

CHAPTER 2 RIGGING TRAILER

2-1. Description of Load

The M416, 1/4-ton cargo trailer and accompanying load are rigged on an 8-foot modular platform with one G-11A or one G-11B cargo parachute. The M416 trailer, illustrated in this manual, weighs 570 pounds. It is 109 inches long, 61 inches wide, and 44 inches high. When an M100 trailer is to be dropped, rigging procedures are the same as stated herein. The M100 trailer weighs 570 pounds. It is 109 inches long, 56 inches wide, and 42 inches high.

2-2. Preparing Platform and Installing Suspension Slings

Prepare an 8-foot modular platform (fig 2-1) as follows:

a. Inspecting Platform. Inspect, or assemble and inspect, the modular platform according to the procedures outlined in TM 10-1670-208-20&P/TO 13C3-4-12.

b. Installing Suspension Slings. Form suspension slings with four 3-foot slings and four 8-foot slings (2-loop). Pass a 3-foot sling through the loop of an 8-foot sling. Place a tiedown clevis in each end of the 3-foot sling and attach the clevises to the platform. Repeat procedure for the remaining slings. Starting at the front of each rail, attach clevises to the 3d and 6th clevis holes for the front slings and to the 12th and 15th clevis holes for the rear slings. Tape the loop of one 8-foot sling to the center of 3-foot sling (fig 2-1).

c. Attaching and Numbering Clevises. Starting at the front of each rail, attach a load tiedown clevis to the 1st, 2d, 5th, 7th, 13th, 14th, and 16th clevis holes of each rail. Again starting at the front of platform, number the clevises attached to the right rail 1 through 11 and those attached to the left rail 1A through 11A.

d. Positioning Load Spreader. Position load spreader on the platform as shown in figure 2-1.

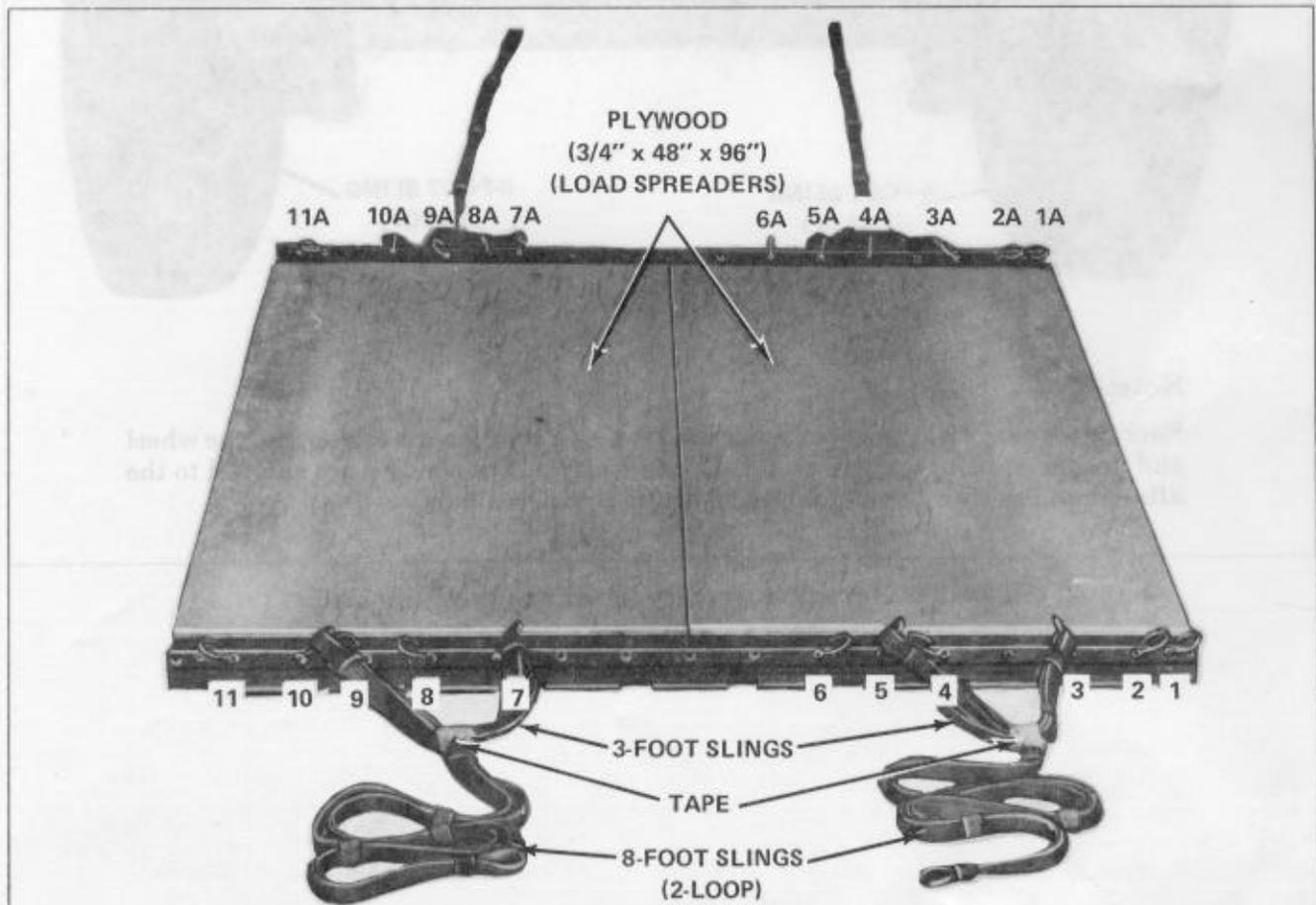
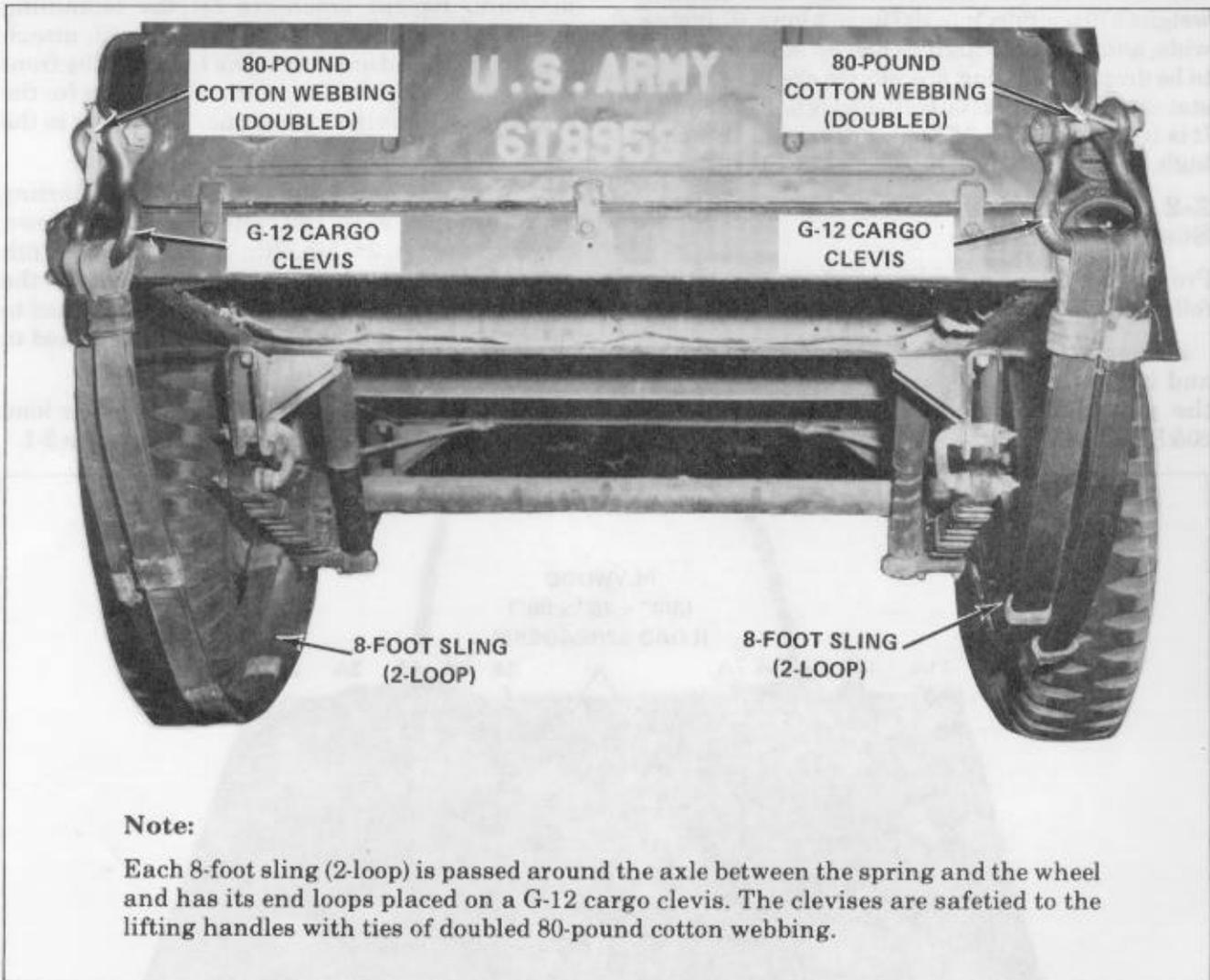


