TECHNICAL MANUAL

OPERATOR'S MANUAL

FOR

PARACHUTE PERSONNEL, TYPES 28-FOOT-DIAMETER BACK, 28-FOOT-DIAMETER CHEST, NB-8 BACK AND MARTIN-BAKER EJECTION SEAT HARNESSES

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope.

This manual contains instructions for the use by the operator of personnel type parachutes for emergency purposes while flying in Army aircraft. The various type parachutes covered are the 28Foot Diameter Back, 28-Foot Diameter Chest, and the NB-8 Back. Also covered in the manual is the Martin-Baker Ejection Seat Harness.

1-2. Reporting of Equipment Manual Improvement.

Reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Aviation Systems Command, ATTN: AMSAV-FR, PO Box 209, St. Louis, MO 63166.

Section II. DESCRIPTION AND DATA

1-3. Description.

The 28-foot back (fig. 1-1), 28-foot chest (fig. 12), and NB-8 back (fig. 1-3) personnel parachute assemblies are similar in most respects. Each of the three parachutes consists of a flat circular 28foot diameter canopy, a pack assembly, a harness assembly and the canopy is deployed by manual activation of a ripcord. The chest-type parachute differs from either of the back-type parachutes because the pack assembly is located on the front of the harness and is detachable. The 28-foot chest parachute is normally used in aircraft with limited interior room. The only noticeable difference between the 28-foot back and the NB-8 back parachutes is the profile of the pack. The NB-8 pack offers a smaller profile and is more compact than the standard 28-foot pack. The Martin-Baker Parachute Adjustable Ejection Seat Restraint Harness for OV-1 Aircraft (fig. 1-4) is similar to the 28-Foot Back Type Parachute Harness (fig. 1-1) except that the parachute canopy is contained in the ejection seat and is attached to the harness after the occupant is seated in the aircraft. The accessory attachment rings (fig. 1-4) on the right and left side are used for seat belt attachments. The fitted parachute and ejection seat restraint harness is shown in Fig. 1-5. These harnesses are available in eight different sizes and are fitted to each OV-1 aircrew member which becomes a part of each aircrew member's personal equipment. Fitting instructions are detailed in Chapter 2. A further description of the personnel parachute components is as follows:

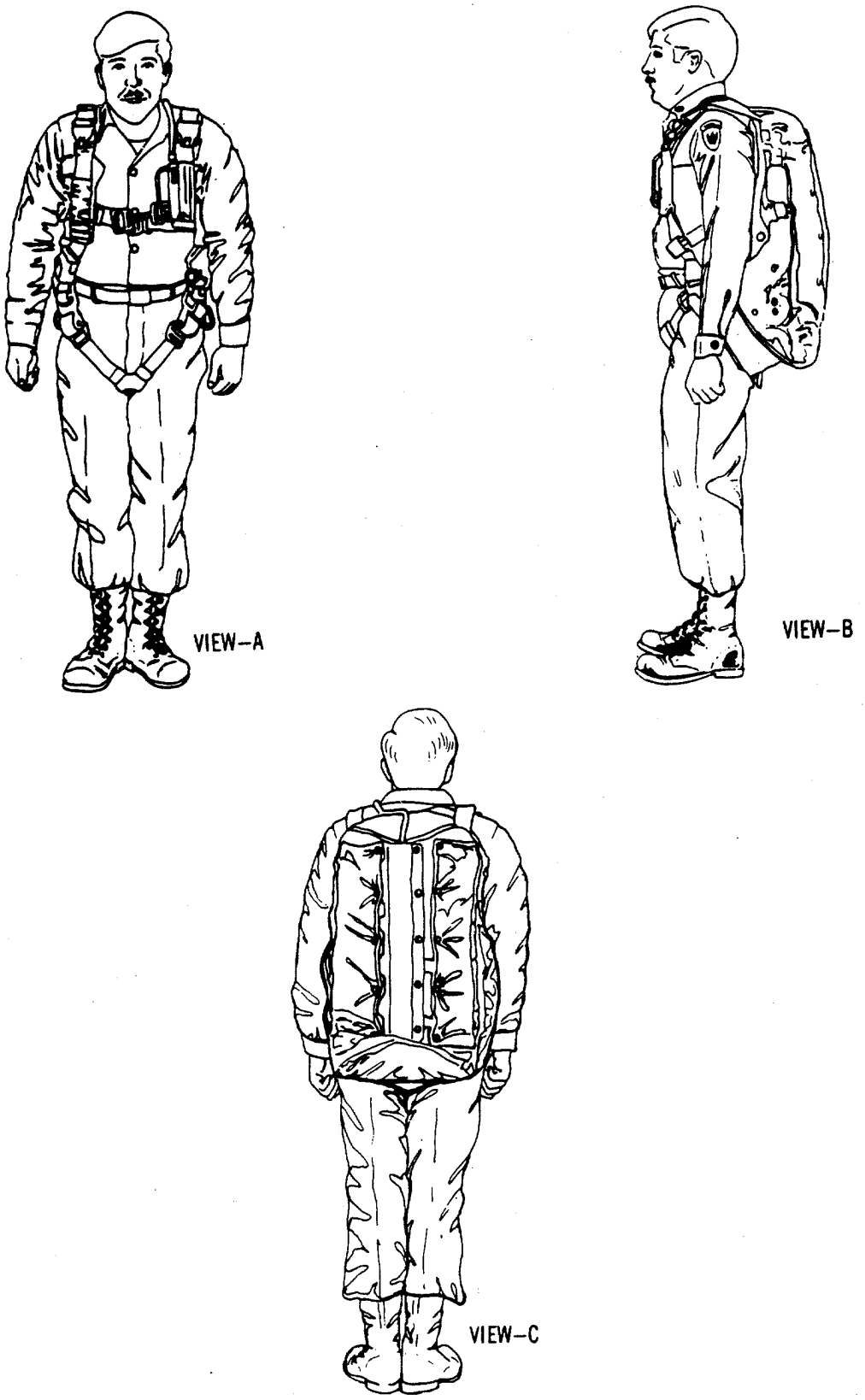


Figure 1-1. The 28-Foot Back Personnel Parachute.

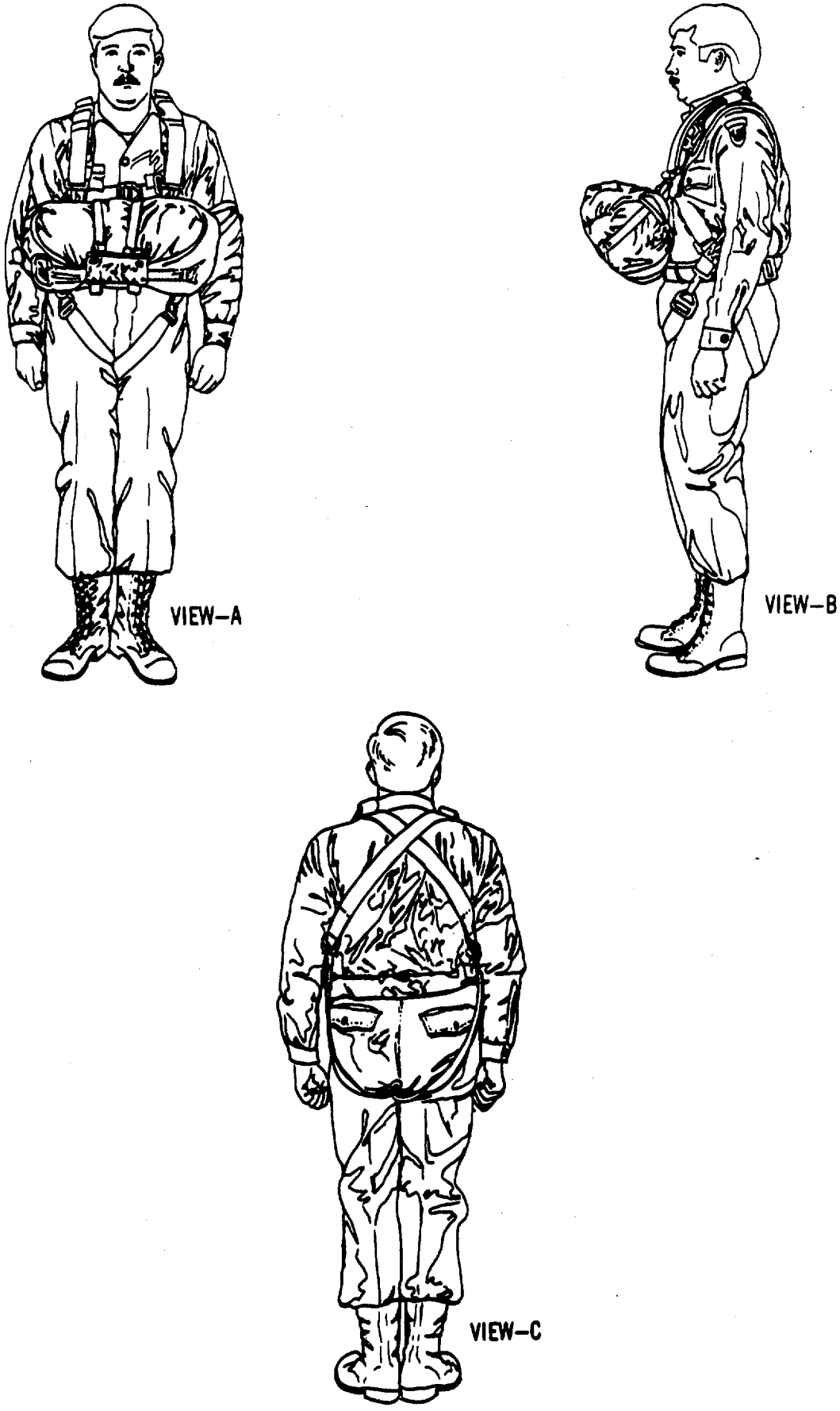


Figure 1-2. The 28-Foot Chest Personnel Parachute.

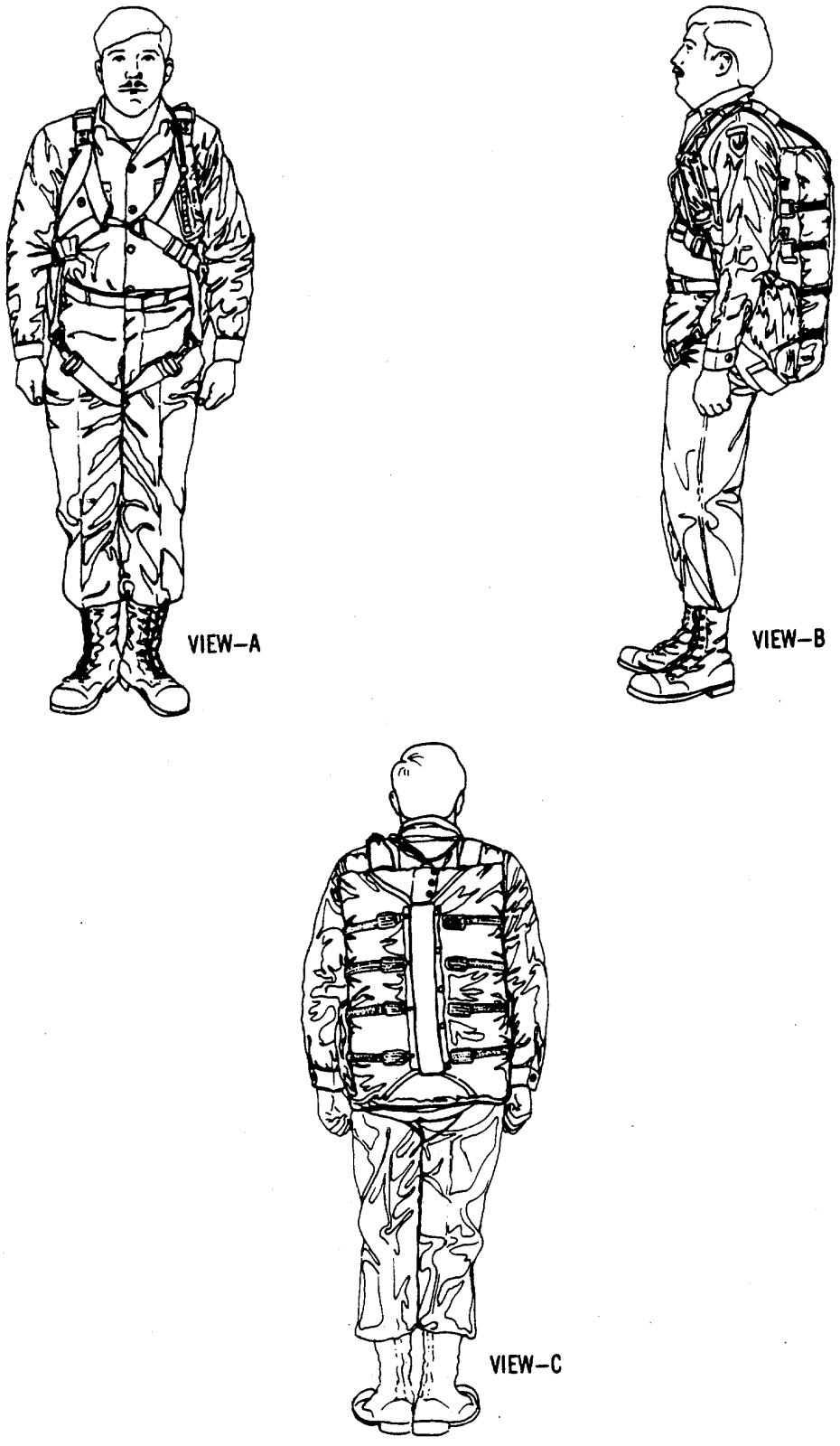


Figure 1-3. The NB-8 Back Personnel Parachute.

