TM 57-220

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TECHNICAL TRAINING OF PARACHUTISTS

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1968

TAGO 20008A

TECHNICAL MANUAL
No. 57-220

DEPARTMENT OF THE ARMY
HEADQUARTERS
WASHINGTON, D.C., *4 June 1968*

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CHAPTER 1

INTRODUCTION

1. Purpose and Scope

a. This manual presents technical and procedural information on the training of parachutists. It includes methods and apparatus used in training parachutists, attachment and wearing of equipment and containers, jumpmaster duties, safety requirements, jump procedures for authorized U.S. Air Force and Army aircraft, and technical data on personnel parachutes.

b. This text is applicable, without modification, to nuclear and nonnuclear warfare.

2. Training Authority and Standards

a. Parachute qualification courses are conducted by the authority contained in AR 672–5–1. Volunteers selected must meet the requirements specified in AR 611–7.

b. Proper mental and physical conditioning is essential to insure that all parachutists are psychologically and physically capable of parachute jumping with a minimum risk of injury. Emphasis is placed on developing mental alertness, instantaneous reaction to and execution of commands, and increasing confidence in the individual and in the use of his equipment. Experience has proven that the best results in training parachutists are obtained when the standards of training include—

(1) Strict discipline.

(2) High standards of proficiency on each training apparatus and during each phase of training.

(3) A vigorous and progressive physical conditioning program.

(4) A strong sense of esprit de corps and comradeship among all parachutists.

c. Advanced unit training on equipment, jumpmaster procedures, and preparation and jumping from Army or Air Force aircraft should be conducted to obtain a high standard of proficiency and knowledge in all students.

3. Recommeded Changes

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page and line of the text in which a change is recommended. Justification for each comment should be provided to insure complete understanding and evaluation. Comments should be forwarded direct to the Commandant, U.S. Army Infantry School, ATTN: AJIIS D(t), Fort Benning, Ga. 31905.

CHAPTER 2

BASIC AIRBORNE TRAINING

Section I. INTRODUCTION

4. General

A basic airborne course should be divided into two training phases. A ground training phase is needed to teach the student all of the techniques and procedures which he needs to know in order to make a successful parachute jump. A jump training phase is then conducted during which the student makes five qualifying jumps from an aircraft in flight. This section provides a general breakdown for a basic airborne course by using the five basic jump techniques. Physical training, as it applies to a basic airborne course, is also discussed in this section. The remainder of this chapter explains in detail the specific instruction which must be given to the student.

5. The Five Basic Jump Techniques

Each of the five basic jump techniques pertains to a particular phase of military parachuting and provides a logical sequence and a means for dividing the course into major instructional areas. All of the training conducted during the ground training phase of the course is designed to teach the student specific skills which are found within the general framework of each of these techniques. The five basic jump techniques, as such, are of no immediate importance to the student and *should not be stressed to him.* The five points of performance which are of major importance to the student are discussed in section II.

a. Actions of the Jumper Inside the Aircraft. To insure that the maximum number of parachutists can safely exit an aircraft, a means of controlling the actions of the jumper inside of the aircraft immediately prior to exiting is necessary. This control is maintained by the jumpmaster through the issuance of the sequence of jump commands. Each of these commands requires specific actions on the part of each jumper. A discussion of these commands and the actions of the jumper inside the aircraft is found in section IV.

b. Control of the Body From the Instant the Jumper Leaves the Aircraft Door Until He Receives the Opening Shock. Due to aircraft speed and slipstream turbulence, the jumper must take a good door position, *make a vigorous exit* (except for aft-end jumping and for C–141 aircraft), and assume a good, tight body position. This will prevent spinning and tumbling in the air and allows for the smooth and proper functioning of the parachute during deployment. The body position is discussed in detail in paragraph 8*a*.

c. Control of the Parachute During Descent. Control of the parachute is essential in order to avoid collision and possible entanglement with other jumpers in the air, and to avoid hitting obstacles on the ground. A discussion of parachute control is in paragraph 8*c*.

d. Making Contact With the Ground and the Execution of a Parachute Landing Fall. Most jump injuries result from improper landing. The parachute landing fall is a technique of landing which enables the parachutist to distribute the landing shock over his entire body to reduce the possibility of injury. A detailed discussion of the parachute landing fall will be found in paragraph 8*e*.

e. Control of the Parachute After Landing. The jumper must be able to control his parachute after landing. High winds on the drop zone may cause parachutists to be dragged even after a well-executed parachute landing fall and a quick recovery. Techniques for con-

trol of the parachute after landing are discussed in section X.

6. Physical Training

a. General. Since the majority of airborne training is physically strenuous, a good physical conditioning program is essential. Physical training should be included in each day of ground training and should allow the student to progress to a peak of excellence for the actual jumping phase. All of the exercises which are used during this program are designed to condition those muscle groups which play a significant part in parachute jumping. It is important that those individuals who cannot progress in physical conditioning be either relieved from the course or recycled until their physical condition allows them to continue. All airborne volunteers must pass the physical fitness test as specified in AR 611–7, prior to acceptance for training.

b. Conduct of Training. At least 1 hour per day in ground training should be devoted to physical conditioning. This training should be geared toward students in good physical condition. The following exercises are recommended and should progress from a minimum of eight repetitions to a maximum of ten repetitions (the chin ups should increase from a minimum of six repetitions to a maximum of seven repetitions).

(1) Chinup.
(2) Pushup.
(3) Half knee bender.
(4) Airborne sit up (alternate—turn and bounce).
(5) High jumper.
(6) Trunk twister.
(7) Body twist (alternate—bottoms up).
(8) Road run (alternate—stationary run).

Note. All exercises are done as prescribed in FM 21–20, Physical Readiness Training, with the following exceptions:

1. *Half Knee Bender.* The starting position is with the feet spread a comfortable distance apart and the hands grasping the waist with the thumbs in the small of the back. On execution the knees are bent slightly, keeping the upper body erect, until the fingertips can touch the top portion of the boot on the outside of the leg. Then he returns to the starting position. If balance is lost the student may recover quickly and continue the exercise.

2. *Road Run.* The road run incorporates a 36-inch step at 180 steps per minute. During the summer three repetitions of a 4½-minute run with a 2-minute walking period between each repetition will be used. This is increased to three 7-minute repetitions with a 2-minute walking period between each repetition. During the winter the run will be increased from three 4½-minute repetitions to a continuous 30-minute run.

Section II. FIVE POINTS OF PERFORMANCE

7. General

a. The five points of performance are specific actions which an individual parachutist must perform between the instant he exits the aircraft and his recovery after landing.

b. The five points are—
(1) Check body position and count.
(2) Check canopy.
(3) Keep a sharp lookout during descent.
(4) Prepare to land.
(5) Land.

c. These points of performance are *individual* actions and are *essential* on every parachute jump. They must be *stressed* to the student during instruction. Failure to perform any one of these five performance points correctly could result in a jump injury. Each point is taught using one or more pieces of training apparatus.

8. Performance Points

a. Check Body Position and Count.

(1) *General.* A good body position is essential to minimize the possibility of a malfunction during the deployment of the parachute. The four-thousand count corresponds with the approximate time it takes for the T–10 parachute to deploy when exiting from an aircraft flying at approximately 115 knots (par 150). Training in this point of performance is conducted in both the mock door and 34-foot mock tower apparatus.

(2) *Body position.* As the jumper clears the door, he performs several essential actions simultaneously. He snaps his feet and legs together, locks his knees, and points his toes toward the ground. He lowers his head and holds his chin firmly against his chest. He rotates his elbows sharply into his sides with the palms

of his hands on the ends of the reserve, fingers spread, right palm over the ripcord grip. He bends his body sufficiently at the waist to allow him to see the toes of his boots over his reserve parachute (fig. 1).

(3) *Count.* At the same moment that the jumper initiates his exit, he commences a count at normal cadence; "One thousand, two thousand, three thousand, four thousand." If at the end of the four-thousand count, the jumper does not feel the parachute open he attempts to check his canopy before he activates his reserve as explained in section XII.

Note. Collision and entanglement can take place during the initial stages of deployment. When this occurs one jumper will normally pass through the suspension lines of the other jumper. The procedures outlined in *c* (4) (*c*) below apply. When the parachute of the lower jumper becomes entangled on the upper jumper's body or equipment, the upper jumper should maintain a firm grasp of the lower jumper's canopy or suspension lines until both jumpers are on the ground. In this case both jumpers will descend by one parachute.

b. Check Canopy.

(1) *General.* At the completion of the four-thousand count, if the jumper has felt his parachute open, he must check his canopy for malfunction or damage. He does this by grasping his risers with his thumbs up, spreading the risers apart, and throwing his head back to inspect the entire canopy. Training in this point of performance is conducted in the 34-foot mock tower, the free tower, and by the use of the "Hit-it" exercise as described in paragraph 18*a*(3)(*i*).

(2) *Twisted suspension lines.* The T–10 main parachute frequently has twisted suspension lines. This condition is created by several actions which may take place individually or in a variety of combinations. The most common of these actions include spinning of the deployment bag prior to the deployment of the canopy, spinning of the canopy during deployment from the deployment bag and prior to inflation, and the tumbling or spinning of the jumper which is caused by improper exiting and body position. When the suspension lines are twisted, the jumper may not be able to raise his head enough to observe the canopy properly. If this situation occurs, he proceeds as follows:

(*a*) He compares his rate of descent with that of other nearby parachutists. If he is descending at the same rate, he simply untwists the suspension lines, (*d*) below.

(*b*) If he is descending faster than other parachutists, he activates the reserve parachute immediately (sec. XII).

(*c*) When other jumpers are not close enough for him to compare rates of descent, he activates the reserve parachute only in the case of a known malfunction.

(*d*) If the suspension lines are twisted and the rate of descent is not excessive, he reaches behind his neck and grasps each pair of risers, with his thumbs down, and exerts on outward pull on each pair of risers. He kicks out in the direction opposite the twist. He continues to pull outward on the risers and to kick until the twists are out of the suspension lines. When the twists are out of the lines, he checks the canopy and assumes the normal position.

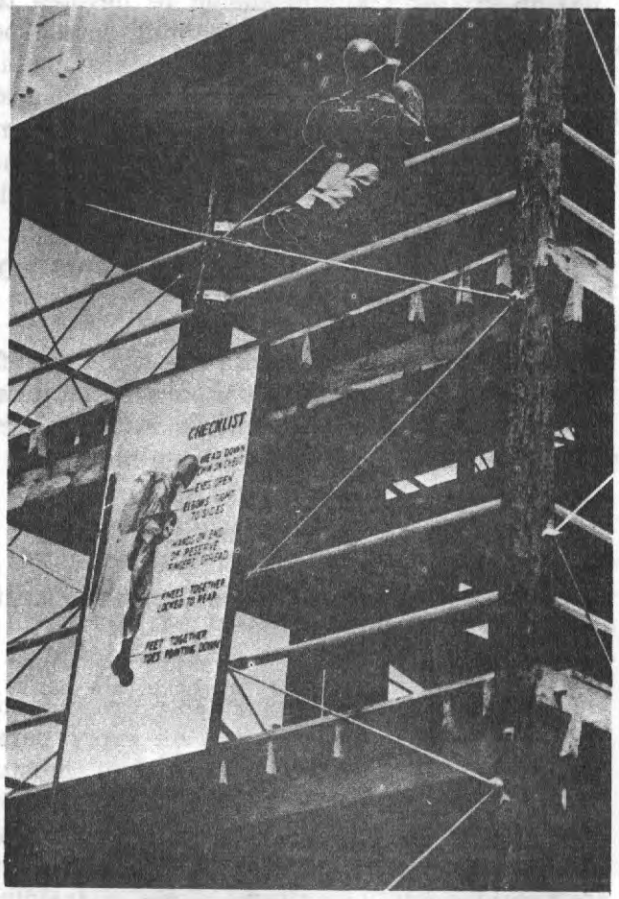


Figure 1. Body position.

Note. Malfunctions. A complete discussion of parachute malfunctions including the actions which must be taken by the jumper and the use of the reserve parachute is included in section XII.

c. Keep a Sharp Lookout During Descent.

(1) *General.* The parachutist must keep a sharp lookut during descent in order to avoid collisions and entanglements with other jumpers and to avoid obstacles in the landing area. The apparatus used to train students in this point of performance are the suspended harness, the mock tower, and the 250-foot free tower.

(2) *Body turns.* Body turns are made to enable parachutists to observe in any direction.

(*a*) To make a right body turn, grasp the left set of risers as high as possible with the left hand and the right set of risers as high as possible with the right hand. With the right arm rigid, the parachutist forces the right set of risers to the direct front, simultaneously bringing the left hand with the left set of risers behind the right hand and in front of the face.

(*b*) The left body turn is made by reversing the above procedures.

(*c*) Make the recovery slowly to avoid spinning.

(3) *Slips.*

(*a*) A slip is a maneuver made with the parachute to avoid collision with another parachutist in the air or with an obstacle on the ground. A slip changes the normal configuration of the canopy allowing air to spill or escape from one side of the canopy thus creating a slight horizontal thrust. A vigorous slip taken into the wind at approximately 100 feet above the ground will decrease the lateral drift and ease landing falls.

(b) There are two categories of slips: two-riser and one-riser. The two-riser slip is made by grasping a pair of risers in the direction of the desired movement and pulling them down to the chest. A one-riser slip is made by pulling down one riser nearest the desired direction of movement with a hand-over-hand motion.

(*c*) In slipping, make a sharp initial pull to more effectively spill air from the canopy, look in the direction the slip is being made, and release the slip slowly to minimize oscillation.

(4) *Collisions and entanglements.*

(*a*) A descending parachute causes an area of partial air compression immediately below the canopy, and an area of partial vacuum and descending turbulent air above the canopy for a height of approximately 50 feet.

(*b*) A parachutist falling into this area of partial vacuum from a chute below him does not capture enough air to keep his parachute fully inflated. His chute may partially collapse and drop him below the other man's canopy until the force of unaffected air reinflates the canopy. Then his canopy, being lower, "steals" the air from the canopy above and reinflates, causing the uppermost canopy to collapse and drop past the lower canopy. This "leapfrogging" action is repeated unless corrective action is taken. When necessary, vigorous slips are initiated by each parachutist to maintain a lateral interval of at least 25 meters. As the jumpers near the ground (250 feet or below) extreme care must be exercised by all jumpers to avoid the "stealing" of air from a canopy since a deflated canopy will not be high enough above the ground to reinflate. If this situation occurs, the jumper must immediately prepare to land and execute a parachute landing fall.

(*c*) Parachutists must be alert in the air and warn each other of impending collisions. If a collision cannot be avoided by slipping, the jumper should attempt to bounce off the other jumper's suspension lines by spreading his arms and legs just before making contact. If a parachutist becomes entangled with one or more suspension lines of another jumper's parachute, he firmly grasps whatever portion of the lower parachute he can secure. He then works his way hand-under-hand down the suspension lines of the lower parachute until each parachutist can grasp and hold the main lift web of the others' parachute. Upon contact with the ground both parachutists release their grip and make normal parachute landing falls away from each other.

(5) *Canopy release.* During descent, the jumper must remove the protective covers from the canopy release assemblies and push them well up on the risers (sec. X).

d. Prepare to Land.

(1) *General.* A proper landing attitude is essential to minimize the risk of injury to the jumper upon contact with the ground. The jumper assumes this landing attitude at a point approximately 100 feet above the ground. The apparatus used to train students in the proper landing attitude are the parachute landing fall platforms, the swing landing trainer, and the 250-foot free tower.

(2) *The landing attitude.* In order to assume the proper landing attitude, the jumper must—

(*a*) Check his direction of drift and slip in the opposite direction (into the wind).

(*b*) Lock the risers to his chest, and press his elbows to his sides.

(*c*) Keep his head erect, eyes on the horizon.

(*d*) Keep his legs straight and his knees unlocked.

(*e*) Keep his feet and knees together, and the balls of his feet pointed slightly towards the ground. Moderate muscular tension must be maintained in the legs, as they must absorb a significant portion of the landing impact. The jumper must avoid becoming stiff or tense (fig. 2).

