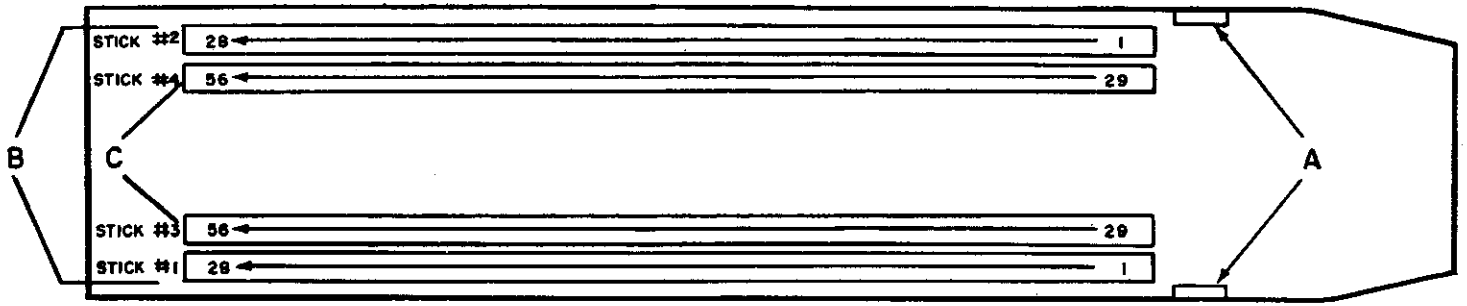


A - JUMP DOORS

B - OUTBOARD STICKS (JUMPERS 1 - 28 IN EACH STICK)

C - INBOARD STICKS (JUMPERS 29 - 56 IN EACH STICK)

Figure 74. Parachutists in position to jump, C–124.

make appropriate checks as prescribed in paragraph 14.

(8) *CHECK EQUIPMENT.* Personnel on each cable check equipment in the manner prescribed in paragraph 14.

(9) *SOUND OFF FOR EQUIPMENT CHECK.* Personnel on each cable sound off in the normal manner. The jumpmaster receives a final OK from EACH stick.

(10) *STAND IN THE DOOR.* This command is carried out in the normal manner by the leadmen in the outboard sticks only.

(11) *GO.* The men in the outboard sticks begin to exit, each man in the stick moving toward the jump door. As the last man in the outboard stick jumps, the first man of the inboard stick takes two short steps to the oblique, shuffles into the door, and jumps. The remainder of the inboard sticks follows him out the jump door.

79. Safety Considerations

a. When possible, the jumpmaster has, as a minimum, one assistant who will not jump. Congestion within the aircraft makes it difficult for a man wearing a parachute and equipment to move around and perform jumpmaster duties.

b. The jumpmaster insures that all parachutists are oriented to the jump commands, the stick they are in, and from which door they will jump. He should advise the assistant of the sequence of events in preparing for and conducting the jump.

c. The jumpmaster's inspection includes a check of the anchor line installation to insure that all hazards to parachute personnel and quipment are removed. He is particularly careful to note that the protrusions on the upright posts supporting the auxiliary floor and the protrusion on the jump door surfaces are adequately padded. When checking the anchor line cables, the jumpmaster insures the cables are properly installed and are sufficiently tight and safe for operation.

d. Parachutists insure that all seats are firmly secured in the "up" position, and that no part of the seats protrude into the aisle.

e. Each parachutist pays particular attention on turning into the door to insure he does not become entangled in the static line of the man preceding him.

f. A minimum of static line is unstowed to prevent the airblast from whipping the loose static line and endangering the exiting parachutist and following parachutists during exit.

g. Care must be used to employ the 15-foot static line with drogue when dropping equipment containers from the personnel doors when troops are following.

Section V. C–130 (HERCULES)

80. Characteristics

The C–130 is a four-engine, turboprop, medium-range transport. A total of 64 parachutists may be delivered from this aircraft, using two jump doors located in the aft end of the aircraft. The C–130 loading ramp may also be used for aft end jumping.

81. Loading Techniques and Seating Arrangement

a. Sixty-four parachutists are seated in two 32-man sticks as follows: Nos. 1, 2, and 3 are seated outboard aft of the wheel well; Nos. 4 through 23 are seated on the inboard seats; and Nos. 24 through 32 are seated outboard forward of the wheel well (fig. 75). Four anchor line cables are installed in the aircraft.

b. Troops are normally loaded through the aft end loading ramp.

82. Jump Procedures

a. An oral 6-minute warning is given and the red light is turned on.

b. The sequence and procedure of commands as outlined in paragraph 13 are followed when jumping the C–130. When only inboard or outboard seats are used, all jumpers hook up on the outboard anchor line cable.

c. When the command GO is given, personnel Nos. 1, 2, and 3 in the outboard sticks

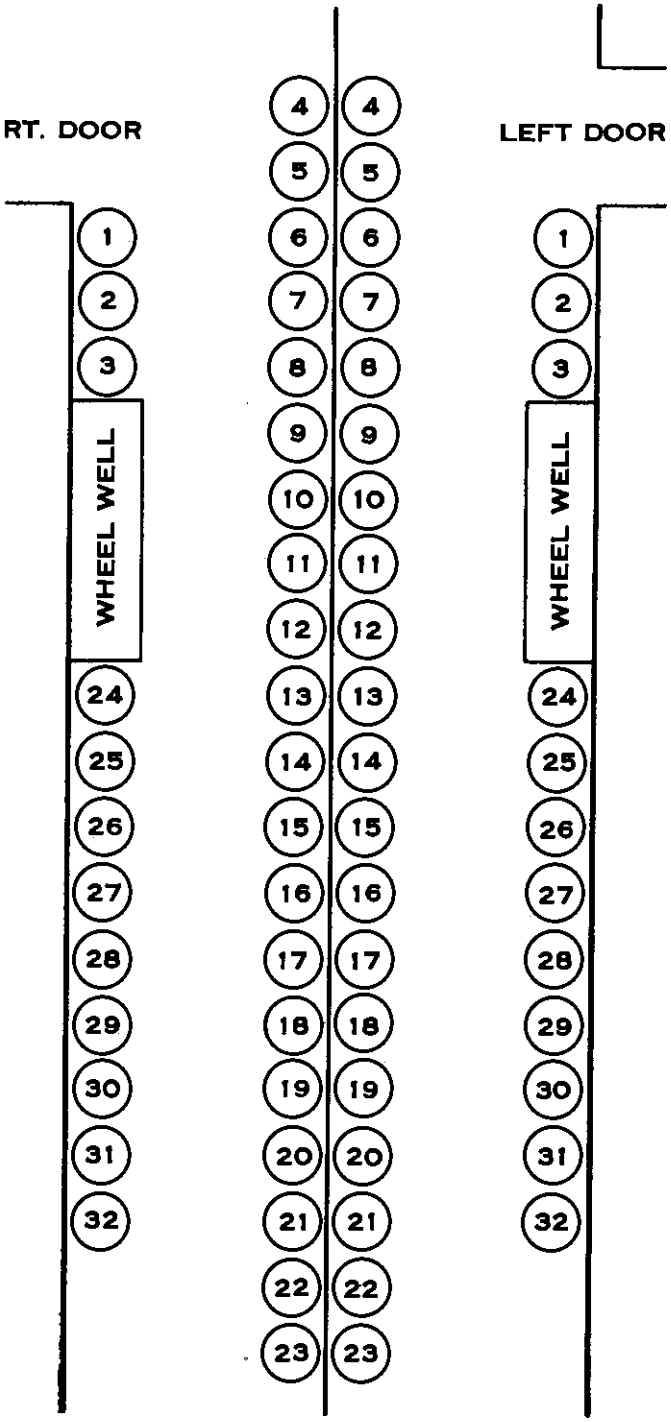


Figure 75. Seating arrangement, C–130.

begin to exit first. As No. 3 man in the outboard stick jumps, No. 4 of the inboard stick takes two short steps to the oblique, shuffles into the door, and jumps. The remainder of the inboard stick follows. As No. 23 passes No. 24, thé remaining outboard stick (Nos. 24 through 32) moves inboard, and follows the inboard stick.

83. Safety Considerations

a. A safety officer or noncommissioned officer (NCO) will be stationed at each door during all training jumps to prevent parachutists from becoming entangled with the static line of the preceding jumper. The safety officer or NCO may, at the discretion of the unit commander, hook up and jump at the end of the stick.

b. Parachutists will insure that all seats are firmly secured in the "up" position, and that no part of the seats protrude into the aisle.

c. On shuffling into the door, parachutists will not throw their static line toward the rear of the aircraft.

d. Personnel carrying equipment containers should be seated aft of the wheel well area and should position their equipment prior to the opening of the jump doors, normally at the 20-minute warning.

e. Parachutists will exercise caution as they approach and prepare to exit from the door to avoid becoming entangled with the static lines of the preceding parachutists. Because the static lines do not rise rapidly to the top of the jump door, a parachutist must use caution to insure that other static lines do not ride over his hand. It may be necessary to slow his movement toward the door in order to insure keeping previous jumpers' static lines between himself and the jump door.

f. Jumpers must be careful not to pull excess static line from their backpack.

g. During all personnel drops from the jump doors, the aft cargo door and ramp must be closed and wind deflectors extended. During aft end jumping, the troop doors must be closed due to air turbulence.

h. Accompanying supplies and equipment may be dropped in A7A or A21 air delivery containers as door bundles. When door bundles are dropped, 15-foot static line with drogue are utilized with the cargo parachute. The 15-foot static line with drogue or the breakaway static line must be used for airdrop of container loads from the ramp when troops are following.

i. During airborne training, basic unit training, or refresher training with the C–130 aircraft, two individuals are designated to check all equipment; these personnel are safety officers or NCOs. One is stationed on each side of the aircraft. On the command CHECK EQUIPMENT, they walk to the rear of the aircraft between the outboard and inboard sticks, checking men and equipment as they walk.

j. They inspect the jump platforms to insure they lock securely when in the installed position. Jump platforms must be installed and locked properly or the aircraft cannot be used for jumping.

k. The C–130 may be equipped with the dual rail cargo handling system. If this is the case, the following factors must be considered in using this aircraft for airborne operations:

(1) Jumpers will shuffle when moving toward the door, but extreme caution must be exercised as personnel are more likely to trip on the rail system.

(2) The rail system may extend approximately 6 inches into the door of the aircraft, creating a partial hazard. Jumpers should make a 90-degree turn into the door to minimize this hazard.

(3) All seats are raised on the command STAND UP as in normal operations. If all jumpers are to exit in one pass, Nos. 1 through 23 stand in the aisle and Nos. 24 through 32 stand on the outboard rail system. This allows as much room as possible to the first stick. As soon as No. 23 passes No. 24, he (No. 24) moves into aisle and is followed by the remainder of the stick, which exits in order.

(4) All jumpers should be cautioned when this system is installed, and special emphasis should be placed on jumpers with PAE bags.

84. Aft End Jumping From the C–130 Aircraft

a. The anchor line cables are rigged from the forward outboard cable attachment to the aft inboard anchor line attachment. This clevis must be installed on the anchor line cable 20 inches from the aft anchor line cable bracket.

b. A maximum of two 20-man sticks may be jumped. After one 20-man stick has jumped, using one anchor line cable, their deployment

bags must be retrieved and then the second 20-man stick may jump. If the aircraft is equipped with the dual rail cargo handling system only the unobstructed aisle between the two center roller conveyors is used when exiting.

c. The anchor line support bracket aft of the paratroop door is disconnected and secured at the top of the fuselage.

d. Parachutists stand inboard of the anchor line when hooking up and then move to the aisle between the two center conveyors. The static line passes over the shoulder toward the anchor line to be used.

e. Tape the handle of the static line retriever cable on the sides of the fuselage aft of the paratroop doors to insure it remains properly secured.

f. STAND IN THE DOOR and GO are conducted in accordance with paragraph 70.

g. All static lines must be retrieved prior to using the same or opposite anchor line cable in dropping another stick of parachutists.

Section VI. C–7A(CV–2) (CARIBOU)

85. Characteristics

The C–7A is a twin-engine, medium-range assault troop carrier aircraft. A total of 24 parachutists may be jumped from this aircraft using the aft end ramp or two troop doors located at the aft end of the aircraft. The aft end ramp is normally used for jumping. (CV–2 is the U.S. Army designation for this aircraft.)

86. Loading Techniques and Seating Arrangement

a. Twenty-four parachutists are seated in two 12-man sticks. The odd numbered personnel are seated on the starboard side and the even numbered personnel are seated on the portside (figs. 76 and 77).

b. There are two anchor line cable assemblies in the C–7A. The anchor line cable for aft end jumping runs from the reinforced anchor line attachment plate on the forward bulkhead to the anchor line connector on the right side of the aft cargo door. The anchor line cable assembly for jumping the troop doors runs from the anchor line attachment plate down the center of the cargo compartment, and is permanently installed.

c. Troops are loaded through the aft end loading ramp or the aft troop doors.

87. Jump Procedures

a. Several modifications of the jump commands outlined in paragraph 18 are necessary in the C–7A. The second command is PORT-SIDE PERSONNEL, STAND UP and the third command is STARBOARD SIDE PERSONNEL, STAND UP.

b. On the command HOOK UP, even numbered personnel hook up between the odd numbered personnel to form a continuous stick of parachutists. All jumpers hook up over their left shoulder when jumping the ramp. When jumping he troop doors, personnel hook up to the center anchor line cable over their inboard shoulder.

c. On the command STAND IN THE DOOR, No. 1 assumes a standing position on the starboard side of the aircraft at the ramp hinge. No. 2 stands on the port side of the aircraft slightly to the right of No. 1. The remaining

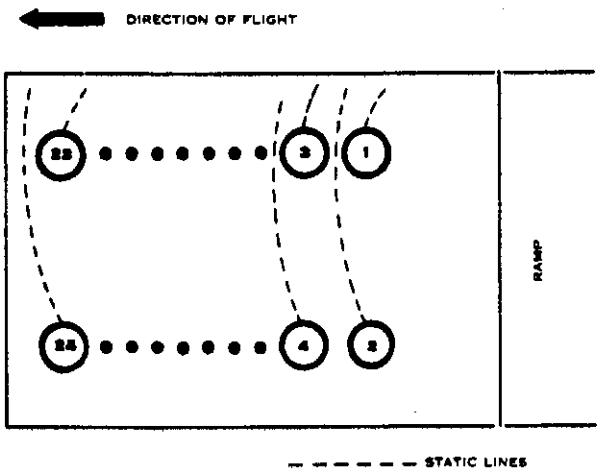


Figure 76. Seating arrangement and static line routing, aft end jumping, C–7A.

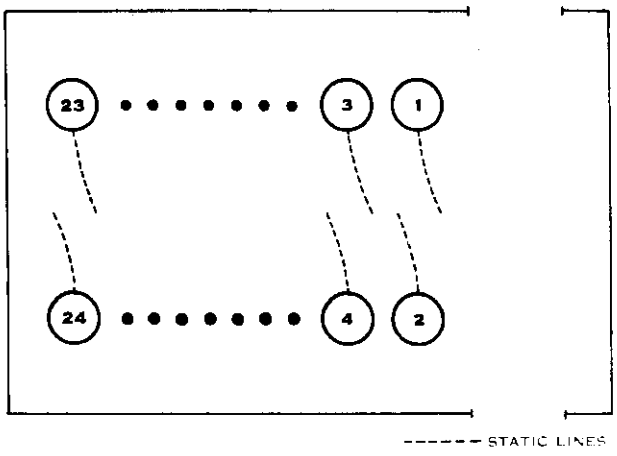


Figure 77. Seating arrangement and static line routing, side door jumping, C–7A.

jumpers follow in sequence. When the troop doors are used, a normal door position is taken up by jumpers in both doors but the appropriate foot is resting on the elevated door sill.

d. Then the command GO is given. No. 1 walks down the inclined ramp and steps off the end, snapping into a good body position. No. 2 follows when No. 1 has cleared the ramp and the rest of the stick jumps at 1-second intervals. When the troop doors are used, simultaneous exits must not be made. No. 1 jumps from the starboard door, followed by No. 2 from the port door. The remaining parachutists alternate in numerical order at 1-second intervals.

88. Safety Considerations

a. All personnel must remain off the ramp while it is being lowered to the 15-degree incline for aft end jumping.

b. The jumpmaster or safety NCO will insure personnel are hooked up consecutively.

c. Parachutists will insure all seats are secured in the "up" position.

d. 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, 15-foot static lines with drogues will be 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 aft cargo ramp. No. 1 and No. 2 push the bundles.

e. During cases of extreme air turbulence, parachutists will take a short bight on the static line and use the center anchor line to steady themselves. In addition, parachutists will walk down the ramp with feet widespread to assist in maintaining balance and to prevent striking the side of the aircraft. Once the exit from the aircraft is made, the feet and knees must be together.

f. When following heavy drop loads, parachutists will exit between the roller conveyors of the aerial unloading kit.

g. For side door jumping, the jumpmaster or safety NCO will insure that he taps parachutists alternately to preclude a simultaneous exit from both sides of the aircraft.

h. The jumpmaster, if no safety personnel are in the aircraft, will jump last. He must hook up to the center anchor line cable and exercise caution in observing his own static line.

i. The speed of the aircraft during the actual jump must not be less than 90 or more than 120 knots.

j. When jumping the side doors, they must be removed and the rear portion of the door frames taped prior to takeoff.

k. Side doors must be closed for aft end jumping.

l. When an adjustable individual weapons case is to be jumped from the side doors it must be reduced to 36 inches in length.

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

Section VII. C–46 (COMMANDO) AND C–47 (SKYTRAIN)

89. Characteristics

The C–46 and C–47 are twin-engine, short-range transport aircraft. Because of the similarity in characteristics and procedures, both aircraft are discussed in this section. A total of 27 parachutists may be jumped from the C–46 using both aft troop doors. A total of 24 parachutists may be jumped from the C–47 using the left aft troop door.

90. Loading Techniques and Seating Arrangement

Each aircraft can accommodate two sticks. A 14-man stick sits on the starboard side and a 13-man stick sits on the portside in the C–46. A 12-man stick sits on the starboard side and a 12-man stick sits on the portside in a C–47. Parachutists are numbered prior to enplaning (fig. 78).

91. Jump Procedures

The following modifications to the nine jump commands are necessary when jumping the C–46 and C–47:

a. STAND UP. This is the second command in a C–46 since only outboard seats are used. The second command in a C–47 is PORTSIDE PERSONNEL, STAND UP, and the third command is STARBOARD SIDE PERSONNEL, STAND UP.

b. HOOK UP. The open portion of the static line snap fastener 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 his body. The static line extension hangs below and behind the arm. A bight is formed and retained in the static line extension in the usual manner. All subsequent commands follow the sequency of paragraph 13. In the C–47, even numbered personnel hook up between the odd numbered personnel to form a continuous stick of parachutists.

c. CHECK STATIC LINES. When the parachutist checks the equipment of the man in front of him, he must insure that the man's elbow is close to his body and that the static

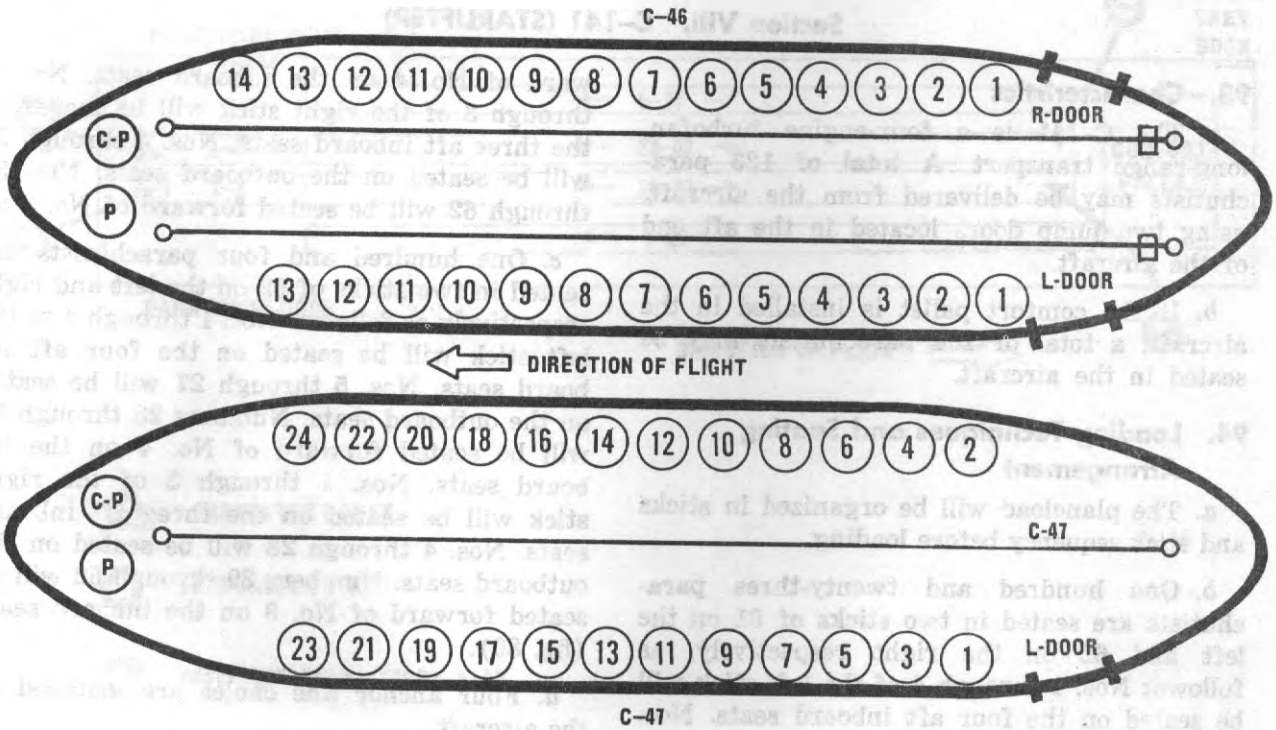


Figure 78. Seating arrangement, C–46 and C–47.

line extension hangs below and behind his arm. The remainder of the rear inspection is conducted as usual.

92. Safety Considerations

a. In order for parachutists equipped with the T–10 parachute assembly to use the C–46 or C–47 aircraft, it must be modified to prevent the canopy from fouling on the tail surfaces and to prevent chafing of the static line. These modifications are made by the Air Force and are as follows:

(1) Anchor line cables.

(*a*) *C–46 aircraft.* Both anchor line cables must be detached from their rear 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.

