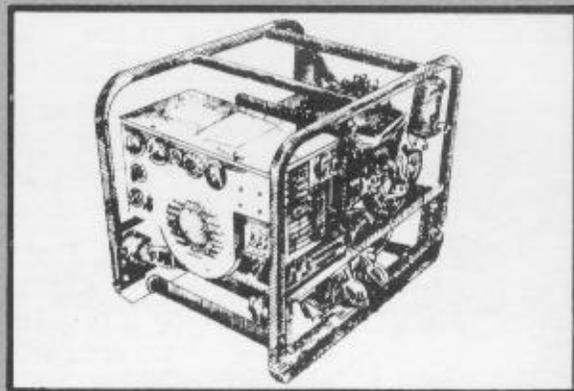
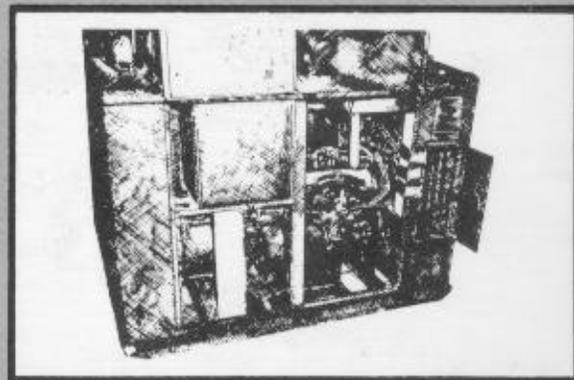
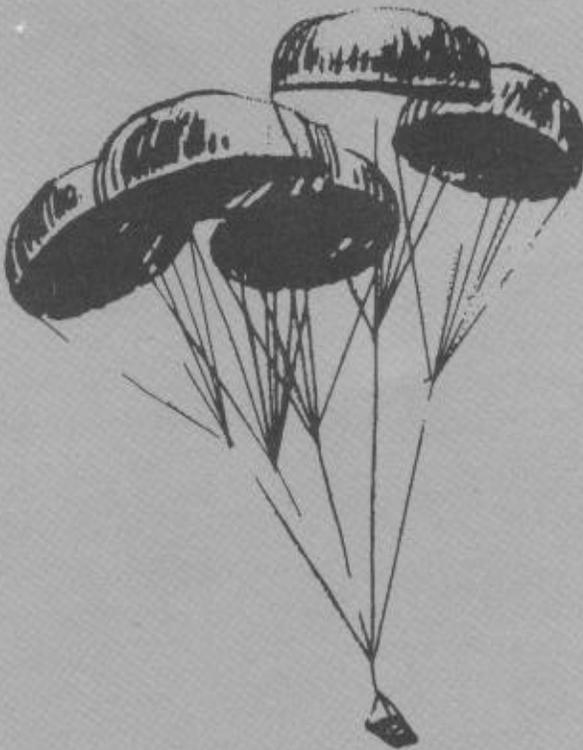


ARMY FM 10-535  
AIR FORCE TO 13C7-40-11



AIRDROP OF SUPPLIES AND EQUIPMENT

# RIGGING 5-KILOWATT GENERATOR WITH PORTABLE FLOODLIGHT SET



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DEPARTMENTS OF THE ARMY AND THE AIR FORCE

**FIELD MANUAL  
No 10-535  
TECHNICAL ORDER  
No 13C7-40-11**

**HEADQUARTERS  
DEPARTMENTS OF THE ARMY  
AND THE AIR FORCE  
Washington, DC, 14 November 1985**

**AIRDROP OF SUPPLIES AND EQUIPMENT  
RIGGING 5-KILOWATT GENERATOR SET WITH  
PORTABLE FLOODLIGHT SET**

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**TABLE OF CONTENTS**

	<b>Paragraph</b>	<b>Page</b>
<b>PREFACE</b> .....		<b>iii</b>
<b>CHAPTER 1. INTRODUCTION</b>		
Description of Items .....	1-1	1-1
Special Considerations .....	1-2	1-2
<b>CHAPTER 2. RIGGING GENERATOR AND FLOODLIGHT SET FOR LOW-VELOCITY AIRDROP</b>		
Description of Load .....	2-1	2-1
Preparing Platform .....	2-2	2-1
Building and Placing Honeycomb Stacks .....	2-3	2-3
Preparing Generator Set .....	2-4	2-4
Preparing Floodlight Set .....	2-5	2-7
Positioning Generator and Floodlight Set .....	2-6	2-8
Positioning Accompanying Load .....	2-7	2-8
Installing Lashings .....	2-8	2-9
Installing Deadman's Tie .....	2-9	2-11
Stowing Cargo Parachute .....	2-10	2-11
Installing Extraction System .....	2-11	2-12
Installing Release System .....	2-12	2-13
Positioning Extraction Parachute .....	2-13	2-14
Marking Rigged Load .....	2-14	2-14
Equipment Required .....	2-15	2-15

**\*This manual supersedes FM 10-535/TO 13C7-40-11, 1 March 1979.**

	Paragraph	Page
<b>CHAPTER 3. RIGGING GENERATOR AND FLOODLIGHT SET FOR LAPE AIRDROP</b>		
Description of Load .....	3-1	3-1
Preparing Platform .....	3-2	3-2
Building and Placing Honeycomb Stacks .....	3-3	3-3
Preparing Floodlight Set .....	3-4	3-4
Preparing Generator Set .....	3-5	3-5
Stowing and Lashing Load .....	3-6	3-8
Installing ACB .....	3-7	3-18
Installing Extraction System .....	3-8	3-19
Positioning Extraction Parachutes .....	3-9	3-20
Marking Rigged Load .....	3-10	3-20
Equipment Required .....	3-11	3-21
<b>GLOSSARY</b> .....		Glossary-1
<b>REFERENCES</b> .....		References-1

## PREFACE

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### SCOPE

This manual tells and shows how to rig the 5-kilowatt generator set with portable floodlight set and accompanying load for low-velocity airdrop from a C-130 or C-141 aircraft. In addition, it tells and shows how to rig the 5-kilowatt generator set with portable floodlight set and accompanying load for LAPE airdrop from a C-130 aircraft. This manual is designed for use by all parachute riggers.

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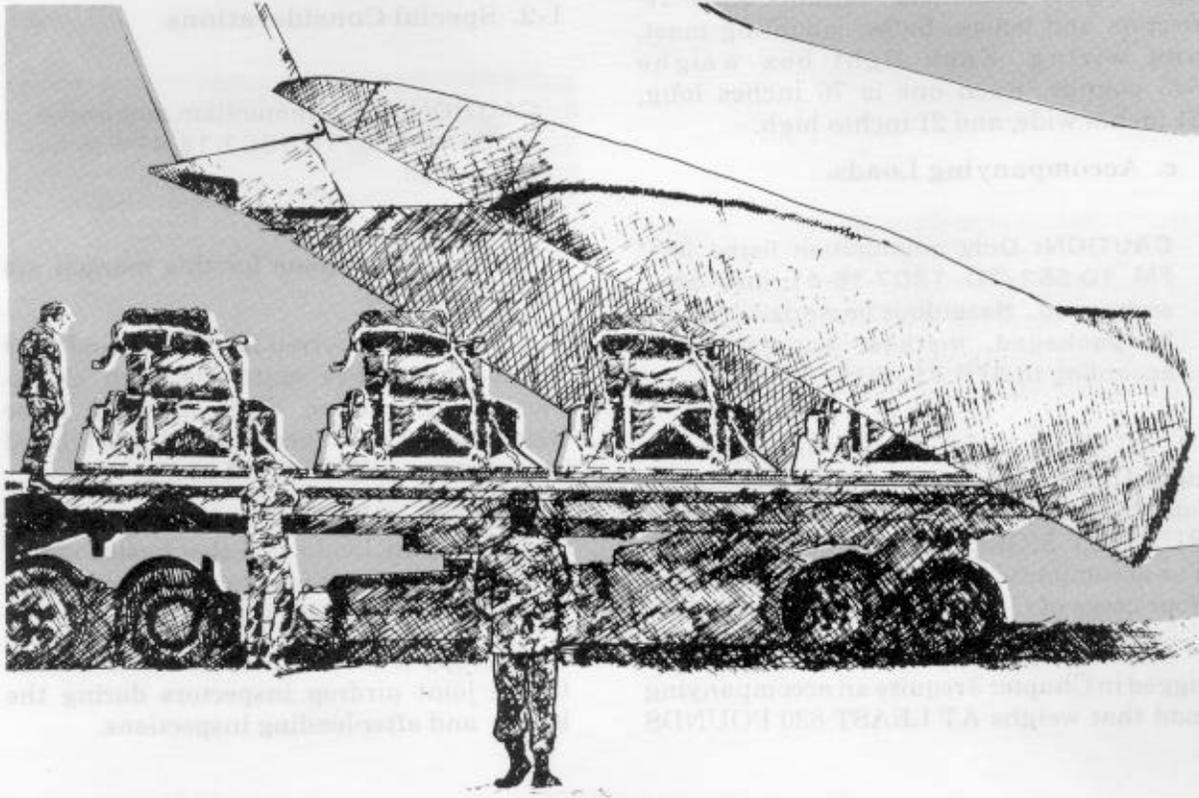
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## CHAPTER 1

**INTRODUCTION****1-1. Description of Items**

The description of the items covered in this manual is as follows:

**a. Generators.**

(1) The unrigged Hol-Gar Model CE-55-AC/WK6, 5-kilowatt, 60-cycle, gasoline-engine-driven, water-cooled generator set (rigged in Chapter 2) weighs 1,020 pounds. It is 56 inches long, 26 inches wide, and 43 inches high.

