

## CHAPTER 2

**RIGGING M-12 DECONTAMINATION UNIT  
FOR LOW-VELOCITY AIRDROP****2-1. Description of Load**

The M-12 decontamination unit is rigged on a 12-foot modular type II platform with either two G-11A or G-11B cargo parachutes for a low-velocity airdrop from C-130 or C-141 aircraft. The complete decontamination unit is made up of four main items. The pump/generator unit weighs 1,190 pounds; it is 47 inches high, 30 inches wide, and 55 inches long. The heater unit weighs 640 pounds; it is 41 inches high, 21 inches wide, and 52 inches long. The mixing tank weighs 1,000 pounds; it is 48 inches high, 46 inches wide, and 83 inches long. Twenty-six drums of decontamination agent weighing 1,300 pounds make up the accompanying load.

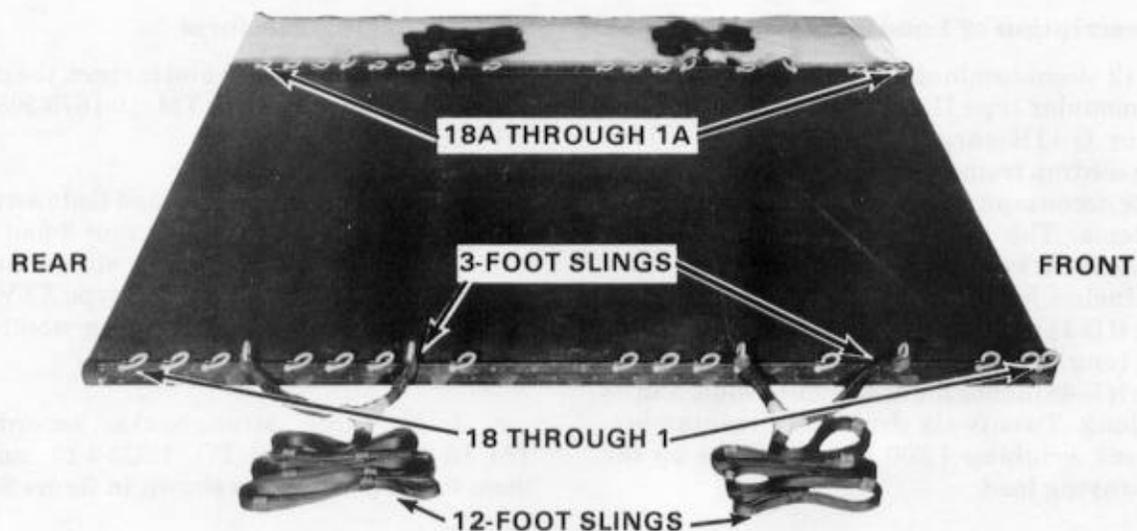
**2-2. Preparing Platform**

*a.* Inspect, or assemble and inspect, the modular platform as outlined in TM 10-1670-208-20&P/TO 13C3-4-12.

*b.* Attach and number the load tiedown clevises as shown in figure 2-1. Attach four 3-foot (3-loop) type X or (2-loop) type XXVI slings and four 12-foot (3-loop) type X or (2-loop) type XXVI slings as suspension slings to platform according to figure 2-1.

*c.* Build three strongbacks according to TM 10-1670-208-20&P/TO 13C3-4-12 and lash them to the platform as shown in figure 2-2.

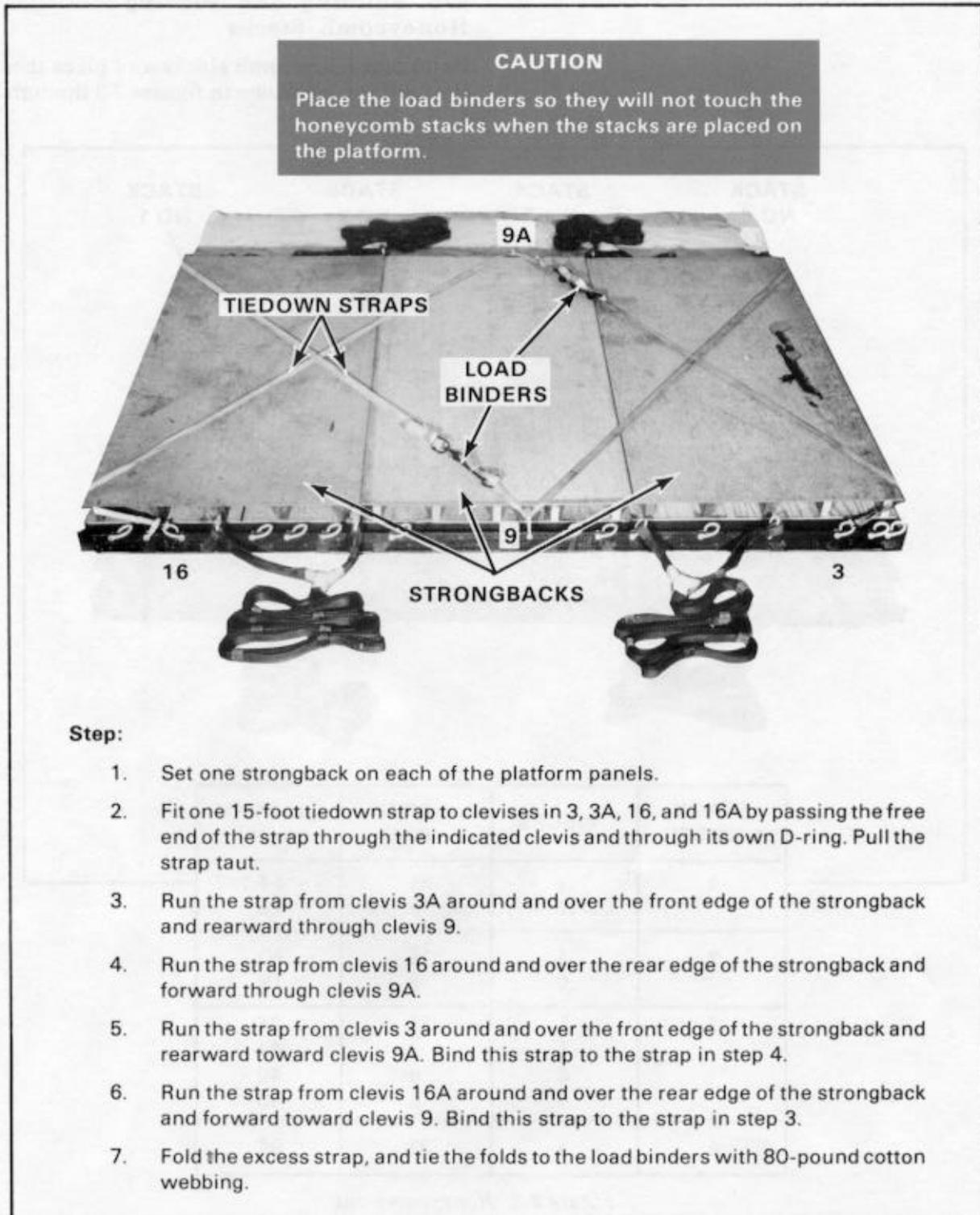
**Note:** The load tiedown clevises have been painted white for purposes of contrast in the photographs.



**Step:**

1. Form the suspension slings with four 3-foot and four 12-foot slings. Pass each 3-foot sling through the loop in a 12-foot sling. Even the ends of the 3-foot slings, pull the keepers on the 12-foot slings tight against the 3-foot slings, and tape them together.
2. Fit a load tiedown clevis to the free ends of each 3-foot sling. Bolt the clevises on the 3-foot slings to the 5th and 9th clevis holes (counting from the front of the platform) in each side rail for the front slings and on the 17th and 21st clevis holes for the rear slings.
3. Start at the front of each side rail, and bolt a tiedown clevis to the 1st, 2d, 3d, 7th, 10th, 11th, 12th, 16th, 18th, 19th, 20th, 22d, 23d, and 24th clevis holes.
4. Start at the front of the platform, and number the clevises bolted to the right rail from 1 through 18, and number those bolted to the left rail from 1A through 18A.