(*b*) *C–47 aircraft.* The permanently installed anchor line cable must be secured to the overhead attachment points provided in the center of the aircraft.

(2) The aft edge of the jump door(s) is lined with a smooth metal tubular stripping, or is padded and taped.

(3) 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.

b. To prevent fouling the T–10 parachute on the aircraft when jumping the C–46 or C–47, a 5-foot static line extension must be provided. This extension has a snap at one end and a nondetachable connector link at the other. The connector link on the extension is attached to the snap of the parachute static line. The snap on the parachute static line is safetied with a short piece of wire and covered with a canvas duck sleeve. Using rubber retaining bands, stow the static line extension on the rear of the pack body by starting at the upper right corner of the pack and making the final stow at the lower left corner. Loop each band twice around each fold in the static line. There are four such stows on each side of the pack body.

c. The jumpmaster or safety NCO will insure personnel are hooked up consecutively.

Section VIII. C–141 (STARLIFTER)

93. Characteristics

a. The C–141 is a four-engine turbofan, long-range transport. A total of 123 parachutists may be delivered from the aircraft, using two jump doors located in the aft end of the aircraft.

b. If the comfort pallet is installed in the aircraft, a total of 104 parachutists may be seated in the aircraft.

94. Loading Techniques and Seating Arrangement

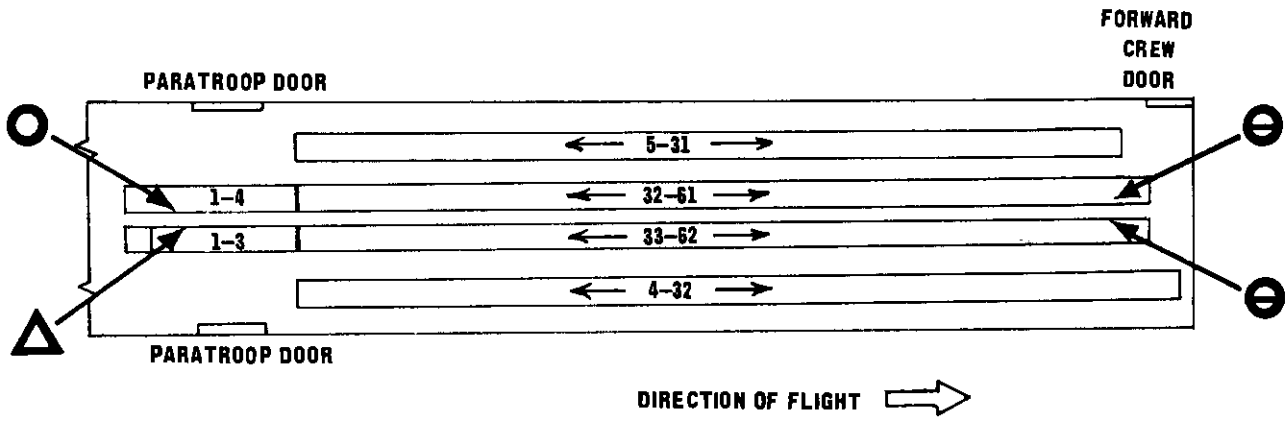
a. The planeload will be organized in sticks and stick sequency before loading.

b. One hundred and twenty-three parachutists are seated in two sticks of 61 on the left and 62 on the right respectively, as follows: Nos. 1 through 4 of the left stick will be seated on the four aft inboard seats. Nos. 5 through 31 will be seated on the outboard seats. Nos. 32 through 61 will be seated forward of No. 4 on the inboard seats. Nos. 1 through 3 of the right stick will be seated on the three aft inboard seats. Nos. 4 through 32 will be seated on the outboard seats. Nos. 33 through 62 will be seated forward of No. 3 on

c. One hundred and four parachutists are seated in two sticks of 52 on the left and right respectively as follows: Nos. 1 through 4 of the left stick will be seated on the four aft inboard seats. Nos. 5 through 27 will be seated on the outboard seats. Numbers 28 through 52 will be seated forward of No. 4 on the inboard seats. Nos. 1 through 3 of the right stick will be seated on the three aft inboard seats. Nos. 4 through 28 will be seated on the outboard seats. Numbers 29 through 52 will be seated forward of No. 3 on the inboard seats (fig. 80).

d. Four anchor line cables are installed in the aircraft.

e. Troops may be loaded through the aft

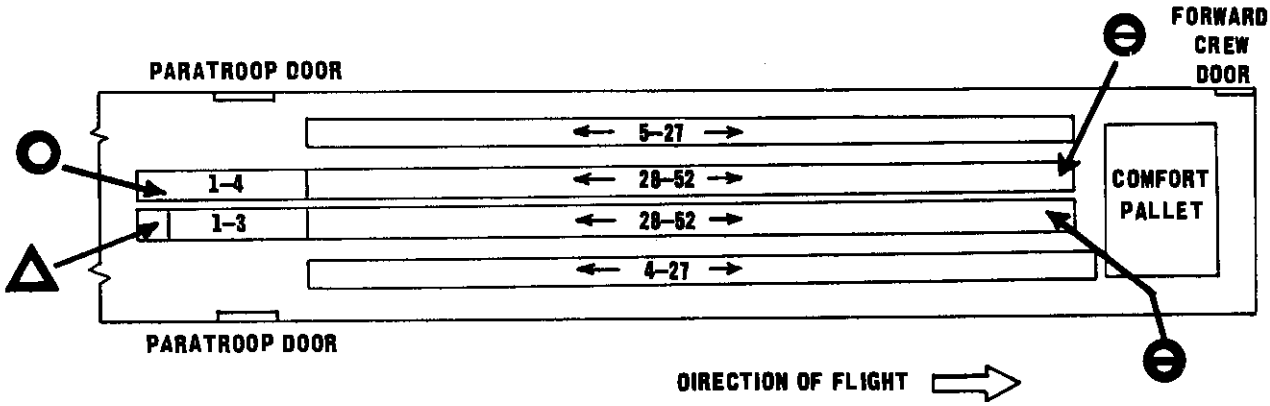


LOADMASTER'S SEAT

JUMPMASTER'S SEAT

ASSISTANT JUMPMASTER'S SEAT

Figure 79. Seating arrangement, C–141 (123 parachutists).



LOADMASTER'S SEAT

JUMPMASTER'S SEAT

ASSISTANT JUMPMASTER'S SEAT

Figure 80. Seating arrangement for C–141 with comfort pallet installed (104 parachutists).

personnel doors or through the aft end loading ramp.

95. Jump Procedures

a. An oral 10-minute warning is given and the read light is turned on.

b. The sequence of commands and the procedures as outlined in paragraph 13 are followed *with the exception of the door position and exit procedures* which are included in the following paragraphs.

c. Numbers 1 through 4 of the left stick and No. 1 through 3 of the right stick hook up on the outboard cable as part of the outbard stick. Number 1 man is the stickleader and jumps first followed by the remainder of the stick in numerical sequence.

d. When the command STAND IN THE DOOR is given the No. 1 man takes up a position facing the rear of the aircraft with feet apart and on a line even with the forward edge of the door. The outboard hand rests lightly against the aircraft sidewall to assist in maintaining balance. The position is one of relaxed alertness similar to that depicted in figure 20. At the command GO the stickleader moves into the door at an oblique angle, places his outboard hand on the end of his reserve, releases his hold on the static line and drops that hand straight down to rest on the other end of the reserve. He steps out the door, brings both feet together and assumes the correct body position as described in paragraph 8*a*(2). As the last man of the outboard stick jumps the lead man of the inboard sticks, normally No. 32 on the left and No. 33 on the right, turn to the oblique, walk to the door and jump. Movement to the door is at a rapid walk without shuffling.

e. The jumpmaster will use the public address system to give his jump commands. These must be completed before the 3-minute warning, as commands cannot be heard after the doors are opened.

96. Safety Measures

a. An assistant jumpmaster will be stationed at each door during all training jumps to prevent parachutists from becoming entangled with the static line of the preceding jumper. During actual operations, the two assistant jumpmasters will be seated in one of the three forward seats of each stick. On the command of SOUND OFF FOR EQUIPMENT CHECK, assistant jumpmasters will move aft from their forward seat positions to check static line routing. He will report to the jumpmaster and position himself as No. 5 in the left stick and No. 4 in the right stick.

b. Parachutists will insure that all seats are firmly secured in the "up" position, and that no part of the seats protrude into the aisle.

c. Movement into the door will be at a normal walking pace without shuffling. Exists are made at an angle of about 20- to 30-degrees toward the tail of the aircraft and not vigorously as in other troop carrier aircraft. Static lines will not be thrown to the rear of the aircraft as parachutists walk into the door.

d. Door bundles will use 15-foot static lines with drogues.

e. Wind spoilers and jump platforms must be positioned properly prior to jumping this aircraft.

Section IX. SA–16 (ALBATROSS)

97. Characteristics

The SA–16 is a high-wing, twin-engine, air-rescue amphibious aircraft. It is capable of delivering eight combat equipped parachutists preceded by an air delivery container not to exceed 500 pounds and 48x26x24 inches high. An indicated airspeed of 110–120 knots with no flap setting should be used. Because of the configuration of the aircraft, the following measures must be taken to prepare it properly for jumping:

a. A stop is located at the aft end of the starboard anchor line to prevent the static line snaps from sliding over the aft turnbuckle.

b. Excess seats are removed.

c. A jump platform is installed on the cabin floor at the main door.

d. A doorframe shield is installed on the trailing edge of the main door and the JATO attachment brackets and the sharp metal edges around the door are taped.

98. Loading Techniques and Seating Arrangement

a. Load in reverse order.

b. The seating for an 8-man stick is as follows: Nos. 1, 2, and 4 are seated aft of the wheel well on the starboard side facing forward. Nos. 3 and 5 are seated aft of the wheel well area on the portside facing forward. Nos. 6, 7, and 8 are seated forward of the wheel well area on the portside facing the center.

99. Jump Procedures

a. A 4-minute warning light is given, followed by a 1-minute oral warning.

b. The normal jump commands are given, except as stated below:

(1) STAND IN THE DOOR.

(*a*) No. 1, staying low, steps into the door by placing his left foot on the aft portion of the doorsill. At the same time, he extends his arms to grasp the sides of the door. He then places his right foot on the doorsill, assuming a crouched position. His knees are bent and spread so the top of his helmet is approximately 2 inches below the top of the door. His upper body is straight. This position varies slightly to suit the conformation of the individual.

(*b*) No. 2 shuffles toward the door, closes up on No. 1, and places his right foot on the jump platform.

(2) GO! This command is given by a green light and a bell which rings when the light is turned on. The No. 2 man must tap out No. 1 due to the door position of No. 1.

(*a*) No. 1 exits the aircraft by applying a pushing pressure with the feet and hands. The exit should give the parachutist enough momentum to clear the door by at least 18 inches. As the jumper clears the door, he assumes a normal body position.

(*b*) No. 2 moves into the door as soon as No. 1 clears the airplane. He pivots on his right foot, staying low, and steps into the door as described in (1)(*a*) above.

(*c*) Nos. 3 through 8, in succession, assume the door position and exit the airplane.

(*d*) When a door bundle is to be dropped, No. 1 and No. 2 place the aerial delivery container so it is balanced on the doorsill. The static line snap is hooked to the port anchor line cable. No. 1 stands behind the container with his right foot forward, ejects the container, then steps into the door assuming the position described in (1)(*a*) above, and exits the airplane.

100. Safety Measures

a. Parachutists must not spring up and out when exiting the airplane.

b. Parachutists must stay low when assuming the exit position.

c. Modified static line with drogue should be used with cargo parachutes.

d. Door bundles should be balanced on the doorsill prior to dropping.

e. Preparatory training should be conducted on the exit position prior to actual jumps.

f. A navigation light, located on the hull of airplane forward of the main door, must be turned off during night operations. This light blinds the jumpmaster when he attempts to orient himself.

g. When the adjustable individual weapons case or the adjustable equipment container is to be carried, it is preferable that this equipment be jumped by the No. 1 man, limited to 65 pounds in weight and 24 inches in length. Exit time is increased when additional weapons cases or equipment containers are carried.

h. Accompanying supplies and equipment may be dropped in A7A or A21 aerial delivery containers as door bundles when the No. 1 man is not carrying the weapons case or the adjustable equipment container.

CHAPTER 6

ARMY AIRCRAFT: PREPARATION AND JUMPING

Section I. GENERAL

101. Introduction

Army aircraft are used for airborne operations when special missions are conducted employing small size forces. The same basic techniques and procedures apply to jumping from Army aircraft as from Air Force aircraft. Special considerations peculiar to each type of aircraft are discussed in the appropriate sections of this chapter.

102. Responsibilities

a. The Army aviation supporting unit or qualified quartermaster airborne personnel, when available, are responsible for preparing the aircraft for equipment and personnel drops. Technical assistance and special equipment, such as anchor line cables, must be furnished to the aviation unit. Detailed instructions for delivery of equipment using Army aircraft are contained in TM 10–500 series.

b. The responsibilities of the jumpmaster in an Army aircraft do not differ from those listed in chapter 4. Because of the special characteristics of certain Army aircraft, he may have to modify the jump commands somewhat. These are discussed in the sections on the different aircraft. The jumpmaster must be completely familiar with the safety considerations having to do with Army aircraft in general and specifically to the aircraft for which he is responsible. General considerations are listed below, and special considerations for specific aircraft are discussed in appropriate sections.

103. Safety Considerations

Although each section includes a paragraph on safety considerations for the aircraft concerned, the following items are applicable to all Army aircraft unless otherwise indicated:

a. The crowded conditions inside the aircraft dictate that extreme caution be used to prevent entanglement or misrouting of static lines during exit.

b. The pilot must be briefed to expect rapid shifts of center of gravity during stand up, hook up, and exit of parachutists.

c. The procedures described herein are a significant departure from the usual procedures, and each parachutist's routine is related to his position in the stick. Therefore, it is especially desirable that prejump training be conducted.

d. Crowded conditions inside the cargo compartment make activation of the reserve parachute inside the aircraft extremely hazardous. During movement inside the aircraft, the ripcord grip of the reserve parachute should be guarded by covering it with the hand (without grasping it).

e. The total number of parachutists and air delivery containers must conform to the weight and space limitations of the specific aircraft involved.

f. Minimum safe altitudes for making peacetime tactical training jumps, wartime tactical training jumps, combat jumps, and qualifying jumps with the T–10 parachute are outlined in chapter 7.

g. Due to the slow forward speed of helicopters and the downward rotor wash, the time interval between exit and full deployment of the T–10 parachute requires approximately 100 feet more altitude. Because of this delayed opening, the parachutist should extend his normal 4-second count to 6 seconds.

h. Static lines and deployment bags should

be retrieved by the crew chief as soon as the static line from the last parachutist is clear and trailing aft of the door.

i. Each parachutist must be cautioned to watch the static line of the man in front of him and to be particularly observant of all the static lines trailing from the lower aft corner of the cargo-personnel door. This precaution is necessary to insure that succeeding parachutists do not jump until the parachute of the preceding jumper has completely deployed from the deployment bag and the deployment bag has trailed to the rear of the aircraft.

j. In view of the possibility of parachutists becoming entangled on the aircraft, parachute jumps will not be made from helicopters equipped with special type flotation gear.

k. Container loads that are to be airdropped from bomb shackles (wing load), helicopter hook, helicopter door, bomb bay, and the doors of utility airplanes must be rigged using parachutes equipped with breakaway static line. Container loads using breakaway static lines may be airdropped from the ramp or rear end (tailgate) of cargo and/or transport-type airplanes. Container loads with breakaway static lines will not be rigged for airdrop from the paratroop door (side door) of cargo and/or transport-type aircraft. Personnel should not be dropped simultaneously with bundles rigged for bomb shackle or cargo hook release.

Section II. UH–1A/B/C (IROQUOIS)

104. Characteristics

The UH–1A/B/C is an all metal helicopter powered by a single gas turbine engine. A maximum of five combat equipped parachutists can be carried during an airborne operation.

105. Preparation and Inspection

a. The aircraft has four static line anchor systems. They are—

(1) *92-inch floor anchor line cable assembly.* This cable is designed for use in unmodified UH–1A/B/C helicopters. It is a ¼-inch steel cable, specification No. MIL–C–5424 or MIL–C–1511. It is secured to the specified tiedown rings by five cable clamps and supported by two 4 x 4 x 2-inch wooden blocks (fig. 82).

(2) *130-inch floor anchor line cable assembly.* This cable is designed for use in modified UH–1A/B/C helicopters. It is a ¼-inch steel cable, specifiation No. MIL–C–5424 or MIL–C–1511. It is secured to the specified tiedown rings using five cable clamps and supported by four 4 x 4 x 2-inch wooden blocks (figs. 81 and 82).

(3) *Overhead anchor line cable assembly.* This assembly is designed for UH–1B/C helicopters and is installed using MWO 55–1520–211–20/18 (fig. 84).

(4) *Overhead attachment system.* This system is installed under USATECOM Project No. 8–3–7630–14 (fig. 85).

b. The following steps must be accomplished:

(1) Open and lock the right cargo compartment doors. If the aircraft doors are not equipped with locks, the right door must be removed.

(2) Remove troop seats and the medical attendant's seat (if applicable).

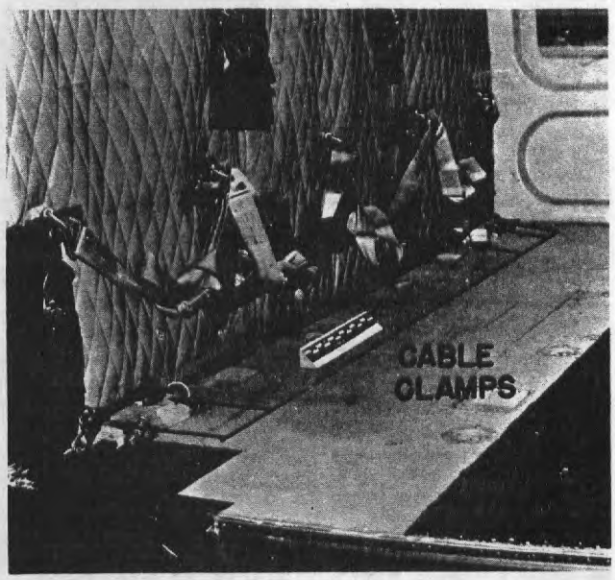


Figure 81. UH–1A/B/C with modified anchor line cable installed.

(3) Move the copilot's seat as far forward as possible.

(4) Install one of the above anchor line systems.

(5) Pad and tape the following obstructions with cellulose wadding and masking tape:

(*a*) Heat vents, left and right side.

(*b*) Litter support brackets.

(*c*) The right aft edge of the cargo compartment doorframe.

(*d*) The ground handling wheel mounting brackets on the right landing skid.

(*e*) The five cable clamps used on the floor anchor line cable installation.

(6) Tape a piece of canvas or other suitable cover to the rear of the copilot's seat.

(7) Install four safety belts to the tiedown rings located along the aft bulkhead of the cargo compartment. The fifth safety belt, when the seats are not installed, is attached to the two center tiedown rings of the forward row located on the cargo compartment floor aft of the copilot's and pilot's seats (fig. 83).

c. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) All protruding objects in the vicinity

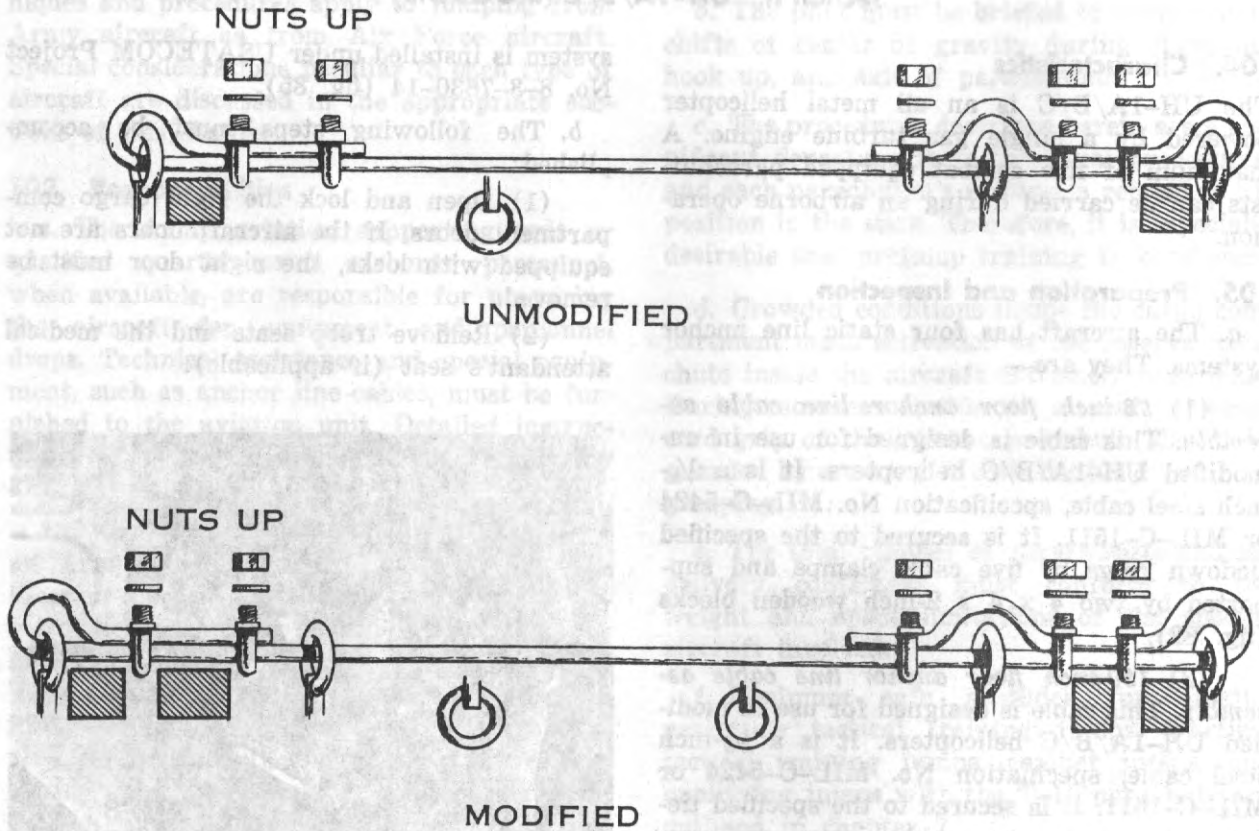


Figure 82. Anchor line cable installation.

