

PART FOUR RIGGING A-22 CONTAINER LOADS

CHAPTER 8 GENERAL INFORMATION FOR A-22 LOADS

8-1. A-22 Cargo Bag Assembly

The A-22 cargo bag assembly, shown in Figure 8-1, is an adjustable cotton duck cloth/nylon and nylon webbing container. It consists of a sling assembly, a cover, and four suspension webs. The load may be rigged with or without the cover.

8-2. A-22 Skid Board

CAUTION: When the skid board is locally fabricated, AC grade plywood must be used. Make sure the smooth side is facing down on the rollers.

The standard skid board is 1 by 48 by 48 inches for both low- and high-velocity drops. When dropping low-velocity loads weighing 501 to 1,600 pounds, the 3/4-inch thick skid board may be used. The skid board has sixteen 1/2-inch holes (four in each side), which are used to secure the skid board to the load. The skid board ties are made of 1/2-inch (or 5/8-inch) tubular nylon webbing. The length will vary according to the layers of honeycomb. Steel strapping will not be used to secure the skid board to the load unless specific rigging procedures authorize it.

NOTE 1: The steel strapping must not touch the aircraft's rollers.

NOTE 2: For loads using a 48- by 53 1/2-inch skid board, 53 1/2- by 96-inch skid board, or steel strapping on skid board, see paragraph 2-6 and Table 2-4.

8-3. A-22 Container Limitations

The A-22 load has a weight restriction of 501 to 2,200 pounds, excluding the weight of the parachute. Ensure the load weighs the minimum of 28 pounds per square foot. The height of the load will not exceed 83 inches unless specific rigging procedure authorizes it. The width of the load must not exceed 48 inches.

NOTE : If the load is smaller than the length of the skid board, place honeycomb filler sheets vertically inside the A-22 container. The length of the A-22 container should equal the length of the skid board. This prevents the A-22 containers from shifting when the loads are restrained in the aircraft.

NOTE : Any overhang must be placed lengthwise in the aircraft.

8-4. Double A-22 Cargo Bag

The double A-22 cargo bag is made using two A-22 cargo bags. The skid board is constructed of a 1- by 48- by 96-inch piece of plywood. When dropping loads weighing 900 to 1,600 pounds, the 3/4-inch thick skid board may be used. The skid board has twenty-four 1/2-inch holes used for skid board ties. Ensure the load weighs the minimum of 28 pounds per square foot. This load will also be rigged with the double "X" skid board ties.

CAUTION: When rigging double A-22 loads, make sure cotton and nylon sling assemblies are NOT mixed.

8-5. Stretch A-22 Cargo Bag

The stretch A-22 cargo bag is made using two A-22 cargo bags. The skid board is constructed of a 1- by 48- by 72-inch piece of plywood. When dropping loads weighing 900 to 1,600 pounds, the 3/4-inch thick skid board may be used. The skid board has twenty-four 1/2-inch holes used for skid board ties. Ensure the load weighs the minimum of 28 pounds per square foot. This load will also be rigged with the double "X" skid board ties.

8-6. Assembly Line Rigging

When assembly line rigging is used for A-22 loads, only five stations are needed. FM 10-500-9 covers setting up the rigging line and stations. The five stations are laying out containers and preparing base, positioning load, rigging load, installing parachute, and inspecting the rigged load.

8-7. Inspection of Load

The A-22 load must be inspected by a qualified rigger. While being rigged, this load should be supervised or rigged by a parachute rigger. DD Form 1748-1 must be completed before airdrop.

8-8. Parachutes Used

There are two types of parachutes used for A-22 loads, depending on whether the load is being dropped for low or high velocity. Each category has a primary and alternate parachute. The alternate should be used only when the primary is not available.

a. Low-Velocity Drops.

(1) *Primary Parachute.* The G-12E cargo parachute is the primary parachute for A-22 loads dropped at low velocity. It is rated for 501 to 2,200 pounds of suspended weight. A 68-inch pilot parachute is installed on the G-12E cargo parachute to deploy it. Other parachutes may be used to deploy the G-12E cargo parachute; however, the specific manual must give the procedures. TM 10-1670-281-23&P/TO 13C5-32-2 covers the inspection and packing of the G-12E cargo parachute and its 68-inch pilot parachute.

NOTE: Suspended weight is the total weight of the load without the parachute attached.

(2) *Alternate Parachute.* The G-14 cargo parachute is the alternate parachute for A-22 loads dropped for low velocity. It is used in a two or three cluster. The two cluster is for loads 501 to 1,000 pounds of suspended weight and the three cluster is for loads 1,001 to 1,500 pounds of suspended weight. TM 10-1670-282-23&P/TO 13C5-30-2 covers the inspection and packing of the G-14 cargo parachute.

