

OPERATION/MAINTENANCE INSTRUCTIONS

HGU-56/P COMMERCIAL HELMET ASSEMBLY



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SECTION 1: INTRODUCTION AND GENERAL DESCRIPTION

1-1. SCOPE

This booklet provides operation and maintenance instructions and an illustrated parts breakdown (IPB) for the GENTEX HGU-56/P Commercial Helmet Assembly.

1-2. DESCRIPTION

The HGU-56/P Commercial Helmet Assembly provides ear, eye, and head bump protection for aircrew personnel. Through a custom-fitting process, the HGU-56/P Commercial Helmet Assembly provides a stable mounting base for all modules and components.

1-2.1. Standard Components (Figure 1-1)

The basic helmet assembly consists of the following standard components.

- **HELMET SHELL.** Provides bump protection for the head via the shock-dampening **ENERGY-ABSORBING LINER**.
- **BOOM and MICROPHONE.** Part of communications assembly, which also includes earphones and a communications cord.
- **EARCUPS.** Protect hearing by reducing noise and attenuating some side impacts.
- **RETENTION ASSEMBLY.** Stabilizes the helmet on the head; consists of earcup retaining pads, a chinstrap, and a nape strap pad with adjustable straps.
- **THERMOPLASTIC LINER (TPL®).** Optimizes fit and comfort; can be heat-softened and custom-fitted if necessary.
- **ENERGY-ABSORBING (EA) LINER.** Absorbs and reduces impact forces.
- **DUAL VISOR ASSEMBLY.** Protects the wearer's eyes from sun glare, flash fires, ballistic spall, dust, and foreign particles. Optional dual visor assemblies (shown on next page) provide a mounting area for ANVIS night vision goggles.

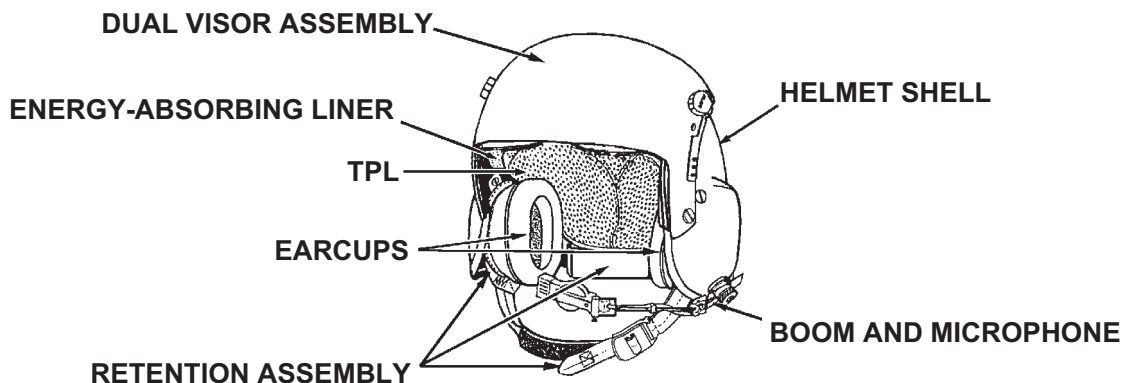


Figure 1-1. HGU-56/P Commercial Helmet Assembly

TPL is a registered trademark of GENTEX Corporation.

1-2.2. Optional Components (Figure 1-2)

Optional components include two kinds of ANVIS dual visor assemblies: one with a quick-disconnect plate that allows one-handed attachment and removal of the ANVIS mount, and one with a raised area for direct mounting of the ANVIS V-1 mount.

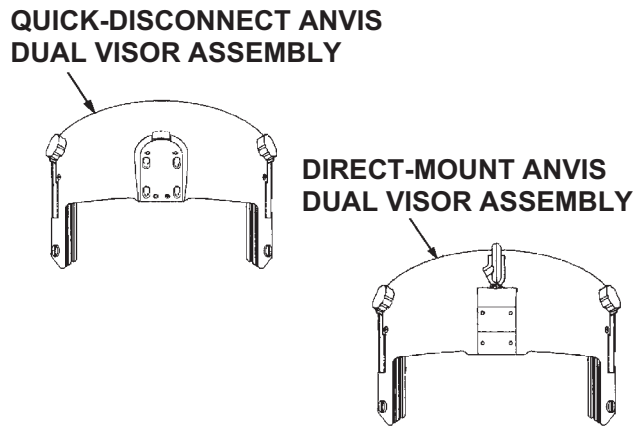


Figure 1-2. ANVIS Dual Visor Assemblies

SECTION 2: PREPARATION FOR USE

2-1. SERVICE UPON RECEIPT

This section contains instructions regarding the tasks to be performed upon receipt of the helmet. These tasks include unpacking and inspection.

2-1.1. Unpacking

1. Open the over pack carton and remove all unit pack cartons. Unit pack cartons are labeled according to their contents. Open each unit pack carton. Remove the sealed helmet and, if supplied, the helmet bag.
2. Unseal the bag containing the helmet. Take the helmet, the earcup spacer pad set, the headband fitting pad set, and the ANVIS mounting kit (if supplied) out of the bag. Remove the wrapping from the helmet.
3. Open the sealed bag containing the helmet bag (if supplied), and remove the helmet bag.

2-1.2. Inspecting Unpacked Equipment

1. Check the helmet and all included items for any damage incurred during shipment. Report any damage to your shipper.
2. Check the helmet and all other parts against the packing slip to determine if all parts have been included. Report any discrepancies immediately to your shipper.

2-2. HELMET SIZING

Tools and Materials Required

- Carpenter's combination square
- Ruler
- Marker
- Wood block (2 inches by 4 inches by 8 inches)
- Adhesive-backed hook-and-pile fastener

WARNING

Proper fitting is essential to the functioning of the helmet, all of its components, and, consequently, the safety of the wearer. Take as much time as necessary to fit the helmet precisely. Use extreme care in taking measurements and checking fit.

1. Obtain a block of wood 2 inches thick by 4 inches wide by 8 inches long. Referring to Figure 2-1, attach an 8-inch strip of hook fastener to the entire length of the center of one of the 4-inch-wide faces. Attach a 12-inch strip of pile fastener, running vertically, to a wall (bottom of the strip approximately 5 feet 4 inches above the floor) so that the block can be adjusted for the various heights of user's heads.
2. Attach the block of wood to the wall at the height of the wearer's head when the wearer is standing.
3. Have the wearer stand with back of head against block. Ensure posture and body alignment are as straight as possible. The wearer should hold his or her head in a comfortable position while focusing on a point directly ahead at eye level.

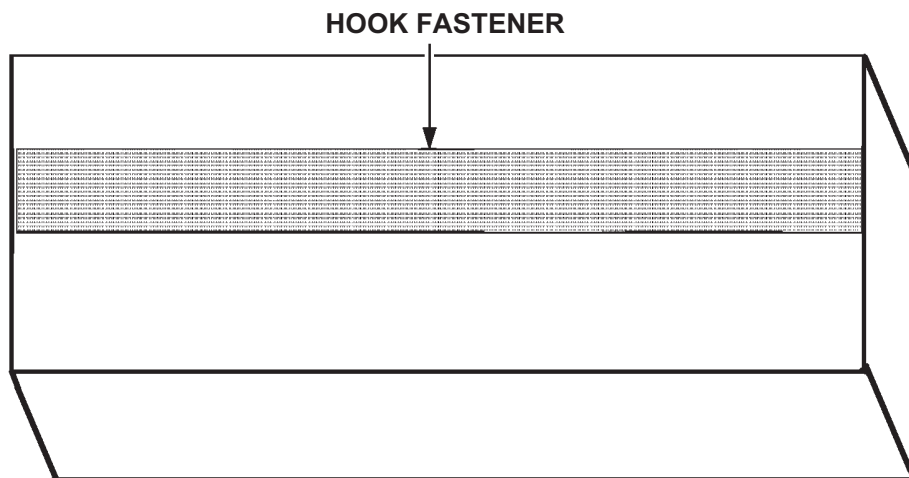
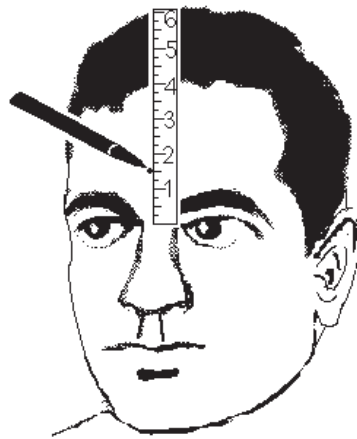


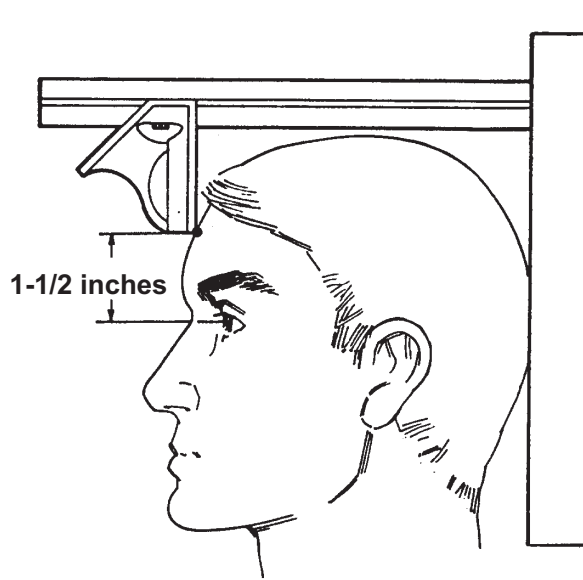
Figure 2-1. Prepared Wood Block

4. Referring to Figure 2-2, view (A), use a ruler to measure a distance 1-1/2 inches above wearer's pupil. Using a marker, make a small mark at this point in the center of the wearer's forehead; this is known as the *forehead reference point* (FRP).
5. Referring to Figure 2-2, view (B), use a combination square to measure from the FRP to the block; this is the *head length*. Be careful to just touch the wearer's skin at the FRP.
6. Select the correct helmet size based upon head length as follows:

HEAD LENGTH (INCHES)	HELMET SIZE
> 8-5/16	XL
8-1/16 - 8-5/16	L
7-3/4 - 8	M
7-7/16 - 7-11/16	S
7-1/8" - 7-3/8	XS
< 7-1/8	XXS



VIEW A



VIEW B

Figure 2-2. Determining Head Length

2-3. ANVIS QUICK-DISCONNECT MOUNT INSTALLATION (For Optional ANVIS Quick-Disconnect Dual Visor Assembly)

Before you can attach the ANVIS night vision goggles to the ANVIS dual visor assembly, you must modify the ANVIS mount. An optional kit contains the parts required for this modification. The kit includes a cable strain relief clamp, four locating pins (two top, two bottom), a backing plate, and a 1 x 1-inch piece of self-adhering hook fastener. Once modified, the mount will provide one-handed attachment and removal. Referring to Figure 2-3, modify the mount as follows:

1. Remove the nut from the right side (as worn) of the ANVIS mount, and place the strain relief clamp over the ends of the screw threads.
2. Place the cable wires under the clamp arm, and replace the nut over the screw threads and the clamp. Tighten the nut until it is secure.
3. Position the backing plate on the rear of the mount so that the screw holes line up and the plate is flush with the top and bottom rear of the mount. Ensure that the wires extending from the rear of the mount are aligned in the mount slots to prevent crushing of wires.
4. Apply a small amount of thread-locking adhesive to the end of each top locating pin (identified by longer, tapered heads), and install these pins through the top holes of the backing plate and into the rear of the mount. Repeat with the bottom locating pins, installing them through the bottom holes. Tighten the pins until they are secure; do not tighten too much.
5. Remove the backing from the hook fastener, and wrap it around the cable connector until the ends meet.

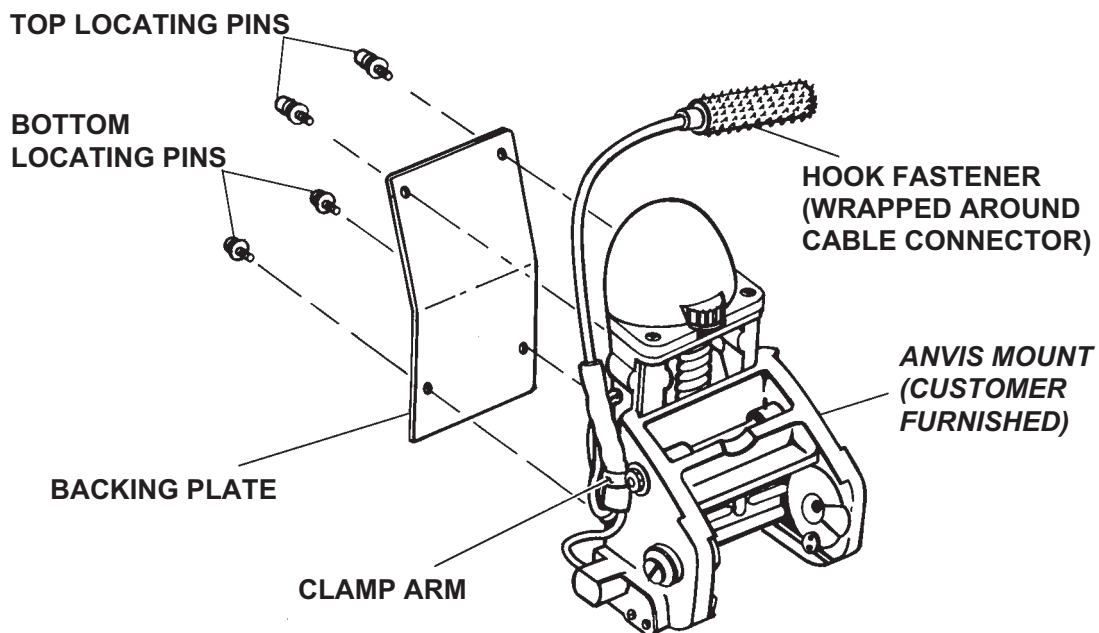


Figure 2-3. Modifying ANVIS Mount

6. Attach the 2-inch x 2-inch pile fastener tab (supplied with the ANVIS mounting hardware kit) to the visor housing as shown in Figure 2-4. This tab will anchor the connector.
7. Attach the two 2-inch x 3-inch pile fastener tabs (supplied with the ANVIS mounting hardware kit) to the back of the helmet as shown in Figure 2-4. These tabs will hold the battery pack.
8. Referring to Figure 2-4, attach the mount to the ANVIS dual visor assembly as follows:
 - a. Align the locating pins with the slots in the mounting platform on the visor housing.
 - b. Insert the pins into the slots, and pull the mount down until it clicks into place.
 - c. Attach the hook fastener on the connector to the pile fastener on the visor housing.
9. To remove the mount from the visor housing, depress the tab on top of the mounting platform, and lift the mount up and away from the housing.

HOOK FASTENER ON CONNECTOR

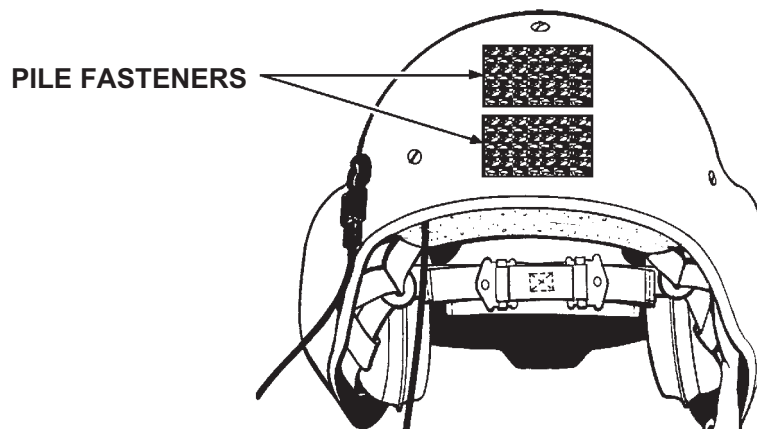
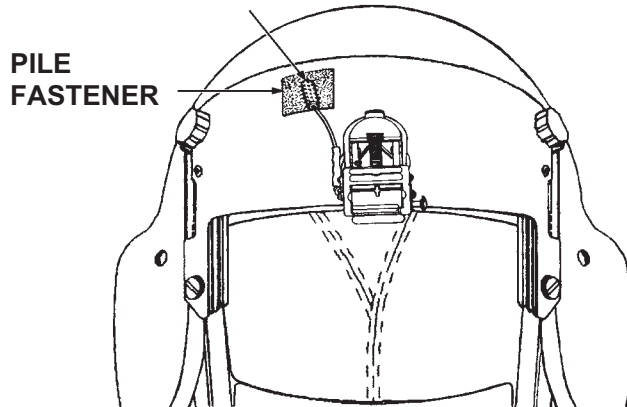


Figure 2-4. ANVIS Mount and Pile Fasteners Installed

2-4. INSTALLING V-1 ANVIS MOUNT ON OPTIONAL DUAL VISOR ASSEMBLY

Tools and Materials Required

- #1 Cross-tip screwdriver
- Jeweler's screwdriver set
- Dual Visor Assembly (88D7611-1)
- V-1 ANVIS Mount
- ANVIS Mounting Kit

1. Remove four thumbscrews that attach visor assembly to helmet; remove visor assembly (refer to Figure 2-5).

2. Remove thumbscrews from visor assembly.

3. Remove housing from tracks.

4. Remove four screws on the back of the ANVIS mount.

5. Referring to Figure 2-6, place the mount against the front of the visor housing and align the mount holes with the visor housing holes.

