

CHAPTER 5

**RIGGING WHOLE BLOOD IN A-7A, A-21, AND A-22
CONTAINERS FOR LOW-VELOCITY AIRDROP**

Section I

**RIGGING ONE BLOOD CONTAINER IN AN A-7A OR A-21
CONTAINER FOR DOOR DROP****5-1. Description of Load**

Whole blood is rigged in a two-strap, A-7A container. The load is rigged on a skid board and two layers of honeycomb.

NOTE: If an A-7A container is unavailable, substitute an A-21 container. Secure the container according to FM 10-501/TO 13C7-1-11.

**5-2. Packing Blood in
Cardboard Container**

Pack whole blood in a cardboard container as described in paragraph 2-6. Only one container is required for this load.

5-3. Rigging Load

Rig one blood container as shown in Figure 5-1.

CAUTION

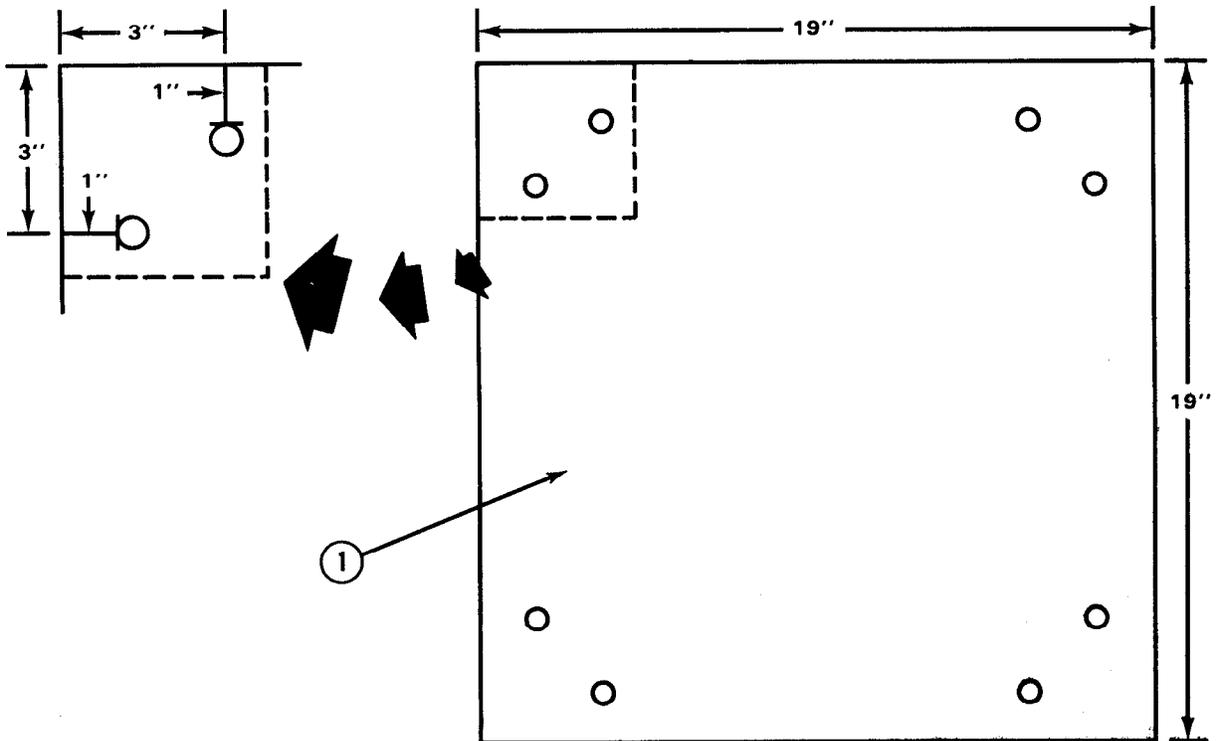
Make sure the load meets the 28-pounds-per-square-foot requirement according to FM 10-501/TO 13C7-1-11.

5-4. Stowing Cargo Parachutes

Weigh the rigged blood container. Select, pack, and stow the correct cargo parachutes for this load as described in FM 10-501/TO 13C7-1-11.

NOTES:

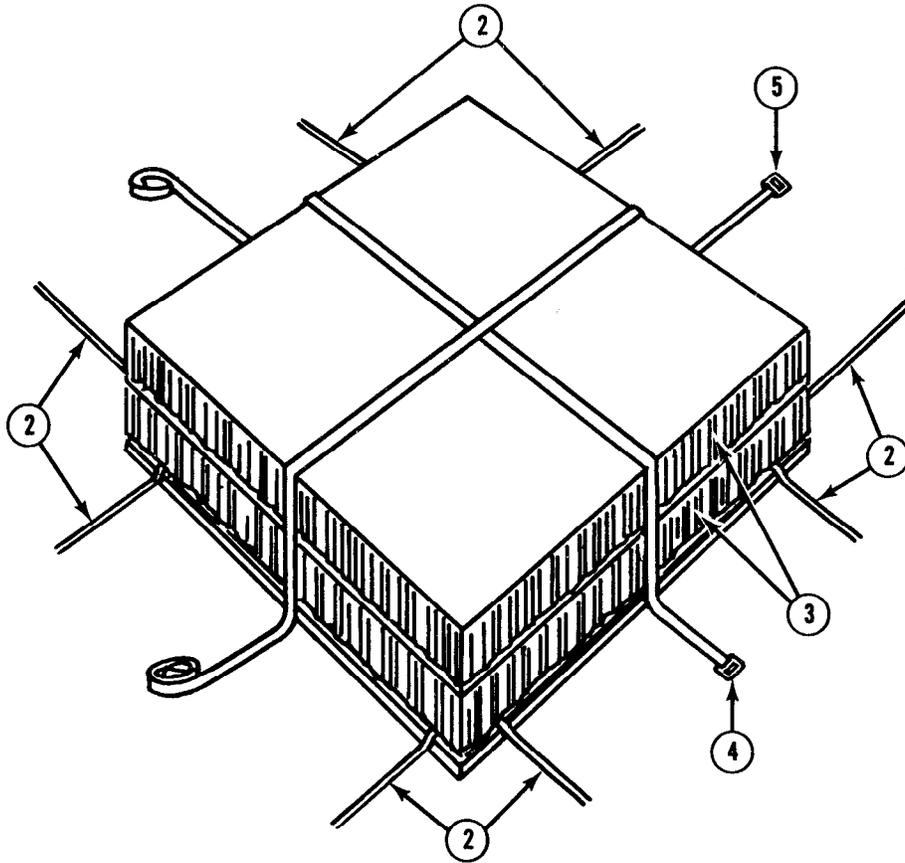
1. This drawing is not drawn to scale.
2. All holes are 1/2 inch in diameter.



- ① Prepare a skid board as shown using 1/2-inch plywood.

Figure 5-1. One blood container rigged

NOTE: This drawing is not drawn to scale.



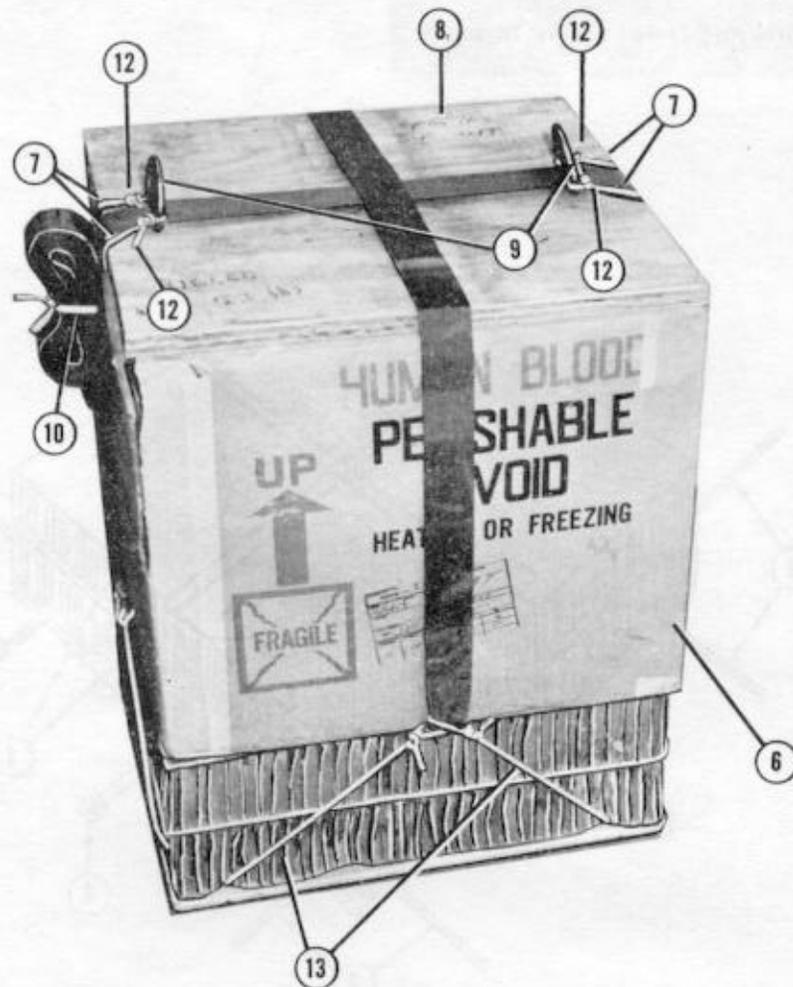
- ② Pass one 3-foot length of type III nylon cord through each set of holes in each corner of the skid board.
- ③ Cut two 19- by 19-inch pieces of honeycomb, and glue them together forming two layers. Glue the honeycomb to the skid board.