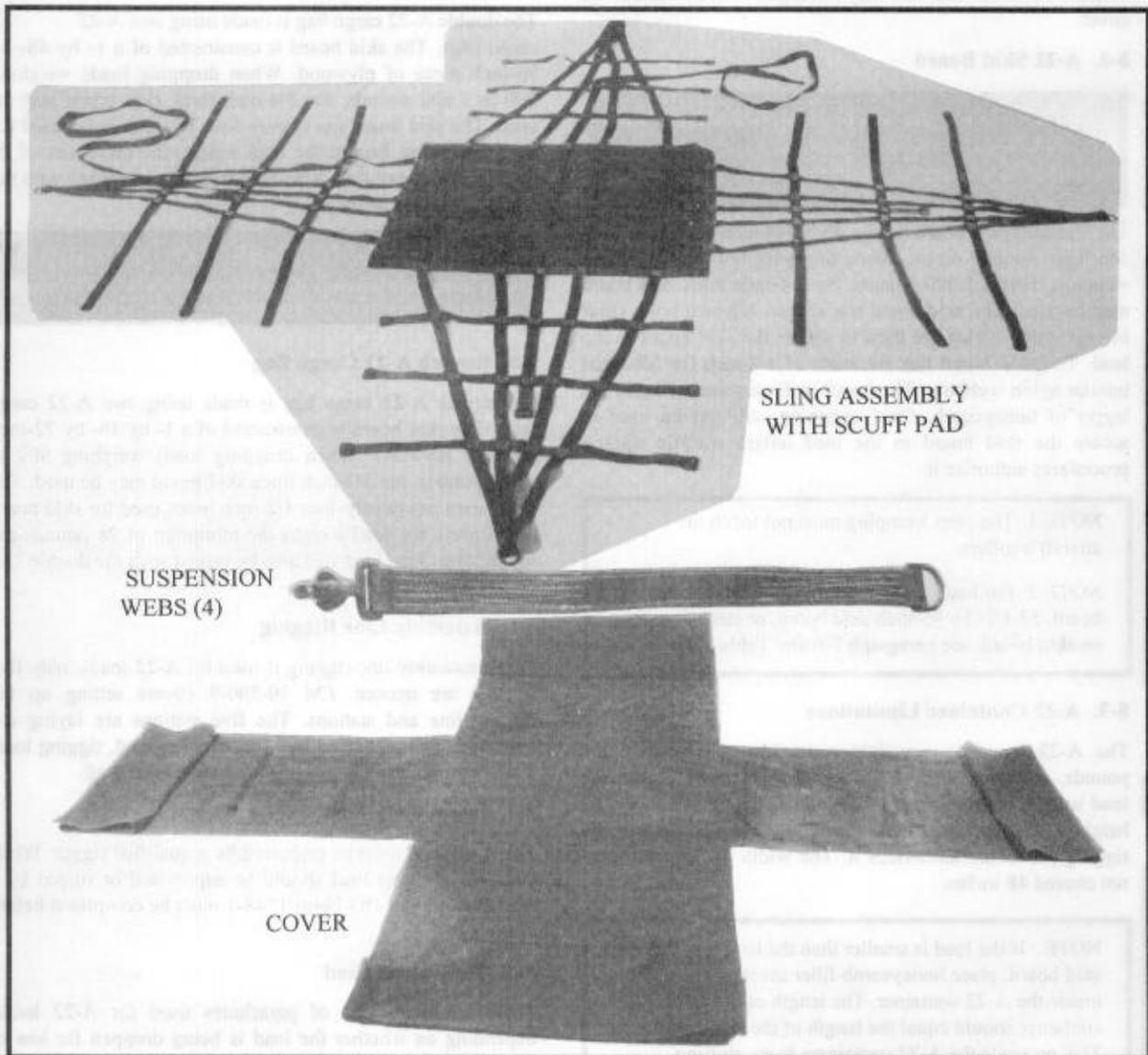


Figure 8-1. A-22 cargo bag

b. High-Velocity Drops.

NOTE: High-velocity CDS must be rigged with breakaway static lines.

(1) *Primary Parachute.* The 26-foot, high-velocity cargo parachute is the primary parachute for high-velocity A-22 load drops. The parachute is rated from 501 to 2,200 pounds. TM 10-1670-276-23&P/TO 13C5-29-2 covers the inspection and packing of the parachute.

(2) *Alternate Parachute.* The 22-foot cargo extraction parachute is the alternate parachute for A-22 high-velocity drop loads. It is rated for 501 to 2,200 pounds of suspended weight. TM 10-1670-279-23&P/TO 13C5-27-2 covers the inspection and packing of the parachute.

8-9. Installation of Parachutes

Parachutes should be installed as follows:

- a. To install the G-12E cargo parachute, refer to Figure 8-2.

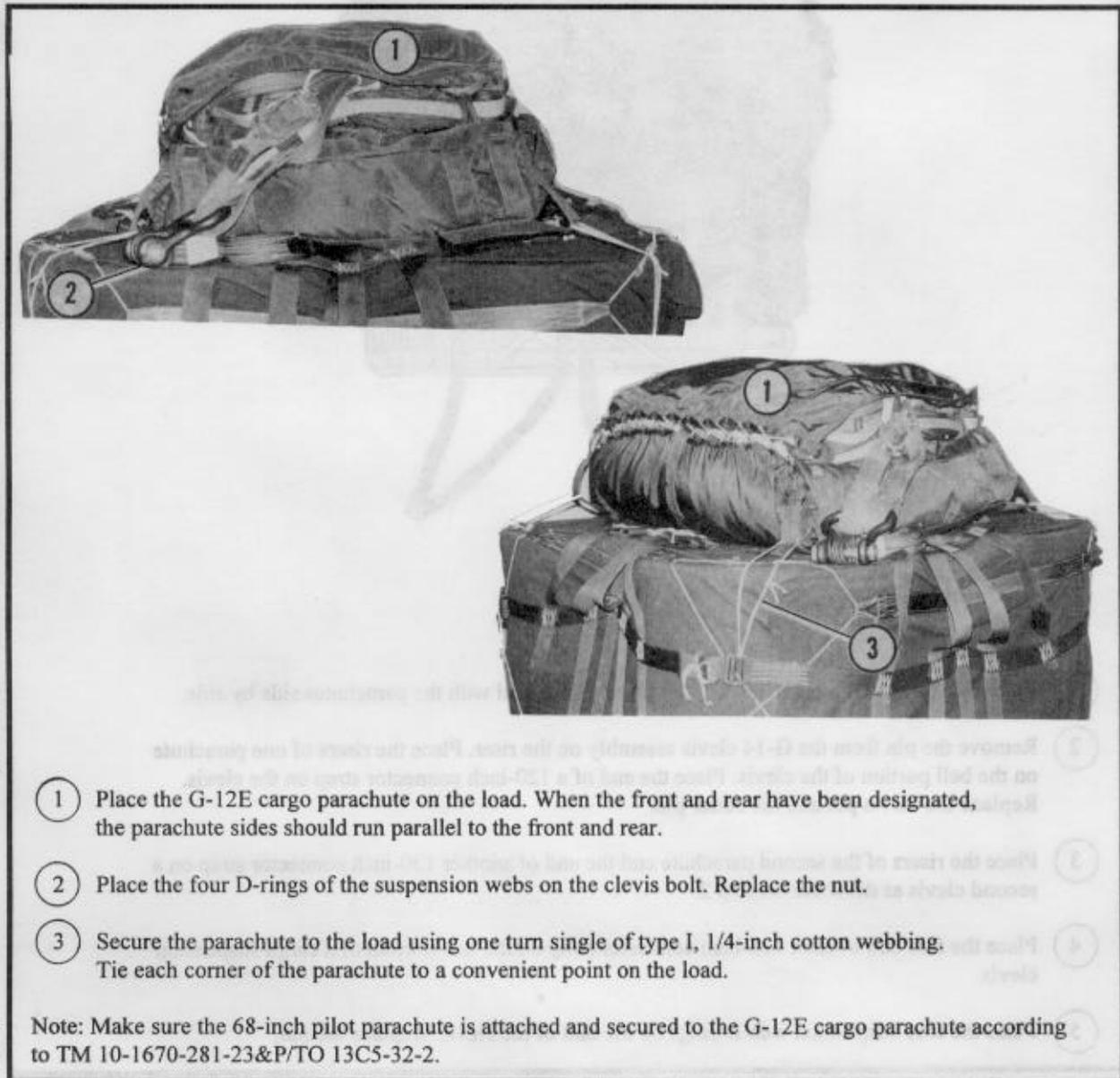
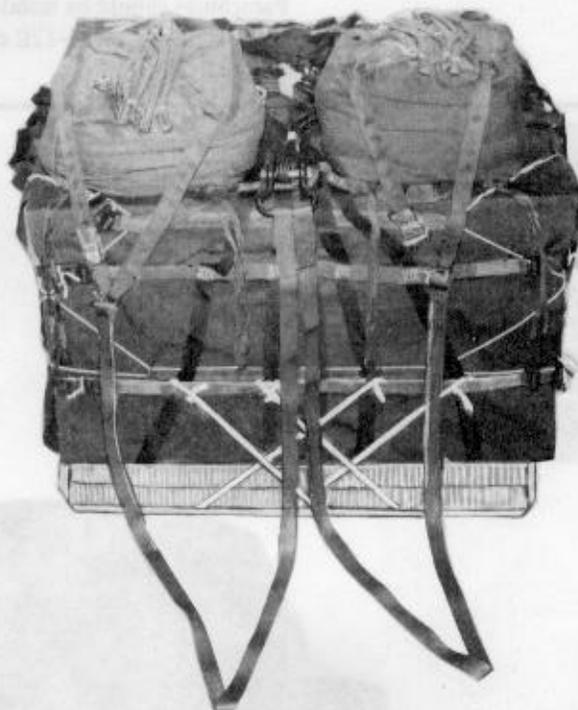


