

CHAPTER 7

RIGGING DUAL ROW AIRDROP SYSTEM (DRAS) M101A1 OR M101A2, 3/4-TON CARGO TRAILER WITH ACCOMPANYING LOADS

DESCRIPTION OF LOAD

7-1. The M101A1 or M101A2, 3/4-ton cargo trailer (Figure 7-1) with accompanying loads is rigged on a DRAS airdrop platform. The M101A1 3/4-ton cargo trailer with accompanying loads, consisting of 30 boxes (M101A2 uses 28 boxes) of 105-millimeter ammunition and weighing 3,210 pounds (2,996 pounds for the M101A2), is rigged with two G-11D cargo parachutes. An accompanying load consisting of 14 boxes of 105-millimeter ammunition weighing 1,500 pounds is stowed in the trailer. Additional accompanying loads consisting of 16 boxes of 105-millimeter ammunition are stowed on the platform (14 boxes of 105-millimeter ammunition for the M101A2). The unrigged trailer weighs 1,340 pounds (M101A2 weighs 1,375 pounds). The M101A1 trailer is 147 inches long and 71 inches wide. The height of the trailer is 82 inches, reducible to 51 inches.

PREPARING PLATFORM

7-2. Inspect, or assemble and inspect, a DRAS platform with outrigger assemblies and outrigger platform support weldments according to TM 10-1670-268-20&P and as shown in Figure 7-2.

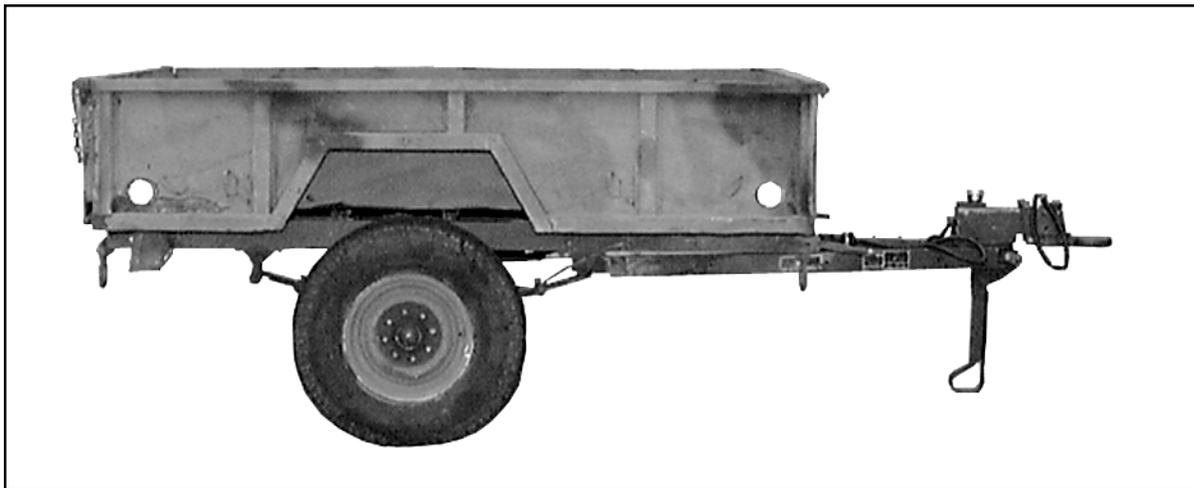


Figure 7-1. M101A1, 3/4- Ton Cargo Trailer

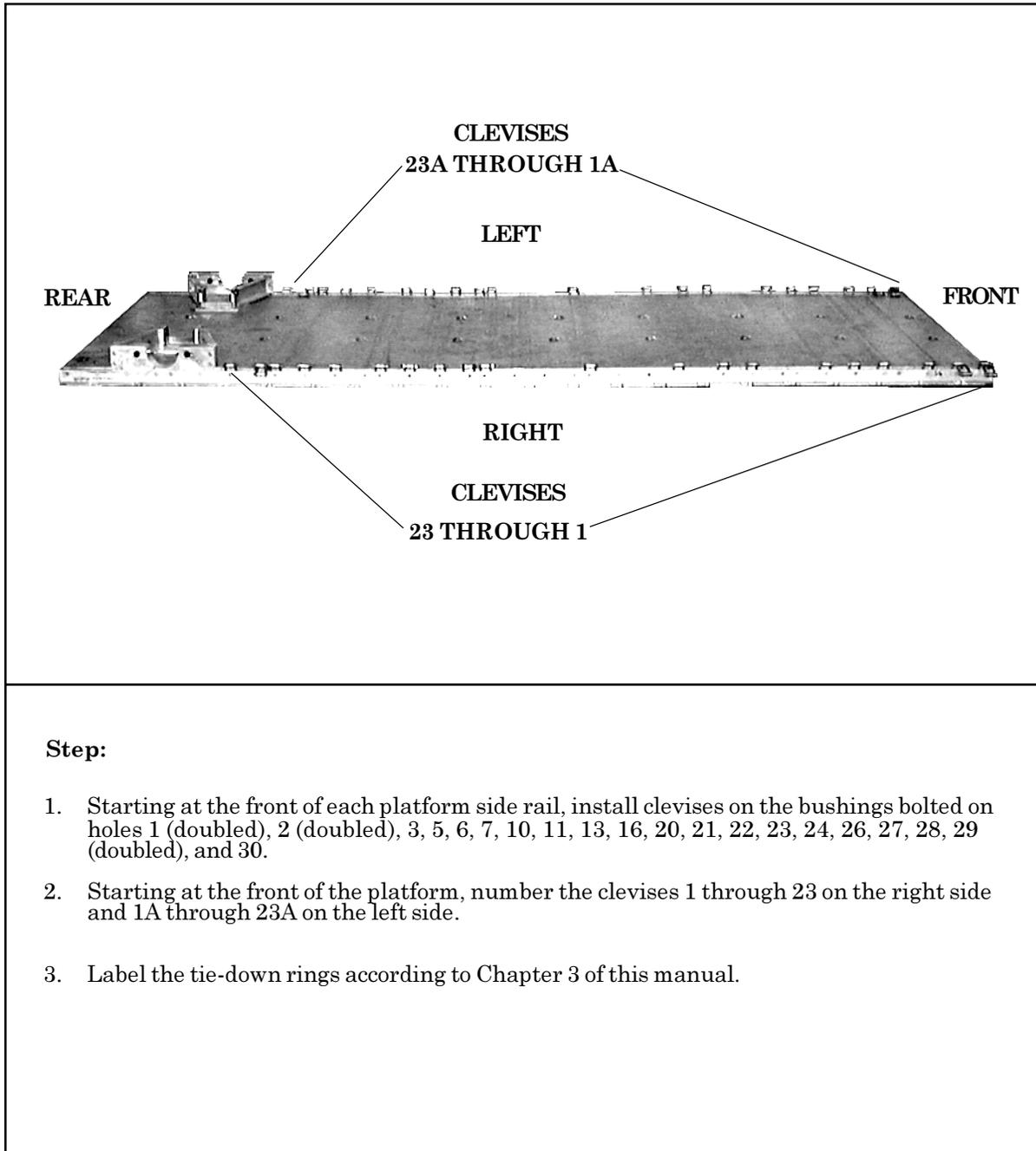


Figure 7-2. Platform Prepared

POSITIONING AND LASHING ACCOMPANYING LOADS ON PLATFORM

7-3. Position and lash the accompanying loads on the platform as shown in Figures 7-3 through 7-8.

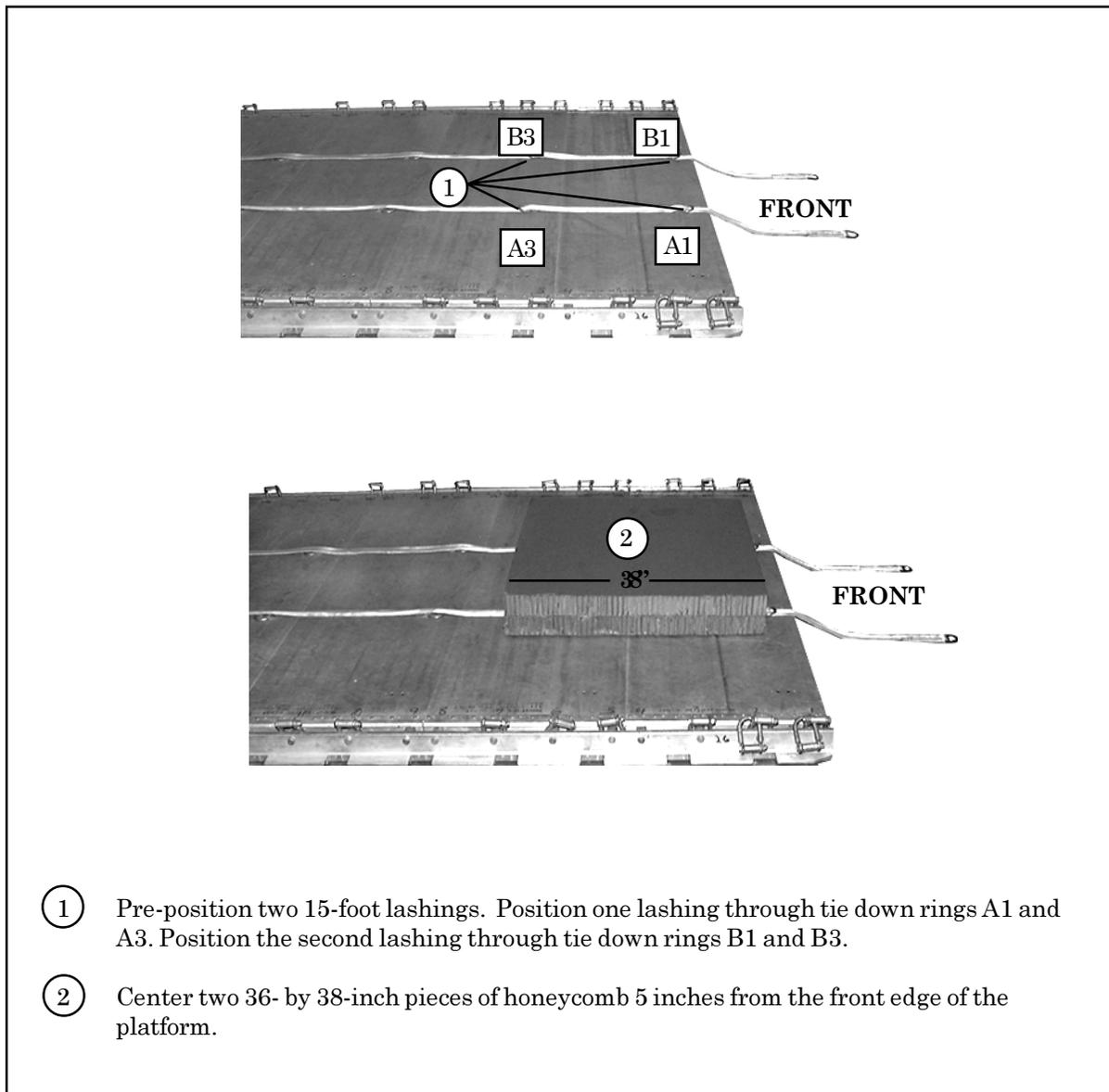
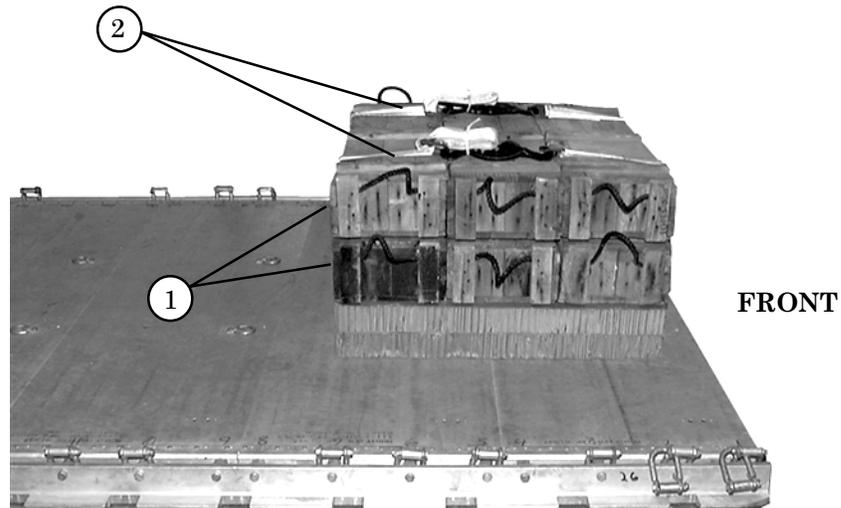


Figure 7-3. Honeycomb and Lashings Positioned on the Front of the Platform



- ① Place six ammunition boxes in three stacks of two each on top of the honeycomb.
- ② Bind the boxes together using the pre-positioned lashings, two D-rings, and two load binders.

Figure 7-4. Ammunition Boxes Positioned on the Front of the Platform

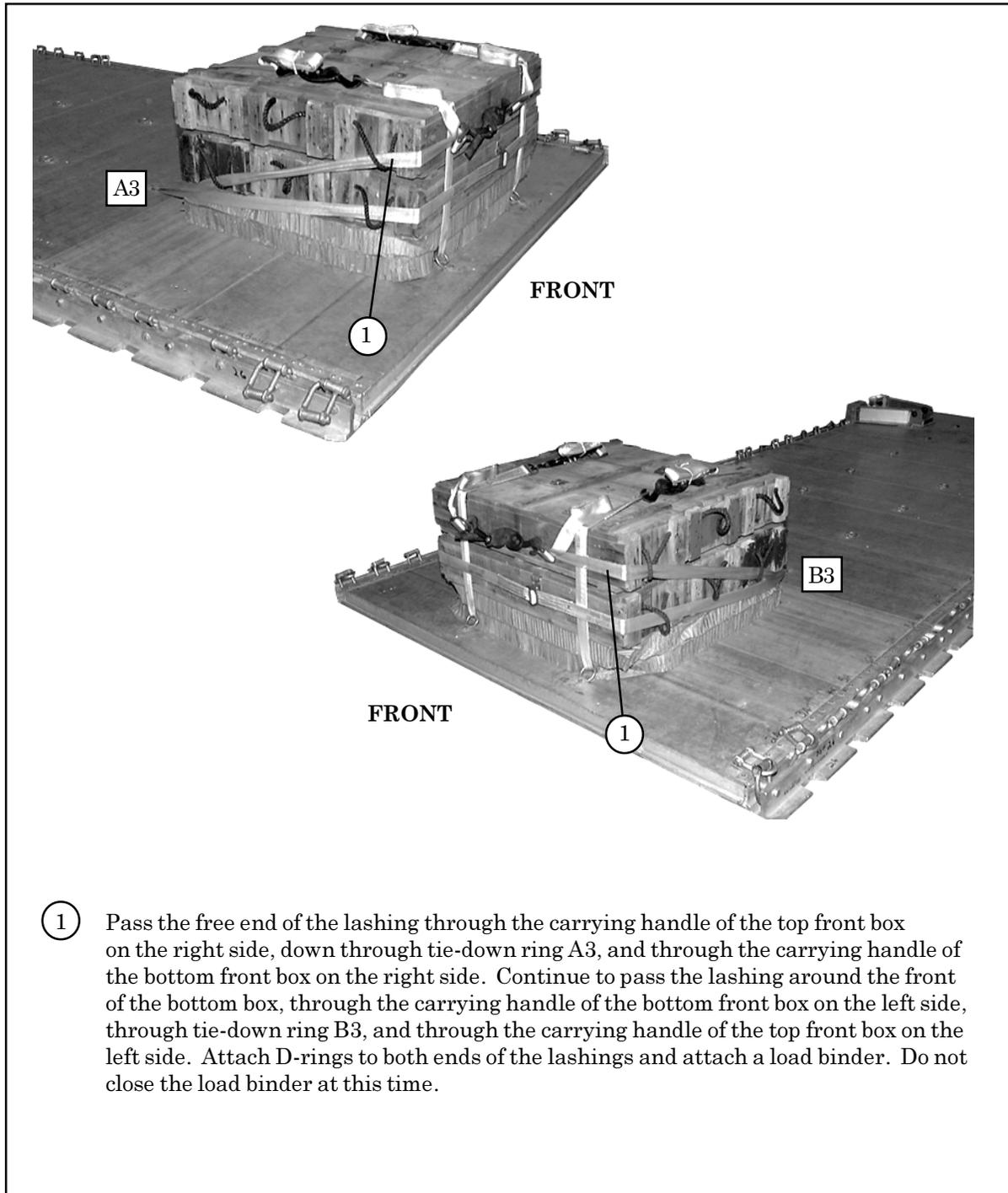


Figure 7-5. Ammunition Boxes Lashed and Secured on the Front of the Platform

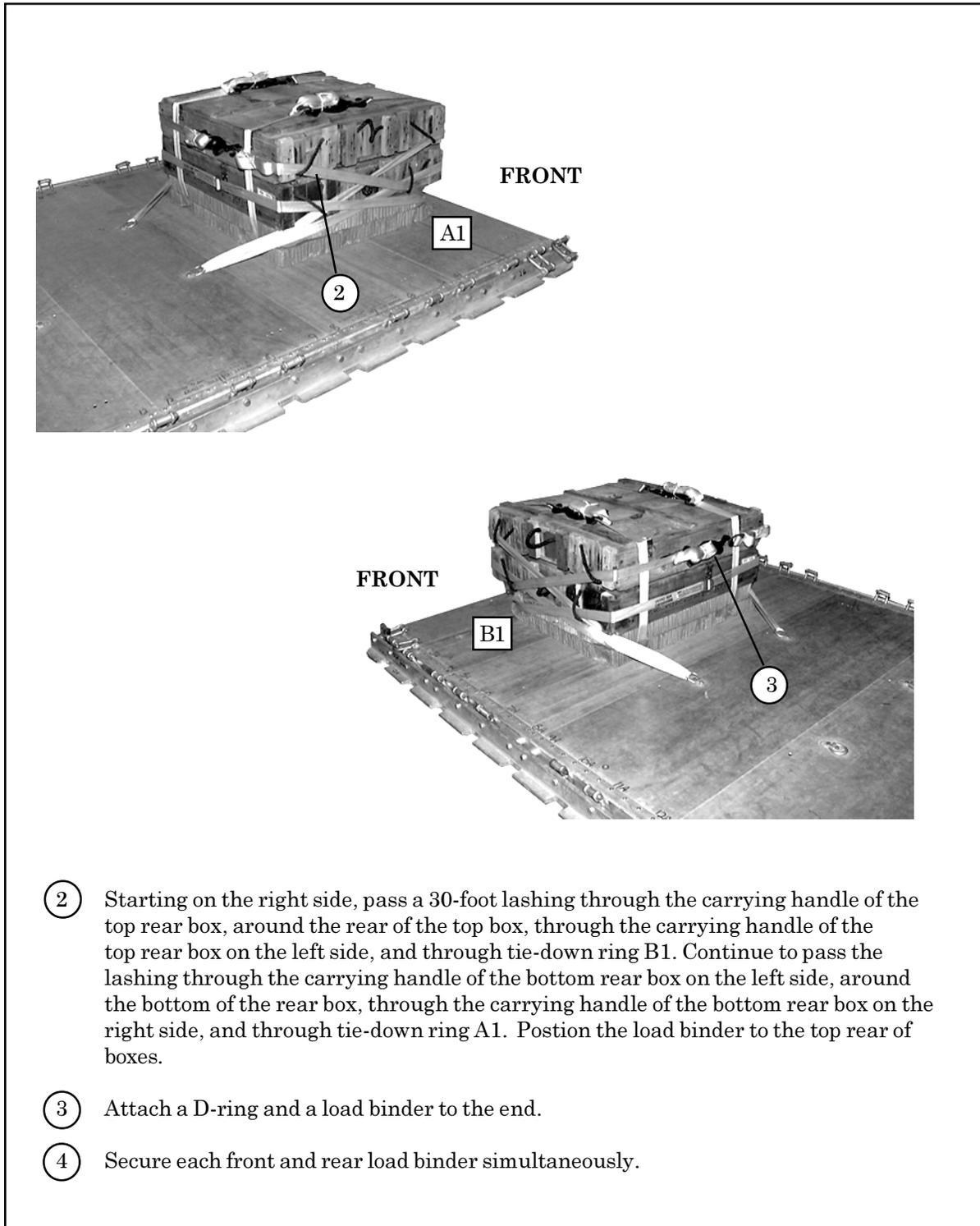
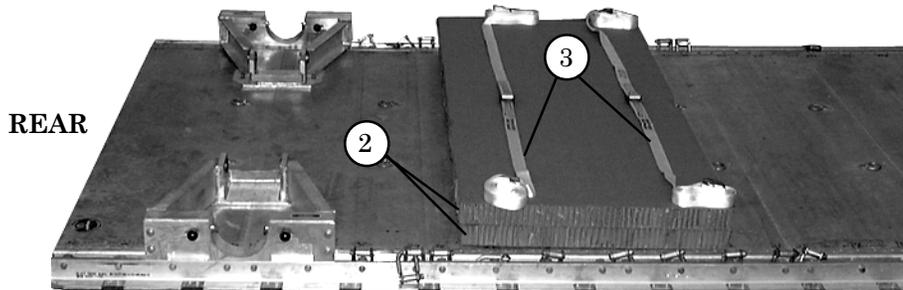
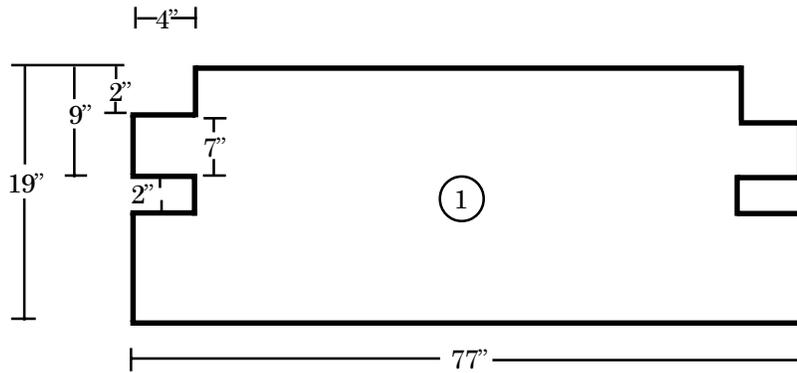


Figure 7-5. Ammunition Boxes Lashed and Secured on the Front of the Platform (continued)

Note: This drawing is not drawn to scale.