CAUTION

Make sure the honeycomb is glued to the skid board to prevent the blood container from sliding off the pallet upon impact and causing damage to the Styrofoam container.

- ④ Lay one A-7A strap across the center of the honeycomb. Make sure the large lip portion of the friction adapter is down.
- ⑤ Lay a second A-7A strap across the opposite side of the honeycomb in the center. Make sure the lip portion of the friction adapter is down.

Figure 5-1. One blood container rigged (continued)



- ⑥ Place one blood container on top of the A-7A straps and the honeycomb.
- ⑦ Center two 3-foot lengths of type III nylon cord side by side on top of the blood container.
- ⑧ Place a piece of 1/2- by 19- by 19-inch plywood on top of the type III nylon cord and the blood container.
- ⑨ Slide two D-rings on the end strap. Pass the free end of the strap over the top of the load. Position the D-rings on top of the load.
- ⑩ Fasten the end strap with its friction adapter. Fold the excess strap, and secure the folds to its strap with 80-pound cotton webbing.
- ⑪ Pass the free end of the side strap over the top of the load. Fasten the side strap with its friction adapter. Fold the excess strap, and secure the folds to its strap with 80-pound cotton webbing (not shown).
- ⑫ Fasten the two D-rings in place using the type III nylon cord positioned in step 7 above.
- ⑬ Fasten the skid board to the straps using the type III nylon cord positioned in step 2.

Figure 5-1. One blood container rigged (continued)

5-5. Marking Rigged Load

Mark the rigged load according to FM 10-501/TO 13C7-1-11. The rigged load data must be computed for this load. The rigged weight range for this load is 75 to 100 pounds.

CAUTION

Make the final rigger inspection required by FM 10-501/TO 13C7-1-11 before the load leaves the rigging site.

5-6. Equipment Required

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

Table 5-1. Equipment required for rigging one blood container for low-velocity airdrop in an A-7A container

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
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in:	1 sheet
5530-00-129-7777	19- by 19-in	(2)
1670-00-251-1153	Parachute, cargo	As required
7510-00-266-5016	Plywood, 1/2- by 19- by 19-in	2
8305-00-268-2411	*Sling assembly, cargo, airdrop, A-7A	1
	Tape, adhesive, 2-in	As required
	Webbing, cotton, 80-lb	As required

*If the A-7A sling assembly is not available, use the A-21 cargo bag (NSN 1670-00-242-9173).

Section II

RIGGING TWO BLOOD CONTAINERS IN AN A-7A OR A-21 CONTAINER FOR DOOR DROP

5-7. Description of Load

Whole blood is rigged in a three-strap, A-7A container. The load is rigged on a skid board and two layers of honeycomb.

NOTE: If an A-7A container is unavailable, substitute an A-21 container. Secure the container according to FM 10-501/TO 13C7-1-11.

5-8. Packing Blood in Cardboard Containers

Pack whole blood in cardboard containers as described in paragraph 2-6. Two containers are required for this load.

5-9. Rigging Load

Rig two blood containers as shown in Figure 5-2.

CAUTION

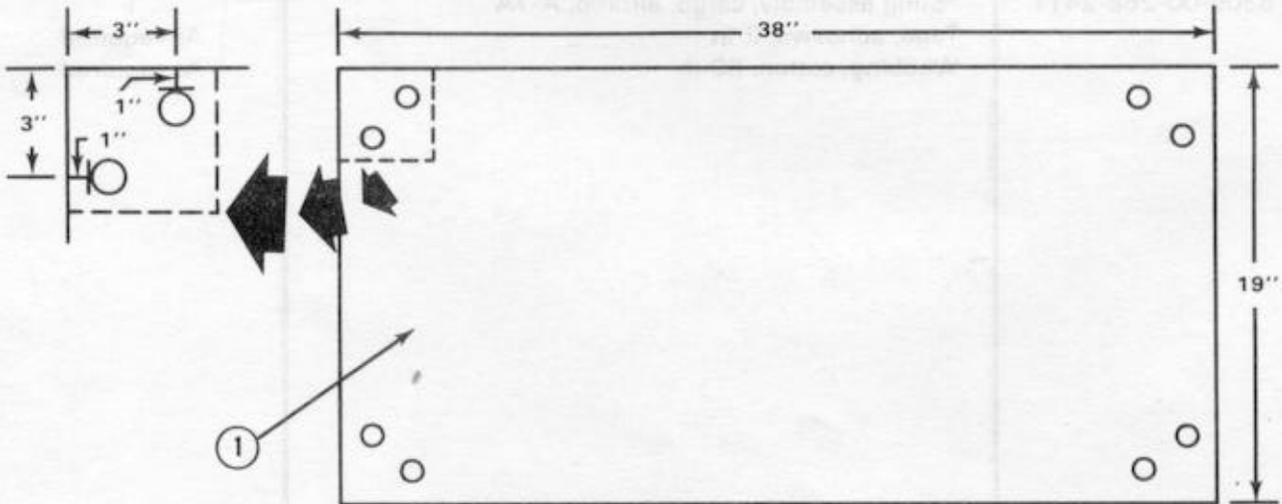
Make sure the load meets the 28-pounds-per-square-foot requirement according to FM 10-501/TO 13C7-1-11.

5-10. Stowing Cargo Parachutes

Weigh the rigged blood containers. Select, pack, and stow the correct cargo parachutes for this load as described in FM 10-501/TO 13C7-1-11.

NOTES:

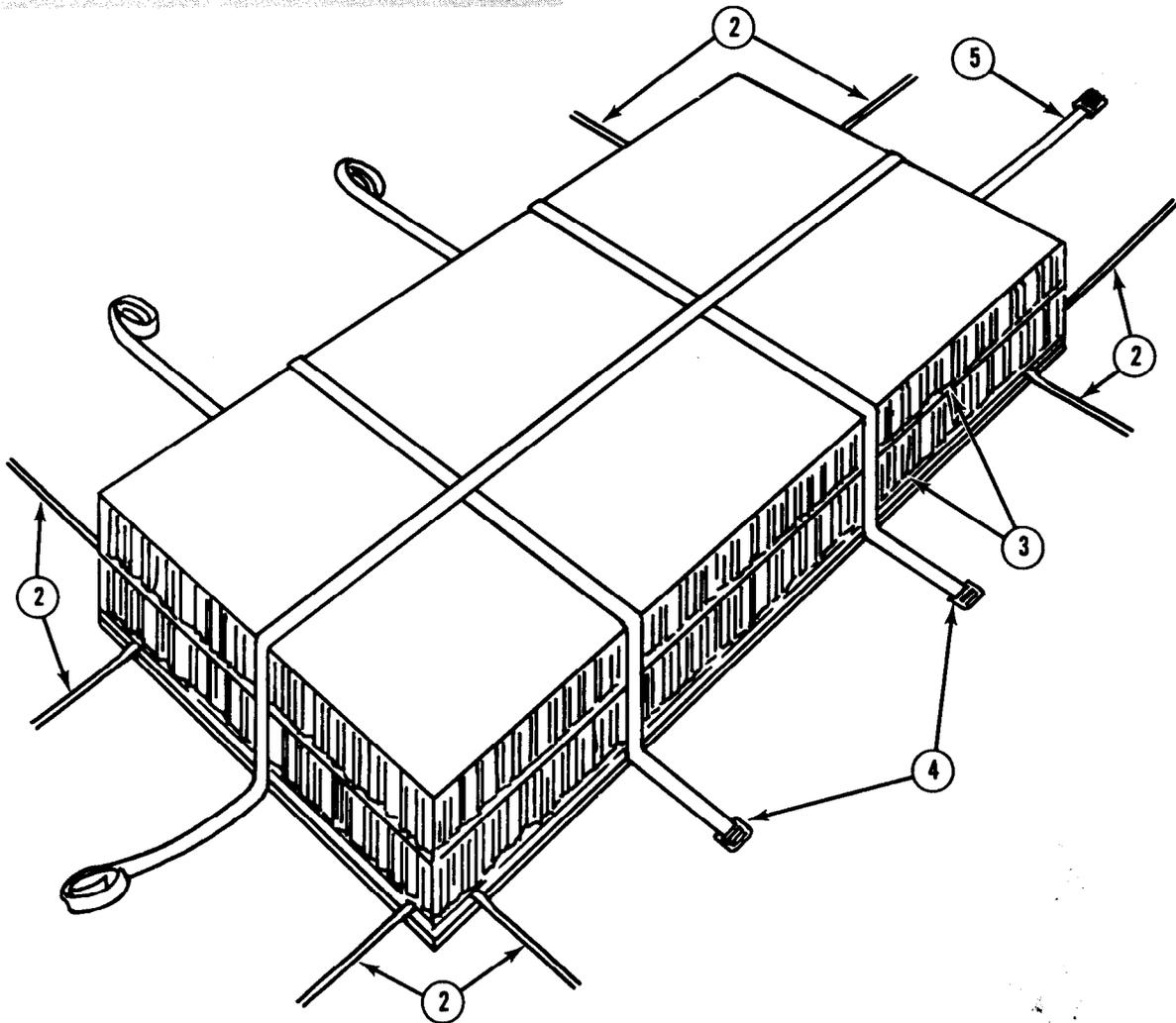
1. This drawing is not drawn to scale.
2. All holes are 1/2 inch in diameter.