Figure 2-1. Platform prepared.

2-3. Preparing Trailer

a. Installing Aircraft Emergency Restraint System. Install the aircraft emergency restraint system as shown in figure 2-2.

b. Preparing Trailer Drawbar. Fold the intervehicular cable, and tape the cable and safety chains to the drawbar (fig 2-3). Secure the hand-brake lever in unlocked position to the front paulin hook with tape.



Note:

Each 8-foot sling (2-loop) is passed around the axle between the spring and the wheel and has its end loops placed on a G-12 cargo clevis. The clevises are safetied to the lifting handles with ties of doubled 80-pound cotton webbing.

Figure 2-2. Aircraft emergency restraint system installed.

2-4. Stowing Accompanying Load

Caution: Only ammunition authorized by FM 10-553/TO 13C7-18-41 may be air-dropped. The illustrated accompanying load contains ammunition and must be packaged, marked, and labeled in compliance with AFM 71-4/TM 38-250.

The accompanying load must meet the restrictions outlined in FM 10-500/TO 13C7-1-5. For the C-130 aircraft, the minimum allowable weight of

the accompanying load is 1,088 pounds and the maximum is 2,318 pounds. For the C-141 aircraft and platform extracted loads from the C-141 aircraft the minimum allowable accompanying load is 1,088 pounds and the maximum is 2,318 pounds. For item extracted from a C-141 aircraft the minimum allowable accompanying load is 2,068 pounds and the maximum is 2,318.

a. Stowing Load in Trailer. Stow part of the accompanying load and the trailer's cover in the trailer as shown in figure 2-3.

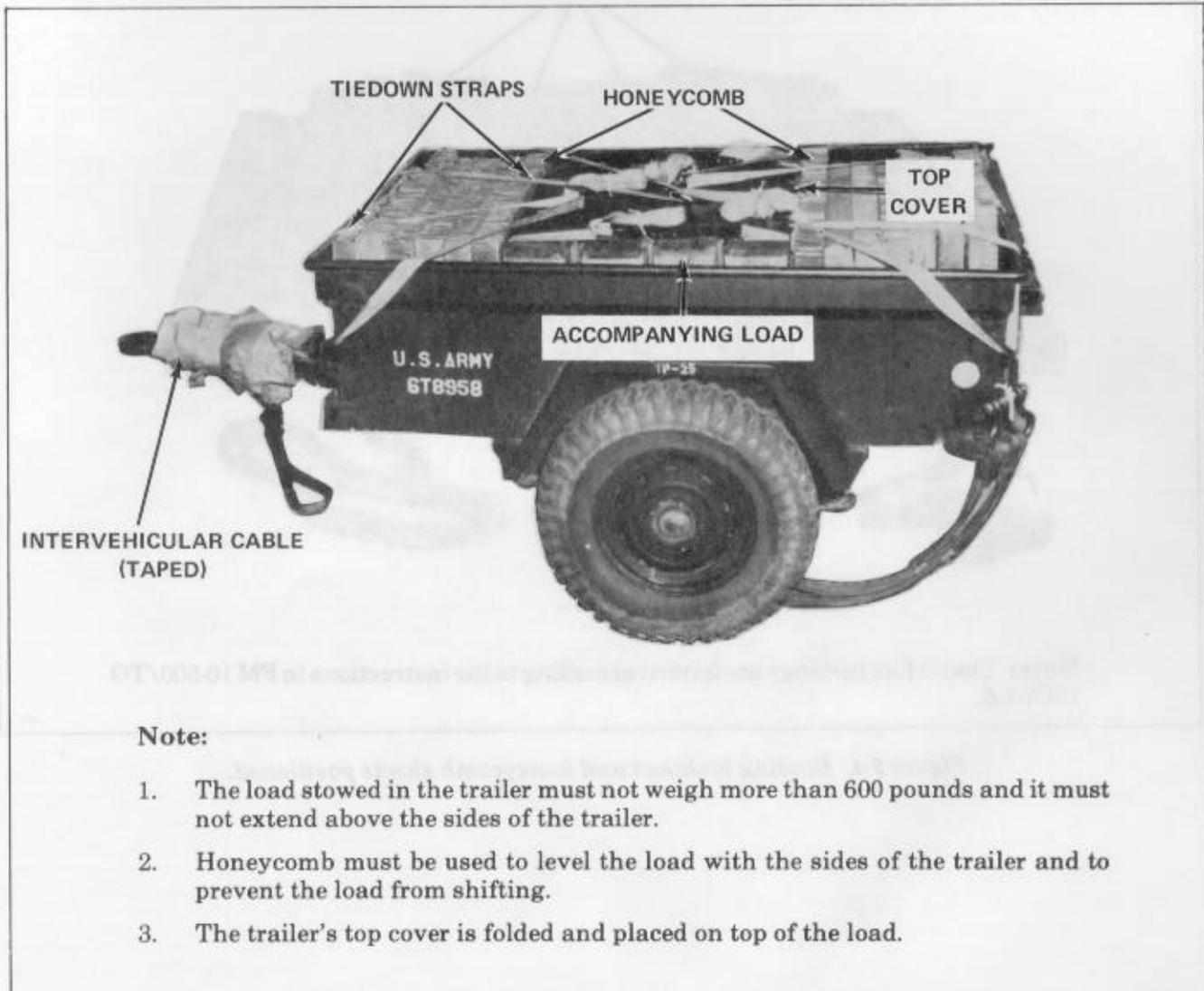


Figure 2-3. Trailer prepared and accompanying load stowed.

