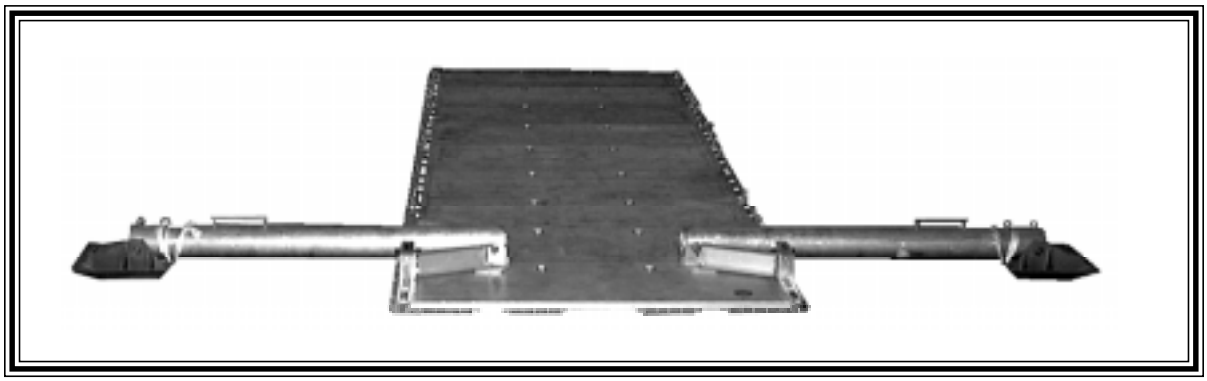
FM 4-20.105
TO 13C7-1-51

AIRDROP OF SUPPLIES AND EQUIPMENT:

DUAL ROW AIRDROP SYSTEMS



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DEPARTMENT OF THE ARMY
DEPARTMENT OF THE AIR FORCE

Field Manual
No 4-20.105
Technical Order
No 13C7-1-51

Headquarters
Department of the Army
and the Air Force
Washington, DC, 2 April 2002

Airdrop of Supplies and Equipment: Dual Row Airdrop Systems

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PREFACE

SCOPE

The purpose of this manual is to provide the latest approved procedures for rigging Dual Row Airdrop System (DRAS) airdrop platforms. This manual is written for use by the parachute rigger.

The procedures contained in this manual are typical and serve as the standard from which all DRAS platform rigging is derived. Due to the uniqueness of some equipment and items, **the procedures in a specific rigging chapter may be different from those in chapters 1 through 3. When procedures are different, those in the specific chapter will be followed. When an item of equipment is specified to be used for which its minimum or maximum capacity is exceeded, a notice of exception will be printed at the beginning of each paragraph in each rigging chapter where the exception is authorized.**

Chapters 1 and 2 contain specific limitations and general information about the rigging of DRAS airdrop platform loads for low-velocity airdrop from the C-17 (Globemaster) aircraft.

Chapter 3 shows and tells how to prepare, attach, and safety tie some of the components and systems used in the specific rigging chapters of the FM 4-20.105/TO 13C7-1-51.

USER INFORMATION

The proponent of this publication is HQ TRADOC. You are encouraged to report any errors or omissions and to suggest ways of making this a better manual.

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Chapter 1
Airdrop Information

RESPONSIBILITIES

1-1. US Air Force personnel are responsible for loading rigged Dual Row Airdrop System (DRAS) platform loads into the C-17 (Globemaster) aircraft and installing and operating the airdrop system.

TYPE AND METHOD OF AIRDROP

1-2. As used in this manual, DRAS allows platforms to be loaded side-by-side inside C-17 aircraft. DRAS airdrop is designed to supplement the usual surface methods of delivering supplies and equipment to forces in the field.

a. ***Type of Airdrop.*** Currently the only type of airdrop used to deliver platform loads is low-velocity airdrop. DRAS low-velocity airdrop delivers platform loads from C-17 aircraft. The G-11D cargo parachutes are used to slow the descent of the loads to ensure minimum landing shock. The number of cargo parachutes can vary as shown in Table 1-1. Loads with different quantities of the same type parachute may be airdropped from the same aircraft or element provided the following conditions are met:

(1) 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.

(2) Aircraft or elements with lower airdrop altitudes will drop before aircraft or elements with higher airdrop altitudes.