- ① Prepare a skid board as shown using 1/2-inch plywood.

Figure 5-2. Two blood containers rigged

NOTE: This drawing is not drawn to scale.



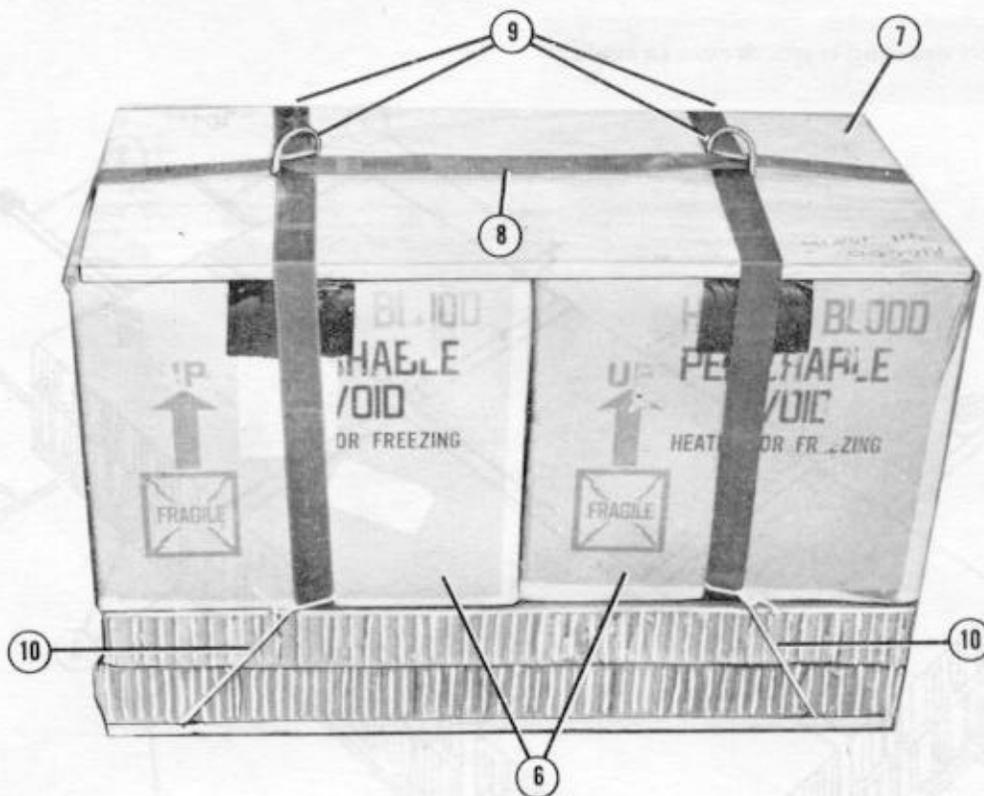
- ② Pass one 3-foot length of type III nylon cord through each set of holes in each corner of the skid board.
- ③ Cut two 19- by 38-inch pieces of honeycomb, and glue them together forming two layers. Glue the honeycomb to the skid board.

CAUTION

Make sure the honeycomb is glued to the skid board to prevent the blood containers from sliding off the pallet upon impact and causing damage to the Styrofoam containers.

- ④ Place two A-7A straps across the 38-inch sides of the honeycomb with the straps parallel to each other (16 inches apart). Make sure the lip portions of the friction adapters are down.
- ⑤ Lay a third A-7A strap across the opposite sides of the honeycomb in the center.

Figure 5-2. Two blood containers rigged (continued)



- ⑥ Place two blood containers on top of the A-7A straps and the honeycomb.
- ⑦ Place a piece of 1/2- by 19- by 38-inch plywood on top of the blood containers.
- ⑧ Slide two D-rings on the end strap. Pass the free end of the strap over the top of the load. Position the D-rings on top of the load. Fasten the end strap with its friction adapter. Fold the excess strap, and secure the folds to its strap with 80-pound cotton webbing.
- ⑨ Pass the right A-7A strap over the top of the load through the right D-ring. Pass the left A-7A strap over the top of the load through the left D-ring. Fasten each strap with its own friction adapter. Fold the excess strap, and secure the folds to its strap with 80-pound cotton webbing.
- ⑩ Fasten the skid board to the straps using the type III nylon cord positioned in step 2.

Figure 5-2. Two blood containers rigged (continued)

5-11. Marking Rigged Load

Mark the rigged load according to FM 10-501/TO 13C7-1-11. The rigged load data must be computed for this load. The rigged weight range for this load is 150 to 175 pounds.

CAUTION

Make the final rigger inspection required by FM 10-501/TO 13C7-1-11 before the load leaves the rigging site.

5-12. Equipment Required

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

Table 5-2. Equipment required for rigging two blood containers for low-velocity airdrop in an A-7A container

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
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in: 19- by 38-in	1 sheet (2)
5530-00-129-7777	Parachute, cargo	As required
1670-00-251-1153	Plywood, 1/2- by 19- by 38-in	2
7510-00-266-5016	*Sling assembly, cargo, airdrop, A-7A	1
8305-00-268-2411	Tape, adhesive, 2-in	As required
	Webbing, cotton, 80-lb	As required

*If the A-7A sling assembly is not available, use the A-21 cargo bag (NSN 1670-00-242-9173).

Section III

RIGGING FOUR BLOOD CONTAINERS IN AN A-7A OR A-21 CONTAINER FOR DOOR DROP

5-13. Description of Load

Whole blood is rigged in a three-strap, A-7A container. The load is rigged on a skid board and two layers of honeycomb.

NOTE: If an A-7A container is unavailable, substitute an A-21 container. Secure the container according to FM 10-501/TO 13C7-1-11.

5-14. Packing Blood in Cardboard Containers

Pack whole blood in cardboard containers as described in paragraph 2-6. Four containers are required for this load.

5-15. Rigging Load

Rig four blood containers as shown in Figure 5-3.

CAUTION
Make sure the load meets the 28-pounds-per-square-foot requirement according to FM 10-501/TO 13C7-1-11.

5-16. Stowing Cargo Parachutes

Weigh the rigged blood containers. Select, pack, and stow the correct cargo parachutes for this load as described in FM 10-501/TO 13C7-1-11.

