

## CHAPTER 19

# NONSTANDARD AIRCRAFT USED DURING AIRBORNE OPERATIONS

*This chapter contains aircraft descriptions, JM procedures, and aircraft preparation techniques for nonstandard rotary-wing and fixed-wing aircraft. The aviation supporting unit prepares the aircraft for equipment and personnel drops to include seat and door removal and installation or rearrangement of seat belts. The installation of a field-expedient anchor line cable is the jumpmaster's responsibility. Aircraft preparation is usually accomplished jointly by the loadmaster/crew chief and JM. These aircraft are service tested and approved for personnel airdrop operations.*

### Section I MODIFICATIONS TO JUMP COMMANDS AND JUMPERS' MOVEMENT IN NONSTANDARD AIRCRAFT

On some nonstandard aircraft, jumpers are required to shuffle in the aircraft and assume a stand-in-the-door position. The standard jump commands are modified by substituting the command STAND IN THE DOOR for STAND BY. The parachutists execute the shuffle and the stand-in-the-door position in the following manner.

#### **19-1. SHUFFLE**

The shuffle is a method of moving to the jump door without losing balance or tripping. To perform the shuffle—

- a. The jumper's outboard arm is extended down and out to assist maintaining balance and to assume the door position. The other hand grasps the static line in the correct bight for the aircraft.
- b. Both feet are slightly spread, directly beneath the body, and staggered 6 to 8 inches. The jumper faces the rear of the aircraft and places his foot nearest the side of the aircraft forward; this foot is the shuffle foot. The foot nearest the center of the aircraft is the trail foot.

c. The jumper moves by stepping forward with his shuffle foot 6 to 8 inches and then with his trail foot. He keeps both feet staggered in the same relative heel-and-toe position throughout the shuffle.

## **19-2. STAND IN THE DOOR**

At the command STAND IN THE DOOR—

a. The jumpers shuffle toward the jump door, and the number 1 jumper hands his static line to the safety.

b. The number 1 jumper ensures his arm is not entangled with the static line and shuffles into the door so that the toe of his outboard foot is extended about 2 inches over the edge of the doorsill or jump platform and that his trail foot is about 6 inches to the rear.

c. The number 1 jumper keeps his feet shoulder-width apart. His weight is equally distributed on both feet, knees are bent, upper body is straight, his head and eyes are to the front, and hands are outside the aircraft, with fingers extended and joined. He is in a position of “coiled alertness” and is ready to exit the aircraft without further weight adjustment. His hands are not grasping the aircraft but are used to maintain balance.

d. The number 2 jumper is in the shuffle position, roughly even with the leading edge of the jump door and facing the rear of the aircraft.

e. Follow-on jumpers close up behind the preceding jumper in the shuffle position to maintain balance.

## **19-3. GO**

Depending on aircraft requirements, at the command GO the number 1 jumper makes a vigorous up-and-out exit, 6 inches up and 36 inches out. The exit action is gained from the legs alone, and the hands are used only to guide the jumper. On some aircraft, the vigorous exit is essential to avoid hitting the aircraft or coming in contact with another jumper beneath or behind the aircraft. The number 2 jumper and all following jumpers—

a. Shuffle toward the jump door.

b. Hand the static line to the safety and ensure the arm is not entangled with the static line.

c. Shuffle into the door, take up a proper door position, and exit the aircraft without command. A 1-second interval is maintained between jumpers.

## Section II

### C-7A CARIBOU

The C-7A is a high-wing transport powered by two piston engines (Figure 19-1). A total of 24 parachutists may be dropped using the ramp or doors. The ramp is normally used for dropping parachutists.

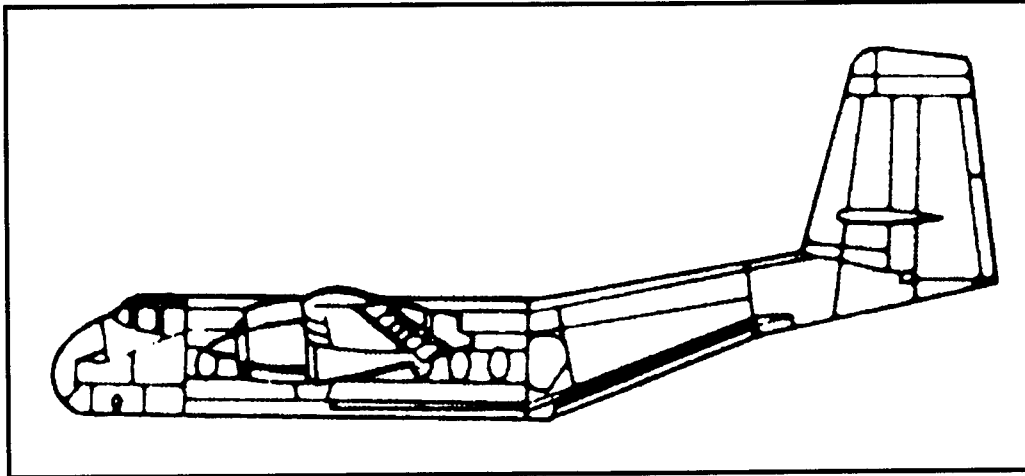


Figure 19-1. C-7A Caribou.

#### 19-4. SEATING CONFIGURATION

Twenty-four parachutists are seated in two 12-parachutist sticks. Parachutists are loaded over the loading ramp or through the doors. The odd-numbered personnel are seated on the starboard side, and even-numbered personnel are seated on the port side.

#### 19-5. SUPERVISORY PERSONNEL REQUIRED

Three personnel supervise safety procedures: one JM who performs standard aircraft check procedures, one safety NCO, and one loadmaster.

#### 19-6. ANCHOR LINE CABLE ASSEMBLIES

There are two anchor line cable assemblies in the C-7A.

- a. The anchor line cable for ramp jumps runs from the reinforced anchor line attachment plate from the forward bulkhead to the anchor line connector near the right side of the aft starboard door.
- b. The anchor line cable for door jumps runs from the reinforced anchor line attachment plate down the center of the cargo compartment. It is permanently installed.

### 19-7. JUMP COMMANDS

Jump commands for the C-7A are as follows:

a. **GET READY.** Jumpers respond in the same manner as for other fixed-wing aircraft.

b. **PORT SIDE PERSONNEL, STAND UP.** Jumpers on the left side of the aircraft stand up, raise and secure their seats, and face the ramp of the aircraft.

c. **STARBOARD SIDE PERSONNEL, STAND UP.** Jumpers on the right side of the aircraft stand up, raise and secure their seats, and face the ramp of the aircraft.

d. **HOOKUP.** Even-numbered jumpers hookup between the odd-numbered jumpers to form a continuous stick of jumpers. The jumpers detach the static line snap hook from the top carrying handle of the reserve parachute and hook up to the anchor line cable with the open portion of the snap hook facing outboard, ensuring that the snap hook locks properly. The safety wire is inserted in the hole, pointing toward the rear of the aircraft, and folded down. The static line is controlled by each parachutist in a reverse bight at waist level in the left hand.

e. **CHECK STATIC LINES, CHECK EQUIPMENT, and SOUND OFF FOR EQUIPMENT CHECK.** These commands are executed in the same manner as with other fixed-wing aircraft.

f. **STAND BY/STAND IN THE DOOR.**

(1) **STAND BY.** The number 1 jumper, upon receiving the command **STAND BY**, assumes a standing position near the starboard side of the ramp hinge. The number 2 jumper stands on the port side of the aircraft slightly to the right of jumper number 1. The remaining personnel close up the interval behind the number 1 jumper.

(2) **STAND IN THE DOOR.** The proper door position is taken by the parachutists in both doors, with the appropriate foot resting on the elevated doorsill. There is no jump platform.

g. **GO.** Personnel exit the aircraft at 1-second intervals.

### 19-8. RAMP JUMPING

The number 1 jumper, upon receiving the command **GO**, walks off the port side rear corner of the ramp. The remaining jumpers follow at a 1-second interval. After the command **GO**, each jumper visually checks his body position for correctness and begins the 4000-count. (See Figure 19-2 for C-7A configuration for ramp jumping.)

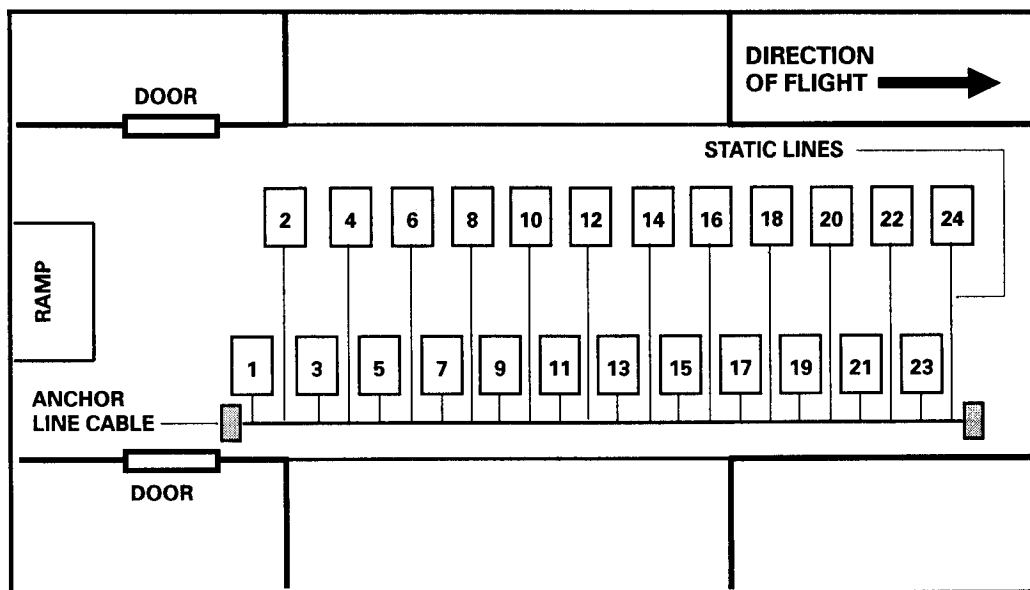


Figure 19-2. C-7A configuration for jumping from the ramp.

