

CHAPTER 2

RIGGING WHOLE BLOOD ON A 16-FOOT, TYPE V AIRDROP PLATFORM

Section I

RIGGING BLOOD FOR LOW-VELOCITY AIRDROP

2-1. Description of Load

Whole blood is rigged on a 16-foot, type V airdrop platform with two G-11A or two G-11B cargo parachutes for C-130 or C-141 aircraft.

2-2. Preparing Platform

Prepare a 16-foot, type V airdrop platform as described below.

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

b. Installing Tandem Links. Install a tandem link on the front and rear of each rail as shown in Figure 2-1.

c. Attaching and Numbering Clevises. Bolt 44 tiedown clevises to the side rail bushings and tandem links according to TM 10-1670-268-20&P/TO 13C7-52-22 and as shown in Figure 2-1. Number the clevises as shown in Figure 2-1.

NOTES:

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

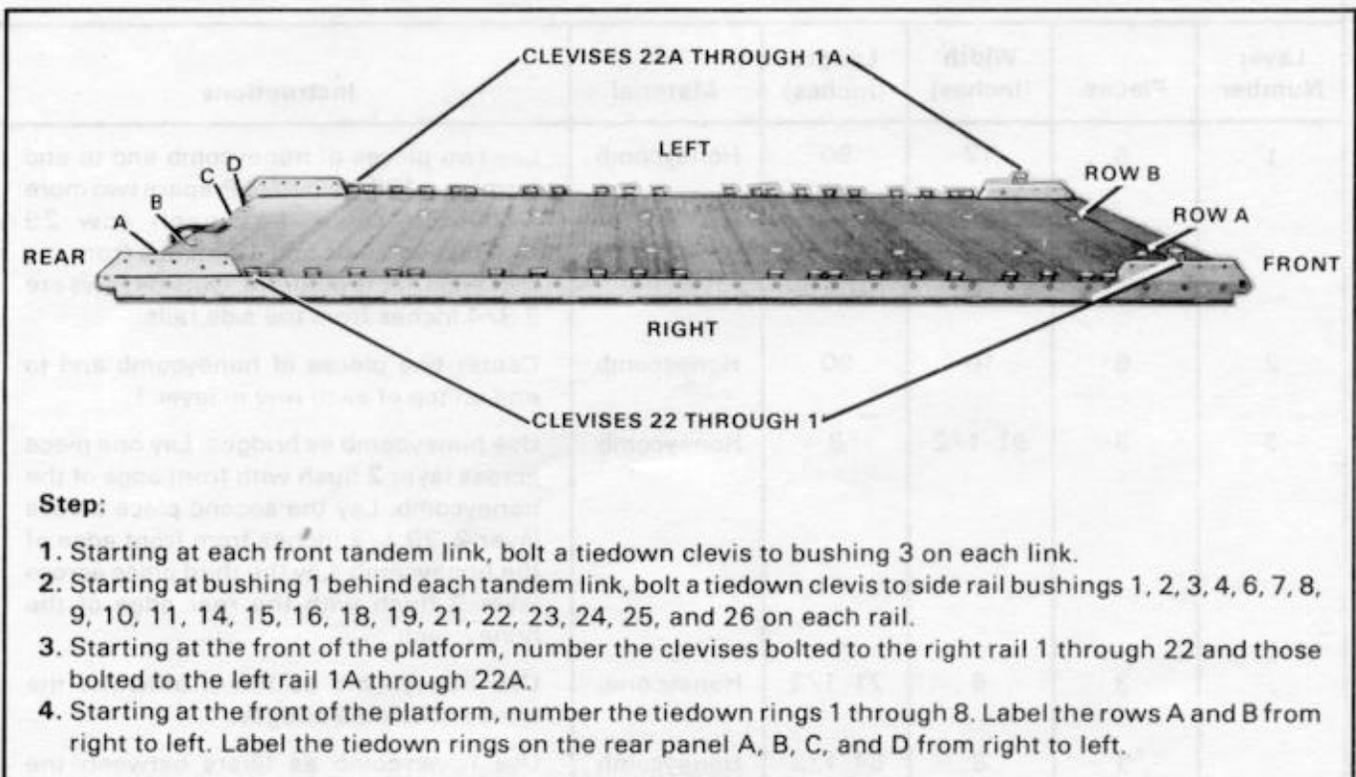
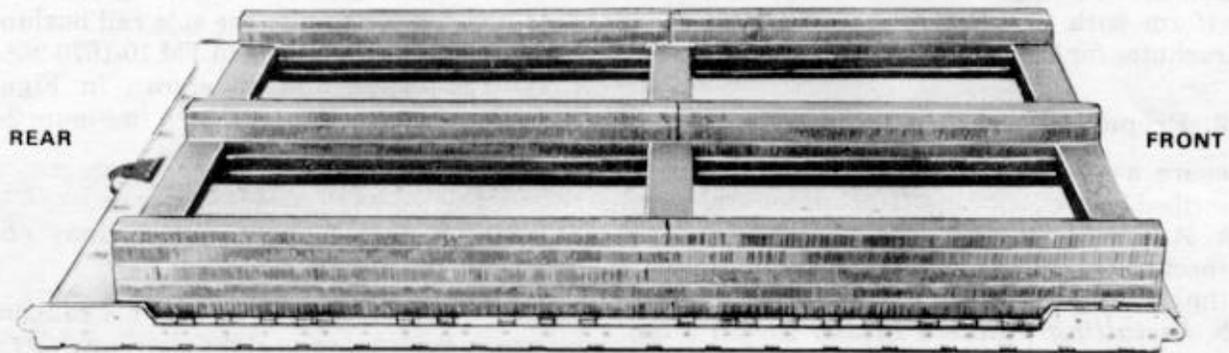


Figure 2-1. Platform prepared

2-3. Preparing and Placing Honeycomb Layers

Prepare and place the honeycomb layers as shown in Figures 2-2 and 2-3.

NOTE: Glue all honeycomb layers together. Do not glue the layers to the platform.



Layer Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
1	6	12	90	Honeycomb	Lay two pieces of honeycomb end to end forming a 180-inch row. Prepare two more 180-inch rows. Lay each row 29 3/4 inches apart and 13 inches from the rear edge of the platform. Outside rows are 2 3/4 inches from the side rails.
2	6	10	90	Honeycomb	Center two pieces of honeycomb end to end on top of each row in layer 1.
3	3	91 1/2	8	Honeycomb	Use honeycomb as bridges. Lay one piece across layer 2 flush with front edge of the honeycomb. Lay the second piece across layer 2, 79 1/2 inches from front edge of the honeycomb. Lay the third piece across layer 2 flush with the rear edge of the honeycomb.
	3	8	71 1/2	Honeycomb	Use honeycomb as fillers between the front and middle bridges.
	3	8	84 1/2	Honeycomb	Use honeycomb as fillers between the middle and rear bridges.

Figure 2-2. Honeycomb layers prepared and placed on platform

Layer Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
4	6	6	90	Honeycomb	Center two pieces of honeycomb end to end on top of each 180-inch row in layer 3.
5	6	4	90	Honeycomb	Center two pieces of honeycomb end to end on top of each row in layer 4.

Figure 2-2. Honeycomb layers prepared and placed on platform (continued)