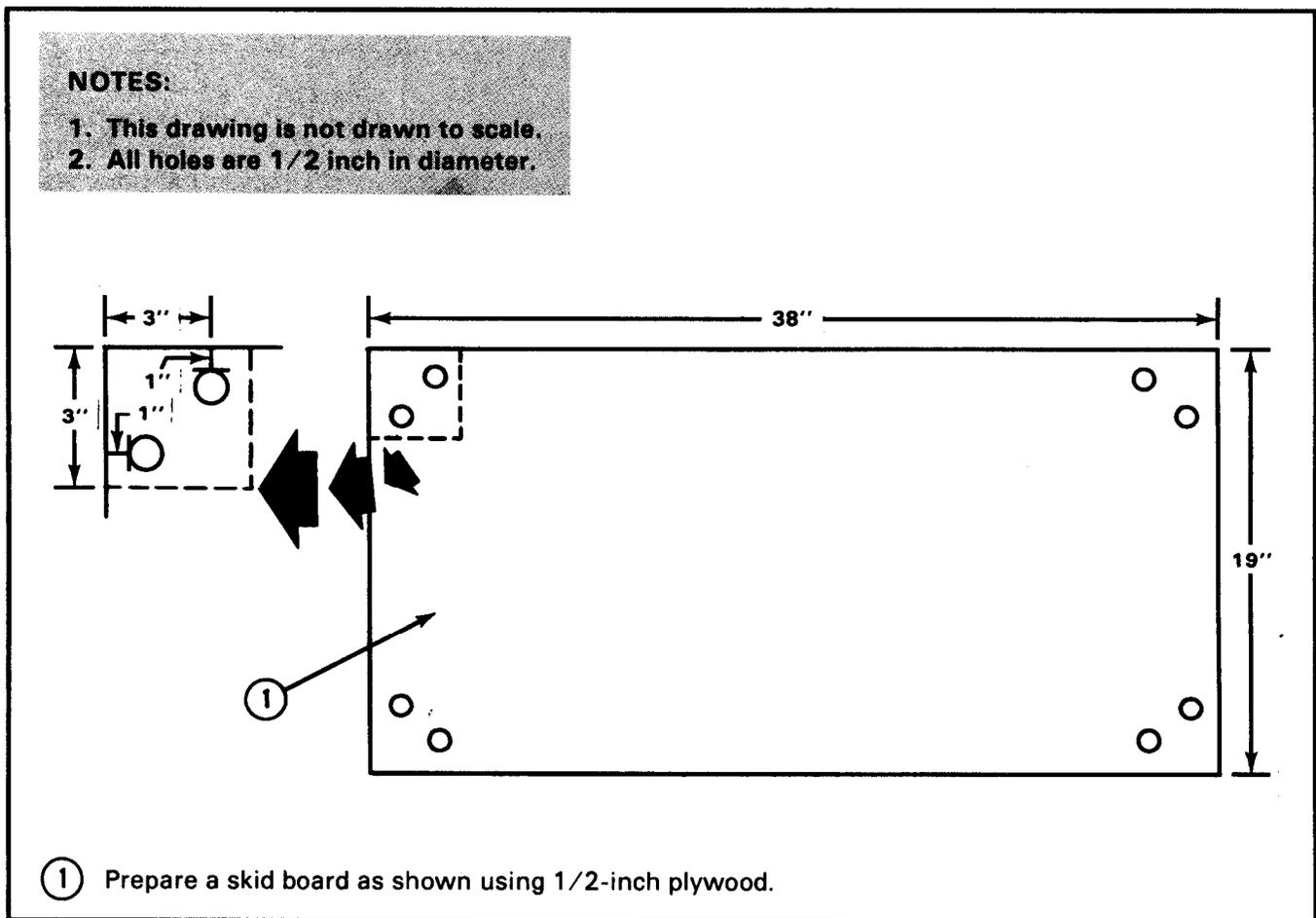
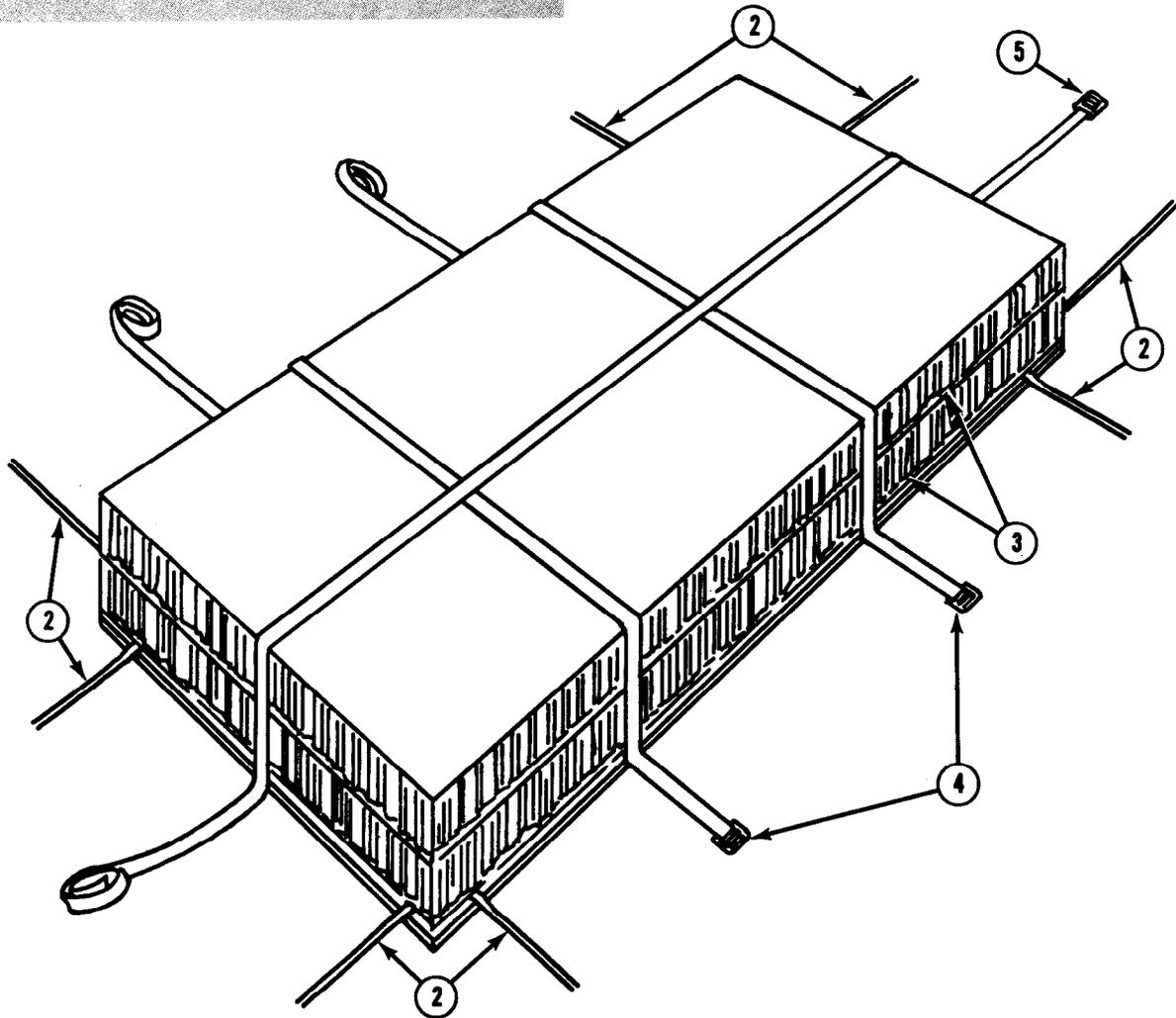


Figure 5-3. Four blood containers rigged

NOTE: This drawing is not drawn to scale.



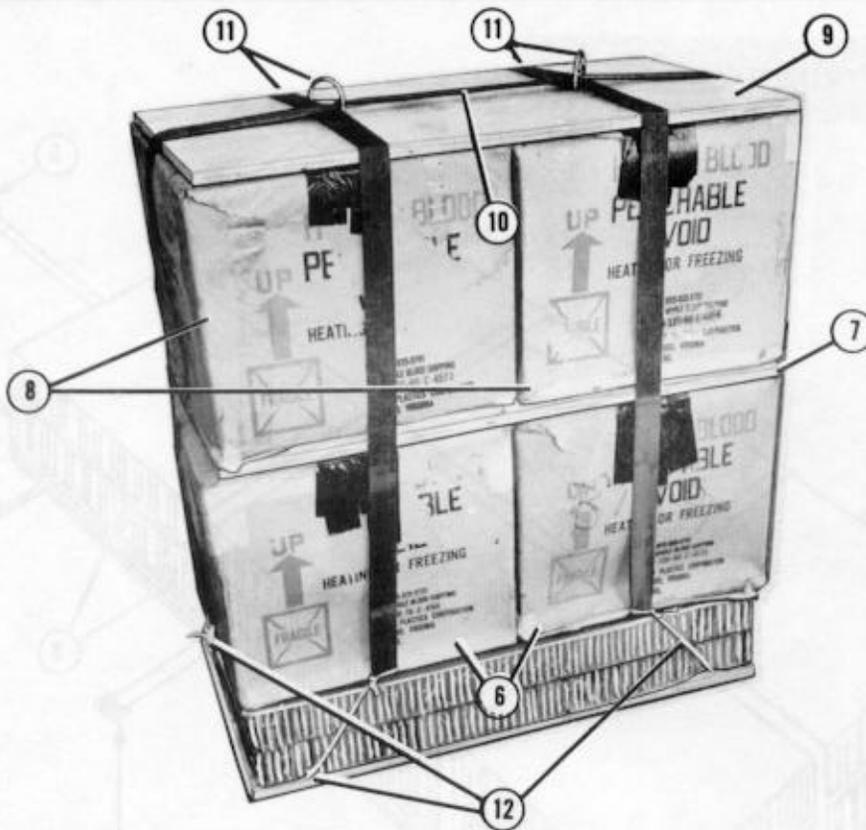
- ② Pass one 3-foot length of type III nylon cord through each set of holes in each corner of the skid board.
- ③ Cut two 19- by 38-inch pieces of honeycomb, and glue them together forming two layers. Glue the honeycomb to the skid board.

CAUTION

Make sure the honeycomb is glued to the skid board to prevent the blood containers from sliding off the pallet upon impact and causing damage to the Styrofoam containers.

- ④ Place two A-7A straps across the 38-inch sides of the honeycomb with the straps parallel to each other (16 inches apart). Make sure the lip portions of the friction adapters are down.
- ⑤ Lay a third A-7A strap across the opposite sides of the honeycomb in the center.

Figure 5-3. Four blood containers rigged (continued)



- ⑥ Place two blood containers on top of the A-7A straps and the honeycomb.
- ⑦ Place a piece of 1/2- by 19- by 38-inch plywood on top of the bottom two blood containers.
- ⑧ Place two additional blood containers on top of the plywood.
- ⑨ Place a piece of 1/2- by 19- by 38-inch plywood on top of the blood containers.
- ⑩ Slide two D-rings on the end strap. Pass the free end of the strap over the top of the load. Position the D-rings on top of the load. Fasten the end strap with its friction adapter. Fold the excess strap, and secure the folds to its strap with 80-pound cotton webbing.
- ⑪ Pass the right A-7A strap over the top of the load through the right D-ring. Pass the left A-7A strap over the top of the load through the left D-ring. Fasten each strap with its own friction adapter. Fold the excess strap, and secure the folds to its strap with 80-pound cotton webbing.
- ⑫ Fasten the skid board to the straps using the type III nylon cord positioned in step 2.

Figure 5-3. Four blood containers rigged (continued)

5-17. Marking Rigged Load

Mark the rigged load according to FM 10-501/TO 13C7-1-11. The rigged load data must be computed for this load. The rigged weight range for this load is 290 to 300 pounds.

CAUTION

Make the final rigger inspection required by FM 10-501/TO 13C7-1-11 before the load leaves the rigging site.

5-18. Equipment Required

Use the equipment listed in Table 5-3 to rig this load.

Table 5-3. Equipment required for rigging four blood containers for low-velocity airdrop in an A-7A container

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
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in: 19- by 38-in	1 sheet (2)
5530-00-129-7777	Parachute, cargo	As required
1670-00-251-1153	Plywood, 1/2- by 19- by 38-in	3
7510-00-266-5016	*Sling assembly, cargo, airdrop, A-7A	1
8305-00-268-2411	Tape, adhesive, 2-in	As required
	Webbing, cotton, 80-lb	As required

*If the A-7A sling assembly is not available, use the A-21 cargo bag (NSN 1670-00-242-9173).

Section IV

**RIGGING TWELVE BLOOD CONTAINERS IN
AN A-22 CONTAINER**

CAUTION

See FM 10-501/TO 13C7-1-11 for CVR information and procedures.

