

## CHAPTER 7

# HGU-24/P AND HGU-25(V)2/P CLOTH HELMET ASSEMBLIES AND RELATED SOUND ATTENUATING HEAD-SETS AND ACCESSORIES

### Section 7-1. Description

#### 7-1. GENERAL.

##### NOTE

Unless otherwise specified, paragraphs in this chapter pertain to all HGU-24/P and HGU-25(V)2/P assemblies.

7-2. The HGU-24/P and HGU-25(V)2/P cloth helmet assemblies (figure 7-1 and 7-2) are designed to provide the wearer with protection from head injuries and, when used with the 372-9AN2 Aural Sound Protectors, they provide attenuation of high intensity noise. The difference between these assemblies is that the HGU-24/P utilizes a sound powered microphone and head set assembly for communication; the HGU-25(V)2/P does not have communication capability. Generic commercial foam earplugs are available for use in conjunction with the cloth helmet assemblies, providing dual protection, or as stand-alone protective devices for brief exposures to a high noise environment. Custom fit earplugs are also available, but must be fit to the individual by medically qualified personnel to ensure optimum protection.

#### 7-3. CONFIGURATION.

7-4. The cloth helmets are provided in four standard hat sizes and the attachable cranial impact shields are available in a wide variety of colors to meet the requirements of authorized flight quarters clothing allowance in the CV NATOPS manual (NIIN LP-000-7256). Standard protective goggles may be worn with all assemblies. Refer to table 7-1.

**7-5. HGU-24/P HELMET ASSEMBLY.** The HGU-24/P sound attenuating protective helmet assembly

consists of four major components. These parts are the Khaki cloth inner liner, the colored front and back cranial impact shields and a sound powered microphone and head set assembly with integrated aural protectors. Standard and optional flight deck protective goggles are compatible for wear with this helmet assembly. See figure 7-1.

**7-6. HGU-25(V)2/P HELMET ASSEMBLY.** The HGU-25(V)2/P sound attenuating protective helmet is comprised of the same components as the HGU-24/P with the exception that in place of the sound powered microphone and head set assembly, the HGU-24/P utilizes a 372-9AN2 aural protector. Standard flight deck protective goggles are compatible for wear with this model. These cloth helmet assemblies use only white front and back cranial shields. See figure 7-2.

**7-7. GENERAL USE EAR PLUGS.** Commercially available general use, one size fits all, foam ear plugs are provided in a variety of shapes and colors and are intended to be used in conjunction with other sound attenuating devices to provide dual hearing protection in high noise environments.

**7-8. CUSTOM FIT EAR PLUGS.** Custom fit ear plugs are provided to individuals whose routine job assignment requires prolonged exposure to a high noise environment. These ear plugs are available in various sizes and must be individually fit to the wearer by trained medical personnel.

#### 7-9. APPLICATION.

**7-10. HGU-24/P HELMET ASSEMBLY.** The HGU-24/P helmet assembly was designed primarily for use by crew chiefs of rotary and fixed wing aircraft when required to conduct special operations. It should be noted

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that the preferred helmet for helicopter crew chiefs is the HGU-25(V)2/P (Chapter 13)

**7-11. HGU-25(V)2/P HELMET ASSEMBLY.** The HGU-25(V)2/P helmet assembly is the preferred configuration for passengers aboard Carrier On-board Delivery (COD) and Vertical On-board Delivery (VOD) aircraft.

**7-12. GENERAL USE AND CUSTOM FIT EAR PLUGS.** Ear plugs are widely used to supplement protection provided by head sets and sound attenuating de-

VICES by aircraft servicing and handling personnel on the flight deck and flight line.

## 7-13. REFERENCE NUMBERS, ITEMS, AND SUPPLY DATA.

7-14. Section 7-6, **Instalment Parts Breakdown**, contains information on each assembly, subassembly and component part of the basic HGU-24/P and HGU-25(V)2/P cloth helmet assemblies. The figure and index number, reference or part number, description, units per assembly and usable on codes are also provided with the breakdown.

**Table 7-1. Major Components for HGU-24/P and HGU-25(V)2/P**

| Nomenclature   | Quantity | Size  | Color  | Reference Number               |
|--|----------|-------|--------|--------------------------------|
| Helmet, Cloth (less cranial impact shield)   | 1        | 6 3/4 | Khaki  | SPHPG1                         |
|  | 1        | 7     | Khaki  | SPHPG2                         |
|  | 1        | 7 1/4 | Khaki  | SPHPG3                         |
|  | 1        | 7 1/2 | Khaki  | SPHPG4                         |
| Shield Assembly, Cranial Impact (Front)  | 1        | —     | Brown  | ASP332-2                       |
|  | 1        | —     | Blue   | ASP332-3                       |
|  | 1        | —     | Green  | ASP332-4                       |
|  | 1        | —     | Red    | ASP332-5                       |
|  | 1        | —     | Yellow | ASP332-6                       |
|  | 1        | —     | White  | ASP332-7                       |
|  | 1        | —     | Purple | ASP332-8                       |
| Shield Assembly, Cranial Impact (Back)   | 1        | —     | Brown  | ASP333-2                       |
|  | 1        | —     | Blue   | ASP333-3                       |
|  | 1        | —     | Green  | ASP333-4                       |
|  | 1        | —     | Red    | ASP333-5                       |
|  | 1        | —     | Yellow | ASP333-6                       |
|  | 1        | —     | White  | ASP333-7                       |
|  | 1        | —     | Purple | ASP333-8                       |
| Front Pad Assembly   | 1        | —     | —      | ASP223                         |
| Back Pad Assembly  | 1        | —     | —      | ASP222                         |
| (HGU-24/P Only) Head Set Assembly, Sound Powered with Microphone and Suspension System | 1        | —     | —      | HSC61C                         |
| (HGU-25(V)2/P Only) Aural Sound Protector Assembly                                     | 1        | —     | —      | 372-9AN2                       |
| Goggles, Sun, Wind, and Dust   | 1        | —     | —      | NIIN 01-328-8268               |
| ESS Goggles (suitable substitute)  | 1        | —     | —      | ESS01CB-NV<br>NIIN 01-492-5720 |

