

CHAPTER 3

AIRCREW HELMET ASSEMBLIES FOR ROTARY WING AIRCRAFT

Section 3-1. Description

3-1. GENERAL.

3-2. The HGU-84/P Series aircrew helmet assemblies feature a lightweight helmet shell constructed of a multi-layer mixed composite of graphite fabric and ballistic nylon fabric with the helmet edge trimmed for optimal peripheral vision. The helmets are available in four sizes (medium, large, extra-large, and extra-large wide). They afford enhanced stability and comfort through the use of an integrated chin/nape strap and a thermoplastic comfort liner. The helmets provide face and eye, ear, and head protection when assembled and properly fitted to the aircrewmember. They are compatible for use with the AN/AVS-9(R) Night Vision Image Intensifier Set (NVIIS), the MCK-3A/P CBR protective mask, and the MBU-17(V)2/P oxygen mask. The helmets also house the communications components; H-87B/U earphones, radio frequency (communications) cable assembly and feature a boom swivel mount for installation of the M-87/AIC or M26542/2 Series boom microphones. The visor assemblies authorized for use with this helmet series are the Neutral, Clear, Gradient, Amber and Laser Eye Protective or Neodymium. These visors are easily attached or removed via snap fasteners. In addition to the features described above, the HGU-67/P, using the basic HGU-84/P helmet as a baseline, incorporates an internal wiring harness for use as an interface connection, through a helmet mounted receptacle, to the AH-1 aircraft installed gunsighting system.

3-3. CONFIGURATION.

3-4. The basic HGU-84/P helmet assembly is shown in figure 3-1. Communications components and NVIIS interface accessories are not included as part of the basic helmet assembly and must be procured separately and installed on the helmet to build up the configurations listed in table 3-1. The HGU-67/P helmet assembly, based on the basic HGU-84/P, has been assigned a unique nomenclature to identify it as an AH-1 aircraft specific configuration. In order to obtain the desired configuration for aircrew, assigned to fly in certain aircraft, refer to table 3-1 and 3-2.

3-5. **MAJOR HELMET COMPONENTS.** The following paragraphs contain a brief description of each of the major helmet assembly components. Additionally a brief description of separately procured configuration components and accessories is included. These components and accessories are added to the basic HGU-84/P helmet assembly to achieve a desired configuration. Refer to table 3-2 for component and accessory application. See figures 3-21 through 3-32 for IPB.

3-6. **Helmet Shell Assembly.** The helmet shell assembly (figure 3-2) is designed to provide impact protection. This assembly consists of a helmet shell (constructed of pressure-molded, laminated graphite and ballistic nylon) and a polystyrene energy-absorbing liner (which absorbs and reduces impact forces). Also included are a lens pad (which buffers the visors from shell), a boom swivel assembly (which supports a boom/microphone assembly), snap fasteners (to which the visors are attached), and a helmet block for mounting either a Night Vision Image Intensifier Set (NVIIS) or a Helmet Sight Assembly (HSA) (HGU-67/P). Pile fastener is attached to the inside of the helmet shell for proper positioning and retention of earcups. A foam edgeroll encased in black leather covers the edge of the helmet shell.

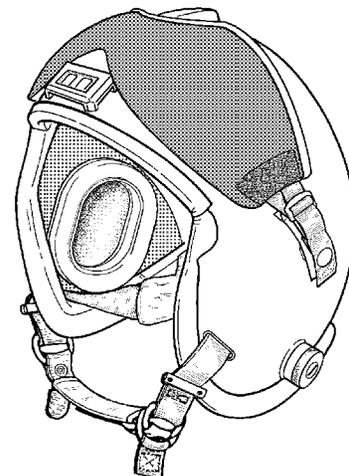


Figure 3-1. HGU-84/P Helmet Assembly

3-1

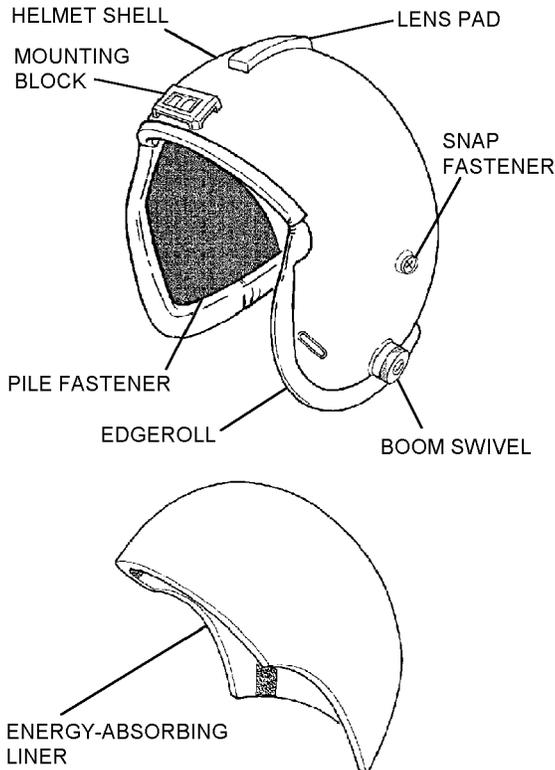


Figure 3-2. Helmet Shell Assembly Components

3-2

3-7. PRU-52/P Thermoplastic Liner (TPL) Assembly. The TPL assembly (figure 3-3) is a light weight inner liner which provides comfort and a close fit. The TPL assembly consists of a five-layer, preformed plastic assembly and a removable, washable cloth cover. The TPL may be fitted by removing layers from the plastic assembly or custom fitted by heating and forming to the aircrewmember's head.

3-8. Earcup Assemblies. The right and left earcup assemblies (figure 3-4) provide sound attenuation and are compatible with H-87B/U earphones. These assemblies are attached to the inside of the helmet shell by hook and pile fastener. Each earcup is tapered, with the deeper portion positioned to the top. A raised-ring earseal on each earcup is designed to ensure comfort and sound attenuation. Earcup fitting pads (two thick and two thin) can be placed between the earcup and helmet shell for optimum earcup fit. The pads can be cut to any size or shape.

3-9. Integrated Chin/Nape Assembly. The integrated chin/nape assembly (figure 3-5) is adjusted via the chin strap, which simultaneously adjusts the cross straps in the nape area. This provides a snug, comfortable fit with maximum helmet stability and retention. Sliding clamps on the nape straps allow adjustment of the nape area without added force to the chin strap. The nape straps are made of nylon webbing and feature a leather-covered nape pad for comfort. The pad extends over the energy-absorbing liner. Spacer pads can be added to the nape pad

to increase snugness. Spacer pads of varying thicknesses, which are supplied, may be cut to any size necessary. The chin strap is made of nylon webbing reinforced with aramid tape on the inside. A snap tab on the left side of the chin strap allows for quick fastening and unfastening without the need for repeated lacing through the D-rings located on the right side. The chin strap features a chin pad with a nylon pile fastener tab. A hook fastener tab sewn onto the free end of the chin strap fastens to the pile tab to minimize slippage.

3-10. Clear, Neutral and Special Purpose Protective Visor Assemblies. Required eye protection is provided by the two supplied visor assemblies (Figure 3-6). The visors may be worn in either a single or dual visor configuration as desired by the crewmember. The clear inner visor provides eye protection during night flying operations. The neutral density outer visor, in addition to providing eye protection, also provides glare protection during daylight flight operations. Each visor is attached and removed via snap fasteners. The outer visor features pull-the-dot fasteners that have been installed to release in the direction opposite to the release direction of the inner visor, thereby avoiding the unintentional release of both visors during operation. A leather lens cover is provided to protect the outer visor and a lens pad rest on the top of the helmet protects the inner surface of the inner visor when not in use. Four additional special purpose outer visors are authorized for use with these helmets, but they must be procured separately. The Neodymium laser eye protective visor provides protection from laser targeting and range finding devices during both day and night flight operations. The amber visor affords enhanced visual acuity during flights conducted in overcast or haze. The gradient visor provides glare protection similar to the neutral visor, but the clear area along the lower portion allows for unobscured rapid scan of cockpit instruments. The Safety Visor, Stepped-in provides eye protection during night flight operations and is worn under the AN/AVS-9(V)R NVIIS. The amber and gradient visors are for use during daylight flight operations only.

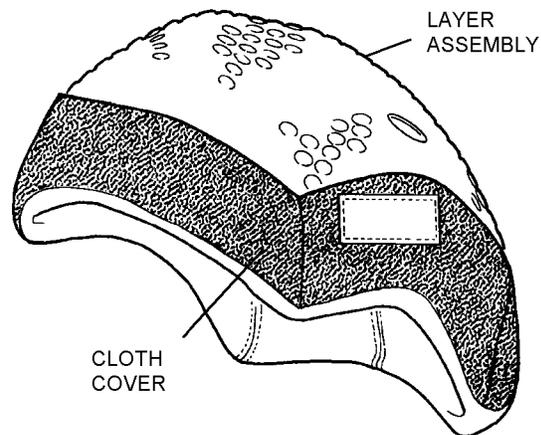


Figure 3-3. Thermoplastic Liner Assembly

3-3

Table 3-1. Helmet Configuration Matrix

HELMET DESIGNATION	SHELL	VISOR	LINERS		CABLES							EAR-PHONES	BOOM MICRO-PHONES				AMP	CBR	NVIIS	HSA	O ₂ MASK		COVER			
	PRU-59/P	CLEAR AND NEUTRAL VISORS (SEE NOTE 3 FOR OPTIONAL USE VISORS)	TPL PRU-52/P	OREGON AERO ZETALINER	M22442/15-1 (CX-4832A/AR) OR M22442/19-1 (CX-12972/AR)	M22442/30-2 (CX-13164/A)	MIL-C-22442/30-1 (CX-13155/A)	M22442/37-4708 (CX-4708A/AIC)	M22442/57-1 (CX-13165/A)	MK-11564/A1Q (TEMPEST) (NOTE 4)	P/N 93C8485 (NOTE 5)	H-87B/U	D6001601 (TEMPEST) PART OF MK-1564/AIC ASSEMBLY	COMMUNICATIONS EAR PLUG	M-33A/AIC (M-87 W/6" CX-4434/U CABLE)	M26542/2-01 (M-87 W/13" CX-4434/U CABLE)	M26542/2-02 (M-87 W/16" CX-4434/U CABLE)	M26542/2-03 (M-87 W/28" CX-4434/U CABLE)	D6001618 OR D6002568 (TEMPEST) PART OF MK-1564/AIC ASSEMBLY	M23595/1-2 (AM-3597C/A)	MCK-3A/P OR MBU-21/P MODIFICATION KIT	AN/AVS-9(R) INTEGRATION ASSEMBLY	HELMET SIGHT AND WIRING HARNESS ASSEMBLIES	MBU-23/P MODIFIED W/MBU-12P BAYONET REC. 93A8514	MBU-17/P MODIFIED W/MBU-12P BAYONET REC. 93A8514	CAMOUFLAGE, REMOVABLE
HGU-84/1P	X	X	X	O	X	O	O	O	O	-	O	X	-	O	O	X	O	O	O	X	AR	AR	-	-	-	AR
HGU-84/2P	X	X	X	O	X	O	O	O	O	-	O	X	-	O	-	X	O	-	-	-	AR	AR	-	-	-	AR
HGU-84/3P	X	X	X	O	X	O	O	O	O	-	O	X	-	O	-	X	O	-	-	-	AR	AR	-	O	X	AR
HGU-84/4P	X	X	X	O	X	O	O	O	O	-	O	X	-	O	-	X	-	O	-	X	AR	AR	-	-	-	AR
HGU-84/5P	X	X	X	O	X	O	O	O	O	-	O	X	-	O	-	X	-	O	-	-	AR	AR	-	AR	AR	AR
HGU-84/6P	X	X	X	O	O	O	O	O	O	-	O	X	-	O	-	X	-	-	-	X	AR	AR	-	-	-	AR
HGU-84/7P	X	X	X	O	O	O	O	O	X	-	O	X	-	O	-	X	O	O	-	O	AR	AR	-	-	-	AR
HGU-84/8P	X	X	X	O	-	O	O	O	O	X	O	O	X	O	-	-	-	-	X	-	AR	AR	-	O	X	AR