6. Attach the mount to the housing by inserting four 4-40 x 3/16" pan-head screws (supplied in ANVIS mounting kit) through the back of the housing and into the mount. Fasten the screws securely, but do not tighten too much.

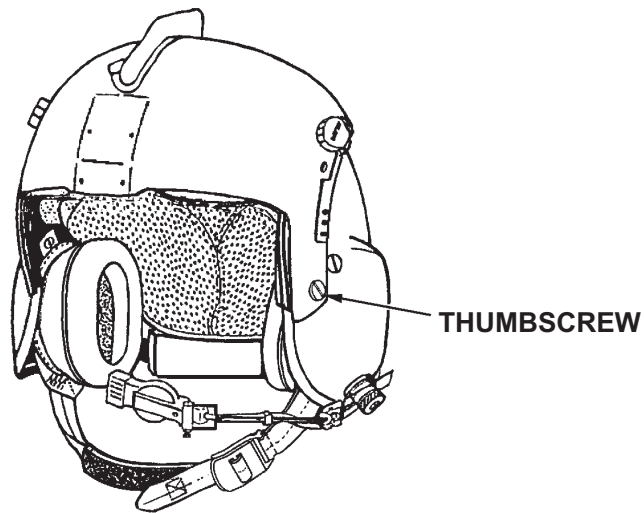


Figure 2-5. Visor Assembly

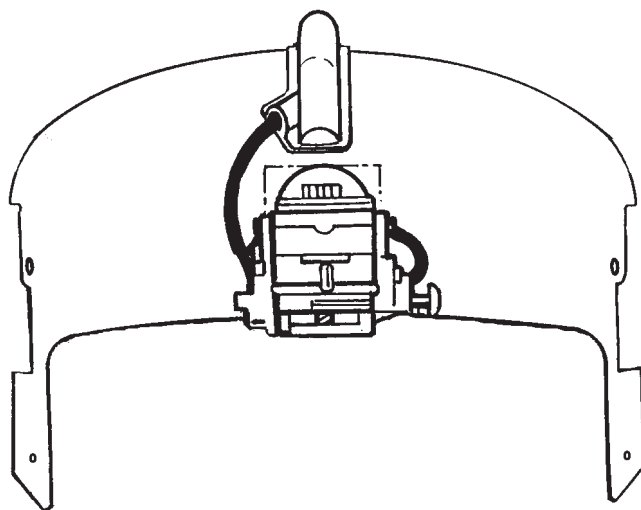


Figure 2-6. ANVIS Mount Attached to Housing

7. Referring to Figure 2-7, remove two screws, washers, and posts attaching the power cord block and power cord cover to the visor housing.

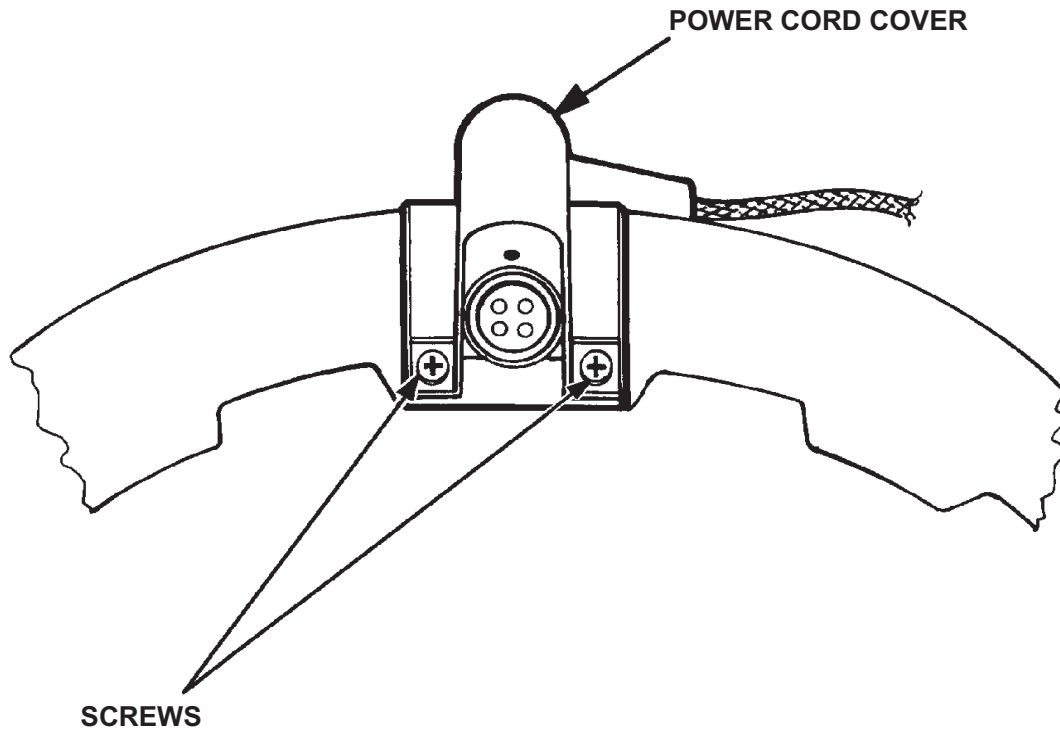
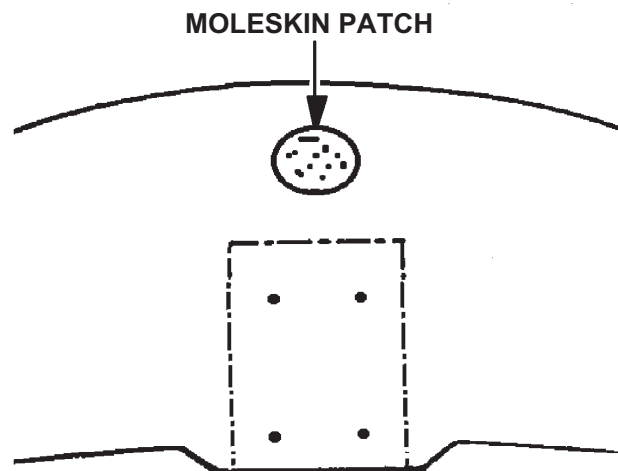


Figure 2-7. Power Cord Cover

8. Referring to Figure 2-8, remove the moleskin patch covering the power cord cover retaining screw on the inside of the visor housing.



9. Remove the power cord cover from the housing by removing the retaining screw from which you removed the moleskin patch.
10. Route the cable and connector under the power cord cover.

Figure 2-8. Moleskin Patch Covering Screw

CAUTION

When reinstalling the power cord cover, be careful to install the screws just snugly enough to secure the cover. Tightening the screws too much may damage the cover.

11. Referring to Figure 2-9, reattach the power cord cover and the power cord block to the visor housing with the screws, washers, and posts removed in Step 8. Ensure that the red dot on the connector points up and that the knurls on the connector are seated between the ridges on the block.

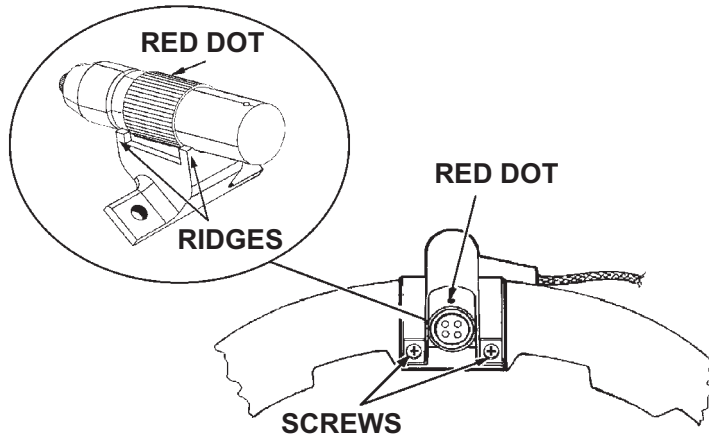


Figure 2-9. Reinstalling Power Cord Cover

12. Referring to Figure 2-10, install moleskin patches (supplied in the ANVIS mounting kit) on the inside of the visor housing in the pattern shown.

13. Align the visor housing over the bushings that protrude upward through the tracks, and install the thumbscrews through the visor housing and the bushings.

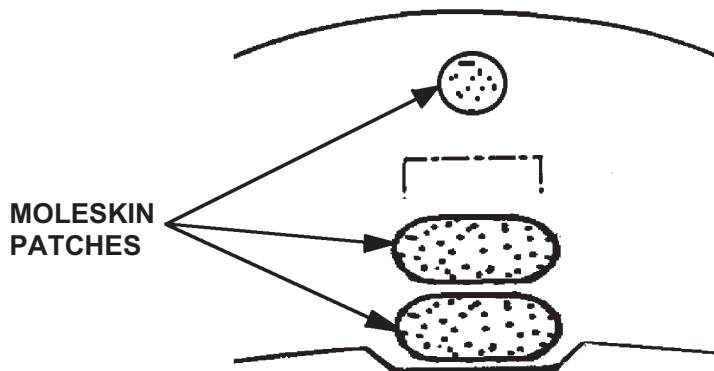
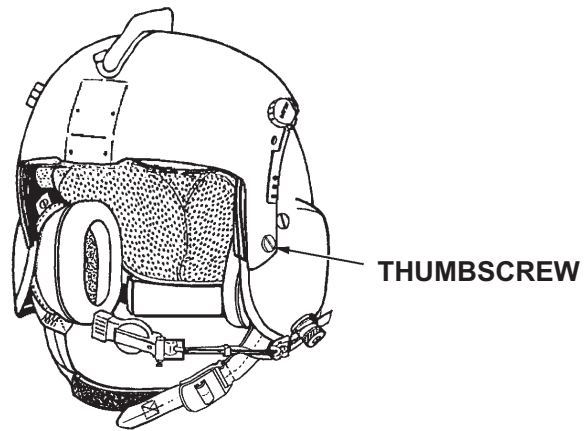


Figure 2-10. Moleskin Patches Installed

14. Position visor housing assembly on helmet, and start four thumbscrews into helmet to attach visor assembly as shown in Figure 2-11. After all four thumbscrews are started, tighten them.



15. Referring to Figure 2-12, attach two 2-inch x 3-inch pile fastener pieces (supplied in the ANVIS mounting kit) to the helmet as follows:

- a. Position the two pile fastener pieces at the rear of the helmet as shown, and mark the area with a pencil.
- b. Clean the marked area with isopropyl alcohol pads.
- c. If the pressure-sensitive adhesive fails to hold on the aviation green painted helmet shell, lightly sand the area to which the pile pads are to be attached before adhering.

Figure 2-11. Visor Housing Assembly

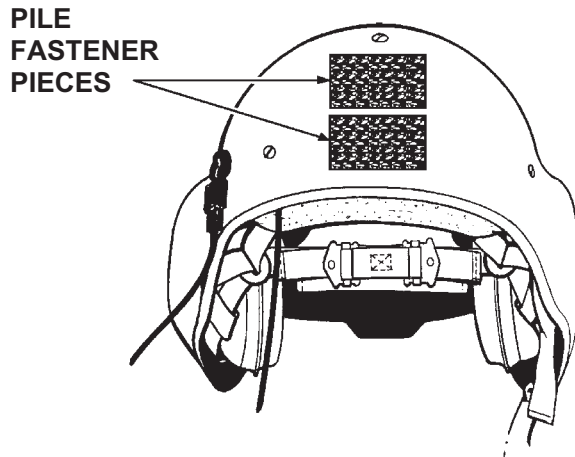


Figure 2-12. ANVIS Pile Fastener Pieces Installed

16. Install the ANVIS goggles (Figure 2-13) in accordance with TM 11-5855-263-10.
17. Perform a continuity check of the ANVIS goggles in accordance with TM 11-5855-263-10.

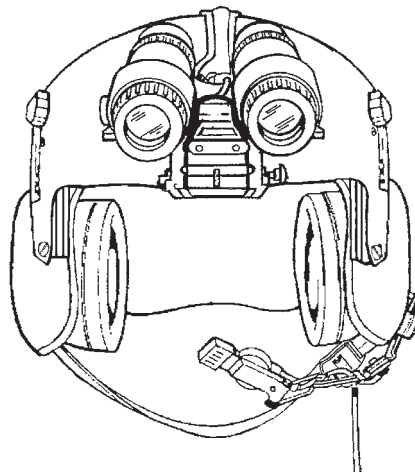


Figure 2-13. ANVIS Mount with ANVIS Goggles Installed

2-5. HELMET FITTING

WARNING

Proper fitting is essential to the functioning of the helmet, all of its components, and, consequently, the safety of the wearer. Take as much time as necessary to fit the helmet precisely. Use extreme care in taking measurements and checking fit.

NOTE

If ANVIS goggles are to be used, check helmet fit with optical systems attached. Ensure that the helmet is fitted to the FRP as described in paragraph 2-2, step 4.

In preparation for the fitting procedure, females with long hair should arrange their hair so that it is completely covered by the helmet and/or the flight suit. The hair must be worn the same way thereafter.

1. Before having wearer don helmet, verify that:

- the TPL is aligned with the front edge of the energy-absorbing liner.
- the TPL is against the crown of the helmet.
- the holes in the front of the TPL align with the plenum ports as shown in Figure 2-14.
- the TPL is aligned with the lower edge of the nape strap pad and sits squarely in the helmet.
- the nape strap pad is completely pulled down so that the keeper tab is taut.



Figure 2-14. Alignment of TPL Holes

CAUTION

When donning or removing helmet, spread helmet just enough to clear head. Excessive spreading may damage helmet.

2. Have the wearer don the helmet as follows:

- a. Hook thumbs in earcups as shown in Figure 2-15, and spread helmet slightly.
- b. Position helmet firmly against forehead; rotate helmet rearward and down onto head.
- c. Press helmet down firmly with both hands to ensure that helmet is properly positioned on head.

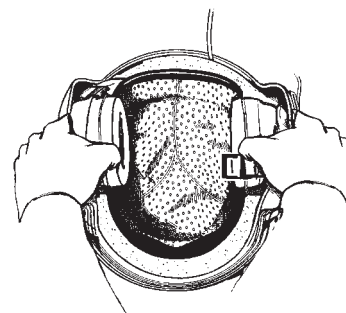


Figure 2-15. Grip for Donning Helmet

- Align the edge of the helmet with the FRP (marked in the previous procedure).
- Adjust the earcups so that they cover the wearer's ears. If earcup pressure is too great without fitting pads, select the next larger helmet size. Check the earseal compression; earseals (Figure 2-16) should be compressed evenly and to the greatest degree possible without causing discomfort. Proper earseal compression may be indicated by a visible ring impression around the ear when the helmet is removed. If no ring is visible, check carefully to see that none of the ear is pinched under the earseal. Always ask the wearer if the ear is centered in the earcup.