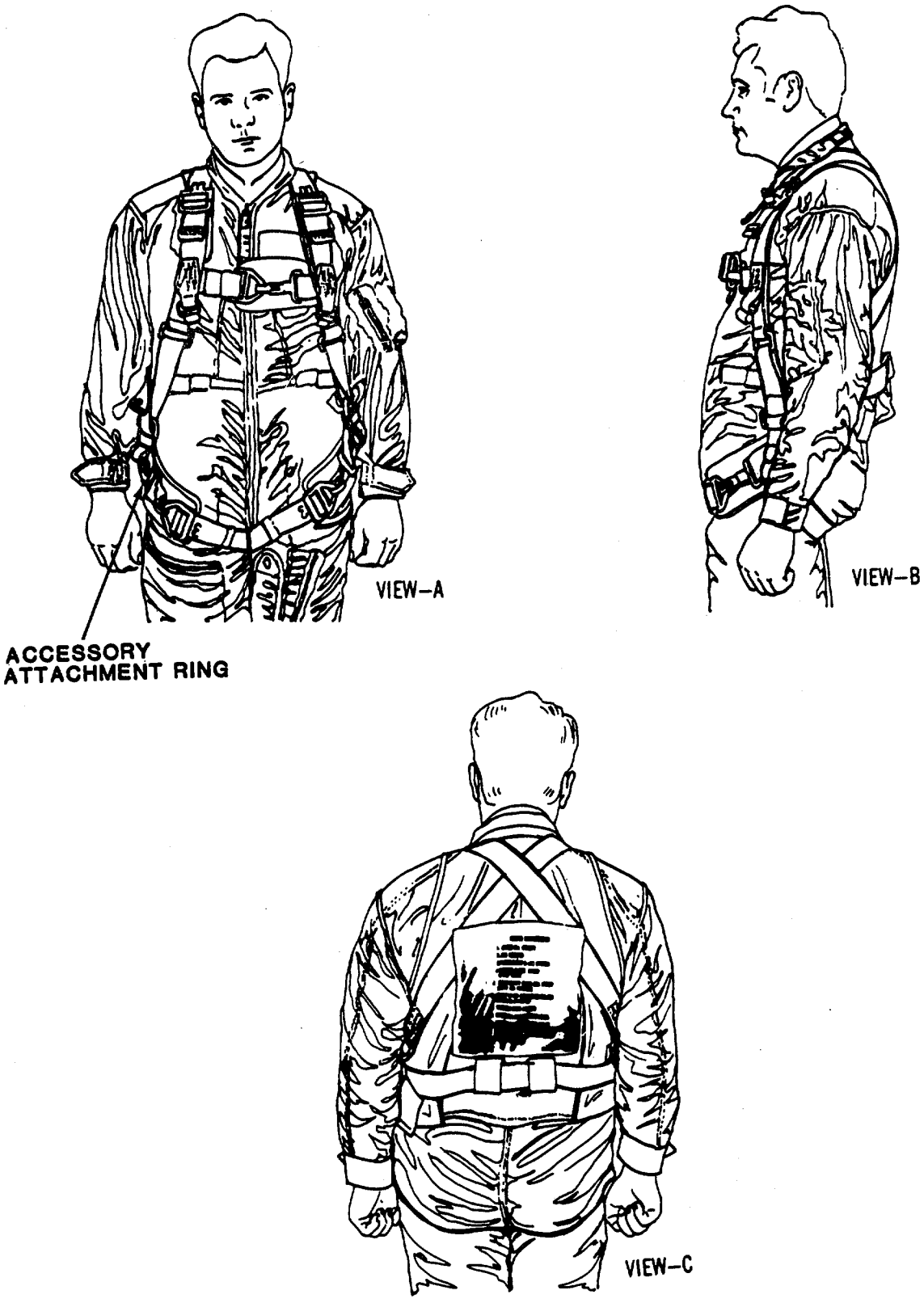


Figure 1-4. Adjustable Parachute Ejection Seat Restraint Harness for OV-1 Mohawk.



Note. Side and back views for fitted harness are similar to the adjustable harness.

Figure 1-5. Fitted Parachute and Ejection Seat Restraint Harness for OV-1 Mohawk.

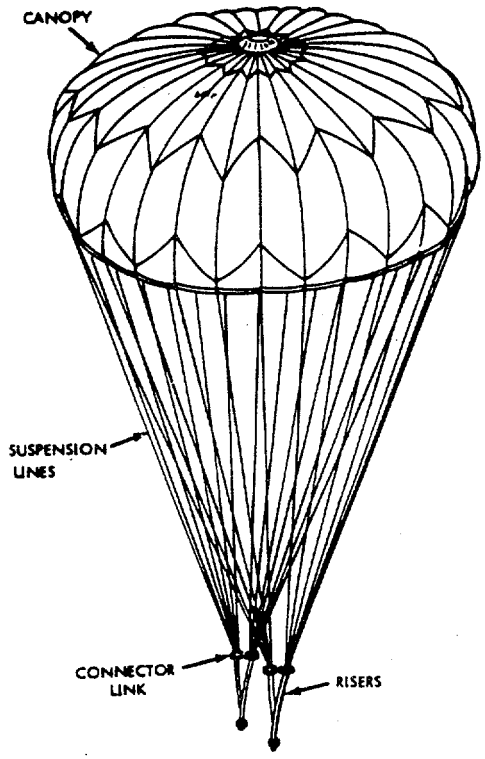


Figure 1-6. The 28-Foot Back and NB-8 Back Emergency Parachute Canopy and Riser Assemblies.

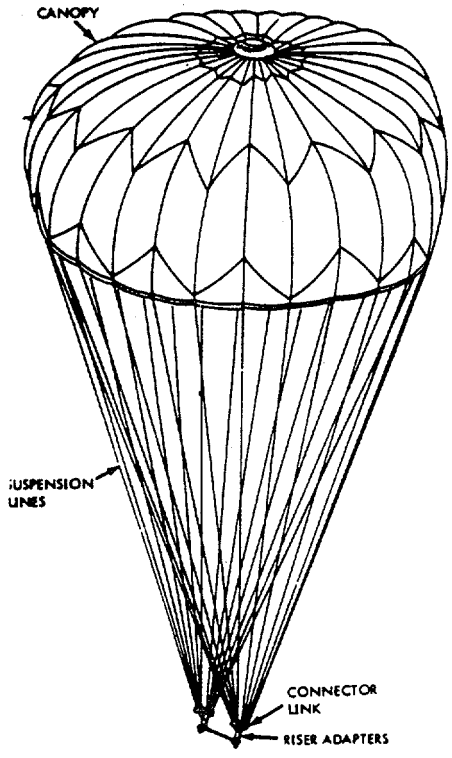
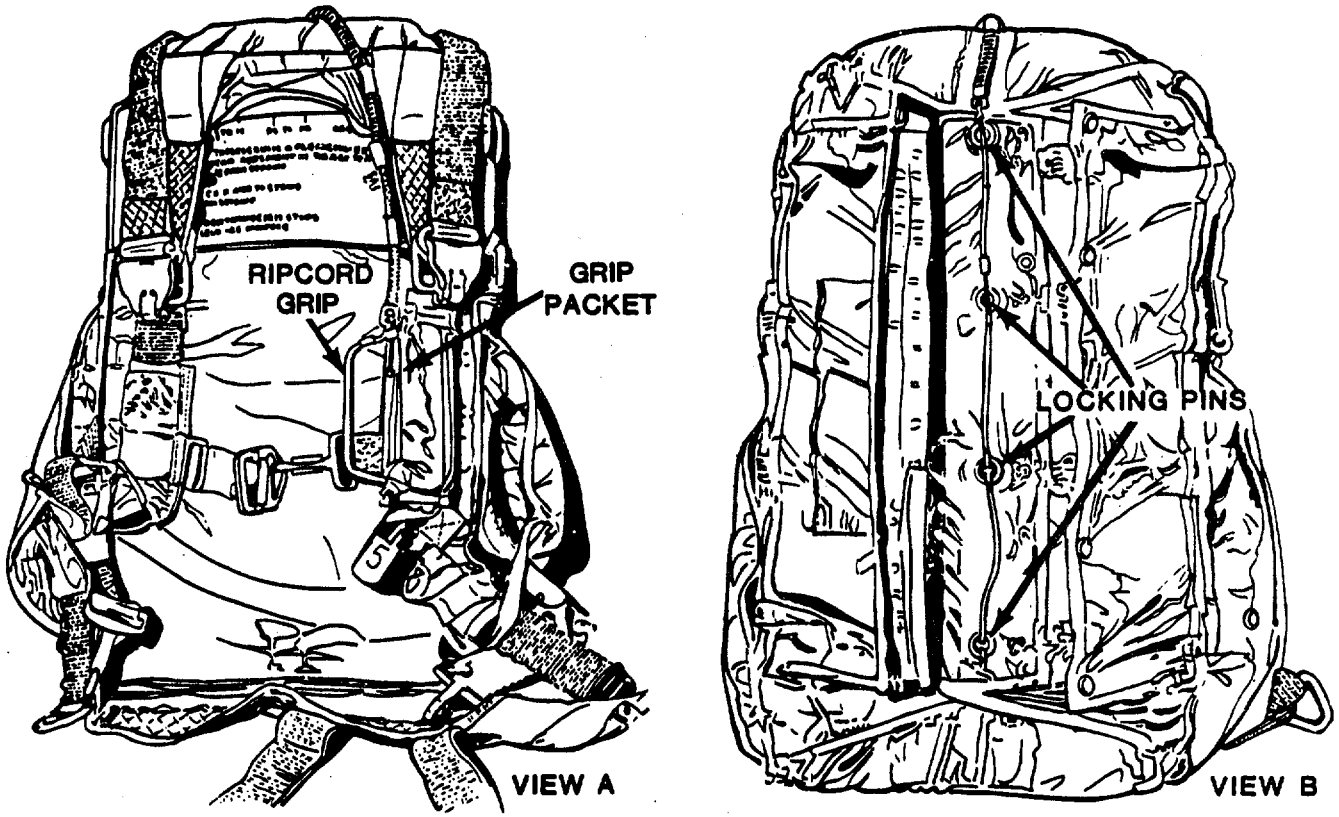


Figure 1-7. The 28-Foot Chest Parachute Canopy and Riser Adapters.

a. The Parachute Canopy. The parachute canopy (figs. 1-6 and 1-7) is made of 1.1 ounce ripstop nylon and has 14 continuous type III nylon canopy lines. The canopy lines run continuously from a connector link, through the parachute canopy to an opposite connector link.

b. Riser Assemblies. Each personnel parachute has two nylon riser assemblies (fig. 1-6) which form a part of the harness assembly. Each riser is equipped on one end with a male fitting for the canopy release; except on the NB-8 parachute which is not equipped with canopy release assemblies. On the back type parachutes, the opposite end of each riser is attached to a suspension line connector link. Each of the two risers used on the chest type parachute has a riser snap fastener located on the end opposite the canopy release male fitting. The riser snap fasteners are attached to the riser adapter dee rings located on the chest pack assembly.

c. Ripcord. The ripcord is a cadmium-plated steel grip and a flexible cable to which 1-1/2 inch steel locking pins are attached. A back type parachute is equipped with a trapezoided shaped grip and four locking pins (fig. 1-8). The chest type parachute uses a cloverleaf shaped grip and two locking pins (fig. 1-9). The grip of a back type parachute is positioned in a sewn pocket on the upper left side of the harness and the grip of the chest type parachute is located on the right side of the pack. Pulling of the ripcord will begin the pack opening and canopy deployment sequence.



View A–Ripcord grip installed in pocket.

View B–Locking pins installed.