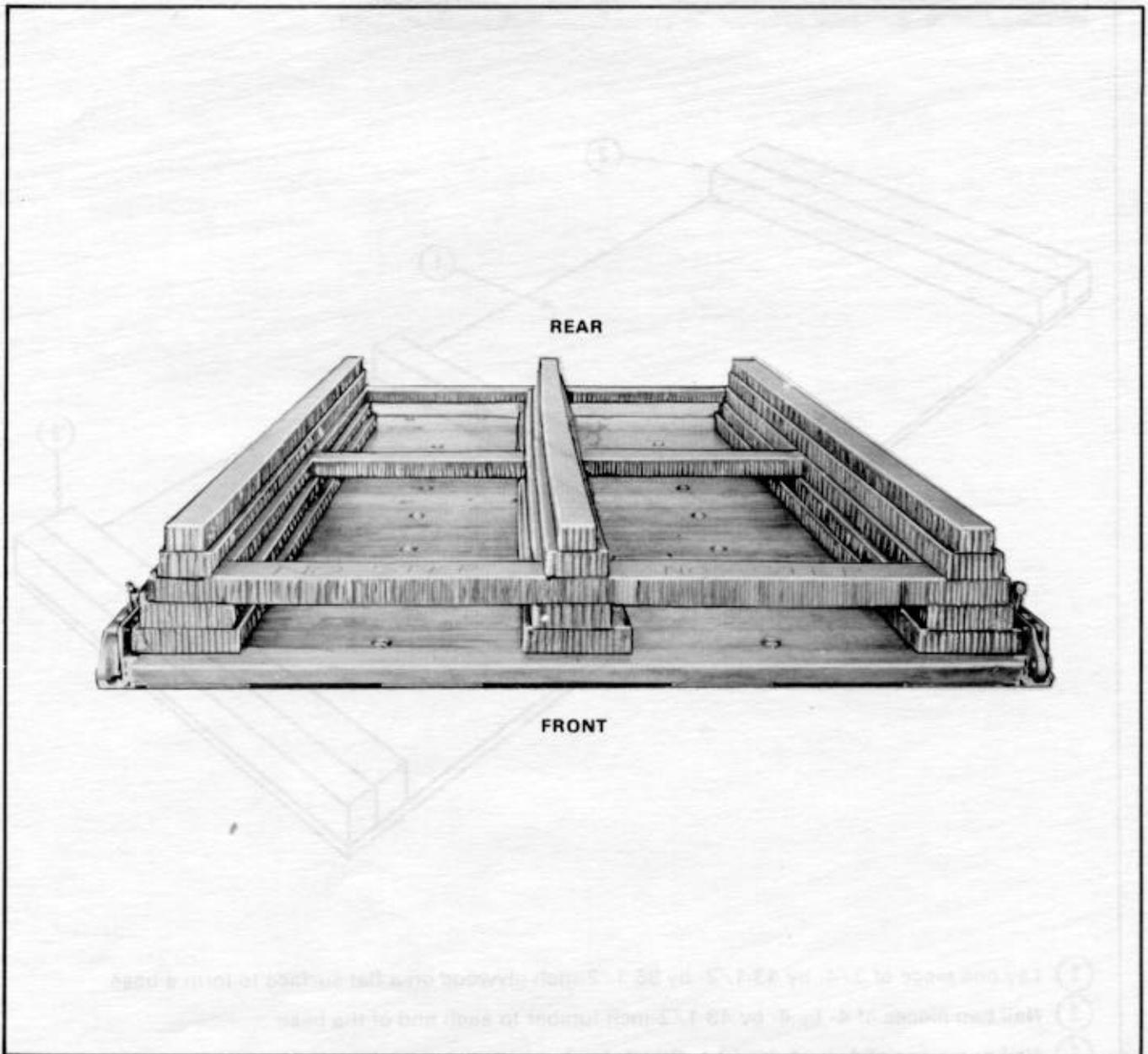


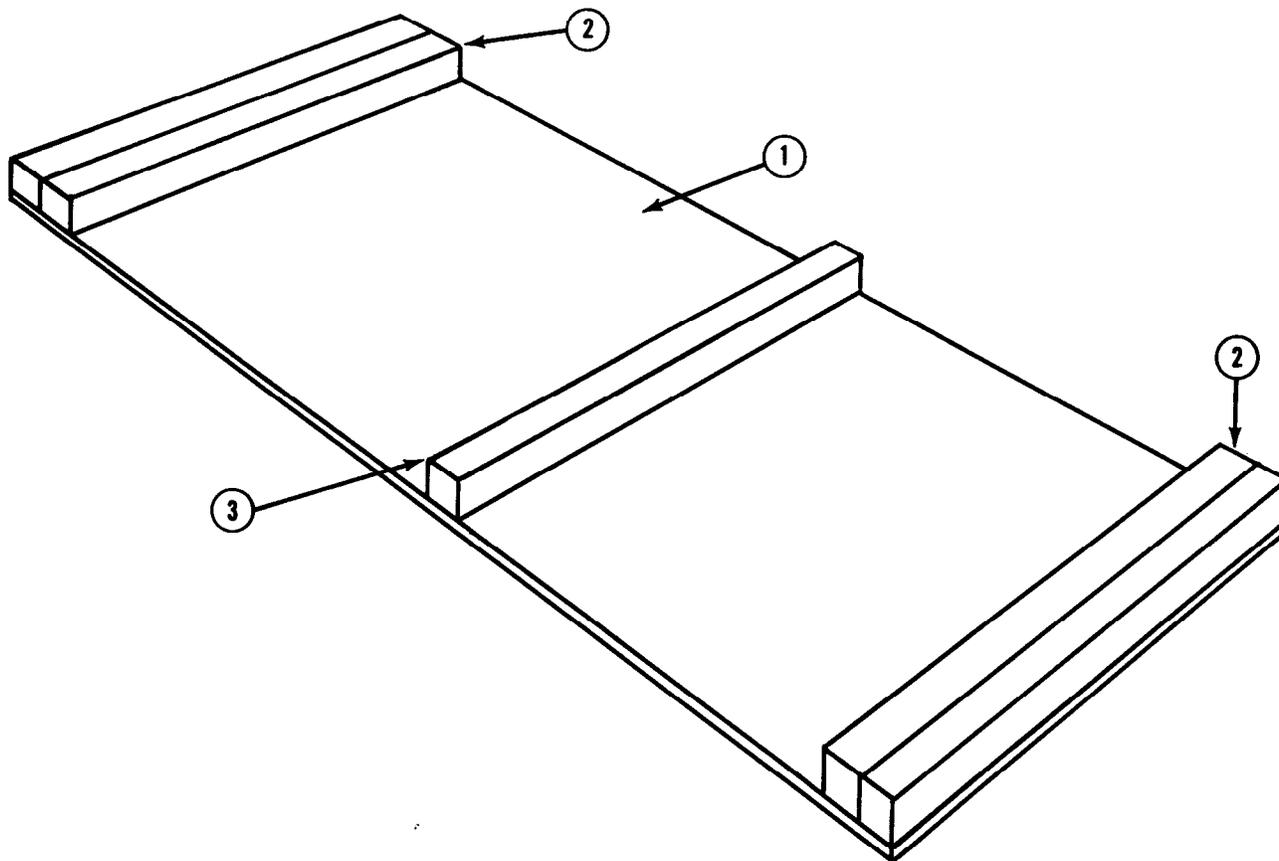
Figure 2-3. Front view of honeycomb layers placed on platform

2-4. Preparing Wooden Boxes

Prepare four wooden boxes. An example is shown in Figure 2-4.

NOTES:

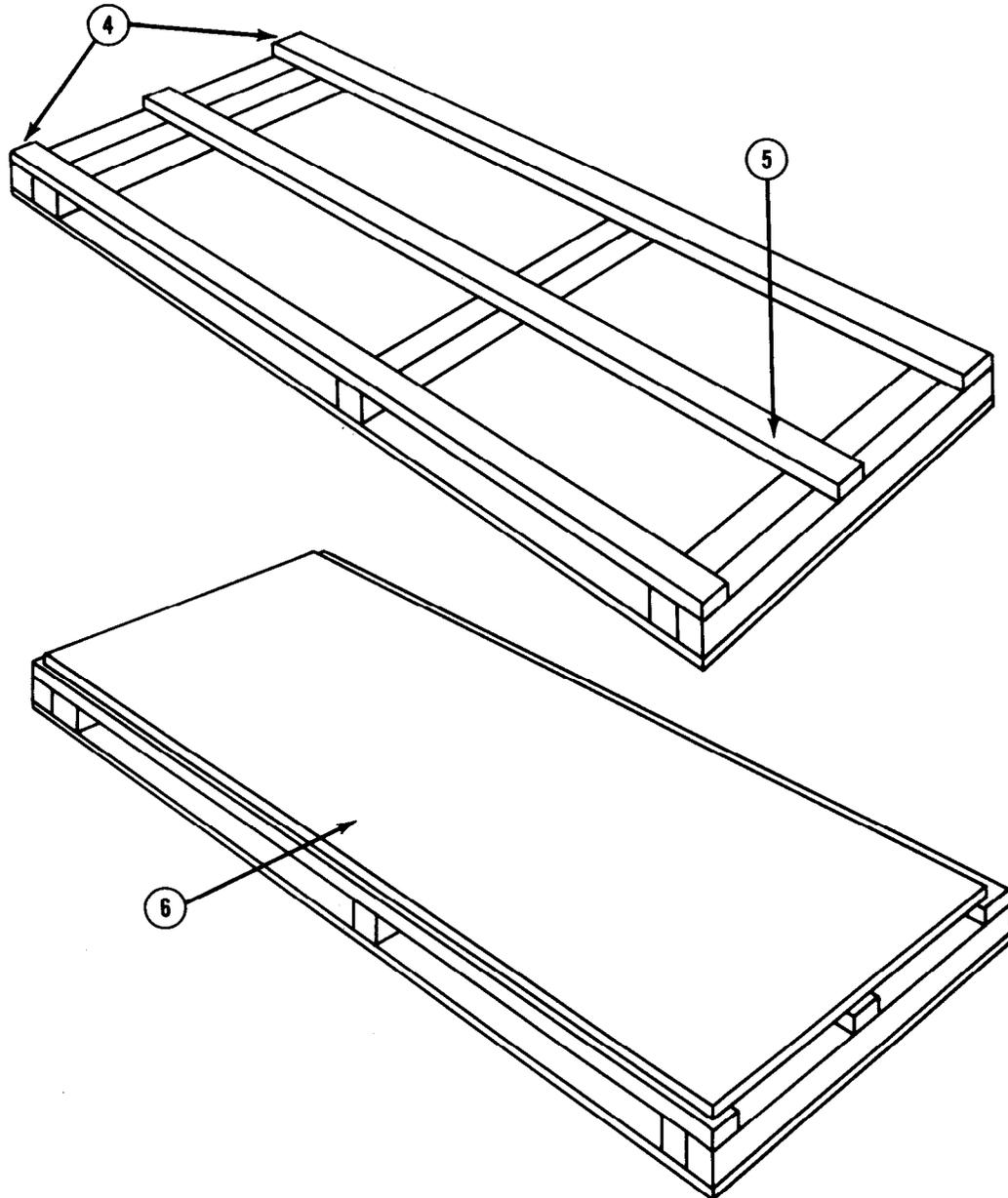
1. This drawing is not drawn to scale.
2. Use fourpenny or sixpenny nails.
3. The nails must not enter the inside dimensions of the boxes.
4. Make sure the nails do not penetrate the 4- by 4-inch lumber.



- ① Lay one piece of 3/4- by 43 1/2- by 95 1/2-inch plywood on a flat surface to form a base.
- ② Nail two pieces of 4- by 4- by 43 1/2-inch lumber to each end of the base.
- ③ Nail one piece of 4- by 4- by 43 1/2-inch lumber in the center of the base.

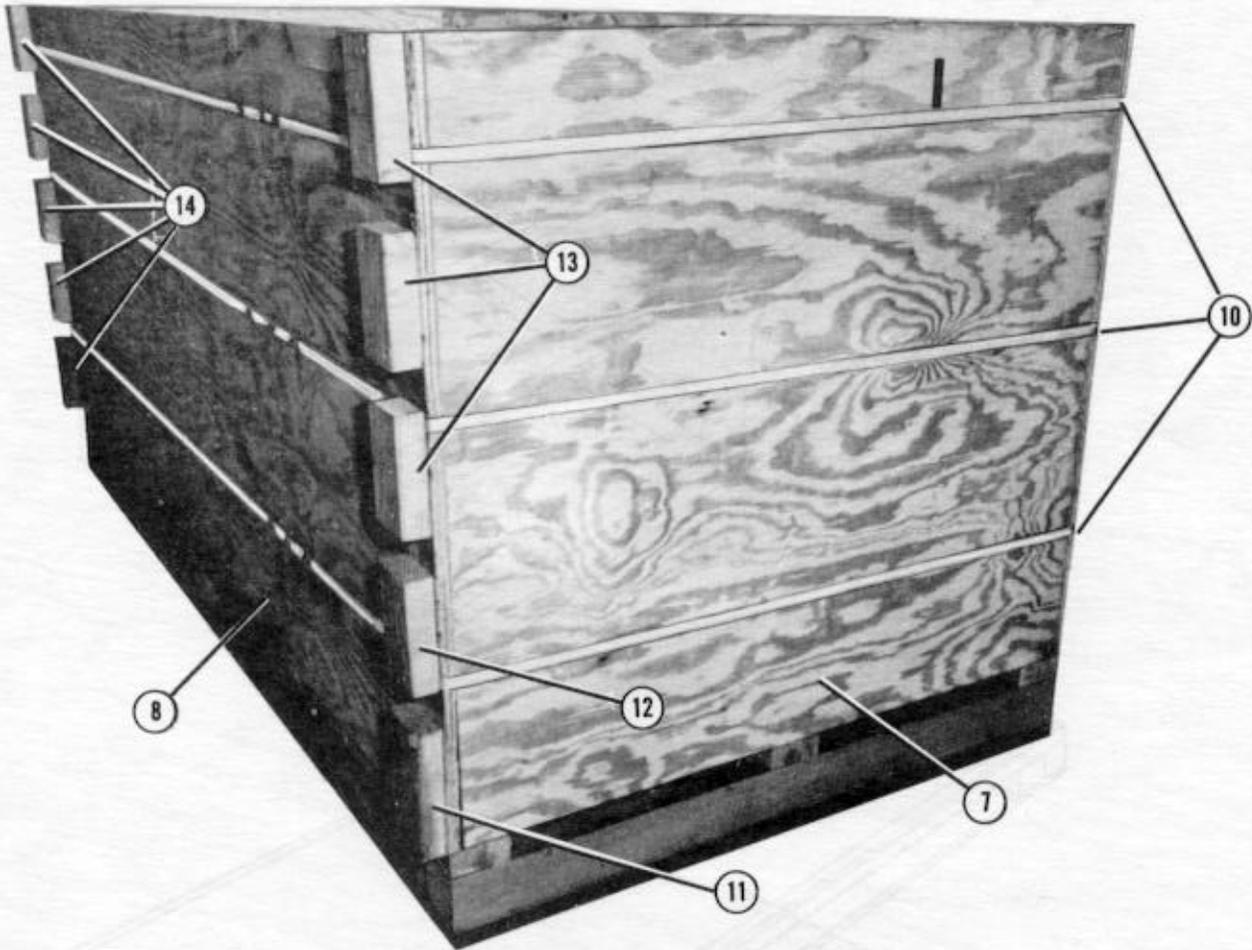
Figure 2-4. Wooden box prepared

NOTE: These drawings are not drawn to scale.