Table 3-1. Helmet Configuration Matrix (Cont)

HELMET DESIGNATION	SHELL	VISOR	LINERS	CABLES	EAR-PHONES	BOOM MICRO-PHONES	AMP	CBR	NVIS	HSA	O ₂ MASK	COVER						
HGU-67/P	X	X	X	O	-	-	-	AR	AR	X	AR	AR						
	PRU-59/P	CLEAR AND NEUTRAL VISORS (SEE NOTE 3 FOR OPTIONAL USE VISORS)	TPL PRU-52/P	OREGON AERO ZETALINER	M22442/15-1 (CX4832A/AR) OR M22442/19-1 (CX-12972/AR)	M22442/30-2 (CX-13164/A)	MIL-C-22442/30-1 (CX-13155/A)	M22442/37-4708 (CX-4708A/AIC)	M22442/57-1 (CX-13165/A)	MK-1564/AIC (TEMPEST) (NOTE 4)	P/N 93C8485 (NOTE 5)	H-87B/U						
					D6001601 (TEMPEST) PART OF MK-1564/AIC ASSEMBLY	COMMUNICATIONS EAR PLUG	M-33A/AIC (M-87 W/6" CX-4434/U CABLE)	M26542/2-01 (M-87 W/13" CX-4434/U CABLE)	M26542/2-02 (M-87 W/16" CX-4434/U CABLE)	M26542/2-03 (M-87 W/28" CX-4434/U CABLE)	D6001618 OR D6002568 (TEMPEST) PART OF MK-1564/AIC ASSEMBLY	M23595/1-2 (AM-3597C/A)	MCK-3A/P OR MBU-21/P MODIFICATION KIT	AN/AVS-9(R) INTEGRATION ASSEMBLY	HELMET SIGHT AND WIRING HARNESS ASSEMBLIES	MBU-23/P MODIFIED W/MBU-12P BAYONET REC. 93A8514	MBU-17/P MODIFIED W/MBU-12P BAYONET REC. 93A8514	CAMOUFLAGE, REMOVABLE

Legend: X = Required AR = As Required
O = Alternate -- = Not Applicable

Notes: 1. The M22442/19-1 (CX-12972/AR) Communication Cable is an authorized alternate for the M22442/28-1 (CX-13128/A) Communication Cable.
2. Fully operational helmet required separately issued Aviator's Night Vision Image Intensifier Set and battery pack.
3. See Table 3-1A for optional visors for use with the HGU-84/P series and HGU-67/P helmets.
4. Cable P/N MK-1564/AIC is for installation on the HGU-84/8P helmet used in V-22 Series aircraft.
5. Cable P/N 93C8485 is used in the SH-60F due to unique aural requirement of aircraft systems.
6. KC-130 aircrew are authorized to use the Oregon Aero Hushkit Combos (P/N 28034 and 28118).

Table 3-1A. Helmet, Mask, and Visor Interface Chart

Mask Trim	Part Number	Lens Type
MBU-12/P	90D7914-1	Clear Inner Visor
	90D7915-1	Neutral Outer Visor
	95A9255-1	Amber Visor (Open Purchase)
	95A9255-2	Gradient Visor (Open Purchase)
	GW9653	Neodymium Laser Eye Protective (LEP) (Open Purchase)
	GW9651-01	Visor Assembly, Reduced Profile, Safety Stepped-in, Medium, (Open Purchase)
	GW9651-03	Visor Assembly, Reduced Profile, Safety Stepped-in, Large, (Open Purchase)
	GW9651-05	Visor Assembly, Reduced Profile, Safety Stepped-in, Extra-Large, (Open Purchase)
	GW9651-09	Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-In, Medium, (Open Purchase)
	GW9651-11	Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-In, Large, (Open Purchase)
	GW9651-13	Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-In, Extra-Large, (Open Purchase)
MBU-23/P	GW9652-01	Visor Assembly, Reduced Profile, Safety Stepped-in, Medium, (Open Purchase)
	GW9652-03	Visor Assembly, Reduced Profile, Safety Stepped-in, Large/Extra-Large, (Open Purchase)
	GW9652-05	Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-In, Medium, (Open Purchase)
	GW9652-07	Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-In, Large/Extra-Large, (Open Purchase)
Notes: 1. Special purpose visors with reference numbers beginning with GW, listed as open purchase, are commercially available from Gentex Western Operations, Rancho Cucamonga, CA., 91730 Telephone (909) 481-7667 (at menu prompt, choose USN MBU-23/P Order Desk). All other special purpose visors listed as open purchase are commercially available from Gentex Corporation, Carbondale PA, 18470 Telephone (570) 282-8505.		

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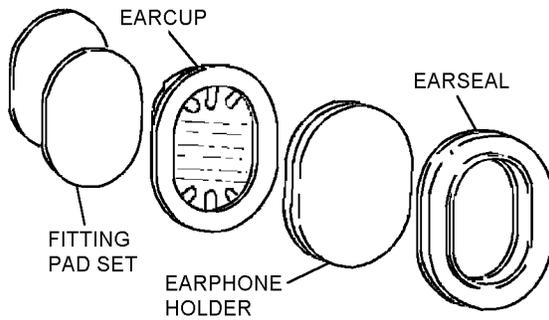


Figure 3-4. Earcup Assembly Components

3-4

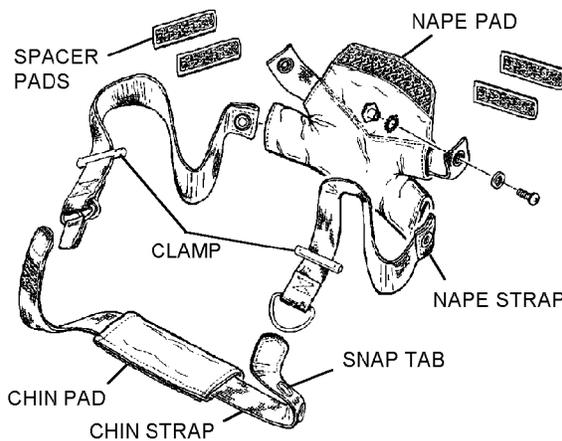


Figure 3-5. Integrated Chin/Nape Assembly Components

3-5

3-11. Communications System Components.

Helmet communications system components must be procured separately. The helmet communications system illustrated in figure 3-7 represents components of a typical system consisting of two earphones, a communications cable or radio frequency cable, a boom microphone assembly, an audio amplifier and an amplifier mounting bracket kit.

3-12. NVIS System Components. The NVIS components in figure 3-8 must be procured separately. System components include the AN/AVS-9(R) Night Vision Image Intensifier Set (NVIIS), Battery Compartment P/N 300680-G2/G3 or Low Profile Battery Compartment P/N 268465, NVIS Quick Don Mount Assembly (built-up from kit P/N 93B8601 and components removed from mount assembly P/N 5002530) and internal wiring harness P/N 3151AS135-1. Using the quick don mount assembly the AN/AVS-9(R) NVIS easily attach to the installed helmet-mounting block on the brow of the helmet. The terminal

block end of the internal NVIS wiring harness, which when connected to the battery power compartment provides power to the NVIS, contains gold plated electrical contacts and is secured to the left hand side of the helmet mounting block by a retainer that prevents incorrect installation. The wiring harness is routed through the inside of the helmet exiting at the rear of the helmet through a factory drilled exit hole where it connects to the power cable of the battery compartment. The battery compartment is secured to the rear of the helmet with a pile fastener tape battery compartment-securing patch, which must be fabricated.

3-13. Helmet Sight Assembly Components (HGU-67/P).

The helmet sight assembly components in figure 3-9 must be procured separately. The HSA components include the quick don helmet gunsight mount assembly, gunsight wiring harness assembly with receptacle and the receptacle bracket assembly. The terminal block, of the internal portion of the gunsight wiring harness, features gold plated electrical contacts and is attached to the right hand side of the installed helmet mounting block with a retainer that prevents incorrect installation. The internal portion of the wiring harness is routed along the upper edge of the right helmet shell cavity pile fastener tape, under the leather covering of the helmet nape edgeroll across the rear of the helmet, exiting the interior at the left rear corner fold of the helmet nape edgeroll. At the molded cable strain relief point, the cable splits with one wire bundle routed to the A1P1 electrical connector and the other to the receptacle. The receptacle is attached to a receptacle bracket which is attached to the helmet crown. The receptacle bracket is positioned on the helmet shell exterior to allow proper connection to the aircraft mounted portion of the gunsight system.

3-14. CBR Receiver Components. The CBR receiver component in figure 3-10 includes two snap tabs, two studs and two CBR adapter strap assemblies with snaps. The studs are permanently secured to the sides of the helmet. The adapter straps attach to the MCK-3/P CBR mask and are used to attach the mask to the helmet assembly. The two strap assemblies, two studs, and their attaching hardware are packaged together as a fitting kit. The MCK-3/P CBR mask is issued separately and must be fitted to individual aircrewmembers when the studs and strap assemblies are installed. Refer to NAVAIR 13-1-6.10 for fitting instructions.

3-15. SUPPORT EQUIPMENT.

3-16. TTU-489/E OXYGEN TEST SET. The Oxygen Test Set, P/N 1827AS100-1, is required to test transmit and receive communications capabilities of the helmet and oxygen mask. Refer to NAVAIR 17-15BC-22.

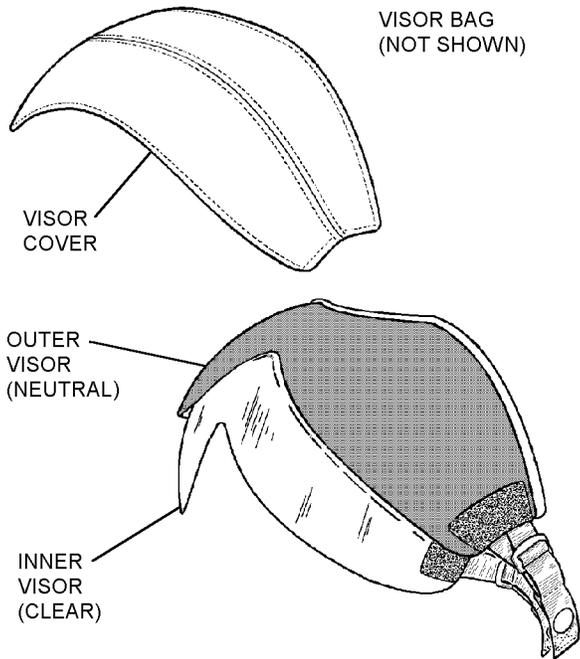


Figure 3-6. Visor Assemblies and Cover

3-6

3-17. HELMET SIGHT ALIGNMENT SET. The Helmet Sight Alignment Set, P/N 2278335-02, is required to perform boresight testing and adjustment on the HGU-67/P helmet sight system.

