CHAPTER 7

AIRDROP OF PERSONNEL AND EQUIPMENT

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CHAPTER 7

AIRDROP OF PERSONNEL AND EQUIPMENT

7.1 INTRODUCTION

This chapter contains instructions for preloading, aircraft preparation, onloading, and rigging procedures on the aircraft for the airdrop of personnel. This chapter contains the section that provides all applicable information regarding aircraft rigging for personnel.

Most hardware, systems, rigging materials, and procedures described in this manual are based on standards that have been considered the most employed in armed forces worldwide, and with which the C-295 cargo handling and aerial delivery systems are fully compatible. Hardware, systems, and component capacities and limitations given in this manual are specific for the C-295. They may have larger capacities when used in other aircraft, as described in general rigging technical orders and manufacturer handbooks. Particular limitations for this aircraft, derived from its size and weight capabilities, are covered along the following sections.

NOTE: General rigging procedures and assembling of parts are beyond the scope of this manual. Refer to appropriate manufacturer handbooks or Command-approved manuals for maintenance, setting of systems, and general rigging methods. Riggers and aircraft loadmasters should be thoroughly familiar with these procedures and equipment.

NOTE: Other properly certified materials or systems different from those mentioned in this manual might also be used in airdrop missions from the C-295, taking advantage of the features and capabilities of this aircraft, as far as compatibility is demonstrated, capacities and limitations shown in this manual are carefully observed, and appropriate procedures are developed.

7.2 GENERAL CRITERIA FOR AIRDROP LOADS

Any equipment or load of supplies designated for airdrop should be rigged in accordance with its approved, specific individual rigging manual, or other Command-approved technical directives. Loads consisting of hazardous materials, such as fuel, ammunition, explosives, etc., must be packed and certified exactly the same as for logistic airlift. All dimensions, weights, center of gravity, parachute size, line lengths, and load restraint shall be checked by an airdrop inspector of the transported unit and the crew loadmasters, to guarantee that aircraft limits and capabilities are not exceeded.

WARNING: AIRDROP OPERATIONS MUST BE CONDUCTED IN SUCH A MANNER THAT NO DOUBT EXISTS ABOUT SAFETY. WHEN THE DIMENSIONS, WEIGHT, ETC., APPROACH OR REACH THE LIMITS OF THE AIRCRAFT, EVEN A MINOR MISRIGGING MAY CAUSE AIRCRAFT DAMAGE OR JEOPARDIZE FLIGHT SAFETY. LOADS RIGGED IN SUCH A MANNER THAT MAY ENDANGER SAFETY IN FLIGHT, SHALL BE REJECTED BY THE LOADMASTERS.

WARNING: AIRDROP OPERATIONS CAN PRODUCE A DISPLACEMENT OF AIRCRAFT CENTER OF GRAVITY (BOTH LATERAL AND LONGITUDINAL). LATERAL DISPLACEMENT MUST BE TAKEN INTO ACCOUNT WHEN ON GROUND, AND LONGITUDINAL DURING ALL OPERATION. REFER TO "LIMITATIONS DUE TO LATERAL C.G. DISPLACEMENT, IMPOSED BY GROUND LOADS" IN AIRCRAFT OPERATIONS MANUAL, SECTION I - OPERATING LIMITATIONS.

NOTE: For sequential/multiple aerial deliveries, and for the event of an emergency, it is permissible to load the aircraft so that, with the forward platform or last group of bundles to be airdropped only onboard, the aircraft center of gravity is not forward of –10% MAC for safe flight till landing.

NOTE: In the event of an emergency on transport operations or aerial delivery missions, the demonstrated rearward limit of the aircraft center of gravity for a safe flight till landing is 50% MAC.

7.3 MAXIMUM CAPACITIES

Maximum capacity of the aircraft for personnel airdrop is 50 paratroopers, including jumpmasters.

7.4 INDIVIDUAL RIGGING MANUALS

Individual rigging manuals are rigging directions specifically made for each individual piece of equipment designated for airdrop, based on general criteria rigging manuals. The platform or skidboard, extraction system, parachutes, extraction line, and any associated hardware, as applicable, are selected and reflected in the manual, according to the load size and weight, and general criteria procedures. Tiedown equipment, rigging materials, and special supplies for rigging the airdrop load are also listed. The rigging manual includes specific step-by-step instructions for assembling and rigging the load, and provides information on dimensions, weights, and center of balance.

NOTE: Ballast loads used for training do not require an individual rigging manual, as far as they are rigged IAW general criteria manuals. Aircraft limitations and airdrop hardware capabilities must not be exceeded.

7.5 RESTRAINT CRITERIA FOR AIRDROP LOADS

Restraint criteria are the same as those for logistic transport (refer to CHAPTER 4 - GENERAL LOADING PROCEDURES). All loads that are approved for aerial delivery shall meet all required load restraint criteria. Tiedown patterns are precalculated and shall not be changed or altered unless specifically authorized by the applicable individual rigging manual.