(3) *Emergency landings.* The jumper must first slip to avoid obstacles. If an emergency landing is imminent, the jumper prepares as follows:

(*a*) *Tree landings.* (fig. 3).

1. Feet and knees together, toes pointed downward.

2. Hands under opposite armpits, palms out.

3. Elbows high.

4. Head resting on arm; watch below by looking under either right or left elbow.

5. Prepare to make a normal landing. After landing, the parachutist may descend from the tree by activating his reserve and climbing down the suspension lines and canopy. DO NOT CLIMB DOWN INSIDE THE CANOPY.

(*b*) *Wire landings* (fig. 4).

1. Feet and knees together, toes pointed downward.

Figure 2. The landing attitude.

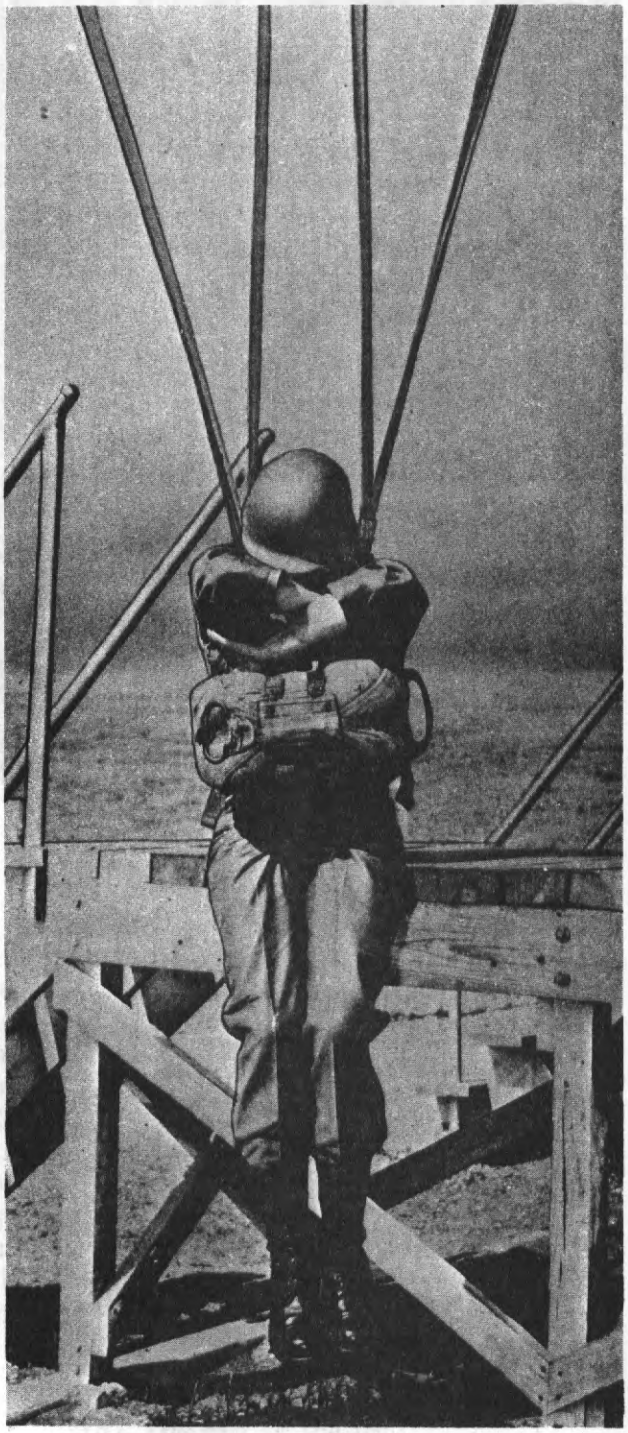


Figure 3. Tree landing.

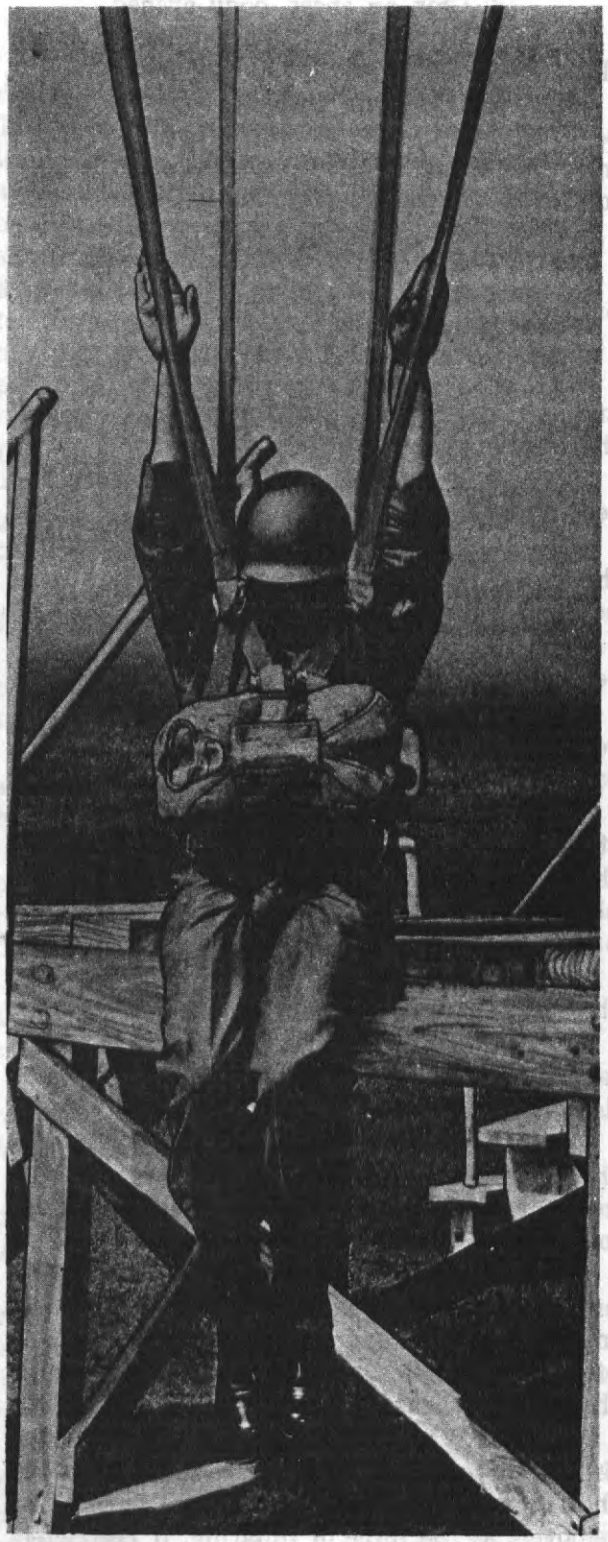


Figure 4. Wire landing.

2. Hands high inside the front risers, palms out.

3. Chin on chest, body arched.

4. Prepare to make a normal parachute landing fall.

5. If contact with the wires is made, begin a rocking motion of the body by pushing forward on the front risers. This will help to prevent becoming entangled with the wires.

(*c*) *Water landings* (fig. 5).

1. Pull the saddle down well over the buttocks and sit in the harness.

2. Discard headgear.

3. Pull quick-release on waistband and unfasten snap connector on left side of the reserve parachute.

4. Release all equipment tiedowns except upper tiedown of weapon.

5. Remove all equipment secured to the parachute harness that may hinder harness removal in the water.

6. Remove safety fork from the quick-release assembly.

7. Keeping elbows tight into the side, rotate the outer disk of quick-release assembly to the unlock position and strike it.

8. While grasping an opposite chest strap with one hand, free the leg straps with the other hand and remove the pistol belt and all equipment attached to the body that may hinder movement in the water.

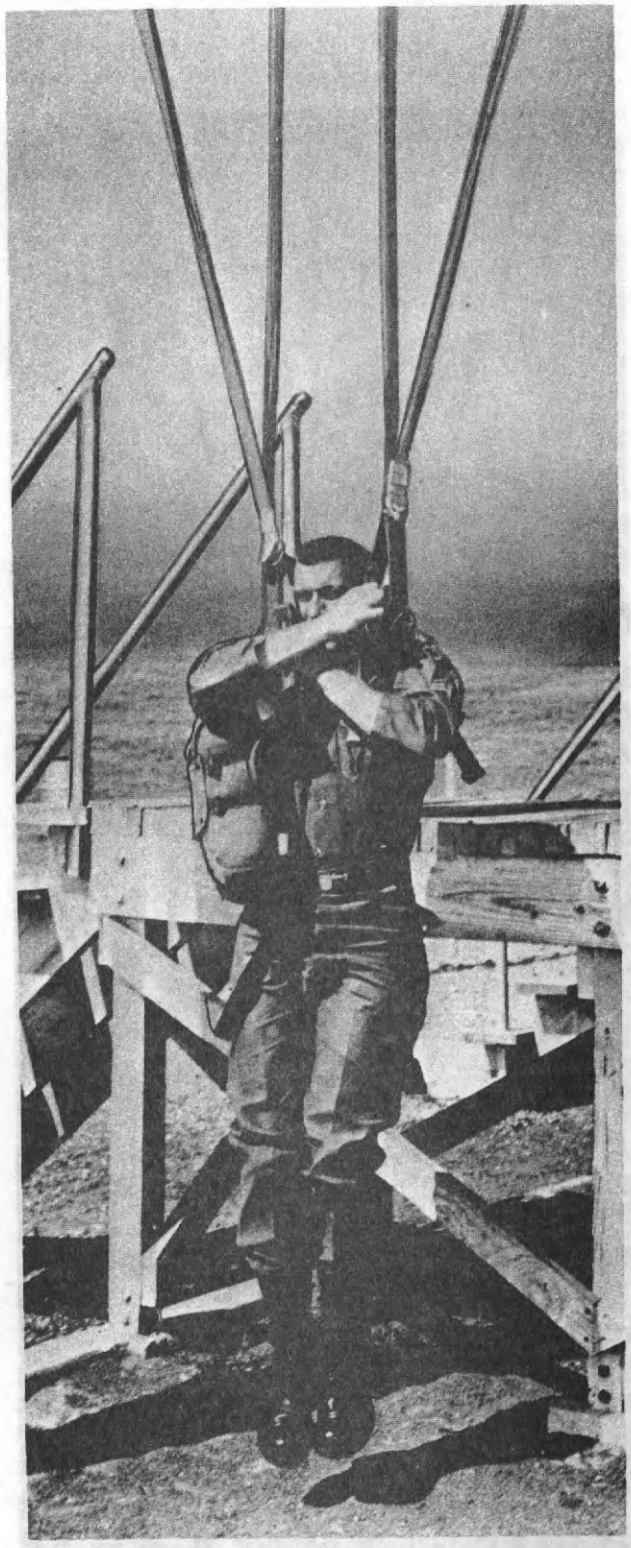
9. Upon entering the water, throw the arms up and slide out of the harness.

10. Be prepared to make a parachute landing fall in event the water is only inches deep.

11. The parachute may be used to tow the jumper in the water, as high winds will keep the canopy inflated until it becomes waterlogged.

12. When jumping with the B–7 life preserver, the gas release valves are activated in the air. The canopy is released by means of the canopy release assemblies upon entering the water (para 43).

13. When jumping with the B–5 type life preserver (Mae West), care must be taken that inflation occurs only after the harness is removed, as the force of inflating, if restricted by the harness, may crush the jumper's ribs (para 43).



1 Without life preserver

Figure 5. Water landing.

2 With B–7 life preserver

Figure 5—Continued.

e. Land.

(1) *General.* The majority of jump injuries occur because of improper landing techniques. To minimize the possibility of jump injuries, the parachutist absorbs the impact of landing by executing a parachute landing fall. In order to do this, he must expose certain fleshy portions of his body (the five points of contact) to the ground in their proper sequence. Parachute landing falls are taught by using the 2-foot platform, the 4-foot platform, the inclined ramp, and the swing landing trainer.

(2) *Five points of contact.*

(*a*) Balls of the feet.

(*b*) The calf of the leg.

(*c*) The thigh.

(*d*) The buttocks.

(*e*) Fleshy muscles in the side of the back (latissimus dorsi).

(3) *Parachute landing falls.*

(*a*) *General.* There are three basic parachute landing falls: side, front, and rear. The type fall to be made is dictated by the line of drift. Before the landing attitude is assumed, the jumper can judge the direction of drift by looking at the ground. In no case should the jumper look directly at the ground after he has assumed the landing attitude. After judging the direction of drift, the jumper mentally prepares himself to make the appropriate parachute landing fall.

(*b*) *The left side parachute landing fall* (fig. 26).

1. As the balls of the feet strike the ground, the jumper begins several actions at the same time. As he continues his fall he—

(a) Lowers his chin to his chest, tensing his neck.

(b) Brings his hands up in front of his head, elbows in front of his chest, continuing to grasp the risers.

(c) Bends and twists his torso sharply to the right. This movement forces his body into an arc, like the base of a rocking chair. The twisting motion in the hips pushes his knees to the left as he continues his fall, and exposes the second through the fifth points of contact.

2. The jumper completes his fall in the line of drift, touching all five points of contact in sequence.

3. The jumper maintains tension in his neck throughout the fall to prevent his head from striking the ground.

4. The momentum caused by drift brings his feet around to the right into the line of drift.

5. After the jumper completes his parachute landing fall, he makes a quick recovery by getting to his feet quickly without releasing his risers. He then runs into and around his canopy and collapses it.

(*c*) *The right side parachute landing fall.* This is similar to the left side parachute landing fall except the points on the right side of the body are used.

(*d*) *The front parachute landing fall.*

1. There are two types of front falls:

right front and left front. A right front fall is used if the direction of drift is slightly to the right and a left front fall is used if the direction of drift is slightly to the left. If the direction of drift is directly to the front, the jumper may select the fall that is best for him.

2. For a front parachute landing fall, the actions of the jumper upon contact with the ground are the same as for side parachute landing falls except that he twists his entire body vigorously to the left (right). At the same time he bends his torso sharply to the left (right). This twisting-bending motion forces the body into an arc. The twisting motion continues as he falls and pushes the knees around, thus exposing the second through the fifth points of contact.

(*e*) *The rear parachute landing fall.*

1. The rear parachute landing fall is used more frequently than any of the other falls. There are two variations of the rear fall: the right rear fall and the left rear fall. The jumper determines what fall he will make by checking his direction of drift. If his drift is directly to the rear, he selects the fall that is best for him.

2. For a rear parachute landing fall, the actions of the jumper upon contact with the ground are the same as a side parachute landing fall, except that he twists the lower portion of his body vigorously to the right (left) and bends his torso sharply in the opposite direction. This movement forces his body into an arc. The twisting motion in his hips pushes his knees around as he continues the fall, and exposes his second and third points of contact. The fourth and fifth points of contact are also exposed and touch the ground in sequence.

(*f*) It should be stressed during all parachute landing fall training that the fall is *not* a precision movement.

Section III. T–10 PARACHUTE ASSEMBLY

9. General

This section covers the general breakdown of the parachute assembly (the T–10 parachute, the T–10 reserve parachute, and the harness) and a detailed discussion of the proper fitting and wearing. (A detailed technical description is found in ch. 7.)

10. The T–10 Parachute Assembly

a. T–10 Parachute. The T–10 parachute has six major components.

(1) *Canopy assembly.* The canopy is parabolic in shape and made of nylon fabric. The canopy assembly consists of—

(*a*) The apex.
(*b*) The canopy.
(c) The suspension lines.

(2) *Deployment bag.* The deployment bag is used to stow the canopy and the suspension lines. Attached to it is the static line and static line snaphook.

(3) *Pack tray.* The pack tray is used for inclosing the deployment bag with its stowed canopy, and for stowing the static line.

(4) *Two-riser assemblies.* The canopy and suspension lines are connected to the harness by means of the two-riser assemblies. The assembly consists of—

(*a*) Two risers.
(*b*) Canopy release male fitting.
(*c*) Protective cover.