5-19. Description of Load

Whole blood is rigged in an A-22 container. The load is rigged with one G-12D or G-12E cargo parachute. This load may be rigged for NEACDS according to FM 10-538/TO 13C7-1-18 and for HSSLADS according to FM 10-542/TO 13C7-51-21.

**5-20. Packing Blood in
Cardboard Containers**

Pack whole blood in cardboard containers as described in paragraph 2-6. Twelve containers are required for this load.

5-21. Rigging Load

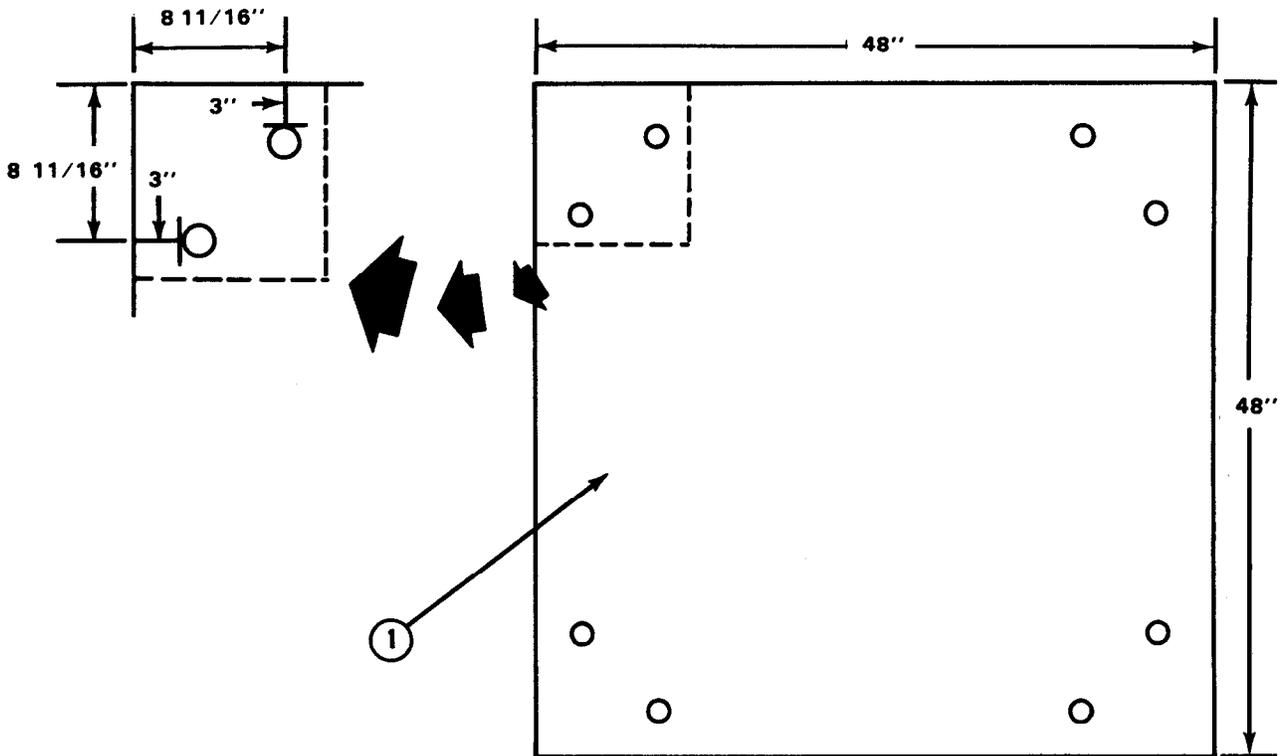
Rig twelve blood containers as shown in Figure 5-4.

CAUTION

Make sure the load meets the 28-pounds-per-square-foot requirement according to FM 10-501/TO 13C7-1-11.

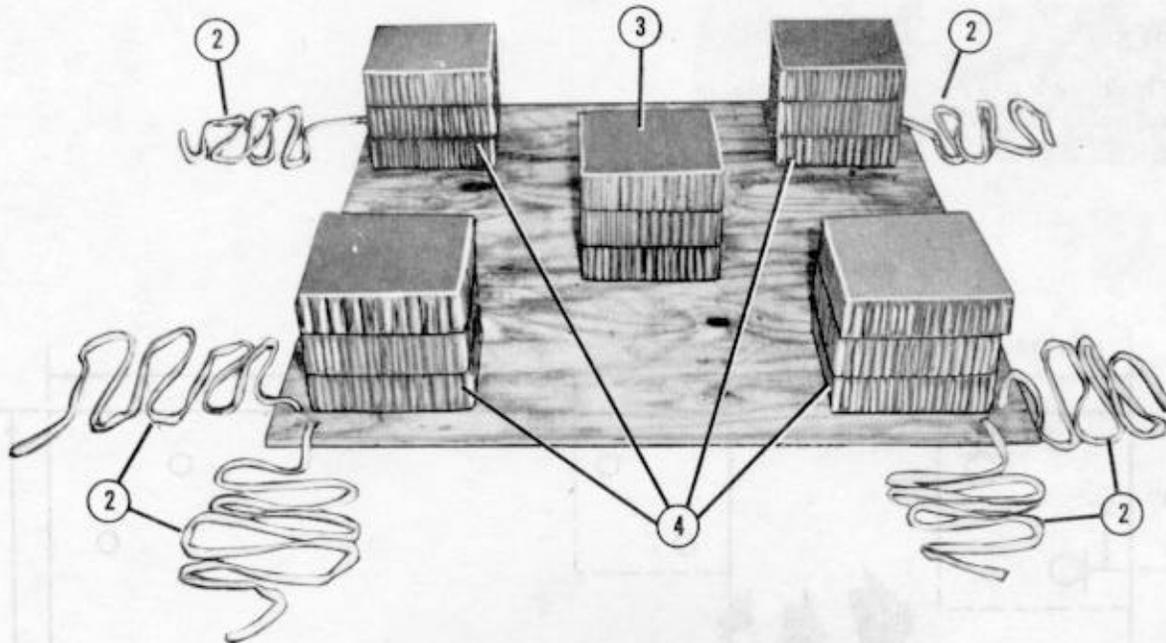
NOTES:

1. This drawing is not drawn to scale.
2. All holes are 1/2 inch in diameter.



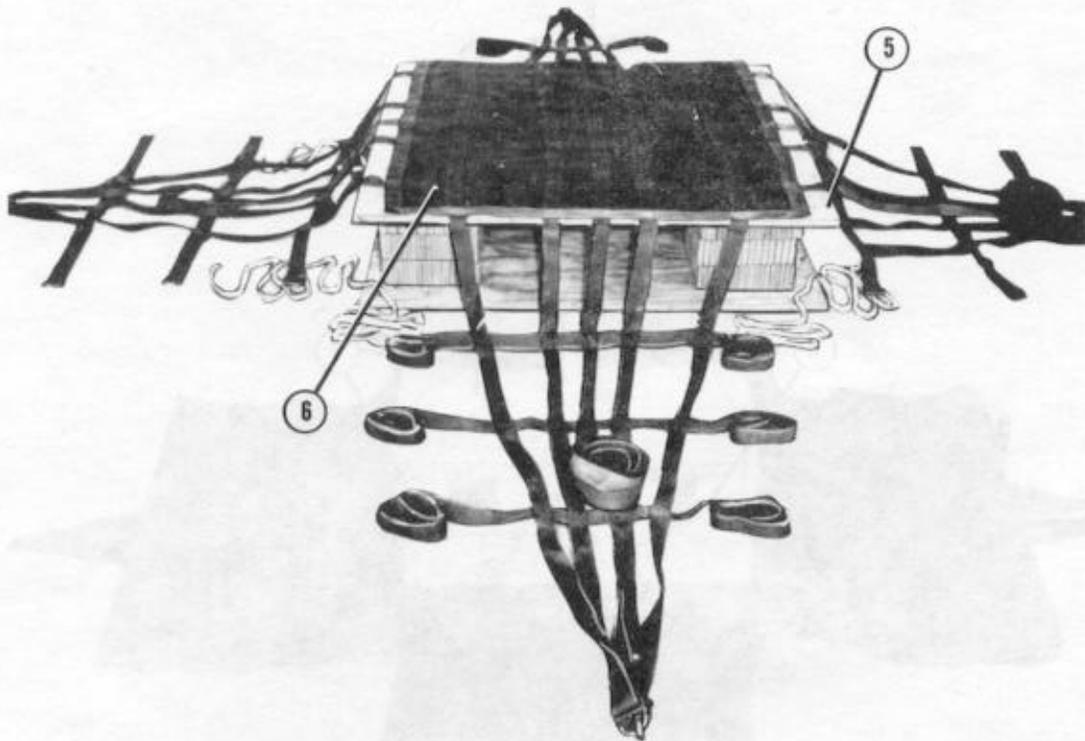
- ① Prepare a skid board as shown using 3/4-inch plywood.