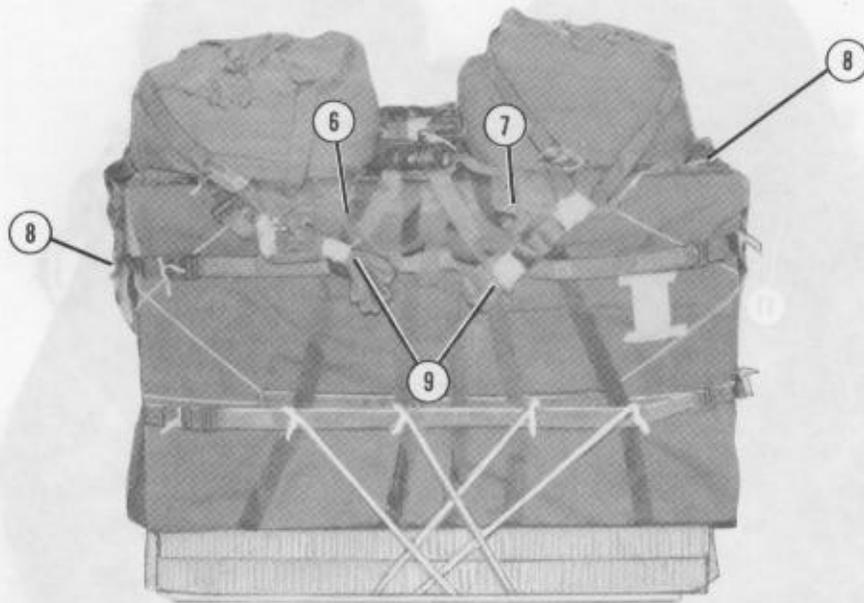
Figure 8-2. G-12E cargo parachute installed

b. To install two G-14 cargo parachutes, refer to Figure 8-3.



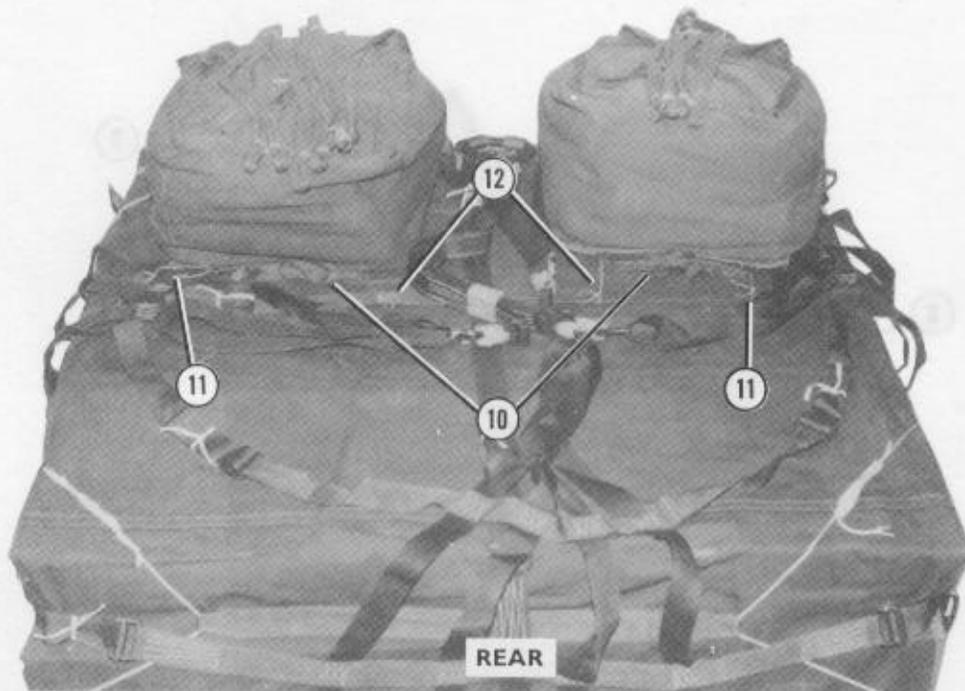
- ① Place two G-14 cargo parachutes on the front of the load with the parachutes side by side.
- ② Remove the pin from the G-14 clevis assembly on the riser. Place the risers of one parachute on the bell portion of the clevis. Place the end of a 120-inch connector strap on the clevis. Replace the clevis pin and the cotter pin.
- ③ Place the risers of the second parachute and the end of another 120-inch connector strap on a second clevis as described in step 2.
- ④ Place the free end of each 120-inch connector strap on the bell portion of a cargo suspension clevis.
- ⑤ Place the four suspension web D-rings on the bolt of the clevis. Replace the nut.

Figure 8-3. Two G-14 cargo parachutes installed



- ⑥ Tie the front center tie tapes of one parachute to a convenient point on the front of the load.
- ⑦ Tie the front center tie tapes of the other parachute to a convenient point on the front of the load.
- ⑧ Tie the front outside tie tape of each parachute to a convenient point on the load.
- ⑨ Fold the excess connector strap, and secure the folds with tape. Tie the folds to the front of the load with a double length of type I, 1/4-inch cotton webbing.