b. *Stowing Load on Platform.* Stow a typical accompanying load of 14 boxes of 105-mm ammunition on the platform as follows:

(1) Position honeycomb sheets and 30-foot tiedown straps (binding lashings) on the load spreader as shown in figure 2-4.

(2) Position seven boxes of 105-mm ammunition on front pieces of honeycomb. Bind the boxes with two of the previously positioned binding lashings. Secure the lashings with two load binders and four heavy-duty D-rings. *Note: Binders must be placed so that they cannot interfere with the positioning of the honeycomb stacks.*

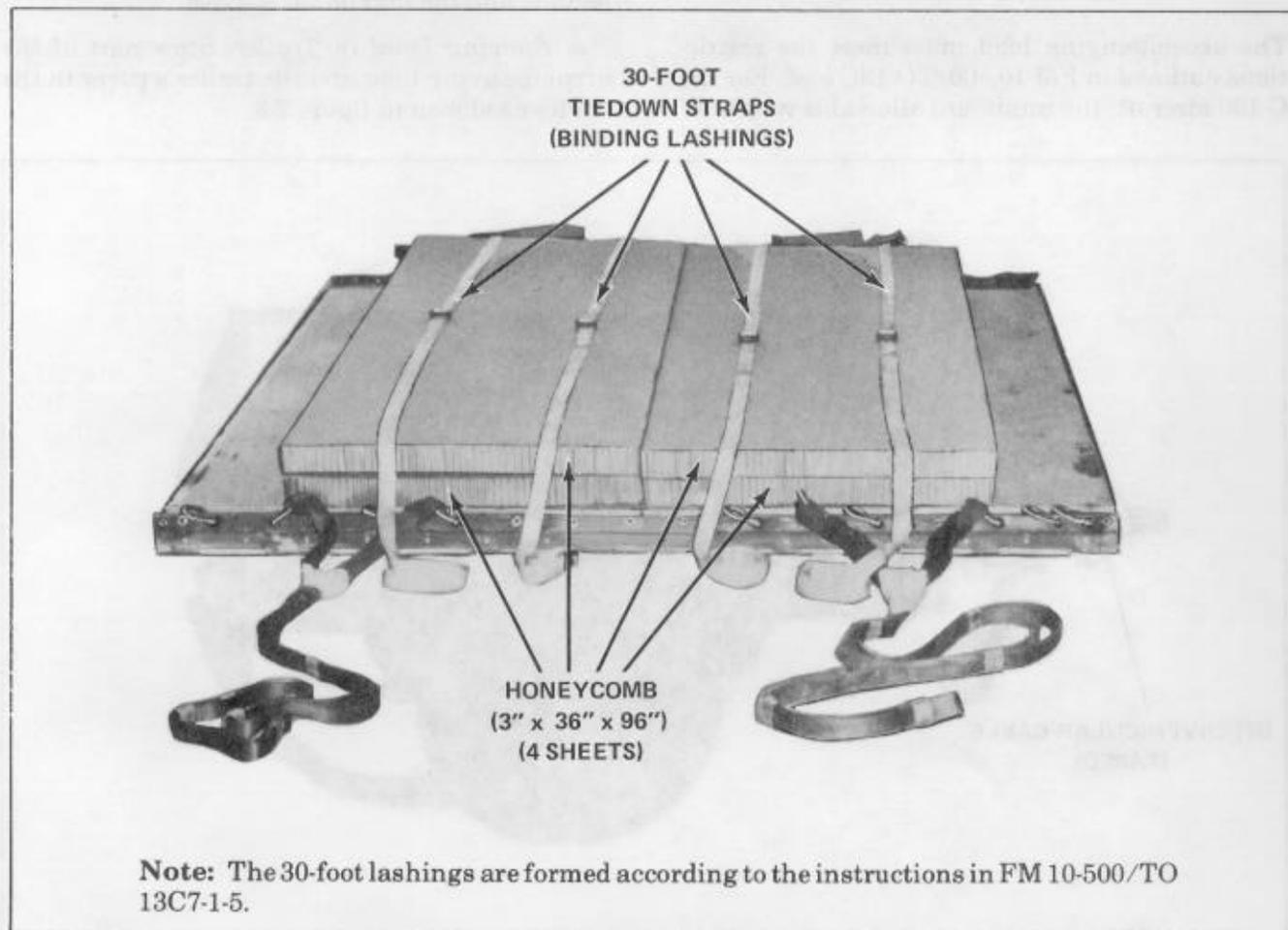


Figure 2-4. Binding lashings and honeycomb sheets positioned.

(3) Use five 15-foot tiedown straps, five heavy-duty D-rings, three load binders, and secure the boxes to the platform (fig 2-5) as follows:

(a) Form a 30-foot tiedown strap according to FM 10-500/TO 13C7-1-5. Position D-rings at front end of the boxes and center of the platform.

Pass free ends of the strap through the front handles of the boxes, through tiedown clevises 4 and 4A, and back through the front handles of the boxes to center of the platform. Secure ends of the strap with two heavy-duty D-rings and a load binder.

