CHAPTER 4
RIGGING TYPICAL A-7A CONTAINERS

Section I
LOW-VELOCITY AIRDROP FROM PARATROOP DOOR

4-1. Description of Load

Typical A-7A loads are rigged for low-velocity airdrop from a paratroop door of an aircraft. Typical loads may include rations, small equipment, water cans, or other supplies. Items should be padded and/or placed in boxes to prevent damage during airdrop. This load must not exceed 500 pounds, excluding the weight of the parachute. The minimum weight will vary according to the parachute used. The maximum dimensions for this load are 48 by 30 by 66 inches including parachute. When the load is dropped, the largest dimension will be placed in an upright position in the door. The parachute will be on top of or on the side located inside the aircraft. When the weight of the load exceeds 350 pounds, three trained designated pushers will assist the jumpmaster in pushing the load out.

4-2. Positioning Straps

Position straps as shown in Figure 4-1. When two straps are used, a piece of type III nylon cord needs to be placed parallel to the bottom strap. When positioning straps, make sure the oversized portion of the metal frame on the friction adapter is up.

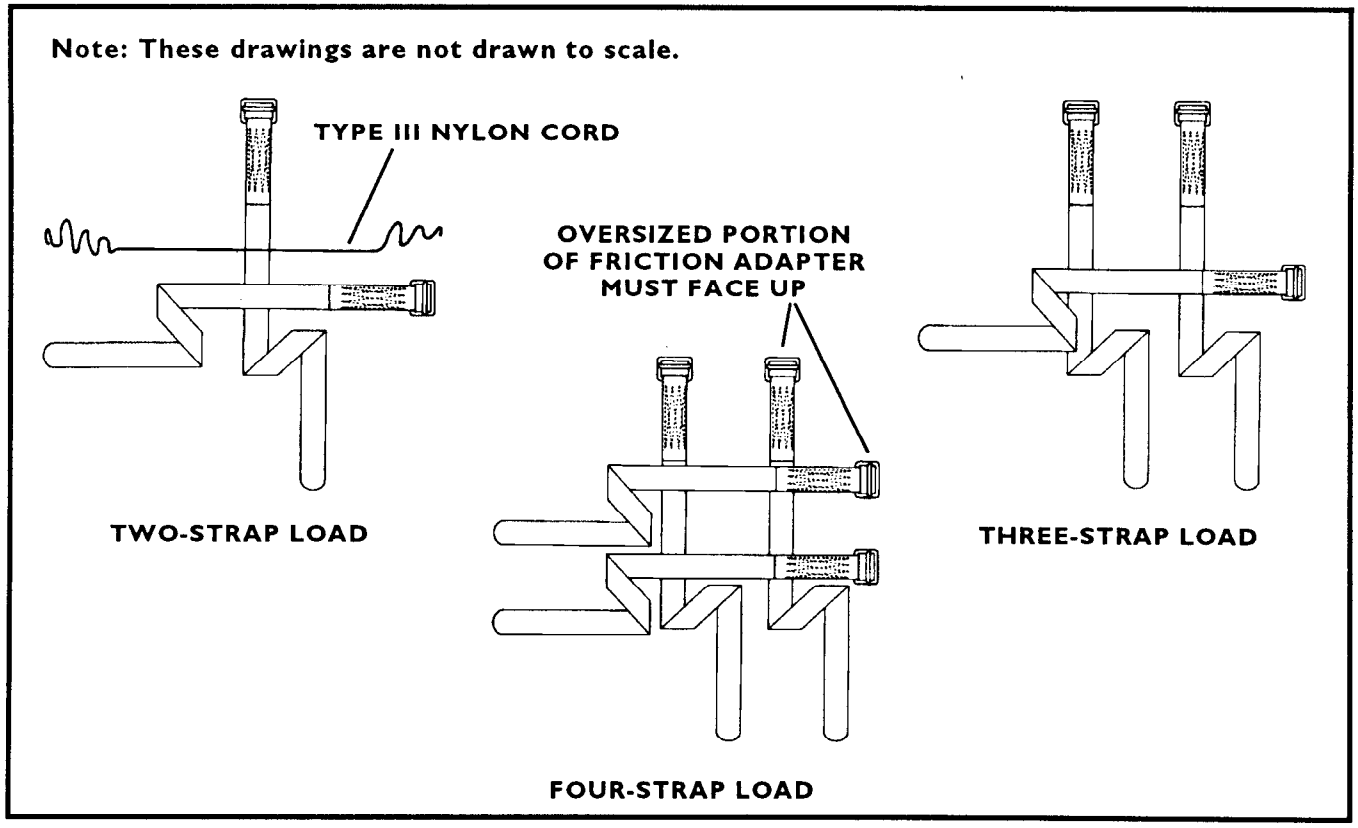
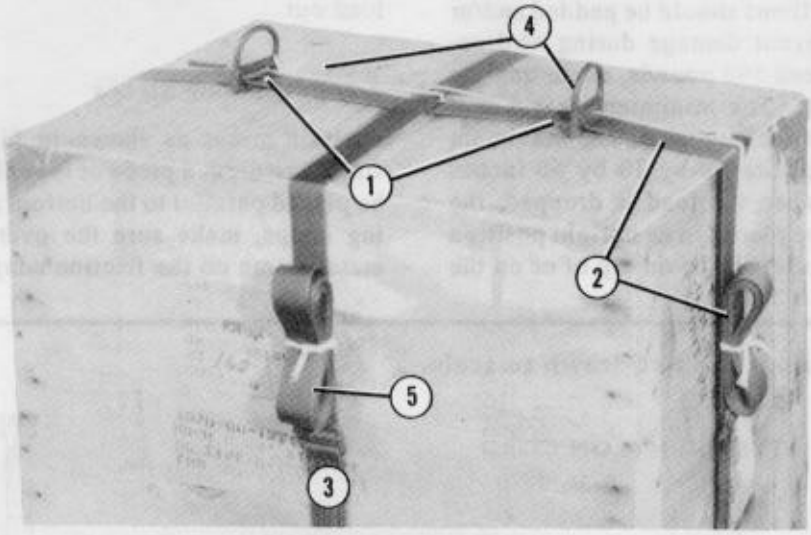