(2) The unrigged Model MEP 017A, 5-kilowatt, 60-cycle, gasoline-engine-driven, air-cooled generator set (rigged in Chapter 3) weighs 479 pounds. It is 40 inches long, 30 inches wide, and 25 inches high.

**Note:** The procedures in this manual may be adapted for rigging the following similar generators:

**Air-cooled**

**Model MEP-022A**

**Water-cooled**

**Hol-Gar Model CE-52M-AC**

**Hol-Gar Model CE-56-ACC**

**Hol-Gar Model CE-400-AC**

**International Fermont Model J117**

**Onan Model 5GF-8SR/3100**

**Onan Model 5GFE-408XR/3101A**

**b. Floodlight Set.** The portable, electric, mast-mounted floodlight set (rigged in Chapters 2 and 3) consists of two groups of floodlights and equipment stowed in two light boxes. Each box contains three reflectors and lenses, bulbs, mounting mast, and wiring. Each light box weighs 345 pounds. Each one is 76 inches long, 21 inches wide, and 21 inches high.

**c. Accompanying Loads.**

**CAUTION: Only ammunition listed in FM 10-553/TO 13C7-18-41 may be airdropped. Hazardous materials must be packaged, marked, and labeled according to AFR 71-4/TM 38-250.**

(1) The generator and floodlight set rigged in Chapter 2 require an accompanying load that weighs AT LEAST 100 POUNDS BUT NOT MORE THAN 1,290 POUNDS. The accompanying load shown in Chapter 2 (four cases of C-rations) weighs 100 pounds.

(2) The generator and floodlight set rigged in Chapter 3 require an accompanying load that weighs AT LEAST 830 POUNDS

BUT NOT MORE THAN 7,050 POUNDS. The accompanying load shown in Chapter 3 (56 cases of C-rations) weighs 1,400 pounds.

**1-2. Special Considerations**

**CAUTION: Only ammunition authorized by FM 10-553/TO 13C7-18-41 may be airdropped.**

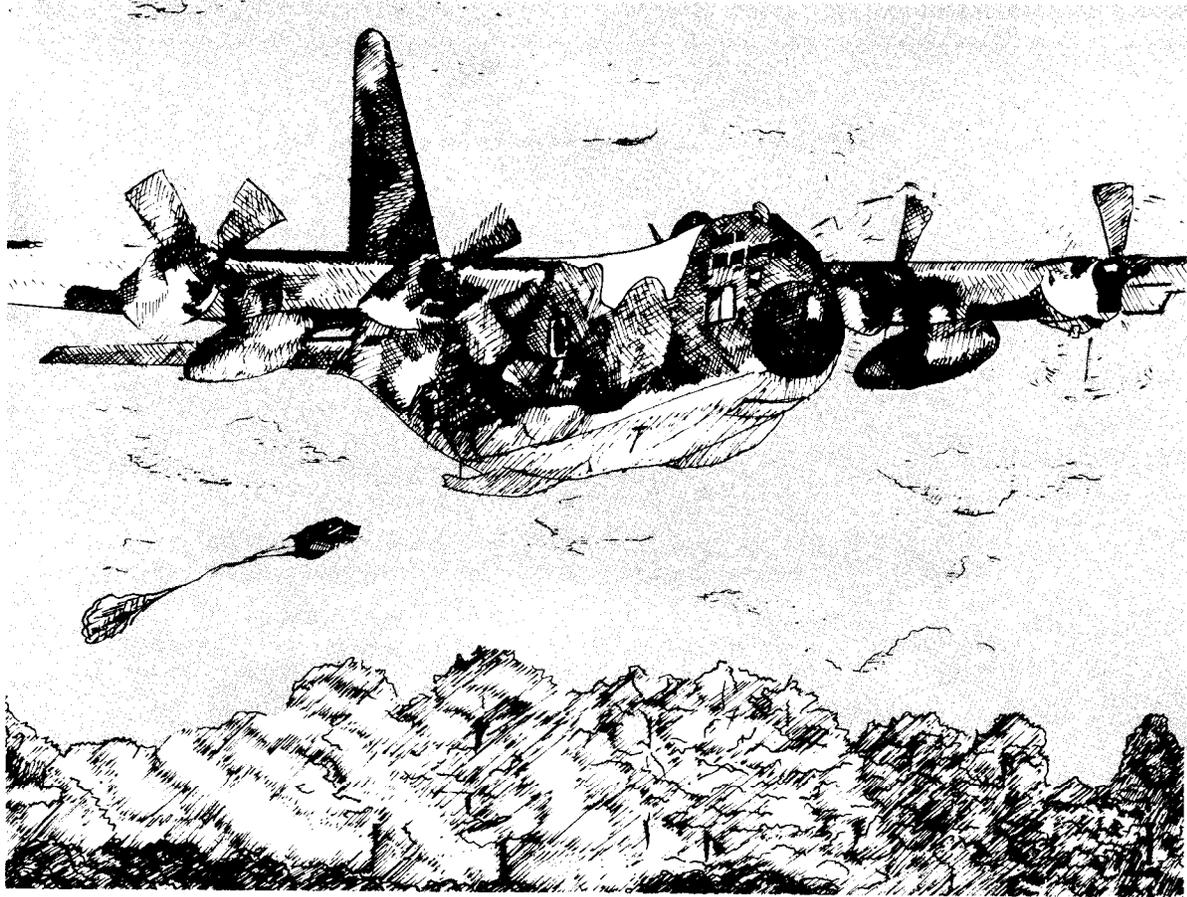
Special considerations for this manual are described below.

**a.** The loads covered in this manual may include hazardous materials such as explosives or gasoline. When included, these items must be packaged, marked, and labeled according to AFR 71-4/TM 38-250.

**b.** The floodlight set can be dropped as an accompanying load with other basic loads if it meets the requirements and restrictions outlined in FM 10-500/TO 13C7-1-5.

**c.** A copy of this manual must be available to the joint airdrop inspectors during the before- and after-loading inspections.

## CHAPTER 2

**RIGGING GENERATOR AND FLOODLIGHT SET  
FOR LOW-VELOCITY AIRDROP****2-1. Description of Load**

The 5-kilowatt, 60-cycle, gasoline-engine driven, water-cooled generator set and the electric floodlight set (two light boxes containing six floodlights), with accompanying load, are rigged on an 8-foot, type II, modular platform for low-velocity airdrop. The load requires one G-11A or G-11B cargo parachute and other items of airdrop equipment. The generator and the floodlight set shown in this chapter are rigged with four cases of

C-rations as an accompanying load. This load can be dropped by low-velocity airdrop from the C-130 or C-141 aircraft.

**2-2. Preparing Platform**

Prepare the platform as follows:

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

**b. Attaching Suspension Slings.** Attach four 3-foot and four 9-foot slings to the platform as shown in Figure 2-1.

**c. Attaching and Numbering Clevises.** Attach eight load tiedown clevises as shown

in Figure 2-1. Number the clevises as shown in Figure 2-1.