- ① Cut two endboards as shown above using two 3/4- by 19- by 77-inch pieces of plywood.
- ② Center two 36- by 76-inch pieces of honeycomb 128 inches from front edge of platform.
- ③ Center two 30-foot lashings laterally across the top piece of honeycomb.

Figure 7-6. Honeycomb and Lashing Positioned on the Rear of the Platform

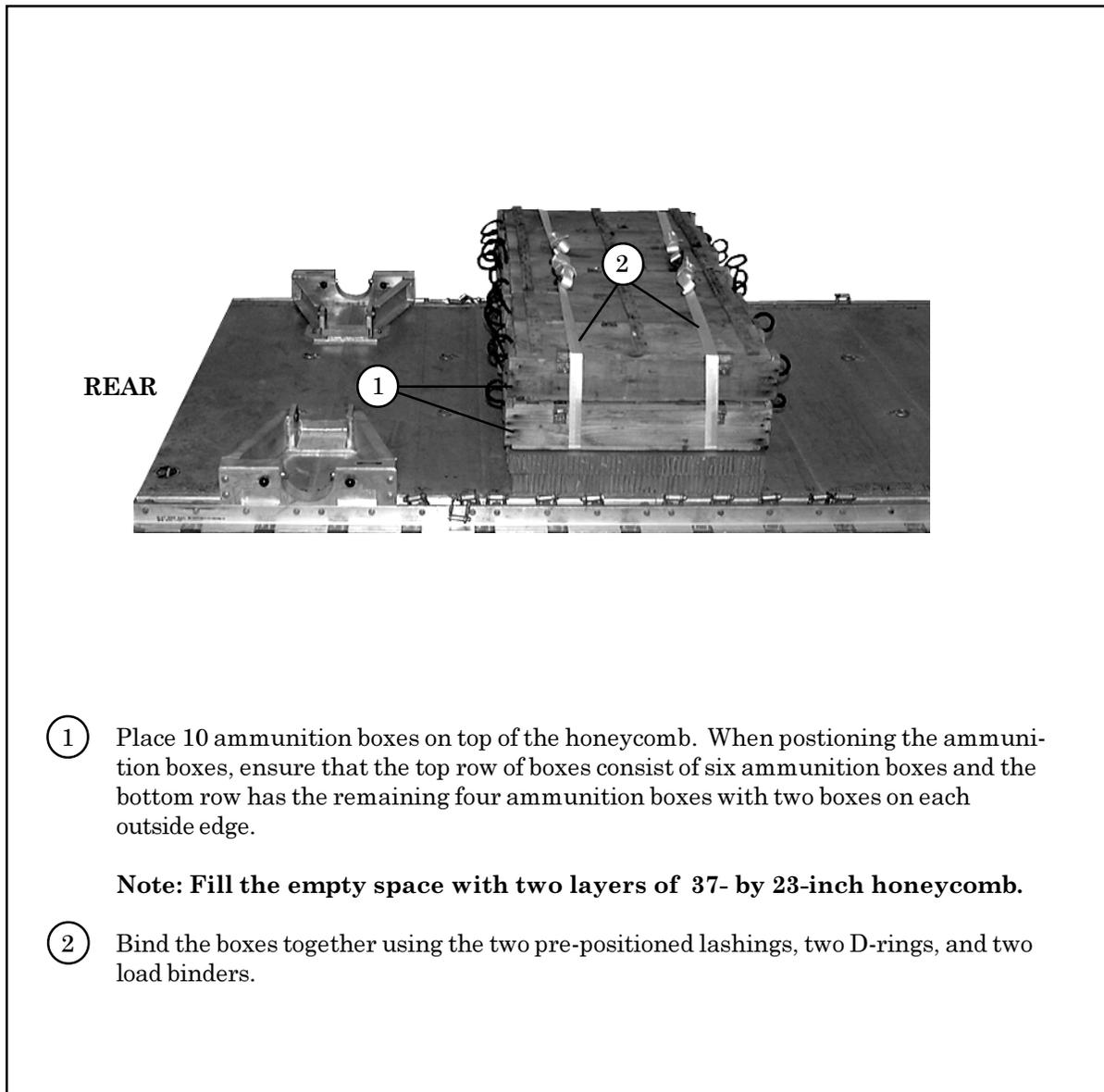
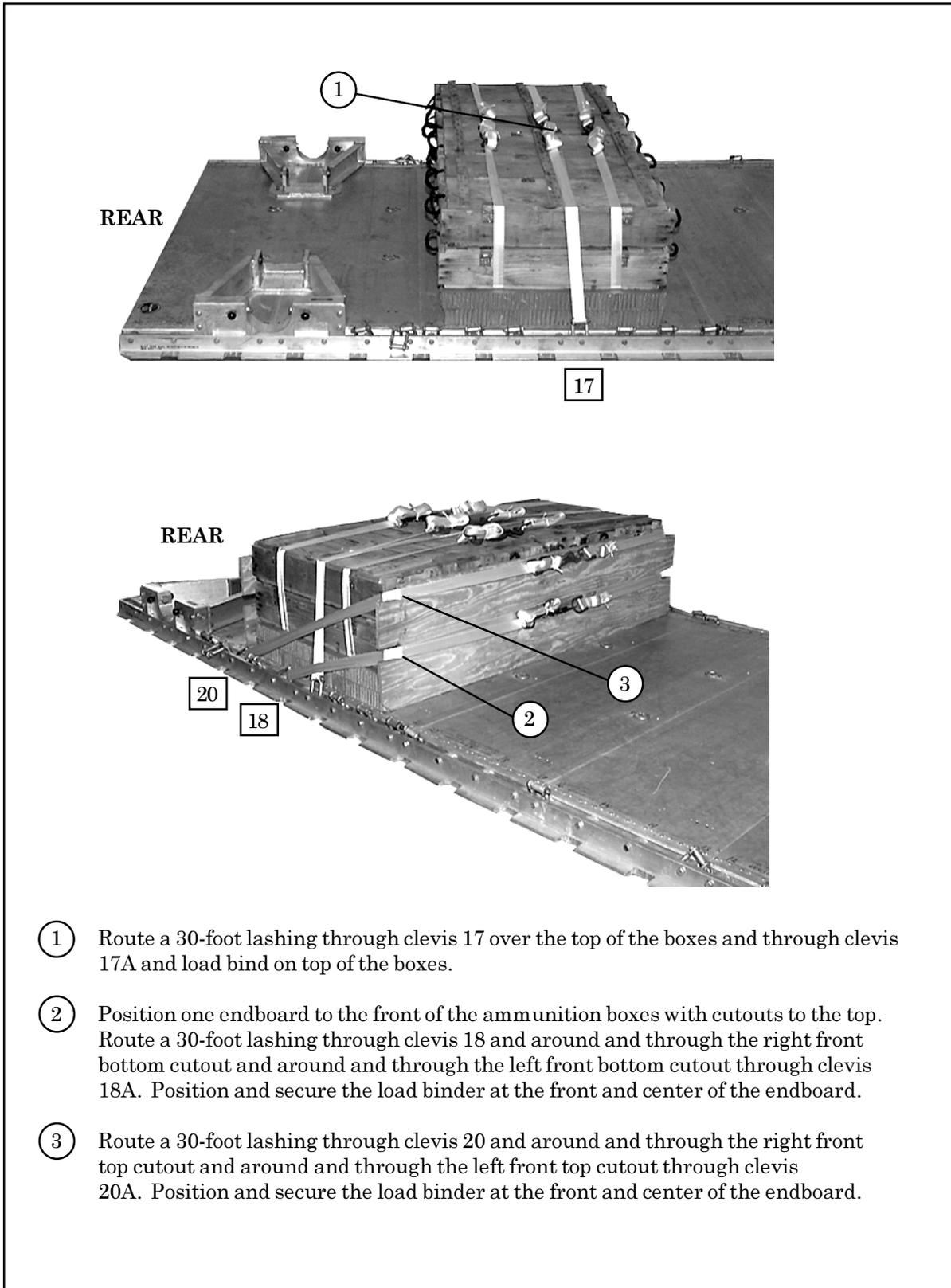
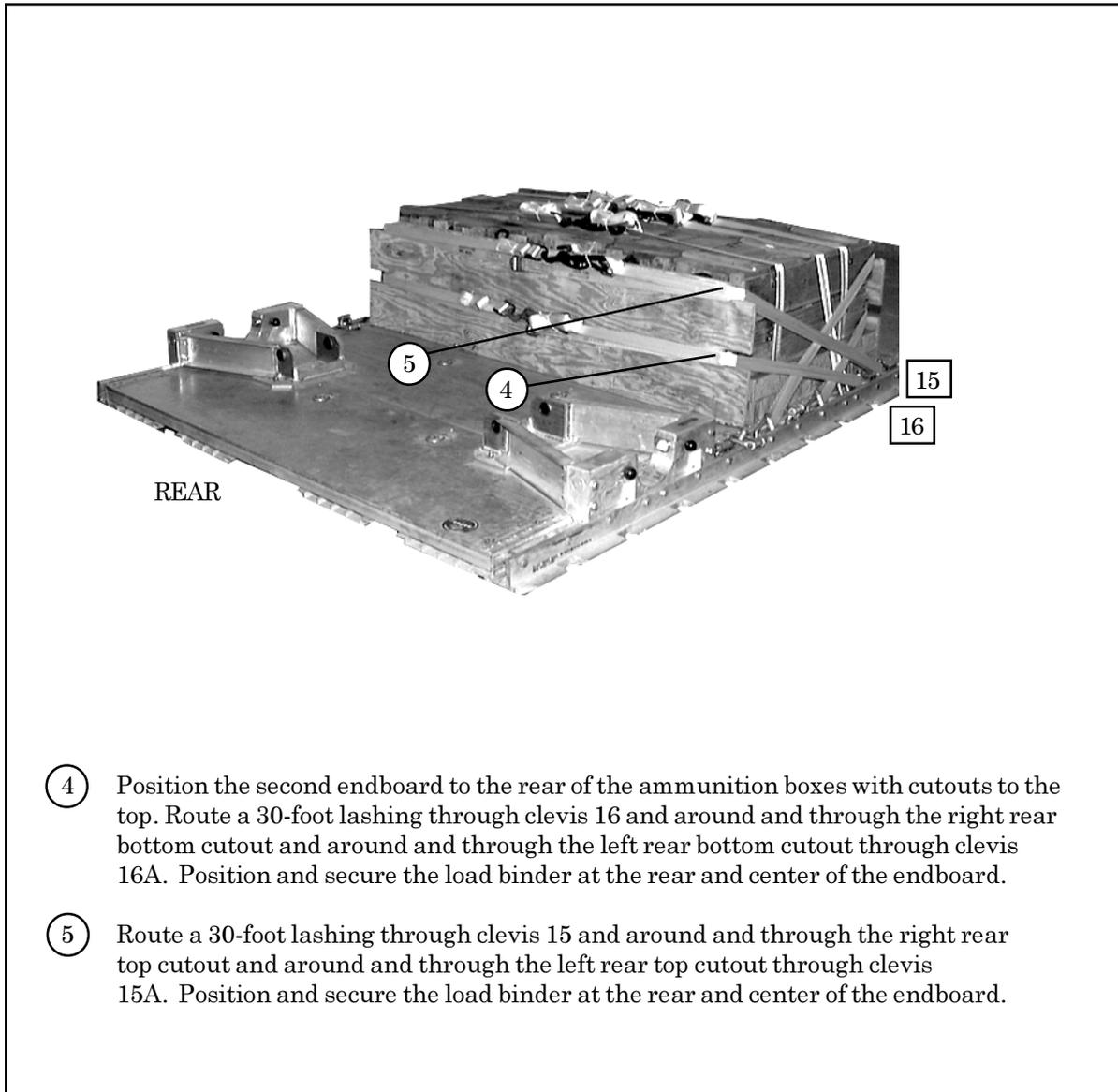


Figure 7-7. Ammunition Boxes Positioned on the Rear of the Platform



- ① Route a 30-foot lashing through clevis 17 over the top of the boxes and through clevis 17A and load bind on top of the boxes.
- ② Position one endboard to the front of the ammunition boxes with cutouts to the top. Route a 30-foot lashing through clevis 18 and around and through the right front bottom cutout and around and through the left front bottom cutout through clevis 18A. Position and secure the load binder at the front and center of the endboard.
- ③ Route a 30-foot lashing through clevis 20 and around and through the right front top cutout and around and through the left front top cutout through clevis 20A. Position and secure the load binder at the front and center of the endboard.

Figure 7-8. Ammunition Boxes Lashed and Secured on the Rear of the Platform

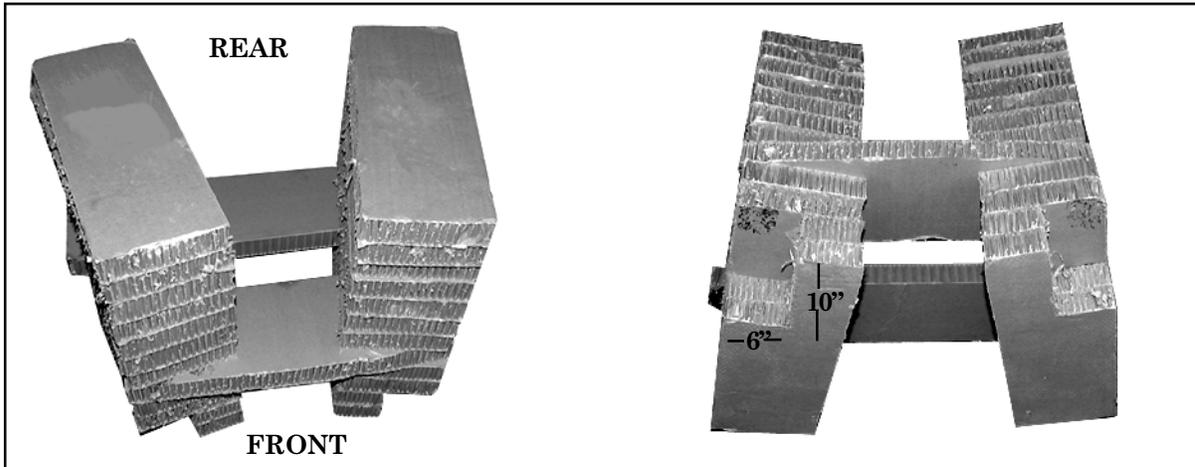


- ④ Position the second endboard to the rear of the ammunition boxes with cutouts to the top. Route a 30-foot lashing through clevis 16 and around and through the right rear bottom cutout and around and through the left rear bottom cutout through clevis 16A. Position and secure the load binder at the rear and center of the endboard.
- ⑤ Route a 30-foot lashing through clevis 15 and around and through the right rear top cutout and around and through the left rear top cutout through clevis 15A. Position and secure the load binder at the rear and center of the endboard.

Figure 7-8. Ammunition Boxes Lashed and Secured on the Rear of the Platform (continued)

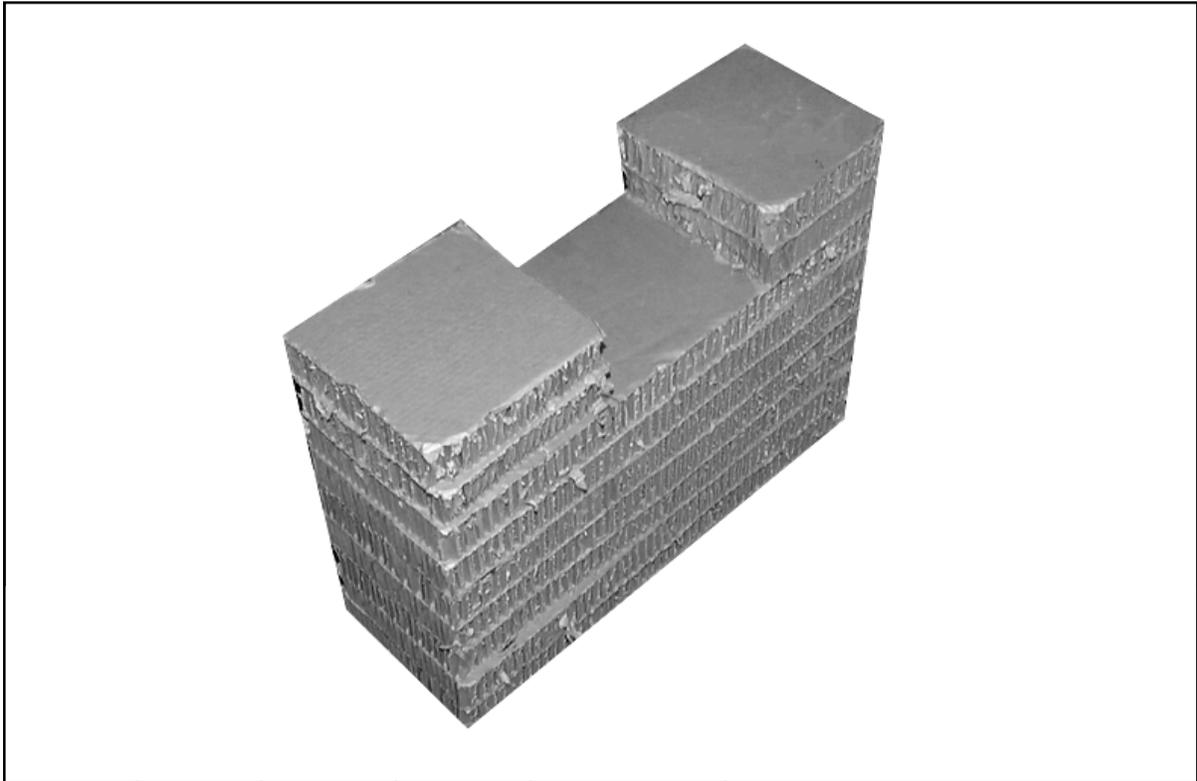
BUILDING AND PLACING HONEYCOMB STACK

7-4. Prepare the honeycomb stacks as shown in Figures 7-9 through 7-11. Position the honeycomb stack as shown in Figure 7-12.