- ④ Nail one piece of 2- by 4- by 95 1/2-inch lumber on top of the 4- by 4- by 43 1/2-inch lumber and flush with each 95 1/2-inch side of the base.
- ⑤ Nail one piece of 2- by 4- by 95 1/2-inch lumber centered between the lumber installed in step 4 above.
- ⑥ Center one piece of 3/4- by 42- by 94-inch plywood on top of the 2- by 4-inch lumber. Nail it in place.

Figure 2-4. Wooden box prepared (continued)



- ⑦ Nail a piece of 3/4- by 39 1/2- by 42-inch plywood to each end of the base.
- ⑧ Nail a piece of 3/4- by 39 1/2- by 95 1/2-inch plywood to each side of the base.
- ⑨ Nail the sides to the ends.

NOTE: The ends must be to the inside of the sides to form the inner dimensions of 38 by 94 by 42 inches.

- ⑩ Run three lengths of 5/8-inch steel strapping around the box. Secure the strapping with clamps.
- ⑪ Nail one piece of 2- by 4- by 7 1/2-inch lumber to a lower corner on one side of the box.
- ⑫ Nail one piece of 2- by 4- by 6-inch lumber 2 inches above the 2- by 4- by 7 1/2-inch lumber.
- ⑬ Nail three more pieces of 2- by 4- by 6-inch lumber up the side of the box. Position each piece 2 inches above the other.
- ⑭ Repeat steps 11, 12, and 13 above on the opposite corner of the same side of the box.

Figure 2-4. Wooden box prepared (continued)

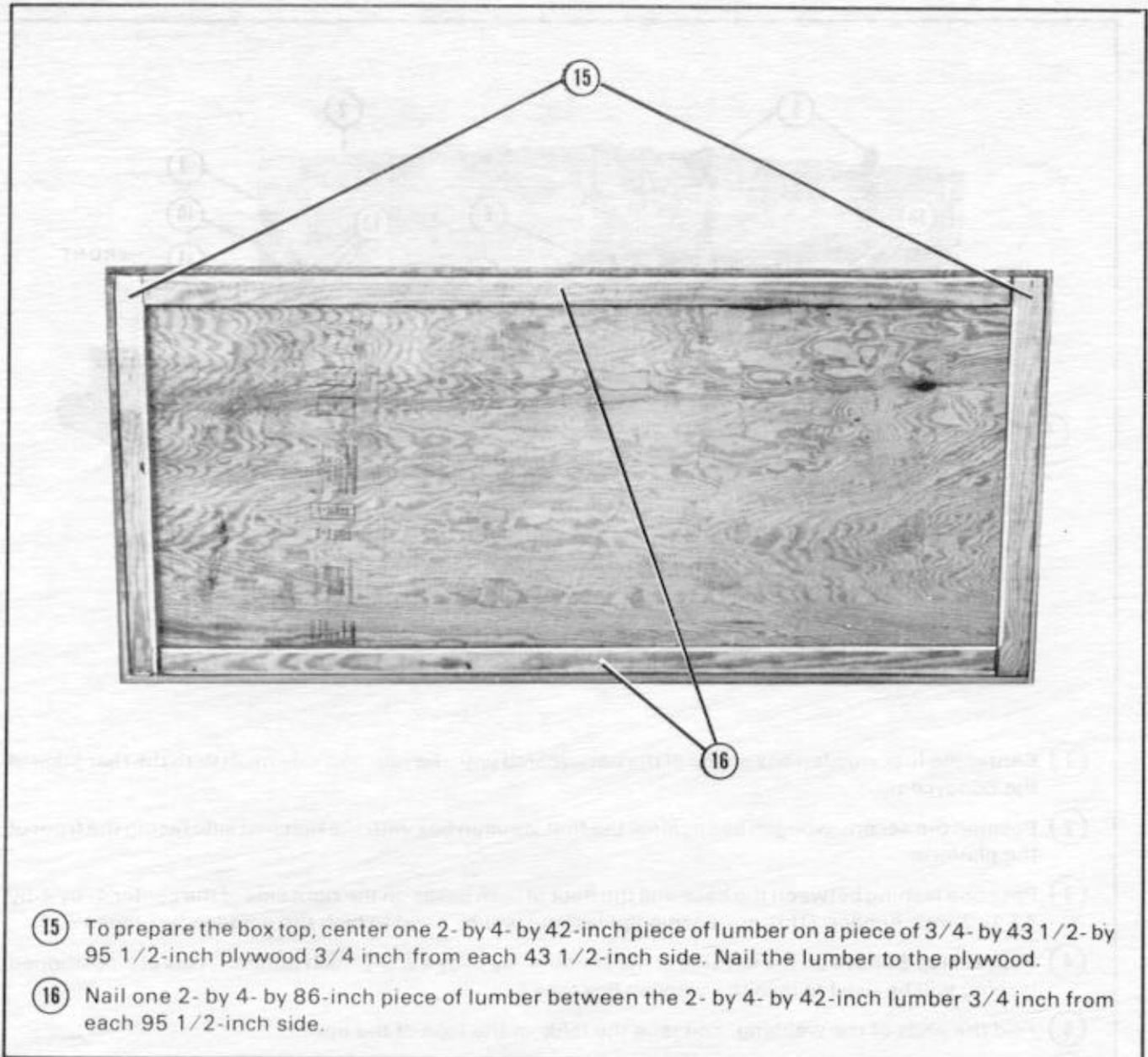


Figure 2-4. Wooden box prepared (continued)

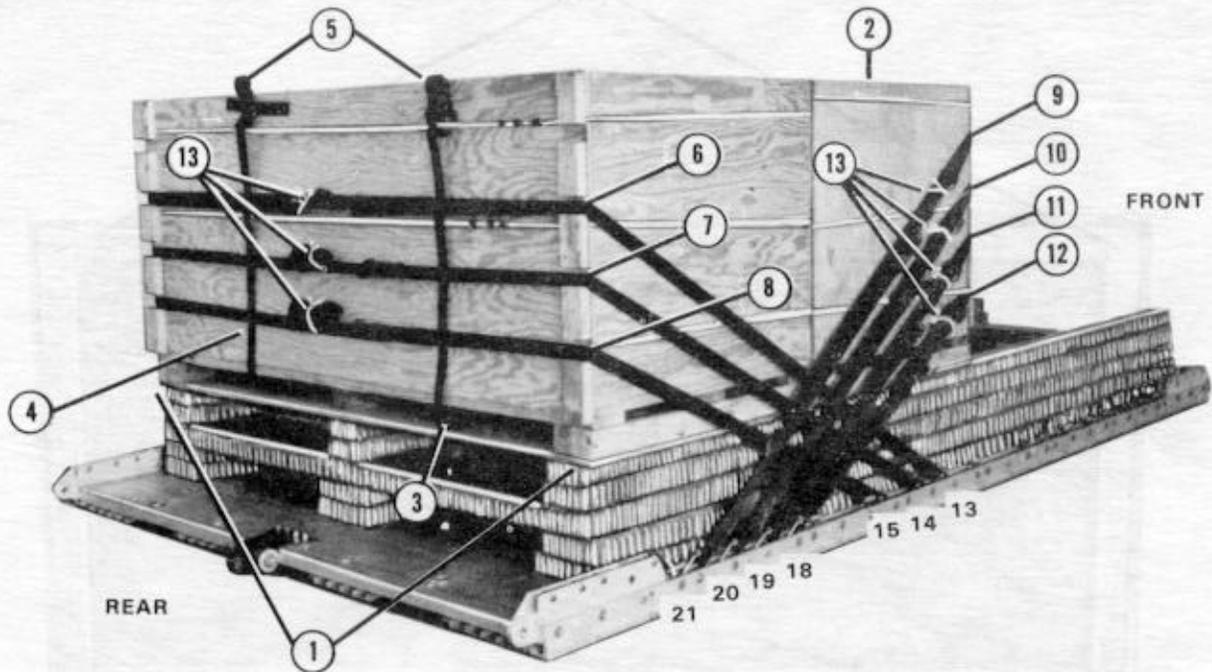
2-5. Positioning and Lashing Wooden Boxes

Position and lash four wooden boxes on the honeycomb as shown in Figure 2-5. Lash the boxes in pairs using eighteen 48-foot lengths of type X nylon webbing, 36 D-rings, and 18 load binders. Position four lashings to be used later for securing the wooden box tops. Position the remaining 14 lashings, and fasten them immediately after they have been positioned on each pair of boxes. Fit all

D-rings and close all load binders according to FM 10-500/TO 13C7-1-5.

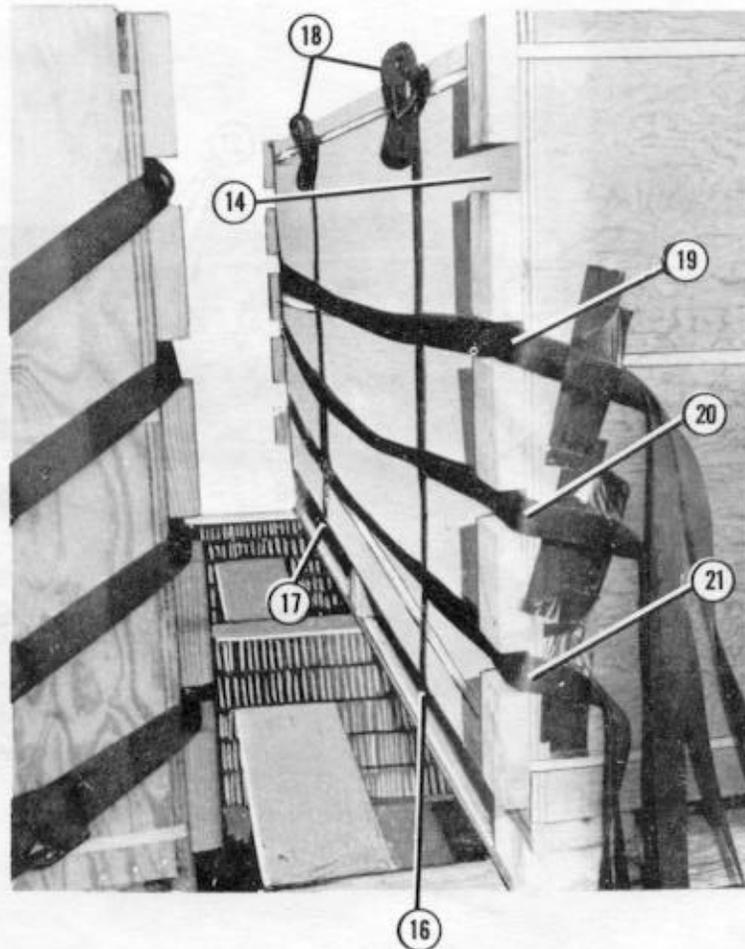
CAUTION

Positioning of the load binders is critical. Place the load binders exactly where shown.