Figure 1.8. Ripcord Grip Installed in Pocket and Locking Pins Installed.

d. Canopy Release. A canopy release (fig. 110) is located at the top left and right front side of each parachute harness, except the NB-8 harness. The device connects the harness main lift web to the riser assembly and is operated manually. The canopy release is designed to permit immediate detachment of the canopy when landing in wind or water.

e. Koch Type Canopy Release. This canopy release assembly (fig. 1-11) is used on the adjustable and fitted Martin-Baker parachute ejection seat restraint harness. A release assembly is located at the top left and right front side of each parachute harness. The device connects the harness main lift web to the riser assembly and is operated manually. The canopy release is designed to permit immediate detachment-of the canopy when landing in high winds or water, which is shown in (View A, B, and C, fig. 2-25).

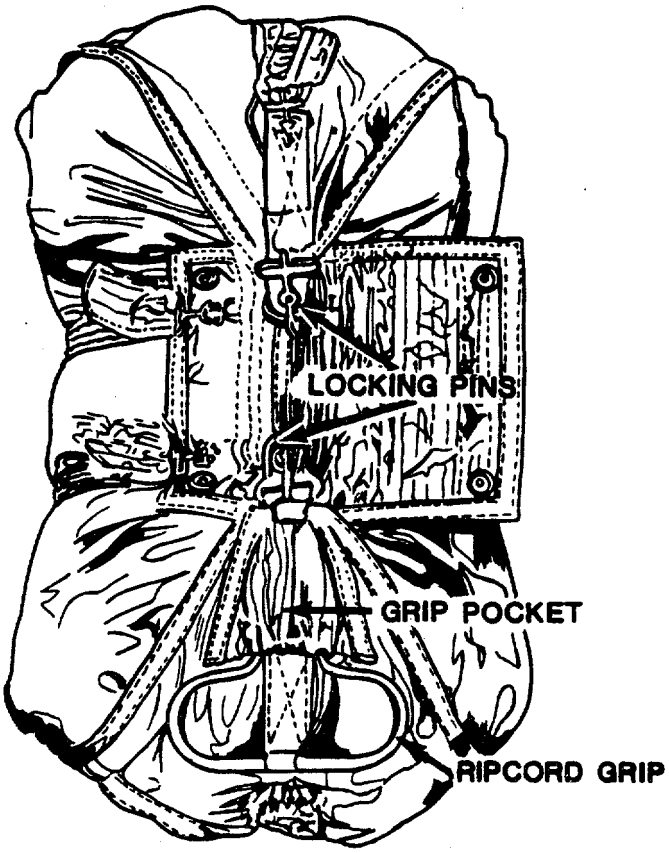


Figure 1-9. The Chest Type Parachute With Ripcord Grip and Locking Pins Installed.

NOTE

The NB-8 thin pack parachute is not equipped with canopy releases.

1-4 Tabulated Data.

a. The 28-Foot-Diameter Back Parachute Assembly.

Canopy shape	Flat circular
Canopy diameter	28 feet
Number of canopy lines	14
Number of locking pins	4
Packed weight	28 pounds

b. The 28-Foot-Diameter Chest Parachute Assembly.

Same as In a above except for:

Number of locking pins	2
Packed weight	25 pounds

c. The NB-8 Back Parachute Assembly.

Same as in a above.

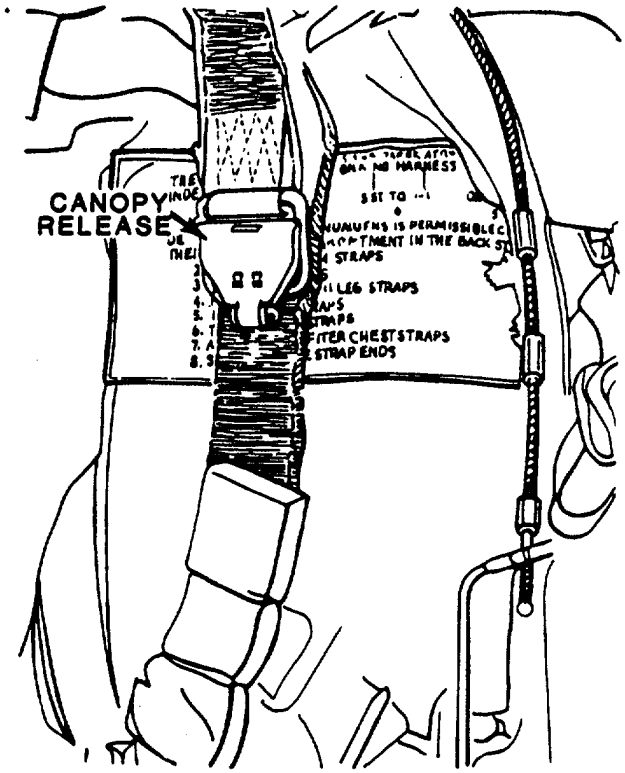


Figure 1-10. Canopy Release Assembly, Typical.

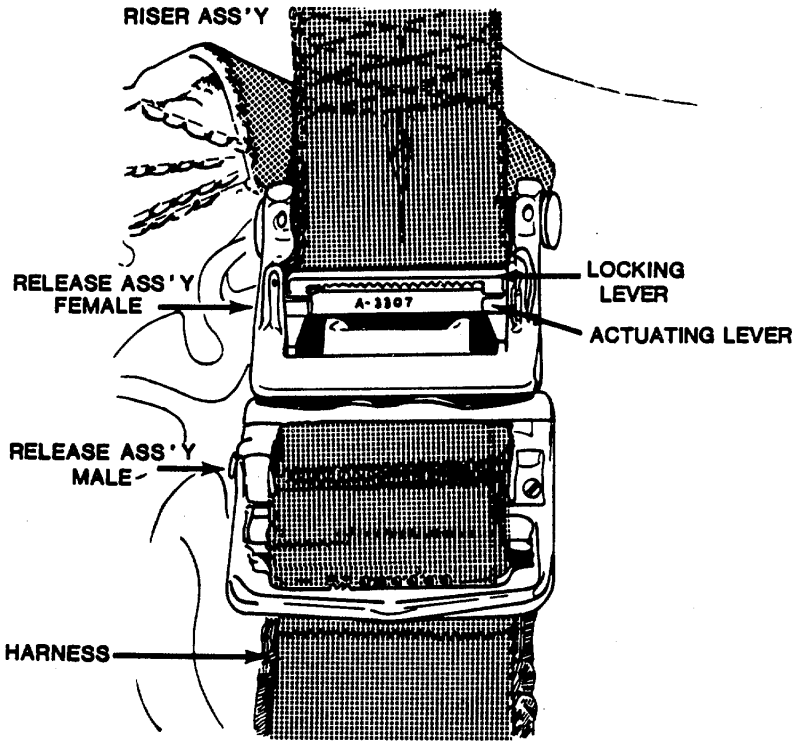


Figure 1-11. Canopy Release Assembly, Koch Type, OV-1 Ejection Seat Harness.

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. OPERATION UNDER USUAL CONDITIONS

2-1. General.

When an individual is issued an emergency type personnel parachute there are certain inspection and fitting requirements to be accomplished. The user should also acquaint himself with the use of the parachute to be worn, the location and function of aircraft in-flight emergency exits, and aircraft in-flight evacuation procedures.

The aircraft commander will insure that passenger personnel are properly oriented on equipment use and in-flight emergency actions prior to flight. In the event a flight is to be conducted over a large body of water, an underarm life preserver unit (LPU) should be worn under the parachute harness and will subsequently necessitate additional familiarization of parachute and life preserver joint usage.

2-2. Inspecting the Parachute Assembly.

Emergency type personnel parachute assemblies will be visually inspected prior to acceptance for use.

CAUTION

When wearing or handling an emergency type personnel parachute, avoid grasping the ripcord grip or grip retaining pocket a. Visually inspect the entire parachute pack assembly for evidence of oil, grease, or water saturation.

b. Check the pack opening spring bands located on each side of the locking pin protector flap to insure that each band is secured.

c. Inspect the ripcord grip to insure the grip is seated securely in the pocket (figs. 1-8 and 19).

d. Visually inspect each canopy release (fig. 1-10) to insure the canopy release safety cover is closed and the male portion is securely latched in the female portion on the ejection seat restraint harness (fig. 1-11).

e. Remove the DA Form 3912 (Army Parachute Log Record) from the log record pocket on the pack assembly and inspect the recorded data to insure the parachute has not exceeded the required 30-day inspection or 120-day repack.

2-3. Adjusting the Harness.

a. General. The harness assemblies used with the ejection seat, back and chest emergency type personnel parachutes are adjusted in a similar manner. Each harness is designed to fit an individual that may range in stature from 5-feet 2inches tall, weighing 110 pounds to 6-feet 4-inches tall, weighing 240 pounds. A person that reaches the upper portion of the stature range may require the use of parachute harness leg strap extensions when wearing bulky clothing or equipment.

b. Adjustment Procedures. Each parachute harness has several points of adjustment (figs. 2-1 and 2-5). The two main lift web adjusting straps govern the vertical distance between the harness saddle and the shoulders. The two leg strap adjusters tighten the leg straps and pull the harness saddle into position against the buttocks. The two diagonal back strap adjusters draw the main lift webs back toward the shoulders and inward toward each other. The chest strap adjuster tightens the chest strap. Fit and adjust a parachute harness as follows:

(1) Lay the harness on a flat dry surface with the back pad facing upward.

(2) Disconnect the chest and each leg strap fastener.

(3) Loosen the two leg straps, chest strap, and the two back straps (one back strap on the chest type harness) to a point within 2 inches of the running end of each strap.

NOTE

Parachute harnesses with main lift web index numbers shall have the same index number located in each of the two main lift web adjusters.

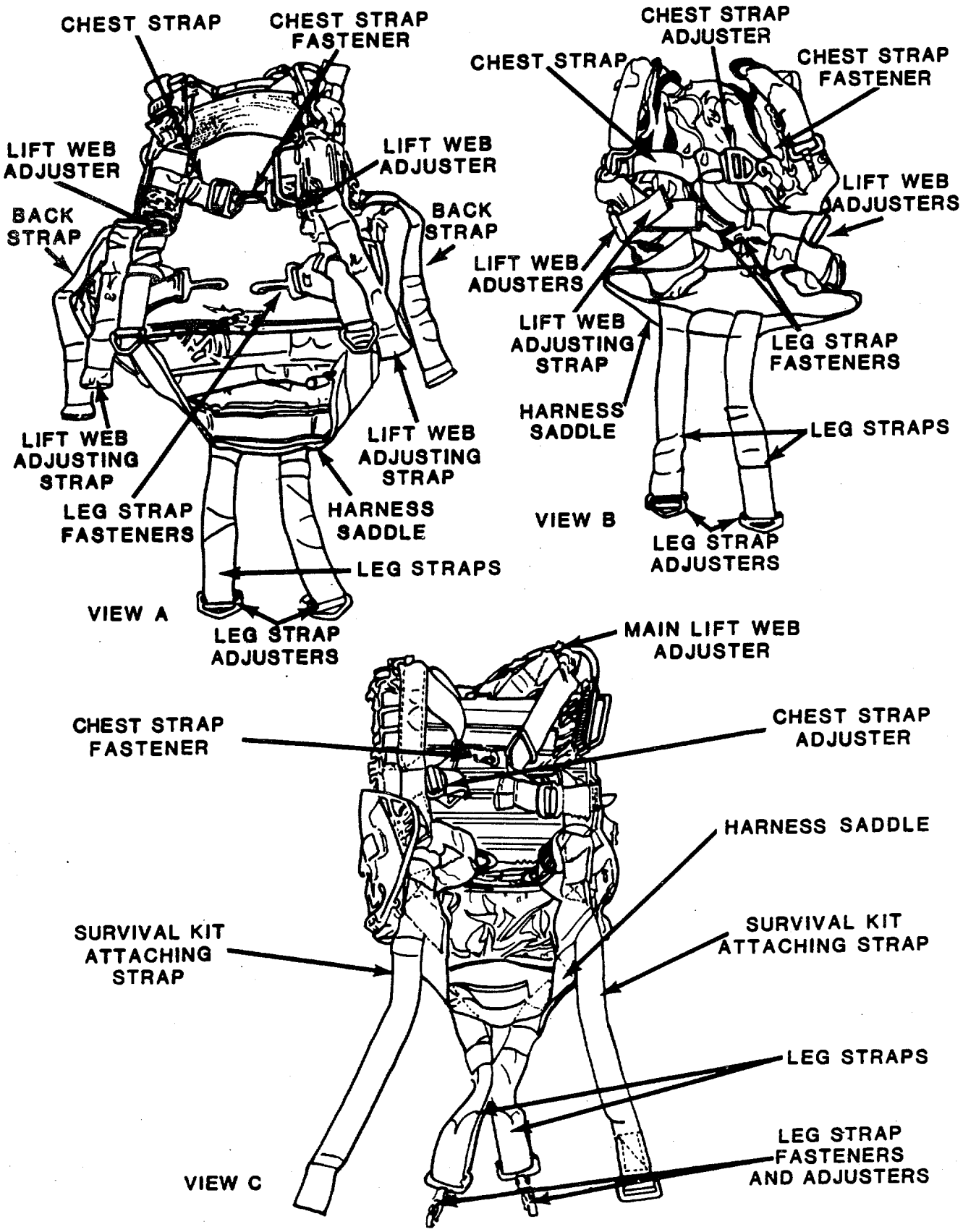


Figure 2-1. Harness Adjustment Points, 28-Foot Back, 28-Foot Chest and NB-8 Back.