**d. Positioning Load Spreaders.** Position two plywood load spreaders on the platform as shown in Figure 2-1.

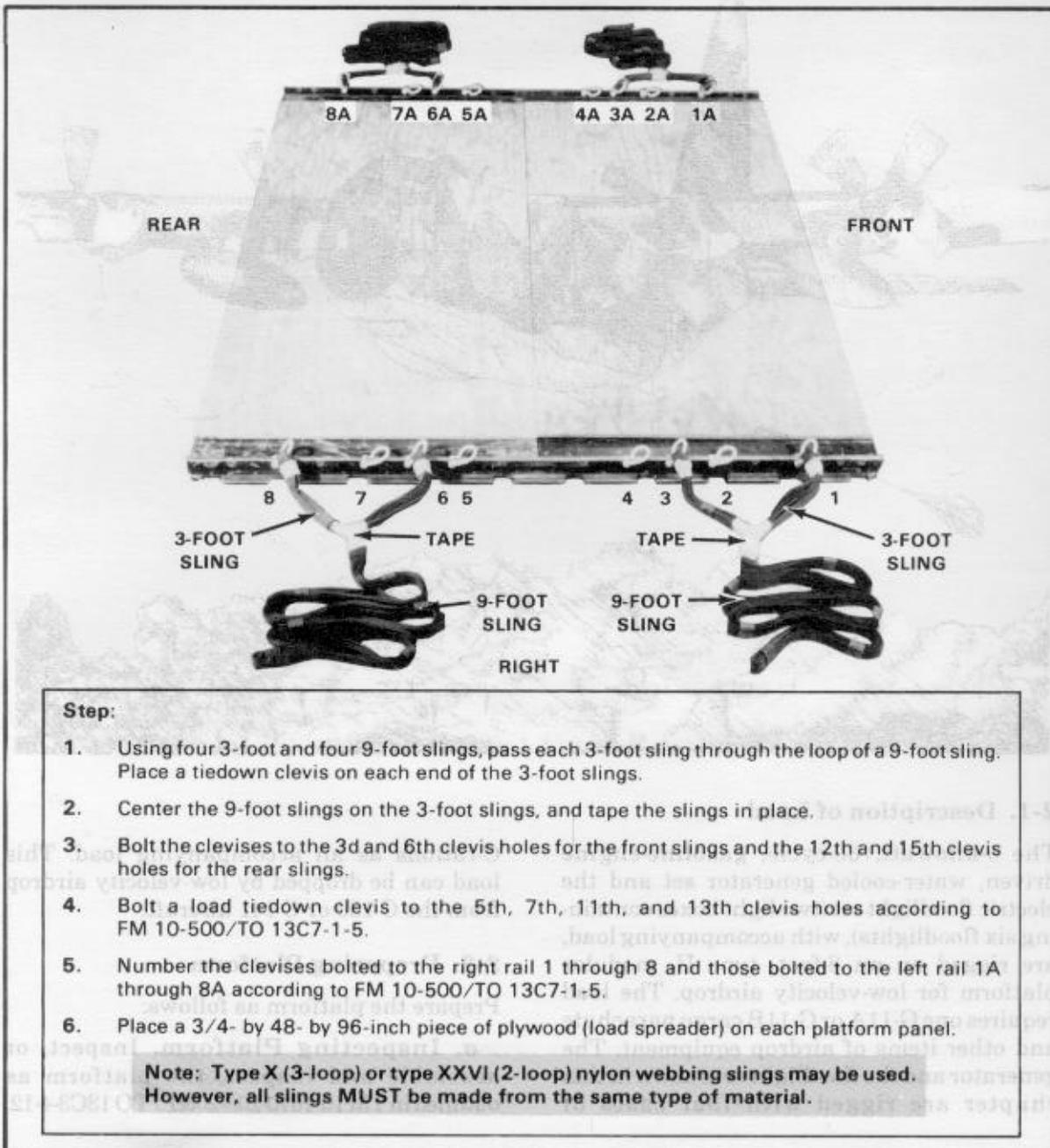


Figure 2-1. Platform prepared

### 2-3. Building and Placing Honeycomb Stacks

Build the honeycomb stacks according to FM 10-500/TO 13C7-1-5, using the

information in Figure 2-2. Place the stacks on the platform as shown in Figure 2-2.

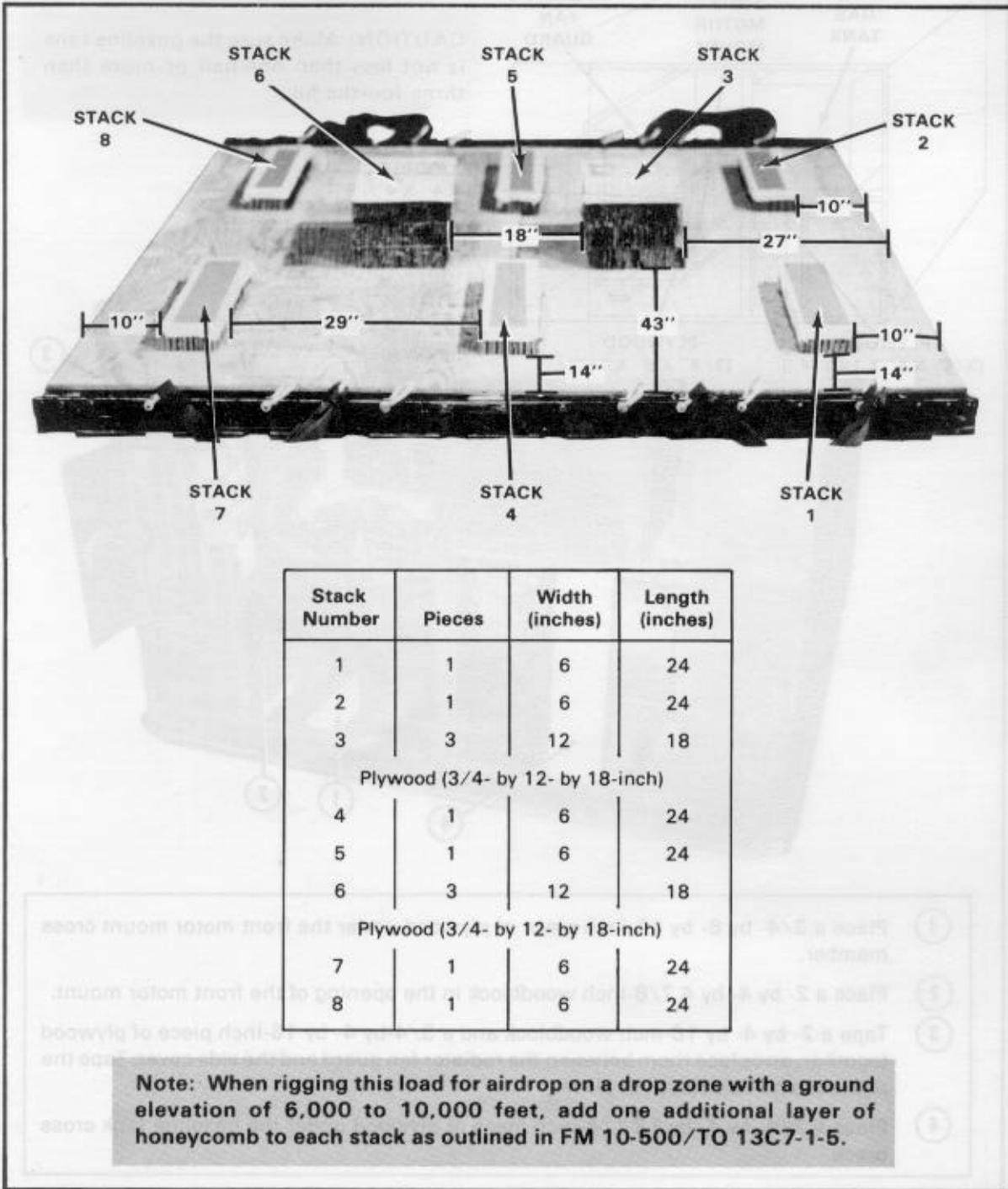


Figure 2-2. Honeycomb stacks prepared and positioned

### 2-4. Preparing Generator Set

Prepare the generator set as shown in Figures 2-3 through 2-5.