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	8	12	32	Honeycomb	Form two base stacks of four layers each in a "V" shape. Cut a 10- by 6-inch cutout on the front outside of the bottom two layers. Place the stacks 25 inches apart in the rear and 11 inches apart in the front.
	1	36	12	Honeycomb	Place honeycomb over the front of the base stacks to form a bridge. Place the honeycomb so that the front edge of the bridge is aligned with the front outside corners of the base stacks.
	1	48	12	Honeycomb	Place honeycomb over the rear of the base stacks to form a bridge. Place the honeycomb so that the rear edge of the bridge is aligned with the rear outside corners of the base stacks.
	14	12	32	Honeycomb	Form two stacks of seven layers each. Place each stack on top of the bridge and align it with each base stack.

Figure 7-9. Stack 1 Prepared



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

Figure 7-10. Stack 2 Prepared



Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
3	12	36	12	Honeycomb	Glue to form base.

Figure 7-11. Stack 3 Prepared

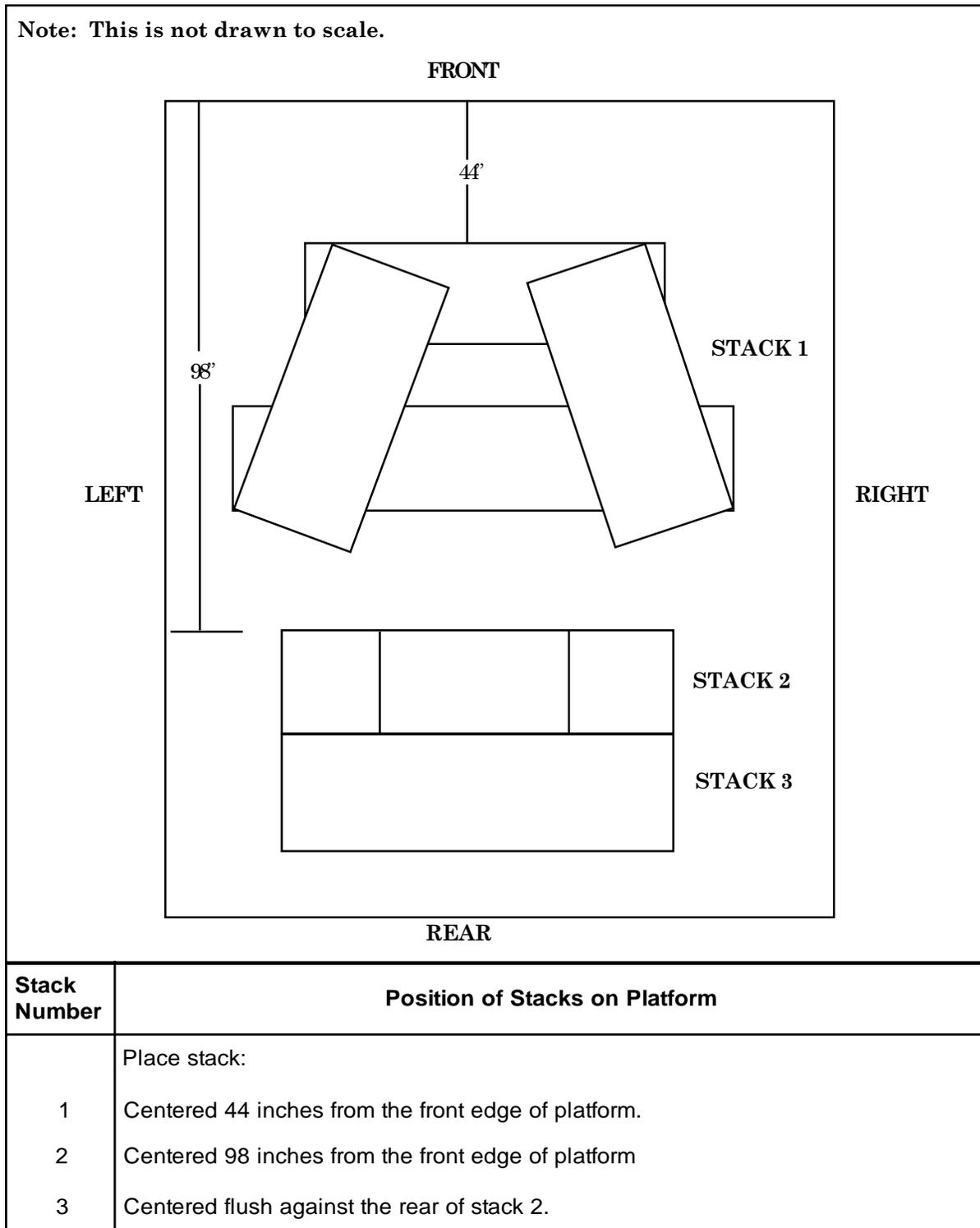


Figure 7-12. Overhead View of Honeycomb Stacks Positioned on Platform

PREPARING THE TRAILER

7-5. Prepare the trailer as shown in Figures 7-13 and 7-14. Remove the tarpaulin, bows, and side racks according to TM 9-2330-202-14&P.

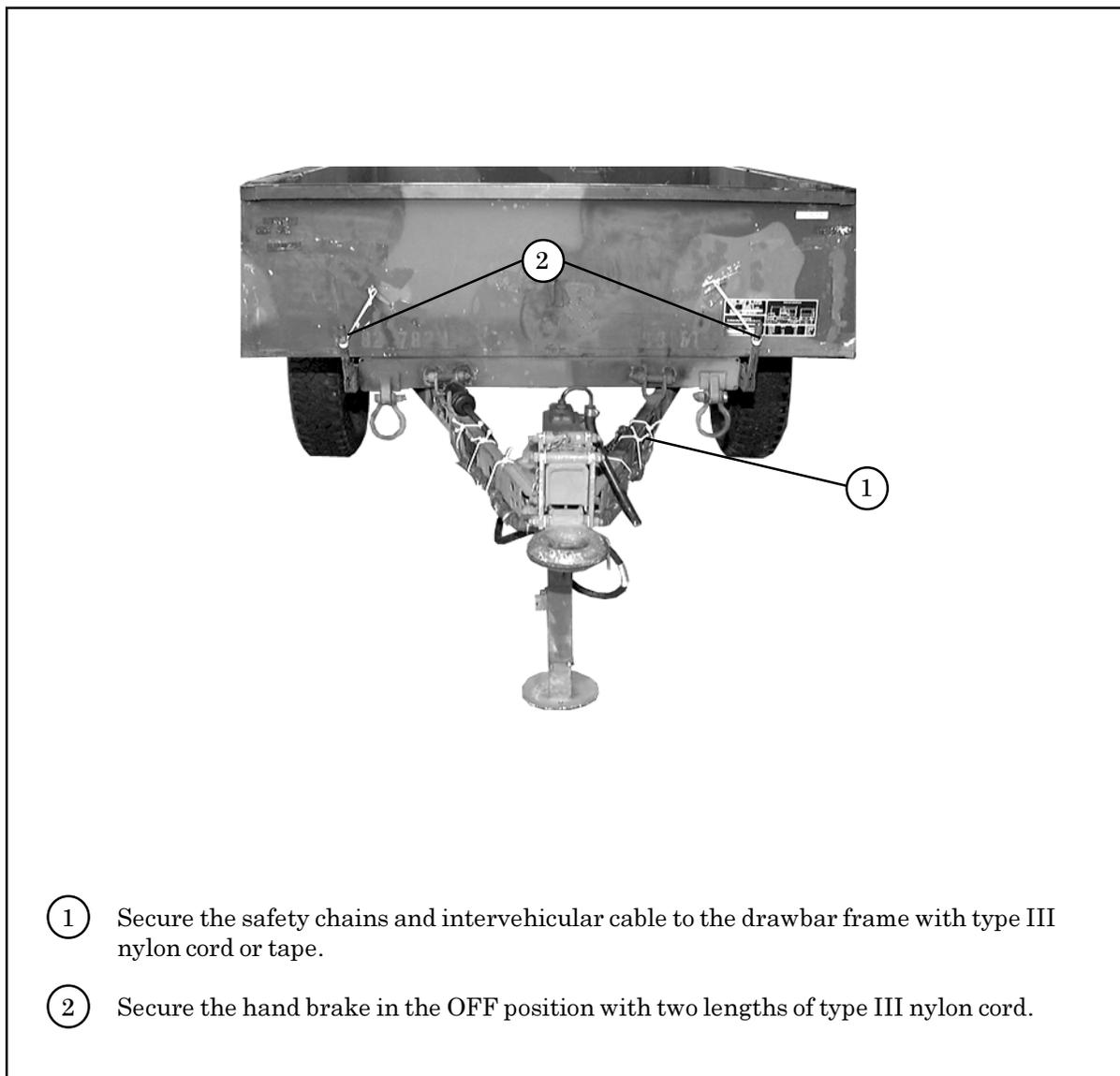


Figure 7-13. Front of Trailer Prepared

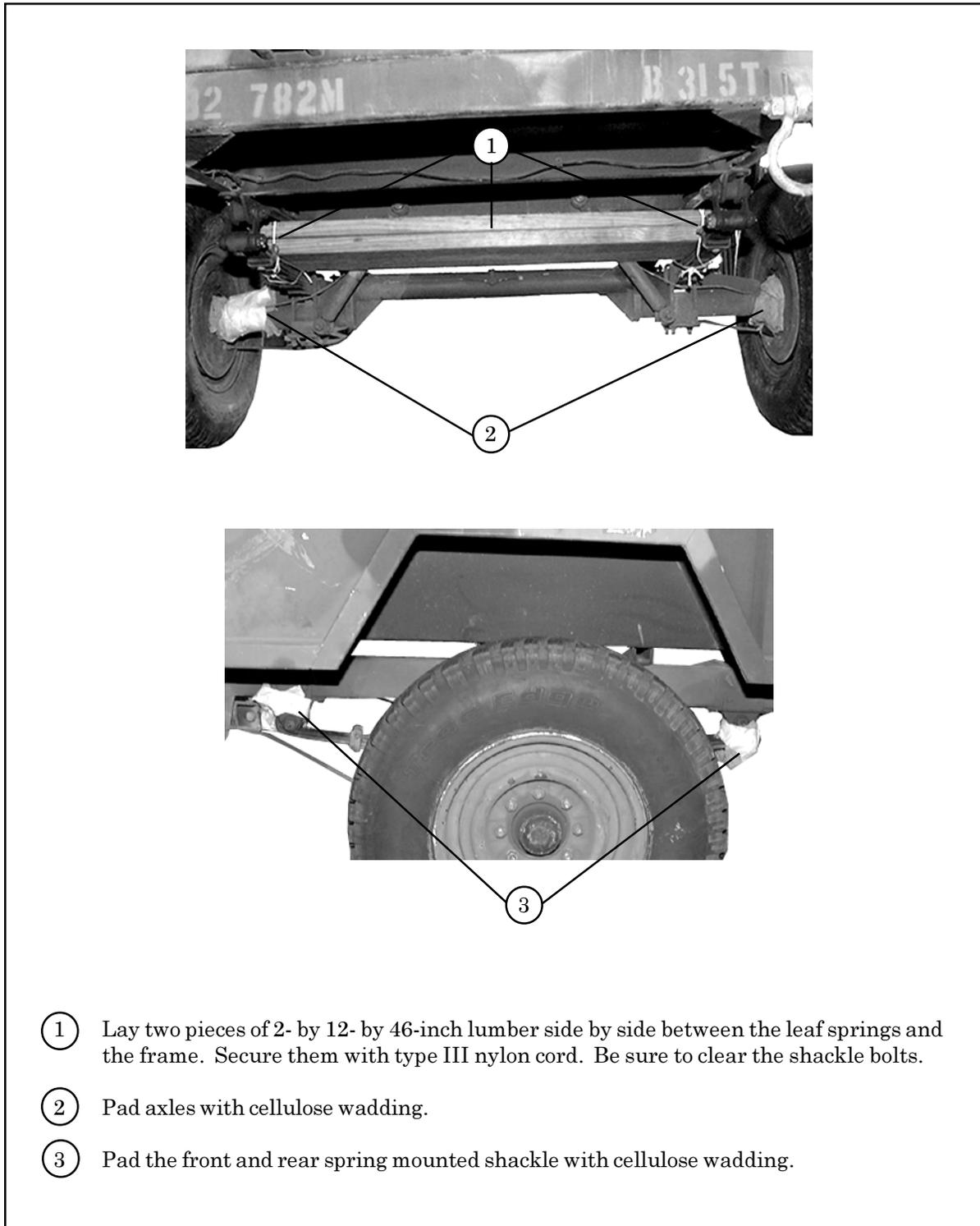


Figure 7-14. Rear of Trailer Prepared

STOWING ACCOMPANYING LOAD AND TRAILER COMPONENTS IN TRAILER

7-6. Stow the accompanying load of 14 ammunition boxes in the trailer as shown in Figures 7-15 and 7-16. Stow the trailer components as shown in Figure 7-17.

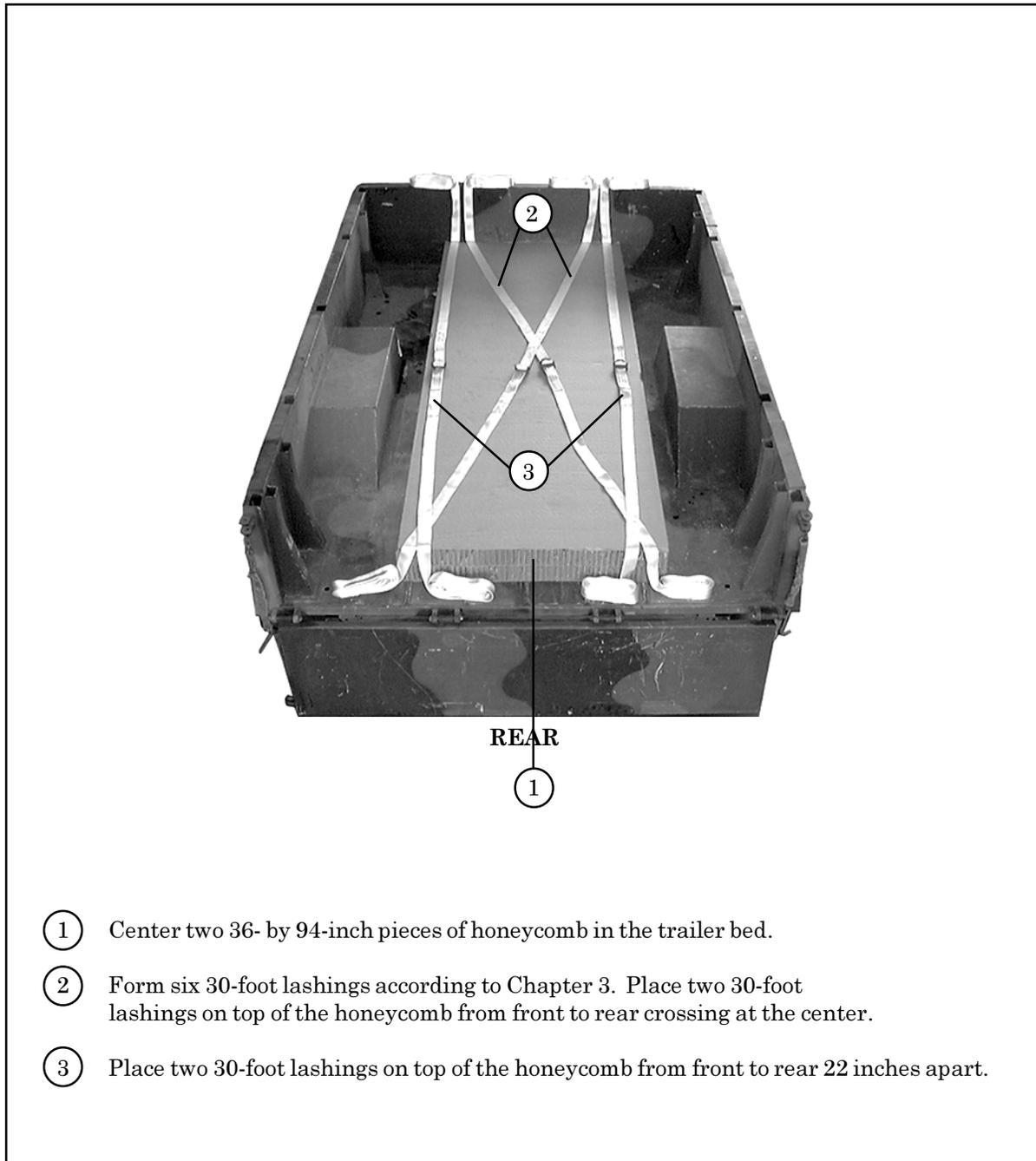
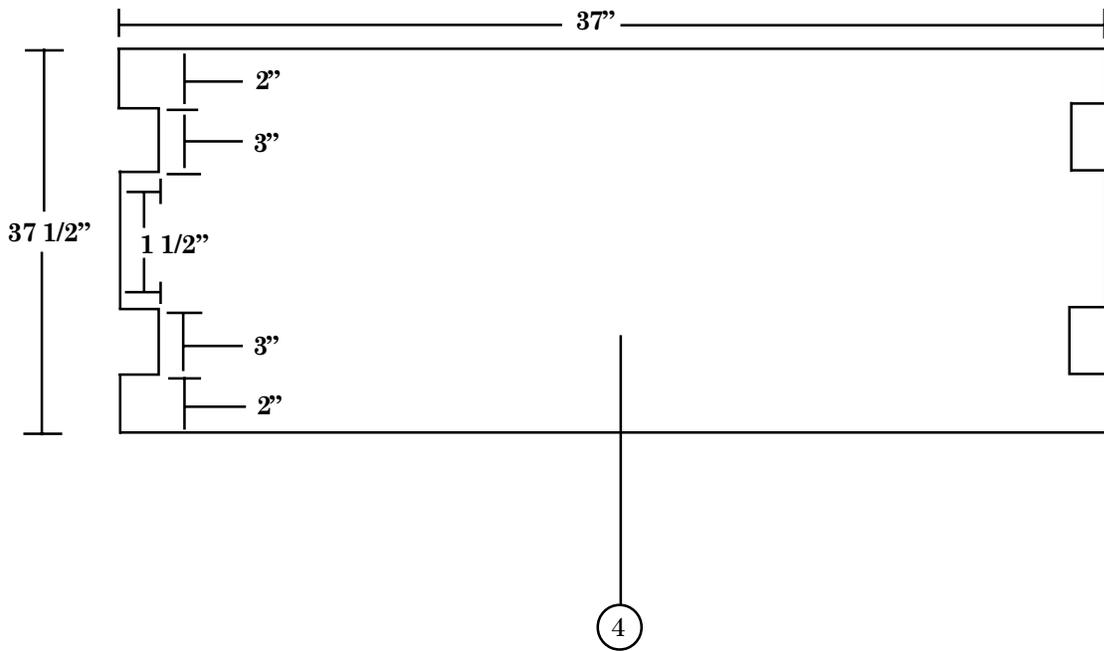