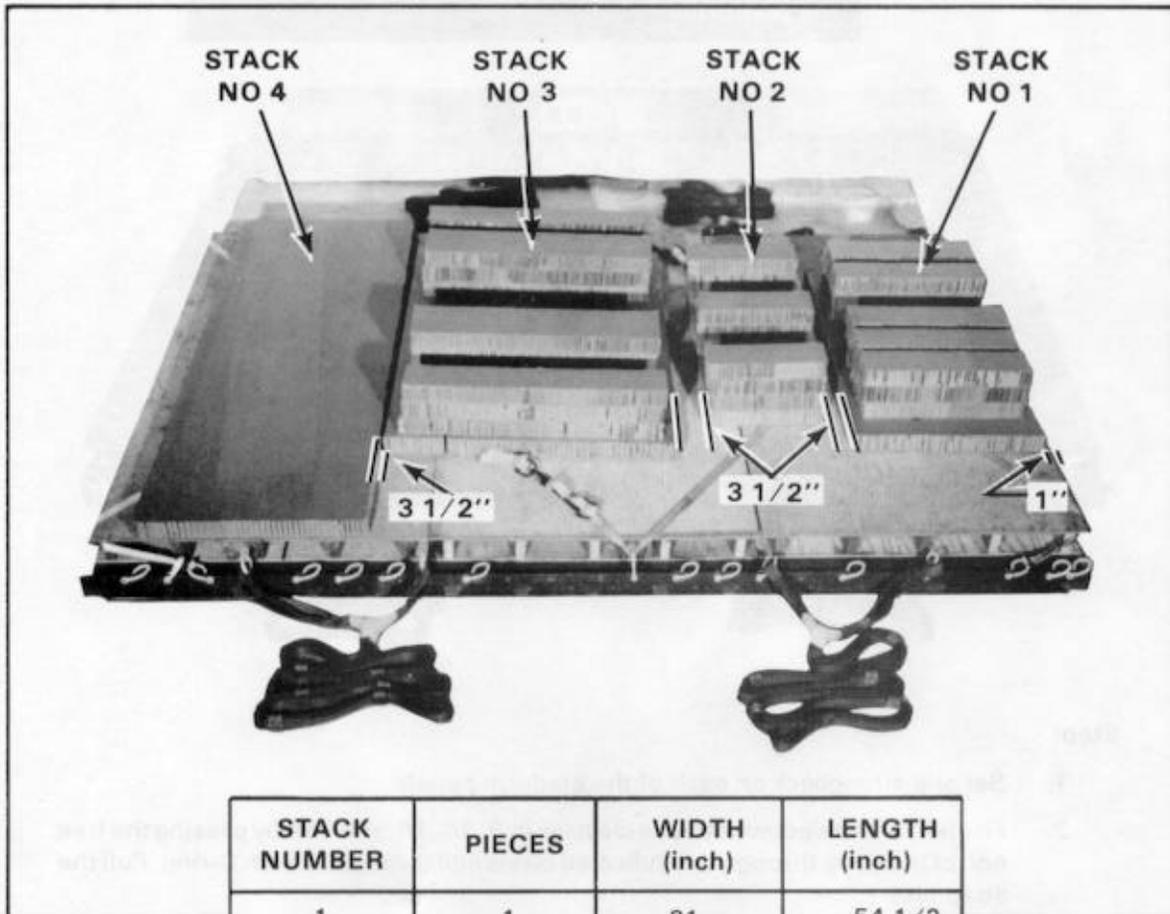
*Figure 2-1. Platform prepared and suspension slings installed.*



*Figure 2-2. Strongbacks lashed to platform.*

**2-3. Building and Placing Honeycomb Stacks**

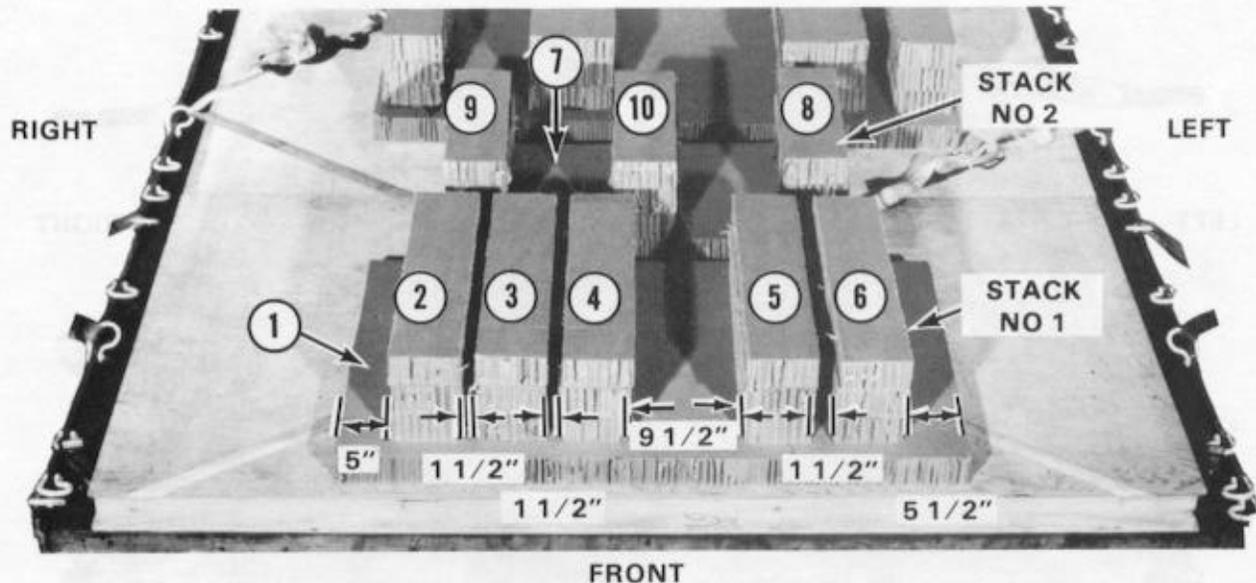
Build four honeycomb stacks and place them on the platform as shown in figures 2-3 through 2-5.



STACK NUMBER	PIECES	WIDTH (inch)	LENGTH (inch)
1	1	31	54 1/2
	15	6	26
2	1	19	40
	9	6	19
3	1	36	64
	1	9	64
	6	9	40
	6	6	40
4	1	33	96

Figure 2-3. Honeycomb cut.

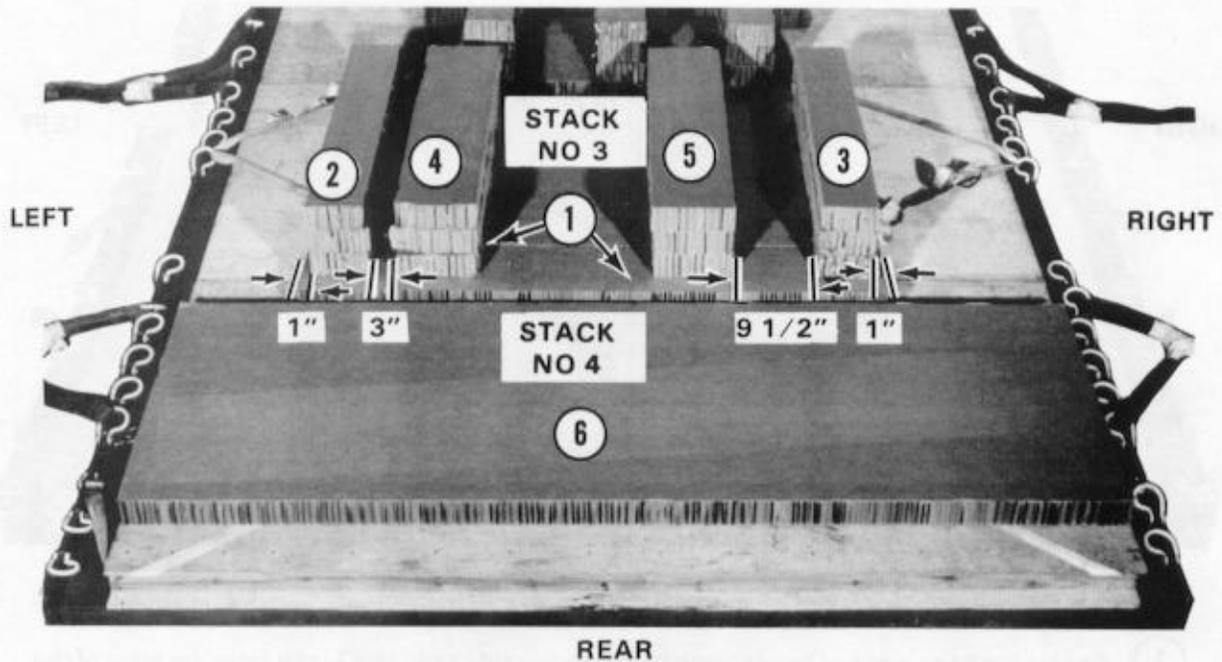
**Note:** Stack No 2 may have to be moved while the load is placed.



- ① Center the base piece of honeycomb between the side rails and 1 inch from the edge of the strongback (fig 2-3).
- ② Glue fifteen 6- by 26-inch pieces of honeycomb together in five sets of three pieces each. Center the first set of honeycomb pieces on the right side of the honeycomb base 5 inches in from the right edge. Glue the set of honeycomb pieces in place.
- ③ Place the second set of honeycomb on the base parallel with and 1 1/2 inches to the left of the first set. Glue the set of honeycomb pieces in place.
- ④ Repeat step 3 for the third set of honeycomb pieces.
- ⑤ Repeat step 3 for the fourth set of honeycomb pieces, except the fourth set will be 9 1/2 inches to the left of the third set of honeycomb pieces.
- ⑥ Repeat step 3, on the left side, for the fifth set of honeycomb pieces.
- ⑦ Center the base piece of honeycomb between the side rails and 3 1/2 inches from stack No 1.
- ⑧ Glue nine 6- by 19-inch pieces of honeycomb together in three sets of three pieces each. Center the first set of honeycomb pieces on the left side of the honeycomb base with the outside edges flush. Glue the set of honeycomb pieces in place.
- ⑨ Center the second set of honeycomb pieces on the right edge of the honeycomb base with the outside edges parallel. Glue the set of honeycomb pieces in place.
- ⑩ Center the third set of honeycomb pieces between the first and second sets of honeycomb pieces, and glue the set in place.

Figure 2-4. Honeycomb stacks 1 and 2 placed.