3-18. APPLICATION.

3-19. The HGU-67/P helmet assembly covered in this chapter is designed for use by aircrewmembers of all AH-1 Series Cobra rotary wing aircraft. The HGU-84/P helmet assemblies are designed for use by aircrewmembers of aircraft listed in [table 3-2](#).

3-20. REFERENCE NUMBERS, ITEMS, AND SUPPLY DATA.

3-21. [Section 3-6](#), Illustrated Parts Breakdown, contains information on each assembly, subassembly, and component part of these helmets. This information includes illustrations, part numbers, descriptions, and units per assembly. Source, Maintenance, and Recoverability (SM&R) codes are indicated in the [Numerical Index](#) following the Illustrated Parts Breakdown.

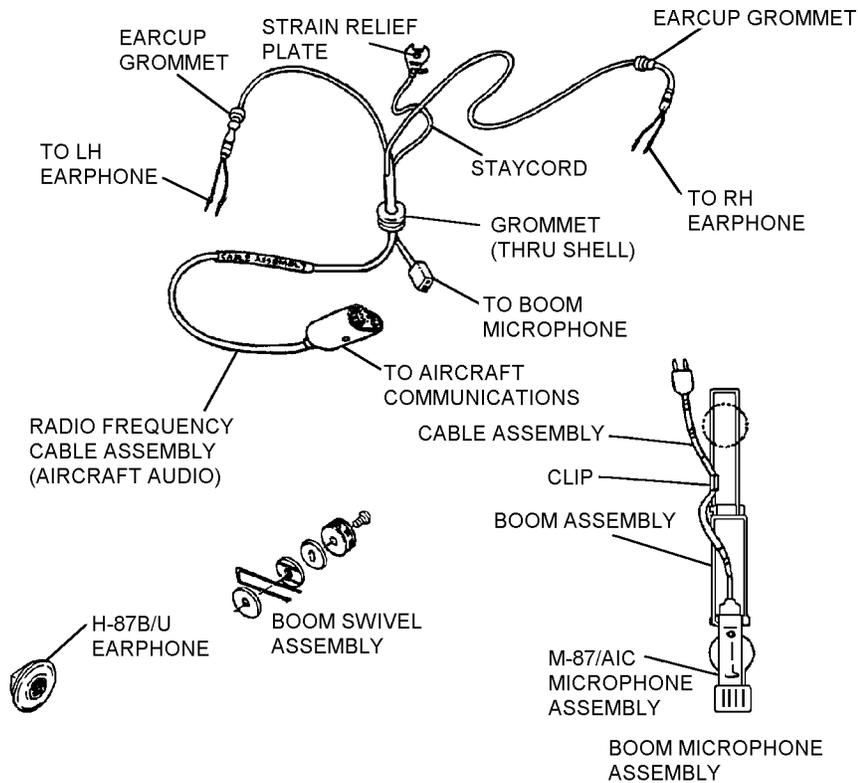


Figure 3-7. Communications System Components (HGU-67/P)

3-7

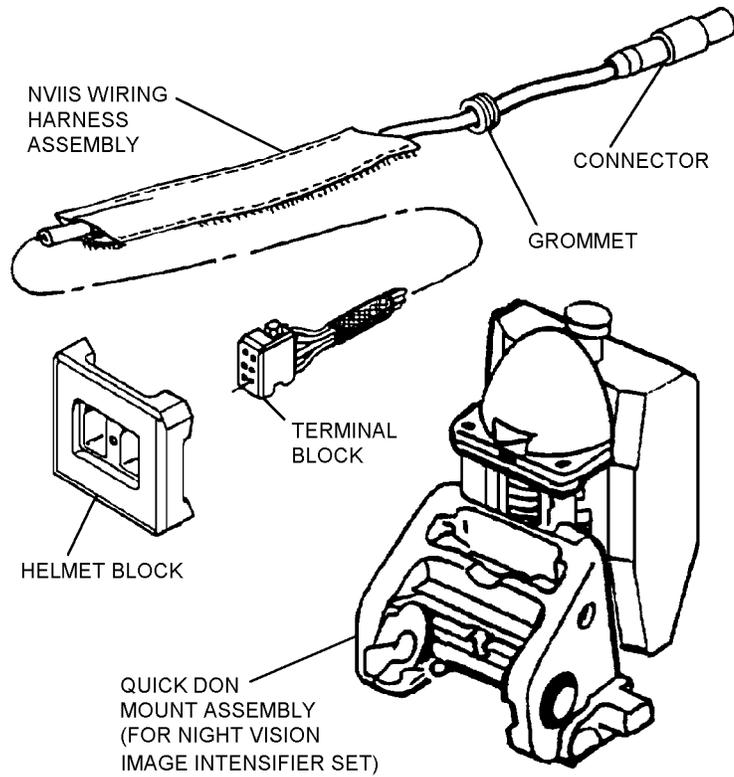


Figure 3-8. NVIIS Components

3-8

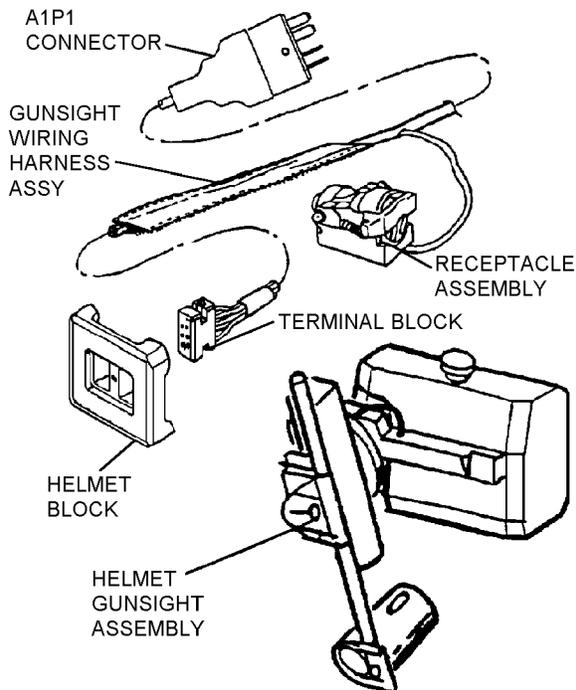


Figure 3-9. Helmet Sight Assembly Components (HGU-67/P)

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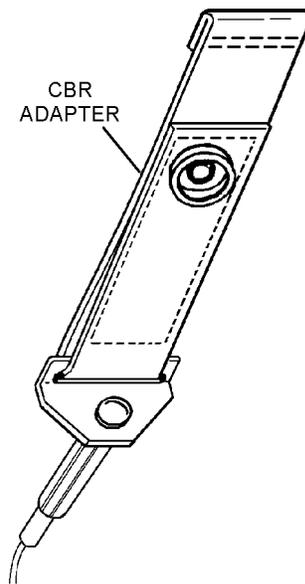


Figure 3-10. CBR Adapter Components

3-10

Table 3-2. Helmet Application Matrix

ROTARY-WING AIRCRAFT																			
HELMET DESIGNATION	AH-1 SERIES	UH-1N ALL STATIONS	SH-3D ALL STATIONS	SH-3H ALL STATIONS	VH-3A ALL STATIONS	V-22 ALL STATIONS	CH-46D ALL STATIONS	CH-46E ALL STATIONS	HH-46A ALL STATIONS	UH-46A ALL STATIONS	UH-46D ALL STATIONS	CH-53D PILOT & COPILOT	CH-53D CREW	CH-53E ALL STATIONS	MH-53E ALL STATIONS	RH-53D ALL STATIONS	TH-57 ALL STATIONS	SH-60 ALL STATIONS	
HGU-67/P	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HGU-84/1P	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-
HGU-84/2P	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
HGU-84/3P	-	①	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HGU-84/4P	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
HGU-84/5P	-	-	X	X	X	-	X	-	X	X	X	-	-	-	-	-	-	-	-
HGU-84/6P	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	X
HGU-84/7P	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
HGU-84/8P	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-

Legend: X = Required

① = A/C flying high altitude mission (UH-1N SAR only)

Notes: 1. KC-130 Aircrewmembers are authorized to use HGU-84/5P Series helmet as an NVIIS platform.
 2. Instructor Pilots in T-34 Series aircraft who have been issued HGU-84/P series helmets may continue to use those helmets during assignment as instructors in CNATRA T-34 series aircraft.

Section 3-2. Sizing

3-22. GENERAL.

3-23. The concept of sizing as used in this chapter refers to the basic methods to be followed by the Aircrew Survival Equipmentman to determine and obtain the proper size helmet from supply. When the basic helmet assembly size is received, buildup to the required configuration can begin (Section 3-3).

3-24. SIZING.

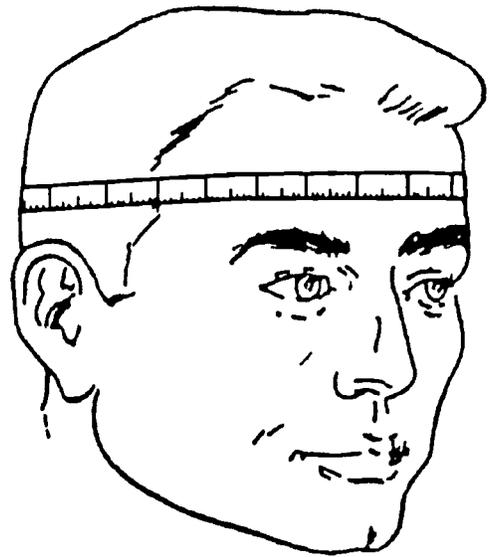
3-25. Helmet size must be determined for each aircrew-member as follows:

NOTE

Sizing instructions are provided only as general guidance. Because of the wide variation in head shapes likely to be encountered, it is not possible to present detailed guidance. The helmet should fit the head closely. For this reason, aircrewmembers should be fitted with the smallest helmet size that provides an acceptable fit.

1. If built-up helmet assemblies are available, the aircrewmember should perform a trial fitting to determine the correct size to be ordered. If helmet assemblies are not

available, measure the circumference of the aircrewmember's head at the hatband line using a tape measure. Refer to table 3-3 as a guide for sizing.



Step1 - Para 3-25

3p25s1

2. Once the correct size has been determined, requisition the helmet through normal supply channels.

Table 3-3. Helmet Sizing Guide

Circumference (Inches)	Size	Part Number
21.0 - 22.5	Medium	89D7748-1
22.5 - 24.0	Medium/Large	89D7748-2
24.0 - 24.9	Extra-Large	89D7748-3
Greater than 24.9	Extra-Large Wide	89D7748-4

Section 3-3. Helmet Buildup

3-26. GENERAL.

3-27. When the helmet assembly components are received, carefully inspect the shipping containers for evidence of damage or signs of abuse. Open each container and verify that all required items have been received.

NOTE

If any parts are defective, damaged, or missing, return all parts to the shipping container, prepare a Quality Deficiency Report (QDR), and notify the proper authority.