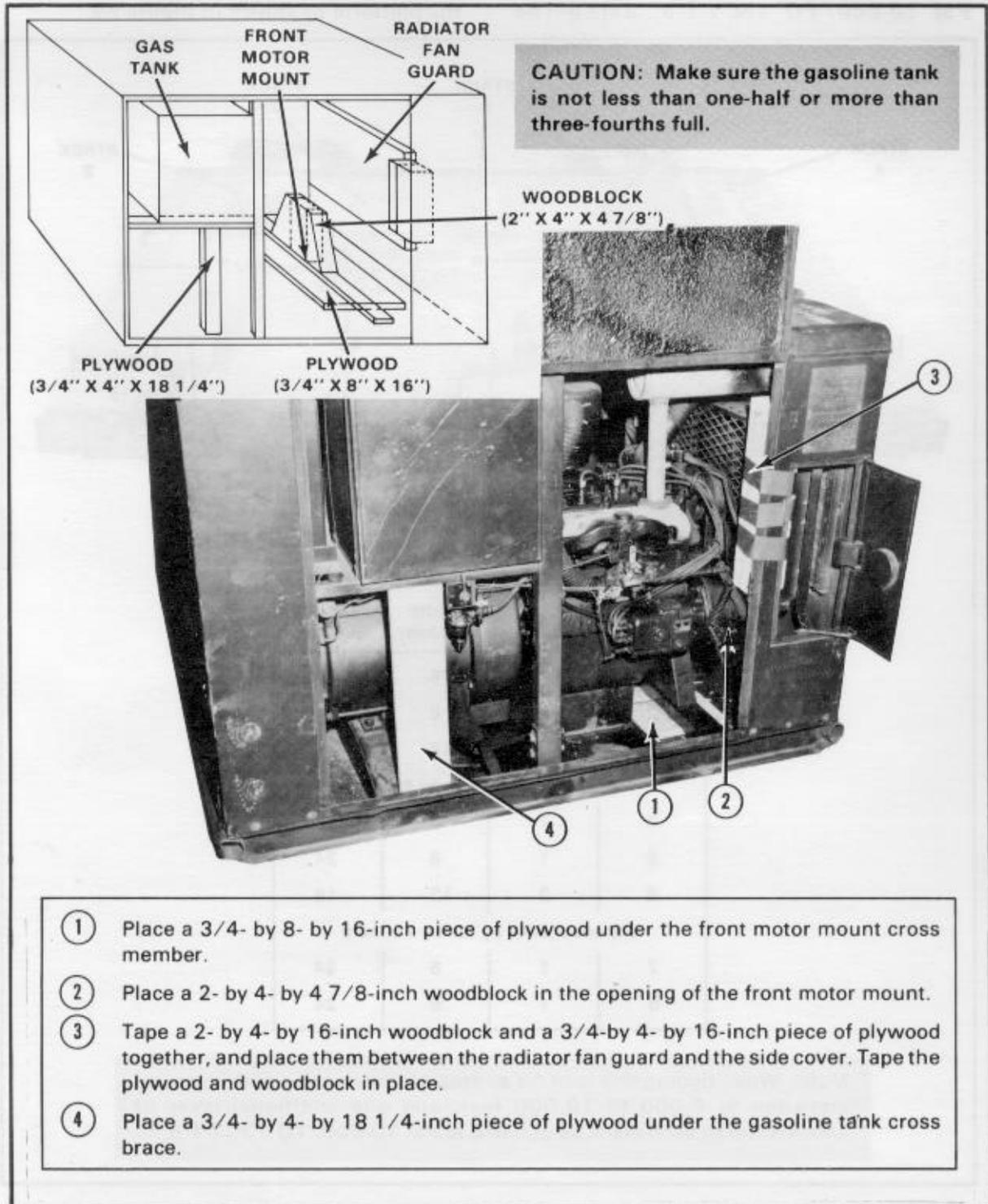


Figure 2-3. Front of generator prepared

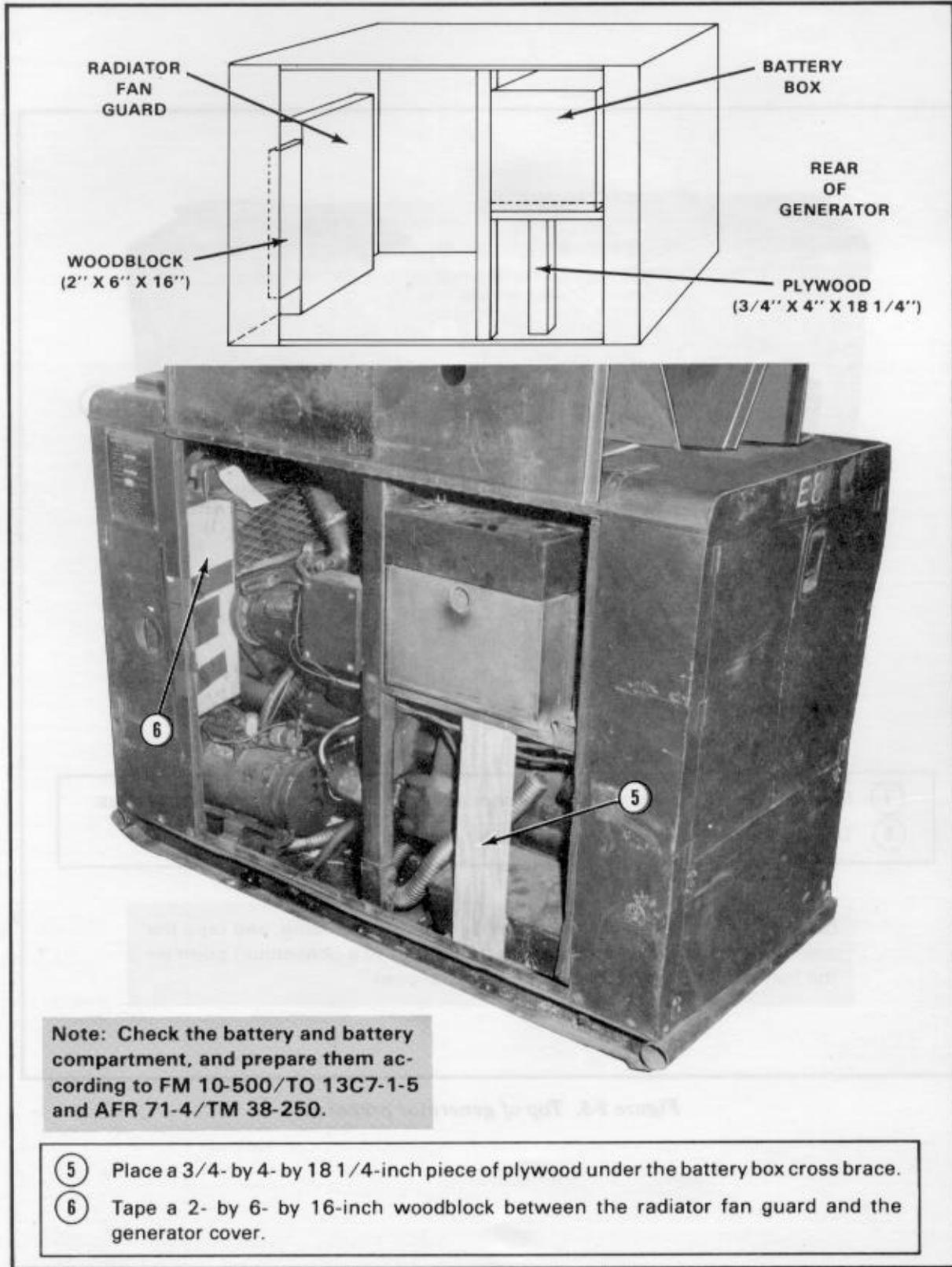
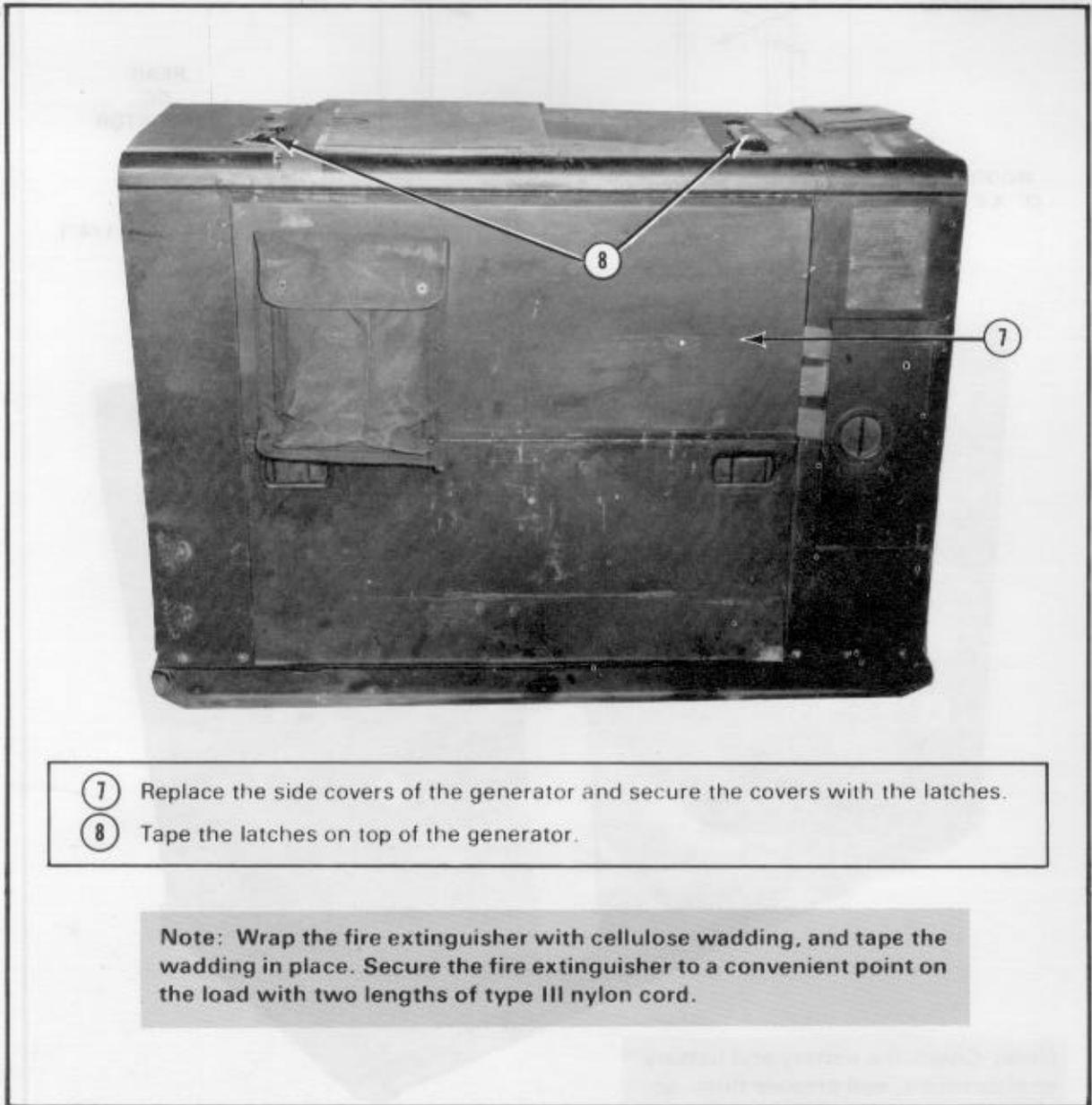


Figure 2-4. Rear of generator prepared



*Figure 2-5. Top of generator prepared*

### 2-5. Preparing Floodlight Set

Prepare the floodlight set as shown in Figure 2-6.