**Note:** Stacks No 3 and 4 may have to be moved while the load is placed.



- ① Butt the long sides of the two base pieces of honeycomb together, center them between the side rails, and set them 3 1/2 inches from stack No 2 (fig 2-3).
- ② Glue six 6- by 40-inch pieces of honeycomb together in two sets of three pieces each. Center the first set of honeycomb pieces on the left side of the honeycomb base 1 inch from the left edge. Glue the set of honeycomb pieces in place.
- ③ Repeat step 2 and glue the second set of honeycomb pieces to the right side of the honeycomb base.
- ④ Glue six 9- by 40-inch pieces of honeycomb together in two sets of three pieces each. Center the first set of honeycomb pieces on the honeycomb base and 3 inches to the right of the honeycomb set in step 2. Glue the set of honeycomb pieces in place.
- ⑤ Center the second set of honeycomb pieces on the honeycomb base and 9 1/2 inches to the left of the honeycomb set in step 3. Glue the set of honeycomb pieces in place.
- ⑥ Center a 33- by 96-inch piece of honeycomb between the side rails and 3 1/2 inches from stack No 3 (fig 2-3).

*Figure 2-5. Honeycomb stacks 3 and 4 placed.*

## 2-4. Preparing Decontamination Unit

Prepare the pump/generator unit, the mixing tank unit, and the heater unit according to figures 2-6 through 2-8.

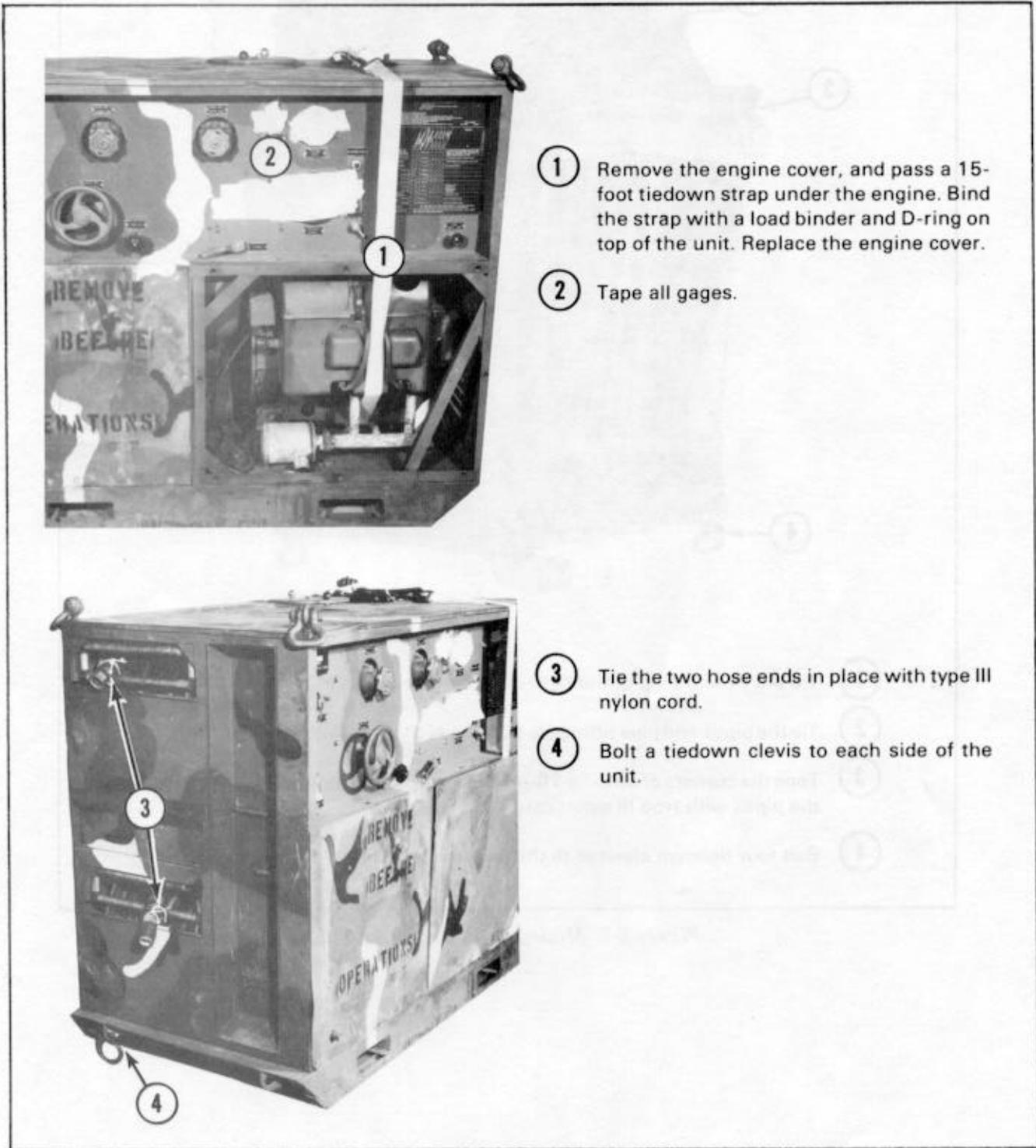
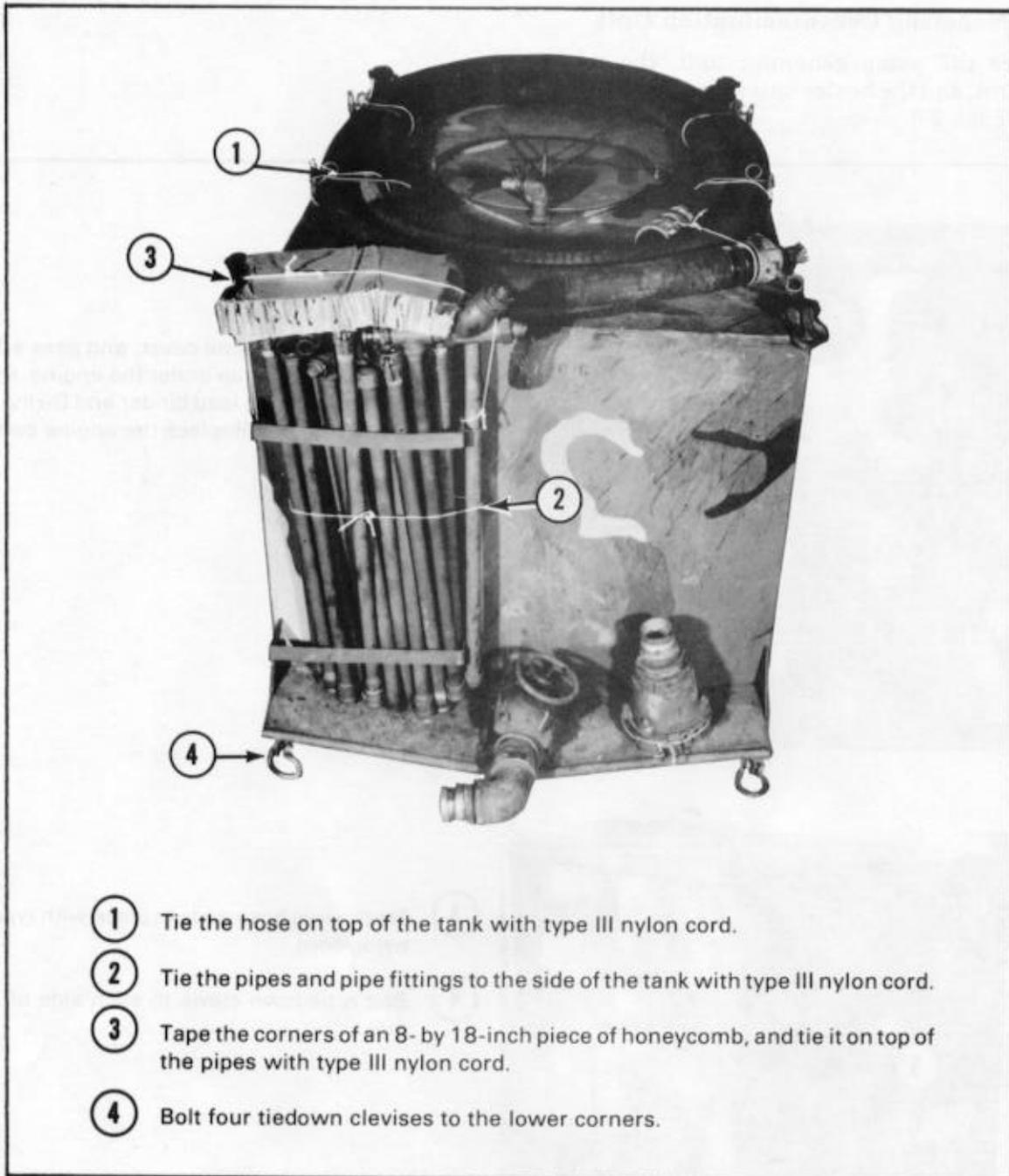
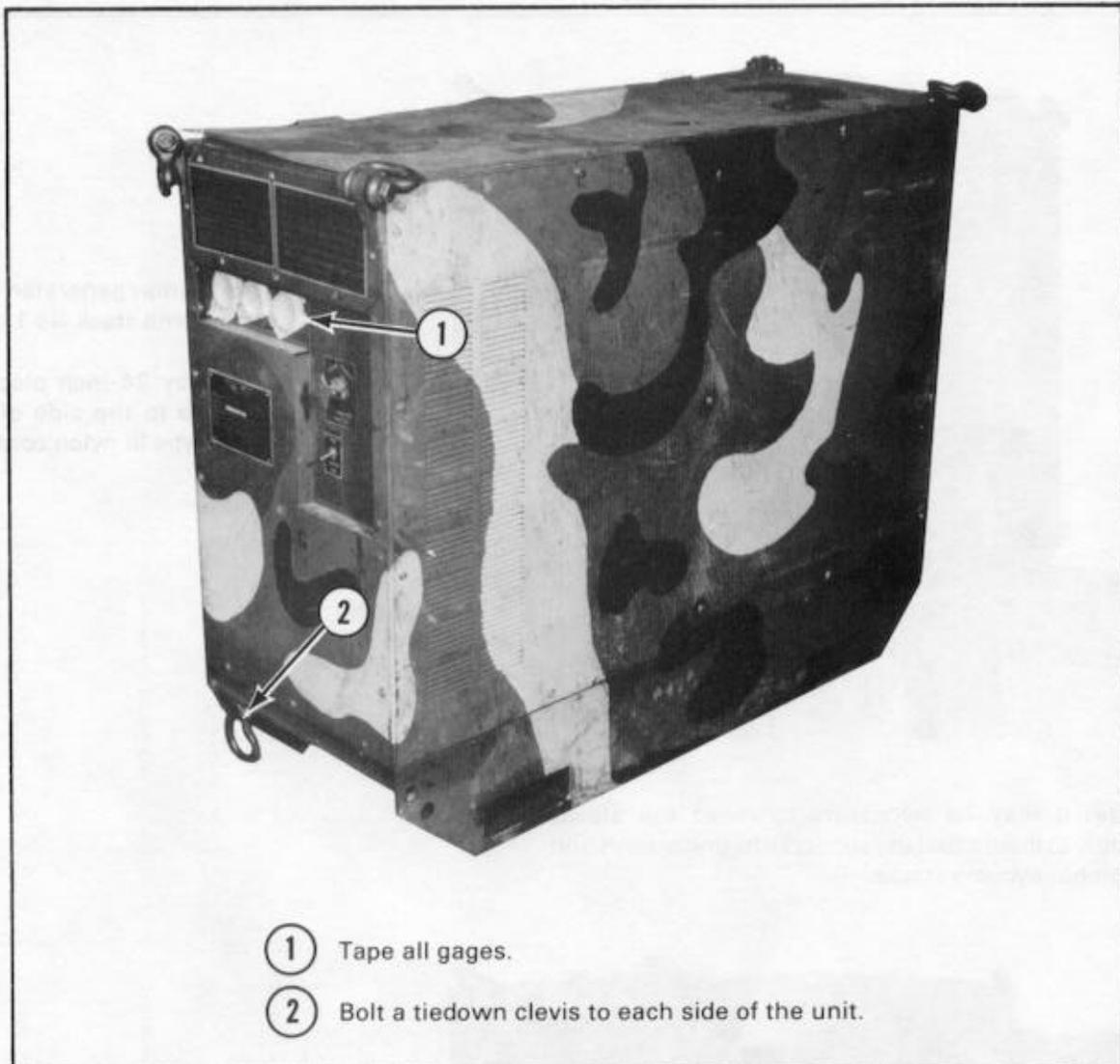