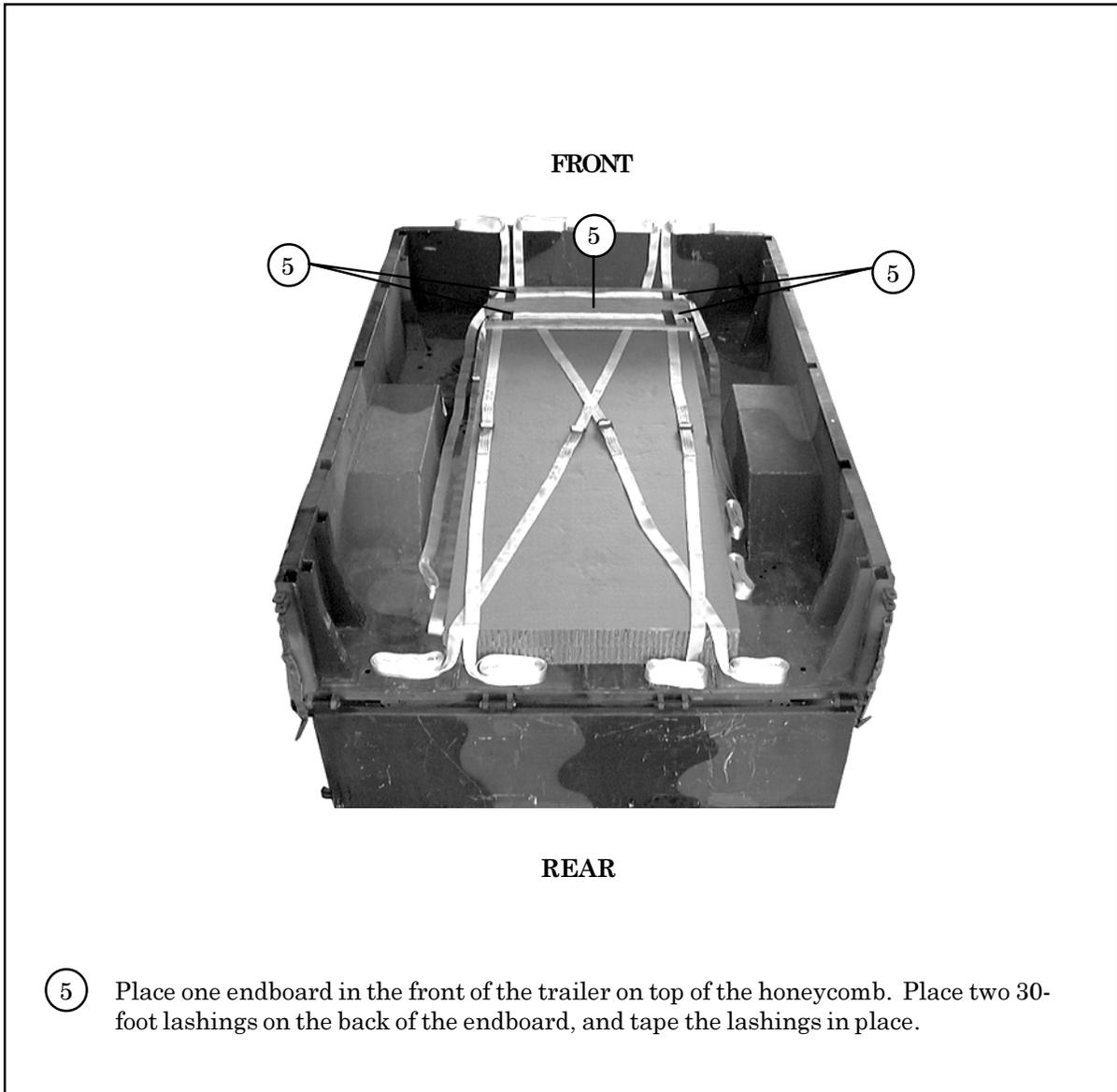
Figure 7-15. Honeycomb, Lashings, and Endboards Positioned in the Trailer

Note: This drawing is not drawn to scale.



- ④ Cut one endboard as shown above using one 3/4- by 15 1/2- by 37-inch piece of plywood.

Figure 7-15. Honeycomb, Lashings, and Endboards Positioned in the Trailer (continued)



- ⑤ Place one endboard in the front of the trailer on top of the honeycomb. Place two 30-foot lashings on the back of the endboard, and tape the lashings in place.

Figure 7-15. Honeycomb, Lashings, and Endboards Positioned in the Trailer (continued)

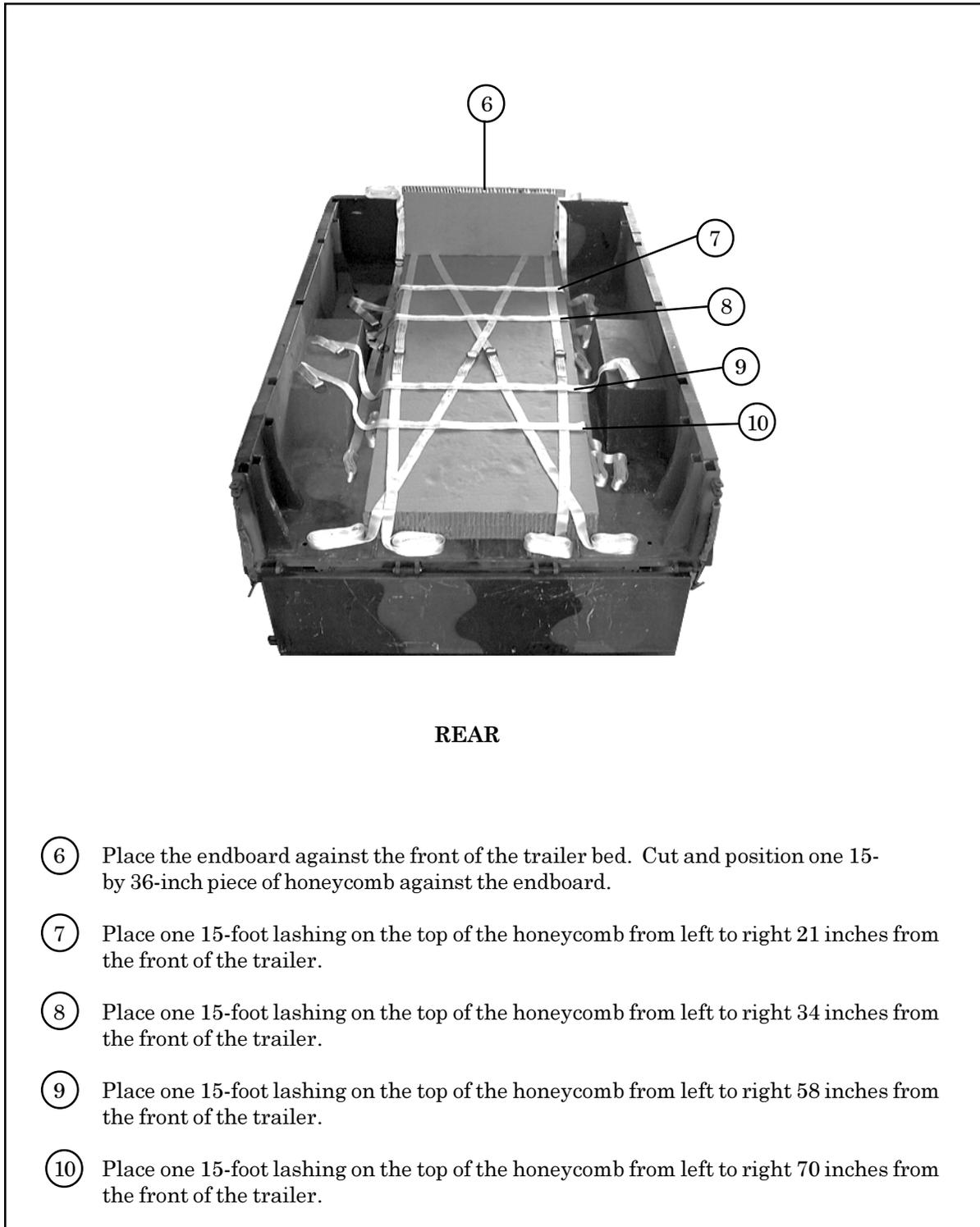


Figure 7-15. Honeycomb, Lashings, and Endboards Positioned in the Trailer (continued)

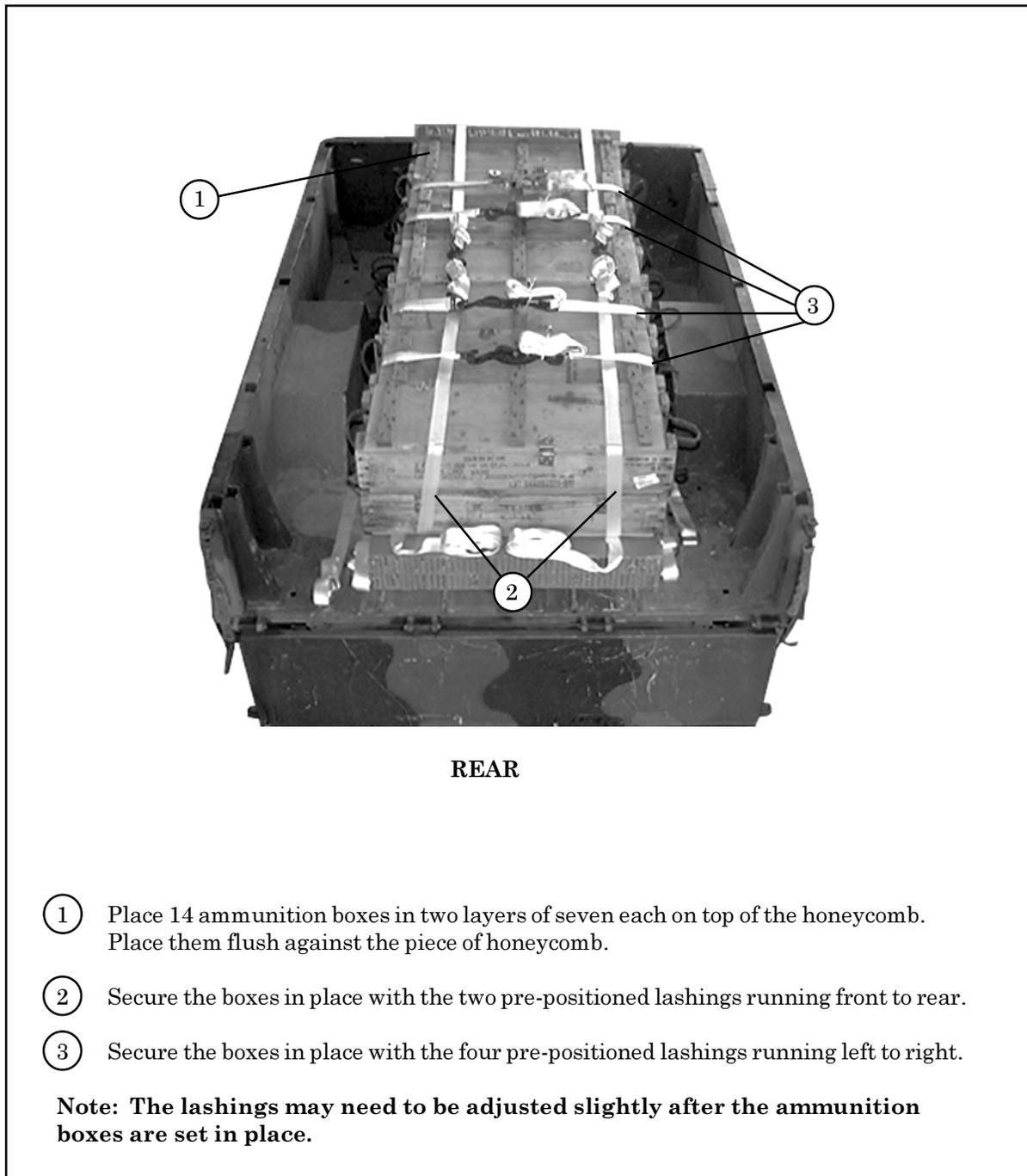


Figure 7-16. Ammunition Boxes Lashed and Secured in the Trailer

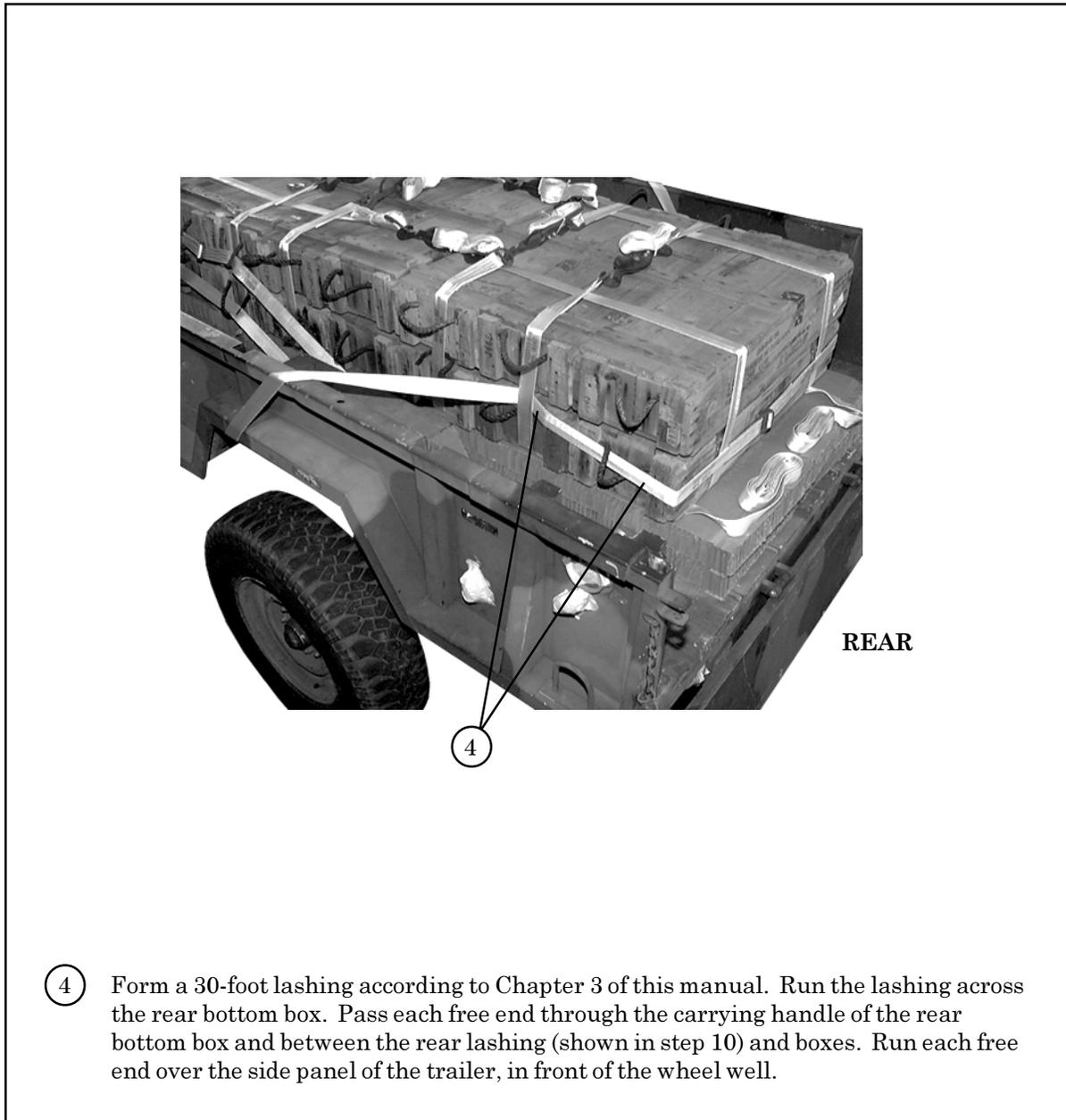


Figure 7-16. Ammunition Boxes Lashed and Secured in the Trailer (continued)

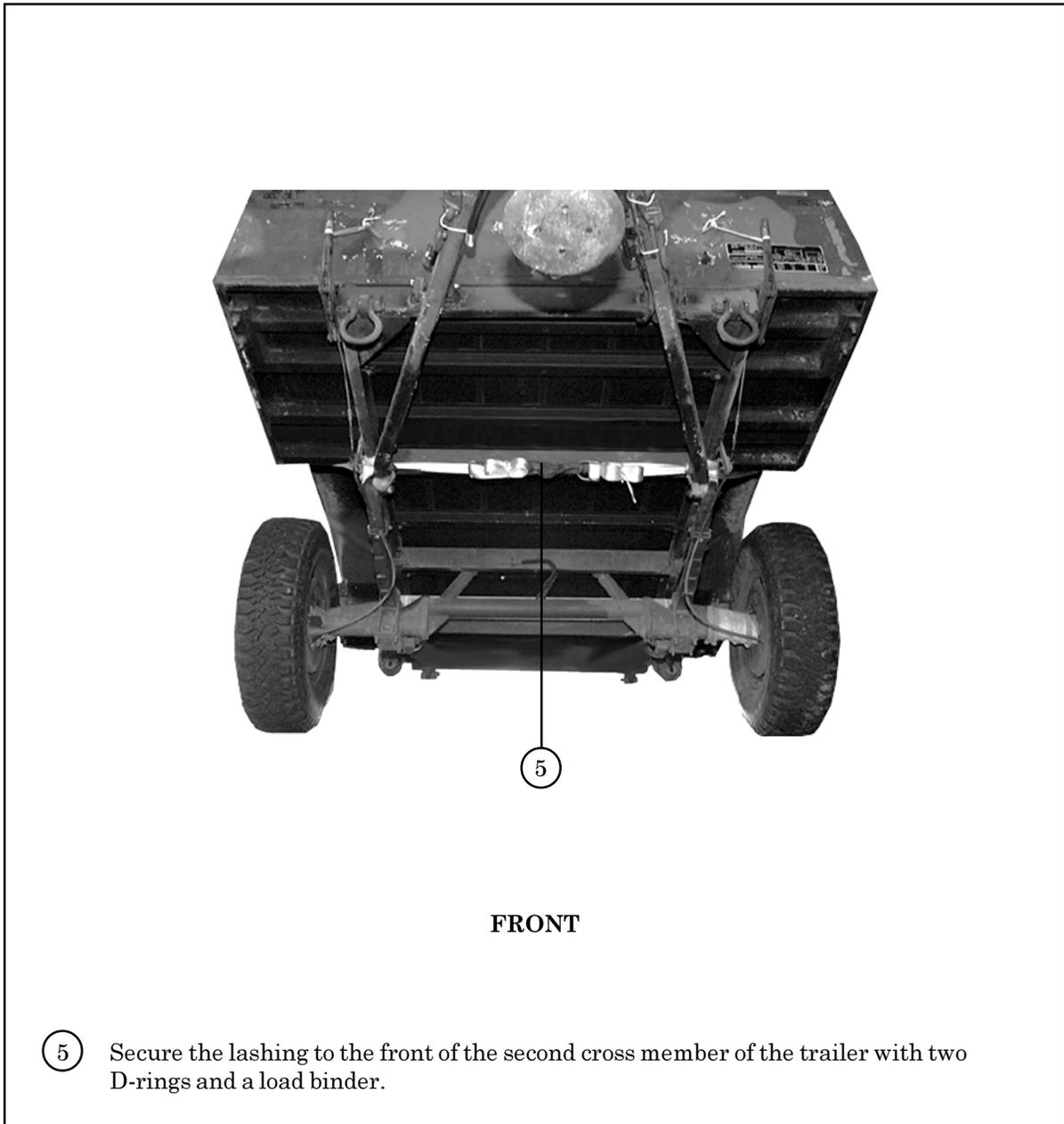
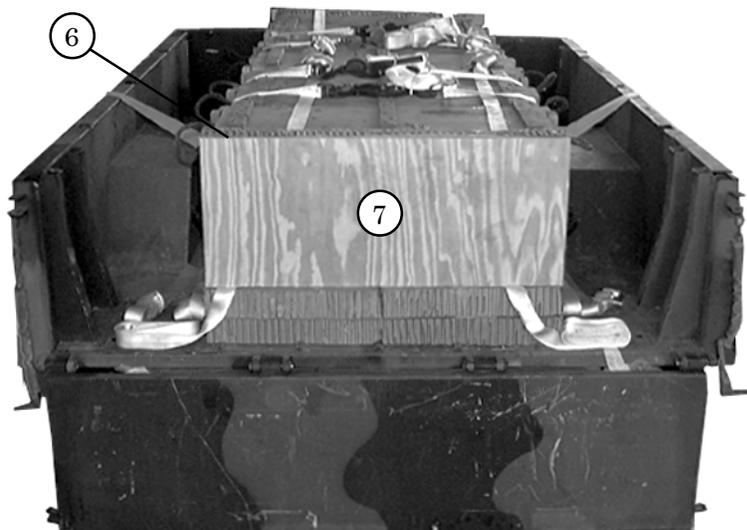


Figure 7-16. Ammunition Boxes Lashed and Secured in the Trailer (continued)



REAR

- ⑥ Place one 15- by 36-inch piece of honeycomb flush against the rear ammunition boxes.
- ⑦ Place one 3/4- by 15- by 36-inch piece of plywood flush against the honeycomb.