Figure 2-2. Donning the Parachute Harness, Typical.

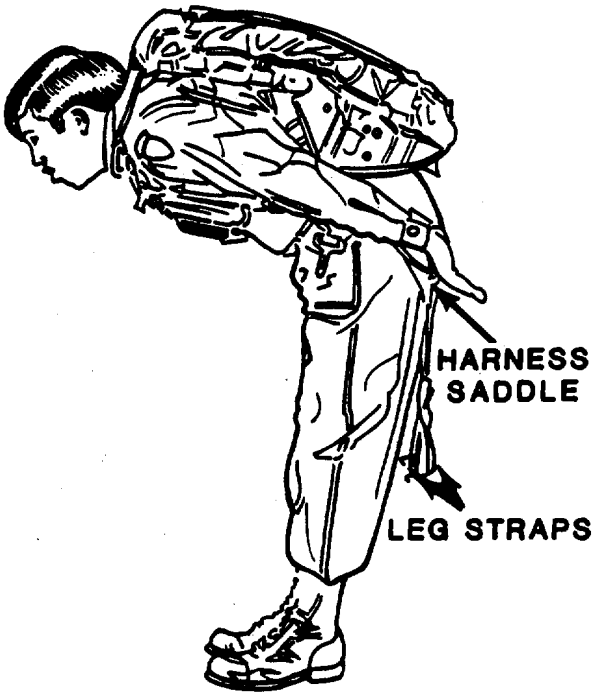


Figure 2-3. Positioning the Sling Saddle, Typical.

CAUTION

Do not attempt to pick up or carry a back type emergency personnel parachute by grasping the risers.

(4) Don the harness by inserting the arms under the main lift webs (fig. 2-2). Insure the canopy releases fall into position just below the collarbone.

(5) Bend at the waist and using the hands, pull the harness saddle under the buttocks (fig. 2-3). Adjust the main lift webs until the harness saddle fits under buttocks snuggly.

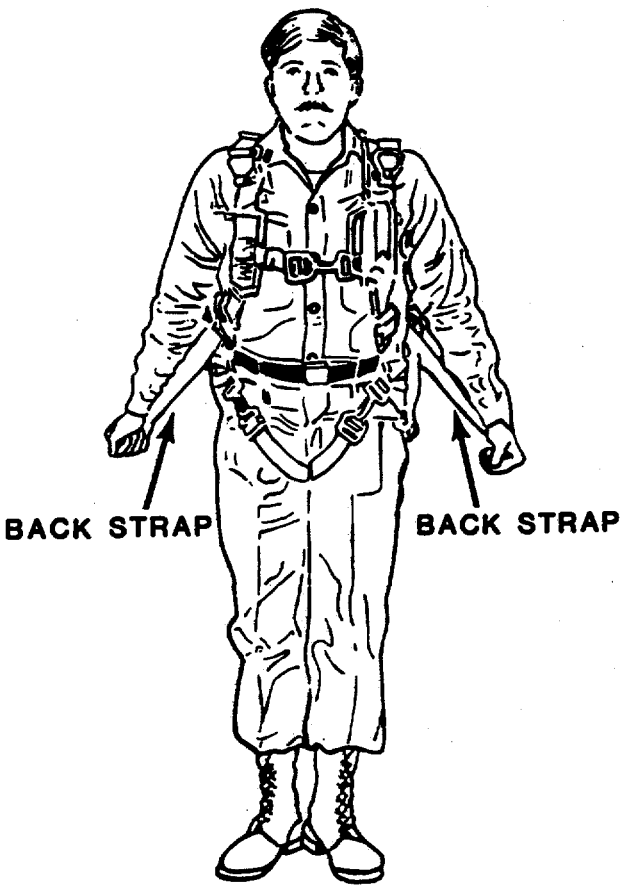


Figure 2-4 View A



Figure 2-4 View B

Figure 2-4. Tightening Harness Back Straps, Typical.

WARNING

Insure the leg straps are drawn snug to prevent personal injury to the groin area of the body during parachute opening.

(6) Connect each leg strap fastener to the respective ring on each side of the lower part 2-4 of the harness. Draw the leg straps tight by pulling in a downward motion.

(7) Connect the chest strap fastener to the adjacent V-ring.

(8) If applicable, reach behind each side of the body, grasp each diagonal back strap loose end and exert a downward pull to tighten the back straps (fig. 2-4).

NOTE

The NB-8 parachute harness is not equipped with adjustable diagonal back straps.

(9) Tighten the fastened chest strap.

(10) Fold and stow all loose strap ends under the respective sliding strap keeper located on each strap.

NOTE

On the 28-foot back, NB-8 back and adjustable ejection seat harnesses, position the chest strap approximately 12 inches below the chin.

1. Height =64 in.
   Weight = 147 lbs
   1/2 of 147 lbs = 73.5 (Total)

   Height = 64 in.
   1/2 Weight = 73.5
   Total = 137.5

SEE CHART BELOW:

2-4. Fitting Instructions for OV-1 Mohawk MKJ5D Parachute and Election Seat Harness.

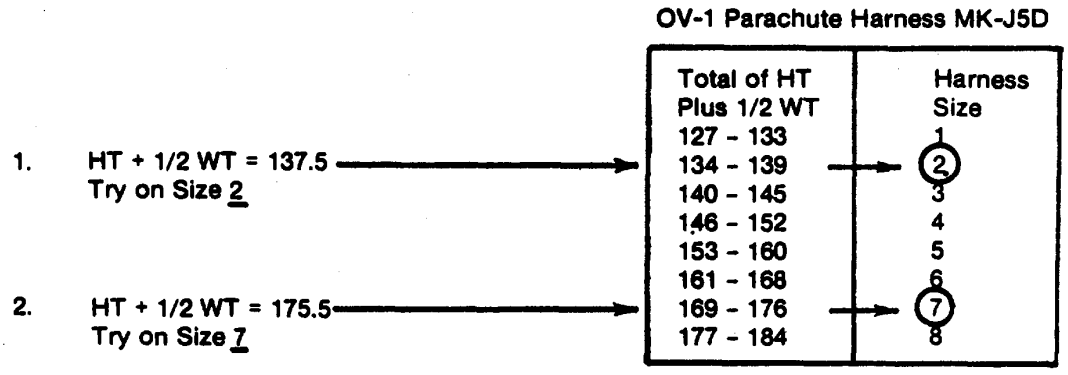
a. The new parachute harness used with the improved MK-J5D Ejection Seat is a fitted harness and comes in eight different sizes. These harnesses are issued to each individual designated OV-1 crewmember and becomes their personal equipment. To insure that each individual is issued the proper size harness, use the following chart and formula.

Examples:

Height of individual plus 1/2 of the individuals weight = total. Using the chart, find the approximate total, then read the harness size.

2. Height = 76 in.
   Weight = 199 lbs
   1/2 of 199 lbs = 99.5 (Total)

   Height = 76 in.
   1/2 Weight = 99.5
   Total = 175.5'



Fitting Instructions

b. Once the proper size harness has been determined, it must be adjusted to fit properly. The harness is donned in the normal manner except for stepping into the leg loops (fig. 2-5). NOTE: The chest strap disconnect assembly is disengaged by pushing cup open with finger and drawing finger back over release bar (fig. 2-5).

c. Adjust the harness to a snug fit while in a seating position (fig. 2-5). Remove all slack in the leg loops as shown in #2 of figure 2-5. Pull adjustment web end #3 of figure 2-5 until chest restraint web and adjustment webs are equal #4. Engage the chest strap disconnect assembly. Adjustment web ends must be equal. (See #4 of fig. 2-5.)

NOTE

The OV-1 Parachute and Ejection Seat Restraint Harness must fit the aircrewman properly to provide maximum comfort and protection. When properly fitted, the harness should be snug but not binding. The main sling (saddle) should pass under the buttocks and the chest strap should cross the center of the chest, not near the collarbone. For use with bulkier winter flight clothing, it may be necessary to use a larger size harness than with summer flight clothing.

d. Upon determining the proper harness fit in accordance with the above, the occupant torso restraint must be adjusted to the ejection seat, to afford maximum ejection load restraint. This is accomplished by sitting in an installed ejection seat and connecting the riser connect fittings to the harness. Place the inertia reel handle in the LOCK position and place shoulders full back against the parachute pack. Lower the right and left canopy release fittings equal amounts until inertia reel restraint straps slack is removed and occupant shoulders are restrained.

WARNING

Failure to fit the ejection seat harness properly may result in personal injury to the aircrew member during ejection sequence.

NOTE

Personnel who cannot be properly fitted with the harness that matches their height to weight ratio may use the next size harness (larger or smaller).

NOTE

For personnel who cannot be properly fitted with any of the eight different size ejection seat harnesses, a custom made ejection seat harness will be made for the individual. The following information will be required from an appropriately rated flight surgeon.

(1) Chest circumference. Measured at nipple level, relaxed.

(2) Vertical trunk circumference. Measured over shoulder at base of neck, through crotch and buttock.

(3) Waist circumference. Measured at navel level.

(4) Hip circumference.

(5) Thigh circumference. Measured at crotch and perpendicular to leg axis.

e. The above information must be verified by the flight surgeon and the 'individual's unit commander. Forward this information to Commander, US Army Aviation Systems Command, ATTN: AMSAV-QWSA, PO Box 209, St. Louis, MO 63166.

NOTE

The adjustable ejection seat harness is fitted in the same manner as the 28-foot back type personnel parachute (refer to para 2-3).

2-5. Installing the Seat Belt in the OV-1 Parachute and Ejection Seat Restraint Harnesses.

a. On the fitted harness, the seat belt can be installed in the harness by passing the belt through the seat belt retainer loops located on the left and right side of the harness at hip level (View A, fig. 2-6). Rotate the male release assembly 90 degrees up or down and pass it through the loop.

b. For the adjustable harness, the male release assembly must be removed from the seat belt. Using a small bit common screwdriver, remove the set screw from the base of the release assembly and remove the roller pin from the assembly (View A, fig. 2-6). Pass the seat belt webbing through the accessory attachment ring (View A, fig. 1-4). Then attach the male release assembly back to the seat belt web. The above procedure is used for both sides of the harness. For harnesses with seat belt installed, see View B, figure 2-6.

OV-1
Parachute & Ejection Seat Restraint Harness

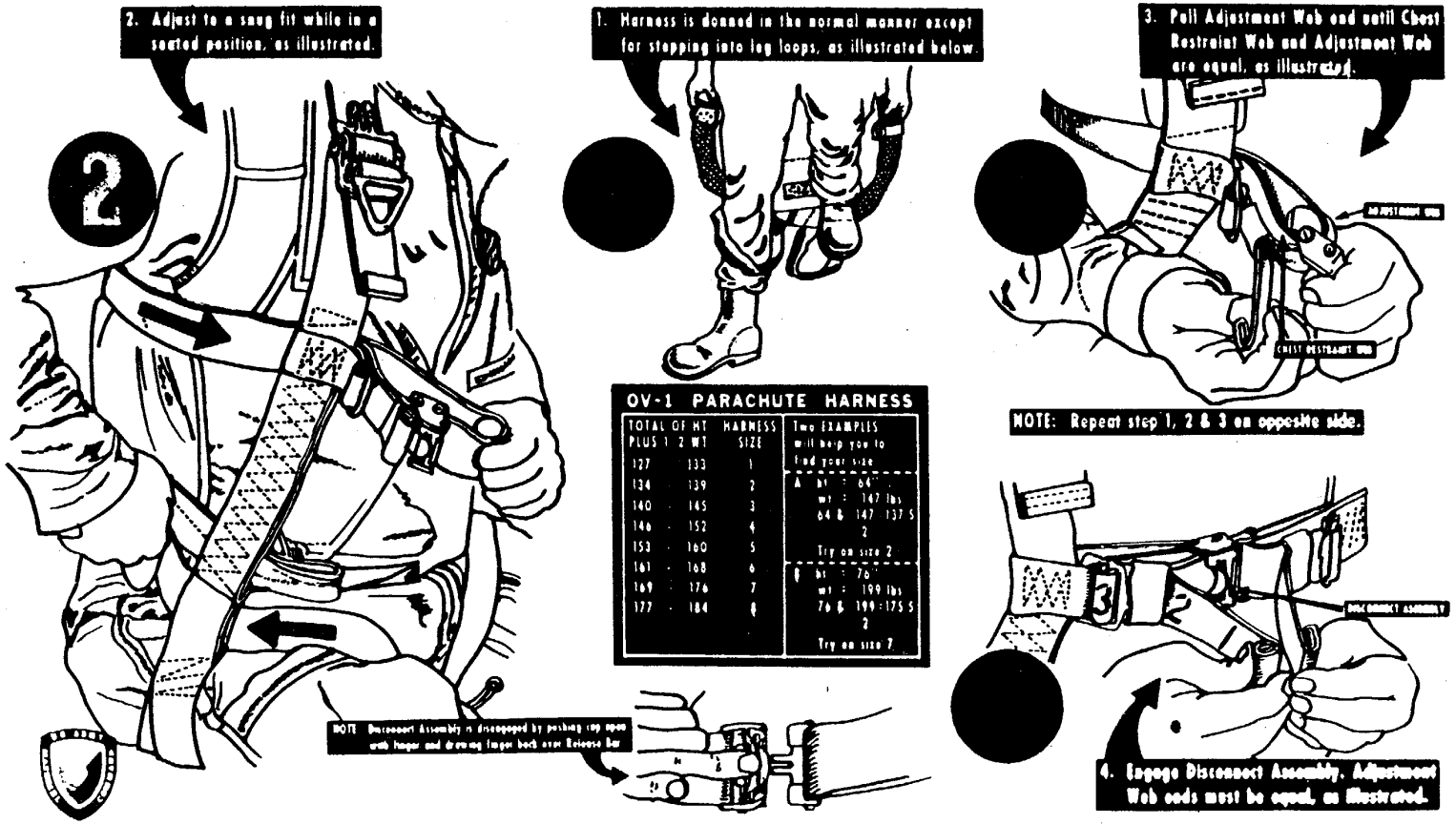


Figure 2-5. OV-i Parachute and Ejection Seat Restraint Harness.