### 19-9. DOOR JUMPING

When the troop doors are used, simultaneous exits must not be made. Number 1 jumper exits the starboard door and number 2 exits the port door 1 second after number 1. The remaining parachutists alternate in numerical order at 1-second intervals. (See Figure 19-3 for C-7A configuration for door jumping.)

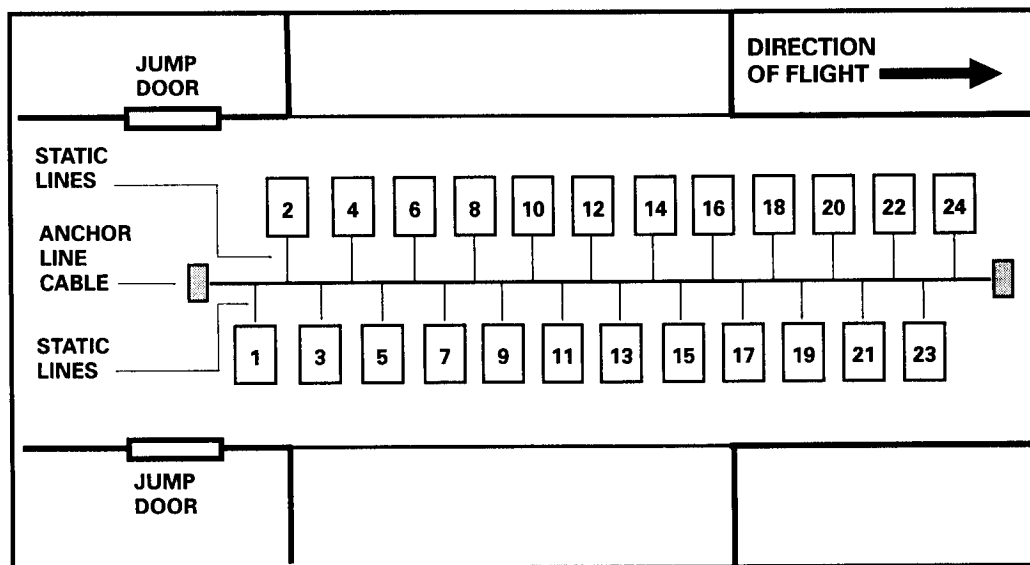


Figure 19-3. C-7A configuration for jumping from the doors.

## **19-10. SAFETY PRECAUTIONS**

Safety precautions for the C-7A are as follows:

### **a. Parachutists.**

(1) Parachutists ensure that all seats are secured in the up position when they stand to hook up. During extreme air turbulence, parachutists take a short bight on the static line and use the center anchor line to steady themselves.

(2) All parachutists remain off the ramp while it is being lowered to the 15-degree incline for aft end jumping. Parachutists walk down the ramp with feet spread wide to prevent striking the side of the aircraft. Upon exit from the aircraft, the parachutist brings the feet and knees together to form a tight body position. When following heavy equipment loads, parachutists exit between the roller conveyers of the aerial unloading kit.

### **b. Jumpmaster.**

(1) The JM or safety ensures personnel are hooked up in an alternating manner to the same anchor line cable and form one continuous stick of jumpers.

(2) For door jumping, the JM or safety taps out the jumpers alternately to preclude a simultaneous exit from both sides of the aircraft.

(3) Normally, a safety is required on the aircraft, but if no safety personnel are in the aircraft, the JM jumps last. He must hook up to the center anchor line cable and exercise caution to control his own static line and ensure it does not become fouled.

NOTE: The left troop door may be removed before the operation to allow the JM to look for the DZ. If worn, the restraint harness is attached to the centerline anchor cable as a safety measure.

### **c. Equipment.**

(1) When adjustable individual weapon cases are jumped from the doors, they must be reduced to 36 inches in length.

(2) When accompanying supplies and equipment are dropped from the doors, the bundles must be standard air delivery containers no larger than 40 by 24 by 36 inches.

(3) When ramp bundles are dropped, either the 15-foot static line with drogue or the breakaway static line may be used. When door bundles are dropped, the 15-foot static lines with drogues are used with cargo parachutes. The ramp roller conveyor section for the air unloading kit is installed on the port side of the ramp and is used to assist in ejecting the bundles from the ramp. Parachutists number 1 and number 2 push the bundles.

### **d. Aircraft.**

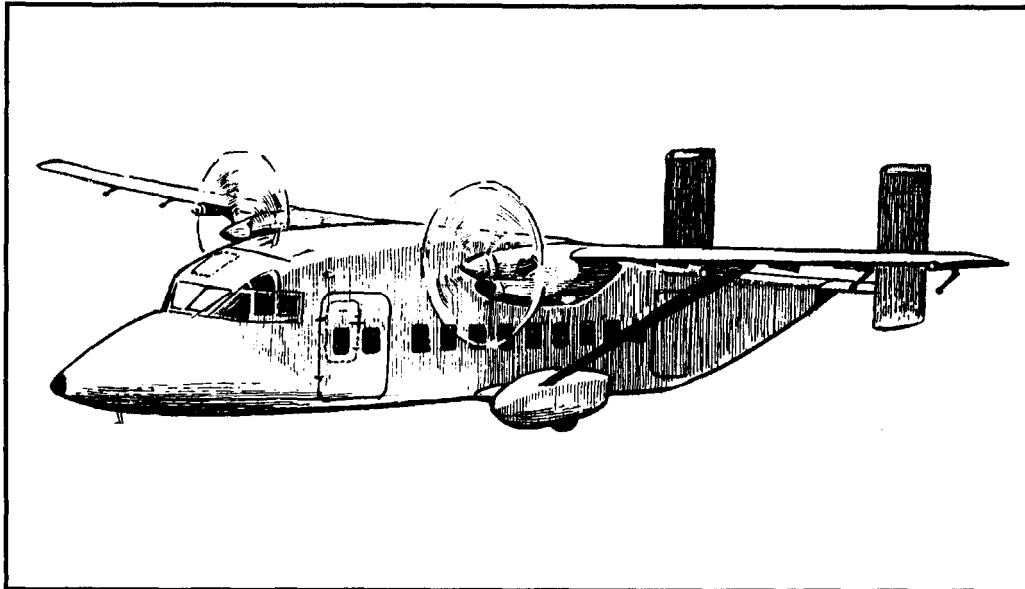
(1) The speed of the aircraft during the jump will not be less than 90 or more than 120 knots.

(2) When jumping from the doors, the crew chief must remove the doors and tape the rear portion of the door frames prior to takeoff.

(3) The rear tie-down ring, located beneath the tail section, should be removed prior to jumping. The ring can be unscrewed with a breaker bar or similar device.

### **Section III C-23B SHERPA**

The C-23B Sherpa aircraft is a twin-engine, unpressurized turboprop aircraft with a strut-braced and cantilevered high-wing monoplane with a retractable tricycle landing gear (Figure 19-4). The aircraft can transport 24 personnel in a troop-lift mode and 18 combat-equipped static line parachutists in the airdrop mode, using the port door. Troops may be loaded over the ramp or through the port door.



**Figure 19-4. C-23B Sherpa.**

#### **19-11. SEATING CONFIGURATION**

Eighteen parachutists are seated in two sticks of jumpers (Figure 19-5, page 19-8). Numbers 1 through 9 personnel are seated on the starboard side, and numbers 10 through 18 are seated on the port side.

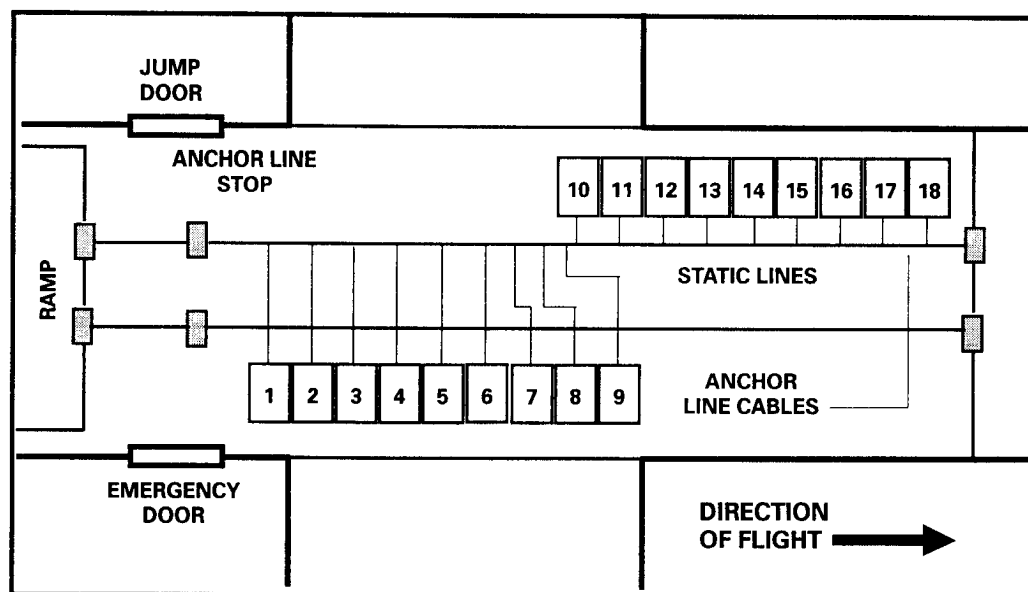


Figure 19-5. C-23B seating configuration.

#### 19-12. SUPERVISORY PERSONNEL REQUIRED

Three personnel supervise safety procedures: one JM who performs standard aircraft check procedures, one safety, and one loadmaster/crew chief.

#### 19-13. ANCHOR LINE CABLE ASSEMBLIES

There are two anchor line cable assemblies in the C-23B. They run from the reinforced anchor line attachment plate on the forward bulkhead to the anchor line connector at the center of the ramp hinge. Only the port side anchor line cable is used during jump operations.