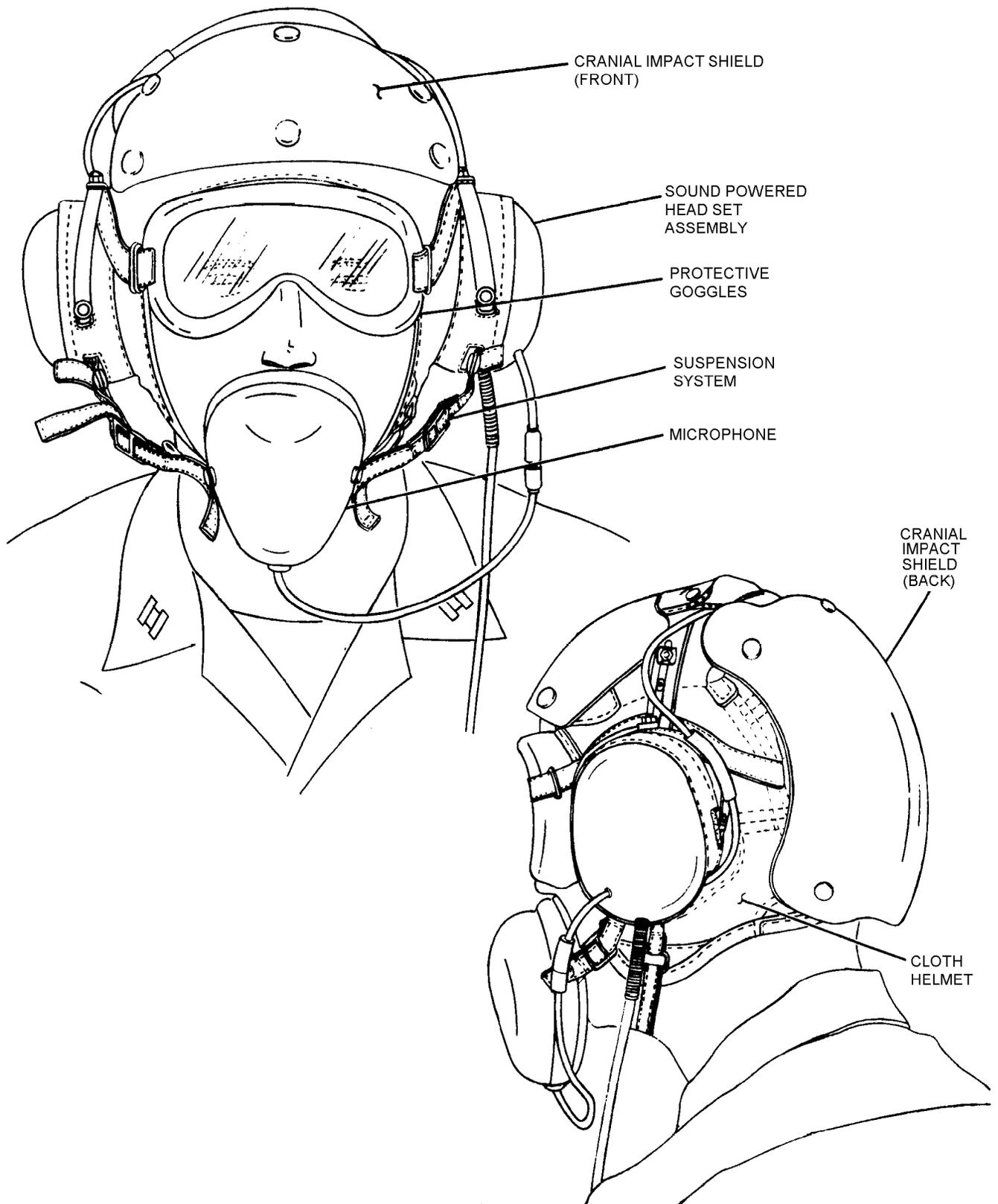


Figure 7-1. HGU-24/P Helmet Assembly

7-1

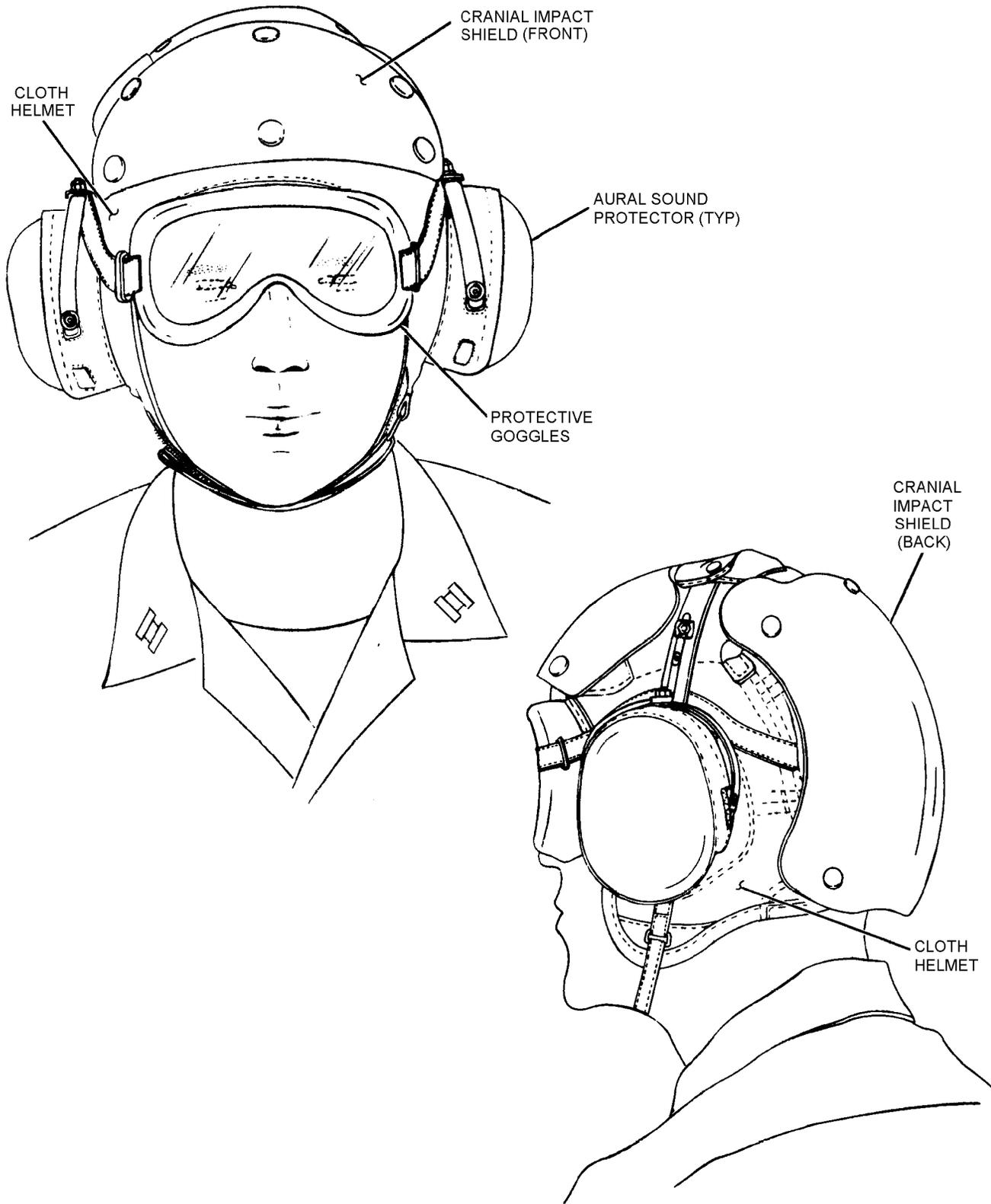


Figure 7-2. HGU-25(V)2/P Helmet Assembly

## Section 7-2. Sizing

### 7-15. GENERAL.

7-16. The concept of sizing as used in this chapter refers to the basic methods to be followed by the Aircrew Survival Equipmentman to determine the proper size cloth helmet to requisition from supply. Once the appropriate size cloth helmet has been received from supply, it is ready to be built-up to the desired configuration (HGU-24/P or HGU-25(V)2/P). Refer to Section 7-3.

### 7-17. SIZING.

**7-18. SIZING THE BASIC CLOTH HELMET.** To determine the proper size cloth helmet for the aircrew member, proceed as follows:

1. Determine aircrew member's head circumference, using a cloth tape measure, by measuring around the aircrew member's head at the hatband line.
2. Select the correct size cloth helmet for aircrew member from measurement and hat size equivalent as indicated in Table 7-2.