Figure 4-1. A-7A straps positioned

4-3. Positioning Load and Securing Straps

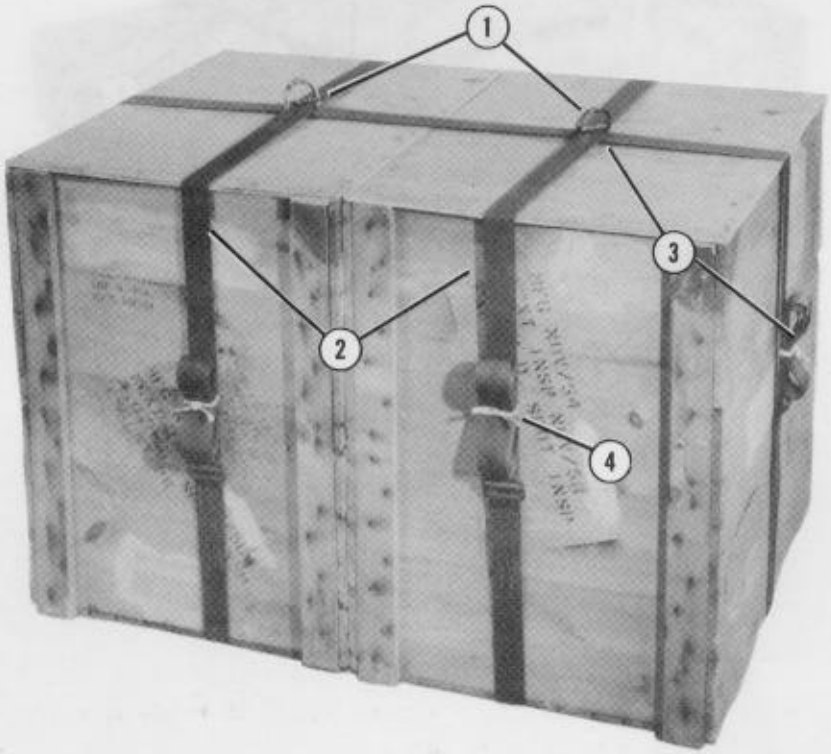
Center the equipment on the straps. If needed, honeycomb can be placed under the equipment. Secure the straps as shown in Figure 4-2 for the two-strap load, Figure 4-3 for the three-strap load, and Figure 4-4 for the four-strap load.

Note: When the 68-inch pilot parachute will be used, only one D-ring is installed at the intersection of straps.



1. **Using the strap with the type III nylon cord beside it, route the strap through the rectangular portion of the two D-rings.**
2. **Route the strap with D-rings on it over the load and route it through the friction adapter. Center the D-rings on top of the load 12 inches apart, and apply tension to the strap.**
3. **Route the other strap over the load and route it through the friction adapter. Apply tension to the strap.**
4. **Route one end of the type III nylon cord over the top of the load. Tie a knot around the first D-ring and tie the running end of the type III nylon cord to the other D-ring. Repeat step for the other side. Tie knots in the running ends and trim the excess to 2 inches.**
5. **Fold and secure the excess straps according to Figure 1-3.**

Figure 4-2. Two-strap load positioned and secured



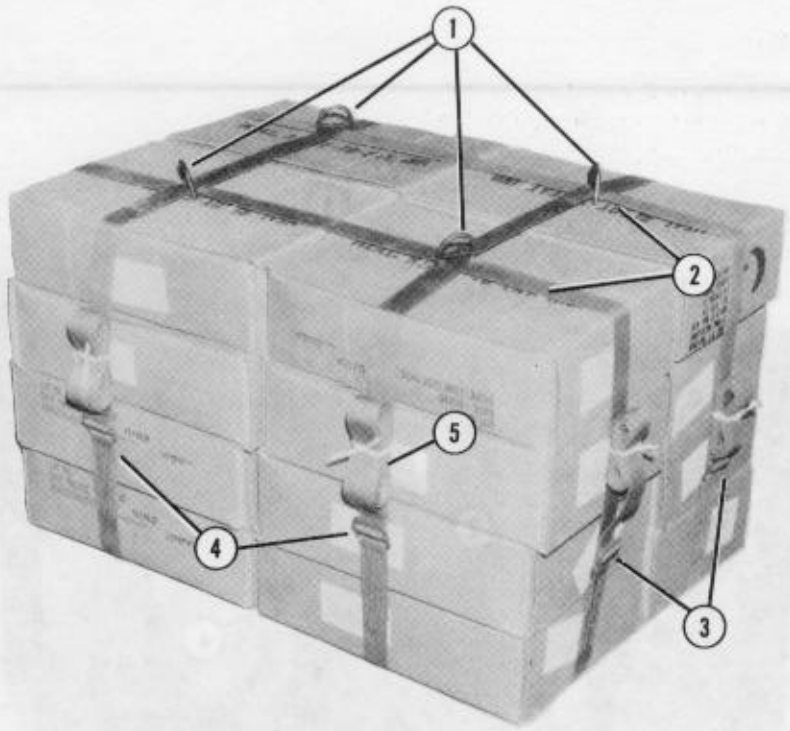
(1) Place the two straps as shown above. Route each strap through the rectangular portion of a D-ring.

(2) Route the two straps with D-rings over the load and through the friction adapters. Center the D-rings on top of the load, then apply tension to the straps.

(3) Route the third strap through both rectangular portions of the D-rings on the other two straps as shown above. Route the end through the friction adapter. Apply tension to the strap.

(4) Fold and secure the excess straps according to Figure 1-3.

Figure 4-3. Three-strap load positioned and secured



(1) Use two straps and four D-rings. Route each strap through the rectangular portion of two D-rings. Route the straps over the load and through the friction adapters. Slide the D-rings to the top of the load.

(2) Use two straps for the side. Route one through the rectangular portion of the rear set of D-rings and the other through the front set.

(3) Route the two side straps through the friction adapters and apply tension to the straps.

(4) Apply tension to the rear straps.

(5) Fold and secure excess straps according to Figure 1-3.

Figure 4-4. Four-strap load positioned and secured

4-4. Installing Parachute

Install a 68-inch pilot parachute, a T-10 modified cargo, or a G-14 cargo parachute on the load according to Chapter 3.