Figure 5-4. Twelve blood containers rigged



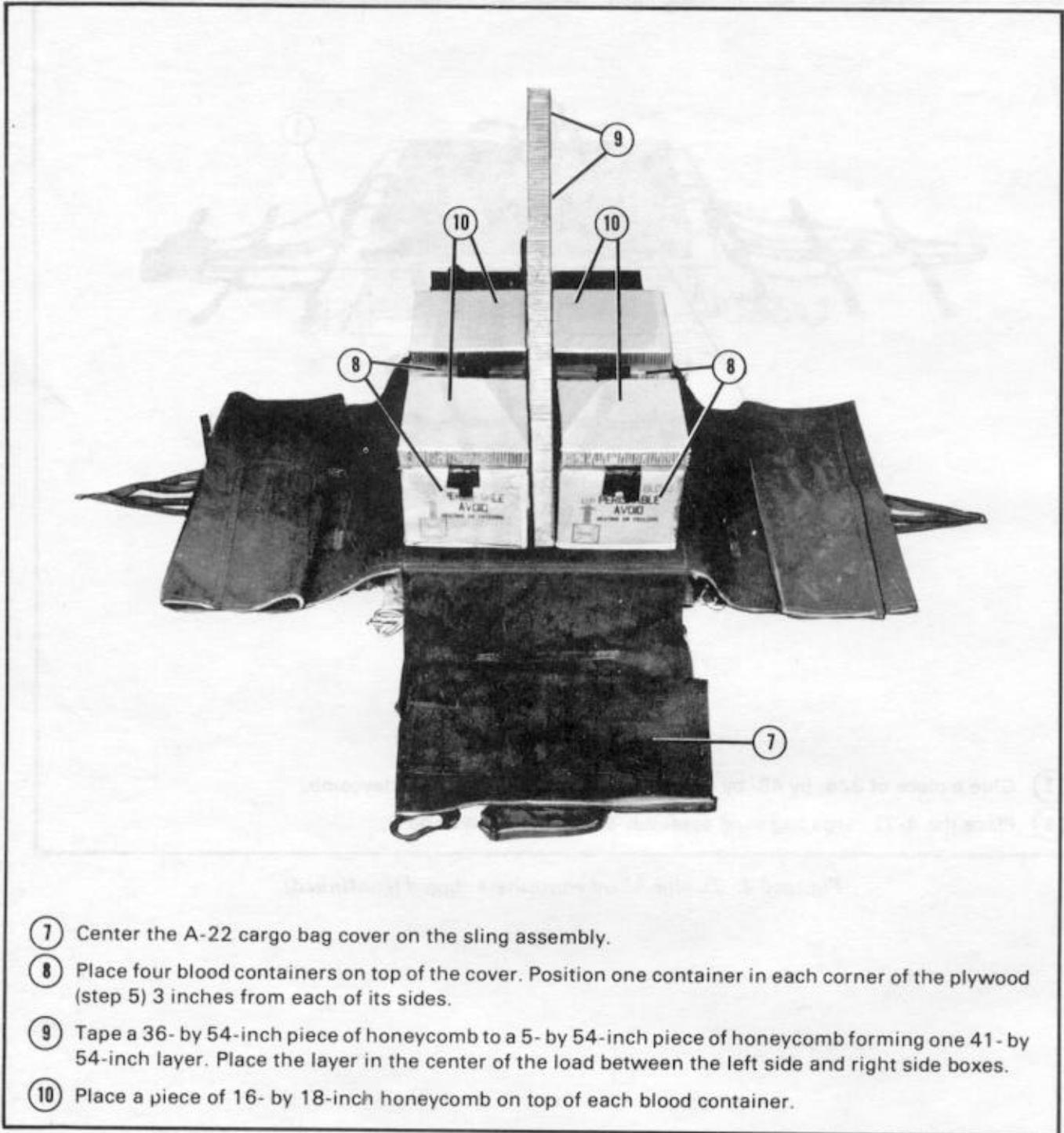
- ② Pass one 10-foot length of 1/2-inch tubular nylon webbing through each set of holes in each corner of the skid board.
- ③ Cut three 10- by 10-inch pieces of honeycomb, and glue them together forming three layers. Glue the honeycomb in the center of the skid board.
- ④ Cut twelve 10- by 10-inch pieces of honeycomb, and glue them together forming four stacks of three layers each. Glue one stack in each corner of the skid board 4 inches from each of its sides.

Figure 5-4. Twelve blood containers rigged (continued)



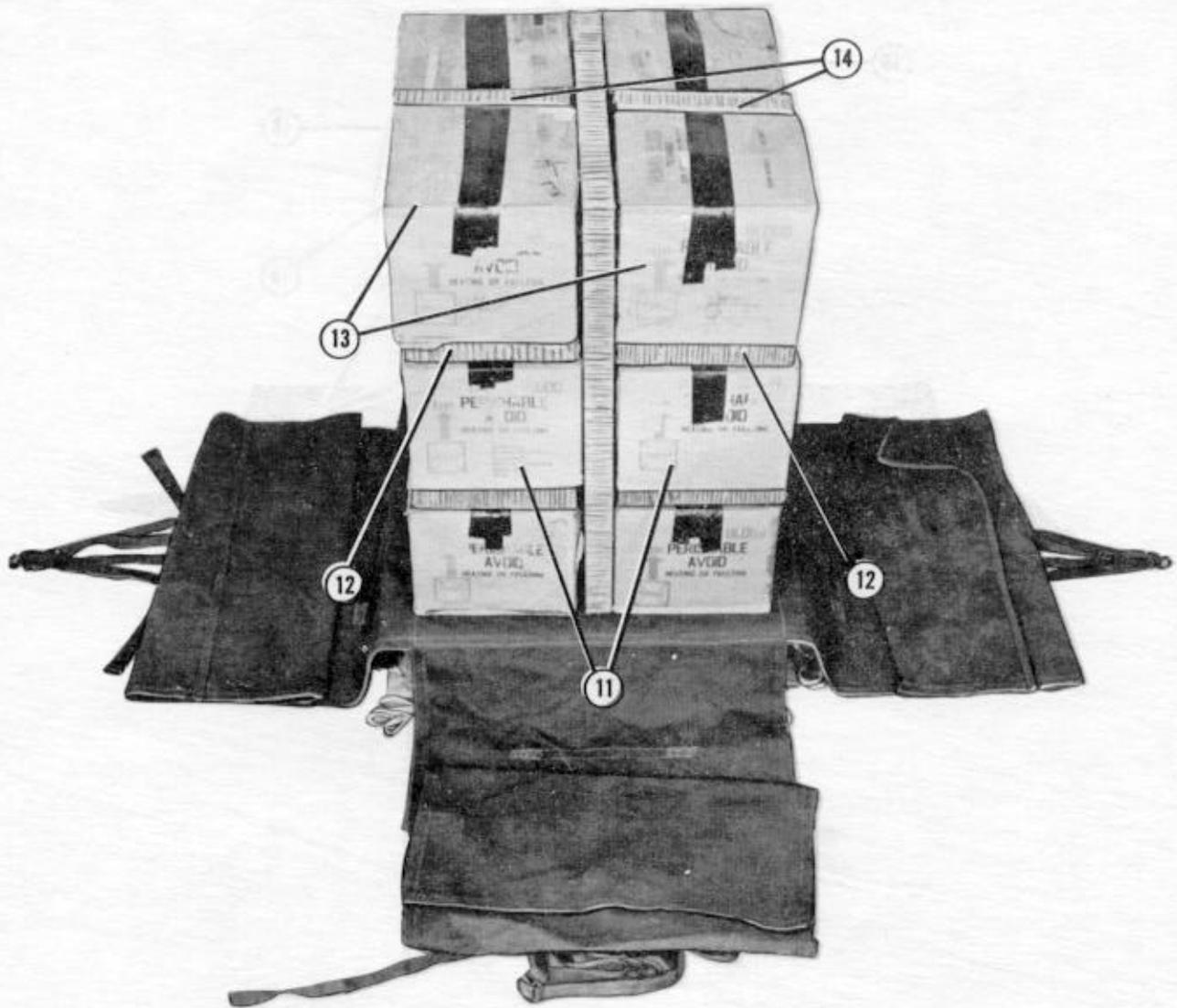
- ⑤ Glue a piece of 3/4- by 48- by 48-inch plywood on top of the honeycomb.
- ⑥ Place the A-22 cargo bag sling assembly on top of the plywood.

Figure 5-4. Twelve blood containers rigged (continued)



