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MCRP 4-11.3J
NAVSEA SS400-AB-MMO-010 REV 1
TO 13C7-1-5

Airdrop of Supplies and Equipment: Rigging Airdrop Platforms; Airdrop Derigging and Recovery Procedures; Reference Data for Airdrop Platform Loads

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This publication supersedes FM 4-20.102/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 dated 8 June 2006; FM 4-20.107/TO 13C7-1-10 dated 7 October 2004; FM 4-20.116/ TO 13C7-1-13 8 dated 10 May 2006.

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Technical Manual
No. 4-48.02

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No. SS400-AB-MMO-010 REV 1

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No. 13C7-1-5

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Department of the Army
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Washington, DC
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Airdrop of Supplies and Equipment: Rigging Airdrop Platforms; Airdrop Derigging and Recovery Procedures; Reference Data for Airdrop Platform Loads

Contents

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Preface

TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 provides doctrinal guidance and direction for United States Army, United States Marine Corps, United States Navy and United States Air Force, units conducting aerial delivery operations. This manual provides information on procedures for rigging airdrop platforms, derigging and recovery procedures and reference data for airdrop platform loads.

The principal audience for TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 is all members of the profession of arms. Commanders and staffs of Army, Marine Corps, Navy and Air Force headquarters serving as joint task force or multinational headquarters should also refer to applicable joint or multinational doctrine concerning the range of military operations and joint or multinational forces. Trainers and educators throughout the Army, Marine Corps, Navy and Air Force will also use this publication.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers, Marines, Seamen and Airmen operate in accordance with the law of war and the rules of engagement. (See FM 27-10).

TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 does not implement any STANAGs.

TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 is the proponent publication (the authority) are italicized in the text and marked with an asterisk (*) in the glossary. Terms and definitions for which TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 is the proponent publication are boldfaced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 applies to the Active Army, Army National Guard/Army National Guard of the United States, United States Army Reserve, United States Airforce units, United States Navy units and the total force Marine Corps unless otherwise stated.

The proponent of TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/ TO 13C7-1-5 is the United States Army Quartermaster School. The preparing agency is the G-3 Doctrine Division, USACASCOM. Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) to Commander, United States Army Combined Arms Support Command and Fort Lee, ATTN: ATCL-TS, 2221 A Avenue, Fort Lee, Virginia 23801 or submit an electronic DA Form 2028 by e-mail to: usarmy.lee.tradoc.mbx.leee-cascom-doctrine@mail.mil. In addition to submission of DA Form 2028, provide same comments and recommendations in MilWiki for rapid dissemination to doctrine authors and for universal review at https://www.milsuite.mil.

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Introduction

Publication of TM 4-48.02/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/TO 13C7-1-5 *Airdrop of Supplies and Equipment: Rigging Airdrop Platforms, Airdrop Derigging and Recovery Procedures, Reference Data for Airdrop Platform Loads* supersedes FM 4-20.102/MCRP 4-11.3J/NAVSEA SS400-AB-MMO-010/TO 13C7-1-5 *Airdrop of Supplies and Equipment: Rigging Airdrop Platforms* 8 June 2006 and FM 4-20.107 (FM 10-500-7)/TO 13C7-1-10 *Airdrop of Supplies and Equipment: Airdrop Derigging and Recovery Procedures* 7 October 2004 and FM 4-20.116/TO 13C7-1-13 *Airdrop of Supplies and Equipment: Reference Data for Airdrop Platform Loads* 10 May 2006.

The grouping of the manuals has produced excess multi-service publication numbers. A single multi-service publication number will be retained on the new manual and the following remainder multi-service publication numbers will not be required/used: [TO 13C7-1-10; TO 13C7-1-13].This revision to the TM publishing medium/nomenclature has been accomplished to comply with U.S. Army TRADOC doctrine restructuring requirements. The title and content of the manual(s) is nearly identical to that of the superseded manual(s) unless specifically noted changes are identified. There has been no change to procedural content in the main body. This special revision does not integrate any changes in Army doctrine since 8 June 2006 / 7 October 2004 / 10 May 2006 and does alter the publication's original references. For the status of official Department of the Army (DA) publications, consult DA Pam 25-30, *Consolidated Index of Army Publications and Blank Forms*, at http://armypubs.army.mil/2530.html. DA Pam 25-30 is updated as new and revised publications, as well as changes to publications are published.

Chapter 1
Airdrop Information

RESPONSIBILITIES

1-1. Personnel responsible for loading rigged platform loads into aircraft and installing and operating airdrop systems are given below.

- **Air Forces Aircraft**. Air forces personnel are responsible for loading the rigged platform loads into the aircraft and for installing and operating the airdrop system.
- **U.S. Air Force (USAF) Aircraft Foreign Joint Training**. USAF aircraft and crews conducting joint airdrop operations with foreign military governments are not authorized to airdrop equipment and configurations not included in this manual, unless authorized by specific Major Commands.
- **Other Aircraft.** When an aircraft other than U.S Air Force aircraft is used, the service being airdropped may be responsible for loading their rigged platform loads into the aircraft and for installing and operating the airdrop systems.

SAFETY PRECAUTIONS

1-2. Safety precautions MUST be closely followed when airdrop platform loads are rigged. Failure to follow the precautions could result in serious injury to the rigger or damage to the drop item or aircraft. The following safety precautions shall be taken by the rigger:

- Make sure that when lifting heavy items, the lifting device has a rated lifting capacity that exceeds the weight of the item to be lifted.
- Be sure that items being lifted are secured to the lifting device.
- Avoid working under suspended equipment unless absolutely necessary.
- Cover all wet cell batteries in service with plastic or nonflammable material.
- Check fuel tanks to ensure that they do not exceed the fuel level of the specific rigging manuals. Check fuel cans to make sure they are performance-oriented packaging approved. When stowing fuel cans, use cellulose wadding or other suitable material to prevent metal-to-metal contact.
- Package, mark, and label hazardous materials according to AFMAN 24-204(I)/TM 38-250.

CAUTION

Only ammunition listed in TM 4-48.16 may be airdropped. Hazardous material must be packaged, marked, and labeled as required by AFMAN (I) 24-204/TM 38-250.

TYPE AND METHOD OF AIRDROP

1-3. As used in this manual, airdrop is the air-to-ground delivery of platform loads from an aircraft in flight. Airdrop is designed to supplement the usual surface methods of delivering supplies and equipment to forces in the field.

- **Type of Airdrop**. Currently the only type of airdrop used to deliver platform loads is low-velocity airdrop. Low-velocity airdrop delivers platform loads from an aircraft at various altitudes. Cargo parachutes are used to slow the descent of the loads to ensure minimum landing shock. The type and number of cargo parachutes can vary as shown in Table 1-1. Due to differing deployment characteristics, parachutes of different types will not be mixed on the same load. Loads with different type parachutes and loads with quantities of the same type parachute may be airdropped from the same aircraft or element provided the following conditions are met:
  - Airdrop altitude for the aircraft or element will be determined by the type and number of parachutes on the load requiring the highest airdrop altitude.
  - Aircraft or elements with lower airdrop altitudes will drop before aircraft or elements with higher airdrop altitudes.
  - The transported force accepts strike report responsibility for loads other than the first platform to exit the aircraft or element lead for formation airdrops.

Table 1-1. Type and number of parachutes for low-velocity airdrop

MINIMUM DROP ALTITUDE (FEET ABOVE GROUND LEVEL)	*PARACHUTES*
	G-11B
700	1
750	2 to 4
	G-11C
1,150	5
1,200	6 to 7
1,300	8
	G-12E
550	2 (Not for Army Platform Loads)

CAUTION

Drop altitudes reflect Minimum drop altitudes.

- **Method of Airdrop.** The extraction method is used for platform loads delivered by low-velocity airdrop on type V platform. This method uses a cargo extraction parachute to pull the platform load from the cargo compartment of the aircraft.

COMMONLY USED ITEMS

1-4. Items commonly used for rigging platform loads are described in this section. Each rigging manual in the TM 4-48 series contains one or more tables of equipment required. These tables list the National Stock Number (NSN), item, and quantity of each item needed to prepare and rig the load covered in the manual. Standard airdrop hardware items are shown in Figure 1-1. Standard airdrop straps and canvas items are shown in Figure 1-2. Some textile, wood, and miscellaneous items are described below.

- **Textile Items**. The most common textile items and their uses are as follows:
  - Type III nylon cord is used to make safety ties and to hold items in place. It has a tensile strength of 550 pounds.
  - 1/2-inch tubular nylon webbing is used to secure items during airdrop and to tie the Deadman's safety tie. It has a tensile strength of 1,000 pounds.
  - Type I, 1/4-inch cotton webbing is used to make many of the needed safety ties used when a platform load is rigged. It has a tensile strength of 80 pounds.
  - 5/8-inch or 9/16-inch tubular nylon webbing may be used for the Deadman's safety tie and parachute clustering ties in place of 1/2-inch tubular nylon webbing. Five-eighths inch tubular nylon webbing has a tensile strength of 2,250 pounds and 9/16-inch tubular nylon webbing has a tensile strength of 1,000 pounds.
- Wood Items. Wood items used when platform loads are rigged for specific airdrop are made locally. Details for building these wood items are in the specific rigging manuals.

Note. Plywood will be grade AC or AD.

- **Miscellaneous Items.** Miscellaneous items that may be used when a platform load is rigged are discussed below. The proper use of these items will be covered in detail in this manual or in other TM 4-48.00/ Technical Order (TO) 13C7 series manuals.
  - Adhesive tape (masking tape), 2 inches wide, is used to secure folds of excess webbing. It is also used to protect honeycomb from being cut by type III nylon cord and to hold padding in place. It can be used for other tasks also.
  - Type IV, cloth-backed adhesive tape, 2 inches wide, is used to protect honeycomb from being cut by type III nylon cord and to hold padding in place. It can be used for other tasks, such as securing the sling keepers.

CAUTION

The type IV, cloth-backed adhesive tape, will not be used to secure folds of extraction lines, suspension slings, and deployment lines.

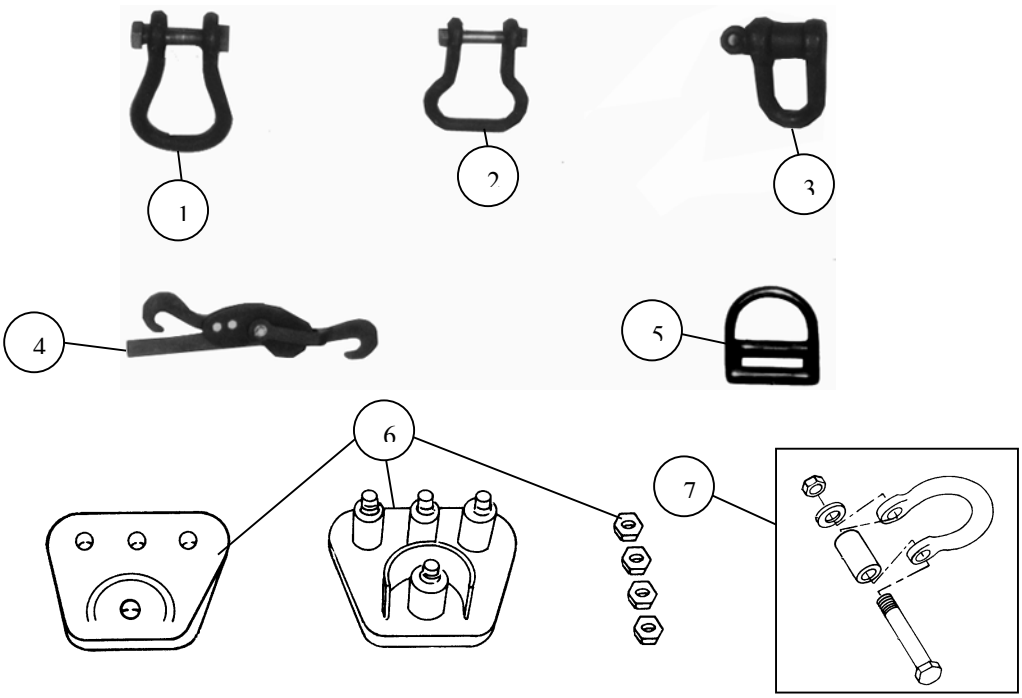
  - Cellulose wadding and felt sheets have many uses. They may be used to pad fragile items, to prevent sharp edges from cutting, and to protect slings during airdrop.
  - Pad energy dissipating (honeycomb) are used to absorb the landing shock. Honeycomb is also used to level, pad, and fill empty spaces.

INSPECTION AND DESCRIPTION OF ITEMS

1-5. Canvas, metal, webbing, and wood items are inspected according to TM 10-1670-296-20&P/TO 13C7-49-2.

CAUTION

The maximum rated strength will reduce depending on the configuration in which it is used.



① The large clevis is used in forming suspension systems, grouping bridles, and attaching riser extensions to the G-11 cargo parachute. It may be used on the type V platform for suspension. The clevis is used in other places, as indicated in the specific rigging manual. This has a maximum rated strength of 40,000 pounds.

② The medium clevis is used to attach riser extensions to the G-12E cargo parachute and emergency aft restraint provisions on the type V platform. Other uses are given in the specific rigging manual. This has a maximum rated strength of 20,000 pounds.

③ The screw-pin clevis is used with a sleeve in a manner similar to a large suspension clevis. This has a maximum rated strength of 40,000 pounds.

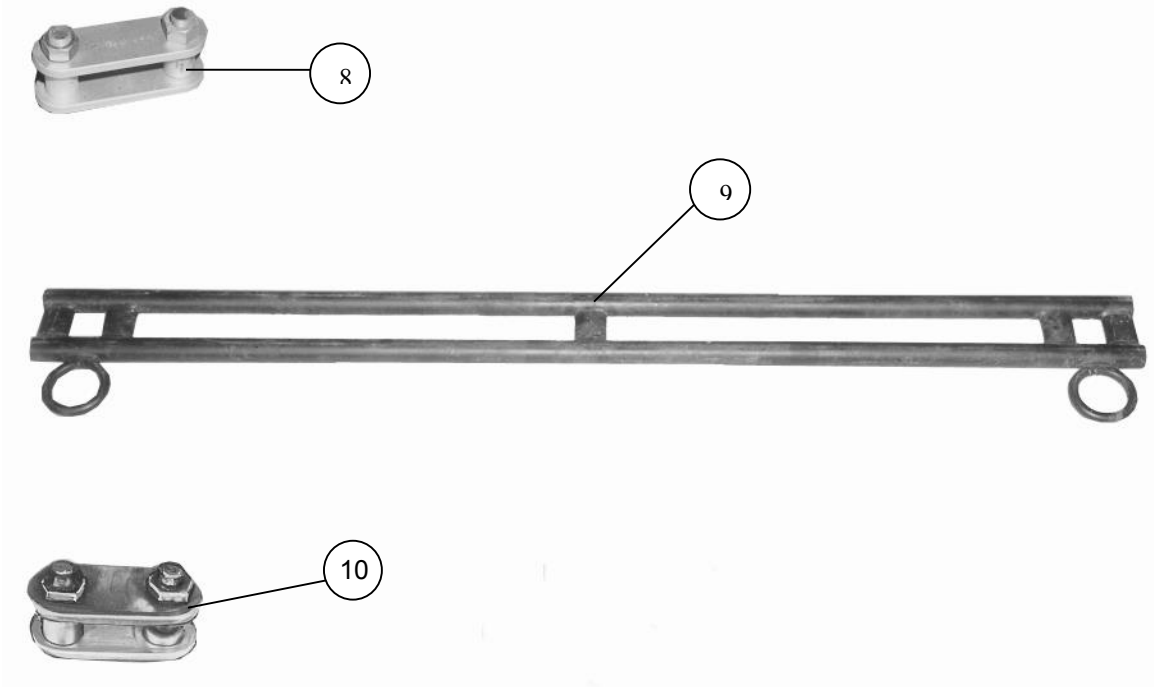
④ The 10,000-pound load binder is used to hook two D-rings together or to hook a D-ring to a platform tiedown clevis on the airdrop platform. This has a maximum rated strength of 10,000 pounds.

⑤ The heavy-duty D-ring is used with a 15-foot tiedown strap. This has a maximum rated strength of 10,000 pounds.

⑥ The four-point link assembly is used to cluster two 28-foot cargo extraction parachutes on a low-velocity load. This has a maximum rated strength of 56,000 pounds.

⑦ The platform clevis is attached to the side rails, tandem links, or suspension links of the type V platform in order to secure the load. This has a maximum rated strength of 10,000 pounds.

Figure 1-1. Hardware items used for rigging platform loads

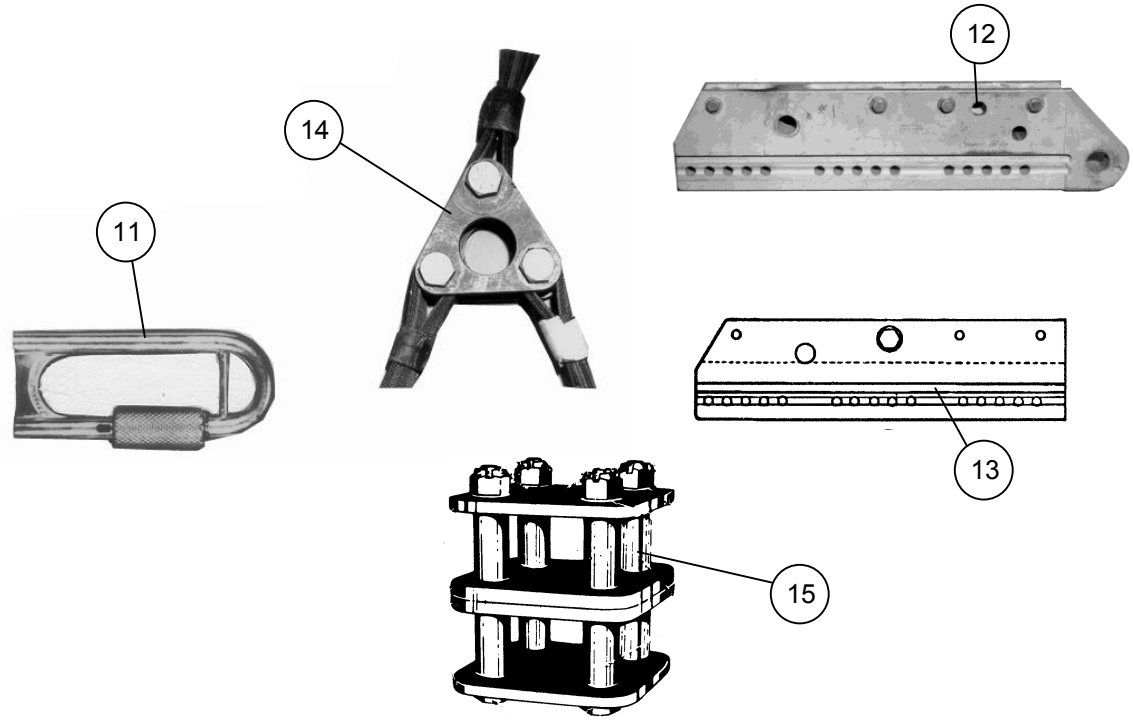


⑧ The 5 1/2-inch, two-point link assembly is used to join suspension slings and extraction lines and to attach an extraction line to a cargo extraction parachute. This has a maximum rated strength of 30,000 pounds.

⑨ The attitude control bar (ACB) is used as an alternate spreader bar on loads identified in specific rigging manuals.

⑩ The 3 3/4-inch, two-point link assembly is used to join suspension slings and to attach an extraction line to a cargo extraction parachute. This has a maximum rated strength of 30,000 pounds.

Figure 1-1. Hardware items used for rigging platform loads (continued)



⑪ The guillotine-type knife is used on parachute release straps and in other places as directed in the specific rigging manual.

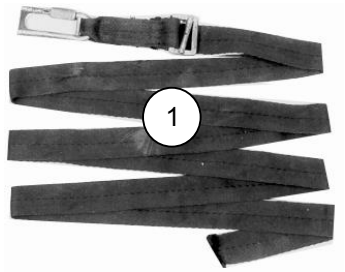
⑫ The tandem link assembly is used on the type V platform for low-velocity airdrop for platform suspension and emergency aft restraint.

⑬ The suspension bracket assembly is used for platform suspension.

⑭ The three-point link may be used to connect suspension slings and is part of the extraction force transfer coupling.

⑮ The 8-spool load coupler may be utilized with the automatic cargo parachute release.

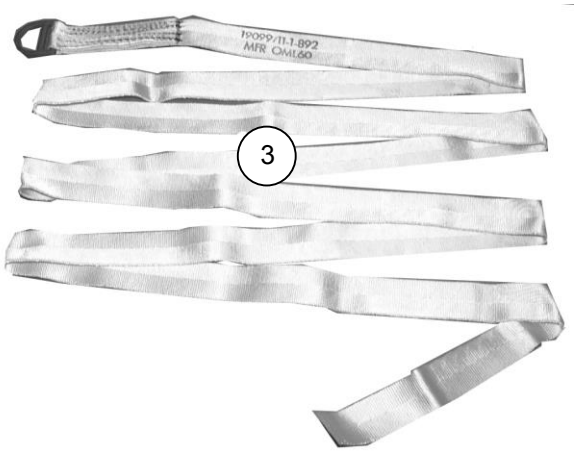
Figure 1-1. Hardware items used for rigging platform loads (continued)

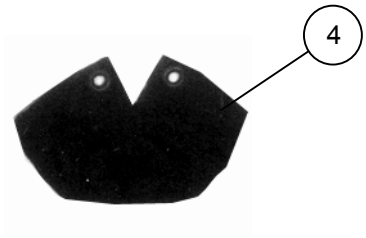


① The single-knife parachute release strap, with guillotine knife, is used to cut one parachute restraint strap on a low-velocity airdrop load.

② The multi-knife parachute release strap is used to cut one to three parachute restraint straps on a platform load rigged for low-velocity airdrop. The strap comes with three guillotine-type release knives. Knives that are not being used are removed. This release strap is always used in pairs. The multi-knife release strap is used in all cases where multiple knives are required.

Figure 1-2. Straps and canvas items used for rigging platform loads





③ The 15-foot Dacron tiedown strap is used to lash an airdrop load to the platform. Other uses of this strap are covered in the specific rigging manual. This has a maximum rated strength of 10,000 pounds.

④ The large clevis cover is used on the large and medium suspension clevis when the clevis is used to join the risers of a cargo parachute to a riser extension.

Figure 1-2. Straps and canvas items used for rigging platform loads (continued)

MAXIMUM RIGGED WEIGHT

1-6. The weight cited in the rigged load data for each specific load is typical for the load as shown. Some amount of overweight is allowed as long as load dimensions, rigging and extraction components, and rigging procedures are not changed.

Note. When a maximum allowable rigged weight is specified in the rigged load data, this weight is the absolute maximum and will not be exceeded.

ACCOMPANYING LOADS

1-7. Accompanying loads are items of supplies and equipment that may be added to a certain primary load as specified in the specific rigging manual for that load. Each airdrop manual states whether an accompanying load is authorized and lists the restrictions for that particular load. The following restrictions apply to all accompanying loads.

- The accompanying load must be positioned so that—
  - The primary load will not hit or crush it upon ground impact.
  - It will not interfere with the suspension slings.
- The accompanying load must not cause the--
  - Height of the rigged load to exceed the height limitations and the tip-off curve (Table 1-2 and Table 1-3) of the aircraft used.
  - Weight of the rigged load to exceed the maximum allowable weight prescribed in the specific rigging manual.
  - Center of balance (CB) of the rigged load to move outside the limitations shown in Figure 1-3.
  - Hang angle of the suspended rigged load to exceed 1 inch per linear foot of platform length.

CAUTION

The accompanying load must be lashed to meet the same restraint requirements as the primary load.

STOWING ACCOMPANYING LOADS

1-8. Each specific rigging manual contains the weight limitations, placement, and any additional restrictions on accompanying loads.

CAUTIONS

1. Only ammunition listed in TM 4-48.16 may be rigged for airdrop.

2. Hazardous materials must be packaged, marked, and labeled as required by AFMAN 24-204(I)/TM 38-250.

3. At least two layers of honeycomb must be placed under all ammunition rigged for airdrop unless the specific rigging manual states differently.

PREPARING DROP ITEMS

1-9. Some items need to be prepared for rigging. This preparation can include removing, reinforcing, stowing, and securing components. Detailed preparation instructions will be included in the specific rigging manual.

COVERING LOAD

1-10. Covers may be needed to protect the load and keep the suspension slings from fouling. To keep the load from being damaged by falling hardware such as parachute releases, it may be necessary to cover portions of the load with honeycomb, plywood, or cloth protectors. If a cover is needed, the specific rigging manual will include this information and the procedures for its installation.

CENTER OF BALANCE

1-11. The CB of an airdrop platform load, based on the total rigged weight, is given in the rigging manual for a particular item. If the load varies from the one given in a particular manual, the CB must be recomputed using the procedures shown in Figure 1-4.

CAUTION

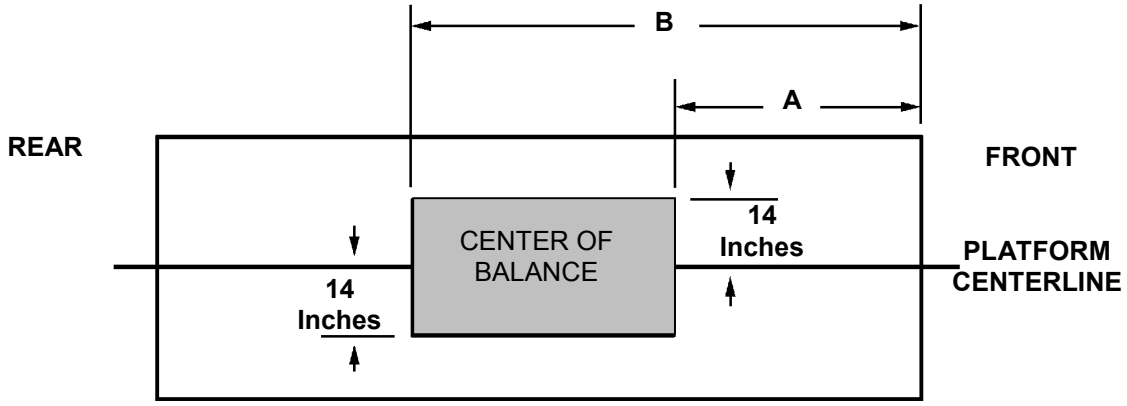
If the center of balance (CB) or load profile exceeds the limits of Table 1-2 or Table 1-3 or Figure 1-3, the load is not acceptable.

Table 1-2. C-130 forward profile limits (tip off curve) for airdrop platforms

DISTANCE FORWARD OF CENTER OF BALANCE (INCHES)	*MAXIMUM HEIGHT (INCHES)*	*DISTANCE FORWARD OF CENTER OF BALANCE (INCHES)*	*MAXIMUM HEIGHT (INCHES)*
0 to 45	100	153 to 155	82
46 to 75	99	156 to 160	81
76 to 87	98	161 to 162	80
88 to 93	97	163 to 165	79
94 to 100	96	166 to 168	78
101 to 107	95	169 to 170	77
108 to 113	94	171 to 172	76
114 to 117	93	173 to 174	75
118 to 122	92	175 to 177	74
123 to 124	91	178 to 179	73
125 to 128	90	180 to 181	72
129 to 133	89	182 to 183	71
134 to 138	88	184 to 186	70
139 to 141	87	187 to 188	69
142 to 144	86	189 to 190	68
145 to 146	85	191 to 192	67
147 to 150	84	193 to 195	66
151 to 152	83	196 to 197	65

Table 1-3. C-17 forward profile limits (tip off curve) for airdrop platforms

DISTANCE FORWARD OF CENTER OF BALANCE (INCHES)	*MAXIMUM HEIGHT (INCHES)*	*DISTANCE FORWARD OF CENTER OF BALANCE (INCHES)*	*MAXIMUM HEIGHT (INCHES)*
0 to 53	115	161 to 164	98
54 to 74	114	165 to 170	97
75 to 82	113	171 to 174	96
83 to 94	112	175 to 178	95
95 to 100	111	179 to 182	94
101 to 108	110	183 to 187	93
109 to 112	109	188 to 191	92
113 to 116	108	192 to 194	91
117 to 122	107	195 to 198	90
123 to 128	106	199 to 202	89
129 to 132	105	203 to 204	88
133 to 138	104	205 to 206	87
139 to 142	103	207 to 210	86
143 to 148	102	211 to 212	85
149 to 150	101	213 to 214	84
151 to 154	100	215 to 217	83
155 to 160	99	218 to 220	82



PLATFORM LENGTH (FEET)	MINIMUM A (INCHES)	MAXIMUM B (INCHES)
8	30	66
12	52	91 ½
16	75	117
20	97 1/2	142 ½
24	120	168
28	120	190
32	157	212

Notes.

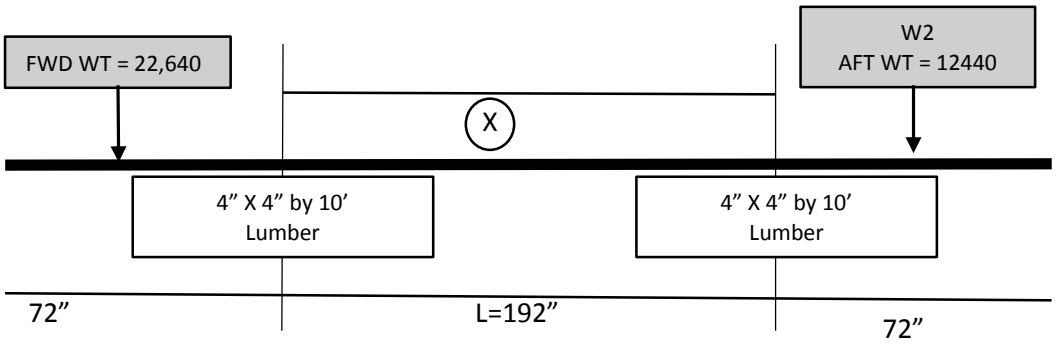
1. Distances are measured in inches from the front edge of the platform.
2. Shaded area indicates allowable center of balance tolerances.
3. These drawings are not drawn to scale.

Figure 1-3. Center of balance limits for airdrop platforms

$$CB = \frac{(L)(W2)}{W}$$

$$\frac{192 \times 12{,}440}{35{,}080} = \frac{2{,}388{,}480}{35{,}080} = 68.08''$$

W = FWD WT + AFT WT (Not total WT of rigged load)



68.08" + 72" = 140.08 or CB = 140" From FWD edge of platform

Legend:

CB = center of balance	FWD = forward	L = Length
W = FWD and AFT weight total	W2 = weight number 2 (AFT weight)	
WT = weight	" = inches	' = feet

Figure 1-4. Drawing showing formula for computing the center of balance in a 28-foot, type V platform

ITEMS AND LOADS IN COLD CLIMATES

1-12. Some items to be dropped may have been modified for use in cold climates by the installation of extra equipment. Special rigging procedures may be needed when the drop item has been so modified. When loads are to be dropped in cold climates, all excess webbing of suspension slings and tie-down straps must be folded and tied with type I, 1/4-inch cotton webbing.

KNOTS

1-13. Some of the knots used for rigging platform loads are shown in Figure 1-5. When tying knots using nylon material, place an overhand knot in the running ends.

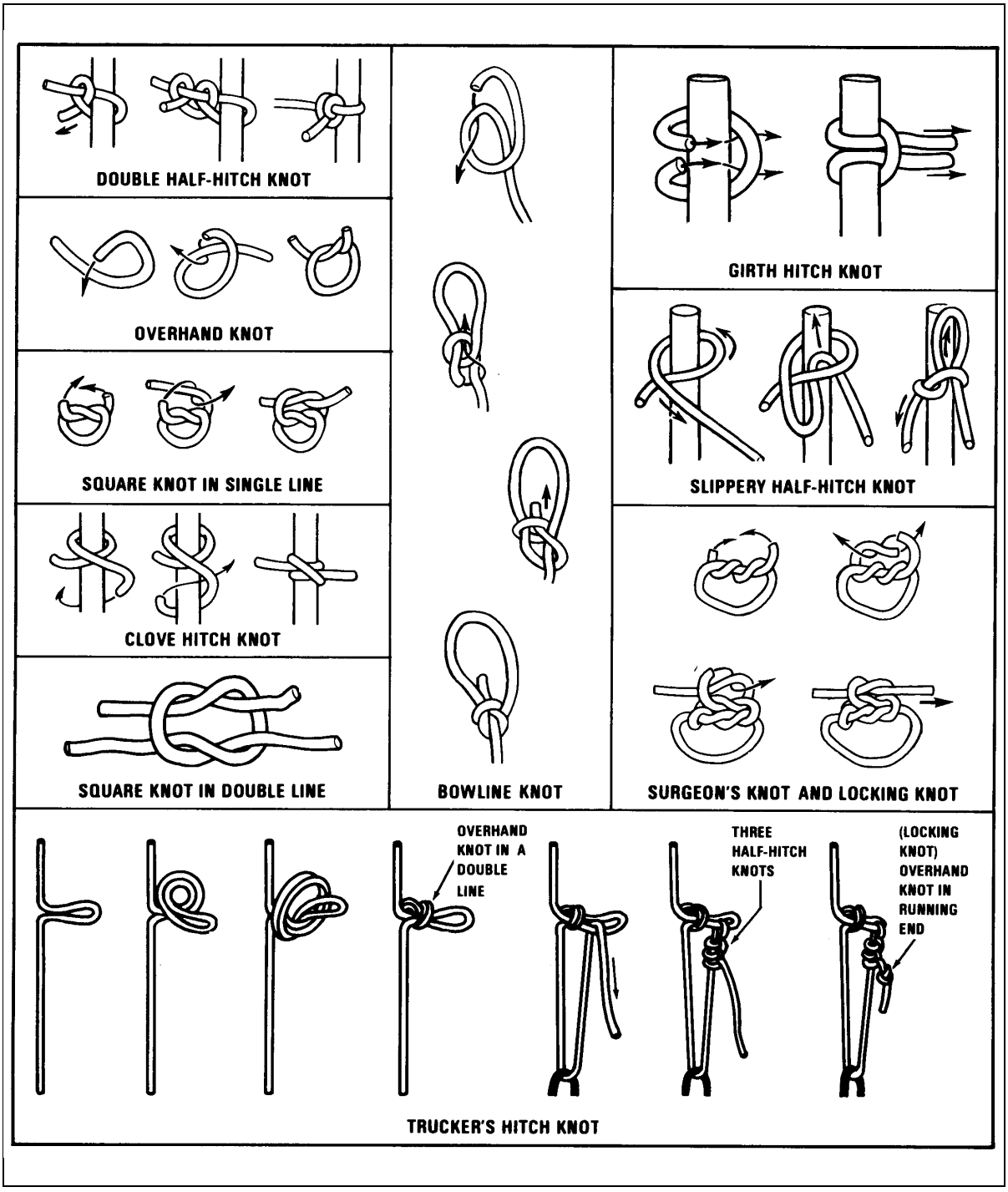
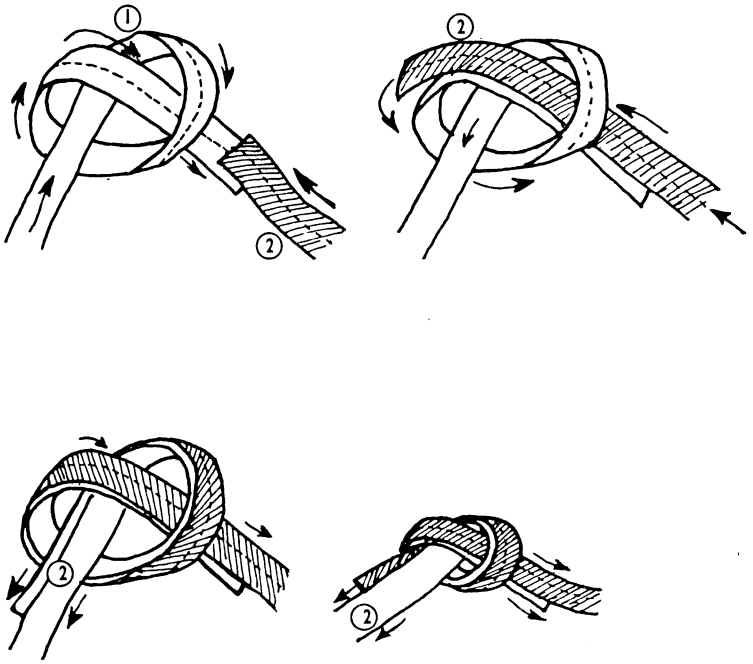


Figure 1-5. Knots used during rigging



① Make an overhand knot in one end.

② Follow the curve back in the reverse direction with the other end.

Notes.

1. There is no need to safety tie the ends when webbing is used.
2. Be sure the knot is neat, so as to tell if it is tied correctly.
3. This knot will jam after heavy loading.

RING BEND KNOT USED ON THE DRIVE-OFF AID

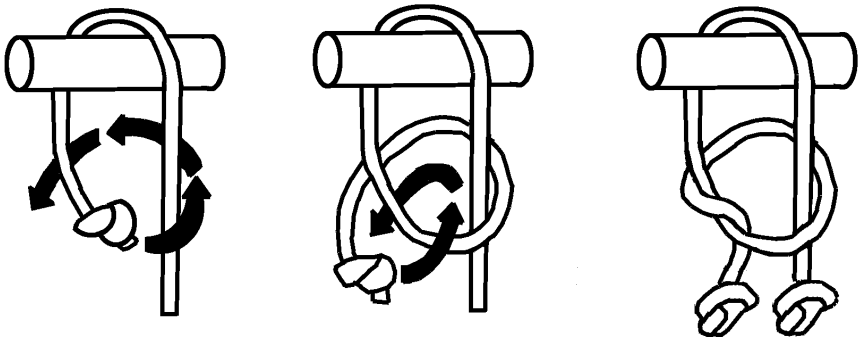


Figure 1-5. Knots used during rigging (continued)

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Chapter 2

The Type V Airdrop Platform

SECTION I-GENERAL INFORMATION

USE

2-1. The type V airdrop platform, as shown in Figure 2-1, serves as the base on which supplies and equipment are restrained. This platform also supports the load during the extraction, parachute deployment, suspension, and recovery phases. The type V airdrop platform is used for low-velocity airdrop. The type V platform can be assembled in 8-, 12-, 16-, 20-, 24-, 28-, and 32-foot lengths. The assembled platform is 108 inches wide. A detailed description of this platform is in TM 10-1670-268-20&P/TO 13C7-52-22. The nose bumper is not required, unless required by a specific rigging manual. The type V platform spreads the shock of ground impact. Limitations for the type V platform are listed in Table 2-1.

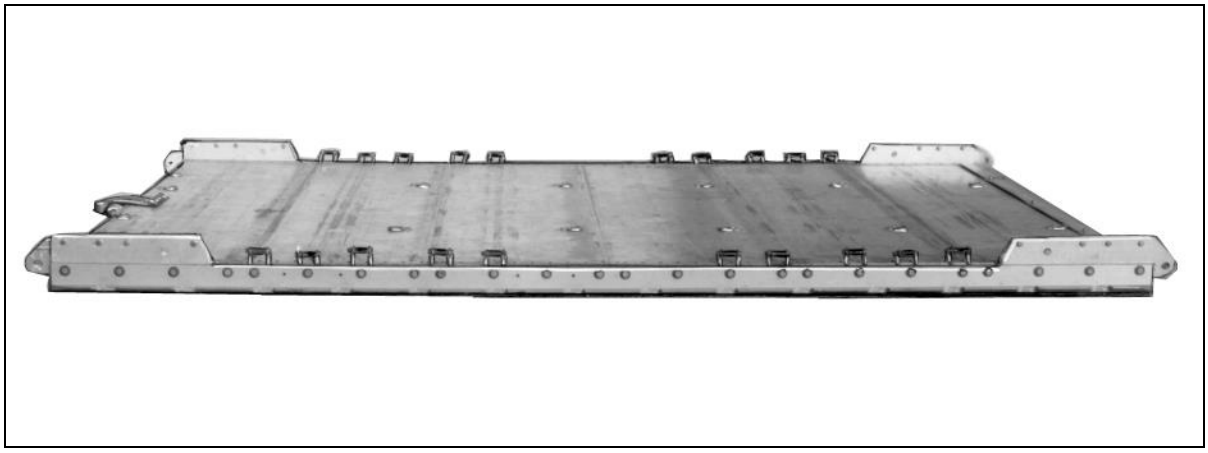


Figure 2-1. Type V airdrop platform

Table 2-1. Limitations for type v airdrop platforms when dropping from c-130 series and c-17 aircraft

C-130 Series Aircraft

Length (Feet)	*Width (Inches)*	*Weight of Platform (Pounds)*	*Platform Surface (Square Feet)*	*Minimum Rigged Weight (Pounds)*	*Maximum Rigged Weight (Pounds)*
8	108	820	72	2,520	15,000
12	108	1,220	108	3,780	21,000
16	108	1,590	144	5,040	28,000
20	108	1,950	180	6,300	39,000
24	108	2,280	216	7,560	42,000
28	108	2,820	252	8,820	42,000
32	108	3,056	288	10,080	42,000

C-17 Aircraft

Length (Feet)	*Width (Inches)*	*Weight of Platform (Pounds)*	*Platform Surface (Square Feet)*	*Minimum Rigged Weight (Pounds)*	*Maximum Rigged Weight (Pounds)*
8	108	820	72	2,520	10,000
12	108	1,220	108	3,780	18,500
16	108	1,590	144	5,040	28,000
20	108	1,950	180	6,300	39,000
24	108	2,280	216	7,560	42,000
28	108	2,820	252	8,820	42,000
32	108	3,056	288	10,080	42,000

PLATFORM LIMITATIONS FOR AIRCRAFT

2-2. Cargo and transport aircraft are specifically designed to deliver supplies and equipment by airdrop and are employed in airborne operations. Aircraft limitations are described below.

- **Hercules (C-130).** Platform loads are generally restricted to a height of 100 inches (measured from the bottom of the platform) and weight of 25,000 pounds for aircraft with an aircraft serial number of 62-1783 or lower. For aircraft with an aircraft serial number of 62-1784 and higher, and for aircraft with a serial number of 61-2358, the weight restriction is 42,000 pounds. MC-130E Combat Talon I and MC-130H Combat Talon II aircraft are restricted to 35,000 pounds Single and combined platform lengths are restricted to 28 feet for MC-130E Combat Talon I aircraft and 41 feet of available floor space for all other C-130 aircraft. When the towplate is used for drogue extraction system airdrops, the extraction/drogue parachute requirements in Table 9-1 will apply. Drogue extraction system is the primary method of extraction for Combat Talon aircraft.

- **Globemaster (C-17**). Platform loads are generally restricted to a height of 118 inches measured from the bottom of the platform. Platform loads are generally restricted to a weight of 60,000 pounds. For multiple platforms, up to 110,000 pounds of airdrop load may be airdropped. Loads certified for low-velocity airdrop from C-130 aircraft that meets the limitations in Table 2-1 may be airdropped from the C-17 aircraft. The aircraft has a total available floor space of 64 feet.

SECTION II-PLATFORM AND HONEYCOMB PREPARATION

INSPECTING PLATFORM

2-3. Inspect the type V airdrop platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.

SUSPENDING PLATFORM LOADS

2-4. The suspension points for a platform-suspended load on a type V platform are the suspension bracket assembly holes. The emergency aft restraint holes are provided in the tandem link only. The suspension bracket assembly as shown in Figure 2-2 may be positioned at various points along a platform rail.

Note. These drawings are not drawn to scale.

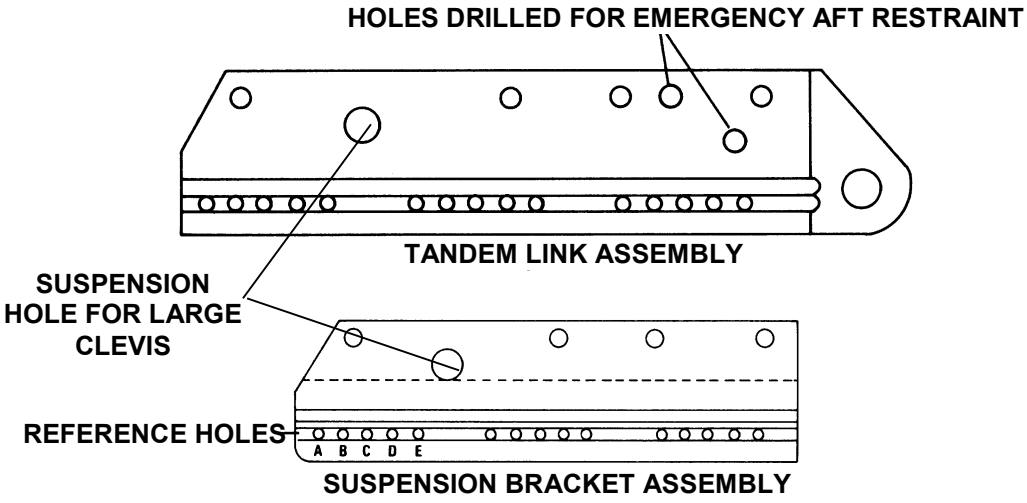


Figure 2-2. Tandem link assembly and suspension bracket assembly

- However, their positioning is limited by the fact that the bolt hole configuration of the platform side rails only allows the suspension bracket assembly to be secured within the 2-foot panels of the platform. Every panel assembly has a four-bolt configuration on each side. These four bolts are designated as platform clevis points. The suspension bracket assembly can be positioned within the bolt configuration of a panel as shown in Figure 2-3. A reference hole "B" is used to show the appropriate position of the suspension bracket assembly as shown in Figures 2-2 and 2-3. The direction of the suspension bracket assembly is determined by matching reference hole "B" with the prescribed platform clevis number and placing the suspension bracket assembly in the direction where it can be secured within the same panel bolt configuration. Figure 2-4 shows the suspension bracket assemblies installed. Table 2-2 shows the maximum allowable suspended weights for the four-point and centerline suspension systems. Figure 2-5 details the centerline suspension system.

Note. These drawings are not drawn to scale

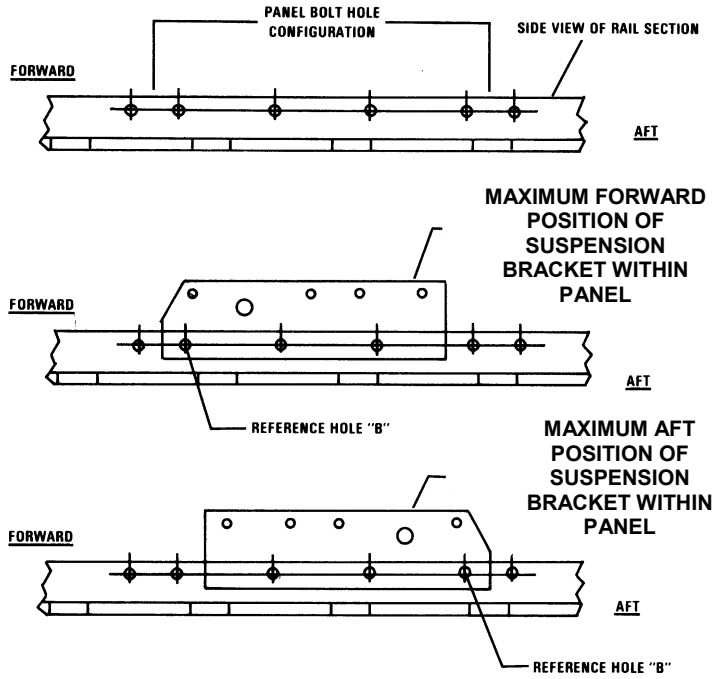
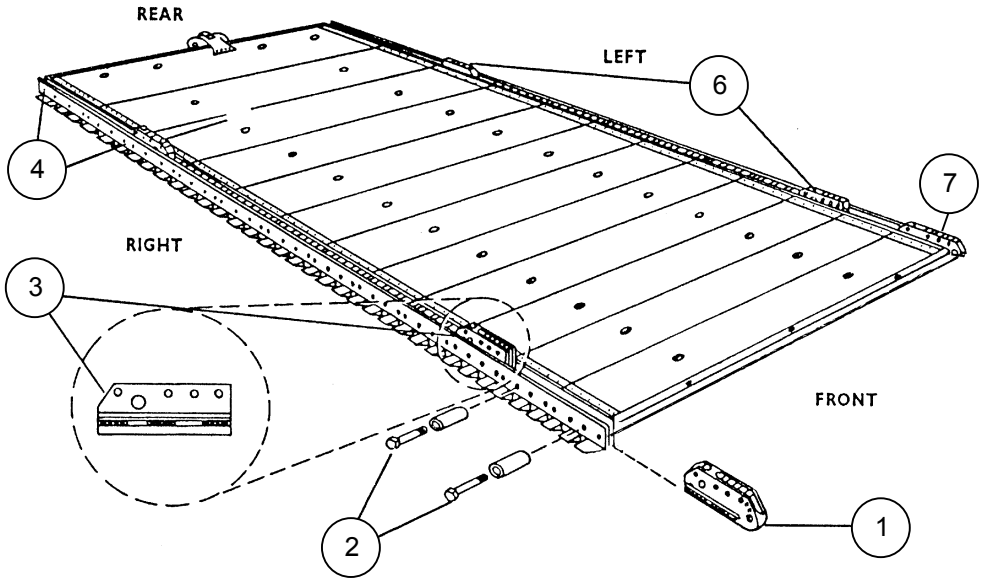


Figure 2-3. Bolt configuration of a panel

Note. These drawings are not drawn to scale



① Remove the tandem link on the front of the right platform rail.

② Remove the required bushings, as given in the specific rigging manual, from the bushing holes in the right rail.

③ Insert a suspension bracket assembly on the front end of the right rail. Slide the bracket assembly along the rail until the holes in the bracket assembly align with the required rail holes. Bolt the bracket assembly in place with the bushing bolts. Reinstall the required bushings and bolts.

④ Remove the required bushings, as given in the rigging manual, from the bushing holes in the right rail.

⑤ Insert a suspension bracket assembly on the rear of the right rail. Slide the bracket assembly along the rail until the holes in the bracket assembly align with the required rail holes. Bolt the bracket assembly in place with the bushing holes. Reinstall the required bushings and bolts.

⑥ Install two suspension bracket assemblies on the left rail, adapting the procedures in steps 1 through 5 above.

⑦ Reinstall the tandem link assembly from step 1.

Figure 2-4. Suspension bracket assemblies installed

Table 2-2. Maximum allowable suspended weights for the four-point and centerline suspension systems

Four-Point Suspension System

The following table lists the maximum allowable suspended weights along with the suspension bracket assembly and/or tandem link position. All links positioned along the most forward and aft panels will be tandem links. All other positions along the platform side rail will use the suspension bracket assembly.

Platform Length (feet)	*Suspension/Tandem Link Positions(platform clevis numbers)*	*Maximum Suspended Weight (pounds)*
8	3, 3A, 14, 14A	16,000
12	3, 3A, 22, 22A	14,000
16	3, 3A, 30, 30A	9,300
16	8, 8A, 25, 25A	26,000
20	8, 8A, 33, 33A	19,000

Centerline Suspension System

The centerline suspension system consists of eight suspension bracket assemblies, four of which form a bridge on each side of the platform in the center and six suspension slings. Figure 2-5 details the configuration. The following table lists the maximum suspended weights along with the position of the suspension bracket assemblies on the platform rails.

Platform Length (feet)	*Suspension/Tandem Link Positions(platform clevis numbers)*	*Maximum Suspended Weight (pounds)*
20	5, 5A, 36, 36A 17, 17A, 24, 24A	25,000
24	8, 8A, 41, 41A 20, 20A, 29, 29A	40,000
28	8, 8A, 49, 49A 24, 24A, 33, 33A	36,000
32	8, 8A, 57, 57A 28, 28A, 37, 37A	23,000

Note. All maximum suspended weights can be higher with specific loads which increase the rigidity of the platform. Methods that differ from the suspension systems described above are given in the specific rigging manuals.

Note. This drawing is not drawn to scale.

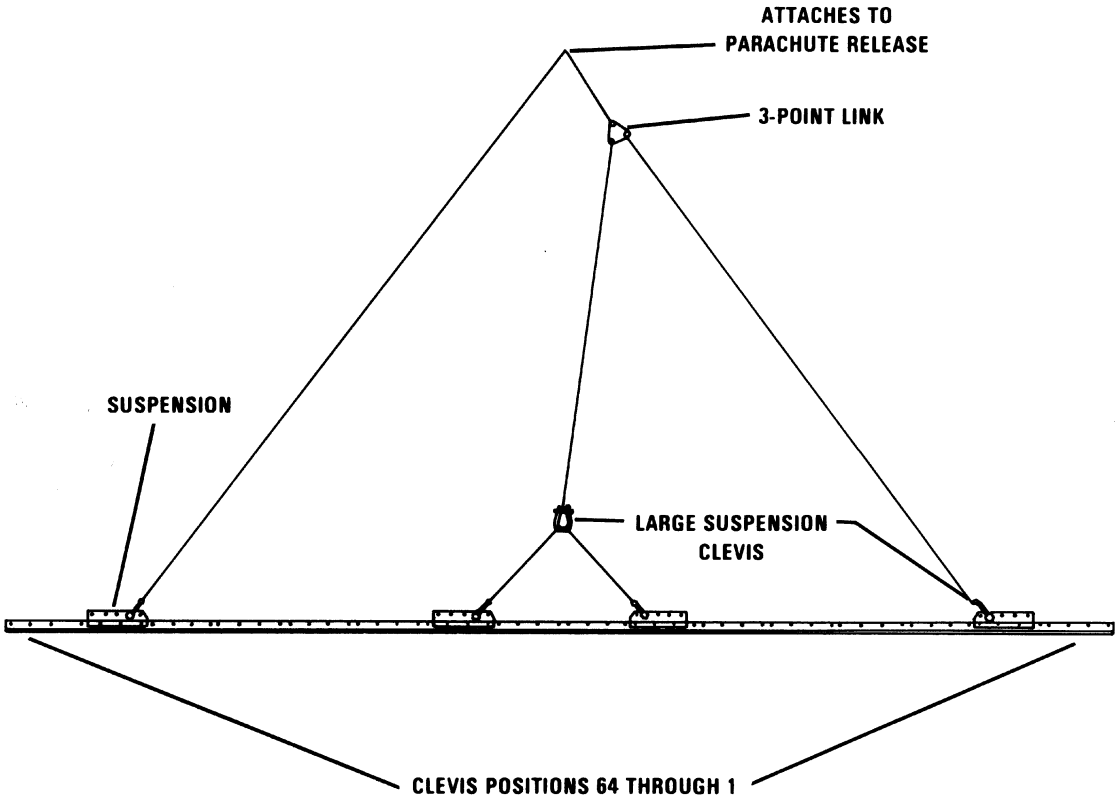
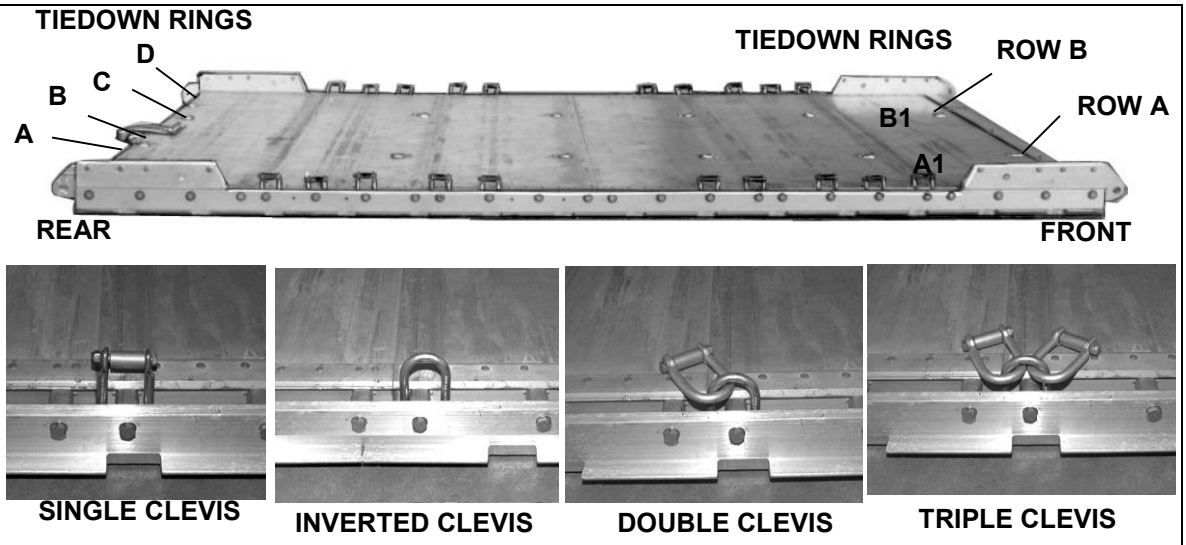


Figure 2-5. Centerline suspension system

PREPARING THE TYPE V PLATFORM

2-5. The platform must be prepared by attaching clevises, tandem links or suspension bracket assemblies according to the specific rigging manual. Figure 2-6 gives an example of how to bolt the clevises to the bushings in the platform side rails and how to number them.



Step:

1. Bolt the tandem links and suspension bracket assemblies to the platform side rails, if needed.
2. Bolt the clevises to the bushings in the platform rails as shown in the specific rigging manual.
3. Bolt clevises (when needed) to the bushings in the tandem links and suspension bracket assemblies.
4. Starting at the front of the platform, number the clevises bolted to the right side beginning with 1 and those bolted to the left side beginning with 1A.
5. Starting at the front of the platform, number the two tiedown rings on each panel A and B from right to left. Label the four tiedown rings on the rear panel A, B, C, and D from right to left. Starting with the first panel, number the tiedown rings beginning with 1 from front to rear.

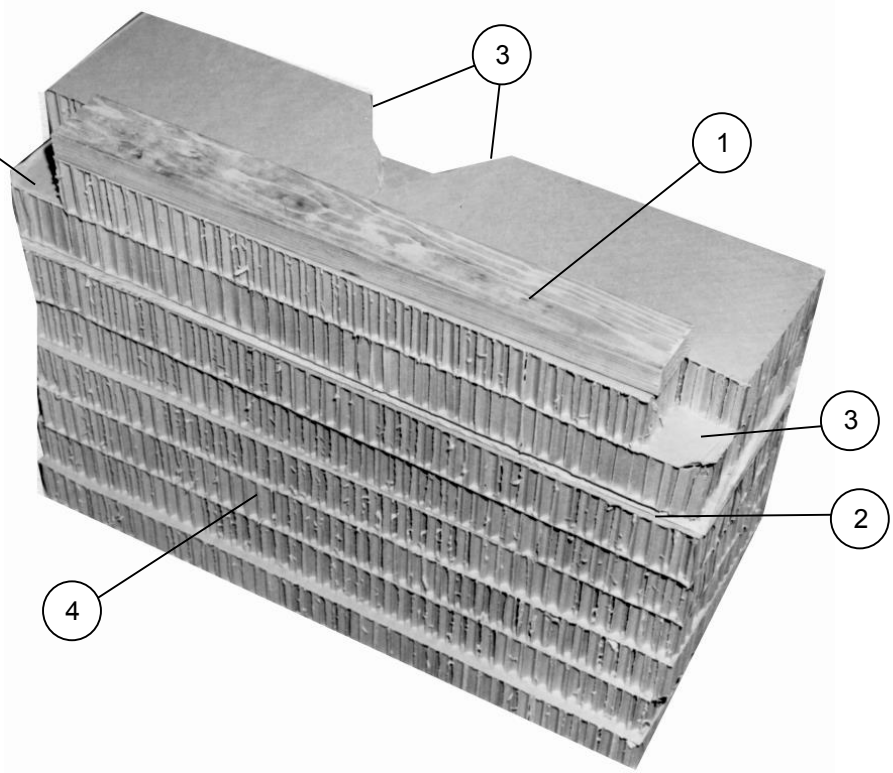
Notes.
1. The single clevis is sometimes installed in an inverted manner if the specific rigging manual calls for it.
2. One clevis is sometimes installed on another inverted clevis. This is called a double clevis. Do not number the inverted clevis.
3. Two clevises attached to an inverted clevis is called a triple clevis. The two clevises will be numbered as two separate clevises. Do not number the inverted clevis.
4. Do not attach a load binder to the inverted portion of the double or triple clevis.

Figure 2-6. Type V platform prepared

BUILDING HONEYCOMB STACKS

2-6. Honeycomb stacks must be prepared according to the specific rigging manual. Honeycomb is used to absorb the landing shock. Figure 2-7 shows a typical honeycomb stack.

Note. When honeycomb layers are longer than 96 inches or wider than 36 inches, alternate the layers to build a solid, cohesive stack.



① Lumber

② Plywood

③ Cutouts or notches

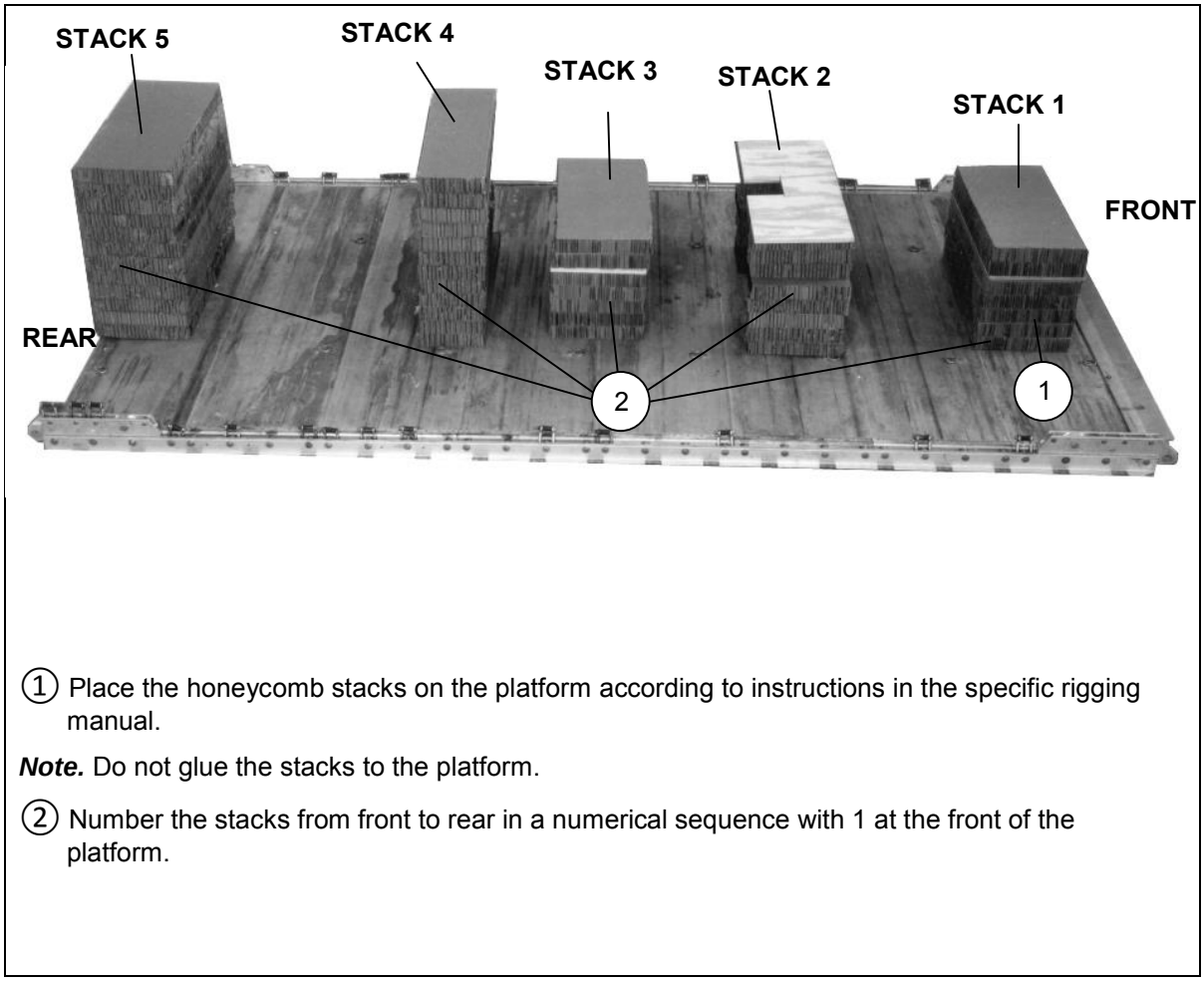
④ Layers of honeycomb

Note. Glue the layers of the stack together.

Figure 2-7. Typical honeycomb stack

PLACING HONEYCOMB STACKS

2-7. Honeycomb stacks must be set on the platform according to instructions in the specific rigging manual. Figure 2-8 shows a typical placement of honeycomb stacks on a type V platform.



① Place the honeycomb stacks on the platform according to instructions in the specific rigging manual.

Note. Do not glue the stacks to the platform.

② Number the stacks from front to rear in a numerical sequence with 1 at the front of the platform.

Figure 2-8. Typical placement of honeycomb stacks on platform

DRIVE-OFF AID

2-8. The drive-off aid may be used with the high mobility, multipurpose wheeled vehicle (HMMWV), 2 1/2-ton truck, and the 5-ton, 900-series truck. The drive-off aid, shown in Figure 2-9, consists of a fabric track sewn into a ladder-type configuration. The system is placed on two of the identified vehicle's tires and attached to the type V platform tiedown rings with a tiedown clevis or type VIII nylon webbing. There are two tracks to each system. Each track is 30 feet long and 22 inches wide and weighs 21 pounds. When powered up, the vehicle (with tiedown assemblies removed), will progressively wrap the webbed ladder around the two tires (using the platform for leverage) and pull itself clear of the honeycomb and platform. Figure 2-10 shows the drive-off aid installed on the vehicle wheels.

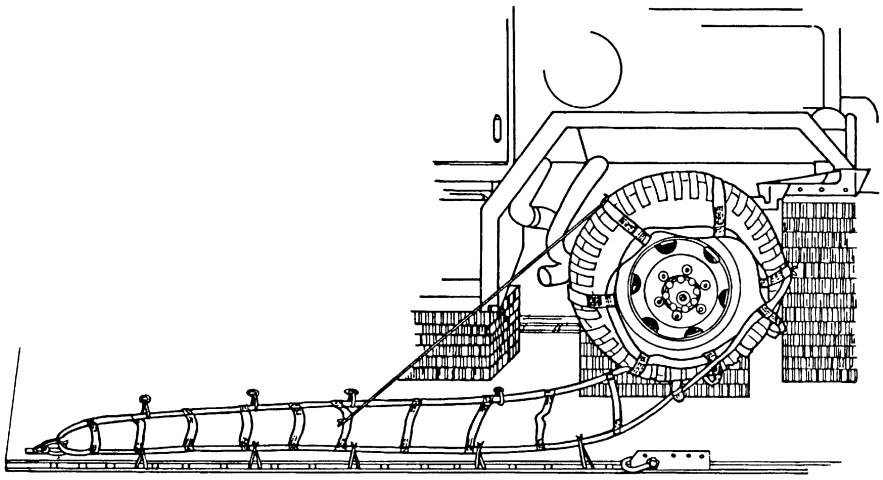
REAR PLATFORM ATTACHMENT

Note. If the vehicle is to be driven off the rear of the platform, attach the drive-off aid to the outside tiedown rings on each side with a type V tie-down clevis.

FRONT PLATFORM ATTACHMENT

Note. If the vehicle is to be driven off the front of the platform, tie a length of type VIII nylon webbing from the second bushing of the front tandem link assembly, through the end loop of the drive-off aid, and through the nearest tie-down ring. When attaching the drive-off aid to the type V platform using type VIII nylon webbing, tie the free ends with a ring bend knot as shown in Figure 1-5. Tie the drive-off aid to tie-down rings or platform bushings with type I, 1/4-inch cotton webbing.

Figure 2-9. Drive-off aids installed on platform



Note. Wrap the drive-off aid around the wheel of the vehicle on each side as shown in the specific manual for that vehicle. Wrap the drive-off aid around the wheel until the webbing lays flat on the platform, but is not under tension. Tie the drive-off aid to adjacent tie-down rings or platform bushings on each side with type I, 1/4-inch cotton webbing.

Figure 2-10. Drive-off aids installed on wheel of vehicle

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Chapter 3

Suspension Slings

SECTION I-GENERAL INFORMATION

LINE MULTI-LOOP

3-1. A line, multi-loop, (Figure 3-1) is used as suspension slings on platform loads rigged for low-velocity airdrop. These slings suspend the load under the cargo parachute during descent. Suspension slings connect the cargo parachute to the load using a parachute release assembly. A line, multi-loop, may also be used as deployment lines and to extend the risers of cargo parachutes or to group the bridles of a multi-parachute load.

Note. Tube edge nylon webbing suspension slings are an authorized substitute for the type XXVI nylon webbing slings. The combination of both tube edge nylon webbing and type XXVI nylon webbing slings are authorized in any configuration due to the same material characteristics.

① Each sling is made with continuous loops. The loops are 1 3/4-inch-wide, type XXVI nylon webbing. They are held together with keepers made of 1-inch, nylon reinforced tape. Each sling has a sliding webbing keeper and a cotton or nylon buffer at each end.

Note. The keeper at each end of the sling must be drawn snugly against the object on which the sling is fitted.

Figure 3-1. Suspension slings

REQUIREMENTS

3-2. The size and number of suspension slings needed to rig an airdrop platform load for low-velocity airdrop depend on the suspended weight of the load. The size and number of suspension slings needed at each suspension point are listed in Table 3-1. The types and lengths of suspension slings authorized for use when a platform load is rigged for low-velocity airdrop are listed in Table 3-2. Each rigging manual lists the specific slings used on each load.

Table 3-1. Size and number of cargo slings required for airdrop platform loads

Weight of Rigged Load Without Cargo Parachutes (pounds)	*Type XXVI Nylon Webbing Cargo Slings at Each Suspension Point*
2270 to 14,000	1 each (2-loop)
14,001 to 40,000	1 each (4-loop)

Table 3-2. Type xxvi nylon webbing suspension slings for low-velocity airdrop

National Stock Number	*Length (feet)*	*Number of Loops*
1670-01-062-6301	3	2
1670-01-062-6306	3	4
1670-01-062-6304	9	2
1670-01-062-6305	9	4
1670-01-063-7760	11	2
1670-01-062-6310	11	4
1670-01-062-6303	12	2
1670-01-062-6307	12	4
1670-01-063-7761	16	2
1670-01-062-6308	16	4
1670-01-062-6302	20	2
1670-01-064-4453	20	4

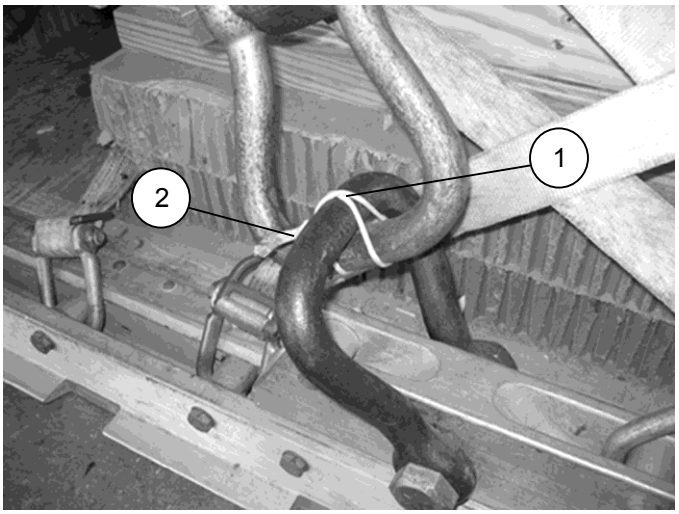
SECTION II-RIGGING INFORMATION

ATTACHING SLINGS

3-3. The specific rigging manual includes the length and loops of suspension slings needed and the method used to connect them to the platform or drop item. When suspension slings must be joined to form a longer suspension sling, a two-point link may be used. Attach suspension slings to the suspension bracket assembly or tandem links using large suspension clevises. When using a double suspension clevis configuration, follow the procedures in Figure 3-2.

CAUTION

Ensure the nut is wrench tightened to keep it from loosening during transport and airdrop.



① Use a single length of type III nylon cord to route a running end through and around the clevises forming an X on the top clevis.

② Secure with a slip knot ensuring the clevises are centered on each other.

Figure 3-2. Double suspension clevis configuration safety tied

SAFETY TIEING SLINGS

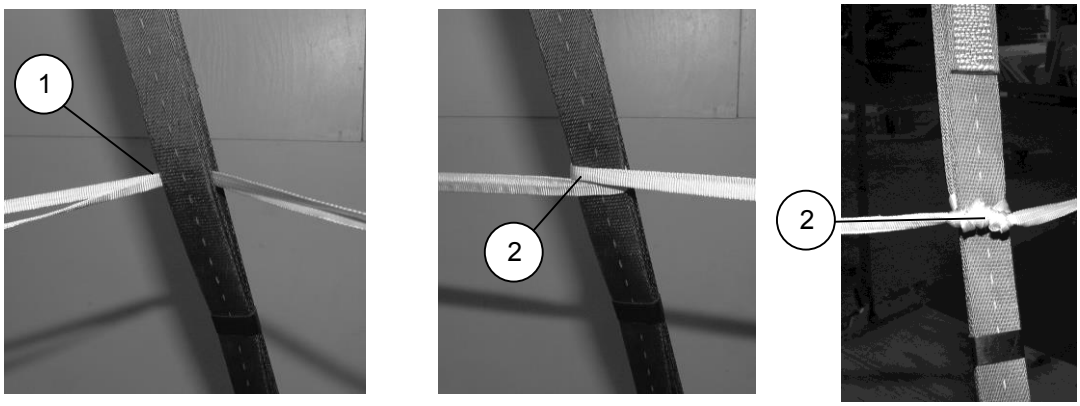
3-4. Safety tieing the suspension slings keeps them from entangling with the load. Safety tie the slings according to the instructions given in the specific rigging manual for the particular load.

Note. When using four-loop, type XXVI suspension slings, wrap each set of four plies with a 10- by 10-inch piece of cotton muslin. Secure each wrap with one single turn of 1/4-inch cotton webbing.

- **Deadman's Tie.** Safety tie all suspension slings with a Deadman's tie as shown in Figure 3-3.

CAUTION

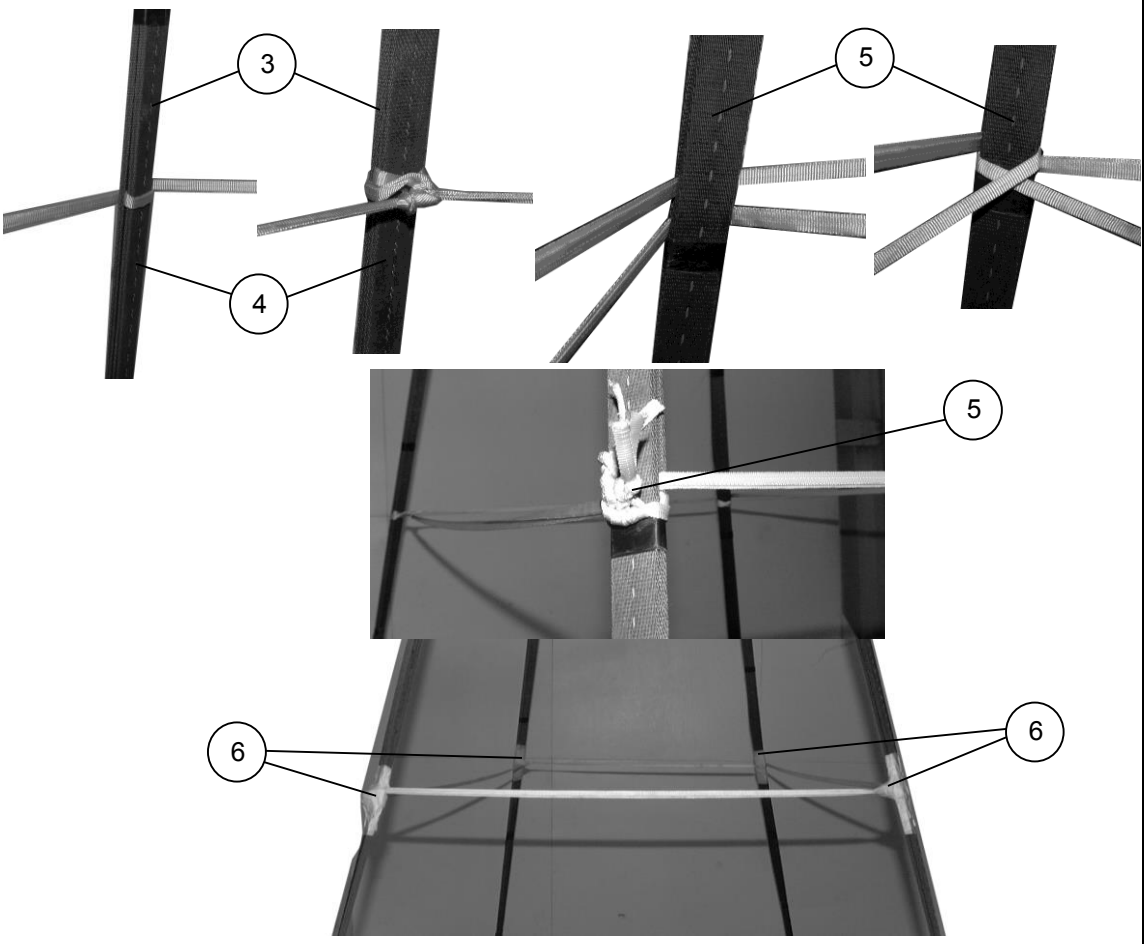
This tie must be located between 6 and 8 inches above the top of the load or as directed in the specific rigging manual.



① Cut two lengths of 1/2-inch tubular nylon webbing, making each long enough to encircle all slings plus 8 feet. Mark the lengths of webbing at their centers. Pass an end of both pieces of webbing through the center plies of the right front sling until the marks reach the sling.

② Pass the running end of each length around the inboard side. Tie it on the outboard side with a surgeon's knot, a locking knot, and an overhand knot in the running ends.

Figure 3-3. Safety slings tied with a Deadman's tie



③ Pass one running end to the left front sling, through the center plies, around the inside of the plies to the outside. Tie it to the inside of the plies with three alternating half hitches and an overhand knot in the running end.

④ Repeat step 3 for the right rear sling.

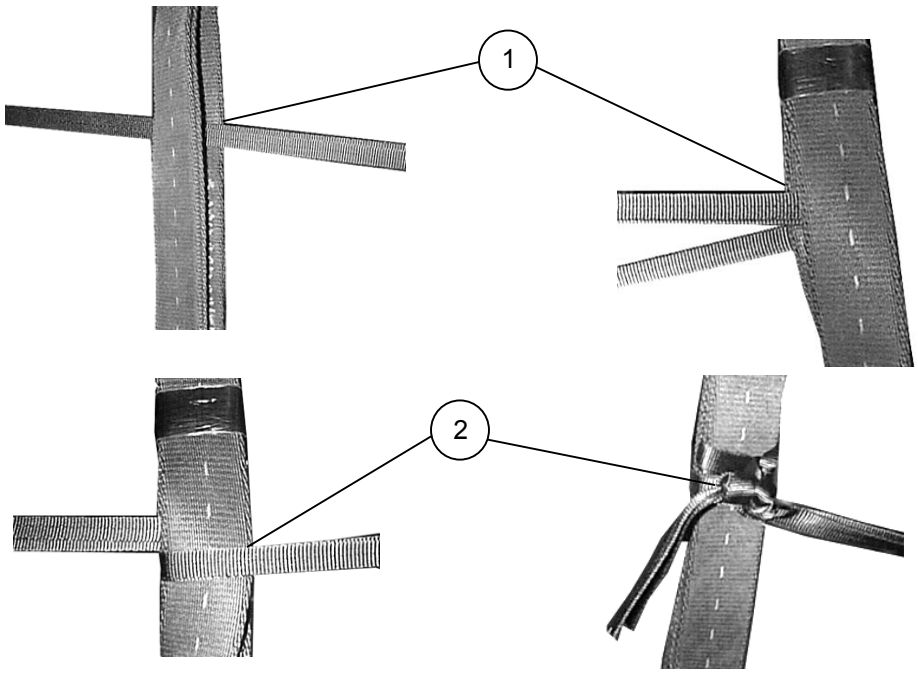
⑤ Run both ends of the webbing through the center plies of the left rear sling and around the inboard side of the sling to the outboard side. Safety tie it with a surgeon's knot, a locking knot, and an overhand knot in the free ends.

⑥ Tape the webbing to the slings.

Note. Make sure the safety tie allows the slings to suspend in their natural position.

Figure 3-3. Safety slings tied with a Deadman's tie (continued)

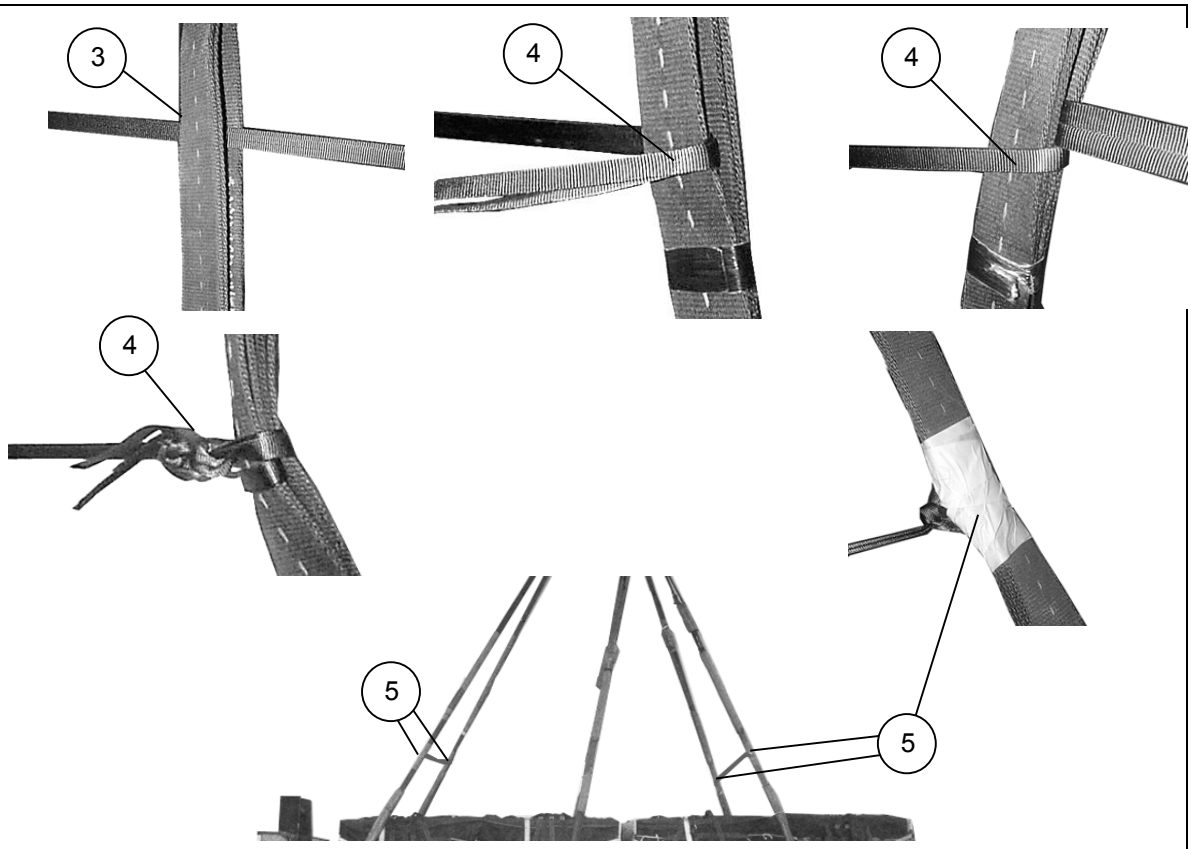
- **Modified Deadman's Tie**. Safety tie suspension slings with a modified Deadman's tie when specified by the individual rigging manual and as shown in Figure 3-4.



① Cut two lengths of 1/2-inch tubular nylon webbing, making each long enough to reach from the left suspension sling to the right suspension sling plus 8 feet. Split the plies of the front suspension sling. Route two lengths of the 1/2-inch tubular webbing through the plies of the sling from inboard to outboard about 3 feet.

② Route the 3-foot running end from outboard to inboard around the inside plies and around the outboard plies from inboard to outboard. Tie it in place on the inboard side with three alternating half-hitches with an overhand knot in the running end.

Figure 3-4. Safety slings tied with a modified Deadman's tie



③ Split the plies of the right suspension sling and route the running ends of the two lengths of 1/2-inch tubular nylon webbing through the plies of the sling from inboard to outboard. Pass enough of the webbing through the sling to take the slack out, but not enough to keep the slings from hanging in their natural position.

④ Route the running end from outboard to inboard around the inside plies and around the outboard plies from inboard to outboard. Tie it in place on the inboard side with three alternating half-hitches with an overhand knot in the running end.

⑤ Tape the webbing to the slings with masking tape.

Figure 3-4. Safety slings tied with a modified Deadman's tie (continued)

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Chapter 4

Lashings

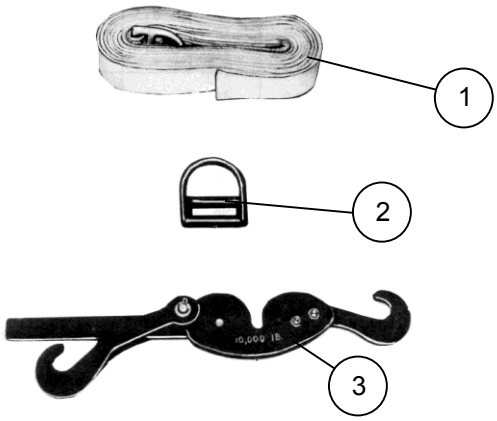
SECTION I-GENERAL INFORMATION

USE

4-1. The drop item and the accompanying load are lashed to the platform to prevent damage to the load or to the aircraft during airdrop. The accompanying load is lashed to the platform to withstand the same force as the drop item.