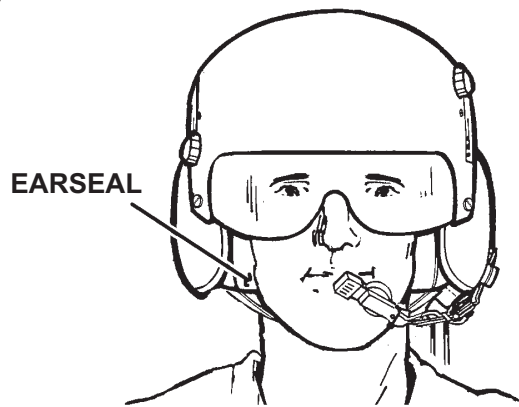


Figure 2-16. Earseal

- If the earseals are not sufficiently compressed, add earcup spacer pads as required between the earcup retaining pad and the helmet shell (NOT between the earcup and the retaining pad).

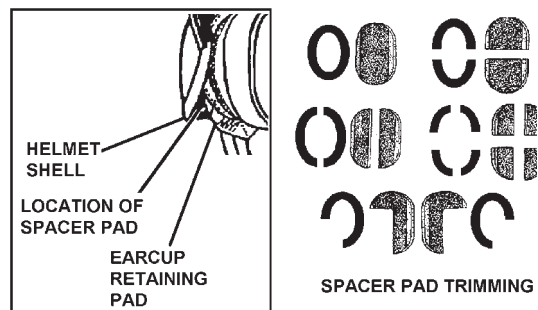


Figure 2-17. Positioning and Trimming of Earcup Spacer Pads

NOTE

The doughnut-shaped pads and the oval pads may be installed whole, cut in half horizontally to adjust up/down earcup tilt, or cut in half vertically to adjust forward/rearward earcup tilt. (See Figure 2-17.) You may have to try various combinations of pads to achieve proper earseal compression.

- Fasten and adjust the chinstrap as shown in Figure 2-18. Center chinpad under chin; tack chinpad into place using suitable thread.

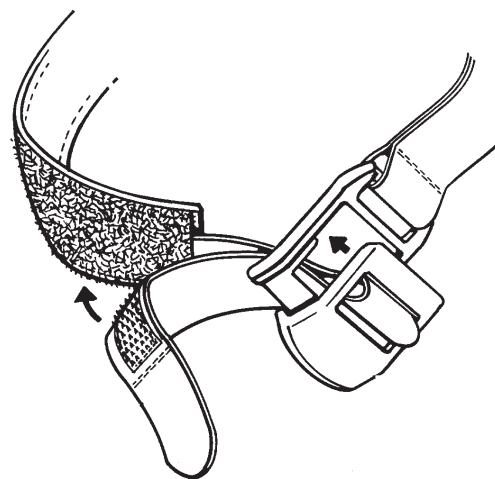


Figure 2-18. Chinstrap

7. Referring to Figure 2-19, adjust the nape strap pad for a snug fit by tightening or loosening the nape straps. Check the fit of the pad by inserting two fingers (index and middle) between the pad and the wearer's head. The fingers should just fit.

8. Referring to Figure 2-20, lower visors to check centering and nose clearance. If necessary, adjust visor as follows:

a. Adjust the visor using the downstop locking screws; one is located on each side of the visor. (Loosening the screws allows the downstop to be raised or lowered approximately one inch for visor-to-mask or facial conformance.)

b. When the desired position is attained, tighten the screws.

9. Ask the wearer to evaluate the fit. If a pressure point exists in the center of the forehead, refer to Figure 2-21 and add headband fitting pads between the TPL and the energy-absorbing liner to either side of the pressure point to even the pressure. If any pressure point remains, TPL custom fitting may be required. This procedure begins on Page 14.

10. If fit is too loose, try a smaller-size helmet and repeat steps 2 through 9.

NOTE

If the wearer cannot be fitted according to these fitting instructions, contact GENTEX Corporation.

11. Repeat steps 6 through 9 for a final fit check.

12. If ANVIS goggles are used, place systems in normal operating position and check for full operational capability in accordance with TM 11-5855-263-10.

13. After first flight, recheck and adjust as necessary helmet straps, TPL, and earcups.

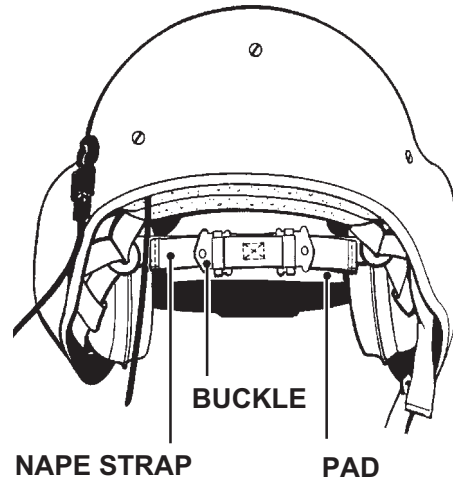


Figure 2-19. Nape Strap

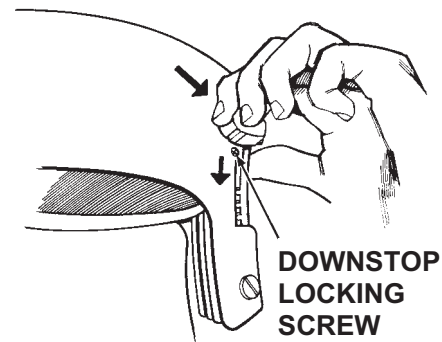


Figure 2-20. Visor

HEADBAND FITTING PADS



Figure 2-21. Headband Fitting Pads

2-5. TPL CUSTOM-FITTING

Equipment, Tools, and Materials Required

- Convection oven
- Oven thermometer
- Ruler
- Timer
- Masking tape
- Cotton gloves
- Helmet with TPL to be fitted

WARNING

Proper fitting is essential to the functioning of the helmet, all of its components, and, consequently, the safety of the wearer. Take as much time as necessary to fit the helmet precisely. Use extreme care in taking measurements and checking fit.

CAUTION

If using an oven with upper heating elements to heat the TPL, ensure that the upper heating elements do not activate during the heating process, or plastic TPL layers will melt.

NOTE

Do not use a microwave oven; it will not heat plastic layers.

1. Set oven rack to lowest position; heat oven to 200°F (93.3°C). Refer to Figure 2-22.

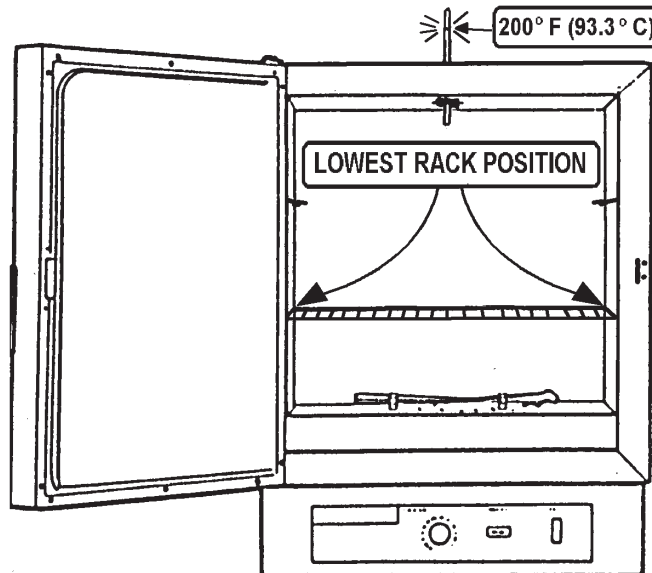


Figure 2-22. Correct Oven Temperature and Rack Position

CAUTION

Before you place the TPL in the oven, ensure that the cover is attached properly to the plastic layers (not on backwards).

2. Place TPL in center of rack in heated oven, cloth side on rack.
3. Ensure that oven stabilizes at temperature listed in Step 1 before starting timed sequence.
4. Set timer, stopwatch, or equivalent for 10 minutes. Heat TPL for approximately 10 minutes.
5. While TPL heats, review steps 8 through 12 so that they may be completed in 30 seconds or less.
6. Using oven thermometer, check oven temperature every 3 to 5 minutes during the heating process. Adjust oven controls if temperature falls outside the range specified in Step 1.
7. Describe fitting procedure to wearer being fitted.

WARNING

Handle heated TPL carefully; plastic layers will be hot. Touch fabric cover only. Wear gloves if necessary.

NOTE

- If headband fitting pads are installed in the helmet, remove them.
 - Cover hook fastener on nape strap pad with masking tape to ease installation of heated TPL, and loosen the nape strap pad.
 - Steps 8-13 should be completed in less than 30 seconds.
8. Remove TPL from oven.

9. Squeezing sides of TPL together to clear earcups, install liner in helmet as shown in Figure 2-23. Ensure that label and holes are positioned toward front of helmet.
10. Have wearer hold helmet upside down. Insert TPL so that the front edge extends approximately 1/4" past the front edge of energy-absorbing liner. Ensure liner is centered in helmet.

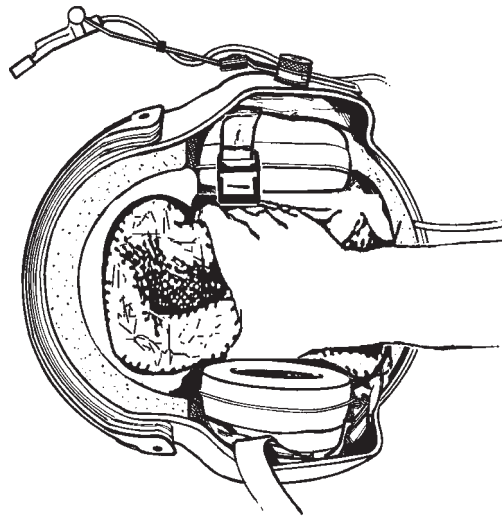


Figure 2-23. Installing TPL

CAUTION

Do not deform hot, soft TPL by pressing too hard in any one area when positioning liner in helmet.

11. Position top of TPL in helmet. Position rear of TPL against top edge of, but not down in front of, nape strap pad while holding nape strap pad keeper strap taut.

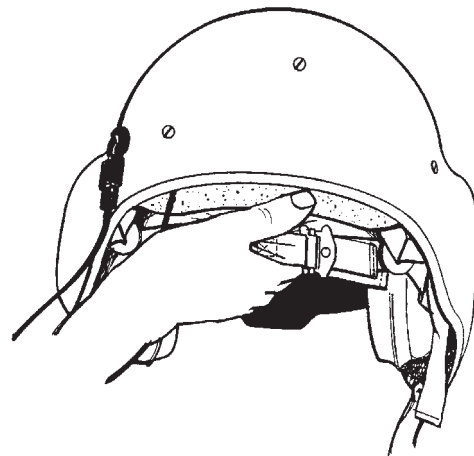


Figure 2-24. Holding TPL and Nape Strap Pad

CAUTION

When donning or removing helmet, spread helmet just enough to clear head. Excessive spreading may damage helmet.

12. Have wearer hook thumbs in earcups and spread helmet. Place front of helmet against the FRP. Referring to Figure 2-24, hold the edge of TPL and nape strap pad with hand and pull down. Have wearer don helmet and rotate helmet rearward.

NOTE

Holding the TPL and the nape strap pad when donning the helmet with a heat-softened TPL will prevent the TPL from bunching up in the rear.

13. Have wearer pull downward with hands on top of the helmet until it is seated firmly on the head. Lower visor to check nose centering and clearance. Fasten chinstrap and nape strap as tightly as possible, without causing discomfort, to optimize the wearer's peripheral vision. Have wearer maintain as much downward pressure as possible, without causing discomfort, for 3-5 minutes.

NOTE

The TPL top should be compressed as much as possible; this will afford a low center of gravity and long-lasting comfort.

14. Release pressure on top of head and remove helmet. Ensure that TPL lies smoothly in helmet. Reposition liner if necessary to maintain 1/4" protrusion at front of helmet.

NOTE

If TPL is not properly fitted, reheat TPL, and repeat custom-fitting procedure.

15. Remove masking tape from nape strap pad hook fastener.
16. Have wearer don helmet. Adjust earcups; tighten nape strap and chinstrap.
17. Perform a final fit check. No pressure points should exist; if they do, remove TPL from helmet and repeat custom-fitting procedure.
18. If fit is still too tight after the TPL has been custom-fitted, select the next larger helmet size.
19. If helmet fits properly, proceed to Step 2 of Paragraph 2-4.

SECTION 3: OPERATION

Operation of the HGU-56/P Commercial Helmet consists of donning/removing the helmet and operating the components.

3-1. DONNING/REMOVING HELMET

WARNING

When donning helmet, ensure that nape strap pad is completely pulled down and that the keeper tab is taut. Failure to do so will decrease helmet stability and may cause injury to the wearer.

CAUTION

When donning or removing helmet, spread helmet just enough to clear head. Excessive spreading may damage helmet.

3-1.1. Donning Helmet

1. Referring to Figure 3-1, hook thumbs over earcups and spread helmet slightly.
2. Position front edge of helmet firmly against forehead; rotate helmet rearward and down onto head.
3. Press helmet down firmly with both hands to ensure that helmet is properly positioned on head.
4. Fasten and adjust chinstrap per paragraph 3-2.1.
5. Adjust nape strap per paragraph 3-2.2.

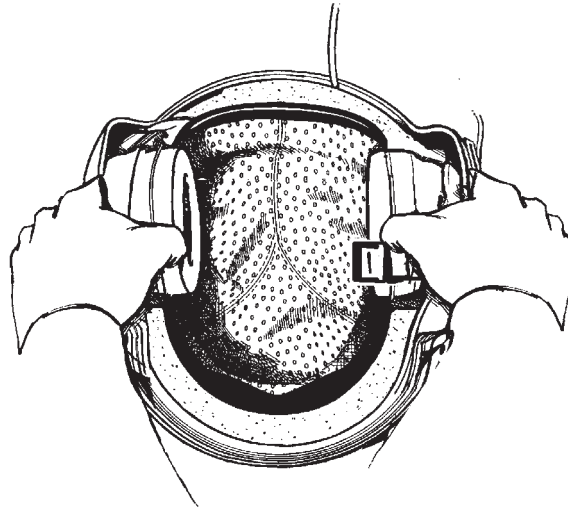


Figure 3-1. Grip for Donning Helmet

3-1.2. Removing Helmet

1. Loosen chinstrap per paragraph 3-2.1.
2. Hook thumbs over earcups and spread helmet slightly.
3. Rotate helmet off head.

3-2. OPERATION OF COMPONENTS

3-2.1. Fastening and Adjusting Chinstrap (Figure 3-2)

WARNING

ALWAYS wear the helmet with the chinstrap properly attached and adjusted. Failure to secure the chinstrap will decrease helmet stability and may cause injury to the wearer.

1. Fasten chinstrap by inserting the toggle through the square receiver, and allow the toggle to rotate to the locking position. Allow the toggle to lie flat against the square receiver so that it will not separate.
2. Adjust the chinstrap for a comfortable, but secure, tension. To tighten the chinstrap, pull on end to attain the desired fit. Tightening the chinstrap will also tighten the earcup fit.
3. Attach the free end of the chinstrap to the chin pad using the hook-and-pile fastener to hold it in place.
4. To loosen the chinstrap, separate the free end of the chinstrap from the chin pad and push the free end of the strap back through the toggle as needed to loosen the strap.

