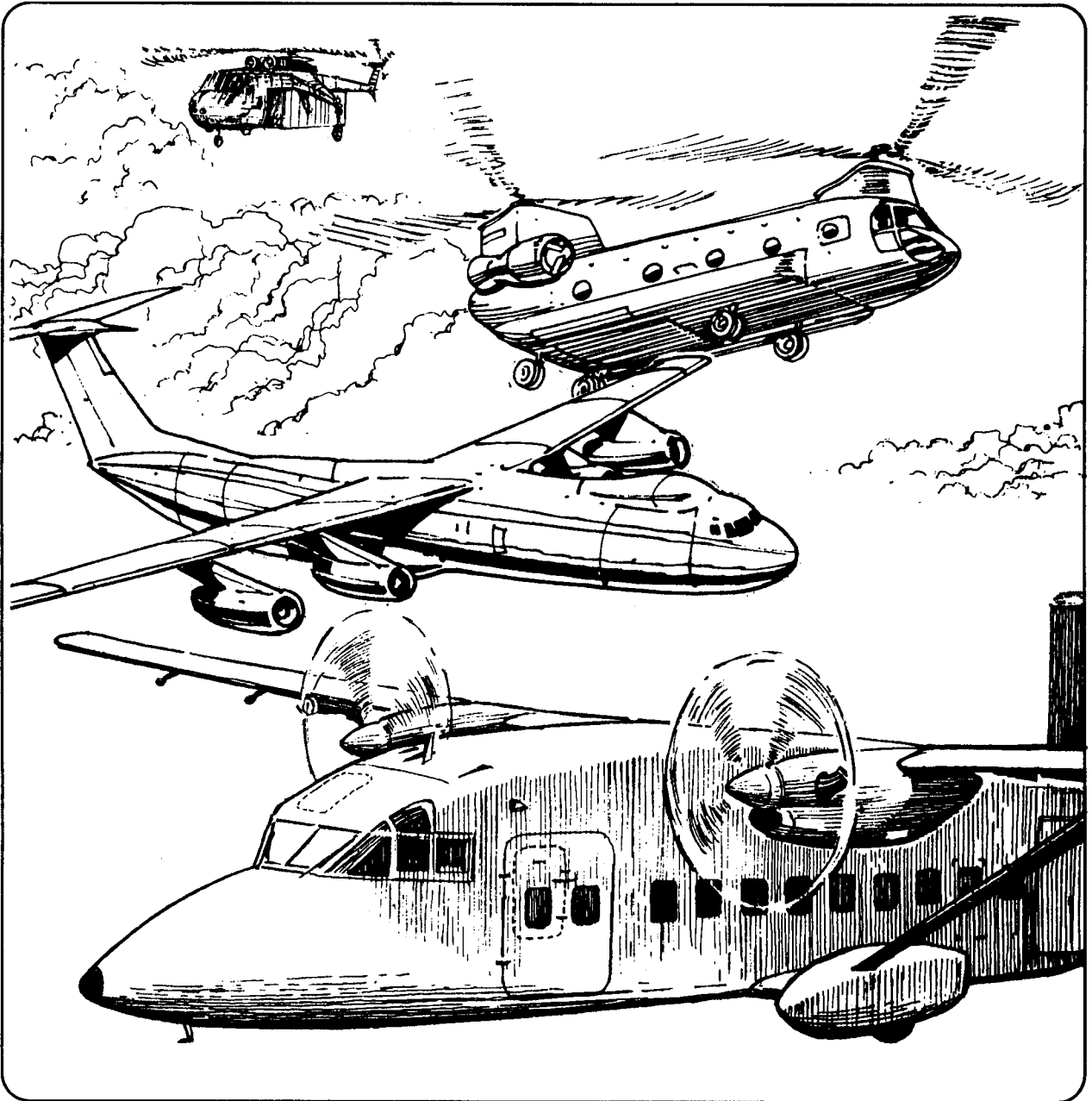




PART FOUR

Aircraft Used In Airborne Operations



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CHAPTER 15

AIRCRAFT AND JUMP ALTITUDES

This chapter contains general aircraft descriptions, jumpmaster procedures, and aircraft preparations. Critical elements of airborne operations are the aircraft and drop altitudes. These aircraft are service tested and approved for troop jumping. Minimum jump altitudes and considerations that apply to basic airborne jumps, tactical jumps, and combat jumps are discussed.