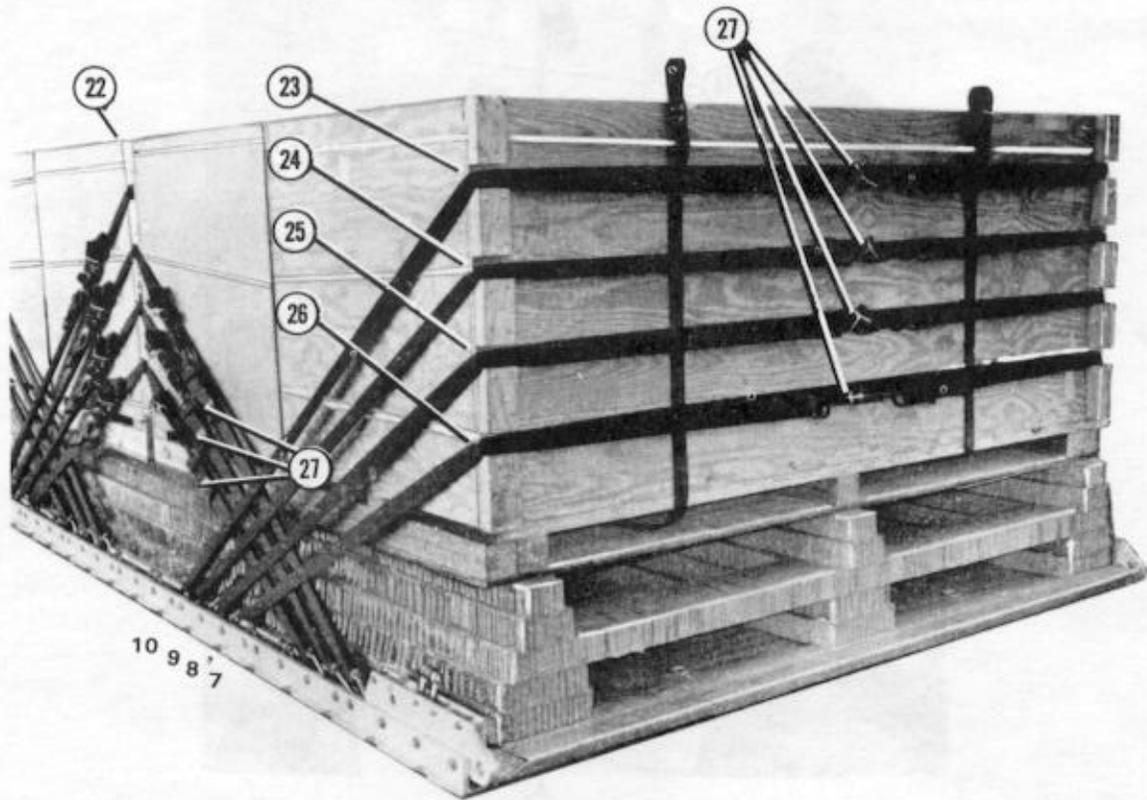
- ① Center the first wooden box on top of the honeycomb with the notched side flush with the rear edge of the honeycomb.
- ② Position the second wooden box against the first wooden box with the notched side facing the front of the platform.
- ③ Pass one lashing between the base and the floor of both boxes on the right side of the center 4- by 4- by 43 1/2-inch lumber. (This pre-positioned lashing will be used to lash the wooden box tops.)
- ④ Repeat step 3 above on the left side of the center 4- by 4- by 43 1/2-inch lumber. (This pre-positioned lashing will be used to lash the wooden box tops.)
- ⑤ Fold the ends of the webbing, and tape the folds at the tops of the boxes.
- ⑥ Pass a lashing from clevis 13, through the second notch from the top on both sides of the first box, through clevis 13A, and back to the center rear of the box.
- ⑦ Repeat step 6 above using clevises 14 and 14A and the third notch from the top.
- ⑧ Repeat step 6 above using clevises 15 and 15A and the bottom notch.
- ⑨ Pass a lashing from clevis 21, through the top notch on both sides of the second box, through clevis 21A, and back to the right side of the platform.
- ⑩ Repeat step 9 above using clevises 20 and 20A and the second notch from the top.
- ⑪ Repeat step 9 above using clevises 19 and 19A and the third notch from the top.
- ⑫ Repeat step 9 above using clevises 18 and 18A and the bottom notch.
- ⑬ Bind all lashings placed in steps 6 through 12 above.

Figure 2-5. Wooden boxes positioned and lashed



- ⑭ Position the third wooden box on top of the honeycomb with the notched side 24 inches from the front of the second box.
- ⑮ Position the fourth wooden box against the third box with the notched side facing the front of the platform (not shown).
- ⑯ Pass one lashing between the base and the floor of both boxes on the right side of the center 4- by 4- by 43 1/2-inch lumber. (This pre-positioned lashing will be used to lash the wooden box tops.)
- ⑰ Repeat step 3 on the left side of the center 4- by 4- by 43 1/2-inch lumber. (This pre-positioned lashing will be used to lash the wooden box tops.)
- ⑱ Fold the ends of the webbing, and tape the folds at the tops of the boxes.
- ⑲ Pass a lashing from clevis 2, through the second notch from the top on both sides of the third box, through clevis 2A, and back to the right side of the platform. Tape the lashing to the side of the box.
- ⑳ Repeat step 19 above using clevises 3 and 3A and the third notch from the top.
- ㉑ Repeat step 19 above using clevises 4 and 4A and the bottom notch.

Figure 2-5. Wooden boxes positioned and lashed (continued)



- ② Push the third and fourth wooden boxes flush against the second box.
- ③ Pass a lashing from clevis 10, through the top notch on both sides of the fourth box, through clevis 10A, and back to the center front of the box.
- ④ Repeat step 23 above using clevises 9 and 9A and the second notch from the top.
- ⑤ Repeat step 23 above using clevises 8 and 8A and the third notch from the top.
- ⑥ Repeat step 23 above using clevises 7 and 7A and the bottom notch.
- ⑦ Remove the tape from the lashings placed in steps 19, 20, and 21. Bind lashings placed in steps 19, 20, and 21 first; then bind lashings placed in steps 23 through 26.

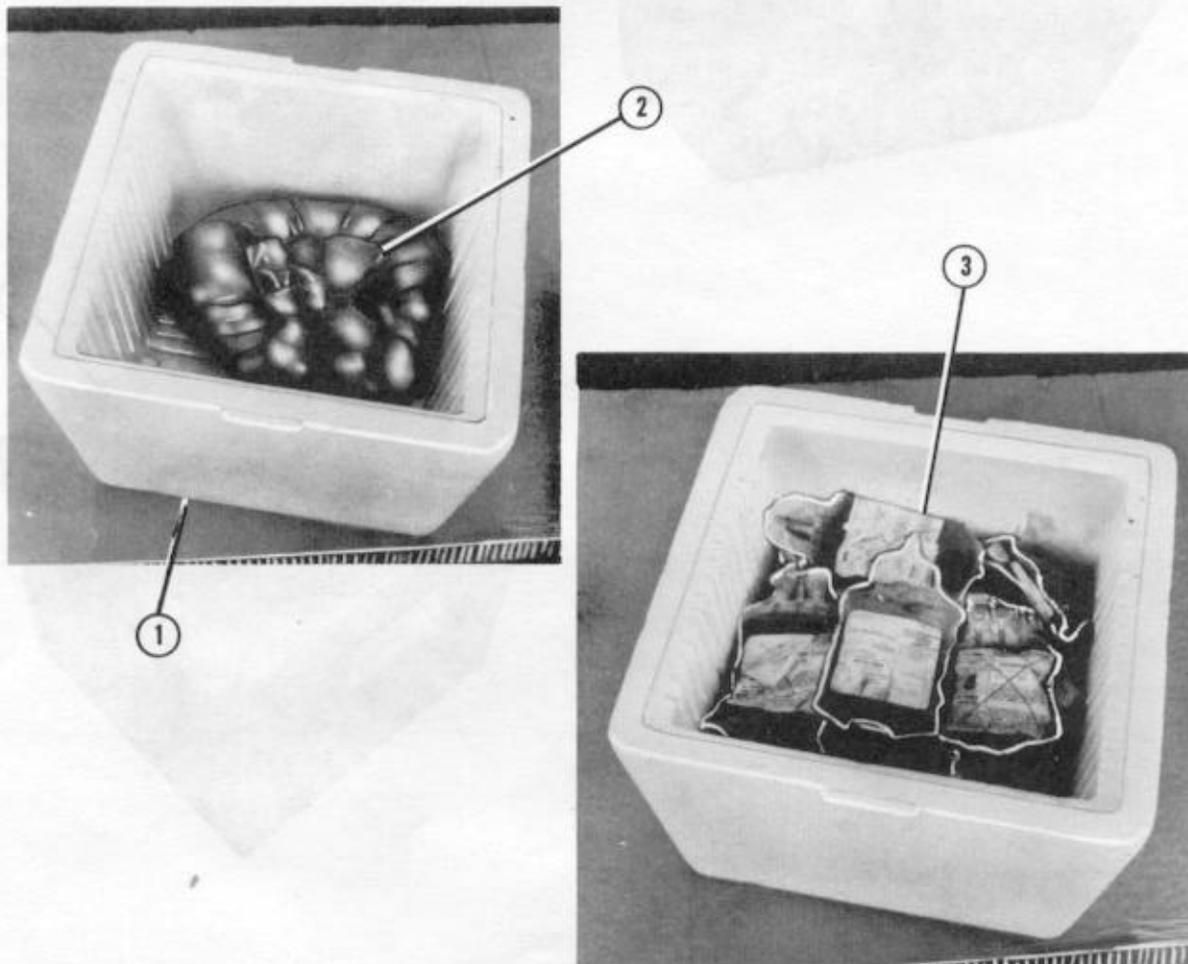
Figure 2-5. Wooden boxes positioned and lashed (continued)

2-6. Packing Blood in Cardboard Containers

Pack whole blood in cardboard containers as shown in Figure 2-6. Eighty containers are required for this load.

CAUTION

Because whole blood is a perishable item, there must be coordination between rigging personnel and medical personnel before the blood is shipped to the rigging site.



- ① Place one Styrofoam cooler on a flat, dry surface. Remove the cooler top.
- ② Put 12 to 14 pounds of ice in a double plastic bag. Seal the bag, and lay it in the bottom of the cooler.
- ③ Place 25 to 35 units of blood into the cooler on top of the ice.