NOTE

The new OV-1 seat belt is not issued with the harness assemblies and is not considered part of the parachute harness assembly when attached.

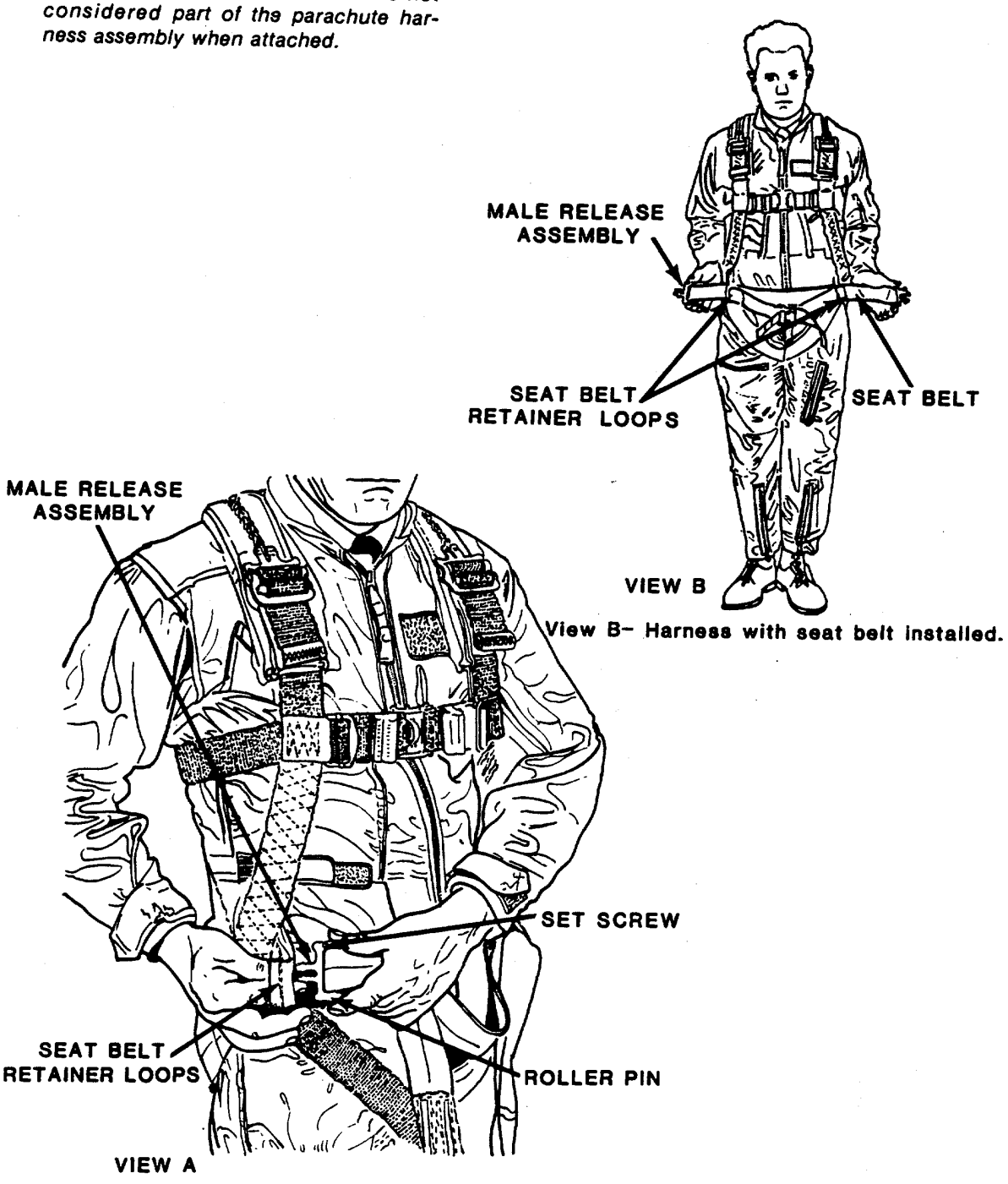


Figure 2-6. OV-1 Fitted Harness.

2-6. Fastening Seat Belt.

To fasten seat belt to the survival kit and ejection seat, insert the male release assembly into the seat belt release assembly (fig. 2-7). To unfasten the seat belt from the survival kit and ejection seat, use the procedure outlined in paragraph 2-13f(4), Koch type canopy release assembly. Seat belt fitting is the same as for the canopy (View A, B, and C, fig. 2-25).

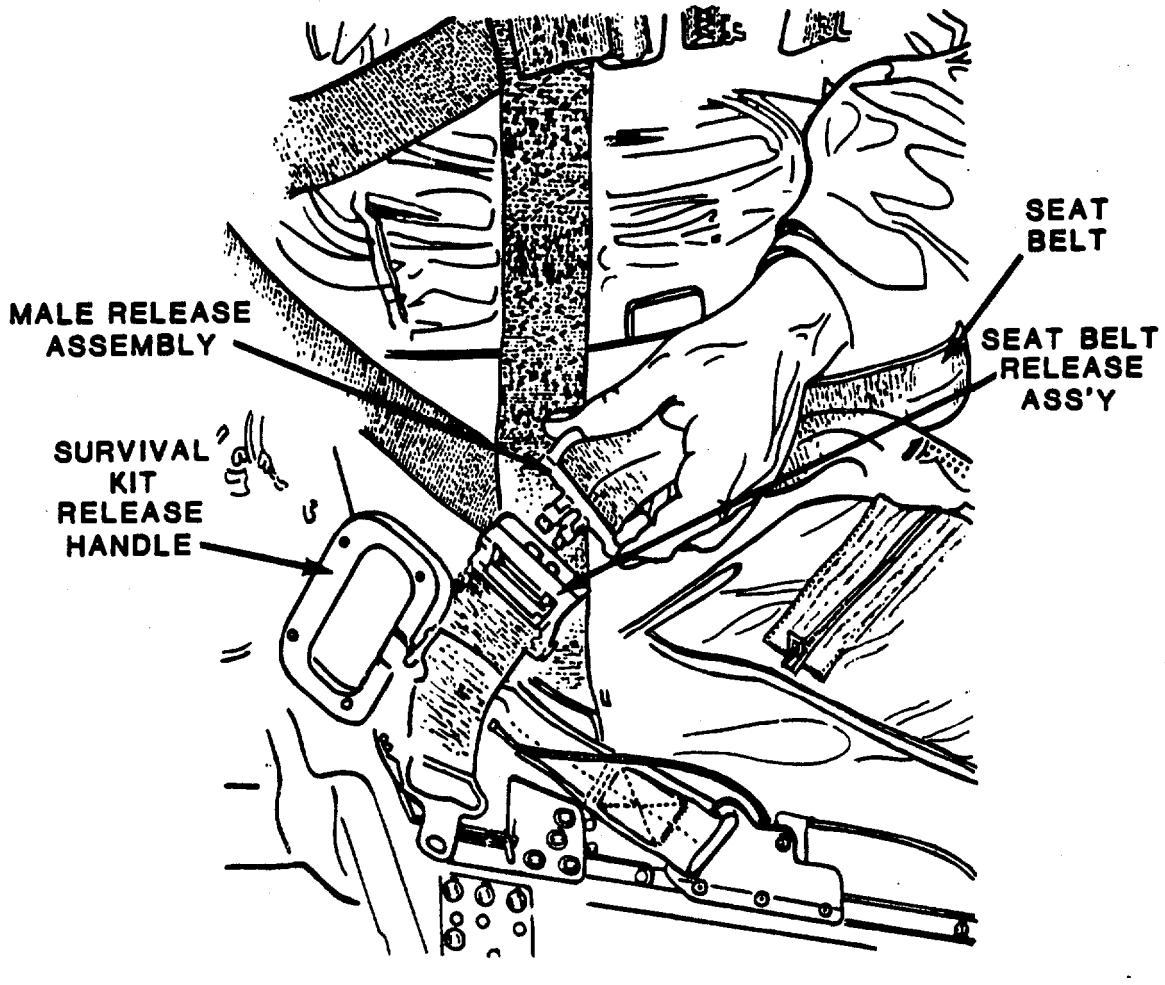


Figure 2-7. Fastening Seat Belt to Survival Kit and Ejection Seat.

2-7. Attaching the Chest Pack Parachute to Harness.

CAUTION

When handling the chest parachute, use the carrying handles located on the ends or top of the pack. Do not grasp the ripcord grip.

To attach the chest pack parachute to the harness assembly, grasp the pack by the top nylon carrying handle and insure the ripcord grip is to the right side (fig.2-8). Lift the pack and connect the pack dee rings to the harness riser snap fasteners (fig. 2-9).

2-8. Aircraft Bailout Procedures.

WARNING

Personnel participating in aerial flight will not initiate bailout procedures inflight unless directed by the aircraft commander.

WARNING

The absolute minimum altitude for bailout from a non-ejection seat aircraft is 400 feet above the terrain.

Bailout procedures from an aircraft in-flight will vary due to the difference in aircraft size, location and type of emergency in-flight exits, and whether the aircraft is of high-wing or low-wing design. The following are recommended bailout procedures for the related aircraft types:

a. U-6A (Beaver).

(1) All personnel seated within. the aircraft cabin shall prepare to bailout of the aircraft after the cabin side doors have been jettisoned. The preferred in-flight exit for cabin personnel is the left rear cabin door. However, the right rear cabin door may be used, if necessary. Prepare for and execute the bailout as follows:

(a) Disconnect and remove the seat belt and shoulder harness, if applicable.

(b) Stand up and insure the parachute leg and chest straps are connected and tight. Further insure all webbing loose ends are stowed in the applicable sliding web keeper.

(c) Upon the aircraft commander's command, move to the center of the cabin door and place the left hand on the outside of the door frame. Grasp, but do not pull, the ripcord grip with the right hand (fig. 2-10).

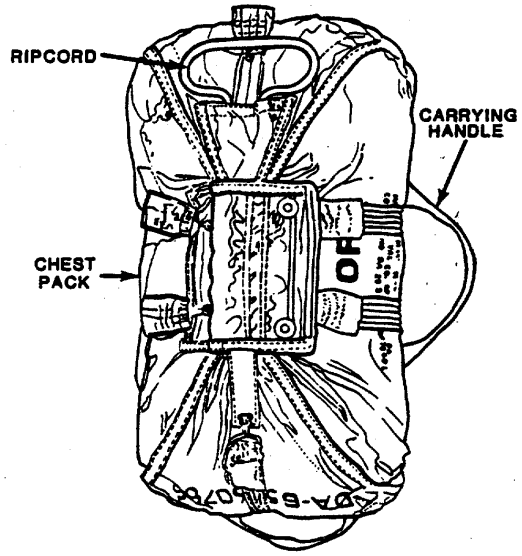


Figure 2-8. Chest Pack.

