pump Assembly Box Lashed to Platform

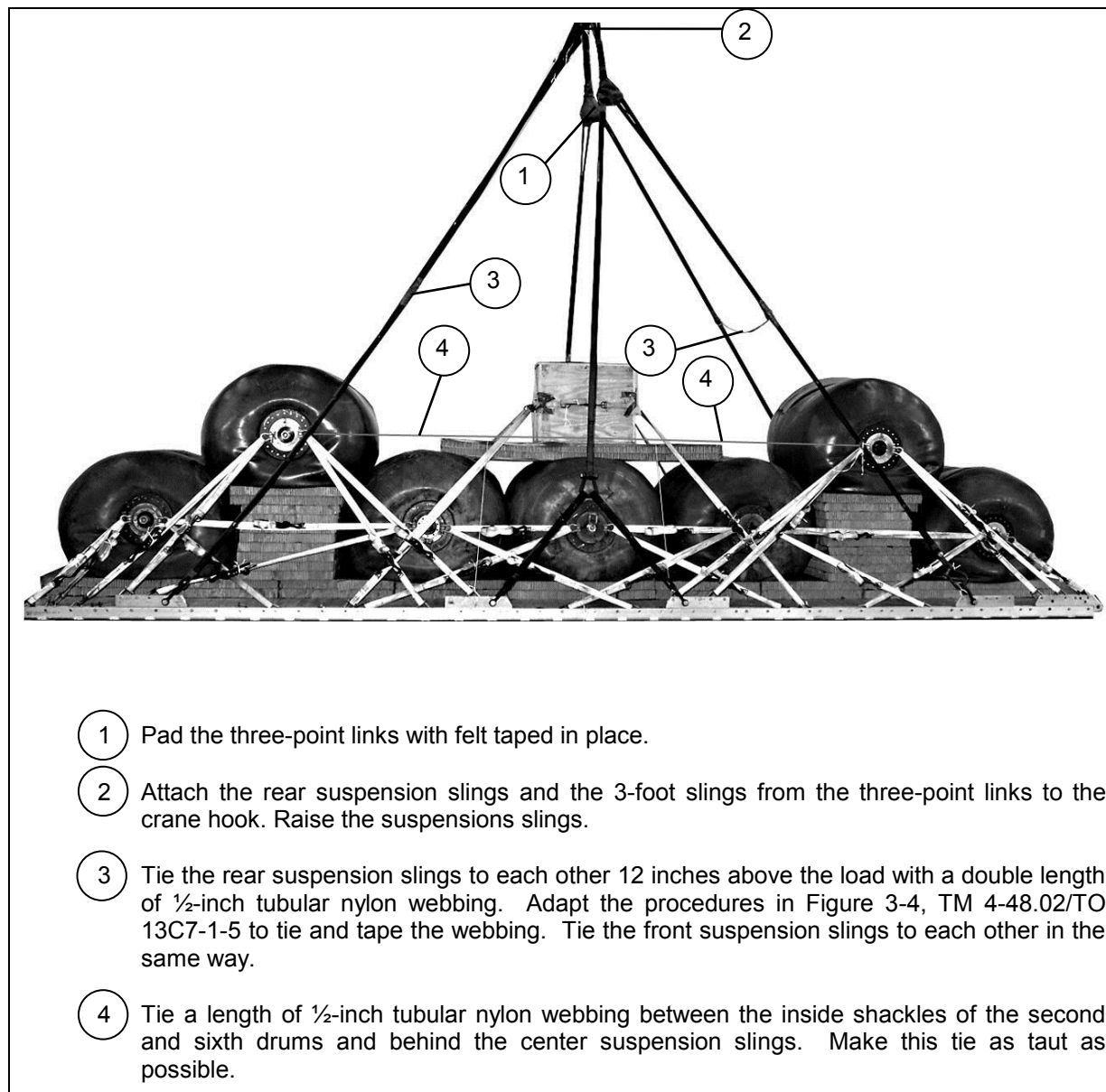
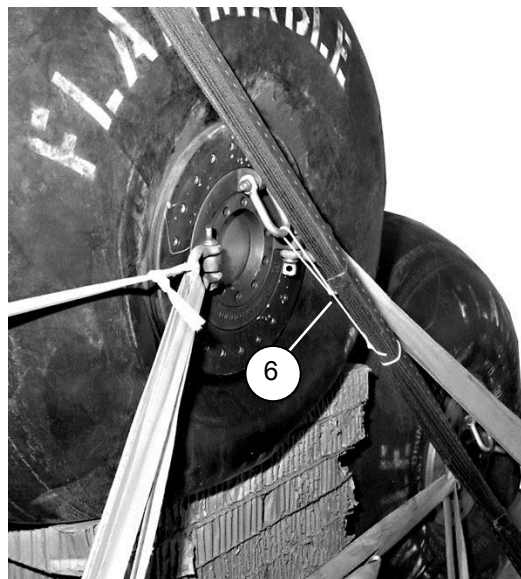
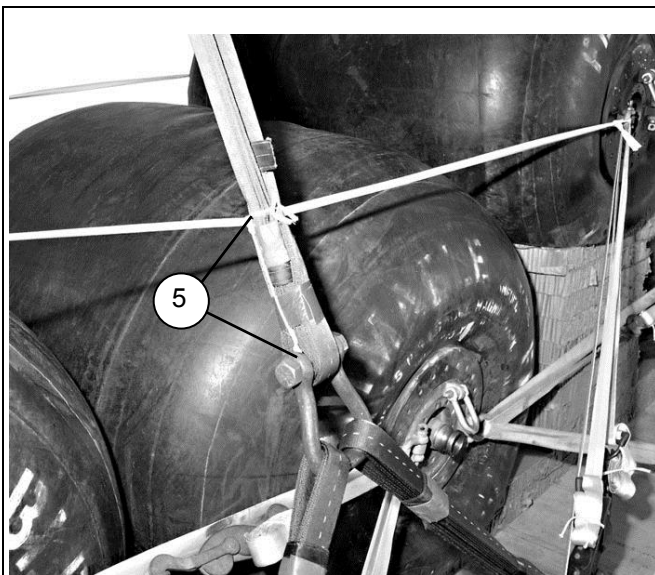


Figure 10-9. Suspension Slings Safetied



- 5 Pass a length of $\frac{1}{4}$ -inch, type I cotton webbing through the plies of the center suspension slings at the clevis bolt. Pass the ends up and over the $\frac{1}{2}$ -inch tubular nylon webbing placed in step 4 so that the nylon webbing is kept in a horizontal position. Tie the cotton webbing to the outside of the slings.
- 6 Tie the front suspension slings to the upper shackle on the second drum with a length of type III nylon cord. Tie the rear suspension slings to the sixth drum in the same way.

Figure 10-9. Suspension Slings Safetied (continued)

BUILDING AND LASHING PARACHUTE STOWAGE PLATFORM

10-9. Build the parachute stowage platform and its supports as shown in Figure 9-7. Lash the parachute stowage platform to the load with four 15-foot lashings as shown in Figure 10-10.

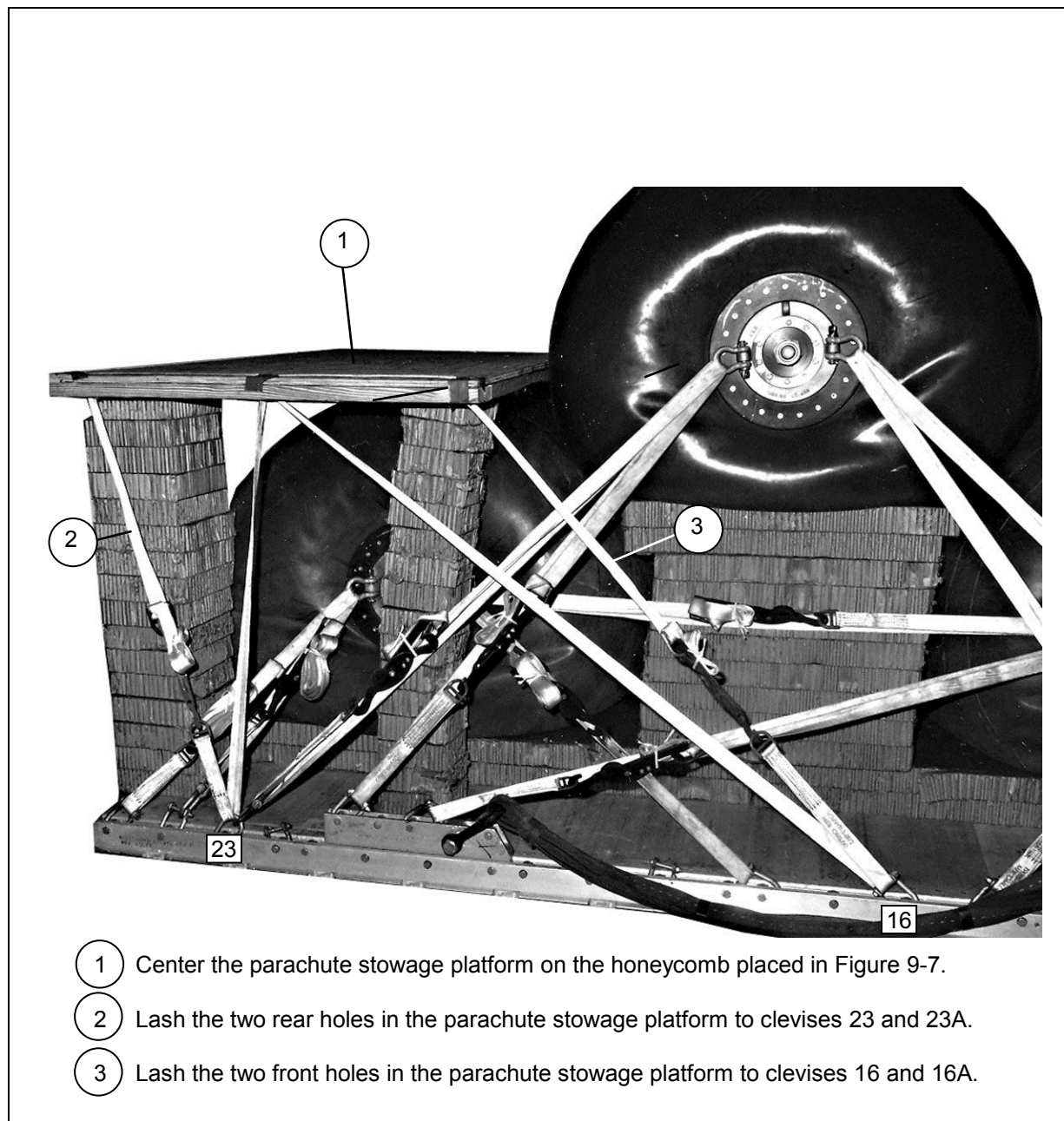


Figure 10-10. Parachute Stowage Platform Lashed to Platform Rails

INSTALLING CARGO PARACHUTES

10-10. Install seven G-11 cargo parachutes as shown in Figure 10-11 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

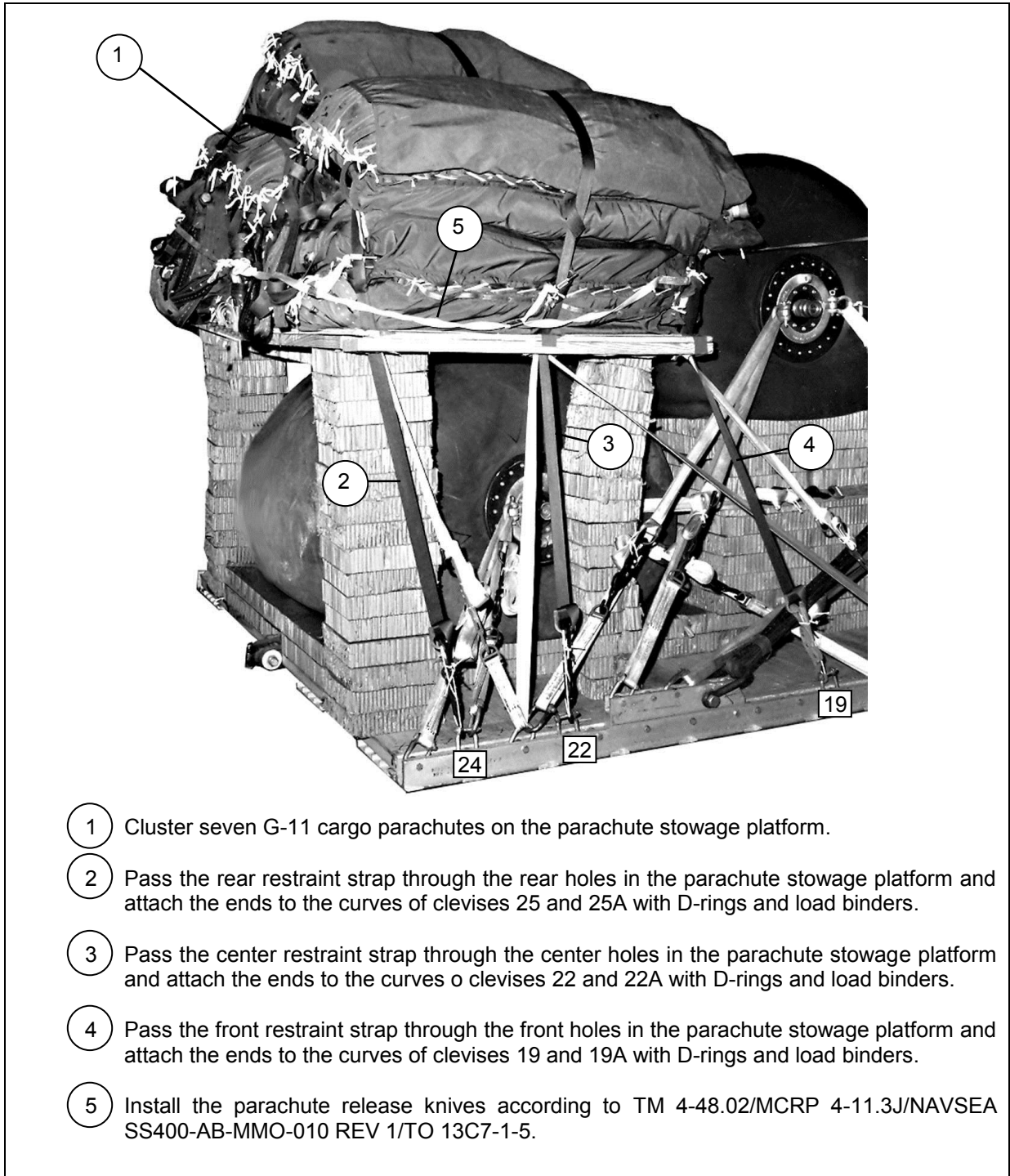
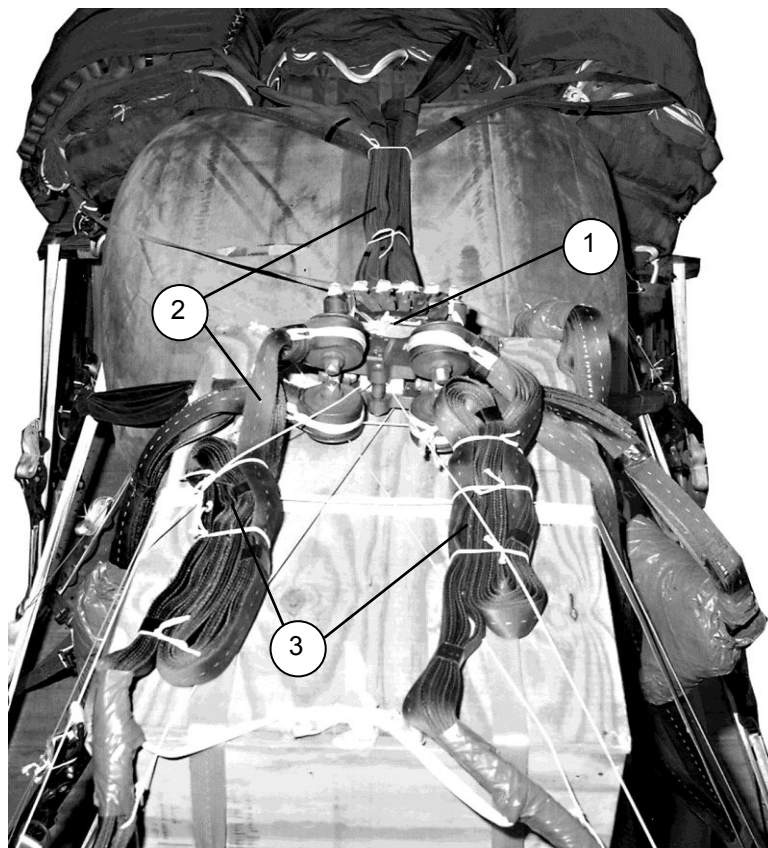


Figure 10-11. G-11 Cargo Parachutes Installed

INSTALLING PARACHUTE RELEASE

10-11. Prepare and install an M-2 cargo parachute release as shown in Figure 10-12 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.



- ① Center a 36- by 36-inch piece of honeycomb over the fourth drum. Secure the honeycomb to the platform with type III nylon cord.
- ② Attach the suspension slings and the riser extensions to the M-2 release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the release to the platform with type III nylon cord.
- ③ S-fold the suspension slings and tie the folds with type I, 1/4-inch cotton webbing.

Figure 10-12. M-2 Release Installed

INSTALLING EXTRACTION SYSTEM

10-12. Prepare and install the extraction force transfer coupling extraction system as shown in Figure 9-11 and according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

PLACING EXTRACTION PARACHUTE

10-13. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Place the extraction parachute and line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

10-14. Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

10-15. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 10-13. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

CAUTION

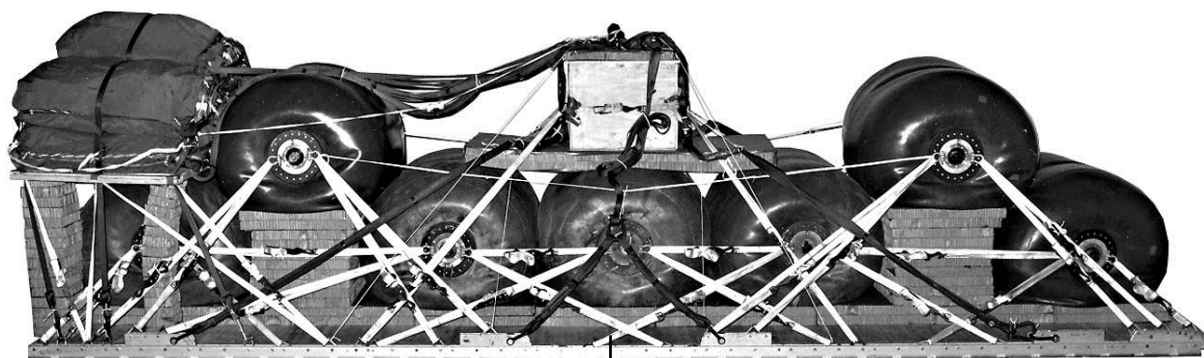
The load weight may vary from the one shown depending upon the fuel rigged. Be sure that the load is weighed, and the parachute requirements, CB, and tip-off curve recomputed.

EQUIPMENT REQUIRED

10-16. Use the equipment listed in Table 10-1 to rig this load.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	25,081 pounds
Maximum load allowed.....	32,135 pounds
Height.....	90 inches
Width	108 inches
Length	336 inches
Overhang: Front	5 inches
Rear	17 inches
Center of Balance (CB) (from front edge of platform)	
.....	176 inches
Extraction System	Extraction Force Transfer Coupler

Figure 10-13. Seven Drums Rigged on a 24-Foot, Type V Airdrop Platform for Low-Velocity Airdrop

Table 10-1. Equipment Required for Rigging Seven Drums with Pumping Assembly on a 28-Foot, Type V Platform for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
4030-00-678-8562	Clevis, suspension, ¾-inch (medium)	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	18
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-01-326-7309	Coupling, airdrop, extraction force transfer w/ cable, 28-foot	1
1670-00-360-0328	Cover:	1
8305-00-958-3685	Clevis, large	
1670-01-183-2678	Felt, ½-inch thick	As required
	Leaf, extraction line (line bag)	2
1670-01-062-6313	Line, drogue (for C-17)	
	60-foot (3-loop), type XXVI	1
1670-01-064-4454	Line, extraction:	
NO NSN	60-foot (6-loop), type XXVI (for C-130)	1
	140-foot (6-loop), type XXVI (C-17)	1
1670-01-307-0155	Link assembly:	
1670-00-006-2752	Three-point	2
	Four-point	1
5510-00-220-6146	Lumber	
	2- by 4- by:	
	41 ½-inches	2
5510-00-220-6148	25 ½-inches	2
	2- by 6- by:	
	85-inches	2
5315-00-010-4659	48-inches	2
1670-00-753-3928	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	28 sheets
	Parachute:	
1670-01-016-7841	Cargo:	
	G-11C	7
1670-00-040-8135	Cargo extraction:	
	28-foot	2
1670-01-063-3715	Drogue (for C-17)	
	15-foot	1

Table 10-1. Equipment Required for Rigging Seven Drums with Pumping Assembly on a 28-Foot, Type V Platform for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 28-foot	
1670-01-162-2372	Bracket assembly, coupling	1
1670-01-162-2376	Clevis assembly, type V	56
1670-01-162-2381	Extraction bracket assembly	1
1670-01-247-2389	Tandem link assembly (Multipurpose link)	2
	Suspension link	8
5530-00-128-4981	Plywood, 3/4- by 48-by 96-inches	7 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	6
1670-01-062-6310	11-foot (4-loop), type XXVI nylon webbing	2
1670-01-063-7761	16-foot (2-loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4-loop)m type XXVI nylon webbing	2
	For lifting:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2-loop), type XXVI nylon webbing	7
5340-00-040-8219	Strap, parachute release, multicut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	56
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-inch	As required
8305-00-261-8584	Type X	As required

Chapter 11

Rigging Forward Area Refueling Equipment for Low-Velocity Airdrop on Type V Platform

DESCRIPTION OF LOAD

11-1. The FARE is rigged on a 12-foot, type V platform with two G-11 cargo parachutes. There are two collapsible fuel drums as an accompanying load. When empty, each drum weighs 250 pounds. Each drum is filled with 432 gallons of liquid. Overall length is 162 inches. Width is 108 inches. Height is 70 inches. Center of balance is 72 inches.

-
- Note.** 1. For drums filled with a liquid other than gasoline, use Table 11-1 to recompute the weight
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed.
3. Do not pressurize drums with air.
-

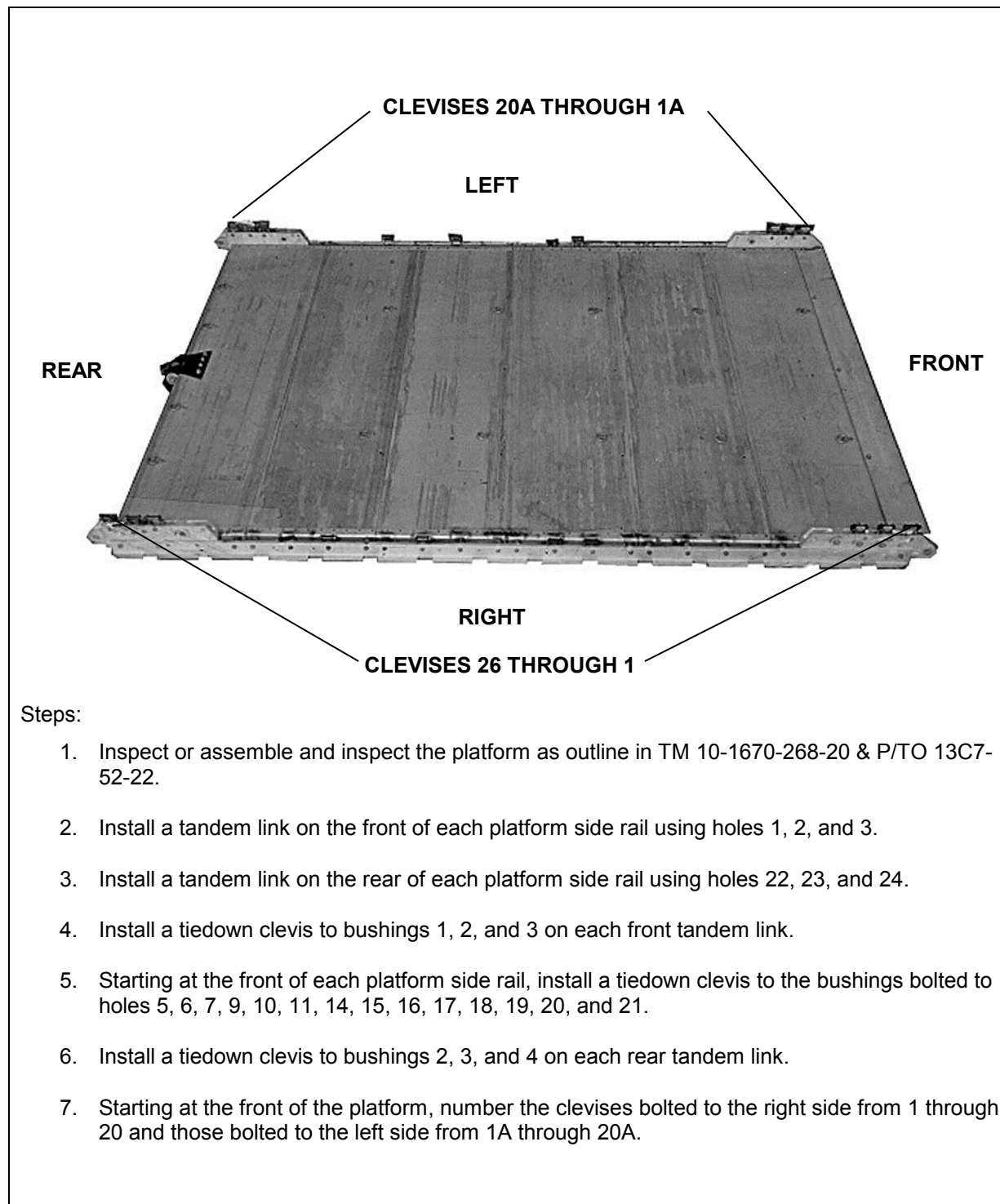
Table 11-1. Weight of Drum When Filled with Liquid

<i>Fuel</i>	<i>Weight Per Gallon</i>	<i>Total Weight of Drum with 432 Gallons of Liquid</i>
Gasoline	6 pounds	2, 842 pounds
Jet Propulsion (JP)-4	6.4 pounds	3, 015 pounds
JP-8	6.7 pounds	3,145 pounds
Diesel	6.68 pounds	3,136 pounds
Water	8.3 pounds	3,835 pounds

PREPARING PLATFORM

11-2. Prepare a 12-foot type V airdrop platform using four tandem links and 40 tiedown clevises as shown in Figure 11-1.

-
- Note.** 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.
-



Steps:

1. Inspect or assemble and inspect the platform as outline in TM 10-1670-268-20 & P/TO 13C7-52-22.
2. Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.
3. Install a tandem link on the rear of each platform side rail using holes 22, 23, and 24.
4. Install a tiedown clevis to bushings 1, 2, and 3 on each front tandem link.
5. Starting at the front of each platform side rail, install a tiedown clevis to the bushings bolted to holes 5, 6, 7, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, and 21.
6. Install a tiedown clevis to bushings 2, 3, and 4 on each rear tandem link.
7. Starting at the front of the platform, number the clevises bolted to the right side from 1 through 20 and those bolted to the left side from 1A through 20A.

Figure 11-1. Platform Prepared

PREPARING HONEYCOMB

11-3. Place eight 96- by 36-inch pieces of honeycomb on the platform as shown in Figure 11-2.

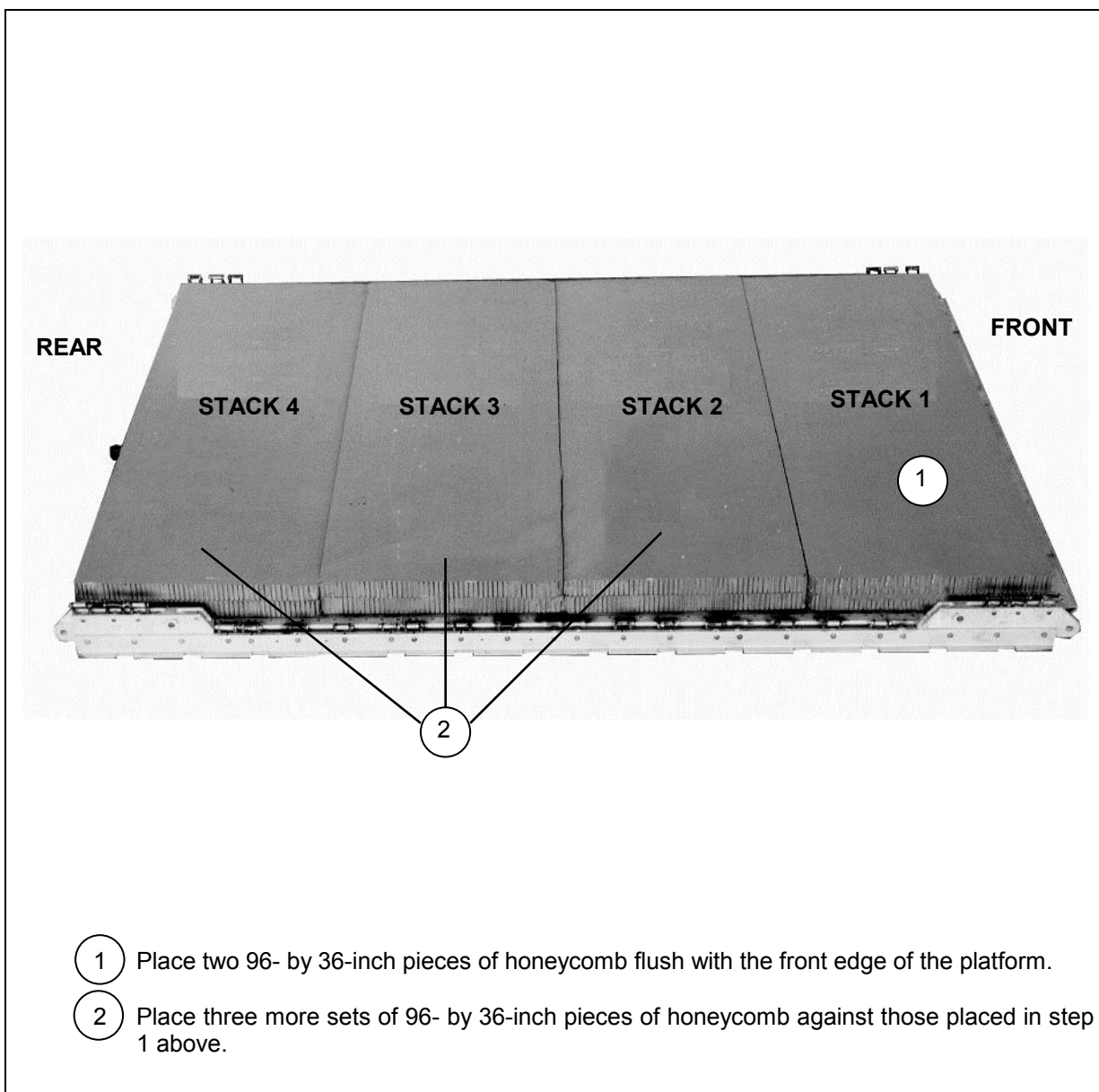


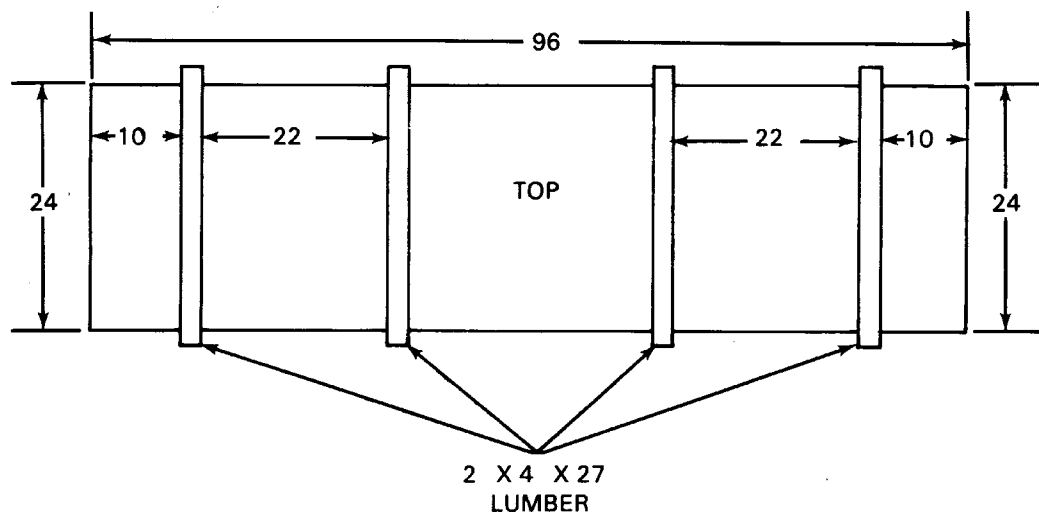
Figure 11-2. Honeycomb Placed on Platform

BUILDING CONTAINER FOR FARE

11-4. Build the container to stow the FARE as described below and as shown in Figure 11-3.

- Building Top – Build the top for the container as shown in Figure 11-3.

Note. 1. This drawing is not to scale.
2. All dimensions are given in inches.



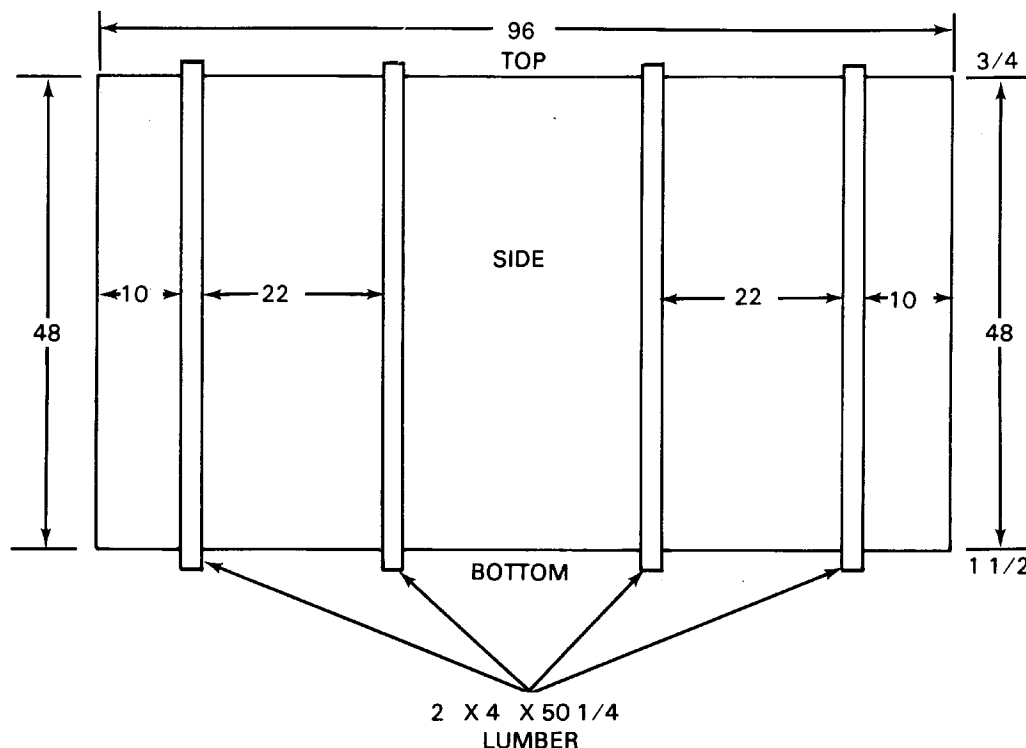
Steps:

1. Cut a $\frac{3}{4}$ - by 24- by 96-inch piece of plywood.
2. Cut four 2- by 4- by 27-inch pieces of lumber.
3. Place the 2- by 4-inch pieces of lumber so that they overhang on each side about 1 $\frac{1}{2}$ inches over the plywood.
4. Nail a 2- by 4-inch piece of lumber 10 inches from the 24-inch sides using eight-penny nails.
5. Nail a 2- by 4-inch piece of lumber 22 inches from the lumber placed in step 4 above using eight-penny nails.

Figure 11-3. Top for Forward Area Refueling Equipment Container Built

- Building Sides – Build the sides for the container as shown in Figure 11-4.

Note. 1. This drawing is not to scale.
2. All dimensions are given in inches.



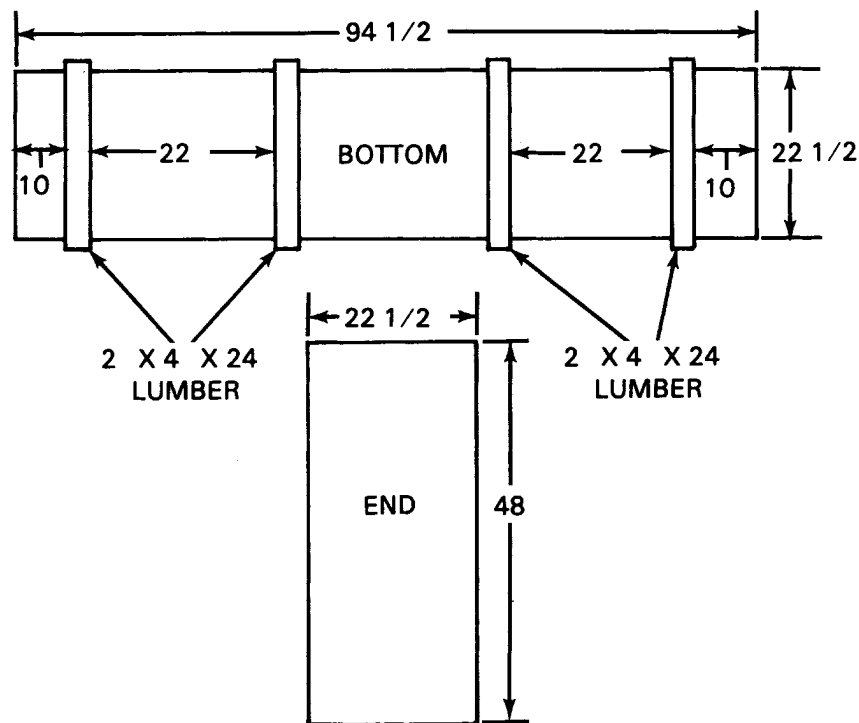
Steps:

1. Use two $\frac{3}{4}$ - by 48- by 96-inch pieces of plywood.
2. Cut eight 2- by 4- by 50 $\frac{1}{4}$ -inch pieces of lumber.
3. Place the 2- by 4-inch pieces of lumber so that the top overhangs $\frac{3}{4}$ inch and the bottom overhangs 1 $\frac{1}{2}$ inches over the plywood.
4. Nail a 2- by 4-inch piece of lumber 10 inches from the 48-inch sides using eight-penny nails.
5. Nail a 2- by 4-inch piece of lumber 22 inches from the lumber placed in step 4 above using eight-penny nails.

Figure 11-4. Sides for Forward Area Refueling Equipment Container Built

- Building Bottom and Ends. Build the bottom and ends for the container as shown in Figure 11-5.

Note. 1. This drawing is not to scale.
2. All dimensions are given in inches.



Steps:

1. Cut a $\frac{3}{4}$ - by 22 $\frac{1}{2}$ - by 94 $\frac{1}{2}$ -inch piece of plywood.
2. Cut four 2- by 4- by 24-inch pieces of lumber.
3. Place the 2- by 4-inch piece of lumber so that they overhang $\frac{3}{4}$ -inch over the plywood.
4. Nail a 2- by 4-inch piece of lumber 10 inches from the 22 $\frac{1}{2}$ -inch sides using eight-penny nails.
5. Nail a 2- by 4-inch piece of lumber 22 inches from the lumber placed in step 4 above using eight-penny nails.
6. Cut two $\frac{3}{4}$ - by 22 $\frac{1}{2}$ - by 48-inch pieces of plywood to be used as end pieces.

Figure 11-5. Bottom and Ends for Forward Area Refueling Equipment Container Built

- Assembling Container. Assemble the container for FARE as shown in Figure 11-6.

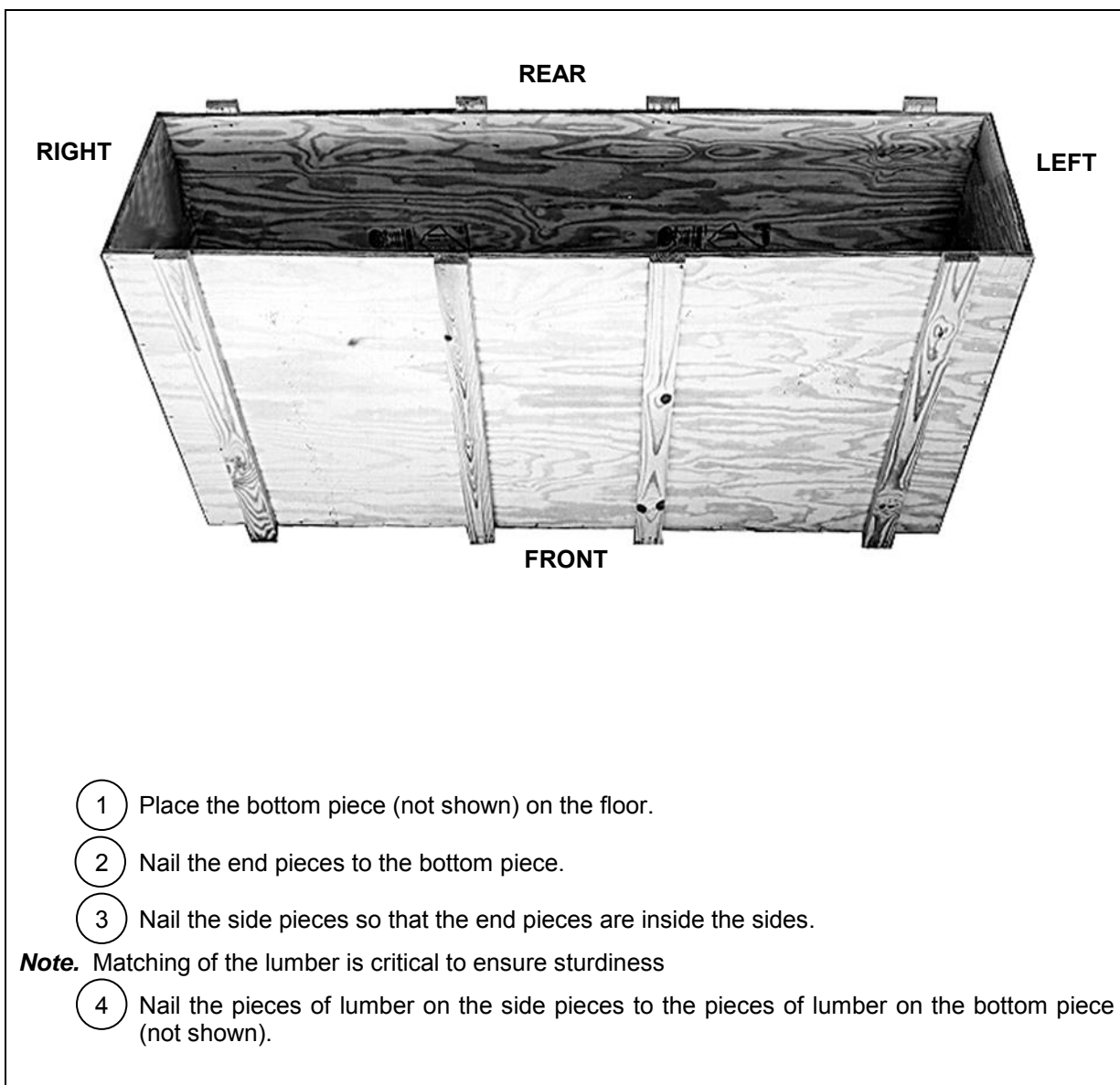


Figure 11-6. Container Assembled

PREPARING AND STOWING FARE IN CONTAINER

11-5. Prepare the components of the FARE and stow them in the container as described below.

- Preparing Discharge Hose Frame Assembly. Prepare the discharge hose frame assemblies, and stow them in the container as shown in Figure 11-7.

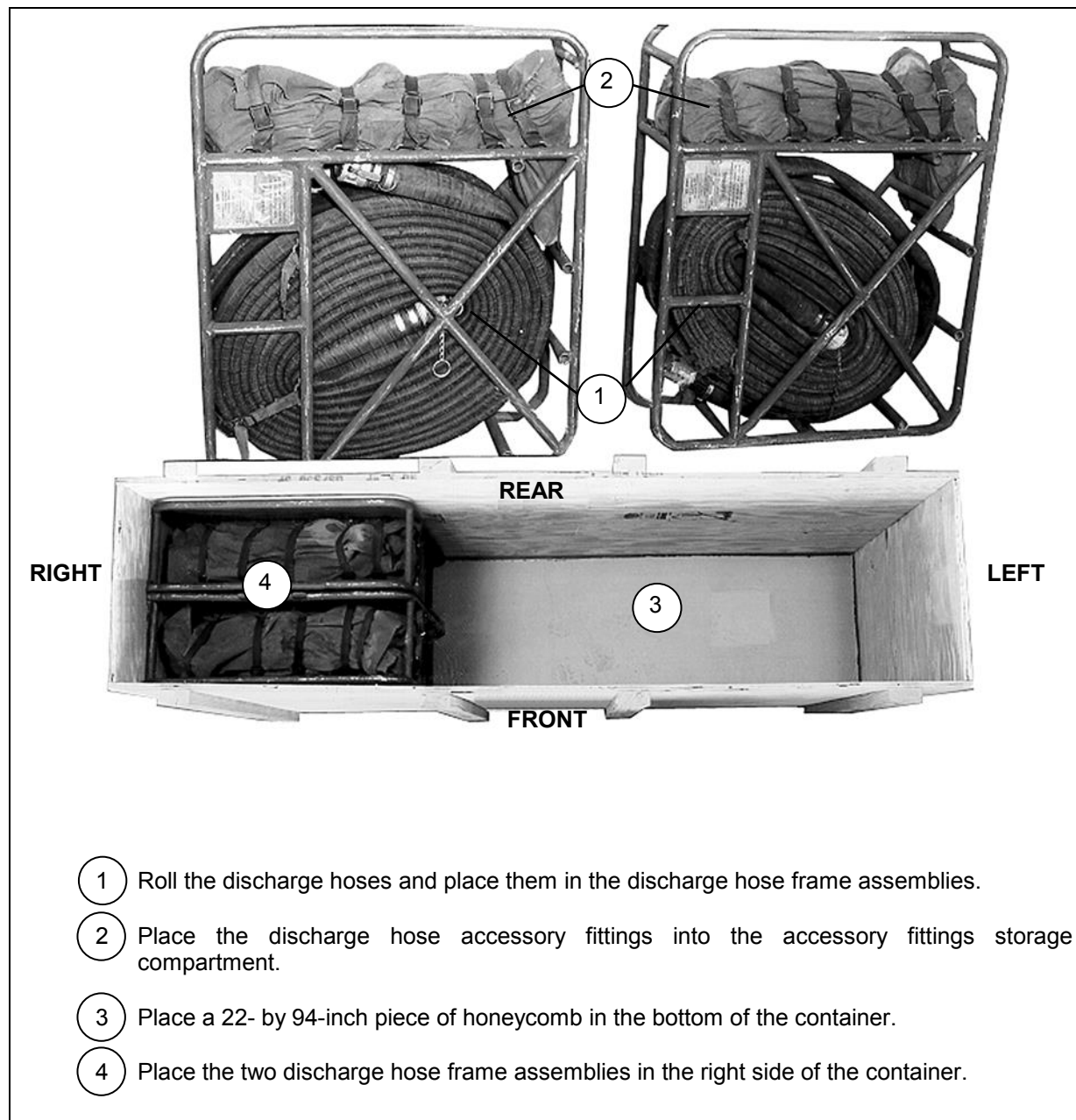


Figure 11-7. Discharge Hose Frame Assemblies Prepared and Stowed

- **Preparing Filter/Separator Assembly.** Prepare the filter/separator assembly and stow it in the container as shown in Figure 11-8.

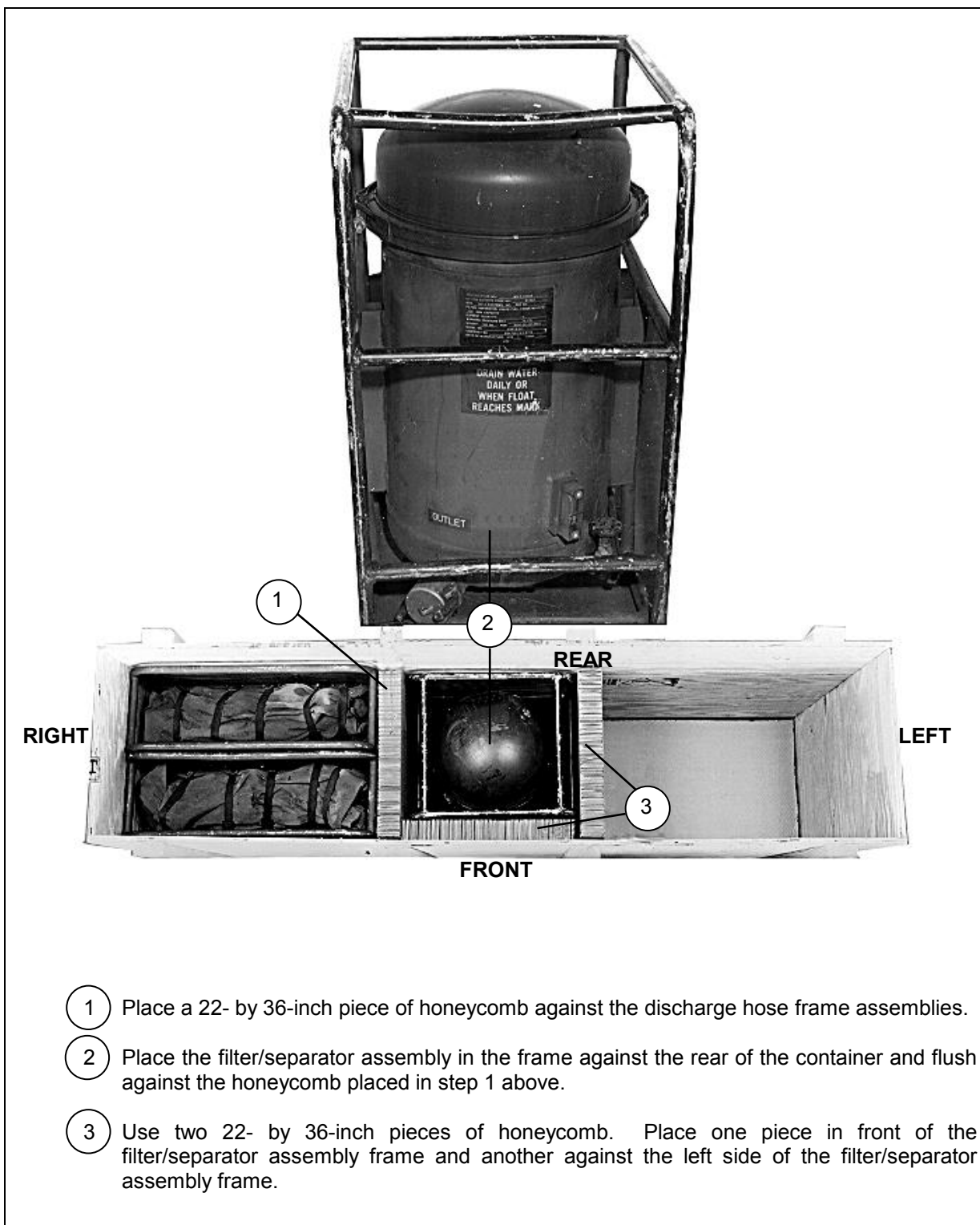


Figure 11-8. Filter/Separator Assembly Prepared and Stowed

- Preparing Pump/Engine Assembly. Prepare the pump/engine assembly for stowing as shown in Figure 11-9 and stow it in the container as shown in Figure 11-10.

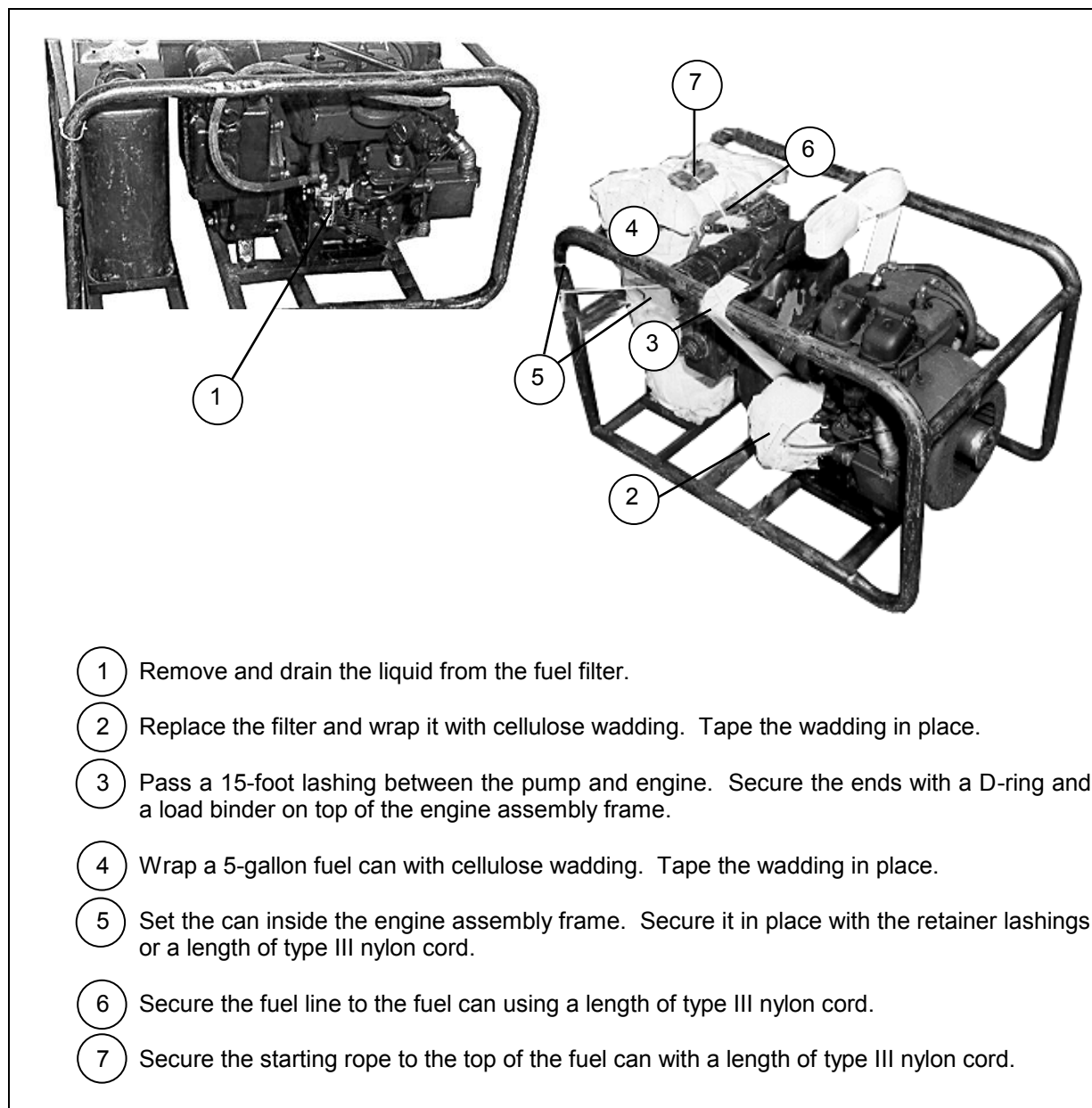


Figure 11-9. Pump/Engine Assembly Prepared

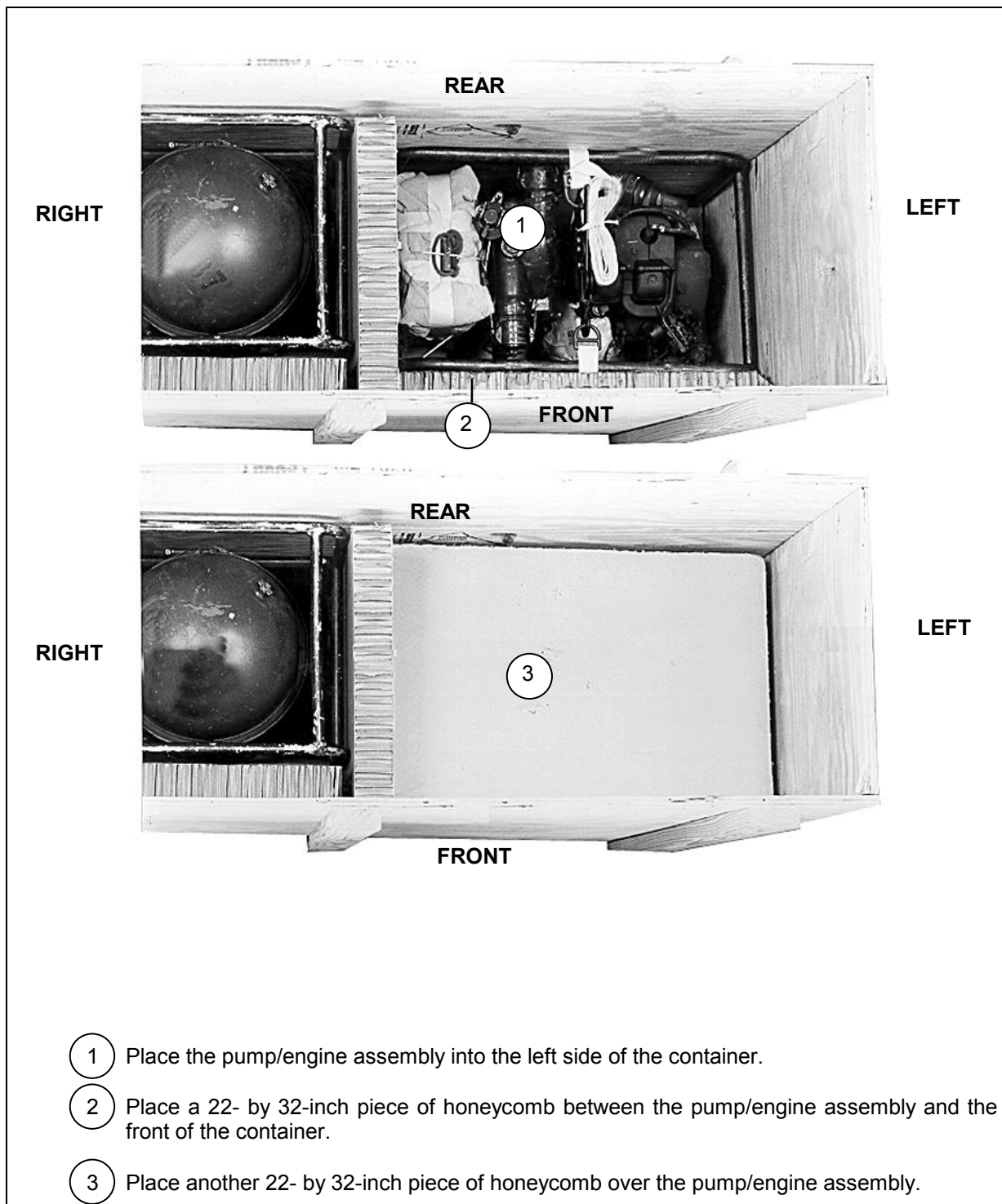


Figure 11-10. Pump/Engine Assembly Stowed

- Stowing Fire Extinguisher. Stow the fire extinguishers in the container as shown in Figure 11-11.

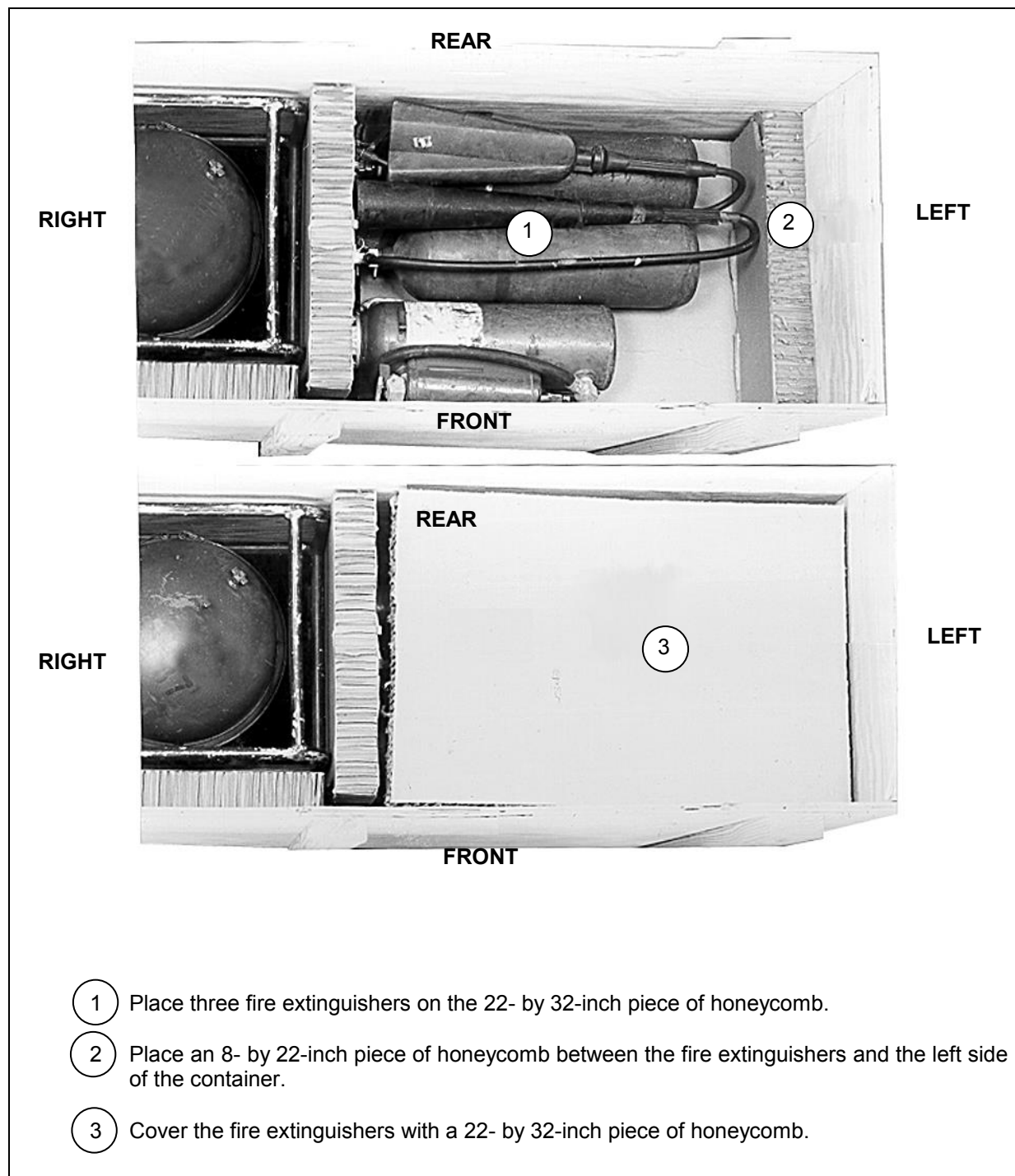


Figure 11-11. Fire Extinguishers Stowed

- Preparing and Stowing Ground Rods, Suction Hoses, and Suction Hose Bags. Prepare the ground rods, suction hoses, and suction hose bags for stowing. Stow the suction hose bags in the container as shown in Figure 11-12.

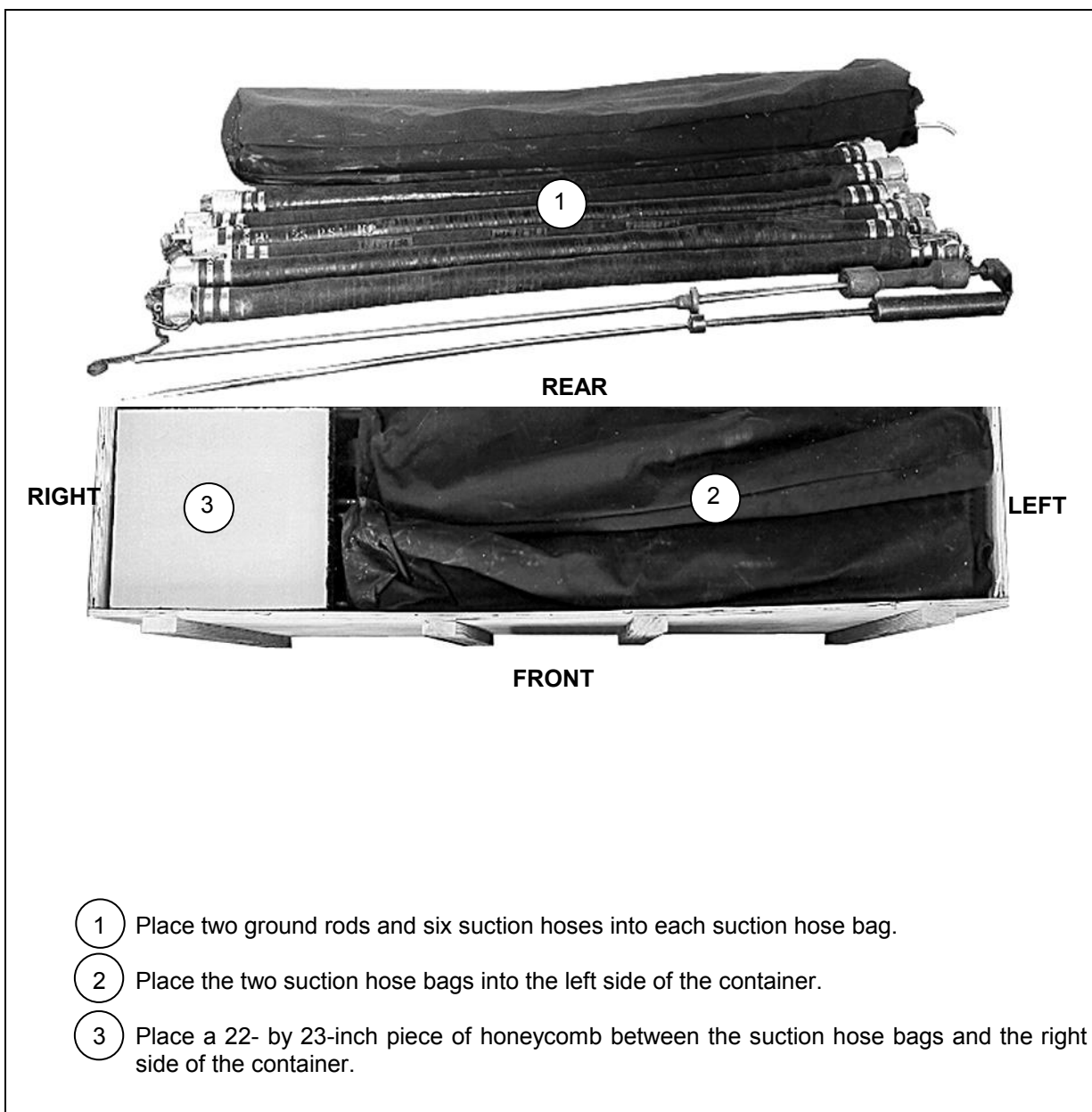


Figure 11-12. Ground Rods, Suction Hoses, and Bags Prepared and Stowed

SECURING CONTAINER

11-6. Use ten 15-foot tiedown assemblies to secure the container as shown in Figure 11-13.

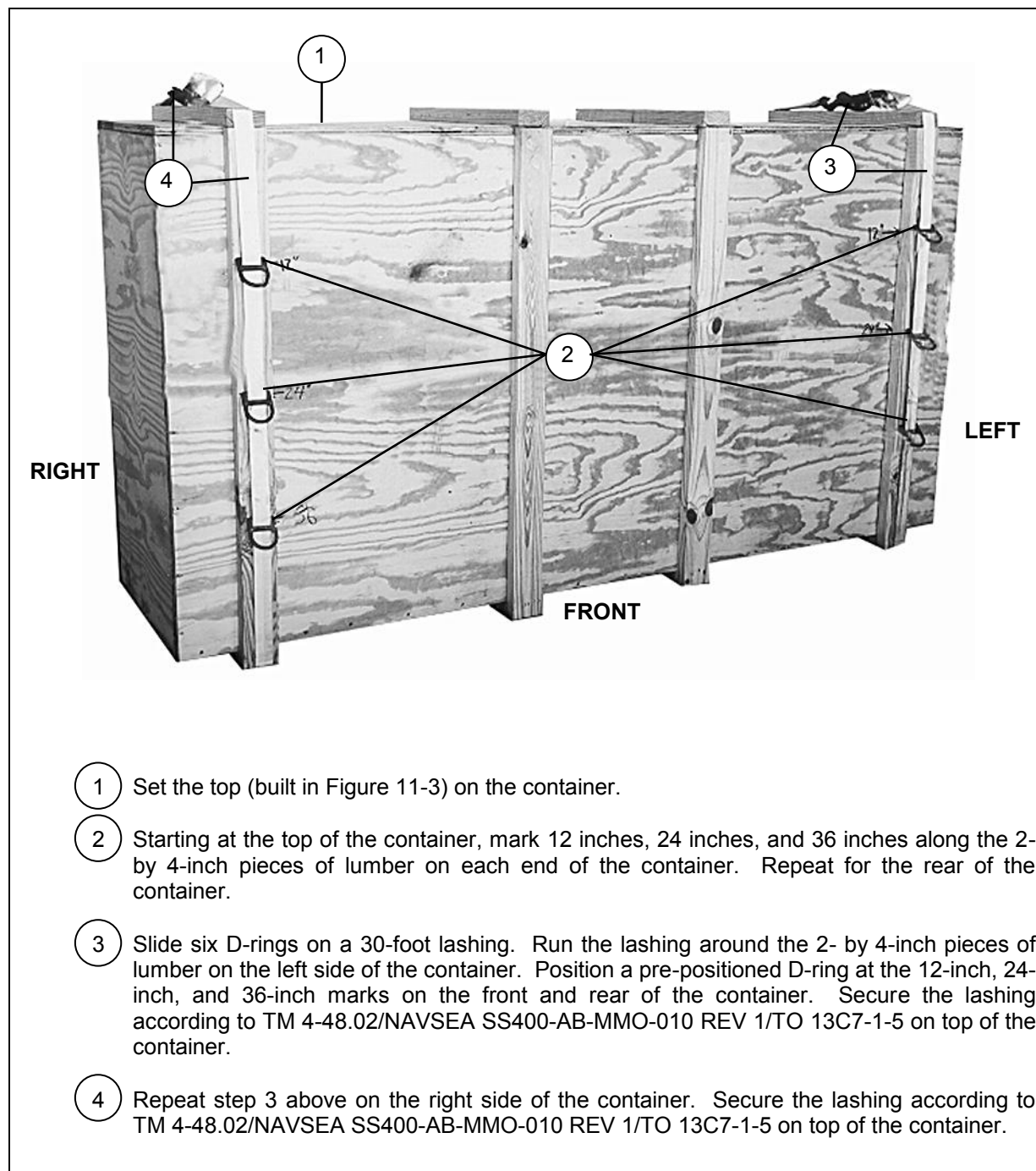


Figure 11-13. Container Secured

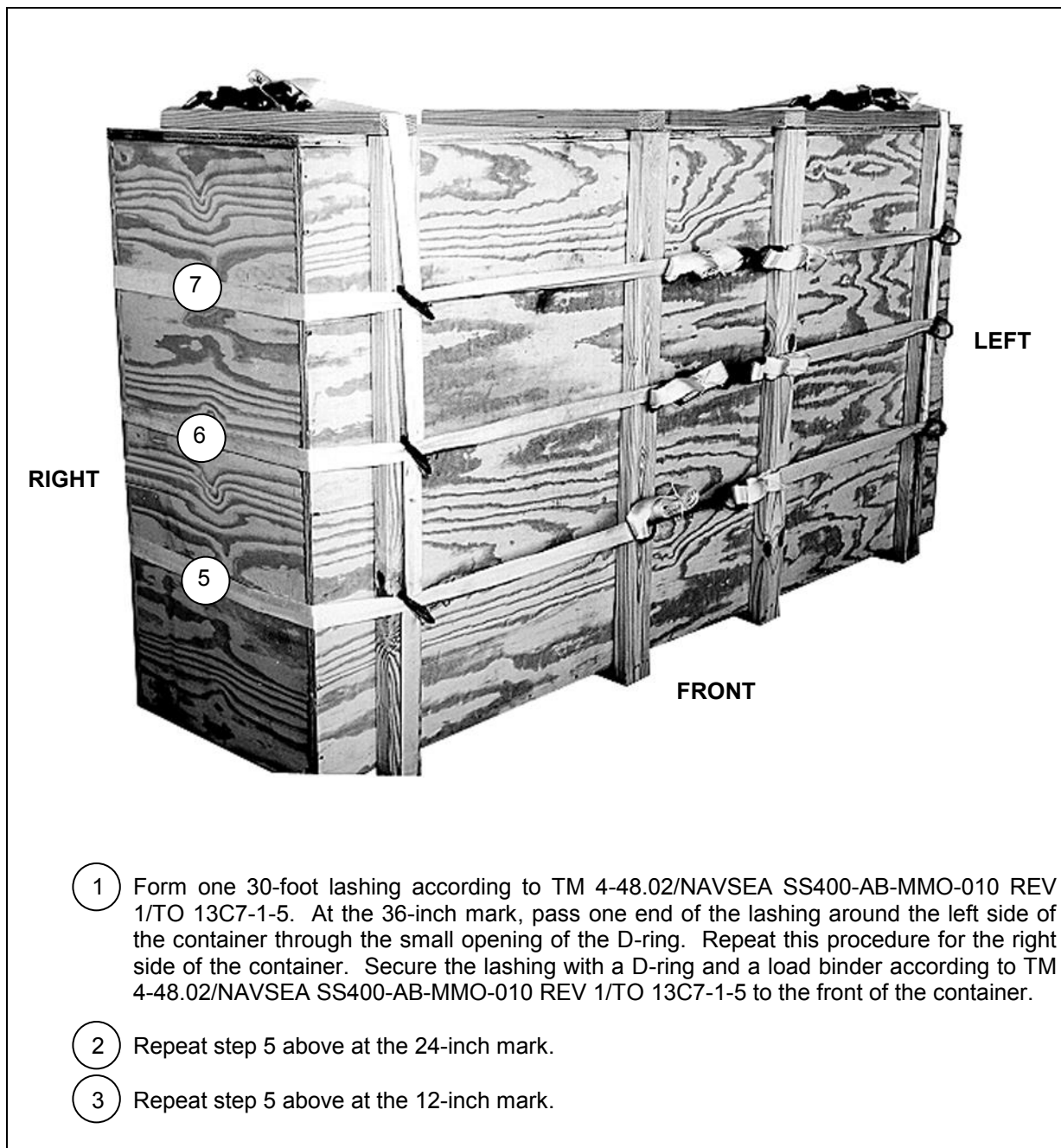


Figure 11-13. Container Secured (continued)

- **Positioning Container.** Position the container on the platform as shown in Figure 11-14.

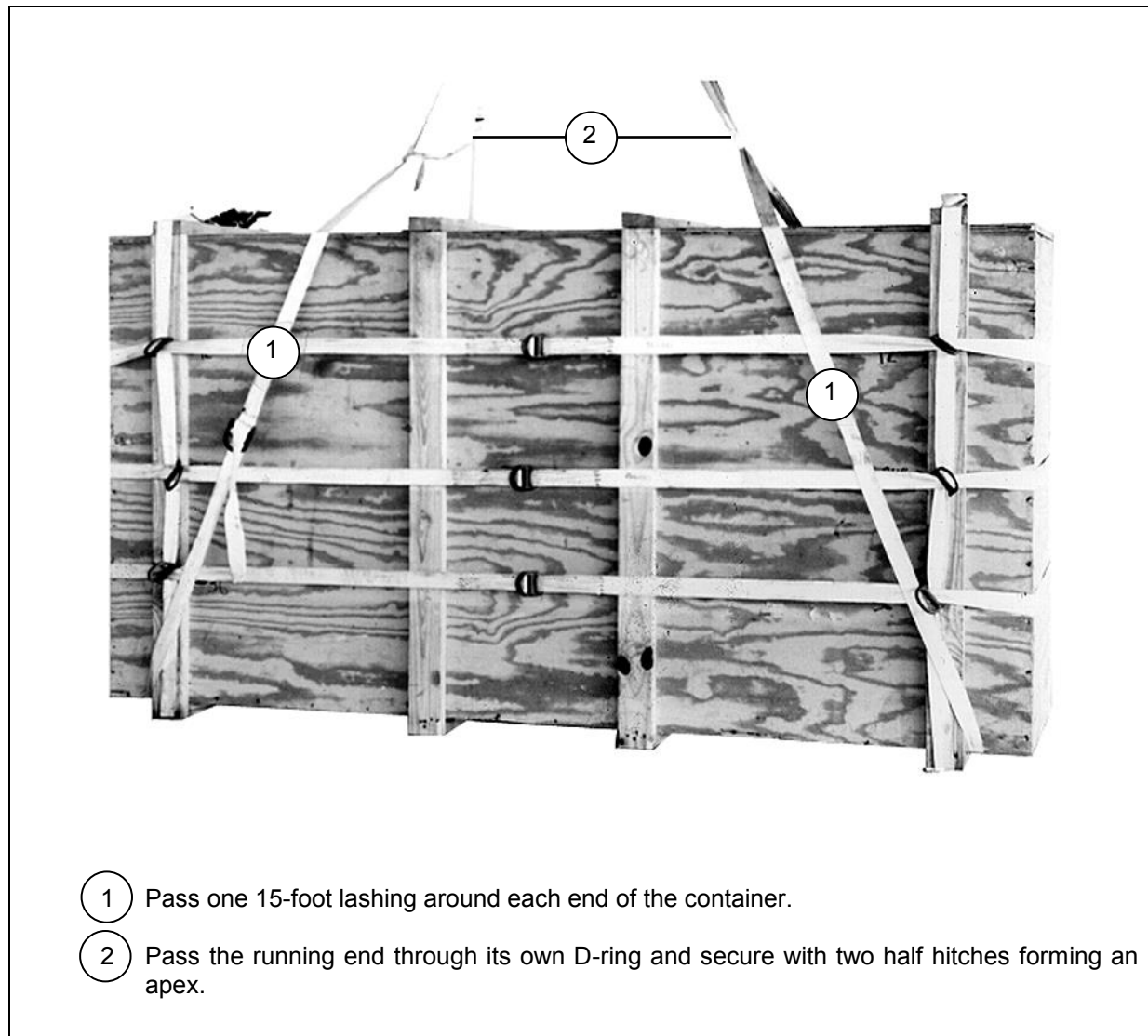
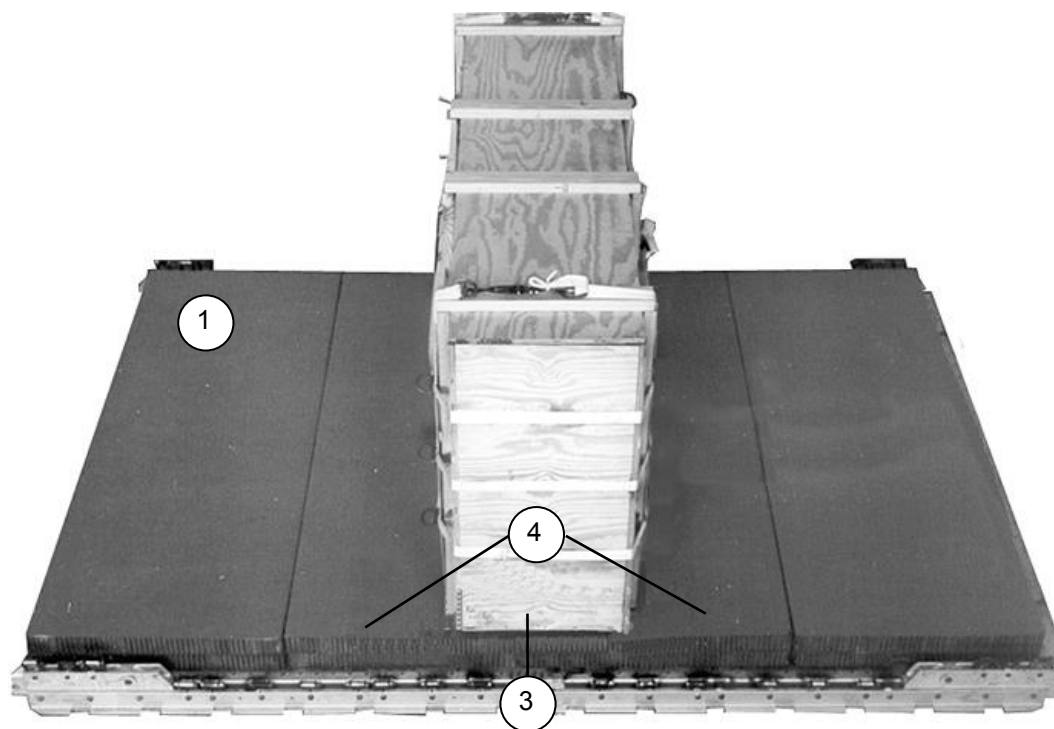


Figure 11-14. Container Positioned



- ① Place an 11 ¼-inch mark on both sides on the bottom of the container.
- ② Center the centering marks between honeycomb stacks 2 and 3.
- ③ Lift and center the container between honeycomb stacks 2 and 3 (not shown).
- ④ Make sure the front of the container is 60 inches from the front edge of the honeycomb stack 1.

Figure 11-14. Container Positioned (continued)

- Lashing Container. Use sixteen 15-foot tiedown assemblies to lash the container to the platform as outlined in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 11-15.

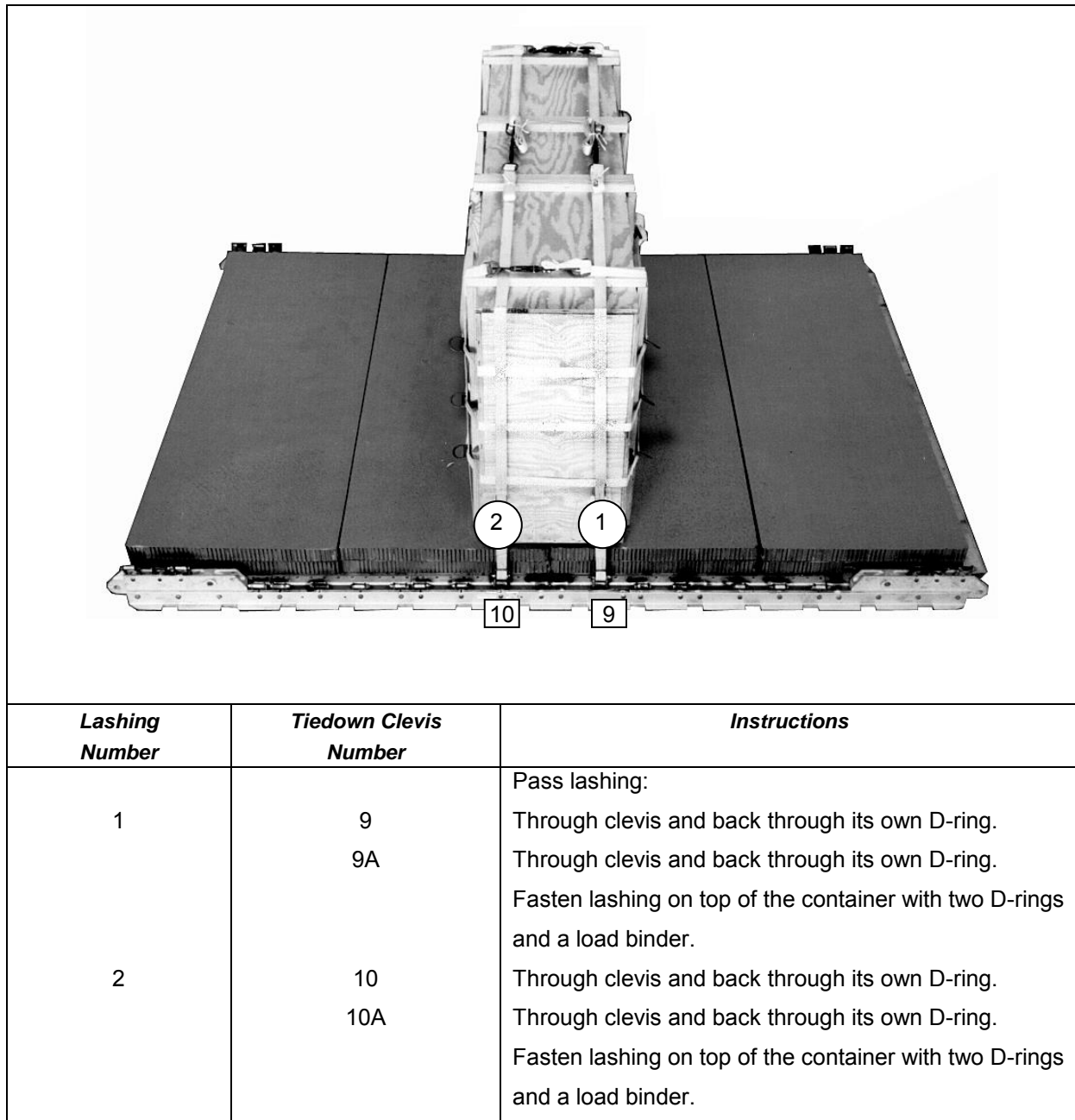


Figure 11-15. Container Lashed to Platform

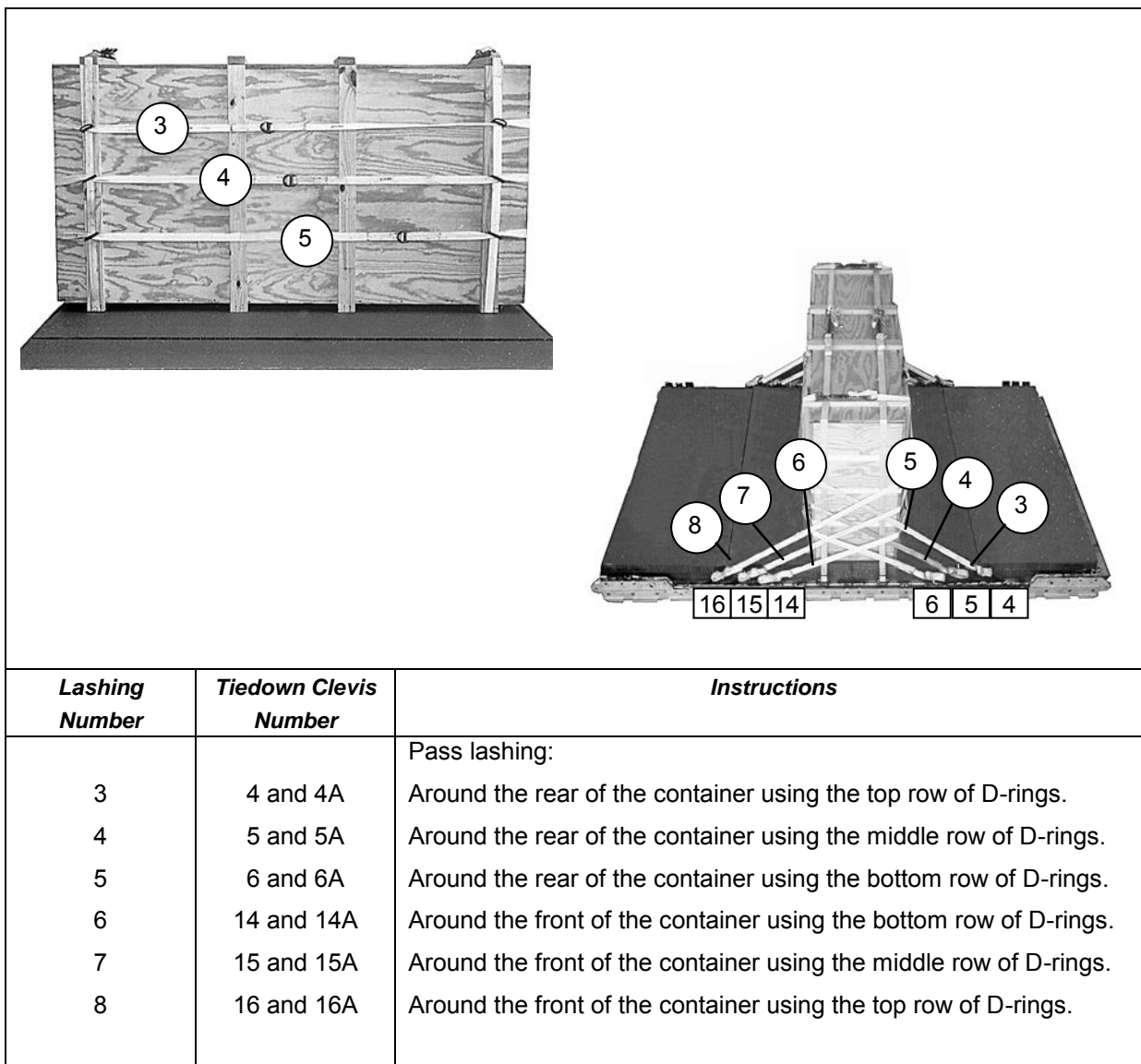
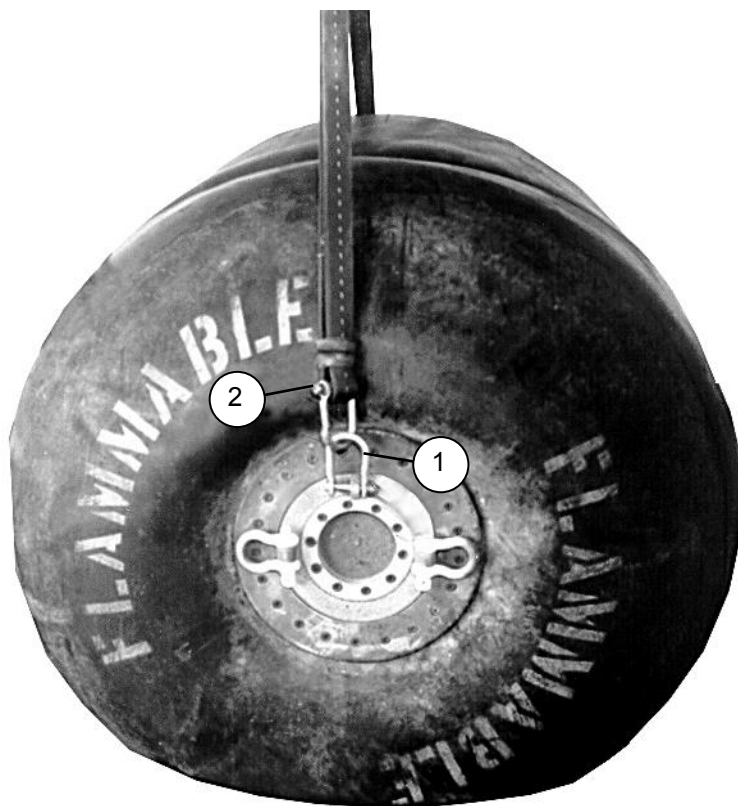


Figure 11-15. Container Lashed to Platform (continued)

ATTACHING LIFTING SLINGS

11-8. Attach the lifting slings to each fuel drum using four clevises and two 9-foot (2-loop), type XXVI nylon webbing slings as shown in Figure 11-16.



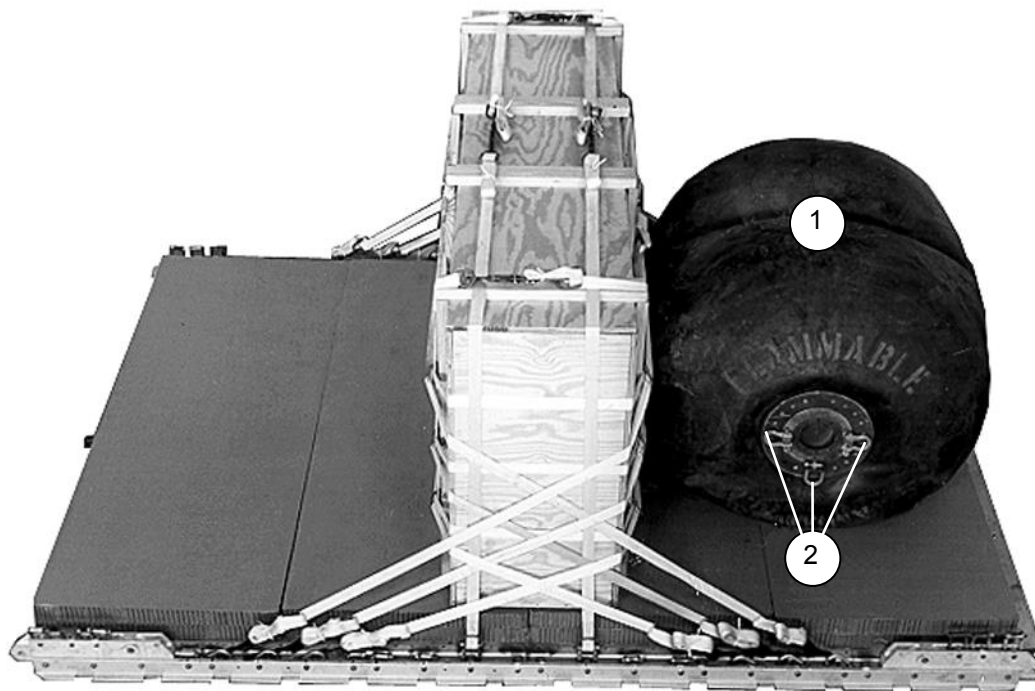
- 1 Bolt a clevis to the center shackle of the swivel plate.
- 2 Route a clevis through the center clevis bolted to the shackle. Bolt the clevis to a 9-foot sling.
- 3 Repeat steps 1 and 2 on the opposite side of the fuel drum and for the remaining fuel drum (not shown).

Figure 11-16. Lifting Slings Installed

PLACING AND LASHING FUEL DRUMS

11-9. Place and lash the fuel drums on the platform as described below.

- Front Fuel Drum. Place the front fuel drum on the platform as shown in Figure 11-17. Lash the front fuel drum to the front of the platform as shown in Figure 11-18. Secure the ends of the lashings with a D-ring and a load binder according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.



- 1 Center the drum on the front of the platform. Place the drum flush against the container.
- 2 Remove the lifting slings (not shown). Make sure the shackles on the drums are parallel to the platform and the center clevis is in the bottom position.

Figure 11-17. Front Fuel Drum Placed on Platform

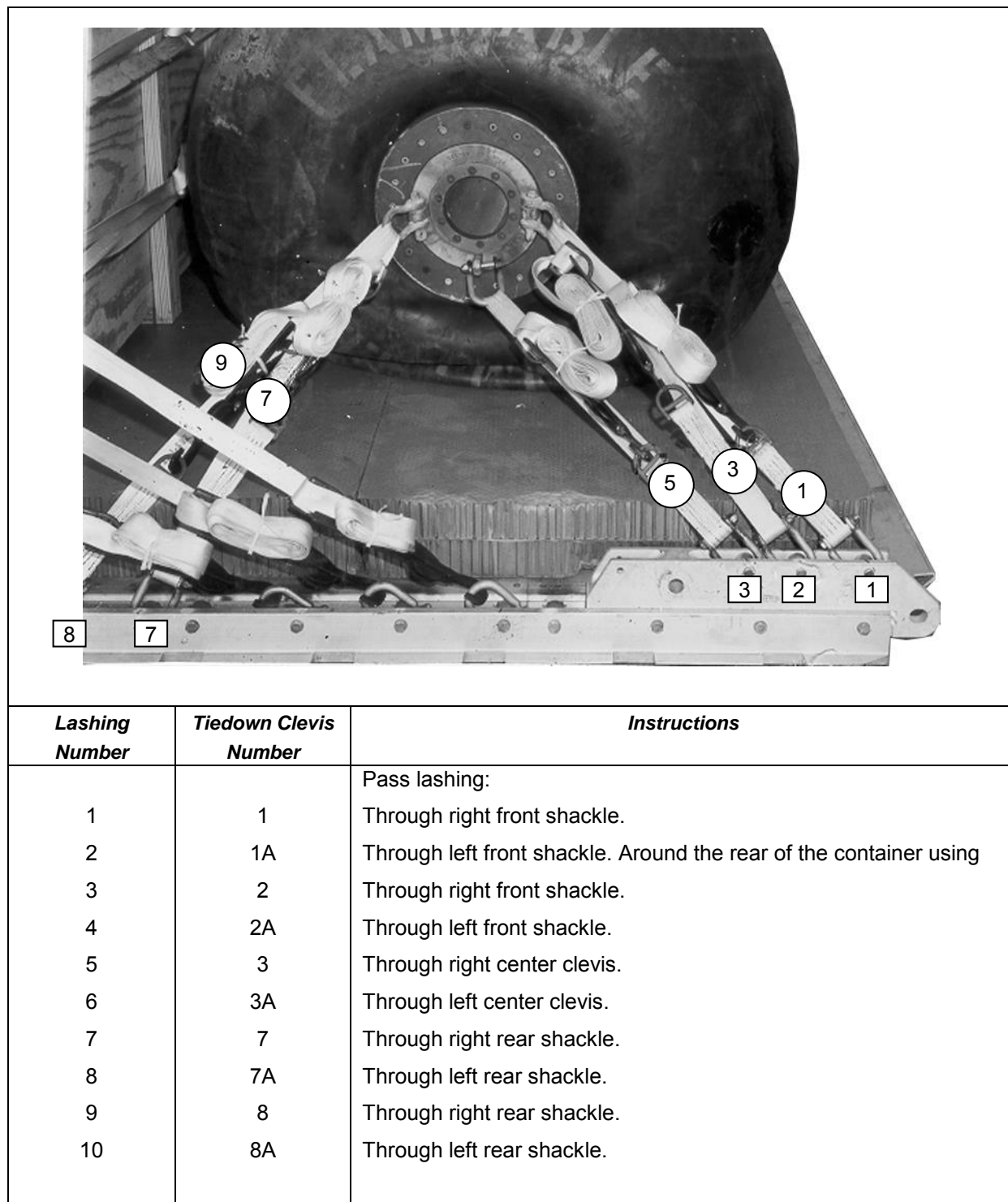


Figure 11-18. Front Drum Lashed to Platform

- **Rear Fuel Drum.** Place the rear fuel drum on the platform as shown in Figure 11-19. Lash the rear fuel drum to the rear of the platform as shown in Figure 11-20. Secure the ends of the lashings with a D-ring and a load binder according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

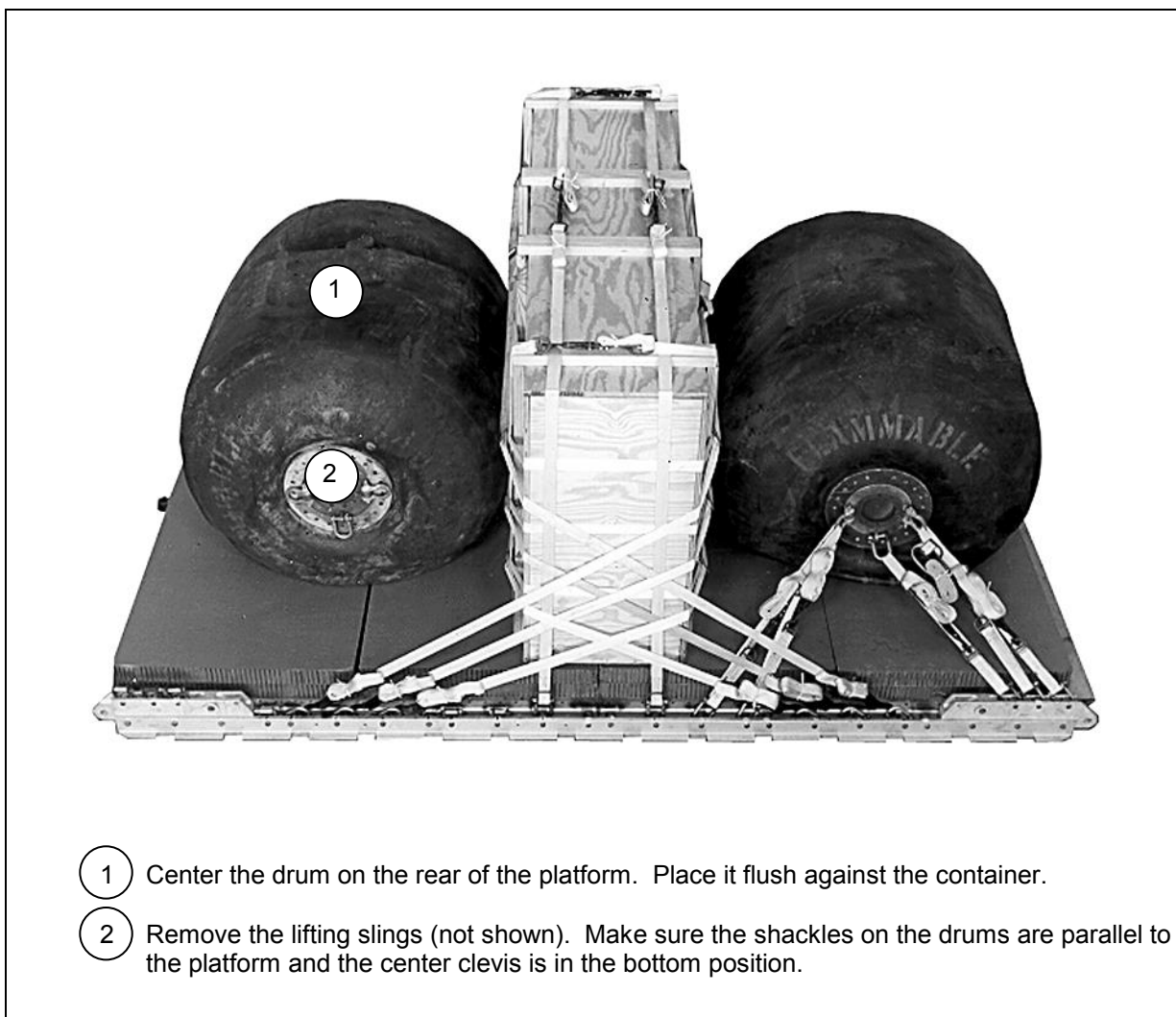
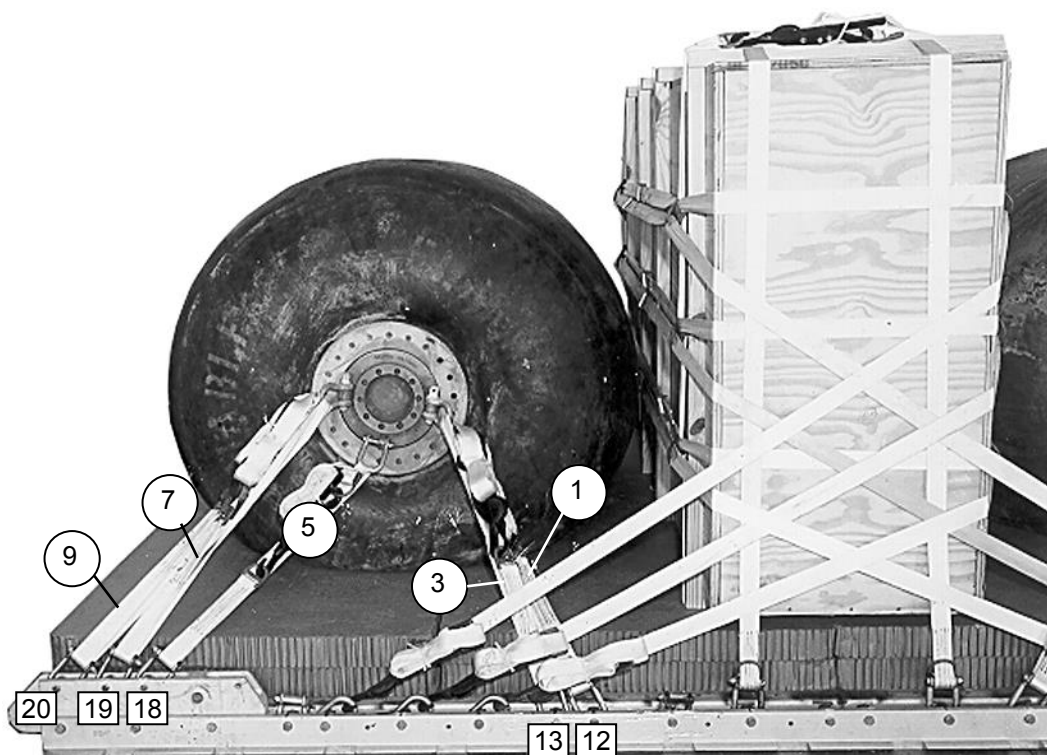


Figure 11-19. Rear Fuel Drum Placed on Platform



Lashing Number	Tiedown Clevis Number	Instructions
1	12	Pass lashing: Through right front shackle.
2	12A	Through left front shackle.
3	13	Through right front shackle.
4	13A	Through left front shackle.
5	18	Through right center clevis.
6	18A	Through left center clevis.
7	19	Through right rear shackle.
8	19A	Through left rear shackle.
9	20	Through right rear shackle.
10	20A	Through left rear shackle.

Figure 11-20. Rear Fuel Drum Lashed to Platform

INSTALLING SUSPENSION SLINGS

11-10. Install four large suspension clevises and four 12-foot (2-loop), type XXVI nylon webbing slings to the tandem links as shown in Figure 11-21.

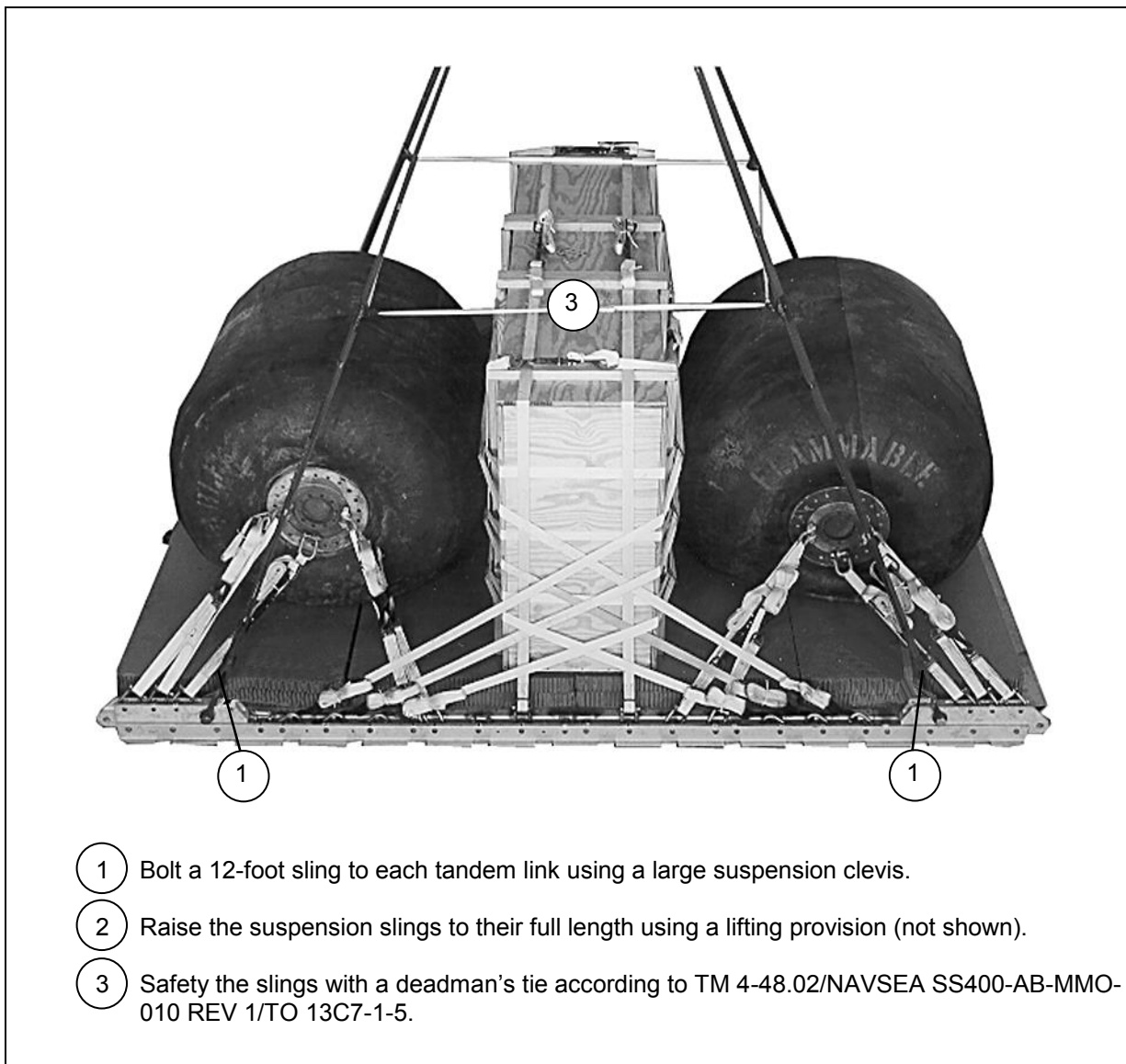
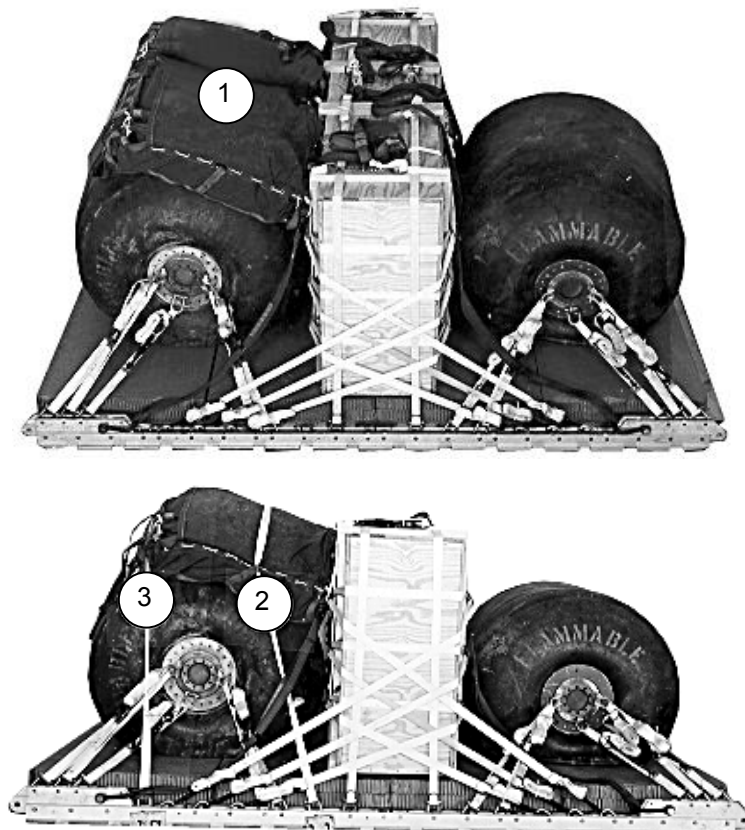


Figure 11-21. Suspension Slings Installed

STOWING CARGO PARACHUTES

11-11. Prepare, place, and restrain two G-11 cargo parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 11-22.



- ① Place the cargo parachutes on top of the rear fuel drum.

CAUTION

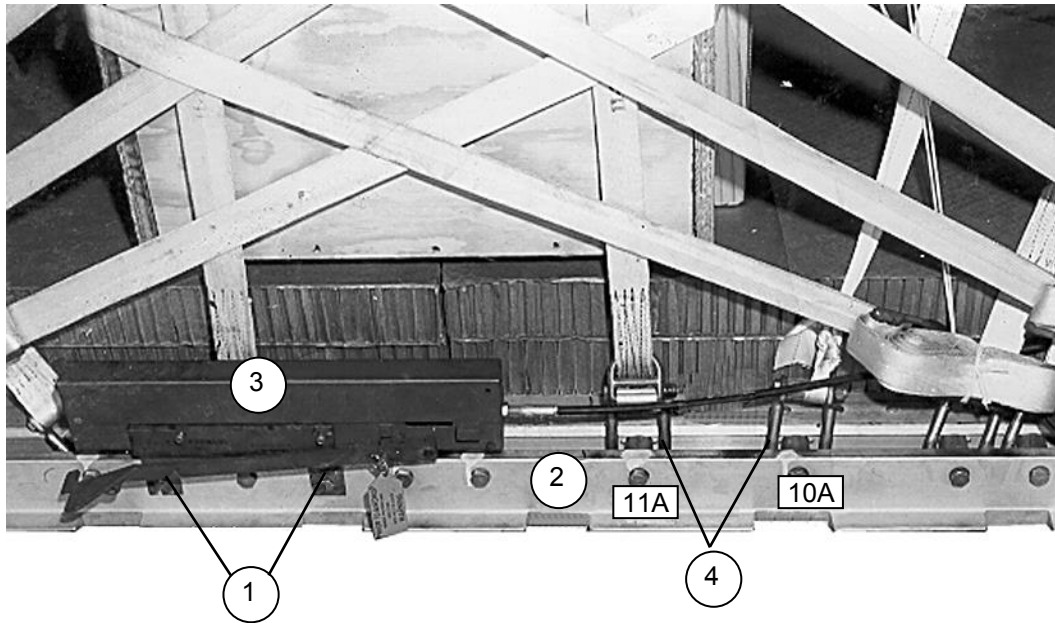
As an exception to the TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 parachute restraint system, two restraint straps will be used on this load.

- ② Secure the parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 using two lengths of type VIII nylon webbing. Attach one length of webbing from clevises 11 and 11A using a trucker's hitch according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ③ Attach the second length of webbing from clevises 17 and 17A using a trucker's hitch according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 11-22. Cargo Parachutes Stowed

INSTALLING EXTRACTION SYSTEM

11-12. Install the Extraction Force Transfer Coupling (EFTC) extraction system according to TM 4-48.02 /NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 11-23.



- ① Install the actuator mounting brackets to the rear extraction force transfer coupler mounting holes on the left side rail.
- ② Install a 12-foot cable to the actuator assembly.
- ③ Attach the actuator assembly to the mounting brackets.
- ④ Route the cable from the actuator assembly between clevises 11A and 12A toward the rear of the platform.

Figure 11-23. Extraction System Installed

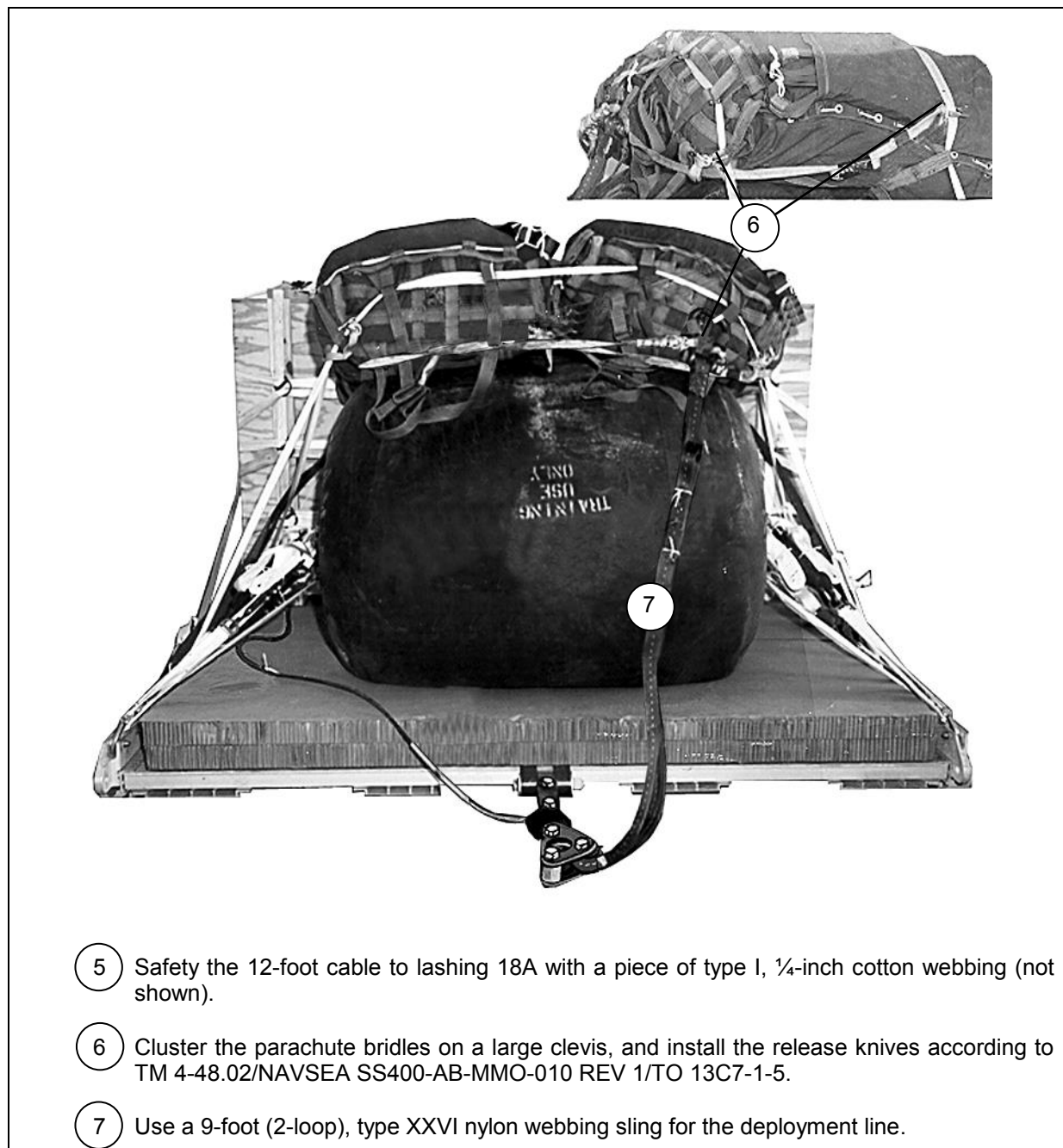


Figure 11-23. Extraction System Installed (continued)

INSTALLING PARACHUTE RELEASE SYSTEM

11-13. Prepare and attach an M-1 cargo parachute release according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 11-24.

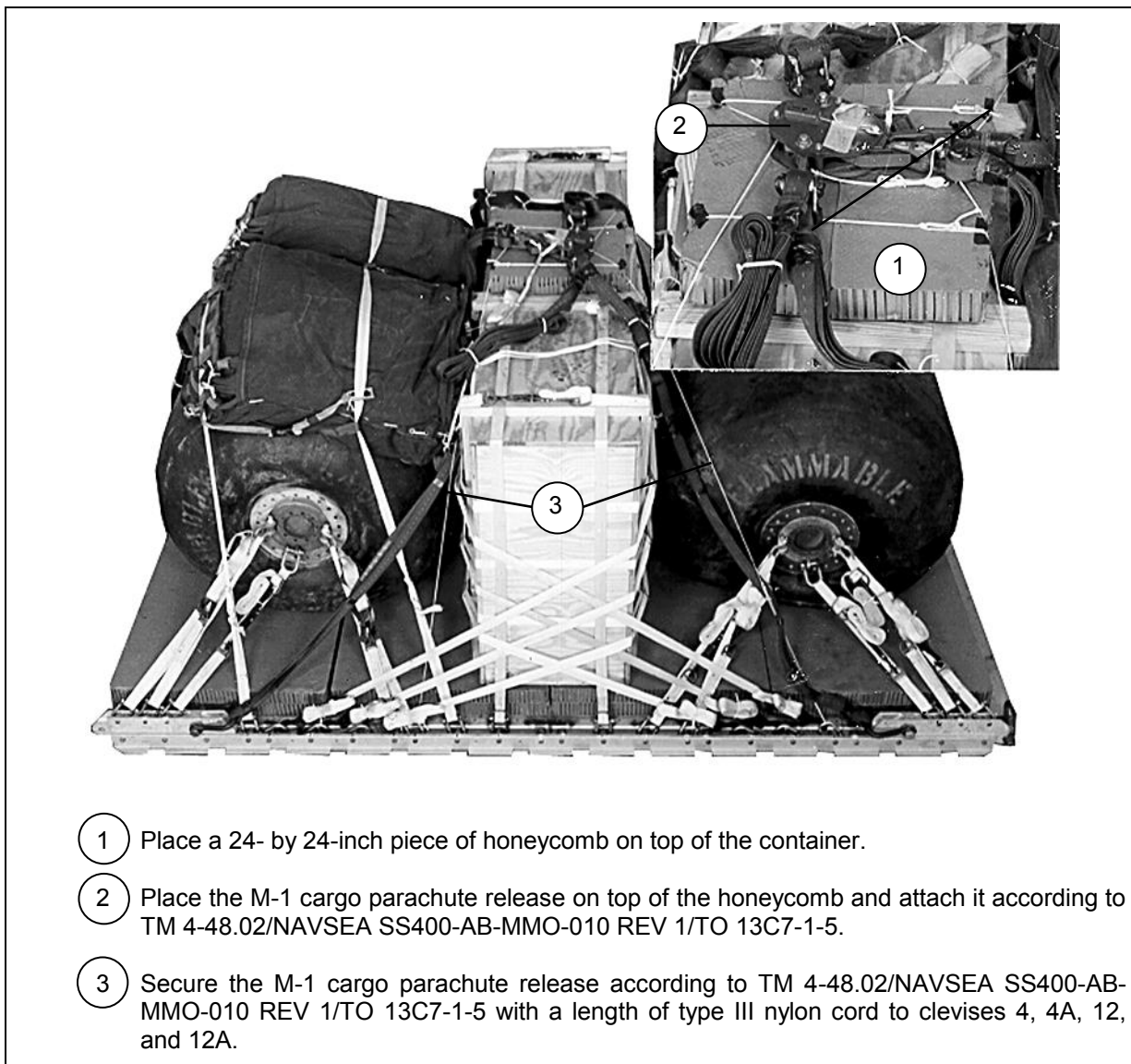


Figure 11-24. Parachute Release Attached

PLACING EXTRACTION PARACHUTE

11-14. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

11-15. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

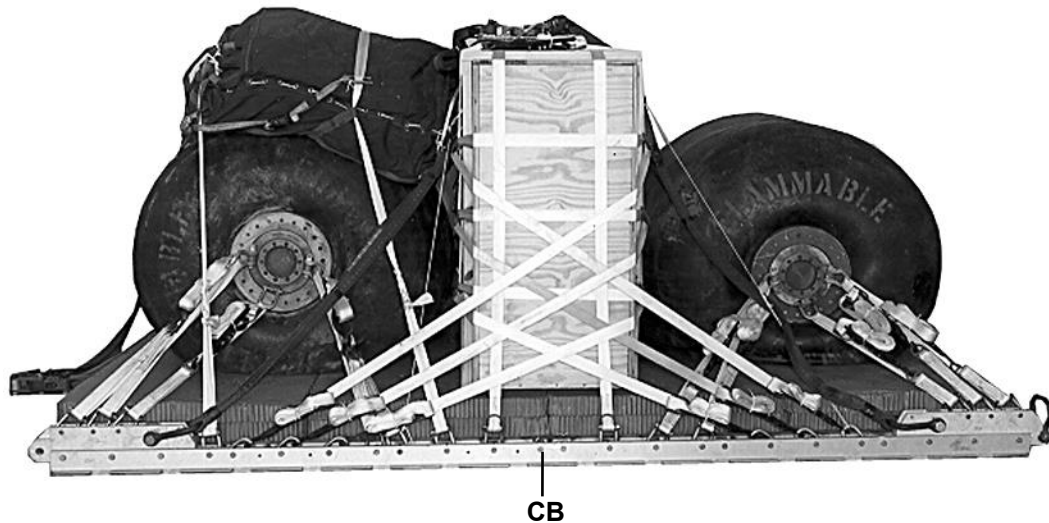
11-16. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 11-25. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

11-17. Use the equipment list in Table 11-2 to rig the load shown in Figure 11-25.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



Rigged Load Data

Weight: Load shown.....	9,107 pounds
Maximum load allowed.....	10,500 pounds
Height.....	70
inches	
Width	108 inches
Length	162 inches
Overhang: Front	0 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	72 inches
Extraction System	Extraction Force Transfer Coupler

Figure 11-25. Forward Area Refueling Equipment with Two 500-Gallon Fuel Drums Rigged for Low-Velocity Airdrop

Table 11-2. Equipment Required for Rigging Forward Area Refueling Equipment with Two 500-Gallon Fuel Drums for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	4
4030-00-678-8562	Clevis, medium	4
8305-00-880-8155	Cloth coated, green, 60-inch	As required
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer w/ cable, 12-foot	1
1670-00-360-0328	Cover:	
8135-00-664-6958	Cover, Clevis, large	1
5365-00-937-0147	Cushioning material, packaging, cellulose wadding	As required
8305-00-958-3685	D-ring, heavy-duty, 10,000 pound	16
1670-00-003-4391	Felt, ½-inch thick	As required
1670-01-183-2678	Knife, parachute bag (for Drogue Extraction System)	1
	Leaf, extraction line (line bag)(add 2 for Drogue Extraction System)	2
1670-01-064-4452	Line, drogue (for C-17)	
1670-01-107-7651	60-foot (1-loop), type XXVI	1
	Line, extraction:	
1670-01-062-6313	For C-141: 140-foot (3-loop), type XXVI	1
1670-01-107-7651	For C-5	
	60-foot (6-loop), type XXVI (for C-130)	1
	140-foot (6-loop), type XXVI (C-17)	1
1670-01-107-7651	For C-17:	
	140-foot (3-loop), type XXVI	1
5306-00-435-8994	Link assembly: (double the quantity for Drogue Extraction System)	
5310-00-232-5165	Two-point	1
1670-00-003-1953	Bolt, 1-inch diameter, 4-inches long	2
5365-00-007-3414	Nut, 1-inch, hexagonal	2
N/A	Plate, side, 3 ¾-inch	2
	Spacer, large	2
5510-00-220-6146	Link, tow release mechanized (H-Block) C-17 aircraft	1
	Lumber	
	2- by 4- inch:	4
5315-00-010-4659	24-inches	4
1670-00-753-3928	27-inches	8
	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	11 sheets

Table 11-2. Equipment Required for Rigging Forward Area Refueling Equipment with Two 500-Gallon Fuel Drums for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11B	2
	Cargo Extraction:	
1670-01-063-3716	22-foot	1
	Drogue (for Drogue Extraction System)	
1670-01-063-3715	15-foot	1
	Platform, airdrop, type V, 28-foot	
1670-01-353-8425	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	48
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	4
5530-00-128-4981	Plywood, ¾-inch	3 sheets
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6303	12-foot (2-loop), type XXVI nylon webbing	4
	For lifting:	
1670-01-062-6303	12-foot (2-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	20-foot (2-loop), type XXVI nylon webbing	2
5340-00-040-8219	Strap, parachute release, multicut, comes w/3 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	55
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

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Chapter 12

Rigging the Forward Area Refueling Equipment in an M101 Series Trailer

DESCRIPTION OF LOAD

12-1. The FARE, weighing 860 pounds, is stowed as an accompanying load in the M101 OR M101A1, $\frac{3}{4}$ -ton trailer. This load is rigged for low-velocity airdrop on a 12-foot, type V platform. One G-11 cargo parachute is used for this load. The height of the trailer is 83 inches, reducible to 51 inches. It is 71 inches wide and 147 inches long. The trailer may have an additional 640 pounds stowed in it.

PREPARING PLATFORM

12-2. Prepare a 12-foot type V airdrop platform using four tandem links and 18 tiedown clevises as shown in Figure 12-1.

-
- Note.** 1. The nose bumper may or may not be installed.
2. Measurements are given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.
-

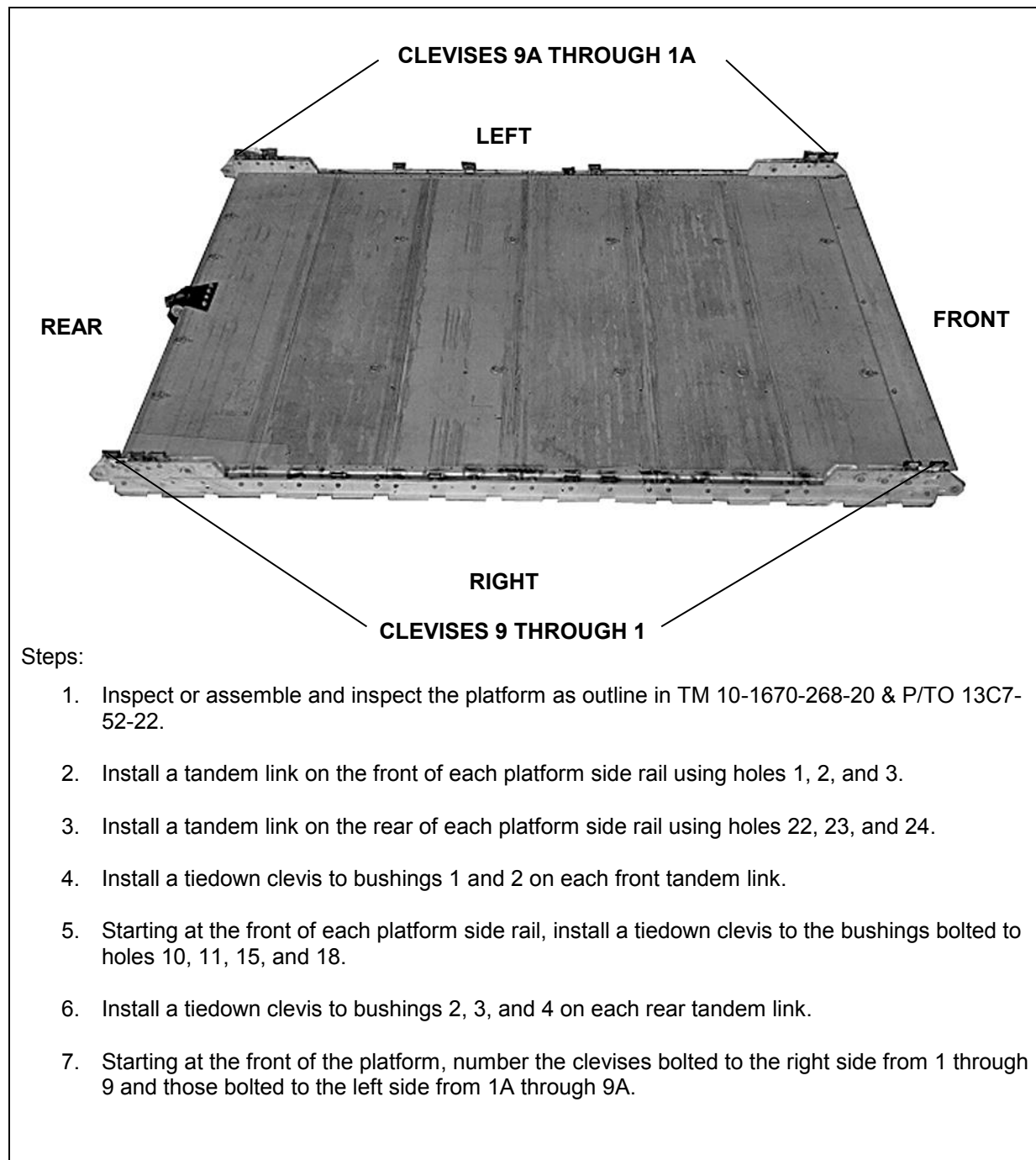
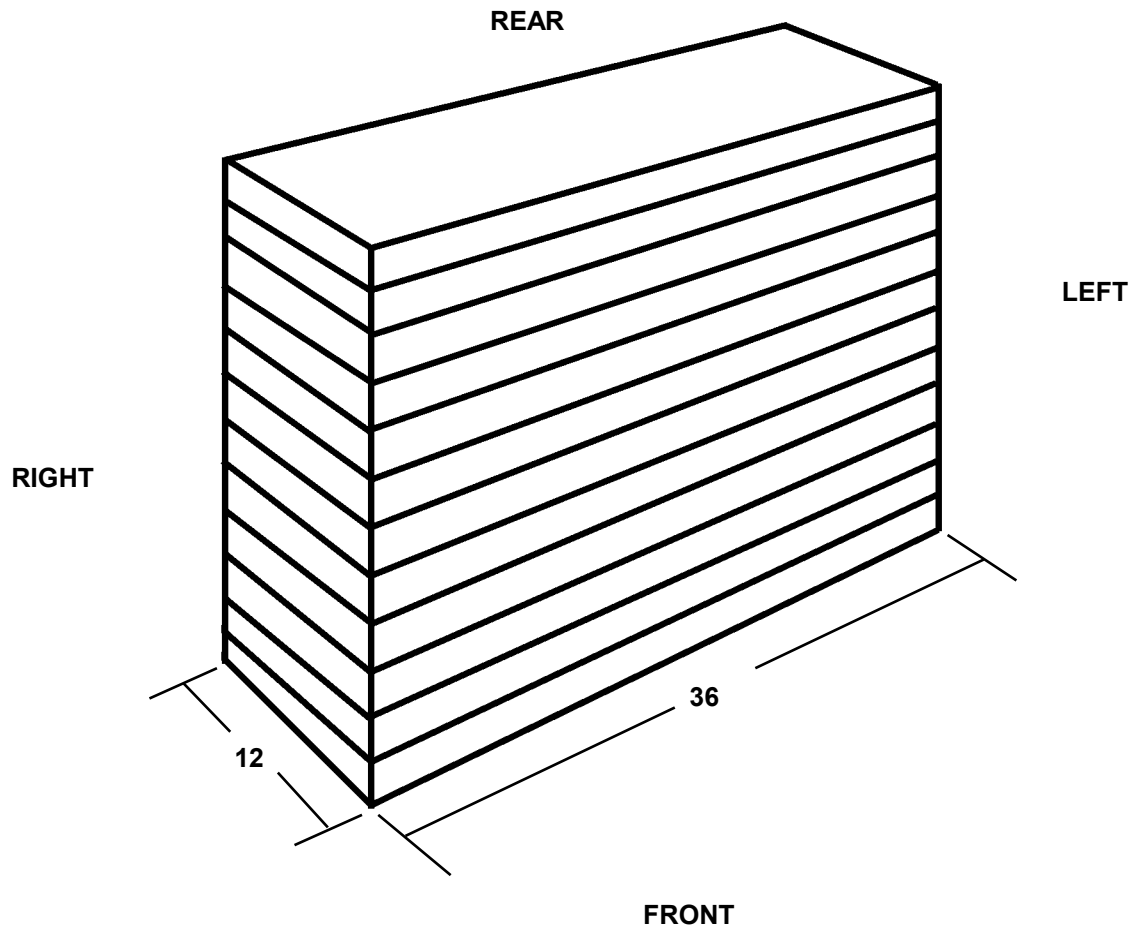


Figure 12-1. Platform Prepared

BUILDING AND PLACING HONEYCOMB STACKS

12-3. Build three honeycomb stacks using the material listed and shown in Figures 12-2 through 12-4. Place the stacks on the platform as shown in Figures 12-5 and 12-6.

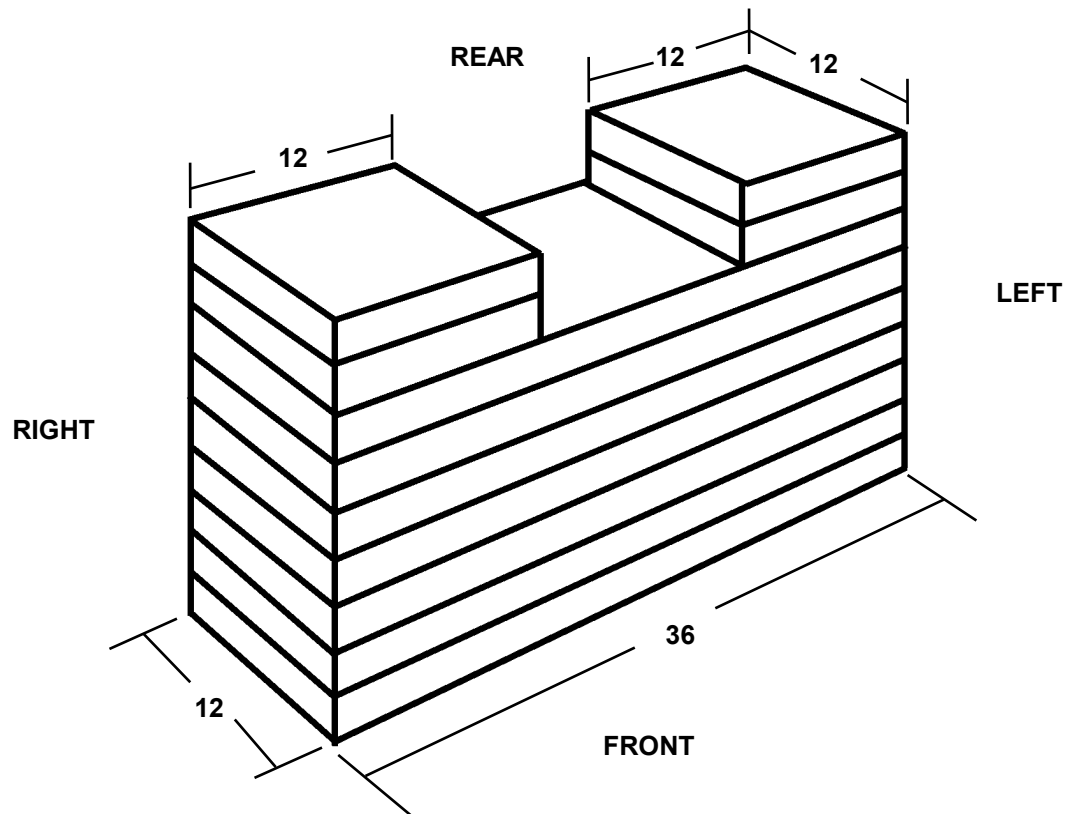
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	12	36	12	Honeycomb	Place and glue pieces together to form a stack.

Figure 12-2. Stack 1 Prepared

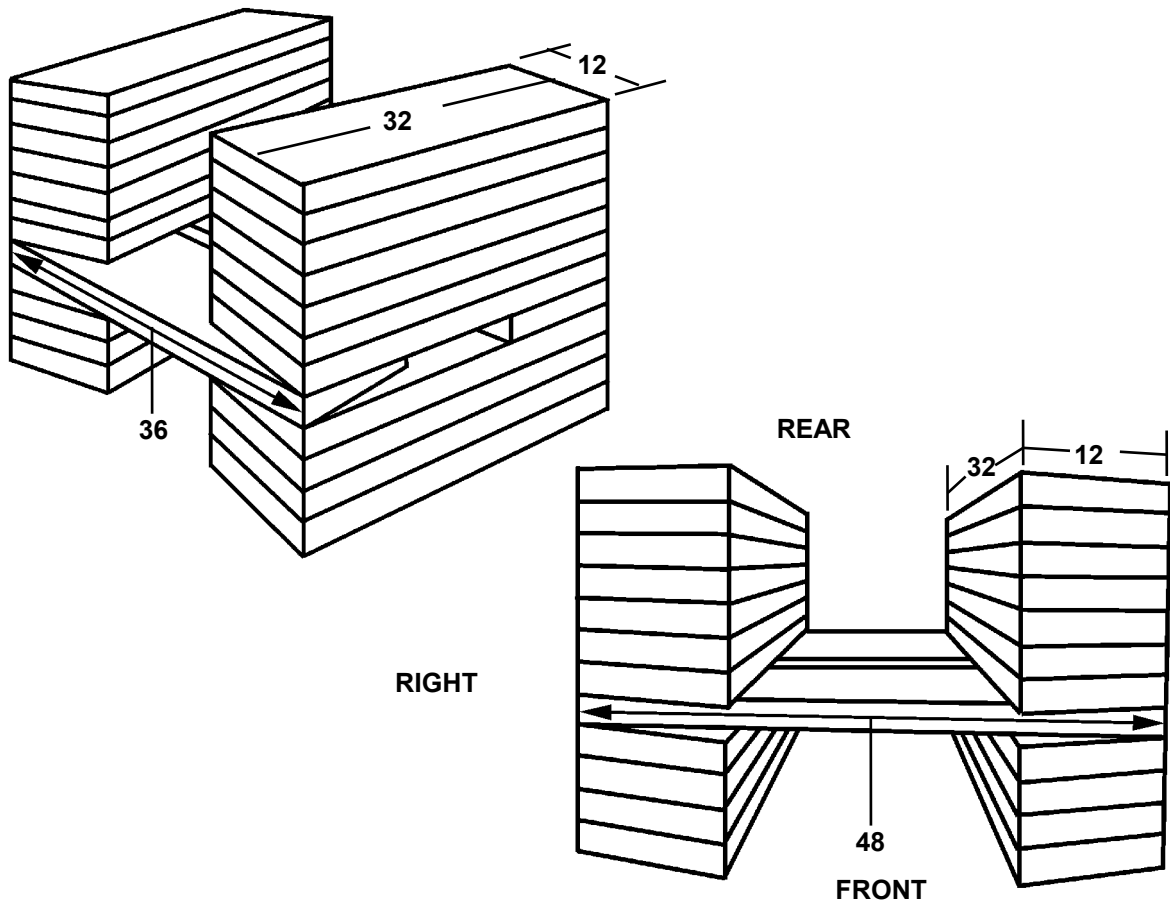
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
2	7	36	12	Honeycomb	Glue together to form a stack.
	4	12	12	Honeycomb	Glue two pieces flush with each side of the base.

Figure 12-3. Stack 2 Prepared

Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
3	8	12	32	Honeycomb	Glue four pieces together. Make a base of two stacks.
	1	36	12	Honeycomb	Align and glue to the outside rear corners of the base.
	1	48	12	Honeycomb	Align and glue to the outside front corners of the base.
	14	12	32	Honeycomb	Glue seven pieces together. Make two stacks and glue to the bridge flush with the base stack.

Figure 12-4. Stack 3 Prepared

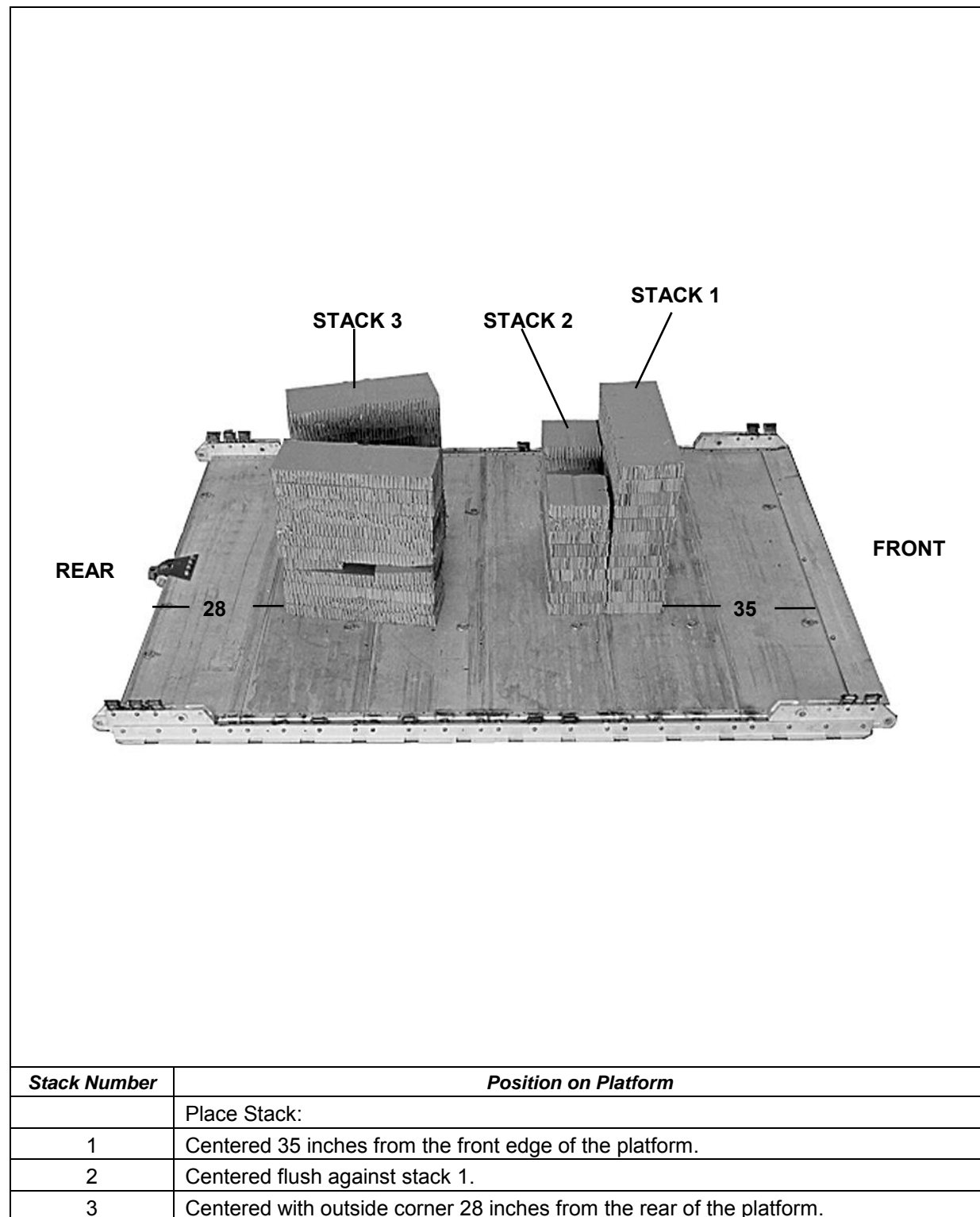


Figure 12-5. Honeycomb Stacks Placed on Platform

Note. This drawing is not drawn to scale.

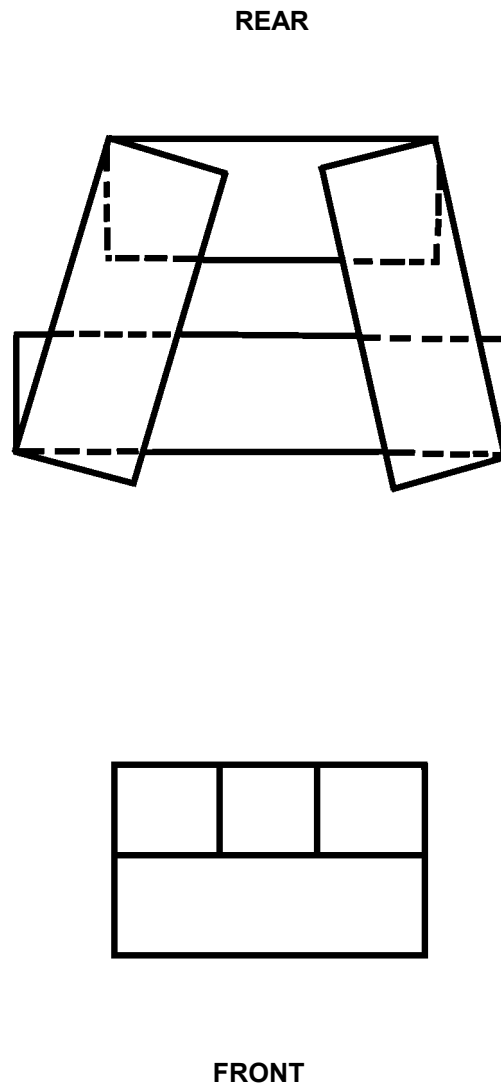


Figure 12-6. Top View of Honeycomb Stacks Placed on Platform

PREPARING TRAILER

12-4. Prepare the trailer as described below.

- Removing Components. Remove the components from the trailer as shown in Figure 12-7.

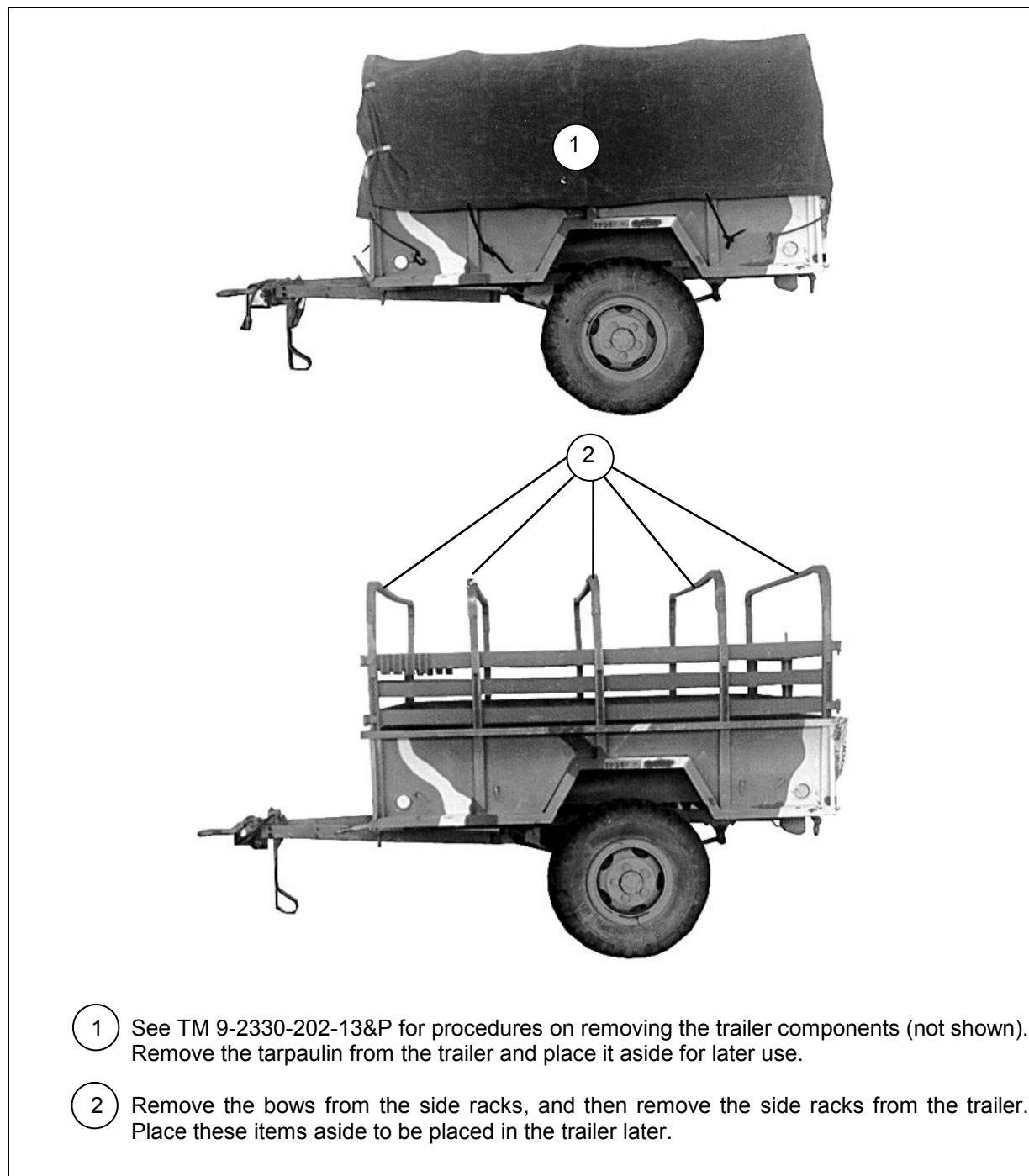
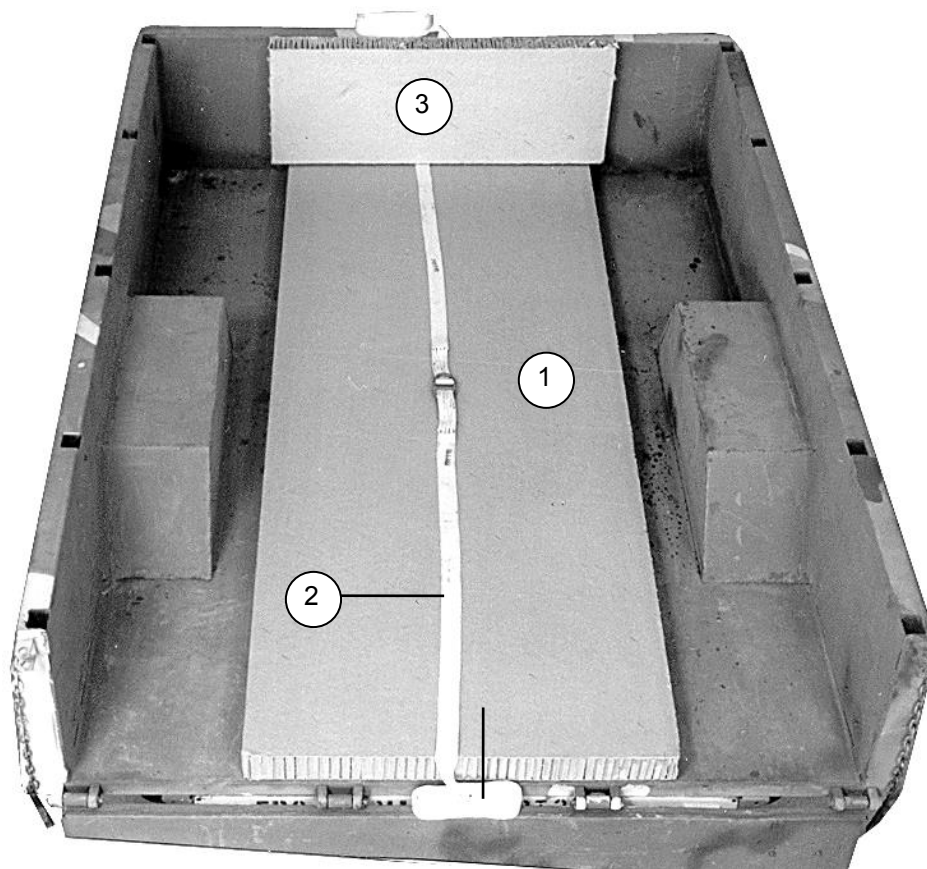


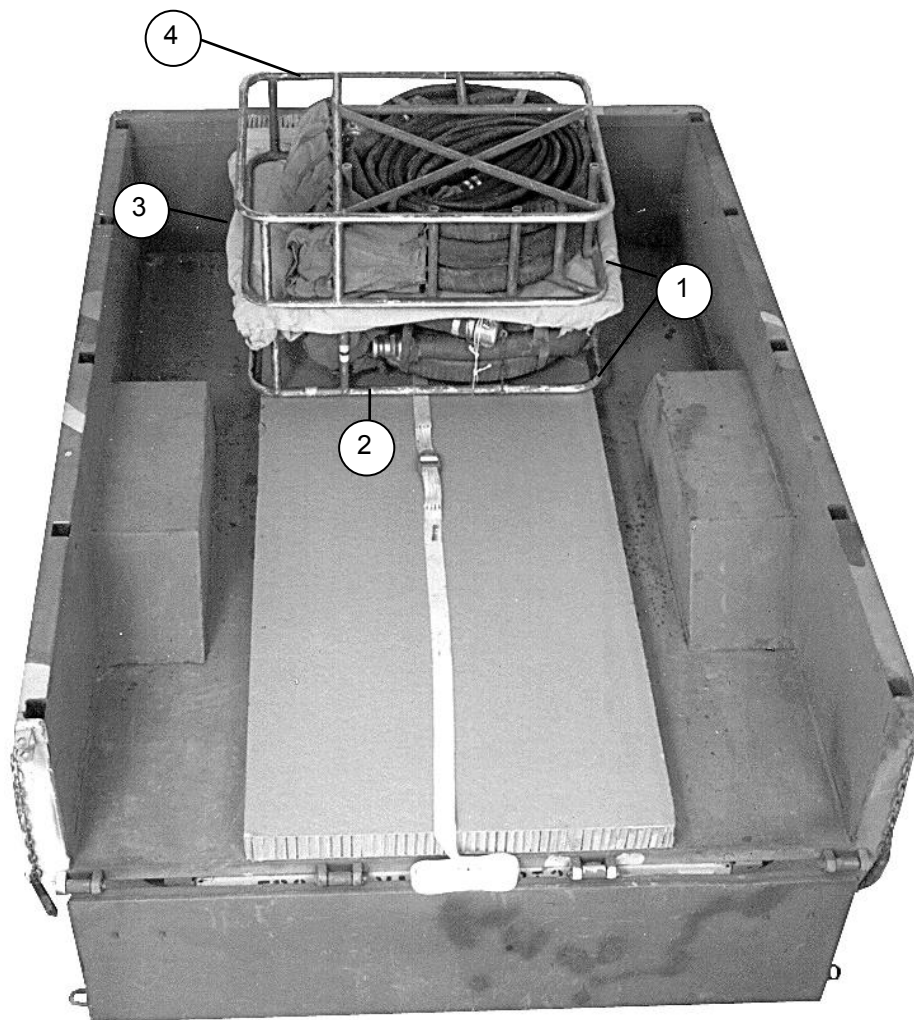
Figure 12-7. Trailer Components Removed

- **Preparing Trailer Before Positioning.** Prepare the trailer, and place the components of the FARE in the cargo bed as shown in Figures 12-8 through 12-17.



- ① Center a 36- by 96-inch piece of honeycomb in the trailer cargo bed.
- ② Form a 30-foot lashing. Center the lashing on the honeycomb.
- ③ Center an 18- by 38-inch piece of honeycomb against the front wall of the cargo bed.

Figure 12-8. Honeycomb Placed in Cargo Bed



- ① Prepare the discharge hose frame assemblies as shown in Figure 12-7.

Note. Ensure the discharge hose accessory fittings placed in the accessory storage compartment are secured to the discharge hose frame.

- ② Place a discharge hose assembly flush against the 18- by 38-inch piece of honeycomb.
- ③ Place a layer of cellulose wadding on top of the discharge hose frame assembly.
- ④ Place another discharge hose frame assembly on top of the cellulose wadding and flush against the 18- by 38-inch piece of honeycomb.