3-28. ASSEMBLY OF COMPONENTS.

3-29. ORDER OF ASSEMBLY. Refer to [table 3-4](#) for components and order of assembly required to build up the helmet assembly. Components and parts shall be installed on the helmet in accordance with and in the order shown in the tables.

NOTE

The right or left side of the helmet is determined by referring to the right or left side of the person wearing the helmet.

Table 3-4. Assembly of Components

Order of Assembly	Component/Assembly to be Installed	Paragraph Reference
1	Installation of Reflective Tape	3-30
2	Installation of Battery Securing Patch	3-31
3	Installation of Strobe Light Securing Patch	3-32
4	Wiring of Helmet Block Assembly	3-34
5	Installation of NVIS Wiring Harness Assembly	3-35
6	Installation of Gunsight Wiring Harness Assembly (HGU-67/P Only)	3-36
7	Installation of Gunsight Receptacle Assembly (HGU-67/P Only)	3-37
8	Installation of Energy-Absorbing Liner Assembly	3-38
9	Installation of Communications Components	3-39
	a. Installation of M22442/57-1 or M22442/61-1 Radio Frequency Cable and H-87B/U Earphones	3-40
	b. Installation of Boom Microphone Assembly	3-41
	c. Installation of M22442/37-4708 (CX-4708A/AIC) Cable Assembly and MIL-C-22442/30-1 (CX-13155/A) Cordset or M22442/30-2 (CX-13164/A) Cordset	3-42

Table 3-4. Assembly of Components (Cont)

Order of Assembly	Component/Assembly to be Installed	Paragraph Reference
9 (Cont)	d. Installation of M22442/15-1 (CX-4832A/AR) Cable Assembly or M22442/19-1 (CX-12972/AR) Cable Assembly	3-44
	e. Installation of MK-1564/AIC Tempest Communications Cable and MJS-103 Communications Switching Assembly	3-44A
	f. Installation Amp Mounting Bracket	3-45
	g. Installation of M23595/1-2 (AM-3597C/A) Boom Microphone Amplifier	3-46
	h. Installation of Earphones and Earcup Assemblies	3-47
	i. Installation of Optional Communications Ear Plug (CEP)	3-47A
10	Installation of Visor Assemblies and Visor Cover	3-48
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3-30. INSTALLATION OF REFLECTIVE TAPE ON HELMET SHELL ASSEMBLY. To install reflective tape on helmet shell assembly, proceed as follows:

Materials Available	
Description	Reference Number
Tape, reflective:	
White, 3-Inch, High-Intensity	NIIN 01-078-8660 (NOTE)
White, 6-Inch	L-S-300, Class 3 NIIN 00-100-2153
Red, 1-Inch	L-S-300, Class 1 NIIN 00-949-7552
Red, 3-Inch	L-S-300, Class 1 NIIN 00-949-7598
Red, 6-Inch	L-S-300, Class 1 NIIN 00-951-8833
Yellow, 1-Inch	L-S-300, Class 1 NIIN 00-753-3208

Materials Available (Cont)

Description	Reference Number
Orange, 1-Inch	L-S-300, Class 1 NIIN 00-656-1494
Orange, 3-Inch	L-S-300, Class 1 NIIN 00-656-1186

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

Materials Required		
Quantity	Description	Reference Number
As Required	Detergent, Mild Liquid	Commercial
As Required	Cloth, Lint-Free	MIL-C-85043 NIIN 00-165-7195

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1. Clean the outside of the helmet shell with a damp cloth and a mild cleaning agent to remove all traces of grease, salt, or foreign substances.

2. Remove all traces of the cleaning agent with a clean, damp cloth. Dry with a clean, dry, lint-free cloth.

3. Examine the helmet shell for evidence of cracks, soft areas, splits, or other defects which would be cause for replacement of the item. Chipped paint shall not be cause for replacement. If the helmet shell assembly is defective, the helmet can be disassembled, and the defective shell assembly replaced. Undamaged parts shall be retained for installation on the replacement helmet shell assembly.

4. Aviator helmet assemblies shall be taped in accordance with provisions of OPNAVINST 3710.7 Series (General NATOPS) and Type Commander Directives.



Application of any type of coating on top of reflective tape is not authorized.

5. Remove protective backing from the reflective tape and place in the desired position on the helmet shell assembly.

NOTE

Use of a heat gun increases adhesion of the reflective tape.

6. Document in accordance with OPNAVINST 4790.2 Series.

3-31. INSTALLATION OF BATTERY COMPARTMENT SECURING PATCH FOR P/N 300680-G2 OR 300680-G3 BATTERY COMPARTMENTS. To add a battery compartment securing patch to the rear of the HGU-84/P series or the HGU-67/P helmets for attachment of the P/N 300680-G2 or 300680-G3 battery compartments, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Battery Securing Patch, Medium, Large, Extra Large-Wide	(Not [redacted])

Materials Required (Cont)

Quantity	Description	Reference Number
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246
As Required	Detergent, Mild Liquid -or-	Commercial
As Required	Alcohol, Isopropyl	TT-I-735
As Required	Cloth, Lint-Free	MIL-C-85043 NIIN 00-165-7195
4 Inches	Fastener Tape, Pile, Pressure Sensitive, 2-Inch Width	MIL-F-21840, NIIN 01-033-1735
4 inches	Fastener Tape, Pile, Type I, 2-inch Width	MIL-F-21840 NIIN 00-926-4930

Notes: 1. Battery compartment securing patches for use on the HGU-67/P are fabricated in accordance with paragraph 3-107 or 3-108.

NOTE

Battery compartment securing patches used with the HGU-84/P series and HGU-67/P helmets are attached, at the centerline, on the rear of the helmet. The securing patch for the P/N 300680-G2 or 300680-G3 compartment is aligned vertically along the centerline.

1. Clean area on rear of helmet intended for attachment of the securing patch with alcohol, or a mild solution of detergent and water, rinsing thoroughly.

2. Wipe dry with a clean, lint-free cloth.

3. For HGU-84/P series helmets, cut a 4-inch length of pressure sensitive pile fastener tape (NIIN 01-033-1735) from the roll. Round all corners to prevent peeling.

a. Align the patch vertically on the rear centerline of the helmet with bottom edge of patch 1 inch above the upper edge of the rear edgeroll and trace outline of patch onto installed reflective tape using a no. 2 lead pencil. Set patch aside.

b. Deleted.

c. Remove backing and press pressure sensitive pile fastener tape firmly onto outlined area on helmet. Allow adhesive backing to cure for a minimum of 12 hours prior to use.

4. For HGU-67/P helmet:

a. Fabricate patch in accordance with paragraph 3-107 or 3-108.

b. Align the patch vertically, 1 inch above the upper edge of the nape edgeroll on the rear centerline of the helmet and trace outline of patch onto installed reflective tape, using a no. 2 lead pencil. Do not trace around hook fastener cable flap. Set patch aside.

c. Apply adhesive to area outlined on the reflective tape and allow adhesive to dry (approximately 30 minutes).

d. Apply adhesive to the underside of the fabricated securing patch and apply a second coat to the outlined area on the reflective tape. Allow the adhesive to become tacky (approximately 15 minutes).

e. Press securing patch/patches firmly onto prepared area. Smooth all edges.

5. Document in accordance with OPNAVINST 4790.2 Series.

3-31A. INSTALLATION OF THE LOW PROFILE BATTERY COMPARTMENT MOUNTING BRACKET.

To install the low profile battery compartment mounting bracket on the HGU-84/P Series and HGU-67/P Helmets, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Kit, Mounting Bracket, Low Profile Battery Compartment	P/N 268471-1 NIIN 01-439-8992

NOTE

The low profile battery compartment mounting bracket kit, P/N 268471-1 contains components for installation of the bracket on both the HGU-84/P and the USAF SPH-4AF Helmets. USN/USMC specific components are: two P/N MS51597-43 screws, two P/N 269252 wedges, two P/N 267987 post nuts, and the P/N 268472 mounting bracket.

1. Remove installed internal components in accordance with paragraph 3-94, step 1. Sub-steps 3 and 4.

2. To determine the helmet shell rear centerline for installation of the low profile battery compartment mounting bracket, measure across the back of the helmet shell, along the upper edge of the nape edgeroll, using a cloth tailor's tape. Place a mark, just above the edgeroll, at the selected centerline location.

3. From the selected location, measure upward 1 1/2 inches, and mark the location for drilling the lower bracket mounting screw hole on the helmet shell. From this mark, measure upward 7/8 inch and mark the location for drilling the upper mounting screw hole.

4. Using a 3/16-inch (0.1875) drill bit, at marked locations, drill mounting screw holes, ensuring the drill bit is perpendicular to the helmet shell surface during drilling. Deburr holes using a jeweler's file.

5. Identify and remove the required components from the mounting bracket kit package. Remove the protective backing covering the adhesive surface on the back of the two P/N 269252 wedges. Center one mounting bracket wedge over each of the drilled holes and press firmly into place on the helmet shell.

NOTE

The low profile battery compartment mounting bracket is positioned on the rear of the helmet with the release tab oriented toward the nape edgeroll, and with the protruding portion of the release tab toward the technician.

6. With post nuts in place on the helmet shell interior, position mounting bracket over installed wedges and attach the bracket to the helmet exterior surface using the MS51597-43 screws. Tighten screws securely.

7. Install internal components in accordance with paragraph 3-94, steps 2 thru 10, as required.

8. Slide low profile battery compartment downward onto the mounting bracket with the ON/OFF switch toward the helmet crown. Secure the battery compartment power cable LEMO connector to the installed helmet mounted NVIIS LEMO adapter at the rear of the helmet.

3-31B. INSTRUCTIONS FOR FABRICATION OF LOW PROFILE BATTERY COMPARTMENT POWER CABLE SECURING PATCH. To fabricate and install a power cable securing patch to stow unused length of battery compartment power cable, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1 1/2-Inch x 2-Inch	Loop Fastener Tape, Self Adhesive, 2-Inch Wide	70-0704-5783-6 NIIN 01-387-5568
2 1/2-Inches	Fastener Tape, Hook, 1-Inch Wide	MIL-F-21840 NIIN 00-454-9063
As Required	Thread, Nylon, Size E	V-T-295 NIIN 00-204-3884
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

NOTE

All machine stitching shall conform to ASTM-D-6193, Type 301 Lockstitch. Stitches shall be set at 8 to 10 stitches per inch, with a minimum backstitch of 3/4 inch.

1. Cut a 1 1/2-inch length of 2-inch loop fastener tape, fold in half, widthwise, to determine centerline. At the determined location, place a mark on the loop side of the fastener tape and set aside for use in fabrication.

2. Cut a 1/2-inch length and a 2-inch length of 1-inch wide hook fastener tape and set aside for use in fabrication.

NOTE

The 1 1/2-inch long by 2-inch wide power cable securing patch will be positioned centered on the outside of the battery compartment with one of the 2-inch wide edges flush against the bottom edge of the battery compartment case.

3. Position the securing patch, loop side up, with the centerline, mark toward the technician, on the work surface. Align the 1/2-inch long piece of 1-inch wide hook fastener tape, with the hook side down, along the right hand edge of the securing patch. Starting at the upper right hand corner, mate the 1/2-inch long piece of 1-inch wide hook fastener tape to the loop fastener tape downward along the right side of the securing patch. Using a 1/8-inch seam, sew the power cable hold down flap to the right hand edge of the securing patch using two rows of stitching, 1/8 inch apart, backstitching 1/2 inch.