Figure 2-6. Blood packed in cardboard containers

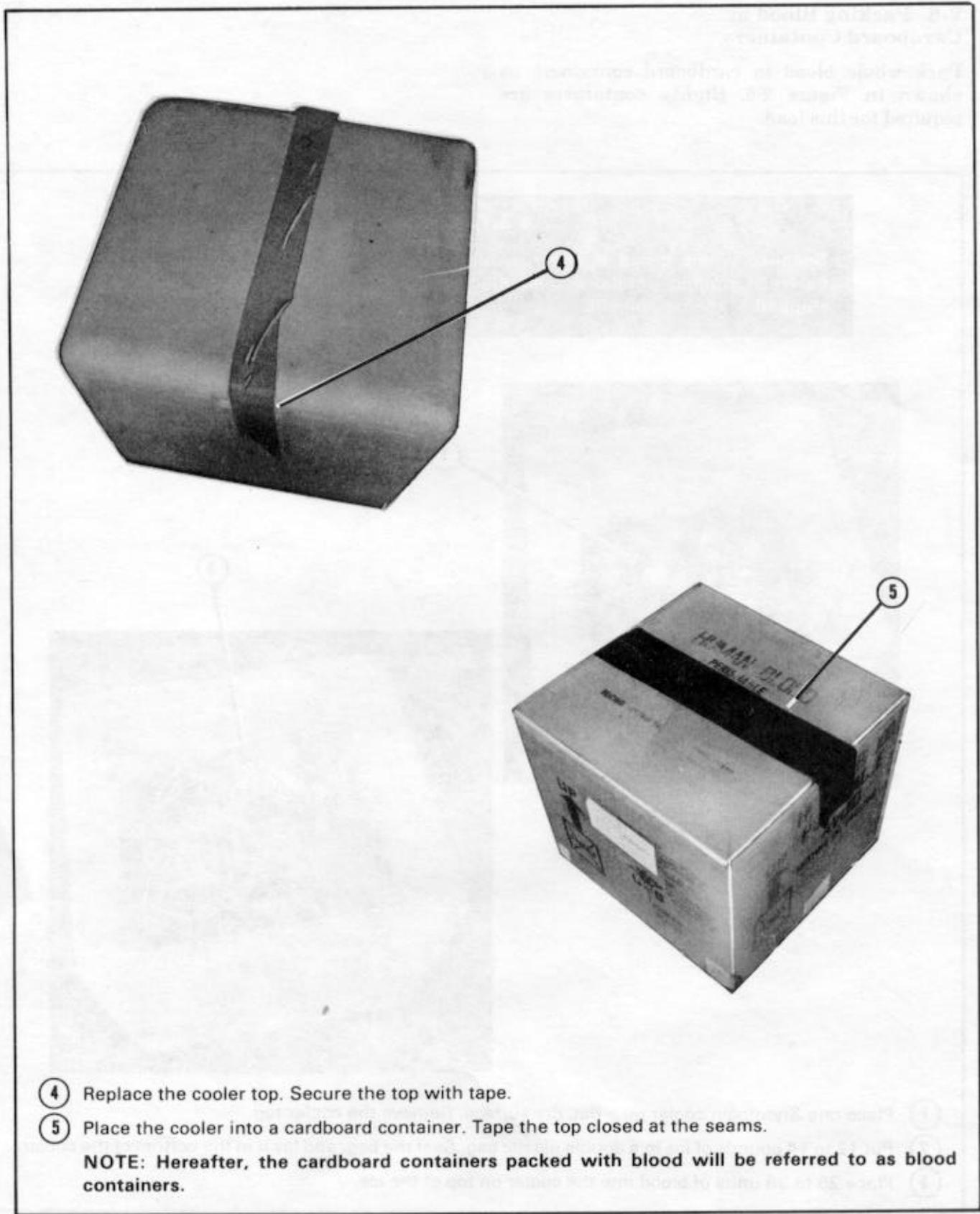


Figure 2-6. Blood packed in cardboard containers (continued)

2-7. Packing Blood Containers in Wooden Boxes

Once the blood containers are delivered to the rigging site, pack them in the wooden boxes as shown in Figure 2-7.

a. Filling Wooden Boxes. Fill the wooden boxes with blood containers as shown in Figure 2-7.

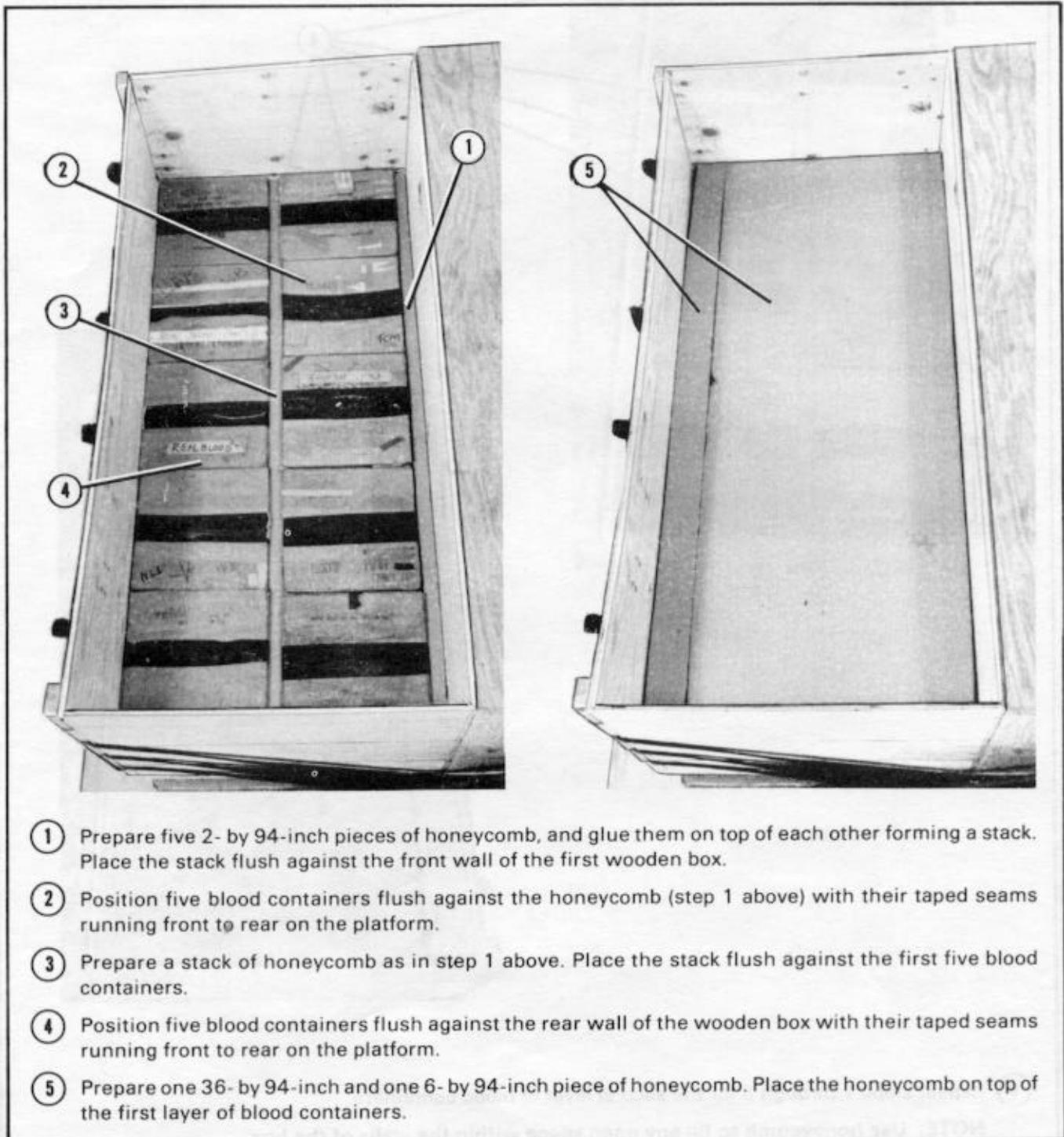
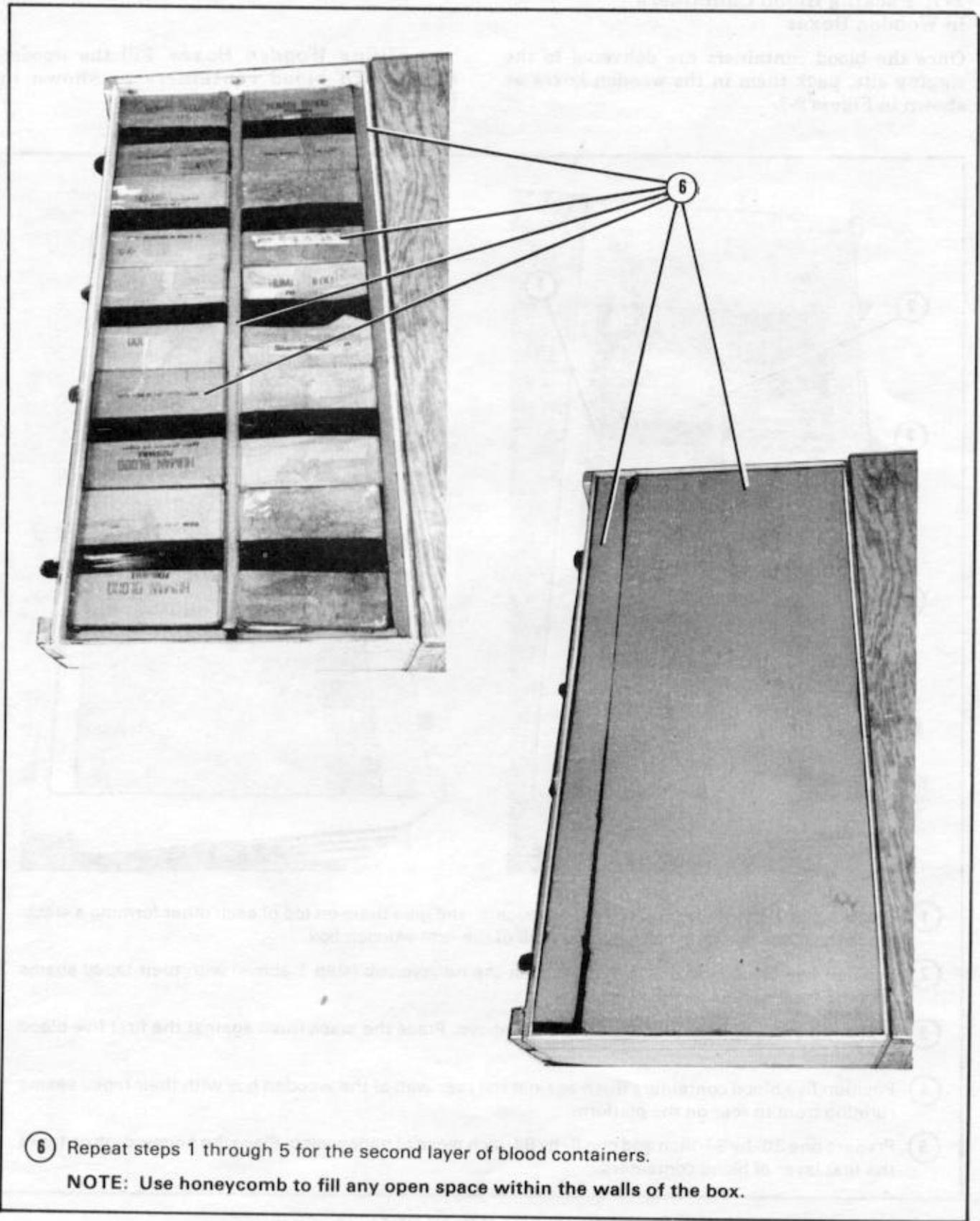


Figure 2-7. Wooden box filled with blood containers

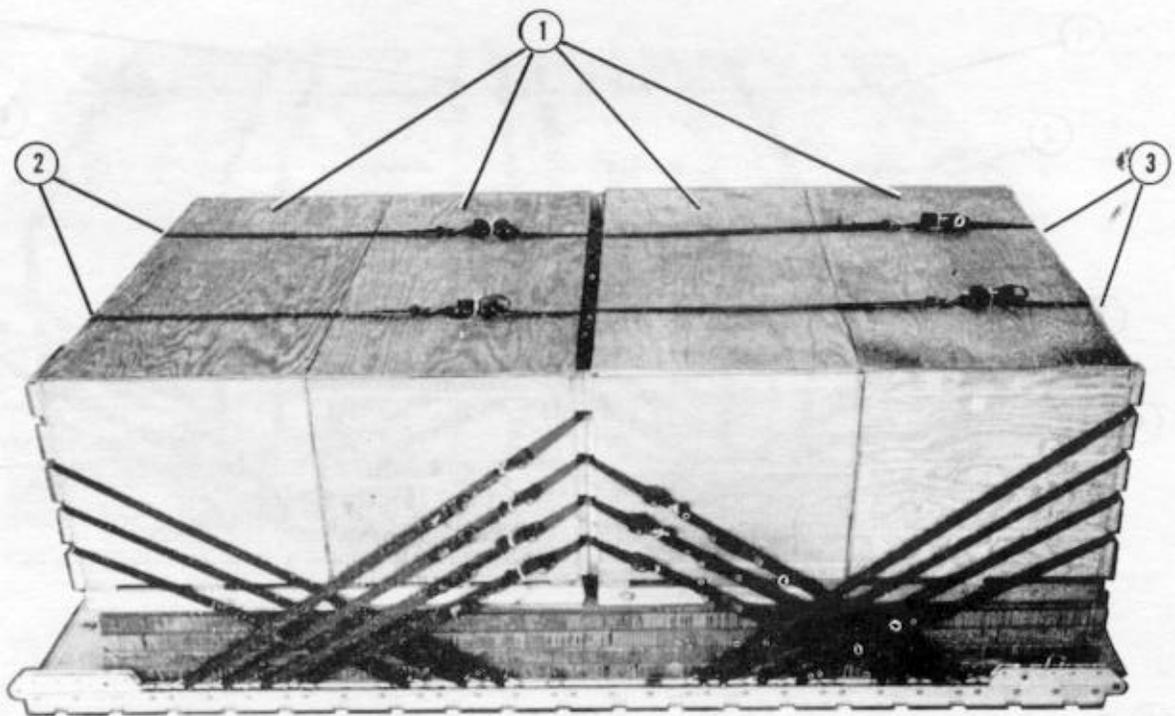


6 Repeat steps 1 through 5 for the second layer of blood containers.

NOTE: Use honeycomb to fill any open space within the walls of the box.