Figure 12-9. Discharge Hose Frame Assemblies Placed on Honeycomb

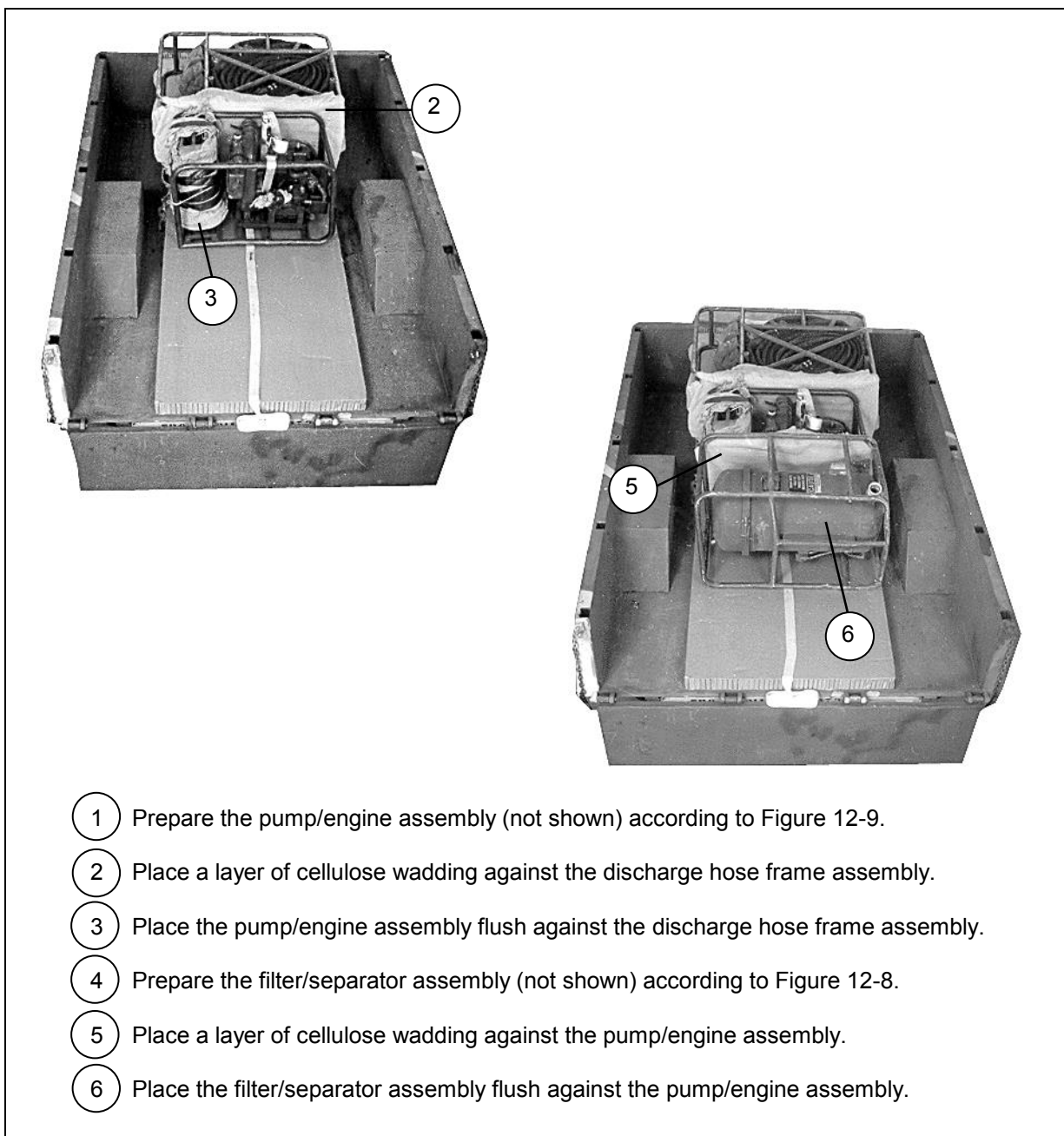


Figure 12-10. Pump/Engine Assembly Stowed

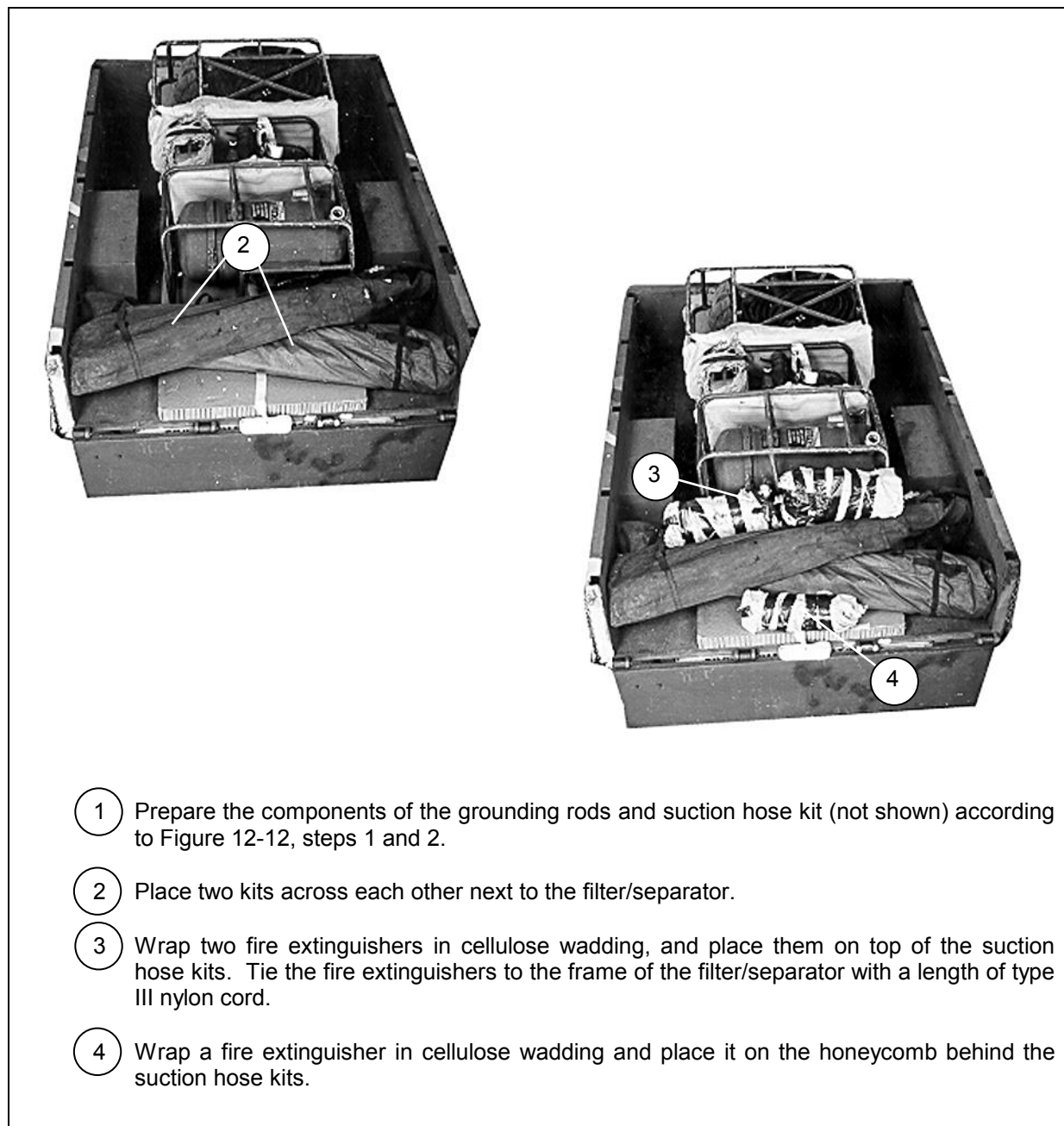


Figure 12-11. Ground Rods, Suction Hose Kits, and Fire Extinguisher Placed on Honeycomb

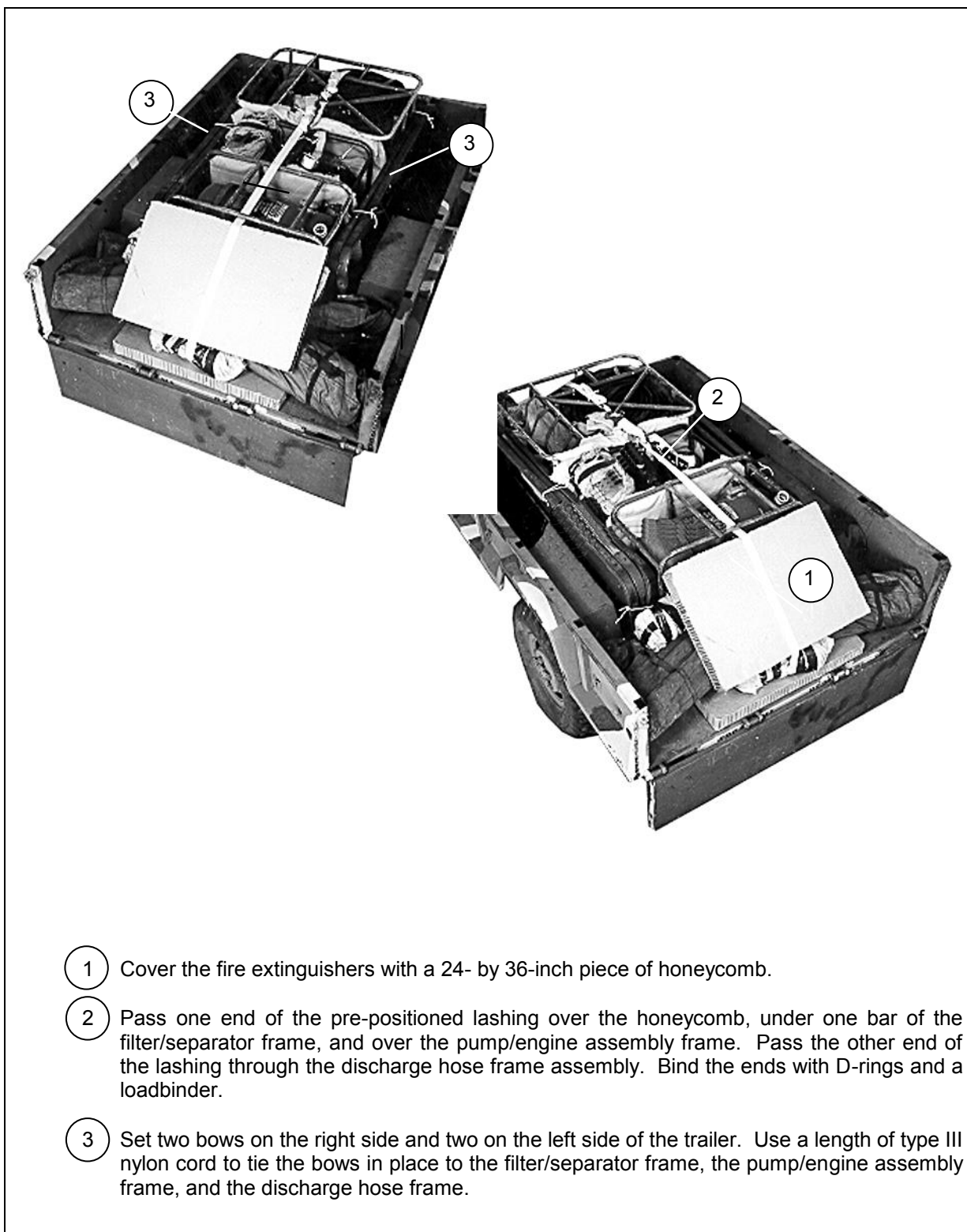


Figure 12-12. Lashing Secured and Bows Tied in Place

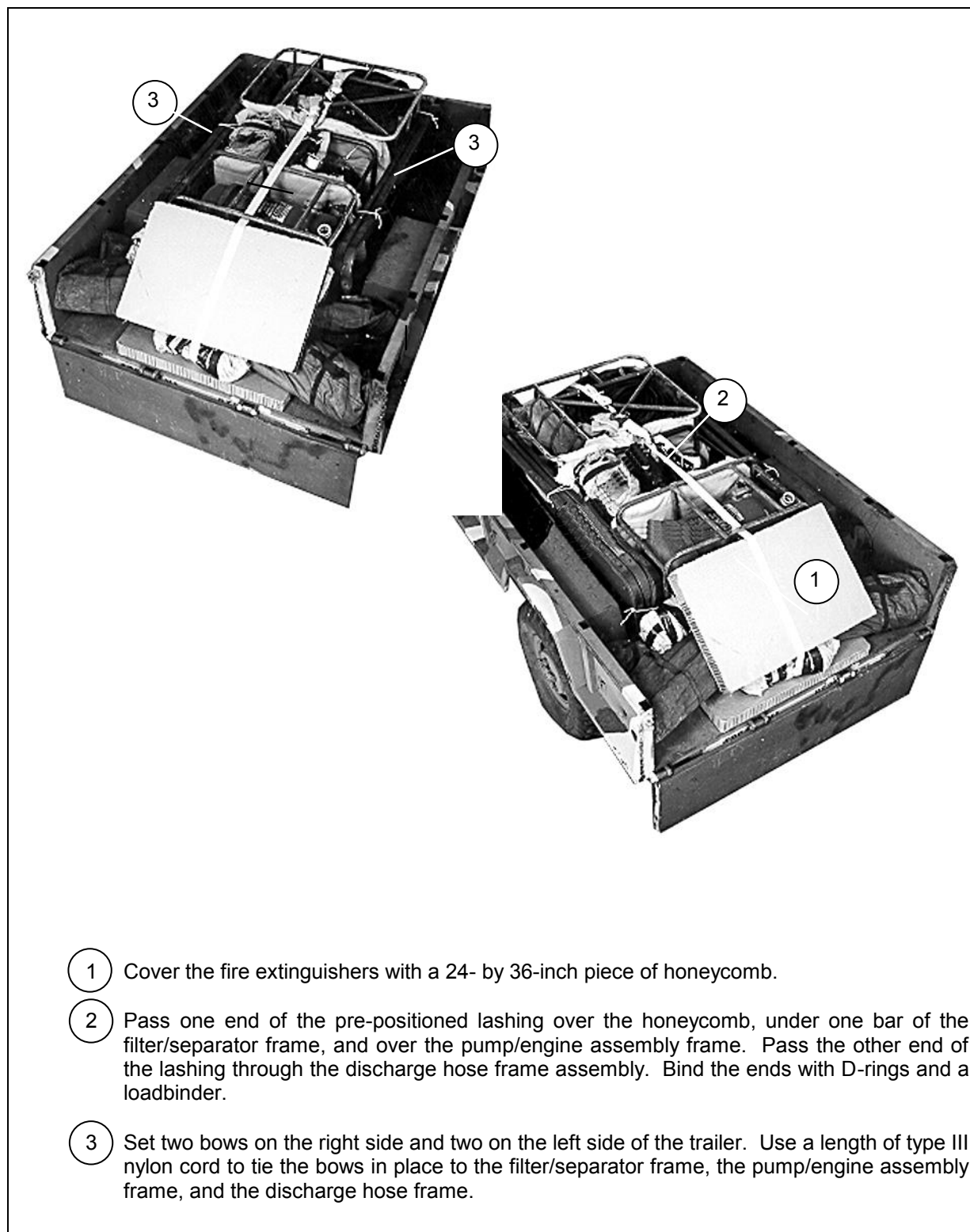


Figure 12-13. Lashing Secured and Bows Tied in Place

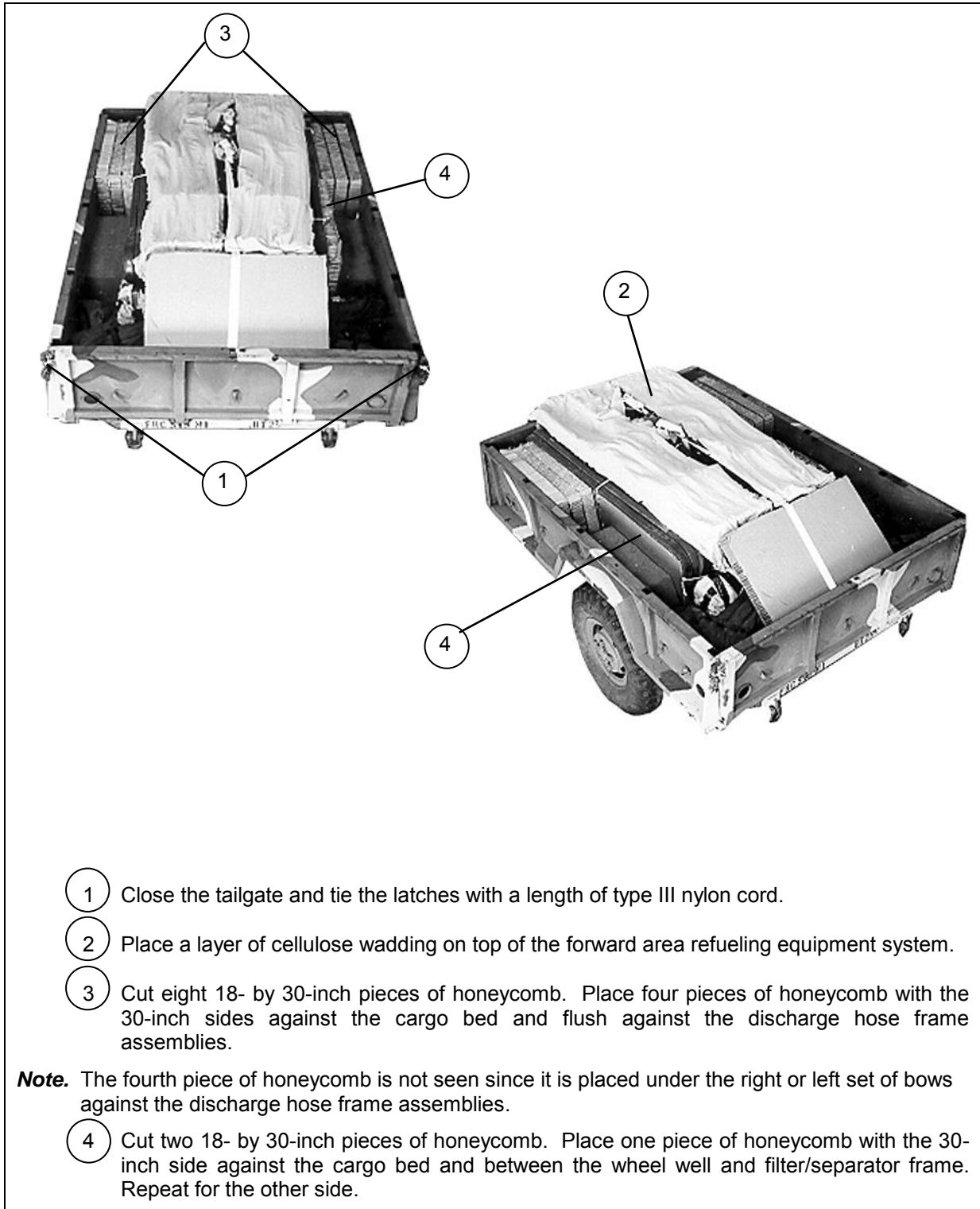


Figure 12-14. Tailgate Secured and Filler Honeycomb Placed in Cargo Bed

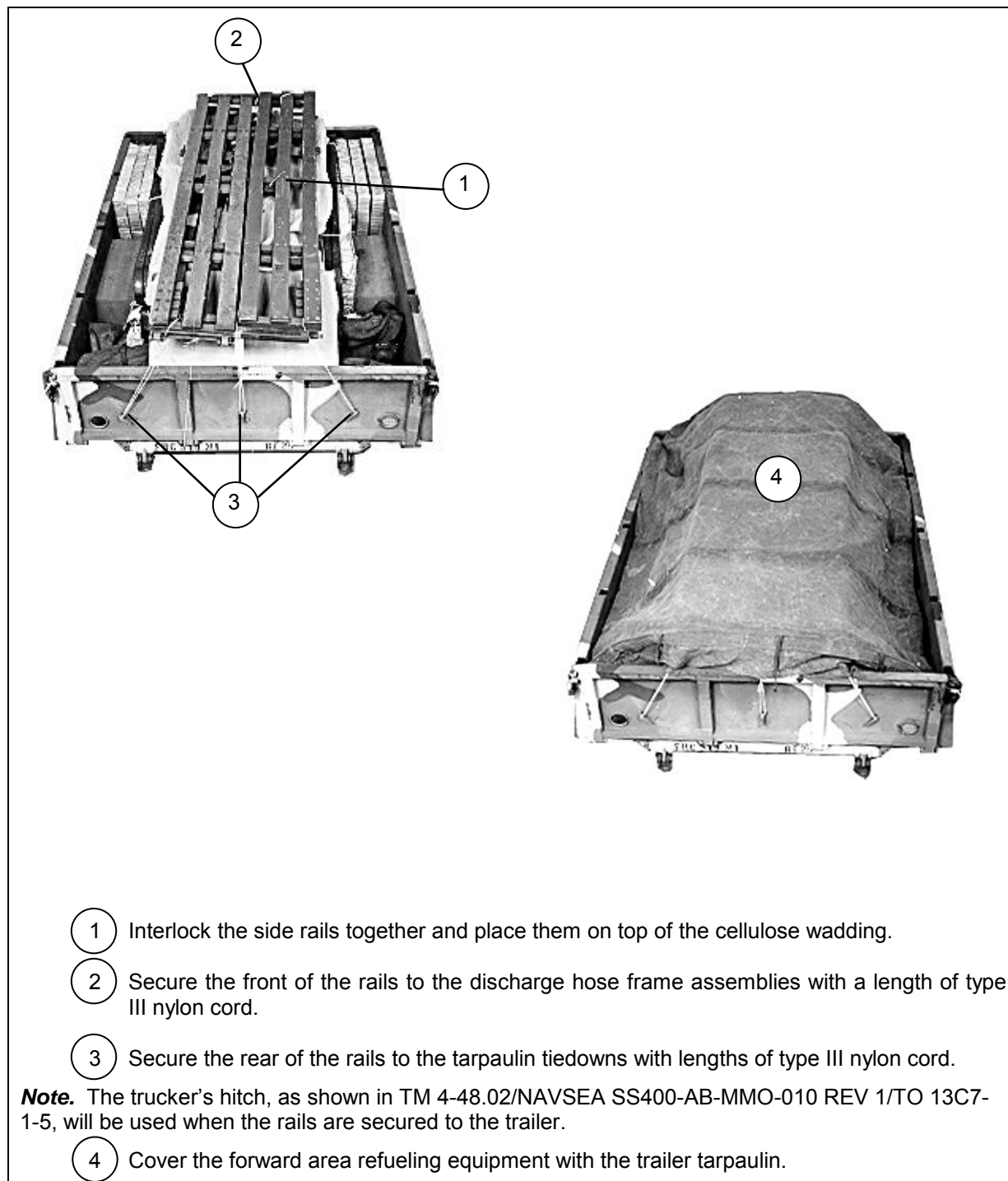


Figure 12-15. Side Rail and Tarpaulin Secured to Trailer

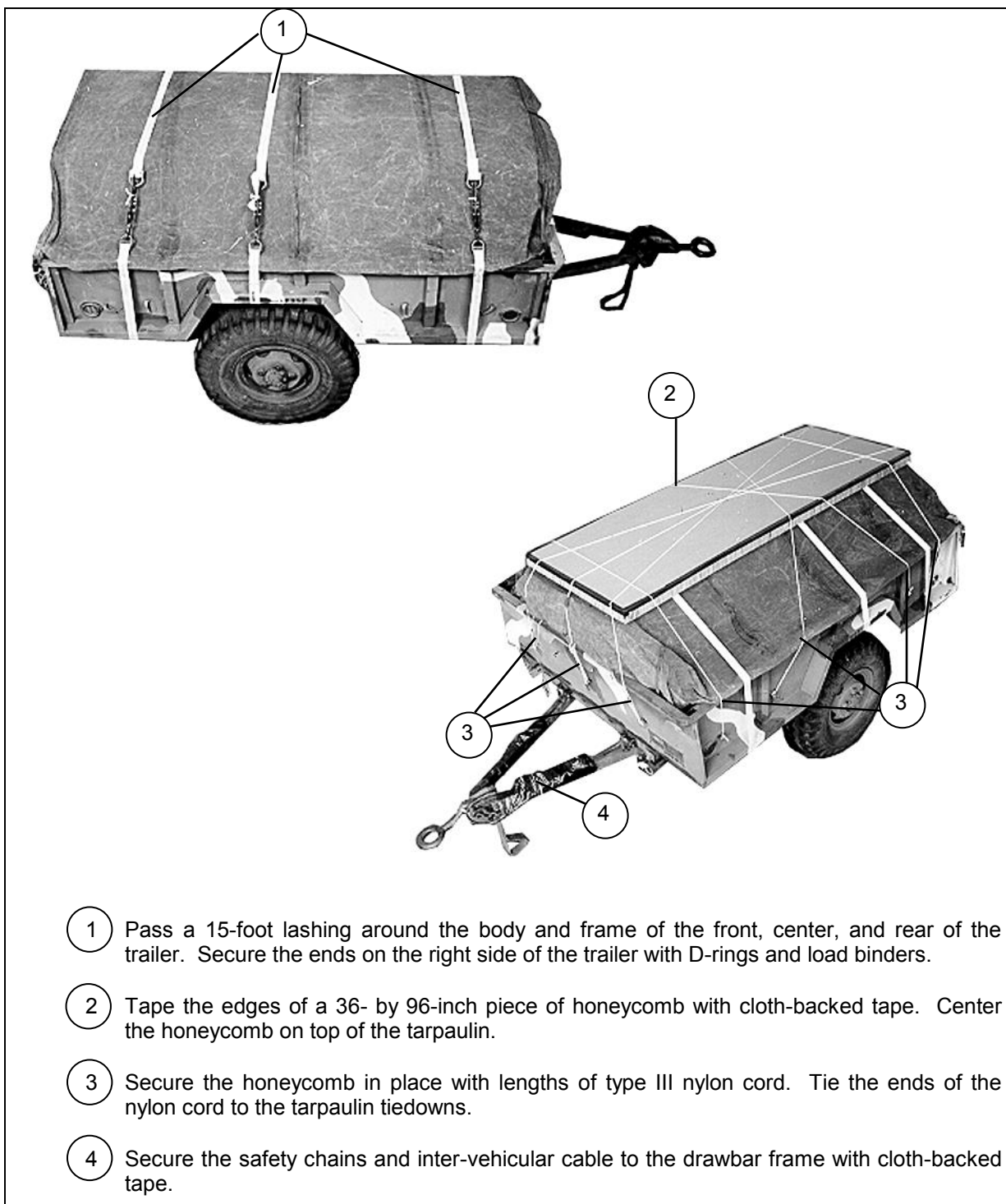
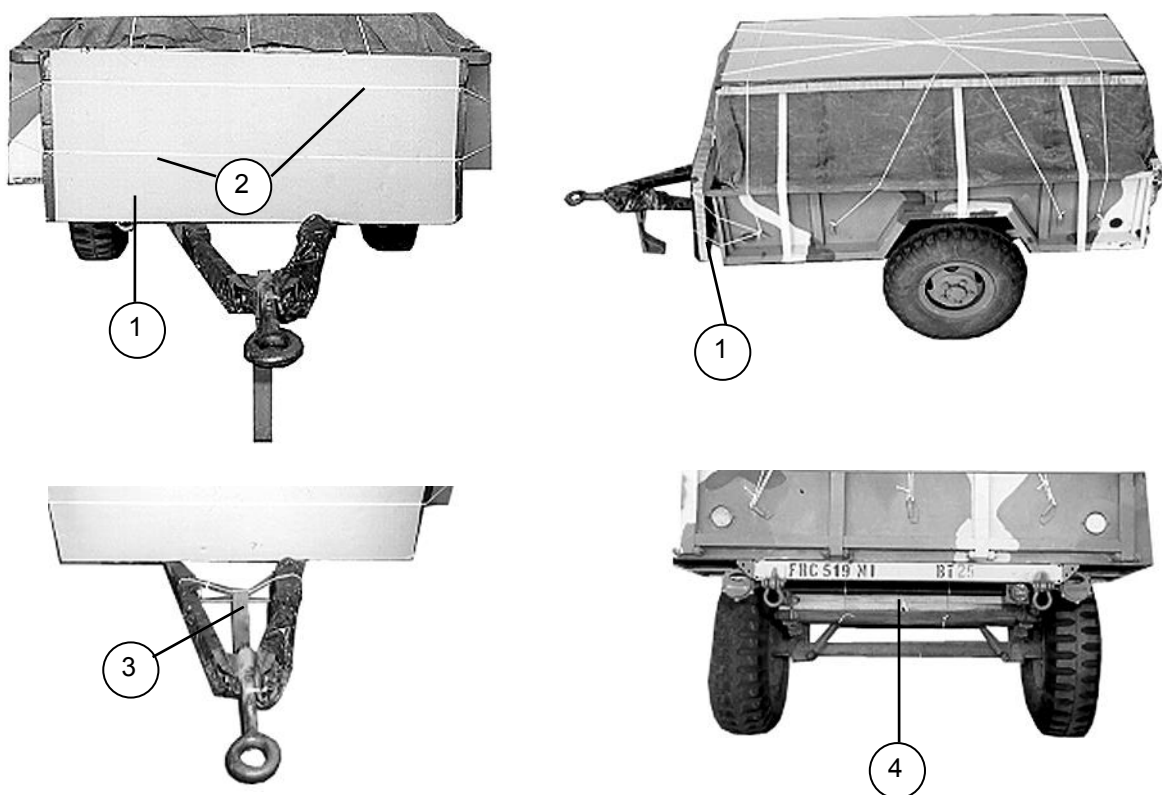


Figure 12-16. Forward Area Refueling Equipment Lashed to Trailer and Chains Secured

CAUTION

The brake must be in the off position before the honeycomb can be installed.



- ① Cut a 24- by 60-inch piece of honeycomb. Tape the 24-inch sides with cloth-backed tape. Place the honeycomb on the drawbar.
- ② Secure the honeycomb in place with two lengths of type III nylon cord. Tie the ends of the nylon cord to the tarpaulin tiedowns.
- ③ Secure the support stand in the UP position with a length of type III nylon cord. Make sure the locking pin is in the LOCKED position.
- ④ Place two 2- by 12- by 46-inch pieces of lumber between the leaf springs and frame and against the shackle bolts. Tie the lumber to the frame with two lengths of type III nylon cord.

Figure 12-17. Support Stand and Leaf Springs Secured

POSITIONING TRAILER

12-5. Position the trailer on the honeycomb stacks using three medium suspension clevises, two 11-foot (2-loop), type XXVI nylon webbing slings, and one 12-foot (2-loop), type XXVI nylon webbing sling for lifting as shown in Figure 12-18.

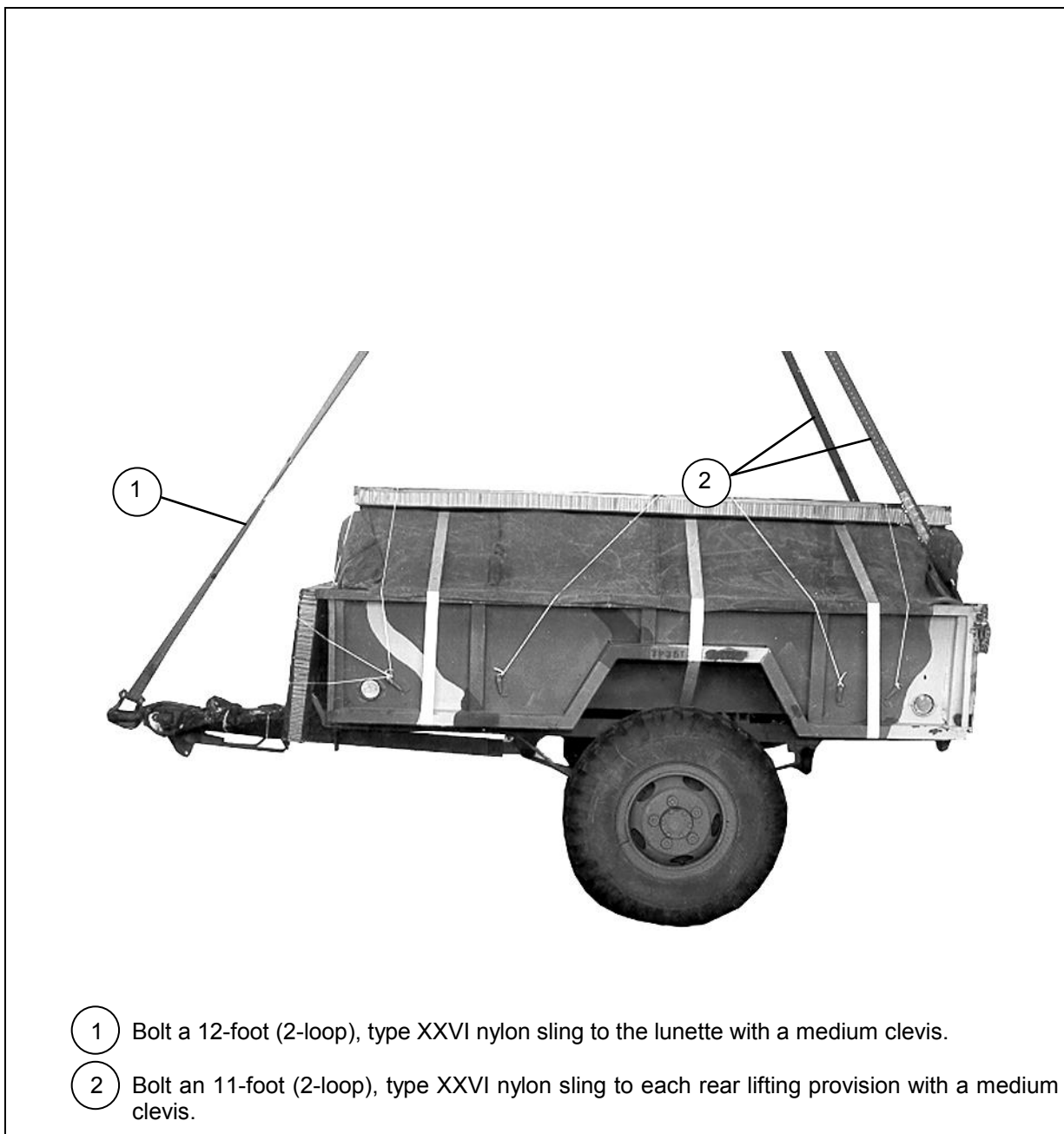
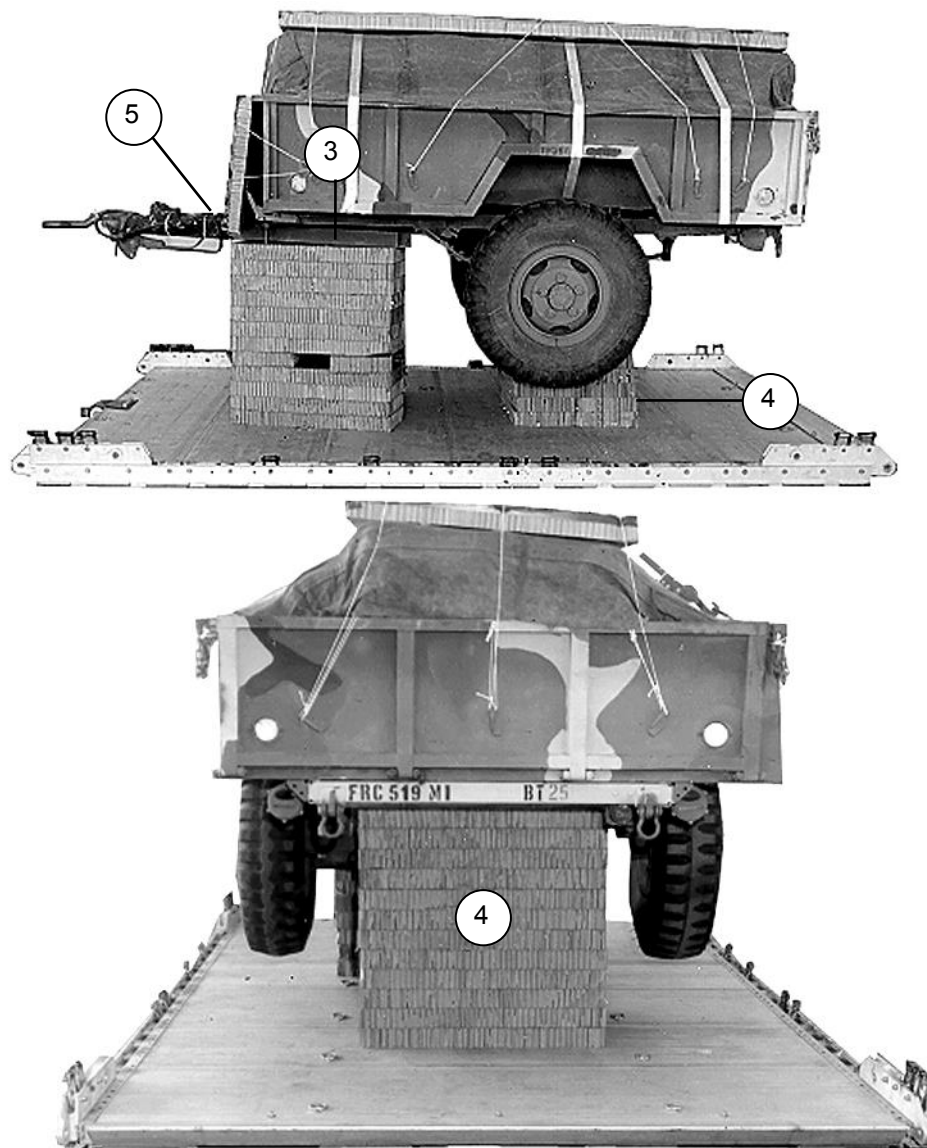


Figure 12-18. Trailer Positioned



- 3 Set the trailer on the honeycomb with the frame support board on stack 3.
- 4 Set the axle on stack 2.
- 5 Set the drawbar on stack 3.
- 6 Remove the lifting slings (not shown).

Figure 12-18. Trailer Positioned (continued)

PLACING AND LASHING TRAILER

12-6. Lash the trailer to the platform using fourteen 15-foot tiedown assemblies according to TM 4-48.02 /NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 12-19.

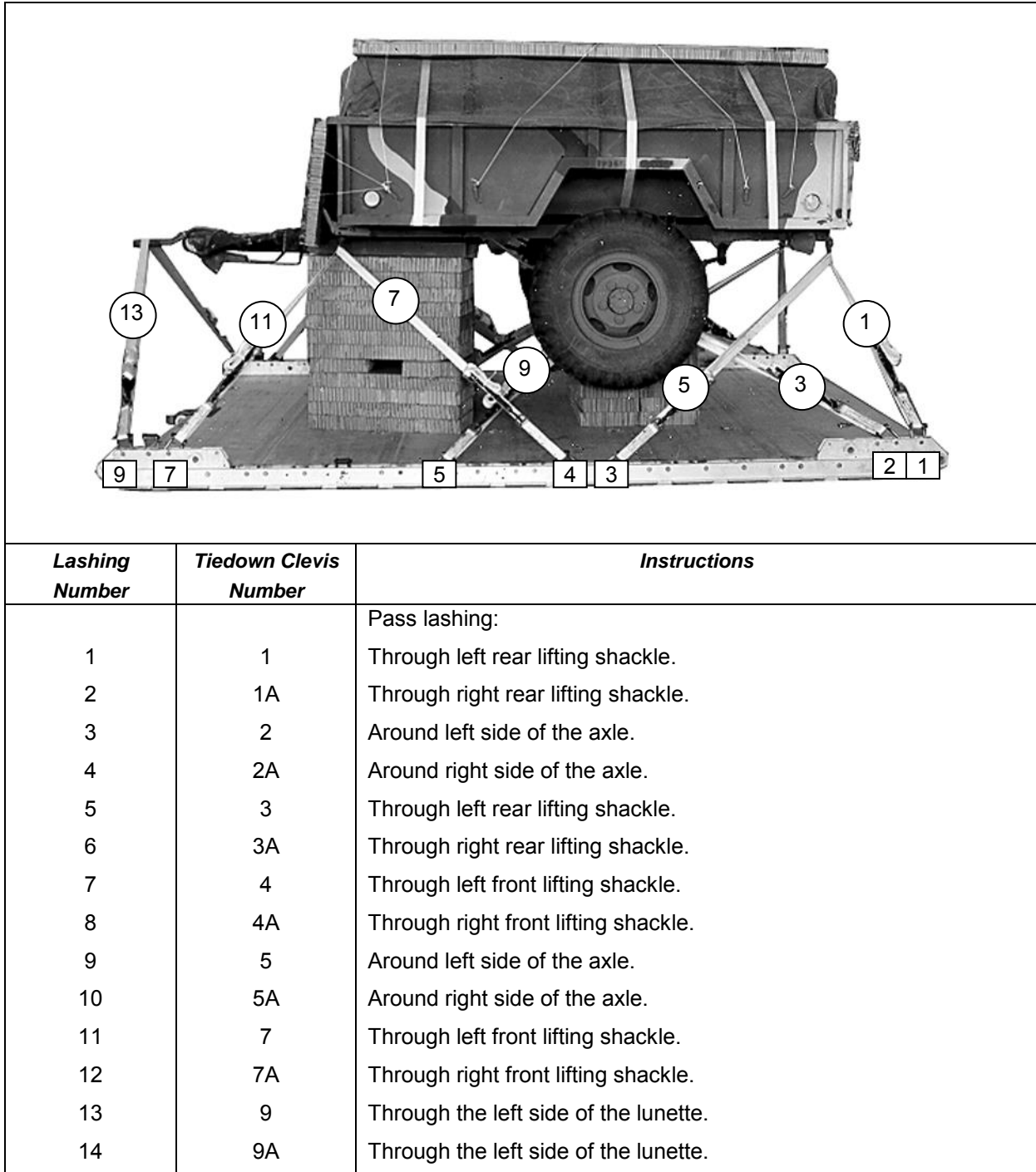


Figure 12-19. Trailer Lashed to Platform

INSTALLING SUSPENSION SLINGS

12-7. Using four large suspension clevises and four 16-foot (2-loop), type XXVI nylon webbing slings for suspension, bolt and safety the slings to the trailer as shown in Figure 12-20.

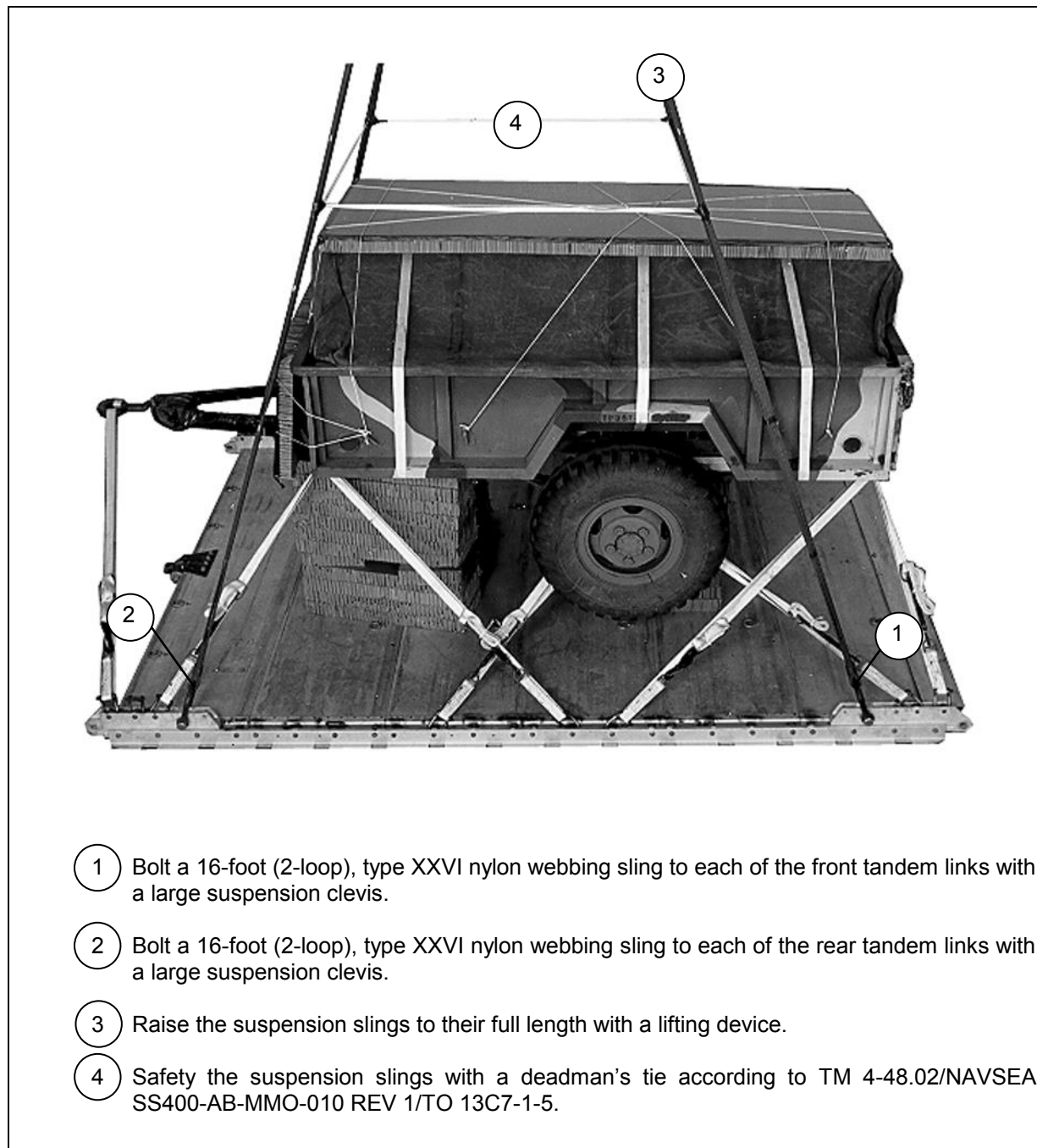
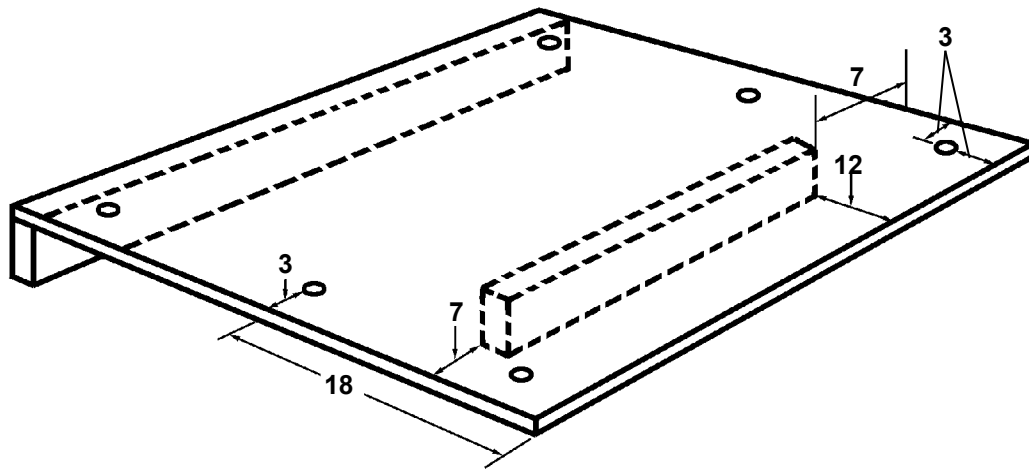


Figure 12-20. Suspension Slings Installed

BUILDING AND INSTALLING CARGO PARACHUTE STOWAGE PLATFORM

12-8. Build the parachute stowage platform using a $\frac{3}{4}$ - by 36- by 36-inch piece of plywood, a 2- by 4- by 36-inch piece of lumber, a 2- by 4- by 22-inch piece of lumber, and eight-penny nails as shown in Figure 12-21. Install the parachute stowage platform using 15-foot tiedown assemblies and as shown in Figure 12-22.

- Note.** 1. This drawing is not drawn to scale.
2. The pieces of lumber are nailed to the underside of the plywood.
3. All dimensions are in inches

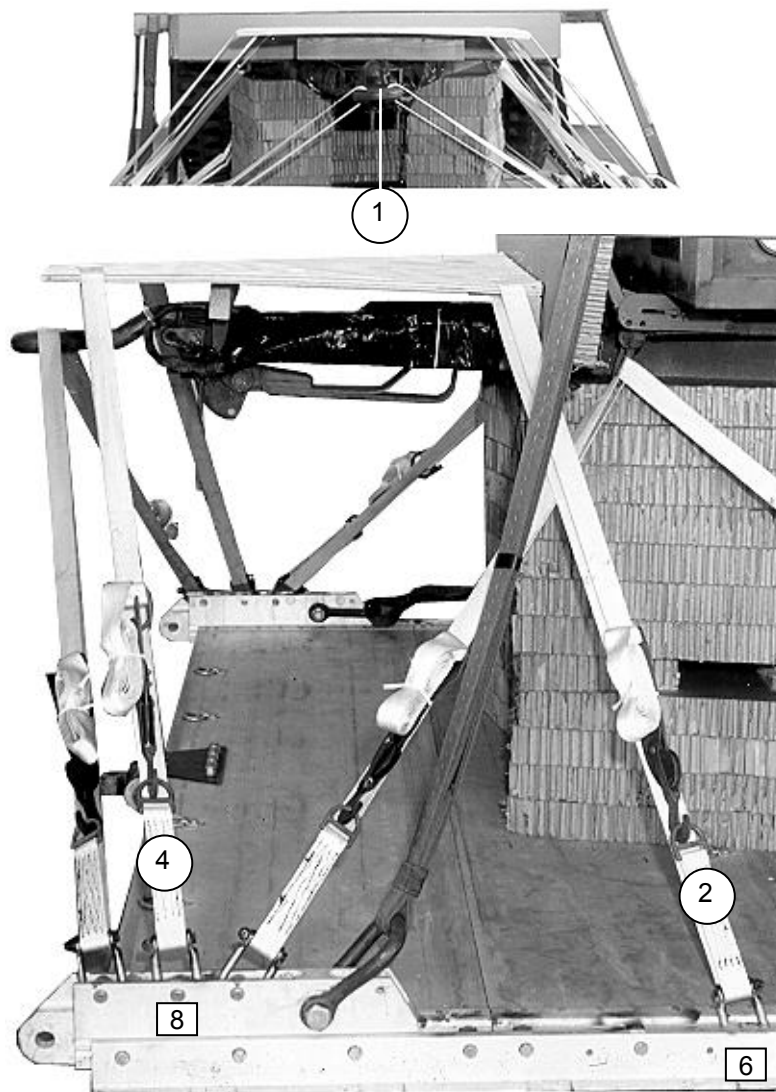


Steps:

1. Drill a 2-inch diameter hole 3 inches from each corner of the $\frac{3}{4}$ - by 36- by 36-inch plywood.
2. Drill a 2-inch diameter hole centered 3 inches from the sides of the plywood.
3. Place the 2- by 4- by 36-inch lumber on its 2 inch side. Place the lumber on the rear edge of the plywood. Use eight-penny nails to nail the lumber to the plywood.
4. Place the 2- by 4- by 22-inch lumber on its 2 inch side. Center the lumber 12 inches from the front edge of the plywood and 7 inches from each side. Use eight-penny nails to nail the lumber to the plywood.

Figure 12-21. Parachute Stowage Platform Built

Note. Do not tighten the lashing so tight that the plywood bows.



- ① Center the parachute stowage platform on the trailer drawbar.
- ② Pass a 15-foot lashing from clevis 6 up through the front hole in the parachute stowage platform. Secure the lashing with a D-ring and a load binder.
- ③ Repeat step 2 above clevis 6A (not shown).
- ④ Pass a 15-foot lashing from clevis 8 up through the rear hole in the parachute stowage platform. Secure the lashing with a D-ring and a load binder.
- ⑤ Repeat step 4 above for clevis 8A (not shown).

Figure 12-22. Suspension Slings Installed

STOWING CARGO PARACHUTES

12-9. Stow one G-11 cargo parachute according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 12-23.

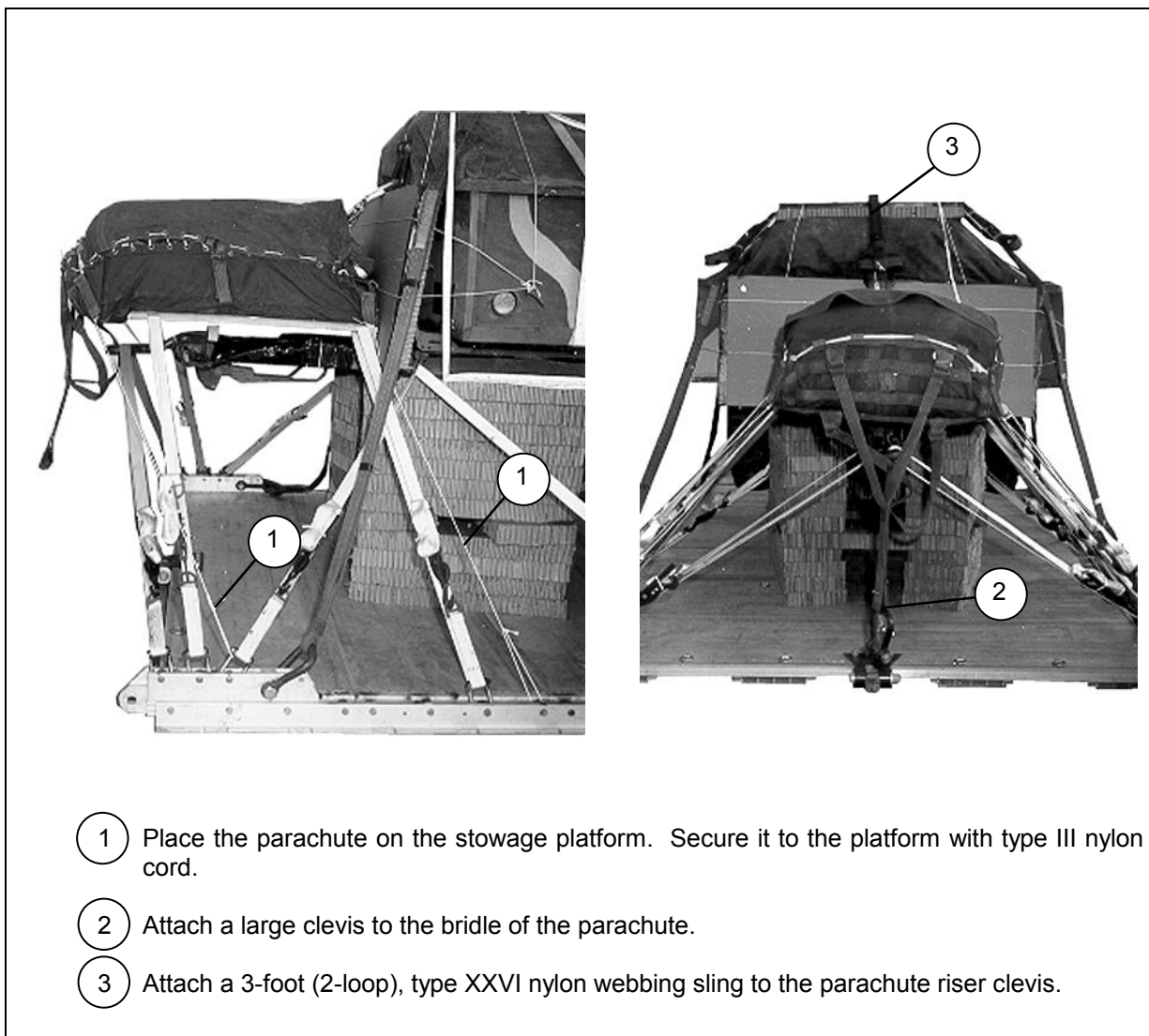
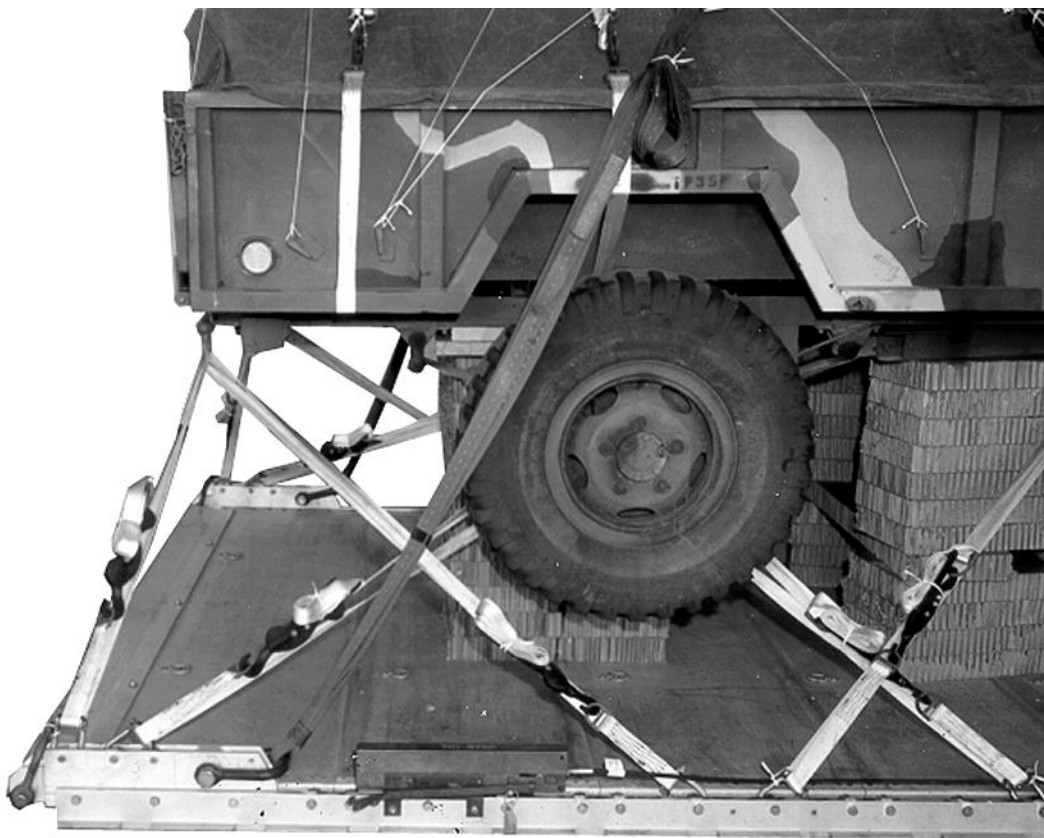


Figure 12-23. Cargo Parachute Stowed

INSTALLING EXTRACTION SYSTEM

12-10. Install the extraction force transfer coupling extraction system according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 12-24.



- 1 Bolt the actuator bracket to the front extraction force transfer coupler mounting holes on the left platform side rail.
- 2 Install a 12-foot cable to the actuator assembly.
- 3 Install the actuator in the actuator mounting brackets.
- 4 Route the cable along the left rail to the rear of the platform. Tie the cable to clevises 4A and 5A with type I, 1/4-inch cotton webbing.

Figure 12-24. Extraction Force Transfer Coupling Installed

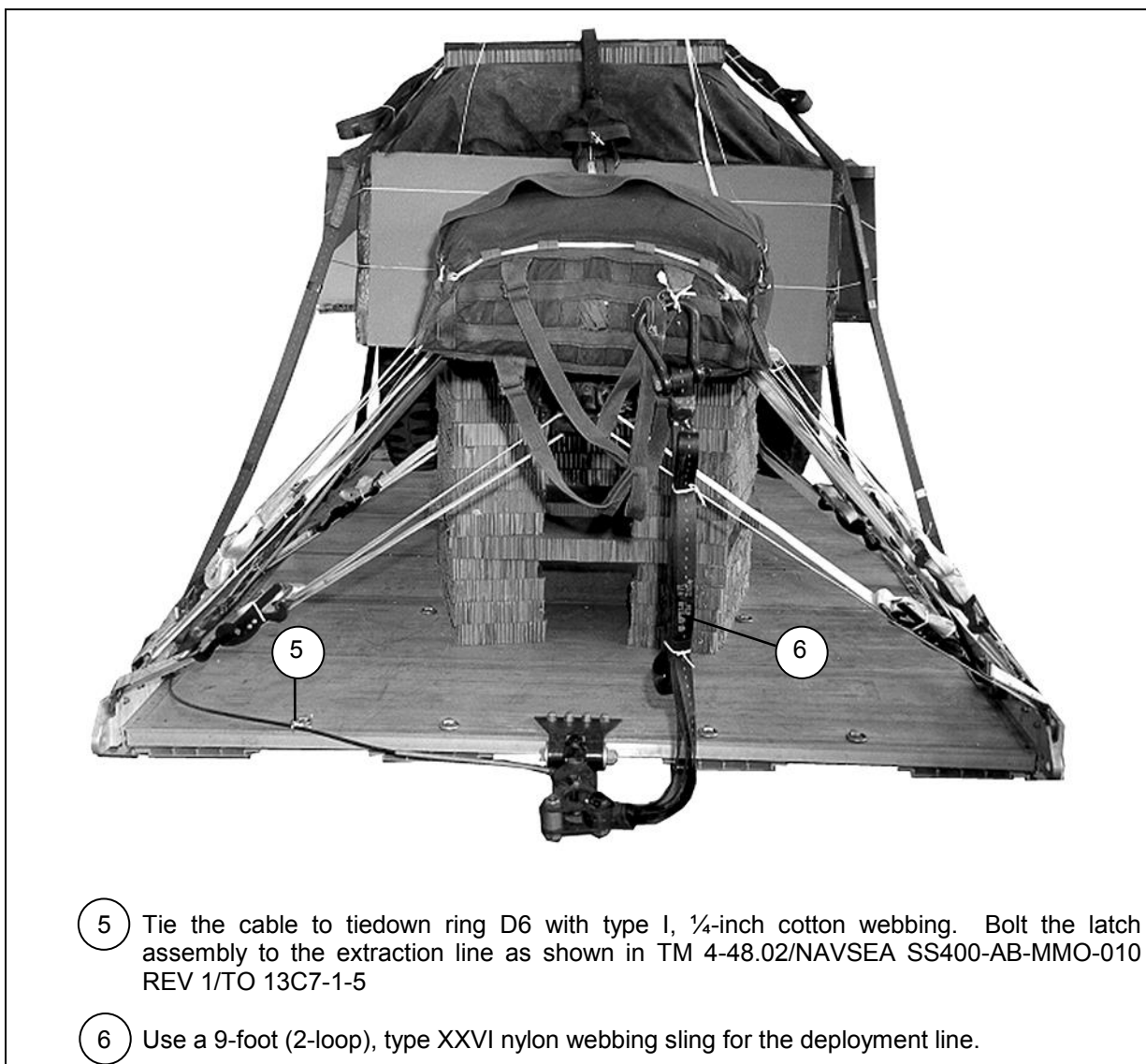
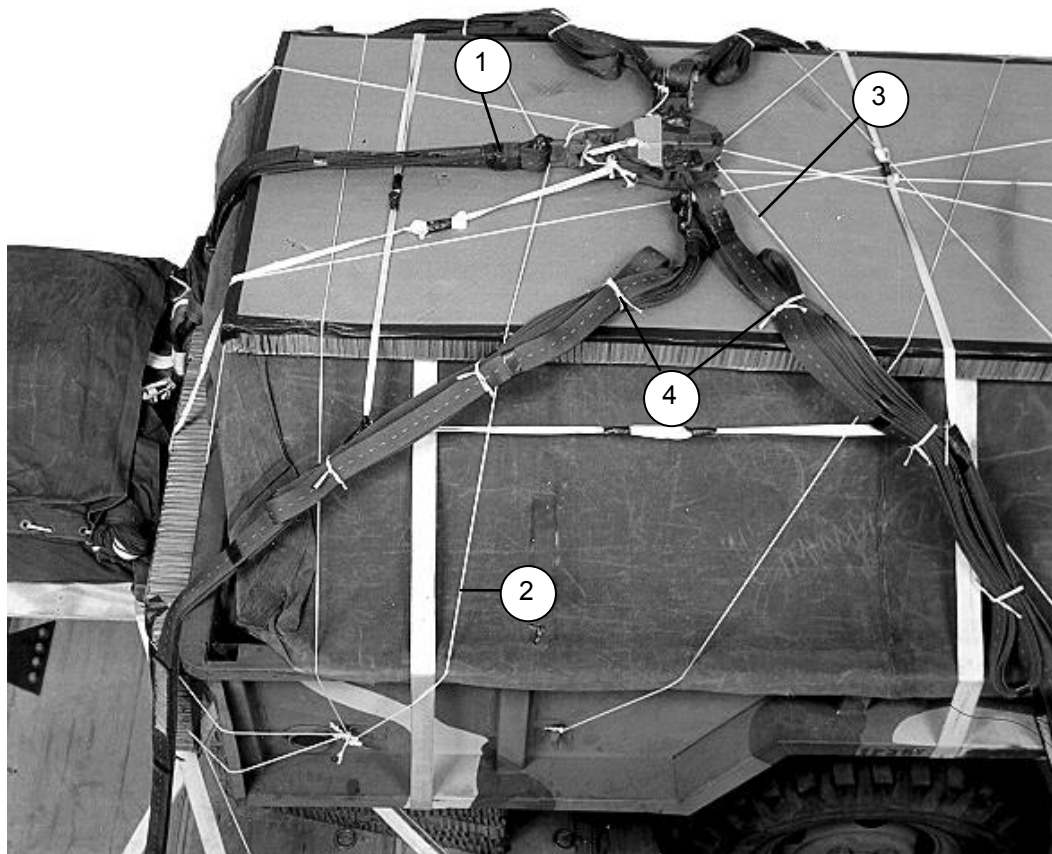


Figure 12-24. Extraction Force Transfer Coupling Installed (continued)

INSTALLING PARACHUTE RELEASE SYSTEM

12-11. Prepare and install the M-1 release assembly according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 12-25.



- ① Attach the pre-positioned 3-foot sling to the M-1 release. Place the release on the honeycomb.
- ② Secure the release to the tarpaulin tiedowns at the front of the trailer with type III nylon cord.
- ③ Secure the release to the tarpaulin tiedowns at the rear of the trailer with type III nylon cord.
- ④ Attach the 16-foot (2-loop) nylon webbing suspension slings to the release. S-fold and tie the slings in place with type I, 1/4-inch cotton webbing as outlined in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 12-25. M-1 Cargo Parachute Release Installed

PLACING EXTRACTION PARACHUTE

12-12. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

12-13. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

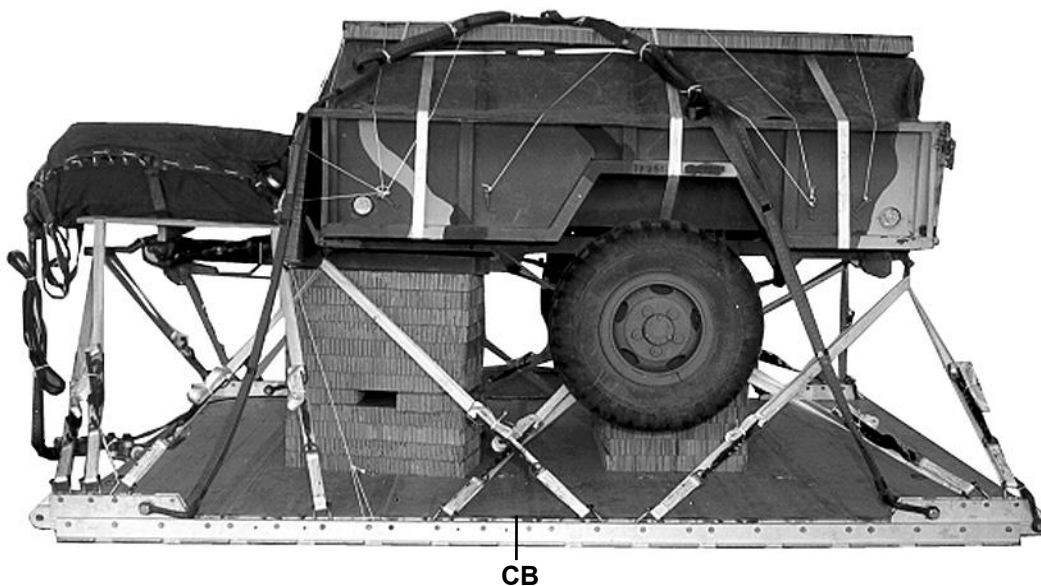
12-14. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 12-28. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

12-15. Use the equipment list in Table 12-1 to rig the load shown in Figure 12-26.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).

**Rigged Load Data**

Weight: Load shown.....	4,050 pounds
Maximum load allowed.....	5,000 pounds
Height.....	83 inches
Width	108 inches
Length	162 inches
Overhang: Front	0 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	72 1/2 inches
Extraction System	Extraction Force Transfer Coupler

Figure 12-26. Forward Area Refueling Equipment in an M101 Series, 3/4-Ton Trailer Rigged for Low-Velocity Airdrop

Table 12-1. Equipment Required for Rigging Forward Area Refueling Equipment in an M101, ¾-Ton Trailer Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	5
4030-00-678-8562	Clevis, medium	2
8305-00-880-8155	Cloth coated, green, 60-inch	As required
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer w/ cable, 12-oof	1
1670-00-360-0328	Cover:	1
8135-00-664-6958	Cover, Clevis, large	As required
5365-00-937-0147	Cushioning material, packaging, cellulose wadding	2
8305-00-958-3685	D-ring, heavy-duty, 10,000 pound	As required
1670-00-003-4391	Felt, ½-inch thick	1
1670-01-183-2678	Knife, parachute bag (for Drogue Extraction System)	2
	Leaf, extraction line (line bag)(add 2 for Drogue Extraction System)	
1670-01-064-4452	Line, drogue (for Drogue Extraction System)	1
1670-01-064-4452	60-foot (1-loop), type XXVI	1
1670-01-107-7652	Line, extraction:	1
	For C-141: 160-foot (1-loop), type XXVI	
1670-01-107-7652	For C-5	1
	160-foot (1-loop), type XXVI	
1670-01-107-7652	For C-17:	1
1670-01-483-8259	160-foot (1-loop), type XXVI	1
	Link, tow release mechanism (H-Block) C-17 aircraft	1
5306-00-435-8994	Link assembly: (double the quantity for Drogue Extraction System)	(2)
5310-00-232-5165	Two-point	(2)
1670-00-003-1953	Bolt, 1-inch diameter, 4-inches long	(2)
5365-00-007-3414	Nut, 1-inch, hexagonal	(2)
	Plate, side, 3 ¾-inch	
5510-00-220-6146	Spacer, large	
	Lumber	1
	2- by 4- inch:	1
5510-00-220-6250	22-inches	2
5315-00-010-4659	36-inches	As required
1670-00-753-3928	Lumber, 2- by 12- by 46-inch	
	Nail, steel wire, 8-penny	11 sheets
	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	

Table 12-1. Equipment Required for Rigging Forward Area Refueling Equipment in an M101, ¾-Ton Trailer Low-Velocity Airdrop (continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-016-7841	Parachute: Cargo: G-11B	1
1670-01-063-3715	Cargo Extraction: 15-foot	1
1670-01-063-3715	Drogue (for Drogue Extraction System) 15-foot	1
1670-01-353-8425	Platform, airdrop, type V, 12-foot Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	44
1670-01-162-2376	Extraction bracket assembly	1
1670-01-162-2381	Tandem link assembly (Multipurpose link)	4
5530-00-128-4981	Plywood, ¾-inch	3 sheets
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-063-7761	16-foot (2-loop), type XXVI nylon webbing	4
	For lifting:	
1670-01-063-7760	11-foot (2-loop), type XXVI nylon webbing	2
1670-01-062-6303	12-foot (2-loop), type XXVI nylon webbing	1
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6302	3-foot (2-loop), type XXVI nylon webbing	1
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	23
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

Chapter 13

Rigging the Forward Area Refueling Equipment in an M998, 1 1/4-Ton Truck

DESCRIPTION OF LOAD

13-1. The M998, 1 1/4-ton truck is rigged on a 16-foot, type V airdrop platform for low-velocity airdrop. Except for the rigging procedures in this chapter, the truck is rigged according to TM 4-48.17/ MCRP 4-11.3M/TO 13C7-1-111. The FARE is stowed in the cargo bed of the truck as an accompanying load. The FARE weighs 860 pounds. The completely rigged load requires two G-11 cargo parachutes. Required equipment is listed in Table 13-1 at the end of this chapter.

PREPARING PLATFORM

13-2. Prepare the platform and the M998 truck according to TM 4-48.17/ MCRP 4-11.3M /TO 13C7-1-111.

-
- Note.* 1. The nose bumper may or may not be installed.
2. Measurements are given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.
-

PREPARING CARGO BED

13-3. Prepare the cargo bed of the M998 as shown in Figure 13-1.

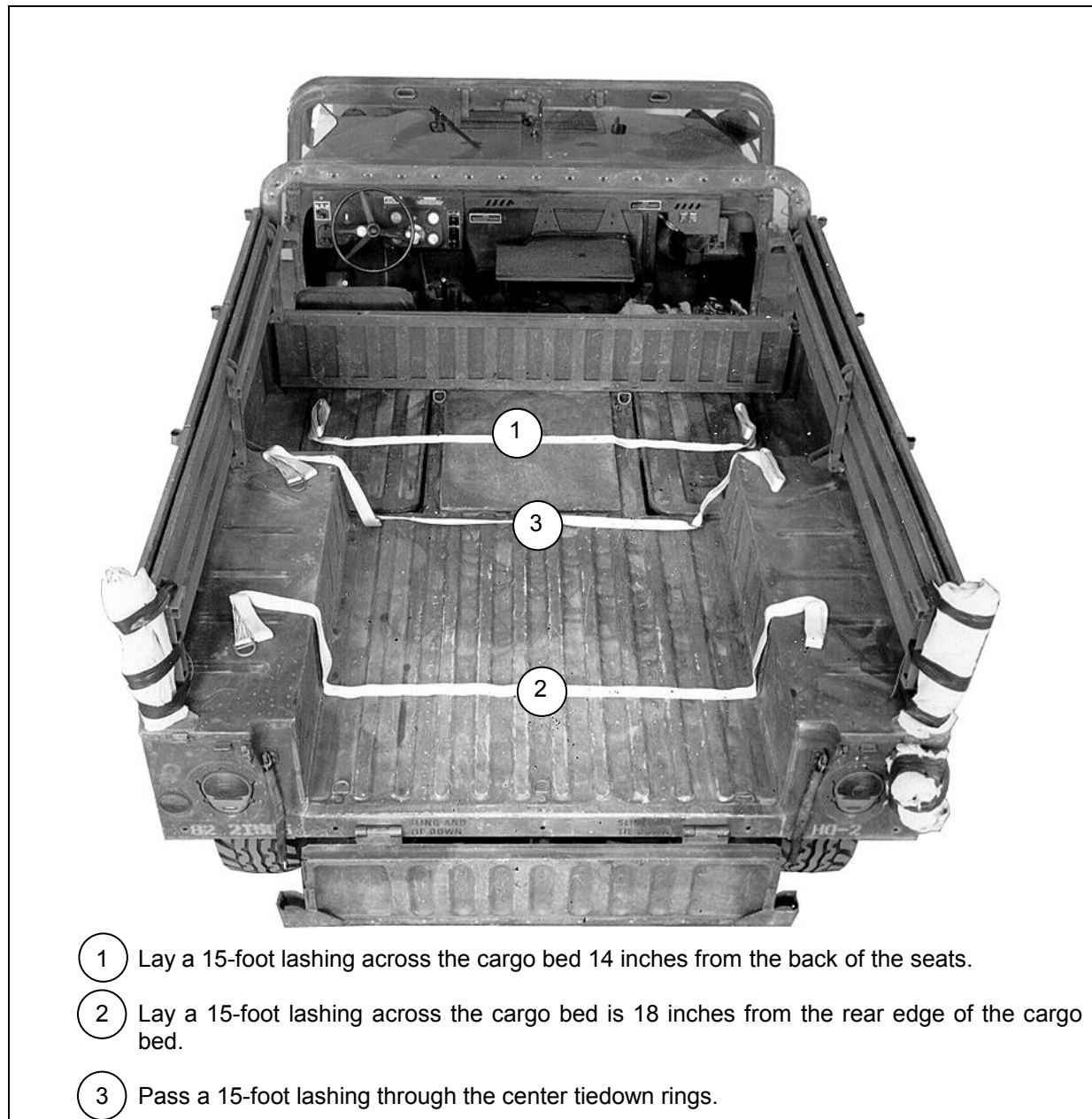
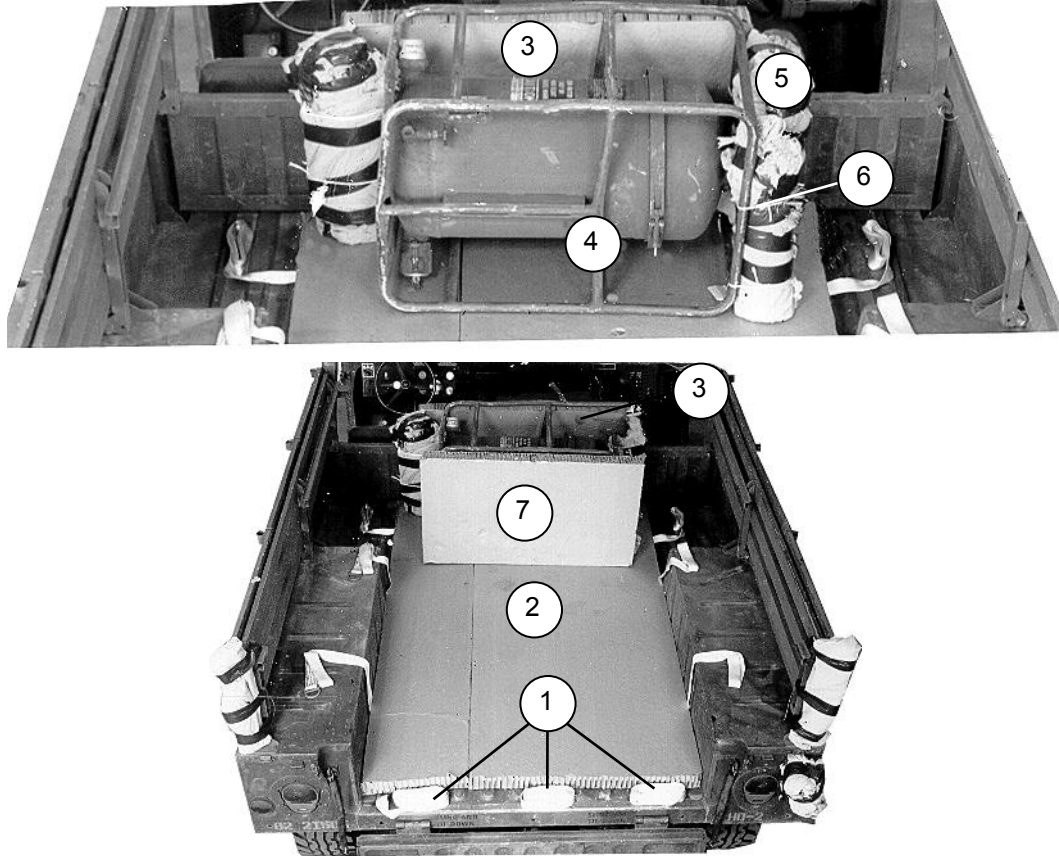


Figure 13-1. Cargo Bed Prepared

PLACING FARE IN CARGO BED

13-4. Place the FARE in the cargo bed of the M998 as shown in Figure 13-2.



- ① Pass three lashings through the tiedown rings in the rear of the cargo bed.
- ② Place a 36- by 78-inch and a 16- by 78-inch piece of honeycomb on the carrier floor.
- ③ Position a 24- by 40-inch piece of honeycomb against the front end of the cargo bed.
- ④ Place the filter/separator assembly in its frame against the 24- by 40-inch piece of honeycomb.
- ⑤ Wrap three fire extinguishers in a layer of cellulose wadding. Secure the cellulose wadding with cloth-backed tape.
- ⑥ Secure the fire extinguishers to the filter/separator frame with a length of type III nylon cord.
- ⑦ Place a 24- by 40-inch piece of honeycomb flush against the filter/separator frame.

Figure 13-2. Forward Area Refueling Equipment Placed in Cargo Bed

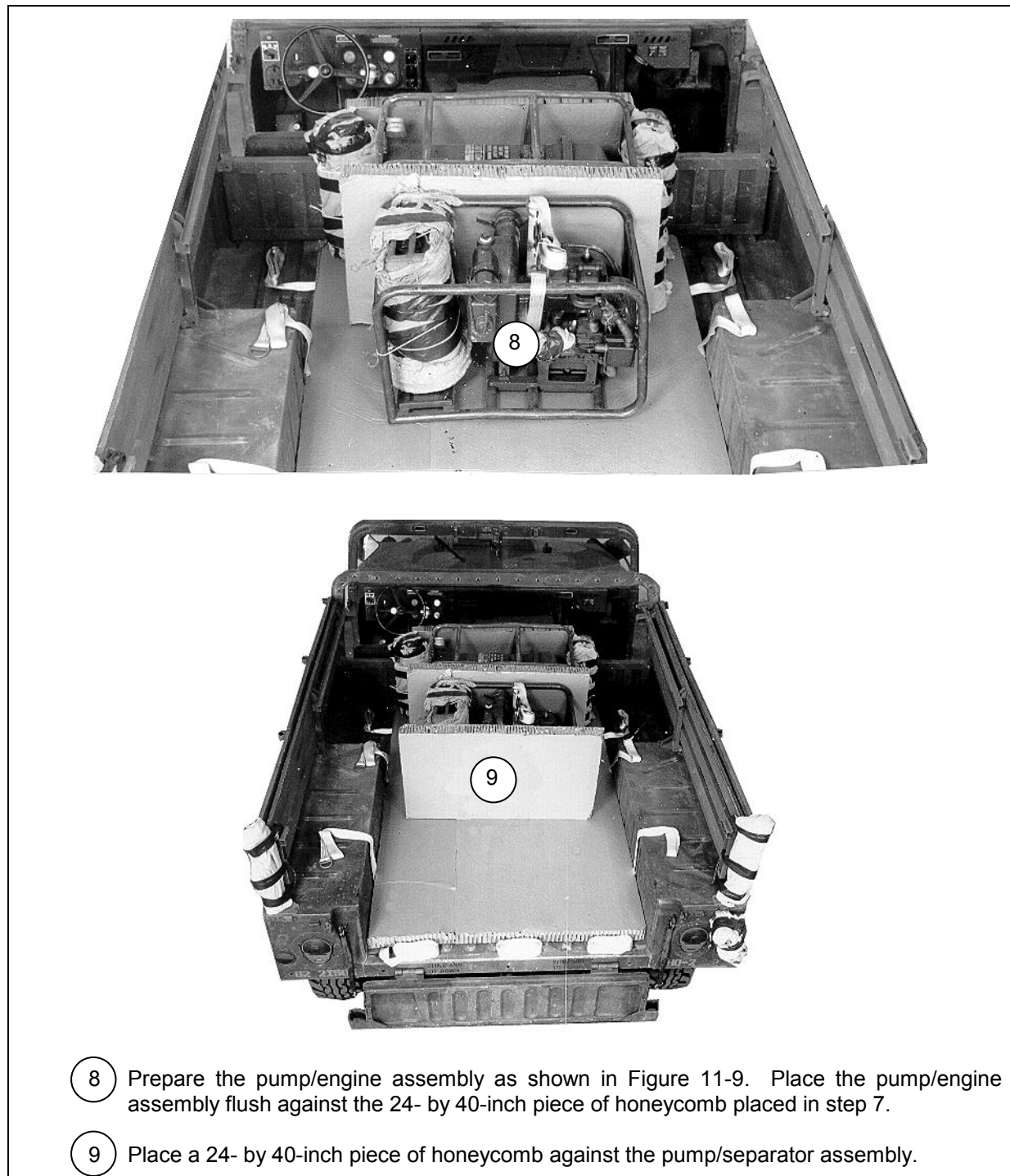


Figure 13-2. Forward Area Refueling Equipment Placed in Cargo Bed (continued)

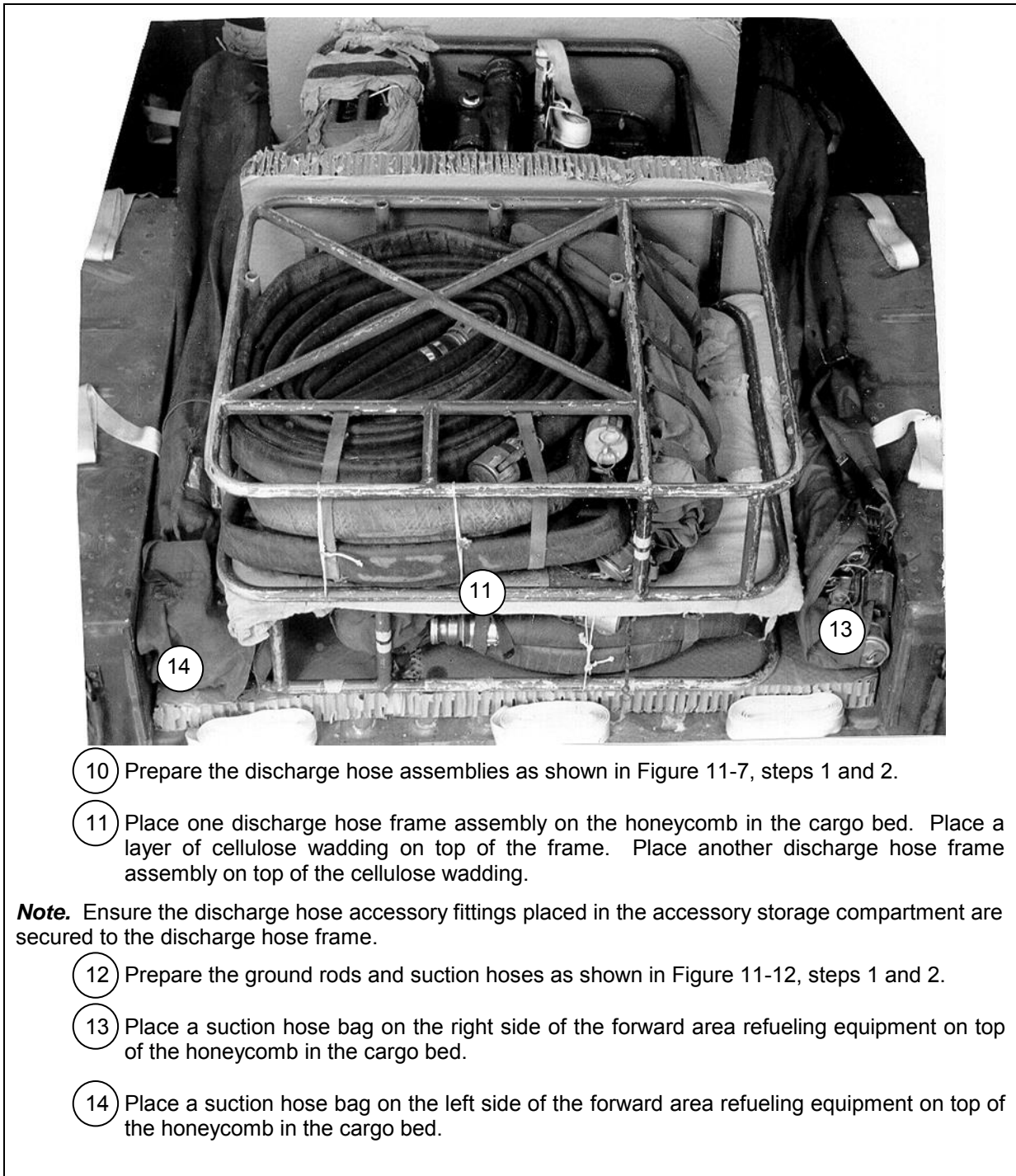


Figure 13-2. Forward Area Refueling Equipment Placed in Cargo Bed (continued)

SECURING FARE

13-5. Secure the FARE in the cargo bed of the M998 using the pre-positioned lashings. Secure the lashings with D-rings and load binders according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 13-3.

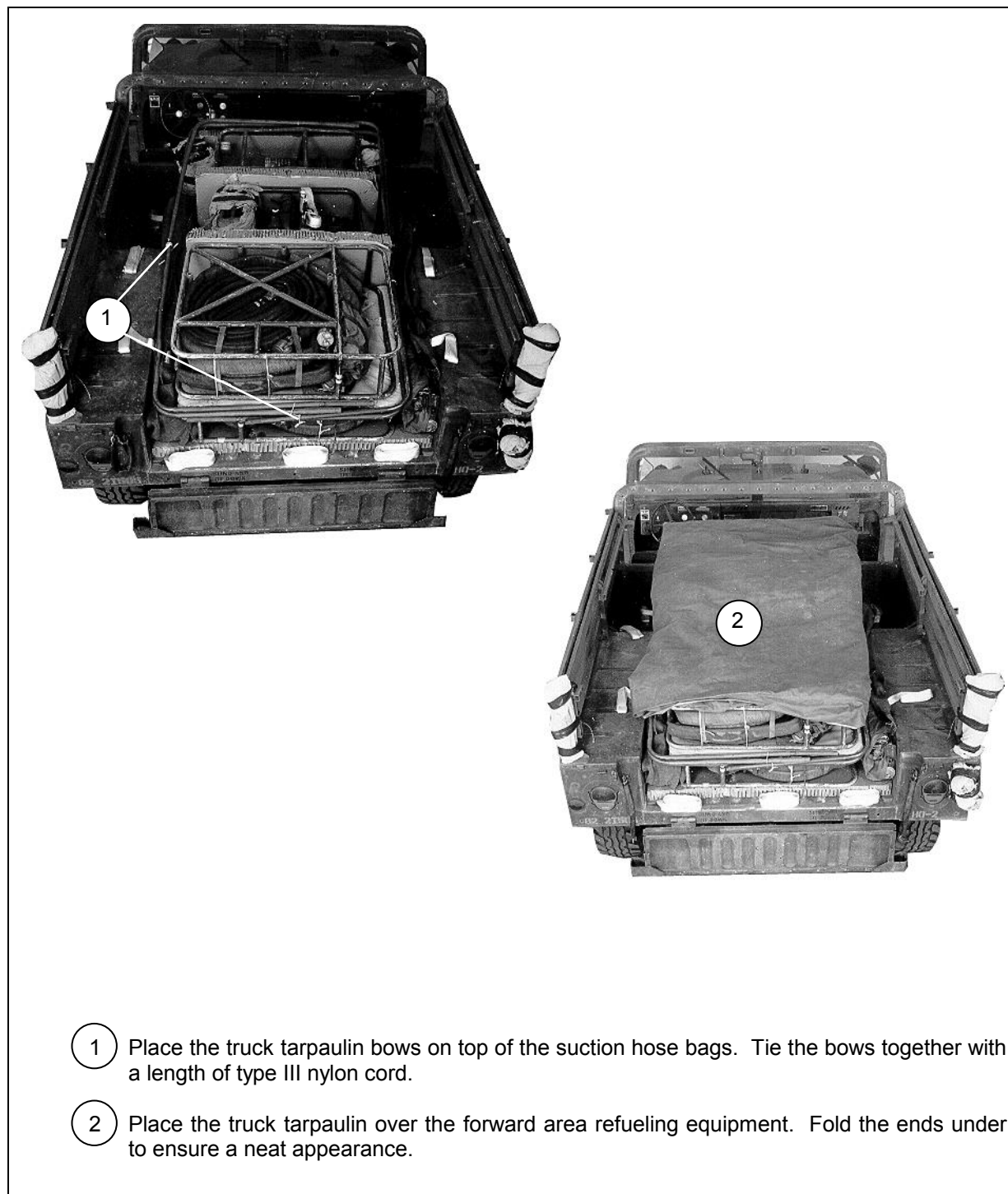
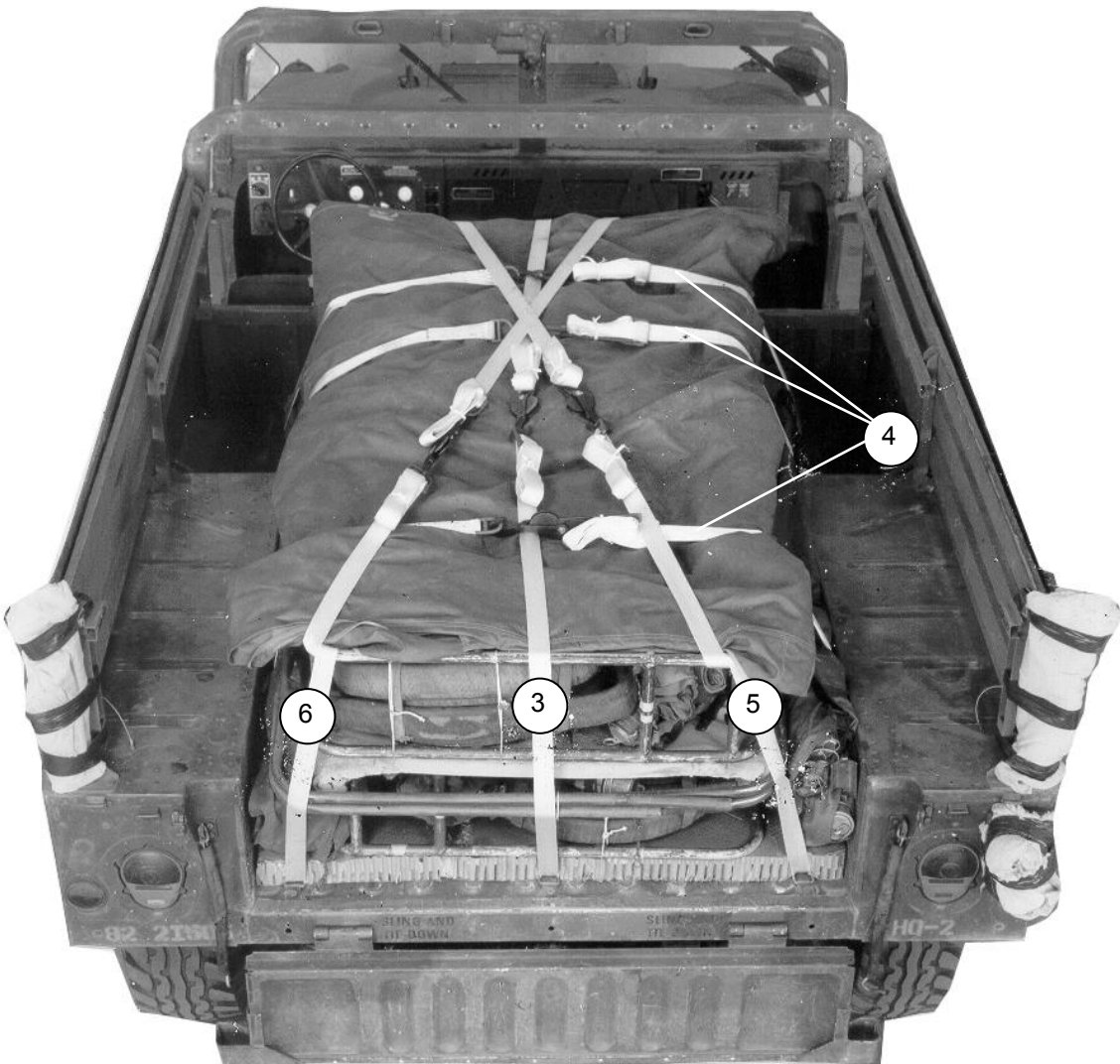


Figure 13-3. Forward Area Refueling Equipment Secured



- 3 Pass the end of the center lashing over the top of the tarpaulin, and secure the lashing in place.
- 4 Pass the ends of the three horizontal lashings over the top of the tarpaulin, and secure them in place.
- 5 Pass the right rear lashing over and around the discharge hose assembly to the top of the tarpaulin. Pass the left front lashing over the tarpaulin to meet the right rear lashing. Secure the lashing in place.
- 6 Pass the left rear lashing over and around the discharge hose assembly to the top of the tarpaulin. Pass the right front lashing over the tarpaulin to meet the left rear lashing. Secure the lashing in place.

Figure 13-3. Forward Area Refueling Equipment Secured (continued)

SECURING ACCESSORIES

13-6. Secure the accessories on the tarpaulin as shown in Figure 13-4.

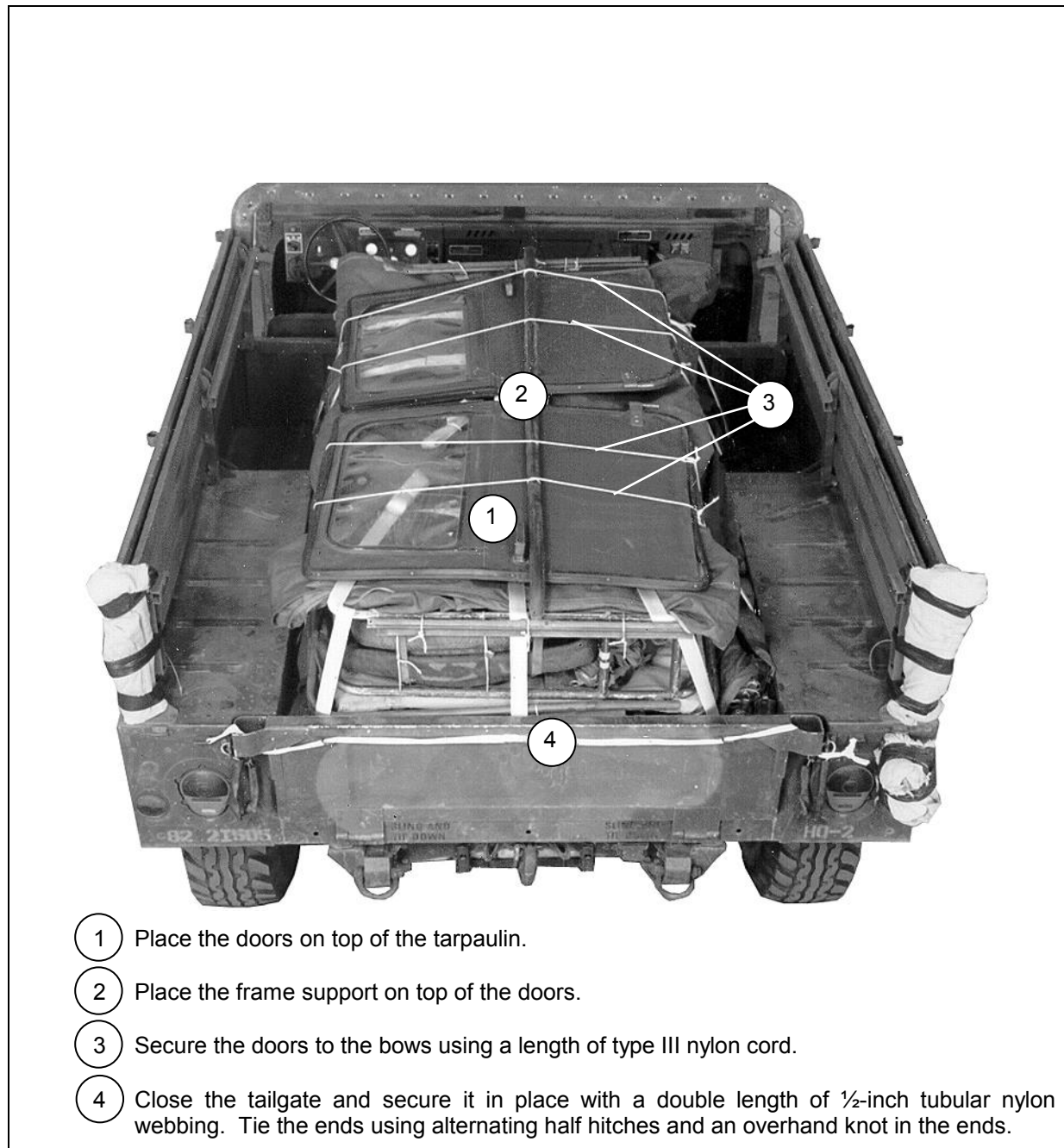


Figure 13-4. Accessories Secured

Table 13-1. Equipment Required for Rigging Forward Area Refueling Equipment in an M998, 1 ¼-Ton Truck Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
8135-00-664-6958	Cushioning material, packaging, cellulose	As required
1670-00-753-3928	Pad, energy-dissipating (honeycomb) 3- by 36- by 96-inches	4 sheets
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
8305-00-268-2411	Tiedown assembly, 15-foot	6
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

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Chapter 14

Rigging Forward Area Refueling Equipment with Seven 500-Gallon Fuel Drums on a 32-Foot Platform

DESCRIPTION OF LOAD

14-1. Two containerized FARE and seven 500-gallon collapsible fuel drums are rigged on a 32-foot platform with six G-11 cargo parachutes. Each drum is filled with 432 gallons of fuel. Each containerized FARE weighs 1,230 pounds. Each gasoline-filled 500 gallon fuel drum weighs 2,842 pounds and is approximately 53 inches in length. The total weight of the seven gasoline-filled drums and the two containerized FARE is 22,354 pounds.

-
- Note.** 1. For drums filled with a liquid other than gasoline, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed.
3. This load may not be rigged using water due to load weight requirements. 4. Do not pressurize drums with air.
-

PREPARING PLATFORM

14-2. Prepare a 32-foot airdrop platform using two tandem links, eight suspension brackets, and 82 tiedown clevises as shown in Figure 14-1.

-
- Note.** 1. The nose bumper may or may not be installed.
2. Measurements are not given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.
-

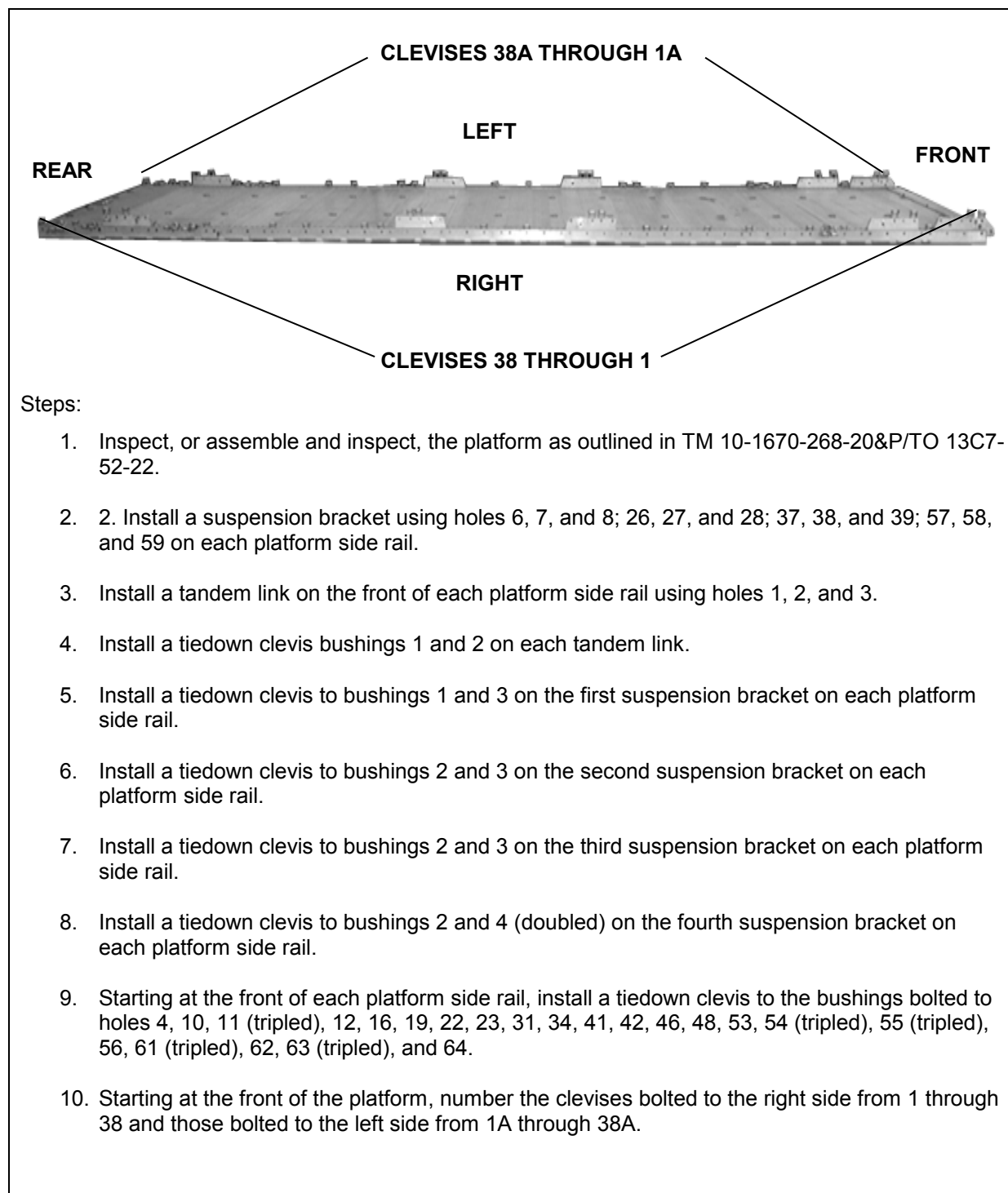


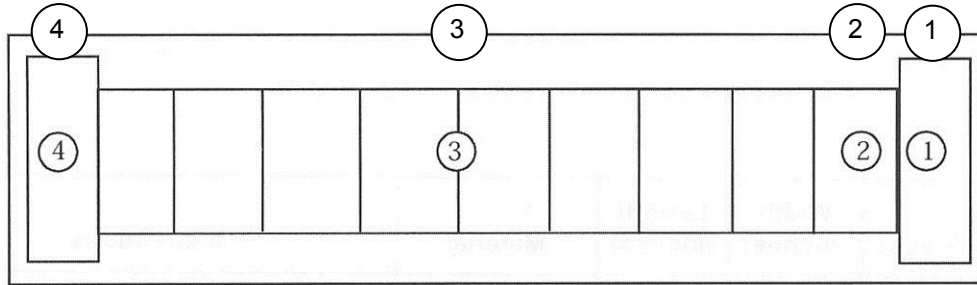
Figure 14-1. Platform Prepared

BUILDING AND POSITIONING HONEYCOMB

14-3. Position the base layers of honeycomb on the platform as shown in Figure 14-2. Build and position three honeycomb stacks on top of the base layers of honeycomb as shown in Figure 14-3.

Note. Do not glue the stacks of honeycomb to the platform.

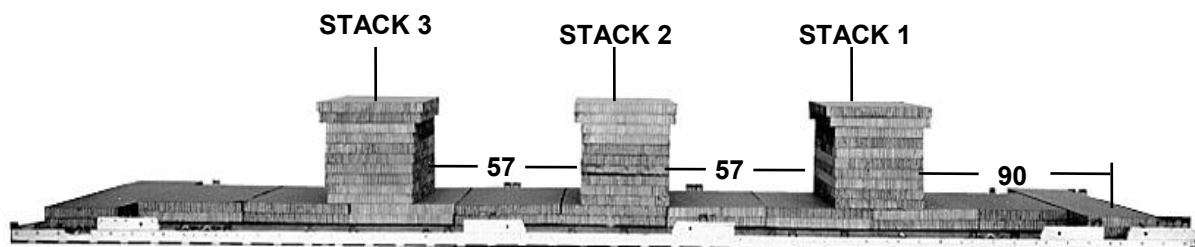
Note. This drawing is not drawn to scale.



- ① Center two 96- by 24-inch pieces of honeycomb 9 inches from the front edge of the platform.
- ② Center two 60- by 36-inch pieces of honeycomb flush against those positioned in step 1.
- ③ Center sixteen 60- by 36-inch pieces of honeycomb (eight sets, two pieces each) on the platform. Place the first set flush against the rear edge of the honeycomb positioned in step 2. Place other sets flush against each previous set.
- ④ Center two 96- by 24-inch pieces of honeycomb flush against the rear of the honeycomb positioned in step 3.

Figure 14-2. Base Layers Positioned

Note. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	8	60	30	Honeycomb	Center and on top of base layers 90 inches from the front edge of the platform.
	1	60	34	Honeycomb	Center and glue on top of the base.
	1	60	36	Honeycomb	Center and glue on top of the 60- by 34-inch piece of honeycomb.
2	8	60	30	Honeycomb	Build stack according to stack 1. Center stack 57 inches from the rear of stack 2.
	1	60	34	Honeycomb	
	1	60	36	Honeycomb	
3	8	60	30	Honeycomb	Build stack according to stack 1. Center stack 57 inches from the rear of stack 2.
	1	60	34	Honeycomb	
	1	60	36	Honeycomb	

Figure 14-3. Honeycomb Stacks Prepared and Positioned

POSITIONING AND LASHING DRUMS

14-4. Before lifting, check each fuel drum and fittings for leaks and damage. Be sure each end of each fuel drum has two lifting shackles. Attach a 9-foot (2-loop), type XXVI nylon webbing sling to the fuel drum lifting shackle by adapting the procedures in paragraph 11-8 and as shown in Figure 11-6. Position the fuel drums as shown in Figure 14-4.

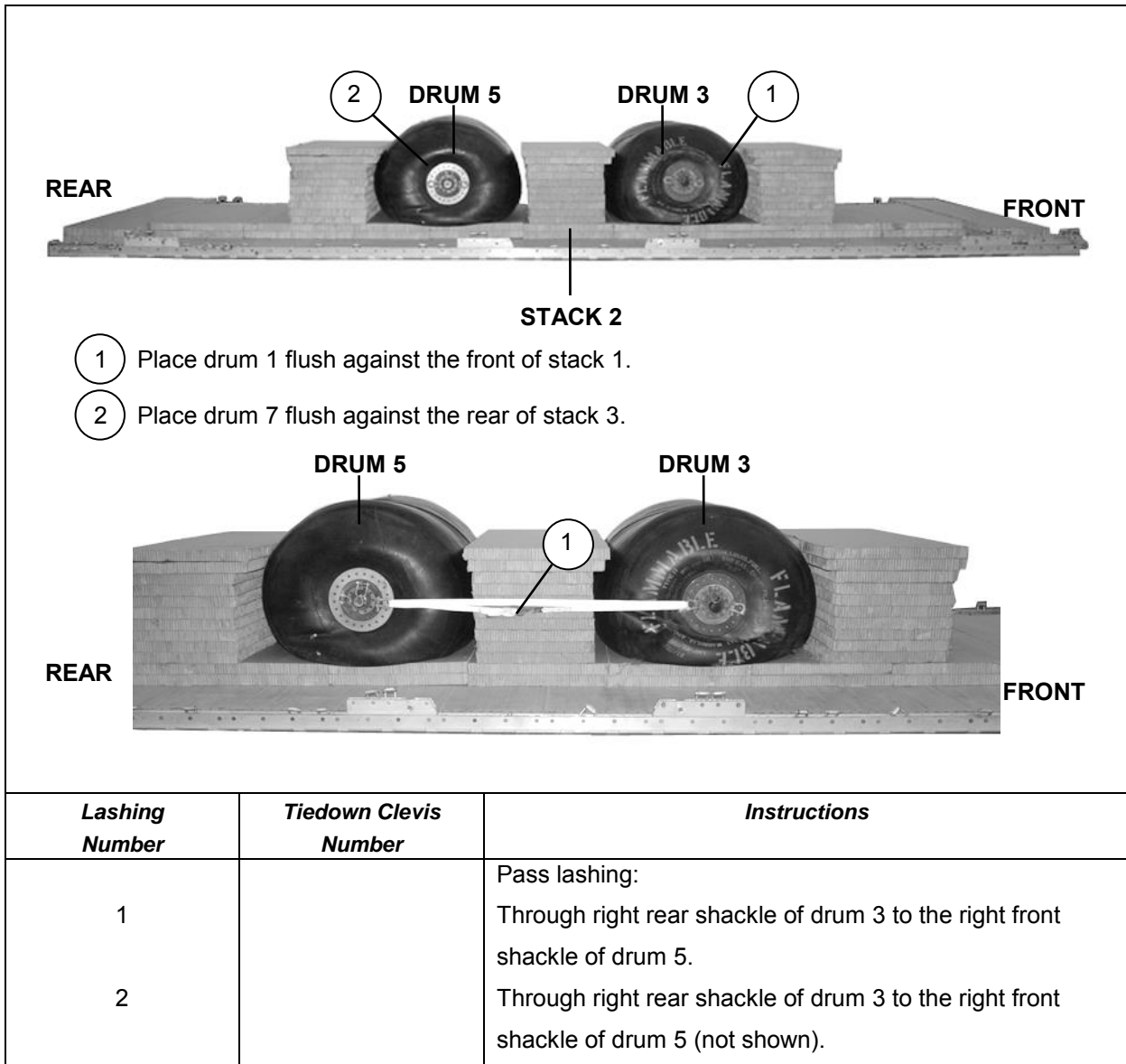


Figure 14-4. Fuel Drums Positioned and Lashed

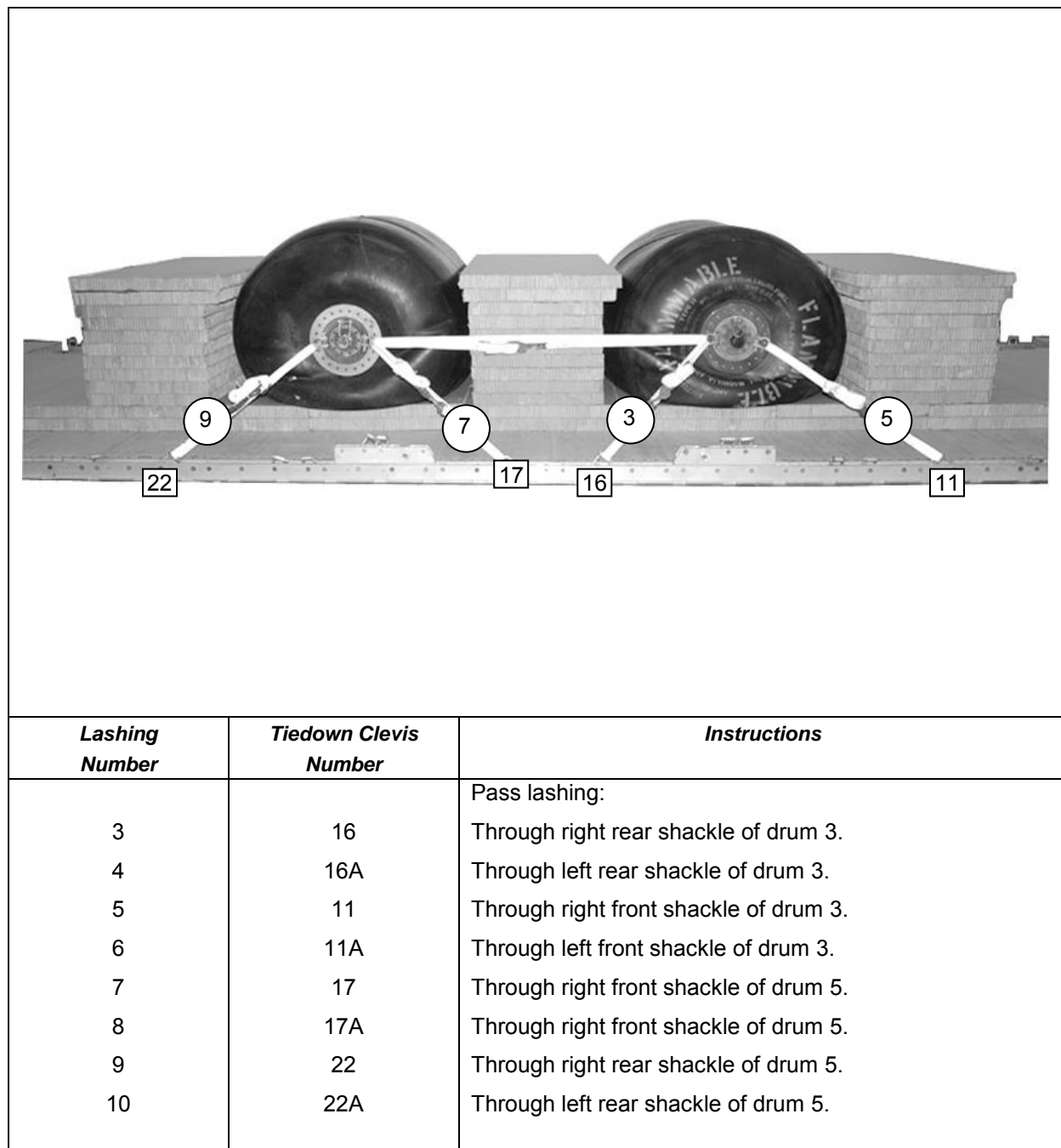


Figure 14-4. Fuel Drums Positioned and Lashed (continued)

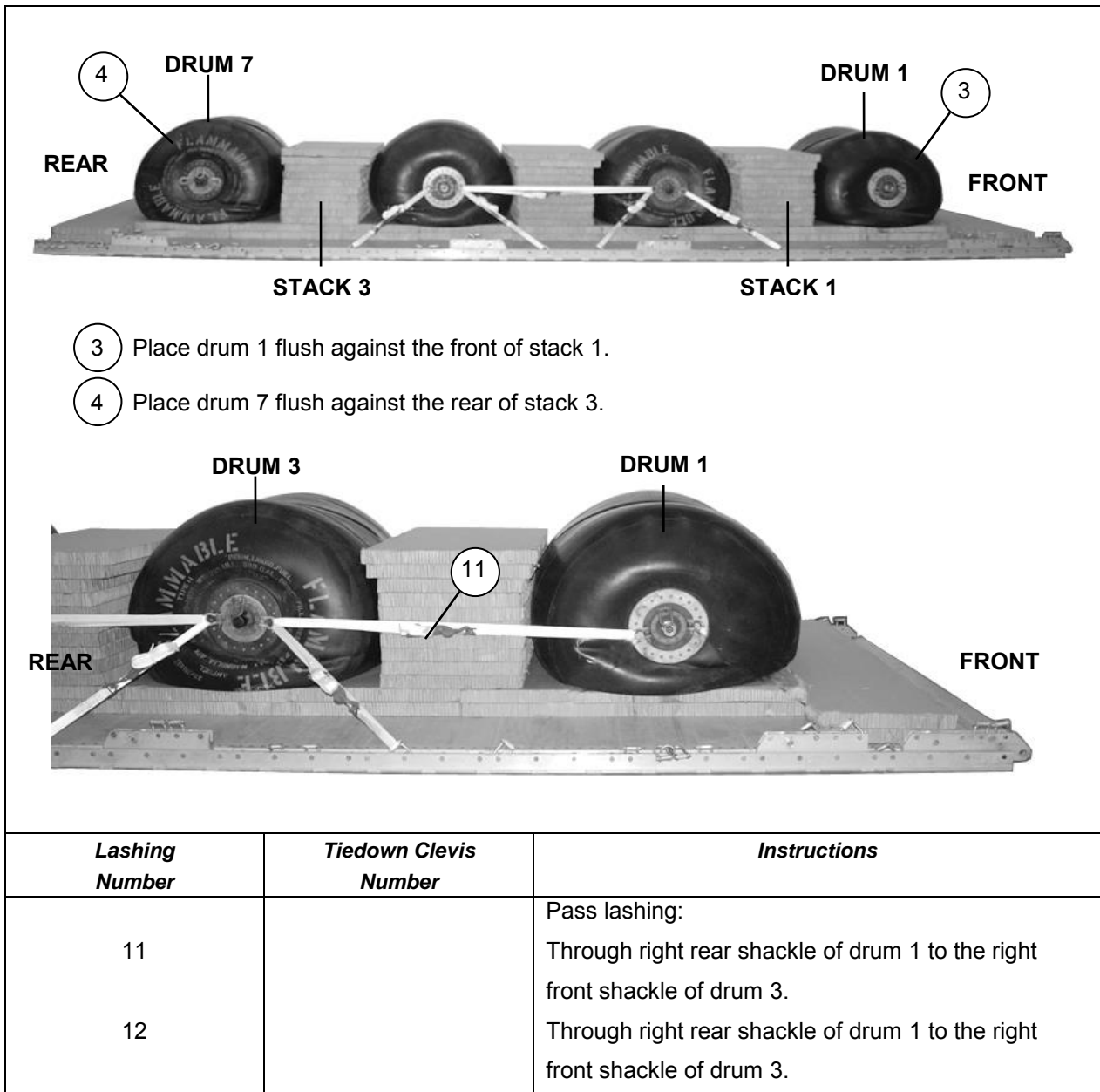


Figure 14-4. Fuel Drums Positioned and Lashed (continued)

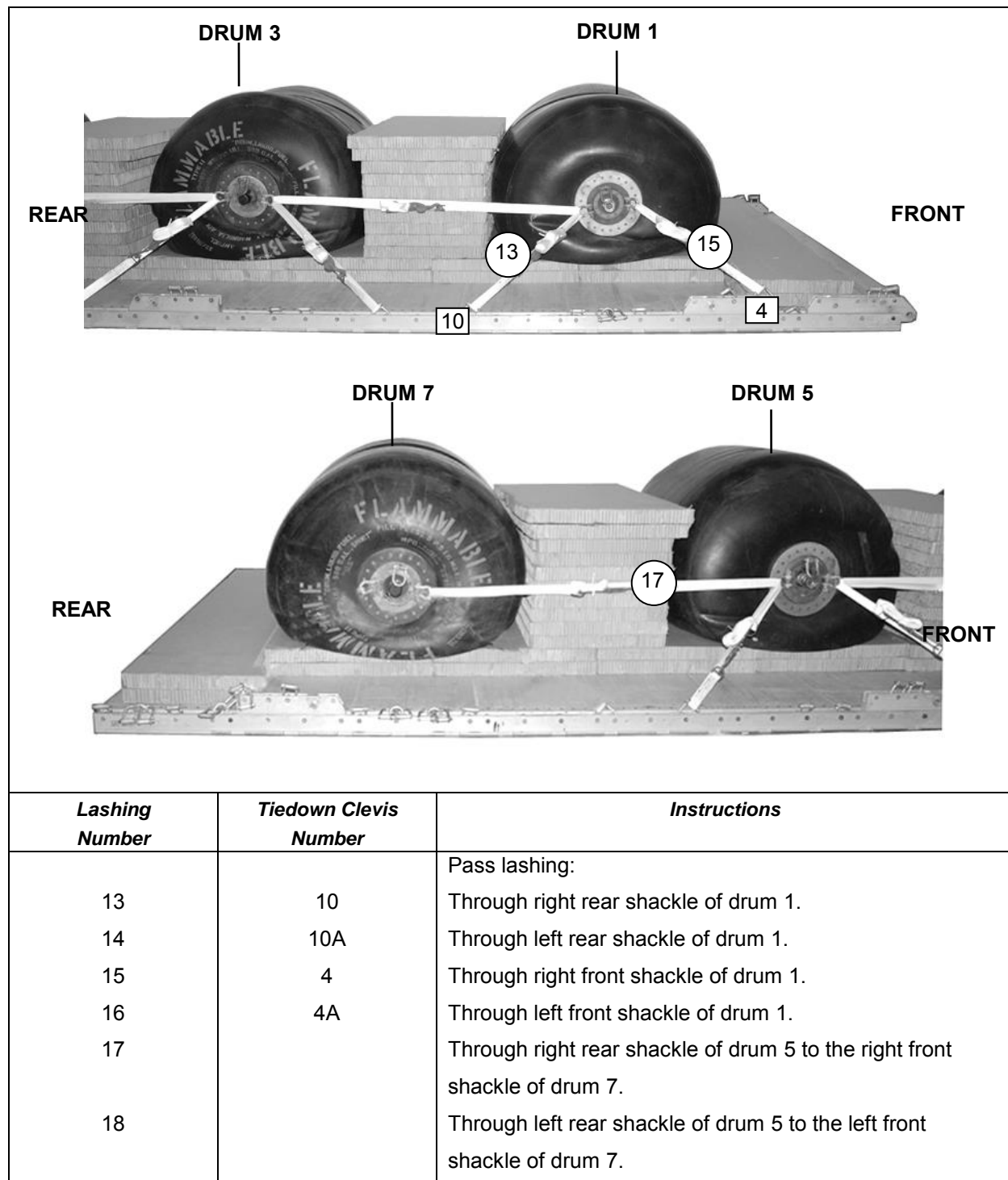


Figure 14-4. Fuel Drums Positioned and Lashed (continued)

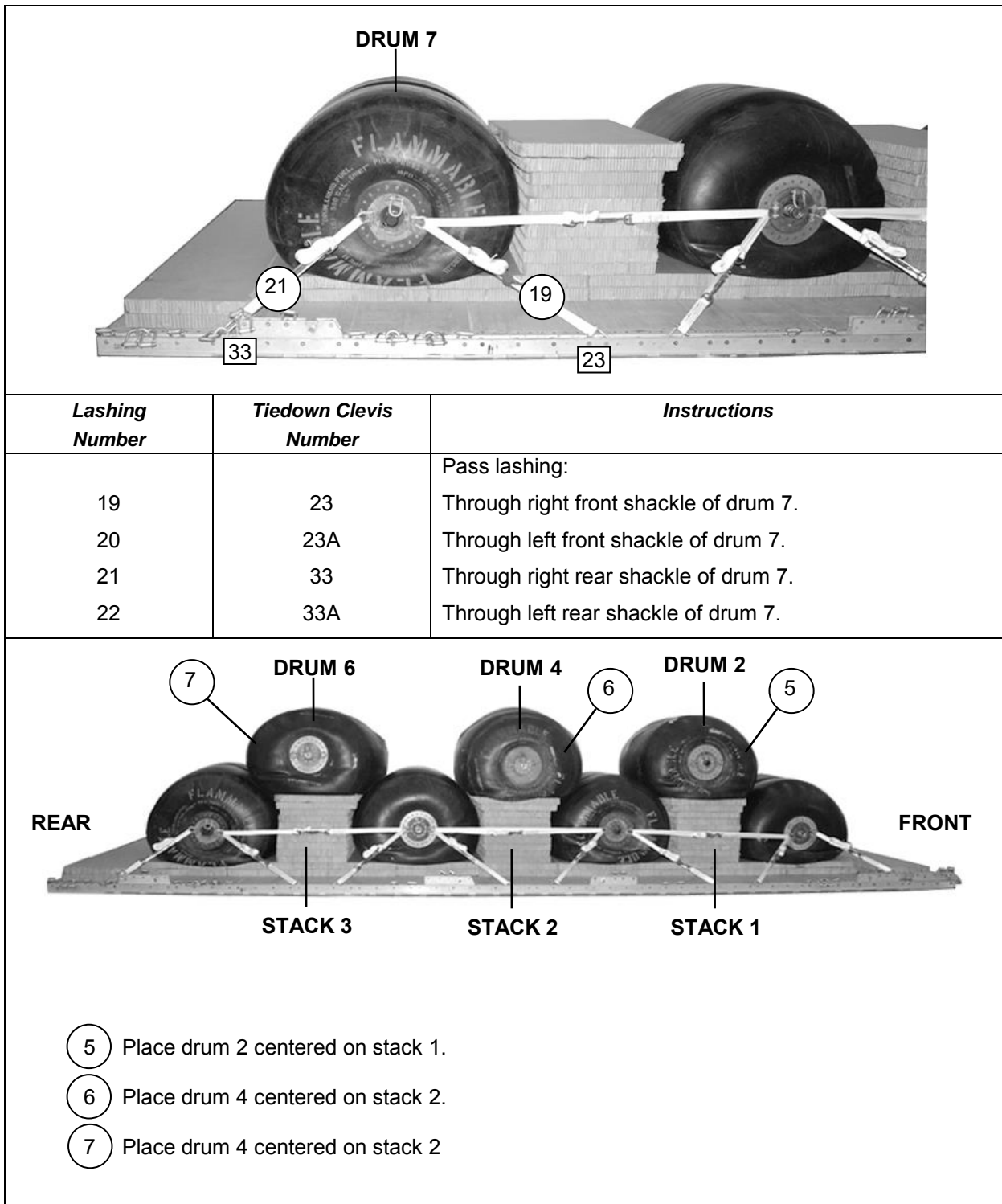


Figure 14-4. Fuel Drums Positioned and Lashed (continued)

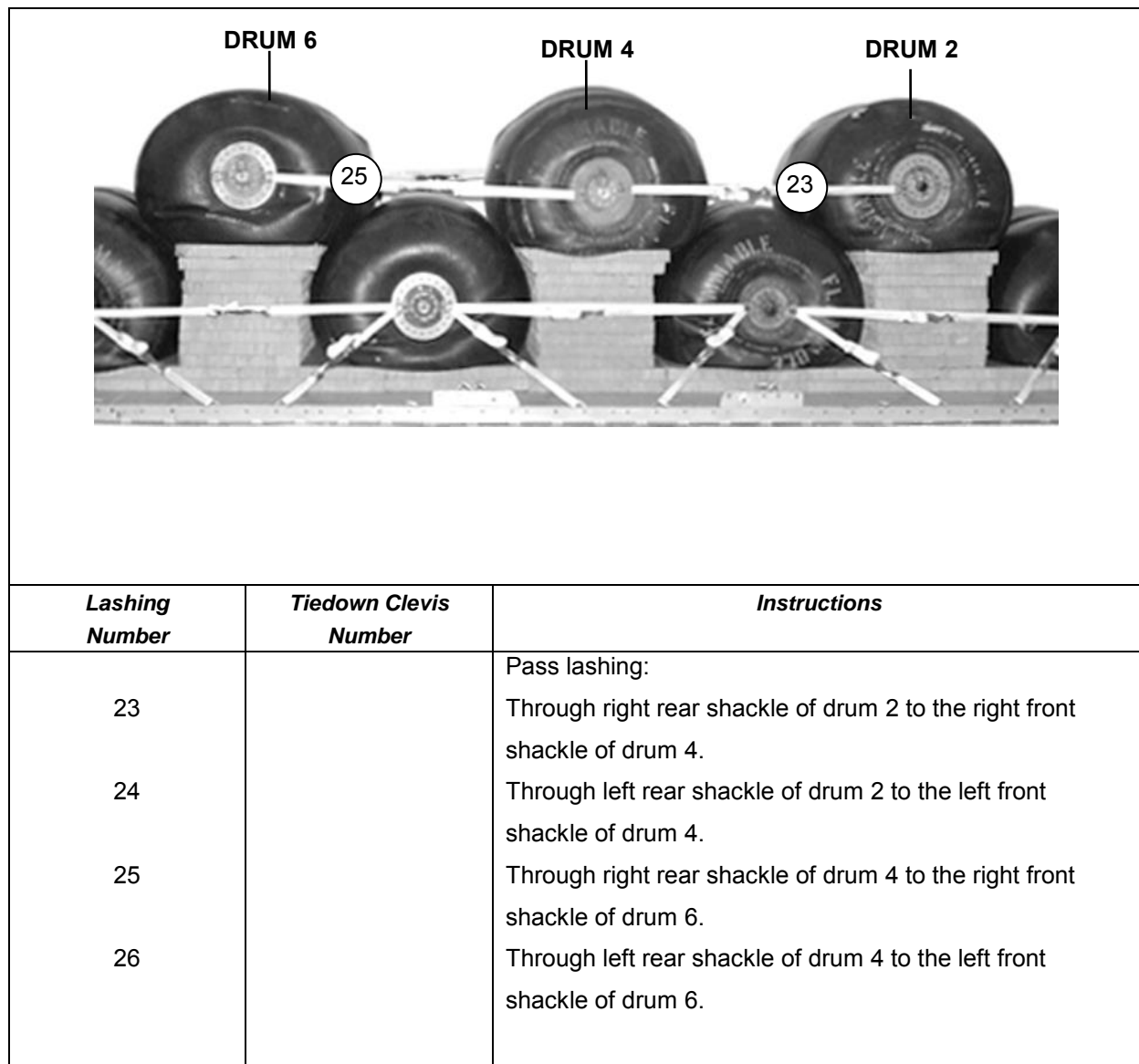


Figure 14-4. Fuel Drums Positioned and Lashed (continued)

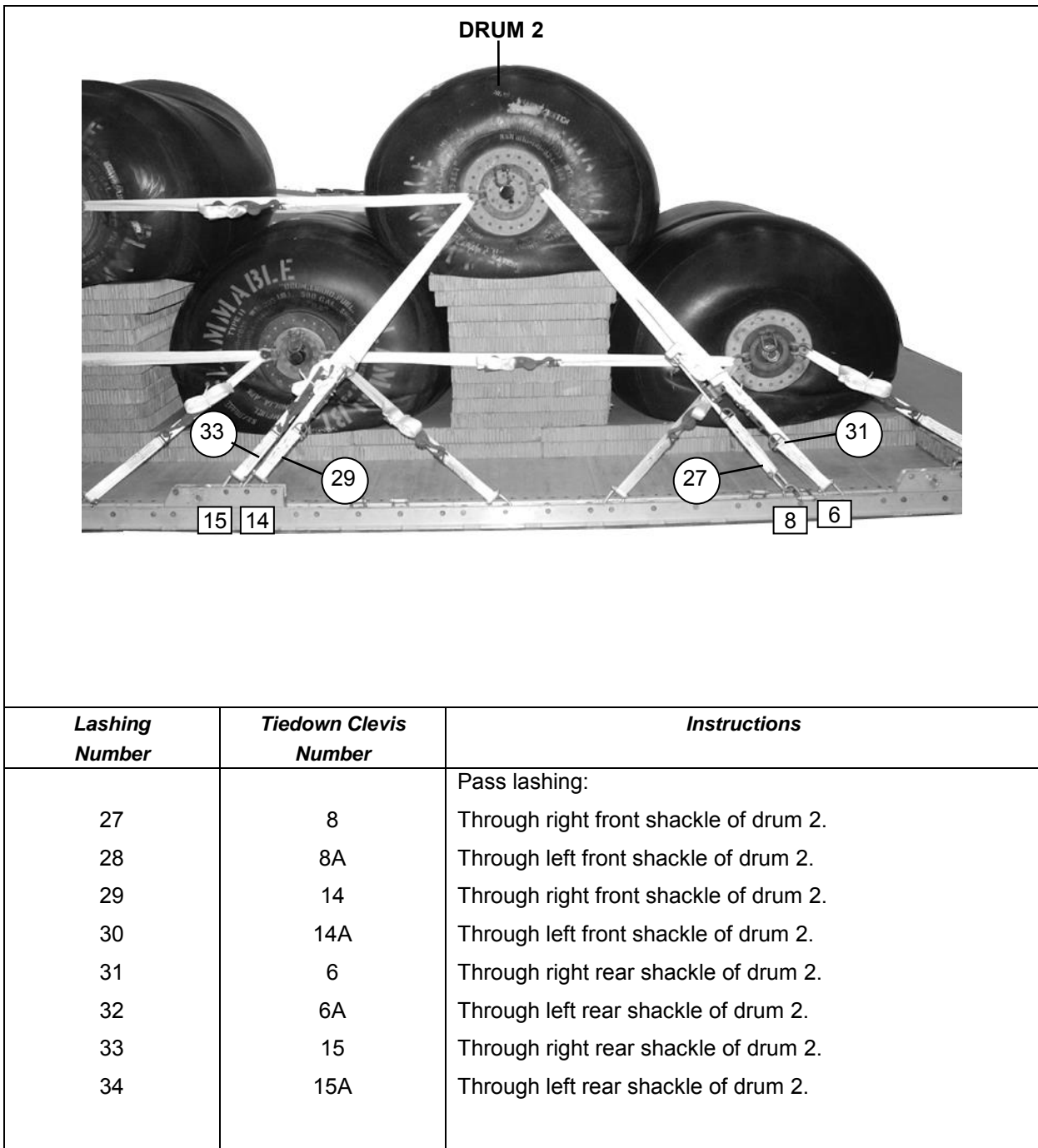


Figure 14-4. Fuel Drums Positioned and Lashed (continued)

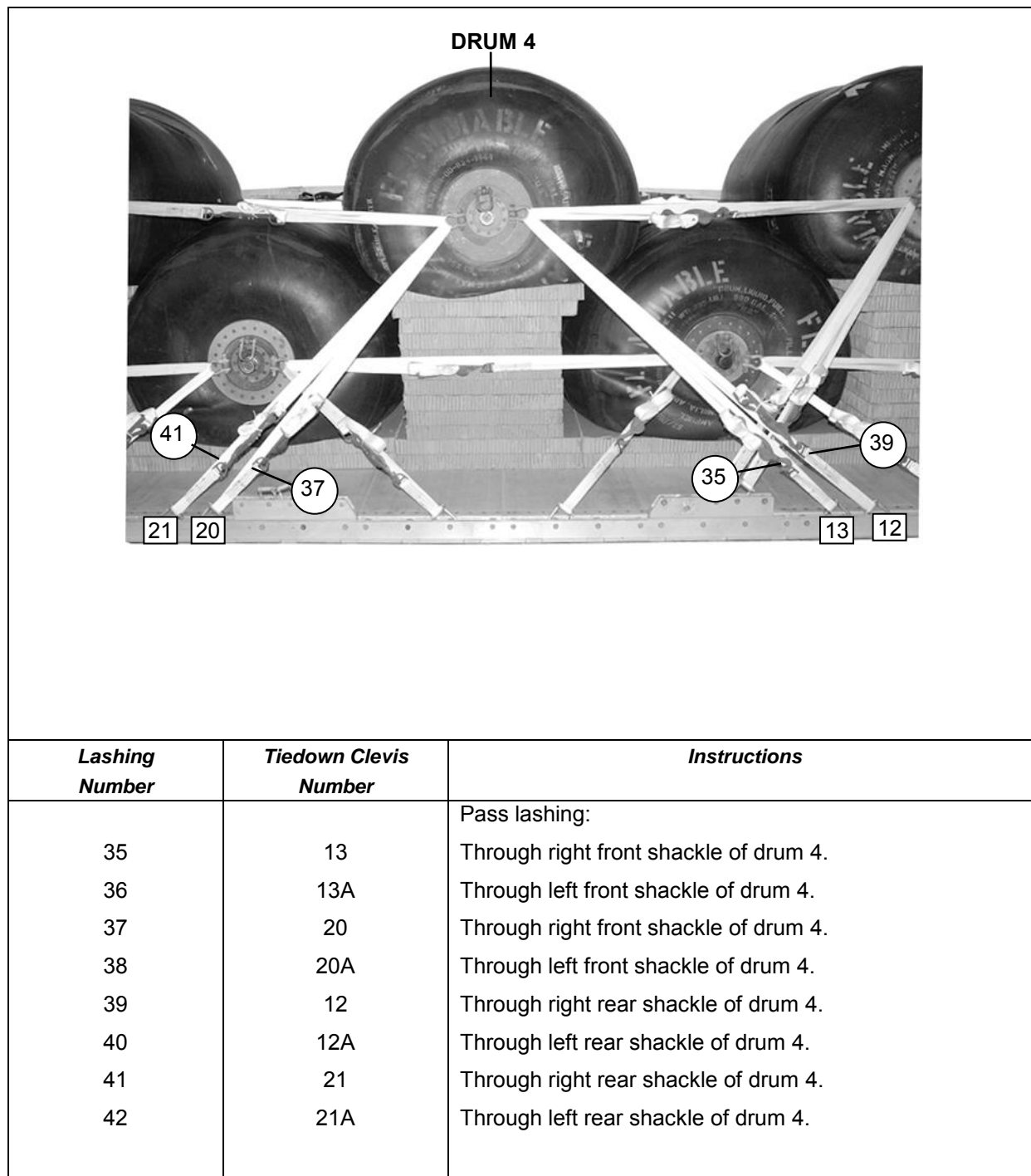
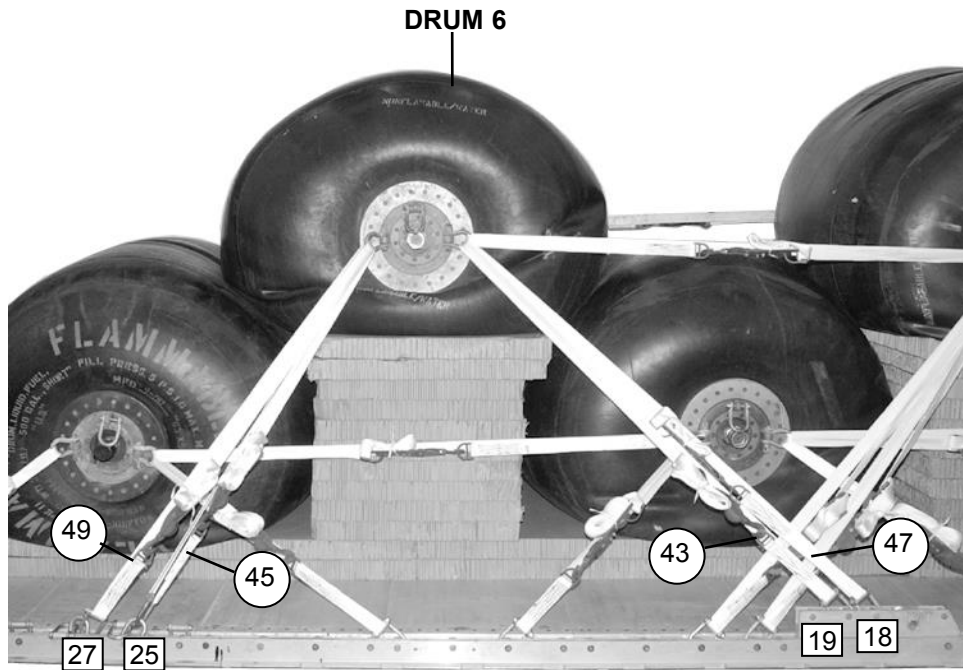


Figure 14-4. Fuel Drums Positioned and Lashed (continued)



Lashing Number	Tiedown Clevis Number	Instructions
43	19	Pass lashing: Through right front shackle of drum 6.
44	19A	Through left front shackle of drum 6.
45	25	Through right front shackle of drum 6.
46	25A	Through left front shackle of drum 6.
47	18	Through right rear shackle of drum 6.
48	18A	Through left rear shackle of drum 6.
49	27	Through right rear shackle of drum 6.
50	27A	Through left rear shackle of drum 6.

Figure 14-4. Fuel Drums Positioned and Lashed (continued)

PREPARING FARE

14-5. Build two containers for the FARE according to paragraph 11-4. Prepare the components of the FARE and stow them in the containers according to paragraph 11-5. Secure the container as shown in Figure 14-5.

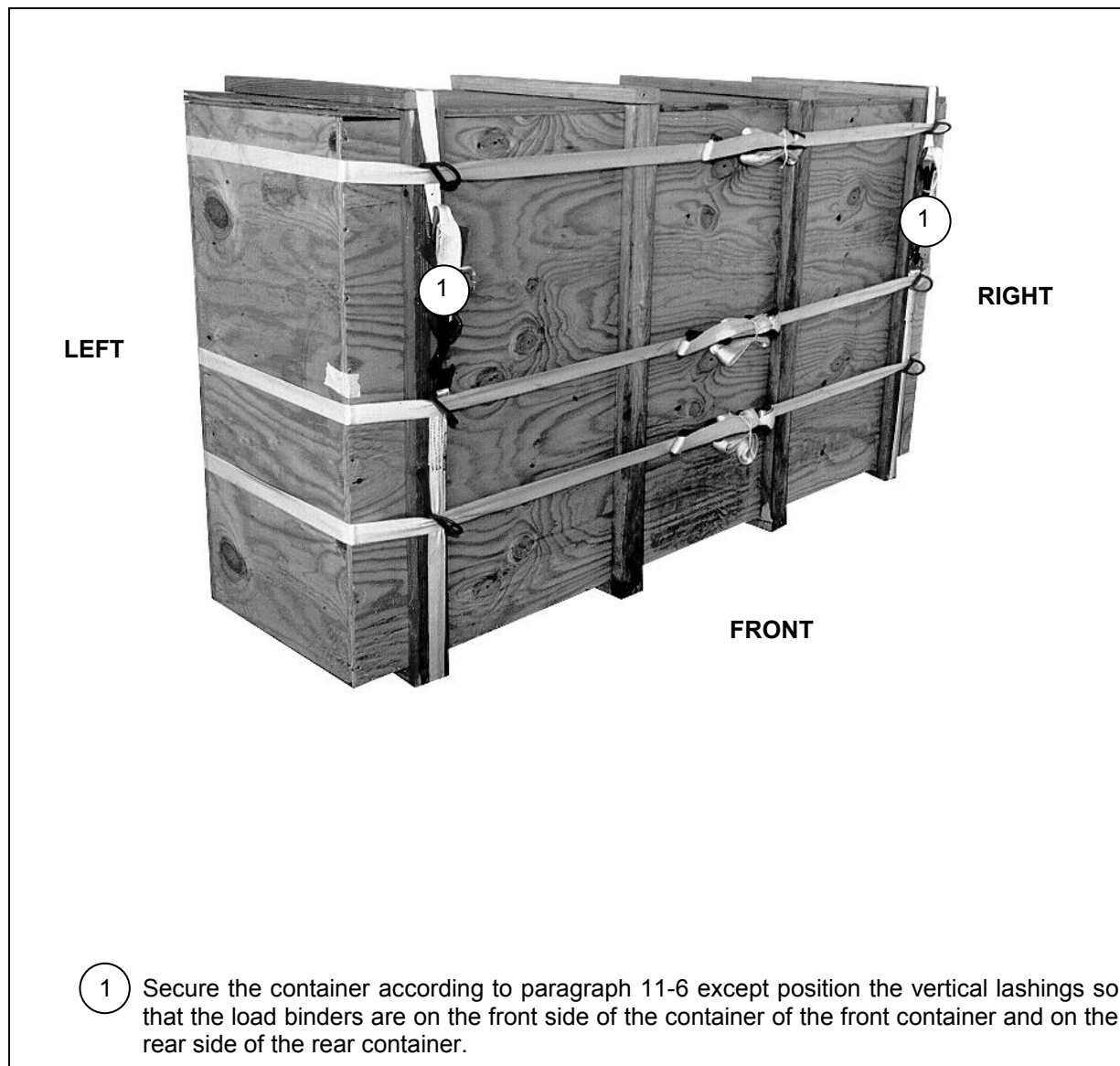


Figure 14-5. Container Secured

INSTALLING LIFTING SLINGS AND POSITIONING FARE CONTAINERS

14-6. Install lifting slings to the FARE containers as shown in Figure 11-4. Position the FARE container as shown in Figure 14-6.

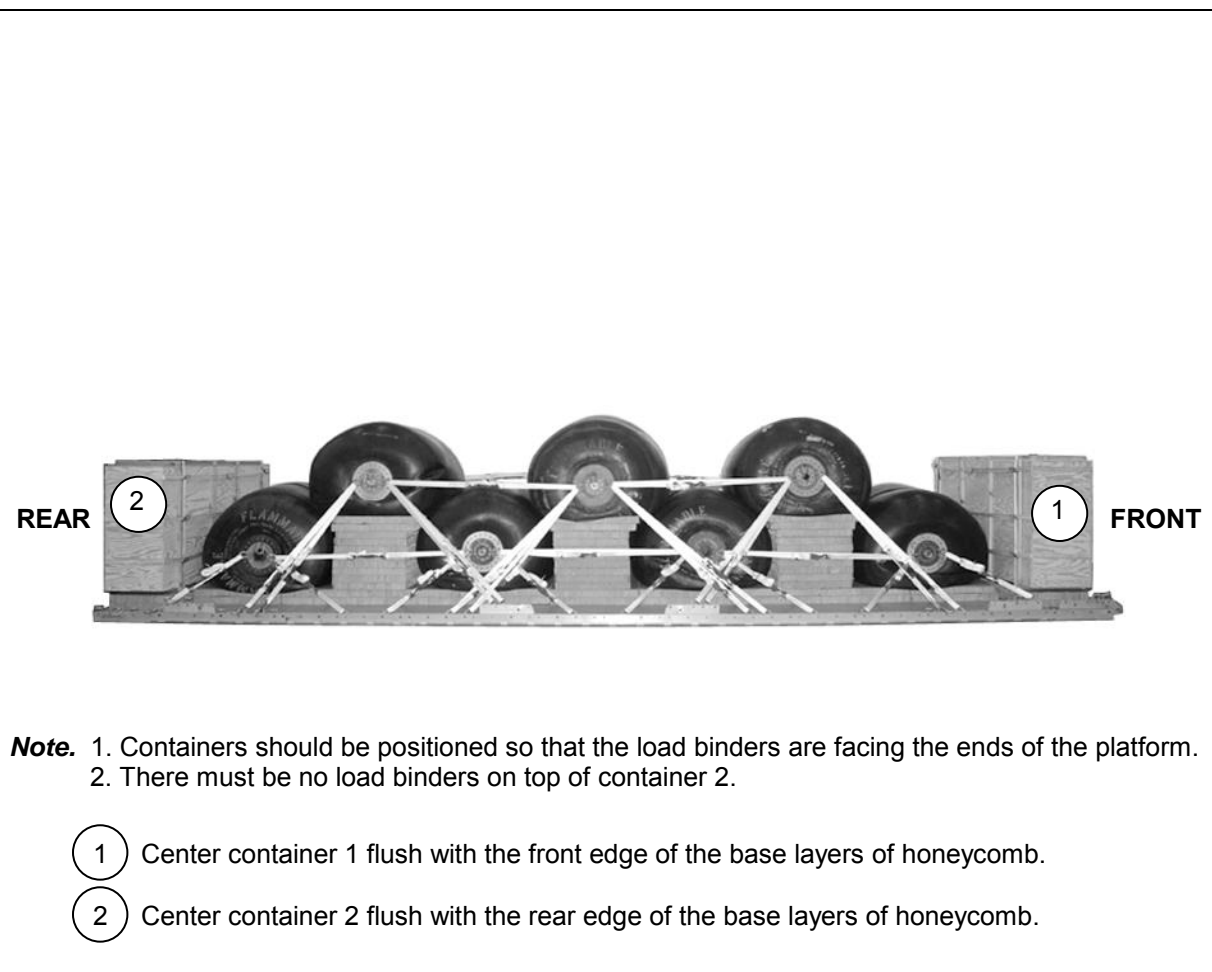


Figure 14-6. Forward Area Refueling Equipment Containers Positioned

LASHING FARE CONTAINERS TO PLATFORM

14-7. Lash the FARE containers to the platform as shown in Figure 14-7.

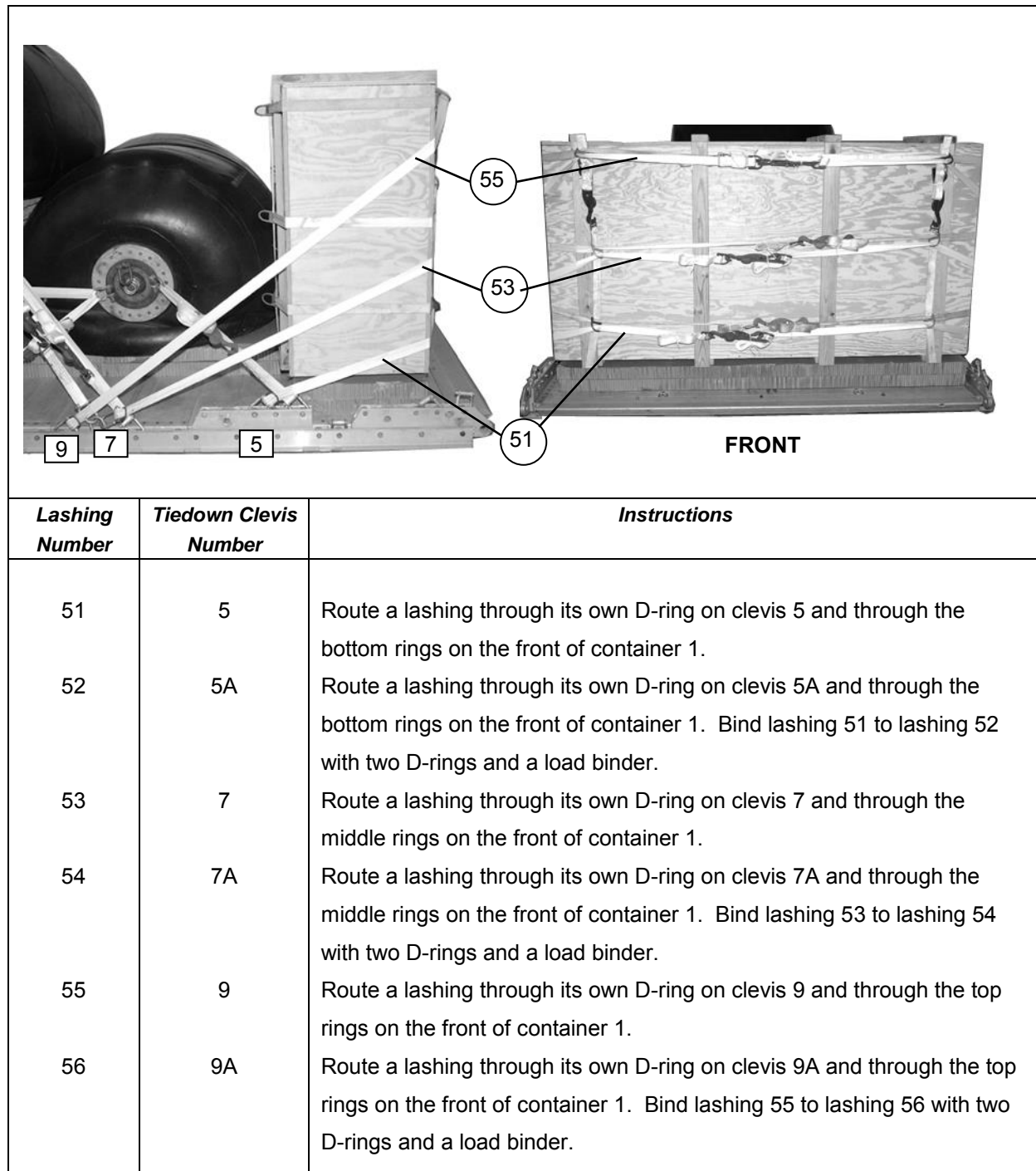
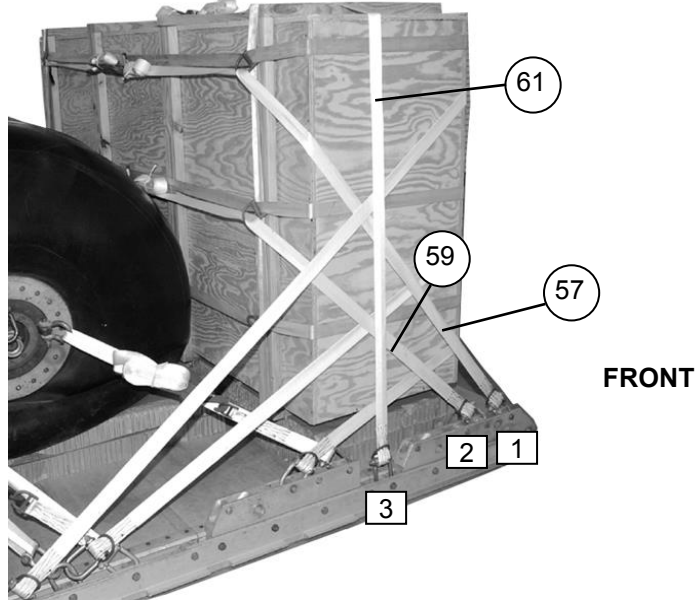


Figure 14-7. Forward Area Refueling Equipment Containers Lashed



Lashing Number	Tiedown Clevis Number	Instructions
57	1	Route a lashing through its own D-ring on clevis 1 and through the top rings on the rear of container 1.
58	1A	Route a lashing through its own D-ring on clevis 1A and through the top rings on the rear of container 1. Bind lashing 57 to lashing 58 with two D-rings and a load binder.
59	2	Route a lashing through its own D-ring on clevis 2 and through the middle rings on the rear of container 1.
60	2A	Route a lashing through its own D-ring on clevis 2A and through the middle rings on the rear of container 1. Bind lashing 59 to lashing 60 with two D-rings and a load binder.
61	3	Route a lashing through its own D-ring on clevis 3 and through the bottom D- rings on the rear of container 1.
62	3A	Route a lashing through its own D-ring on clevis 3A and through the bottom D- rings on the rear of container 1. Bind lashing 61 to lashing 62 with two D-rings and a load binder.

Figure 14-7. Forward Area Refueling Equipment Containers Lashed (continued)

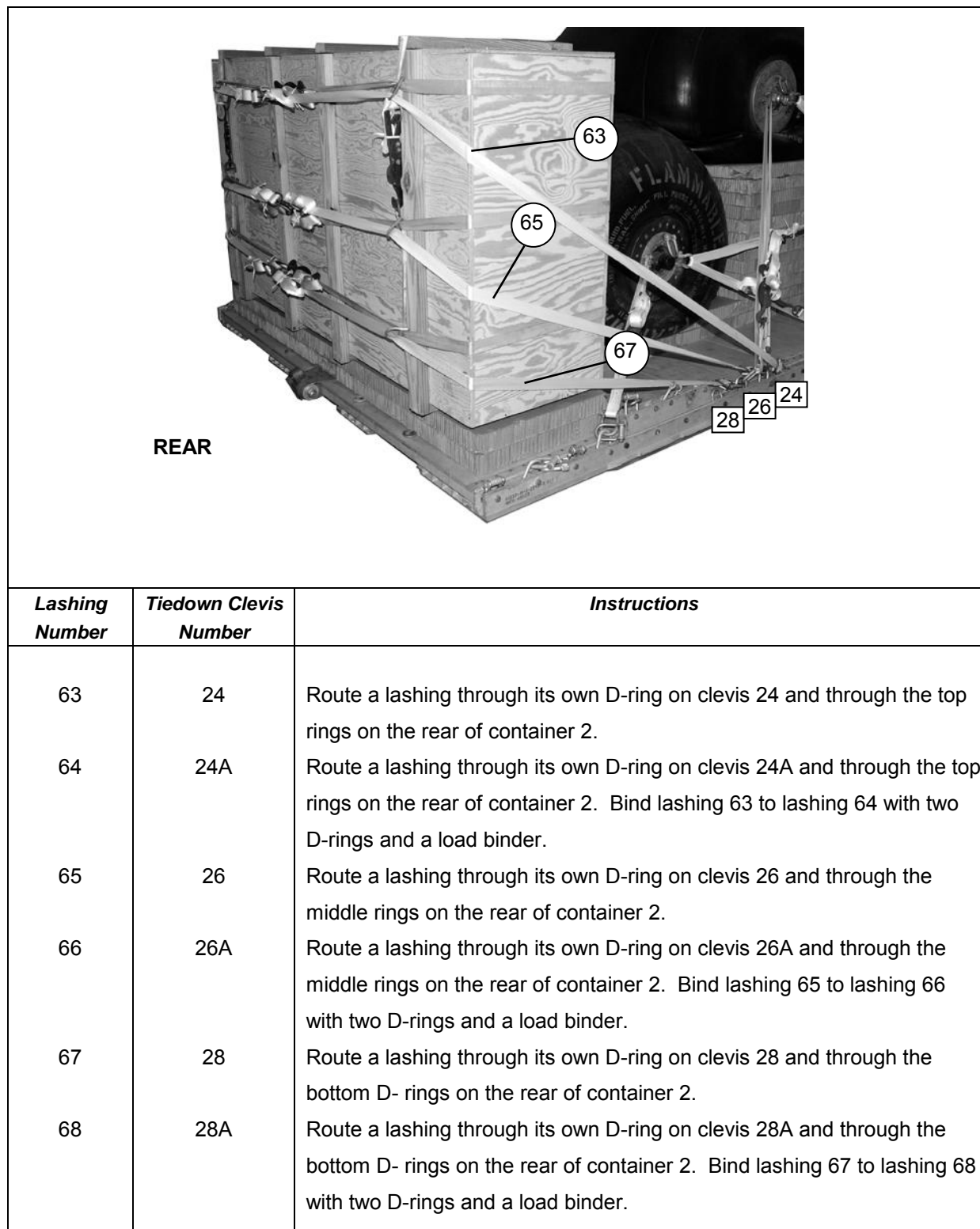
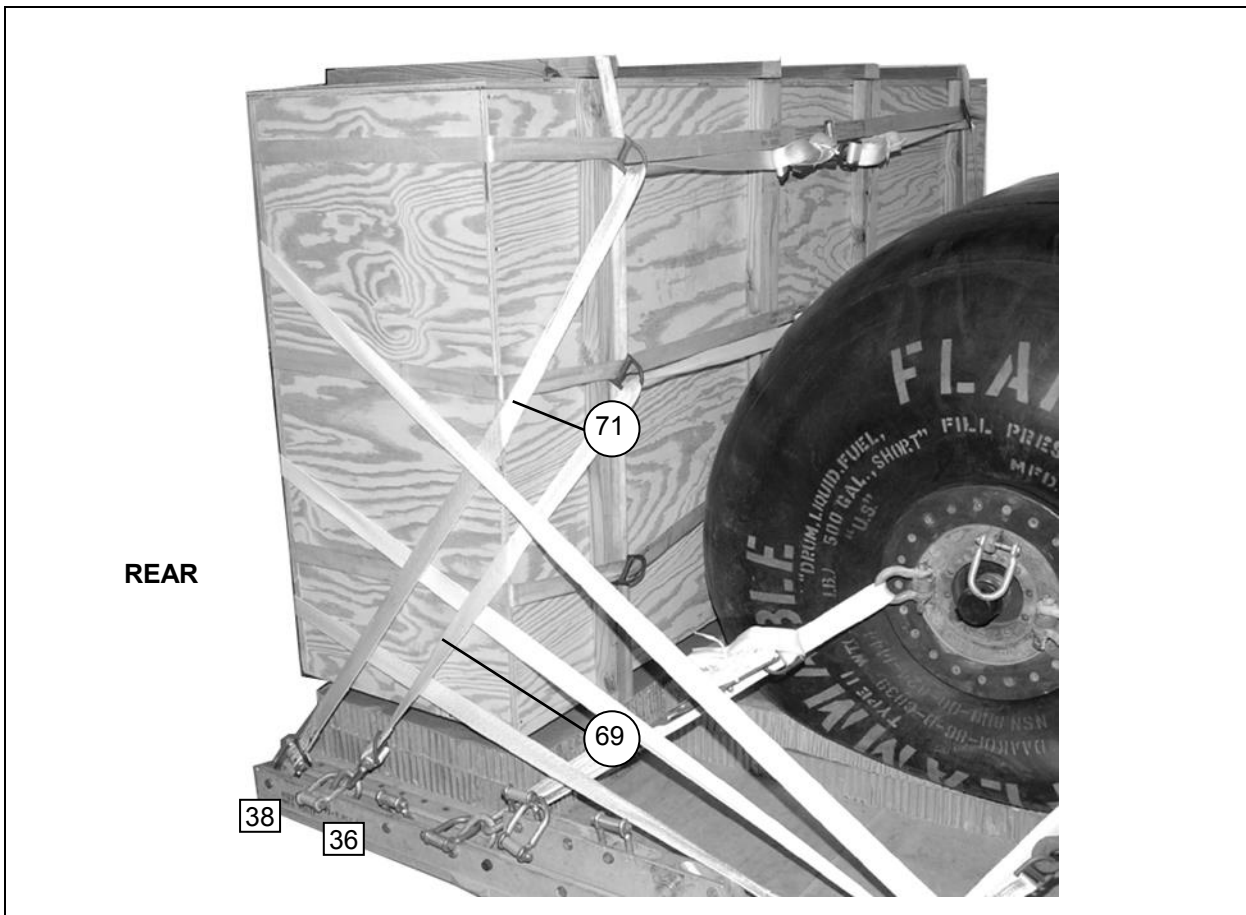


Figure 14-7. Forward Area Refueling Equipment Containers Lashed (continued)



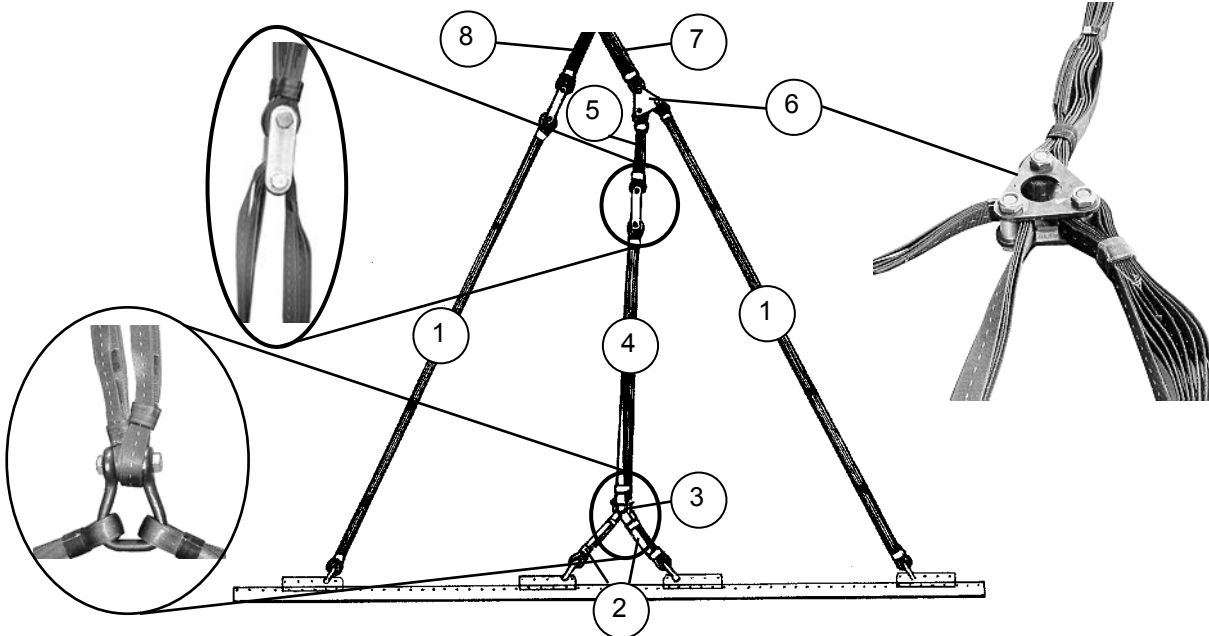
<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
69	36	Route a lashing through its own D-ring on clevis 36 and through the middle rings on the front of container 2.
70	36A	Route a lashing through its own D-ring on clevis 36A and through the middle rings on the front of container 2. Bind lashing 69 to lashing 70 with two D-rings and a load binder.
71	38	Route a lashing through its own D-ring on clevis 38 and through the top rings on the front of container 2.
72	38A	Route a lashing through its own D-ring on clevis 38A and through the top rings on the front of container 2. Bind lashing 71 to lashing 72 with two D-rings and a load binder.

Figure 14-7. Forward Area Refueling Equipment Containers Lashed (continued)

INSTALLING SUSPENSION SLINGS

14-8. Install suspension slings as shown in Figure 14-8.

Note. This drawing is not drawn to scale.



- ① Attach a 20-foot (4-loop), type XXVI nylon webbing sling to each first and fourth suspension bracket with a large suspension clevis.
- ② Attach a 3-foot (4-loop), type XXVI nylon webbing sling to each second and third suspension bracket with a large suspension clevis.
- ③ Place the 3-foot slings on each side of the load in the bell of a large suspension clevis.
- ④ Bolt a 16-foot (2-loop), type XXVI nylon webbing sling to each large suspension clevis. Loop the sling to form one half the length of the sling.
- ⑤ Attach a 11-foot (2-loop), type XXVI nylon webbing sling to the 16-foot sling with a 5 ½-inch, two-point link assembly. Loop the sling to form one half of the length of the sling.
- ⑥ Use a 3-point link to join the center and front suspension slings.
- ⑦ Place a 3-foot (4-loop), type XXVI nylon webbing sling on the top spool of the 3-point link.
- ⑧ Attach a 3-foot (4-loop), type XXVI nylon webbing sling to each rear suspension sling with a 3 ¾-inch, two-point link assembly.
- ⑨ Place cloth-backed tape around the bolt and nut on all connection links (not shown).