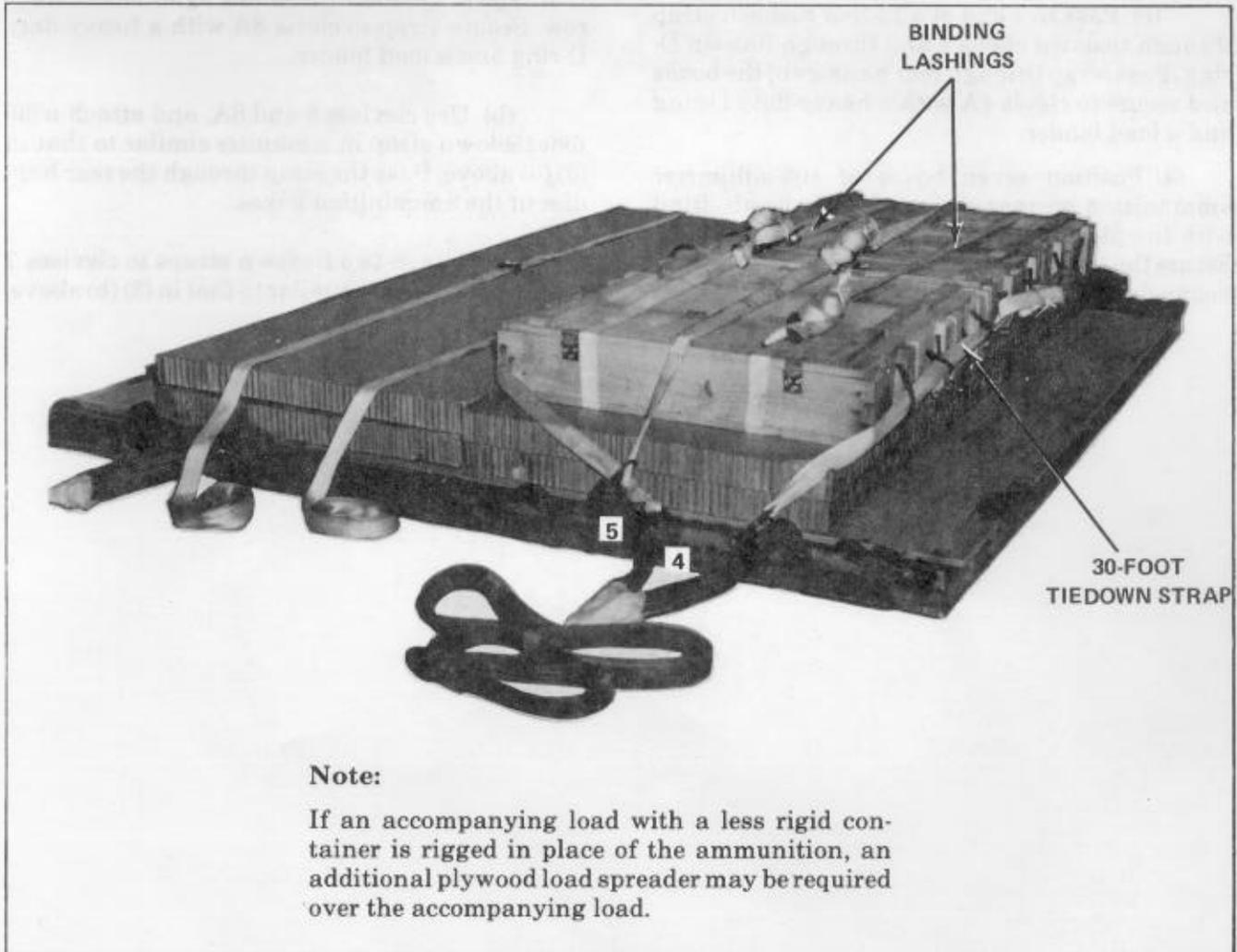


Figure 2-5. Front row of boxes secured.

(b) Pass the free end of a 15-foot tiedown strap through tiedown clevis 5, through its own D-ring, and over top of the boxes to center of the platform. Attach another tiedown strap to clevis 5A in a similar manner. Secure the ends of straps with two heavy-duty D-rings and a load binder on top of the boxes.

(c) Pass free end of a 15-foot tiedown strap through tiedown clevis 4 and through its own D-ring. Pass strap through rear handles of the boxes and secure to clevis 4A with a heavy-duty D-ring and a load binder.

(4) Position seven boxes of 105-millimeter ammunition on rear pieces of honeycomb. Bind with the previously positioned binding lashings. Secure the lashings with two load binders and four heavy-duty D-rings.

(5) Use five 15-foot tiedown straps, five heavy-duty D-rings, and three load binders, and secure the boxes to the platform (fig 2-6) as follows:

(a) Pass free end of a 15-foot tiedown strap through tiedown clevis 8 and through its own D-ring. Pass strap through the front handles of the rear boxes. Position the boxes against the front row. Secure strap to clevis 8A with a heavy-duty D-ring and a load binder.

(b) Use clevises 8 and 8A, and attach a 30-foot tiedown strap in a manner similar to that in (3) (a) above. Pass the strap through the rear handles of the ammunition boxes.

(c) Attach two tiedown straps to clevises 7 and 7A in a manner similar to that in (3) (b) above.

2-5. Positioning Honeycomb

Position the honeycomb stacks on the ammunition as shown in figure 2-7.

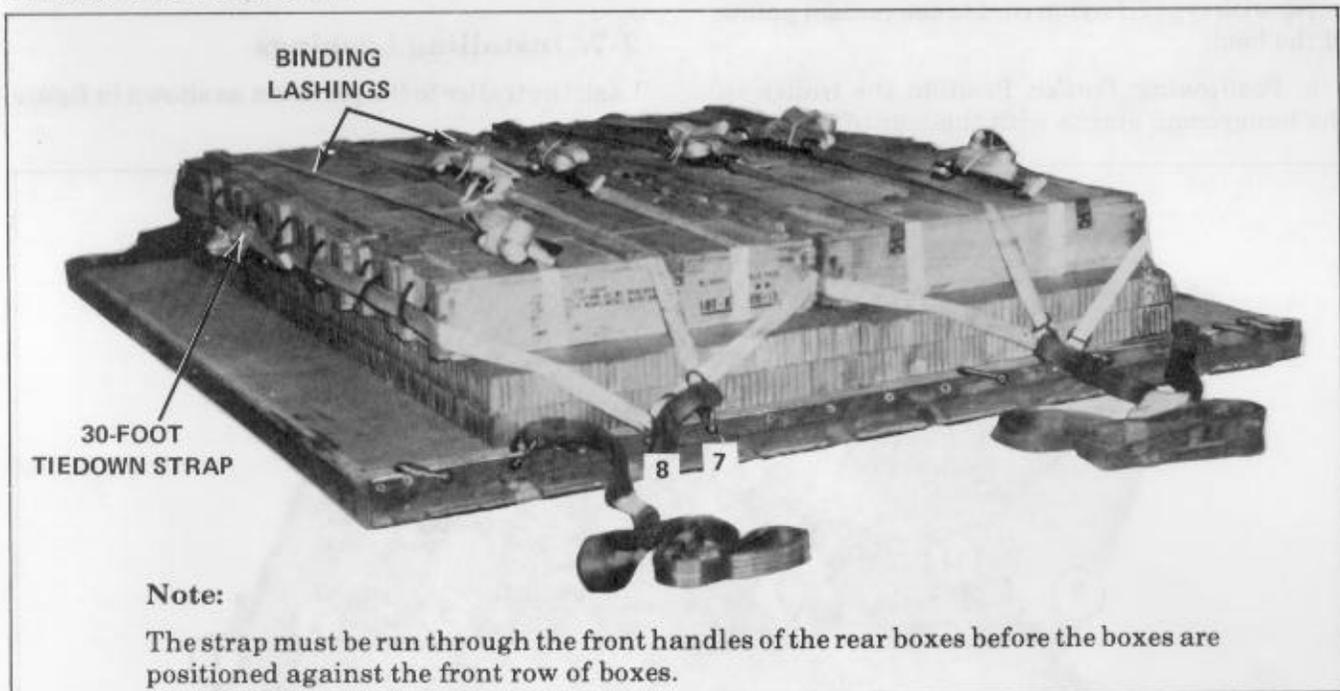


Figure 2-6. Rear row of boxes secured.