Figure 7-16. Ammunition Boxes Lashed and Secured in the Trailer (continued)

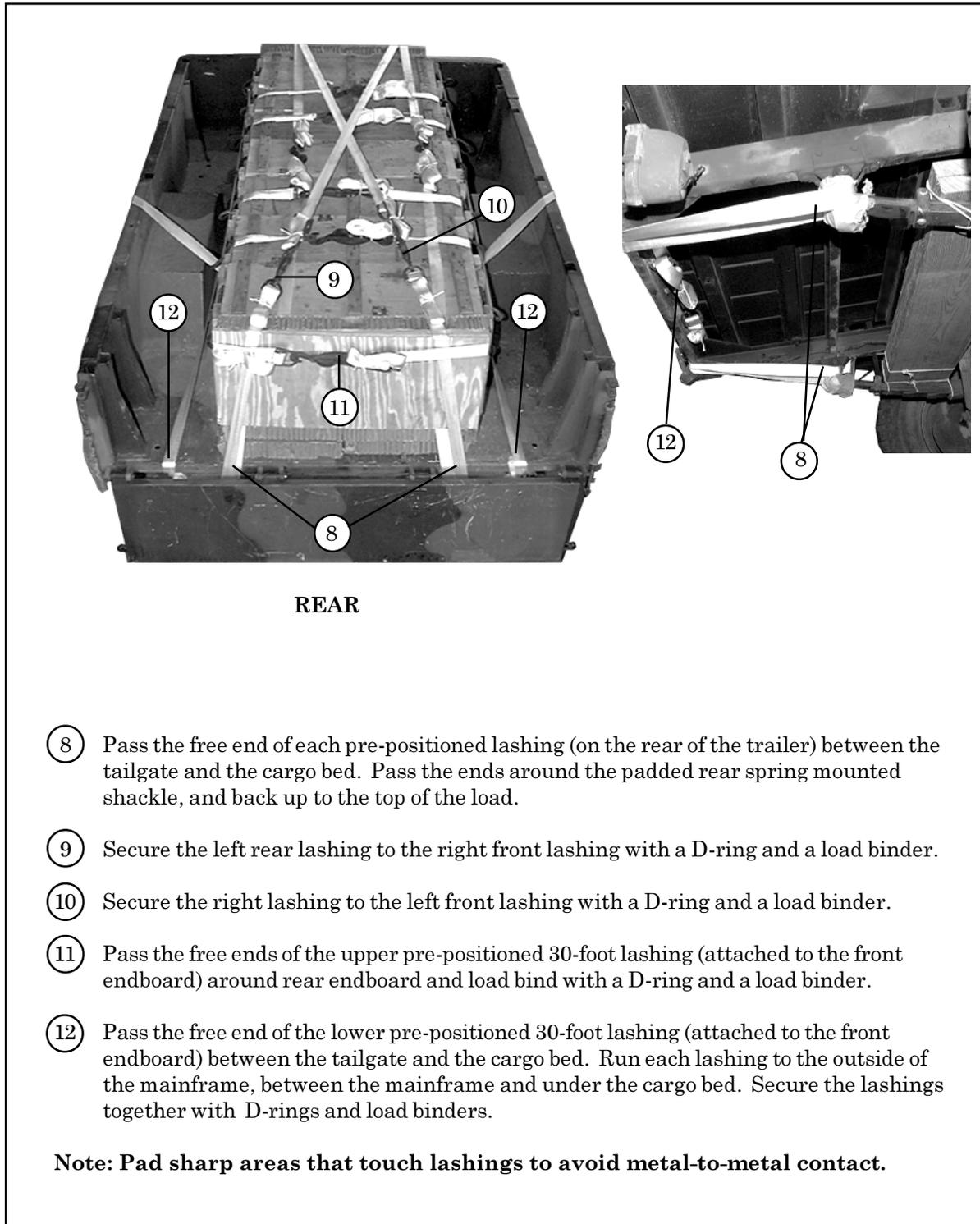


Figure 7-16. Ammunition Boxes Lashed and Secured in the Trailer (continued)

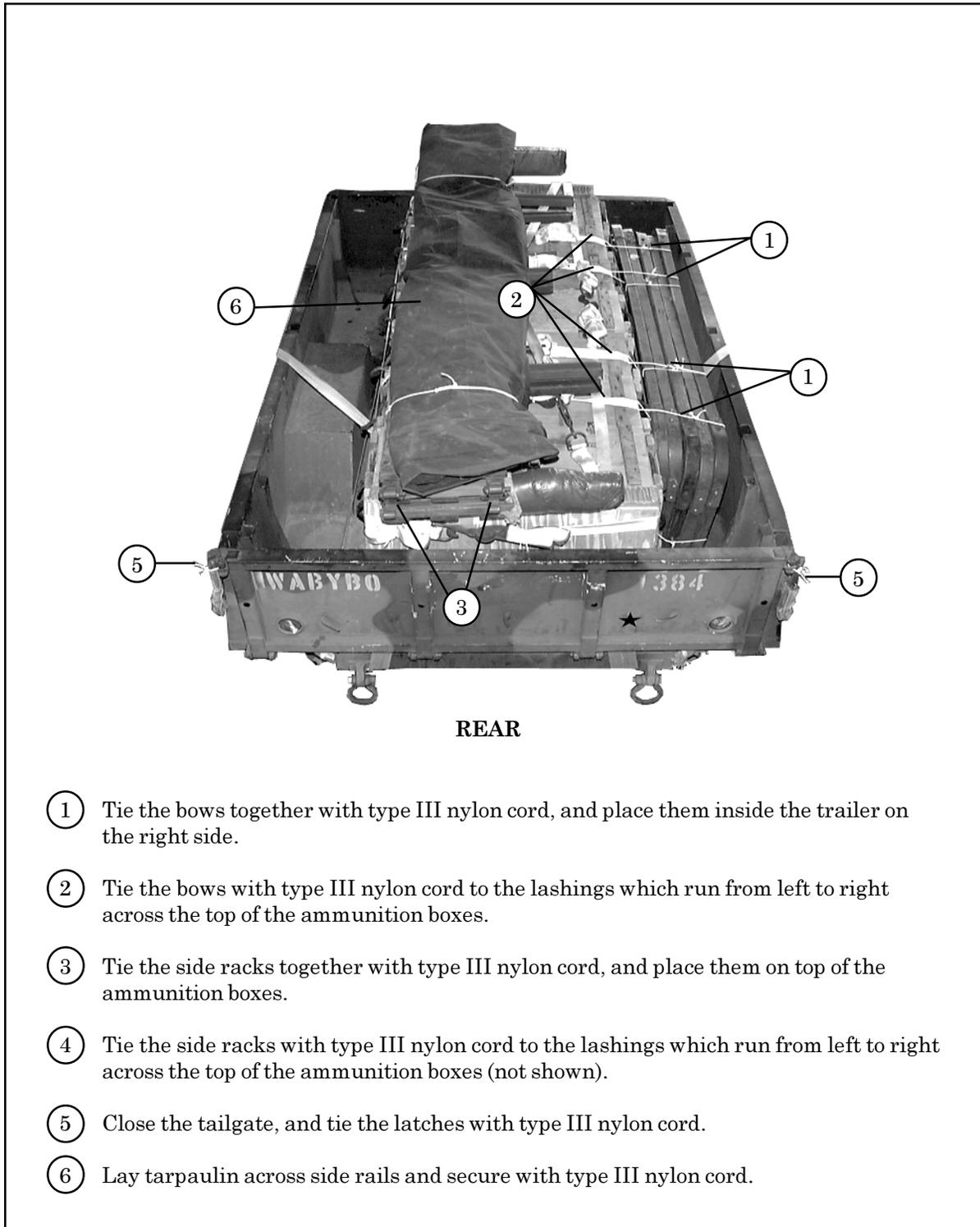


Figure 7-17. Trailer Components Stowed

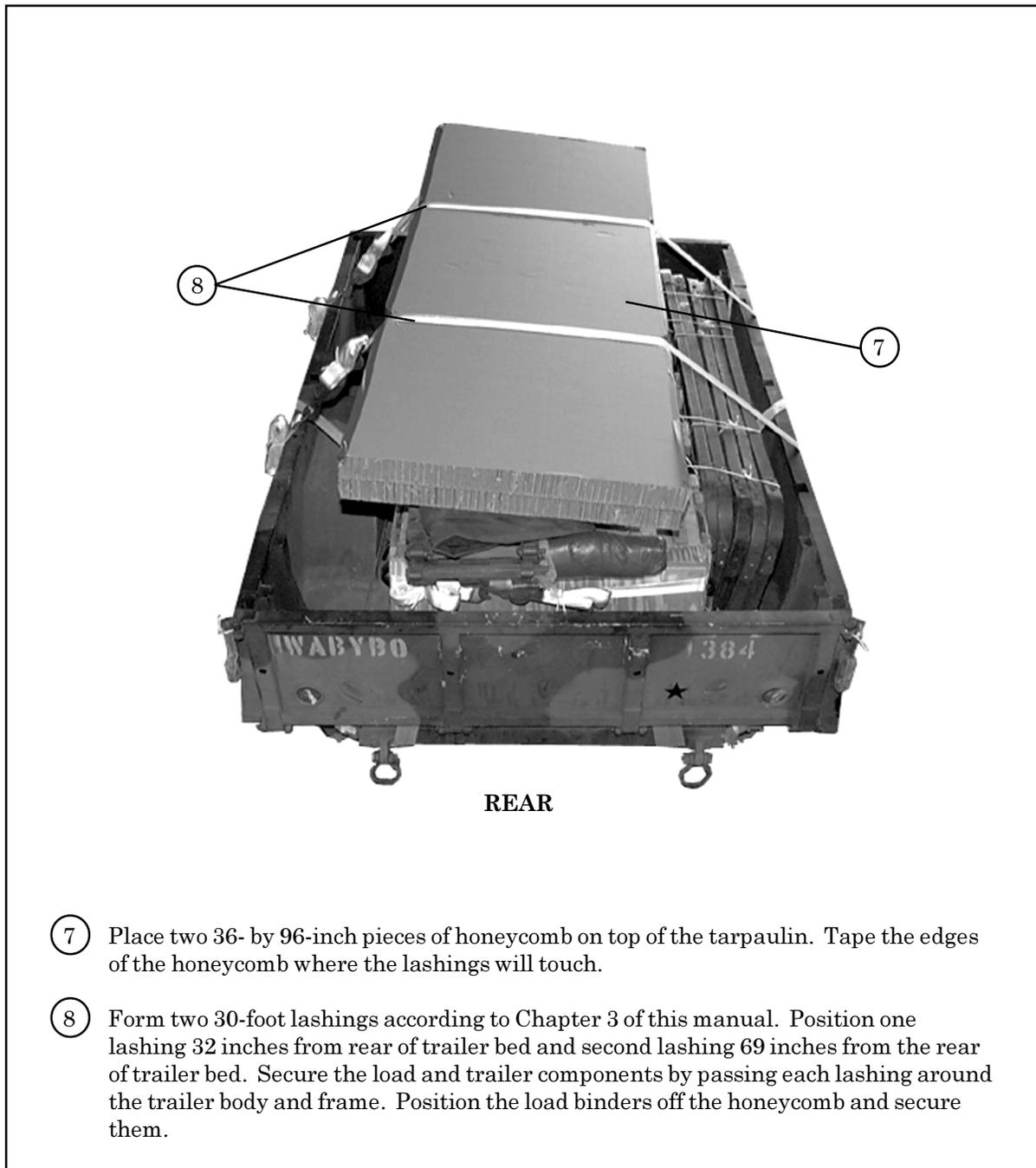


Figure 7-17. Trailer Components Stowed (Continued)

SECURING TRAILER SUPPORT STAND AND INSTALLING LIFTING SLINGS

7-7. Raise and secure the trailer support stand as shown in Figure 7-18. Use three 12-foot (2-loop), type XXVI nylon webbing slings; one 3-foot (2-loop), type XXVI nylon webbing sling; and three medium suspension clevises to lift the trailer.

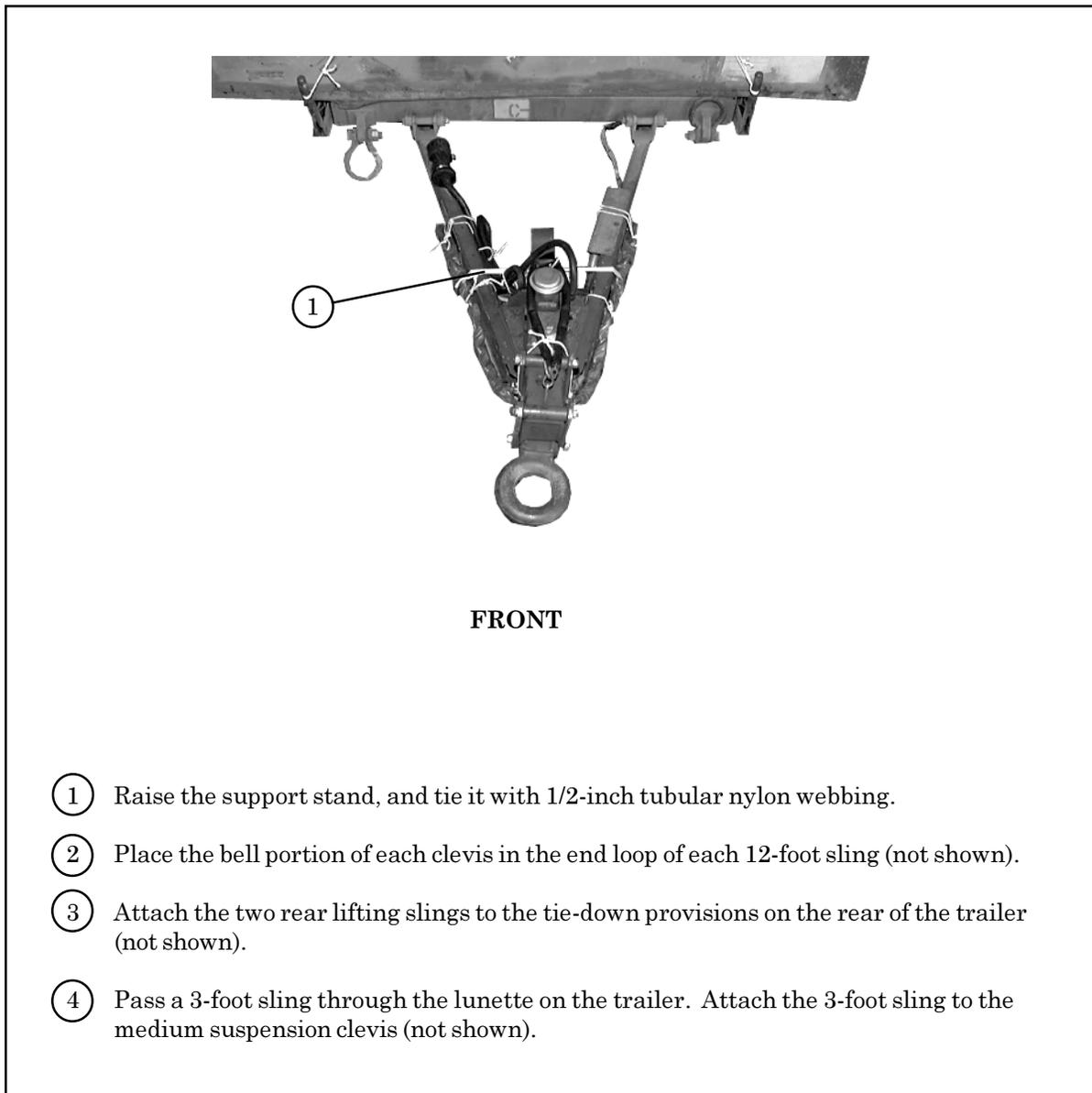


Figure 7-18. Trailer Support Stand Raised and Secured

POSITIONING TRAILER

7-8. Position the trailer on the honeycomb stacks according to Figure 7-19.

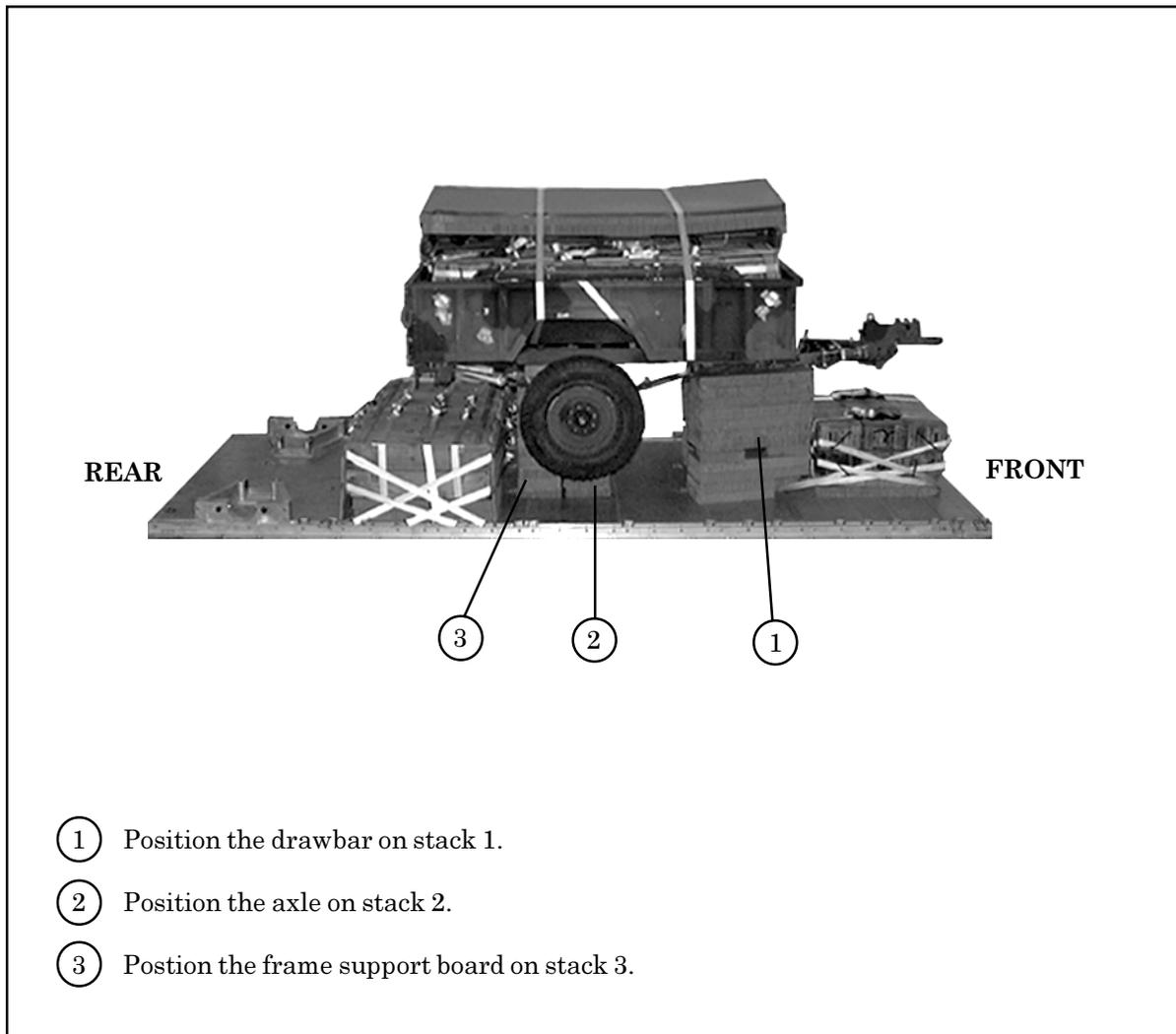


Figure 7-19. Trailer Positioned

LASHING TRAILER

7-9. Lash the trailer to the platform according to Chapter 3 of this manual and as shown Figures 7-20 and 7-21.