Figure 2-6. Pump/generator unit prepared.



*Figure 2-7. Mixing tank unit prepared.*



*Figure 2-8. Heater unit prepared.*

### **2-5. Placing Decontamination Unit**

Bolt type X nylon webbing cargo slings to each unit, and place the units on the honeycomb according to figures 2-9 and 2-10.

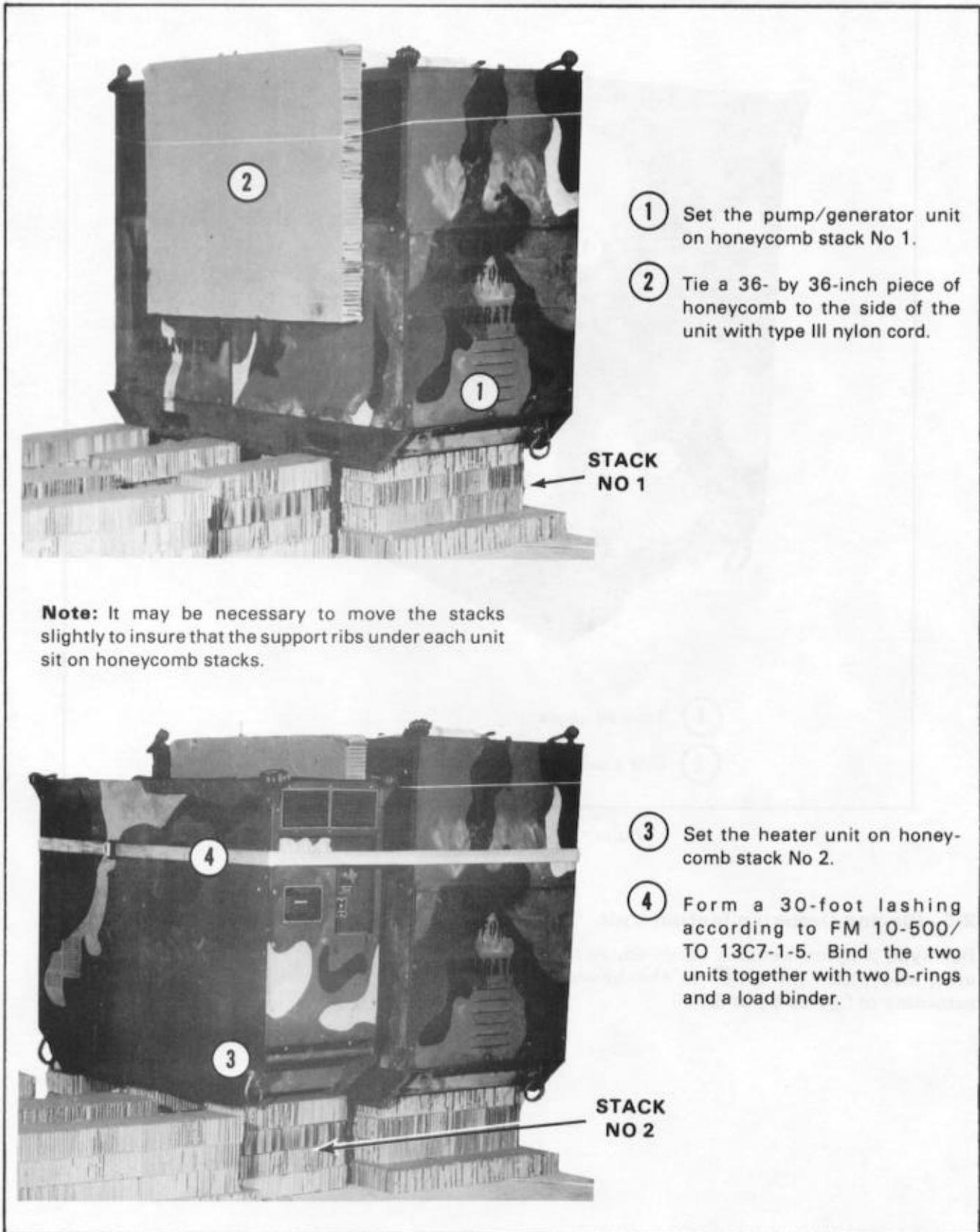
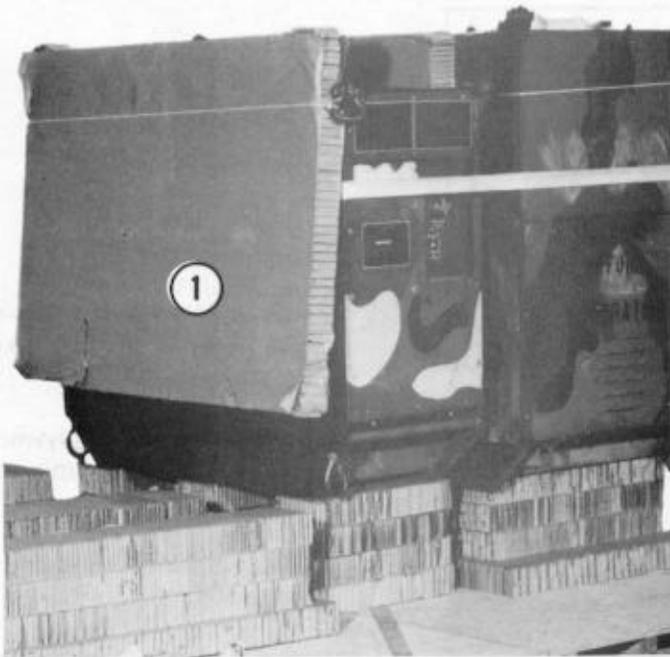
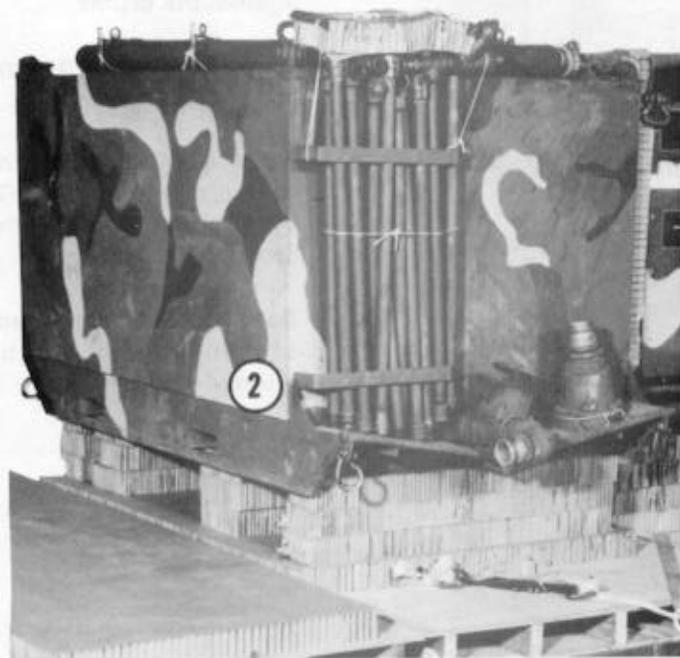


Figure 2-9. Pump/generator unit and heater unit positioned.