4. Center the 1-inch width of the 2-inch long piece of hook fastener tape over the mark on the bottom edge of the securing patch, with the hook side down. Maintaining alignment, mate the edges of the fastener tapes evenly. Using a 1/8-inch seam, sew the power cable stowage flap to the lower edge of the securing patch using two rows of stitching, 1/8 inch apart, backstitching 1/2 inch.

NOTE

Use of any type or color of self adhesive loop fastener tape available through local supply is authorized. If self adhesive loop fastener tape is not available, use standard loop tape and follow gluing procedures contained in paragraph 3-32, steps 3 thru 6.

5. Remove protective backing from securing patch, align the bottom edge of the patch with the bottom edge of the battery case and press firmly into place. Open the power cable stowage and the power cable hold down flaps.

6. Route the battery compartment power cable downward across the outside of the case, along the right hand side of the securing patch. With the cable positioned under the hold down flap, press the flap closed over the power cable. Fake the remaining length of the cable into s-folds, across the width of the securing patch, with the LEMO connector oriented toward the lower left corner of the battery compartment. Close the power cable stowage flap over the s-folds, and press firmly into place.

7. Mate the battery compartment LEMO connector to the helmet installed receptacle, at its exit point, on the left rear of the helmet shell.

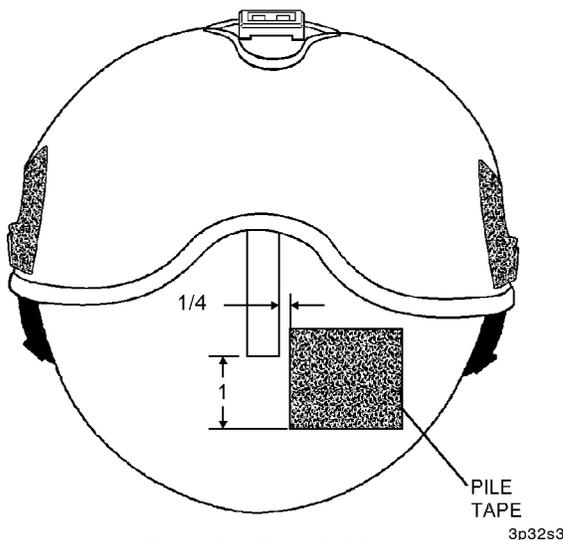
3-32. INSTALLATION OF STROBE LIGHT SECURING PATCH. To install the strobe light securing patch, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
As Required	Detergent, Mild	Commercial
	-or-	
As Required	Alcohol, Isopropyl	TT-I-735
As Required	Cloth, Lint-Free	MIL-C-85043 NIIN 00-165-7195
2 Inches	Tape, Pile, Type I, 2-Inch	MIL-F-21840 NIIN 00-296-4930
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

NOTE

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

1. Clean helmet surface intended for strobe light securing patch with alcohol, or a mild solution of detergent and water; rinse thoroughly.
2. Wipe dry with a clean, lint-free cloth. Allow surface to air dry thoroughly.
3. Position a 2-inch x 2-inch piece of pile fastener tape on the crown of the helmet at a point 1/4 inch to the right of the lens pad and 1 inch from the aft end of the lens pad. Hold in place and trace around the tape with a lead pencil.



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4. Apply adhesive to the outlined area, and allow adhesive to dry approximately 30 minutes.

5. Apply adhesive to the underside of the pile fastener tape and a second coat to the outlined area on the helmet. Allow adhesive to become tacky (approximately 15 minutes).

6. Align pile fastener tape with outlined area and press firmly onto helmet shell assembly.

7. Document in accordance with OPNAVINST 4790.2 Series.

3-33. HELMET SHELL CONVERSION TO HGU-67/P CONFIGURATION. To provide ease of installation of HSA components, perform the following procedure:

Materials Required		
Quantity	Description	Reference Number
1	Helmet Assembly, HGU-84/P, Medium	89D7748-1 NIIN 01-387-2197
	-or-	
1	Helmet Assembly, HGU-84/P, Large	89D7748-2 NIIN 01-387-6711
	-or-	
1	Helmet Assembly, HGU-84/P, Extra-Large	89D7748-3 NIIN 01-386-3758
	-or-	
1	Helmet Assembly, HGU-84/P, Extra-Large Wide	89D7748-4 NIIN 01-386-3763
1	Kit, Bracket Assembly, Medium/Large	3151AS123-1 NIIN TBD
	-or-	
1	Kit, Bracket Assembly, Extra-Large	3151AS124-1 NIIN TBD
	-or-	
1	Kit, Bracket Assembly, Extra - Large Wide	3151AS121-1 NIIN TBD

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Materials Required (Cont)

Quantity	Description	Reference Number
1	Gunsight Wiring Harness Assembly	7636589 NIIN 01-491-0818
1	Quick Don Mount Modification Kit	93B8601 NIIN 01-390-2929
As Required	Drilling Guide Fixture	70100-1 (Med) 70100-2 (Lg) 70100-3 (X-Lg) 70100-4 (X-Lg Wide)
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246
As Required	Tape, Pressure Sensitive	PPP-T-60TY4CL1
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

NOTE

The Gunsight Wiring Harness Assembly, P/N 7636589, and Bracket Assemblies, P/Ns 3151AS123-1, 3151AS124-1, and 3151AS121-1, contain the necessary parts and hardware for incorporation of the Helmet Gunsight Assembly onto the HGU-84/P helmet. Kit P/N 93B8601 contains the required parts and hardware for installation of the NVIIS Wiring Harness.

1. Unsnap chin strap and remove right and left earcup assemblies from pile fastener material in helmet shell earcup cavities.

a. Remove screws, flat washers, lock washers and flanged nuts securing the chin/nape straps to the rear of the helmet shell. Reattach hardware to loosened straps to prevent twisting of straps during maintenance.

2. Place helmet inverted on the work surface, loosen and remove the two screws that attach the lens pad rest to the helmet shell. Detach lens pad rest and set aside for re-installation.

3. Position helmet upright on the work surface with the left side closest to the technician. Mark the two tooling dimples, located just forward of the visor snap fastener stud on the helmet shell, using a no. 2 medium lead pencil or white correction fluid.

4. Position the drilling guide fixture over the left side of the helmet outer surface with large circular hole over

the visor snap fastener stud. Ensure the two smaller circular holes are located over the tooling dimples marked in the previous step. Align the upper drilling guide fixture thumbscrew hole (hole without bushing) over aft lens pad rest screw hole with the lower thumbscrew hole over the NVIIS wiring harness exit point. Maintain alignment and insert the upper positioning thumbscrew and one flat washer through the drilling guide into the inside of the helmet through the aft lens pad rest screw hole. From inside the helmet install a flat washer and wing nut onto the thumbscrew and tighten. Repeat procedure at lower thumbscrew hole.

5. Prior to drilling receptacle bracket mounting holes, verify tooling dimples are located within two smaller circular holes of the fixture. If necessary, slightly loosen the thumbscrew wing nuts and shift the drilling guide fixture position until the dimples are centered, then tighten wing nuts. When drilling holes in helmet shell, ensure drill bit is perpendicular to the shell surface. Drill four holes using a no. 9 (0.196 inch diameter) drill bit, through drilling guide fixture bushings into helmet shell.

6. Loosen wing nuts and remove positioning thumbscrews from drilling guide fixture. Remove fixture from helmet and deburr each drilled location.

7. Fabricate and install the required battery securing patch in accordance with paragraph 3-31.

8. Using correct size kit, bracket assembly and Gunsight wiring harness assembly, P/N 7636589, install receptacle and receptacle bracket onto the helmet in accordance with procedure contained in paragraph 3-37.

9. Invert helmet on the work surface and from inside the helmet, remove the four screws and washers securing the helmet block assembly to the brow of the helmet.

10. Place helmet upright on the work surface with the front of the helmet toward the technician. Using a rotary hand tool (Dremel), widen the existing wiring harness terminal block exit opening 3/8 inch to the right (as worn) to permit free passage of the gunsight wiring harness assembly terminal block.

11. Following procedures outlined in paragraph 3-36, secure both the NVIIS and HSA terminal blocks into the helmet block assembly and onto the brow of the helmet shell.

12. Reinstall lens pad rest removed in step 2 above then install remaining internal components.

13. Contact aircrewmember to arrange for a helmet fit check and boresight check of the helmet gunsight assembly.

3-34. WIRING OF HELMET BLOCK ASSEMBLY FOR NVIIS OR NVIIS AND HSA CAPABILITY. To provide NVIIS or NVIIS and HSA capability, the terminal blocks of the internal wiring harnesses must be installed with the helmet block assembly.

3-35. Installation of NVIIS Wiring Harness. To install the NVIIS wiring harness, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
1	Quick Don Mount Modification Kit	93B8601 NIIN 01-390-2929
1	Clamp, Loop	MS21919WDG65 NIIN 00-598-0146
As Required	Tape, Pressure Sensitive	PPP-T-60TY4CL1
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872
1	Post, T-nut, 6-32 X 1/4-inch	67B1755
1	Screw, Machine, 8-32	MS51597-41

NOTE

The modification kit contains a wiring harness assembly, P/N 3151AS135-1, mounting block assembly, P/N 3151AS151-1, and attaching hardware. The mounting block assembly is used to buildup the Quick Don Mount Assembly, P/N AN/AVS-6(V)3 helmet interface. Refer to [paragraph 3-50](#).

For in-service helmets being configured for NVIIS use only, follow [steps 1 through 18](#). Helmets being converted to the HGU-67/P configuration use [steps 4 through 7](#).

1. Unsnap chin strap and position clear of work area.
2. Detach earcup assemblies from pile fastener tape on the helmet shell interior and position clear of work area.
 - a. Place helmet upright on work surface with the left rear facing the technician. Check the factory drilled NVIIS wiring harness exit hole for obstruction by the energy absorbing liner.
 - b. If the hole is obstructed, mark area on the visible surface of the energy absorbing liner through the helmet shell.

NOTE

Minor alterations to the energy absorbing liner to permit free passage of the NVIIS wiring harness are authorized.

- c. Remove screws, flat washers, lock washers and flanged nuts securing the chin/nape straps to the rear of the helmet shell. Reattach hardware to loosened straps to prevent twisting of straps during maintenance.

3. Invert helmet assembly on work surface and remove TPL and underlying energy-absorbing liner in accordance with [paragraph 3-94, step 1., sub-steps a. through i.](#), and set aside for reinstallation.

4. Remove the helmet block from the helmet shell by loosening the four screws and washers securing the back-up plate to the interior surface of the helmet shell assembly.

5. On the underside of the helmet block, remove the terminal block retainer, by loosening the 2-56 screw and washer holding it in place.

6. Thread the end of the NVIIS wiring harness opposite the terminal block through the terminal block exit hole into the helmet shell interior letting the terminal block hang freely.

7. If installing the HSA wiring harness, go to [paragraph 3-35](#). If the HSA is not to be installed, proceed to [step 8](#).

NOTE

The terminal block retainer is designed to prevent improper installation of the wiring harness terminal block. The arms of the retainer are of different lengths and widths to accommodate specific cable terminal blocks.