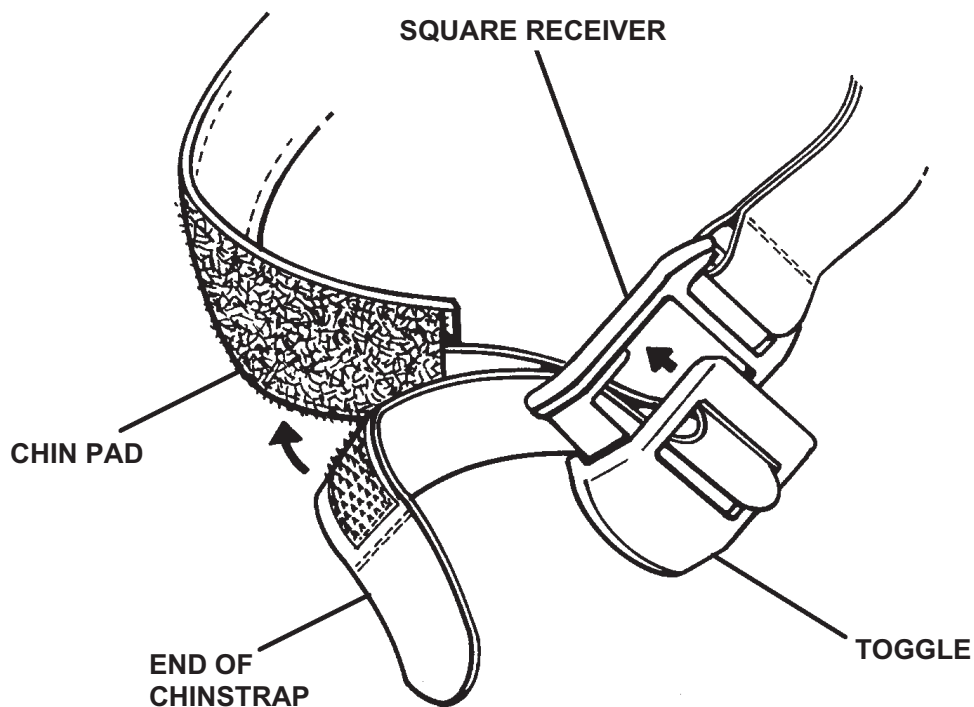


Figure 3-2. Fastening Chinstrap

3-2.2. Adjusting Nape Strap (Figure 3-3)

1. Adjust the nape strap pad (1) position using nape strap pull-tabs (2). Tighten by grasping the two tabs, pulling to the back, and then pulling from side to side until the nape strap is snug.

NOTE

When the nape strap pad is centered, both nape straps will be the same length.

2. To loosen the nape, flip buckles (3) towards the center of the nape strap pad. Straps will slide through buckles easily.

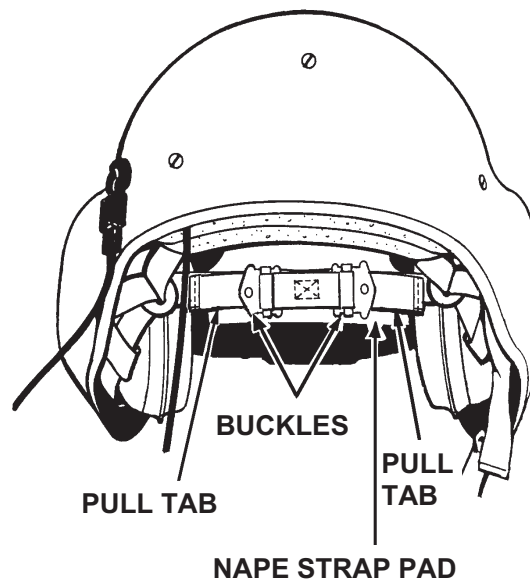


Figure 3-3. Nape Strap

3-2.3. Raising and Lowering Visors (Figure 3-4)

Use the left-hand knob to raise or lower the outer visor. Use the right-hand knob to raise or lower the inner visor. To move the visor knob, brace your thumb against the visor track, squeeze the knob with your forefinger, and rotate the visor down or up as desired.

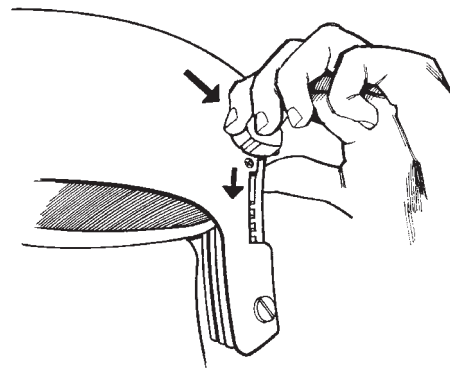


Figure 3-4. Moving Visor Knob

3-2.4. Operating ANVIS Goggles

Refer to the appropriate technical manual for ANVIS operational procedures.

WARNING

Ensure that the ANVIS system mounted on your helmet is working properly in accordance with the appropriate technical manual prior to using it. Failure to check the ANVIS or to be able to see the low battery warning light when using the ANVIS may result in a critical loss of equipment use.

3-2.5. Operating Communications System

1. Ensure that the microphone cord is plugged into the communications cord connector at the rear of the helmet.
2. Plug the communications cord into the aircraft communications device.

CAUTION

When performing Step 3, be sure to loosen the knurled nut on the swivel assembly before you rotate the boom assembly. Any attempt to rotate the boom assembly without loosening the knurled nut can cause the mounting hole in the helmet shell to become rounded; consequently, the boom assembly will not be held in place.

3. Referring to Figure 3-5, adjust the microphone to the proper operating position as follows:
 - a. Loosen the boom swivel assembly by rotating the knurled nut counterclockwise until the boom is free to move.
 - b. Rotate the boom up or down as needed.
 - c. Slide the boom backward or forward as needed.
 - d. Tighten the swivel by rotating the knurled nut clockwise.
 - e. Adjust the front of the boom as needed.
 - f. Loosen the knurled screw on the microphone, and adjust the microphone as needed. Tighten the screw.

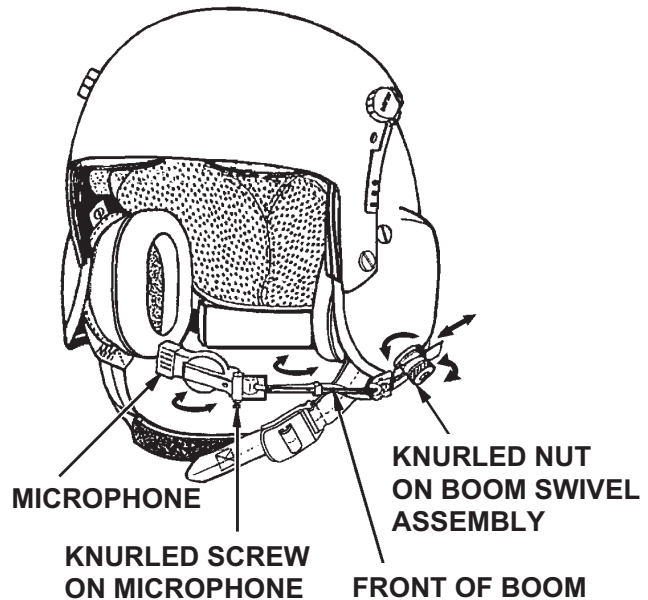


Figure 3-5. Microphone Adjustment Points

SECTION 4: MAINTENANCE

4-1. PREVENTIVE MAINTENANCE AND CLEANING

To keep the helmet in satisfactory operating condition, the user should discover all deficiencies and have them corrected as soon as possible before additional damage or failure occurs. The preventive maintenance procedure consists of pre-flight and post-flight inspections. Refer to Table 4-1, which begins on the next page. The cleaning procedure consists of various cleaning tasks, which are listed in Table 4-2 on Page 24.

4-1.1. Pre-flight Inspection

Prior to each flight, the user shall inspect the helmet to see that it is in serviceable condition, reporting any damage to the maintenance technician.

4-1.2. Post-flight Inspection

After each flight, the user shall inform the maintenance technician of any component malfunction or damage to the helmet.

4-1.3. Cleaning

The user shall clean the helmet as needed.

TABLE 4-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - Before (pre-flight)

A - After (post-flight)

C - Every 120 calendar days

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED/ PROCEDURE	NOT FULLY MISSION CAPABLE IF:	
	B	A	C			
1.				<u>Helmet shell.</u>		
				<u>WARNING</u>		
				Do not repair or use any helmet that is damaged beyond the limits set forth in this PMCS chart. Injury or death may result if you do.		
	x	x	x	Inspect surface for chipped paint with penetration of fibers.	Surface has chipped paint with penetration of fibers.	
	x	x	x	Inspect surface for delaminations larger than an nickel, or cracks that are forked or branched.	Surface has delaminations larger than a nickel, or cracks that are forked or branched.	
	x	x	x	Inspect surface for cracks, running front to back, measuring longer than 2 inches, or penetrating the light-colored inner fiber layers.	Surface has cracks, running front to back, measuring longer than 2 inches, or penetrating the light-colored inner fiber layers.	
	x	x	x	Inspect surface for cracks, running side to side, measuring 1 inch or longer, or penetrating the light-colored inner fibers.	Surface has cracks, running side to side, measuring 1 inch or longer, or penetrating the light-colored inner fiber layers.	
	x	x	Inspect the edge for cracks.	Edge has any cracks.		
	x	x	Inspect the eardome area for holes or cracks.	Any cracks penetrate all fiber layers, or any holes exist in the eardome area.		
2.				<u>TPL</u>		
	x	x	x	Check fit.	Loose fit or improperly fitted.	
	x	x	x	Inspect plastic layers for attachment.	Plastic layers have one or more plies that have been separated from the stack.	
				x	Check for cover for dirt.	Cover is greasy, oily, or dirty.
3.				<u>Energy-absorbing liner</u>		
	x	x	x	Check for holes and cracks.	Energy-absorbing liner has holes or compressions, gouges deeper than 1/4" cracks in front, or cracks wider than 1/2" in rear.	

**TABLE 4-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES
(Continued)**

B - Before (pre-flight)

A - After (post-flight)

C - Every 120 calendar days

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED/ PROCEDURE	NOT FULLY MISSION CAPABLE IF:
	B	A	C		
4.				<u>Earcups</u>	
	x	x	x	Check fit.	Earseals are not properly compressed around wearer's ears.
	x	x		Check for holes, cracks, and tears.	Holes, cracks, or tears exist.
			x	Inspect earcup for cracks, breaks, or loose/missing hook fastener on back	Earcup is cracked or broken; hook fastener is loose or missing.
5.				<u>Earseals</u>	
			x	Inspect for cuts, tears, and split seams.	Cuts or tears exist; seams are split, inner foam is exposed.
6.				<u>Retention Assembly</u>	
	x	x	x	Check attachment.	Not properly attached to helmet.
	x	x	x	Check fit of nape assembly.	Nape assembly is improperly fitted.
	x	x	x	Check buckles for breaks, straps for tearing/fraying, and nape assembly for holes and cracks.	Buckle is broken, strap is torn/frayed, or nape assembly has holes or cracks.
			x	Inspect for broken, loose, or missing hardware; split seams; fraying; dirt.	Hardware is broken, loose, or missing; seams are split; fabric is frayed, oily, greasy, or dirty.
7.				<u>Earphones</u>	
	x	x		Check operation in aircraft.	Any malfunction exists.
			x	Check earphone for malfunctions using Test Set, Intercommunications Unit.	Earphones are malfunctioning.
8.				<u>Microphone/Boom Assembly</u>	
	x	x		Check the attachment of hardware including set screws.	Hardware is loose or missing, or boom fails to hold microphone in place.
	x	x		Check operation in aircraft	Microphone is malfunctioning.
			x	Check microphone for malfunctions using Test Set, Intercommunications Unit.	Any malfunction exists.

**TABLE 4-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES
(Continued)**

B - Before (pre-flight) A - After (post-flight) C - Every 120 calendar days

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED/ PROCEDURE	NOT FULLY MISSION CAPABLE IF:
	B	A	C		
8.	x	x	x	<u>Visor assembly.</u> Check visors for dirt or scratches.	Dirt or scratches interfering with vision exist.
	x	x	x	Check operation of visors.	Visors do not move freely in tracks.
	x	x	x	Check function of locking mechanism.	Visor fails to lock in desired position.
			x	Check housing for holes and cracks.	Visor housing has any holes or cracks.
9.			<u>Helmet Bag.</u> Inspect for dirt, missing hardware, broken stitching.	Fabric is dirty; hardware is missing; stitching is broken.	
10.	x	x	x	<u>ANVIS goggles.</u> Refer to the appropriate technical manual.	Any damage exists. Unit is not operational. Damaged cable assembly.

Table 4-2. CLEANING

COMPONENT	CONDITION	CLEANING
Helmet shell	Dirt, grease, scuff marks	Use mild detergent and clean cloth
Earcups	Dirt, perspiration	Wipe with a damp cloth; for earphone protection, do not use too much water.
Communications cord assembly	Dirt, grease	Wipe with damp cloth; dry thoroughly.
Visors	Dust, grease, perspiration	Use soft cloth and mild soap solution; rinse thoroughly.
Visor housing, track, knob	Sediment, dirt buildup, grease	Use clean cloth dampened with mild soap solution.
Retention assembly	Dirt, grease	Use clean cloth dampened with water; allow to dry thoroughly.
Cloth cover, TPL	Dirt, stains	Machine wash (gentle cycle) or hand wash with warm water; allow to air-dry. (Do not use dryer.)
Plastic layers, TPL	Dirt	Wipe exterior layers with damp cloth. Replace two-sided tape after cleaning.

4-2. TROUBLESHOOTING

Table 4-2 provides an index of common malfunctions of helmet components and directs you to the procedures required to eliminate those malfunctions. When examining this table, keep the following in mind:

1. You should first find the malfunction that most closely describes the problem, then perform the tests, inspections, and corrective actions in the order in which they are listed.
2. This manual may not list every possible malfunction. If you encounter a malfunction not listed in the table and are unable to resolve it, notify your supervisor.

Table 4-2. Aviation Unit Maintenance Troubleshooting Procedures

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. UNABLE TO RAISE OR LOWER VISOR LENS.		
	Step 1. Inspect for sediment or dirt buildup in tracks.	Clean tracks in accordance with Table 4-2.
	Step 2. Inspect for defective visor knob.	Replace defective visor in accordance with paragraph 4-3.7.
	Step 3. Inspect for defective visor tracks.	Replace defective visor tracks in accordance with paragraph 4-3.7.
	Step 4. Inspect for defective visor housing.	Replace defective visor housing in accordance with paragraph 4-3.7.
	Step 5. Inspect visor lenses for defects.	Replace defective lens in accordance with paragraph 4-3.7.
2. UNABLE TO OPERATE ANVIS GOGGLES (ON OPTIONAL DUAL VISOR ASSEMBLY).		
		Refer to the appropriate technical manual.

**Table 4-2. Aviation Unit Maintenance Troubleshooting Procedures
(continued)**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<hr/>		
3. UNABLE TO FASTEN OR ADJUST CHINSTRAP.		
	Inspect retention assembly for defective hardware or webbing.	
		Replace retention assembly in accordance with paragraph 4-3.3.
4. UNABLE TO ADJUST NAPE STRAP.		
	Inspect retention assembly for defective hardware or webbing.	
		Replace retention assembly in accordance with paragraph 4-3.3.
5. UNABLE TO KEEP MICROPHONE IN POSITION.		
	Inspect boom/swivel assembly for loose screw.	
		If unable to tighten screw, replace in accordance with paragraph 4-3.5.
6. UNABLE TO COMMUNICATE.		
	Ensure that communications cord is plugged into communications unit and that unit is working. Ensure helmet connector on left rear side of helmet is secured. If still unable to hear, perform continuity check as follows:	
	Step 1. Disconnect microphone cable from microphone.	
	Step 2. Remove receivers.	

**Table 4-2. Aviation Unit Maintenance Troubleshooting Procedures
(continued)**

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

Step 3. Using a multimeter, refer to Figure 4-1 and perform Test 1 in accordance with the chart below. If no failure is detected, proceed to step 4. If a failure is detected, replace the communication cord in accordance with paragraph 4-3.6. Proceed to step 5.

NOTE

Numbers in test chart correspond to numbered callouts in illustration.