4-5. Marking Rigged Load

Mark the rigged load according to Chapter 1. Compute the rigged load data. See Figure 4-5 for rigged load data for two-, three-, and four-strap loads.

4-6. Equipment Required

Use the equipment listed in Table 4-1 to rig a four-strap load for low-velocity airdrop as shown in Figure 4-5.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.

RIGGED LOAD DATA

Container	Parachute	Weight (without parachute)
A-7A (two strap)	One 68-inch	30 - 50 pounds
	Three 68-inch	51 - 200 pounds
	T-10 modified	90 - 300 pounds
	G-14	200 - 300 pounds
A-7A (three strap)	One 68-inch	30 - 50 pounds
	Three 68-inch	51 - 200 pounds
	T-10 modified	90 - 400 pounds
	G-14	200 - 400 pounds
A-7A (four strap) (shown)	One 68-inch	30 - 50 pounds
	Three 68-inch	51 - 200 pounds
	T-10 modified	90 - 500 pounds
	G-14	200 - 500 pounds

Figure 4-5. Typical four-strap load rigged for low-velocity paratroop door airdrop

Table 4-1. Equipment required for rigging the four-strap A-7A load for low-velocity paratroop door airdrop

National Stock Number	Item	Quantity
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
1670-00-999-2658	Parachute, cargo, G-14	1
1670-00-251-1153	Sling assembly, cargo, airdrop, A-7A	1
7510-00-266-6710	Tape, masking, 2-in	As required
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-in	As required

Section II
LOW-VELOCITY AIRDROP FROM RAMP

4-7. Description of Load

A-7A containers are rigged for drop off the ramp of an aircraft. The load is rigged the same as paratroop door drops but it must have a skid board attached. The skid board must be 2 inches wider than the roller conveyors. On Air Force aircraft, the minimum width of the skid board is 42 inches. The weight range for ramp drops is 200 to 500 pounds without the weight of the parachute. The T-10 modified cargo or G-14 cargo parachute is the only parachute used on low-velocity ramp drops. Table 3-1 gives the weight ranges.

4-8. Preparing Skid Board

Prepare a skid board as shown in Figure 4-6.

4-9. Placing Honeycomb and Positioning Straps

Place the honeycomb on the skid board as shown in Figure 4-7. Position the straps the same as shown in Section I of this chapter.

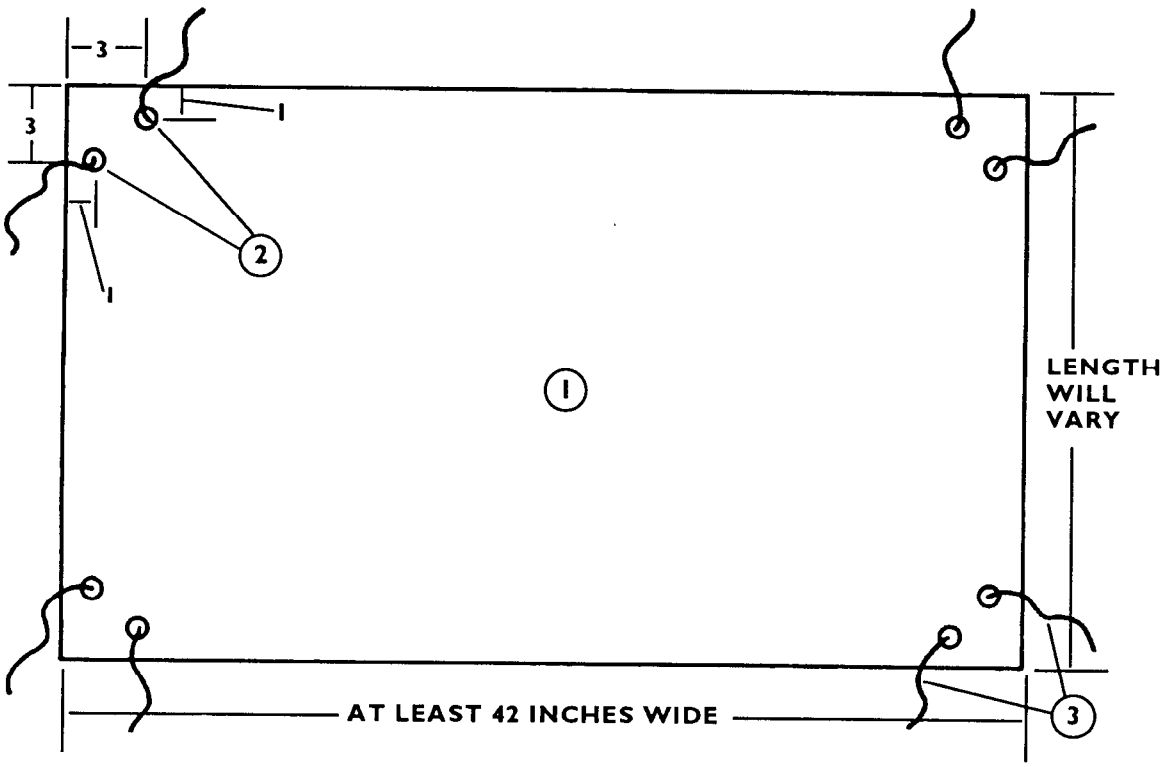
4-10. Positioning Load and Securing Straps

Position the load and secure the straps as shown in Section I of this chapter.

4-11. Securing Skid Board

Secure the skid board to a three-strap load as shown in Figure 4-8. Adapt the procedures in Figure 4-8 for a two-strap load. Secure the skid board to a four-strap load as shown in Figure 4-9.

Notes: 1. This drawing is not drawn to scale.
2. All dimensions are given in inches.