#### 19-14. JUMP COMMANDS

Jump commands for the C-23B areas follows:

- a. **GET READY.** Jumpers respond in the same manner as for other fixed-wing aircraft.
- b. **STARBOARD SIDE PERSONNEL, STAND UP.** Jumpers on the right side of the aircraft stand up, raise and secure their seats, and face the aircraft ramp.
- c. **PORT SIDE PERSONNEL, STAND UP.** Jumpers on the left side of the aircraft stand up, raise and secure their seats, and face the aircraft ramp.
- d. **HOOK UP.** At this command, personnel numbered 1 through 9 (on the starboard side) move forward, across the aircraft centerline, and hook up on the port side anchor line cable to form a continuous stick of parachutists. They hook the open portion of the snap hook facing inboard over the left shoulder.



The jumpers detach the static line snap hook from the top carrying handle of the reserve parachute and hook up to the anchor line cable with the open portion of the snap hook facing inboard, ensuring that the snap hook locks properly. The safety wire is inserted in the hole, pointing toward the rear of the aircraft, and folded down.

e. **CHECK STATIC LINES, CHECK EQUIPMENT, and SOUND OFF FOR EQUIPMENT CHECK.** These commands are executed in the same manner as with other fixed-wing aircraft.

f. **STAND IN THE DOOR.** A proper door position is taken by the parachutist.

g. **GO.** Personnel exit the aircraft at 1-second intervals.

### 19-15. SAFETY PRECAUTIONS

Safety precautions for the C-23B areas follows:

#### a. Parachutists.

(1) Parachutists ensure that all seats are secured in the up position when they stand to hook up. During extreme air turbulence, parachutists take a short bight on the static line to steady themselves.

(2) When jumping combat equipment, the jumpers' LBE should be in the rucksack and not jumped exposed.

b. **Loadmaster/Crew Chief.** The troop jump door is opened in flight by the loadmaster/crew chief, who installs the door guard.

#### c. Jumpmaster.

(1) Ensures the port side wind deflector is installed before takeoff.

(2) Hooks up to the starboard anchor line cable.

(3) Controls and observes the personnel as they exit.

(4) Exits last.

#### d. Safety.

(1) Assists the loadmaster/crew chief install the door guard.

(2) Ensures personnel are hooked up consecutively to form one stick.

(3) Controls static lines as the JM approaches the door to exit.

#### e. Equipment.

(1) When adjustable individual weapon cases are jumped from the doors, they must be reduced to 36 inches in length.

(2) When accompanying supplies and equipment are dropped from the doors, the bundles must be standard air delivery containers no larger than 40 by 24 by 36 inches.

(3) When ramp bundles are dropped, either the 15-foot static line with drogue or the breakaway static line may be used. When A-7A and A-21 bundles are

dropped from the door, the 15-foot static lines with drogues are used with cargo parachutes.

NOTE: The C-23B has not been certified for static line personnel ramp jumps. Ramp jumps by static line personnel are not authorized.

(4) Troop seat construction restricts the fully loaded combat-equipped parachutist (with parachute and reserve) weight limit to not more than 260 pounds.

**f. Aircraft.**

(1) The speed of the aircraft during the jump will not be less than 100 or more than 110 knots.

(2) When conducting resupply missions over the ramp, the static line tail guard must be installed prior to takeoff. The jump door must be closed during ramp resupply bundle operations.

**g. Anchor Line Cable Safety Checks.**

(1) Stops are at station number 400.

(2) The cable has no breaks, frays, or kinks.

(3) It is clean and free of rust.

(4) The cable swage is present.

(5) The retrieval cable is attached along the starboard anchor line cable. A snap link (NSN 8465-00-360-0228) should be placed on the anchor line cable in front of the retrieval cable snap hook.

**h. Anchor Line Cable Aft Support Checks.**

(1) Cable, bolt, nut, and safety wire are present.

(2) Cable, locking bolt, nut, and safety wire are present.

**i. Emergency Equipment.**

(1) First aid kits are on board (2).

(2) Fire extinguishers are on board (2).

(3) Alarm bell system is operational.

(4) Emergency exits are operational, accessible, and unlocked prior to engine start-up.

**j. Miscellaneous.**

(1) Lighting system is operational.

(2) Airsickness bags are available.

(3) JM kit with extra equipment is on board.

NOTE: Loose equipment and jump door (removed) are lashed to the cargo ramp or to the forward bulkhead.

## Section IV

### C-27A (AERITALIA G-222)

The C-27A is a pressurized, medium transport aircraft developed from the Aeritalia G-222. It is a twin-engine, high-wing-mount, tailgate-equipped aircraft that is similar to a downsized C-130. The C-27A can carry 34 fully equipped combat troops, 28 static line paratroopers, 34 military free fall (MFF) parachutists, or 16 MFF parachutists on oxygen. It can airdrop up to six CDS bundles. Typical internal loads are two HMMWV or three full-sized 463L pallets that are turned sideways. Static line parachutists may be dropped using either of the two jump doors, but may not use the ramp. MFF personnel may use both jump doors or the ramp.

#### 19-16. SEATING CONFIGURATION

The seating configuration for the C-27A is as follows:

a. **Stick Configuration.** Parachutists are assembled into two sticks of jumpers. Jumper number 28 (the PJM) is seated on the port side of the aircraft forward of the jump door. Forward of him is number 13, then numbers 1 through 12. Jumper number 27 (the AJM) is seated on the starboard side of the aircraft just forward of the jump door. Forward of him is jumper number 26; then jumpers 14 through 25. The safeties sit on each side to the rear of the jump doors.

b. **Anchor Line Cables.** There are two anchor line cable assemblies in the C-27A. The anchor line cables are from the attachment point on the forward bulkhead, through the anchor line support bracket just behind both doors, then to the side of the aircraft over the tailgate. Each parachutist is issued main and reserve parachutes. Each parachutist is responsible for inspecting his parachute for safety wires and for fitting of the parachute harness.

#### 19-17. SUPERVISORY PERSONNEL REQUIRED

To ensure command and control when jumping one jump door, one jumpmaster, one nonjumping safety, and an airdrop certified USAF loadmaster are required. These personnel requirements double when using both troop doors.

#### 19-18. JUMP COMMANDS

Jump commands for the C-27A are as follows:

a. **Jump Commands.** The following nine jump commands are used whether the doors or the ramp are jumped.

(1) **GET READY.** Jumpers respond in the same manner as for other fixed-wing aircraft.

(2) **PORT SIDE PERSONNEL, STAND UP.** Jumpers on the left side of the aircraft stand up, raise and secure their seats, and face the ramp of the aircraft.

(3) **STARBOARD SIDE PERSONNEL, STAND UP.** Jumpers on the right side of the aircraft stand up raise and secure their seats, and face the ramp of the aircraft.

(4) **HOOK UP.** The jumpers detach the static line snap hook from the top carrying handle of the reserve parachute and hookup to the anchor line cable with the open portion of the snap hook facing inboard, ensuring that the snap hook locks properly. The safety wire is inserted in the hole, pointing toward the rear of the aircraft, and folded down.

(5) **CHECK STATIC LINES, CHECK EQUIPMENT, and SOUND OFF FOR EQUIPMENT CHECK.** These commands are executed in the same manner as with other fixed-wing aircraft.

(6) **STAND IN THE DOOR** A proper door position is taken by the parachutist.

(7) **GO.** Personnel exit the aircraft at 1-second intervals.

NOTE: Port side personnel exit first. After all port side personnel except the PJM have cleared the aircraft, the starboard side personnel (except the AJM) exit the aircraft. JMs “clear to the rear” of the aircraft, the AJM exits, and the PJM follows. All jumpers exit using the stand-in-the-door type door exit.

b. **Modification of Jump Commands.** At the 10-minute warning, the PJM and AJM send jumpers number 13 and number 26 to the forward end of the aircraft to take their correct place in the stick. The two seats forward of both jump doors are folded upright and secured. The two safeties fold their seats upright and secure them.

## 19-19. SAFETY PRECAUTIONS

Safety precautions for the C-27A are as follows:

a. **Jumpmasters.** The JMs inspect the door platforms after the doors are opened. The JMs hook up to the cables on their side of the aircraft. They control and observe the personnel as they exit. JMs exit last.

b. **Safeties.** The safeties assist the loadmaster in installation of the door platforms if they are to be installed in-flight. They ensure personnel hook up consecutively and that jumpers number 13 and 26 are in the correct position. The safeties control the static lines as the jumpers approach the door to exit. They assist the loadmasters when retrieving the deployment bags.

c. **Equipment.** Standard combat equipment can be jumped out of the doors, which are 36 by 75 inches. Standard door bundles (that is, A-7A/A-21) can be dropped out of the doors. The 15-foot static line with drogue is used. Troops may follow.

d. **Aircraft.** The drop speed of the aircraft is 125 knots. Both doors cannot be jumped at the same time. The ramp of this aircraft cannot be used for static line ramp exits.

## 19-20. OVER-THE-RAMP OPERATIONS

Considerations for over-the-ramp operations follow.

a. **Static Line Operations.** The erratic behavior of the deployment bags poses a serious safety hazard; the C-27A cannot be used for static line over-the-ramp operations.

b. **Equipment Drop.** Door bundles can be pushed off the ramp. The rollers can be installed on the ramp to aid in handling larger bundles.

c. **Military Free Fall.** MFF exits can be made over the ramp when both doors are closed. The C-27A will hold 34 MFF jumpers; however, it is recommended the number of MFF jumpers be limited to 16 when oxygen consoles are installed, due to overcrowding in the aircraft. The using unit must provide two console positions for the loadmasters to use during MFF jumps above 10,000 feet. It is very difficult for the JM to spot the release point from the aircraft during ramp exits. Therefore, the JM should not wear an ALICE pack for this type operation, and the unit should use a nonjumping JM.