7.6 RIGGING MATERIALS

Airdrop loads shall be rigged using only standard, certified materials and hardware in a good condition, as shown in the individual rigging manual. During aircraft preparation and rigging, the following ties shall be used unless otherwise specified (Figure 7-1):

A. Cotton ties shall be secured with a surgeon knot and a locking knot.

B. Nylon ties shall be secured with a surgeon knot, a locking knot, and an over-hand knot in each running end. For single line ties, use three alternating half-hitches and an overhand knot in the running end.

7.7 TEXTILE ITEMS

Textile items that may be used when an airdrop load is being rigged in the aircraft are described below.

A. Ticket number 8/7 cotton thread, among other purposes, is used to tie lines or slings to the cargo floor. It has a strength of 30 lb.

B. The Type I, 1/4 in. cotton webbing is used to make many of the needed safety ties. It has a tensile strength of 80 lb.

C. The one-half-inch tubular nylon webbing has a tensile strength of 1000 lb. It is used as the primary bundle-to-skidboard tiedown method. It is also used to secure items during airdrop.

7.8 AIRDROP JOINT INSPECTION PROCEDURES AND FORMS

Prior to the actual loading operation, the rigged loads must be given a complete acceptance inspection by the loadmasters and a qualified rigger of the transported unit, using appropriate inspection forms. After the load has been loaded and completely rigged in the aircraft, an onboard final inspection is accomplished, and forms are signed both by the loadmaster and the transported unit inspector.

7.9 DATA TAG

A data tag shall be attached to each airdrop load so it can be easily seen. Entries on the tag are used to conduct joint inspections, and to help the loadmasters to determine where to place the loads in the aircraft. Information on the tags must match that recorded on inspection forms, and should include the following information:

– Total rigged weight.

– Height, including main cargo parachutes.

– Width.

– Overall length.

– Position of CG from the front end.

7.10 USE OF AMPLIFIED PREPARATION CHECKLISTS

Each airdrop section contains a specific checklist for accomplishing aircraft preparation, airdrop load, and onboard rigging. After completing appropriate preflight checks, loadmasters shall complete the general airdrop preparation checklist contained in this chapter, and then follow the specific checklist in the applicable section for the type of airdrop to perform.

7.11 AIRDROP PROCEDURES

In-flight and emergency procedures for airdrop are included in the Annexe 2, and in the Airdrop Procedures QRH as a checklist document. Before takeoff, loadmasters should review procedures, coordinate tasks, and all crewmembers should review actions to be performed in the event of a malfunction in flight.

7.12 PREPARATION FOR RAMP AND CARGO DOOR AIRDROP AMPLIFIED CHECKLIST

The following amplified checklist includes all equipment to be checked, as well as configuration directions for each type of airdrop with the aircraft cargo ramp open. Perform items applicable to the particular airdrop mission, as required.

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GENERAL PREPARATION FOR RAMP AND CARGO DOOR AIRDROP

WARNING: IF ONCE IN FLIGHT (INCLUDING EMERGENCIES) IT BECOMES NECESSARY TO OPEN RAMP AND CARGO DOOR, DO NOT START OPENING UNTIL ACCOMPLISHING APPLICABLE ITEMS FROM THIS CHECKLIST. THIS WILL PREVENT RELEASE OF ANY PIECE OF STOWED EQUIPMENT WHICH MAY MAKE IT DIFFICULT TO PERFORM THE INTENDED OPERATION, OR TO COPE WITH THE EMERGENCY.

NOTE: Accomplish applicable items from this checklist for all airdrops using the ramp and cargo door, and for all missions requiring opening the ramp and cargo door in flight.

1. Ramp and cargo door operation ..... CHECKED

   A. Check ramp and cargo door for proper opening, closing, and locking.

   B. Check the ramp hinge cover is correctly installed and does not interfere with ramp opening and closure.

2. CHADS ..... CHECKED (As required)

   A. For equipment airdrop missions, inspect CHADS as outlined in CHAPTER 4 - GENERAL LOADING PROCEDURES.

3. Roller trays ..... CHECKED

   A. Check that roller trays are installed keeping the distance between two consecutive rollers, and firmly attached to tiedown tracks.

4. Winch ..... CHECKED (If required)

   A. If a personnel airdrop is to be performed, check aircraft winch for proper operation for retrieval of static lines.

5. Seats/seat support equipment ..... SECURED / REMOVED

   A. Depending on load width, secure in upright position or remove all seats and associated support equipment beside and aft of pre-planned load position, as required.

      NOTE: Secure with 550 lb cord all seats which cannot be stowed in the vertical position.

   B. Remove and secure all litter support brackets that may interfere with cargo exit.

6. Anchor cables and fittings ..... INSTALLED, CHECKED (As required)

   NOTE: Refer to CHAPTER 3 - AIRCRAFT CONFIGURATION for anchor cable installation.

   A. Install anchor cables in lateral configuration for tailgating paratroopers.

      WARNING: DO NOT TAILGATE PERSONNEL WITH ANCHOR CABLES INSTALLED IN CENTRAL CONFIGURATION.

   B. Check forward and aft anchor cable attaching fittings.

   C. Check anchor cable condition IAW Figure 3-21.

7. Anchor cable stops ..... REMOVED

   A. Anchor cable stops are not required for airdrop. Remove or position forward of the preplanned position for attachment of static lines.