**Table 7-2. Cloth Helmet Assembly Sizing Guide**

| Circumference (Inches) | Comparable Hat Size | Reference Number |
|------------------------|---------------------|------------------|
| 19 - 21                | 6 3/4               | SPHPG1           |
| 21 - 22                | 7                   | SPHPG2           |
| 22 - 23                | 7 1/4               | SPHPG3           |
| 23 - 24                | 7 1/2               | SPHPG4           |

**7-19. SIZING AND INSERTING THE GENERAL USE EAR PLUG.** The general use ear plug is a one-size-fits-all. To prepare for use, proceed as follows:

#### NOTE

Hands and ear plugs should be clean and free of dirt prior to performing the sizing operations.

1. Squeezing lightly between thumb and forefinger, roll the ear plug into a thin crease free cylinder. Ensure the plug is as tightly compressed as possible.

2. Once the plug is properly rolled and compressed, pull outward and upward on the outer ear and immediately insert the plug into the ear canal. In most instances it is easier to use the right hand to insert the plug into the right ear, using the left hand to pull outward on the outer ear. Hold the plug in place with the fingertip a few moments to allow it to expand and block out the noise.

3. Repeat the procedure above on the left ear, using the right hand to pull outward on the outer ear.

4. If not satisfied with the fit of the ear plug, remove the plug and repeat the process until a satisfactory fit is obtained.

**7-20. SIZING THE CUSTOM FIT EAR PLUG.** The custom fit ear plugs are sized to the individual by qualified medical personnel who will explain the specific insertion techniques to the user.

## Section 7-3. Helmet Configuration Build-Up

### 7-21. GENERAL.

7-22. Once the basic cloth helmet assembly has been procured the helmet may be built-up by adding or removing major components in order to obtain the desired configuration for the intended application. This section used in accordance with [table 7-1](#) should provide enough information for one to accomplish this task.

### 7-23. ASSEMBLY OF COMPONENTS.

**7-24. HGU-24/P HELMET ASSEMBLY.** To assemble the HGU-24/P helmet assembly proceed as follows:

#### NOTE

To assemble the HGU-24/P helmet assembly you begin by ordering the HSC61C sound powered headset and add the cloth helmet and other major components as shown in [table 7-1](#).

1. Detach the microphone unit from HSC61C headset assembly by unplugging the microphone connector and detaching the lift-the-dot fasteners from the attaching snap fastener studs. Set aside for reinstallation.

2. Remove the ear domes from the headset assembly by removing installed retaining rings and pulling the ear dome lugs free from the retention band and set aside for reassembly.

3. Insert the ear domes into the openings provided in the cloth helmet assembly, ensuring the ear dome lugs and the snap fastener stud support bracket extent through the prefabricated slots in the left and right cloth helmet ear dome openings.

4. Place headset assembly retention bands over the ear dome lugs and secure in place with retaining rings.

5. Position the headset assembly head-pad into the prefabricated channel of the cloth helmet and secure in place using three snap fasteners provided. Set partially assembled helmet aside while preparing the impact shields for installation.

6. Attach front and back pads to the inside surface of the impact shields using installed hook and pile fastener tape.

#### NOTE

During assembly of the impact shields to the cloth helmet to securing the pull-the-dot snap

fasteners, turn the strap the snap fastener stud installed, 90 degrees from its normal position, insert the outboard part of the stud into the socket, then press in the of the stud under the dot. To facilitate removal of the impact, turn the strap with the snap fastener stud installed 180 degrees its normal position and pull away from the dot.

7. Snap the impact shields to the cloth helmet. Ensure that head-pad cutouts are adjacent to each other at the top of the helmet assembly during assembly.

8. Attach microphone suspension straps to the support brackets using the installed snap fasteners.

9. Unthread one side of the elastic goggle retention strap from the friction adapter buckle. Position goggle across facial opening of the cloth helmet assembly to simulate as worn position. Route free end of retention strap webbing rearward beneath headset retention band support, between cloth helmet assembly and rear impact shield foam pad, beneath retention band support on the opposite side, and through slot on side of goggle assembly.

10. Re-thread retention strap webbing through friction adapter, don helmet assembly and adjust retention webbing to obtain a satisfactory fit.

11. Inspect assembly and document in accordance with OPNAVINST 4790.2 series.

### 7-25. Installation of Tempest Communications Cable and MJS-103 Switching Assembly (MK-1564/AIC).

To install the Tempest Communications Cable and MJS-103 Switching Assembly (MK-1564/AIC) onto the HGU-24/P Helmet Assembly aural protectors and microphone suspension assembly, proceed as follows:

#### Materials Required

| Quantity    | Description   | Reference Number                |
|-------------|---|---------------------------------|
| 1           | Tempest Communications Cable, with MJS-103 Switching Assembly | MK-1564/AIC<br>NIIN 01-164-0561 |
| As Required | Strap, Tiedown  | MS3367-1-0<br>NIIN 00-984-6382  |

**NOTE**

Communications assembly, P/N MK-1564/AIC, is delivered with earcups, earphones and earphone holders attached. The earcup assemblies are not used with the following configuration and must be removed in order to complete this installation.

1. Removal of installed sound powered headset components from the aural protectors and microphone suspension assembly:

a. Disconnect the microphone suspension assembly connector (U-173/U) from the sound powered headset receptacle (U-172/U) on the left spring band ear dome. Release the lift-the-dot fasteners securing the microphone suspension assembly to the right and left ear domes and set aside for microphone removal.

b. Remove the two screws securing the coiled spring strain relief assembly to the bottom of the left ear dome.

c. Spread the headset ear dome retention bands and detach ear dome lugs from retention bands. Remove detached ear domes from the cloth helmet assembly.

d. From inside the left ear dome, remove the foam insert encircling the earphone and set aside for reuse. Remove the two screws and flat washers holding the earphone to the positioning assembly. Withdraw the earphone, with existing communications cable attached, from the interior of the ear dome. Remove the two screws securing the cable leads to the earphone terminals and discard earphone. Repeat the procedure for the right ear dome.

e. Using diagonal cut pliers or an end cutter, remove the crimped communication cable retaining ring from the ear dome cable lead and withdraw the cable lead, with encircling rubber grommet from each ear dome. Carefully split and remove rubber grommets from communication cable leads. Set aside for reuse.

f. Remove the two screws and flat washers securing the microphone to the positioning assembly inside the suspension assembly. Withdraw the microphone, with attached cable, from inside the suspension assembly and remove the two screws holding the cable leads to the microphone terminals.

g. Remove the crimped communication cable retaining ring using diagonal cut pliers or an end cutter. Dislodge and remove the large split grommet encircling the microphone cable from the bottom of the suspension assembly and withdraw the cable from the suspension assembly. Set split grommet aside for reuse in the installation of the tempest communication cable. Discard removed microphone.

h. Cut and remove heat shrink securing the earphone lead to the ear dome retention band. Loosen the two cable clip elastic stop nuts located on the right and left sides of the aural protector headband and dislodge the earphone lead from the headband. Split and remove the rubber grommets from the earphone lead and set aside for reuse. Discard the earphone lead.