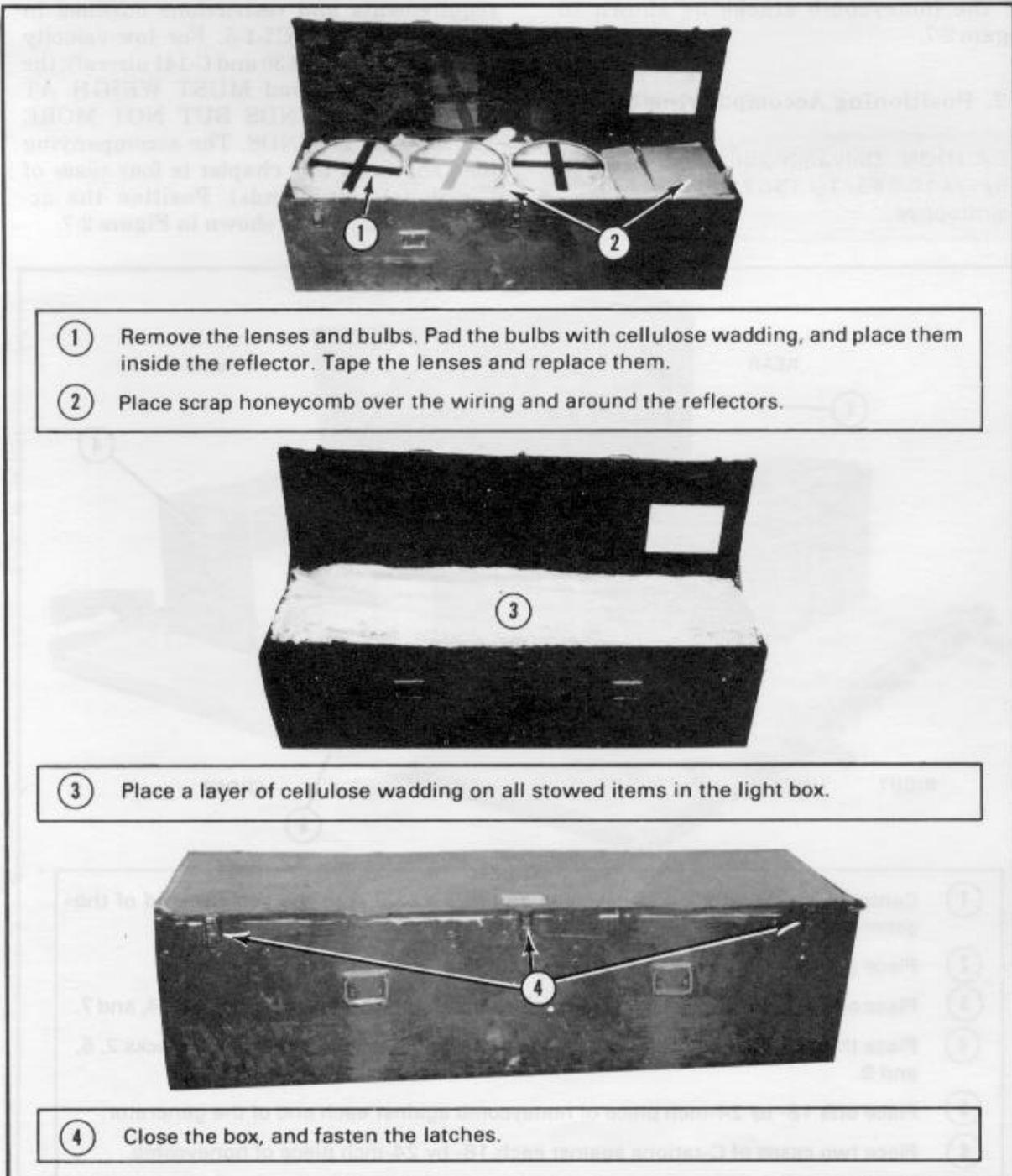


Figure 2-6. Light box prepared

## 2-6. Positioning Generator and Floodlight Set

Position the generator and the floodlight set on the honeycomb stacks as shown in Figure 2-7.

## 2-7. Positioning Accompanying Load

**CAUTION:** Only ammunition authorized by FM 10-553/TO 13C7-18-41 may be airdropped.

The accompanying load must meet the requirements and restrictions outlined in FM 10-500/TO 13C7-1-5. For low-velocity airdrop from the C-130 and C-141 aircraft, the accompanying load **MUST WEIGH AT LEAST 100 POUNDS BUT NOT MORE THAN 1,290 POUNDS**. The accompanying load shown in this chapter is four cases of C-rations (100 pounds). Position the accompanying load as shown in Figure 2-7.

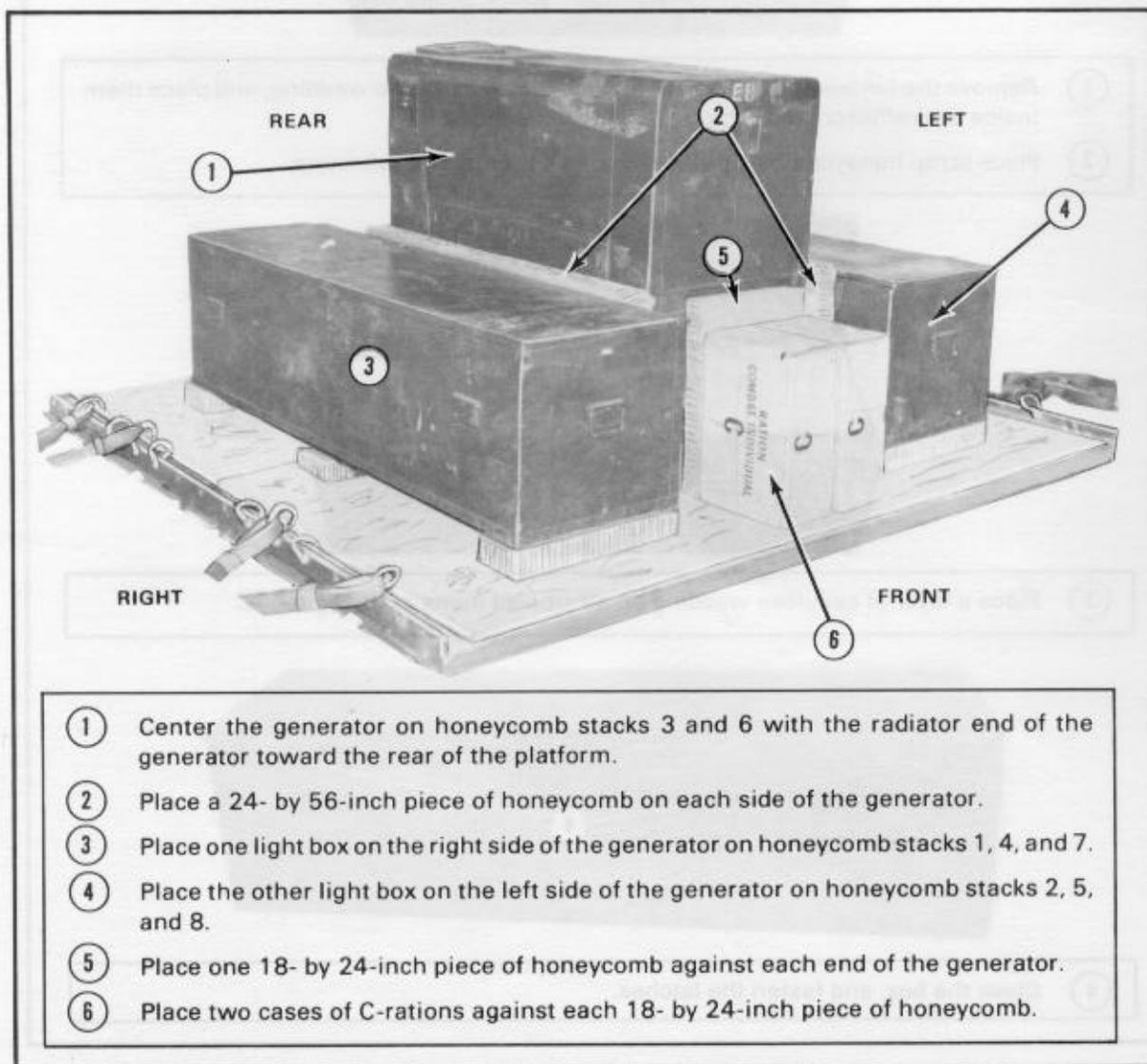
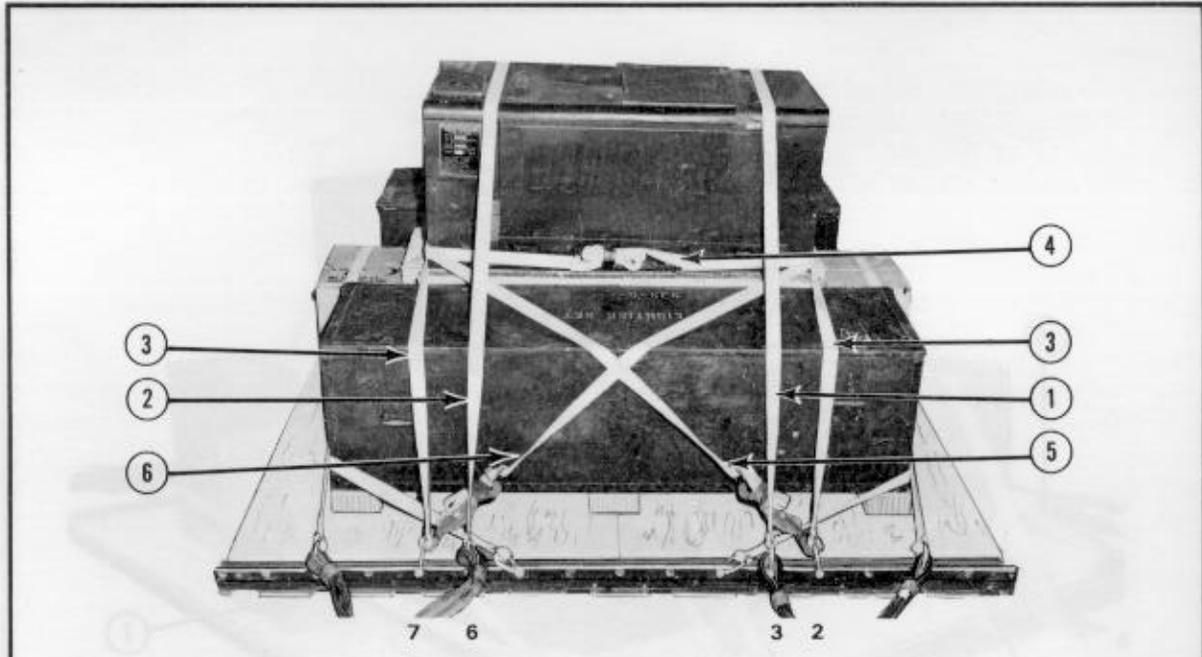


Figure 2-7. Generator, floodlight set, and accompanying load positioned on platform

**2-8. Installing Lashings**

Use twelve 15-foot tiedown straps, 12 D-rings, and 10 load binders to lash the load to the

platform according to FM 10-500/TO 13C7-1-5 and as shown in figures 2-8 and 2-9 .