COMPONENTS AND STRENGTHS

4-2. The components of the lashings used on airdrop loads are shown in Figure 4-1. The effective strength of a lashing is determined by the angle of lashing. Table 4-1 illustrates a method of determining lashing effectiveness forward, aft, lateral, and vertical thrusts. The maximum strengths of the various forms of lashings are given in Figure 4-2.



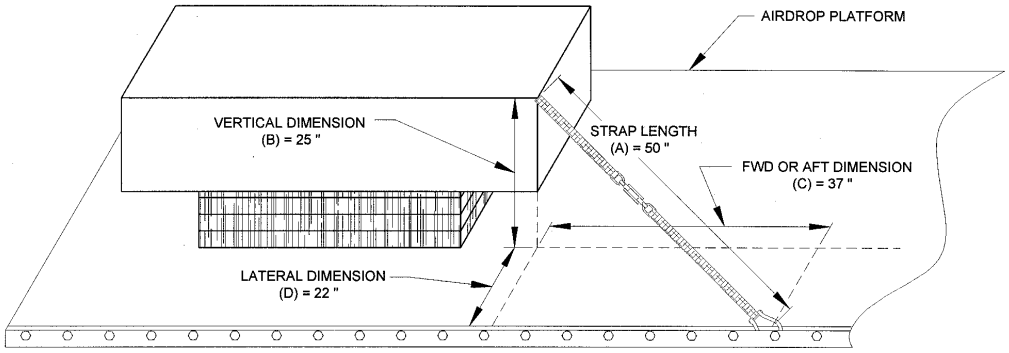
① 15-foot Dacron tiedown strap

② Heavy-duty D-ring

③ 10,000-pound-capacity load binder

Figure 4-1. Components of a tiedown assembly

Table 4-1. Lashing effectiveness



THIS FIGURE ILLUSTRATES A METHOD OF DETERMINING RESTRAINT PROVIDED BY A GIVEN AIRDROP TIEDOWN. AS ILLUSTRATED, TIEDOWN RATIOS CAN BE DETERMINED BY DIVIDING THE DIRECTIONAL DISTANCE IN WHICH RESTRAINT IS REQUIRED BY THE STRAP LENGTH. THIS RATIO IS THEN MULTIPLIED BY THE STRENGTH OF THE TIEDOWN STRAP OR ATTACHMENT POINT, WHICHEVER IS LESS, TO FIND THE EFFECTIVE RESTRAINT RECEIVED FROM THE TIEDOWN PATTERN USED.

EXAMPLE: (Note: Quantities used are from the example above)

1) FIRST, MEASURE THE TIEDOWN STRAP LENGTH (A) FROM THE ATTACHMENT POINT ON THE AIRDROP LOAD TO THE TIEDOWN FITTING ON THE AIRDROP PLATFORM (50 INCHES). YOU WILL USE THIS MEASUREMENT IN EACH CALCULATION.

2) **CALCULATING THE VERTICAL RESTRAINT:**

   a) FOR DETERMINING VERTICAL RESTRAINT, MEASURE THE VERTICAL DIMENSION (B) FROM THE ATTACHMENT POINT ON THE AIRDROP LOAD TO A POINT DIRECTLY BENEATH IT ON THE AIRDROP PLATFORM SURFACE (25 INCHES).

   b) DIVIDE THE VERTICAL DIMENSION (B) BY THE TIEDOWN STRAP LENGTH (A) TO DETERMINE A RATIO:

$$\frac{25}{50} = 0.50 RATIO$$

   c) MULTIPLY THIS RATIO BY THE RATED STRENGTH OF THE TIEDOWN STRAP OR TIEDOW FITTING, WHICHEVER IS LESS:

$$0.50 \times 10{,}000^{*} = 5{,}000 POUNDS$$ ⟵ **VERTICAL RESTRAINT RECEIVED FROM STRAP**

3) **CALCULATING THE FORWARD OR AFT RESTRAINT:**

   a) FOR DETERMINING FORWARD OR AFT RESTRAINT, OBTAIN A FORWARD OR AFT DIMENSION (C) BY MEASURING FROM A POINT DIRECTLY BENEATH THE ATTACHMENT POINT ON THE AIRDROP LOAD ALONG A LONGITUDINAL AXIS TO A POINT LATERAL TO THE TIEDOWN FITTING BEING USED ON THE AIRDROP PLATFORM (37 INCHES).

   b) DIVIDE THE FORWARD OR AFT DIMENSION (C) BY THE TIEDOWN STRAP LENGTH (A) TO DETERMINE A RATIO:

$$\frac{37}{50} = 0.74 RATIO$$

   c) MULTIPLY THIS RATIO BY THE RATED STRENGTH OF THE TIEDOWN STRAP OR TIEDOW FITTING, WHICHEVER IS LESS:

$$0.74 \times 10{,}000^{*} = 7{,}400 POUNDS$$ ⟵ **FWD OR AFT RESTRAINT RECEIVED FROM STRAP**

4) **CALCULATING THE LATERAL RESTRAINT:**

   a) FOR DETERMINING LATERAL RESTRAINT, OBTAIN A LATERAL DIMENSION (D) BY MEASURING FROM A POINT DIRECTLY BENEATH THE ATTACHMENT POINT ON THE PLATFORM SURFACE TO THE SIDERAIL OF THE PLATFORM (22 INCHES).

   b) DIVIDE THE LATERAL DIMENSION (D) BY THE TIEDOWN STRAP LENGTH (A) TO DETERMINE A RATIO:

$$\frac{22}{50} = 0.44 RATIO$$

   c) MULTIPLY THIS RATIO BY THE RATED STRENGTH OF THE TIEDOWN STRAP OR TIEDOW FITTING, WHICHEVER IS LESS:

$$0.44 \times 10{,}000^{*} = 4{,}400 POUNDS$$ ⟵ **LATERAL RESTRAINT RECEIVED FROM STRAP**

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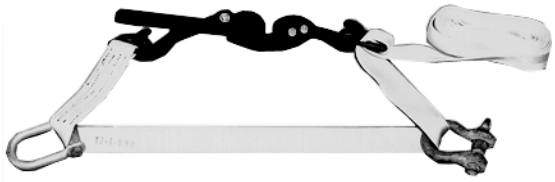
* THIS QUANTITY SHOULD ALWAYS REPRESENT THE WEAKEST LINK IN THE SYSTEM. IF THE RATED STRENGTH OF THE STRAP OR ATTACHMENT POINT BEING USED IS LESS THAN 10,000 POUNDS, THE RATIO SHOULD BE MULTIPLIED BY THE WEAKEST RATED STRENGTH IN EXAMPLE, A PANEL TIEDOWN RING RATED STRENGTH IS 5,000 POUNDS.

SINGLE LINE CONFIGURATION

① A Dacron lashing routed in a single line configuration has a maximum strength of 6,000 pounds when attached to a type V platform side rail and a tiedown clevis. It has a maximum strength of 5,000 pounds when attached to a panel tiedown ring.



LOOPED (FLOTING BINDER) CONFIGURATION

② A Dacron lashing routed in a double line looped (floating binder) configuration has a maximum strength of 10,000 pounds when attached to a type V platform side rail and a tiedown clevis. It has a maximum strength of 5,000 pounds when attached to a panel tiedown ring.

Figure 4-2. Strength of Dacron lashings

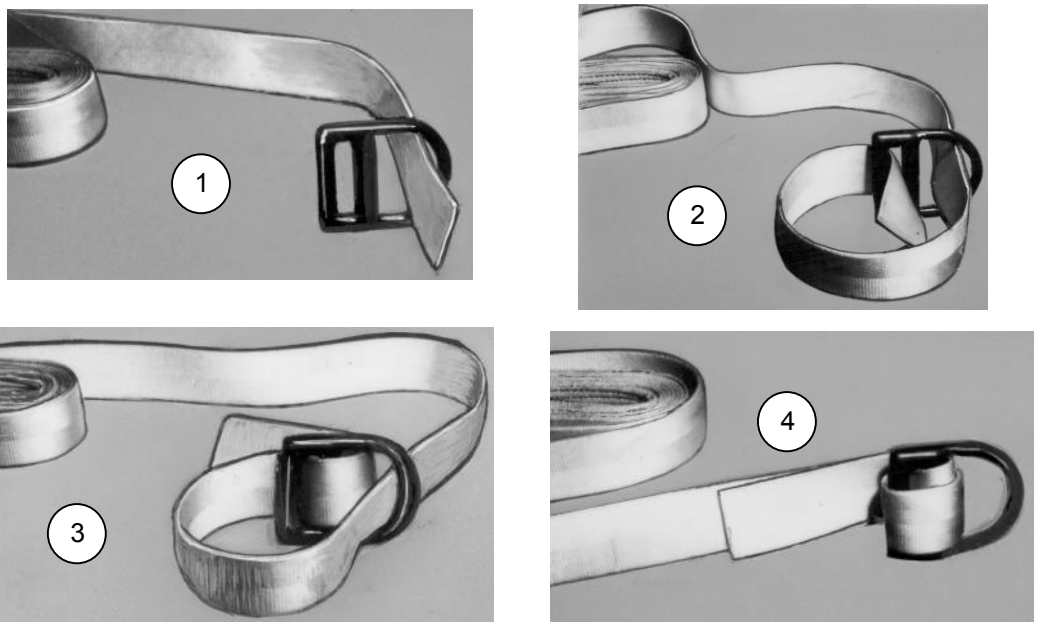
SECTION II-RIGGING INFORMATION

FITTING D-RINGS

4-3. Fit a D-ring to the end of each tiedown strap as shown in Figure 4-3.

LASHING LOAD

4-4. Lash a low-velocity airdrop load to the platform according to the instructions in the specific rigging manual. Install the lashings as shown in Figures 4-4 and 4-5. When a load is rigged for which there is no specific rigging manual, lashings must provide restraint to withstand extraction, deployment recovery, and ground impact forces. Airdrop loads that do not have specific rigging procedures must be restrained to the airdrop platform to the following criteria: 3Gs forward, 2.25 Gs aft, 1.5 Gs lateral, and 2 Gs vertical. The total force that is necessary to restrain a load in a given direction is determined by multiplying the weight of the load times the specific G value for that restraint direction. Lashing effective strength is determined as shown in Table 4-1.



① Run the free end of the tiedown strap through the large opening in the D-ring.

② Run the strap around and through the small opening in the D-ring.

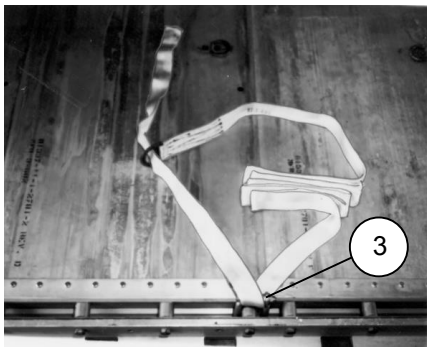
③ Run the strap back through the large opening in the D-ring.

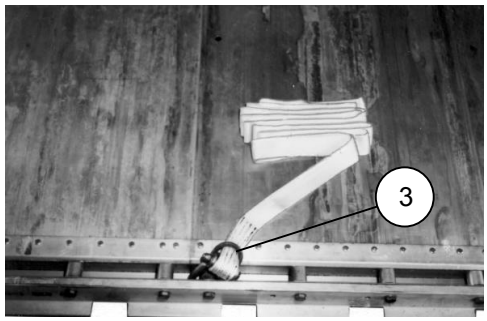
④ Pull the strap taut.

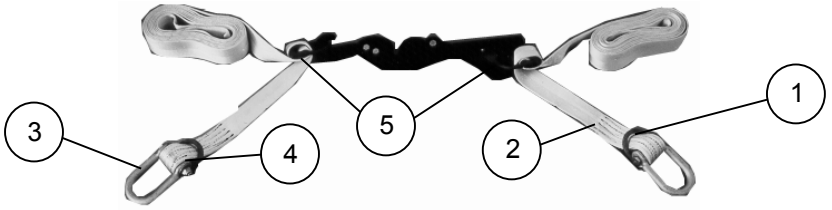
Figure 4-3. D-ring fitted to tiedown strap

CAUTION

Do not tighten the lashings so tight that they cause the platform to bow.







① Pass the free end of one tiedown strap through a clevis on the right rail and through its own D-ring. Pull the strap taut.

② Run the free end of the strap up over the load.

③ Pass the free end of a second tiedown strap through a clevis on the left rail and through its own D-ring. Pull the strap taut.

④ Run the free end of the strap up over the load.

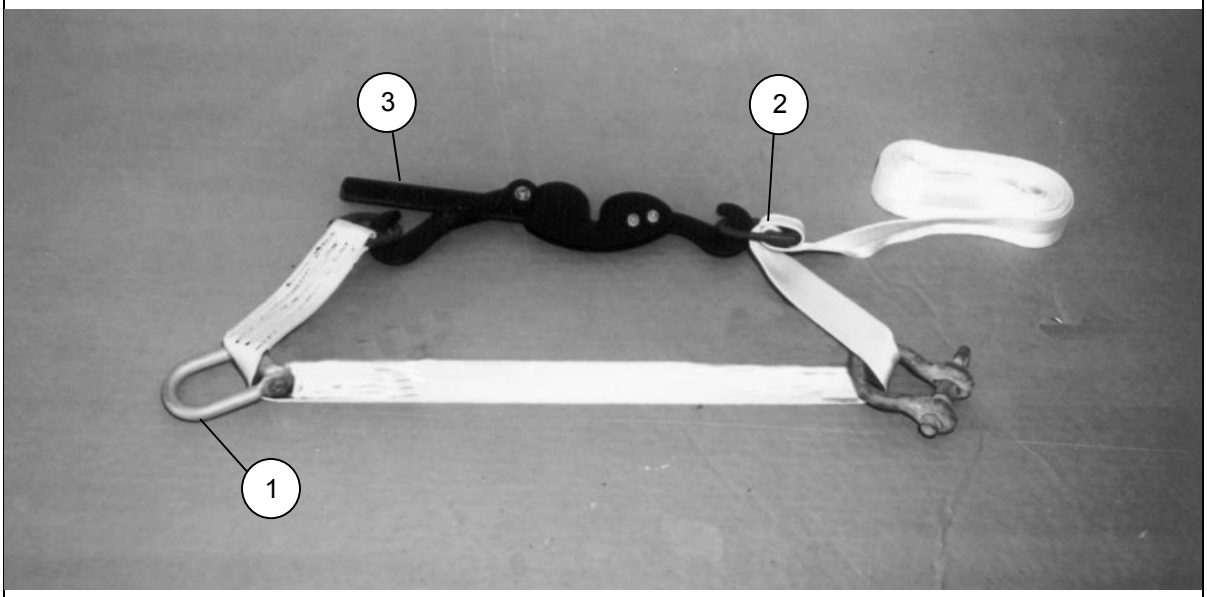
⑤ Fit a D-ring on the free end of each strap as described in Figure 4-3, and place the D-rings on the hooks of a load binder. Safety the binder handle closed as shown in Figure 4-6.

Notes.

1. When the tiedown strap length is not a factor, it is permissible to use a single tiedown strap and D-ring with a load binder attached directly to a side rail clevis or tiedown ring.

2. Pad all sharp edges that may touch the strap with cellulose wadding or other suitable material.

Figure 4-4. Single line lashing



① Pass the free end of a tiedown strap through a clevis on a rail and up and over, around, or through the indicated tiedown provision on the load. The tiedown provision will be listed in the specific rigging manual for a particular load. Run the strap back toward the clevis.

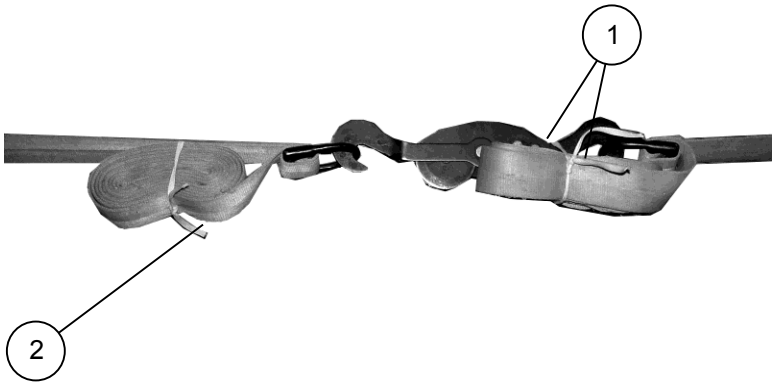
② Fit a D-ring to the free end of the strap (Figure 4-3), and place the D-rings on the hooks of a load binder. Close the handle of the load binder pointing toward the platform.

③ Close the handle of the load binder toward the load.

Figure 4-5. A looped (floating binder) lashing

SAFETY TIEING LOAD BINDER HANDLES

4-5. Roll the excess tiedown strap, and place alongside the load binder handle. Safety tie the load binder handle closed as shown in Figure 4-6.



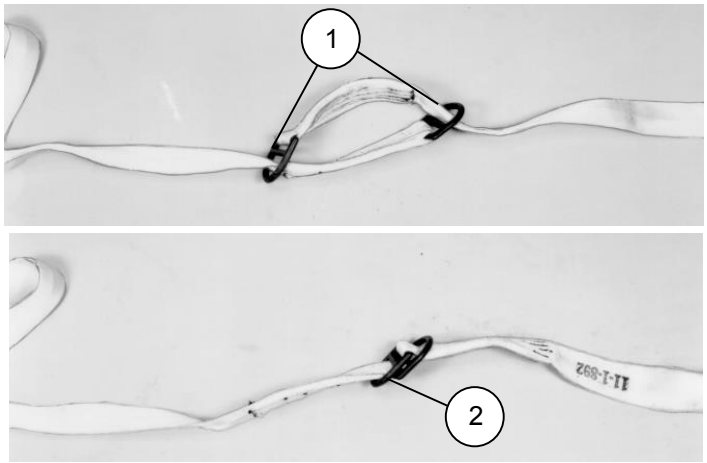
① After the handle of the load binder has been closed, roll any excess tiedown strap and place the folds alongside the load binder handle. Tie the rolled webbing to the binder and the binder handle closed with a single length of type I, 1/4-inch cotton webbing.

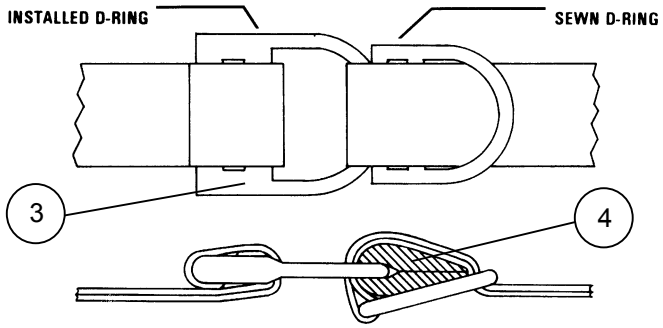
② Roll any excess from the opposite tiedown strap and place on top of the lashing. Tie the rolled webbing to the lashing with a single length of type I, 1/4-inch cotton webbing.

Figure 4-6. Load binder handle and excess webbing safety tied

FORMING A 30-FOOT, 45-FOOT, OR GREATER LENGTH TIEDOWN STRAP

4-6. When needed, attach 15-foot tiedown straps together to form a 30-foot, 45-foot, or greater length tiedown strap as shown in Figure 4-7.





① Run the free end of two 15-foot tiedown straps through the D-ring of the opposite strap to form a 30-foot strap.

② Pull the straps taut.

③ Install a D-ring on a free end of the 30-foot strap. Pass the free end of a 15-foot tiedown strap through the installed D-ring and back through its own D-ring to form a 45-foot or greater strap.

④ Insert a 2- by 5-inch piece of 1/2-inch felt around the installed D-ring.

Note. Make sure the felt is centered around the installed D-ring.

Figure 4-7. A 30-foot, 45-foot, or greater length tiedown strap formed

Chapter 5

Cargo Parachutes

SECTION I-GENERAL INFORMATION

USE

5-1. Cargo parachutes, also called recovery parachutes, are used to slow the descent of a low-velocity platform load. Table 5-1 lists the weight limitations for cargo parachutes used with airdrop platform loads.

TYPES

5-2. The following cargo parachutes are used when loads are rigged for low-velocity airdrop.

- **G-11B Cargo Parachute.** The parachute has a 100-foot-diameter canopy. It has 120 suspension lines (35-foot, type III nylon cord). The apex vent lines have been pulled down with a 100-foot, type V nylon webbing center line. The parachute has four 2-second cutters. When packed, the assembly weighs 250 pounds.
- **G-11C Cargo Parachute.** This is the same parachute as the G-11B except this parachute has two 2-second cutters with two reusable reefing lines. The apex vent lines have been pulled down with a 100-foot, type V nylon webbing center line. When packed, the assembly weighs 250 pounds.
- **G-12E Cargo Parachute.** This parachute has a 64-foot-diameter canopy. It has sixty-four 51-foot, type IV braided nylon cord suspension lines. The apex vent lines have been pulled down with a 57-foot, type V nylon webbing center line. When packed, the assembly weighs 125 pounds.

Table 5-1. General suspended weight limitations in pounds for cargo parachutes

Parachutes	*Minimum*	*Maximum*
G-11B 1 2 3 4	 2,270 5,001 10,001 15,001	 5,000 10,000 15,000 20,000
G-11C 5 6 7 8	 20,001 25,001 30,001 35,001	 25,000 30,000 35,000 40,000
G-12E 2	2,270	3,500

Note. Suspended weight in pounds is the total rigged weight less the weight of the cargo parachutes.

RISER EXTENSIONS

5-3. Cargo parachutes are used singularly or in a cluster. When parachutes are used in a cluster, the risers of each parachute are lengthened so the canopies remain almost vertical as they descend to increase the effectiveness of each canopy. The length of a riser extension and the number of stows used in stowing the extensions are given in Table 5-2.

Table 5-2. Riser requirements for g-11b, g-11c, and g-12e cargo parachutes

Number of Parachutes	*Length of Riser Extension (feet)*	*Number of Extension Stows*	*Type XXVI Nylon Webbing Slings*
1	3	0	3-foot (2-loop)
2	20	2	20-foot (2-loop)
3 or 4	60	8	60-foot (3-loop)
5 to 8	120	16	120-foot (2-loop)

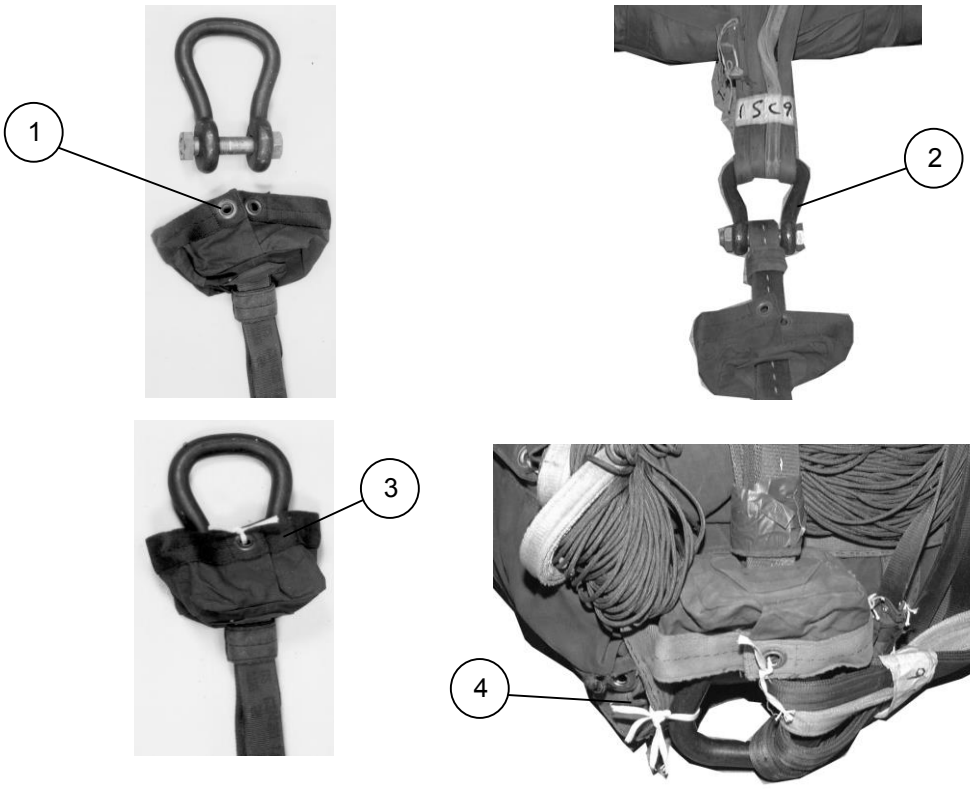
Notes.
1. All riser extensions must be continuous type XXVI nylon slings. Each parachute must have identical riser extensions and each must be of the same length.
2. G-12E parachutes have three stows.

SECTION II-RIGGING INFORMATION

FORMING AND BOLTING RISER EXTENSIONS

5-4. The risers of a cluster of cargo parachutes used on low-velocity airdrop loads must be extended (lengthened) using the following methods.

- **Forming Extensions. Only** continuous riser extensions may be used.
- **Bolting Extensions to Risers.** Bolt the riser extension to the risers of a cargo parachute as shown in Figure 5-1.



① Route a clevis cover around one end of the riser extension.

② Attach the riser extension to the bolt of the parachute clevis.

CAUTION

Ensure the nut is wrench tightened to keep it from loosening during transport and airdrop.

③ Route the clevis cover up over the bolt of the clevis and girth-hitch a length of type I, 1/4-inch cotton webbing to the single grommet on the rear of the cover. Route one of the running ends of the 1/4-inch cotton webbing between the center of the clevis and through both remaining grommets, and secure on top with a surgeon's knot and a locking knot.

④ Rotate the parachute clevis until the riser extension is facing the top of the deployment bag. Tie the clevis to the left bag carrying handle using a double length of type I, 1/4-inch cotton webbing.

Figure 5-1. Riser extension bolted to risers

STOWING RISER EXTENSIONS

5-5. The riser extensions for the parachutes must be stowed as described below.

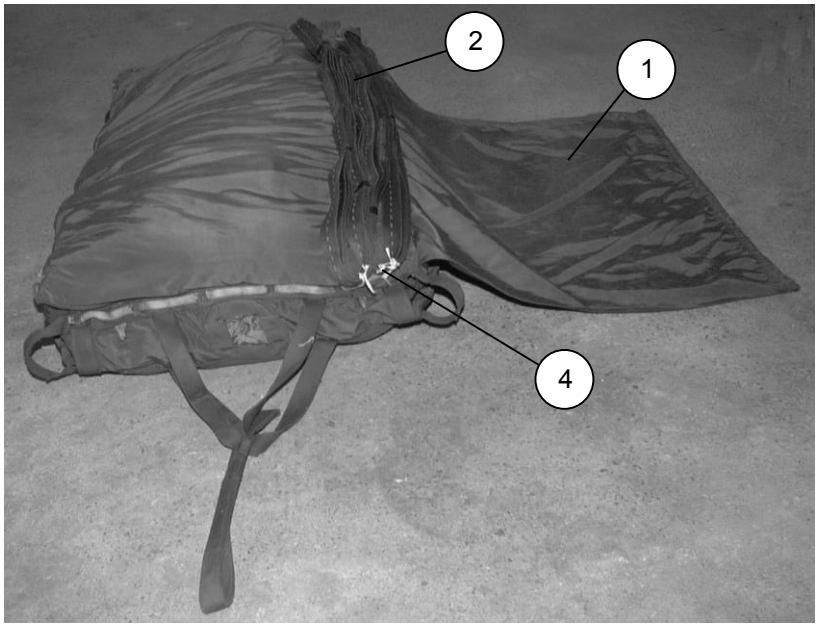
- **G-12E Cargo Parachute.** There are two deployment bags that may be used in packing the G-12E. There is the modified G-12 deployment bag, Part Identification Number 54K6299 or the G-12E deployment bag, Part Identification Number 11-1-3967. Stow the riser extension as shown in Figures 5-2 and 5-3.
- **G-11B or G-11C Cargo Parachute.** Stow the riser extensions of a G-11B or G-11C cargo parachute as shown in Figures 5-4 and 5-5.

① Start at the end of the riser extension fitted to the clevis (step 2, Figure 5-1) and S-fold the extension into the riser extension compartment forming three stows.

② Leave approximately 3 feet of the free end of the extension outside the riser end of the compartment.

③ Tie each stow to a riser extension loop with one turn single of type I, 1/4-inch cotton webbing.

Figure 5-2. Riser extension of a modified G-12 deployment cargo parachute stowed



① Open the riser extension flap which is attached with type I, 1/4-inch cotton webbing.

② Start at the end of the riser extension fitted to the clevis and S-fold the extension into the riser extension compartment forming three stows.

③ Leave approximately 3 feet of the free end of the extension outside the riser extension compartment. (Not shown)

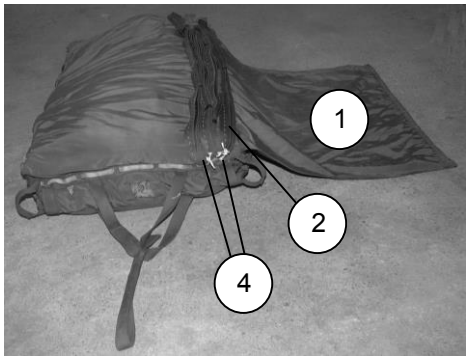
CAUTION

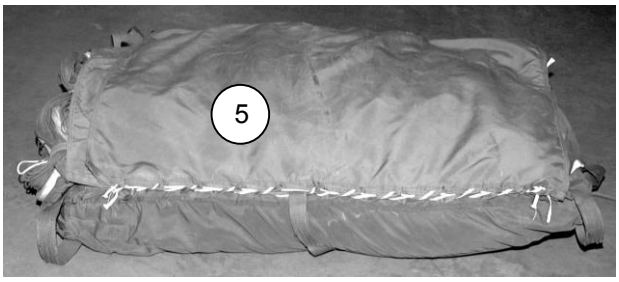
Do not girth hitch the type I, ¼-inch cotton webbing ties to the riser extension securing line.

④ Tie each stow to a riser extension loop with one turn single of type I, 1/4-inch cotton webbing.

⑤ Close the riser flap according to TM 10-1670-281-23&P/NAVAIR 13-1-32/TO 13C5-32-2. (Not shown)

Figure 5-3. Riser extension of a G-12 deployment cargo parachute stowed





Note. The nylon deployment bags have the riser extension securing line permanently attached.

① Open the riser extension flap which is attached with type I, 1/4-inch cotton webbing.

② Start at the end of the riser extension fitted to the clevis and S-fold the extension into the riser extension compartment.

③ Leave approximately 3 feet of the free end of the extension outside the riser end of the compartment. (Not shown)

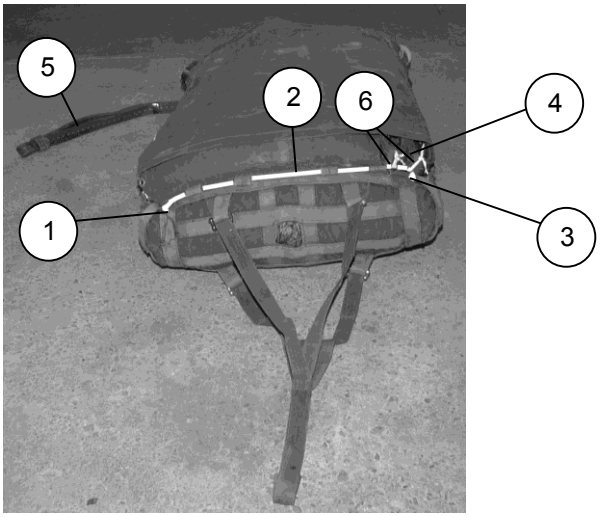
④ Tie each stow to the riser extension securing line with one turn double, type I, 1/4-inch cotton webbing.

CAUTION

Do not girth hitch the type I, ¼-inch cotton webbing ties to the riser extension securing line.

⑤ Close the riser flap according to TM 10-1670-280-23&P/NAVAIR 13-1-31/TO 13C5-32-2.

Figure 5-4. Riser extension of a G-11 cargo parachute (nylon bag) installed and stowed



① Fold an 8-foot length of 1/2-inch tubular nylon webbing in half lengthwise. Run the loop in the folded end through the right carrying handle. Run the free ends of the webbing through this loop, and pull the webbing taut.

② Run the webbing across the parachute, passing it through the riser extension retaining loops (end tabs).

Note. Do not pull the webbing tight across the parachute**.**

③ Tie the webbing to the left front carrying handle with three alternating half hitches and an overhand knot in each free running end.

④ Start at the end of the riser extension fitted to the clevis and S-fold the extension into the riser extension compartment.

⑤ Leave about 3 feet of the free end of the extension outside the riser end of the compartment.

⑥ Tie each stow to the riser extension securing line with one turn double type I, 1/4-inch cotton webbing.

CAUTION

Do not girth hitch the type I, ¼-inch cotton webbing ties to the riser extension securing line.

Figure 5-4. Riser extension securing line of a g-11 cargo parachute (cotton bag) installed and riser extension stowed (continued)

20-FOOT RISER EXTENSION STOWED

60-FOOT RISER EXTENSION STOWED

60-FOOT RISER EXTENSION STOWED

120-FOOT RISER EXTENSION STOWED

Figure 5-5. The 20-, 60-, and 120-foot riser extensions stowed

STOWING CARGO PARACHUTES

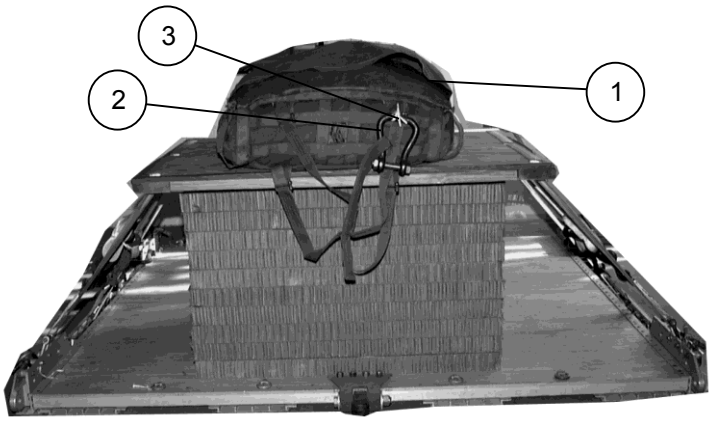
5-6. When referring to cargo parachutes, stowing consists of three steps. First, place the cargo parachutes on the load or on a parachute stowage platform. Second, cluster the parachutes by tying their deployment bags handles together. Third, group the bridles of a multiparachute load. When attaching parachute bridles to the clevis, make sure they are not twisted, misrouted, or entangled. Route parachute bridles straight from the D-bag to the clevis. Stow the parachutes as shown in Figures 5-6 through 5-14.

Note. Nylon and cotton bags may be mixed on the same load.

USING DEPLOYMENT LINES

5-7. The correct size and length of the deployment line will be given in each specific rigging manual. As a rule, use 9-foot, (2-loop), type XXVI nylon slings as deployment lines. One end of the deployment line is fitted to the coupling link assembly of the extraction force transfer coupling (EFTC). The other end of the line is fitted to the bolt of the large clevis grouping the bridles of a cluster of parachutes.

Note. 4-loop slings may be substituted for 2-loop slings for deployment lines.

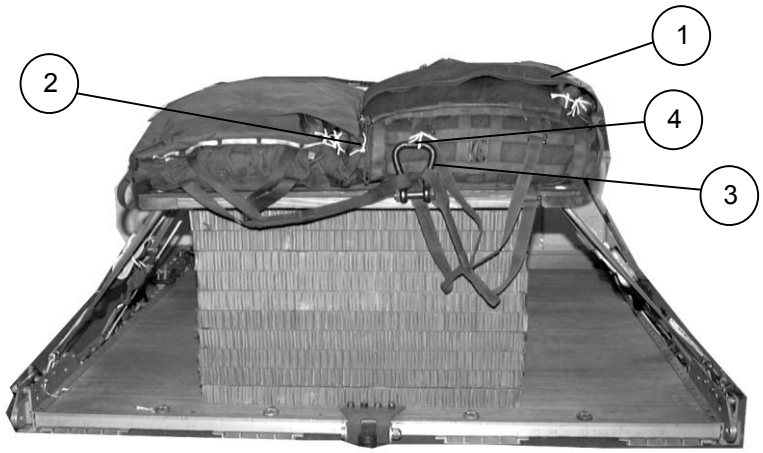


① Set one parachute on the load or on a parachute stowage platform with the riser compartment up and with the bridle toward the rear of the platform.

② Fit a large clevis to the bridle loop.

③ For the nylon bag tie the clevis to the right parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. (Not shown) For the cotton bag tie the clevis to the right bridle attaching loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 5-6. One parachute stowed



① Set two parachutes side by side on the load with the riser compartments up and the bridles toward the rear of the platform.

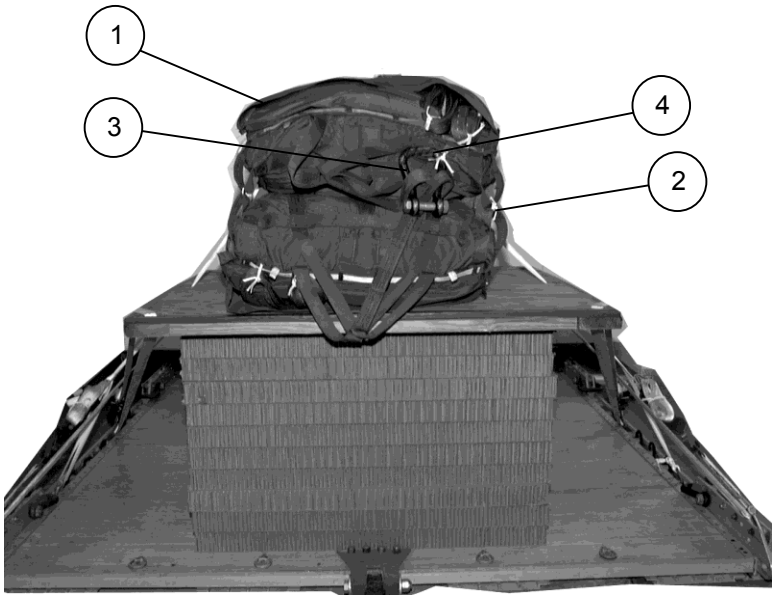
② Tie the inside front and rear cluster attaching loops (hereafter called carrying handles) together with one turn single of type III nylon cord.

Note. G-12E cargo parachutes are tied together with the clustering straps on each corner of the deployment bag or with a single length of type III nylon cord through the bag carrying handles unless the individual rigging manual states otherwise.

③ Fit the bridle loops on the arms of a large clevis.

④ For the nylon bag tie the clevis to the right parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag tie the clevis to the right bridle attaching loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 5-7. Two parachutes stowed side by side



① Stack two parachutes with the riser compartment of the bottom parachute down and the riser compartment of the top parachute up.

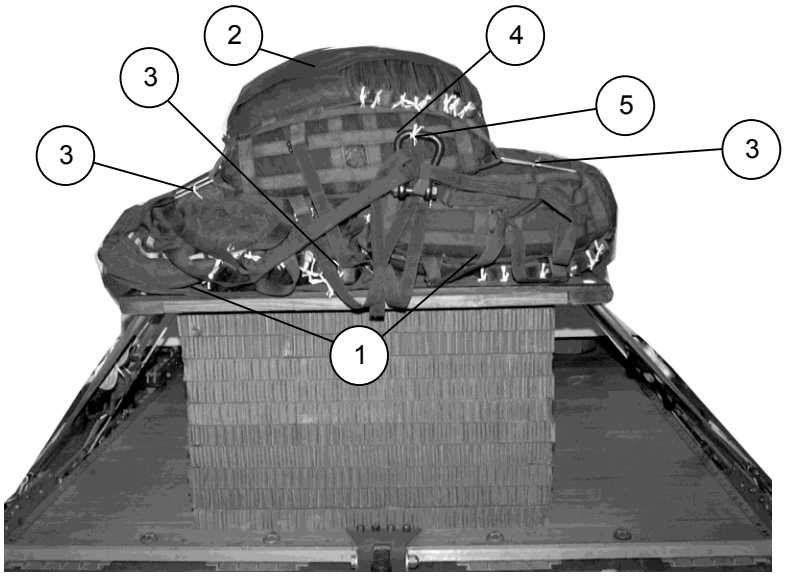
② Tie the outside front and rear carrying handles together with one turn single of type III nylon cord.

Note. G-12E cargo parachutes are tied together with the clustering straps on each corner of the deployment bag or with a single length of type III nylon cord through the bag carrying handles unless the individual rigging manual states otherwise.

③ Fit the bridle loops on the arms of a large clevis.

④ For the nylon bag tie the clevis to the top right parachute left parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag tie the clevis to the top right parachute's left bridle attaching loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 5-8. Two parachutes stowed and stacked



① Set two parachutes side by side on the load with the riser compartments down and the bridles toward the rear of the platform.

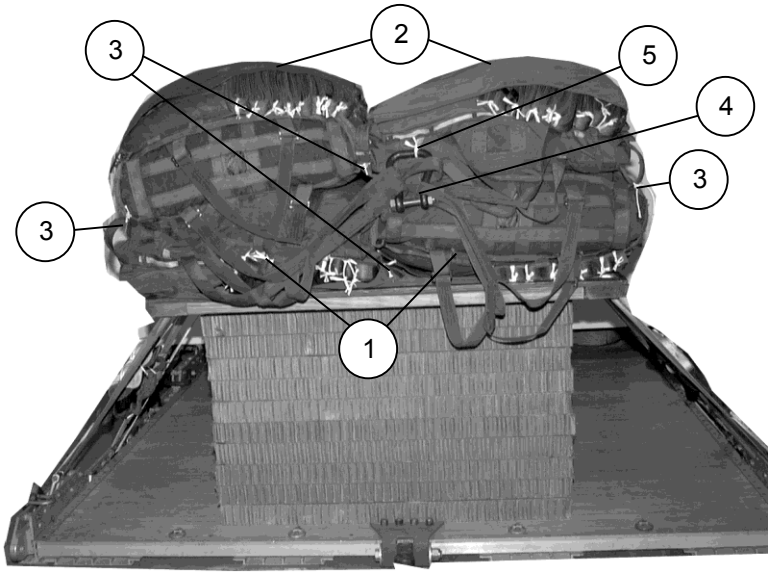
② Center one parachute on top of the two parachutes in step 1 above with the riser compartment up.

③ Tie the front and rear carrying handles together with a single length of type III nylon cord.

④ Fit the bridle loops on the arms of a large clevis.

⑤ For the nylon bag tie the clevis to the top right parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag tie the clevis to the top right bridle attaching loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 5-9. Three parachutes stowed



① Set two parachutes side by side on the load with the riser compartments down and with bridles toward the rear of the platform.

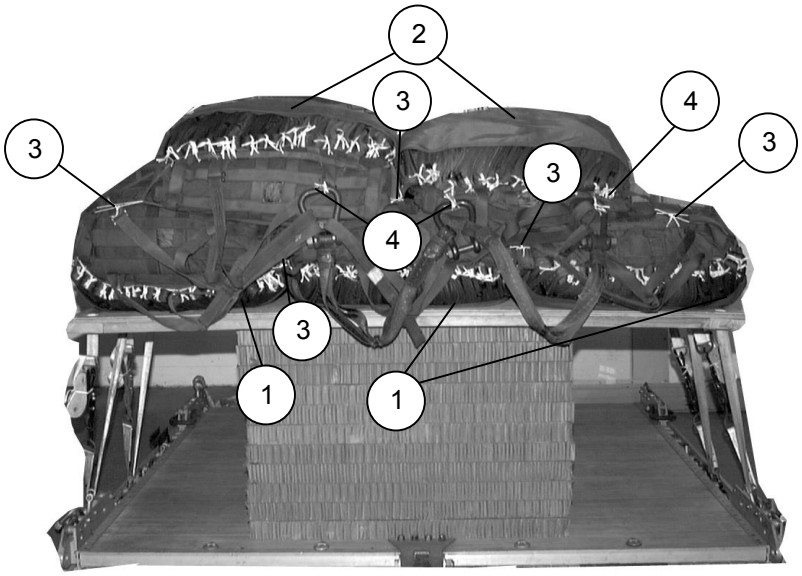
② Set two parachutes side by side on top of the two parachutes in step 1 above with the riser compartments up.

③ Tie the four center front and four center rear carrying handles together with a single length of type III nylon cord. Tie the outside carrying handles together with type III nylon cord.

④ Fit the bridle loops on the arms of a large clevis.

⑤ For the nylon bag tie the clevis to the top right parachute left parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot. For the cotton bag tie the clevis to the top right parachute's left bridle attaching loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 5-10. Four parachutes stowed



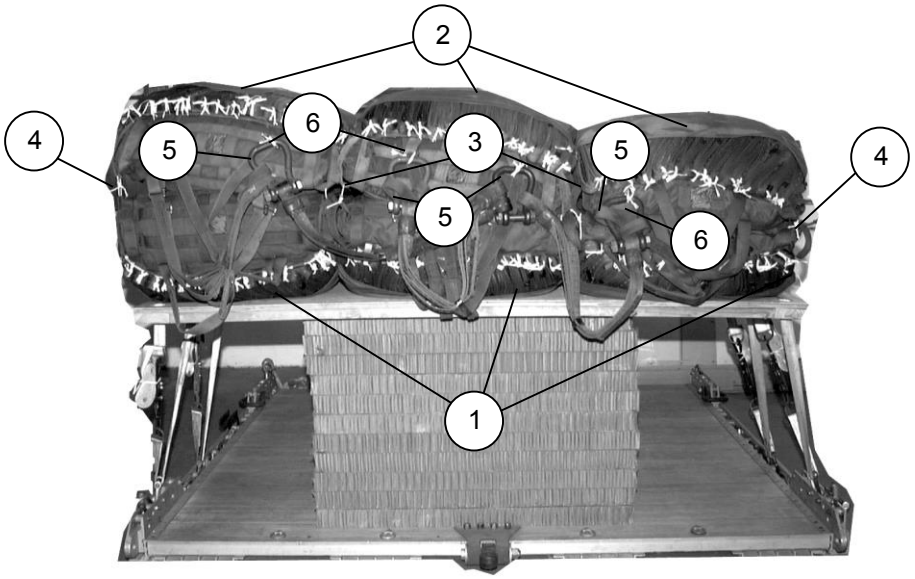
① Set three parachutes side by side on the load with the riser compartments down and the bridles toward the rear of the platform.

② Center two parachutes on top of the three parachutes in step 1 above with the riser compartments up.

③ Tie the front and rear carrying handles together with a single length of type III nylon cord.

④ Fit the bridles of the left three parachutes on the arms of a large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the two right parachutes on the arms of a second clevis, and fit a 3-foot sling on the clevis bolt. Fit the ends of the two 3-foot slings on the arms of a third clevis. Tie each clevis to a bridle attaching loop with a double length of type I, 1/4-inch cotton webbing. For the nylon bag tie each clevis to a parachute restraint strap loop with a length of doubled type I, 1/4-inch cotton webbing. Secure with a surgeon's knot and a locking knot.

Figure 5-11. Five parachutes stowed



① Set three parachutes side by side on the load with the riser compartments down and with the bridles toward the rear of the platform.

② Set three parachutes on top of the parachutes in step 1 above with the riser compartments up.

③ Tie the inside front four carrying handles together with a single length of type III nylon cord on all the bags. Repeat for the rear four carrying handles.

④ Tie the outside front two and rear two carrying handles together with a single length of type III nylon cord.

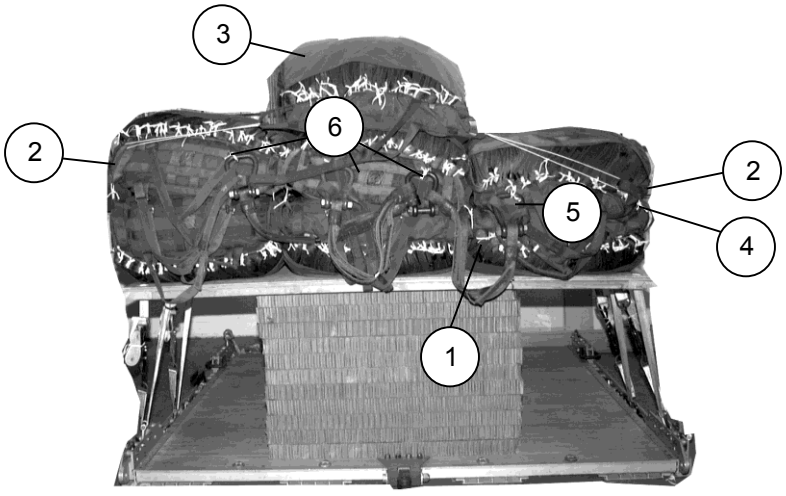
⑤ Fit the bridles of the left stack of parachutes on the arms of a large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the center stack of parachutes on the arms of a second large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the right stack of parachutes on the arms of a third large clevis, and fit a 3-foot sling on the clevis bolt. Fit the ends of the 3-foot slings on the arms of a fourth large clevis.

⑥ For the cotton bag tie each clevis to a bridle attaching loop with a doubled length of type, I 1/4-inch cotton webbing and secure with a surgeon's knot and a locking knot. For the nylon bag tie each clevis to a parachute restraint strap loop with a doubled length of type I, 1/4-inch cotton webbing and secure with a surgeon's knot and a locking knot.

Figure 5-12. Six parachutes stowed

CAUTION

The front clustering ties MUST NOT interfere with the deployment of the parachutes.



① Set three parachutes side by side on the load with the riser compartments down and with the bridles toward the rear of the platform.

② Set three parachutes on top of the parachutes in step 1 above with the riser compartments up.

③ Set a parachute on top of the center parachutes with the riser compartment up.

④ Tie the inside front four and rear four carrying handles together with lengths of 1/2-inch tubular nylon webbing. Tie the two outside corners of the middle and bottom parachutes together with lengths of 1/2-tubular nylon webbing. Tie the top two front and top two rear parachute carrying handles to the outside carrying handles of the middle parachutes using 1/2-inch tubular nylon webbing.

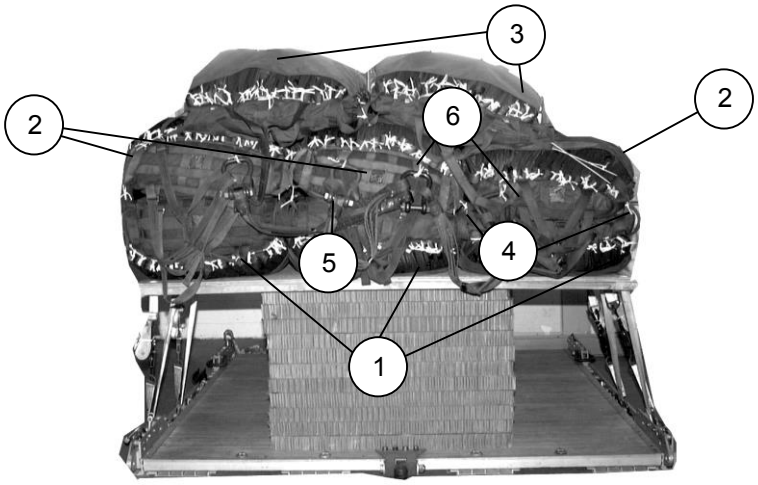
⑤ Fit the bridles of the left stack and top parachute on the arms of a large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the center two parachutes on the arms of a second large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the right stack of parachutes on the arms of a third large clevis, and fit a 3-foot sling on the clevis bolt. Fit the ends of the 3-foot slings on the arms of a fourth large clevis.

⑥ For the cotton bag tie each clevis to a bridle attaching loop with a doubled length of type I, 1/4-inch cotton webbing and secure with a surgeon's knot and a locking knot. For the nylon bag tie each clevis to a parachute restraint strap loop with a doubled length of type I, 1/4-inch cotton webbing and secure with a surgeon's knot and a locking knot.

Figure 5-13. Seven parachutes stowed

CAUTION

The front clustering ties MUST NOT interfere with the deployment of the parachutes.



① Set three parachutes side by side on the load with the riser compartments down and with the bridles toward the rear of the platform.

② Set three parachutes on top of the parachutes in step 1 above with the riser compartments up.

③ Set two parachutes on top of the parachutes in step 2 with the riser compartments up.

④ Tie the inside front four and rear four carrying handles of the middle and bottom parachutes together with lengths of 1/2-inch tubular nylon webbing. Tie the two top front and rear inside carrying handles with lengths of 1/2-tubular nylon webbing. Tie the two outside front and rear carrying handles of the middle and bottom parachutes with lengths of 1/2-inch tubular nylon webbing. Tie the top two outside front and rear parachute carrying handles to the outside front and rear carrying handles of the middle parachutes together using 1/2-inch tubular nylon webbing.

⑤ Fit the bridles of the left stack and the left top parachute on the arms of a large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the center stack of parachutes on the arms of a second large clevis, and fit a 3-foot sling on the clevis bolt. Fit the bridles of the right stack and the right top parachute on the arms of a third large clevis, and fit a 3-foot sling on the clevis bolt. Fit the ends of the 3-foot slings on the arms of a fourth large clevis.

⑥ For the cotton bag tie each clevis to a bridle attaching loop with a doubled length of type I, 1/4-inch cotton webbing and secure with a surgeon's knot and a locking knot. For the nylon bag tie each clevis to a parachute restraint strap loop with a doubled length of type I, 1/4-inch cotton webbing and secure with a surgeon's knot and a locking knot.

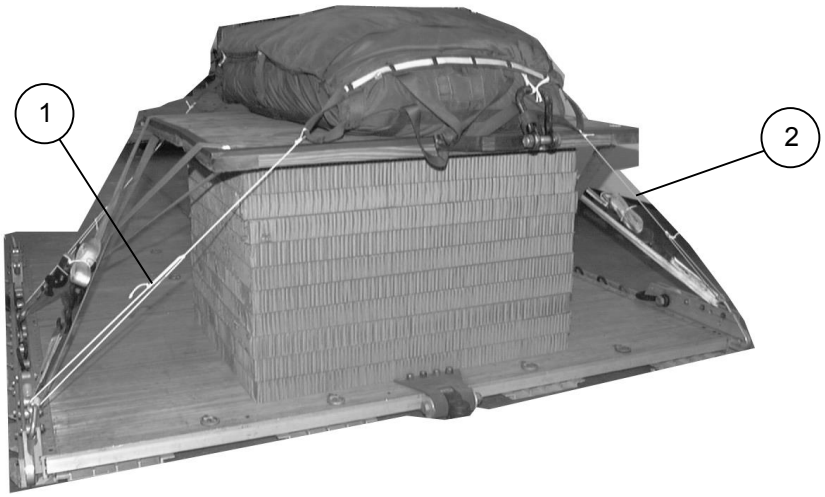
Figure 5-14. Eight parachutes stowed

RESTRAINING ONE PARACHUTE

5-8. Restrain one cargo parachute as shown in Figure 5-15.

CAUTION

Be sure that each point to which a restraining tie is made can withstand a pull of 550 pounds.



① Tie each corner carrying handle to a convenient point on the drop item or platform with a single length of type III nylon cord.

Figure 5-15. One parachute restrained

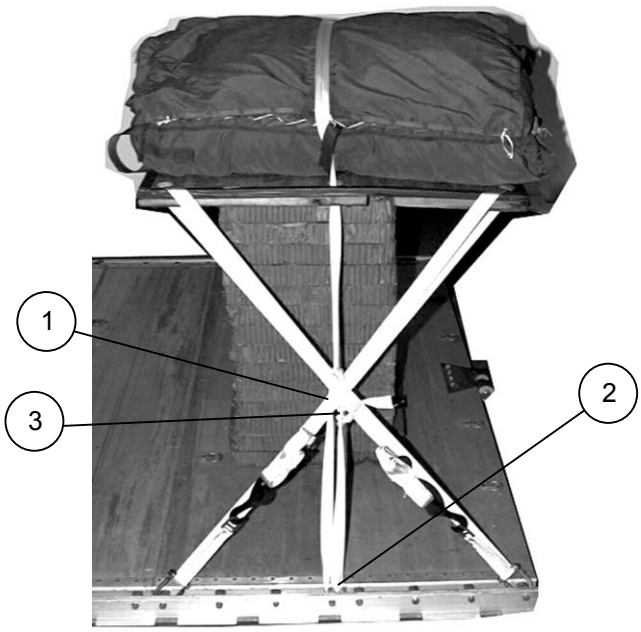
RESTRAINING TWO TO EIGHT PARACHUTES

5-9. The following parachute restraint systems are used to restrain two to eight cargo parachutes.

CAUTION

Ensure tension is tight on the multi-knife straps.

- **Two Parachutes**. Restrain two cargo parachutes as shown in Figures 5-16 and 5-17. The restraint system for two cargo parachutes consists of one length of type VIII nylon webbing (restraint strap). When using a guillotine knife parachute release strap follow Figures 5-18 and 5-19. When using a multicut parachute release strap follow Figures 5-20 and 5-21.



① Tie a trucker's hitch a suitable distance in each end of the restraint strap.

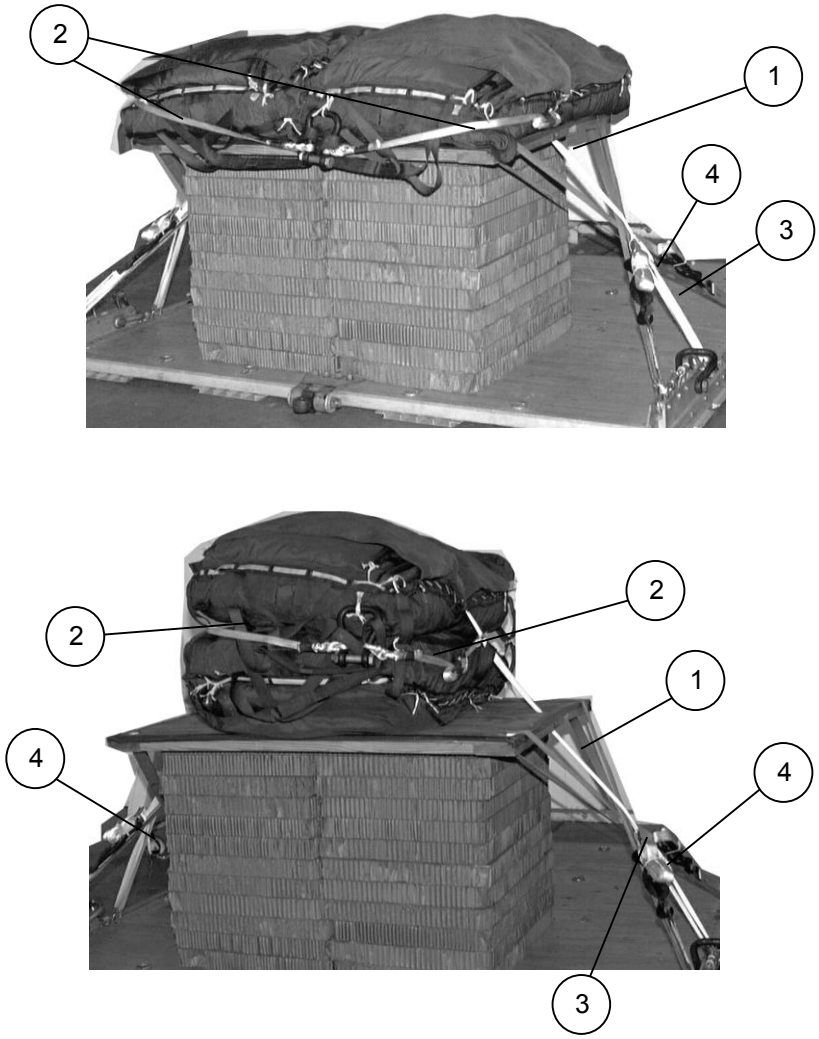
② Run each free end of the strap through or around the indicated point on the load and back up through the trucker's hitch.

Note. The indicated point for tying the parachute restraint strap to the load will be given in the specific rigging manual.

③ Pull on both ends of the restraint strap at the same time. When the strap is tight, tie the ends with three alternating half hitches and an overhand knot in the running end.

Figure 5-16. Restraint strap tied

Note. The restraint strap must run through the parachute stowage platform.



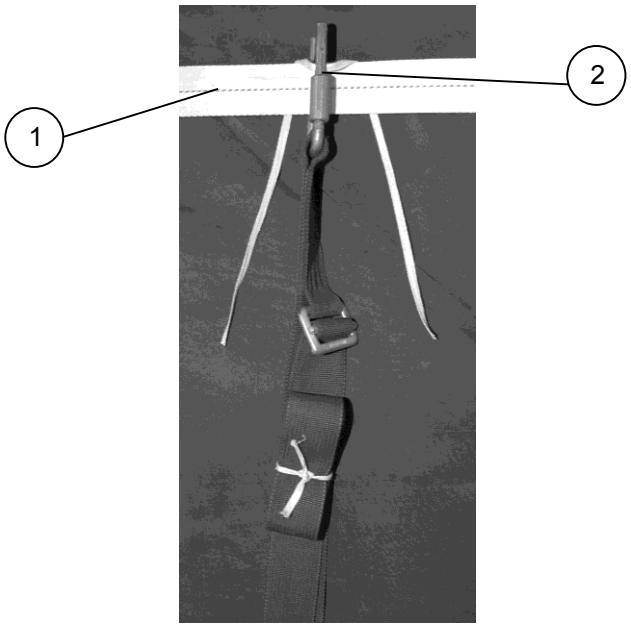
① Restraint strap

② Release strap

③ Trucker's hitch

④ Half hitches and overhand knot

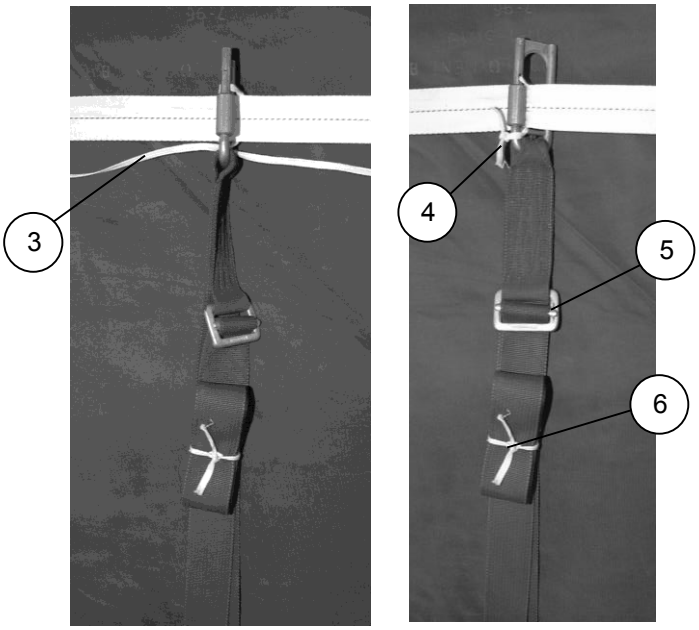
Figure 5-17. Two parachutes restrained



① Run the restraint strap through the center carrying handles on the left side of the parachutes, up and across the top of the parachutes, and down through the center carrying handles on the right side of the parachutes. Tie the restraint strap to the load as described in Figure 5-16.

② Close the knife around the restraint strap, knurled nut up. Thread a length of type I, 1/4-inch cotton webbing through the safety tie hole. Even the ends of the webbing, and run them under the restraint strap, and alongside the release knife.

Figure 5-18. Single-knife parachute release strap installed on two stacked parachutes



① Thread the end of the webbing on the left side of the knife to the right behind the bar of the knife. Thread the other end of webbing to the left in a like manner.

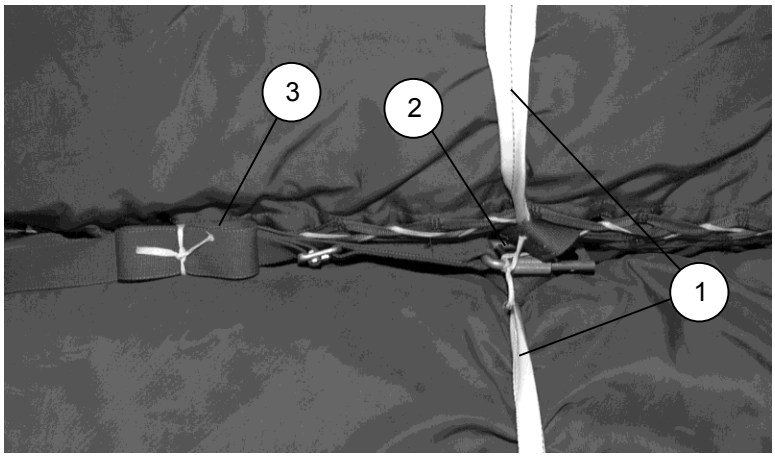
② Bring the ends of the webbing up over the top of the bar. Tie the ends of the webbing together with a surgeon's knot and a locking knot.

③ Run the free end of the release strap around the large clevis grouping the bridles and back up through the friction adapter.

④ Pull the release strap tight. Fold or roll the excess strap, and tape or tie the folds in place.

Note. Be sure the release strap is tight so that the knife will cut the restraint strap before the extraction force is transferred to the parachute bridles.

Figure 5-18. Single-knife parachute release strap installed on two stacked parachutes (continued)



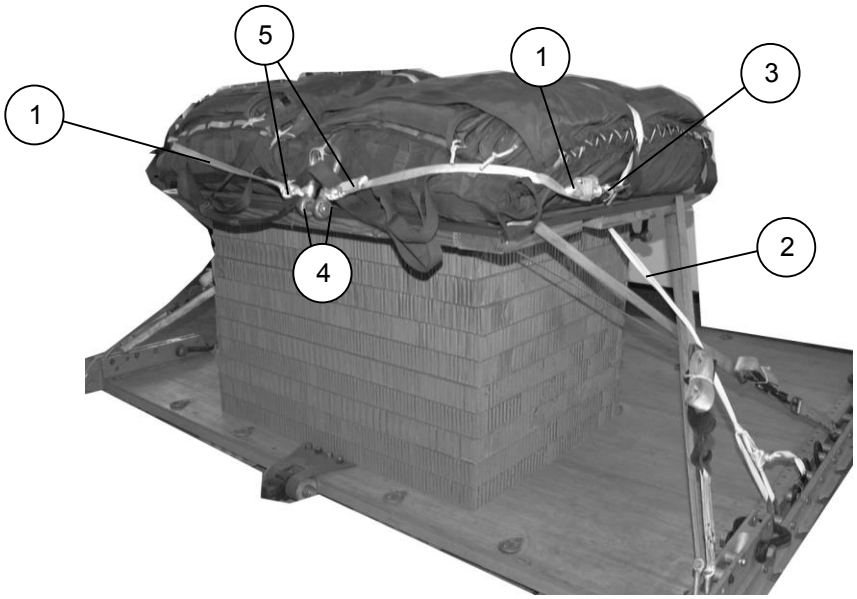
① Run the restraint strap up through the outside carrying handle of the left parachute, across the left parachute, down through the inside center carrying handle of the left parachute, up through the inside center carrying handle of the right parachute, across the right parachute, and down through the outside center carrying handle of the right parachute. Tie the restraint strap to the load as described earlier in this chapter.

② Close the knife around the restraint strap with the knurled nut up, between the inside carrying handles. Thread a length of type I, 1/4-inch cotton webbing through the safety tie hole. Even the ends of the webbing, and run them under the restraint strap, and alongside the release knife. Thread the end of the webbing on the left of the knife to the right behind the bar of the knife. Thread the other end of webbing to the left in a like manner. Bring the ends of the webbing up over the top of the bar. Tie the ends of the webbing together with a surgeon's knot and locking knot as shown earlier. Run the free end of the release strap down through the large clevis grouping the bridles and back up through the friction adapter as described in earlier in this chapter.

③ Pull the release strap tight. Fold or roll the excess strap, and tape or tie the folds in place as described earlier in this chapter.

Note. Be sure the release strap is tight so that the knife will cut the restraint strap before the extraction force is transferred to the parachute bridles.

Figure 5-19. Single-knife parachute release strap installed on two side-by-side parachutes



① Remove guillotine knives number 2 and 3 (Figure 1-2) from each multicut parachute release straps. Fold the unused loops, and tape the folds in place.

② Tie the restraint strap to the load as described earlier in this chapter.

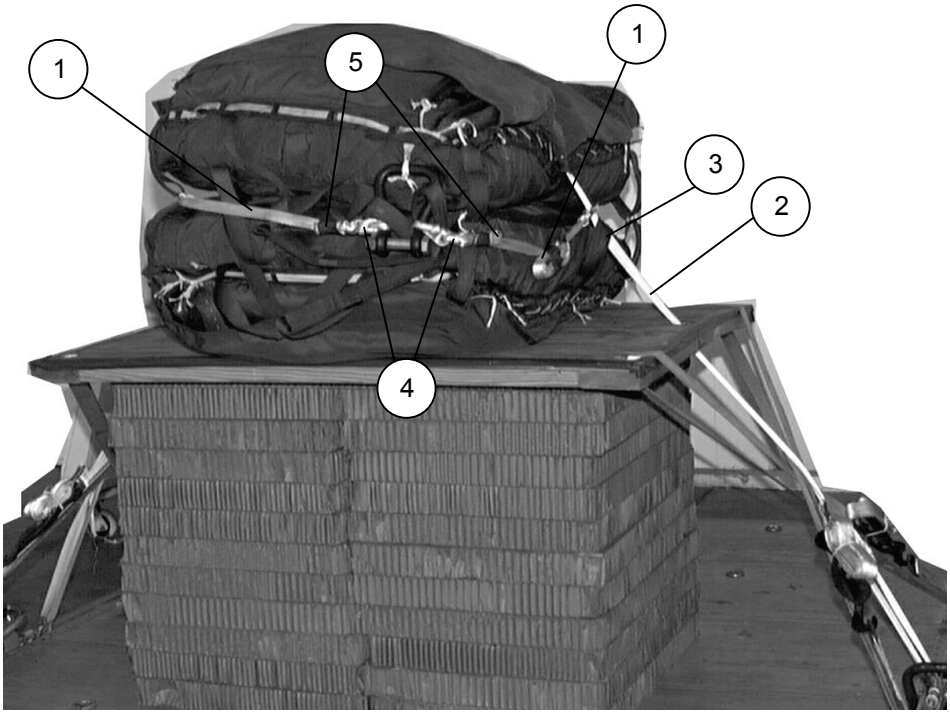
③ Close each knife around the restraint strap, with the knurled nut up. Secure as shown earlier in this chapter.

④ Tie the free end of each release strap to the large clevis grouping the bridles. Use three alternating half hitches and an overhand knot in each running end. Make sure that the parachute release straps are not routed under the parachute restraint or parachute bridles. Make sure that the release straps are shorter than the parachute bridles to ensure that the deployment force is applied to the strap before the bridles.

Note. Ensure tension is tight on the multi-knife.

⑤ Fold or roll any excess strap, and tape the folds in place.

Figure 5-20. Multicut parachute release straps installed on two side-by-side parachutes



① Remove guillotine knives number 2 and 3 (Figure 1-2) from each multicut parachute release straps. Fold the unused loops, and tape the folds in place.

② Tie the restraint strap to the load as described earlier in this chapter.

③ Close each knife around the restraint strap, with the knurled nut out between the top and bottom carrying handles. Secure as shown earlier in this chapter.

④ Tie the free end of each release strap to the large clevis grouping the bridles. Use three alternating half hitches and an overhand knot in each running end. Make sure that the parachute release straps are not routed under the parachute restraint or parachute bridles. Make sure that the release straps are shorter than the parachute bridles to ensure that the deployment force is applied to the strap before the bridles.

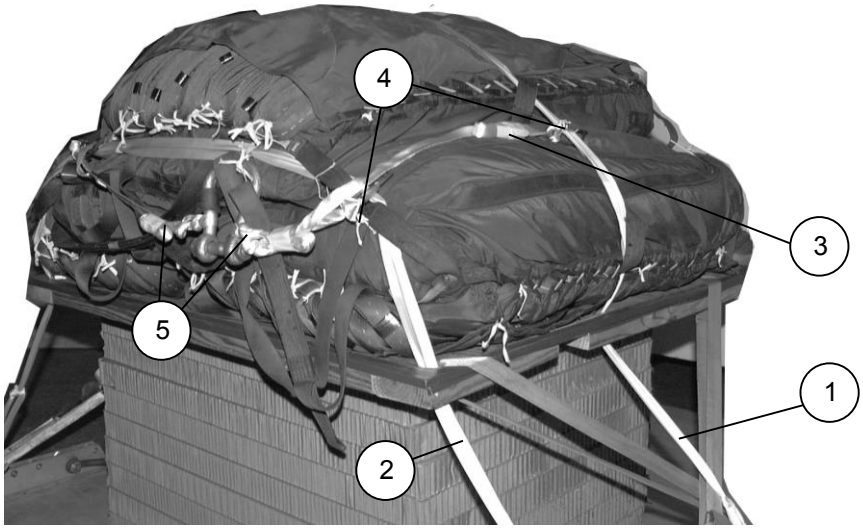
Note. Ensure the release straps are tied evenly so the guillotine knives cut simultaneously.

⑤ Fold or roll any excess strap, and tape the folds in place.

Figure 5-21. Multicut parachute release straps installed on two stacked parachutes

- **Three to Five Parachutes.** The restraint system for three to five cargo parachutes consists of two lengths of type VIII nylon webbing (restraint strap) and two multicut parachute release straps. Restrain three to five cargo parachutes as shown in Figures 5-22 through 5-24.

Note. Always use multicut parachute release straps in pairs.



① Install the first restraint strap as described earlier in this chapter.

② Run the second restraint strap through the outside rear carrying handle of the bottom left parachute, up through the top left rear carrying handle and both bridle attaching loops of the top parachute for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the outside rear carrying handles of the top and bottom right parachute. Tie the restraint strap to the load as described earlier in this chapter.

③ Remove guillotine knife number 3 (Figure 1-2) from each of two multicut parachute release straps. Fold the unused loops, and tape the folds in place.

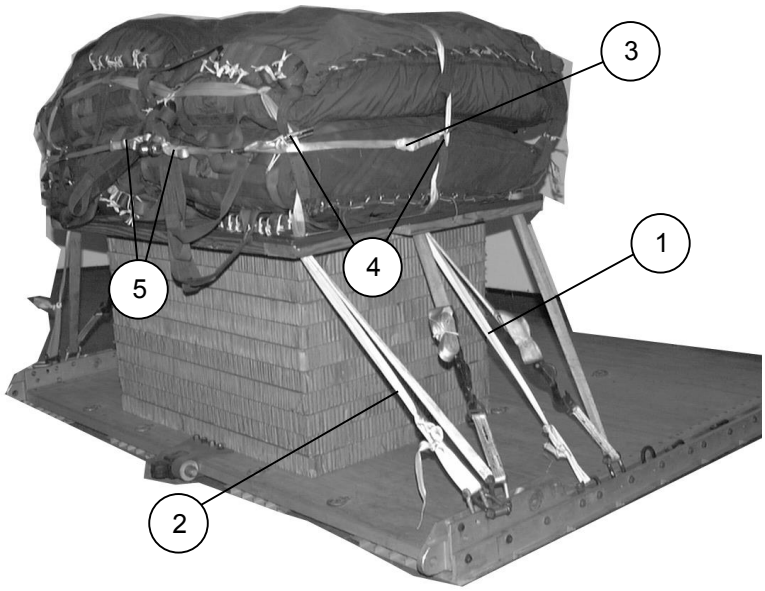
④ Close and safety the guillotine knives as described earlier in this chapter.

⑤ Tie the release straps to the large clevis as described earlier in this chapter.

Note. Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.

Figure 5-22. Three parachutes restrained and multi-knife installed

Note. Always use multicut release straps in pairs.



① Run the restraint strap through the center carrying handles on the left side of the parachutes. Run the restraint strap over the top of the parachute, and down through the left inside center carrying handle. Continue to run the restraint strap up through the right inside center carrying handle. Run the restraint strap over the right parachute and down to the right outside carrying handles. Tie the ends of the restraint strap to the load as described earlier in this chapter.

② Run the second restraint strap through the outside rear carrying handles of the left parachutes. Run the restraint strap through the bridle attaching loops of the top parachutes for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the outside rear carrying handles of the right parachutes. Tie the ends of the restraint strap to the load as described earlier in this chapter.

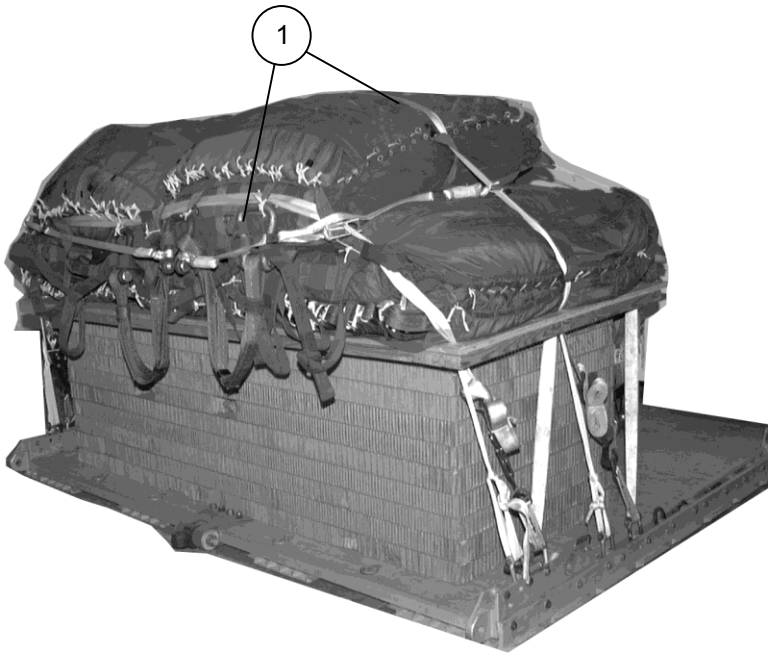
③ Remove guillotine knife number 3 (Figure 1-2) from each of two multicut parachute release straps. Fold the unused loops, and tape the folds in place.

④ Close and safety the guillotine knives as described earlier in this chapter.

⑤ Tie the release straps to the large clevis as described earlier in this chapter.

Note. Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.

Figure 5-23. Four parachutes restrained and multi-knife installed

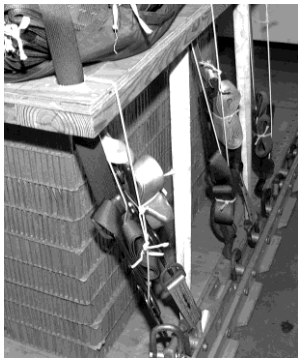


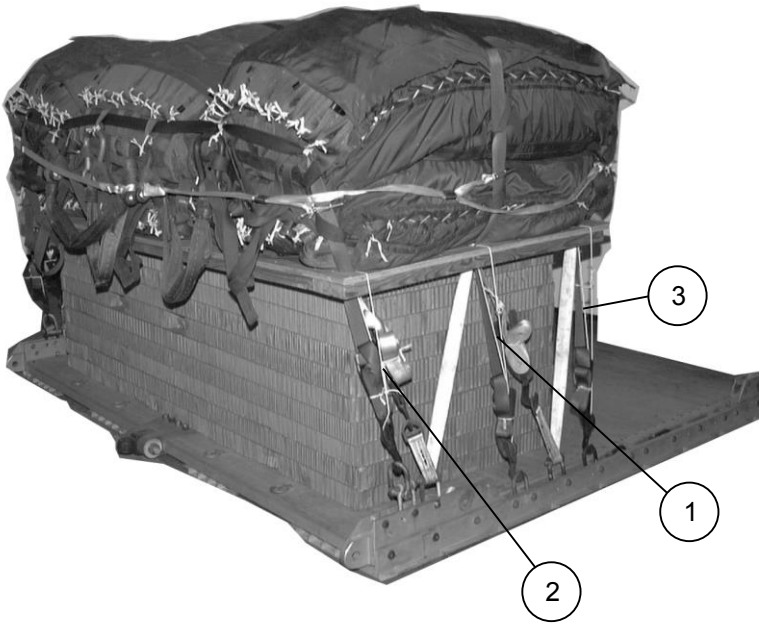
① Install the first and second restraint straps and two multicut parachute release straps as shown earlier in this chapter.

Note. Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.

Figure 5-24. Five parachutes restrained and multi-knife installed

- **Six, Seven, or Eight Parachutes.** The restraint system for six, seven, or eight cargo parachutes consists of three type X restraint straps, two multicut parachute release straps, six D-rings, and six load binders. Restrain six, seven, or eight cargo parachutes as shown in Figures 5-25 through 5-27.





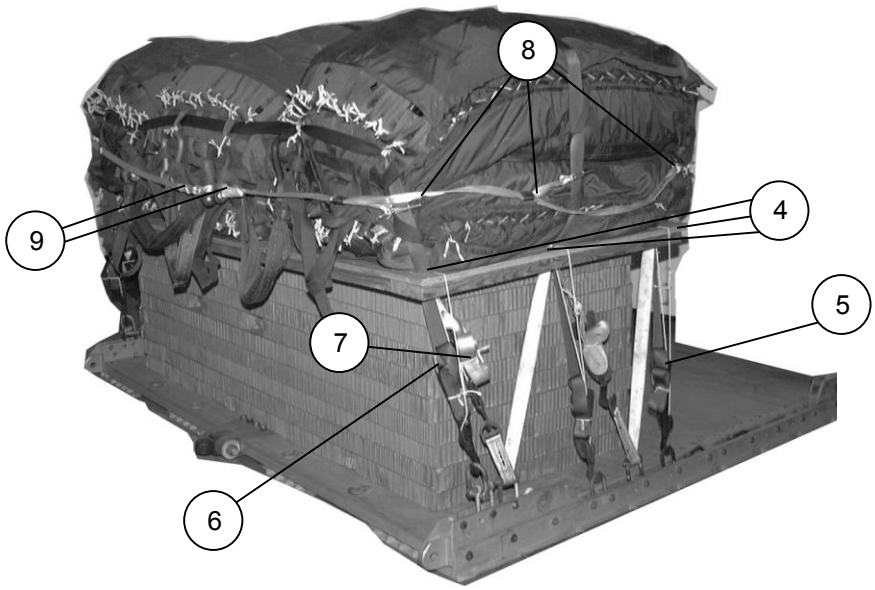
Note. Safety the load binders with type III nylon cord.

① Run the first restraint strap up through the outside center carrying handles of the bottom left and top left parachutes, across the top parachutes, and down through the outside center carrying handles of the top and bottom right parachutes.

② Run the second restraint strap up through the outside rear carrying handles of the bottom left parachute, up through the top left rear carrying handle and all bridle attaching loops of the top parachutes for the cotton bags or through the parachute restraint strap loops for the nylon bag, and down through the outside rear carrying handles of the top and bottom right parachutes.

③ Run the third restraint strap through the outside front carrying handles of the left bottom and top parachutes, through the top front inside carrying handles, and down through the outside front carrying handles of the right top and bottom parachutes.

Figure 5-25. Six parachutes restrained



④ Run the six ends of the three restraint straps down through the holes in the parachute stowage platform.

⑤ Fit a D-ring to each end of the three restraint straps. Hook the D-ring to the clevis (indicated in the specific rigging manual) with a load binder.

⑥ Fold or roll all excess straps, and tie the folds to the load binders with type I, 1/4-inch cotton webbing.

⑦ Tie the load binders and D-rings to the stowage platform with lengths of type III nylon cord.

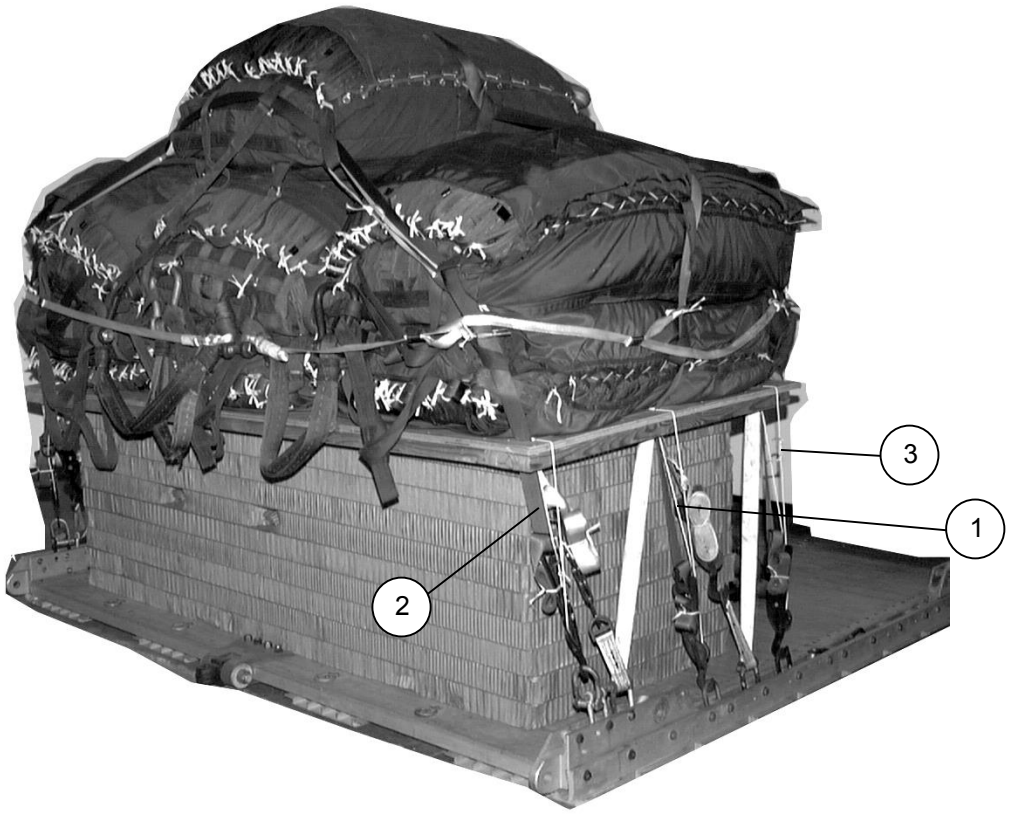
⑧ Close and safety tie the guillotine knives of two multicut parachute release straps as described earlier in this chapter.

⑨ Tie the release straps to the large clevis as shown earlier in this chapter.

Notes.

1. Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.
2. Secure the load binders and D-rings to a convenient point on the load when there is no stowage platform.