Figure 2-7. Wooden box filled with blood containers (continued)

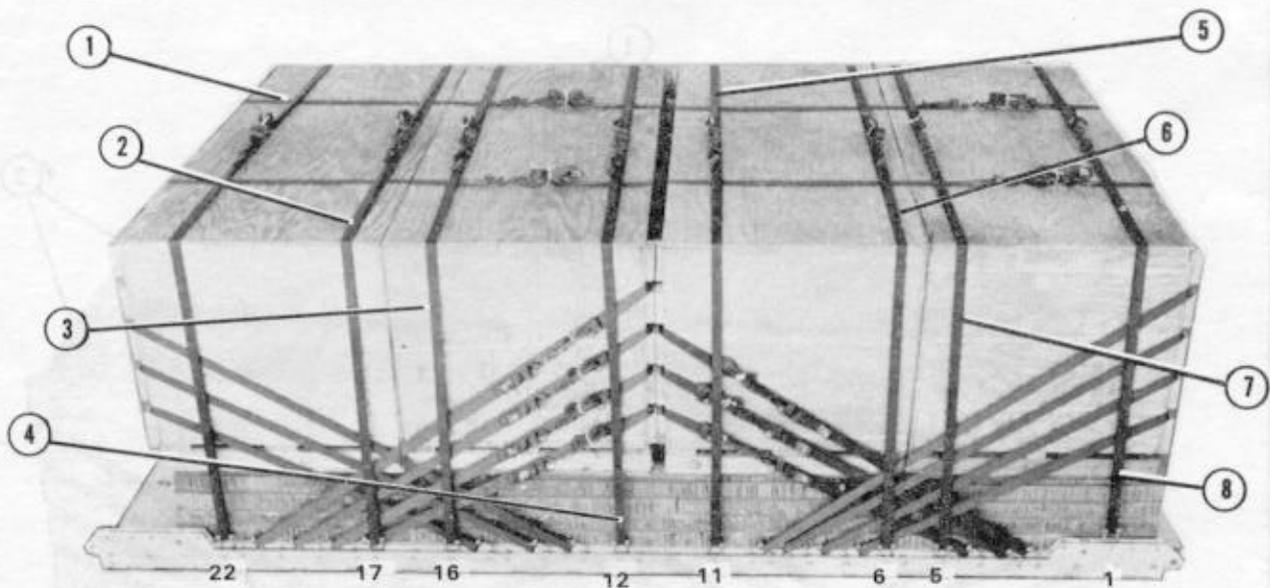
b. Positioning and Lashing Wooden Box Tops. Position and lash the wooden box tops prepared as shown in Figure 2-8. Lash the wooden box tops in pairs using the four pre-positioned lashings from Figure 2-5. Fit all D-rings and close all load binders according to FM 10-500/TO 13C7-1-5.



- ① Place all four wooden box tops on the boxes.
- ② Pass the pre-positioned lashings up over the tops of the first and second boxes. Bind the lashings on top of the second box.
- ③ Pass the pre-positioned lashings up over the tops of the third and fourth boxes. Bind the lashings on top of the fourth box.

Figure 2-8. Wooden box tops positioned and lashed

c. Positioning and Fastening Vertical Lashings. Position and fasten the vertical lashings as shown in Figure 2-9. Use eight 48-foot lengths of type X nylon webbing, 16 D-rings, and 8 load binders. Fit all D-rings and close all load binders according to FM 10-500/TO 13C7-1-5.

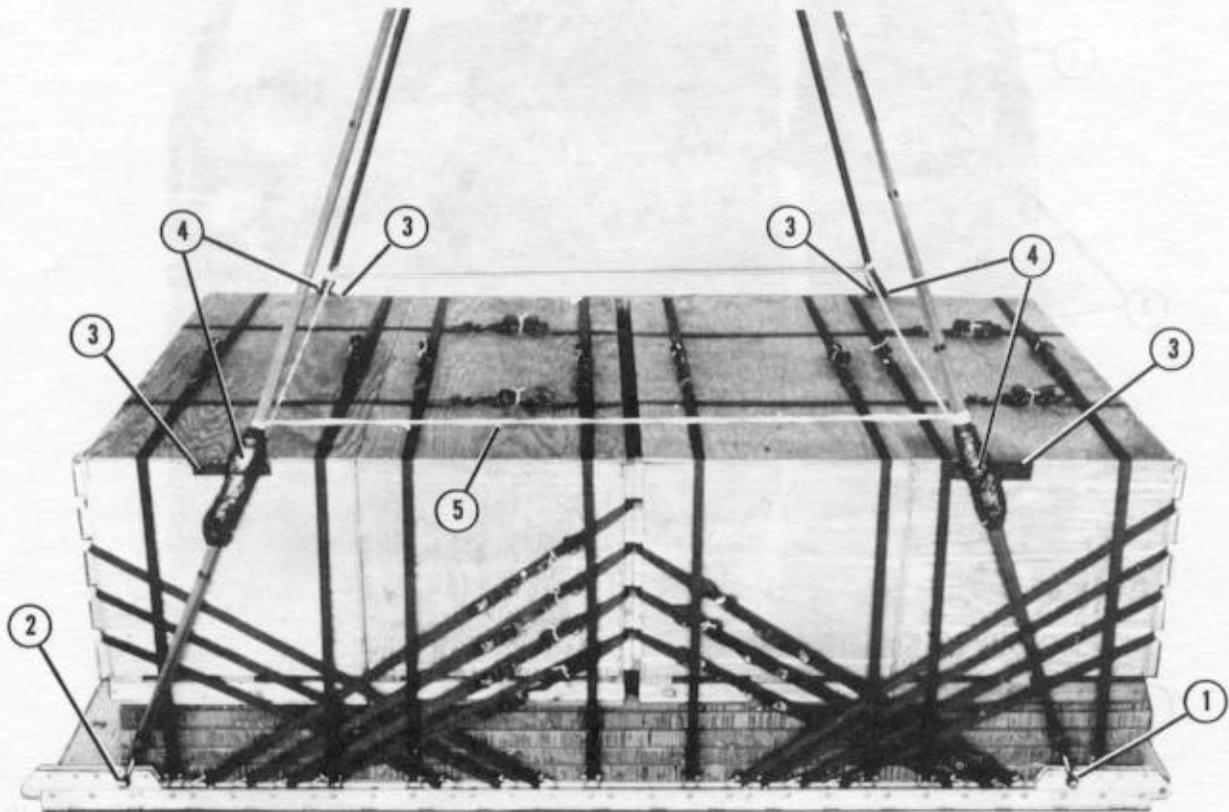


- ① Pass a lashing through clevis 22, over the top of the first wooden box, through clevis 22A, and back to the center rear of the box top. Bind the lashing.
- ② Repeat step 1 above using clevises 17 and 17A and the center front of the box top.
- ③ Pass a lashing through clevis 16, over the top of the second wooden box, through clevis 16A, and back to the center rear of the box top. Bind the lashing.
- ④ Repeat step 3 above using clevises 12 and 12A and the center front of the box top.
- ⑤ Pass a lashing through clevis 11, over the top of the third wooden box, through clevis 11A and back to the center rear of the box top. Bind the lashing.
- ⑥ Repeat step 5 above using clevises 6 and 6A and the center front of the box top.
- ⑦ Pass a lashing through clevis 5, over the top of the fourth wooden box, through clevis 5A, and back to the center rear of the box top. Bind the lashing.
- ⑧ Repeat step 7 above using clevises 1 and 1A and the center front of the box top.

Figure 2-9. Vertical lashings positioned and fastened

2-8. Installing Suspension Slings

Use four large clevises and four 20-foot (2-loop), type XXVI nylon webbing slings for suspension. Bolt and safety the slings as shown in Figure 2-10.

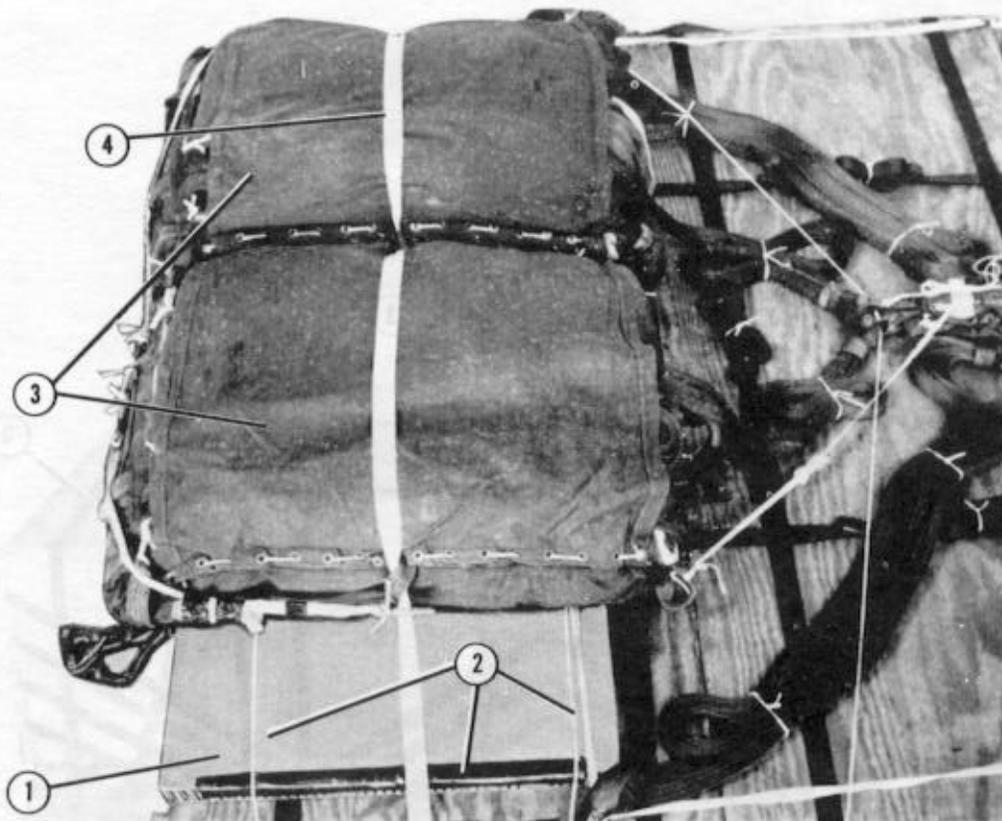


- ① Bolt a 20-foot sling to each front tandem link with a large clevis.
- ② Bolt a 20-foot sling to each rear tandem link with a large clevis.
- ③ Raise the slings. Tape all areas on the boxes where the slings make contact.
- ④ Use an 18-inch length of 1/2-inch felt or cellulose wadding to pad each sling 40 inches above its point of attachment. Tape the felt or cellulose wadding to the slings.
- ⑤ Safety the slings with a deadman's tie according to FM 10-500/TO 13C7-1-5. Make the tie 4 to 6 inches above the top of the load.