Lashing Number	Tiedown Clevis Number	Instructions
1	3 to 3A	Pass the lashing through its own D-ring and over the generator.
2	6 to 6A	Same as lashing 1.
3	2 and 7	Use two 15-foot tiedown straps, two D-rings, and one load binder. Pass one strap through clevis 2 and through its own D-ring. Pass one strap through clevis 7 and through its own D-ring. Fit a D-ring on the free end of each strap, and secure the D-rings on the opposite side of the generator according to FM 10-500/TO 13C7-1-5.
4	2A and 7A	Use two 15-foot tiedown straps, two D-rings, and one load binder. Pass one strap through clevis 2A and through its own D-ring. Pass one strap through clevis 7A and through its own D-ring. Fit a D-ring on the free end of each strap, and secure the D-rings on the opposite side of the generator according to FM 10-500/TO 13C7-1-5.
5	2A and 2	Pass the lashing through its own D-ring at clevis 2A and around the rear of the generator to clevis 2.
6	7A and 7	Pass the lashing through its own D-ring at clevis 7A and around the front of the generator to clevis 7.

*Figure 2-8. Lashings 1 through 6 installed*

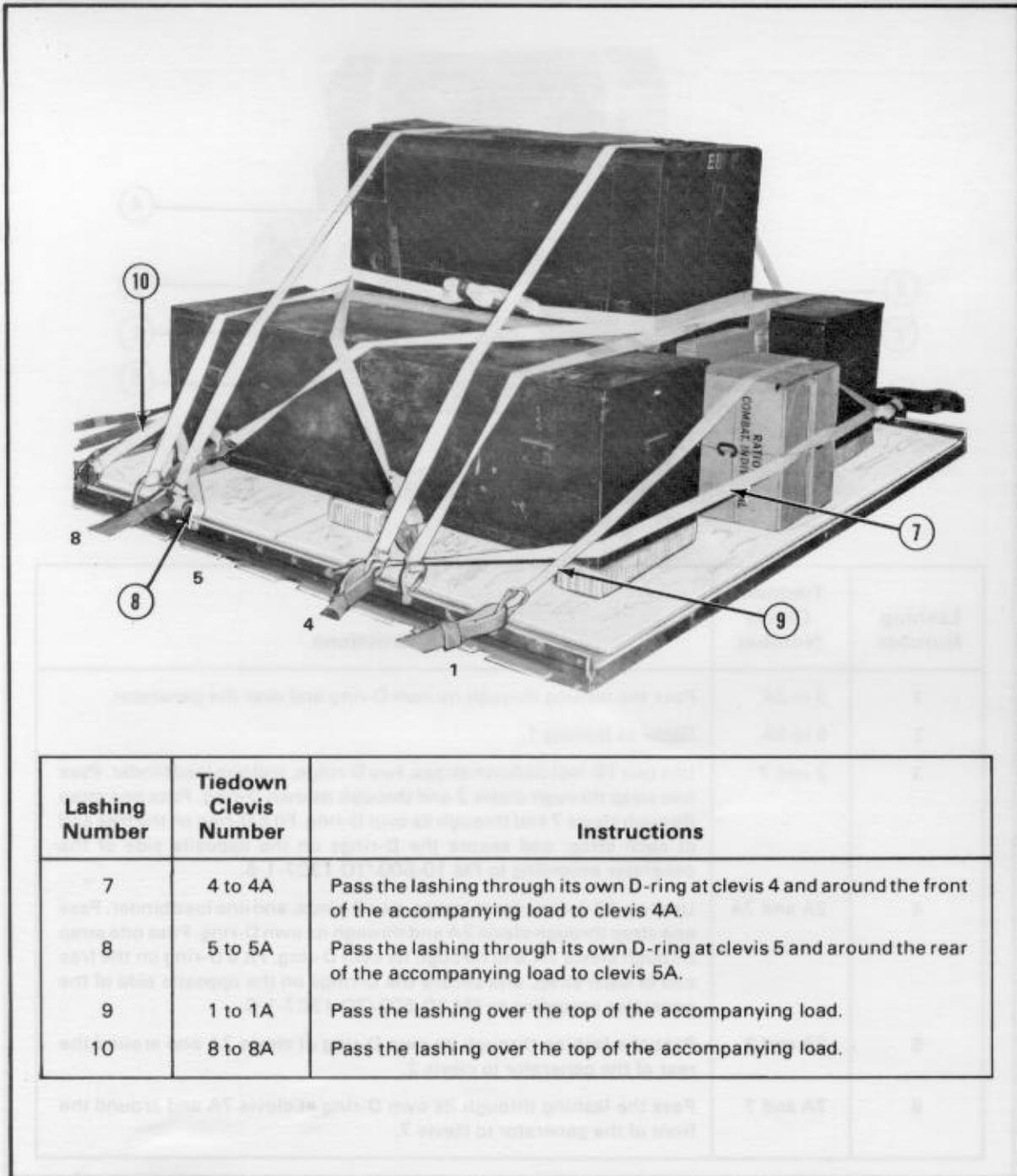


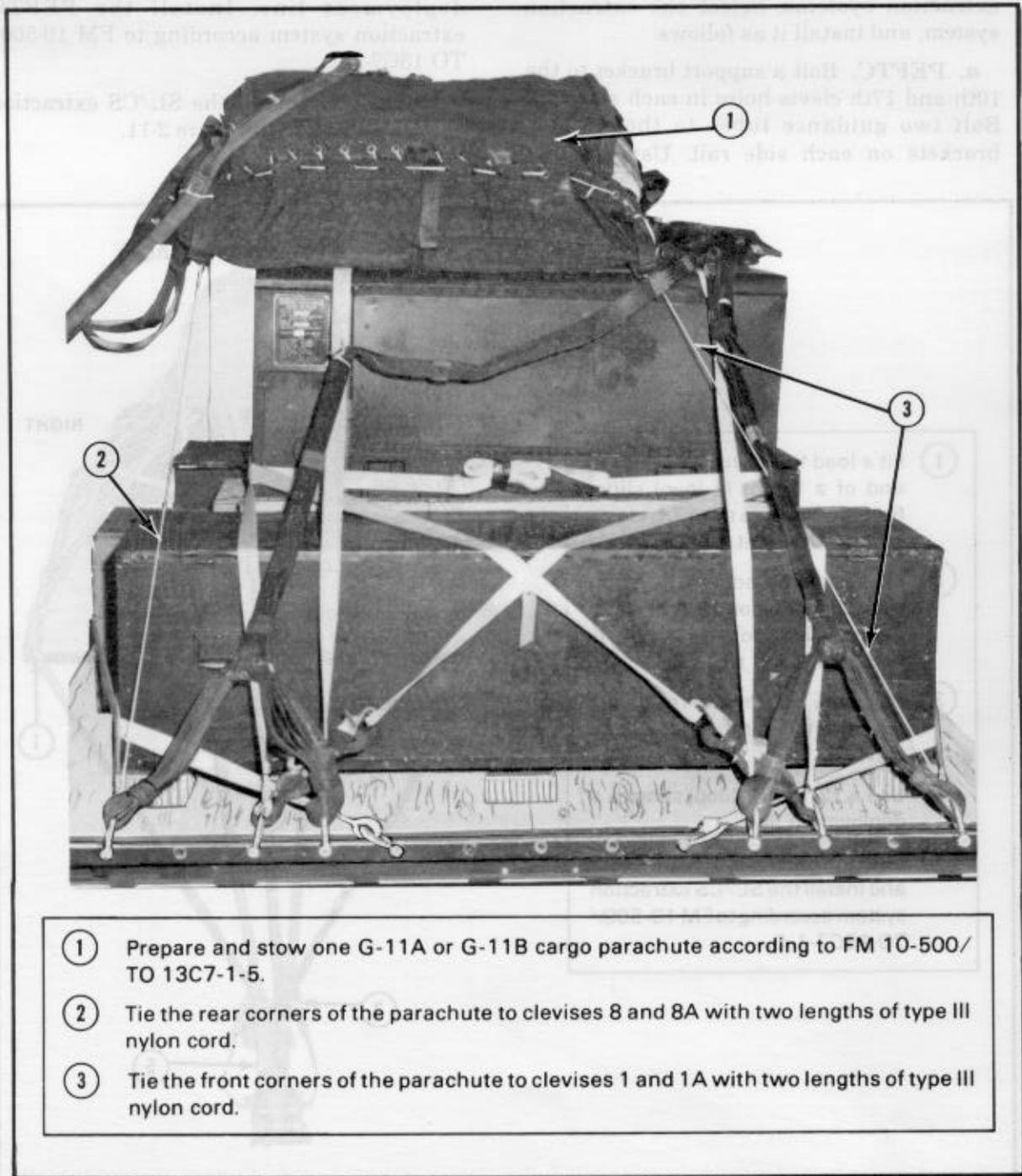
Figure 2-9. Lashings 7 through 10 installed

**2-9. Installing Deadman's Tie**

Install a deadman's tie on the suspension slings according to FM 10-500/TO 13C7-1-5.

**2-10. Stowing Cargo Parachute**

Stow one G-11A or G-11B cargo parachute on the load as shown in Figure 2-10.



- ① Prepare and stow one G-11A or G-11B cargo parachute according to FM 10-500/TO 13C7-1-5.
- ② Tie the rear corners of the parachute to clevises 8 and 8A with two lengths of type III nylon cord.
- ③ Tie the front corners of the parachute to clevises 1 and 1A with two lengths of type III nylon cord.

*Figure 2-10. Parachute stowed*

## 2-11. Installing Extraction System

Currently, two extraction systems are authorized for use when this load is rigged. These are the PEFTC and the SL/CS extraction systems. Select one extraction system, and install it as follows:

**a. PEFTC.** Bolt a support bracket to the 10th and 17th clevis holes in each side rail. Bolt two guidance tubes to the support brackets on each side rail. Using the A

mounting holes in the actuators, bolt the actuators to the side rails at the 8th and 9th clevis holes. Use a 16-foot (3-loop) sling as a deployment line. Install the PEFTC extraction system according to FM 10-500/TO 13C7-1-5.