2. To configure the HGU-24/P Helmet Assembly with the Tempest Communications Cable and MJS-103 Switching Assembly (MK-1564/AIC), proceed as follows:

a. Remove the earseals from the Tempest Cable Assembly earcups and withdraw the earphone holders from the inside of each earcup. Loosen setscrews securing the earphone leads to the earphone assemblies and set the earphone holders with enclosed earphones aside. Withdraw the tempest cable earphone leads from the earcup assemblies. Discard removed earcups and seals.

b. To establish the location of the MJS-103 mounting screw location on the exterior surface of the left ear dome, measure upward, using a cloth tape measure, 1 1/16 inches from the outboard threaded brass insert and place a mark. From this location, measure upward 3/16 inch and place a second mark.

**NOTE**

The MJS-103 Communication Switching Assembly is positioned on the left ear dome with the actuating lever downward.

c. On the back of the MJS-103 Communication Switching Assembly, remove the two screws securing the backing plates to the assembly. Using one of the backing plates, verify the position and location of the proposed mounting screw holes.

d. At the verified locations, using a No. 35 drill bit, ensuring the drill bit is perpendicular to the surface of the left ear dome, drill the two MJS-103 mounting screw holes. Deburr holes using a rattail jeweler's file.

**NOTE**

Only one of the two backing plates provided with the MJS-103 switching assembly is required for these installation procedures.

e. Position a backing plate over the drilled mounting holes on the inside of the left ear dome. From the inside of the ear dome, pass the two mounting screws outward, through the backing plate and the ear dome shell, into the threaded mounting holes on the rear of the switching assembly. Tighten the mounting screws securely.

f. Remove the tempest microphone element from the boom bracket by removing the mounting screw. Discard the boom bracket assembly.

g. Cut a one-inch wide by two-inch long section of self-adhesive hook fastener tape. Remove the protective backing from the section of hook fastener tape and position the hook tape vertically on the inside surface of the microphone suspension assembly.

h. Cut and trim a section of self-adhesive pile fastener tape to fit on the back of the tempest microphone element. Remove the protective backing and affix the pile fastener tape to the back of the microphone element. Feed the connector end of the microphone cable through the mouthpiece portion of the suspension assembly and out the large hole at the lower end of the assembly.

i. Wrap the large split grommet around the microphone cable at the point it exits the lower end of the suspension assembly. Ensuring the grommet completely encircles the cable, seat the grommet securely into the hole. Keeping the microphone element oriented vertically, mate the hook and pile fastener tape material. Place closed cell foam inserts, removed from ear dome in step 1d, around the microphone element on the inside of the suspension assembly.

j. Reinstall ear domes into cloth helmet assembly and reattach headset ear dome retention bands over ear dome lugs.

k. Route the longer communication cable earphone lead across the rear of the cloth helmet assembly between the inner surface of the back cranial shield and the foam comfort pad to the right ear dome. The shorter earphone lead is routed directly to the left ear dome.

l. Insert the cable earphone leads into the ear domes through the pre-drilled holes at the rear edge of the ear domes. Encircle each lead with one of the rubber grommets during step 1e. At the point the earphone lead enters each ear dome. Making certain the grommets completely encircle the lead, insert the grommets into the pre-drilled holes, ensuring they lay smoothly on the exterior surface of the ear dome.

m. Insert earphone cable contacts into tempest earphones and tighten the setscrews. Place earphone holders, with enclosed earphones into ear domes. Smooth earphone holder inside ear domes to avoid fabric bunching. Reinstall earseals by hooking them over one end of the ear dome and carefully stretching them over the ear dome lip.

n. To avoid chance of entanglement, tuck excess tempest power cable into 5-inch bights and secure each end with electrical tiedown straps.

**7-26. HGU-25(V)2/P HELMET ASSEMBLY.** To assemble the HGU-25(V)2/P helmet assembly proceed as follows:

**NOTE**

The HGU-25(V)2/P helmet assembly is configured with the 372-9AN2 Aural Protectors only. Additionally, the HGU-25(V)2/P is assembled using white cranial impact only.

1. Remove the ear domes from the 372-9AN2 Aural protector by removing installed retaining ring and pulling the ear dome lugs free from the retention band and set aside for re-assembly.

2. Insert the ear domes into the openings provided in the cloth helmet assembly, ensuring the ear dome lugs extend through the prefabricated slots in the left and right cloth helmet ear dome openings.

3. Place headset assembly retention bands over the ear dome lugs and secure in place with retaining rings.

4. Position the headset assembly head-pad into the prefabricated channel of the cloth helmet and secure in place using three snap fasteners provided. Set partially assembled helmet aside while preparing the impact shields for installation.

5. Attach front and back pads to the inside surface of the impact shields using installed hook and pile fastener tape.

**NOTE**

To facilitate securing the pull-the-dot snap fasteners during assembly of the impact shields to the cloth helmet, turn the strap with the snap fastener stud installed, 90 degrees from its normal position, insert the outboard part of the stud into the socket, then press in the side of the stud under the dot.

6. Snap the impact shields to the cloth helmet. Ensure that head-pad cutouts are adjacent to each other at the of the helmet assembly during assembly.

7. Unthread the left side of the elastic goggle retention strap from the friction adapter buckle. Position goggle the facial opening of the cloth helmet assembly to simulate as worn position. Route free end of strap webbing rearward beneath headset retention band support, between cloth helmet assembly rear impact shield foam pad, beneath retention band support on opposite side, and through slot on side goggle assembly.

8. Re-thread retention strap webbing through friction adapter, don helmet assembly and adjust retention webbing to obtain a satisfactory fit.

9. Inspect assembly and document in accordance with OPNAVINST 4790.2 series.

**7-27. INSTALLATION.**

**7-28. REFLECTIVE TAPE INSTALLATION.** To install reflective tape to outer surface of cranial impact shield, proceed as follows:

Materials Required

| Quantity    | Description                       | Reference Number                     |
|-------------|-----------------------------------|--------------------------------------|
| As Required | Tape, Reflective:                 |                                      |
|             | White, 3-Inch Wide High Intensity | NIIN 01-078-8660 (Not E1)            |
|             | White, 6-Inch Wide                | L-S-300, Class 3<br>NIIN 00-100-2153 |
|             | Orange, 1-Inch Wide               | L-S-300, Class 1<br>NIIN 00-656-1494 |
|             | Orange, 3-Inch Wide               | L-S-300, Class 1<br>NIIN 00-656-1186 |
| As Required | Detergent, Mild                   | Commercial                           |
| As Required | Cloth, Lint-Free                  | MIL-C-85043<br>NIIN 00-165-7195      |

Notes: 1. The High Intensity grade white tape provides the greatest overall reflectivity and is optimum for visual detection. Submit requisitions for High Intensity grade tape to routing identifier code ZNC.

1. Clean outer surface of cranial impact shields with a damp cloth and a mild cleaning agent to remove all traces of grease, salt, or foreign substances.

2. Remove all traces of cleaning agent with a clean damp cloth. Dry with a clean dry cloth.

3. Examine all surfaces of cranial impact shields for obvious signs of cracks, soft portions, splits or other defects which would be cause for replacement of the item. Defective shields shall be disposed of in accordance with the proper directives.

4. The cranial impact shields shall be taped in accordance with NAVAIR 00-80T-105 (CV NATOPS).

5. Remove protective backing from reflective tape and place in desired position on helmet/visor housing surface. Avoid excessive stretching, air bubbles, and wrinkles. To obtain maximum adhesion, apply firm pressure to tape. Strip overlap should be minimized.