8. Lay the helmet block face down on the work surface and insert the NVIIS wiring harness terminal block into the left hand slot of the inverted mounting block with the gold contacts of the terminal block facing toward the work surface. Align the arms of the retainer with the mating grooves in the plastic case of the terminal block housing, slide retainer into position. If new self-locking screws are not available, re-use is authorized provided that the old screw is reinstalled with MIL-A-46106 RTV adhesive.

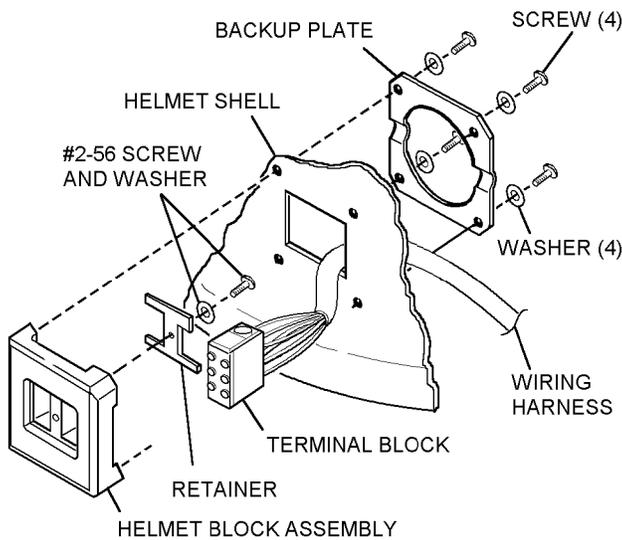
9. Secure retainer in place with the 2-56 screw and washer. Torque screw to 2 in-lbs. Do not over-torque screw.

10. Align the helmet block on the exterior surface of the helmet shell assembly, ensuring the two longer legs of the block are closest to the brow edgeroll.

11. Position backup plate on the inner surface of the helmet shell assembly ensuring the wiring harness cable exits under the left cable channel of the backup plate. If new self-locking screws are not available, re-use is authorized provided that the old screw is reinstalled with MIL-A-46106 RTV adhesive.

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12. Install the four backup plate screws and washers. Torque screws to 3 in-lbs. Do not pinch cable and do not over-torque screws.



3p35s8

Steps 8 thru 12 - Para 3-35

13. Cover backup plate and back of the terminal block with a 3 x 2 inch piece of pressure sensitive tape.

14. Route NVIIS wiring harness cable along the upper edge of the pile fastener tape in the left earcup cavity to the factory drilled cable exit hole in the left rear of the helmet shell assembly.

15. Rubber grommet encircling wiring harness cable is notched on both the inner and outer surfaces to assist in positioning the electrical connector correctly. Pass the electrical connector out of the helmet shell interior through the factory drilled exit hole, install wiring harness grommet into exit hole with the external notch oriented to the right rear of the helmet shell assembly.

a. On the left rear side of the helmet, measure 1 1/4 inch to the right of the NVIIS wiring harness exit hole, and 1 1/8 inch above the upper edge of the nape edgeroll, using a cloth tape measure, and place a mark at the selected location.

b. At selected location on the rear of the helmet, using a No. 19 (0.169) bit, holding the drill bit perpendicular to the helmet surface, drill the clamp loop attaching screw hole.

c. Position heat shrinkable sleeving over knurled area on electrical connector. Apply heat, using heat gun, to shrink sleeving.

d. Place clamp loop over sleeving on electrical connector and attach clamp loop to helmet shell using the screw and post, do not tighten. Orient red dot on electrical

connector so that it is visible and parallel to the nape edgeroll. Maintain this orientation and tighten clamp loop attaching screw.

16. If energy absorbing liner requires alteration, remove only enough of the liner material from the lower left edge to permit free passage of the wiring harness cable.

NOTE

A length of nylon webbing may be used as cradle to aid positioning the energy absorbing liner into the helmet shell. Once the desired position is obtained, the webbing can be removed.

17. Install energy absorbing liner, TPL, and earcups in accordance with paragraphs 3-38, 3-52, and 3-47.

18. Document in accordance with OPNAVINST 4790.2 Series.

3-36. Installation of HSA Wiring Harness (HGU-67/P). To install the HSA wiring harness, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Gunsight Wiring Harness Assembly	7636589 NIIN 01-491-0818
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872
As Required	Tape, Pressure Sensitive	PPP-T-60TY4CL1

1. If not already installed, perform NVIIS wiring harness installation, paragraph 3-35, Steps 1 through 7.

2. From inside the helmet, thread the terminal block end of the HSA wiring harness out through the terminal block exit opening and allow it to rest on the helmet shell exterior.

NOTE

The terminal block retainer is designed to prevent improper installation of the two wiring harness terminal blocks. The arms of the retainer are of different lengths and widths to accommodate specific foolproofing shapes in the terminal blocks. The NVIIS terminal block is marked NVG, and the gunsight terminal block is marked HSA for ease of identification.

3. Orient the slots of the terminal blocks and the retainer legs. Make sure arrows on terminal blocks point up.

4. Position terminal blocks of gunsight wiring harness assembly and NVIIS wiring harness assembly on retainer. Hold in place.

NOTE

The longer legs on the rear of the helmet block should be toward the edgeroll; the shorter legs should be toward the top of the helmet. The NVIIS terminal block should be on the LH side; the HSA terminal block should be on the RH side.

5. Insert terminal blocks into helmet block assembly, ensuring that the longer legs of the helmet block are toward the edgeroll. Ensure that terminal blocks are installed on the correct sides. If new self-locking screws are not available, re-use is authorized provided that the old screw is reinstalled with MIL-A-46106 RTV adhesive.

6. Attach the terminal block retainer to the helmet block with one 2-56 screw and washer. Torque screw to 2 in-lbs. Do not over-torque screw.

7. Position the helmet block assembly on the outside of the helmet shell assembly with longer legs toward edgeroll. Position backup plate on the inside of the helmet, ensuring that the NVIIS wiring harness cable exits under the LH channel and the HSA cable exits under the RH channel of the backup plate. Ensure that wiring harness cables are not pinched beneath backup plate when tightening screws. To prevent cracking damage to the legs of the helmet block, do not over-torque screws. If new self-locking screws are not available, re-use is authorized provided that the old screw is reinstalled with MIL-A-46106 RTV Adhesive.

8. Secure the backup plate with four screws and washers. Torque screws to 3 in-lbs. Do not pinch cables and do not over-torque screws.

9. Cover backup plate and backs of the terminal blocks with a 3 x 2 inch piece of pressure sensitive tape.

10. Route NVIIS wiring harness cable along the upper edge of the pile fastener material in the left helmet shell earcup cavity to the factory drilled cable exit hole at the left rear of the helmet shell assembly. Route the internal portion of the HSA wiring harness cable along the upper edge of the pile fastener material in the right helmet shell earcup cavity to the right rear corner of the leather covered nape area edgeroll.

11. Rubber grommet encircling wiring harness cable is notched on both the inner and outer surfaces to assist in positioning the electrical connector correctly. Pass the electrical connector through the helmet shell and install grommet into factory drilled exit hole with the external notch oriented towards the right rear of the helmet shell assembly.

a. Position strain relief clamp around knurled portion of the cable electrical (LEMO) connector.

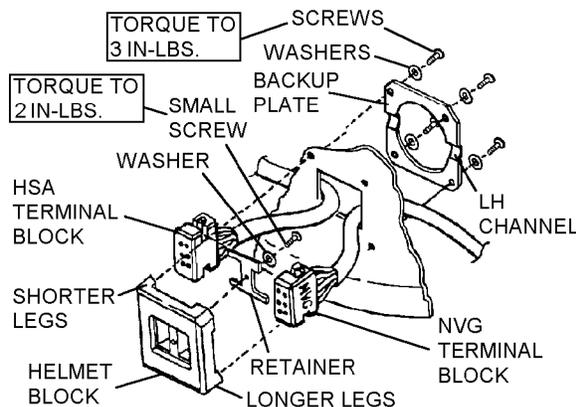
NOTE

A small amount of RTV may be applied to the first few threads of screws prior to installation.

b. During installation of chin/nape assembly, position connector parallel to left rear helmet shell nape edgeroll and secure in place with chin/nape strap attaching screw.

12. Perform gunsight receptacle installation in accordance with [paragraph 3-37](#).

13. Document in accordance with OPNAVINST 4790.2 Series.



Steps 3 thru 8 - Para 3-36

3p36s3

3-37. Installation of Gunsight Receptacle Assembly (HGU-67/P). The HSA gunsight receptacle assembly is comprised of a cable assembly and a receptacle assembly which must be mounted to a receptacle bracket assembly prior to installation. The HSA harness terminal block must be previously installed into the helmet block (see [paragraph 3-36](#)). Install the gunsight receptacle assembly as follows:

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Materials Required

Quantity	Description	Reference Number
1	Bracket Assembly, Medium/Large	3151AS123-1 (Not E)
-or-		
1	Bracket Assembly, Extra-Large	3151AS124-1 (Not E)
-or-		
1	Bracket Assembly, Extra-Large Wide	3151AS121-1 (Not E)
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

Notes: 1. Receptacle bracket assemblies are commercially available from:

AMRON International
759 West Fourth Avenue
Escondido, CA 92025-1508
Telephone (760) 746-3834.

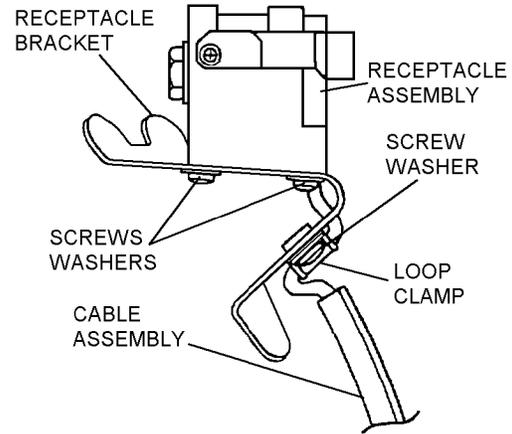
1. If leather is attached to helmet at nape, carefully peel leather away from edgeroll.

NOTE

The size Large Bracket Assembly, P/N 3151AS123-1, is used on both the size medium and size large helmets.

2. Attach appropriate size receptacle bracket to bottom of receptacle assembly with 3 washers and smallest screws. Avoid pulling on receptacle wiring. Avoid pinching wires. Cable assembly must exit through slot in receptacle bracket.

3. Secure gunsight wiring harness cable to leg of receptacle bracket assembly with loop clamp, shorter screw, and washer. This is a strain relief. Make sure there is no tension on cable between clamp and receptacle.



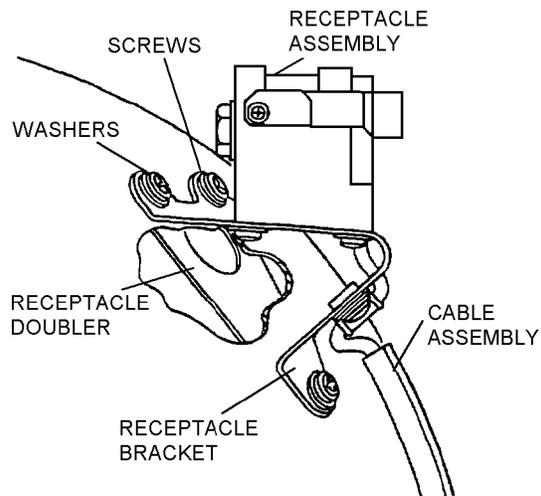
Steps 2 and 3 - Para 3-37

3p37s2

NOTE

A small amount of RTV may be applied to the first few threads of screws prior to installation.