**b. SL/CS.** Install the SL/CS extraction system as shown in Figure 2-11.

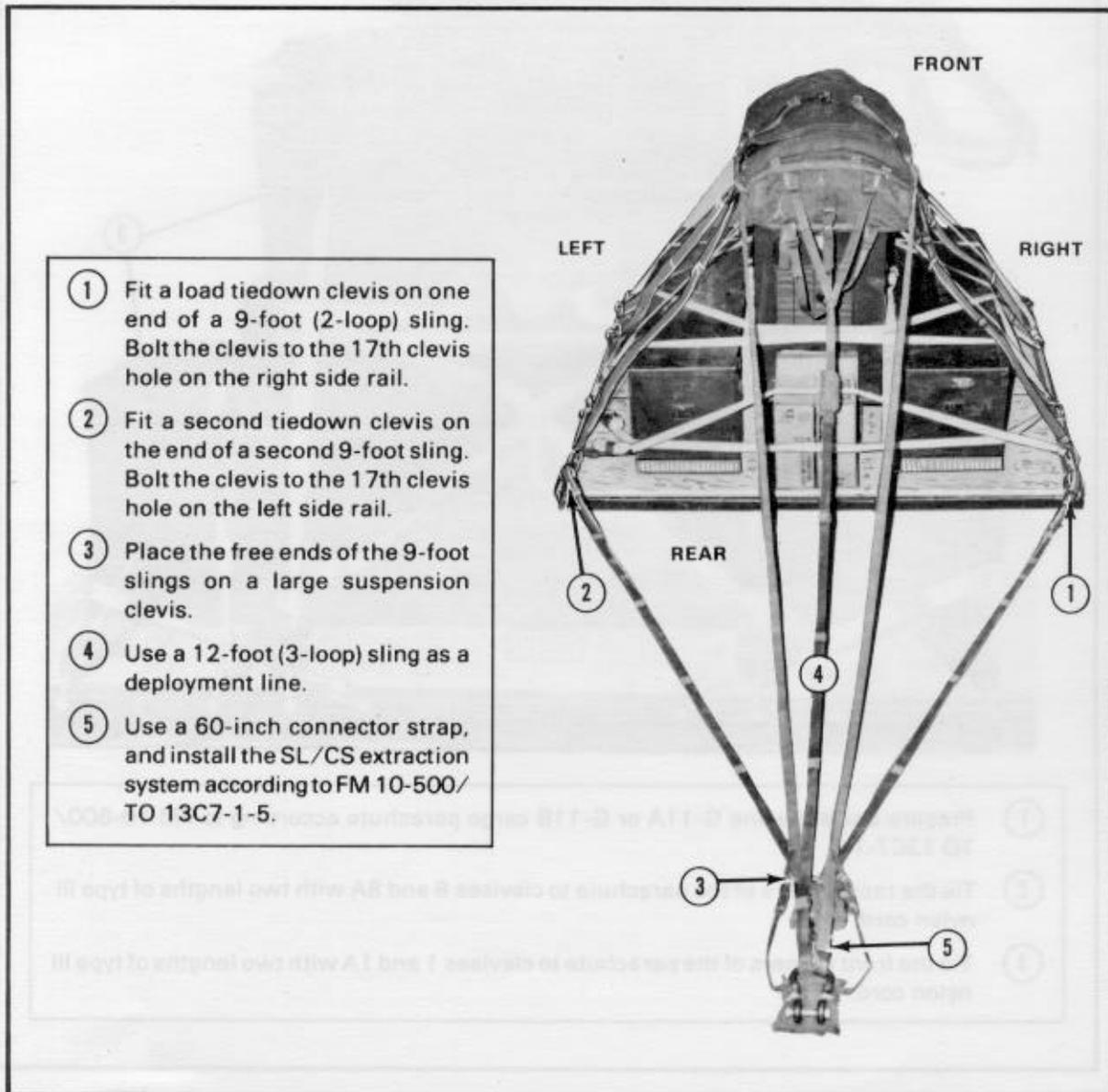
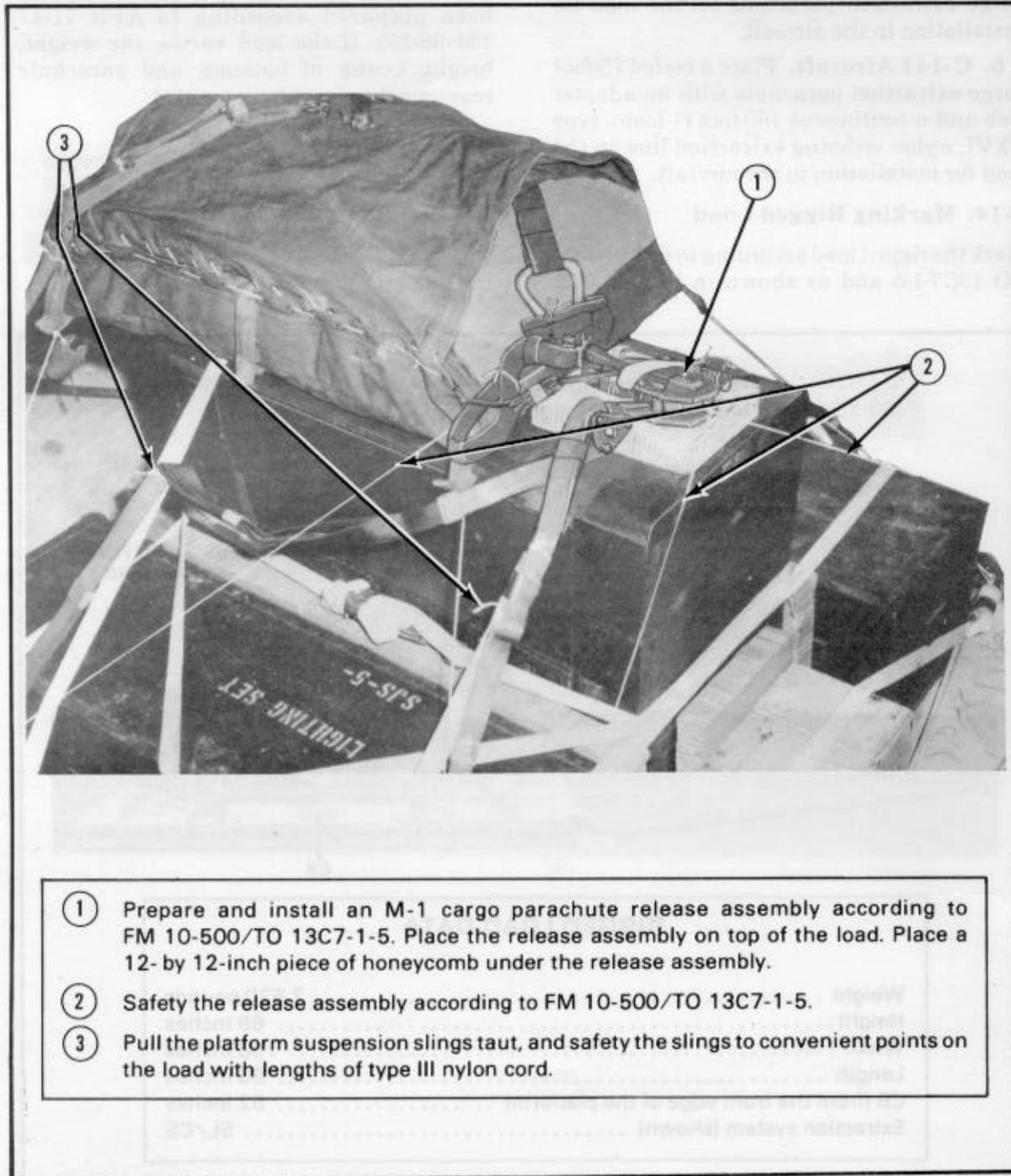


Figure 2-11. SL/CS extraction system installed

## 2-12. Installing Release System

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



- ① Prepare and install an M-1 cargo parachute release assembly according to FM 10-500/TO 13C7-1-5. Place the release assembly on top of the load. Place a 12- by 12-inch piece of honeycomb under the release assembly.
- ② Safety the release assembly according to FM 10-500/TO 13C7-1-5.
- ③ Pull the platform suspension slings taut, and safety the slings to convenient points on the load with lengths of type III nylon cord.

Figure 2-12. The M-1 release assembly installed

**2-13. Positioning Extraction Parachute**

Position the extraction parachute as described below.

**a. C-130 Aircraft.** Place a reefed 15-foot cargo extraction parachute on the load for installation in the aircraft.

**b. C-141 Aircraft.** Place a reefed 15-foot cargo extraction parachute with an adapter web and a continuous 160-foot (1-loop), type XXVI, nylon webbing extraction line on the load for installation in the aircraft.