- ① Tie a 36- by 50-inch piece of honeycomb to the side of the unit with type III nylon cord.



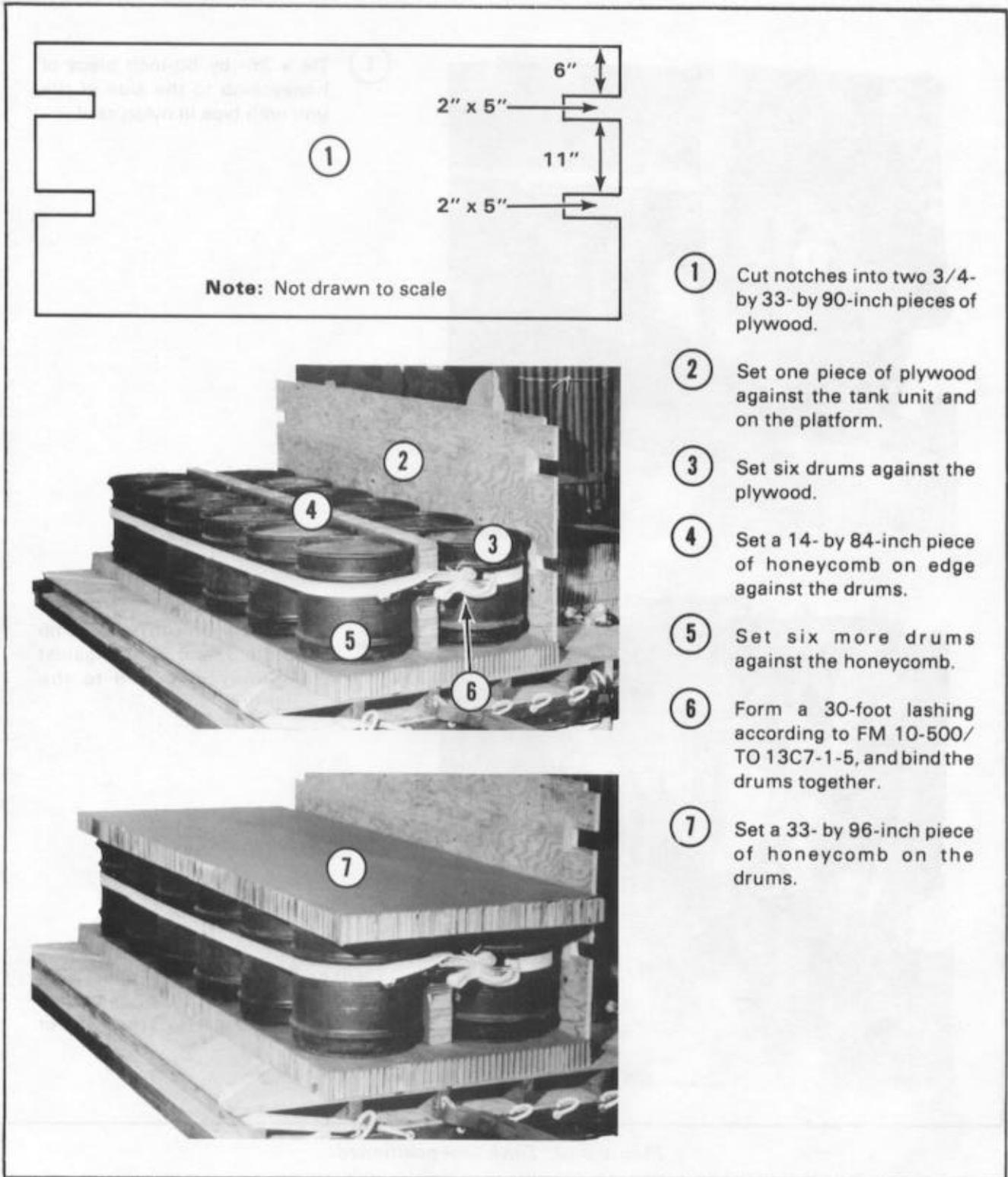
- ② Set the tank unit on honeycomb stack No 3, and butt it against the honeycomb tied to the heater unit.

**Note:** Be sure the support ribs under each unit sit on the honeycomb stacks. Move stack No 3 rearward or forward.

*Figure 2-10. Tank unit positioned.*

## 2-6. Stowing Accompanying Load

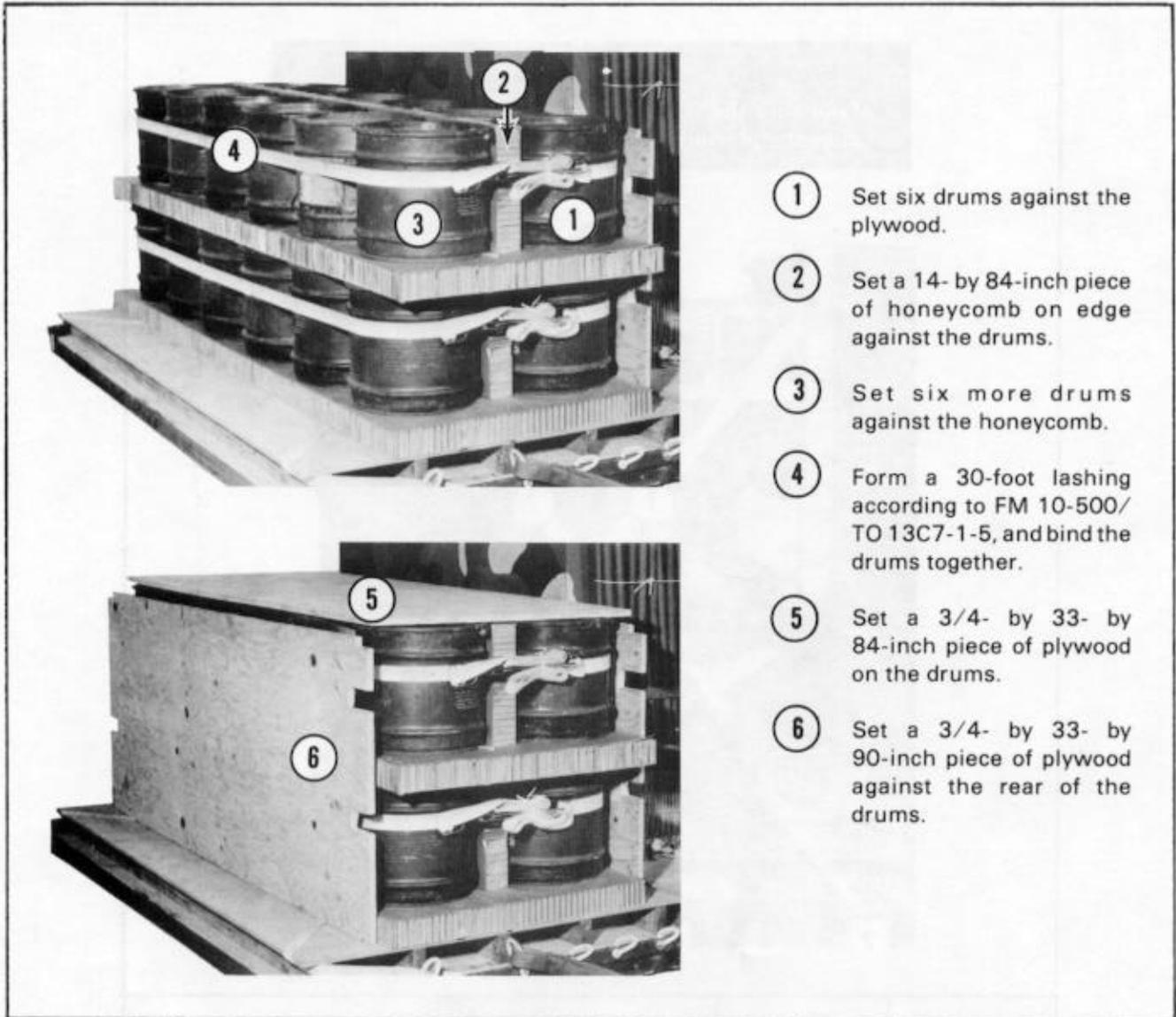
Stow 24 drums of decontamination agent according to figures 2-11 and 2-12.