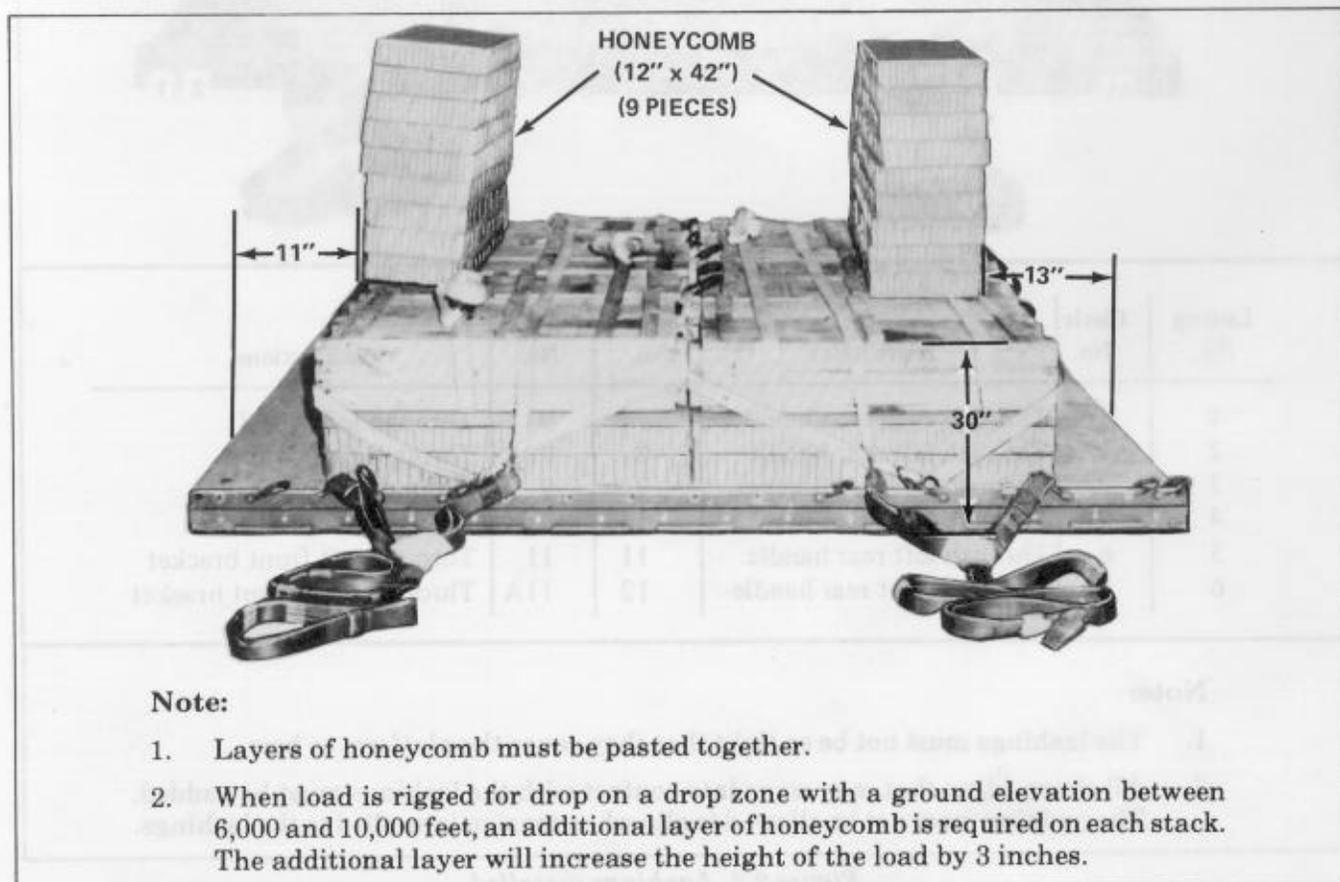


Figure 2-7. Honeycomb stacks positioned.

2-6. Positioning Trailer

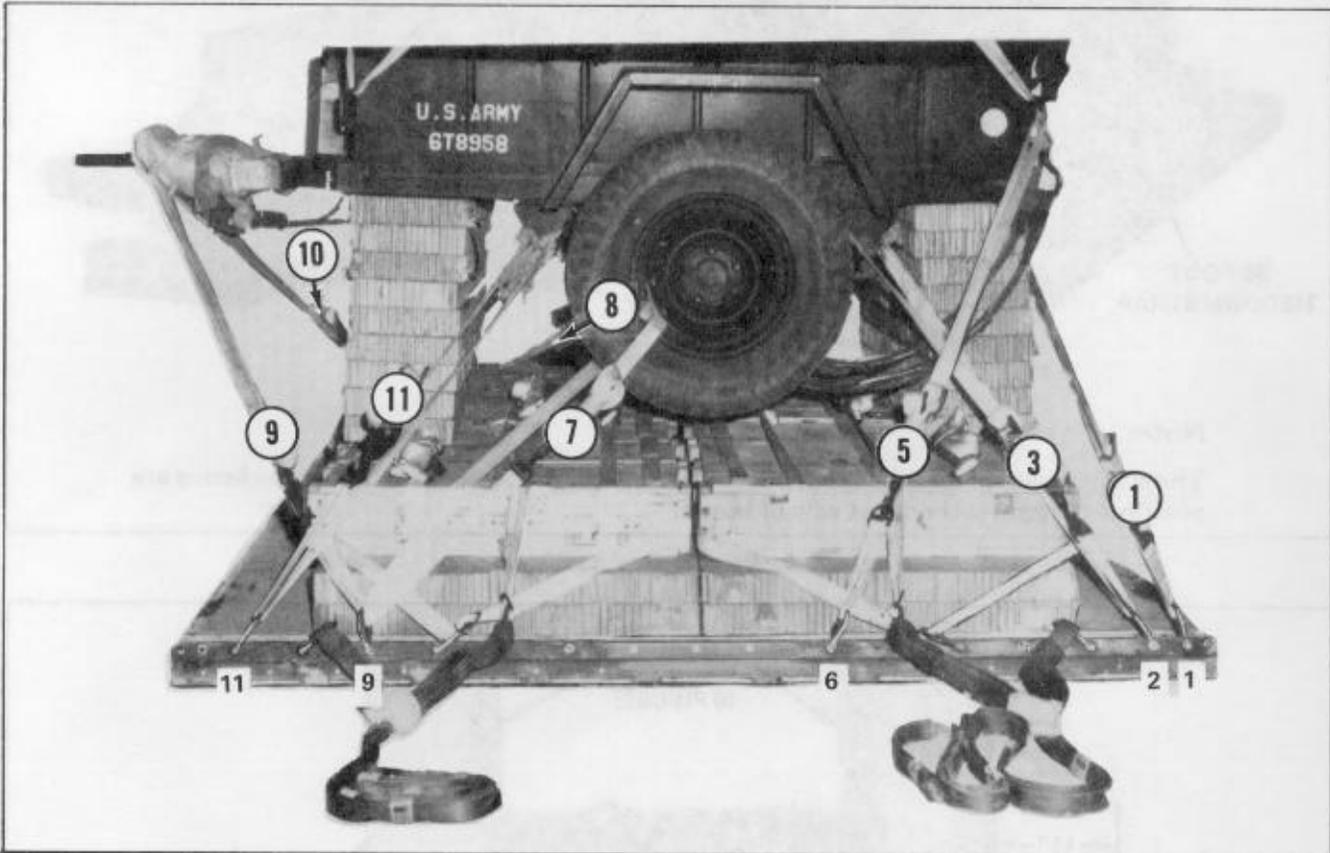
a. *Installing Load Cover.* Cover the trailer with a 2-yard piece of cotton duck cloth. Secure the cover with type III nylon cord to convenient points of the load.