Figure 14-8. Suspension Slings Installed

SAFETY TYING SUSPENSION SLINGS

14-9. Safety tie the suspension slings as shown in Figure 14-9. Refer to the Notice of Exception in the Introduction portion of this manual.

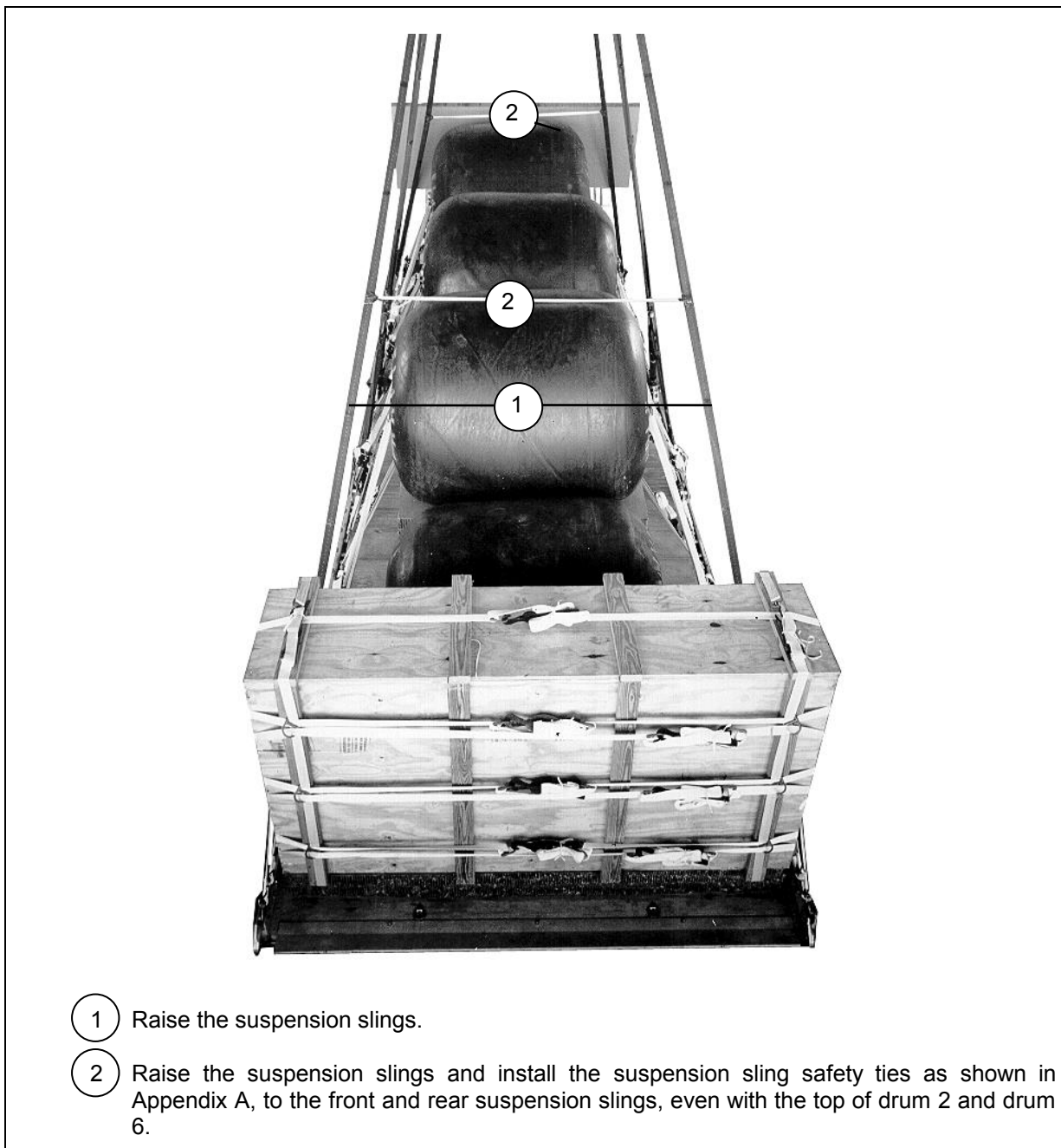
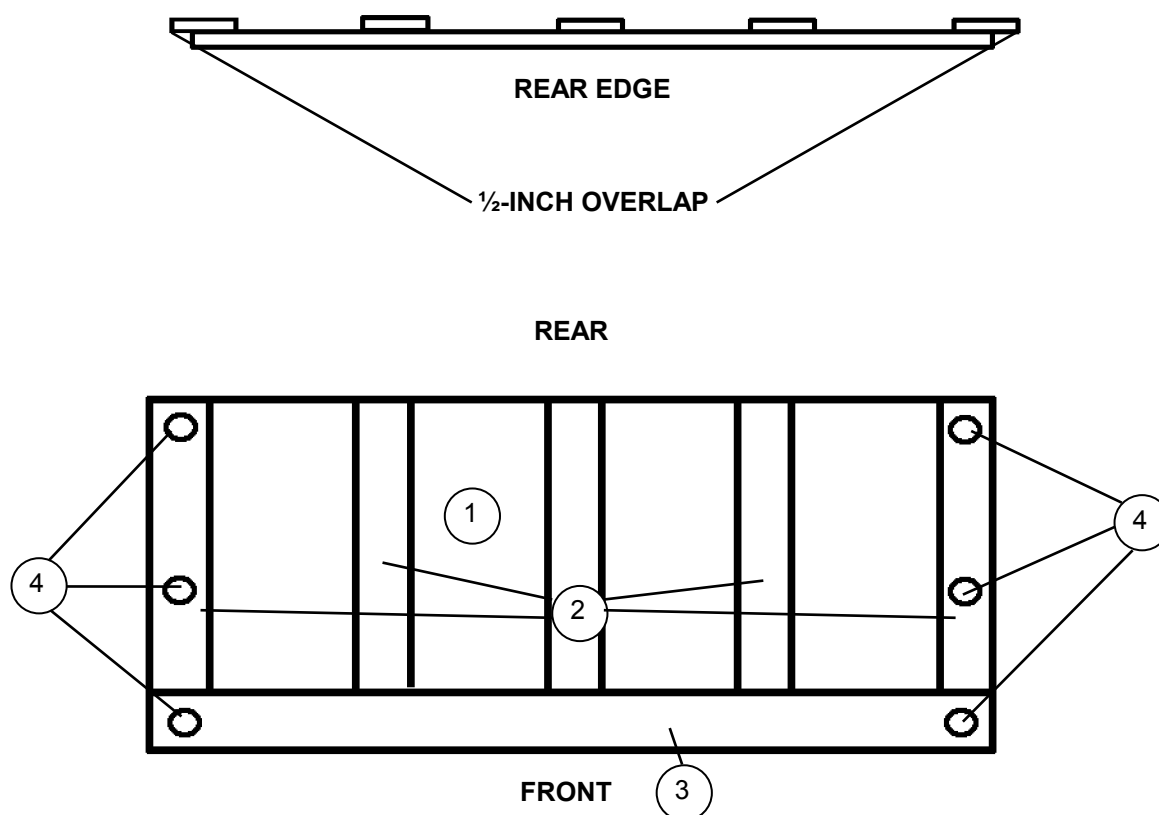


Figure 14-9. Suspension Slings Safety Tied

BUILDING AND INSTALLING CARGO PARACHUTE STOWAGE TRAY

14-10. Build the cargo parachute stowage tray as shown in Figure 14-10. Install the cargo parachute stowage tray as shown in Figure 14-11.

Note. This drawing is not drawn to scale.



- ① Lay a 96- by 48- by $\frac{3}{4}$ -inch and a 96- by 12- by $\frac{3}{4}$ -inch piece of plywood side by side.
- ② Nail five 2- by 6- by 54- 12-inch pieces of lumber using eight-penny nails as shown above.
- ③ Nail a 2- by 6- by 97-inch piece of lumber flush against the vertical pieces of lumber on the front edge of the tray using eight-penny nails.
- ④ Drill six holes 3 inches on center from the edges of the plywood as shown above.

Figure 14-10. Cargo Parachute Stowage Tray Built

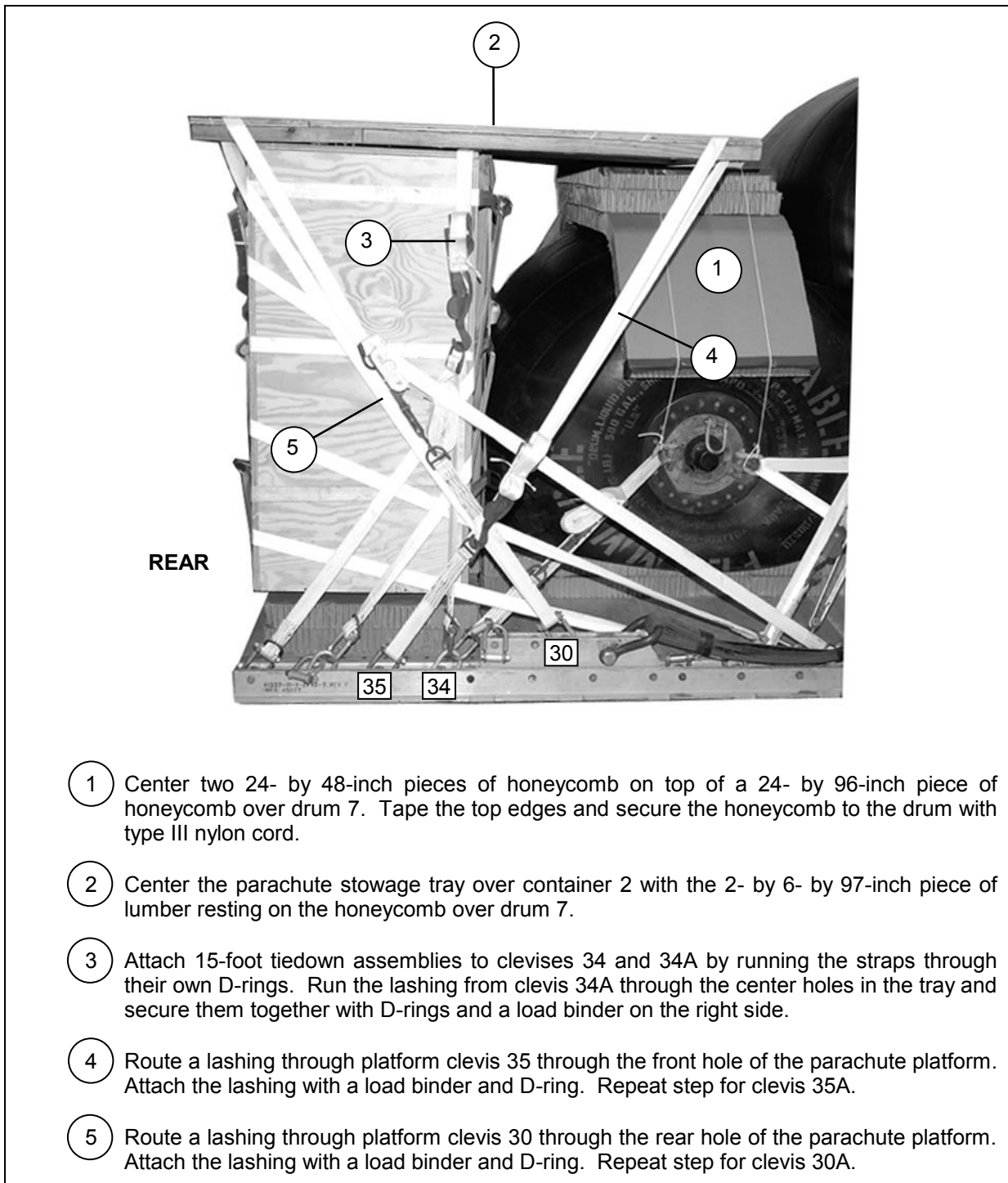
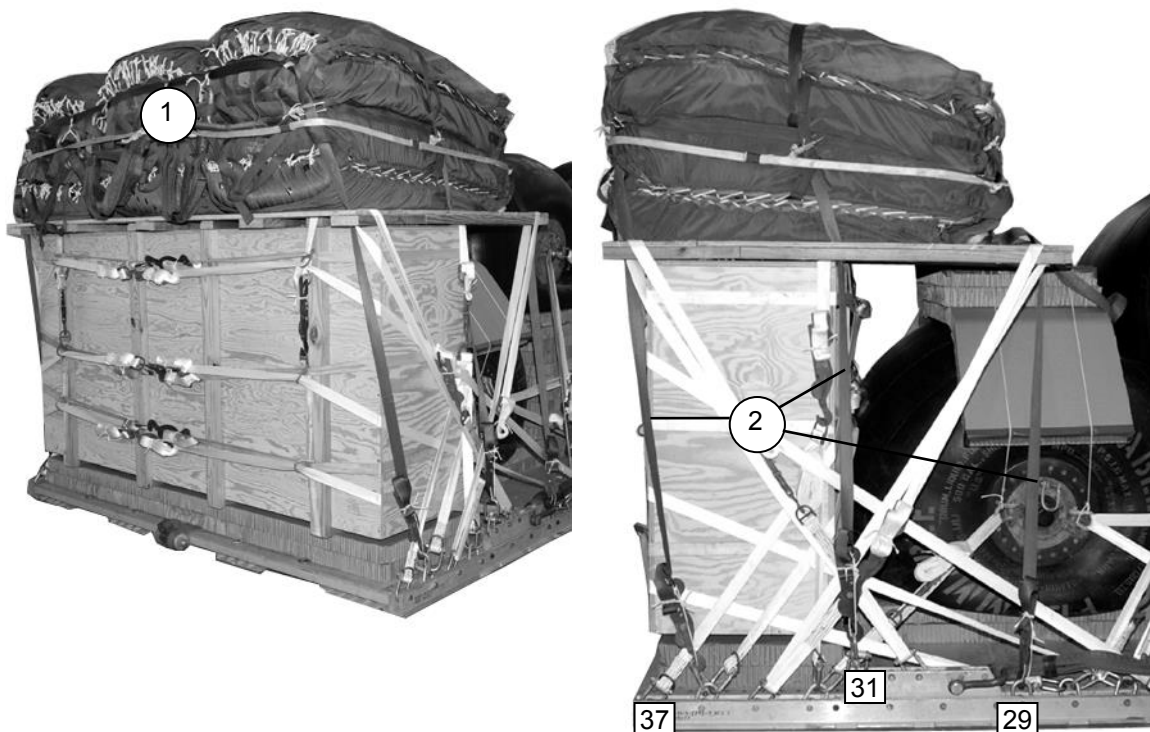


Figure 14-11. Cargo Parachute Stowage Tray Installed

PREPARING AND STOWING CARGO PARACHUTES

14-11. Prepare, place, and restrain six G-11 cargo parachutes according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 14-12.



- 1 Position and secure six G-11 cargo parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- 2 Restrain the parachutes using clevises 29, 29A, 31, 31A, 37, 37A.

Figure 14-12. Cargo Parachute Stowed

INSTALLING THE EXTRACTION SYSTEM

14-12. Install the extraction force transfer coupling as shown in Figure 14-13.

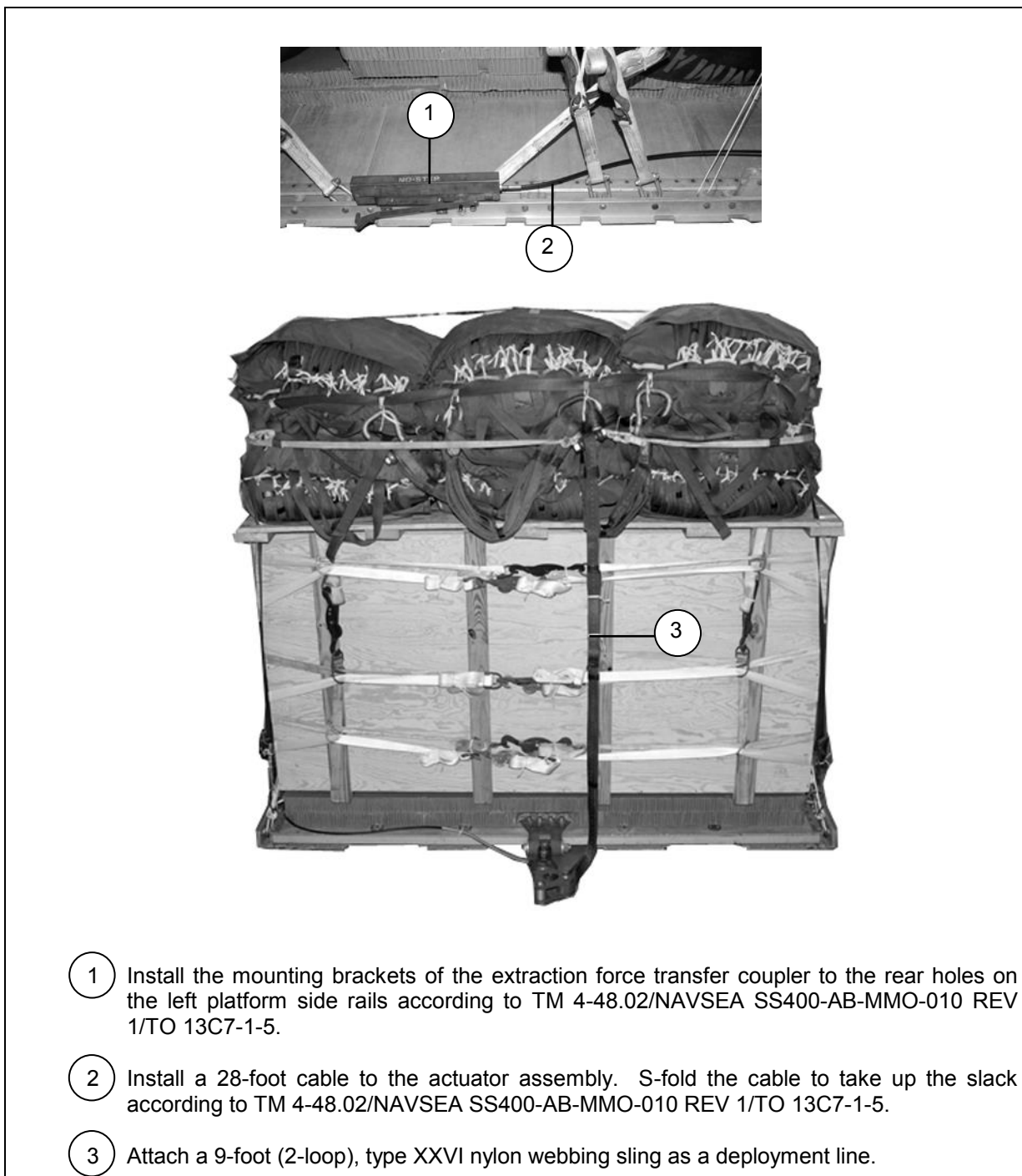
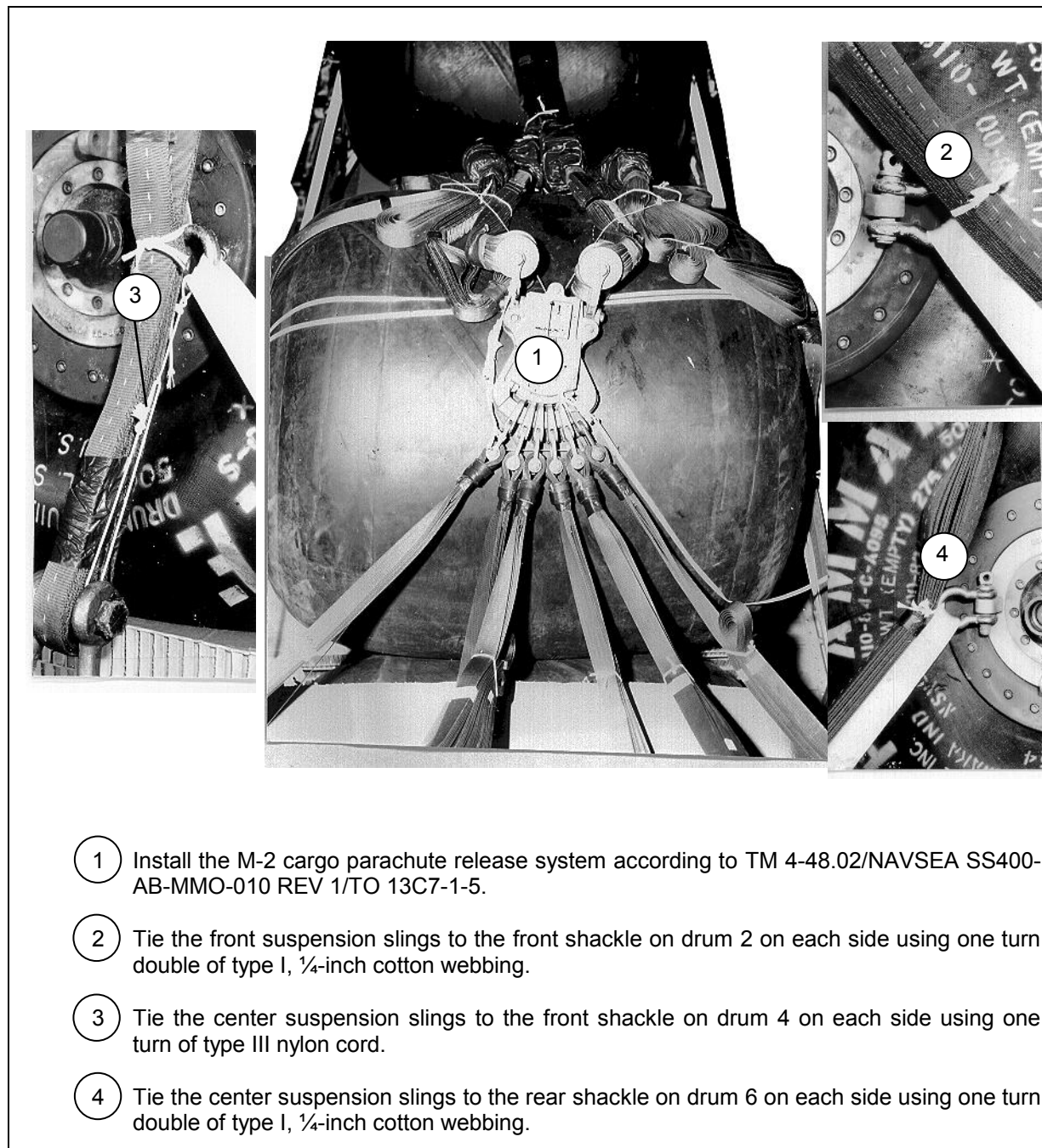


Figure 14-13. Extraction System Installed

INSTALLING PARACHUTE RELEASE SYSTEM

14-13. Install the M-2 cargo parachute release system according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 14-14.



- ① Install the M-2 cargo parachute release system according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Tie the front suspension slings to the front shackle on drum 2 on each side using one turn double of type I, 1/4-inch cotton webbing.
- ③ Tie the center suspension slings to the front shackle on drum 4 on each side using one turn of type III nylon cord.
- ④ Tie the center suspension slings to the rear shackle on drum 6 on each side using one turn double of type I, 1/4-inch cotton webbing.

Figure 14-14. M-2 Cargo Parachute Release System Installed

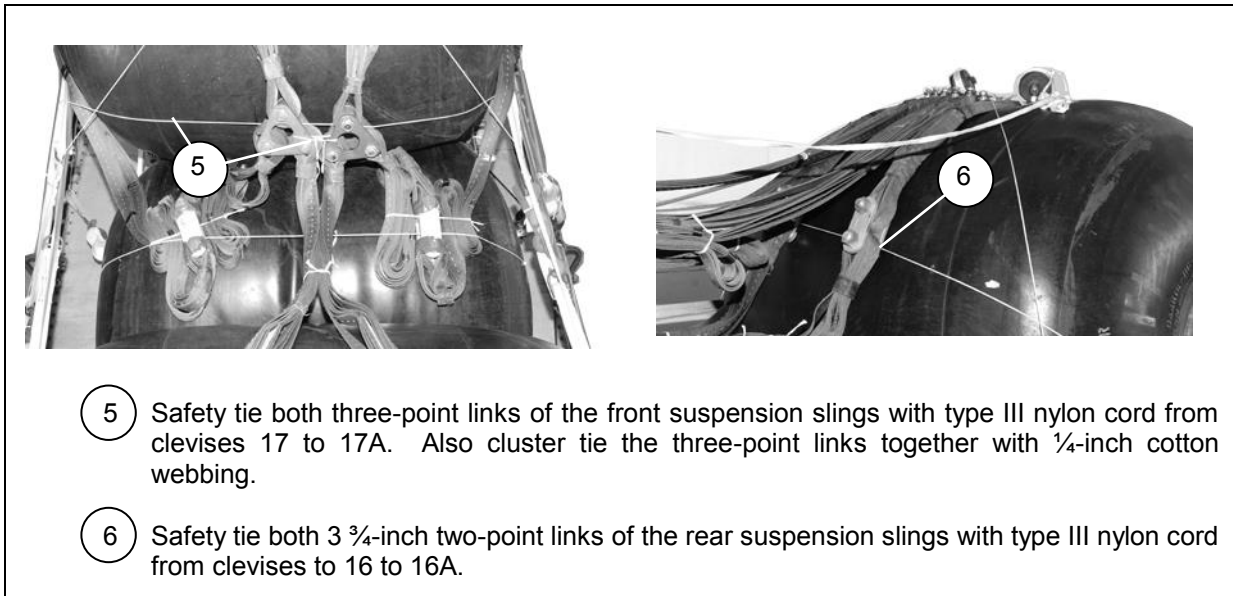


Figure 14-14. M-2 Cargo Parachute Release System Installed (continued)

PLACING EXTRACTION PARACHUTE

14-14. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

14-15. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

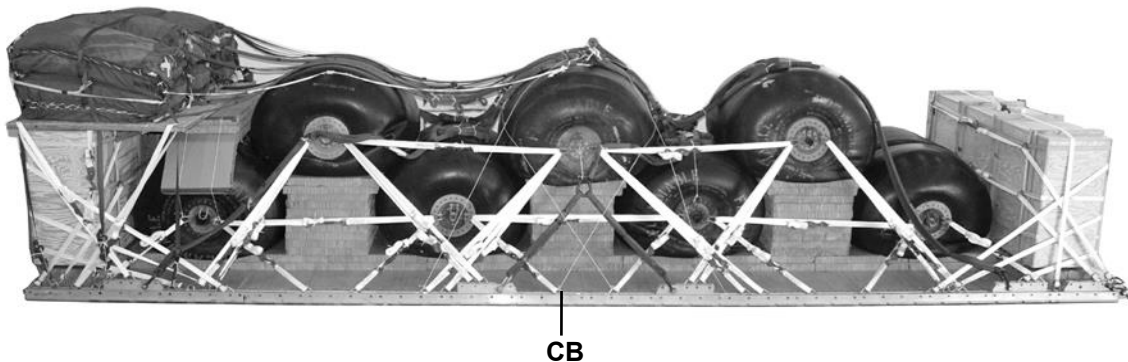
14-16. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 14-15. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

14-17. Use the equipment list in Table 14-1 to rig the load shown in Figure 14-15.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	28,000 pounds
Maximum load allowed.....	30,000 pounds
Height.....	95 inches
Width	108 inches
Length	402 inches
Overhang: Front	0 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	202 inches
Extraction System	Extraction Force Transfer Coupler

Figure 14-15. Forward Area Refueling Equipment with Seven 500-Gallon Fuel Drums Rigged for Low-Velocity Airdrop

Table 14-1. Equipment Required for Rigging Forward Area Refueling Equipment with Seven 500-Gallon Fuel Drums for Low-Velocity Airdrop

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, 1-inch (large)	10
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer w/ cable, 28-foot Cover:	
1670-00-360-0328	Cover, Clevis, large	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
5365-00-937-0147	D-ring, heavy-duty, 10,000 pound	As required
1670-00-003-4391	Knife, miniature, cutter (for Drogue Extraction System)	24
1670-01-183-2678	Leaf, extraction line (line bag)(add 2 for Drogue Extraction System)	1
1670-01-062-6313	Line, drogue (for Drogue Extraction System) 60-foot (3-loop), type XXVI	2
1670-01-064-4454	Line, extraction: For C-130: 60-foot (6-loop), type XXVI For C-17:	1
1670-01-468-9178	160-foot (1-loop), type XXVI	1
1670-01-483-8259	Link, tow release mechanism (H-Block) C-17 aircraft	1
5306-00-435-8994	Link assembly:	
5310-00-232-5165	Nut, 1-inch, hexagonal (add 2 for Drogue Extraction System)	8
1670-00-003-1953	Plate, side, 3 ¾-inch (add 2 for Drogue Extraction System)	8
1670-00-003-1954	Plate, side, 5 ½-inch	4
5365-00-007-3414	Spacer, large (add 2 for Drogue Extraction System)	4
1670-01-307-1055	Three-point	8
1670-00-006-2752	Four-point	2
5510-00-220-6146	Lumber	1
	2- by 4- inch:	
	24-inches	8
	27-inches	8
1670-00-753-3928	50 ¼-inches	16
	Pad, energy-dissipating (honeycomb) 3- by 36- by 96-inches	32 sheets
	Parachute:	
1670-01-016-7841	Cargo G-11C	6
	Cargo Extraction:	
1670-00-040-8135	28-foot	2
	Drogue (for Drogue Extraction System)	
1670-01-063-3715	15-foot	1

Table 14-1. Equipment Required for Rigging Forward Area Refueling Equipment with Seven 500-Gallon Fuel Drums for Low-Velocity Airdrop (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
	Platform, airdrop, type V, 32-foot	
1670-01-353-8425	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	76
1670-01-162-2376	Extraction bracket assembly	1
1670-01-247-2389	Bracket, suspension	8
1670-01-162-2381	Tandem link assembly (Multipurpose link)	2
5530-00-128-4981	Plywood, ¾-inch	3 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	8
1670-01-063-7760	11-foot (2-loop), type XXVI nylon webbing	2
1670-01-063-7761	16-foot (2-loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4-loop), type XXVI nylon webbing	4
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2-loop), type XXVI nylon webbing	6
	For lifting slings:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	96
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-261-8584	Type X	As required

Chapter 15

Rigging the 350-Gallons-per-Minute Wheel Mounted Petroleum Pumping Assembly with Filter/Separator

DESCRIPTION OF LOAD

15-1. The 4-inch, 350-gallons-per-minute wheel-mounted petroleum pumping assembly with filter/separator (Figure 15-1) is rigged on a 16-foot type V platform for low-velocity airdrop with two G-11 cargo parachutes. It consists of two pumps, each weighing 2,100 pounds and two filter/separators each weighing 425 pounds. It is approximately 76 ¾ inches in height, 108 inches in width, and 215 inches in length with an overhang of 5 inches in the front and 18 inches in the rear. The total rigged weight is 7,880 pounds.

PREPARING PLATFORM

15-2. Prepare a 16-foot type V airdrop platform using two tandem links, four suspension brackets, and 16 tiedown clevises as shown in Figure 15-2.

-
- Note.** 1. The nose bumper may or may not be installed.
2. Measurements are not given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.
-

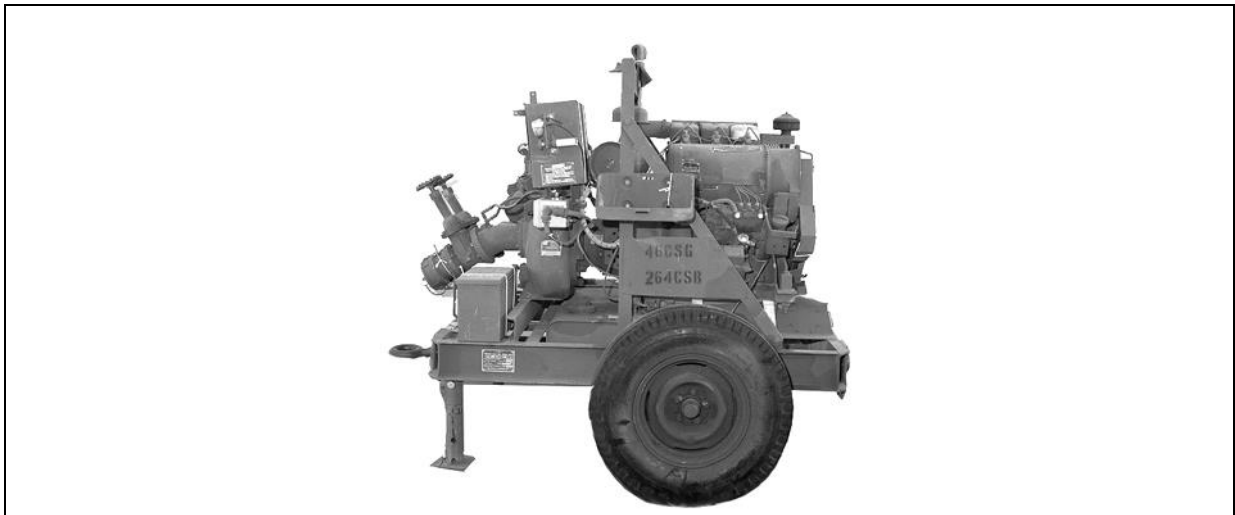


Figure 15-1. Pumping Assembly with Filter/Separator

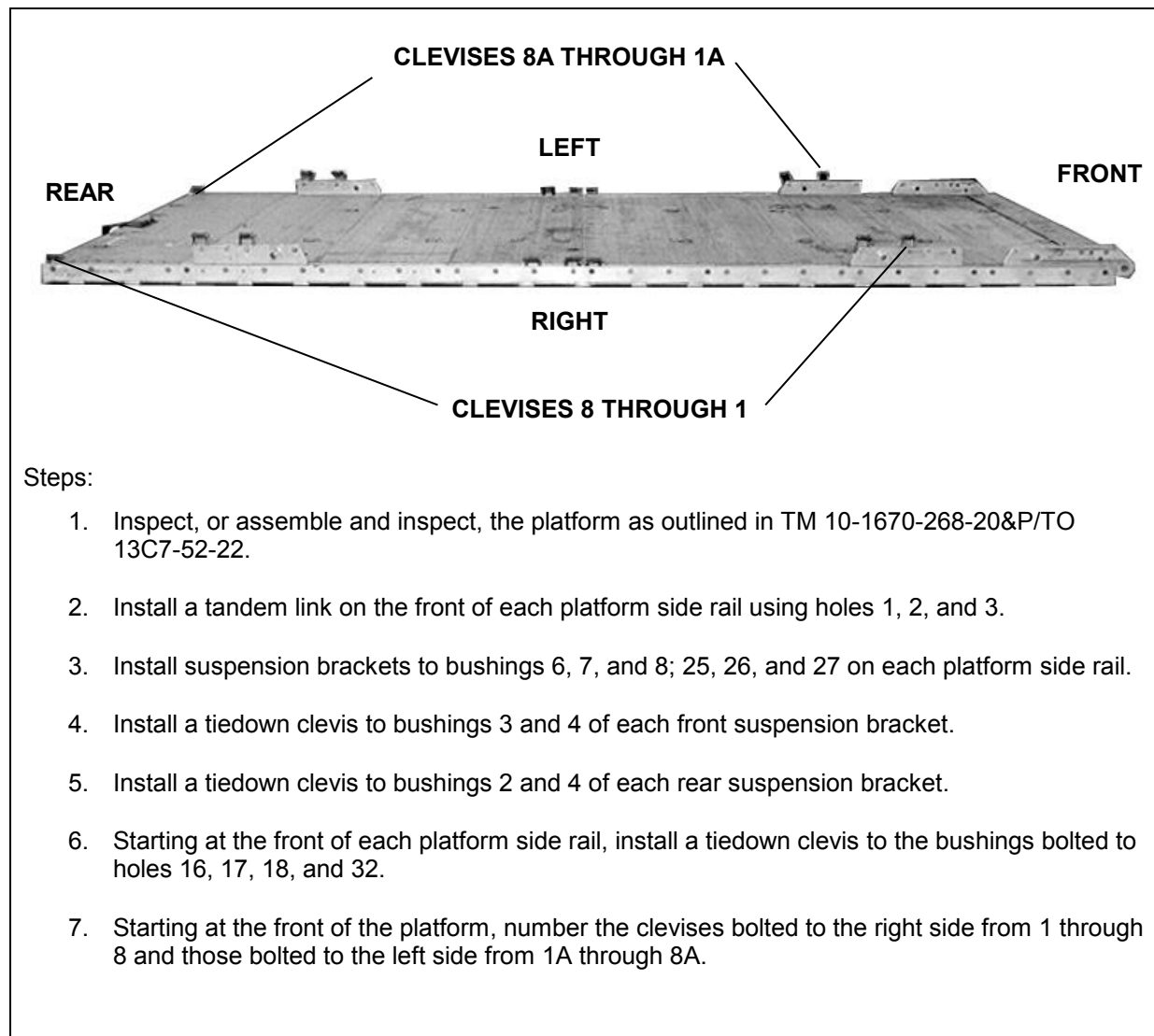
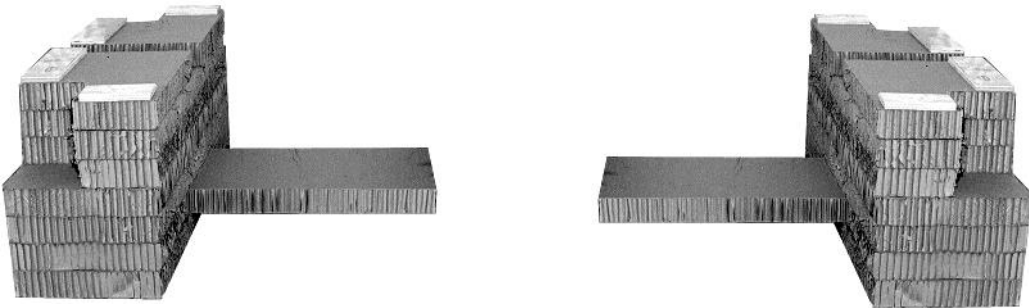


Figure 15-2. Platform Prepared

PREPARING HONEYCOMB

15-3. Build honeycomb stacks as shown in Figures 15-3 through 15-6.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1 & 4	1	51	16	Honeycomb	Form a base.
	2	16	16	Honeycomb	Glue one end on each side of the base.
	1	16	64	Honeycomb	Glue one end centered between the 16- by 16-inch pieces and flush with the front edge of the base.
	2	51	16	Honeycomb	Glue on base.
	2	51	16	Honeycomb	Notch the right and left corner of each piece with an 8- by 8-inch cutout and glue to the base.
	2	23	16	Honeycomb	Notch one corner of each piece with an 8- by 8-inch cutout and glue one on the right and one on the left side of the base.
	2	4	7	$\frac{3}{4}$ -inch Plywood	Glue one piece on the right and left side of the base.
	2	14	4	$\frac{3}{4}$ -inch Plywood	Glue one piece on the right and left side of the base.

Figure 15-3. Honeycomb Stacks 1 and 4 Prepared

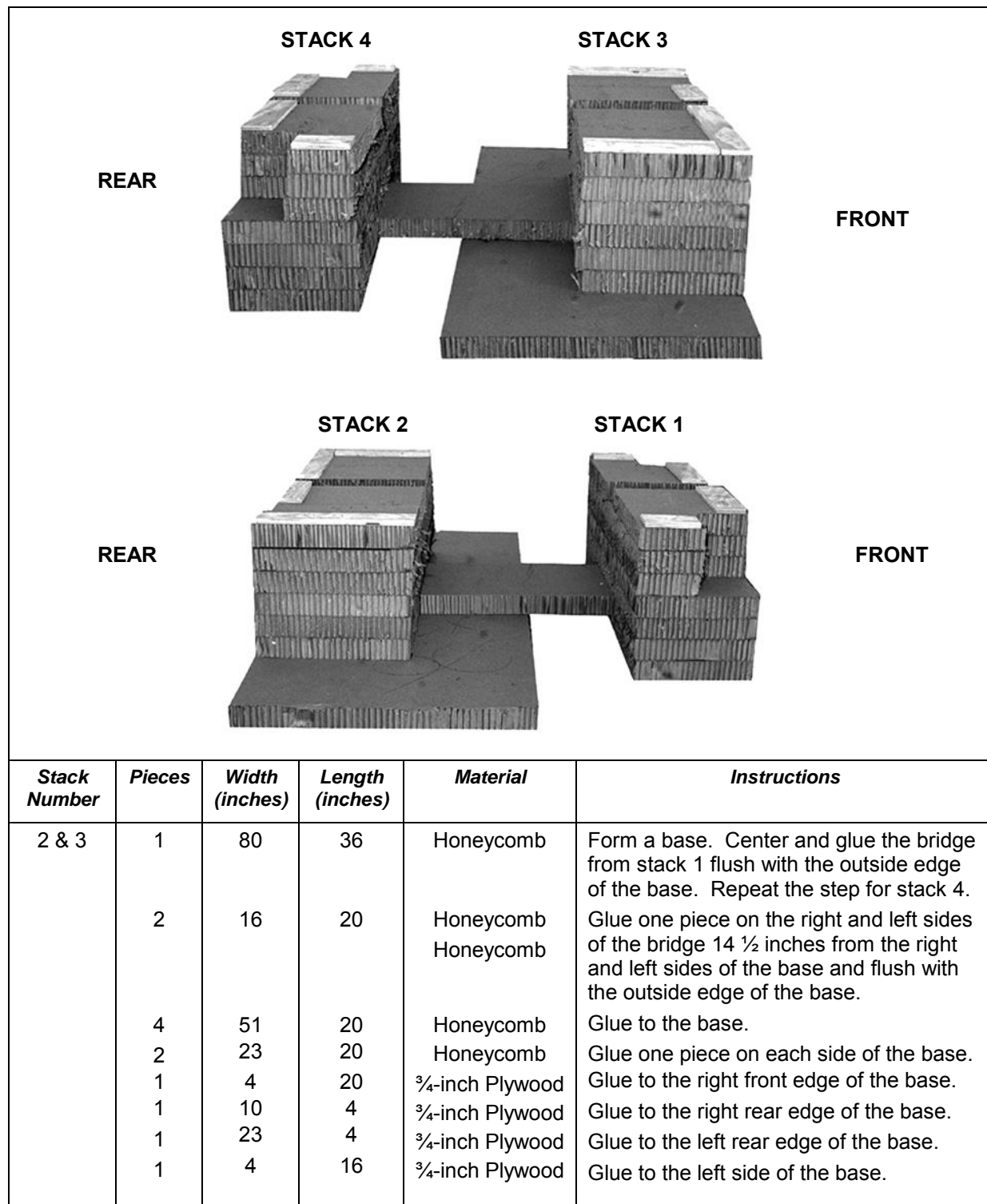


Figure 15-4. Honeycomb Stacks 2 and 3 Prepared

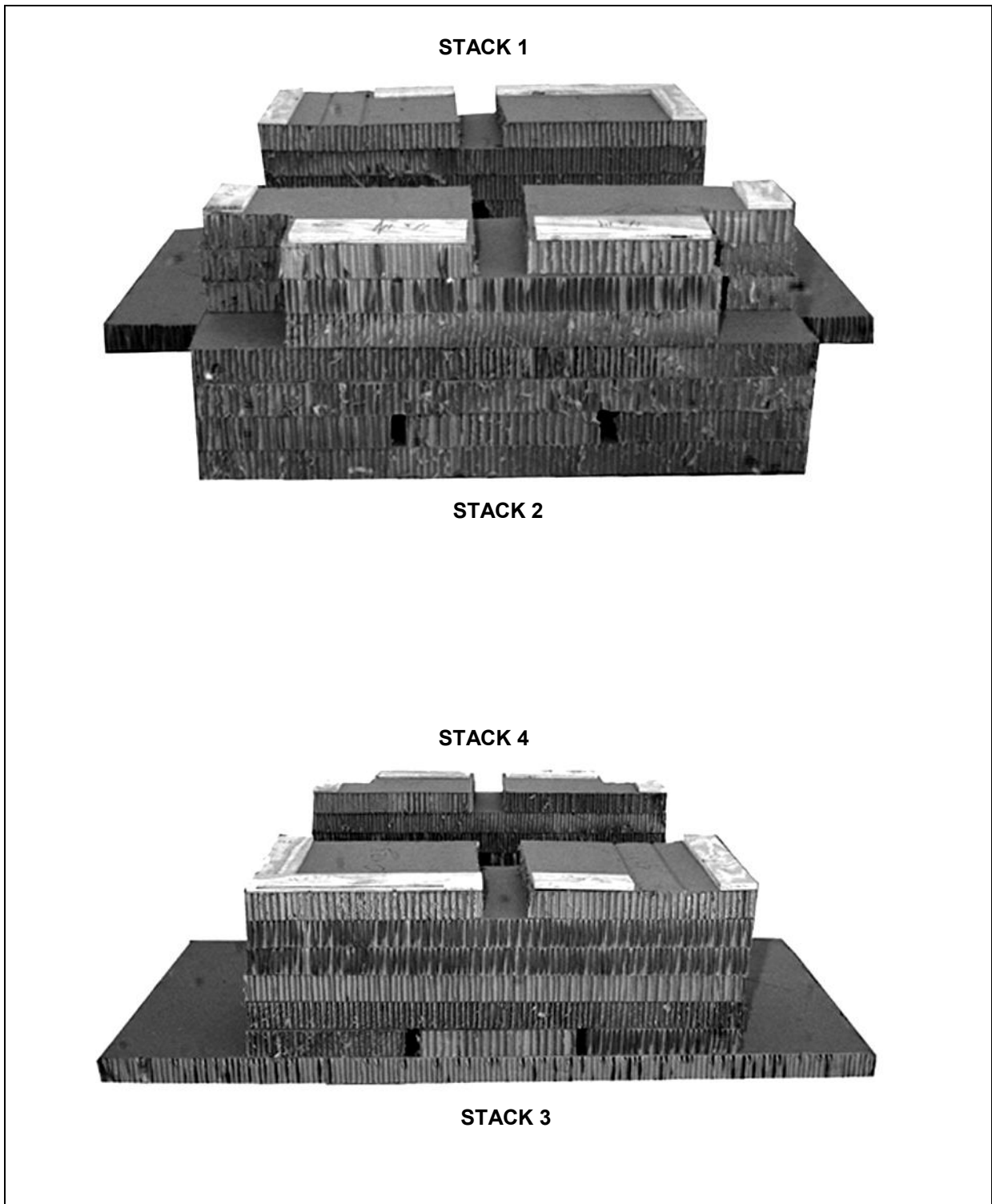


Figure 15-5. Honeycomb Stacks 2 and 3 Prepared

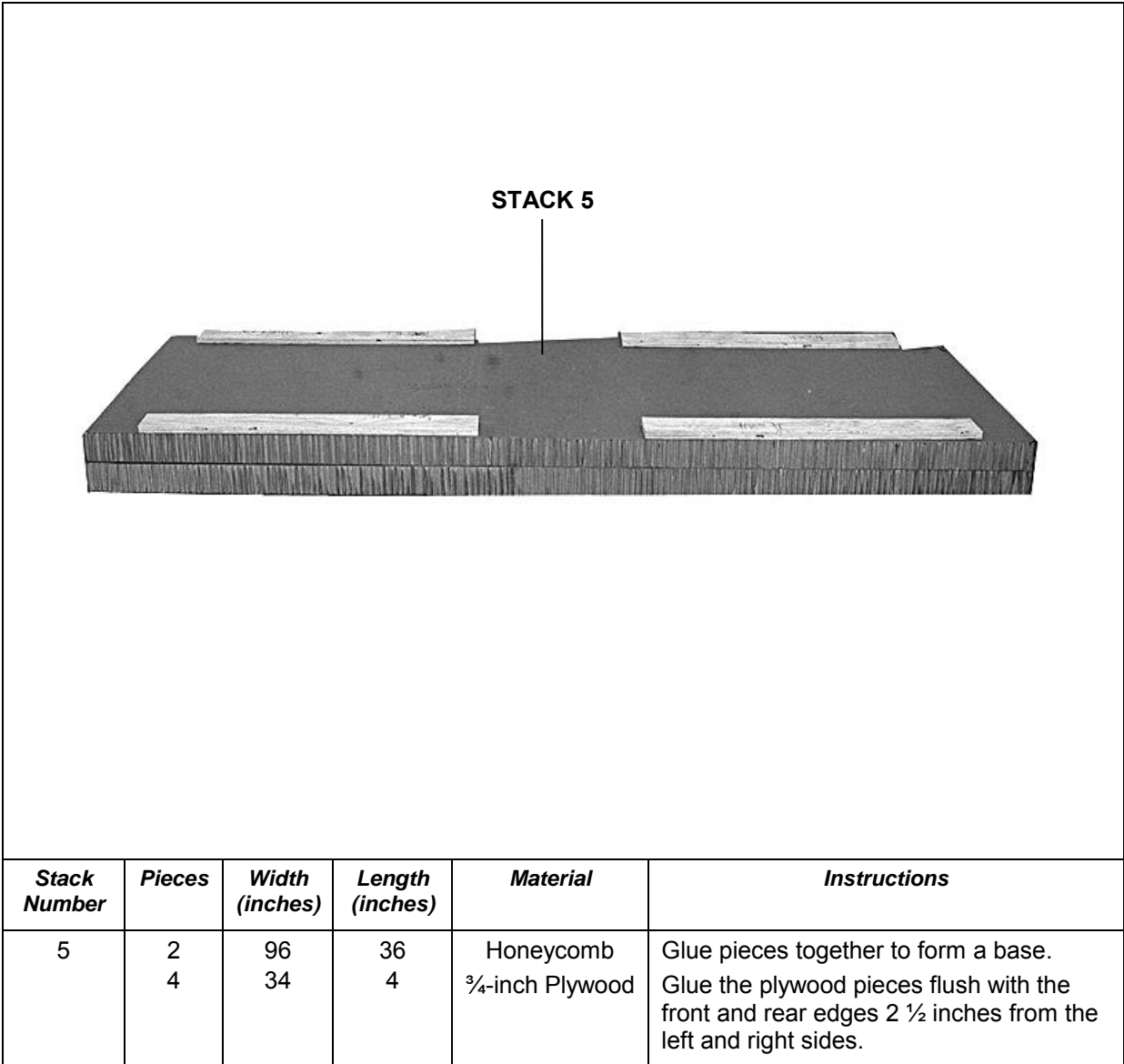


Figure 15-6. Honeycomb Stacks 5 Prepared

POSITIONING HONEYCOMB STACKS

15-4. Position honeycomb stacks as shown in Figure 15-7.

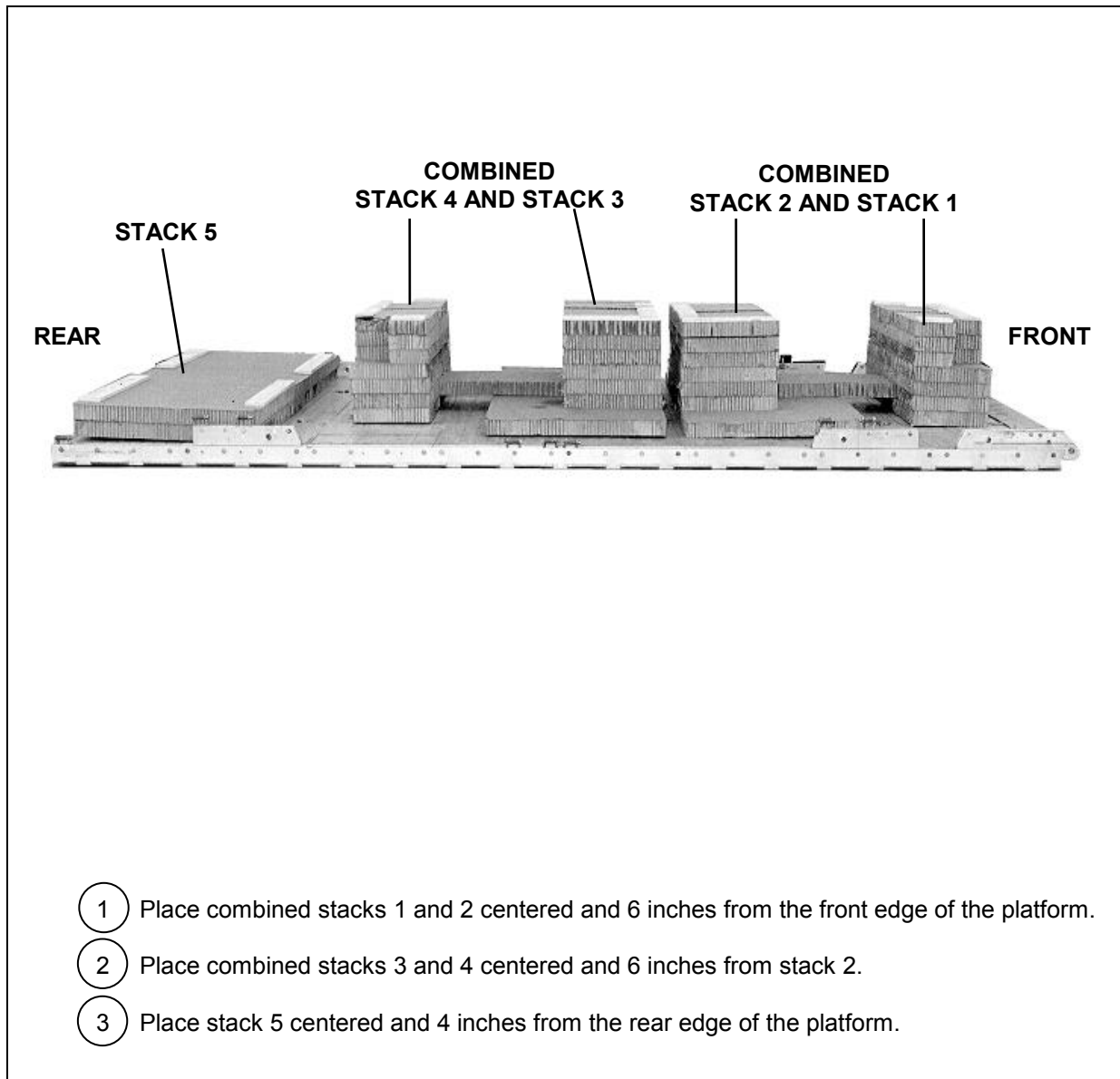
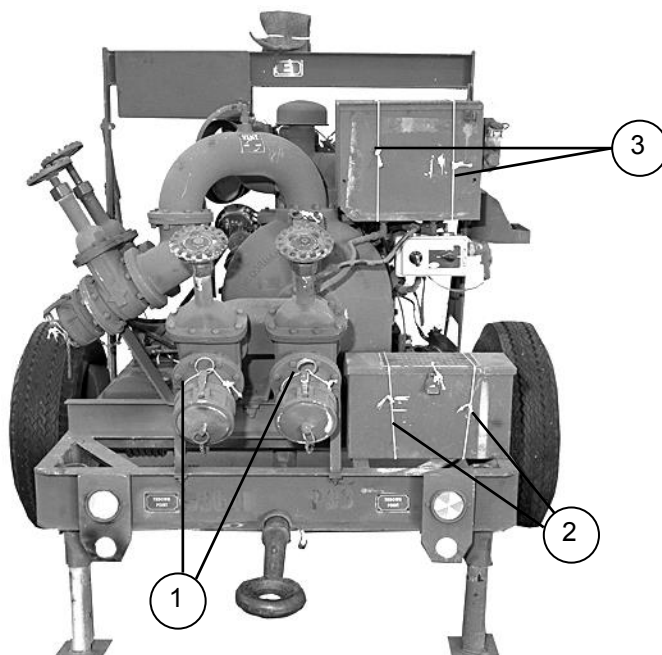


Figure 15-7. Honeycomb Stacks Positioned

PREPARING THE PUMP ASSEMBLY AND FILTER/SEPARATOR

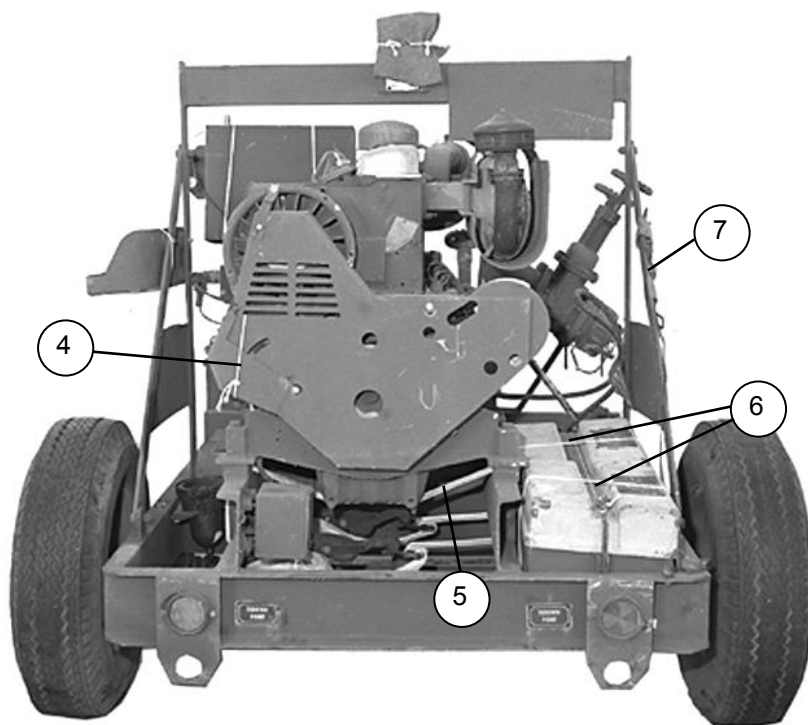
15-5. Prepare the pump assembly and filter/separator as shown in Figure 15-8.

Note. The fuel pump must be drained of all fuel and the filter/separator purged and ventilated.



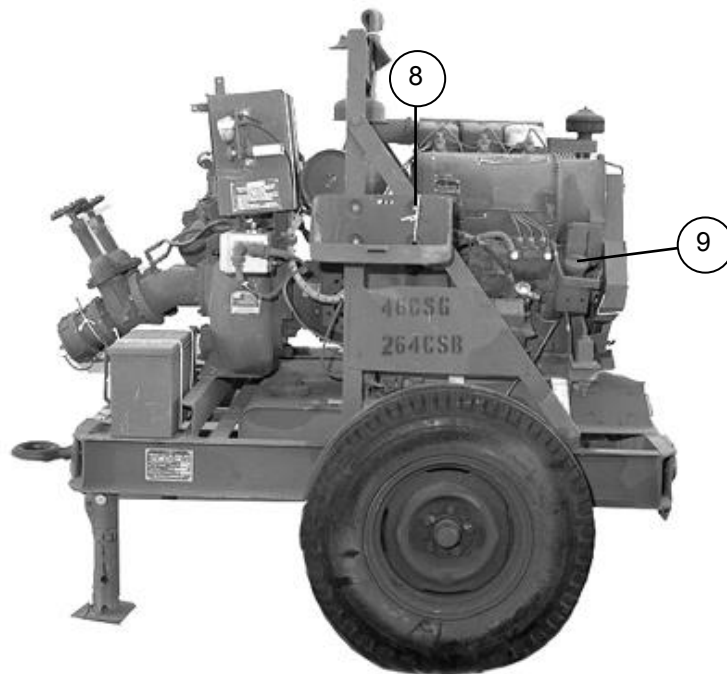
- ① Secure all fuel caps with type III nylon cord.
- ② Secure lid to storage box with type III nylon cord.
- ③ Secure cover to control panel with type III nylon cord.

Figure 15-8. Pump Assembly and Filter/Separator Prepared



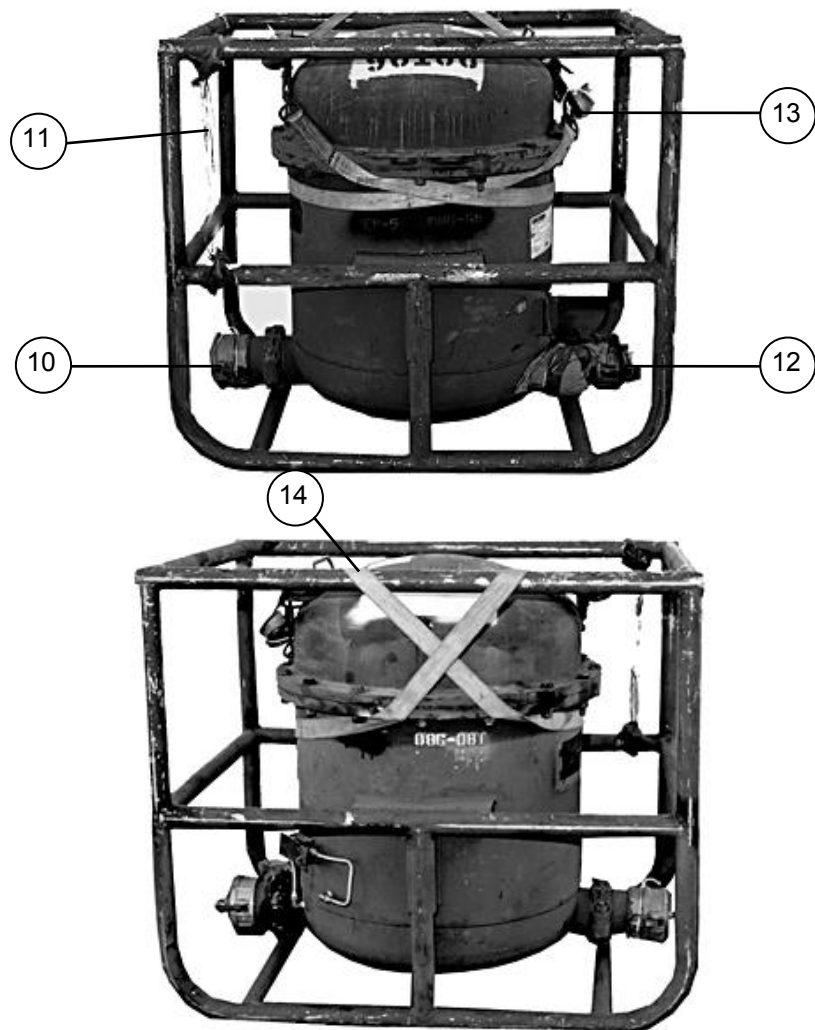
- ④ Secure the starter/speed control box to the attaching bracket with type III nylon cord.
- ⑤ Support the engine by running two 15-foot lashings around the frame supports and under the oil pan. Space the lashings to the front and rear of the oil pan.
- ⑥ Remove the battery box lids and secure each battery to its own box with type III nylon cord. Replace the lids and secure in place with ½-inch tubular nylon webbing, going around both boxes and bottom supports.
- ⑦ Secure the ground rod in its holder with type III nylon cord.

Figure 15-8. Pump Assembly and Filter/Separator Prepared (Continued)



- 8 Secure fuel can bracket to frame with type III nylon cord.
- 9 Tape oil cap in place with cloth-backed adhesive tape.

Figure 15-8. Pump Assembly and Filter/Separator Prepared (Continued)



- 10 Secure fuel caps on the filter/separator with type III nylon cord.
- 11 Secure the ground cable to the frame with cloth-backed adhesive tape.
- 12 Pad the small outlet valve with cellulose padding and cloth-backed tape.
- 13 Run a 15-foot lashing around the filter under the bolted top on the inlet side and around the top lateral frame support and secure.
- 14 Run a 15-foot lashing around the filter under the bolted top on the outlet side and around the top lateral frame support and secure.

Figure 15-8. Pump Assembly and Filter/Separator Prepared (Continued)

POSITIONING THE PUMP ASSEMBLY AND FILTER/SEPARATOR

15-6. Position the pump assembly and filter/separator as shown in Figure 15-9.

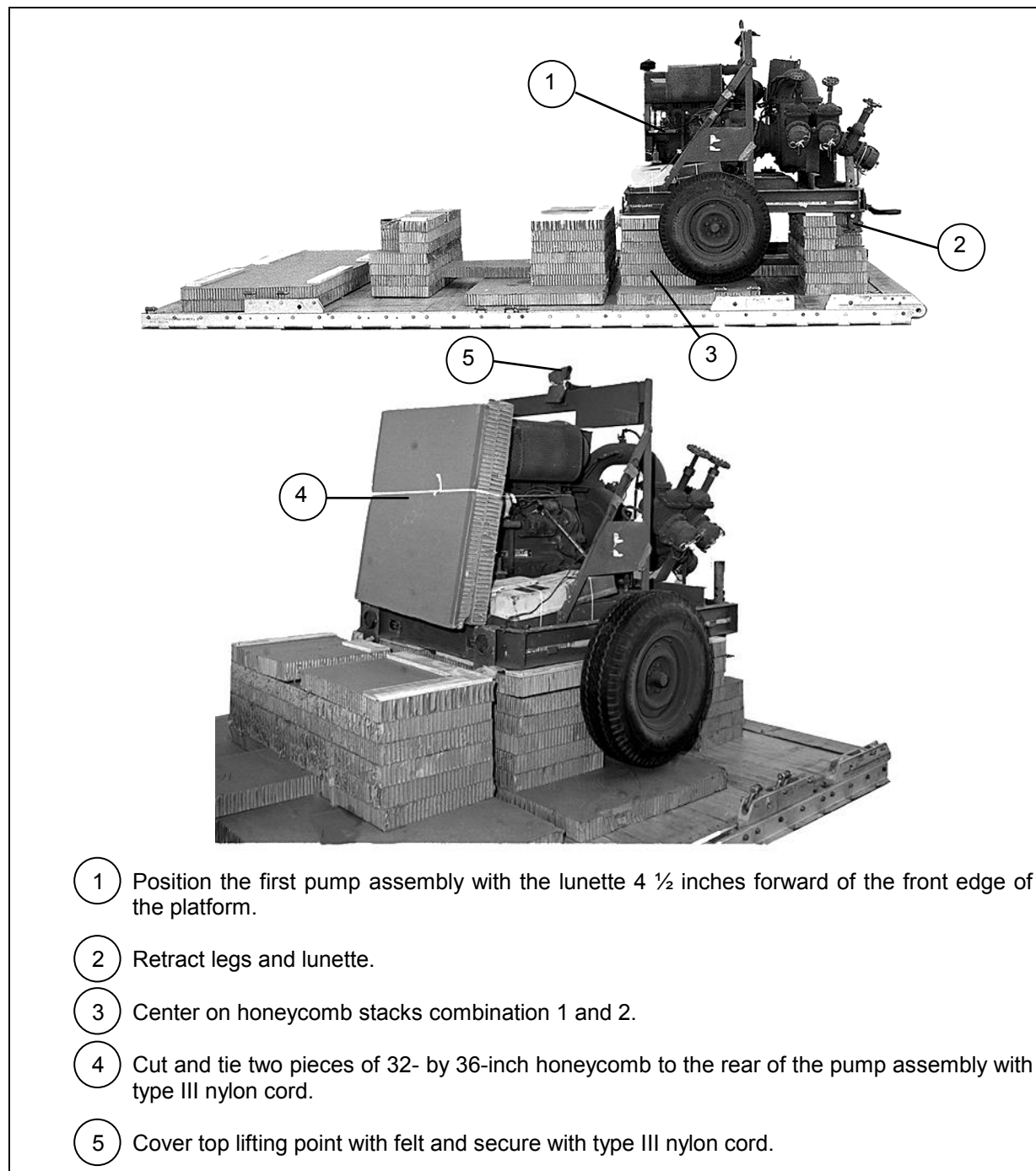


Figure 15-9. Pump Assembly and Filter/Separator Positioned

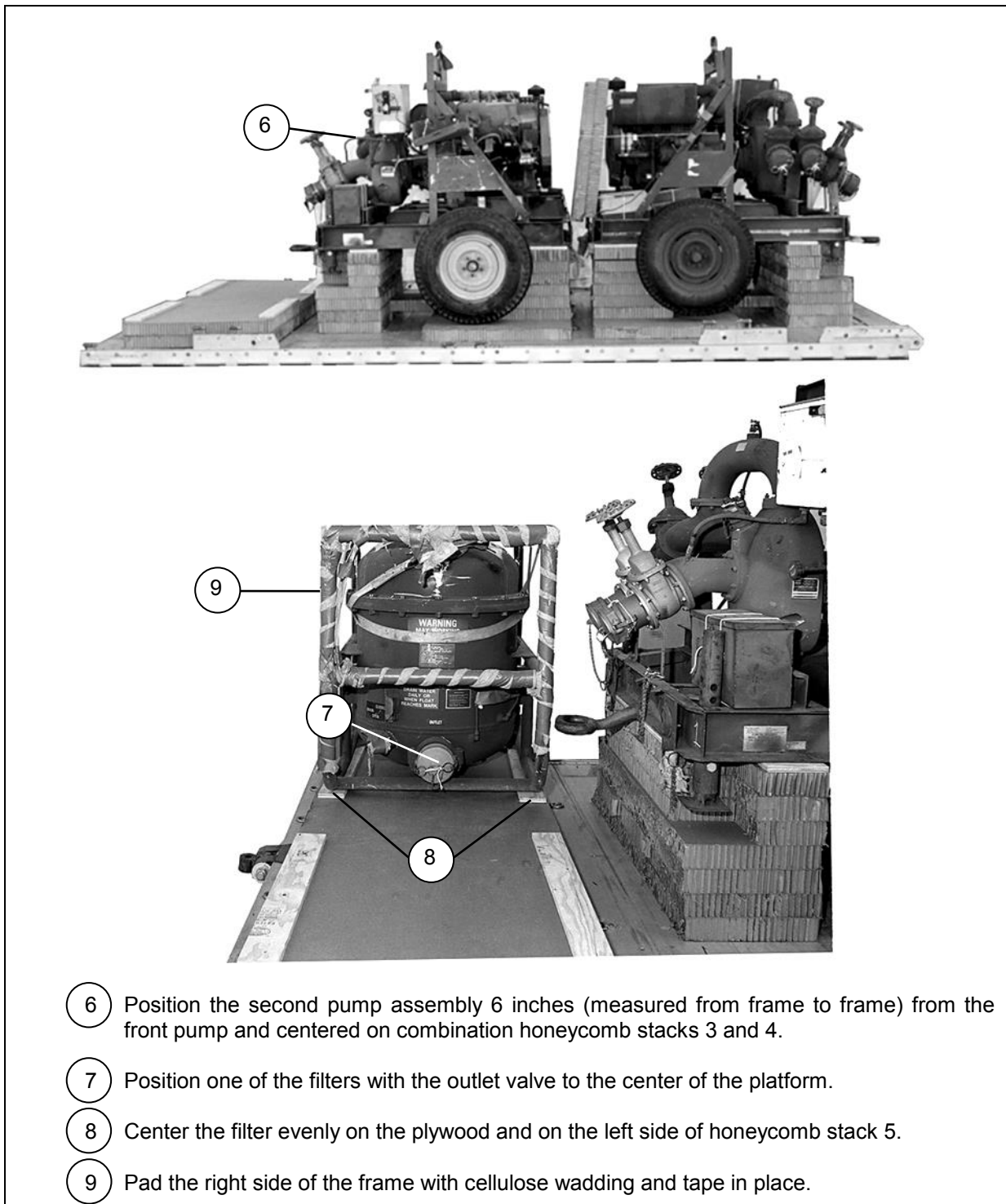
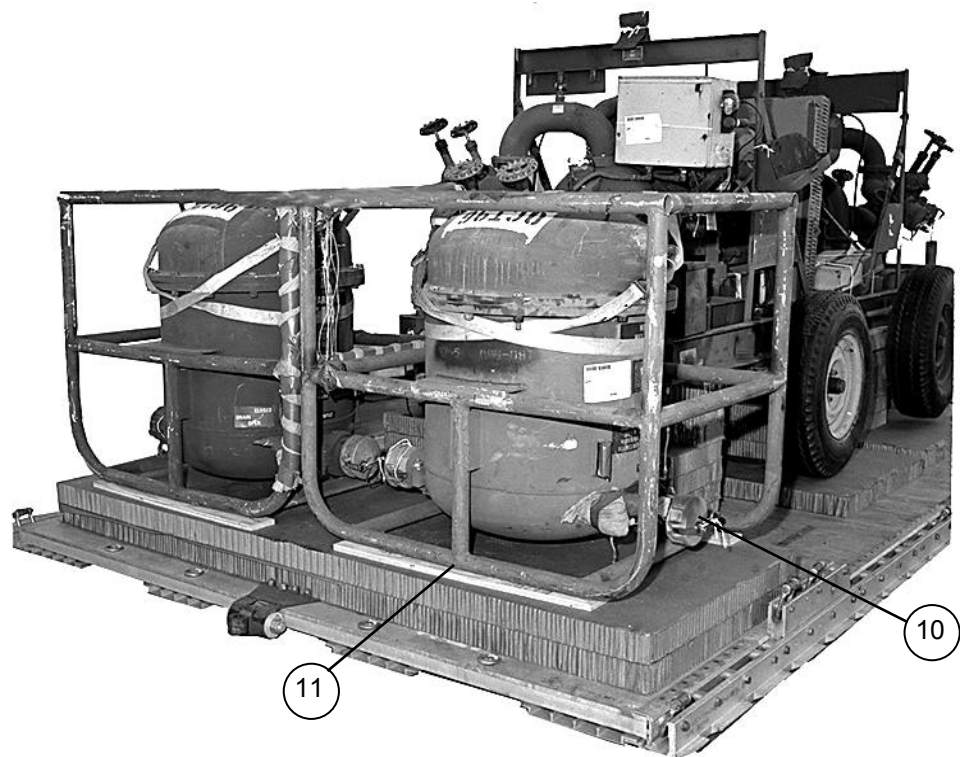


Figure 15-9. Pump Assembly and Filter/Separator Positioned (Continued)



- ⑩ Position the second filter with the outlet valve facing to the right side of the platform.
- ⑪ Center the filter evenly on the plywood and on the right side of honeycomb stack 5.

Figure 15-9. Pump Assembly and Filter/Separator Positioned (Continued)

LASHING THE PUMP ASSEMBLY AND FILTER/SEPARATOR TO THE PLATFORM

15-7. Lash the pump assembly and filter/separator to the platform using eighteen 15-foot tiedown assemblies as shown in Figures 15-10 and 15-11.

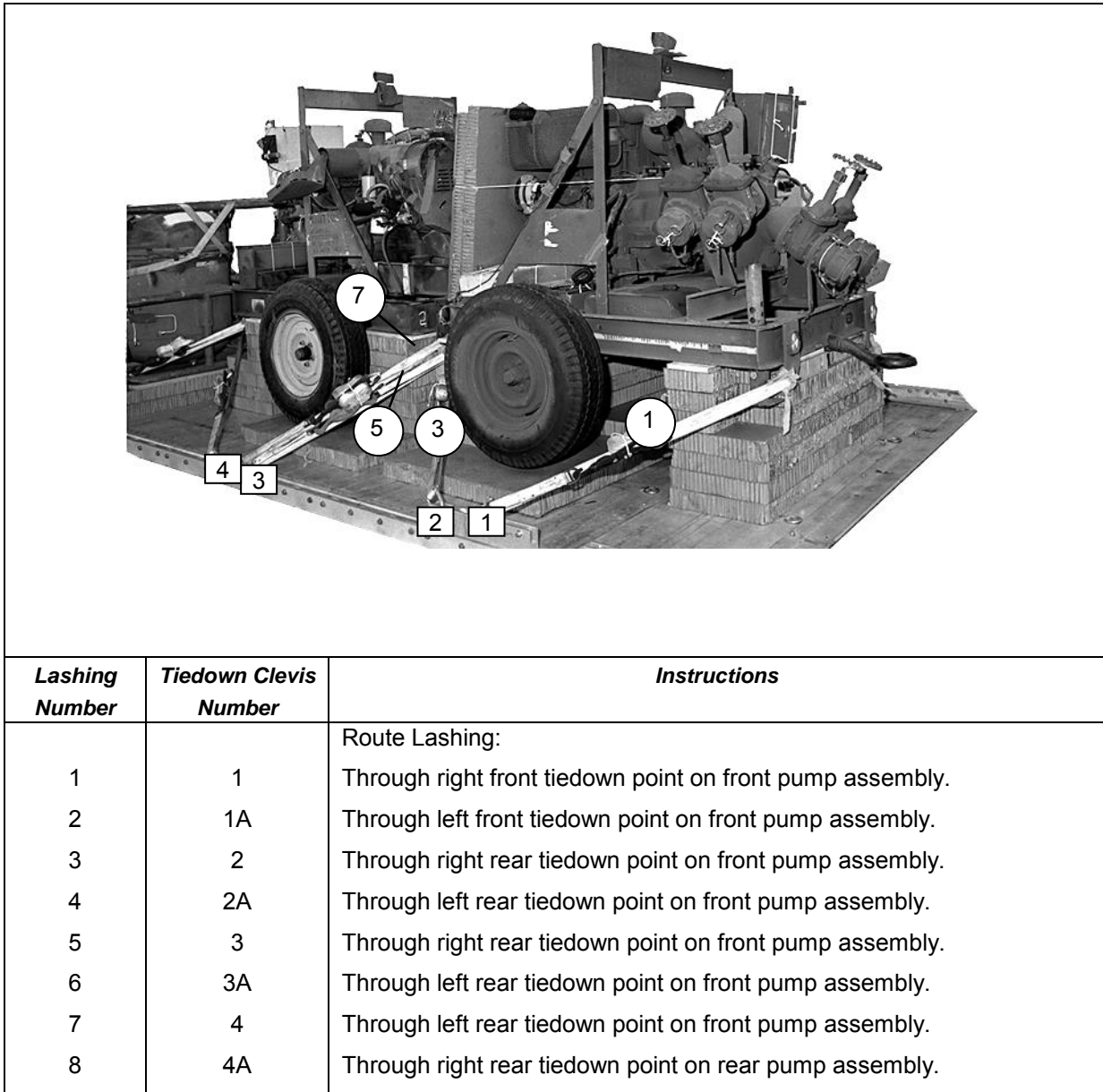
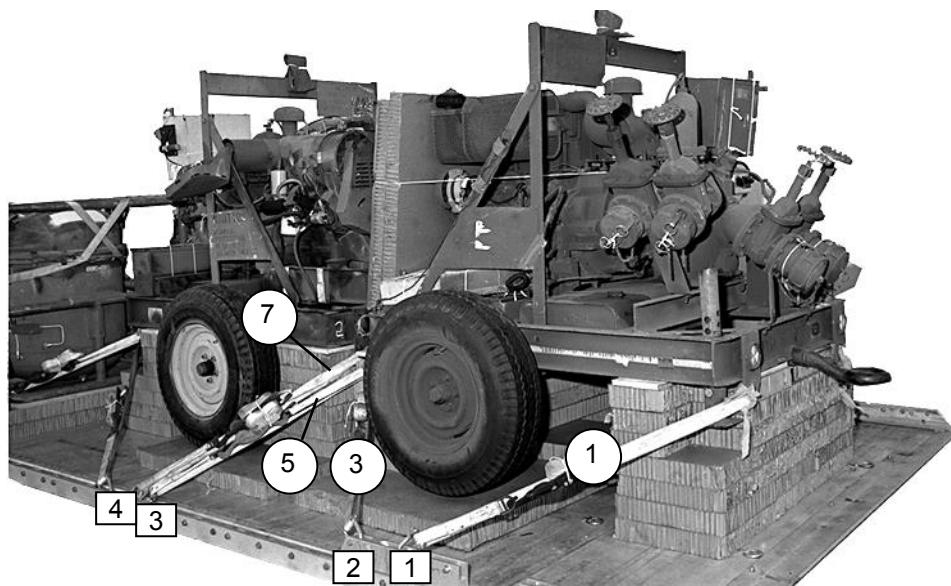


Figure 15-10. Lashings 1 Through 8 Installed



Lashing Number	Tiedown Clevis Number	Instructions
		Route Lashing:
9	5	Through left front tiedown point on rear pump assembly.
10	5A	Through right front tiedown point on rear pump assembly.
11	7	Through left front tiedown point on rear pump assembly.
12	7A	Through right rear tiedown point on rear pump assembly.
13	6	Through and around right rear vertical frame.
14	6A	Through and around left rear vertical frame.
15	8	Through and around right front vertical frame.
16	8A	Through and around left front vertical frame.
17	B8	Through and around both rear center vertical frame.
18	C8	Through and around both rear center vertical frame.

Figure 15-11. Lashings 9 Through 18 Installed

CONSTRUCTING THE PARACHUTE STOWAGE TRAY AND LOAD COVER

15-8. Construct the parachute stowage tray and load cover as shown in Figure 15-12.

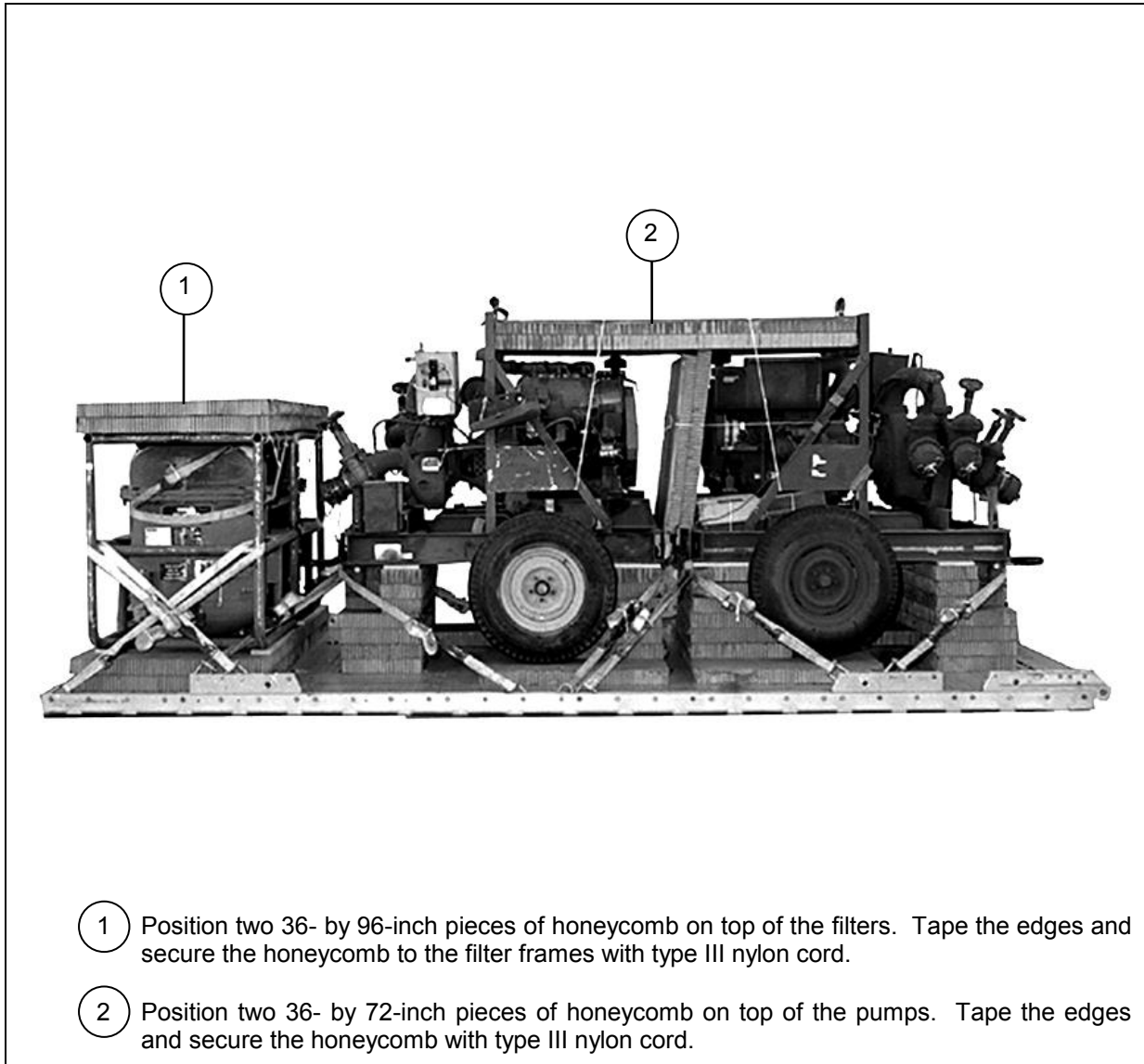


Figure 15-12. Parachute Stowage Tray and Load Cover Constructed

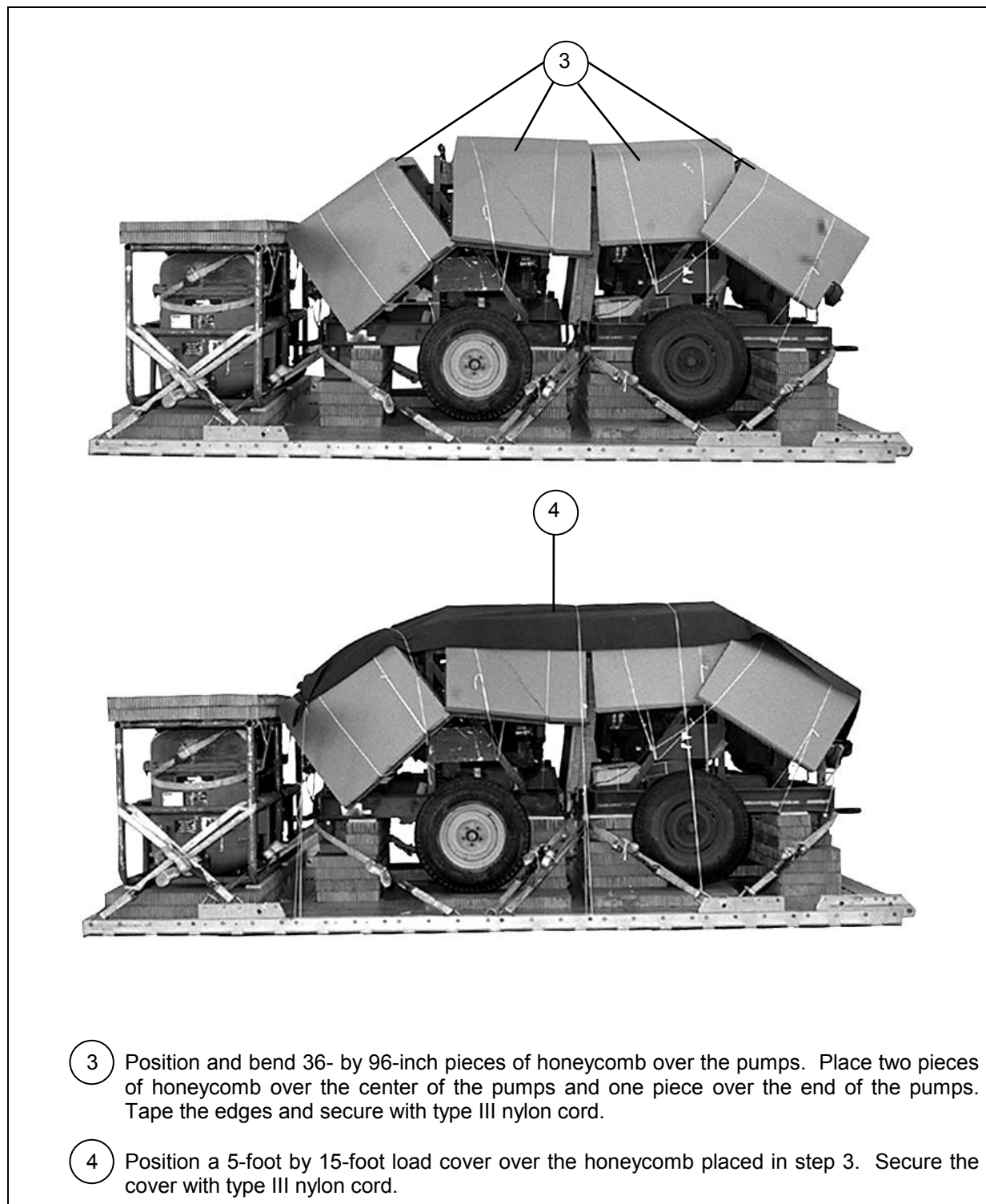


Figure 15-12. Parachute Stowage Tray and Load Cover Constructed (continued)

INSTALLING THE SUSPENSION SLINGS AND DEADMAN'S TIE

15-9. Install the suspension slings and deadman's tie as shown in Figure 15-13.

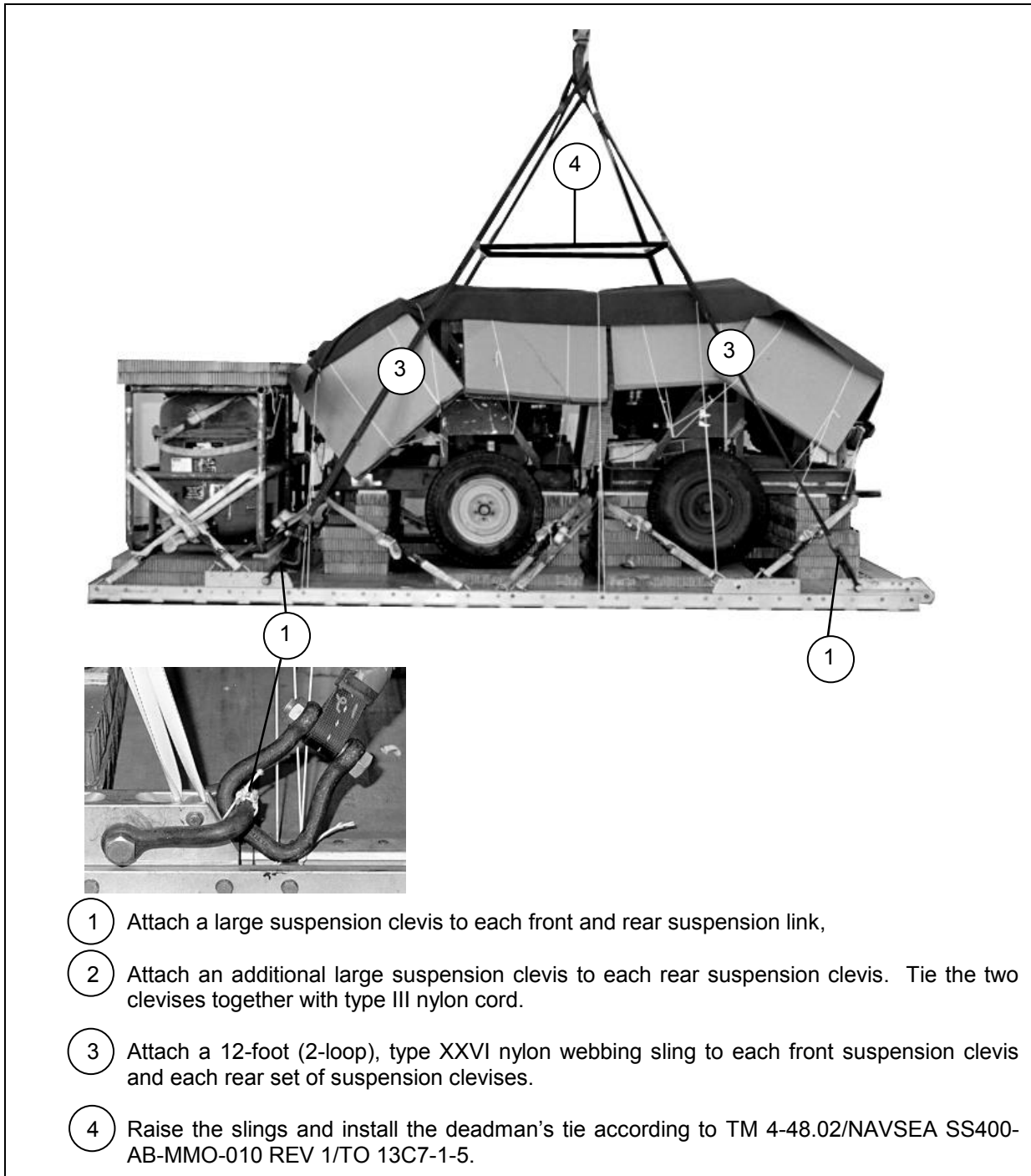
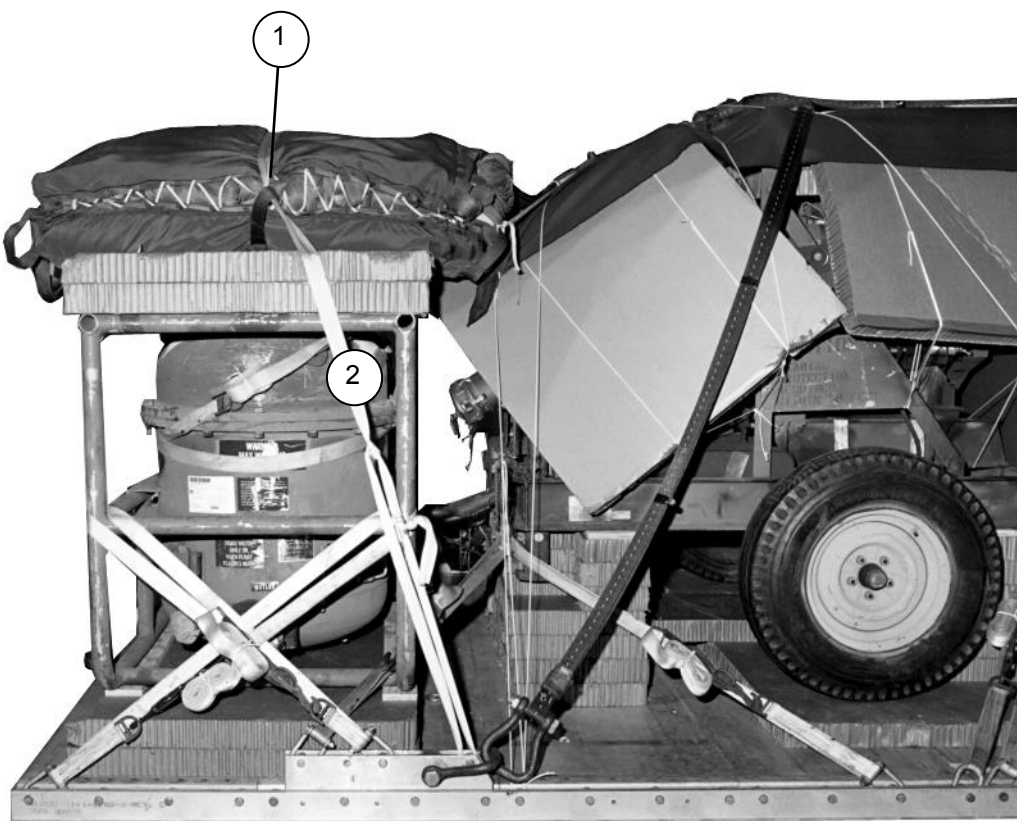


Figure 15-13. Suspension Slings and Deadman's Tie Installed

PREPARING, STOWING, AND RESTRAINING CARGO PARACHUTES

15-10. Prepare, stow, and restrain two G-11 cargo parachutes on the parachute stowage tray according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 15-14.

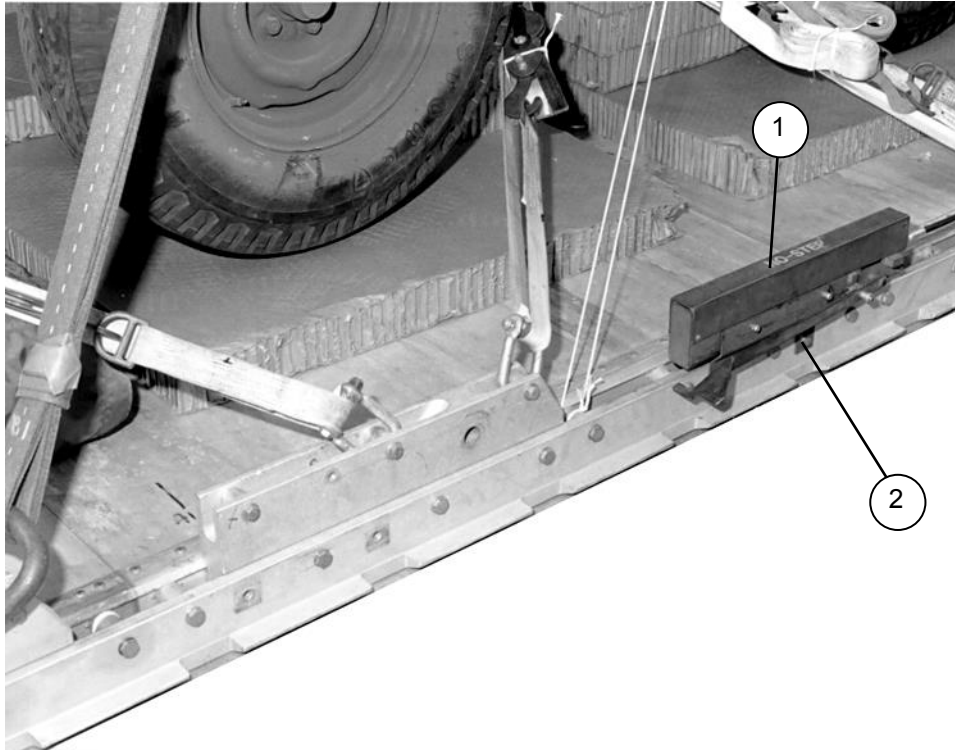


- 1 Prepare, stow, and restrain two G-11 cargo parachutes on the parachute stowage tray according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- 2 Restrain the parachutes using bushing 1 on each rear suspension link.

Figure 15-14. Cargo Parachutes Stowed

INSTALLING THE EXTRACTION SYSTEM

15-11. Install the components of the extraction force transfer coupling according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 15-15.



- ① Install the components of the extraction force transfer coupler according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Install the extraction force transfer coupler actuator mounting brackets in the rear holes on the left platform side rail according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 15-15. Extraction System Installed

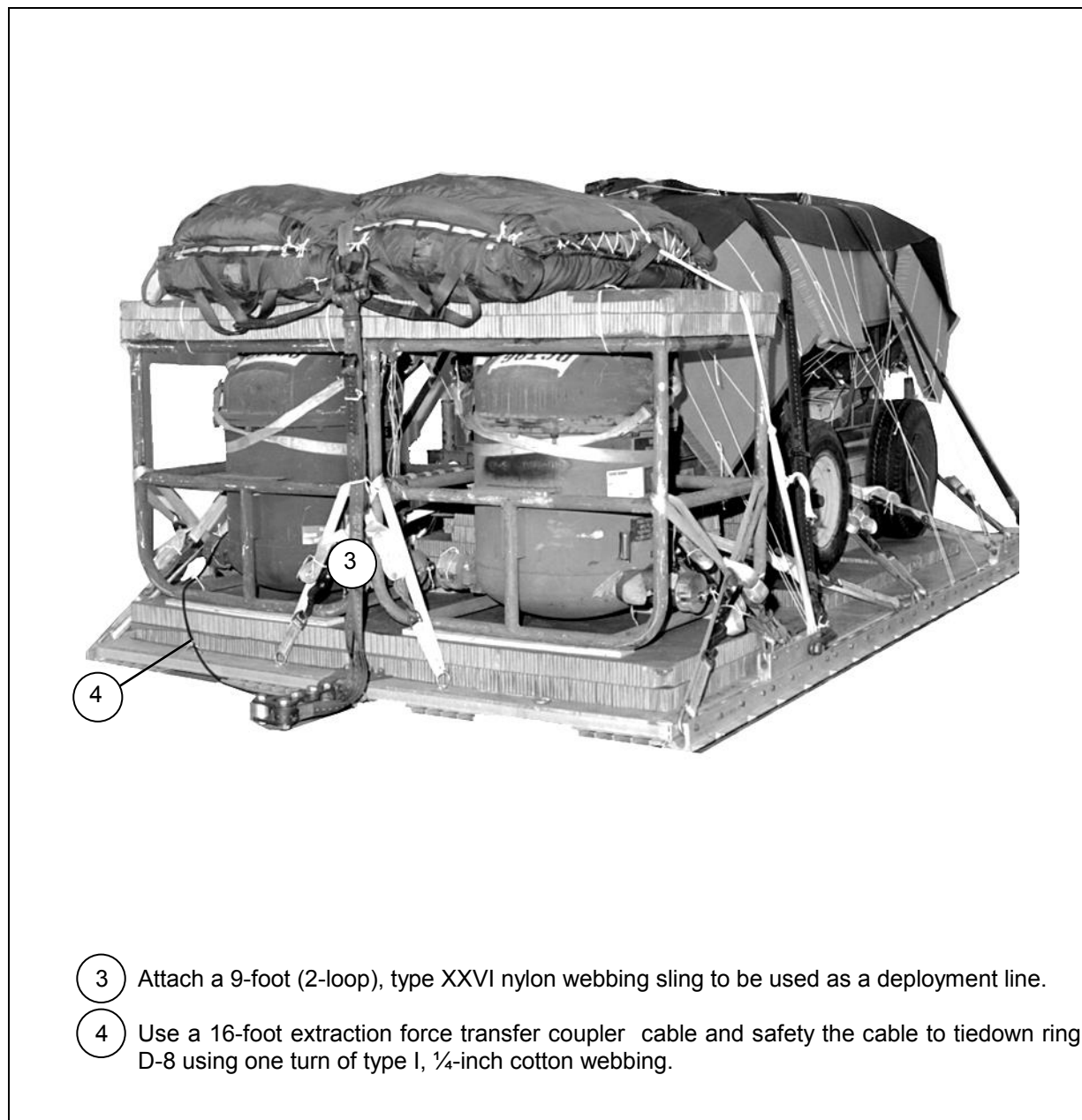
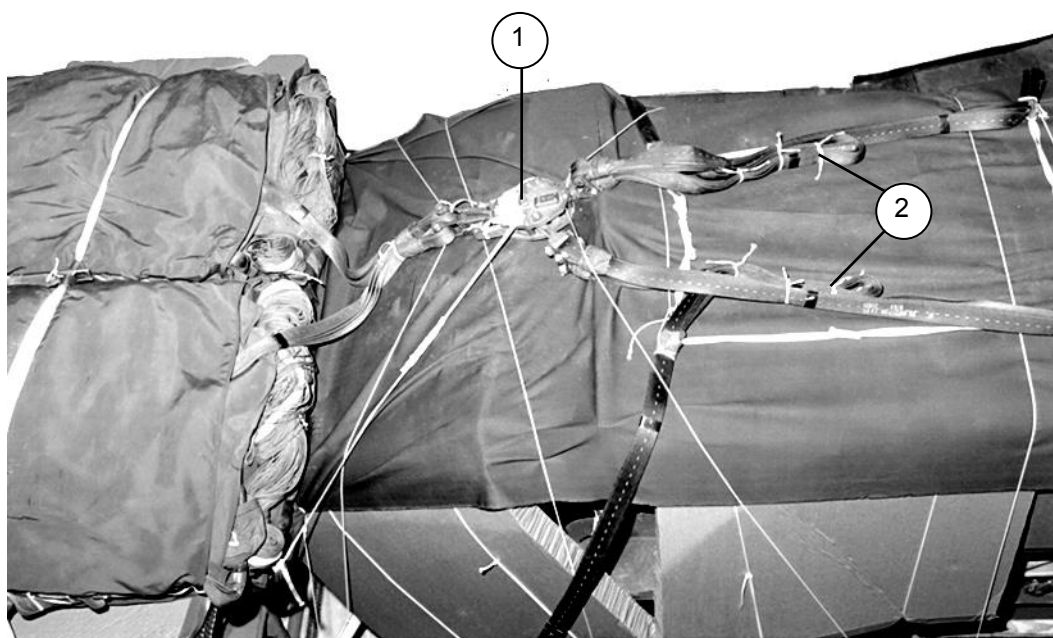


Figure 15-15. Extraction System Installed (continued)

INSTALL PARACHUTE RELEASE SYSTEM

15-12. Install the M-1 parachute release system according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 15-16.



- ① Position and install the M-1 parachute release assembly according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Safety tie the M-1 parachute release assembly to convenient points on the load.
- ② S-fold and tie any slack in the suspension slings with type I, 1/4-inch cotton webbing.

Figure 15-16. M-1 Cargo Parachute Release System Installed

PLACING EXTRACTION PARACHUTE

15-13. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

15-14. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

15-15. Mark the rigged load according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 15-17. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

15-16. Use the equipment list in Table 15-1 to rig the load shown in Figure 15-17.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	7,880 pounds
Maximum load allowed.....	10,000 pounds
Height.....	77 inches
Width	108 inches
Length	214 inches
Overhang: Front	4 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	100 inches
Extraction System	Extraction Force Transfer Coupler

Figure 15-17. 350-Gallons-per-Minute Wheel-Mounted Petroleum Pumping Assembly with Filter/Separator Rigged for Low-Velocity Airdrop

Table 15-1. Equipment Required for 350-Gallons-per-Minute Wheel-Mounted Petroleum Pumping Assembly with Filter/Separator

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	7
4030-00-678-8562	Clevis, medium	6
8305-00-880-8155	Cloth, coated, 60-inch	As required
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5785	Coupling, airdrop, extraction force transfer w/ cable, 16-foot cover:	1
1670-00-360-0328	Cover, Clevis, large	2
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
5365-00-937-0147	D-ring, heavy-duty, 10,000 pound	68
8305-00-958-3685	Felt, ½-inch thick	As required
1670-00-003-4391	Knife, parachute bag (for Drogue Extraction System)	1
1670-01-183-2678	Leaf, extraction line (line bag)(add 2 for Drogue Extraction System)	2
1670-01-062-6313	Line, drogue (for Drogue Extraction System) 60-foot (1-loop), type XXVI	1
1670-01-064-4454	Line, extraction: For C-130: 60-foot (1-loop), type XXVI	1
1670-01-107-7651	For C-17: 160-foot (1-loop), type XXVI	1
1670-01-483-8259	Link, tow release mechanism (H-Block) C-17	1
	Link assembly:	1
5306-00-435-8994	Two point: (double the quantity for Drogue Extraction System)	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1953	Nut, 1-inch hexagonal	2
5365-00-007-3414	Plate, side, 3 ¾-inch	2
1670-00-753-3928	Spacer, large	2
	Pad, energy-dissipating (honeycomb) 3- by 36- by 96-inches	20

Table 15-1. Equipment Required for 350-Gallons-per-Minute Wheel-Mounted Petroleum Pumping Assembly with Filter/Separator (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
	Parachute:	
1670-01-016-7841	Cargo, G-11B	2
1670-01-063-3715	Drogue, 15-foot (for Drogue Extraction System)	1
1670-01-063-3716	Extraction, 22-foot	1
	Platform, airdrop, type V, 16-foot	
1670-01-353-8425	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	16
1670-01-353-8424	Extraction bracket assembly	1
1670-01-247-2389	Bracket, suspension	4
1670-01-162-2389	Tandem link assembly	2
5530-00-128-4981	Plywood, ¾- by 48- by 96-inches	1
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo, airdrop	
	For suspension and lifting:	
1670-01-062-6303	12-foot (2-loop), type XXVI nylon webbing	4
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
1670-00-040-8219	Strap, parachute release	1
7510-00-266-5016	Tape, cloth back, adhesive	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	38
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

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Chapter 16

Rigging 500-Gallon Drums, 350-Gallons-per-Minute Petroleum Pump, Filter/Separator, and Hose Box

DESCRIPTION OF LOAD

16-1. The three collapsible drums are rigged on a 24-foot platform with four G-11 cargo parachutes. Each drum is filled with a maximum of 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The 350-gallons-per-minute pump with filter/separator and hose box are accompanying loads. The total rigged load has a maximum rigged weight of 21,000 pounds with a width of 108 inches and a length of 324 inches. It has an overhang of 18 inches in the front and 18 inches in the rear.

-
- Note.** 1. For drums filled with a liquid other than water, use Table 11-1 to recomputed the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.
-

PREPARING PLATFORM

16-2. Prepare a 24-foot type V airdrop platform using two tandem links, eight suspension brackets, and 48 tiedown clevises as shown in Figure 16-1.

-
- Note.** 1. The nose bumper may or may not be installed.
2. Measurements are not given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.
-

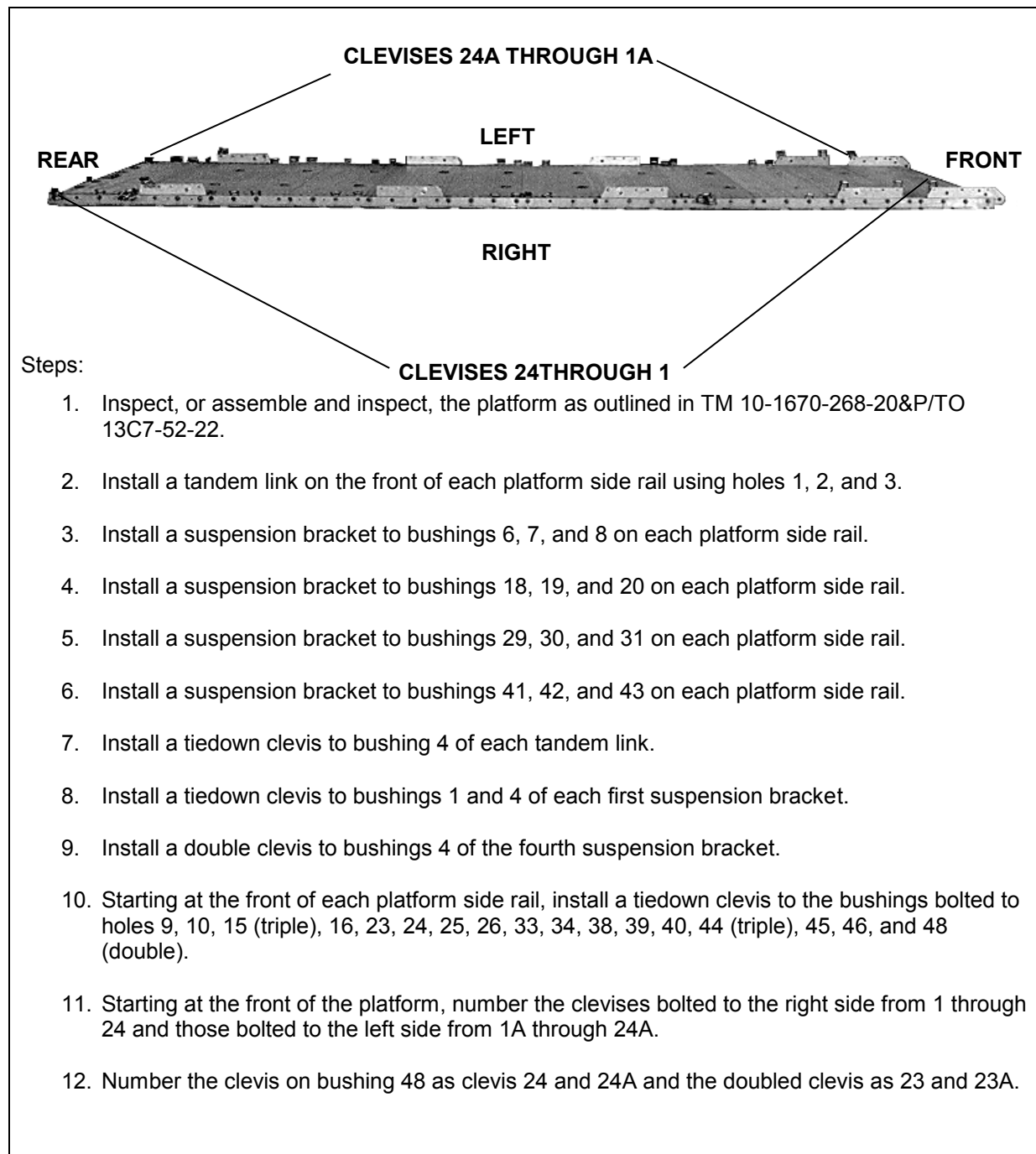
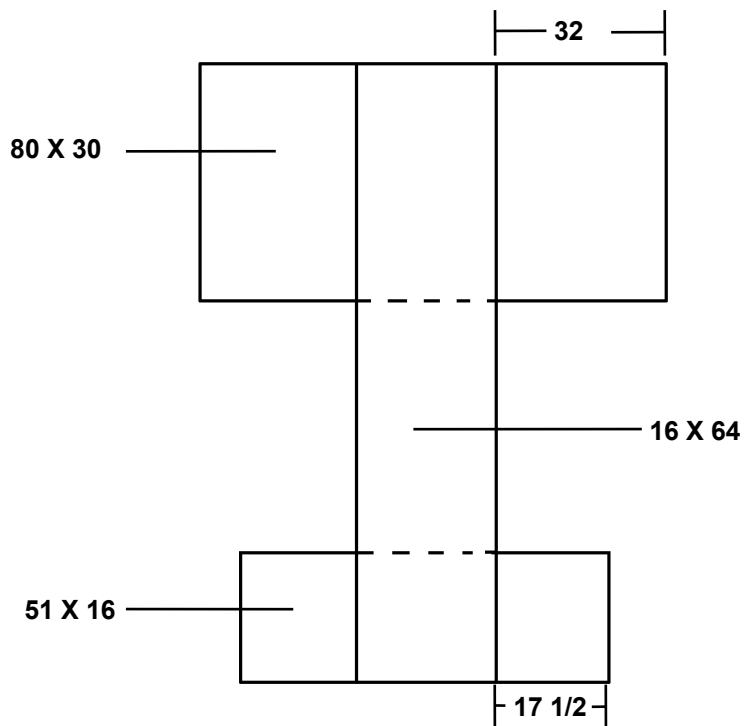


Figure 16-1. Platform Prepared

PREPARING HONEYCOMB

16-3. Build honeycomb stack as shown in Figures 16-2 and 16-3.

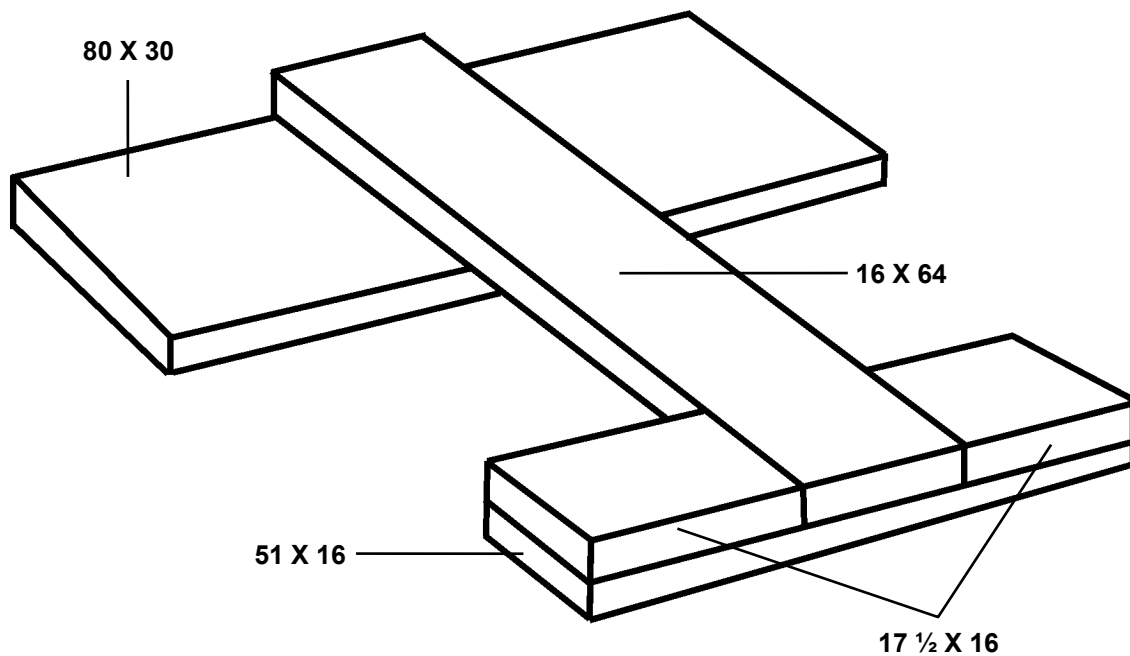
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



<i>Stack Number</i>	<i>Pieces</i>	<i>Width (inches)</i>	<i>Length (inches)</i>	<i>Material</i>	<i>Instructions</i>
1	1	80	30	Honeycomb	Position the honeycomb on the floor.
	1	16	64	Honeycomb	Center and glue the honeycomb on top of the 80- by 30-inch piece of honeycomb.
	1	51	16	Honeycomb	Center and glue the honeycomb under the 16- by 64-inch piece of honeycomb. Glue on base.

Figure 16-2. Honeycomb Stack 1

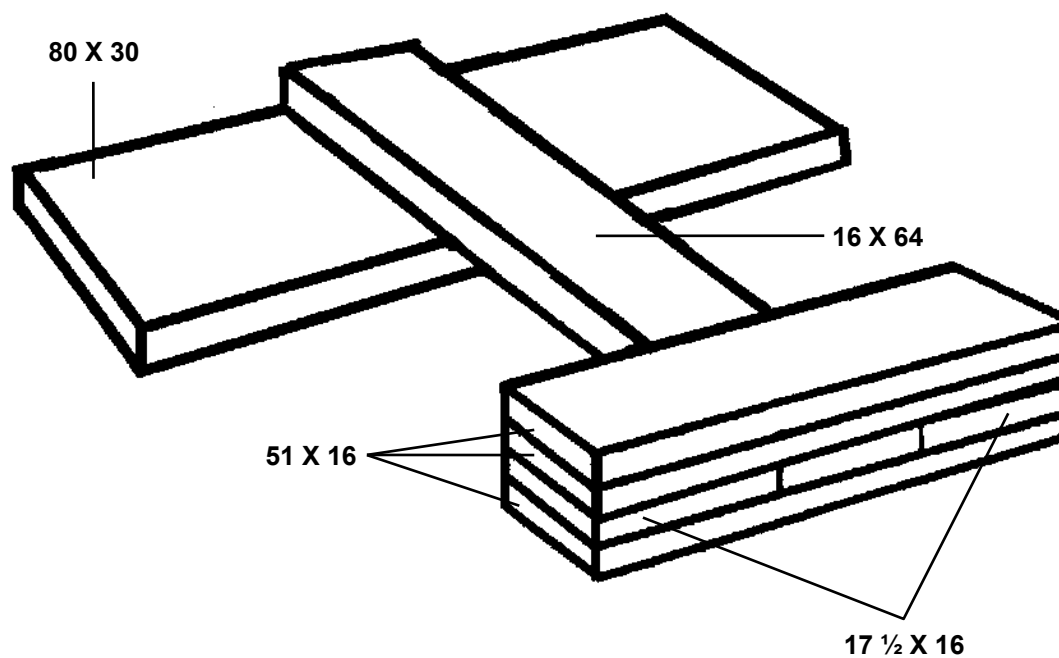
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	2	17 ½	16	Honeycomb	Position and glue the honeycomb pieces on top of the 51- by 16-inch piece of honeycomb and on each side of the 16- by 64-inch piece of honeycomb.

Figure 16-2. Honeycomb Stack 1 (continued)

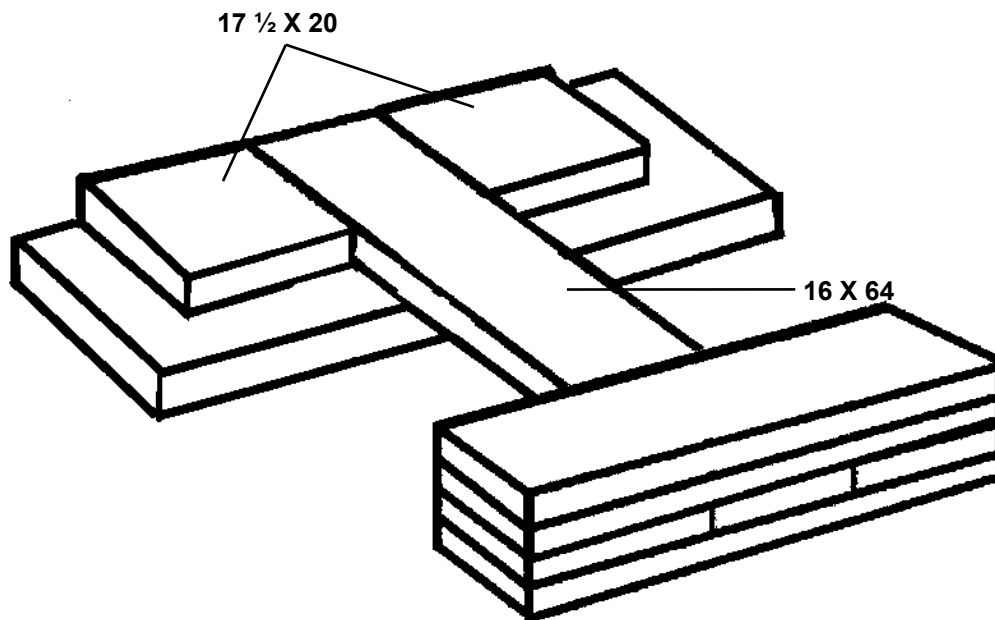
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



<i>Stack Number</i>	<i>Pieces</i>	<i>Width (inches)</i>	<i>Length (inches)</i>	<i>Material</i>	<i>Instructions</i>
1	2	51	16	Honeycomb	Position and glue the honeycomb pieces on top of the 17 ½-by 16-inch piece of honeycomb.

Figure 16-2. Honeycomb Stack 1 (continued)

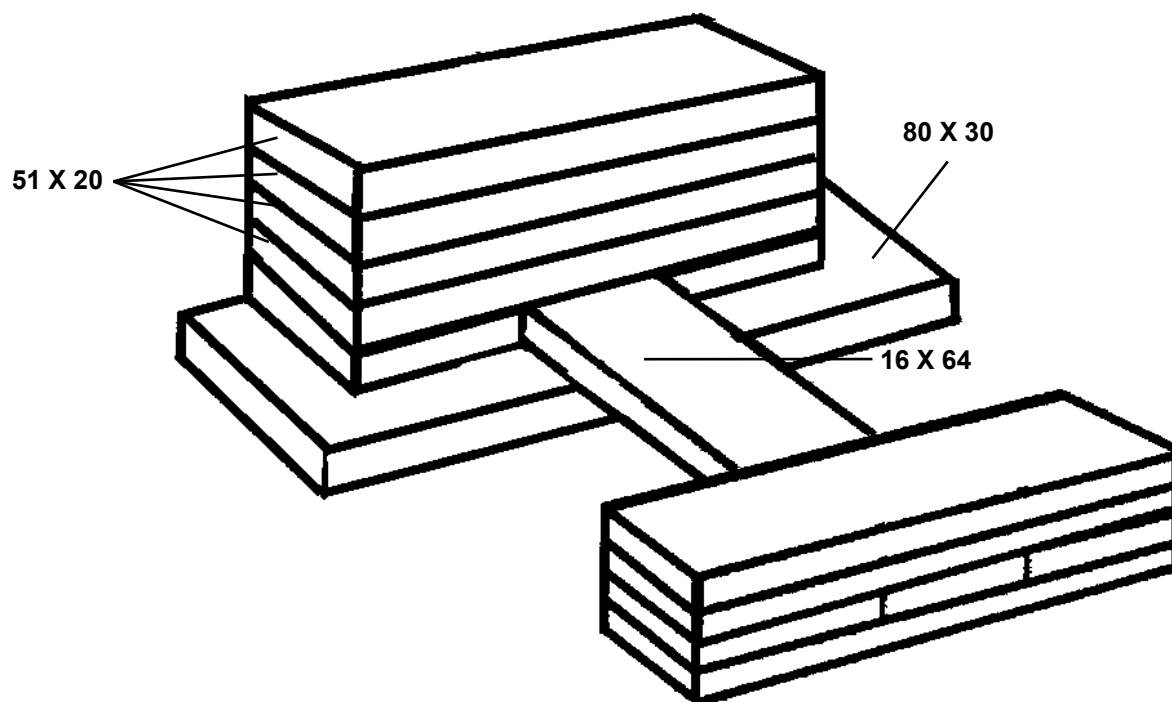
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



<i>Stack Number</i>	<i>Pieces</i>	<i>Width (inches)</i>	<i>Length (inches)</i>	<i>Material</i>	<i>Instructions</i>
1	2	17 ½	20	Honeycomb	Position and glue the honeycomb pieces flush with the rear and on top of the 80-by 30-inch piece of honeycomb on each side of the 16- by 64-inch piece of honeycomb.

Figure 16-2. Honeycomb Stack 1 (continued)

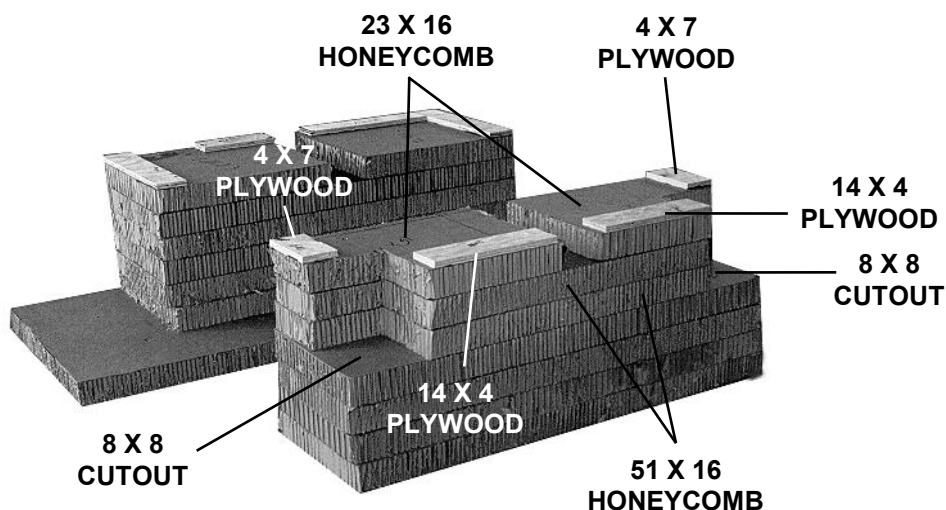
Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



<i>Stack Number</i>	<i>Pieces</i>	<i>Width (inches)</i>	<i>Length (inches)</i>	<i>Material</i>	<i>Instructions</i>
1	2	17 ½	20	Honeycomb	Position and glue the honeycomb pieces on top of the 17 ½- by 20-inch piece of honeycomb

Figure 16-2. Honeycomb Stack 1 (continued)

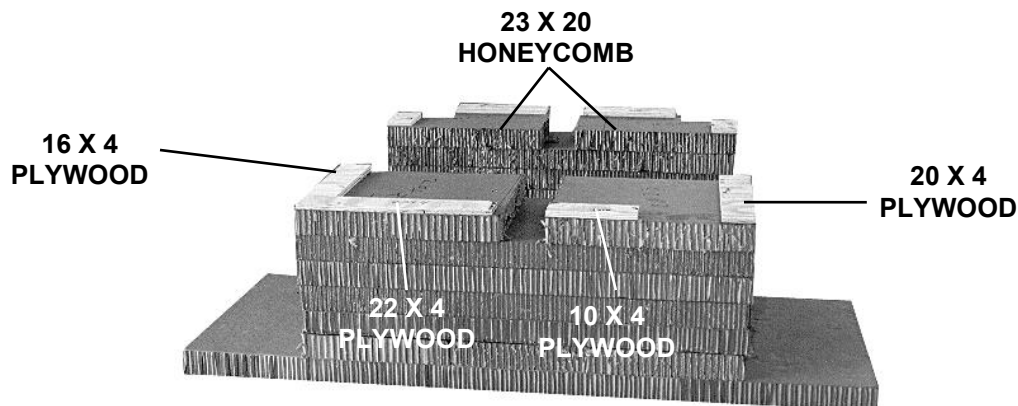
Note. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	2	51	16	Honeycomb	Cut an 8- by 8-inch cutout on each piece of honeycomb. Position and glue the two 51- by 16-inch pieces with cutouts on top of the 51- by 16-inch pieces of honeycomb.
	2	23	16	Honeycomb	Cut an 8- by 8-inch cutout on each piece of honeycomb. Position the pieces on top of the 51- by 16-inch pieces. Align the cutouts and glue.
	2	4	7	$\frac{3}{4}$ -inch plywood	Center and glue the plywood on the sides of the 23- by 16-inch pieces of honeycomb.
	2	14	4	$\frac{3}{4}$ -inch plywood	Center and glue the plywood on the front edge of the 23- by 16-inch pieces of honeycomb.

Figure 16-2. Honeycomb Stack 1 (continued)

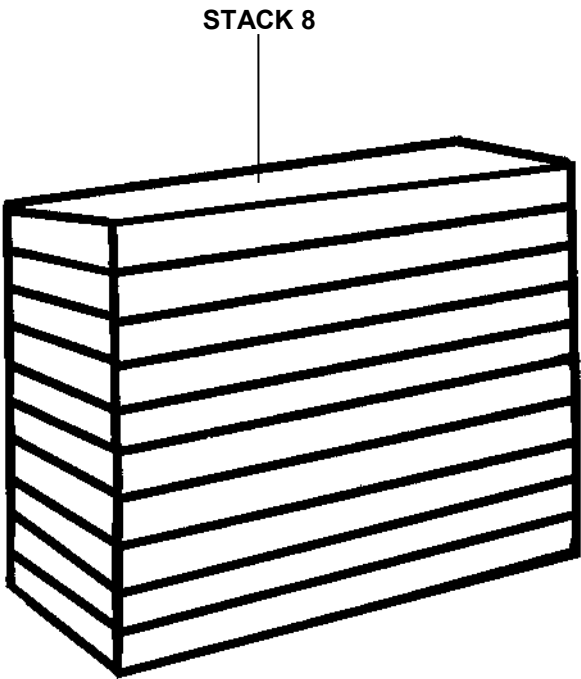
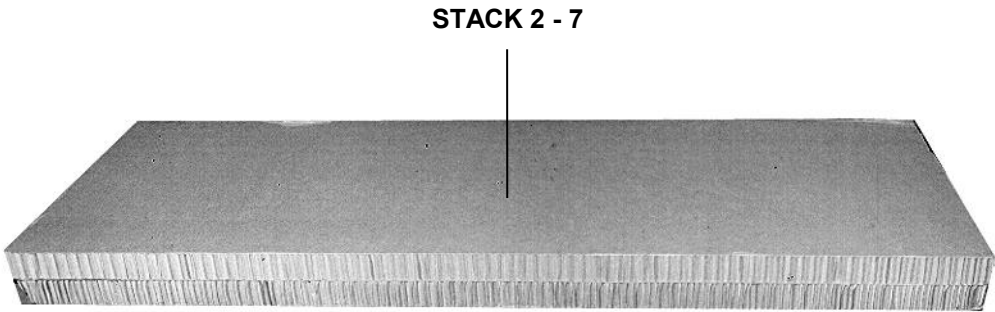
Note. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	2	23	20	Honeycomb	Position and glue the two 23- by 20-inch pieces of honeycomb on top of the 51- by 20-inch pieces of honeycomb aligning the outside edges.
	1	4	20	¾-inch plywood	Position and glue the plywood on the right outside edge of the right 23- by 20-inch piece of honeycomb.
	1	10	4	¾-inch plywood	Position and glue the plywood on the left rear edge of the right 23- by 20-inch piece of honeycomb.
	1	22	4	¾-inch plywood	Position and glue the plywood on the rear edge of the left 23- by 20-inch piece of honeycomb.
	1	4	16	¾-inch plywood	Position and glue the plywood on the left outside edge of the left 23- by 20-inch piece of honeycomb.

Figure 16-2. Honeycomb Stack 1 (continued)

Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
2 - 7	2	96	36	Honeycomb	Glue layers together.
8	10	60	30	Honeycomb	Glue layers together.

Figure 16-3. Honeycomb Stack 2 Through 8 Prepared

POSITIONING HONEYCOMB STACKS

16-4. Position honeycomb stacks as shown in Figure 16-4.

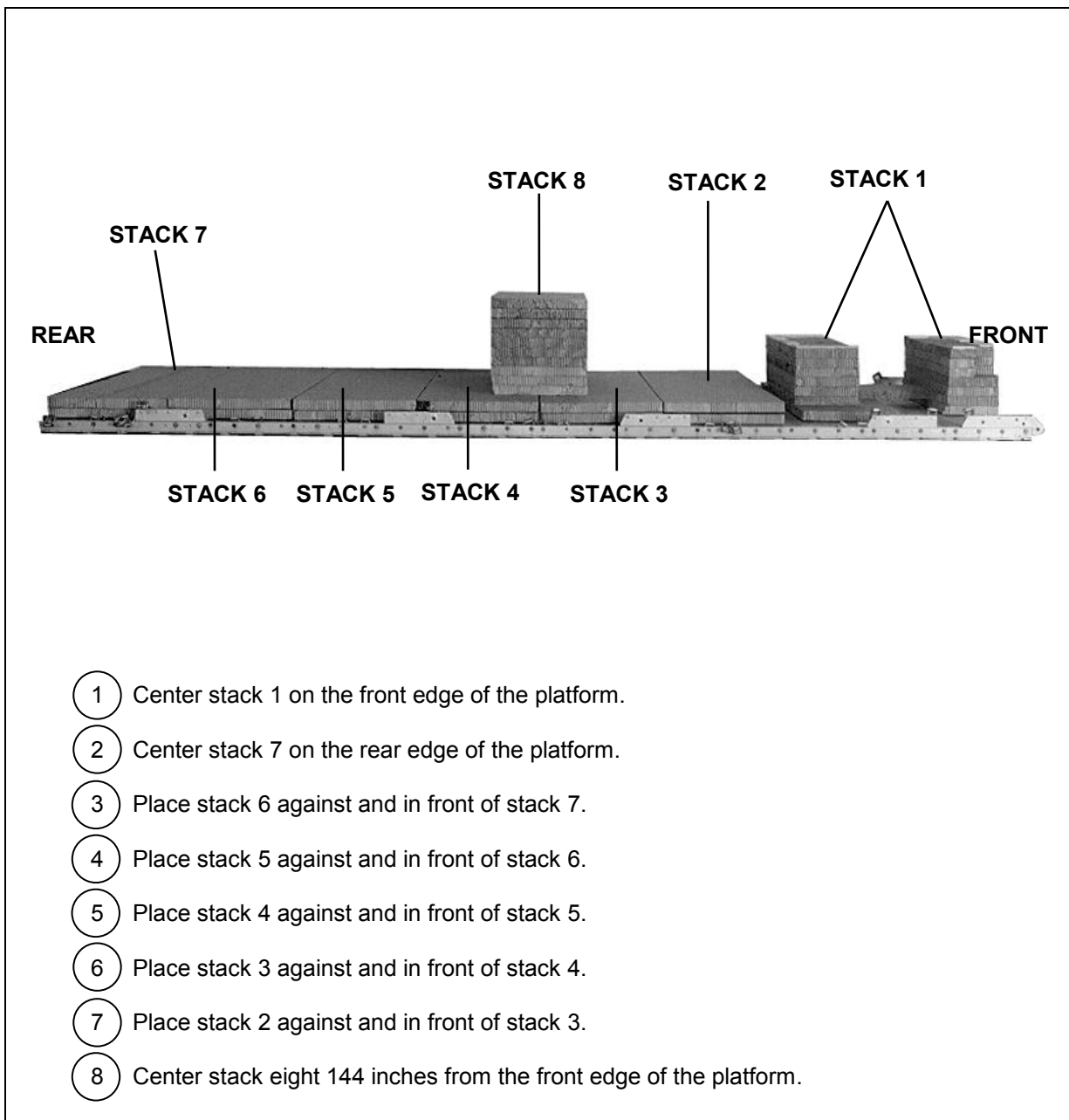


Figure 16-4. Honeycomb Stacks Positioned

BUILDING THE EQUIPMENT HOSE BOX

16-5. Build the equipment hose box as shown in Figure 16-5.

Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.

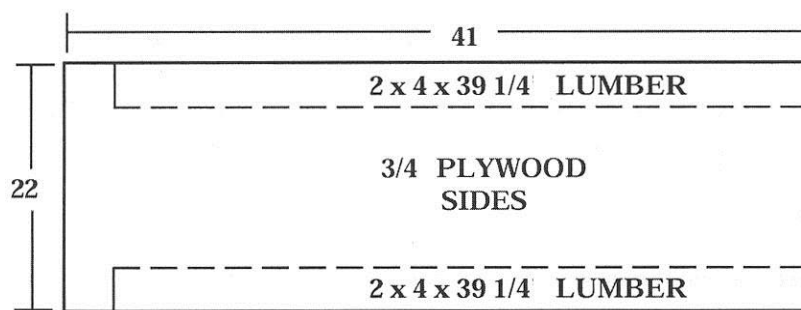
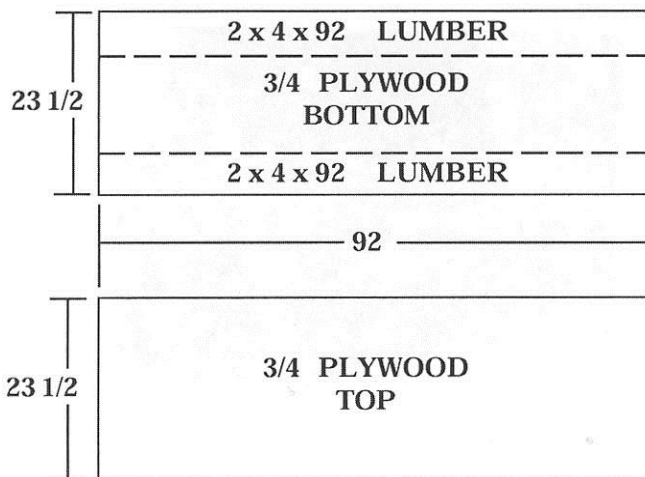
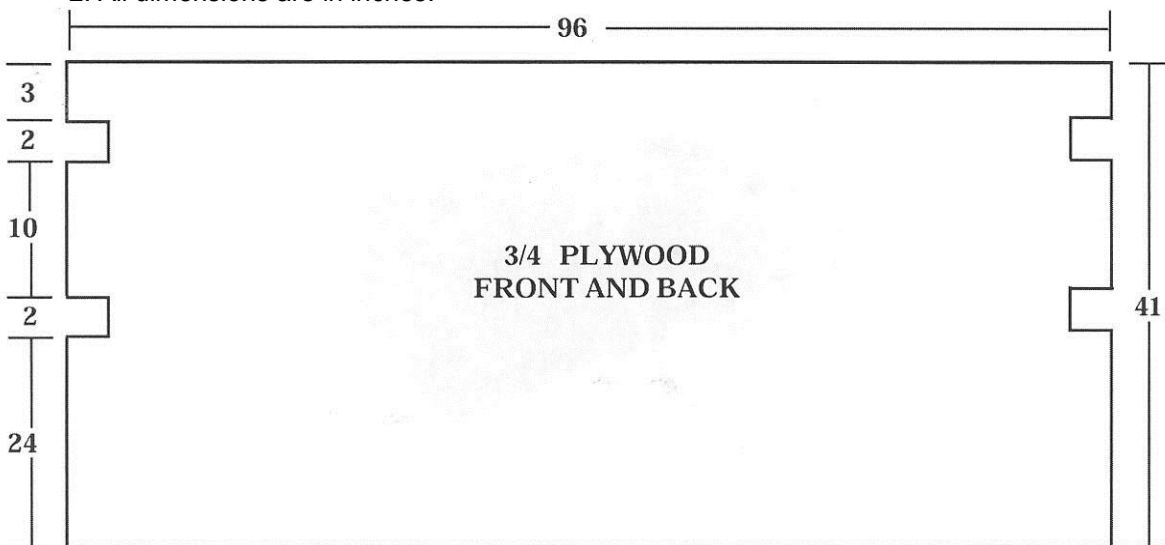
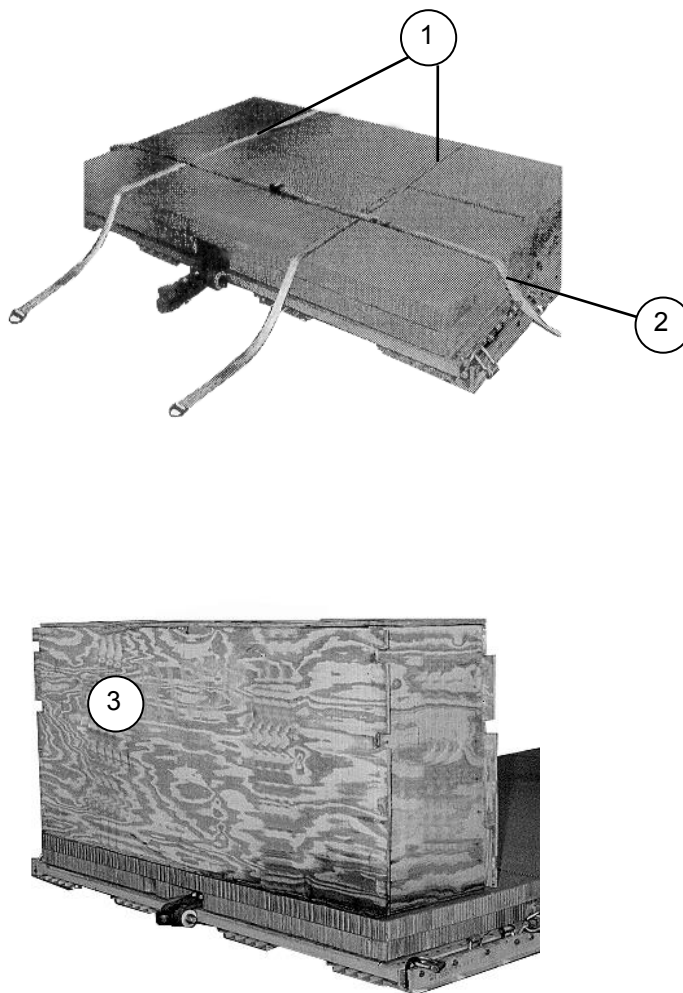


Figure 16-5. Equipment Hose Box Built

POSITIONING EQUIPMENT HOSE BOX

16-6. Position the equipment hose box on the platform as shown in Figure 16-6.

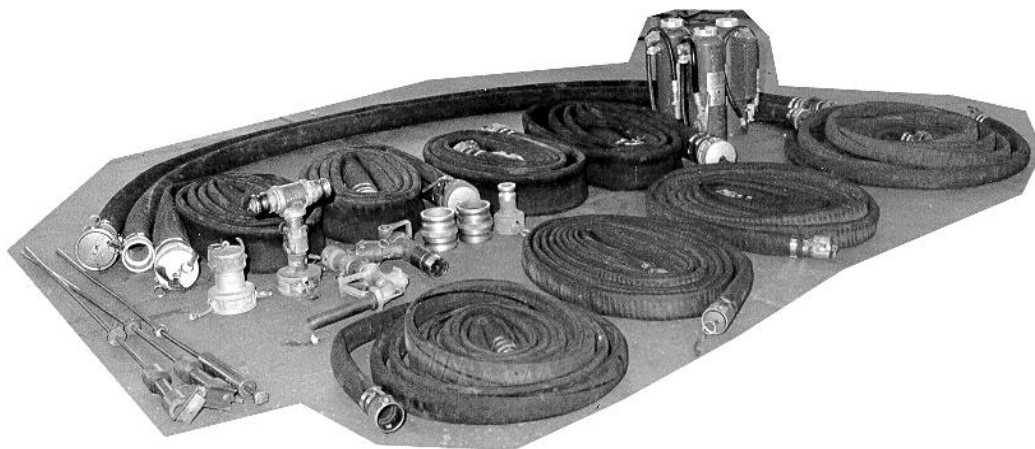


- ① Position two 15-foot lashings across honeycomb stack 7 approximately 16 inches from the outside edges.
- ② Center a 30-foot lashing lengthwise across honeycomb stack 7.
- ③ Position the equipment hose box on the rear edge of the platform.

Figure 16-6. Equipment Hose Box Positioned on Platform

STORING EQUIPMENT IN EQUIPMENT HOSE BOX

16-7. Store equipment in the equipment hose box on the platform as shown in Figure 16-7.



<i>Item Description</i>	<i>Quantity</i>
25-foot, 4-inch hose	4
Aircraft nozzle	1
Elbow coupler	1
2-inch to 3-inch adapter	2
10-foot, 3-inch hose	2
3-inch to 4-inch adapter	2
4-inch to 2-inch reducer	1
Wye adapter	1
50-foot, 2-inch hose	4
Open port nozzle	1
Grounding rod	3

- ① Place a 91- by 23-inch piece of honeycomb in the bottom of the equipment hose box.
- ② Wrap all metal fittings in cellulose wadding. Place all items in the equipment hose box.
- ③ Secure the equipment hose box top with eight-penny nails. Secure the equipment hose box with lashings installed in Figure 16-6.

Figure 16-7. Equipment Hose Box Positioned on Platform

LASHING EQUIPMENT HOSE BOX TO PLATFORM

16-8. Lash the equipment hose box to the platform as shown in Figures 16-8 and 16-9.

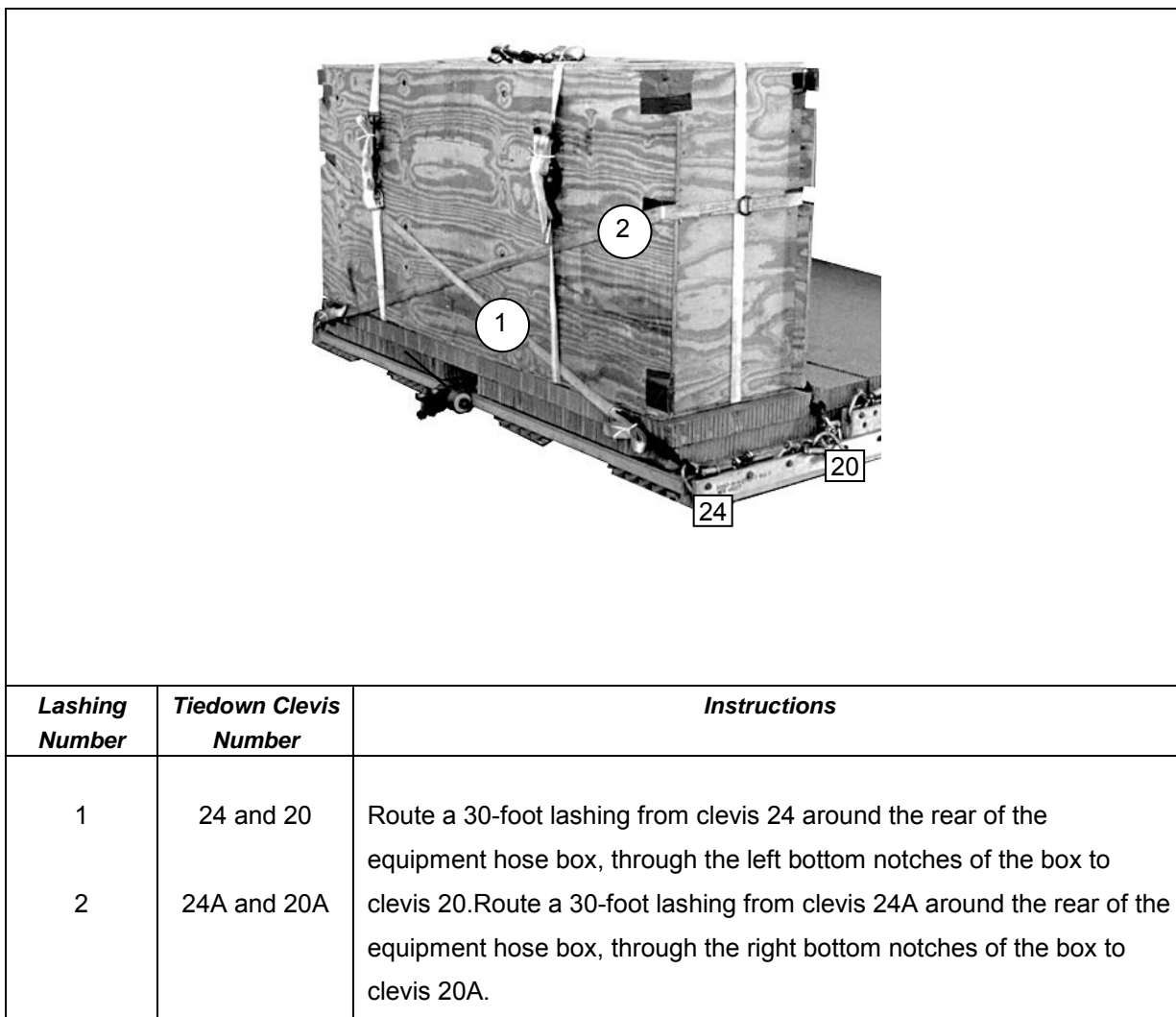
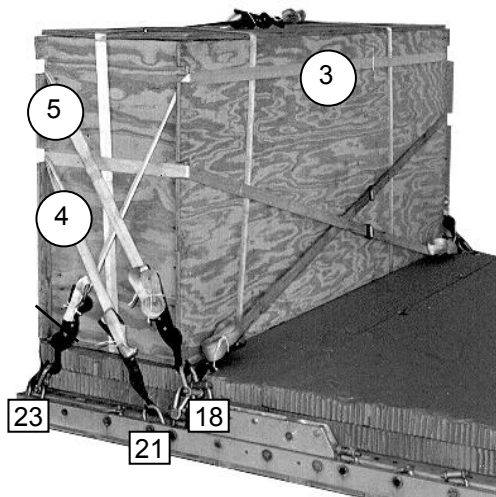


Figure 16-8. Lashings 1 and 2 Installed

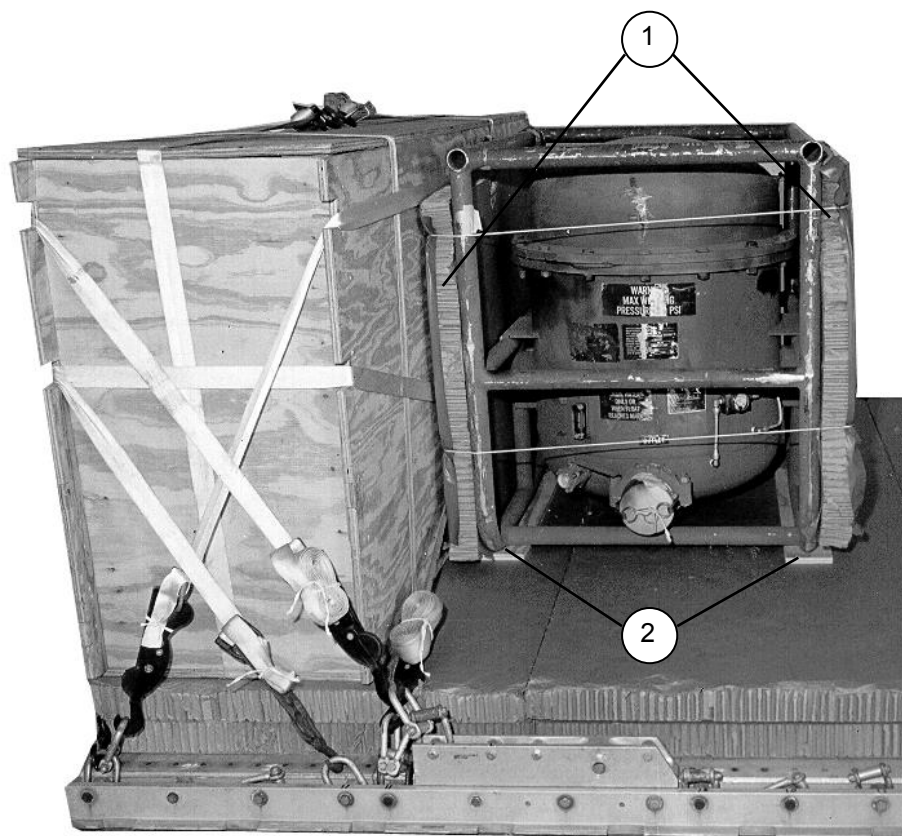


<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
3	23 and 23A	Through its own D-ring on clevis 23A, around the front top cutouts and load bind on clevis 23.
4	21 and 21A	Through its own D-ring on clevis 21A, around the rear bottom cutouts and load bind on clevis 21.
5	18 and 18A	Route a 30-foot lashing through the rear top notches of the equipment hose box. Ensure the lashings are routed under the load binders on the rear of the box. Load bind to clevises 18 and 18A.

Figure 16-9. Lashings 3 Through 5 Installed

PREPARING AND POSITIONING FUEL SEPARATOR

16-9. Prepare and position the fuel separator as shown in Figure 16-10.

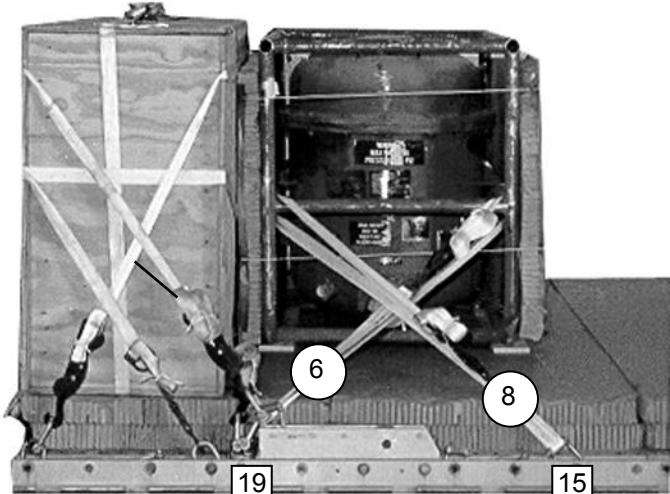


- ① Secure a 49- by 41-inch piece of honeycomb to the front and rear of the separator with type III nylon cord. Secure a 64- by 33-inch piece of honeycomb to the top of the separator with type III nylon cord (not shown).
- ② Center the separator against and in front of the equipment hose box. Place a $\frac{3}{4}$ - by 4 $\frac{3}{4}$ - by 36 $\frac{1}{2}$ -inch piece of plywood under each frame rail.

Figure 16-10. Fuel Separator Prepared and Positioned

LASHING FUEL SEPARATOR TO PLATFORM

16-10. Lash the fuel separator to the platform as shown in Figure 16-11.



Lashing Number	Tiedown Clevis Number	Instructions
6	19	Route a 15-foot lashing around the front right middle cross member.
7	19A	Route a 15-foot lashing around the front left middle cross member.
8	15	Route a 15-foot lashing around the right rear middle cross member.
9	15A	Route a 15-foot lashing around the left rear middle cross member.

Figure 16-11. Lashings 6 Through 9 Installed

POSITIONING AND LASHING THE DRUMS

16-11. Position and lash the fuel drums to the platform as shown in Figure 16-12 and 16-13.

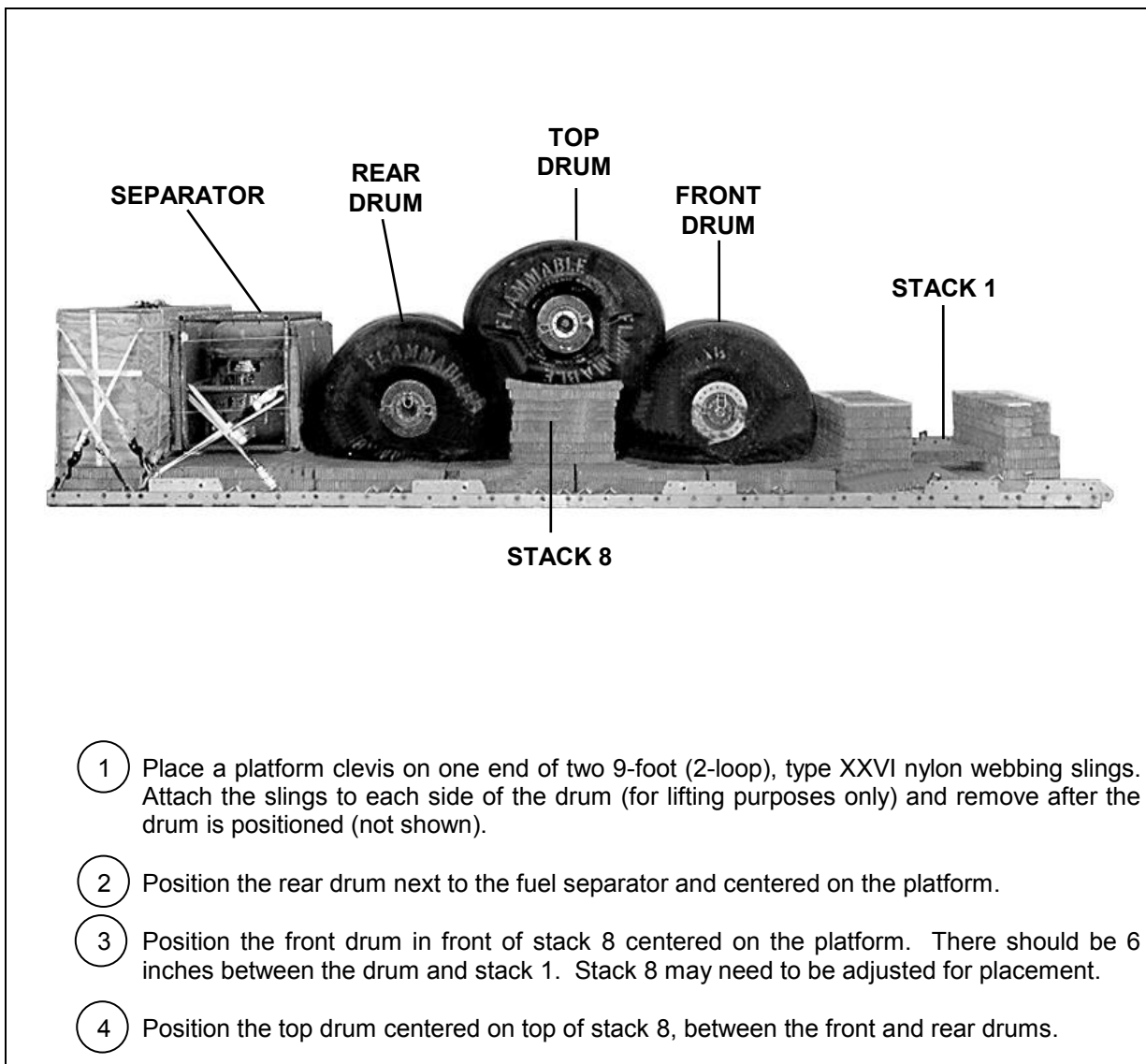


Figure 16-12. Fuel Drums Positioned

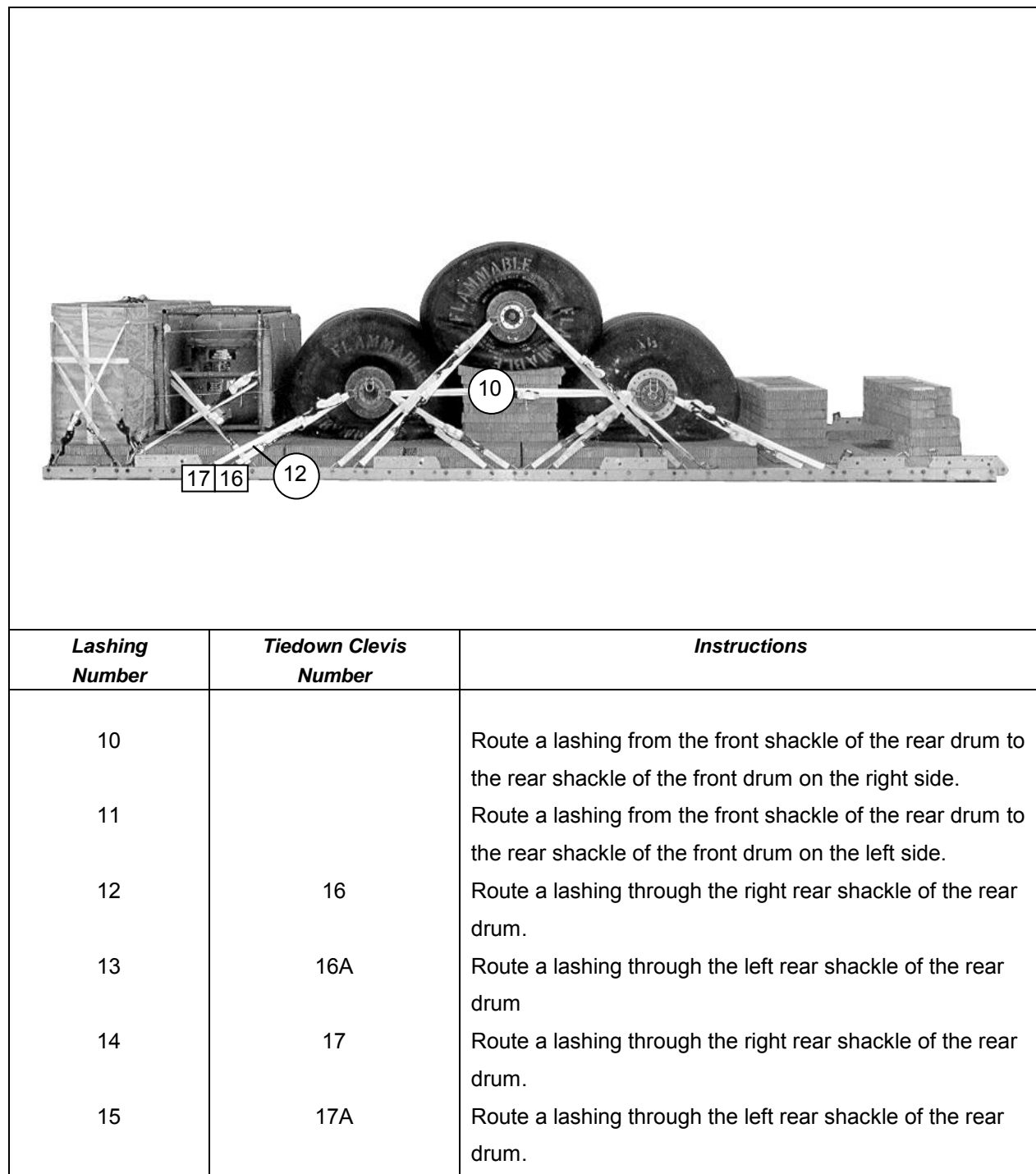


Figure 16-13. Lashings 10 Through 35 Installed

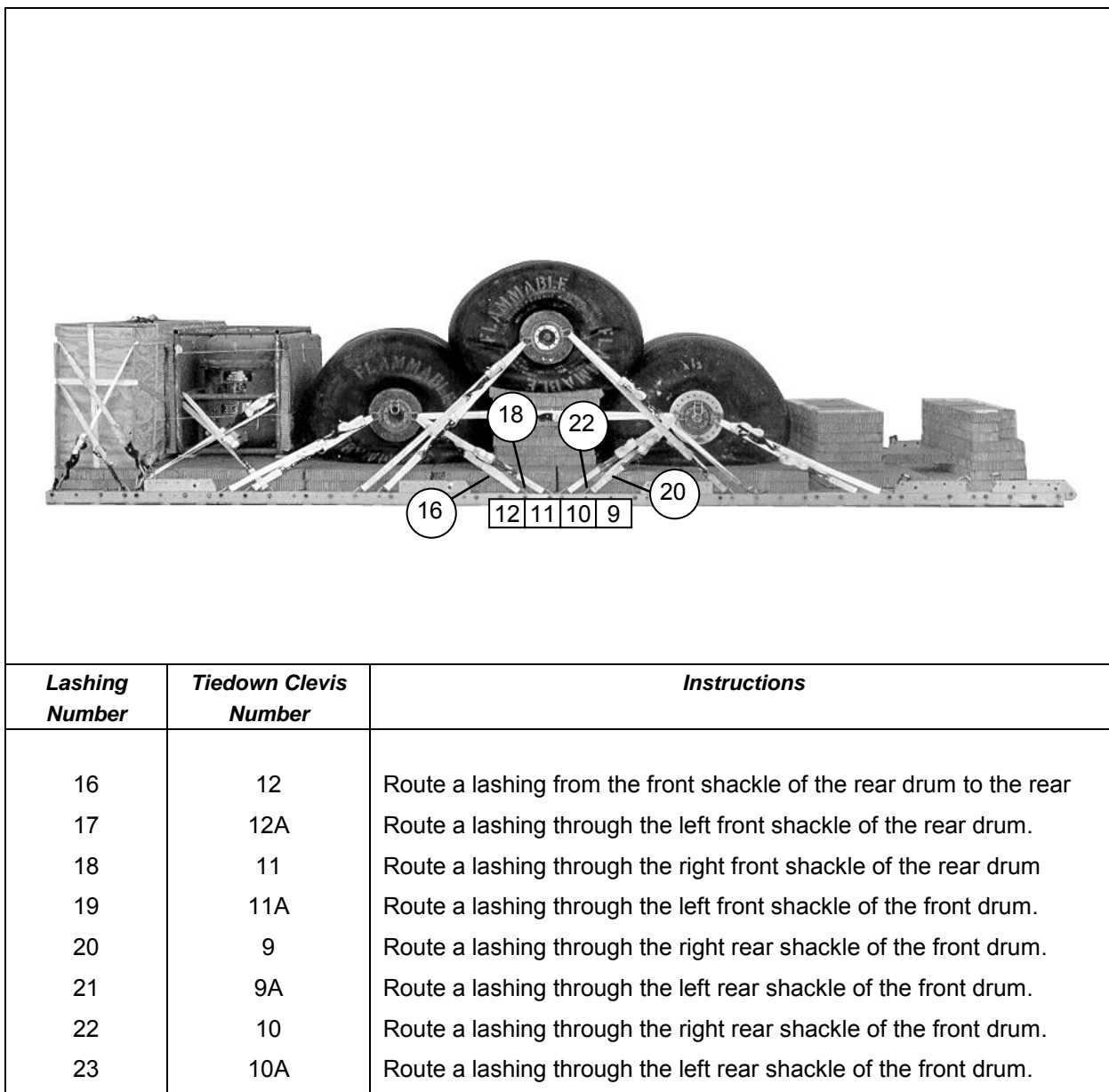
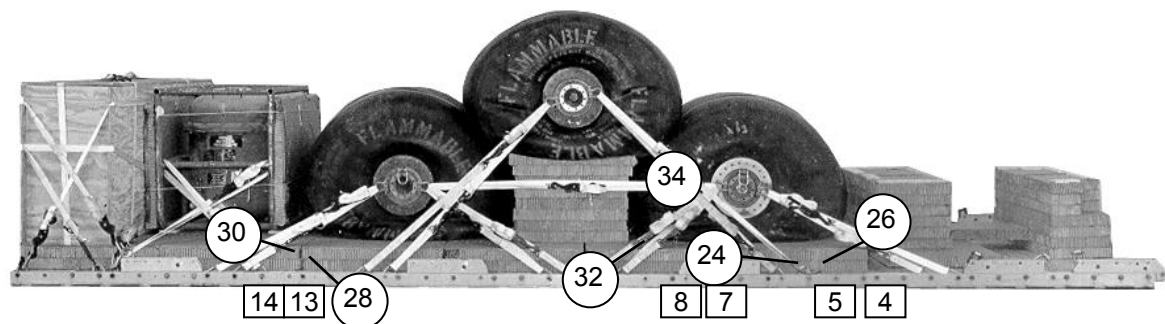


Figure 16-13. Lashings 10 Through 35 Installed (continued)

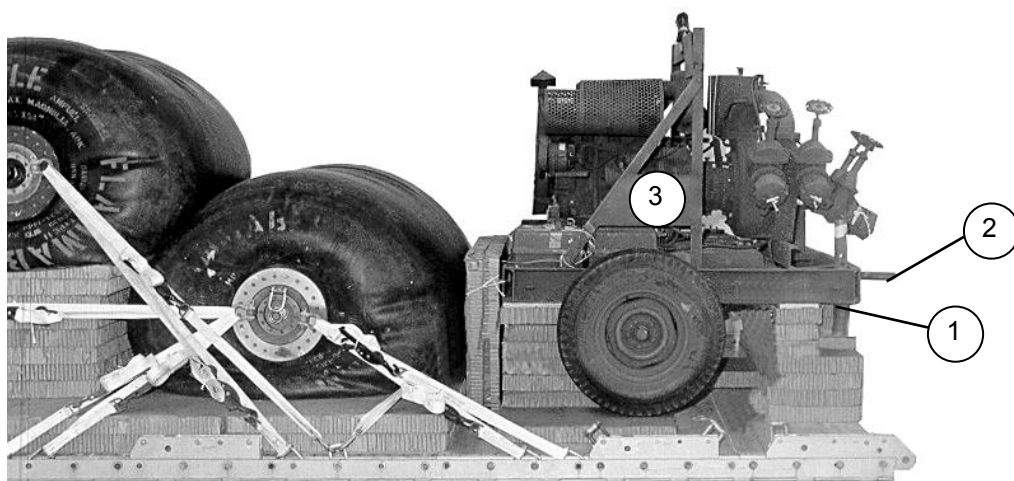


Lashing Number	Tiedown Clevis Number	Instructions
24	5	Route a lashing through the right front shackle of the front drum.
25	5A	Route a lashing through the left front shackle of the front drum.
26	4	Route a lashing through the right front shackle of the front drum.
27	4A	Route a lashing through the left front shackle of the front drum.
28	13	Route a lashing through the right rear shackle of the top drum.
29	13A	Route a lashing through the left rear shackle of the top drum.
30	14	Route a lashing through the right rear shackle of the top drum.
31	14A	Route a lashing through the left rear shackle of the top drum.
32	8	Route a lashing through the right front shackle of the top drum.
33	8A	Route a lashing through the left front shackle of the top drum.
34	7	Route a lashing through the right front shackle of the top drum.
35	7A	Route a lashing through the left front shackle of the top drum.