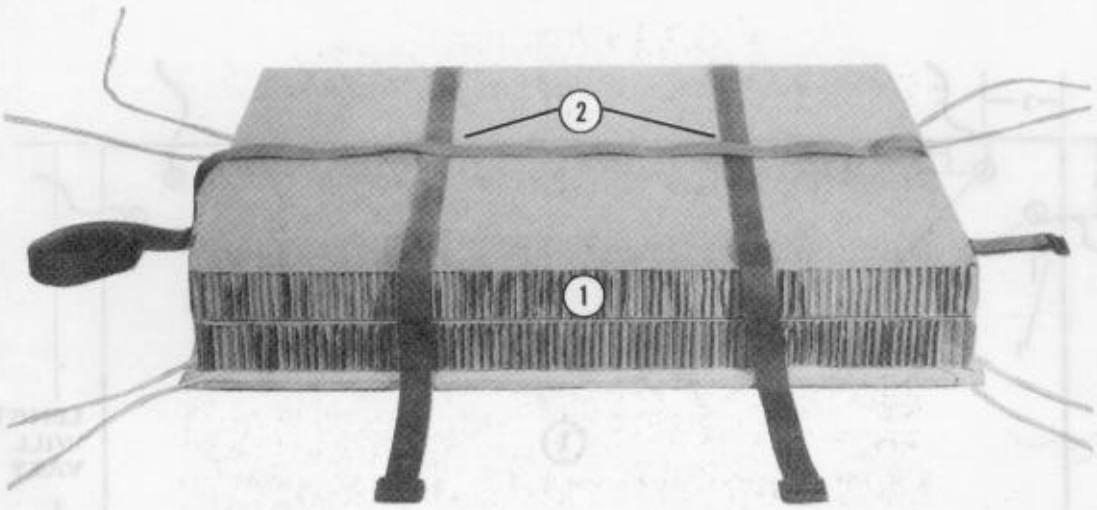


(1) Place a 1/2- or 3/4-inch piece of plywood on a flat surface.

(2) Drill eight 1/2-inch holes as shown above.

(3) Pass a length of type III nylon cord through each set of holes. The length of the cord will vary according to the height of the load. If type III nylon cord is not available, use 1/2-inch tubular nylon webbing.

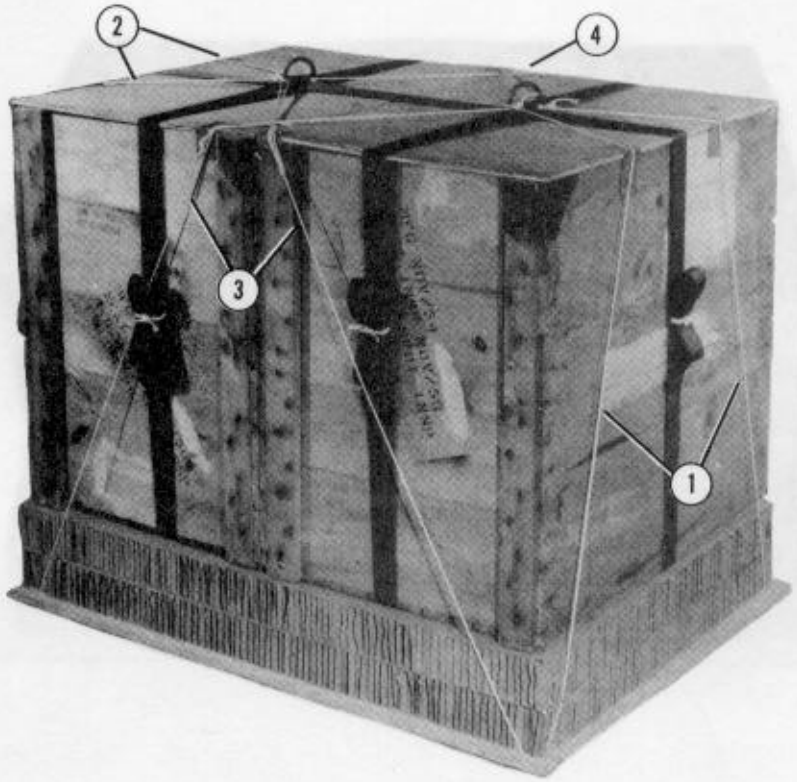
Figure 4-6. Skid board prepared



(1) **Cut two pieces of honeycomb at least the size of the base of the load. Honeycomb may be omitted if cushioning is not needed. Center the honeycomb on the skid board. Glue the honeycomb to the skid board, if needed .**

(2) **Position straps as described in Section I of this chapter. The straps may be positioned under the honeycomb, if desired. The three-strap load is shown in this figure.**

Figure 4-7. Honeycomb placed and straps positioned on skid board



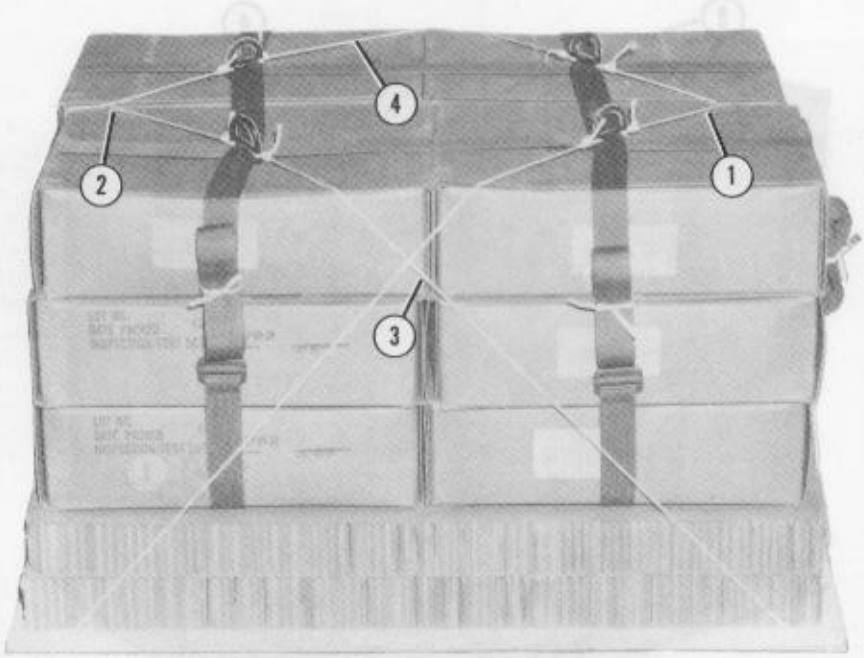
(1) **Tie the two lengths of type III nylon cord on the right side of the skid board to the D-ring on the top right side of the load.**

(2) **Repeat step 1 for the left side using the left D-ring.**

(3) **Tie the front right length of type III nylon cord to the D-ring on the top left side of the load using a trucker's hitch knot and an overhand knot in the running end. Repeat step for the front left length of cord.**

(4) **Repeat step 3 for the rear side of the load.**

Figure 4-8. Skid board secured to three-strap load



(1) On the right side of the skid board, tie the front right length of type III nylon cord to the rear right D-ring. Tie the rear right length of cord to the front right D-ring.