b. *Positioning Trailer.* Position the trailer on the honeycomb stacks with the rear of trailer 13

inches from the front edge of platform. Raise and lock the support leg. Secure it in place with type III nylon cord.

2-7. Installing Lashings

Lash the trailer to the platform as shown in figure 2-8.



Lashing No.	Clevis No.	Instructions	Lashing No.	Clevis No.	Instructions
1	1	Through right rear handle	7	9	Through left wheel
2	1A	Through left rear handle	8	9A	Through right wheel
3	2	Through left rear bracket	9	9	Around lunette shaft
4	2A	Through right rear bracket	10	9A	Around lunette shaft
5	6	Through left rear handle	11	11	Through left front bracket
6	6A	Through right rear handle	12	11A	Through right front bracket

Note:

1. The lashings must not be so tight that they cause the platform to bow.
2. All sharp edges that may come into contact with the lashings must be padded. The padding must not be allowed to slip when tension is applied to the lashings.

Figure 2-8. Lashings installed.

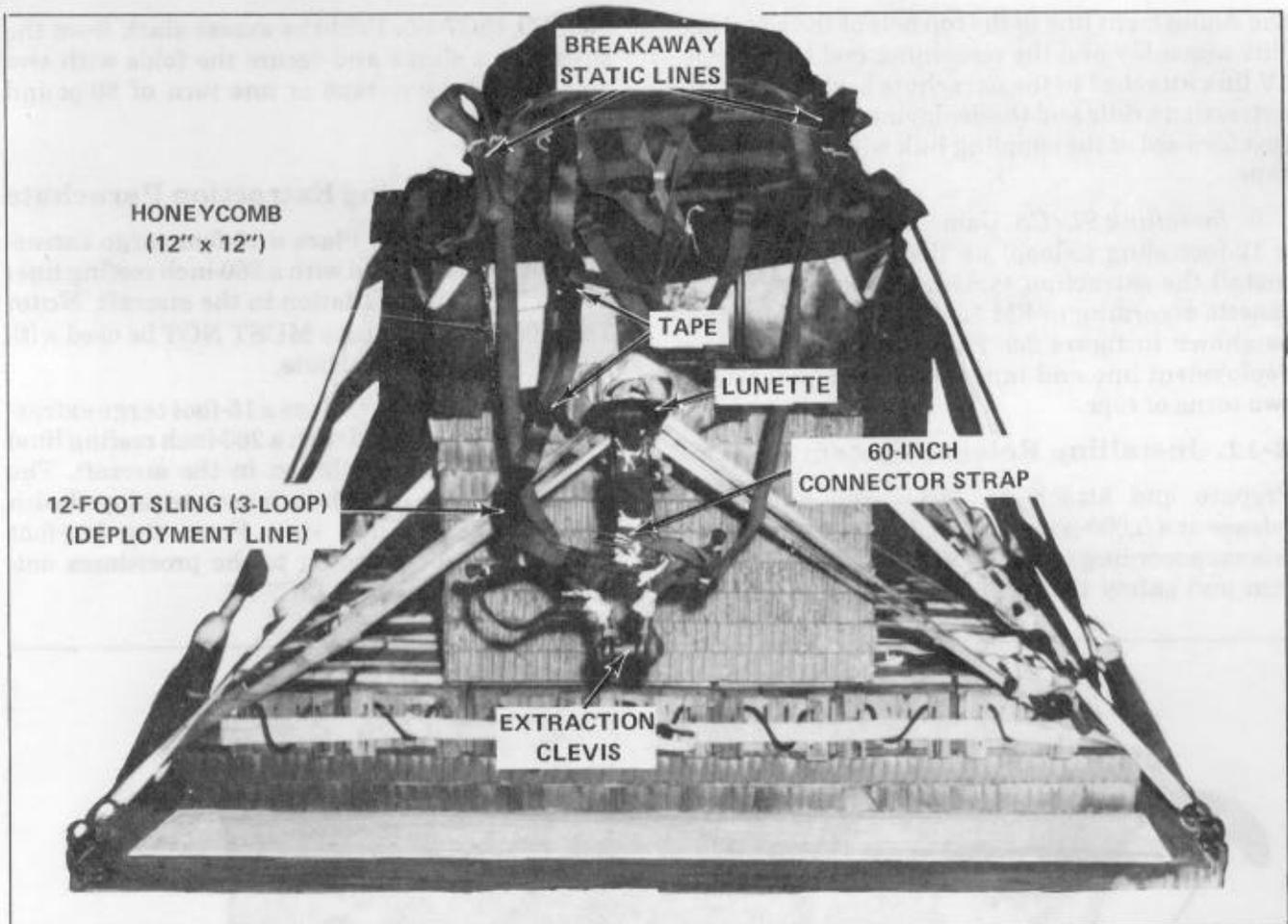


Figure 2-9. Cargo parachute stowed and SL/CS extraction system installed.

2-8. Safetying Suspension Slings

Using two lengths of type III nylon cord, secure the suspension slings. Tie one length of cord to the right front 3-foot suspension sling, pass the cord over the trailer, and tie the free end to the left rear 3-foot suspension sling. Tie the second length of cord to the remaining 3-foot slings in a similar manner.

2-9. Stowing Cargo Parachute

a. Safetying Honeycomb Over Brake Handle.

Place a 3- by 12- by 12-inch piece of honeycomb over the brake handle and tape the honeycomb to the front end of the trailer. Using a length of type III nylon cord, secure the honeycomb to the trailer as shown in figure 2-9.

b. *Stowing Cargo Parachute.* Prepare and stow one G-11A or one G-11B cargo parachute according to the procedures in FM 10-500/TO 13C7-1-5. Position the parachute on the trailer as shown in

figure 2-9. Using single lengths of type III nylon cord, safety the four carrying handles of parachute to convenient points on the load.