Figure 16-13. Lashings 10 Through 35 Installed (continued)

PREPARING AND POSITIONING THE PUMP

16-12. Prepare the pump according to paragraph 15-5 and as shown in Figure 15-8. Position the load as shown in Figure 16-14.



- (1) Raises the legs and secure with the pins.
- (2) Retract the lunette.
- (3) Position the pump on stack 1 and align the front frame edge with the front edge of the platform.
- (4) Pad the tiedown points with cellulose wadding and tape (not shown).

Figure 16-14. Pump Prepared and Positioned on Platform

LASHING PUMP TO THE PLATFORM

16-13. Lash the pump to the platform as shown in Figure 16-15.

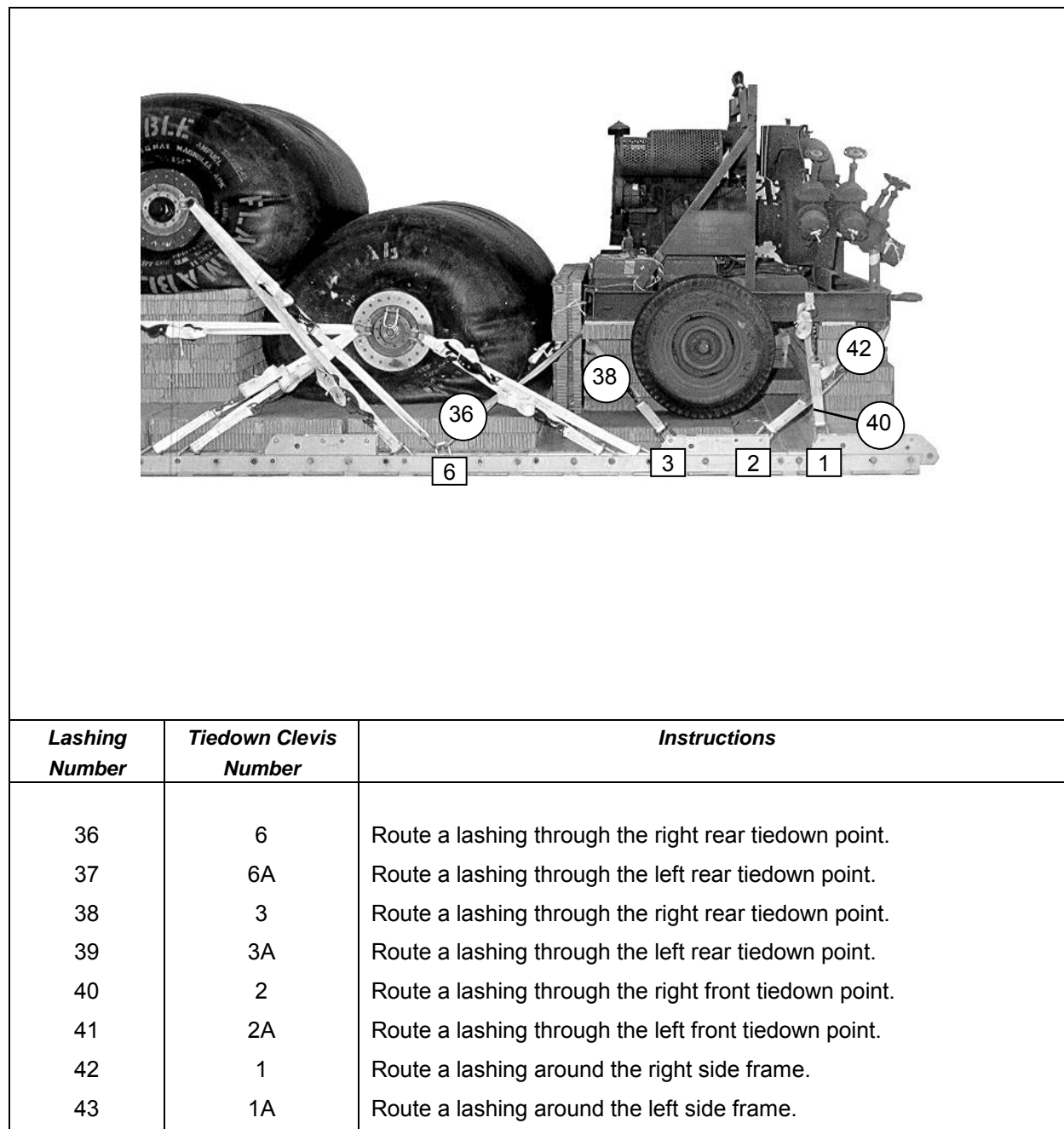


Figure 16-15. Lashings 36 Through 43 Installed

COVERING THE PUMP

16-14. Place a canvas cover over the pump as shown in Figure 16-16.

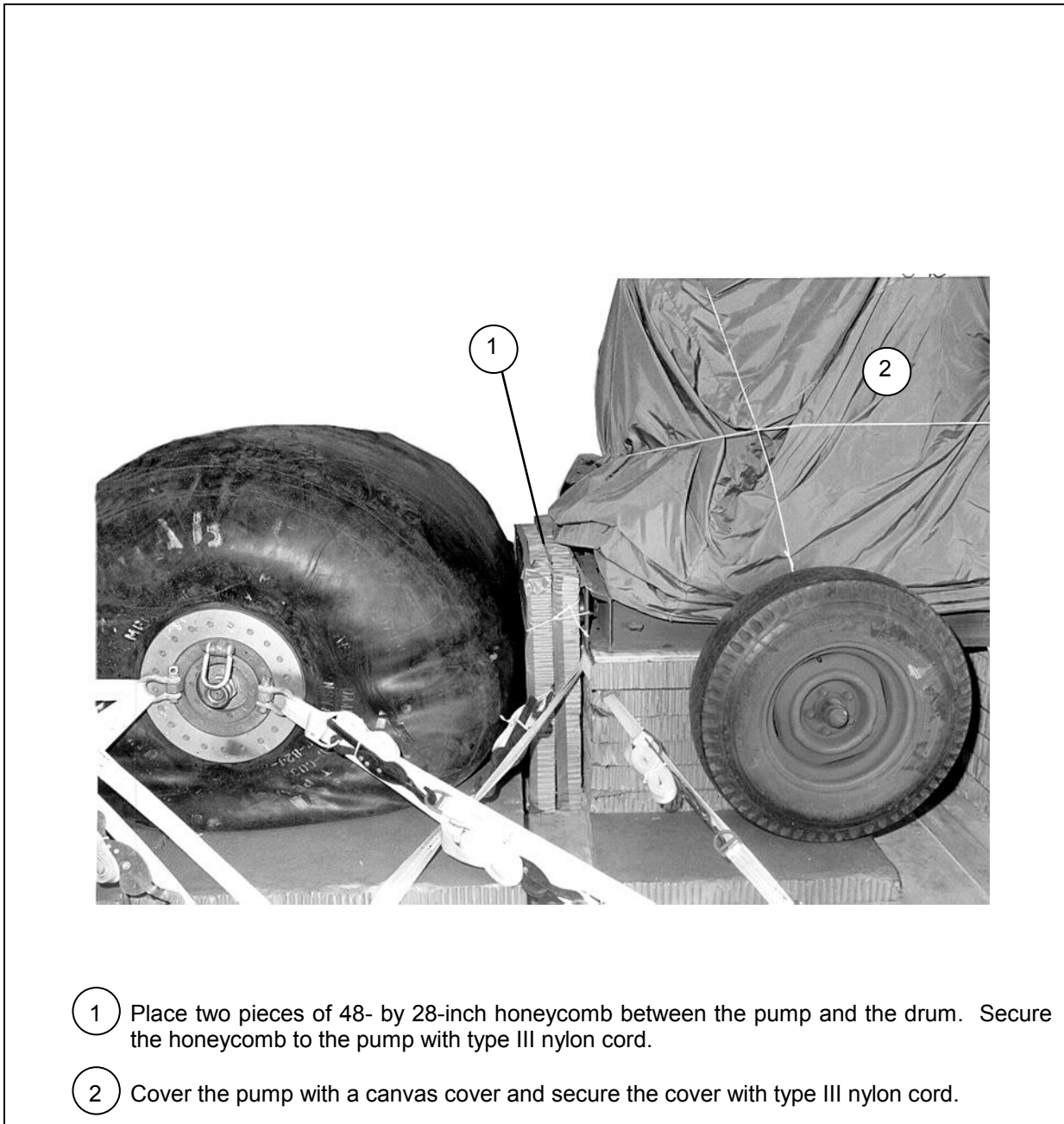


Figure 16-16. Pump Covered and Secured

INSTALLING SUSPENSION SLINGS AND SAFETY TIES

16-15. Install suspension slings and safety ties as shown in Figure 16-17.

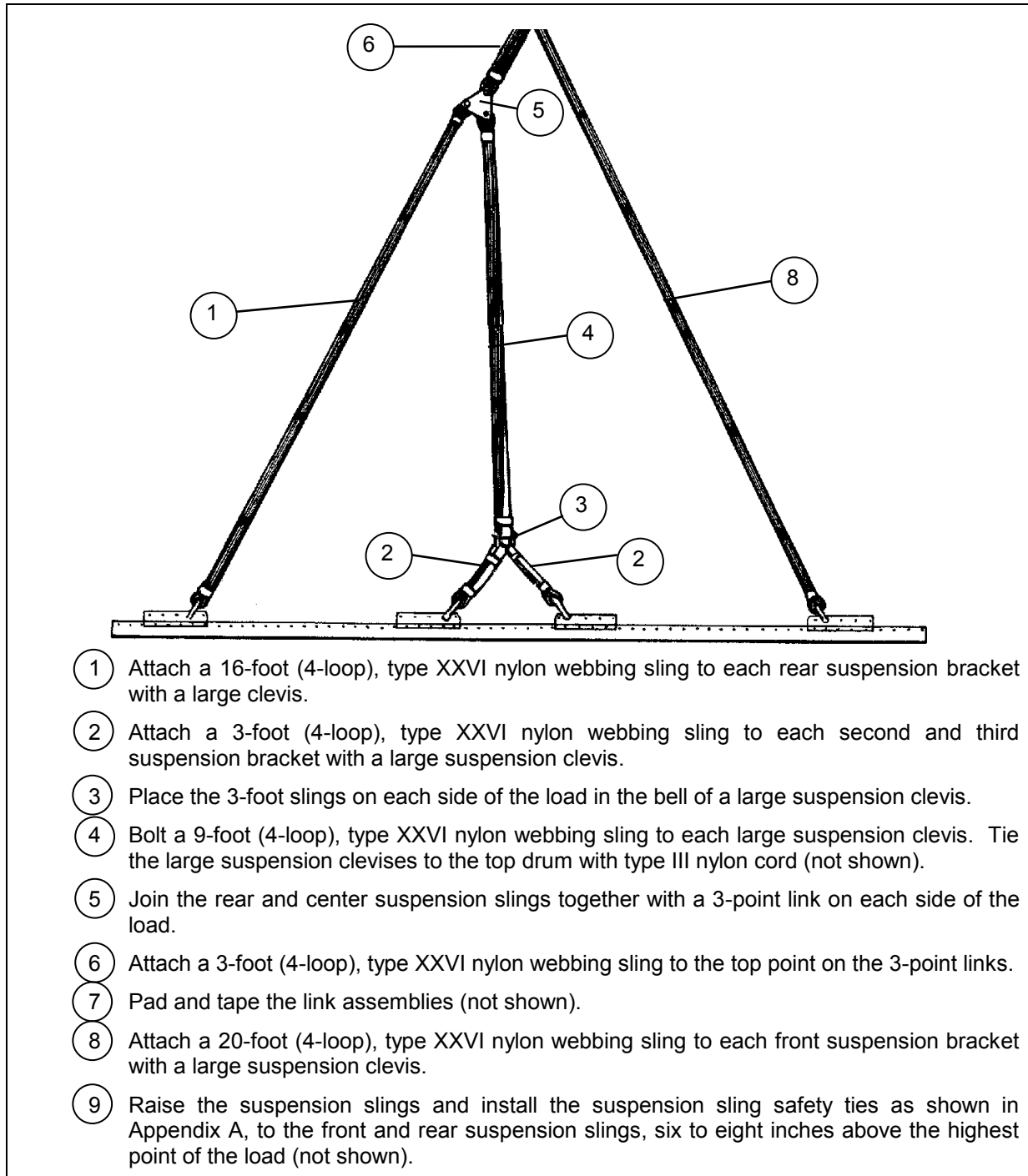
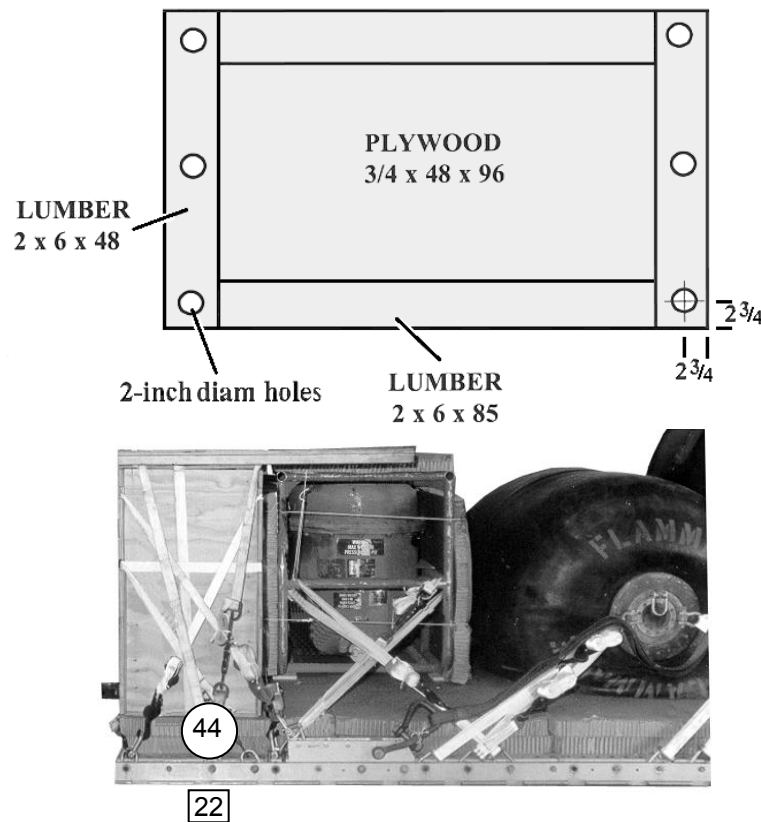


Figure 16-17. Suspension Slings and Safety Ties Installed

BUILDING AND POSITIONING PARACHUTE STOWAGE PLATFORM

16-16. Build and stow the parachute stowage platform as shown in Figure 16-18. Align the rear edge of the stowage platform on the rear edge of the box.

Note. 1. This drawing is not drawn to scale.
2. All dimensions are in inches.

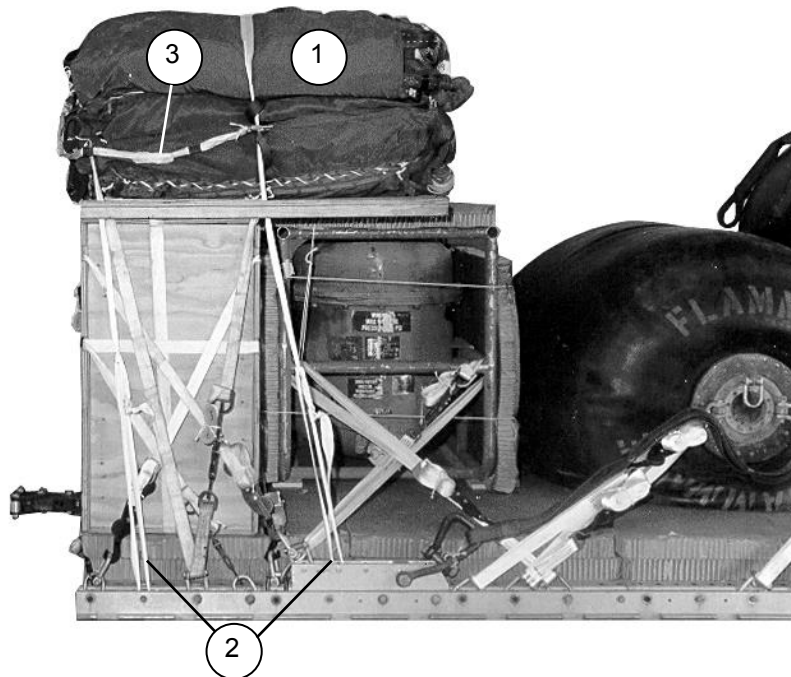


Lashing Number	Tiedown Clevis Number	Instructions
44	22	Route a 15-foot lashing through both right rear holes in the stowage platform.
45	22A	Route a 15-foot lashing through both left rear holes in the stowage platform

Figure 16-18. Parachute Stowage Platform Built and Positioned

PREPARING AND STOWING CARGO PARACHUTES

16-17. Prepare and stow four G-11 cargo parachutes as shown in Figure 16-19.



- 1 Prepare and stow four G-11 cargo parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- 2 Restrain the parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 by using bushings 47 and 47A on the platform and bushings 3 and 3A on the rear suspension link.
- 3 Install the multicut parachute release strap according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 16-19. Cargo Parachutes Prepared and Stowed

INSTALLING THE EXTRACTION SYSTEM

16-18. Install the extraction system as shown in Figure 16-20.

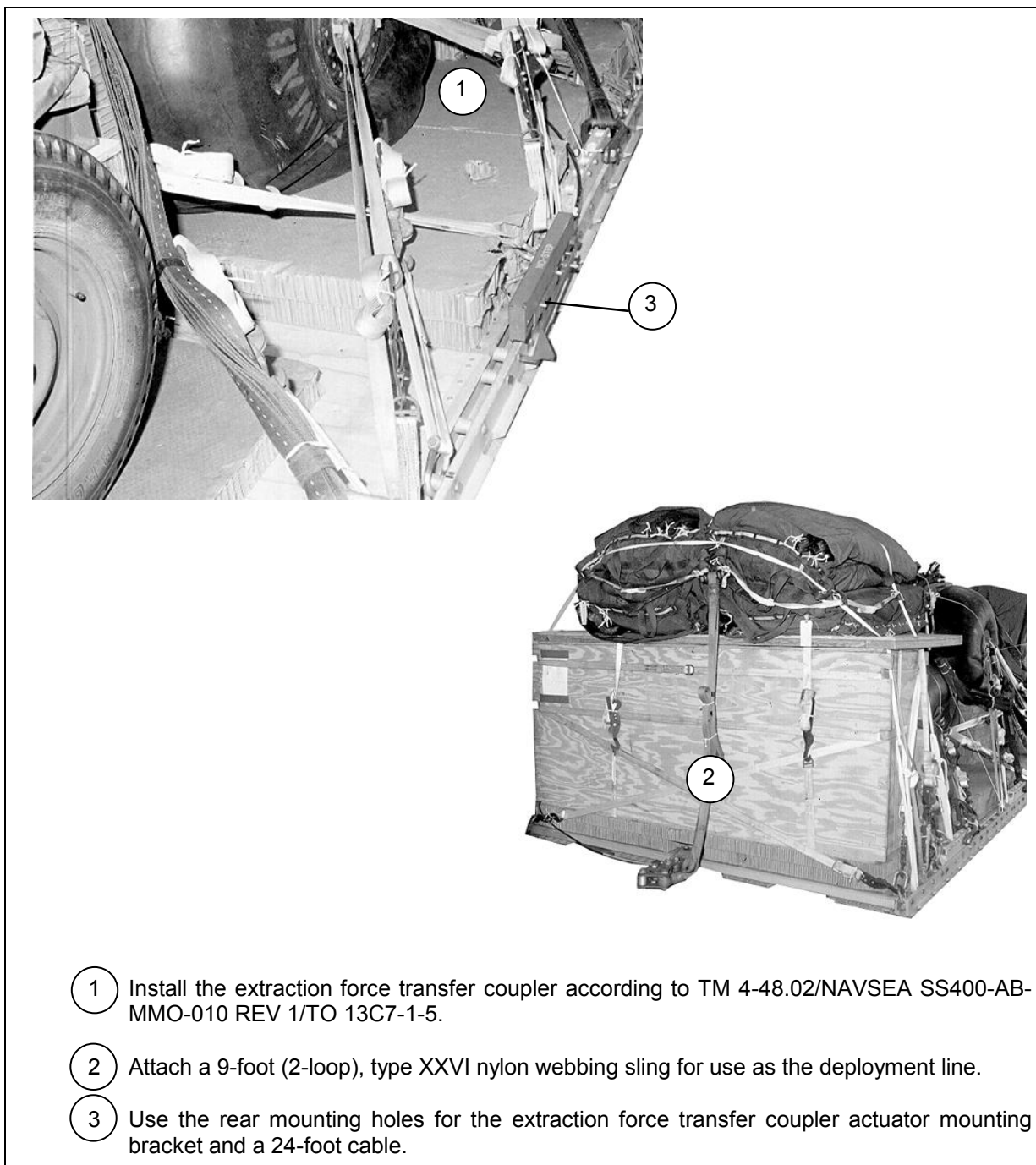
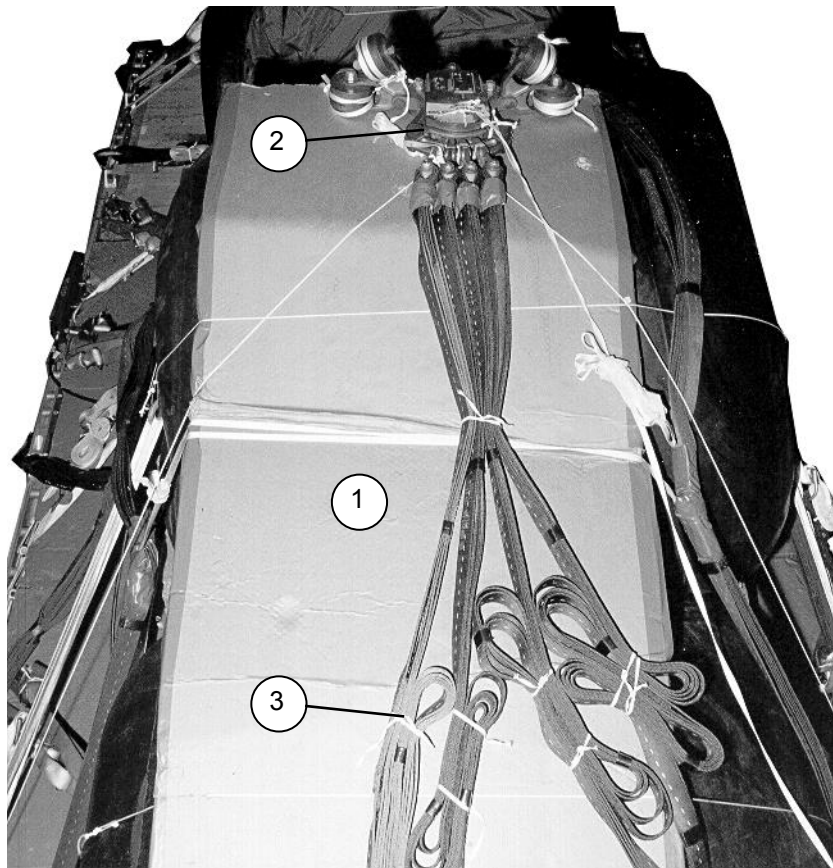


Figure 16-20. Extraction System Installed

INSTALLING THE CARGO PARACHUTE RELEASE SYSTEM

16-19. Install the M-2 cargo parachute release system as shown in Figure 16-21.



- ① Place a 96- by 24-inch piece of honeycomb from the separator to the top of the top drum. Secure the honeycomb with type III nylon cord.
- ② Place the M-2 cargo parachute release on the honeycomb placed on top of the top drum. Attach the suspension slings and the parachute riser extension to the M-2 cargo parachute release according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the cargo parachute release with type III nylon cord.
- ③ S-fold and tie any slack in the suspension slings with Type I, 1/4-inch cotton webbing.

Figure 16-21. Cargo Parachute Release Installed

PLACING EXTRACTION PARACHUTE

16-20. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

16-21. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

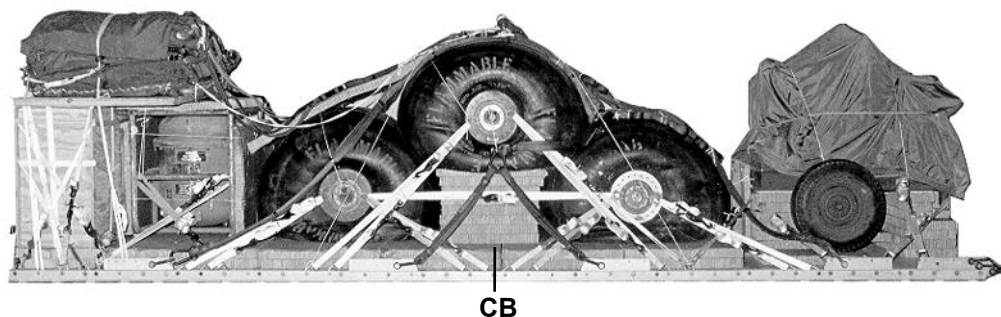
16-22. Mark the rigged load according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 16-22. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

16-23. Use the equipment list in Table 16-1 to rig the load shown in Figure 16-22.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).

**Rigged Load Data**

Weight: Load shown.....19,689 pounds
 Maximum load allowed.....21,000 pounds
 Height.....89 inches
 Width108 inches
 Length315 inches
 Overhang: Front9 inches
 Rear18 inches
 Center of Balance (CB) (from front edge of platform)
144 inches
 Extraction System Extraction Force Transfer Coupler

Figure 16-22. Three 500-Gallon Drums with Pump and Separator Rigged for Low-Velocity Airdrop

Table 16-1. Equipment Required for Rigging Three 500-Gallon Drums with Pump and Separator

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-273-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	9
4030-00-678-8562	Clevis, medium	6
8305-00-880-8155	Cloth, coated, 60-inch	As required
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5782	Coupling, airdrop, extraction force transfer w/ cable, 24-foot Cover:	1
1670-00-360-0328	Cover, Clevis, large	4
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
5365-00-937-0147	D-ring, heavy-duty, 10,000 pound	24
8305-00-958-3685	Felt, ½-inch thick	As required
1670-00-003-4391	Knife, parachute bag (for Drogue Extraction System)	1
1670-01-183-2678	Leaf, extraction line (line bag)(add 1 for Drogue Extraction System)	2
1670-01-064-4452	Line, drogue (for Drogue Extraction System) 60-foot (1-loop), type XXVI	1
1670-01-062-6313	Line, extraction: For C-130: 60-foot (3-loop), type XXVI	1
1670-01-107-7651	For C-17: 140-foot (3-loop), type XXVI	1
1670-01-483-8259	Link, tow release mechanism (H-Block) C-17	1
	Link assembly:	1
	Two point:	
5306-00-435-8994	Bolt, 1-inch diameter, 4-inches long (add 2 for Drogue Extraction System)	2
5310-00-232-5165	Nut, 1-inch hexagonal (add 2 for Drogue Extraction System)	2
1670-00-003-3454		
1670-00-003-1953	Plate, side 5 ½-inch	2
5365-00-007-3414	Plate, side, 3 ¾-inch	2
1670-01-307-1055	Spacer, large (add 2 for Drogue Extraction System)	2
5510-00-220-6146	Three-point	2
5510-00-220-6148	Lumber, 2- by 4- by 96-inches:	4
5315-00-010-4659	Lumber, 2- by 6 by 96-inches:	3
1670-00-753-3928	Nail, steel wire, 8-penny	As required
	Pad, energy-dissipating (honeycomb), 3- by 36- by 96-inches	30 sheets
1670-01-016-7841	Parachute Cargo:	
1670-00-040-8135	G-11B	4
	Cargo Extraction:	
1670-01-063-3715	28-foot	1
	Drogue (for Drogue Extraction System)	
	15-foot	1

Table 16-1. Equipment Required for Rigging Three 500-Gallon Drums with Pump and Separator (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 24-foot	
1670-01-162-2372	Bracket assembly, coupling	1
1670-01-162-2376	Clevis assembly, type V	53
1670-01-247-2389	Extraction bracket assembly	1
1670-01-162-2381	Bracket, suspension	8
5530-00-128-4981	Tandem link assembly (Multipurpose link)	2
1670-01-097-8817	Plywood, ¾-inch	4 sheets
	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	1
	For suspension and lifting:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	6
1670-01-062-6305	9-foot (4-loop), type XXVI nylon webbing	2
1670-01-062-6308	16-foot (4-loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4-loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6313	60-foot (3-loop), type XXVI nylon webbing	4
1670-00-040-8219	Strap, parachute release, multi-cut, comes w/ 2 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	53
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Type VIII	As required

Chapter 17

Rigging Four 500-Gallon Drums

DESCRIPTION OF LOAD

17-1. The four collapsible drums are rigged on a 28-foot platform with five G-11 cargo parachutes. Each drum is filled with a maximum of 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The 350-gallons-per-minute pump with filter/separator hose box are accompanying loads. The total rigged load has a maximum rigged weight of 25,700 pounds with a width of 108 inches and a length 372 inches. It has an overhang of 18 inches in the front and 9 inches in the rear. The load has a center of balance of 172 inches from the front of the platform.

-
- Note.** 1. For drums filled with a liquid other than water, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed.
3. Do not pressurize drums with air.
-

PREPARING PLATFORM

17-2. Prepare a 28-foot type V airdrop using two tandem links, eight suspension brackets, and 68 tiedown clevises as shown in Figure 17-1.

-
- Note.** 1. The nose bumper may or may not be installed.
2. Measurements are not given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.
-

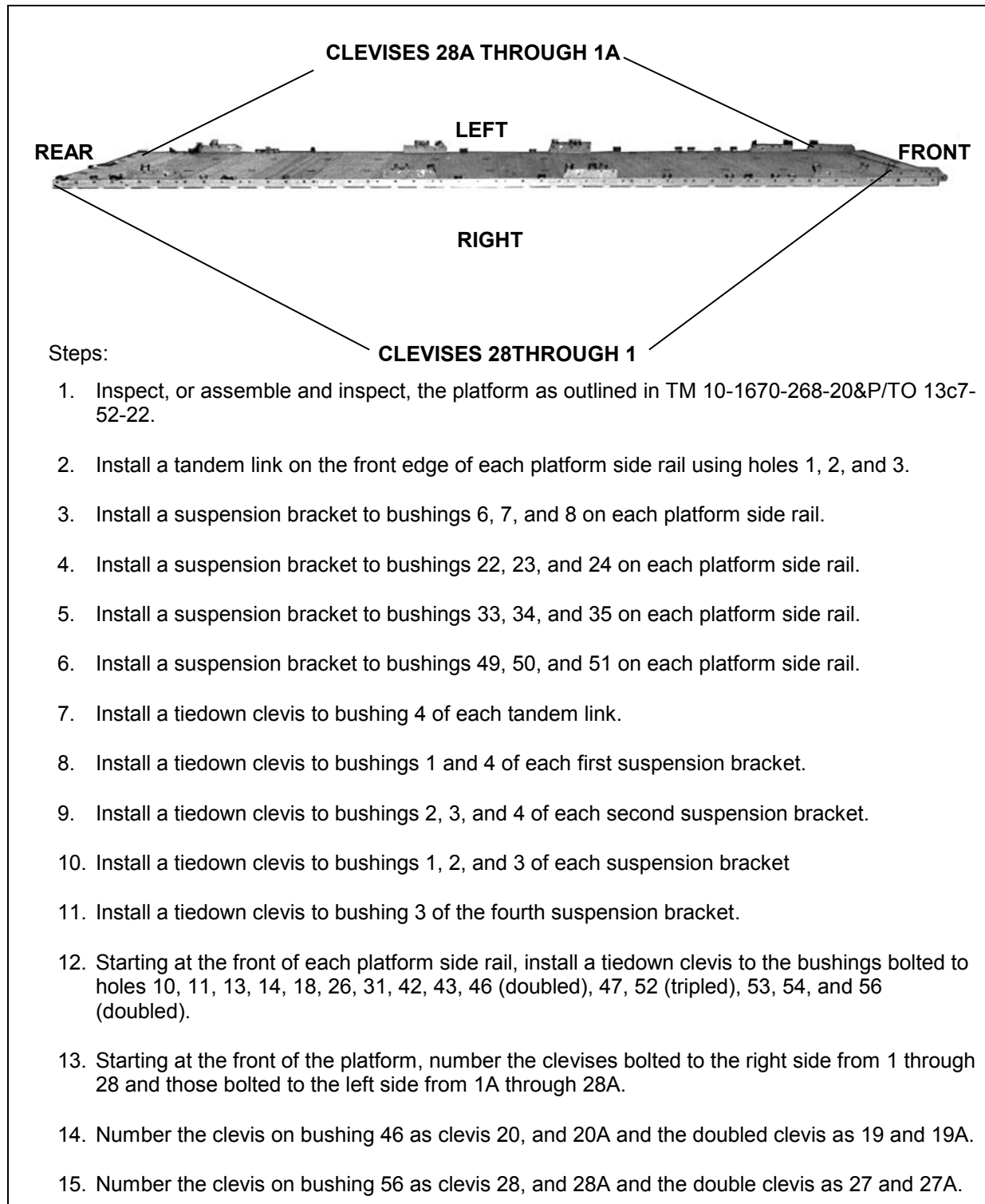


Figure 17-1. Platform Prepared

PREPARING HONEYCOMB

17-3. Build honeycomb stack as shown in Figures 16-2, 17-2, and 17-3.

Note. All dimensions are in inches.

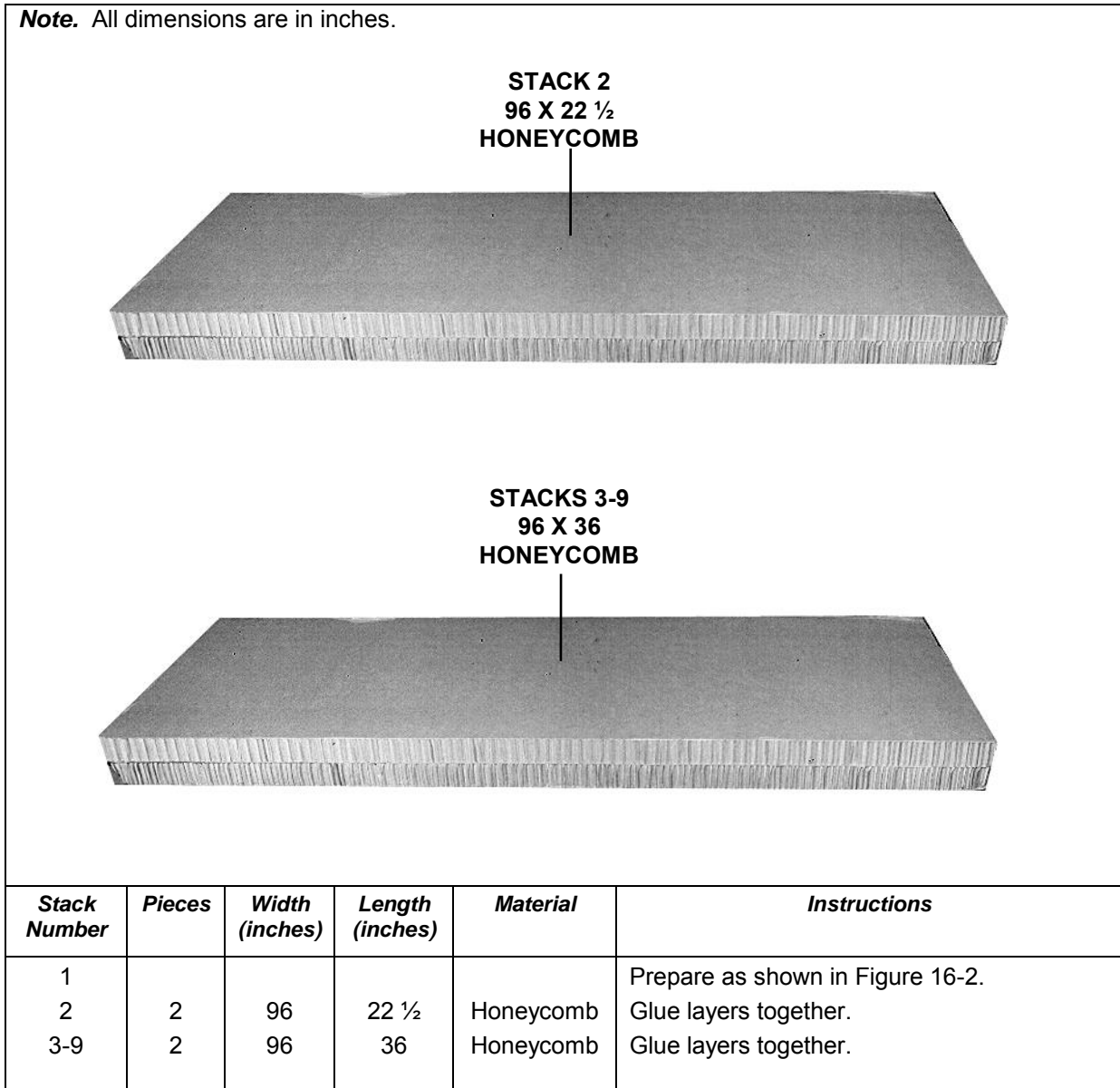
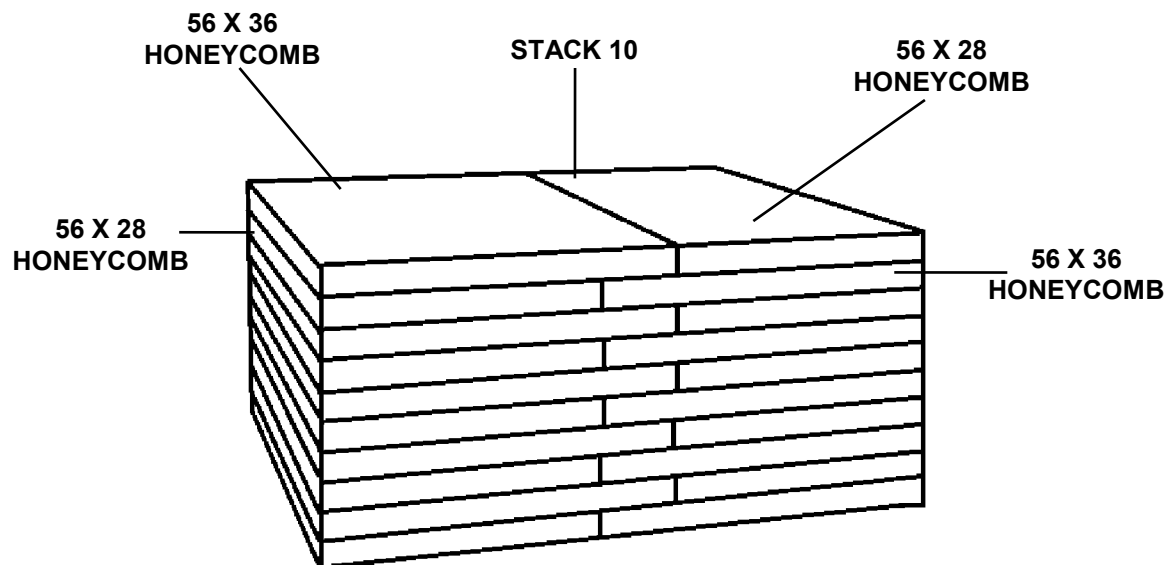


Figure 17-2. Honeycomb Stacks 1 Through 9 Prepared

Note. 1. All dimensions are in inches.
2. This drawing is not drawn to scale.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
10	10 10	56 56	36 28	Honeycomb Honeycomb	Form a stack of 10 layers by placing a 56 x 36-inch piece of honeycomb and a 56 x 28-inch piece of honeycomb side by side. Alternate and glue the pieces to the previous layer.

Figure 17-3. Honeycomb Stack 10 Prepared

POSITIONING HONEYCOMB STACKS

17-4. Position honeycomb stacks as shown in Figure 17-4.

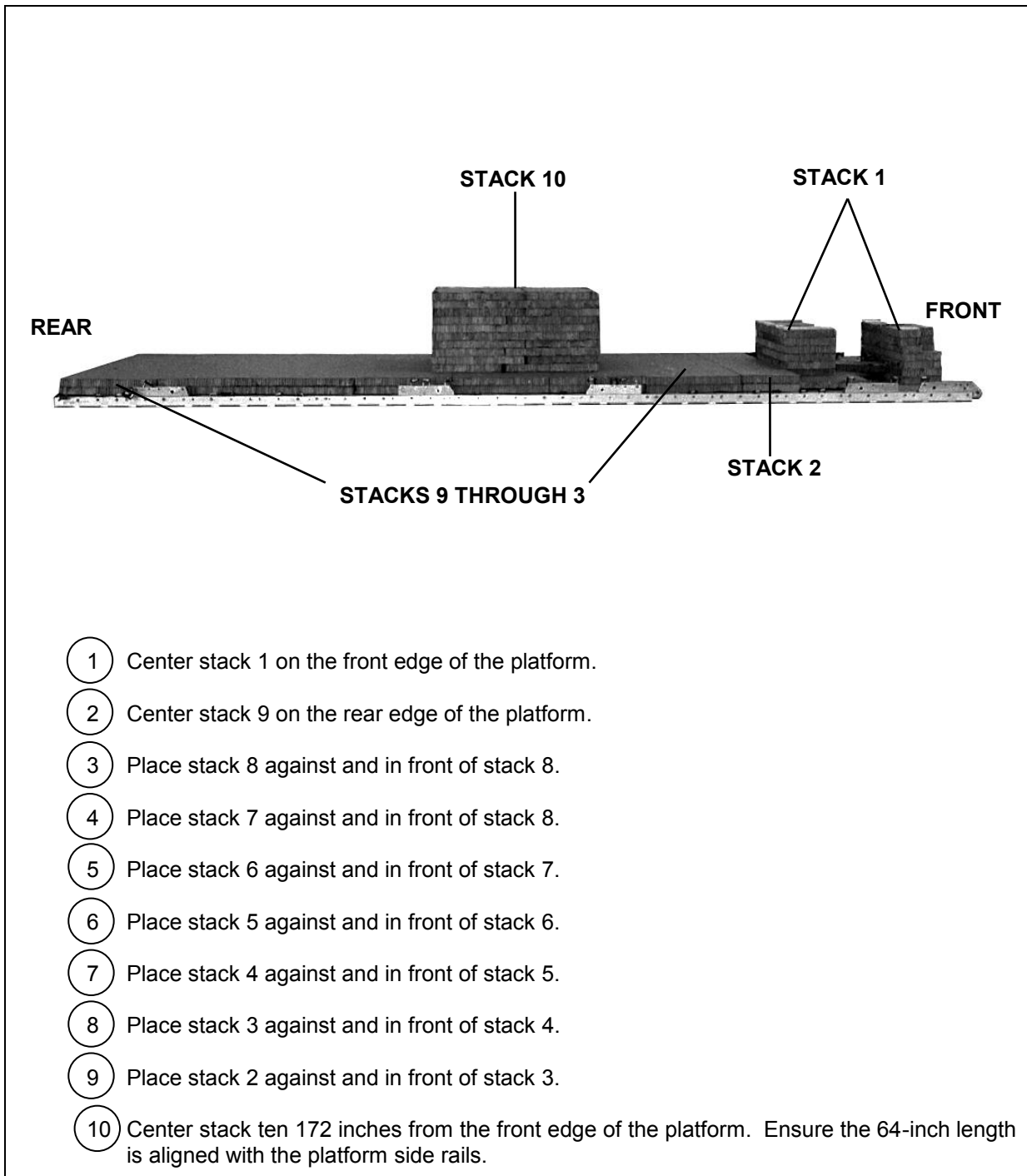


Figure 17-4. Honeycomb Stacks Positioned

BUILDING EQUIPMENT HOSE BOX

17-5. Build the equipment hose box as shown in Figure 16-5.

POSITIONING EQUIPMENT HOSE BOX

17-6. Position the equipment hose box on stack 9 as shown in Figure 16-6.

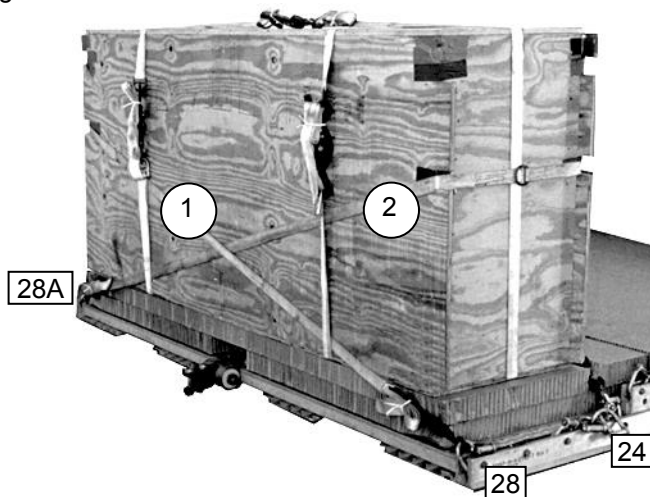
STORING EQUIPMENT IN THE EQUIPMENT HOSE BOX

17-7. Store the equipment in the equipment hose box as shown in Figure 16-7.

LASHING EQUIPMENT HOSE BOX TO PLATFORM

17-8. Lash the equipment hose box to the platform as shown in Figure 17-5 and 17-6.

Note. Ensure lashings 1 and 2 are routed under the load binders on the rear of the box.



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
1	28 and 24	Route a 30-foot lashing from clevis 28 around the rear of the equipment hose box, through the left bottom notches of the box to clevis 24.
2	28A and 24A	Route a 30-foot lashing from clevis 28A around the rear of the equipment hose box, through the right bottom notches of the box to clevis 24A.

Figure 17-5. Lashings 1 and 2 Installed

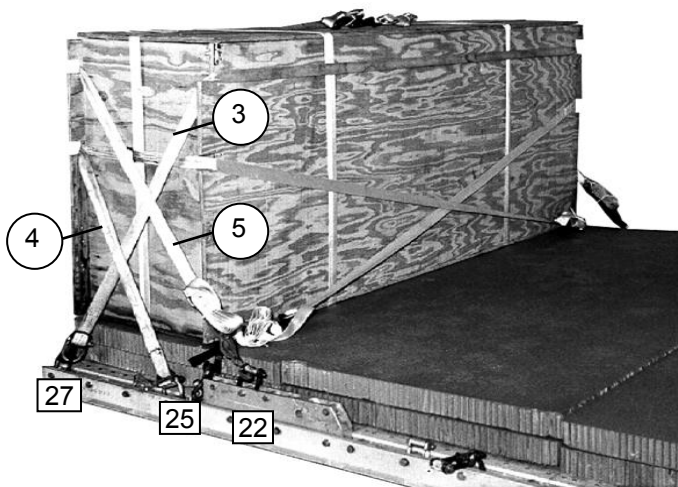
		
<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
3	27 and 27A	Route a 15-foot lashing through its own D-ring on clevis 27, around the front top cutouts and load bind on clevis 27A.
4	25 and 25A	Route a 15-foot lashing through its own D-ring on clevis 25, around the rear bottom cutouts and load bind on clevis 25A.
5	22 and 22A	Route a 30-foot lashing through the rear top cutouts of the equipment hose box. Ensure the lashing is routed under the load binders on the rear of the box. Load bind to clevises 22 and 22A.

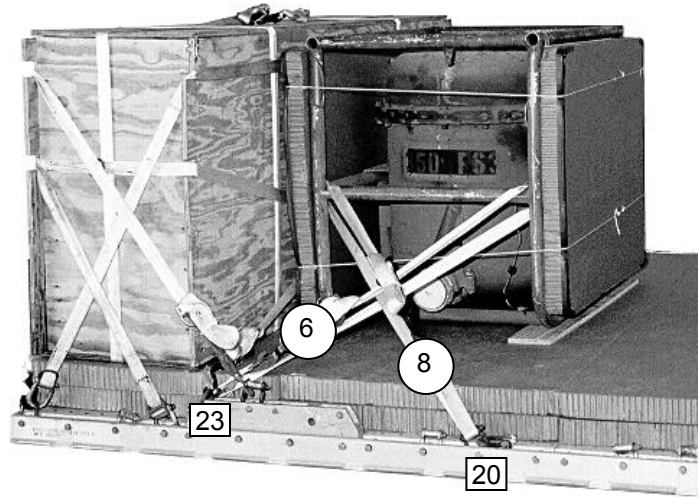
Figure 17-6. Lashings 3 Through 5 Installed

PREPARING AND POSITIONING FUEL SEPARATOR

17-9. Prepare and position the fuel separator as shown in Figure 16-10.

LASHING FUEL SEPARATOR TO PLATFORM

17-10. Lash the fuel separator to the platform as shown in Figure 17-7.



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
6	23	Route a 15-foot lashing around the front right middle cross member.
7	23A	Route a 15-foot lashing around the front left middle cross member.
8	20	Route a 15-foot lashing around the right rear middle cross member.
9	20A	Route a 15-foot lashing around the left rear middle cross member.

Figure 17-7. Lashings 6 Through 9 Installed

POSITIONING AND LASHING THE DRUMS

17-11. Position and lash the fuel drums to the platform as shown in Figure 17-8 through 17-13.

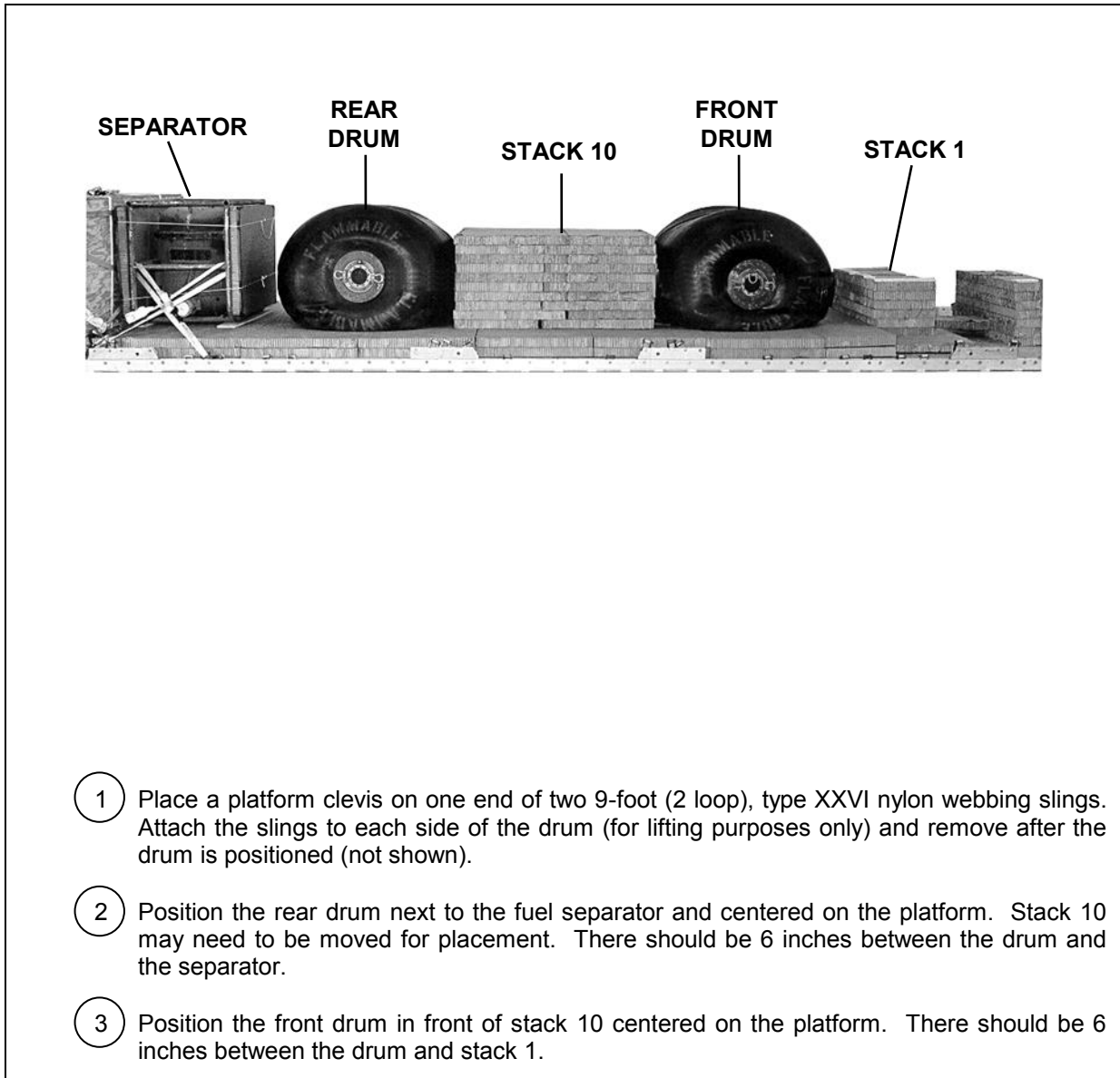
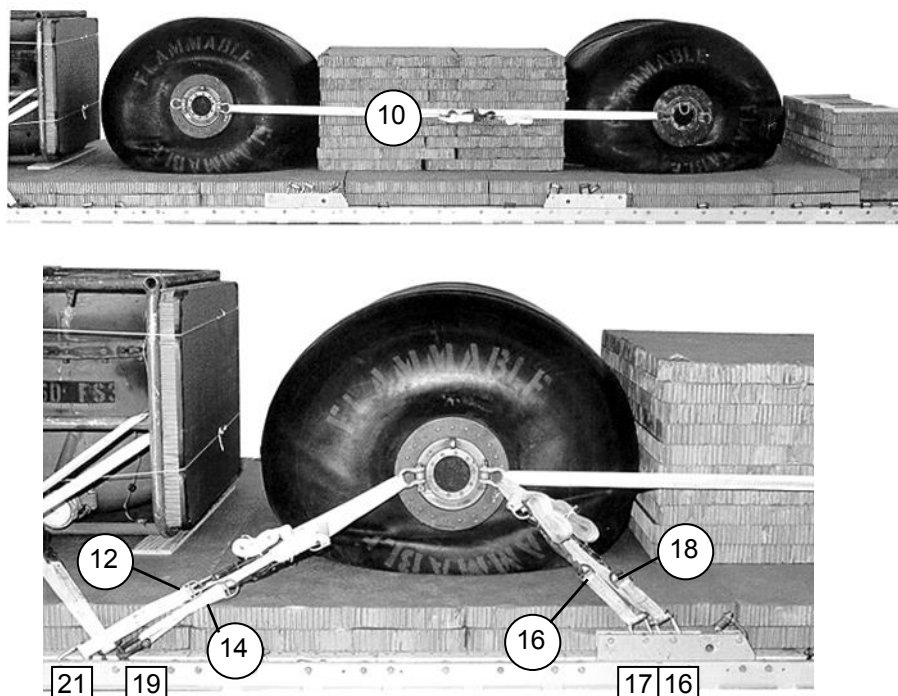
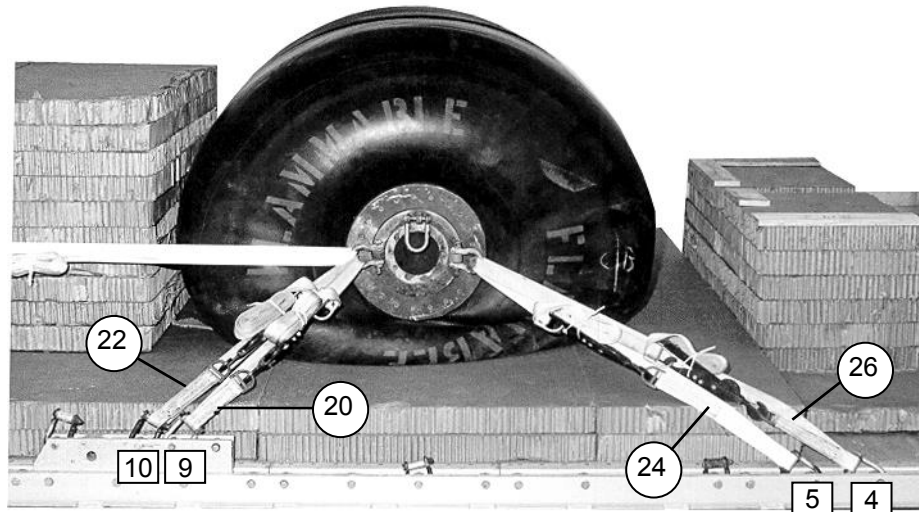


Figure 17-8. Front and Rear Drums Positioned



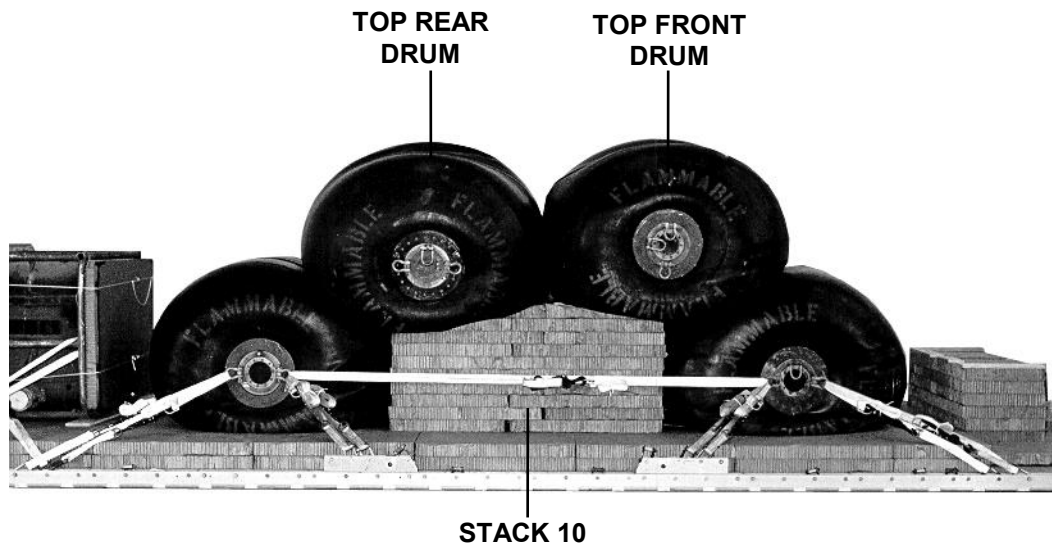
Lashing Number	Tiedown Clevis Number	Instructions
10		Route a lashing from the front shackle of the rear drum to the rear shackle of the front drum on the right side.
11		Route a lashing from the front shackle of the rear drum to the rear shackle of the front drum on the left side.
12	21	Route a lashing through the right rear shackle of the rear drum.
13	21A	Route a lashing through the left rear shackle of the rear drum.
14	19	Route a lashing through the right rear shackle of the rear drum.
15	19A	Route a lashing through the left rear shackle of the rear drum.
16	17	Route a lashing through the right front shackle of the rear drum.
17	17A	Route a lashing through the left front shackle of the rear drum.
18	16	Route a lashing through the right front shackle of the rear drum.
19	16A	Route a lashing through the left front shackle of the rear drum.

Figure 17-9. Lashings 10 Through 19 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
20	9	Route a lashing through the right rear shackle of the front drum.
21	9A	Route a lashing through the left rear shackle of the front drum.
22	10	Route a lashing through the right rear shackle of the front drum.
23	10A	Route a lashing through the left rear shackle of the front drum.
24	5	Route a lashing through the right front shackle of the front drum.
25	5A	Route a lashing through the left front shackle of the front drum.
26	4	Route a lashing through the right front shackle of the front drum.
27	4A	Route a lashing through the left front shackle of the front drum.

Figure 17-10. Lashings 20 Through 27 Installed



- ① Position the top rear drum to the rear of stack 10.
- ② Position the top front drum to the front of stack 10. Ensure each drum is equally placed on stack 10.

Figure 17-11. Top Rear and Top Front Drums Positioned

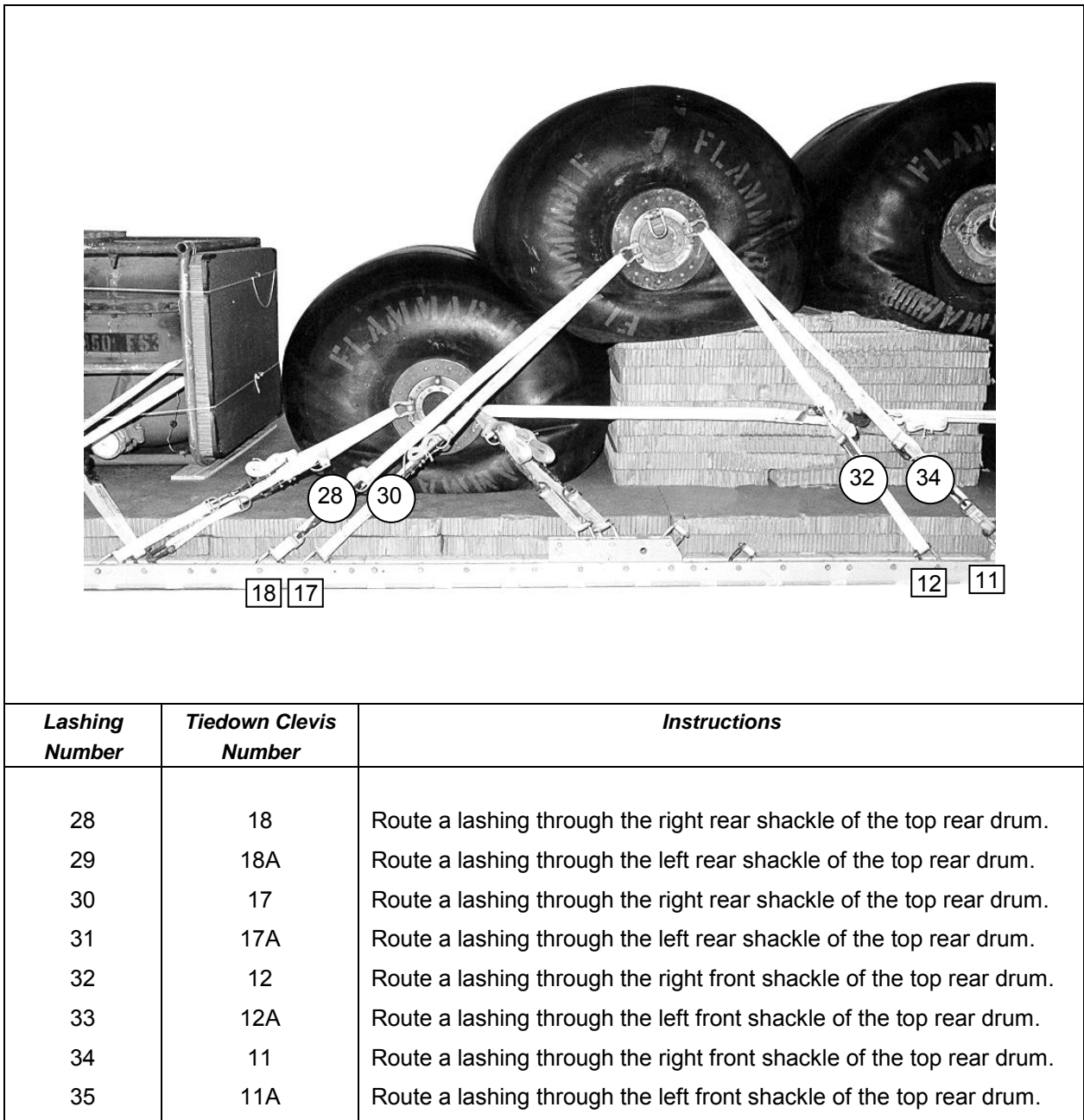


Figure 17-12. Lashings 28 Through 35 Installed

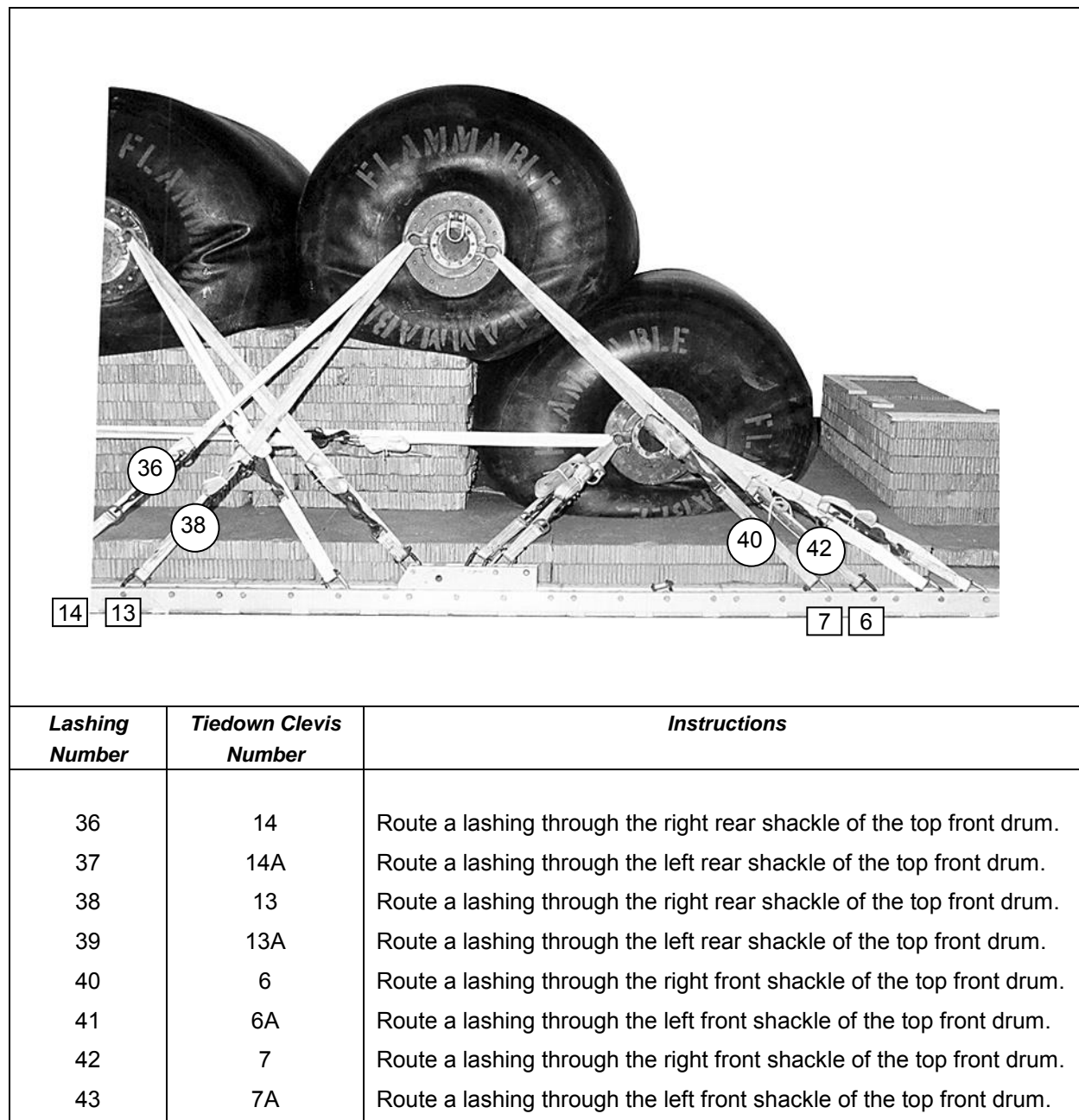


Figure 17-13. Lashings 36 Through 43 Installed

PREPARING AND POSITIONING THE PUMP

17-12. Prepare the pump according to paragraph 15-5 and as shown in Figure 15-5 and as shown 15-8. Position the pump as shown in Figure 16-14.

LASHING THE PUMP TO THE PLATFORM

17-13. Lash the pump to the platform as shown in Figure 17-14.

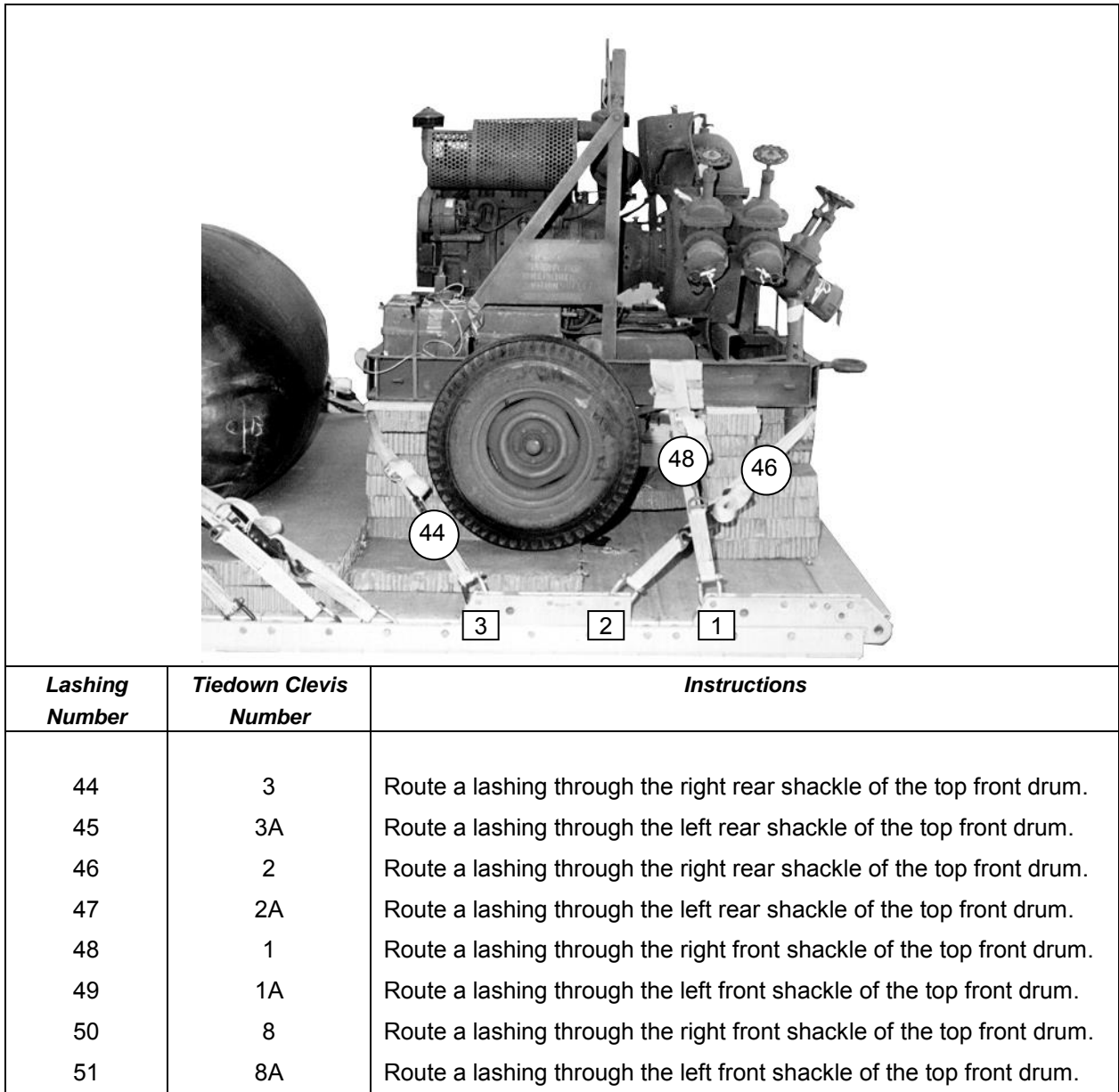


Figure 17-14. Lashings 44 Through 51 Installed

COVERING THE PUMP

17-14. Place a canvas over the pump as shown in Figure 16-16. Position the pump as shown in Figure 16-14.

INSTALLING SUSPENSION SLINGS AND SAFETY TIES

17-15. Install suspension slings and safety ties as shown in Figure 17-15.

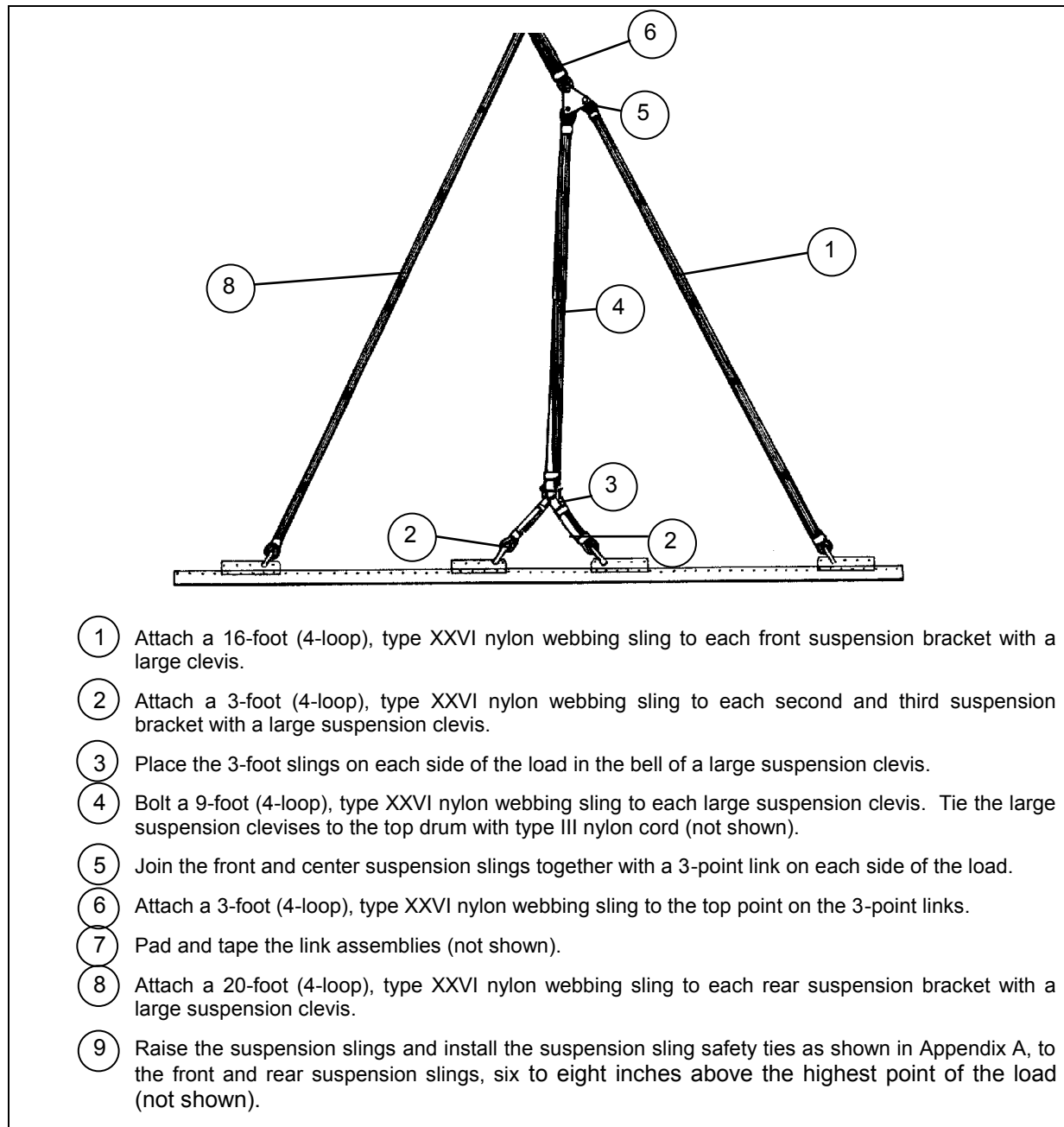
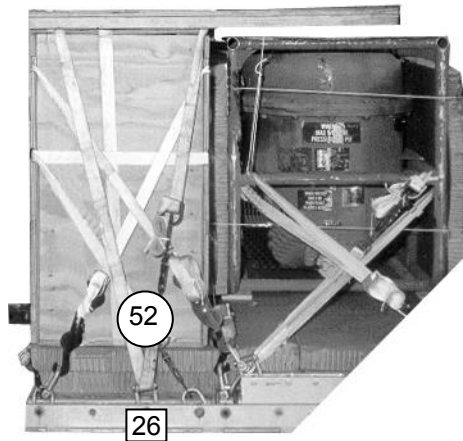
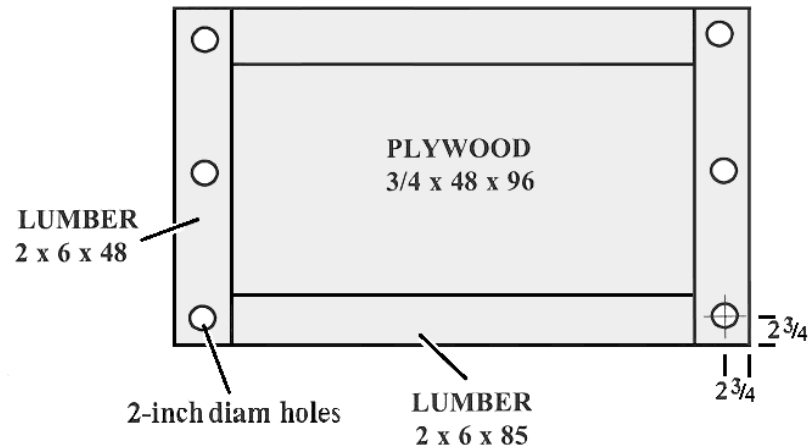


Figure 17-15. Suspension Slings and Safety Ties Installed

BUILDING AND POSITIONING PARACHUTE STOWAGE PLATFORM

17-16. Build and stow the parachute stowage platform as shown in Figure 17-16. Align the rear edge of the stowage platform on the rear edge of the box.

Note. 1. All dimensions are in inches.
2. This drawing is not drawn to scale.

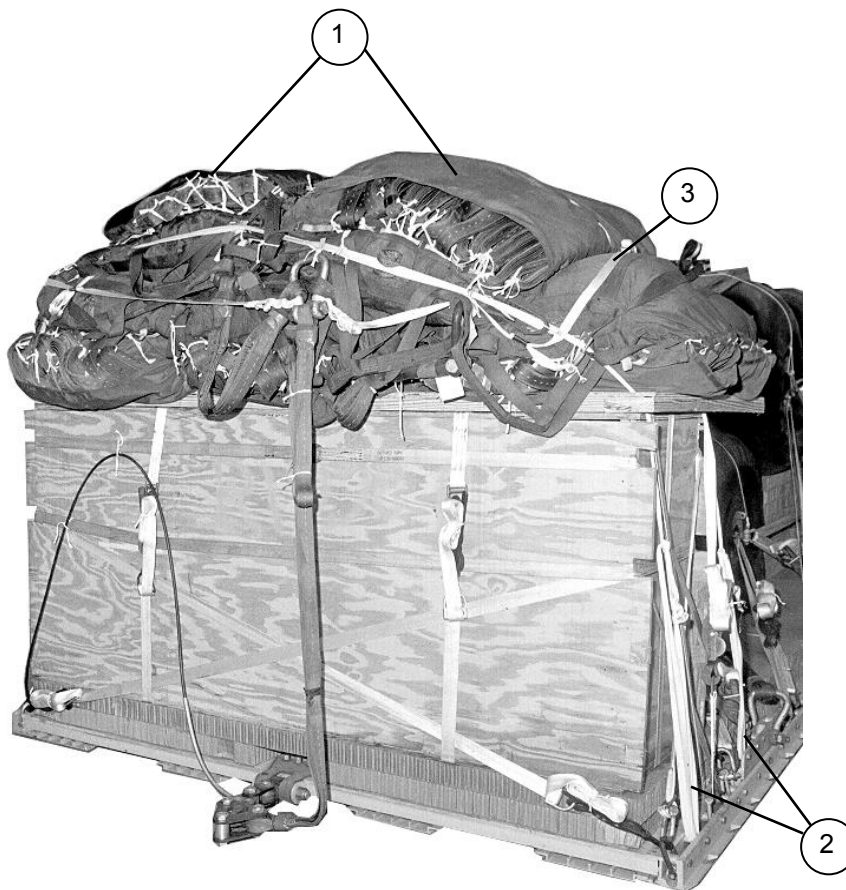


Lashing Number	Tiedown Clevis Number	Instructions
52	3	Route a lashing from clevis 26 through the rear and center right holes of the stowage platform.
53	3A	Route a lashing from clevis 26A through the rear and center left holes in the stowage platform.

Figure 17-16. Parachute Stowage Platform Built and Positioned

PREPARING AND STOWING CARGO PARACHUTES

17-17. Prepare and stow cargo parachutes as shown in Figure 17-17.

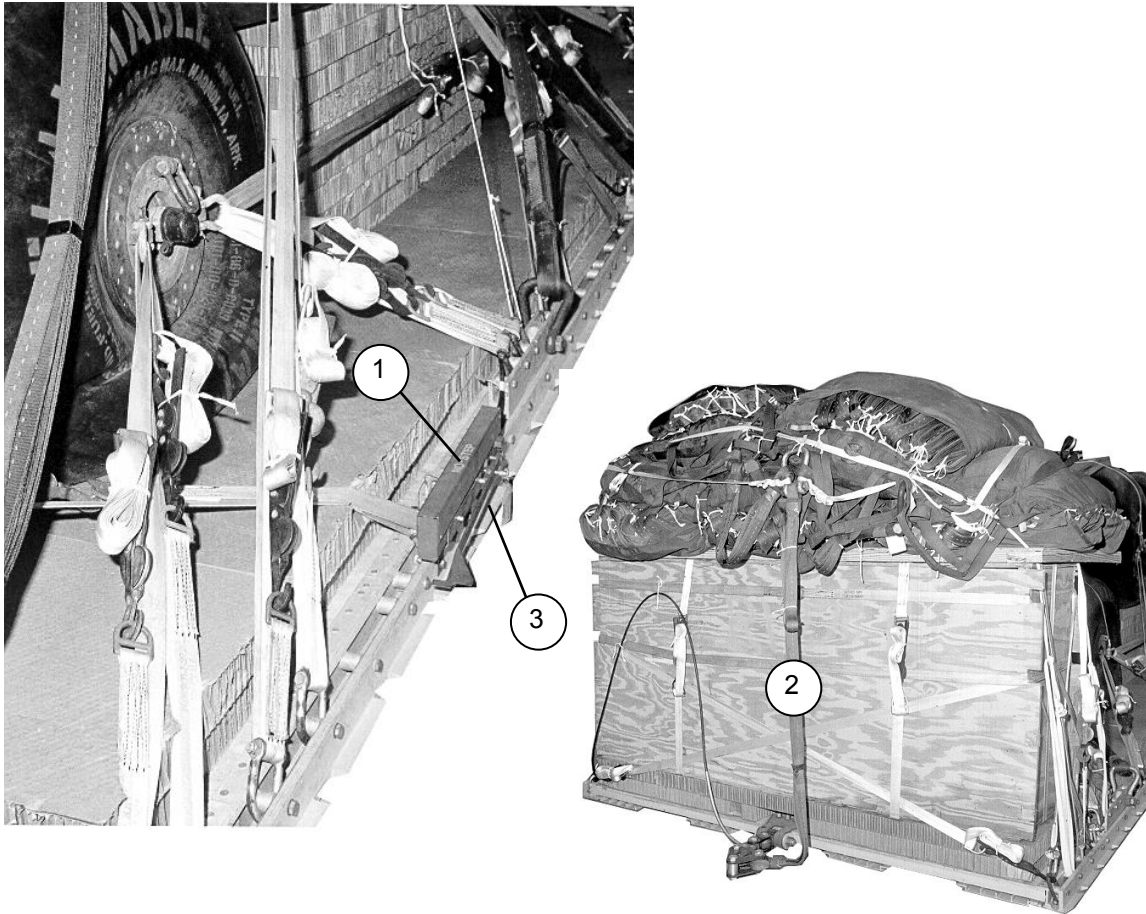


- ① Prepare and position five G-11 parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Restrain the parachutes using bushings 55 and 55A on the platform and bushings 4 and 4A on the rear suspension link.
- ③ Install the multicut parachute release strap according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 17-17. Parachute Stowage Platform Built and Positioned

INSTALLING THE EXTRACTION SYSTEM

17-18. Install the extraction system as shown in Figure 17-18.



- ① Install the extraction force transfer coupling according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Install a 9-foot (2-loop), type XXVI nylon sling as the deployment line.
- ③ Use the rear mounting holes for the extraction force transfer coupler actuator mounting bracket and a 28-foot cable.

Figure 17-18. Extraction System Installed

INSTALLING THE PARACHUTE RELEASE SYSTEM

17-19. Install the parachute release system as shown in Figure 17-19.



- ① Place and secure a 96-by-24 inch piece of honeycomb from the separator to the top of the top rear drum.
- ② Position and secure the M-2 parachute release assembly on the honeycomb. Attach the suspension slings and the parachute riser extensions to the M-2 parachute release assembly according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ③ S-fold and tie any slack in the suspension slings with type I, ¼-inch cotton webbing. Tie the riser extensions with type I, ¼-inch cotton webbing.

Figure 17-19. Parachute Release Assembly Installed

PLACING EXTRACTION PARACHUTE

17-20. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

17-21. Select and install the provisions for emergency aft restraints according to the emergency aft requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

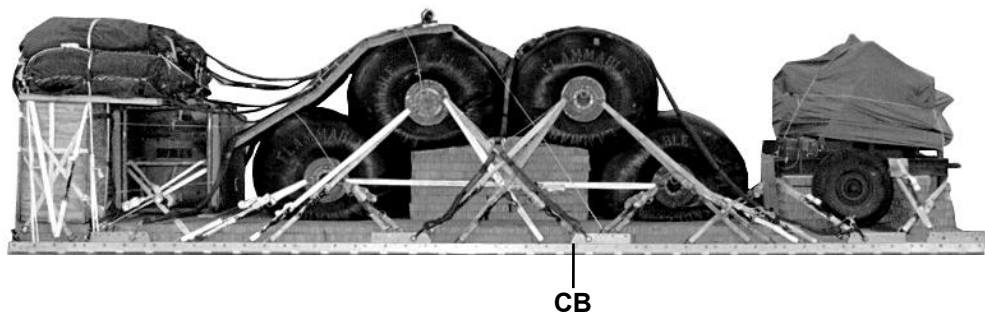
17-22. Mark the rigged load according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 17-20. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, center of balance (CB), and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

17-23. Use the equipment list in Table 17-1 to rig the load shown in Figure 17-20.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



Rigged Load Data

Weight: Load shown.....	24,408 pounds
Maximum load allowed.....	25,700 pounds
Height.....	89 inches
Width	108 inches
Length	363 inches
Overhang: Front	9 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	172 inches
Extraction System	Extraction Force Transfer Coupler

Figure 17-20. Four 500-Gallon Drums with Pump and Separator Rigged for Low-Velocity Airdrop

Table 17-1. Equipment Required for Rigging Four 500-Gallon Drums with Pump and Separator

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-00-753-3928	Pad, energy-dissipating (honeycomb), 3-by-36-by-96 inch	30 sheets
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11C	5
	Cargo extraction:	
1670-00-040-8135	28-foot	1
	Drogue (for Drogue Extraction System)	
1670-01-063-3715	15-foot	1
	Platform, airdrop, type V, 28-foot:	
1670-01-353-8425	Bracket assembly, coupling	1
1670-01-162-2372	Clevis assembly, type V	68
1670-01-162-2376	Extraction bracket assembly	1
1670-01-247-2389	Bracket, suspension	8
1670-01-162-2381	Tandem link assembly (Multipurpose link)	2
5530-00-128-4981	Plywood, ¾-inch	4 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop	
	For suspension and lifting:	
1670-01-062-6306	3-foot (4-loop), type XXVI nylon webbing	6
1670-01-062-6305	9-foot (4-loop), type XXVI nylon webbing	2
1670-01-062-6308	16-foot (4-loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4-loop), type XXVI nylon webbing	2
	For deployment	
1670-01-062-6304	9-foot (2-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	20-foot (2-loop), type XXVI nylon webbing	5
5340-00-040-8219	Strap, parachute release, multicut, comes w/2 knives	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	68
8310-00-917-3945	Thread, cotton, ticket 8/7	As required
	Webbing:	
8305-00-268-2411	Cotton, ¼-inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½-inch	As required
8305-00-263-3591	Nylon, type VII	As required

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Chapter 18

Rigging Five 500-Gallon Drums

DESCRIPTION OF LOAD

18-1. The five collapsible fuel drums are rigged on a 32-foot, type V platform with six G-11 cargo parachutes. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The five drums have a 350-gallons-per-minute pump with a separator and hose box as an accompanying load. The total rigged load has a maximum weight of 30,355 pounds with a width of 108 inches and length of 411 inches. It has an overhang of 18 inches in the front and 18 inches in the rear.

-
- Note.** 1. For drums filled with a liquid other than water, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.
-

PREPARING PLATFORM

18-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 72 tiedown clevises as shown in Figure 18-1.

-
- Note.** 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.
-

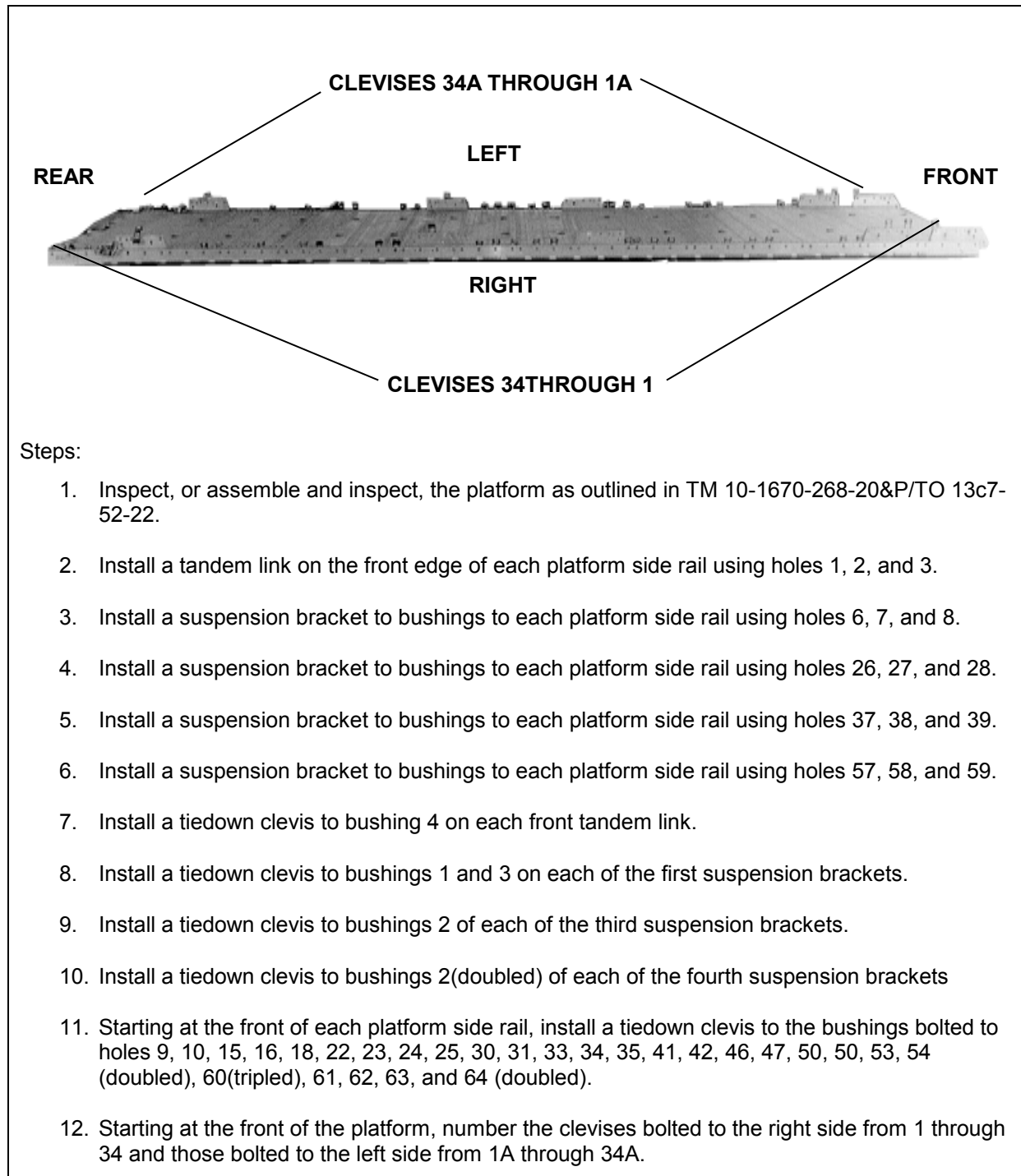
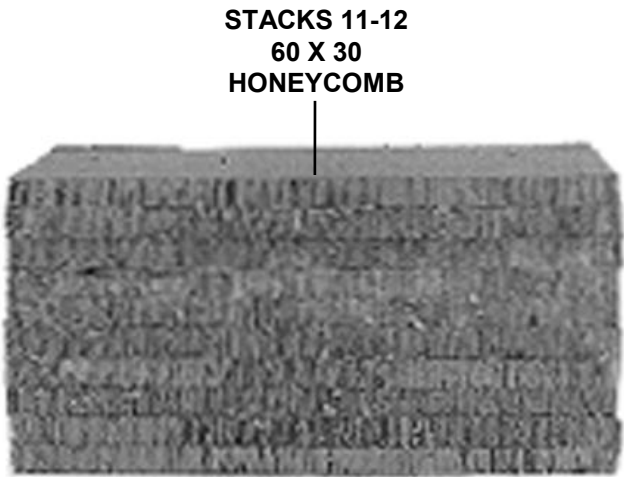


Figure 18-1. Platform Prepared

PREPARING HONEYCOMB

18-3. Build honeycomb stacks as shown in Figure 18-2.

Note. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1					
2-10	2	96	36	Honeycomb	Prepare as shown in Figure 17-2. Glue layers together.
11-12	10	60	30	Honeycomb	Glue layers together.

Figure 18-2. Honeycomb Stacks Prepared

POSITIONING HONEYCOMB STACKS

18-4. Position honeycomb stacks as shown in Figure 18-3.

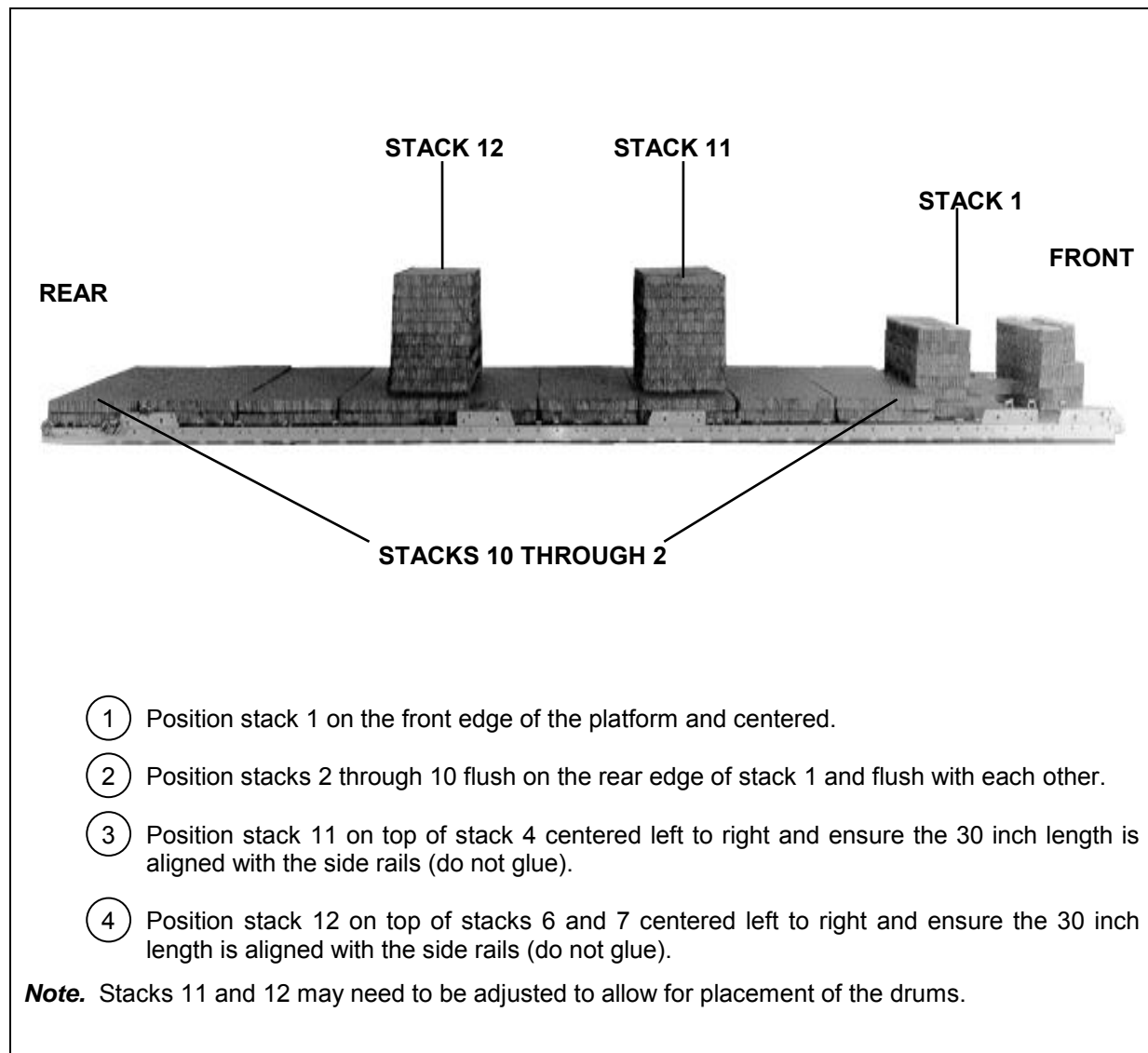


Figure 18-3. Honeycomb Stacks Positioned

BUILDING EQUIPMENT HOSE BOX

18-5. Build the equipment box as shown in Figure 16-5.

POSITIONING EQUIPMENT HOSE BOX

18-6. Position the equipment hose box as shown in Figure 16-6.

STORING EQUIPMENT IN THE EQUIPMENT HOSE BOX

18-7. Store the equipment in the equipment hose box as shown in Figure 16-7.

LASHING EQUIPMENT HOSE BOX TO PLATFORM

18-8. Lash the equipment hose box to the platform as shown in Figure 18-4 and 18-5.

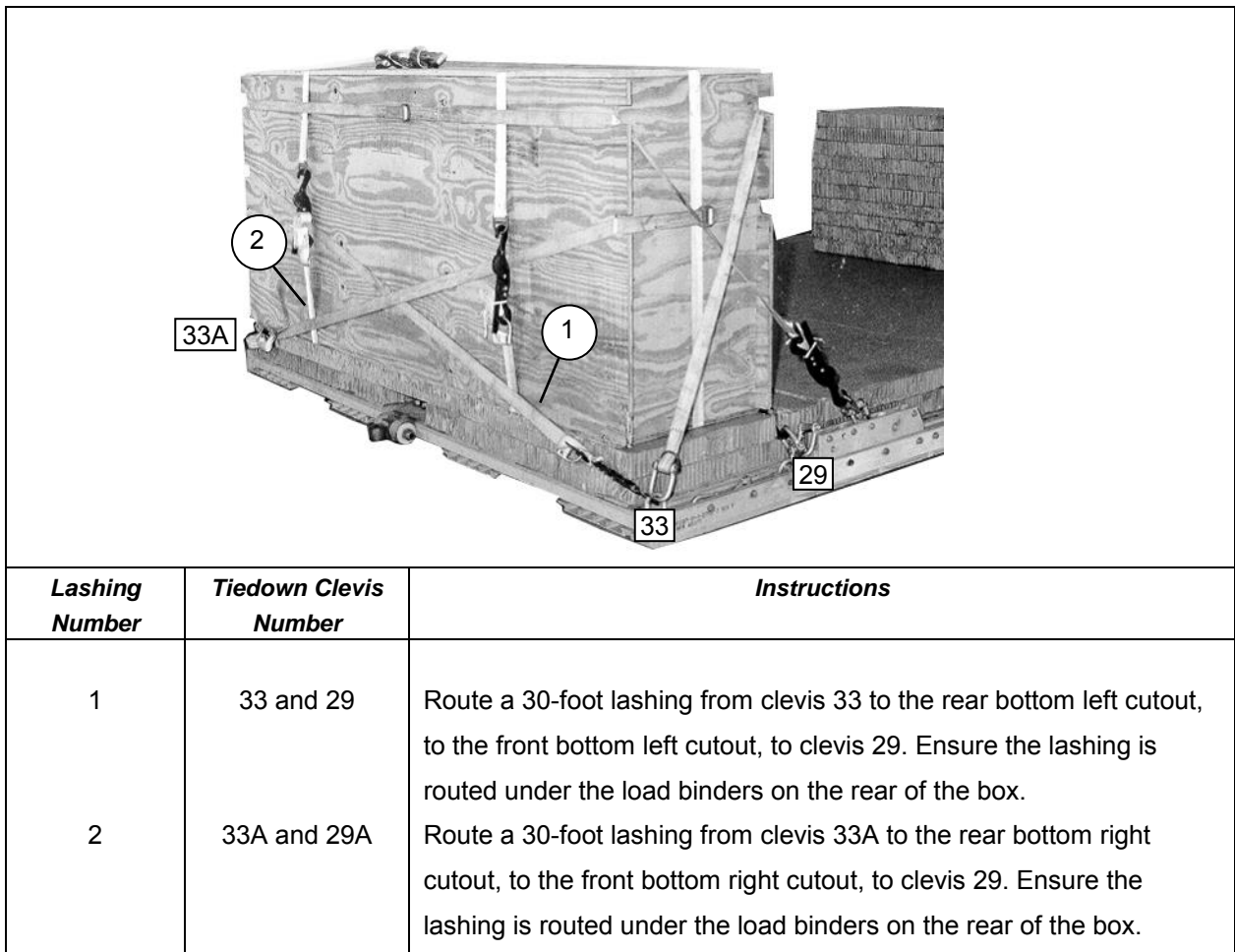
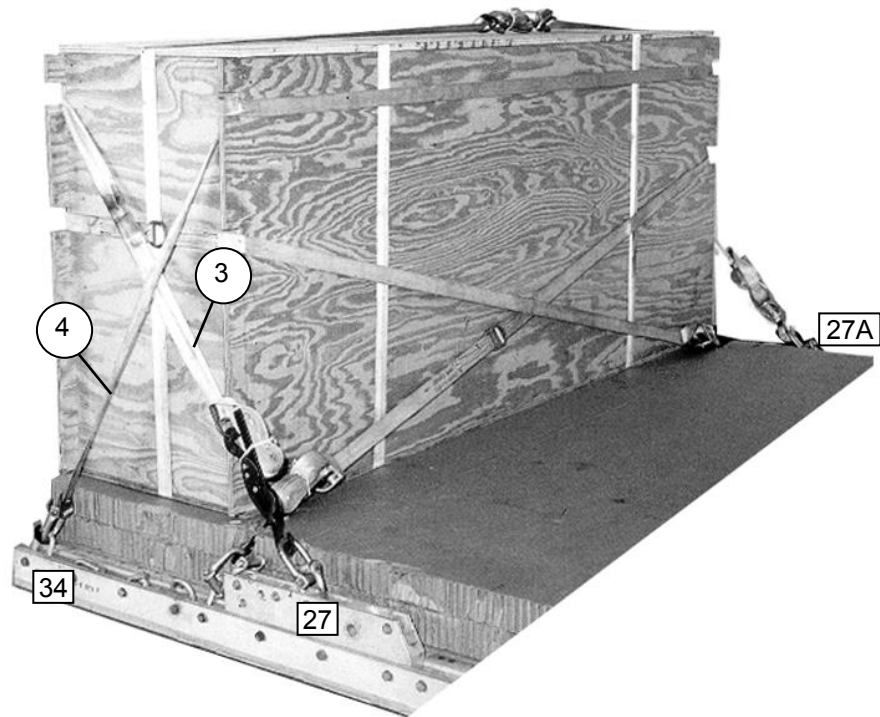


Figure 18-4. Lashings 1 and 2 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
3	27 and 27A	Route a 30-foot lashing from clevis 27 to the rear top cutouts to clevis 27A. Load bind to both clevises.
4	34 and 34A	Route a lashing through its own D-ring on clevis 34 to the top front cutouts to clevis 34A.

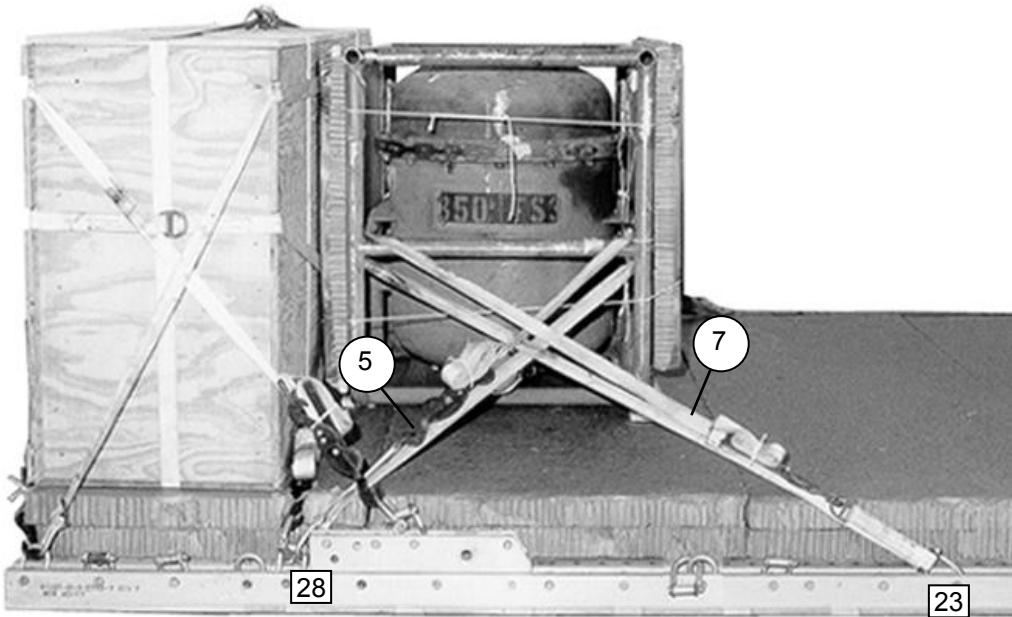
Figure 18-5. Lashings 3 and 4 Installed

PREPARING AND POSITIONING FUEL SEPARATOR

18-9. Prepare and position the fuel separator as shown in Figure 16-10.

LASHING FUEL SEPARATOR TO PLATFORM

18-10. Lash fuel separator to the platform as shown in Figure 18-6.



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
5	28	Route a lashing from clevis 28 around the front right middle cross member.
6	28A	Route a lashing from clevis 28A around the front left middle cross member.
7	23	Route a lashing from clevis 23 around the rear right middle cross member.
8	23A	Route a lashing from clevis 23A around the rear left middle cross member.

Figure 18-6. Lashings 5 and 8 Installed

POSITIONING AND LASHING THE DRUMS

18-11. Position and lash the drums to the platform as shown in Figures 18-7 through 18-13.

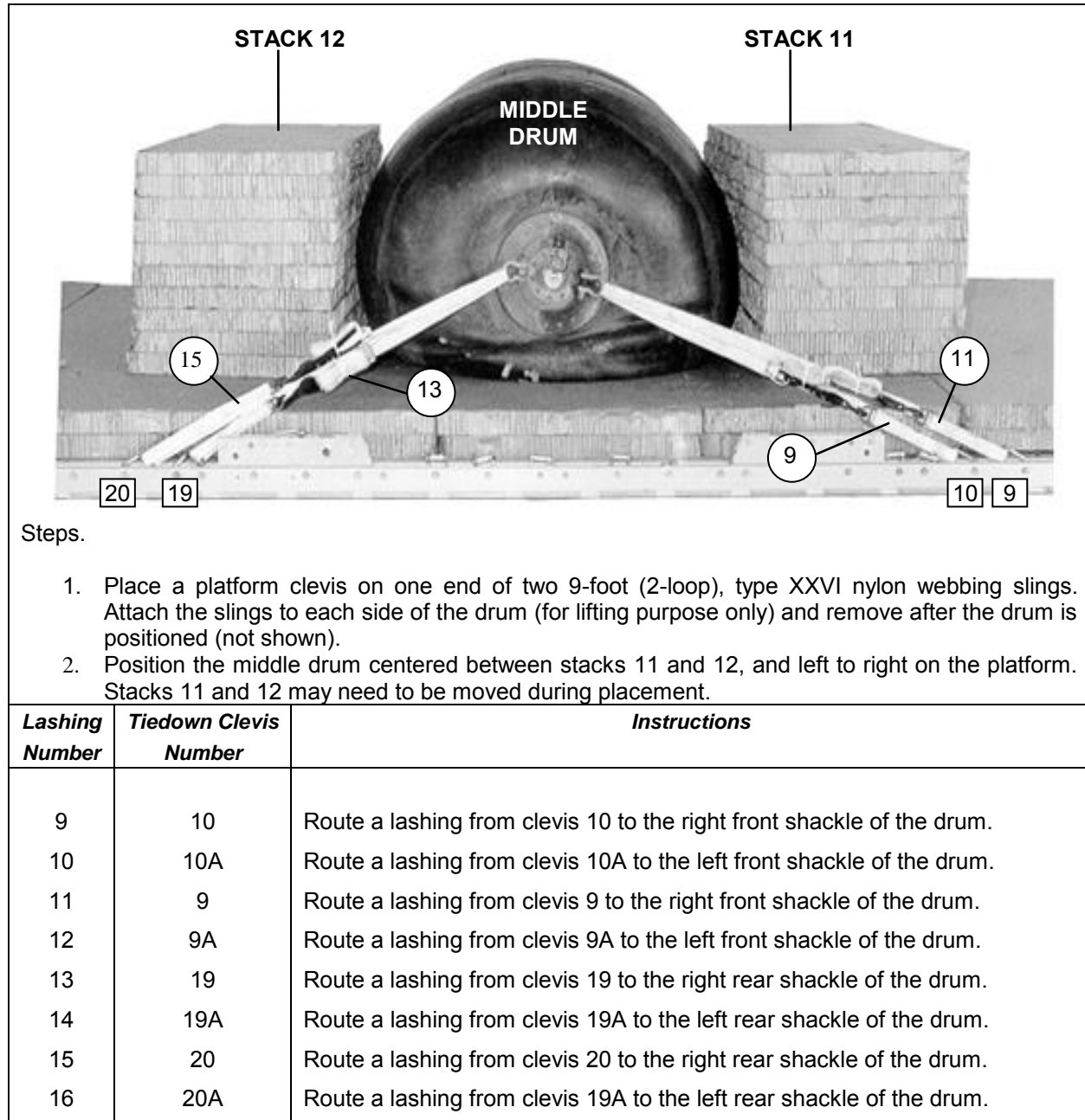
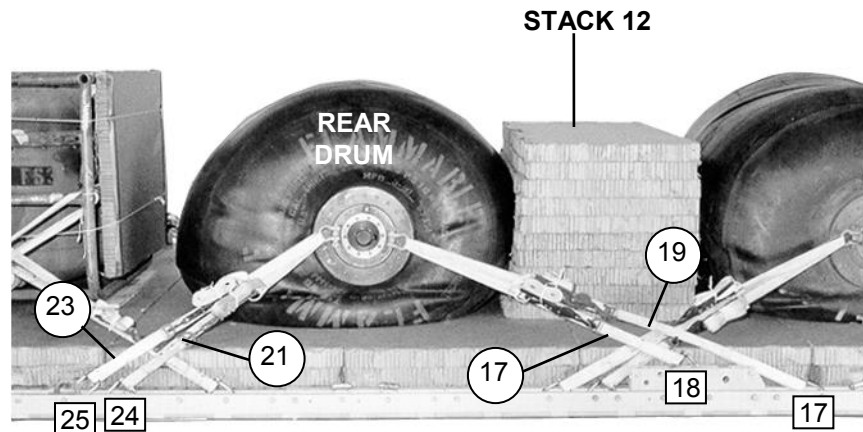


Figure 18-7. Lashings 9 and 16 Installed

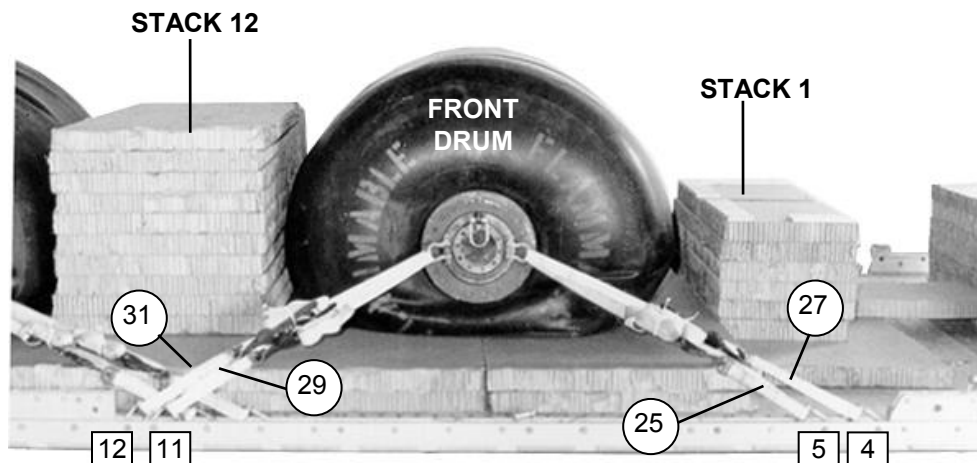


Steps.

1. Place a platform clevis on one end of two 9-foot (2-loop), type XXVI nylon webbing slings. Attach the slings to each side of the drum (for lifting purpose only) and remove after the drum is positioned (not shown).
2. Position the middle drum centered between stacks 11 and 12, and left to right on the platform. Stacks 11 and 12 may need to be moved during placement.

Lashing Number	Tiedown Clevis Number	Instructions
17	18	Route a lashing from clevis 18 to the right front shackle of the drum.
18	18A	Route a lashing from clevis 18A to the left front shackle of the drum.
19	17	Route a lashing from clevis 17 to the right front shackle of the drum.
20	17A	Route a lashing from clevis 17A to the left front shackle of the drum.
21	24	Route a lashing from clevis 24 to the right rear shackle of the drum.
22	24A	Route a lashing from clevis 24A to the left rear shackle of the drum.
23	25	Route a lashing from clevis 25 to the right rear shackle of the drum.
24	25A	Route a lashing from clevis 25A to the left rear shackle of the drum.

Figure 18-8. Lashings 17 and 24 Installed



Steps.

1. Place a platform clevis on one end of two 9-foot (2-loop), type XXVI nylon webbing slings. Attach the slings to each side of the drum (for lifting purpose only) and remove after the drum is positioned (not shown).
2. Position the front drum between stacks 1 and 11 and centered from left to right on the platform. Stacks 11 and 12 may need to be moved during placement.

Lashing Number	Tiedown Clevis Number	Instructions
25	5	Route a lashing from clevis 5 to the right front shackle of the drum.
26	5A	Route a lashing from clevis 5A to the left front shackle of the drum.
27	4	Route a lashing from clevis 4 to the right front shackle of the drum.
28	4A	Route a lashing from clevis 4A to the left front shackle of the drum.
29	11	Route a lashing from clevis 11 to the right rear shackle of the drum.
30	11A	Route a lashing from clevis 11A to the left rear shackle of the drum.
31	12	Route a lashing from clevis 12 to the right rear shackle of the drum.
32	12A	Route a lashing from clevis 12A to the left rear shackle of the drum.

Figure 18-9. Lashings 25 and 32 Installed


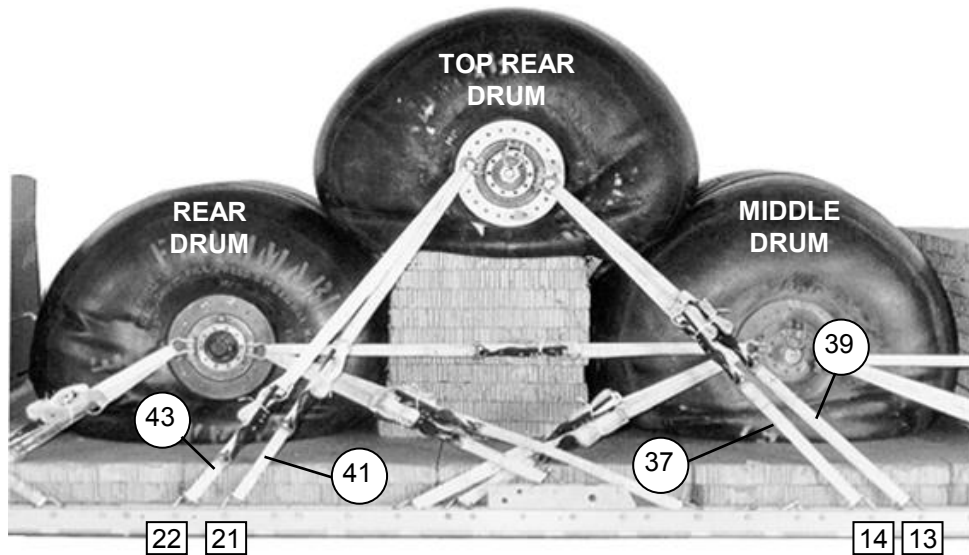
		
<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
33		Route a lashing from the right front shackle of the middle drum to the right rear shackle of the front drum.
34		Route a lashing from the left front shackle of the middle drum to the left rear shackle of the front drum.
35		Route a lashing from the right rear shackle of the middle drum to the right front shackle of the rear drum.
36		Route a lashing from the left rear shackle of the middle drum to the left front shackle of the rear drum.

Figure 18-10. Lashings 33 and 36 Installed

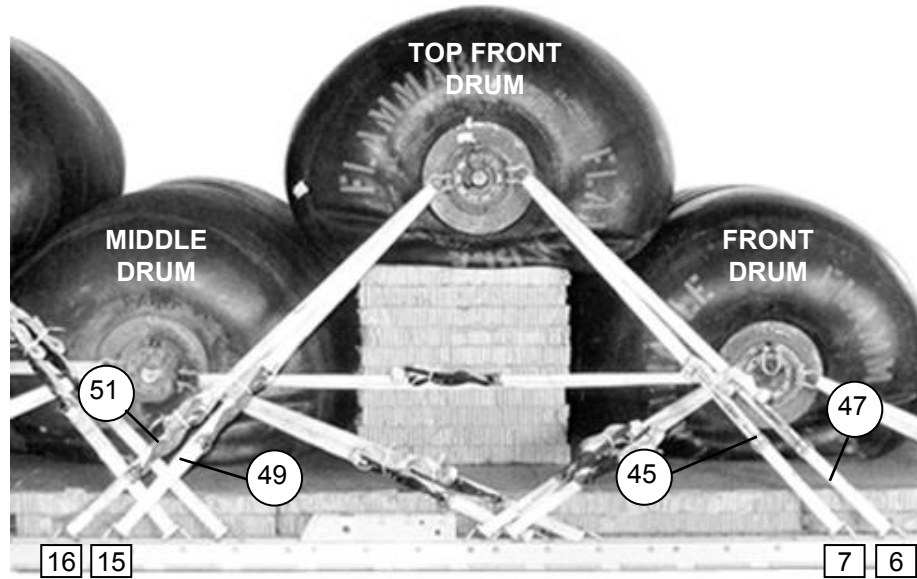


Steps.

1. Place a platform clevis on one end of two 9-foot (2-loop), type XXVI nylon webbing slings. Attach the slings to each side of the drum (for lifting purpose only) and remove after the drum is positioned (not shown).
2. Position the top rear drum on stack 12 and centered from left to right on the platform.

Lashing Number	Tiedown Clevis Number	Instructions
37	14	Route a lashing from clevis 14 to the right front shackle of the drum.
38	14A	Route a lashing from clevis 14A to the left front shackle of the drum.
39	13	Route a lashing from clevis 13 to the right front shackle of the drum.
40	13A	Route a lashing from clevis 13A to the left front shackle of the drum.
41	21	Route a lashing from clevis 21 to the right rear shackle of the drum.
42	21A	Route a lashing from clevis 21A to the left rear shackle of the drum.
43	22	Route a lashing from clevis 22 to the right rear shackle of the drum.
44	22A	Route a lashing from clevis 22A to the left rear shackle of the drum.

Figure 18-11. Lashings 37 and 44 Installed

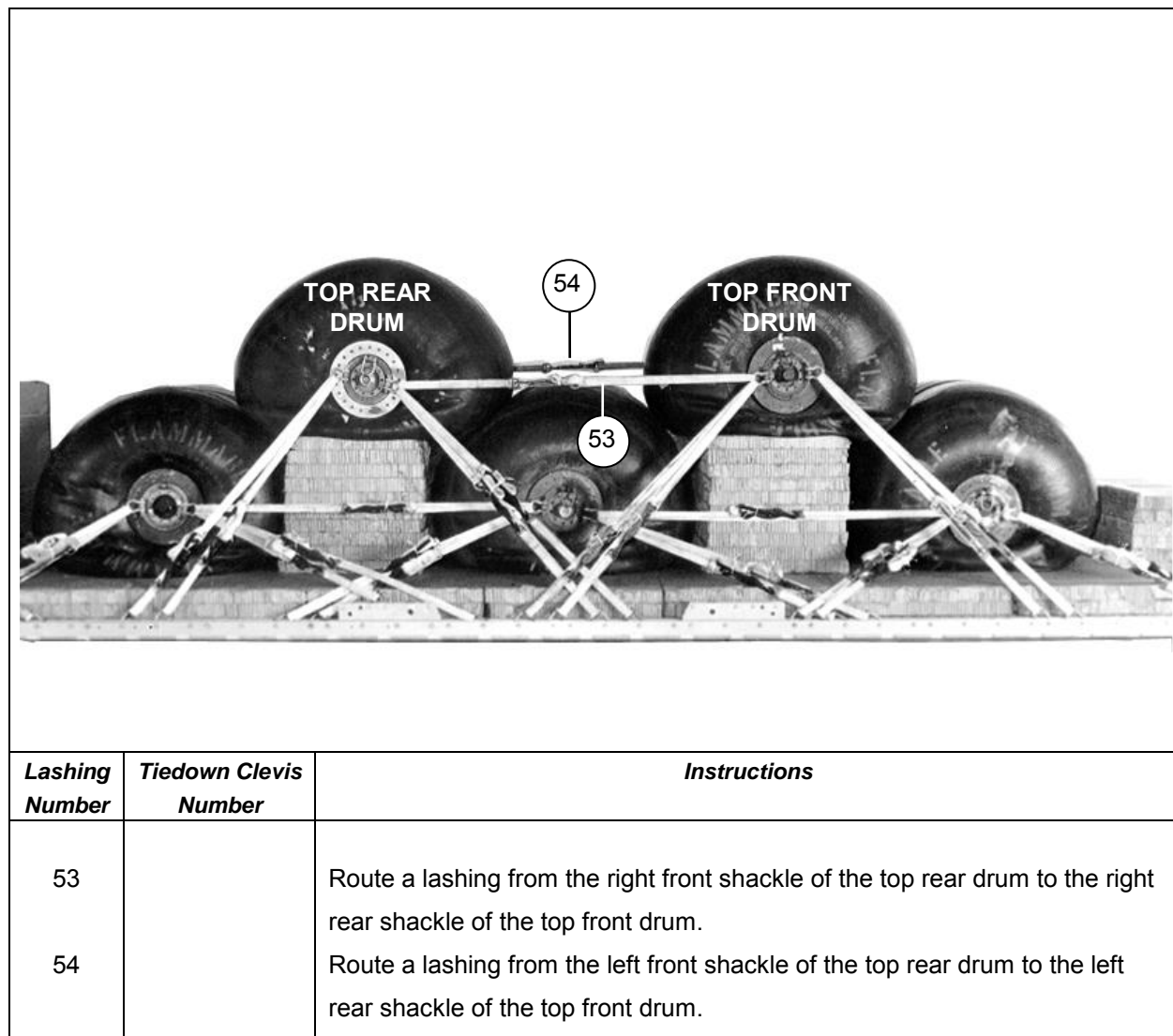


Steps.

1. Place a platform clevis on one end of two 9-foot (2-loop), type XXVI nylon webbing slings. Attach the slings to each side of the drum (for lifting purpose only) and remove after the drum is positioned (not shown).
2. Position the top front drum on stack 11 and centered from left to right on the platform.

Lashing Number	Tiedown Clevis Number	Instructions
45	7	Route a lashing from clevis 7 to the right front shackle of the drum.
46	7A	Route a lashing from clevis 7A to the left front shackle of the drum.
47	6	Route a lashing from clevis 6 to the right front shackle of the drum.
48	6A	Route a lashing from clevis 6A to the left front shackle of the drum.
49	15	Route a lashing from clevis 15 to the right rear shackle of the drum.
50	15A	Route a lashing from clevis 15A to the left rear shackle of the drum.
51	16	Route a lashing from clevis 16 to the right rear shackle of the drum.
52	16A	Route a lashing from clevis 16A to the left rear shackle of the drum.

Figure 18-12. Lashings 45 and 52 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
53		Route a lashing from the right front shackle of the top rear drum to the right rear shackle of the top front drum.
54		Route a lashing from the left front shackle of the top rear drum to the left rear shackle of the top front drum.

Figure 18-13. Lashings 53 and 54 Installed

PREPARING AND POSITIONING PUMP

18-12. Prepare the pump according to paragraph 15-5 and as shown in Figure 15-8. Position the pump as shown in Figure 16-14.

LASHING THE PUMP TO THE PLATFORM

18-13. Lash the pump to the platform as shown in Figure 18-14.

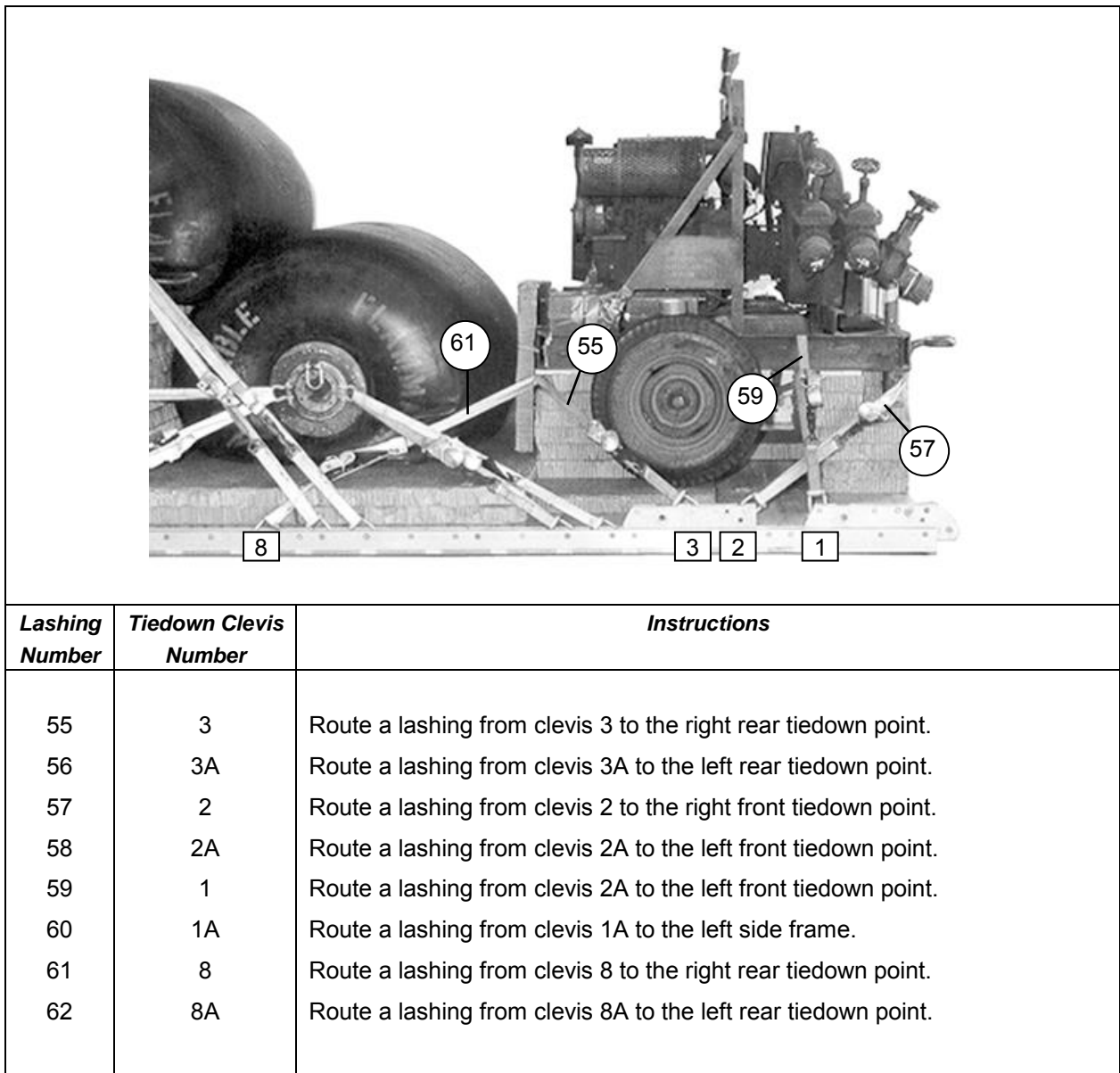
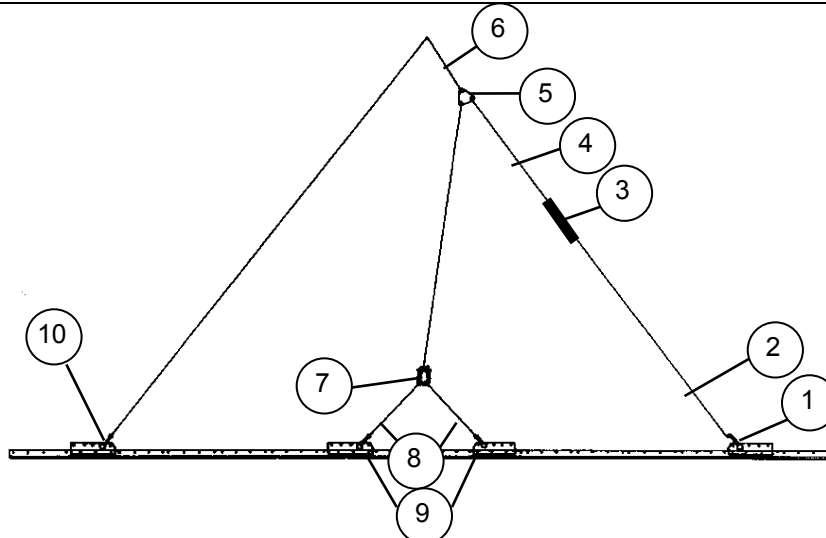


Figure 18-14. Lashings 55 and 62 Installed

INSTALLING SUSPENSION SLINGS AND SAFETY TIES

18-14. Install suspension slings and safety ties as shown in Figure 18-15.



- 1 Attach a large clevis to the first right suspension bracket.
- 2 Place a large clevis in one end of a 12-foot (4 loop), type XXVI nylon suspension sling. Attach the clevis to the clevis in step one. Safety them together with type III nylon cord using an hourglass tie.
- 3 Attach the running end of the 12-foot sling to a 5 ½ inch 2-point link.
- 4 Attach a 3-foot (4 loop), type XXVI nylon suspension sling to the 2-point link.
- 5 Attach a 3-point link to the 3-foot sling.
- 6 Attach a 3-foot (4 loop), type XXVI nylon suspension sling to the 3-point link.
- 7 Fold in half a 20-foot (2 loop), type XXVI nylon suspension sling on the final corner of the 3-point link.
- 8 Attach two 3-foot (4 loop), type XXVI nylon suspension slings to a large clevis and attach this clevis to the running ends of the folded 20-foot sling.
- 9 Attach one large clevis to each running end of the two 3-foot slings and attach one clevis to each second and third suspension brackets.
- 10 Place a large clevis in one end of a 20-foot (4 loop), type XXVI nylon suspension sling and attach the clevis to the right rear suspension bracket
- 11 Repeat steps 1 through 10 for the left side of the platform.
- 12 Raise the suspension slings and install the suspension sling safety ties as shown in Appendix A, to the front and rear suspension slings, six to eight inches above the highest point of the load (not shown).
- 13 Pad and tape the link assemblies (not shown).

Figure 18-15 Suspension Slings and Safety Ties Installed

COVERING THE PUMP

18-15. Place a canvas cover over the pump as shown in Figure 16-16.

BUILDING AND POSITIONING PARACHUTE STOWAGE PLATFORM

18-16. Build and position stowage platform as shown in Figure 18-16. Align the rear edge of the stowage platform on the rear edge of the box.

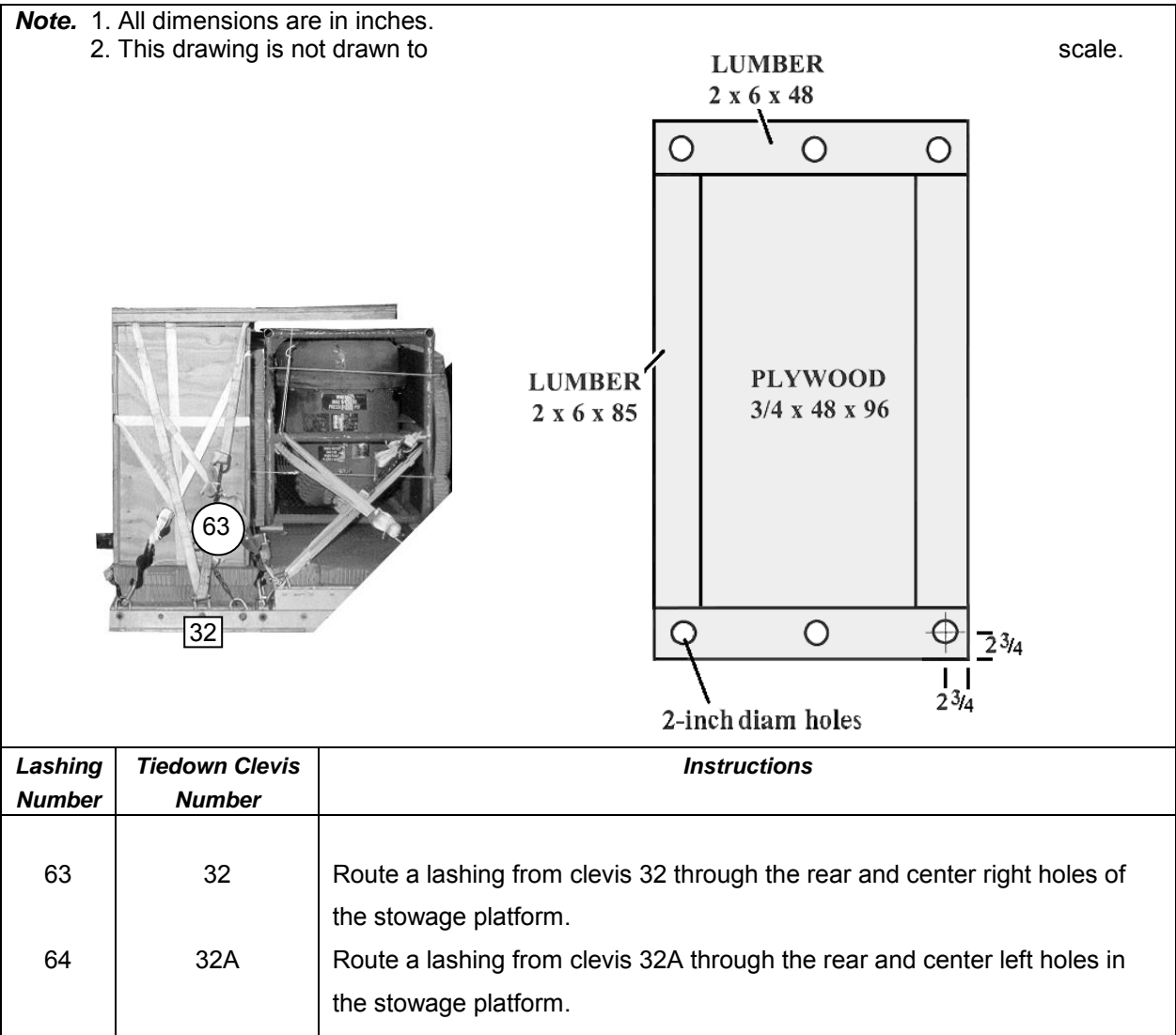


Figure 18-16. Parachute Stowage Platform Built and Positioned

PREPARING AND STOWING CARGO PARACHUTES

18-17. Prepare and stow cargo parachutes as shown in Figure 18-17.

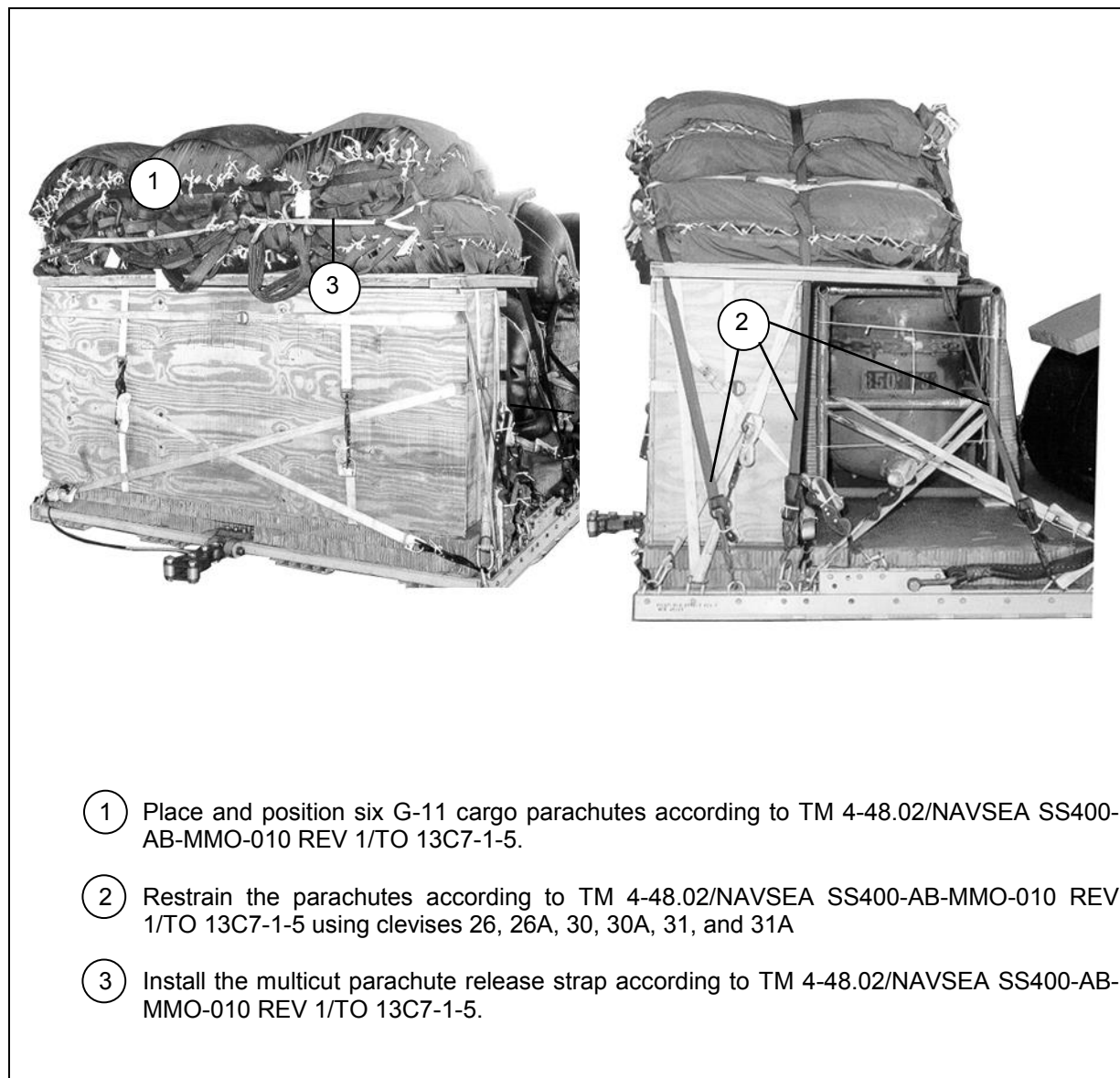
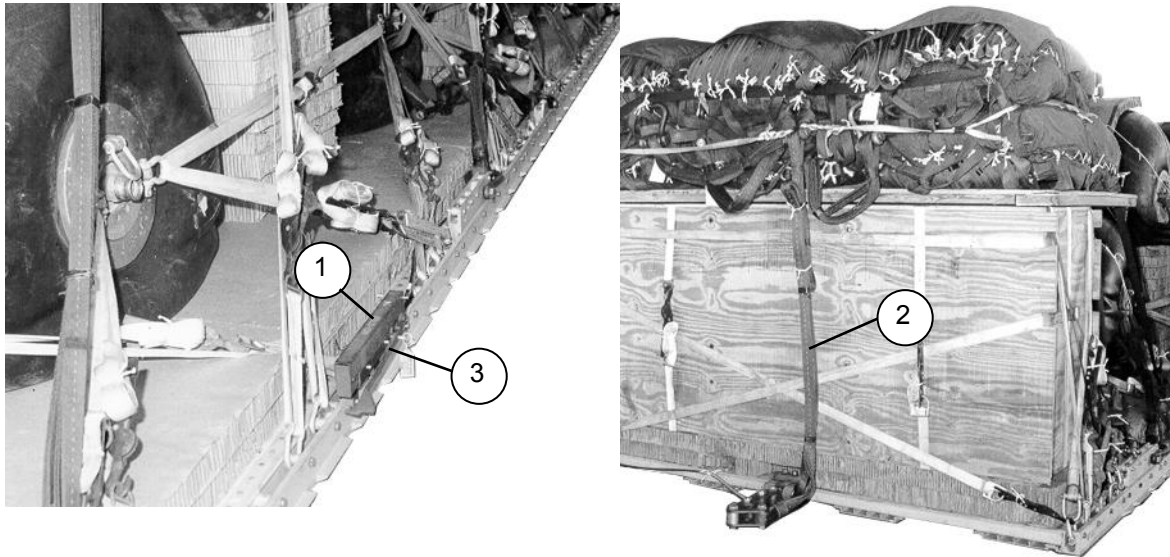


Figure 18-17. Cargo Parachutes Prepared and Stowed

INSTALLING THE EXTRACTION SYSTEM

18-18. Install the extraction system as shown in Figure 18-18.

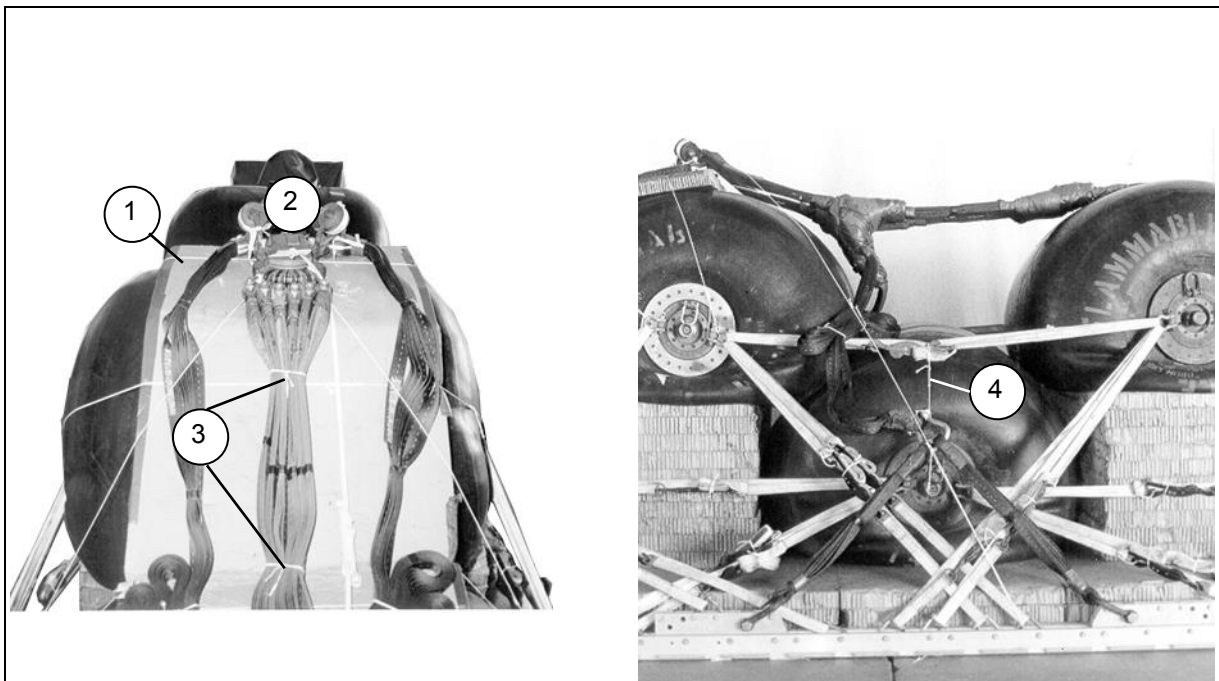


- ① Install the extraction force transfer coupling according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Install a 9-foot (2 loop), type XXVI nylon sling as the deployment line.
- ③ Use the rear mounting holes for the extraction force transfer coupler actuator mounting bracket and a 28-foot cable.

Figure 18-18. Extraction System Installed

INSTALLING THE PARACHUTE RELEASE SYSTEM

18-19. Install the release system as shown in Figure 18-19.



- ① Place and secure a 96-inch by 36-inch piece of honeycomb from the separator to the top of the rear drum, securing it with type III nylon cord.
- ② Position and secure the M-2 parachute release assembly on the honeycomb. Attach the suspension slings and parachute riser extensions to the M-2 parachute release assembly according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ③ S-fold and tie any slack in the suspension slings with type I, 1/4-inch cotton webbing (not shown). Tie the riser extensions together with type I, 1/4-inch cotton webbing.
- ④ Secure the large clevis attached to the folded 20-foot suspension sling to the lashing installed between the top two drums with a piece of type III nylon cord.

Figure 18-19. Release System Installed

PLACING EXTRACTION PARACHUTE

18-20. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

18-21. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

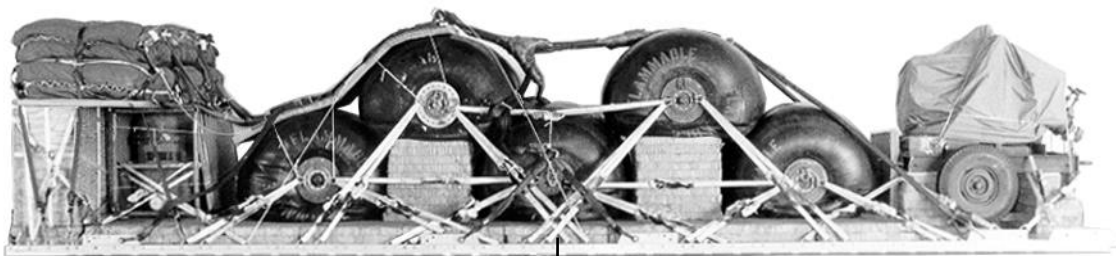
18-22. Mark the rigged load according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 and as shown in Figure 18-20. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, center of balance (CB), and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

18-23. Use the equipment list in Table 18-1 to rig the load shown in Figure 18-20.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	28,855 pounds
Maximum load allowed.....	30,355 pounds
Height.....	75 inches
Width	108 inches
Length	411 inches
Overhang: Front	9 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	198 inches
Extraction System	Extraction Force Transfer Coupler

Figure 18-20. Five 500-Gallon Drums with Pump and Separator Rigged for Low-Velocity Airdrop

Table 18-1. Equipment Required for Rigging Five 500-Gallon Drums with Pump and Separator

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-279-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Droque Extraction System)	1
4030-00-090-5354	Clevis, large	13
4030-00-678-8562	Clevis, medium	6
8305-00-880-8155	Cloth coated, green, 60-inch	As required
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-01-326-7309	Coupling, airdrop, extraction force transfer w.28-foot	1
1670-00-360-0328	Cover, clevis, large	6
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-01-183-2678	Leaf, extraction line (line bag) (add 2 for Droque Extraction System)	2
1670-01-064-4452	Line, drogue (for C-17): 60-foot (1 loop), type XXVI	1
1670-01-062-6304	Line, deployment: 9-foot (2 loop), type XXVI	1
1670-01-062-6313	Line, extraction:	
1670-01-107-7551	For C-130: 60-foot (3 loop), type XXVI	1
	For C-17: 140-foot (3 loop), type XXVI	1
	Link assembly:	
5306-00-435-8994	Two-point:	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	4
1670-00-003-1954	Nut, 1-inch, hexagonal	4
5365-00-007-3414	Plate, side, 5 ½ inch	4
	Spacer, large	4
5303-00-435-8994	Two-point: (for Droque Extraction System)	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1953	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 3 ¾ inch	2
1670-01-307-1055-	Spacer, large	2
1670-00-006-2752	Three point	2
1670-01-483-8259	Four point	1
	Link, tow release mechanism (H-Block) C-17 aircraft	1
5510-00-220-6146	Lumber:	
5510-00-220-6148	2-by-4 inch	As required
5315-00-010-4659	2-by-6 inch	As required
1670-00-753-3928	Nail, steel wire, common, 8-penny	As required
	Pad, energy dissipating, honeycomb, 3-by-36-by96 inches	38 sheets
1670-01-016-7841	Parachute:	
1670-00-040-8135	Cargo, G-11C	6
1670-01-063-3715	Cargo, extraction, 28 foot	2
	Droque, 15 foot (for Droque Extraction System)	1

Table 18-1. Equipment Required for Rigging Five 500-Gallon Drums with Pump and Separator (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 32-foot:	
1670-01-247-2389	Bracket assembly, component, (extraction force transfer coupler)	1
1670-01-162-2372	Bracket, suspension	8
1670-01-353-8424	Clevis assembly, type V	72
1670-01-162-2381	Extraction bracket assembly	1
5530-00-618-8073	Link, tandem, suspension link assembly	2
1670-01-097-8817	Plywood, ¾-by-48-by-96 inches	4 sheets
	Release, cargo parachute, M-2	1
	Sling, cargo airdrop	
1670-01-062-6306	For suspension:	
1670-01-062-6307	3-foot (4 loop), type XXVI nylon webbing	8
1670-01-064-4453	12-foot (4 loop), type XXVI nylon webbing	2
1670-01-062-6302	20-foot (4 loop), type XXVI nylon webbing	2
	20-foot (2 loop), type XXVI nylon webbing	2
1670-01-062-6311	For riser extension:	
1670-00-040-8219	120-foot (2 loop), type XXVI nylon webbing	6
7510-00-266-5016	Strap, parachute release, multicut	2
7510-00-266-6710	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tape, masking, 2-inch	As required
	Tiedown assembly, 15 foot	61
8305-00-268-2411	Webbing:	
8305-00-082-5752	Cotton, ¼ inch, type I	As required
8305-00-260-6890	Nylon, tubular, ½ inch	As required
	Type X	As required

Chapter 19

Rigging Six 500-Gallon Drums

DESCRIPTION OF LOAD

19-1. The six collapsible fuel drums are rigged on a 32-foot, type V platform with seven G-11 cargo parachutes. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The five drums have a 350-gallons-per-minute pump with a separator and hose box as an accompanying load. The total rigged load has a maximum weight of 34,480 pounds with a width of 108 inches and length of 411 inches. It has an overhang of 9 inches in the front and 18 inches in the rear.

-
- Note.** 1. For drums filled with a liquid other than water, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.
-

PREPARING PLATFORM

19-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 72 tiedown clevises as shown in Figure 19-1.

-
- Note.** 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.
-

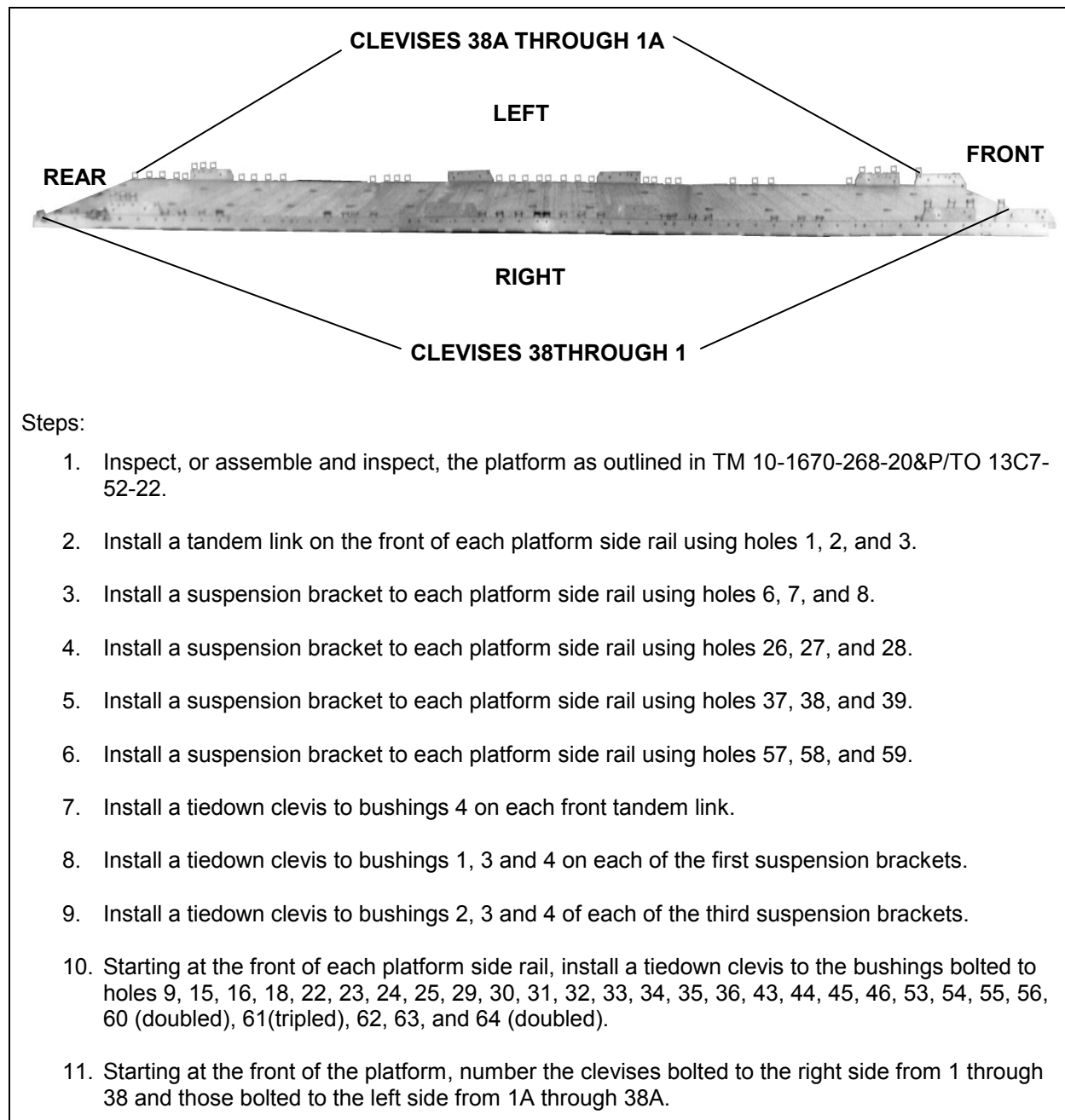
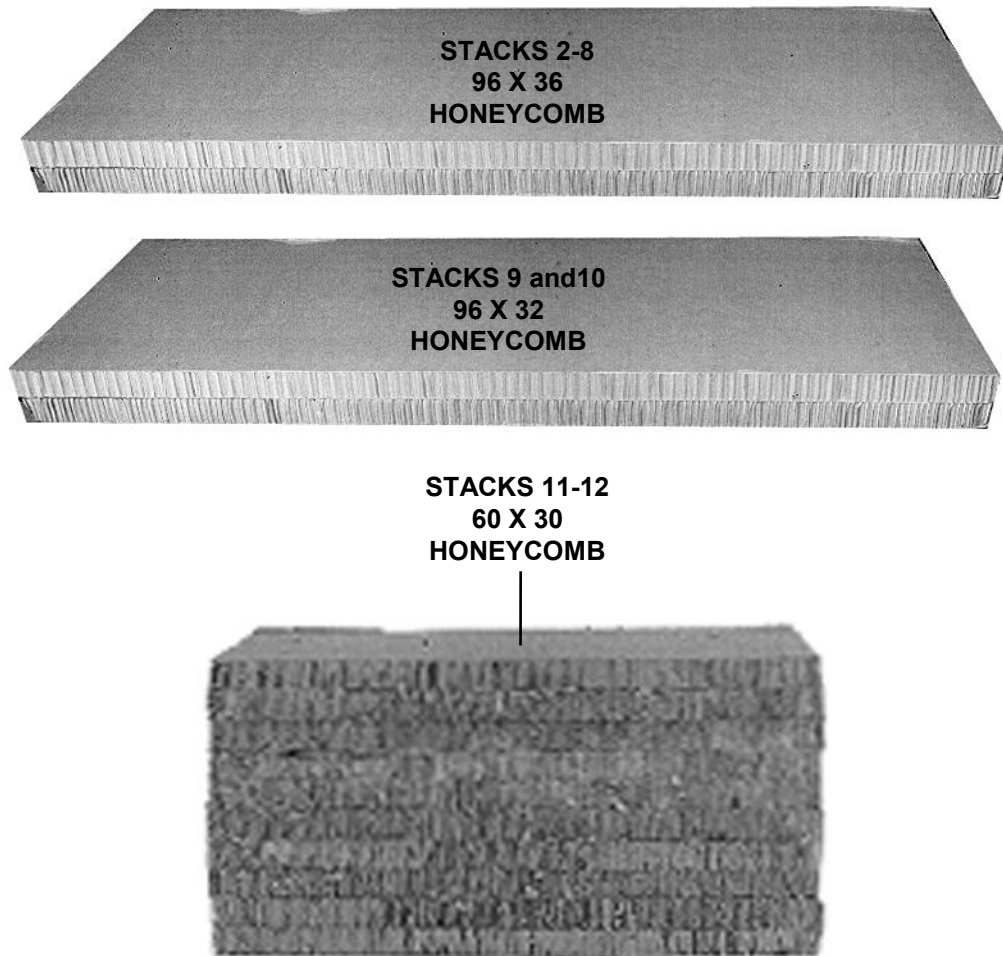


Figure 19-1. Platform Prepared

PREPARING HONEYCOMB

19-3. Build honeycomb stacks as shown in Figure 19-2.