Figure 8-3. Two G-14 cargo parachutes installed (continued)



- ⑩ Tie the rear tapes of each parachute together.
- ⑪ Pass a length of ticket number 8/7 cotton thread through the outside tie loop of each parachute. Tie the ticket number 8/7 cotton thread to a convenient point on the load.
- ⑫ Pass a length of ticket number 8/7 cotton thread through the inside tie loop of each parachute. Tie the ticket number 8/7 cotton thread to a convenient point on the load.

Notes: 1. Two 9-foot (2-loop) slings may be used in place of the two 120-inch connector straps. However, one sling and one strap may not be used.
2. Tape the clevis pin and other sharp edges.

Figure 8-3. Two G-14 cargo parachutes installed (continued)

c. To install three G-14 cargo parachutes, refer to Figure 8-4.

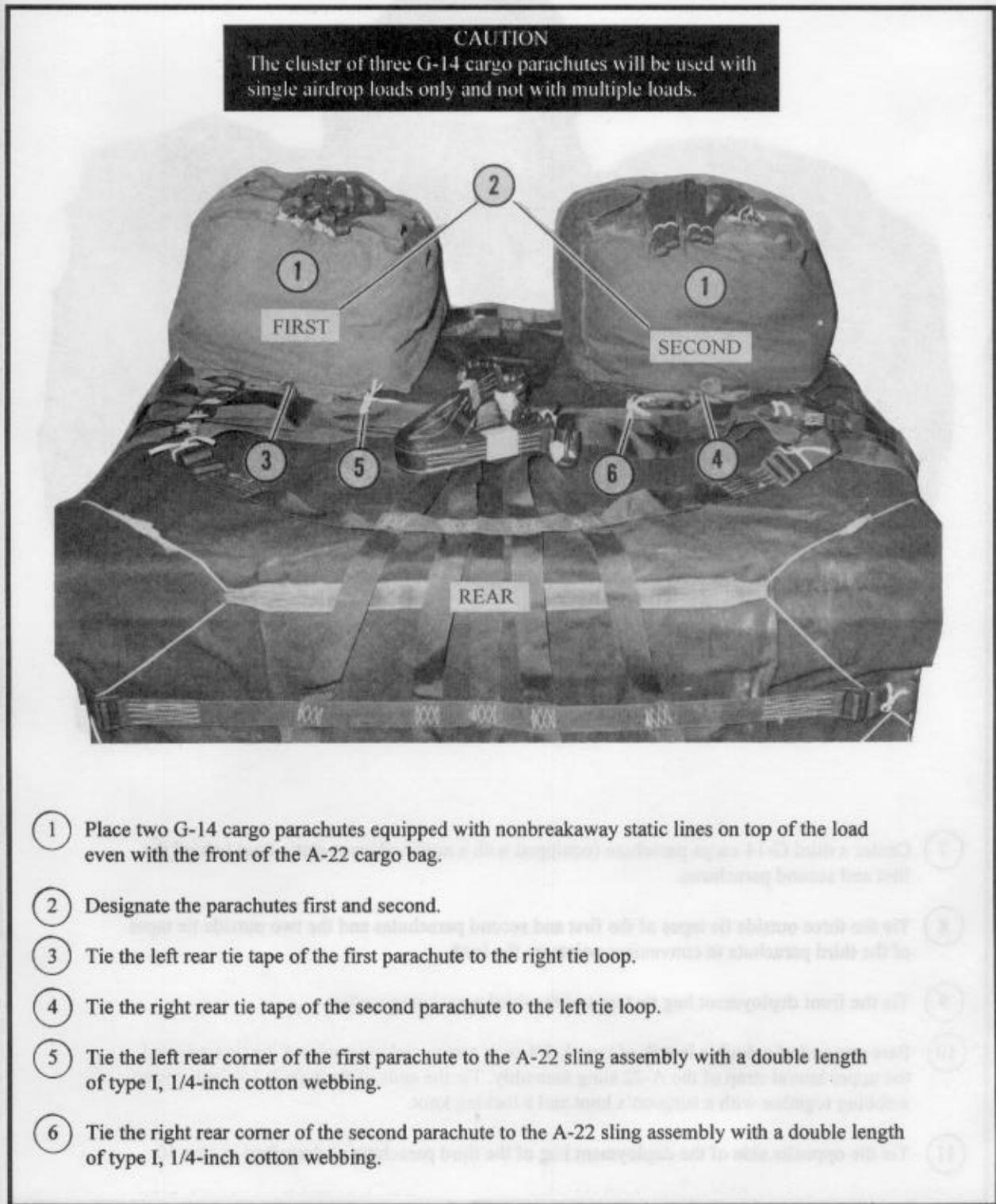
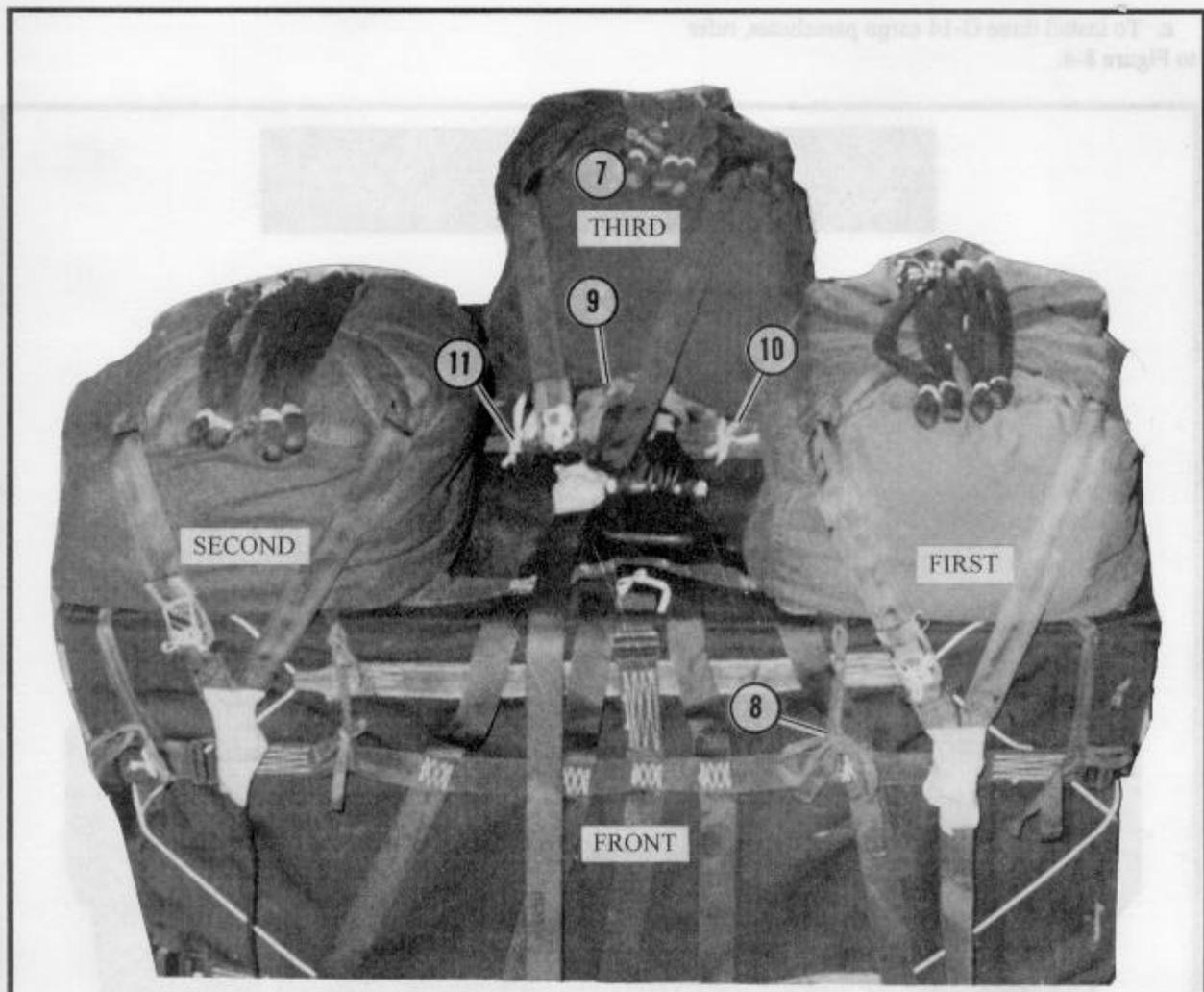
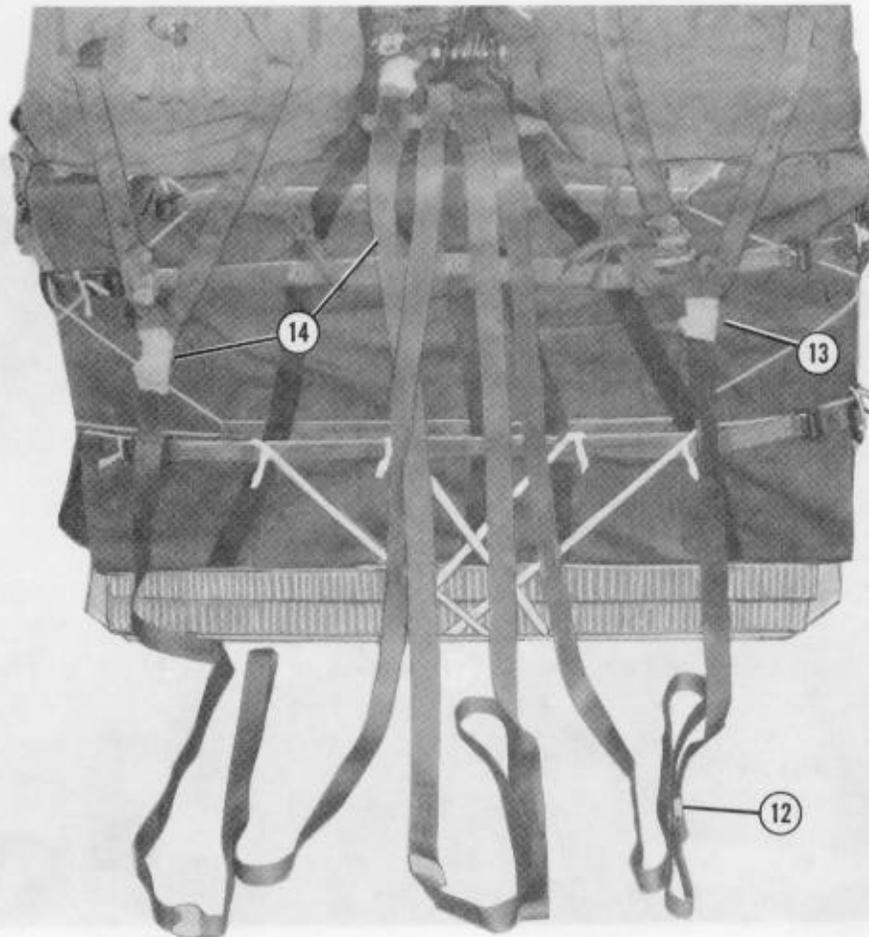