Figure 5-25. Six parachutes restrained (continued)

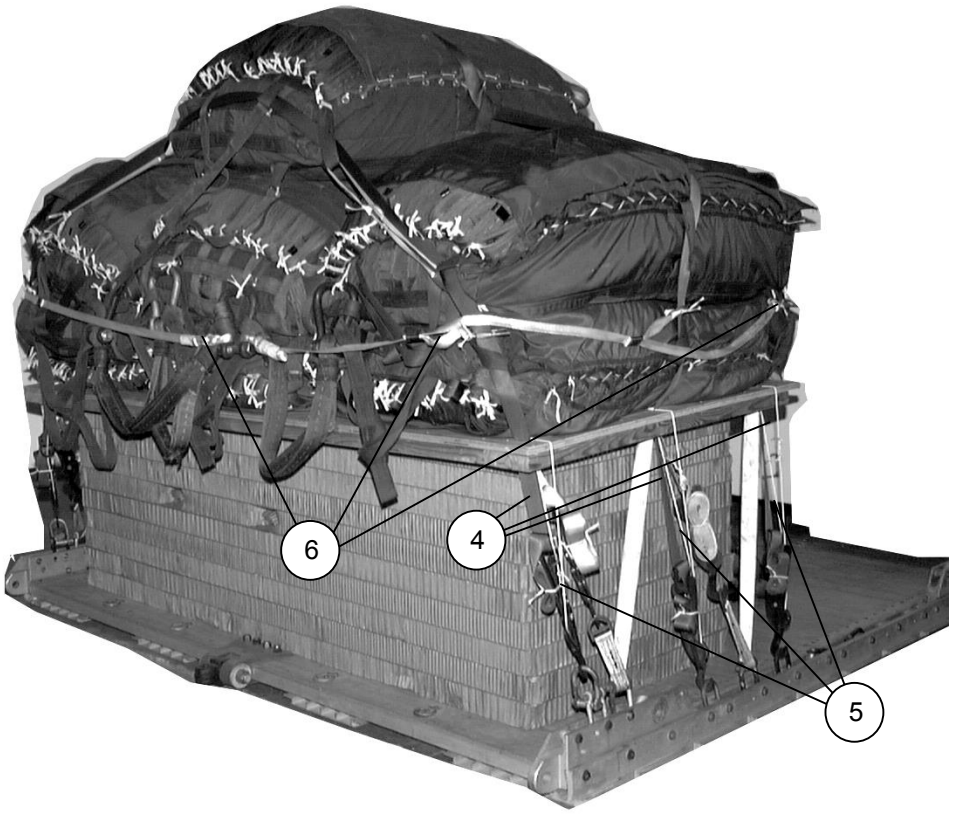


① Run the first restraint strap up through the outside center carrying handles of the left bottom, middle, and top parachutes, across the top parachute, and down through the outside center carrying handles of the top, middle, and bottom right parachutes.

② Run the second restraint strap up through the outside rear carrying handles of the left bottom, middle, and top parachutes, and both upper bridle attaching loops for the cotton bags or through the parachute restraint strap loops for the nylon bags, and down through the outside rear carrying handles of the top, middle, and bottom right parachutes.

③ Run the third restraint strap through the outside front carrying handles of the left bottom, middle, and top parachutes. Run the restraint strap across and down through the outside front carrying handles of the right top, middle, and bottom parachutes.

Figure 5-26. Seven parachutes restrained



④ Run the six ends of the three restraint straps down through the holes in the parachute stowage platform.

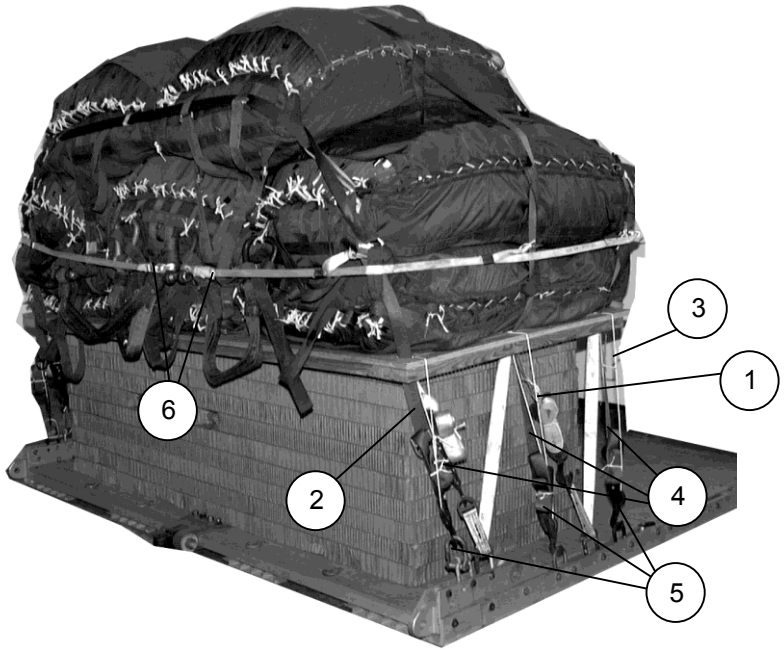
⑤ Secure the ends of the restraint straps as described earlier in this chapter.

⑥ Close and safety tie the knives and tie the release straps as described earlier in this chapter.

Notes.

1. Place the knives around the restraint straps between the carrying handles of the top and bottom parachutes.
2. Secure the load binders and D-rings to a convenient point on the load when there is no stowage platform.

Figure 5-26. Seven parachutes restrained (continued)



① Run the first restraint strap up through the outside center carrying handles of the left bottom, middle, and top parachutes, across the top parachutes, and down through the outside center carrying handles of the top, middle, and bottom right parachutes.

② Run the second restraint strap up through the outside rear carrying handles of the left bottom, middle, and top parachutes, and all upper bridle attaching loops for the cotton bags or through the parachute restraint strap loops for the nylon bags, and down through the outside rear carrying handles of the top, middle, and bottom right parachutes.

③ Run the third restraint strap through the outside front carrying handles of the left bottom, middle, and top parachutes. Run the restraint strap across and down through the outside front carrying handles of the right top, middle, and bottom parachutes.

④ Run the six ends of the three restraint straps down through the holes in the parachute stowage platform.

⑤ Secure the ends of the restraint straps as described earlier in this chapter.

⑥ Close and safety tie the knives, and tie the release strap as described earlier in this chapter.

Note. Place the knives around the restraint straps between the carrying handles of the outside middle and bottom parachutes.

Figure 5-27. Eight parachutes restrained

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Chapter 6
Extraction System

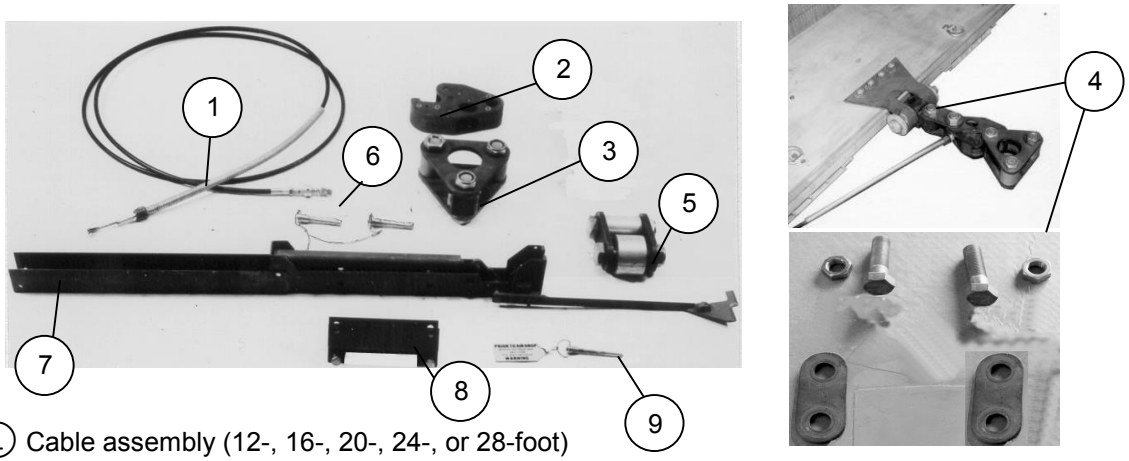
SECTION I-GENERAL INFORMATION

USE

6-1. The extraction system is made up of the extraction parachute, the extraction lines, line panels, and the extraction force transfer coupling (EFTC). The EFTC is bolted to the airdrop platform and is used to pull the load from the aircraft. The load exits through the cargo ramp and door of the aircraft and the extraction force is then transferred to the deployment line of the cargo parachute. The weight range of the EFTC is from 2,520 to 42,000 pounds.

COMPONENTS

6-2. The components of the EFTC used on low-velocity airdrop loads are shown in Figure 6-1.



① Cable assembly (12-, 16-, 20-, 24-, or 28-foot)

② Coupling link assembly

③ Latch connector assembly

④ Adapter link assembly

⑤ Adapter link assembly

⑥ Quick-release pins (pip pins)

⑦ Actuator assembly

⑧ Actuator mounting bracket

⑨ Locking pin

Figure 6-1. Components of extraction force transfer coupling

OPERATION

6-3. The EFTC is used for low-velocity airdrop and how it operates is described below.

- After the extraction parachute deploys, it pulls the extraction line and coupling link assembly or the adapter link assembly (Items 3 and 5, Figure 6-1).
- The arm of the actuator assembly (Item 7, Figure 6-1) rides on top of the aircraft's left side restraint rail. When the load and actuator are pulled out and cleared of the rails, the arm rotates downward and pulls on the cable (Item 1, Figure 6-1) attached to the catch inside the latch assembly (Item 2, Figure 6-1). This causes the catch to release the coupling link assembly from the latch assembly.
- The extraction parachute then pulls on the deployment line and pulls on the parachute release knife, cutting the parachute restraint and starting the recovery parachute deployment.

SECTION II-RIGGING INFORMATION

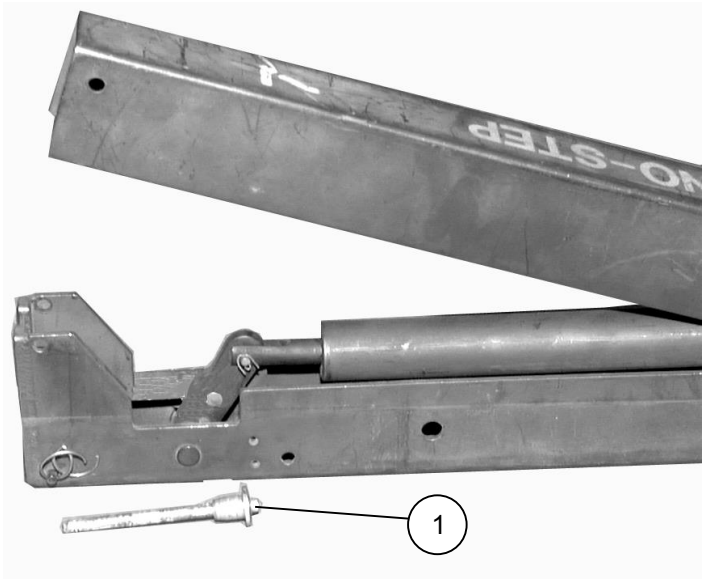
EXTRACTION FORCE TRANSFER COUPLING

6-4. Inspect, maintain, and test the components of the EFTC extraction system as outlined in TM 10-1670-296-20&P/TO 13C7-49-2 and this manual.

- **Inspecting and Assembling Components**. Before each use, inspect and assemble the components of the EFTC extraction system as follows:
  - Inspect the components according to TM 10-1670-296-20&P/TO 13C7-49-2.
  - Assemble the EFTC extraction system as shown in Figures 6-2 through 6-6.

CAUTION

The compression rod spring will be under 175 pounds of pressure when the actuator is fully armed.

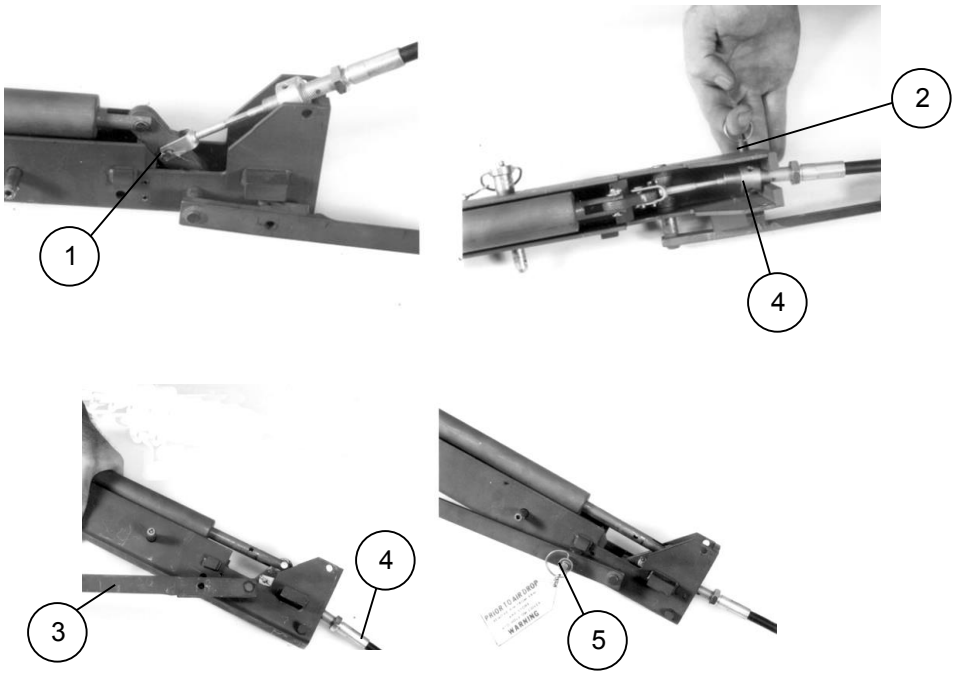


① Remove the locking pin, and rotate the cover upward and rearward

Figure 6-2. Locking pin removed

CAUTION

If the adjusting collar is loose, replace the cable.



Notes.

1. Before attaching the cable clevis, make sure the cable at both ends moves freely in the housing and that the cable is the proper length for the load to be rigged. This length will be cited in the specific rigging manual.
2. The EFTC is functional with all lengths of cable assemblies. When shortages of specific lengths of cable occur, the next longer cable assembly can be used.

① Attach the clevis on the cable to the cable actuator with the straight pin and cotter pin.

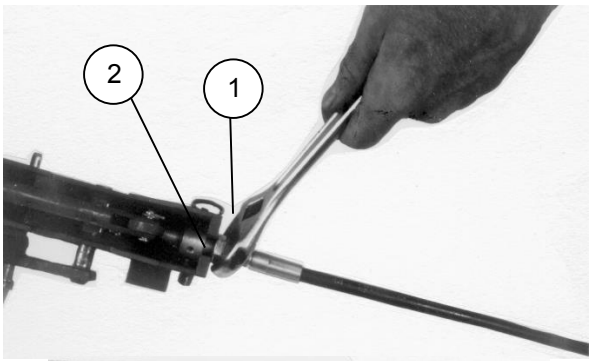
② Pull on the spring-loaded pin to release the actuator arm from the unlocked position.

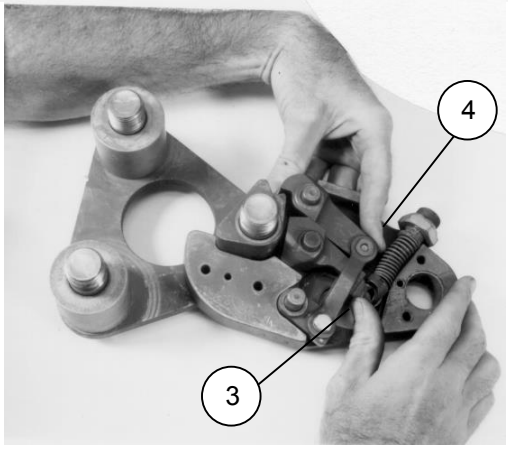
③ Turn the actuator arm clockwise.

④ As the arm is turned, make sure the adjusting collar on the cable fits inside the end slot of the actuator.

⑤ When the actuator is armed, insert the locking pin to hold the actuator arm in place.

Figure 6-3. Cable installed and actuator armed





Note. The top plate of the latch assembly is removed for clarity.

① Use a wrench to tighten the locking nut on the cable until the nut is flush against the actuator body.

② Make sure the adjusting collar is flush against the inside of the actuator body.

CAUTION

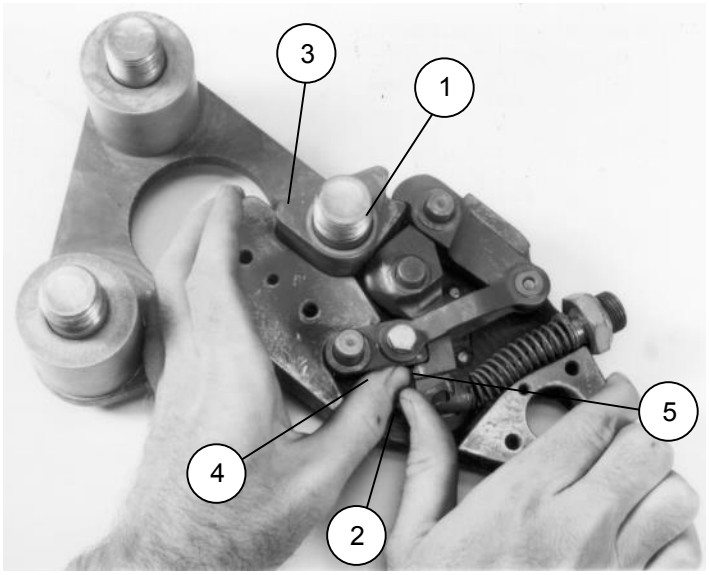
Do not over tighten the locking nut. This may cause the housing to crack.

Note. To ensure that the cam of the link assembly is properly seated in the latch assembly with the retainer hook holding the cam, release and then reseat the cam as follows:

③ Push up on the catch.

④ Push down on the retainer hook and idler link to free the cam, and remove the link assembly.

Figure 6-4. Cable installed and the link assembly cam seated



Note. The top plate of the latch assembly is removed for clarity.

Reseat the cam of the link assembly in the latch assembly as follows:

① Set the edge of the cam in place within the latch.

② Repeat steps 3 and 4, Figure 6-4.

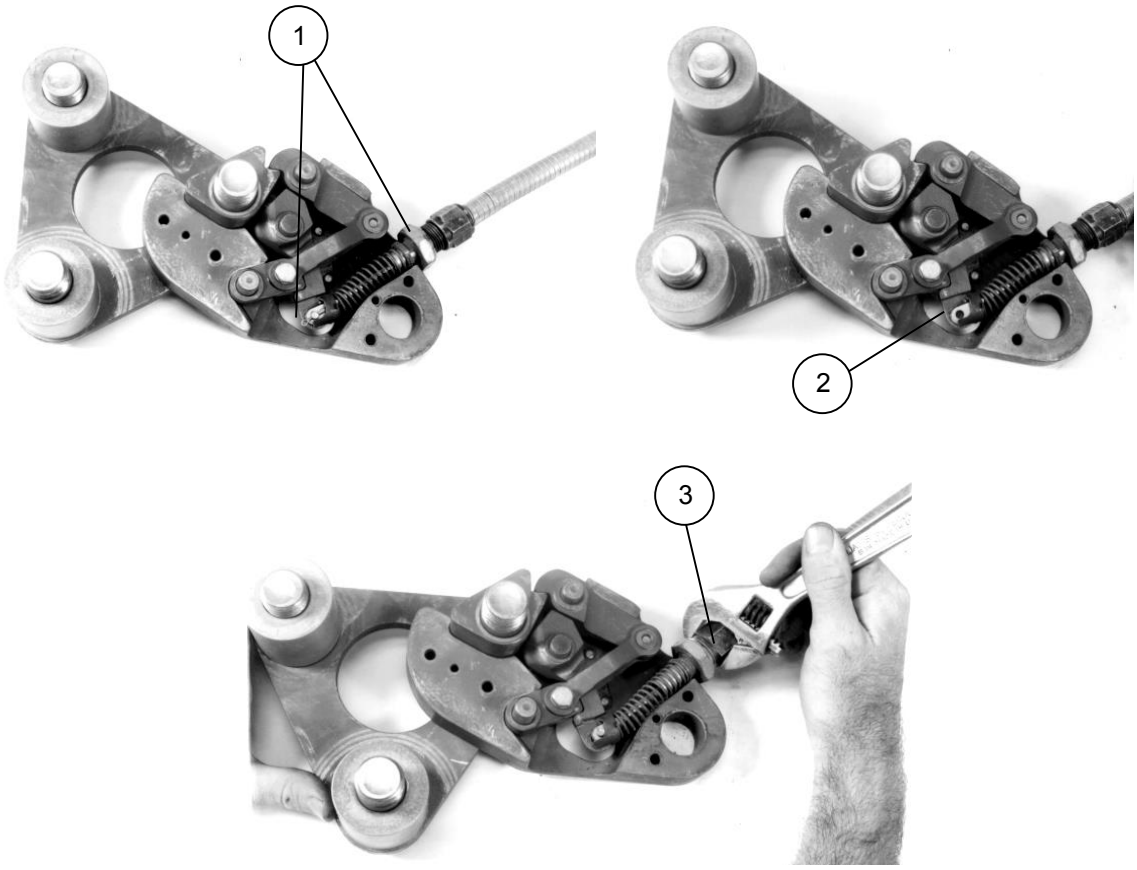
③ Push cam into place.

④ Push the lock link up to engage the retainer hook.

⑤ Align the dot on the lock link with the arrow on the catch.

Note. The cam of the link assembly is now properly seated under the retainer hook of the latch assembly.

Figure 6-5. Link assembly cam reseated



Note. The top plate of the latch assembly is removed for clarity.

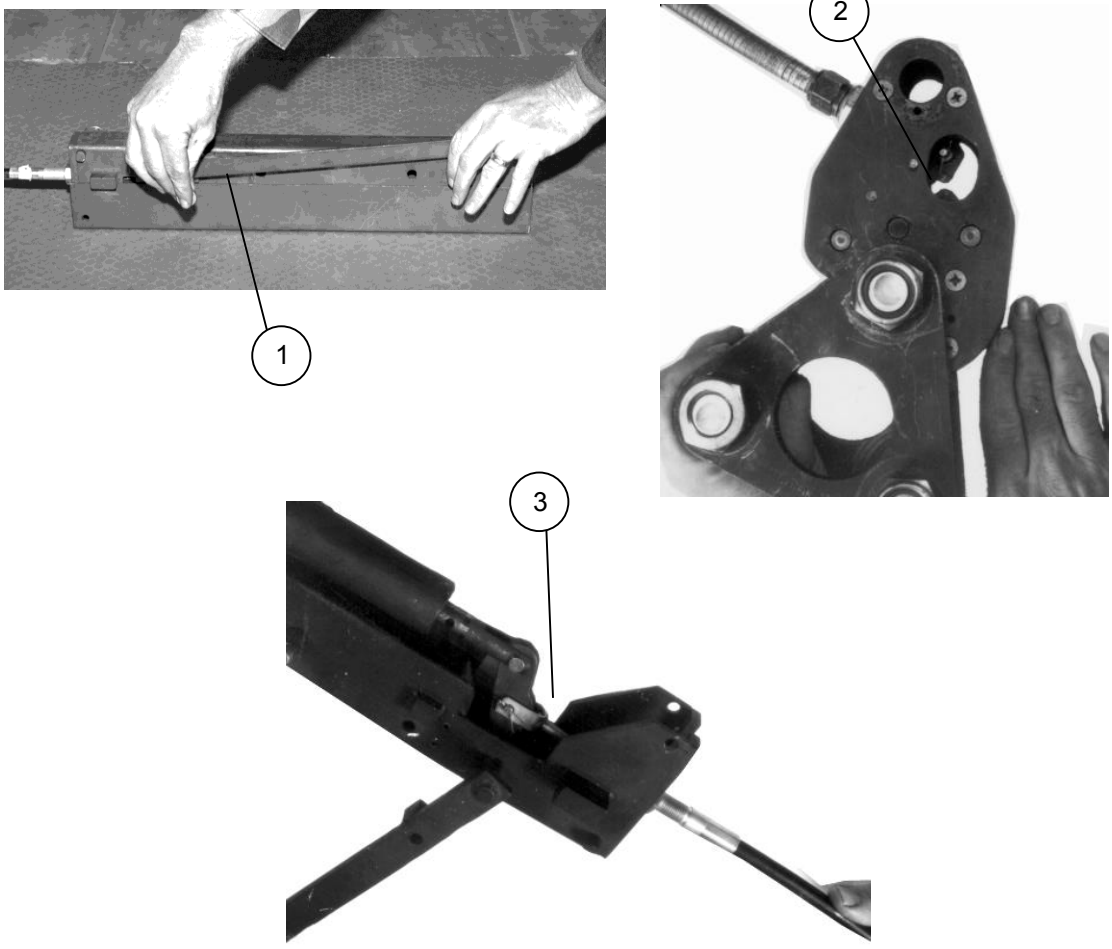
① Make sure that the swage fitting end of the release cable is open 1/8 inch, and slide the fitting through the locking nut and catch spring down over the catch.

② Align the holes in the fitting with the hole in the catch and insert the straight pin with the head up, down through the fitting. Catch and hold the pin in place with a cotter pin on the underside.

③ Use a wrench to tighten the locking nut on the cable to the threaded fitting on the latch assembly.

Figure 6-6. Latch assembly cable adjusted

- **Testing EFTC Extraction System.** Before each use of the EFTC extraction system, test it as shown in Figure 6-7.



Note. It takes two people to test the extraction force transfer coupling (EFTC) properly.

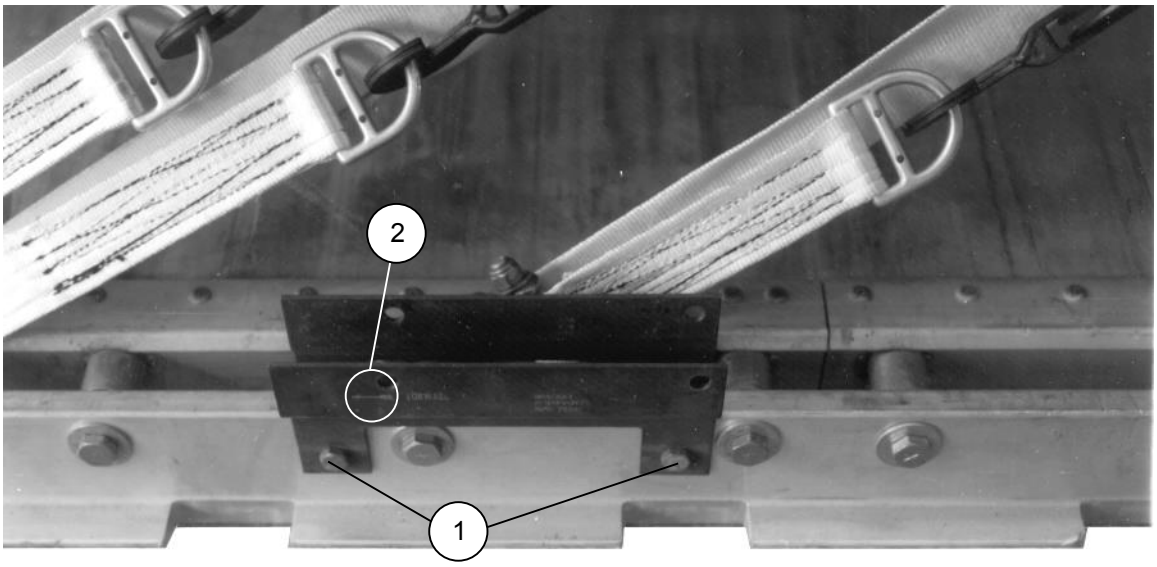
① The first person holds the actuator arm firmly and relaxes the binding on the locking pin. The second person removes the locking pin. The first person then allows the arm to travel to the released position.

② The first person carefully rotates the arm fully to the lock-up position on the side of the actuator. The second person watches the inside of the latch assembly to be sure that the cable retracts the catch and that the locking link and retainer hook are released.

③ The first person closely watches the cable inside the actuator to be sure that the pull on the cable is a straight pull and that the cable does not bend or crimp.

Figure 6-7. Extraction force transfer coupling tested

- **Preparing and Attaching the EFTC to the Type V Platform.** After the EFTC has been tested, disassemble it. Prepare the EFTC components and attach them to the type V platform as shown in Figures 6-8 through 6-10.



CAUTION

When attaching the extraction force transfer coupling (EFTC) mounting brackets on a 28- or 32-foot type V airdrop platform that has three sets of actuator mounting bracket holes, use only the rear most set of holes.

Note. Bolt the actuator mounting brackets to the bracket holes as directed in the specific rigging manual.

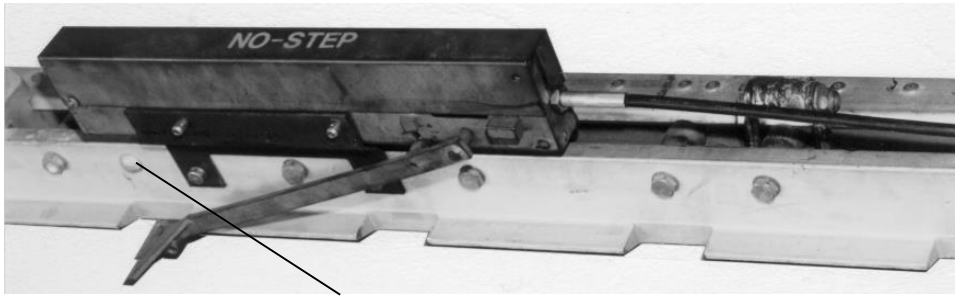
① Bolt the inside and outside actuator brackets to the left rail of the type V platform using self-locking nuts.

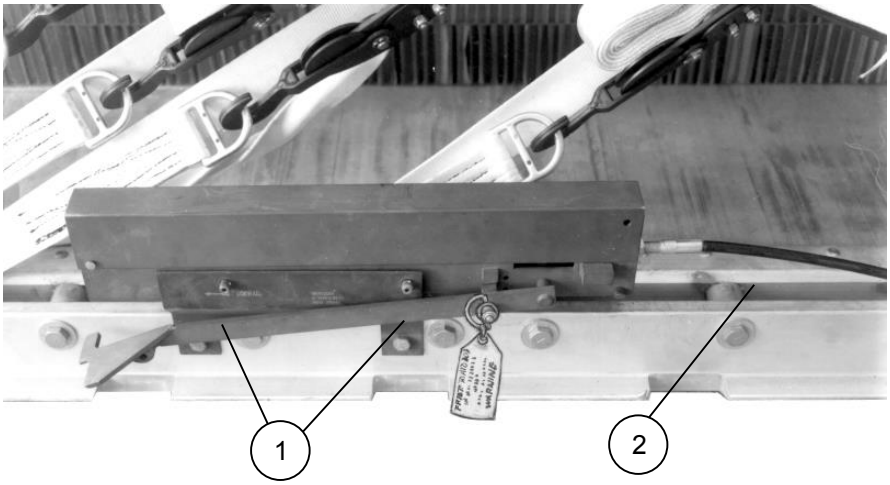
② Make sure the arrow on the outside mounting bracket points toward the front of the platform to show the brackets are properly installed.

Figure 6-8. Actuator mounting brackets installed to the type V platform side rail

CAUTION

When the actuator arm falls directly over the side rail bolt, use a round head replacement bolt. (National Stock Number 5306-00-151-0653)





Step:

① Pin the actuator to the actuator brackets with the push in, pull out (PIP) pins provided. Make sure the PIP pins are put in from the inboard side of the bracket.

② Pass the cable to the inside of the side rail tiedown straps to prevent movement of the cable. Tie the cable in place as directed by the specific rigging manual.

Note. If a longer cable than specified in the specific rigging manual is used, make sure that it is routed in smooth S-shaped bends with no 360 degree circles.

Figure 6-9. Actuator pinned to brackets and position verified

Step:

③ Verify the positioning of the installed actuator as follows:

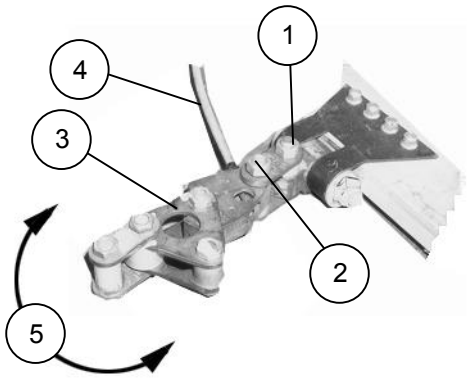
- Hold the actuator arm in place, and remove the locking pin.

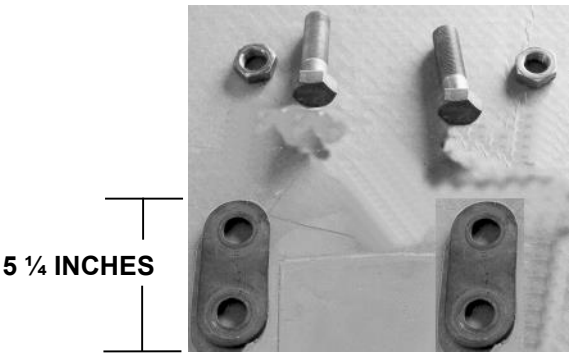
CAUTION

The actuator arm is under 175 pounds of force.

- Allow the arm to rotate down through the forward indent in the side rail.
- Make sure the arm clears the indent by 1/4-inch.
- If the arm CLEARS the indent by 1/4-inch, return the arm to the armed position and replace the push in, pull out (PIP) pin.
- If the arm FAILS to clear the indent by 1/4-inch, make sure the correct mounting holes were used. If the correct holes were used, REPLACE the actuator.

Figure 6-9. Actuator pinned to brackets and position verified (continued)





Notes.

1. Ensure that the platform extraction bracket lug has the required 1/4-inch raised edge at the base of the lug. If the lug does not have a raised edge it has to be modified. This raises the latch assembly to prevent damage to the aircraft.
2. When using the modified latch connector assembly, the rounded portion must be bolted to the extraction bracket lug. If the cut portion of the latch connector assembly is bolted to the lug, it cannot rotate left or right.

① Bolt one end of a 5 1/4-inch latch connector assembly (measured from end to end) to the extraction lug on the platform extraction bracket (Do not tighten bolt).

② Bolt the latch assembly to the latch connector assembly (Do not tighten bolt).

③ Follow steps 3 and 4, Figure 6-4, and steps 1 through 5, Figure 6-5, to attach the coupling link assembly to the latch assembly.

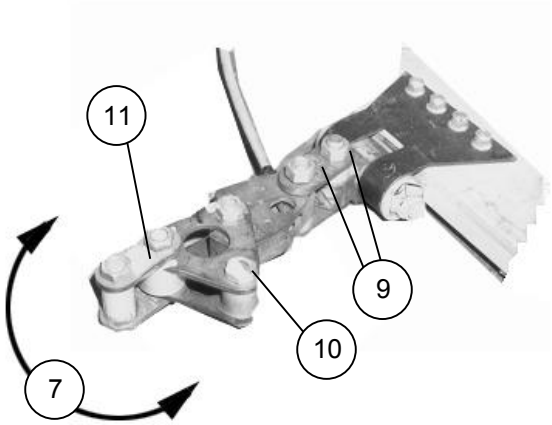
④ Follow steps 1, 2, and 3, Figure 6-6, to attach the cable assembly to the latch assembly.

Notes.

1. Some extraction force transfer coupling (EFTC) configurations do not allow steps 5 and 6. See specific rigging manuals for procedures.
2. When installing the EFTC, the latch assembly is rotated to the right and left. On some airdrop loads the specified cable length in the rigging procedures is not long enough to allow the latch assembly to contact the platform, when rotating it to the right. Airdrop units are authorized to use the next longer length of EFTC cable if the latch assembly fails to make contact with the platform while installing the EFTC.

⑤ After attaching the cable, rotate the latch assembly all the way right until it comes in contact with the platform or lug, then all the way to the left until the cable begins to bind.

Figure 6-10. Latch assembly bolted to type V platform extraction bracket



CAUTION

Tie the slack in the cable in a smooth S-shaped bend. This should be tied to the side of the load or to a lashing on the type V platform in such a way to allow free play in the cable. This will avoid binding problems in the cable. Do not make a tie around the metal reinforced portion of the extraction force transfer coupling (EFTC) cable.

⑥ With the latch assembly in the far right position, make the securing ties to the cable using Type I, 1/4-inch cotton webbing, one turn single with a surgeon's knot and locking knot allowing free play in the cable.(Not Shown)

⑦ Rotate the latch assembly left and right once again to verify sufficient play. The cable SHALL NOT bind. Ensure that dot/arrow on the latch assembly stays aligned.

⑧ Repeat step 7 with the latch assembly in the transportation (vertical) position.

⑨ Tighten bolts from steps 1 and 2.

⑩ Bolt one end of the deployment line to the right spacer of the coupling link assembly.

⑪ When a 6-loop extraction line is used, the adapter link assembly MUST be used to separate the loops of the line.

Note. After you verify sufficient slack in the cable on the extraction force transfer coupling (EFTC), remove the quick-release pins from the actuator. Lay the actuator on the platform, and secure the actuator. This will keep the actuator from being damaged while the platform is being loaded in the aircraft.

Figure 6-10. Latch assembly bolted to type v platform extraction bracket (continued)

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Chapter 7

Extraction Parachute Jettison System

SECTION I-GENERAL INFORMATION

USE

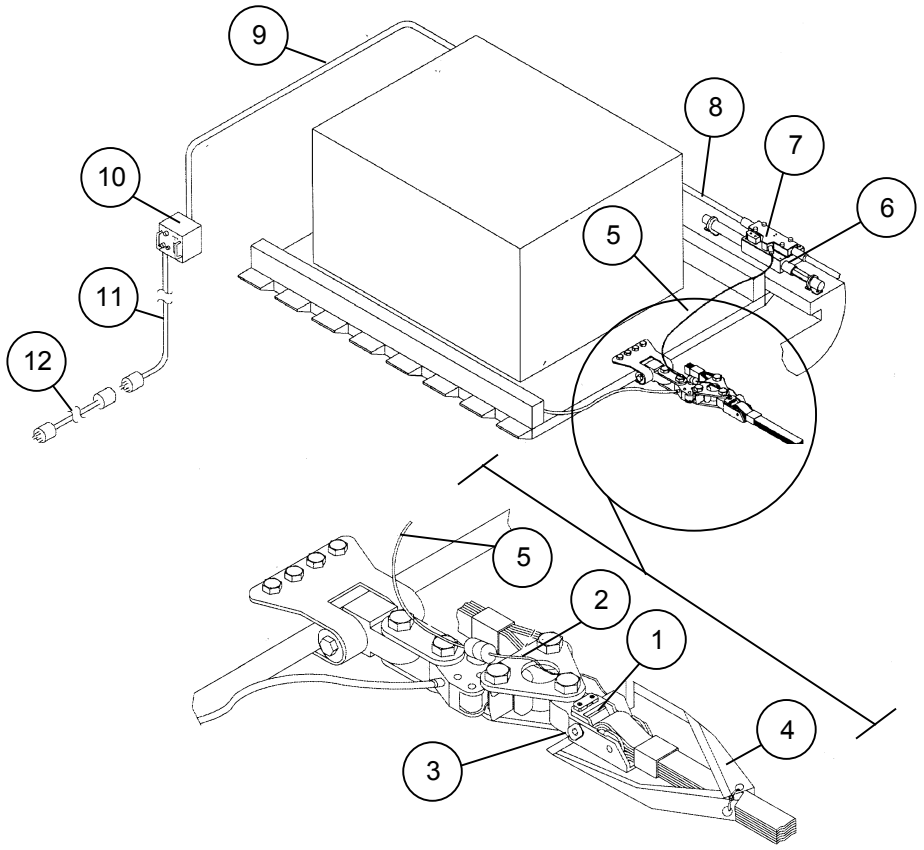
7-1. The extraction parachute jettison system (EPJS) allows jettisoning of an extraction parachute, extraction line and line panel in the event of a malfunction during the extraction phase of airdrop. The system is capable of jettisoning a single 15, 22, or 28-foot extraction parachute.

CAUTION

The load range of the extraction parachute jettison system (EPJS) is 2,520 pounds to 30,000 pounds. The EPJS is not authorized for use with clusters of two 28-foot extraction parachutes.

DESCRIPTION

7-2. The EPJS consists of four extraction parachute jettison devices (EPJDs) and the aircraft electrical control components that accommodate four airdrop loads. The EPJD connects directly to the airdrop load and the EPJS aircraft electrical components are routed and secured inside the cargo compartment of the aircraft. Modifications to existing hardware are not required. The EPJD is prepared and attached to an extraction line prior to loading the aircraft. The aircraft electrical control components will be installed in the aircraft by the aircrew prior to aircraft loading. The aircrew will attach the EPJD to the platform after the platform is locked into position on the aircraft. The EPJS may be utilized with the C-17 and the C-130 aircraft. Figure 7-1 shows the location of the major components.



Note. One load is shown and the extraction parachute jettison system (EPJD) with attached components is expanded for clarity. For a complete component listing, refer to TM 10-1670-296-20&P/TO 13C-7-49-2.

① Extraction Parachute Jettison Device

② Squib Cable, 18-inch (yellow)

③ Safety Cap (stowed in EPJD)

④ Protective Cover

⑤ Platform Cable, 10-foot (yellow)

⑥ Y-Connector Mounting Box (C-130; C-17)

⑦ Y-Connector

Figure 7-1. Major components of the extraction parachute jettison system

⑧ Interconnect Cable, 10-foot (black)

⑨ Main Cable, 50-foot (black)

⑩ Control Box

⑪ Power Cable, 20-foot (red)

⑫ Power Cable Extension, 20-foot (red)

⑬ Extension Cable, 4-foot (yellow) (C-17 only) (not shown)

Figure 7-1. Major components of the extraction parachute jettison system (continued)

INSPECTION AND MAINTENANCE

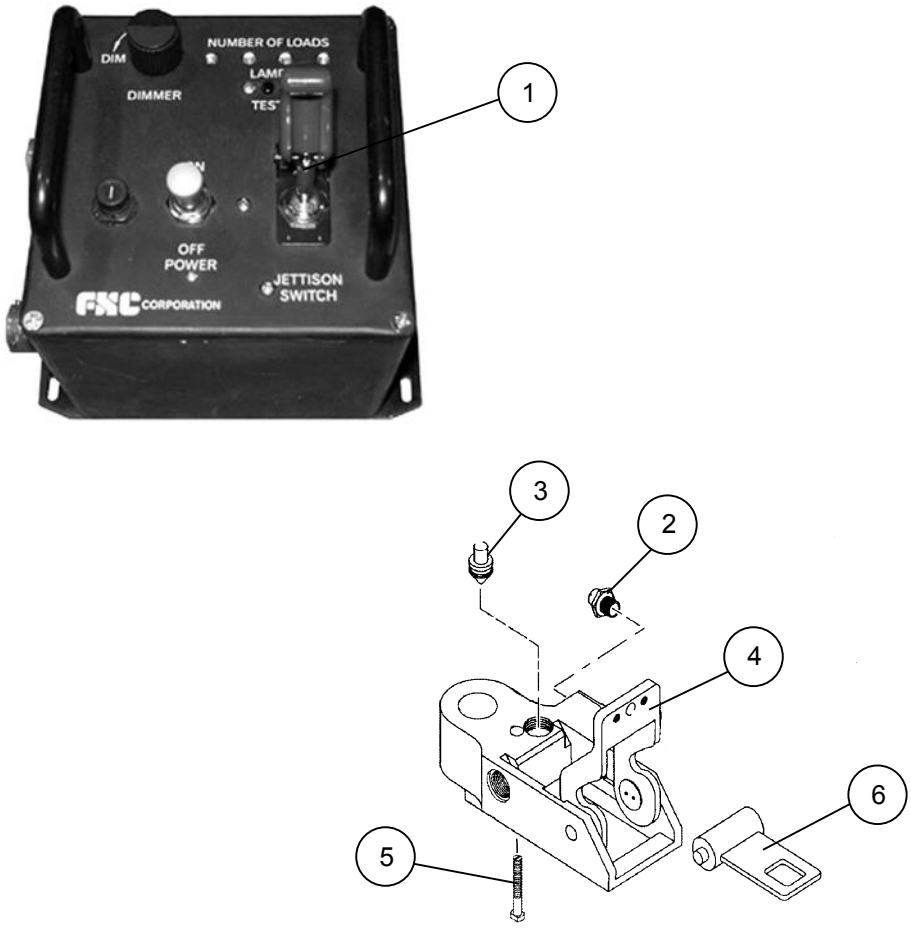
7-3. The EPJS components are inspected and maintained according to the procedures in TM 10-1670-296-20&P/TO 13C7-49-2. See the TM for specifics on inspection and maintenance procedures.

OPERATION

7-4. The operation of the EPJS is explained in Figure 7-2.

- **Normal Airdrop Sequence**. During a normal airdrop, there is no change to the existing sequence of extraction and deployment events. Cable disconnect events occur in the following manner. As the airdrop platform moves aft from its locked position during extraction, the forward connector of the platform cable disconnects from its respective Y-connector. During extraction transfer, the squib cable disconnects from the aft connector of the platform cable.

- **Extraction Malfunction**. When the "JETTISON" switch is activated the EPJD releases the keeper, allowing the extraction line and keeper to pull free of the load and aircraft. If multiple loads are being airdropped and the jettison switch is activated, all squibs will fire simultaneously.



① The EPJS operates when the jettison switch of the EPJS control box is moved to the "JETTISON" position.

② Squib: The squib will then fire, generating a tremendous amount of force.

③ Piston: The force will push on the piston inside the housing.

④ Latch: The piston will push against the latch.

⑤ Shear Bolt: The latch in turn, applies sufficient tension to break the shear bolt.

⑥ Keeper: The latch then rotates aft, releasing the extraction line keeper and the attached extraction line, line panel and extraction parachute.

Figure 7-2. Operation of the extraction parachute jettison system

SECTION II-RIGGING INFORMATION

PREPARING THE EXTRACTION PARACHUTE JETTISON SYSTEM

7-5. Inspect, test, and prepare the components of the EPJS as shown in TM 10-1670-296-20&P/TO 13C7-49-2 and this manual.

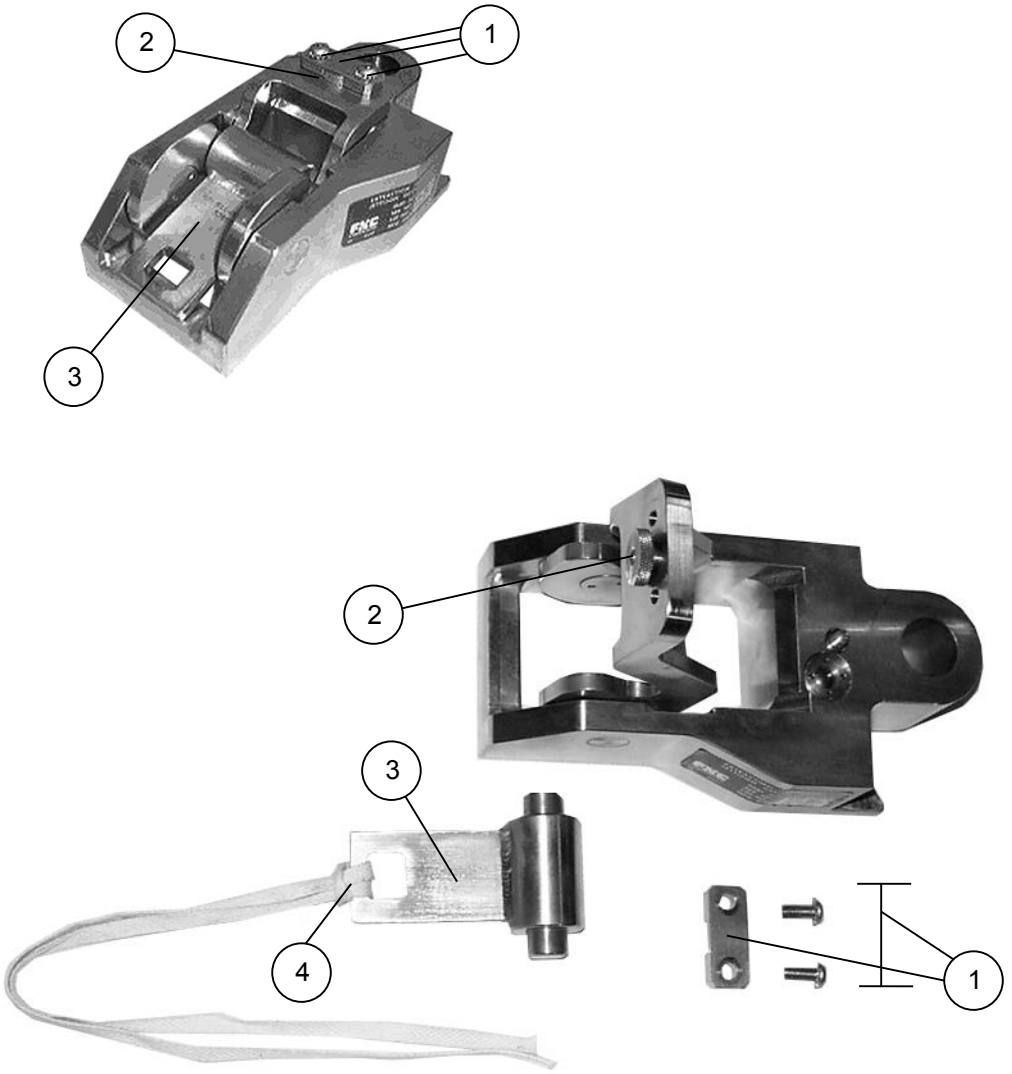
- **Preparing the Extraction Parachute Jettison Device.** Before each use, inspect and assemble the components of the EPJD as shown in TM 10-1670-296-20&P/ TO 13C7-49-2.
- **Attaching the Extraction Line**. Prepare and attach the extraction line to the EPJD as shown in Figure 7-3.

WARNING

The squib must not be installed in the EPJD when beginning this procedure. A squib, when improperly handled, may inadvertently activate, or fail to activate when required. Unintentional activation may result and cause injury to personnel, burns or unwanted secondary activations.

CAUTION

Ensure that the piston stop and cross hole plug is installed in the EPJD, and that the shear bolt is not loose. Do not unscrew the latch retainer nut from the latch.



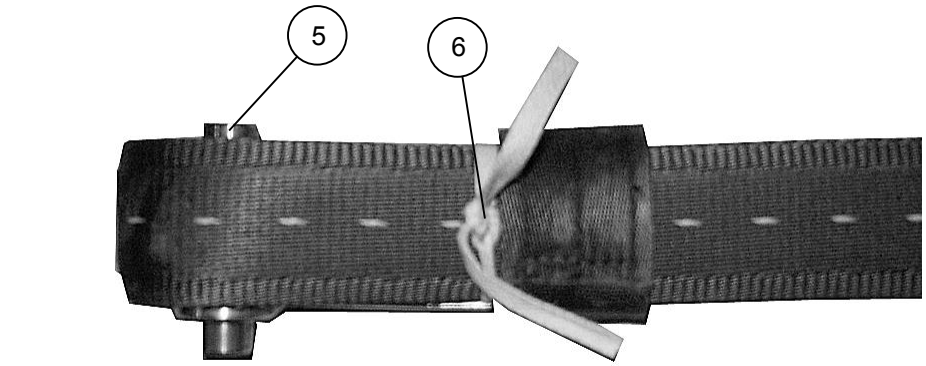
① Remove the cap screws and retainer clamp from the latch of the extraction parachute jettison system (EPJD).

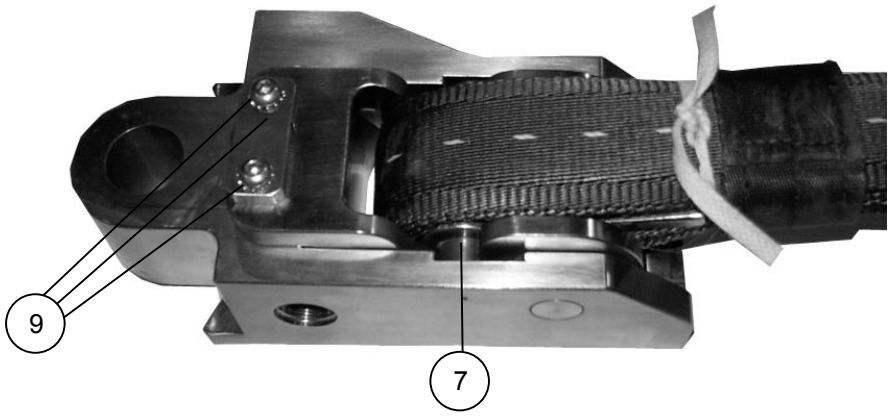
② Unscrew the latch retainer from the shear bolt.

③ Remove the extraction line keeper from the latch.

④ Girth hitch an 18-inch piece of type I, 1/4-inch cotton webbing through the rectangular portion of the keeper.

Figure 7-3. Extraction line attached to the extraction parachute jettison devices





⑤ Evenly split the plies of the extraction line and place the keeper inside.

⑥ Route the running ends of the type I, 1/4-inch cotton webbing around the top of the extraction line in opposite directions and secure it with a surgeon's knot and locking knot.

⑦ Place the extraction line keeper with extraction line attached back into the latch of the extraction parachute jettison system (EPJD).

⑧ Secure the latch by screwing the latch retainer nut to the shear bolt (not shown).

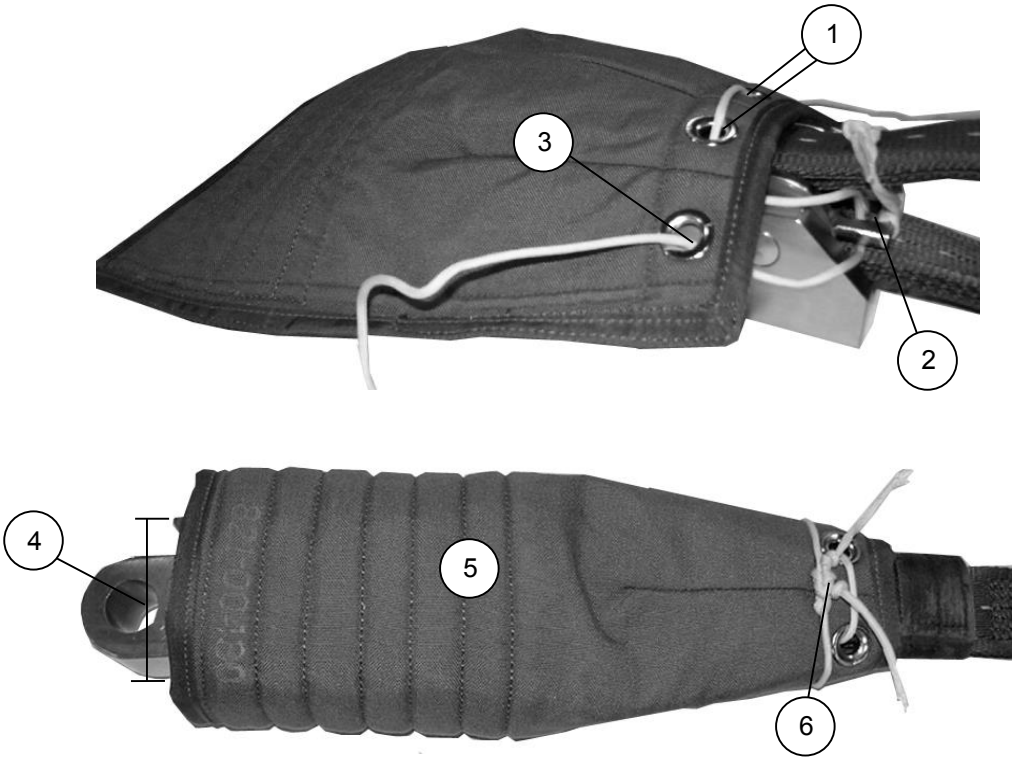
Note. Lift the latch slightly before engaging the threads to make assembly easier.

⑨ Attach the retainer clamp to the latch using the two cap screws.

Note. Ensure the cap screws are wrench tightened using a 5/32-inch T-handle, hex drive wrench.

Figure 7-3. Extraction line attached to the extraction parachute jettison devices (continued)

- **Attaching the Protective Cover to the EPJD**. Attach the protective cover to the EPJD and extraction line as shown in Figure 7-4.



① Cut a piece of type III nylon cord 60 inches long. Lace the two running ends of the type III nylon cord through the two inside grommets of the protective cover from nylon side to felt side. Position the protective cover on the extraction parachute jettison system (EPJD), felt side down, with the grommet edge toward the extraction line panel.

② Route the two running ends of the type III nylon cord to the outside of the extraction line and through the rectangular cutout in the extraction line keeper from top to bottom.

③ Run the two running ends of the type III nylon cord to the two outside grommets of the cover from felt side to nylon side (only the left outside grommet is visible in photo).

④ Align the edge binding of the cover with the front edge of the EPJD latch.

⑤ Fold the protective cover around the EPJD and secure the hook pile tape.

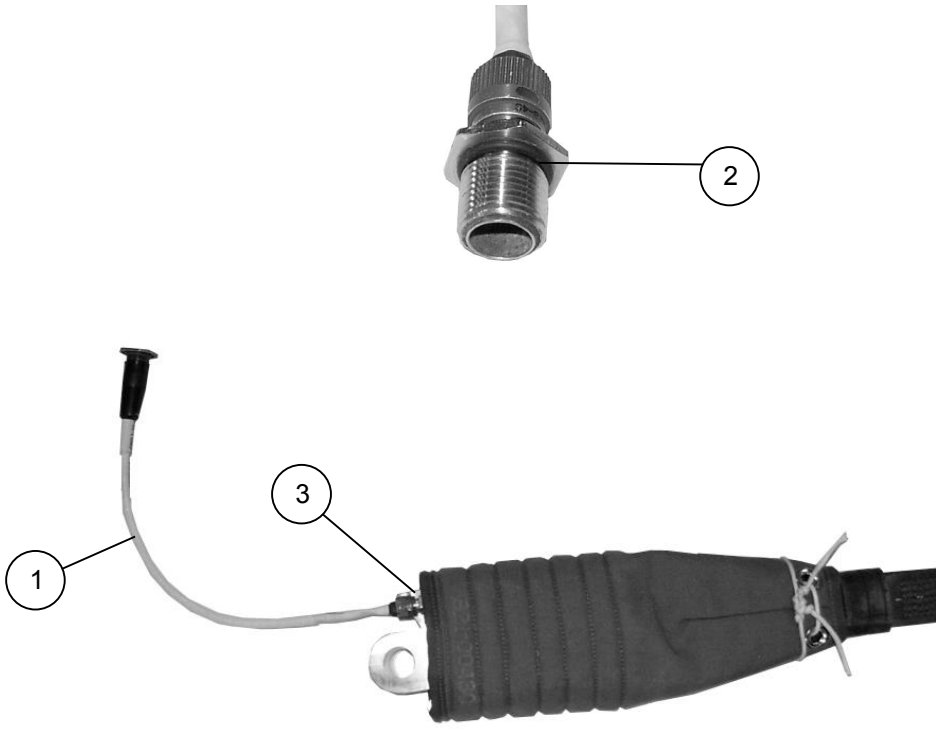
⑥ Tighten the type III nylon cord making sure the cover does not slip forward over the EPJD attaching lug. Cross both running ends and bring them to the top of the cover. Tie the running ends in a surgeon's knot and locking knot with overhand knots in the running ends.

Figure 7-4. Protective cover attached to the extraction parachute jettison devices

- **Attaching the Squib to the EPJD.** Attach the squib to the EPJD as shown in Figure 7-5.

WARNING

When attaching the squib to the extraction parachute jettison system (EPJD) do not separate the squib cable with safety cap from the squib.



① Inspect and prepare a squib, squib cable with safety cap and extraction parachute jettison system (EPJD) according to the procedures in TM 10-1670-296-20&P/TO 13C7-49-2 and Figures 7-3 and 7-4 of this manual.

② Apply a small amount of O-ring lube to the O-ring of the squib.

③ Attach the squib assembly to the threaded EPJD squib port. Use a 1-inch wrench provided with the kit to tighten the squib until it contacts the body of the EPJD.

Note. Do not over tighten the squib.

Figure 7-5. Squib and squib cable attached to the extraction parachute jettison devices

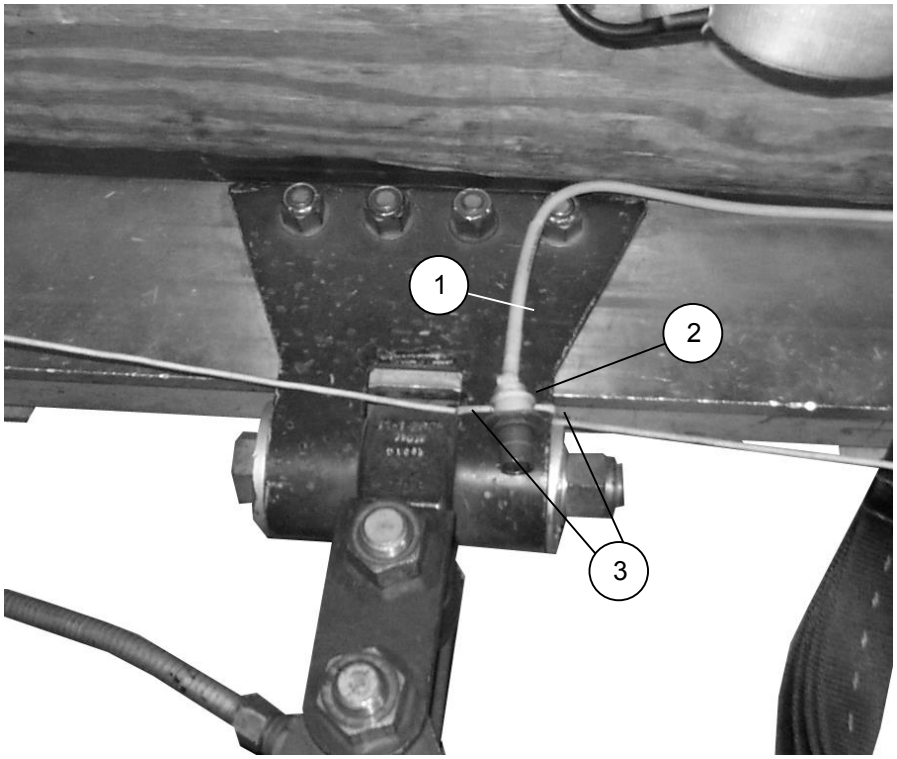
WARNING

Avoid handling the extraction parachute jettison system (EPJD) by its latch after the squib has been installed in the EPJD squib port.

④ Open the hook pile tape and bend the squib cable back so that the connector and most of the cable is inside the protective cover and close the cover.

Figure 7-5. Squib and squib cable attached to the EPJD (continued)

- **Preparing the Airdrop Load**. Prepare the airdrop load by attaching a platform cable to the load as shown in Figure 7-6.

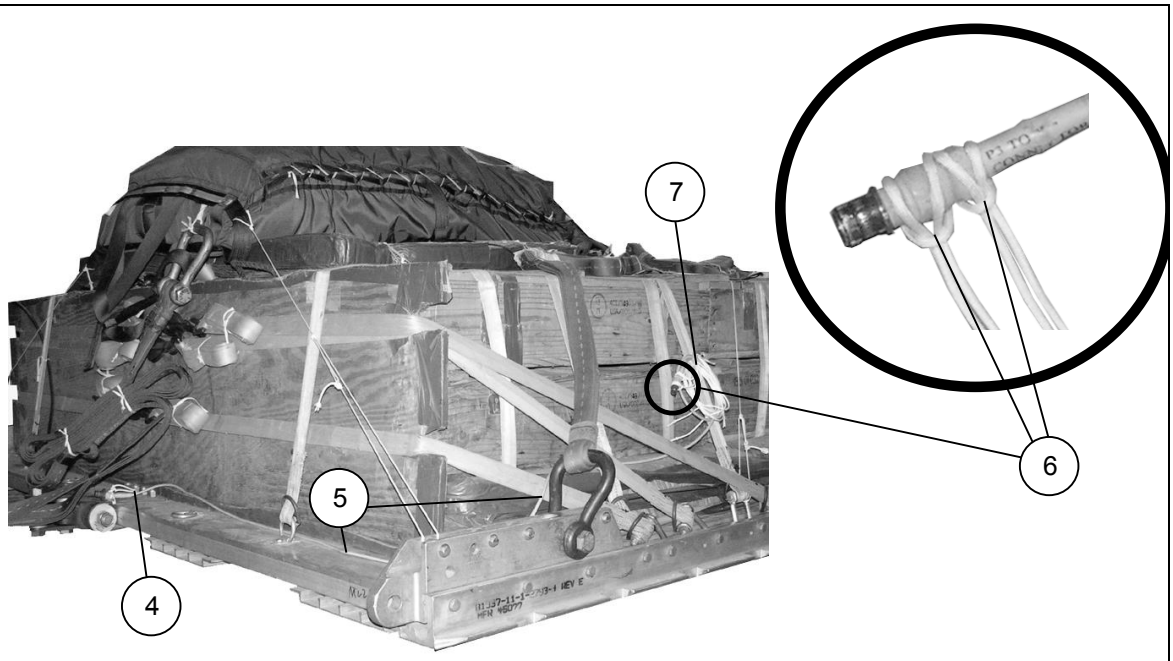


① Inspect a 10-foot platform cable as shown in TM 10-1670-296-20&P/TO 13C7-49-2.

② Girth-hitch a 32-inch length of type III nylon cord to a point just forward of the aft connector flange of the platform cable. Position the girth-hitched portion of the cable on top of the right side of the extraction bracket, aligning the tie with the rear edge of the platform.

③ Route both running ends of the type III nylon cord through the space between the top of the extraction bracket and the extraction lug in opposite directions.

Figure 7-6. Platform cable attached to the airdrop load



⑤ Route and secure the running ends of the type III nylon cord on top of the platform cable with a surgeon's knot and locking knot with overhand knots in the running ends.

⑥ Route the platform cable to the right side of the platform and behind all lashings and slings.

⑦ Girth-hitch two suitable lengths of type III nylon cord to the quick disconnect fitting on the platform cable to be used as safety ties during after-load rigging.

Note. When utilizing the C-17 aircraft an extension cable must be used; therefore; girth-hitch a single length of type III nylon cord around the quick disconnect fitting of the platform cable.

⑧ Tie the platform cable to a convenient point on the load with a length of type I, 1/4-inch cotton webbing.

Figure 7-6. Platform cable attached to the airdrop load (continued)

- Preparing the EPJS Aircraft Components for Transportation (C-130, and C-17 only). Assemble, inspect, and transport the EPJS aircraft components as follows:
  - Inspect a set of EPJS aircraft components as outlined in TM 10-1670-296-20&P/TO 13C7-49-2.
  - Stow the components of the EPJS in an EPJS equipment bag. Put the control box and mounted Y-connectors in the lower level compartments. Fold the separator panel over the lower level and place the cables in the upper level.

Note. Ensure that the Y-connectors are mounted to the Y-connector mounting boxes according to the type of aircraft being utilized. For the C-130 and C-17 aircraft, mount the Y-connector to the wide portion of the mounting box.

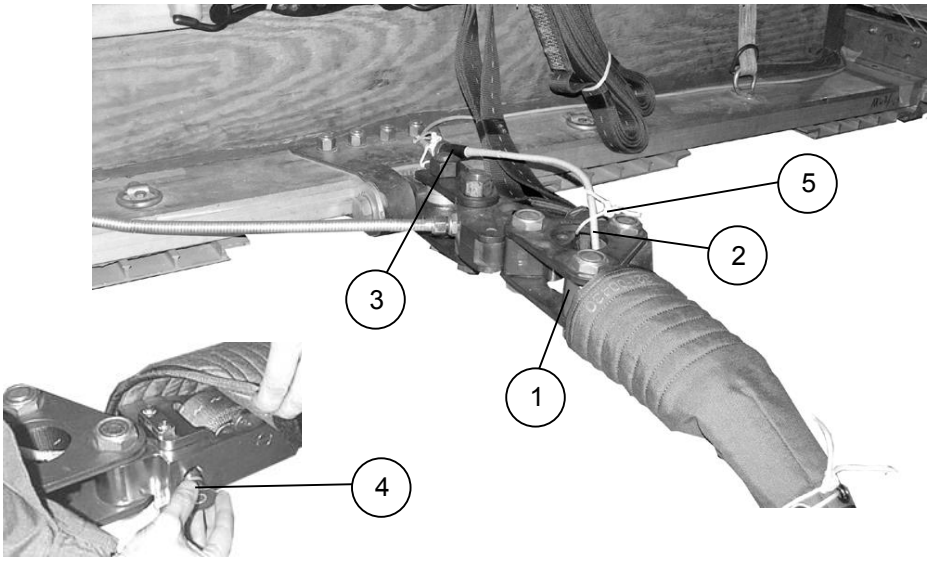
  - Transport an EPJD with extraction line attached, that has been prepared as outlined in Figures 7-3 through 7-5 of this manual.
  - While the airdrop loads are being weighed and manifested, transport the EPJS equipment bag and the prepared EPJD to the aircraft.
  - Aircrew members will install the EPJS in the aircraft.
- **Attaching the EPJD to the Airdrop Load** during After-Load. Attach the EPJD to the load as shown in Figure 7-7.

WARNING

Failure to connect the squib cable to the platform cable as soon as practical after removing the safety cap, increases the probability of inadvertent activation.

CAUTION

Ensure the safety cap is stowed in the threaded port of the EPJD.



Note. Ensure that the spacer removed in step 1 is removed from the aircraft prior to airdrop.

① Remove the nut, bolt, and spacer from the extraction side of the coupling assembly. Attach an extraction parachute jettison system (EPJD) that has been inspected and prepared according to the procedures in TM 10-1670-296-20&P/TO 13C7-49-2 and Figures 7-3 through 7-5. Secure with the nut and bolt previously removed.

② Route the squib cable through the hole in the top plate of the coupling assembly.

WARNING

Prior to attaching the squib cable to the platform cable ensure the power and jettison switches on the control box are in the off position. This will prevent inadvertent activation of the squib.

③ Remove the safety cap from the squib cable and immediately plug the connector on the squib cable to the fitting on the platform cable.

④ Stow the safety cap in the threaded hole on the left side of the EPJD body.

⑤ Route a length of type III nylon cord around the squib cable and top plate of the coupling assembly on the deployment side making a loose retaining tie. Secure with a surgeon's knot and locking knot with overhand knots in the running ends.

Note. When making the retaining tie ensure that there is approximately 1 to 3 inches of slack between the top plate of the three-point link and squib cable.

Figure 7-7. Extraction parachute jettison devices attached to the airdrop load

Chapter 8

Release Assemblies

SECTION I-GENERAL INFORMATION

USE

8-1. The cargo parachute release assembly allows the parachute (s) to separate from the load when the load touches the ground. The separation reduces the chance of the wind dragging or overturning the load.

DESCRIPTION

8-2. The M-1 or the M-2 is used when a platform load is rigged for low-velocity airdrop. The automatic cargo release is used on some Marine Corps, Navy and Air Force loads.

- **The M-1 Airdrop Cargo Parachute Release.** This release is used with rigged loads weighing up to 15,000 pounds suspended.
- **The M-2 Airdrop Cargo Parachute Release.** The M-2 release is similar to the M-1 release. The M-2 release is used on loads weighing up to 42,000 pounds suspended.
- **The Automatic Cargo Parachute Release (ACPR) (Not for Army Use).** The automatic cargo parachute release is a two-piece unit that operates on a load-tension activated hydraulic arming delay principal. It has no internal maintenance or repair. The automatic cargo parachute release is used on loads weighing up to 2,500 pounds suspended.

Note. Specific rigging manuals will specify which release is used.

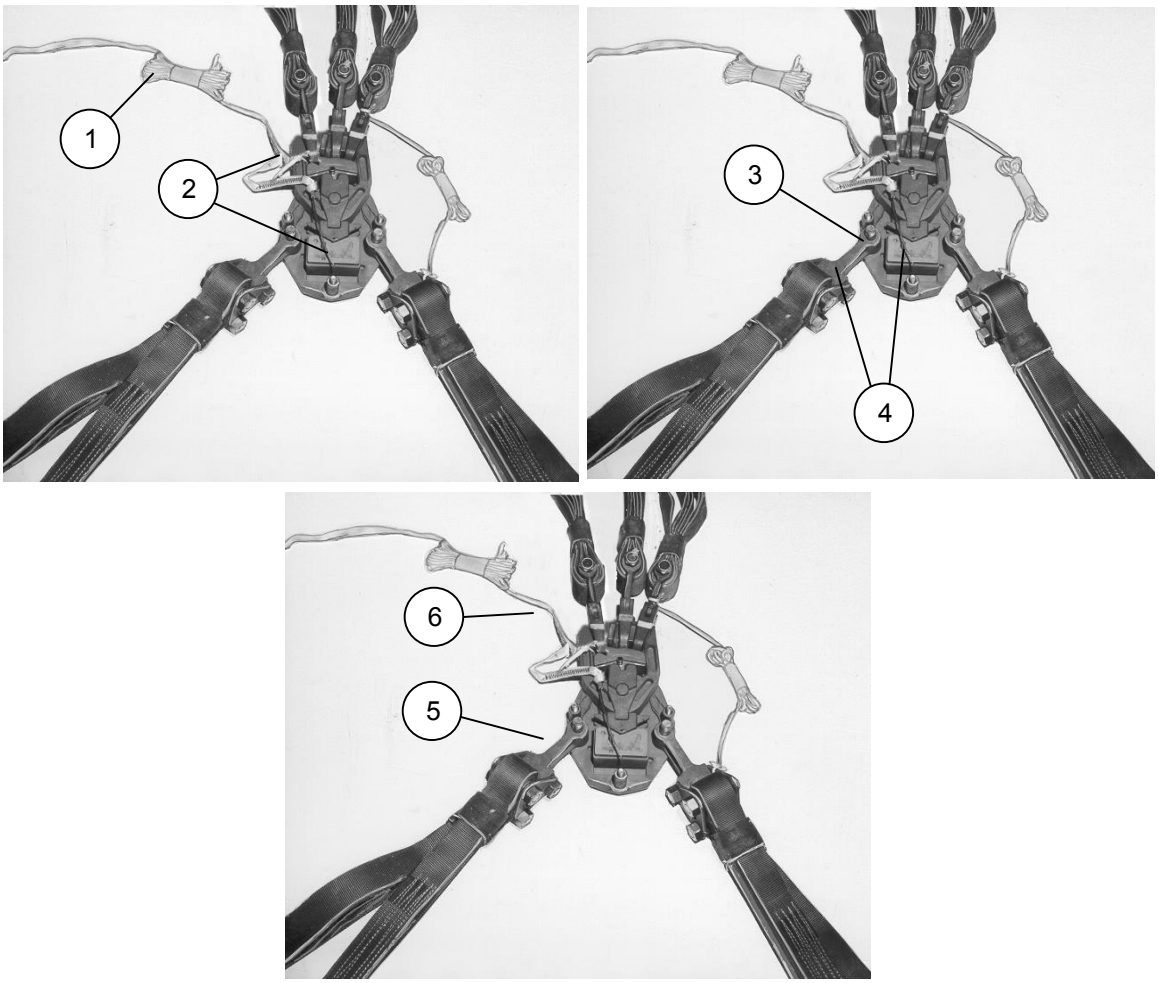
INSPECTION AND MAINTENANCE

8-3. The M-1 and M-2 releases are inspected and maintained as outlined in TM 10-1670-296-20&P/TO 13C7-49-2. See the TM for specifics on inspection and maintenance.

OPERATION

8-4. The operation of the airdrop cargo parachute release works when the load touches the ground and upper suspension link tilts or moves to the side. When the release tilts, the parachutes are released from the load. Figure 8-1 shows how the release operates.

Note. The face plate has been removed to aid in identification.



① As the cargo parachute deploys, the arming wire lanyard is pulled.

② The safety tie is broken and the arming wire is pulled from the timer.

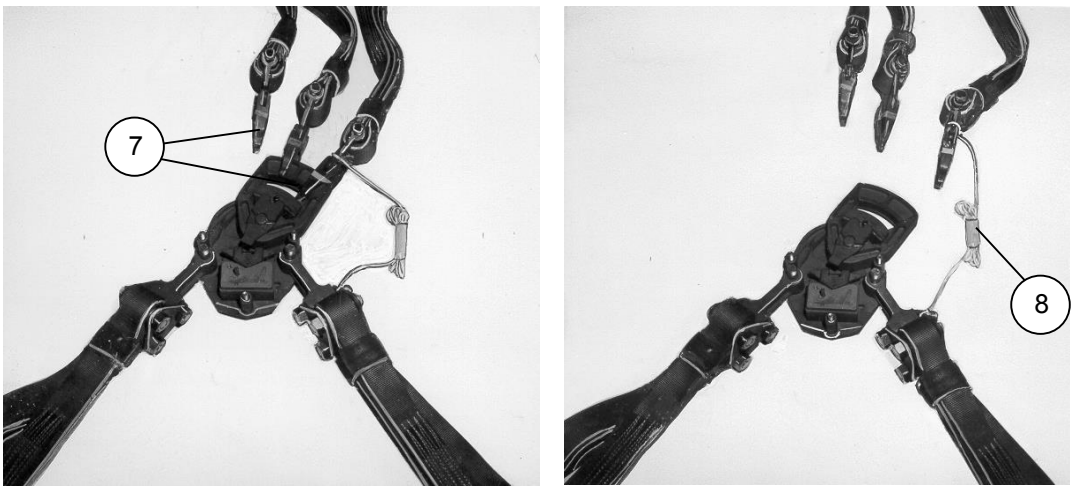
③ The timer delays from 12 to 16 seconds. This delay allows the load to stabilize itself under the parachute.

④ When the timer winds down, it retracts its keys from the slots in the release.

⑤ When the keys are retracted from their slots, the timer is free to fall within the release.

⑥ As the timer falls, it frees the toggle and upper suspension link.

Figure 8-1. Typical operation of the M-1 and M-2 cargo parachute release



⑦ When the load descends, the normal upright position of the M-1 release keeps the parachute connectors in place. As the load touches the ground, the upper suspension link tilts and allows the parachute connectors to pull free.

⑧ The released parachute stretches the dragline until the release drags to one side of the load to prevent damage to the load. Then the dragline breaks.

Figure 8-1. Typical operation of the M-1 and M-2 cargo parachute release (continued)

SECTION II-RIGGING INFORMATION

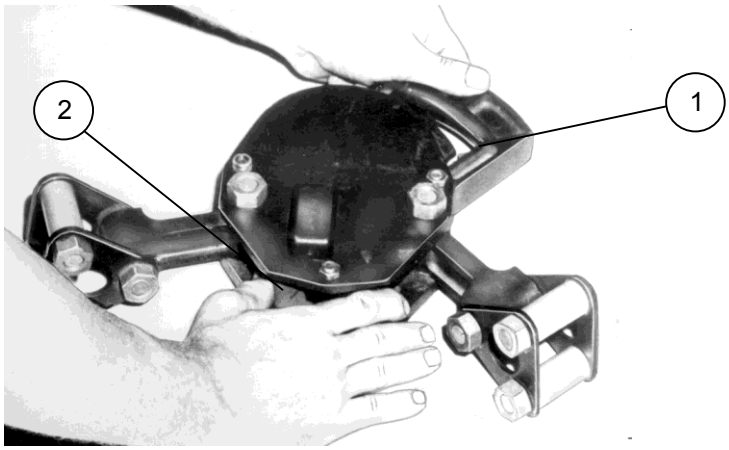
M-1 CARGO PARACHUTE RELEASE

8-5. Test, attach, and safety the M-1 cargo parachute release as follows:

CAUTION

DO NOT use the M-1 cargo parachute release with four G-11B cargo parachutes. The M-2 cargo parachute release MUST be used.

- **Testing Timer.** Before each use, seat, arm, and test the delay timer as shown in Figures 8-2 through 8-4.



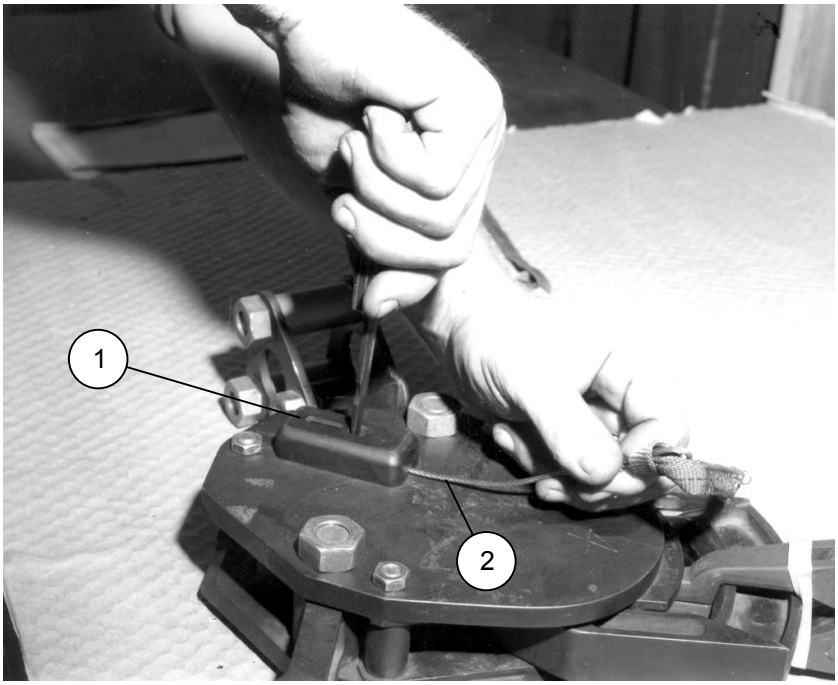
① Align and center the upper suspension link with the release side plates.

CAUTION

If the timer is not correctly seated in the upper position in the release when it is armed, the keys will not fit into the slots in the back side plate and could damage the timer.

② Reach between the side plates, and slide the timer up until the toggles fit in the toggle lock slides, making sure the timer slides freely. You should be able to see the winding shaft of the timer through the guide block winder access hole.

Figure 8-2. Delay release timer seated



① Put the tip of a flat-tip screwdriver through the guide block winder access hole and into the slot in the timer winding shaft. Gently turn the shaft one-quarter turn to the right and stop, holding the shaft with the screwdriver.

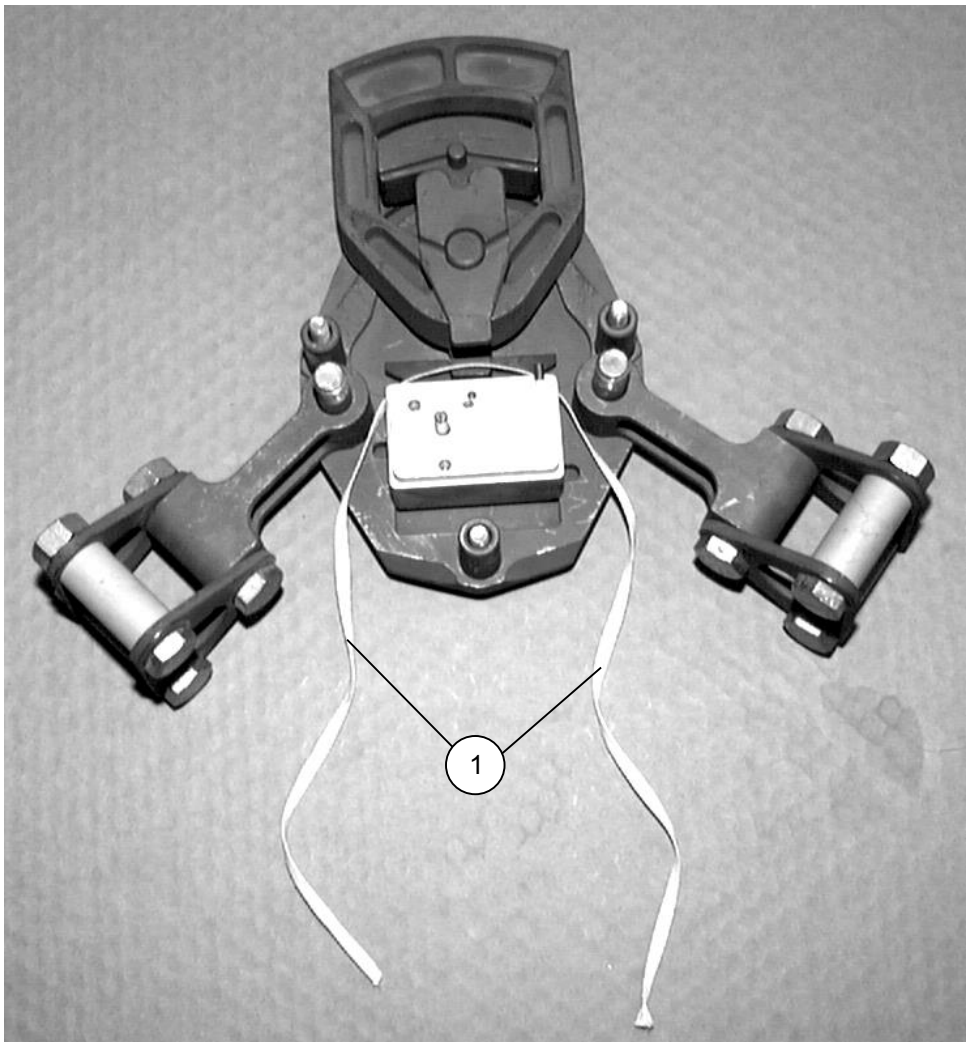
Note. If the winding shaft is hard to turn, hold the shaft with the screwdriver and move the timer around until the keys align with the slots in the back plate.

② Hold the shaft, and push the arming wire down through the hole in the guide block and the hole in the winding shaft.

Note. When the timer is correctly armed, about 1/2 inch of the arming wire can be seen through the slot below the guide block winder access hole.

Figure 8-3. Timer armed

Note. The delay release timer will be tested before each use.