(2) Repeat step 1 on the left side using the two D-rings on the left side.

(3) On the front of the skid board, cross the right length of type III nylon cord over to the front left D-ring. Tie it with a trucker's hitch knot and a knot in the running end. Repeat for left side length of cord using the right front D-ring.

(4) Repeat step 3 using rear D-rings and rear lengths of cord.

Figure 4-9. Skid board secured to four-strap load

4-12. Installing Parachute

Install a T-10 modified cargo or a G-14 cargo parachute on the load according to Chapter 3.

4-13. Marking Rigged Load

Mark the rigged load according to Chapter 1. Compute the rigged load data.

4-14. Equipment Required

Use the equipment listed in Table 4-2 to rig a four-strap load for low-velocity ramp airdrop as shown in Figure 4-10.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.

RIGGED LOAD DATA	
Weight (without parachute)	200 - 500 pounds
Parachute	G-14

Figure 4-10. Four-strap A-7A load rigged for low-velocity ramp airdrop

Table 4-2. Equipment required for rigging the four-strap A-7A load for low-velocity ramp airdrop

National Stock Number	Item	Quantity
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
1670-00-999-2658	Parachute, cargo, G-14	1
	Plywood:	
5530-00-129-7777	1/2- by 48- by 96-in	1 sheet
	or	
5530-00-128-4981	3/4- by 48- by 96-in	1 sheet
1670-00-251-1153	Sling assembly, cargo, airdrop, A-7A	1
7510-00-266-6710	Tape, masking, 2-in	As required
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-in	As required

Section III
HIGH-VELOCITY AIRDROP

4-15. Description of Load

A-7A loads rigged for high-velocity airdrop are rigged in a similar manner to low velocity. Three layers of honeycomb and a skid board are required for paratroop door or ramp drop. This load must not exceed 500 pounds, excluding the weight of the parachute.

4-16. Preparing Drop Items

Place items in a container so that the A-7A straps can hold the items safely together during exit and descent. Items dropped at high velocity will impact at a high rate of speed; therefore, sensitive items cannot be dropped using this method.

4-17. Preparing Skid Board

Prepare the skid board using 1/2- or 3/4-inch plywood in the same manner as in Section II of this chapter. The skid board will be at least the size of the base of the load. When the load is being ramp dropped, the skid board will be at least the width of the distance from the outside edges of the two conveyors on the aircraft floor. For C-130 and C-141 aircraft, 42 inches is the minimum width. Route the skid board ties in the same manner as in Section II of this chapter.

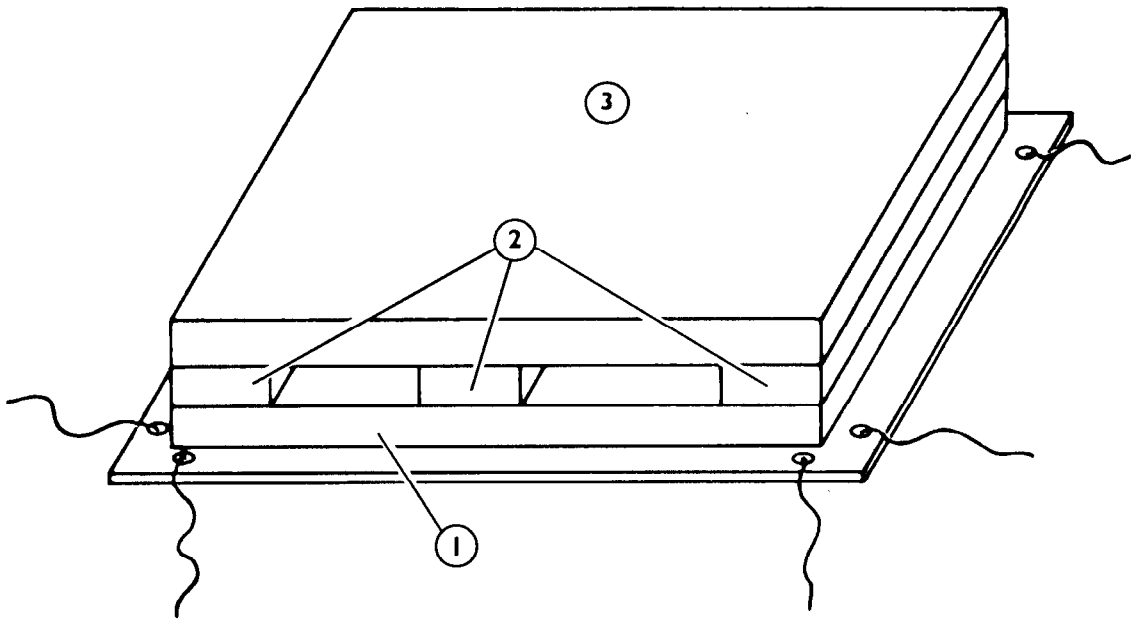
4-18. Positioning Straps

Position straps as shown in Section I of this chapter. The straps may be positioned either under or on top of the honeycomb. In this section, they are shown on top of the honeycomb.

4-19. Placing Honeycomb

Place honeycomb as shown in Figure 4-11.

Notes: 1. This drawing is not drawn to scale.
2. Layers should be glued together.



(1) Cut one piece of honeycomb at least the size of the base of the load. Center it on the skid board.

(2) Cut three pieces of honeycomb 3 inches wide and the length of the honeycomb cut in step 1. Center one piece on top of the first layer of honeycomb. Place one piece of honeycomb even with each side edge.

(3) Cut another piece of honeycomb the same size as in step 1, and place it on top of the second layer of honeycomb.