Note. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1					Prepare as shown in Figure 16-2.
2-8	2	96	36	Honeycomb	Glue layers together.
9-10	2	96	32	Honeycomb	Glue layers together.
11-12	10	60	30	Honeycomb	Glue layers together

Figure 19-2. Honeycomb Stack 10 Prepared

POSITIONING HONEYCOMB STACKS

19-4. Position honeycomb stacks as shown in Figure 19-3.

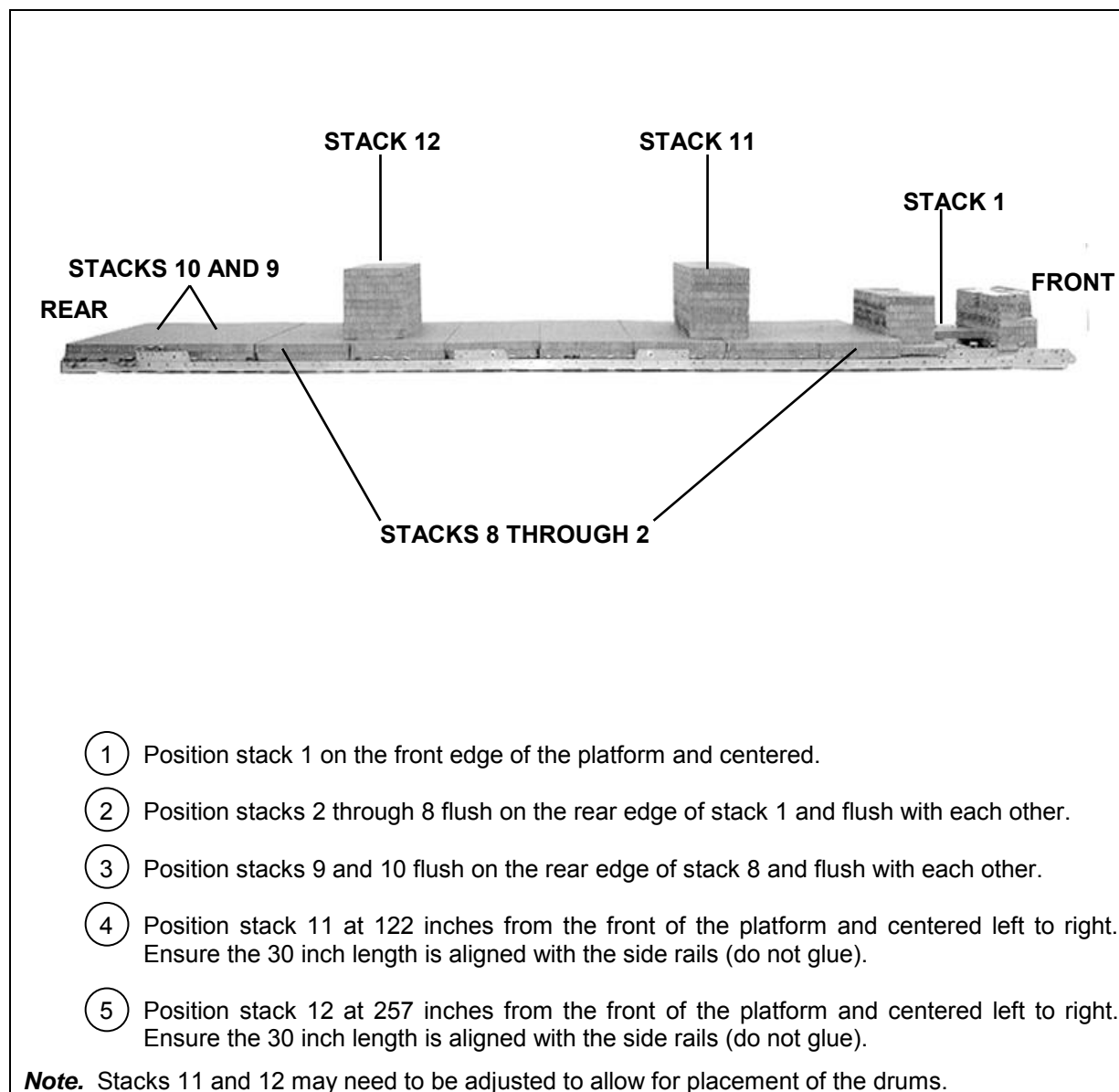


Figure 19-3. Honeycomb Stacks Positioned

BUILDING EQUIPMENT HOSE BOX

19-5. Build the equipment box as shown in Figure 16-5.

POSITIONING EQUIPMENT HOSE BOX

19-6. Position the equipment hose box as shown in Figure 16-6.

STORING EQUIPMENT IN THE EQUIPMENT HOSE BOX

19-7. Store the equipment in the equipment hose box as shown in Figure 16-7.

LASHING EQUIPMENT HOSE BOX TO PLATFORM

19-8. Lash the equipment hose box to the platform as shown in Figure 19-4 and 19-5.

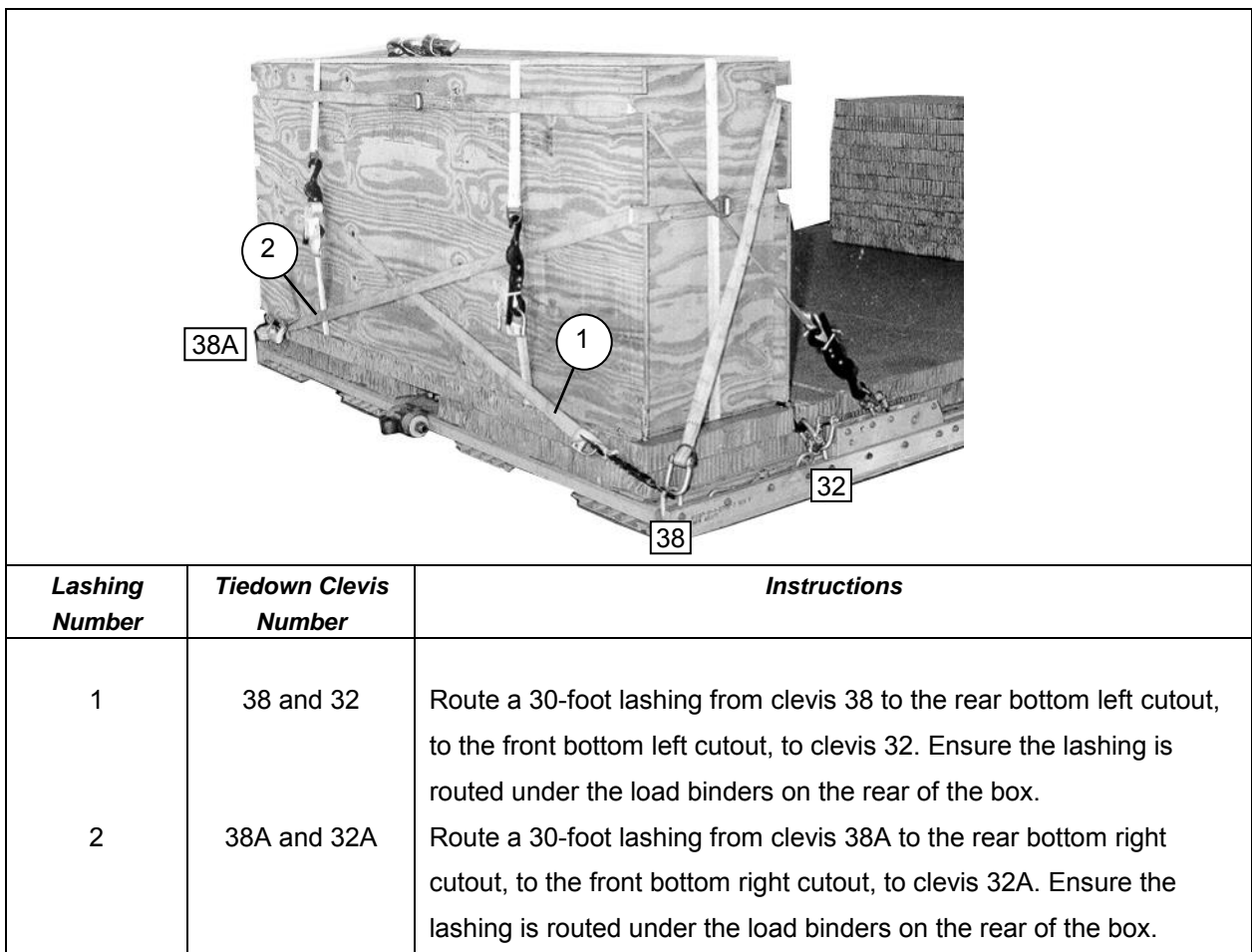
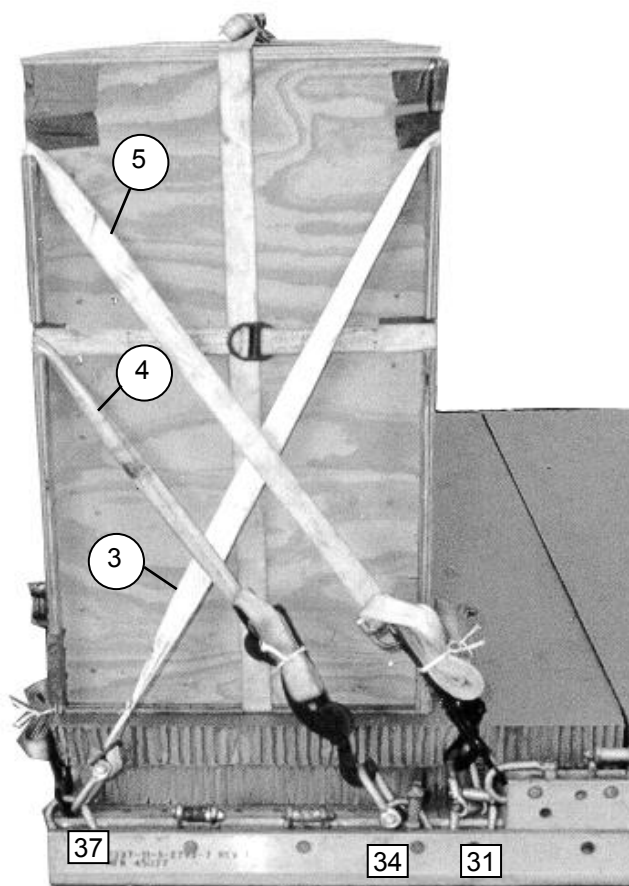


Figure 19-4. Lashings 1 and 2 Installed

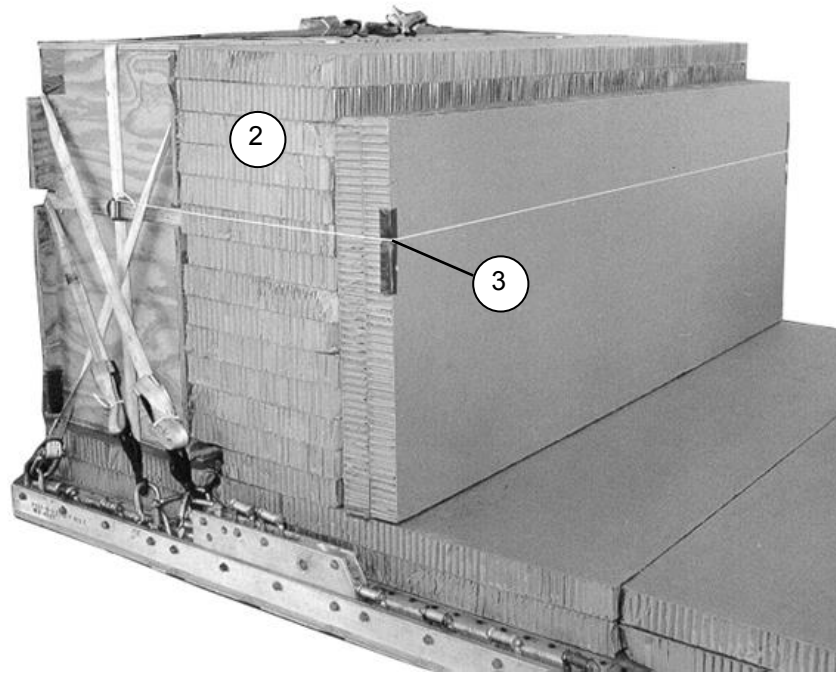


<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
3	37 and 37A	Route a lashing through clevis 37 and back through its own D-ring. Repeat for clevis 37A. Route lashings through top front cutouts and load bind in center of equipment box.
4	34 and 34A	Route a lashing through clevis 34A and back through its own D-ring to the bottom rear cutouts to clevis 34.
5	31 and 31A	Route a 30-foot lashing through the rear top cutouts and load bind to clevises 31 and 31A.

Figure 19-5. Lashings 3 Through 5 Installed

POSITIONING AND SECURING PARACHUTE STACK

19-9. Position and secure parachute stack as shown in Figure 19-6.

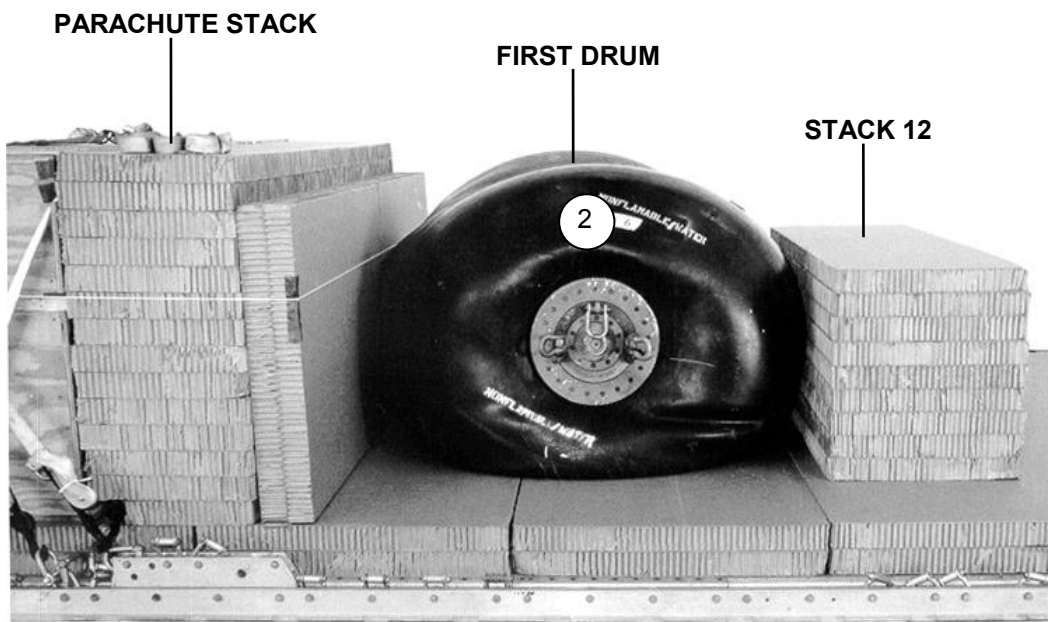


- (1) Cut 14 pieces of 96-inch by 18-inch honeycomb and glue them together.
- (2) Position the parachute stack flush against the front of the equipment hose box.
- (3) Place two pieces of 96-inch by 36-inch honeycomb on edge in front of the parachute stack. Tape the edge and secure with type III nylon cord.

Figure 19-6. Parachute Stack Positioned

POSITIONING AND LASHING THE DRUMS

19-10. Position and lash the drums as shown in Figure 19-7 through 19-15.



Note. Stacks 11 and 12 may need to be moved during placement of drums.

- ① Place a platform clevis on one end of two 9-foot (2 loop), type XXVI nylon slings. Attach sling to each side of the drum (for lifting purposes only) and remove after positioning (not shown).
- ② Position the first drum centered left to right on the platform and in front of the parachute stack.

Figure 19-7. Drums Positioned on Platform

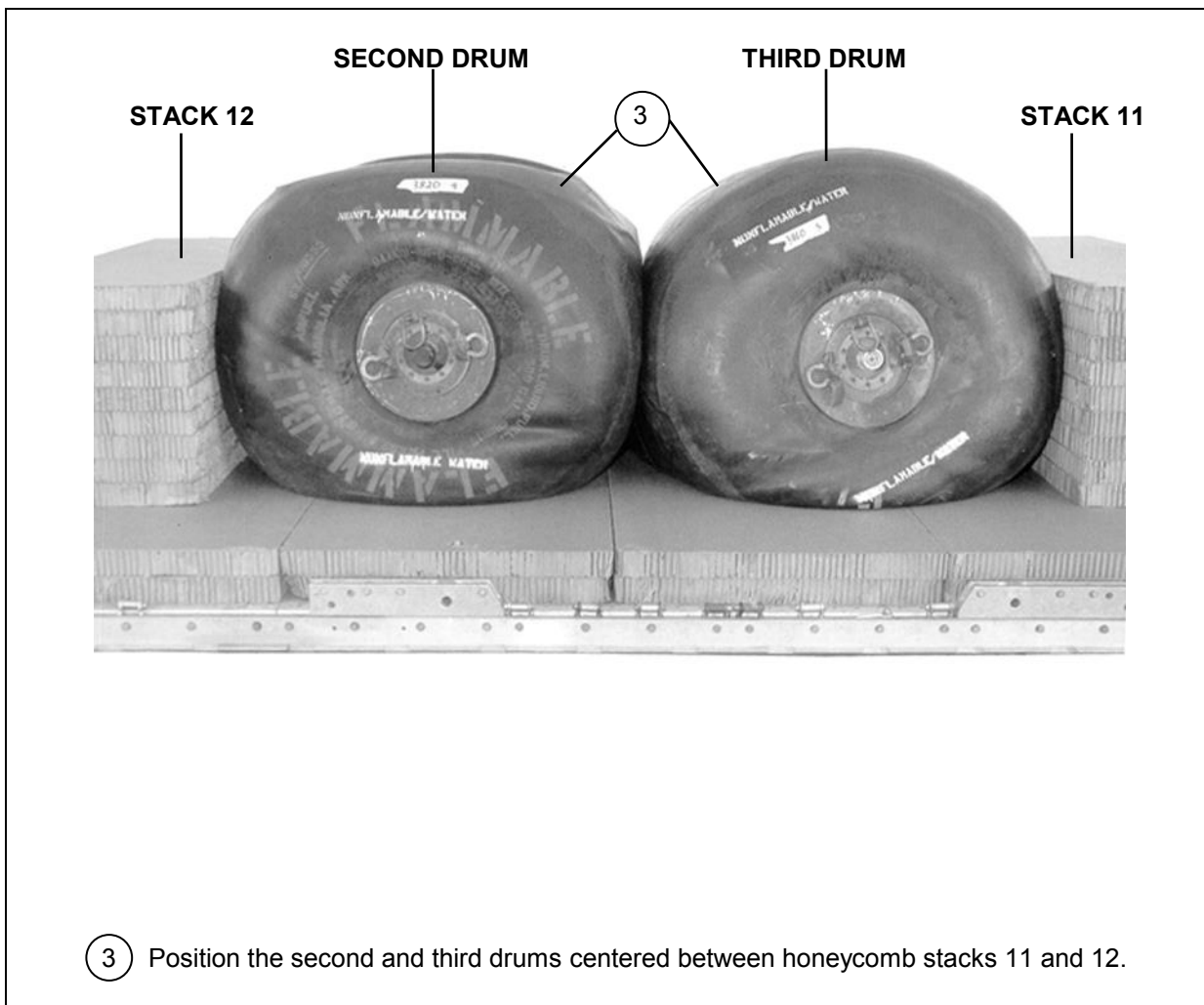


Figure 19-7. Drums Positioned on Platform (Continued)

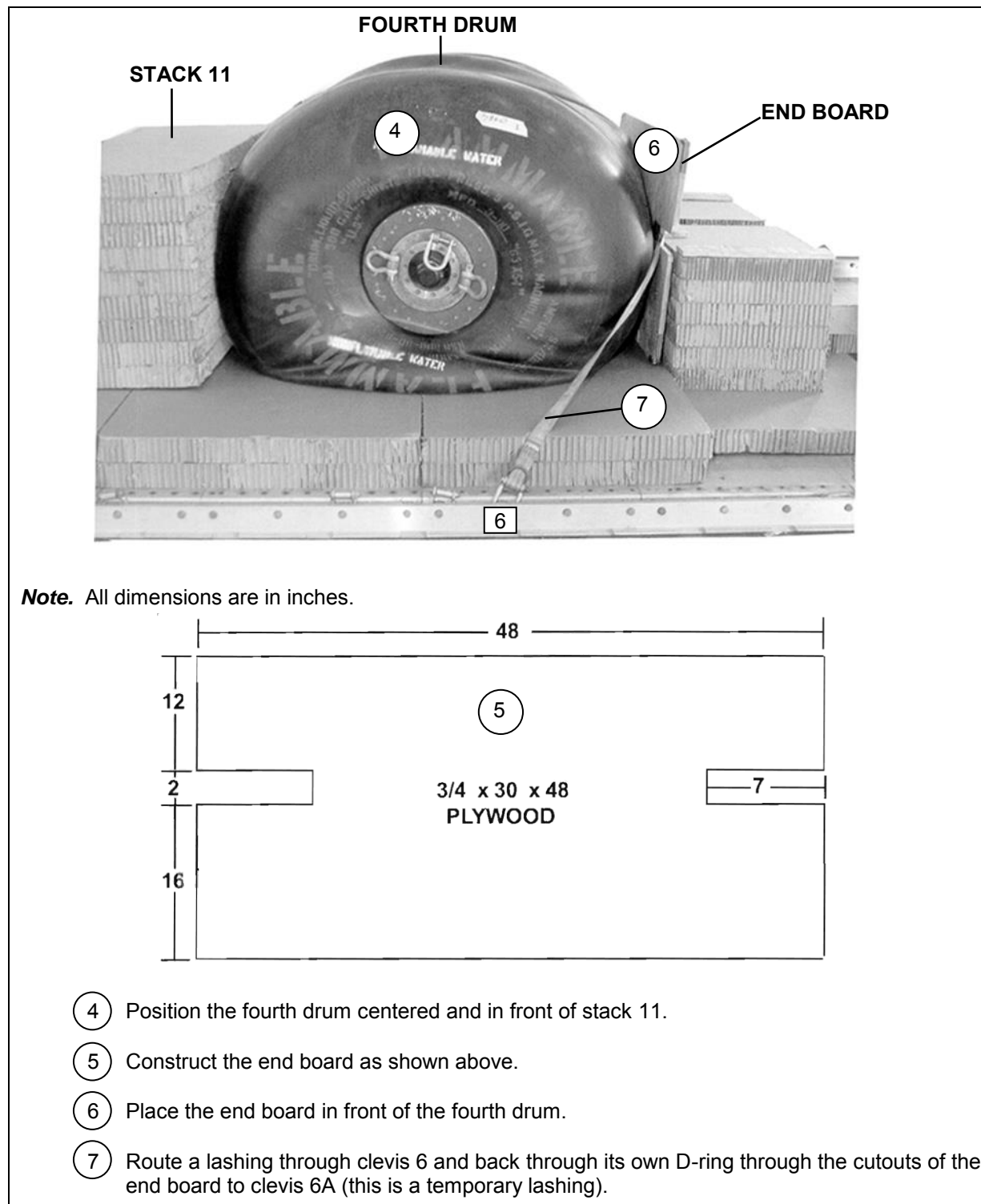


Figure 19-7. Drums Positioned on Platform (Continued)

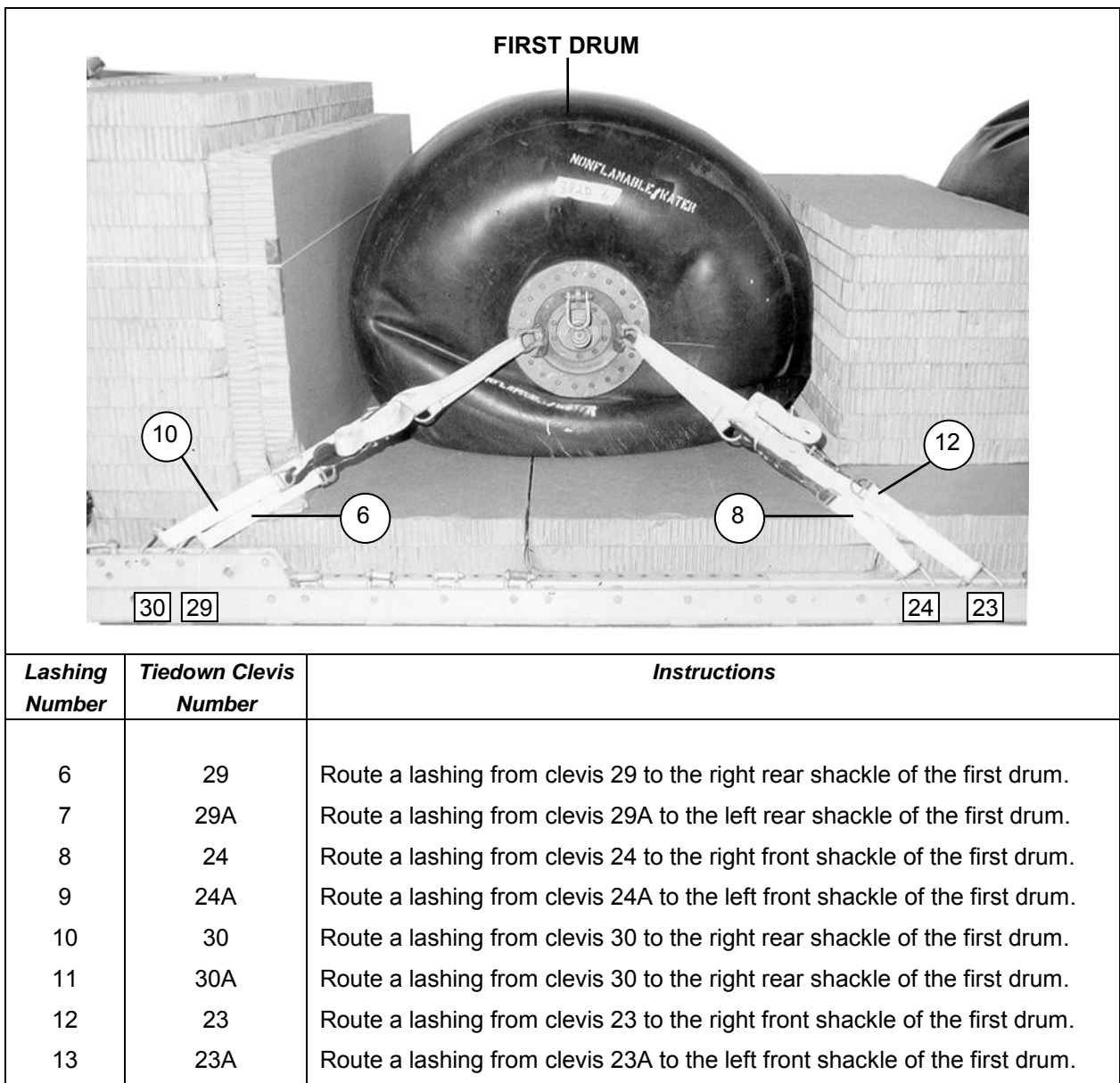


Figure 19-8. Lashings 6 Through 13 Installed

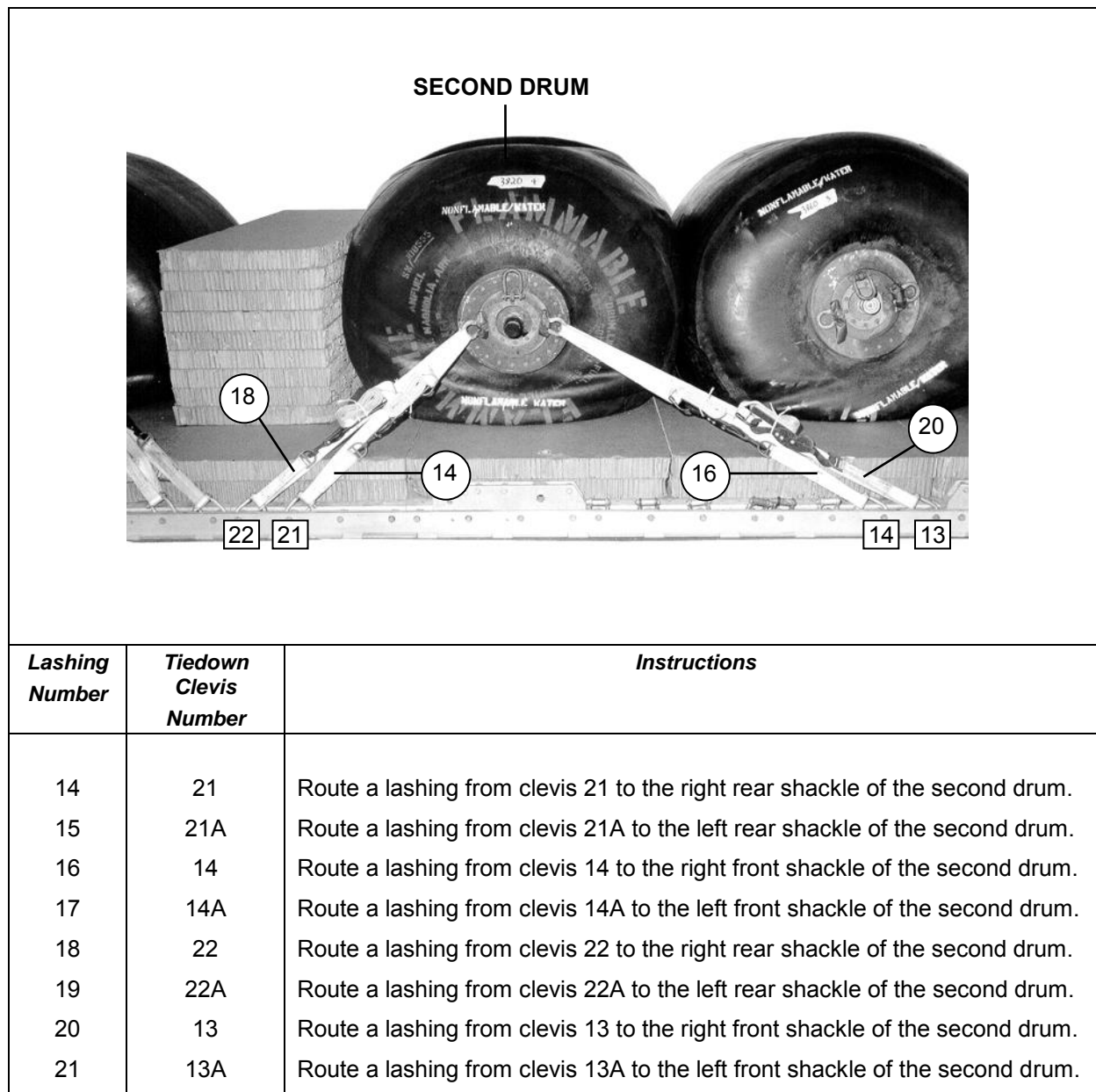


Figure 19-9. Lashings 14 Through 21 Installed

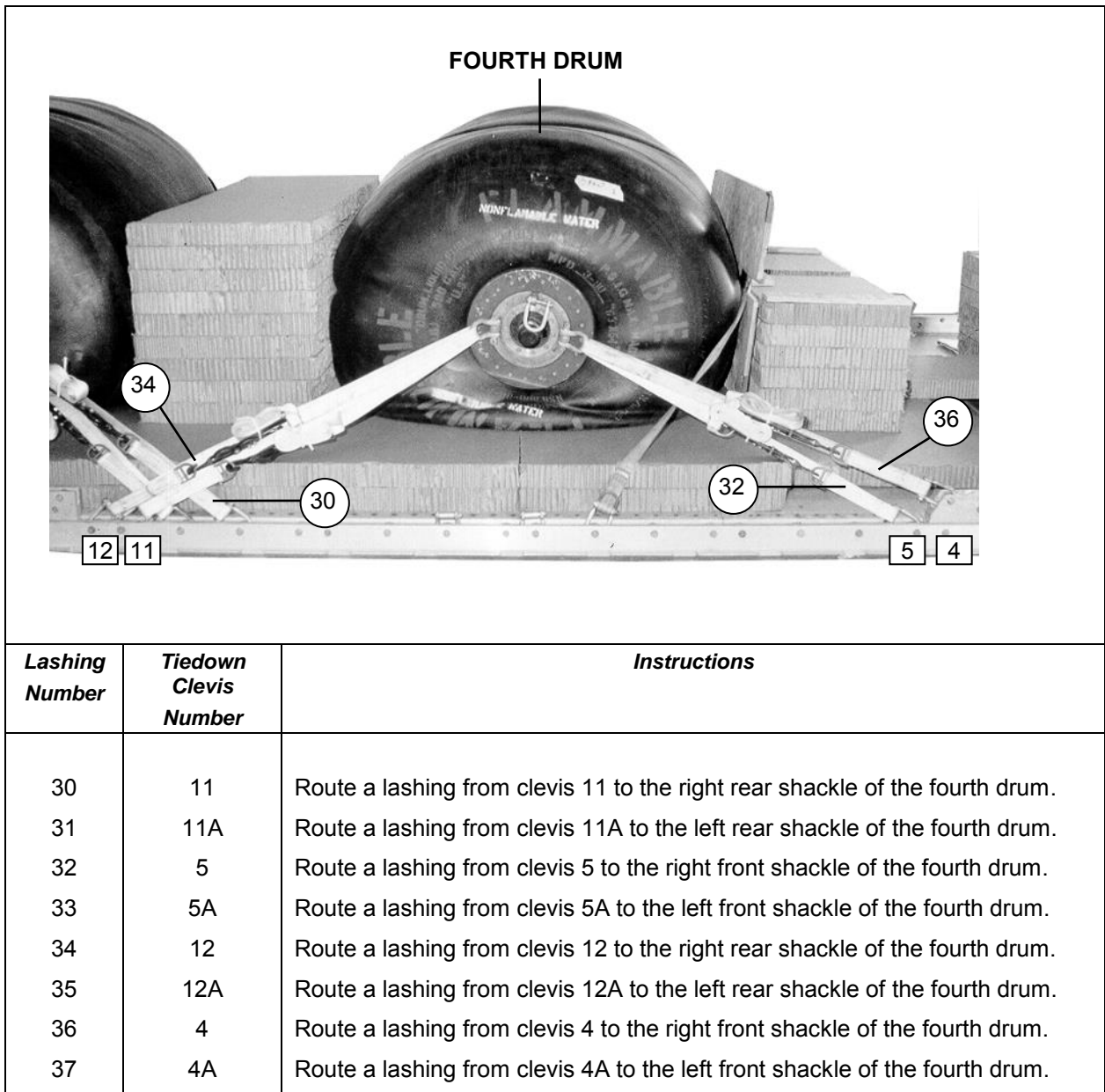


Figure 19-11. Lashings 30 Through 37 Installed

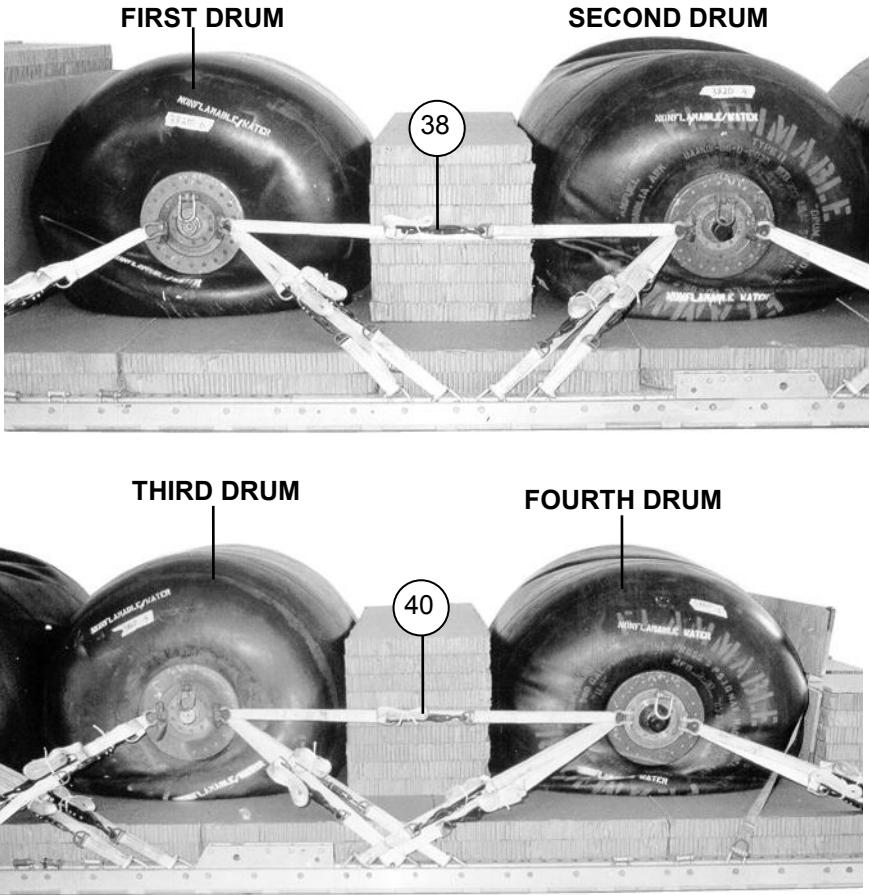
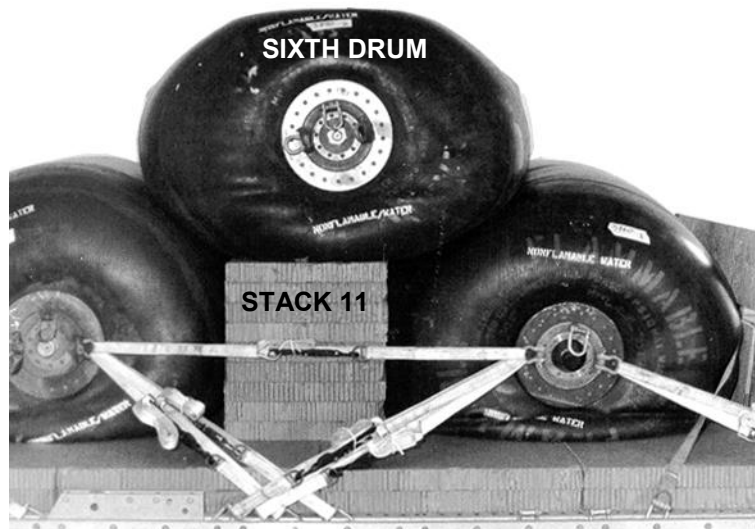
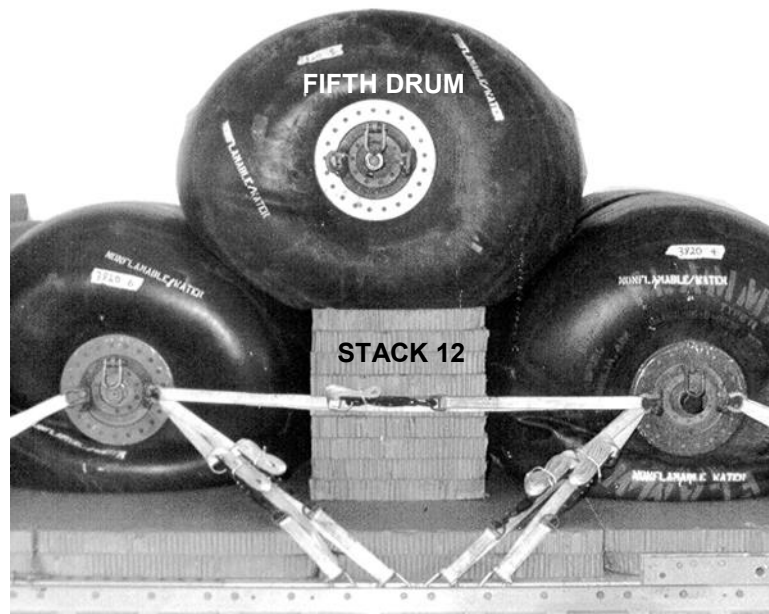
		
Lashing Number	Tiedown Clevis Number	Instructions
38		Route a lashing from the front shackle of the first drum to the rear shackle of the second drum on the right side.
39		Route a lashing from the front shackle of the first drum to the rear shackle of the second drum on the left side.
40		Route a lashing from the front shackle of the third drum to the rear shackle of the fourth drum on the right side.
41		Route a lashing from the front shackle of the third drum to the rear shackle of the fourth drum on the left side.

Figure 19-12. Lashings 38 Through 41 Installed



- ① Position the fifth drum centered on top of stack 12.
- ② Position the sixth drum centered on top of stack 11. Place the end board in front of the fourth drum.

Figure 19-13. Drums Positioned on Platform

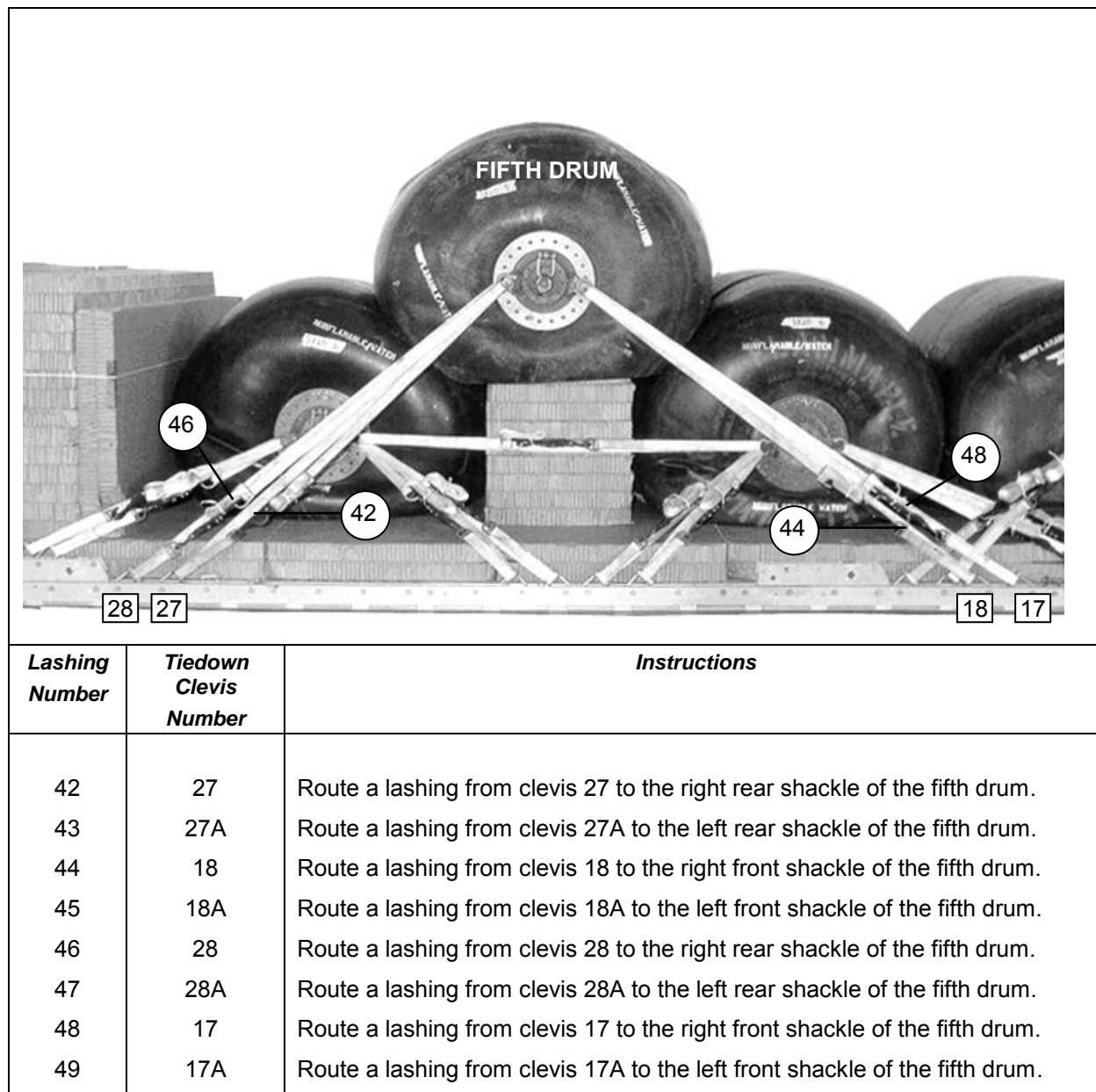
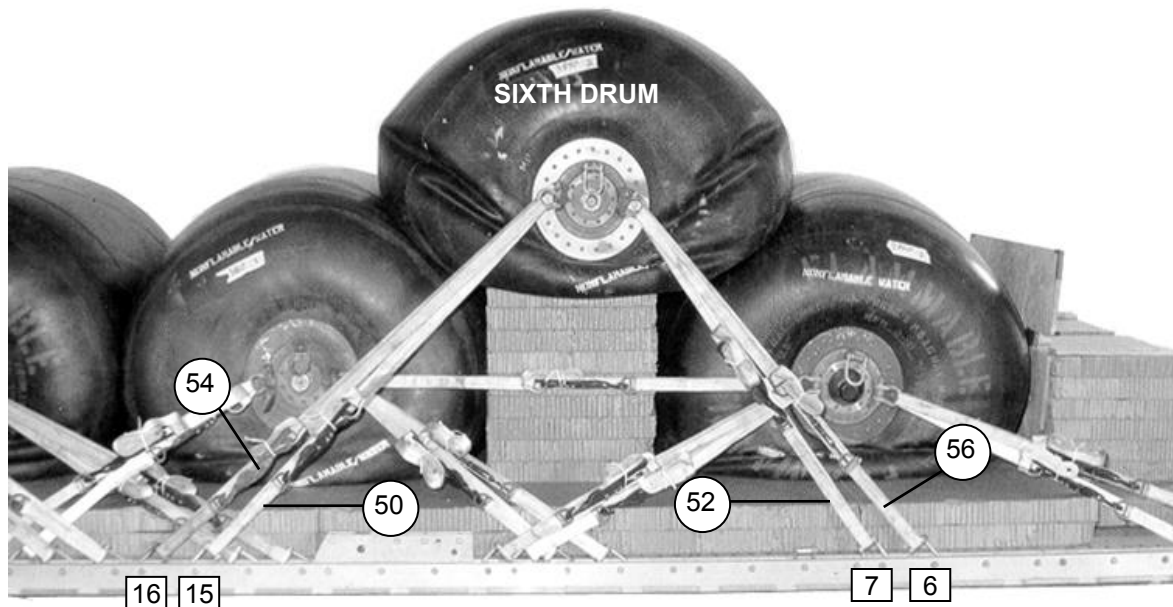


Figure 19-14. Lashings 42 Through 49 Installed



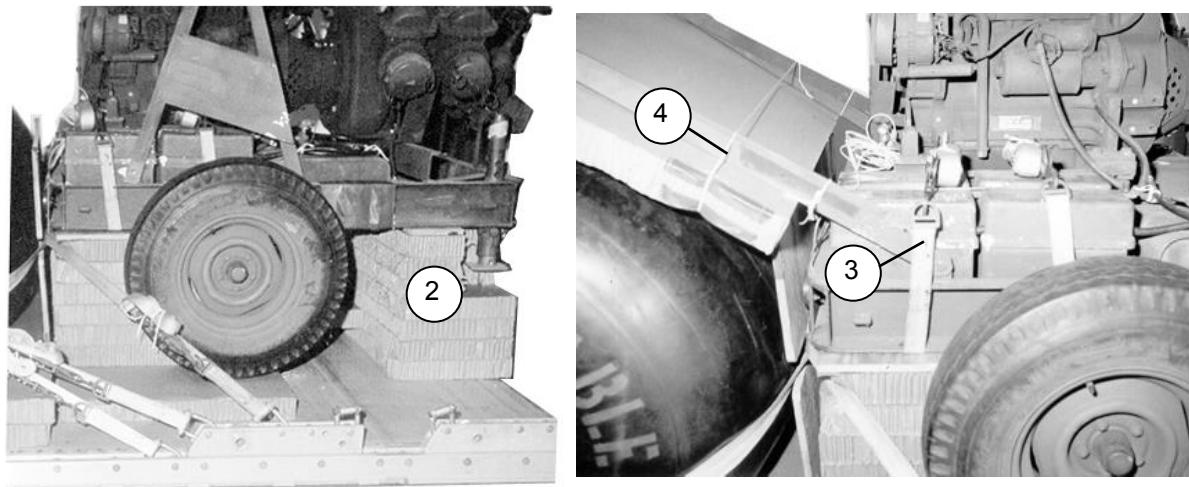
Note. Remove the temporary end board lashing on clevises 6 and 6A.

Lashing Number	Tiedown Clevis Number	Instructions
50	15	Route a lashing from clevis 15 to the right rear shackle of the sixth drum.
51	15A	Route a lashing from clevis 15A to the left rear shackle of the sixth drum.
52	7	Route a lashing from clevis 7 to the right front shackle of the sixth drum.
53	7A	Route a lashing from clevis 7A to the left front shackle of the sixth drum.
54	16	Route a lashing from clevis 16 to the right rear shackle of the sixth drum.
55	16A	Route a lashing from clevis 16A to the left rear shackle of the sixth drum.
56	6	Route a lashing from clevis 6 to the right front shackle of the sixth drum.
57	6A	Route a lashing from clevis 6A to the left front shackle of the sixth drum.

Figure 19-15. Lashings 50 Through 57 Installed

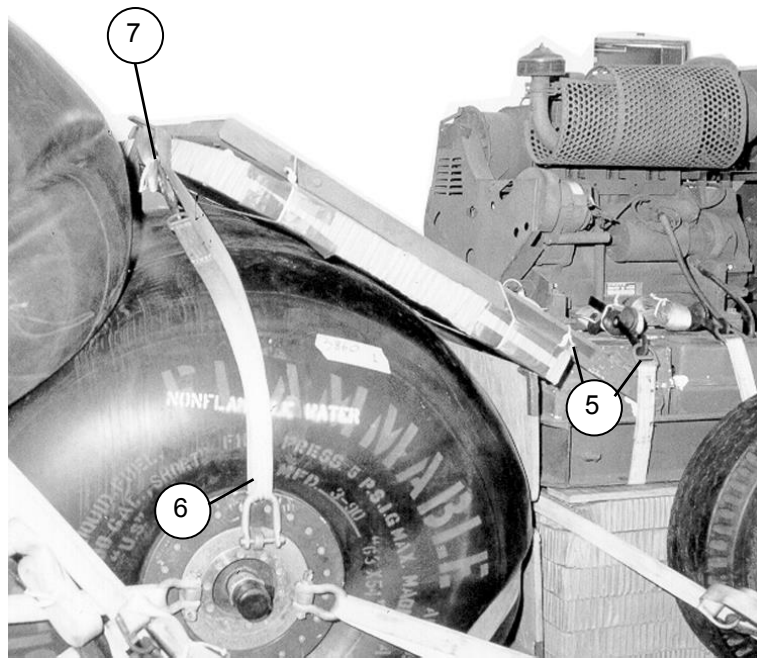
PREPARING AND POSITIONING THE PUMP

19-11. Prepare the pump as shown in Figure 15-8. Position the pump as shown in Figure 19-16.



- ① Preposition two lashings in each of the rear tiedown points on the pump (not shown).
- ② Position the pump on honeycomb stack 1 aligning the front frame edge with the front edge of the platform.
- ③ Unbolt the lower arm of the pump lifting frame and secure it to the frame with type III nylon cord and disconnect the lashing around the battery box.
- ④ Tape the edges of a 53-inch by 36-inch piece of honeycomb and secure it to the rear lifting frame with type III nylon cord.

Figure 19-16. Pump Prepared and Positioned



- ⑤ Position the lifting frame on the fourth drum and reconnect the lashing around the battery box
- ⑥ Route a lashing through the top right shackle on the fourth drum over and through the lifting point on the frame. Continue to route the same lashing through the top left shackle on the fourth drum back over and through the lifting point on the same frame. Secure the load binder and D-ring.
- ⑦ Secure a piece of felt on the lifting point with type III nylon cord.
- ⑧ Secure a canvas cover over the pump and secure with type III nylon cord (not shown).

Figure 19-16. Pump Prepared and Positioned (Continued)

LASHING PUMP TO PLATFORM

19-12. Lash the pump to the platform as shown in Figure 19-17.

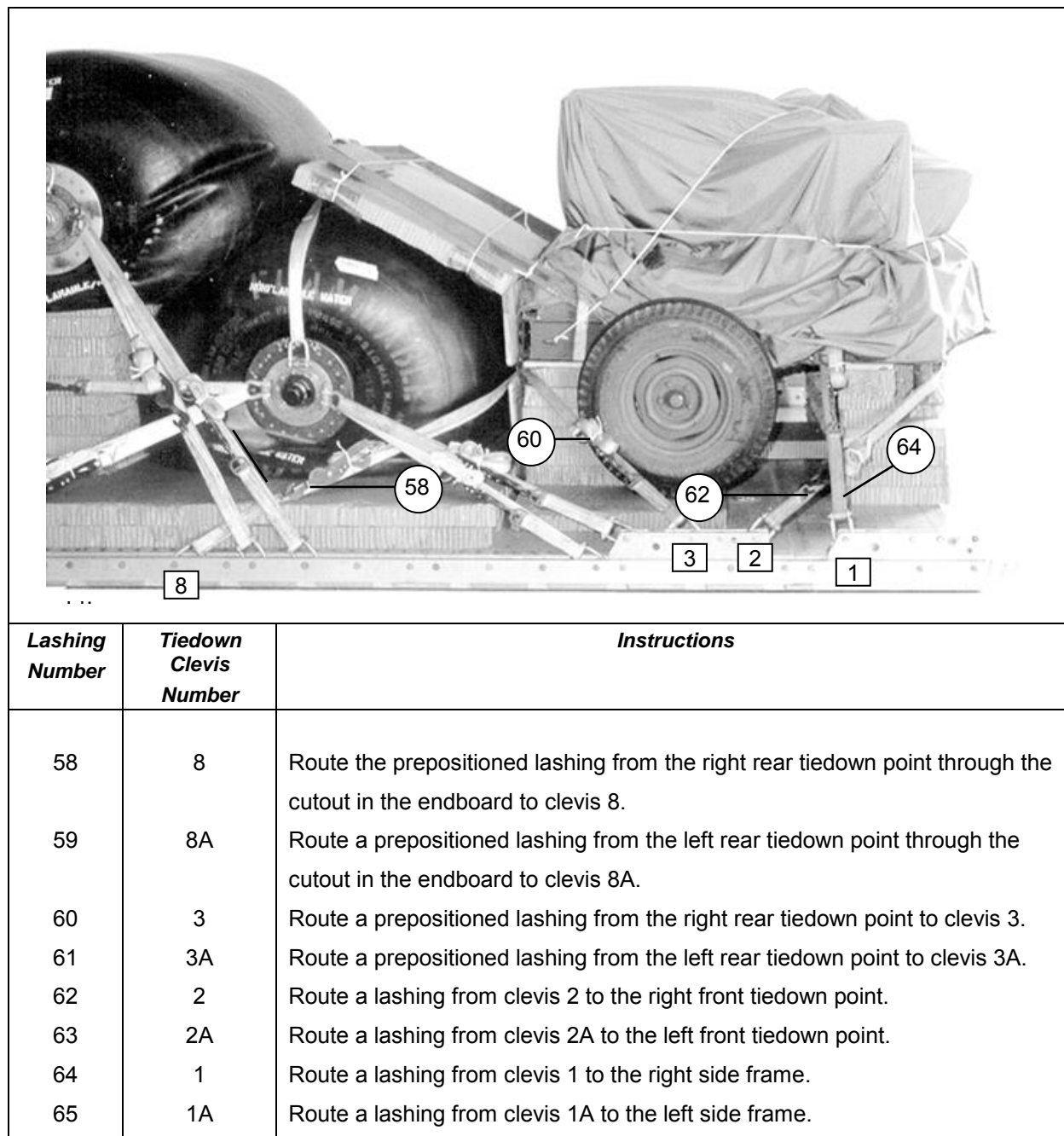


Figure 19-17. Lashings 58 Through 65 Installed

BUILDING AND PLACING THE SEPARATOR BOX

19-13. Construct a Separator Box, place separator, and position as shown in figure 19-18 through 19-21.

- Note.** 1. Not drawn to scale.
2. All dimensions are given in inches

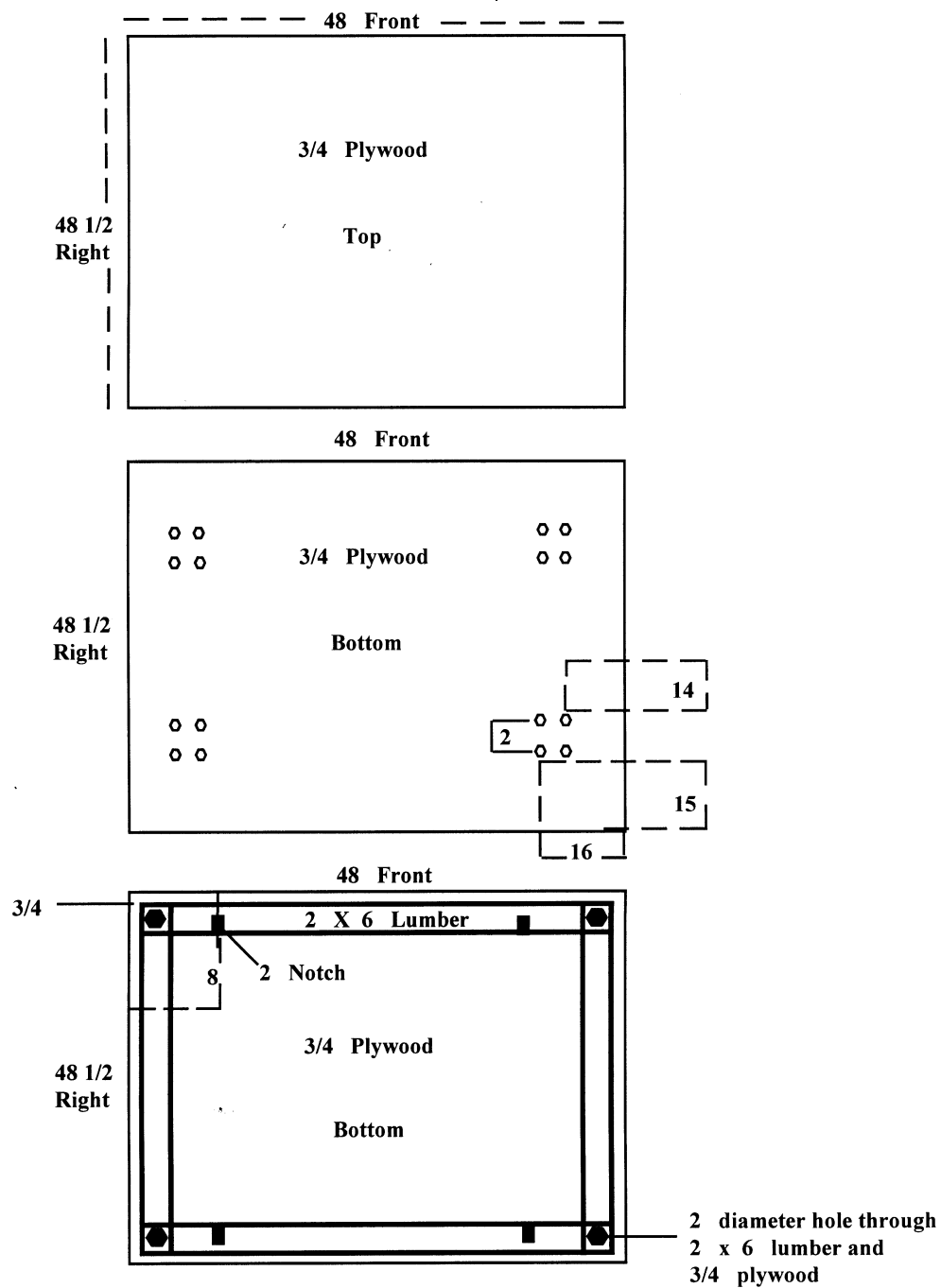


Figure 19-18. Separator Box Built

- Note.** 1. Not drawn to scale.
2. All dimensions are given in inches.

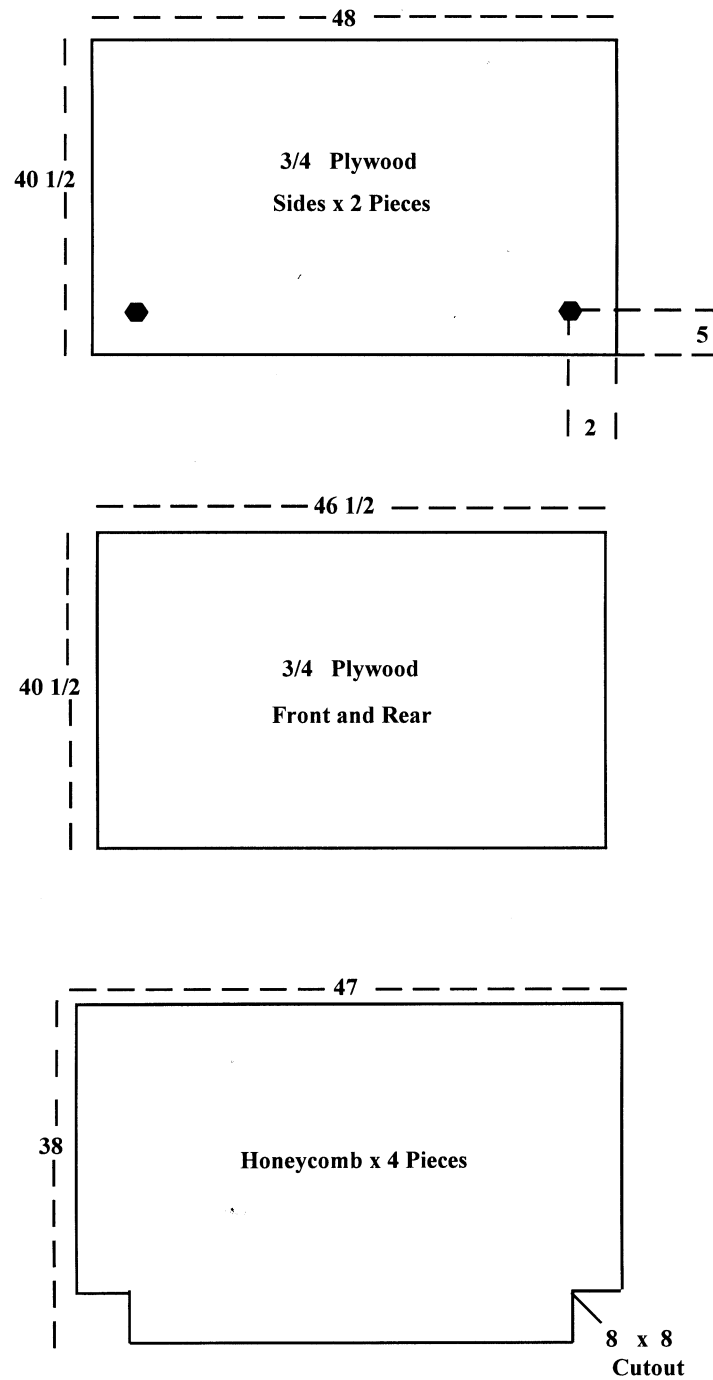


Figure 19-18. Separator Box Built (Continued)

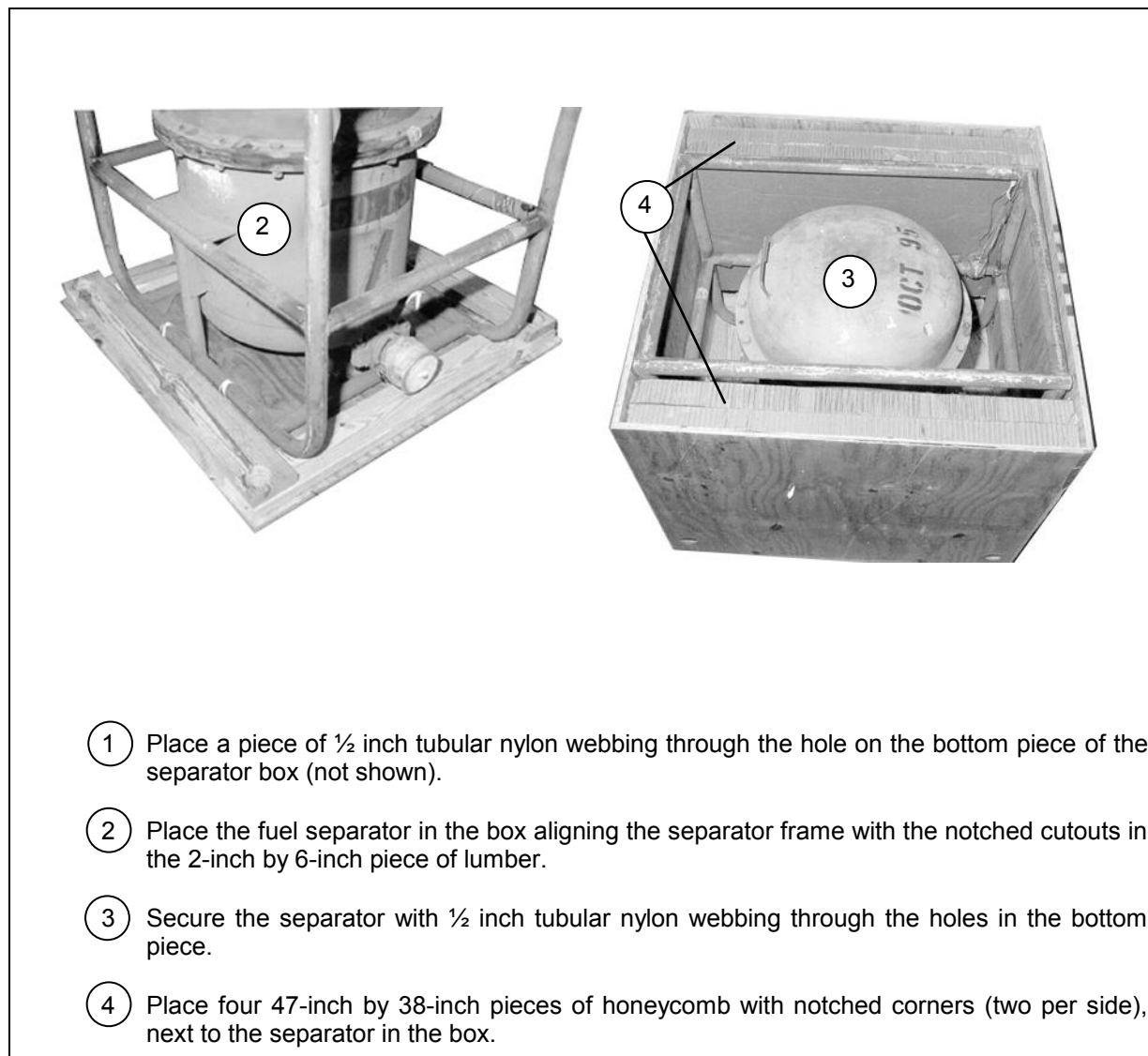
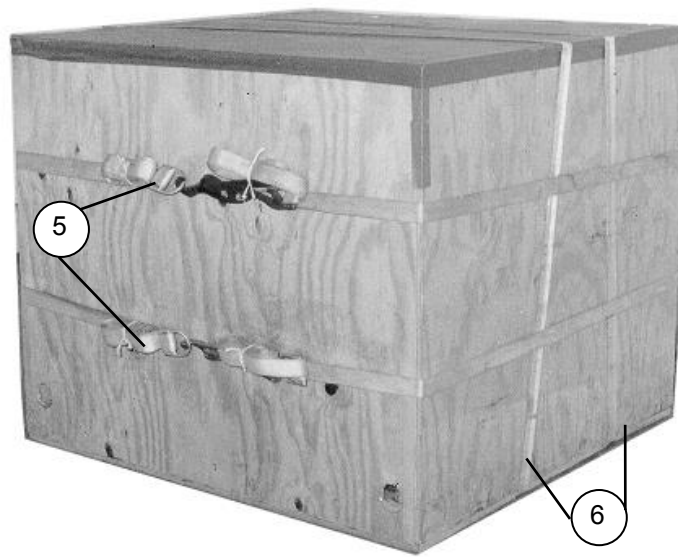
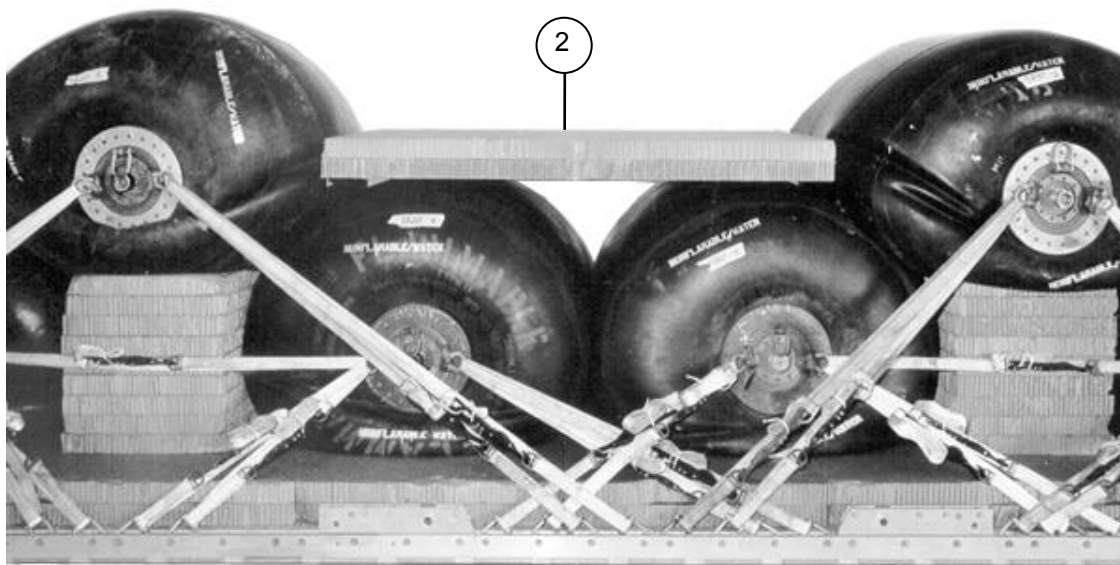


Figure 19-19. Separator Placed in Box

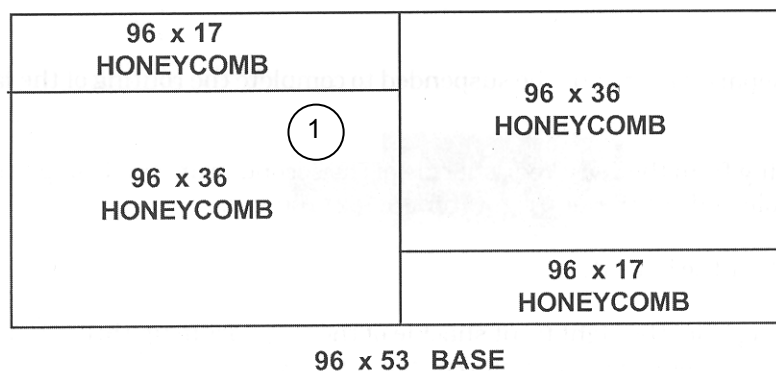


- ⑤ Use two lashings to secure the box. Place each lashing approximately 16 inches in from the top and bottom of the box.
- ⑥ Use two lashings to secure the box from front to rear. Place each lashing approximately 16 inches in from each side of the box.

Figure 19-19. Separator Placed in Box (Continued)

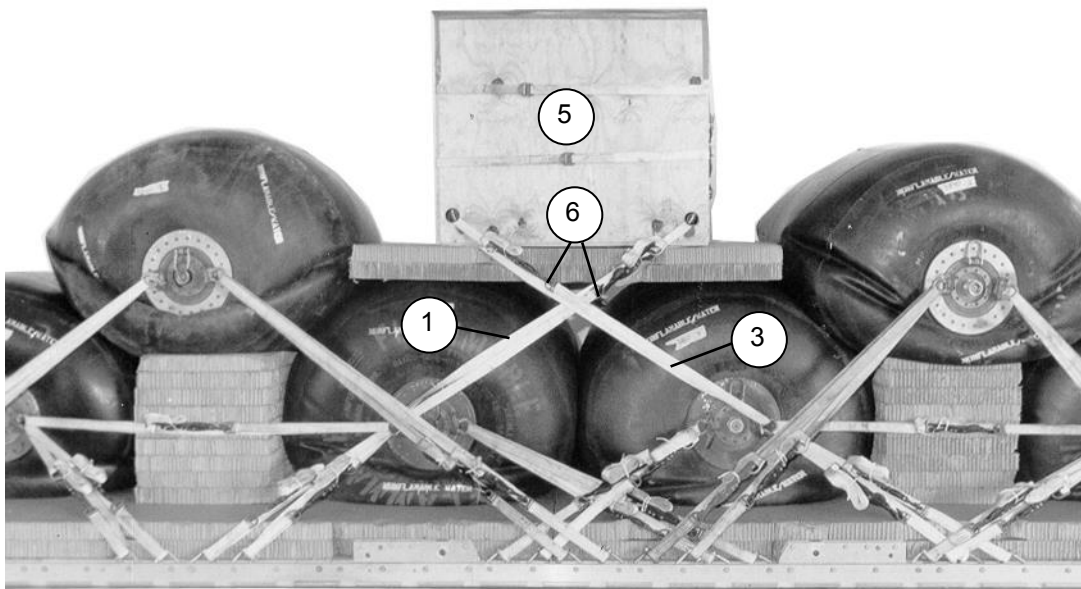


Note. 1. Not drawn to scale.
2. All dimensions are given in inches.



- ① Alternate two pieces of 96-inch honeycomb and two pieces of 17-inch by 36-inch honeycomb to make a two layer 96-inch by 53-inch base. Glue the layers together.
- ② Cut the stack to fit tightly between the fifth and sixth drums.

Figure 19-20. Honeycomb Stack for Separator Box Prepared



Note. The separator box must be suspended to complete the routing of the lashings

- ① Route a lashing from the right rear shackle of the second drum up through the bottom right front hole and out the side right front hole of the box.
- ② Repeat step 1 for the left side.
- ③ Route a lashing from the right front shackle of the third drum up through the bottom right rear hole and out the side right rear hole of the box.
- ④ Repeat step 3 for the left side.
- ⑤ Lower and position the separator box centered on the honeycomb between the drums. Remove lifting slings.
- ⑥ Secure separator box lashings and safety tie the lower hooks of the load binders to the lower D-rings with a single length of type III nylon cord.

Figure 19-21. Separator Box Positioned and Secured to Load

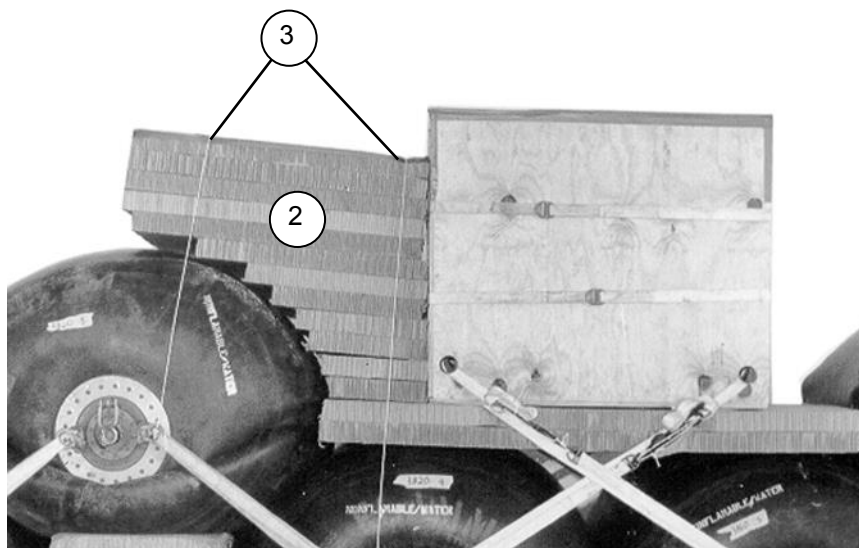
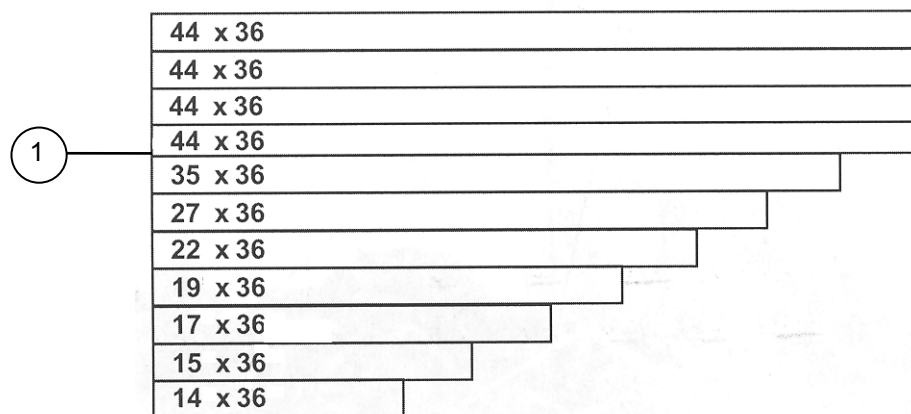
CONSTRUCTING AND POSITIONING THE RELEASE PLATFORM

19-14. Construct and position the release platform as shown in Figure 19-22.

Note. 1. Not drawn to scale.

2. All dimensions are given in inches.

RELEASE PLATFORM



- ① Construct and glue the release platform.
- ② Position the release platform to the rear of the separator box and on top of the fifth drum.
- ③ Tape the top edges and secure with type III nylon cord to a convenient location on the load.

Figure 19-22. Release Platform Constructed and Positioned

INSTALLING SUSPENSION SLINGS AND SAFTEY TIES

19-15. Install the suspension slings and safety ties as shown in Figure 19-23.

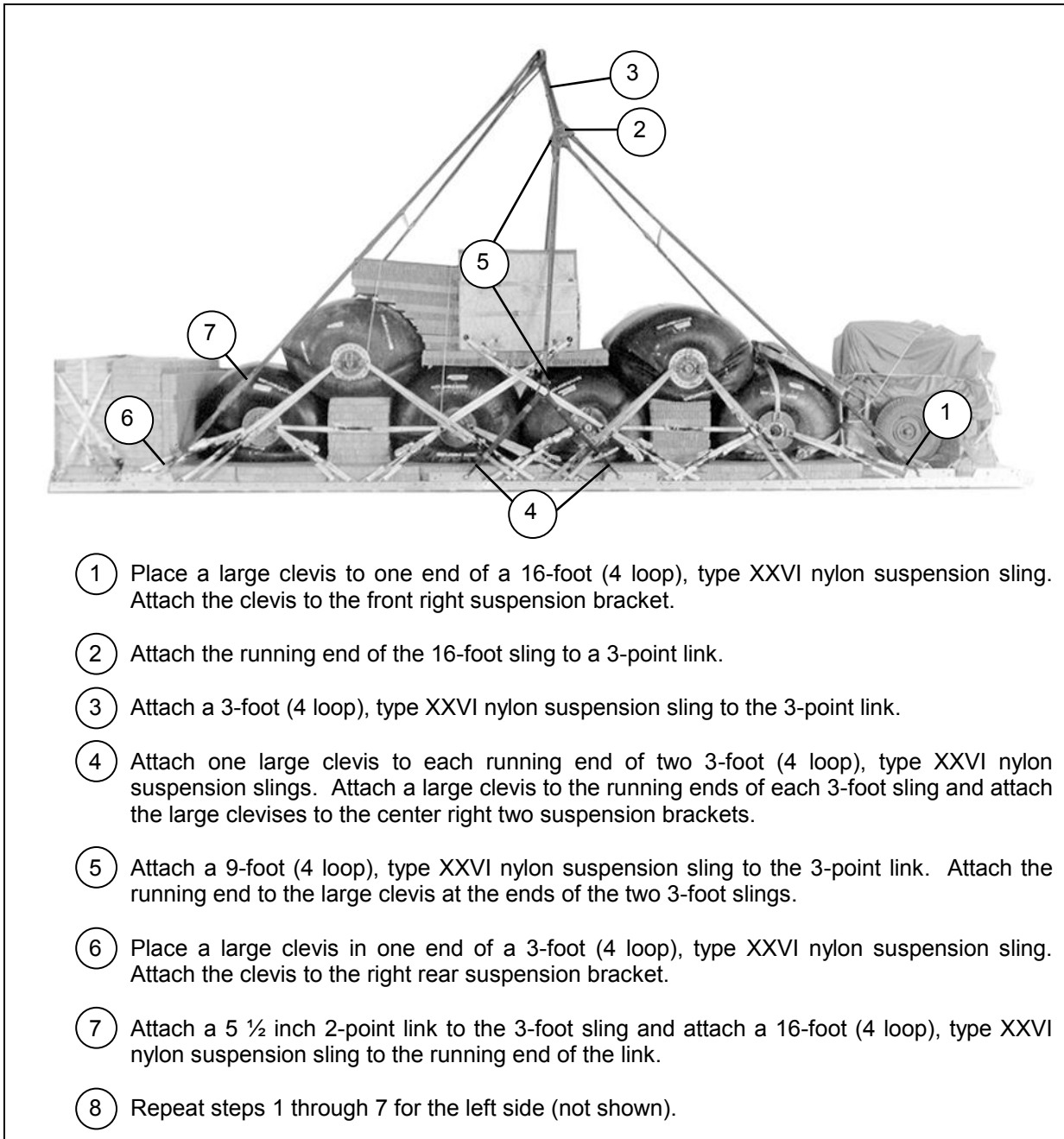


Figure 19-23. Suspension Slings and Safety Ties Installed

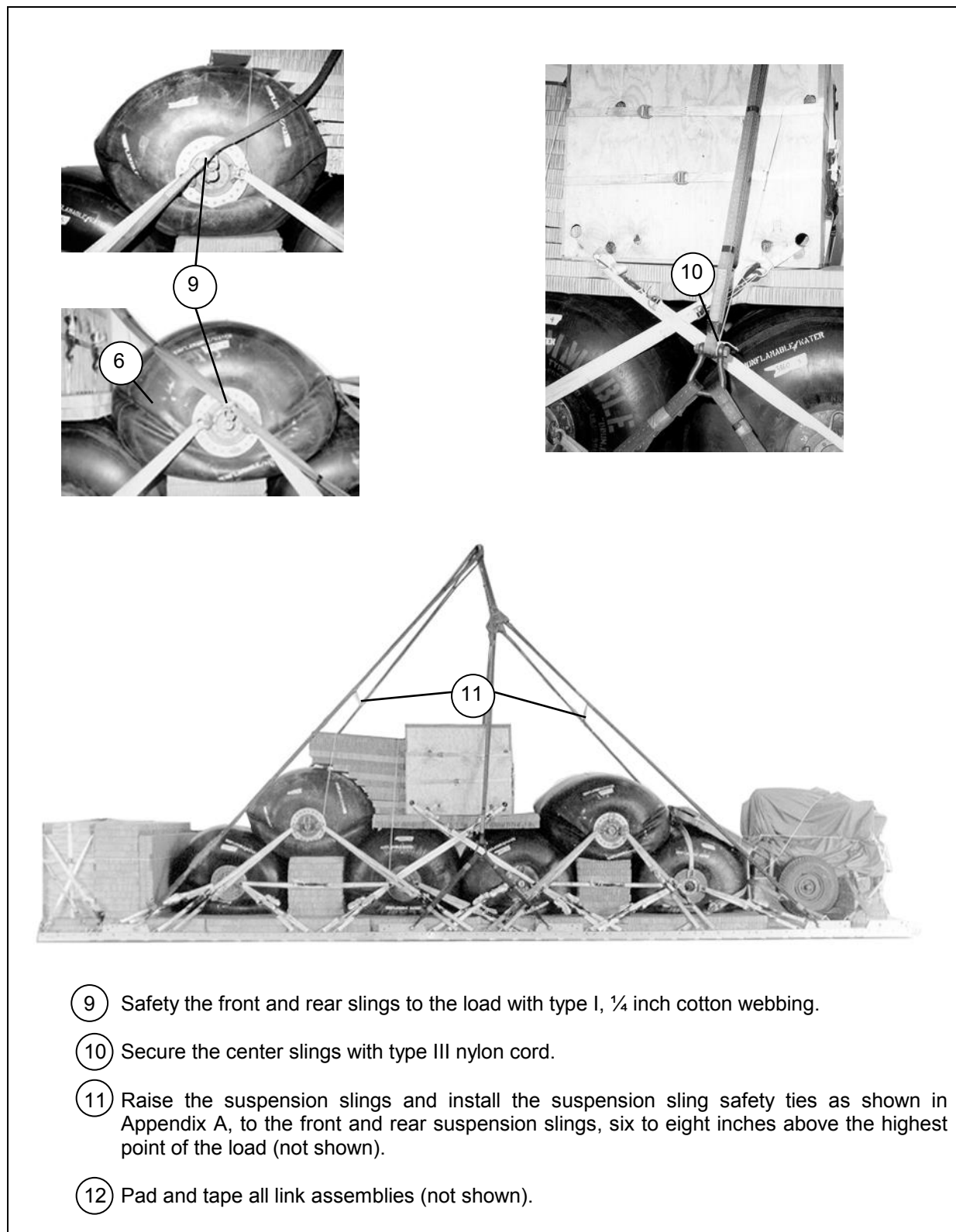


Figure 19-23. Suspension Slings and Safety Ties Installed (Continued)

BUILDING AND POSITIONING PARACHUTE STOWAGE PLATFORM

19-16. Build the parachute stowage platform as shown in Figure 16-18. Position an 85-inch by 17-inch piece of honeycomb on top of the parachute stack. Position the stowage platform on top of the equipment hose box and parachute stack. Lash the parachute stowage platform as shown in figure 19-24.

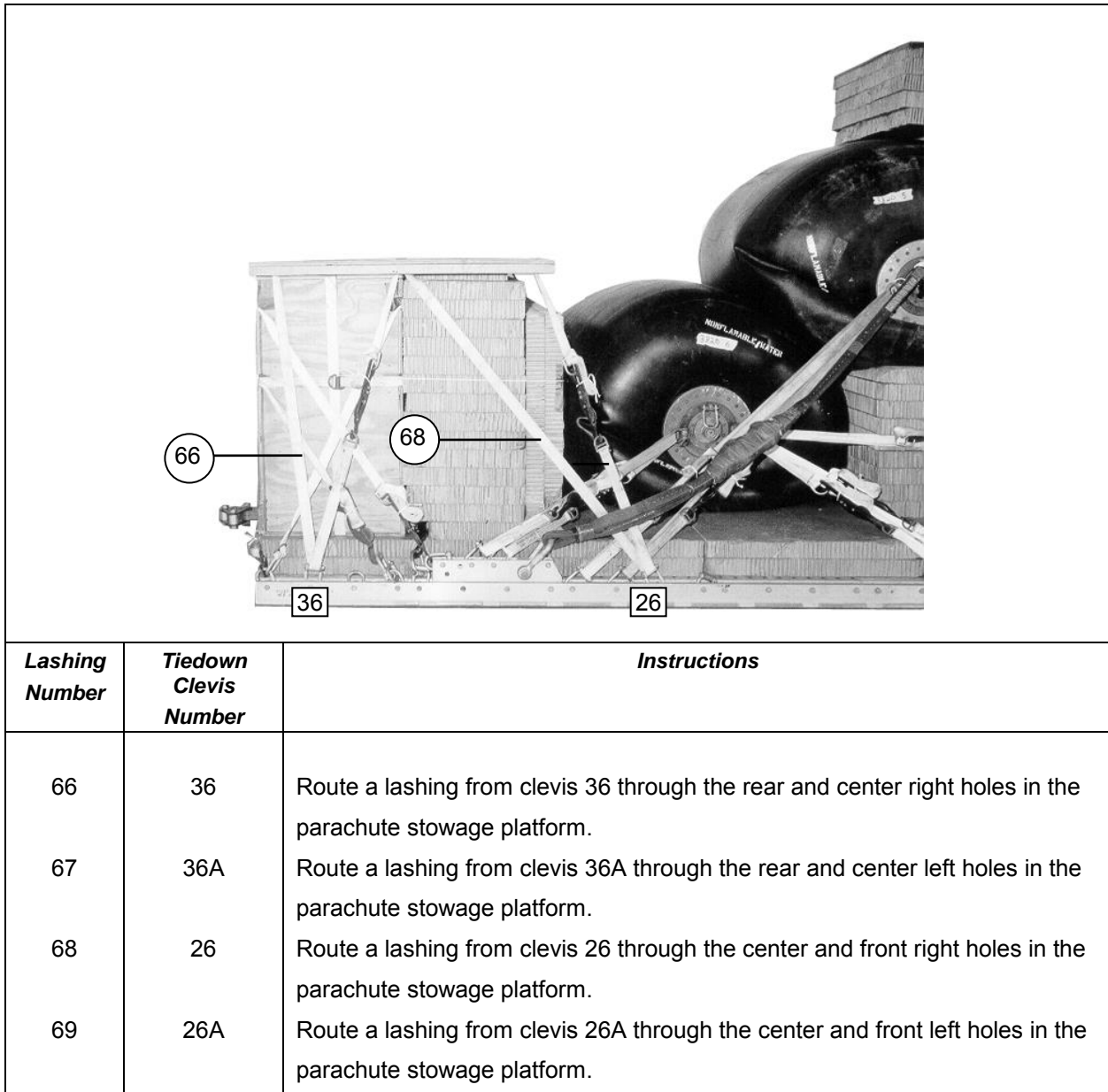


Figure 19-24. Parachute Stowage Platform Built and Positioned

PREPARING AND STOWING CARGO PARACHUTES

19-17. Prepare and stow the cargo parachutes as shown in Figure 19-25.

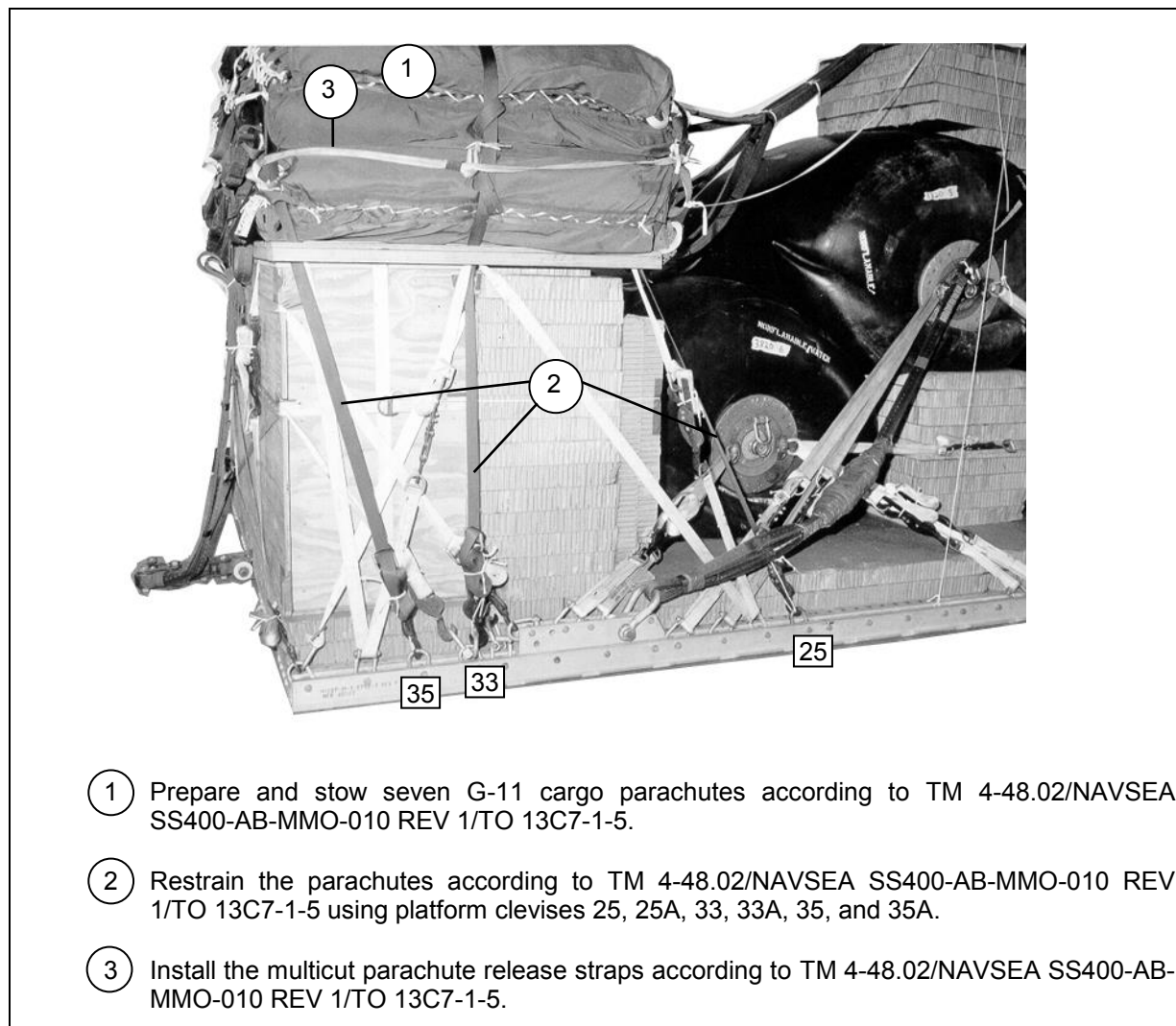
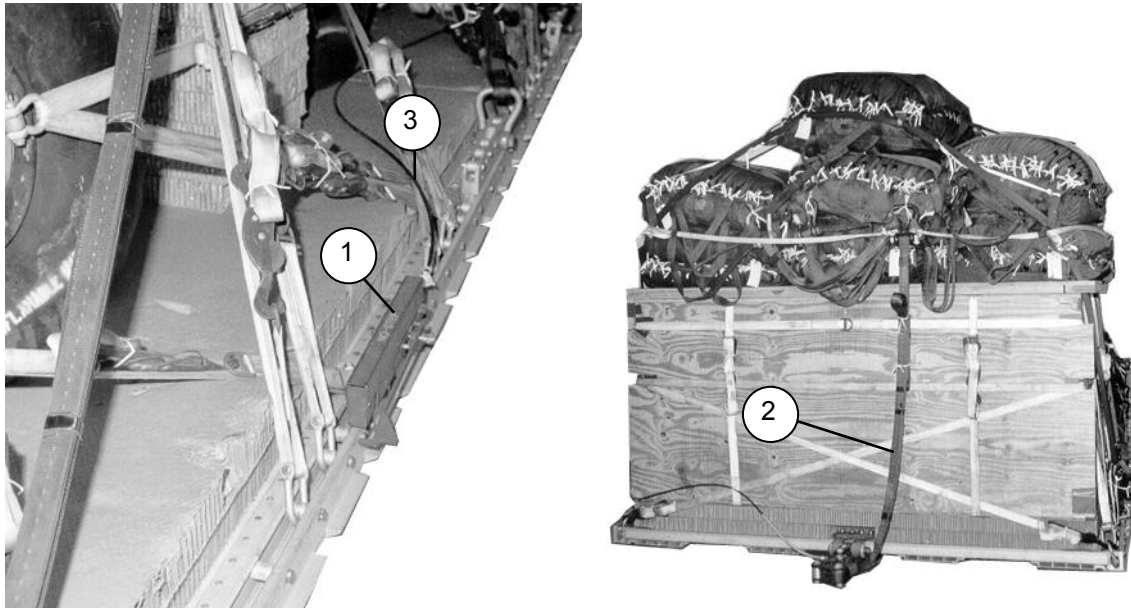


Figure 19-25. Cargo Parachute Prepared and Stowed

INSTALLING THE EXTRACTION SYSTEM

19-18. Install the extraction system as shown in Figure 19-26.

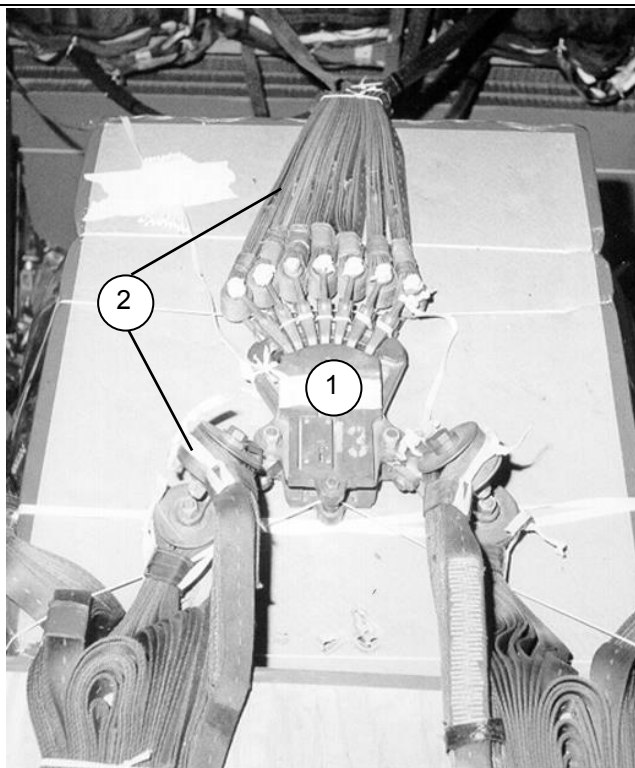


- ① Using the rear holes, install the extraction force transfer coupling according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Use a 9-foot (2 loop), type XXVI nylon webbing sling for use as a deployment line.
- ③ Using a 28-foot extraction force transfer coupling cable, safety the cable using one turn type I, ¼ inch cotton webbing.

Figure 19-26. Extraction System Installed

INSTALLING THE PARACHUTE RELEASE SYSTEM

19-19. Install the cargo parachute release as shown in Figure 19-27.



- ① Position the M-2 release on the platform.
- ② Attaché the suspension slings and riser extensions to the M-2 release and secure release according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ③ S-fold and tie any slack in the suspension slings with one turn type I, ¼ inch cotton webbing (not shown).

Figure 19-27. Parachute Release Installed

PLACING EXTRACTION PARACHUTE

19-20. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

19-21. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

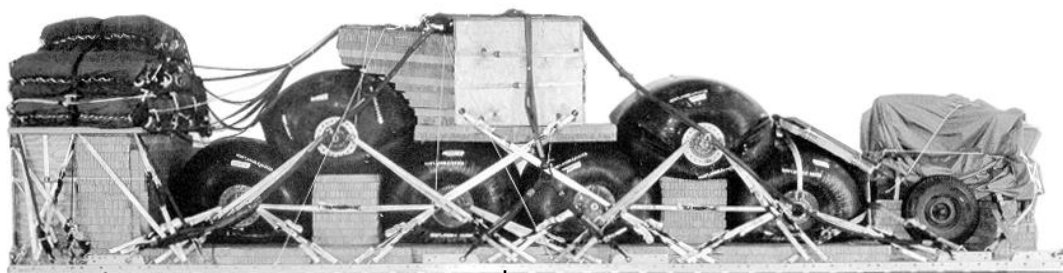
19-22. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 2-10. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

19-23. Use the equipment list in Table 19-1 to rig the load shown in Figure 19-28.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	32,730 pounds
Maximum load allowed.....	35,000 pounds
Height.....	97 inches
Width	108 inches
Length	411 inches
Overhang: Front	9 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	201 inches
Extraction System	Extraction Force Transfer Coupler

Figure 19-28. Six 500-Gallon Drums with Pump and Separator Rigged for Low-Velocity Airdrop

Table 19-1. Equipment Required for Rigging Six 500-Gallon Drums with Pump and Separator

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-279-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Droque Extraction System)	1
4030-00-090-5354	Clevis, large	13
4030-00-678-8562	Clevis, medium	4
8305-00-880-8155	Cloth coated, green, 60-inch	As required
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-01-326-7309	Coupling, airdrop, extraction force transfer w.28-foot	1
1670-00-360-0328	Cover, clevis, large	7
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-00-003-4391	Knife, parachute bag (for Droque Extraction System)	2
1670-01-183-2678	Leaf, extraction line (line bag) (add 2 for Droque Extraction System)	2
1670-01-064-4452	Line, drogue (for Droque Extraction System): 60-foot (1 loop), type XXVI	1
1670-01-062-6304	Line, deployment 9-foot (2 loop), type XXVI	1
	Line, extraction:	
1670-01-064-4454	For C-130: 60-foot (6 loop), type XXVI	1
1670-01-468-9178	For C-17: 140-foot (6 loop), type XXVI	1
	Link assembly:	
	Two point:	
5306-00-435-8994	Bolt, 1-inch diameter, 4-inches long	4
5310-00-232-5165	Nut, 1-inch, hexagonal	4
1670-00-003-1954	Plate, side, 5 ½ inch	4
5365-00-007-3414	Spacer, large	4
	Two-point: (for Droque Extraction System)	
5303-00-435-8994	Bolt, 1-inch diameter, 4-inches long	2
5310-00-232-5165	Nut, 1-inch, hexagonal	2
1670-00-003-1953	Plate, side, 3 ¾ inch	2
5365-00-007-3414	Spacer, large	2
1670-01-307-1055	Three point	2
1670-00-006-2752	Four point	2
1670-01-483-8259	Link, tow release mechanism (H-Block) C-17 aircraft	1
	Lumber:	
5510-00-220-6146	2-by-4 inch	As required
5510-00-220-6148	2-by-6 inch	As required
5315-00-010-4659	Nail, steel wire, common, 8-penny	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3-by-36-by96 inches	45 sheets
	Parachute:	
1670-01-016-7841	Cargo, G-11C	7
1670-00-040-8135	Cargo, extraction, 28 foot	2
1670-01-063-3715	Droque, 15 foot (for C-17)	1

Table 19-1. Equipment Required for Rigging Six 500-Gallon Drums with Pump and Separator (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 32-foot:	
1670-01-247-2389	Bracket assembly, component, (extraction force transfer coupler)	1
1670-01-162-2372	Bracket, suspension	8
1670-01-353-8424	Clevis assembly, type V	88
1670-01-162-2381	Extraction bracket assembly	1
5530-00-618-8073	Link, tandem, suspension link assembly	2
1670-01-097-8817	Plywood, ¾-by-48-by-96 inches	4 sheets
	Release, cargo parachute, M-2	1
	Sling, cargo airdrop	
1670-01-062-6306	For suspension:	
1670-01-062-6305	3-foot (4 loop), type XXVI nylon webbing	8
1670-01-062-6308	9-foot (4 loop), type XXVI nylon webbing	2
	16-foot (4 loop), type XXVI nylon webbing	4
1670-01-062-6311	For riser extension:	
7510-00-266-5016	120-foot (2 loop), type XXVI nylon webbing	7
7510-00-266-6710	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tape, masking, 2-inch	As required
	Tiedown assembly, 15-foot	88
8305-00-268-2411	Webbing:	
8305-00-082-5752	Cotton, ¼ inch, type I	As required
8305-00-260-6890	Nylon, tubular, ½ inch	As required
	Type X	As required

Chapter 20

Rigging The AAFARS with Three 500-Gallon Fuel Drums for Low-Velocity Airdrop on Type V Platform

DESCRIPTION OF LOAD

20-1. The AAFARS is rigged on a 20-foot type V platform with four G-11 cargo parachutes. The AAFARS is designed for forward area refueling of up to four aircraft at a time with a minimum of 55 gallons-per-minute. There are three collapsible fuel drums as an accompanying load. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The total rigged length is 258 inches. Width is 108 inches. Height is 88 inches. Center of balance is 121 inches.

-
- Note.** 1. For drums filled with a liquid other than water, use Table 11-1 to recomputed the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.
-

PREPARING PLATFORM

20-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 72 tiedown clevises as shown in Figure 20-1.

-
- Note.** 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.
-

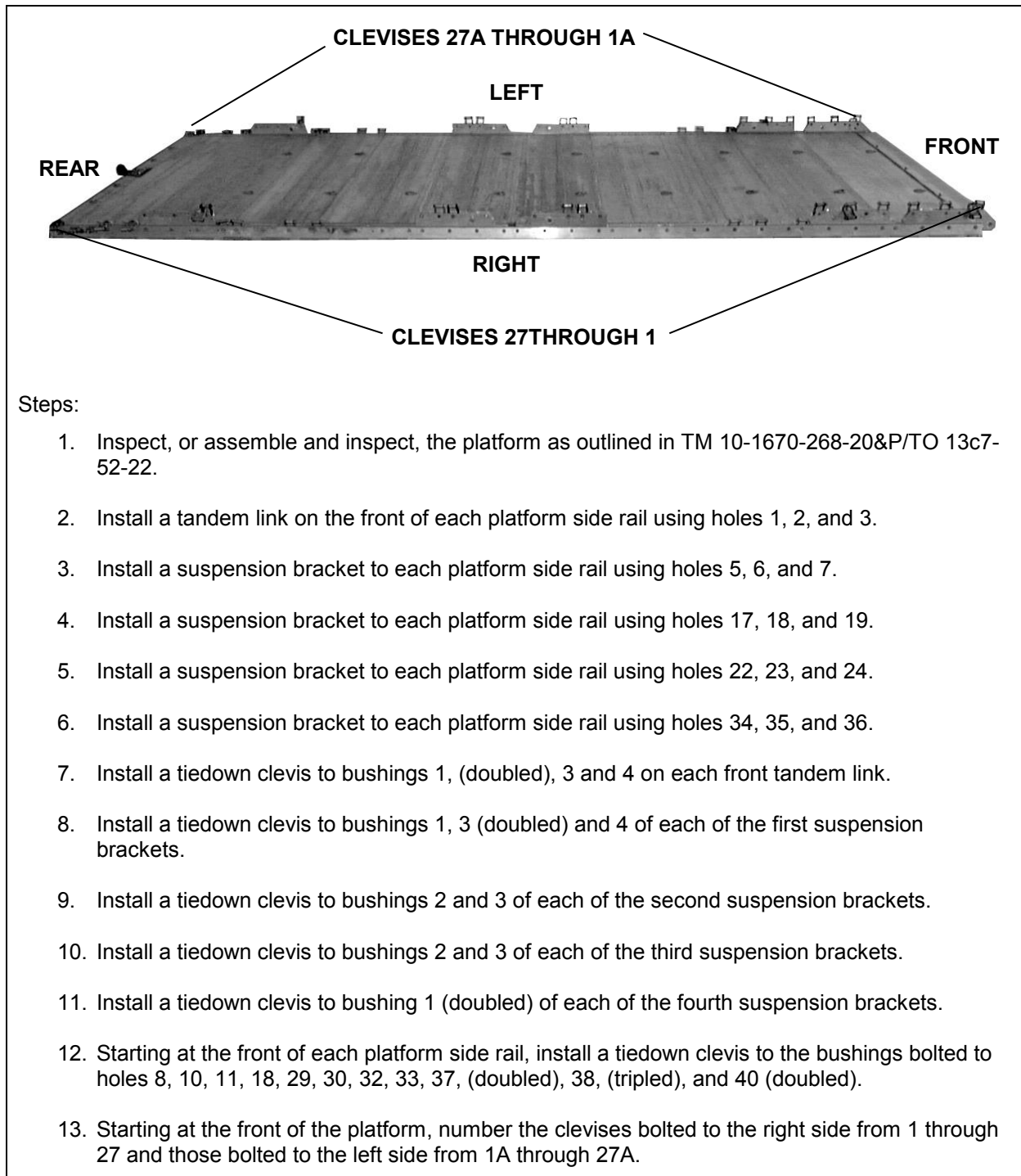
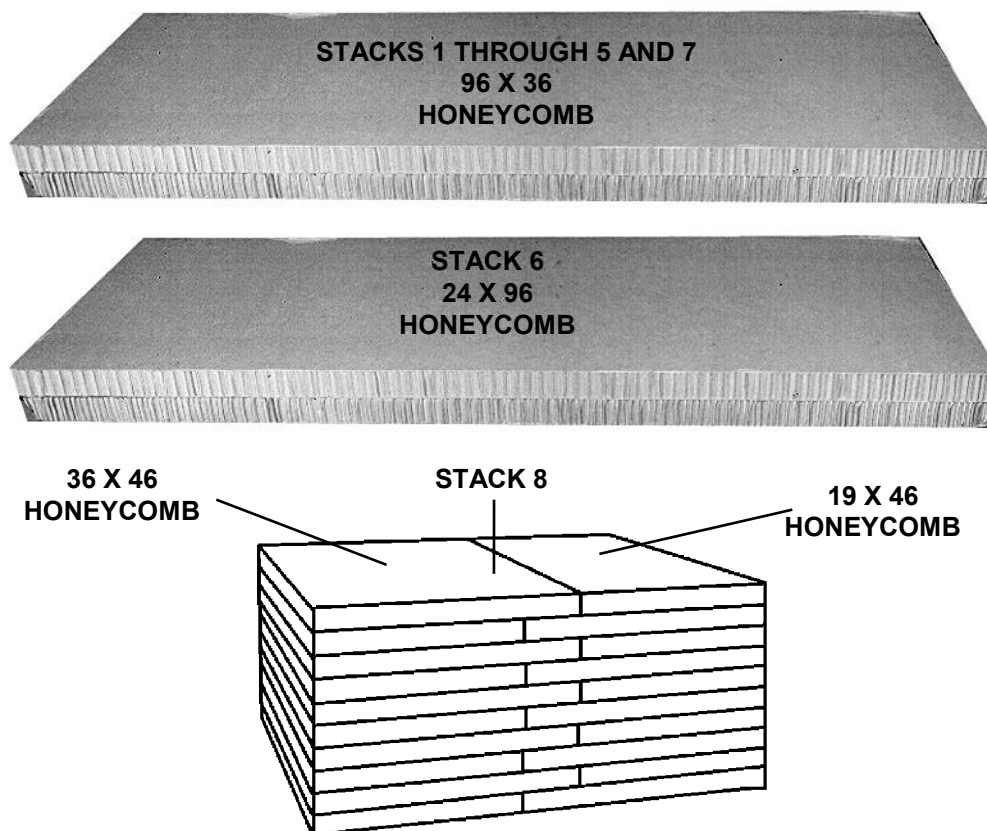


Figure 20-1. Platform Prepared

PREPARING HONEYCOMB

20-3. Build honeycomb stacks as shown in Figure 20-2.

Note. 1. All dimensions are in inches.
2. Not drawn to scale.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1-5	2	96	36	Honeycomb	Do not glue together.
6	2	24	96	Honeycomb	Do not glue together.
7	2	36	96	Honeycomb	Do not glue together.
8	10	36	46	Honeycomb	Lay on floor beside a 19 x 46 piece forming a 46 x 55 base. Alternate the pieces and glue on top of the base forming a stack of 10 layers.
	10	19	46	Honeycomb	See above.

Figure 20-2. Honeycomb Stacks Prepared

POSITIONING HONEYCOMB STACKS

20-4. Position honeycomb stacks as shown in Figure 20-3.

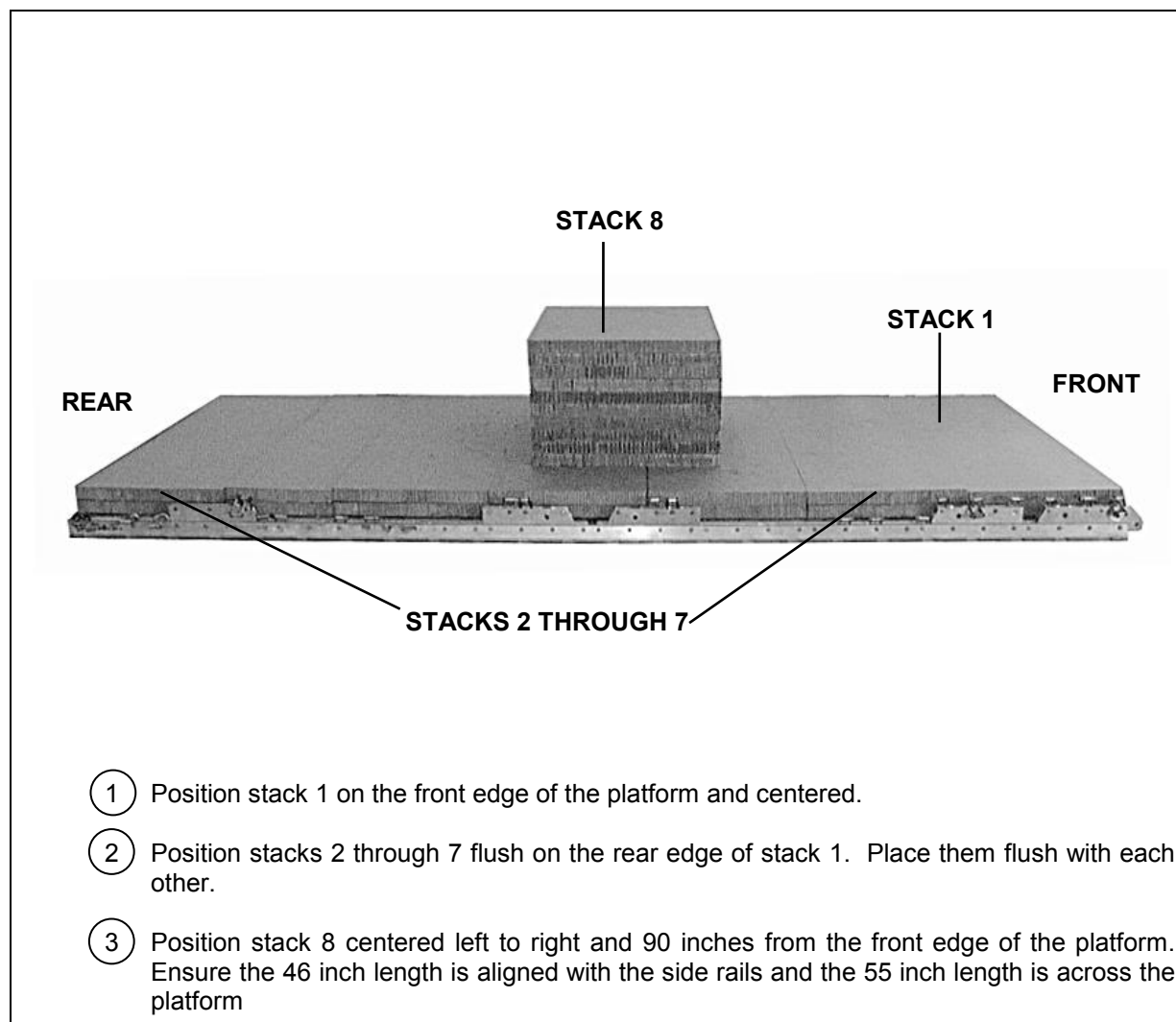


Figure 20-3. Honeycomb Stacks Positioned

BUILDING THE EQUIPMENT BOXES

20-5. Build the front and rear equipment boxes as shown in Figures 20-4 and 20-5.

- Build the front equipment box using 16-penny nails and as shown in Figure 20-4.

Note. 1. All dimensions are in inches.
2. Not drawn to scale.

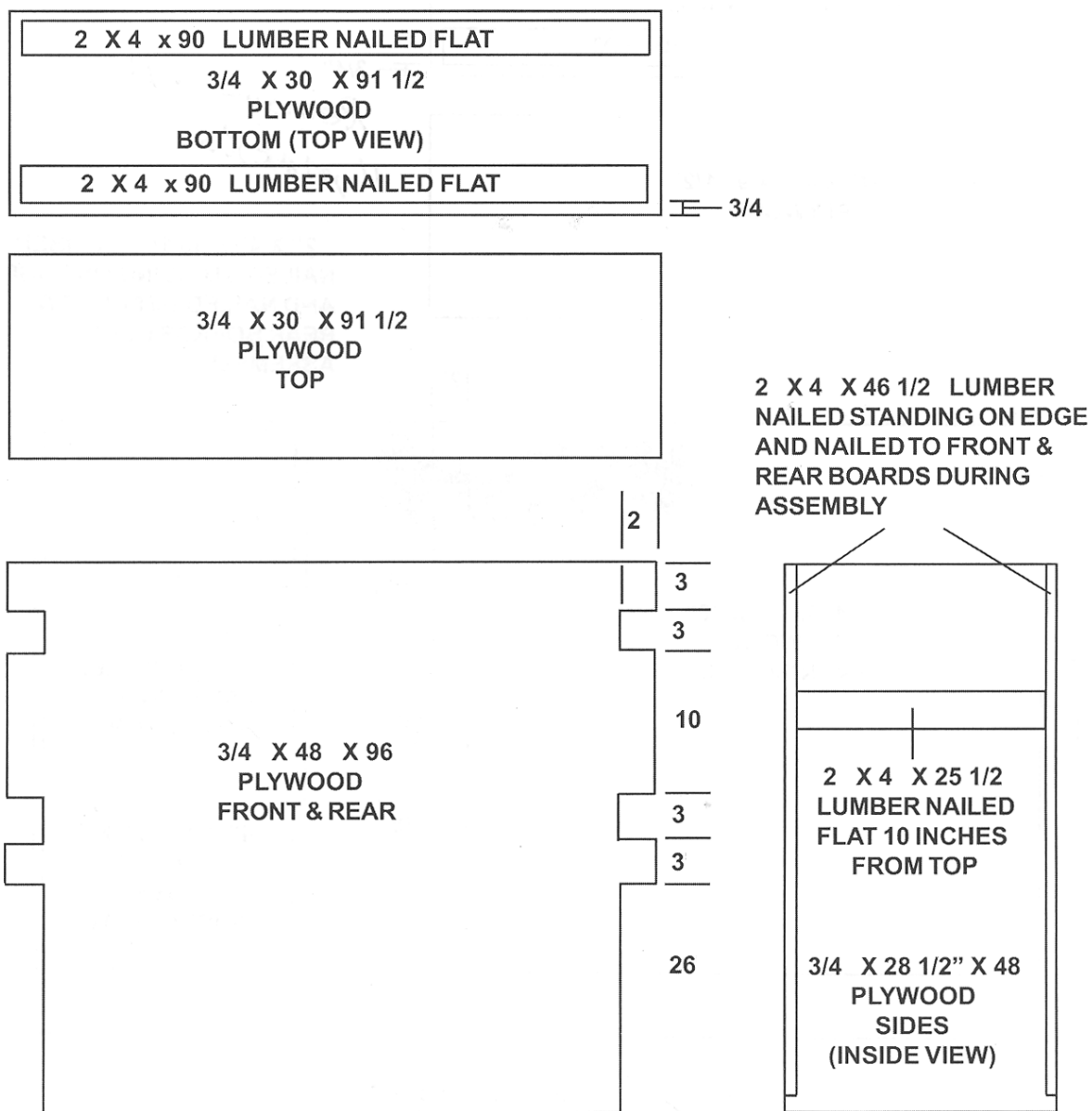


Figure 20-4. Front Equipment Box Built

- Build the rear equipment box using 16-penny nails and as shown in Figure 20-5.

Note. 1. All dimensions are in inches.
2. Not drawn to scale

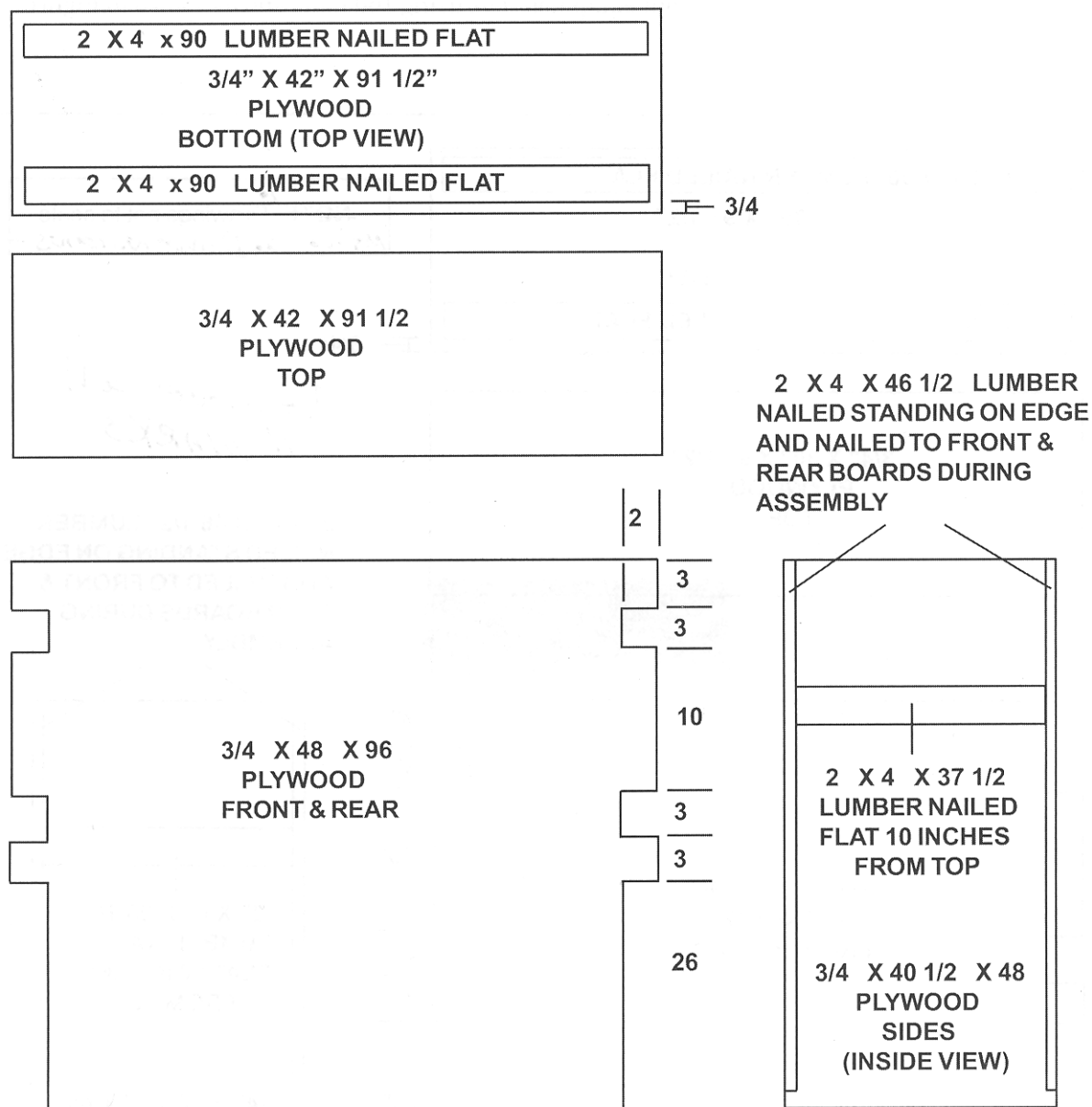


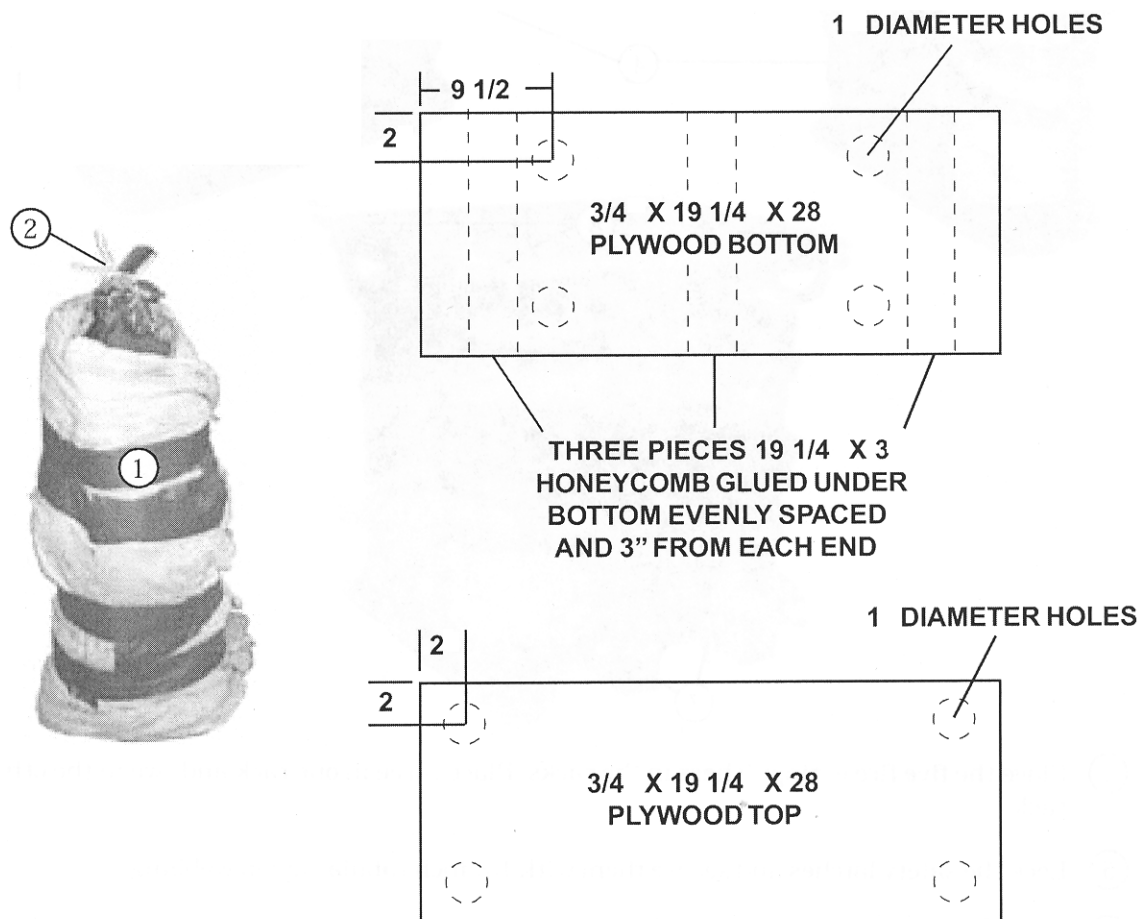
Figure 20-5. Rear Equipment Box Built

PREPARING EQUIPMENT BOXES

20-6. Prepare the equipment for the equipment boxes as shown in Figures 20-6 through 20-12.

- Prepare and secure five fire extinguishers as shown in Figure 20-6.

Note. 1. All dimensions are in inches.
2. Not drawn to scale



- ① Wrap cellulose wadding around the five fire extinguishers and tape.
- ② Secure the pull handles with 1/4 inch cotton webbing.
- ③ Cut the honeycomb and plywood for the fire extinguisher guard according to diagram above.

Figure 20-6. Fire Extinguishers Prepared

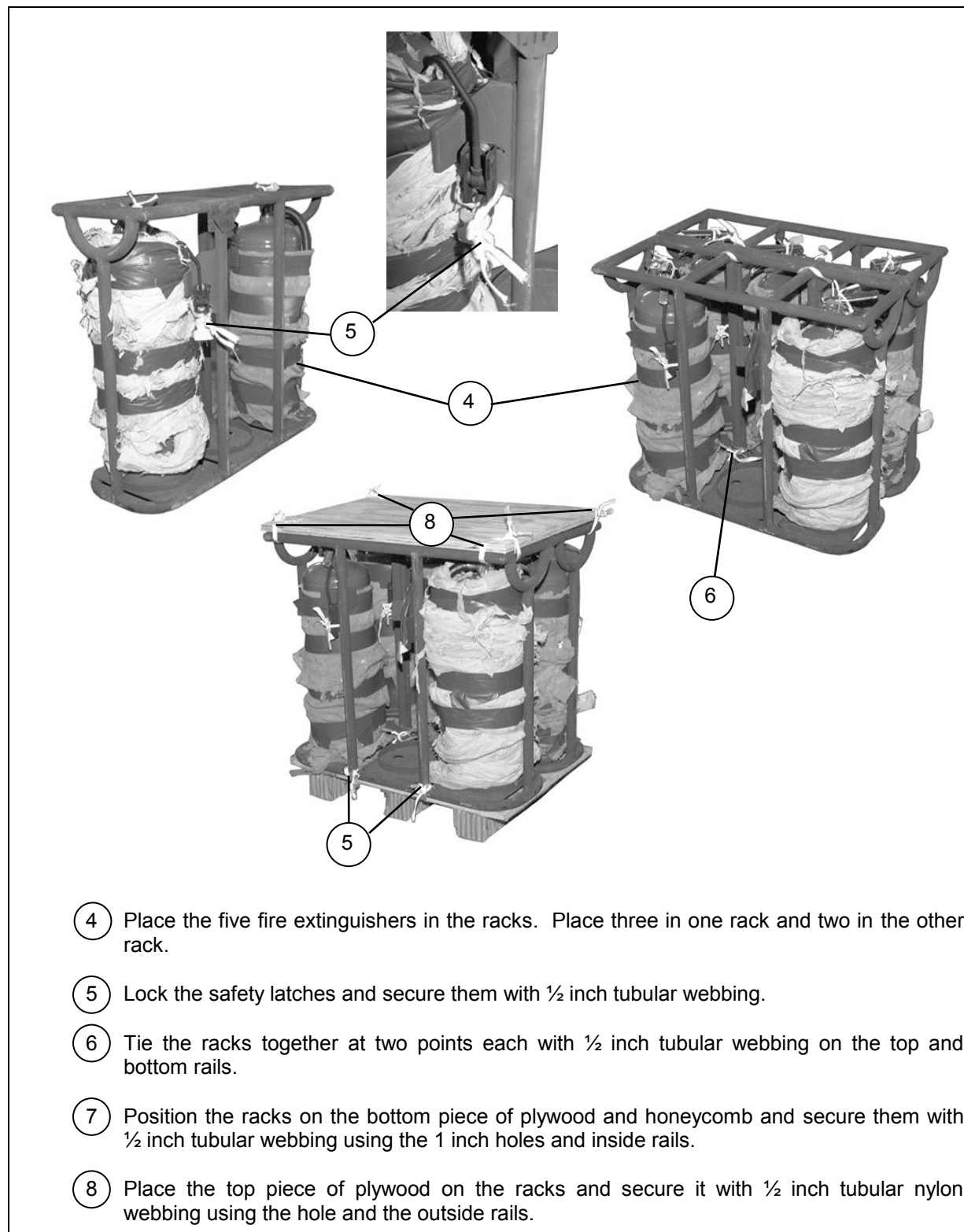
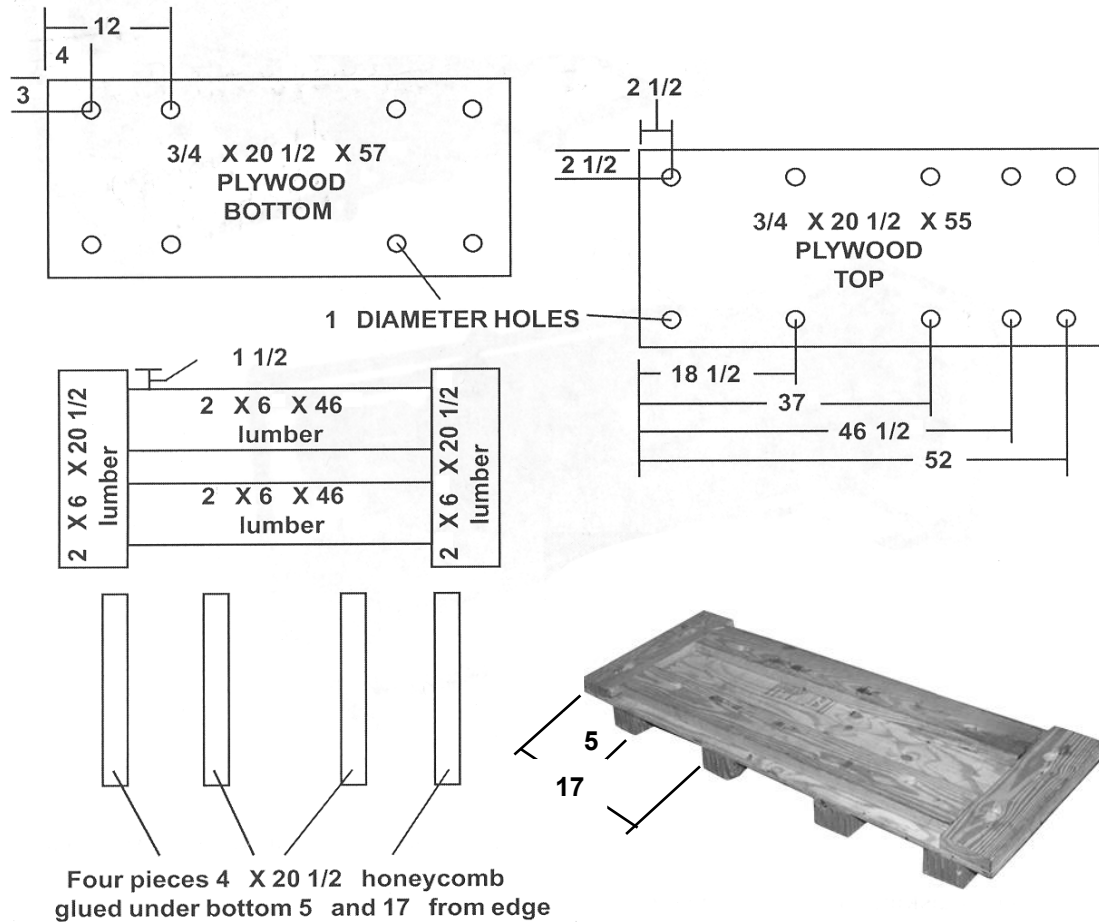


Figure 20-6. Fire Extinguishers Prepared (Continued)

- Prepare and secure the filter separator as shown in Figure 20-7.

Note. 1. All dimensions are in inches.
2. Not drawn to scale



Nail the lumber assembly to the top of the plywood bottom using 16d nails.

Figure 20-7. Filter Separator Secured

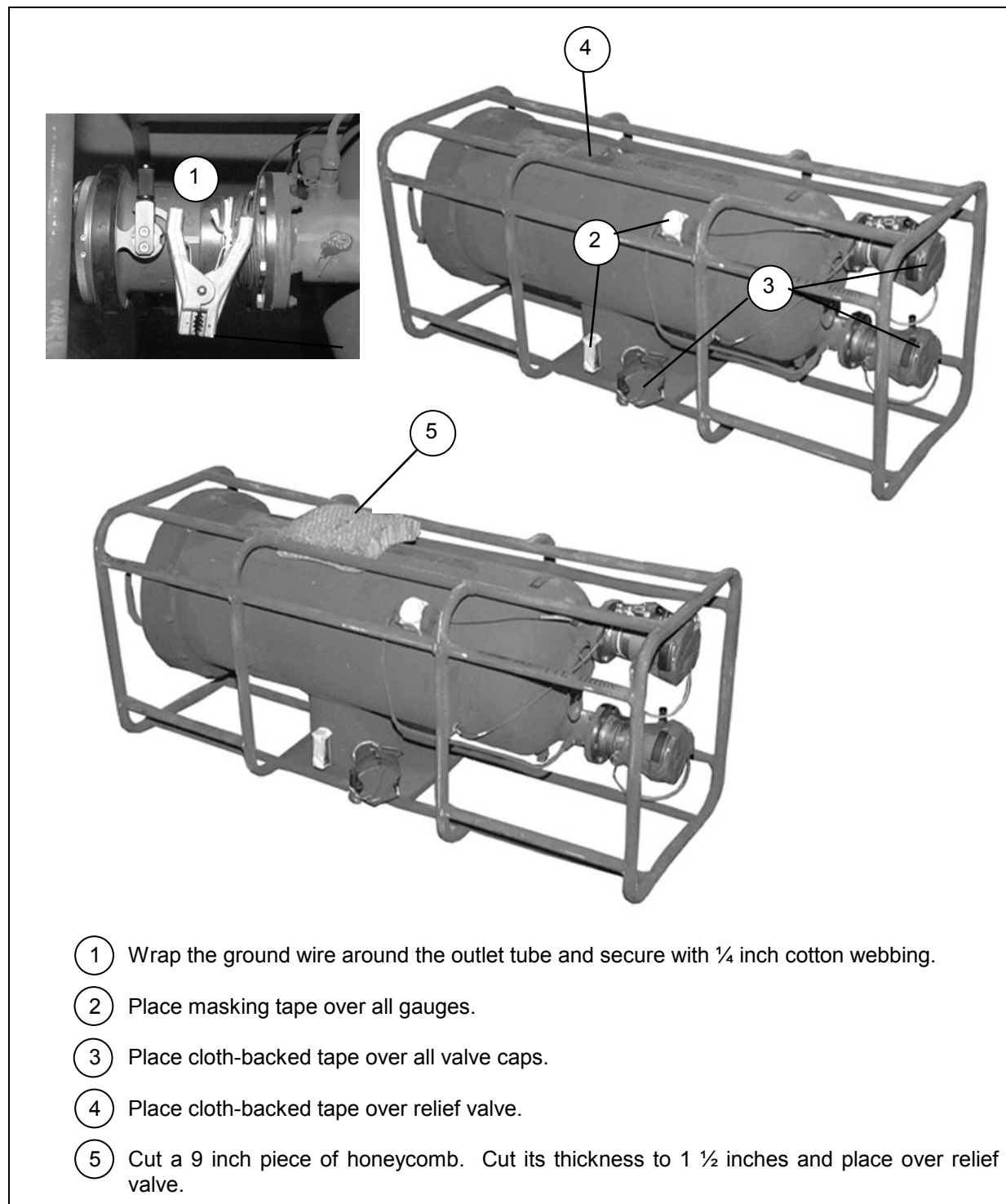
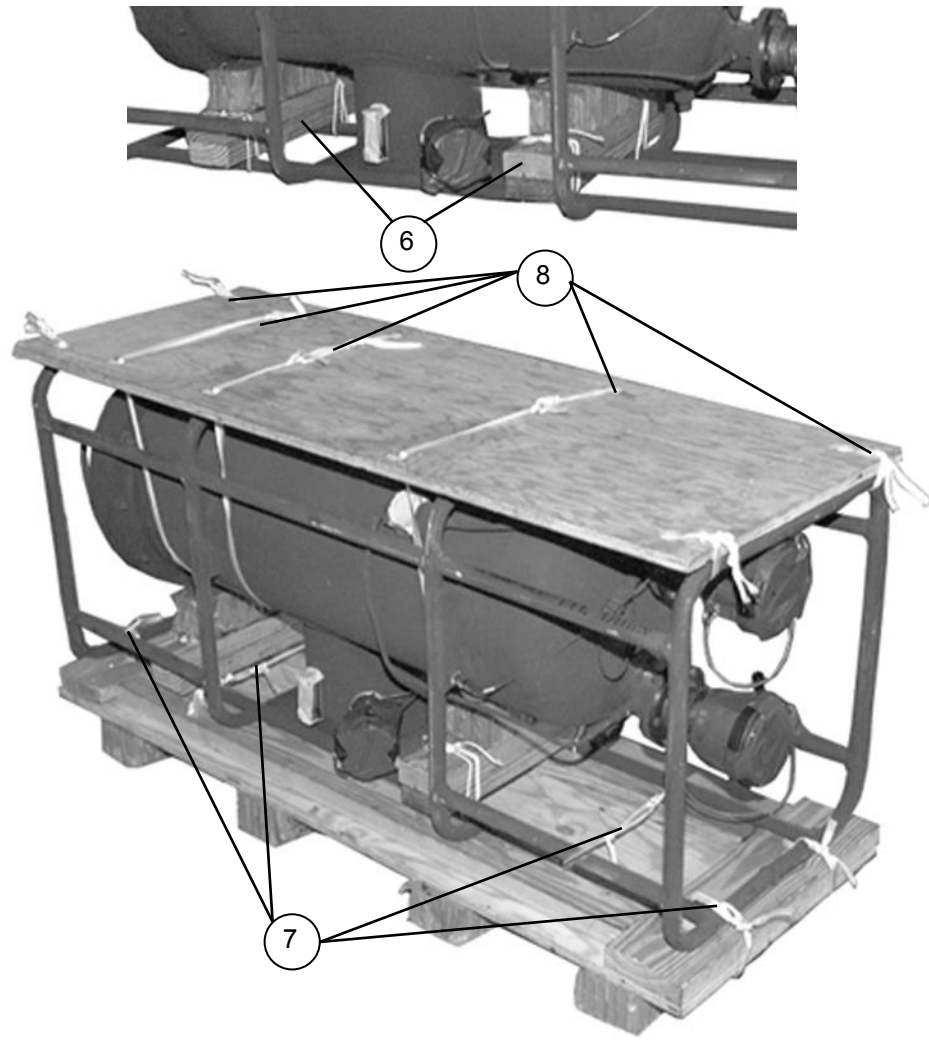


Figure 20-7. Filter Separator Secured (Continued)



- ⑥ Cut four pieces of 2 inch by 4 inch by 17 ¼ inch lumber and two pieces of 3 ½ inch by 12 inch honeycomb. Nail two pieces of lumber together and glue one piece of honeycomb on top forming a support for the separator. Repeat forming another support. Place them on the rails and under the separator tank. Secure them with type III nylon cord.
- ⑦ Place the separator on the base and secure with ½ inch tubular nylon webbing. Route the webbing over both rails using the inside 1 inch holes and around the rail using the outside 1 inch holes.
- ⑧ Place the top plywood on the separator and secure with ½ inch tubular nylon webbing. Route the webbing around the tank using the inside 1 inch holes. Ensure routing is under all tubes and around the rails using the outside 1 inch holes.

Figure 20-7. Filter Separator Secured (Continued)

- Prepare and secure the explosion-proof motor as shown in Figure 20-8.

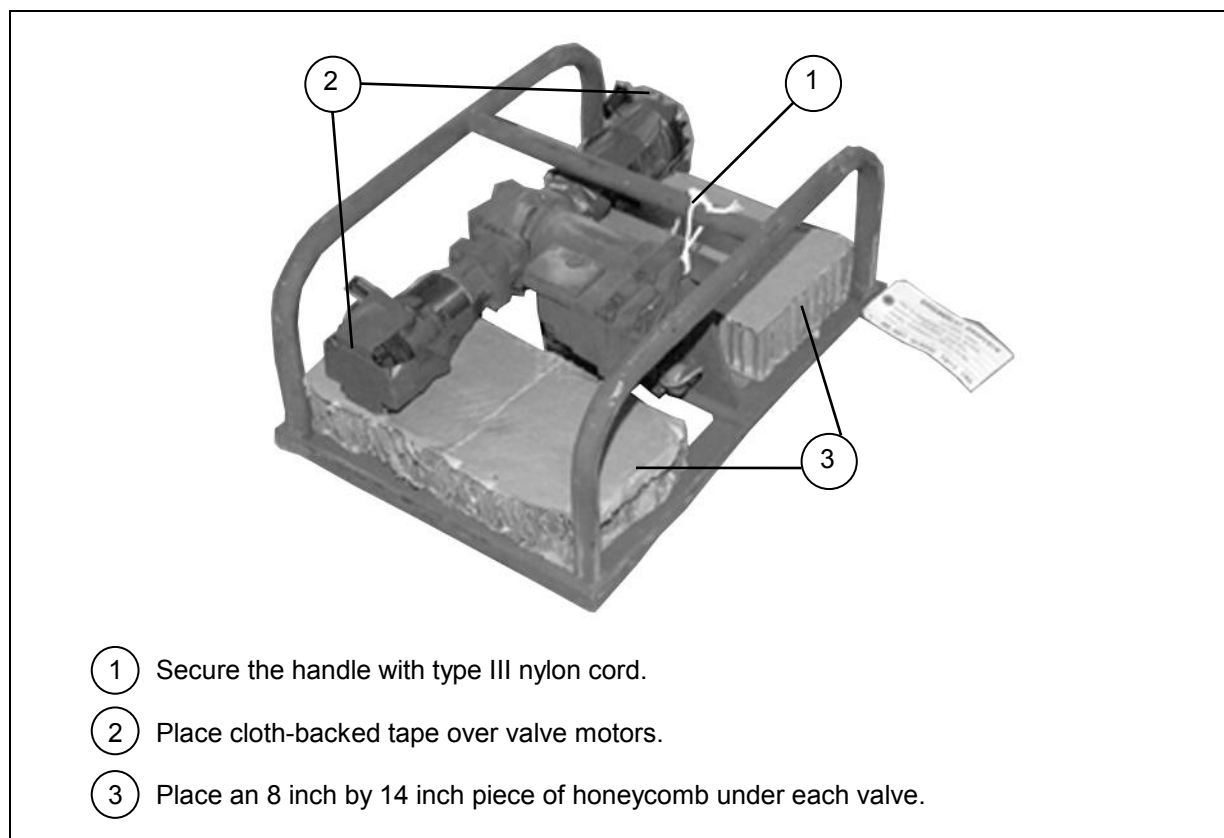


Figure 20-8. Explosion-Proof Motor Secured

- Prepare and secure the hose and equipment bags as shown in Figure 20-9.

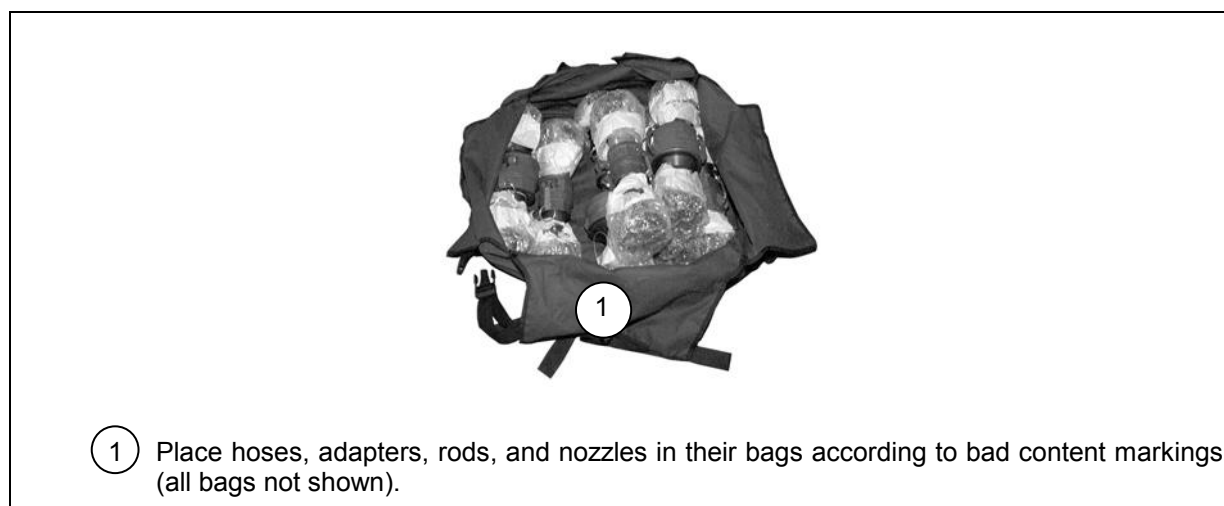
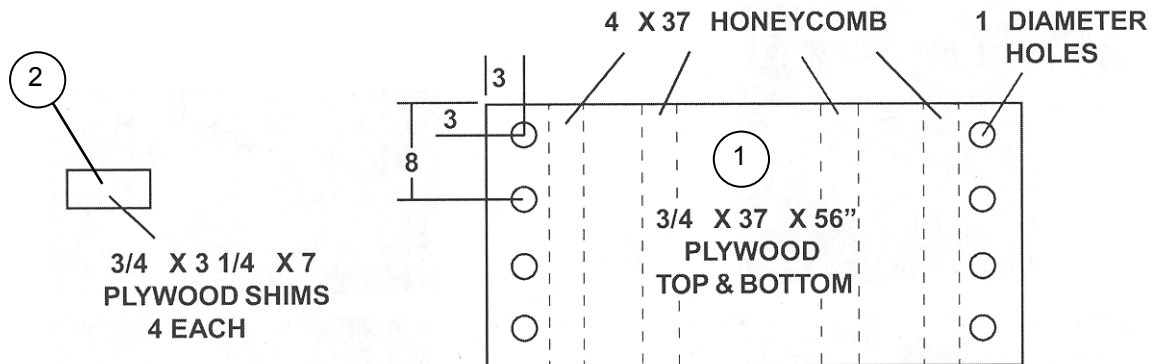


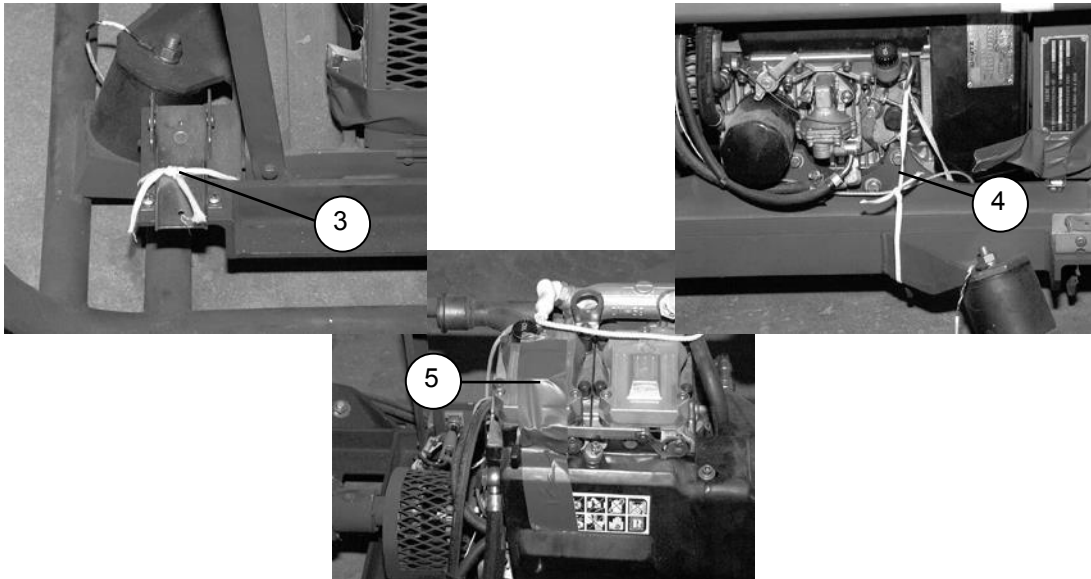
Figure 20-9. Equipment Bags Secured

- Prepare and secure the pump as shown in Figure 20-10.

Note. 1. All dimensions are in inches.
2. Not drawn to scale.



- 1 Cut the plywood for the pump guard as shown above.
- 2 Cut four pieces of honeycomb 4 inches by 37 inches and glue evenly spaced to underside of bottom board only.



- 3 Secure all latches with tape or 1/4 inch cotton webbing.
- 4 Secure the dipstick with 1/4 inch cotton webbing.
- 5 Secure the flow control handle with tape.

Figure 20-10. Pump Secured

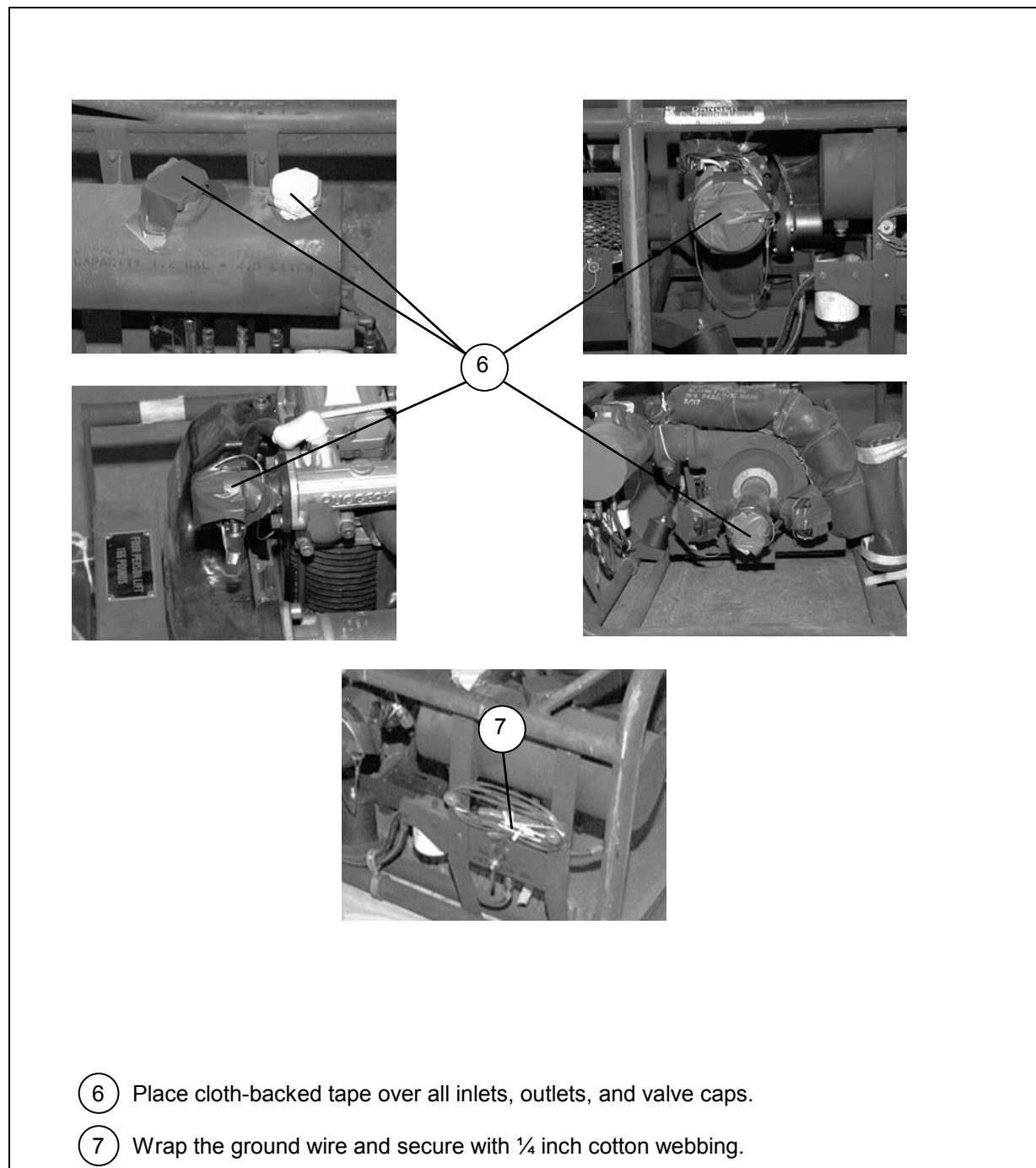


Figure 20-10. Pump Secured (Continued)

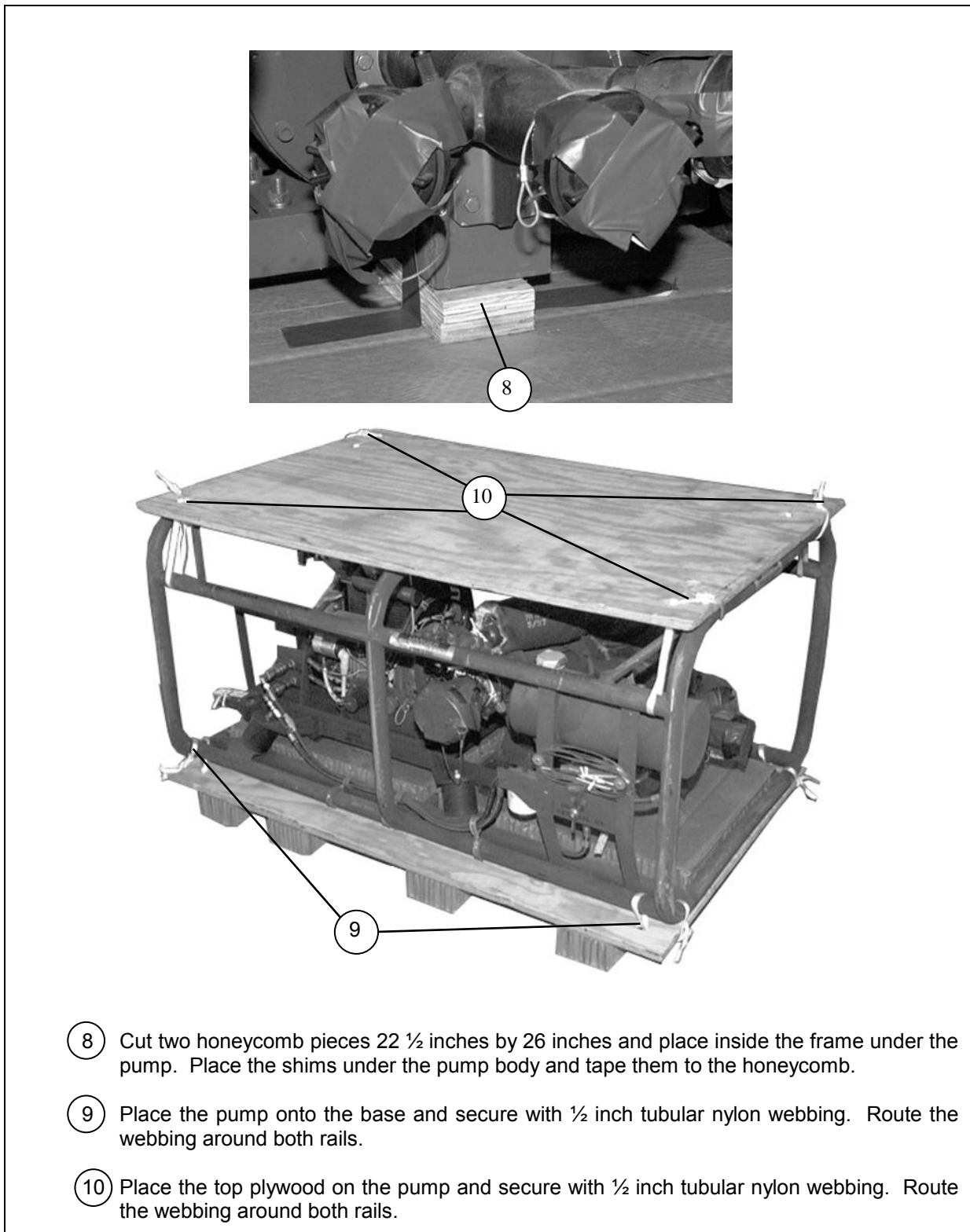
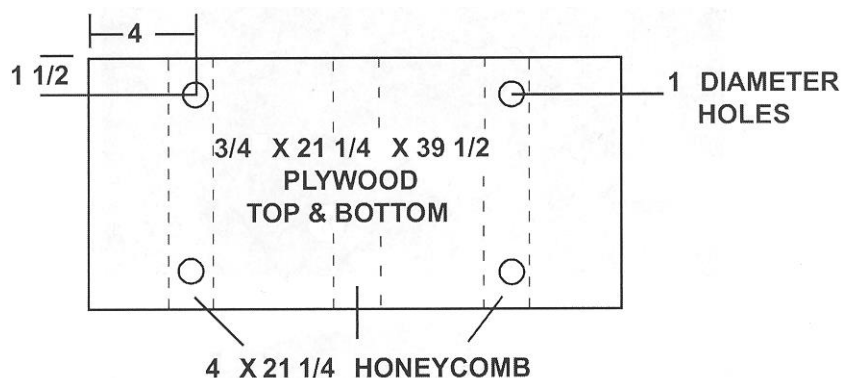


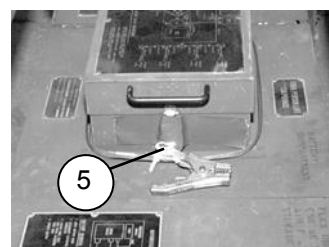
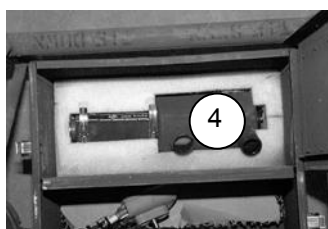
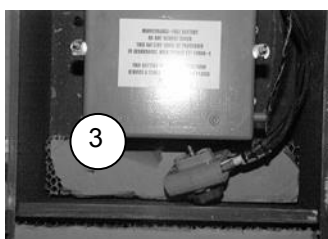
Figure 20-10. Pump Secured (Continued)

- Prepare and secure the battery box as shown in Figure 20-11.

Note. 1. All dimensions are in inches.
2. Not drawn to scale.