2-10. Installing Extraction System

Currently, two extraction systems are authorized for use when this load is rigged. These systems are the extraction force transfer coupling (platform) (hereafter referred to as PEFTC) and the static line/connector strap (hereafter referred to as SL/CS). Procedures for installation are provided for both systems as follows:

a. *Installing PEFTC.* Using a 36-foot extraction bridle, a 16-foot (3-loop) sling as a deployment line, four support brackets, and four guidance tubes, install the components of the PEFTC (fig 2-10) as outlined in FM 10-500/TO 13C7-1-5. Attach the support brackets to the 10th and 17th clevis holes in each platform rail. Use the "A" mounting holes in the actuators when attaching them to the rails in the 8th and 9th clevis holes. Attach one end of

the deployment line to the top bolt of the coupling link assembly and the remaining end to the type IV link attached to the parachute bridle. Tape the extraction bridle and the deployment line together just forward of the coupling link with two turns of tape.

b. *Installing SL/CS.* Using a 60-inch strap and a 12-foot sling (3-loop) as the deployment line, install the extraction system components to the lunette according to FM 10-500/TO 13C7-1-5 and as shown in figure 2-9. Fold the slack from the deployment line and tape the folds in place with two turns of tape.

2-11. Installing Release System

Prepare and attach an M-1 cargo parachute release or a 5,000-pound capacity cargo parachute release according to FM 10-500/TO 13C7-1-5. Position and safety the release according to FM 10-

500/TO 13C7-1-5. Fold the excess slack from the suspension slings and secure the folds with two turns of adhesive tape or one turn of 80-pound cotton webbing.

2-12. Positioning Extraction Parachute

a. *C-130 Aircraft.* Place a 15-foot cargo extraction parachute (reefed with a 260-inch reefing line) on the load for installation in the aircraft. **Note:** The 5,000-pound release **MUST NOT** be used with the G-11B cargo parachute.

b. *C-141A Aircraft.* Place a 15-foot cargo extraction parachute (reefed with a 260-inch reefing line) on the load for installation in the aircraft. The cargo extraction parachute must be equipped with a 120-foot extraction line. Form the 120-foot extraction line according to the procedures outlined in FM 10-500/TO 13C7-1-5.

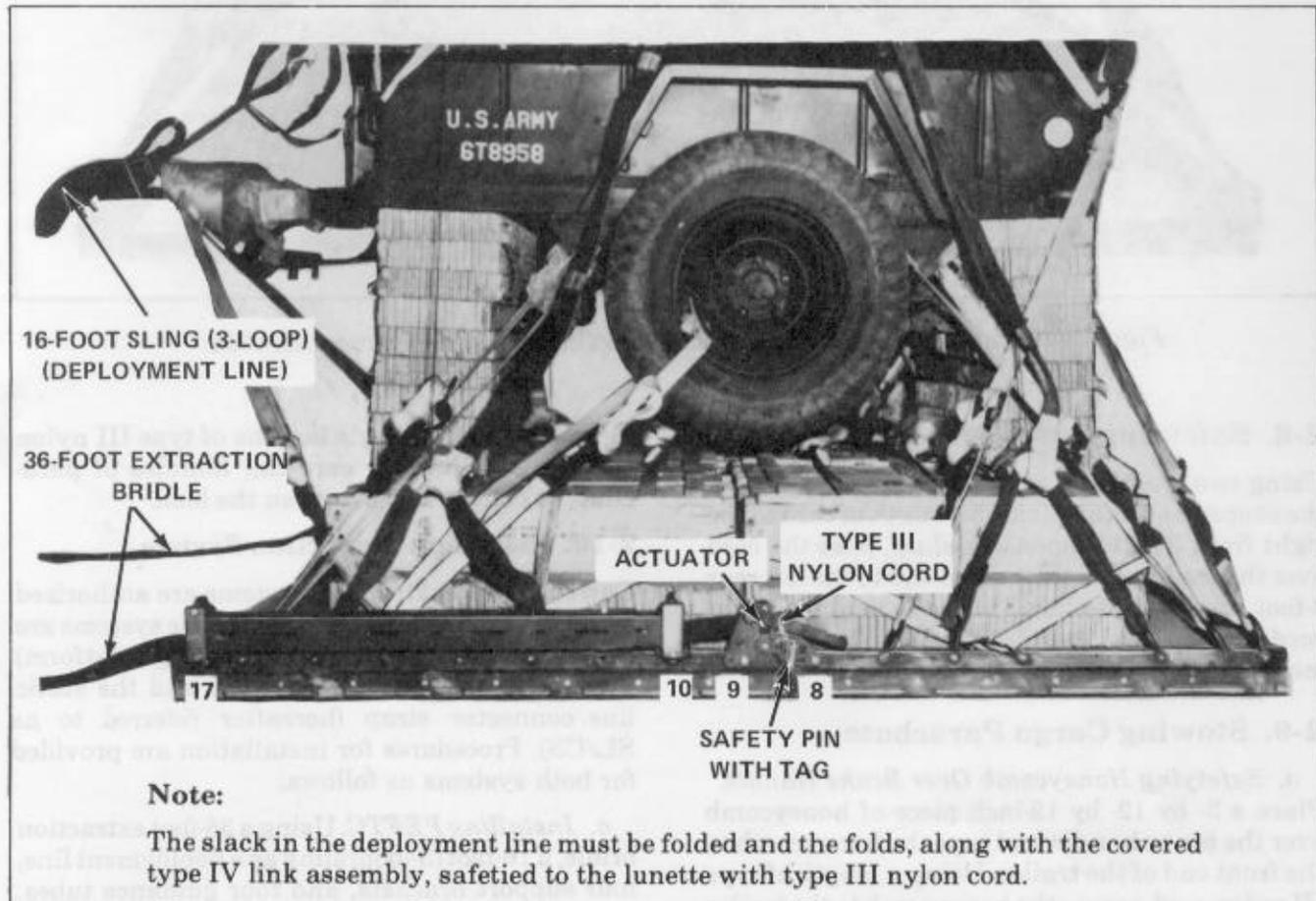


Figure 2-10. Components of PEFTC installed.