      WARNING: DO NOT TAILGATE PERSONNEL WITH STOPS AT FR35, STA 18880.

8. Retrieval bars .....CHECKED, SECURED
9. Equipment stowed in ramp area ..... SECURED / REMOVED

   A. Fold and stow ramp curtain at FR30.

   B. Secure with 550 lb cord or remove any item that may fall loose from its stowage position during airdrop.

10. Cargo door contents .....CHECKED

    A. Check that seat stanchions and auxiliary loading ramps are secure.

    B. Check contents of stowage bags.

       CAUTION: AN EXCESSIVE WEIGHT ON THE CARGO DOOR MAY PREVENT IT FROM PROPERLY OPENING OR CLOSING.

11. CHADS ramp assemblies .....RETRACTED
12. Ramp telescopic bars .....CONNECTED FOR HORIZONTAL RAMP
13. Ramp air deflectors.....AS REQUIRED

    A. For personnel airdrop install both ramp air deflectors.

14. General preparation for ramp and cargo door airdrop checklist.....COMPLETE

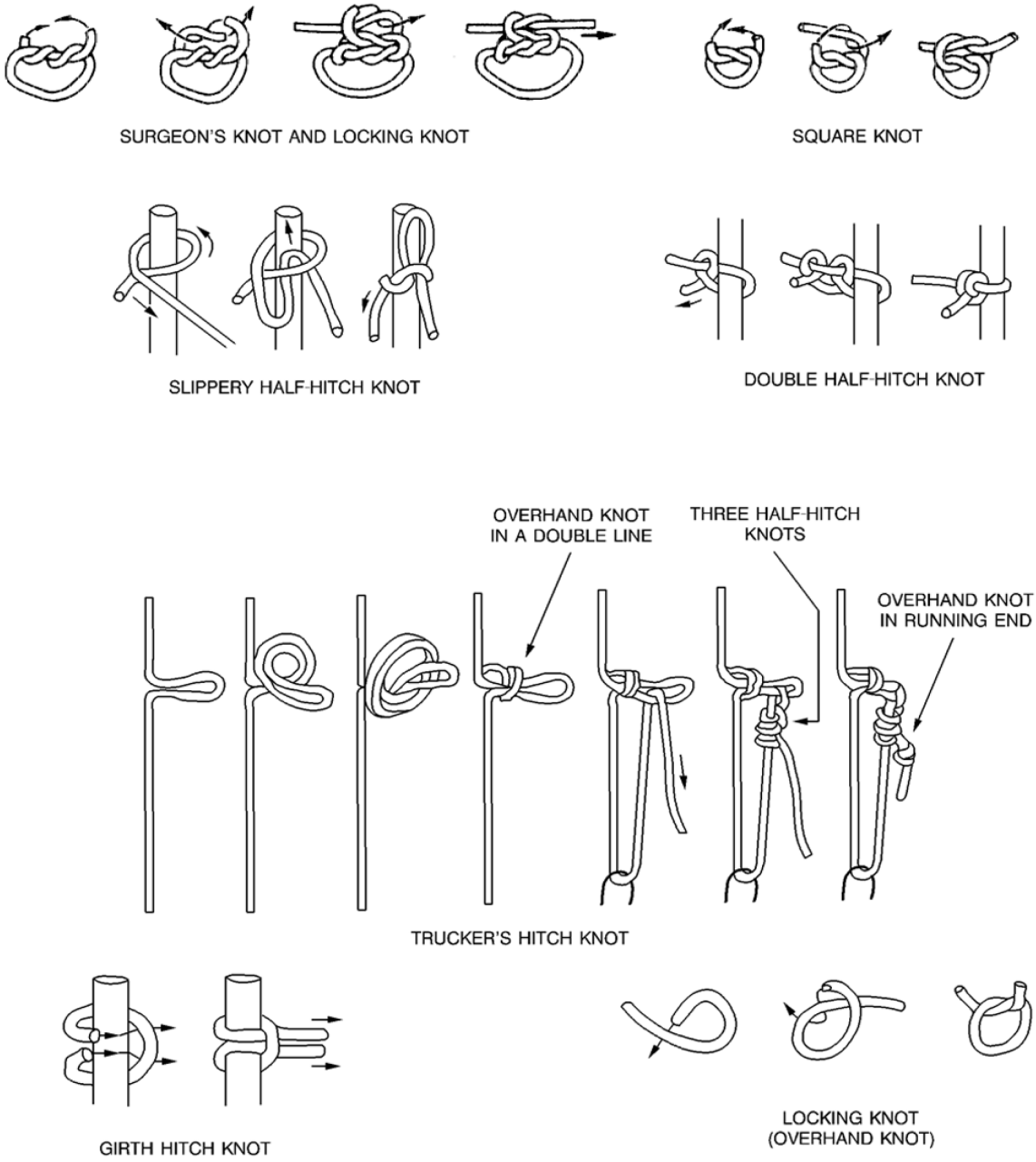

Figure 7-1 Knots used during airdrop rigging

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