(5) *Harness.* The harness assembly is the means used to strap the parachute assembly to the jumper (figs. 6 and 7). It consists of—

(*a*) The main lift web.
(*b*) Chest straps.
(*c*) D-rings.
(*d*) Leg strap loops.
(*e*) Leg straps.
(*f*) Saddle.
(*g*) Backstrap loops.
(*h*) Horizontal backstrap.
(*i*) Diagonal backstraps.
(*j*) Canopy releases.

(6) *Harness quick-release assembly.* The quick-release assembly is used for the rapid removal of the parachute harness from the jumper's body. It consists of—

(*a*) Quick-release.
(*b*) Quick-release pad.
(*c*) Safety clip retainer strap.
(*d*) Safety clip.

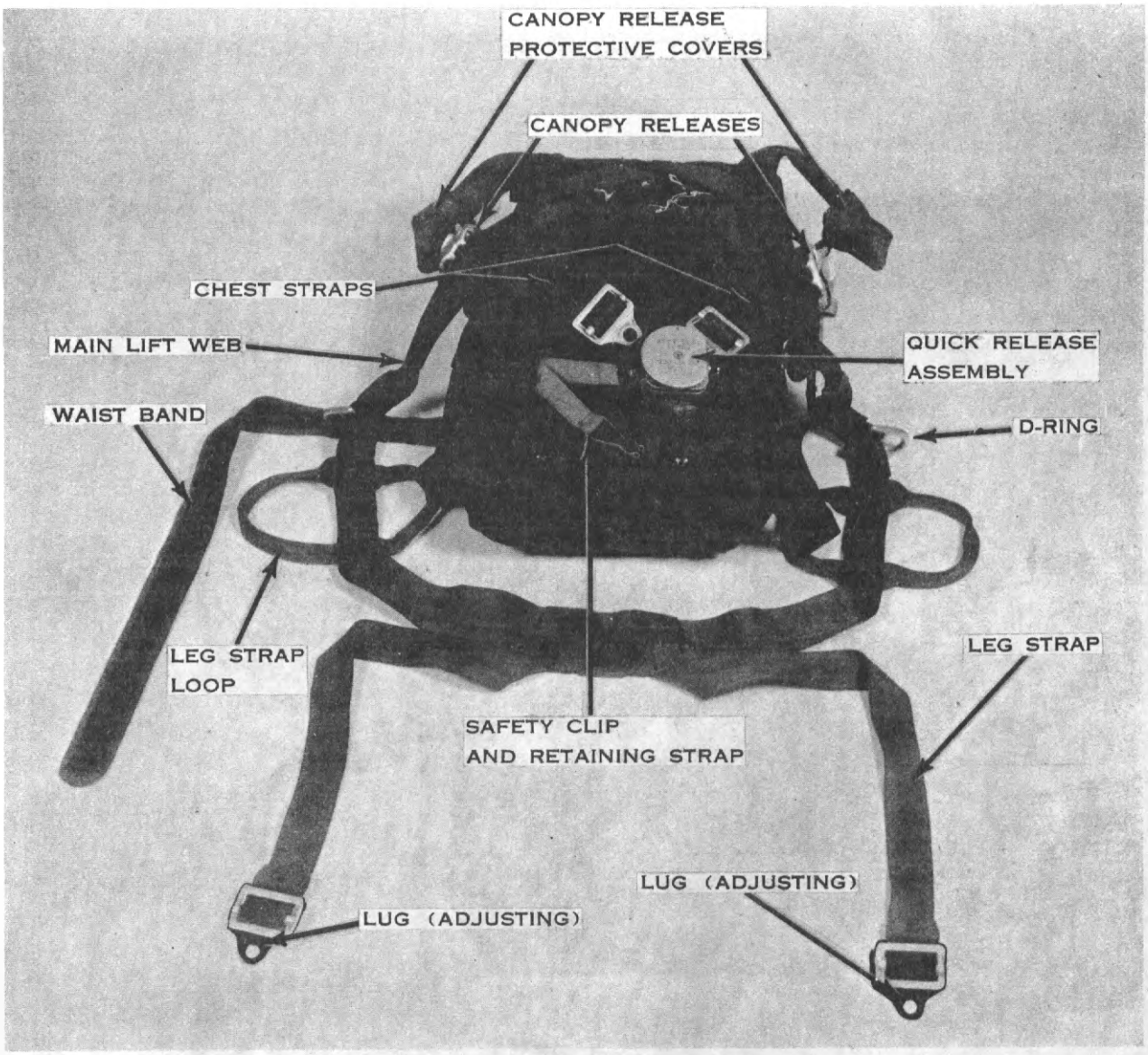


Figure 6. The T–10 parachute harness.

b. The T–10 Reserve Parachute. The reserve parachute is a free-type parachute designed for use in event of malfunction of the main parachute (fig. 8). It consists of—

(1) *Pilot chute.* The pilot chute assists in the deployment of the reserve parachute canopy by serving as an air anchor.

(2) *Canopy assembly.* The canopy is flat and circular in shape and made of nylon fabric. The canopy assembly consists of—

(*a*) The bridle line.

(*b*) The apex.

(*c*) The canopy.

(*d*) The suspension lines.

(3) *Pack assembly.* Used to stow the pilot chute, canopy, and suspension lines. It has two connector snaps and two carrying handles. (On most reserve a third carrying handle has been sewn down.)

(4) *Ripcord.* The reserve parachute is activated by manually pulling the ripcord. The ripcord consists of—

(*a*) Grip.

(*b*) Cable.

(*c*) Two locking pins.

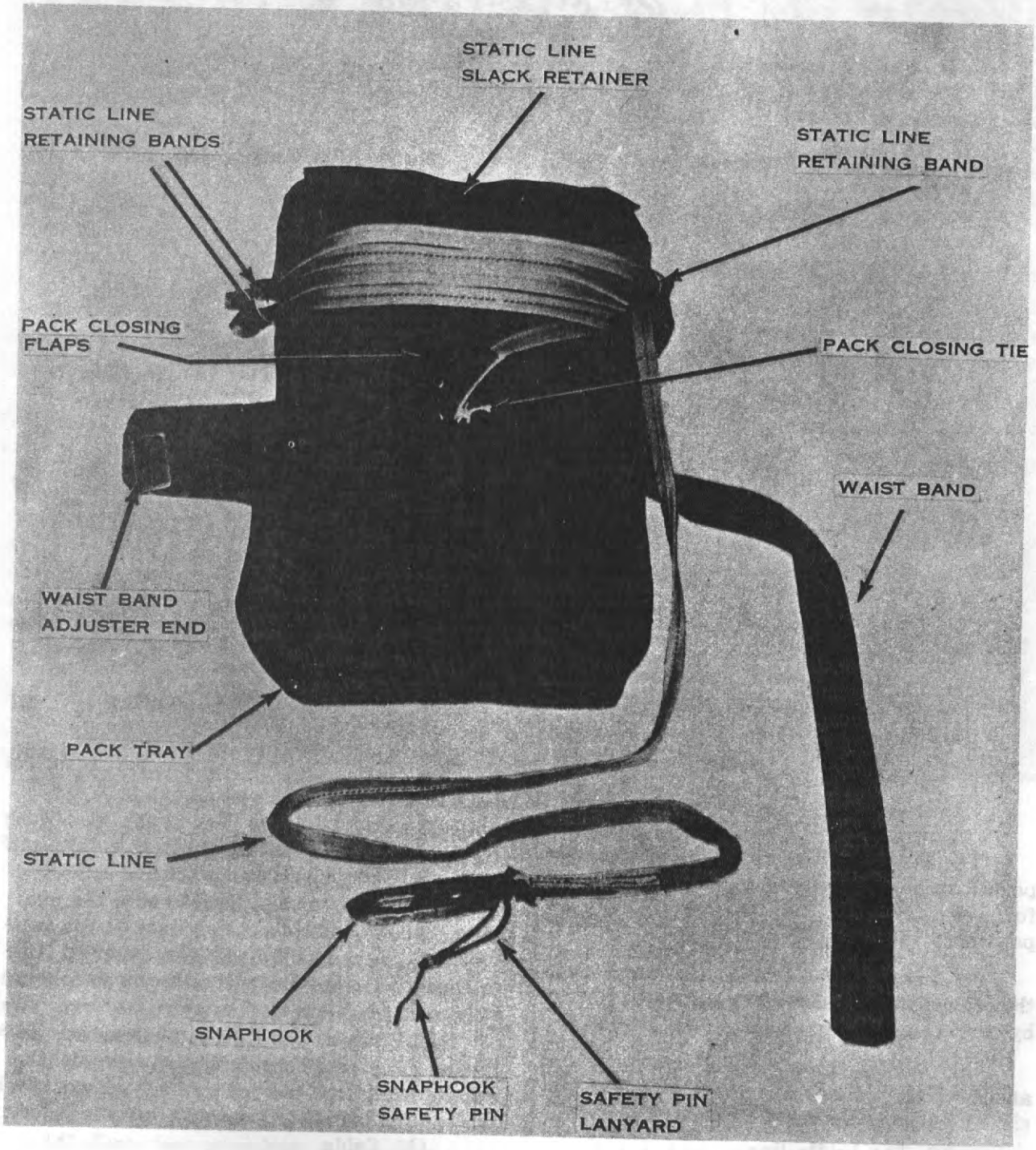


Figure 7. The T–10 parachute backpack.

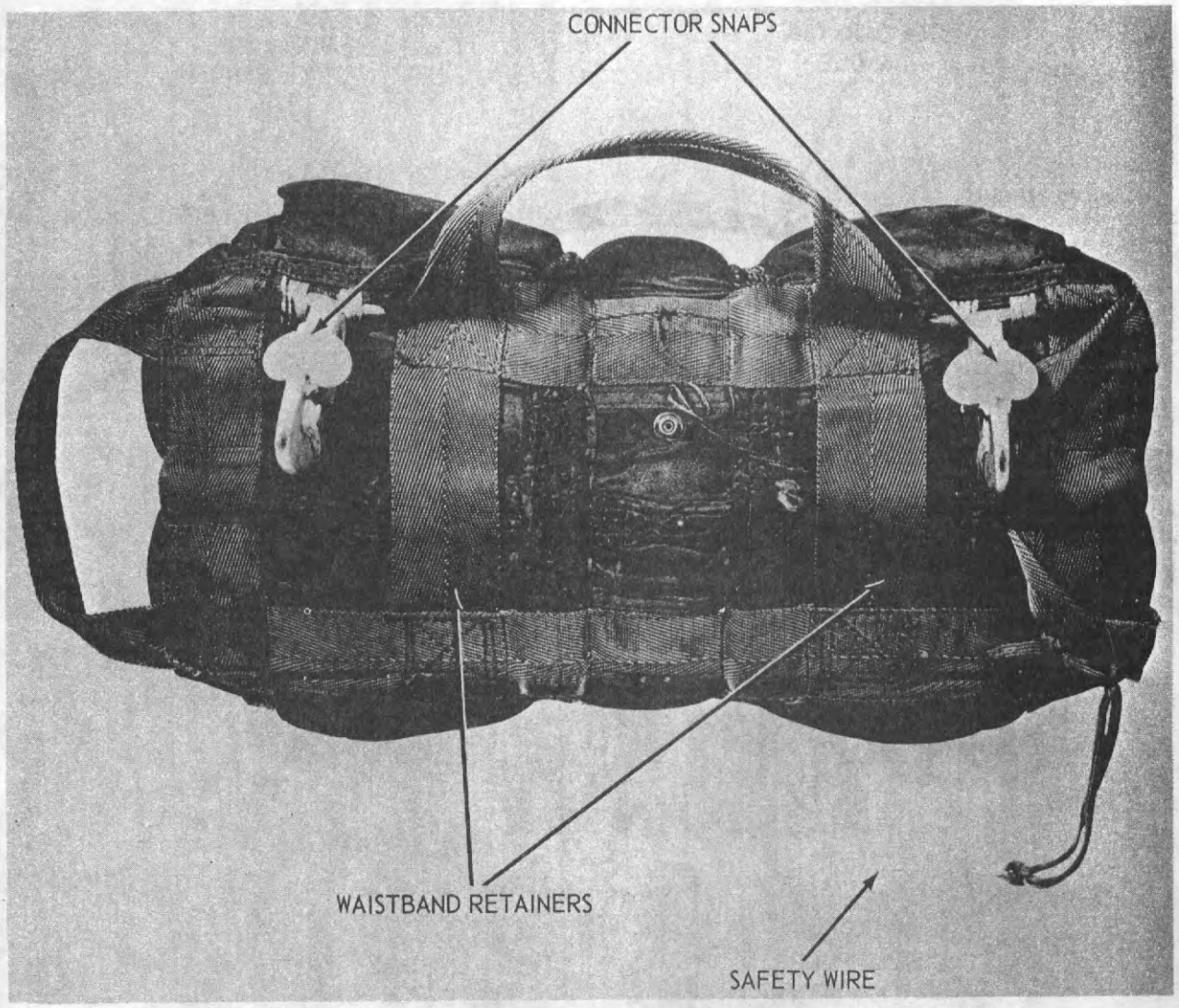


Figure 8. The T–10 reserve parachute.

11. Fitting and Wearing of the T–10 Parachute Assembly

a. A systematic method of putting on and adjusting the parachute harness provides an additional safety check, prevents unnecessary delays during jumpmaster inspection, and insures minimum discomfort to the jumper aboard the aircraft or when receiving the opening shock. The "buddy system" or pairing of jumpers within each stick, will provide the best combination for speed and accuracy.

(1) Each jumper first checks his own parachute assembly for visible defects, lets out all the slack of the diagonal backstraps, straightens the leg straps and chest straps, turns the quick-release assembly to the locked position, and folds the kit bag, leaving one of the handles protruding.

(2) The jumper to put on his parachute first (No. 1 man) will assume a modified "high jumper" position. The second jumper (No. 2 man) secures the parachute assembly by the main lift web at the canopy release assemblies and places it on the back of the No. 1 man.