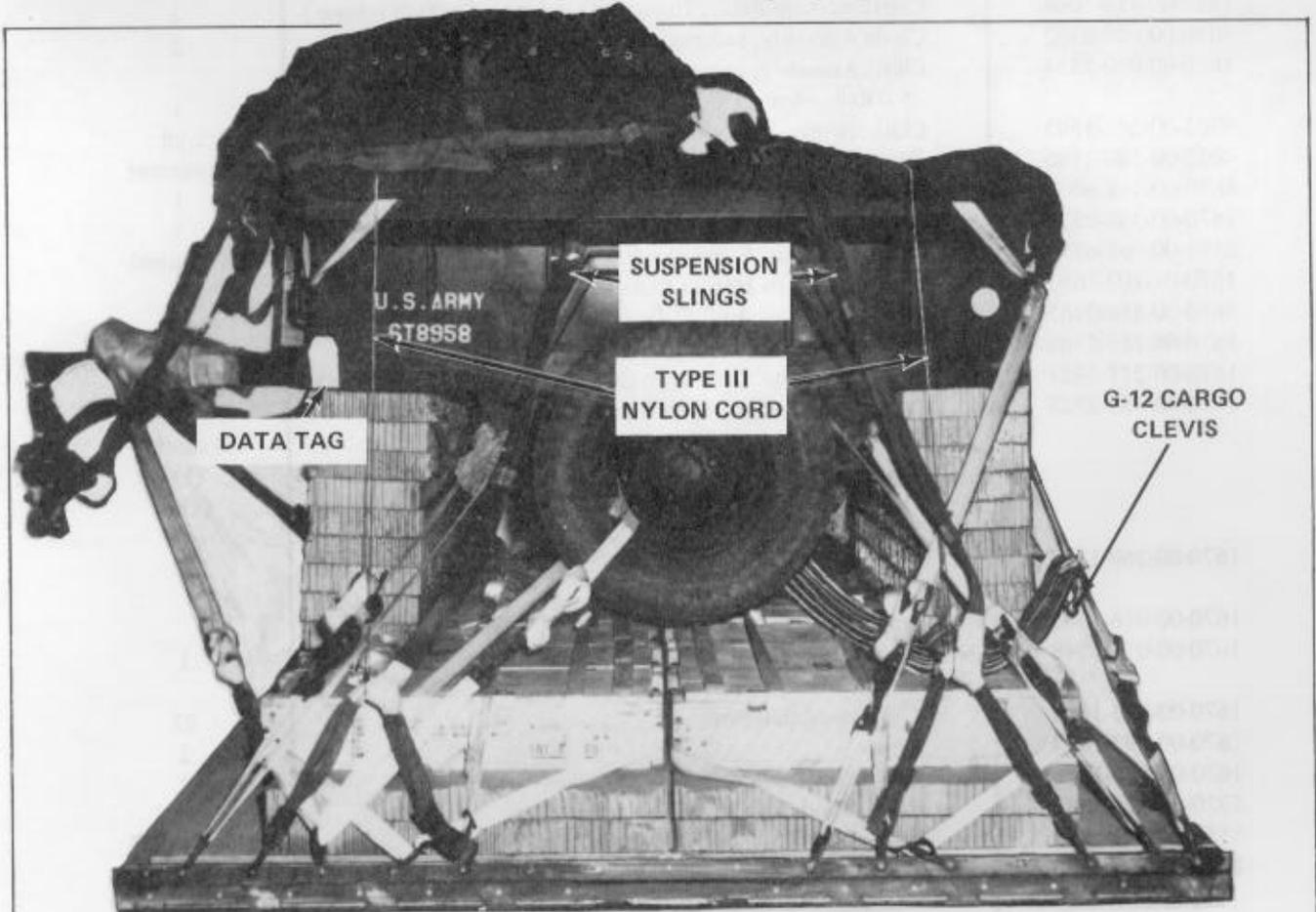
2-13. Marking Rigged Load

Mark the rigged load according to FM 10-500/TO 13C7-1-5 and as shown in figure 2-11. If the accompanying load is varied, the weight, the height, and the center of gravity must be computed. Retie the cargo suspension clevises of the emergency restraint system to lashing 1 and 1A

with a tie of doubled 80-pound cotton webbing. The right clevis is shown in figure 2-11.

2-14. Equipment Required

The equipment required for rigging this load is listed in table 2-1. The equipment listed does not include the equipment required for stowing an accompanying load.



RIGGED LOAD DATA		
	M-416	M-100
Weight:	3,600 pounds	3,600 pounds
*Height:	83 inches	81 inches
Width:	108 inches	108 inches
Length:	123 inches	123 inches
Overhang: Rear	27 inches	27 inches
Center of Balance:		
From front edge of platform	52 inches	45 inches
Extraction System: 60-inch SL/CS (shown)		

*When the load is rigged for drop zone with a ground elevation between 6,000 and 10,000 feet, an additional layer of honeycomb is required which will increase the height by 3 inches.

Figure 2-11. Completely rigged load.

Table 2-1. Equipment Required

National Stock No.	Item	Quantity
1670-00-040-8196	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-second (Use with 5,000-lb release.)	1
4030-00-678-8562	Clevis Assembly, suspension, cargo, G-12	2
1670-00-090-5354	Clevis Assembly, suspension, large (Add one with 5,000-lb release.)	1
3305-00-242-3593	Cloth, cotton duck, 60-in	2 yd
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-168-6068	*Coupling, extraction force transfer (platform)	1
1670-00-360-0329	Cover, link (Add one for C-141)	1
8135-00-664-6958	Cushioning Material, packaging, cellulose wadding	As required
1670-01-107-7652	Line, extraction 160-ft (1-loop) (for C-141B)	1
1670-00-856-0265	Line, extraction, 60-ft (1-loop) (for C-141A)	1
1670-00-783-5988	Link Assembly, single, type IV (Add one for C-141)	1
1670-00-217-2421	Link, connector, L-bar type (for C-141A)	2
1670-00-753-3928	Pad, energy-dissipating honeycomb, 36- by 96-in:	8 sheets
	12- by 12-in	(1)
	12- by 42-in (Add two for high-elevation drop zone)	(18)
	36- by 96-in	(4)
1670-00-269-1107	Parachute, cargo, 100-ft, G-11A or	1
1670-00-016-7841	Parachute, cargo, G-11B	
1670-00-052-1548	**Parachute, cargo extraction, 15-ft	1
	Platform, A/D, modular, 8-ft:	
1670-00-893-1631	Clevis, load tiedown	22
1670-00-893-1624	Panel	2
1670-00-893-1626	Rail, platform side, 8-ft	2
5320-00-893-1632	Rivet, blind-drive type, 1/4-in diam	32
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in (load spreader)	2
1670-00-168-6070	Release, cargo parachute, M-1 or	
1377-00-799-8494	Release, cargo parachute, 5,000-lb	1
	Sling, cargo, A/D:	
1670-00-753-3788	3-ft (3-loop) (Add one for 5,000-lb release.)	4
1670-00-753-3790	9-ft (2-loop)	6

Table 2-1. (Continued)

National Stock No.	Item	Quantity
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tiedown Assembly, 15-ft	12
No NSN	Web adapter (See FM 10-500/TO 13C7-1-5.)	1
8305-00-268-2411	Webbing, cotton, 80-lb	As required

*When this item is not available, the following items are required for the SL/CS:

1670-00-090-5354	Clevis Assembly, suspension, large	1
1670-00-823-5041	Deployment Line, 12-ft (3-loop)	1
1670-00-998-0117	Static Line, cargo parachute, breakaway type with release knife and clevis	2
1670-00-738-5878	Strap, connector, 60-in	1

**When 15-foot parachute is used with a C-141B the extraction line issued with the parachute must be removed. A 36-inch adapter web, a continuous 160-ft, 1-loop, type XXVI nylon webbing extraction line, and a type IV link are needed. Connect the line to the adapter web with the link. DO NOT use shorter lines to form a 160-foot line.