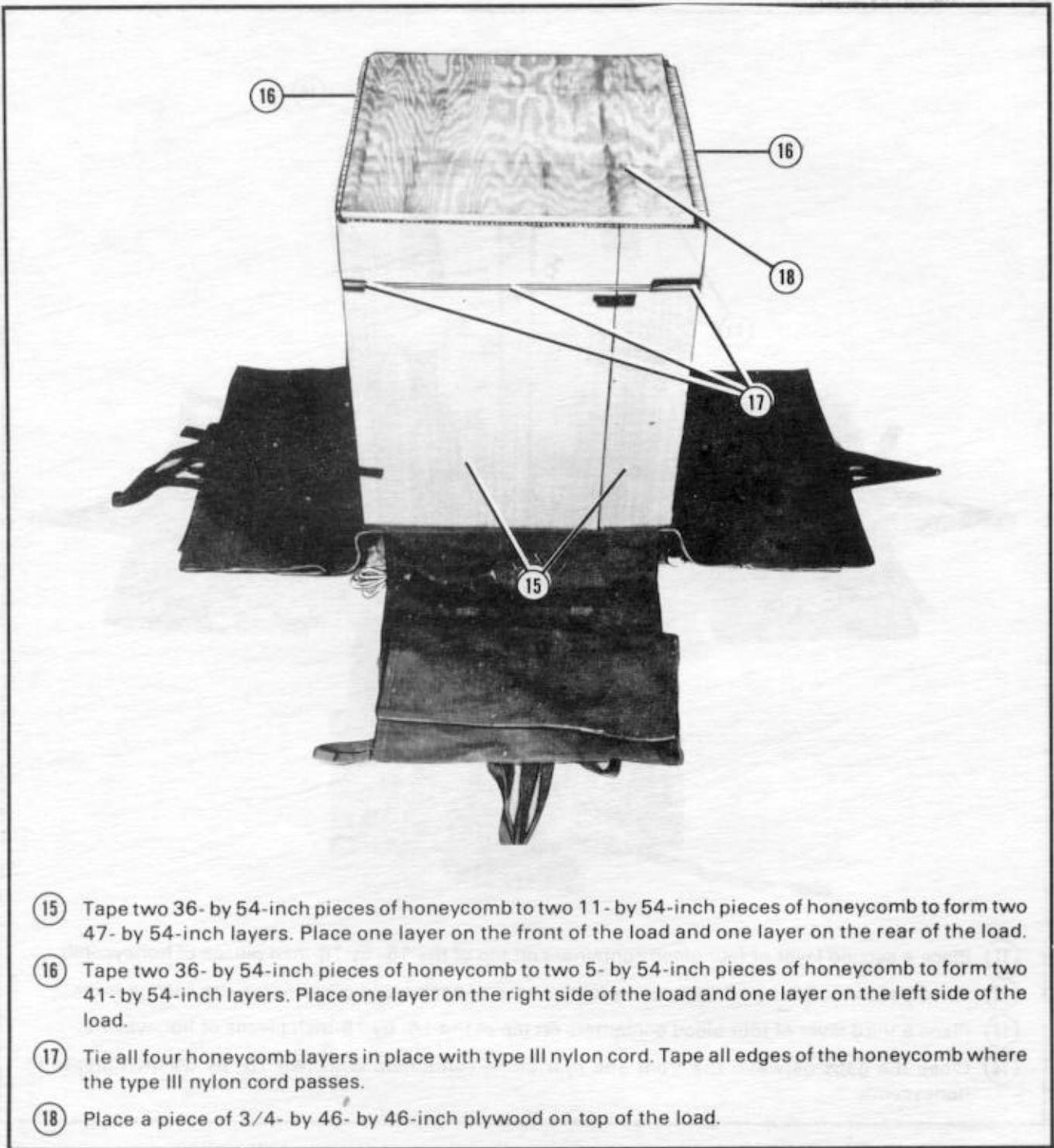
- ⑦ Center the A-22 cargo bag cover on the sling assembly.
- ⑧ Place four blood containers on top of the cover. Position one container in each corner of the plywood (step 5) 3 inches from each of its sides.
- ⑨ Tape a 36- by 54-inch piece of honeycomb to a 5- by 54-inch piece of honeycomb forming one 41- by 54-inch layer. Place the layer in the center of the load between the left side and right side boxes.
- ⑩ Place a piece of 16- by 18-inch honeycomb on top of each blood container.

Figure 5-4. Twelve blood containers rigged (continued)



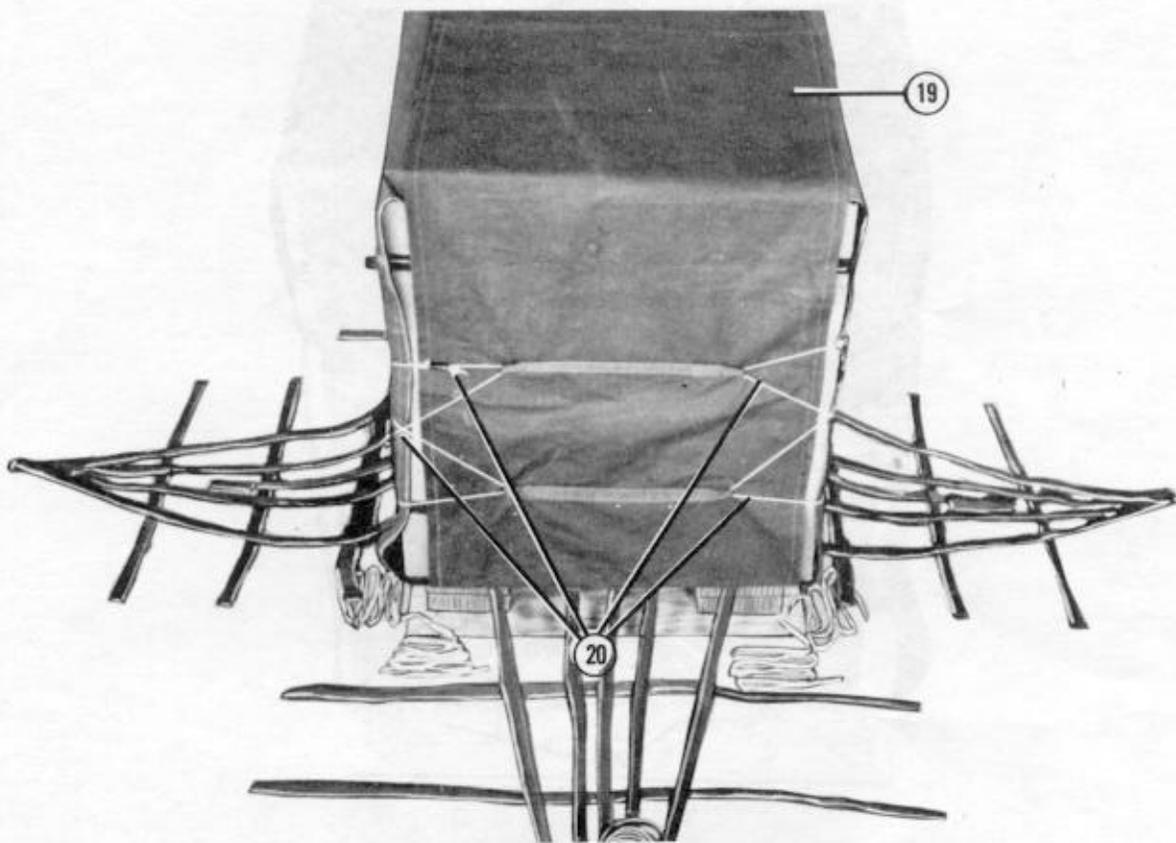
- ⑪ Place a second layer of four blood containers on top of the 16- by 18-inch pieces of honeycomb.
- ⑫ Place a piece of 16- by 18-inch honeycomb on top of each blood container in the second layer.
- ⑬ Place a third layer of four blood containers on top of the 16- by 18-inch pieces of honeycomb.
- ⑭ Close the gaps between the front and rear blood containers with two 18- by 54-inch pieces of honeycomb.

Figure 5-4. Twelve blood containers rigged (continued)



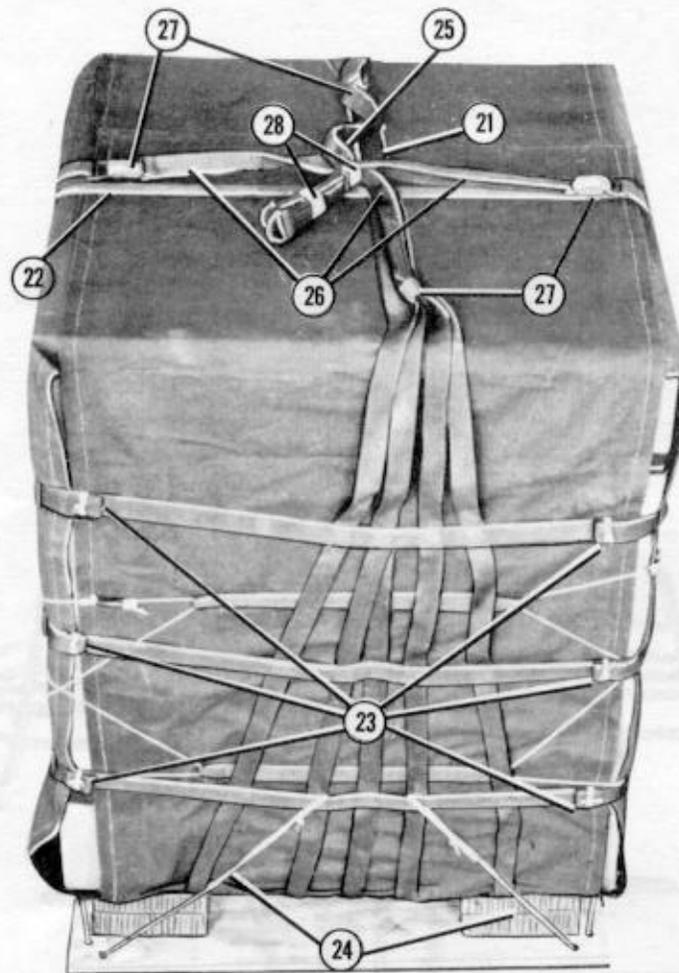
- ①⑤ Tape two 36- by 54-inch pieces of honeycomb to two 11- by 54-inch pieces of honeycomb to form two 47- by 54-inch layers. Place one layer on the front of the load and one layer on the rear of the load.
- ①⑥ Tape two 36- by 54-inch pieces of honeycomb to two 5- by 54-inch pieces of honeycomb to form two 41- by 54-inch layers. Place one layer on the right side of the load and one layer on the left side of the load.
- ①⑦ Tie all four honeycomb layers in place with type III nylon cord. Tape all edges of the honeycomb where the type III nylon cord passes.
- ①⑧ Place a piece of 3/4- by 46- by 46-inch plywood on top of the load.