## 19-21. JOINT PREFLIGHT INSPECTION

The C-27A is inspected as follows:

a. **JM/Aircraft Commander/Loadmaster Coordination.** The JM is responsible for informing the aircraft commander and loadmaster of the exact time sequence of prejump procedures. Following preliminary orientation, and before loading personnel on board the aircraft, the JM and loadmaster make a joint inspection of the aircraft. The purpose of the joint inspection is to verify the readiness of the aircraft for the conduct of the mission and to take actions necessary to achieve this readiness.

b. **Exterior Inspection.** An external inspection of the aircraft is made to detect hazards to the airdrop of personnel. Particular attention is directed to those areas to the rear of the aft paratroop doors. Any protruding objects and sharp edges are removed, or padded and taped.

c. **Interior Inspection.** An interior inspection checks for the following:

- (1) Any sharp edge or protrusion is securely taped and padded, as required.
- (2) All equipment in the cargo compartment is securely stowed and lashed.
- (3) The floor is clean and free of lubricants; no obstructions are on the walkway or along the paratroop exit route (outboard area between the safety fence and fuselage).
- (4) Anchor line cables are installed.
- (5) A seat and seat belt are available in the troop compartment for each parachutist.
- (6) The retrieval system is installed in the aircraft with the winch cable retained in clips and free of the anchor line cable.
- (7) Windscreen systems are available/installed.

- (8) Jump platforms are available/installed.
- (9) Jump caution lights are operational.
- (10) Troop compartment lights are operational.

**d. Jumpmaster Preload Inspection of Parachutists.** The PJM/AJM inspects each parachutist, parachute, and parachutist's equipment prior to loading the aircraft.

## **19-22. LOADMASTER BRIEFING**

As soon as all parachutists are seated, the loadmaster briefs them on aircraft safety, emergency procedures, and comfort facilities.

## **19-23. TIME WARNINGS**

Time warnings are as follows:

**20-Minute Warning.** JMs check personnel and equipment. Missile jump packs are attached to the parachutists and their HSPR leg straps secured, and door bundles are moved near the personnel doors.

**10-Minute Warning.** Final on-board JMPI of all parachutists is complete. A verbal and visual 10-minute warning is given to the JMs by the loadmaster, and the JMs begin jump commands.

**Slow-Down Warning.** About 3 minutes from drop time, the jump commands are completed. Personnel doors are opened, and jump platforms are extended and locked.

**1-Minute Warning.** JMs alert troops and make safety checks from personnel doors. The AJM informs the PJM that his side is clear and that it is safe to jump.

**10-Second Warning.** The loadmaster gives the JMs a visual 10-second warning. At this time the PJM gives the command STAND IN THE DOOR, and the number 1 jumper assumes a proper door position. The remainder of the stick shuffles aft to closeup the stick.

**Green Light, GO.** At the green light, the PJM taps out the first man. Port side personnel exit first. After all port side personnel have cleared the aircraft, the starboard side personnel exit the aircraft. JMs "clear to the rear" of the aircraft, the AJM signals to the PJM that all jumpers are clear of the aircraft, the AJM exits, and then the PJM exits. All jumpers exit using the stand-in-the-door exit.

## **19-24. ADDITIONAL SAFETY PRECAUTIONS**

Further safety precautions for the C-27A follow.

**a. Platforms, Air Deflectors, Aft Cargo Door.** The JMs must ensure that jump platforms and windscreens are available. This equipment is mandatory for each aft personnel door that is to be used.

b. **Door Bundles.** When personnel follow door bundles, the door bundle static line will be outfitted with a drogue.

c. **Movement Into the Door.** Parachutists exercise caution as they move to the door to avoid becoming entangled with the static lines of preceding parachutists. This precautionary action may slow movement into and out of the door.

## **19-25. C-27A JUMPMaster CHECKLIST**

The jumpmaster follows this checklist.

### **a. Seats.**

- Adequate seats for troop load are on board.
- All seats have safety belts.
- Seat backs are secure.
- Seats are serviceable.
- There are no projections through seats; pairs of seats forward of each troop door have a strap attached to secure them in the upright position.

### **b. Floor.**

- Nonskid surface covering is in good condition.
- Floor is clean and safe to walk on.
- Roller conveyors are stored.
- Loose equipment is secured in the cargo ramp area and does not interfere with troops.
- Equipment tie-down rings are depressed into their recesses.

### **c. Jump Platforms.**

- Nonskid surface covering is present and in good condition.
- There are no cracks or bends.
- Studs are locked in seat track receptacles.
- Tie-down fitting is locked.
- All bolts and nuts are present.
- Platforms swing in and out easily.

### **d. Jump Doors.**

#### **(1) Ground check.**

- There are no sharp or protruding edges on door frames.
- Doors open and close easily.

#### **(2) Prior to exit.**

- The platforms are locked into the two “keyholes” on the floor and slid to the rear of the aircraft. The large portion of the keyhole slot should be visible.
- The platform locking lever on the leading edge of the door should be in its locked position. The lug this lever controls should be engaged to the door frame.
- The platform locking lever should be taped in place to help prevent any jumpers from inadvertently unlocking it.
- The flange on the trailing side of the platform must overlap the inside of the door frame approximately ½ inch.

e. **Jump Lights** (5 total).

- Rear at the forward left door.
- Rear of both troop doors.
- High above and to the rear of the ramp on both sides.

f. **Static Line Anchor Cable System.**

- Forward end of cable is firmly secured to bracket on bulkhead with three threads showing on turnbuckle.
- Rear of cable has a pin in it with tape.

g. **Anchor Cable.**

- Cable has no breaks.
- Cable has no frays.
- Cable has no kinks.
- Cable is clean and free of rust.
- Static line stop is present.
- Support bracket at the trailing edge of the door is locked in place to support the cables.

h. **Static Line Retrievers.**

- Motor is operational.
- Cable is secured to ceiling with one turn of double 1/4-inch cotton webbing.
- The Y attachment is in place so one retrieval cable can pull in two groups of deployment bags. (Y cable is used if both jump doors are used.)
- Retriever cables are not broken, frayed, or kinked. They are clean and free of rust.



- Phenolic block/anchor cable spool is installed on both anchor cables with the pull ring on the forward end.
- Retriever equipment is available.

**i. Emergency Equipment.**

- First aid kit is on board (1).
- Fire extinguishers are on board (2).
- Alarm system is operational.
- Emergency exits are operational and accessible.
- Sufficient emergency parachutes are available.

**j. Miscellaneous.**

- Day lighting system is operational.
- Night lighting system is operational.
- airsickness bags are available.
- JM kit (extra equipment) is on board.
- Earplugs are available.
- Heavy tape is available to secure the platform and windscreen locking lever.
- If jump platforms and windscreen are not installed in the doors, they must be secured to the upper ramp.
- All equipment and crew baggage is secured to the floor.
- During the jump briefing, the jumpers are warned to avoid striking or grabbing the door platform/windscreen locking lever on the leading edge of the door.

**WARNING**

IT IS A SERIOUS HAZARD TO THE EXITING PARACHUTIST IF THE WINDSCREEN LOCKING LEVER SWINGS INTO THE OPEN DOOR.

**k. Tailgate Drops (MFF and Bundles Only).**

- Ensure that the loadmaster installs the stops on both sides of the tailgate so that it will be level with the aircraft floor when open.
- Disengage the support bracket near the door for bundle drops that use the retrieval system to pull in the static lines.

- Secure the retrieval cable against the anchor line in several places with breakaway ties starting at the rear of the cable and ending at the tailgate hinge. This will prevent the tailgate from cutting the retrieval cable during operation.

**l. Aircraft Slow-Down Warning At 3 Minutes.**

- Doors are opened and locked in place.
- Air deflectors are extended.
- Jump platforms are locked in place.

**m. Loadmaster/JM Safety Checks.**

- Door bundles employ approximately 15-foot long static lines with three drogue parachutes.
- Jump platform is secure and will sustain parachutist's weight.

## **Section V**

### **C-46 COMMANDO/C-47 SKY TRAIN**

The C-46 and the C-47 are twin-engine, short-range transport aircraft. Because of the similarity in characteristics and procedures, both aircraft are discussed in this section.

#### **19-26. SEATING CONFIGURATIONS**

Seating configurations for the C-46 and C-47 are as follows:

a. **C-46.** A total of 27 parachutists can be jumped from the C-46 using both aft troop doors. This aircraft can accommodate two sticks. A 14-man stick sits on the starboard side and a 13-man stick sits on the port side.

b. **C-47.** A total of 24 parachutists can be jumped from the C-47 using the aft troop door. This aircraft can accommodate two sticks. A 12-man stick sits on the starboard side and a 12-man stick sits on the port side.

#### **19-27. JUMP PROCEDURES**

Jump procedures for the C-46 and C-47 are as follows:

**a. C-46 Jump Commands.**

(1) **GET READY.** Jumpers respond in the same manner as for other fixed-wing aircraft.

(2) **STAND UP.** The parachutists near the doors stand and steady themselves by firmly grasping a structural member of the cargo compartment wall.

(3) **HOOK UP.** The open portion of the static line snap hook is away from the parachutist and toward the floor of the aircraft when he hooks up. The elbow of the arm holding the static line is kept close to the body. The static line is controlled by each parachutist in a reverse bight at waist level in the left hand.

(4) **CHECK STATIC LINES.** Each jumper checks the man in front to ensure the static line snap hook cover on the 5-foot static line extension covers the snap hook.

(5) **CHECK EQUIPMENT.** Each jumper checks the man in front to ensure that the man's elbow is close to his body and the static line extension hangs below and behind the arm.

(6) **SOUND OFF FOR EQUIPMENT CHECK.** This command is executed in the same manner as with other fixed-wing aircraft.

(7) **STAND IN THE DOOR.** A proper door position is taken by the parachutists in both doors.

(8) **GO.** Personnel exit the aircraft at 1-second intervals.

**b. C-47 Jump Commands.**

(1) **GET READY.** Jumpers respond in the same manner as for other fixed-wing aircraft.

(2) **PORT SIDE PERSONNEL, STAND UP.** The odd-numbered jumpers seated on the left side of the aircraft stand up, secure their seats in the down position, and face the rear of the aircraft.

(3) **STARBOARD SIDE PERSONNEL, STAND UP.** The even-numbered jumpers seated on the right side of the aircraft stand up, secure their seats in the down position, and face the rear of the aircraft.

(4) **HOOK UP.** The even-numbered jumpers hook up between the odd-numbered jumpers to form a staggered stick of jumpers. The static line is controlled by each parachutist in a reverse bight at waist level in the left hand.