Figure 8-4. Three G-14 cargo parachutes installed



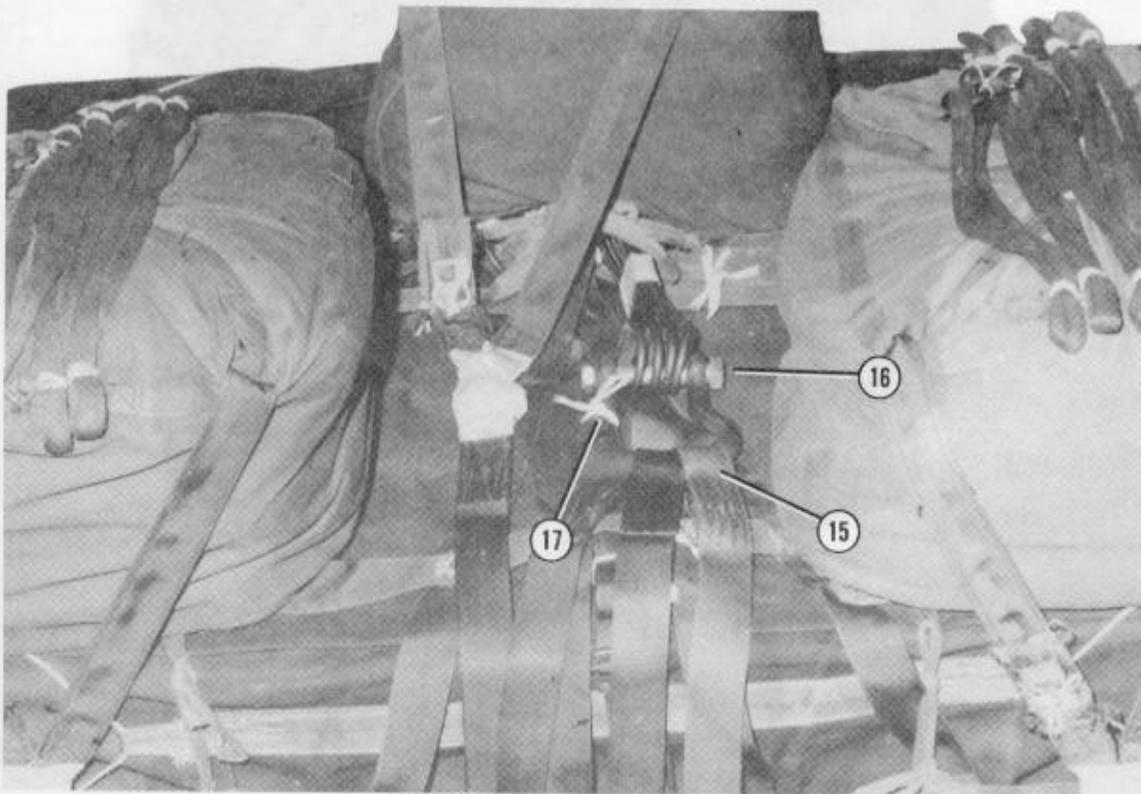
- ⑦ Center a third G-14 cargo parachute (equipped with a nonbreakaway static line) behind the first and second parachutes.
- ⑧ Tie the three outside tie tapes of the first and second parachutes and the two outside tie tapes of the third parachute to convenient points on the load.
- ⑨ Tie the front deployment bag tie tapes of the third parachute together.
- ⑩ Pass one end of a double length of type I, 1/4-inch cotton webbing around the tie tapes and the upper lateral strap of the A-22 sling assembly. Tie the ends of the type I, 1/4-inch cotton webbing together with a surgeon's knot and a locking knot.
- ⑪ Tie the opposite side of the deployment bag of the third parachute as described in step 10.

Figure 8-4. Three G-14 cargo parachutes installed (continued)



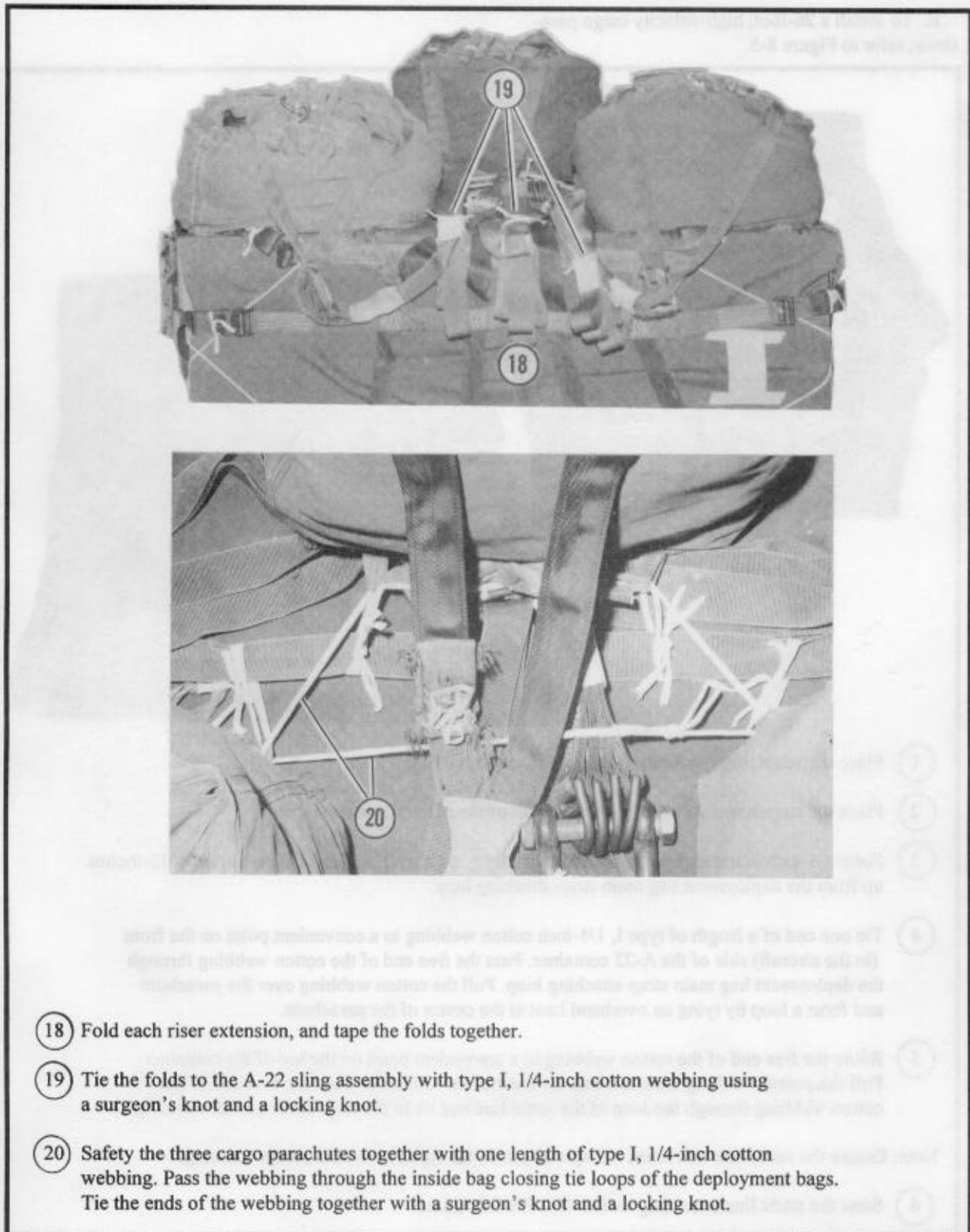
- ⑫ Form a 180-inch riser extension by connecting a 60-inch connector strap and a 120-inch connector strap with an L-bar connector link. Cover the L-bar connector link with tape.
- ⑬ Connect the risers of the first parachute to one end of the 180-inch riser extension with a G-14 clevis assembly. Cover the G-14 clevis assembly with tape.
- ⑭ Form a second and third riser extension as described in step 12. Fasten the second and third riser extensions to the second and third parachutes as described in step 13.