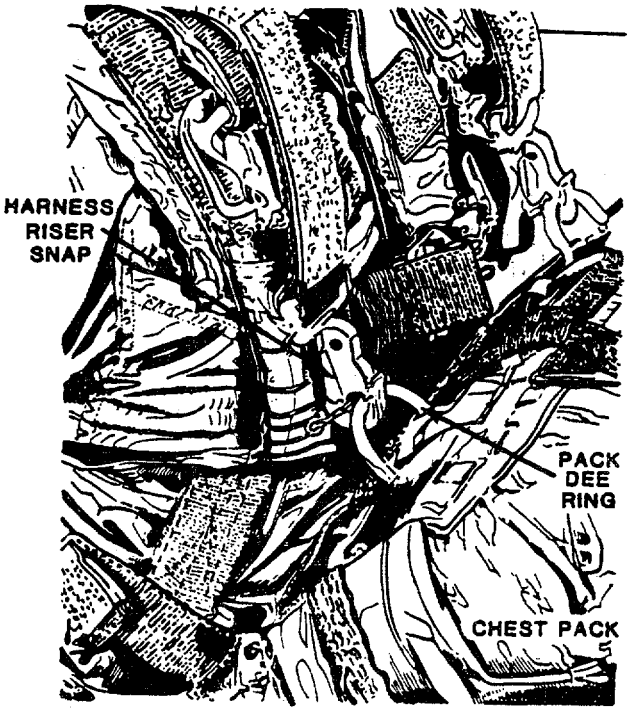


Figure 2-9. Attaching Chest Pack to Harness Assembly.

(d) Position the feet in such a manner that the balls of the feet extend over the door edge.

(e) Attain a crouch position and look straight out of the aircraft toward the horizon.

WARNING

After exiting the aircraft look down at the ripcord and make sure you have grasped the ripcord.



Figure 2-10. Door Position for 8ailout From the U-6A. Typical.

(f) Exit the aircraft by jumping straight out using the left hand to push away from the aircraft. After clearing the aircraft, pull the ripcord out and downward. Discard the ripcord grip and attached cable.

(2) Personnel occupying the pilot and co-pilot positions will prepare to evacuate the aircraft through a cabin door after all other personnel have departed the aircraft as follows:

(a) Disconnect the seat belt, shoulder harness and helmet intercom cord.

(b) Release the seat and move the seat to the rear.

(c) Repeat procedures in paragraph (1)(b) through (f) above.

b. U-1A (Otter). Bailout procedures used on the U-1A aircraft shall be in accordance with paragraph 2-7a, except for the pilot. After all other personnel have departed the aircraft through a cabin door, the pilot will proceed as follows:

(1) Disconnect the seat belt, shoulder harness, and helmet intercom cord.

(2) Move the seat down and to the rear.

(3) Insure parachute harness leg and chest straps are connected and tight, with webbing loose ends stowed in the applicable sliding web keeper.

(4) Turn to the left and place the left foot on the fixed step below the cockpit door.

(5) Position the opposite foot on the door edge and the, hands on each side of the door opening.

(6) Jump straight out and push vigorously with both hands to insure clearing the wing strut. After clearing the aircraft, bring the right hand up across the chest, grasp the ripcord, pull out and downward. Discard the ripcord grip and attached cable.

c. O-1A and TO-1A (Birddog). The O-1A and TO-1A aircraft are designed for occupancy of a pilot and an observer only. Under in-flight emergency conditions, the observer shall be the first to bailout after the entrance door, located on the forward right side of the aircraft, has been jettisoned Procedures to be used by the aircraft occupants are as follows: (1) Observer.

(a) Disconnect and remove the seat belt, shoulder harness, and helmet intercom cord, if applicable.

(b) Insure the parachute harness leg and chest straps are connected and tight. Further insure all webbing loose ends are stowed in the applicable sliding web keeper.

(c) After the pilot slides his seat forward, pass to the right of the pilot and move into the open door.

(d) Place both feet on the door edge. Position the right hand on the upper edge of the door frame and lean out of the aircraft to grasp the adjacent wing strut with the left hand (fig. 2-11).

(e) Step out of the door and using both hands, push away from the aircraft.

(f) After clearing the aircraft, bring the right hand up and across the chest, grasp the ripcord and pull out and downward. Discard the ripcord grip and attached cable.

(2) Pilot. Slide the seat to the rear, turn to the right (fig. 2-12) and repeat the procedures in paragraph (1) above.

d. T-41B (Mescalero). The T-41B has a seating capability for a pilot, co-pilot, and two passengers. The primary bailout exit on the T-41B for all personnel, except the pilot, shall be the right entrance door. Once the right door has been jettisoned the following procedures shall apply.

(1) Passenger personnel.

(a) Disconnect and remove the seat belt.

(b) Insure the parachute harness leg and chest straps are connected and tight. Further insure all webbing loose ends are stowed in the applicable sliding web keeper.

(c) After the co-pilot slides his seat forward, pass to the right of the co-pilot and move into the open door.

(d) Place the left foot on the fixed step below the door edge, the right foot on the door edge, the right hand on the upper right door edge and lean out to grasp the wing strut with the left hand (fig. 2-13).

(e) Step out of the aircraft and using both hands, push away from the aircraft.

(f) After clearing the aircraft bring the right hand up and across the chest, grasp the ripcord and pull out and downward. Discard the ripcord grip and the attached cable.

(2) Co-pilot. After the passenger personnel have exited the aircraft, the co-pilot will perform the following:

(a) Disconnect seat belt, shoulder harness, and helmet intercom cord, if applicable.

(b) Insure the parachute harness leg and chest straps are connected and tight. Further insure all webbing loose ends are stowed in the applicable sliding web keeper.



Figure 2-11. Observe Bailout Door Position From 0-1A and TO-1A, Typical.



Figure 2-12. Pilot Bailout Door Position From O-A1 and TO-1A. Typical

(c) Slide the seat to the rear and turn to the right.

(d) Repeat procedures in paragraph (1)(d) through (f) above (fig. 2-13).

(3) Pilot. After all personnel have departed the aircraft, the pilot will repeat the procedures in (2) above; except the pilot shall turn to the left and exit through the left entrance door.

2-9. Descent Procedures.

After exiting and clearing an aircraft under a bailout condition, the parachute user should be aware of the procedures to be performed and what to expect during the descent to a landing surface.

a. Body Position and Ripcord Pull. Allowing for altitude and time remaining, an attempt should be made to achieve a reasonable body position while initiating the ripcord pull.

(1) Back type parachute.

(a) Tuck the chin against the chest.

(b) Keep the feet and legs together.

(c) Keep the eyes open and look at the ripcord grip (fig. 2-14).



Figure 2-13. Bailout Position From T-41 B.

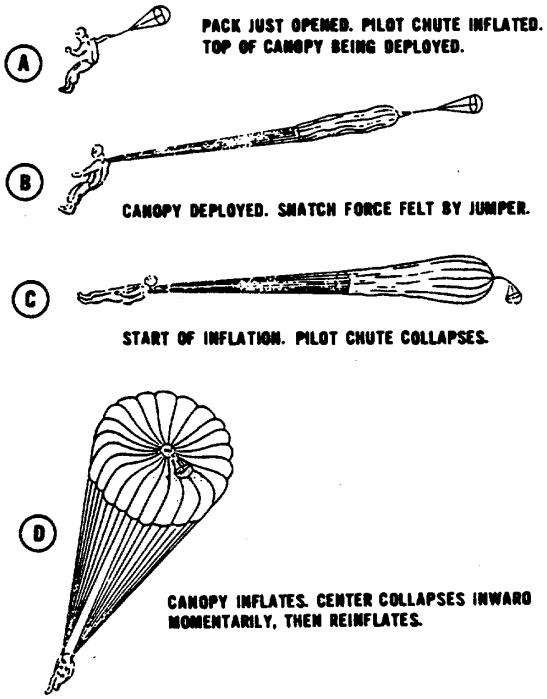


Figure 2-14. Deployment and Inflation of a Parachute Canopy.

WARNING

During canopy deployment of a back type parachute the chin should be resting on the chest to avoid entanglement of the head in the parachute suspension lines.

(d) Using the right hand and aided by the thumb of the left hand, pull the ripcord grip out and to the right as far as the right arm will extend. Discard the ripcord grip and attached cable (View A and B, fig. 2-15).

(2) Chest type parachute.

WARNING

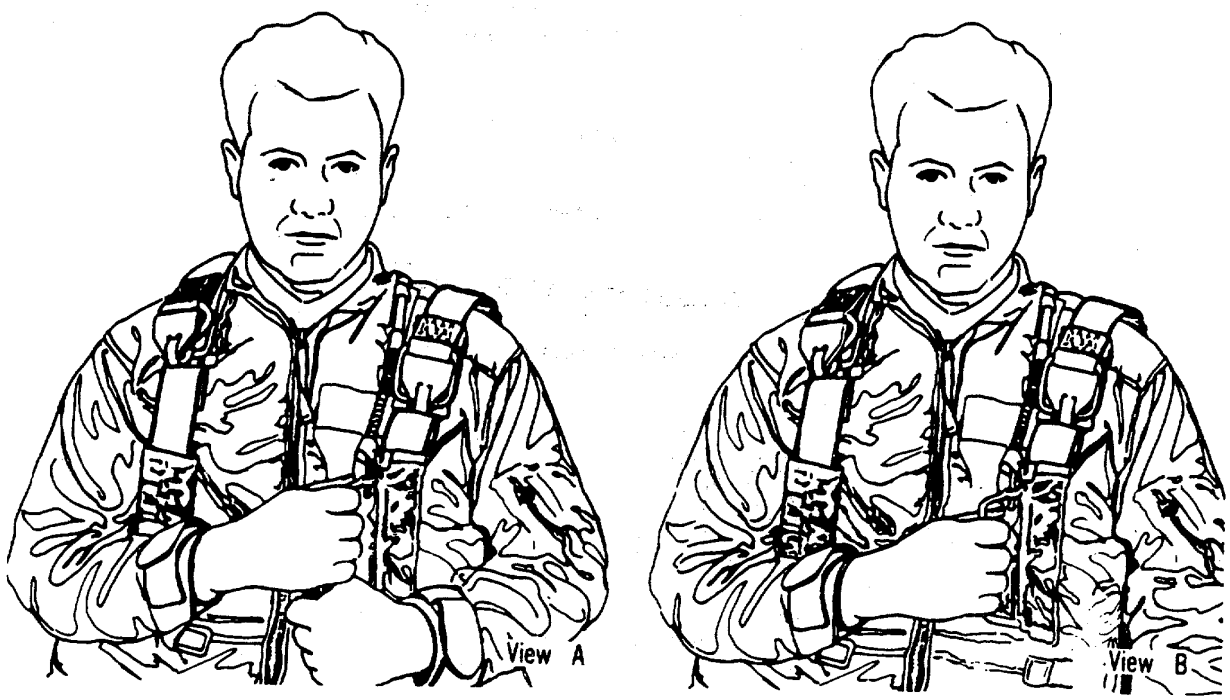
During canopy deployment of a chest type parachute, the head should be turned as far as possible to the right and the left arm positioned along the left side of the body to avoid contact or entanglement with the riser assemblies.

(a) Turn the head as far as possible to the right.

(b) Keep the feet and legs together, eyes open, and drop the left arm along the left side of the body.

(c) Arch the back and using the right hand, grasp the ripcord grip and pull the ripcord grip to the right to full arms length. Discard the ripcord grip and attached cable.

b. Controlling Descent. Once the ripcord has been pulled, it should take 2 to 4 seconds for the deploying parachute canopy to fully inflate at which time the parachute opening shock will be felt. The user's body may rotate during the interval the canopy is deploying and the rotation will cause twists in the risers and suspension lines. This action should not cause undue alarm to the user as once the canopy has fully inflated the twists will slowly unwind. After the risers and suspension lines have straightened, the user should look up and check the canopy to insure the canopy has fully inflated. A canopy will sometimes inflate with a minor malfunction known as an inversion which may be complete or partial. An inverted canopy is one which is turned inside out. If the inversion is complete, it will not affect the operation of the parachute. A partial inversion results from a portion of the canopy near the skirt being blown between two adjacent suspension lines and inflating inside out. Factors which may affect the controlling of descent are as follows:



View A - Two-hand method.

View B - One-hand method.

Figure 2-15. Grasping Ripcord, Two-Hand and One-Hand Method.

(1) Partial inversion of canopy. A partial inversion will increase the rate of descent 2 to 3 feet per second. The skirt of a partially inverted canopy forms a figure 8 when viewed from below (fig. 2-16).

NOTE

A partial inversion of the canopy is not considered a serious situation.

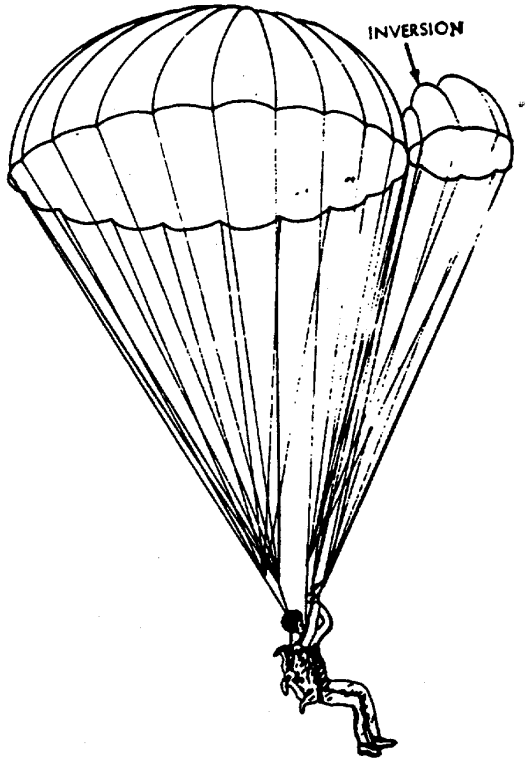


Figure 2-16. Partial Inversion of the Canopy.