Application of any type of coating on top of reflective tape may decrease reflectivity.

6. Inspect tape installation and document in accordance with OPNAVINST 4790.2 Series.

**7-29. PILE FASTENER TAPE INSTALLATION.** Use following procedure to add pile fastener tape to the front cranial impact shield for attachment of the distress signal light SDU-5/E or SDU-39/N.

Materials Required

| Quantity    | Description                               | Reference Number                |
|-------------|---|---------------------------------|
| 2 Inches    | Fastener Tape, Pile, Type 1, 2-Inch Width | MIL-F-21840<br>NIIN 00-106-5973 |
| As Required | Adhesive, Polychloroprene, Class 3        | MIL-A-5540<br>NIIN 00-515-2246  |

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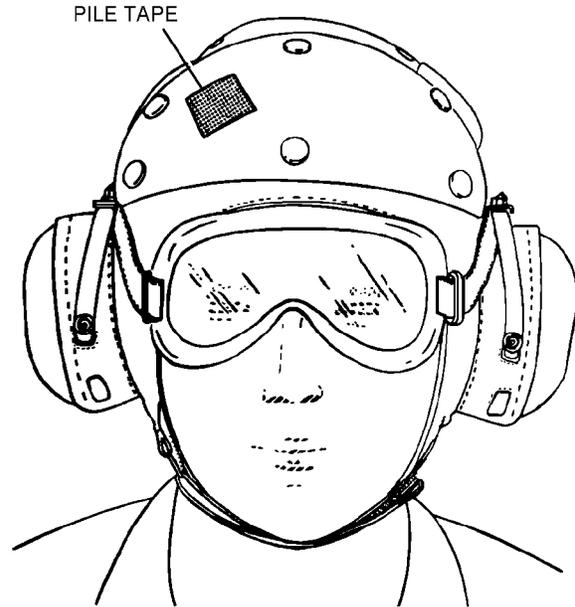
### NOTE

Use of any size or type pile tape available through local supply is authorized. Black or olive green are preferred colors.

Refer to Rescue and Survival Equipment, NAVAIR 13-1-6.5, for addition of hook tape to distress signal light.

1. Apply adhesive to a 2 x 2-inch area on left side of front cranial impact shield assembly where pile fastener tape is to be attached. Apply adhesive to underside of pile tape.

2. Allow adhesive to become tacky, approximately 15 minutes. Then press pile tape firmly onto prepared area on front cranial impact shield.



Step 2 - Para 7-23

7p23s2

3. Inspect pile fastener tape installation and document in accordance with OPNAVINST 4790.2 Series.

## Section 7-4. Modifications

### 7-30. GENERAL.

7-31. Ensure that the HGU-24/P and HGU-25(V)2/P helmet assemblies have been updated in accordance with the directives listed in [Table 7-3](#).

Table 7-3. HGU-24/P and HGU-25(V)2/P Helmet Assembly Directives

| Description of Modification         | Application | Modification Code |
|-------------------------------------|-------------|-------------------|
| Installation of Pile Tape on Helmet | All helmets | 66-441            |

## Section 7-5. Maintenance

### 7-32. GENERAL.

7-33. Proper care and use of the cloth helmet assemblies is essential to ensure optimum performance during routine and emergency operations. The users responsibility for maintenance of the cloth helmet is limited to general cleaning of the impact shields and attached protective goggles. Repairs or other maintenance actions required will be performed at the organizational level of maintenance or above. A special inspection shall be performed upon issue and at least every 90 days thereafter. All maintenance actions and inspections shall be documented in accordance with OPNAVINST 4790.2 Series maintenance manual. Repair, fabrication, and installation instructions to maintain the serviceability of the assemblies are listed in Table 7-4.

### 7-34. INSPECTION.

#### NOTE

Defects or questionable areas noted during these inspections shall be referred to the proper maintenance activity for required corrective action.

General use ear plugs are inspected upon removal from packaging prior to use, if defects are noted discard and select another package.

**7-35. PRE-OPERATION/POST-OPERATION INSPECTIONS.** The Pre-operational and Post-operational inspections are performed by the person who has physical custody of the helmet assembly, and consists of a visual inspection for the overall integrity of the cloth helmet assembly. Refer to Paragraph 7-36.

#### NOTE

General use ear plugs are normally a one time use item and are not subjected to a Special Inspection.

**7-36. SPECIAL INSPECTION.** The Special Inspection shall be conducted upon issue and every 90 days thereafter by Designated Qualified Personnel and shall consist of a visual inspection in accordance with Paragraph 7-37, a functional check of the installed communications assembly and a thorough exterior cleaning of the assembly.

**7-37. VISUAL INSPECTION.** Visually inspect the cloth helmet assembly as follows:

1. Inspect chin strap for loose or broken stitching, fraying, security of attachment to cloth helmet and missing or damaged hook and pile fastener tape.
2. Inspect chinstrap-securing loop for security of attachment; check metal loop for corrosion.
3. Inspect impact shields for delamination, cracks, and broken/missing snap fastener hardware.
4. Inspect cloth helmet assembly for rips, tears, broken or missing stitching and overall condition.
5. Goggles should be inspected for deteriorated or damaged face seal, lens retention, loose or broken stitches on elastic headband, lenses for scratches and security of attachment to helmet assembly.
6. Muff microphone (HGU-24/P only) for loose or broken stitches on the retention strap, retention strap snap fastener for security of attachment and presence of corrosion.

**7-38. FUNCTIONAL INSPECTION.** Inspect the HGU-24/P headset using the TTU-489/E or standard shop procedures.

**Table 7-4. Repairs/Replacements**

| Description of Repair/Replacement       | Application                 | Paragraph |
|---|-----------------------------|-----------|
| Replacement of Reflective Tape          | All Cloth Helmet Assemblies | 7-43      |
| Replacement of Pile Fastener Tape       | All Cloth Helmet Assemblies | 7-44      |
| Earphone Replacement (Sound Powered)    | HGU-24/P                    | 7-45      |
| Microphone Replacement (Sound Powered)  | HGU-24/P                    | 7-46      |
| Earseal Replacement                     | All Cloth Helmet Assemblies | 7-47      |
| Cloth Helmet Assembly Replacement       | All Cloth Helmet Assemblies | 7-48      |
| Snap Fastener Tab Replacement           | All Cloth Helmet Assemblies | 7-49      |
| Snap Fastener Stud and Post Replacement | All Cloth Helmet Assemblies | 7-50      |
| Goggle Replacement                      | All Cloth Helmet Assemblies | 7-51      |

**7-39. CLEANING.**

**NOTE**

While general use ear plugs are normally a one time use item, if required to be worn for an extended period, ear plugs can be hand washed in warm soapy water to maintain personal hygiene standards.

7-40. To clean various parts of the cloth helmet assemblies, proceed as follows:

**Materials Required**

| Quantity    | Description        | Reference Number                   |
|-------------|--------------------|------------------------------------|
| As Required | Detergent, Laundry | Commercial                         |
| As Required | Cloth, Lint-Free   | MIL-C-85043<br>NIIN 00-165-7195    |
| As Required | Plastic Polish     | P-P-560 Type 1<br>NIIN 00-935-3794 |

1. HGU-24/P and HGU-25(V)2/P impact shields.

a. Clean impact shields using a mixture of warm water and mild detergent and a lint-free cloth.

b. Wipe impact shields with a clean lint-free cloth dampened with clear warm water to remove any detergent residue.