Figure 4-11. Honeycomb placed

4-20. Securing Straps

Secure the straps according to Section I of this chapter.

4-21. Securing Skid Board

Secure the skid board to the load as shown in Section II of this chapter.

4-22. Installing Parachute

Install the parachute on the load according to Chapter 3.

4-23. Marking Rigged Load

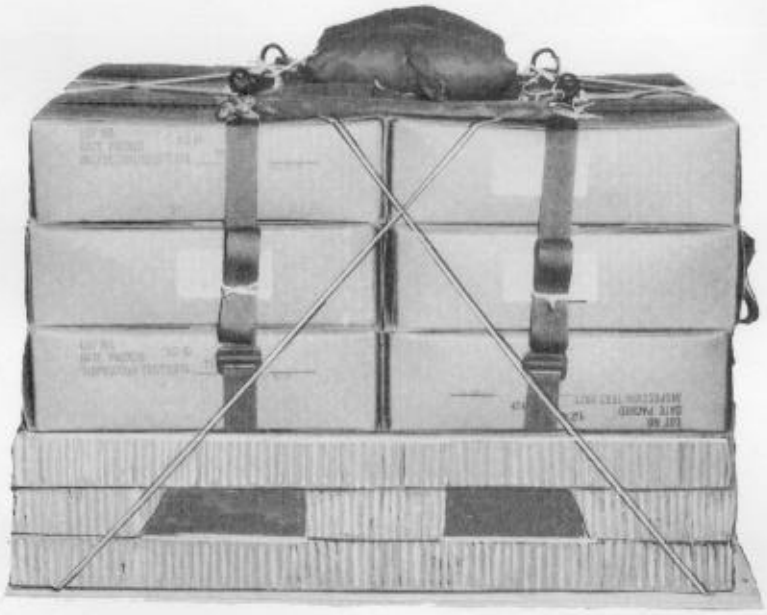
Mark the rigged load according to Chapter 1. Compute the rigged load data.

4-24. Equipment Required

Use the equipment listed in Table 4-3 to rig a four-strap load for high-velocity airdrop as shown in Figure 4-12.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.



RIGGED LOAD DATA

Parachute	Weight (without parachute)
* One 68-inch	75 - 150 pounds
Three 68-inch	151 - 500 pounds
* 12-foot, high-velocity cargo (shown)	151 - 500 pounds
15-foot (modified for high-velocity)	151 - 500 pounds

* Primary parachute

Figure 4-12. Four-strap A-7A load rigged for high-velocity ramp airdrop

Table 4-3. Equipment required for rigging the four-strap A-7A load for high-velocity ramp 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
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
1670-00-788-8666	Parachute, cargo, high-velocity, 12-ft	1
	Plywood:	
5530-00-129-7777	1/2- by 48- by 96-in	1 sheet
	or	
5530-00-128-4981	3/4- by 48- by 96-in	1 sheet
1670-00-251-1153	Sling assembly, cargo, airdrop, A-7A	1
7510-00-266-6710	Tape, masking, 2-in	As required
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-in	As required

Section IV
HAARS

4-25. Description of Load

The A-7A container load rigged for delivery by HAARS requires a 30-inch pilot parachute, an altitude sensor parachute staging unit, a 70-inch shear strap, and a G-14 cargo parachute equipped with a 53-inch HAARS deployment line. The load may be dropped from the paratroop door or ramp of an aircraft. This load may weigh 200 to 500 pounds excluding the weight of the parachute.

4-26. Rigging Load

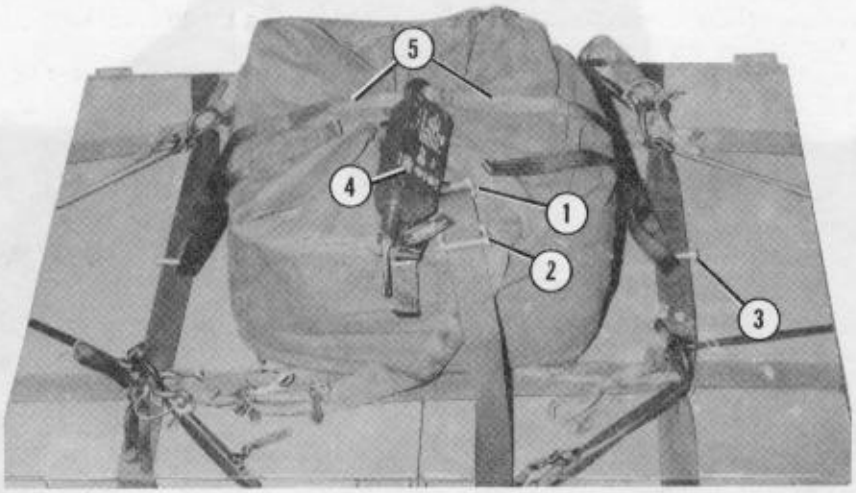
Rig the load as a typical A-7A load. Use a skid board and at least two layers of honeycomb. Use 1/2-inch tubular nylon webbing to make the skid board ties. Use at least four straps on all loads. Rig the load according to Figures 4-6 through 4-9.

4-27. Preparing and Installing Parachute

Prepare the G-14 cargo parachute as outlined in TM 10-1670-267-12&P/TO 13C7-1-101. Install the parachute on the load as shown in Figure 3-4.

4-28. Installing Altitude Sensor Parachute Staging Unit and Pilot Parachute

Install the altitude sensor parachute staging unit and a 30-inch pilot parachute as shown in Figure 4-13. This procedure must be completed by a parachute rigger.



(1) Attach the 60-inch connector strap (attached to the pilot parachute) to the 53-inch HAARS deployment line with an L-bar connector link.