(5) **CHECK STATIC LINES.** Each jumper checks the man in front to ensure the static line snap hook cover on the 5-foot static line extension covers the snap hook.

(6) **CHECK EQUIPMENT.** Each jumper checks the man in front to ensure that the man's elbow is close to his body and the static line extension hangs below and behind the arm.

(7) **SOUND OFF FOR EQUIPMENT CHECK.** Jumpers respond to this command in the same manner as with other fixed-wing aircraft.

(8) **STAND IN THE DOOR.** A proper door position is taken by the parachutists in both doors.

(9) **GO.** Personnel exit the aircraft at 1-second intervals.

**19-28. SAFETY PRECAUTIONS**

Safety precautions for both aircraft are as follows:

- a. Parachutists ensure all seats are in the down position when they stand to hook Up.
- b. Upon exit from the aircraft, parachutists bring the feet and knees together to form a tight body position.

**19-29. SAFETY PERSONNEL AND JUMPMaster RESPONSIBILITIES**

Responsibilities for the safety and jumpmaster follow.

**a. C-46.**

(1) The JM or safety ensures personnel hook up in an alternating and consecutive fashion.

(2) One safety is required when jumping the C-46. After the safety has checked each parachutist, the safety then moves aft of the door and physically controls the JM's static line.

(3) Due to the movement of the safeties and length of the aircraft, it is advisable to use an USAF BA-18 emergency parachute when using one safety for each door. When using the safety harness, two safeties are required per door. Safety number 1 is positioned forward to inspect jumpers. Safety number 2 is positioned aft to assist the JM.

NOTE: Although the C-46 has two aft troop jump doors, normally only the left aft troop door is used for jumping. When both doors are used, one safety for each door is required. The JM, or safety, taps out parachutists alternately at 1-second intervals to preclude simultaneous exits from both sides of the aircraft.

(4) Normally, the JM exits first when jumping this aircraft. When the JM gives the command, STAND IN THE DOOR, he moves to the door and assumes a proper door position. On the command GO, the JM looks at the number 2 man and gives the command GO, and then he exits the aircraft. Once the JM exits, the safety controls the static lines and the parachutists' flow out of the aircraft.

**b. C-47.**

(1) The JM or safety ensures personnel hookup consecutively.

(2) One safety is required when jumping the C-47. After the safety has checked each parachutist, the safety then moves aft of the door and physically controls the JM's static line.

(3) Due to the movement of the safeties and length of the aircraft, it is advisable to use a USAF BA-18 emergency parachute when using one safety. When using the safety harness, two safeties are required. Safety number 1 is positioned forward to inspect jumpers. Safety number 2 is positioned aft to assist the JM.

(4) The JM must exit first when jumping this aircraft. When the JM gives the command, STAND IN THE DOOR, he moves to the door and assumes a proper door position. On the command GO, the JM looks at the number 2 man and gives the command GO, and then he exits the aircraft. Once the JM exits, the safety controls the static lines and the parachutists' flow out of the aircraft.

c. **Parachute Fouling.** To prevent fouling of the T-10 or MC1-1 type parachute on the aircraft when jumping the C-46 or C-47, a 5-foot static line extension must be used. This extension has a snap hook at one end and a nondetachable connector link at the other end. The connector link on the extension is attached to the snap hook of the parachute static line. The snap hook on the parachute static line is safetied with a short piece of wire covered with a canvas duck sleeve and taped in place. The extension is stowed by using rubber retainer bands, continuing to stow the extension on the pack body. When the stow is completed, the static line and extension should have four stows on the right and three stows on the left.

NOTE: When jumping the C-46 utilizing the MC1-1, parachutists use only the left aft door.

d. **Anchor Line Cables.**

(1) **C-46.** The C-46 has two anchor line cables. Both anchor line cables must be detached from their floor fittings and anchored to the floor in the rear section of the cargo compartment. A wooden block is used to support the cable at the anchor point.

(2) **C-47.** The C-47 has one permanently installed anchor line cable that must be secured to the overhead attachment points provided in the center of the aircraft.

- The aft edge of the jump door is lined with a smooth metal tubular stripping, or it is padded and taped.
- The flooring of the jump door is made smooth by the insertion of an additional plywood section to butt against the tubing and existing flooring.
- If aft troop exit doors are installed, they are opened at the 20-minute warning.
- A slowdown from cruise airspeed (when applicable) is initiated in enough time to allow drop speed cruise 2 minutes prior to drop time.
- Personnel and cargo drops are normally made from 105 to 125 knots.
- When possible, during personnel drops, propeller RPM should be reduced to lessen the blast effect on the jumpers.

## Section VI

### DC-3 (CONTRACT AIRCRAFT/CIVILIAN SKY TRAIN)

The DC-3 is the civilian version of the C-47 Skytrain. Like the C-47, the DC-3 is a twin-engine, short-range transport aircraft.

#### 19-30. SEATING CONFIGURATION

The seating configuration on the DC-3 is as follows:

- a. A total of 24 parachutists can be jumped from the DC-3 using the aft troop door. This aircraft can accommodate two sticks. A 12-man stick sits on the starboard side, and a 12-man stick sits on the port side.
- b. Contract DC-3 aircraft are not rigged with paratroop seats or with individual seat belts. Jumpers are required to sit on the floor. They are restrained by one safety belt over the entire stick of jumpers. USAF 10,000-pound tie-down straps or C-3A (NSN 1670-00-447-9504) modified safety belts must be supplied by the using unit.

#### 19-31. JUMP COMMANDS AND PROCEDURES

Jump commands and procedures for the DC-3 follow.

- a. **GET READY.** Jumpers respond in the same manner as for other fixed-wing aircraft.
- b. **PORT SIDE PERSONNEL, STAND UP.** The odd-numbered jumpers seated on the left side of the aircraft stand up.
- c. **STARBOARD SIDE PERSONNEL, STAND UP.** The even-numbered jumpers seated on the right side of the aircraft stand up.
- d. **HOOK UP.** The open portion of the static line snap hook is toward the port side of the aircraft. The elbow of the arm holding the static line is kept close to the body. The static line is controlled by each parachutist in a reverse bight at waist level in the left hand. The odd-numbered jumpers hook up first, then the even-numbered jumpers hook up between the odd-numbered jumpers to form a staggered stick of jumpers.
- e. **CHECK STATIC LINES.** Each jumper checks the man in front to ensure the static line snap hook cover on the 5-foot static line extension covers the snap hook.
- f. **CHECK EQUIPMENT.** Each jumper checks the man in front to ensure that the man's elbow is close to his body and the static line extension hangs below and behind the arm.
- g. **SOUND OFF FOR EQUIPMENT CHECK.** Jumpers respond in the same manner as with other fixed-wing aircraft.

h. **STAND IN THE DOOR.** A proper door position is taken by the parachutists in both doors.

i. **GO.** Personnel exit the aircraft at 1-second intervals.

### 19-32. SAFETY PRECAUTIONS

Safety precautions for the DC-3 are as follows:

#### a. Parachutists.

(1) Jumpers hook up using a reverse bight, with the elbow of the arm holding the static line kept close to the body.

(2) Upon exit from the aircraft, jumpers bring the feet and knees together to form a tight body position.

#### b. Safety Personnel Duties.

(1) When using DC-3 aircraft, the safety also performs duties as a loadmaster. Prior to takeoff, the safety ensures all jumpers are secured and prepared for takeoff.

(2) After he has checked each parachutist, the safety moves to the aft end of the aircraft, aft of the door, and physically controls the JM's static line.

(3) The safety maintains communications with the pilots through the ICS located in the aft of the aircraft, and relays all information to the JM.

(4) Due to the movement of the safeties and length of the aircraft, it is advisable to use an USAF BA-18 emergency parachute when using one safety. When using the safety harness, two safeties are required. Safety number 1 is positioned forward to inspect jumpers. Safety number 2 is positioned aft to assist the JM.

c. **Jumpmaster.** The JM must exit first when jumping this aircraft. When the JM gives the command, **STAND IN THE DOOR**, he moves to the door and assumes a proper door position. On the command **GO**, the JM looks at the number 2 man and gives the command **GO**, and then he exits the aircraft. Once the JM exits, the safety controls the static lines, the parachutists' flow out of the aircraft, and the jumper interval.

d. **Anchor Line Cables.** The permanently installed anchor line cable must be secured to the overhead attachment points provided in the center of the aircraft. On the C-47, the aft anchor point for the cable is located at the aft right side of station number 542. When the anchor line cable anchor point on the DC-3 is at station number 542, all procedures relevant to the C-47 (paragraph 19-13) apply. If the contractor has moved the aft anchor point to the aft left side and if the anchor point is being used for static line personnel airdrops, no 5-foot static line extension is used.

#### e. Jump Door.

(1) The aft DC-3 cargo door must be removed and rigged for jumping prior to takeoff.

(2) The aft edge of the cargo/jump door is rigged with a smooth metal tubular stripping or padded and taped.

(3) The two aft cargo door hinges, door hasp, and the door knob are padded and taped.

## Section VII

### C-212 (CASA 212)

The C-212 is a twin-engine, high-wing, multipurpose light transport designed for operations involving short, rough airfields (Figure 19-6). The aircraft can transport 24 personnel in a troop lift mode and 15 combat-equipped parachutists in the airdrop mode using the port door. Troops are loaded over the ramp.