Figure 2-10. Suspension slings installed

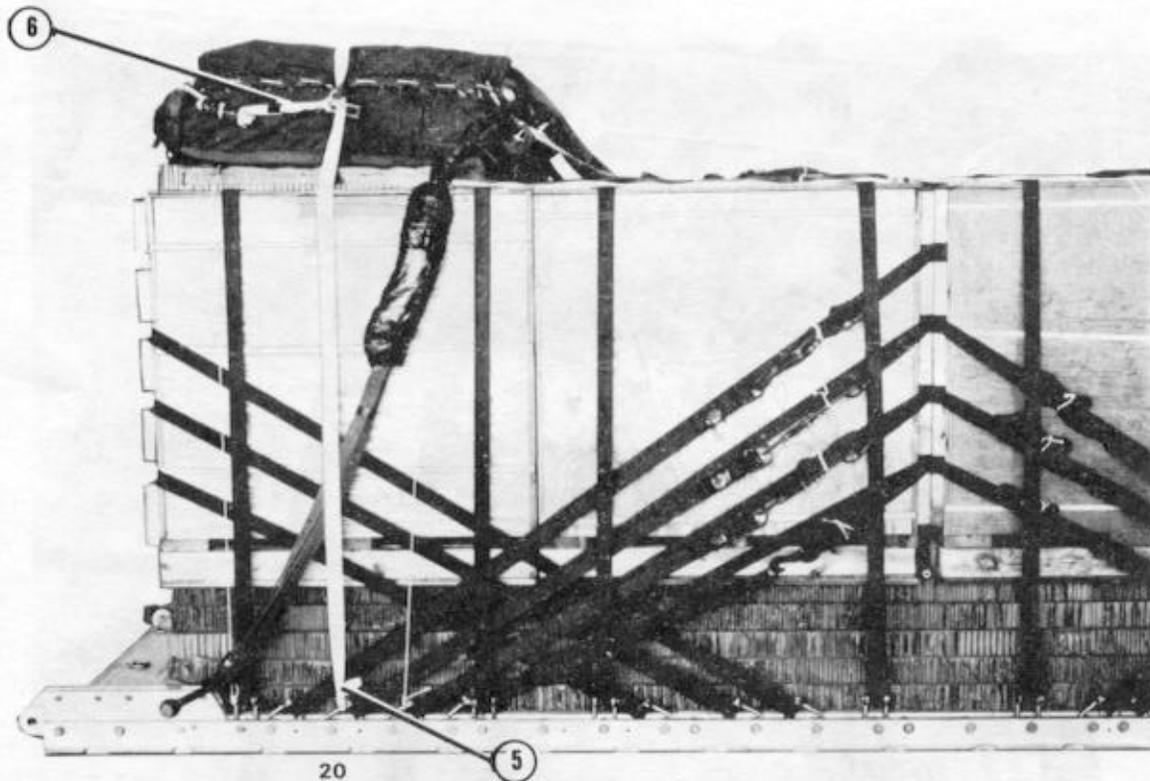
2-9. Stowing Cargo Parachutes

Stow the cargo parachutes as shown in Figure 2-11.



- ① Lower the suspension slings. Lay one piece of 36- by 95-inch honeycomb on top of the load flush with its rear edge.
- ② Tape the left and right edges of the honeycomb. Secure the honeycomb with two lengths of type III nylon cord to convenient clevises.
- ③ Prepare and stow two G-11A or two G-11B cargo parachutes according to FM 10-500/TO 13C7-1-5, and set them on top of the honeycomb.
- ④ Use a length of type VIII nylon webbing as a parachute restraint strap.

Figure 2-11. Cargo parachutes stowed

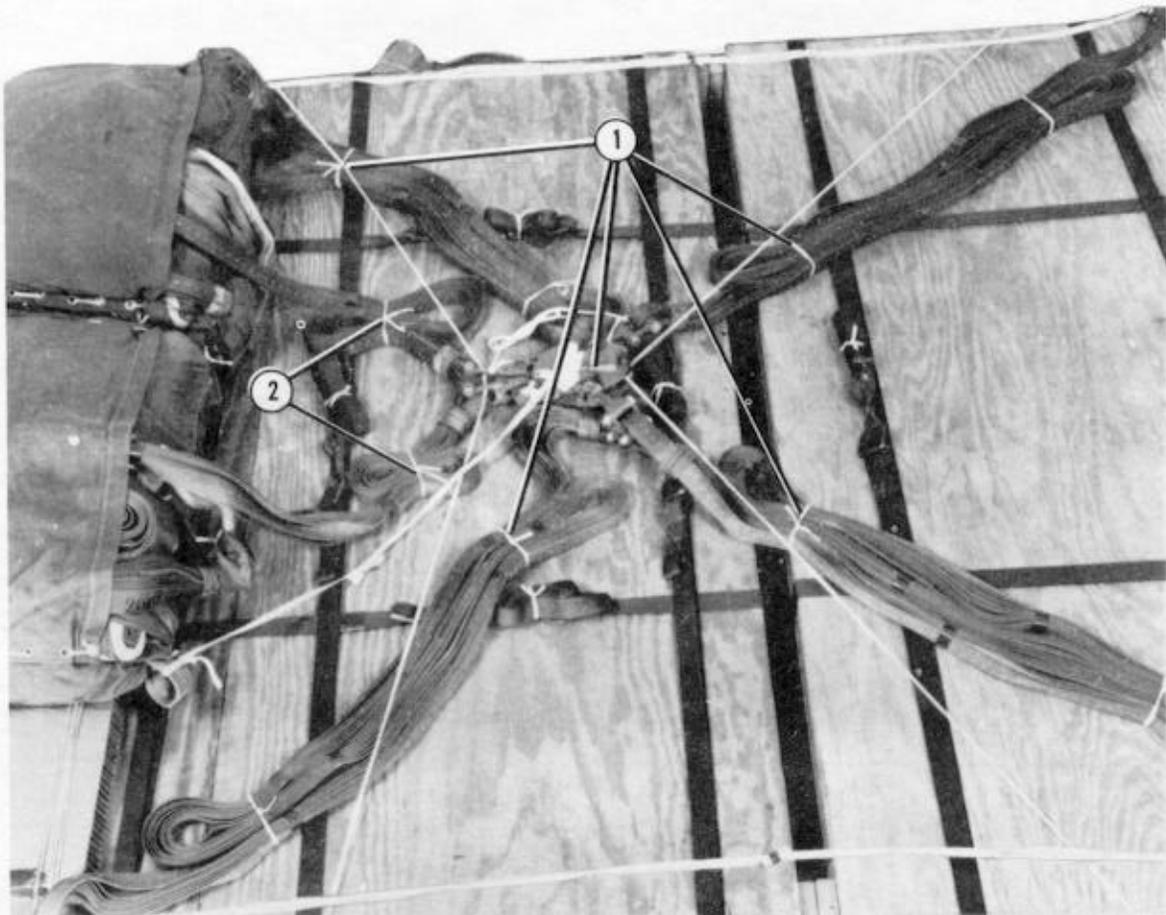


- ⑤ Tie the parachute restraint strap to clevises 20 and 20A according to FM 10-500/TO 13C7-1-5.
- ⑥ Install two multicut parachute release straps according to FM 10-500/TO 13C7-1-5.

Figure 2-11. Cargo parachutes stowed (continued)

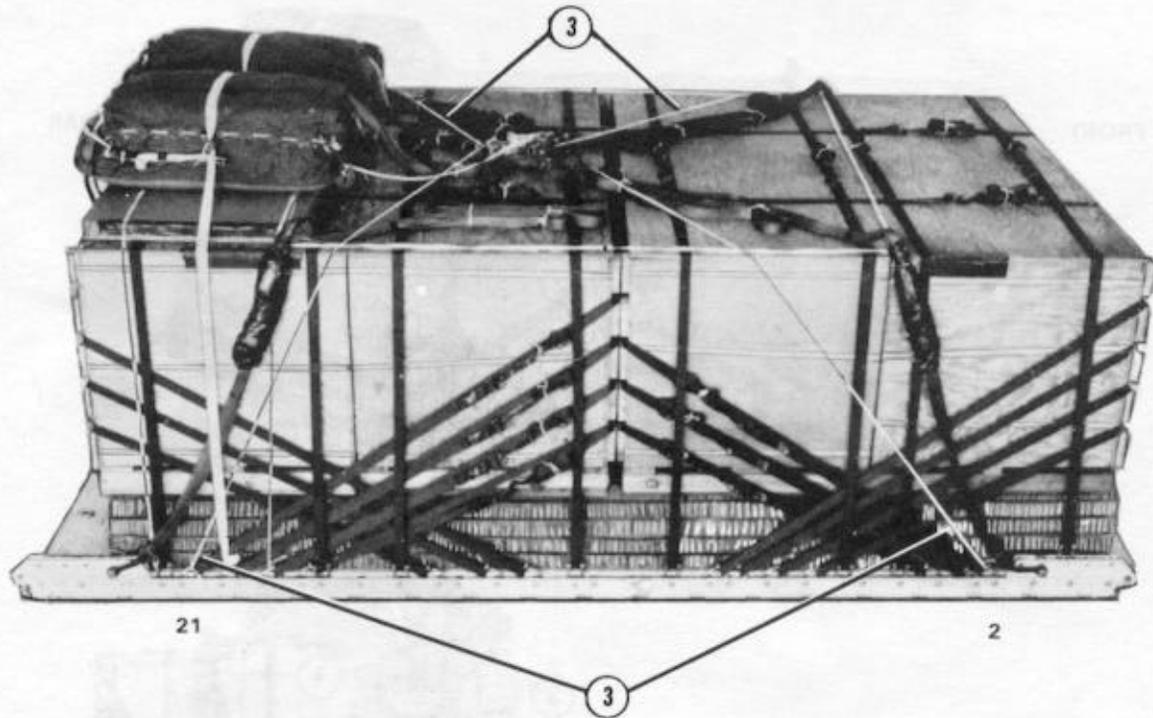
2-10. Installing Release System

Prepare, attach, and safety an M-1 cargo parachute release according to FM 10-500/TO 13C7-1-5 and as shown in Figure 2-12.



- ① Place the M-1 release on the plywood. S-fold the excess parachute risers and tie the folds in place with 80-pound cotton webbing according to FM 10-500/TO 13C7-1-5.
- ② S-fold the excess suspension slings, and tie the folds in place with 80-pound cotton webbing.