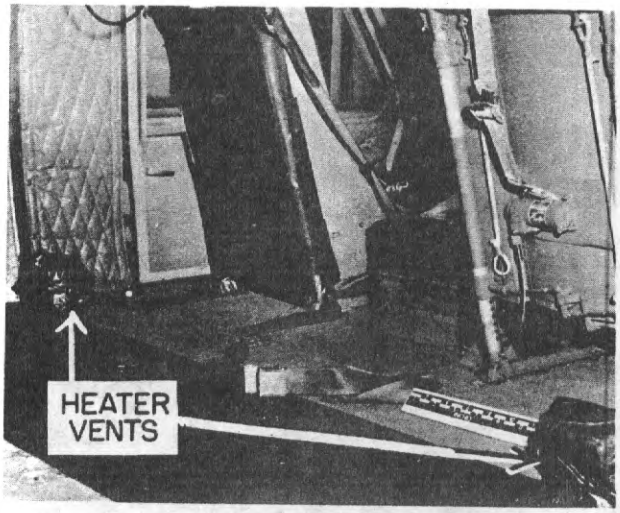


Figure 83. Jumpmaster's safety belt installed (UH–1A/B/C).

of the right cargo compartment doors are removed or taped.

(2) The right aft edge of the cargo compartment door is taped and padded.

(3) The anchor line system is secure.

(4) A safety belt is available for each parachutist.

106. Loading Techniques and Seating Arrangement

a. Parachutists enter the aircraft with the static line over the right shoulder (left shoulder when using the overhead systems) and are hooked up by the jumpmaster. Seating arrangement and static line routing are shown in figure 86.

b. The jumpmaster enters the cargo com-

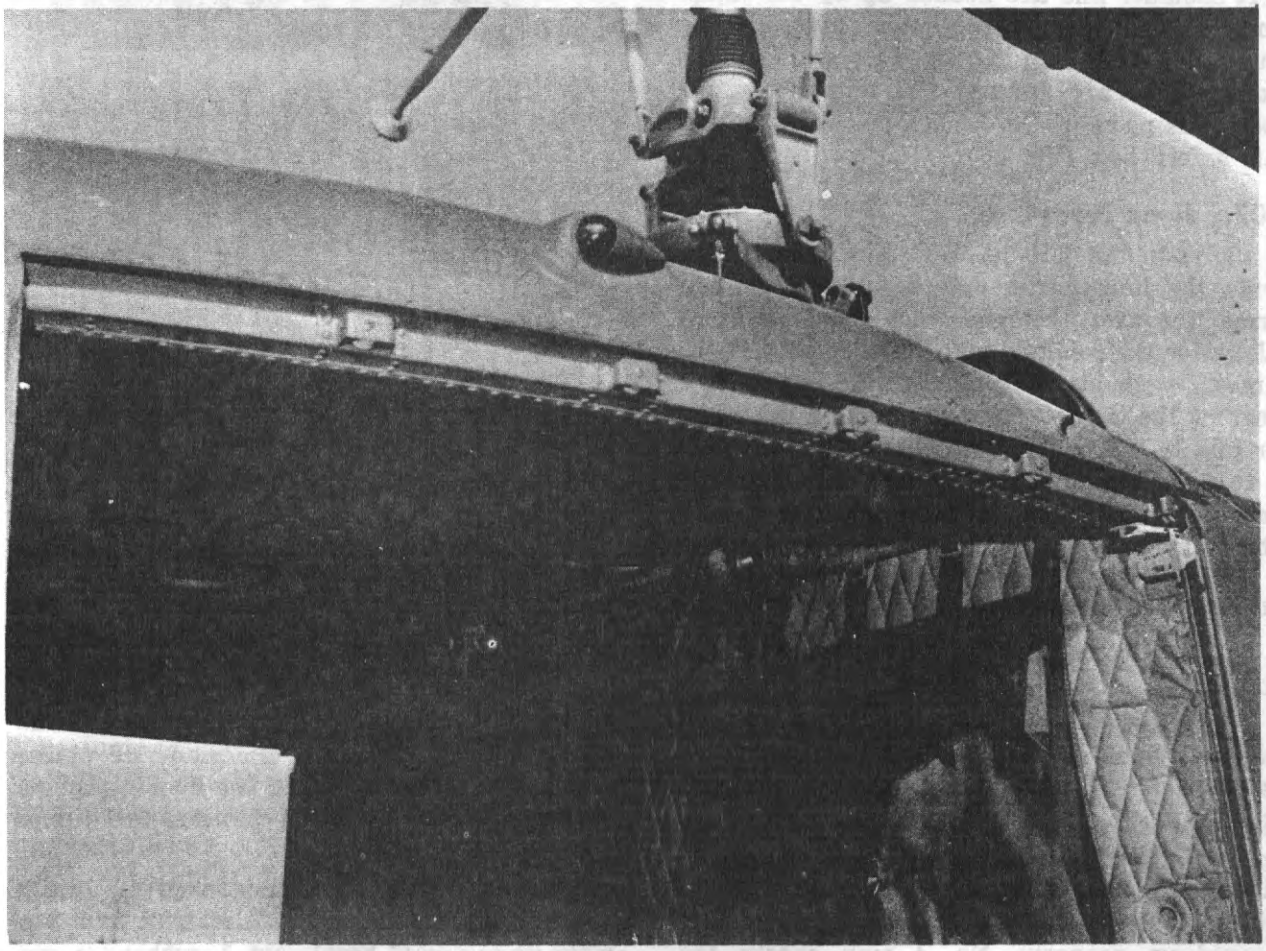


Figure 84. Overhead anchor line cable installed (UH–1A/B/C).

partment through the right cargo door. He hooks his static line to the anchor line cable and pulls 8 to 10 feet of static line free from his backpack. His static line is then routed along the portside of the cargo compartment. He then directs No. 4 man to enter the aircraft.

c. No. 4 enters the aircraft, is hooked up by the jumpmaster, and seats himself on the far left side of the cargo compartment facing forward. He secures his safety belt across his chest. At this time, the remaining parachutists enter the aircraft, are hooked up, seat themselves, and secure their safety belts in the same manner as No. 4.

d. When the overhead anchor line cable is used, the following procedures are used: Parachutists (Nos. 1 through 4 in reverse order) enter the aircraft with the static line over the left shoulder and are hooked up by the jumpmaster. The jumpmaster enters first, and insures that each man is hooked up properly and safety belts are secured. He then hooks up, takes his place in No. 5 man seat, and secures his safety belt (fig. 86).

107. Jump Procedures

a. When the UH–1A/B/C is at cruise altitude, the jumpmaster detaches his safety belt from the two tiedown rings and places it alongside the copilot's seat. He then repositions himself with his back against the left side in rear of the copilot's seat to monitor the radio or talk to the pilot. He directs Nos. 2, 3, and 4 to detach their safety belts. They hand the safety belts to the jumpmaster who places them alongside the copilot's seat.

Note. The parachutists nearest the door retains his safety belt in place.

b. Jump commands and procedures are as follows:

(1) *Get Ready.* This command is given 4 minutes from drop time. No. 1 removes his safety belt and hands it to the jumpmaster who places it alongside the copilot's seat.

(2) *Check Static Lines.* The jumpmaster rises and checks the routing of the static lines of all personnel to insure they are routed and hooked up properly. No. 4 man checks the jumpmaster's static line to see that it is freely routed on the portside of the aircraft.

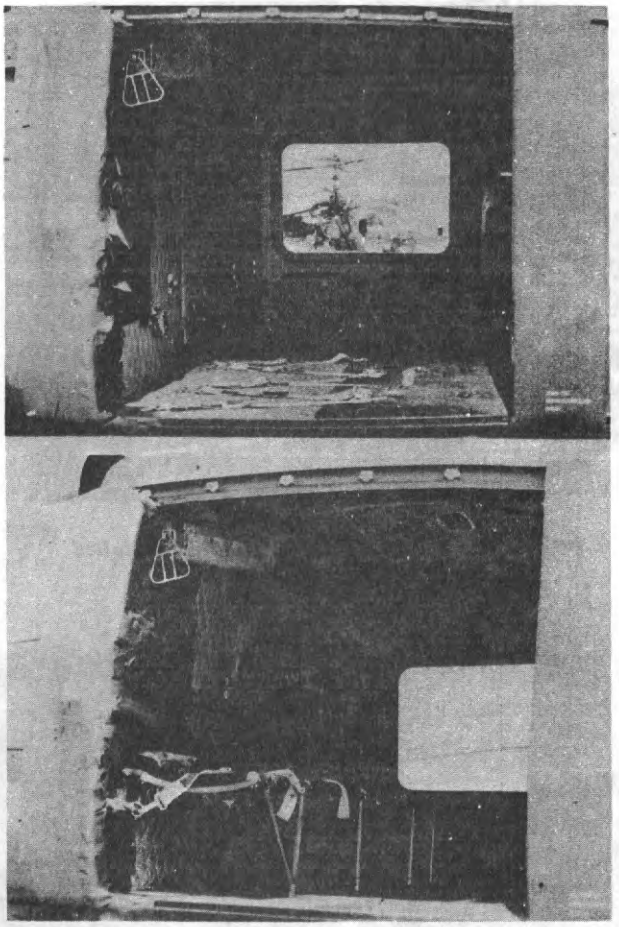


Figure 85.
Overhead attachment system for UH–1B/C/D.

(3) *CHECK EQUIPMENT.*

(4) *SOUND OFF FOR EQUIPMENT CHECK.* On this command, No. 1 indicates his "OKAY" orally to the jumpmaster. The remaining parachutists follow in order.

(5) *SIT IN THE DOOR.* The command is given by the jumpmaster 30 seconds from drop time. No. 1 man swings his legs to the right, centering himself in the open door, and lets his feet dangle, not touching the skid. He places both hands, palms down, on the floor alongside his thigh, turns his head toward the jumpmaster, and waits.

(6) *GO.* This command is given orally by the jumpmaster accompanied by a firm tap on the shoulder of No. 1. No. 1 pushes up and out with both hands. Each parachutist follows, in turn, until the aircraft is cleared.

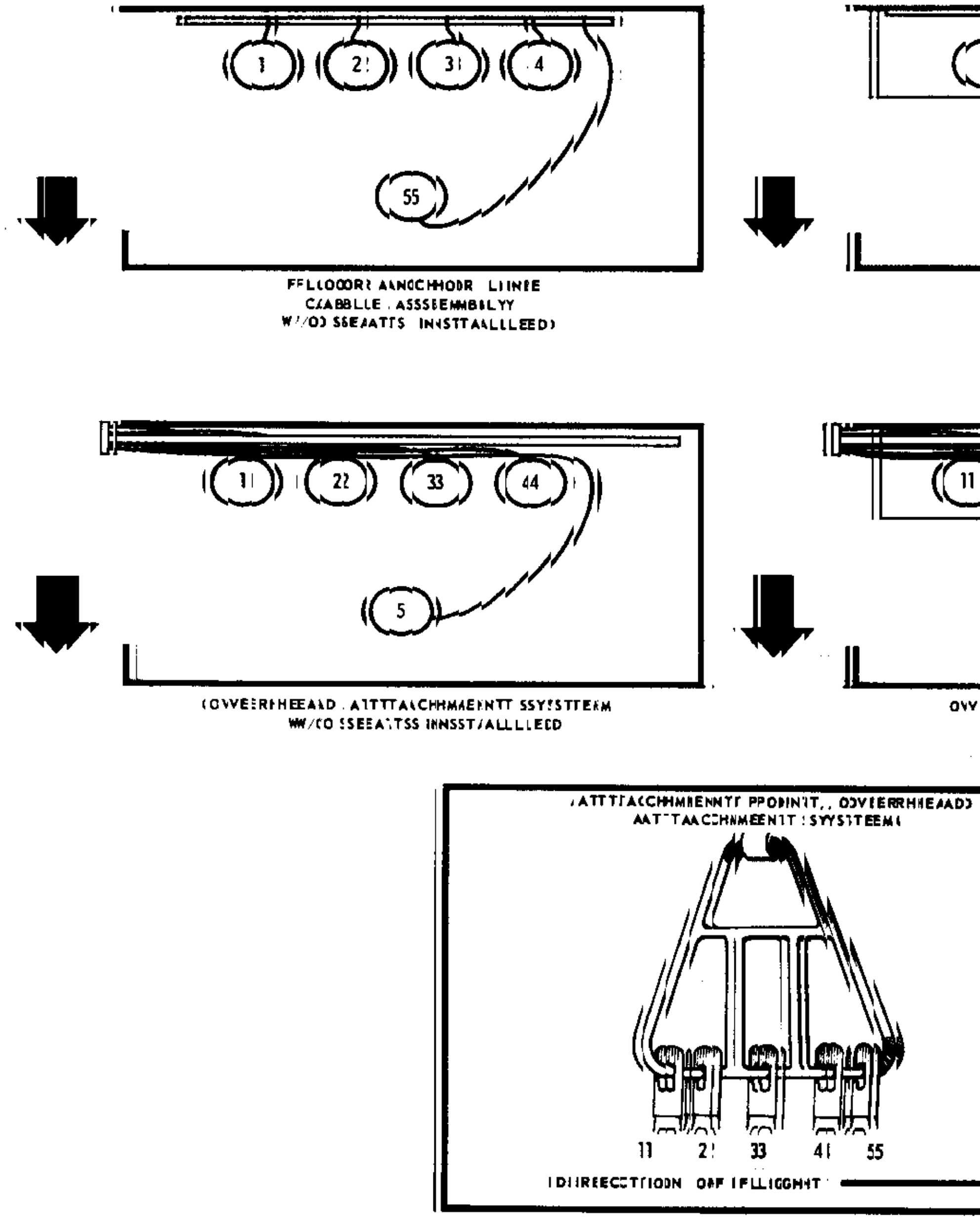


Figure 186. Seating arrangements and static lines

c. Jump procedures for UH–1A/B/C equipped with an overhead anchor and troop seats system are the same as above with the following exceptions:

(1) When the aircraft is at cruise altitude, the jumpmaster directs all the parachutists except No. 1 to release their safety belts.

(2) Ten minutes from drop time the jumpmaster pulls approximately 10 feet of

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bottom leading edge of the door frame. He places his hands on the reserve parachute.

(*b*) *GO.* This command is given orally by the jumpmaster accompanied by a firm tap on the shoulder of No. 1. No. 1 leaps forward and pushes off with both feet. Each parachutist follows, in turn, and is individually tapped out by the jumpmaster. When the first four jumpers have exited the aircraft, the jumpmaster visually inspects the routing of his static line. takes up the door position, and exits.

108. Safety Considerations

a. The jumpmaster assures that No. 1 remains secured by his safety belt until the command GET READY has been given.

b. During exit from the aircraft, each parachutist insures that his feet are not placed on the landing skid.

c. When external bundles are carried, the pilot will inform the jumpmaster that the bundles have been released prior to the jumpmaster giving the command GO to No. 1.

d. When accompanying supplies and equipment are to be dropped, the bundles are carried only as an external load on the cargo hook.

e. If a crew chief or copilot is in the aircraft, he can pull in the static lines; if not, the pilot must land without hovering (a running land), to insure that no deployment bags become entangled in the rotor blades.

f. The indicated airspeed during actual jumps should not be less than 50 knots or more than 70 knots.

g. Equipment prescribed in chapter 3 can be worn by parachutists when jumping this aircraft.

h. When the adjustable equipment bag is jumped, it is attached to the No. 2 parachutist only.

Section III. UH–1D (IROQUOIS)

109. Characteristics

The UH–1D is an all metal helicopter powered by a single gas turbine engine. The major difference between the UH–1D and the UH–1A/B/C is the enlarged cargo compartment and passenger seating arrangement. A maximum of eight combat equipped parachutists can jump from this aircraft.

110. Preparation and Inspection

a. The following steps must be accomplished to prepare the UH–1D aircraft for jumping:

(1) Lock both cargo compartment doors in the open position. If the doors cannot be locked, they must be removed.

(2) Remove all troop seats except one seat on each side located in rear of the pilot and copilot seats. Install the two seats so they are facing to the rear of the aircraft.

(3) Pad and tape the following with cellulose wadding and masking tape:

(*a*) The lower right aft edge of the right cargo compartment door frames.

(*b*) The lower aft edge of the left cargo compartment door frame.

(*c*) The ground handling wheel mounting brackets on both landing skids.

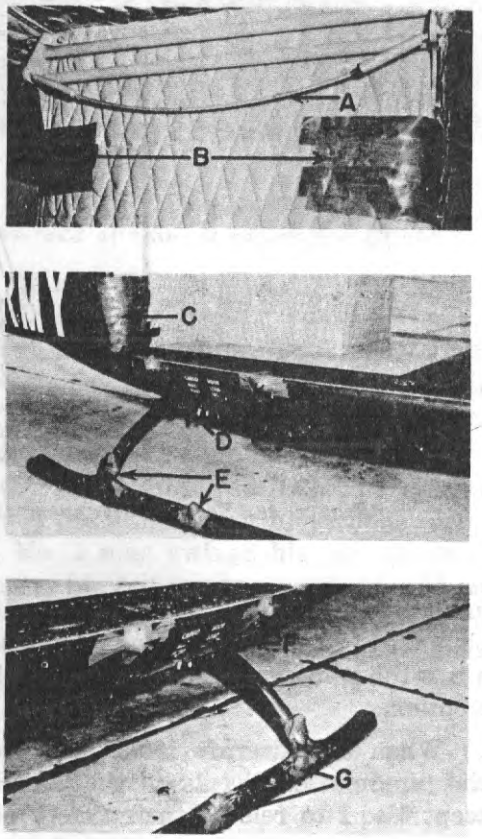
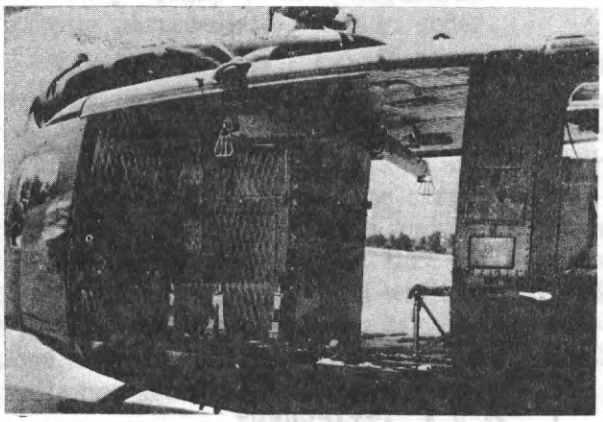
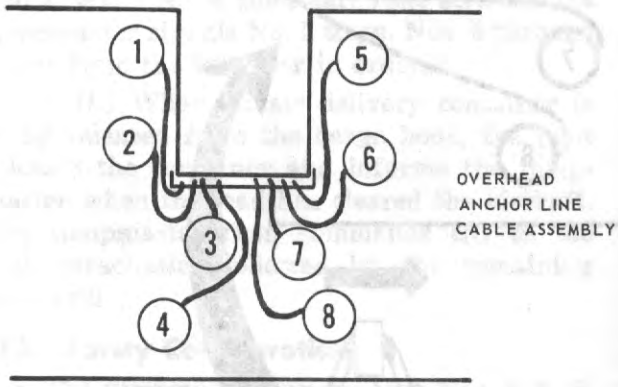


Figure 87. Preparation of UH–1D for jumping.





Seating arrangement

Figure 87—Continued.

(*d*) External and removable mounting brackets.

(4) Tape right and left edges of rear center bulkhead approximately 6 inches below anchor line cable.

Note. An anchor line system is available for the UH–1D aircraft and is installed as required (fig. 87).

(5) Install safety belts to the tiedown rings located on each side of the positions for floor seated parachutists.

b. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) All protruding objects in the vicinity of the cargo compartment doors are removed or taped.

(2) The lower right aft edge of the right cargo compartment door is taped and padded.

(3) The lower left aft edge of the left cargo compartment door is taped and padded.

(4) The anchor line cable is secure.

(5) A safety belt is available for each parachutist.

111. Loading Techniques and Seating Arrangement

a. Parachutists Nos. 1 through 4 enter the cargo compartment through the right door, are hooked up by the jumpmaster in numerical order, and seat themselves as shown in figure 88.

b. Parachutists Nos. 5 through 7 enter the cargo compartment through the left door, are hooked up by the jumpmaster in numerical order, and seat themselves as shown in figure 88. The jumpmaster, No. 8, then hooks himself up.

112. Jump Procedures

a. When the UH–1D is at cruise altitude, the jumpmaster detaches his safety belt and places it alongside the copilot's seat. He then directs Nos. 3, 4, and 7 to detach their safety belts. They hand their safety belts to the jumpmaster who places them alongside the copilot's seat.

Note. The remaining parachutists retain their safety belts in place since they are seated next to the open doors during flight.

b. The 4-minute and 30-second warnings are given by the pilot to the jumpmaster.

c. Jump commands and procedures are as follows:

(1) *GET READY.* This command is given 4 minutes from drop time. Nos. 1, 2, 5, and 6 remove their safety belts and hand them to the jumpmaster who places them alongside the copilot's seat.

(2) *CHECK STATIC LINES.* The jumpmaster rises and checks the routing of the static lines from the backpacks of Nos. 1 through 7 to insure they are routed and hooked up properly. No. 4 man checks the jumpmaster's static line.