2. Cloth helmet assembly.

a. The cloth helmet assembly may be cleaned by machine washing in a solution of mild detergent and water.

b. Thoroughly rinse in clear water and allow to air dry.

3. Goggle lenses.

a. Clean lens with a solution of mild detergent and water using a lint-free cloth.

b. If lens is still soiled after washing, clean inner and outer surfaces with liquid plastic polish. After cleaning use a lint-free cloth to remove any polish residue.

**7-41. REPLACEMENT OF CLOTH HELMET COMPONENTS.**

7-42. The following procedures list the steps necessary to replace individual components of the cloth helmet assembly. Disassembly of the cloth helmet assembly shall be limited to the extent necessary to perform the required replacement. Refer to [table 7-4](#) for listing of authorized replacements and fabrications.

**7-43. REPLACEMENT OF REFLECTIVE TAPE.** If replacement of installed reflective tape is required, proceed as follows:

| Materials Required |                                   |                                      |
|--------------------|-----------------------------------|--------------------------------------|
| Quantity           | Description                       | Reference Number                     |
| As Required        | Tape, Reflective:                 |                                      |
|                    | White, 3-Inch Wide High Intensity | NIIN 01-078-8660 (Not E1)            |
|                    | White, 6-Inch Wide                | L-S-300, Class 3<br>NIIN 00-100-2153 |
|                    | Orange, 1-Inch Wide               | L-S-300, Class 1<br>NIIN 00-656-1494 |
|                    | Orange, 3-Inch Wide               | L-S-300, Class 1<br>NIIN 00-656-1186 |
| As Required        | Detergent, Mild                   | Commercial                           |
| As Required        | Cloth, Lint-Free                  | MIL-C-85043<br>NIIN 00-165-7195      |
| As Required        | Alcohol, Isopropyl                | TT-I-735<br>NIIN 00-655-8366         |

Notes: 1. The High Intensity grade white tape provides the greatest overall reflectivity and is optimum for visual detection. Submit requisitions for High Intensity grade tape to routing identifier code ZNC.

**NOTE**

Removal of reflective tape requires a considerable amount of care and patience. In some instances use of a heat gun may expedite tape removal.

1. Reflective tape removal.

a. To minimize damage to the outer surface of the impact shield, carefully work a beveled (not sharp) short blade putty knife under an edge of the

tape, carefully stripping the reflective tape from the impact shield. Remove any adhesive residue with a lint-free cloth dampened with isopropyl alcohol.

2. Install new reflective tape in accordance with [paragraph 7-28](#).

3. Inspect reflective tape installation and document in accordance with OPNAVINST 4790.2 series.

**7-44. REPLACEMENT OF PILE FASTENER TAPE.** To replace damaged or missing pile fastener tape, proceed as follows:

| Materials Required |   |                                 |
|--------------------|---|---------------------------------|
| Quantity           | Description                               | Reference Number                |
| 2-Inches           | Fastener Tape, Pile, Type 1, 2-Inch Width | MIL-F-21840<br>NIIN 00-106-5973 |
| As Required        | Adhesive, Polychloroprene, Class 3        | MIL-A-5540<br>NIIN 00-515-2246  |
| As Required        | Alcohol, Isopropyl                        | TT-I-735<br>NIIN 00-655-8366    |

Use of any size or type of pile tape available through local supply is authorized. Black or olive green, are the preferred colors.

1. Remove damaged/deteriorated pile fastener tape and remove any adhesive residue using isopropyl alcohol.

2. Apply adhesive to the 2 x 2-inch area on the left side of the front impact shield where pile fastener tape is to be attached. Apply a coat of adhesive to the underside of the pile tape patch.

3. Allow adhesive to become tacky, approximately 15 minutes, then press pile fastener tape patch firmly into position on the selected area of the impact shield.

4. Inspect pile tape installation and document in accordance with instructions in OPNAVINST 4790.2 series.

**7-45. REPLACEMENT OF EARPHONE (HGU-24/P ONLY).** To replace defective earphones, proceed as follows: TBD

**7-46. REPLACEMENT OF MICROPHONE ELEMENT (HGU-24/P ONLY).** To replace a defective microphone element, proceed as follows: TBD

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**7-47. EARSEAL REPLACEMENT.** To replace worn or damaged earseals, proceed as follows:

| Materials Required |                         |                                   |
|--------------------|-------------------------|-----------------------------------|
| Quantity           | Description             | Reference Number                  |
| 1 PR               | Cushion, Ear Elliptical | P/N 18316G-02<br>NIIN 01-415-6871 |

1. Remove worn/damaged earseals and discard.

2. Install replacement earseals onto eardomes by hooking them over one end of the eardome and carefully stretching them over the lip of the eardome.

**7-48. CLOTH HELMET ASSEMBLY REPLACEMENT.** To replace damaged/contaminated/deteriorated cloth helmet assemblies, proceed as follows:

| Materials Required |               |                            |
|--------------------|---------------|----------------------------|
| Quantity           | Description   | Reference Number           |
| 1                  | Cloth helmet, | SPHPG1<br>NIIN 00-861-3527 |
|                    | -or-          |                            |
| 1                  | Cloth Helmet  | SPHPG2<br>NIIN 00-071-8785 |
|                    | -or-          |                            |
| 1                  | Cloth Helmet  | SPHPG3<br>NIIN 00-071-8786 |
|                    | -or-          |                            |
| 1                  | Cloth Helmet  | SPHPG4<br>NIIN 00-071-8787 |

### NOTE

Cloth helmet assemblies that have become excessively soiled or have deteriorated to a condition where they are considered beyond economical repair shall be replaced.

1. (HGU-24/P) Detach microphone unit from headset assembly by disconnecting microphone U-173/U from headset U-172/U connector and unsnapping the lift-the-dot snap fasteners securing the microphone unit adjustment straps to the eardome stud support brackets.

2. Remove E-clips from eardome lugs, spread retention bands to release eardomes. Set E-clips aside for reuse.

### NOTE

To facilitate removal of the impact shields, turn the strap with the snap fastener stud

installed 180 degrees from its normal position and pull away from the dot.

3. Unsnap and remove front and back impact shields with attached pads from the cloth helmet assembly and set aside for reinstallation.

4. Remove earseals from eardomes and withdraw eardomes from the factory-fabricated openings on each side of the cloth helmet assembly.

5. Unsnap head-pad channel on top of cloth helmet, remove the headband assembly and discard cloth helmet assembly.

6. Using replacement cloth helmet assembly, insert the ear domes into the openings provided in the cloth helmet assembly, ensuring the ear dome lugs extend through the pre-fabricated slots in the left and right cloth helmet ear dome openings. (HGU-24/P) Ensure eardome support brackets extend through lower set of pre-fabricated slots.

7. Place headset assembly retention bands over the ear dome lugs and secure in place with retaining rings. With retention bands secured in place, replace earseals onto eardome lip.

8. Position the headset assembly head-pad into the pre-fabricated channel of the cloth helmet and secure in place using three snap fasteners provided.