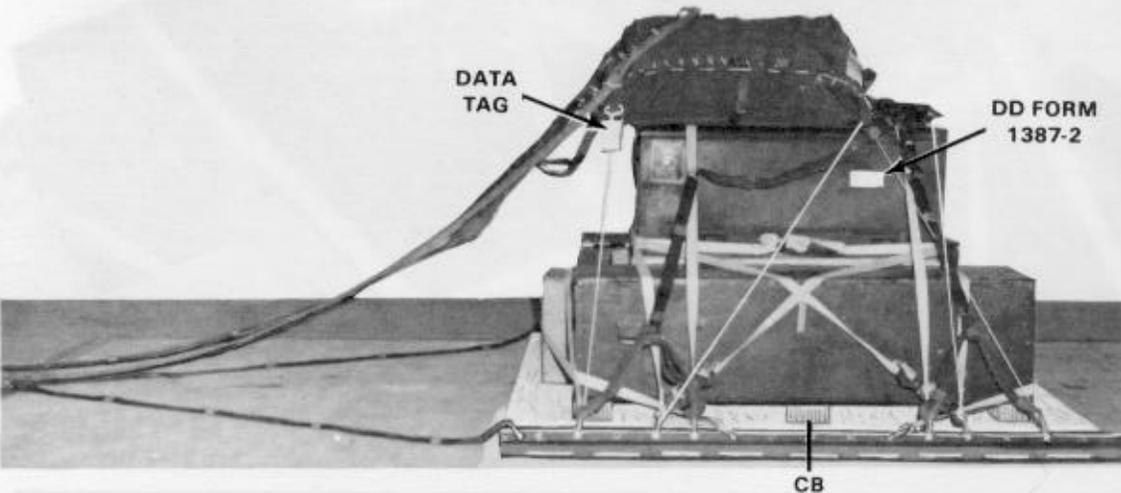
**2-14. Marking Rigged Load**

Mark the rigged load according to FM 10-500/TO 13C7-1-5 and as shown in Figure 2-13.

Complete DD Form 1387-2 (Special Handling Data/Certification), and securely attach it to the load. Indicate on DD Form 1387-2 that the generator fuel tank and the battery have been prepared according to AFR 71-4/TM 38-250. If the load varies, the weight, height, center of balance, and parachute requirements must be computed.

**Note:** When rigging this load for airdrop on a drop zone with ground elevation of 6,000 to 10,000 feet, add 3 inches to the height listed in Figure 2-13.

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



**RIGGED LOAD DATA**

Weight .....	2,520 pounds
Height .....	69 inches
Width .....	108 inches
Length .....	96 inches
CB (from the front edge of the platform) .....	52 inches
Extraction system (shown) .....	SL/CS

Figure 2-13. Generator, floodlight set, and accompanying load rigged for low-velocity airdrop

**2-15. Equipment Required**

The equipment required for rigging this load is listed in Table 2-1.

*Table 2-1. Equipment required for rigging generator, floodlight set, and accompanying load*

National Stock Number	Item	Quantity
1670-00-040-8215	Adapter web, 36-in (for C-141 aircraft) .....	1
8040-00-273-8713	Adhesive, paste, 1-gal .....	As required
1377-00-958-1048	*Cartridge, time-delay, 20-sec (for use w 5,000-lb release) .....	1
4030-00-090-5354	Clevis assembly, suspension, large .....	2
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 aircraft) .....	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding .....	As required
8305-00-958-3685	Felt sheet, 1/2-in thick .....	As required
1670-00-856-0265	Line, extraction, nylon webbing, 60-ft (1-loop), type X <u>OR</u> .....	1
1670-01-064-4452	Line, extraction, nylon webbing, 60-ft (1-loop), type XXVI (for C-130 aircraft) <u>OR</u> .....	1
1670-01-107-7652	Line, extraction, nylon webbing, 160-ft (1-loop), type XXVI (for C-141 aircraft) .....	1
1670-00-783-5988	Link assembly, single, type IV (add one for C-141 aircraft) .....	1
	Lumber:	
5510-00-220-6146	2- by 4- by 4 7/8-in .....	1
5510-00-220-6146	2- by 4- by 16-in .....	1
5510-00-220-6148	2- by 6- by 16-in .....	1
1670-00-753-3928	Pad, energy-dissipating, honeycomb, 3- by 36- by 96-in: .....	3 sheets
	6- by 24-in .....	(6)
	12- by 18-in .....	(6)
	18- by 24-in .....	(2)
	24- by 56-in .....	(2)
	Parachute:	
1670-00-269-1107	Cargo, 100-ft, G-11A <u>OR</u> .....	1
1670-01-016-7841	Cargo, 100-ft, G-11B .....	1
1670-01-063-3715	***Cargo, extraction, 15-ft .....	1
	Platform, airdrop, modular, 8-ft:	
1670-00-893-1631	Clevis, load tiedown .....	18
1670-00-893-1624	Panel .....	2
1670-00-893-1625	Rail, platform, side, 8-ft .....	2

Table 2-1. Equipment required for rigging generator, floodlight set, and accompanying load (continued)

National Stock Number	Item	Quantity
5320-00-893-1632	Rivet, blind-drive type, 1/4-in diam .....	32
5530-00-128-4981	Plywood:	
	3/4- by 4- by 16-in .....	1
	3/4- by 4- by 18 1/4-in .....	2
	3/4- by 8- by 16-in .....	1
	3/4- by 12- by 18-in .....	2
	3/4- by 48- by 96-in .....	2
1670-00-168-6070	Release, cargo parachute, M-1 <u>OR</u> .....	1
1670-00-799-8494	*Release, 5,000-lb-capacity cargo parachute .....	1
	Slings, cargo, airdrop:	
	For 5,000-lb releases:	
1670-00-753-3788	3-ft (3-loop), type X <u>OR</u> .....	1
1670-00-062-6301	3-ft (2-loop), type XXVI .....	1
	For platform suspension:	
1670-00-753-3788	3-ft (3-loop), type X <u>OR</u> .....	4
1670-01-062-6301	3-ft (2-loop), type XXVI .....	4
1670-00-753-3790	9-ft (2-loop), type X <u>OR</u> .....	4
1670-01-062-6304	9-ft (2-loop), type XXVI .....	4
	For deployment line:	
1670-00-823-5042	16-ft (3-loop), type X <u>OR</u> .....	1
1670-01-063-7761	16-ft (2-loop), type XXVI .....	1
7110-00-266-5016	Tape, adhesive, 2-in .....	As required
1670-00-937-0271	Tiedown assembly, 15-ft .....	12
8305-00-268-2411	Webbing, cotton, 80-lb .....	As required
8305-00-082-5752	Webbing, nylon, tubular, 1/2-in .....	As required
<i>*This item will not be used with the G-11B cargo parachute.</i>		
<i>**When this item is not available, the following items are required for the SL/CS:</i>		
4030-00-090-5354	Clevis assembly, suspension, large .....	2
1670-00-783-5988	Link assembly, single, type IV .....	1
	Slings, cargo, airdrop:	
1670-00-753-3788	3-ft (3-loop), type X <u>OR</u> .....	1
1670-01-062-6301	3-ft (2-loop), type XXVI .....	1
1670-00-823-5041	12-ft (3-loop), type X <u>OR</u> .....	1
1670-01-062-6303	12-ft (2-loop), type XXVI .....	1
1670-00-998-0117	Static line, cargo parachute, breakaway-type, w release knife and clevis .....	2
1670-00-738-5878	Strap, connector, 60-in .....	1
<i>***Install the extraction parachute according to these types of aircraft:</i>		
1. C-130. Use the reefed 15-foot extraction parachute on loads rigged for drop from a C-130 aircraft.		
2. C-141. Use the reefed 15-foot extraction parachute on loads rigged for drop from a C-141 aircraft. In addition, the parachute needs a 36-inch adapter web and a continuous 160-foot (1-loop), type XXVI, nylon line.		

## GLOSSARY

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ACB	attitude control bar	LAPES	low-altitude parachute-extraction system
AFR	Air Force regulation	lb	pound
AFTO	Air Force technical order	PEFTC	platform extraction force transfer coupling
attn	attention	sec	second
CB	center of balance	SL/CS	static line/connector strap
DA	Department of the Army	TM	technical manual
DC	District of Columbia	TO	technical order
DD	Department of Defense	TRADOC	United States Army Training and Doctrine Command
diam	diameter	TX	Texas
FM	field manual	US	United States (of America)
ft	foot/feet	VA	Virginia
gal	gallon	w	with
HQ	headquarters		
IL	Illinois		
in	inch		
LAPE	low-altitude parachute-extraction		

## REFERENCES

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AFR 71-4/TM 38-250	Packaging and Materials Handling: Preparation of Hazardous Materials for Military Air Shipment
FM 10-500/TO 13C7-1-5	Airdrop of Supplies and Equipment: Rigging Airdrop Platforms
FM 10-553/TO 13C7-18-41	Airdrop of Supplies and Equipment: Rigging Ammunition
TM 5-6115-332-14/ TO 35C2-3-424-1	Operator, Organizational, Intermediate (Field), Direct Support, General Support, and Depot Level Maintenance Manual: Generator Set, Tactical, Gasoline Engine: Air Cooled, 5 KW, AC, 120/240V Single Phase, 120/208V 3 Phase, Skid Mounted, Tubular Frame (Less Engine) (Military Design, DOD Models MEP-071A & MEP-022A)
TM 10-1670-208-20&P/ TO 13C3-4-12	Organizational Maintenance Manual Including Repair Parts and Special Tools List for Platforms, Type II Modular and LAPES/Airdrop Modular
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: 12-Foot-Diameter High-Velocity, G-13 24-Foot-Diameter, 26-Foot-Diameter High-Velocity, G-14 34-Foot-Diameter, 38-Foot-Diameter RCAT, G-12C and G-12D 64-Foot Diameter, G-11A 100-Foot-Diameter, 15-Foot-Diameter Extraction, 22-Foot-Diameter Extraction, 28-Foot-Diameter Extraction, and 3-Foot-Square Pilot
DD Form 1387-2	Special Handling Data/Certification

**FM 10-535/TO 13C7-40-11**

**14 NOVEMBER 1985**

By Order of the Secretaries of the Army and the Air Force:

**E. C. MEYER**

*General, United States Army  
Chief of Staff*

Official:

**MILDRED E. HEDBERG**

*Brigadier General, United States Army  
The Adjutant General*

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