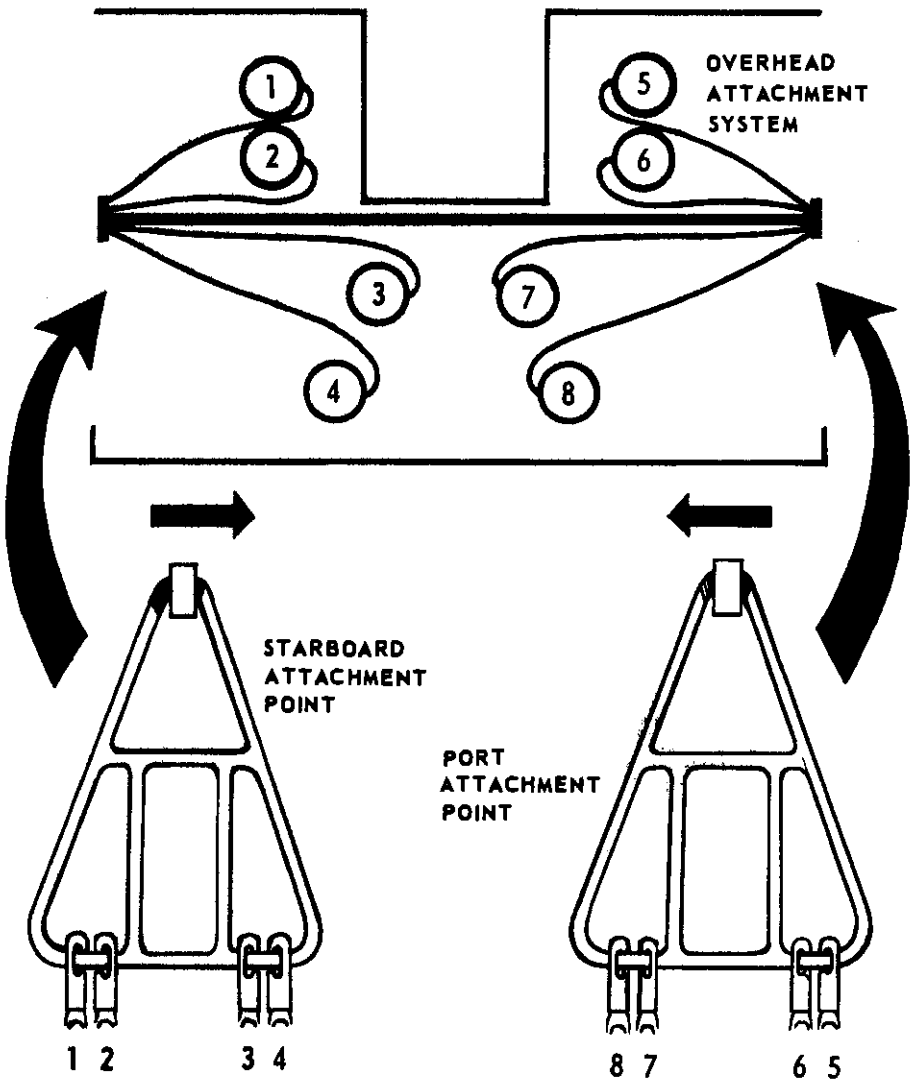


Figure 88. UH-1D seating arrangement and static line routing.

(3) *CHECK EQUIPMENT.*

(4) *SOUND OFF FOR EQUIPMENT CHECK.* On this command, No. 1 indicates his "Okay" orally to the jumpmaster. The remaining parachutists follow in order.

(5) *SIT IN THE DOOR.* The command is given by the jumpmaster 30 seconds from drop time. Nos. 1 and 2 swing their legs to the right and take sitting positions in the door with feet together outside the cargo compartment. They place both hands, palms down, on the floor along their thighs, turn their heads toward the jumpmaster, and wait. Nos. 5 and 6 swing their legs to the left, take sitting positions in the left door, turn their heads toward the jumpmaster, and wait.

(6) *GO.*

(*a*) This command is given orally by the jumpmaster to No. 1. He pushes up and out with both hands. He is followed by Nos. 2, 3, and 4. When No. 4 has cleared the aircraft, the jumpmaster signals No. 5 to go. Nos. 5 through 8 exit from the left door in order.

(*b*) When an air delivery container is being released from the cargo hook, the pilot releases the container and informs the jumpmaster when the load has cleared the aircraft. The jumpmaster then commands GO to the first parachutist followed by the remaining personnel.

113. Safety Considerations

a. The jumpmaster assures that Nos. 1, 2, 5, and 6 remain secured by their safety belts until the command GET READY has been given.

b. The indicated airspeed of the aircraft during actual jumps should not be less than 50 knots or more than 70 knots.

c. Crowded conditions inside the cargo compartment and the large doors located on both sides of the fuselage make activation of the reserve parachute extremely hazardous. During movement inside the aircraft, the ripcord grip should be guarded by covering it with the hand (without grasping it).

d. If a crew chief or copilot is in the aircraft, he can pull in the static lines; if not, the pilot must land without hovering (a running landing) to insure that no deployment bags become entangled in the rotor blades.

(1) Equipment prescribed in chapter 3 can be worn by parachutists when jumping this aircraft.

(2) When the adjustable equipment bag is jumped, it is attached to the No. 3 and No. 7 men.

e. Standard air delivery containers rigged with G–13 and T–7 (converted) cargo parachutes with 15-foot drogue equipped static lines, can be delivered from the cargo doors. (Static lines not equipped with drogues should not be used because they trail the aircraft erratically.) The snaphooks of the static lines are hooked to the anchor line system prior to takeoff. Door bundles will reduce the number of parachutists which can be carried depending on the size and number of bundles.

f. Standard air delivery containers rigged with the G–12C, G–12D, T–7 (converted), or G–13 cargo parachutes can be delivered from the cargo hook, using the breakaway static line (TM 10–500–6).

Section IV. UH–19 (CHICKASAW)

114. Characteristics

The UH–19 is an all metal, single rotor, three-bladed, utility helicopter. A maximum of five parachutists or four parachutists and one door bundle can be delivered from this aircraft.

115. Preparation and Inspection of the Aircraft

The following steps must be accomplished to prepare the UH–19 for jumping:

a. Secure external cargo sling assembly against the bottom of the fuselage, if a container is not being carried externally.

b. Remove the door.

c. Remove the three-man seat section on the starboard side.

d. Install anchor line cable assembly on the starboard side as follows (fig. 89):

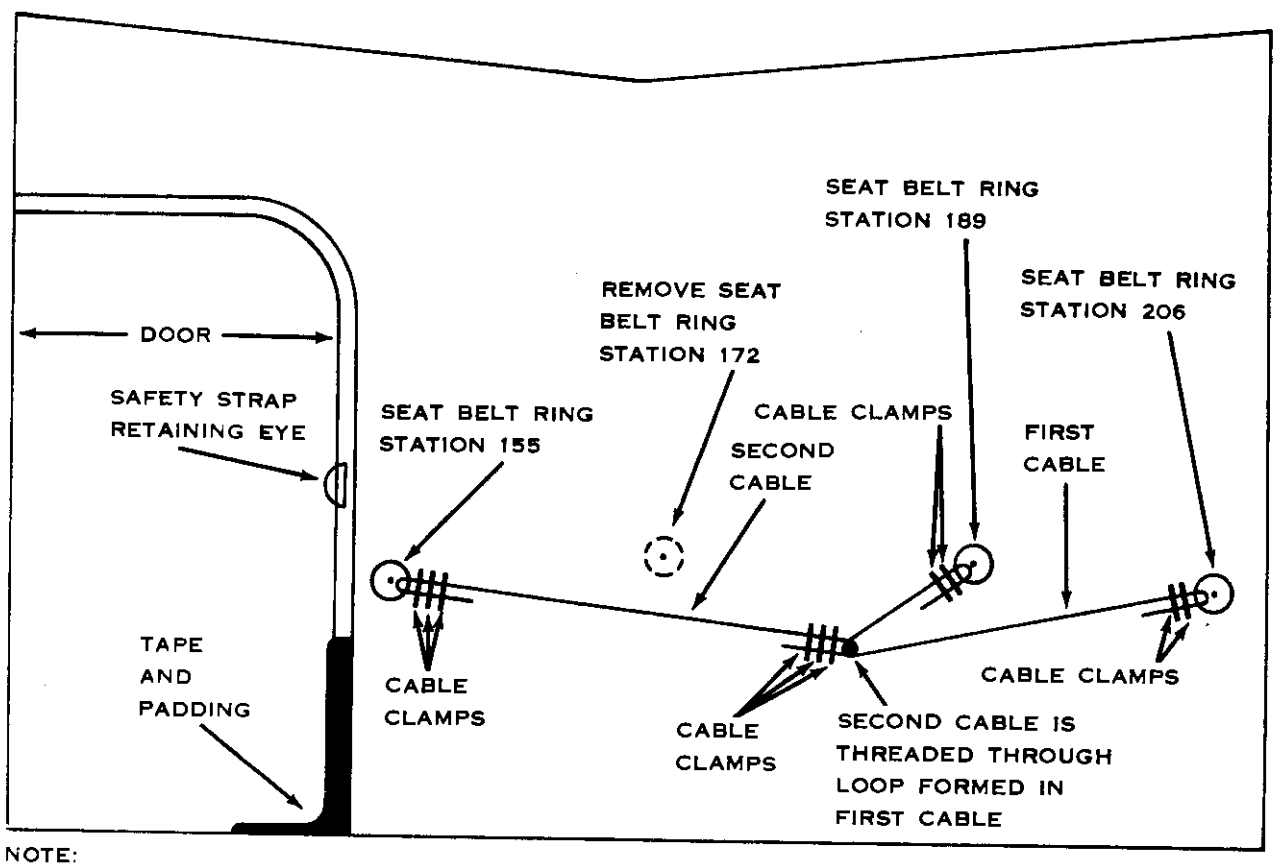


Figure 89. UH–19 anchor line cable installation.

(1) Thread one end of a 36-inch length of ¼-inch steel cable (MIL–C–5424 or MIL–C–1511) through the seat belt ring at station 189 and the other end through the seat belt ring at station 206. At each end, loop the cable back on itself a distance of 4 inches and secure with two cable clamps. (This ¼-inch steel cable is a seven-strand cable with a minimum tensile strength of 6,440 pounds.)

(2) Thread one end of a second 36-inch length of ¼-inch steel cable through the loop formed by the first cable. Loop the end of the cable back on itself a distance of 4 inches and secure with three cable clamps. Thread the other end of this cable through the seat belt ring at station 155. Pull the cable taut. Loop the end of the cable back on itself and secure with three cable clamps to keep the system taut.

e. Pad and tape the lower portion of the trailing edge and the aft concave portion of the bottom edge of the doorframe.

f. Tape down the cargo sling release door and all tiedown rings in the vicinity of the exit.

g. Tape or wrap the free ends of the anchor line cable.

h. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) Except for the safety strap retaining eyes, all protruding objects in the vicinity of the jump doors are removed or taped.

(2) The lower portion of the trailing edge and the aft concave portion of the bottom edge of the jump doorframe is padded and taped.

(3) The anchor line cable is secured and the free end of the cable is wrapped or taped.

(4) Troop seats can be easily lifted and secured.

(5) A safety belt (fully extended if parachutists are wearing combat equipment) is available for each jumper and a safety strap is available for the jump door.

(6) The floor is clean, not slippery, and that there are no projections in the aisle.

(7) The crew chief's headphones are available and functioning properly.

Note. Some models of the UH–19 aircraft have no intercommunication system between the pilot and cargo compartment. In this case, a 6-foot extension line added to the copilot's earphones should be provided for use of the crew chief in the cargo compartment.

116. Loading Techniques and Seating Arrangement

Following the final briefing, the jumpmaster gives the command ENPLANE. The parachutists load the aircraft in the reverse order in which they will jump and are seated and hooked up as shown in figures 90 and 91.

a. The crew chief normally sits on the single seat on the aft portside.

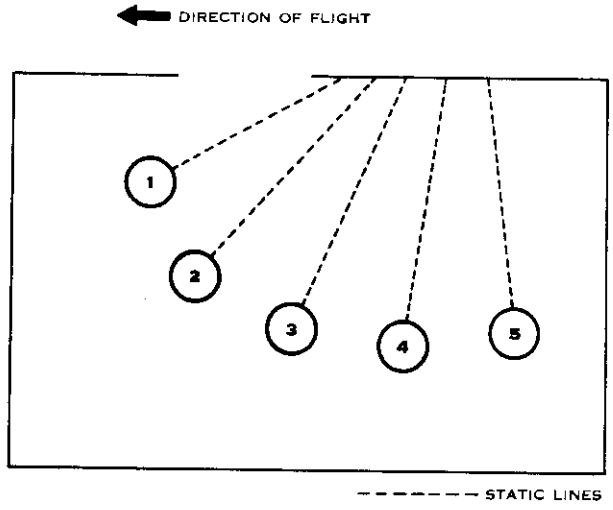


Figure 90. UH–19 static line routing.

b. When an air delivery container is not part of the interior load, or when one air delivery container is suspended from the external cargo hook under the helicopter, Nos. 1 and 2 are seated on the forward three-seat section, portside.

c. Equipment and additional supplies in standard air delivery containers properly rigged with standard type cargo parachutes can be dropped from the door or released from the external cargo hook of the helicopter. When the container is carried in the passenger compartment, it should not be more than 45 inches long, 30 inches wide, and 20 inches high. (It is limited by the size of the door.) Cargo parachutes with breakaway static lines must be used. See TM 10–500–6 for door load and cargo hook load procedures.

d. When an air delivery container is carried in the cargo compartment, a maximum of four parachutists can be seated in the helicopter. No. 1 is seated on the forward three-seat section facing aft and the remaining parachutists are seated on the three-seat section portside.

e. The cargo compartment of this aircraft is not easily accessible from the pilot's compartment. For this reason, a crew chief rides in the cargo compartment to recover the static lines after the parachutists have completed their exits. The crew chief also relays 6-minute and 1-minute warnings and other information from the pilot to the jumpmaster.

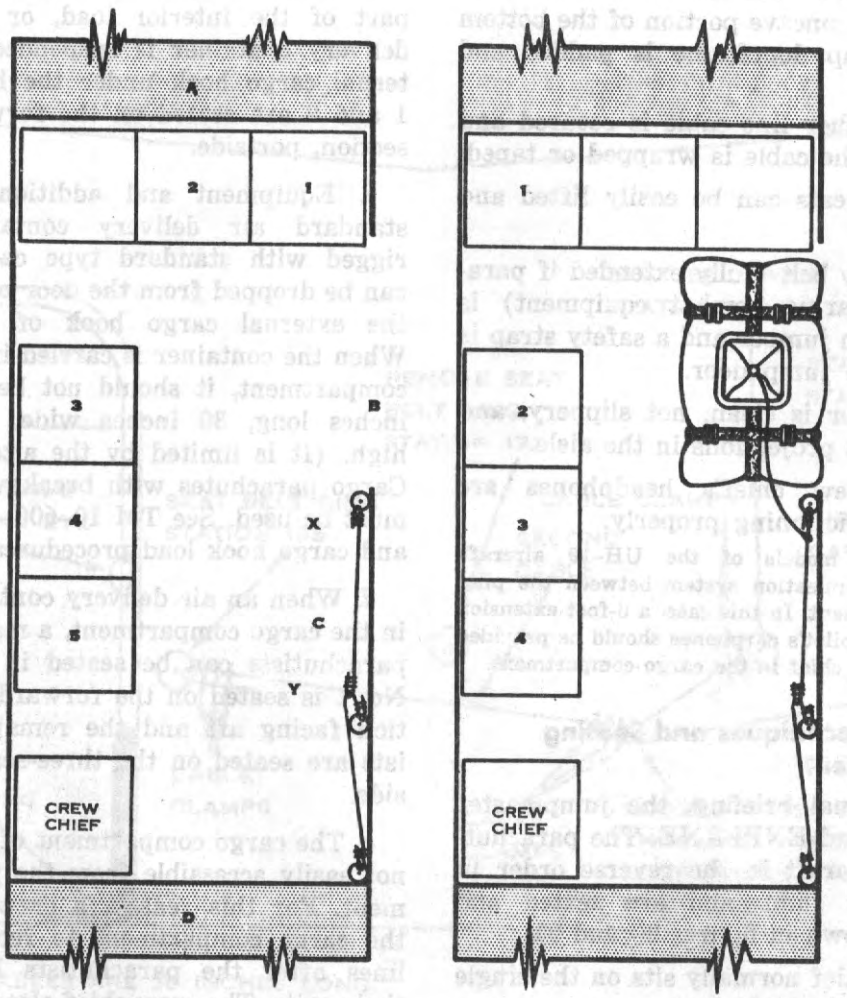
117. Jump Procedures

a. The 6-minute and 1-minute warnings are given by the pilot to the crew chief, who in turn relays them orally or by hand signals to the jumpmaster.

b. The jump commands and procedures for parachuting from the UH–19 aircraft are as follows:

(1) *GET READY.*

(2) *STAND UP.* Parachutists seated on the portside stand up and one man, previously designated by the jumpmaster, turns and secures the three-seat section in the "up" position. As soon as this is completed, the parachutists seated on the forward three-seat sec-



A. FIVE PARACHUTISTS, NO INTERNALLY CARRIED AERIAL DELIVERY CONTAINER. PARACHUTISTS WILL HOOK-UP ON THE ANCHOR LINE CABLE BETWEEN POINTS X AND Y ONLY

B. FOUR PARACHUTISTS AND ONE INTERNALLY CARRIED AERIAL DELIVERY CONTAINER (CONTAINER HOOKED-UP BEFORE TAKE OFF)

KEY
A. ENGINE COMPARTMENT
B. JUMP DOOR
C. ANCHOR LINE CABLE
D. STORAGE COMPARTMENT

Figure 91. UH–19 seating arrangement.

tion stand up and secure the seat section in the "up" position.

(3) *HOOK UP.* Parachutists unfasten their static line snaphooks from the carrying handle of the reserve parachute, hook their static line snaphook to the forward section of the anchor line cable in numerical order, and take a reverse "bight" in their static lines (fig. 92).

(4) *CHECK STATIC LINES.*

(5) *CHECK EQUIPMENT.*

(6) *SOUND OFF FOR EQUIPMENT CHECK.*

(7) *SIT IN THE DOOR.*

(*a*) No. 1 removes the door safety strap from the door and assumes a sitting position in the door as near the leading edge as practicable with his feet together outside the cargo compartment and his hands grasping the doorsill.

(*b*) No. 2 stands close behind and slightly to the left rear of No. 1 and prepares

to assume the position of No. 1.

(*c*) When an air delivery container is to be dropped from the door, Nos. 1 and 2 prepare to eject the container. No. 1 then assumes the proper door position after ejecting the container.

(8) *GO.*

(*a*) No. 1, keeping his head up, pushes up and out with his hands and assumes a normal body position. (When an air delivery container is suspended from the cargo hook, the pilot releases the container prior to exist of personnel).

(*b*) The remaining parachutists move to the door, assumes the proper door position, and exit.

118. Safety Considerations

a. The door safety strap is secured across the door until the command sit in the door is given.

b. The speed of the aircraft during the actual jump will not be less than 20 knots or more than 50 knots. Because of the limited height of the jump door, jumpers must exit the helicopter from a sitting position. Each parachutist requires approximately 3 seconds to go from the standing position, to the sitting position in the door, and exit the helicopter.

c. The jumper must sit in the door as far forward as possible and exit, with his head up, straight outward by pushing down and out with his hands. In this manner, he will clear the right rear wheel by approximately 4 feet.

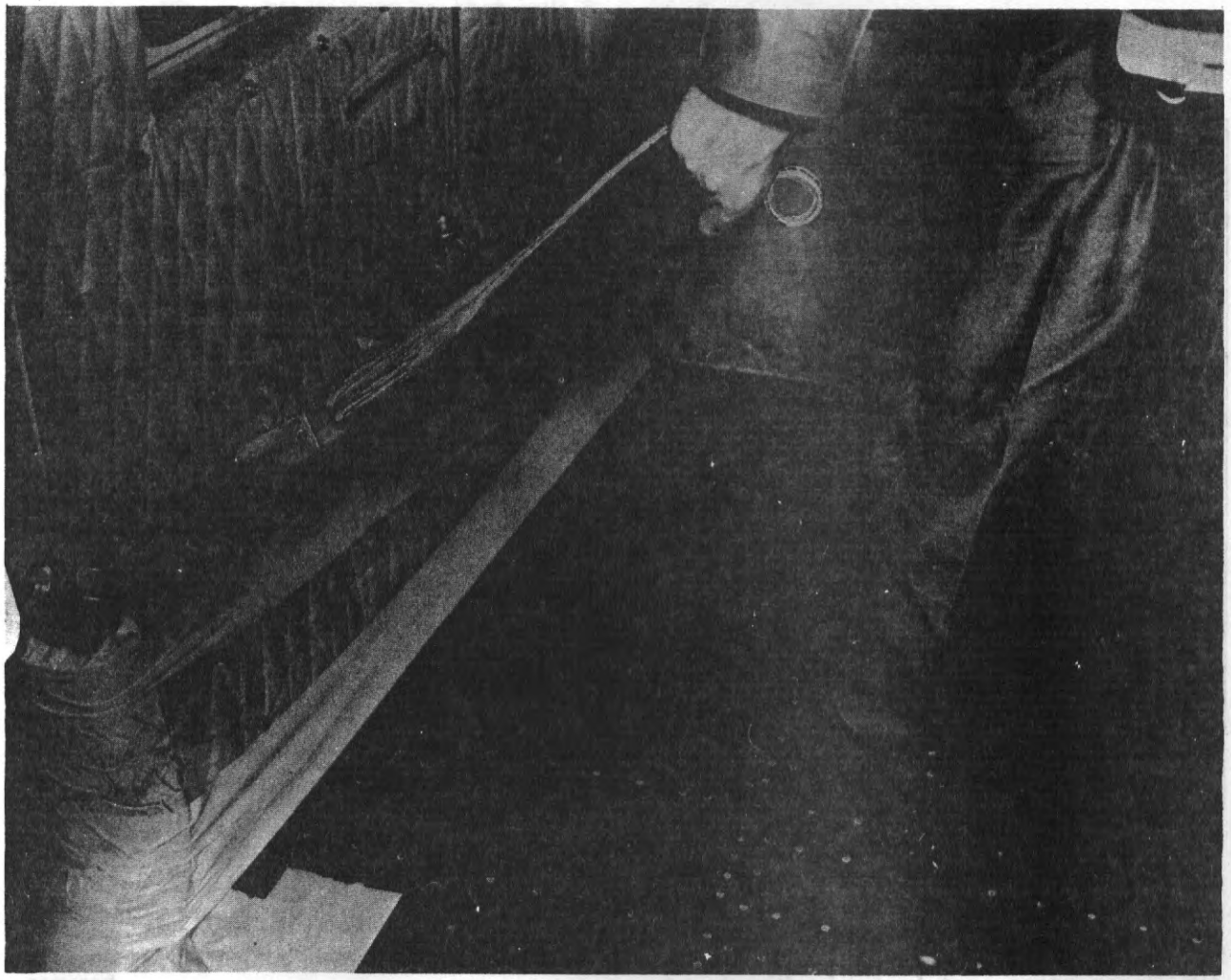


Figure 92. Hook up with reverse bight (UH–19).

d. Adjustable weapon cases may not exceed 36 inches in length.

e. Because of the small cargo compartment, only the No. 1 parachutist can wear the adjustable equipment bag. This bag must not exceed 36 inches in length. (If an air delivery container is carried in the cargo compartment, No. 1 will NOT carry an adjustable equipment bag.)

Section V. CH–21 (SHAWNEE)

119. Characteristics

The CH–21 is an all metal, tandem rotor, single-engine helicopter. A maximum of 10 parachutists with or without combat equipment can jump from this aircraft in a single stick. If the allowable cargo load for a particular mission permits, up to 12 parachutists may be delivered, provided they are divided into two or more smaller sticks requiring multiple passes over the drop zone.