### NOTE

To facilitate securing the pull-the-dot snap fasteners during assembly of the impact shields to the cloth helmet, position the strap with the snap fastener stud installed, 90 degrees from its normal position, insert the outboard part of the stud into the socket, then press in the side of the stud under the dot.

9. Snap the impact shields to the cloth helmet. Ensure that head-pad cutouts are adjacent to each other at the top of the helmet assembly during assembly.

10. (HGU-24/P) Snap microphone unit adjustment straps to eardome support bracket snap fastener stud on each eardome then reconnect microphone U-173/U to headset U-172/U connector.

11. Inspect cloth helmet assembly replacement and document in accordance with OPNAVINST 4790.2 Series.

**7-49. SNAP FASTENER TAB REPLACEMENT.** To replace the snap fastener tab, proceed as follows: TBD

**7-50. SNAP FASTENER STUD AND POST REPLACEMENT.** To replace the snap fastener stud and post, proceed as follows: TBD

**7-51. GOGGLE REPLACEMENT.** To replace defective goggles, proceed as follows:

Materials Required

| Quantity | Description                | Reference Number                |
|----------|----------------------------|---------------------------------|
| 1        | Goggle, Sun, Wind and Dust | MIL-G-43914<br>NIIN 01-328-8268 |
|          | -or-                       |                                 |
| 1        | ESS Goggles                | ESS01CB-NV<br>NIIN 01-492-5720  |

Materials Required (Cont)

| Quantity   | Description | Reference Number |
|--|-------------|------------------|
| Notes: 1. ESS Goggles are commercially available from:<br>ESS Goggles, Incorporated<br>221 Northwood Way, Unit 200<br>Ketchum, ID<br>Telephone (208) 726-4072. |             |                  |

1. Unthread or unsnap left hand goggle retention strap of defective goggle and remove from cloth helmet assembly.

2. Unthread or unsnap left hand goggle retention strap and route free end of retention strap webbing rearward beneath headset retention band support, between cloth helmet assembly and rear impact shield foam pad, beneath retention band support on the opposite side, and through slot on side of goggle assembly.

3. Inspect goggle replacement and document in accordance with OPNAVINST 4790.2 series.

**Section 7-6. Illustrated Parts Breakdown**

**7-52. GENERAL.**

7-53. This section lists and illustrates the assemblies and detail parts of the HGU-24/P and HGU-25(V)2/P Cloth Helmet Assemblies as manufactured by David Clark Co., Inc. (CAGE 71483).

7-54. The IPB is intended for use in the identification, procurement, storing and issuing of replacement parts. It also illustrates disassembly and assembly relationships. Installation, operation and maintenance of these helmets shall only be performed by authorized personnel utilizing the instructions set forth in the preceding sections.