(3) The No. 1 man will remain bent forward at the waist. The No. 2 man pushes the backpack high on the No. 1 man's back and pulls the saddle well down over his but-

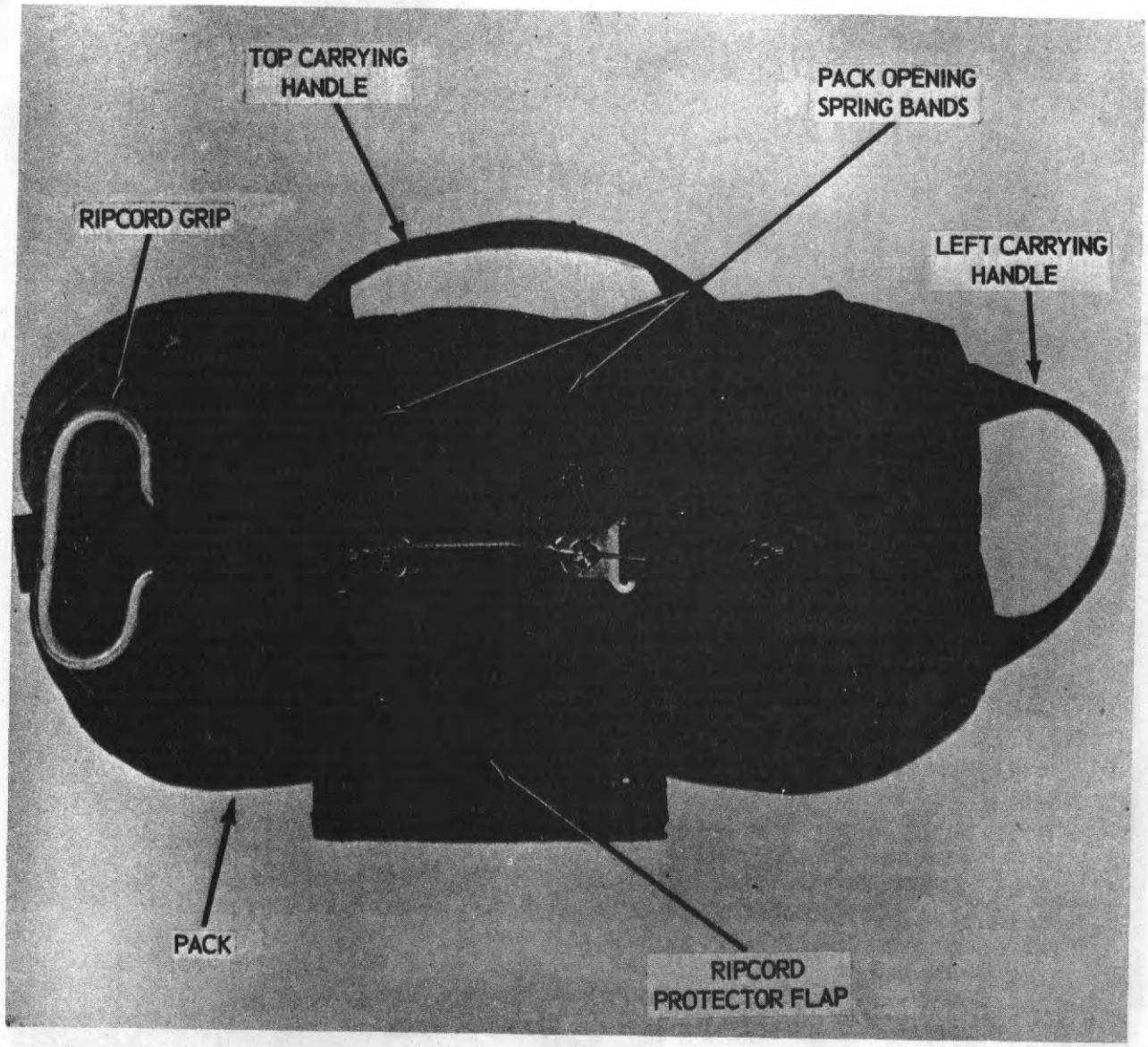


Figure 8—Continued.

tocks. As adjustment of the backpack is being made, the No. 1 man will insert the right chest strap through the carrying handle of the kit bag and into the quick-release assembly and place the safety clip behind the outer disk of the quick-release assembly.

(4) The No. 2 man calls out, "LEFT (RIGHT) LEG STRAP," as he passes it to the No. 1 man.

(5) The No. 1 man repeats "LEFT (RIGHT) LEG STRAP," grasps the leg strap by the adjustable lug with one hand and with the other hand starts from the saddle with thumb and forefinger, runs his hand the length of the leg strap, removing any twists or turns.

(6) No. 1 man then passes the leg straps through the leg strap loops from inside to outside, making a quarter turn toward the body, and inserts the adjustable lugs into the quick-release assembly until a click is heard.

(7) The No. 1 man will then stand erect and make the following adjustments:

(*a*) Check to insure canopy release assemblies are in the hollows of the shoulders.

Figure 9. Correctly fitted T–10 parachute assembly (side view).

(*b*) Position the quick-release assembly in the center of the chest, approximately 12 inches below the chin.

(*c*) No. 2 man will then locate the free running ends of the diagonal backstrap and hand them to the jumper who tightens the harness until it fits snugly and comfortably.

(*d*) After final adjustment, the jumper should be able to stand erect without straining (figs. 9 and 10).

Figure 10. Correctly fitted T–10 parachute assembly (rear view).

(*e*) No. 1 and No. 2 will then change positions and repeat the procedures.

(*f*) When both jumpers have their harness on, they face and make a visual inspection of each other. Any discrepancies will be corrected prior to securing the reserve parachute.

(*g*) Each jumper will then attach his won reserve parachute by cradling the reserve in the left arm, snaps up, with the ripcord grip away from the body. With the right hand, start at the backpack and run out the waistband between the thumb and forefinger, removing any twists or turns. Thread the waistband through the two retaining bands and fasten the reserve connector snap first to the right D-ring and then to the left D-ring on the parachute harness insuring that the waistband is below the connector snaps. If the right carrying handle of the reserve has not been sewn down the waistband should be threaded through it prior to being threaded through the retaining bands.

(*h*) The two jumpers assist each other in securing their waistbands and forming the quick-release, insuring that all slack is pulled out of the waistband and the slack in the quick-release loop is aproximately the width of two fingers.

b. The wearing of combat equipment is discussed in chapter 3.

c. During the initial periods of airborne training, the students should receive thorough training in the nomenclature, fitting, and wearing of he T–10 parachute assembly. Demonstration, followed by student participation, is the key to this instruction. Constant checks should be made by instructors to insure students know the proper nomenclature as well as the proper wearing and fitting. This training can be integrated with other training and during the use of the training apparatus.

Section IV. JUMP COMMANDS

12. General

To insure positive control of the activities of jumpers inside the aircraft immediately prior to exiting, a sequence of jump commands is given by the jumpmaster. Each command requires specific actions by every jumper, and when executed properly, will insure a safe exit from the aircraft. The commands are given orally; but, because of the noise of the aircraft engines they are difficult to hear; therefore, arm-and-hand signals are used with each command. These signals are given vigorously with smooth, coordinated movements.

13. Sequence

These commands, with minor variations, are used in all Army and Air Force aircraft. Jumpmasters should insure that they use the correct sequence pertaining to each aircraft. The commands should be explained to the jumpers in the prejump briefing. The sequence of commands used for a fully loaded C–130 aircraft is listed below:

a. GET READY.

b. OUTBOARD PERSONNEL, STAND UP.

c. INBOARD PERSONNEL, STAND UP.

d. HOOK UP.

e. CHECK STATIC LINES.

f. CHECK EQUIPMENT.

g. SOUND OFF FOR EQUIPMENT CHECK.

h. STAND IN THE DOOR.

i. GO.

14. Commands

a. GET READY.

(1) This command alerts the jumpers. The jumpers are seated in the aircraft with their hands on their knees and directing their attention to the jumpmaster. The static line is over the appropriate shoulder and fastened to the top carrying handle of the reserve parachute. On command of GET READY the jumpers signify alertness by leaning forward

Figure 11. Get ready.

and placing both hands on their knees. They also position their feet with one foot forward and prepare to stand up.

Note. The static line snaphook should not be tampered with or removed from the top carrying handle of the reserve parachute after the jumpmaster inspection or prior to the command GET READY.

(2) The arm-and-hand signal is given by extending both arms to the front oblique at shoulder level with the palms facing the jumpers (fig. 11).

b. OUTBOARD PERSONNEL—STAND UP.

(1) On this command the personnel sitting nearest the outboard side of the aircraft stand up, raise and secure the seats, face the jump doors, and assume the shuffle position. (The method of releasing the seats from the floor varies, depending on the model and year of aircraft; prior to takeoff these devices should be inspected and the method of release explained.)

(2) For this command there are two phases to the arm-and-hand signal. First, the jumpmaster points to the outboard sticks as he gives OUTBOARD PERSONNEL (fig. 12), then as he commands STAND UP, his arms, elbows locked, palms up, rotate straight up, to at least shoulder level (fig. 13).

c. INBOARD PERSONNEL—STAND UP.

(1) The jumpers seated inboard react the same way as the outboard personnel (*b*(1) above).

Figure 12. Outboard personnel—

Figure 13. Stand up.

(2) The arm-and-hand signal is similar to the command OUTBOARD PERSONNEL STAND UP except the jumpmaster points to the inboard seats.

d. HOOK UP.

(1) On this command the jumpers detach the static line snaphook from the top carrying handle of the reserve parachute and hook up to the appropriate anchor line cable with the open portion of the static line snaphook toward the outboard side of the aircraft, insuring that the snaphook locks properly. (Outboard personnel use outboard cables.) The safety pin is inserted in the hole and folded down. A bight is formed in the static line and held at eye level. Personnel jumping the left (right) door have the static line over the left (right) shoulder.

Note. Once the jumper has hooked his static line snaphook to the anchor line cable he should not release his bight in the static line until he moves into the door.

(2) The arm-and-hand signal is given by forming a hook with the index finger and moving the hands up and down, with short strokes, at eye level or higher (fig. 14).

Figure 14. Hook up.

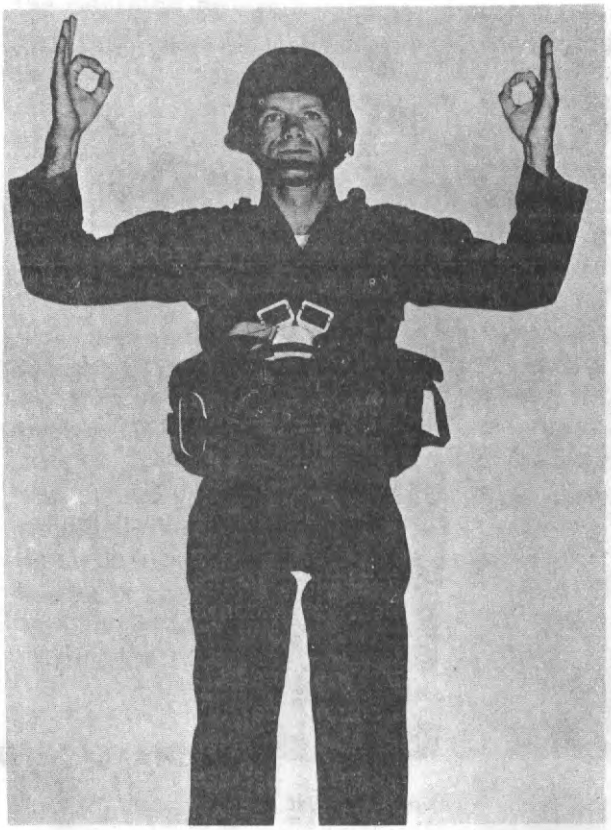


Figure 15. Check static lines.

e. CHECK STATIC LINES.

(1) Upon receiving this command, each jumper checks his static line and the static line of the jumper to his front by checking visually and by feeling to include the following:

(*a*) Static line snaphook is attached to anchor line cable properly with safety pin inserted.

(*b*) Static line is free of frays and tears.

(*c*) Static line is not misrouted and is stowed on backpack properly.

(*d*) Pack closing tie is routed through the pack opening loop.

(*e*) Backpack is intact.

Note. The last two men in each stick must turn toward the skin of the aircraft and face forward

to the front of the aircraft in order that the backpack and static line of the last jumper may be checked. Each jumper gives the jumper to his front a sharp tap signifying that his static line and backpack have been checked and are safe for jumping.

(2) The arm-and-hand signal is given by forming a circle with the index finger and thumb and moving the hands horizontally back and forth, at eye level, toward the jumpers (fig. 15).

f. CHECK EQUIPMENT.

(1) On this command, each jumper checks his own equipment starting at the helmet and working down his front to insure that all equipment is properly adjusted and safe for jumping. It is noteworthy that this is done with the free hand as the jumper still maintains a firm grip on his static line with the other hand.

(2) The arm-and-hand signal is given by tapping the chest with both hands (fig. 16).

Figure 16. Check equipment.

Figure 17. Sound off for equipment check.

g. SOUND OFF FOR EQUIPMENT CHECK (Example for C–130 Aircraft).

(1) On this command, the last man in the outboard stick sounds off with his number followed by saying "OK" and gives the man to his front a sharp tap on the thigh. When the count gets to the No. 24 man, who is just forward of the wheel well, he forms a circle with the forefinger and thumb of his free hand, turns toward the center of the aircraft and gives the OK signal to the No. 23 man, who is the last man of the inboard stick. The count is passed up to the No. 4 man, first man of the inboard stick, who signals the No. 3 man, first man to the rear of the wheel well. The count is continued until it gets to the No. 1 man who notifies the jumpmaster by pointing to the jumpmaster and saying "ALL OKAY." If a jumper has something wrong with his equipment, he will notify the jumpmaster by raising his outboard hand above the anchor line cable to which he is hooked, palm facing the jumpmaster. He does not pass the

count. The jumpmaster or assistant jumpmaster either corrects the deficiency or removes the jumper from the stick.

(2) The arm-and-hand signal is given by cupping the ears with the hands (fig. 17).

Note. Before giving the command to STAND IN THE DOOR, the jumpmaster must check to the rear to insure that no aircraft are following at a lower altitude which would be a hazard to descending parachutists.

h. STAND IN THE DOOR.

(1) This command is given approximately 10 seconds before the aircraft reaches the drop zone. On this command the No. 1 man shuffles into the door, simultaneously pushing the static line toward the rear of the aircraft,

Figure 18. Stand in the door.

assumes a good door position, and awaits further command.

(2) The arm-and-hand signal is given by pointing to both doors simultaneously (fig. 18).

i. GO.

(1) The green light is the signal to jump. On this command the juper springs up and out of the door and goes into his first point of performance. Each succeeding jumper shuffles into the door and exits in a similar manner without command. The jumpmaster will not permit exit if there is an unsafe condition in the aircraft, or unsafe conditions on the ground (water, wrong drop zone, red smoke signifying no jump).

(2) There is no arm-and-hand signal for this command as the green light is the command. However, the jumpmaster may wish to "tap" the first man out. In this case a sharp tap on the thigh is the signal to jump. Use of this signal should be part of the jumpmaster's briefing to make its meaning clear.

15. Conduct of Training

The sequence of jump commands are best taught in the mock door apparatus. Each command should be thoroughly explained to the students and then practiced. Repetition is the key to this phase of training. The last two commands, STAND IN THE DOOR and GO, should be taught first, in the initial periods of airborne training, since these two commands will be used in all mock door and mock tower training. As the training progresses, the complete sequence can be taught.

Section V. MOCK DOOR TRAINING

16. General

The mock door is a replica of the cargo and passenger compartment of a troop carrier aircraft (fig. 19). This apparatus should include the appropriate seating arrangement, doors of the approximate size of the aircraft doors, and anchor line cables for each door (anchor line cables should correspond in number, 2 or 4, according to type of aircraft mockup). (General dimensions for a C–130 and C–119 mock door are found in app. B.)