120. Preparation and Inspection

a. The following steps must be accomplished to prepare the CH–21 for jumping:

(1) Remove external cargo sling assembly.

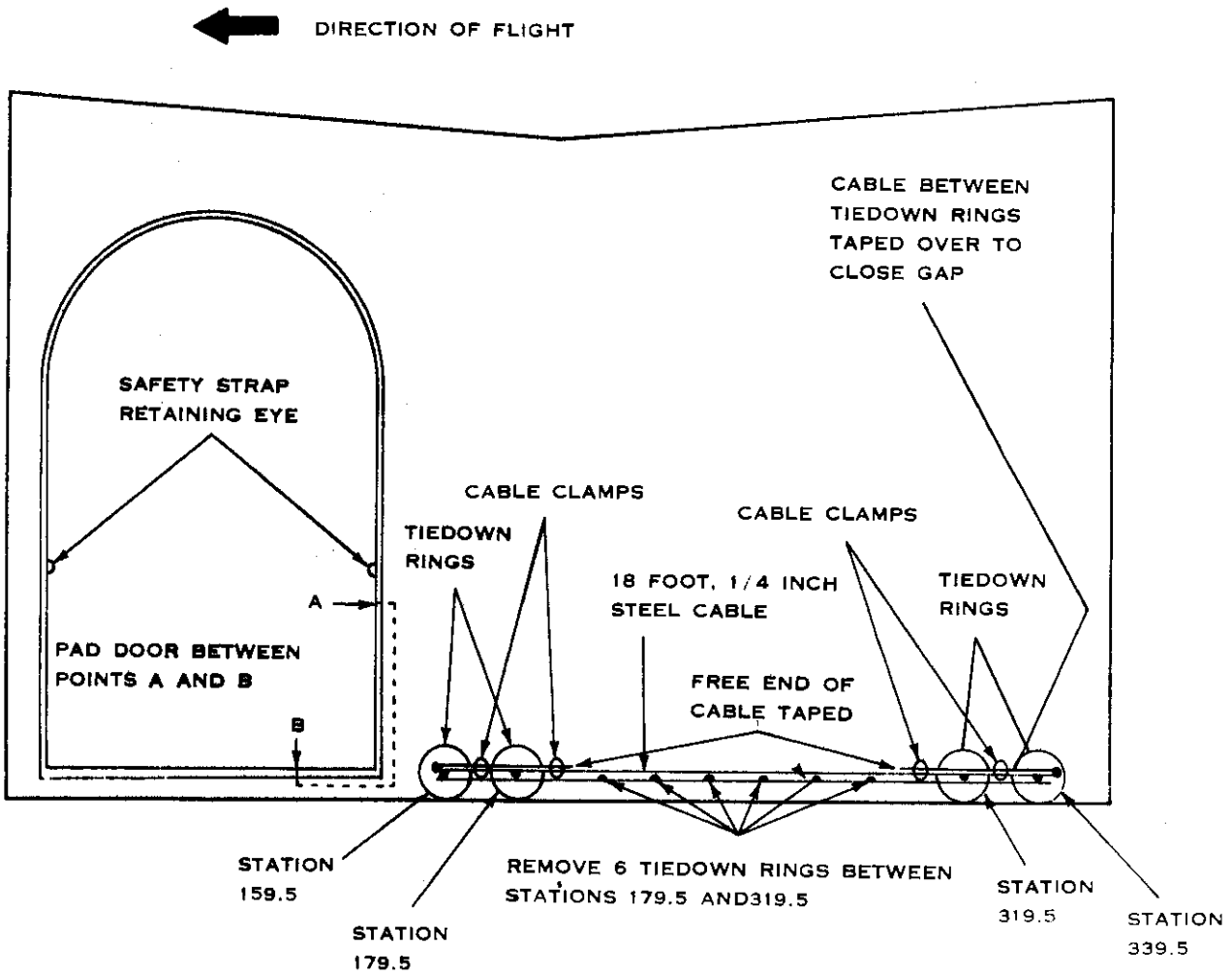


Figure 93. CH–21 anchor line cable installation.

(2) Remove forward door and door assembly.

(3) Remove the forward three-man seat section on the starboard side.

(4) Remove tiedown rings between stations 179.5 and 319.5 on the starboard side.

(5) Install anchor line cable assembly on the starboard side (fig. 93).

(*a*) Thread one end of a ¼-inch, 18-foot length steel cable (MIL–C–5424 or MIL–C–1511) through the 2,000-pound tiedown rings at stations 319.5 and 339.5.

(*b*) Loop ends of the steel cable back to tiedown rings at stations 179.5 and 319.5 and secure each end with two cable clamps. Place one cable clamp on each side of the tiedown rings at these stations.

(*c*) Place cable clamps so that pull is exerted on both tiedown rings at stations 159.5 and 179.5.

(*d*) Wrap or tape the free ends of the cable. Tape and close the gap which is caused by the looped cable between the two tiedown rings at stations 319.5 and 339.5.

(6) Pad and tape the lower half of the trailing edge and aft concave portion of the bottom edge of the forward door.

b. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) Except for the safety strap retaining eyes, all protruding objects in the vicinity of the jump doors are removed or taped.

(2) The lower portion of the trailing edge and the aft concave portion of the bottom edge of the jump doorframe are padded and taped.

(3) The anchor line cable is secured and the free end of the cable is wrapped or taped to prevent injury.

(4) The gap between the looped cable between stations 319.5 and 339.5 is taped over to prevent a parachutist hooking up on the anchor line cable behind the cable clamps at stations 319.5.

(5) Troop seats can be easily lifted and secured.

(6) A safety belt (fully extended if parachutists are wearing combat equipment) is available for each parachutist and a safety strap is available for the jump door.

(7) The floor is clean, not slippery, and that no projections are in the aisle.

(8) The crew chief's headphones are available and functioning properly.

121. Loading Techniques and Seating Arrangement

a. Following the final briefing, the jumpmaster gives the command to enplane. The parachutists enter the aircraft through the rear door. To maintain proper balancing of the load, half of the stick sits on the portside and the remainder on the starboard side. The seating arrangement and static line hookup are shown in figure 94.

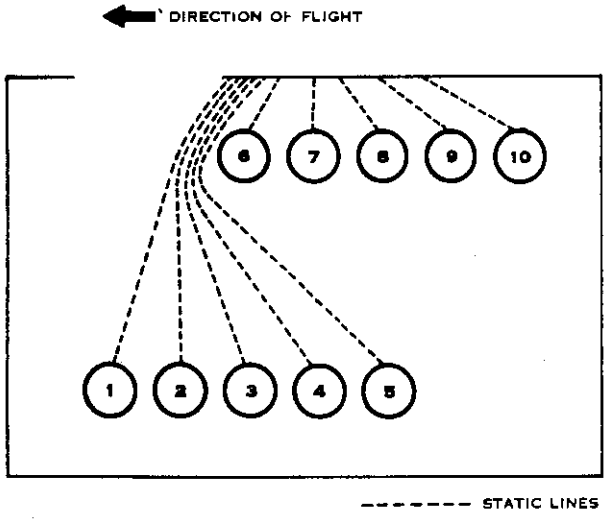


Figure 94. CH–21 seating arrangement and static line routing.

b. While each seat section seats three parachutists with combat equipment, only two parachutists wearing adjustable equipment bags sit in one seat section. If 10 or more parachutists are to jump, only the first two parachutists seated on the portside of the aircraft wear the adjustable equipment bag. Adjustable equipment bags and adjustable weapons cases must not exceed 36 inches in length.

c. Standard air delivery containers, properly rigged with standard type cargo parachutes, should not be more than 60 inches long, 30

inches wide, and 20 inches high. Cargo parachutes with breakaway static lines must be used.

122. Jump Procedures

a. The 6-minute and 1-minute warnings are given by the pilot to the crew chief who in turn relays them orally or by hand signals to the jumpmaster.

b. The jump commands and procedures for parachuting from the CH–21 are as follows:

(1) *GET READY.*

(2) *STARBOARD SIDE STAND UP.* The parachutists seated on the starboard side stand up and secure the seat sections in the "up" position.

(3) *STARBOARD SIDE HOOK UP.* The parachutists unfasten their static line snap hook from the top carrying handle of their reserve parachutes, hook their static line snaphooks to the anchor line cable, and take a reverse bight in the static line with their right hand (fig. 95). They move as far to the rear of the aircraft as possible, keeping their relative position in the stick.

(4) *PORTSIDE STAND UP.*

(5) *PORTSIDE HOOK UP.* Conducted in accordance with (3) above, with the exception of movement to the rear.

(6) *CHECK STATIC LINES.*

(7) *CHECK EQUIPMENT.*

(8) *SOUND OFF FOR EQUIPMENT CHECK.*

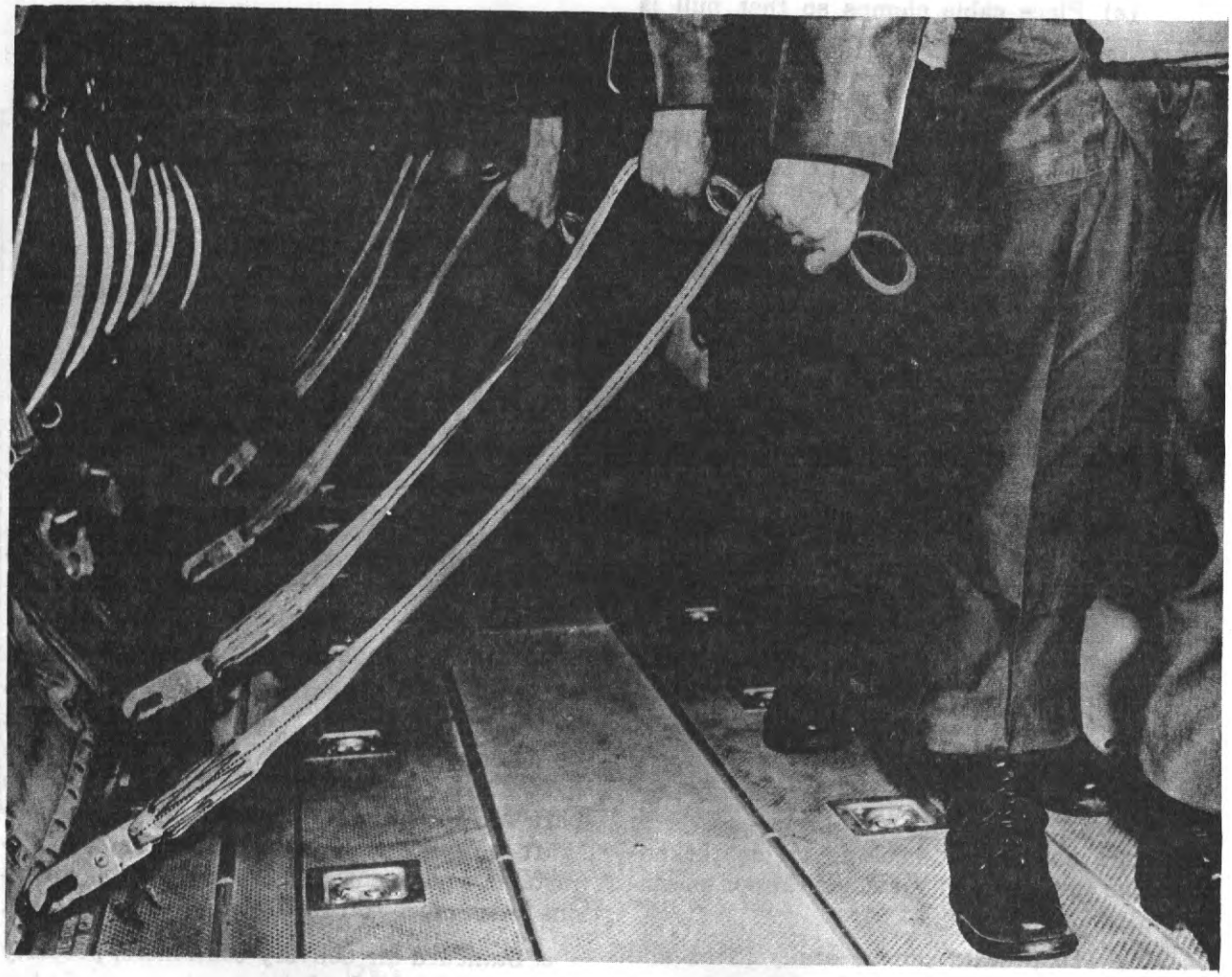


Figure 95. Position after hook up with reverse bight (CH–21).

(9) *STAND IN THE DOOR.* No. 1 moves to the forward door, removes the door safety strap, and assumes the door position. While the upper body is straight, the jumper must crouch low enough to allow at least a 2-inch clearance between his helmet and the top of the door.

(10) *GO.* No. 1 exits by jumping straight out from the door and assuming a normal body position. The succeeding parachutists move up along the portside of the helicopter, make a 90-degree turn at the door, take up a correct door position, and exit in the same manner as No. 1, maintaining an interval of 1-second between jumpers. The parachutist must not spring upward in his exit or the top of his parachute assembly may hit the top of the door, throwing him into an improper body position.

c. Upon exit of all parachutists, the crew chief or static jumpmaster recovers all static lines.

123. Safety Considerations

a. Personnel parachute jumps are executed from the forward door of the CH–21. The door safety strap is secured across the forward door until the command STAND IN THE DOOR is given.

b. The speed of the aircraft during the actual jumps will not be less than 30 knots or more than 70 knots. The minimum time intervals which must be maintained between individual exits at indicated jump speed are:

(1) Between 30–50 knots, 2 seconds between jumpers.

(2) Between 50–70 knots, 1 second between jumpers.

c. Parachutists use only the forward door. Standard air delivery containers may be dropped from one door or simultaneously from both doors. Parachutists will comply with unit SOP when jumping with air delivery containers.

Section VI. CH–34 (CHOCTAW)

124. Characteristics

The CH–34 is an all metal, single-engine helicopter. A maximum of 10 combat equipped parachutists can jump from this aircraft.

125. Preparation and Inspection

a. The following steps must be accomplished to prepare the CH–34 for jumping:

(1) Remove three-place combination troop seat installation.

(2) Remove troop seats located aft of the cargo compartment door on the starboard side of the aircraft.

(3) Remove the R–11A range receiver antenna.

(4) Remove the lower litter bracket at the aft side of the cargo door aperture.

(5) Pad and tape the aft edge of the cargo door and the protruding hinge fittings where the combination troop seat was removed (fig. 96).

(6) Install the anchor line cable on the floor on the starboard side of the aircraft (fig. 97) using the tiedown fitting at station No. 167 as the forward attachment point, and the two tiedown fittings located at stations Nos. 225 and 244 as the rear attachment points. Use one ¼-inch steel cable (MIL–C–5424 or MIL–C–1511), or a ⅜-inch steel cable (MIL–W–

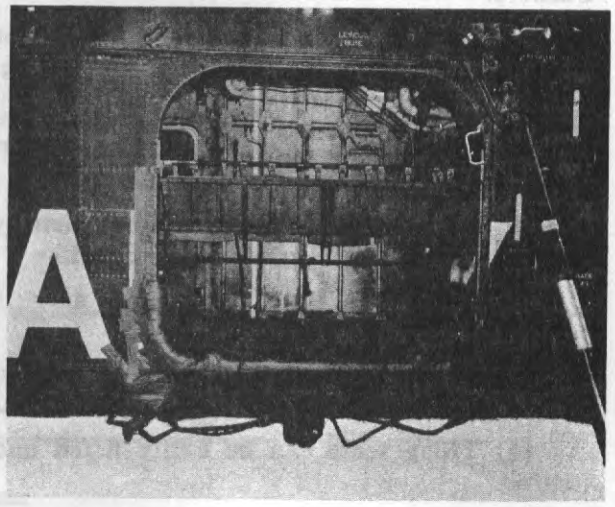


Figure 96. CH–34 troop door prepared for jumping.

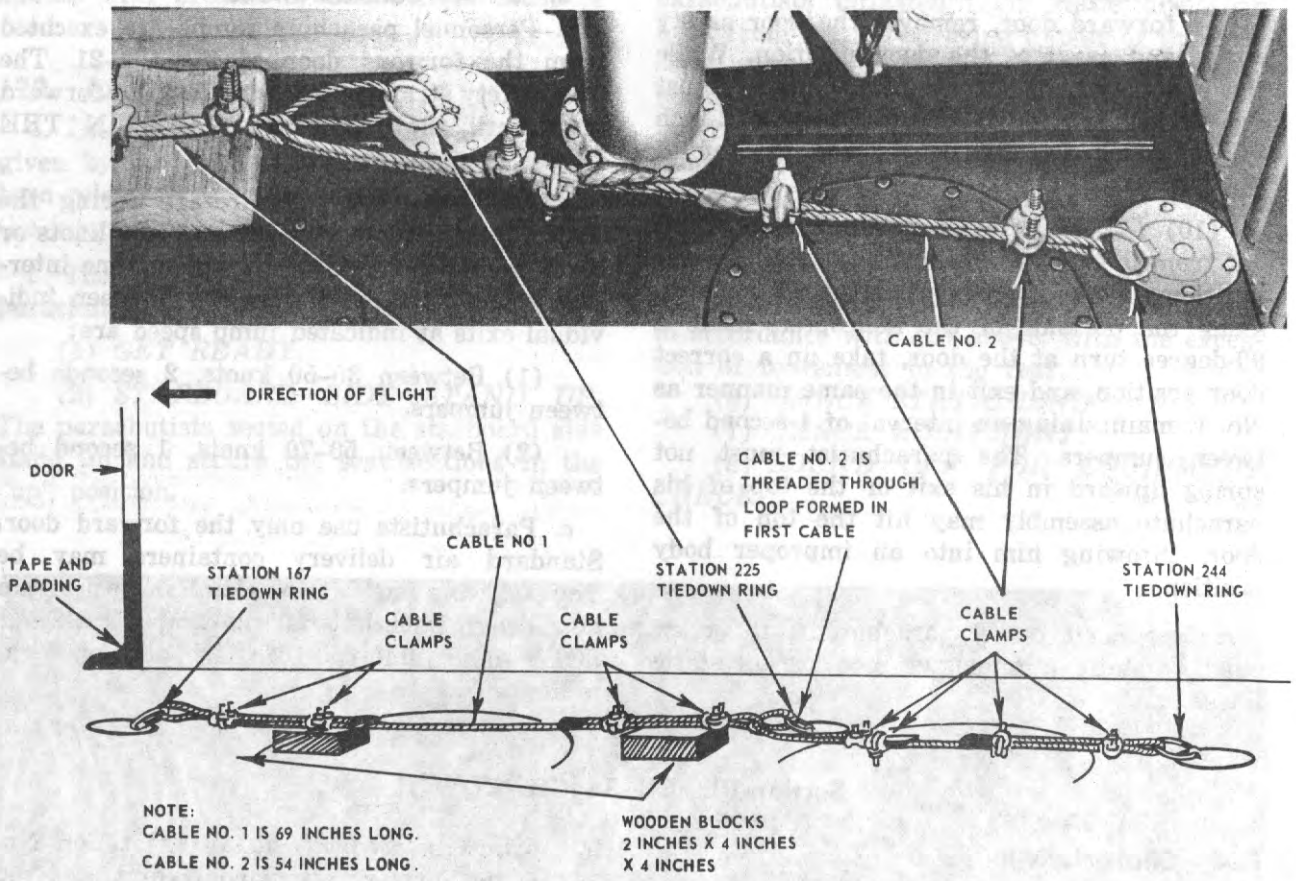


Figure 97. CH–34 anchor line cable installation.

12567) 69 inches in length, and one ¼-inch cable of the same specification but 54 inches in length, and eight cable clamps with lockwashers.

(7) Install the jumpmaster's anchor point (fig. 98), using one A7A strap and D-ring.

b. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) All protruding objects in the vicinity of the cargo door are removed or taped.

(2) The aft edge of the cargo door is padded and taped.

(3) The jumpmaster's anchor point and anchor line cable are secure.

(4) Troop seats can be easily lifted and secured.

(5) The crew chief's headphones are available and are functioning properly.

(6) A safety belt is available for each parachutist.

126. Loading Techniques and Seating Arrangement

a. Seating arrangements and static line routing for 10 parachutists are as shown in (fig. 99).

Note. Due to the configuration of the cargo compartment, jumpers Nos. 1 through 7 are on the portside of the aircraft. Jumpers Nos. 8 and 9 are seated on the floor of the starboard side, and jumper No. 10 (jumpmaster) is on the starboard side forward of the door.

b. When an air delivery container is part of the internal load, a maximum of nine parachutists may be seated. In this case, the seat occupied by the No. 1 man is left vacant.

c. Seats are numbered in order of the parachutist's exit from the helicopter.

d. Parachutist No. 10 (No. 9 if an air de-

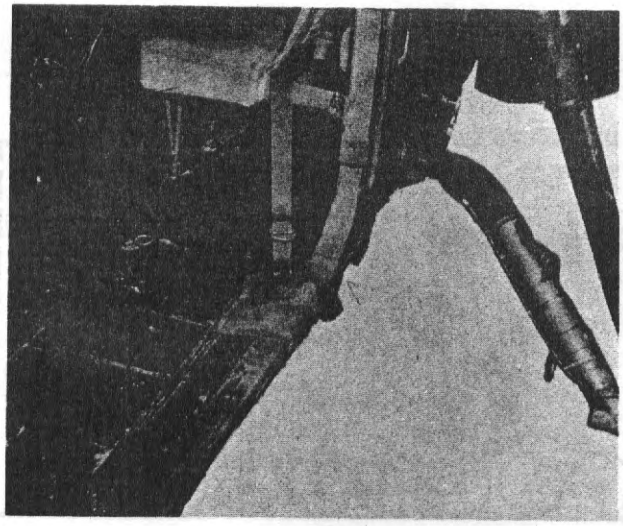


Figure 98. Jumpmaster's anchor point, CH–34.

livery container is loaded internally) is the jumpmaster.

e. When the adjustable equipment bag is jumped, it is attached to the No. 1 man only. No adjustable equipment bag can be jumped when an air delivery container is carried in the cargo compartment.

f. Standard air containers rigged with G–13 and T7A cargo parachutes with breakaway static lines may be delivered from the cargo door. Door bundles will reduce the number of parachutists which may be carried depending on the size and number of bundles transported.

g. Standard air delivery containers rigged with G–1A, G–13, G–12C, T7A, or G–12D cargo parachutes may be dropped from the cargo hook using a breakaway static line (See TM 10–500–6 for door load and cargo hook procedures.)