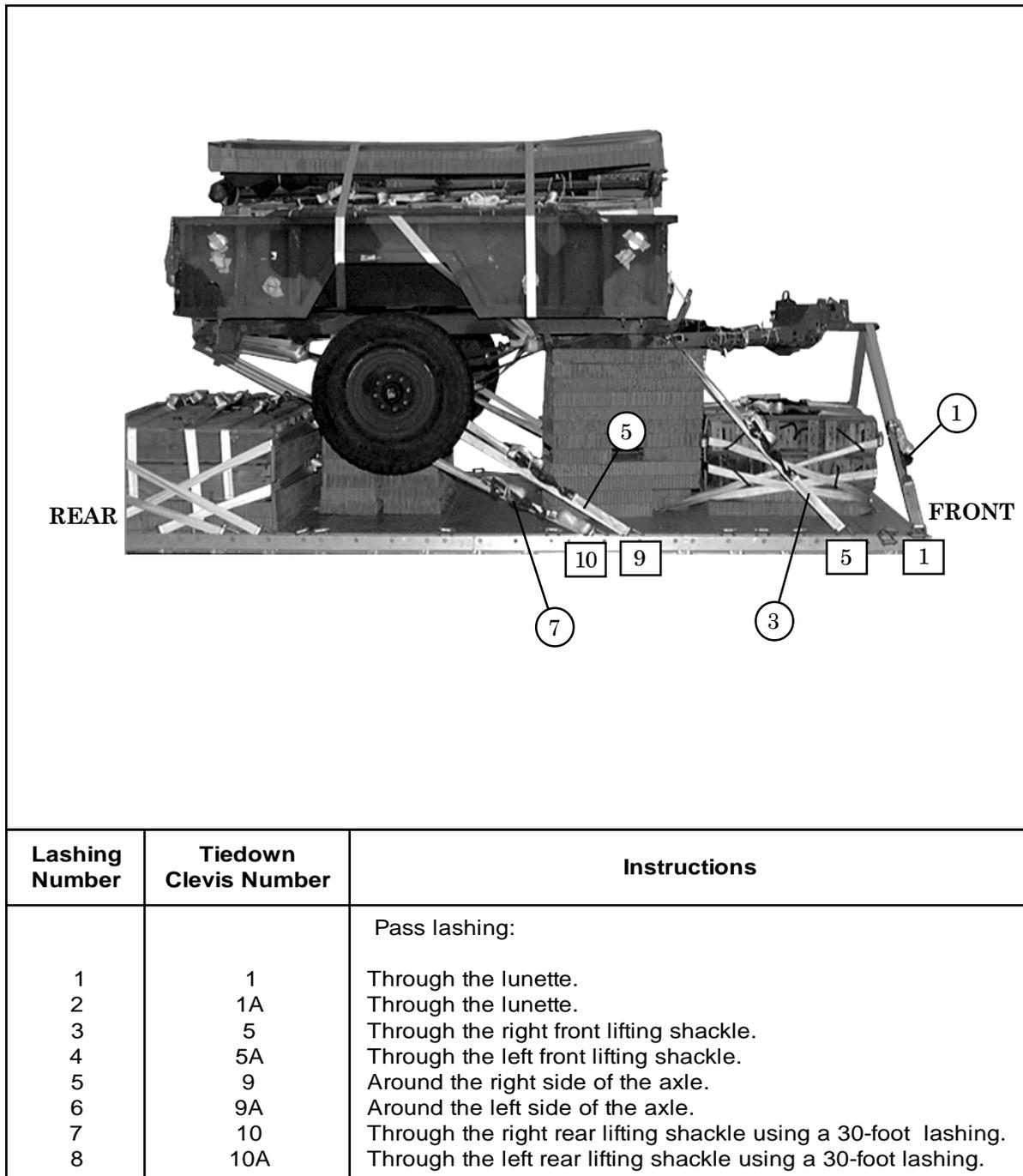
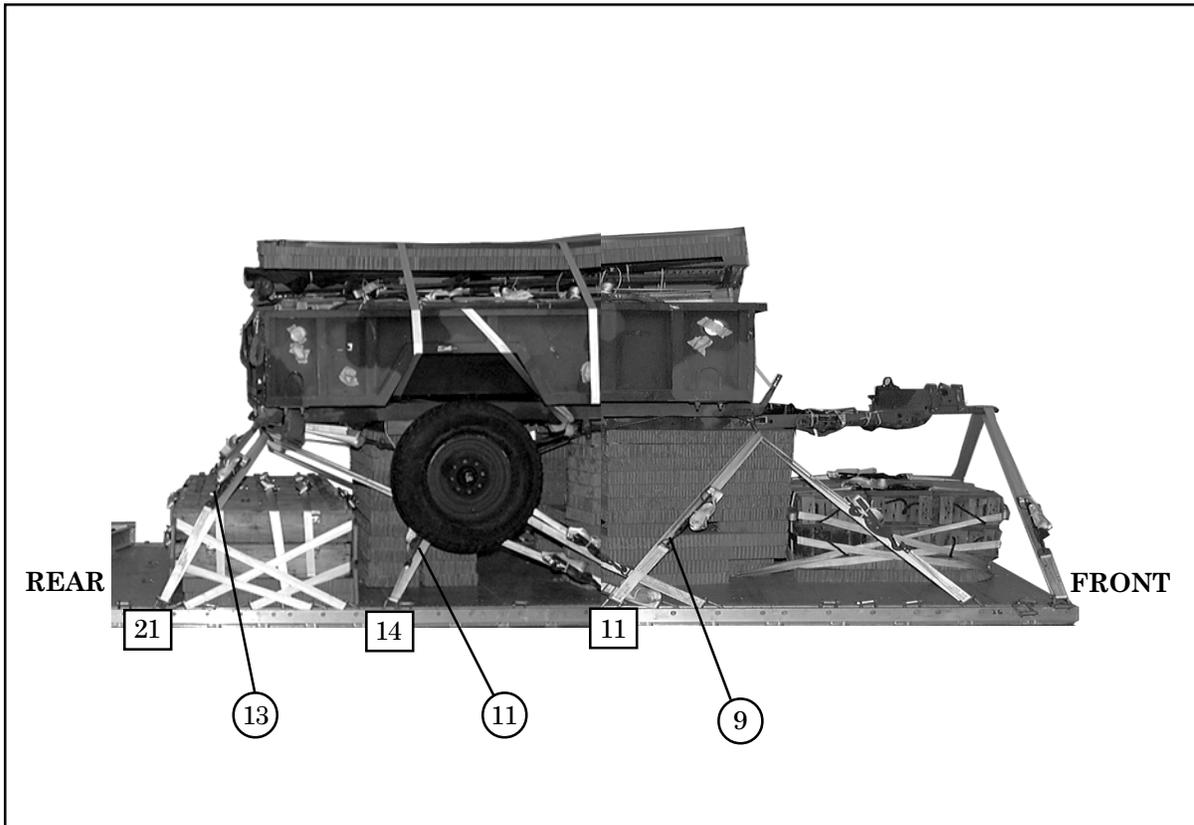


Figure 7-20. Lashings 1 Through 8 Installed



Lashing Number	Tiedown Clevis Number	Instructions
9	11	Pass lashing: Through the right front lifting shackle. Through the left front lifting shackle. Around the right side of axle. Around the left side of axle. Through the right rear lifting shackle. Through the left rear lifting shackle.
10	11A	
11	14	
12	14A	
13	21	
14	21A	

Figure 7-21. Lashings 9 Through 14 Installed

BUILDING AND INSTALLING PARACHUTE STOWAGE PLATFORM

7-10. Build the parachute stowage platform as shown in Figure 7-22. Install the parachute stowage platform using four 15-foot tie-down assemblies as shown in Figure 7-23.

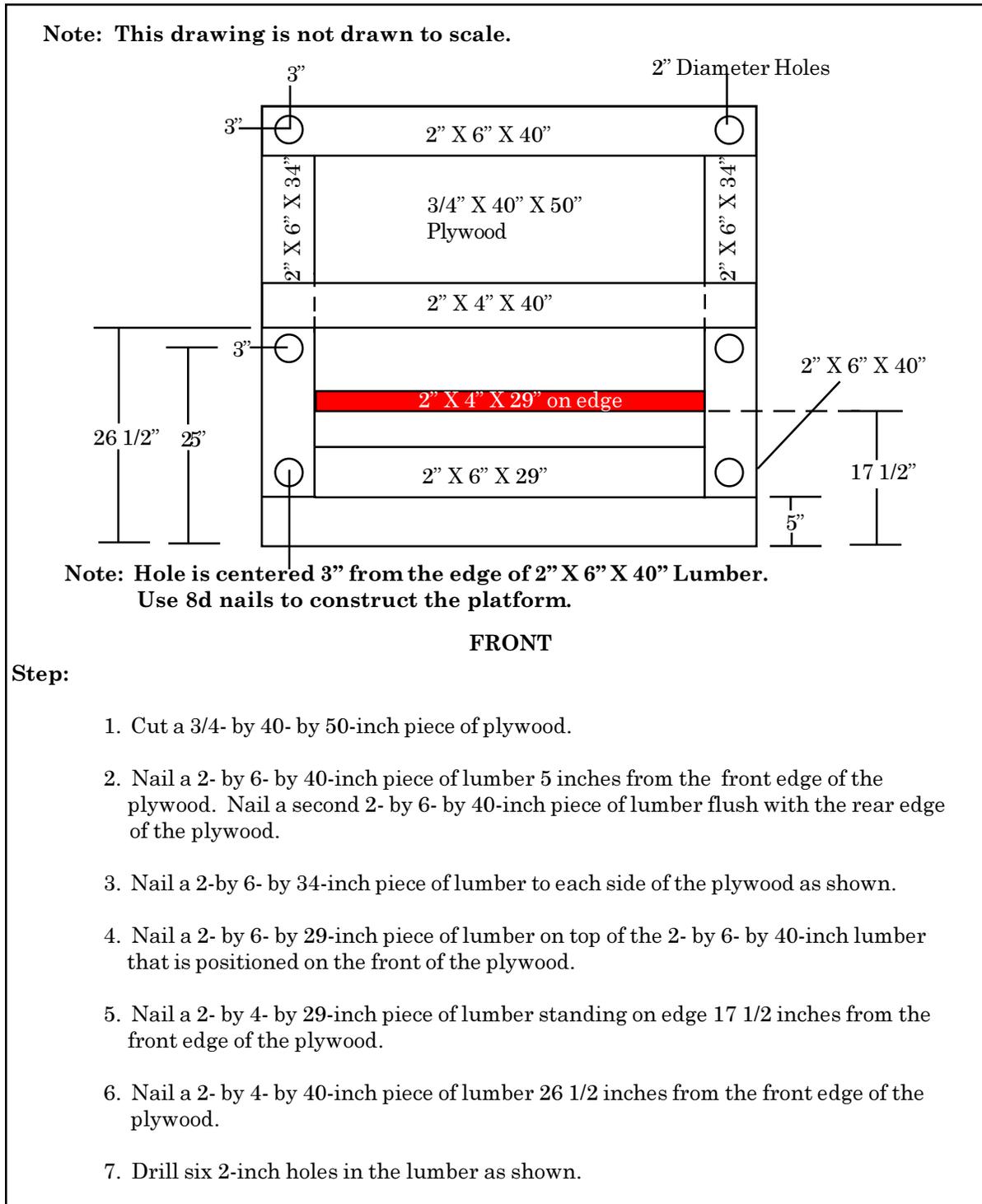


Figure 7-22. Parachute Stowage Platform Built

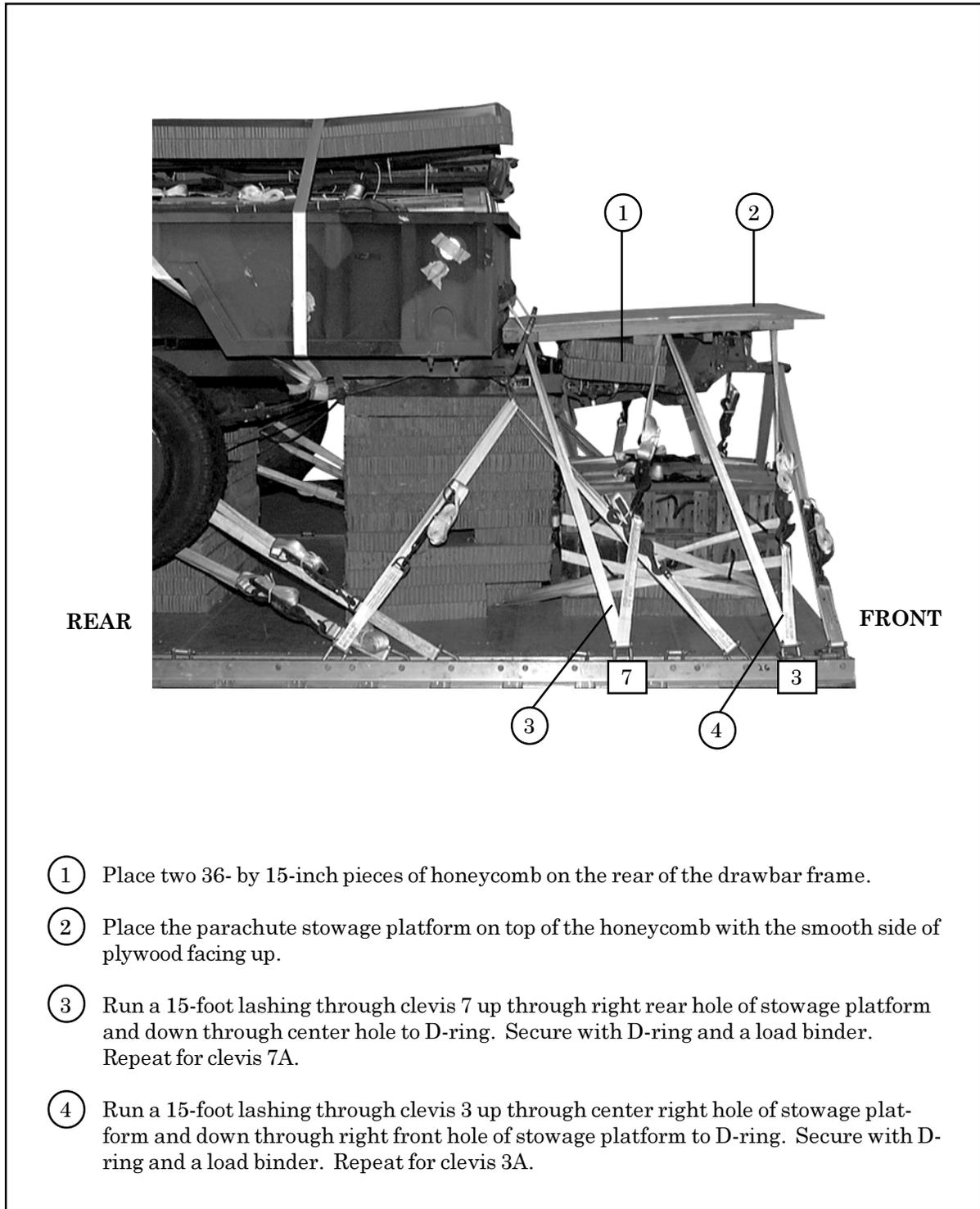


Figure 7-23. Parachute Stowage Platform Installed

BUILDING AND POSITIONING ATTITUDE CONTROL SYSTEM (ACS) STACKS

7-11. Build the ACS stacks as shown in Figure 7-24. Position the ACS stacks as shown in Figure 7-25.