15-1. TYPES OF AIRCRAFT

Commonly used types of aircraft for airborne operations are:

- a. **High-Performance Aircraft.** The C-5, MC/C- 130, KC- 130, and C-141 are high-performance fixed-wing aircraft used for paratroop drops. (Nonstandard jump aircraft are found in Chapter 19.)
- b. **Utility Rotary-Wing Aircraft.** The UH-1 series, UH-60, CH-47, CH-53 (USMC), and CH-46 (USMC) are the most commonly used rotary-wing aircraft for troop airdrop.

15-2. JUMP ALTITUDES

The minimum criteria discussed below include a 125-foot aircraft altimeter error and a 100-foot canopy control requirement for the MC 1-1B/C.

- a. **Minimum Jump Altitudes.** The minimum jump altitudes for all aircraft are as follows.

- (1) **Peacetime tactical training.**

- Basic airborne training—1,250 feet AGL.
- Tactical training—1,000 feet AGL; however, 800 feet AGL drop altitude may be employed after a mature Command Decision Risk Assessment has been completed.
- Aircraft with a drop speed of 90 knots or less—1,500 feet AGL.

- (2) **Combat (wartime).** (Restricted to aircraft with a drop speed of 90 knots or higher.)

- T-10C parachute—435 feet AGL.
- MC1-1B/C parachute—475 feet AGL.

- Minimum airspeed—125 knots.
- Reserve parachute-optional.

b. **Prejump Training.** Sustained prejump training is modified to ensure that the individual parachutist accomplishes the following tasks:

(1) Upon receiving the opening shock of the main, immediately lowers individual equipment.

(2) Assumes the landing attitude (T-10C) or canopy control (MC1-1B/C).

c. **Data Summarizing Parachute Reliability.** Table 15-1 summarizes parachute reliability data at varying altitudes with personnel parachutes (mains only—not reserves).

Exit altitude in feet AGL.	T-10C PARACHUTE		MC1-1B/C PARACHUTE	
	Percentage of canopies that would be open.	Percentage of parachutists who would have 100 feet or more to prepare to land.	Percentage of canopies that would be open and would provide canopy control (no twists).	Percentage of parachutists who would have canopy control plus 100 feet or more to land.
200	76.11	4.00	13.00	NONE
300	99.92	76.11	90.66	13.00
400	99.98	99.92	99.98	90.66
500	99.98	99.98	99.98	99.98
600	99.98	99.98	99.98	99.98
700	99.98	99.98	99.98	99.98
800	99.98	99.98	99.98	99.98

Table 15-1. Parachute reliability data for varying altitudes.

d. **Jump Altitude Risk Assessment Decision Making.** When making a training parachute jump altitude risk assessment decision, the airborne commander should consider soldier experience levels, soldier fatigue at jump time, whether the jump altitude is critical to mission success, and the data from Table 15-2 (page 15-4).



PLANNED ALTITUDE (FEET AGL)	POSSIBLE AIRCRAFT ALTIMETER ERROR (FEET)	ACTUAL JUMP ALTITUDE (FEET AGL)	TOTAL TIME AVAILABLE TO ACTIVATE RESERVE (SECONDS)	TIME AVAILABLE MINUS 4000-COUNT (SECONDS)
1,250	+125	1,375	9.4	5.4
	0	1,250	8.8	4.8
	-125	1,125	8.2	4.2
1,000	+125	1,125	8.2	4.2
	0	1,000	7.6	3.6
	-125	875	6.9	2.9
800	+125	925	7.1	3.1
	0	800	6.4	2.4
	-125	675	5.6	1.6

Table 15-2. Time available to activate reserve parachute.

15-3. HIGH-ELEVATION JUMPING

The term high-elevation jumping refers to airdrop operations that begin at normal altitude above ground level (that is, 800 feet AGL) but where the DZ is 5,000 to 10,000 feet above mean sea level, such as in mountainous terrain. Commanders must consider that lower air density or higher altitude will increase the canopies' rate of descent.

a. **Parachutes.** Standard troop-type parachutes are suitable for the airdrop of personnel onto DZs with ground elevations up to 10,000 feet. Current jump procedures are valid.

b. **Injuries.** Combat or training exercises onto DZ elevations of 5,000 to 10,000 feet that place safety secondary to tactical considerations can produce injury rates of up to four times those expected for similar DZ operations near sea level. Injury rates can be reduced by intensive instruction, training, and practice to include the following.

- (1) Exit body position and PLF upon ground impact.
- (2) Jumper awareness of increased opening shocks and faster rates of descent.
- (3) The ability to control the parachute during sudden wind shifts and changes in wind velocity.
- (4) Wearing equipment correctly and ensuring serviceability.