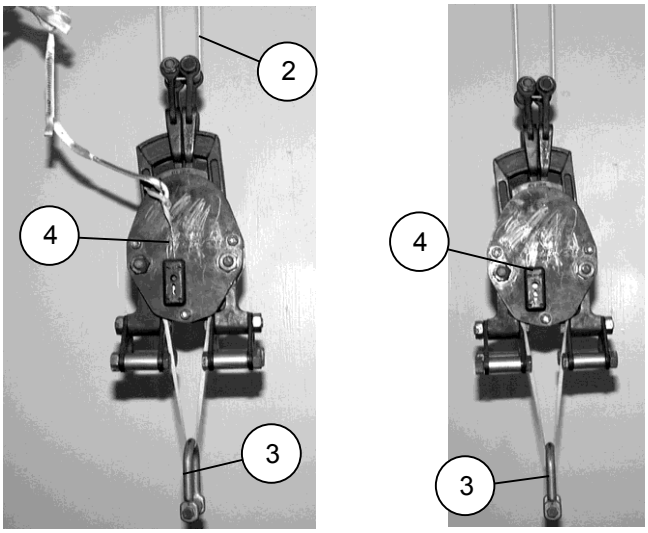


① Pass a length of type I, 1/4-inch cotton webbing up between the release side plates, over and around the center of the timer, and back down between the side plates. The side plate and a toggle lock slide have been removed to show how the webbing passes around the timer. You may use a length of wire to help you pass the webbing around the timer.

Figure 8-4. Testing timer

CAUTION

Do not over tighten the face side plate. Failure to do so could result in a malfunction of the M-1 release.



② Hang the release in a straight, level position.

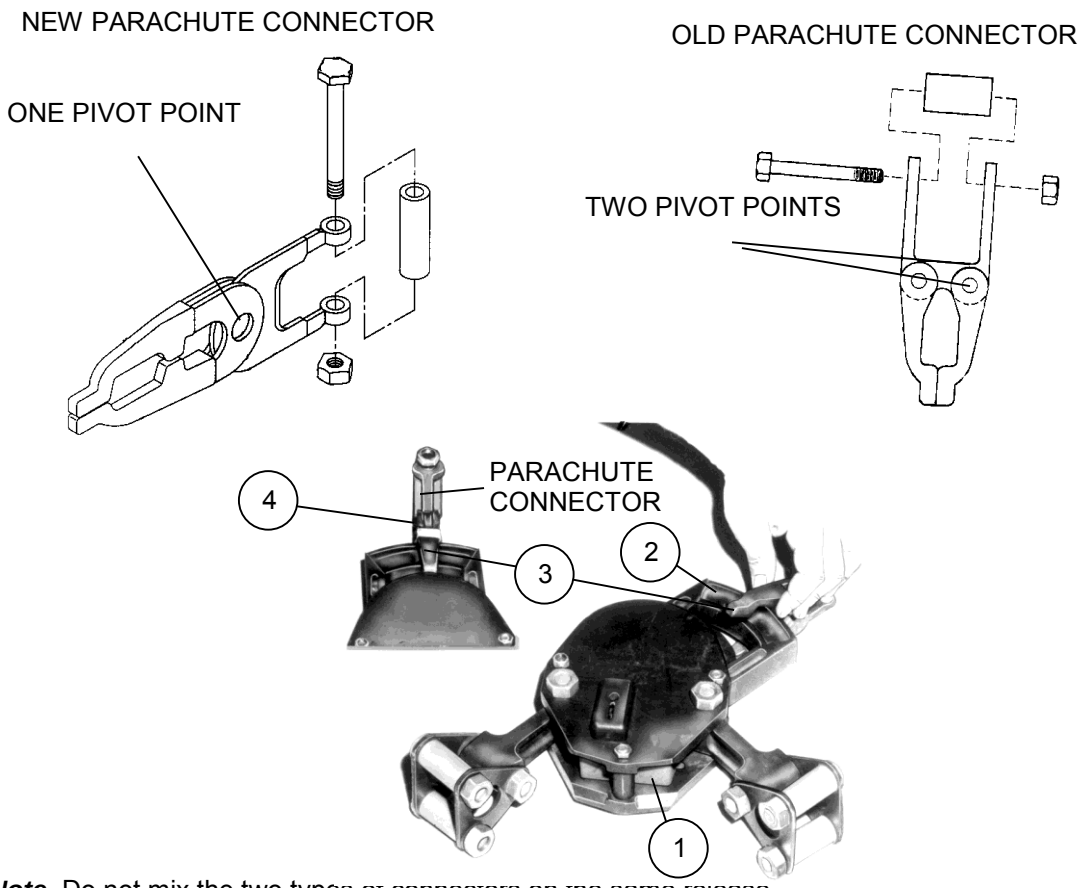
③ Tie a calibrated 10-ounce weight to the type I, ¼-inch cotton webbing. For field expediency, the 10-ounce weight may be substituted with a Type V platform clevis body (remove nut, bolt, washers, and spacer)

④ Pull the arming wire from the timer. Count the seconds from the time the wire is pulled until the timer falls within the release.

Note. If the timer fails to fall after the allotted time (12 to 16 seconds), refer to TM 10-1670-296-20&P/TO 13C7-49-2 for proper maintenance procedures.

Figure 8-4. Testing timer (continued)

- **Preparing, Attaching, and Safety Tying Release.** Prepare, attach, and safety the M-1 cargo parachute release as shown in Figures 8-5 through 8-7.



Note. Do not mix the two types of connectors on the same release.

① Use an M-1 release with a tested timer and make sure that the delay release timer is down in the housing of the release.

② Move the upper suspension link to the right or the left as far as it will go.

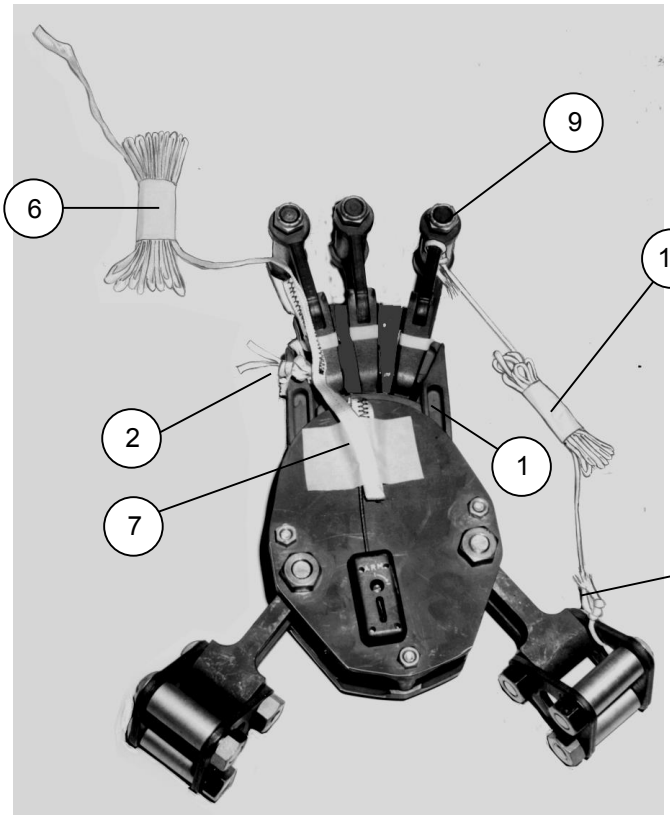
③ Open the arms of a parachute connector, and fit the arms on the upper suspension link with the tips together in the groove of the retaining clamp.

Notes.

1. One parachute connector will be fitted to the upper suspension link for each cargo parachute used on the load.
2. A retaining band may be used to aid in assembly.

④ Fit a retainer band around the parachute connector to aid in assembly. Remove the retainer bands.

Figure 8-5. Parachute connector fitted to upper suspension link or M-1 release



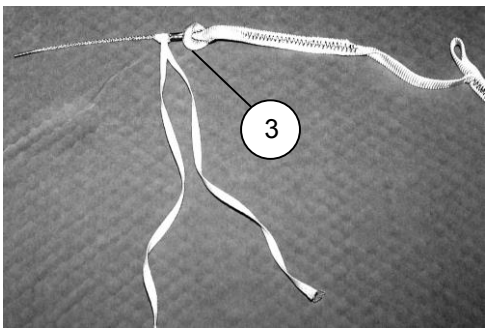
① Move the upper suspension link back to the center of the release and arm the timer as indicated in Figures 8-2 and 8-3.

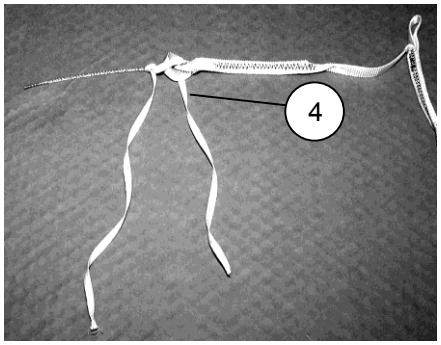
② Safety the arming wire lanyard to the upper suspension link with a double length of type I, 1/4-inch cotton webbing with a surgeon's knot and a locking knot.

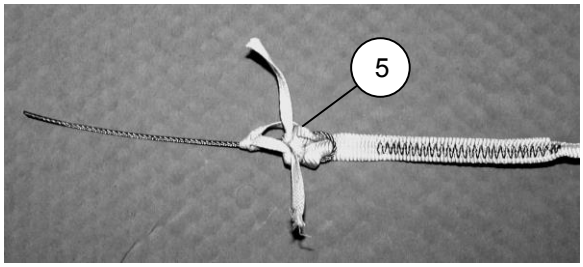
CAUTION

The end loop of the arming wire may pull free from the crimping sleeve during parachute deployment. To ensure that the arming wire disengages from the timer stem, an arming wire safety tie must be installed on all arming wires prior to use on an airdrop operation.

Figure 8-6. M-1 release prepared







Note. With the arming wire lanyard attached to the arming wire loop, the arming wire loop shall be designated as the top. This safety tie should be inspected at the joint airdrop load inspection, before and after loading. Install the safety tie as follows:

③ Girth hitch a 12-inch length of 1/4-inch cotton webbing on the safety wire just below the metal fastener.

④ Route one running end of the 1/4-inch cotton webbing through the looped ends of the arming wire and lanyard.

⑤ After ensuring there is 1/2-inch to 1-inch of slack in both running ends, tie a surgeon's knot and locking knot in the 1/4-inch cotton webbing.

⑥ Fold the slack in the lanyard, and tape the folds in place with one turn of masking tape.

⑦ Fold the slack in the lanyard, between the safety tie and the arming wire, and tape the fold to the face side plate with one piece of masking tape.

Note. Include the following data on the masking tape: name, date, and timer seconds.

⑧ Tie one end of a 5-foot length of type III nylon cord (dragline) to the outside side of the right lower suspension link.

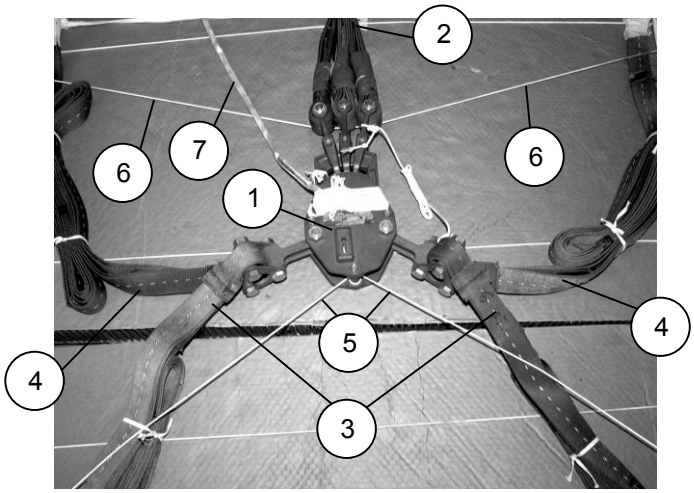
⑨ Tie the other end of the dragline to the body of the right parachute release connector.

⑩ Fold the slack in the dragline and tape the folds in place with one turn of masking tape.

Figure 8-6. M-1 release prepared (continued)

CAUTION

Make sure the arming wire lanyard is routed over all items.



① Put the release on the load as instructed in the specific rigging manual for the load.

Note. Bolt a 3-foot (2-loop), type XXVI nylon sling to the parachute clevis of one G-11B cargo parachute and to the parachute connector fitted to the release.

② Bolt the riser extensions of two G-12E, or two or three G-11B cargo parachutes to the parachute connectors already fitted to the release.

③ Attach the front suspension slings to the top bolts of the lower suspension link.

④ Attach the rear suspension slings to the lower bolts of the lower suspension link. The rear slings will have a half twist towards the parachutes.

⑤ Run a length of type III nylon cord to encircle the lower spacer, and tie the ends of the cord to points on the front of the load or platform.

⑥ Run a length of type III nylon cord over the suspension slings and through the parachute connectors, and tie the ends of the cord to points on the rear of the load or platform.

⑦ Tie the lanyard to a carrying handle of a parachute with three alternating half hitches and an overhand knot in the running end.

⑧ Fold the slack in the lanyard, and tape the folds in place with one turn of masking tape. (Not shown)

Figure 8-7. M-1 release attached and safety tied to load

M-2 CARGO PARACHUTE RELEASE

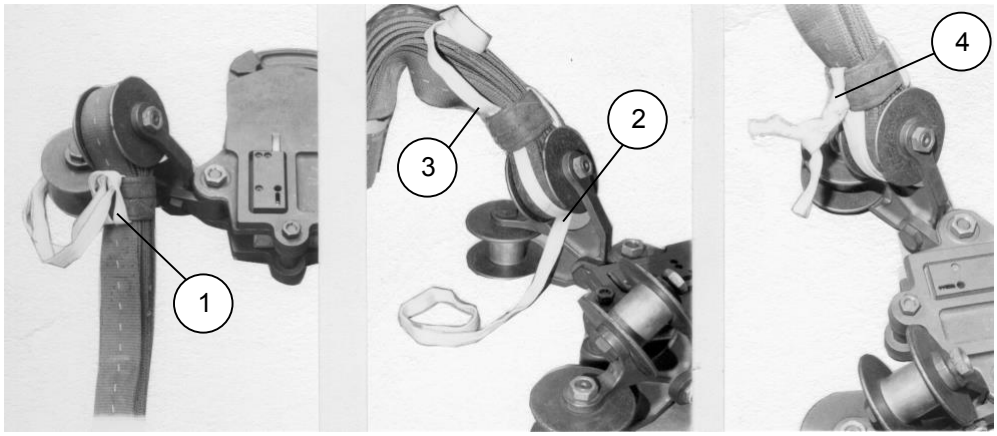
8-6. Prepare, attach, and safety the M-2 cargo parachute release as follows:

- **Preparing Release.** Test the timer and prepare an M-2 cargo parachute release the same as the M-1 release.

Note. Three to eight connectors may be fitted to an M-2 release. The M-2 release requires a 5-foot dragline made from 1/2-inch tubular nylon webbing.

- **Attaching and Safety Tying Release.** Attach and safety tie the M-2 cargo parachute release to the load as shown in Figure 8-8.

Note. When using the M-2 cargo parachute release on the 28-foot and 32-foot platforms, use a 25-foot arming wire lanyard. Make the lanyard according to TM 10-1670-296-20&P/TO 13C7-49-2.



① Form a girth hitch around one side of a suspension sling keeper with a 5-foot length of 1/2-inch tubular nylon webbing. Make sure the running ends are equal.

② Route both ends around the looped end of the sling and through the lower suspension link.

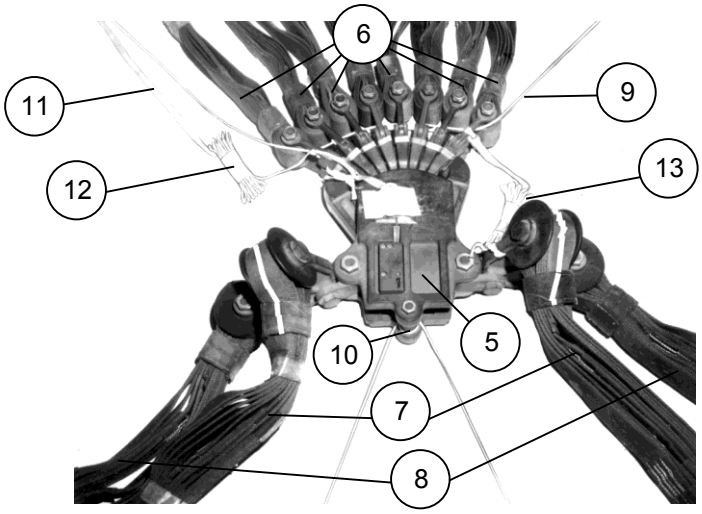
③ Route one end of the 1/2-inch tubular nylon webbing through the suspension sling keeper.

④ Slide the keeper as close to the lower suspension link as possible. Tie the running ends together with a slip knot.

Figure 8-8. M-2 release prepared, attached, and safety tied to load

CAUTION

Make sure the arming wire lanyard is routed over all items.



⑤ Put the release on the load as instructed in the specific rigging manual for the load.

⑥ Bolt the riser extensions of three to four G-11B or five to eight G-11C cargo parachutes to the parachute connectors already fitted to the release.

⑦ Attach the front suspension slings to the top bolt of the lower suspension link.

⑧ Attach the rear suspension slings to the lower bolt of the lower suspension link. The rear slings will have a half twist towards the parachutes.

⑨ Run a length of type III nylon cord through the connectors, and tie the ends of the cord to points on the rear of the load or platform.

⑩ Run a length of type III nylon cord around the lower spacer, and tie the ends of the cord to points on the front of the load or platform.

⑪ Tie the lanyard to the carrying handle of a parachute with three alternating half hitches and an overhand knot in the running end.

⑫ Fold the slack in the lanyard, and tape the folds in place with one turn of masking tape.

⑬ Install the drag line and fold the slack. Secure with masking tape.

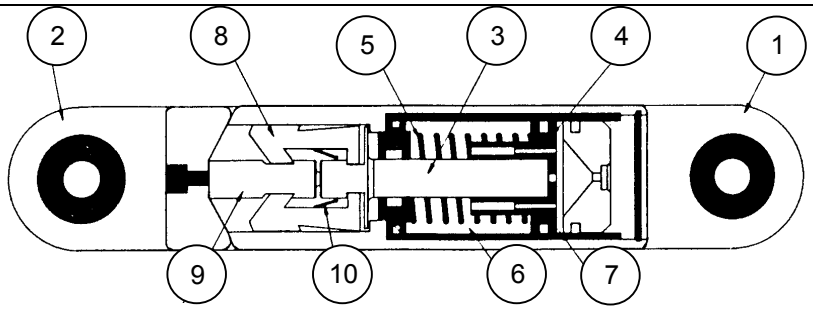
Figure 8-8. M-2 release prepared, attached, and safety tied to load (continued)

THE AUTOMATIC CARGO PARACHUTE RELEASE (NOT FOR ARMY USE)

8-7. The automatic cargo parachute release is a two-piece unit that operates on a load tension activated hydraulic arming delay principal. It has no internal maintenance or repair.

Note. The service life of the release is 10 years from the date of manufacture.

- **Physical and Functional Characteristics.** The physical and functional characteristics of the automatic cargo release are shown in Figure 8-9.



① The automatic cargo release is a two-piece unit that operates on a load-tension activated hydraulic arming delay principle. The main body, section 1, is attached to the main parachute riser and the release fitting shackle.

② The release fitting shackle is attached to the suspension sling while the assembly is in the closed position.

③ Application of a load will exert force on the piston rod.

④ This causes the piston head to move downward.

⑤ This also causes the load spring to move downward.

⑥ This forces hydraulic fluid, located in the lower chamber to flow through orifices in the piston head.

⑦ The fluid flows from the piston head to the upper chamber.

⑧ The size of the orifices and the thickness of the fluid limit the flow, so that the maximum stroke will occur after a period of time defined by the manufacturer as 420/square root of the load in pounds. At the end of the stroke, the jaws are fully extended downward.

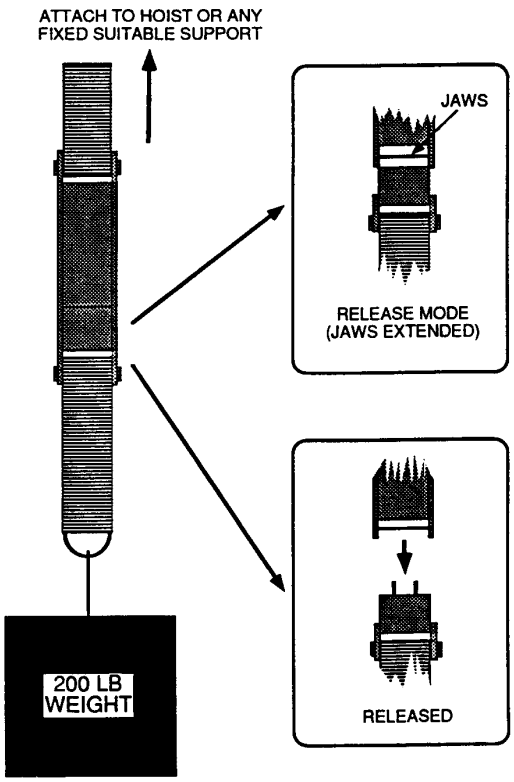
⑨ The jaw teeth engage the neck and shoulders of the release stud, in the shackle and retain it by friction as long as the load remains on the assembly.

⑩ When the load is relieved due to canopy collapse, the release spring forces the jaws apart and the release fitting shackle drops away.

Figure 8-9. Physical and functional characteristics

- **Original Receipt Inspection.** After removing the unit from its packaging, visually verify that all components of Figure 8-9 are present and in acceptable condition for use (no corrosion, deformation, leakage, or other abnormalities). Perform a pre-drop activation test as shown in Figure 8-10.

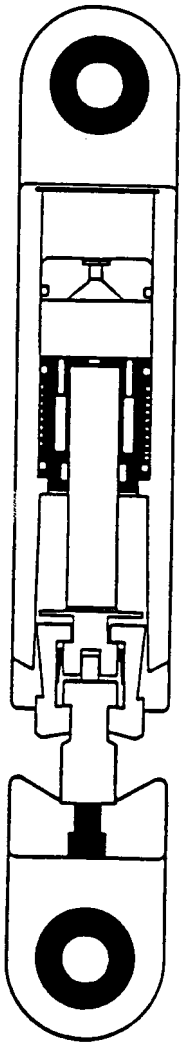
Note. When testing the Automatic Cargo Parachute Release the main body must be facing up.



Step:

1. Remove the two hex bolts and spacers and insert the spacers into interfacing webbing loops.
2. Attach the main body section webbing sling to a hoist or any suitable support that allows sufficient height to activate the release. (Full extension including release mode is 2 inches.)
3. Attach a weight of approximately 200 pounds to the release fitting shackle webbing sling. If the support height is sufficient, your suspended body weight is suitable.

Figure 8-10. Pre-drop activation test



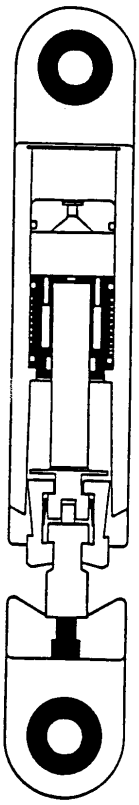
Step:

4. Time the arming delay starting from when the load is applied to when the jaws of the release extend below the cutouts in the bottom section of the main body section. Release mode should occur after 30 to 40 seconds under a 200-pound load. If the release mode and full extension is reached in less than 30 seconds under a suspended load of 200 pounds, the release is to be considered unserviceable.

Figure 8-10. Pre-drop activation test (continued)

CAUTION

Ensure the release fitting shackle is held when the weight is released to prevent it falling upon separation which could cause personal injury.



Step:

5. When the release mode has been achieved, simulate impact by lowering the hoist (if used) until the load is relieved; or if body weight is used, (ensure the release fitting shackle is held securely to prevent personal injury upon separation), quickly release the load. The spring loaded jaws will kick outward releasing the release fitting shackle which allows the cargo release unit to immediately separate. The outer lip on the jaws will catch on the lip of the main body section, holding the piston extracted and retaining the jaws in the open position.

Figure 8-10. Pre-drop activation test (continued)

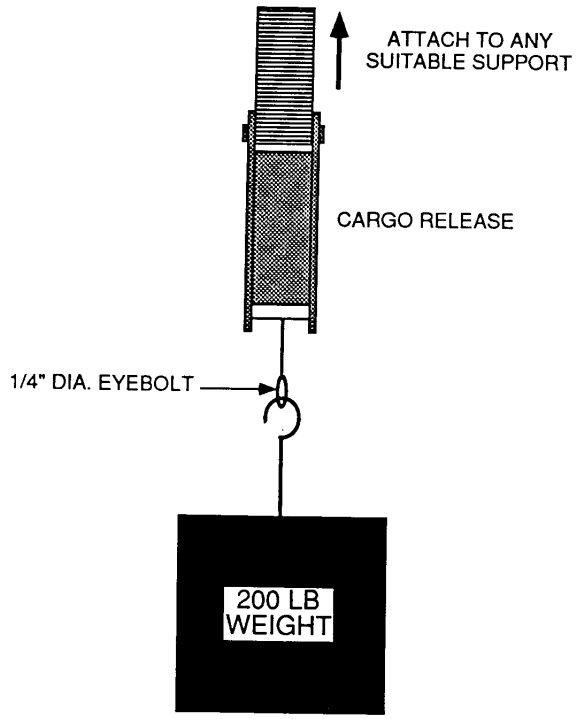
Step:

6. Inspect the main body section for fluid leakage. The jaws and release fitting shackle should be totally dry. The silicone fluid is clear and if any evidence of leakage is apparent, it will appear as wet and glistening. If leakage is evident, the release will not be used.

Note. The automatic cargo parachute release National Stock Number 1670-01-337-4366 part number 811-00220 incorporates a removable filter. The automatic cargo parachute release part number 811-00220-1/-2 incorporates a non-removable solid aluminum cap.

7. Inspect the presence, condition, and security of the removable filter. The filter is a thin silver disc of porous metal located on the end of the main body section. The removable filter is held securely in the main body piston cavity by a washer and retaining ring.
8. Inspect for presence, condition, and security of the solid aluminum cap. The cap is located on the end of the main body section.
9. Preparation for reuse is accomplished by simply flushing foreign particles from the unit and air drying.

Figure 8-10. Pre-drop activation test (continued)



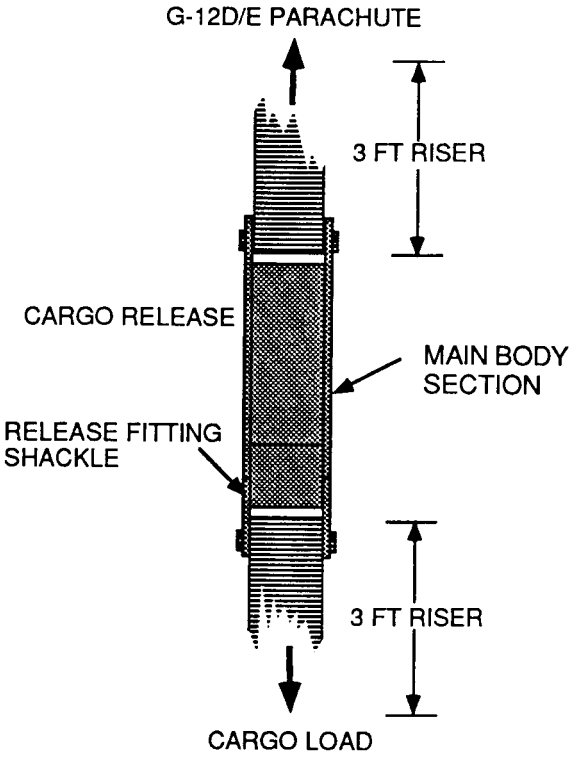
Legend: LB = Pound

Step:

10. If the spring loaded jaws are squeezed together without the release fitting shackle installed, they will retract into the main body section. When this occurs, simply insert a 1/4-inch diameter (thread size 20) eye bolt into the threaded hole of the piston. Attach the release body to a hoist or suitable support, and attach a weight to the eye bolt. When the jaws are extracted beyond the body, they will be forced to the open position by the spring tension.
11. Insert the release fitting shackle in the main body section by inserting the pins in the respective holes in the piston. Hold in position, and by using finger pressure, squeeze the spring loaded jaws together. Retraction of the jaws into the main body section will immediately start. (The check valve within the hydraulic circuit allows quick and easy insertion.) Completely close the release assembly using hand force. The cargo release is now ready for use.
12. The release should always be reassembled and stored in the closed position. After submersion in water, position the release with the filter end facing down, allowing any water which may be trapped behind the filter to drain.

Figure 8-10. Pre-drop activation test (continued)

- **Installation for Airdrop.** Instructions for installing the cargo release are shown in Figure 8-11.



Legend: FT = Foot

Step:

1. Perform the pre-drop activation test to ensure the cargo release is fully functional and ready to use.
2. Ensure the release is used with a 3-foot sling attached to the main body section and to the release fitting shackle. (The slings will absorb any twisting during parachute descent.)
3. Install the cargo release with the main body section facing toward the parachute riser and the release fitting shackle facing toward the cargo load slings.
4. Tie the cargo release to the rigged load in two places by routing a length of 1/4-inch cotton webbing through each end shackle sling.

Figure 8-11. Cargo release installed

- **Post Drop Maintenance.** Perform post drop maintenance according to the following:

Step:

1. Remove the retaining ring in the upper cargo release assembly using Truarc ring pliers. To remove the filter and washer, hold the release filter end downward. The filter and washer should fall out. Thoroughly rinse the main body section and release fitting shackle with fresh water. Direct flow using a water hose or faucet would be ideal. If the cargo release has not been maintained, the filter may adhere to the housing bore. Where severe corrosion exists, the filter may have to be replaced.
2. Thoroughly rinse the main body section and release fitting shackle with fresh water. (For non-removable solid aluminum cap)
3. Inspect the cargo release visually for obvious damage. Use low pressure air if available to dry the unit. Minor leakage of the silicone fluid will be very difficult to detect at this point.

Note. The release fitting shackle assembly, part number 811-00324-1, National Stock Number 4030-01-353-6217, may be procured through normal supply channels.

4. Reassemble the unit by inserting the release fitting shackle into the main body section and squeezing the spring loaded jaws together. Completely close the release assembly using hand pressure. If the release does not close fully and the ball locks cannot snap in place, then the unit should be subjected to the pre-drop inspection test.
5. To completely dry, hang or stand the assembled unit with the filter end (main body section) facing down to allow drainage of any water that may have accumulated behind the filter.
6. Any discrepancies found or suspected will be cause for rejection. Return the unit with a brief description of the problem and a point of contact to: Commander, Code 461100D, Naval Air Warfare Center Weapons Division, 1 Administration Circle, China Lake, CA 93555-6001. Do not return the unit to the manufacturer.

PARACHUTE RISERS ATTACHED TO THE PARACHUTE RELEASE

8-8. Lay the parachute release on top of the load with the bolt end of the parachute connectors toward the cargo parachutes. Bolt the parachute riser extensions to the parachute connectors of the M-1 or M-2 parachute releases as shown in Figures 8-12 through 8-15.

Note. Bolt the parachute riser extensions to the parachute connectors from rigger's right to left.

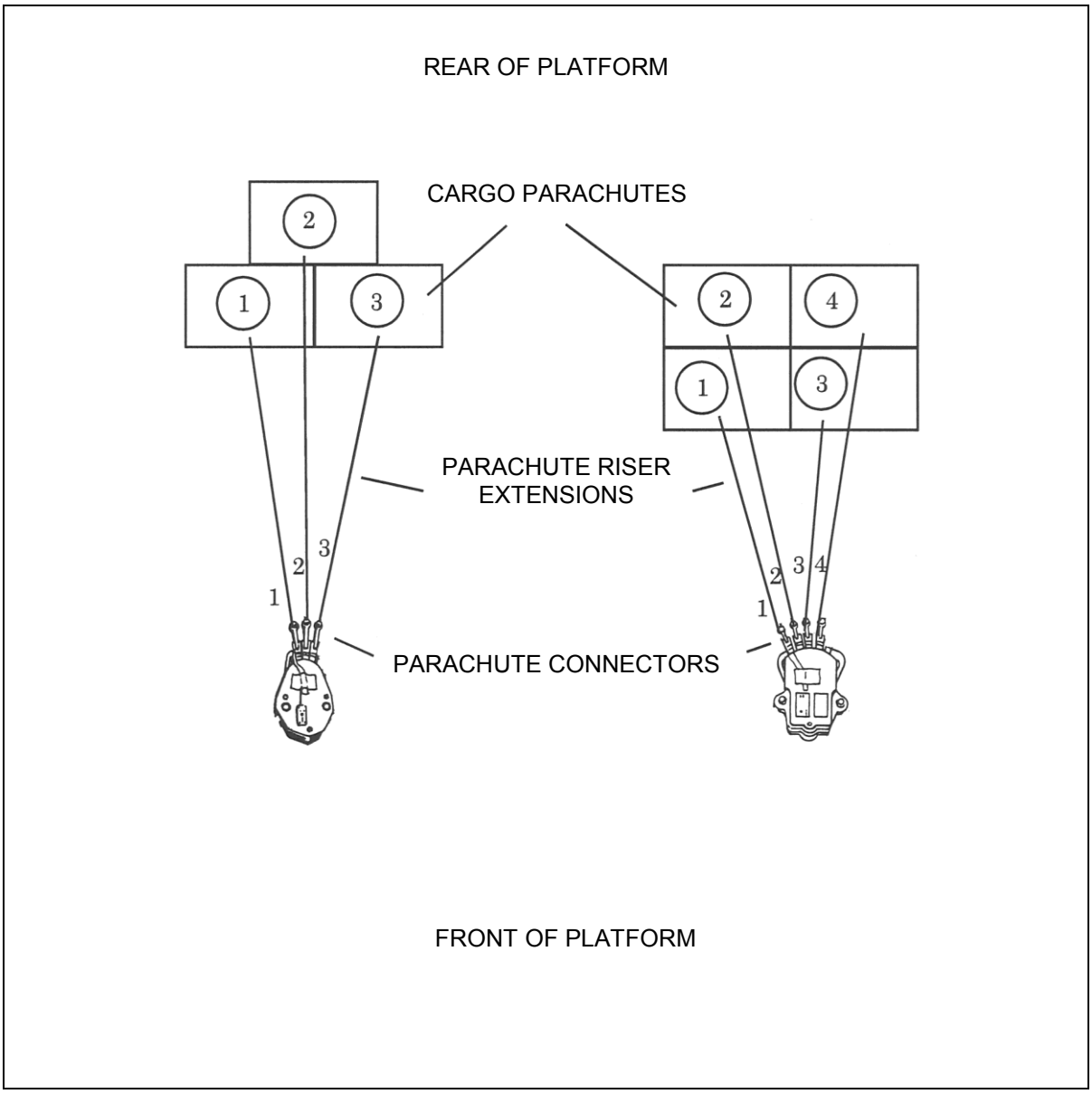


Figure 8-12. Three and four parachute riser extensions attached to the parachute

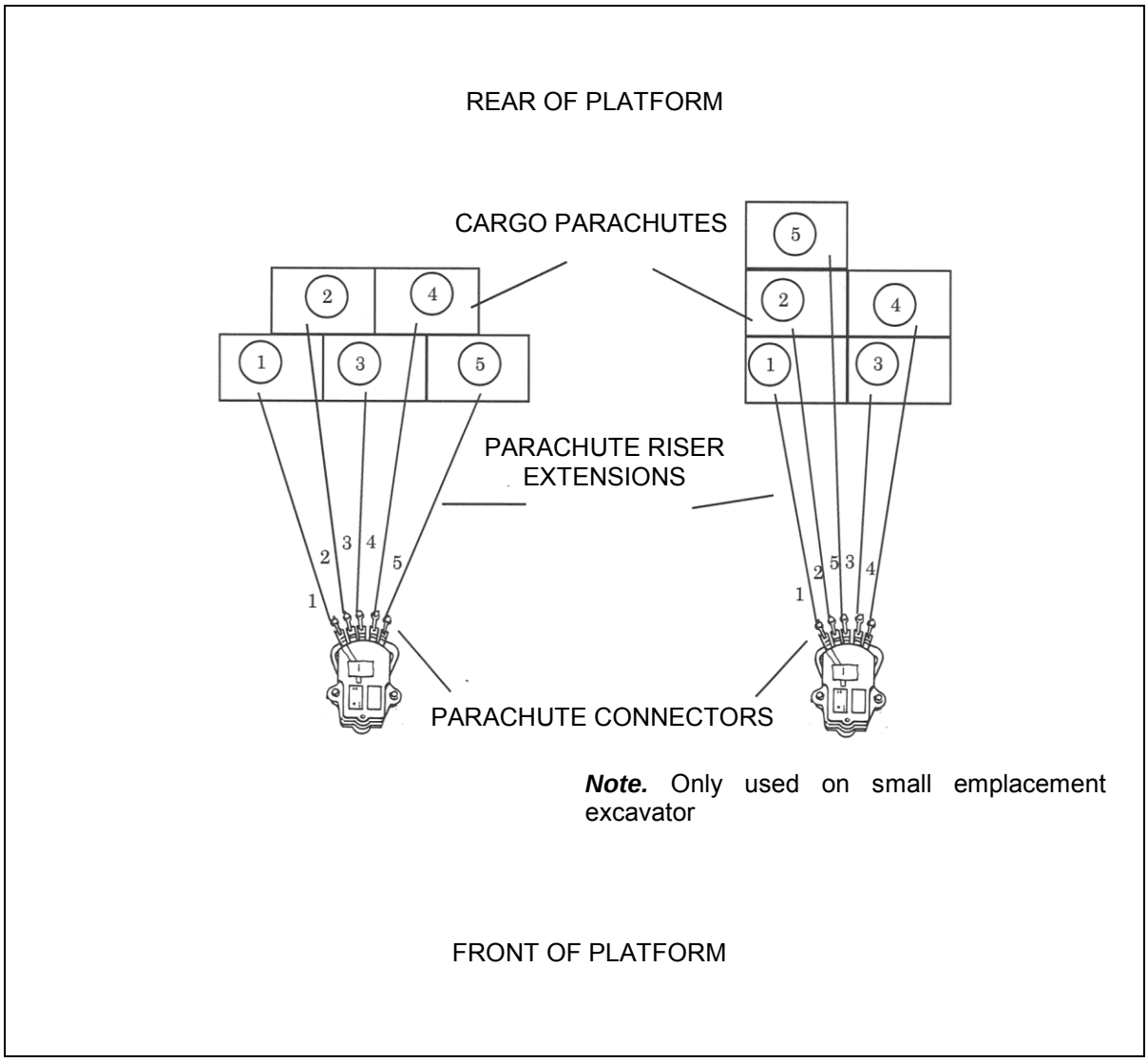


Figure 8-13. Five parachute riser extensions attached to the parachute

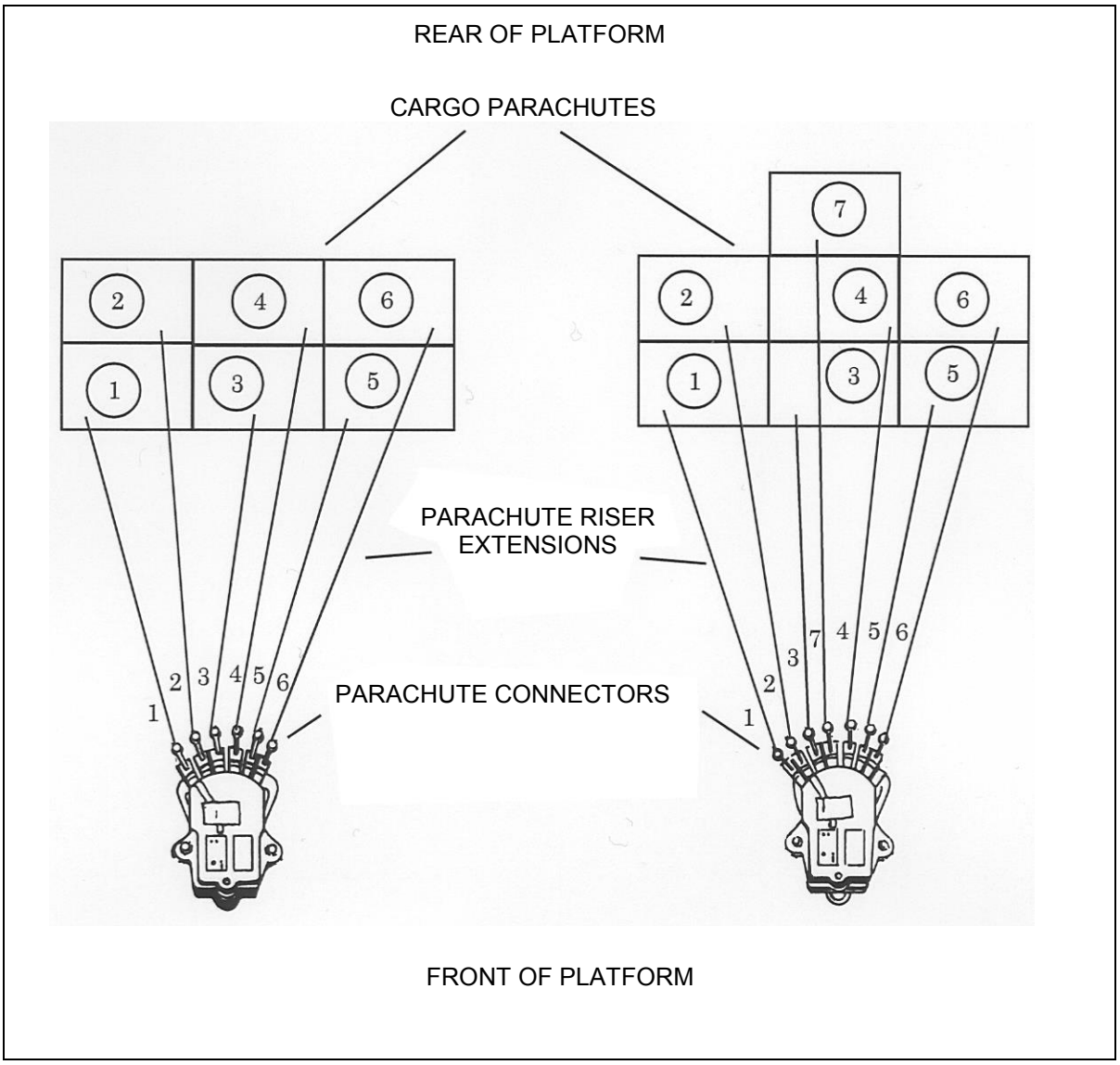


Figure 8-14. Six and seven parachute riser extensions attached to the parachute

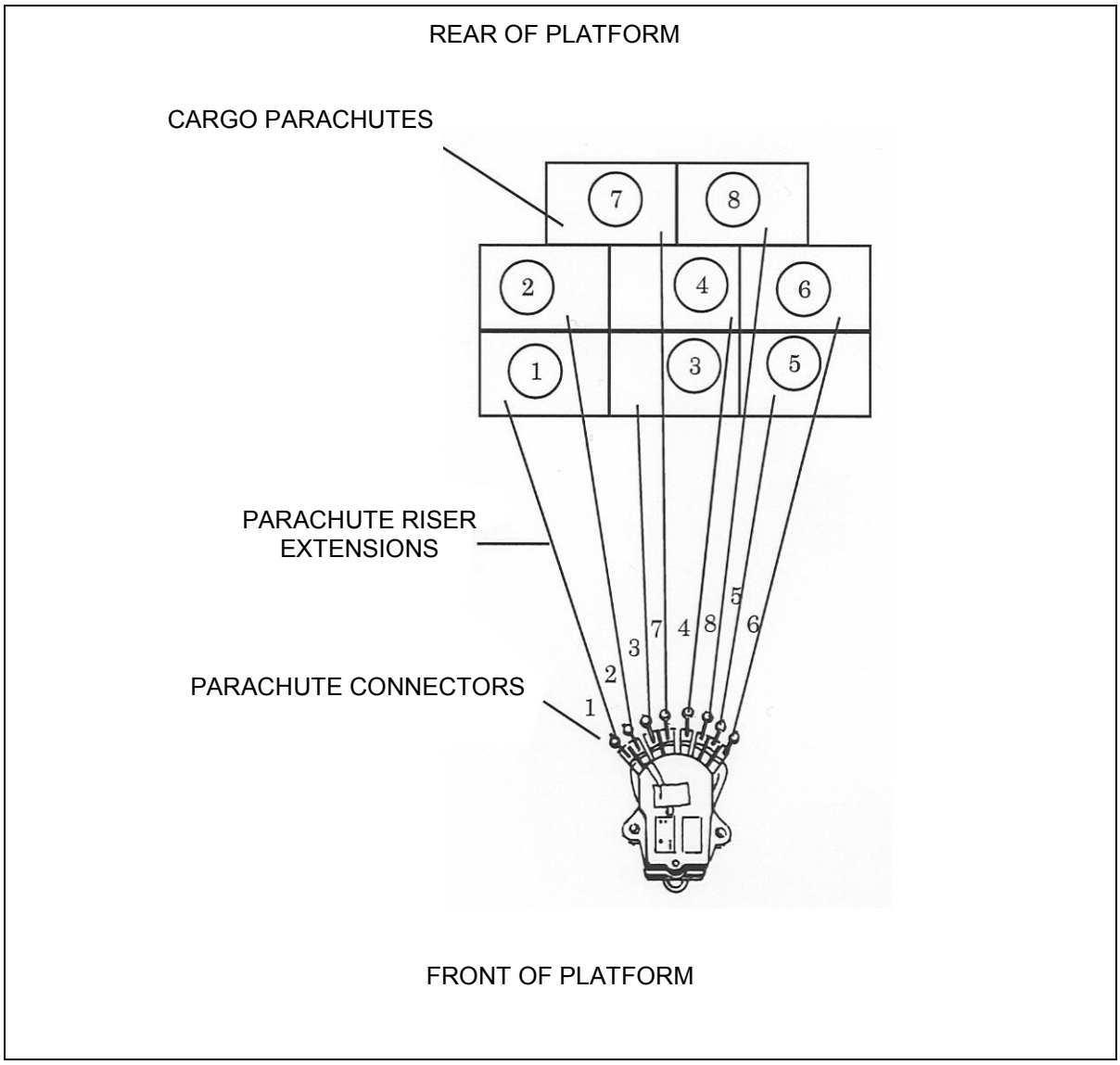


Figure 8-15. Eight parachute riser extensions attached to the parachute

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Chapter 9

Drogue and Extraction Parachutes and Extraction Line

SECTION I-GENERAL INFORMATION

DROGUE PARACHUTES

9-1. A 15-foot cargo extraction parachute is used as a drogue parachute attached to a 1-loop, 60-foot type XXVI extraction line with a 3 3/4-inch link for the C-130J, MC-130, and the C-17 aircraft. The opposite end of the drogue line is connected to the jettison link of the extraction link assembly.

CARGO EXTRACTION PARACHUTES

9-2. A cargo extraction parachute is placed on every airdrop platform load to pull the load out of the aircraft. The extraction system is rigged up after the load is in the aircraft.

- **The 15-Foot Parachute.** This extraction parachute has a 15-foot-diameter, flat circular ring-slot nylon canopy. It is also used as a drogue parachute.
- **The 22-Foot Parachute.** This extraction parachute has a 22-foot-diameter, flat circular ring-slot nylon canopy.
- **The 28-Foot Parachute.** This extraction parachute has a 28-foot-diameter, flat circular, ring-slot nylon canopy.

INSPECTION, MAINTENANCE AND PACKING

9-3. Cargo extraction parachutes are inspected, maintained, and packed as outlined in TM 10-1670/TO 13C5 series manuals. See the specific TM for more information on inspecting, maintaining, and packing these parachutes. The 22-foot extraction deployment bag modification procedures are located in TM 10-1670-286-20/TO 13C5-2-41.

REQUIREMENTS

9-4. Each rigging manual states the number and type of cargo extraction parachutes and the extraction line to be used on a particular load. However, when changes are made to an accompanying load or variations in rigging are made, the extraction parachute requirement must be determined. Use Table 9-1 as a guide for determining the cargo extraction parachute. Use Table 9-2 as a guide for determining extraction line requirements and the extraction parachutes link and tie requirements for the C-130 and C-17 aircraft.

Table 9-1. Extraction parachute requirements for c-130 series and c-17 aircraft

Extraction Load Range	*Cargo Extraction Parachute*
2,520-8,000	15-Foot
7,000-17,500	22-Foot
16,000-30,000	28-Foot
28,000-42,000	Two 28-Foot

Notes.

1. The maximum load that may be extracted over the ramp of a C-130 aircraft during airdrop is 25,000 pounds for aircraft with a serial number (tail number) of 62-1783 or lower and 42,000 pounds for aircraft with a tail number of 61-2358, 62-1784 and higher.

2. When the extraction weight falls into the load range of two parachutes, the larger extraction parachute should be used.

3. The minimum total rigged weight (includes the weight of the cargo parachutes) for loads to be airdropped from all aircraft is 2,520 pounds.

4. MC-130 aircraft extracted load range shall not exceed 35,000 pounds.

Table 9-2. Extraction line and link and tie requirements for c-130 series, and c-17 aircraft

Extraction Parachute	*C-130*	*C-17*	*Link*	*Tie*
15-Foot	1-Loop 60-Foot	1 Loop 160 Foot	3 ¾-inch, two-point	1 turn single of type I, ¼-inch cotton webbing
22-Foot	3-Loop 60-Foot	3 Loop 140 Foot	3 ¾-inch, two-point	1 turn single of type I, ¼-inch cotton webbing
28-Foot	3-Loop 60-Foot	3 Loop 140 Foot	5 1/2-inch, two-point	1 turn double of type I, ¼-inch cotton webbing
Two 28-Foot	6-Loop 60-Foot	6 Loop 120 Foot	Four point	1 turn single of type III, nylon cord
Two 28-Foot	N/A	6 Loop 140 Foot Note 2	Four point	1 turn single of type III, nylon cord

Notes.

1. All extraction lines, (except for the C-17 drogue line) must be packed in an extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41.

2. A 120-foot extraction line may be used for loads placed no further forward than fuselage station 680 (C-17 only).

3. All extraction lines are type XXVI nylon webbing.

EXTRACTION LINE PANEL

9-5. The extraction line panel, as shown in Figures 9-1 and 9-2, is used to store the extraction lines. Extraction line panels shown in Figure 9-3 are used to store the extraction lines when used in conjunction with towplate operations. Stow the different extraction lines in the extraction line bag according to TM 10-1670-286-20/TO 13C5-2-41.

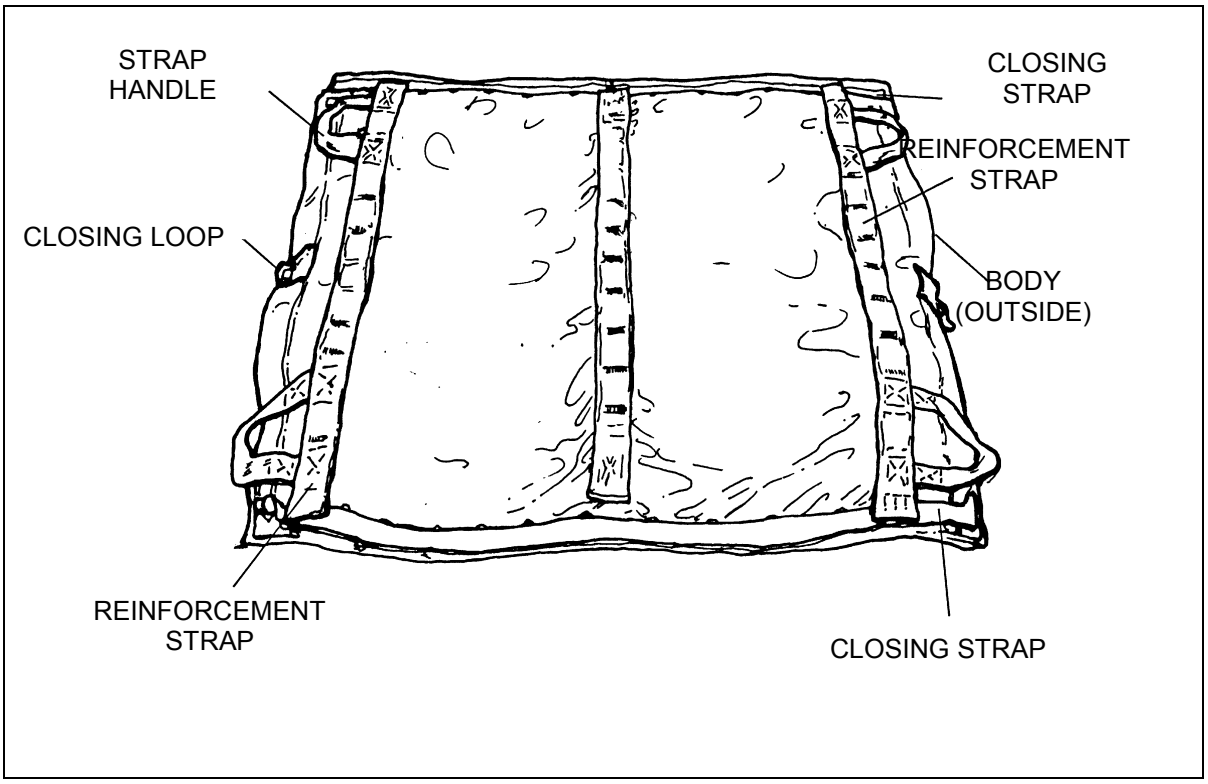


Figure 9-1. Outside view of extraction line panel

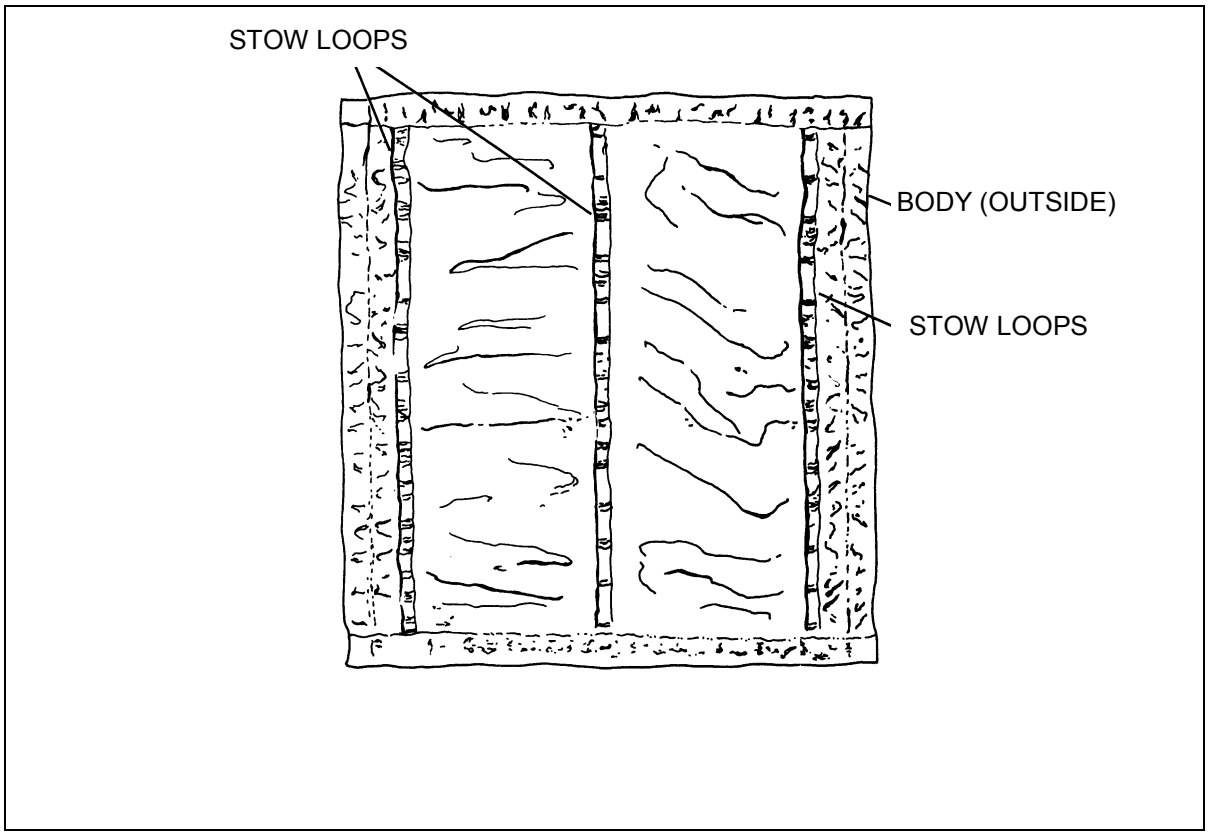


Figure 9-2. Inside view of extraction line panel

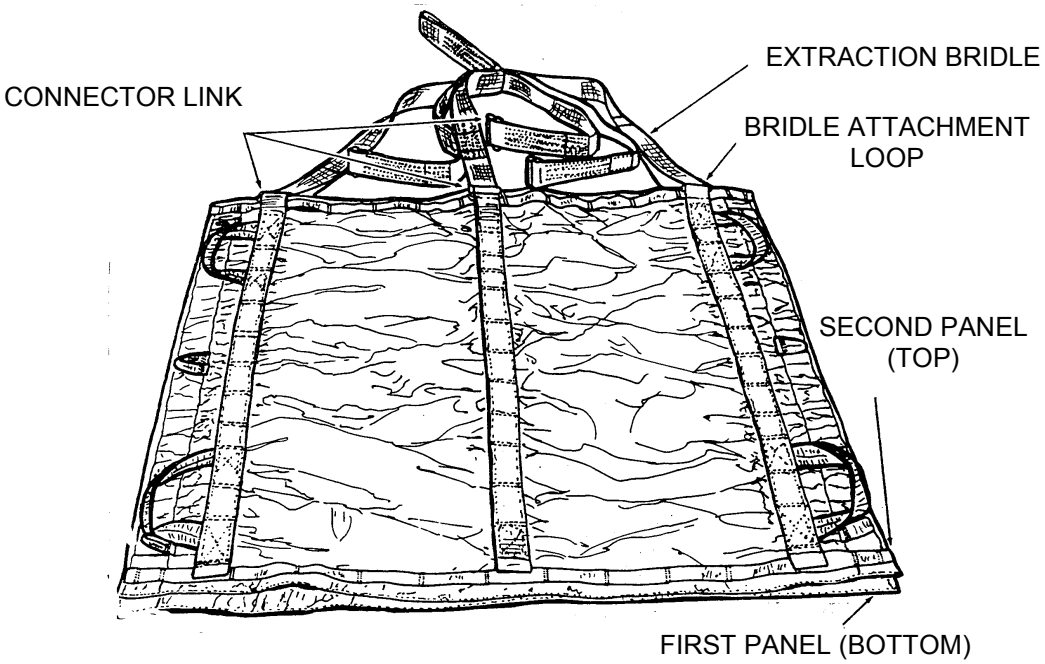


Figure 9-3. Extraction line panel for tow plate operations

SECTION II-RIGGING INFORMATION

EXTRACTION LINES

9-6. The size and length of the extraction line used depends on the aircraft used and the size of the cargo extraction parachute rigged for the load.

CAUTION

All multi-loop lines must have 15 feet of each end of the line, taped at 1 foot intervals. The measurement should begin from the end of the line and the tape must be centered at each interval mark. Failure to comply may cause an extraction line ply to get caught under the aircraft roller and cause damage to the roller or extraction line.

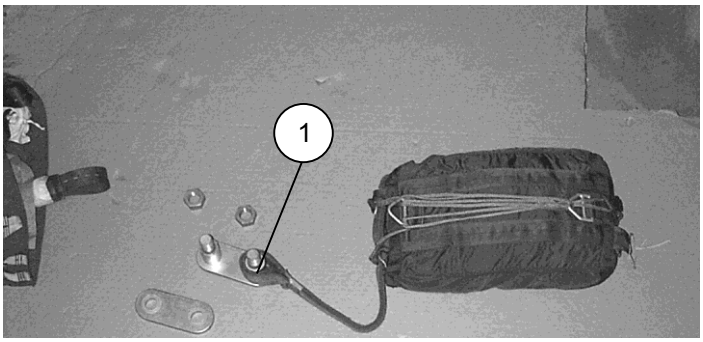
CAUTION

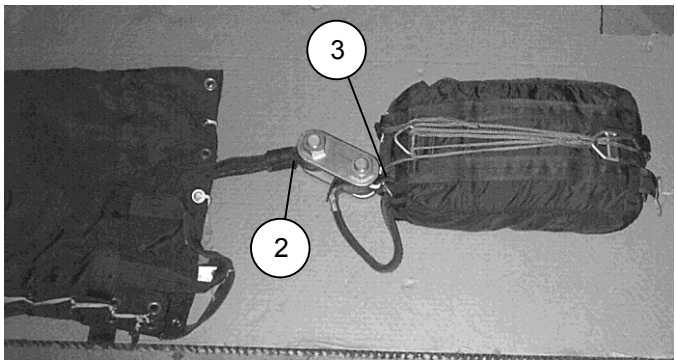
While attaching the extraction line to the cargo extraction parachute, ensure that the keepers on the extraction line and the adapter web are pushed tight against the link and are taped in place with cloth-backed tape. If a keeper is not present on the adapter web or extraction line, tape in place with cloth-backed tape.

C-130/MC-130 AIRCRAFT

9-7. The primary method of airdrop platform extractions uses a 60-foot extraction line attached to a cargo extraction parachute as detailed in the following paragraphs.

- **One 15-Foot Cargo Extraction Parachute.** Attach a 60-foot (1-loop), type XXVI nylon webbing extraction line as shown in Figure 9-4. Attach the adapter web of the 15-foot extraction parachute as shown in Figure 9-4.





① Fit the loop of the adapter web on the spacer of a 3 3/4-inch, 2-point link assembly.

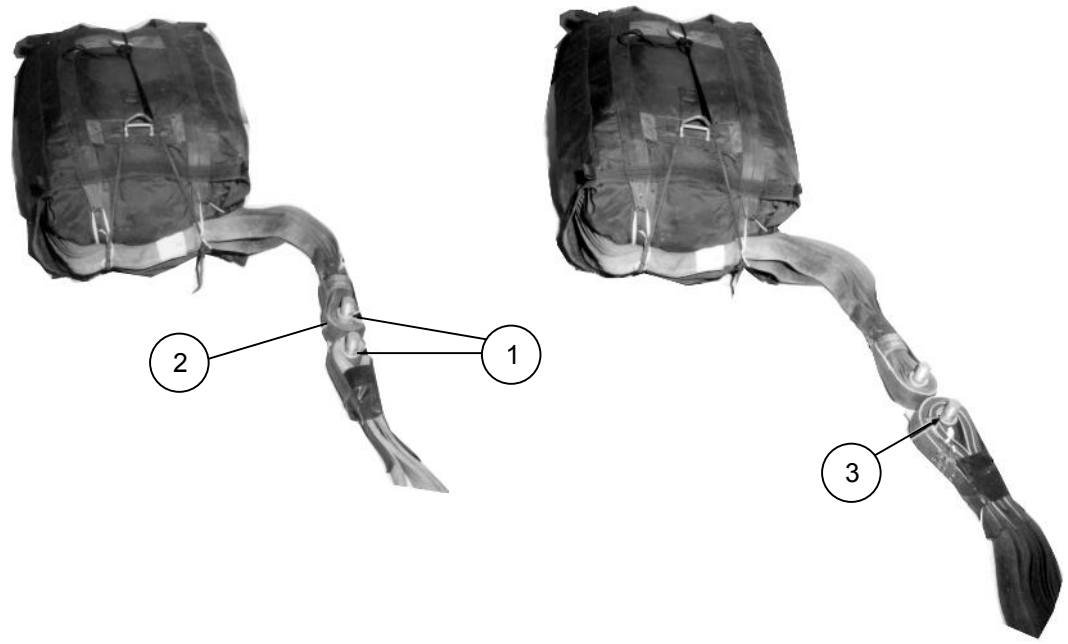
② Fit the extraction line attaching loop to the other spacer on the link. Replace the side plate of the link assembly. Put the nuts on the bolts of the 2-point link. Use a wrench to tighten the nuts. Run a length of tape around the link and over each nut and bolt end. Tape the keeper and the adapter web in place with cloth backed tape. (Not shown)

③ Tie the 3 3/4-inch, 2-point link tightly against the parachute bag closing loops with one length of type I, 1/4-inch cotton webbing. Run the webbing through the top and bottom closing loops on the right side of the bag. Tie the ends of the webbing together with a surgeon's knot and a locking knot.

Figure 9-4. Extraction line attached to 15-foot extraction line

- **One 22-Foot Cargo Extraction Parachute.** The 22-foot cargo extraction parachute uses a 60-foot (3-loop), type XXVI nylon webbing extraction line. Using a 3 3/4-inch, 2-point link assembly, attach the line to the parachute by adapting the procedures shown in Figure 9-5.
- **One 28-Foot Cargo Extraction Parachute.** The 28-foot, cargo extraction parachute uses a 60-foot (3-loop), type XXVI nylon webbing extraction line. Using a 5 1/2-inch, 2-point link assembly, attach the line to the parachute by adapting the procedures shown in Figure 9-5.

Note. See Table 9-2 to determine the proper link assembly (3 3/4- or 5 1/2-inch) to use.

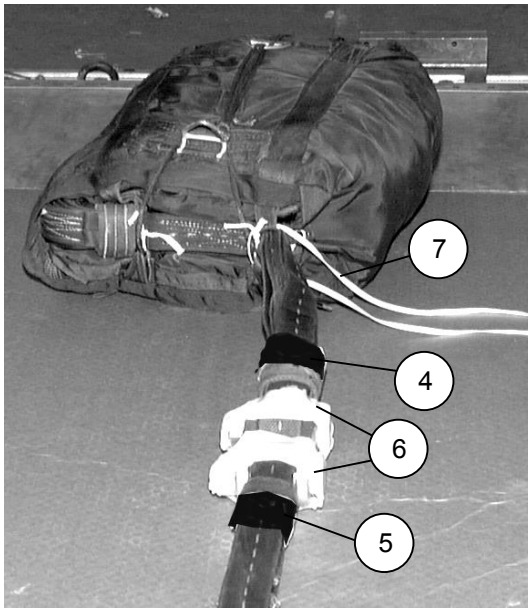


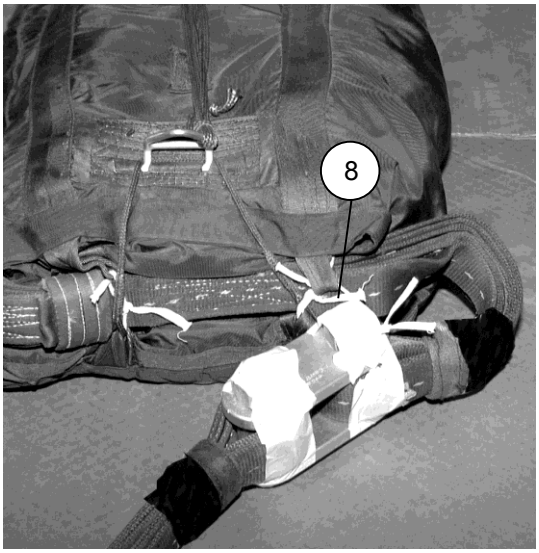
① Place a large spacer on each bolt of the two-point link assembly.

② Fit the adapter web loop on one of the spacers attached in step 1 above.

③ Fit the loop of the 60-foot extraction line on the free spacer of the two-point link assembly.

Figure 9-5. Extraction line attached to 22- or 28-foot cargo extraction parachute with a 3 ¾- or 5 ½-inch, two-point link assembly





④ Run a length of cloth-backed tape around the adapter web keeper.

⑤ Run a length of cloth-backed tape around the extraction line keeper.

⑥ Bolt the side plate to the two-point link assembly. Use a wrench to tighten the nuts. Run a length of tape around the link and over each nut and bolt end.

⑦ For a 22-foot cargo extraction parachute, run a length of type I, 1/4-inch cotton webbing through the top and bottom bag closing loops on the right side of the bag. For a 28-foot cargo extraction parachute, run a double length of type I, 1/4-inch cotton webbing through the top and bottom bag closing loops on the right side opposite where the adapter web exits the bag.

⑧ Run type I, 1/4-inch cotton webbing through the two-point link assembly, and tie the ends of the webbing together with a surgeon's knot and a locking knot.

Figure 9-5. Extraction line attached to 22- or 28-foot cargo extraction parachute with a 3 ¾- or 5 ½-inch, two-point link assembly (continued)

- **Two 28-Foot Cargo Extraction Parachutes.** A cluster of two 28-foot cargo extraction parachutes as shown in Figure 9-6, is attached to one end of a 60-foot (6-loop), type XXVI nylon webbing line. The other end of the line is attached to the four-point link assembly of the parachute cluster after the cluster has been installed in the aircraft.

EXTRACTION PARACHUTE CLUSTERS

9-8. Cluster two 28-foot cargo extraction parachutes for an initial extraction as shown in Figure 9-6 and for a sequential extraction as shown in Figure 9-7.

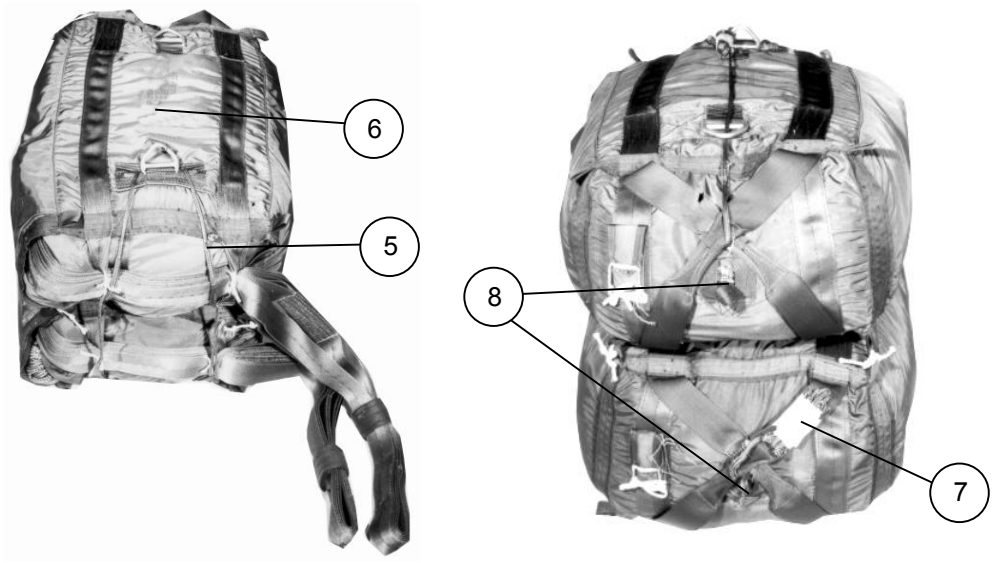
① Tape the V-rings of the bottom parachute to the deployment bag.

② Be sure 9 to 12 inches of the adapter web extend beyond the bag tie.

③ Place a second parachute on top of the first.

④ Tie the parachute deployment bags together at each corner with single lengths of type III nylon cord.

Figure 9-6. Clustering extraction parachutes clustered for an initial extraction from C-130 aircraft



⑤ Run the safety loop of the top parachute through the safety loop of the bottom parachute, and hook it behind the bent V-ring of the top parachute.

⑥ For transportation only, tie the pendulum line of the top parachute to the bent V-ring. Fold the excess line, and tape the folds in place.

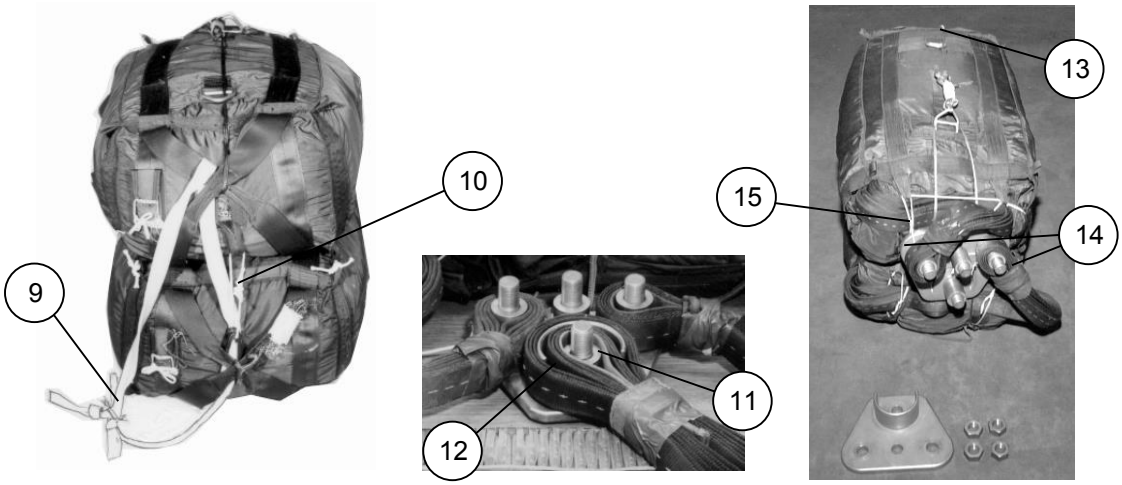
⑦ Fold the pendulum line of the bottom parachute, and tape the folds in place.

⑧ Pull each bridle loop from its bag far enough to untie the bag retaining lines. Remove these lines.

Figure 9-6. Clustering extraction parachutes clustered for an initial extraction from C-130 aircraft (continued)

CAUTION

Be sure the bag retaining tie does not pass through the bridle loop of the top parachute.



⑨ Use a 103-inch length of 1-inch tubular nylon webbing for the bag retaining tie. Run the tie through the bag retaining straps of the bottom parachute, through the bridle loop, and up through the bag retaining straps of the top parachute. Tie the ends of the retaining tie together with a surgeon's knot, a locking knot, and an overhand knot in each running end.

⑩ Tie the bridle loops together with one length of type III nylon cord to form a break cord.

⑪ Place a cotton buffer on the bottom pin of the four-point link assembly.

⑫ Place the free end of the extraction line on the bottom pin and the separator. Divide the plies between the pin and the separator.

⑬ Fold the bag retaining tie, and tape the folds in place.

⑭ Place the top adapter web on the left pin. Place the adapter web of the bottom parachute on the right pin and replace the link cover. Push the keepers against the pins, and tape the keepers in place with cloth-backed tape.

⑮ Tie the link assembly to the upper bag closing loops of the top parachute with one length of type III nylon cord. Make sure the cord passes through the link assembly and under the top pins.

Figure 9-6. Clustering extraction parachutes clustered for an initial extraction from C-130 aircraft (continued)

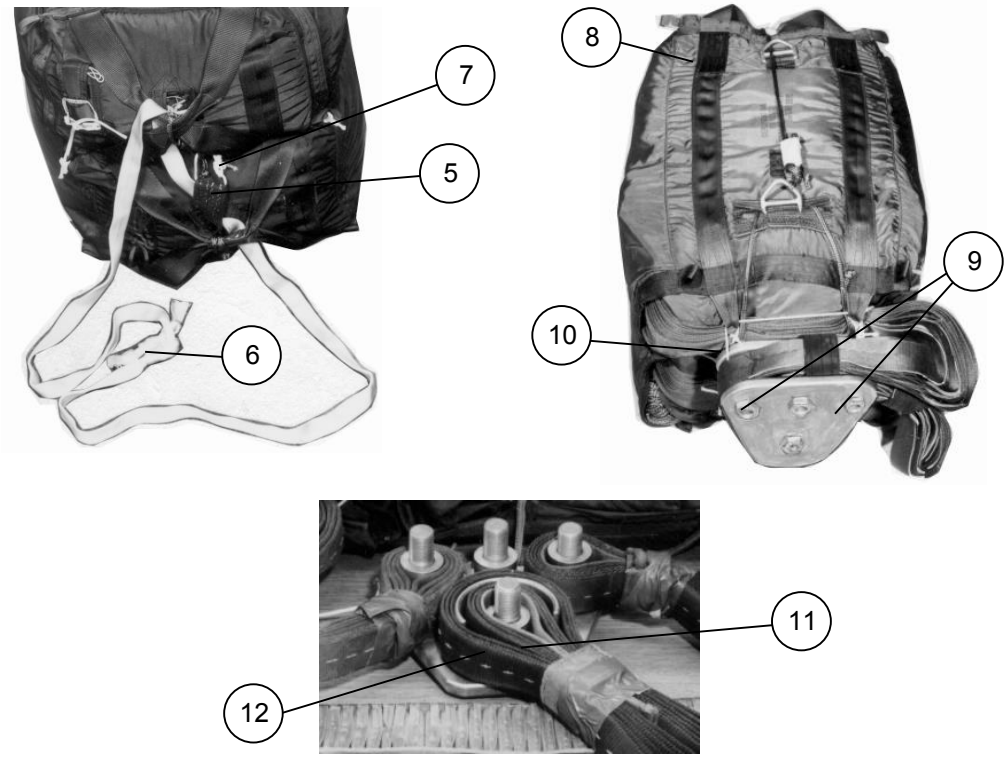
① Remove the safety loop from around the bent V-ring. Extend the safety loop around the opposite side of the bag from the bent V-ring, and tie it tightly in place with the pendulum line.

② Be sure 9 to 12 inches of the adapter web extend beyond the bag closing tie.

③ Prepare a second parachute as in steps 1 and 2 above and place it on top of the first parachute.

④ Tie the parachutes together at each corner with single length of type III nylon cord with a surgeon's knot, a locking knot, and an overhand knot in each free end.

Figure 9-7. Clustering extraction parachutes for a sequential extraction



⑤ Pull each bridle loop from its bag far enough to untie the bag retaining lines.

⑥ Use a 103-inch length of 1-inch tubular nylon webbing for the bag retaining tie. Run the tie through the bag retaining straps of the bottom parachute, through the bridle loop, and up through the bag retaining straps of the top parachute. Tie the ends of the retaining tie together with a surgeon's knot, a locking knot, and an overhand knot in the running end.

⑦ Tie the bridle loops together with a single length of type III nylon cord.

⑧ Fold and tape the bag retaining tie.

⑨ Place the top adapter web on the left pin. Place the adapter web of the bottom parachute on the right pin and replace the link cover. Push the keepers against the pins, and tape the keepers in place with cloth-backed tape.

⑩ Tie the link assembly to the upper bag closing tabs of the top parachute with a single length of type III nylon cord. Make sure the cord passes through the link and under the top pins.

⑪ Place a cotton buffer on the bottom pin of the four-point link assembly.

⑫ Place the free end of the extraction line on the bottom pin and the line separator. Divide the plies between the pin and the separator.

Figure 9-7. Clustering extraction parachutes for a sequential extraction (continued)

C-17 AIRCRAFT

9-9. Low velocity loads rigged for aerial delivery from the C-17 aircraft require an extraction line based on the size of the extraction parachute. All extraction lines used on loads rigged for the C-17 aircraft must be continuous, type XXVI nylon webbing. In addition to the extraction line and extraction parachute, the C-17 requires a 15-foot drogue parachute and a 60-foot (1-loop) drogue line. The drogue line is not required to be packed in a sling/extraction line bag. The C-17 utilizes a tow release mechanism which connects the drogue line to the extraction parachute(s) and extraction line bag. All extraction lines must be packed in a sling/extraction line bag. The C-17 can accommodate a single platform weight of up to 60,000 pounds with a total airdrop load weight of 100,000 pounds. The C-17 can accommodate up to 64 feet of type V airdrop platforms.

- **One 15-Foot Cargo Extraction Parachute.** Attach a continuous 160-foot (1-loop), type XXVI nylon extraction line rigged in accordance with TM 10-1670-286-20/TO 13C5-2-41. Due to the use of the tow release mechanism, the rigging procedures are very detailed and should be followed exactly.
- **One 22-Foot Cargo Extraction Parachute.** The 22-foot cargo extraction parachute needs a continuous 140-foot (3-loop), type XXVI nylon webbing extraction line rigged in accordance with TM 10-1670-286-20/TO 13C5-2-41.
- **One 28-Foot Cargo Extraction Parachute.** The 28-foot cargo extraction parachute needs a continuous 140-foot (3-loop), type XXVI nylon webbing extraction line rigged in accordance with TM 10-1670-286-20/TO 13C5-2-41.
- **Two 28-Foot Cargo Extraction Parachutes.** For a cluster of two 28-foot cargo extraction parachutes, the extraction line requirements can change based on where the platform is located in the aircraft. Normally the 140-foot (6-loop), type XXVI nylon webbing extraction line is utilized. If the platform's aft edge is located aft of FS 680 the 120-foot (6-loop), type XXVI nylon webbing extraction line rigged in accordance with TM 10-1670-286-20/TO 13C5-2-41 may be used.

C-17 AIRCRAFT SEQUENTIAL PLATFORM EXTRACTION SYSTEM RIGGING

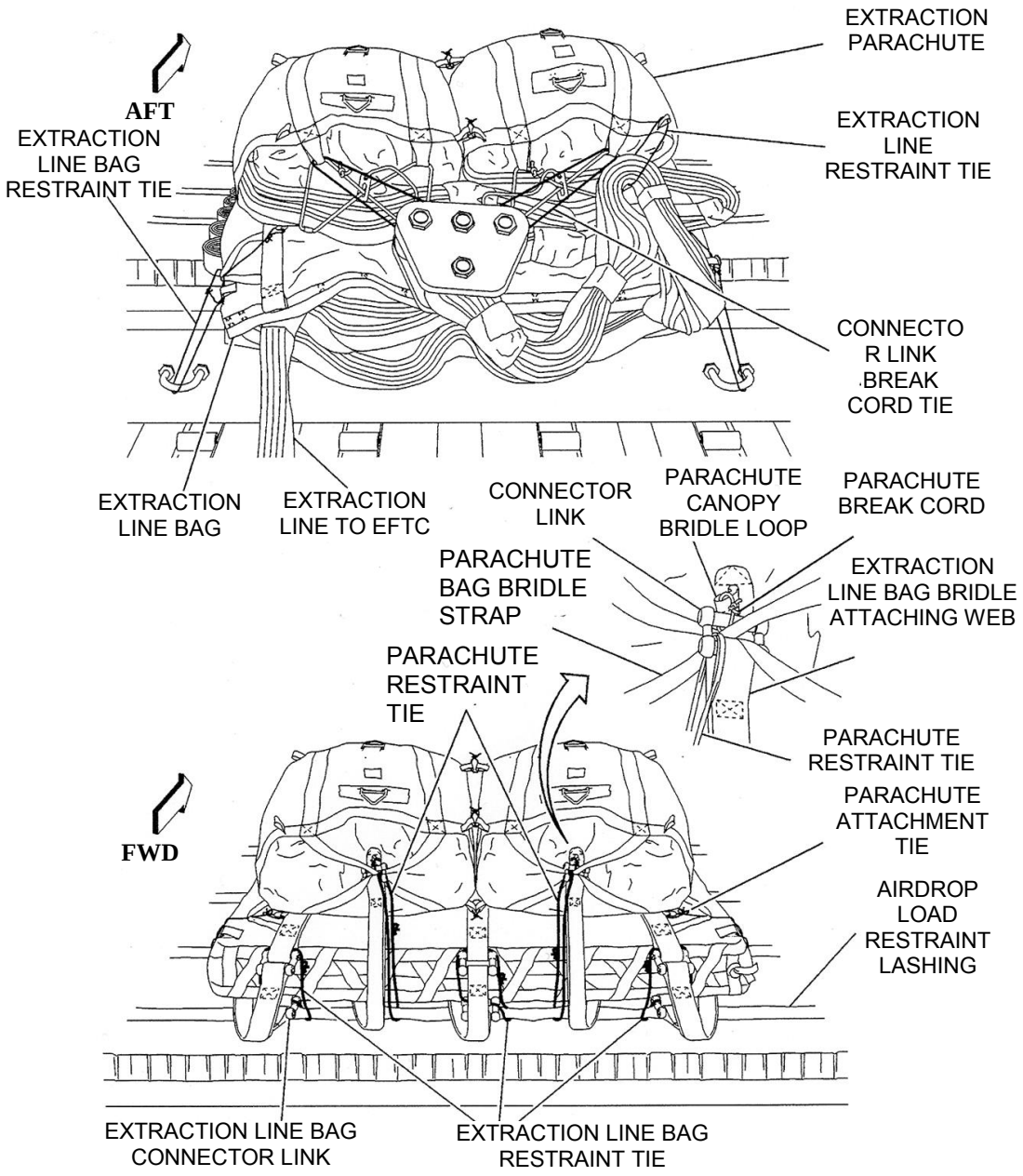
9-10. The typical installation of an extraction parachute and extraction line bag for sequential airdrop is shown in Figure 9-8.

Note: The aircraft loadmaster is responsible for rigging the sequential extraction system in the aircraft.

CAUTION

Failure to correctly position the extraction parachute(s) and extraction line bag could result in non-deployment of the parachutes.

Note: The following procedures are taken directly from TO 1C-17A-9, *Loading Manual, USAF Series, C-17 Aircraft*. If there are any differences between the following procedures and TO 1C-17A-9, the TO 1C-17A-9 takes precedence.



Step:

1. Position the extraction parachute(s) and extraction line bag on the forward end of the proceeding load to prevent entanglement of the extraction line bag with the load or its suspension system.

Figure 9-8. Typical extraction parachute and extraction line bag for sequential airdrop installed

CAUTION

1. Failure to correctly route ties could result in non-deployment of the parachutes.

2. If the load attaching end of the extraction line bag contacts the aircraft floor during extraction, damage to the extraction line bag may result.

Step:

2. Secure the extraction line bag to the load. Fold the extraction line bag bridle under the extraction line bag before securing. Install three one turn single 1/2-inch tubular nylon webbing restraint ties through the top and bottom extraction line bag panel connector links and to convenient points on the load. Ties are routed on the load to prevent shifting of the extraction system and secured using a trucker's hitch with three alternating half-hitches and an overhand knot in the running ends for each restraint tie.

CAUTION

The connector link(s) shall not be routed through the parachute canopy bridle loop. Failure to comply could result in non-deployment of the parachute(s).

3. Secure each extraction parachute(s) to the load. Route one turn double 1/2-inch tubular nylon webbing restraint tie through the connector link(s), around the bag bridle strap(s), and to a convenient point on the load. Secure with a trucker's hitch, three alternating half-hitches, and an overhand knot in the running ends.