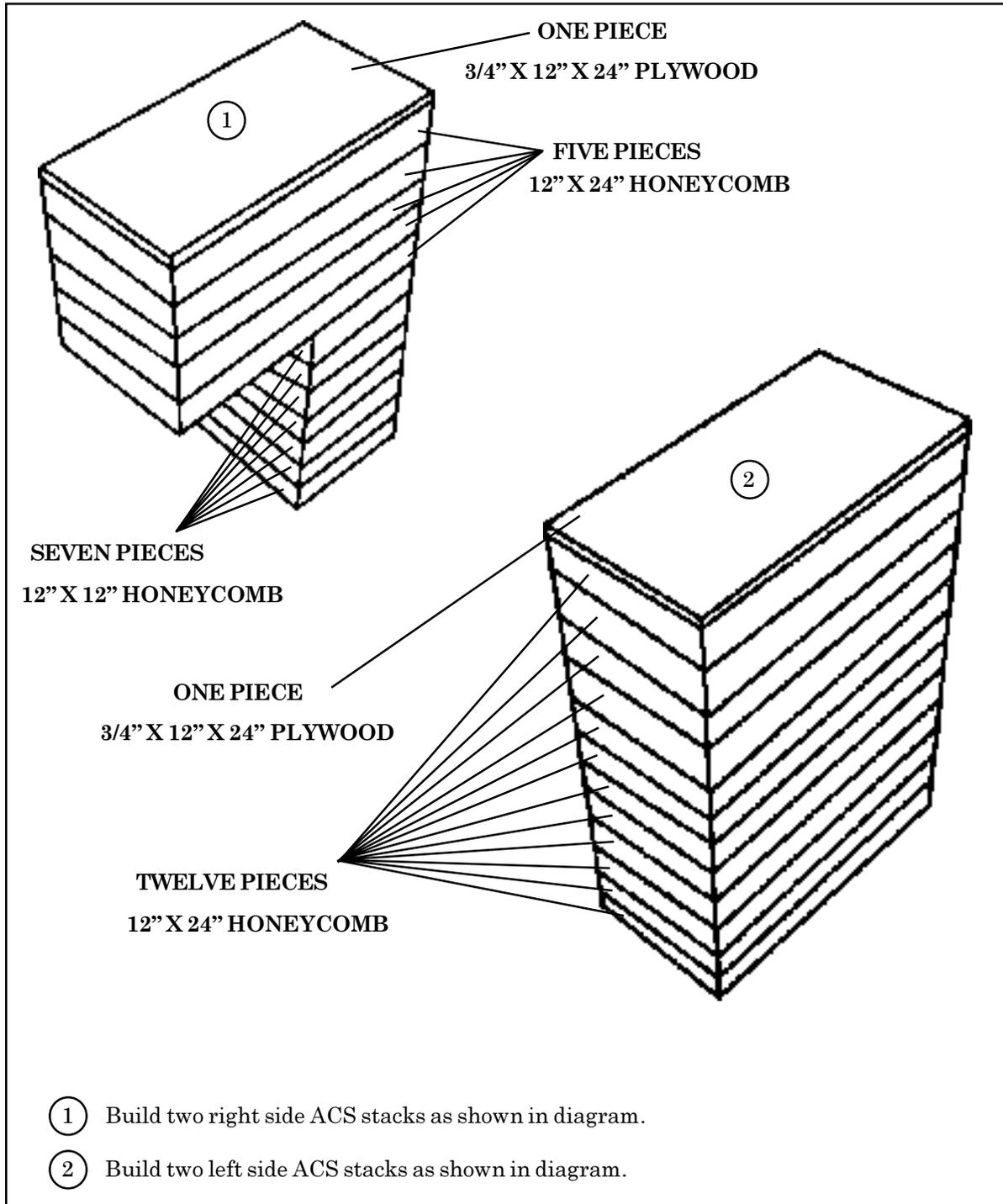


Figure 7-24. ACS Stacks Built

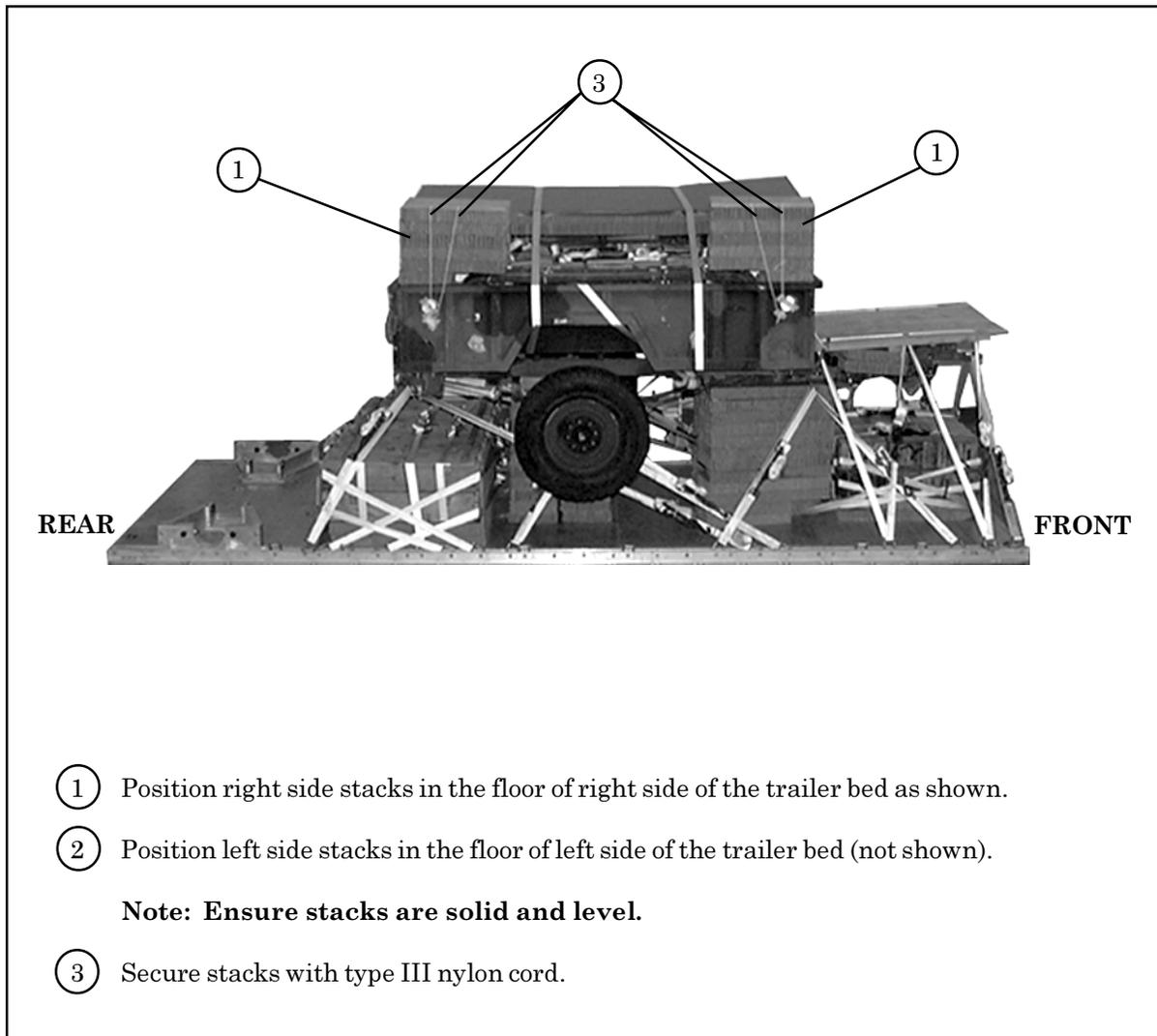


Figure 7-25. ACS Stacks Positioned

INSTALLING SUSPENSION SLINGS AND ATTITUDE CONTROL SYSTEM (ACS)

7-12. Construct, inspect, and position the ACS according to Chapter 3 of this manual and as shown in Figure 7-26. Install the suspension slings and secure ACS according to Chapter 3, and as shown in Figure 7-27.

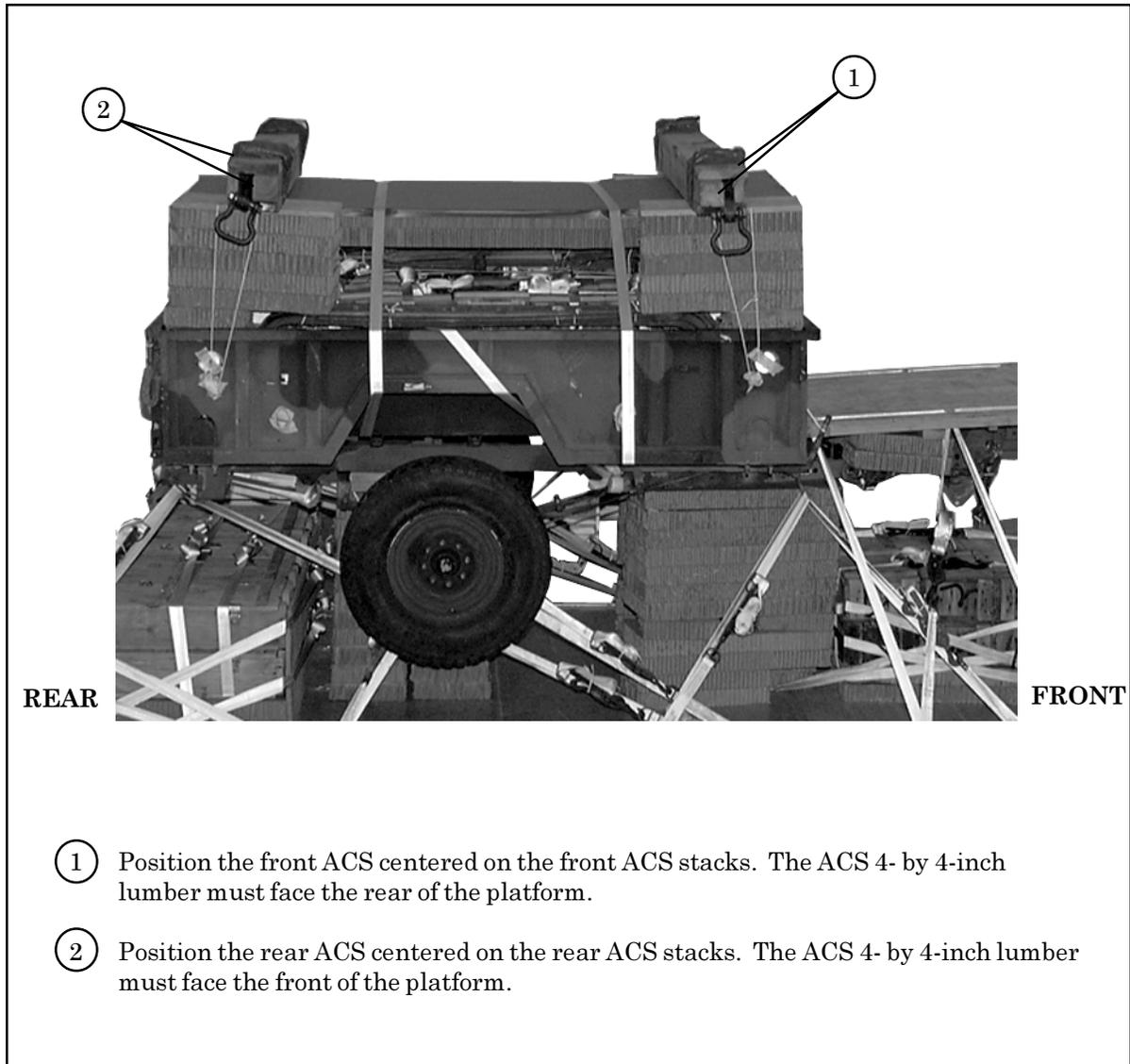


Figure 7-26. ACS Positioned

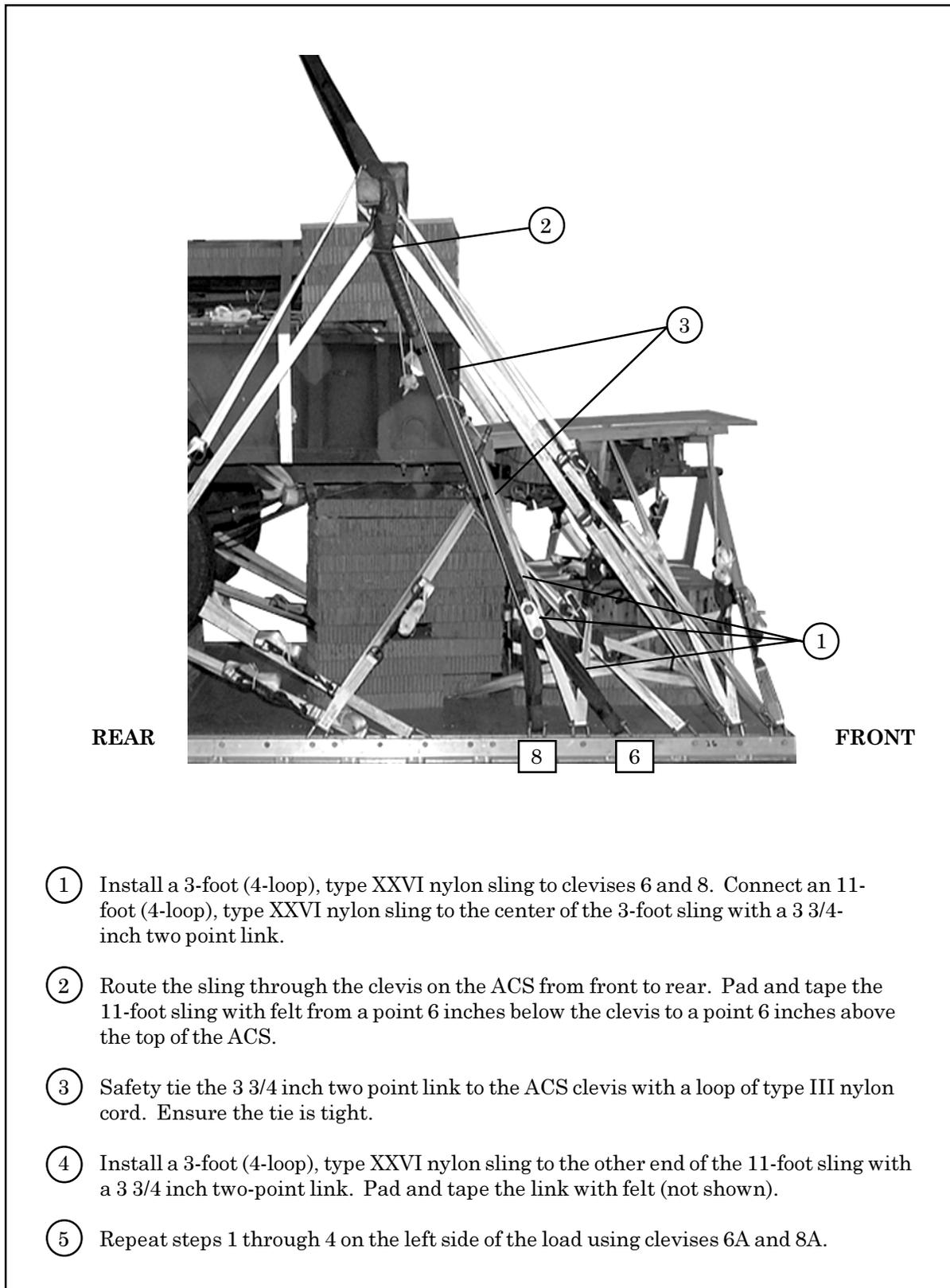
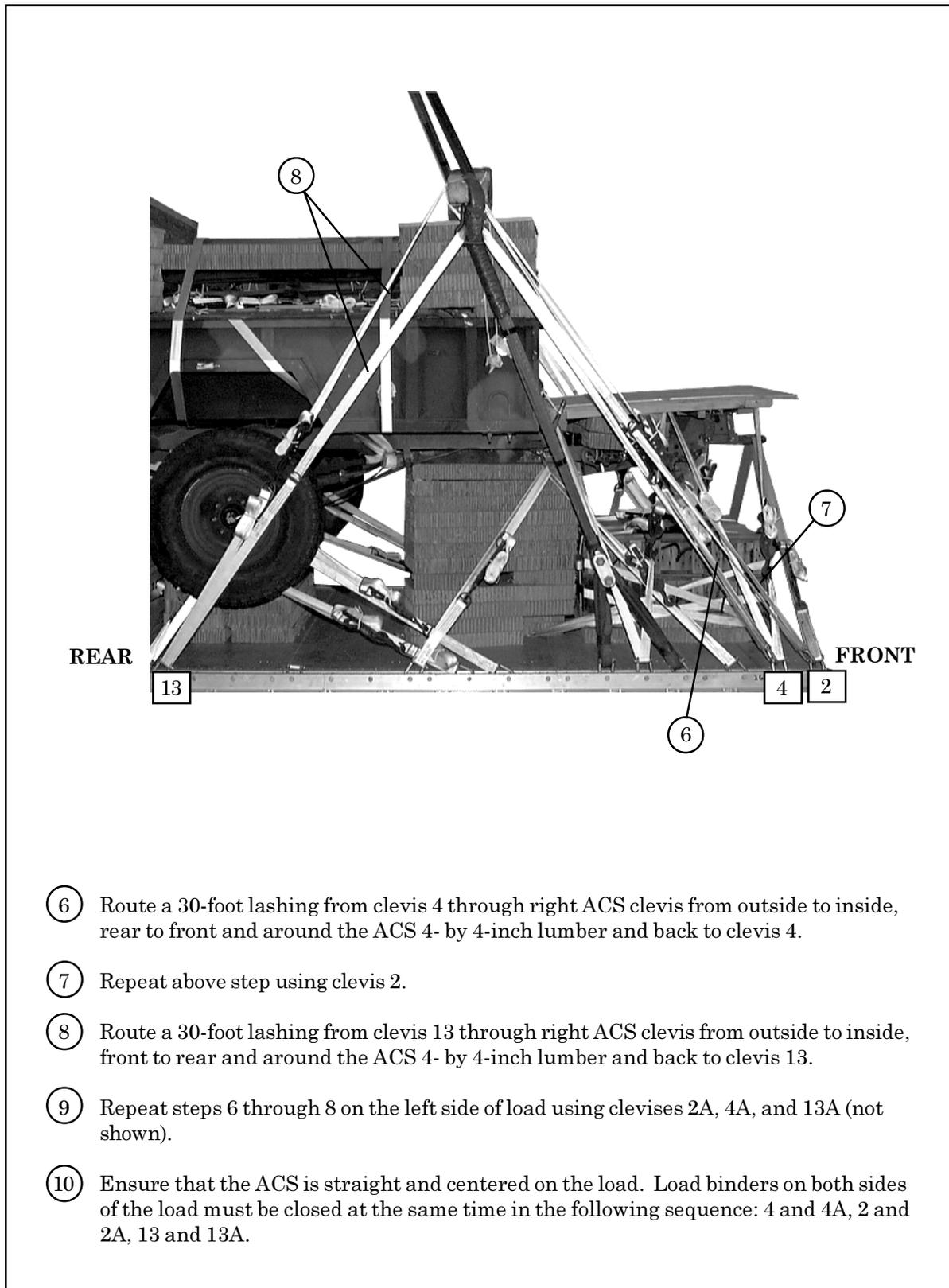


Figure 7-27. Slings Installed and ACS Secured



- ⑥ Route a 30-foot lashing from clevis 4 through right ACS clevis from outside to inside, rear to front and around the ACS 4- by 4-inch lumber and back to clevis 4.
- ⑦ Repeat above step using clevis 2.
- ⑧ Route a 30-foot lashing from clevis 13 through right ACS clevis from outside to inside, front to rear and around the ACS 4- by 4-inch lumber and back to clevis 13.
- ⑨ Repeat steps 6 through 8 on the left side of load using clevises 2A, 4A, and 13A (not shown).
- ⑩ Ensure that the ACS is straight and centered on the load. Load binders on both sides of the load must be closed at the same time in the following sequence: 4 and 4A, 2 and 2A, 13 and 13A.

Figure 7-27. Slings Installed and ACS Secured (Continued)

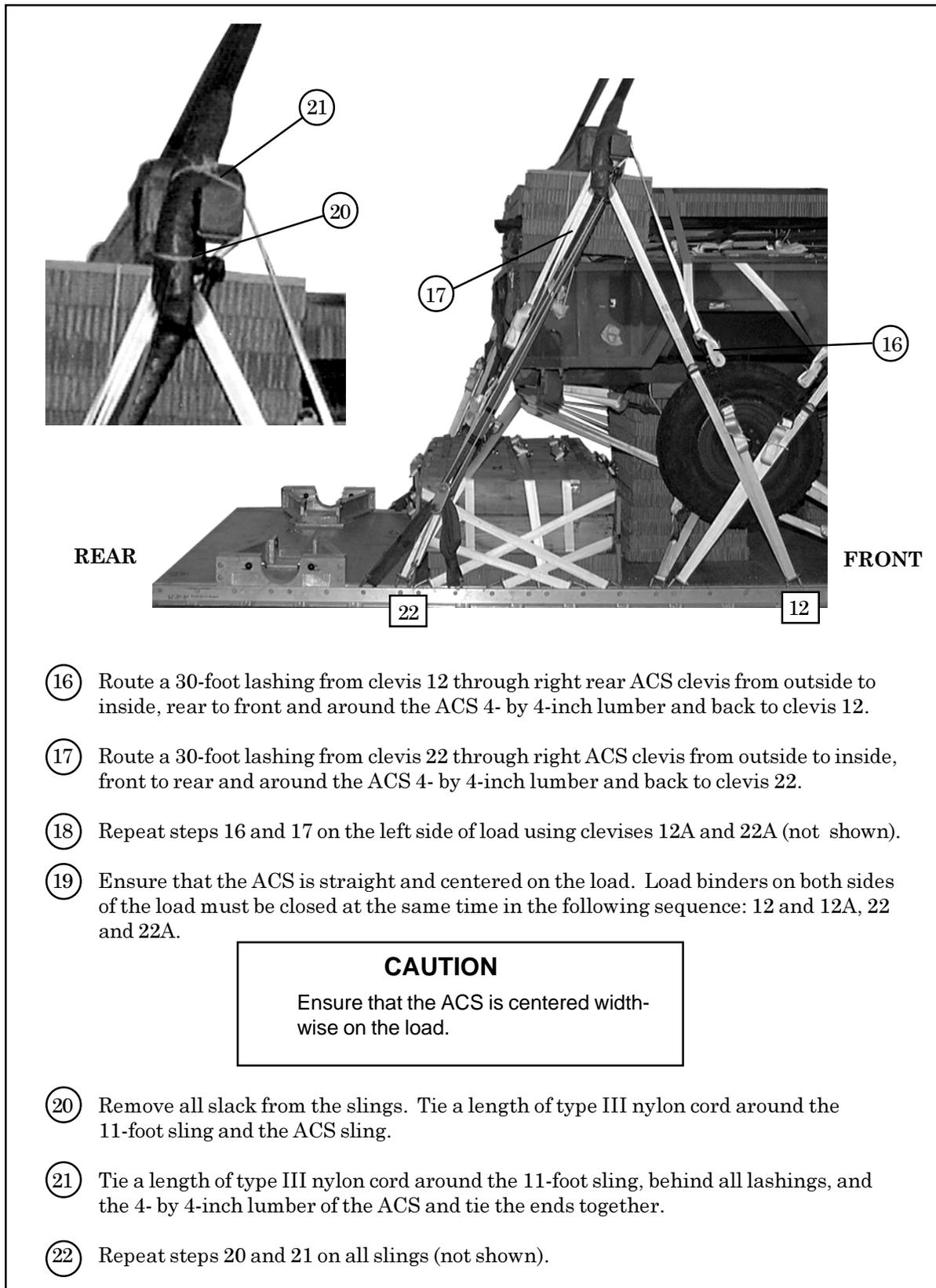


Figure 7-27. Slings Installed and ACS Secured (Continued)

INSTALLING OUTRIGGER ASSEMBLIES

7-13. Assemble, install, and safety tie the mast and foot assemblies on the DRAS platform according to TM 10-1670-268-20&P/TO 13C7-52-22 and as shown in Chapter 3, Figures 3-33 through 3-35 and Figure 3-36 steps 1, 2, and 3.