Note: Not drawn to scale

- ① Cut notches into two 3/4-by-33-by-90-inch pieces of plywood.
- ② Set one piece of plywood against the tank unit and on the platform.
- ③ Set six drums against the plywood.
- ④ Set a 14-by-84-inch piece of honeycomb on edge against the drums.
- ⑤ Set six more drums against the honeycomb.
- ⑥ Form a 30-foot lashing according to FM 10-500/TO 13C7-1-5, and bind the drums together.
- ⑦ Set a 33-by-96-inch piece of honeycomb on the drums.

Figure 2-11. Twelve drums stowed.



- ① Set six drums against the plywood.
- ② Set a 14- by 84-inch piece of honeycomb on edge against the drums.
- ③ Set six more drums against the honeycomb.
- ④ Form a 30-foot lashing according to FM 10-500/TO 13C7-1-5, and bind the drums together.
- ⑤ Set a 3/4- by 33- by 84-inch piece of plywood on the drums.
- ⑥ Set a 3/4- by 33- by 90-inch piece of plywood against the rear of the drums.

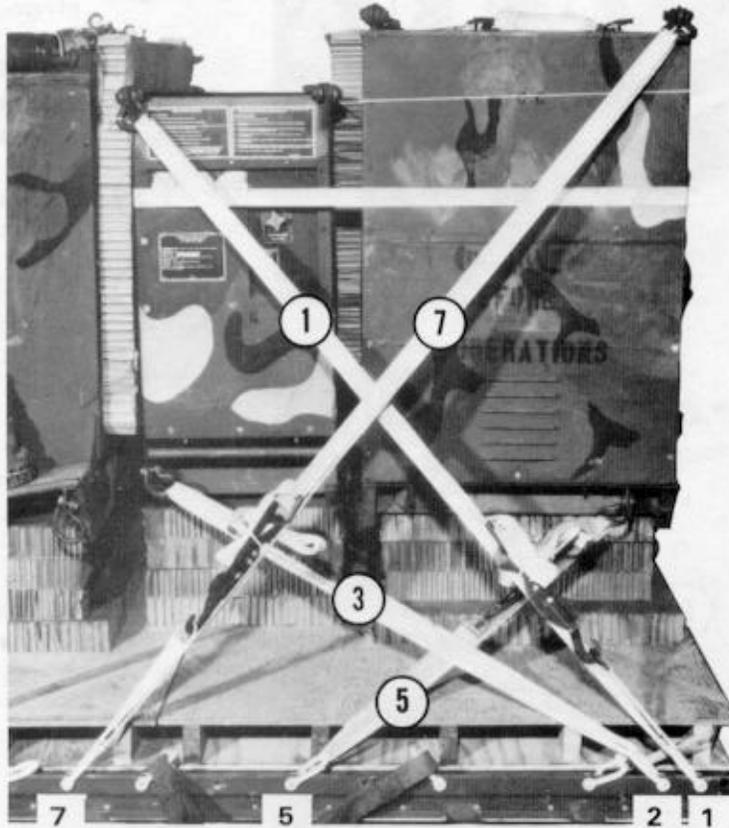
Figure 2-12. Twenty-four drums stowed.

### 2-7. Lashing Decontamination Unit

Use twenty-six 15-foot tiedown straps, 26 D-rings, and 23 load binders, and lash the decontamination unit to the platform as shown in figures 2-13 through 2-16.

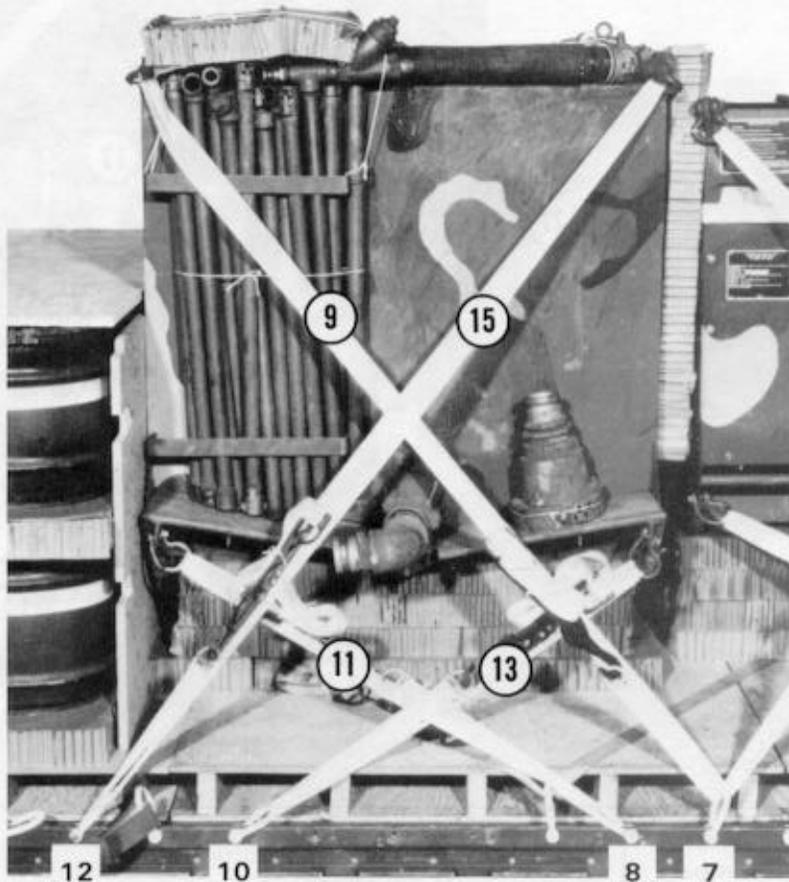
**CAUTION**

Make sure the lashings are not so tight that they cause the platform to bow.



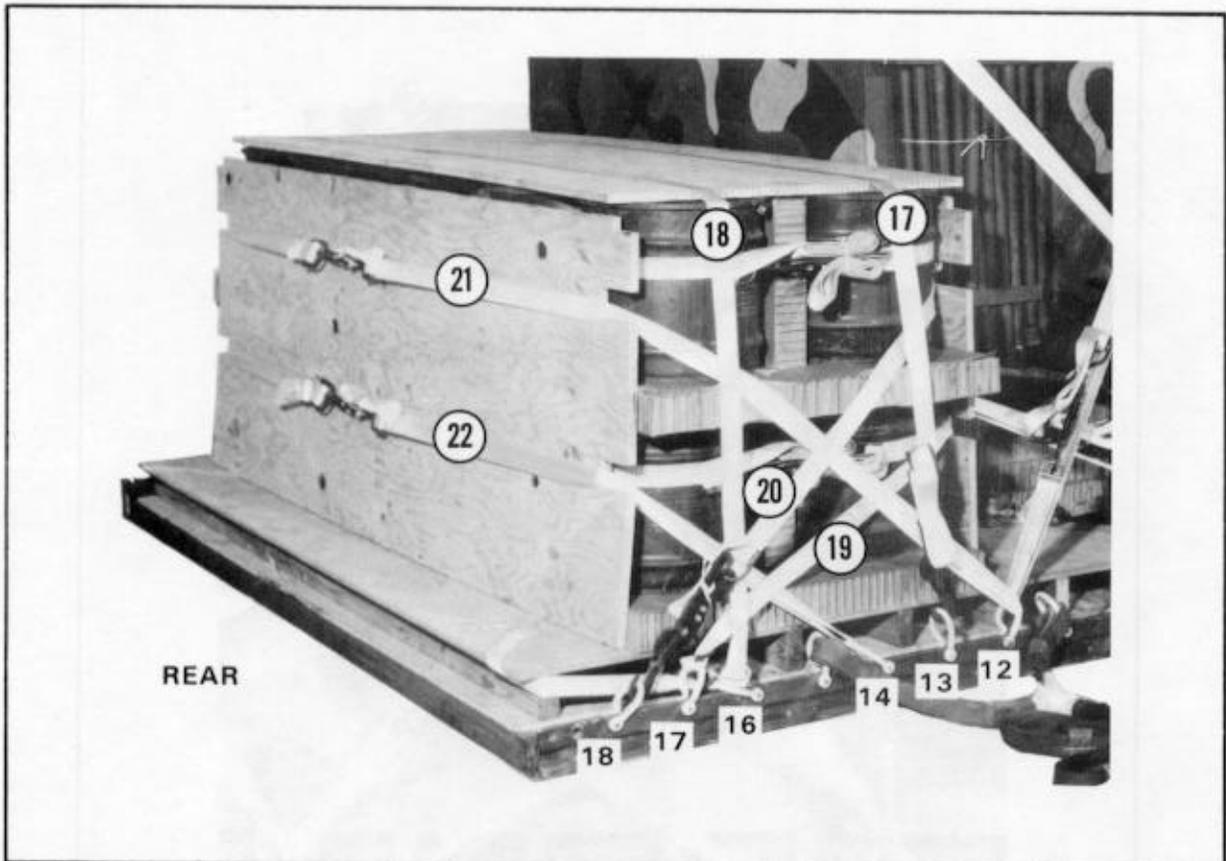
Lashing Number	Clevis Number	Instructions
1	1	Run strap through clevis on top of heater unit.
2	1A	Run strap through clevis on top of heater unit.
3	2	Run strap through clevis on bottom of heater unit.
4	2A	Run strap through clevis on bottom of heater unit.
5	5	Run strap through clevis on bottom of pump unit.
6	5A	Run strap through clevis on bottom of pump unit.
7	7	Run strap through clevis on top of pump unit.
8	7A	Run strap through clevis on top of pump unit.