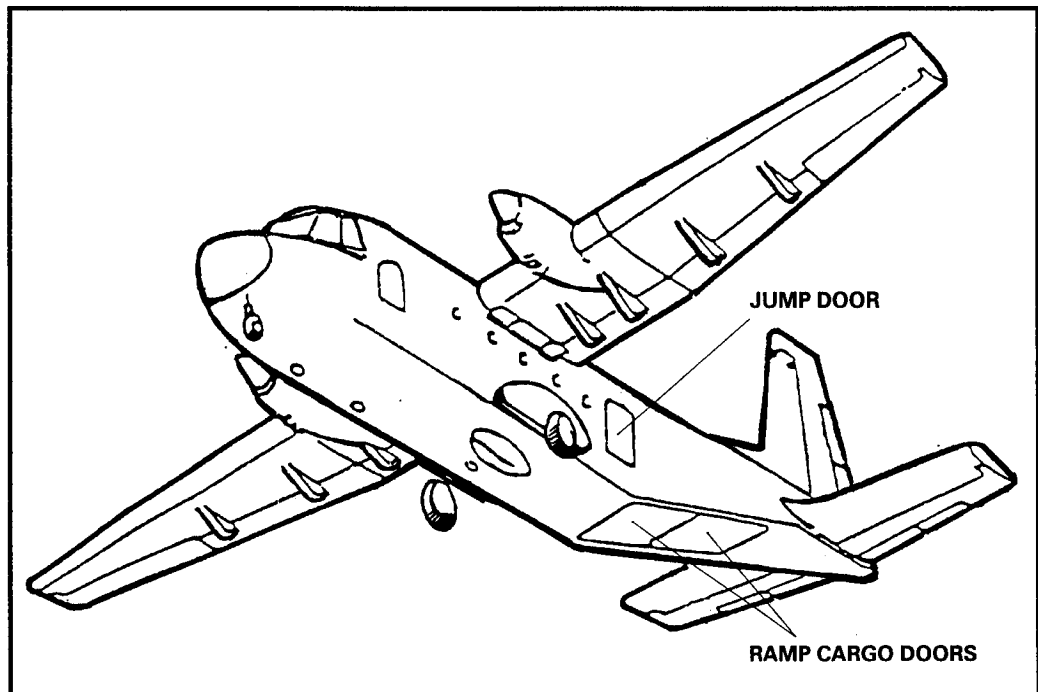


Figure 19-6. C-212 (Casa 212).

### 19-33. SEATING CONFIGURATION

Fifteen parachutists are seated in two sticks of jumpers (Figure 19-7). The odd-numbered personnel (8) are seated on the starboard side and the even-numbered personnel (7) are seated on the port side.



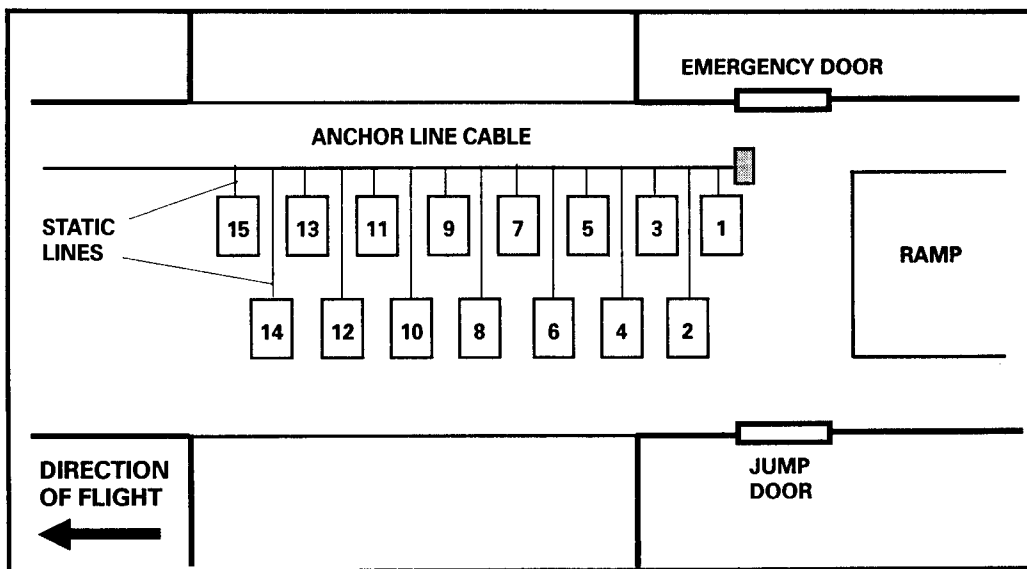


Figure 19-7. C-212 seating configuration.

#### 19-34. ANCHOR LINE CABLE ASSEMBLY

There is one anchor line cable assembly in the C-212. It runs from the reinforced anchor line attachment plate on the forward bulkhead to the anchor line connector near the right side of the aft starboard emergency door.

#### 19-35. SUPERVISORY PERSONNEL REQUIRED

The following personnel are required for airdrop operations from the C-212: one jumpmaster to perform standard aircraft check procedures, one safety, and one loadmaster/crew chief.

#### 19-36. JUMP COMMANDS

The following jump commands are used with the C-212 aircraft.

- a. **GET READY.**
- b. **STARBOARD SIDE PERSONNEL, STAND UP.**
- c. **PORT SIDE PERSONNEL, STAND UP.**
- d. **HOOK UP.** On this command, the odd-numbered personnel hook up between the even-numbered personnel to form a continuous stick of parachutists, hooking the open portion of the snap hook facing inboard over the left shoulder.
- e. **CHECK STATIC LINES, CHECK EQUIPMENT, and SOUND OFF FOR EQUIPMENT CHECK.** These commands are executed in the same manner as with other fixed-wing aircraft.
- f. **STAND IN THE DOOR.** A proper door position is taken by the parachutist.
- g. **GO.** Personnel exit the aircraft at 1-second intervals.

**19-37. SAFETY PRECAUTIONS**

Safety precautions for the C-212 areas follows:

**a. Parachutists.**

(1) Ensure that all seats are secured in the up position when parachutists stand to hook up. During extreme air turbulence, parachutists take a short bight on the static line to steady themselves.

(2) Parachutists remain off the ramp while it is being lowered for over-the-ramp operations.

NOTE: The troop door may be removed before the airborne operations to assist the JM to look for the DZ. The safety restraint harness is attached to the 500-pound tie-down positions on the floor of the aircraft out of the way of the jumpers.

**b. Jumpmaster.**

(1) The JM or safety ensures all personnel properly hook up.

(2) The JM (if no safety personnel are in the aircraft) jumps last, hooking up to the anchor line cable, ensuring his static line does not become fouled.

NOTE: On aircraft that do not have a positive communication system, the following safety measure is recommended: one ring on the alarm bell signals the JM to look at the jump light or communicate with the cockpit.

**c. Equipment.**

(1) When adjustable individual weapons cases are jumped from the door, they must be reduced to 36 inches in length.

(2) When accompanying supplies and equipment are dropped from the door, the bundles must be standard air delivery containers no larger than 40 by 24 by 36 inches.

(3) When ramp bundles are dropped, either the 15-foot static line with drogue or the breakaway static line may be used. When door bundles are dropped, the 15-foot static line with drogue is used with cargo parachutes.

(4) When ramp bundles are dropped, troops may follow out the troop door. The JM and safety or loadmaster push the bundles out.

**d. Aircraft.**

(1) Aircraft speed during the jump is 90 to 110 knots.

(2) When parachutists are jumping from the troop door, the door may be opened or removed and set into the door recess provided on the ramp.

(3) When conducting bundle operations from the ramp, the JM must close the door. The door may be opened or removed before the ramp is lowered.

(4) The Omega antenna, located beneath the tail section, must be removed prior to ramp bundle operations.

**19-38. TOWED PARACHUTIST PROCEDURES**

Procedures outlined for other fixed-wing aircraft will be followed for the C-212.

**19-39. AIRCRAFT CONFIGURATION FOR RAMP STATIC LINE PERSONNEL AIRDROP**

The loadmaster configures the aircraft. The JM should verify the configuration. Static line ramp parachute operations are authorized only when the retrieval system is operational.

a. The aircraft is configured for a static line personnel airdrop. One of each of the following items of equipment is needed:

- (1) Hand winch.
- (2) Static line deflector block.
- (3) Retrieval bar.
- (4) Retrieval strap.
- (5) Extended interphone cord.
- (6) 2,500-pound tie-down strap.
- (7) 5,000-pound tie-down strap.
- (8) One 3-foot length of 1-inch tubular nylon.
- (9) Cloth-backed adhesive tape.
- (10) Anchor cable.
- (11) Two restraint harnesses.

b. Install and preflight inspect the following equipment:

(1) Attach hand winch to right tie-down row in zone 1 and check for security.

(2) Inspect cable for broken wires or kinks and check for operation.

(3) Ensure static line deflector block is attached to the right side of the ramp. Cover the bolt head with tape.

(4) Inspect retrieval base on board and attaching brackets.

(5) Install and check extended interphone cord for operation.

(6) Fit and adjust restraint harnesses.

(7) Ensure that the 3-foot length of 1-inch tubular nylon and the 5,000-pound tie-down strap are secured and available for immediate use.

**19-40. C-212 JUMPMaster CHECKLIST**

The jumpmaster follows this checklist for the C-212:

**a. Seats.**

- Adequate seats are available for troop load.
- All seats have safety belts.
- Seat backs are secure.

- Seats are serviceable.
- There are no projections through seats.
- b. Floor.**
  - Nonskid surface covering is in good condition.
  - Floor is clean and safe to walk on.
  - Loose equipment is secured and does not interfere with troops.
- c. Jump Door.**
  - There are no sharp or protruding edges on door frame.
  - Door opens and closes easily.
  - Door sits in ramp recess properly.
- d. Jump Lights.** Check sets for operation.
  - Set 1—above port aft jump door.
  - Set 2—above starboard aft emergency door. Check alarm bell; it is the signal for exiting.
- e. Static Line Anchor Cable System.**
  - (1) ***Forward support beam***
    - Bolts, nuts, and safety wire are present.
    - Anchor cable is attached to centerline anchor point.
    - Cable bolt, locking bolt, nut, and safety wire are present.
    - Anchor line tension indicator—red line indicator should not be seen.
  - (2) ***Anchor cable.***
    - Cable has no breaks.
    - Cable has no frays.
    - Cable has no kinks.
    - Cable is lean and free of rust.
    - Swage is present.
  - (3) ***Anchor line cable aft support.***
    - Cable, bolt, nut, and safety wire are present.
    - Cable, locking bolt, nut, and safety wire are present.
- f. Emergency Equipment.**
  - First aid kits are on board (2).
  - Fire extinguishers are on board (2).
  - Alarm system is operational.