STOWING CARGO PARACHUTES

7-14. Stow and restrain two G-11D cargo parachutes on top of the stowage platform as shown in Chapter 3 and as shown in Figure 7-28.

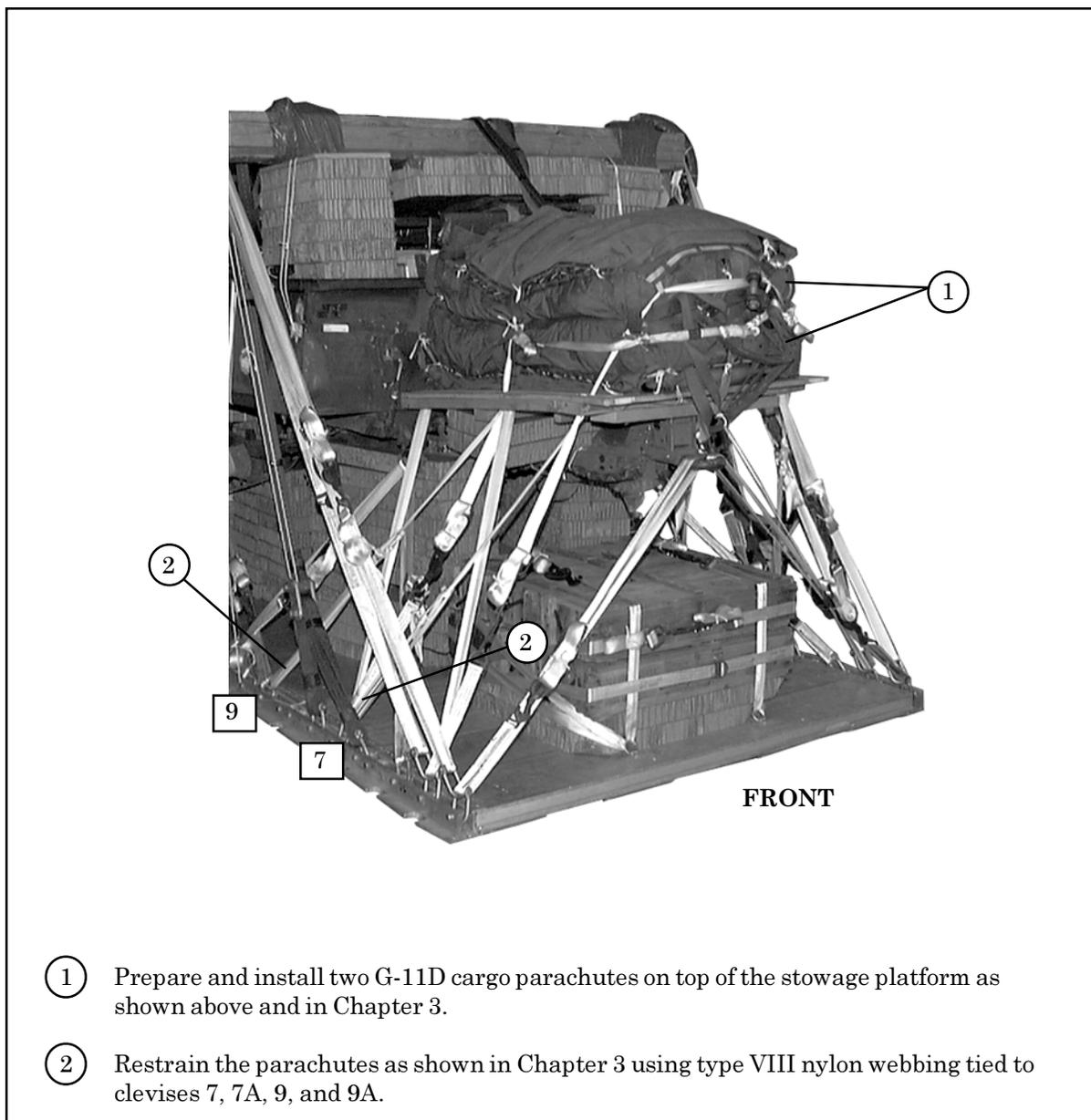


Figure 7-28. Cargo Parachutes Stowed

STOWING DEPLOYMENT PARACHUTE

7-15. Prepare, stow and install the deployment parachute according to Chapter 3, Section IV and as shown in Figure 7-29.

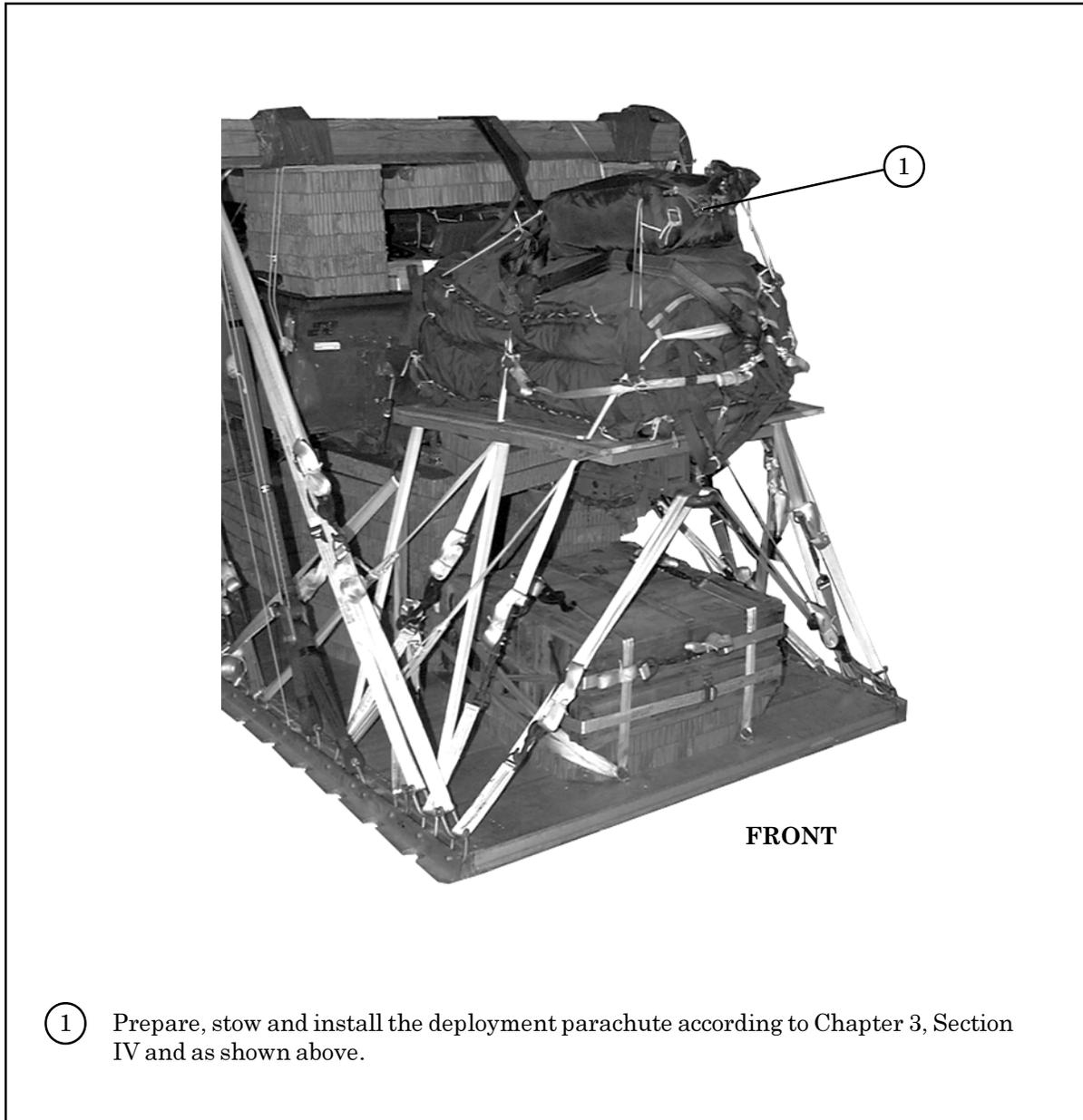
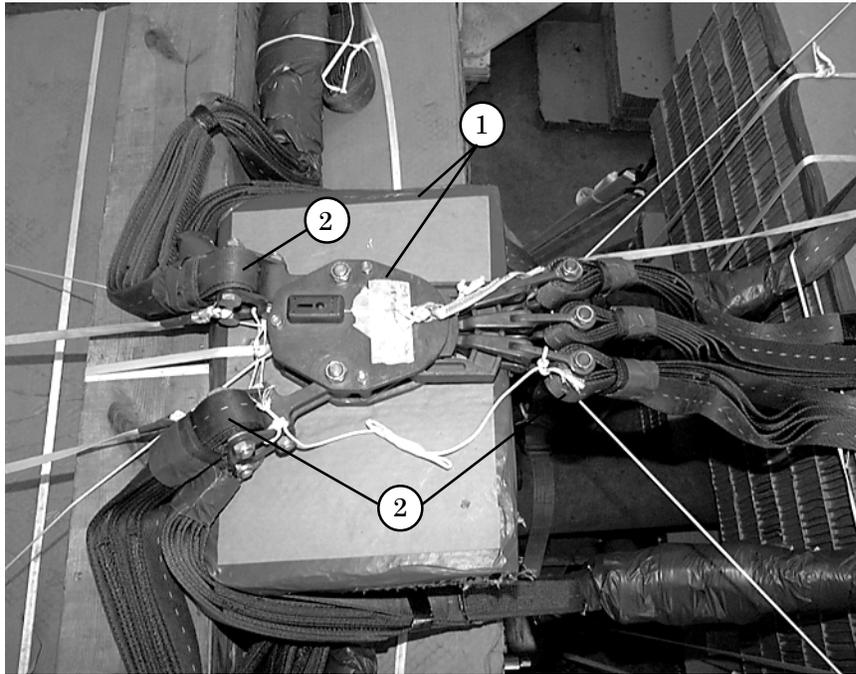


Figure 7-29. Deployment Parachute Installed

INSTALLING PARACHUTE RELEASE SYSTEM

7-16. Build an M-1 parachute release stack, and prepare and install an M-1 release system according to Chapter 3, Section V and as shown in Figure 7-30.



① Cut three 20- by 20-inch pieces of honeycomb and glue together to form the M-1 release parachute stack. Tape the top edges of the honeycomb. Center the stack and the M-1 release on the support stack against the rear ACS.

② Attach riser extensions and suspension slings to the M-1.

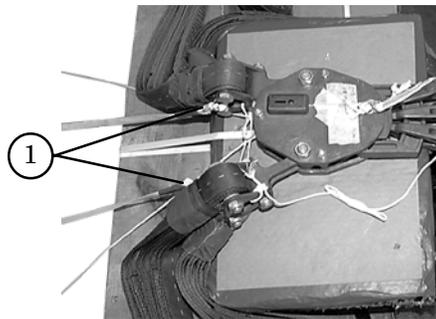
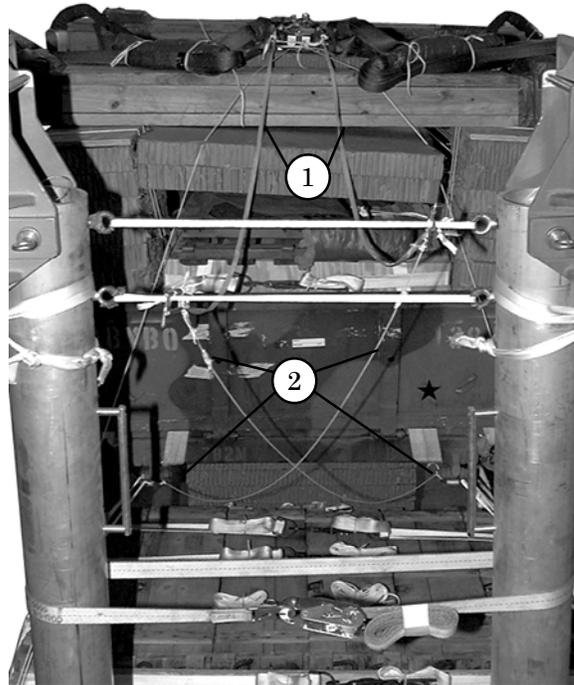
Note: Remove the buffers from the ends of the suspension slings that attach to the M-1.

③ Group the riser extensions together and tie with type I, 1/4-inch cotton webbing. Make three ties (not shown). S-fold the slack in the front and rear suspension slings on top of front and rear ACS according to Chapter 3 of this manual. Secure with type I, 1/4-inch cotton webbing.

Figure 7-30. Parachute Release System Installed

INSTALLING MAST RELEASE KNIVES

7-17. Install the mast release knives according to Chapter 3, Figure 3-36, Steps 4 through 10 and as shown in Figure 7-31.



- ① The length of the left and right 1/2-inch tubular nylon webbing from the base of the guillotine knives to the lower suspension links of the M-1 release is 68 inches as shown in Steps 5 and 6 of Figure 3-36.
- ② Tie a length of type III nylon cord to the left rear lifting shackle of the trailer and the right top guillotine knife that measures 76 inches. Repeat for the right side of the trailer using the left lower guillotine knife and the right rear lifting shackle as shown in Steps 9 and 10 of Figure 3-36.

Note: All measurements are from knot to knot.

Figure 7-31. Mast Release Knives Installed

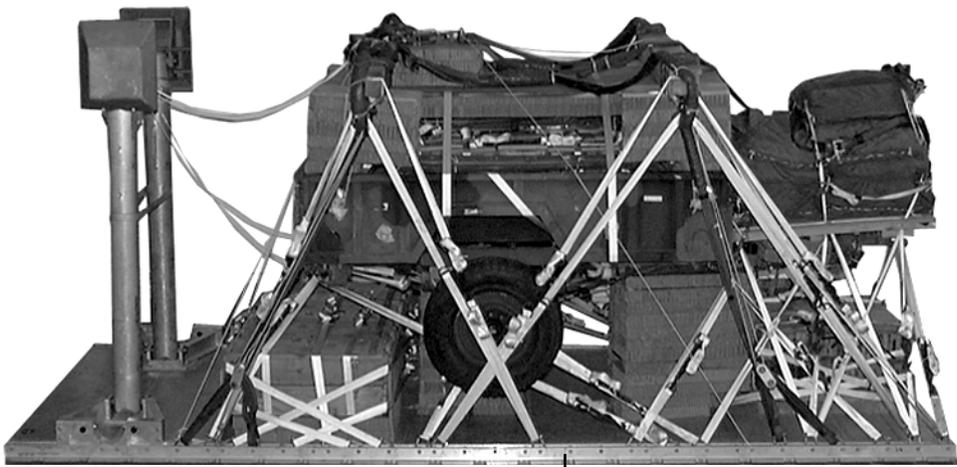
MARKING RIGGED LOAD

7-18. Mark the rigged load according to Chapter 3 of this manual and as shown in Figure 7-32. A Shipper's Declaration for Dangerous Goods is required.

EQUIPMENT REQUIRED

7-19. The equipment required to rig this load is listed in Table 7-1.

CAUTION
 Make the final rigger inspection required by Chapter 3 of this manual before the load leaves the rigging site.



CB

RIGGED LOAD

Weight:	M101A1	7,860 pounds
	Maximum load	8,999 pounds
	M101A2	8,062 pounds
	Maximum load	8,999 pounds
Height	98 inches
Width	94 inches
Length	220 inches
CB (from front edge of platform)	M101A1	98 inches
CB (from front edge of platform)	M101A2	99 inches

Figure 7-32. M101A1, 3/4-ton Trailer and Accompanying Ammunition Load Rigged for Dual Row Airdrop

Table 7-1. Equipment Required for Rigging the M101A1 or M101A2, 3/4-ton Cargo Trailer with Accompanying Ammunition Load on a Dual Row Platform for Dual Row Airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive paste, 1-gal	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
4030-00-090-5354	Clevis, large	5
4030-00-678-8562	Clevis, medium	4
	Link assembly:	
	Two-point, 3 3/4-in	9
5306-00-435-8994	Bolt, 1-in diam, 4-in long	18
5310-00-232-5165	Nut, 1-in, hexagonal	18
1670-00-003-1953	Plate, side, 3 3/4-in	18
5365-00-007-3414	Spacer, large	18
	Lumber:	
5510-00-220-6146	2- by 4-in	As required
5510-00-220-6148	2- by 6-in	As required
5510-00-220-6274	4- by 4-in	As required
5530-00-618-8073	Plywood, 3/4-in	2 sheets
5315-00-010-4659	Nail, steel wire, common, 8d	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3- by 36- by 96-in	20 Sheets
1670-01-487-5461	Static line assembly release away	1
	Parachute:	
	Cargo:	
1670-01-016-7841	G-11D	2
	Cargo extraction:	
1670-00-040-8135	28-foot (Deployment parachute)	1
	Platform, Dual Row, 18-foot:	
1670-01-485-1654	Rail, DRAS	2
1670-01-486-1342	Roller Pad, DRAS	4
1670-01-486-1656	Panel Assembly, Main	9
1670-01-162-2372	Clevis assembly	46
1670-01-097-8816	Release, cargo parachute, M-1	1

Table 7-1. Equipment Required for Rigging the M101A1 or M101A2, 3/4-ton Cargo Trailer with Accompanying Ammunition Load on a Dual Row Platform for Dual Row Airdrop (continued)

National Stock Number	Item	Quantity
	Sling, cargo airdrop	
	For suspension:	
1670-01-062-6310	11-ft (4-loop), type XXVI nylon webbing	4
1670-01-062-6306	3-ft (4-loop), type XXVI nylon webbing	8
	For deployment:	
1670-01-062-6306	3-ft (4-loop), type XXVI nylon webbing	1
	For riser extension:	
1670-01-062-6313	60-ft (3-loop), type XXVI nylon webbing	2
	For ACS:	
1670-01-063-7761	16-ft (2-loop), type XXVI nylon webbing	2
	For lifting:	
1670-01-062-6301	3-ft (2-loop), type XXVI nylon webbing	1
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	3
1670-00-040-8219	Strap, parachute release, multicut	2
1670-00-937-0271	Knife release, cargo (guillotine)	2
1670-01-487-5464	Outrigger assembly	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	60
1670-00-725-1437	Tie-down, cargo, aircraft (CGU-1B)	5
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
	Nylon:	
8305-00-082-5752	Tubular, 1/2-in	As required
8305-00-263-3591	Type VIII	As required