4. Position receptacle doubler inside helmet over the three holes drilled in accordance with paragraph 3-33, Step 5. Align receptacle bracket on outside of helmet, over the three holes, and secure to doubler with the three longest screws and flat washers from the bracket assembly kit.



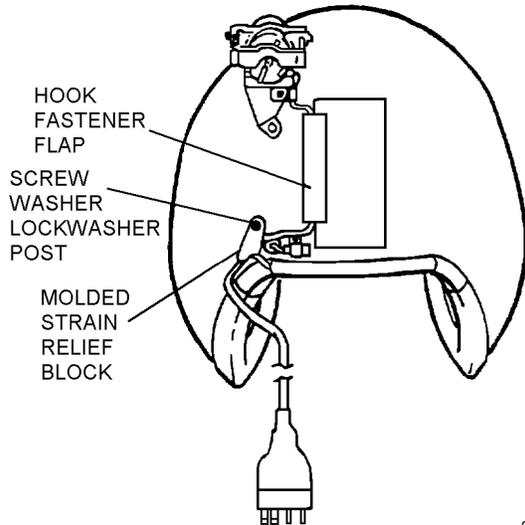
Step 4 - Para 3-37

3p37s4

5. Place washer on screw. Insert screw through molded strain relief block and install lockwasher onto screw. Orient strain relief block on helmet shell assembly and secure with post.

6. Align receptacle wiring with edge of battery securing patch, and fold hook fastener strip over cable.

7. Route gunsight wiring harness beneath leather of nape edgeroll. Harness should enter at LH corner of leather and make a smooth transition around the edgeroll to inside of helmet. Make sure cable is not twisted or crimped.



Steps 5 thru 7 - Para 3-37

3p37s5

8. Inside helmet, route gunsight wiring harness along edgeroll padding, and attach hook fastener of sleeve assembly to pile fastener inside helmet. Ensure that harness is not loose and is flat against inside of helmet shell.

NOTE

Because the gunsight wiring harness cable length is designed to fit the largest helmet size, there may be up to two inches of slack in the cable inside the helmet. Excess cable length can be stowed in an S-fold inside the retainers sleeve.

9. If necessary, use a hooked wire to stow excess gunsight cable in an S-fold inside the retainer sleeve.

10. Apply adhesive to inside of helmet, allowing to dry for approximately 30 minutes.

11. Apply adhesive to underside of leather, and apply a second coat to inside of helmet. Allow adhesive to become tacky (approximately 15 minutes.)

12. Carefully fold leather over edgeroll and gunsight wiring harness, smoothing out wrinkles and bubbles.

NOTE

A length of nylon webbing may be used as cradle to aid positioning the energy absorbing liner into the helmet shell. Once the desired position is obtained, the webbing can be removed.

13. Install energy absorbing liner, TPL, and earcups in accordance with paragraphs 3-38, 3-52, and 3-47.

14. Document in accordance with OPNAVINST 4790.2 Series.

3-38. INSTALLATION OF ENERGY-ABSORBING LINER ASSEMBLY. To install the energy-absorbing liner assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Energy-Absorbing Liner, Medium	90D7860
	-or-	
1	Liner Assembly, Energy-Absorbing, Large	90D7861
	-or-	
1	Liner Assembly, Energy-Absorbing, Extra-Large	90D7862
	-or-	
1	Liner Assembly, Energy-Absorbing, Extra-Large Wide	90D7863

CAUTION

Take extreme caution to prevent damage to the NVIIS and gunsight wiring harness assemblies during installation procedures. Also, avoid placing undue pressure on the receptacle and receptacle bracket on the outside of the helmet.

NOTE

Proper positioning and orientation of the energy absorbing liner within the helmet shell interior is critical to enable proper alignment of the NVIIS to the aircrewmember's eyes. Improper positioning will result in restrictions to the field of view available to the aircrewmember through the Image Intensifier set.

1. Prior to the installation of the energy absorbing liner, measure across the helmet shell brow and nape edgeroll to determine the centerline and mark. Determine centerline of the liner brow and nape area and mark. The alignment of these marks during installation will aid in eliminating incorrect positioning.

2. Observe centerline mark on liner brow and nape to use as a reference during installation. Make sure the helmet brow and nape edgerolls are similarly marked.

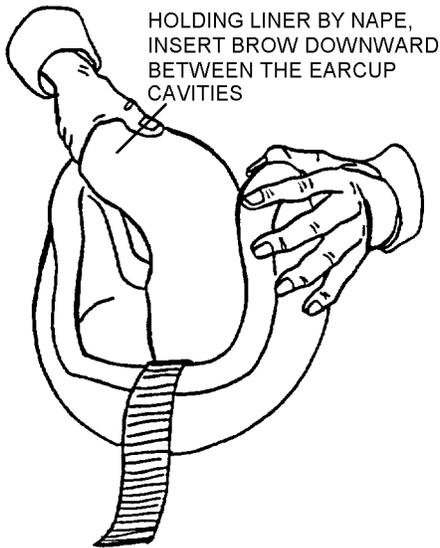
NAVAIR 13-1-6.7-3

3. Invert the helmet assembly on a padded surface to prevent damage to the receptacle assembly. Position helmet with the brow away from the technician.

4. Ensure that all attaching hardware that will be covered by the liner is securely fastened in place. Make sure both wiring harnesses are properly positioned and attached.

5. Cut a 36-inch piece of Type VI webbing. Place webbing inside the helmet from brow to nape to be used for repositioning the liner.

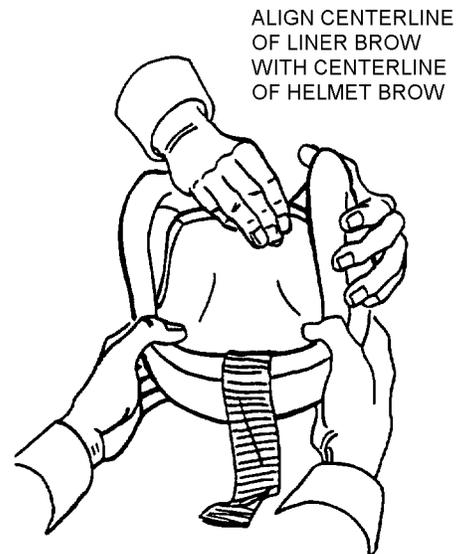
6. Holding liner by the nape, insert liner brow downward into the helmet between the two earcup cavities.



Step 6 - Para 3-38

3p38s6

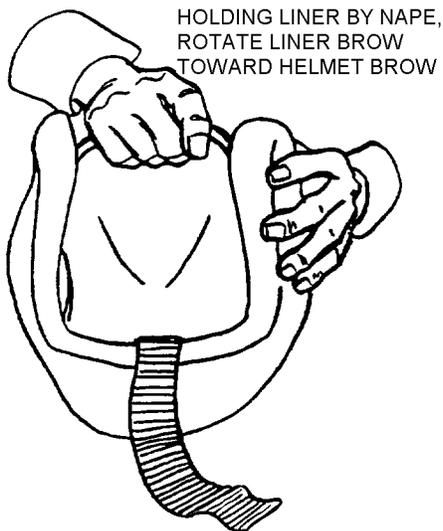
8. With brow centerlines aligned, and the liner centered within the helmet, grasp free ends of webbing and bring together over center of inverted helmet. Slide hand downward on webbing and grasp firmly to slightly compress both ends of the liner inward, while maintaining compression, move brow of liner forward over the mounting block backup plate and into contact with the inner surface of the helmet brow edgeroll. Ensuring brow alignment is established, while maintaining compression, gently but firmly apply downward pressure on liner nape to seat crown of liner against helmet shell interior surface. Release tension on webbing cradle to relax liner compression.



Step 8 - Para 3-38

3p38s8

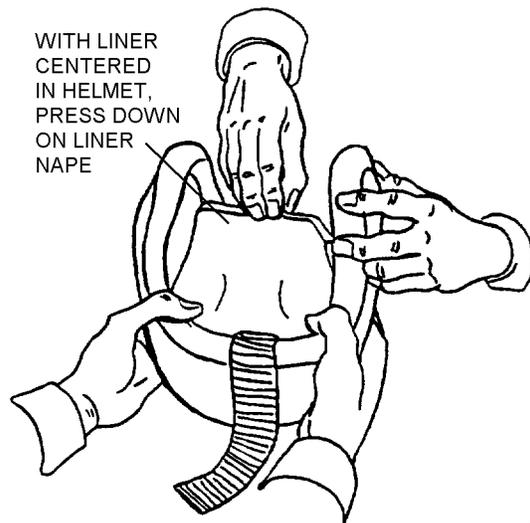
7. Slowly rotate the liner brow toward the helmet brow until centerline mark on liner brow can be aligned with centerline of helmet brow.



Step 7 - Para 3-38

3p38s7

9. Press the nape of the liner downward past the nape edgeroll, while ensuring the liner brow is in firm contact with the inner surface of helmet brow edgeroll.



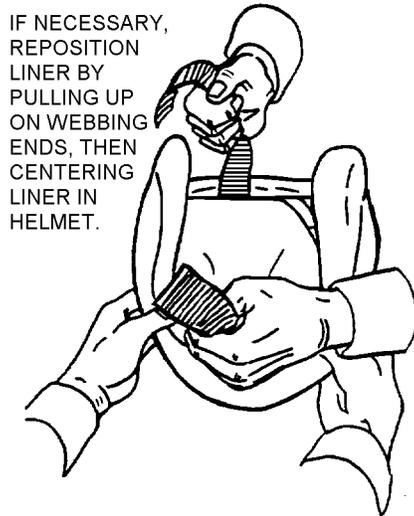
Step 9 - Para 3-38

3p38s9

10. When the liner is seated in the helmet, pull the compressed nape edgeroll from beneath the liner.

11. Check the liner for centerline alignment at the brow and nape. Check for firm contact between the liner brow and the helmet brow edgeroll. An improperly installed liner will misalign gunsight and NVIS accessories.

12. If realignment of liner is necessary, compress liner with webbing cradle and adjust position as required.



Step 12 - Para 3-38

3p38s12

13. Work liner into correct position, then press down on liner nape to seat the liner. Repeat liner loosening and adjustment as necessary until liner is correctly positioned in the helmet assembly.

14. Remove the webbing by pulling from the rear of the helmet shell.

15. On the inside surface of the liner, install front and rear hook fastener tapes as follows:

a. Install two tabs on the inside front of the energy absorbing liner left and right of center over the eyes.

b. Install two tabs in the rear approximately 1 1/2 inch left and right of center and 1/2 inch from the bottom edge of the liner.

16. Document in accordance with OPNAVINST 4790.2 Series.

3-39. INSTALLATION OF COMMUNICATIONS COMPONENTS.