Test 1 Chart

FROM	TO	OPEN	SHORTED
1	2	Good	Bad
1	3	Bad	Good
1	5	Good	Bad
1	6	Good	Bad
2	4	Bad	Good
2	5	Good	Bad
2	6	Good	Bad
5	6	Good	Bad

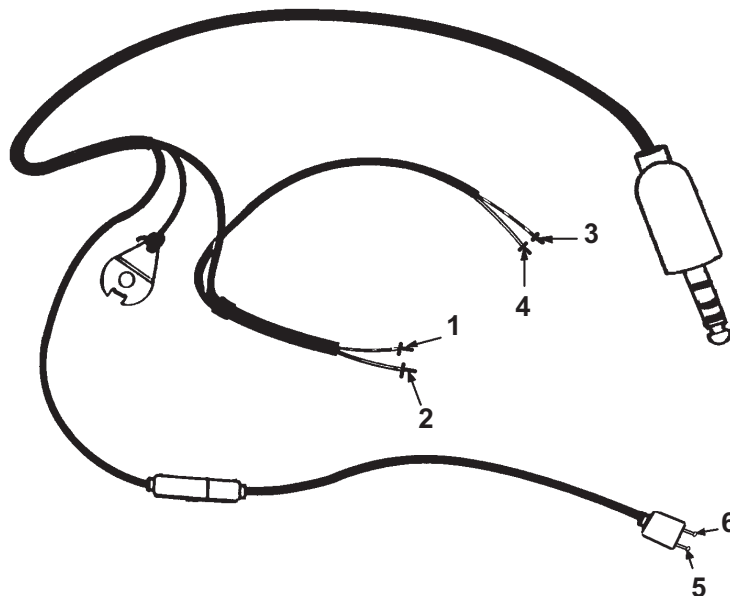


Figure 4-1. Test Points for Test 1

**Table 2. Aviation Unit Maintenance Troubleshooting Procedures
(continued)**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	Step 4. Using a multimeter, refer to Figure 4-2 and perform Test 2 in accordance with the chart below.	
	If no failure is detected, the communication cord is working. Replace earphone or microphone as necessary. Proceed to step 5.	
	If a failure is detected, and you are using the standard communications system, unscrew the plug cover and check for any loose connections or cold solder joints. Resolder any defective connections. Proceed to step 5.	
	If a failure is detected, and you are using the TEMPEST communications system, replace the communication cord in accordance with paragraph 4-13f. Proceed to step 5.	

NOTE

Numbers in test chart correspond to numbered callouts in illustration.

Test 2 Chart

FROM	TO	OPEN	SHORTED
1 or 3	7	Bad	Good
2 or 4	9	Bad	Good
5	8	Bad	Good
6	10	Bad	Good

Step 5. Test communications system by connecting it to a working radio.

Step 6. If communications system still does not work, replace communications cord.

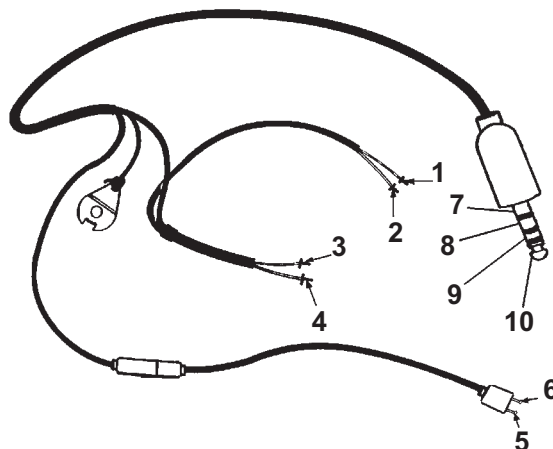


Figure 4-2. Test Points for Test 2

4-3. COMPONENT REPLACEMENT

4-3.1. Energy-Absorbing Liner

Tools and Materials Required

- Flat-tip screwdriver
- Icing spatula
- Energy-absorbing liner

NOTE

Before performing this procedure, disengage the chinstrap buckle, and loosen nape strap pad adjustment. This will ease removal of the energy-absorbing liner.

Removal

1. Detach the earcups from earcup retainer pads by disengaging hook-and-pile fasteners, and passing them through the retention straps. Allow earcups to hang outside the helmet by communications cord.
2. Referring to Figure 4-3, squeeze sides of TPL and remove it from helmet by disengaging the front and rear hook-and-pile fasteners.
3. Referring to Figure 4-4, remove the pan-head screw, spring washer, and post fastening the retention assembly to the center rear of the helmet shell. Retain the screw, washer, and post for reassembly.
4. Loosen the nape strap pad as much as possible.

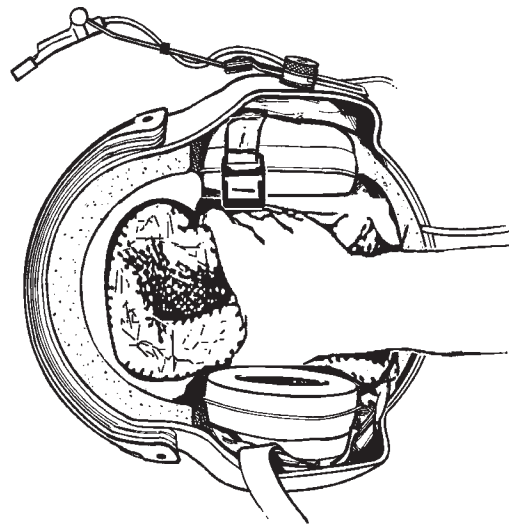


Figure 4-3. Removing TPL

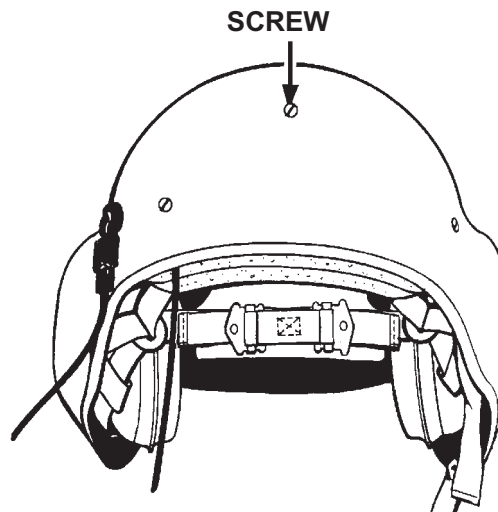


Figure 4-4. Rear Retention Screw

NOTE

Removing the energy-absorbing liner may require some practice.

5. Referring to Figure 4-5, use a spatula to separate the hook-and-pile fasteners attaching the energy-absorbing liner to the helmet shell. Following the contour of the helmet shell, carefully slide the energy-absorbing liner out of the helmet.

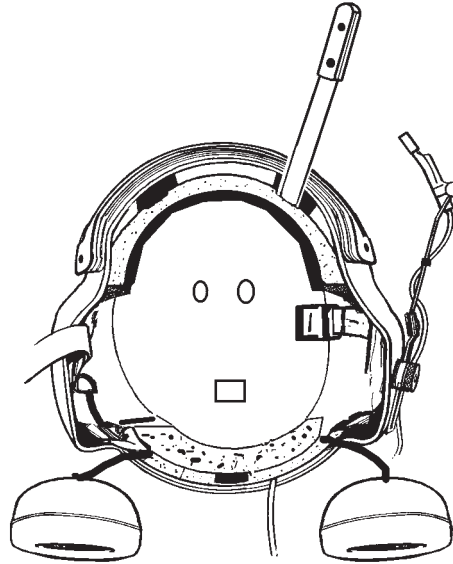


Figure 4-5. Removing Energy-Absorbing Liner

Installation

1. Position the front of the energy-absorbing liner at the rear of the helmet between the nape strap pad assembly and the helmet shell.
2. Following the contour of the helmet shell, slide the energy-absorbing liner into the helmet. Attach the pile fasteners on the energy-absorbing liner to the hook fasteners on the inside of the helmet shell. Ensure front edge of liner is aligned with front edge of helmet shell.

NOTE

Installing the energy-absorbing liner may require some practice.

3. Reattach the nape strap pad to the helmet shell via the screw, washer, and post removed previously.
4. Squeezing the sides of the TPL, reinstall it in the helmet with the rear edge of the TPL aligned with the top edge of the nape strap pad. Ensure that the nape hanger strap is taught and the hook-and-pile fasteners are engaged.
5. Reattach the earcups to the earcup retaining pads. Have wearer don helmet and check earcup position.

4-3.2. TPL Cloth Cover

Tools and Materials Required

- Scissors
- Double-sided tape
- Cloth Cover

Removal

1. Detach the earcups from earcup retainer pads by disengaging hook-and-pile fasteners, and passing them through the retention straps. Allow earcups to hang outside the helmet by communications cord.
2. Referring to Figure 4-6, squeeze sides of TPL and remove it from helmet.
3. Remove TPL cloth cover as follows:

- a. Remove and discard thread attaching cloth cover to plastic layers. Replacement of thread is not necessary.
- b. Fold the sides of the cover down to expose double-sided tape.
- c. Remove cover from layers.
- d. Remove double-sided tape from layer assembly.

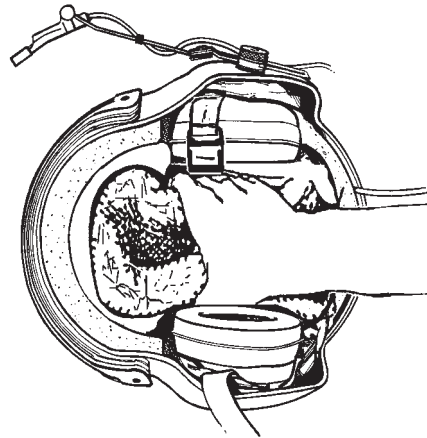


Figure 4-6. Removing TPL

Installation

1. Cut two 2-1/2-inch pieces of double-sided tape.
2. Attach a piece of tape to each side of layer assembly (where old tape was removed).
3. Turn replacement cloth cover inside out; place cover inside layer assembly; fold sides of cloth cover over layer assembly. Ensure cover is positioned correctly.
4. Squeezing the sides of the TPL, reinstall it in the helmet with the rear edge of the TPL aligned with the top edge of the nape strap pad. Ensure that the nape hanger strap is taut and the hook-and-pile fasteners are engaged.
5. Reinstall earcups and check fit.

4-3.3. Retention Assembly

Tools and Materials Required

- Screwdriver, flat-tip
- Spatula
- Retention Assembly

Removal

NOTE

Ensure that the chinstrap is disengaged from the D-rings, and loosen nape strap pad adjustment. This will provide easier access to the helmet for installation.

1. Detach the earcups from earcup retainer pads by disengaging hook-and-pile fasteners, and passing them through the retention straps. Allow earcups to hang outside the helmet by communications cord.
2. Referring to Figure 4-7, remove the TPL from the helmet.
3. Referring to Figure 4-8, remove the pan-head screw, spring washer, and post attaching the retention assembly to the center rear of the helmet shell. Retain the screw, washer, and post for reinstallation.
4. Referring to Figure 4-9, use a spatula to separate the hook-and-pile fastener attaching the energy-absorbing liner to the helmet shell.

NOTE

Removing the energy-absorbing liner may require some practice.

5. Carefully slide the energy-absorbing liner out through the rear of the helmet, following the contour of the helmet shell.

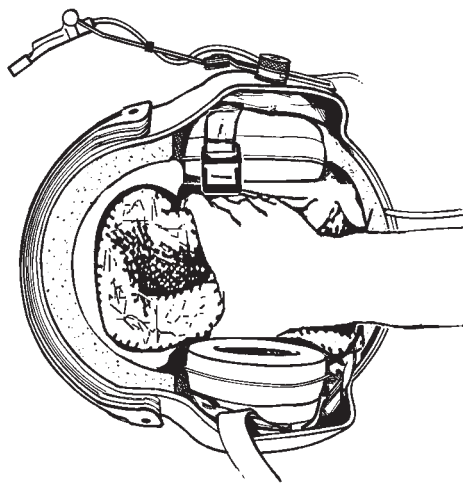


Figure 4-7. Removing TPL

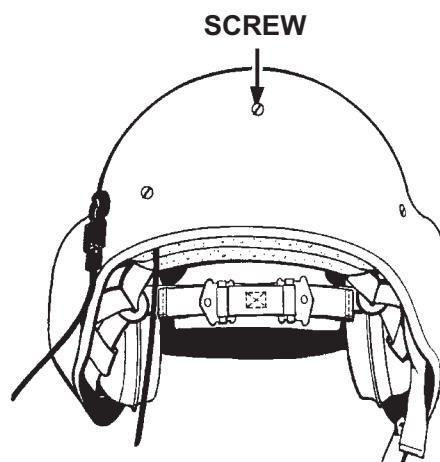


Figure 4-8. Rear Retention Screw

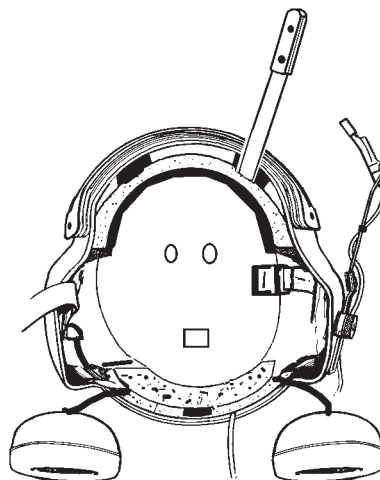


Figure 4-9. Removing Energy-Absorbing Liner

6. Inspect the energy-absorbing liner in accordance with Table 4-1; replace if necessary following 4-3.1.
7. Referring to Figure 4-10, remove the remaining two pan-head screws, spring washers, and posts attaching the retention assembly to each side of the helmet shell.
8. Remove the entire retention assembly from the helmet.

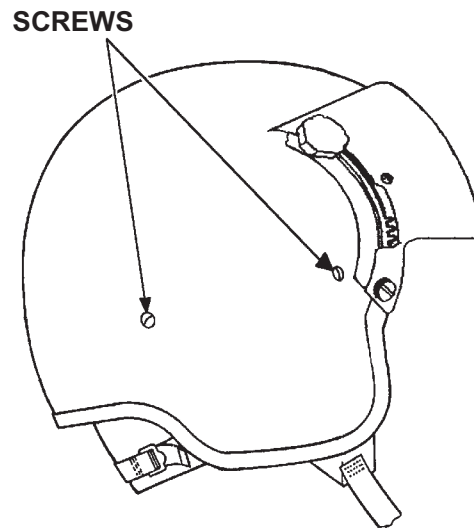


Figure 4-10. Retention Assembly Attachment Points

Installation

1. Attach the retention assembly to the helmet shell by installing four screws, washers, and posts at the attachment points indicated in Removal step 7.
2. Position the front edge of the energy-absorbing liner between the nape strap pad and the helmet shell at the rear of the helmet. Following the contour of the helmet shell, slide the liner into the helmet until the front edge of the liner is flush with the front edge of the helmet shell. Ensure that the hook-and-pile fasteners are engaged.

NOTE

Ensure that the holes in the energy-absorbing liner align with the plenum openings for air cooling. In addition, the square hole should be located to allow access to the retention assembly mounting hardware.

3. Reinstall the screw, washer, and post removed in Removal step 3.
4. Squeezing the sides of the TPL, reinstall it in the helmet with the rear edge of the TPL aligned with the top edge of the nape strap pad. Ensure that the nape hanger strap is taut and the hook-and-pile fasteners are engaged.
5. Reinstall earcups and check fit.

4-3.4. Earcup Assembly

Tools and Materials Required

- Jeweler's screwdriver set
- Earcup Assembly

Removal

1. Referring to Figure 4-11, remove the earcup (1); allow it to hang by the communications cord.
2. Remove the earseal (5) from the earcup by stretching it carefully over the lip of the earcup shell.
3. Remove the foam receiver retainer (4) from the earcup.
4. Remove the receiver (3) from the receiver retainer.
5. Using a jeweler's screwdriver, loosen (do not remove) the two set screws that secure the receiver to the communications cord leads (6).

NOTE

Removing the energy-absorbing liner may require some practice.