Figure 5-4. Twelve blood containers rigged (continued)



- ①⑨ Fold the cover up over the load.
- ①⑩ Pass a length of type III nylon cord through the lower cover lacing loops at each corner. Cross the type III nylon cord, and pass the ends through the upper cover lacing loops. Pull the cord tight, and tie the ends with bow knots. Tape the bow knots with adhesive tape.

Figure 5-4. Twelve blood containers rigged (continued)

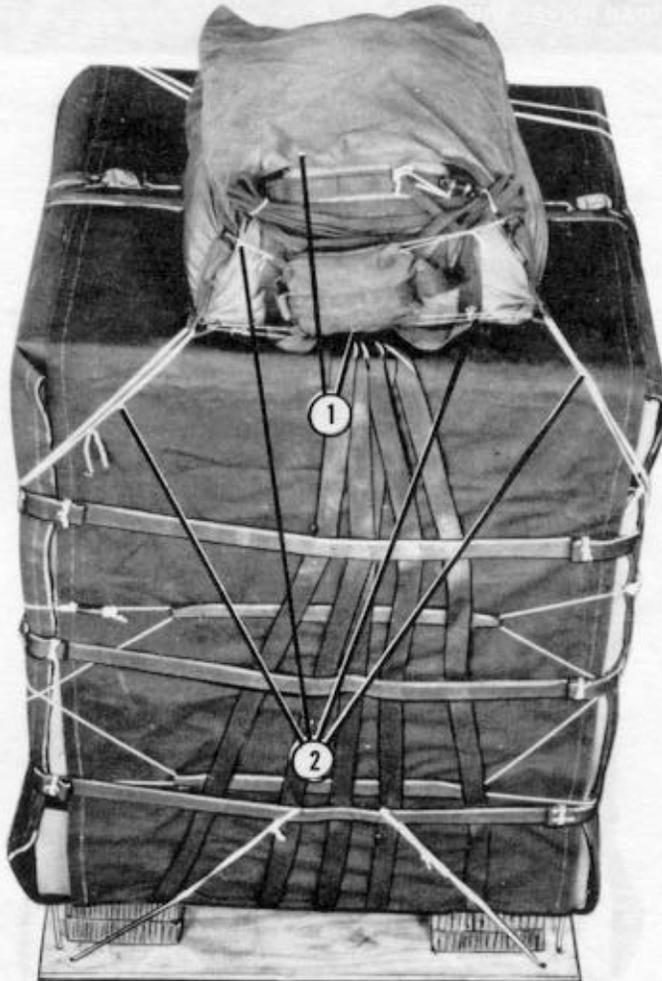


- ②1 Fasten the short tiedown strap over the top of the load with the friction adapter. Fold the excess strap, and secure the folds with 80-pound cotton webbing.
 - ②2 Fasten the long tiedown strap over the top of the load with the friction adapter. Fold the excess strap, and secure the folds with 80-pound cotton webbing.
 - ②3 Fasten the sling assembly lateral straps loosely at each corner of the load. Tighten the lateral straps at each corner. Fold the excess strap, and secure the folds with 80-pound cotton webbing.
 - ②4 Fasten the skid board to the load using the 1/2-inch tubular nylon webbing positioned in step 2.
 - ②5 Pull one of the D-rings attached to the A-22 sling assembly to the top of the load. Attach the snap fastener of one suspension web to the D-ring attached to the A-22 sling assembly.
 - ②6 Attach the other three suspension webs as described in step 25 above.
- NOTE: Make sure that all snap fasteners of the suspension web are facing inward when attached to the D-ring of the A-22 sling assembly.**
- ②7 Wrap tape around each snap fastener.
 - ②8 Tape the four suspension webs together near the free ends.

Figure 5-4. Twelve blood containers rigged (continued)

5-22. Stowing Cargo Parachutes

Stow one G-12D or G-12E cargo parachute on the load as shown in Figure 5-5.



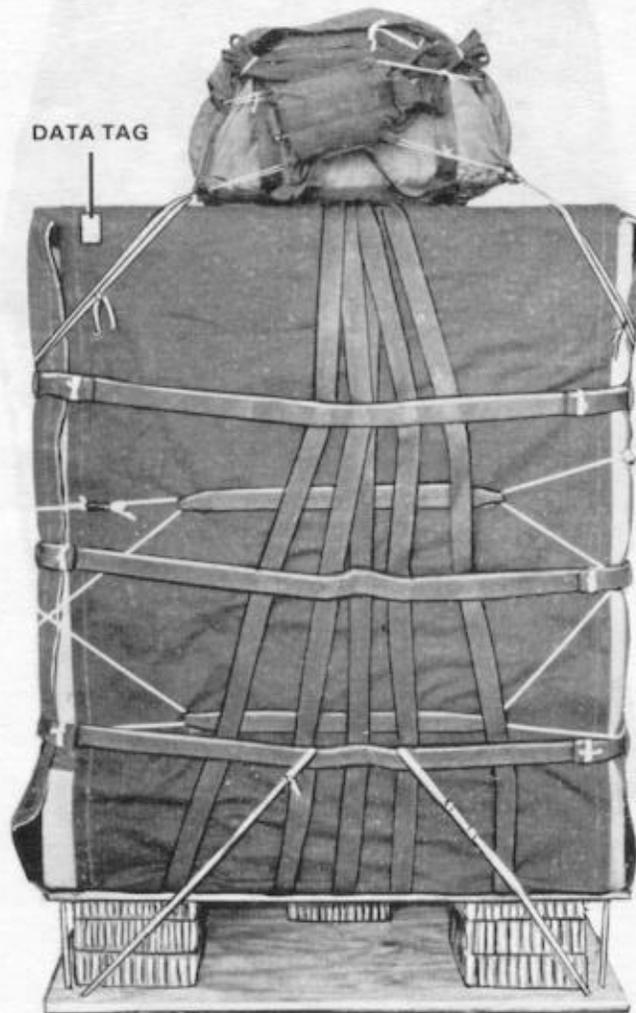
- ① Prepare the parachute according to TM 10-1670-215-23/TO 13C5-1-102 and FM 10-501/TO 13C7-1-11, and place it on top of the load.
- ② Install the parachute according to FM 10-501/TO 13C7-1-11.

Figure 5-5. One G-12D cargo parachute stowed

5-23. Marking Rigged Load

Mark the rigged load according to FM 10-501/TO 13C7-1-11 and as shown in Figure 5-6. The rigged load data must be computed for this load.

CAUTION
 Make the final rigger inspection required by FM 10-501/TO 13C7-1-11 before the load leaves the rigging site.



RIGGED LOAD DATA

Weight (with parachute).....	800 to 850 pounds
Parachute	G-12D or G-12E

Figure 5-6. Whole blood rigged for low-velocity airdrop in an A-22 container

5-24. Equipment Required

Use the equipment listed in Table 5-4 to rig this load.

Table 5-4. Equipment required for rigging twelve blood containers for low-velocity airdrop in an A-22 container

National Stock Number	Quantity	Item
8040-00-273-8713	Adhesive, paste, 1-gal	As required
1670-00-587-3421	Bag, cargo, A-22	1
4030-00-678-8562	Clevis, suspension, 3/4-in (medium)	1
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb,	
	3- by 36- by 96-in:	4 sheets
	5- by 54-in	(3)
	10- by 10-in	(15)
	11- by 54-in	(2)
	16- by 18-in	(8)
	18- by 54-in	(2)
	36- by 54-in	(5)
	Parachute, cargo:	
1670-00-893-2371	G-12D <i>or</i>	1
1670-01-065-3755	G-12E	1
5530-00-128-4981	Plywood, 3/4-in:	
	46- by 46-in	1
	48- by 48-in	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
8310-01-102-4478	Thread, cotton, ticket number 5 <i>or</i> 8/7	As required
	Webbing:	
8305-00-268-2411	Cotton, 80-lb	As required
8305-00-268-2453	Nylon, tubular, 1/2-in, 1,000-lb, olive drab	As required

GLOSSARY

AFB	Air Force base	in	inch
AFTO	Air Force technical order	LAPE	low-altitude parachute-extraction
attn	attention	lb	pound(s)
CB	center of balance	NCO	noncommissioned officer
CVR	centerline vertical restraint	NEACDS	naval emergency air cargo delivery
d	penny		system
DA	Department of the Army	no	number
EFTA	extraction force transfer actuator	TM	technical manual
EFTC	extraction force transfer coupling	TO	technical order
FM	field manual	TRADOC	United States Army Training and
ft	feet/foot		Doctrine Command
gal	gallon	US	United States
HQ	headquarters	w	with
HSLADS	high-speed, low-level airdrop system		

REFERENCES

FM 10-500/TO 13C7-1-5	Airdrop of Supplies and Equipment: Rigging Airdrop Platforms
FM 10-501/TO 13C7-1-11	Airdrop of Supplies and Equipment: Rigging Containers
FM 10-538/TO 13C7-1-18	Airdrop of Supplies and Equipment: Rigging Naval Emergency Air Cargo Delivery System (NEACDS)
FM 10-542/TO 13C7-51-21	Airdrop of Supplies and Equipment: Rigging Loads for Special Operations
TM 10-1670-215-23/ TO 13C5-1-102	Organizational and DS Maintenance Manual Including Repair Parts and Special Tools List for Parachute, Cargo Types
TM 10-1670-268-20&P/ TO 13C7-52-22	Organizational Maintenance Manual With Repair Parts and Special Tools List: Type V Airdrop Platform
AFTO Form 22	Technical Order Publications Improvement Report
DA Form 2028	Recommended Changes to Publications and Blank Forms