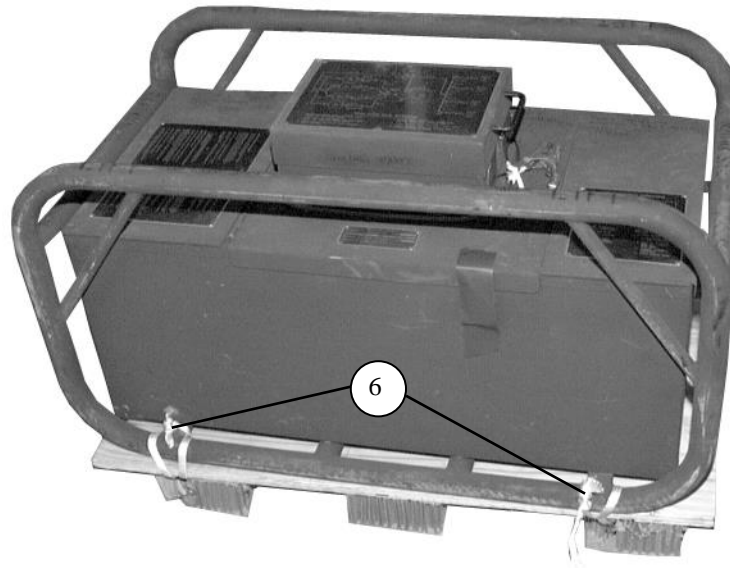


- ① Cut the plywood for the battery box as shown above.
- ② Cut three pieces of honeycomb 4 inches x 21 1/4 inches and glue evenly spaced to underside of bottom board only

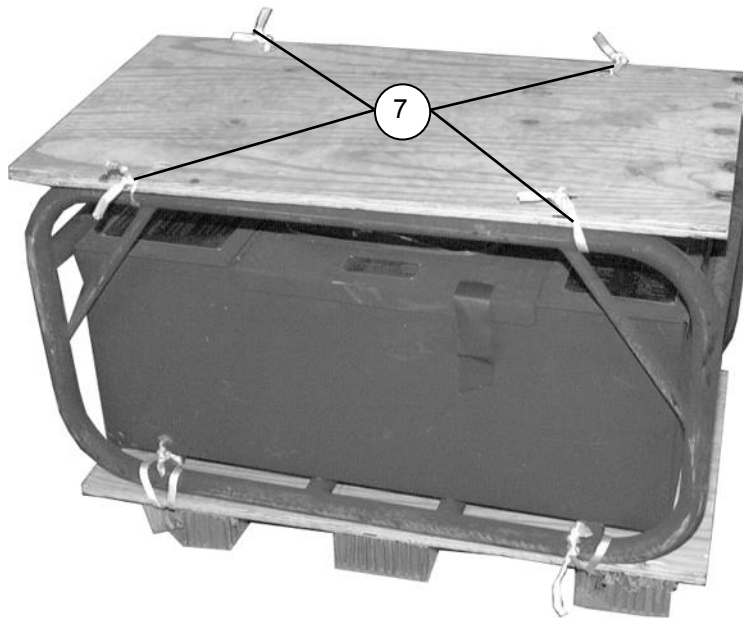


- ③ Place honeycomb filter against the battery to prevent movement.
- ④ Ensure the intake filter is in the Styrofoam. Place a piece of honeycomb on top of it to prevent movement.
- ⑤ Wrap the grounding wire around the top of the box and secure with 1/4 inch cotton webbing. Close all latches and secure them with tape (not shown).

Figure 20-11. Battery Box Secured



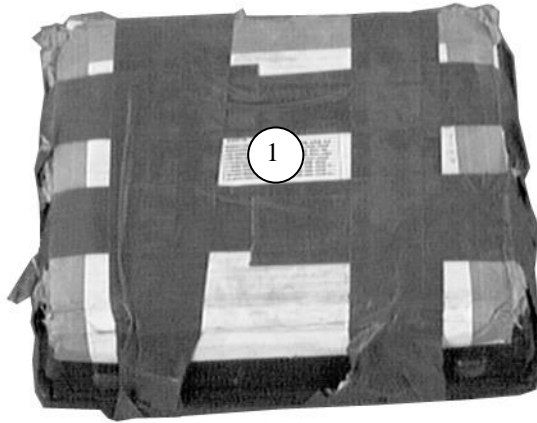
- ⑥ Place the battery box on the base plywood and secure with ½ inch tubular webbing around the rails.



- ⑦ Place the plywood top on the battery box and secure it with ½ inch tubular nylon webbing around the rails.

Figure 20-11. Battery Box Secured (Continued)

- Prepare and secure the manuals and toolkit as shown in Figure 20-12.



- ① Secure the manuals and toolkit together using cloth-backed tape.

Figure 20-12. Manuals and Toolkit Secured

POSITIONING EQUIPMENT BOXES

20-7. Position the front and rear equipment boxes on the platform as shown in Figure 2-13.

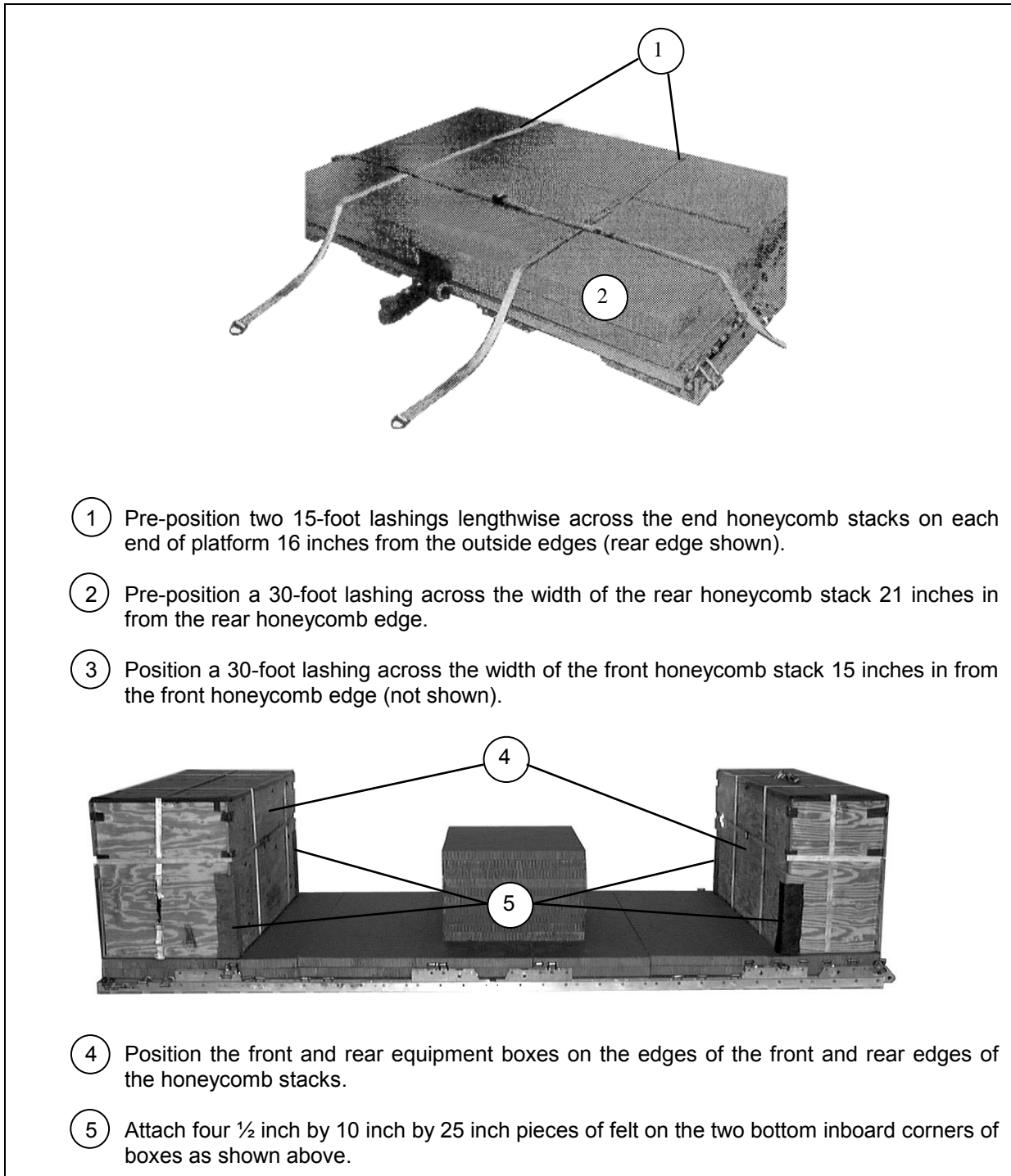


Figure 20-13. Equipment Boxes Positioned

POSITIONING AND SECURING EQUIPMENT IN EQUIPMENT BOXES

20-8. Position and secure equipment in equipment boxes as shown in Figures 20-14 and 20-15.

- Prepare the front equipment box by placing a 22 inch by 82 inch piece of honeycomb on the floor of the box and a 23 inch by 35 inch piece of honeycomb against each end of box below the 2 x 4 lumber. Position equipment in front equipment box as shown in Figure 20-14.

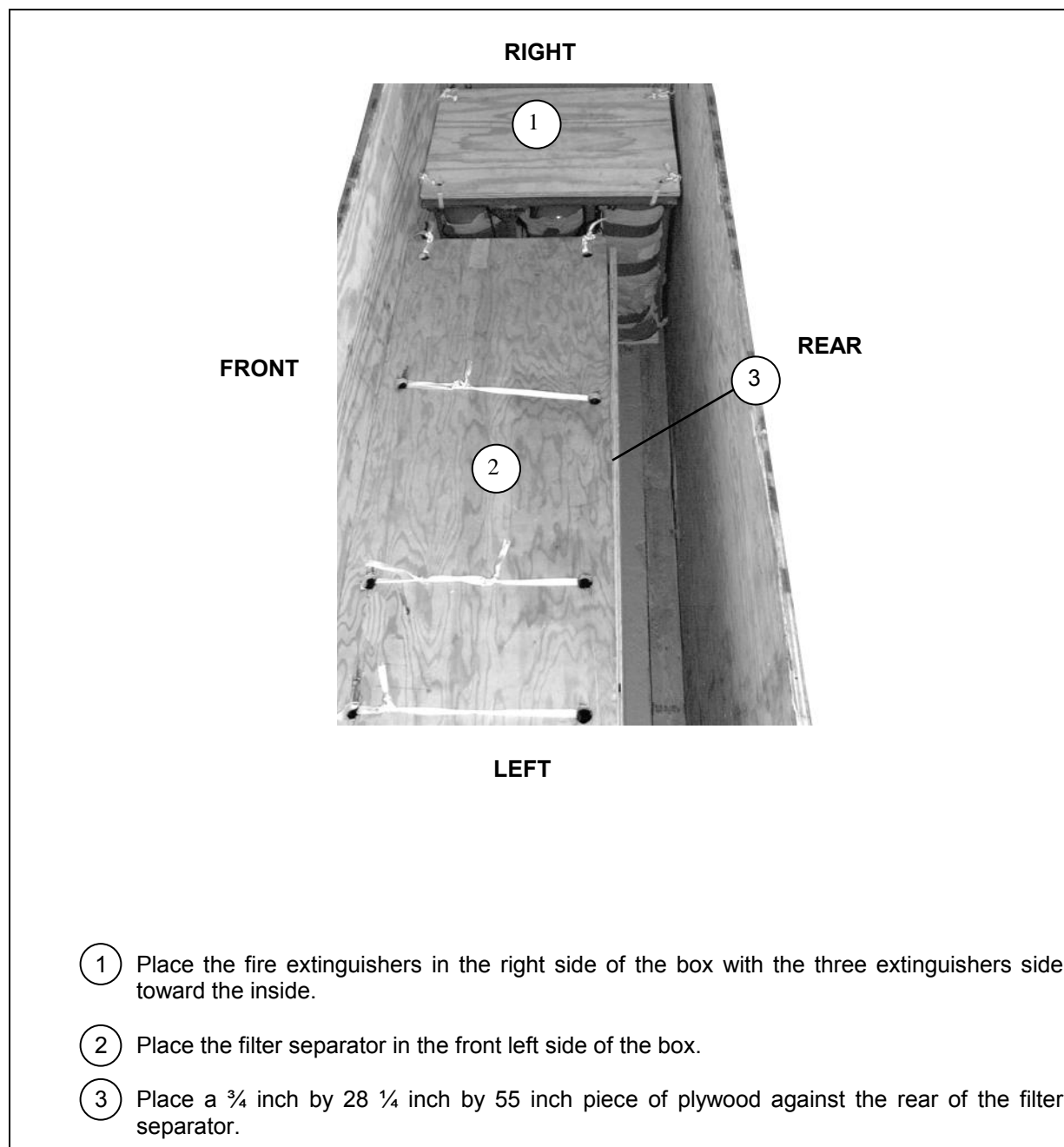
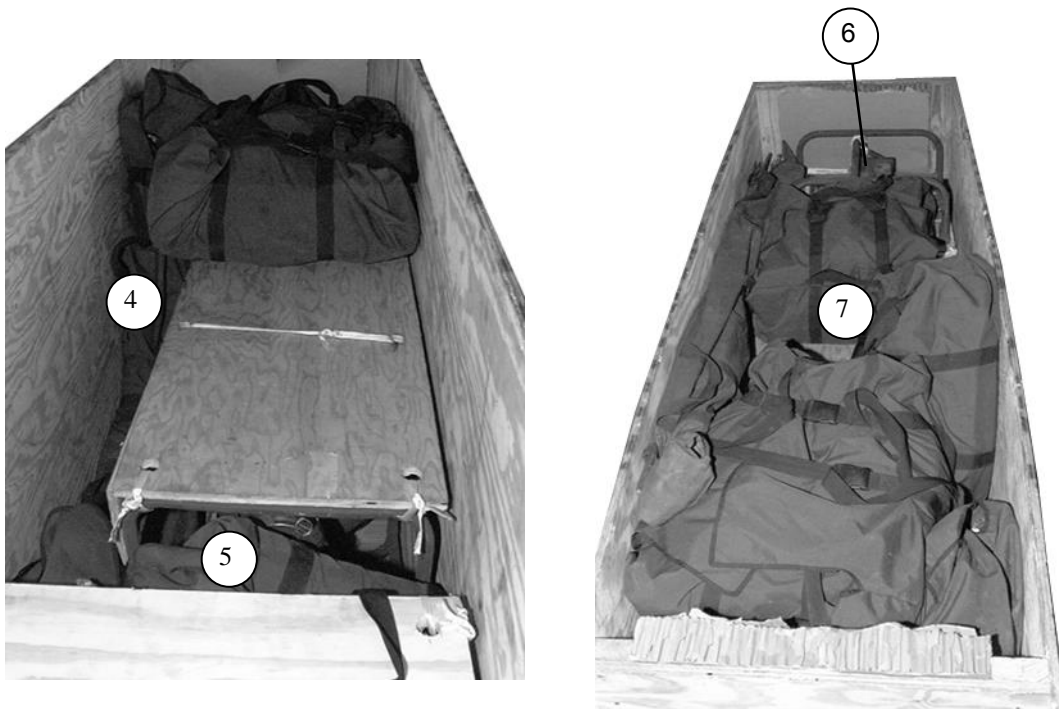
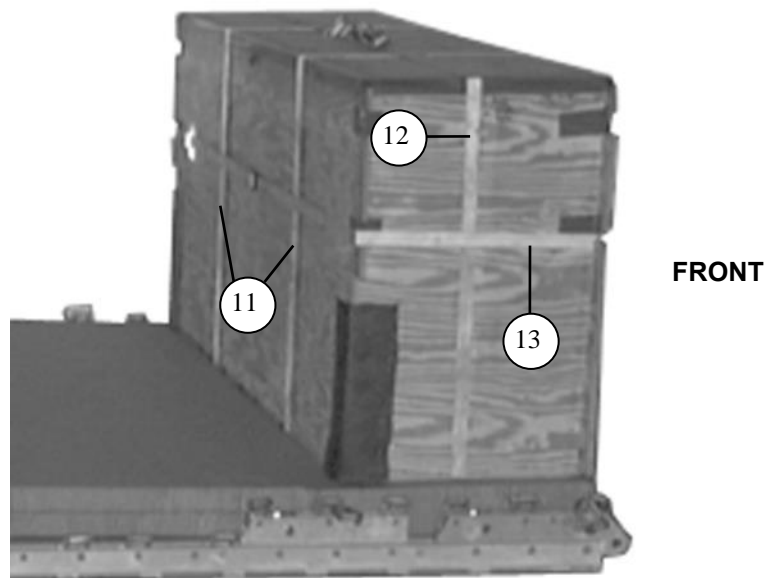


Figure 20-14. Equipment Positioned and Secured in Front Box



- ④ Place the suction hose bags in the space to the rear of the filter separator.
- ⑤ Place a bag containing one 50 foot by 3 inch and one 6 foot by 3 inch discharge hoses between the filter separator and fire extinguishers.
- ⑥ Place the explosion-proof motor on top of the fire extinguishers.
- ⑦ Place the remaining hose bags to the rear and on top of the filter separator.
- ⑧ Place the ground rods on top of the hose bags (not shown).
- ⑨ Fill in remaining space with honeycomb to prevent movement (not shown).
- ⑩ Nail the top on box (not shown).

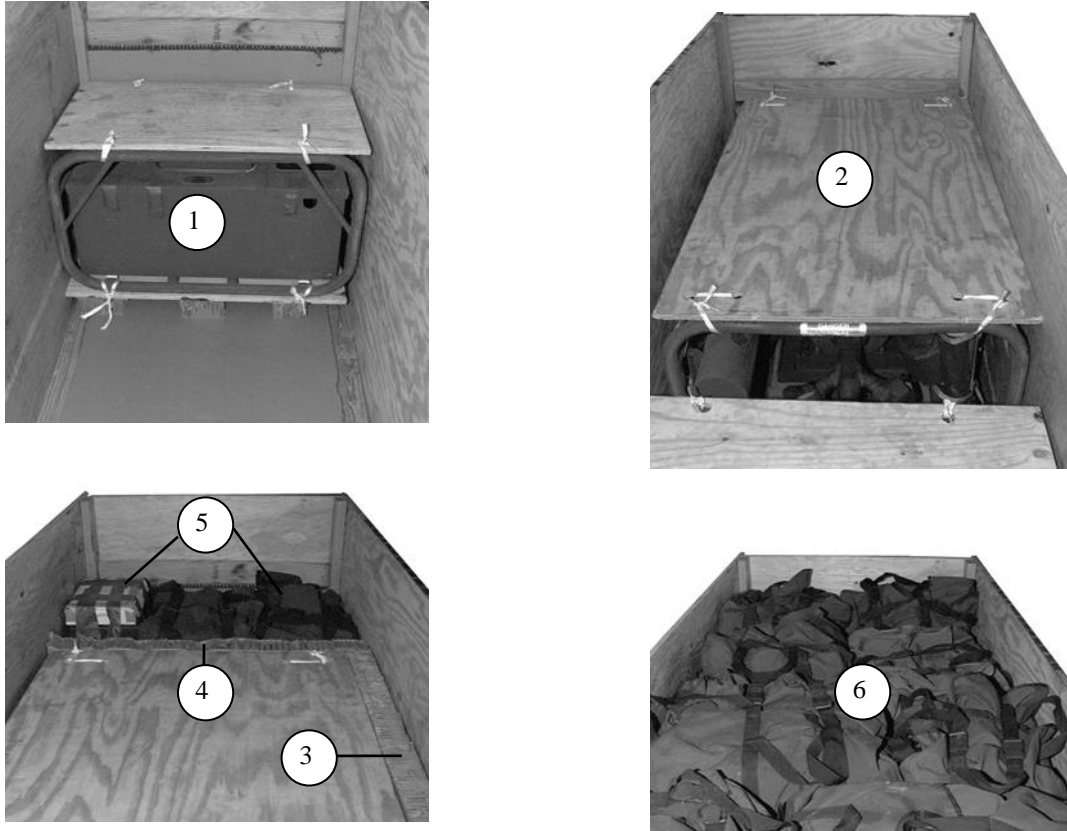
Figure 20-14. Equipment Positioned and Secured in Front Box (Continued)



- ⑪ Secure the box from front to rear using the two pre-positioned 15 foot lashings. Load bind at front of the box.
- ⑫ Secure the box from left to right using the pre-positioned 30 foot lashing. Load bind on top of the box.
- ⑬ Route a 30 foot lashing around the box using the bottom cutouts. Load bind on the front of the box.

Figure 20-14. Equipment Positioned and Secured in Front Box (Continued)

- Prepare the rear equipment box by placing a 34 inch by 82 inch piece of honeycomb in the floor of the box and a 37 ½ inch piece of honeycomb against each end of box below the 2 x 4 lumber. Position equipment in front equipment box as shown in Figure 20-15.



- ① Place the battery box in the left side of the box.
- ② Place the pump in the right front side of the box.
- ③ Place a 34 inch by 56 inch piece of honeycomb against the rear pump.
- ④ Place a 34 inch by 38 inch piece of honeycomb between the pump and the battery box.
- ⑤ Place the manuals/toolkit and two bags containing three nozzles each on top of the battery box.
- ⑥ Place the remaining bags on top.
- ⑦ Place a 36 inch by 90 inch piece of honeycomb on top to prevent movement (not shown).
- ⑧ Nail the top on the box (not shown).

Figure 20-15. Equipment Positioned and Secured in Rear Box



- 9 Secure the box from the front to rear using the two pre-positioned 15 foot lashings. Load bind at rear of the box.
- 10 Secure the box from left to right using the two pre-positioned 30 foot lashings. Load bind on side of the box.
- 11 Route a 30 foot lashing around the box using the bottom cutouts. Load bind on the front of the box.

Figure 20-15. Equipment Positioned and Secured in Rear Box (Continued)

LASHING THE EQUIPMENT BOXES TO THE PLATFORM

20-9. Lash the equipment boxes as shown in Figures 20-16 through 20-21.

- Lash the front equipment box to the platform as shown in Figures 20-16 through 20-18.

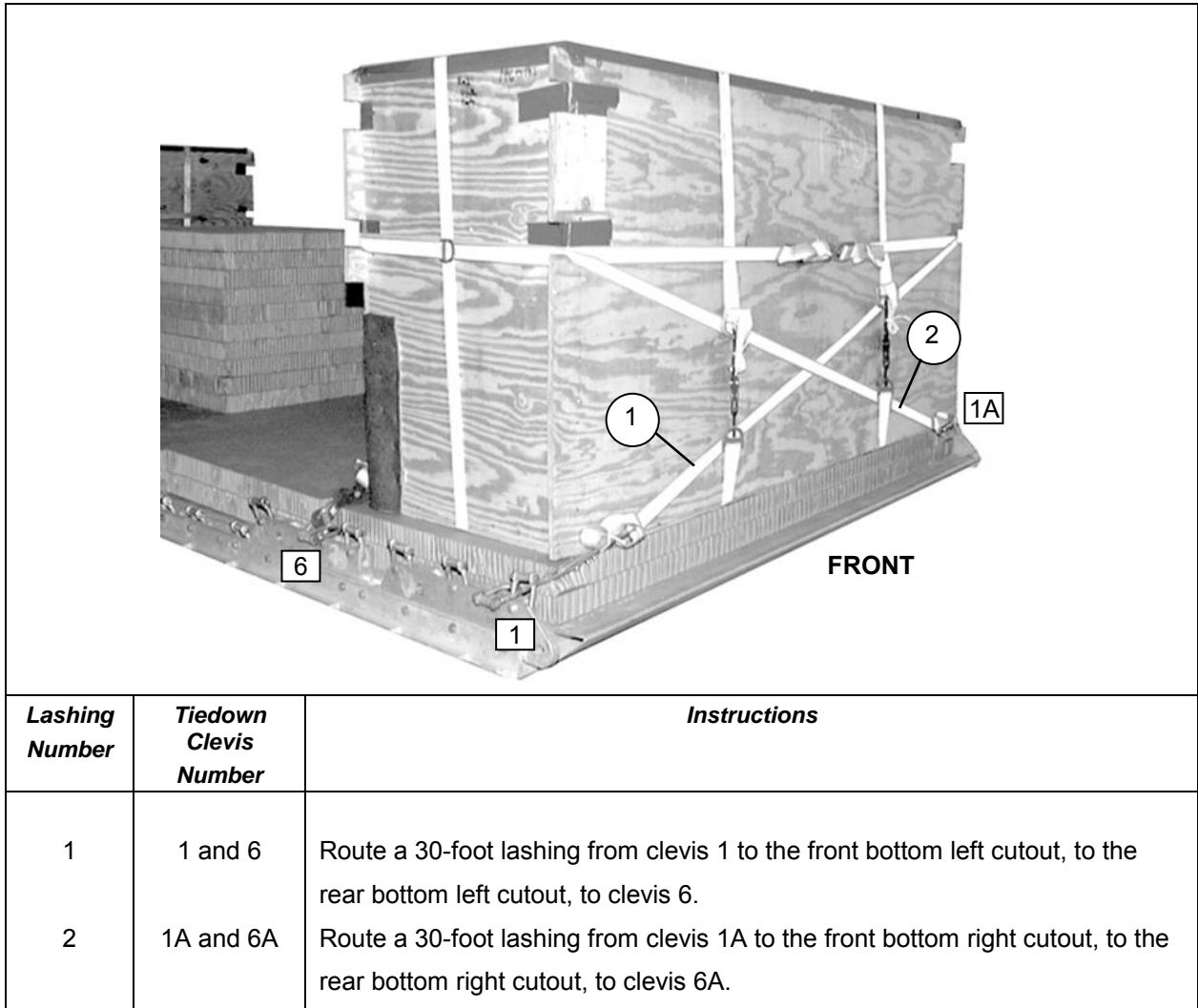
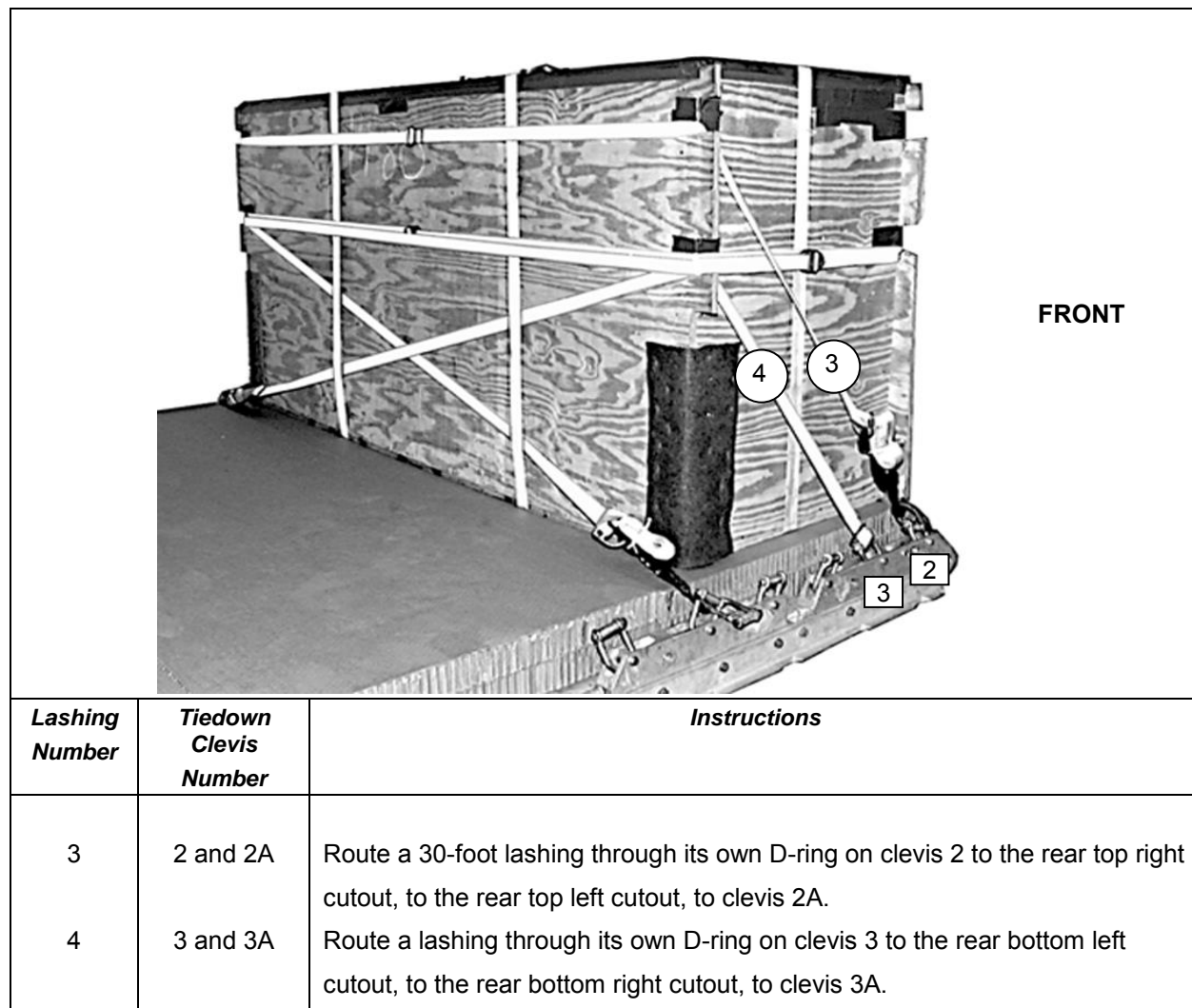


Figure 20-16. Lashings 1 and 2 Installed

**Figure 20-17. Lashings 3 and 4 Installed**

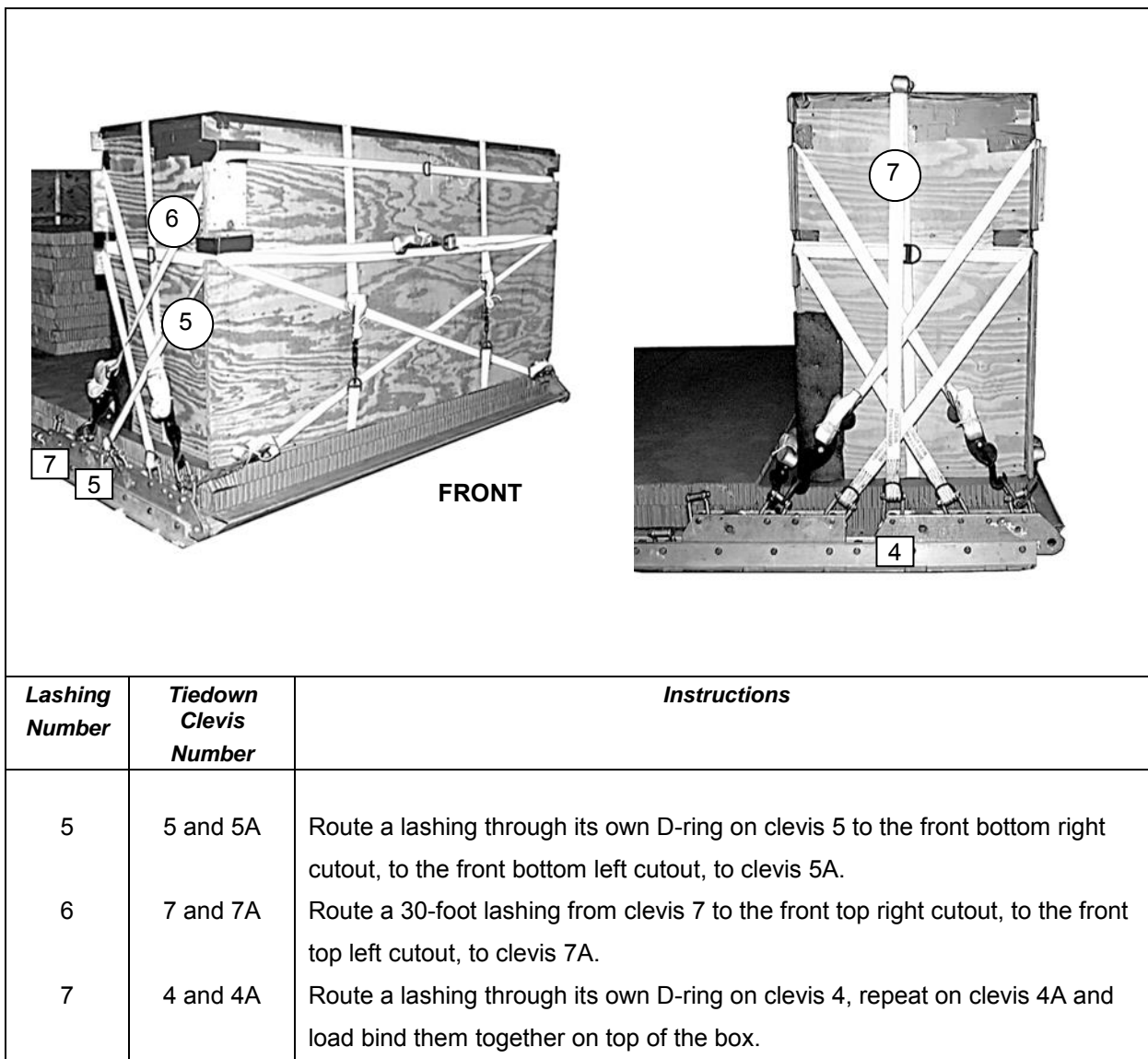


Figure 20-18. Lashings 5 Through 7 Installed

- Lash the rear equipment box to the platform as shown in Figures 20-19 through 20-21.

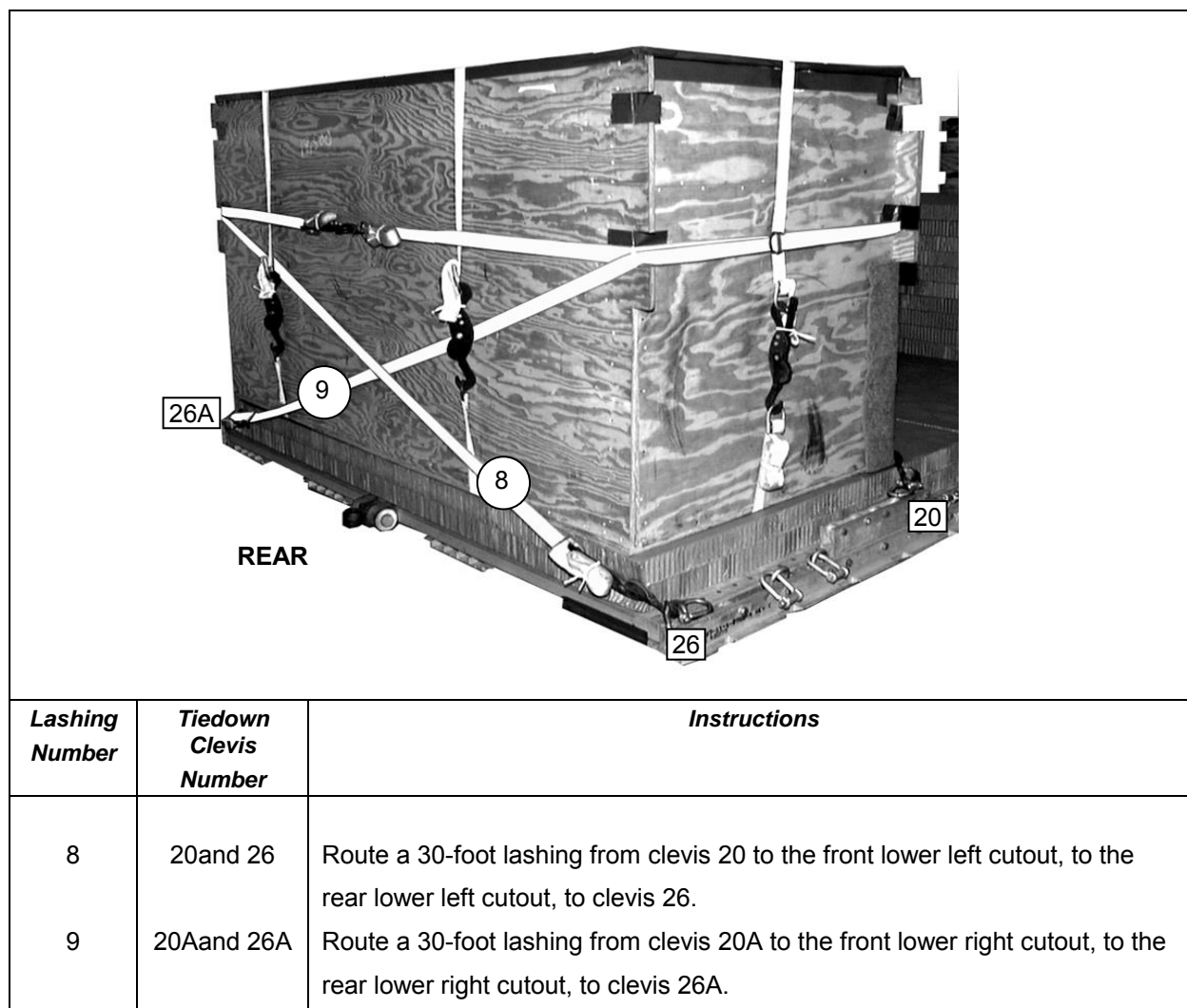


Figure 20-19. Lashings 8 and 9 Installed

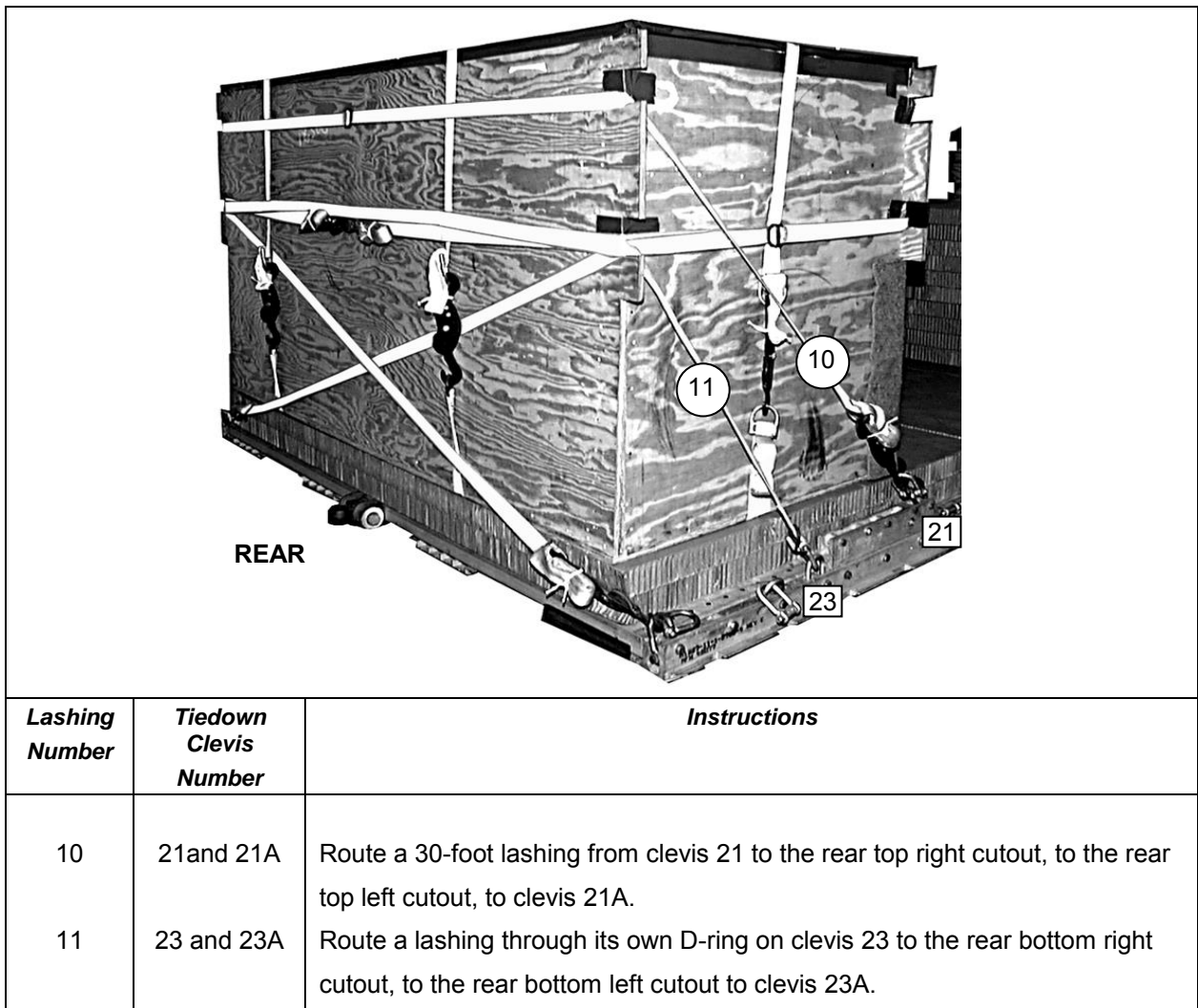


Figure 20-20. Lashings 10 and 11 Installed

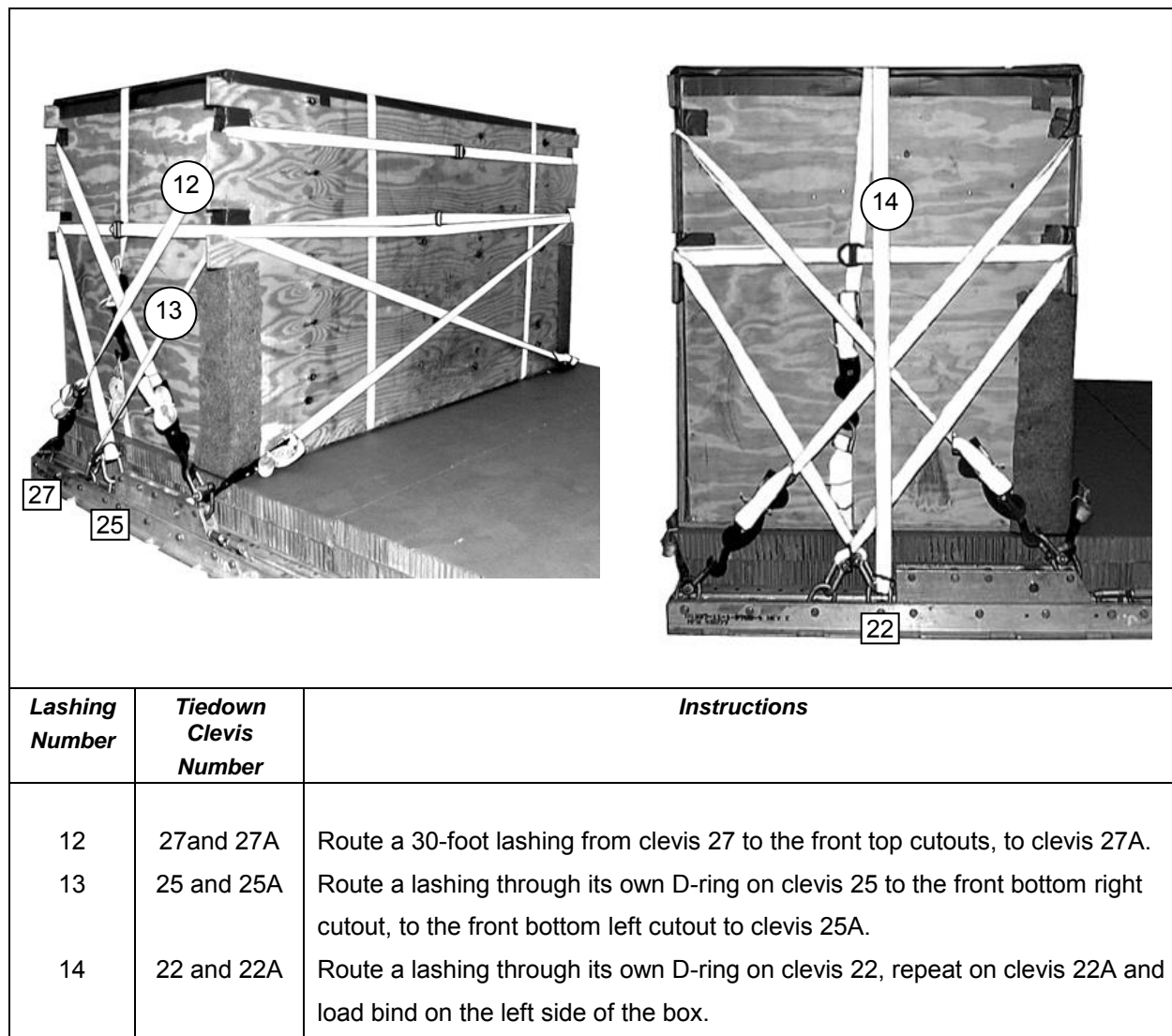


Figure 20-21. Lashings 12 Through 14 Installed

POSITIONING AND LASHING THE DRUMS

20-10. Position and lash the fuel drums to the platform as shown in Figures 20-22 through 20-29.

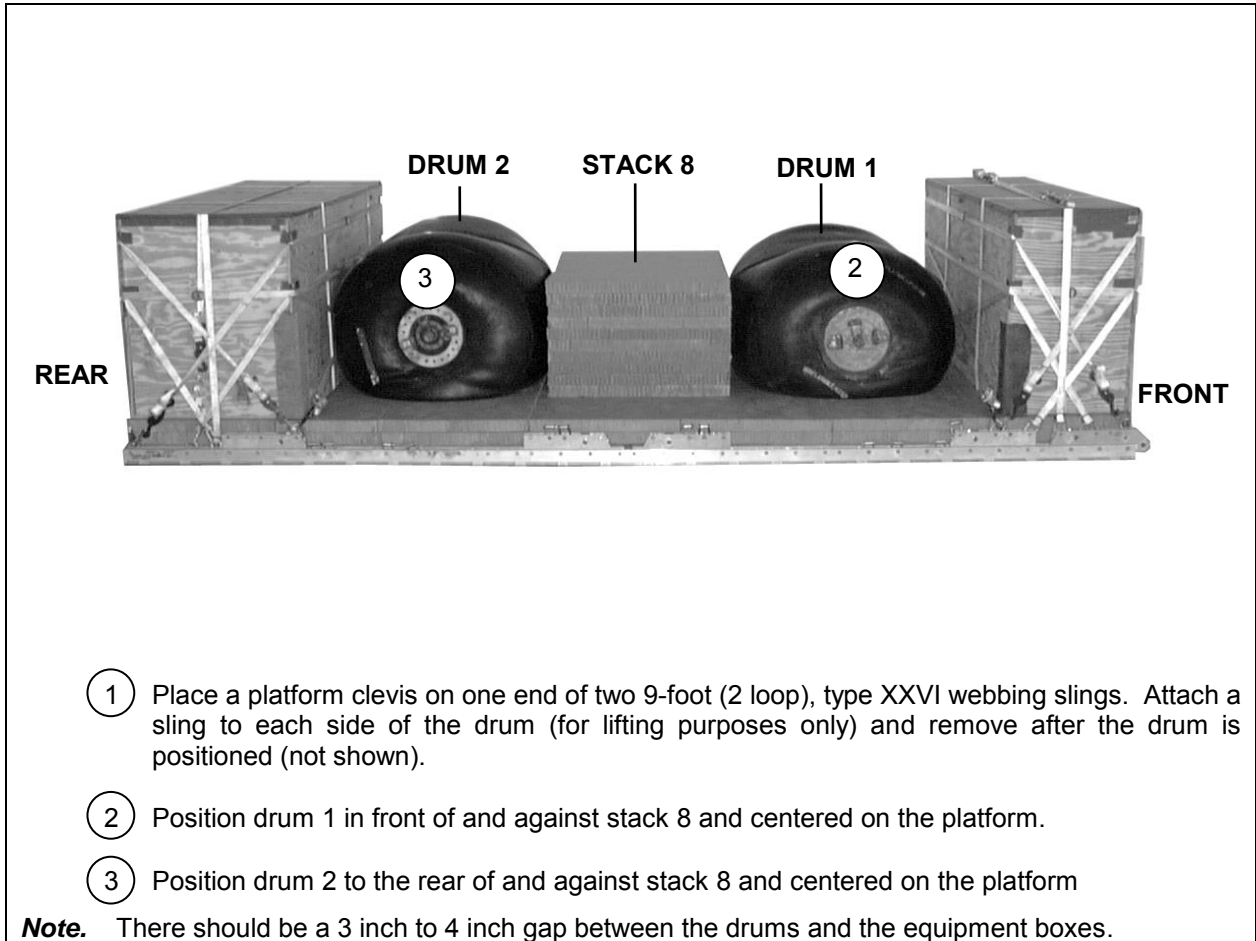


Figure 20-22. Fuel Drums 1 and 2 Positioned

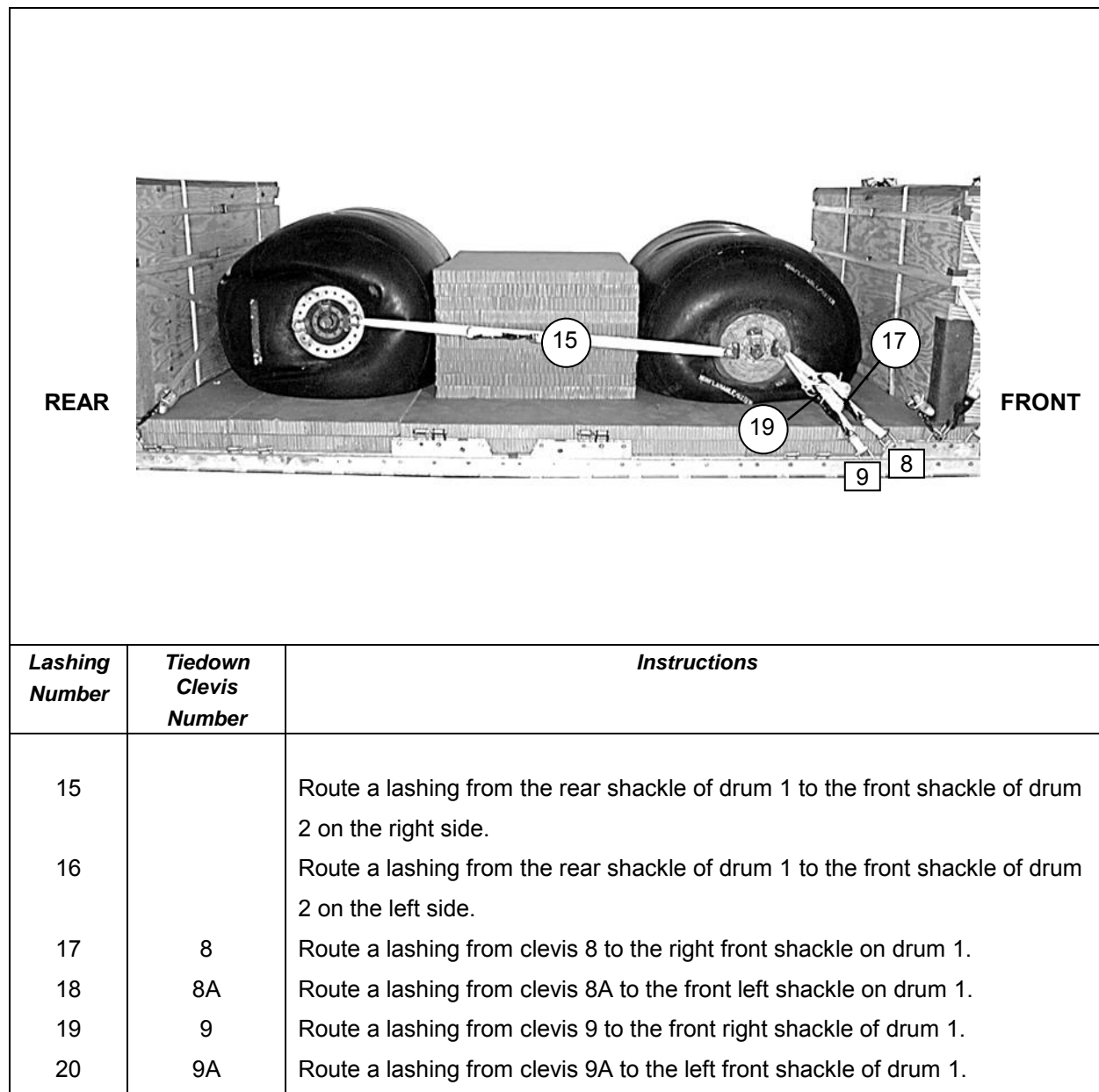


Figure 20-23. Lashings 15 Through 20 Installed

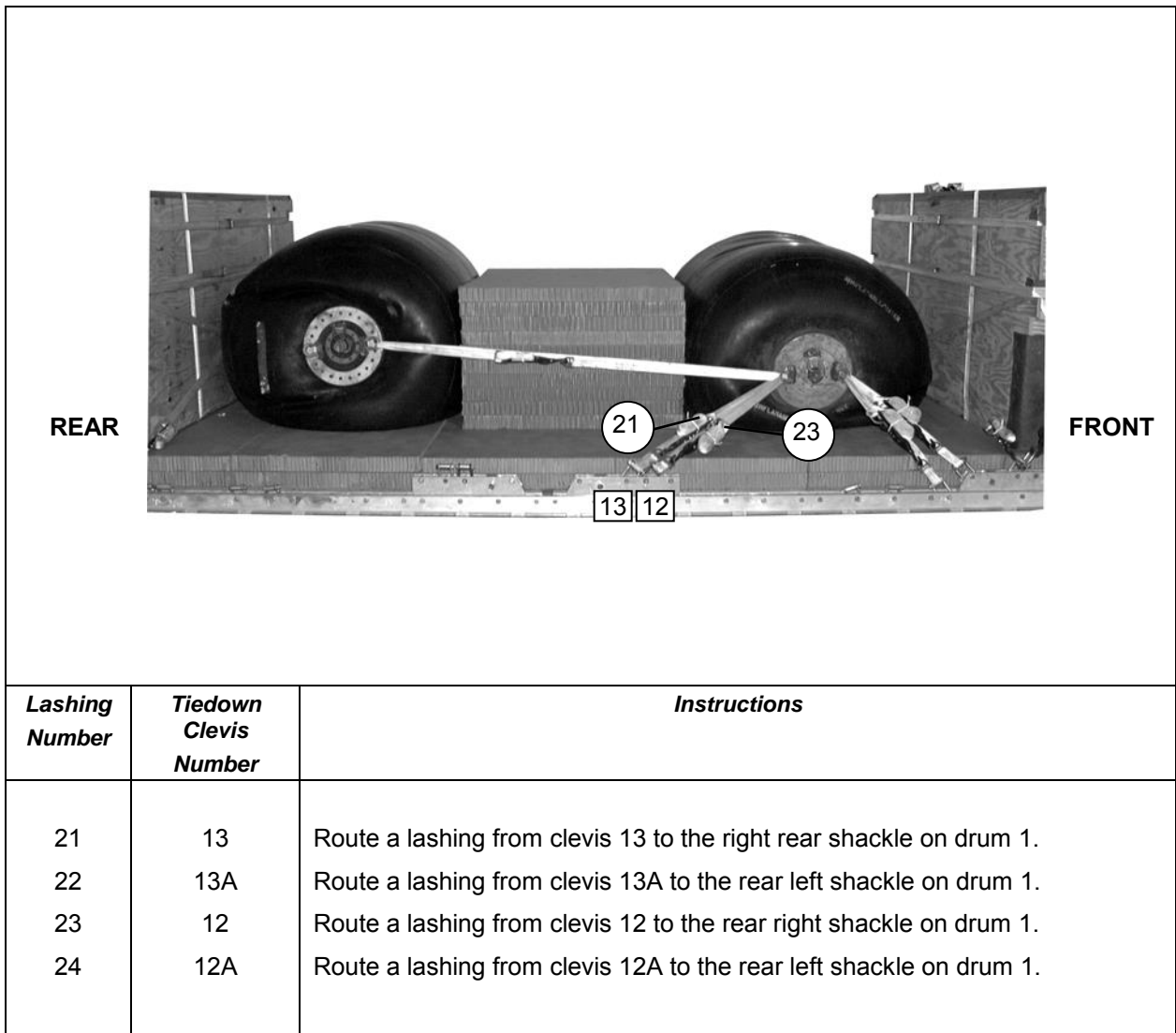
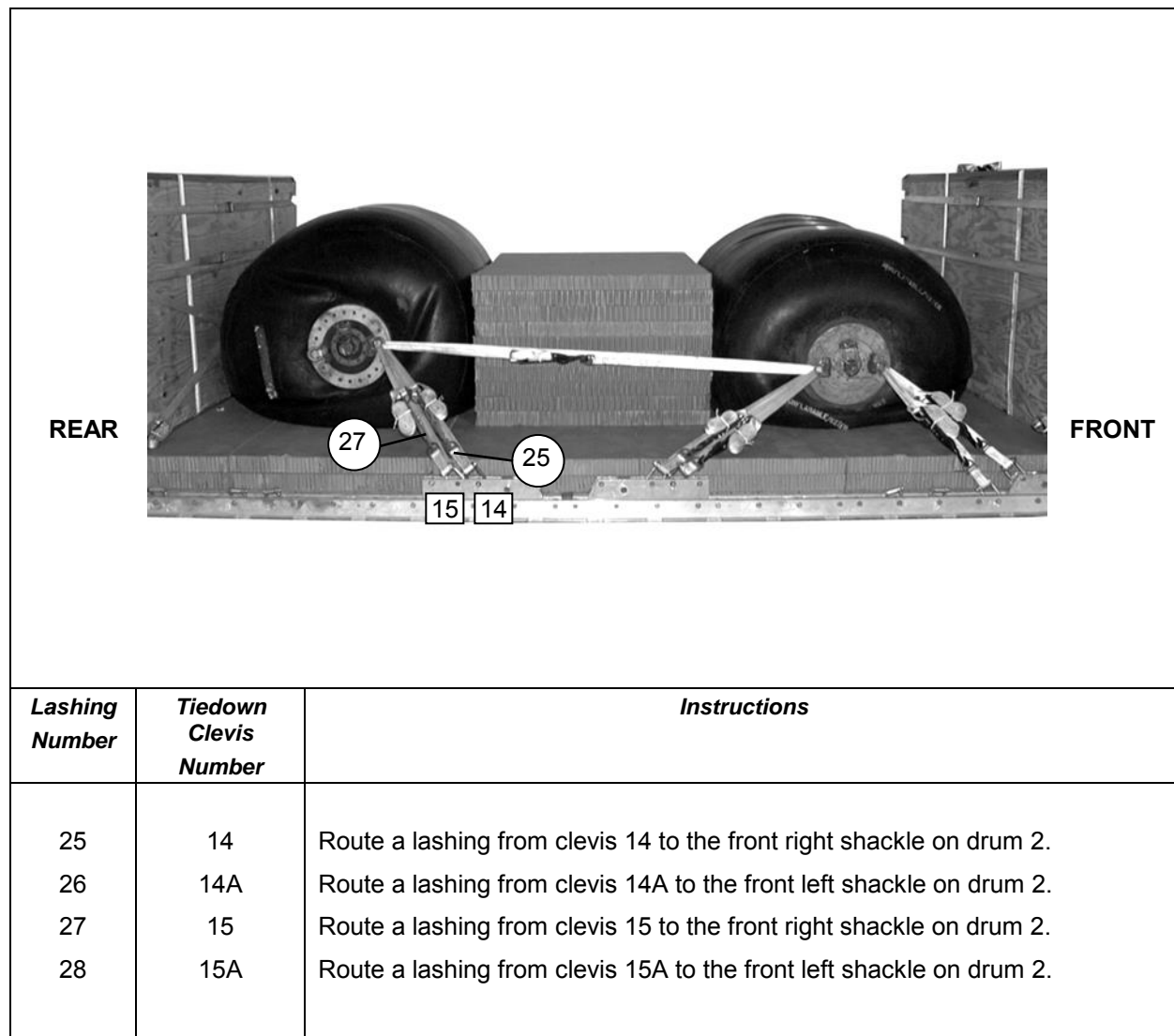


Figure 20-24. Lashings 21 Through 24 Installed

**Figure 20-25. Lashings 25 Through 28 Installed**

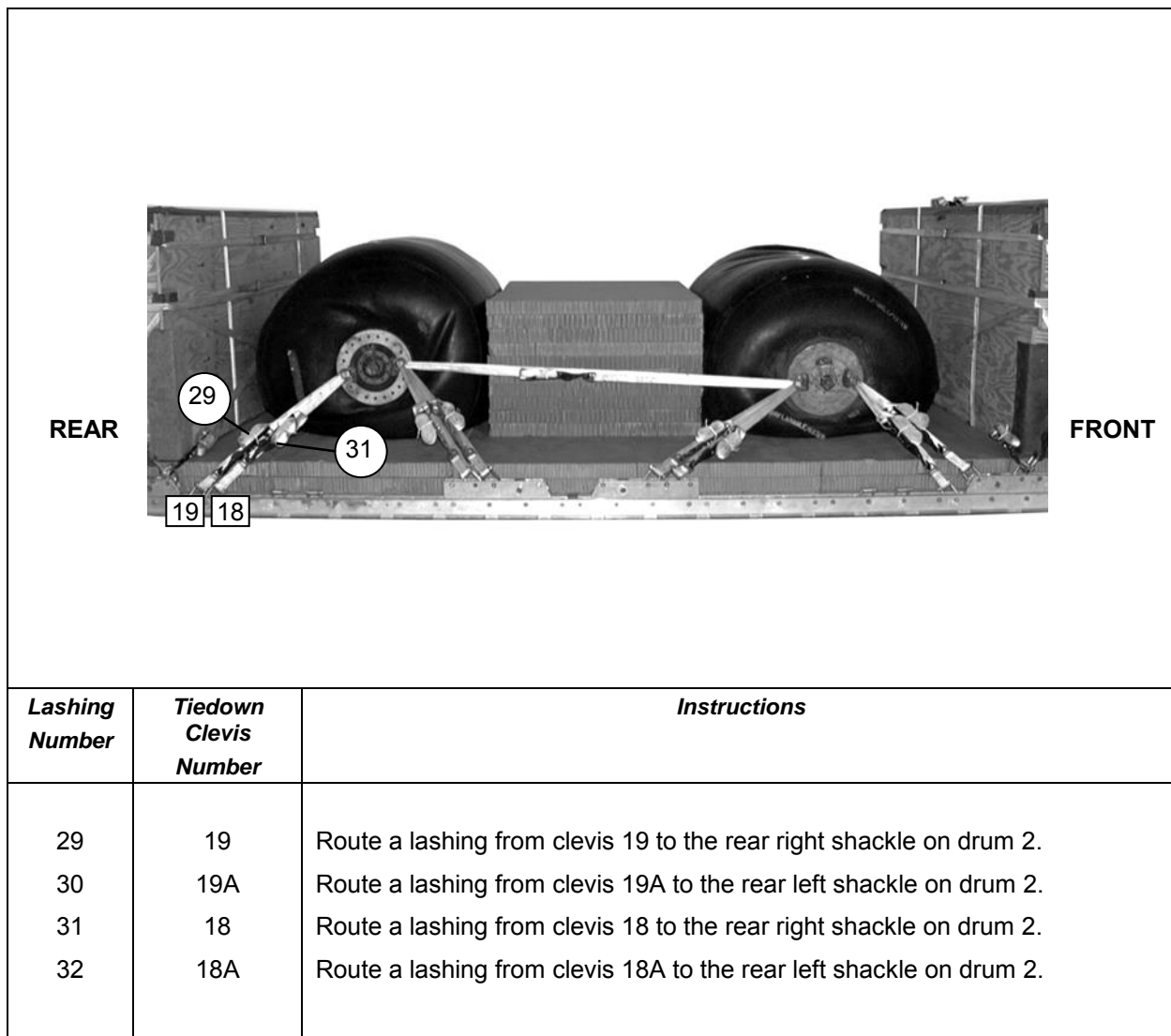


Figure 20-26. Lashings 29 Through 32 Installed

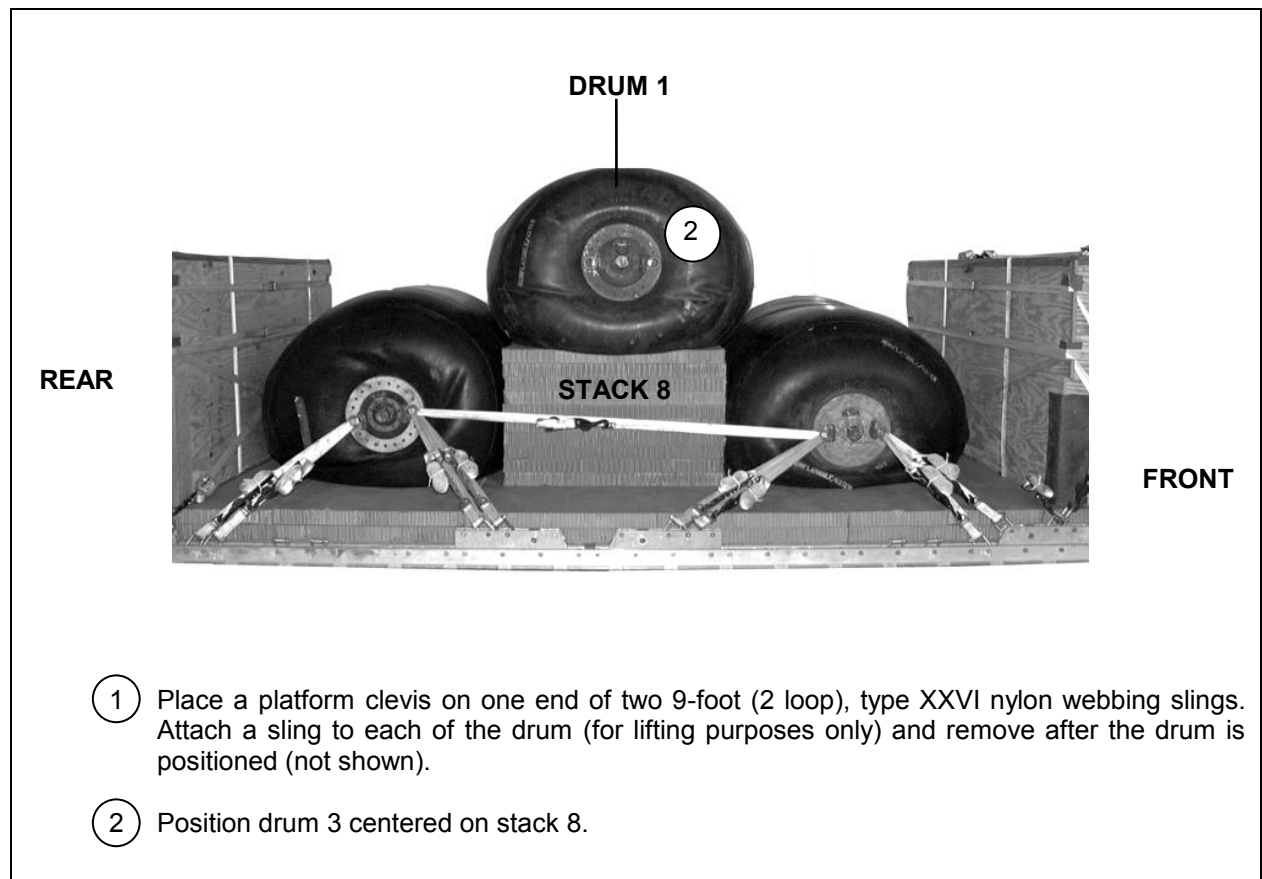


Figure 20-27. Fuel Drum 3 Positioned

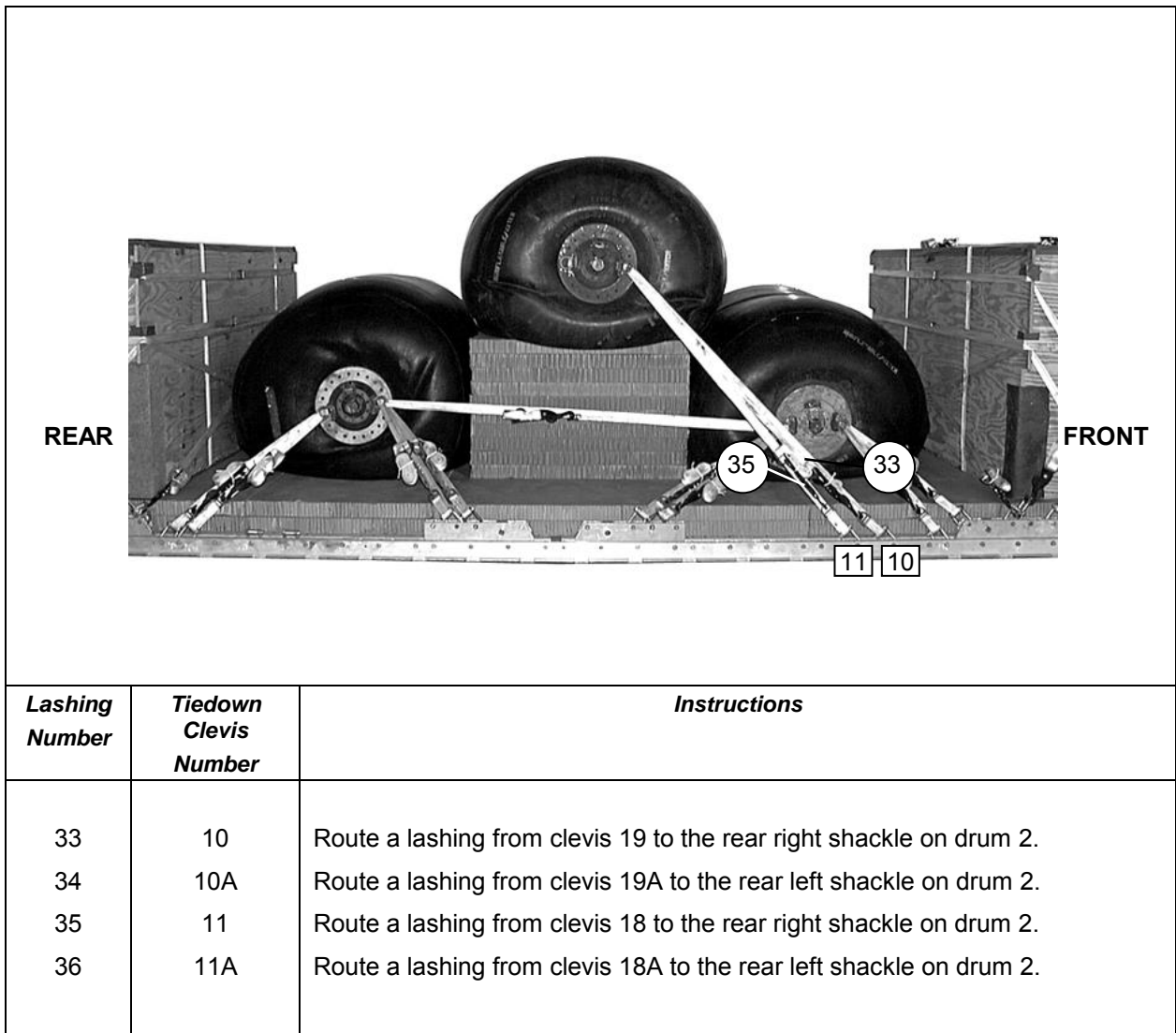


Figure 20-28. Lashings 33 Through 36 Installed

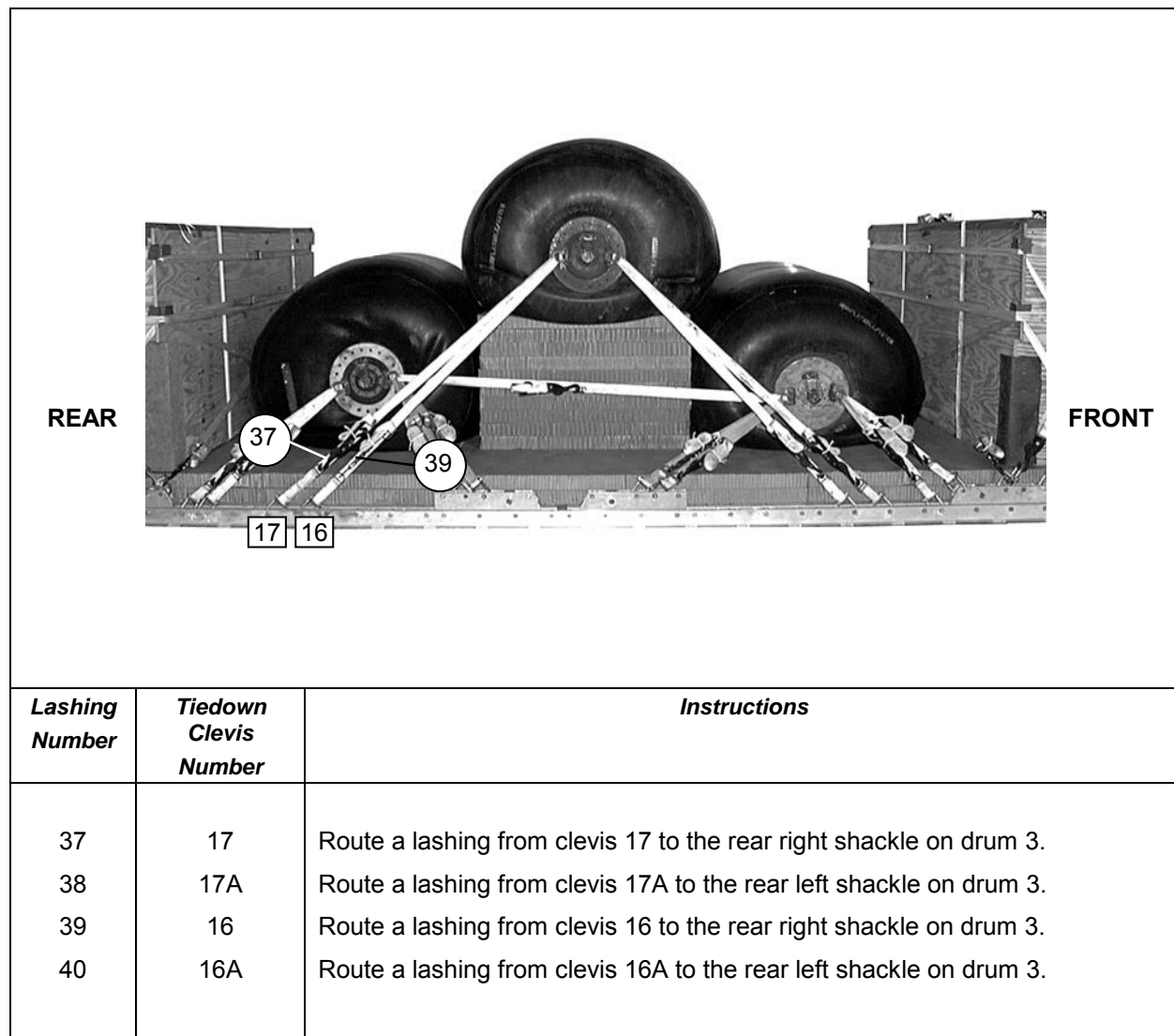
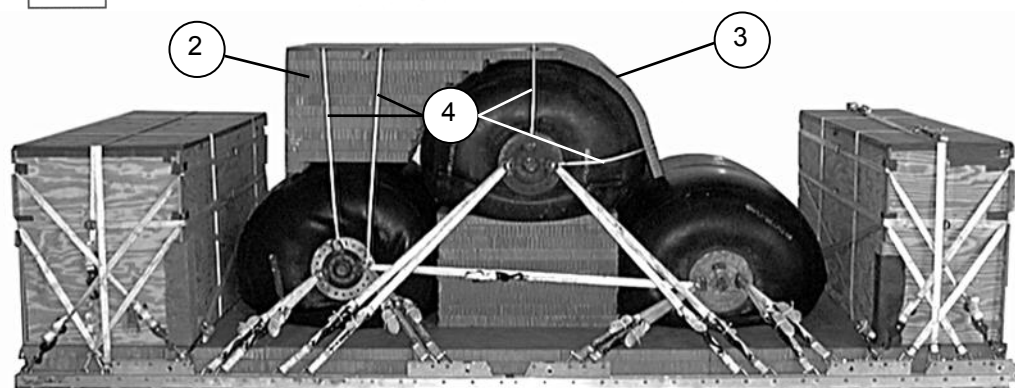
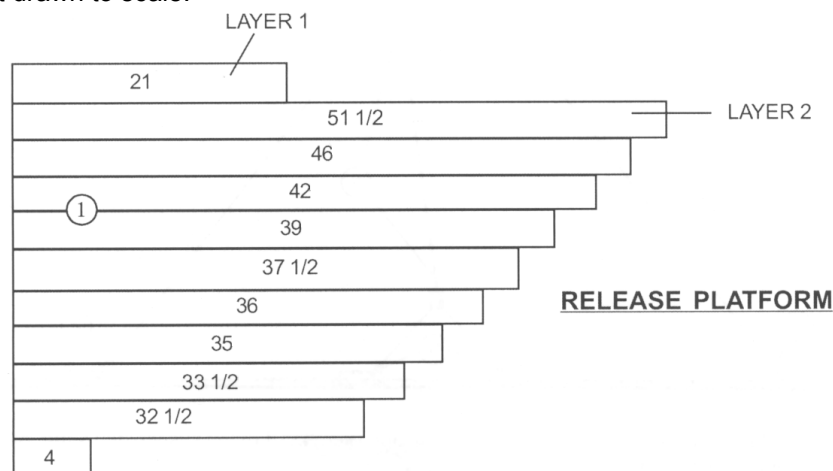


Figure 20-29. Lashings 37 Through 40 Installed

BUILDING AND POSITIONING RELEASE PLATFORM

20-11. Build and position the release platform as shown in Figure 20-30.

Note. 1. All dimensions are in inches.
2. Not drawn to scale.



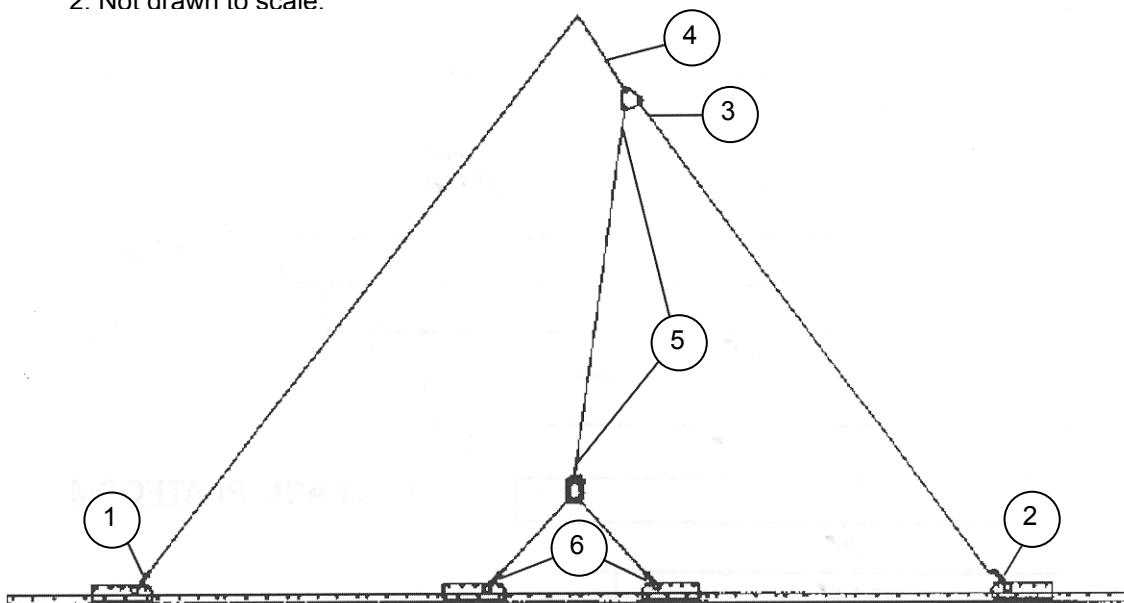
- ① Build the release platform as shown above with all lengths 36 inches wide.
- ② Place the release stack on top of drum 2 and against drum 3, centered.
- ③ Place a 36-inch piece of honeycomb on top of layer 2 and against layer 1. Shape it around drum 3. Tape the top edges where the honeycomb fits together.
- ④ Secure the release stack with 1/2 inch tubular nylon webbing to the drum shackles.

Figure 20-30. Release Platform Built and Positioned

INSTALLING SUSPENSION SLINGS AND SAFETY TIES

20-12. Install suspension slings and safety ties as shown in Figure 20-31.

Note. 1. All dimensions are in inches.
2. Not drawn to scale.

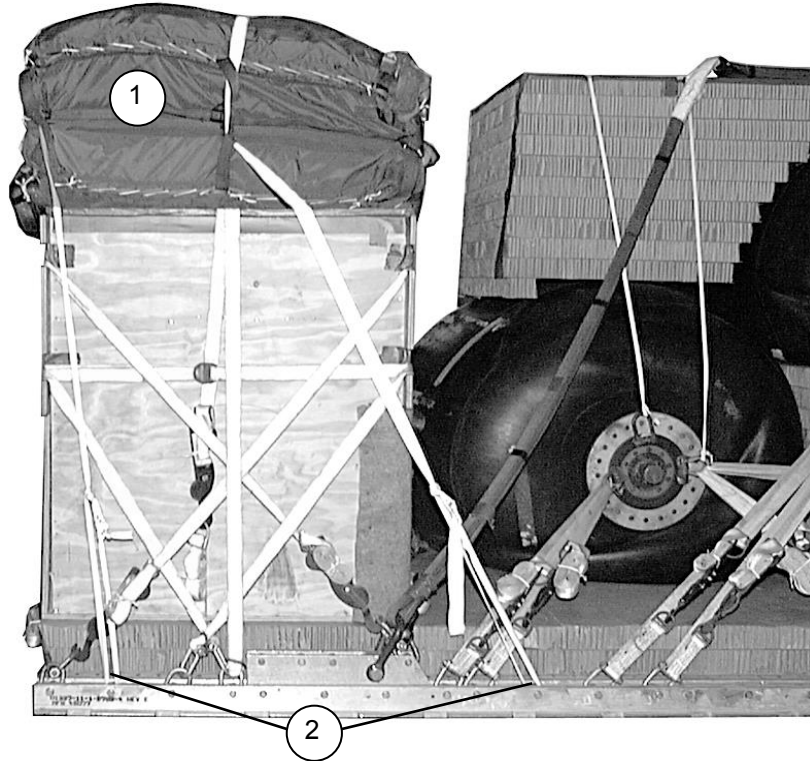


- ① Place a large clevis in one end of a 16-foot (4 loop), type XXVI nylon suspension sling. Attach the clevis to the right rear suspension bracket.
- ② Place two large clevises on one end of a 12-foot (4 loop), type XXVI nylon suspension sling. Attach the clevis to the right front suspension bracket.
- ③ Attach the running end of the 12-foot sling to a 3-point link.
- ④ Place a 3-foot (4 loop), type XXVI nylon suspension sling on the 3-point link.
- ⑤ Place one end of a 20-foot (4 loop), type XXVI nylon suspension sling on a 3-foot (4 loop), type XXVI nylon suspension sling. Route the running end of the 20-foot sling through the remaining point on the 3-point link and place it on the 3-foot sling.
- ⑥ Attach large clevises to each running end of the 3-foot sling and attach the clevises to the right center suspension brackets.
- ⑦ Repeat steps 1 through 6 for the left side (not shown).
- ⑧ Raise the suspension slings and install the suspension sling safety ties to the front and rear suspension slings using double $\frac{1}{2}$ inch tubular nylon webbing six to eight inches above the highest point of the load (not shown). Refer to the Notice of Exception in the Introduction of this manual.
- ⑨ Pad the tape and link assemblies (not shown).

Figure 20-31. Suspension Slings and Safety Ties Installed

PREPARING AND STOWING CARGO PARACHUTES

20-13. Prepare and stow four G-11 cargo parachutes as shown in Figure 20-32.



- ① Prepare and stow four G-11 cargo parachutes on the rear equipment box according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Restrain the parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 using bushings 31, 31A, 39 and 39A on the platform.
- ③ Install the multicut parachute release strap according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 (not shown).

Figure 20-32. Cargo Parachutes Prepared and Stowed

INSTALLING THE EXTRACTION

20-14. Install the extraction system as shown in Figure 20-33.

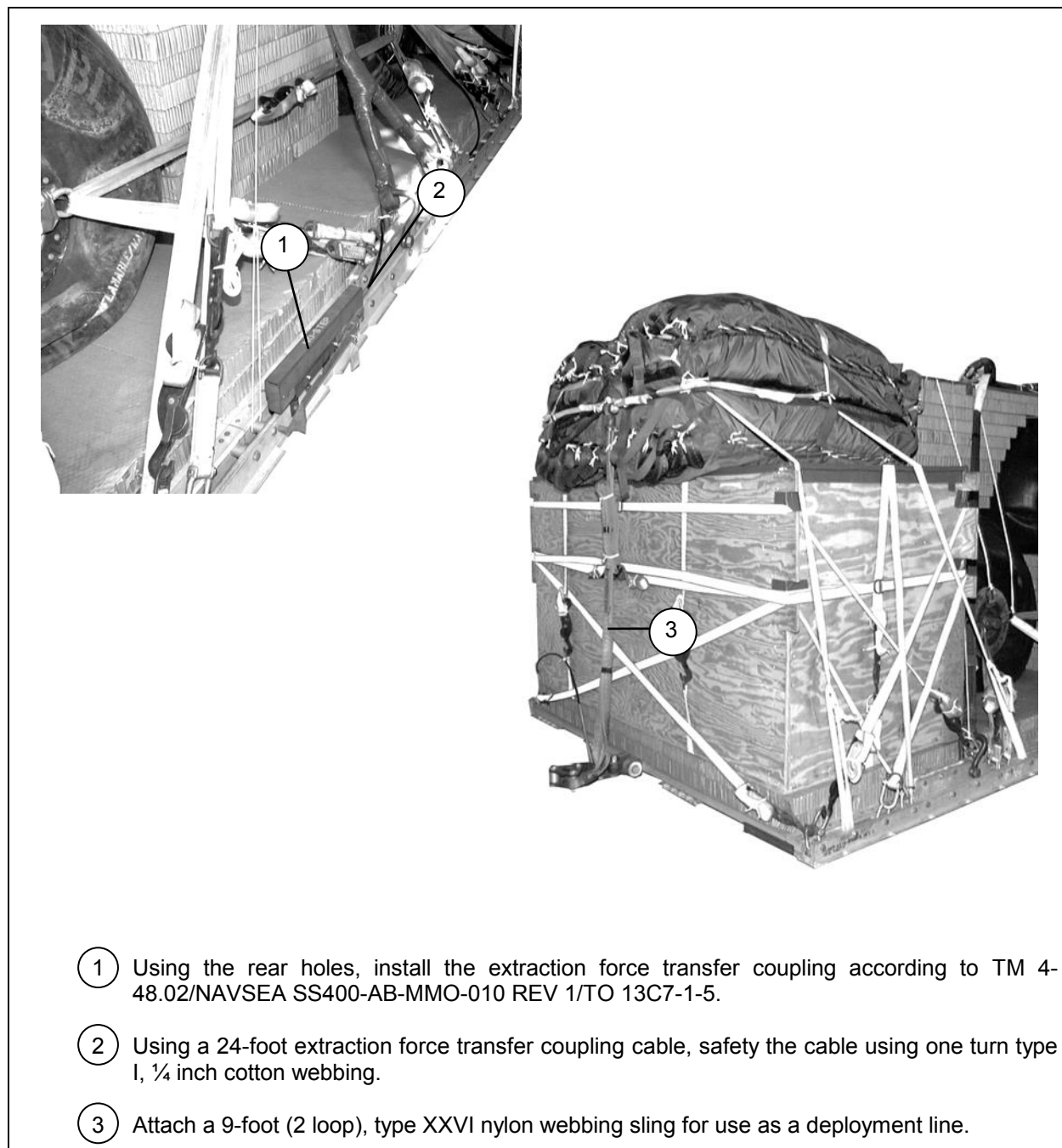
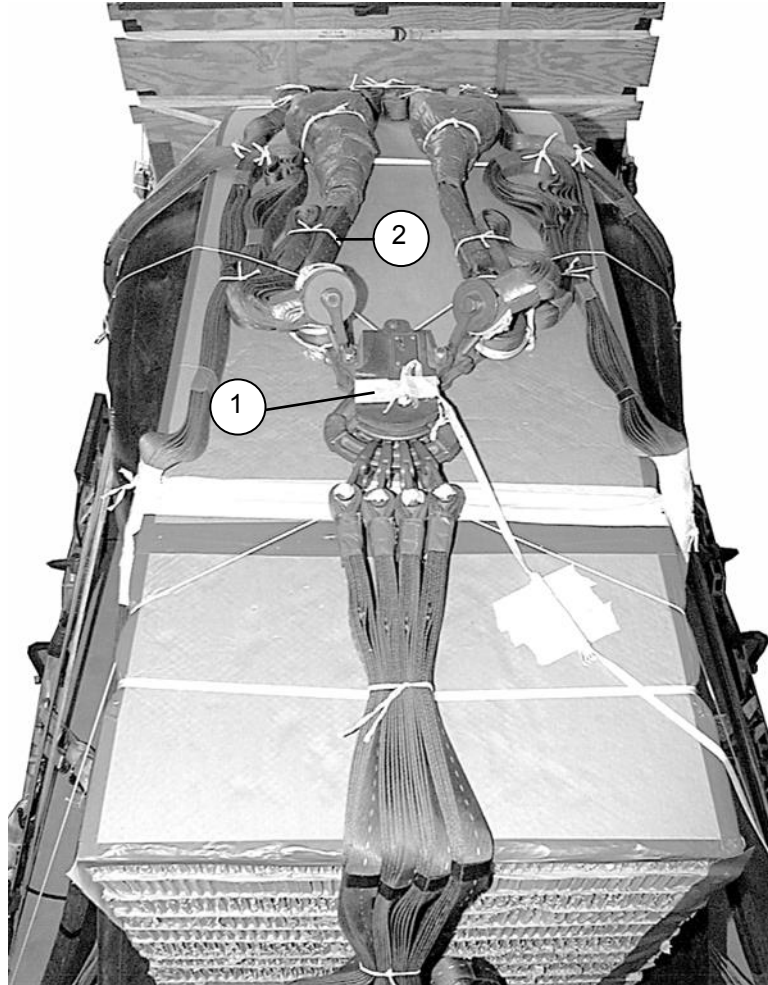


Figure 20-33. Extraction System Installed

INSTALLING THE CARGO PARACHUTE RELEASE SYSTEM

20-15. Install the M-2 cargo parachute release system as shown in Figure 20-34.



- ① Place the M-2 release on the release platform. Attach the suspension slings and the parachute riser extensions to the M-2 cargo parachute release according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the cargo parachute release with type III nylon cord.
- ② S-fold and tie any slack in the suspension slings with ¼ inch cotton webbing.

Figure 20-34. Cargo Parachute Release Installed

PLACING EXTRACTION PARACHUTE

20-16. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

20-17. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

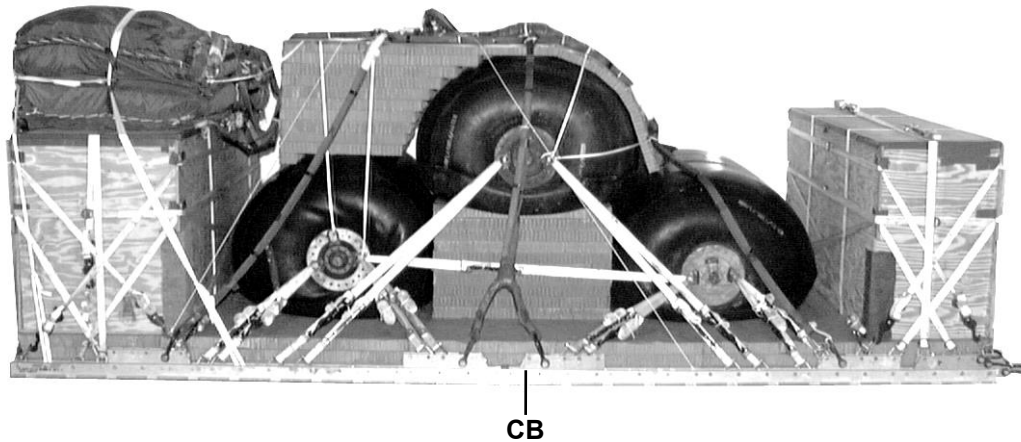
20-18. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 20-35. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

20-19. Use the equipment list in Table 20-1 to rig the load shown in Figure 20-35.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



Rigged Load Data

Weight: Load shown.....	18,501 pounds
Maximum load allowed.....	20,000 pounds
Height.....	88 inches
Width	108 inches
Length	258 inches
Overhang: Front	0 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	121 inches
Extraction System	Extraction Force Transfer Coupler

Figure 20-35. AAFARS with Three 500-Gallon Drums Rigged

Table 20-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Three 500-Gallon Drums

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-279-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	11
4030-00-678-8562	Clevis, medium	4
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-360-0328	Cover, clevis, large	4
8305-00-958-3685	Felt sheet, 12 inch	As required
1670-00-003-4391	Knife, parachute bag (for Drogue Extraction System)	1
1670-01-183-2678	Leaf, extraction line (line bag) (add for Drogue Extraction System)	2
1670-01-064-4452	Line, drogue (for C-17): 60-foot (1 loop), type XXVI	1
1670-01-062-6304	Line, deployment: 9-foot (2 loop), type XXVI	1
1670-01-062-6313	Line, extraction:	1
1670-01-107-7651	For C-130: 60-foot (6 loop), type XXVI For C-17: 140-foot (6 loop), type XXVI	1
	Link assembly:	
5306-00-435-8994	Two point:	2
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1954	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 5 ½ inch	2
	Spacer, large	
5303-00-435-8994	Two-point: (for Drogue Extraction System)	2
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1953	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 3 ¾ inch	2
1670-01-307-1055	Spacer, large	2
1670-01-483-8259	Three point	1
	Link, tow release mechanism (H-Block) C-17 aircraft	
5510-00-220-6146	Lumber:	As required
5315-00-753-3885	2-by-4 inch	
1670-00-753-3928	Nail, steel wire, common, 16-penny	As required
	Pad, energy dissipating, honeycomb, 3-x-36-x 96 inches	24 sheets
1670-01-016-7841	Parachute:	
1670-00-040-8135	Cargo, G-11C	4
1670-01-063-3715	Cargo, extraction, 28 foot	1
	Drogue, 15 foot (for C-17)	1

Table 20-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Three 500-Gallon Drums (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 32-foot:	
1670-01-247-2389	Bracket assembly, component, (extraction force transfer coupler)	1
1670-01-162-2372	Bracket, suspension	8
1670-01-353-8424	Clevis assembly, type V	54
1670-01-162-2381	Extraction bracket assembly	1
5530-00-618-8073	Link, tandem, suspension link assembly	2
1670-01-097-8817	Plywood, ¾-by-48-by-96 inches	11 sheets
	Release, cargo parachute, M-2	1
	Sling, cargo airdrop	
1670-01-062-6306	For suspension:	
1670-01-062-6307	3-foot (4 loop), type XXVI nylon webbing	4
1670-01-062-6308	12-foot (4 loop), type XXVI nylon webbing	2
1670-01-064-4453	16-foot (4 loop), type XXVI nylon webbing	2
	20-foot (4 loop), type XXVI nylon webbing	2
1670-01-062-6313	For riser extension:	
1670-00-040-8219	60-foot (3 loop), type XXVI nylon webbing	4
7510-00-266-5016	Strap, parachute release, multicut	2
7510-00-266-6710	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tape, masking, 2-inch	As required
	Tiedown assembly, 15-foot	61
8305-00-268-2411	Webbing:	
8305-00-082-5752	Cotton, ¼ inch, type I	As required
8305-00-263-3591	Nylon, tubular, ½ inch	As required
	Type VII	As required

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Chapter 21

Rigging AAFARS with Four 500-Gallon Fuel Drums for Low-Velocity Airdrop on Type V Platform

DESCRIPTION OF LOAD

21-1. The AAFARS is rigged on a 20-foot type V platform with four G-11 cargo parachutes. The AAFARS is designed for forward area refueling of up to four aircraft at a time with a minimum of 55 gallons-per-minute. There are four collapsible fuel drums as an accompanying load. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The total rigged length is 258 inches. Width is 108 inches. Height is 88 inches. Center of balance is 121 inches.

Note. 1. For drums filled with a liquid other than water, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.

PREPARING PLATFORM

21-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 72 tiedown clevises as shown in Figure 21-1.

Note. 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.

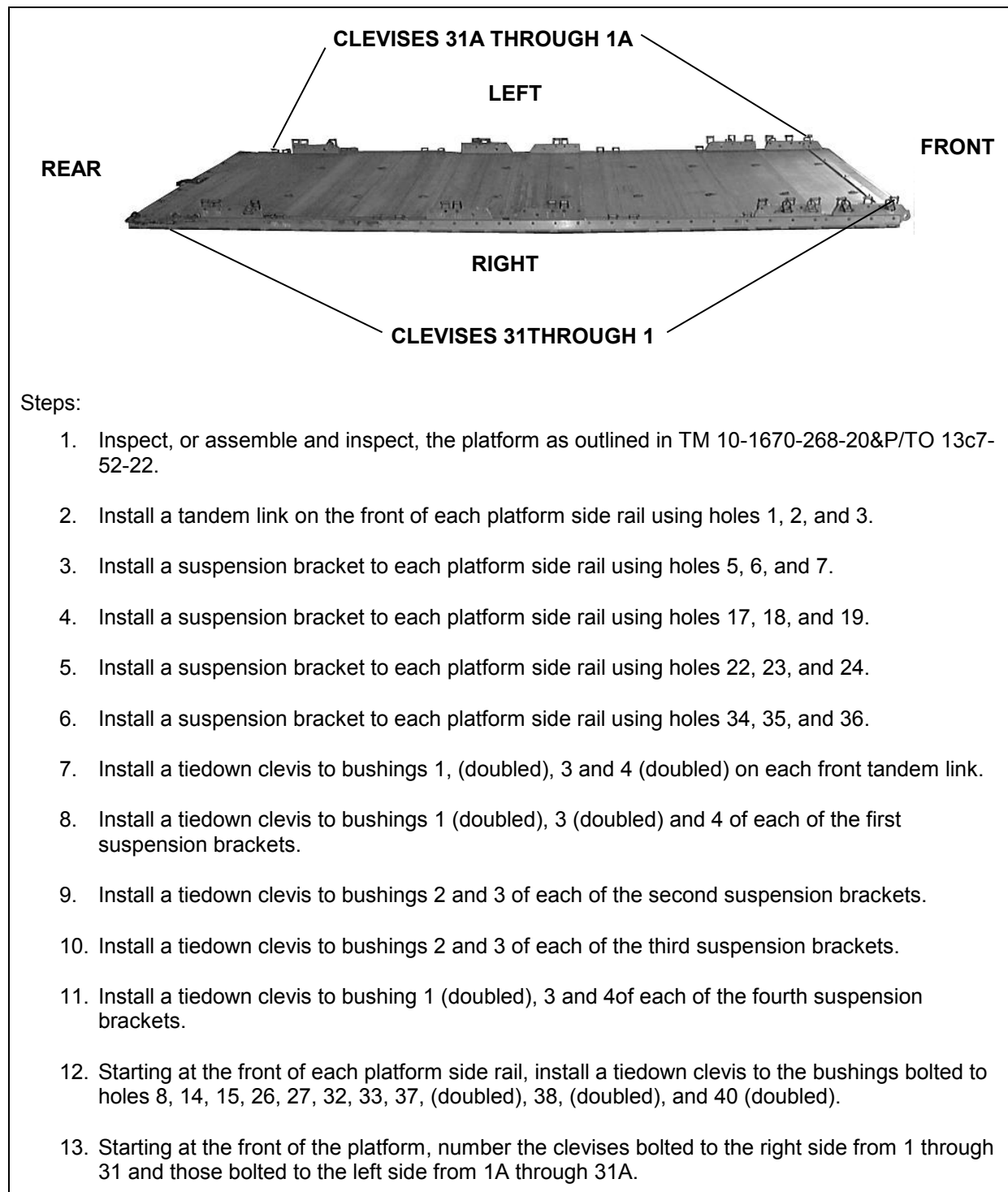


Figure 21-1. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

21-3. Prepare the honeycomb stacks as shown in Figure 20-2. Place the honeycomb stacks on the platform as shown in Figure 20-3.

BUILDING THE EQUIPMENT BOXES

21-4. Build the front and rear equipment boxes as shown in Figures 20-4 and 20-5.

PREPARING EQUIPMENT FOR EQUIPMENT BOXES

21-5. Prepare the fire extinguishers, filter separator, explosion proof motor, pumps, battery box, manuals and toolkit as explained and shown in paragraph 20-6. Using the lists printed on the equipment bags, place the equipment indicated on each list into its bag.

POSITIONING EQUIPMENT BOXES

21-6. Pre-position three lashings at each end of the platform as shown in Figure 20-13, steps 1 through 3. Position the equipment boxes flush over the ends of the honeycomb as shown in Figure 20-13, step 4. Pad the inside lower box corners as shown in Figure 20-13.

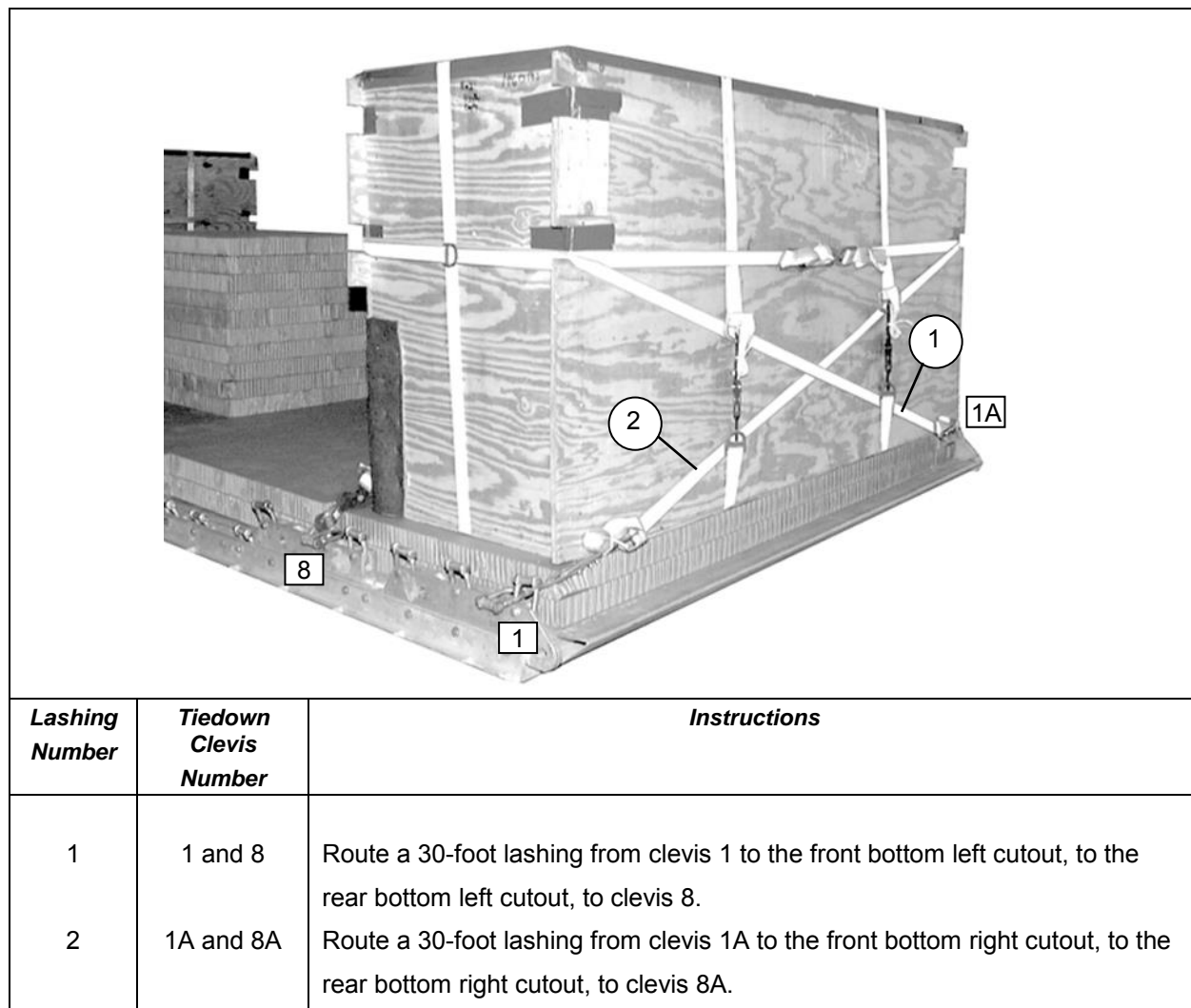
POSITIONING EQUIPMENT IN EQUIPMENT BOXES AND SECURING BOXES

21-7. Position and secure the equipment in the equipment boxes, and secure the boxes and lids as explained in paragraph 20-8, and as shown in Figure 20-15.

LASHING THE EQUIPMENT BOXES TO THE PLATFORM

21-8. Lash the equipment boxes to the platform as given below.

- Lash the front equipment box to the platform as shown in Figures 21-2 through 21-4.

**Figure 21-2. Lashings 1 and 2 Installed**

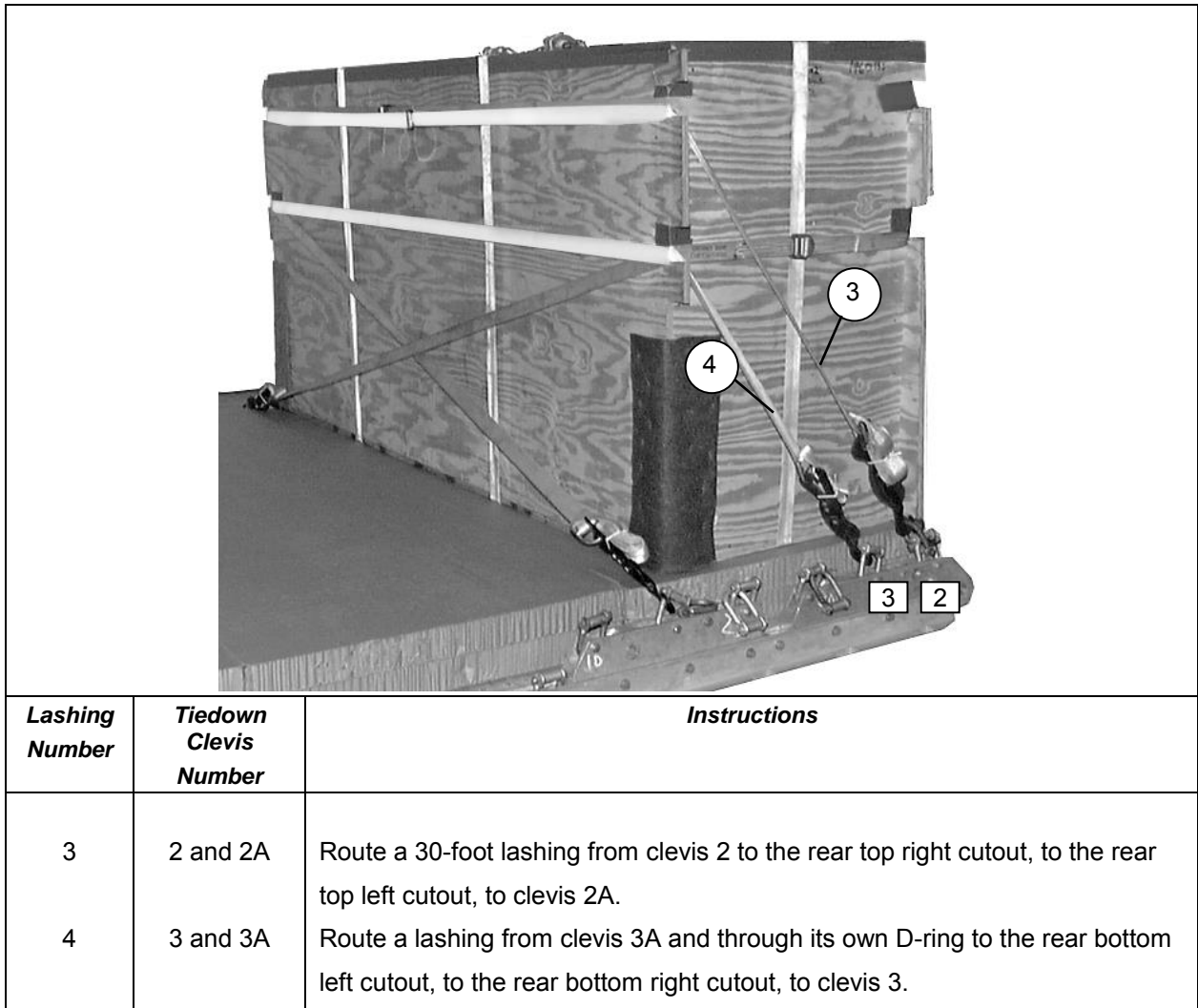


Figure 21-3. Lashings 3 and 4 Installed

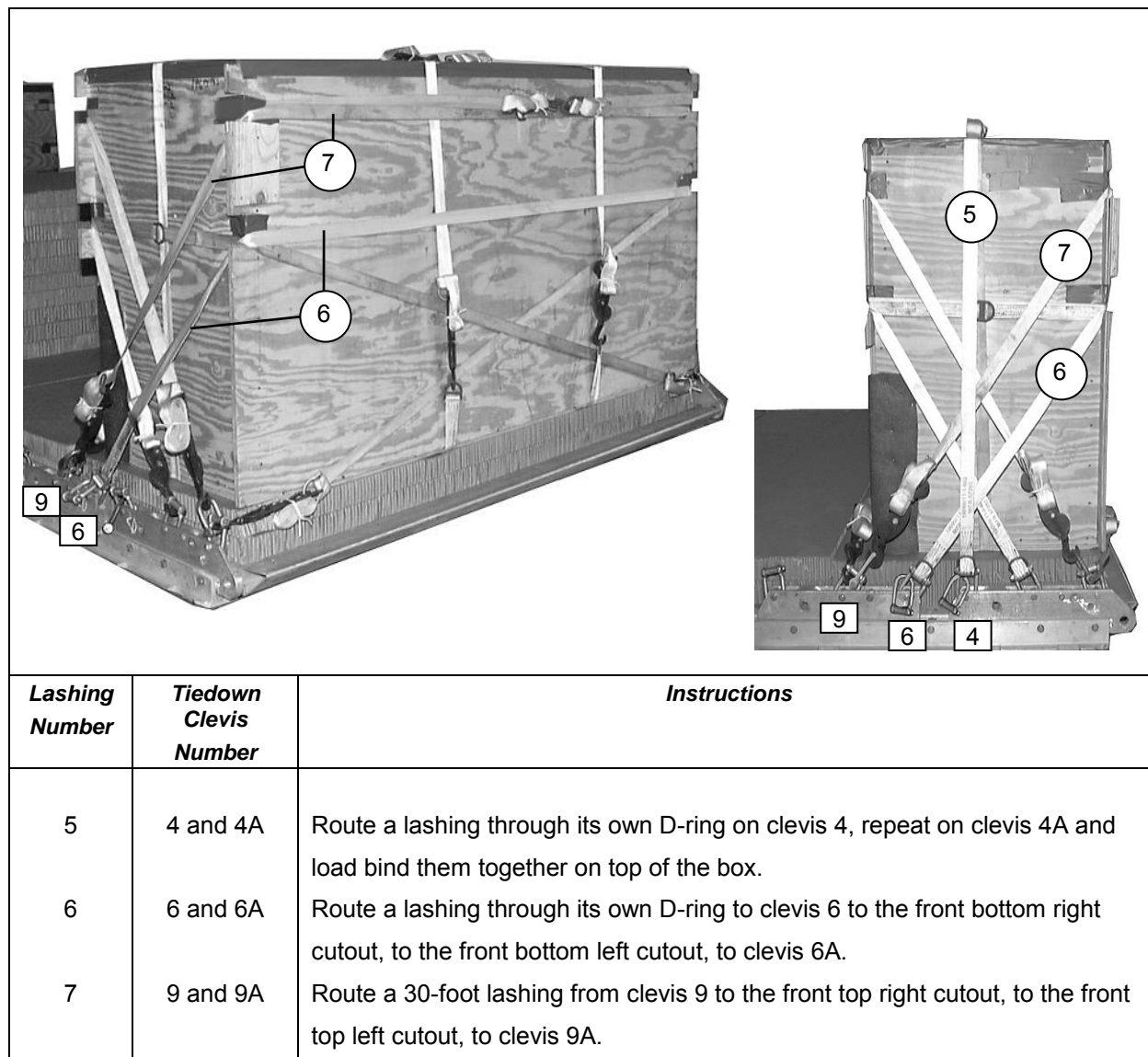


Figure 21-4. Lashings 5 Through 7 Installed

- Lash the rear equipment box to the platform as shown in Figure 21-5 through 21-7.

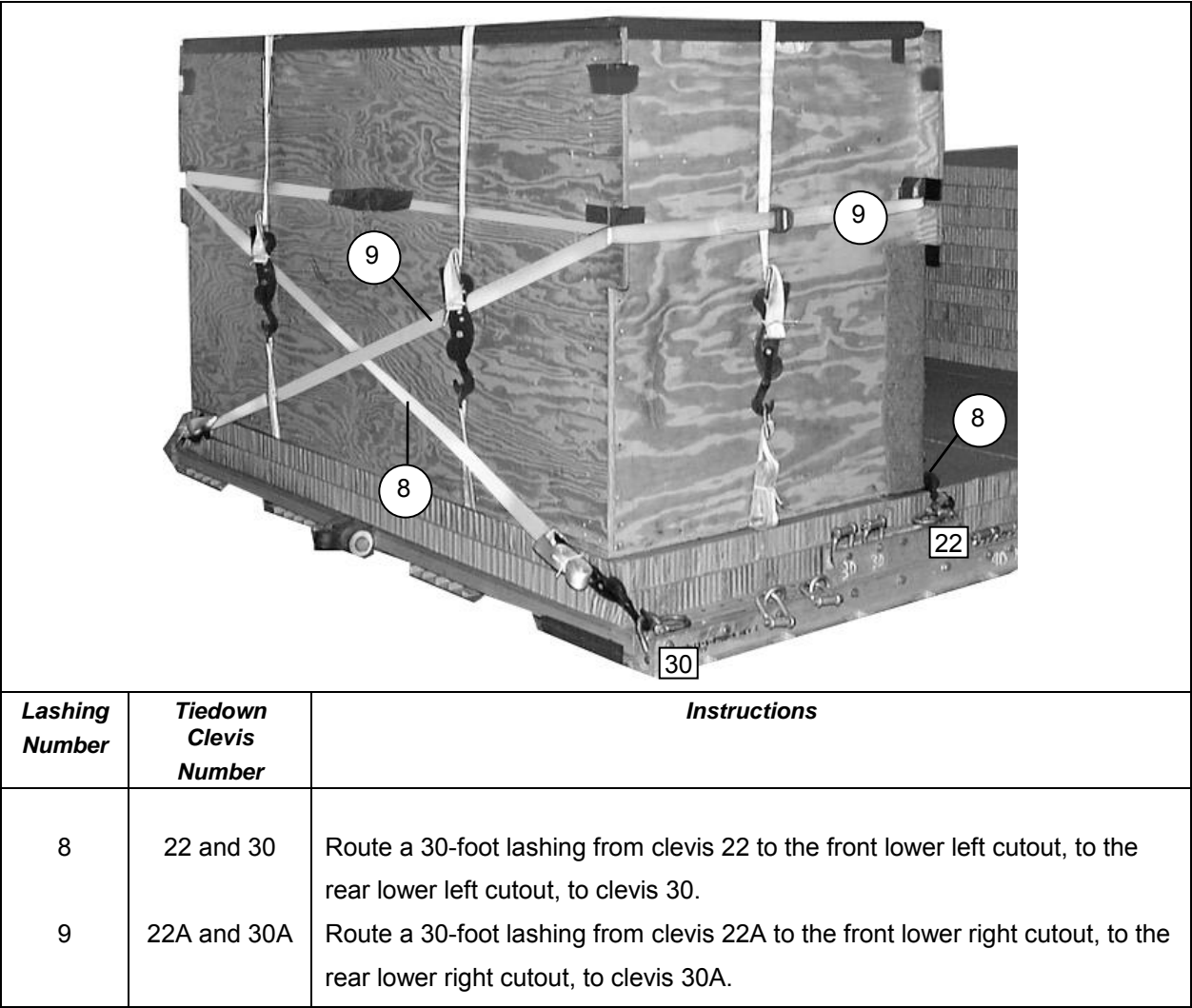
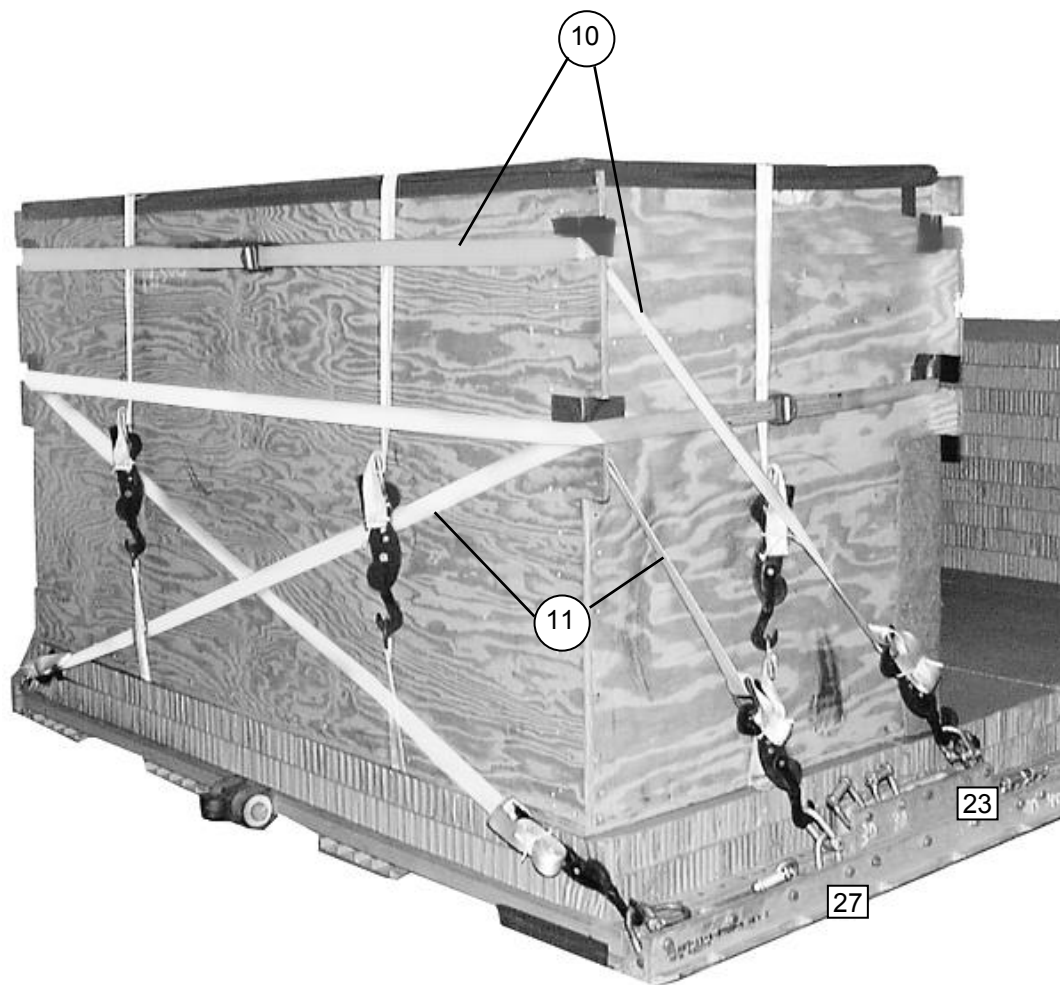


Figure 21-5. Lashings 8 and 9 Installed



Lashing Number	Tiedown Clevis Number	Instructions
10	23 and 23A	Route a 30-foot lashing from clevis 23 to the rear top right cutout, to the rear top left cutout, to clevis 23A.
11	27 and 27A	Route a lashing through its own D-ring on clevis 27A to the rear bottom left cutout, to the rear bottom right cutout to clevis 27.

Figure 21-6. Lashings 10 and 11 Installed

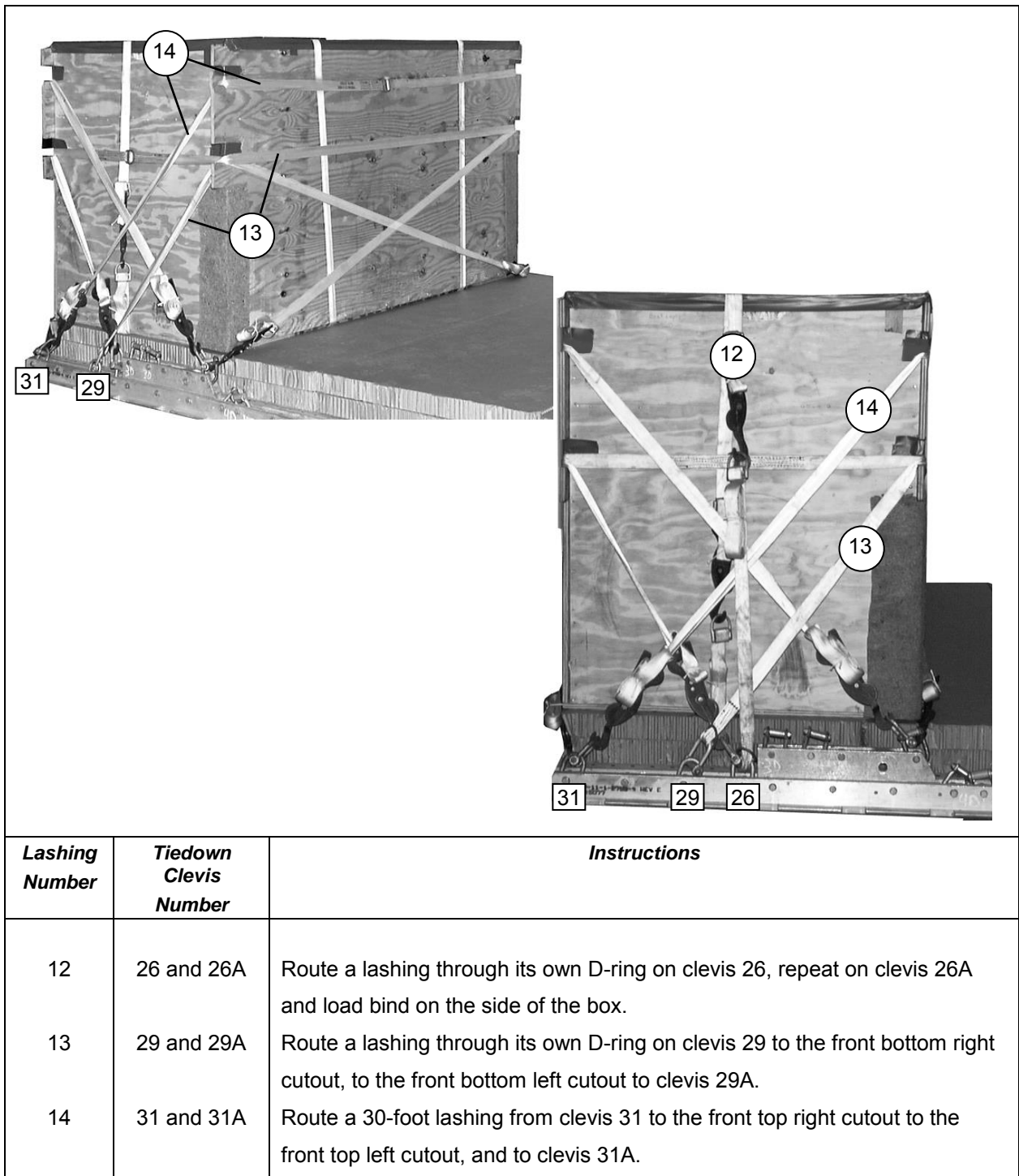
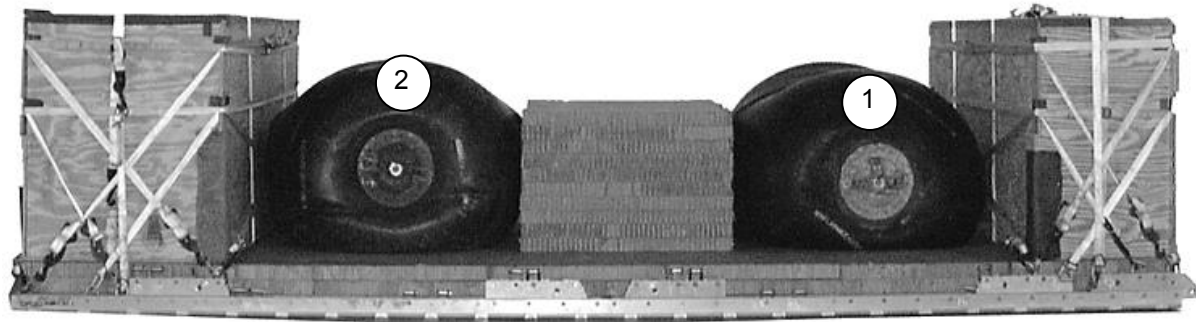


Figure 21-7. Lashings 12 Through 14 Installed

POSITIONING AND LASHING DRUMS

21-9. Position four fuel drums and lash them to the platform as shown in Figure 21-8 through 21-14.



- ① Place drum 1 centered across the platform and between the front box and the center stack.
- ② Place drum 2 centered across the platform and between the rear box and the center stack.

Note. There should be a 3 inch to 4 inch gap between the drums and the equipment boxes.

Figure 21-8. Drums 1 and 2 Placed

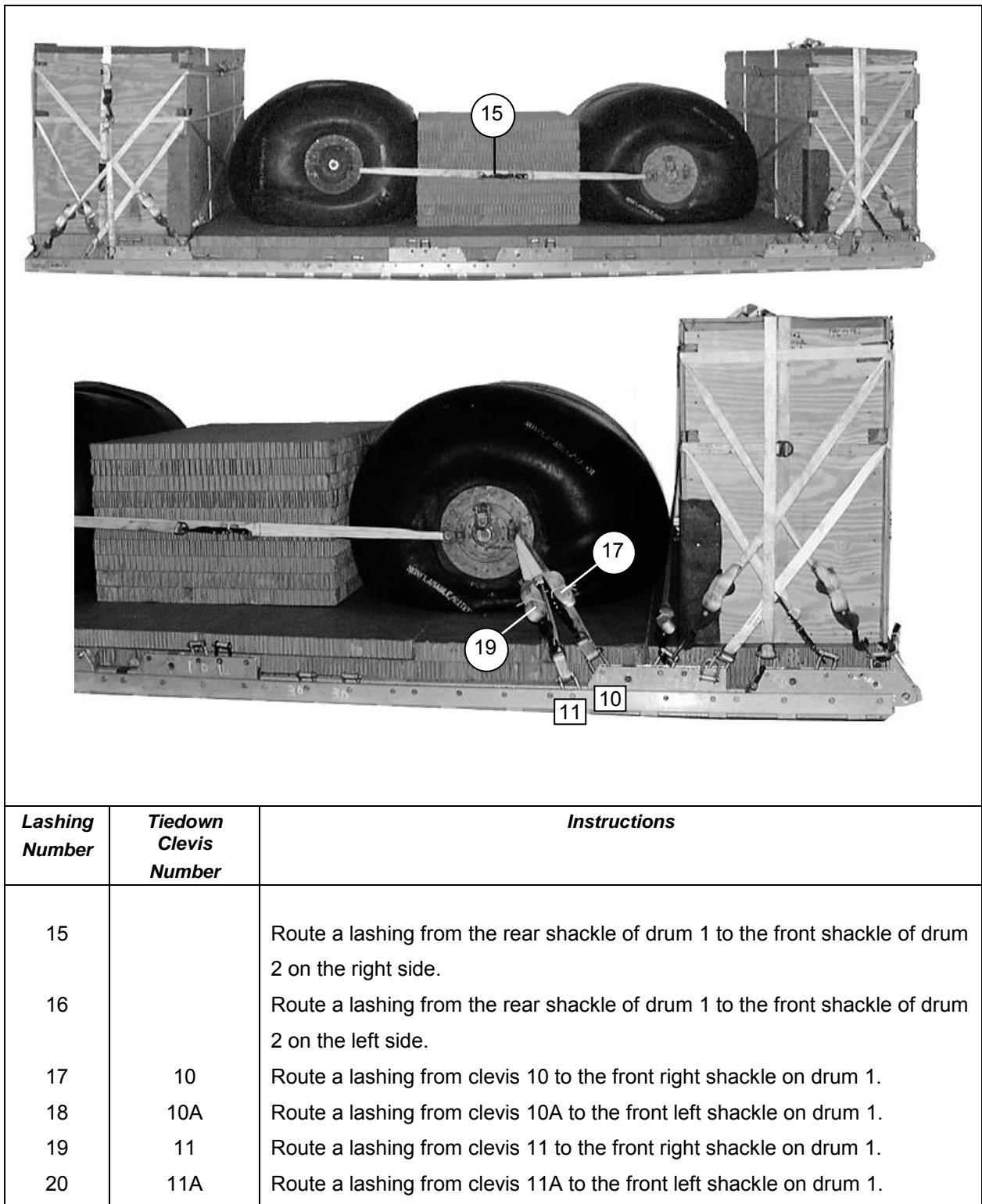
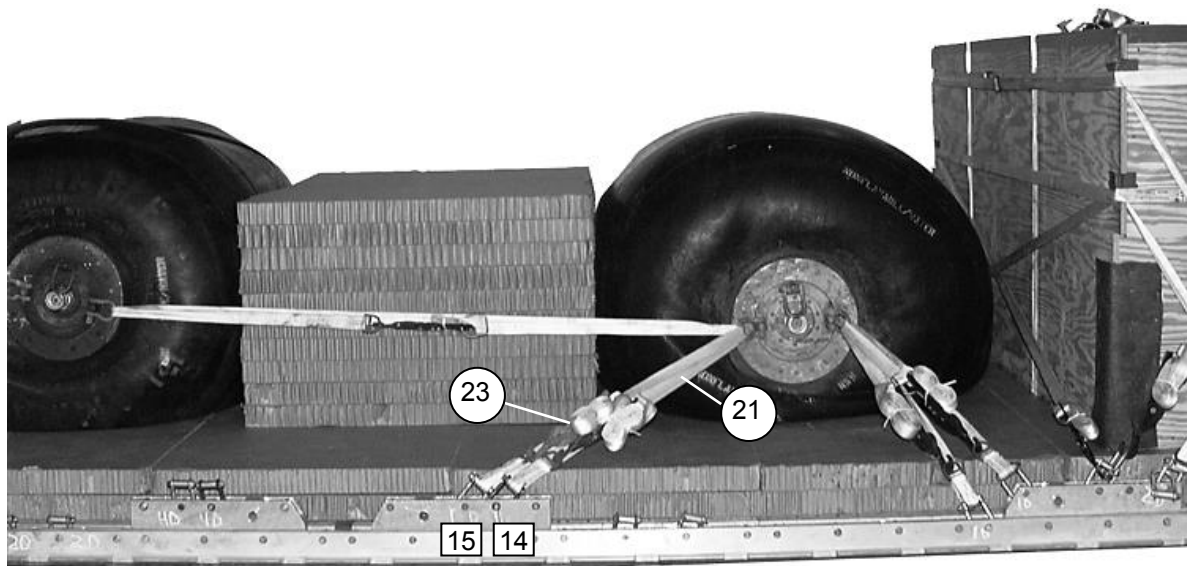


Figure 21-9. Lashings 15 Through 20 Installed



Lashing Number	Tiedown Clevis Number	Instructions
21	14	Route a lashing from clevis 14 to the rear right shackle on drum 1.
22	14A	Route a lashing from clevis 14A to the rear left shackle on drum 1.
23	15	Route a lashing from clevis 15 to the rear right shackle on drum 1.
24	15A	Route a lashing from clevis 15A to the rear left shackle on drum 1.

Figure 21-10. Lashings 21 Through 24 Installed

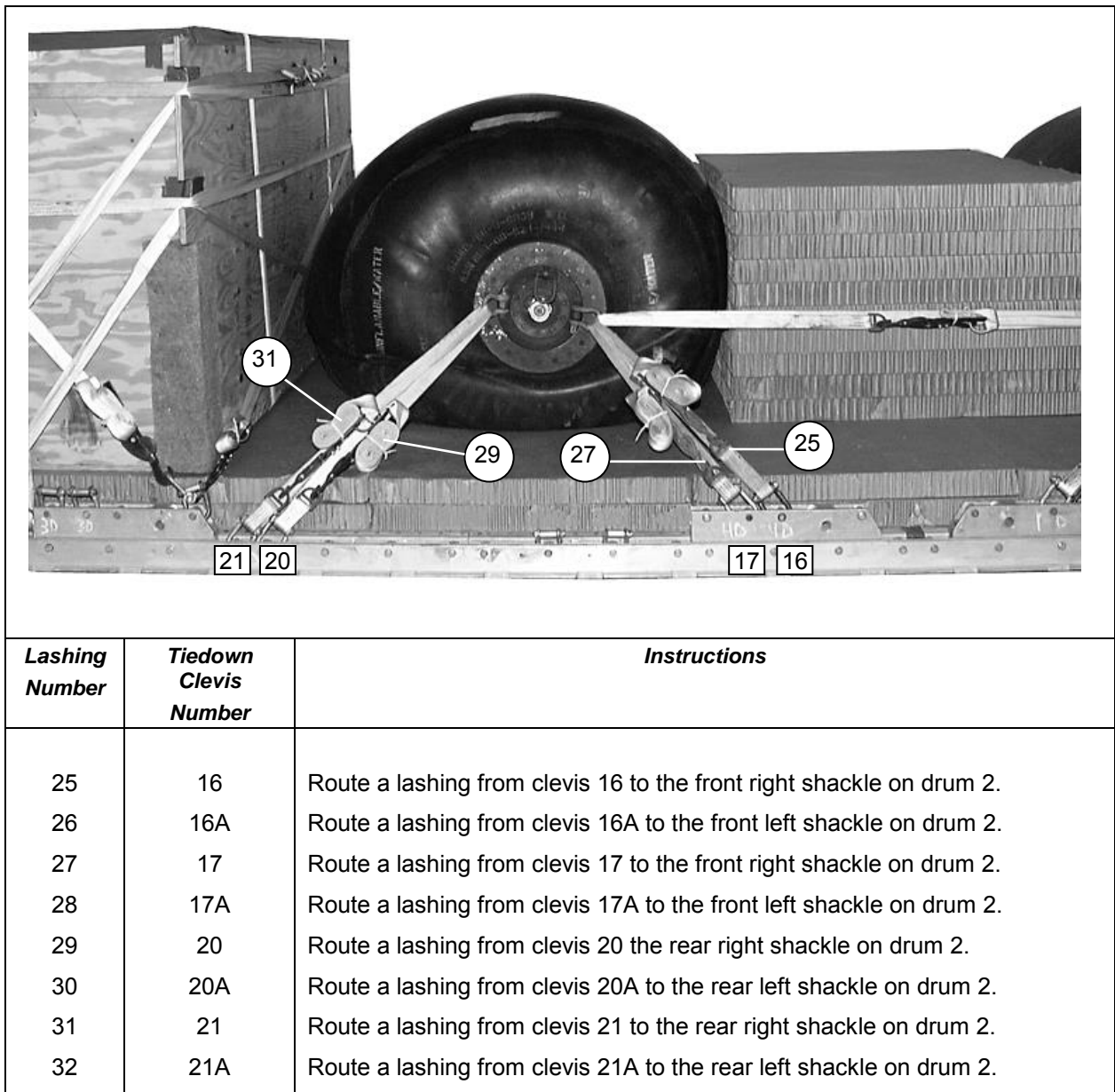
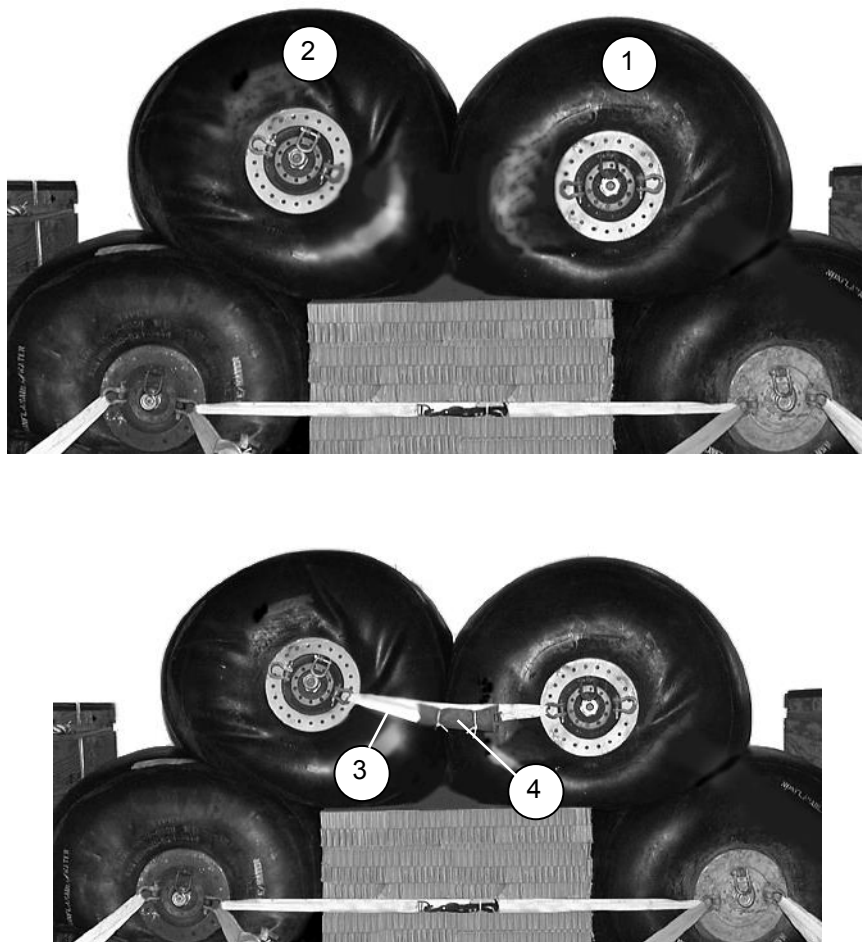
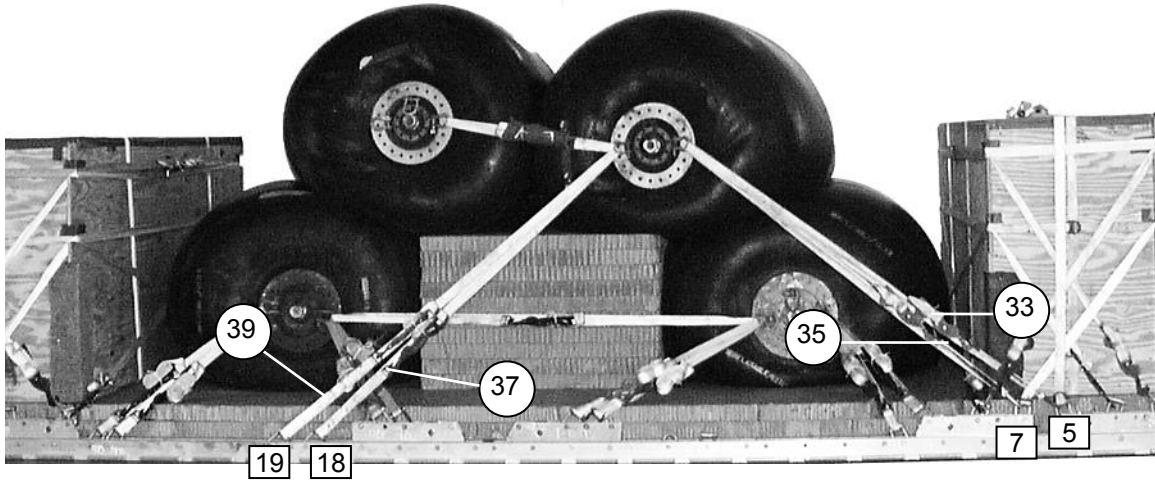


Figure 21-11. Lashings 25 Through 32 Installed



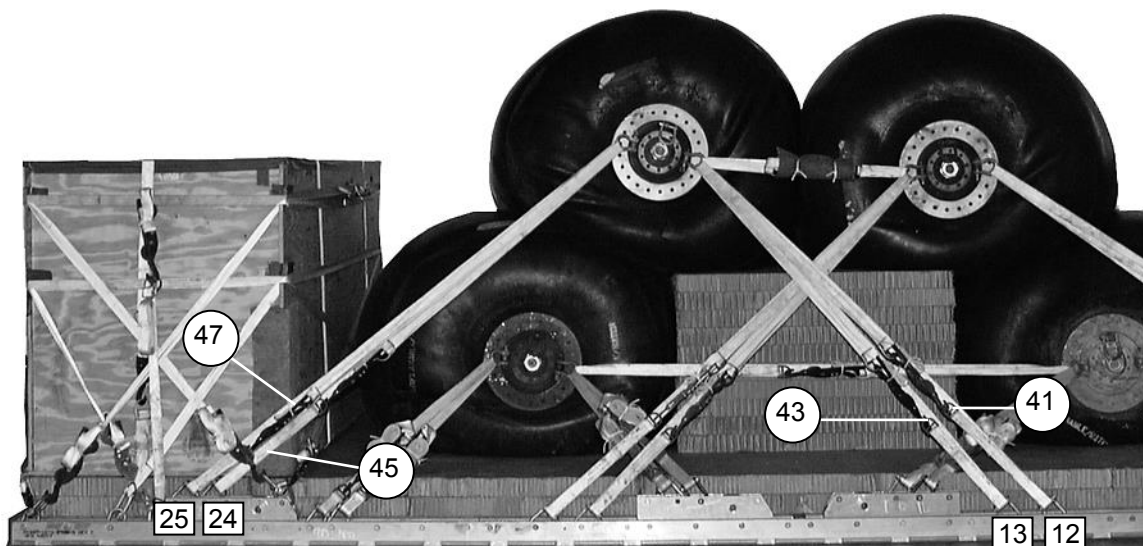
- ① Position drum at the front of the center stack, resting against drum 1.
- ② Position drum 4 at the rear of the center stack, resting against drum 2.
- ③ Lash drums 3 and 4 together on each side, using the inside shackles and a 15-foot lashing.
- ④ Pad each load binder with a 10-by-15-inch piece of felt. Tie the felt in place with two lengths of type I, ¼ inch cotton webbing..

Figure 21-12. Drums 3 and 4 Positioned



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
33	5	Route a lashing from clevis 5 to the front right shackle on drum 3.
34	5A	Route a lashing from clevis 5A to the front left shackle on drum 3.
35	7	Route a lashing from clevis 7 to the front right shackle on drum 3.
36	7A	Route a lashing from clevis 7A to the front left shackle on drum 3.
37	18	Route a lashing from clevis 18 to the rear right shackle on drum 3.
38	18A	Route a lashing from clevis 18A to the rear left shackle on drum 3.
39	19	Route a lashing from clevis 19 to the rear right shackle on drum 3.
40	19A	Route a lashing from clevis 19A to the rear left shackle on drum 3.

Figure 21-13. Lashings 33 Through 40 Installed

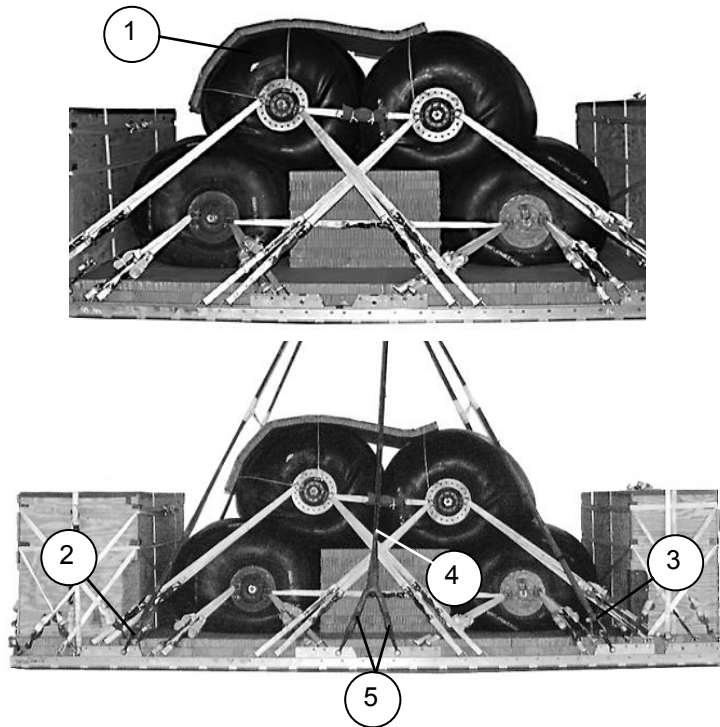


Lashing Number	Tiedown Clevis Number	Instructions
41	12	Route a lashing from clevis 12 to the front right shackle on drum 4.
42	12A	Route a lashing from clevis 12A to the front left shackle on drum 4.
43	13	Route a lashing from clevis 13 to the front right shackle on drum 4.
44	13A	Route a lashing from clevis 13A to the front left shackle on drum 4.
45	24	Route a lashing from clevis 24 to the rear right shackle on drum 4.
46	24A	Route a lashing from clevis 24A to the rear left shackle on drum 4.
47	25	Route a lashing from clevis 25 to the rear right shackle on drum 4.
48	25A	Route a lashing from clevis 25A to the rear left shackle on drum 4.

Figure 21-14. Lashings 41 Through 48 Installed

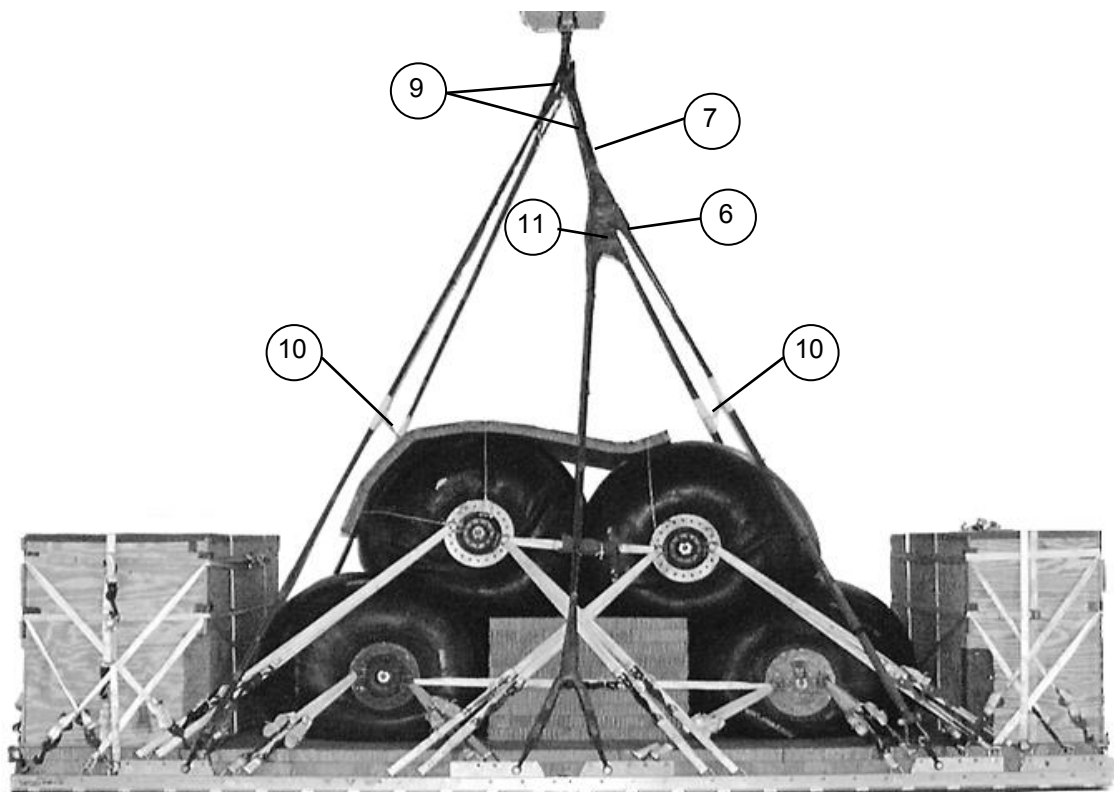
INSTALLING RELEASE PLATFORM, SUSPENSION SLINGS AND SAFETY TIES

21-10. Install the release platform, suspension slings and safety ties as shown in Figure 21-15.



- ① Tie a 36-by-96 inch piece of honeycomb over drums 3 and 4 as shown with type III nylon cord. Tape edges of honeycomb.
- ② Place a large clevis in one end of a 16-foot (4 loop), type XXVI nylon suspension sling. Attach the clevis to the right rear suspension bracket.
- ③ Place two large clevises on one end of a 12-foot (4 loop), type XXVI nylon suspension sling. Attach the lower clevis to the right front suspension bracket. Safety tie them together with type III nylon cord using an hourglass tie.
- ④ Place one end of a 20-foot (4 loop), type XXVI nylon suspension sling on a 3-foot (4 loop), type XXVI nylon suspension sling. Route the running end of the 20-foot sling through a point on a 3-point link and place it on the 3-foot sling.
- ⑤ Attach large clevises to each running end of the 3-foot sling and attach the clevises to the right center suspension brackets.

Figure 21-15. Release Platform, Suspension Slings and Safety Ties Installed

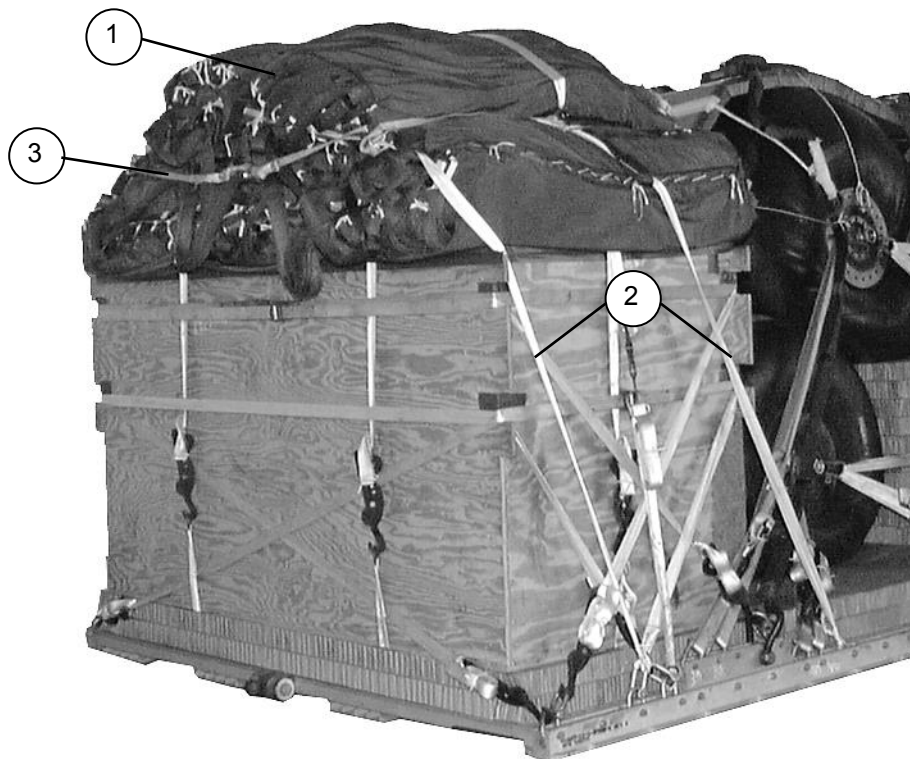


- ⑥ Attach the running end of the front suspension sling to the 3-point link.
- ⑦ Place a 3-foot (4 loop), type XXVI nylon suspension sling on the remaining spool of the 3-point link.
- ⑧ Repeat steps 2 through 7 for the left side (not shown).
- ⑨ Attach the rear suspension slings and the 3-foot sling on the 3-point link to the crane hook. Raise the suspension slings.
- ⑩ Install the suspension sling safety ties to the front and rear pairs of suspension slings using double $\frac{1}{2}$ inch tubular nylon webbing six to eight inches above the highest point of the load. Refer to the Notice of Exception in the Introduction of this manual.
- ⑪ Pad the 3-point links with felt and tape.
- ⑫ Remove the slack from the center suspension and safety tie to a convenient point on the load using one turn double type I, $\frac{1}{4}$ inch, cotton webbing (not shown).

Figure 21-15. Release Platform, Suspension Slings and Safety Ties Installed (Continued)

PREPARING AND STOWING CARGO PARACHUTES

21-11. Prepare and stow five G-11 cargo parachutes as shown in Figure 21-16.

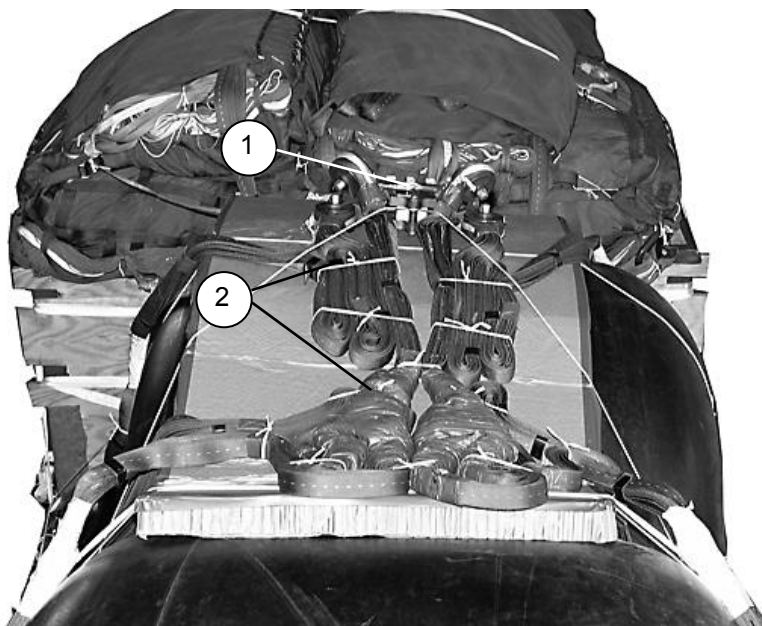


- ① Prepare and stow five G-11 cargo parachutes on the rear equipment box according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Restrain the parachutes according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and using bushings 29 and 29A, and 31 and 31A.
- ③ Install the multicut parachute release strap according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

Figure 21-16. Cargo Parachutes Prepared and Stowed

INSTALLING THE CARGO PARACHUTE RELEASE SYSTEM

21-12. Install the parachute release as shown in Figure 21-17.



- ① Place the M-2 release on the release platform. Attach the suspension slings and the parachute riser extensions to the M-2 cargo parachute release according to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the cargo parachute release with type III nylon cord.
- ② S-fold and tie any slack in the suspension slings with ¼ inch cotton webbing.

Figure 21-17. Cargo Parachute Release Installed

INSTALLING THE EXTRACTION SYSTEM

21-13. Install the components of the extraction force transfer coupling system as shown in Figure 21-18.

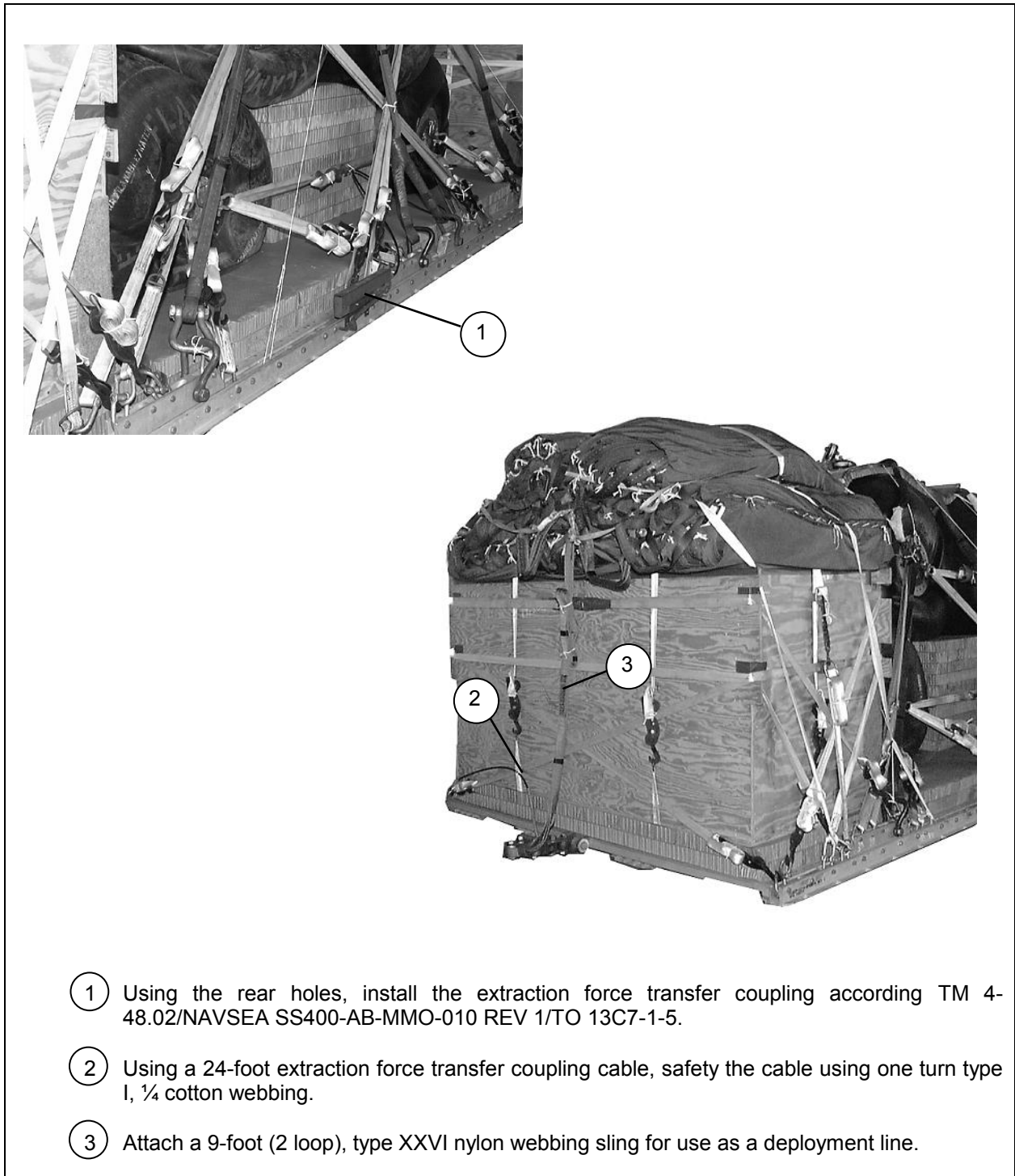


Figure 21-18. Extraction System Installed

PLACING EXTRACTION PARACHUTE

21-14. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

21-15. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

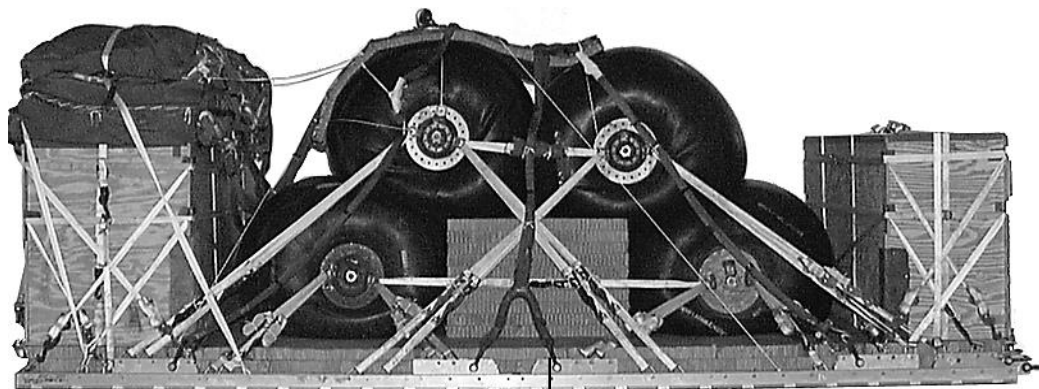
21-16. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 21-19. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

21-17. Use the equipment list in Table 21-1 to rig the load shown in Figure 21-19.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....22,630 pounds

- Note.** 1. The rigged weight for this load is using water as the liquid. Use the weight conversion table for the actual rigged weight for any other liquids used.
2. The G-11 requirements may need to be recomputed for lighter liquids.

Maximum load allowed.....24,000 pounds

Height.....88 inches

Width108 inches

Length258 inches

Overhang: Front0 inches

Rear18 inches

Center of Balance (CB) (from front edge of platform)

.....121 inches

Extraction System Extraction Force Transfer Coupler

Figure 21-19. Advanced Aviation Forward Area Refueling System Rigged with Four 500-Gallon Drums for Low-Velocity Airdrop

Table 21-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Four 500-Gallon Drums

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-307-1055	Link assembly, Three-point	2
1670-01-483-8259	Link, tow release mechanism (H-Block) C-17 aircraft	1
	Lumber:	
5510-00-220-6146	2-by-4 inch	As required
5510-00-220-6148	2-by-6 inch	As required
	Nail, steel wire, common	
5315-00-010-4659	8-penny	As required
5315-00-010-4662	12-penny	As required
5315-00-010-3885	16-penny	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3-by-36-by96 inches	25 sheets
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11C	5
	Cargo, extraction:	
1670-00-040-8135	28 foot	1
	Drogue: (for Drogue Extraction System)	
1670-01-063-3715	15 foot	1
	Platform, airdrop, type V, 32-foot:	
1670-01-353-8425	Bracket assembly, Extraction Force Transfer Coupling	1
1670-01-162-2376	Bracket assembly, extraction	1
1670-01-162-2372	Clevis assembly	62
1670-01-247-2389	Extraction, suspension	8
1670-01-162-2381	Tandem link assembly (multipurpose link)	2
5530-00-128-4981	Plywood, 3/4-inch	11 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo airdrop	
	For suspension:	
1670-01-062-6306	3-foot (4 loop), type XXVI nylon webbing	4
1670-01-062-6307	12-foot (4 loop), type XXVI nylon webbing	2
1670-01-062-6308	16-foot (4 loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4 loop), type XXVI nylon webbing	2
	For deployment:	
1670-01-062-6304	9-foot (2 loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2 loop), type XXVI	5

Table 21-1. Equipment Required for Rigging AAFARS with Four 500-Gallon Drums

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-00-040-8219	Strap, parachute release, multicut	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	62
	Webbing:	
8305-00-268-2411	Cotton, ¼ inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½ inch	As required
8305-00-263-3591	Type VII	As required

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Chapter 22

Rigging AAFARS with Five 500-Gallon Fuel Drums for Low-Velocity Airdrop on Type V Platform

DESCRIPTION OF LOAD

22-1. The AAFARS is rigged on a 24-foot type V platform with four G-11 cargo parachutes. The AAFARS is designed for forward area refueling of up to four aircraft at a time with a minimum of 55 gallons-per-minute. There are five collapsible fuel drums as an accompanying load. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The total rigged length is 258 inches. Width is 108 inches. Height is 88 inches. Center of balance is 121 inches.

Note. 1. For drums filled with a liquid other than water, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.

PREPARING PLATFORM

22-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 72 tiedown clevises as shown in Figure 22-1.

Note. 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.