Figure 2-13. Lashings 1 through 8 installed.



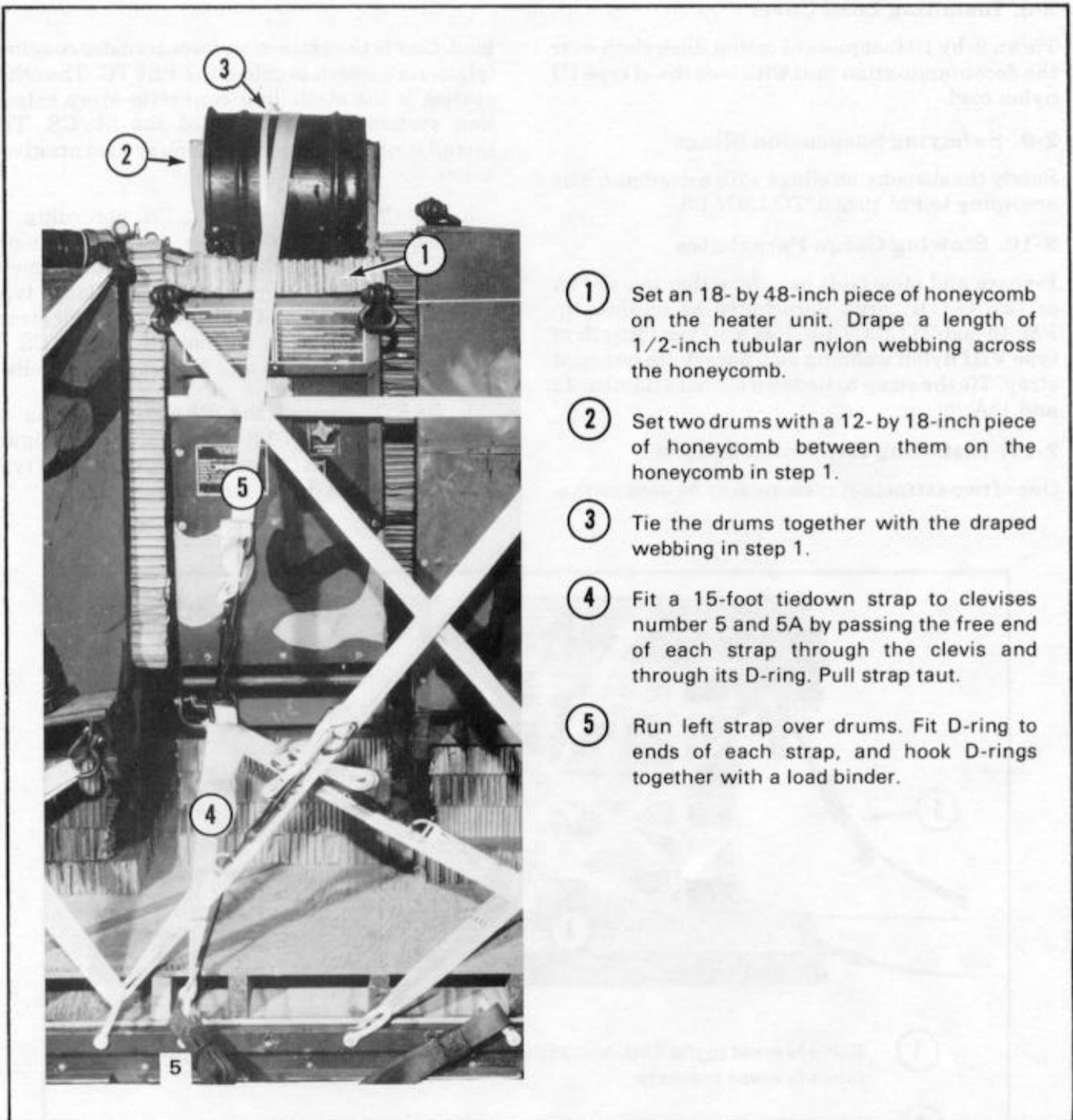
Lashing Number	Clevis Number	Instructions
9	7	Run strap through rear clevis on top of tank unit.
10	7A	Run strap through rear clevis on top of tank unit.
11	8	Run strap through rear clevis on bottom of tank unit.
12	8A	Run strap through rear clevis on bottom of tank unit.
13	10	Run strap through front clevis on bottom of tank unit.
14	10A	Run strap through front clevis on bottom of tank unit.
15	12	Run strap through front clevis on top of tank unit.
16	12A	Run strap through front clevis on top of tank unit.

Figure 2-14. Lashings 9 through 16 installed.



Lashing Number	Clevis Number	Instructions
17	13A to 13	Fit a 15-foot tiedown strap to the clevis by passing the free end of the strap through the clevis and through its D-ring. Run the strap over the drums and bind at clevis.
18	16 to 16A	Same as lashing number 17.
19	17 to 17A	Same as lashing number 17, but run strap through bottom notch and around front of plywood.
20	18 to 18A	Same as lashing number 17, but run strap through top notch and around front of plywood.
21	12 to 12A	Form a 30-foot strap according to FM 10-500/TO 13C7-1-5. Run strap through top notches and through clevises, and bind on rear of plywood.
22	14 to 14A	Same as lashing number 21, but run strap through bottom notches.

Figure 2-15. Lashings 17 through 22 installed.



- ① Set an 18- by 48-inch piece of honeycomb on the heater unit. Drape a length of 1/2-inch tubular nylon webbing across the honeycomb.
- ② Set two drums with a 12- by 18-inch piece of honeycomb between them on the honeycomb in step 1.
- ③ Tie the drums together with the draped webbing in step 1.
- ④ Fit a 15-foot tiedown strap to clevises number 5 and 5A by passing the free end of each strap through the clevis and through its D-ring. Pull strap taut.
- ⑤ Run left strap over drums. Fit D-ring to ends of each strap, and hook D-rings together with a load binder.

Figure 2-16. Drums lashed to platform.

## 2-8. Installing Load Cover

Tie an 8- by 10-foot piece of cotton duck cloth over the decontamination unit with lengths of type III nylon cord.

## 2-9. Safetying Suspension Slings

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

## 2-10. Stowing Cargo Parachutes

Prepare and stow (side by side) either two G-11A or two G-11B cargo parachutes as outlined in FM 10-500/TO 13C7-1-5. Use a 10-yard length of type VIII nylon webbing as a parachute restraint strap. Tie the strap to tiedown clevises number 12 and 12A.

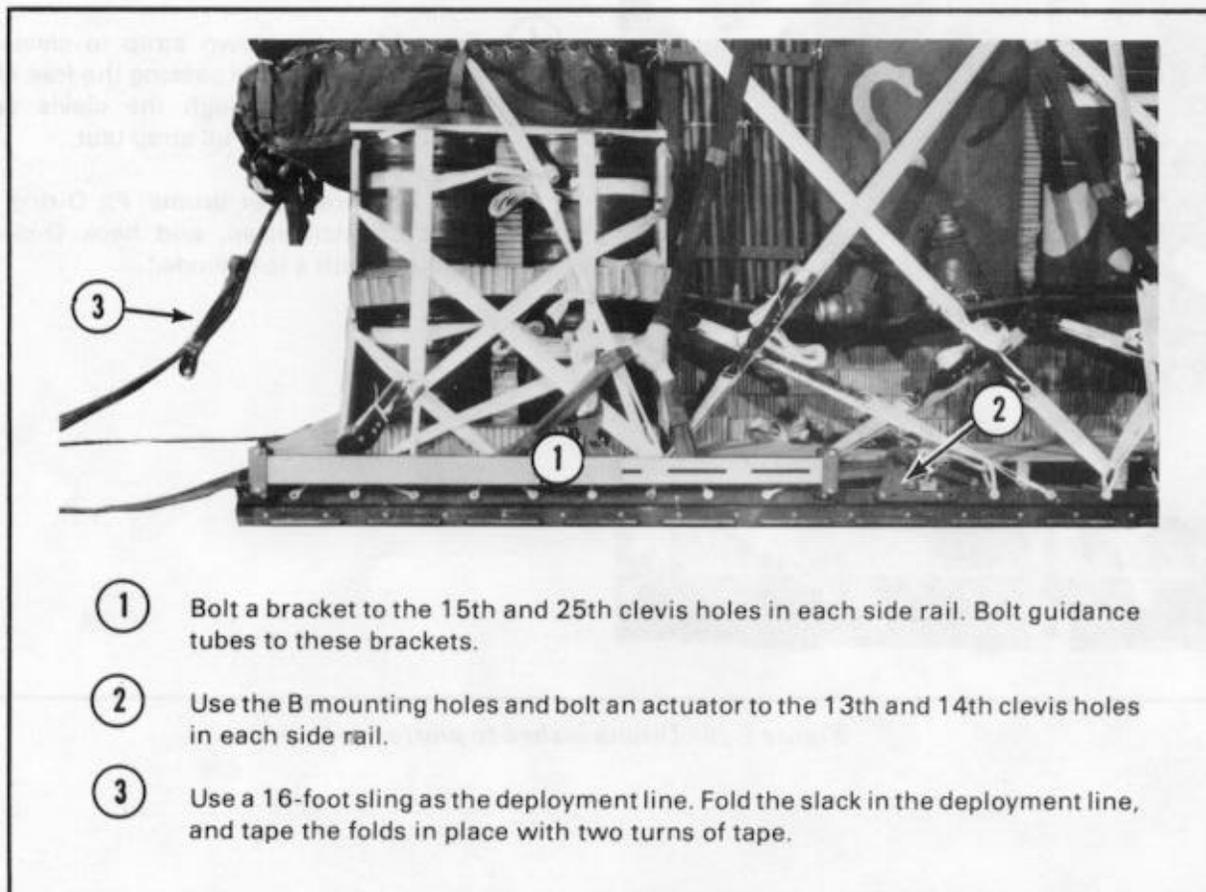
## 2-11. Installing Extraction System

One of two extraction systems may be used on this

load. One is the extraction force transfer coupling (platform), which is called the PEFTC. The other system is the static line/connector strap extraction system, which is called the SL/CS. The installation instructions for each system are given below.