WARNING

Do not attempt to stop oscillation below an altitude of 200 feet as slipping will increase the rate of descent in addition to requiring exertion of extra strength, thereby tensing the body and resulting in a poor landing position.

(2) Stopping oscillation. Oscillation is a motion of swinging back and forth like a pendulum and usually occurs during parachute descent. Oscillation can be stopped by slipping the canopy. The canopy slipping technique is performed by pulling the two front risers down to a point where the suspension line connector links are at shoulder level. The oscillating effect should now stop. Allow the risers to return to original position slowly.

WARNING

Never hold a slip below an altitude of 200 feet.

(3) Changing direction. To change the direction of the parachute descent may be accomplished by slipping the canopy (fig. 2-17). A slip can be made in any direction by pulling on the riser located on the side of the desired direction change. However, slipping the canopy to change direction is a difficult maneuver and should not be attempted except to avoid an obstacle or when making an attempt to reach a clear landing area.

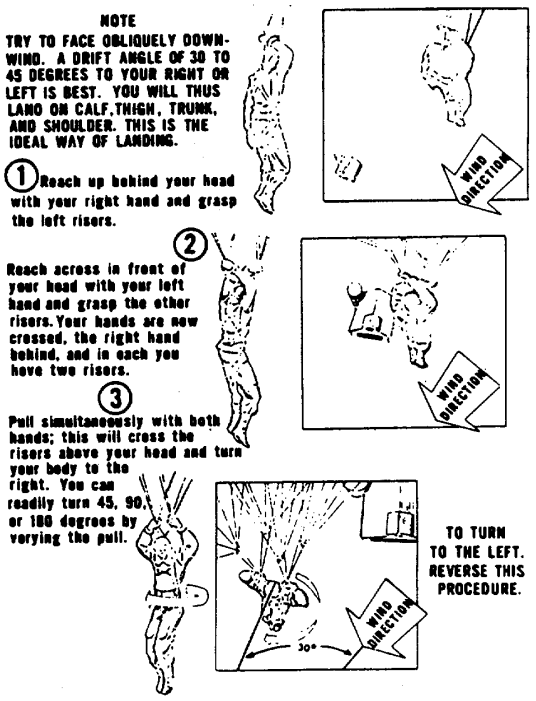


Figure 2-17. How to Make Body Turns and Change Direction.

2-10. Landing Procedures.

A proper landing position is essential to minimize the risk of injury when initial-contact is made with the ground surface. Once ground contact has been made a parachute landing fall should be performed to lessen the amount of landing impact absorbed by the legs. The following are recommended procedures for completing a parachute landing under normal conditions.

a. Preparing to Land.

WARNING

A landing position should be assumed at an altitude of not less than 100 feet above the ground.

WARNING

Canopy release assemblies shall not be activated at any time during descent prior to landing surface contact .

(1) Using both hands, reach up and grasp the front set of risers at the highest point possible.

WARNING

Avoid becoming stiff legged and tensed up when preparing to make a parachute landing.

(2) Place the feet and knees together insuring the legs are slightly bent at the knees. The toes should be pointed, slightly toward the ground so the first contact with the ground will be the balls of the feet.

NOTE

Moderate muscular tension must be maintained in the legs to insure the legs absorb a portion of the landing impact.

(3) Position the head erect and focus the eyes on the horizon.

b. Parachute Landing Fall. When executing parachute landing fall (fig. 2-18) there are five points of contact which should be made in sequence: the balls of the feet, the calf of the leg, the thigh, the buttocks, and the back part of the shoulder. Perform a parachute landing fall as follows:

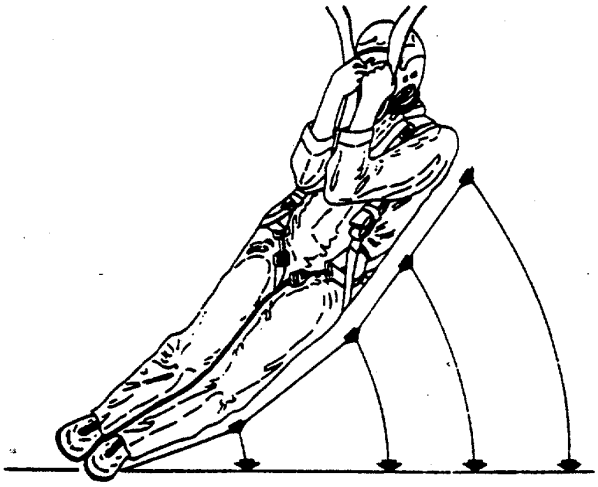


Figure 2-18. Performing a Parachute Landing Fall.

WARNING

When performing a parachute landing fall, keep the chin lowered against the chest to prevent the head from striking the ground.

(1) At the moment the balls of the feet contact the ground, bend and twist the torso sharply to the right or left to avoid falling on the knees. With the body in this position, begin absorbing the landing fall impact sequence on the five parts indicated in b above.

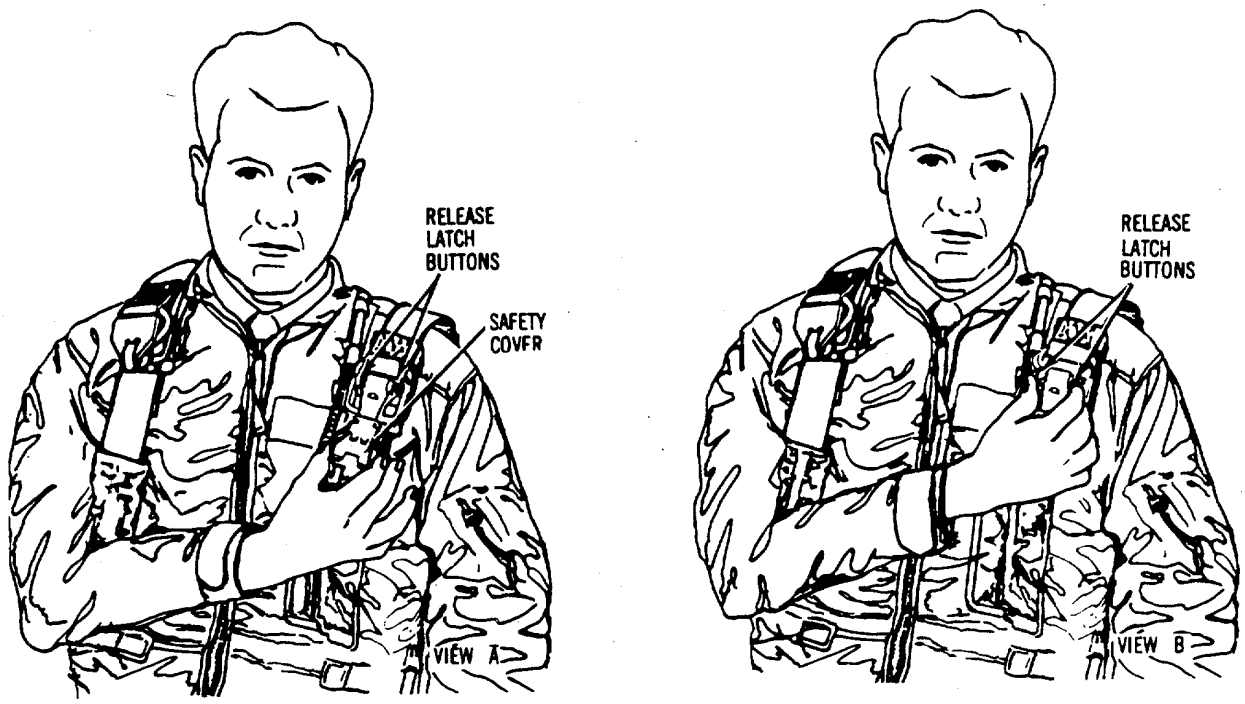
NOTE

The direction of bend and twist enforced upon the torso will depend upon the direction of landing drift. For example, if the landing drift is to the left, then the parachute landing fall shall be performed on the left side of the body.

(2) Upon starting the parachute landing fall, pull the risers down in front of the face with both elbows placed together and touching the midsection of the body (fig. 2-18).

NOTE

Pulling the risers down will aid in collapsing the canopy while offering some protection to the face.



View A - Latch buttons exposed, typical.

View B - Pressing latch buttons.

Figure 2-19. Canopy Release Latch Buttons Exposed, Typical and Pressing Canopy Release Latch Buttons.

(3) If applicable, after the landing fall has been completed, use each hand to reach up and grasp the respective canopy release safety cover with the thumb and forefinger. Pull each safety cover out and down thereby exposing the canopy release latch (View A, fig. 2-19).

(4) Return the hands to the respective canopy releases and using the thumb and forefinger of each hand, squeeze the release latch buttons (View B, fig. 2-19) and simultaneously pull each latch out and down. The canopy shall now separate from the harness and collapse.

NOTE

If a parachute landing has been made in little or no wind, the canopy will collapse without use of the canopy release.

NOTE

To collapse an NB-8 canopy, unsnap the leg and chest straps, extend both arms above the head, and allow the body to slip from the harness.

(5) Unsnap the leg and chest straps of the parachute harness, remove the harness, and recover the parachute as outlined in paragraph 28.

NOTE

If a parachute landing has been made in enemy or hostile territory, it is recommended that the parachute harness and related survival equipment be removed while lying down.

2-11. Recovering the Parachute.

The recovery of an emergency type personnel parachute used for bailout is the responsibility of the user, contingent upon the individual's physical condition and the tactical situation in the area in which the parachute landing is made. Normally, the parachute and its components should be recovered and returned through supply channels to the applicable organization as directed. To recover a personnel parachute and components proceed as follows:

a. Spread the canopy, suspension lines, and risers lengthwise on the ground and remove all large debris. Small items of debris may be removed by shaking the canopy.

b. Hold the canopy vent in the right hand and place the left hand 16 to 18 inches below the vent. Make a figure 8 of the canopy by folding it around the left and right arms until the bottom of the canopy is reached.

c. Grasp the suspension lines just below the bottom of the canopy and wrap the suspension lines and risers around the folded canopy.

d. Place the folded canopy and the pack, when a chest type pack is used, on the parachute harness. Make a neat bundle and secure the bundle with the harness chest and leg straps.

Section II. OPERATION UNDER UNUSUAL CONDITIONS

2-12. General.

Operation under unusual conditions relates to parachute descent and landing procedures which may be required in other than normal conditions.

2-13. Parachute Descent and Landing Procedures.

Parachute descent and landing procedures to be used in unusual situations are as follows:

a. Landing in High Wind. Normal procedures as outlined in paragraph 2-10 for landing shall be followed. However, when the parachute landing fall has been completed, both canopy releases shall be activated immediately.

b. Landing on Wires. Power lines are usually high above the ground and spaced six feet apart. If the wire cannot be avoided, the following shall apply to landing:

(1) Place both arms above the head with the palm of the hand flat against the inside of each front riser.

(2) Keep the feet and knees together with the toes pointed downward.

(3) Place the chin on the chest.

(4) Avoid straddling a line or touching two lines simultaneously, if possible.

NOTE

If contact is made with wires during landing, begin a rocking motion of the body by pushing forward on the front risers. This action may prevent entanglement in the wires.

c. Landing in Trees. When a landing in trees is imminent, apply the following: 2-18

(1) Place the feet and knees together with the toes pointed downward.

(2) Cross the arms in front of the face with both elbows high, and position the face in the crook of either the right or left elbow (fig. 220).

NOTE

With the arms covering the face, observation of the landing area can be maintained by looking under the elbow without disturbing the landing position.



Figure 2-20. Landing in Trees.

(3) After landing in the trees is completed, do not hurry to climb or jump down. Survey the situation, and calmly decide on the best course of action.

d. Landing at Night. Bailout performed at night presents a difficult situation because visibility is usually very limited and as a result makes it nearly impossible to judge altitude. Therefore, after leaving the aircraft and insuring the canopy has deployed, assume the landing position outlined in paragraph 2-10a. If any doubt exists as to what type of surface the landing shall be made on, be prepared to open the canopy release safety covers and activate the canopy releases or to unsnap the leg and chest straps, as applicable, upon contact with the landing surface as outlined in paragraph 2-10b.