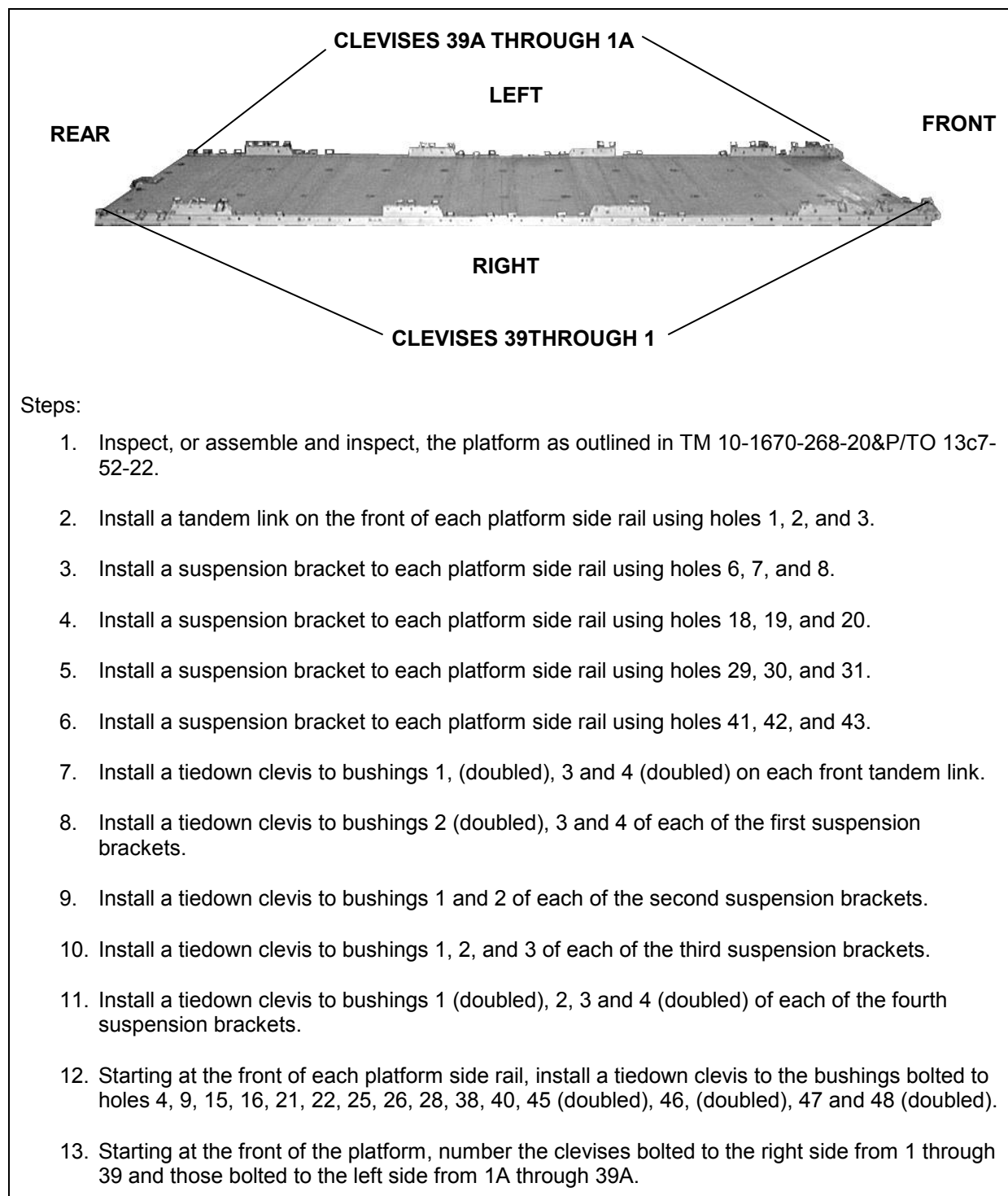
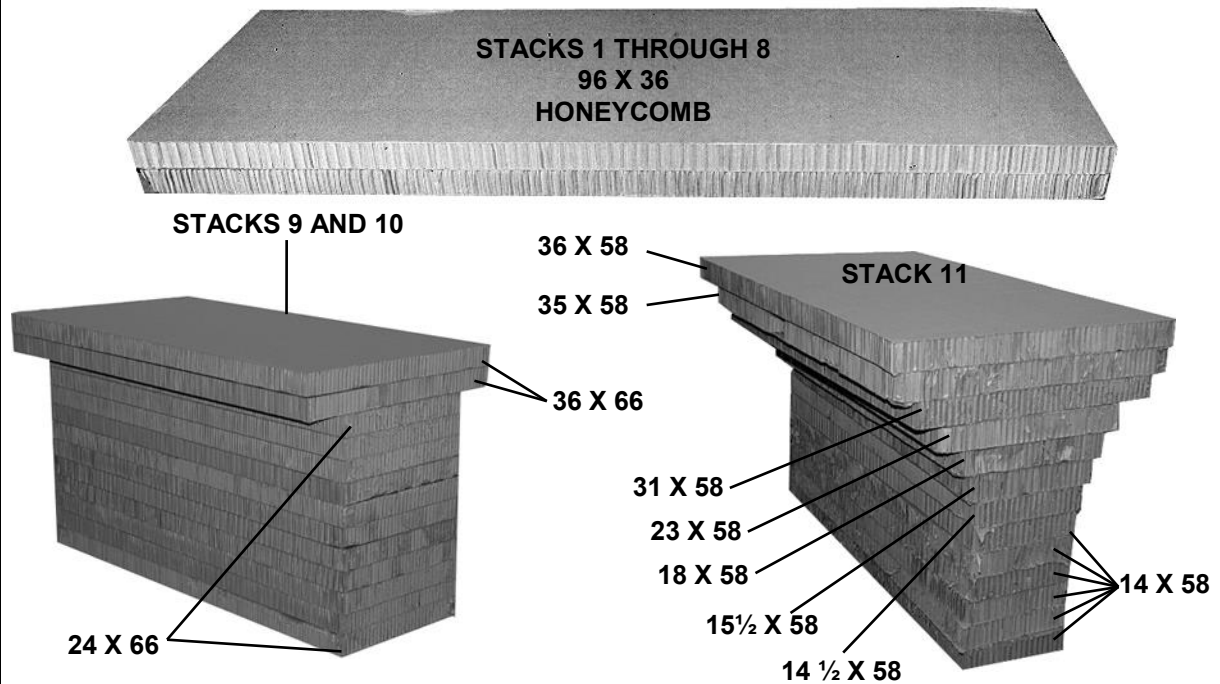


Figure 22-1. Platform Prepared

PREPARING HONEYCOMB

22-3. Build honeycomb stacks as shown in Figure 22-2.

Note. All dimensions are in inches.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1-8	2	36	96	Honeycomb	Do not glue together.
9 and 10	11	24	66	Honeycomb	Glue together forming a base.
	2	36	66	Honeycomb	Glue together and glue to base.
11	6	14	58	Honeycomb	Glue together forming a base.
	1	14 1/2	58	Honeycomb	Glue onto base.
	1	15 1/2	58	Honeycomb	Glue onto base.
	1	18	58	Honeycomb	Glue onto base.
	1	23	58	Honeycomb	Glue onto base.
	1	31	58	Honeycomb	Glue onto base.
	1	35	58	Honeycomb	Glue onto base.
	1	36	58	Honeycomb	. Glue onto base.

Figure 22-2. Honeycomb Stacks Prepared

POSITIONING HONEYCOMB STACKS

22-4. Position honeycomb stacks as shown in Figure 22-3.

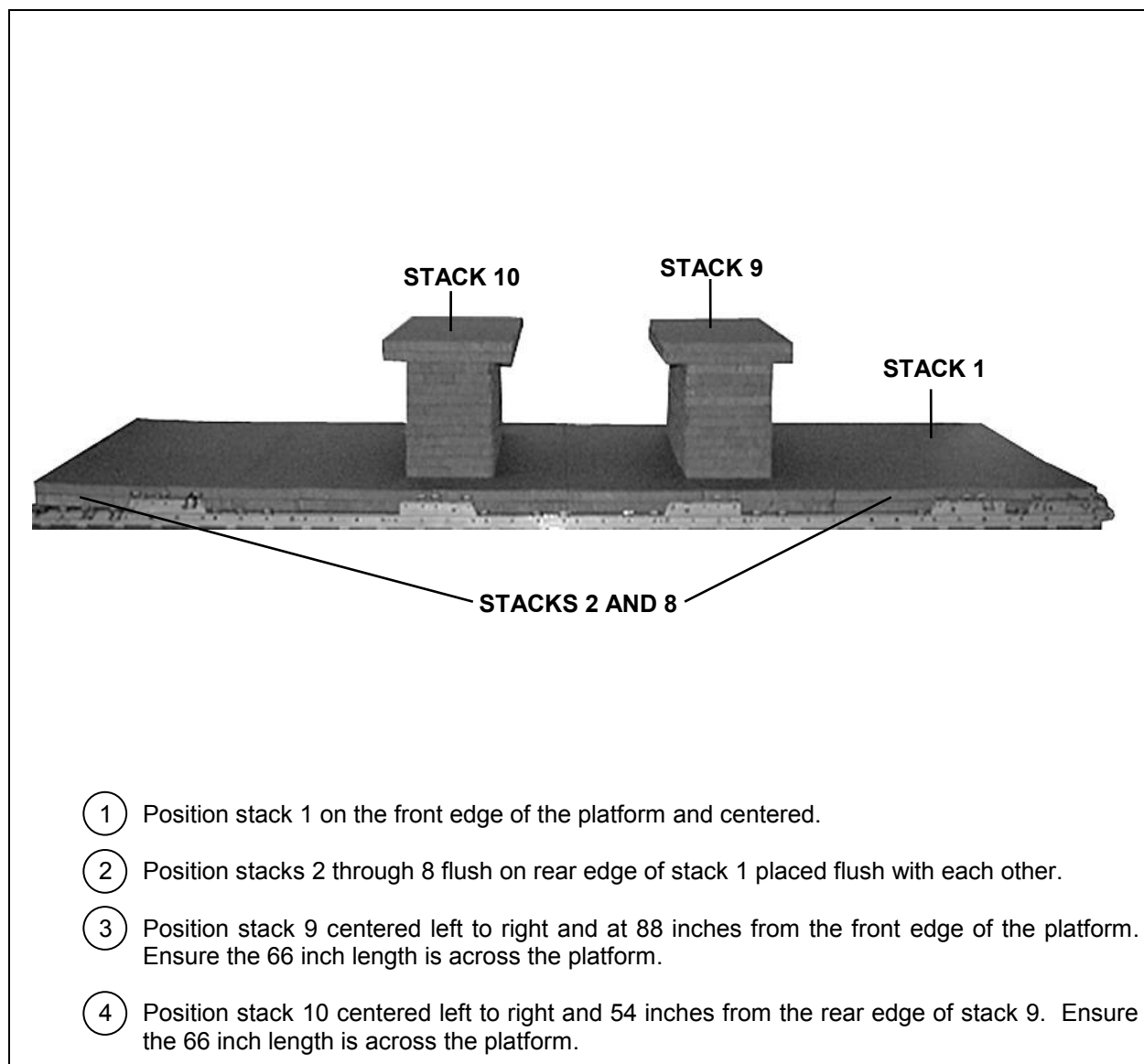


Figure 22-3. Positioning Honeycomb Stacks

BUILDING THE EQUIPMENT BOXES

22-5. Build the front and rear equipment boxes as shown in Figures 20-4 and 20-5.

PREPARING EQUIPMENT FOR EQUIPMENT BOXES

22-6. Prepare the fire extinguishers, filter separator, explosion proof motor, pumps, battery box, manuals and toolkit as explained and shown in paragraph 20-6 and Figures 20-6 through 20-12. Using the lists printed on the equipment bags, place the equipment indicated on each list into its bag.

POSITIONING EQUIPMENT BOXES

22-7. Pre-position lashings described and shown in Figure 20-13, steps 1 through 3. Place the boxes flush over the lashings and flush with the edges of the honeycomb as described and shown in Figure 20-13, steps 4 and 5.

POSITIONING EQUIPMENT IN EQUIPMENT BOXES AND SECURING BOXES

22-8. Position and secure the equipment in the equipment boxes, and secure the boxes as shown in Figures 20-14 and 20-15.

LASHING THE EQUIPMENT BOXES TO THE PLATFORM

22-9. Lash the equipment boxes as shown in Figures 22-4 through 22-9.

- Lash the front equipment box to the platform as shown Figures 22-4 through 22-6.

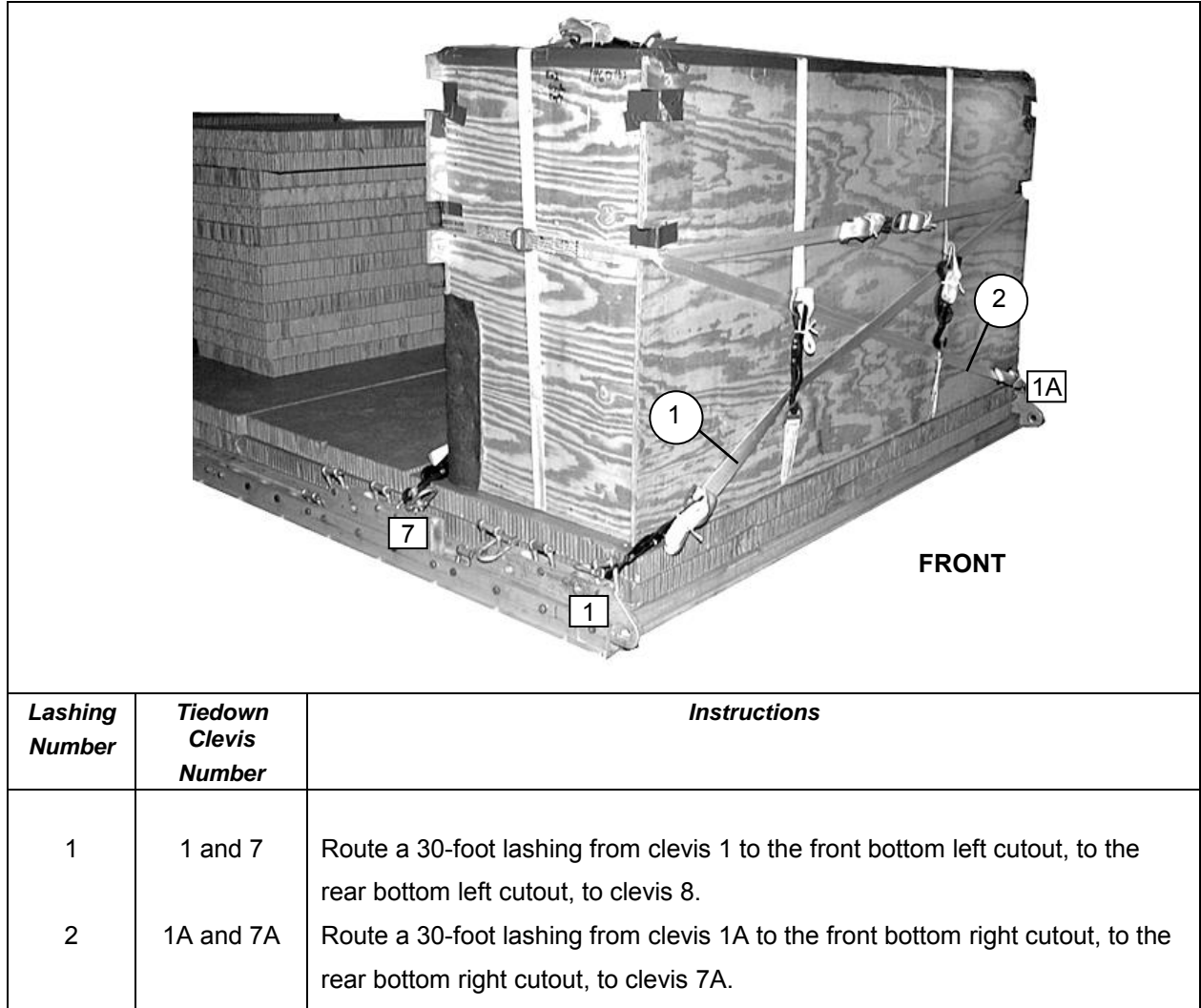


Figure 22-4. Lashings 1 and 2 Installed

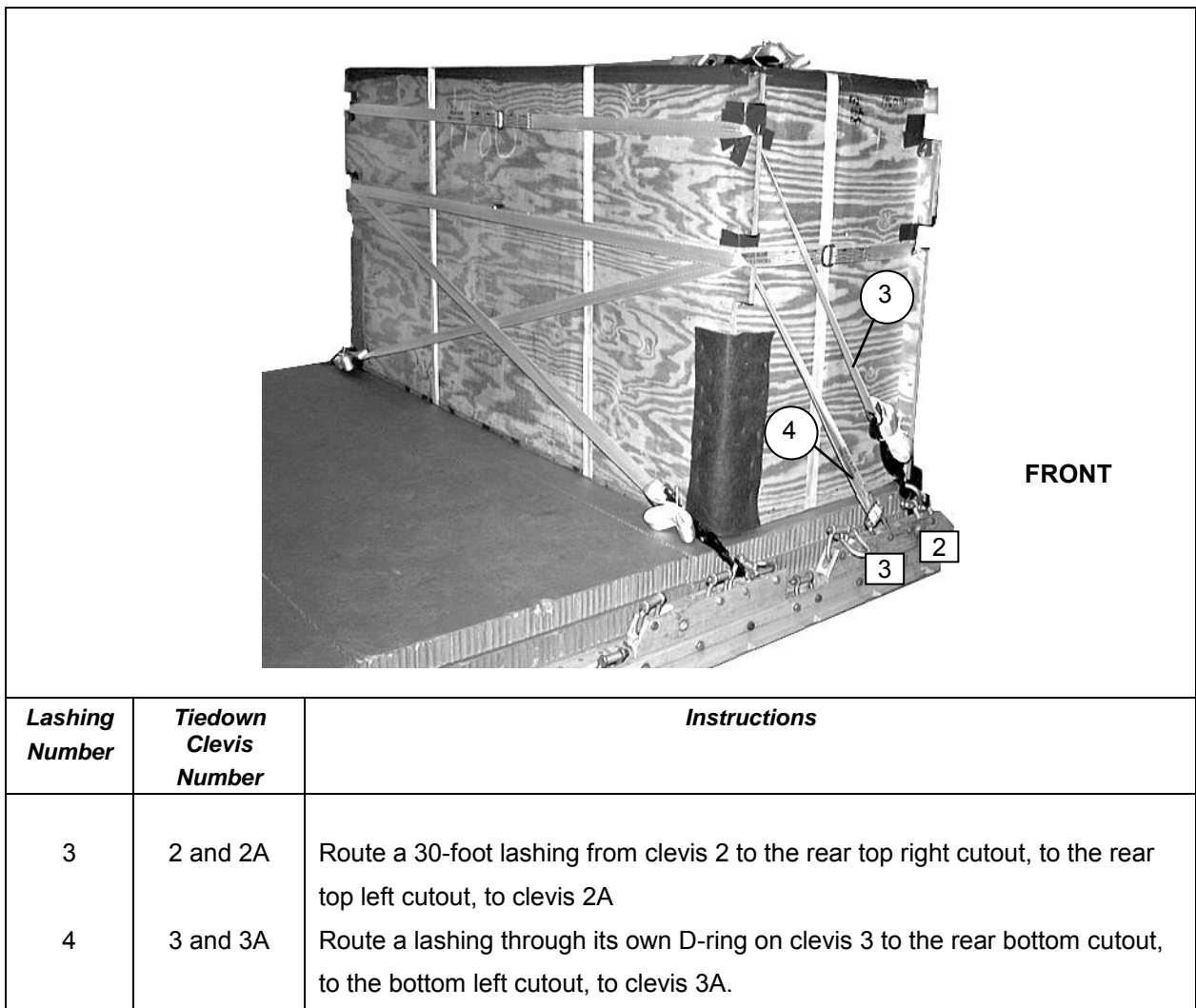


Figure 22-5. Lashings 3 and 4 Installed

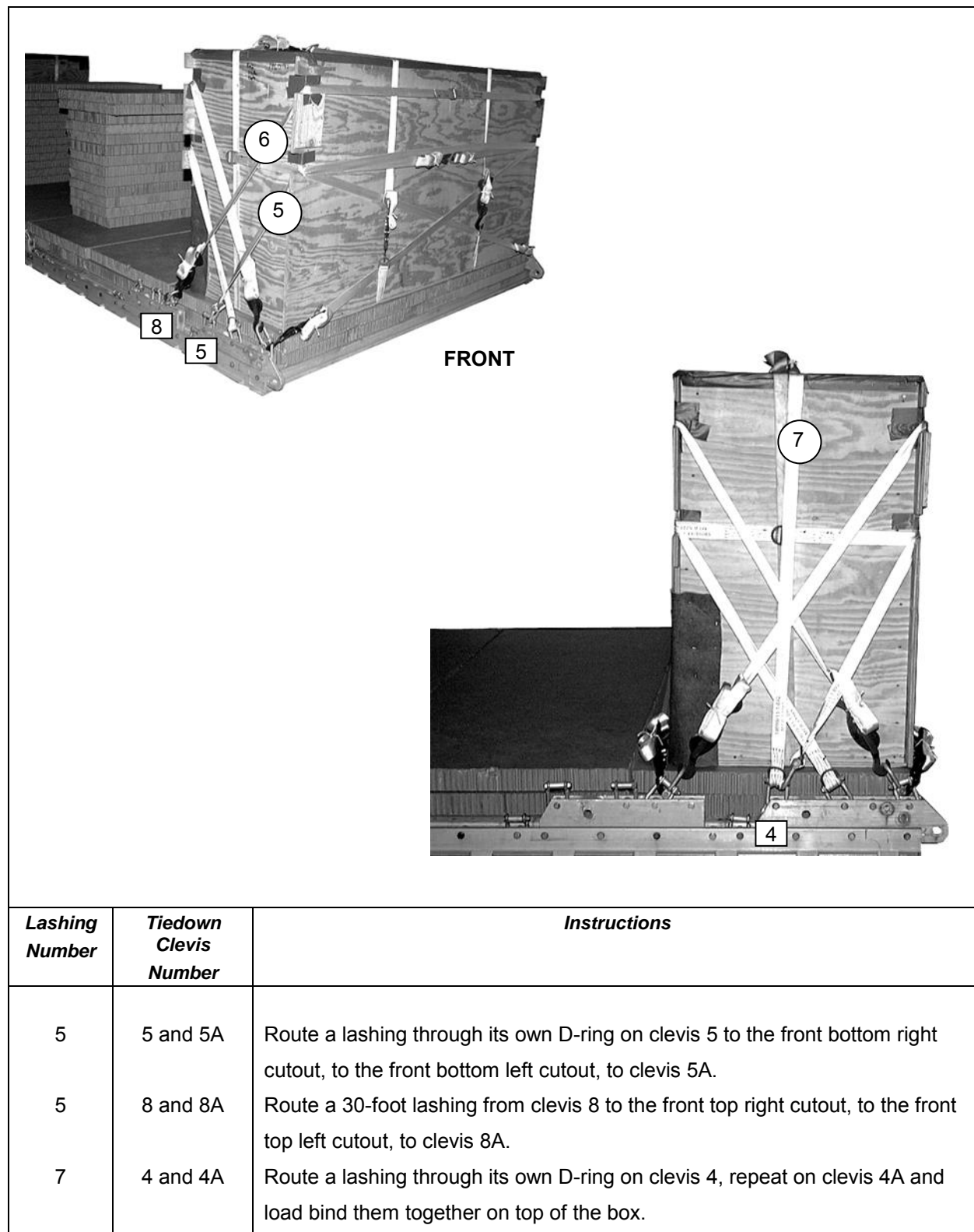


Figure 22-6. Lashings 5 Through 7 Installed

- Lash the rear equipment box to the platform as shown in Figures 22-7 through 22-9.

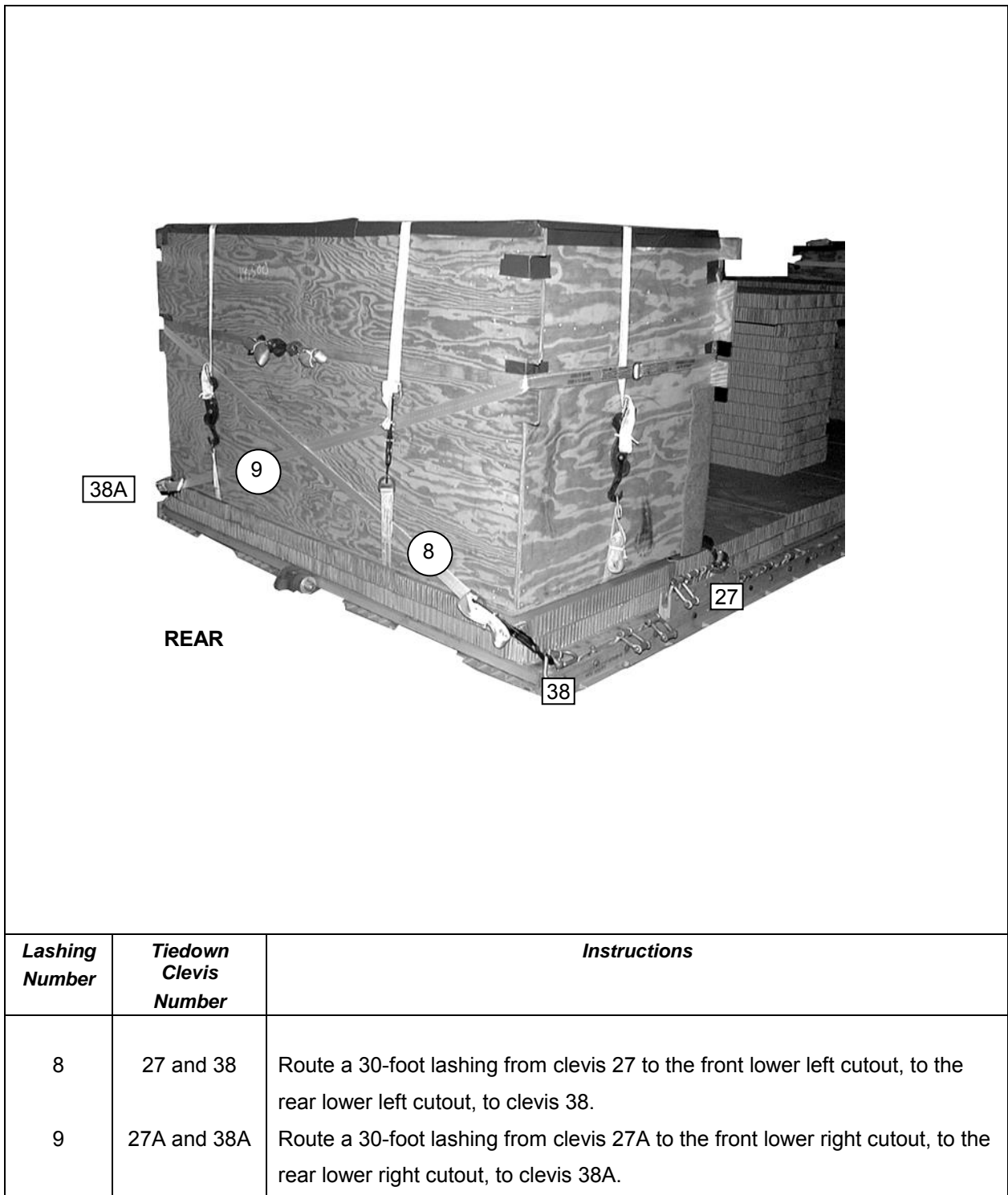
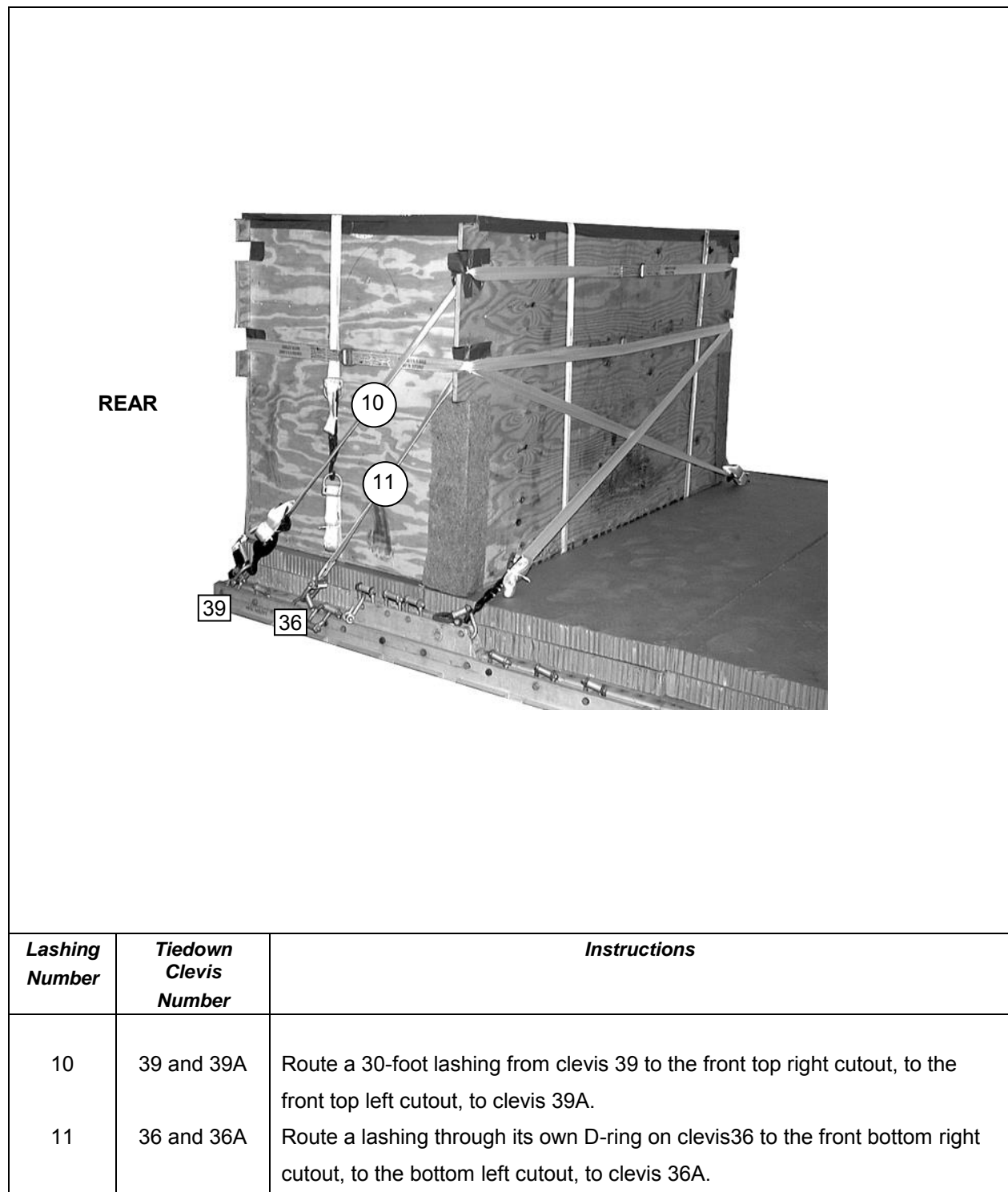


Figure 22-7. Lashings 8 and 9 Installed

**Figure 22-8. Lashings 10 and 11 Installed**

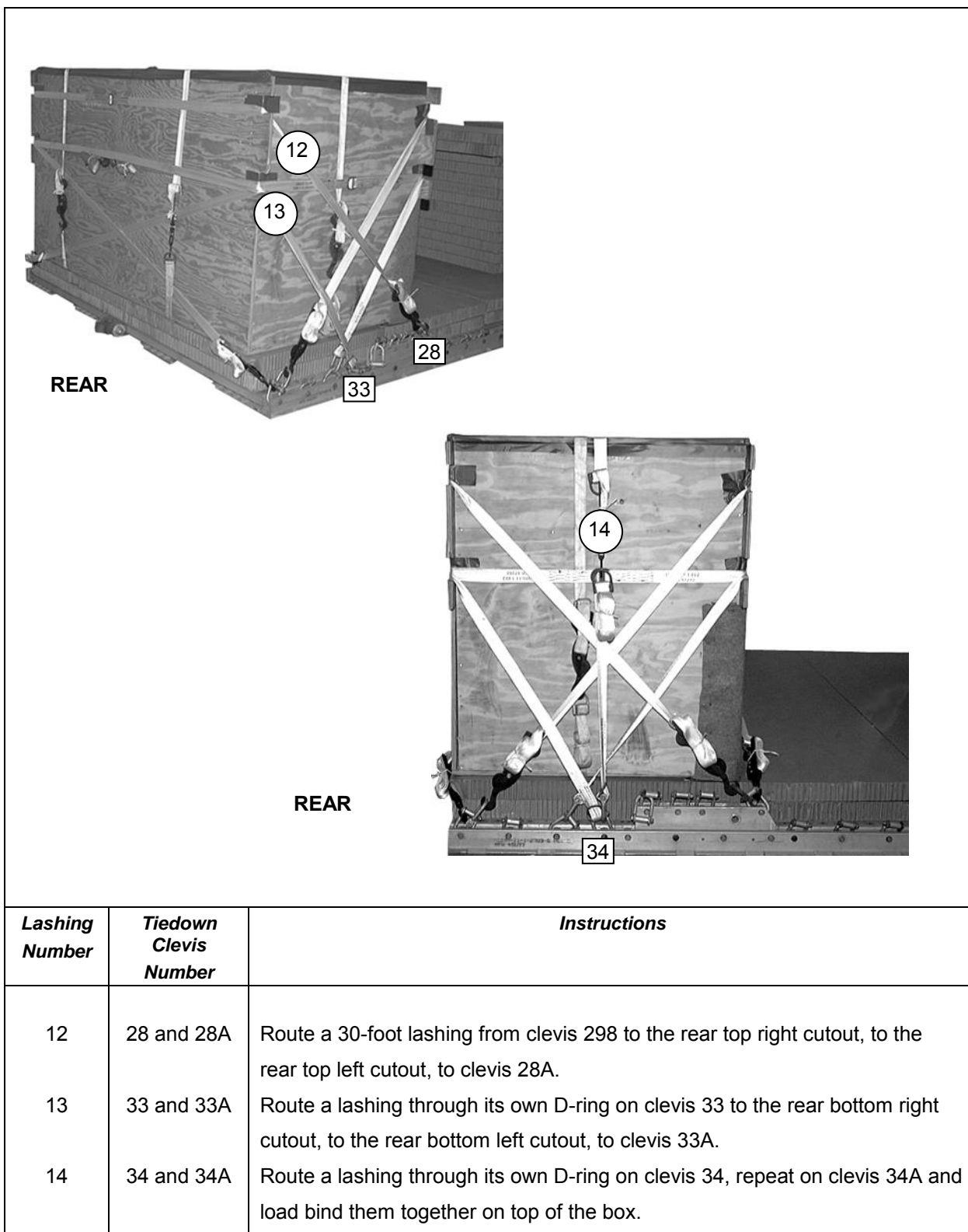
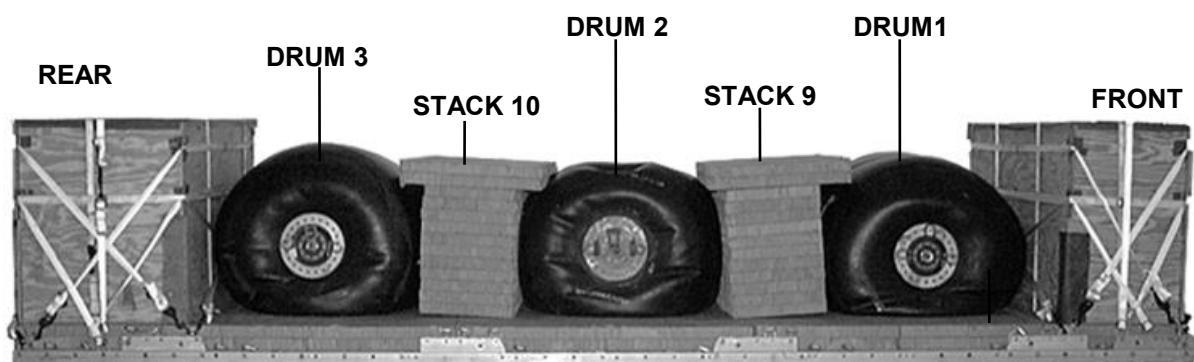


Figure 22-9. Lashings 12 Through 14 Installed

POSITIONING AND LASHING THE DRUMS

22-10. Position and lash the drums to the platform as shown in Figures 22-10 through 22-17.



- ① Place a platform clevis on one end of two 9-foot (2 loop), type XXVI nylon webbing slings. Attach a sling to each side of the drum (for lifting purposes only) and remove after the drums are positioned (not shown).
- ② Position drum 1 in front of and against stack 9 and centered on the platform.
- ③ Position drum 2 in front of and against stack 9 and centered on the platform.
- ④ Position drum 3 in front of and against stack 10 and centered on the platform.

Note. There should be a 3 to 4 inch gap between the drums and the equipment boxes.

Figure 22-10. Fuel Drums 1 Through 3 Positioned

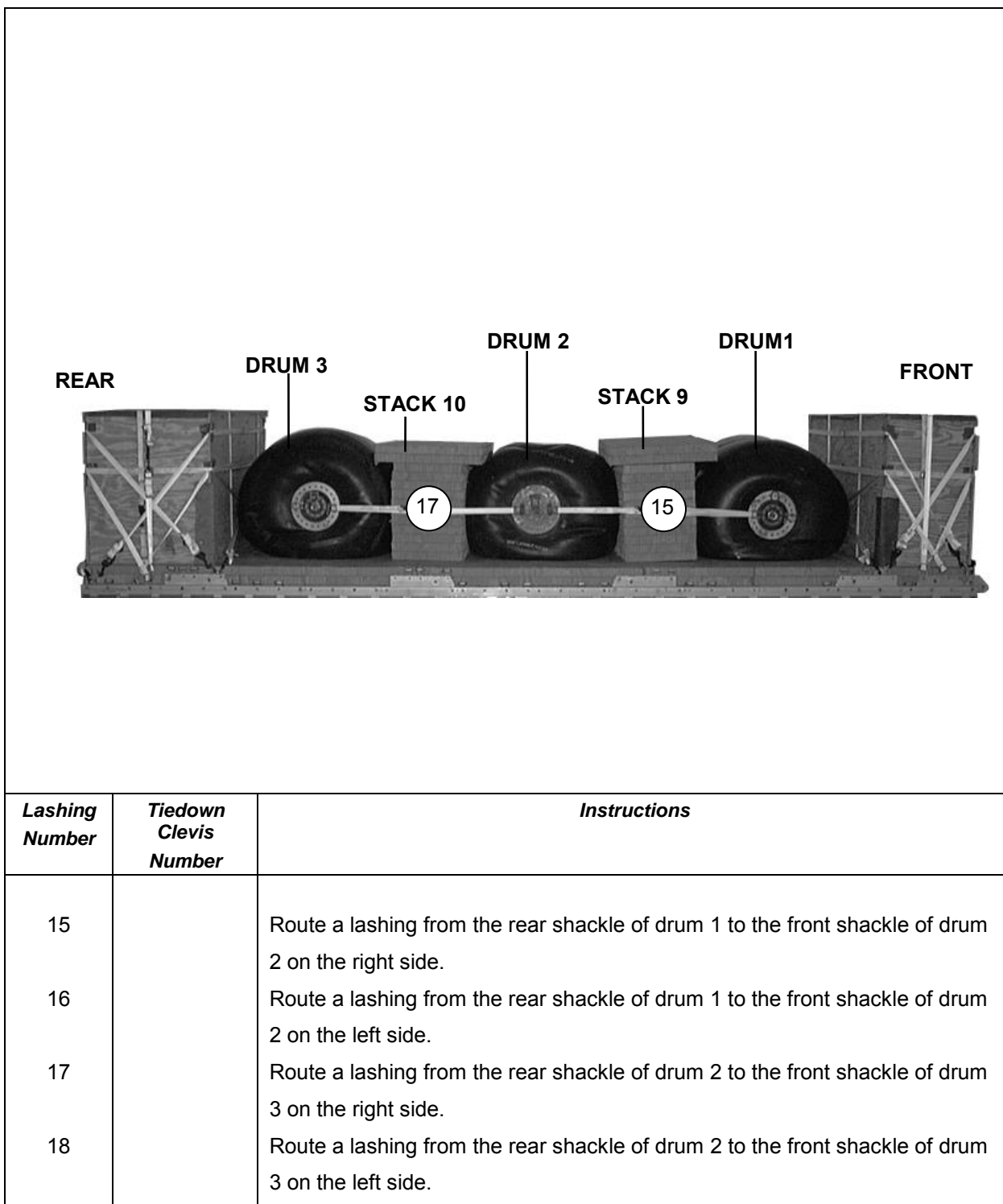
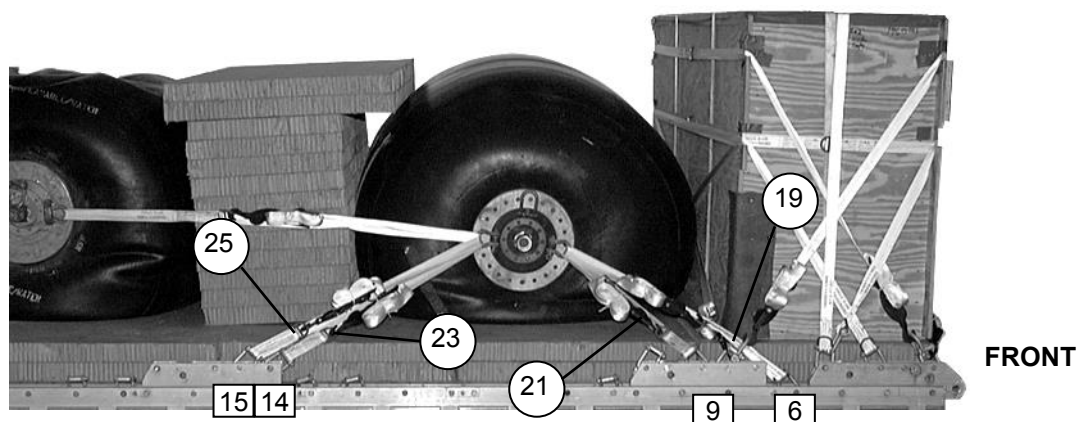


Figure 22-11. Lashings 15 Through 18 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
19	6	Route a lashing from clevis 6 to the front right shackle on drum 1.
20	6A	Route a lashing from clevis 6A to the front left shackle on drum 1.
21	9	Route a lashing from clevis 9 to the front right shackle on drum 1.
22	9A	Route a lashing from clevis 9A to the front left shackle on drum 1.
23	14	Route a lashing from clevis 14 to the rear right shackle on drum 1.
24	14A	Route a lashing from clevis 14A to the rear left shackle on drum 1.
25	15	Route a lashing from clevis 15 to the rear right shackle on drum 1.
26	15A	Route a lashing from clevis 15A to the rear left shackle on drum 1.

Figure 22-12. Lashings 19 Through 26 Installed

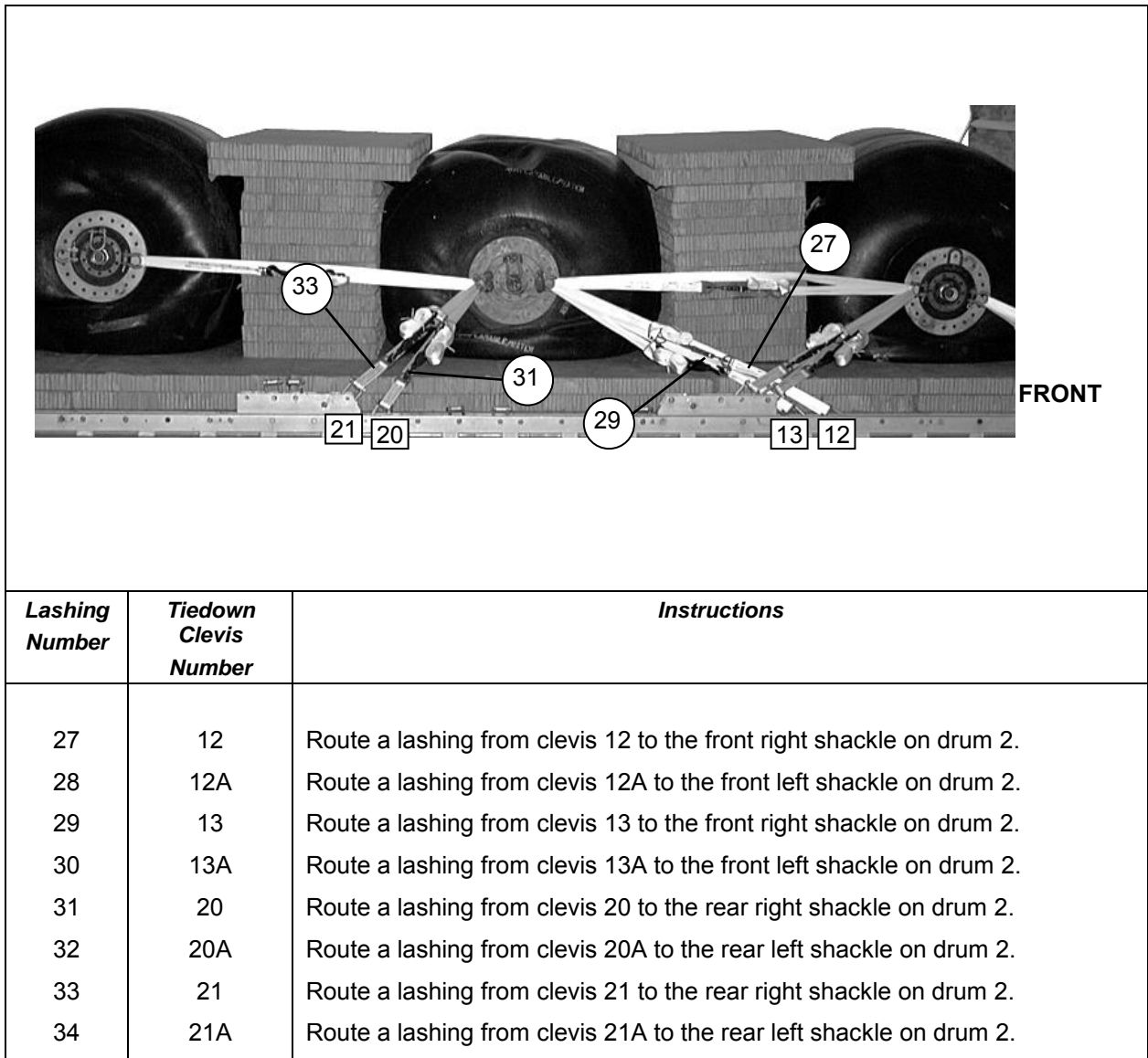


Figure 22-13. Lashings 27 Through 34 Installed

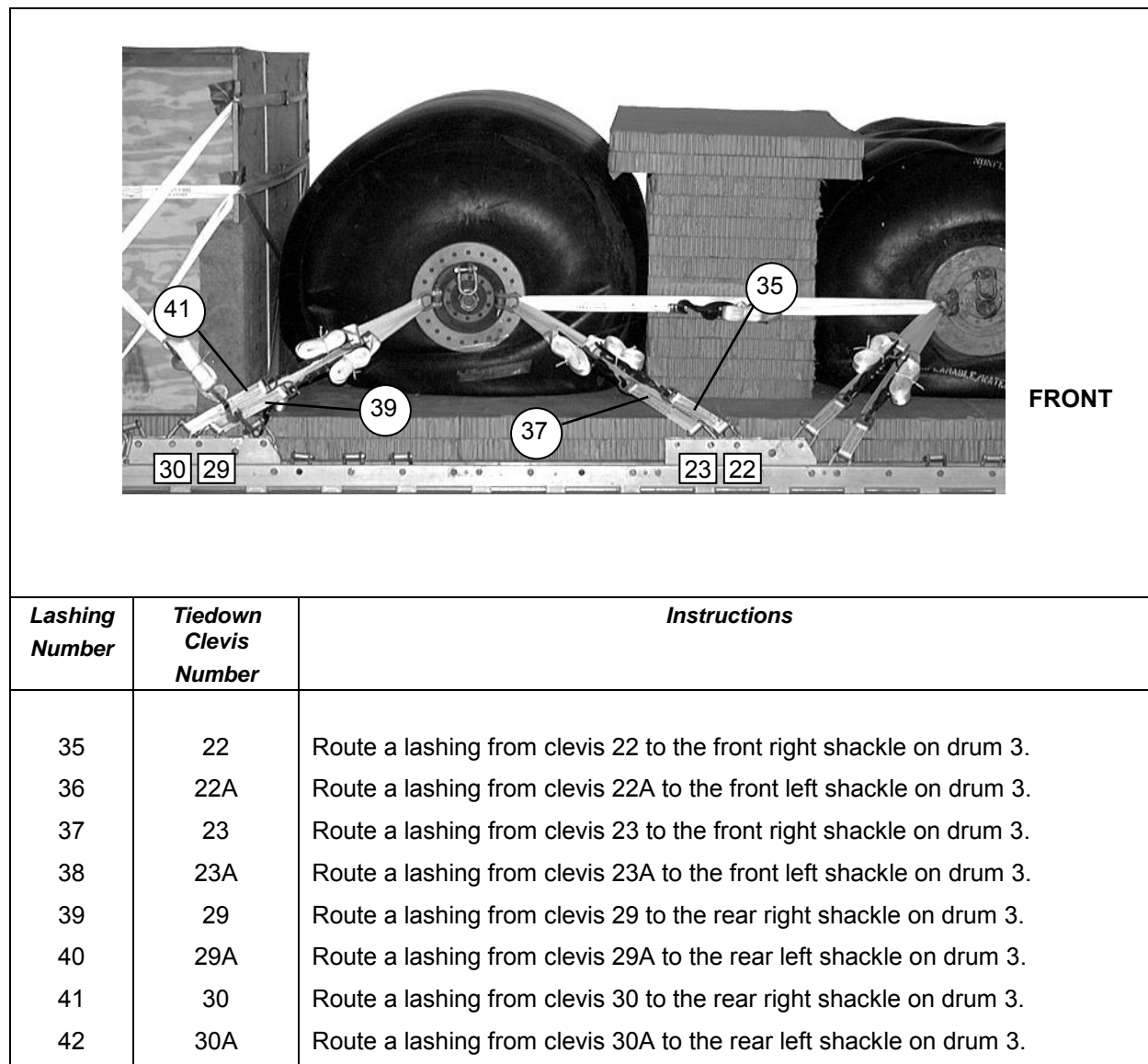
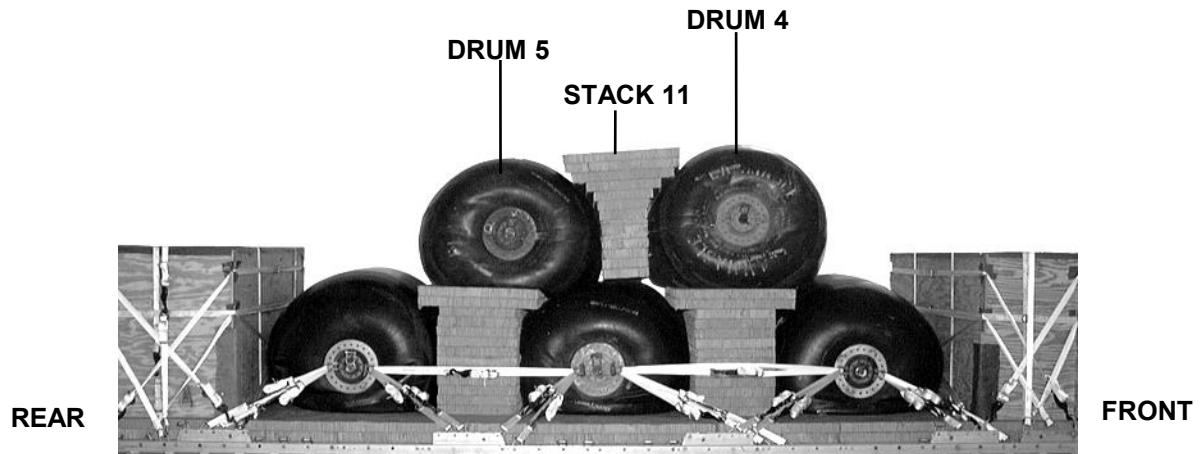


Figure 22-14. Lashings 35 Through 42 Installed



- ① Position drum 4 centered on stack 9.
- ② Position drum 5 centered on stack 10.
- ③ Position stack 11 between drums 4 and 5.

Figure 22-15. Drums 4 and 5 Positioned

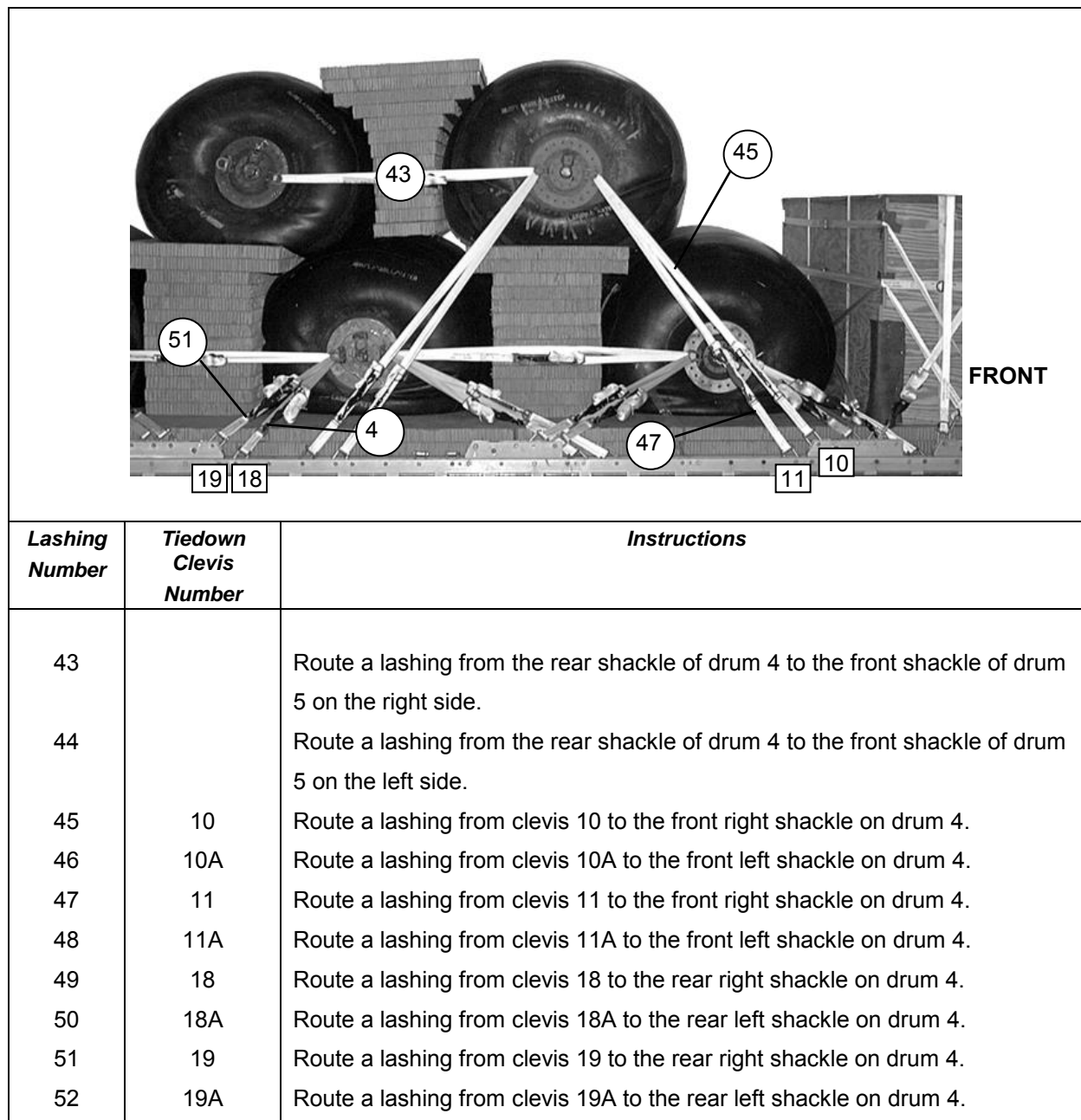
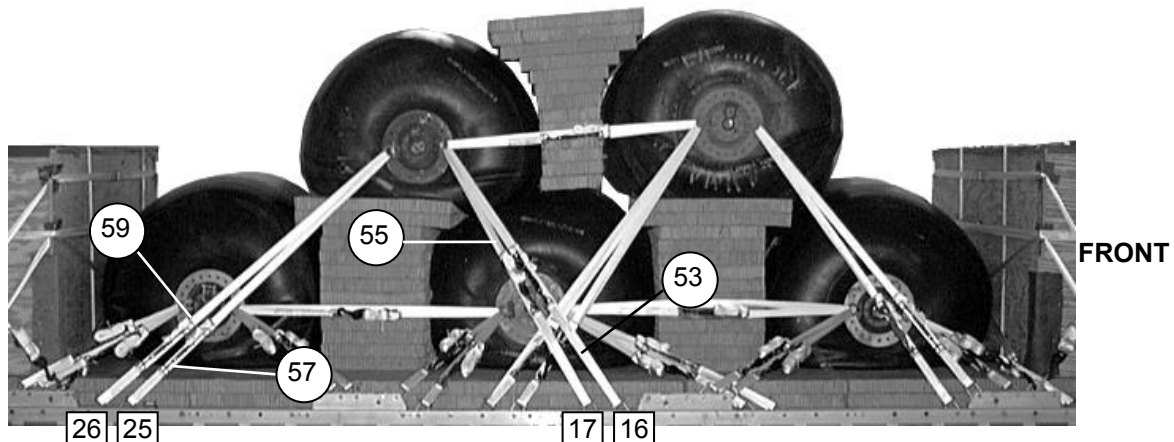


Figure 22-16. Lashings 43 Through 52 Installed



Note. Wrap the load binder between drums 4 and 5 with a ½-inch by 12-inch by 17-inch piece of felt and secure it with type III nylon cord (not shown).

<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
53	16	Route a lashing from clevis 16 to the front right shackle on drum 5.
54	16A	Route a lashing from clevis 16A to the front left shackle on drum 5.
55	17	Route a lashing from clevis 17 to the front right shackle on drum 5.
56	17A	Route a lashing from clevis 17A to the front left shackle on drum 5.
57	25	Route a lashing from clevis 25 to the rear right shackle on drum 5.
58	25A	Route a lashing from clevis 25A to the rear left shackle on drum 5.
59	26	Route a lashing from clevis 26 to the rear right shackle on drum 5.
60	26A	Route a lashing from clevis 26A to the rear left shackle on drum 5.

Figure 22-17. Lashings 53 Through 60 Installed

BUILDING AND POSITIONING PLATFORM

22-11. Build and position the release platform as shown in Figure 22-18.

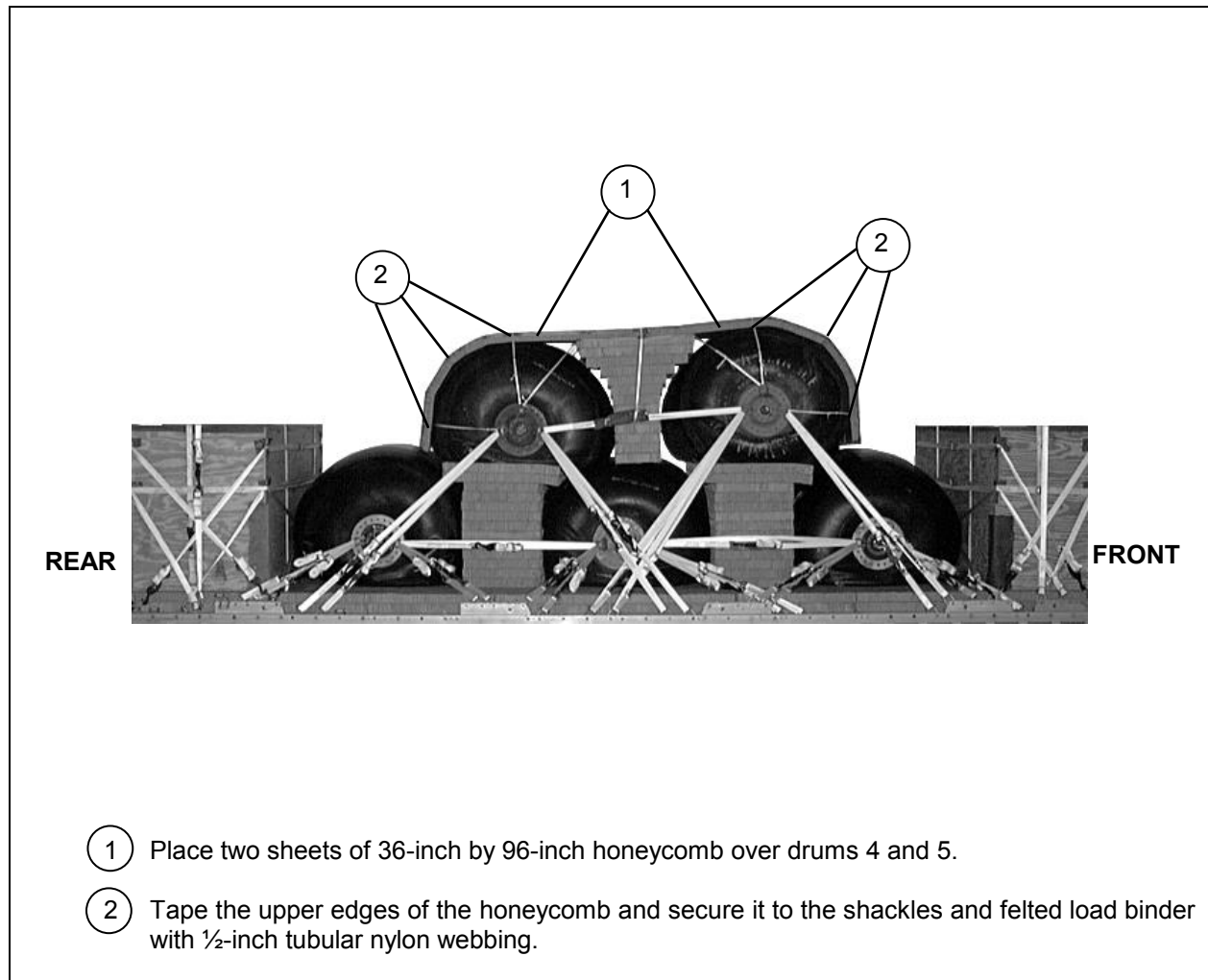


Figure 22-18. Release Platform Built and Positioned

INSTALLING SUSPENSION SLINGS AND SAEFTY TIES

22-12. Install suspension slings and safety ties as shown in Figure 22-19.

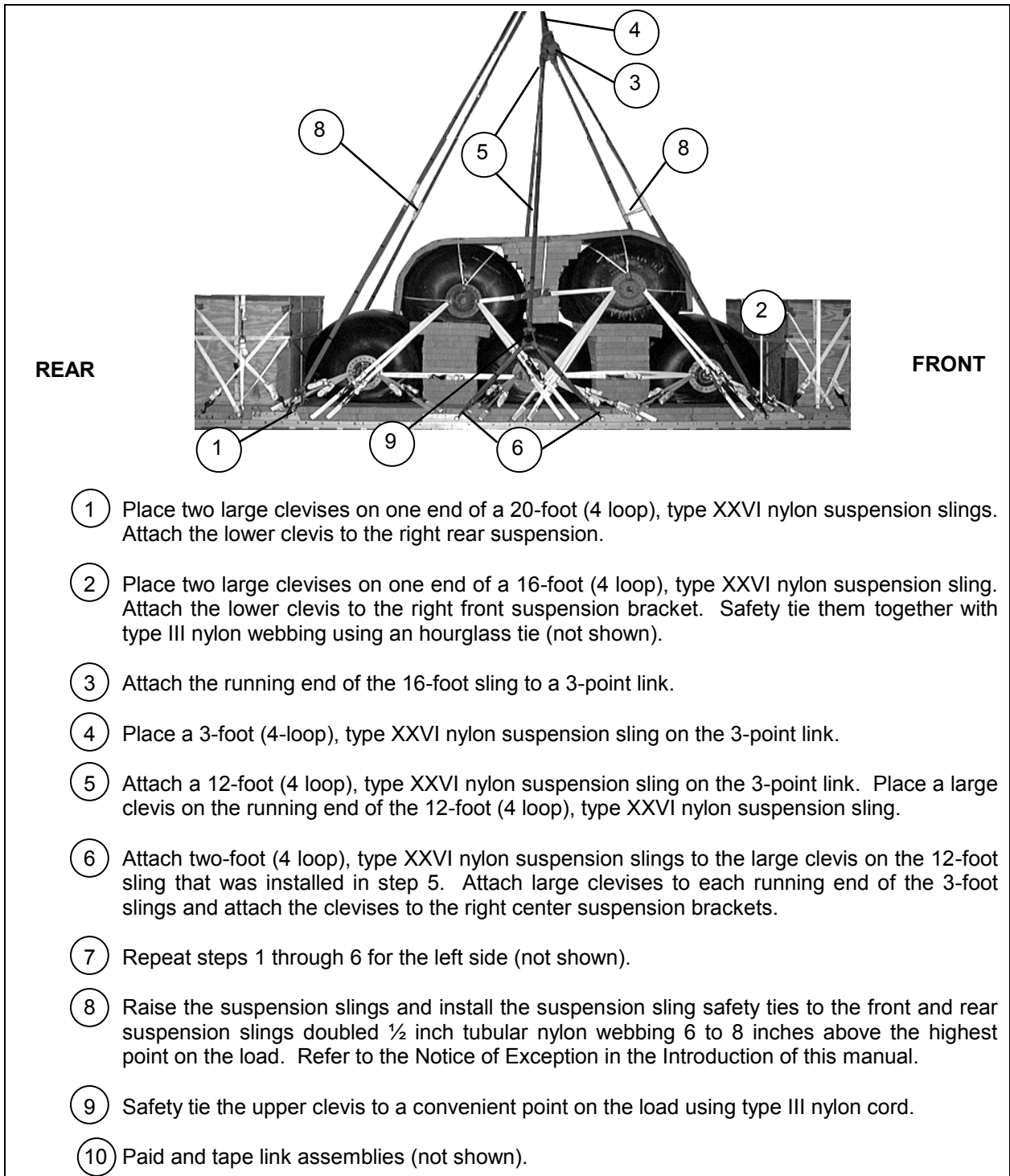


Figure 22-19. Suspension Slings and Safety Ties Installed

PREPARING AND STOWING CARGO PARACHUTES

22-13. Prepare and stow six G-11 cargo parachutes as shown in Figure 22-20.

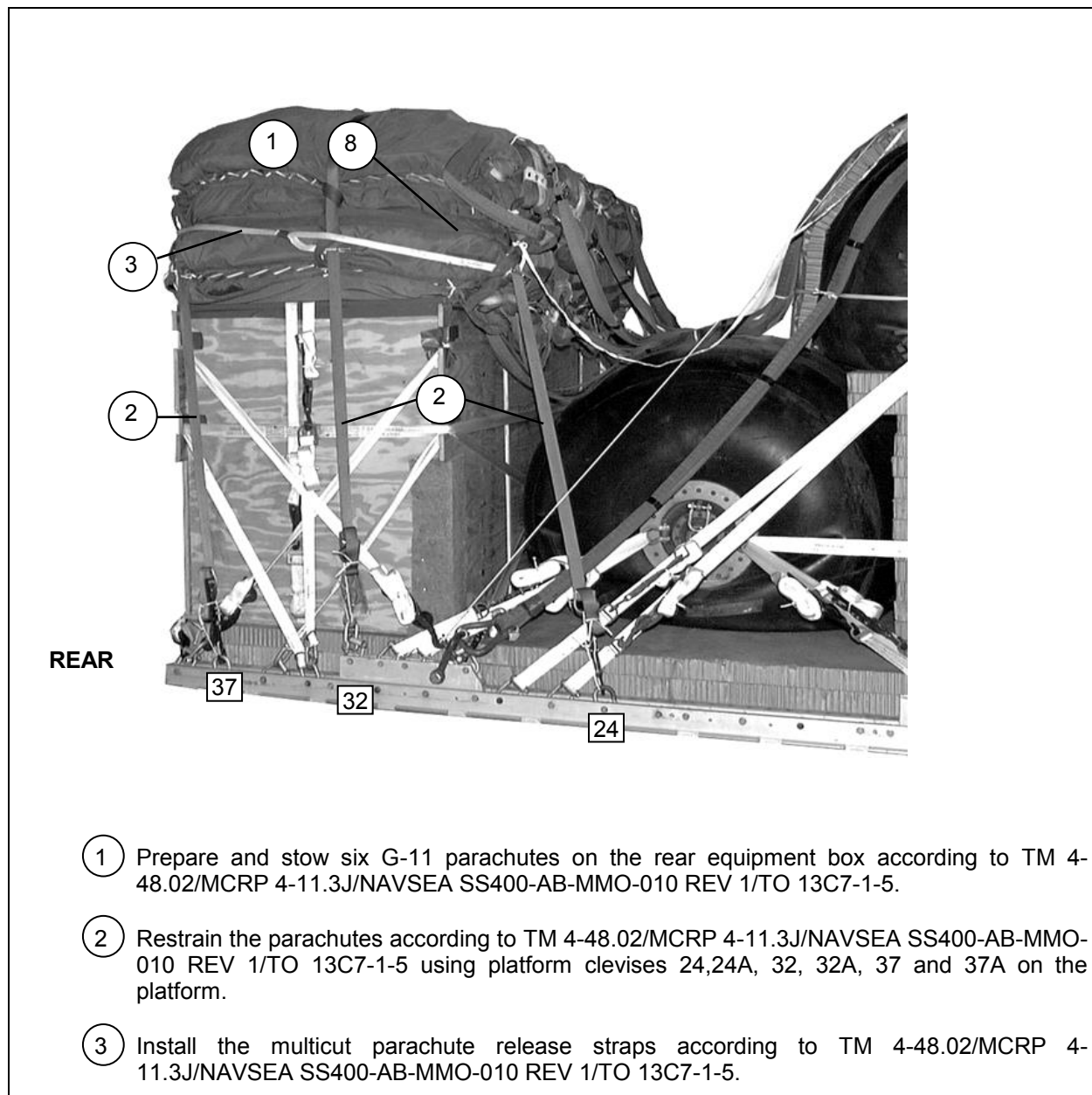
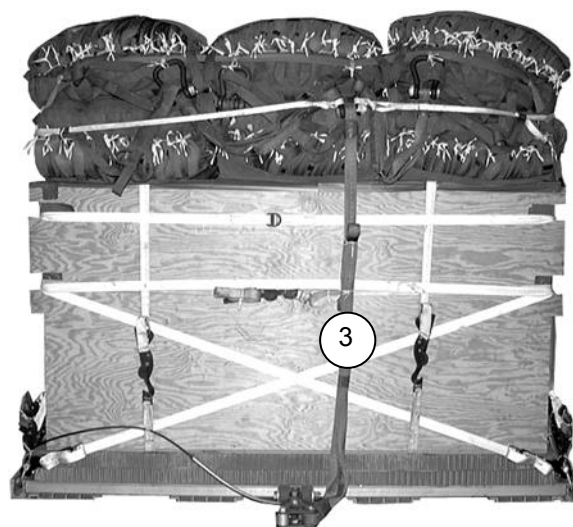
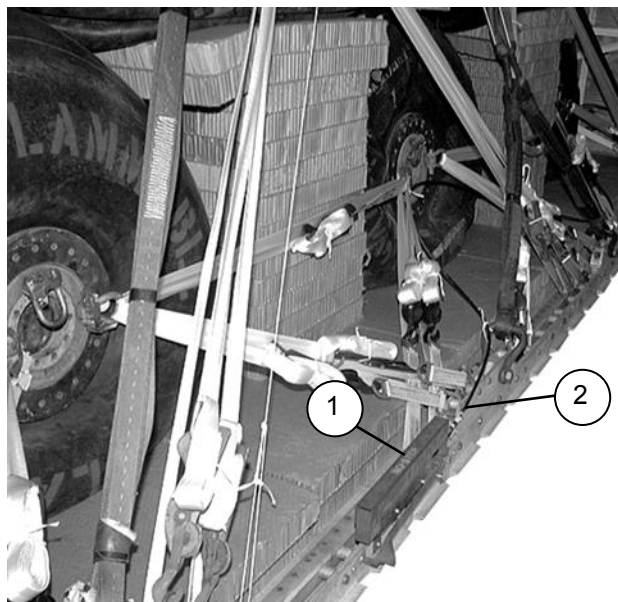


Figure 22-20. Cargo Parachutes Prepared and Stowed

INSTALLING THE EXTRACTION SYSTEM

22-14. Install the extraction system as shown in Figure 22-21.

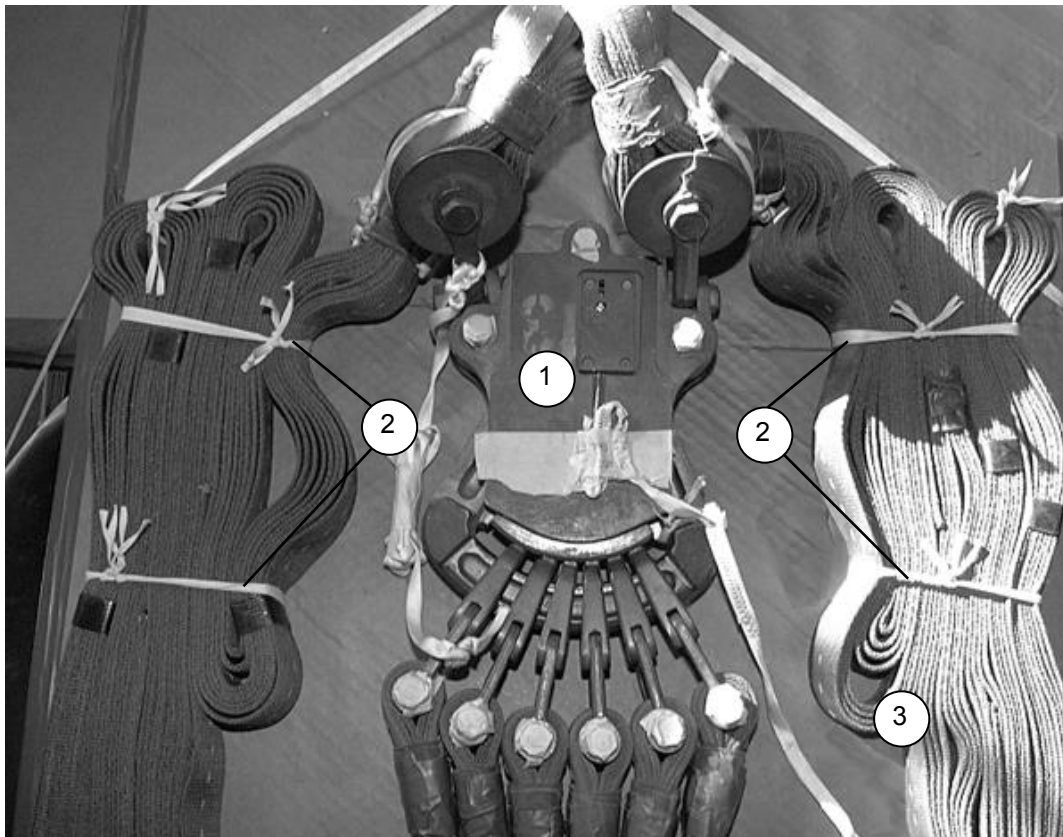


- ① Using the rear holes, install the extraction force transfer coupling according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.
- ② Using a 24-foot extraction force transfer coupling cable, safety the cable using one turn type I, ¼ inch cotton webbing.
- ③ Attach a 9-foot (2 loop), type XXVI nylon webbing sling for use as a deployment line.

Figure 22-21. Extraction System Installed

INSTALLING THE CARGO PARACHUTE RELEASE SYSTEM

22-15. Install the M-2 cargo parachute release system as shown in Figure 22-22.



- ① Place the M-2 release on the release platform. Attach the suspension slings and the parachute riser extensions to the M-2 cargo release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the cargo parachute release with type III nylon cord.
- ② S-fold and tie any slack in the suspension slings with type I, 1/4 inch cotton webbing.

Figure 22-22. Cargo Parachute Release Installed

PLACING EXTRACTION PARACHUTE

22-16. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

22-17. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

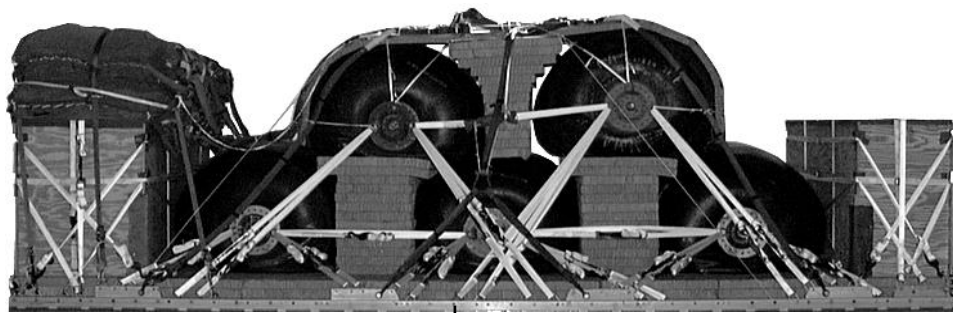
22-18. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 22-23. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

22-19. Use the equipment list in Table 22-1 to rig the load shown in Figure 22-23.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....	27,292 pounds
Maximum load allowed.....	30,000 pounds
Height.....	96 inches
Width	108 inches
Length	306 inches
Overhang: Front	0 inches
Rear	18 inches
Center of Balance (CB) (from front edge of platform)	
.....	146 inches
Extraction System	Extraction Force Transfer Coupler

Figure 22-23. Advanced Aviation Forward Area Refueling System with Five-Gallon Drums Rigged for Low-Velocity Airdrop

Table 22-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Five 500-Gallon Drums

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-279-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	20
4030-00-678-8562	Clevis, medium	6
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer with cable, 24-foot	1
1670-00-360-0328	Cover, clevis, large	6
8305-00-958-3685	Felt sheet, 12 inch	As required
1670-01-183-2678	Leaf, extraction line (line bag)	2
1670-01-064-4452	Line, drogue (for Drogue Extraction System): 60-foot (1 loop), type XXVI	1
1670-01-062-6313	Line, extraction: For C-130: 60-foot (3 loop), type XXVI	1
1670-01-107-7651	For C-17: 140-foot (3 loop), type XXVI	1
1670-01-062-6313	For C-5: 60-foot (3 loop), type XXVI	1
1670-01-107-7651	140-foot (3 loop), type XXVI	1
	Link assembly:	
	Two point:	1
5306-00-435-8994	Bolt, 1-inch diameter, 4-inches long	2
5310-00-232-5165	Nut, 1-inch, hexagonal	2
1670-00-003-1954	Plate, side, 5 ½ inch	2
5365-00-007-3414	Spacer, large	2
	Two-point: (for Drogue Extraction System)	1
5303-00-435-8994	Bolt, 1-inch diameter, 4-inches long	2
5310-00-232-5165	Nut, 1-inch, hexagonal	2
1670-00-003-1953	Plate, side, 3 ¾ inch	2
5365-00-007-3414	Spacer, large	2
1670-01-307-1055	Three point	2
1670-01-483-8259	Link, tow release mechanism (H-Block) C-17 aircraft	1
	Lumber:	
5510-00-220-6146	2-by-4 inch	As required
5315-00-753-3885	Nail, steel wire, common, 16-penny	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3 x 36 x 96 inches	32 sheets
	Parachute:	
1670-01-016-7841	Cargo, G-11C	6
1670-00-040-8135	Cargo, extraction, 28 foot	1
1670-01-063-3715	Drogue, 15 foot (for Drogue Extraction System)	1

Table 22-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Five 500-Gallon Drums (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
1670-01-353-8425	Platform, airdrop, type V, 24-foot:	
1670-01-247-2389	Bracket assembly, component, (extraction force transfer coupler)	1
1670-01-162-2372	Bracket, suspension	8
1670-01-353-8424	Clevis assembly, type V	80
1670-01-162-2381	Extraction bracket assembly	1
5530-00-618-8073	Link, tandem, suspension link assembly	2
1670-01-097-8817	Plywood, ¾-by-48-by-96 inches	11 sheets
	Release, cargo parachute, M-2	1
	Sling, cargo airdrop:	
1670-01-062-6304	For deployment line:	
	9-foot (2 loop), type XXVI nylon webbing	1
1670-01-062-6306	For suspension:	
1670-01-062-6307	3-foot (4 loop), type XXVI nylon webbing	6
1670-01-062-6308	12-foot (4 loop), type XXVI nylon webbing	2
1670-01-064-4453	16-foot (4 loop), type XXVI nylon webbing	2
	20-foot (4 loop), type XXVI nylon webbing	2
1670-01-062-6313	For riser extension:	
1670-00-040-8219	120-foot (2 loop), type XXVI nylon webbing	6
7510-00-266-5016	Strap, parachute release, multicut	2
7510-00-266-6710	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tape, masking, 2-inch	As required
	Tiedown assembly, 15-foot	70
8305-00-268-2411	Webbing:	
8305-00-082-5752	Cotton, ¼ inch, type I	As required
8305-00-263-3591	Nylon, tubular, ½ inch	As required
	Type X	As required

Chapter 23

Rigging AAFARS with Six 500-Gallon Fuel Drums for Low-Velocity Airdrop on Type V Platform

DESCRIPTION OF LOAD

23-1. The AAFARS is rigged on a 24-foot type V platform with four G-11 cargo parachutes. The AAFARS is designed for forward area refueling of up to four aircraft at a time with a minimum of 55 gallons-per-minute. There are six collapsible fuel drums as an accompanying load. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The total rigged length is 402 inches. Width is 108 inches. Height is 94 inches. Center of balance is 195 inches.

Note. 1. For drums filled with a liquid other than water, use Table 11-1 to recompute the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed. 3. Do not pressurize drums with air.

PREPARING PLATFORM

23-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 84 tiedown clevises as shown in Figure 23-1.

Note. 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.

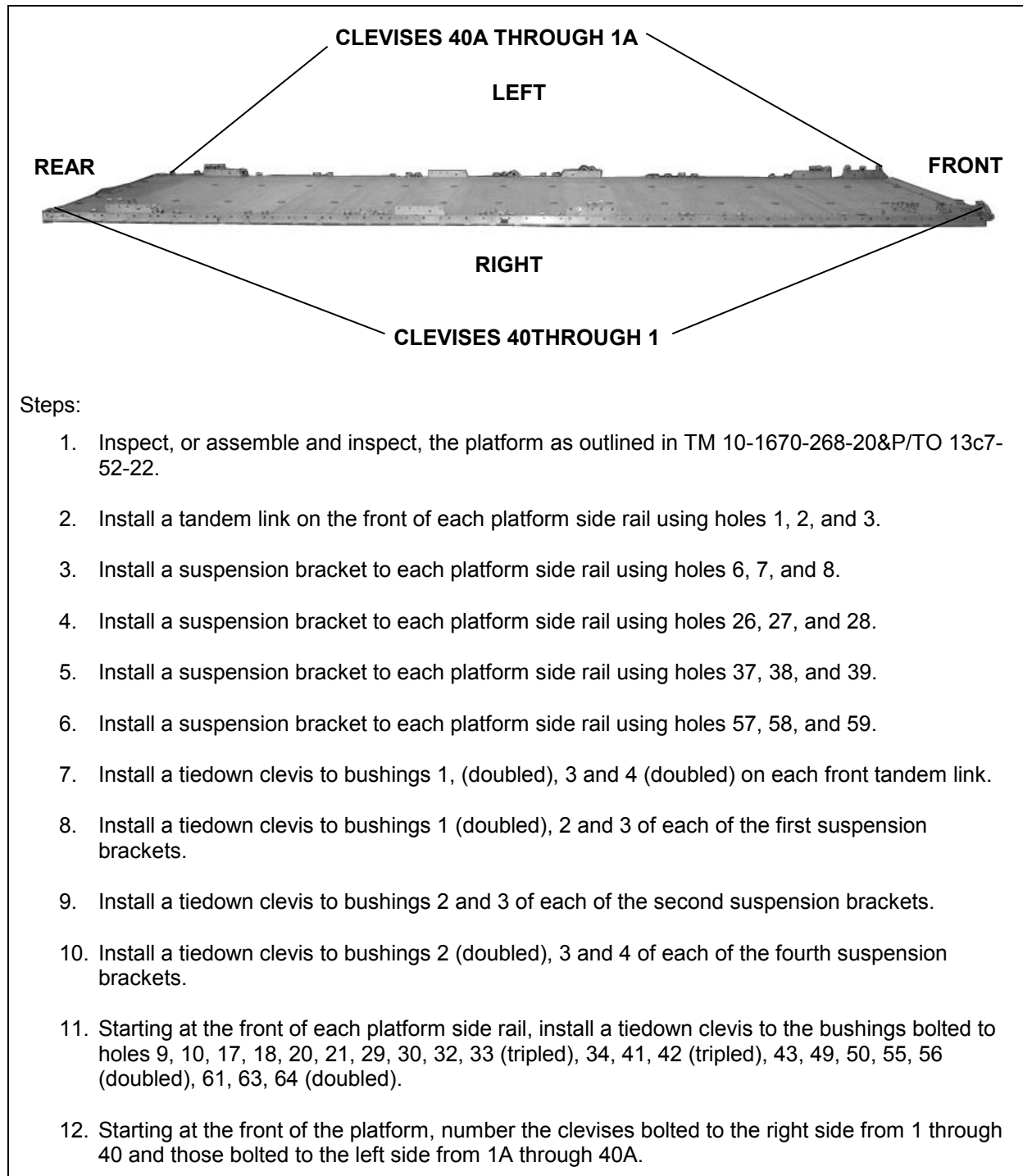
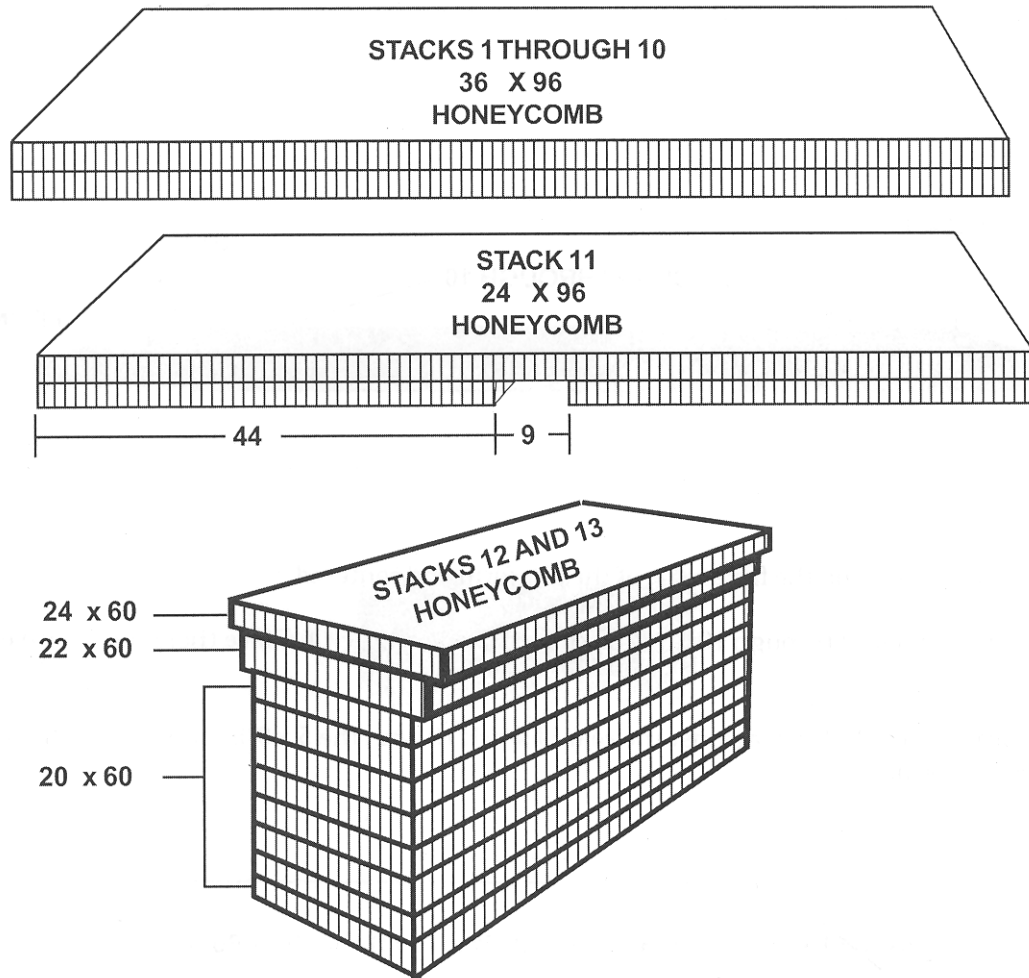


Figure 23-1. Platform Prepared

PREPARING HONEYCOMB

23-3. Build honeycomb stacks as shown in Figure 23-2.

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1-10	2	36	96	Honeycomb	Glue together.
11	2	24	96	Honeycomb	Glue together. Cut a notch out in the bottom layer starting 44-inches in from the 96-inch edge, 9-inches wide, 5-inches in length.
12 & 13	8	20	60	Honeycomb	Glue together to form base.
	1	22	60	Honeycomb	Glue and center onto base.
	1	24	60	Honeycomb	Glue and center on top of 22 X 60-inch piece.

Figure 23-2. Honeycomb Stacks Prepared

POSITIONING HONEYCOMB STACKS

23-4. Position honeycomb stacks as shown in Figure 23-3.

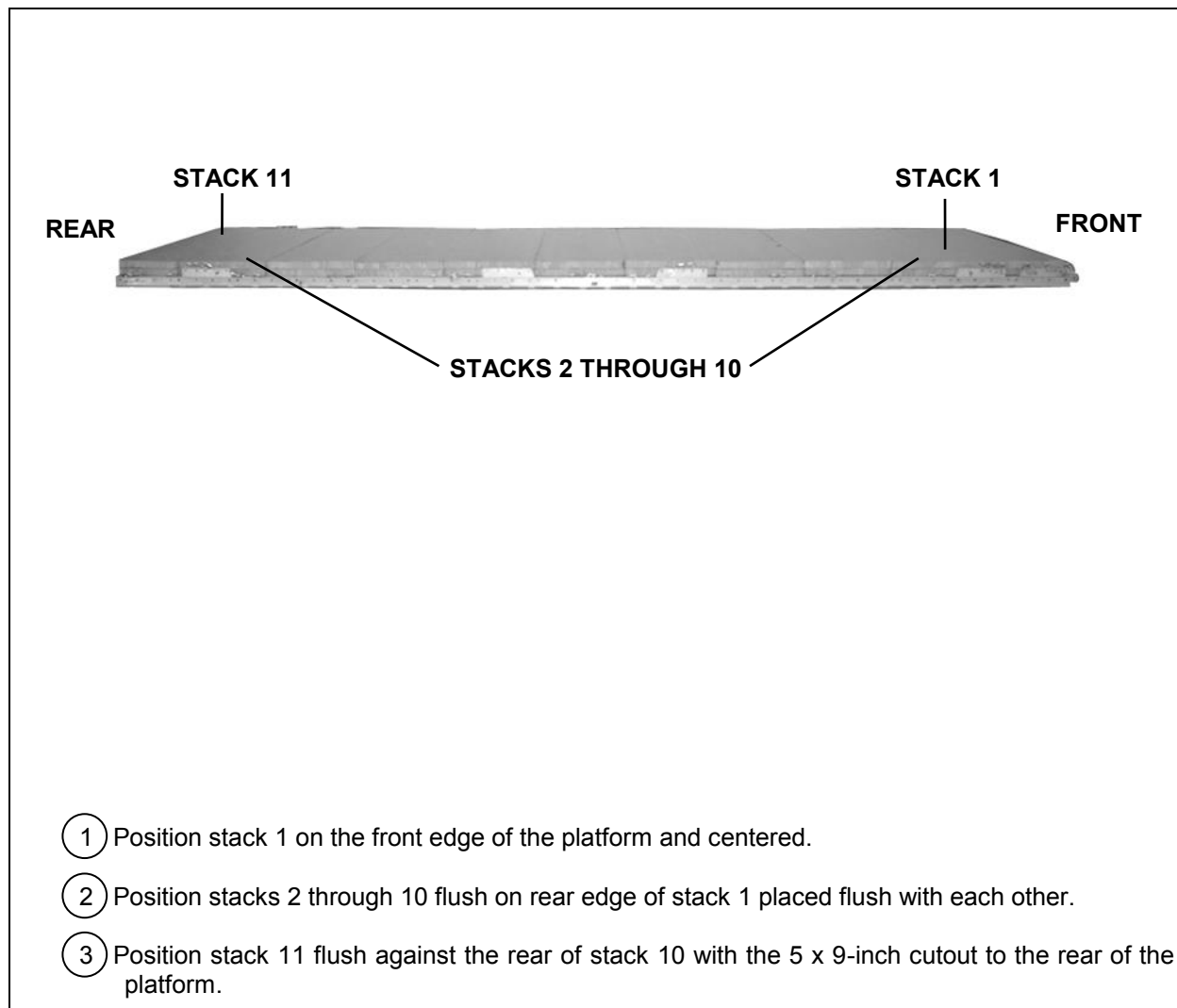


Figure 23-3. Positioning Honeycomb Stacks

POSITIONING AND LASHING THE DRUMS

23-5. Position and lash the drums to the platform as shown in Figure 23-4 through 23-15.

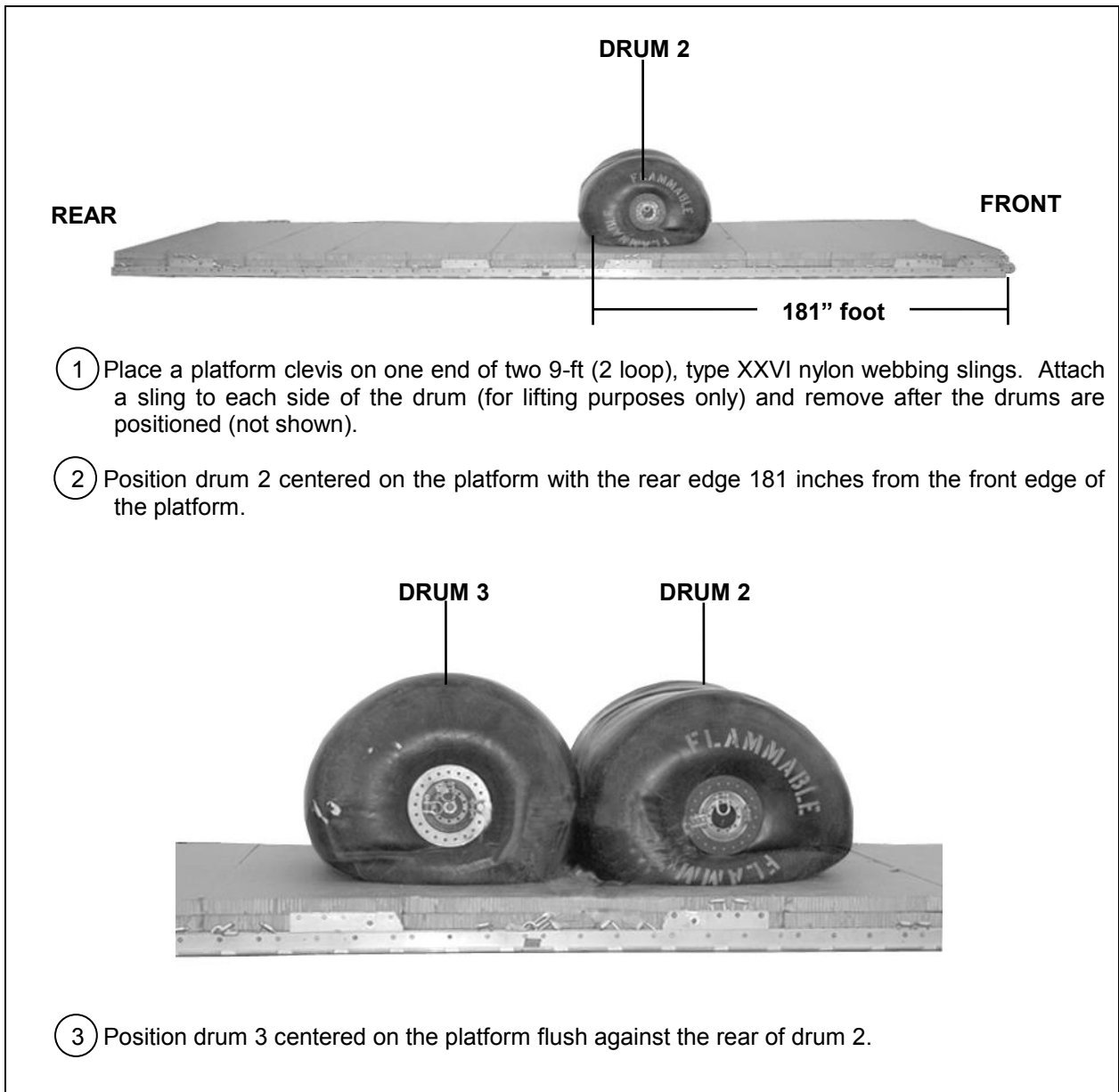
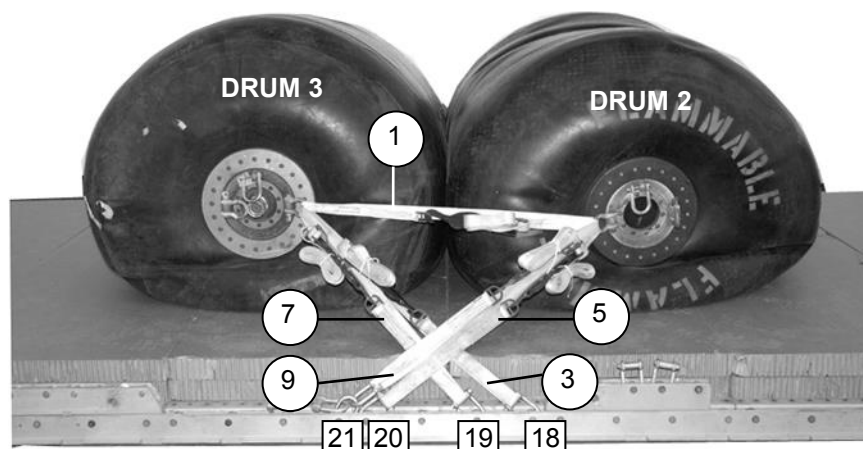


Figure 23-4. Fuel Drums 2 and 3 Positioned



Lashing Number	Tiedown Clevis Number	Instructions
1		Route a lashing from the rear shackle of drum 2 to the front shackle of drum 3 on the right side.
2		Route a lashing from the rear shackle of drum 2 to the front shackle of drum 3 on the left side.
3	18	Route a lashing from clevis 18 to the front right shackle on drum 3.
4	18A	Route a lashing from clevis 18A to the front left shackle on drum 3.
5	20	Route a lashing from clevis 20 to the rear right shackle on drum 2.
6	20A	Route a lashing from clevis 20A to the rear left shackle on drum 2.
7	19	Route a lashing from clevis 19 to the front right shackle on drum 3.
8	19A	Route a lashing from clevis 19A to the front left shackle on drum 3.
9	21	Route a lashing from clevis 21 to the rear right shackle on drum 2.
10	21A	Route a lashing from clevis 21A to the rear left shackle on drum 2.

Figure 23-5. Lashings 1 Through 10 Installed

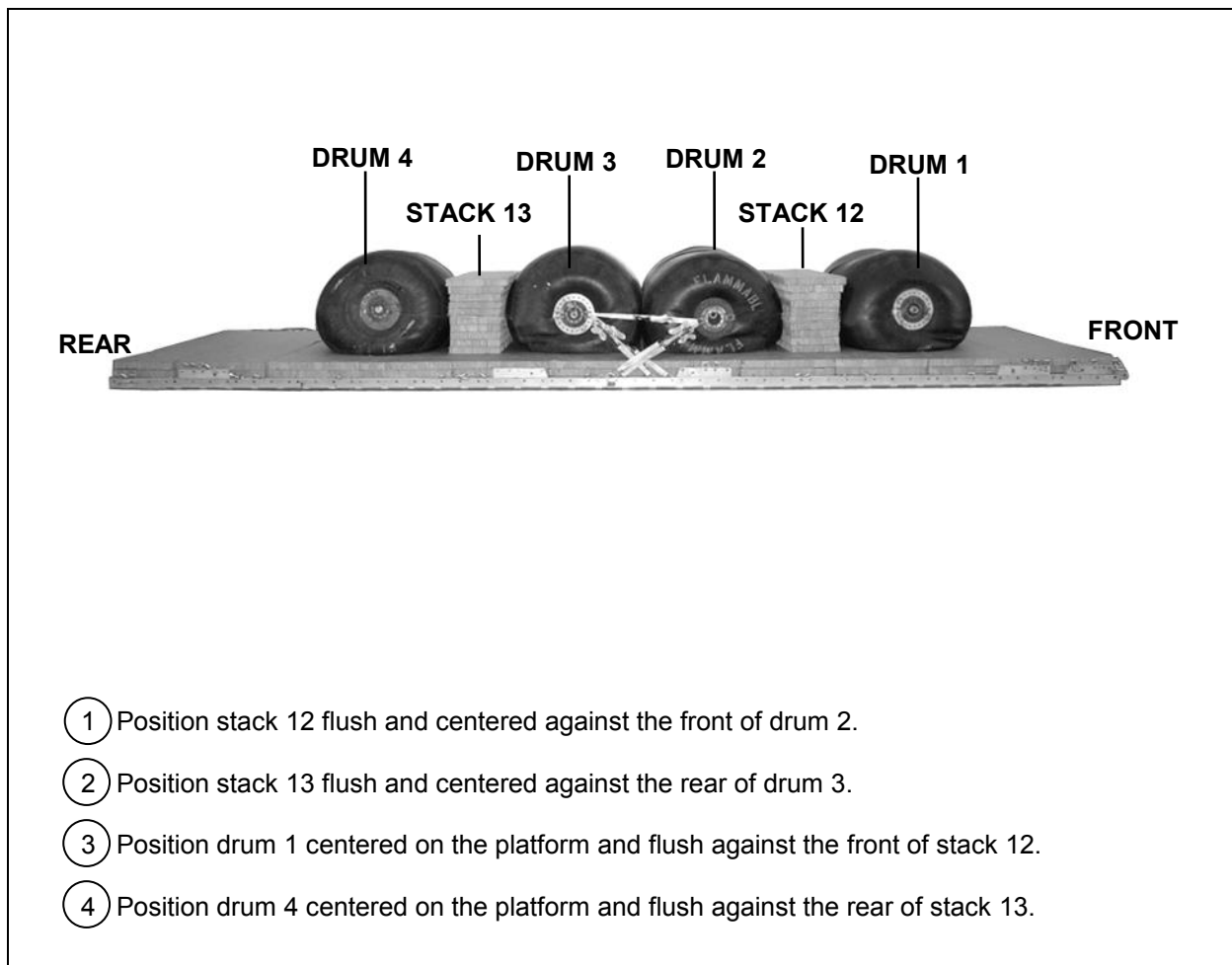
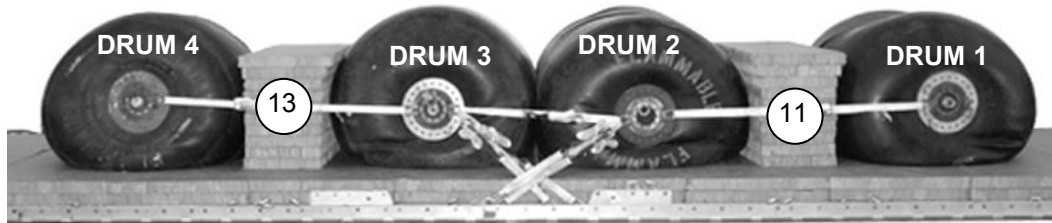


Figure 23-6. Fuel Drums 1 and 4 Positioned



Lashing Number	Tiedown Clevis Number	Instructions
11		Route a lashing from the rear shackle of drum 1 to the front shackle of drum 2 on the right side.
12		Route a lashing from the rear shackle of drum 1 to the front shackle of drum 2 on the left side.
13	18	Route a lashing from the rear shackle of drum 3 to the front shackle of drum 4 on the right side.
14	18A	Route a lashing from the rear shackle of drum 3 to the front shackle of drum 4 on the left side.

Figure 23-7. Lashings 11 Through 14 Installed

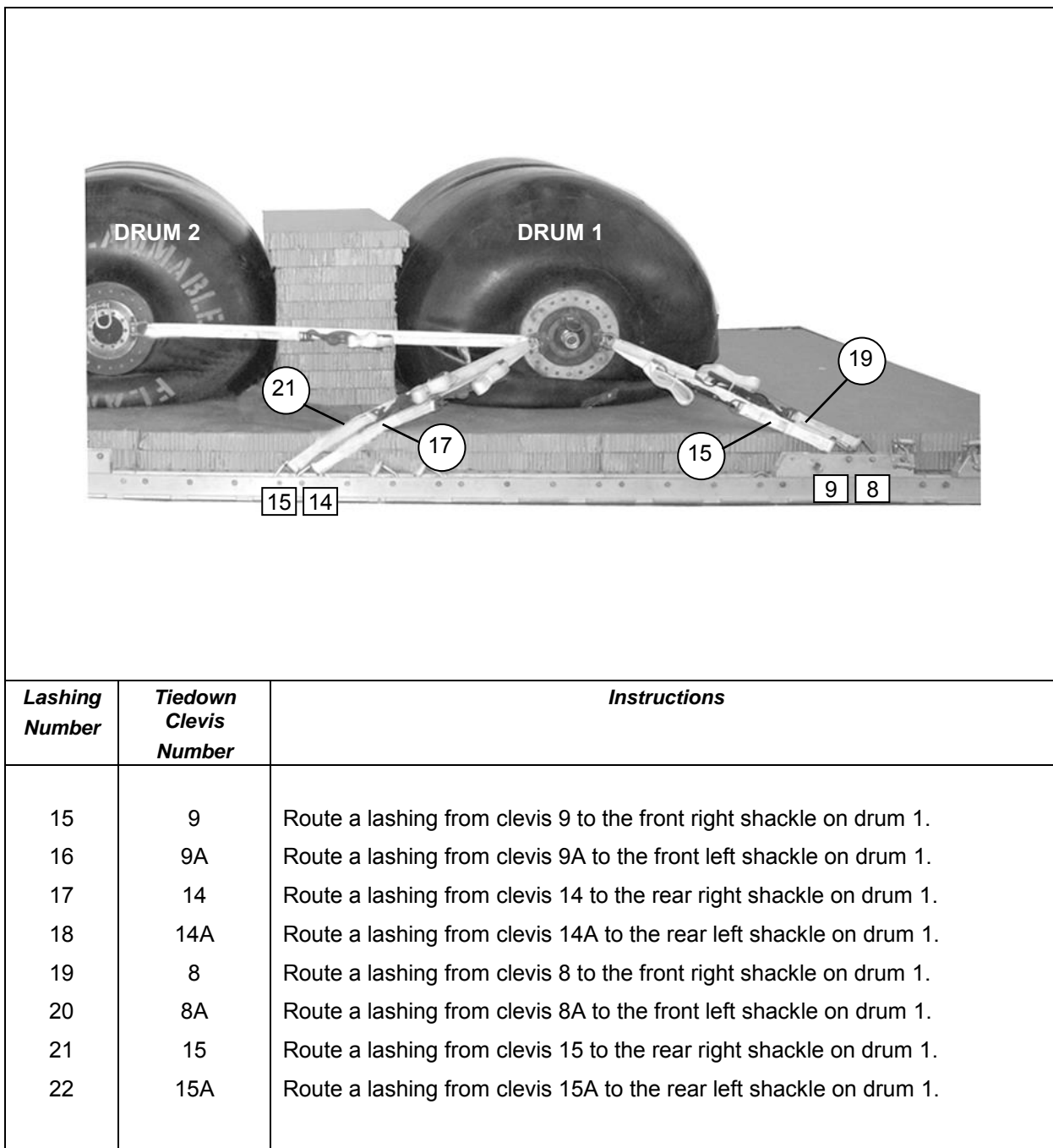
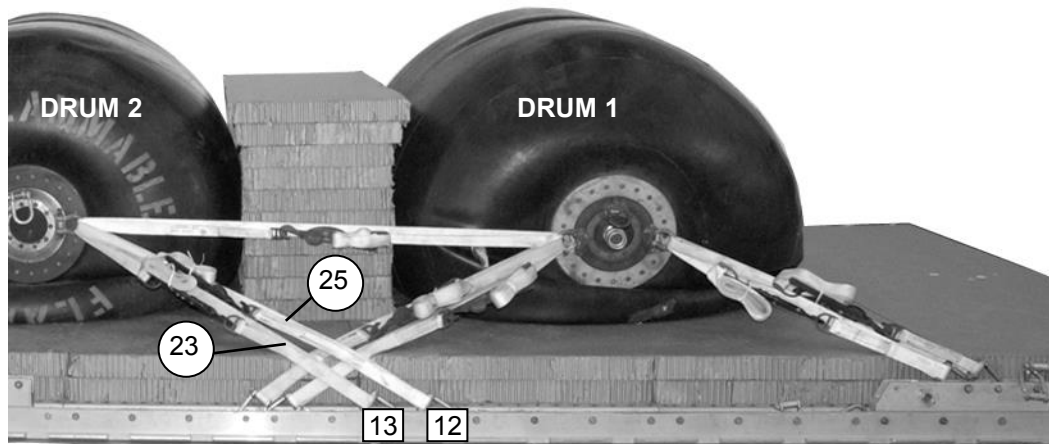


Figure 23-8. Lashings 15 Through 22 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
23	13	Route a lashing from clevis 13 to the front right shackle on drum 2.
24	13A	Route a lashing from clevis 13A to the front left shackle on drum 2.
25	12	Route a lashing from clevis 12 to the front right shackle on drum 2.
26	12A	Route a lashing from clevis 12A to the front left shackle on drum 2.

Figure 23-9. Lashings 23 Through 26 Installed

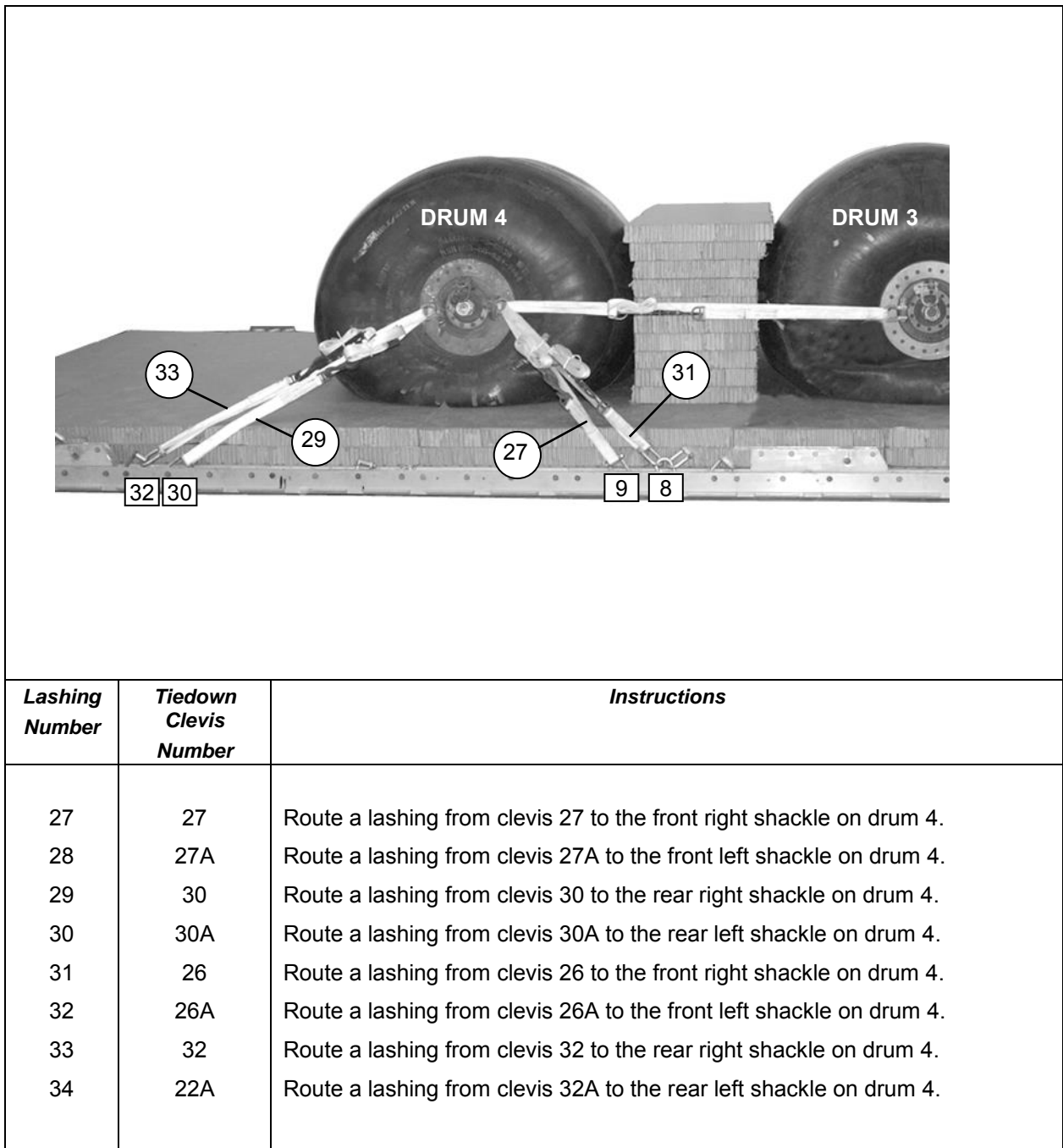
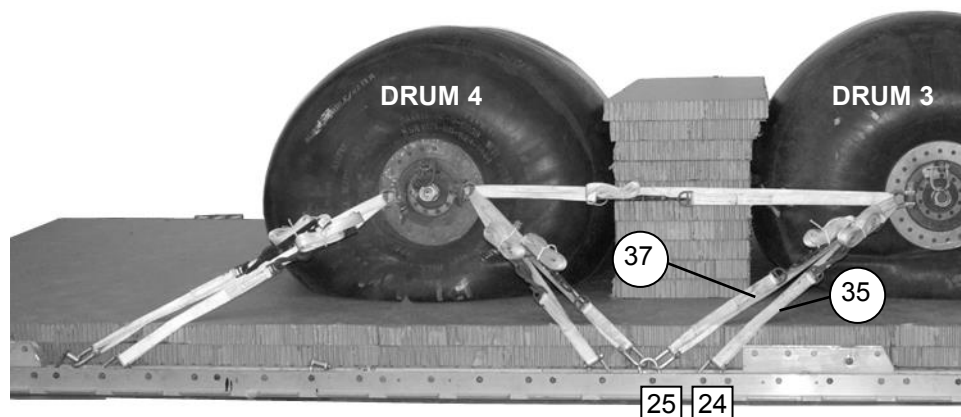


Figure 23-10. Lashings 27 Through 34 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
35	24	Route a lashing from clevis 24 to the rear right shackle on drum 3.
36	24A	Route a lashing from clevis 24A to the rear left shackle on drum 3.
37	25	Route a lashing from clevis 25 to the rear right shackle on drum 3.
38	25A	Route a lashing from clevis 25A to the rear left shackle on drum 3.

Figure 23-11. Lashings 35 Through 38 Installed

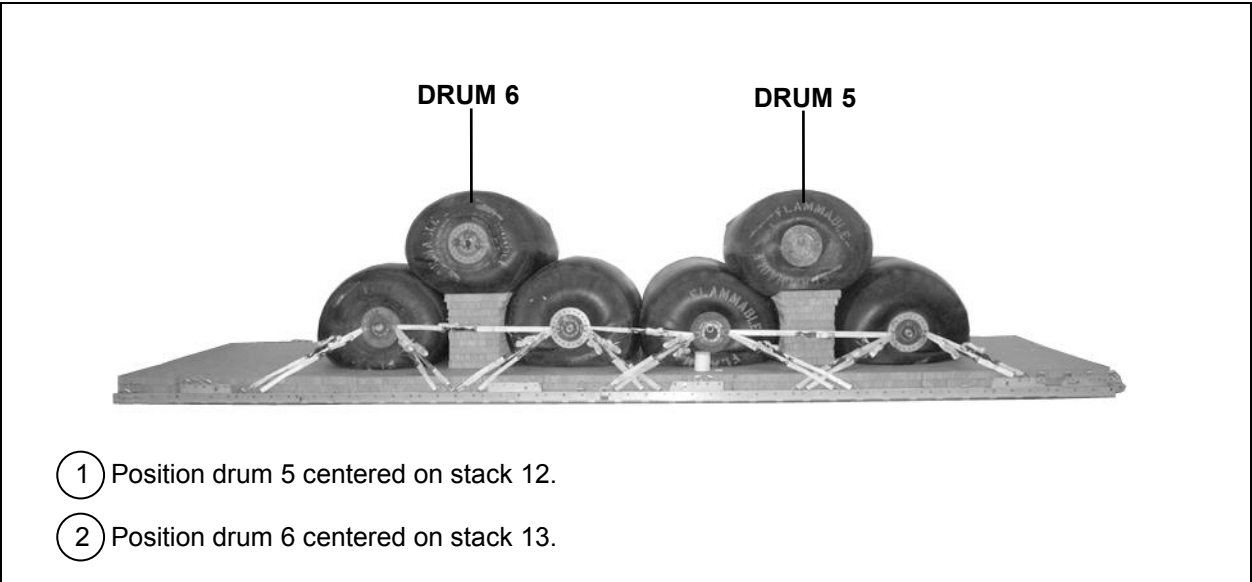


Figure 23-12. Fuel Drums 5 and 6 Positioned

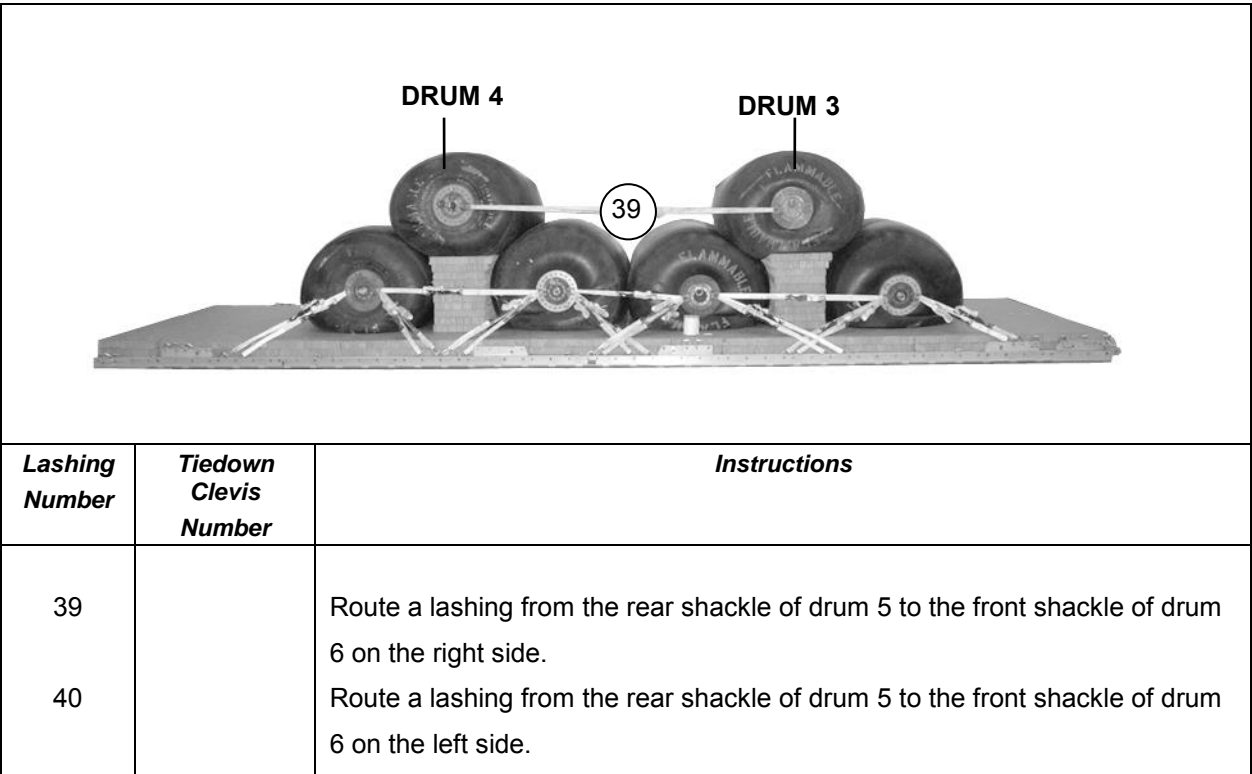
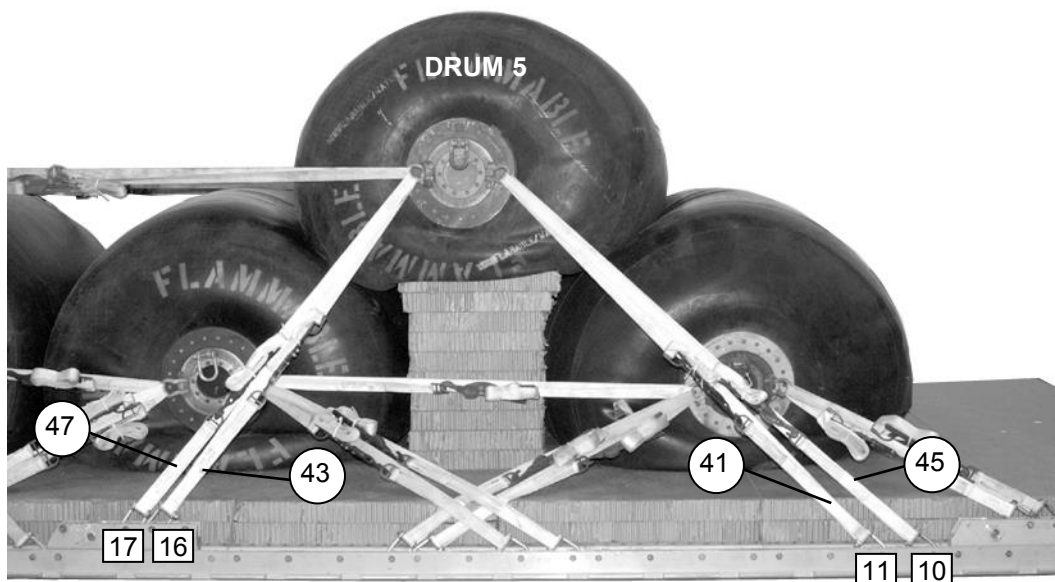
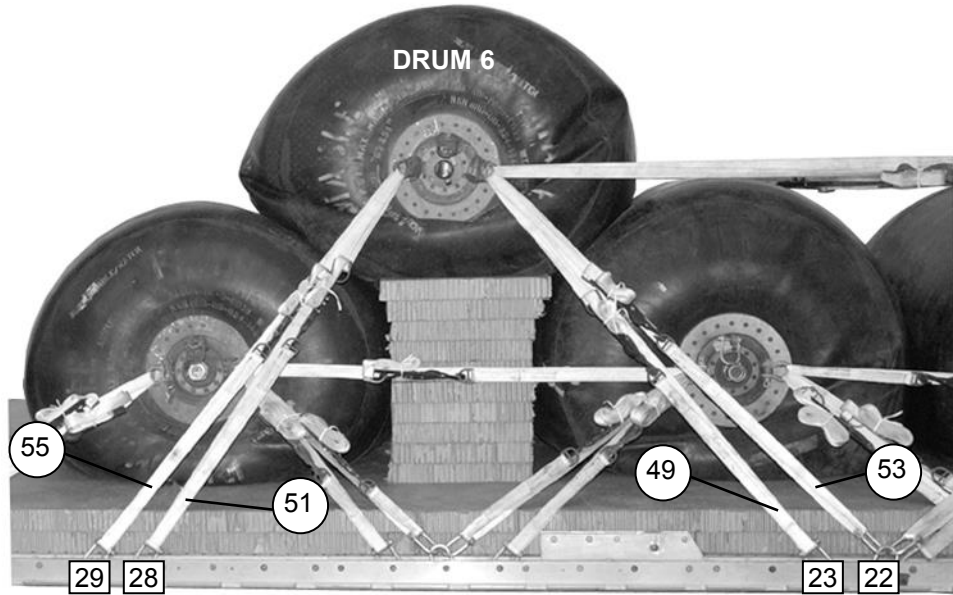


Figure 23-13. Lashings 39 and 40 Installed



Lashing Number	Tiedown Clevis Number	Instructions
41	11	Route a lashing from clevis 11 to the front right shackle on drum 5.
42	11A	Route a lashing from clevis 11A to the front left shackle on drum 5.
43	16	Route a lashing from clevis 16 to the rear right shackle on drum 5.
44	16A	Route a lashing from clevis 16A to the rear left shackle on drum 5.
45	10	Route a lashing from clevis 10 to the front right shackle on drum 5.
46	10A	Route a lashing from clevis 10A to the front left shackle on drum 5.
47	17	Route a lashing from clevis 17 to the rear right shackle on drum 5.
48	17A	Route a lashing from clevis 17A to the rear left shackle on drum 5.

Figure 23-14. Lashings 41 Through 48 Installed



Lashing Number	Tiedown Clevis Number	Instructions
49	23	Route a lashing from clevis 23 to the front right shackle on drum 6.
50	23A	Route a lashing from clevis 23A to the front left shackle on drum 6.
51	28	Route a lashing from clevis 28 to the rear right shackle on drum 6.
52	28A	Route a lashing from clevis 28A to the rear left shackle on drum 6.
53	22	Route a lashing from clevis 22 to the front right shackle on drum 6.
54	22A	Route a lashing from clevis 22A to the front left shackle on drum 6.
55	29	Route a lashing from clevis 29 to the rear right shackle on drum 6.
56	29A	Route a lashing from clevis 29A to the rear left shackle on drum 6.

Figure 23-15. Lashings 49 Through 56 Installed

BUILDING THE EQUIPMENT BOXES

23-6. Build the front and rear equipment boxes as shown in Figures 23-16 and 23-17.

- Build the front equipment box using 16-penny nails and as shown in Figure 23-13.

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.

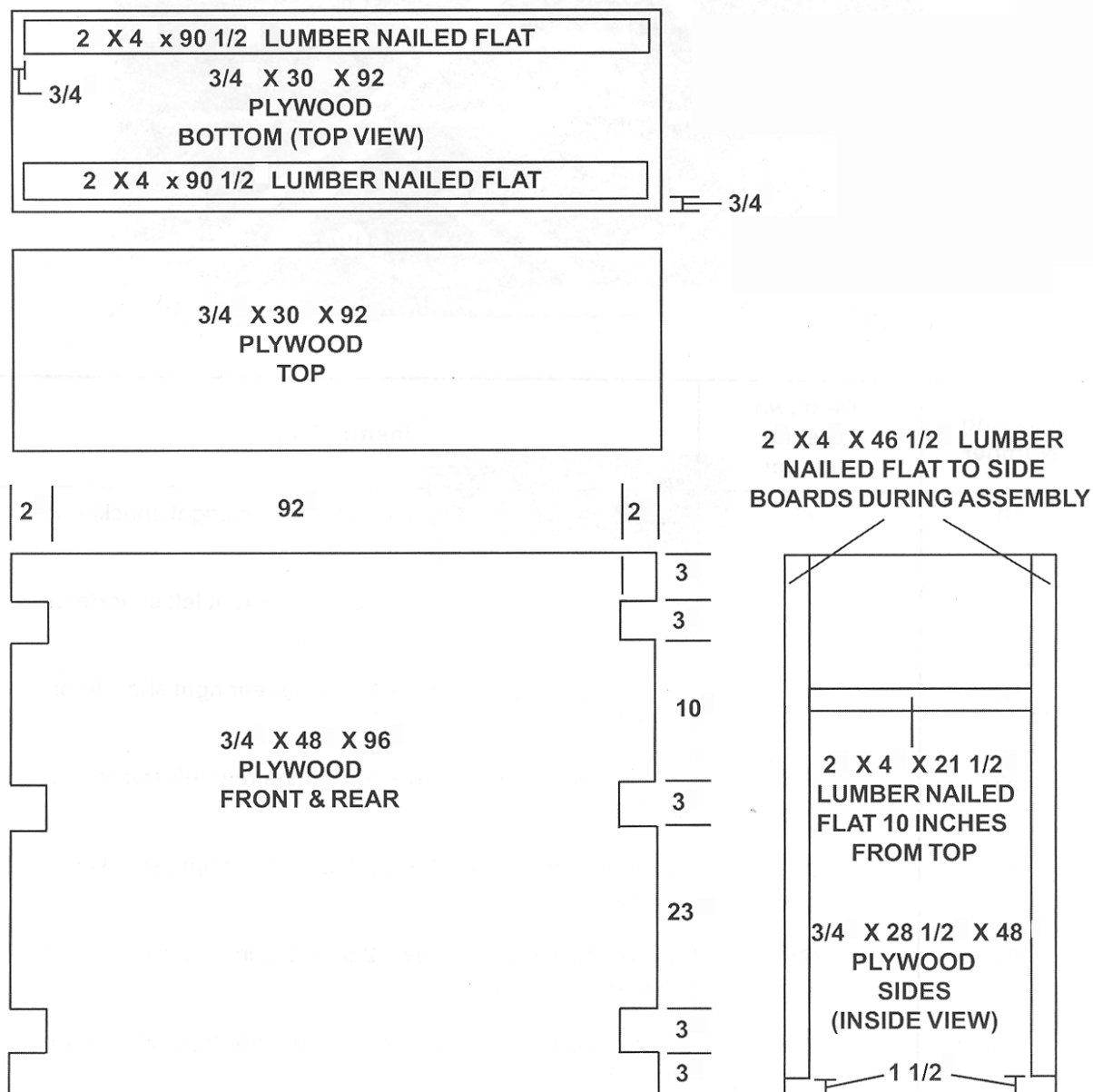


Figure 23-16. Front Equipment Box Built

- Build the rear equipment box using 16-penny nails and as shown in Figure 23-17.

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.

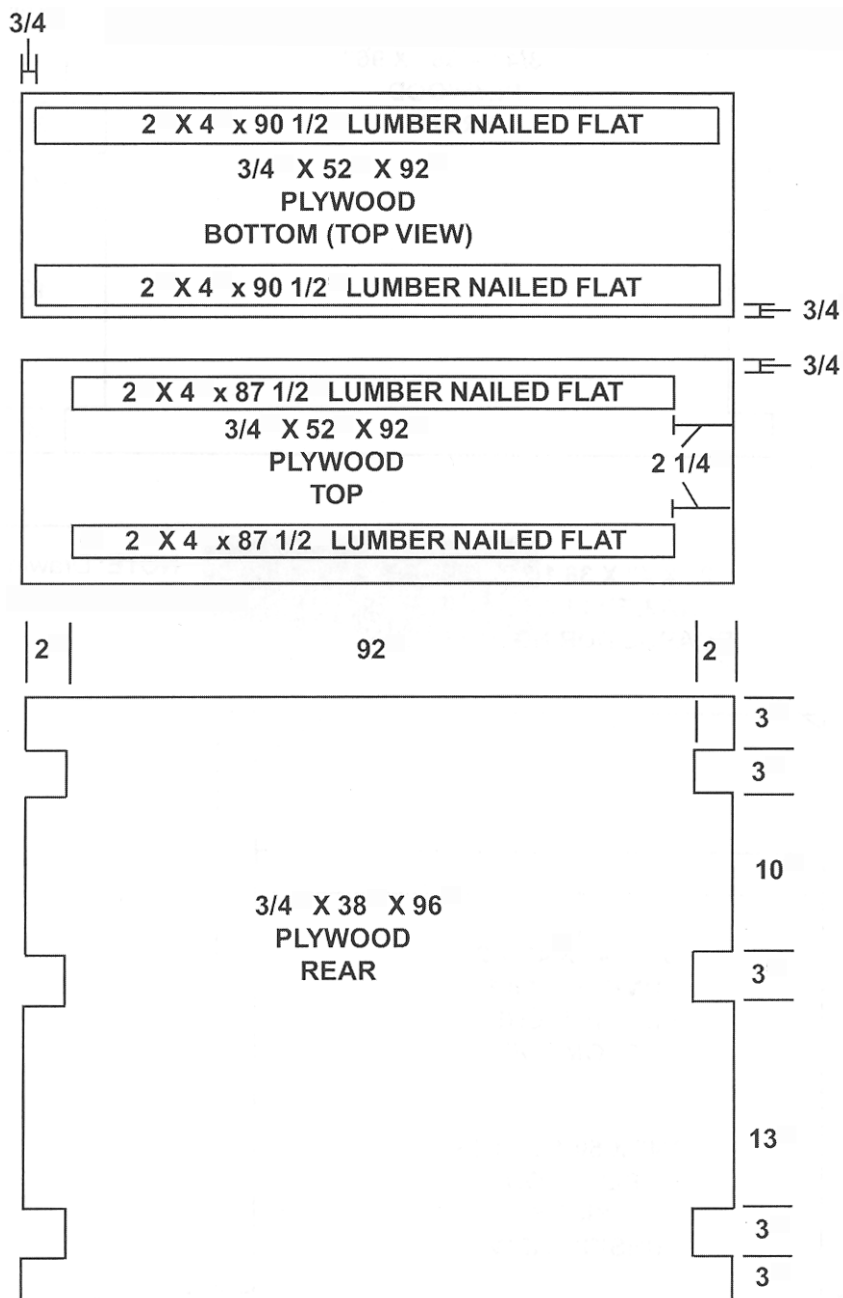


Figure 23-17. Rear Equipment Box Built

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.

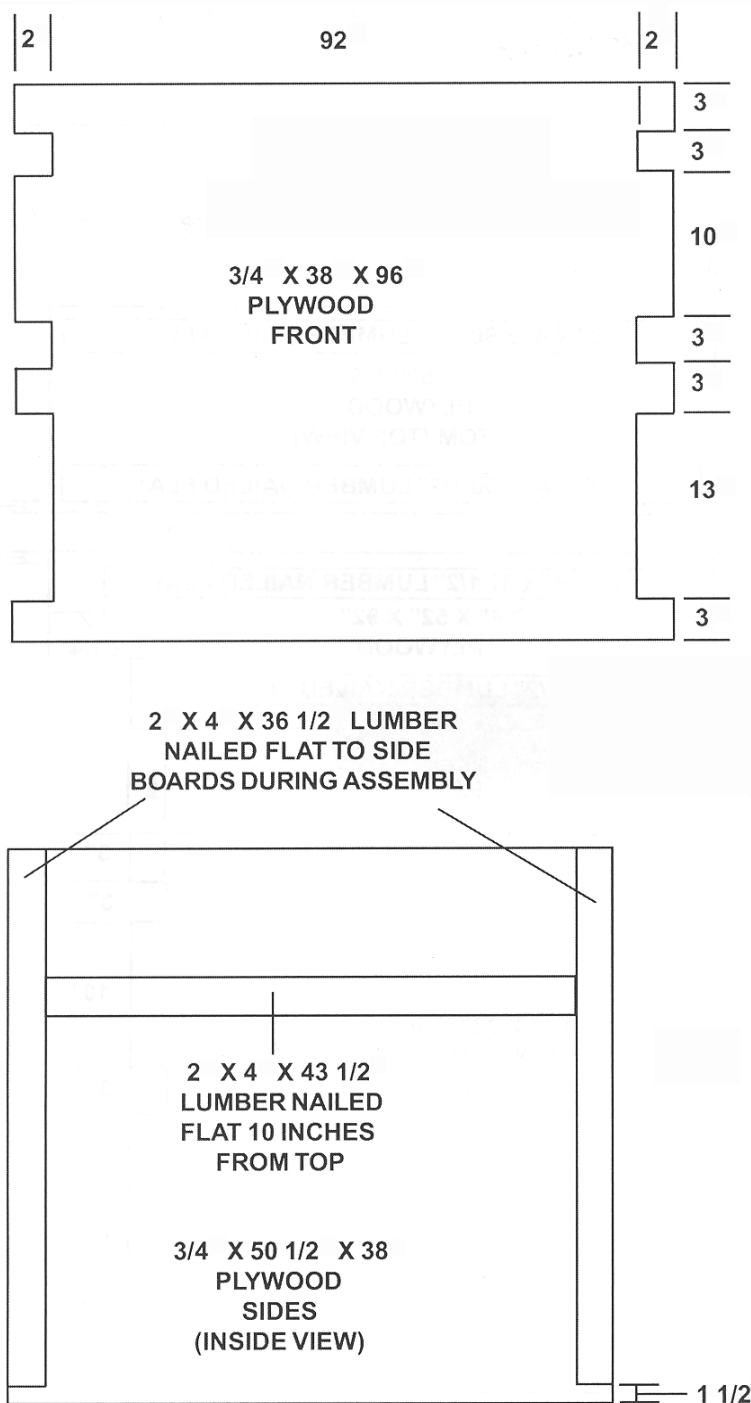
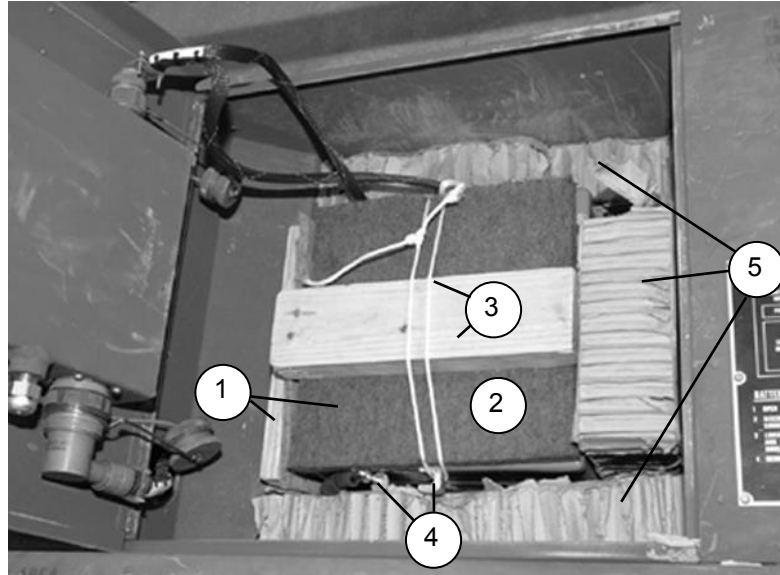


Figure 23-17. Rear Equipment Box Built (Continued)

PREPARE EQUIPMENT FOR EQUIPMENT BOXES

23-7. Prepare the fire extinguishers, filter separator, explosion proof motor, pumps, manuals, and toolkit as explained and shown in paragraph 20-6. Using the lists printed on the equipment bags, place the equipment indicated on each list into its bag. Prepare and secure the battery box as shown in Figure 23-18.



- ① Place a $\frac{3}{4}$ inch by 10-inch by 10-inch piece of plywood behind the battery inside the compartment. Place a $\frac{1}{4}$ inch by 10-inch by 10-inch piece of felt between the plywood and the battery.
- ② Place a $\frac{1}{4}$ inch by 10-inch by 10-inch piece of felt on top of the battery.
- ③ Place a 2-inch by 4-inch by 10-inch piece of lumber on top of the felt. Secure it with type III nylon cord.
- ④ Place cellulose wadding around the battery cap. Disconnect the battery, hold down rods and lay aside.
- ⑤ Fill the remainder of the compartment with pieces of honeycomb. Close and secure the lid (not shown).
- ⑥ Secure the intake filter and grounding wire as shown in Figure 20-11, steps 4 and 5.

Figure 23-18. Battery Box Secured

- Note.** 1. All dimensions are in inches.
2. This drawing is not to scale.

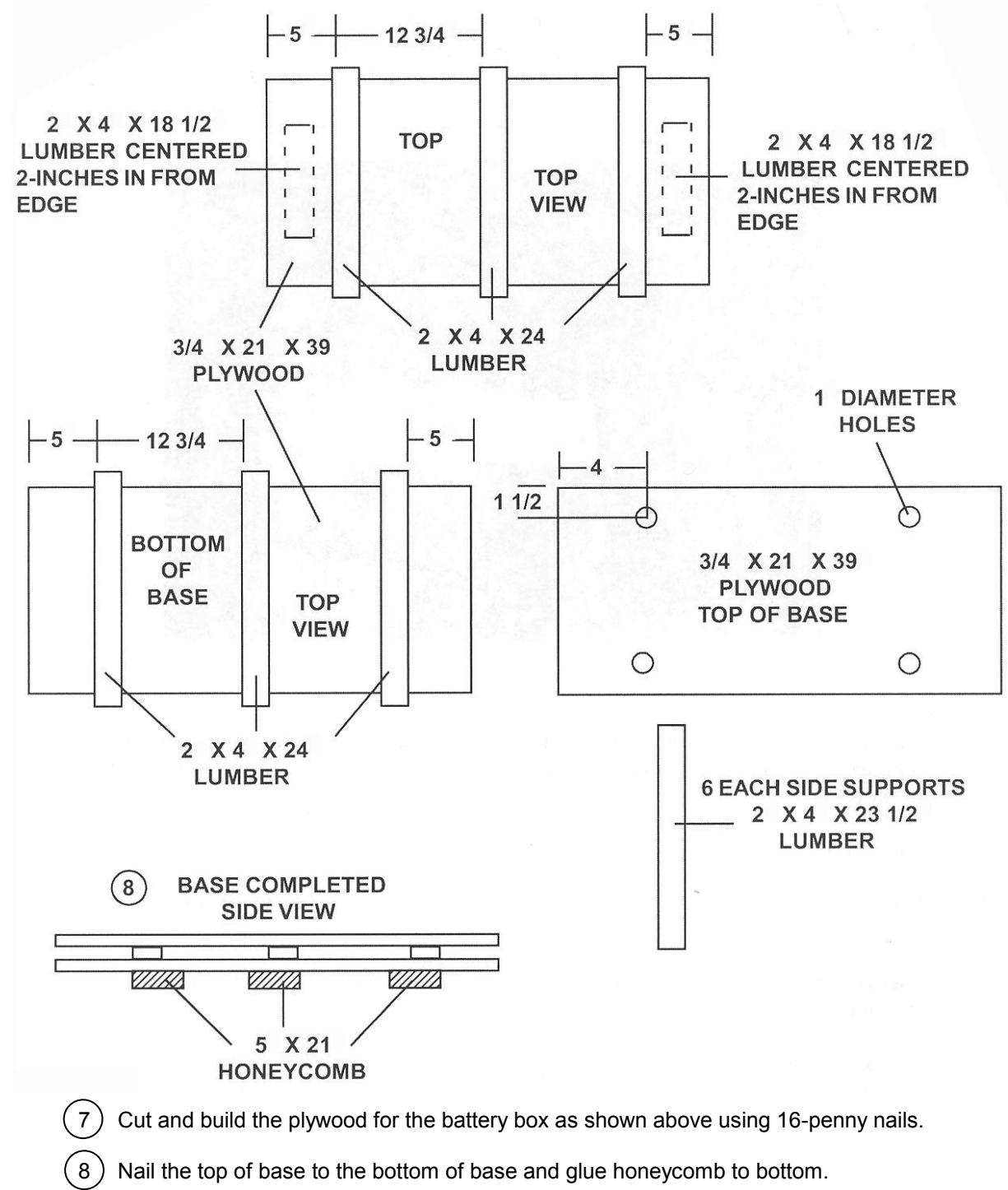
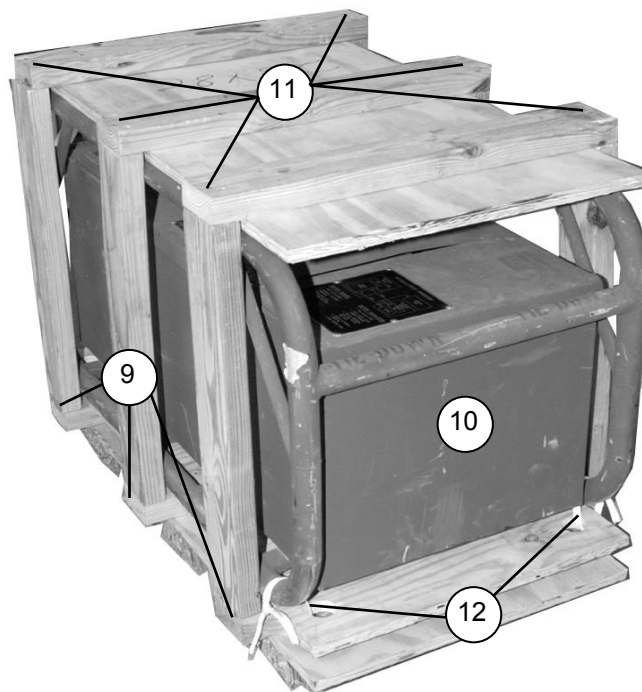


Figure 23-18. Battery Box Secured (Continued)



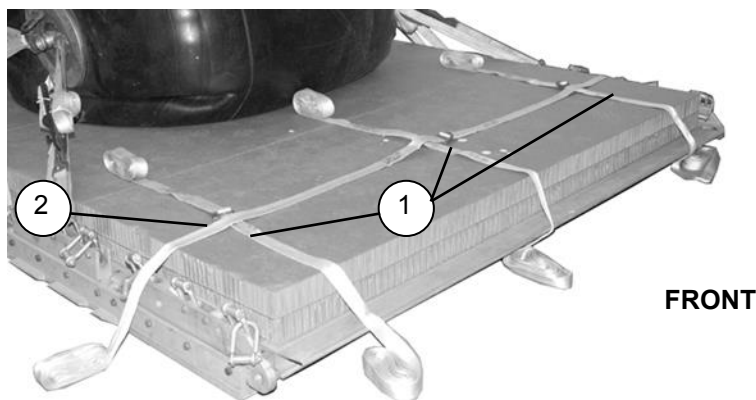
- ⑨ Nail the six 2-inch by 4-inch by 23 ½ inch lumber side supports to the 2 x 4 lumber extending from the sides of the base using 16-penny nails.
- ⑩ Position the battery box inside the frame centered
- ⑪ Position the board on top of the battery box centered and nail to the six lumber side supports using 16-penny nails.
- ⑫ Using four lengths of single ½ inch tubular nylon, tie the base to the frame of the battery box using the four corners holes.

Figure 23-18. Battery Box Secured (Continued)

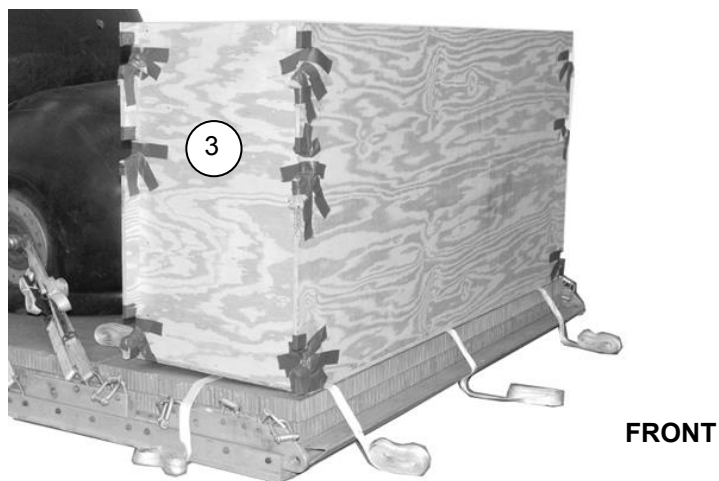
POSITIONING EQUIPMENT BOXES

23-8. Prepare and position the front and rear equipment boxes as shown in Figures 23-19 and 23-20.

- Prepare and position the front equipment box shown in Figure 23-19.



- ① Pre-position three 30-foot lashings lengthwise across the end honeycomb stacks on the front of the platform. Place the two outside lashings 15-inches in from the outside edges of the honeycomb stacks. Place the third lashing centered on the honeycomb stacks.
- ② Pre-position a 30-foot lashing across the width of the front honeycomb stacks 21-inches in from the front honeycomb edge.



- ③ Position the front equipment box flush with the front honeycomb edge and centered. Pad and tape all cutouts using cellulose wadding.

Figure 23-19. Front Equipment Box Positioned

- Prepare and position the rear equipment box as shown in Figure 23-20.

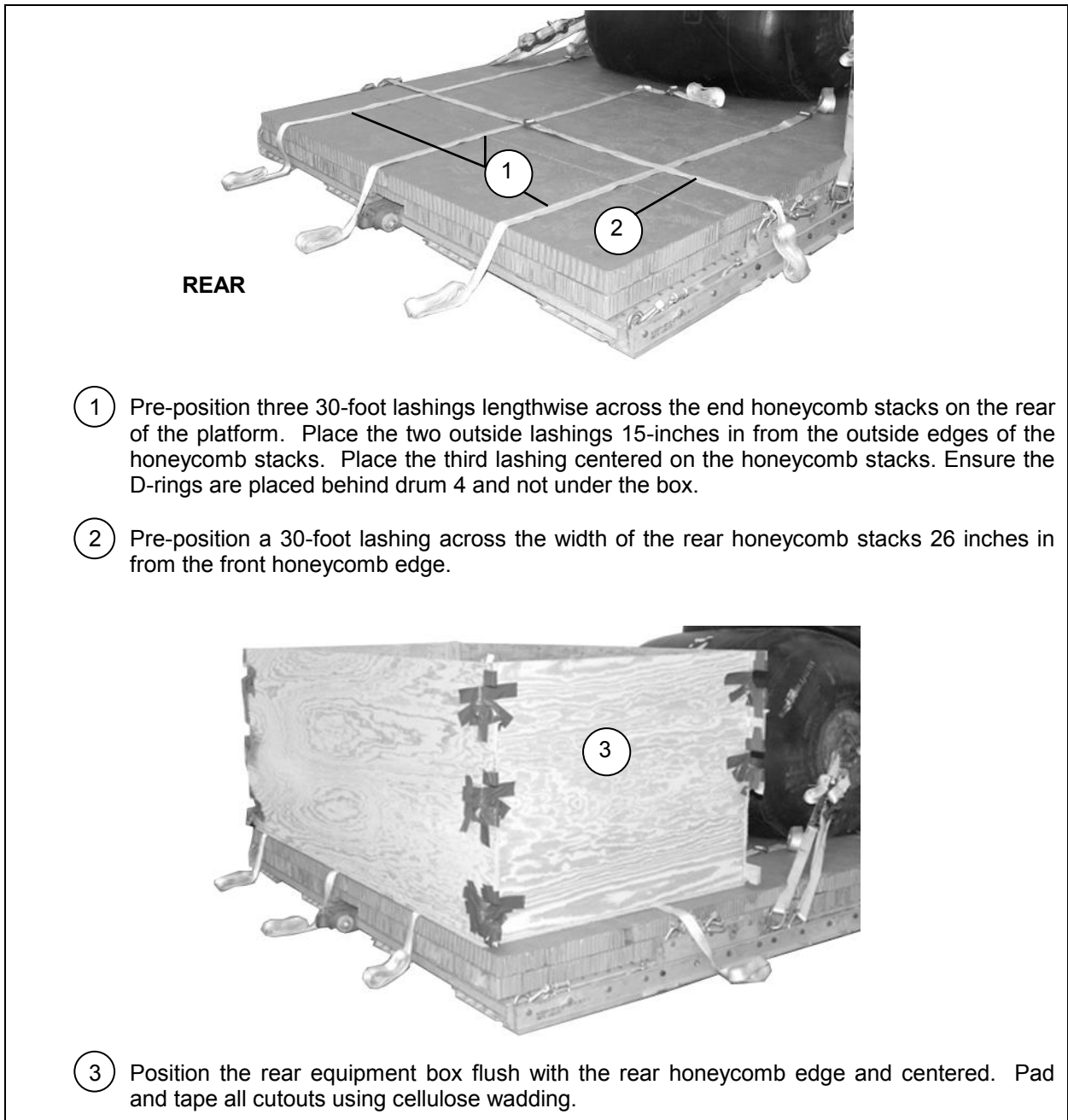


Figure 23-20. Rear Equipment Box Positioned

POSITIONING AND SECURING EQUIPMENT IN EQUIPMENT BOXES

23-9. Position and secure equipment in equipment boxes as shown in Figures 23-21 and 23-22.

- Prepare the front equipment box by placing a 22-inch by 82-inch piece of honeycomb in the floor of the box and a 23-inch by 35-inch piece of honeycomb against each end of the box below the 2 x 4 lumber. Position equipment in the front equipment box as shown in Figure 23-21.

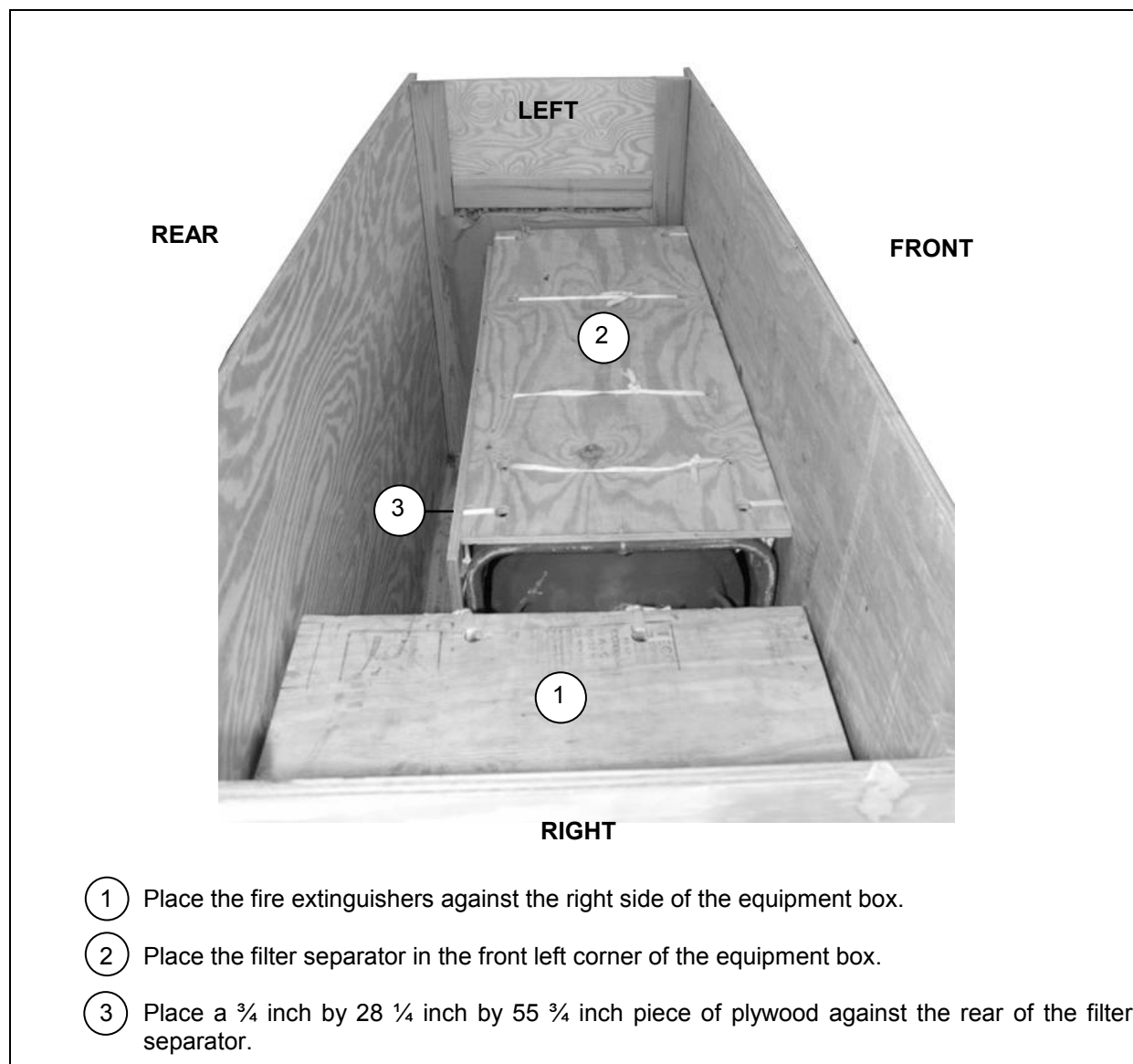
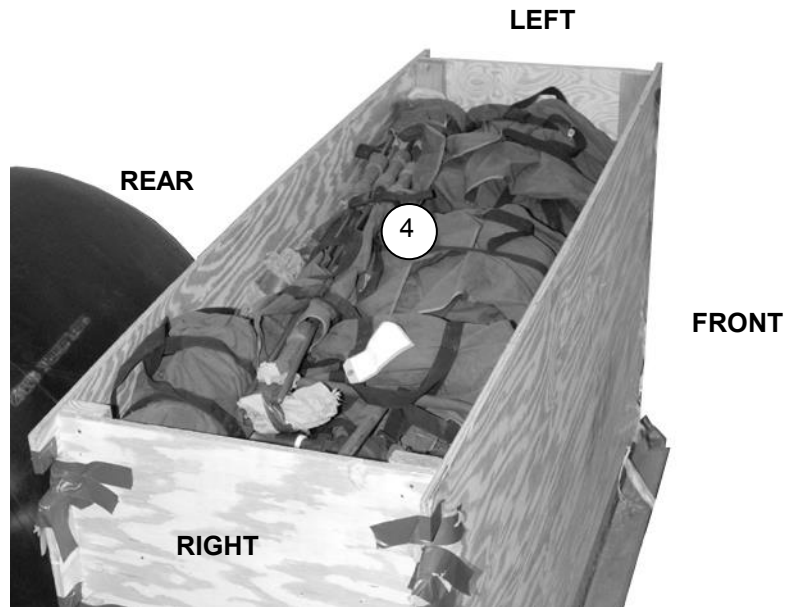
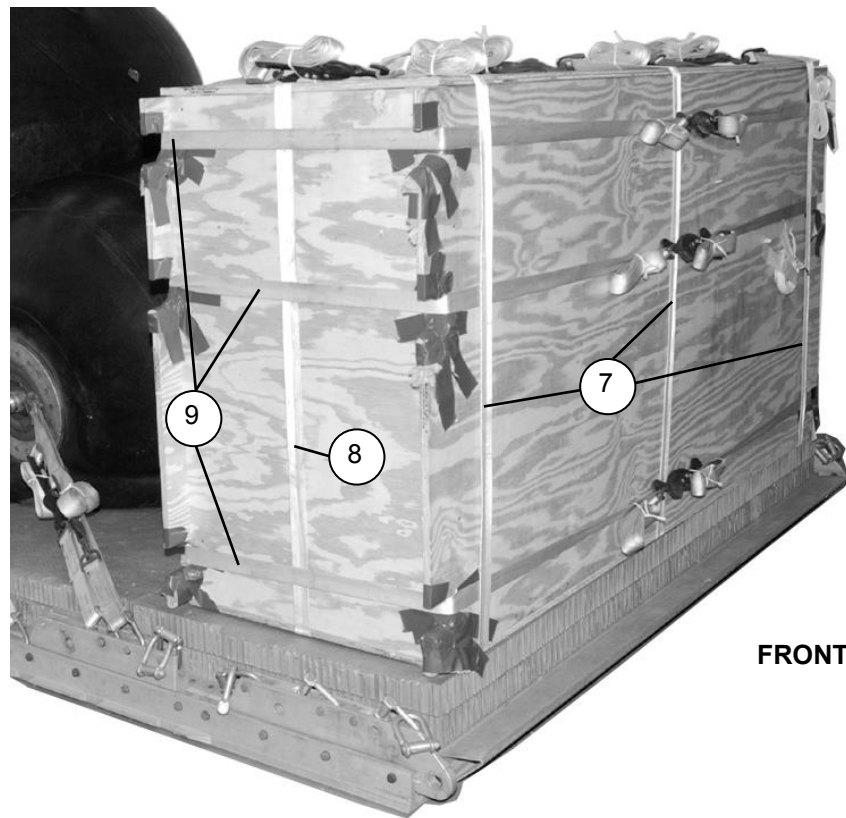


Figure 23-21. Equipment Positioned and Secured in Front Box



- ④ Place the following items in the front equipment box.
 - One bag containing three 50-foot x 2-inch hoses.
 - Two bags containing one 50-foot x 2-inch and one 12-foot x 2-inch discharge hose in each bag.
 - One bag containing a 50-foot x 3-inch discharge fitting.
 - Two bags containing five suction hoses each.
 - One bag containing four grounding rods.
 - Tow bar.
 - Four bags containing three nozzles each.
- ⑤ Fill the remaining space with honeycomb to prevent movement (not shown).
- ⑥ Nail the top on the box (not shown).

Figure 23-21. Equipment Positioned and Secured in Front Box (Continued)



- ⑦ Secure the box from front to rear using the three pre-positioned 30-foot lashings. Load bind on top of the box.
- ⑧ Secure the box from left to right using the three pre-positioned 30-foot lashings. Load bind on top of the box.
- ⑨ Route three 30-foot lashings around the box using the bottom, middle and top cutouts. Load bind on the front of the box.

Figure 23-21. Equipment Positioned and Secured in Front Box (Continued)

- Prepare the rear equipment box by placing a 36-inch by 86-inch and a 7-inch by 86-inch piece of honeycomb in the floor of the box. Position a 36-inch by 43-inch piece of honeycomb against each end of the box below the 2 x 4 lumber. Position equipment in the rear equipment box as shown in Figure 23-22.