17. Purpose

The mock door apparatus is designed to assist in the teaching of several basic jump techniques. For training purposes, instruction can be divided into two phases, basic and advanced. The basic training phase teaches the

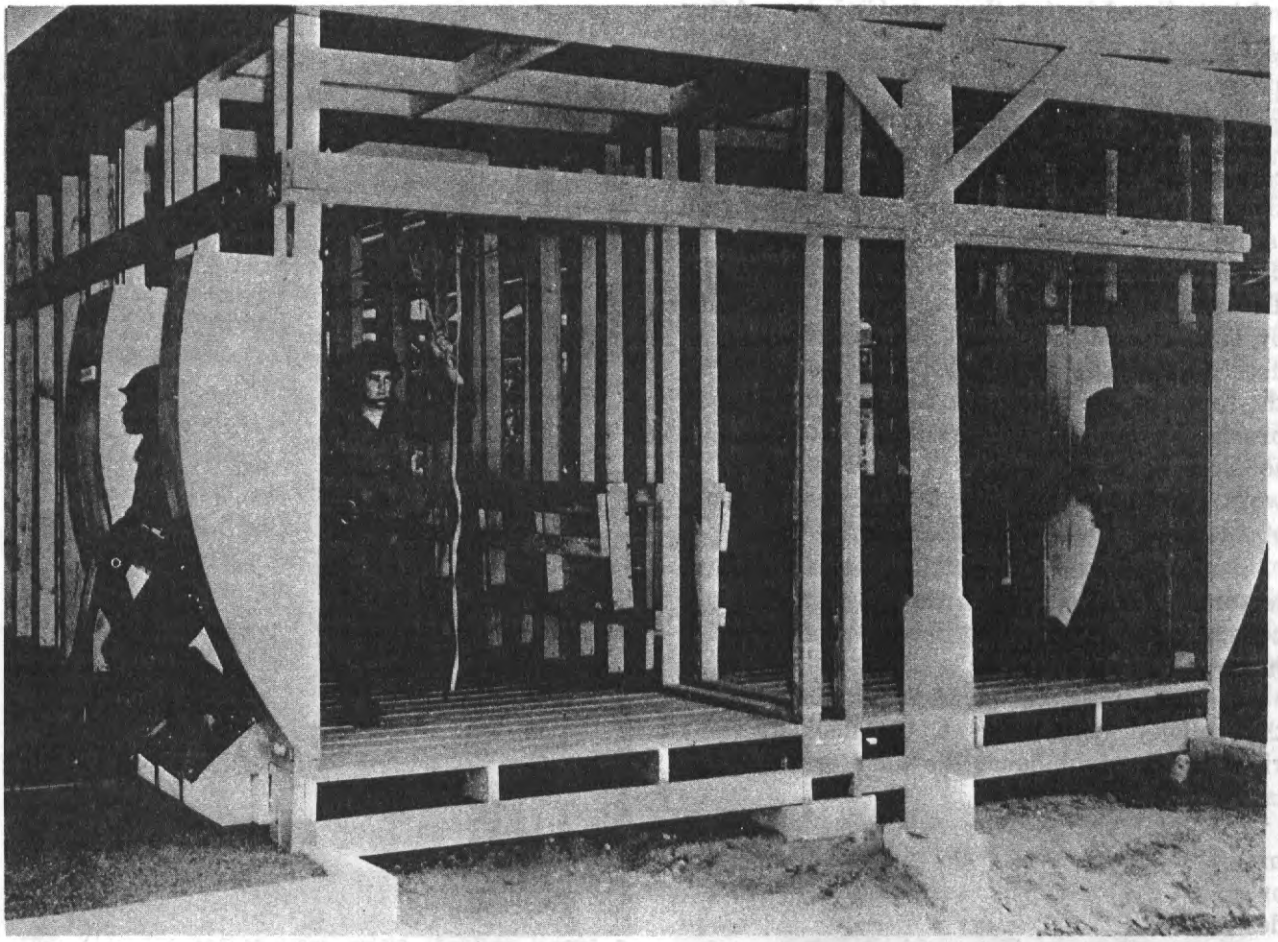


Figure 19. Mock door apparatus, C–130 aircraft.

first and second basic jump techniques (the first point of performance) and familiarizes the student with equipment, aircraft terms, and safety procedures. The advanced training phase provides instruction in the sequence of jump commands and the mass exit technique.

18. Conduct of Training

a. Basic Training Phase.

(1) *Training objectives.*

(*a*) To familiarize the student with terms and nomenclature connected with military parachuting and the personnel and aircraft equipment and its use.

(*b*) To teach the student the shuffle technique.

(*c*) To teach the student the door position.

(*d*) To teach the student the exit and body position.

(*e*) To teach the student the 4,000 count.

(2) *Personnel and equipment requirements.*

(*a*) *Personnel.* One principle instructor and one assistant instructor for each door in operation.

(*b*) *Equipment.* One T–10 assembly (dummy) and one section of static line (approximately 4 feet in length and not attached to the parachute assembly) per student. The size of the class and facilities available (mock doors) will determine need for sound (loudspeaker) equipment.

(3) *Training.* The initial period of instruction in the mock door apparatus should include a conference and demonstration on the

subjects listed in (*a*) through (*i*) below. After the student has received this information all subsequent instruction is practical exercise. Each student is given the commands STAND IN THE DOOR and GO and is critiqued and corrected by the instructor on his door position, exit, body position, and count. Repetition is the key to this training but its value can be decreased if it is allowed to become boring. The goal is correct and automatic reactions by each student. The "hit it" exercise can be used periodically by the instructor to break up the instruction and give all students added practical work. Training should be conducted so that each student will receive practical work from both the right and left jump doors of the mock door apparatus.

(*a*) *Terms.* The following terms are important in mock door training and should be explained during the initial phase of the instruction.

1. Left and right door. When facing the pilot's compartment, the door on your right is the right door; the door on your left is the left door.

2. Anchor line cable. A cable normally extending the long axis of the troop and/or cargo compartment, secured at both ends, designed to accommodate the static line snaphook, and initiate the deployment of a parachute attached thereto.

3. Stick of jumpers. A group of jumpers exiting from the same door (or from one side of a ramp during tailgate exits) during one pass over the drop zone.

4. Drop zone. A designated landing area for parachutists or equipment.

(*b*) *Nomenclature, fitting, and wearing of the parachute assembly.* Proper fitting, to include buddy-type checks, should be stressed during practical application and each time the mock door is used (para 11).

(*c*) *The shuffle position* (fig. 20). The shuffle is a method of moving toward the jump door without losing balance or tripping in the aircraft. Both feet are kept directly underneath the body and staggered. The jumper faces the rear of the aircraft and places the foot nearest the side of the aircraft forward; this is the shuffle foot. The foot nearest the center of the aircraft is the trail foot. The jumper moves by sliding the shuffle foot forward first and then the trail foot, keeping both feet staggered in the same relative heel-and-toe positions. The outboard arm is extended down and out to assist in balance and in assuming the door position.

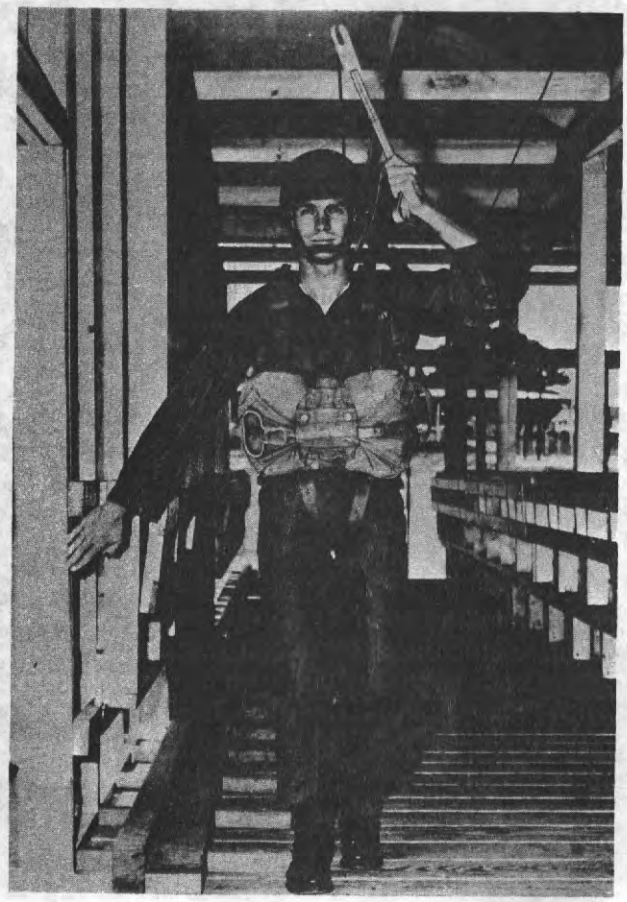


Figure 20. The shuffle position (left door).

(*d*) *The static line.* The shuffle position also includes proper grasping of the static line. When jumping the left door, the static line is over the left shoulder; when jumping the right door, the static line goes over the right shoulder. The jumper forms a "bight" of approximately 6 inches in the static line by making one fold and grasping the loop at eye level approximately 6 inches to his front (fig. 21). The remainder of the static line is carried over the shoulder with all excess stowed in static line slack retainer bands to reduce any possibility of entanglement. The free hand is used to steady the jumper and guide him as he moves toward the door.

Figure 21. Correct grasp of the static line.

Note. For anchor lines at shoulder height or above, at the place of exit, a normal bight is taken (fig. 21); for anchor lines below shoulder height a reverse bight is taken (fig. 95).

(*e*) *Jump commands.* The last two jump commands, STAND IN THE DOOR and GO, are used for each student when practicing individual exits. On the command STAND IN THE DOOR, the student shuffles into the door and assumes a good door position. On the command GO, the student exits from the mock door apparatus, assumes a good body position and commences the 4,000 count.

(*f*) *The door position.* As the jumper shuffles into the door, he pushes the static line toward the rear of the aircraft by extending his arm naturally. The jumper shuffles into the door so that the toe of the outboard foot (shuffle foot) is extended about 2 inches over the edge of the doorsill and the trail foot is about 6 inches to the rear. Feet are about shoulder width apart; however, this is determined by the jumper as his weight should be equally distributed on both feet. The knees are bent, upper body straight, head and eyes are straight to the front. Both hands are outside the aircraft, fingers extended and joined, and the elbows locked. The jumper is in a position described as "coiled alertness," that is, he is ready to jump up and out without further weight adjustment (fig. 22). The hands are not grasping the aircraft. They are used to maintain balance only.

(*g*) *Exit.* The exit from the door of the aircraft is made by springing up and out at the command GO. This springing action is gained from the legs alone. The hands are used only to guide the jumper. A good, strong exit is essential in order to avoid hitting the aircraft or coming in contact with another jumper underneath or behind the aircraft.

(*h*) *Body position.* The proper body position and the 4,000 count are explained in paragraph 8. The student remains in this body position and is critiqued by the instructor. He is then told to RECOVER to a position where he can observe other students and hear their critique.

Figure 22. Door position (left door).

(*i*) *"Hit it" exercise.* The "hit it" exercise is given as a test of mental alertness and for practical work in assuming a good, tight body position. On the command, HIT IT, the student jumps up approximately 6 inches and snaps into a good body position. Simultaneously, he commences a 4,000 count; he will remain in this position until he receives the command RECOVER. This exercise is expanded as training progresses to include CHECK CANOPY. When this command is given, the student simulates checking his canopy. He is then told to RECOVER or that he has a MALFUNCTION. In the latter case, he returns to the body position and simulates activation of his reserve. He is then given the command to RECOVER.

b. Advanced Training Phase.

(1) *Training objectives.*

(*a*) To teach the student to respond properly to the sequence of jump commands.

(*b*) To teach the student to respond properly to the arm-and-hand signals for the sequence of jump commands.

(*c*) To teach the student the mass exit technique.

(2) *Personnel and equipment requirements.* No change from 8*a*(2) above.

(3) *Training.* The training given during this phase is given in the same manner as during the basic phase except that the entire sequence of jump commands is given and mass exits are substituted for individual exits. Extra instructors may be necessary to insure that all students in the mock door apparatus react properly to each of the jump commands.

(4) *The mass exit technique.* When the mass exit technique is used, only the first jumper in each stick receives the commands STAND IN THE DOOR and GO. Each succeeding jumper shuffles into the door, takes up a proper door position, and exits the aircraft on his own command. A 1-second interval must be maintained between jumpers. If a wind machine is available, it could be used in connection with this training for added realism.

Section VI. THE 34-FOOT MOCK TOWER APPARATUS

19. General

The 34-foot mock tower apparatus is a replica of a section of the troop carrier compartment of an aircraft which is placed on a structure 34 feet high. Each side of the replica contains a jump door. Four steel cables are suspended generally parallel to the tower and slightly above each door. A trolley which supports two trolley risers is attached to each cable (fig. 23). Each trolley riser has a ring attached to its free end which is connected to the modified harness worn by students during training on this apparatus. For general diagrams of a 34-foot tower, see appendix B.

20. Purpose

The 34-foot mock tower is used to assist in teaching the first two basic jump techniques and the first two points of performance. For ease in training, the instruction is divided into two phases. The basic training phase continues the instruction presented in the mock door apparatus on the first and second basic jump techniques (the first and second points of performance). The advanced phase continues the instruction on the mass exit technique, simulates parachute malfunctions, and familiarizes the student in jumping with equipment.

21. Conduct of Training

a. Basic Training Phase.

(1) *Training objectives.*

(*a*) To give the student practice in the proper door position, technique of exiting, tight body position, and 4,000 count.

(*b*) To give the student experience in jumping into and falling through space.

(*c*) To help the student overcome fear of height.

(*d*) To familiarize the student with the

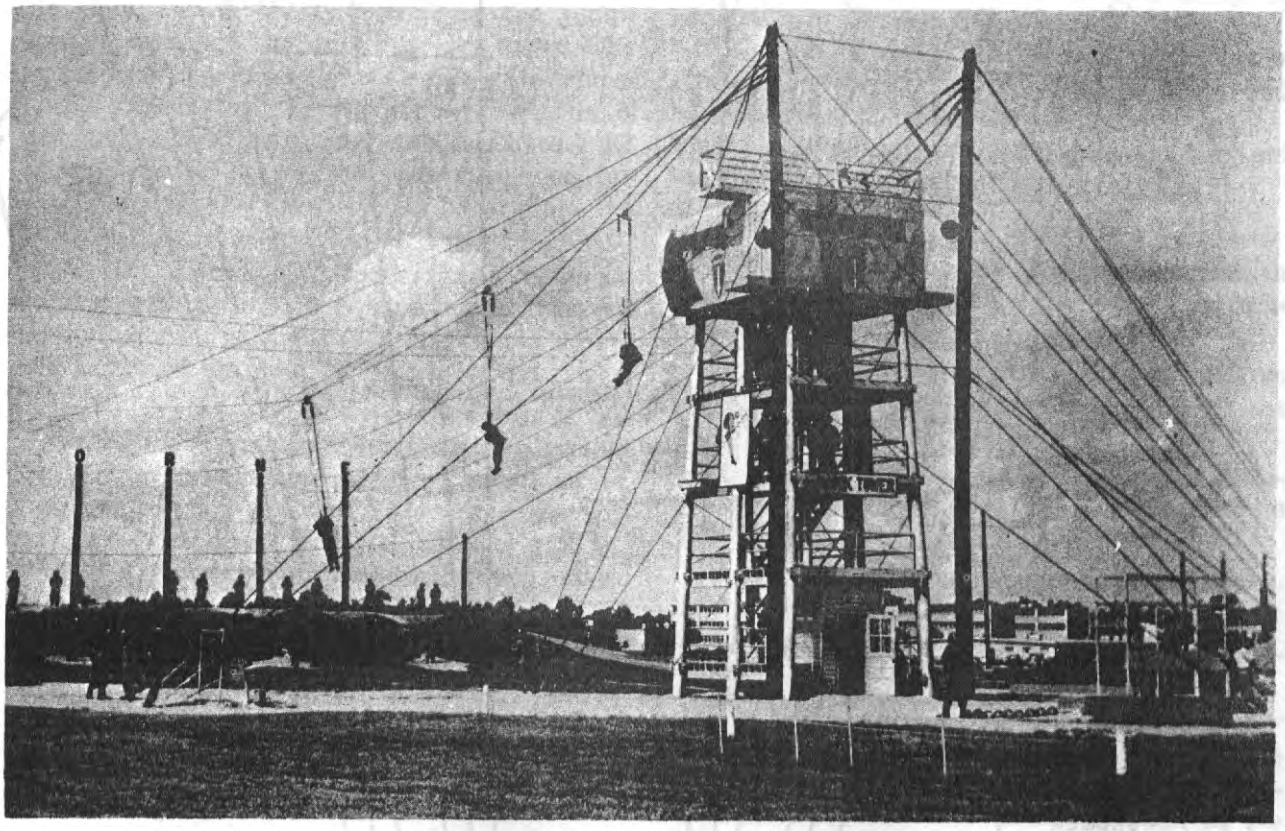


Figure 23. The 34-foot mock tower apparatus.

approximate sensation of a parachute's opening.

(c) To give the student practice in checking his canopy.

(2) *Personnel and equipment requirements.*

(*a*) *Personnel.*

1. Instructors. A minimum of seven instructors are required to operate this apparatus. The positions and duties of each are as follows:

(a) *Principle instructor.* One principle instructor is required to exercise overall training supervision.

(b) *Jumpmaster.* Two jumpmasters are required to hook up jumpers in the tower, and issue the last two jump commands.

(c) *Grader.* Two graders are required to critique and grade the students' performance on the apparatus.

(d) *Harness checkers.* Two harness checkers are required to check all student harnesses prior to entering the tower.

2. Detail personnel. A minimum of 24 detail personnel are required to operate this apparatus (fig. 24). The duties of the detail men are as follows:

(a) *Mound men.* Two mound men are required for each cable on the tower. They are positioned on the mound facing the mock tower, on each side of their respective cables. The mound men are responsible for unhooking the jumper from the trolley risers and attaching a rope to the trolleys for return to the tower.