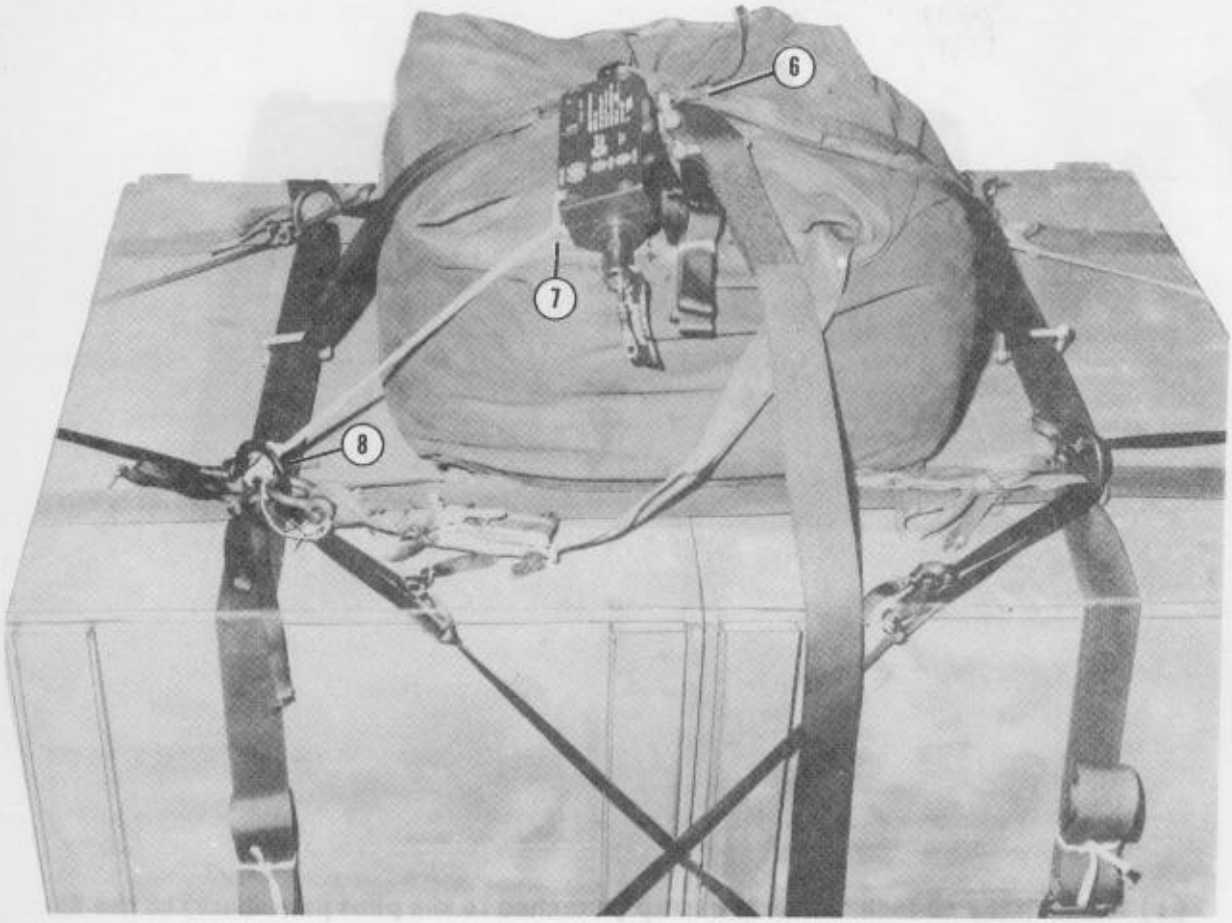
(2) Attach a second L-bar connector link to the loop of the 60-inch connector strap.

(3) Attach an L-bar connector link to the A-7A strap on each side of the parachute.

(4) Place the altitude sensor parachute staging unit on top of the parachute.

(5) Pass one end of a 70-inch shear strap through the L-bar connector link attached to one of the A-7A straps. Pass the same end of the shear strap to the top of the parachute and through the cutter assembly portion of the altitude sensor parachute staging unit. Pass the same end of the strap through the other L-bar connector link. Pass the ends of the shear strap to the top of the load.

Figure 4-13. Altitude sensor parachute staging unit and 30-inch pilot parachute installed

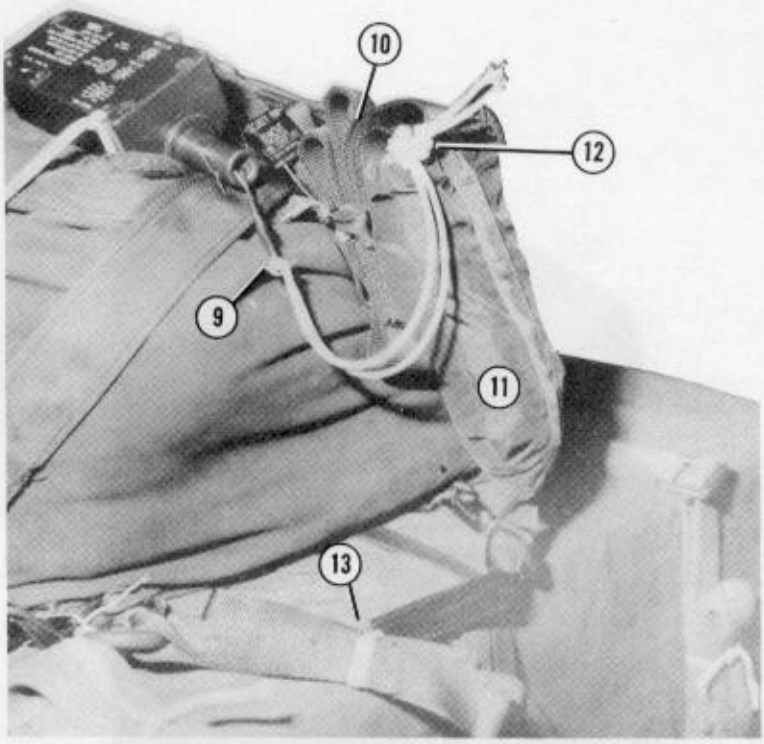


(6) **Attach both ends of the shear strap to the L-bar connector link installed in step 2.**

(7) **Double a length of type III nylon cord. Pass the loop end of the cord through the hole in the left side of the altitude sensor parachute staging unit. Pass the free ends of the cord through the loop of the type III nylon cord.**

(8) **Pull the free ends of the type III nylon cord tight. Tie the ends to the left front D-ring with a surgeon's knot and a locking knot.**

Figure 4-13. Altitude sensor parachute staging unit and 30-inch pilot parachute installed (continued)



(9) Double a length of type III nylon cord. Pass the loop end of the cord through the hole in the arming cable. Pass the free ends of the cord through the loop and pull them tight.