Figure 8-4. Three G-14 cargo parachutes installed (continued)



- 15 Place the bell portion of a cargo suspension clevis on the free ends of the riser extensions.
- 16 Place the A-22 sling assembly D-rings on the bolt of the cargo suspension clevis. Replace the nut.
- 17 Tie the cargo suspension clevis to the A-22 sling assembly with a double length of type I, 1/4-inch cotton webbing.

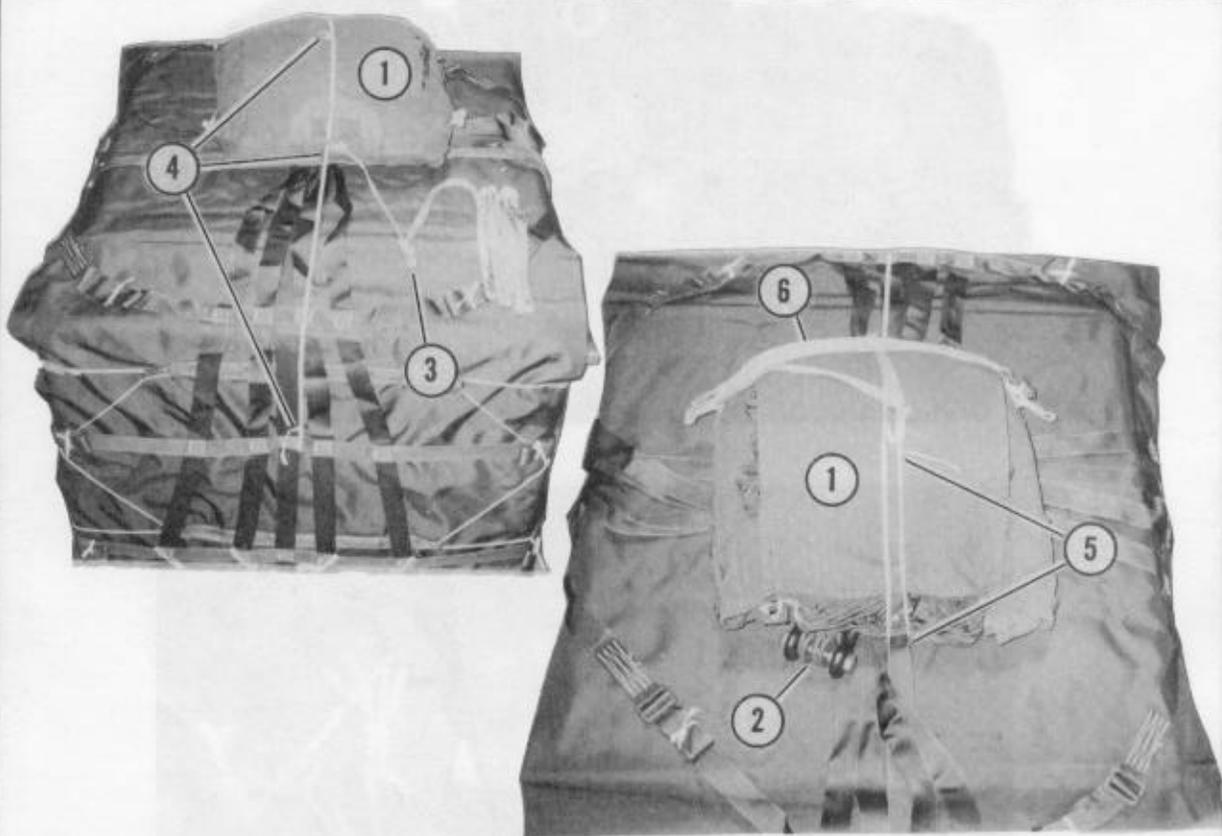
Figure 8-4. Three G-14 cargo parachutes installed (continued)



- 18 Fold each riser extension, and tape the folds together.
- 19 Tie the folds to the A-22 sling assembly with type I, 1/4-inch cotton webbing using a surgeon's knot and a locking knot.
- 20 Safety the three cargo parachutes together with one length of type I, 1/4-inch cotton webbing. Pass the webbing through the inside bag closing tie loops of the deployment bags. Tie the ends of the webbing together with a surgeon's knot and a locking knot.

Figure 8-4. Three G-14 cargo parachutes installed (continued)

d. To install a 26-foot, high-velocity cargo parachute, refer to Figure 8-5.



- ① Place a 26-foot, high-velocity cargo parachute on top of the load.
- ② Place the suspension web D-rings on the bolt of the cargo suspension clevis .
- ③ Form a 3-inch diameter loop in the static line by tying a overhand knot approximately 12-inches up from the deployment bag main strap attaching loop.
- ④ Tie one end of a length of type I, 1/4-inch cotton webbing to a convenient point on the front (in the aircraft) side of the A-22 container. Pass the free end of the cotton webbing through the deployment bag main strap attaching loop. Pull the cotton webbing over the parachute and form a loop by tying an overhand knot at the center of the parachute.
- ⑤ Route the free end of the cotton webbing to a convenient point on the top of the container. Pull the cotton webbing back towards the front of the container. Pass the free end of the cotton webbing through the loop of the static line and tie to the loop of the cotton webbing.

Note: Ensure the static line will break a single length of the type I, 1/4-inch cotton webbing.

- ⑥ Stow the static line according to TM 10-1670-276-23&P.