(b) *Rope men.* One rope man is required for each point. He is responsible for returning the trolley risers to the tower after the jumper has been unhooked. The rope is divided at one end for attachment to two sets of trolley risers. The rope man returns the trolley to a point about 20 feet from the tower immediately after the jumpers are unhooked

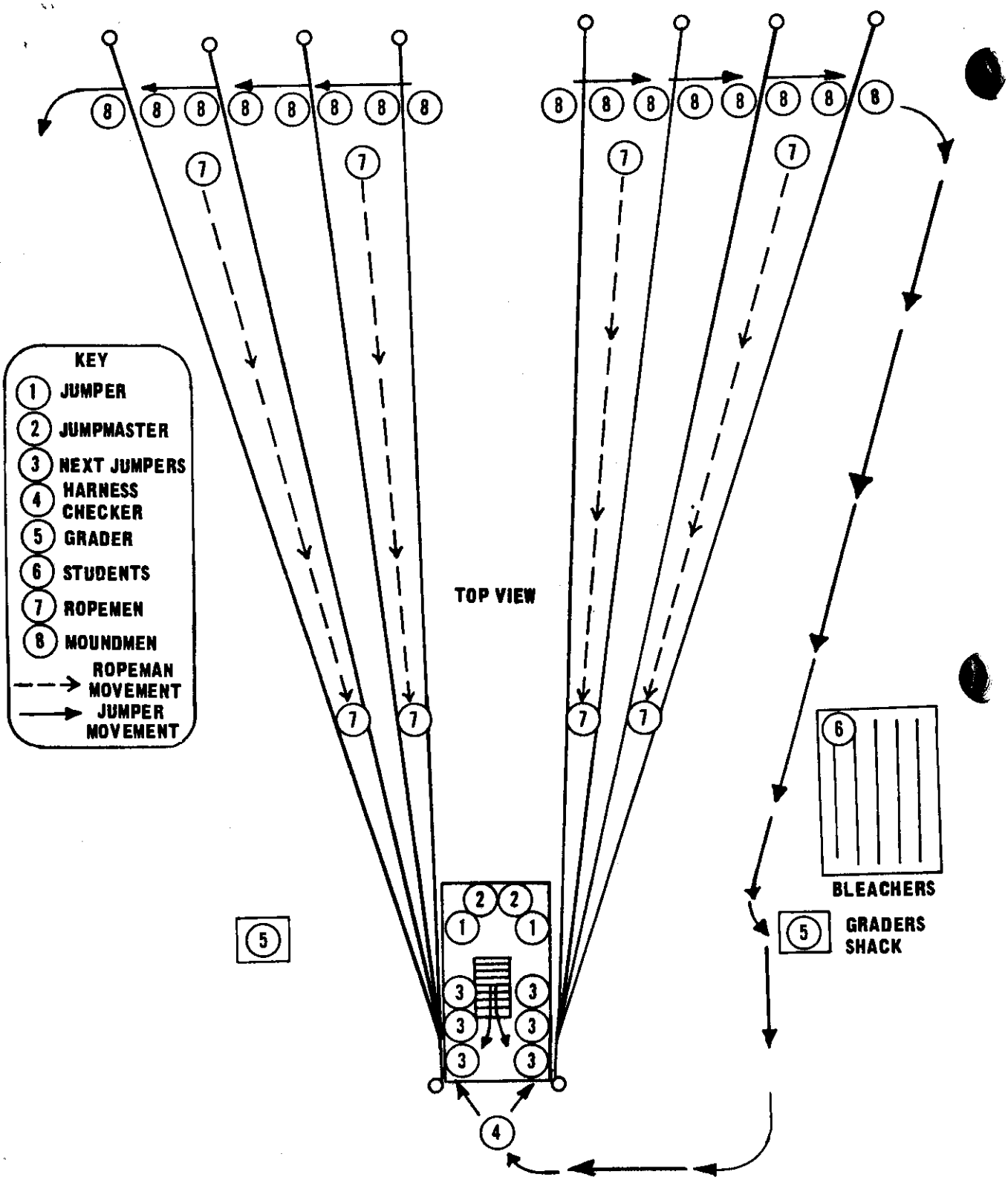


Figure 24. Positioning of personnel.

and the rope is attached to both sets of risers. He then awaits the command of the jumpmaster to return the trolleys to the tower. The jumpmaster unhooks the rope from the trolley and drops it the the rope man. He coils it around his hand and upper arm and runs back to the base of the mound. The rope men for each two points alternate in returning the trolleys to the tower.

(*b*) *Equipment.* One modified T–10 assembly with four risers per student. Tactical equipment and weapons may also be worn during advanced training from the 34-foot tower.

(3) *Training.* The initial period of instruction on the mock tower apparatus should include an orientation and demonstration on the operation of the 34-foot mock tower apparatus. This orientation should include the duties of the instructor personnel (the graders, jumpmasters, harness checkers) and the duties of all detail personnel required. Each individual student is given the commands STAND IN THE DOOR and GO by the jumpmaster in the tower. The student's body position, exit, 4,000-count, and simulated checking canopy is critiqued and graded by the grader.

(*a*) *Common errors made by students.*

1. Making a weak exit; falling, diving, stepping out, or shoving out with the hands rather than springing out.

2. Keeping the head up, knees bent, or holding the feet apart.

3. Grabbing the risers when leaving the door.

4. Placing hands on top of the reserve or wrapping the arms around the reserve.

5. Closing the eyes.

6. Making a slow or hurried count, or failing to count.

7. Failure to simulate checking the canopy or failure to keep a sharp lookout during descent.

(*b*) *Safety.* The mock tower apparatus presents no problems in safety providing that all personnel are continuously safety conscious and the following special measures are taken to prevent unsafe conditions.

1. Tower jumpmasters wear safety belts.

2. Jumpers have equipment adjusted properly, and are checked to insure a snug fit, absence of frays or tears, serviceability of snaps, and properly fitted helmet.

3. Freqnent inspections of the tower to include trolley risers, cables, trolleys, and proper adjustment of each.

4. Jumpers lift their legs as they get to the mound to prevent injury.

b. Advanced Training Phase.

(*a*) To give the student practice in exiting the aircraft using the mass exit technique.

(*b*) To teach the student to jump from an aircraft with combat equipment, using the mass exit technique.

(*c*) To teach the student to immediately activate his reserve for a parachute malfunction.

(2) *Personnel and equipment requirements.*

(*a*) Personnel requirements for the advanced training phase remain unchanged.

(*b*) Combat equipment is required for the students when participating in this phase of training. (Loaded personnel equipment containers can be used to train jumpers in the techniques of exiting with these type loads.)

(3) *Training.* The initial period of instruction during this phase of training should include a conference and demonstration on the mass exit technique. Only the first man in each stick receives the commands STAND IN THE DOOR and GO. All other students will exit at a 1-second interval. Combat equipment is attached to students after proficiency has been attained without it.

(*a*) *Common errors made by students.*

1. Placing the wrong foot or both feet in the door.

2. Grasping the reserve parachute in the door.

3. Failure to maintain a 1-second interval.

4. Improper body position caused by rushing.

5. Weak exits and failure to count.

6. Errors made in basic training phase also apply.

(*b*) *Safety.* Safety considerations for this phase of training are the same as the basic phase.

Section VII. SUSPENDED HARNESS TRAINING

22. General

The suspended harness apparatus is a modified T–10 parachute harness suspended from a spreader bar assembly by four web risers. The spreader bars react to riser manipulation much the same as the canopy does during an actual parachute jump (fig. 25).

23. Purpose

The suspended harness is designed to aid in the instruction of the third basic jump technique, control of the parachute during descent, and the third point of performance, keep a sharp lookout during descent (sec. II).

24. Conduct of Training

a. Training Objectives.

(1) To teach the student to execute a right and left body turn.

(2) To teach the student to execute each of the four normal slips.

(3) To teach the student to execute the four diagonal slips.

(4) To teach the student the three types of emergency landings.

b. Personnel and Equipment Requirements.

(1) *Personnel.* One principle instructor is required to give the commands and a minimum of one assistant instructor is required on each platform in use.

(2) *Equipment.* One modified T–10 harness assembly is required for each two students in training.

c. Training.

(1) *Organization for training.*

(*a*) Normally the platoon will be broken down into two-man teams. The No. 1 man will be the jumper, the No. 2 man will be the coach.

(*b*) Assistant instructors are assigned to each platform to control and supervise student performance.

(2) *Students' actions on the ramp.*

(*a*) Each jumper moves to an open point and gets into a parachute harness.

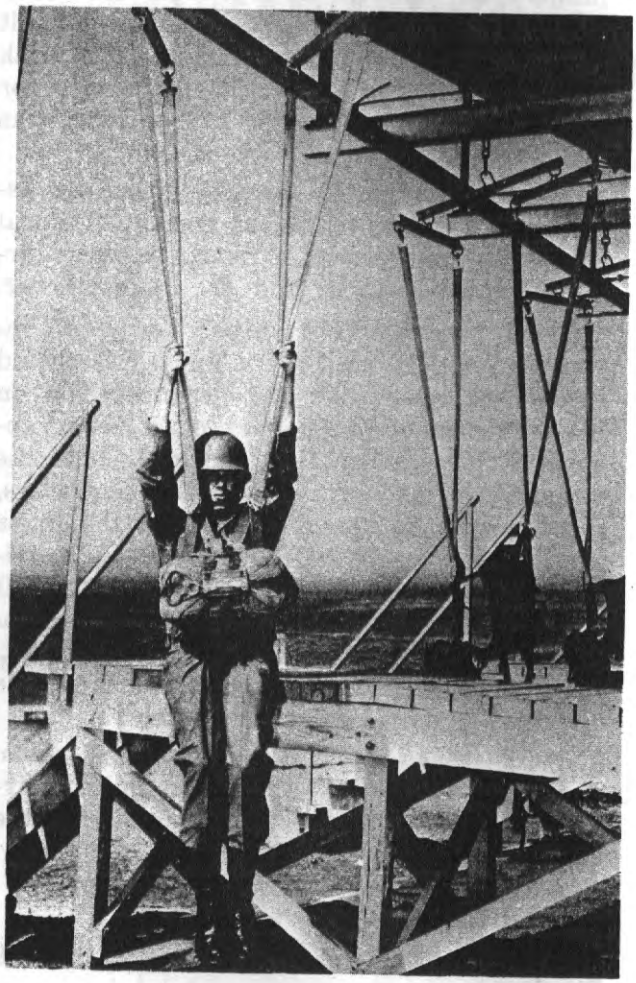


Figure 25. The suspended harness apparatus.

(*b*) The coach will assist the jumper getting into his harness.

(*c*) When ready to clear the platform, each student stands with his back to the edge of the platform and grasps all four risers.

(*d*) Each student then waits for further commands.

(3) *Sequence of commands to clear the platform.*

(*a*) *"Prepare to clear the platform."* On this command each student pushes off the platform, but keeps his feet on the edge of the platform.

(*b*) *"Clear the platform."* On this command each student snaps into a good, tight

body position and counts, "One-thousand, two-thousand, three-thousand, four-thousand."

(*c*) *"Check canopy."* On this command, given after each student is in a good tight body position, each student must throw his head back, arch his back, and simulate checking his canopy.

(*d*) *"Let up."* On this command each student will assume the let-up position (fig. 25).

1. When assuming the let-up position, the student insures that—

(a) His head is erect, eyes are on the horizon.

(b) His hands grasp the risers with the elbows locked.

(c) His back is straight.

(d) His feet and knees are together.

(e) His knees are slightly bent.

2. The let-up position is the starting position for all work on the suspended harness.

(*e*) *"Come to 'at ease' in the harness."* On this command each student comes to "parade rest" in the harness.

(4) *Sequence of commands to mount the platform.*

(*a*) *"Prepare to mount the platform."* On this command the students turn to face their platforms, and prepare for a slip to the front.

(*b*) *"Mount the platform."* On this command each student pulls down on the two front risers and pulls himself onto the platform.

Note. The last two commands are explained and demonstrated. The demonstrator is then told to "prepare to clear the platform" and to "clear the platform" so he can demonstrate body turns and slips.

d. Additional commands and instructions are given by the principal and assistant instructors as needed to insure the proper fitting, wearing, and removal of equipment and the proper performance of the students on the apparatus.

Section VIII. PARACHUTE LANDING FALL PLATFORM TRAINING

25. General

There are three types of parachute landing fall platforms: the 2-foot platform, the 4-foot platform, and the 2-foot inclined ramp. These devices can be either portable or permanently fixed. A soft landing area of sawdust or like material should be provided. Construction details for a parachute landing fall platform can be found in appendix B.

26. Purpose

These devices are used to aid in teaching front, side, and rear parachute landing falls. They provide height for the jumper thereby giving him a shock effect upon making contact with the ground. The ramp provides a means for gaining forward momentum and simulates the lateral movement that may be experienced from an actual jump. The parachute landing fall techniques are discussed in paragraph 8*e*.

27. Conduct of Training

a. General.

(1) The initial instruction for each of the parachute landing falls (front, rear, and side) should be given without the use of the platforms and using the two-man team system. Once the students have become familiar with the techniques, they will progress to the 2-foot and 4-foot platforms.

(2) Corrective assistance for students having problems on the platforms should initially be given on the ground. The student then should be returned to the platform for further training.

(3) The platform should be divided into dismount points. One instructor should control one point. Students are divided into groups so that there are not more than 20 students per point (fig. 27). On the command READY, the student assumes a descending attitude (arms up as grasping the risers, knees bent, head and eyes on the ground). On the command PREPARE TO LAND, the student assumes a good landing attitude. On the command LAND, the student jumps straight away from the platform, executes the fall, and makes a quick recovery. Each fall should be critiqued

immediately, emphasizing the significance of the five points of contact (fig. 26).

b. Two-Foot and Four-Foot Platforms. Training from these platforms should progress from the 2-foot platform to the 4-foot platform. The majority of the training should be conducted from the 4-foot platform since that apparatus more closely approximates the impact of an actual landing.

c. Two-Foot Inclined Ramp. The inclined ramp is a limited use apparatus in that it can only be used with the front landing fall. The student stands several feet from the end of the ramp. The same commands are used for the platform are given. On the command of LAND, the student runs up and off of the ramp, assumes the landing attitude and executes a right or left front landing fall.

d. Prejump Training. Prior to making a parachute jump, students should receive several refresher jumps from the platforms. Students should be required to make a satisfactory landing fall in each of the principal directions before they leave the platform area.

e. Critiques by Instructors. Parachute landing fall critiques must be brief, understandable, and emphasize the following points:

(1) Contort the body, forming an arc, *as you continue to fall.* The actions required *begin* when the balls of the feet touch the ground. Do not hesitate on the balls of the feet.

(2) Complete the fall by *rolling* in the direction of drift, rather than *laying* the points of contact on the ground.

(3) Lower the chin and tense the neck as the feet make contact with the ground. Keep tension in the neck *throughout the fall.*

(4) The twisting-bending motion begins in the hips and will push the knees around, exposing the calf and thigh, as the legs give with the impact.

f. Common Errors, Causes and Corrections.

ERROR	*CAUSE*	*CORRECTION*
Feet apart	Anticipation of landing. Looking at the ground.	Moderate tension in the legs. Press the legs together.
Drawing the legs up beneath the buttocks.	Anticipation of landing. Looking at the ground.	Moderate tension in the legs. Point the balls of the feet toward the ground. Proper landing attitude.
Missing contact with calf and thigh	Hesitation on balls of the feet. Straightening legs after absorbing impact. Failure to twist and bend sharply upon landing.	Do not hesitate. Continue to fall. Do not straighten the legs after absorbing landing impact. Bend and twist the torso vigorously upon contact. This motion will push the knees around and force the calf and thigh to the ground.
Knees into the ground	Hesitation upon landing. Bending forward. Knees relaxed excessively. Normally occurs on front fall.	Do not hesitate upon landing. Continue to fall. Apply the twisting-bending motion vigorously. Keep the legs moderately tense.
Elbow hits the ground	Leaning forward. Failure to twist torso. Breaking fall with elbow.	Twist and bend the torso upon contact. Pull the elbows up in front of the chest.
Head striking the ground	Failure to lower the chin and tense the neck. Missing points of contact.	Lower the chin and tense the neck. Twist and bend vigorously as you continue to fall. Keep tension in the neck throughout the fall.