6. Remove the foam filler pad (2) from the earcup.

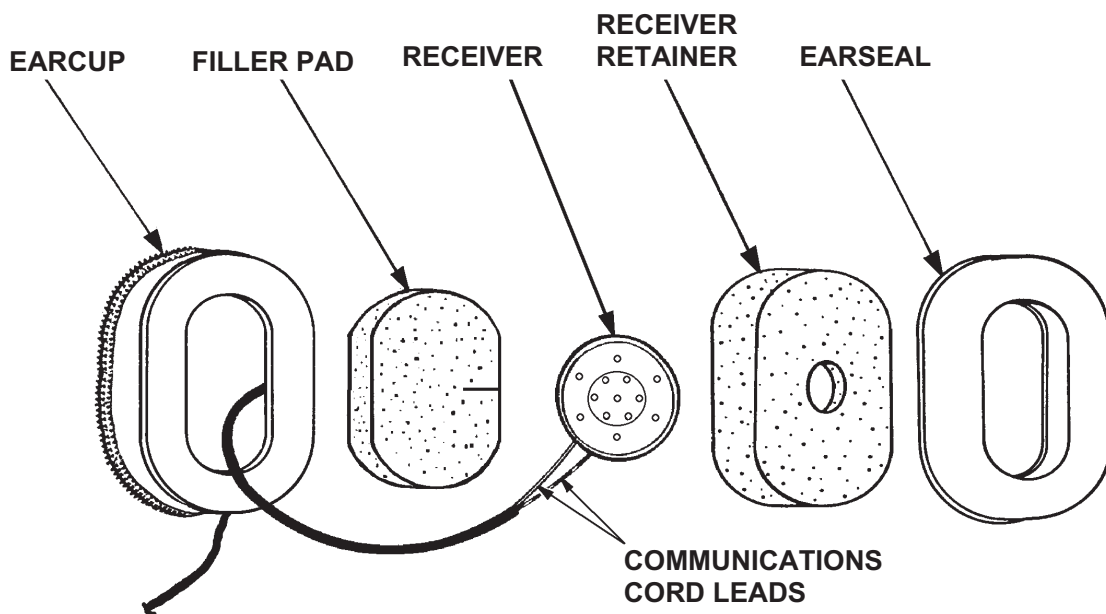


Figure 4-11. Earcup Assembly

CAUTION

When removing communications cord leads from the earcup shell, handle the grommet only; do not pull on the wires.

7. Carefully remove the grommet from the earcup shell and pull the communications cord leads through the hole.
8. Inspect all components in accordance with Table 1, and replace as necessary.

Installation

1. Insert the communications cord through the hole in the earcup shell.
2. Insert the grommet into the hole in the earcup shell. For easier insertion, wet the grommet with plain water if needed.
3. Insert the communications cord leads into the receiver. Using a jeweler's screwdriver, tighten the two set screws.
4. Insert the filler pad into the earcup, ensuring that the slit in the pad is positioned toward the grommet. Route the communications cord through the slit, ensuring that the receiver and the communications cord leads are accessible.
5. Insert the receiver into the receiver retainer, and insert both into the earcup.
6. Install the earseal on the earcup as follows: hook one end of the earseal over the lip of the earcup shell. Carefully stretch the earseal over the remainder of the earcup.
7. Attach the earcup to the earcup retainer pads. Ensure that the hook and pile are firmly engaged.
8. Check earcup position and adjust as necessary.

4-3.5. Microphone Boom

Tools and Materials Required

- Screwdriver, flat-tip
- Screwdriver, cross-tip
- Microphone boom

Removal

1. Referring to Figure 4-12, remove the knurled thumbscrew attaching the microphone to the boom.
2. Remove the boom clip attaching the microphone cord to the boom.
3. Remove the center screw attaching the swivel and boom.

Installation

1. Referring to Figure 4-12, reassemble the hardware as shown and attach the replacement boom and microphone to the helmet with the center screw and swivel.
2. Attach the microphone to the boom with the knurled thumbscrew.
3. Reattach the microphone cord to the boom with the boom clip.

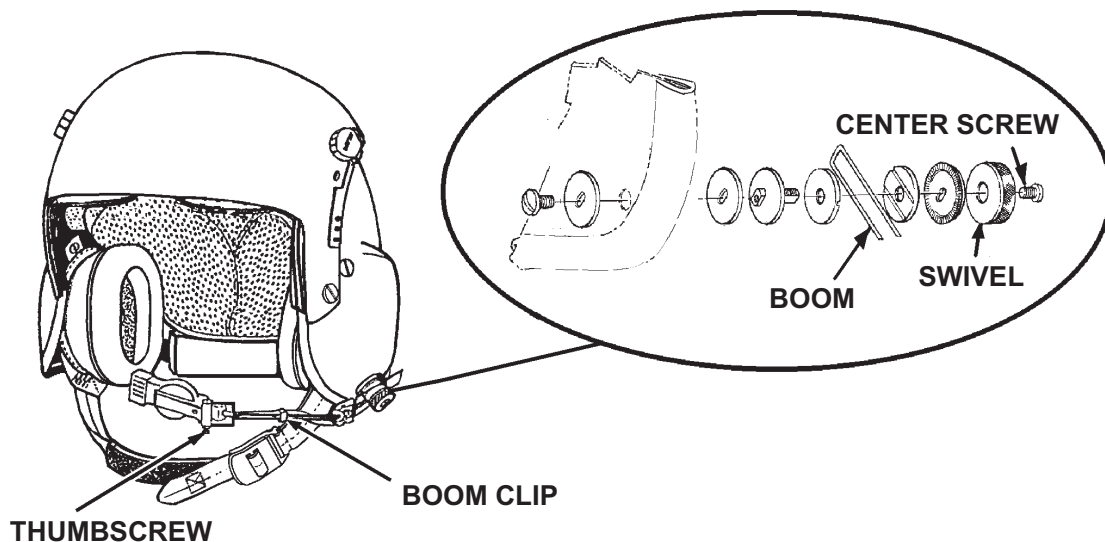


Figure 4-12. Boom and Microphone

4-3.6. Communications Assembly

Tools and Materials Required

- Screwdriver, flat-tip
- Screwdriver, cross-tip
- Spatula
- Jeweler's screwdriver set
- Earphone
- Microphone
- Cord assembly
- Boom swivel assembly

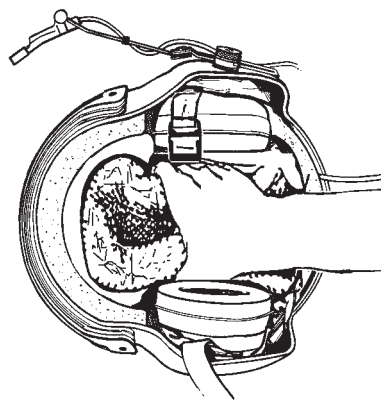


Figure 4-13. Removing TPL

Removal

1. Detach the earcups from earcup retainer pads by disengaging hook-and-pile fasteners and passing them through the retention straps. Allow earcups to hang by communications cord.
2. Referring to Figure 4-13, remove the TPL from the helmet.
3. Refer to Figure 4-14, and remove the pan-head screw, spring washer, and post fastening the retention assembly to the center rear of the helmet shell. Retain the screw, washer, and post for reassembly.

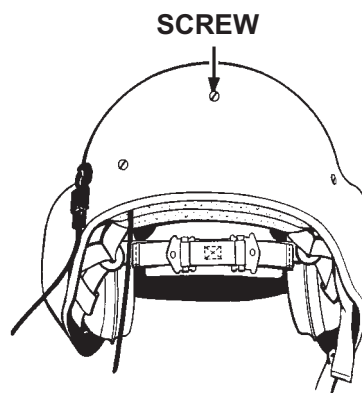


Figure 4-14. Rear Retention Screw

NOTE

Removing energy-absorbing liner may require some practice.

4. Referring to Figure 4-15, use a spatula to separate the hook-and-pile fastener attaching the energy-absorbing liner to the helmet shell.
5. Following the contour of the helmet shell, carefully slide the energy-absorbing liner out through the back of the helmet.
6. Inspect the energy-absorbing liner in accordance with Table 4-1; replace if necessary.

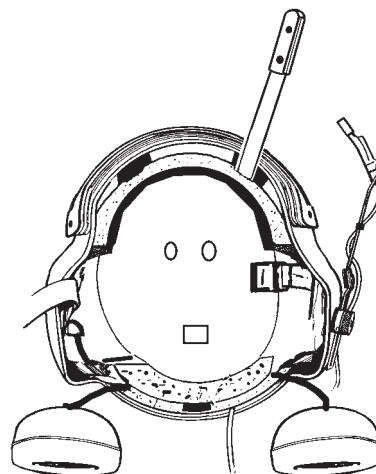


Figure 4-15. Removing Energy-Absorbing Liner

7. Unplug the microphone cord from the communications jack at the rear of the helmet.
8. Referring to Figure 4-16, remove the screw, washer, and post attaching the communications cord strain relief plate to the helmet shell.
9. Using a jeweler's screwdriver, remove the two screws attaching the communications jack retaining plate to the rear of the helmet.

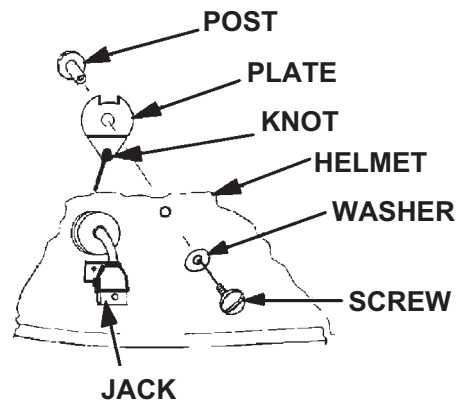


Figure 4-16. Communications Cord Strain Relief Plate and Screw

10. Untie the communications cord from the communications cord strain relief plate.
11. Referring to Figure 4-17, remove the foam receiver retainer from each earcup.
12. Using jeweler's screwdriver, loosen (do not remove) the two set screws on each receiver.
13. Remove the receiver from each earcup shell.

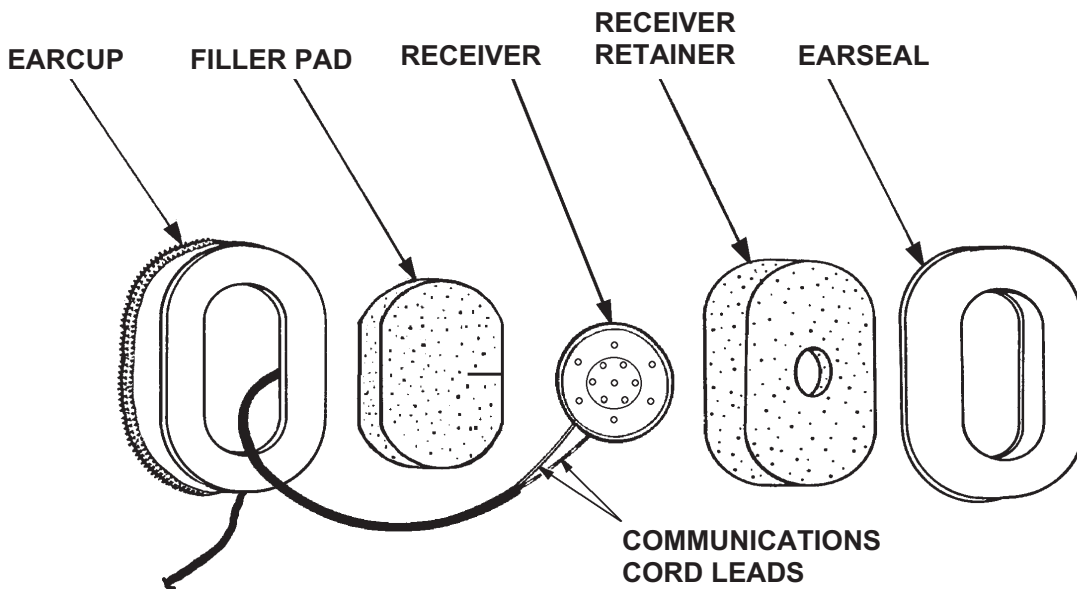


Figure 4-17. Earcup Assembly

CAUTION

When removing communications cord leads from the earcup shell, handle the grommet only; do not pull on the wires.

14. Remove the grommet from each earcup shell. Holding the grommet, pull the communications cord leads through the hole in each earcup shell.
15. Remove the grommet from the rear of the helmet through the outside of the helmet shell.
16. Remove the entire communications cord from the helmet shell.
17. Remove the mounting screw attaching the boom and microphone to the helmet.

Installation

1. Obtain a new headset assembly.
2. Referring to Figure 4-18, mount the boom and swivel assembly as follows:
 - a. Assemble the swivel assembly.
 - b. Install a plastic washer onto the end of the shaft of the swivel assembly.
 - c. Install the swivel assembly into the slotted hole from the outside of helmet.
 - d. Insert a 10-32 x $\frac{1}{4}$ " screw through the flat washer and through the helmet shell mounting hole from the inside of the helmet.

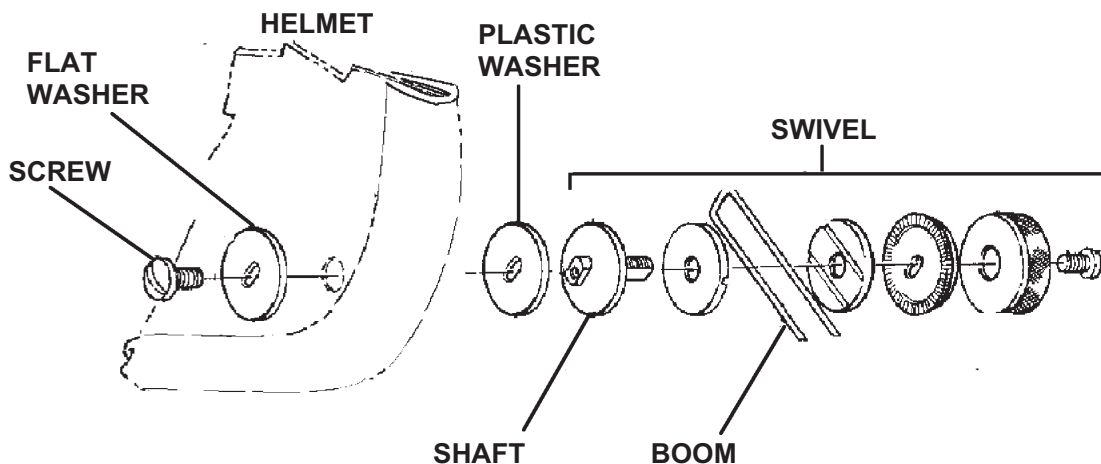


Figure 4-18. Boom and Microphone

3. Remove the strain relief plate from the communications cord by untying the cord.
4. From the outside of the helmet, pass the entire communications cord through the hole in the rear of the helmet shell, leaving only the microphone connector with the mounting bracket and the grommet outside the helmet.
5. Insert the grommet into the hole. (If necessary, wet the grommet with plain water to ease insertion.)
6. Install two screws to attach the microphone connector with the jack holder plate to the helmet.
7. Referring to Figure 4-19, retie the strain relief plate to the communications cord in the same manner in which the cord was originally tied.

NOTE

When properly tied, the knot should be between the strain relief plate and the helmet shell.

8. Attach the strain relief plate to the helmet shell using a screw, post, and spring washer.
9. Insert the communications cord leads from the outside of the earcup through the holes.

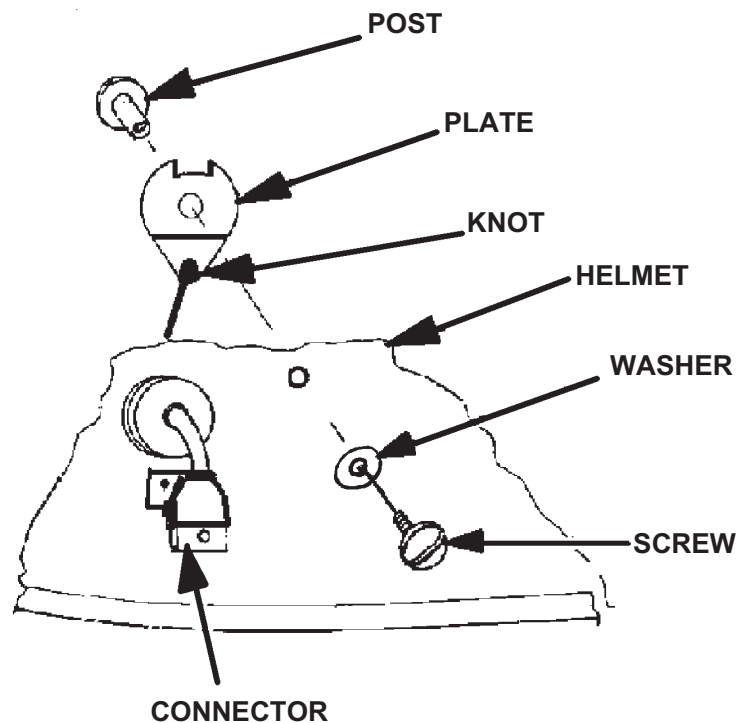


Figure 4-19. Communications Assembly

10. Insert the grommet into the hole in the earcup shell. For easier insertion, wet the grommet with plain water if needed.
11. Insert the communications cord leads into the receiver and tighten the two set screws.
12. Insert the filler pad into the earcup, ensuring that the slit in the pad is positioned toward the grommet. Route the communications cord through the slit, ensuring that the receiver and the communications cord leads are accessible.
13. Insert the receiver into the receiver retainer, and insert both into the earcup.
14. Repeat steps 9-13 for the other receiver.
15. Plug the microphone cord into the communications cord connector at the rear of the helmet shell.
16. Position the front of the energy-absorbing liner at the rear of the helmet between the nape strap pad assembly and the helmet shell.