- Emergency exits are operational and accessible.
- Sufficient emergency parachutes are available.

**g. Miscellaneous.**

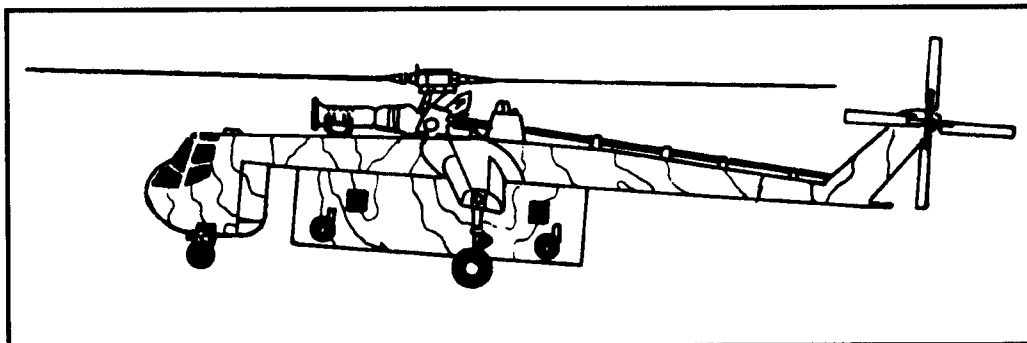
- Lighting system is operational.
- Airsickness bags are available.
- JM kit (extra equipment) is on board.
- Earplugs are available.

NOTE: Loose equipment and jump door (removed) are lashed to the cargo ramp or to the rear of the forward bulkhead.

## **Section VIII**

### **CH-54 SKYCRANE (US ARMY)**

The CH-54 is a twin-turbine powered, heavy-lift helicopter (Figure 19-8). It is employed in the air transport of heavy or outsized equipment and supplies. It can be configured to carry cargo and personnel in a module (pod) that is attached to the aircraft by a four-point hookup system. The CH-54B universal military pod is a monocoque structure with a rear-loading, split ramp that extends the fill width and height of the pod. A small door, which is not used in jump operations, is forward on each side. Twelve parachutists without combat equipment or ten parachutists with combat equipment can be delivered on one pass over the DZ. Twenty-four parachutists without combat equipment or twenty parachutists with combat equipment can be carried on one mission; however, they must be divided into two or more smaller sticks requiring multiple passes over the DZ. One nonjumping (static) JM is required. Only the aft pod opening is used for parachuting.



**Figure 19-8. CH-54 Skycrane with pod.**

### 19-41. PREPARATION AND INSPECTION

Prepare and inspect the CH-54 as follows:

a. **Preparation.** The following steps prepare the CH-54 for jumping:

(1) Both rear loading ramps are removed.

(2) The seats are placed in two rows (12 seats each) facing starboard with the outboard seats on the port side of the pod and the inboard seats on the centerline. The last three tie-down rings (numbers 14A-E through 16A-E) are not used.

(3) The ends of the top horizontal supports on the back of the center row of seats are taped between each seat section to prevent items from becoming entangled in the seat back supports (Figure 19-9).

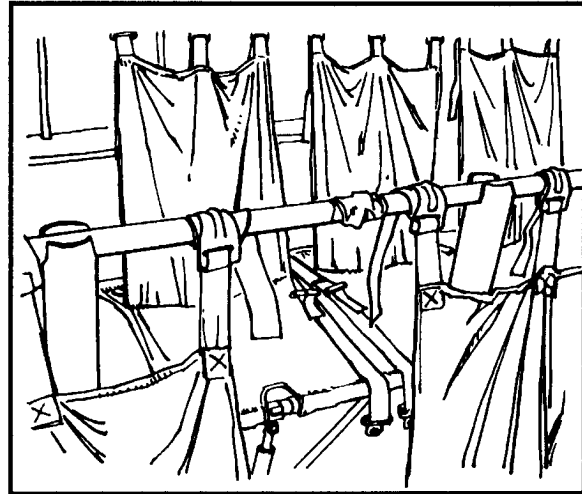


Figure 19-9. CH-54 horizontal supports taped.

(4) An anchor line cable assembly (Figure 19-10) is installed on the starboard side of the floor by using the two top tie-down fittings at the forward end (numbers 1F and 2F) and the two tie-down fittings at the aft end (numbers 15F and 16F) as attachment points. One 1/4-inch steel cable (MIL-C-5424 or MIL-C-1511) or 3/8-inch steel cable (MIL-W-12567), 29 feet long, is used with six cable clamps, lock washers, and bolts. Two bolts with clamps face outboard and one bolt with clamps faces inboard. Wooden blocks are placed between the anchor line cable and the floor.

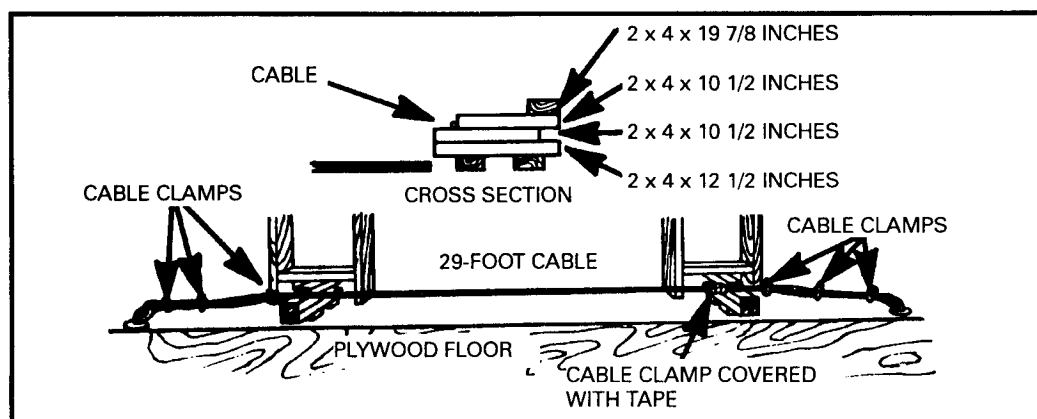


Figure 19-10. CH-54 anchor line cable assembly.

(5) The free ends of the cable, cable clamps, and inboard sides of the wooden blocks are taped.

(6) A 3-foot-wide section across the aft portion of the pod floor is coated with nonskid paint material (Figure 19-11). An arrow 4 inches wide and 24 inches long is placed on the floor with white tape to indicate position and direction of exit.

(7) The safety gate is fabricated and installed at the aft end of the pod (Figure 19-12). Materials needed are as follows:

- Nylon webbing, Type VIII, 87 ½ inches long (2 each).
- Nylon webbing, Type VIII, 74 ¼ inches long (2 each).
- Nylon webbing, Type VIII, 36 inches long (2 each).
- Nylon webbing, Type VIII, 43 inches long (7 each).
- Nylon webbing, Type VIII, 1 23/37 inches wide, FSN 8305-361-8585.
- Snaps, part number MS22044-1 (4 each).
- Quick-fit adapter, part number MS2207-1 (2 each).
- Thread, nylon, size FF, FSN 8310-227-1244.
- Sewing machine, number 11W155.

The safety gate is sewn with 28 four-point WW stitch formations, 4 inches long.

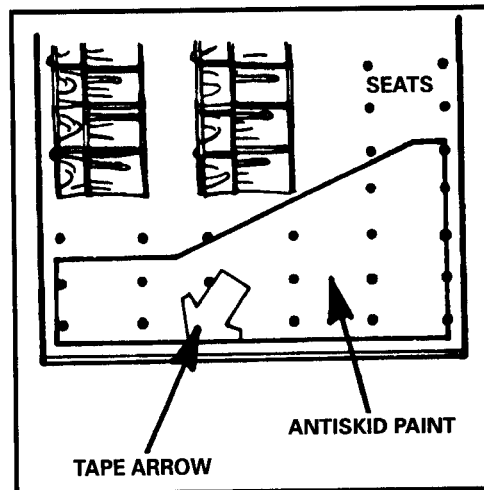


Figure 19-11. CH-54 pod floor with nonskid paint material.

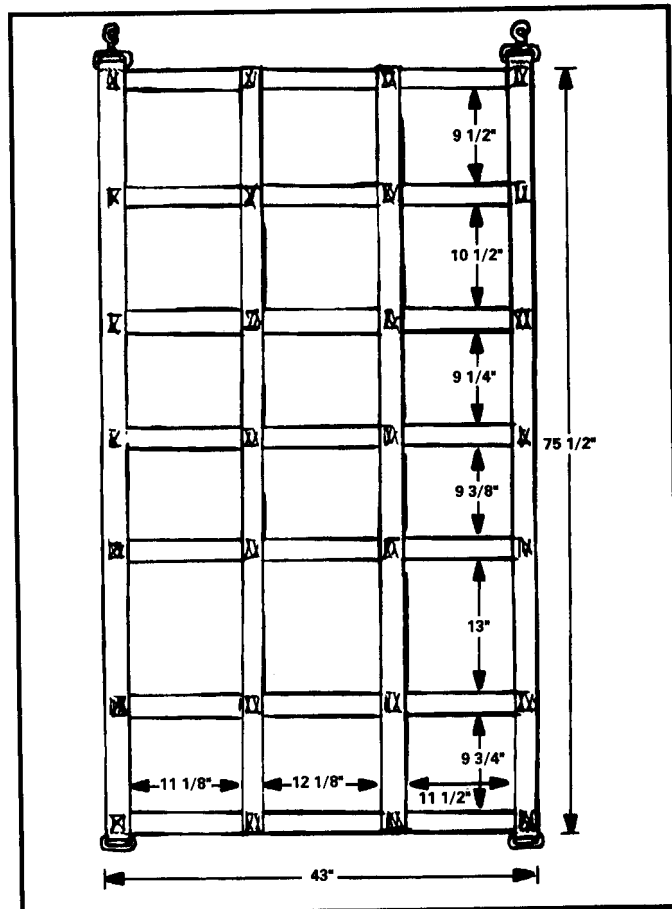


Figure 19-12. CH-54 safety gate.

b. **Inspection.** Before enplaning, the JM and the pilot, or pilot's representative, jointly inspect the aircraft to ensure the following:

- (1) The pod is properly installed in a nonjettison configuration.
- (2) All protruding edges or objects near the aft opening are removed or taped.
- (3) The aft bottom edge and starboard corner of the pod opening are taped.
- (4) Troop seats are secured, facing starboard, and the ends of the horizontal braces are taped together.
- (5) A safety belt is available for each parachutist, a safety harness is available for each nonparachutist.
- (6) The edge of the cargo floor and starboard corner of the pod are taped.
- (7) The floor is clean, not slippery, and there are no projections in the aisle.
- (8) At least two sets of headphones are available (one set for the static JM) and function properly. The headphone cord for the static JM is long enough to let the JM look outside the pod at the aft port corner.
- (9) For tactical night jumps, the two overhead lights at each end of the pod are turned on and have red lenses installed. All other lights are turned off, and the static JM and crew chief have flashlights with red lenses.