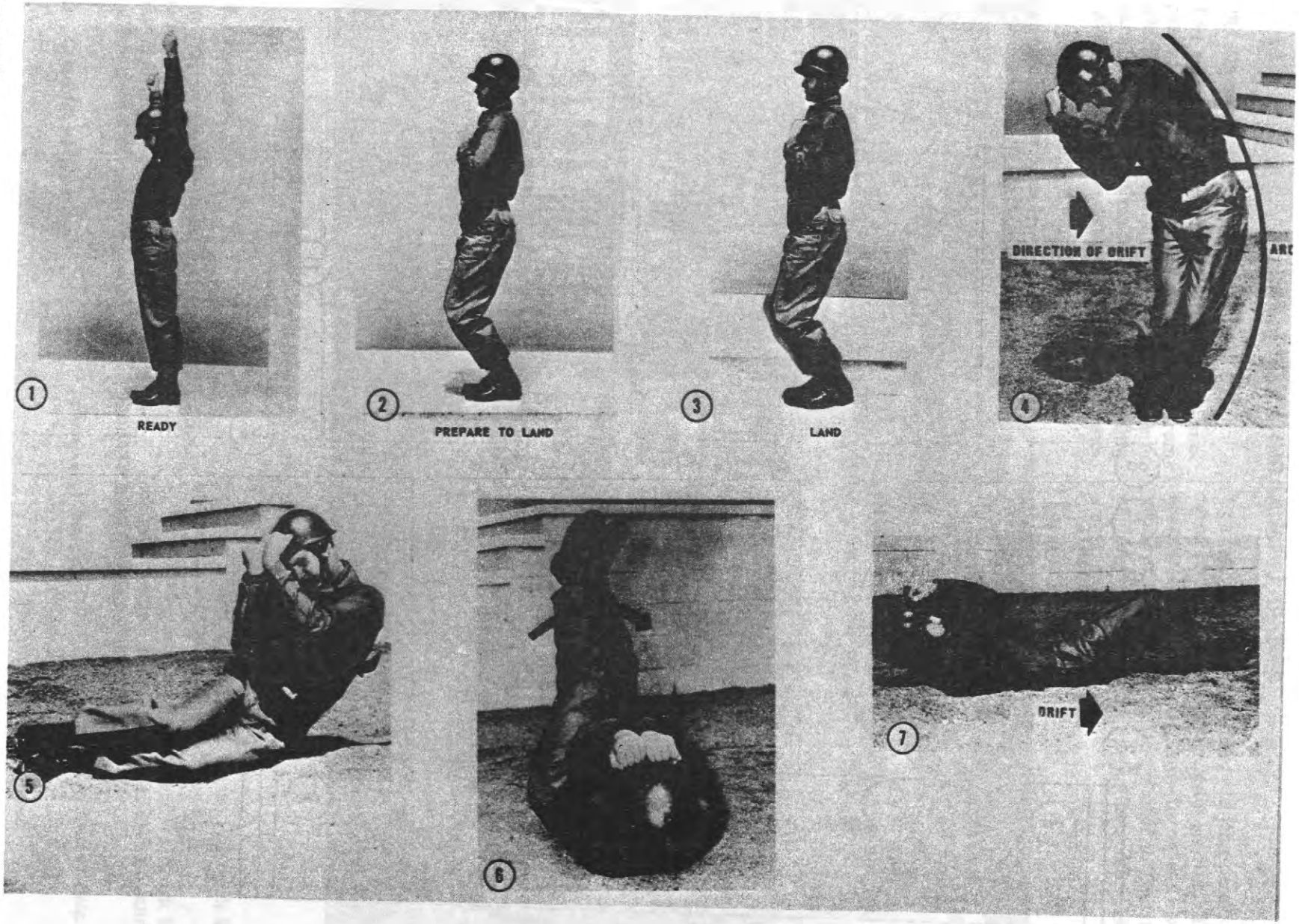
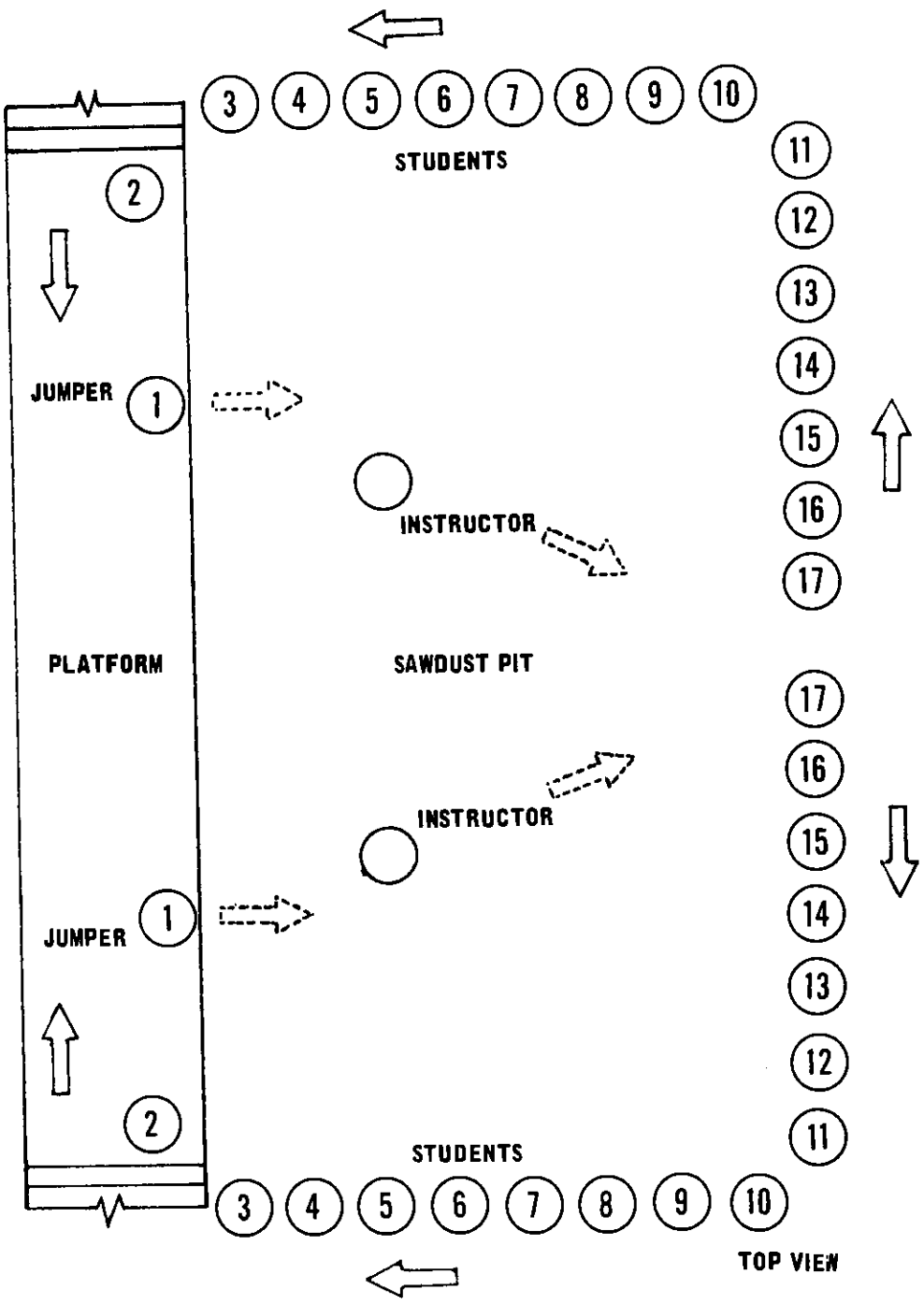


Figure 26. The parachute landing fall.



PARACHUTE LANDING FALL TRAINING

Figure 27. Positioning of personnel.

Section IX. SWING LANDING TRAINER

28. General

The swing landing trainer apparatus is suspended above a 12-foot high platform from which students, wearing a modified parachute harness, descend to practice parachute landing falls. The apparatus provides a downward motion and oscillation similar to that encountered during a real parachute landing. The suspension is so placed that the student will swing when he steps off the platform. The rate of descent is controlled by the instructor using a control line (fig. 28).

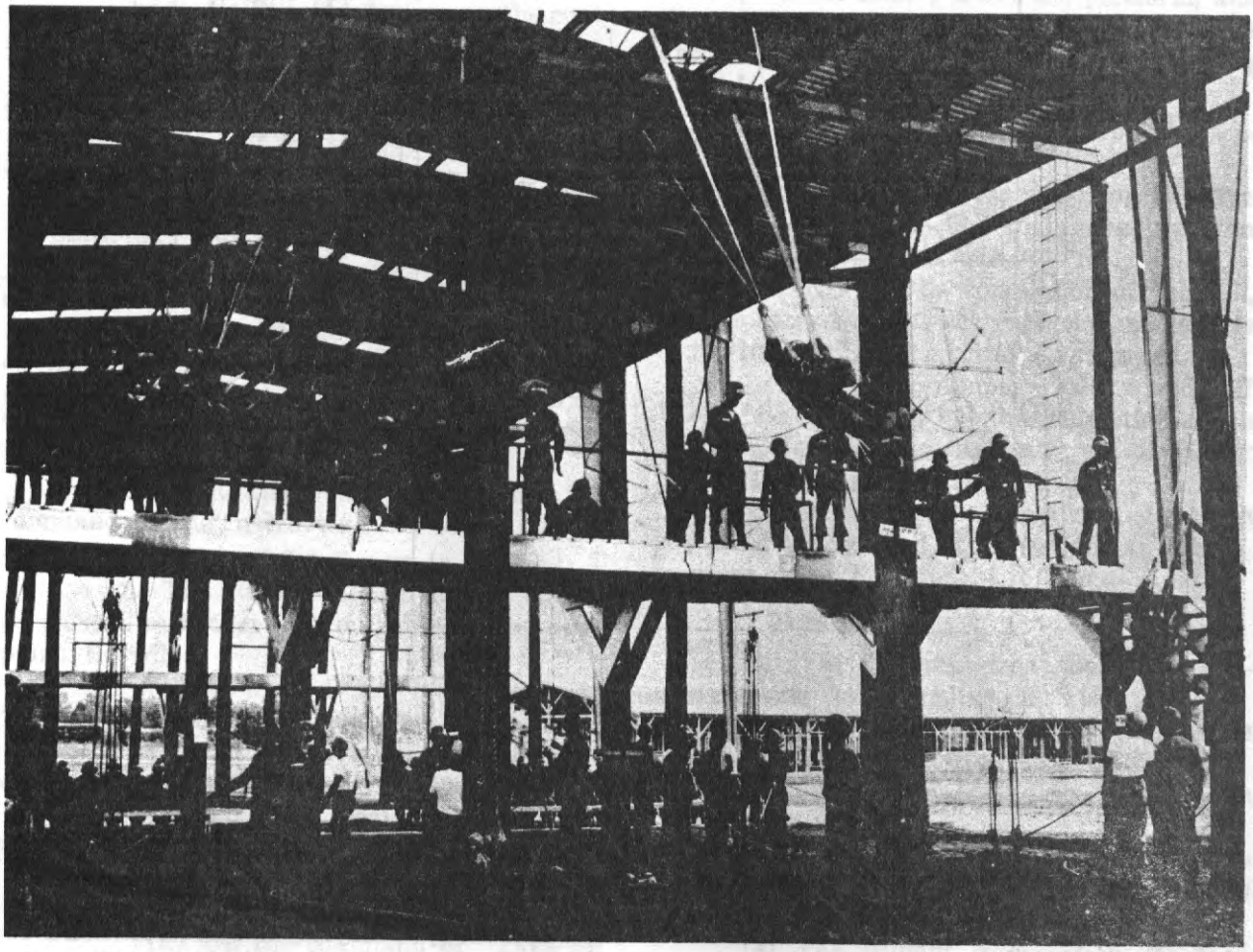


Figure 28. The swing landing trainer.

29. Purpose

The trainer provides practical exercises in the various parachute landing falls. The device may also be used to practice the last four of the five points of performance.

30. Conduct of Training

a. Training Objectives.

(1) To give the student practical work in assuming a good landing attitude.

(2) To give the student practical work in executing front, rear, and side parachute landing falls.

b. Personnel and Equipment Requirements.

(1) *Personnel.*

(*a*) One principal instructor.

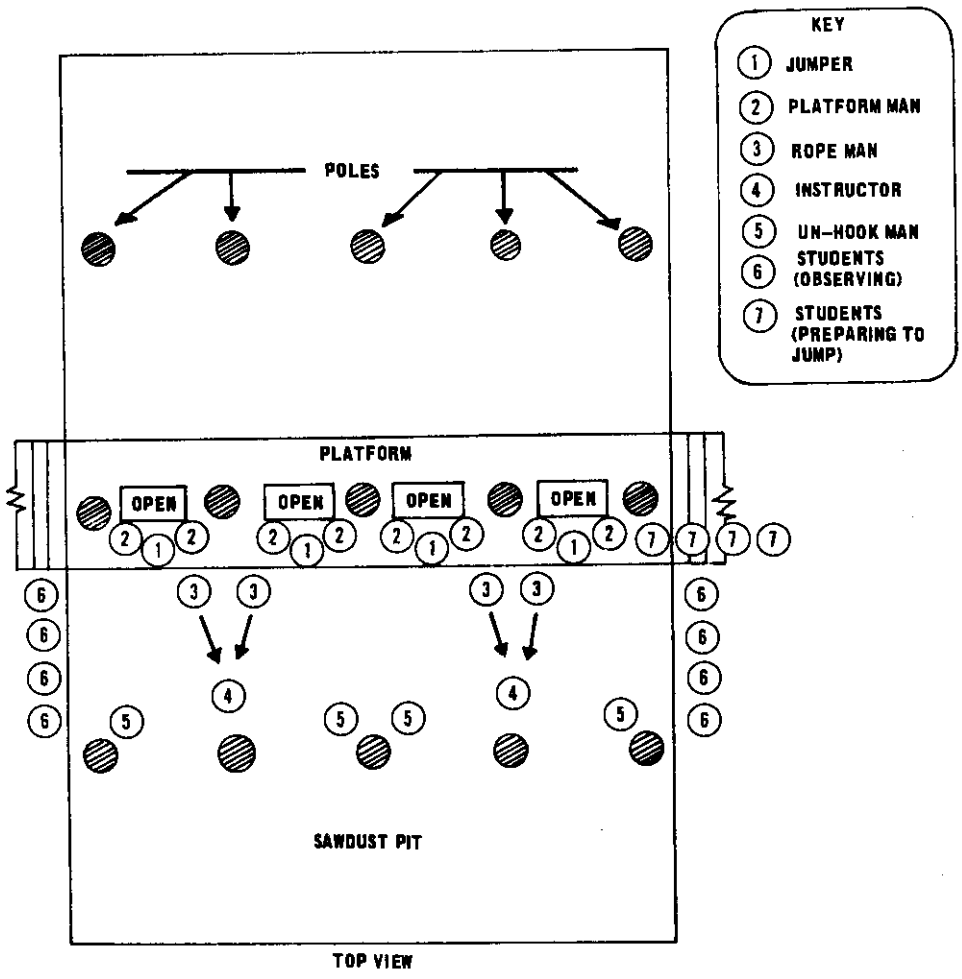


Figure 29. Positioning of personnel.

(*b*) One assistant instructor per two dismount points in use.

(*c*) Four detail men per point.

(2) *Equipment.*

(*a*) Sufficient harness for number of students.