a. *SL/CS*. Install the SL/CS according to FM 10-500/TO 13C7-1-5. Use a 12-foot (3-loop) type X or (2-loop) type XXVI sling as a deployment line, two 9-foot (3-loop) type X or (2-loop) type XXVI cargo slings, and a 60-inch connector strap. Bolt the load tiedown clevises of the SL/CS to clevis holes number 25 and 25A in the side rails.

b. *PEFTC*. Install the PEFTC according to FM 10-500/TO 13C7-1-5 and as shown in figure 2-17. Use a 16-foot (3-loop) type X or (2-loop) type XXVI sling as a deployment line.



- ① Bolt a bracket to the 15th and 25th clevis holes in each side rail. Bolt guidance tubes to these brackets.
- ② Use the B mounting holes and bolt an actuator to the 13th and 14th clevis holes in each side rail.
- ③ Use a 16-foot sling as the deployment line. Fold the slack in the deployment line, and tape the folds in place with two turns of tape.

Figure 2-17. PEFTC installed.

**2-12. Installing Release System**

Install and safety an M-1 cargo parachute release according to FM 10-500/TO 13C7-1-5. If the M-1 release is not available, use two 5,000-pound-capacity cargo parachute releases only with G-11A cargo parachutes. Prepare, attach, and safety the 5,000-pound releases according to FM 10-500/TO 13C7-1-5.

**Note:** Do NOT rig the 5,000-pound release with a G-11B cargo parachute on this load.

**2-13. Placing Extraction Parachute**

a. *C-130 Aircraft.* Lay an unreefed 15-foot cargo extraction parachute on the load for installation in the aircraft.

b. *C-141B Aircraft.* Use either a reefed or an unreefed 15-foot cargo extraction parachute. The extraction parachute must be equipped with a

36-inch adapter web and a continuous 160-foot (1-loop) type XXVI nylon extraction line. Place the parachute on the load for installation in the aircraft.

**Note:** The extraction line must be a continuous 160-foot (1-loop) type XXVI nylon extraction line. Do NOT use shorter lines to form the 160-foot extraction line.

**2-14. Marking Rigged Load**

Mark the rigged load as outlined in FM 10-500/TO 13C7-1-5 and as shown in figure 2-18.

**2-15. Equipment Required**

The equipment required to rig this load is listed in table 2-1.

**CAUTION**

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

**RIGGED LOAD DATA**

Weight .....	6,080 pounds
Width .....	108 inches
Height .....	77 inches
Length .....	145 inches
Center of Balance (from front edge of platform) .....	78 inches
Extraction System (shown) .....	PEFTC

Figure 2-18. Decontamination unit rigged for low-velocity airdrop.

Table 2-1. Equipment required.

National Stock No	Item	Quantity
1670-00-040-8215	Adapter Web, 36-in (for C-141B)	1
8040-00-273-8713	Adhesive, paste, 1-gal	As required
1377-00-958-1048	*Cartridge, time-delay, 20-sec	2
1670-00-090-5354	Clevis Assembly, suspension, large	3
1670-00-893-1631	Clevis, load tiedown (for decon unit)	8
8305-00-242-3593	Cloth, cotton, duck, 60-in	5 1/2 yd
4020-00-240-2146	Cord, nylon, type II, 550-lb	As required
1670-00-168-6068	**Coupling, airdrop, extraction force transfer (platform)	1
1670-00-360-0328	Cover, clevis, large	2
1670-00-360-0329	Cover, link	1
8135-00-664-6958	Cushioning Material, packaging, cellulose wadding	As required
1670-01-107-7652	Line, extraction, type XXVI nylon webbing, 160-ft (for C-141B)	1
1670-00-783-5988	Link Assembly, type IV	1
1670-00-799-8596	*Load Coupler, 8-spool	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in:	8 sheets
	6- by 19-in	(9)
	6- by 26-in	(15)
	6- by 40-in	(6)
	8- by 18-in	(1)
	9- by 40-in	(6)
	9- by 64-in	(1)
	12- by 18-in	(1)
	18- by 48-in	(1)
	19- by 40-in	(1)
	31- by 54 1/2-in	(1)
	33- by 96-in	(2)
	36- by 36-in	(1)
	36- by 50-in	(1)
	36- by 64-in	(1)
	Parachute, cargo:	
1670-00-269-1107	G-11A	2
	or	
1670-01-016-7841	G-11B	2
1670-00-052-1548	***Parachute, cargo, extraction, 15-ft	1
	Platform, airdrop, modular, 12-ft:	
	Clevis, load tiedown	36
1670-00-893-1631	Panel	3
1670-00-893-1624	Rail, platform side, 12-ft	2
1670-00-082-5311	Rivet, blind-drive type, 1/4-in diam	48
5320-00-893-1632	Plywood, 3/4-in:	3 sheets
5530-00-128-4981	33- by 84-in	1
	33- by 90-in	2
1670-01-097-8816	Release, cargo parachute, M-1	1
	or	
1377-00-799-8494	*Release, 5,000-lb-cap cargo parachute	2

Table 2-1. (Continued).

National Stock No	Item	Quantity
	Slings, cargo, airdrop:	
	For 5,000-lb releases:	
1670-00-753-3788	3-ft (3-loop) type X	4
	or	
1670-01-062-6301	3-ft (2-loop) type XXVI	4
	For platform suspension:	
1670-00-753-3788	3-ft (3-loop) type X	4
	or	
1670-01-062-6301	3-ft (2-loop) type XXVI	4
1670-00-823-5041	12-ft (3-loop) type X	4
	or	
1670-01-062-6303	12-ft (2-loop) type XXVI	4
	For deployment line:	
1670-00-823-5042	16-ft (3-loop) type X	1
	or	
1670-01-063-7761	16-ft (2-loop) type XXVI	1
	For riser extension:	
1670-00-360-0474	20-ft (2-loop) type X	2
	or	
1670-00-753-3794	20-ft (2-loop) type X	2
	or	
1670-00-823-5043	20-ft (3-loop) type X	2
	or	
1670-01-062-6302	20-ft (2-loop) type XXVI	2
1670-00-040-8219	Strap, parachute release, multiple cut	1
	Strongbacks:	3
5510-00-220-6146	Lumber, 2- by 4- by 96-in	(15)
5315-00-010-4657	Nails, steel wire, common, 6d	As required
5530-00-262-8195	Plywood, 1/2- by 48- by 96-in	(6)
7510-00-266-5016	Tape, adhesive, 2-in	As required
	Tiedown Assembly, 10,000-lb:	36
1670-00-937-0272	Binder, load, 10,000-lb-cap	(29)
5365-00-937-0147	D-ring, heavy-duty	(36)
1670-00-937-0273	Strap, 15-ft	(36)
8305-00-268-2411	Webbing, cotton, 80-lb	As required
	Webbing, nylon:	
8305-00-082-5752	Tubular, 1/2-in	As required
8305-00-263-3591	Type VIII	10 yd

**\*Do NOT use the 5,000-pound release with the G-11B cargo parachute.**

**\*\*When this item is not used, use the following items for the SL/CS:**

1670-00-090-5354	Clevis Assembly, suspension, large	2
1670-00-893-1631	Clevis, load tiedown	2
1670-00-783-5988	Link Assembly, type IV	1

Table 2-1. (Continued).

National Stock No	Item	Quantity
1670-00-753-3631	Sling, cargo, airdrop: 9-ft (3-loop) type X or	2
1670-01-062-6304	9-ft (2-loop) type XXVI	2
1670-00-823-5041	12-ft (3-loop) type X or	1
1670-01-062-6303	12-ft (2-loop) type XXVI	1
1670-00-998-0117	Static Line, cargo parachute, breakaway-type, w/release knife and clevis	2
1670-00-738-5878	Strap, connector, 60-in	1

**\*\*\*Install the extraction cargo parachute according to these types of aircraft:**

1. **C-130.** The unreefed 15-foot extraction parachute is used on loads for drop from C-130 aircraft.
2. **C-141B.** The reefed or unreefed 15-foot extraction parachute is used on loads rigged for drop from C-141B aircraft. In addition, the parachute needs a 36-in adapter web and a continuous 160-foot (1-loop) type XXVI nylon webbing extraction line. Do NOT use shorter lines to form the 160-foot line.