Figure 2-12. M-1 cargo parachute release installed



- ③ Safety the M-1 release to clevises 2, 2A, 21, and 21A with type III nylon cord.

Figure 2-12. M-1 cargo parachute release installed (continued)

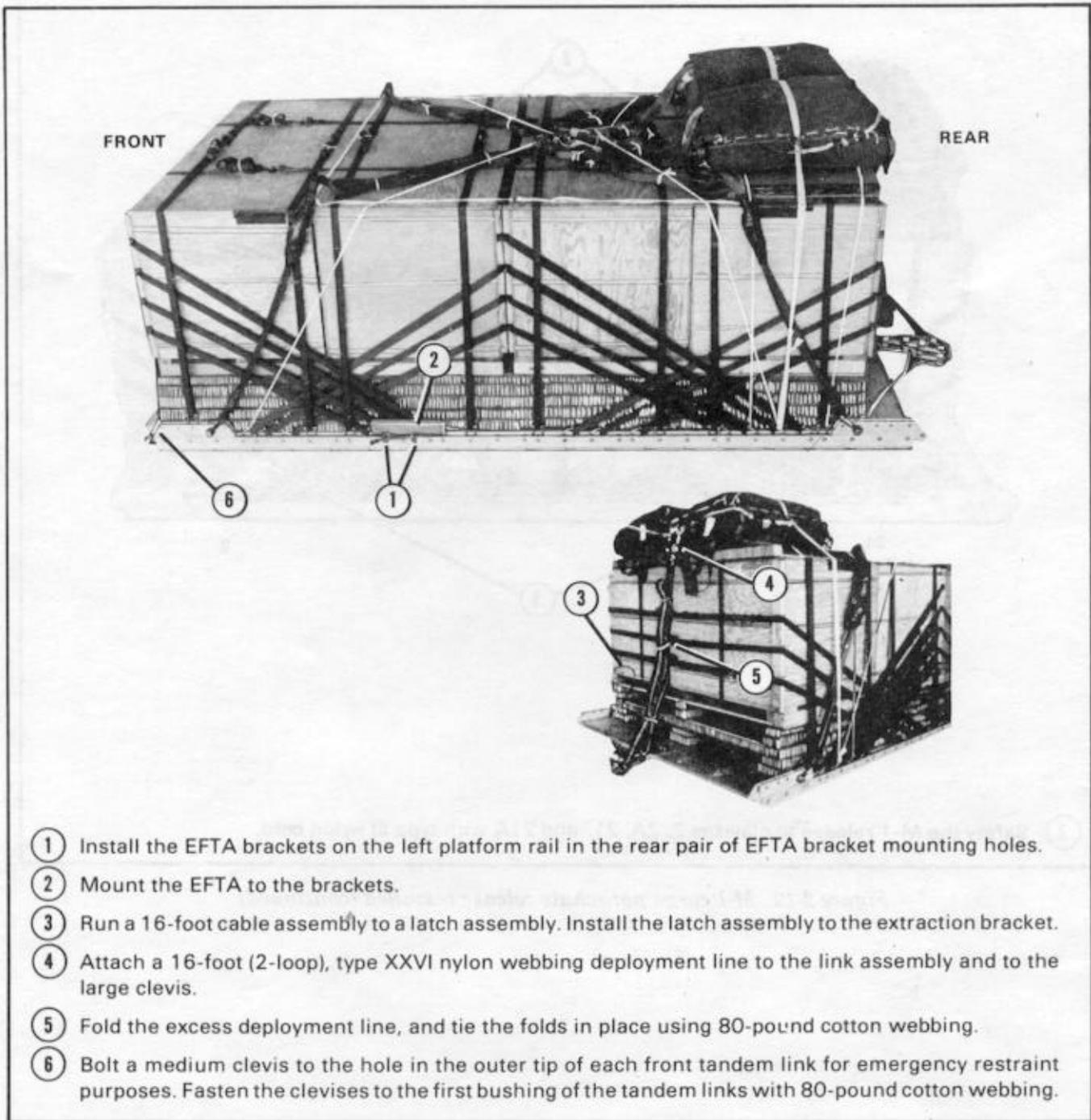
2-11. Installing Extraction System and Emergency Restraint Clevises

Use the EFTC extraction system for this load. Install the system according to FM 10-500/TO 13C7-1-5 and as shown in Figure 2-13. Install the emergency restraint clevises as shown in Figure 2-13.

2-12. Placing Extraction Parachute

Place the extraction parachute as given below.

a. C-130 Aircraft. Place an unreefed 15-foot cargo extraction parachute with a 60-foot (1-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.



- ① Install the EFTA brackets on the left platform rail in the rear pair of EFTA bracket mounting holes.
- ② Mount the EFTA to the brackets.
- ③ Run a 16-foot cable assembly to a latch assembly. Install the latch assembly to the extraction bracket.
- ④ Attach a 16-foot (2-loop), type XXVI nylon webbing deployment line to the link assembly and to the large clevis.
- ⑤ Fold the excess deployment line, and tie the folds in place using 80-pound cotton webbing.
- ⑥ Bolt a medium clevis to the hole in the outer tip of each front tandem link for emergency restraint purposes. Fasten the clevises to the first bushing of the tandem links with 80-pound cotton webbing.

Figure 2-13. EFTC extraction system and emergency restraint clevises installed

b. C-141 Aircraft. Place an unreefed 15-foot cargo extraction parachute with a 36-inch adapter web and a continuous 160-foot (1-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft. Use a type IV link to connect the line to the adapter web.

2-13. Marking Rigged Load

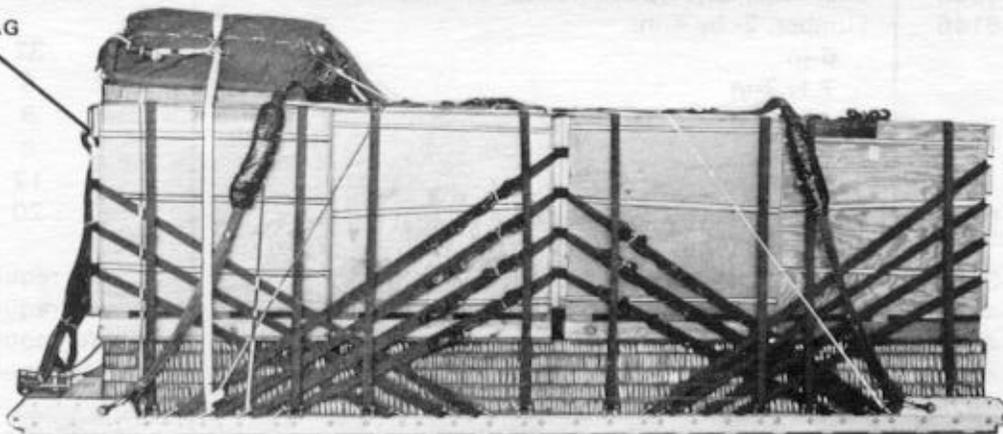
Mark the rigged load according to FM 10-500/TO 13C7-1-5 and as shown in Figure 2-14. If the load varies from the one shown in Figure 2-14, the height, weight, CB, and parachute requirements must be recomputed.

NOTES:

1. The extraction line **MUST** be a continuous 160-foot, type XXVI nylon webbing extraction line. Shorter lines **WILL NOT** be used to form the 160-foot extraction line.
2. Use a deployment line bag.

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

DATA TAG



c|b

RIGGED LOAD DATA

Weight:	Load shown	7,680 pounds
	Maximum allowed	7,906 pounds
Height		80 inches
Width		108 inches
Length		212 inches
Overhang: Rear		20 inches
CB (from front edge of platform).....		100 inches

Figure 2-14. Whole blood rigged for low-velocity airdrop on a type V airdrop platform

2-14. Equipment Required

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

Table 2-1. Equipment required for rigging whole blood for low-velocity airdrop on a type V platform

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
3990-00-937-0272	Binder, load, 10,000-lb	26
	Clevis, suspension:	
4030-00-678-8562	3/4-in (medium)	2
4030-00-090-5354	1-in (large)	4
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5785	Coupling, airdrop, extraction force transfer, w 16-ft cable	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
5365-00-937-0147	D-ring, heavy-duty, 10,000-lb	52
8305-00-958-3685	Felt, 1/2-in thick	As required
1670-01-183-2678	Leaf, extraction line (line bag)	1
	Line, extraction, type XXVI nylon webbing:	
1670-01-064-4452	60-ft (1-loop) (for C-130)	1
1670-01-107-7652	160-ft (1-loop) (for C-141)	1
1670-00-783-5988	Link assembly, type IV (for extraction line)	1
5510-00-220-6146	Lumber, 2- by 4-in:	
	6-in	32
	7 1/2-in	8
	42-in	8
	86-in	8
	95 1/2-in	12
5510-00-220-6274	Lumber, 4- by 4- by 43 1/2-in	20
	Nail, steel wire, common:	
5315-00-162-3151	4d	As required
5315-00-010-4657	6d	As required
5315-00-010-4659	8d	As required
5315-00-010-4661	10d	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	22 sheets
	2- by 94-in	(80)
	4- by 90-in	(6)
	6- by 90-in	(6)
	6- by 94-in	(8)
	8- by 7 1/2-in	(3)
	8- by 84 1/2-in	(3)
	10- by 90-in	(6)
	12- by 90-in	(6)
	36- by 94-in	(8)
	36- by 95-in	(1)
	91 1/2- by 8-in	(3)

Table 2-1. Equipment required for rigging whole blood for low-velocity airdrop on a type V platform (continued)

National Stock Number	Quantity	Item
	Parachute:	
	Cargo:	
1670-00-269-1107	G-11A <u>or</u>	2
1670-01-016-7841	G-11B	2
	Cargo extraction:	
1670-00-052-1548	15-ft <u>or</u>	1
1670-01-063-3715	15-ft	1
	Platform, airdrop, type V, 16-ft:	1
1670-01-162-2375	Bracket, inside EFTA	(1)
1670-01-162-2374	Bracket, outside EFTA	(1)
1670-01-162-2372	Clevis, load tiedown	(46)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-162-2381	Tandem link	(4)
5530-00-128-4981	Plywood, 3/4-in:	
	39 1/2- by 42-in	8
	39 1/2- by 95 1/2-in	8
	42- by 94-in	4
	43 1/2- by 95 1/2-in	8
1670-01-097-8816	Release, cargo/parachute, M-1	1
	Sling, cargo, airdrop:	
	For deployment line:	
1670-00-823-5042	16-ft (3-loop), type X nylon webbing <u>or</u>	1
1670-01-063-7761	16-ft (2-loop), type XXVI nylon webbing	1
	For riser extensions:	
1670-00-753-3794	20-ft (2-loop), type X nylon webbing <u>or</u>	2
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	2
	For suspension:	
1670-00-823-5043	20-ft (3-loop), type X nylon webbing <u>or</u>	4
1670-01-062-6302	20-ft (2-loop), type XXVI nylon webbing	4
1670-00-040-8219	Strap, parachute release, multicut, comes w 3 knives	2
8135-00-283-0667	Strapping, steel, 5/8-in	As required
7510-00-266-5016	Tape, adhesive, 2-in	As required
	Webbing:	
8305-00-268-2411	Cotton, 80-lb	As required
8305-00-082-5752	Nylon, tubular, 1/2-in, 1,000-lb, natural	As required
8305-00-263-3591	Nylon, type VIII, 3,600-lb	As required
8305-00-261-8584	Nylon, type X, treated, 8,700-lb, olive drab	As required