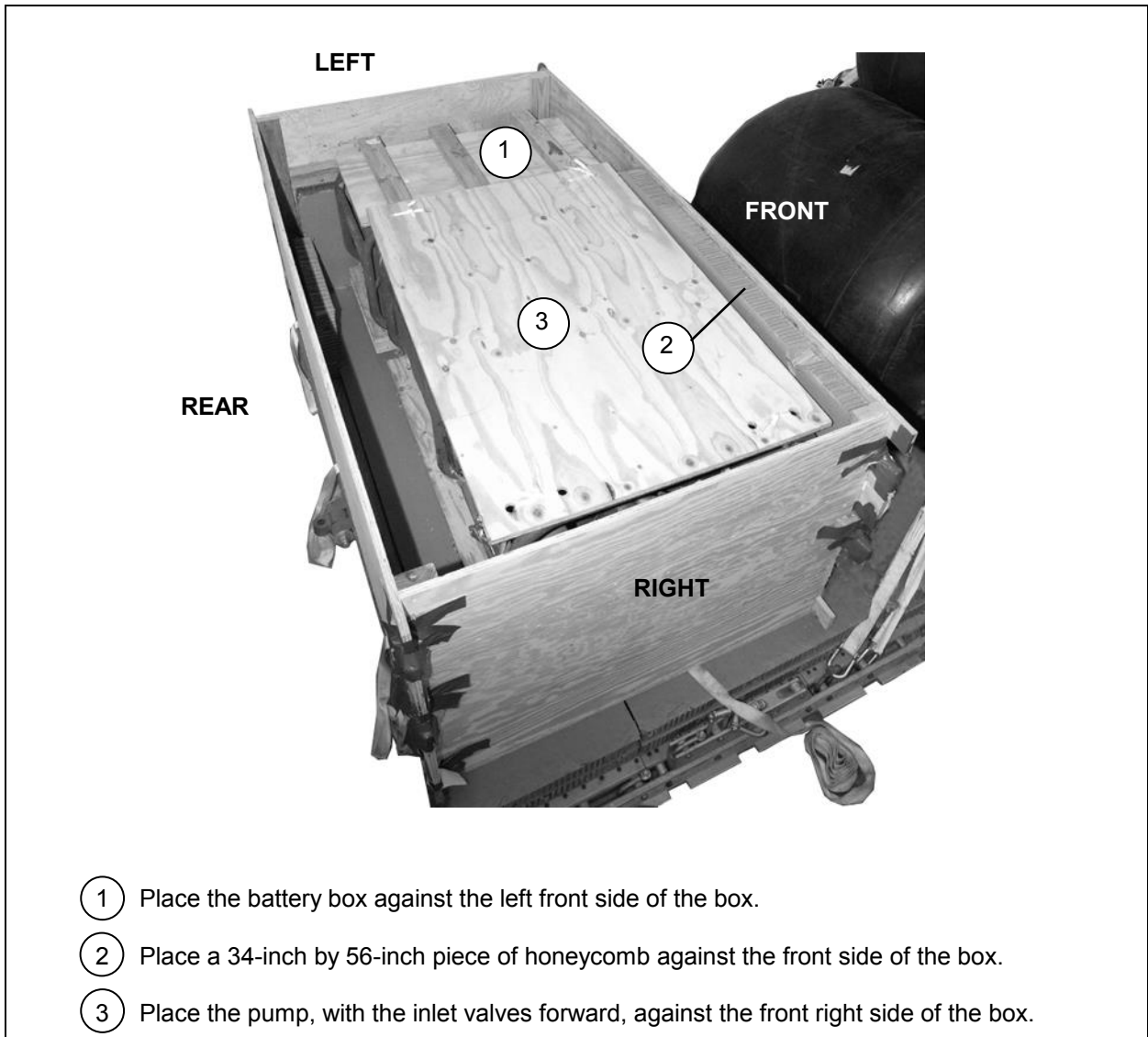


Figure 23-22. Equipment Positioned and Secured in Rear Box

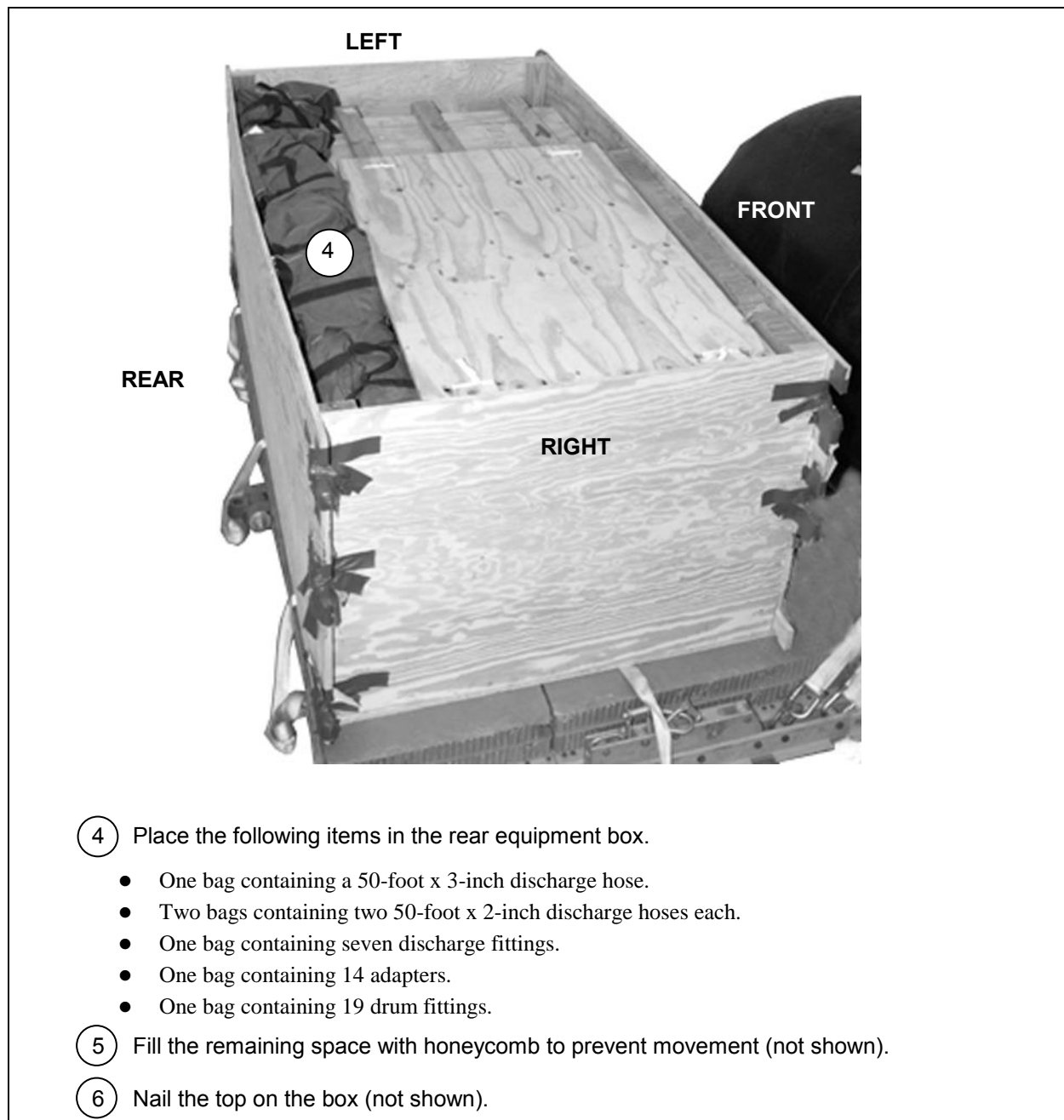


Figure 23-22. Equipment Positioned and Secured in Rear Box (Continued)

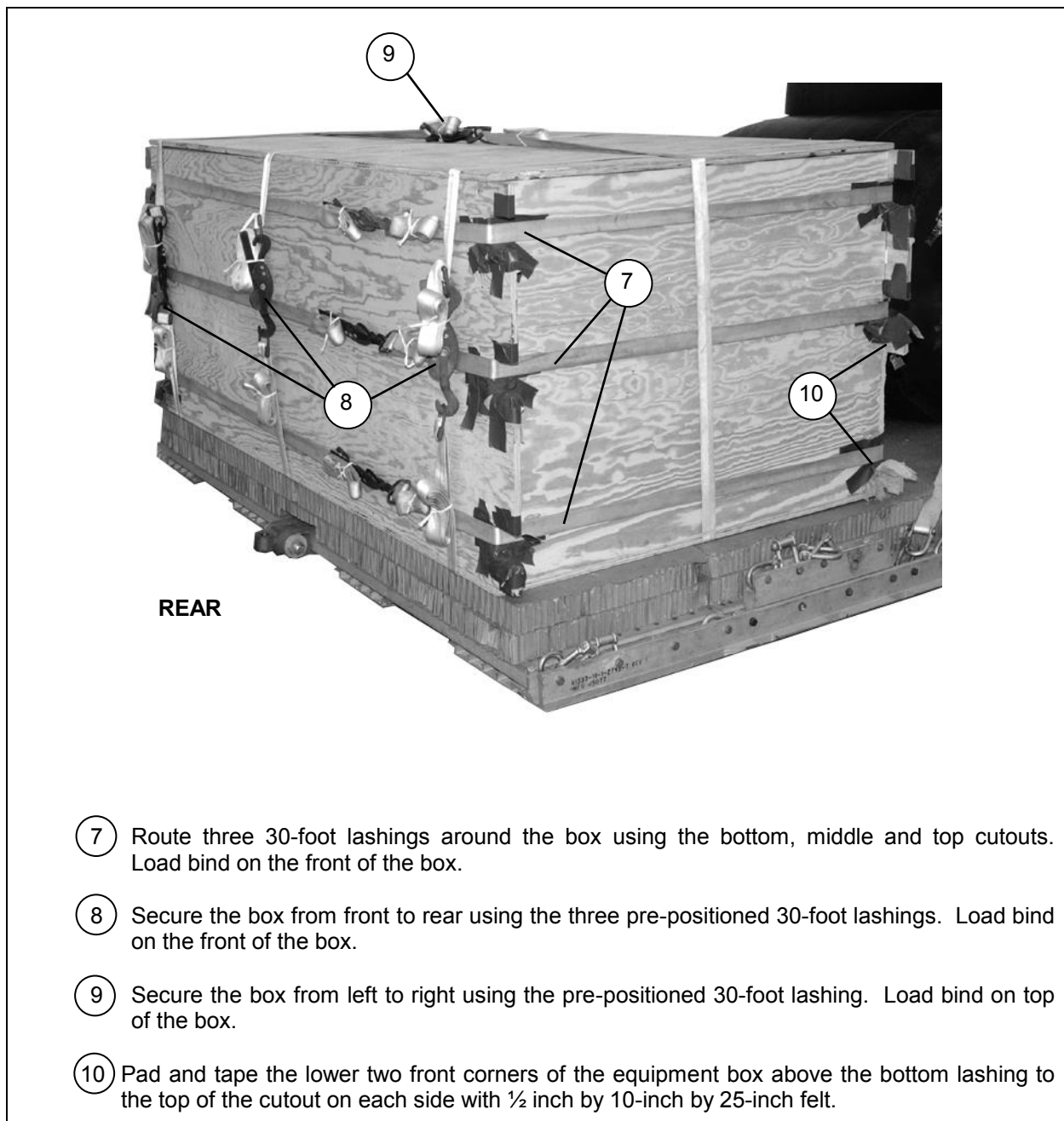


Figure 23-22. Equipment Positioned and Secured in Rear Box (Continued)

LASHING THE EQUIPMENT BOXES TO THE PLATFORM

23-10. Lash the equipment boxes as shown in Figures 23-23 through 23-28.

- Lash the front equipment box to the platform as shown in Figures 23-23 through 23-25.

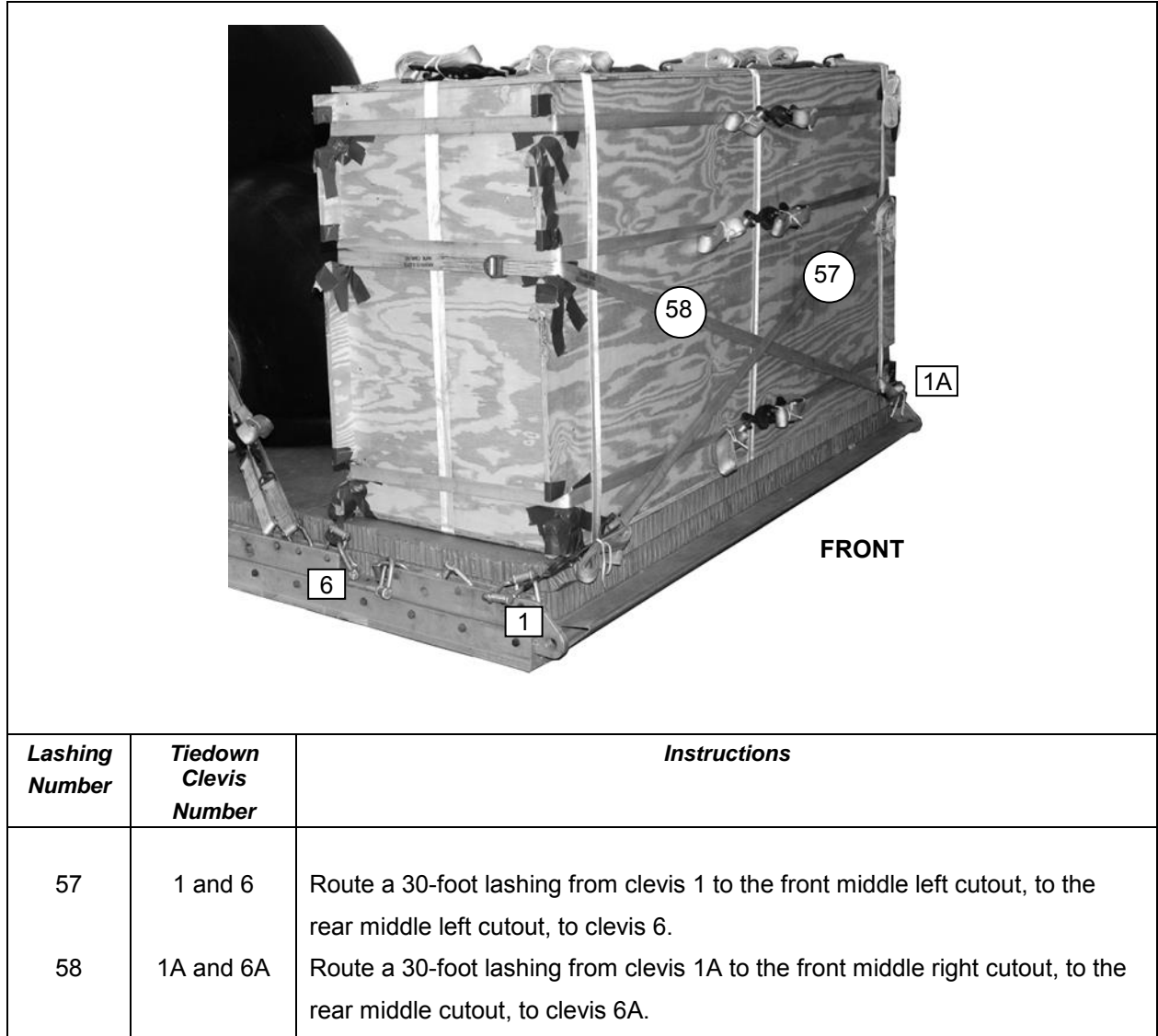


Figure 23-23. Lashings 57 and 58 Installed

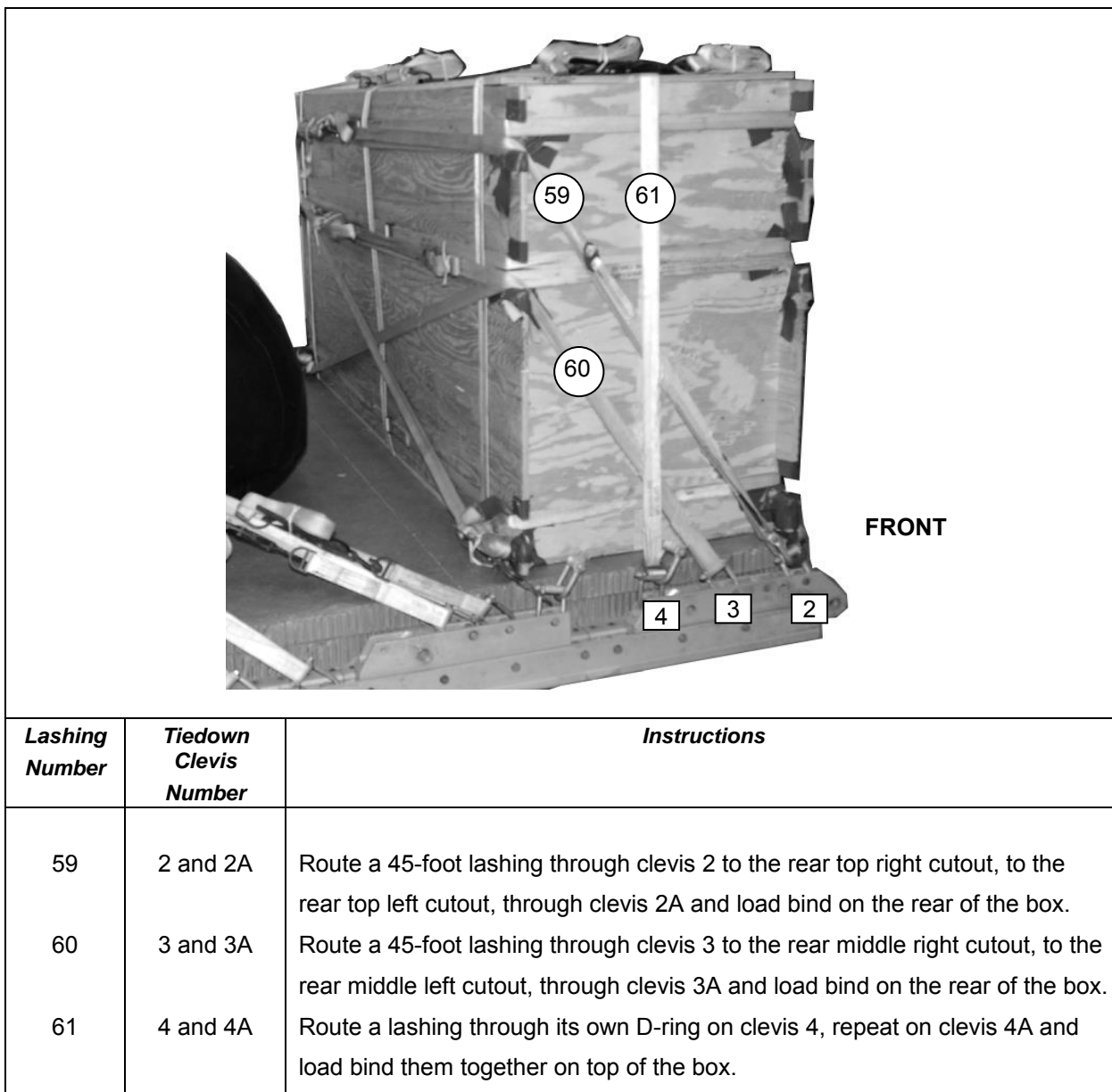


Figure 23-24. Lashings 59 Through 61 Installed

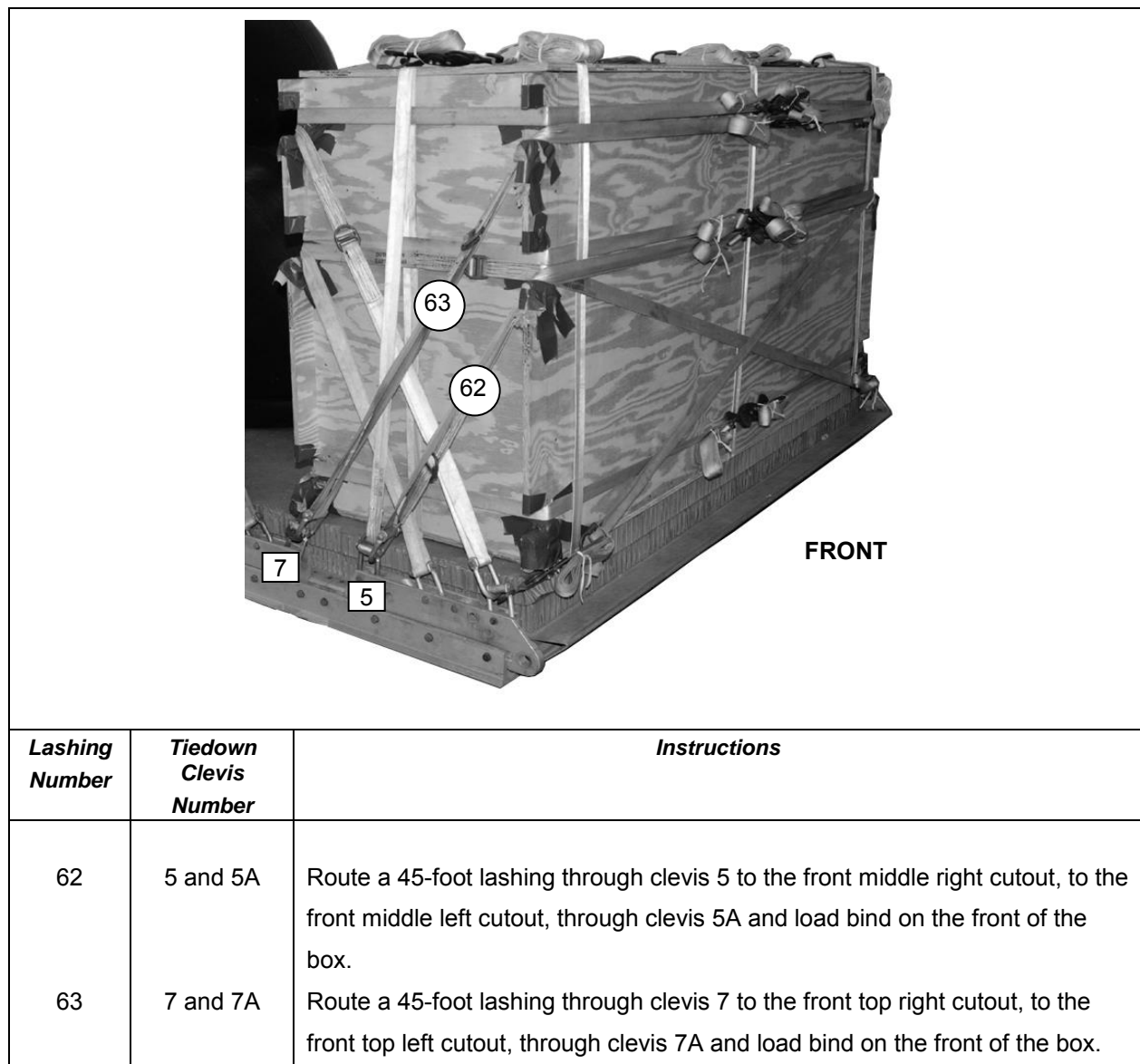


Figure 23-25. Lashings 62 and 63 Installed

- Lash the rear equipment box to the platform as shown in Figures 23-26 through 23-28.

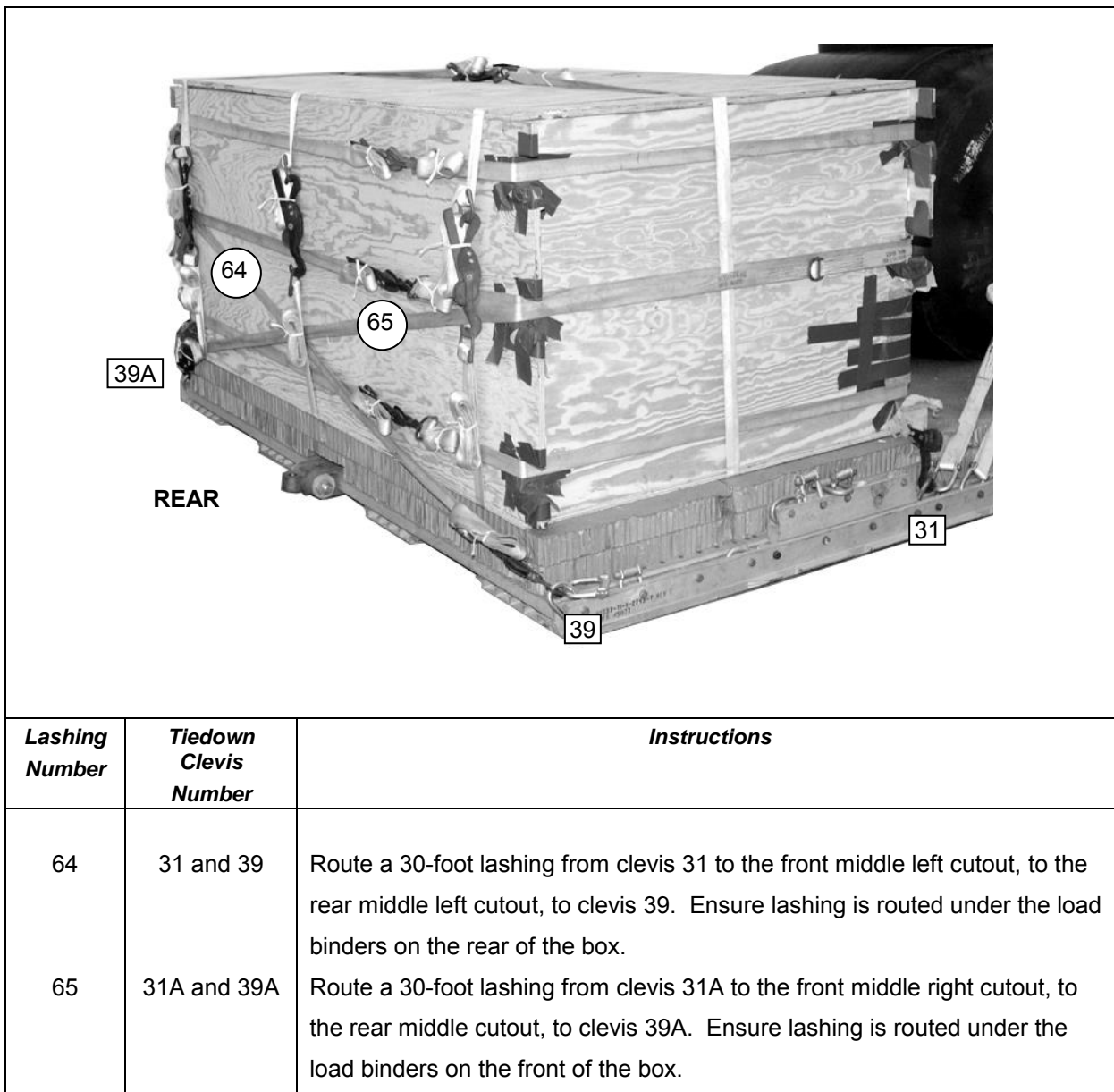


Figure 23-26. Lashings 62 and 63 Installed

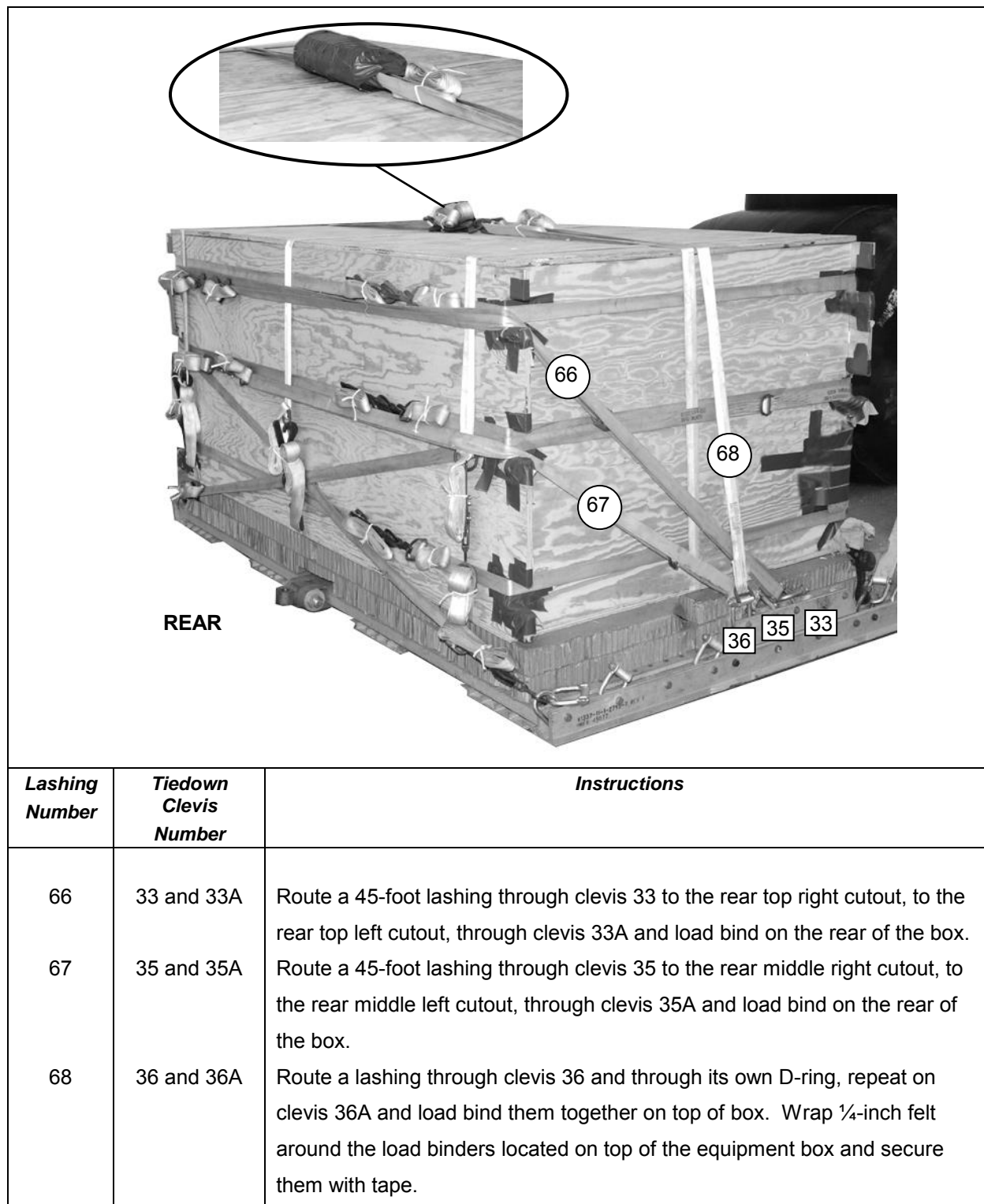
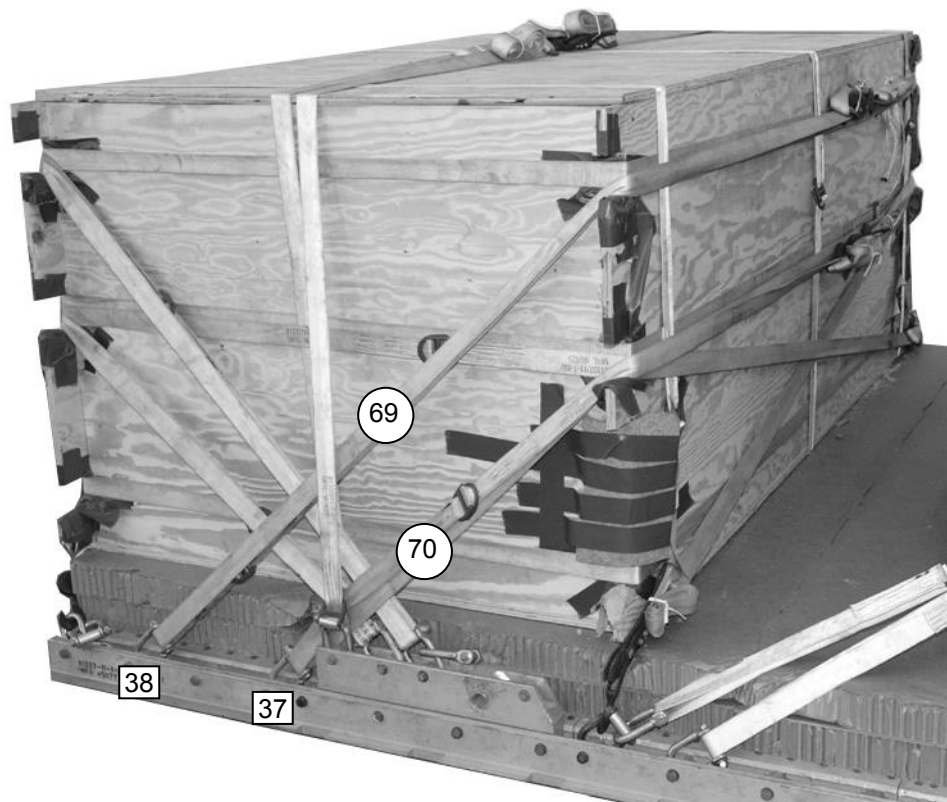


Figure 23-27. Lashings 66 Through 68 Installed



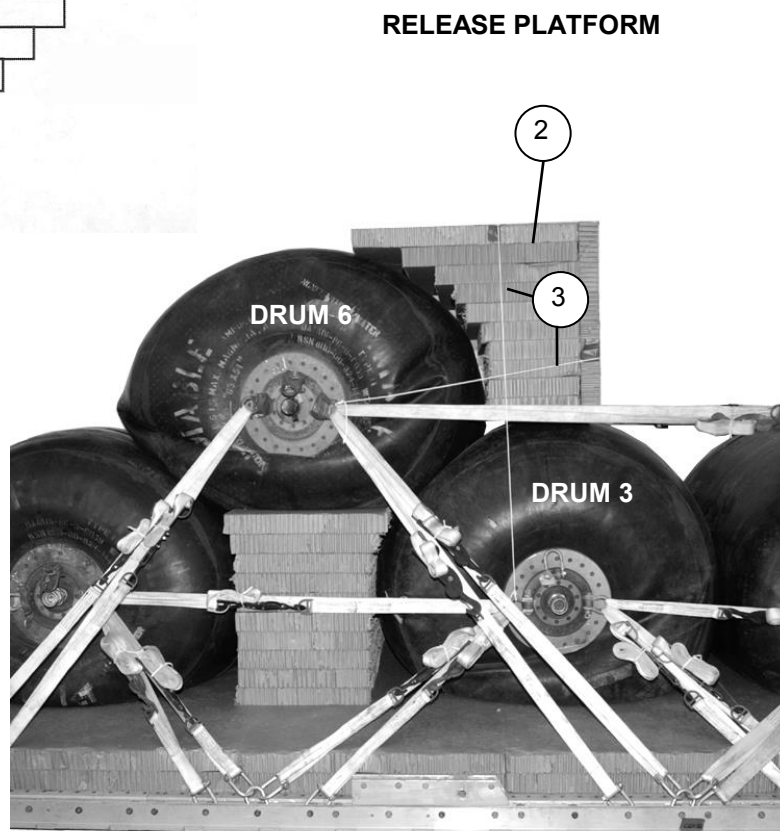
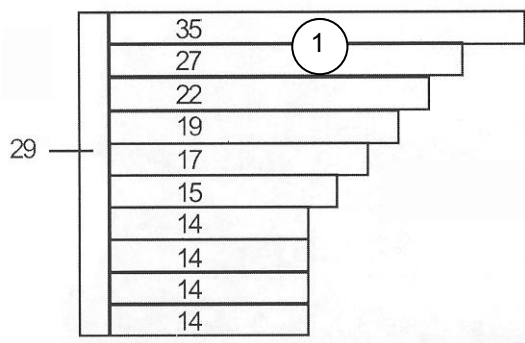
Lashing Number	Tiedown Clevis Number	Instructions
69	37 and 37A	Route a 45-foot lashing through clevis 37 to the front middle right cutout, to the front middle left cutout, through clevis 37A and load bind on the front of the box.
70	38 and 38A	Route a 45-foot lashing through clevis 38 to the front top right cutout, to the front top left cutout, through clevis 38A and load bind on the front of the box.

Figure 23-28. Lashings 69 and 70 Installed

BUILDING AND POSITIONING RELEASE PLATFORM

23-11. Build and position the release platform as shown in Figure 23-29.

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.



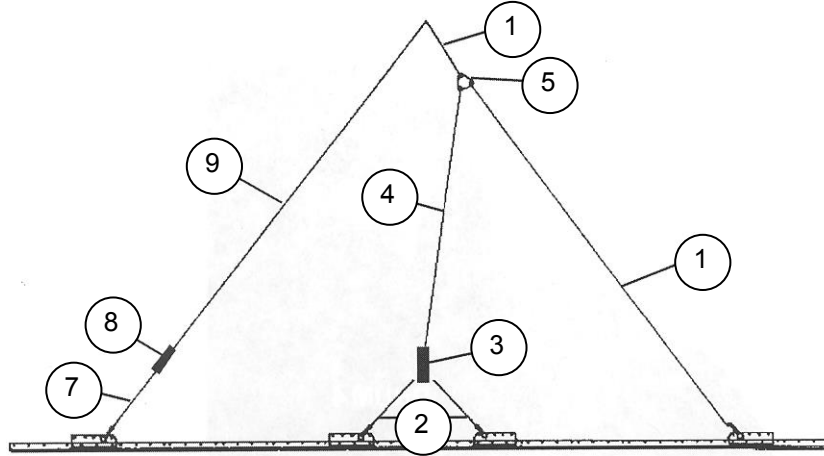
- ① Build the release platform as shown above with all honeycomb lengths 36 inches wide.
- ② Place the release stack on top of drum 3 and against drum 6, centered.
- ③ Secure the release stack with two lengths of type III nylon cord to the drum shackles. Tape the stack in the area where the type III nylon cord makes contact with the stack.

Figure 23-29. Release Platform Built and Positioned

INSTALLING SUSPENSION SLINGS AND SAFETY TIES

23-12. Install suspension slings and safety ties as shown in Figure 23-30.

Note. This drawing is not to scale.



1. Place a large clevis in one end of a 20-foot (4 loop), type XXVI nylon suspension sling. Attach the clevis to the right front suspension bracket.
2. Place a large clevis on one end of a 9-foot (4 loop), type XXVI nylon suspension sling. Attach the clevises to the right side second and third suspension brackets.
3. Attach a 5 ½ inch 2-point link to the center of the 9-foot sling.
4. Attach a 12-foot (4-loop), type XXVI nylon suspension sling on the other end of the 5 ½ inch 2-point link.
5. Attach the running ends of the 20-foot suspension sling to a 3-point link.
6. Attach a 3-foot (4 loop), type XXVI nylon suspension sling to the top of the 3-point link.
7. Attach a 3-foot (4 loop), type XXVI nylon suspension sling to the fourth suspension bracket with a large clevis.
8. Attach a 5 ½ inch 2-point link to the running end of the 3-foot sling.
9. Attach a 20-foot (4 loop), type XXVI nylon suspension sling to the 5 ½ inch 2 –point link.
10. Repeat steps 1 through 8 for the left side (not shown).
11. Raise the suspension slings and install the suspension sling safety ties to the front and rear suspension slings doubled ½ inch tubular nylon webbing six to eight inches above the highest point on the load. Refer to the Notice of Exception in the Introduction of this manual.
12. Pad and tape the link assemblies (not shown).

Figure 23-30. Suspension Slings and Safety Ties Installed

SECURING THE SUSPENSION SLINGS

23-13. Make the following suspension slings securing ties as shown in Figure 23-31.

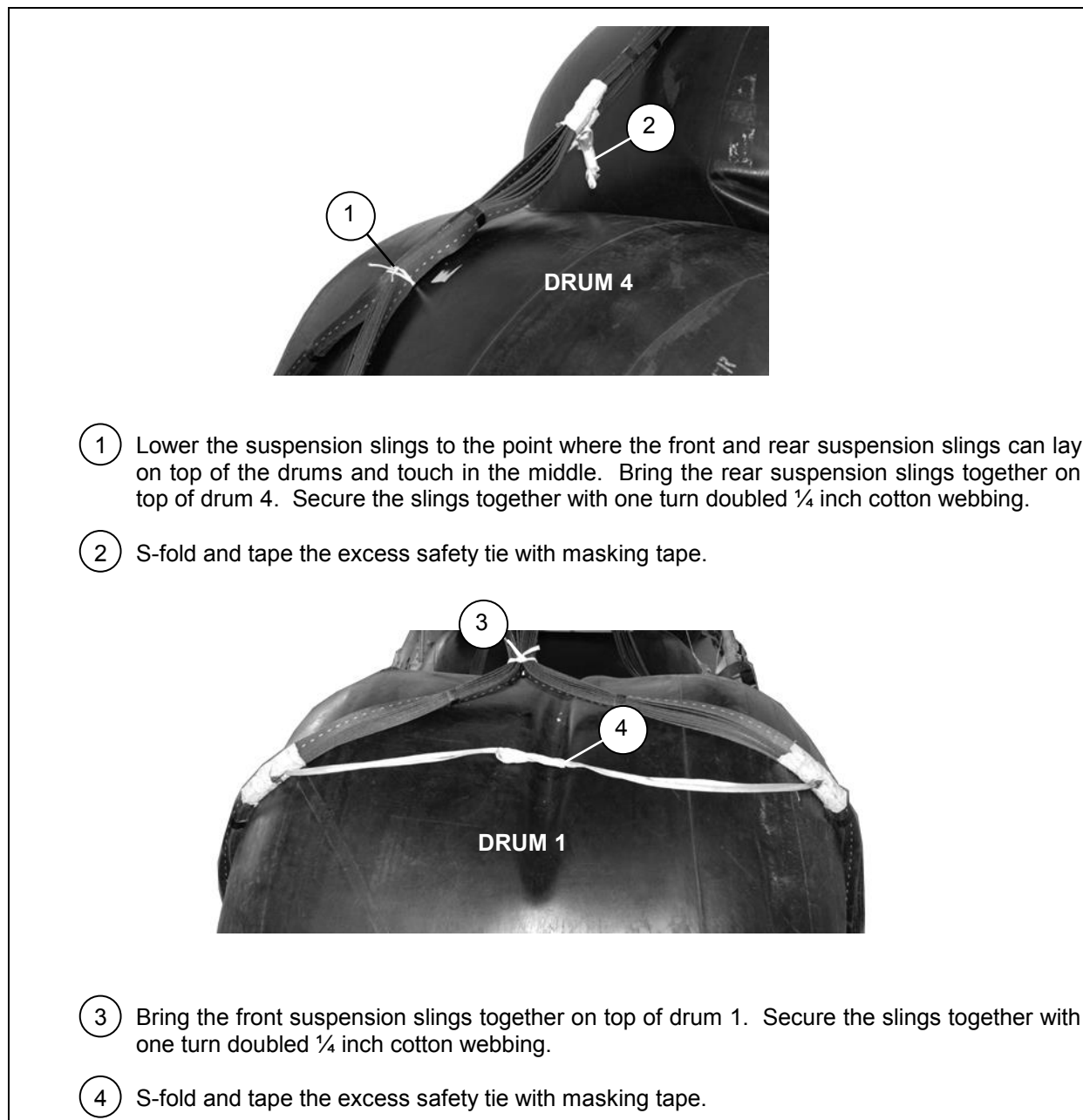
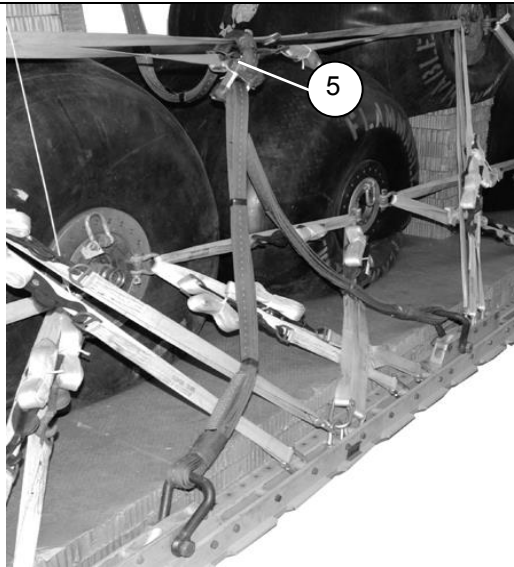
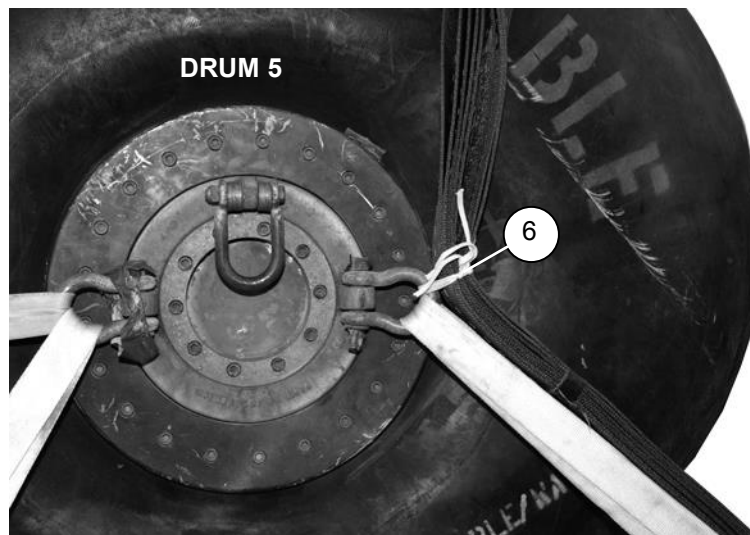


Figure 23-31. Suspension Slings Secured

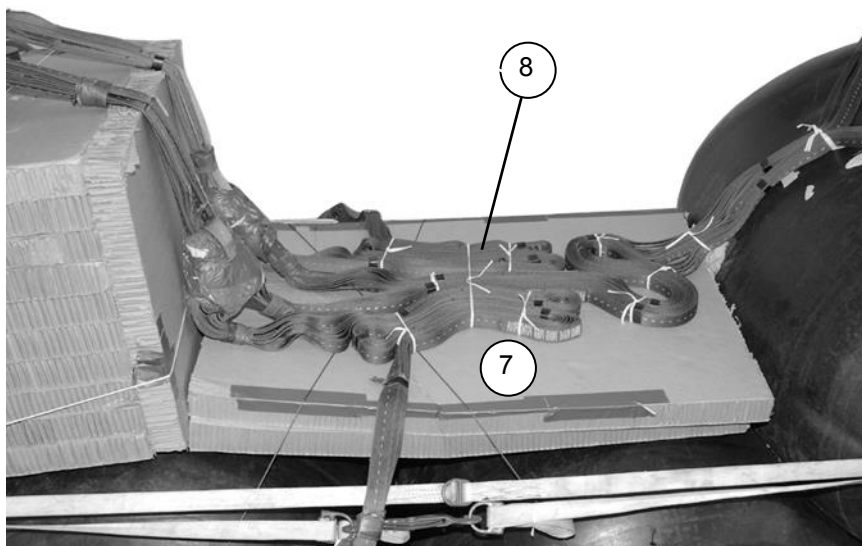


- ⑤ Secure the middle suspension sling and 5 ½ inch 2-point link on the right and left sides to the top lateral lashing D-rings with one turn doubled ¼ inch cotton webbing.

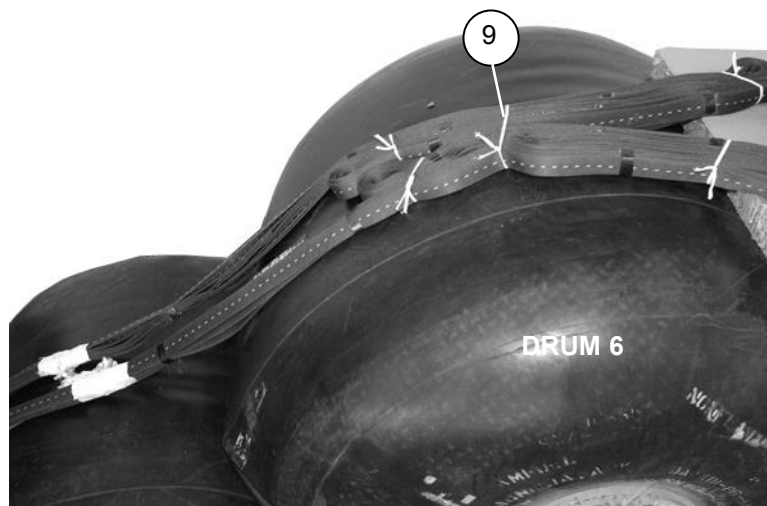


- ⑥ Secure the front suspension slings to the right and left front shackles of drum 5 with one turn doubled ¼ inch cotton webbing.

Figure 23-31. Suspension Slings Secured (Continued)



- ⑦ Place two 56-inch by 36-inch pieces of honeycomb on top of drums 3 and 4 against the front base of the release platform. Tape the top right and left sides and secure to a convenient point of the load with type III nylon cord.
- ⑧ Lower the suspension slings. S-fold and secure the front suspension slings on the 56-inch by 36-inch piece of honeycomb with one turn single $\frac{1}{4}$ inch cotton webbing. Make one tie around both sets of front suspension slings to hold them together with one turn single $\frac{1}{4}$ inch cotton webbing.



- ⑨ S-fold the rear suspension slings on top of drum 6 and secure with one turn single $\frac{1}{4}$ inch cotton webbing. Make one tie around both sets of rear suspension slings to hold them together with one turn single $\frac{1}{4}$ inch cotton webbing.

Figure 23-31. Suspension Slings Secured (Continued)

PREPARING AND STOWING PARACHUTES

23-14. Prepare and stow seven G-11 cargo parachutes as shown in Figure 23-32.

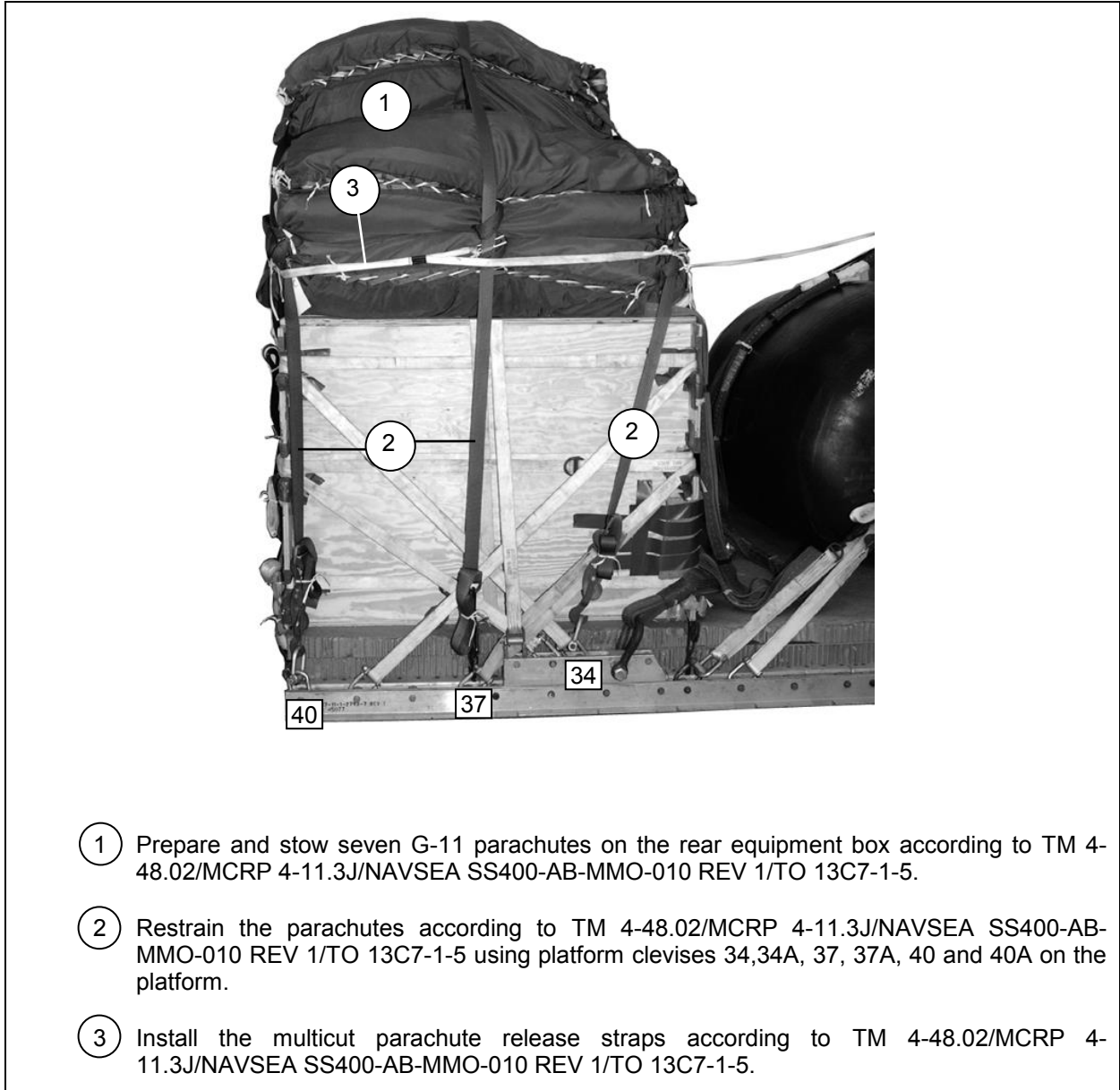


Figure 23-32. Cargo Parachutes Prepared and Stowed

INSTALLING THE EXTRACTION SYSTEM

23-15. Install the extraction system as shown in Figure 23-33.

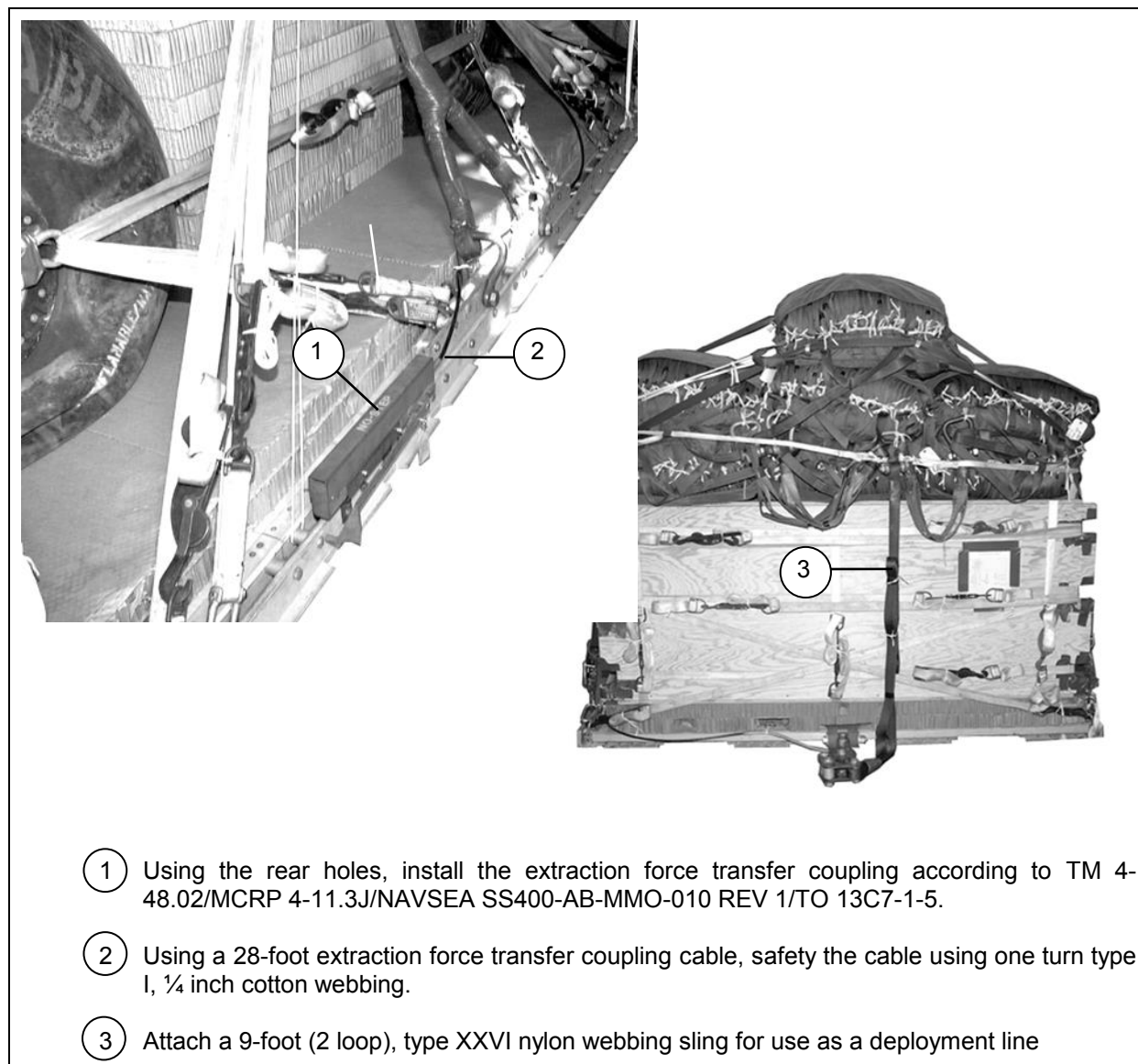


Figure 23-33. Extraction System Installed

INSTALLING THE CARGO PARACHUTE RELEASE SYSTEM

23-16. Install the M-2 cargo parachute release system as shown in Figure 23-34.

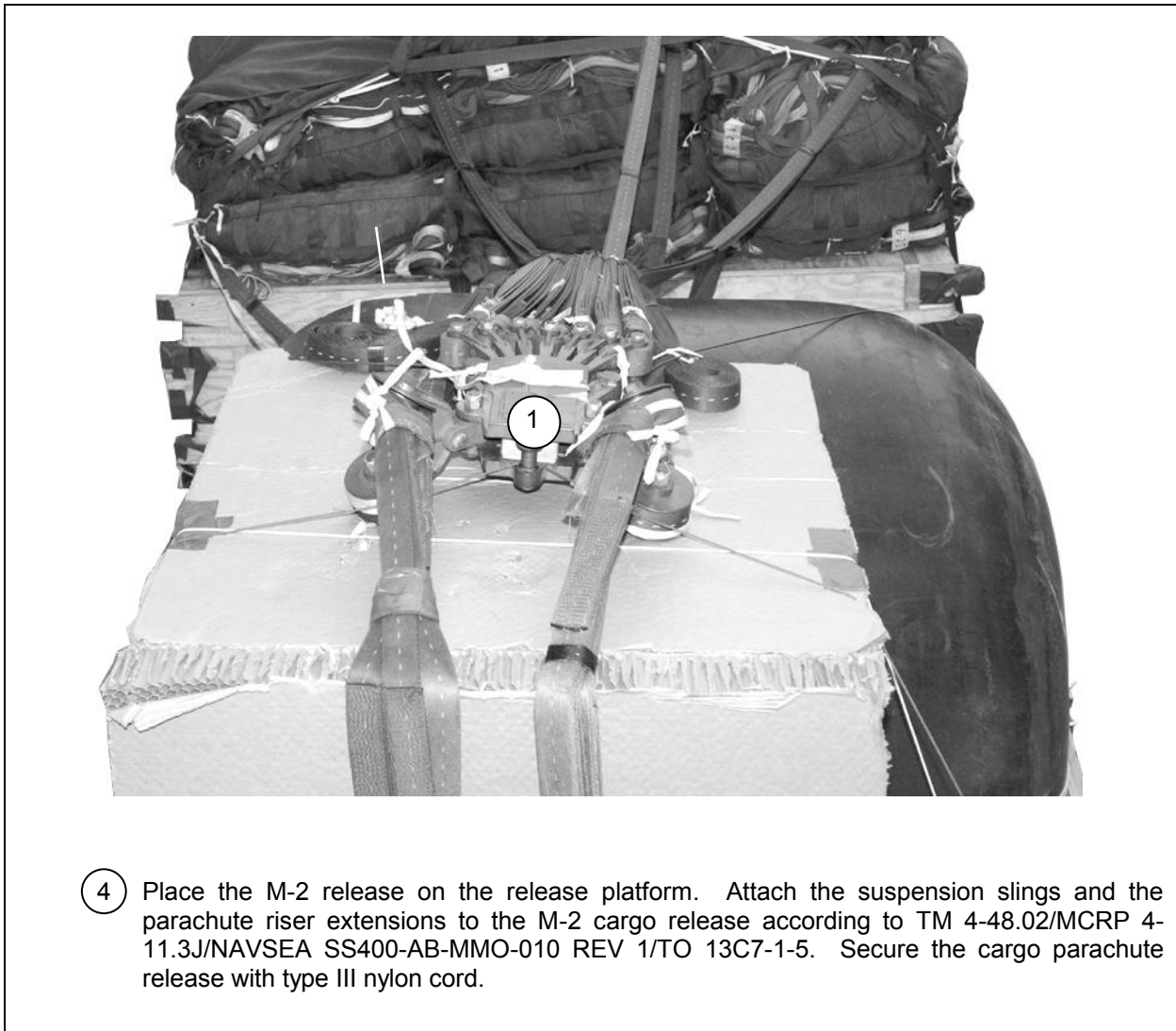


Figure 23-34. Cargo Parachute Release Installed

PLACING EXTRACTION PARACHUTE

23-17. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

23-18. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

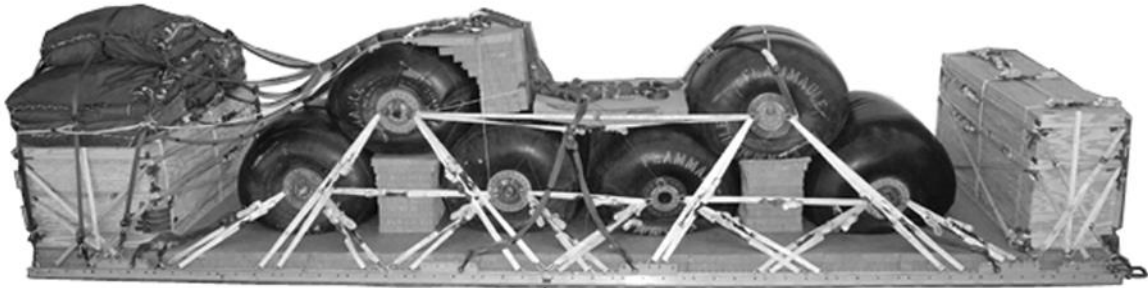
23-19. Mark the rigged load according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 23-35. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

23-20. Use the equipment list in Table 23-1 to rig the load shown in Figure 23-35.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



CB

Rigged Load Data

Weight: Load shown.....32,480 pounds

Note. 1. The rigged weight for this load is using water as the liquid. Use the weight conversion table for the actual rigged weight for any other liquids used.

2. The G-11 requirements may need to be recomputed for lighter liquids.

Maximum load allowed.....34,000 pounds

Height.....94 inches

Width108 inches

Length402 inches

Overhang: Front0 inches

Rear18 inches

Center of Balance (CB) (from front edge of platform)

.....195 inches

Extraction System Extraction Force Transfer Coupler

Figure 23-35. Advanced Aviation Forward Area Refueling System Rigged with Six 500-Gallon Drums for Low-Velocity Airdrop

Table 23-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Five 500-Gallon Drums

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-279-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	12
4030-00-678-8562	Clevis, medium	6
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-326-7309	Coupling assembly, airdrop, extraction force transfer w/ cable, 28-foot	1
1670-00-360-0328	Cover, clevis, large	7
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
8305-00-958-3685	Felt sheet, 1/2 inch	As required
1670-00-003-4391	Knife, parachute bag (for Drogue Extraction System)	1
1670-01-183-2678	Leaf, extraction line (line bag) (add 1 for Drogue Extraction System)	2
1670-01-064-4452	Line, drogue (for Drogue Extraction System): 60-foot (1 loop), type XXVI	1
1670-01-064-4452	Line, extraction: For C-130: 60-foot (6 loop), type XXVI	1
1670-01-468-9178	For C-17: 140-foot (6 loop), type XXVI	2
5306-00-435-8994	Link assembly: Two point:	2
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1954	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 5 1/2 inch	2
	Spacer, large	2
5303-00-435-8994	Two-point: (for Drogue Extraction System)	10
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	10
1670-00-003-3454	Nut, 1-inch, hexagonal	10
5365-00-007-3414	Plate, side, 3 3/4 inch	10
1670-01-307-1055	Spacer, large	2
1670-01-483-8259	Link assembly: Three point	1
	Link, tow release mechanism (H-Block) C-17 aircraft	
5510-00-220-6146	Lumber:	As required
5510-00-220-6148	2-by-4 inch	As required
	2-by-6 inch	
5315-00-010-4659	Nail, steel wire, common,	As required
5315-00-010-4662	8-penny	As required
5315-00-753-3885	12-penny	As required
1670-00-753-3928	16-penny	37 sheets
	Pad, energy dissipating, honeycomb, 3 x 36 x 96 inches	

Table 23-1. Equipment Required for Rigging Advanced Aviation Forward Area Refueling System with Five 500-Gallon Drums (Continued)

<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
	Parachute:	
	Cargo	
1670-01-016-7841	G-11C	7
	Cargo extraction	
1670-00-040-8135	28 foot	2
	Drogue (for Drogue Extraction System)	
1670-01-063-3715	15 foot	1
	Platform, airdrop, type V, 24-foot:	
1670-01-353-8425	Bracket assembly, (extraction force transfer coupler)	1
1670-01-162-2376	Bracket, assembly, extraction	1
1670-01-162-2372	Clevis assembly	84
1670-01-247-2389	Bracket, suspension	8
1670-01-162-2381	Tandem link assembly (multipurpose link)	2
5530-00-128-4981	Plywood, ¾-by-48-by-96 inches	11 sheets
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo airdrop:	
	For suspension:	
1670-01-062-6306	3-foot (4 loop), type XXVI nylon webbing	4
1670-01-062-6307	9-foot (4 loop), type XXVI nylon webbing	2
1670-01-062-6308	12-foot (4 loop), type XXVI nylon webbing	2
1670-01-064-4453	20-foot (4 loop), type XXVI nylon webbing	4
	For deployment:	
1670-01-062-6304	9-foot (2 loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6311	120-foot (2 loop), type XXVI nylon webbing	7
1670-00-040-8219	Strap, parachute release, multicut	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	118
	Webbing:	
8305-00-268-2411	Cotton, ¼ inch, type I	As required
8305-00-082-5752	Nylon, tubular, ½ inch	As required
8305-00-260-6890	Type X	As required

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Chapter 24

Rigging AAFARS with Seven 500-Gallon Fuel Drums for Low-Velocity Airdrop on Type V Platform

DESCRIPTION OF LOAD

24-1. The AAFARS is rigged on a 32-foot type V platform with seven G-11 cargo parachutes. The AAFARS is designed for forward area refueling of up to four aircraft at a time with a minimum of 55 gallons-per-minute. There are seven collapsible fuel drums as an accompanying load. Each drum is filled with 432 gallons of liquid. When empty, each drum weighs 250 pounds and is 62 inches long and 53 inches in diameter. The total rigged length is 402 inches. Width is 108 inches. Height is 94 inches. Center of balance is 195 inches.

-
- Note.** 1. For drums filled with a liquid other than water, use Table 11-1 to recomputed the weight.
2. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed.
3. Do not pressurize drums with air.
-

PREPARING PLATFORM

24-2. Prepare a 32-foot type V airdrop platform using two tandem links, eight suspension brackets and 84 tiedown clevises as shown in Figure 24-1.

-
- Note.** 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.
-

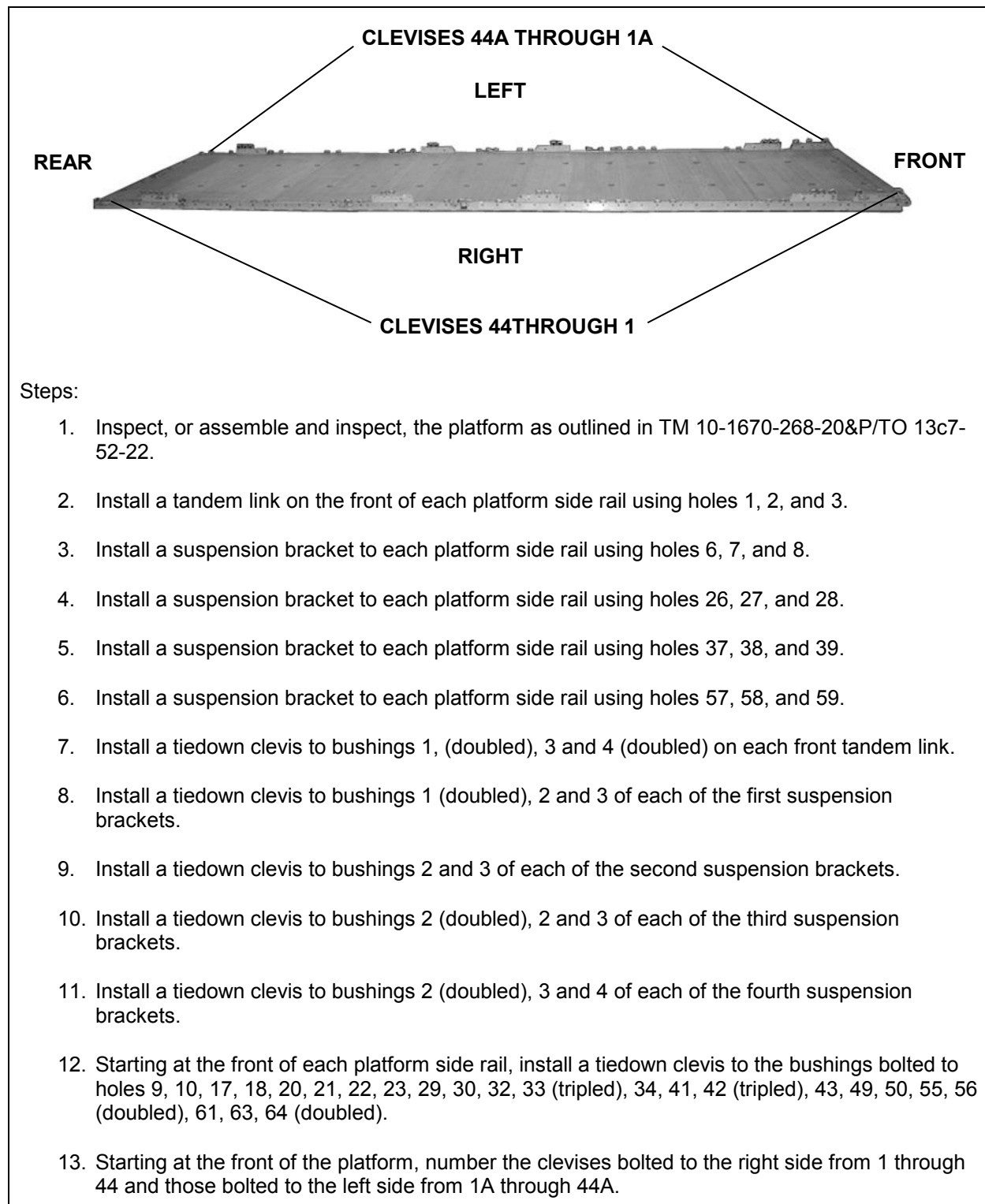
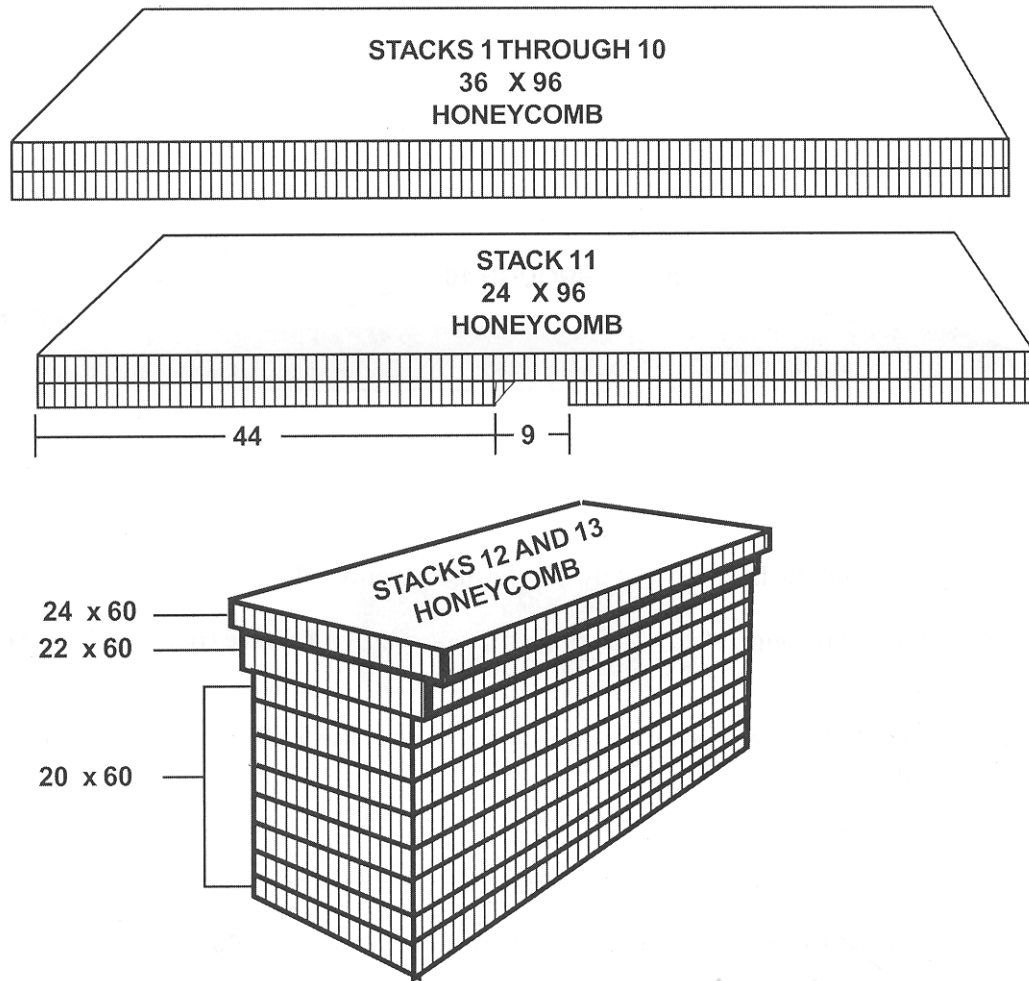


Figure 24-1. Platform Prepared

PREPARING HONEYCOMB

24-3. Build honeycomb stacks as shown in Figure 24-2 and 24-3.

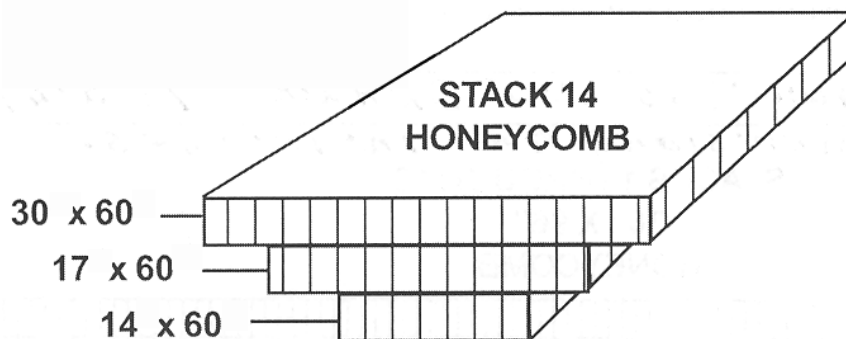
Note. 1. All dimensions are in inches.
2. This drawing is not to scale.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1-10	2	36	96	Honeycomb	Glue together.
11	2	24	96	Honeycomb	Glue together. Cut a notch out in the bottom layer starting 44-inches in from the 96-inch edge, 9-inches wide, 5-inches in length.
12 & 13	8	20	60	Honeycomb	Glue together to form base.
	1	22	60	Honeycomb	Glue and center onto base.
	1	24	60	Honeycomb	Glue and center on top of 22 X 60-inch piece.

Figure 24-2. Honeycomb Stacks Prepared

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
14	1	14	60	Honeycomb	Base.
11	1	17	60	Honeycomb	Glue and center on base.
	1	30	60	Honeycomb	Glue together to form base. Glue and center on top of 17- by 60-inch piece base.

Figure 24-3. Honeycomb Stacks Prepared

POSITIONING HONEYCOMB STACKS

24-4. Position honeycomb stacks 1 through 11 as shown in Figure 24-4.

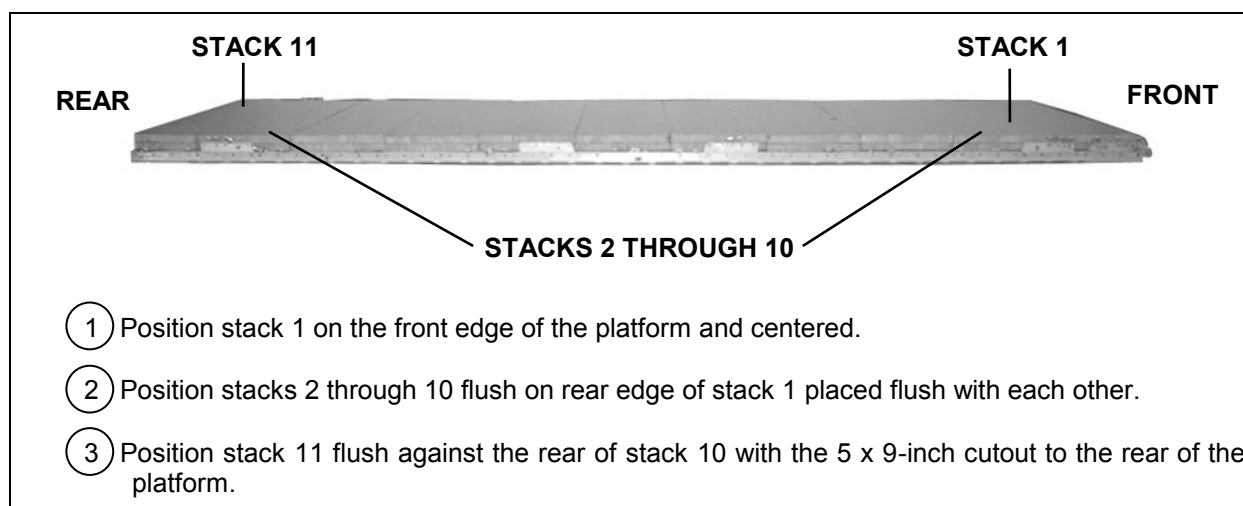


Figure 24-4. Positioning Honeycomb Stacks

POSITIONING AND LASHINGS FOR FUEL DRUMS

24-5. Figure 24-4 through figure 24-17 display positioning and lashing installation for fuel drums.

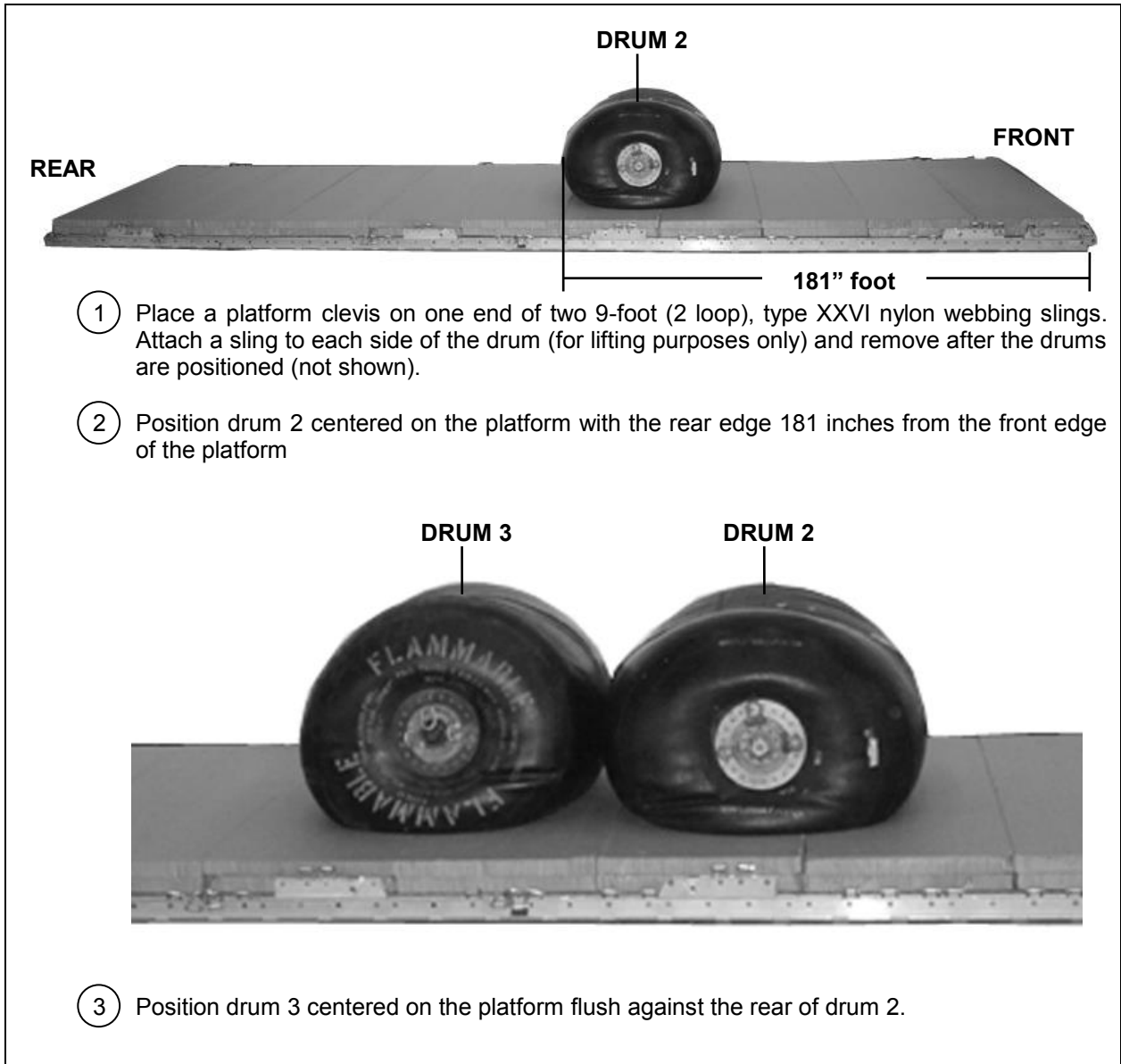
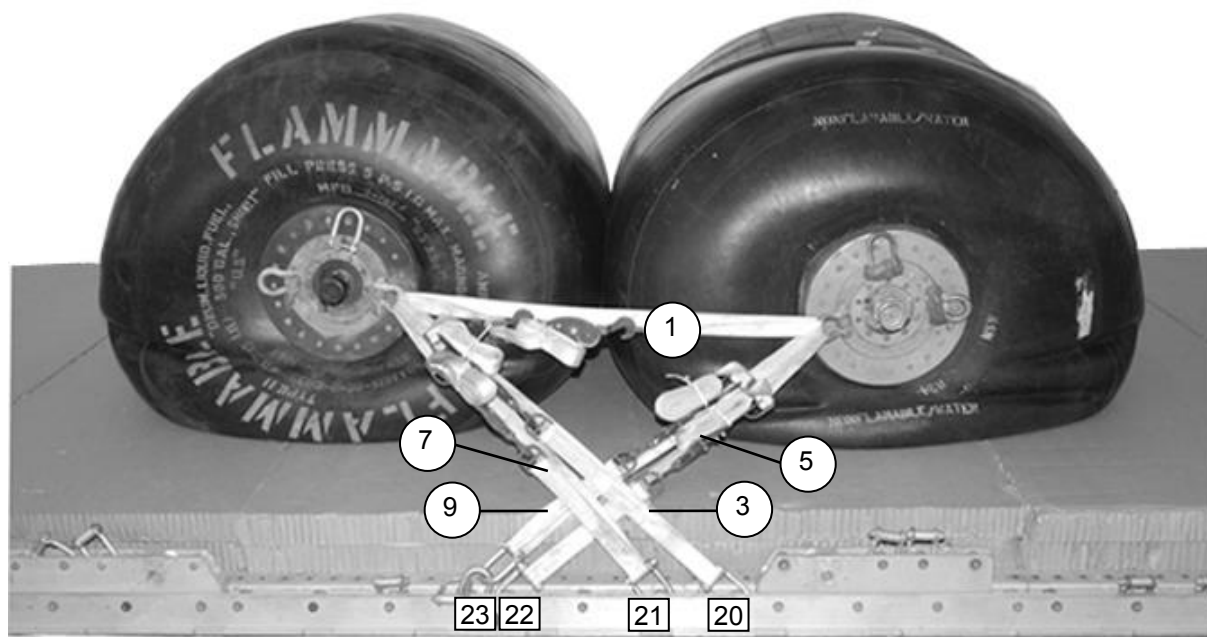


Figure 24-5. Fuel Drums 2 and 3 Positioned



Lashing Number	Tiedown Clevis Number	Instructions
1		Route a lashing from the rear shackle of drum 2 to the front shackle of drum 3 on the right side.
2		Route a lashing from the rear shackle of drum 2 to the front shackle of drum 3 on the left side.
3	20	Route a lashing from clevis 20 to the front right shackle on drum 3.
4	20A	Route a lashing from clevis 20A to the front left shackle on drum 3.
5	22	Route a lashing from clevis 22 to the rear right shackle on drum 2.
6	22A	Route a lashing from clevis 22A to the rear left shackle on drum 2.
7	21	Route a lashing from clevis 21 to the front right shackle on drum 3.
8	21A	Route a lashing from clevis 21A to the front left shackle on drum 3.
9	23	Route a lashing from clevis 23 to the rear right shackle on drum 2.
10	23A	Route a lashing from clevis 23A to the rear left shackle on drum 2.

Figure 24-6. Lashings 1 Through 10 Installed

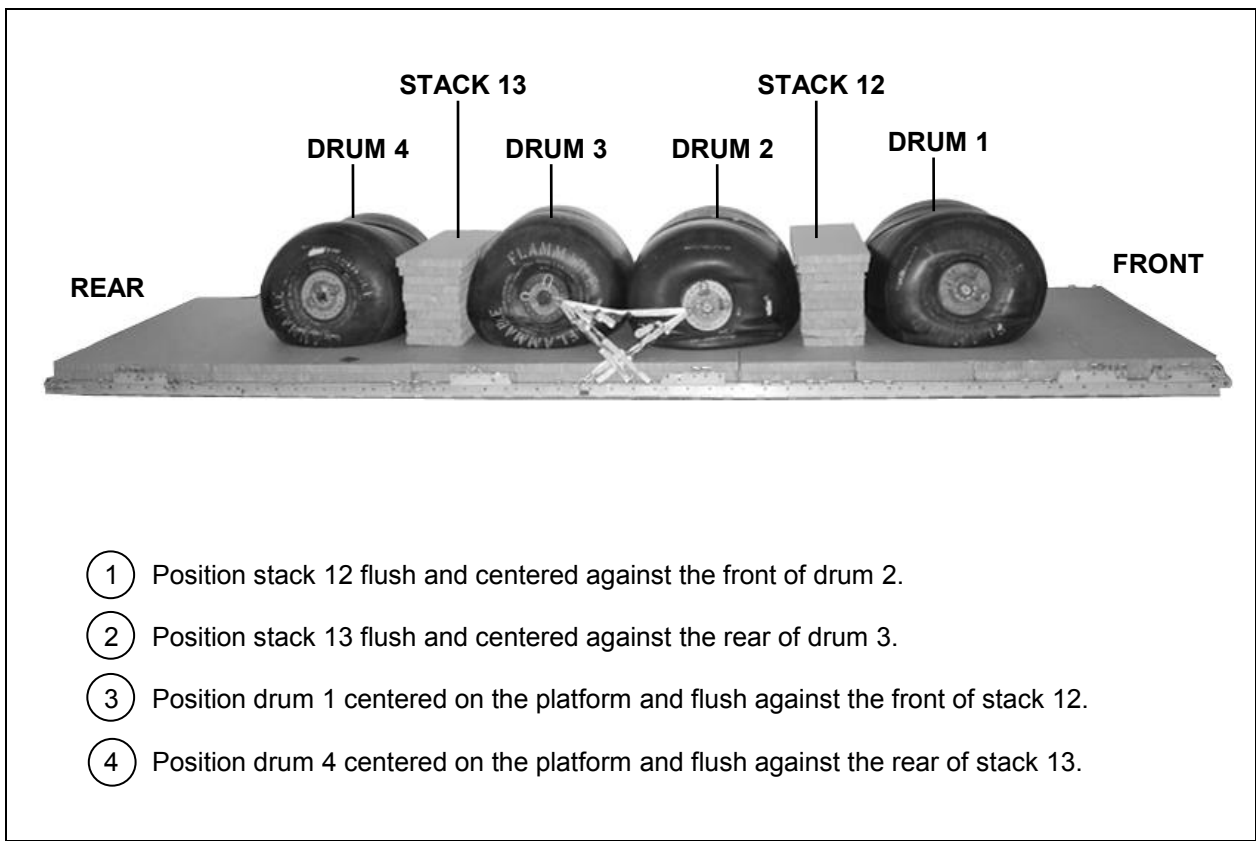


Figure 24-7. Fuel Drums 1 and 4 Positioned

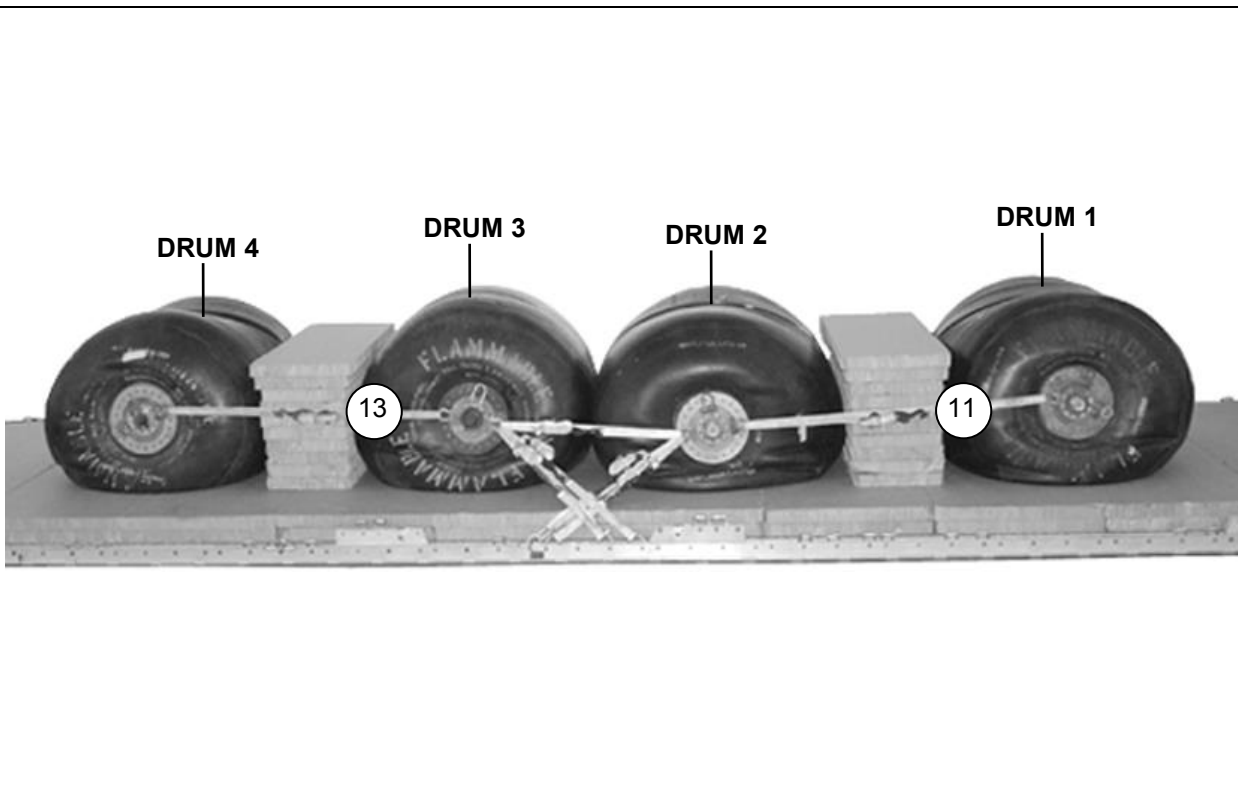
		
<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
11		Route a lashing from the rear shackle of drum 1 to the front shackle of drum 2 on the right side.
12		Route a lashing from the rear shackle of drum 1 to the front shackle of drum 2 on the left side.
13		Route a lashing from the rear shackle of drum 3 to the front shackle of drum 4 on the right side.
14		Route a lashing from the rear shackle of drum 3 to the front shackle of drum 4 on the left side.

Figure 24-8. Lashings 11 Through 14 Installed

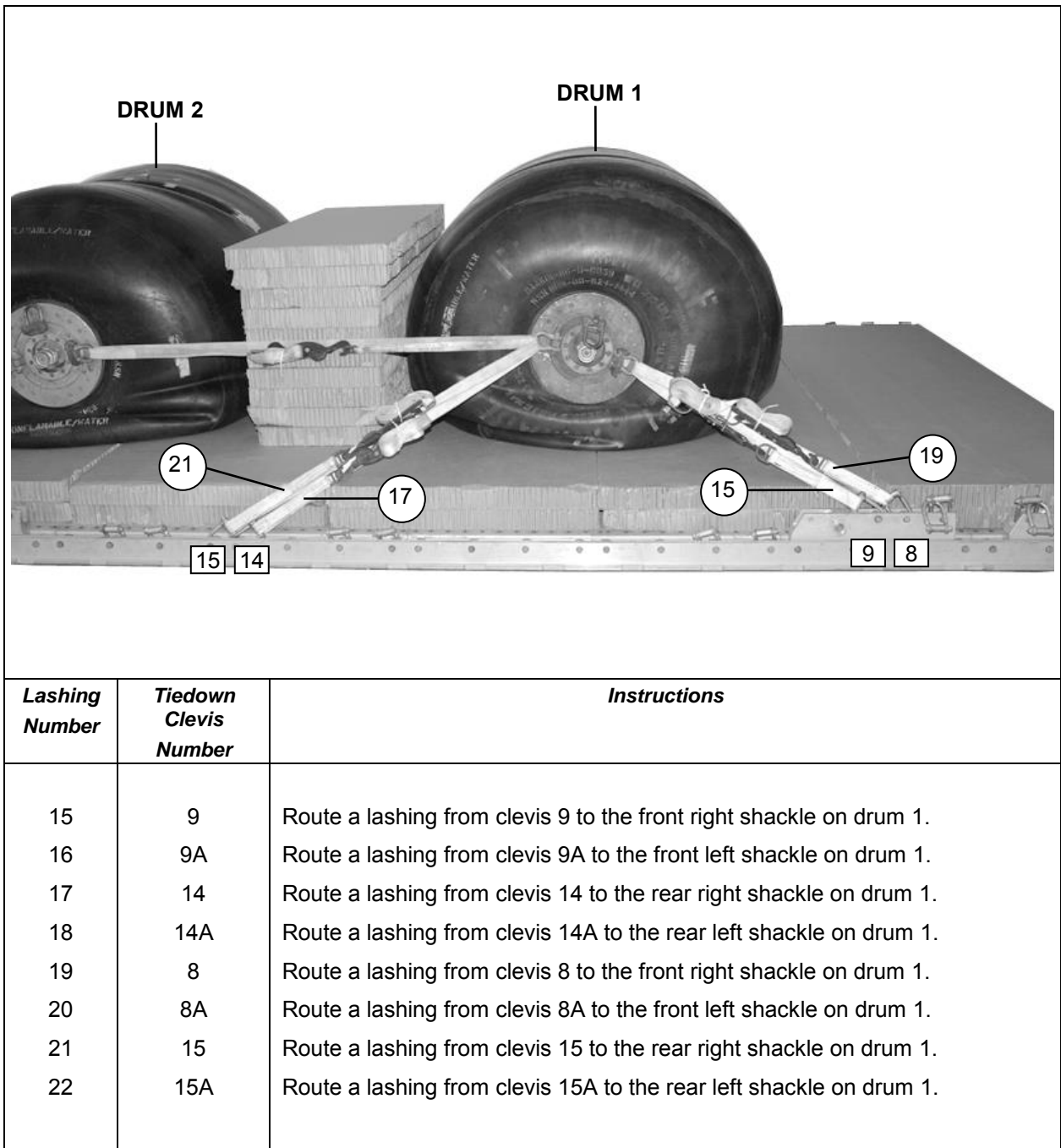


Figure 24-9. Lashings 15 Through 22 Installed

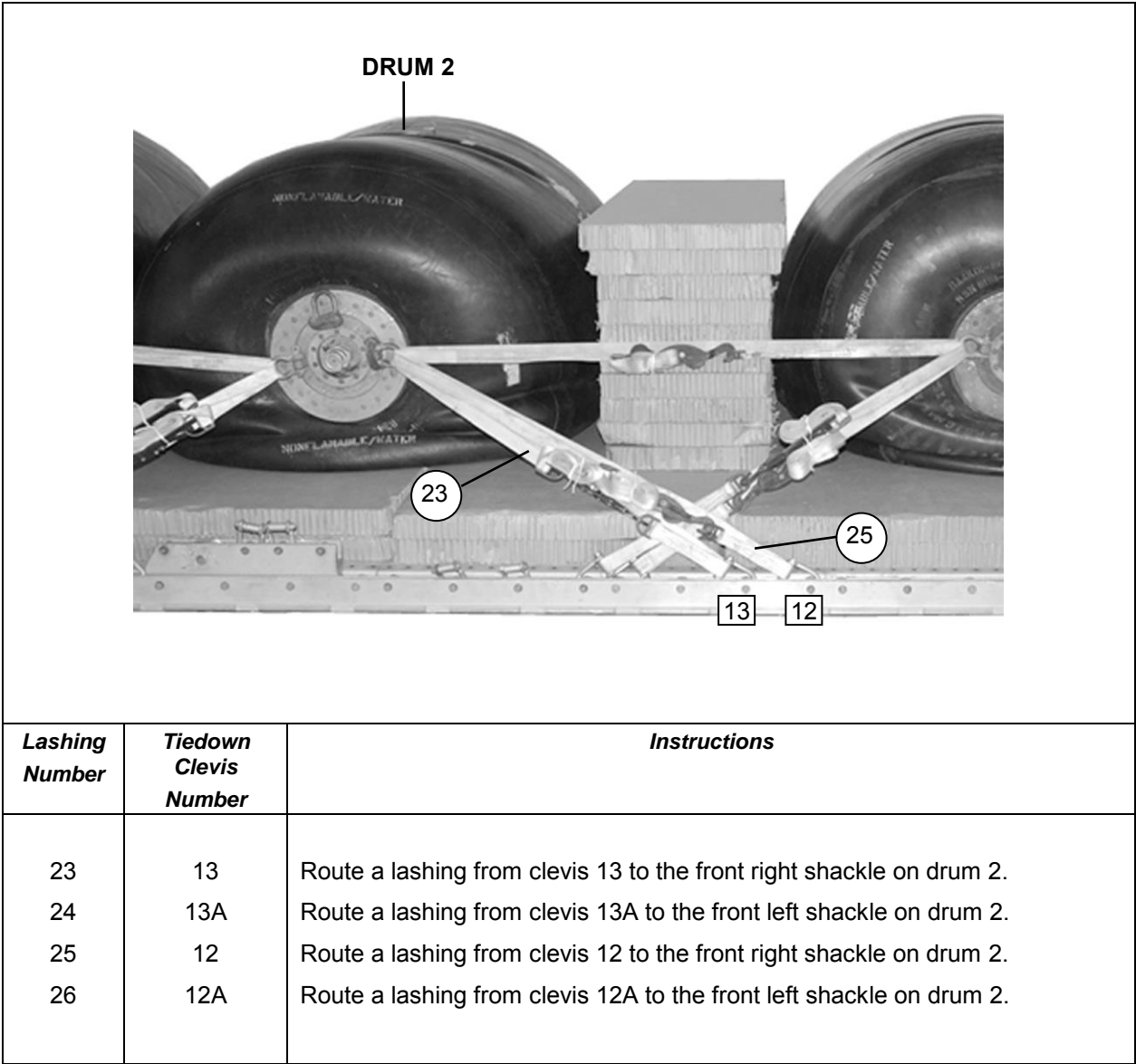
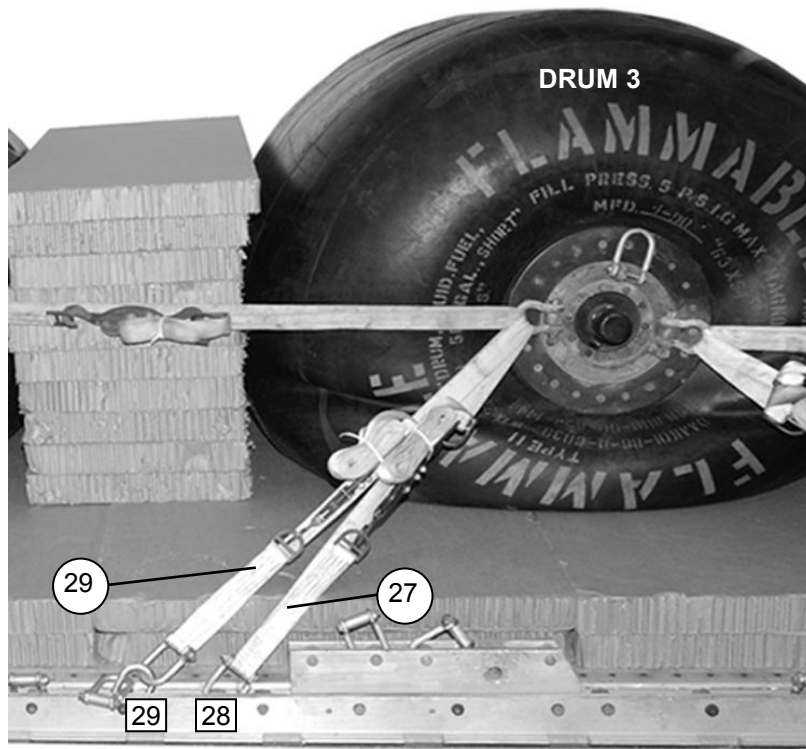
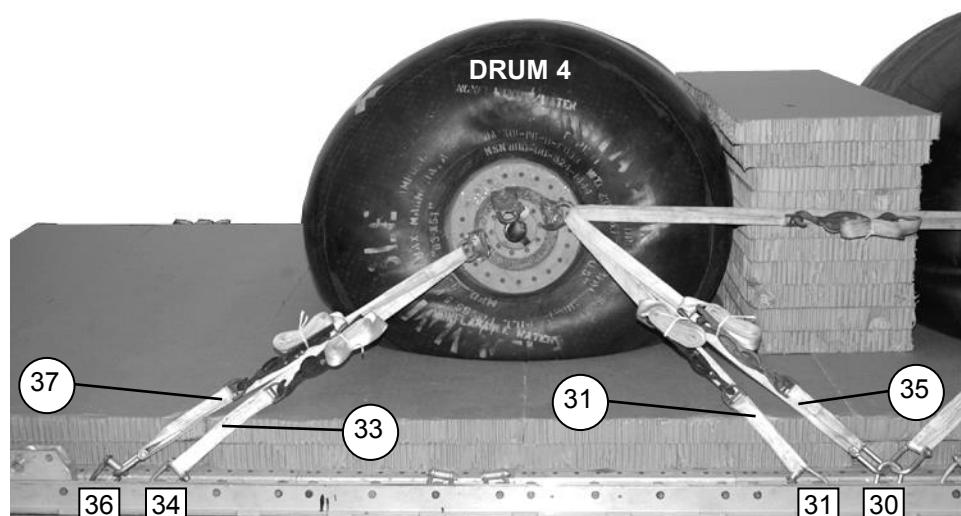


Figure 24-10. Lashings 23 Through 26 Installed



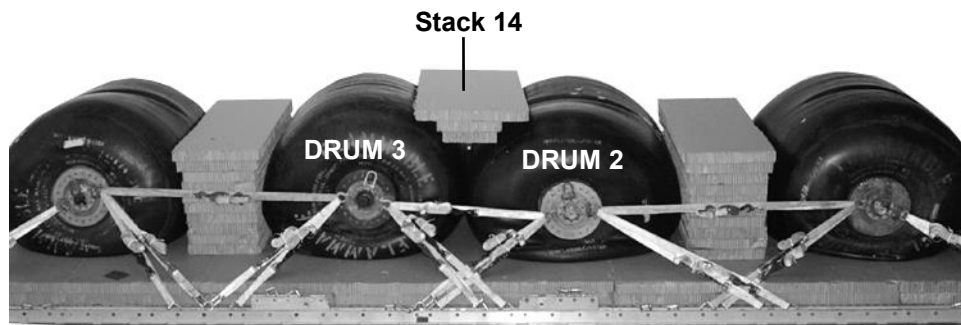
Lashing Number	Tiedown Clevis Number	Instructions
27	28	Route a lashing from clevis 28 to the rear right shackle on drum 3.
28	28A	Route a lashing from clevis 28A to the rear left shackle on drum 3.
29	29	Route a lashing from clevis 29 to the rear right shackle on drum 3.
30	29A	Route a lashing from clevis 29A to the rear left shackle on drum 3.

Figure 24-11. Lashings 27 Through 30 Installed

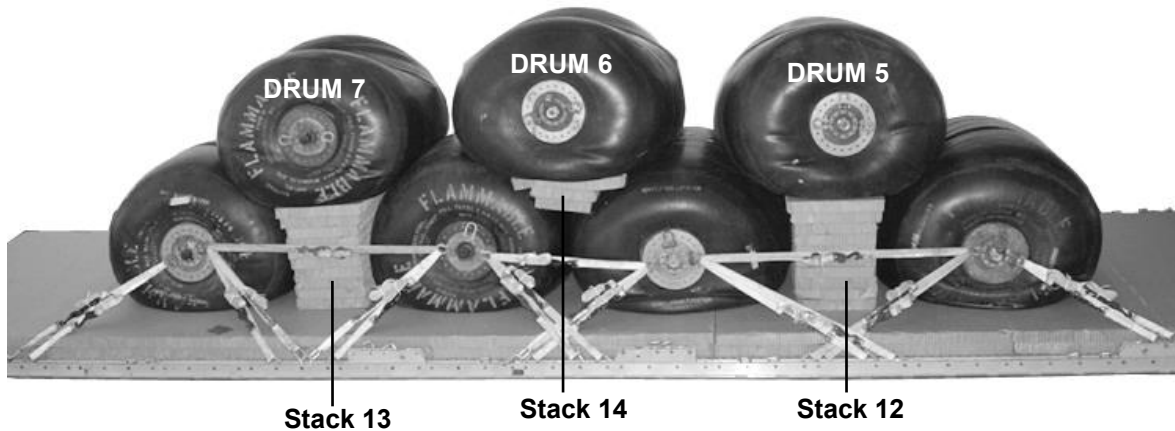


Lashing Number	Tiedown Clevis Number	Instructions
31	31	Route a lashing from clevis 31 to the front right shackle on drum 4.
32	31A	Route a lashing from clevis 31A to the front left shackle on drum 4.
33	34	Route a lashing from clevis 34 to the rear right shackle on drum 4.
34	34A	Route a lashing from clevis 34A to the rear left shackle on drum 4.
35	30	Route a lashing from clevis 30 to the front right shackle on drum 4.
36	30A	Route a lashing from clevis 30A to the front left shackle on drum 4.
37	36	Route a lashing from clevis 36 to the rear right shackle on drum 4.
38	36A	Route a lashing from clevis 36A to the rear left shackle on drum 4.

Figure 24-12. Lashings 31 Through 38 Installed

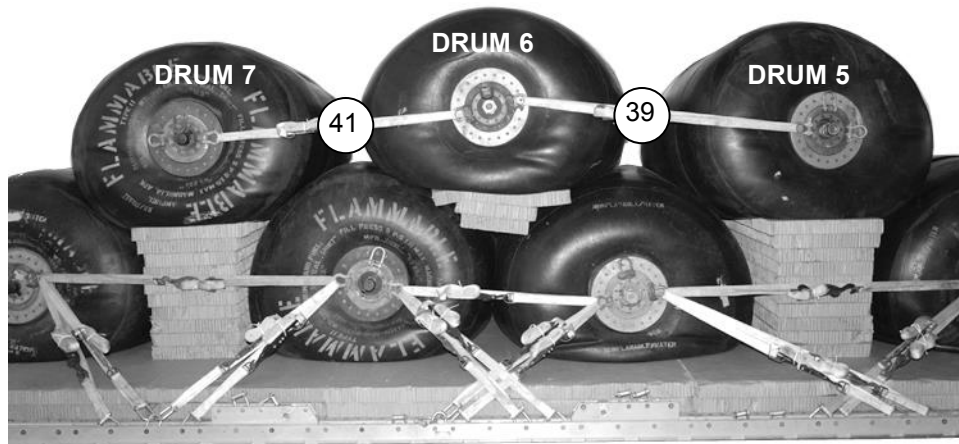


- ① Position stack 14 on top and centered between drums 2 and 3.



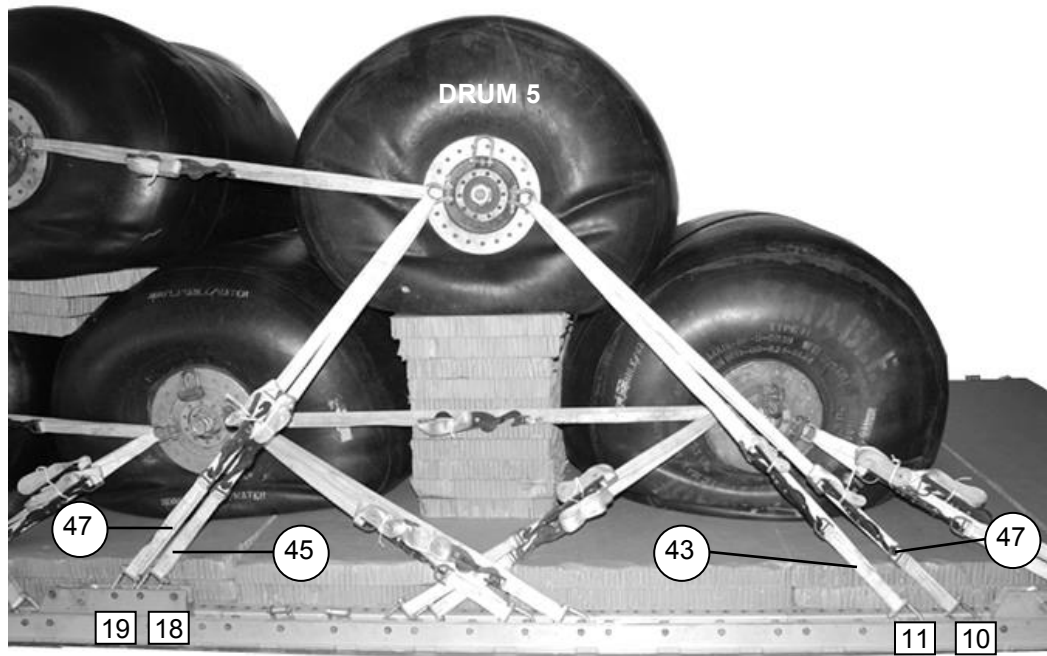
- ② Position drum 5 centered on stack 12.
- ③ Position drum 6 centered on stack 14.
- ④ Position drum 7 centered on stack 13.

Figure 24-13. Fuel Drums 5 Through 7 Positioned



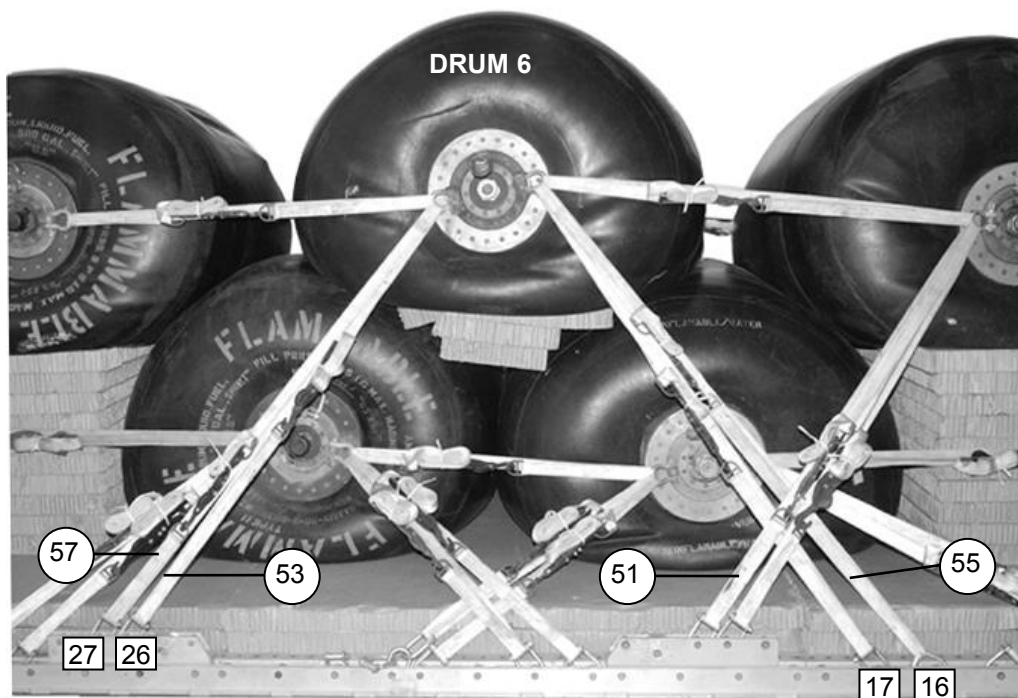
Lashing Number	Tiedown Clevis Number	Instructions
39		Route a lashing from the rear shackle of drum 5 to the front shackle of drum 6 on the right side.
40		Route a lashing from the rear shackle of drum 5 to the front shackle of drum 6 on the left side.
41		Route a lashing from the rear shackle of drum 6 to the front shackle of drum 7 on the right side.
42		Route a lashing from the rear shackle of drum 6 to the front shackle of drum 7 on the left side.

Figure 24-14. Lashings 39 Through 42 Installed



<i>Lashing Number</i>	<i>Tiedown Clevis Number</i>	<i>Instructions</i>
43	11	Route a lashing from clevis 11 to the front right shackle on drum 5.
44	11A	Route a lashing from clevis 11A to the front left shackle on drum 5.
45	18	Route a lashing from clevis 18 to the rear right shackle on drum 5.
46	18A	Route a lashing from clevis 18A to the rear left shackle on drum 5.
47	10	Route a lashing from clevis 10 to the front right shackle on drum 5.
48	10A	Route a lashing from clevis 10A to the front left shackle on drum 5.
49	19	Route a lashing from clevis 19 to the rear right shackle on drum 5.
50	19A	Route a lashing from clevis 19A to the rear left shackle on drum 5.

Figure 24-15. Lashings 43 Through 50 Installed



Lashing Number	Tiedown Clevis Number	Instructions
51	17	Route a lashing from clevis 11 to the front right shackle on drum 5.
52	17A	Route a lashing from clevis 11A to the front left shackle on drum 5.
53	26	Route a lashing from clevis 18 to the rear right shackle on drum 5.
54	26A	Route a lashing from clevis 18A to the rear left shackle on drum 5.
55	16	Route a lashing from clevis 10 to the front right shackle on drum 5.
56	16A	Route a lashing from clevis 10A to the front left shackle on drum 5.
57	27	Route a lashing from clevis 19 to the rear right shackle on drum 5.
58	27A	Route a lashing from clevis 19A to the rear left shackle on drum 5.

Figure 24-16. Lashings 43 Through 50 Installed

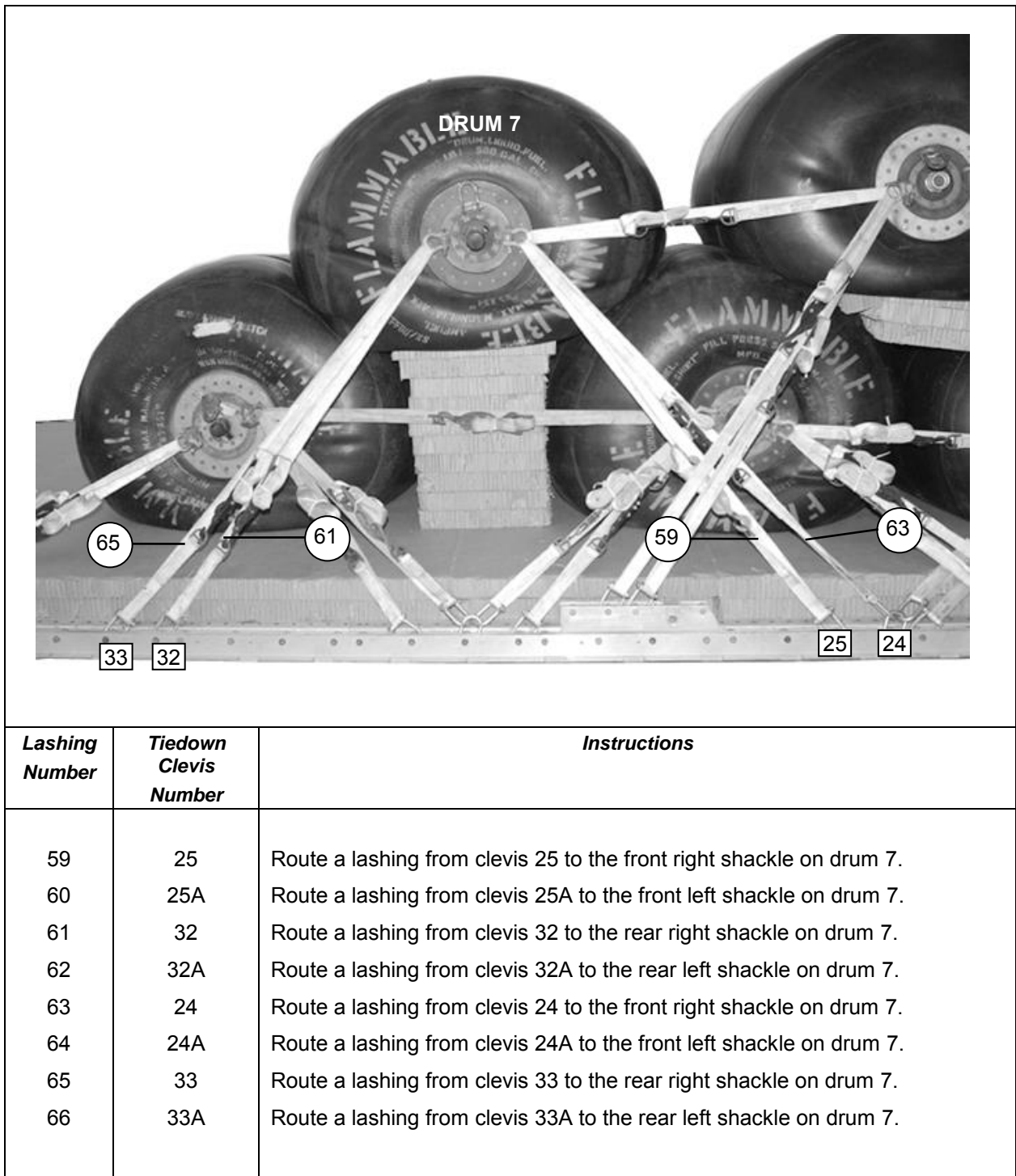


Figure 24-17. Lashings 59 Through 66 Installed

BUILDING THE EQUIPMENT BOXES

24-6. Build the front and rear equipment boxes as shown in Figures 23-16 and 23-17.

PREPARING EQUIPMENT FOR EQUIPMENT BOXES

24-7. Prepare the fire extinguishers, filter separator, explosion proof motor, pumps, manuals, and toolkit as explained and shown in paragraph 20-6. Using the lists printed on the equipment bags, place the equipment indicated on each list into its bag. Prepare and secure the battery box as shown in Figure 23-18.

POSITIONING EQUIPMENT BOXES

24-8. Prepare and position the front and rear equipment boxes as shown in Figures 23-19 and 23-20.

POSITIONING AND SECURING EQUIPMENT IN EQUIPMENT BOXES

24-9. Position and secure equipment in equipment boxes as shown in Figures 23-21 and 23-22.

LASHING THE EQUIPMENT BOXES TO THE PLATFORM

24-10. Lash the equipment boxes as shown in Figures 23-23 through 23-25 and Figures 24-18 through 24-20.

- Lash the front equipment box to the platform as shown in Figures 23-20 through 23-22.

- Lash the front equipment box to the platform as shown in Figures 24-18 through 24-20.

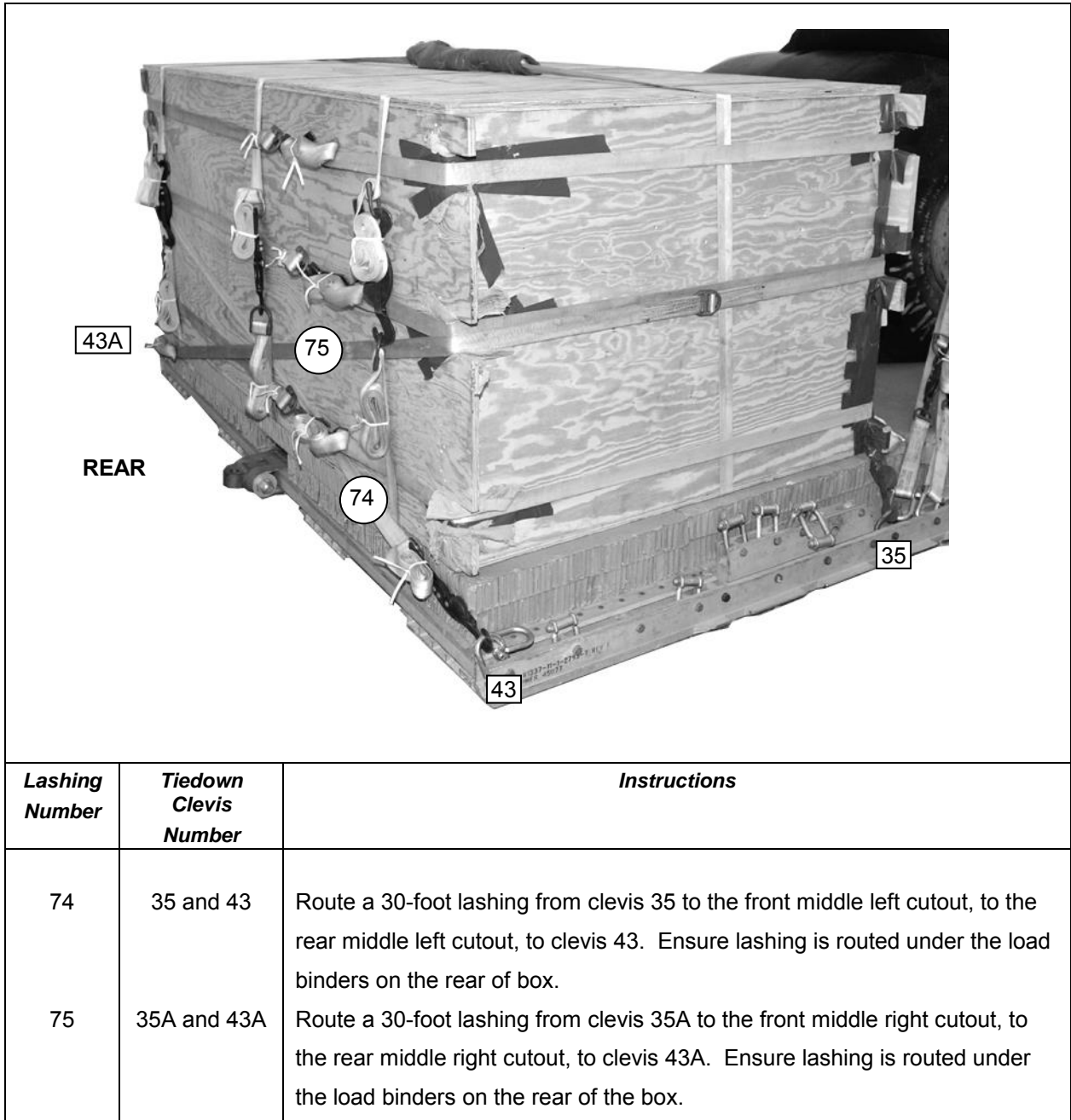


Figure 24-18. Lashings 74 and 75 Installed

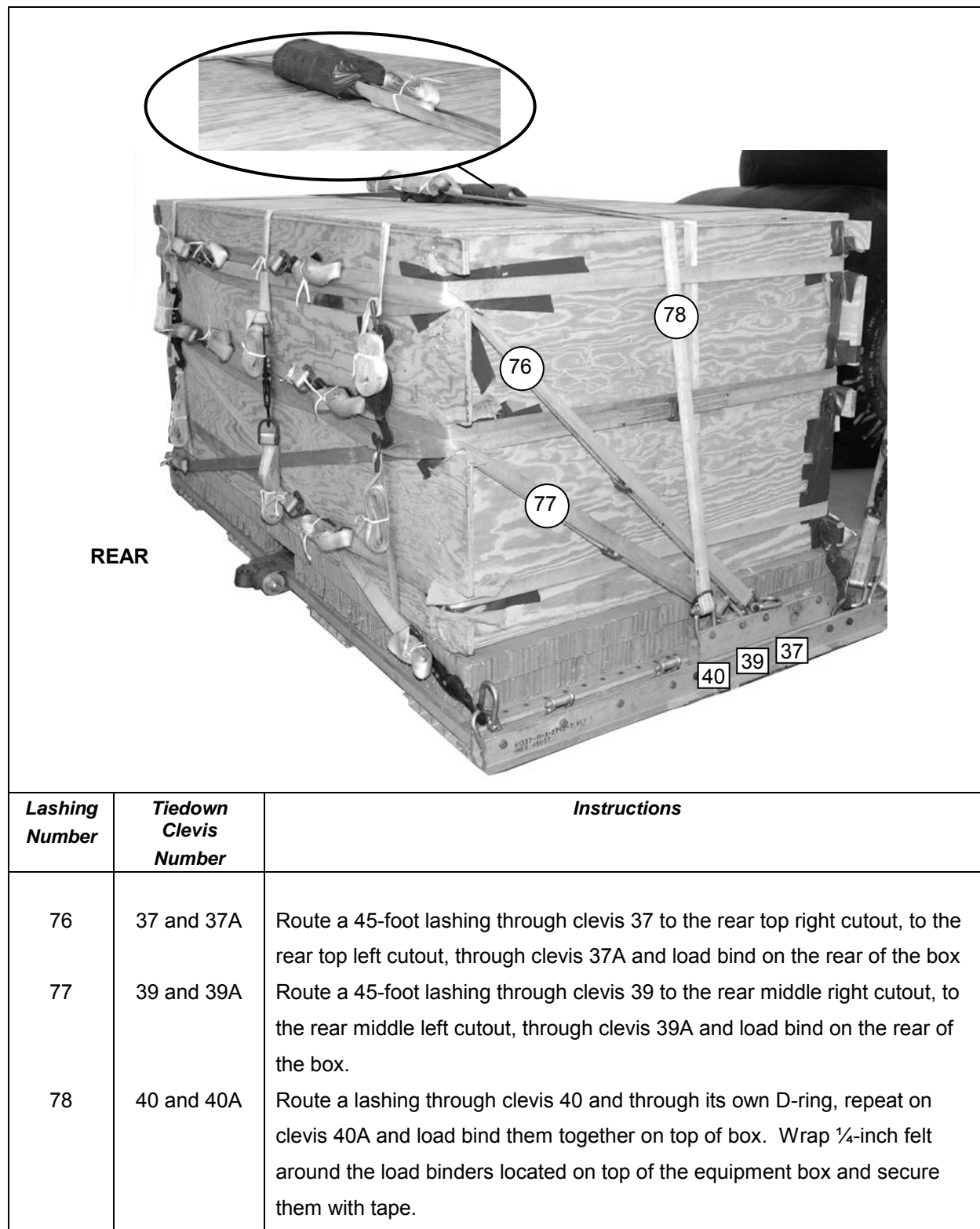
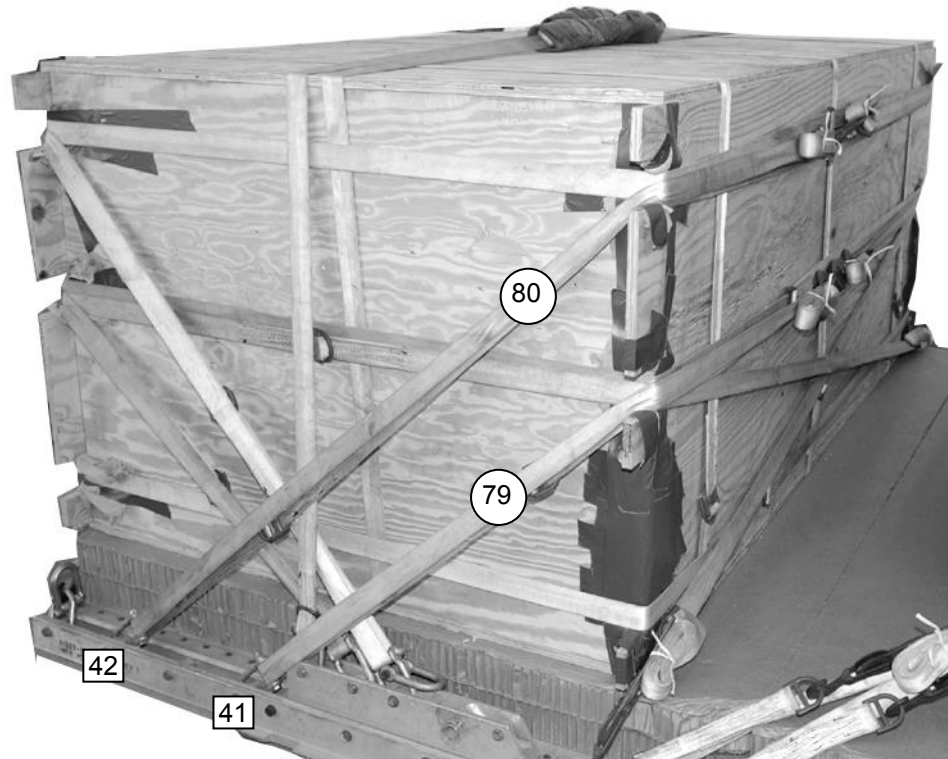


Figure 24-19. Lashings 76 Through 78 Installed



Lashing Number	Tiedown Clevis Number	Instructions
79	41 and 41A	Route a 45-foot lashing through clevis 41 to the front middle right cutout, to the front middle left cutout, through clevis 41A and load bind on the front of the box.
80	42 and 42A	Route a 45-foot lashing through clevis 42 to the front top right cutout, to the front top left cutout, through clevis 42A and load bind on the front of the box.

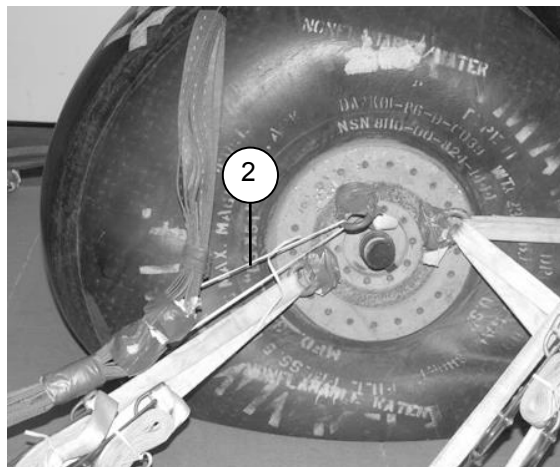
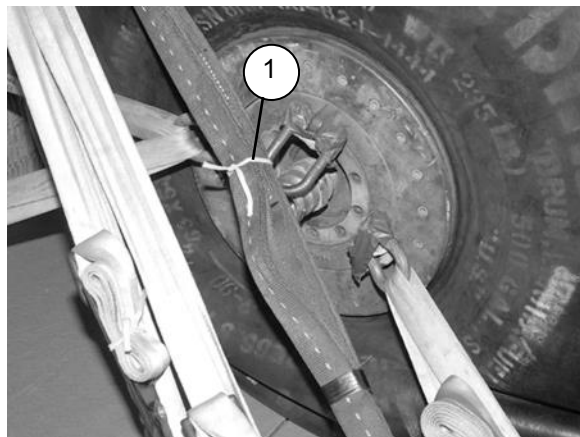
Figure 24-20. Lashings 79 Through 80 Installed

INSTALLING SUSPENSION SLINGS AND SAFETY TIES

24-11. Install suspension slings as shown in Figure 23-30. Install the suspension slings safety ties as shown in Appendix A, to the front and rear suspension slings, six to eight inches above drum 1 and drum 4 (not shown).

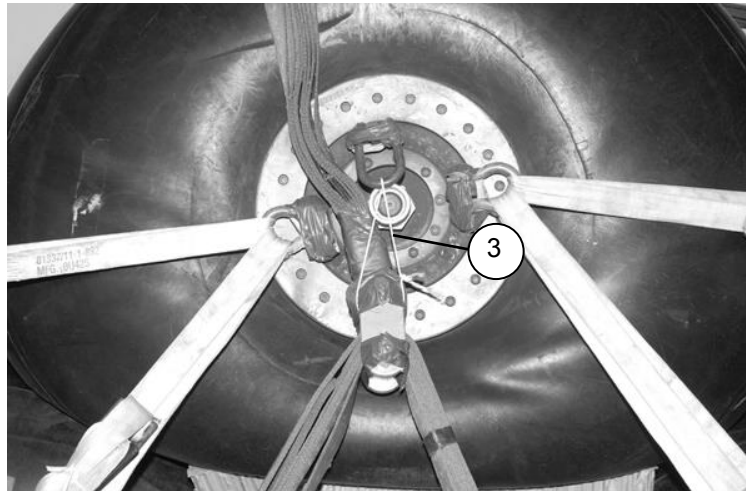
SECURING THE SUSPENSION SLINGS

24-12. Make the following suspension slings securing ties as shown in Figure 24-21.

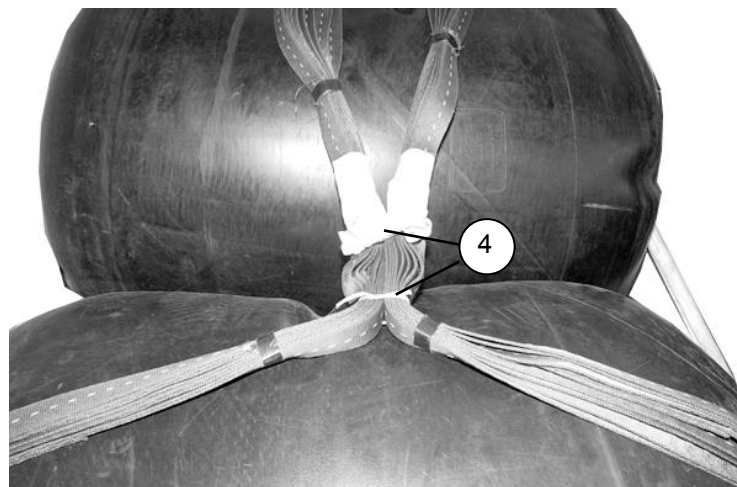


- ① Secure the front right suspension sling to the right side top shackle of fuel drum 1 with one turn single type I, $\frac{1}{4}$ inch cotton webbing. Repeat for the left side.
- ② Secure the rear right 5 $\frac{1}{2}$ inch 2-point link to the right side top shackle of fuel drum 4 with one turn single type III, nylon cord. Repeat for the left side.

Figure 24-21. Suspension Sling Secured



- ③ Secure the center right 5 1/2 2-point link to the right side top shackle on drum 6 with a single length of type III nylon cord. Repeat for the left side.



- ④ Secure the rear slings together on top of fuel drum 4 with one turn single type single I, 1/4 inch cotton webbing. S-fold and secure the safety tie with masking tape.

Figure 24-21. Suspension Sling Secured (Continued)

PREPARING AND STOWING PARACHUTES

24-13. Prepare and stow seven G-11 cargo parachutes as shown in Figure 24-22.

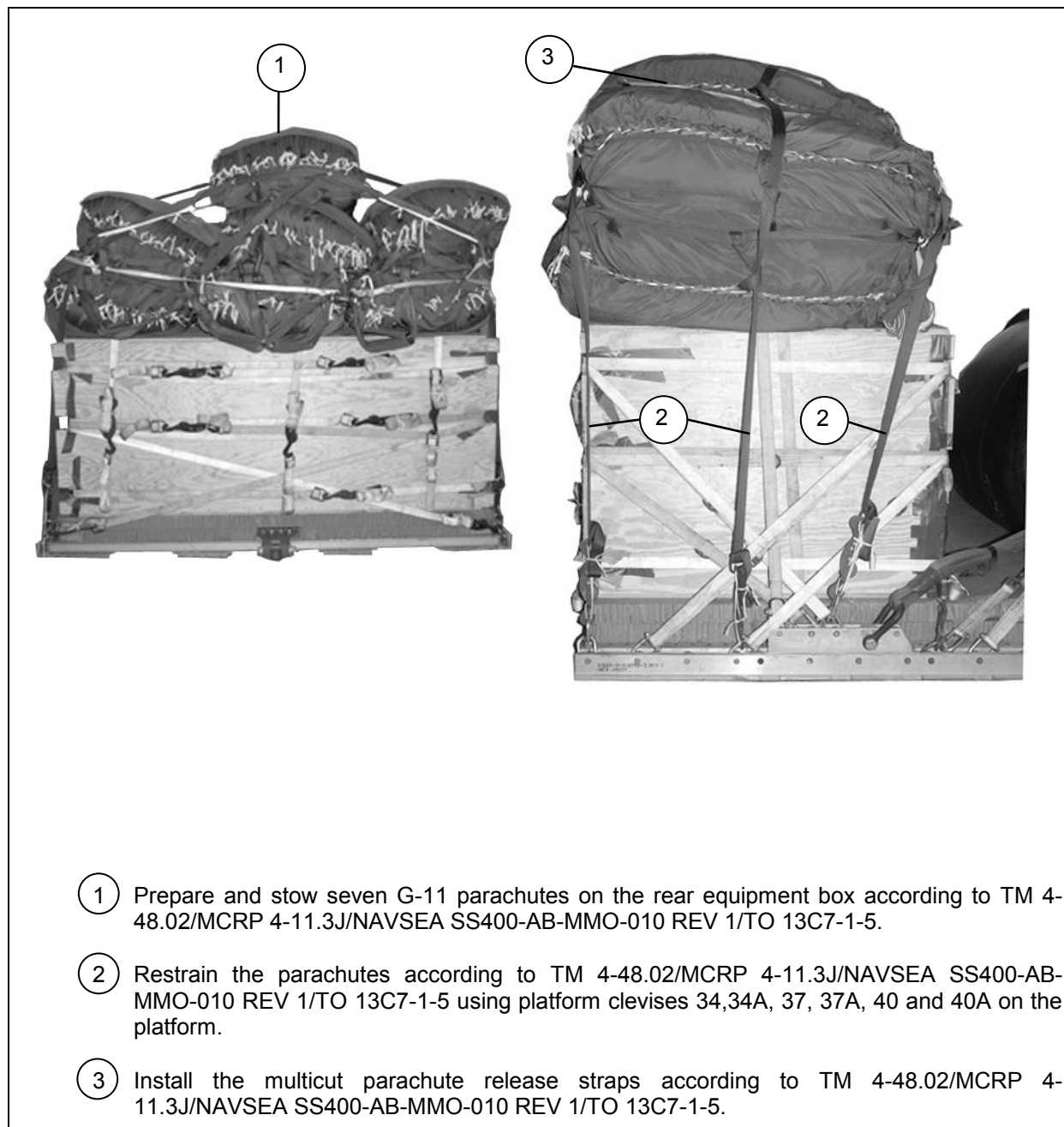
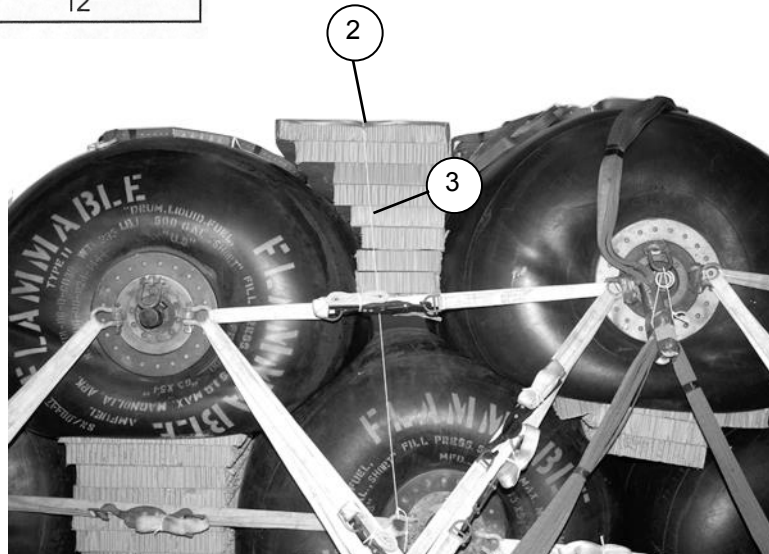
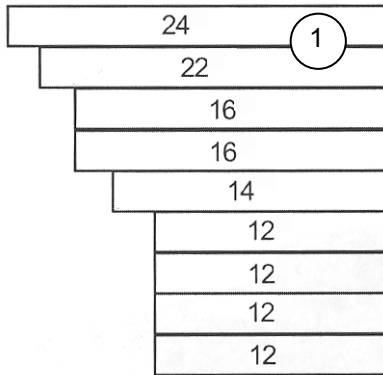


Figure 24-22. Cargo Parachutes Prepared and Stowed

BUILDING AND POSITIONING RELEASE PLATFORM

24-14. Build and position the release platform as shown in Figure 24-23.

Note. 1. All dimensions are in inches.
2. This drawing is not to scale.



- ① Build the release platform as shown above with all honeycomb widths 36 inches.
- ② Place the release stack between drums 6 and 7, centered.
- ③ Secure the release stack with a length of type III nylon cord to a convenient point of the load. Tape the stack in the area where the type III nylon cord makes contact with the stack.

Figure 24-23. Release Platform Built and Positioned

INSTALLING THE EXTRACTION SYSTEM

24-15. Install the extraction system as shown in Figure 24-24.

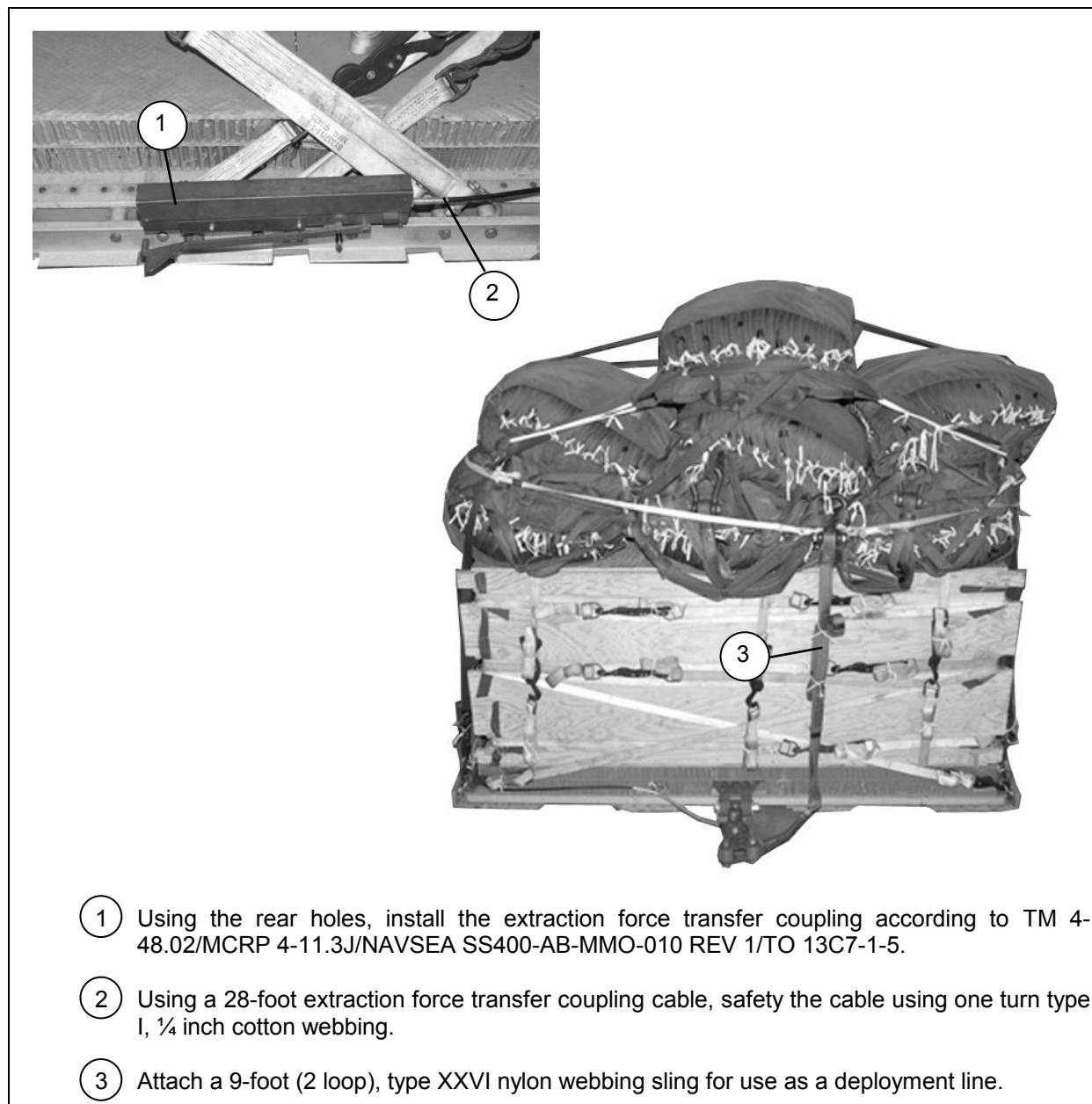
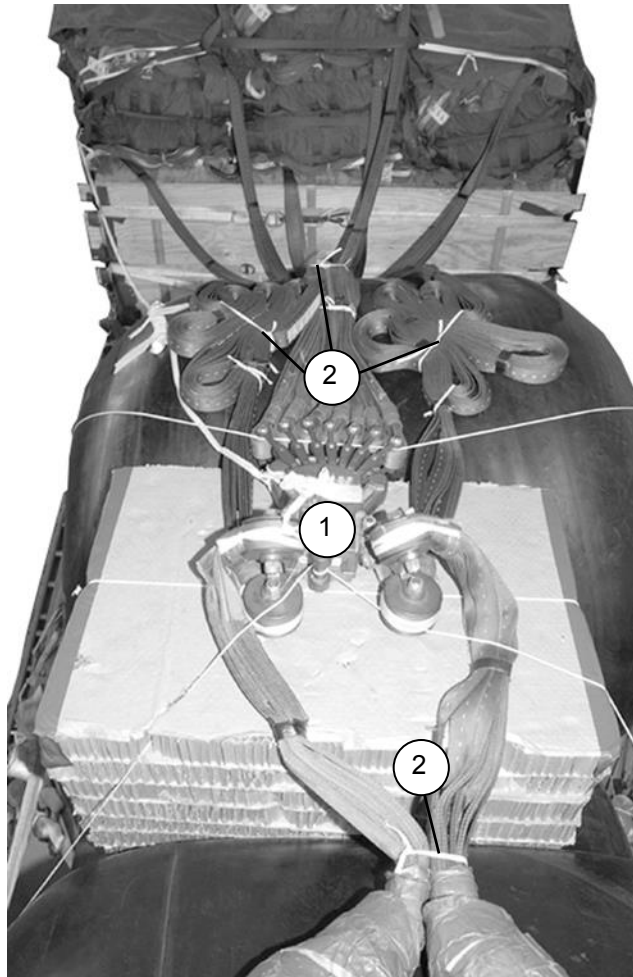


Figure 24-24. Extraction System Installed

INSTALLING THE CARGO PARACHUTE RELEASE SYSTEM

24-16. Install the M-2 cargo parachute release system as shown in Figure 24-25.



- ① Place the M-2 release on the release platform. Attach the suspension slings and the parachute riser extensions to the M-2 cargo release according to TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Secure the cargo parachute release with type III nylon cord.
- ② Secure the excess suspension slings and parachute risers extensions with one turn type I, ¼ inch cotton webbing.
- ③ S-fold and secure the front safety tie with paper tape (not shown).

Figure 24-25. Cargo Parachute Release Installed

PLACING EXTRACTION PARACHUTE

24-17. Select the extraction parachute and extraction line needed using the extraction line requirements table in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. Rig the extraction line in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41. Place the extraction parachute and extraction line on the load for installation in the aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

24-18. Select and install the provisions for emergency aft restraints according to the emergency aft restraint requirements table in TM 4-48.02/MCPR 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5.

MARKING RIGGED LOAD

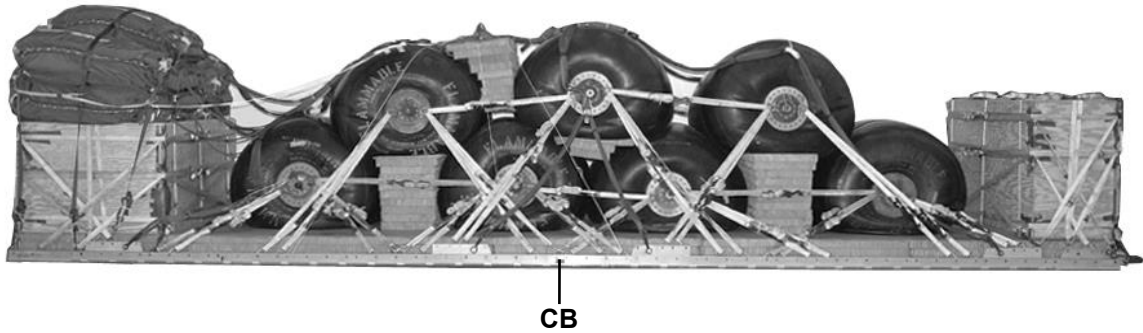
24-19. Mark the rigged load according to TM 4-48.02/MCPR 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, and as shown in Figure 24-26. Comply with the Shipper's requirements for Declaration of Dangerous/Hazardous Goods in accordance with AFMAN 24-204/TM 38-250/NAVSUP PUB505/MCOP4030.191/DLAI 4145.3/ DCMAD1, CH3.4 (HM24). If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

24-20. Use the equipment list in Table 24-1 to rig the load shown in Figure 24-26.

CAUTION

Make the final rigger inspection required by AR 59-4 (Using DD Form 1748, *Joint Airdrop Inspection Record (Platforms)*, or appropriate DD Form 1748-1, *Joint Airdrop Inspection Record (Containers)*, DD Form 1748-2, *Airdrop Malfunction Report (Personnel-Cargo)*, and DD Form 1748-3, *Joint Airdrop Summary Report*).



Rigged Load Data

Weight: Load shown.....36,480 pounds

Note. 1. The rigged weight for this load is using water as the liquid. Use the weight conversion table for the actual rigged weight for any other liquids used.

2. The G-11 requirements may need to be recomputed for lighter liquids.

Maximum load allowed.....36,750 pounds

Height.....96 inches

Width108 inches

Length402 inches

Overhang: Front0 inches

Rear18 inches

Center of Balance (CB) (from front edge of platform)
.....191 inches

Extraction System Extraction Force Transfer Coupler

Figure 24-26. Advanced Aviation Forward Area Refueling System Rigged with Seven 500-Gallon Drums for Low-Velocity Airdrop

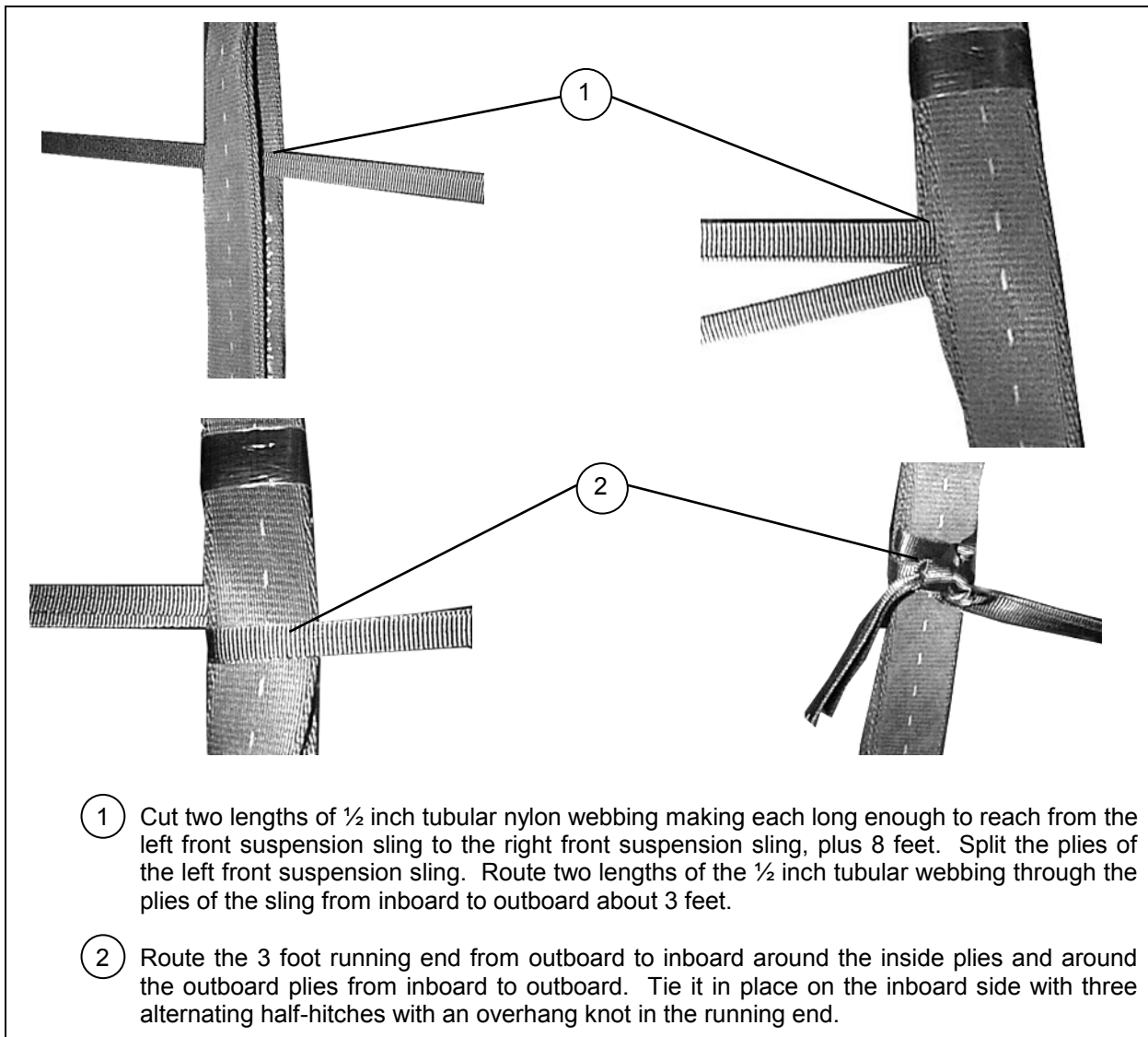
Table 24-1. Equipment Require for Rigging Advanced Aviation Forward Area Refueling System with Seven 500-Gallon Drums

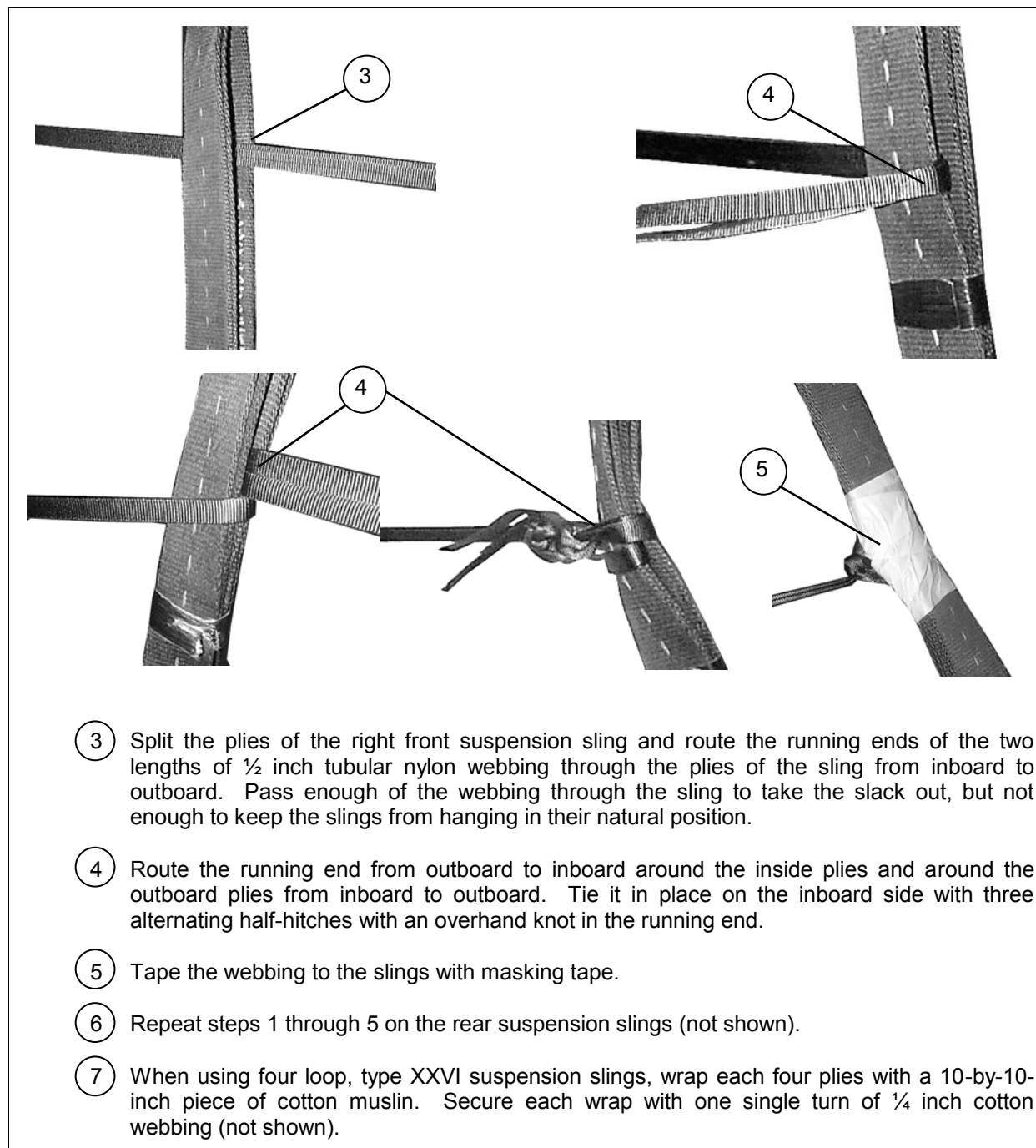
<i>National Stock Number</i>	<i>Item</i>	<i>Quantity</i>
8040-00-279-8713	Adhesive, paste, 1-gallon	As required
1670-01-035-6054	Bridle, extraction line bag (for Drogue Extraction System)	1
4030-00-090-5354	Clevis, large	12
4030-00-678-8562	Clevis, medium	6
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
1670-00-326-7309	Coupling assembly, airdrop, extraction force transfer w/ cable, 28-foot	1
1670-00-360-0328	Cover, clevis, large	7
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
8305-00-958-3685	Felt sheet, 1/2 inch	As required
1670-00-003-4391	Knife, parachute bag (for Drogue Extraction System)	1
1670-01-183-2678	Leaf, extraction line (line bag) (add 1 for Drogue Extraction System)	2
1670-01-064-4452	Line, drogue (for Drogue Extraction System): 60-foot (1 loop), type XXVI	1
1670-01-064-4454	Line, extraction: For C-130: 60-foot (6 loop), type XXVI	1
1670-01-062-6312	120-foot (6 loop), type XXVI	2
1670-01-468-9178	For C-17: 140-foot (6 loop), type XXVI	2
5306-00-435-8994	Link assembly: Two point:	
5310-00-232-5165	Bolt, 1-inch diameter, 4-inches long	2
1670-00-003-1953	Nut, 1-inch, hexagonal	2
5365-00-007-3414	Plate, side, 5 ½ inch	2
	Spacer, large	2
1670-01-062-6304	For deployment: 9-foot (2 loop), type XXVI nylon webbing	1
1670-01-062-6311	For riser extension: 120-foot (2 loop), type XXVI nylon webbing	7
1670-00-040-8219	Strap, parachute release, multicut	2
7510-00-266-5016	Tape, adhesive, 2-inch	As required
7510-00-266-6710	Tape, masking, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-foot	128
8305-00-268-2411	Webbing:	
8305-00-082-5752	Cotton, ¼ inch, type I	As required
8305-00-260-6890	Nylon, tubular, ½ inch	As required
	Type X	As required

Appendix A

Installing Suspension Sling Safety Ties

Installing the Suspension Sling Safety Ties keeps the suspension slings from making contact with the load. **The procedures in this Appendix are different from those in TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5. An exception to TM 4-48.02/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5 is granted. The procedures in this Appendix must be followed.** Safety tie the front and rear suspension slings according to instructions shown below.





Glossary

AAFARS	Advanced Aviation Forward Area Refueling System
AFMAN	Air Force Manual
DA	Department of the Army
DC	District of Columbia
EFTC	extraction force transfer coupler
FARE	forward area refueling equipment
FM	field manual
TM	technical manual
TO	technical order

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References

REQUIRED PUBLICATIONS

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

ADRP 1-02, *Terms and Military Symbols*, 7 December 2015

JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 8 November 2010

RELATED PUBLICATIONS

These documents contain relevant supplemental information.

ARMY

Most Army doctrinal publications are available online: <http://www.apd.army.mil>.

FM 27-10, *The Law of Land Warfare*, 18 July 1956

MULTI-SERVICE PUBLICATIONS

Most Army doctrinal publications are available online: <http://www.apd.army.mil>. Most Air Force doctrinal publications are available online: <http://www.e-publishing.af.mil/>

AFMAN 24-204/TM 38-250/NAVSUP 505/MCO P4030.19/ DLAI 4145.3/ DCMAD1, CH3.4 (HM24), *Preparing Hazardous Materials for Military Air Shipments*, 03 December 2012

TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010 REV 1/TO 13C7-1-5, *Airdrop of Supplies and Equipment: Rigging Airdrop Platforms*, 15 March 2016

TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111, *Airdrop of Supplies and Equipment: Rigging 1 1/4 Ton Utility Truck (HMMWV)*, 15 March 2016

TM 9-2330-202-13&P, *Operator's Unit, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Trailer, Cargo, 3/4 Ton, 2-Wheel M101A1, M1010A1, M101A3, Trailer, Chassis, 3/4-Ton, 2-Wheel, M116A2, M116A2, , Trailer, Chassis, 1-Ton, 2-Wheel M116A3*, 30 December 2011

TM 10-1670-268-20&P/ TO 13C7-52-22, *Organizational Maintenance Manual Including Repair Parts And Special Tools List For Type V Airdrop Platform And Dual Row Airdrop Platform*, 15 September 2002

TM 10-1670-286-20/TO 13C5-2-41, *Unit Maintenance Manual for Extraction Line Panel (Including Stowing Procedures)*, 15 March 2001

PRESCRIBED FORMS

None

REFERENCED FORMS

Unless otherwise indicated, DA Forms are available on the Army Publishing Directorate web site: <http://www.apd.army.mil>. DD forms are available on the Office of the Secretary of Defense web site: <http://www.dtic.mil/whs/directives/infomgt/forms/>.

AMC IMT 1033, 20050204, V1. Shippers Declaration for Dangerous Goods. Obtained at <https://www.iata.org/whatwedo/cargo/dgr/Pages/shippers-declaration.aspx>

DA Form 2028. Recommended Changes to Publication and Blank Forms

DD Form 1748. Joint Airdrop Inspection Record (Platforms)

DD Form 1748-1. Joint Airdrop Inspection Record (Containers)

DD Form 1748-2. Airdrop Malfunction Report (Personnel-Cargo)

DD Form 1748-3. Joint Airdrop Summary Report

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