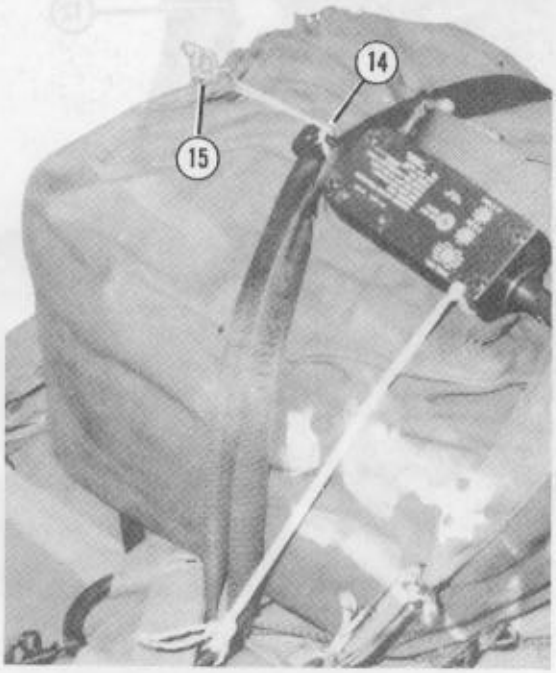
(10) S-fold the 60-inch connector strap installed in step 1. Secure the folds with a retainer band.

(11) Place the 30-inch pilot parachute toward the center of the load. Secure the parachute in place with ticket number 8/7 cotton thread.

(12) Tie the type III nylon cord attached to the altitude sensor parachute staging unit arming cable to the L-bar connector link on the bottom of the 30-inch pilot parachute using a square knot and a locking knot in the free end.

(13) S-fold the static line of the 30-inch pilot parachute, and secure the folds with a retainer band.

Figure 4-13. Altitude sensor parachute staging unit and 30-inch pilot parachute installed (continued)



(14) **Pass one end of a length of type I, 1/4-inch cotton webbing through the cutter assembly portion of the altitude sensor parachute staging unit and around both plies of the 70-inch shear strap. Pull the ends of the webbing tight, and tie the webbing to the cutter assembly with a surgeon's knot and a locking knot.**

(15) **Secure the ends of the webbing to the deployment bag static line stow bar loop.**

Figure 4-13. Altitude sensor parachute staging unit and 30-inch pilot parachute installed (continued)

4-29. Marking Rigged Load

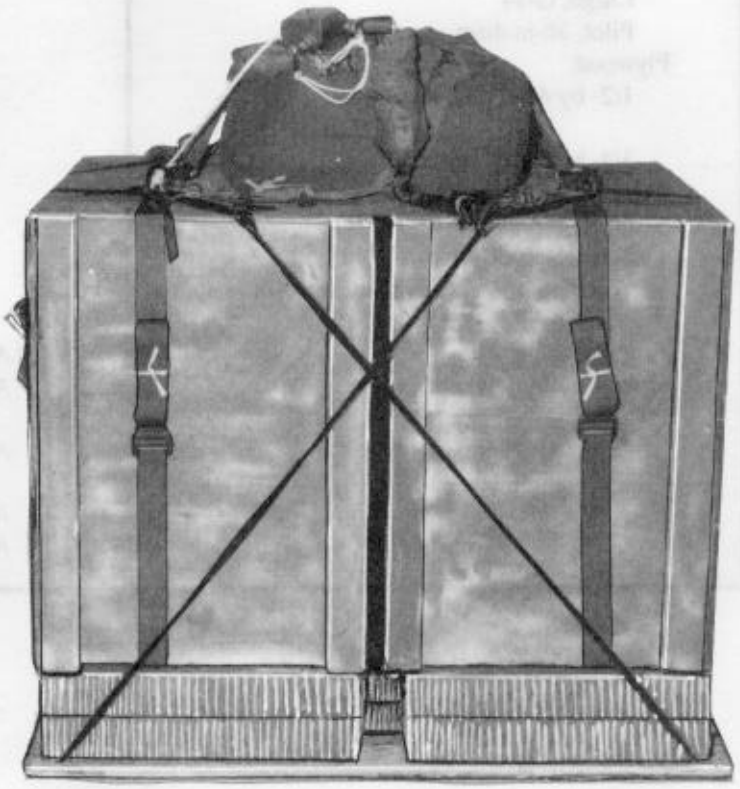
Mark the rigged load according to Chapter 1. Compute the rigged load data.

4-30. Equipment Required

Use the equipment listed in Table 4-4 to rig the load as shown in Figure 4-14.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.



RIGGED LOAD DATA	
Weight (without parachute)	200 - 500 pounds
Parachute	G-14

Figure 4-14. A-7A container load rigged for HAARS

Table 4-4. Equipment required for rigging an A-7A container load for HAARS

National Stock Number	Item	Quantity
1670-01-071-5022	Altitude sensor, parachute unit;	1
1377-01-064-4927	Cutter assembly	(1)
1670-01-064-4926	Sensor w retention line	(1)
1670-01-121-0954	Bag, deployment w static line (HAARS) (for 30-inch parachute)	1
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-01-121-0766	Line, deployment (HAARS), 53-in	1
1670-00-217-2421	Link assembly, L-bar type	5
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
	Parachute:	
1670-00-999-2658	Cargo, G-14	1
1670-01-121-5819	Pilot, 30-in diam	1
	Plywood:	
5530-00-129-7777	1/2- by 48- by 96-in	1 sheet
	or	
5530-00-128-4981	3/4- by 48- by 96-in	1 sheet
1670-00-251-1153	Sling assembly, cargo, airdrop, A-7A	1
	Strap:	
1670-00-738-5878	Connector, 60-in	2
1670-01-121-0767	Webbing, nylon (shear strap), 70-in (HAARS)	1
7510-00-266-6710	Tape, masking, 2-in	As required
8310-01-102-4478	Thread, cotton, ticket number 8/7	As required
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
	Nylon, tubular:	
8305-00-082-5752	1/2-in	As required
8305-00-268-2455	1-in	As required