#### **19-42. LOADING TECHNIQUES AND SEATING CONFIGURATION**

A maximum of 20 combat-equipped parachutists are seated in two rows of seats, 10 inboard and 10 outboard (Figure 19-13). All parachutists load from the aft opening on the starboard side of the pod. Parachutists have the static line over the left shoulder and load in reverse order with the second stick (numbers 11 through 20) moving on the starboard side of the pod to the forward end of the pod and back down the aisle in front of the port seats. The first stick also loads on the starboard side.

a. Parachutists equipped with the CWIE are positioned in the first stick (numbers 1 through 10).

b. When air delivery containers are part of the internal load, they are stowed in the aft center of the pod inside the safety gate. Air delivery containers reduce the number of parachutists who may be carried, depending on the size and number of containers.

c. When all parachutists are inside the pod, the second stick sits down and fastens seat belts, and the first stick hooks up (with the open gate of the snap hook down) and then sits down and fastens seat belts. The static JM ensures that all snap hook safety wires are inserted and that the static lines are properly routed. He then moves to the port aft corner of the pod, secures the gate, and secures the safety harness.



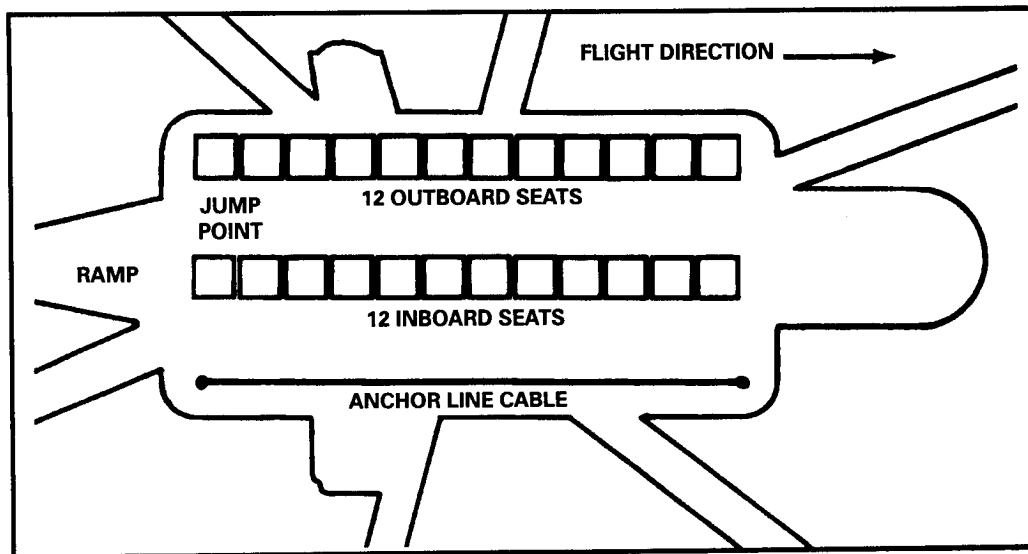


Figure 19-13. CH-54 seating configuration.

### 19-43. JUMP PROCEDURES

The pilot gives the 4-minute warning to the static JM, who relays it by hand signals to the first stick. At the 4-minute warning, the safety gate is removed by the aft crew chief or static JM, who then checks to see that the tail skid is in the raised position (Figure 19-14).

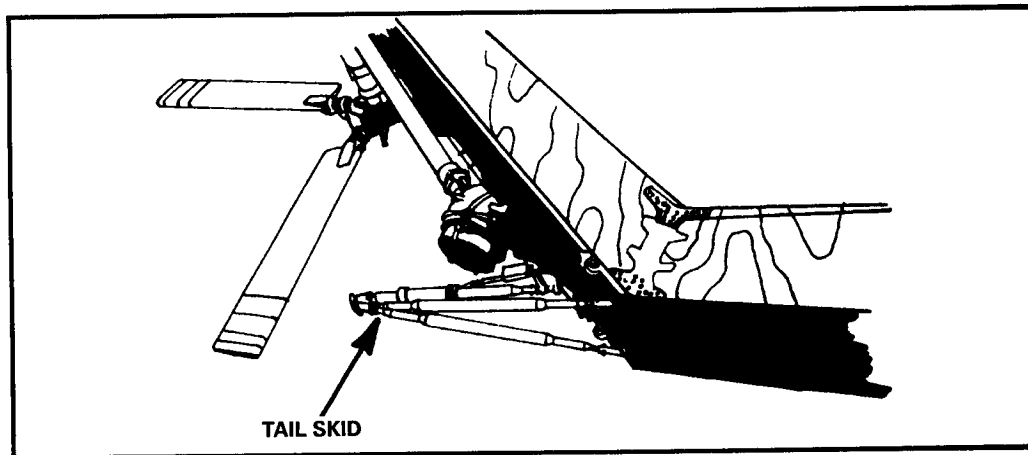


Figure 19-14. CH-54 tail skid raised.

### 19-44. JUMP COMMANDS

The following jump commands are used with the CH-54:

a. **Jump Commands for Stick Number 1.** The static JM gives the following commands:

- (1) **GET READY.** All parachutists in the first stick unfasten their seat belts.

(2) **INBOARD PERSONNEL, STAND UP.** Parachutists in the center row stand up, face aft, and take a reverse bight in the static line (at waist level) with the left hand.

(3) **CHECK STATIC LINES.** All parachutists check the routing of the static line of the parachutist to their front to ensure that it is not routed to the right side of the parachute pack. Parachutists numbers 9 and 10 pivot forward to the right so that the static line of the last parachutist can be checked by parachutist number 9.

(4) **CHECK EQUIPMENT.** All parachutists check their equipment.

(5) **SOUND OFF FOR EQUIPMENT CHECK.** Number 1 indicates orally (and with a hand signal) to the JM the status of his equipment, followed by the remaining parachutists in numerical order.

(6) **STAND BY.** The number 1 parachutist takes a position aft of the center row of seats with feet apart, the right foot on line with the arrow on the floor.

(7) **GO.** Using hand (finger) signals, the static JM initiates the 5-second countdown to the number 1 parachutist, who walks off the aft end of the pod (along the arrow at a 45-degree angle to the rear of the pod), releasing the static line as it is pulled by the anchor line cable. When air delivery containers are being dropped, the static JM ensures that the load is free before giving the GO signal to number 1. The load is pushed out by the number 1 parachutist or all crew chief. After the last parachutist from the first stick exits the aircraft, the aft crew chief or static JM closes the safety gate.

b. **Jump Commands for Stick Number 2.** The static JM then gives the following commands to the second stick:

(1) **GET READY.** All parachutists remove seat belts.

(2) **STAND UP.** Parachutists stand and move around the forward end of the pod and back along the anchor line cable. When parachutist number 20 is aligned along the cable, the next command is given.

**WARNING**

PARACHUTISTS KEEP THEIR RIGHT HAND OVER THE RESERVE RIP  
CORD GRIP WHEN MOVING INSIDE THE POD.

(3) **HOOK UP and SIT DOWN.** All parachutists hookup and sit down in the center row of seats. The static JM then checks the static line of each parachutist, moving from the forward end of the pod aft. He ensures that the snap hook is securely attached to the anchor line cable, the safety wire is inserted, and the static line is routed to the parachute pack on the left side of the parachutist. Then, the static JM's safety harness is secured to the proper aft tie-down ring, and the JM opens the safety gate.

c. **Remaining Jump Commands.** STAND UP, CHECK STATIC LINES, CHECK EQUIPMENT, SOUND OFF FOR EQUIPMENT CHECK, STAND BY, and GO are the same as those for the first stick. Procedures are the same when jumping 12-parachutist sticks without combat equipment.

#### 19-45. SAFETY PRECAUTIONS

Safety precautions for the CH-54 areas follows:

a. **Parachutists.** Parachutists are cautioned to watch the static line of the jumper in front and to observe the equipment lowering line and parachute static line when near the seat corners. Parachutists do not exit the pod until the deployment bag of the preceding parachutist has trailed to the starboard side of the aircraft. The minimum time between parachutists is 2 seconds. The minimum time between the first and second stick of parachutists is 4 minutes during the day and 6 minutes at night.

b. **Jumpmaster.** The static JM controls the interval between parachutists. When necessary, one individual may perform the duties of both the static JM and the parachuting JM. In this instance, the JM is the last parachutist to exit the pod.

c. **Equipment.** When cargo bundles are delivered, 15-foot breakaway static lines are used with cargo parachutes. All personnel inside the CH-54 pod wear protective hearing equipment when the ramp doors are removed. When there are fewer than 10 parachutists to a stick, the deployment bags are retrieved before the CH-54 makes any turning maneuvers.

d. **Aircraft.** The optimum indicated airspeed of the CH-54 with pod during static line parachute operations is 70 knots, but not less than 65 knots or more than 75 knots. The pilot must raise the tail skid no later than the 4-minute warning. When there are two crew chiefs in the pod, one is at each end of the pod. The forward (side) doors remain closed when the ramp doors are removed. This prevents carbon monoxide and exhaust fumes from entering the pod and permits the deployment bags to trail properly. The minimum drop altitude is 1,500 feet AGL.