(3) 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 AGL)	PARACHUTES
1,000	G-11D 2 to 4

CAUTION
Drop altitudes reflect MINIMUM drop altitudes.

b. ***Method of Airdrop.*** The gravity method is used for DRAS platform loads delivered by low-velocity airdrop. The aircraft flies at an incline of approximately 4 degrees, the locks holding the platforms are removed, and the loads roll out of the aircraft by gravitational pull.

MAXIMUM RIGGED WEIGHT

1-3. 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 and rigging procedures are not changed. The maximum rigged weight for a DRAS platform is 14,500 pounds.

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

1-4. Accompanying loads are items of supplies and equipment that may be added to a primary load. Each airdrop chapter states whether an accompanying load is authorized.

CENTER OF BALANCE

1-5. **The center of balance (CB) of a DRAS airdrop platform load is based on the total rigged weight and is given in the rigging chapter for a particular item. The CB must fall between 85 and 99 inches from the front of the platform. The CB of each load must be verified.** Methods for computing the CB are in Appendix A.

ITEMS AND LOADS DROPPED IN COLD CLIMATES

1-6. 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.

SAFETY PRECAUTIONS

1-7. Safety precautions MUST be closely followed when airdrop platform loads are rigged. Failure to follow the precautions could result in serious injury to personnel or damage to the drop item or aircraft. The following safety precautions shall be taken by the rigger:

a. 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.

b. Be sure that items being lifted are secured to the lifting device.

c. Avoid working under equipment suspended above a DRAS airdrop platform unless absolutely necessary.

d. Cover all wet cell batteries in service with plastic or nonflammable material.

e. Check fuel tanks to ensure that they do not exceed the fuel level of the specific rigging chapter. Check fuel tanks of small engines to make sure they are drained. 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.

f. Package, mark, and label hazardous materials according to AFJMAN 24-204/TM 38-250.

CAUTION
Only ammunition listed in FM 10-500-53/MCRP 4-3.8/ TO 13C7-18-41 may be airdropped.

KNOTS

1-8. Some of the knots used for rigging platform loads are shown in Figure 1-1.