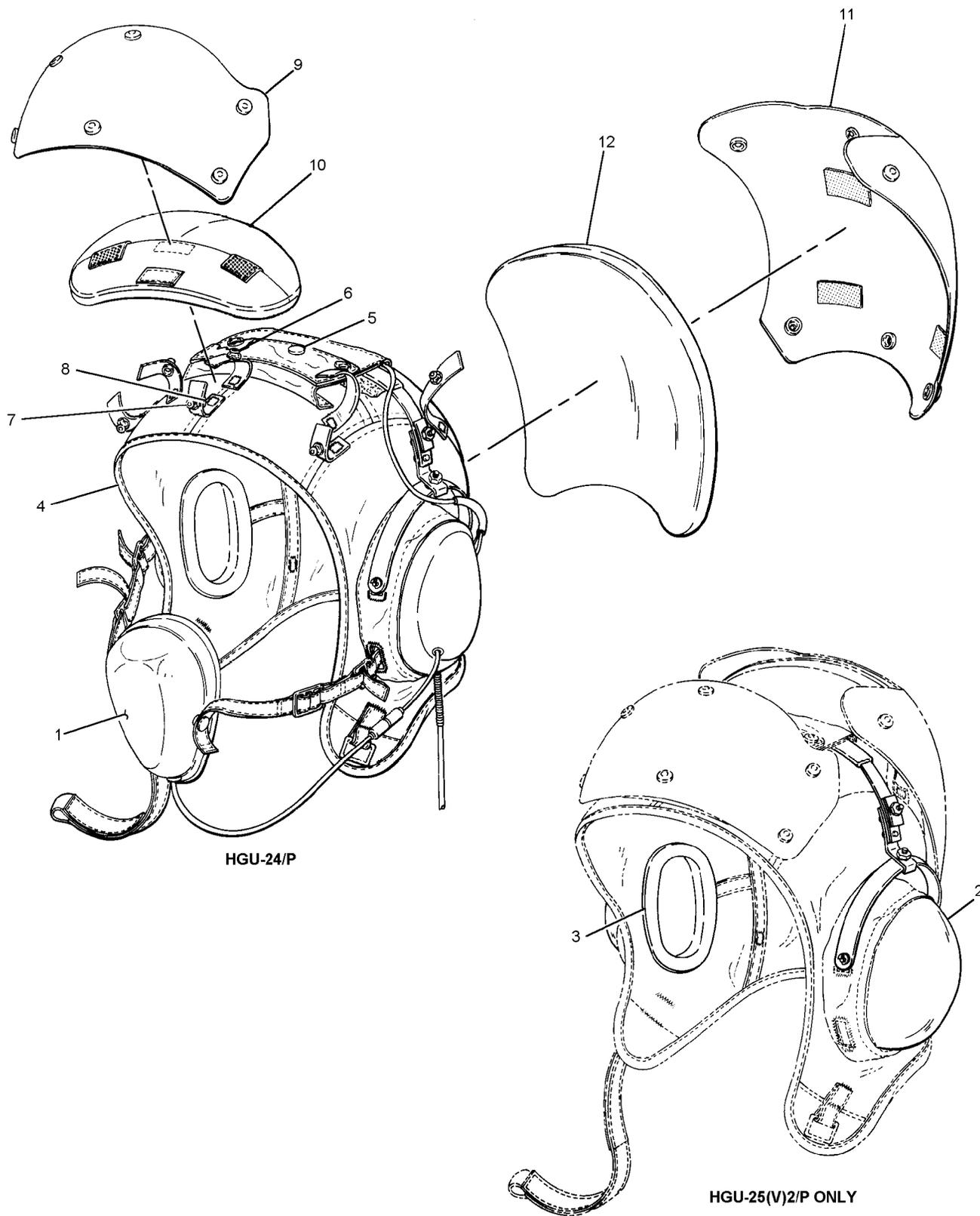


Figure 7-3. Cloth Helmet Assembly

| Figure and Index Number | Part Number | Description   |   |   |   |   |   | Units Per Assembly | Usable On Code |
|-------------------------|-------------|---|---|---|---|---|---|--------------------|----------------|
|                         |             | 1   | 2 | 3 | 4 | 5 | 6 |                    |                |
| 7-3                     | No Number   | HGU-24/P CLOTH HELMET ASSEMBLY . . . . .  |   |   |   |   |   | 1                  | A              |
|                         | No Number   | HGU-25(V)2/P CLOTH HELMET ASSEMBLY . . . . .  |   |   |   |   |   | 1                  | B              |
| -1                      | HSC61C      | . HEAD SET ASSEMBLY, Sound powered . . . . .<br>(CAGE 71483)  |   |   |   |   |   | 1                  | A              |
| -2                      | 372-9AN2    | . AURAL SOUND PROTECTOR ASSEMBLY, . . . . .<br>(CAGE 71483) MIL-A-23899                                     |   |   |   |   |   | 1                  | B              |
| -3                      | 12192G-09   | . . AURAL SOUND PROTECTOR SUPPORT, . . . . .<br>Ear Seal (CAGE 71483) (Not E1)                              |   |   |   |   |   | 1                  | B              |
|                         | SP2014      | . . AURAL SOUND PROTECTOR SUPPORT, . . . . .<br>Ear Seal (CAGE 71483) (Alternate for<br>12192G-09) (Not E1) |   |   |   |   |   | 1                  | B              |
|                         | 40863G-02   | . . AURAL SOUND PROTECTOR SUPPORT, . . . . .<br>Ge Ear Seal (CAGE 71483) (Not E2)                           |   |   |   |   |   | 1                  | B              |
|                         | 18316G-02   | . . CUSHION, Ear, Elliptical . . . . .  |   |   |   |   |   | 1                  |                |
| -4                      | SPHPG1      | . HELMET, Cloth, Size 6 3/4, (CAGE 71483) . . . . .   |   |   |   |   |   | 1                  |                |
|                         | SPHPG2      | . HELMET, Cloth, Size 7, (CAGE 71483) . . . . .   |   |   |   |   |   | 1                  |                |
|                         | SPHPG3      | . HELMET, Cloth, Size 7 1/4, (CAGE 71483) . . . . .   |   |   |   |   |   | 1                  |                |
|                         | SPHPG4      | . HELMET, Cloth, Size 7 1/2, (CAGE 71483) . . . . .   |   |   |   |   |   | 1                  |                |
| -5                      | MS27981-3N  | . . FASTENER, Socket . . . . .  |   |   |   |   |   | 3                  |                |
| -6                      | MS27981-5N  | . . FASTENER, Eyelet . . . . .  |   |   |   |   |   | 3                  |                |
| -7                      | MS27983-3   | . . FASTENER, Stud . . . . .  |   |   |   |   |   | 12                 |                |
| -8                      | MS27983-4   | . . FASTENER, Eyelet . . . . .  |   |   |   |   |   | 12                 |                |
| -9                      | ASP332-2    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>Brown (CAGE 71483)                                   |   |   |   |   |   | 1                  |                |
|                         | ASP332-3    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>Blue (CAGE 71483)                                    |   |   |   |   |   | 1                  |                |
|                         | ASP332-4    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>Green (CAGE 71483)                                   |   |   |   |   |   | 1                  |                |
|                         | ASP332-5    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>Red (CAGE 71483)                                     |   |   |   |   |   | 1                  |                |
|                         | ASP332-6    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>Yellow (CAGE 71483)                                  |   |   |   |   |   | 1                  |                |
|                         | ASP332-7    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>White (CAGE 71483)                                   |   |   |   |   |   | 1                  |                |
|                         | ASP332-8    | . SHIELD ASSEMBLY, Cranial Impact, Front, . . . . .<br>Purple (CAGE 71483)                                  |   |   |   |   |   | 1                  |                |
| -10                     | ASP223      | . FRONT PAD ASSEMBLY, Brown . . . . .<br>(CAGE 71483)   |   |   |   |   |   | 1                  |                |
| -11                     | ASP333-2    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>Brown (CAGE 71483)                                    |   |   |   |   |   | 1                  |                |
|                         | ASP333-3    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>Blue (CAGE 71483)                                     |   |   |   |   |   | 1                  |                |
|                         | ASP333-4    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>Green (CAGE 71483)                                    |   |   |   |   |   | 1                  |                |
|                         | ASP333-5    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>Red (CAGE 71483)                                      |   |   |   |   |   | 1                  |                |
|                         | ASP333-6    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>Yellow (CAGE 71483)                                   |   |   |   |   |   | 1                  |                |
|                         | ASP333-7    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>White (CAGE 71483)                                    |   |   |   |   |   | 1                  |                |

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| Figure and Index Number   | Part Number | Description<br>1 2 3 4 5 6 7  | Units Per Assembly | Usable On Code |
|---|-------------|---|--------------------|----------------|
| 7-3-11<br>(cont)<br>-12   | ASP333-8    | . SHIELD ASSEMBLY, Cranial Impact, Back, . . . . .<br>Purple (CAGE 71483) | 1                  |                |
|   | ASP222      | . BACK PAD ASSEMBLY, Brown . . . . .<br>(CAGE 71483)                      | 1                  |                |
|   | MIL-G-43914 | GOGGLES, Sun, Wind, Dust (NIIN 01-328-8268) . . .<br>(Not Illustrated)    | 1                  |                |
|   | ESS01CB-NV  | GOGGLES, ESS (Not Illustrated) . . . . .                                  | 1                  |                |
| <p>Notes: 1. This is the only part to support the Aural Protector that is presently carried in the supply system.</p> <p>2. Open purchase from:<br/> David Clark Co. Inc.<br/> 360 Franklin St<br/> Box 15054,<br/> Worcester, MA 01615<br/> Tel (508) 756-6216</p> |             |   |                    |                |

## NUMERICAL INDEX

| Part Number | Figure and Index Number | SM&R Code | Part Number | Figure and Index Number | SM&R Code |
|-------------|-------------------------|-----------|-------------|-------------------------|-----------|
| ASP222      | 7-3-12                  | PAOZZ     | EES01CB-NV  | 7-3-                    |           |
| ASP223      | 7-3-10                  | PAOZZ     | HSC61C      | 7-3-1                   | PAOGG     |
| ASP332-2    | 7-3-9                   | PAGGZ     | MIL-G-43914 | 7-3-                    |           |
| ASP332-3    | 7-3-9                   | PAGGZ     | MS27981-3N  | 7-3-5                   | PAOZZ     |
| ASP332-4    | 7-3-9                   | PAGGZ     | MS27981-5N  | 7-3-6                   | PAOZZ     |
| ASP332-5    | 7-3-9                   | PAGGZ     | MS27983-3   | 7-3-7                   | PAOZZ     |
| ASP332-6    | 7-3-9                   | PAGGZ     | MS27983-4   | 7-3-8                   | PAOZZ     |
| ASP332-7    | 7-3-9                   | PAGGZ     | SPHPG1      | 7-3-4                   | PAOZZ     |
| ASP332-8    | 7-3-9                   | PAGGZ     | SPHPG2      | 7-3-4                   | PAOZZ     |
| ASP333-2    | 7-3-11                  | PAGGZ     | SPHPG3      | 7-3-4                   | PAOZZ     |
| ASP333-3    | 7-3-11                  | PAGGZ     | SPHPG4      | 7-3-4                   | PAOZZ     |
| ASP333-4    | 7-3-11                  | PAGGZ     | SP2014      | 7-3-3                   | PAOZZ     |
| ASP333-5    | 7-3-11                  | PAGGZ     | 12192G-09   | 7-3-3                   | PAOZZ     |
| ASP333-6    | 7-3-11                  | PAGGZ     | 372-9AN2    | 7-3-2                   | PAOZZ     |
| ASP333-7    | 7-3-11                  | PAGGZ     | 40863G-02   | 7-3-3                   | XDOZZ     |
| ASP333-8    | 7-3-11                  | PAGGZ     |             |                         |           |

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