127. Jump Procedures

a. The 6-minute and 1-minute warnings are given by the pilot to the crew chief stationed in the cargo compartment, who relays them by hand signal to the jumpmaster.

b. All commands are given by the jumpmaster using hand signals. Oral commands cannot be heard due to the high noise level of the aircraft.

c. Jump commands and procedures are as follows:

(1) *GET READY.*

(2) *STAND UP AND HOOK UP.*

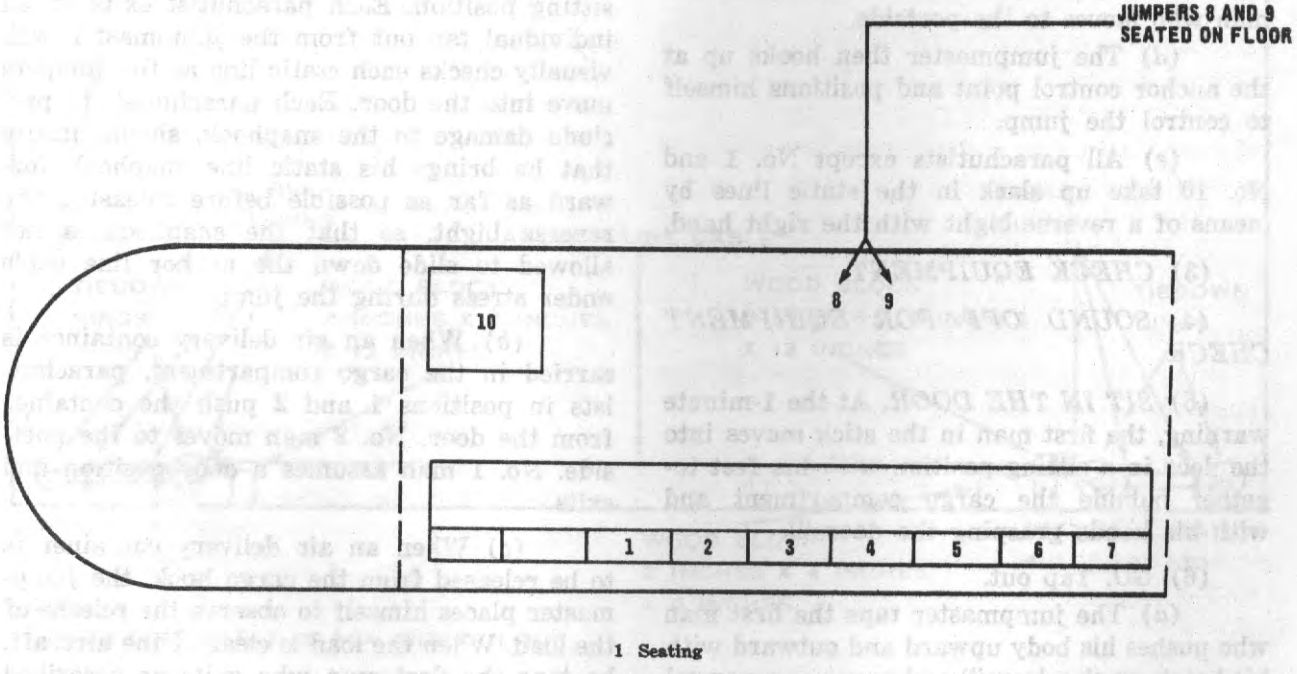
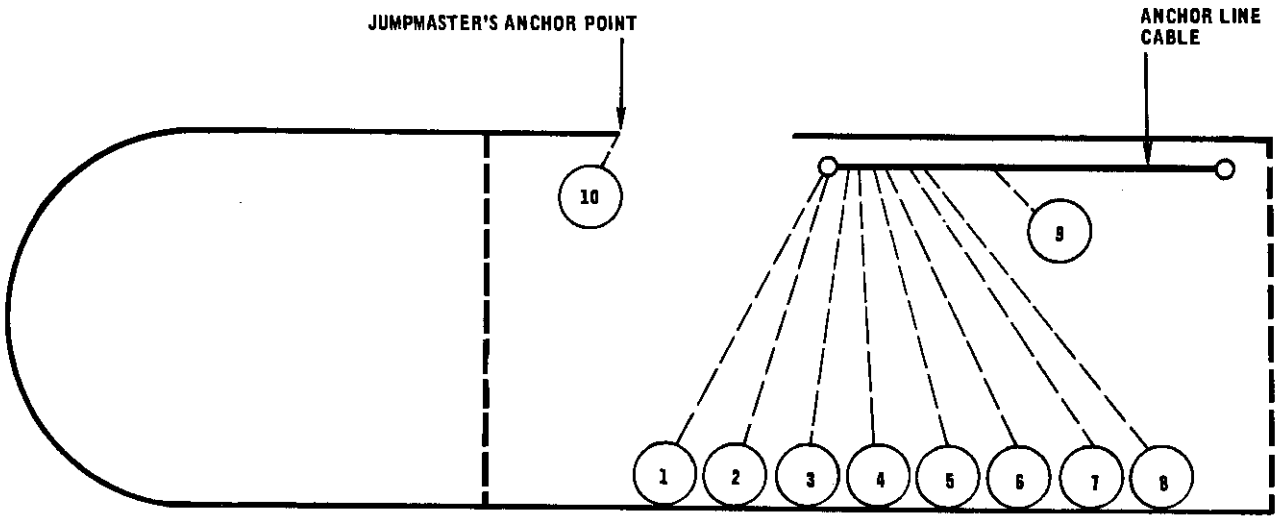


Figure 99. CH–34 seating arrangement and static line routing.



2 Static line routing

Figure 99—Continued.

(*a*) On the signal from the jumpmaster, personnel on the portside of the cargo compartment stand up, secure seats, and hook up to the anchor line cable (fig. 99).

(*b*) The starboard side personnel then stand up, secure seats, and hook up (fig. 99).

(*c*) All personnel on the portside of the aircraft move forward to make room for No. 8 man who moves to the portside.

(*d*) The jumpmaster then hooks up at the anchor control point and positions himself to control the jump.

(*e*) All parachutists except No. 1 and No. 10 take up slack in the static lines by means of a reverse bight with the right hand.

(3) *CHECK EQUIPMENT.*

(4) *SOUND OFF FOR EQUIPMENT CHECK.*

(5) *SIT IN THE DOOR.* At the 1-minute warning, the first man in the stick moves into the door in a sitting position with his feet together outside the cargo compartment and with his hands grasping the doorsill.

(6) *GO.* Tap out.

(*a*) The jumpmaster taps the first man who pushes his body upward and outward with his hands on the doorsill and assumes a normal body position. Each remaining jumper, except the jumpmaster, assumes the sitting position in the door in the following manner: Each man in succession, from his position on the portside of the aircraft, steps toward the cargo doors and, when close to the door releases his static line, squats, and places his right hand on the floor near the aft edge of the door. He then moves into the door and assumes the sitting position. Each parachutist exits on an individual tap out from the jumpmaster who visually checks each static line as the jumpers move into the door. Each parachutist, to preclude damage to the snaphook, should insure that he brings his static line snaphook forward as far as possible before releasing the reverse bight, so that the snaphook is not allowed to slide down the anchor line cable under stress during the jump.

(*b*) When an air delivery container is carried in the cargo compartment, parachutists in positions 1 and 2 push the container from the door. No. 2 man moves to the portside. No. 1 man assumes a door position and exits.

(*c*) When an air delivery container is to be released from the cargo hook, the jumpmaster places himself to observe the release of the load. When the load is clear of the aircraft, he taps the first man who exits as described above, followed by each parachutist in turn.

128. Safety Cosideration

a. Care should be taken to insure that equipment or weapons attached to the parachutist's legs are outside of the doorsill prior to exit.

b. The speed of the aircraft during actual jumps will not be less than 50 knots or more than 70 knots.

c. Time interval between jumpers should be 1 second to insure safe delivery.

d. Care should be taken to insure that the static line snaphook is not allowed to slide down the anchor line cable under stress.

Section VII. CH–37 (MOJAVE)

129. Characteristics

The CH–37 is an all metal, twin-engine helicopter with a single, five-blade main rotor and a single, four-blade antitorque tail rotor. A maximum of 23 combat equipped parachutists can jump from this aircraft.

130. Preparation and Inspection

The following steps must be accomplished to prepare the CH–37 for jumping:

a. Remove the aft section of the monorail and the cargo winch, fold the center and forward sections of the monorail against the top

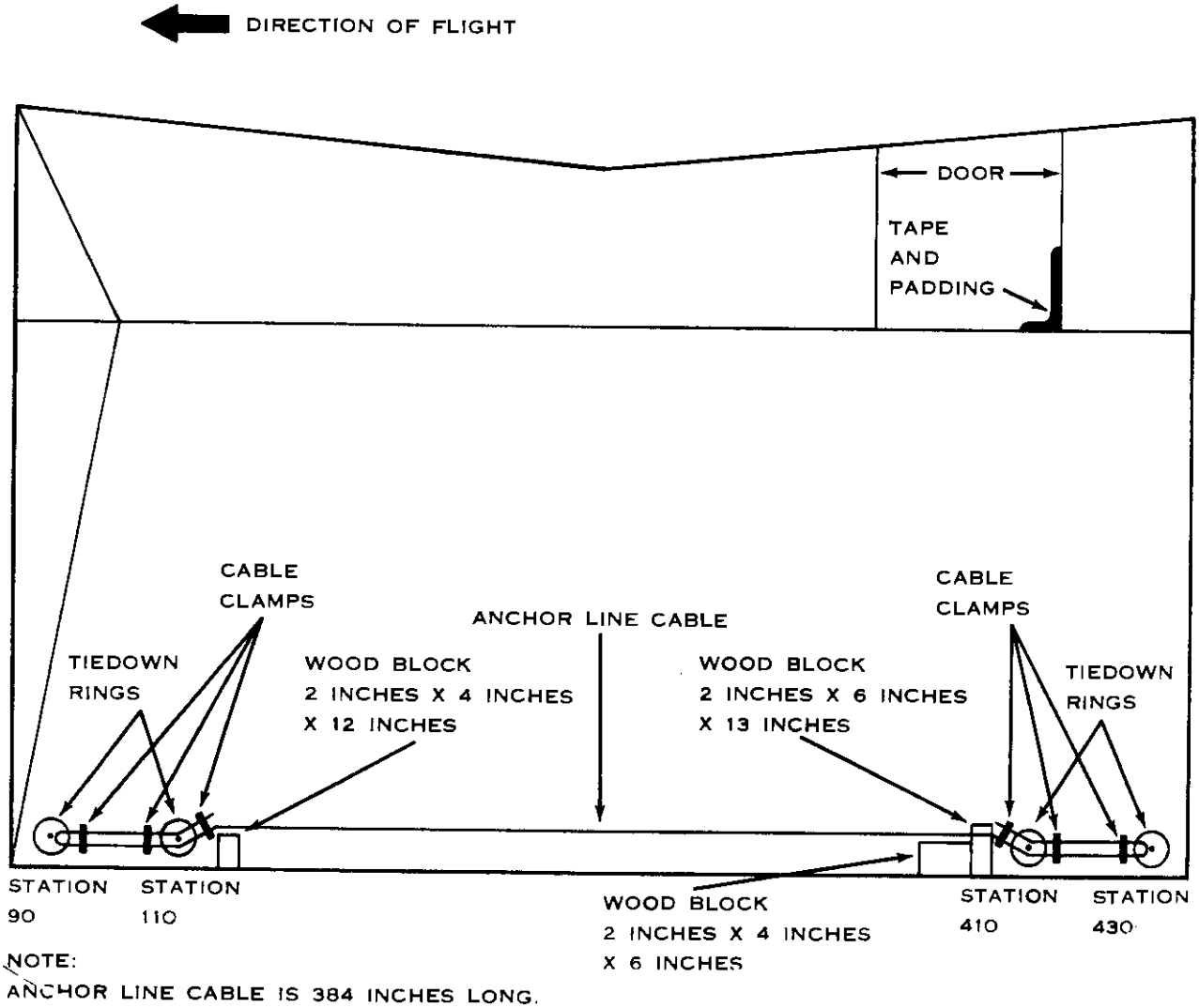


Figure 100. CH–37 anchor line cable installation.

of the cargo compartment, and secure in place.

b. Remove the step located beneath the cargo compartment door.

c. Pad and tape the aft edge of the cargo-personnel door aperture.

d. Install the anchor line on the floor of the aircraft on the portside using the tiedown fittings at stations No. 90 and No. 110 as the forward attachment points and the two tiedown fittings at stations No. 410 and No. 430 at the rear attachment points. Use one ¼-inch steel cable (MIL–C–5424 or MIL–C–1511) or ⅜-inch steel cable (MIL–W–12567), 384 inches in length, and six cable clamps with lockwashers. Place wooden blocks between the anchor line cable and floor as shown in figure 100.

e. Secure the external sling assembly against the bottom of fuselage if a load is not being carried externally.

f. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) All protruding objects in the vicinity of the cargo-personnel door are removed or taped.

(2) The aft edge of the cargo-personnel door is taped and padded.

(3) The external sling assembly is secure against the bottom of the aircraft if a load is not carried externally.

(4) Troop seats can be easily lifted and secured.

(5) A safety belt is available for each parachutist.

(6) The floor is clean, not slippery, and there are no projections in the aisle.

(7) The crew chief's headphones are available and functioning properly.

131. Loading Techniques and Seating Arrangement

a. A maximum of 23 combat-equipped parachutists are seated so all odd-numbered personnel are seated in the 12 seats on the starboard side of the aircraft. All even-numbered personnel are seated in the 11 seats on the portside of the aircraft. The seating arrangement and static line routing are as shown in figure 101.

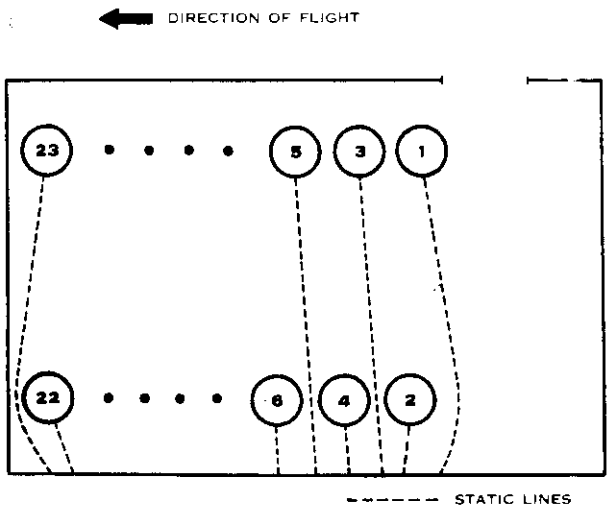


Figure 101. CH–37 seating arrangement and static line routing.

b. When an air delivery container is part of the internal load, it is stowed in the aft port section of the cargo compartment opposite the cargo-personnel door. See TM 10–500–6 for door load and cargo hook load procedures.

132. Jump Procedures

a. The pilot gives the 6-minute warning to the crew chief, stationed in the cargo compartment, who relays it by hand signal to the jumpmaster.

b. The jumpmaster gives all commands by the use of hand signals. Oral commands cannot be heard because of the high noise level in the aircraft.

c. Jump commands and procedures for parachuting from the CH–37 aircraft are as follows:

(1) *GET READY.* Execute the command in the normal manner except that all parachutists hold the static line with the right hand.

(2) *STAND UP AND HOOK UP.*

(*a*) The jumpmaster gives the command STAND UP to the parachutists on the portside only. These parachutists fold their

seats and then hook up, spacing themselves evenly along the entire length of the anchor line cable.

(*b*) The jumpmaster then gives the command STAND UP to the parachutists on the starboard side. These parachutists fold their seats, position themselves, and hook up in proper sequence between the even-numbered parachutists.

(*c*) When all parachutists have hooked up and have been inspected, the jumpmaster will move to his position at the cargo-personnel door and hook up. The jumpmaster then continues the command sequence.

(3) *CHECK STATIC LINES.*

(4) *CHECK EQUIPMENT.*

(5) *SOUND OFF FOR EQUIPMENT CHECK.*

(6) *STAND IN THE DOOR.* When the 1-minute warning is relayed to the jumpmaster by the crew chief, No. 1 will assume a normal position in the door. (When an air delivery container is to be dropped from the door, No. 1 and No. 2 prepare to eject the container.)

(7) *GO.* When the command GO is given, No. 1 makes a normal exit, followed by each parachutist in turn. (When an air delivery container is to be dropped, the No. 1 and No. 2 parachutists eject the container at the command GO and then exit in turn.) When an external load is to be dropped, the jumpmaster will make sure that the load is free of the aircraft before giving the command GO. As each parachutists moves toward the rear of the aircraft, he holds all excess static line in a reverse bight in his hand to prevent his static line from becoming slack. When he comes opposite the cargo-personnel door, he makes a 90-degree turn to the left, releases his static line, takes up a good door position, and exits.

133. Safety Considerations

a. Each parachutists must be cautioned to watch the static line of the man in front of him and to be particularly observant of all static lines that are trailing from the lower aft corner of the cargo-personnel door. This precaution is necessary to insure that succeeding parachutists do not exit until the parachute of the preceding jumper has completely deployed and the deployment bag has trailed to the rear of the aircraft.

b. The indicated airspeed of the CH–37 during the jump should not be less than 50 knots or more than 70 knots. The minimum time interval between individual parachutists at indicated jump speeds is 1 second.

c. Static lines should be retrieved by the crew chief or static jumpmaster as soon as the last parachutists has cleared the aircraft.

d. Standard air delivery containers rigged with G–13 and T7A cargo parachutes with 15-foot, drogue-equipped static lines can be dropped from the cargo door. (Static lines not equipped with drogues should not be used because they trail erratically.)

e. Standard air delivery containers rigged with G–1A, G–13, T7A, G–12C, or G–12D cargo parachutes may be dropped from the cargo hook using a breakaway static line.

f. When more than 1,500 pounds of equipment are to be delivered, it may be necessary to reduce the number of parachutists or the amount of fuel in order that the maximum lift capability of the helicopter is not exceeded.

Section VIII. CH–47 (CHINOOK)

134. Characteristics

The CH–47 is an all metal, tandem rotor, medium transport helicopter. A maximum of 28 combat equipped parachutists can jump from this aircraft.

135. Preparation and Inspection

The following steps must be accomplished to prepare the CH–47 for jumping:

a. Seat belts must be installed for all parachutists and let out all the way to insure posi-

tive hookup while seated.

b. The permanently installed anchor line cable must be secure to the attachment points on the starboard side of the aircraft (figs. 102 and 103).

c. The ramp must be inclined for personal parachute drops. This should be accomplished during flight.

Note. The optimum incline is 3 degrees below the horizontal. Scribe marks may be placed on the ramp to show this degree of incline.

d. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) Troop seats can be easily lifted and secured prior to jumping.

(2) The ramp is clean and free from oil or water.

(3) Seats are fastened securely in the "down" position.

(4) The anchor line cable is not worn and is secured to the attachment points in the prescribed manner.

(5) The crew chief's headphones are available and are functioning properly.

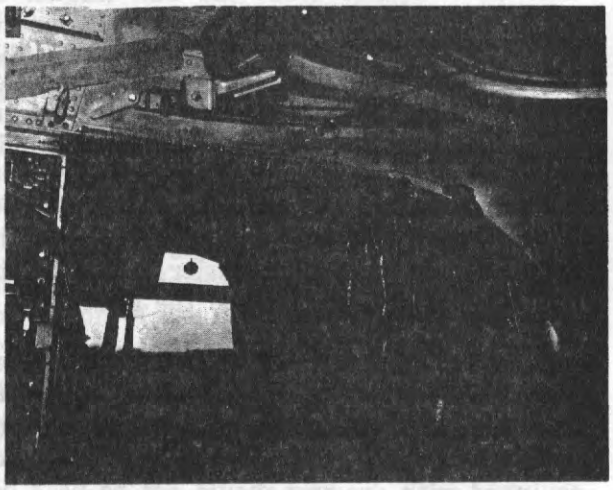


Figure 102. Front attachment point, CH–47 anchor line cable.

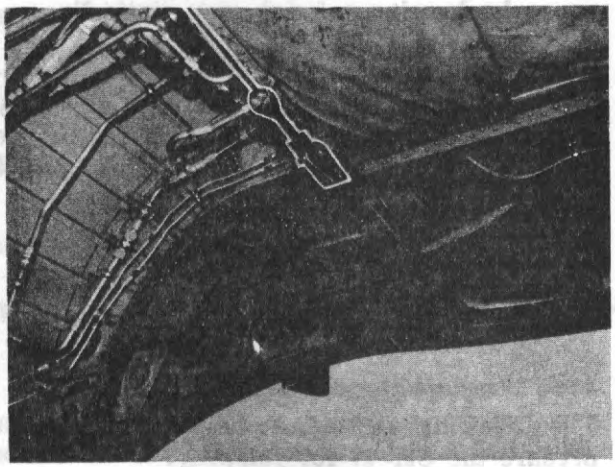


Figure 103. Rear attachment point, CH–47 anchor line cable.

136. Loading Techniques and Seating Arrangement

The odd-numbered men are seated on the starboard side and the even-numbered men on the portside. The seating arrangement during flight is shown in figure 104. Static line routing and stick positions prior to exit as shown in figure 105.

137. Jump Procedures

a. The 6-minute and 1-minute warnings are given by the pilot to the crew chief, who in turn relays them orally and by hand signals to the jumpmaster.

b. The jump commands and exit procedures for parachuting from the aircraft are as follows:

(1) *GET READY.*

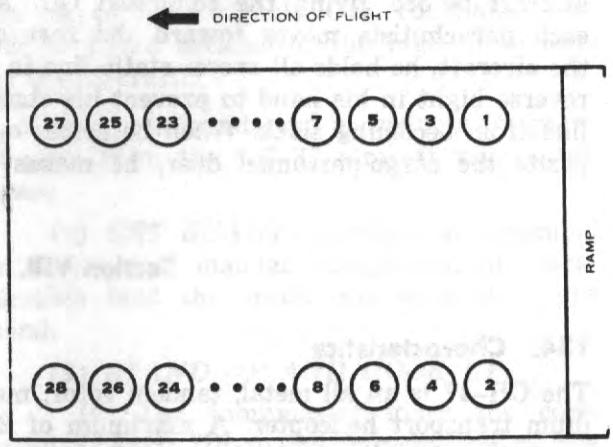


Figure 104. CH–47 seating arrangement.