NOTE

Ensure that the holes in the energy-absorbing liner align with the plenum openings for air cooling. In addition, the square hole should be located to allow access to the retention assembly mounting hardware.

17. Following the contour of the helmet shell, slide the energy-absorbing liner into the helmet. Attach the pile fasteners on the energy-absorbing liner to the hook fasteners on the inside of the helmet shell.
18. Reattach the retention assembly to the helmet shell via the screw, washer, and post removed previously.
19. Squeezing the sides of the TPL, reinstall it in the helmet with the rear edge of the TPL aligned with the top edge of the nape strap pad. Ensure that the nape hanger strap is taught and the hook-and-pile fasteners are engaged.
20. Reattach the earcups to the earcup retaining pads. Check earcup position in accordance with paragraph 2-4.

4-3.7. Dual Visor Assembly

Tools and Materials Required

- Jeweler's screwdriver set
- Screwdriver, cross-tip
- Dual visor assembly

Removal

NOTE

Screws, retaining rings, tracks, and bushings are shown on one side only in Figure 4-20. A similar configuration exists for the other side.

1. Referring to Figure 4-20, remove four thumbscrews that attach visor assembly to helmet.
2. Remove thumbscrews from visor assembly.
3. Remove housing from tracks .
4. Disassemble visors and tracks by removing retaining rings and bushings. Repeat for other side.

NOTE

A nut plate on the underside of the helmet shell holds the posts in place. If the post threads are stripped, remove energy-absorbing liner as directed in paragraph 4-3.1 and replace the nut plate.

5. Inspect components in accordance with Table 4-1, and replace as necessary.

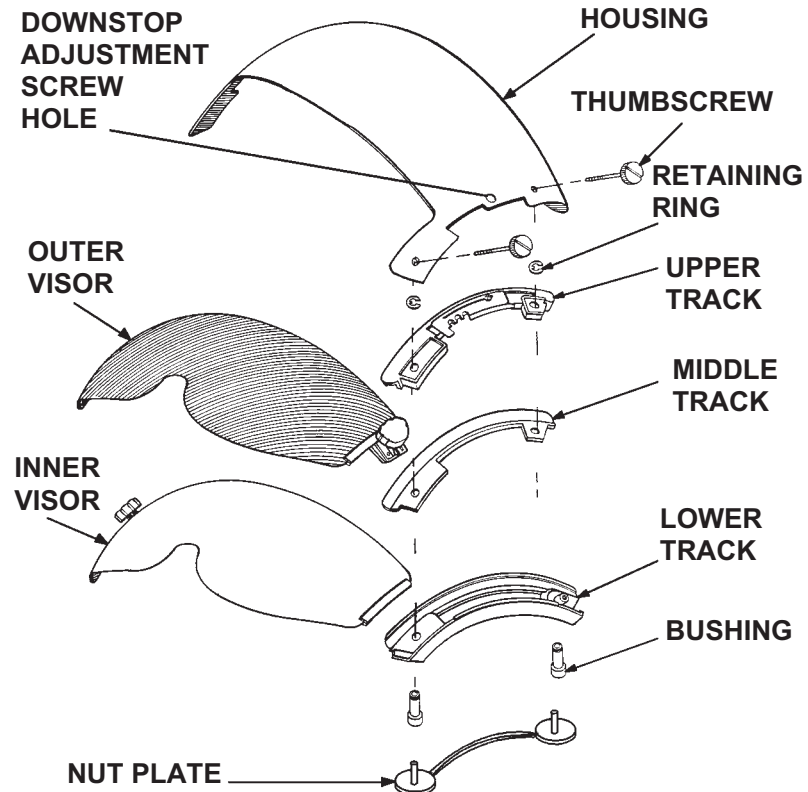


Figure 4-20. Dual Visor Assembly

Installation

NOTE

When installing lenses, ensure lens guides are seated in track grooves.

Ensure bushing mates with locking notch in lower track to prevent rotation when installing or removing thumbscrews.

If energy-absorbing liner was removed, replace it as directed in paragraph 4-3.1.

1. Referring to Figure 4-20, insert bushings upward through lower track.
2. Place inner visor over lower track.
3. Place middle track over inner visor. Insert bushings upward through middle track.
4. Place upper track over outer visor, and install in place on bushings.
5. Reinstall retaining rings.
6. Attach housing to tracks by inserting thumbscrews through housing and threading them through the bushings.
7. Install four thumbscrews downward through bushings and into posts to attach visor assembly to helmet.
8. If necessary, adjust visor as follows:
 - a. Adjust the visor using the downstop locking screws through the holes; one is located on each side of the visor. (Loosening the screws allows the downstop to be raised or lowered approximately one inch for visor-to-mask or facial conformance.)
 - b. When the desired position is attained, tighten the screws.

SECTION 5: PARTS LIST

Following is a list of replacement parts for the HGU-56/P Commercial Helmet Assembly. Included are quantities and part numbers. Numbers in the ITEM NO. column correspond to number callouts in the accompanying illustrations. For more information, contact:

GENTEX Corporation
P.O. Box 315
Carbondale, PA 18407
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Fax: (570) 282-8555

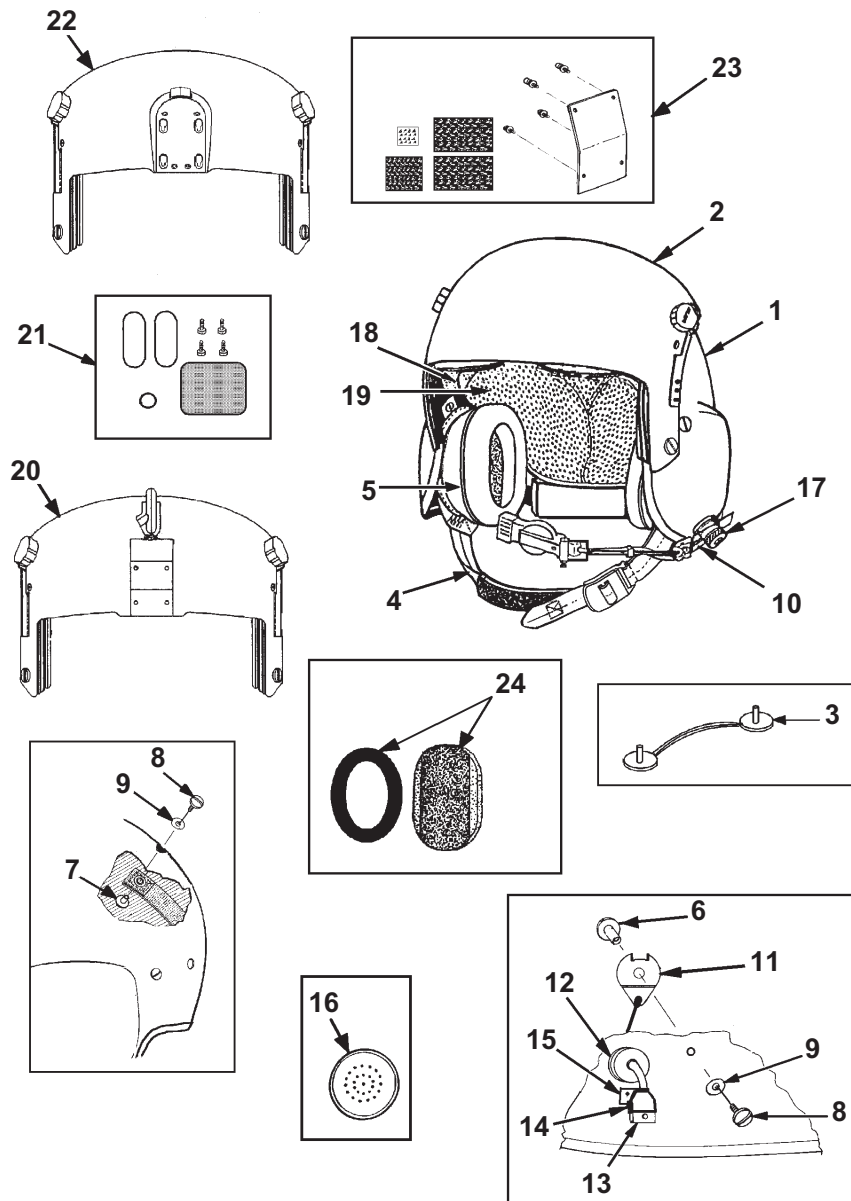


Figure 5-1. HGU-56/P Commercial Helmet Assembly

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Helmet Assembly, HGU-56/P Commercial, XX-Small		95D9317-1
	Helmet Assembly, HGU-56/P Commercial, X-Small		95D9317-2
	Helmet Assembly, HGU-56/P Commercial, Small		95D9317-3
	Helmet Assembly, HGU-56/P Commercial, Medium		95D9317-4
	Helmet Assembly, HGU-56/P Commercial, Large		95D9317-5
	Helmet Assembly, HGU-56/P Commercial, X-Large		95D9317-6
1	Helmet Shell, Small (Used on XX-Small, X-Small, And Small Assemblies)	1	95A9241-2
	Helmet Shell, Medium	1	95A9242-2
	Helmet Shell, Large	1	95A9243-2
	Helmet Shell, X-Large	1	95A9244-2
—	Hook Fastener, ½ inch x 1 inch (Not Shown)	2	90B8021-2
—	Hook Fastener, ½ inch x 2 inches (Not Shown)	1	90B8021-3
2	Dual Visor Assembly, Plain (Breakdown: Fig. 5-2)	1	95B9301-3
3	Nut Plate	2	91B8181
4	Retention System	1	95D9303-1
5	Earcup Assembly (Breakdown: Fig. 5-3)	2	89C7808
6	Post, 1/16 (For comm. cord strain relief plate)	1	69A2104-1
7	Post, 8-32 x 3/16 (For retention assembly)	5	69A2104-3
8	Screw, D-366 type, 8-32 x 1/4	6	75A3093-9
9	Washer, Spring	6	76A3443
10	Cord Assembly	1	77C3523-1
11	Strain Relief Plate	1	69A2060
12	Grommet	1	67A1809-2
13	Jack Holder	1	69B2035
14	Shrink Tubing	1	69A2045-9
15	Plate, Jack Holder	1	69A2037-2
—	Screw, Fillister Head, #2-56 x 3/16 (Not Shown)	1	69A2036
16	Earphone, 19-ohm	2	73B2619
17	Microphone/Boom/Cord/Swivel	1	95B9314-2
18	Energy-Absorbing Liner, XX-Small	1	89D7812-1
	Energy-Absorbing Liner, X-Small	1	89D7812-2
	Energy-Absorbing Liner, Small	1	89D7812-3
	Energy-Absorbing Liner, Medium	1	89D7812-4
	Energy-Absorbing Liner, Large	1	89D7812-5
	Energy-Absorbing Liner, X-Large	1	89D7812-6
19	TPL, XX-Small (Breakdown: Figure 5-4)	1	85D7087-15
	TPL, X-Small (Breakdown: Figure 5-4)	1	85D7087-16
	TPL, Small (Breakdown: Figure 5-4)	1	85D7087-17
	TPL, Medium (Breakdown: Figure 5-4)	1	85D7087-18
	TPL, Large (Breakdown: Figure 5-4)	1	85D7087-19
	TPL, X-Large (Breakdown: Figure 5-4)	1	85D7087-20
20	Dual Visor Assembly, ANVIS (Breakdown: Figure 5-6)	1	88D7611-1
21	Mounting Kit, ANVIS (Breakdown: Figure 5-6)	1	93A8564
22	Dual Visor Assembly, ANVIS Quick-Disconnect (Breakdown: Figure 5-5)	1	95B9246
23	Modification Kit, ANVIS Quick-Disconnect (Breakdown: Figure 5-5)	1	96A9378
24	Spacer Pad Set	1	93B8541
—	Instruction Booklet	1	TP0113

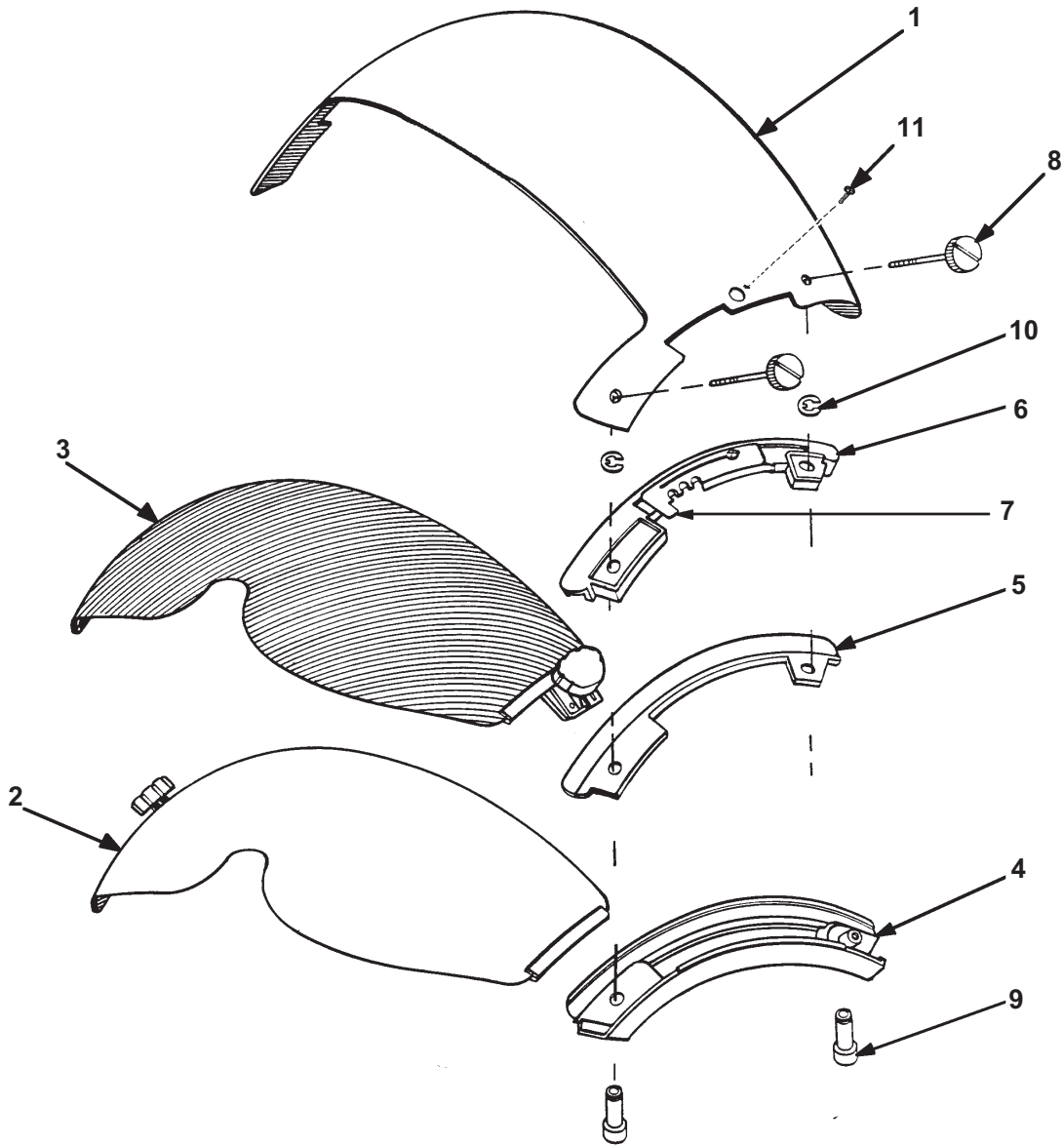


Figure 5-2. Dual Visor Assembly, Plain

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Dual Visor Assembly, Plain	REF	95B9301-3
1	Visor Housing, Plain, Aircraft Green	1	88D7612-1
	Visor Housing, Plain, White	1	88D7612-2
2	Inner Visor, Clear	1	88D7618-1
3	Outer Visor, Neutral	1	88D7619-1
—	Outer Visor, Gradient (Not Shown)	1	95A9302-1
4	Lower Track, Left-Hand	1	88D7615-1
—	Lower Track, Right-Hand (Not Shown)	1	88D7615-2
5	Middle Track, Left-Hand	1	88C7616-1
—	Middle Track, Right-Hand (Not Shown)	1	88C7616-2
6	Upper Track, Left-Hand	1	88C7617-1
—	Upper Track, Right-Hand (Not Shown)	1	88C7617-2
7	Adjustment Plate, Left-Hand	1	88B7622-1
—	Adjustment Plate, Right-Hand (Not Shown)	1	88B7622-2
8	Thumbscrew	4	93B8464
9	Bushing Sleeve	4	93B8463
10	E-Ring	4	MS16633-401B
11	Pan-Head Screw, 2-56 x 1/8	2	MS51957-1B