4. Use the carrying handle to secure the extraction line bag to the load. Route one turn double Type I, 1/4-inch cotton webbing restraint ties through the top and bottom carrying handles on each corner of the load attaching end of the extraction line bag to a convenient point on the load.

CAUTION

Link break cord ties for sequential airdrop must be of correct size. Failure to comply could result in non-deployment of the parachute(s).

Figure 9-8. Typical extraction parachute and extraction line bag for sequential airdrop installed (continued)

5. Ensure link break cord ties are correct.
    - For 15-foot extraction parachutes, remove 1/2-inch tubular nylon webbing link break cord ties and replace with type III nylon cord.
    - For three 28-foot extraction parachutes, remove 9/16-inch tubular nylon webbing link break cord ties and replace with 1/2-inch tubular nylon webbing.
6. Prepare extraction line by removing temporary handling and transport ties.

Note: The extraction line is stowed in the extraction line bag with Type I, 1/4-inch cotton webbing restraint ties. It may be necessary to cut a number of restraint ties to obtain a sufficient length of extraction line to reach the extraction force transfer coupling (EFTC). For in-flight rigging, the restraint ties should be cut on the ground.

7. Pull the required length of extraction line from the load attaching end of the extraction line bag for attachment to the EFTC.
8. Repeat steps 1 through 7 for additional platforms.

Figure 9-8. Typical extraction parachute and extraction line bag for sequential airdrop installed (continued)

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Chapter 10

Transportation of Rigged Loads

SECTION I-GENERAL INFORMATION

RESPONSIBILITIES

10-1. The using unit is responsible for coordinating transportation of the rigged load from the rigging site to the aircraft. To prevent damage, loads must be lashed to the transporting vehicle and protected during transport. The transporting force must ensure that the off-loading equipment is compatible with the aircraft to be used.

TYPICAL LOADING AND TRANSPORTING EQUIPMENT

10-2. Some of the equipment that may be used to load and transport rigged loads is listed below.

- **Materials Handling Equipment.** If a loading ramp is not available to use in loading the rigged load onto the transporting vehicle, the load is hoisted aboard the vehicle. The materials-handling equipment used to hoist the loads may include but not limited to the 5-ton wrecker, the 10,000- or 15,000-pound-capacity warehouse crane, or 5,000 pound through 15,000-pound-capacity forklift trucks.

- **Transporting Vehicle.** Any standard military truck or semi-trailer with sufficient cargo space and payload capacity can be modified to transport a rigged load from the loading area to the cargo aircraft. However, not all military trucks are compatible with the cargo-loading system of all types of cargo aircraft now in use. Rigged platform loads require straight-in loading over a horizontally positioned ramp from a truck, a forklift, a flatbed, or a cargo loader. Consequently, this may require transfer of the rigged load at the aircraft site before it is off-loaded into the cargo aircraft. The following types of materials-handling equipment can be used to transport and/or off-load platform loads:

  - The 6- or 10-ton cargo semi-trailer can transport loads rigged on airdrop platforms.
  - The 25,000-pound-capacity cargo loader can move the maximum weight of 25,000 pounds up a 3-percent incline at 15 miles per hour. It can be used for loading all aircraft.
  - The 40,000-pound-capacity cargo loader can move the maximum weight of 40,000 pounds up a 3-percent incline at 15 miles per hour.
  - The 60,000-pound-capacity cargo loader (the Tunner) can move the maximum weight of 60,000 pounds up a 3-percent incline at 15 miles per hour.
  - The model M172 (lowboy) semi-trailer can load a C-130 aircraft. Any similar vehicle can be used if its loading floor meets the cargo floor heights of the aircraft. For C-130 aircraft, this is 39 to 42 inches.

SECTION II-RIGGING INFORMATION

MARKING RIGGED LOAD

10-3. Each rigged load must have a data tag prepared for it, and some rigged loads may require a Shipper's Declaration for Dangerous Goods. The center of balance must also be clearly marked on both sides of the platform.

- **Data Tag**. A data tag is prepared and secured to each platform load near the extraction system. Entries on the tag are used in making inspections and in finding causes for malfunctions. The entries are also used to help the loadmaster determine where to place the load in the aircraft. Use a ballpoint pen or other waterproof marking device to record the following information on the tag:
  - Total rigged weight.
  - Height, including parachutes.
  - Overall length.
  - Overhang (specify front, rear, or side of load).
  - Longitudinal center of balance (measured from the front edge of the platform).
  - Type and size of extraction system.
- **Shipper's Declaration of Dangerous Goods.** This form is prepared and secured on each load that has any type of hazardous material such as fuel, ammunition, or a battery.
- **Center of Balance.** In addition to being included on the data tag, the longitudinal center of balance must also be marked on the platform. The vertical line of the symbol CB is placed at the center of balance on both sides of the platform.

TYPES OF INSPECTION

10-4. The types of inspections performed on a rigged load are the final rigger inspection, the before-loading inspection, and the after-loading inspection as required by appropriate TM. All rigged low-velocity loads must be inspected at prescribed intervals to make sure that the loads and the equipment used on the loads are assembled and installed to meet the criteria outlined in the specific rigging manual.

- **Final Rigger Inspection (Shop Final).** After the load has been completely rigged, a certified Transported Force Rigger Inspector performs the final rigger inspection. This inspection is accomplished before the rigged load leaves the rigging site to make sure it is rigged according to the specific field manual/technical order for that particular load. This inspection should be conducted by an inspector other than the rigger supervising the installation of parachutes and extraction system. It is not necessary to use the Department of Defense (DD) Form 1748 (*Joint Airdrop Inspection Record*), DD Form 1748-1 (*Joint Airdrop Inspection Record (Container)*), DD Form 1748-2 (*Airdrop Malfunction Report (Personnel-Cargo)*), DD Form 1748-3 (*Joint Airdrop Summary Report*) series inspection forms for this inspection.
- **Before-Loading Inspection.** A before-loading inspection must be performed on a rigged load before it is loaded into the aircraft. This inspection is conducted jointly by a certified Transported Force Rigger Joint Airdrop Inspector and a certified Air Force Joint Airdrop Inspector. The inspectors use the proper joint airdrop inspection record, and both sign the appropriate blocks to certify correct rigging of the load. When the rigged load is delivered to the aircraft, the aircraft loadmaster checks the inspection form for completion and necessary signatures before accepting the load.
- **After Loading Inspection**. After the loadmaster completes the loading and in-aircraft rigging, the after-loading inspection is performed. This inspection is conducted jointly by a certified Transported Force Rigger Joint Airdrop Inspector and a certified Air Force Joint Airdrop Inspector, and the aircrew loadmaster. After the inspection is completed, the three inspectors certify, by signing the form, that the load is ready to airdrop.

EMERGENCY AFT RESTRAINT REQUIREMENTS FOR PLATFORM-EXTRACTED LOADS RIGGED ON A TYPE V PLATFORM

10-5. Use Table 10-1 as a guide for determining the emergency aft restraint requirements for platform-extracted loads rigged on a type V platform.

Table 10-1. Emergency aft restraint requirements for platform-extracted loads rigged on a type V platform for airdrop from a C-130 series aircraft

Cargo Extraction Parachute	*Chains Required*	*Attachment Provision*
15-foot	Two 10,000-pound. One chain to each clevis	Two medium suspension clevises. One clevis is attached to the top emergency aft restraint provision hole of each tandem link.
22-foot	Four 10,000-pound. One chain to each clevis.	Four medium suspension clevises. Two clevises are attached to the top two emergency aft restraint provision holes of each tandem link.
One 28-foot	Six 10,000-pound. One chain to each clevis.	Six medium suspension clevises. Two clevises are attached to the top two emergency aft restraint provision holes of each tandem link. The third clevis is attached to the front tandem link hole.
*Two 28-foot	Two 10,000-pound. One chain to each clevis.	Two medium suspension clevises. One clevis is attached to the top emergency aft restraint provision hole of each tandem link.

WARNING

***This emergency aft restraint is used only to secure a loose platform in the aircraft if the right hand locks release prior to green light. Do not attempt to restrain two 28-foot extraction parachutes deployed outside the aircraft.**

Chapter 11

Responsibilities and Cautions

RESPONSIBILITIES

11-1. Much of the damage to airdrop equipment and supplies occurs during derigging. Airdrop equipment must be derigged and recovered correctly to prevent damage to the fragile nylon airdrop items from cuts, water, and mildew; petroleum product contamination; and excessive exposure to sunlight. Recovery team personnel should be trained by parachute riggers (MOS 92R) prior to an airdrop operation. Riggers may be requested to assist the recovery OIC or NCOIC and to provide technical assistance. Riggers are not responsible for the recovery of airdrop equipment and supplies. The responsibilities for recovery are described below.

- **THE COMMANDER OF THE RECEIVING UNIT.** The commander is responsible for appointing an OIC, NCOIC, or a supervisor. He is also responsible for organizing teams to recover the supplies and equipment, providing temporary storage if needed, and evacuating all airdrop rigging equipment.
- **RECOVERY OIC OR NCOIC.** The recovery OIC or NCOIC is responsible for planning and supervising the operation. He supervises the teams needed to recover and evacuate all airdrop rigging equipment.
- **THE RECEIVING UNIT.** The receiving unit should be capable of conducting the recovery. It is responsible for returning the airdrop equipment to the unit to which it belongs in proper condition as detailed in this manual. The unit can be held accountable for damage to the airdrop equipment as a result of negligence or failure to follow the procedures in this manual.

CAUTIONS

11-2. A majority of airdrop equipment is made of nylon. Nylon is subject to being degraded by sunlight and some types of artificial lighting. Exposure to sunlight, especially for parachutes, must be minimized. Petroleum products such as diesel fuel, gasoline, grease, and oil also have a degrading effect on nylon. Nylon airdrop items may fail or lose strength if they are contaminated with petroleum products. Airdrop equipment systems generally do not require knives for recovery and derigging. If nylon, Dacron, or rayon airdrop items are immersed in salt water, they must be evacuated immediately. They should also be rinsed within 48 hours, under the supervision of a qualified parachute rigger, to avoid the possibility of having to condemn the equipment. In the process of recovery, especially in arid climates, exercise caution when recovering airdrop equipment, particularly parachutes. Also small creatures, such as snakes and insects (some poisonous), often seek shelter in the equipment, and they may be evacuated with the airdrop equipment. Take extreme care when recovering damaged airdrop loads containing hazardous materials (ammunition, pyrotechnics, and similar items). The EPJD contains an explosive squib, Hazard Class Division 1.4S. Extreme caution must be taken when handling this device. Notify Explosive Ordnance Disposal personnel before recovery of damaged airdrop loads containing hazardous materials.

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Chapter 12

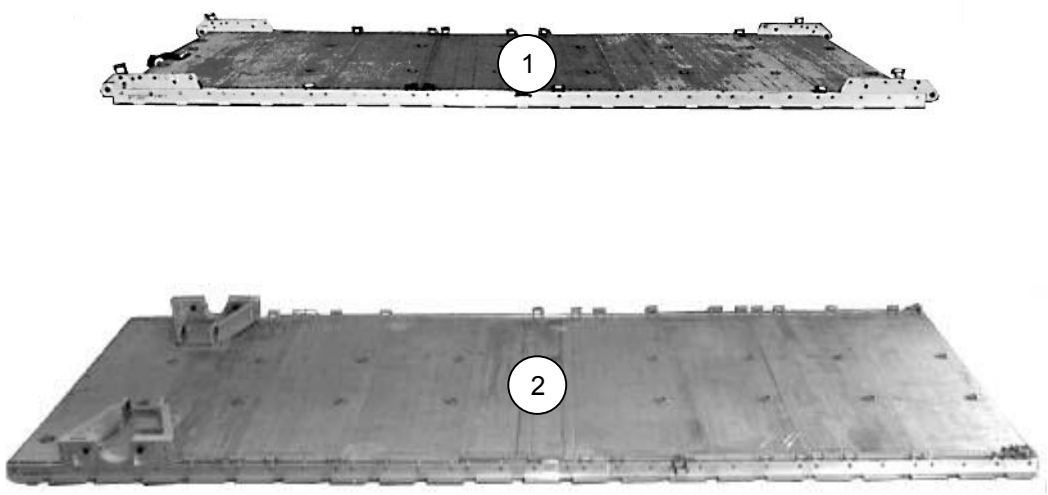
Airdrop Rigging Components

GENERAL

12-1. Airdrop loads require special rigging equipment for delivery to a designated area. The type and size of the load to be delivered in airdrop containers or on airdrop platforms determines the quantity of equipment required. Basic airdrop rigging components are described in this chapter and in TM 4-48.03/MCRP 4-11.3C/TO 13C7-1-111.

PREPARING PLATFORM

12-2. The type of airdrop platforms commonly used are shown in Figure 12-1.



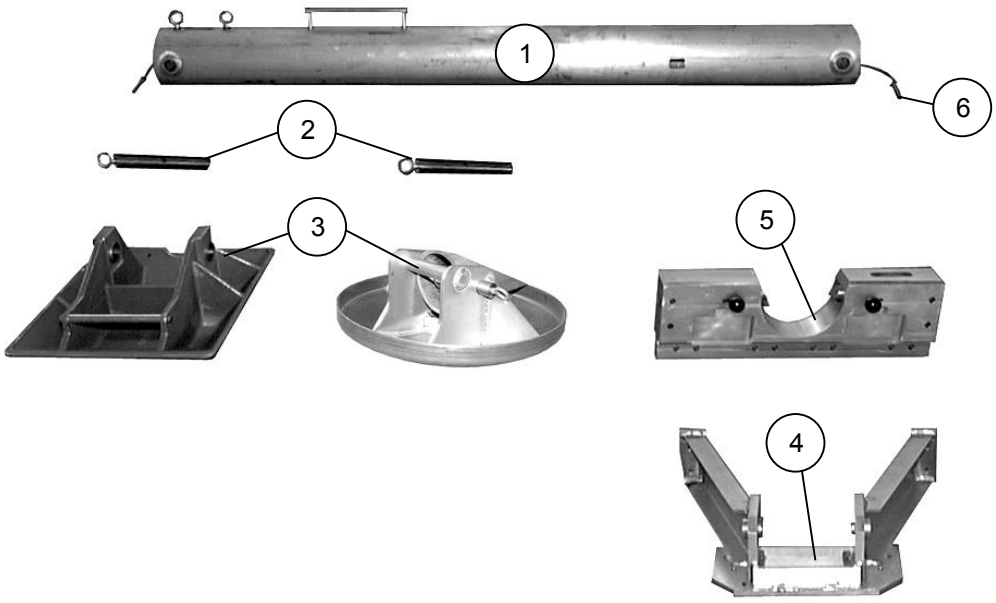
① Type V platform.

② Dual row airdrop platform.

Figure 12-1. Airdrop platforms

OUTRIGGER ASSEMBLY

12-3. An outrigger assembly is used on every dual row airdrop system (DRAS) load and some type V platform loads to help prevent the load from turning over after landing on the ground. The assembly is attached to the platform and is deployed from the vertical to the horizontal position after the load clears the ramp of the aircraft. The component parts of the outrigger assembly are shown in Figure 12-2.



Note. The outrigger foot may be square or round.

① Outrigger mast.

② Mast pivot pin.

③ Outrigger foot.

④ Platform fitting assembly weldment.

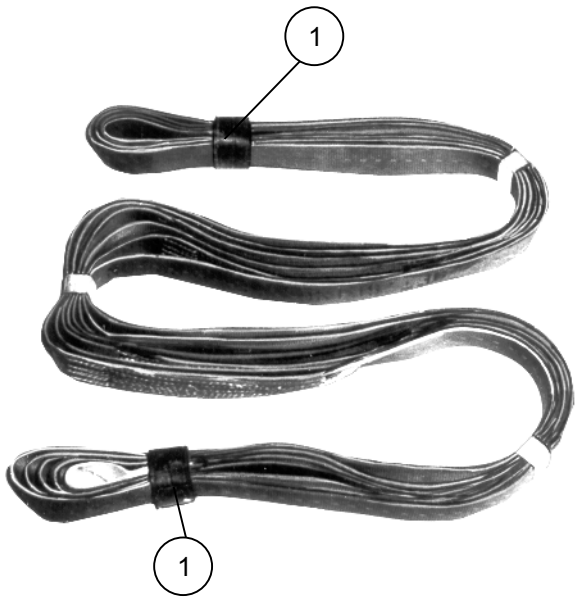
⑤ Platform fitting assembly link.

⑥ Ball lock pin.

Figure 12-2. Components of outrigger assembly

CARGO SLINGS

12-4. Cargo slings are used for various purposes such as deployment or extraction lines, suspension or lifting slings, and riser extensions. The slings are available in 3-, 9-, 11-, 12-, 16-, 20-, 120-, 140-, and 160- foot lengths and are shown in Figure 12-3.

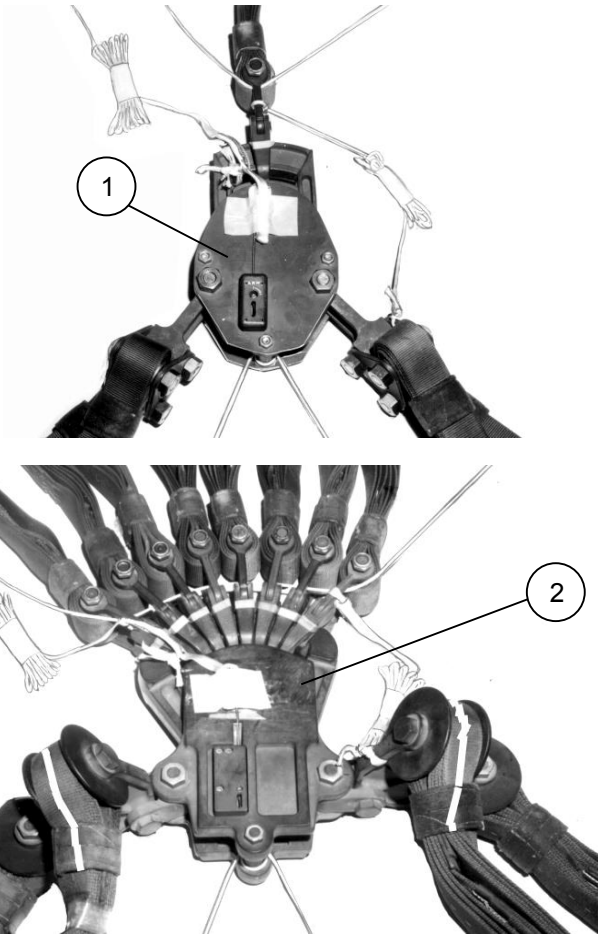


① Each sling is made with continuous loops. The loops are 1 3/4-inch wide, type XXVI nylon webbing. They are held together with keepers of 1-inch, nylon reinforced tape. Each sling has a sliding webbing keeper and a cotton or nylon buffer at each end.

Figure 12-3. Cargo slings

CARGO PARACHUTE RELEASE ASSEMBLIES

12-5. Cargo parachute release assemblies are mechanical devices designed to free the cargo parachute automatically when the airdrop load reaches the ground. The assemblies and components are shown in Figure 12-4.



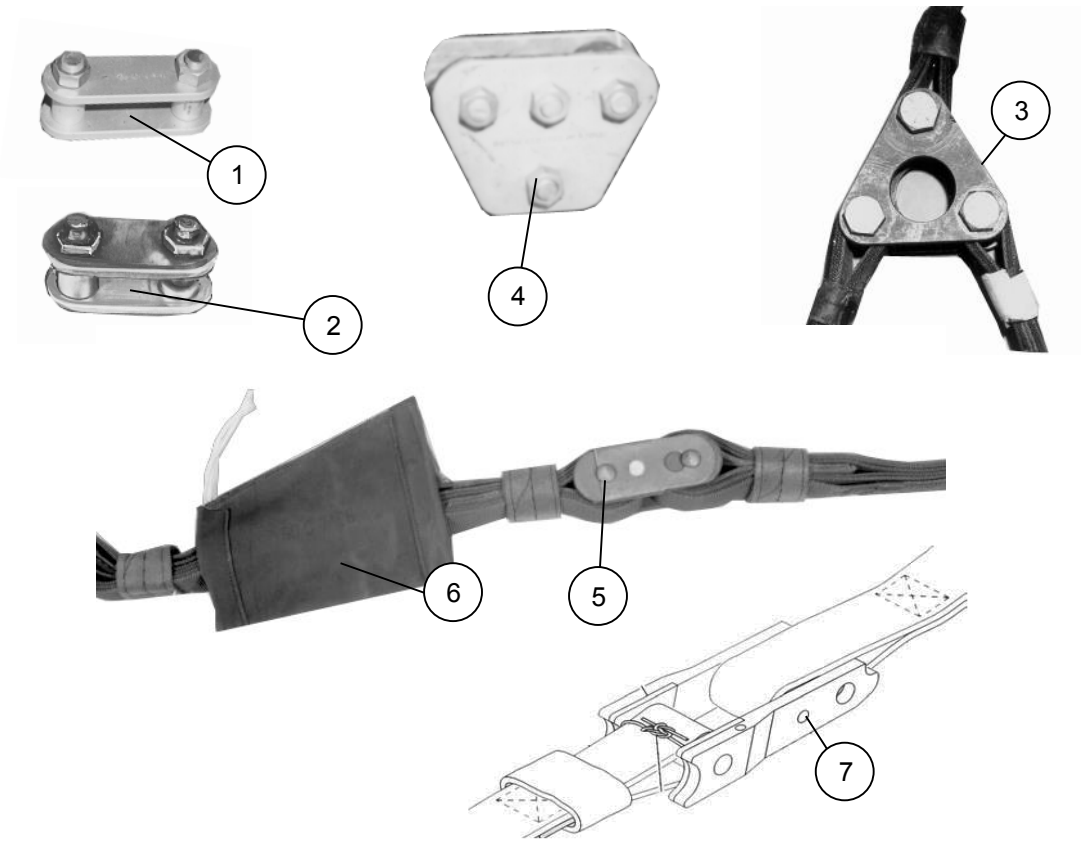
① The M-1 cargo parachute release is used on loads weighing up to 15,000 pounds suspended weight.

② The M-2 cargo parachute release is used on loads weighing up to 42,000 pounds suspended weight.

Figure 12-4. Parachute release assemblies

LINK ASSEMBLIES

12-6. Link assemblies, shown in Figure 12-5, are used to join cargo slings in forming suspension slings and riser extensions of a desired length. They are used also in forming the extraction system.



① 5 1/2-inch two-point link.

② 3 3/4-inch two-point link.

③ Coupling link assembly or three-point link.

④ Four-point link.

⑤ Type IV link.

⑥ Type IV link cover.

⑦ Tow Release Mechanism (TRM) (H-Block).

Figure 12-5. Link assemblies and link cover

CLEVIS ASSEMBLIES

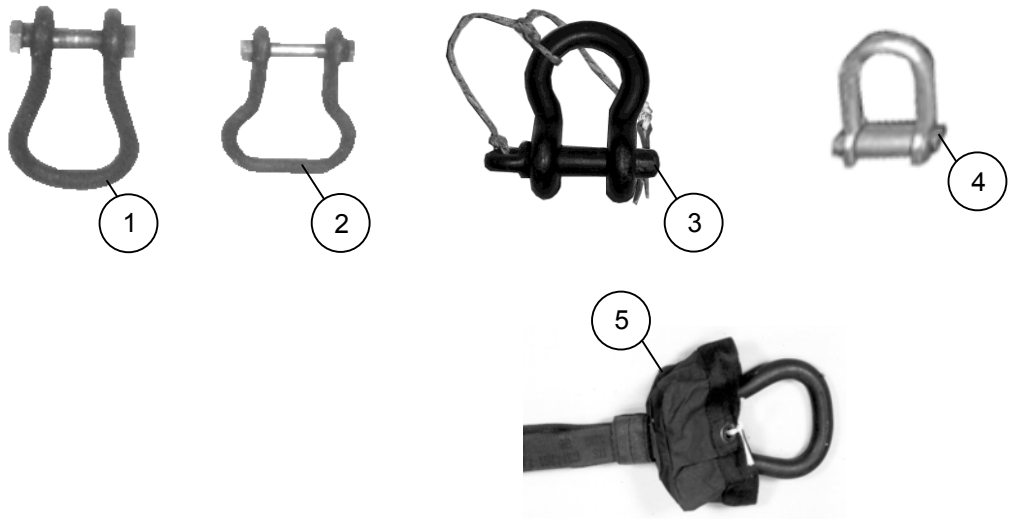
12-7. Clevis assemblies, shown in Figure 12-6, are used in grouping cargo parachute bridles, and attaching slings and parachute release assemblies. They are also used for purposes specified in the manual covering the rigging procedures for individual platform loads.

COVERS

12-8. Link and clevis covers are used to prevent metal-to-metal contact which may cause damage as shown in Figures 12-5 and 12-6.

MODIFICATION HARDWARE ITEMS

12-9. Hardware items made of medal are used to modify certain airdrop items as specified in the manual covering the rigging procedures of an individual airdrop load.



① Large clevis.

② Medium clevis.

③ Small clevis.

④ Type V platform clevis.

⑤ Large clevis cover.

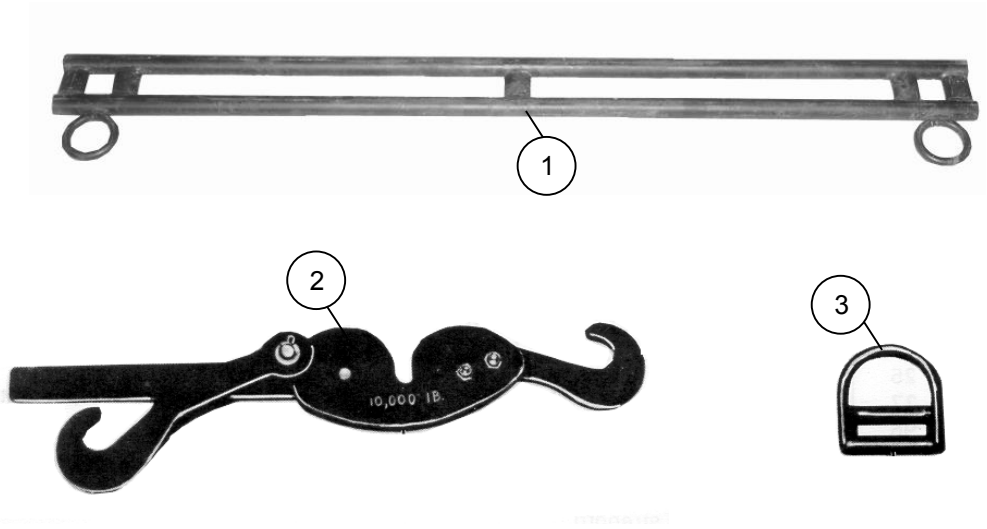
Figure 12-6. Link assemblies and link cover

COMMON HARDWARE ITEMS

12-10. Common hardware items made of metal are used in rigging airdrop loads as specified in the manual covering the rigging procedures. Some common hardware items are shown in Figure 12-7.

CARGO COVERS

12-11. Covers and tarpaulins are commonly used to protect and secure loads of supplies and equipment rigged on airdrop platforms.



① The attitude control bar (ACB) is used as an alternate spreader bar on loads that approach the height of 100 inches. An example of this is the high mobility multipurpose wheeled vehicle (HMMWV) ambulance.

② The 10,000-pound load binder is used to hook two D-rings together or to hook a D-ring to a platform tiedown clevis on the airdrop platform.

③ The heavy-duty D-ring is used with a 15-foot tiedown strap.

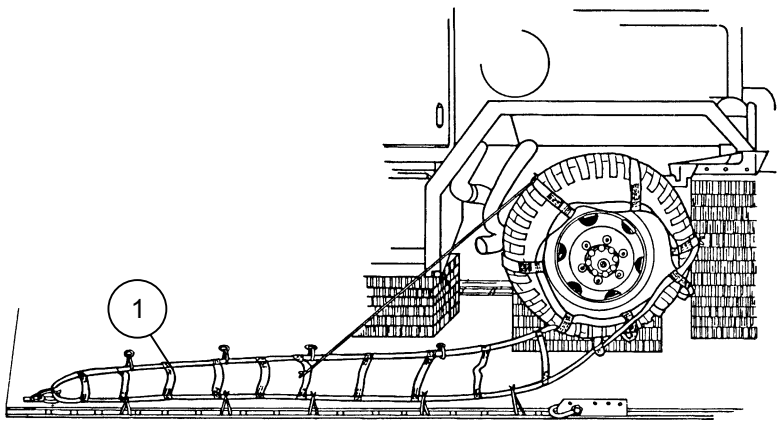
Figure 12-7. Common hardware items

HEAVY DROP DERIGGING SYSTEM

12-12. The heavy drop derigging system (HDDS), shown in Figure 12-8, may be used with the HMMWV, 2 1/2-ton truck and the 5-ton, 900-series truck. The HDDS wraps around the wheel of the vehicle and is used to assist a vehicle to clear the honeycomb and platform.

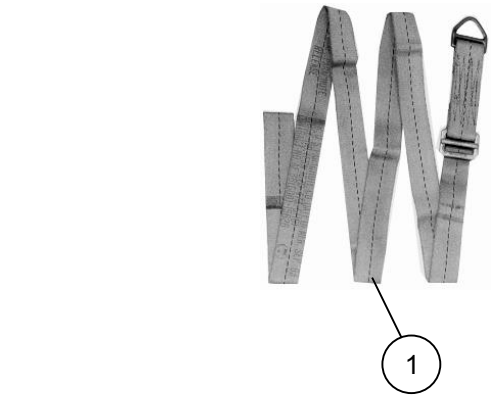
STRAPS AND WEBBING

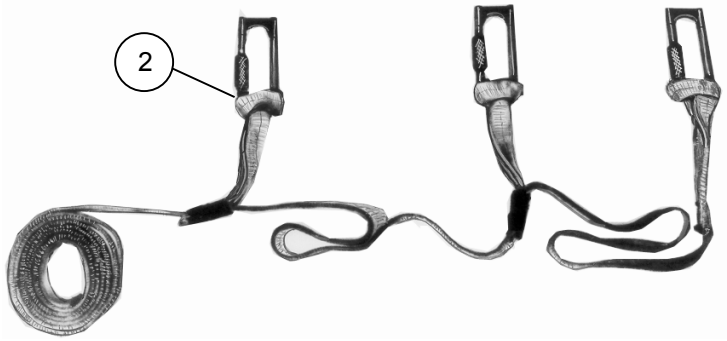
12-13. Straps and webbing, shown in Figure 12-9, are used for lashing the load to the platform, suspending the load as specified in the manual covering the rigging procedures of an individual platform or container load, for restraining the load or parachute, and for parachute release with knife and strap system.



① Heavy Drop Derigging System (HDDS)

Figure 12-8. Heavy drop derigging system

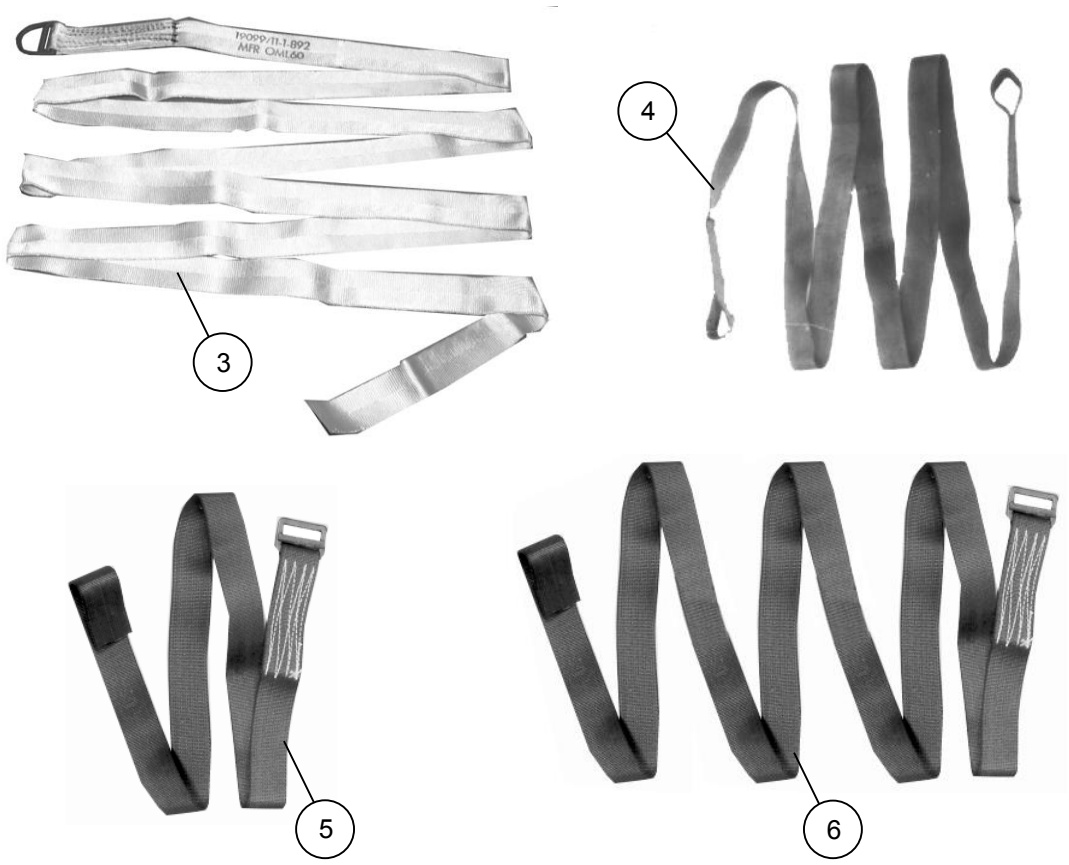




① The guillotine-knife parachute release strap is used to cut one parachute restraint strap on a low-velocity airdrop load.

② The multicut parachute release strap is used to cut one to three parachute restraint straps on a platform load rigged for low-velocity airdrop. The strap comes with three guillotine-type release knives. Knives that are not being used are removed. This release strap is always used in pairs.

Figure 12-9. Straps and webbing



③ The 15-foot Dacron tiedown strap is used to lash an airdrop load to the platform. Other uses of this strap are covered in the specific rigging manual.

④ The 111-inch connector strap is used on the 68-inch pilot parachute.

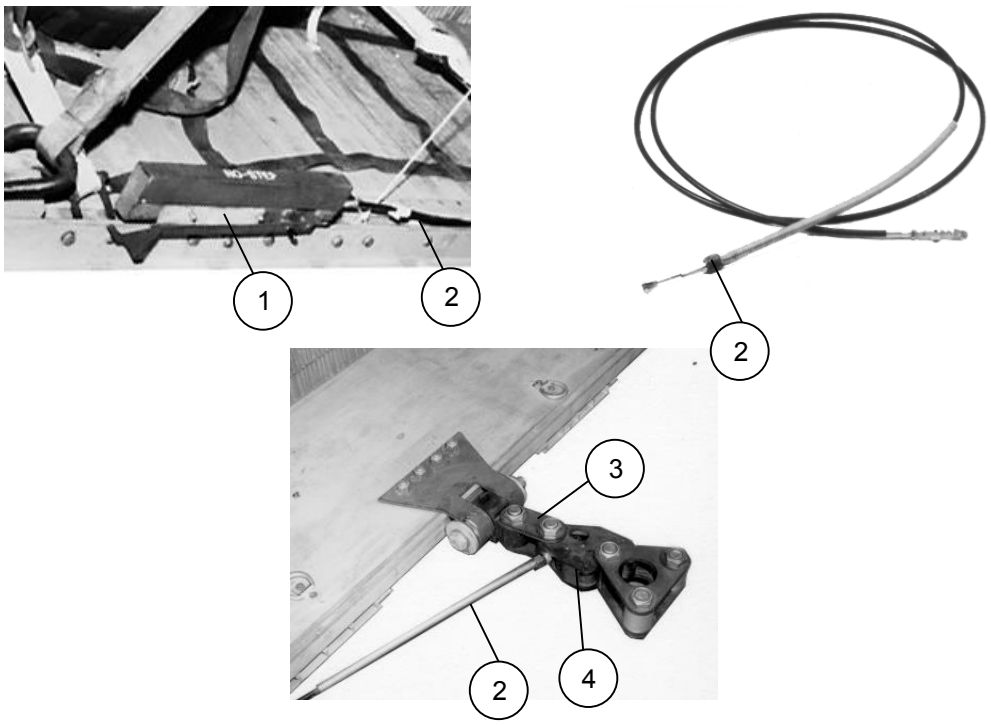
⑤ The 60-inch shear strap is used for connecting loads to the parachute.

⑥ An A-7A cargo sling used for making A-7A container loads.

Figure 12-9. Straps and webbing (continued)

EXTRACTION FORCE TRANSFER COUPLING

12-14. EFTC is the extraction system that is connected to the platform and is used to pull the load from the aircraft. The components of the EFTC are shown in Figure 12-10.



① The actuator assembly is connected to the right side of the platform.

② The cable assembly is connected from actuator assembly to the latch assembly. The cable assembly comes in 12-, 16-, 20-, 24-, or 28-foot lengths.

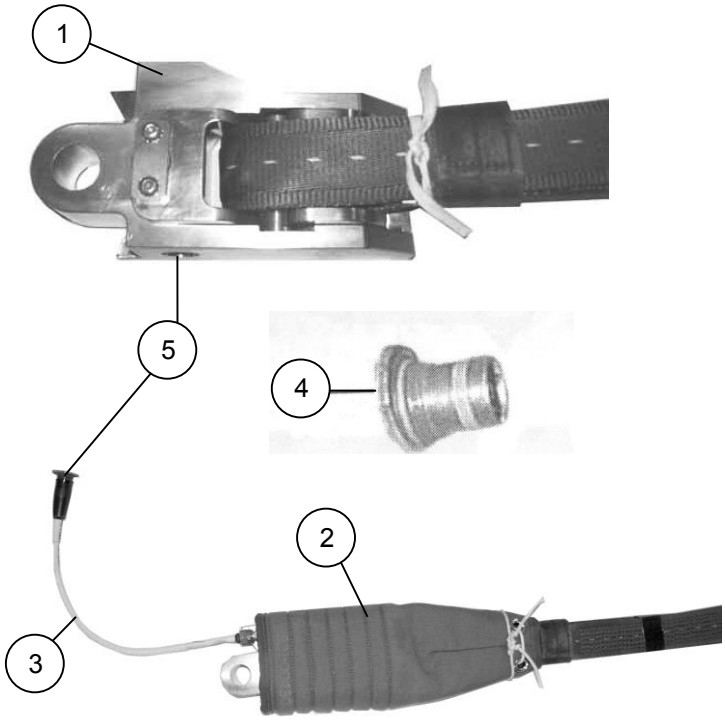
③ Latch connector assembly.

④ Latch assembly.

Figure 12-10. Components of the extraction force transfer coupling

EXTRACTION PARACHUTE JETTISON SYSTEM

12-15. The EPJS allows jettisoning of an extraction parachute during an extraction malfunction. The recoverable components of the EPJS will be connected to the three-point link connected to the extraction parachutes. The components recovered from the DZ are shown in Figure 12-11.



① The extraction parachute jettison device (EPJD) will be connected to the extraction line and the other end will be connected to a three-point link (three-point link not shown).

② EPJD protective cover.

③ The squib cable is attached to the EPJD.

④ Safety cap.

⑤ The safety cap is stored on the side of the EPJD after the squib cable is connected to the platform cable. Prior to the squib cable being connected to the platform cable it is plugged into the squib cable to prevent accidental firing of the squib.

⑥ 10-foot platform cable (not shown).

Figure 12-11. Components of the extraction parachute jettison system

Chapter 13

Airdrop Derigging Procedures

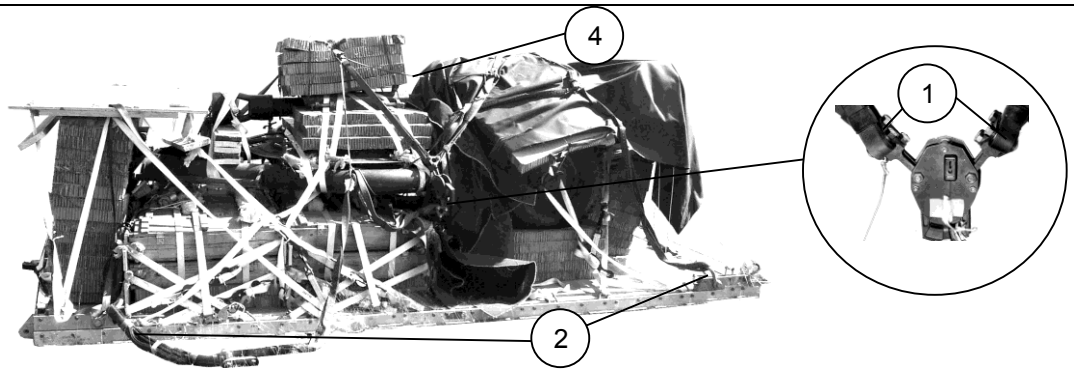
GENERAL

13-1. Much of the damage to airdrop equipment occurs during derigging. Follow specific procedures to prevent unnecessary damage and loss of vital airdrop equipment. Derigging procedures and special tools needed for the derigging of airdrop loads are described in this chapter.

AIRDROP PLATFORM LOAD DERIGGING PROCEDURES

13-2. Derigging procedures consist primarily of removing the basic components of the rigging equipment from the load so that the airdrop items may be moved quickly from the drop zone and put into use. For reasons of supply economy, ensure that the airdrop rigging equipment is removed properly during derigging.

- **REMOVING SUSPENSION GROUPS**. The derigging of the suspension group includes removal of the suspension slings from the parachute release and any other items of equipment which connects the suspension slings to the load or cargo parachutes. Remove the rigging equipment as outlined in Figure 13-1.



① Identify the parachute release and disconnect the suspension slings from the lower suspension link.

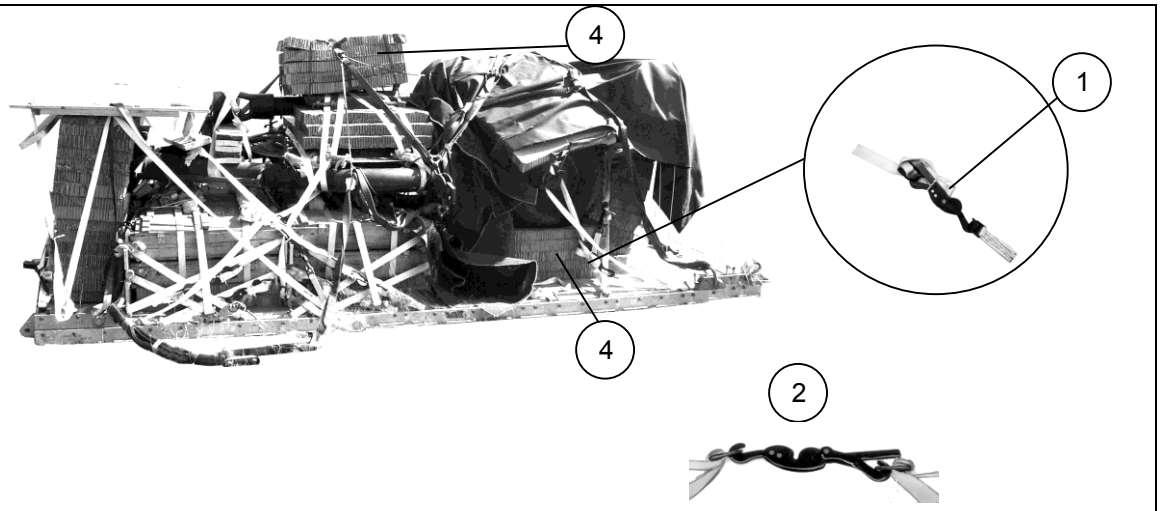
② Suspension slings do not have to be removed from the suspension clevises unless time permits.

③ Suspension slings on load suspended items must be removed from the airdrop items before it can be removed from the platform (not shown).

④ All securing ties connected to the suspension slings must be removed.

Figure 13-1. Suspension line groups derigged

- **REMOVING TIEDOWN ASSEMBLY**. The derigging of the tiedown assembly includes removal of the tiedown lashings and load binders. When the load is rigged, the tiedown lashings and the load binder or ratchet tiedowns, which secure the load to the airdrop platform, are extremely tight. However, after the loads hit the ground, the tiedown lashings are usually loose enough to be removed easily. Tiedown straps and load binders that are still under tension must be removed as shown in Figure 13-2.



① Remove the securing tie from the load binders. The securing tie is made of type I, 1/4-inch cotton webbing and can be cut to be removed.

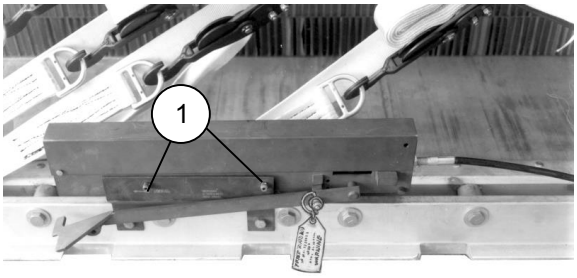
② Rotate the handle on the load binder to remove tension and remove load binder from the D-rings or clevis.

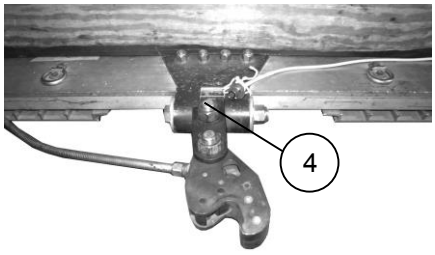
③ Pull the lashing free from the tiedown provision, and remove the tiedown lashing and load binder from the airdrop item and platform (not shown).

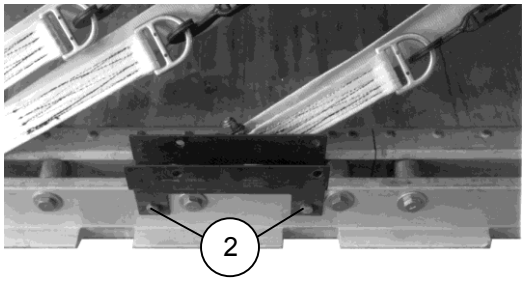
④ Energy-dissipating material (honeycomb).

Figure 13-2. Tiedown assembly removed

- **REMOVING ACCOMPANYING LOAD**. When an accompanying load and/or related airdrop equipment is used, remove the tiedown assembly in the same manner as described in Figure 13-2. Remove the accompanying load and/or related airdrop equipment from the airdrop item or platform.
- **REMOVING ENERGY-DISSIPATING MATERIAL.** The energy-dissipating material (honeycomb) is used to absorb the shock of landing. On most loads, the honeycomb can be kicked free from the airdrop item or the item can be driven or towed off the platform. Honeycomb is shown in Figure 3-2.
- **REMOVING THE EFTC**. Remove the EFTC components as shown in Figure 13-3.







① Remove the actuator by removing the pins that attach it to the actuator brackets.

② Remove the actuator brackets by removing the two bolts connecting it to the platform. Once disconnected from the platform place the bolts back in the brackets.

③ Reconnect the actuator to the actuator brackets by re-inserting the two pins (not shown).

④ Disconnect the latch assembly from the platform extraction bracket by removing the bolt nearest to the platform.

Note. Do not disconnect the cable from the actuator or latch assembly.

Figure 13-3. Extraction force transfer coupling components removed

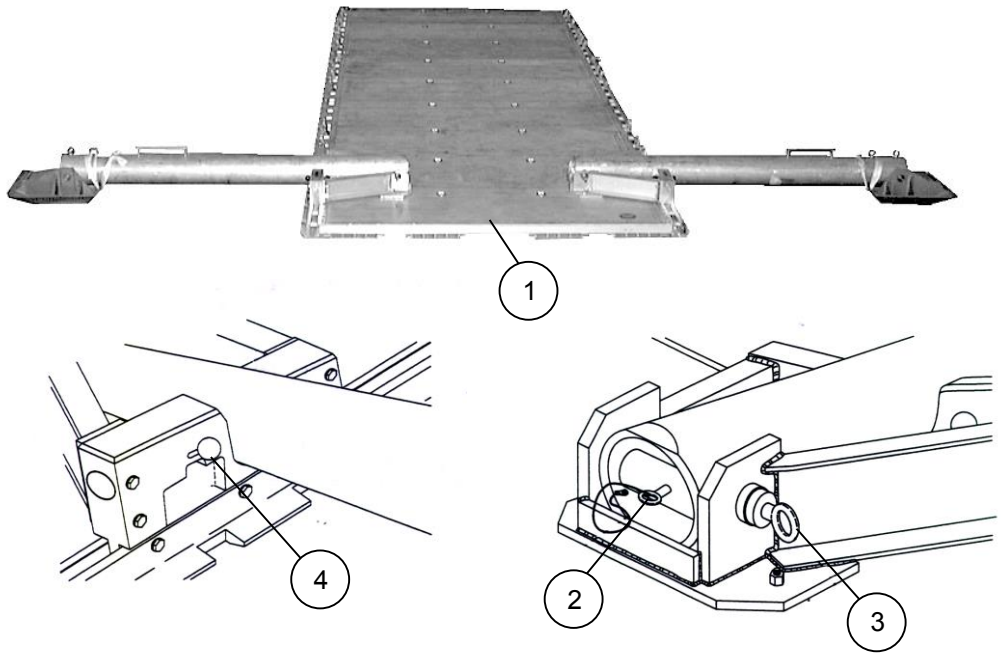
- **REMOVING MISCELLANEOUS ITEMS**. The following list of items should be derigged and replaced or removed as necessary and as time and need permits. Some of the items may have to be removed after the vehicle is removed from the platform.
  - EPJS platform cable.
  - Parachute stowage platform.
  - Gasoline tank support strap.
  - Tarpaulin and bows.
  - Towing tongue.
  - Gasoline cans.
  - Windshield protector.

- **REMOVING VEHICLE WITH THE HEAVY DROP DERIGGING SYSTEM (HDDS).** The HDDS is an upgraded version of the drive-off aid. It can be used with the HMMWV, 2 1/2-ton truck, and the 5-ton, 900-series truck. Once the tiedown assemblies are removed, the vehicle, when powered up, will progressively wrap the webbed ladder around the wheels and pull itself clear of the honeycomb. Drive the vehicle only enough to free it from the honeycomb so the vehicle will be able to move under its own traction. Stop the vehicle, place it in a neutral gear, and engage the emergency brake. Carefully remove all loose honeycomb and wood items. Release the emergency brake and carefully drive the vehicle onto the platform, then slowly unwrap the HDDS from the wheels, thus separating the vehicle from the platform.

CAUTION

1. The wheels with the HDDS installed must not be driven clear of the end of the platform.
2. Do not spin the wheels of the vehicle. If the honeycomb is not completely collapsed, the friction can ignite the paper of the honeycomb or melt the nylon webbing of the HDDS ladder.
3. The HDDS can slip off the wheel and wrap around the axle if the vehicle is not driven off straight.
4. The HDDS ladder can hang in the wheel lugs and cause damage.
5. The 900-series 5-ton truck will be seriously damaged if operated in low-range, all-wheel-drive, and reverse gear. See operator caution on the dashboard and the operator's manual.

- **REMOVING THE DEPLOYABLE OUTRIGGERS FROM PLATFORM.** Remove the deployable outriggers from the platform as outlined in Figure 13-4.



① Airdrop platform with deployable outriggers engaged.

② Remove quick-release pin at pivot end of mast.

③ Remove shaft pivot pin.

Note. The removal of the deployable outriggers requires two persons.

④ Disconnect the latch assembly from the platform extraction bracket by removing the bolt nearest to the platform.

⑤ Replace shaft pivot pin and quick release pin back into the mast to prevent lose (not shown).

Figure 13-4. Deployable outriggers removed from platform

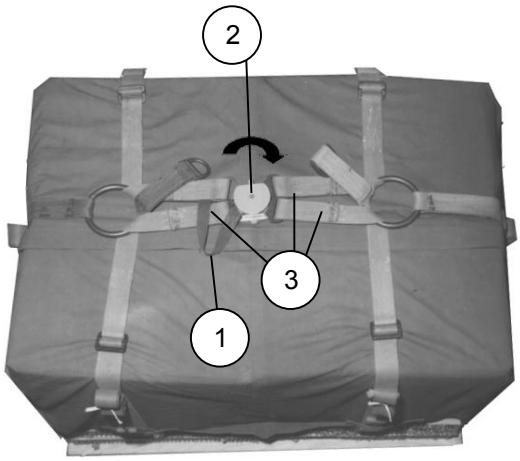
AIRDROP CONTAINER LOAD DERIGGING PROCEDURES

13-3. Airdrop containers consist of the A-7A cargo sling, A-21 cargo bag, and the A-22-series cargo bag. The following procedures are used to derig a container load:

- **DISCONNECTING CARGO PARACHUTES.** To disconnect the 68-inch pilot, G-14 cargo, and 15-foot extraction parachutes from the A-7A cargo sling or A-21 cargo bag, disconnect the parachute risers from the D-rings, and remove the cargo parachutes from the containers. The G-12, G-14 cargo, 26-foot high-velocity, and 22-foot extraction parachutes are used on the A-22 cargo bag. Disconnect the cargo clevis from the suspension webs, and remove the cargo parachute.

- **UNPACKING AIRDROP CONTAINERS.**

  - **A-7A Cargo Sling.** Remove the tape or type I, 1/4-inch cotton webbing on sling strap folds. Loosen and pull all sling straps from strap fasteners. Lay the sling straps on the ground, and remove the load from the cargo slings.
  - **A-21 Cargo Bag.** Derig the A-21 cargo bag as shown in Figure 13-5.



① Remove the safety clip.

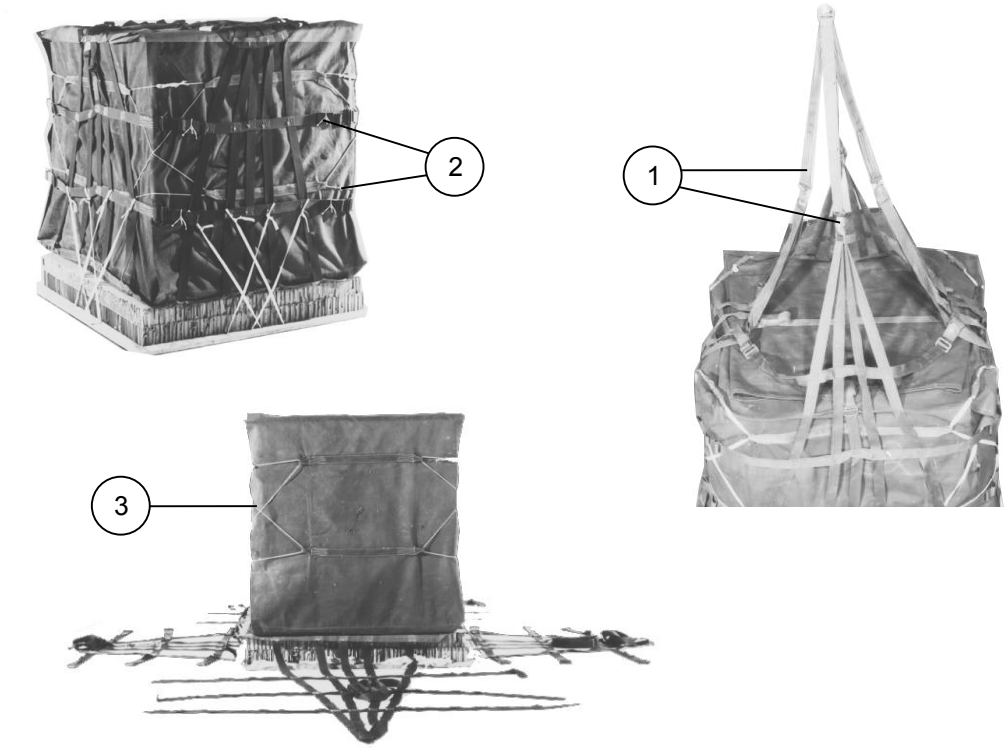
② Twist the outer rotating disc clockwise on the quick-release assembly and press down.

③ Remove the quick-release straps from the quick-release assembly and pull them through the O-ring.

④ Remove the cover from the load (not shown).

Figure 13-5. A-21 cargo bag derigged

- **A-22 Cargo Bag.** Derig the A-22 cargo bag as shown in Figure 13-6.



① Disconnect the four suspension web snap hooks from the sling assembly.

② Cut and remove tie from excess webbing on all lateral straps and remove from friction adapter.

③ Cut and remove all four bag securing ties.

④ Open the cover and remove the load (not shown).

Figure 13-6. A-22 cargo bag derigged

GENERAL

13-4. Much of the damage to airdrop equipment occurs during derigging. Follow specific procedures to prevent unnecessary damage and loss of vital airdrop equipment. Derigging procedures and special tools needed for the derigging of airdrop loads are described in this chapter.

Table 13-1. Suggested tools for derigging

Quantity	*Nomenclature*	*Use*
1	*Knife	As required
1	Screwdriver, flat-tip (large)	Parachute release
1	Screwdriver, flat-tip (medium)	Connector link
1	Adjustable wrench (10-inch)	As required
2	1 1/2-inch wrench, combination	Large clevis EFTC link assembly adapter Two-point link
2	1 7/16-inch wrench, combination	Two-point link
2	1 1/8-inch wrench, combination	Medium clevis
1	1-inch wrench, combination	Parachute release
2	5/8-inch wrench, combination	Type V clevis
2	9/16-inch wrench, combination	EFTC bracket Type II clevis
1	Tin snips	Steel banding
1	Hammer	As required
As required	Heavy duty plastic bags	Parachutes and trash
*Do not cut lashings, straps, parachute release arming wire and lanyards, or any other airdrop item. Use knives for cutting nylon or cotton webbing ties only.		
Legend: EFTC = extraction force transfer coupling		

Chapter 14

Airdrop Equipment Recovery Procedures

SECTION I-PREPARATION FOR RECOVERY

GENERAL

14-1. Recovery procedures are designed to ensure, in the interest of supply economy, the maximum recovery of parachutes and related airdrop equipment used to deliver personnel, supplies, and equipment during airborne operations.

PREPARATION FOR RECOVERY OPERATIONS

14-2. Preparation for recovery is vital to having a successful operation. Having the right equipment and being prepared will greatly enhance the recovery operation.

- **RESPONSIBILITIES.** The commander of the receiving unit is responsible to appoint a recovery NCO or officer from within his own unit. The recovery NCO or officer plans and supervises the operation and organizes the needed teams to recover and evacuate parachutes and related airdrop equipment. The receiving unit should be capable of conducting the recovery according to this manual.
- **PERSONNEL COORDINATIONS.** The success of the recovery mission depends on the support of the combat unit securing the perimeter, communication control to provide the evacuation of the mission in minimum time, and proper briefings of recovery personnel on the tactical situation. It depends also on the experience of available personnel on recovery teams, and available transportation. Coordination among the combat unit recovery officer, recovery supervisors, team personnel, and transportation is necessary for a successful recovery mission.
- **SPECIAL CONSIDERATIONS.** Some special areas to consider are listed below.
    - **Tactical Situation.** Prior to recovery operations, all personnel involved in the recovery must be briefed thoroughly on the tactical and alternate plans so they will be prepared for any contingencies that may occur.
    - **Types of Terrain.** Recovery time and effort may be increased or decreased according to undergrowth, obstacles, and texture of the soil (such as mud and ruts).
    - **Weather.** Recovery operations must be adjusted according to existing weather conditions.

- **Size and Number of Drop Zones.** The drop zone (DZ) may consist of a number of small drop zones over a large area, or it may consist of one or two large ones. The number of personnel and vehicles required for recovery depends on the area of the drop zone.
- **Quantity and Type of Equipment.** The quantity and type of equipment to be recovered is an important factor in overall recovery planning. Containers must be provided for packaging small, loose metal and fabric components (such as clevises, connector links, and load binders).
- **Communications.** Communication is needed between recovery team supervisors and the recovery officer and between the combat unit and the recovery officer in the event of possible changes in the tactical situation.
- **Technical Supervisions.** The recovery officer is responsible for acquiring the needed technical supervision according to the size and amount of supplies and equipment.
- **Equipment and Available Personnel.** The number and the type of equipment and the quantity of personnel available may affect recovery time.
- **Methods of Recovery and Evacuation.** The methods of recovery and evacuation of equipment depends on local conditions, available personnel, transportation, and the destination of the recovered equipment and supplies.

PRINCIPLES OF RECOVERY AND EVALUATION

14-3. Principles of recovery and evacuation include recovery planning factors, recovery priorities, recovery accountability, recovery plans and evacuation, transportation, and storage.

- **GENERAL AIRDROP RECOVERY PLANNING FACTORS.** Airdrop equipment is expensive and in short supply. The unit receiving airdrop resupply must attempt to recover, protect, and retrograde this equipment. Receiving units must use aerial delivery recovery data to compute estimated quantities (volume/weight) of equipment to be retrograded. If the tactical situation prevents recovery, destroy the airdrop equipment according to TM 43-0002-1, *Procedures for the Destruction of Air Delivery Equipment to Prevent Enemy Use*, to prevent enemy forces from using it. Prepare contingency plans for airdrops involving unusual or unforeseen circumstances where special techniques may have to be used. For example, plan what to do when drops occur off the drop zone or in trees, or when the receiving unit or part is not United States military or military of other nations.
- **RECOVERY PRIORITIES.** Airdrop equipment should be recovered and evacuated in the following order of priority:

    - Personnel parachutes.
    - Cargo parachutes.
    - Airdrop containers.
    - Airdrop platforms.
    - Related airdrop rigging equipment.

- **RECOVERY ACCOUNTABILITY REPORTING.** Receiving units must turn in equipment to the supplying unit as quickly as possible. The turn-in must be within 48 hours, or sooner, to avoid possible damage from improper storage conditions and to speed the return of air items for future reuse. Units should establish, through standing operating procedures (SOP), how a receiving unit needs to report disposition of recovered items. Receiving units are responsible for equipment until it is delivered in proper condition to the supplying unit. Parachute riggers are not responsible for safeguarding and protecting air equipment from pilferage. Air items suspected of being damaged due to willful negligence or deliberate actions will be identified and segregated for disposition and determination of actions. Plans must also be made for the recovery and turn-in of residual air equipment on board the aircraft.
- **RECOVERY PLANS.** Ensure requirements for the recovery of air items are met, as described below.

    - **Plans, Including Major Factors.**
        - Plan for security of drop zone.
        - Plan for equipment recovery according to this manual.
        - Plan for recovery of items at airfield.
        - Plan for safeguarding of air items at airfield.
        - Plan for materials handling equipment (MHE) and transportation.
        - Plan for tree-cutting and climbing equipment.
        - Plan for segregation of air items by type prior to turn-in.

    - **Preparations and Actions Prior to Airdrop.**
        - Designate and assign a team for recovery.
        - Organize, train, and brief recovery detail to ensure quick recovery of air equipment, or coordinate for parachute riggers to train team members prior to airdrop.
        - Ensure necessary derigging tools and recovery equipment are available.
        - Ensure tarpaulins or plastic bags are available in case of inclement weather.

    - **Actions after Airdrop.**
        - Account for items issued but not delivered to the DZ.
        - Coordinate with individuals responsible for issue and recovery to determine shortages.
        - Expedite turn-in of all air items, and resolve all shortages immediately.

- **EVACUATION, TRANSPORTATION, AND STORAGE.** The recovery NCOIC or OIC supervises the evacuation of parachutes and related airdrop equipment from the drop zone to the central and/or rear area, depending on the tactical situation. Available transportation will be used for evacuation. Sling loading of airdrop loads by helicopter is an optional means of transport. Transportation used for air items will be inspected prior to loading items. Vehicles must have clean, dry cargo beds and sufficient tarpaulins or plastic to protect air equipment from inclement weather or contamination. The recovery units are responsible for preventing air items from becoming contaminated by fuels, such as diesel or oil, in vehicle beds. Parachutes need special attention to keep them from becoming soiled or wet. Clean air items should be segregated from contaminated items to keep from spreading the contamination. Air items should be placed into plastic bags to prevent contamination from fuel, dirt, and water. Ensure transport vehicles are equipped with adequate means to secure platforms to the vehicle, such as chains or tiedown straps. When evacuation is by ground, receiving units should provide a guard detail to accompany each load to prevent sabotage or pilferage in route. Under all conditions, ensure evacuation as rapidly and directly as possible, since additional airdrop of supplies and equipment may depend upon the availability of parachutes and related airdrop rigging equipment.

SECTION II-RECOVERY OF AIRDROP EQUIPMENT ON THE DROP ZONE

RECOVERY PROCEDURES

14-4. Recovery procedures are as follows:

- **PROHIBITED ACTIONS.** The following actions are prohibited:

  - Do not drag personnel parachutes or cargo parachutes from trees, obstructions, or along the ground during recovery.
  - Do not cut parachute suspension lines to aid recovery unless all other efforts fail.
  - Do not drag aerial delivery platforms and related equipment across the ground to speed recovery.
  - Do not cut or use the arming wire and lanyard of the M-1 or M-2 parachute release assembly to speed recovery. Remove the arming wire and lanyard from the cargo parachute deployment bag, and tie them to the release.
  - Do not disassemble the release assembly body when removing suspension slings. Once the suspension slings are removed, place the suspension link bolts and spacers back on the assembly.
  - Do not empty ballast sand boxes on the drop zone.
  - Do not stack airdrop platforms without two layers of honeycomb, or dunnage between each platform to prevent damage caused by metal-to-metal contact.
  - Do not disassemble the EPJD.

- **HEAVY CARGO PARACHUTES.**

  - **Recovery of Cargo Parachute Deployment Bags.**
    - Prior to drop, the recovery NCOIC or OIC will designate a spotter for extraction parachutes and deployment bags.
    - The spotter will observe the extraction parachute and deployment bag of the heavy drop load. He must visually follow the descent of the extraction parachute and the deployment bag so they can be located during recovery.
    - Disconnect the deployment bag from the deployment line.
    - The recovered deployment bag will be taken to the site of the cargo parachute, and the recovery team will use it to stow the cargo parachute.
    - The recovery team will ensure that the cargo parachutes are stowed in their corresponding type of deployment bag (for example, G-11 in the large cotton duck or nylon bag, G-12 in the smaller nylon deployment bag, and so forth).

  - **Techniques for Recovery of G-11 and G-12 Cargo Parachutes.**
    - Use four-man teams and elongate the canopy, lines, and risers. Do not drag the parachute and lines along the ground.
    - Remove riser extensions and center line at the large clevis and parachute connector (parachute release fingers), if used, and leave the clevis on the riser assembly.
    - Daisy chain the suspension lines and risers. Do not separate suspension lines and risers at the connector links.
    - Insert the canopy apex lines through the slot in the top of the deployment bag, recovered as mentioned earlier, and S-fold the canopy, suspension lines, and risers into the deployment bag.

- Close and secure the deployment bag with available cord. Do NOT use arming wire lanyard.

- **PILOT AND EXTRACTION PARACHUTES.** The 68-inch pilot and extraction parachutes may be rolled and placed inside the deployment bag or rolled and tied separately, and then placed in the deployment bag. It is recommended that the 68-inch pilot parachute be placed on top of the G-12 parachute, inside and still connected to the deployment bag.
- **LIGHT-CARGO PARACHUTE.** The light-cargo parachute (G-14, 15-, 22-, and 28-foot extraction, 26-foot high-velocity and T-10 cargo) and the deployment bag are normally connected to the airdrop container. Detach the deployment bag and parachute from the container. Recover the parachute as follows:

  - Spread the canopy lengthwise on the ground and straighten the suspension lines and risers. S-fold the canopy, suspension lines, and risers into the deployment bag.
  - Secure deployment bag with available cord.
  - Light cargo parachutes without a deployment bag place in a kit bag.

- **EXTRACTION LINE BAG**

  - After disconnecting the deployment bag, immediately locate the EPJD, if installed, and remove the safety cap from the side of the EPJD and insert it into the squib as shown earlier in this manual.

WARNING

Do not separate the extraction parachute jettison device (EPJD), squib cable, squib, or the squib cable safety cap on the drop zone (DZ).

WARNING

Static electricity or stray electromagnetic energy from transmitters may energize the squib and cause it to fire. Use extreme care when handling the extraction parachute jettison device (EPJD) by its latch if the safety cap is not installed in the end of the squib cable. If the squib fires, the rotating latch assembly can cause bodily injury.

  - Place inside the line bag panels all extraction line bag components and items connected to the line bag systems (such as all metal hardware: H-block, EPJD, EFTC link assembly, four-point link assembly, any other link assemblies, or large clevises, and deployment and extraction lines). Tie the panels together with available material.

- **AIRDROP CONTAINERS.** Place all loose components of the A7A cargo sling, A-21 and A-22 cargo bags in the center of the container, and fold and secure the container in a convenient manner.

- **AIRDROP PLATFORM LOAD COMPONENTS.**

  - **Airdrop Platforms.** Airdrop platforms to be recovered for evacuation should be separated by size and type. Place dunnage between stacked platforms to prevent damage (honeycomb works well). Platforms should be stacked from the largest to the smallest.
  - **Deployable Outriggers.** Recover the deployable outriggers and place one set of outriggers per platform on top of each stack of platforms.
  - **Webbing.** Recover and set aside all suspension slings, riser extensions and tiedown straps for evacuation.
  - **Hardware.** Recover and package all hardware components such as EFTC, EPJS cable, and parachute release and set aside for evacuation.
  - **Wooden Components.** Recover and return wood products. The wood components include lumber, wood blocks, plywood (stowage platform, ACS and so forth), and the combat-expendable platform which consists of all of the above.
  - **Energy-Dissipating Material.** The honeycomb can be reused. However, if it is damaged beyond use it is expendable and may be disposed of accordingly.

- **MISCELLANEOUS AIRDROP EQUIPMENT.** All parachute release assemblies and components should be recovered with riser extensions and arming lanyards, and packaged for evacuation.

***Note*.** DO NOT cut the 1/2-inch tubular nylon arming lanyard or use it for tying items.

DESTRUCTION OF AIRDROP EQUIPMENT

14-5. Airdrop equipment that cannot be recovered, because of severe damage or because of the tactical situation, should be destroyed according to TM 43-0002-1 to prevent enemy use.

TEMPORARY STORAGE OF PARACHUTES AND RELATED AIRDROP EQUIPMENT

14-6. The receiving unit is responsible for providing field storage facilities for recovered parachutes and related airdrop rigging equipment awaiting evacuation to a rear area. A permanent building with a dry floor is desirable for storage because it protects against moisture. Tents with wooden floors are a second choice for storage. It is not likely, however, that you will find ideal storage facilities near a drop zone. The recovery NCOIC/OIC must devise various field expedients to protect the parachutes and related airdrop rigging equipment during the period prior to evacuation to a rear area. To safeguard the recovered items the recovery officer may use various pieces of canvas; all expendable wood components, including combat-expendable platforms; and the covers from the A-21 and A-22 airdrop containers. The canvas covers make suitable tarpaulins to protect the parachutes from rain and sunlight. The parachute stowage platforms and all airdrop platforms may be used for pallets or temporary shelters. The recovery NCOIC/OIC must consider the following:

- **PARACHUTES**
    - In a dry area.
    - Out of direct sunlight.
    - Free of contact with the ground.
    - In a central assembly area.
    - In stacks, separated by types; for example, heavy cargo, light cargo, personnel, extraction, and pilot parachutes. If possible, store wet and dry parachutes separately.
    - Under camouflage to protect against detection.
    - Under guard to protect against sabotage and pilferage.

- **AIRDROP PLATFORMS.** Airdrop platforms should be stored on honeycomb or dunnage to prevent deteriorations.
- **WEBBING.** Webbing should be protected from excess moisture, and nylon webbing should be shielded from direct sunlight.
- **HARDWARE.** Protect hardware from excess moisture by placing a protective cover over hardware whenever possible.
- **CANVAS.** The canvas used with airdrop containers and platforms is usually a mildew- and water-resistant cotton duck. Use it to cover the more critical items of recovered airdrop rigging equipment.
- **PARACHUTE RELEASE.** Place all parachute releases in boxes, if possible and store them in a dry area that is free of dust, rain, or moisture.

SECTION III-RECOVERY OF AIRDROP EQUIPMENT ON THE AIRCRAFT

PERSONNEL EQUIPMENT

14-7. The recovery of static line personnel equipment on the aircraft will be mainly conducted by the safety personnel or loadmasters on the aircraft. Each aircraft will have at a minimum of two reserve parachutes, two jumpmaster safety static lines with deployment bags, and kit bags.

- Recovery personnel will account for the deployment bags, kit bags and reserve and jumpmaster safety parachutes for each aircraft. There will be one deployment bag for every jumper that exited the aircraft.
- Deployment bags will be rolled and placed inside a kit bag.

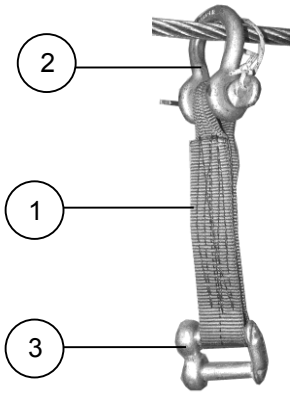
CONTAINER DELIVERY SYSTEM EQUIPMENT

14-8. The recovery of container delivery system equipment on the aircraft will vary depending on the type of parachute utilized and whether the load is rigged for breakaway or non-breakaway.

- If a G-14 cargo parachute is used, there will be a small clevis with static line or just a small clevis will be recovered.
- If a 26-foot high-velocity parachute is used, a static line with deployment bag will be recovered.
- If a G-12 cargo parachute is used with 68-inch pilot parachute, there will be a small clevis recovered or a small clevis with static line and deployment bag.

HEAVY DROP EQUIPMENT (DRAS)

14-9. When dropping a DRAS a 6-inch connector strap must be recovered from the aircraft. There will be one 6-inch connector strap per DRAS platform. The strap consists of a small clevis, 6-inch connector link, and 1-inch connector link shown in Figure 14-1.



① 6-inch connector link.

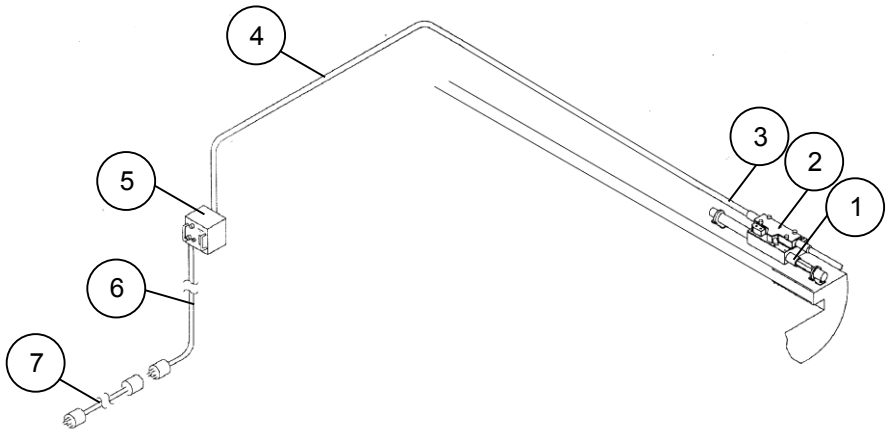
② Small clevis.

③ 1-inch connector link.

Figure 14-1. 6-inch connector strap

HEAVY DROP EQUIPMENT (EPJS)

14-10. When the EPJS is used, the components shown in Figure 14-2 must be recovered from the aircraft (if provided by the dropping unit) and placed in the bag provided for the EPJS.



① Y-connector mounting box. There will be one box for every airdrop load on the aircraft.

② Y-connector. There will be one Y-connector for every airdrop load on the aircraft.

③ 10-foot interconnect cable. The interconnect cable is black and there will be one for every airdrop load on the aircraft.

④ 50-foot main cable. The main cable is black and there will only be one on the aircraft.

⑤ Control box. Only one control box will be on the aircraft.

⑥ 20-foot power cable. There is only one power cable per aircraft and it is red.

⑦ Power cable extension. The power cable extension is used on the C-17 aircraft only.

⑧ 4- foot extension cable. The extension cable is used on C-17 aircraft (not shown).

Figure 14-2. Extraction parachute jettison system components on the aircraft

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Chapter 15

Derigging and Recovery under Special Conditions

DESCRIPTION OF LOAD

15-1. Unusual geographic, climatic, and weather conditions must be considered when you plan and conduct airdrops. Extreme geographic and climatic conditions (such as polar, tropical, desert, marine, and mountainous) will drastically increase completion times of airdrop missions. Factors to consider when derigging and recovering air items in these unusual conditions, such as transportation difficulties, remote and limited facilities, and increased work completion time, are described in this chapter.

POLAR CONDITIONS

15-2. Take the factors listed below into account when you plan and conduct derigging and recovery operations under polar conditions.

- **WEATHER CONDITIONS.** Both extreme cold and weather are overriding factors when you plan and conduct an operation in polar areas. The weather can change in a moment. Sudden changes from -10 degrees Fahrenheit, no wind, and unlimited visibility to -150 degrees Fahrenheit, 40 knot winds, and zero visibility are not uncommon. The weather phenomenon known as whiteout is an extreme danger to be considered in cold weather operations. Anyone caught unsheltered in a whiteout, probably will not survive.
- **DROP ZONES.** Because of weather conditions, aircraft may have to be guided exclusively by radio. Weather and solar activity (solar flares and sunspots) interfere with radio transmissions in arctic conditions. Recovery teams must be prepared for the possibility that they may have to recover airdrop items from other than the designated locations and drop zones. In the arctic all drop zones are unimproved. It is unusual to find a DZ free of snow, ice mounds, and pressure ridges (long ridges of ice pushed up when ice floes collide).

- **DZ RECOVERY.** Due to temperature variations, a thawing and freezing process occurs when air items move from a warm environment (inside) to a cold environment (outside) and vice versa. Metal components and bolts on the airdrop loads and parachutes can freeze, and tools may be needed to loosen and remove the items. Each mission will require special tools to help with the recovery due to the extreme cold. Personnel will have to use wrenches to remove nuts and bolts, pliers to remove safety pins, and screwdrivers to pry frozen items apart. Once air items are recovered and moved to warm locations, the ice and snow melt and saturate them with water, which will damage the items unless personnel take care of them. With the weather being unpredictable and severe, under almost all conditions except whiteout, recovery teams must disconnect the parachutes and recover them immediately after the drop. Otherwise, the parachute will become buried under snow, and recovering them without damage will be nearly impossible. The process of digging the parachutes out damages them. Polar conditions are extremely hard on personnel. Clothing required for the extreme cold severely limits movement and sight. Mission completion time will be lengthened accordingly.

- **REMOTE AND LIMITED FACILITIES.** In the Polar Regions, most airdrops take place in extremely remote locations. As a rule there will be no roads or rails to these locations, and the sites will have limited facilities. Because of these factors, any items that are determined to be not returnable, such as parachutes, damaged fuel drums, honeycomb, and skid boards, should be consolidated and destroyed. The preferred way to destroy them is by burning. However, you must take environmental and tactical considerations into account.

- **TRANSPORTATION DIFFICULTIES.** Place recovered items individually in heavy-duty plastic bags for transport. Plastic bags prevent the spreading of contamination (from damaged fuel drum loads, for example), which is difficult to detect due to weather conditions. Recovery vehicles are often limited to sleds and snow vehicles which must make repeated shuttles. The repeated use of the same vehicle may contaminate airdrop equipment if plastic bags are not used.

- **LIMITED OF AIR DELIVERY METHOD.** Almost all heavy-volume supplies will be brought by airdrop. When personnel recover air items, usually the only way they can move them in polar conditions is by small, light aircraft. Therefore, the use of container delivery systems is the usual method of supply.

TROPICAL CONDITIONS

15-3. Take the unique factors listed below into account when you plan and conduct derigging and recovery operations under tropical conditions.

- High humidity.
- Dense vegetation in and around drop zones.
- Large amounts of precipitation.

Note. These factors are typical of a tropical environment and can affect the completion time of an airdrop recovery mission.

DESERT CONDITIONS

15-4. Take the unique factors listed below into account when you plan and conduct derigging and recovery operations under desert conditions.

- Drastic temperature changes.
- High winds and sandstorms.
- Intense sunlight.
- High temperatures.
- Sudden sandstorms.
- Creatures (some dangerous) seeking shelter from the heat in and under items waiting to be recovered.

Note. These factors are typical of a desert environment and can affect the completion time of an airdrop recovery mission.

MARINE CONDITIONS (WATER DROP ZONES)

15-5. Take the unique factors listed below into account when you plan and conduct derigging and recovery operations under marine conditions.

- Recovery vehicle use (type of boat).
- Prior coordination for rinsing parachutes (should be an integral part of the recovery plan).
- Under marine conditions there will be a significant increase in the weight of the air items. The weight will affect completion time and the number of recovery personnel required for the airdrop items.

Note. These factors are typical of a marine environment and can affect the completion time of an airdrop recovery mission.

MOUNTAINOUS CONDITIONS

15-6. Take the unique factors listed below into account when you plan and conduct derigging and recovery operations under mountainous conditions:

- High elevations.
- Extremely uneven surfaces.
- Rough terrain.
- Severe cold temperatures.
- High winds.

Note. These factors are typical of a mountainous environment and can affect the completion time of an airdrop recovery mission.

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Chapter 16
Reference Tables

GENERAL

16-1. This chapter contains reference tables of miscellaneous information on materials used to fabricate and maintain air items and to rig airdrop equipment (Table 16-1 through 16-44). If detailed information, other than that listed in these tables, is required on specific materials, the *Defense Logistics Agency Quick Search Assist* website should be consulted.

TEXTILE TERMINOLOGY

16-2. The textile products listed in this chapter are defined as follows:

- **Cord.** Cord is a fibrous, braided, cordage item of any diameter.
- **Tape.** Tape is a narrow fabric, woven or knitted, produced in widths up to and including 8 inches and in weights up to but not including 0.42 ounces per linear yard of 1-inch width.
- **Thread.** Thread is a thin, twisted, smooth strand or filament of vegetable, animal, mineral, or synthetic material, spun out to considerable length, used mainly for hand sewing and machine sewing. The use of thread is determined by a letter or numerical designation which is synonymous.
- **Webbing.** Webbing is a narrow fabric, woven or knitted, produced in widths up to and including 12 inches and in weights of 0.42 ounces or over per linear yard of 1-inch width.

Table 16-1. Chains

Size (inches)	*Weight (lb. per lin. Ft.)*	*Common iron*	*Safe working load (pounds)*		
			High-grade iron	*Soft steel*	*Special steel*
1/4	0.8	512	563	619	1240
3/8	1.7	1,350	1,490	1,650	3,200
1/2	2.5	2,250	2,480	2,630	5,250
5/8	4.3	3,470	3,810	4,230	7,600
3/4	5.8	5,070	5,580	6,000	10,500
7/8	8.0	7,000	7,700	8,250	14,330
1	10.7	9,300	10,230	10,600	18,200
1 1/8	12.5	9,871	10,858	11,944	21,500
1 3/8	18.3	14,717	16,188	17,807	32,051
Legend: lb. per lin. Ft. = Pounds per Linear Foot					

Table 16-2. Cloth, duck, cotton, type III- army duck

Weight, minimum (ounces. per yard)	*Breaking strength minimum (pounds)*	
	Warp	*Fill*
8.25	125	120
9.85	160	110
12.30	210	130
14.80	235	175
18.50	315	200

Table 16-3. Cloth, duck, nylon

Weight (ounces per square yard)	*Yarns per inch*		*Breaking strength (pounds)*		*Tearing strength (pounds)*	
	Warp	*Fill*	*Warp*	*Fill*	*Warp*	*Fill*
18.5	62	60	1,100	1,100	135	135

Table 16-4. Cloth, duck, nylon, parachute packs

Type	*Weight (ounces per square yard)*	*Breaking strength (pounds)*		*Tearing strength (pounds)*	
		Warp	*Fill*	*Warp*	*Fill*
I	9.50	400	300	35	45
II	8.75	400	150	35	20
III	7.25	325	275	20	20

Table 16-5. Cloth, muslin, cotton

Type	*Weight, minimum (ounces per square yard)*	*Yarns per inch, minimum*		*Breaking strength, minimum (pounds)*		*Description*
		Warp	*Fill*	*Warp*	*Fill*	
I	2.4	64	54	37	26	Type I: Natural
II	2.7	68	62	38	28	Type II: Bleached or dyed
III	2.8	68	66	40	30	Type III: Bleached or dyed pre-shrunk

Table 16-6. Cloth, muslin, cotton (parachute canopy)

Type	*Weight, minimum (ounces per square yard)*	*Yarns per inch, minimum*		*Breaking strength, minimum (pounds)*		*Tearing strength, minimum (pounds)*		*Air permeability (cubic foot minimum per square foot)*	
		Warp	*Fill*	*Warp*	*Fill*	*Warp*	*Fill*	*Min*	*Max*
II	3.5	54	56	48	42	3.0	2.5	170	230
III	3.6	56	58	48	45	3.0	2.5	130	190

Table 16-7. Cloth, nylon parachute cargo

Type	*Weight, max (ounces per square yard)*	*Breaking strength, minimum (pounds)*	
		Warp	*Fill*
I	2.25	85	85
II	3.50	135	135

Table 16-8. Cloth, parachute, nylon, cargo, and deceleration

Type	*Weight, max (ounces per square yard)*	*Thickness, minimum (inches)*	*Breaking strength, min (pounds)*		*Tearing strength, minimum (pounds)*	
			Warp	*Fill*	*Warp*	*Fill*
I	4.75	.020	200	200	15	15
II	7.00	.024	300	300	20	20
IIA	10.50	.025	500	500	75	75
III	14.00	.035	600	600	75	75

Table 16-9. Cloth, parachute, nylon

Type	*Weight, max (ounces per square yard)*	*Thickness, minimum (inches)*	*Breaking strength, min (pounds)*		*Tearing strength, minimum (pounds)*		*Note*
			Warp	*Fill*	*Warp*	*Fill*	
I	1.1	.003	42	42	5	5	Type I: Rip-stop weave
II	1.6	.004	50	50	5	5	Type II: Twill weave
III	1.6	.004	50	50	5	5	Type III: Rip-stop weave

Table 16-10. Cloth sateen, cotton

Type	*Weight, max (ounces per square yard)*	*Breaking strength, minimum (pounds)*		*Tearing strength, minimum (pounds)*		*Note*
		Warp	*Fill*	*Warp*	*Fill*	
1	9.0	85	48	115	100	Class 1: Dyed
2	9.0	85	48	100	90	Class 2: White

Table 16-11. Cord, nylon

Type	*Breaking strength, minimum (pounds)*	*Elongation, minimum (percentage)*	*Weight, min (foot per pound)*	*Note*
I	95	30	950	
IA	100	30	1050	
II	400	30	260	One black thread in sleeve
IIA	225	30	495	
III	550	30	225	
IV	750	30	165	

Table 16-12. Cord, nylon, coreless

Type	*Breaking strength, minimum (pounds)*	*Length, min (foot per pound)*
I	400	330
IA	400	330
II	550	255
III	750	150
IIIA	800	175
IV	1,000	120
V	1,500	90
VI	2,000	60
VII	2,500	45
VIII	3,000	36
XI	300	480
IV*	1,000	120

*This is a class F cord and is treated with fluorocarbon finish.