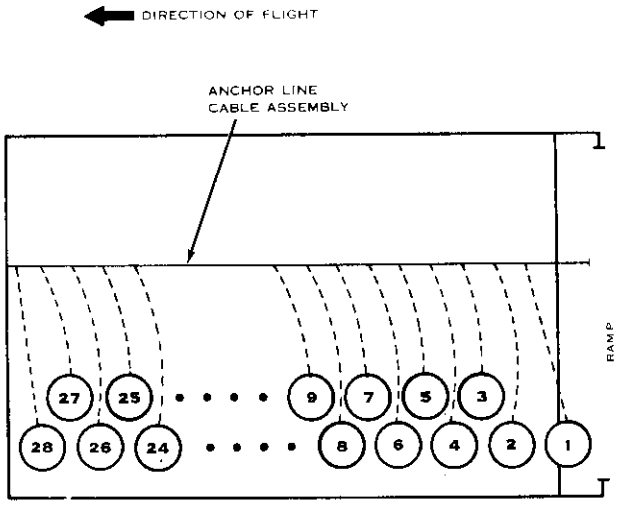


Figure 105. CH–47 static line routing and stick positions prior to exit.

(2) *PORTSIDE PERSONNEL STAND UP.* Parachutists seated on the portside of the aircraft stand up and secure their seats in the "up" position.

(3) *STARBOARD SIDE PERSONNEL STAND UP.* Parachutists seated on the starboard side of the aircraft stand up and secure their seats in the "up" position.

(4) *HOOK UP.* At the command HOOK UP, odd-numbered personnel hook up followed by the even-numbered personnel who hook up between the odd-numbered personnel to form one continuous stick of 28 parachutists.

(5) *CHECK STATIC LINES.*

(6) *CHECK EQUIPMENT.*

(7) *SOUND OFF FOR EQUIPMENT CHECK.*

(8) *STAND IN THE DOOR.* No. 1 assumes a standing position 1 foot short of the end of the ramp on the portside of the aircraft. The remining personnel close up interval behind the first parachutists.

(9) *GO.* No. 1 walks off the portside rear corner of the ramp. The remaining parachutists follow with a 1-second interval between jumpers.

Note. Less than a 1-second interval between parachutists may result in entanglement of jumpers and/or static lines.

138. Considerations

a. The jumpmaster or safety personnel will insure the parachutists are hooked up consecutively, 1 through 28.

b. Parachutists will insure that seats are secured in the "up" position with seat legs rotated inside the seats.

c. When cargo bundles are delivered, 15-foot breakaway static lines will be used with cargo parachutes. The ramp roller conveyor section is installed on the starboard side of the ramp and is used to assist in ejecting the bundles from the cargo ramp. No. 1 and 2 push the bundles.

d. When following heavy drop loads, parachutists will exit between the ramp roller conveyor sections, staying as near the portside section as possible.

e. When there are no static safety personnel aboard the aircraft, the jumpmaster will jump last.

f. The speed of the aircraft during actual jumps will not be less than 80 knots or more than 110 knots.

Section IX. U–1A (OTTER)

139. Characteristics

The U–1A is an all metal, high wing, single-engine airplane. A maximum of five parachutists can jump from this aircraft. Only the portside door is used to exit parachutists.

140. Preparation and Inspection

a. The following steps must be accomplished to prepare the U–1A for jumping:

(1) Remove portside doors.

(2) Remove all unnecessary tiedown rings from the floor.

(3) Fold up the rear port seat against the rear bulkhead, seats 1 and 3 on the starboard side and seats 2 and 4 on the portside. When arctic clothing and equipment are worn, all seats are folded up.

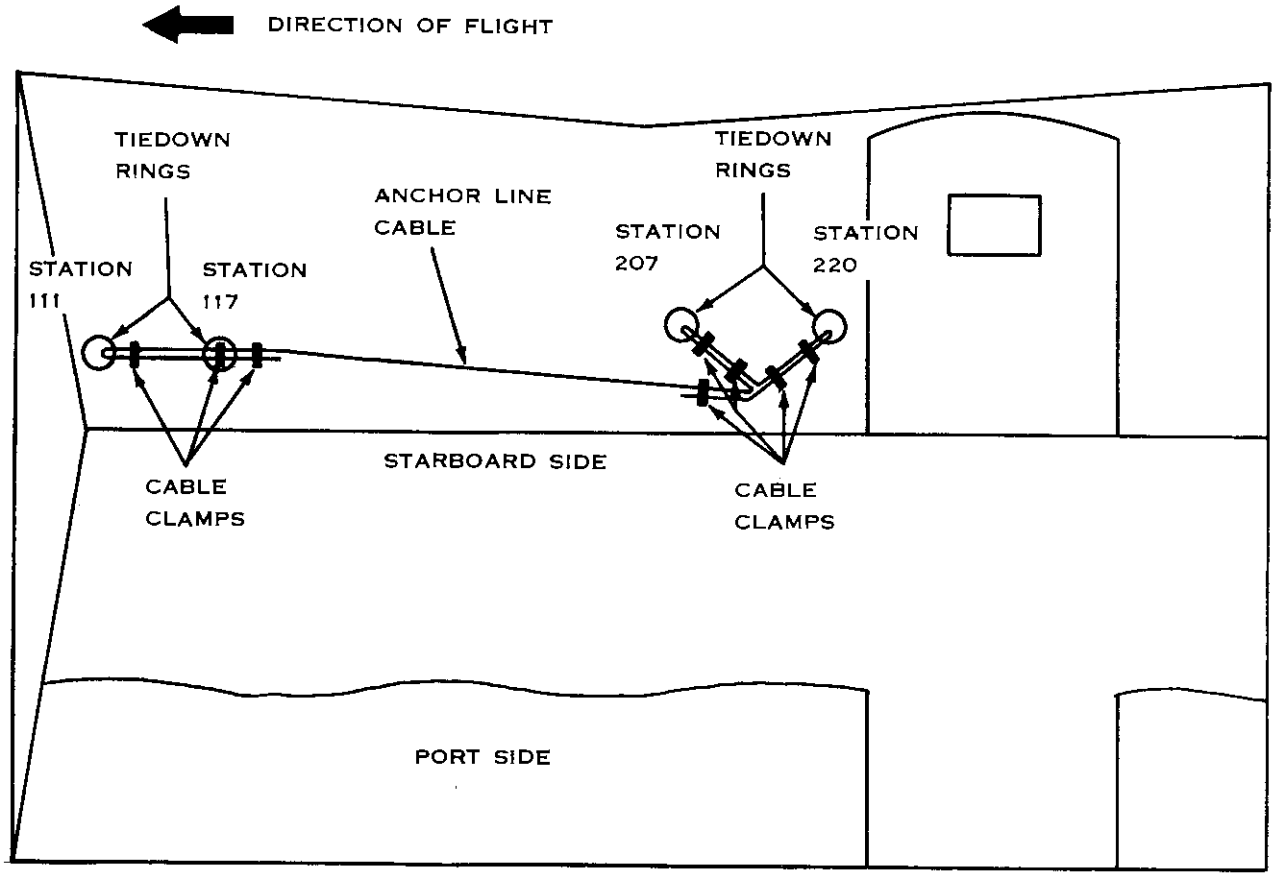


Figure 106. U–1A anchor line cable installation.

(4) Tape the aft lower corner of the portside door frame.

(5) Pad the portside of the fuselage, aft of the door, in the vicinity of the U.S. star marking.

(6) The relief tube projecting below the fuselage on the portside aft of the door is taped to prevent fouling the static lines.

(7) Install anchor line cable assembly on the starboard side as follows (fig. 106).

(*a*) Thread one end of a ¼-inch steel cable 146 inches long (MIL–C–5424 or MIL–C–1511) through the tiedown ring which is screwed into a seat fastening bracket at station 117, and through the tiedown ring which is riverted to the airframe of the passenger compartment at station 111. The cable is looped back onto itself a distance of 8 inches and secured with three cable clamps.

(*b*) Thread the other end of the cable through the tiedown rings which are screwed into seat fastening brackets at stations 207 and 220. A *V* is formed with the cable between these two tiedown rings. Five cable clamps are used to secure the cable in this configuration.

b. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) The aft lower corner of the port door is taped.

(2) The anchor line cable is secured.

(3) Troop seats can be easily lifted and secured.

(4) A safety belt (fully extended if parachutists are wearing combat equipment) is available for each jumper.

(5) The floor is clean, not slippery, and no projections are in the aisle.

141. Loading Techniques

a. Following the final briefing, the jumpmaster gives the command to enplane. With or without an air delivery container as part of the load, the parachutists enter the aircraft through the portside door and are seated and hooked up as shown in figure 107.

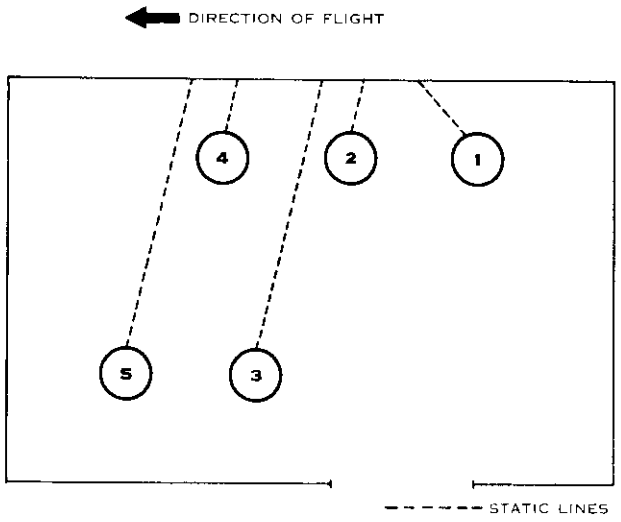


Figure 107. U–1A seating arrangement and static line routing.

b. When an air delivery container is carried, No. 3 position should be moved forward and the container pushed forward to rest directly against his seat. This prevents tail heavy loading. The jumpmaster should pull the container aft prior to the command STAND UP.

c. When arctic clothing and equipment are worn, the parachutists enter the aircraft in reverse order, hook up, and are seated on the floor on the starboard side. The jumpmaster checks each individual's static line as he hooks up. If door bundles are carried, they are stored on the portside forward of the door and are hooked up between the No. 1 and No. 2 men. When all four parachutists and the door bundles are hooked up, the jumpmaster hooks up and the No. 2 man checks his static line.

142. Jump Procedures

a. The 4-minute and 1-minute warnings are given by the pilot to the crew chief, who in turn relays them orally and by hand signals to the jumpmaster.

b. The jump commands and exit procedures for parachuting from the aircraft are as follows:

(1) *GET READY.*

(2) *STAND UP.* Parachutists seated on the portside stand up and secure their seats in the "up" position, followed by the parachutists seated on the starboard side. This command is not applicable when arctic clothing and equipment are worn.

(3) *HOOK UP.*

(*a*) When an air delivery container is not carried as part of the interior load, the parachutists unfasten their static line snaphook from the carrying handle of the reserve parachute, hook it to the anchor line cable in reverse numerical order, then seat themselves on the floor facing the portside of the aircraft with their backpack a minimum of 6 inches from the anchor line cable.

(*b*) When an air delivery container is part of the interior load, the parachutists proceed as described in (*a*) above, with the exception that No. 1 hooks the static line snaphook of the cargo parachute to the anchor line cable before proceeding as described in (*a*) above. After hooking his static line snaphook to the anchor line cable, he remains standing behind the container.

(*c*) This command is not applicable when wearing arctic clothing and equipment; however, if door bundles are to be dropped, they are now moved to the door position to be pushed out by the jumpmaster.

(4) *CHECK STATIC LINES.* Parachutists check to insure that their static line runs directly and clearly from the backpack to the anchor line cable.

(5) *CHECK EQUIPMENT.*

(6) *SOUND OFF FOR EQUIPMENT*

CHECK. Conducted in accordance with normal equipment check.

(7) *SIT IN THE DOOR.*

(*a*) Moving primarily on hands and heels, No. 1 assumes a sitting position in the door with his feet together outside the passenger compartment and his hands grasping the doorsill.

(*b*) The remaining parachutists successively seat themselves in the door and exit in the same manner as No. 1.

(*c*) When wearing arctic clothing and equipment, due to its bulk and weight, it is advisable that the jumpmaster exit last to insure that all parachutists exit safely. If door bundles are to be dropped, No. 2 performs those actions outlined for No. 1 in (*a*) and (*b*) above.

(8) *GO.* When the jumpmaster commands GO, the parachutist sitting in the door pushes up and out with his arms and assumes the normal body position. All other parachutists move to the door in order and exit in a similar manner. If door bundles are to be dropped, they are pushed out by the jumpmaster and followed by the parachutist. After the parachutists exit, the copilot moves to the rear of the aircraft and retrieves the static lines.

143. Safety Considerations

a. The total number of parachutists and air delivery containers must conform to the weight and space limitations of the aircraft.

b. Particular care is taken to prevent entanglement of personnel with respect to the routing of static lines.

c. Speed of the aircraft must not be less than 60 knots or more than 70 knots, and flaps will be at the takeoff position to afford higher tail attitude for personnel deliveries.

d. Particular attention is required to insure that excess static line is tucked through the static line slack retainer on the top center of the backpack.

e. A drogue or breakaway static line should be used on cargo parachutes.

f. Rifles and carbines must be placed in adjustable, individual weapons cases. These weapons cases must not exceed 36 inches in length.

g. No. 1 only can carry a parachutist's adjustable equipment bag when an air delivery container is not carried as part of the interior load. The bag must not exceed 36 inches in length.

h. Equipment and supplies in standard air delivery containers rigged with light cargo parachutes may be delivered from the door of the U–1A aircraft. The containers should not be more than 45 inches long, 30 inches wide, and 20 inches high. The static line snaphook of the cargo parachute is attached to the anchor line cable. Cargo parachutes with breakaway static lines must be used. See TM 10–500–6 for door load procedures.

i. There are provisions for external transport of equipment.

Section X. U–6A (BEAVER)

144. Characteristics

The U–6A is an all metal, high wing, single-engine airplane. A maximum of four parachutist can jump from this aircraft. Only the portside door is used to exit parachutist.

145. Preparation and Inspection of the Aircraft

The following steps must be accomplished to prepare the U–6A aircraft for jumping:

a. Remove the portside door.

b. Remove the two center seats. Rear seats may be removed; however, if they are left in, more leg room is provided for the two aft-seated jumpers.

c. Install a doorframe shield (fig. 108) or tape doorframe with masking tape and padding.

d. Install the anchor line as follows:

(1) Thread four 5,000-pound capacity D-rings into a cotton (nylon is not considered safe) A7A strap.

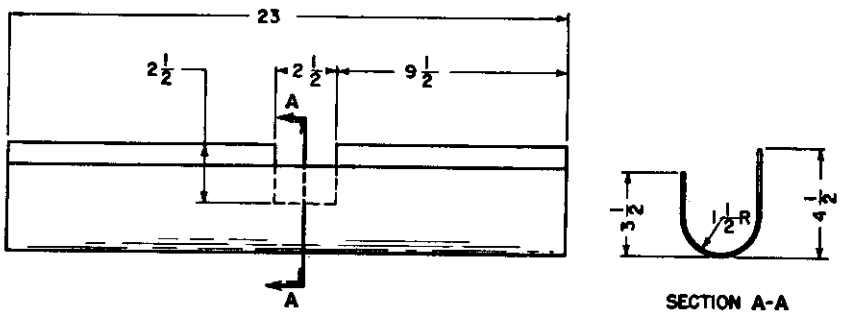


Figure 108. U–6A doorframe shield.

(2) Thread the running end of the cotton A7A strap through the two tiedown rings located just aft of the copilot's seat and attach it to the friction adapter so the periphery of the triangle formed by the cotton A7A strap is 5 feet. Fold the excess 10 feet of webbing and tape it near the friction adapter (fig. 109).

e. Pass an A7A strap under and forward of the rear legs of the pilot's seat and another in the same manner under the copilot's seat for safety belts for the two forward seated parachutists.

f. Prior to enplaning, the jumpmaster and the pilot or his representative conduct a joint inspection of the aircraft. They insure that—

(1) Protruding objects in the vicinity of the jump door are taped.

(2) The trailing edge of jump doorframe is shielded and taped.

(3) Bomb shackles function properly (if used).

(4) Equipment bundles are properly rigged and attached to the bomb shackles.

(5) The anchor line is of cotton webbing and is properly secured.

(6) Safety belts for each jumper (or A7A straps for those seated on the floor) are available.

146. Loading Techniques and Seating Arrangement

a. Following the final briefing, the jumpmaster gives the command to enplane. At this time, the parachutists enter the aircraft through the portside door and are seated as shown in figure 110. Static lines are hooked to the D-rings of the anchor line by the jumpmaster and routed as shown in figure 110.

Note. It is extremely important that each static line be properly routed to preclude entanglements and improper exit of parachutists from the aircraft.

b. When only three parachutists are transported, the No. 2 position will be vacant but the routing of the static lines remains the same and exits are made in 1, 3, and 4 sequence.

147. Jump Procedures

a. The 4-minute and 30-second warnings are given by the pilot to the jumpmaster.

b. The jump commands and exit procedures are as follows:

(1) *GET READY.* Jumpers are alerted.

(2) *CHECK STATIC LINES.* No. 3 checks to insure that all static lines are properly hooked to the anchor line.

(3) *CHECK EQUIPMENT.* Working in pairs (1 and 3, 2 and 4), the jumpers conduct a visual inspection of each others' equipment.

(4) *SOUND OFF FOR EQUIPMENT CHECK.* Nos. 4, 3, 2 and 1, in order.

(5) *SIT IN THE DOOR.* This command is given upon receipt of the 30-second warning. No. 1 swings his legs out the door and rests his feet on the aircraft step. This provides sufficient room for No. 2 to move forward closer to the door and grasp the trailing edge of doorframe with his left hand.

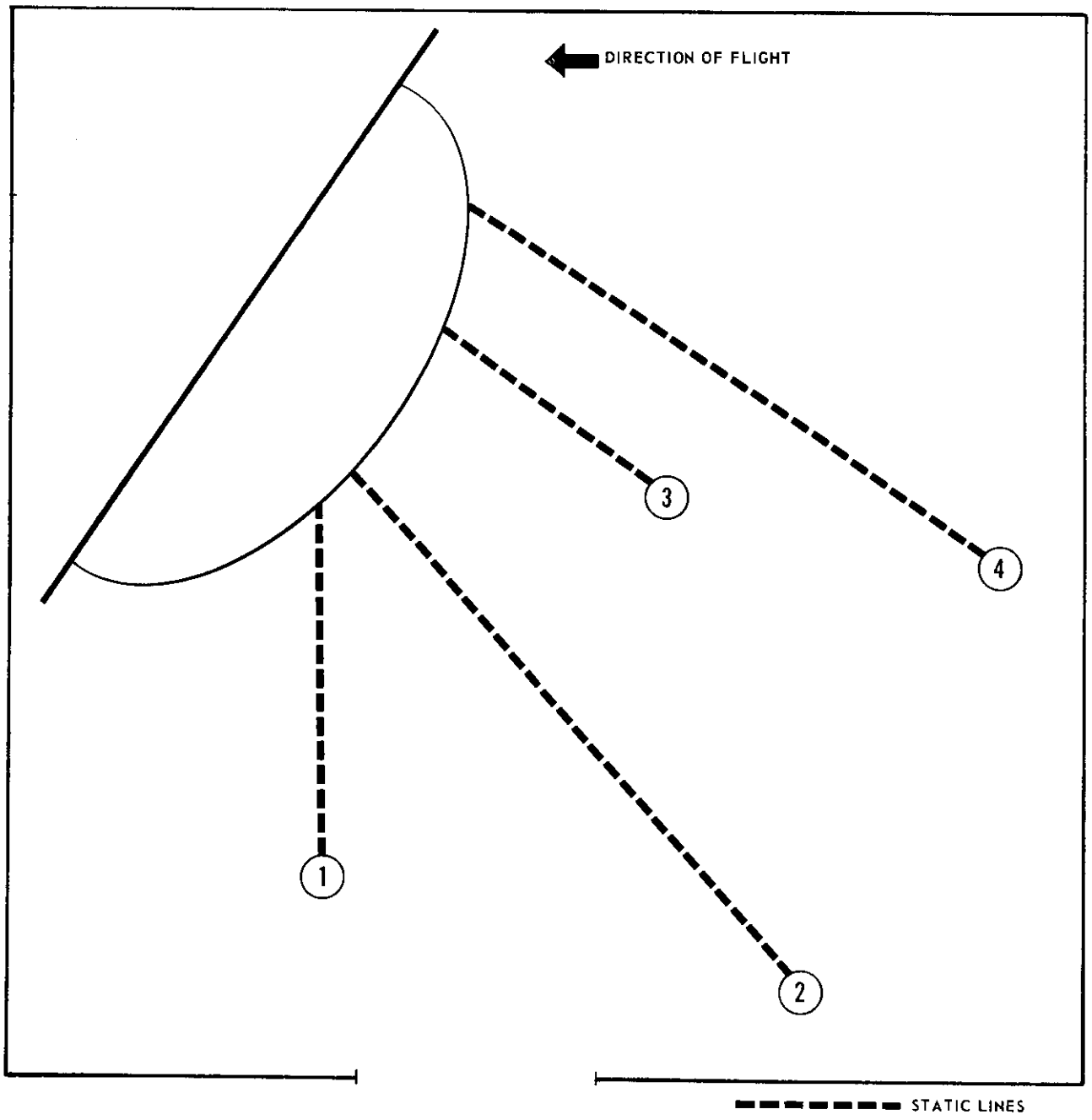


Figure 109. U–6A anchor line installation.

(6) *STAND BY.* This command is given 10 seconds from drop time. No. 1 leans forward grasping the leading edge of the wing strut with his right hand and the trailing edge of the doorframe with his left hand or by sitting in the door with his hands positioned on the doorframe for outward momentum during exit.