(*b*) Sufficient combat gear rigged in H-harness for number of students.

c. Training.

(1) Operation of the swing landing trainer (fig. 29).

(*a*) Jumpers will—

1. Secure a harness and reserve parachute and put them on near the two harness racks.

2. Move to and mount the stairs at the assigned section.

Note. One man covers each open point. If a point is not open, the jumpers wait on the stairs. They stand on alternate steps on the stairs while waiting.

3. Jump from two even or odd points in a section. They will not change sections or switch sides of the apparatus unless directed by an instructor.

4. Be hooked up by detail men and will await commands of instructors.

(*b*) Duties of detail men on platform.

1. The stationary rope man on the platform will cover down on the stationary rope and will—

(a) Pull up the stationary rope with risers hooked to it.

(b) Unhook risers from the rope.

(c) Pass one set of risers to the hold man.

(d) Hook one set of risers to one of the jumper's canopy release assemblies.

(e) Grasp the diagonal backstrap of the jumper to prevent the jumper from clearing the platform before he is told to do so. The detail man must grasp the handhold with his free hand.

(f) Release the jumper on the command of the instructor.

2. The hold man on the platform will cover down beside the padding. He will allow a space for the jumper between him and the stationary rope man and will—

(a) Receive one set of risers from the stationary rope man.

(b) Hook the risers to jumper's canopy release assembly.

(c) Grasp the diagonal backstrap of the jumper to prevent the jumper from clearing the platform before he is told to do so. The detail man must, with his free hand, grasp the handhold.

(d) Release the jumper on the command of the instructor.

(*c*) Duties of detail men in the pit:

1. The unhook man in the pit stands at parade rest near the outside pole at each point. He will—

(a) Command the rope man to "take up the slack, rope man."

(b) Unhook the jumper from the risers after each fall.

(c) Hook the risers to the stationary rope, and return to his post.

2. The rope man in the pit stands underneath the platform. He will—

(a) On the command of "Take up the slack, rope man," grasp the rope in both hands and pull up all the slack in it. He moves toward the instructor while taking up the slack.

(b) Give the rope to the instructor when so commanded, and will then return to his post.

(*d*) Actions of the instructor.

1. When ready to drop a student, the instructor will take the rope from the rope man and will tell the jumper his direction of drift before telling him to "Clear the platform."

(a) The detail men on the platform release the jumper.

(b) The jumper executes a half chin-up on his risers, clears the platform, and then takes a slip to counter direction of drift and prepares to land by taking up the landing attitude.

2. The instructor will drop the student, critique, and grade him.

(a) The jumper will know the type of fall he will make due to his having been given the direction of drift.

(b) At the completion of the fall, the jumper makes a quick recovery and reports to the instructor for a critique and grade.

(c) The jumper will sound off "Clear" or "Not clear" at the completion of the critique. He then moves directly out of the pit to avoid other jumpers.

(d) Detail men perform duties in sequence as described in (1)(*b*) and (*c*) above, to prepare another student to jump.

(2) *Safety.*

(*a*) The landing area should be constructed of sawdust or like material.

(*b*) The ropes used on the apparatus should be checked daily for wear.

(*c*) Spreader bars and risers should be checked for wear.

(*d*) Harnesses and canopy release assemblies should be checked for completeness and serviceability.

(*e*) The student must not be dropped at a height exceeding 5 feet.

(*f*) The student must not be dropped on the initial oscillation or when he is obviously unprepared for the fall.

(*g*) The student should be dropped at a point in his oscillation which will enable him to execute the desired parachute landing fall.

Section X. METHODS OF RECOVERY

31. General

When winds are strong on the drop zone it is possible for a jumper to be dragged after landing unless he can execute a recovery. This section discusses the methods of recovery: quick recovery, canopy assemblies, and the various apparatus used to teach parachutists these techniques.

32. Purpose

The methods of recovery provide the parachutist with the knowledge and ability to recover from a landing fall.

33. Conduct of Training

a. Training Objectives.

(1) To enable the student to perform a quick recovery.

(2) To enable the student to perform the buddy-assist method of recovery.

1 Raise the canopy release covers

Figure 30. Activation of the canopy release assemblies.

2 Grasp the safety clips

Figure 30—Continued.

(3) To enable the student to properly use the canopy release assemblies of his T–10 parachute harness. In addition, he is taught the correct methods of assembly and disassembly of the canopy release assembly.

(4) To enable the student to react properly when using the various recovery training apparatus.

b. Personnel and Equipment Requirements.

(1) *Personnel.*

(*a*) One principal instructor.

(*b*) Assistant instructors sufficient for size of class.

(2) *Equipment.*

(*a*) Sufficient T–10 parachute assemblies for size of class.

(*b*) Drag bar(s) (fig. 32).

(*c*) Wind machine(s) (fig. 32).

c. Training.

(1) *Quick recovery method.* This method

3 Release safety clips by pulling out and away from the body

Figure 30—Continued.

of recovery means that a parachutist gets to his feet as quickly as possible after landing and runs into and around his canopy to collapse it. The parachutist is always taught to make a quick recovery, if possible, after making contact with the ground. This method is constantly emphasized in all airborne training.

(2) *Buddy-assist method.* One parachutist grasps the apex or skirt of the canopy of the jumper being dragged, pulls the canopy into the wind, and collapses the canopy.

(3) *Canopy release assemblies.*

(*a*) *Activation* (fig. 30).

1. The protective covers are removed during descent.

2. Pull the metal safety clip out and away from the body.

3. Release the canopy by depressing the latch release buttons with the thumbs and index fingers and at the same time pull out and away from the body.

(*b*) *Reassembly* (fig. 31).

1. Insure that the risers are not twisted.

2. Place the heel of the male fitting into the groove of the assembly body.

3. Rotate the end of the male fitting into position, closing the latch, and closing the safety clip.

4. Fit the cloth protective covers over the canopy release assemblies.

Note. Jumpers should attempt to get onto their backs prior to activating the assemblies if possible.

Note. On a jump, if the canopy releases are activated, they must not be reassembled. This will be done by parachute maintenance.

(4) *Methods of activating canopy release assemblies.*

(*a*) *The crossarm method.*

1. Place the right hand on the left canopy release assembly and the left hand on the right canopy release assembly.

2. Activate the assemblies.

3. This is the preferred method of releasing the canopy, because the jumpers' elbows are not exposed to the ground.

(*b*) *Hand-to-shoulder method.*

4 Reposition the hands on the assemblies, thumb and index fingers on the latch release buttons

Figure 30—Continued.

5 Pressing in on the latch release buttons, pull out and away from the body, separating the assemblies

Figure 30.—Continued.

1. Place the right hand on the right canopy release assembly and the left hand on the left canopy release assembly.

2. Activate the assemblies.

3. This is a satisfactory method of releasing the canopy.

(*c*) *The alternate method.*

1. Place both hands on one canopy release assembly.

2. Activate the canopy release assembly by using the index finger and the thumb of both hands on one canopy release assembly.

3. If the canopy does not collapse immediately, activate the other canopy assembly in the same manner.

(5) *Dragging apparatus.* There are three principal dragging apparatus used in teaching students how to activate their canopy release assemblies. They are the hand-towed drag bar, the vehicle-toed drag bar, and the wind machine (fig. 32).

(*a*) *The hand-towed drag bar.* This device is made of two pieces of webbing attached to a metal bar with a loop on each end. Attached to the bar are two risers and the male portions of the canopy release assemblies.

1. Students work in three-man teams with the drag bar.

(a) The No. 1 man is the jumper. He wears the drag harness.

(b) The No. 2 and No. 3 men are the drag men.

(c) The drag men are responsible for the reassembly of the canopy release assemblies after each drag.

2. Operation of the drag bar.

(a) The No. 1 man puts on the harness, attaches his risers to the drag bar, and then lies down on his back.

(b) On the command "Prepare to drag" the No. 1 man places his chin on his chest, reaches high on both sets of risers, and raises his feet 6 inches off the ground.

(c) On the command "Drag" the No. 2 and No. 3 men drag the No. 1 man.

(d) On the command "Release" the No. 1 man reaches down and activates his canopy release assemblies, using the prescribed method.

(e) The three men immediately return to the starting line. The No. 2 and No. 3 men hook up the jumper to the drag bar.

(f) This procedure continues until each jumper becomes proficient in all three methods.

(g) At the command "Change over" the No. 2 man becomes the jumber (No. 1), and the No. 3 man becomes the No. 2 man, and the jumper becomes the No. 3 man.

(*b*) *The vehicle-towed drag bar.* The vehicle drag bar is mounted on wheels and should be capable of towing at least three parachutists. Procedures for using this device are similar to those for the hand-towed bar.

(*c*) *Wind machine.*

1. The wind machine is used to teach the student to activate the canopy release assemblies under more realistic conditions.

2. The wind machine consists of a vehicle chassis and engine, with a 6-foot propeller, mounted on the chassis. This machine creates a narrow channel of wind with a maximum velocity of 35 miles per hour.

3. The wind machine is used to approximate the effect that high ground winds have on the parachute after landing.

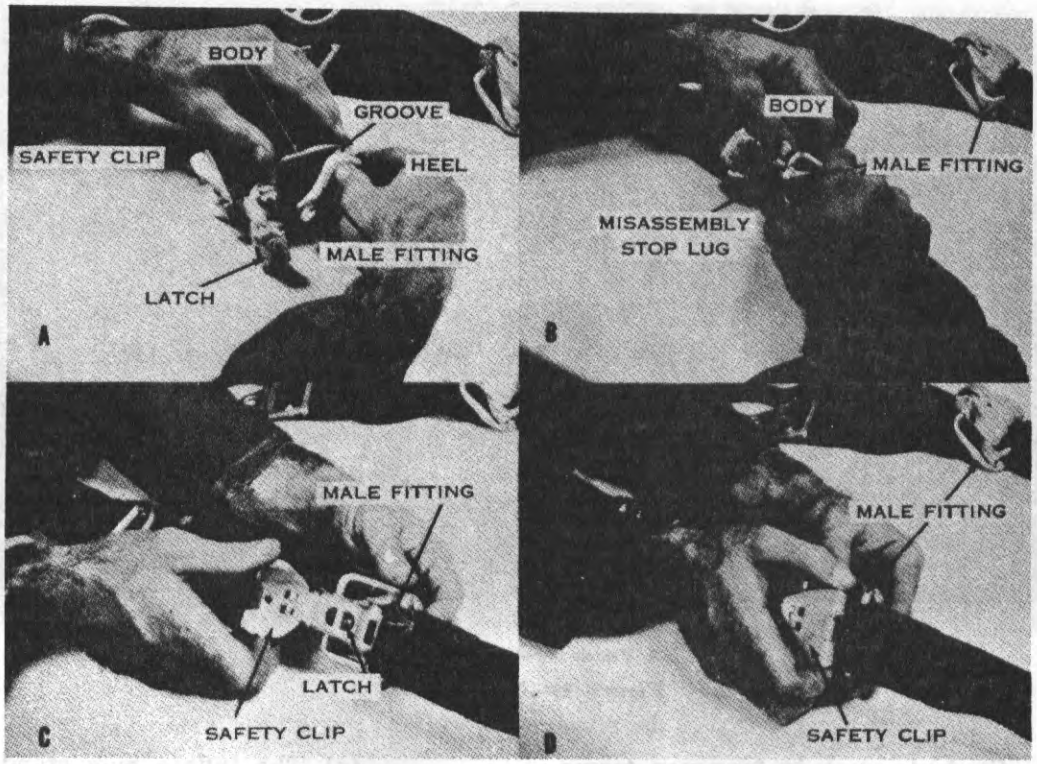
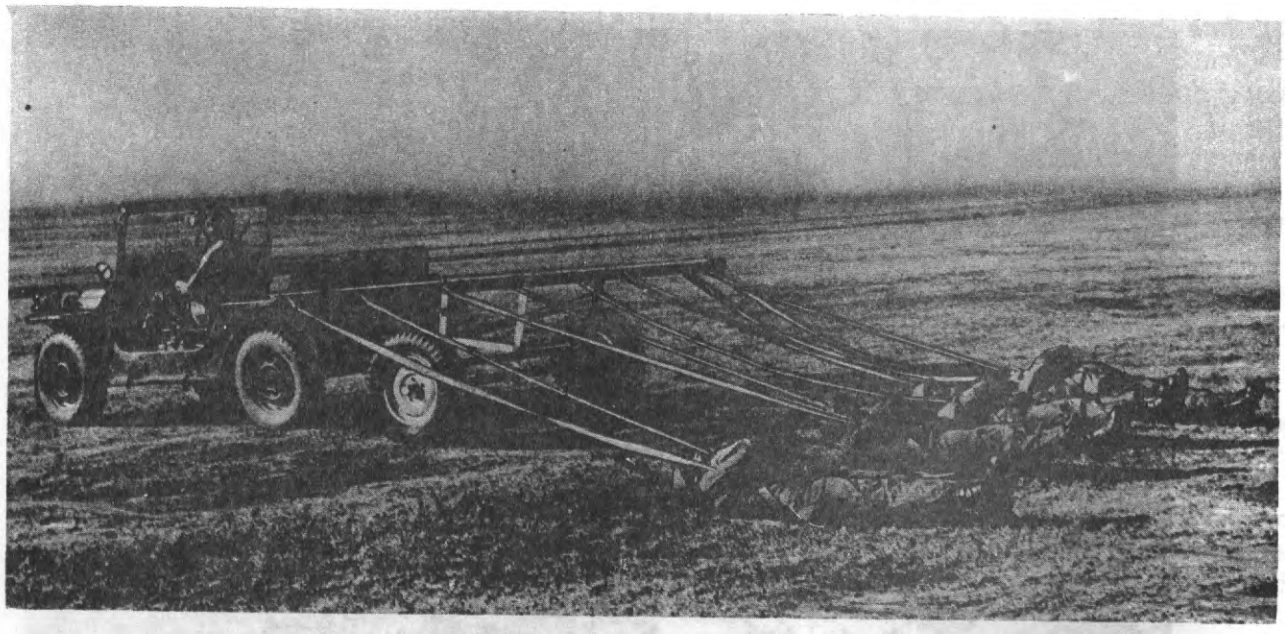


Figure 31. Reassembly of canopy release assembly.

1 Hand-towed drag bar

Figure 32. Ground training.



2 Vehicle-towed drag bar

Figure 32—Continued.

4. Students work in four-man teams when using the wind machine.

(a) The No. 1 man is the apex man.

(b) The No. 2 and No. 3 men are the inflate men.

(c) The No. 4 man is the jumper.

5. The following actions are taken before the jumper moves behind the wind machine for his drag:

(a) The jumper puts on his harness and hooks himself up to the risers assisted by the inflate men.

(b) The inflate men grasp all suspension lines and move from the jumper to the skirt of the canopy, removing all tangles and twists from the suspension lines as they go.

(c) At the skirt of the canopy the inflate men drop all suspension lines except three. They hold on to one suspension line each and keep one suspension line between them.

(d) The apex man assisted by the jumper keeps the canopy extended and taut.

6. Operation of the wind machine.

(a) On command, the team moves behind the wind machine keeping the parachute extended.

(b) The jumper lies down behind the wind machine.

(c) The inflate men stand at the skirt of the canopy and keep one other suspension line between the two which they hold.

(d) The apex man keeps the parachute extended directly behind the wind machine.

(e) As soon as the canopy is inflated and begins to drag the jumper, the jumper puts his chin on his chest, and lifts his feet approximately 6 inches off the ground.

(f) The No. 2 and No. 3 men tap the jumper on the helmet as he passes them. The No. 2 and No. 3 men must make sure not to drop their suspension lines.

(g) When the jumper is tapped on the helmet, he activates his canopy release assemblies.

(h) Upon recovery of the parachute, the apex man folds the canopy into a figure eight. He does this in the following manner:

1. Holds the bridle loop of the canopy in one hand and places the thumb through the loop.

2. Spreads both arms and folds the canopy into a series of figure eights down to the suspension lines.