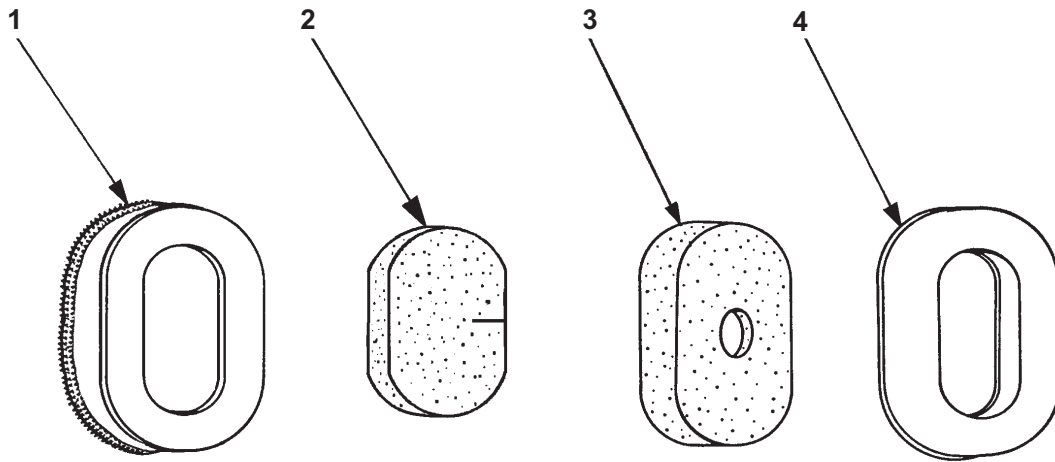


Figure 5-3. Earcup Assembly

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Earcup Assembly	REF	98C10311-1
1	Shell, Earcup Assembly	2	98C10337-1
2	Filler Pad	2	97B9974-1
3	Receiver Retainer	2	83C6573
4	Earseal	2	98C10311-1

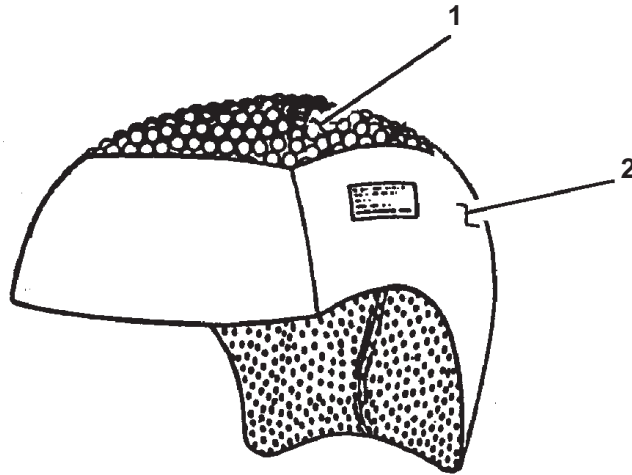


Figure 5-4. TPL

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	TPL, XX-Small	REF	85D7087-15
	TPL, X-Small	REF	85D7087-16
	TPL, Small	REF	85D7087-17
	TPL, Medium	REF	85D7087-18
	TPL, Large	REF	85D7087-19
	TPL, X-Large	REF	85D7087-20
-1	Layer Assembly, Preformed, XX-Small	1	89D7779-1
	Layer Assembly, Preformed, X-Small	1	89D7779-2
	Layer Assembly, Preformed, Small	1	89D7779-3
	Layer Assembly, Preformed, Medium	1	89D7779-4
	Layer Assembly, Preformed, Large	1	89D7779-5
	Layer Assembly, Preformed, X-Large	1	89D7779-6
-2	Cover Assembly, XX-Small	1	85D7088-15
	Cover Assembly, X-Small	1	85D7088-16
	Cover Assembly, Small	1	85D7088-17
	Cover Assembly, Medium	1	85D7088-18
	Cover Assembly, Large	1	85D7088-19
	Cover Assembly, X-Large	1	85D7088-20

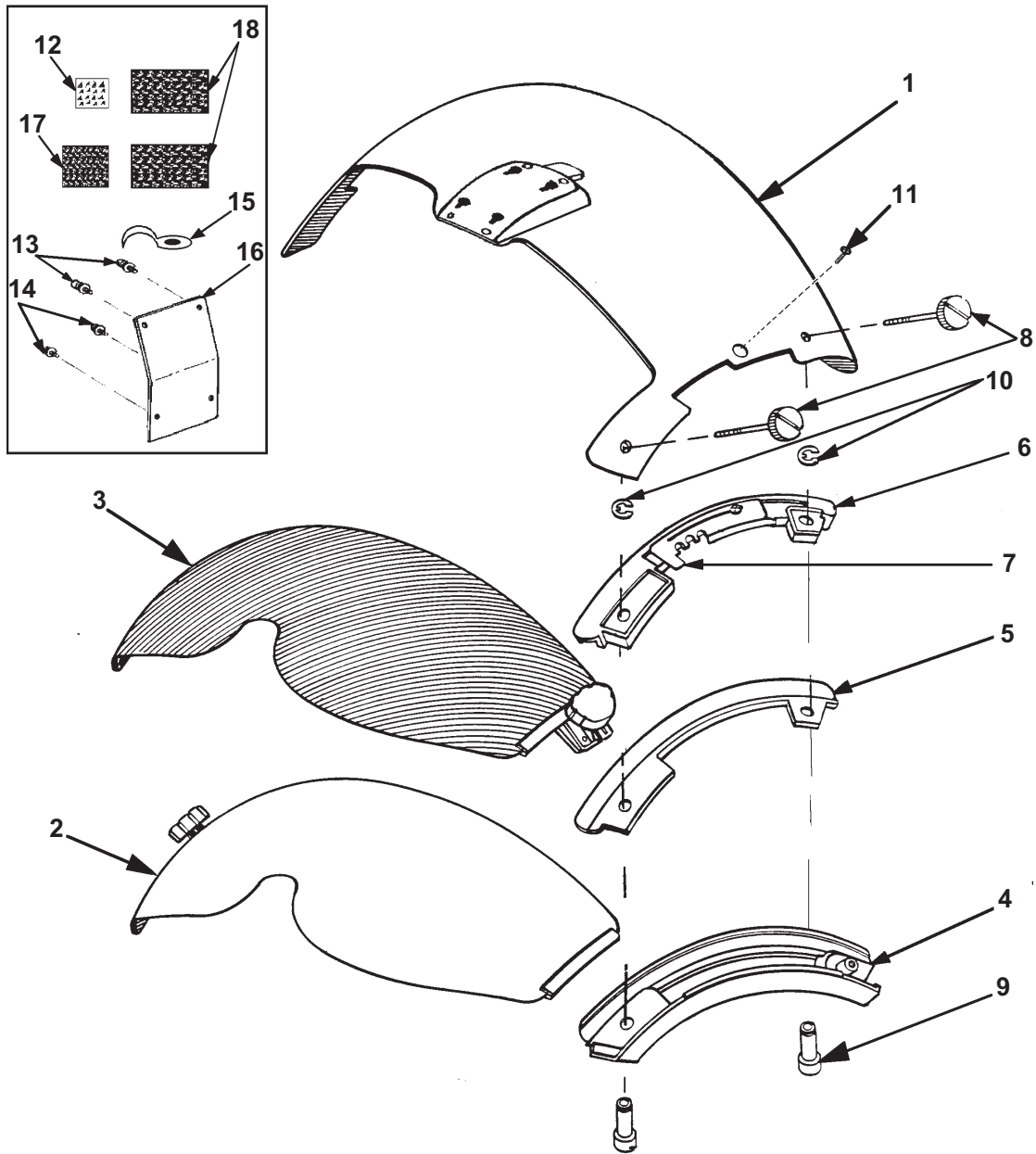


Figure 5-5. ANVIS Quick-Disconnect Dual Visor Assembly

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Dual Visor Assembly, Quick-Disconnect, ANVIS	REF	REF
1	Visor Housing Assembly, Aircraft Green	1	95C9240-1
	Visor Housing Assembly, Coast Guard Blue	1	95C9240-2
	Visor Housing Assembly, White	1	95C9240-3
	Visor Housing Assembly, O.D.	1	95C9240-4
2	Inner Visor, Clear	1	88D7618-1
—	Inner Visor, Neutral (Not Shown)	1	96A9416-1
3	Outer Visor, Neutral	1	88D7619-1
—	Outer Visor, Clear (Not Shown)	1	95A9302-2
4	Lower Track, Left-Hand	1	88D7615-1
—	Lower Track, Right-Hand (Not Shown)	1	88D7615-2
5	Middle Track, Left-Hand	1	88C7616-1
—	Middle Track, Right-Hand (Not Shown)	1	88C7616-2
6	Upper Track, Left-Hand	1	88C7617-1
—	Upper Track, Right-Hand (Not Shown)	1	88C76172-
7	Adjustment Plate, Left-Hand	1	88B7622-1
—	Adjustment Plate, Right-Hand (Not Shown)	1	88B7622-2
8	Thumbscrew	4	93B8464
9	Bushing Sleeve	4	93B8463
10	E-Ring	4	MS16633-401B
11	Pan-Head Screw, 2-56 x 1/8	2	MS51957-1B

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Modification Kit, ANVIS Quick-Disconnect	REF	96A9378
12	Hook Tape, 1 inch x 1-1/8 inches (Connector)	1	90B8021-1
13	Top Locating Pin	2	90B7991
14	Bottom Locating Pin	2	90B7990
15	Clamp, ANVIS Strain Relief	1	90B8016
16	Backing Plate, ANVIS Mount	1	96B9377
17	Pile Fastener, 2 inches x 2 inches	1	90B7951-2
18	Pile Fastener, 2 inches x 3 inches	2	90B7951-1
—	Instruction Booklet	1	TP0127

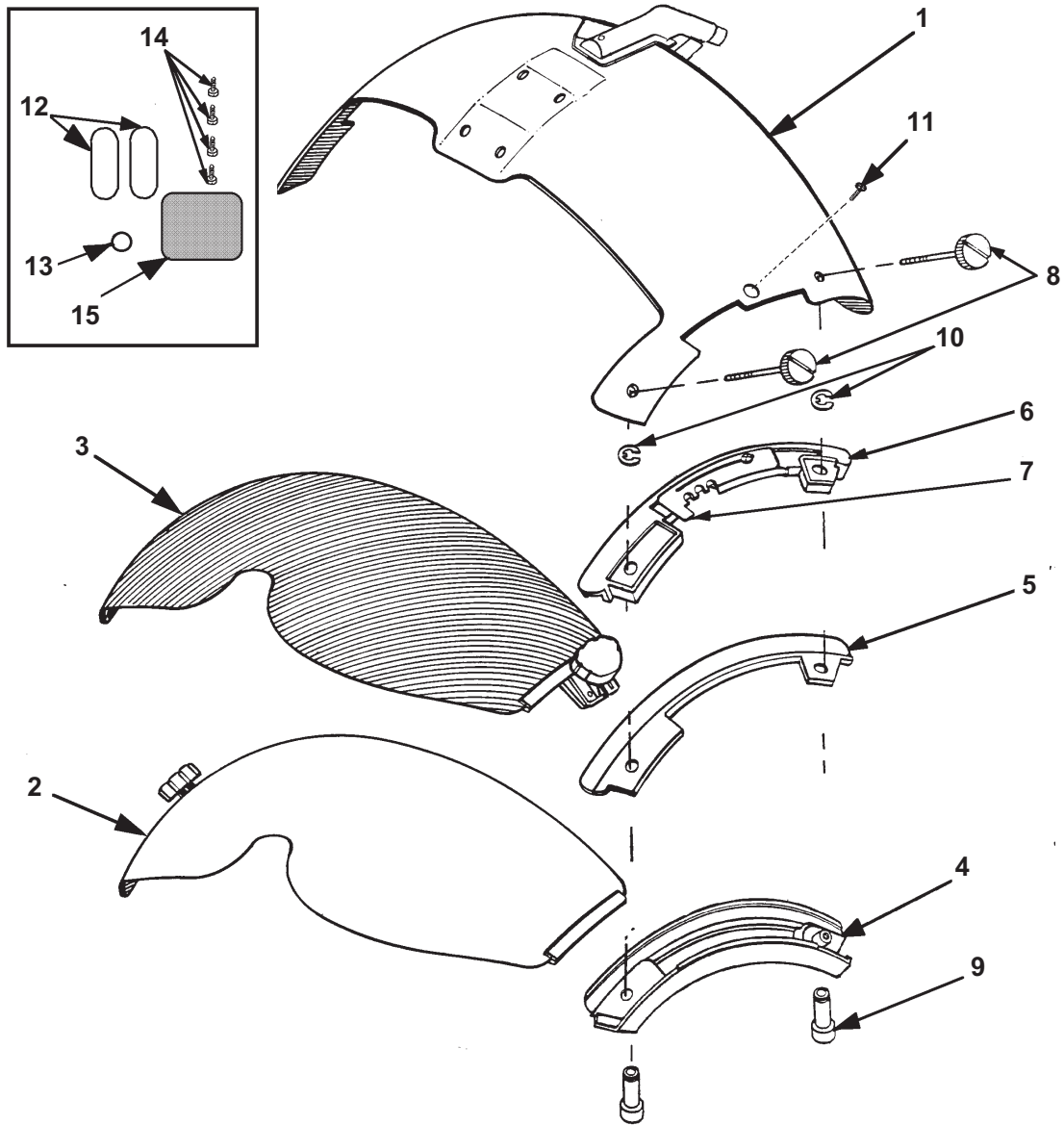


Figure 5-6. ANVIS Dual Visor Assembly

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Dual Visor Assembly, ANVIS	REF	88D7611-1
1	Visor Housing	1	88D7613
2	Inner Visor, Clear	1	88D7618-1
3	Outer Visor, Neutral	1	88D7619-1
—	Outer Visor, Clear (Not Shown)	1	95A9302-2
4	Lower Track, Left-Hand	1	88D7615-1
—	Lower Track, Right-Hand (Not Shown)	1	88D7615-2
5	Middle Track, Left-Hand	1	88C7616-1
—	Middle Track, Right-Hand (Not Shown)	1	88C7616-2
6	Upper Track, Left-Hand	1	88C7617-1
—	Upper Track, Right-Hand (Not Shown)	1	88C7617-2
7	Adjustment Plate, Left-Hand	1	88B7622-1
—	Adjustment Plate, Right-Hand (Not Shown)	1	88B7622-2
8	Thumbscrew	4	93B8464
9	Bushing Sleeve	4	93B8463
10	E-Ring	4	MS16633-401B
11	Pan-Head Screw, 2-56 x 1/8	2	MS51957-1B

ITEM NO.	DESCRIPTION	QTY.	PART NO.
—	Mounting Kit, ANVIS	REF	93A8564
12	Pad, Protector, Visor	2	82A5643
13	Pad, Protector, Visor	1	94A8689
14	Screw, Machine	4	MS51957-12B
15	Pile Fastener (ANVIS Battery Pack)	2	90B7951-1

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