(7) *GO.* When the jumpmaster commands GO, No. 1 pushes straight out with his arms and legs, assuming a normal body position. All jumpers move into the door in order, being careful to swing their legs over trailing static lines, and exit as soon as they are in position by sitting in the door and propelling themselves outward with their

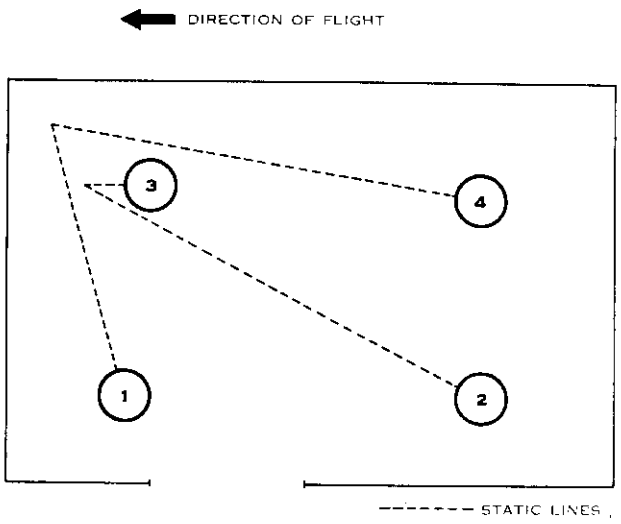


Figure 110. U–6A seating arrangement and static line routing.

hands. After the jumpers exit, the copilot moves to the passenger compartment and retrieves the static lines.

148. Safety Considerations

a. Because of the limited size of the cargo compartment and exit door of the U–6A, particular caution must be exercised to prevent entanglement of personnel and equipment with static lines during jumps.

b. Caution must be exercised to avoid accidental activation of the reserve parachute.

c. Airspeed of the aircraft must not be less than 61 or more than 80 knots, and flaps will be at the takeoff position to affort higher tail attitude for personnel deliveries.

d. Because of insufficient lateral separation between the bomb shackles and the jump door, care must be exercised to prevent simultaneous drop of personnel and equipment. Personnel may safely drop either before or after wing bundles are released.

e. Only experienced parachutists should jump from the U–6A aircraft.

f. If it is necessary to wear combat packs and related equipment, only two parachutists can be carried in the U–6A aircraft.

g. Because of limited space in the cargo compartment of the U–6A and the danger of static lines becoming entangled with men or equipment, only the minimum essential equipment is worn by each jumper. All other equipment required for accomplishment of the mission should be dropped in air delivery containers from the bomb shackles of the aircraft. See TM 10–500–6 for air delivery procedures.

h. The combat pack and related items of equipment are packed in two air delivery containers rigged with cargo parachutes and attached to the shackles under each wing. The containers are secured to the bomb shackles with the parachute toward the leading edge of the wing. The gross weight of each container will not exceed 250 pounds and the maximum frontal surface area will not exceed 548 square inches. The static line snaphook of the cargo parachute is attached to the V-ring at the rear end of each inboard shackle.

i. The piston belt, with equipment attached, may be worn around the waist. Additional items of equipment, rations, and ammunitions may be carried in the uniform pockets. Individual weapons are packed in the adjustable weapons case, reduced to 36 inches in length.

CHAPTER 7

TROOP PARACHUTES

Section I. T–10 PARACHUTE ASSEMBLY

149. Construction and Nomenclature

a. The T–10 parachute is a troop type, static line operated, bag deployed, pack assembly. It has a flat, extended shirt canopy, type MC–1, with a 35-foot nominal diameter and 24.5-foot projected diameter (figs. 111 and 112). The canopy is constructed of type I rip-stop nylon weighing 1.1 ounces per square yard. The canopy has 30 suspension lines made of type II nylon cord with a tensile strength at 375 pounds each. Each suspension line is 25 feet and 6 inches in length, not including the connector link to the lower lateral band. The lines do not extend over the canopy. The canopy is divided from the apex to the skirt into 30 wedge-shaped gores. Each gore has five diagonally stitched sections. The framework of the canopy is constructed of 30 lengths of type I nylon webbing 9/16 of an inch wide. These lengths of webbing are located in the channels formed by the joining of any two consecutive gores and are 17 feet, 2 7/32 inches in length between the upper and the lower lateral bands. The upper lateral band is made of 4,000-pound tensile strength, 1-inch tubular nylon webbing sewed into the folded-over canopy material and it completely encircles the canopy at the apex. The lower lateral band is made of 525-pound tensile strength, 1-inch tubular nylon tape sewed into the folded-over canopy material and it completely encircles the canopy at the skirt. There are 15 vent or apex lines which measure 19 inches across the 20-inch vent.

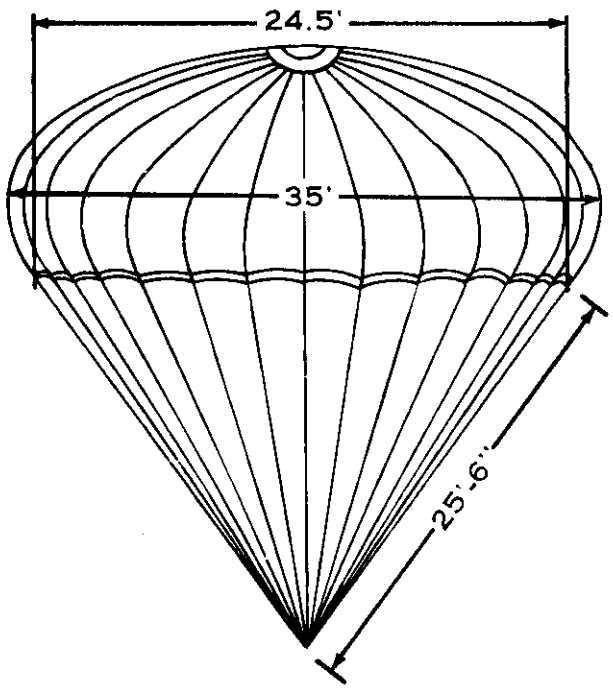


Figure 111. Dimensions of the T–10 parachute.

(1) The canopy release type harness (fig. 6) secures the canopy to the parachutist. It is constructed of 6500-pound tensile strength nylon webbing and is secured to the parachutist by means of a quick-release. The main lift web is two thicknesses of webbing which extend from the female portion of the canopy release assembly on each side and forms the saddle. Two risers are attached to each canopy release assembly. These risers are a single thickness of nylon webbing which begin at the front connector links, pass through the male portion of the canopy release assemblies, and extend to the rear connector links.

(2) The diagonal backstraps begin at the canopy release assemblies and cross the small of the back. The horizontal backstrap passes through the backstrap loops on each side of the harness and fastens into the diagonal backstrap adjusters. The chest straps are a continuation of one thickness of the main lift web which passes through the female portion

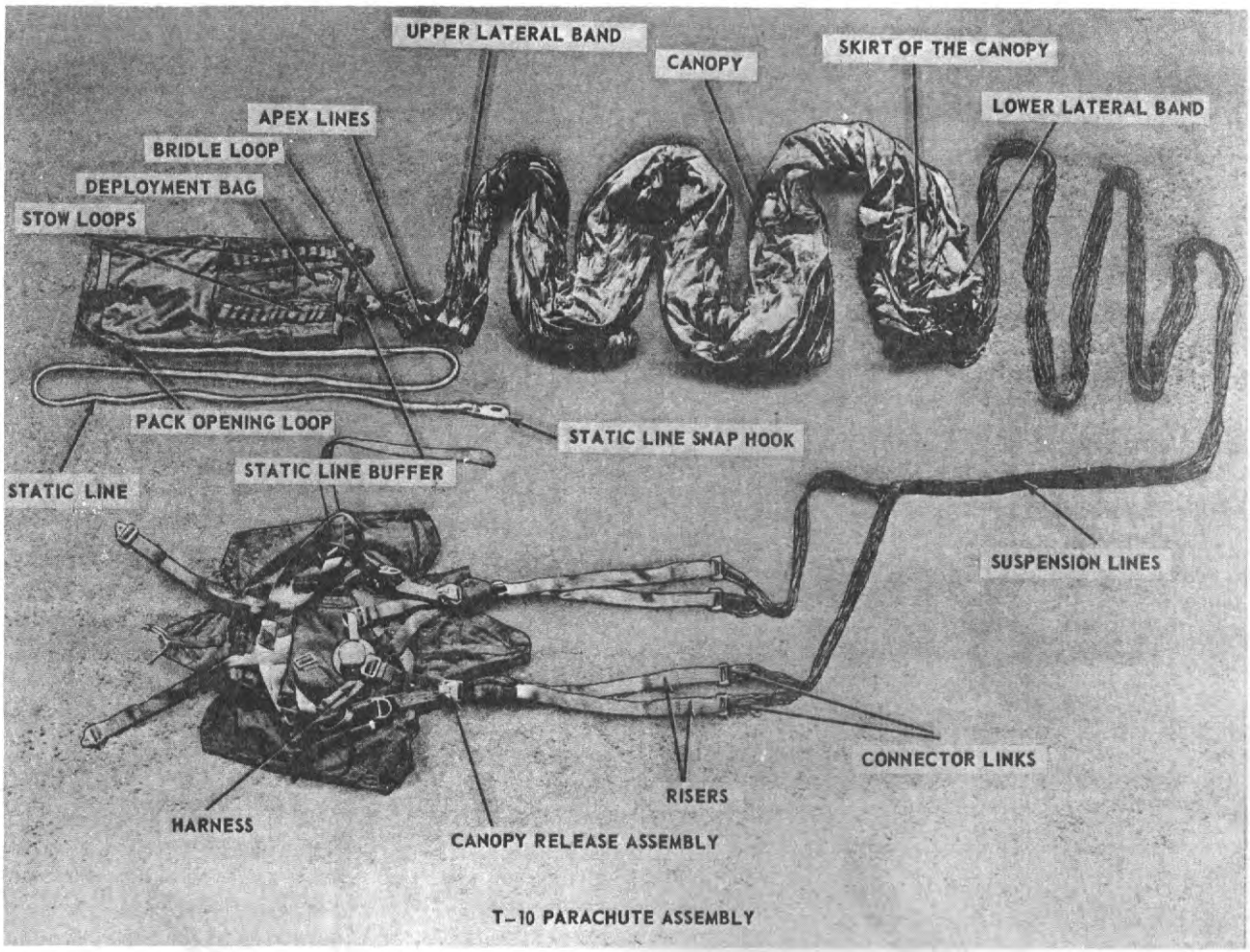


Figure 112. T–10 parachute assembly.

of the canopy release assembly, extend across the parachutist's chest, and are threaded through adjustable lugs. The quick-release assembly is permanently attached to the left chest strap. The chest straps keep the main lift web from slipping from the parachutist's shoulders.

(3) The two legs are adjustable (fig. 9). The straps pass under the crotch, through the leg strap loops (from inside to outside), make a quarter turn toward the center, and snap into the release assembly. The parachute quick-release assembly contains four spring-activated locking plungers. It has three safety features: a safety fork inserted to prevent premature release, the release operating button which must be rotated a quarter turn clockwise before it can be activated, and the requirement that the release operating button is struck before it will release.

b. The parachute pack measures approximately 20x14x5 inches. It is made of 10-ounce plied yarn cotton duck and is of non-rigid construction. The pack is fastened to the harness assembly at the diagonal and horizontal backstraps by short pieces of webbing called backstrap retainers.

c. The break cord of the T–10 parachute has a tensile strength of approximately 160 pounds and consists of one turn of doubled type I cotton webbing. It is attached to the bridle loop of the parachute and to the break cord attaching strap and tied with a surgeon's knot and a locking knot.

d. The deployment bag, which measures 18

STEP 1

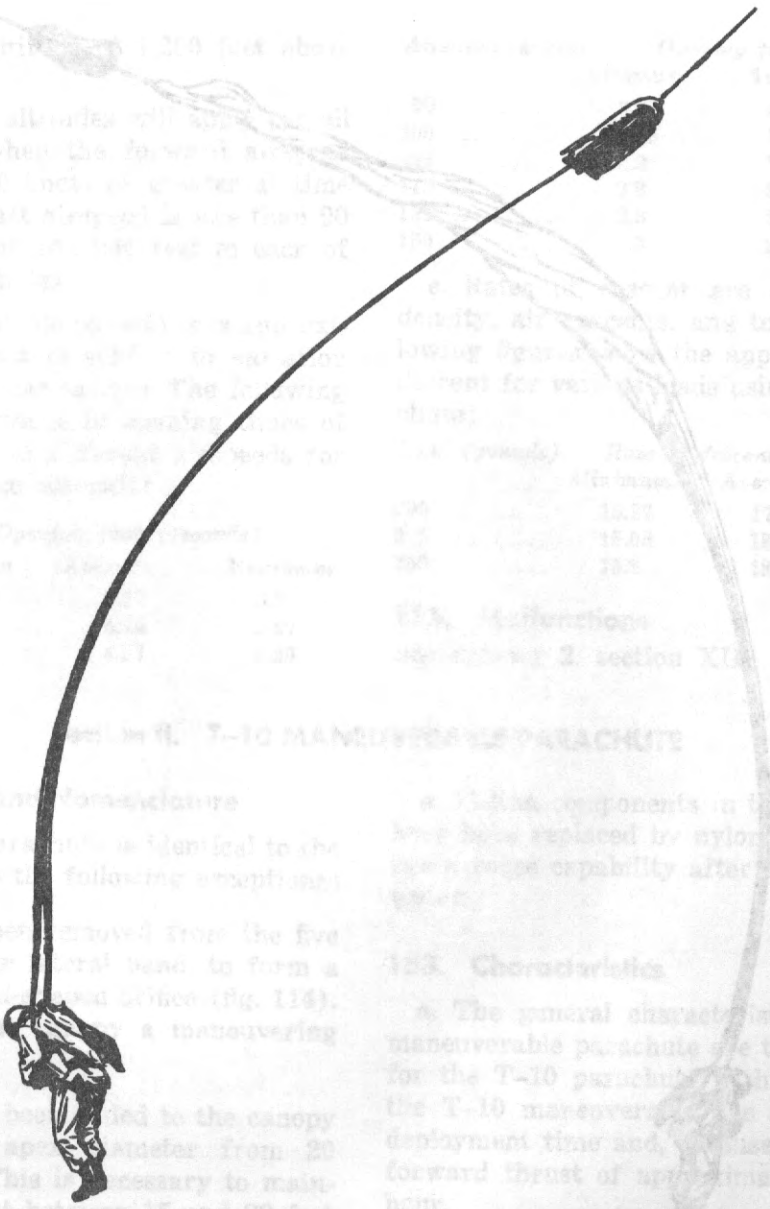
STEP 2

STEP 3

STEP 4

Figure 113. T–10 parachute deployment.

by 12 by 5 inches, is made of 8.5-ounce cotton twill fabric. A 15-foot static line is attached to the deployment bag. A static line snaphook is attached to the free end of the static line.



Step 5

Figure 113—Continued.

150. Deployment

a. The canopy of the parachute is packed in a deployment bag, which in turn is secured within the parachute pack assembly. When the parachutist falls to the end of the 15-foot static line his body weight will break an 80-pound cotton tape (the pack closing tie) allowing the deployment bag to fall free from the pack tray. Two connector link ties then break and the suspension lines are pulled out of the stow loops of the deployment bag. Next, two locking stows disengage and the canopy is pulled from the deployment bag, skirt first. When the canopy has deployed to its full length, the break cord, which secures the apex of the canopy to the break cord attaching strap loop, breaks, and the parachute commences to inflate (fig. 113).

Step 6

Figure 113—Continued.

b. The T–10 parachute may have one or more twists in its risers and suspension lines after the canopy fully opens. Twisted suspension lines after the canopy fully opens. Twisted suspension lines are discussed in paragraph 8*b*.

c. Jump altitudes for personnel using the T–10 parachute will be adhered to as follows:

(1) The minimum altitude for airdrop of personnel on tactical training jumps will be 1,000 feet above ground level.

(2) The minimum altitude for airdrop of personnel participating in actual combat operations is prescribed by tactical considerations.

(3) The minimum altitude for airdrop of personnel during wartime training jumps is 900 feet above ground level.

(4) Personnel participating in airborne training will perform their qualifying jumps

from a minimum altitude of 1,250 feet above ground level.

(5) The above altitudes will apply for all types of aircraft when the forward airspeed of the aircraft is 90 knots or greater at time of exit. When aircraft airspeed is less than 90 knots at time of exit add 250 feet to each of the above drop altitudes.

d. Opening time of the parachute is approximately 3 seconds, but is subject to variation with airspeed and other factors. The following tables show the variance in opening times of the T–10 parachute at different airspeeds for Army and Air Force aircraft:

Airspeed (knots)	*Opening time (seconds)*		
	Minimum	*Average*	*Maximum*
60	5.30	5.97	6.50
70	4.53	5.15	5.87
80	3.95	4.57	5.29
90	3.68	4.30	5.02
100	3.18	3.80	4.52
105	2.9	3.5	4.1
115	2.8	3.4	3.9
130	2.8	3.2	4.1
150	2.3	2.9	3.7

e. Rates of descent are dependent on air density, air currents, and total load. The following figures show the approximate rates of descent for various loads using the T–10 parachute:

Load (pounds)	*Rate of descent (feet per second)*		
	Minimum	*Average*	*Maximum*
200	15.37	17.75	22.06
225	15.63	18.0	22.48
250	15.8	18.3	22.7

151. Malfunctions

See chapter 2, section XII.

Section II. T–10 MANEUVERABLE PARACHUTE

152. Construction and Nomenclature

The maneuverable parachute is identical to the T–10 parachute with the following exceptions:

a. Material has been removed from the five gores, near the lower lateral band, to form a 39.46-square-foot oval-shaped orifice (fig. 114). This orifice gives the canopy a maneuvering capability.

b. A vent cap has been added to the canopy apex reducing the apex diameter from 20 inches to 3 inches. This is necessary to maintain a rate of descent between 15 and 22 feet per second.

c. The riser assemblies have been converted to a manual slip type. Slip riser locking forks have been added to keep the risers from activating during the deployment phase (fig. 115). Yellow locking fork keepers have been sewn to the risers at their alined locking point to permit visual assurance that the risers are centered.

d. Canopy release covers have been eliminated because of the construction and attachment of the slip riser locking forks. Pads have been sewn under the canopy releases to prevent injury to the parachutist.

e. Cotton components in the parachute pack have been replaced by nylon so the parachute has a reuse capability after immersion in salt water.

153. Characteristics

a. The general characteristics of the T–10 maneuverable parachute are the same as those for the T–10 parachute with two exceptions; the T–10 maneuverable has a slightly faster deployment time and, because of the orifice, a forward thrust of approximately 6 knots per hour.

b. Malfunctions, harness adjustment, and attaching and wearing of the combat equipment are the same as for the T–10 parachute. The reserve used with the maneuverable parachute is a standard type reserve.

154. Conduct of Parachute Jumps

a. General. The techniques and procedures for the conduct of jumps are as prescribed within this manual. However, the following should also be included:

(1) The jumpmaster will check to insure that the slip riser locking forks are inserted from the inside and are seated properly.

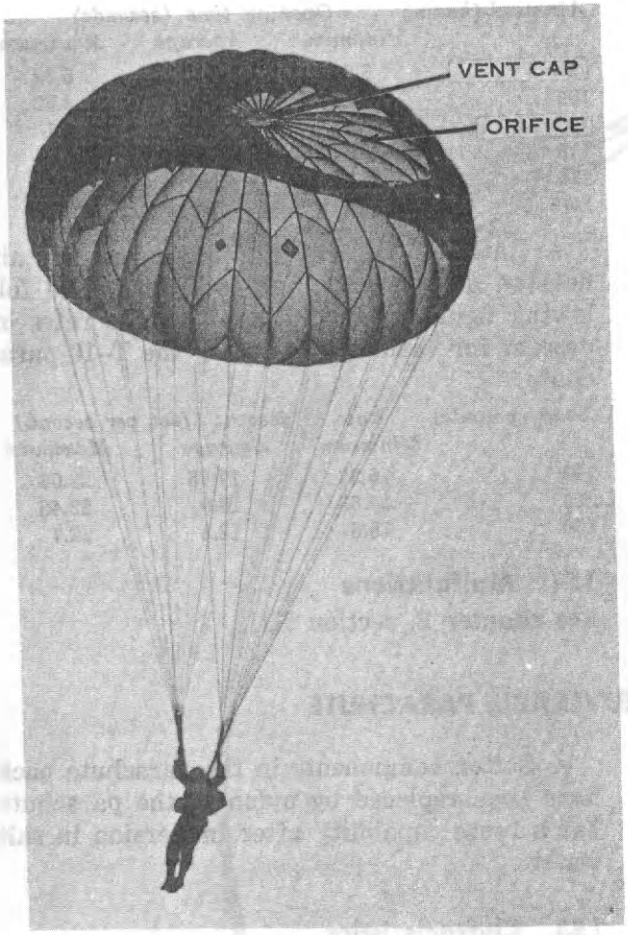


Figure 114. Orifice of maneuverable parachute.

(2) After checking the canopy, the parachutist will determine the location of nearby jumpers and then remove the slip riser locking forks (fig. 115). The slip risers may then be used to maneuver the parachute toward a specific target (para. 151).

b. Safety Measures.

(1) Airspeeds, drop altitudes, and aircraft prescribed for use with the T–10 parachute are used for training missions, except personnel are delivered from single aircraft or single aircraft in trail only.

(2) *Under no condition, when using this parachute, will personnel be delivered at airspeeds less than 50 knots.*

155. Canopy Control

a. Theory of Control. In order to control movement toward a designated target, the parachutist must know the principle upon which his canopy operates and the factors which govern its control. Generally, the movement of the canopy is controlled by the action of the wind, the position of the canopy orifice, and the way in which the risers are manipulated.

b. Principle of Control. The principle involved in the controlled movement of the canopy is the accurate coordination of the canopy in relationship to the wind.

(1) When the orifice is pointed in a direction away from the wind, the thrust of the orifice will be acting directly against the wind. This has the effect of reducing the velocity of the wind and will retard the movement of the canopy in the direction of the wind.

(2) When the orifice is pointed into the wind, the thrust of the orifice combines with the thrust of the wind to speed the movement of the canopy in the direction of the wind.

(3) When the orifice is pointed at an angle to the wind direction, the force of the wind from one direction and the thrust of the orifice at an angle will move the canopy in a direction approximately at a right angle to the direction of the orifice thrust. The direction of movement will vary with the wind velocity and the angle at which the orifice is pointed.

c. Parachute Maneuvers. A properly executed parachute maneuver requires correct canopy manipulation to combine the force of the wind and the thrust of the canopy orifice in order for the parachute to move in a given direction. To successfully maneuver the parachute to the target, the parachutist may have to hold into the wind, run with the wind, or crab to the left or right while running or holding.

(1) Gradual slipping and turning is performed by pulling one riser. Pulling either the left front or the right rear riser separately will cause a right turn. Pulling either the right front or left rear riser separately, will result in a left turn.

(2) Positive slipping and turning can be effected by vigorously pulling down both the left front and right rear riser simultaneously