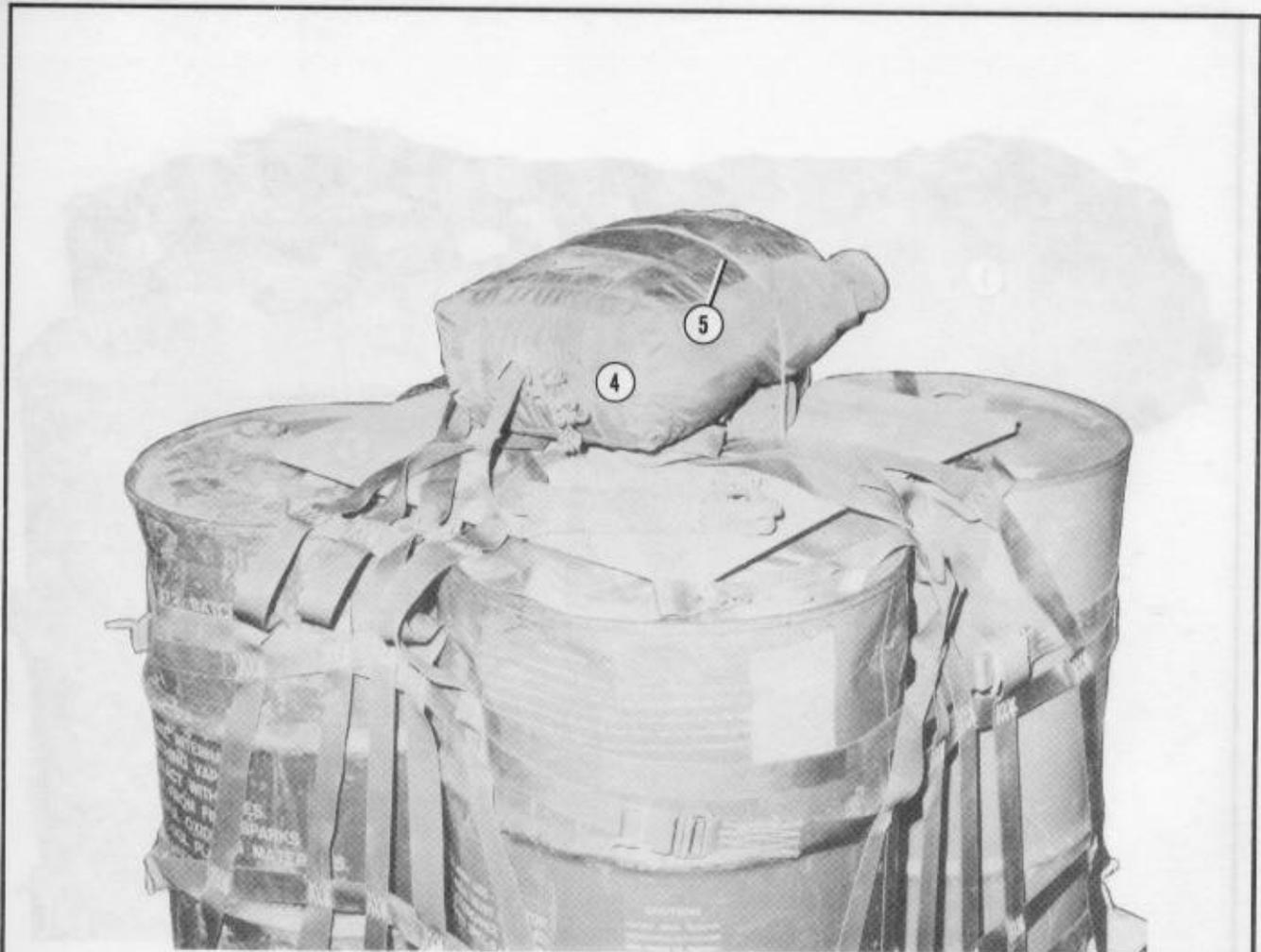
Figure 8-5. One 26-foot, high-velocity cargo parachute installed

e. To install a 22-foot cargo extraction parachute, refer to Figure 8-6.



- ① Modify the 22-foot cargo extraction parachute by adapting the procedures in Figure 3-6 for modifying the 15-foot cargo extraction parachute. Install a 20-foot (2-loop), type XXVI nylon webbing sling as shown in Figure 3-6, steps 7 through 10. Place the parachute on top of the load.
- ② Place the suspension web D-rings on the bolt of the cargo suspension clevis on the end of the 20-foot sling. Replace the bolt.
- ③ S-fold the 20-foot sling on top of the load, and tie the folds together with two lengths of type I, 1/4-inch cotton webbing.

Figure 8-6. One 22-foot cargo extraction parachute installed.



- ④ Center the parachute on top of the load.
- ⑤ Tie a length of type I, 1/4-inch cotton webbing to a convenient point on the load. Pass the free end of the webbing over the parachute, and pull the webbing tight. Tie the free end of the type I, 1/4-inch cotton webbing to a convenient point on the load.

Figure 8-6. One 22-foot cargo extraction parachute installed (continued)

8-9. Purpose of Waiver for Non-CVRS and G-12D Cargo Parachute Loads

This waiver is granted to allow air items currently rigged reasonable time to be used or rerigged during regular repack or rerigging cycles. Every effort should be made to convert to new rigging standards in a timely manner. The new rigging standards are designed to increase the survivability of both airdropped items and the aircraft used to deliver the items. Paragraph 8-10 and Table 8-1 state the limitations of non-CVRS and G-12D cargo parachute loads. This waiver will be rescinded when adequate time has been allowed to convert.

8-10. Capabilities of Non-CVRS and G-12D Cargo Parachute Loads

When non-CVRS loads or loads using the G-12D cargo parachutes are used, the following decreases in capabilities occur.

a. The G-12E cargo parachute was developed to lower the drop altitude. Using the G-12D cargo parachute increases the drop altitude by 100 feet. This will increase the exposure time of both the load and aircraft.

b. The CVRS was designed to restrain the load vertically during the aircraft flight. When the load is not restrained to CVRS standards, it must be vertically restrained for flight. These restraints will be removed up to 30 minutes before airdrop. After the restraints are removed, the aircraft will have reduced maneuverability for threat avoidance. Table 8-1 states the limitations that will occur if non-CVRS loads are used.

Table 8-1. Capability reduction of non-CVRS loads

Item	Limitations
<p>Corner skid board ties</p>	<p>Corner skid board ties were designed to secure the skid board to the load. When used, an additional vertical restraint must be installed inside the aircraft.</p>
<p>Steel strapping</p>	<p>Steel strapping located below the second layer of honeycomb or contacting the skid board makes the load non-CVRS compatible. The CVRS must be removed from the aircraft and vertical restraints must be used.</p>
<p>53 1/2- by 48-inch skid board (CVRS installed)</p>	<p>When dropped with the CVRS, the 48-inch sides become the front and rear. A single or double stick may be dropped. The load must be vertically restrained. Reduced capabilities of number of containers that can be dropped are C-130 aircraft--1 to 14 may be dropped; C-141 aircraft--1 to 36 may be dropped.</p> <p>Note: If containers have an overhang, the number will be reduced.</p>
<p>53 1/2- by 48-inch skid board (CVRS removed)</p>	<p>When the CVRS is removed, the 53 1/2-inch sides remain the front and rear. The load can be dropped in either a double or single stick, but double sticks must have an even number of containers. The load must be vertically restrained. The aircraft capabilities are C-130--1 to 16 containers; C-141--1 to 36 containers.</p>
<p>53 1/2- by 96-inch skid board</p>	<p>This container is not CVRS-compatible. The system must be removed. Vertical restraints must be installed. The 53 1/2-inch sides are the front and rear.</p>