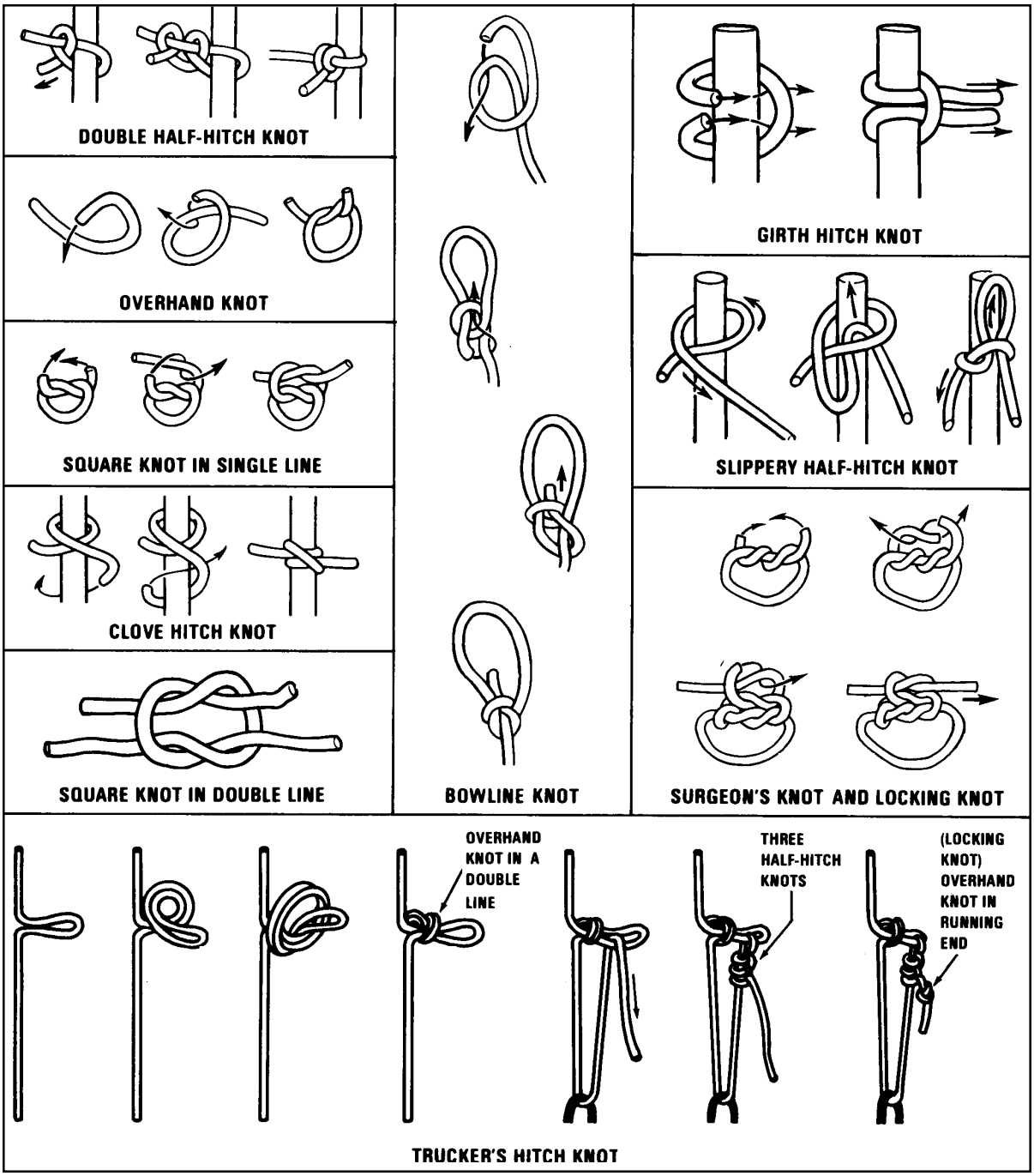
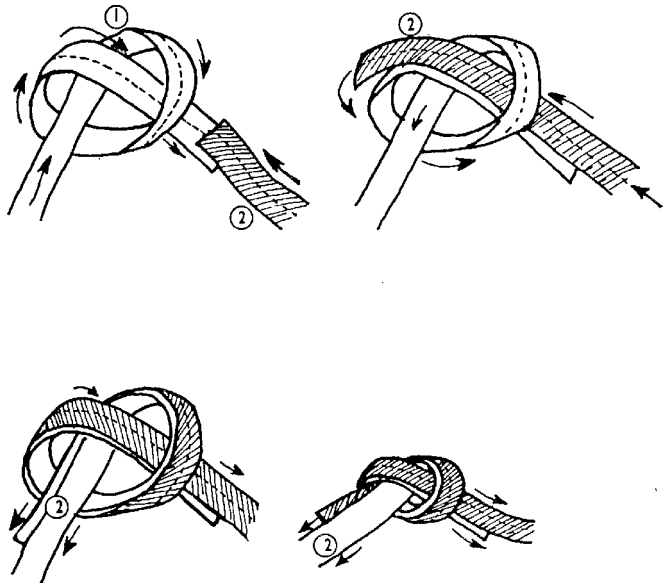


Figure 1-1. Knots Used During Rigging



(1) Make an overhand knot in one end.

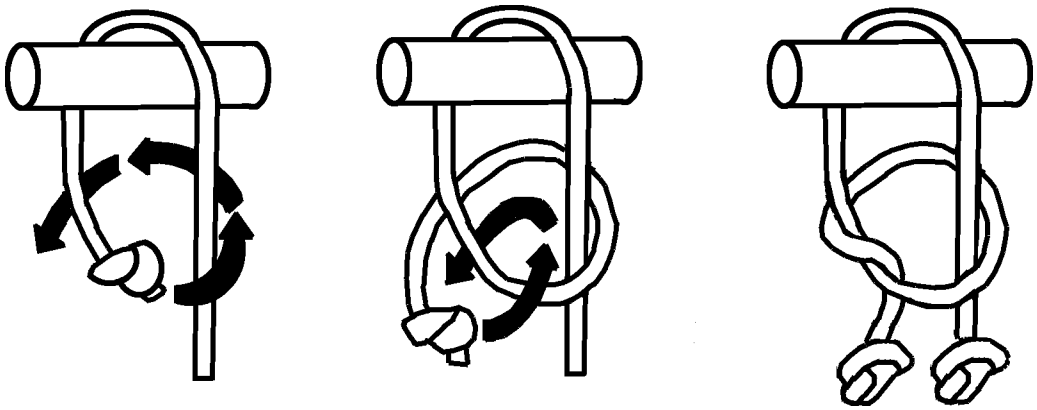
(2) Follow the curve back in the reverse direction with the other end.

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



SLIP KNOT

Note: Draw knots tight.

Figure 1-1. Knots Used During Rigging (Continued)