Note. Types IX, X, XII through XXII have been removed from manual.

Table 16-13. Cord, elastic, exerciser and shock absorber for aeronautical use

Type	*Diameter (inches)*	*Load for 100% elongation (pounds)*	*Breaking strength (pounds)*	*Weight (pounds per 100 feet)*	*Note*
I	1/4	16-28	120	2.4	Straight cord with double-braided cover (shock-absorber)
	3/8	90-150	300	5.5	
	1/2	175-250	400	9.0	
	5/8	250-350	500	14	
	3/4	400-650	1,000	22	
II	1/4	32-56			Endless ring (Bungee) with double-braided cover (shock-absorber)
	3/8	180-300			
	7/16	260-400			
	1/2	350-500			
	9/16	425-600			
	5/8	500-700			
	11/16	650-850			
	3/4	800-1,300			
	13/16	1,100-1500			
III	3/16	6-10	45	1.3	Straight cord with single-braided cover (exerciser)
	5/16	8-15	75	3.1	

Table 16-14. Cord, rayon, without core, braided

Type	*Length, min (feet per pound)*	*Breaking strength, min (pounds)*	*Elongation, minimum (percentage)*
I	126	400	14
II	60	1,000	12
III	39	1,500	–

Table 16-15. Cord, cotton, general-purpose, type I

Size	*Diameter (inches)*	*Breaking strength, minimum (pounds)*	*Linear Density, Max (pounds / 100 feet)*		*Notes*
			Class 1	*Class 2 and 3*	
					Classification Types:
4	1/8	100	0.50	0.60	I-General purpose cord
5	5/32	160	1.00	1.20	II-Sash cord
6	3/16	240	1.50	1.80	III-Venetian blind cord
7	7/32	300	1.85	2.20	IV-Special purpose cord
8	1/4	370	2.25	2.70	**Classes:**
10	5/16	560	3.70	4.25	1-Natural
12	3/8	720	5.00	5.90	2-Polished finish
					3-Water and mildew resistant finish

Table 16-16. Felt sheet, polyester, needle punched

Weight, minimum (ounces per square yard)	*Weight, maximum (ounces per square yard)*	*Thickness minimum (inches)*	*Thickness, maximum (inches)*	*Breaking strength, machine direction (pounds)*	*Breaking strength, cross machine direction (pounds)*	*Splitting resistance machine direction (pounds)*	*Splitting resistance cross machine direction (pounds)*
33	40	0.265	0.335	390	580	29	33

Table 16-17. Grommet, metallic

A-Type I, Plain Grommet with Plain Washer

Plain Grommet							
Size	***ID end of bbl.***	***OD under head***	***Diameter of head***	***Height overall***	***Thickness of head***	***Tolerances (plus or minus)***	***Nominal thickness of basic metal***
00	.176	.218	.425	.170	.035	.005	.009
0	.240	.290	.545	.210	.035	.005	.011
1	.286	.375	.687	.220	.035	.005	.0126
1-J	.298	.375	.680	.295	.032	.005	.0126
2	.362	.475	.815	.250	.035	.005	.0126
2-J	.395	.490	.840	.295	.035	.005	.016
3	.433	.545	.970	.345	.050	.005	.014
4	.486	.630	1.050	.420	.046	.005	.016
5	.594	.785	1.220	.375	.045	.0075	.016
6	.810	.885	1.750	.312	.080	.0075	.0201

Plain Washer				
Diameter of hole	***OD of Washer***	***Height Overall***	***Tolerances (plus or minus)***	***Nominal thickness of basic metal***
.218	.460	.029	.005	.009
.286	.546	.030	.005	.010
.359	.700	.041	.005	.0126
.453	.835	.045	.005	.0126
.530	.955	.050	.005	.013
.585	1.062	.050	.005	.013
.740	1.205	.055	.0075	.0135
.875	1.828	.070	.0075	.0201

Legend:
bbl = barrel ID = inner diameter OD = outside diameter

Table 16-17. Grommet, Metallic (Continued)

B-Type II, Plain Grommet with Plain Washer

Plain Grommet

Size	*ID end of bbl.*	*OD under head*	*Diameter of head*	*Height overall*	*Thickness of head*	*Tolerances (plus or minus)*	*Nominal thickness of basic metal*
00	.176	.218	.425	.170	.035	.005	.009
0	.240	.290	.545	.210	.035	.005	.011
1	.286	.375	.687	.220	.035	.005	.0126
1-J	.298	.375	.680	.295	.032	.005	.0126
2	.362	.475	.815	.250	.035	.005	.0126
2-J	.395	.490	.840	.295	.035	.005	.016
3	.433	.545	.970	.345	.050	.005	.014
4	.486	.630	1.050	.420	.046	.005	.016
5	.594	.785	1.220	.375	.045	.0075	.016
6	.810	.885	1.750	.312	.080	.0075	.0201

Toothed Washer

Diameter of hole	*OD of Washer*	*Height Overall*	*Thickness of head*	*Tolerances (plus or minus)*	*Nominal thickness of basic metal*
.290	.570	.125	.035	.005	.0115
.350	.680	.140	.040	.005	.014
.468	.840	.180	.040	.005	.0126
.545	.945	.180	.040	.005	.0126
.593	1.050	.250	.045	.005	.018
.720	1.190	.288	.050	.0075	.017

Legend:
bbl = barrel ID = inner diameter OD = outside diameter

Table 16-17. Grommet, Metallic (Continued)

C-Type III, Rolled Rim Grommet with Spur Washer

Rolled Rim Grommet

Size	*ID end of bbl.*	*OD under head*	*Diameter of head*	*Height overall*	*Thickness of head*	*Tolerance (plus or minus)*	*Nominal thickness of basic metal*	*See Note*
0	.270	.375	.670	.235	.600	.005	.016	1
1	.380	.480	.790	.270	.065	.005	.016	1
2	.425	.532	.890	.325	.070	.005	.019	1
3	.430	.545	.970	.330	.075	.005	.020	2
4	.560	.695	1.120	.400	.080	.005	.020	3
5	.600	.800	1.285	.465	.085	.0075	.021	4
6	.735	.935	1.535	.510	.090	.0075	.0253	4
7	.883	1.080	1.725	.536	.090	.0075	.020	4
8	1.040	1.300	1.865	.555	.090	.0075	.0253	5

Notes. 1. Washers have one row of 6 teeth.
2. Washers have one row of 7 teeth.
3. Washers have one row of 8 teeth.
4. Washers have two rows of 9 teeth each.
5. Washers have two rows of 20 teeth each.

Spur Washer

Diameter of hole	*OD of Washer*	*Height Overall*	*Thickness of head*	*Tolerances (plus or minus)*	*Nominal thickness of basic metal*
.345	.645	.150	.060	.005	.016
.455	.790	.150	.065	.005	.016
.512	.890	.156	.070	.005	.020
.537	.970	.190	.075	.005	.020
.645	1.120	.205	.080	.005	.020
.777	1.270	.225	.085	.0075	.021
.875	1.505	.225	.090	.0075	.0253
1.062	1.725	.225	.090	.0075	.020
1.195	1.910	.240	.090	.0075	.020

Legend:
bbl = barrel ID = inner diameter OD = outside diameter

Table 16-17. Grommet, Metallic (Continued)

D-Oblong Grommet with Flat Washer

Oblong Grommet							
Width of hole	***Width under head***	***Width of head***	***Height overall***	***Length of hole***	***Length under head***	***Length overall***	***Corner radius***
.01875 +.000 -.002	0.221 +.000 -.003	0.406 +.005 -	0.235 +.005 -	1.24 +.000 -.002	1.284 +.003 -	1.470 +.005 -	0.03125 +.003 -
Flat Washer							
Nominal basic-metal thickness	***Width of hole***	***Width of washer***	***Length of hole***		***Length overall***	***Nominal thickness of basic metal***	
0.013	0.25 +.003 -	0.4375 +.003 -	1.312 +.003 -		1.50 +.003 -	0.0201	

E- Type V Oblong Grommet with Raised Washer								
Type V Oblong Grommet								
Size	***Width of hole***	***Width under head***	***Width of head***	***Height overall***	***Length of hole***	***Length under head***	***Length overall***	***Corner radius***
1 (3/8 x 1 1/2)	0.290 +.000 -.002	0.395 +.005 -	0.915 +.005 -	0.360 +.005 -	1.406 +.000 -.002	1.515 +.002 -	2.015 +.005 -	0.03125 +.003 -
2 (5/16 x 1)	.175 +.000 -.002	.249 +.003 -	.665 +.005 -	.245 +.005 -	.830 +.000 -.002	.910 +.002 -	1.315 +.005 -	.0468 +.003 -
Raised Washer								
Nominal thickness of basic metal	***Width of hole***	***Width of washer***	***Height overall***	***Length of hole***	***Length overall***	***Corner radius***	***Nominal thickness of basic metal***	
0.028 0.0201	0.420 +.003 - 0.275 +.003 -	0.915 +.003 - 0.625 +.003 -	0.125 +.003 - 0.100 +.003 -	1.532 +.003 - 0.950 +.003 -	2.010 +.003 - 1.290 +.003 -	0.03215 +.003 - 0.156 +.003	0.028 +.003 0.0201	

Table 16-17. Grommet, Metallic (Continued)

F-Type VIII Eyelet Grommet with Ring

Type VIII eyelet grommet			*Ring*			
Size	*Weight per gross (approximate) (ounces*)*	*"A" diameter after insertion (inches)*	*Size*	*Weight per gross (approximate) (pounds)*	*(ounces)*	*"A" diameter (inches)*
6	30	0.750	6	3	7	1.000
8	36	0.825	8	7	6	1.250
10	70	1.250	10	10	5	1.500
11	84	1.500	11	16	14	1.750
15	150	2.000	15	39	14	2.250
*Brass grommet only						

Table 16-18. Lumber

A- Minimum Dressed Sizes of Board (up to 2 inches thick)

Thickness (inches)			*Face widths (inches)*		
Minimum size dressed			*Minimum size dressed*		
Size ordered	*Seasoned*	*Unseasoned*	*Size ordered*	*Seasoned*	*Unseasoned*
1	3/4	25/32	2	1 1/2	1 9/16
1 1/4	1	1 1/32	3	2 9/16	2 5/8
1 1/2	1 1/4	1 9/32	4	3 9/16	2 5/8
			5	4 1/2	4 5/8
			6	5 1/2	5 5/8
			7	6 1/2	6 5/8
			8	7 1/2	7 5/8
			9	8 1/2	8 3/4
			10	9 1/2	9 3/4
			11	10 1/2	10 3/4
			12	11 1/2	11 3/4
			14	13 1/2	13 3/4
			16	15 1/2	15 3/4
2	1 1/2	1 9/16	2	1 1/2	1 9/16
			3	2 9/16	2 5/8
			4	3 9/16	2 5/8
			5	4 1/2	4 5/8
			6	5 1/2	5 5/8
			7	6 1/2	6 5/8
			8	7 1/2	7 5/8
			9	8 1/2	8 3/4
			10	9 1/2	9 3/4
			11	10 1/2	10 3/4
			12	11 1/2	11 3/4
			14	13 1/2	13 3/4
			16	15 1/2	15 3/4

Table 16-18. Lumber (continued)

B- Minimum Dressed Sizes of Boards (over 2 inches thick) and Timbers				
Items	*Thickness (inches)*		*Face Widths (inches)*	
	Size ordered	*Minimum size dressed seasoned or Unseasoned*	*Size ordered*	*Minimum size dressed seasoned or Unseasoned*
Boards	2 1/2	2 1/8	3	2 5/8
	3	2 1/8	4	3 5/8
	3 1/2	3 1/8	6	5 1/2
	4	3 5/8	8	7 1/2
			10	9 1/2
			12	11 1/2
			14	13 1/2
			16	15 1/2
Timbers	5 and thicker	1/2 off	5 and thicker	1/2 off

C- Finished Dressed Sizes of Seasoned Worked Lumber			
Thickness (inches)		*Face widths (inches)*	
Size ordered	*Minimum size dressed*	*Size ordered*	*Minimum size dressed*
3/8	5/16	2	1 1/2
1/2	7/16	3	2 9/16
5/8	9/16	4	3 9/16
3/4	5/8	5	4 1/2
1	3/4	6	5 1/2
1 1/4	1	7	6 1/2
1 1/2	1 1/4	8	7 1/4
1 3/4	1 3/8	9	8 1/4
2	1 1/2	10	9 1/4
2 1/2	2	11	10 1/4
3	2 9/16	12	11 1/4
3 1/2	3 1/16	14	13 1/4
4	3 9/16	16	15 1/4

Table 16-19. Nails

A- Brads

Dash number	*Length (inches)*	*Diameter (inches)*	*Number per pound (approximate)*
-1	3/8	.0348	9520
-2	1/2	.0348	7060
-3	5/8	.0348	5680
-4	3/4	.0348	4800
-5	7/8	.0348	4220
-6	1	.0540	1502
-7	1	.0625	1120
-8	1 1/4	.0625	940
-9	1 1/2	.0800	470
-10	1 3/4	.0625	672
-11	1 3/4	.0800	400
-12	2	.0800	350
-13	2 1/4	.0800	320
-14	2 1/2	.0800	290

B- Nails, Casing

Dash number	*Common Designation*	*Length (inches)*	*Diameter (inches)*	*Number per pound (approximate)*
-15	4d	1 1/2	.080	489
-16	6d	2	.099	244
-17	8d	2 1/2	.113	147
-18	10d	3	.128	96
-19	12d	3 1/4	.128	88
-20	16d	3 1/2	.135	74

C- Nails, Finishing

Dash number	*Common Designation*	*Length (inches)*	*Diameter (inches)*	*Number per pound (approximate)*
-21	3d	1 1/4	.067	880
-22	4d	1 1/2	.072	630
-23	5d	1 3/4	.072	535
-24	6d	2	.0915	288
-25	7d	2 1/4	.0915	254
-26	8d	2 1/2	.099	196
-27	9d	2 3/4	.099	178
-28	10d	3	.113	124
-29	12d	3 1/4	.113	113
-30	16d	3 1/2	.1205	93
-31	20d	4	.135	65

Table 16-19. Nails (continued)

D- Nails, bright

Dash number	*Common Designation*	*Length (inches)*	*Diameter (inches)*	*Number per pound (approximate)*
-1	2d	1	.072	810
-2	3d	1 1/4	.080	540
-3	4d	1 1/2	.099	300
-4	5d	1 3/4	.099	255
-5	6d	2	.113	170
-6	7d	2 1/4	.113	150
-7	8d	2 1/2	.131	95
-8	9d	2 3/4	.131	90
-9	10d	3	.1483	65
-10	12d	3 1/4	.1483	60
-11	16d	3 1/2	.162	46
-12	20d	4	.192	28
-13	30d	4 1/2	.207	20
-14	40d	5	.2253	17
-15	50d	5 1/2	.2437	13
-16	60d	6	.2625	10
E- Nails, zinc coated				
Dash Number	*Common Designation*	*Length (inches)*	*Diameter (inches)*	*Number per pound (approximate)*
-17	2d	1	.072	789
-18	4d	1 1/2	.099	274
-19	6d	2	.113	155
-20	8d	2 1/2	.131	91
-21	10d	3	.1483	61
-22	12d	3 1/4	.1483	57
-23	16d	3 1/2	.162	44
-24	20d	4	.192	26
-25	30d	4 1/2	.207	20
-26	40d	5	.2253	17
-27	50d	5 1/2	.2437	13
-28	60d	6	.2625	10

Table 16-19. Nails (continued)

F- Nails, copper

Dash number	*Length (inches)*	*Diameter (inches)*	*Number per pound (approximate)*
-29	1	.072	704
-30	1 1/2	.109	208
-31	2	.120	130
-32	2 1/2	.134	86
-33	3	.148	56
-34	3 1/2	.165	40
-35	4	.203	23
-36	4 1/2	.220	18
-37	5	.238	14

Table 16-20. Parachute, cargo

Type	*Weight (pounds)*	*Maximum load limit (pounds)*
68-inch pilot parachute	3	50
T-10 modified cargo	25	500
15-foot cargo extraction	27	500
G-14 cargo parachute	37	500
12-foot high velocity parachute	7.75	500
22-foot cargo extraction	31	2,200
26-foot high velocity parachute	22	2,200
G-12E cargo parachute	125	2,200
G-11B/C cargo parachute	250	5,000
G-11D cargo parachute	250	4,250

Table 16-21. Parachute, cargo extraction

Size (feet)	*Weight (pounds)*	
	Canopy	*Packed*
15	8.0	27
22	27.5	31
28	36.5	75

Table 16-22. Platform, cargo airdrop, type v

Length (feet)	*Width (inches)*	*Weight (pounds)*	*Platform surface (square feet)*	*Minimum rigged weight (pounds)*
8	108	820	72	2,520
12	108	1,220	108	3,780
16	108	1,590	144	5,040
20	108	1,950	180	6,300
24	108	2,280	216	7,560
28	108	2,820	252	8,820
32	108	3,056	288	10,080

Table 16-23. Platform, dual row airdrop system

Length (feet)	*Width (inches)*	*Weight (pounds)*	*Platform surface (square feet)*	*Minimum rigged weight (pounds)*
18	88	1,590 w/o outriggers	132	7,500
18	88	1,942 w/ outriggers	132	7,500

Table 16-24. Plywood, flat panel

Thickness (inches)	*Width (inches)*	*Length (inches)*	*Note*
1/4	48	96	Types: Exterior: **Type I** – The glue line is waterproof and unaffected by microorganisms. *Minimum grade standard for airdrop is AC exterior. Type I Interior: **Type II** – The glue line will withstand occasional wetting and drying. **Type III** – The glue is suitable only for use where the plywood will not be subjected to water, dampness, or high humidity. Classes: A – Hardwood B – Douglas fir C – Pine D – Western softwood E – Southern pine
3/8	48	96	
1/2	48	96	
5/8	48	96	
3/4	48	96	
1	48	96	

Table 16-25. Tape, nylon, parachute

Class	*Type*	*Width (inches)*	*Weight (yards per pound)*	*Breaking Strength (pounds)*
A Extra light weight	I	.250	1,300	13
	II	.375	875	18
	III	.625	440	43
	IV	1.250	260	65
	V	2.000	165	96
B Light weight	I	.250	970	22
	II	.375	650	33
	III	.625	360	70
	IV	1.250	210	120
	V	2.000	120	200
	VI	5.000	50	100
C Medium weight	I	.250	770	39
	II	.375	520	58
	III	.625	335	90
	IV	1.250	160	185
	V	2.000	100	300
D Heavy weight	I	1.250	80	280
	II	2.000	45	460
E Extra heavy weight	I	1.250	50	650
	II	2.000	30	1,000

Table 16-26. Type XXVI, sling, cargo, airdrop

No per suspension point	*No of loops per sling*	*Safe load*
1	2	0 to 14,000
	4	14,001 to 40,000

Table 16-27. Sling, endless

Fiber Rope

Table 16-27. Sling, endless

Type	*Rope circumference (inches)*	*Inside perimeter (feet)*	*Safe working load (pounds)*	*Breaking strength (pounds)*
I	3	24	1,800	9,000
II	3 1/4	40	2,100	10,500
III	3 1/2	80	2,400	12,000
IV	4	80	3,000	15,000
Wire Rope, Grommet				
Diameter	*Safe working load (pounds)*		*Proof load vertical hitch (pounds)*	*Breaking strength (pounds)*
	Vertical hitch	*Choker hitch*		
3/4	15,200	11,400	30,400	76,000

Table 16-28. Tape, textile, cotton, general-purpose

Type	*Width (inches)*	*Warp strength (pounds)*
I	3/16	22
	1/4	25
	3/8	30
	1/2	42
	5/8	50
	3/4	65
	7/8	80
	1	85
	1 1/8	95
	1 1/4	115
	1 1/2	130
II	3/16	14
	1/4	18
	3/8	24
	1/2	35

Table 16-29. Tape, textile, nylon

Type	*Width (inches)*	*Thickness (inches)*	*Weight min (ounces per linear yard)*	*Breaking strength min (pounds)*	*Elongation minimum (percentage)*	*Note*
Parachute Construction						
I	1	.025-.045	35	600	16	Type I – one black thread in center
II	1	.010-.030	.145	300	14	
III	1	.025-.045	0.40	525	16	
Multiple tubular	1 3/8	.020	.40	500	20	

Table 16-30. Tape and webbing, textile, rayon

Type	*Width (inches)*	*Length, min (linear yards per pound)*	*Breaking strength, minimum (pounds)*	*Notes:*
I	1/2	400	15	When specified, all rayon tape and webbing will contain one red thread in center. Type I – Flat weave tape
	9/16	200	50	
	1 1/8	100	100	
	1 1/4	80	140	
IA	3/8	10	160	Type IA – Flat weave webbing
	9/16	40	500	
	1	32	500	
	1 5/8	15	750	
II	1/8	125	150	Type II – Tubular weave webbing
	3/16	100	200	
	1/2	40	500	
	9/16	40	500	
	5/8	23	900	

Table 16-31. Tape, textile and webbing, textile, reinforcing, nylon

Type	*Width (inches)*	*Thickness (inches)*	*Weight, max (ounces per yard)*	*Breaking strength, minimum (pounds)*	*Notes*
II	1	.025-.035	.40	900	Tape, herring bone twill weave
	1 1/2	.025-.035	.60	1,300	
	2	.025-.035	.80	1,700	
III	3/8	.015-.025	.12	200	Tape, plain weave
	1/2	.015-.025	.15	250	
	3/4	.015-.025	.20	400	
	1	.015-.025	.30	525	
	1 1/2	.015-.025	.40	850	
IV	1/2	.030-.040	.35	550	Webbing, plain weave
	5/8	.030-.040	.40	625	
	1	.030-.040	.50	1,000	
	1 1/8	.030-.040	.60	1,100	
	1 1/2	.030-.040	.75	1,500	
V	9/16	.020.030	.20	500	Tape, herring bone twill weave
VI	3/4	.020-.030	.20	425	Tape hearing bone twill weave

Table 16-32. Tape and webbing, textile, cotton reinforcing, woven

Type	*Width (inches)*	*Weight, max (ounces per linear yard)*	*Breaking strength, minimum (pounds)*	*Notes*
I	1/4	.11	80	Plain
	3/8	.15	120	
	1/2	.22	150	
	5/8	.28	170	
	3/4	.33	200	
	1	.47	250	
II	1/2	.15	110	Double herringbone
	3/4	.22	165	
	1	.29	220	
	1 1/4	.36	275	
	1 1/2	.43	330	
	1 3/4	.50	375	
	2	.57	425	
III	1/2	.10	45	Twill
	5/8	.12	55	
	3/4	.14	75	
V	1	.65	350	Plain (traverse cord)
	2	1.30	650	
VI	5/8	.23	80	Non-elastic
	1	.98	375	

Table 16-33. Thread, nylon

Size	*Ply*	*Length, minimum (yards per pound)*	*Breaking strength, minimum (pounds)*
A- Type I – Twisted, multiple cord, soft finish			
00	2	25,801	1.8
A	3	18,001	2.8
AA	2 or 3	13,001	4.1
B	2 or 3	8,701	6.0
E	3	5,801	9.0
F	3 or 4	4,001	11.8
FF	3	2,901	17.5
3	3	1,951	27.0
4	3	1,451	36.0
5	3	1,151	45.0
6	3	951	54.0
8	3	701	72.0
B- Type II – Twisted, bonded, multiple cord, bonded finish			
00	2	2,201	1.8
A	3	16,201	2.8
AA	2 or 3	11,701	4.1
B	2 or 3	7,801	6.0
E	3	5,201	9.0
F	3 or 4	3,601	11.8
FF	3	2,601	17.5
3	3	1,751	27.0
4	3	1,301	36.0
5	3	1,051	45.0
6	3	851	54.0
8	3	600	72.0

Table 16-34. Thread, cotton

Ticket number	*Tex (approximate size)*	*Ply*	*Yards per pound., minimum*	*Breaking strength, minimum (pounds)*
A- Types I and II (machine thread)				
140	19	2	23,000	1.0
90	25	2	17,946	0.9
70	30	2	14,173	1.2
70	30	3	14,173	1.5
50	40	3	11,023	1.8
40	50	3	8,267	2.2
30	60	3	7,087	3.0
30	60	3	7,087	3.2
24	80	4	5,512	3.8
16	105	4	4,134	5.3
12	150	4	3,307	6.8
10	187	3	2,501	6.5
10	225	4	1,901	9.5
10	292	5	1,501	12.5
10	358	6	1,275	15.5
9	255	4	1,831	10.0
8	233	3	2,001	7.0
8	283	4	1,501	11.0
B- Type II (mercerized machine thread)				
30	39	2	11,001	1.6
36	32	2	14,401	1.3
C	72	3	6,010	4.0
B	58	3	7.61	3.2
A	50	3	8,268	2.8
0	40	3	9,920	2.6
00	35	3	12,401	2.1
000	27	3	15,521	1.7
C- Type IV and V (shoe thread)				
8	270	4	1,654	13.0
8	350	5	1,241	17.5
8	400	6	1,103	21.0
8	450	7	993	24.5
8	500	8	827	28.0
8	600	9	709	31.5
8	700	10	621	35.0
8	700	11	621	38.5
8	800	12	552	42.0

Table 16-35. Webbing, textile, woven nylon

Type	*Width (inches)*	*Thickness (inches)*	*Weight (ounces per linear yard)*	*Breaking strength (pounds)*	*Identifying yarns*
I	9/16	.025-.040	0.28	500	
Ia	3/4	.025-.035	0.32	600	
II	1	.025-.040	0.42	600	
III	1 1/4	.025-.040	0.52	800	
IV	3	.025-.040	1.20	1,800	
VI	1 23/32	.030-.050	1.15	2,500	Two red threads in center
VII	1 23/32	.060-.100	2.35	6,000	Two yellow threads at each edge
VIII	1 23/32	.040-.070	1.60	4,000	One black threads in center
VIIIa	3	.040-.070	2.80	6,300	
VIIIb	2	.040-.070	1.80	4,500	
VIIIc	2 1/4	.040-.070	2.10	5,300	
IX	3	.065-.100	4.00	9,000	
X	1 23/32	.105-.140	3.70	9,500	
XII	1 23/32	.025-.040	.085	1,200	One red thread at each edge
XIII	1 23/32	.080-.120	2.90	7,000	Two black threads at each edge
XIV	1/2	.070-.100	0.80	1,200	
XV	2	.035-.050	1.25	1,500	
XVI	1 23/32	.045-.080	2.00	4,500	
XVII	1	.045-.070	1.15	2,500	
XVIII	1	.100-.160	2.05	6,000	
XIX	1 3/4	.100-.130	4.10	10,000	Two green threads in center
XX	1	.180-.210	3.25	9,000	
XXI	1 1/4	.065-.085	1.70	3,600	
XXII	1 23/32	.090-.120	3.50	9,500	Two black threads at each edge and in center
XXIII	1 1/8	.200-.300	3.70	12,000	
XXIV	1 15/16	.055-.075	2.25	5,500	
XXV	1	.080-.125	1.50	4,500	
XXVI	1 3/4	.150-.180	4.90	15,000	One yellow threads in center
XXVII	1 23/32	.085-.110	2.90	6,500	One black thread at each edge
XXVIII	2 1/4	.080-.110	3.80	8,700	

Table 16-36. Webbing, textile, nylon – universal static line

Width (inches)	*Thickness (inches)*	*Breaking strength, min (pounds)*	*Weight, max (ounces per linear yard)*
.75	0.136	4000	1.75

Table 16-37. Webbing nylon, tube edge construction

Width (inches)		*Thickness (inches)*	*Weight, max (ounces per yard)*	*Breaking strength, minimum (pounds)*	*Identifying yarns*
Full width	*Each edge*				
1 23/32	3/16	.060-.100	2.35	6,000	4 yellow yarns
1 23/32	3/16	.080-.120	2.90	7,000	4 black yarns
1	3/16	.045-.075	1.15	2,500	
1 3/4	1/4	.150-.190	4.90	15,000	2 yellow yarns in center

Table 16-38. Webbing, textile, nylon, tubular

Width (inches)	*Thickness (inches)*	*Weight (ounces per yard)*	*Breaking strength (pounds)*	*Identifying yarns*
3/8	0.090	0.40	950	Two yellow or black warp yarns in center
1/2	0.090	0.50	1,000	One yellow or black warp yarn in center of one side
9/16	0.090	0.60	1,500	Three yellow or black warp yarns in center
5/8	0.100	0.75	2,250	Two yellow or black warp yarns in center of one side
3/4	0.120	1.05	2,300	One yellow or black warp yarns in center
7/8	0.120	1.00	3,100	None
1	0.120	1.70	4,000	One yellow or black warp yarns in center of one side

Table 16-39. Webbing, textile, cotton, warp

Type	*Width (inches)*	*Thickness (inches)*	*Weight (ounces per yard)*	*Breaking strength, warp full width minimum (pounds)*	*Notes*
I	9/16	.040-.050	0.40	350	Classes:
II	1	.040-.050	0.75	575	1A – Undyed and not fungus proofed
III	1 1/4	.040-.050	0.90	750	1B – Undyed and fungus proofed
IV	3	.050-.100	2.50	1,900	2A – Dyed and not fungus proofed
V	5	.050-.100	4.30	2,750	2B – Dyed and fungus proofed
VI	1 3/4	.070-.095	2.20	1,500	3 – Resin dyed and fungus proofed during dyeing
					Identifying threads:
VII	1 3/4	.140-.170	3.00	2,600	Two black threads at each edge
VIII	1 3/4	.070-.095	3.00	1,200	Two black threads in center
IX	3	.090-.115	4.65	4,500	
X	1 3/4	.125-.170	4.00	4,700	
XII	1 3/4	.040-.060	1.25	900	
XIII	1 3/4	.095-.130	3.40	3,400	Two red threads in center
XV	1 3/4	.130-.150	3.50	4,500	Two red threads at each edge
XVI	1 3/4	.090-.115	2.60	2,700	Two yellow threads in center
XVII	1	.075-.095	1.25	900	
XVIII	2 1/2	.050-.060	1.40	1,250	
XIX	2	.130+/-.010	3.68	2,500	
XX	5/8	.075-.095	0.45	200	

Table 16-40. Webbing, textile, elastic, cotton

Type	*Class*	*Width max (inches)*	*Thickness (inches)*	*Weight (ounces per linear yard)*	*Load range to produce 50% elongation (pounds)*
I	1	3/8	.016-.046	0.28	1.15-3.25
		1/2	.016-.046	0.38	1.35-3.75
		3/4	.016-.046	0.53	1.80-5.00
		7/8	.016-.046	0.55	0.90-4.37
		1	.016-.046	0.73	3.00-5.50
		1 1/2	.016-.046	1.00	5.00-7.00
		2	.031-.061	1.60	6.00-11.00
		2 1/2	.031-.061	2.00	8.00-12.00
	2	1 1/2	.094-.156	2.30	7.20-17.50
	3*	1 1/2	.094-.156	2.35	15.30-31.25
II	1	1	.030-.060	0.80	3.00-6.00
		1 1/2	.030-.060	1.20	4.00-7.50
*Used for parachute packs and ripcord grip pockets					

Table 16-41. Webbing, textile, cotton, general-purpose

A- Type II, medium - weight webbing (hard texture)			
Width (inches)	***Weight (ounces per linear yard)***	***Breaking strength full width min (pounds)***	***Notes***
3/8	0.20	100	Classes: 1 – Natural 1a – Natural, water-repellent, mildew resistant, 2,2' methylenbis (4-chlorophenol) 1b – Natural, water-repellent, mildew resistant, (copper 8-quinolinolate) 2 – Bleached 2a – Bleached, water-repellent, mildew-resistant, 2,2' methylenebis (4-chlorophenol) 3 – Dyed 4 – Dyed, water-repellent, mildew resistant, (copper 8-quinolate) 7 – Dyed, water-repellent, mildew-resistant, 2,2' methylenebis (4-chlorohpenol) 8 – Dyed, water-repellent
1/2	0.32	160	
5/8	0.40	200	
3/4	0.48	235	
1	0.65	315	
1 1/4	0.81	385	
1 1/2	0.97	460	
2	1.30	585	
2 3/4	1.78	760	
3	1.95	810	
3 3/4	2.43	315*	
5	3.25	315*	
5 5/8	3.65	315*	

B- Type IIa, medium weight webbing (soft texture)		
Width (inches)	***Weight (ounces per linear yard)***	***Breaking strength full width min (pounds)***
3/8	0.25	130
1/2	0.33	160
5/8	0.41	195
3/4	0.49	230
1	0.65	300
1 1/4	0.81	370
1 1/2	0.97	440
2	1.30	580
2 1/4	1.47	645
C- Type IIb, medium heavyweight webbing		
5/8	0.60	310
3/4	0.72	365
1	0.96	475
1 1/4	1.20	590
1 1/2	1.44	700
2	1.92	925
2 1/4	2.25	1,050
3	2.88	1,375
*Indicates breaking strength per inch		

Table 16-41. Webbing, Textile, Cotton, General-Purpose (continued)

D- Type III, heavyweight webbing

Width (inches)	*Weight (ounces per linear yard)*	*Breaking strength full width min (pounds)*
5/8	1.00	380
3/4	1.20	460
1	1.33	550
1 1/4	1.50	650
1 1/4	2.00	720
1 1/2	2.40	860
2	2.65	1,100
2 1/2	4.00	1,360
3	4.80	1,560

Table 16-42. Wire strand (6 x 19)

Diameter (inches)	*Weight (pounds per 100 feet)*	*Breaking strength (tons)*		
		Mild plow steel	*Plow steel*	*Improved plow steel*
1/4	10	2.07	2.39	2.74
3/8	23	5.0	5.5	6.3
1/2	40	8.5	9.4	10.8
5/8	63	13.1	14.4	16.6
3/4	90	18.7	20.6	23.7
7/8	123	25.4	28.0	32.2
1	160	33.0	36.5	42.0
1 1/8	203	41.5	46.0	53.0
1 1/4	250	51.0	56.5	65.0
1 1/2	360	72.5	80.5	92.5

Table 16-43. Wire strand, steel (corrosion resistant), preformed (aircraft application)

Cable type	*Nominal diameter (inches)*	*Breaking strength (pounds)*	*Weight (pounds per 100 feet)*	*Notes*
I	1/32	150	.025	Nonflexible 1 x 7, with wire center
	3/64	375	0.55	
II	1/16	500	.085	Nonflexible 1 x 19, with wire center
	5/64	800	1.40	
	3/32	1,200	2.00	
	7/64	1,600	2.70	
	1/8	2,100	3.50	
	5/32	3,300	5.50	
	3/16	4,700	7.70	
	7/32	6,300	10.20	
	1/4	8,200	13.50	
	5/16	12,500	21.00	

Table 16-44. Miscellaneous hardware and equipment

Item	*Breaking Strength*
Adapter, parachute harness, quick-fit	2,500
Adapter, parachute harness, reversible, quick-fit	2,500
Clevis, riser, airdrop, type III	2,000
Clevis, suspension, airdrop, type I:	
1-inch diameter (large suspension clevis)	40,000
3/4-inch diameter (cargo suspension clevis)	20,000
5/8-inch diameter (small suspension clevis)	20,000
Clevis, tiedown, airdrop, type II:	
5/8-inch diameter	15,000
1/2-inch diameter	7,000
Container kits, airdrop:	
A-7A, sling assembly	500
A-10, net	300
A-21, bag	500
A-22, bag	2,200
Link assembly:	
Type IV	40,000
Two-point, 3 3/4-inch	30,000
Two-point, 5 1/2-inch	30,000
Link, parachute, connector, L-bar type	3,000
Ring, parachute harness:	
“D” ring	5,000
“V” ring	2,500
Quick-fit, “V” type	2,500
Ejector	2,500
Strapping, steel, 5/8-inch wide. 0.02-inch thick (safe load per double thickness: 250 lb.)	1,000
Tiedown, cargo, aircraft:	
Type CGU-1B	5,000
Type MB-1 or CGU-4E	10,000
Type MB-2 or CGU-3E	25,000
Tiedown, cargo, aircraft, nylon web net:	
Type MA-2 (15- by 15-foot)	10,000
Type MA-3 (30- by 15-foot)	10,000

Chapter 17

Rigged Load Reference Data

SECTION I – INTRODUCTION

GENERAL

17-1. This chapter contains illustrations and reference data on completely rigged airdrop platforms. The references for Figures 17-1 through 17-157 are the TM 4-48, *Airdrop of Supplies and Equipment*, series publications.

TYPE V PLATFORM

17-2. Loads rigged on type V platform for low-velocity airdrop are contained in Section II (Figure 17-1 through 17-135).

COMBAT-EXPENDABLE PLATFORM

17-3. Loads rigged on combat-expendable platforms for low-velocity airdrop are contained in Section III (Figure 17-136 through 17-144).

MARITIME CARGO AERIAL DELIVERY SYSTEMS PLATFORM

17-4. Loads rigged on maritime cargo aerial delivery systems platforms for low-velocity airdrop are contained in Section IV (Figure 17-145).

DUAL ROW AIRDROP SYSTEMS PLATFORM

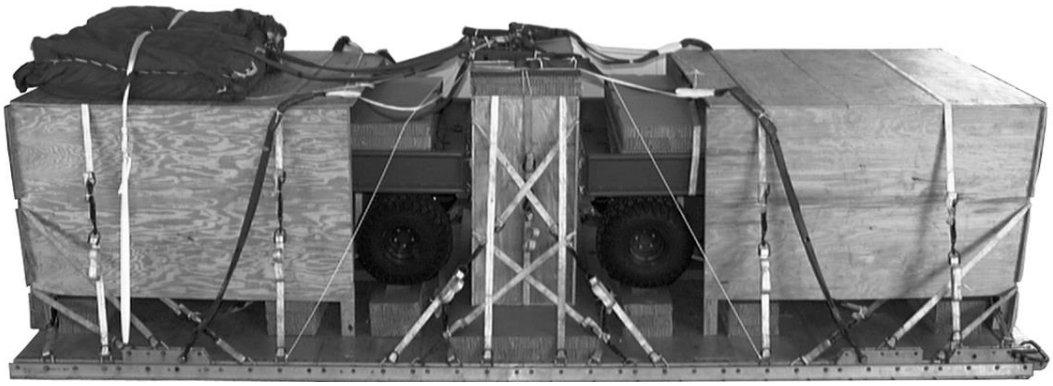
17-5. Loads rigged on dual row airdrop systems platforms for low-velocity airdrop are contained in Section V (Figure 17-146 through 17-157).

SECTION II –LOW-VELOCITY AIRDROP ON TYPE V PLATFORM

Reference: TM 4-48.08 /TO 13C7-2-491

Weight: Load shown ..... 3,120 pounds
Height ..... 78 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 125 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 143 inches
Overhang: Front (Rear of Vehicle) ..... 11 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 49 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-foot
Extraction Parachute C-17: 15-foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-1. One military utility vehicle (M-Gator) rigged on an 8-foot platform

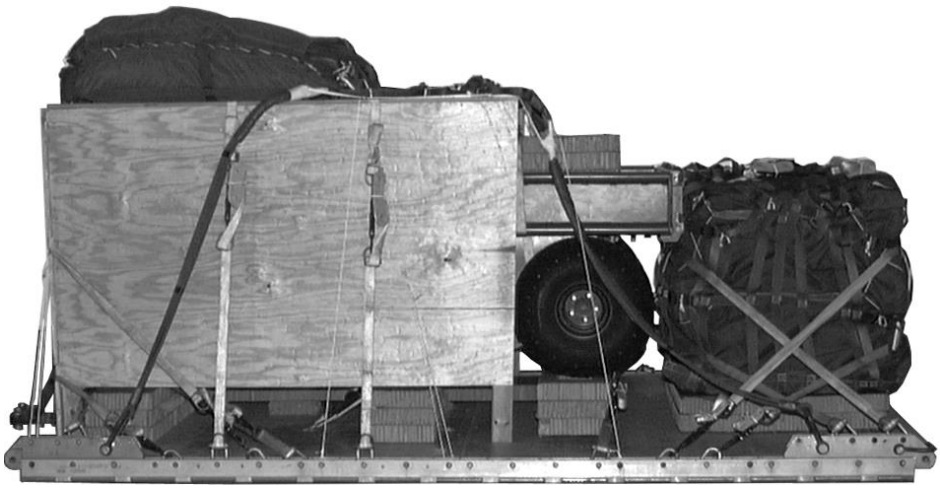


Reference: TM 4-48.08 /TO 13C7-2-491

Weight: Load shown ..... 8,520 pounds
Height ..... 78 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 260 1/2 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 278 1/2 inches
Overhang: Front (Box) ..... 2 1/2 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 124 inches

Accompanying Load: Equipment box weighing 2,000 pounds is rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Two G-11B

Figure 17-2. Two military utility vehicles (M-Gator) and equipment box rigged on a 20-foot platform



Reference: TM 4-48.08/TO 13C7-2-491

Weight: Load shown ..... 4,630 pounds
Height ..... 78 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 68 inches

Accompanying Load: A-22 Cargo Bag with 800 to 1,000 pounds of equipment.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-foot
Extraction Parachute C-17: 15-foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

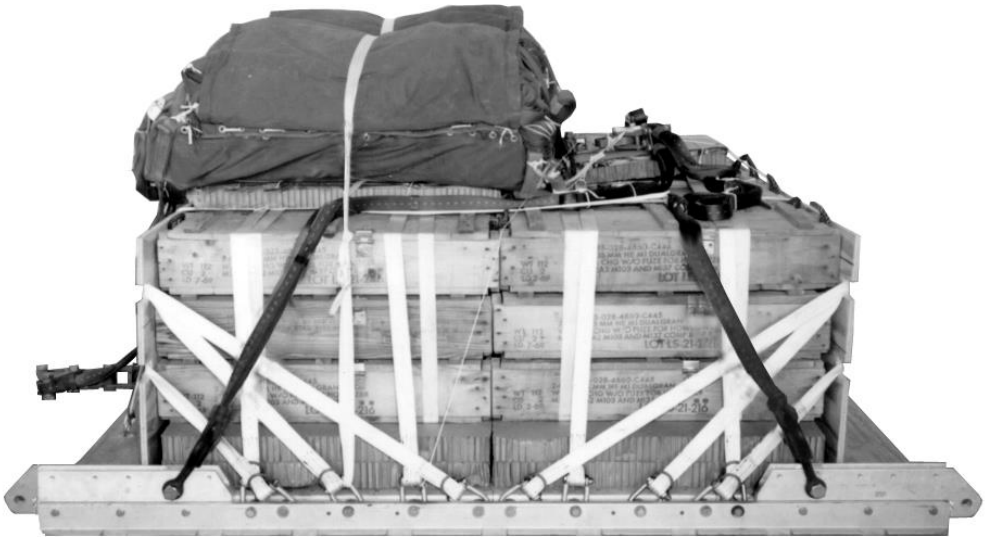
Figure 17-3. One military utility vehicle (M-Gator) and an A-22 cargo bag on a 12-foot platform

Reference: TM 4-48.08/TO 13C7-2-491

Weight: Load shown ..... 4,980 pounds
Height ..... 94 inches
Width ..... 108 inches
Overall Length ..... 168 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front (A-22 Cargo Bag) ..... 6 inches
Rear extraction force transfer coupling (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 70 inches

Accompanying Load: A-22 Cargo Bag must weigh 1200 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-foot
Extraction Parachute C-17: 15-foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

Figure 17-4. M-gator with first response expeditionary fire vehicle on a 12-foot platform

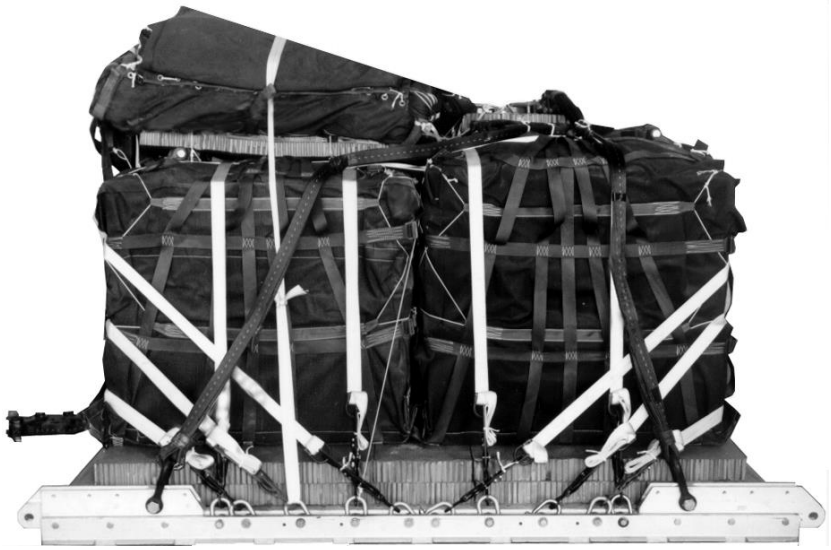


Reference: TM 4-48.12 (TM 4-48.12)/TO 13C7-1-8

Weight: Load shown ..... 6,344 pounds
Height ..... 56 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 132 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 50 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachutes: Two G-11B

Figure 17-5. Bulk supplies on an 8-foot platform



Reference: TM 4-48.12 (TM 4-48.12)/TO 13C7-1-8

Weight: Load shown ..... 6,750 pounds
Height ..... 71 inches
Width ..... 108 inches
Overall Length ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 132 inches
Overhang: Front ..... 0 inches
Rear extraction force transfer coupling (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 50 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachutes: Two G-11B

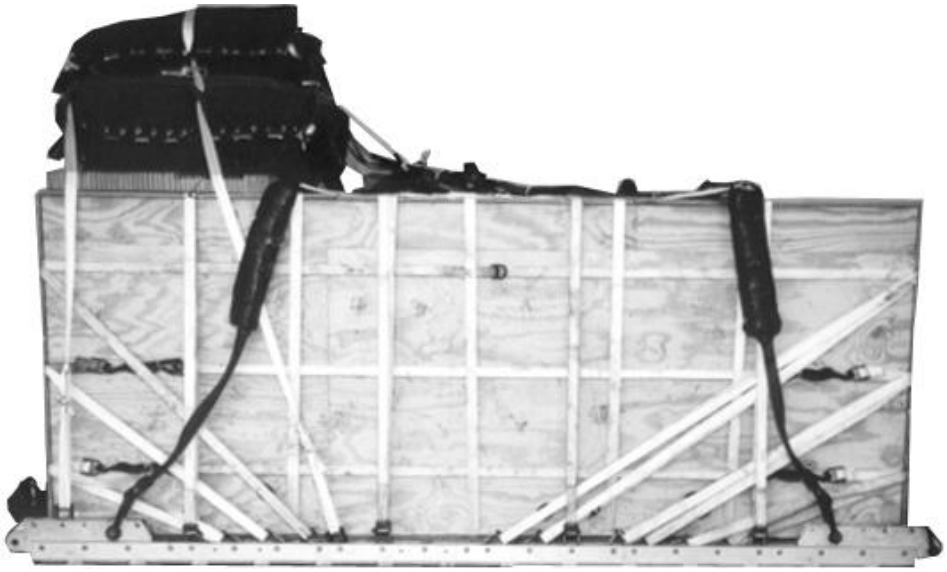
Figure 17-6. Bulk supplies in a-22 cargo bags on an 8-foot platform

Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 8,904 pounds
Height ..... 56 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 74 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-7. Bulk supplies on a 12-foot platform

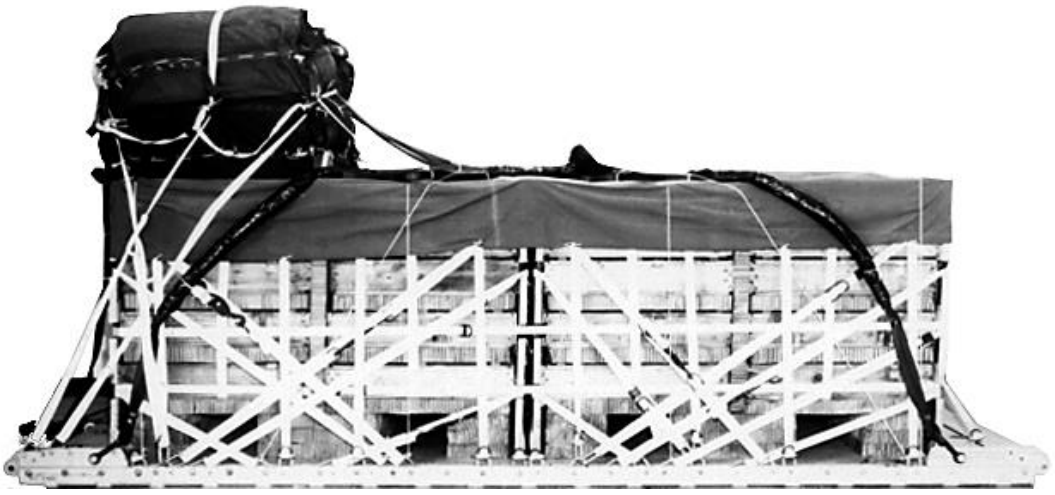


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 12,000 pounds
Height .....92 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....162 inches
Overall Length with extraction parachute jettison system (EPJS).....180 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....84 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Three G-11B

Figure 17-8. Forward area surgical team equipment on a 12-foot platform

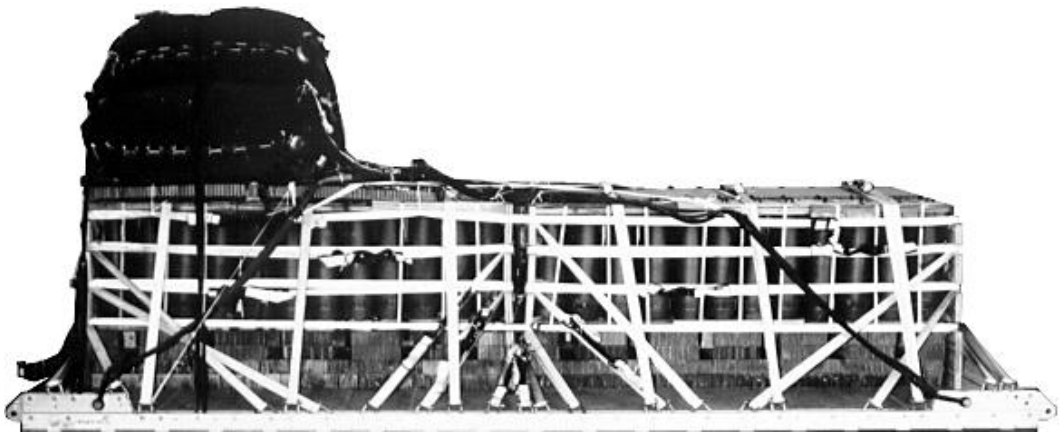


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown.....18,560 pounds
Height .....97 1/2 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....210 inches
Overall Length with extraction parachute jettison system (EPJS) .....228 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform) .....106 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Four G-11B

Figure 17-9. 105-mm ammunition on a 16-foot platform

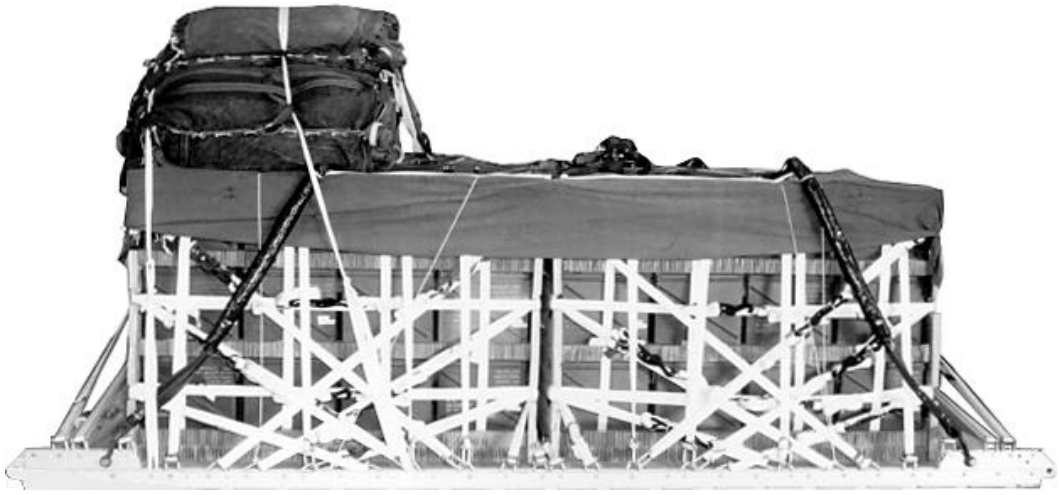


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 26,060 pounds
Height ..... 92 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 101 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Five G-11C

Figure 17-10. 155-mm ammunition on a 16-foot platform

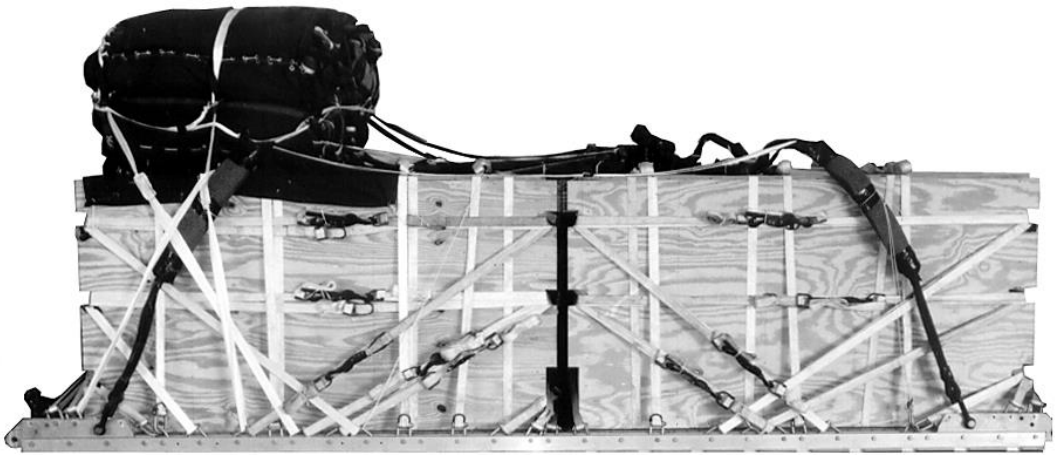


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown.....26,060 pounds
Height .....92 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....210 inches
Overall Length with extraction parachute jettison system (EPJS) .....228 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform) .....91 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Five G-11C

Figure 17-11. 20-mm ammunition on a 16-foot platform

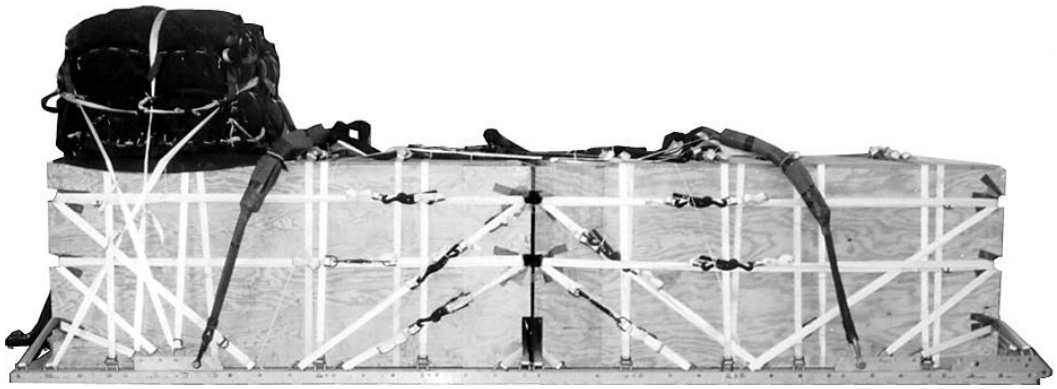


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 15,040 pounds
Height ..... 88 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 97 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Four G-11B

Figure 17-12. Mass supply boxes on a 16-foot platform

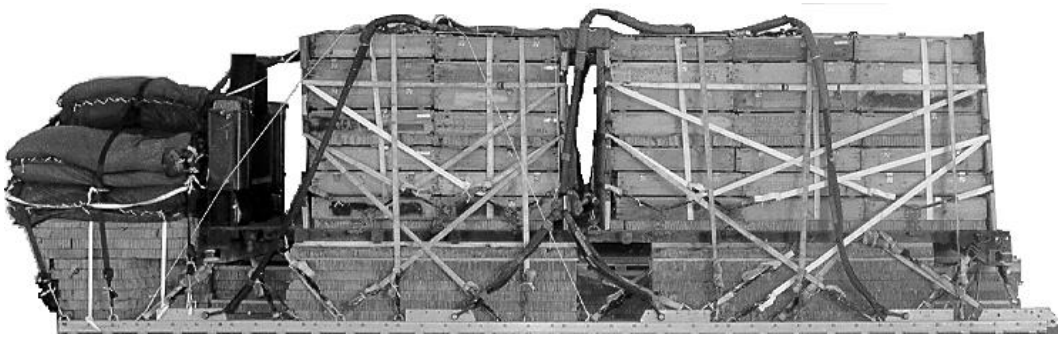


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 16,300 pounds
Height ..... 88 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 126 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22- or 28-Foot
Extraction Parachute C-17: 22- or 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Four G-11B

Figure 17-13. Mass supply boxes on a 20-foot platform

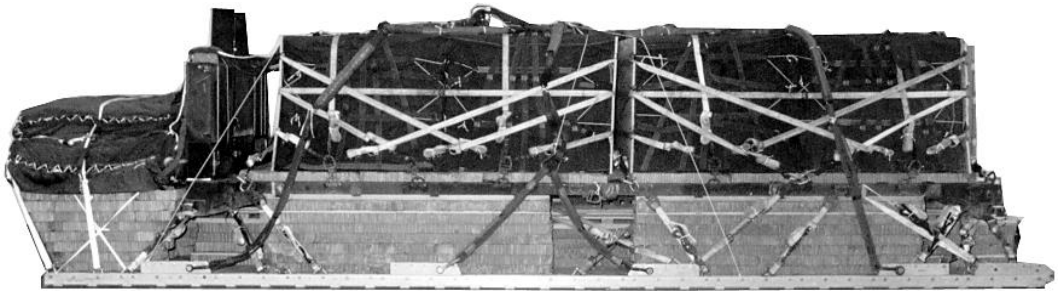


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 33,343 pounds
Height ..... 97 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 310 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 318 inches
Overhang: Front ..... 0 inches
Rear (cargo parachutes) ..... 22 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 132 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Seven G-11C

Figure 17-14. Palletized load system pallet with 105-mm ammunition on a 24-foot platform

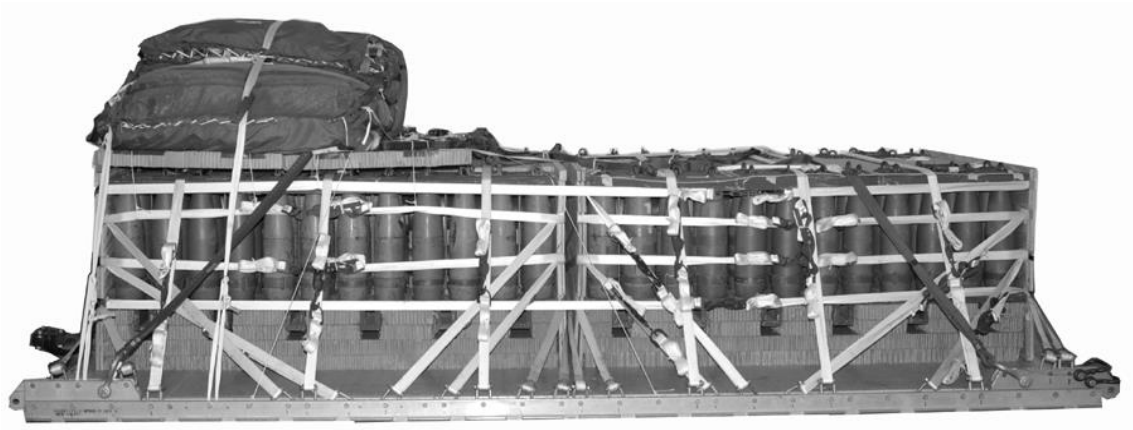


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown.....24,278 pounds
Height .....84 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....306 inches
Overall Length with extraction parachute jettison system (EPJS) .....334 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform) .....137 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Five G-11C

Figure 17-15. Palletized load system with a-22 containers on a 24-foot platform

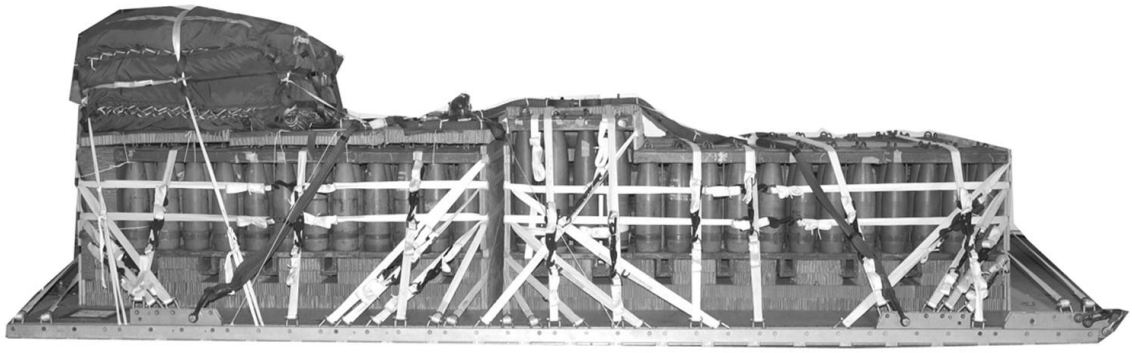


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 11,460 pounds
Height ..... 48 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 96 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Five G-11C

Figure 17-16. 155-mm ammunition modular artillery charge system rigged on a 16-foot platform

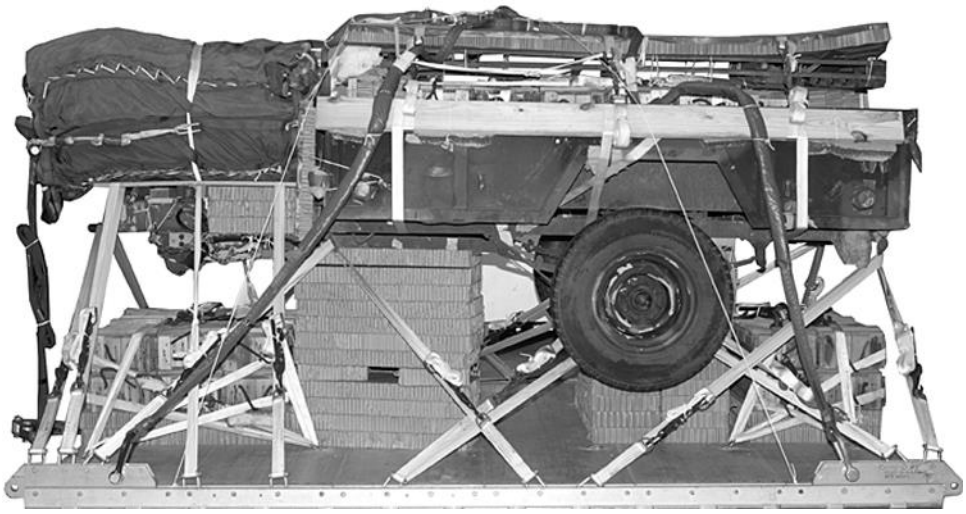


Reference: TM 4-48.12/TO 13C7-1-8

Weight: Load shown ..... 18,460 pounds
Height ..... 73 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 171 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-17. 155-mm ammunition modular artillery charge system package rigged on a 20-foot platform

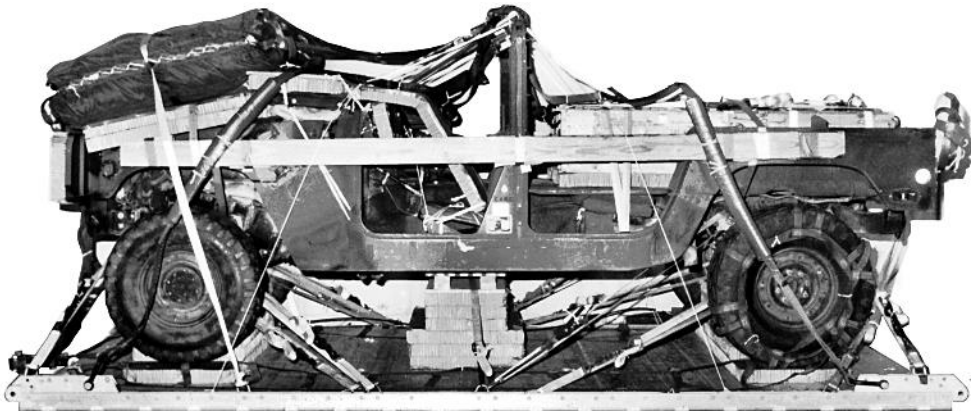


Reference: TM 4-48.13/TO 13C7-3-51

Weight: Load shown ..... 5,920 pounds
Height ..... 72 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 70 inches

Accompanying Load: Maximum accompanying load of 1,500 pounds stowed in the trailer with additional load of 2,500 pounds stowed on the platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-18. 3/4-ton cargo trailer

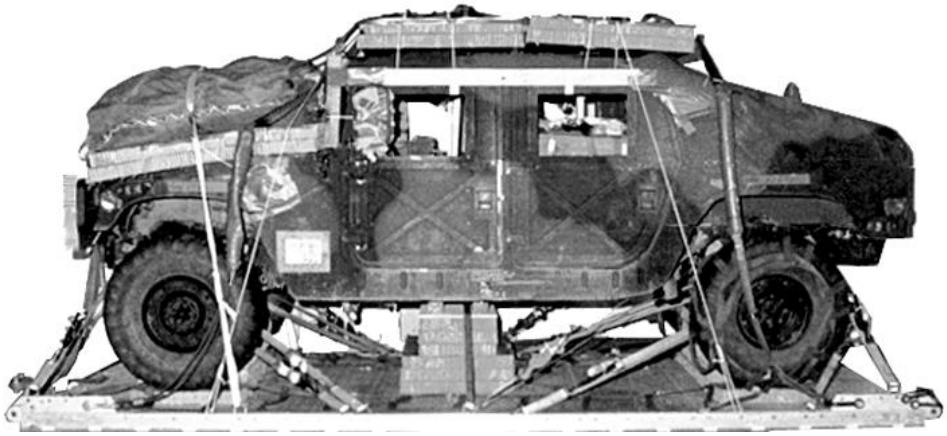


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown.....9,750 pounds
Height .....86 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....215 inches
Overall Length with extraction parachute jettison system (EPJS) .....233 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS) .....30 inches
Center of Balance (from front edge of platform) .....95 inches

Accompanying Load: An accompanying load of 800 to 2,000 pounds must be rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-19. M998 cargo/troop carrier

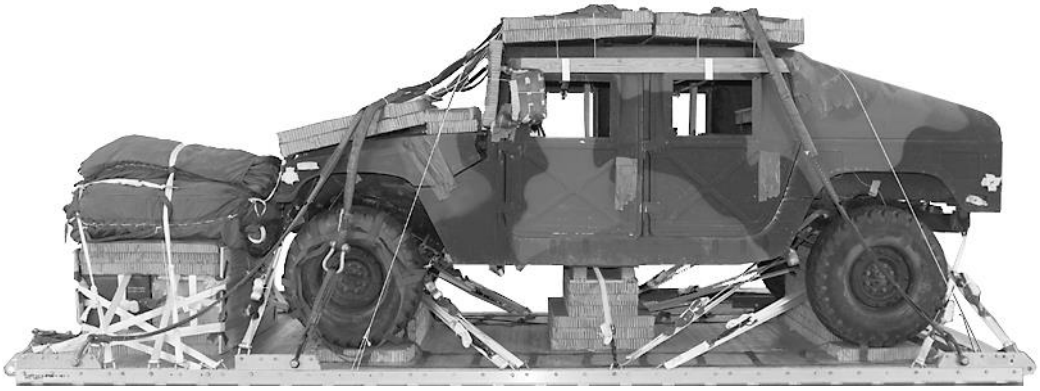


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 9, 820 pounds
Height ..... 91 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 215 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 233 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 96 inches

Accompanying Load: An accompanying load of 800 to 2,000 pounds must be rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-20. M1025 armament carrier

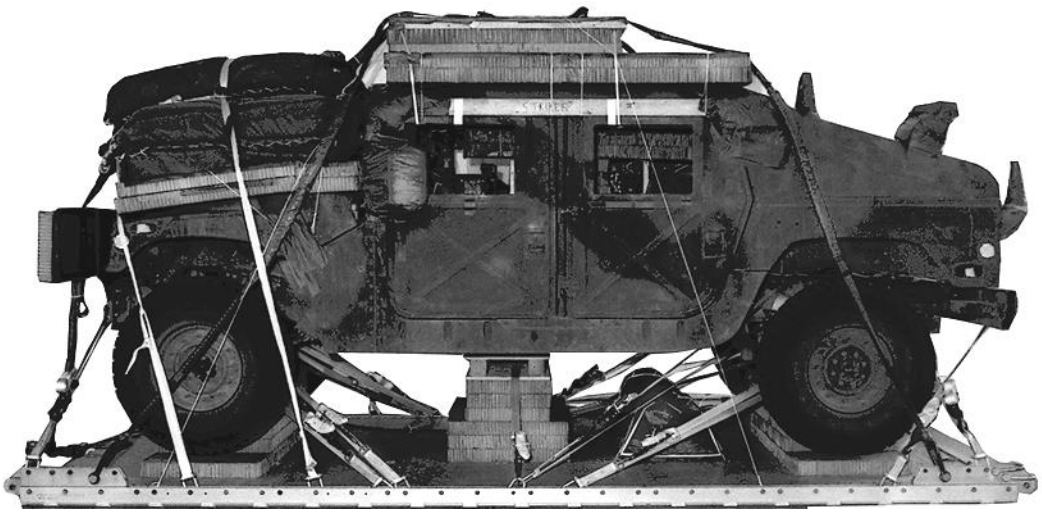


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 11,740 pounds
Height ..... 91 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 265 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 283 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 112 inches

Accompanying Load: Ammunition rigged on the platform and any accompanying load stowed in truck must weigh no less than 3,300 pounds and no more than 4,300 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

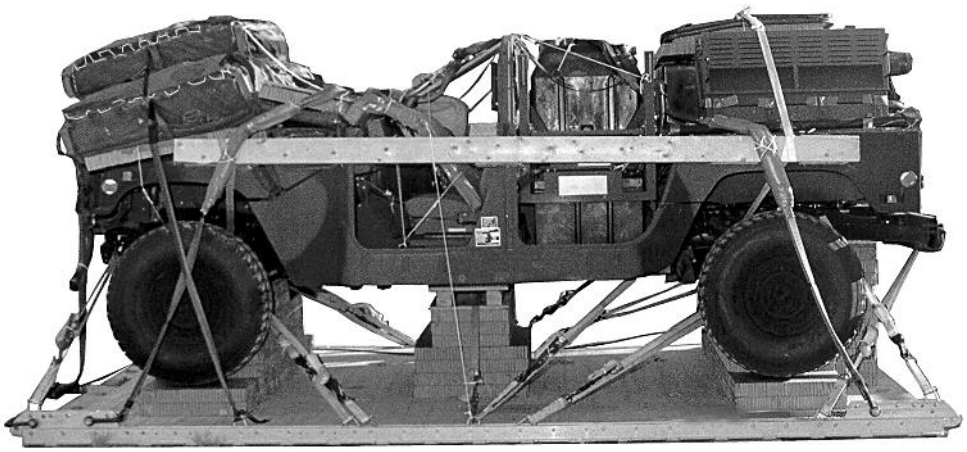
Figure 17-21. M1025 armament carrier with additional accompanying ammunition load on a 20-foot platform



Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 11,389 pounds
Height ..... 98 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 215 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 233 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 97 inches
Accompanying Load: Striker and accessories.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-22. M1025 armament carrier rigged with striker

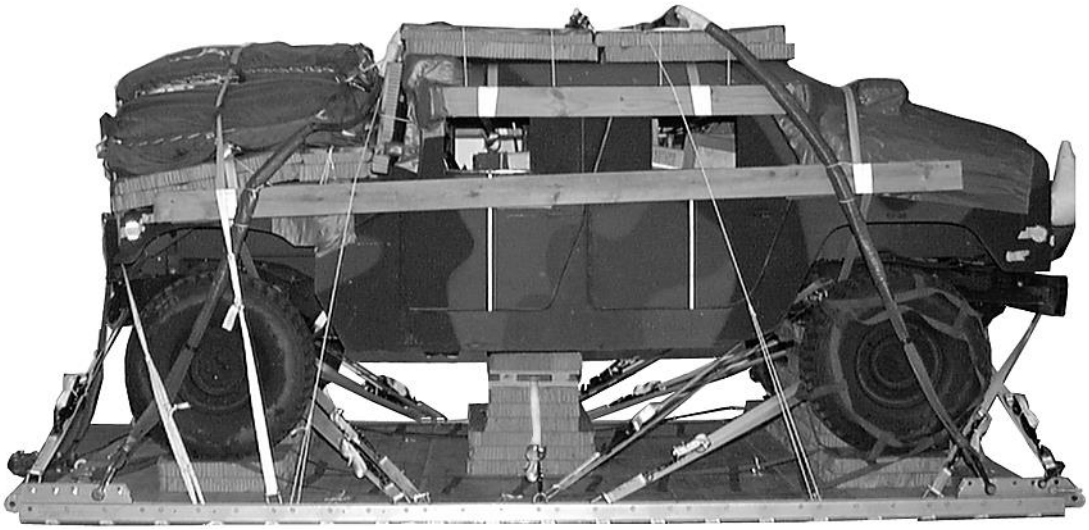


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown.....11,960 pounds
Height .....97 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....215 inches
Overall Length with extraction parachute jettison system (EPJS) .....233 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform) .....91 inches

Accompanying Load: An accompanying load of 800 to 2,500 pounds must be rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-23. M56 smoke generator rigged in M1113

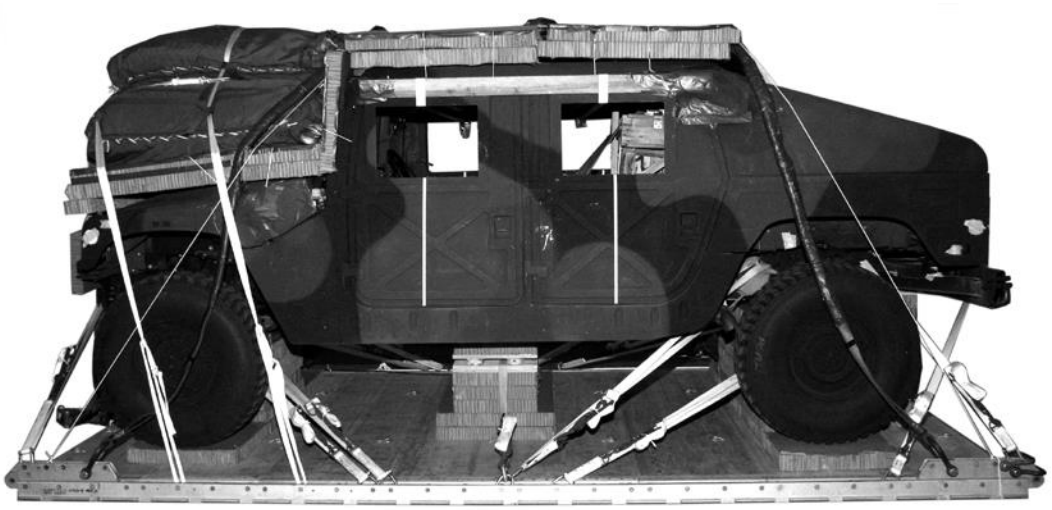


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 15,240 pounds
Height .....98 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....210 inches
Overall Length with extraction parachute jettison system (EPJS).....228 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....92 inches

Accompanying Load: An accompanying load of 800 to 2,000 pounds must be rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-24. M1114-up-armament carrier

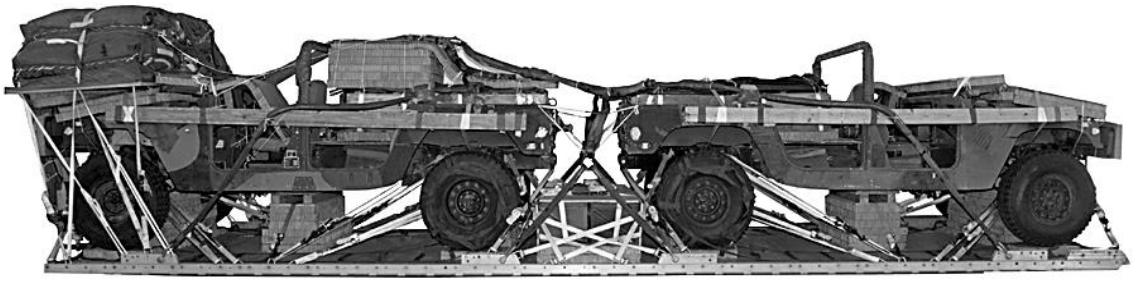


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 11,340 pounds
Height ..... 93 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 215 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 233 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 96 inches

Accompanying Load: An accompanying load of 1,300 to 2,000 pounds must be rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-25. M1151 expanded capacity armament carrier

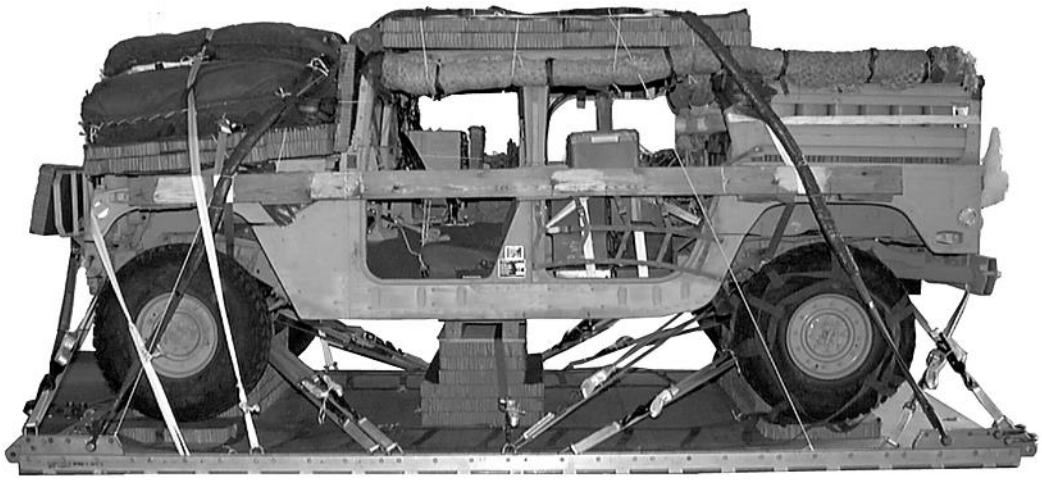


Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 21,200 pounds
Height ..... 96 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 402 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 420 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 207 inches

Accompanying Load: An accompanying load of 800 to 2,000 pounds must be rigged in each truck and 20 boxes of 20-millimeter ammunition rigged on the platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Five G-11C

Figure 17-26. Two M998 trucks



Reference: TM 4-48.17/MCRP 4-11.3M/TO 13C7-1-111

Weight: Load shown ..... 12,420 pounds
Height ..... 94 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 96 inches

Accompanying Load: The accompanying load weighs 2,140 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-27. Ground mobility vehicle

Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 8,060 pounds
Height ..... 90 1/2 inches
Width..... 108108 inches
Overall Length with extraction force transfer coupling (EFTC)..... 210 inches
Overall Length with extraction parachute jettison system (EPJS)..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS)..... 30 inches
Center of Balance (from front edge of platform)..... 98 inches

Accompanying Load: An accompanying load weighing 2,040 pounds rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

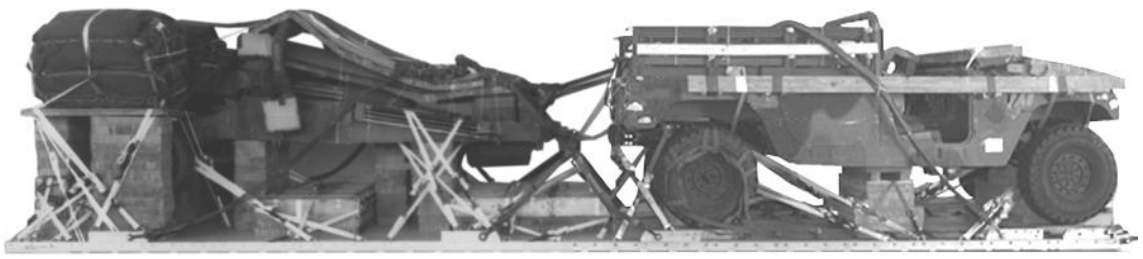
Figure 17-28. M102 Howitzer rigged with 17 boxes of ammunition

Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 8,800 pounds
Height ..... 90 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 98 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-29. M102 Howitzer rigged with 23 boxes of ammunition

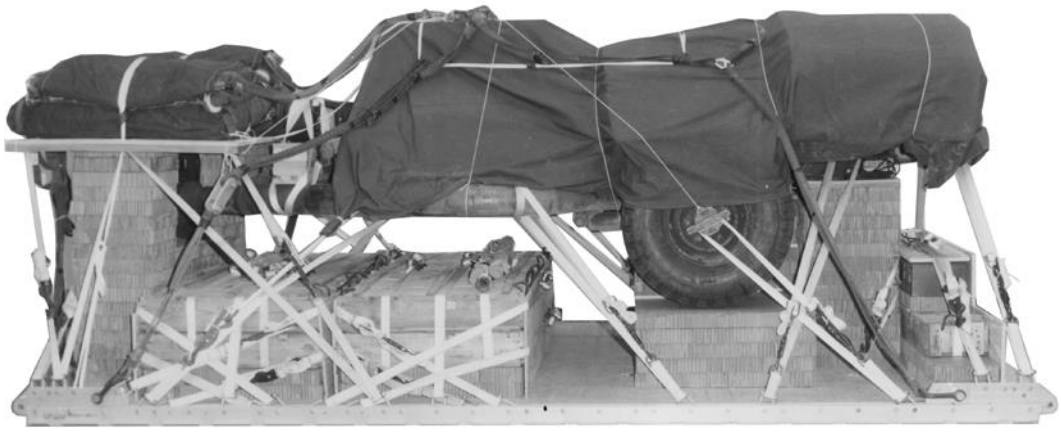


Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 17,770 pounds
Height .....83 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....402 inches
Overall Length with extraction parachute jettison system (EPJS).....420 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....196 inches

Accompanying Load: Accompanying load weighing 800 to 2,200 pounds must be rigged in truck and 22 boxes of 105-mm ammunition rigged on a platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Four G-11B

Figure 17-30. M102 Howitzer with 1 1/4-ton truck

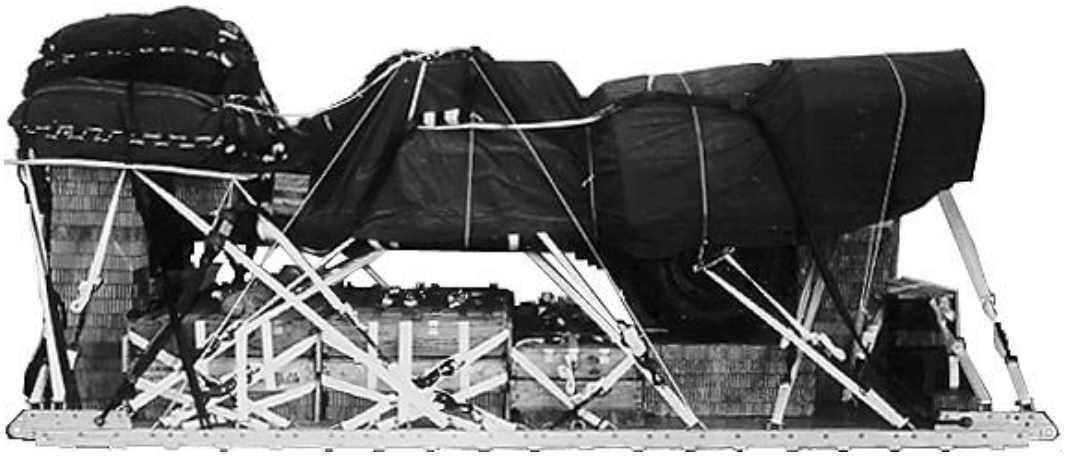


Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 10,000 pounds
Height ..... 83 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 100 inches

Accompanying Load: Accompanying load weighing 3,713 pounds is rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-31. M119 Howitzer rigged with 30 boxes of ammunition



Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 11,200 pounds
Height .....86 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....210 inches
Overall Length with extraction parachute jettison system (EPJS).....228 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....105 inches

Accompanying Load: Accompanying load weighing 3,713 pounds rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