NOTE

Light reflecting off of pavement at night makes pavement appear as water.

e. Landing in Water. Water landings require the use of different procedures than those used on land. As indicated in paragraph 2-1, an underarm life preserver unit (LPU) shall be worn under the parachute harness (fig. 2-21). The procedures used for water landings are as follows: NOTE Only LPU-2/P or LPU-10/P should be used with emergency type parachutes.

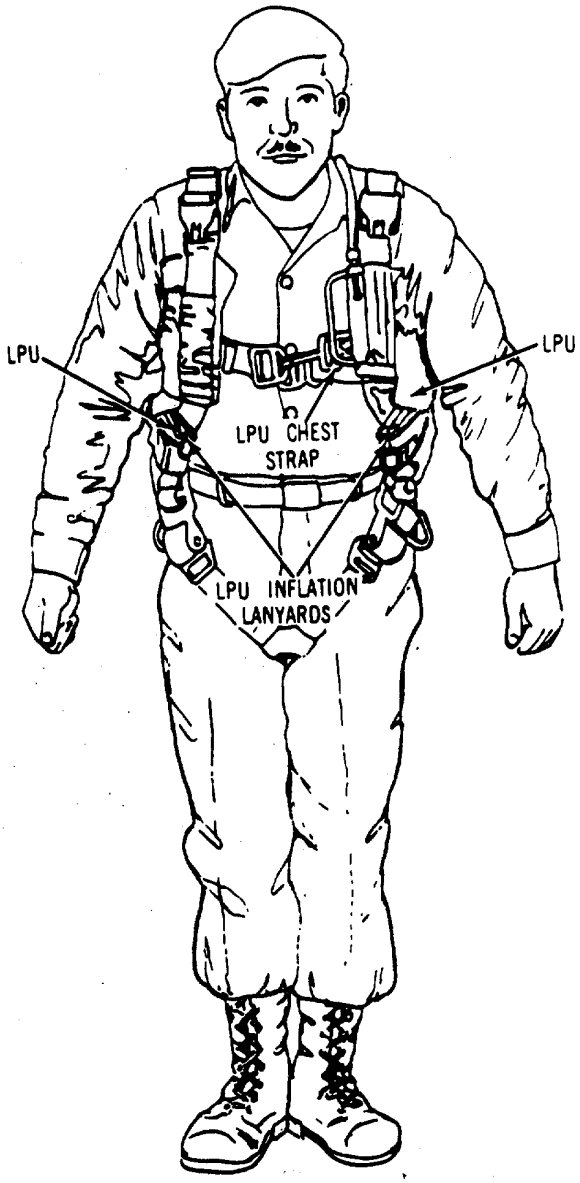


Figure 2-21. Life Preserver Unit Worn With Parachute, Typical.

f. LPU Inflation Sequence. After canopy has inflated, grasp the inflation lanyards of the LPU and inflate both sides of the underarm life preserver by pulling down and out on the inflation lanyards. The LPU will inflate automatically (fig. 2-22).

(1) If one side of the LPU should not completely inflate, grasp the oral inflation valve and push down and blow into the valve to inflate. After the LPU is inflated, turn the locking nuts on the oral inflation valves counterclockwise. This will lock the inflation value closed, preventing accidental deflation of the LPU (fig. 2-23).

(2) After inflation of the LPU, fasten the left and right. sides together with the hook and pile tape attached to the front of the LPU (fig. 223).

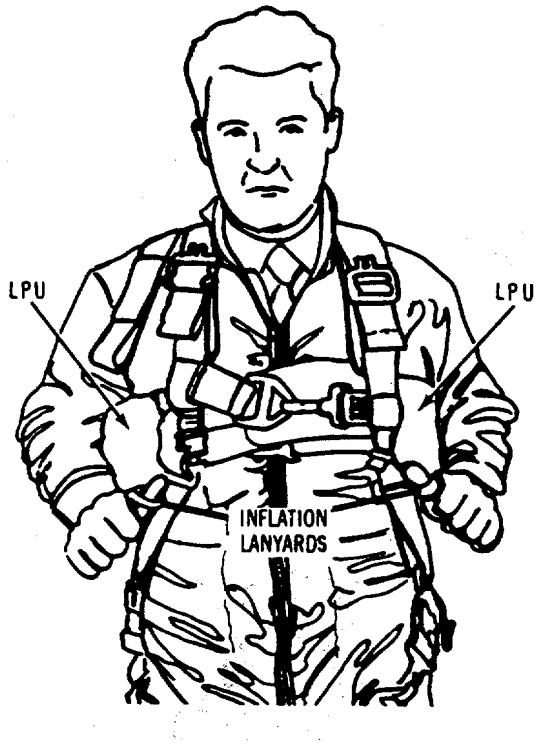


Figure 2-22. Activating the LPU.

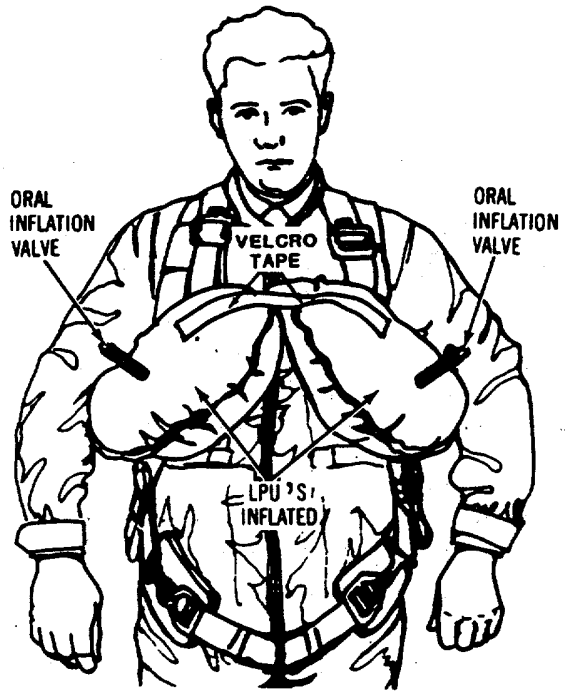


Figure 2-23. LPU Inflated.

WARNING

Do not activate canopy release before water contact.

(3) Upon contact with the water, activate the canopy release latch buttons, using one of the following methods:

(a) Crossarm method. Place the right hand on the left canopy release assembly and the left hand on the right canopy release assembly. Pull down the safety covers. Grasp the release latch buttons, using the thumbs and forefingers and depress the release latch buttons and pull out to release (View A and B, fig. 2-19).

(b) Hand to shoulder method. Place the right hand on the right canopy release assembly, and the left hand on the left canopy release assembly. Then follow procedures in crossarm method (a) above.

(c) Alternate method. If the canopy release latch buttons are difficult to depress, use both hands. Take one hand, open safety cover and depress release latch buttons. Take the other hand and hold canopy release assembly. This is done individually (fig. 2-24).

(4) Koch type canopy release. Activation of the Koch type canopy release fitting is accomplished by inserting your finger or thumb under the locking lever on female portion of release assembly (View A, fig. 2-25).

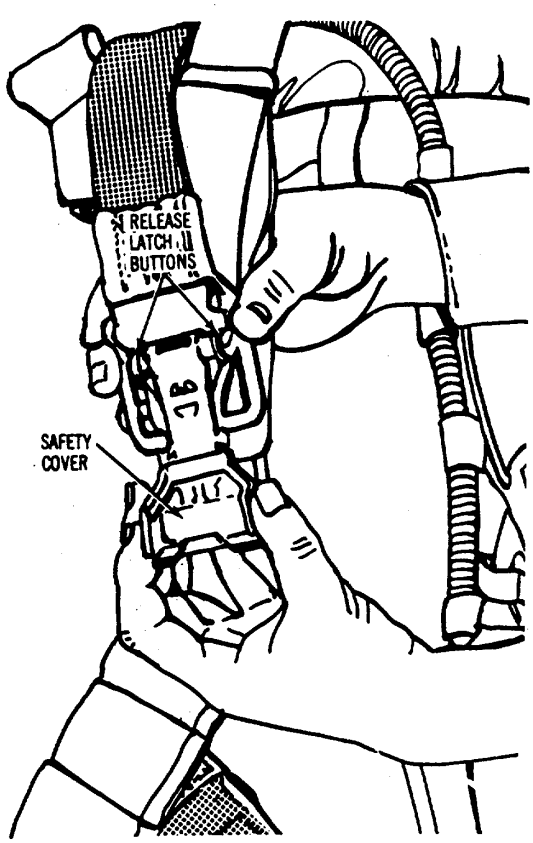


Figure 2-24. Releasing Canopy Release Assembly.

(a) Raise the locking lever with an upward motion (View B, fig. 2-25).

(b) Grip the actuating lever with the finger tip or the thumb and pull downward (View C, fig. 2-25). This action will release the Koch type canopy release fittings.

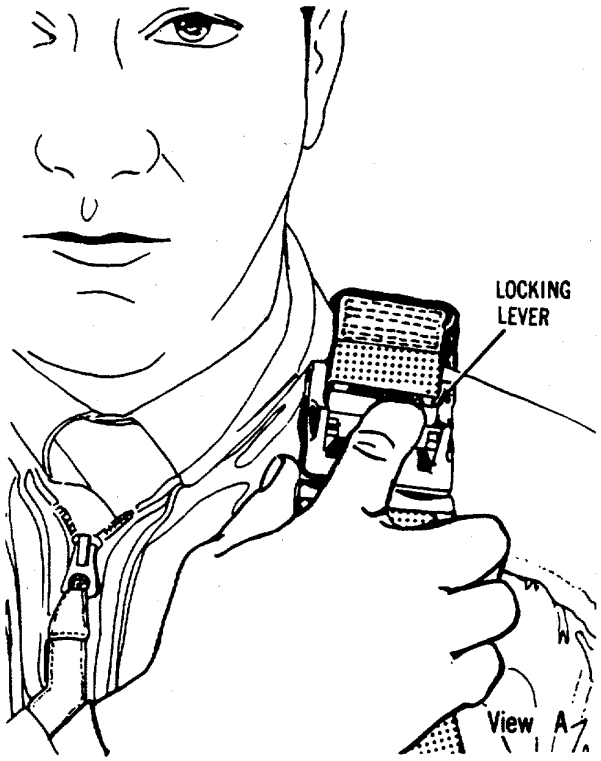
WARNING

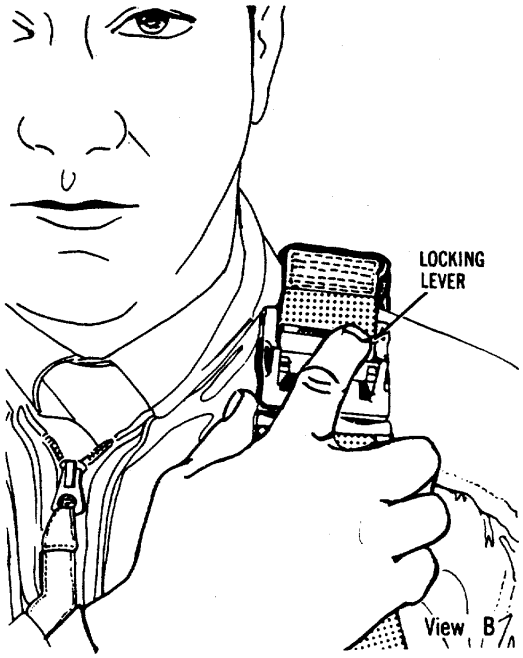
After the parachute canopy has been jettisoned, close the canopy release safety covers to prevent them from accidentally punching holes in the LPU or life raft.

g. Canopy Entanglement. Should you become entangled or covered by the collapsed canopy, remain calm, and grasp the nearest canopy seam. Follow the seam until the canopy skirt is reached and surfacing is possible. Should the feet or legs become entangled in the canopy lines, relax and work slowly and carefully to become separated from the lines.

NOTE

Your floatation gear will keep your head well above water, even when covered with a water saturated canopy





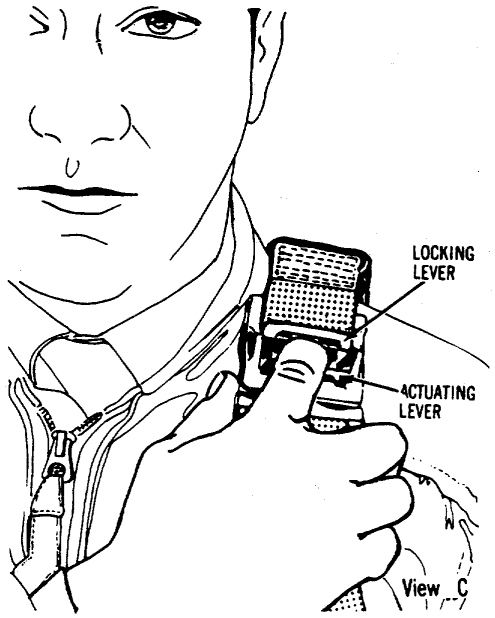


Figure 2-25. Releasing Koch TYP6 Canopy Release Assembly

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Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 027664-000