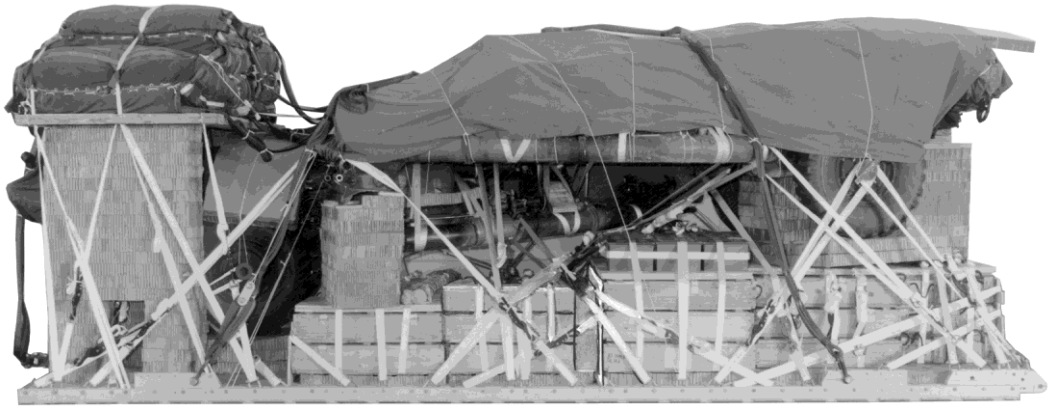
Figure 17-32. M119 Howitzer rigged with 81-mm mortar

Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown.....20,339 pounds
Height .....91 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....402 inches
Overall Length with extraction parachute jettison system (EPJS) .....420 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS) .....30 inches
Center of Balance (from front edge of platform) .....201 inches

Accompanying Load: Accompanying load weighing 3,360 pounds is rigged on the platform with additional load of 800 to 2,000 pounds rigged in truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Four G-11B

Figure 17-33. M119 Howitzer rigged with 1 1/4-ton truck

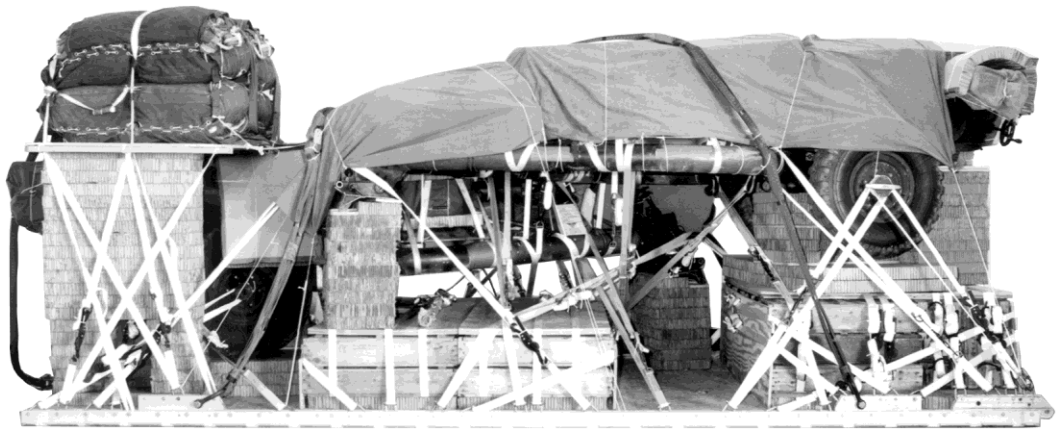


Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown ..... 22,660 pounds
Height ..... 98 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 275 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 293 inches
Overhang: Front ..... 17 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 110 inches

Accompanying Load: 82 boxes of ammunition rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Five G-11C

Figure 17-34. Two M119 Howitzers

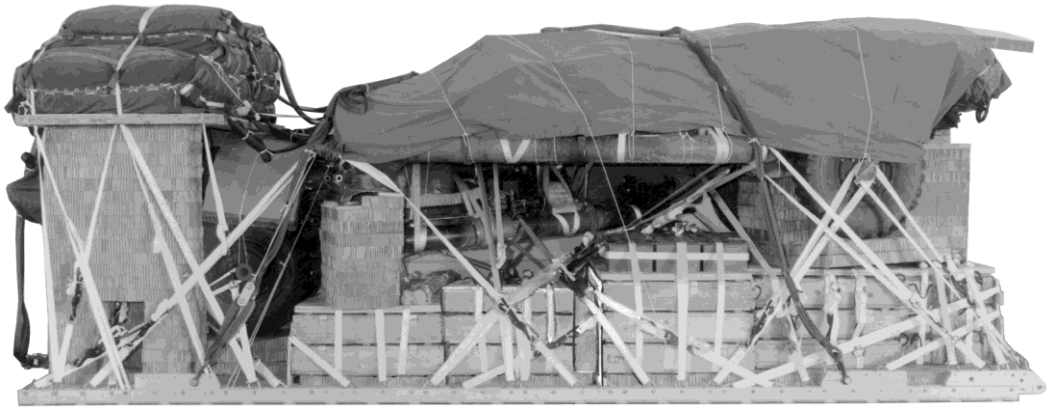


Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown.....19,320 pounds
Height .....99 1/2 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....274 inches
Overall Length with extraction parachute jettison system (EPJS) .....292 inches
Overhang: Front .....17 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform) .....112 inches

Accompanying Load: 63 boxes of ammunition rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-35. Two M119 Howitzers with light ammunition

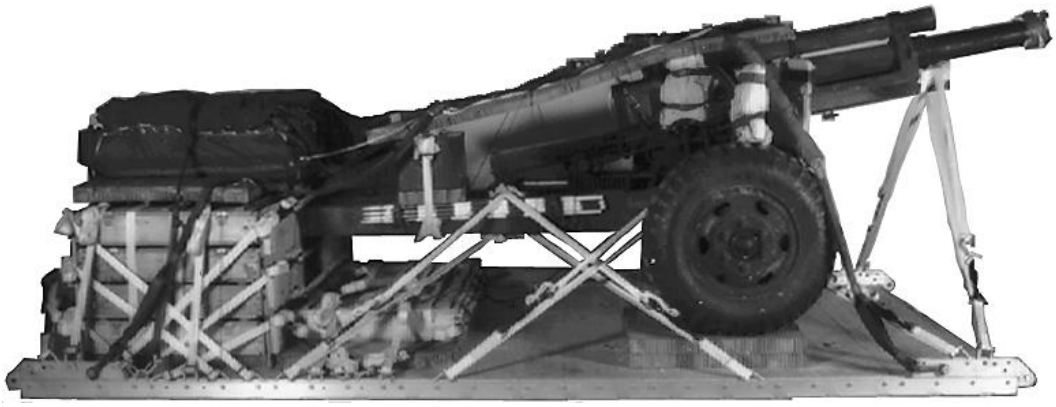


Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 21,940 pounds
Height ..... 98 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 274 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 292 inches
Overhang: Front ..... 17 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 110 inches

Accompanying Load: 68 boxes of ammunition rigged on platform and two 81-mm mortars.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Five G-11C

Figure 17-36. Two M119 Howitzers rigged with two 81-mm mortars

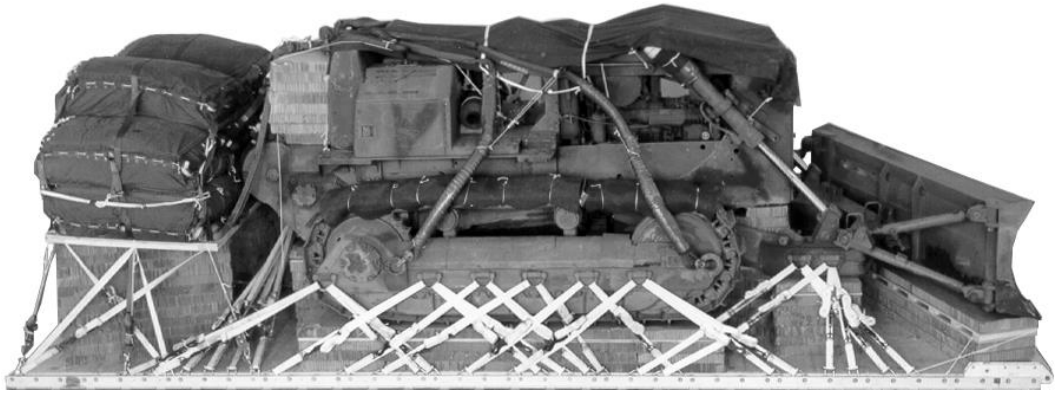


Reference: TM 4-48.19/TO 13C7-10-31

Weight: Load shown ..... 9,500 pounds
Height ..... 79 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 96 inches

Accompanying Load: Accompanying load rigged on platform must weigh at least 2,000 pounds but no more than 2,400 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-37. M101A1 Howitzer



Reference: TM 4-48.21/TO 13C7-6-21

Weight: Load shown ..... 36,140 pounds
Height ..... 98 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 306 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 324 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 152 inches

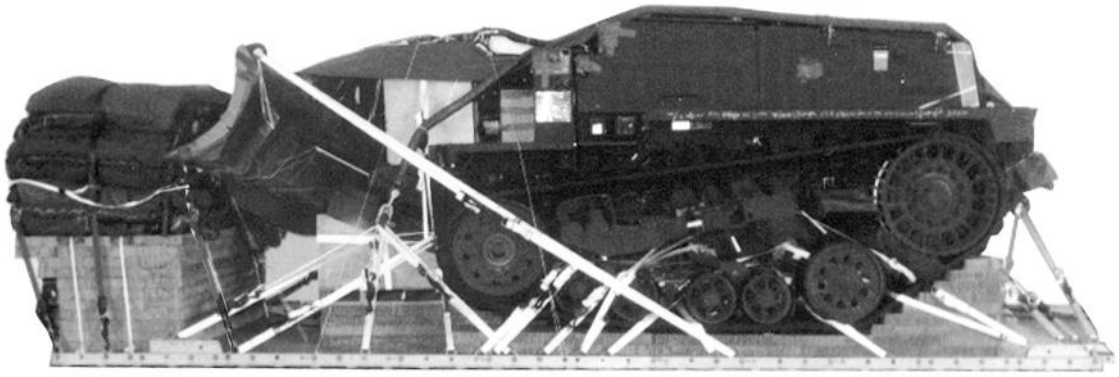
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Eight G-11C

Figure 17-38. Type lb-5b tractor dozer

Reference: TM 4-48.21/TO 13C7-6-21

Weight: Load shown ..... 20,960 pounds
Height ..... 94 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 215 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 233 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 84 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Four G-11B

Figure 17-39. John Deere 450G lT full-tracked bulldozer

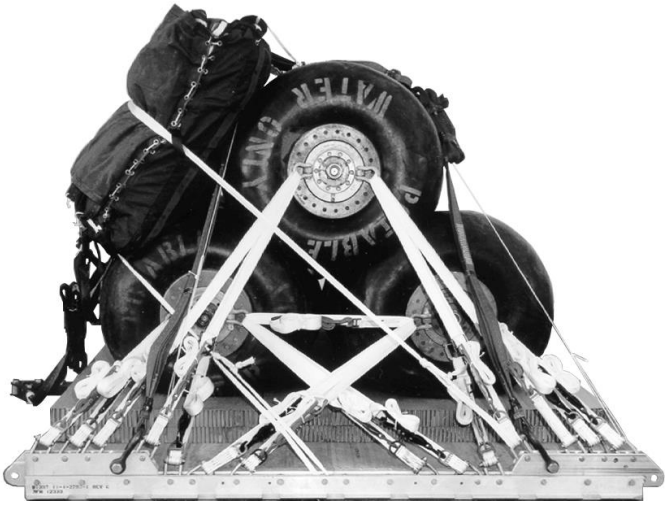


Reference: TM 4-48.21/TO 13C7-6-21

Weight: Load shown ..... 40,340 pounds
Height ..... 101 1/2 inches
Width ..... 110 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 310 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 328 inches
Overhang: Front ..... 0 inches
Rear (Parachute Stowage Platform) ..... 22 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 122 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Eight G-11C

Figure 17-40. Deployable universal combat earthmover

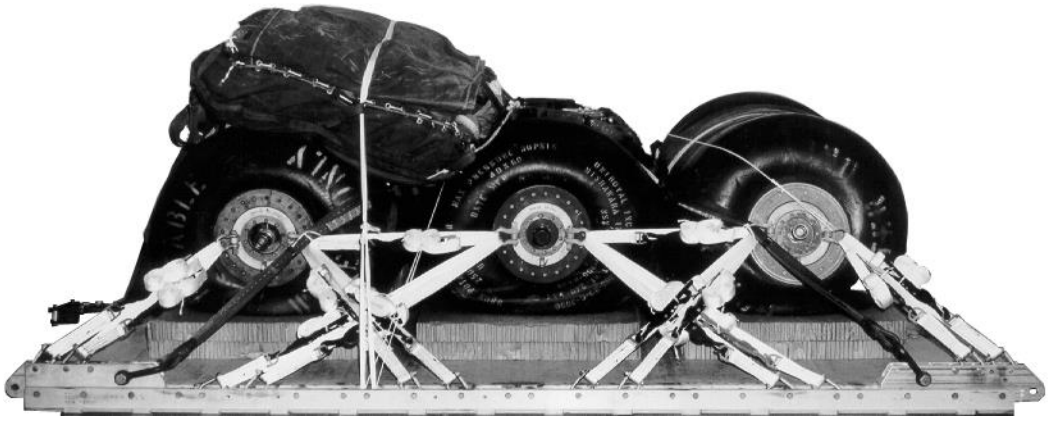


Reference: TM 4-48.22 /TO 13C7-2-1001

Weight: Load shown ..... 8,300 pounds
Height ..... 77 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 132 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 50 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 8-Foot
Cargo Parachutes: Two G-11B

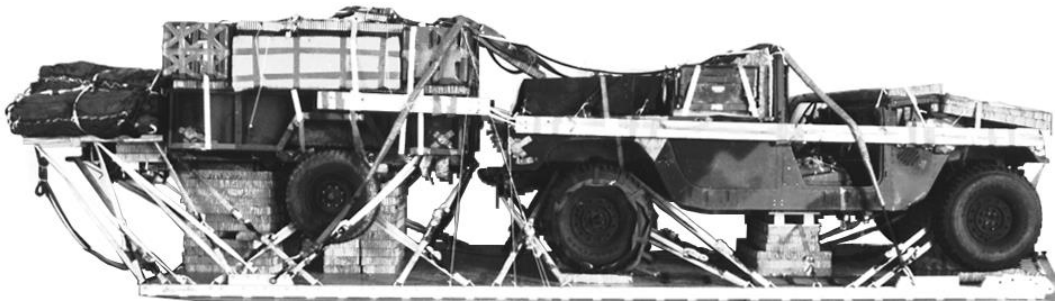
Figure 17-41. Three 250-gallon water drums on an 8-foot platform



Reference: TM 4-48.01/TO 13C7-2-1001

Weight: Load shown ..... 8,760 pounds
Height ..... 60 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 143 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 73 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 228-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-42. Three 250-gallon water drums on a 12-foot platform

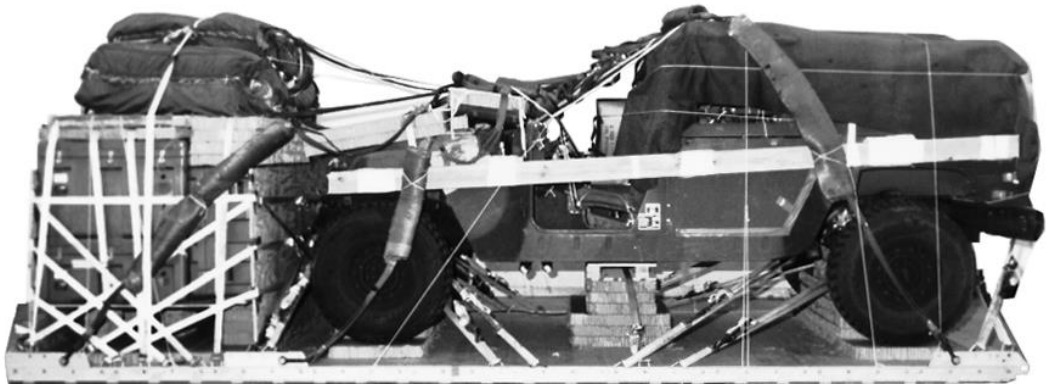


Reference: TM 4-48.17/TO 13C7-14-461

Weight: Load shown	13,289 pounds
Height	99 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	333 inches
Overall Length with extraction parachute jettison system (EPJS)	333 inches
Overhang: Front	0 inches
Rear (Cargo Parachutes)	45 inches
Center of Balance (from front edge of platform)	140 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 24-Foot
Cargo Parachutes: Three G-11B

Figure 17-43. Mobile microwave landing system in an M998 and a 3/4-ton trailer



Reference: TM 4-48.17/TO 13C7-14-461

Weight: Load shown ..... 12,100 pounds
Height ..... 94 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 110 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Three G-11B

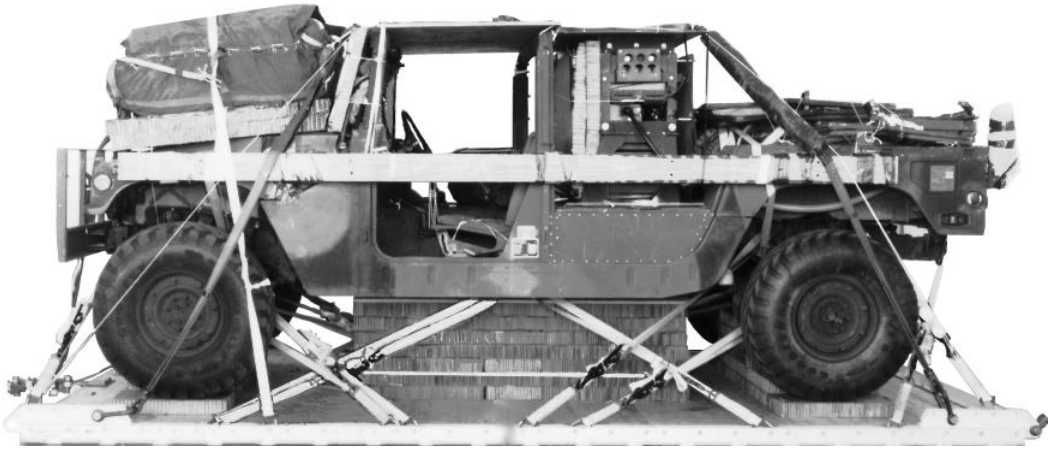
Figure 17-44. Standard integration command post system with the CH2-2

Reference: TM 4-48.17/TO 13C7-14-461

Weight: Load shown ..... 11,680 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 110 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Three G-11B

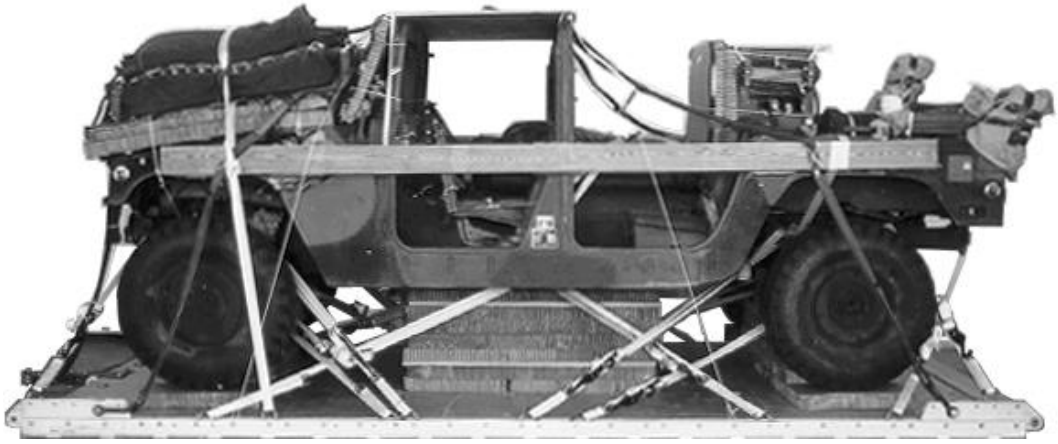
Figure 17-45. Command assault vehicle



Reference: TM 4-48.17/TO 13C7-14-461

Weight: Load shown ..... 9,480 pounds
Height ..... 85 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 101 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

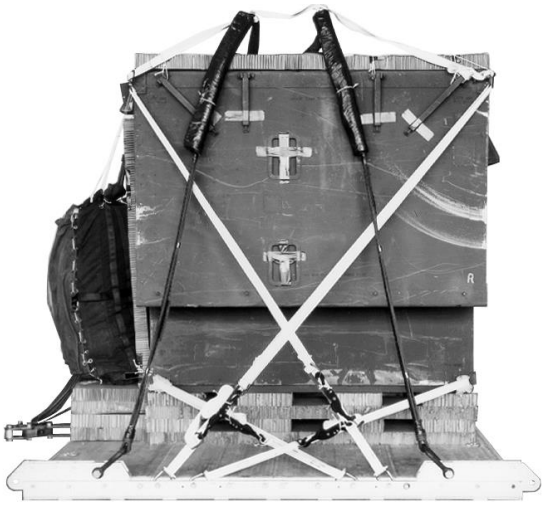
Figure 17-46. M998 cargo/troop carrier (two seater) with GRC/206 Air Force pallet



Reference: TM 4-48.17/TO 13C7-14-461

Weight: Load shown ..... 8,810 pounds
Height ..... 86 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 98 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-47. M998 cargo/troop carrier (four seater) with GRC/206 Air Force pallet

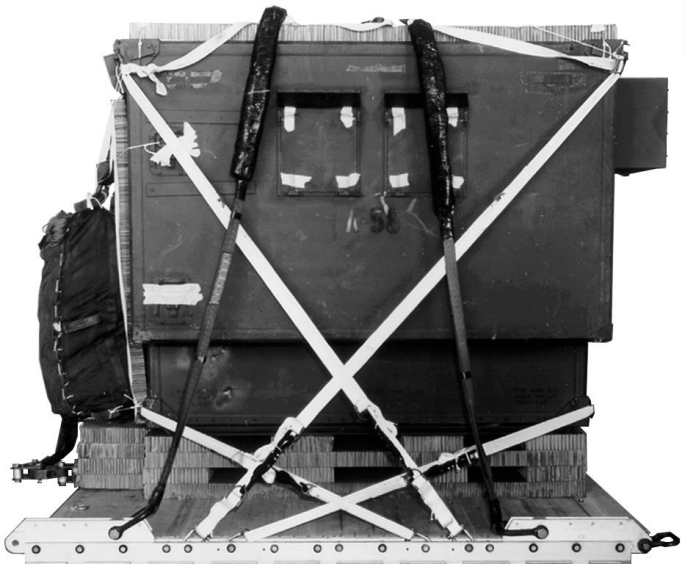


Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown ..... 3,630 pounds
Height ..... 95 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 132 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 49 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-48. S-318/G shelter with AN/GRC-122 communication equipment

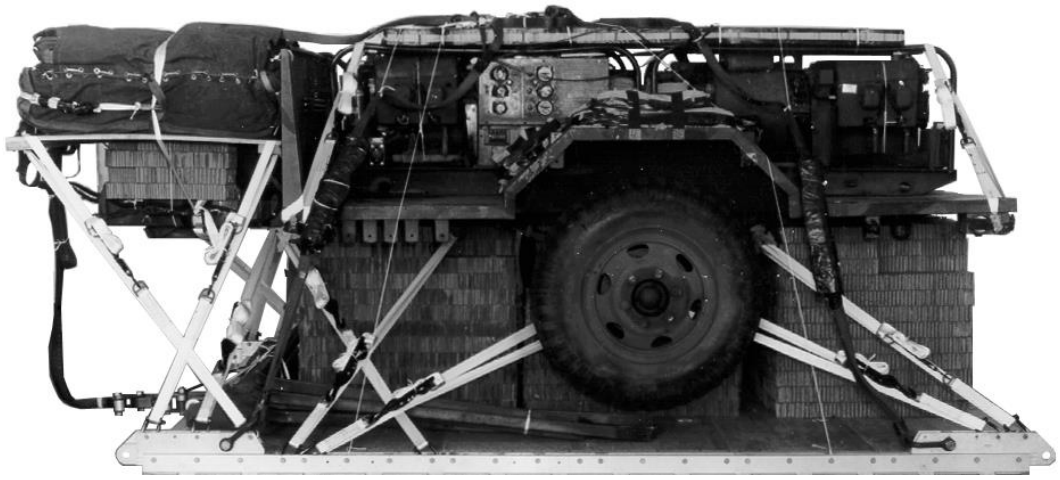


Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown	3,450 pounds
Height	95 1/2 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	114 inches
Overall Length with extraction parachute jettison system (EPJS)	132 inches
Overhang: Front	0 inches
Rear (EFTC)	18 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	48 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-49. S-502 shelter with AN/GRC-142 communications equipment

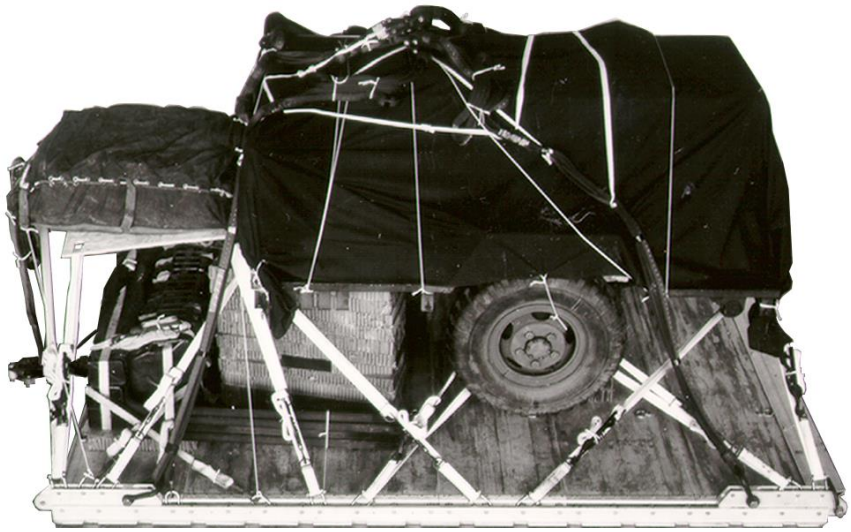


Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown ..... 6,680 pounds
Height ..... 76 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 174 1/2 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 174 1/2 inches
Overhang: Front ..... 0 inches
Rear (Lunette) ..... 30 1/2 inches
Center of Balance (from front edge of platform) ..... 74 1/2 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-50. PU-619M power unit

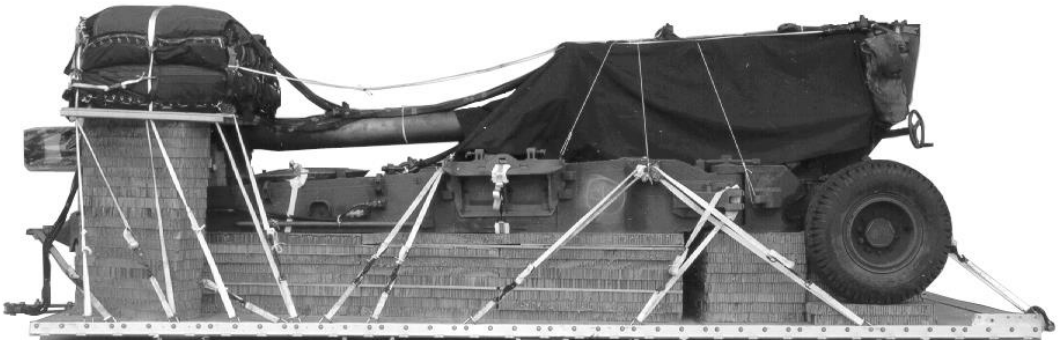


Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown ..... 4,750 pounds
Height ..... 81 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 82 1/2 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

Figure 17-51. PU-620 power unit

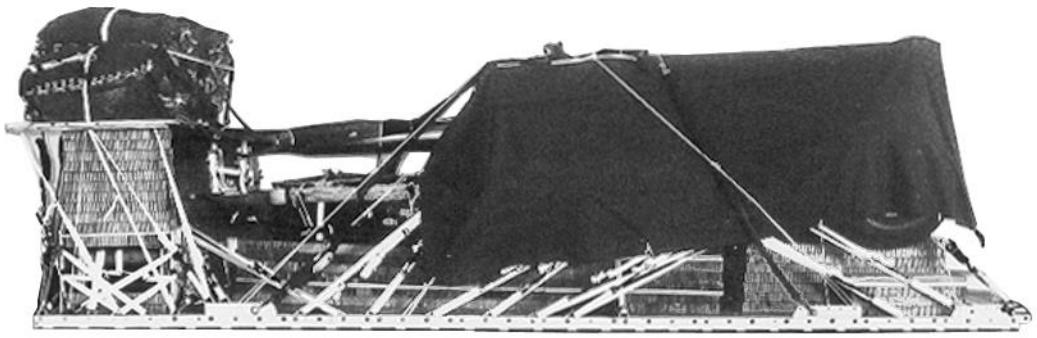


Reference: TM 4-48.19/TO 13C7-10-191

Weight: Load shown ..... 21,030 pounds
Height ..... 96 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 306 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 324 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 126 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Five G-11C

Figure 17-52. M198 155-mm Howitzer

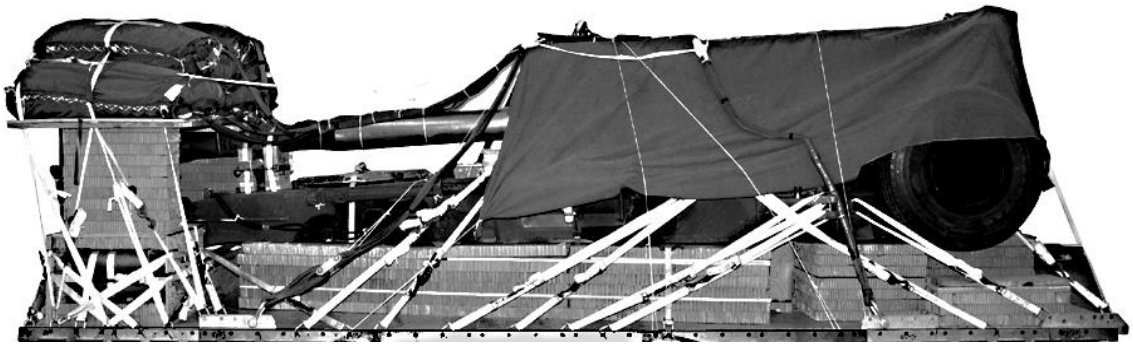


Reference: TM 4-48.19/TO 13C7-10-191

Weight: Load shown.....23,400 pounds
Height .....94 inches
Width .....109 1/2 inches
Overall Length with extraction force transfer coupling (EFTC).....306 inches
Overall Length with extraction parachute jettison system (EPJS) .....324 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS) .....30 inches
Center of Balance (from front edge of platform) .....128 inches

Accompanying Load: Accompanying load weighing 1,509 pounds is rigged on the platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Five G-11C

Figure 17-53. M198 155-mm Howitzer with accompanying ammunition



Reference: TM 4-48.19/TO 13C7-10-191

Weight: Load shown ..... 23,700 pounds
Height ..... 92 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 288 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 306 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 124 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Five G-11C

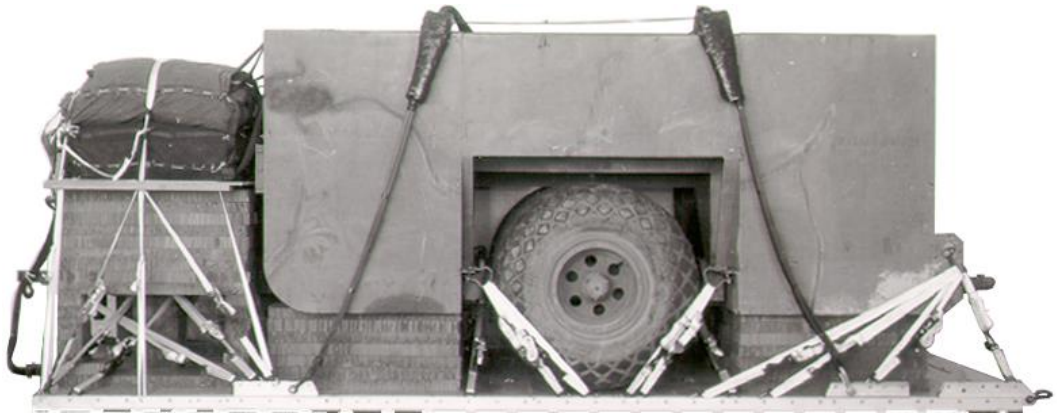
Figure 17-54. M198 155-MM Howitzer with modular artillery charge system

Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown	6,550 pounds
Height	80 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	121 inches
Overall Length with extraction parachute jettison system (EPJS)	126 inches
Overhang: Front	0 inches
Rear (Parachute Stowage Platform)	25 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	48 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachutes: Two G-11B

Figure 17-55. Type I towed roller

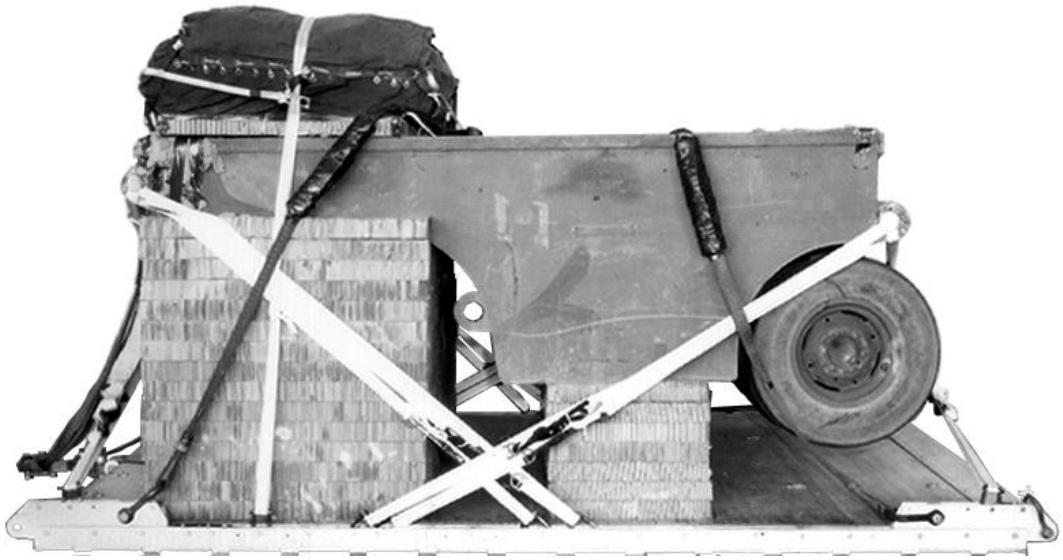


Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown ..... 15,440 pounds
Height ..... 97 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 260 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 270 inches
Overhang: Front ..... 0 inches
Rear (Lunette) ..... 20 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 118 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-56. M435 towed roller

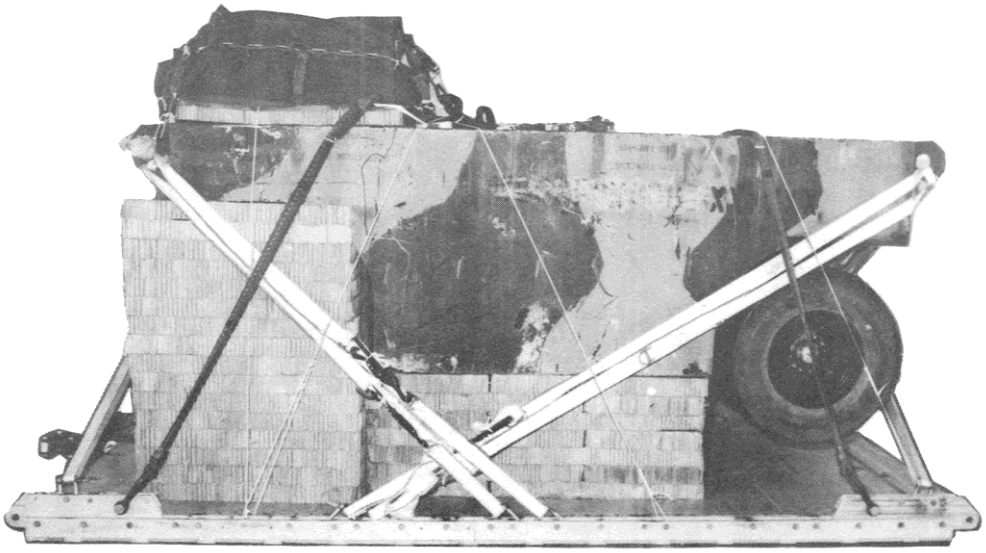


Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown ..... 5,750 pounds
Height ..... 80 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 76 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

Figure 17-57. 13-wheeled towed roller

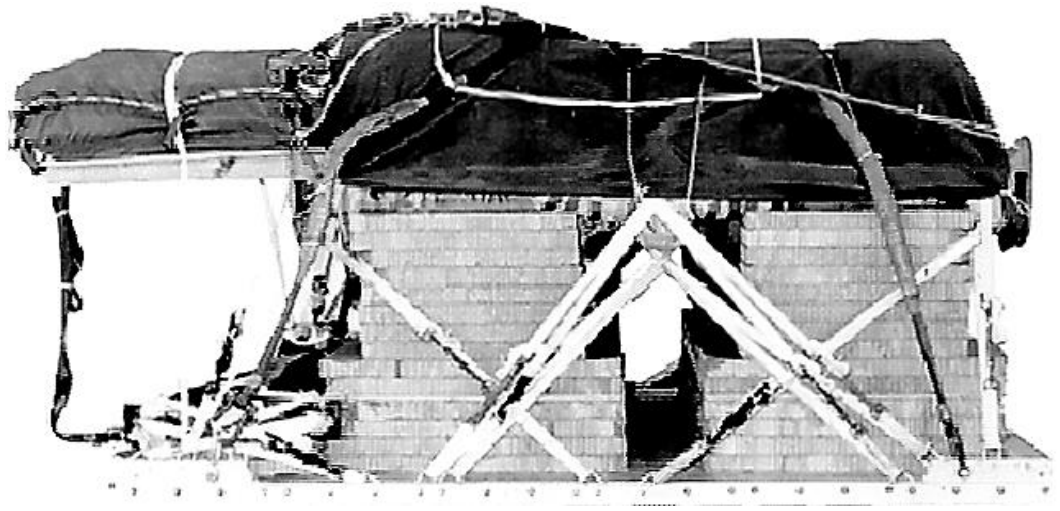


Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown ..... 5,140 pounds
Height ..... 80 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 76 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

Figure 17-58. 11-wheeled towed roller

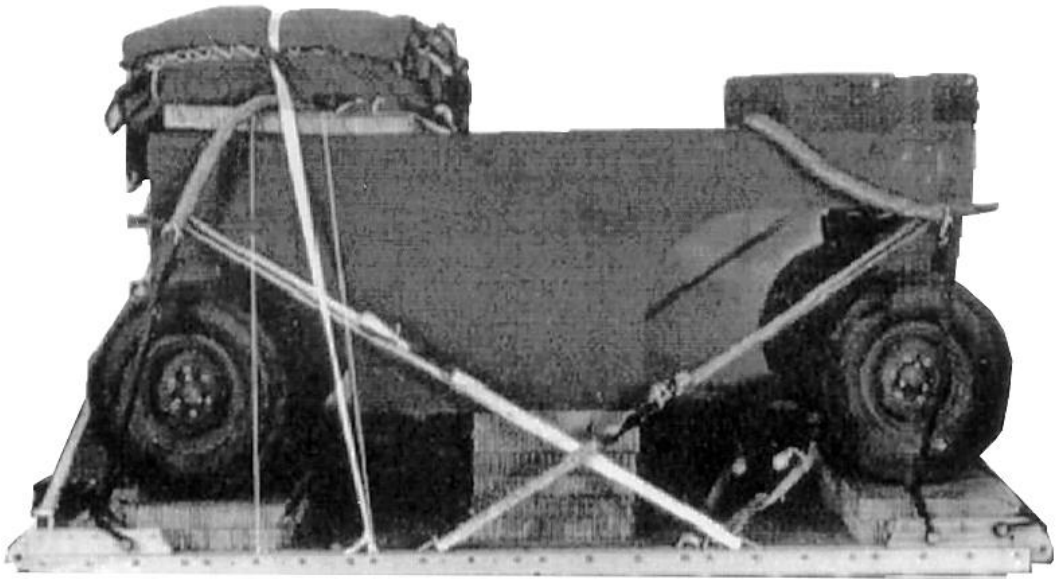


Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown ..... 9,760 pounds
Height ..... 82 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 168 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 174 inches
Overhang: Front ..... 0 inches
Rear (Parachute Stowage Platform) ..... 24 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 71 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-59. MDG 96 sheep foot roller



Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown ..... 6,582 pounds
Height ..... 75 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 68 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

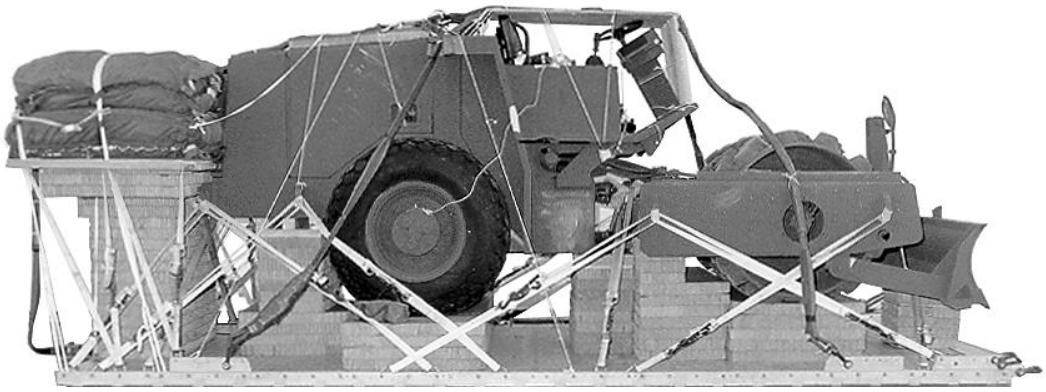
Figure 17-60. 13-wheeled (Model PT-13) towed roller

Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown	18,890 pounds
Height	99 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	262 inches
Overall Length with extraction parachute jettison system (EPJS)	270 inches
Overhang: Front	0 inches
Rear (Parachute Stowage Platform)	22 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	74 1/2 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-61. Vibratory compactor (Model CS-433C)

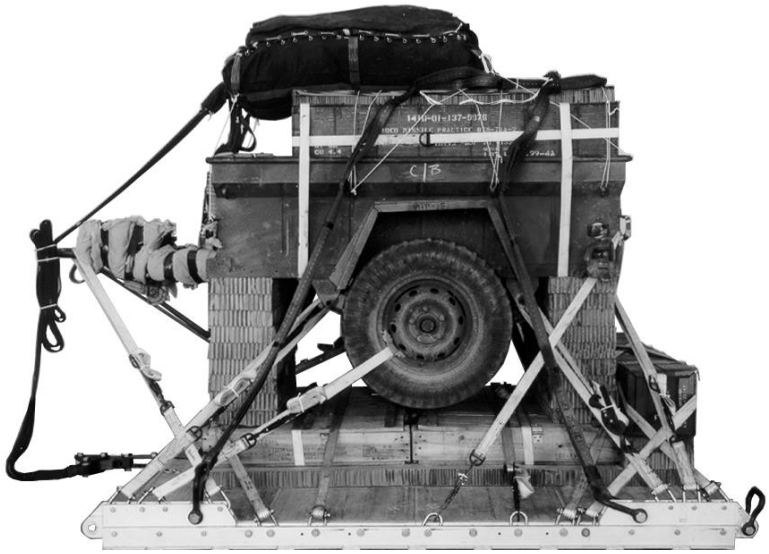


Reference: TM 4-48.22/TO 13C7-26-71

Weight: Load shown ..... 19,147 pounds
Height ..... 99 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 262 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 270 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 22 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 108 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-62. Vibratory compactor (Model CS-433P)

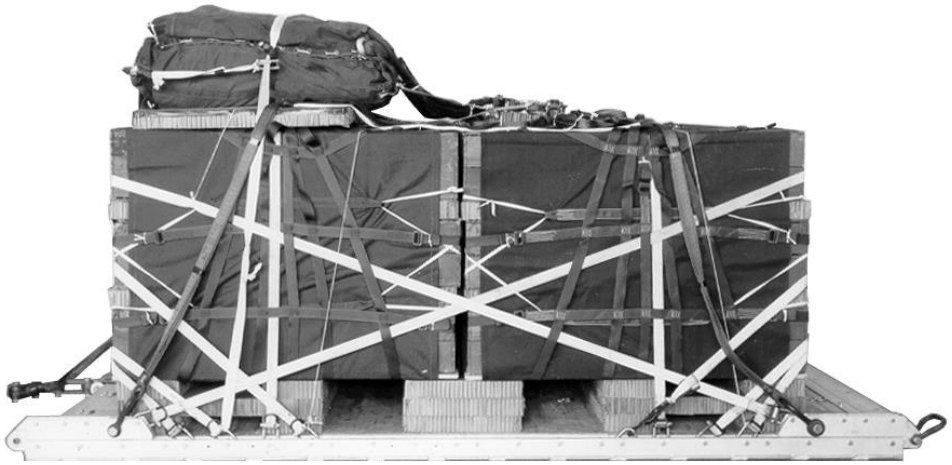


Reference: TM 4-48.15/TO 13C7-10-171

Weight: Load shown	3,480 pounds
Height	87 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	121 inches
Overall Length with extraction parachute jettison system (EPJS)	126 inches
Overhang: Front	0 inches
Rear (Lunette)	25 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	51 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-63. M416 trailer with eight tube-launched, optically tracked, wire-guided (tow) missiles

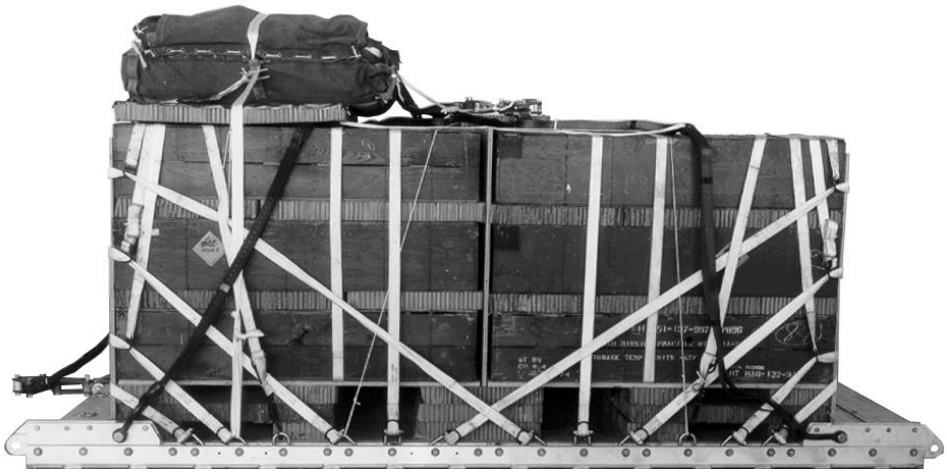


Reference: TM 4-48.15/TO 13C7-10-171

Weight: Load shown ..... 6,600 pounds
Height ..... 75 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 77 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

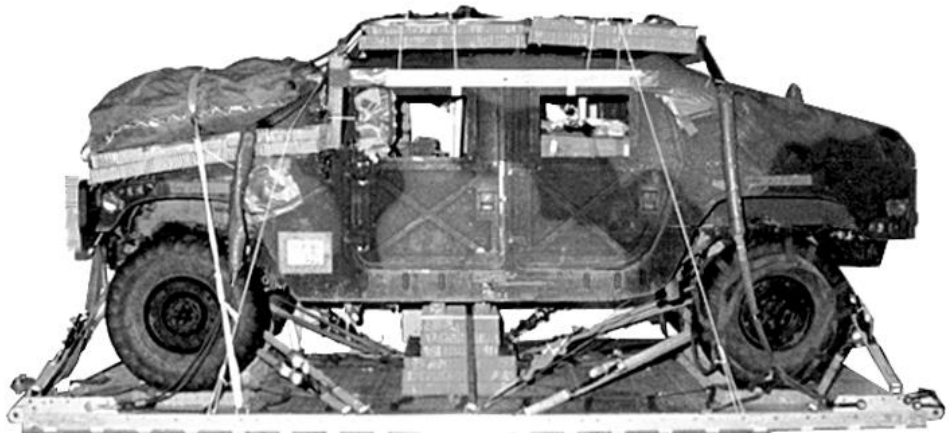
Figure 17-64. Tow missiles rigged in A-22 cargo bags



Reference: TM 4-48.15/TO 13C7-10-171

Weight: Load shown.....6,650 pounds
Height .....75 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....162 inches
Overall Length with extraction parachute jettison system (EPJS) .....180 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS) .....30 inches
Center of Balance (from front edge of platform) .....118 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-65. Tow missiles rigged on a 12-foot platform

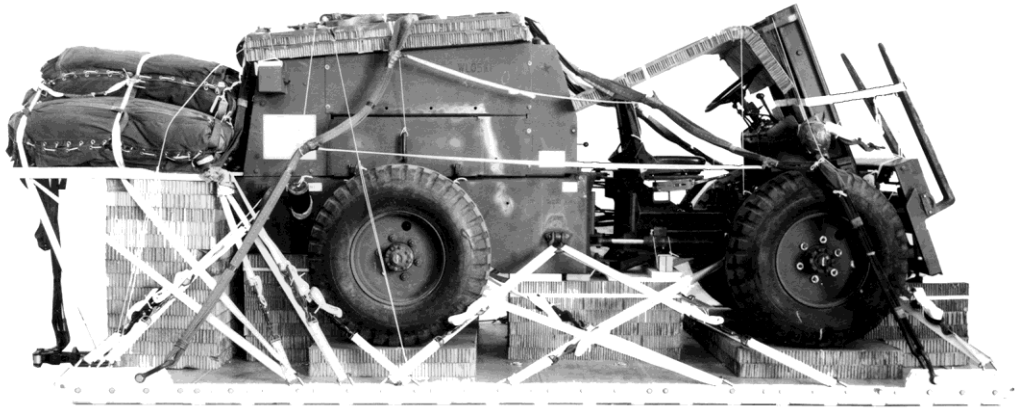


Reference: TM 4-48.15/TO 13C7-10-171

Weight: Load shown ..... 8,810 pounds
Height ..... 91 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 102 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-66. M966 tow carrier



Reference: TM 4-48.25/TO 13C7-54-1

Weight: Load shown ..... 12,370 pounds
Height ..... 86 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 216 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 232 inches
Overhang: Front ..... 0 inches
Rear (Parachute Stowage Platform) ..... 24 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 82 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-67. M4k 4,000 pound capacity forklift

Reference: TM 4-48.25/TO 13C7-54-1

Weight: Load shown ..... 15,400 pounds
Height ..... 98 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 225 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 243 inches
Overhang: Front (Forks) ..... 15 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 83 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

Figure 17-68. M270 4,000 pound capacity forklift

Reference: TM 4-48.25/TO 13C7-54-1

Weight: Load shown ..... 17,380 pounds
Height ..... 98 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 226 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 244 inches
Overhang: Front (Forks) ..... 15 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 82 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot or 28-Foot
Extraction Parachute C-17: 22-Foot or 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Four G-11B

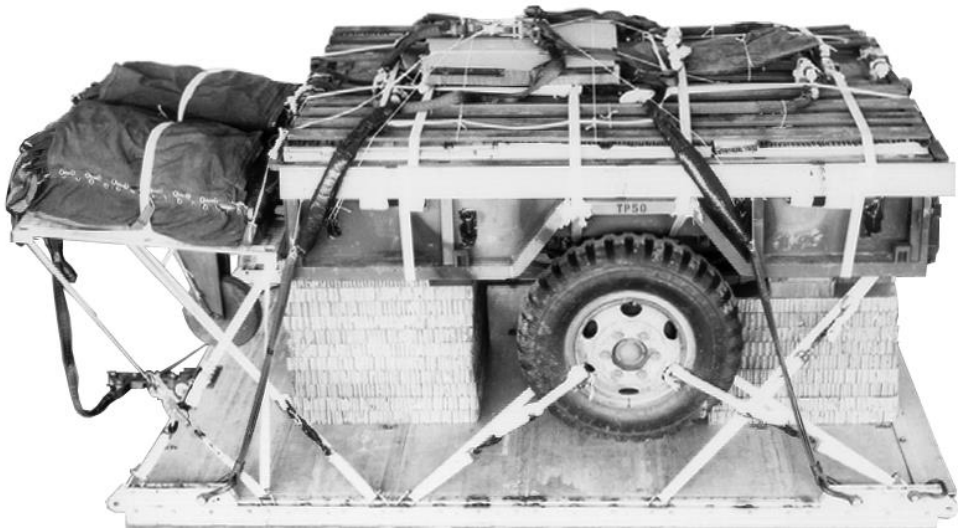
Figure 17-69. M271 4,000 pound capacity forklift

Reference: TM 4-48.25/TO 13C7-54-1

Weight: Load shown ..... 28,660 pounds
Height ..... 100 3/4 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 333 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 351 inches
Overhang: Front (Forks) ..... 27 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 141 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Six G-11C

Figure 17-70. 6,000 pound capacity forklift

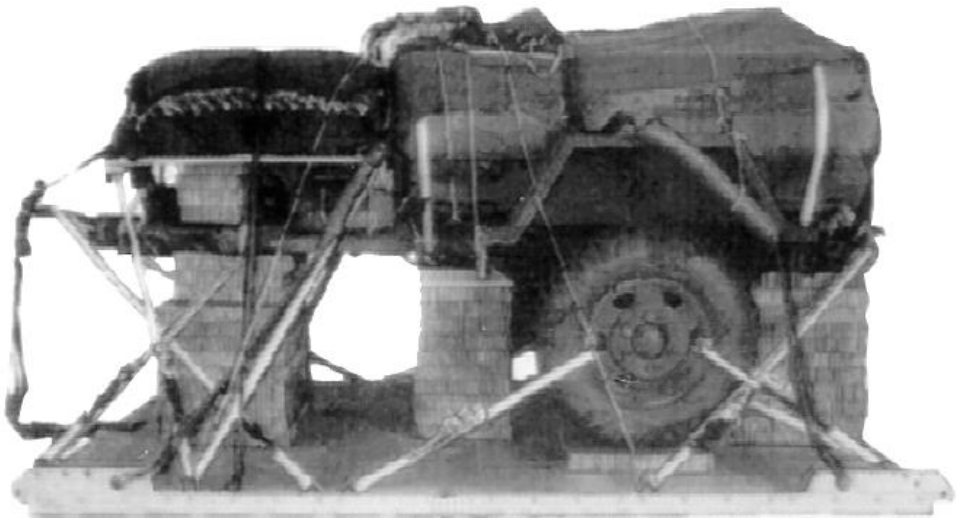


Reference: TM 4-48.13/TO 13C7-3-361

Weight: Load shown ..... 7,360 pounds
Height ..... 81 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 166 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 174 inches
Overhang: Front ..... 0 inches
Rear (Parachute) ..... 22 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 72 inches

Accompanying Load: An accompanying load must not weigh more than 3,000 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot or 22-Foot
Extraction Parachute C-17: 15-Foot or 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-71. 1 1/2-ton trailer

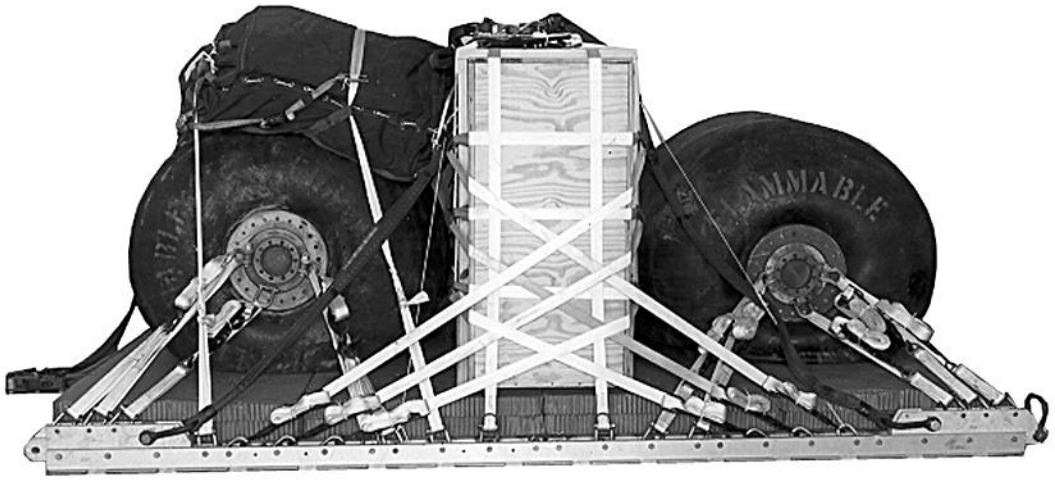


Reference: TM 4-48.13/TO 13C7-3-361

Weight: Load shown ..... 7,200 pounds
Height ..... 86 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 63 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot or 22-Foot
Extraction Parachute C-17: 15-Foot or 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

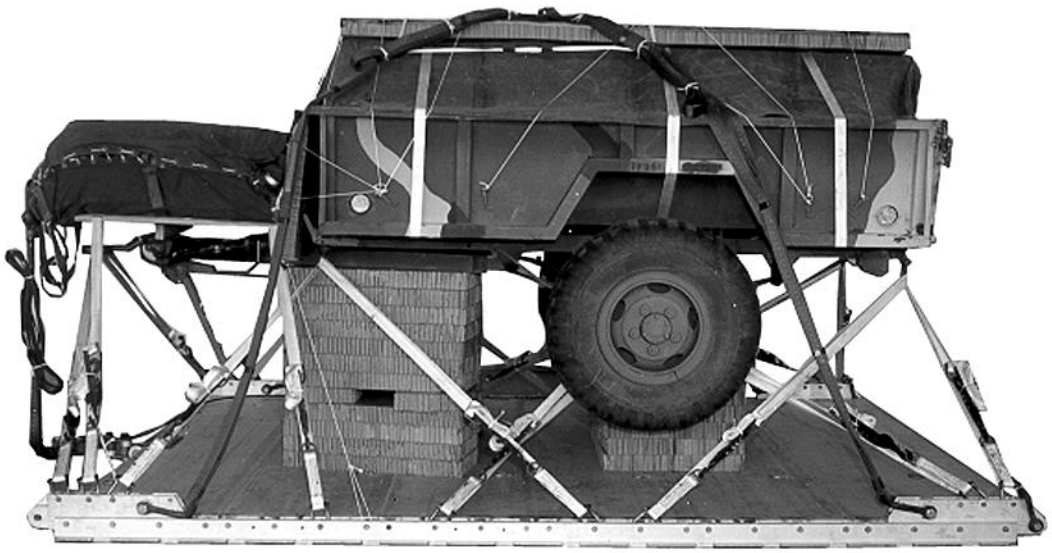
Figure 17-72. M149A1 400-gallon water trailer



Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 9,107 pounds
Height ..... 70 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 72 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-73. Forward area refueling equipment with two 500-gallon fuel drums

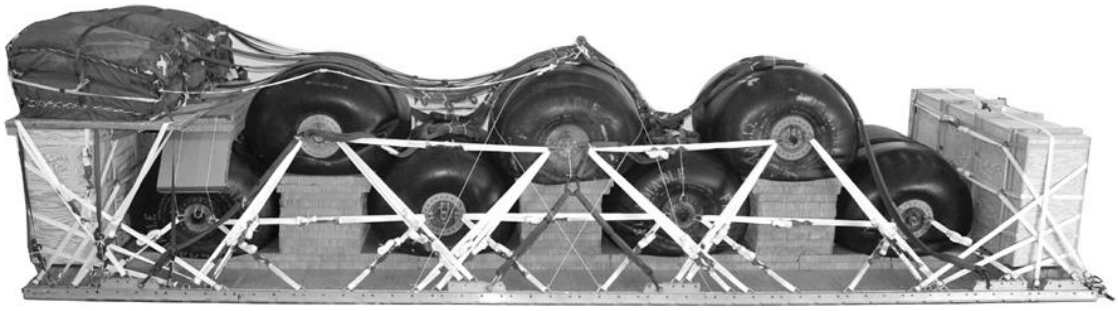


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 4,050 pounds
Height ..... 83 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 72 1/2 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

Figure 17-74. Forward area refueling equipment rigged in an M101A1 3/4-ton trailer



Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown	28,000 pounds
Height	95 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	402 inches
Overall Length with extraction parachute jettison system (EPJS)	420 inches
Overhang: Front	0 inches
Rear (EFTC)	18 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	202 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Six G-11C

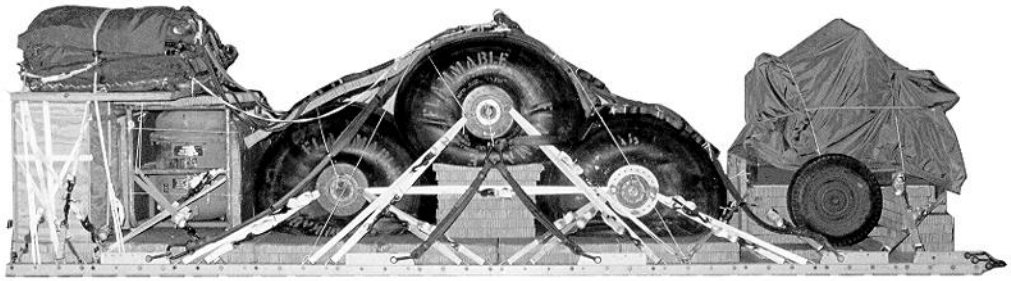
Figure 17-75. Forward area refueling equipment with seven 500-gallon fuel drums

Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 7,880 pounds
Height ..... 77 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 214 1/2 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 232 1/2 inches
Overhang: Front (Lunette on Front of Pump) ..... 4 1/2 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 100 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot or 22-Foot
Extraction Parachute C-17: 15-Foot or 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-76. 350 gallons per minute wheel-mounted pumping assembly with filter/separator

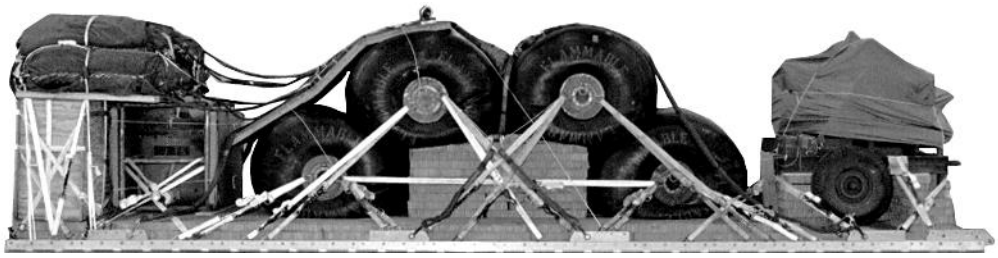


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 19,689 pounds
Height ..... 89 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 315 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 333 inches
Overhang: Front (Tongue of Pump) ..... 9 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 144 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Four G-11B

Figure 17-77. Three 500 gallon drums with pump and separator

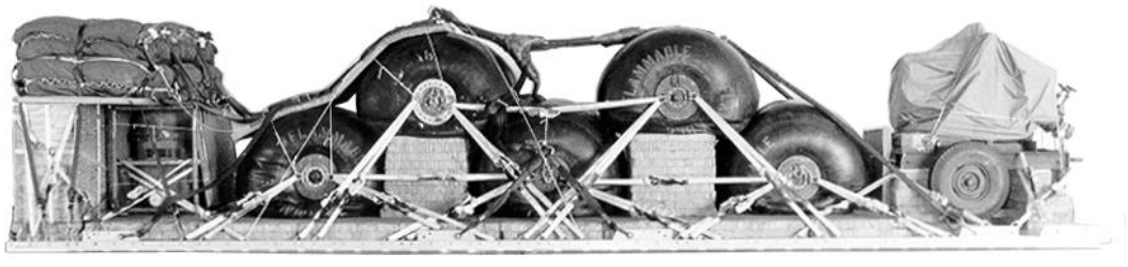


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 24,408 pounds
Height ..... 89 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 363 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 371 inches
Overhang: Front (Tongue of Pump) ..... 9 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 172 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Five G-11C

Figure 17-78. Four 500-gallon drums with pump and separator

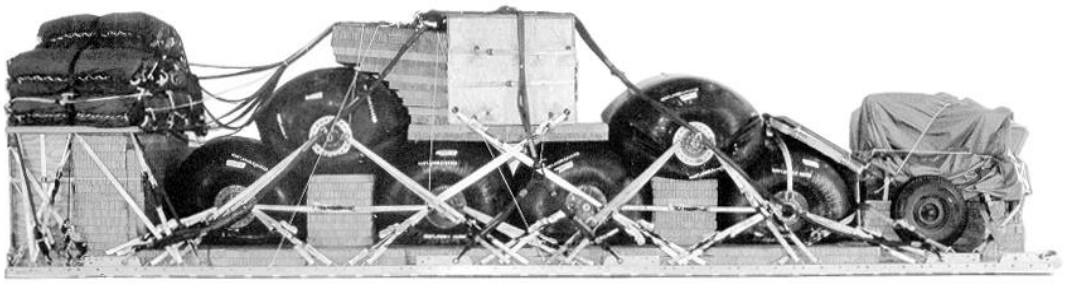


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 28,855 pounds
Height ..... 75 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 411 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 429 inches
Overhang: Front (Tongue of Pump) ..... 9 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 198 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Six G-11C

Figure 17-79. Five 500-gallon drums with pump and filter/separator

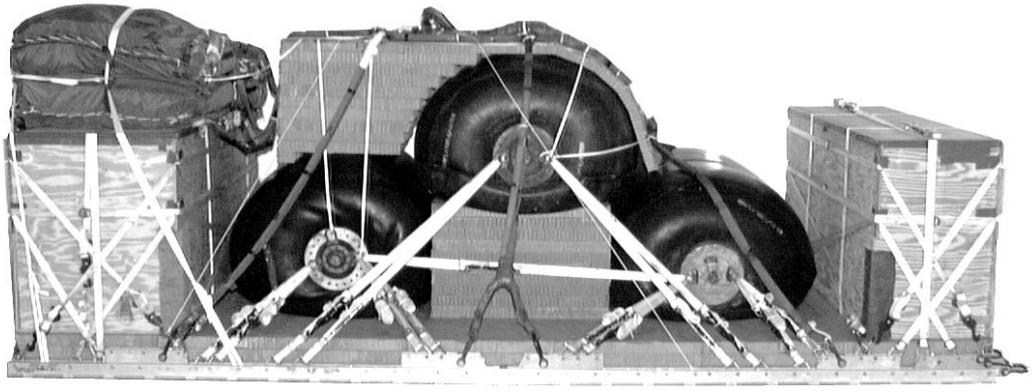


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 32,730 pounds
Height ..... 97 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 411 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 429 inches
Overhang: Front (Tongue of Pump) ..... 9 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 201 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Seven G-11C

Figure 17-80. Six 500-gallon drums with pump and filter/separator

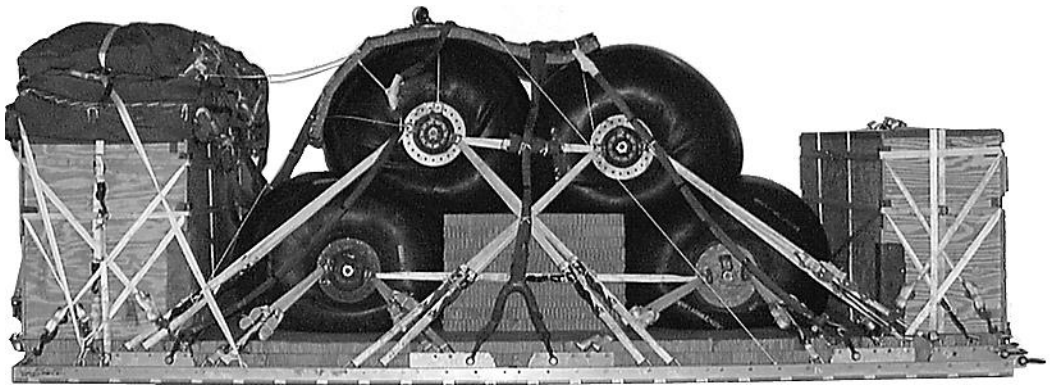


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown	18,501 pounds
Height	88 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	258 inches
Overall Length with extraction parachute jettison system (EPJS)	276 inches
Overhang: Front (Tongue of Pump)	0 inches
Rear (EFTC)	18 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	121 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-81. Advanced aviation forward area refueling system with three 500-gallon fuel drums

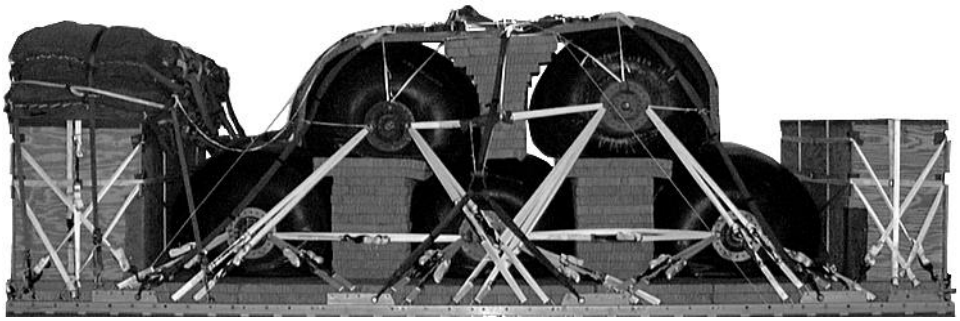


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown ..... 22,630 pounds
Height ..... 88 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front (Tongue of Pump) ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 121 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Five G-11C

Figure 17-82. Advanced aviation forward area refueling system with four 500-gallon fuel drums

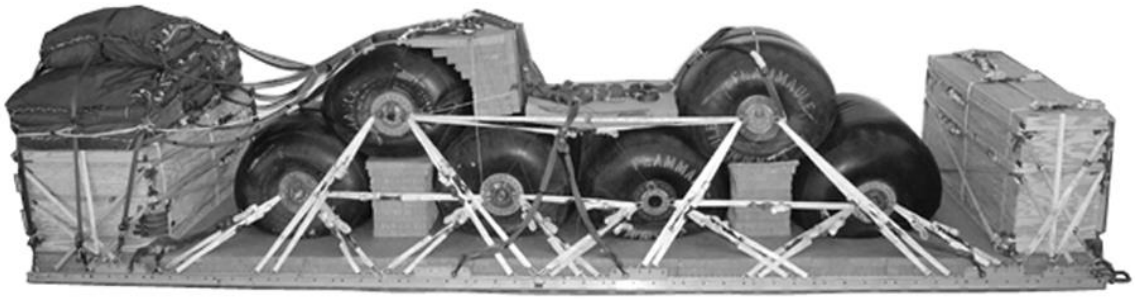


Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown.....27,292 pounds
Height .....96 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....306 inches
Overall Length with extraction parachute jettison system (EPJS) .....324 inches
Overhang: Front (Tongue of Pump).....0 inches
Rear (EFTC).....18 inches
Rear (EPJS) .....30 inches
Center of Balance (from front edge of platform) .....146 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Six G-11C

Figure 17-83. Advanced aviation forward area refueling system with five 500-gallon fuel drums

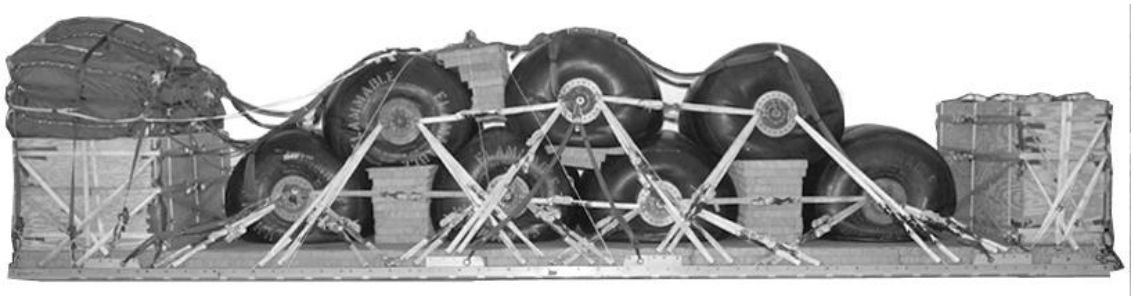


Reference: TM 4-48.18/ TO 13C7-1-19

Weight: Load shown ..... 32,480 pounds
Height ..... 94 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 402 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 420 inches
Overhang: Front (Tongue of Pump) ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 195 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Seven G-11C

Figure 17-84. Advanced aviation forward area refueling system with six 500-gallon fuel drums



Reference: TM 4-48.18/TO 13C7-1-19

Weight: Load shown.....36,480 pounds
Height .....96 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....402 inches
Overall Length with extraction parachute jettison system (EPJS) .....420 inches
Overhang: Front (Tongue of Pump).....0 inches
Rear (EFTC).....18 inches
Rear (EPJS) .....30 inches
Center of Balance (from front edge of platform) .....191 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Seven G-11C

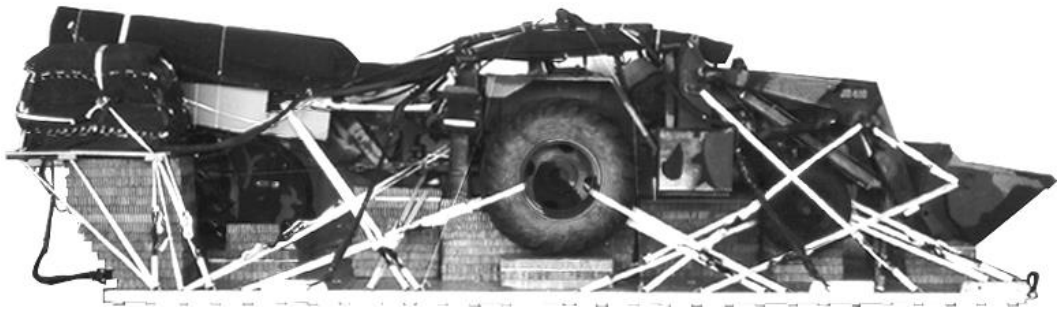
Figure 17-85. Advanced aviation forward area refueling system with seven 500-gallon fuel drums

Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown ..... 21,624 pounds
Height ..... 99 3/4 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 364 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 372 inches
Overhang: Front (Front of Vehicle) ..... 6 inches
Rear (Rear of Vehicle) ..... 22 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 165 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Five G-11C

Figure 17-86. Small emplacement excavator

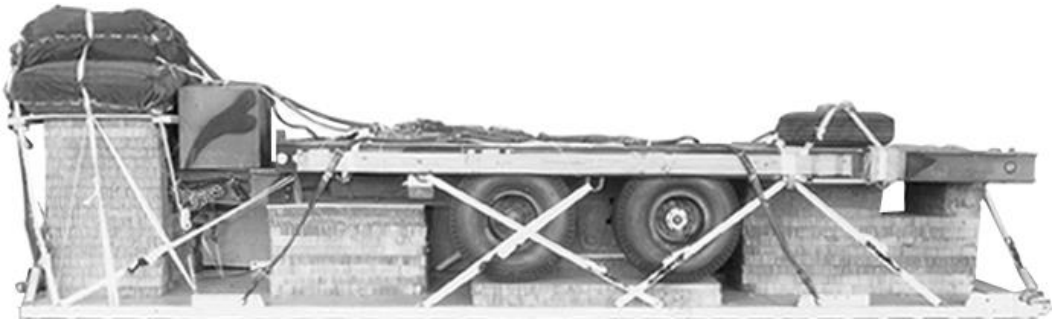


Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown.....19,690 pounds
Height .....95 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....376 inches
Overall Length with extraction parachute jettison system (EPJS) .....376 inches
Overhang: Front (Front of Vehicle) .....6 inches
Rear (Rear of Vehicle) .....34 inches
Center of Balance (from front edge of platform) .....149 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Two G-11B

Figure 17-87. JD410 tractor



Reference: TM 4-48.14/TO 13C7-3-381

Weight: Load shown ..... 12,350 pounds
Height .....90 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....306 inches
Overall Length with extraction parachute jettison system (EPJS).....324 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....146 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 24-Foot
Cargo Parachutes: Three G-11B

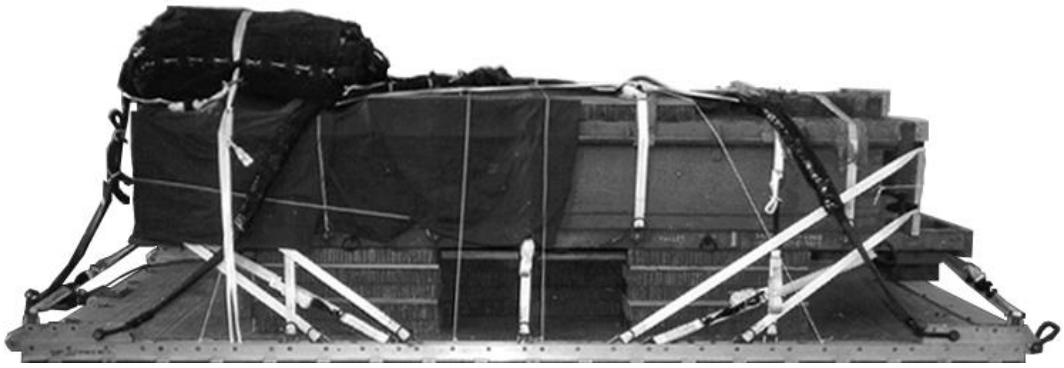
Figure 17-88. Fifteen-ton tilt bed trailer

Reference: TM 4-48.07/TO 13C7-11-21

Weight: Load shown	22,480 pounds
Height	97 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	402 inches
Overall Length with extraction parachute jettison system (EPJS)	420 inches
Overhang: Front	0 inches
Rear (EFTC)	18 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	186 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Five G-11C

Figure 17-89. Five-bay, single-story, medium girder (fixed) bridge

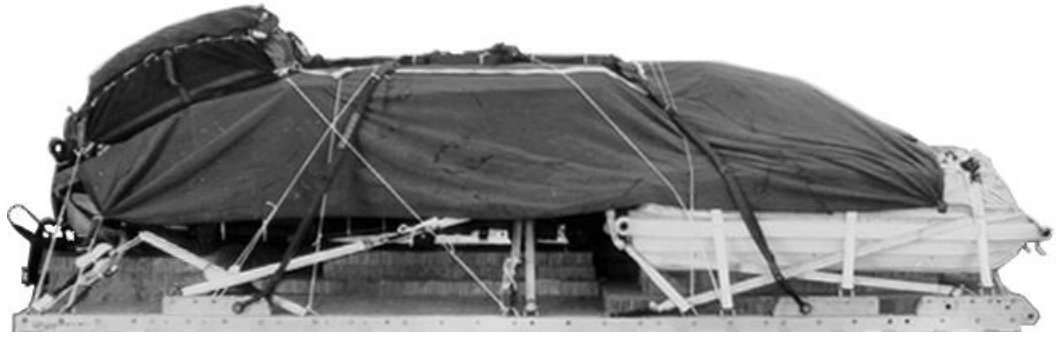


Reference: TM 4-48.07/TO 13C7-11-21

Weight: Load shown ..... 6,310 pounds
Height ..... 67 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 101 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-90. Two-bay components for the seven-bay, single-story, medium girder (fixed) bridge



Reference: TM 4-48.04/NAVSEA SS400-AD-MMO-010/TO 13C7-51-21

Weight: Load shown ..... 4,460 pounds
Height ..... 66 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 220 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 238 inches
Overhang: Front (Movile) ..... 10 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 100 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 16-Foot
Cargo Parachute: One G-11B

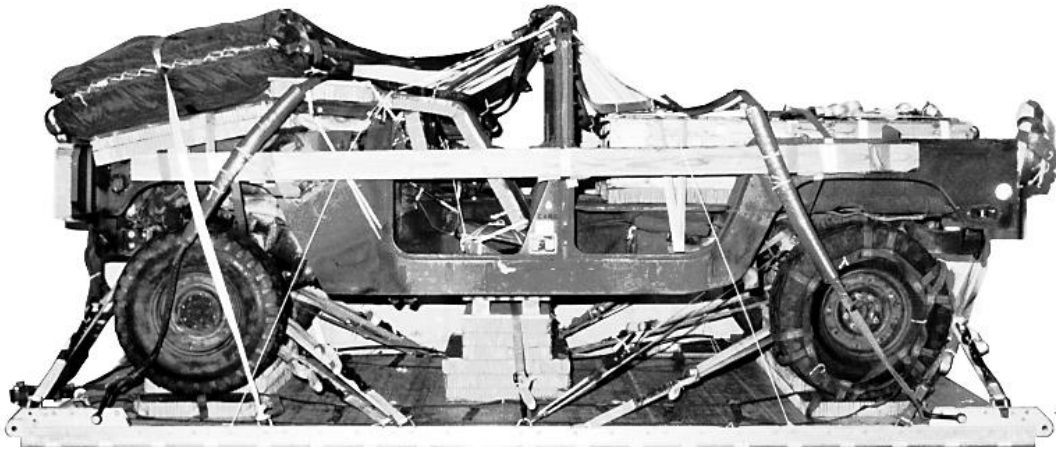
Figure 17-91. Mobile over snow transport

Reference: TM 4-48.15 /TO 13C7-10-201

Weight: Load shown ..... 14,140 pounds
Height .....87 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....365 inches
Overall Length with extraction parachute jettison system (EPJS).....383 inches
Overhang: Front (Front of Truck).....11 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....164 inches

Accompanying Load: An accompanying load weighing 2,700 pounds is rigged on the platform and equipment weighing up to 1,800 pounds is rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 28-Foot
Cargo Parachutes: Three G-11B

Figure 17-92. 120-mm mortar and 1 1/4-ton truck



Reference: TM 4-48.15/TO 13C7-10-201

Weight: Load shown ..... 9,950 pounds
Height ..... 86 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 95 inches

Accompanying Load: An accompanying load of 120-mm mortar ammunition rigged in back of truck may not exceed 2,000 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

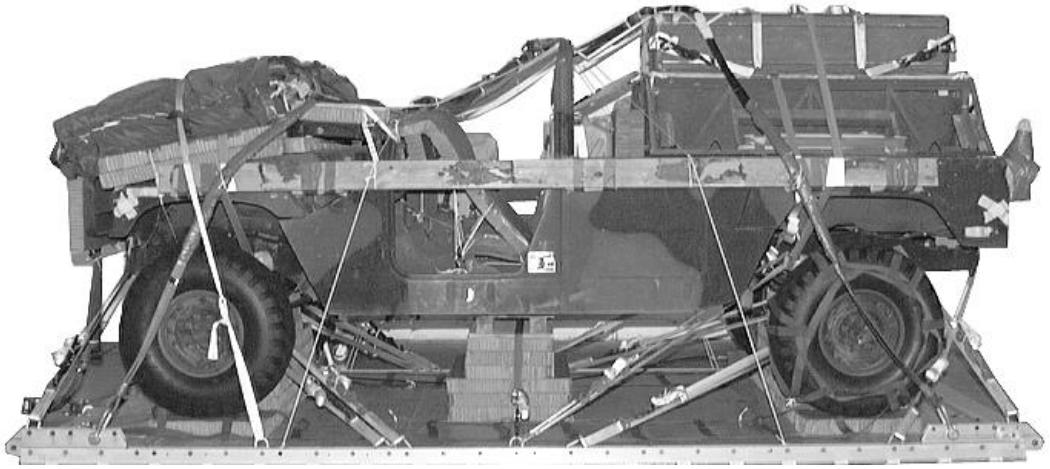
Figure 17-93. 1 1/4-ton truck with 120-mm mortar

Reference: TM 4-48.22/TO 13C7-24-21

Weight: Load shown ..... 30,368 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 347 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 347 inches
Overhang: Front (Front of Crane) ..... 22 inches
Rear (Boom) ..... 37 inches
Center of Balance (from front edge of platform) ..... 123 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Seven G-11C

Figure 17-94. Koehring 7 1/2-ton crane

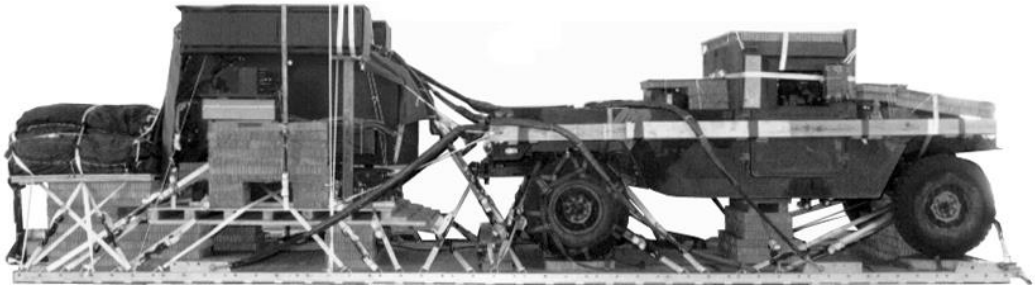


Reference: TM 4-48.15/TO 13C7-22-71

Weight: Load shown ..... 8,830 pounds
Height ..... 92 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 95 inches

Accompanying Load: Accompanying load rigged in truck weighs 1,180 pounds.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-95. M998 1 1/4-ton truck with six stinger weapon systems

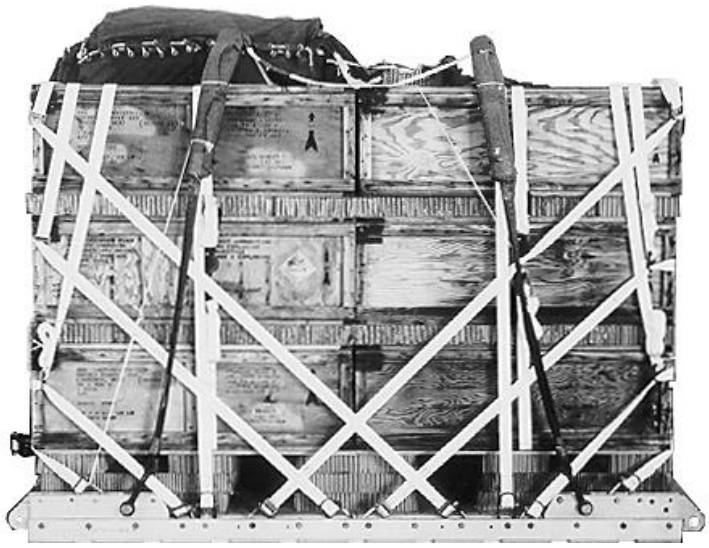


Reference: TM 4-48.15/TO 13C7-22-71

Weight: Load shown ..... 14,182 pounds
Height .....95 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....356 inches
Overall Length with extraction parachute jettison system (EPJS).....374 inches
Overhang: Front (Brush guard) .....2 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....167 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 28-Foot
Cargo Parachutes: Three G-11B

Figure 17-96. Avenger air defense weapons system with environmental control unit and M1097A2 truck

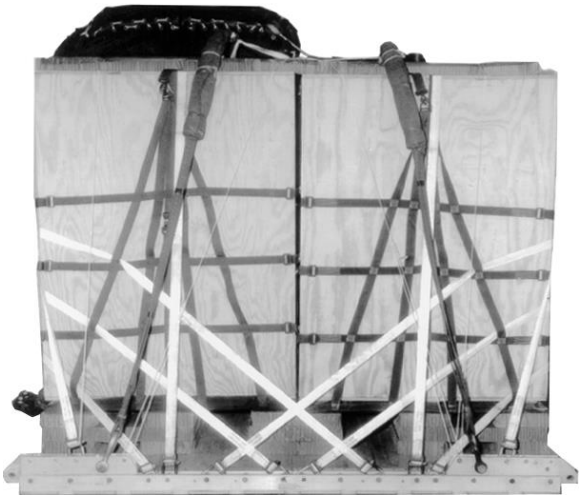


Reference: TM 4-48.15/TO 13C7-22-61

Weight: Load shown ..... 3,960 pounds
Height ..... 83 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 132 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 50 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-97. Thirty-six dragon or Dragon II missiles in one-round containers

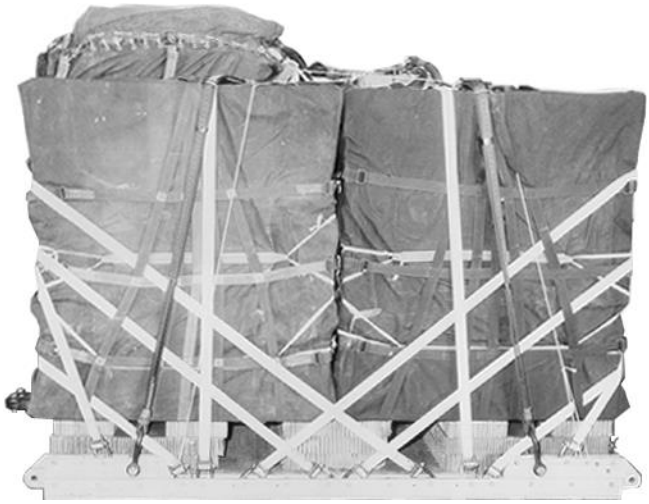


Reference: TM 4-48.15/TO 13C7-22-61

Weight: Load shown ..... 4,400 pounds
Height ..... 83 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 115 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 133 inches
Overhang: Front (Container) ..... 1 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 51 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-98. Four Dragon or Dragon II missiles in 15-round containers

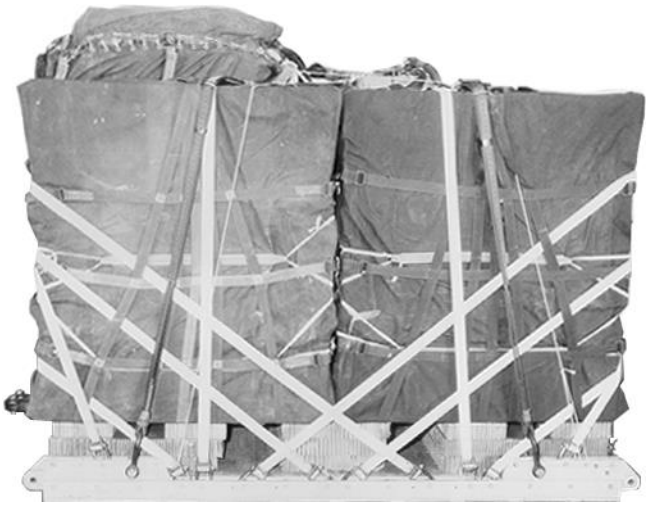


Reference: TM 4-48.15/TO 13C7-22-61

Weight: Load shown ..... 4,040 pounds
Height ..... 83 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 115 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 133 inches
Overhang: Front (Container) ..... 1 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 50 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

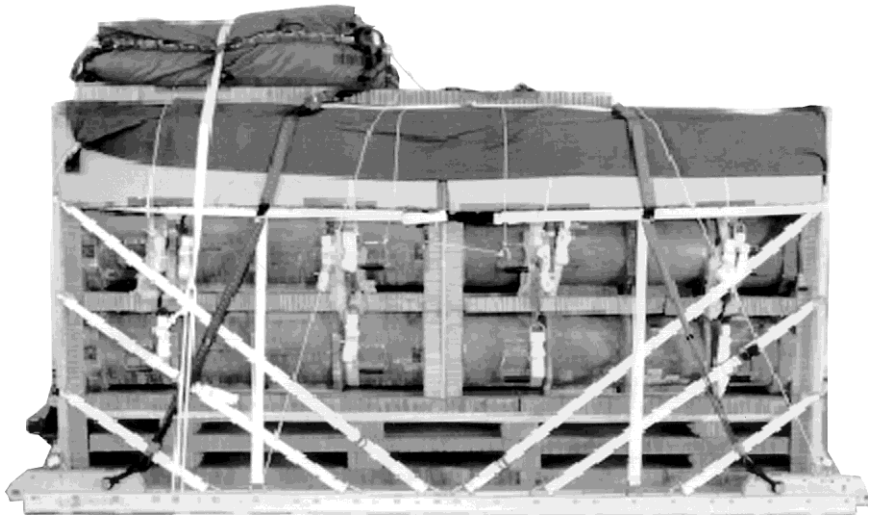
Figure 17-99. Four A-22 cargo bags with Dragon or Dragon II missiles in one-round containers



Reference: TM 4-48.15/TO 13C7-22-61

Weight: Load shown ..... 4,440 pounds
Height ..... 83 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 420 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 51 inches
Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachute: One G-11B

Figure 17-100. Four Dragon or Dragon II missiles in 15-round containers rigged in four A-22 cargo slings

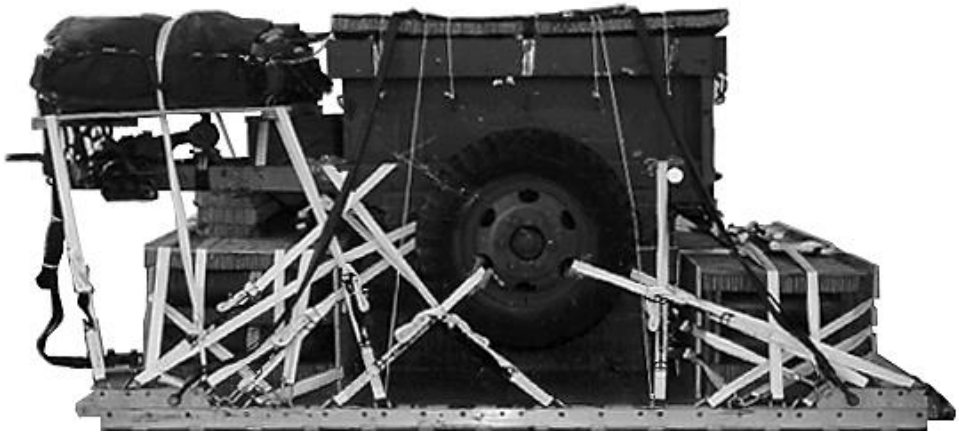


Reference: TM 4-48.15/TO 13C7-22-61

Weight: Load shown ..... 5,976 pounds
Height ..... 86 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 76 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-101. Thirty-six Javelin rounds as a mass supply load



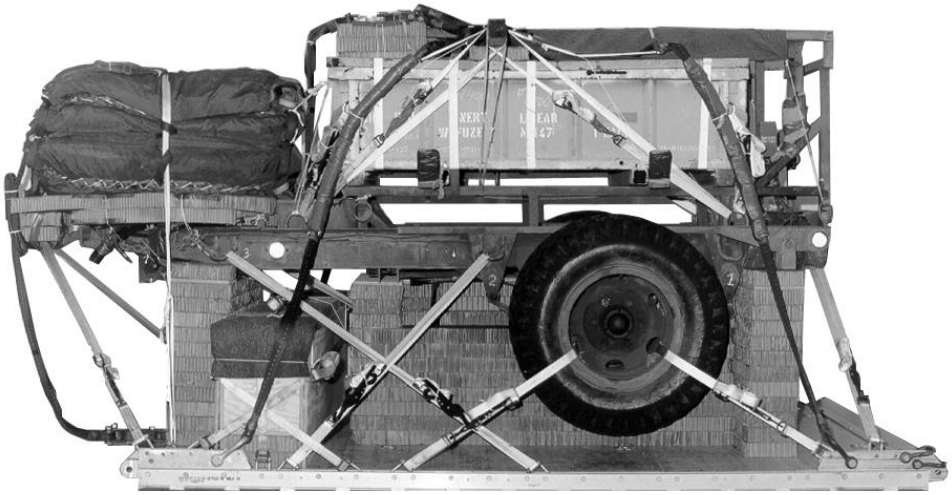
Reference: TM 4-48.13/TO 13C7-3-401

Weight: Load shown ..... 8,200 pounds
Height ..... 81 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 176 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 176 inches
Overhang: Front ..... 0 inches
Rear (Lunette) ..... 32 inches
Center of Balance (from front edge of platform) ..... 71 inches

Accompanying Load: Accompanying load in trailer may weigh a maximum of 3,000 pounds. Total weight of accompanying load in trailer and on platform must not exceed 5,090 pounds.

Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-102. 1 1/2-ton ammunition trailer

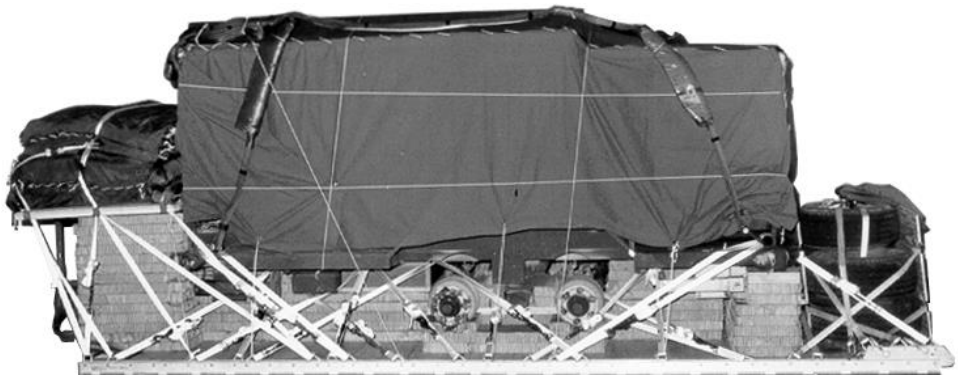


Reference: TM 4-48.13/TO 13C7-3-401

Weight: Load shown ..... 8,400 pounds
Height ..... 94 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 178 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 178 inches
Overhang: Front ..... 0 inches
Rear (Lunette) ..... 34 inches
Center of Balance (from front edge of platform) ..... 77 inches

Accompanying Load: Rocket projectile weighing 270 pounds is rigged on platform.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

Figure 17-103. Mine clearing line charge on 2 1/2-ton trailer



Reference: TM 4-48.01/TO 13C7-7-61

Weight: Load shown ..... 21,780 pounds
Height ..... 101 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 275 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 275 inches
Overhang: Front ..... 0 inches
Rear (Drawbar) ..... 35 inches
Center of Balance (from front edge of platform) ..... 130 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Five G-11C

Figure 17-104. 600 gallons per hour reverse osmosis water purification unit

Reference: TM 4-48.01/TO 13C7-7-61

Weight: Load shown ..... 6,140 pounds
Height ..... 92 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 70 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachutes: Two G-11B

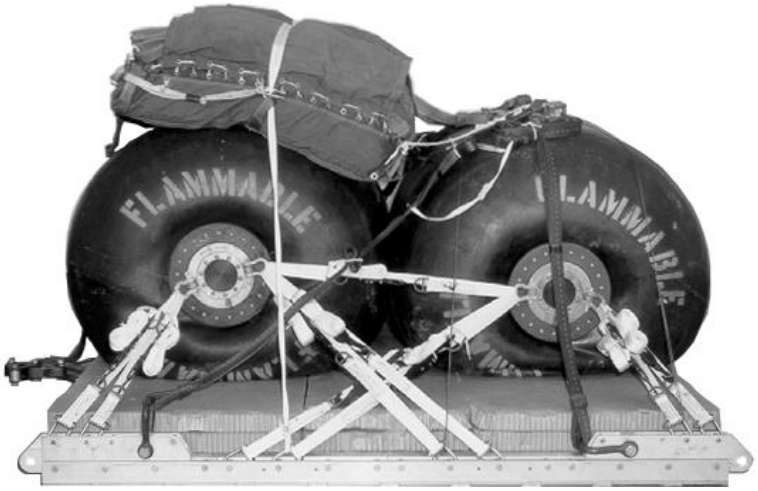
Figure 17-105. Lightweight water purifier

Reference: TM 4-48.25/TO 13C7-34-1

Weight: Load shown ..... 7,680 pounds
Height ..... 80 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 100 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 16-Foot
Cargo Parachutes: Two G-11B

Figure 17-106. Whole blood

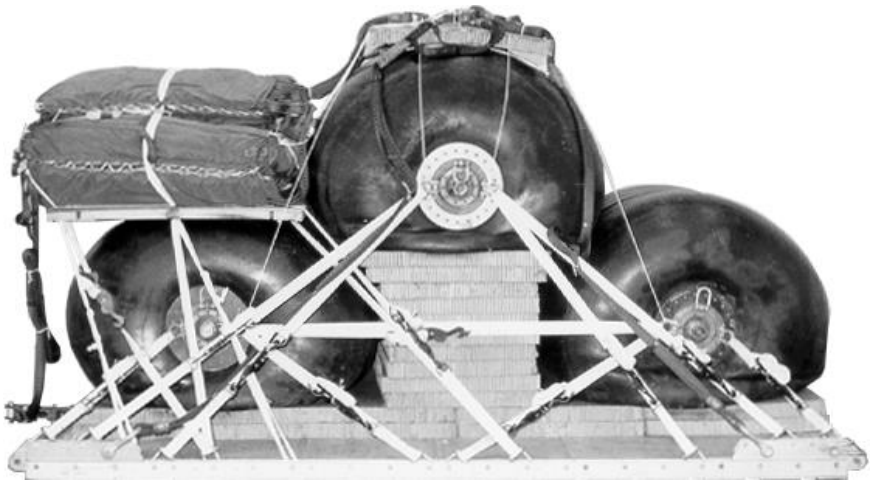


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 7,320 pounds
Height ..... 70 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 114 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 132 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 54 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 8-Foot
Cargo Parachutes: Two G-11B

Figure 17-107. Two drums without pumping assembly

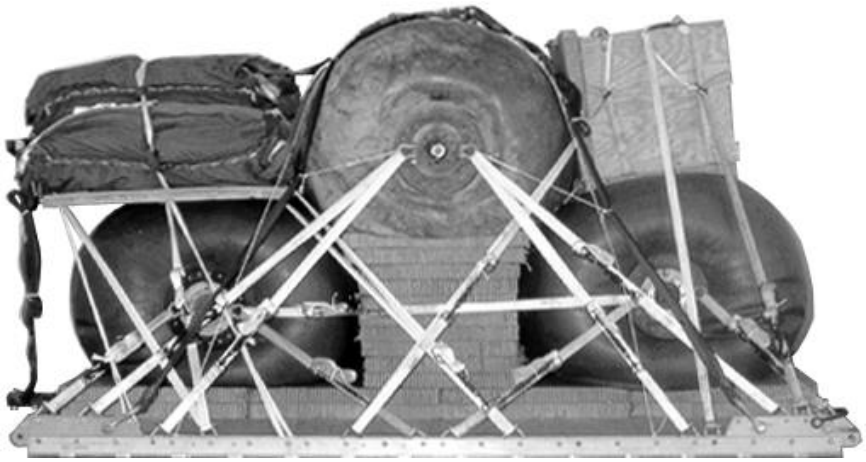


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 10,960 pounds
Height .....86 1/2 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....162 inches
Overall Length with extraction parachute jettison system (EPJS).....180 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....75 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Three G-11B

Figure 17-108. Three drums without pumping assembly

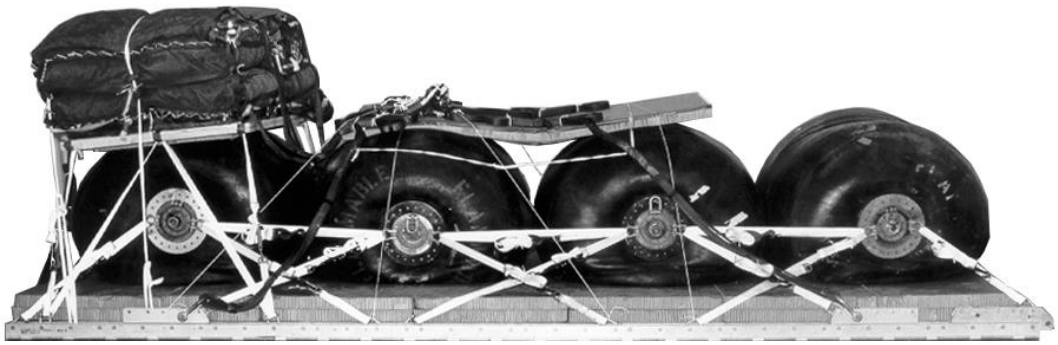


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 11,200 pounds
Height ..... 86 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 162 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 180 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 74 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 12-Foot
Cargo Parachutes: Three G-11B

Figure 17-109. Three drums with pumping assembly

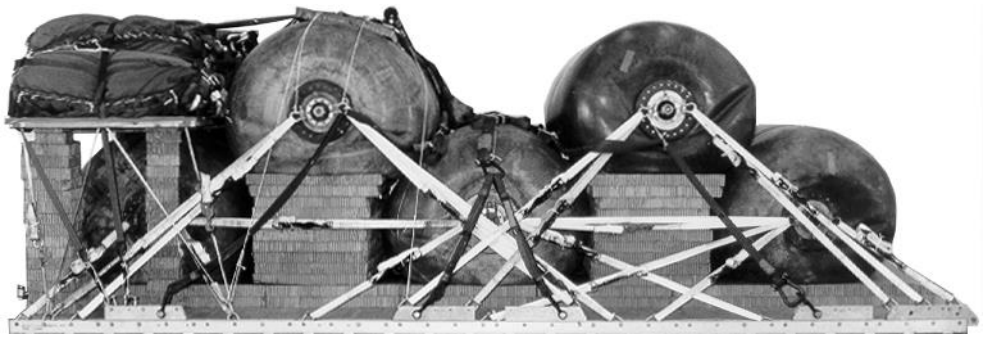


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 14,426 pounds
Height ..... 90 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 125 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Four G-11B

Figure 17-110. Four drums without pumping assembly

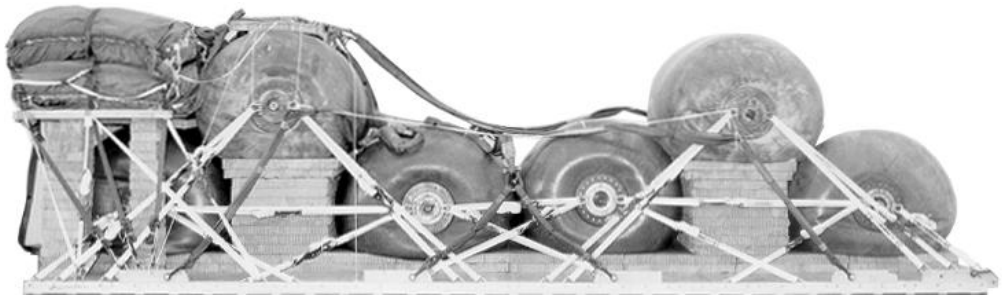


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 18,492 pounds
Height ..... 84 3/4 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 240 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 258 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 126 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 20-Foot
Cargo Parachutes: Five G-11C

Figure 17-111. Five drums without pumping assembly

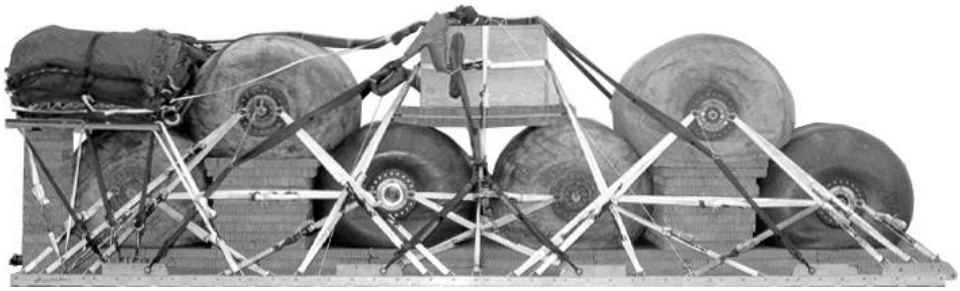


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 22,158 pounds
Height ..... 85 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 306 inches
Overall Length with extraction parachute jettison system (EPJS) 324inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 153 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Six G-11C

Figure 17-112. Six drums without pumping assembly

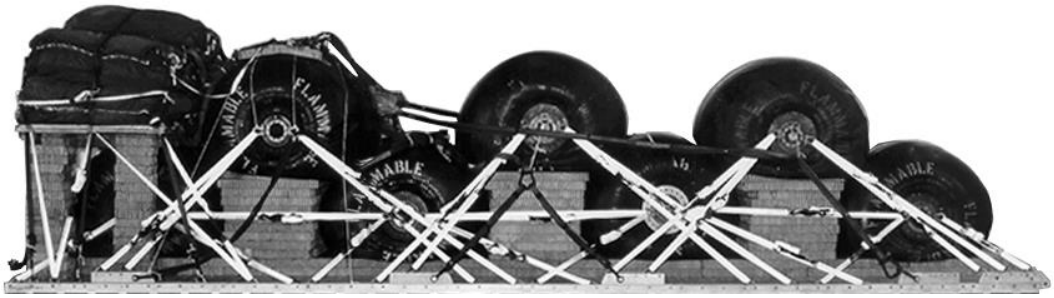


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 22,548 pounds
Height ..... 92 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 306 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 324 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 150 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Six G-11C

Figure 17-113. Six drums with pumping assembly

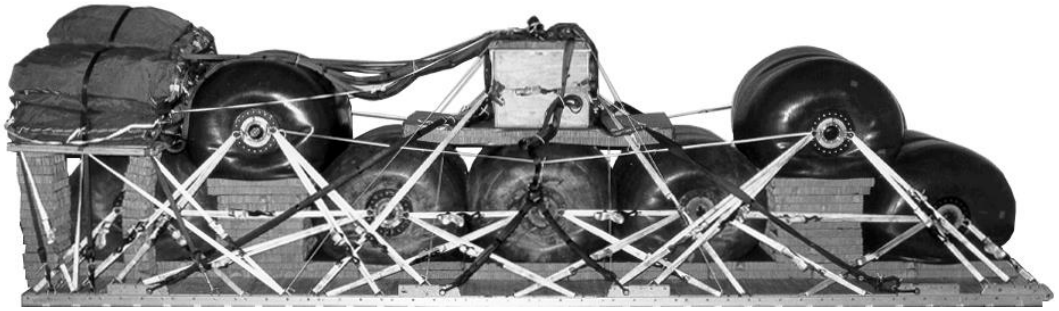


Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 24,781 pounds
Height ..... 90 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 354 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 372 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 176 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Seven G-11C

Figure 17-114. Seven drums without pumping assembly



Reference: TM 4-48.18/TO 13C7-37-1

Weight: Load shown ..... 25,081 pounds
Height ..... 90 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 354 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 372 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 176 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Seven G-11C

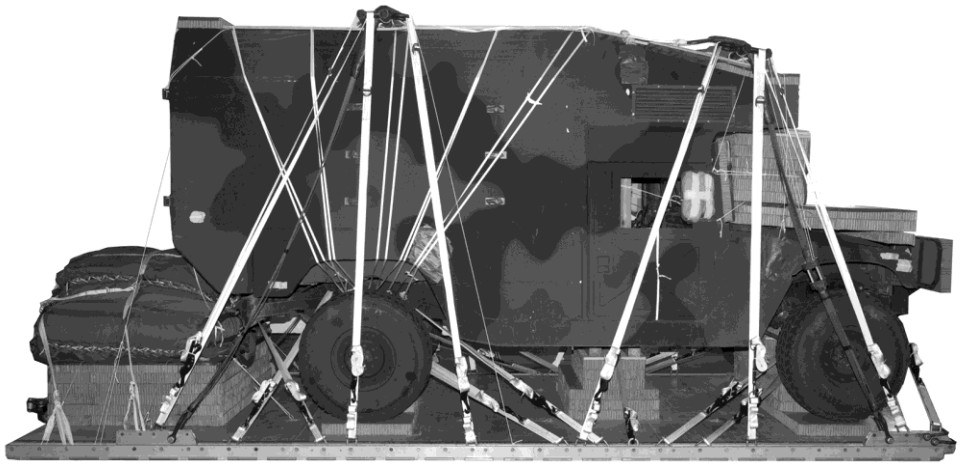
Figure 17-115. Seven drums with pumping assembly

Reference: TM 4-48.17/TO 13C7-25-71

Weight: Load shown ..... 11,680 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 110 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Three G-11B

Figure 17-116. M996 2-litter armored ambulance



Reference: TM 4-48.17/TO 13C7-25-71

Weight: Load shown	11,480 pounds
Height	115 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	261 inches
Overall Length with extraction parachute jettison system (EPJS)	279 inches
Overhang: Front (Brush Guard)	3 inches
Rear (EFTC)	18 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	107 inches

Accompanying Load: None
Aircraft: C-17 only
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20-Foot
Cargo Parachutes: Three G-11B

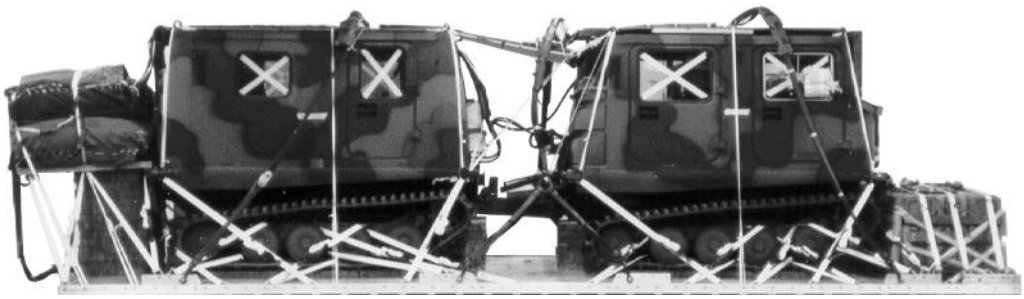
Figure 18-117. M997 4-litter ambulance

Reference: TM 4-48.25/TO 13C7-16-171

Weight: Load shown ..... 17,480 pounds
Height ..... 98 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 210 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 228 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 88 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 16-Foot
Cargo Parachutes: Four G-11B

Figure 17-118. IC45 crawler carrier



Reference: TM 4-48.25/TO 13C7-16-171

Weight: Load shown ..... 16,800 pounds
Height ..... 97 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 353 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 371 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 155 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot or 28-Foot
Extraction Parachute C-17: 22-Foot or 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Four G-11B

Figure 17-119. M973A1 1/2-ton cargo carrier small unit support vehicle

Reference: TM 4-48.13/TO 13C7-15-61

Weight: Load shown ..... 10,100 pounds
Height .....96 inches
Width.....108 inches
Overall Length with extraction force transfer coupling (EFTC).....210 inches
Overall Length with extraction parachute jettison system (EPJS).....228 inches
Overhang: Front .....0 inches
Rear (EFTC) .....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....94 1/2 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 16-Foot
Cargo Parachutes: Three G-11B

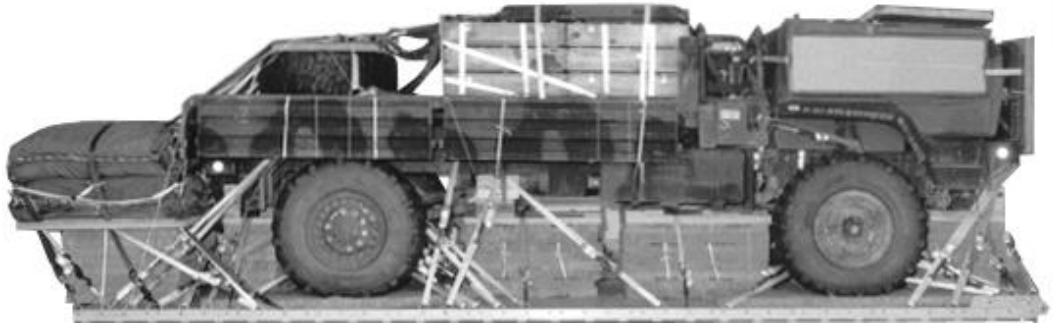
Figure 17-120. Ingersoll-Rand model 250-CFM trailer-mounted air compressor

Reference: TM 4-48.23/TO 13C7-6-141

Weight: Load shown.....23,181 pounds
Height .....93 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....315 inches
Overall Length with extraction parachute jettison system (EPJS).....318 inches
Overhang: Front .....0 inches
Rear (Cargo Parachutes).....27 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....135 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Five G-11C

Figure 17-121. M1081 2-1/2-ton cargo truck



Reference: TM 4-48.23/TO 13C7-6-141

Weight: Load shown ..... 28,014 pounds
Height ..... 97 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 315 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 318 inches
Overhang: Front ..... 0 inches
Rear (Cargo Parachute) ..... 27 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 137 inches

Accompanying Load: Accompanying load consists of 42 boxes of 105-mm ammunition rigged in bed of truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Six G-11C

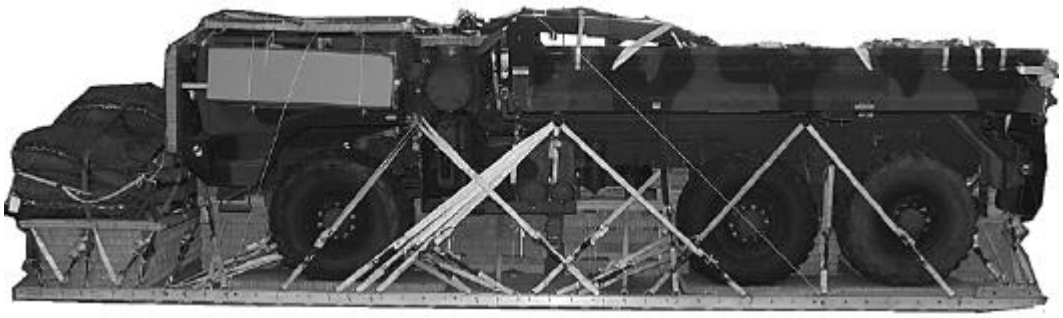
Figure 17-122. M1081 2-1/2-ton cargo truck with accompanying load

Reference: TM 4-48.23 /TO 13C7-6-141

Weight: Load shown.....27,318 pounds
Height .....100 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....354 inches
Overall Length with extraction parachute jettison system (EPJS).....372 inches
Overhang: Front .....0 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....150 inches

Accompanying Load: Basic load rigged in bed of truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Six G-11C

Figure 17-123. M1093 5-ton 6x6 standard cargo truck

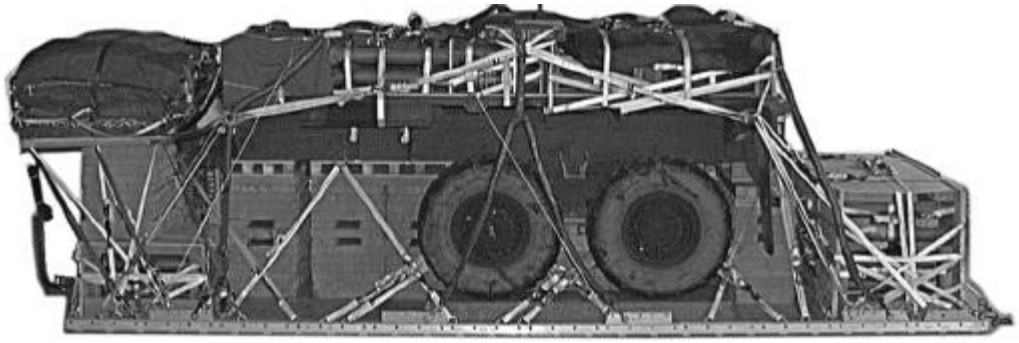


Reference: TM 4-48.23 /TO 13C7-6-141

Weight: Load shown ..... 34,100 pounds
Height ..... 95 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 354 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 372 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 144 inches

Accompanying Load: Accompanying load weighing a minimum of 2,000 to 2,200 pounds must be rigged in the truck.
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28 -Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Six G-11C

Figure 17-124. M1094, 5-ton dump truck



Reference: TM 4-48.23 /TO 13C7-6-141

Weight: Load shown	30,330 pounds
Height	99 1/2 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	306 inches
Overall Length with extraction parachute jettison system (EPJS)	326 inches
Overhang: Front	0 inches
Rear (EFTC)	18 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	145 inches

Accompanying Load: Accompanying load consists of sixteen green bag canisters, eight white bag canisters, five fuse ammo boxes, four M483 high explosive (HE) round racks, and one M1101A1 white phosphorous (WP) round rack.

Aircraft: C-130 and C-17

Extraction System: EFTC

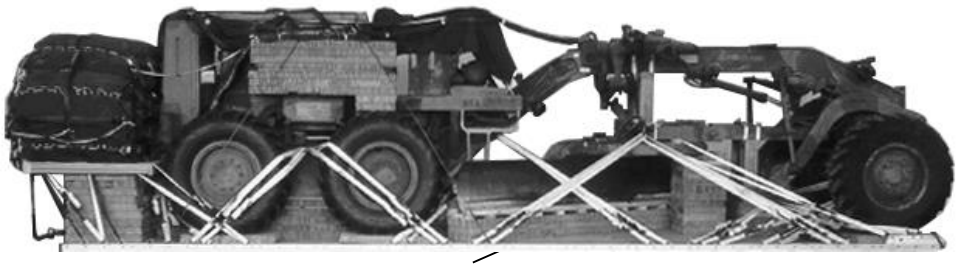
Extraction Parachute C-130: Two 28-Foot

Extraction Parachute C-17: Two 28-Foot

Platform Size: 28-Foot

Cargo Parachutes: Six G-11C

Figure 17-125. M-1095, 5-ton trailer



Reference: TM 4-48.22/TO 13C7-27-141

Weight: Load shown ..... 36,220 pounds
Height ..... 98 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 374 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 380 inches
Overhang: Front (Front of Grader) ..... 14 inches
Rear (Parachute Stowage Platform) ..... 24 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 18 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Eight G-11C

Figure 17-126. 130G motor grader

Reference: TM 4-48.22/TO 13C7-31-31

Weight: Load shown ..... 37,200 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 336 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 354 inches
Overhang: Front (Front of Bucket) ..... 27 inches
Rear (Parachute Stowage Platform) ..... 21 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 135 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Eight G-11C

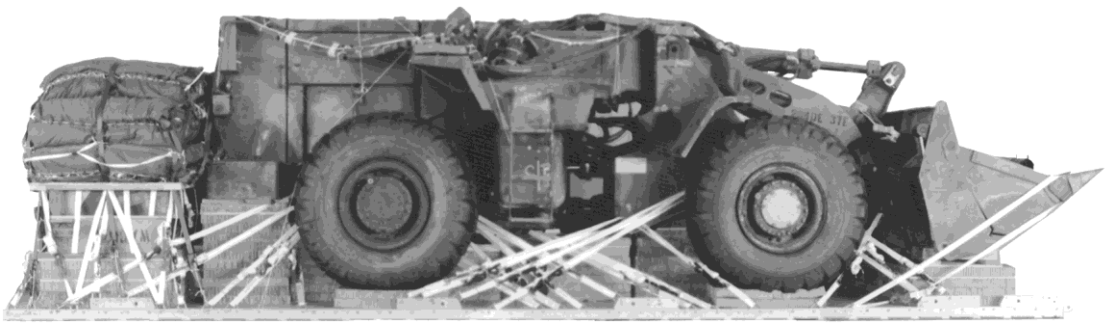
Figure 17-127. 950B scoop loader

Reference: TM 4-48.22 /TO 13C7-31-31

Weight: Load shown ..... 39,940 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 363 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 381 inches
Overhang: Front (Front of Bucket) ..... 9 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 168 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Eight G-11C

Figure 17-128. 950B scoop loader with five-foot forklift attachment

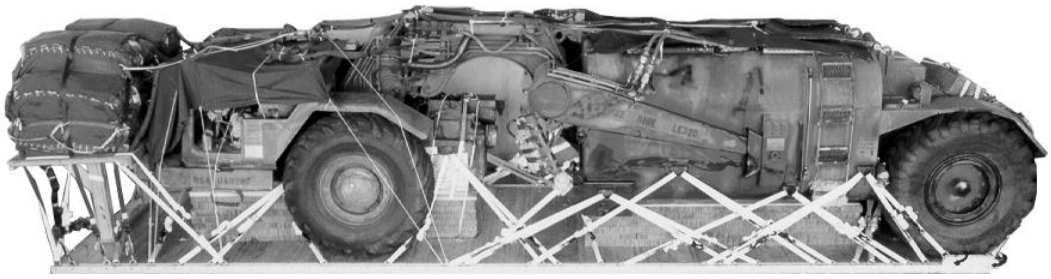


Reference: TM 4-48.22/TO 13C7-31-31

Weight: Load shown.....39,860 pounds
Height .....100 inches
Width .....108 inches
Overall Length with extraction force transfer coupling (EFTC).....367 inches
Overall Length with extraction parachute jettison system (EPJS).....385 inches
Overhang: Front (Front of Bucket).....13 inches
Rear (EFTC).....18 inches
Rear (EPJS).....30 inches
Center of Balance (from front edge of platform).....166 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 28-Foot
Cargo Parachutes: Eight G-11C

Figure 17-129. 950B scoop loader with seven-foot forklift attachment

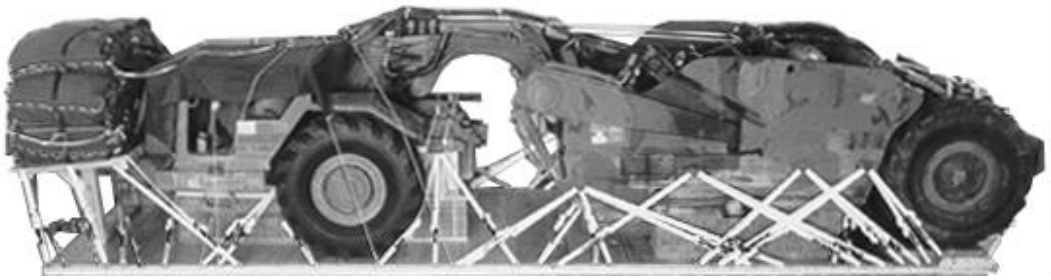


Reference: TM 4-48.22/TO 13C7-17-11

Weight: Load shown ..... 37,350 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 438 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 456 inches
Overhang: Front (Front of Vehicle) ..... 36 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 177 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Eight G-11C

Figure 17-130. 613WD water distributor

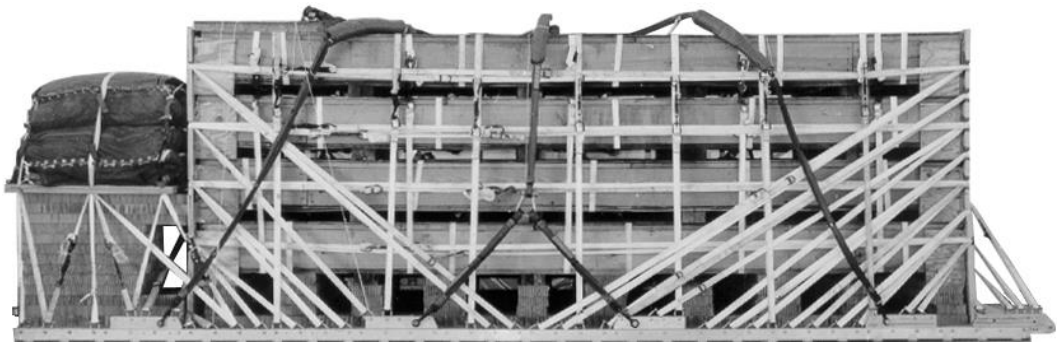


Reference: TM 4-48.22/TO 13C7-27-151

Weight: Load shown ..... 37,880 pounds
Height ..... 98 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 440 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 458 inches
Overhang: Front (Front of Vehicle) ..... 36 inches
Rear (Parachute Stowage Platform) ..... 21 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 181 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: Two 28-Foot
Extraction Parachute C-17: Two 28-Foot
Platform Size: 32-Foot
Cargo Parachutes: Eight G-11C

Figure 17-131. 613S type I scraper

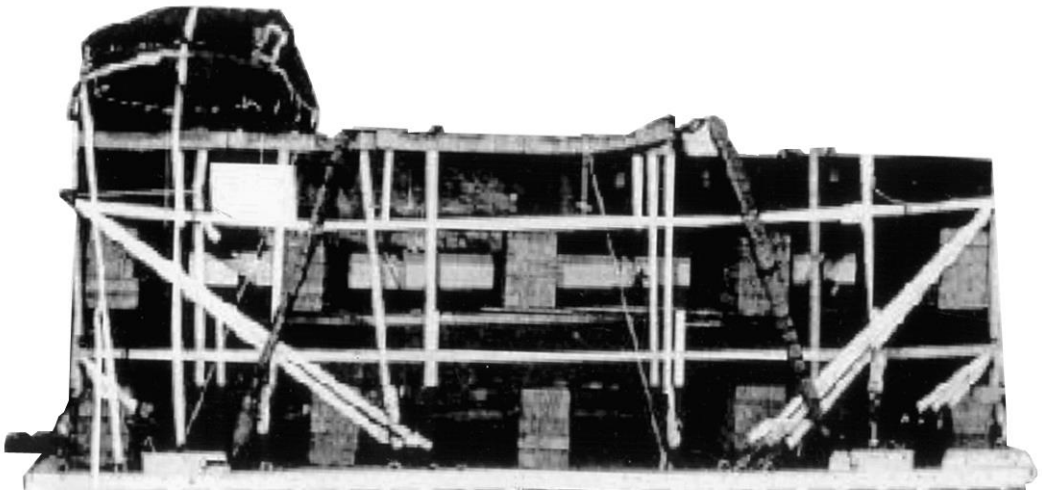


Reference: TM 4-48.07/TO 13C7-50-1

Weight: Load shown ..... 24,360 pounds
Height ..... 90 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 306 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 328 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 136 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform Size: 24-Foot
Cargo Parachutes: Five G-11C

Figure 17-132. Rapid runway repair kit on 24-foot platform

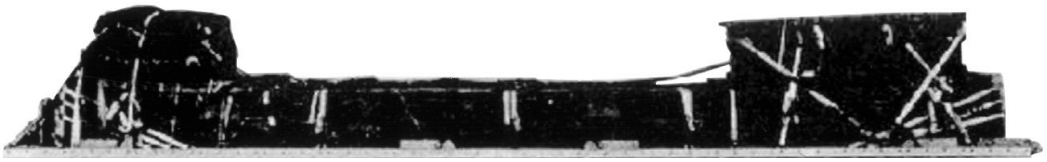


Reference: TM 4-48.07/TO 13C7-50-1

Weight: Load shown ..... 14,080 pounds
Height ..... 67 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 258 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 276 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 124 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 20 -Foot
Cargo Parachutes: Three G-11B

Figure 17-133. Rapid runway repair kit on 20-foot platform

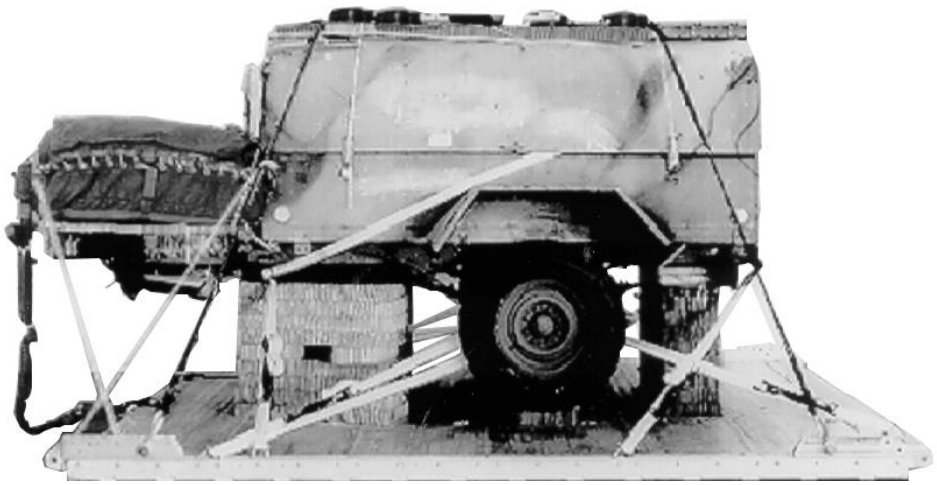


Reference: TM 4-48.07/TO 13C7-50-1

Weight: Load shown ..... 13,260 pounds
Height ..... 59 1/2 inches
Width ..... 108 inches
Overall Length with extraction force transfer coupling (EFTC) ..... 402 inches
Overall Length with extraction parachute jettison system (EPJS) ..... 420 inches
Overhang: Front ..... 0 inches
Rear (EFTC) ..... 18 inches
Rear (EPJS) ..... 30 inches
Center of Balance (from front edge of platform) ..... 189 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 22-Foot
Extraction Parachute C-17: 22-Foot
Platform Size: 32-Foot
Cargo Parachutes: Three G-11B

Figure 17-134. Rapid runway repair kit-alpha



Reference: TM 4-48.13/TO 13C7-8-31

Weight: Load shown	4,520 pounds
Height	82 inches
Width	108 inches
Overall Length with extraction force transfer coupling (EFTC)	164 inches
Overall Length with extraction parachute jettison system (EPJS)	174 inches
Overhang: Front	0 inches
Rear (Lunette)	20 inches
Rear (EPJS)	30 inches
Center of Balance (from front edge of platform)	72 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: EFTC
Extraction Parachute C-130: 15-Foot
Extraction Parachute C-17: 15-Foot
Platform Size: 12-Foot
Cargo Parachute: One G-11B

Figure 17-135. Trailer-mounted engineer electrical tool outfit

SECTION III – LOW-VELOCITY AIRDROP ON COMBAT EXPENDABLE PLATFORM

Reference: TM 4-48.04 /TO 13C7-51-21

Weight: Load shown ..... 2,470 pounds
Height ..... 60 inches
Width ..... 75 inches
Overall Length ..... 184 inches
Overhang: Front (Rear of Boat) ..... 17 inches
Rear (Front of Boat) ..... 23 inches
Center of Balance (from front edge of platform) ..... 60 inches

Accompanying Load: An accompanying load must weigh between 650 and 1,170 pounds.
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 75- by 144-inch
Cargo Parachute: One G-12E

Figure 17-136. Zodiac mark III rubber raiding craft

Reference: TM 4-48.04 /TO 13C7-51-21

Weight: Load shown.....2,440 pounds
Height .....67 inches
Width .....75 inches
Overall Length.....185 inches
Overhang: Front (Rear of Boat) .....18 inches
Rear (Front of Boat) .....23 inches
Center of Balance (from front edge of platform) .....60 inches

Accompanying Load: An accompanying load must weigh between 650 and 1,170 pounds.
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 75- by 144-inch
Cargo Parachute: One G-12E

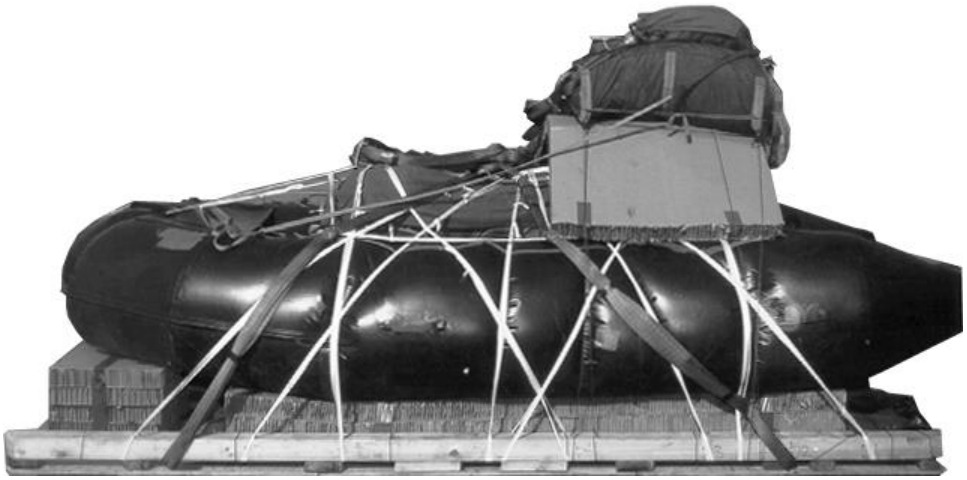
Figure 17-137. Zodiac mark III future rubber raiding craft

Reference: TM 4-48.04 /TO 13C7-51-21

Weight: Load shown ..... 2,470 pounds
Height ..... 60 inches
Width ..... 75 inches
Overall Length ..... 185 inches
Overhang: Front (Rear of Boat) ..... 17 inches
Rear (Front of Boat) ..... 23 inches
Center of Balance (from front edge of platform) ..... 60 inches

Accompanying Load: An accompanying load must weigh between 650 and 1,170 pounds.
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 75- by 144-inch
Cargo Parachute: One G-12E

Figure 17-138. Z-bird rubber raiding craft

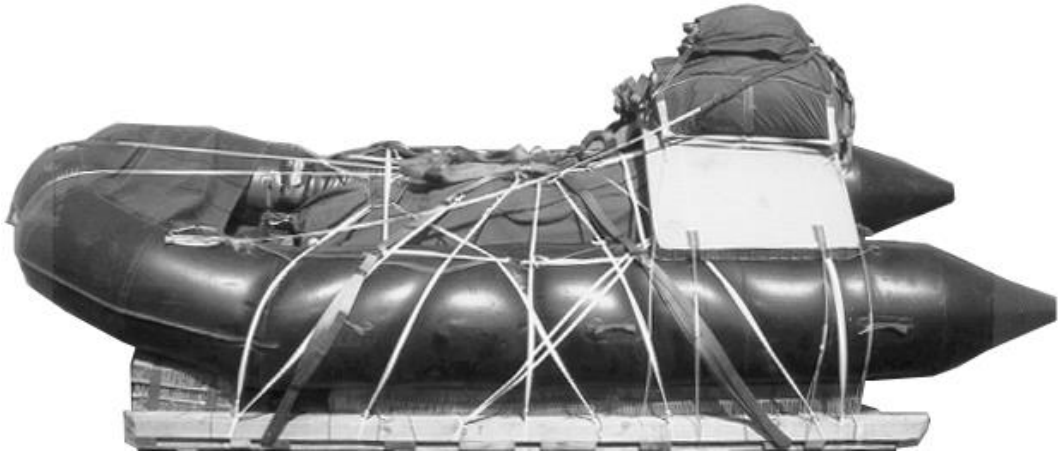


Reference: TM 4-48.04/TO 13C7-51-21

Weight: Load shown.....2,208 pounds
Height .....70 inches
Width .....82 inches
Overall Length.....176 inches
Overhang: Front (Rear of Boat) .....20 inches
Rear (Front of Boat) .....12 inches
Center of Balance (from front edge of platform) .....60 inches

Accompanying Load: An accompanying load must weigh between 470 and 870 pounds.
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 75- by 144-inch
Cargo Parachute: One G-12E

Figure 17-139. Zodiac K40 rubber raiding craft

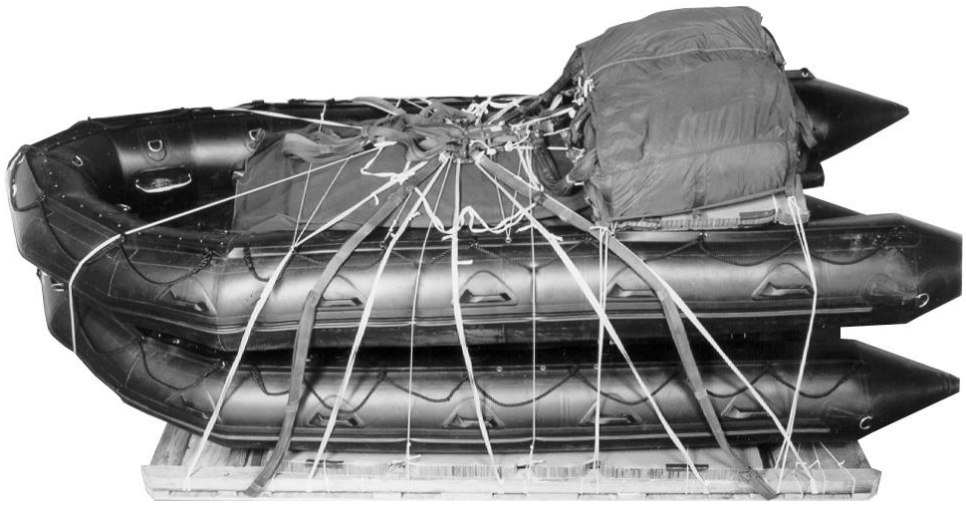


Reference: TM 4-48.04/TO 13C7-51-21

Weight: Load shown ..... 2,218 pounds
Height ..... 70 inches
Width ..... 75 inches
Overall Length ..... 194 inches
Overhang: Front (Rear of Boat) ..... 25 inches
Rear (Front of Boat) ..... 25 inches
Center of Balance (from front edge of platform) ..... 52 inches

Accompanying Load: An accompanying load must weigh between 650 and 850 pounds.
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 75- by 144-inch
Cargo Parachute: One G-12E

Figure 17-140. Zodiac K50 rubber raiding craft

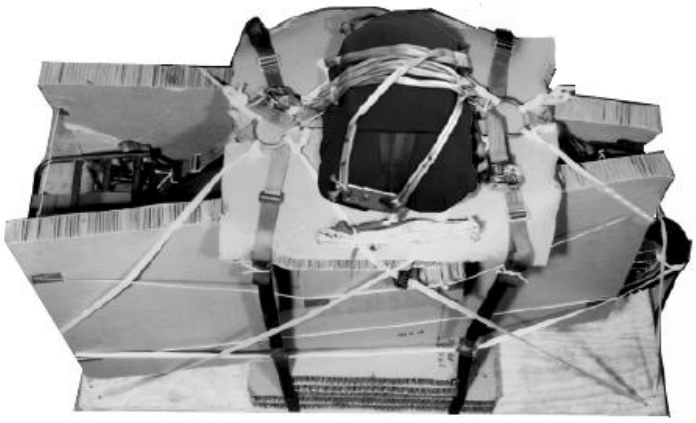


Reference: TM 4-48.04/TO 13C7-51-21

Weight: Load shown.....3,500 pounds
Height .....86 inches
Width .....75 inches
Overall Length.....189 inches
Overhang: Front (Rear of Boat) .....16 inches
Rear (Front of Boat) .....29 inches
Center of Balance (from front edge of platform) .....60 inches

Accompanying Load: An accompanying load must weigh between 650 and 1,170 pounds.
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: NA
Extraction Parachute C-17: NA
Platform Size: 75- by 144-inch
Cargo Parachutes: Two G-12E

Figure 17-141. Double zodiac F470U boat



Reference: TM 4-48.04/TO 13C7-55-1

Weight: Load shown ..... 485 pounds
Height ..... 71 inches
Width ..... 32 inches
Overall Length ..... 88 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: NA
Extraction Parachute C-17: NA
Platform Size: 32- by 88-inch
Cargo Parachute: One G-14 or T-10 Cargo

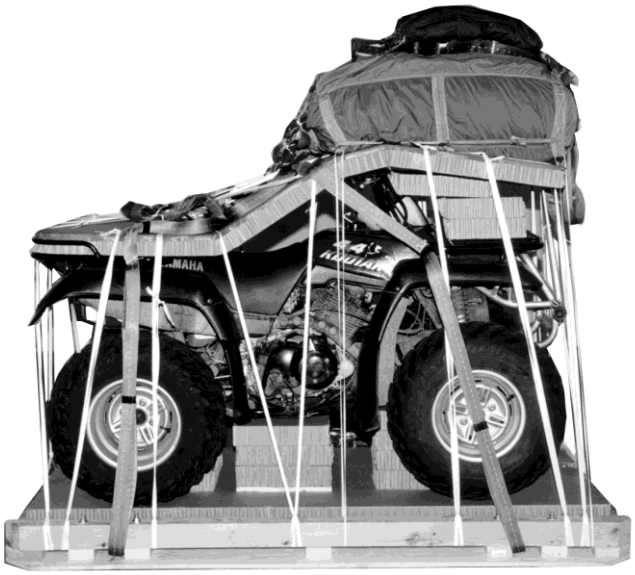
Figure 17-142. One motorcycle

Reference: TM 4-48.04 /TO 13C7-55-1

Weight: Load shown.....892 pounds
Height .....75 inches
Width .....48 inches
Overall Length.....96 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 48- by 96-inch
Cargo Parachute: One G-12E

Figure 17-143. Two motorcycles



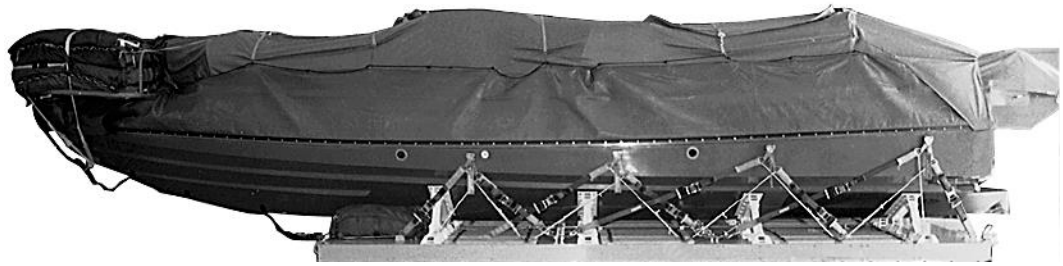
Reference: TM 4-48.04 /TO 13C7-55-1

Weight: Load shown ..... 960 pounds
Height ..... 48 inches
Width ..... 48 inches
Overall Length ..... 87 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: Gravity
Extraction Parachute C-130: 15-Foot Drogue
Extraction Parachute C-17: 15-Foot Drogue
Platform Size: 48- by 87-inch
Cargo Parachute: One G-12E

Figure 17-144. Four wheeled quad-runner

SECTION IV – LOW-VELOCITY AIRDROP ON MARITIME AERIAL DELIVERY SYSTEM PLATFORM



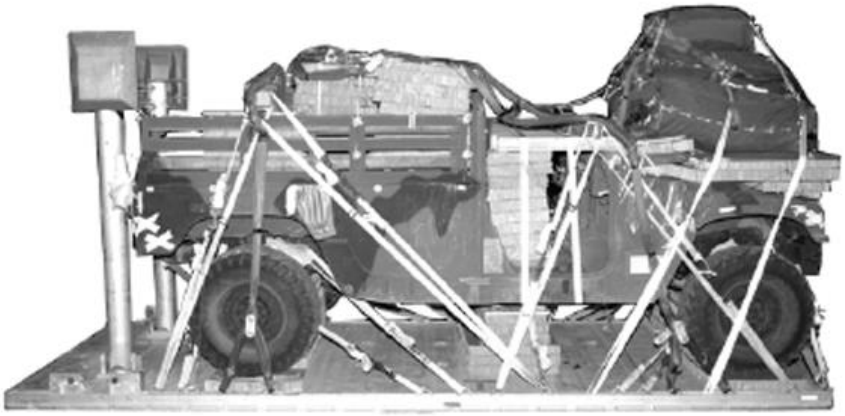
Reference: TM 4-48.04 /TO 13C7-51-21

Weight: Load shown ..... 18,500 pounds
Height ..... 100 inches
Width ..... 108 inches
Overall Length ..... 432 inches
Overhang: Front (Motor) ..... 42 inches
Rear (Front of Boat) ..... 138 inches
Center of Balance (from front edge of platform) ..... 149 1/2 inches

Accompanying Load: None
Aircraft: C-130 and C-17
Extraction System: extraction force transfer coupling (EFTC)
Extraction Parachute C-130: 28-Foot
Extraction Parachute C-17: 28-Foot
Platform: Maritime Aerial Delivery System
Cargo Parachutes: Four G-11B

Figure 17-145. Naval special warfare rigid inflatable boat

SECTION V – LOW-VELOCITY AIRDROP ON DUAL ROW AIRDROP SYSTEM PLATFORM

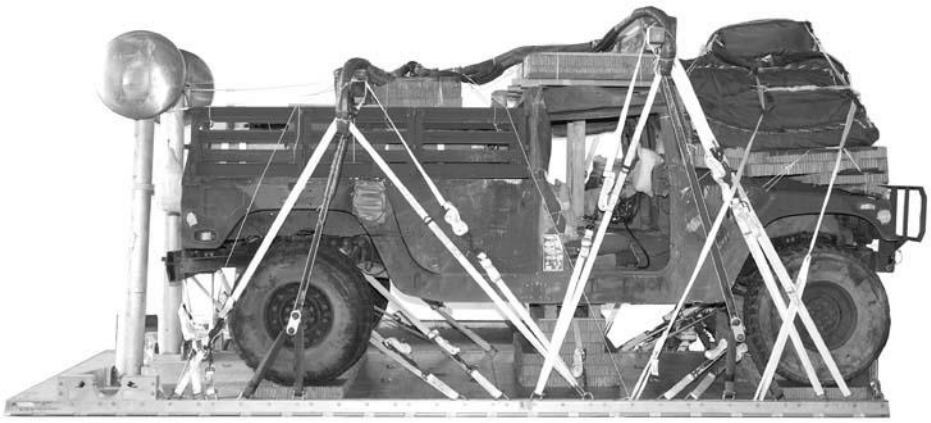


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: M998..... 10,912 pounds
M1038..... 11,165 pounds
M1097..... 10,097 pounds
Height .....98 inches
Width.....88 inches
Overall Length .....228 inches
Overhang: Front (Brush Guard).....12 inches
Rear .....0 inches
Center of Balance (from front edge of platform)
M998.....89 inches
M1038.....91 inches
M1097.....90 inches

Accompanying Load: An accompanying load must weigh between 800 and 2,000 pounds.
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Three G-11D

Figure 17-146. M998/M1038/M1097 cargo/troop carriers

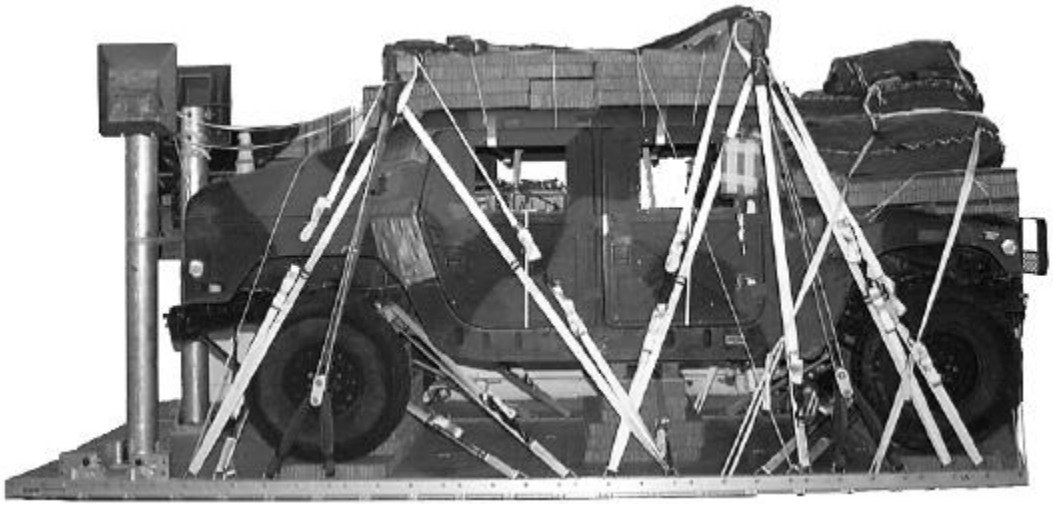


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 11,140 pounds
Height ..... 104 inches
Width ..... 88 inches
Overall Length ..... 224 inches
Overhang: Front (Brush Guard) ..... 8 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 88 inches

Accompanying Load: An accompanying load must weigh between 800 and 2,000 pounds.
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Three G-11D

Figure 17-147. M1097 variant cargo/troop carrier

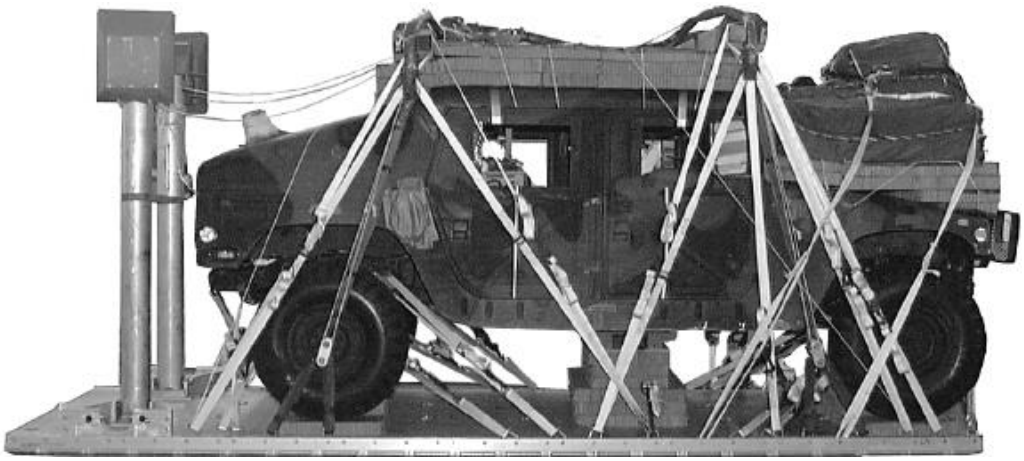


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 12,637 pounds
Height ..... 98 inches
Width ..... 88 inches
Overall Length ..... 229 inches
Overhang: Front (Brush Guard) ..... 13 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 94 inches

Accompanying Load: An accompanying load must weigh between 800 and 2,000 pounds.
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Three G-11D

Figure 17-148. M1025 armament carrier

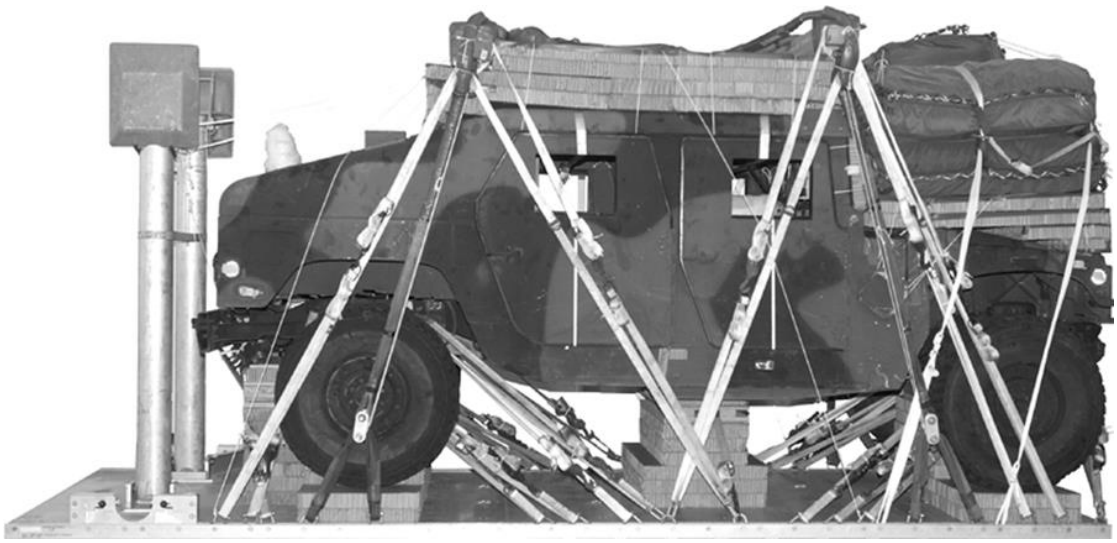


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 10,455 pounds
Height ..... 98 inches
Width ..... 88 inches
Overall Length ..... 224 inches
Overhang: Front ..... 8 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 86 inches

Accompanying Load: An accompanying load must weigh between 800 and 2,000 pounds.
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Three G-11D

Figure 17-149. M1121 tow carrier

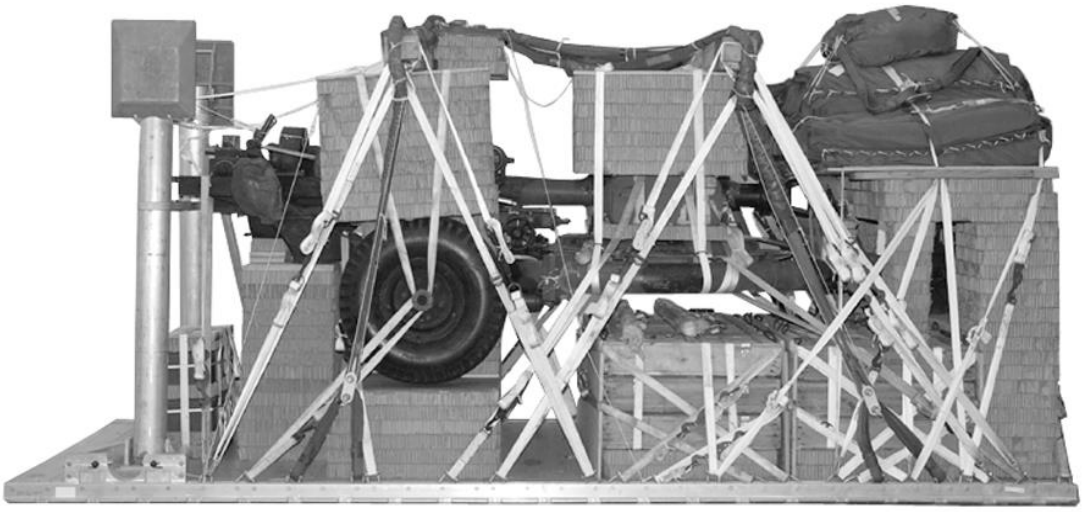


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 14,400 pounds
Height .....106 inches
Width.....88 inches
Overall Length .....222 1/2 inches
Overhang: Front (Brush Guard).....6 1/2 inches
Rear .....0 inches
Center of Balance (from front edge of platform).....94 inches

Accompanying Load: An accompanying load must weigh between 800 and 2,000 pounds.
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Four G-11D

Figure 17-150. M1114 up-armored high mobility, multipurpose wheeled vehicle



Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 11,200 pounds
Height ..... 98 inches
Width ..... 88 inches
Overall Length ..... 216 inches
Overhang: Front ..... 0 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 94 inches

Accompanying Load: An accompanying load consists of thirty-six 105-mm ammunition boxes and six fuse boxes.

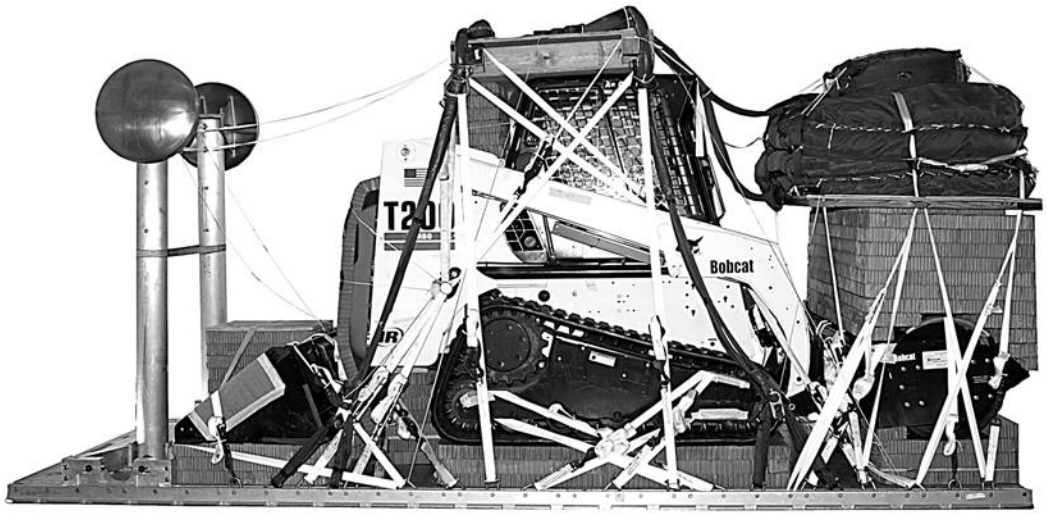
Aircraft: C-17

Extraction System: Gravity

Deployment Parachute: 28-Foot

Cargo Parachutes: Three G-11D

Figure 17-151. M119 105-mm Howitzer

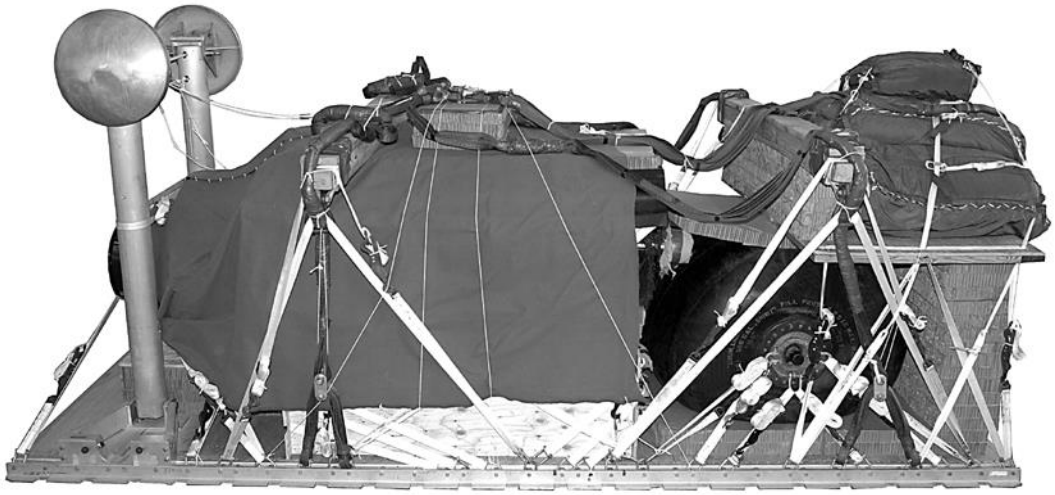


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 14,240 pounds
Height ..... 105 inches
Width ..... 88 inches
Overall Length ..... 226 inches
Overhang: Front ..... 0 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 86 inches

Accompanying Load: None
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Four G-11D

Figure 17-152. T-200 Bobcat compact track loader

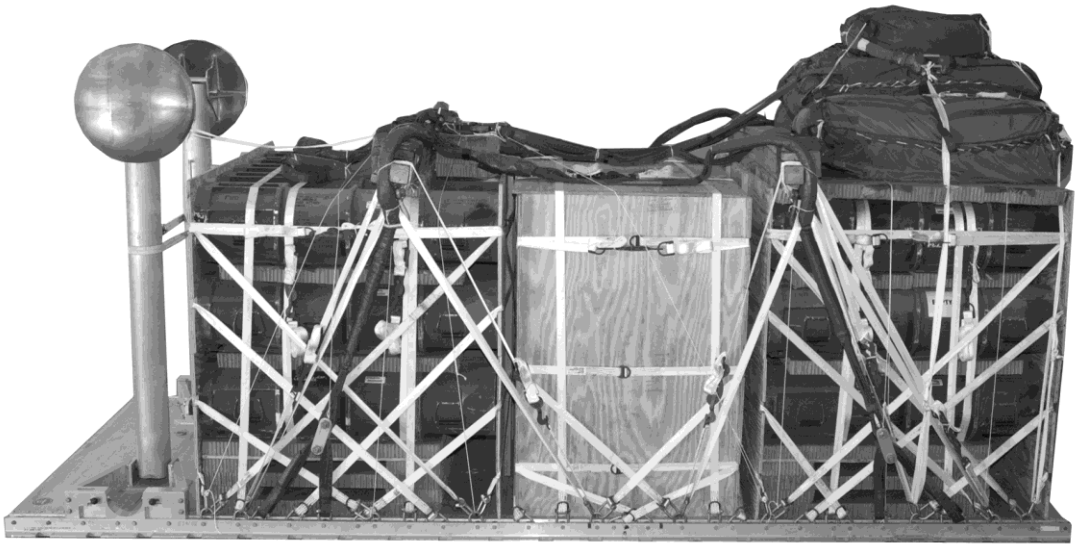


Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown ..... 12,309 pounds
Height ..... 98 1/2 inches
Width ..... 88 inches
Overall Length ..... 216 inches
Overhang: Front ..... 0 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 88 inches

Accompanying Load: None
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Three G-11D

Figure 17-153. T-200 Bobcat compact track loader accessory load



Reference: TM 4-48.05/TO 13C7-1-51

Weight: Load shown ..... 11,140 pounds
Height .....110 inches
Width.....88 inches
Overall Length .....216 inches
Overhang: Front .....0 inches
Rear .....0 inches
Center of Balance (from front edge of platform).....93 inches

Accompanying Load: An accompanying load in the supply box must be between 2,000 and 4,000 pounds.

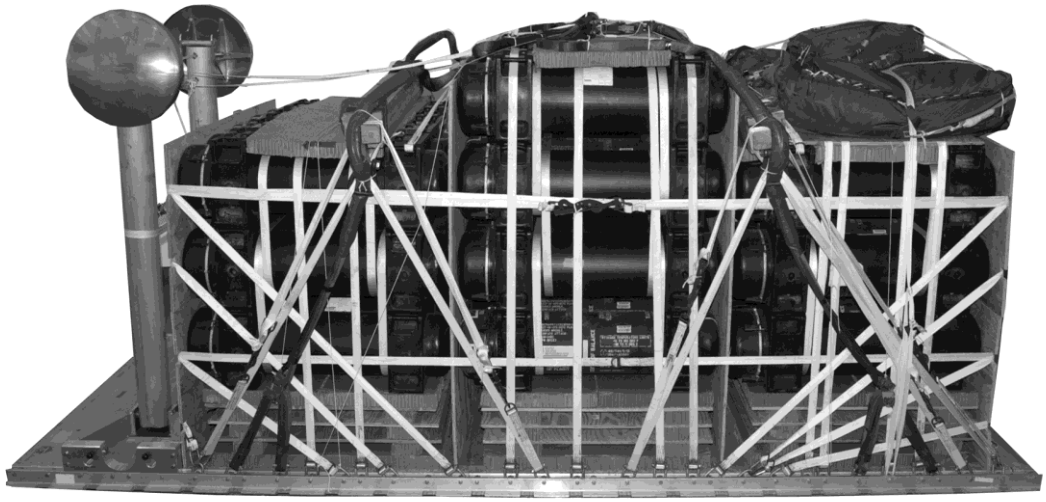
Aircraft: C-17

Extraction System: Gravity

Deployment Parachute: 28-Foot

Cargo Parachutes: Three G-11D

Figure 17-154. Javelin (metal) containers

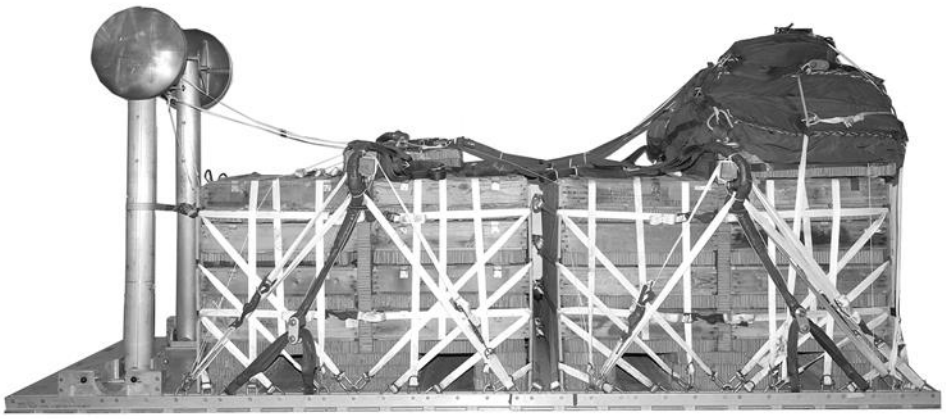


Reference: TM 4-48.05/TO 13C7-1-51

Weight: Load shown ..... 8,920 pounds
Height ..... 89 inches
Width ..... 88 inches
Overall Length ..... 216 inches
Overhang: Front ..... 0 inches
Rear ..... 0 inches
Center of Balance (from front edge of platform) ..... 98 inches

Accompanying Load: None
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Two G-11D

Figure 17-155. Javelin (plastic) containers

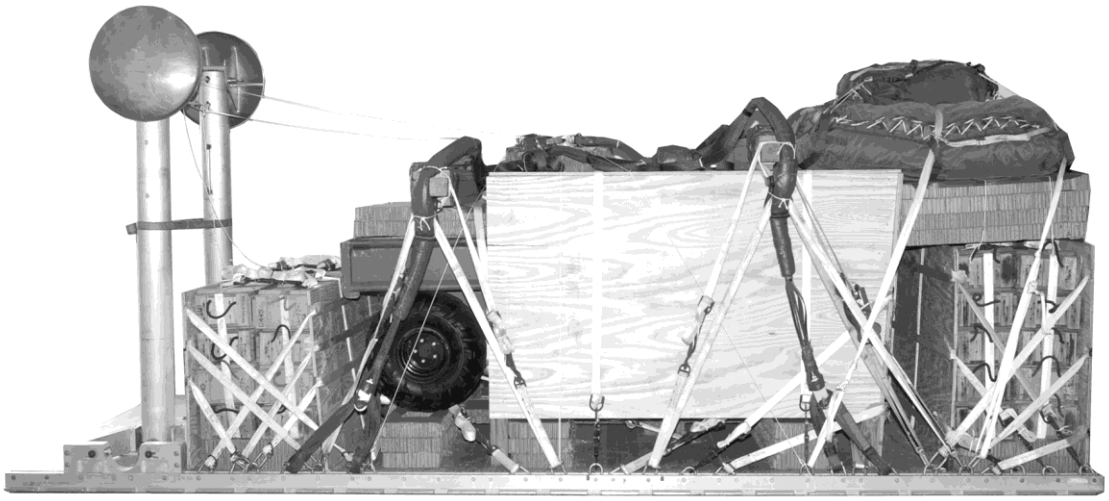


Reference: TM 4-48.05/TO 13C7-1-51

Weight: Load shown ..... 12,980 pounds
Height .....98 1/2 inches
Width.....88 inches
Overall Length .....216 inches
Overhang: Front .....0 inches
Rear .....0 inches
Center of Balance (from front edge of platform).....91 inches

Accompanying Load: None
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Three G-11D

Figure 17-156. 105-mm ammunition mass supply load



Reference: TM 4-48.05 /TO 13C7-1-51

Weight: Load shown.....8,650 pounds
Height .....97 inches
Width .....88 inches
Overall Length.....216 inches
Overhang: Front .....0 inches
Rear .....0 inches
Center of Balance (from front edge of platform) .....90 inches

Accompanying Load: An accompanying load of thirty-six boxes of 105-mm ammunition is rigged on the platform.
Aircraft: C-17
Extraction System: Gravity
Deployment Parachute: 28-Foot
Cargo Parachutes: Two G-11D

Figure 17-157. M-Gator with accompanying load

Chapter 18

Airlift Capabilities

GENERAL

18-1. This chapter contains information on Air Force aircraft airdrop capabilities.

C-130 HERCULES

18-2. The C-130 has the capability to airdrop a maximum weight of 42,000 pounds using multiple airdrop platforms. The maximum weight of a single airdrop platform weight is limited to 42,000 pounds for E / H model airplanes AF 61-2358 and AF 62-1748 and up. The single maximum platform weight limit for MC-130 E/H airplanes is 35,000 pounds and 25,000 pounds for all other C-130 airplanes prior to AF 62-1784. The C-130 can airdrop loads up to 100 inches high unless otherwise certified in the specific rigging manual. The aircraft has a maximum total space available of 40 feet. The platforms will vary from 8 to 32 feet in length. For planning purposes, allow a minimum of 18 inches between platforms to allow space for the Extraction Force Transfer Coupling (EFTC), three-point link, and attaching the preceding extraction line. With the EPJD attached, a 30-inch space will have to be maintained for the EFTC, three-point link and the EPJD with extraction line attached. The specific loading manual must be consulted when approaching maximum limits for platform space availability and weights.

C-17 GLOBEMASTER

18-3. The C-17 has the capability to airdrop a combined total weight of 110,000 pounds using multiple airdrop platforms. The C-17 has 64 feet of space available for airdrop use. Two 32 foot platforms may be airdropped if specific guidance is followed. The platforms will vary from 8 to 32 feet in length. For planning purposes, allow a minimum of 18 inches between platforms to allow space for the EFTC, three-point link and attaching the preceding extraction line. With the EPJD attached, a 30 inch space must be maintained for the EFTC, three-point link and the EPJD with extraction line attached. The C-17 can airdrop loads up to 118 inches high measured from the bottom of the platform. The maximum single platform weight is limited to 60,000 pounds. The specific loading manual must be consulted when approaching maximum limits for platform space availability.

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Glossary

AFTO	Air Force Technical Order
CB	center of balance
DRAS	dual row airdrop system
EFTC	extraction force transfer coupling
EPJD	extraction parachute jettison device
EPJS	extraction parachute jettison system
FARE	forward area refueling equipment
FM	field manual
HMMWV	high mobility, multipurpose wheeled vehicle
MACS	modular artillery charge system
NCOIC	noncommisioned officer in charge
OIC	officer in charge
TM	technical manual
TO	technical order

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