3-40. Installation of M22442/57-1 Cable and H-87B/U Earphones. To install the communications cable assembly and H-87B/U earphones, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Cable Assembly, Radio Frequency	M22442/57-1 NIIN 01-297-6818
1	Cable Assembly, Radio Frequency (Note 2)	M22442/14-1 NIIN 00-631-8566
1	Cable Clip (Note 1)	MK-634/AIC NIIN 00-864-8047
1	Earphones	H-87B/U NIIN 01-056-7225
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

Notes: 1. Use of Cable Clip, MK-634/AIC is optional.
2. Use Cable M22442/14-1 with Cable Assembly M22442/57-1 to connect to aircraft audio system.

1. Remove installed visor and detach right and left earcups from helmet shell earcup cavity pile fastener material. Remove ear seals and earphone holders from earcups.

2. Detach left earcup cavity pile fastener material from interior surface of helmet shell and fold clear of work area. Remove left rear integrated chin/nape attaching screw, flat washer, lock washer and flanged nut, set aside for reinstallation.

NOTE

Ensure selected cable location will not interfere with boom microphone operation or amplifier mounting bracket installation.

3. Select a location on the left helmet shell earcup cavity for drilling of radio frequency cable installation hole, mark location.

4. At selected location, using a 1/4 inch bit, drill a pilot hole. Using a 3/8 inch bit, drill opening to finished dimension.

5. Pass earphone leads and strain relief cord of cable assembly, from outside of helmet shell, to the interior, through the installation hole drilled in the previous step.

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6. Press grommet, that encircles the radio frequency cable, into drilled hole.

7. Install earphone leads of M22442/57-1 into right and left earcups.

8. Insert cable assembly earphone pins into earphones, tighten set screws and insert earphones into cavities of earphone holders.

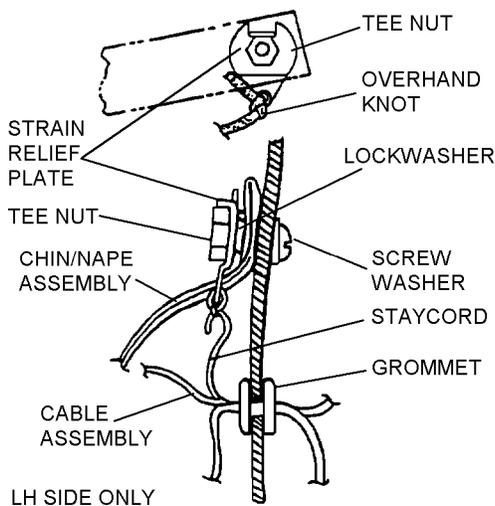
9. Insert earphone holders, with earphones, into earcups, install ear seals onto earcups and position them clear of work area. Attach strain relief clamp to radio frequency cable strain relief cord with a half-hitch.

10. Cut a pass-thru slit into left earcup cavity pile fastener material to accommodate installed radio frequency earphone leads and grommet. Re-cement helmet shell earcup cavity pile fastener material to interior surface of the helmet shell earcup cavity.

NOTE

A small amount of RTV may be applied to the first few threads of screws prior to installation.

11. Install left rear integrated chin/nape strap attaching screw, flat washer, cable strain relief clamp, lock washer and flanged nut. Attach earcups to pile fastener material in helmet shell earcup cavity and reinstall visor.



Steps 10 and 11 - Para 3-40

3p40s10

12. If desired, attach MK-634/AIC cable clip to radio frequency cable U-179A/U connector.

3-41. Installation of Boom Microphone Assembly.

Materials Required

Quantity	Description	Reference Number
1	Boom Microphone Assembly (Note 1)	M-33A/AIC NIIN 00-755-4643
1	Boom Microphone Assembly (Note 2)	M26542/2-01 NIIN 00-188-8529
1	Boom Microphone Assembly (Note 3)	M26542/2-02 NIIN 01-188-8530
1	Boom Microphone Assembly (Note 4)	M26542/2-03 NIIN 01-188-8528

- Notes: 1. The M-33A/AIC Boom Microphone Assembly is an M-87/AIC microphone supplied with a 6-inch CX-4434/U extension cable.
2. The M26542/2-01 Boom Microphone Assembly is an M-87/AIC microphone supplied with a 13-inch CX-4434/U extension cable.
3. The M26542/2-02 Boom Microphone Assembly is an M-87/AIC microphone supplied with a 16-inch CX-4434/U extension cable.
4. The M26542/2-03 Boom Microphone Assembly is an M-87/AIC microphone supplied with a 23-inch CX-4434/U extension cable.

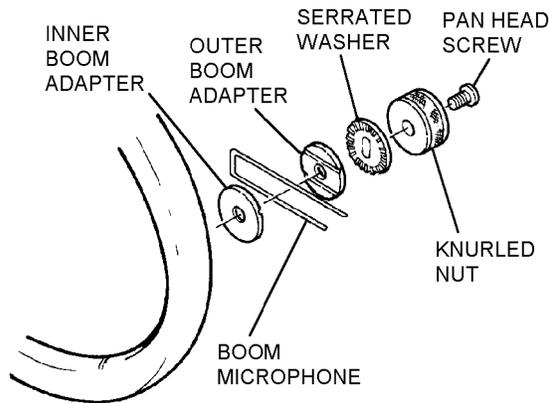
NOTE

Refer to [Section 8-2](#) for installation of optional Boom Microphone Light, ML-8 authorized by ACC 620.

1. Place helmet on RH side on a padded surface, with boom swivel assembly pointing up.

2. Remove the outer pan head screw from the knurled nut of the boom swivel assembly.

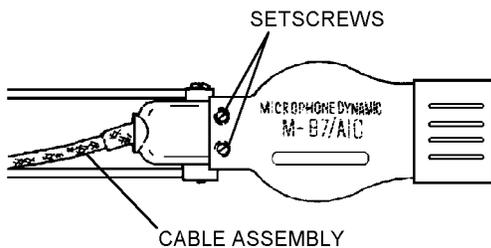
3. Remove the knurled nut from the boom swivel assembly by twisting it counterclockwise.
4. Remove the serrated washer and upper half of boom adapter.
5. Place the boom microphone assembly between the inner and outer boom adapters, ensuring that the boom is aligned in the adapter grooves. Hold parts together.
6. Install the boom microphone and adapters; install the serrated washer with serration inboard. Install the knurled nut with the countersink outboard. Tighten the knurled knob. Secure with the pan head screw.



3p41s2

Steps 2 thru 6 - Para 3-41

7. If the CX-4434/U boom cable assembly has been removed from the boom microphone assembly, loosen two setscrews on the microphone, install plug of cable assembly, and tighten setscrews.



3p41s7

Step 7 - Para 3-41

NOTE

If 13-inch CX-4434/U extension cable assembly is used, loosely wrap excess cable around boom swivel assembly prior to connection.

8. Connect plug of CX-4434/U extension cable assembly to receptacle of communications cable assembly.

9. Document in accordance with OPNAVINST 4790.2 Series.

3-42. Installation of M22442/37-4708 (CX-4708A/AIC) Cable Assembly and MIL-C-22442/30-1 (CX-13155/A) Cordset or M22442/30-2 (CX-13164/A) Cordset. To install the M22442/37-4708 (CX-4708A/AIC) cable assembly and MIL-C-22442/30-1 (CX-13155/A) cordset or M22442/30-2 (CX-13164/A) cordset on the PRU-59/P helmet shell assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Cable Assembly, CX-4708A/AIC (Use until exhausted)	M22442/37-4708 NIIN 00-816-3657
	-or-	
1	Cable Assembly, (CX-4708A/AIC) (MOD) (Alt. for CX-4708A/AIC)	89B7742 (CAGE 97427)
1	Cordset, CX-13155/A	MIL-C-22442/30-1 NIIN 01-128-9733
	-or-	
1	Cordset, CX-13164/A	M22442/30-2 NIIN 01-140-3501
1	Cable Clip, (Not E)	MK-634/AIC NIIN 00-864-8047
2	Earphones	H-87B/U NIIN 01-056-7225
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

Notes: 1. Use of Cable Clip, MK-634/AIC is optional.

1. Pull the earcups away from the pile fastener on the inside of the helmet shell.

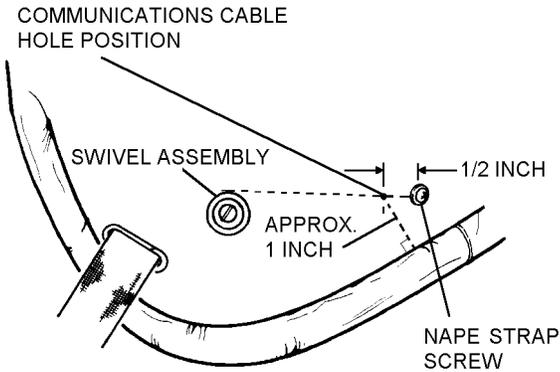
NOTE

Dimensions in illustration are not critical, technician should adjust location of components on helmet shell exterior to ensure interference with operation and movement of other exterior helmet components is minimized.

2. Drill hole for communications cable as follows:

NAVAIR 13-1-6.7-3

a. Select a drilling location on the left side at least 1/2 inch from the nape strap screw. Ensure selected location will not interfere with installation of boom microphone on the swivel assembly. The hole position should be approximately 1 inch from the edgeroll.



Step 2a - Para 3-42

3p42s2a

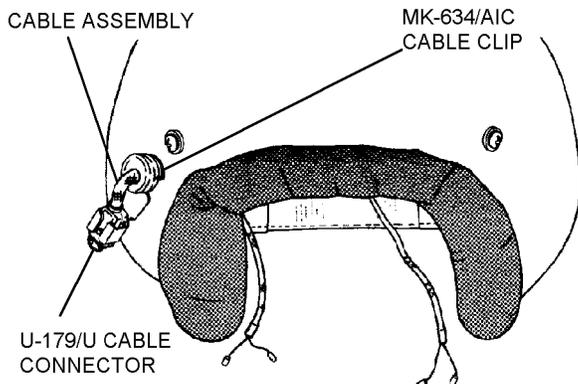
b. Pull pile fastener fabric from the inside of the helmet, away from the drilling position.

c. Drill 3/8-inch hole at the position marked in Step 2a.

d. Re-cement pile fastener fabric to the interior of the helmet shell assembly. When dry, cut a hole in the pile fastener fabric positioned to match the position of the communications cable hole drilled in Step 2c.

3. Pass M22442/37-4708 (CX-4708A/AIC) cable leads with earphone contacts through large hole in bottom rear of helmet shell assembly. Press large grommet encircling cable assembly into large hole and secure.

4. Secure cable assembly connector (U-179/U) to helmet shell assembly, using MK-634/AIC cable clip.



Step 4 - Para 3-42

3p42s4

5. As applicable, connect MIL-C-22442/30-1 (CX-13155/A) cordset or M22442/30-2 (CX-13164/A) cordset to connector (U-179/U).

6. Install earphones and earcup assemblies in accordance with paragraph 3-47.

3-43. Deleted.

3-44. Installation of M22442/15-1 (CX-4832A/AR) Cable Assembly or M22442/19-1 (CX-12972/AR) Cable Assembly. To install the M22442/15-1 (CX-4832A/AR) cable assembly or the M22442/19-1 (CX-12972/AR) cable assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Cable Assembly, CX-4832A/AR	M22442/15-1 NIIN 00-961-8516
	-or-	
1	Cable Assembly, CX-12972/AR	M22442/19-1 NIIN 01-016-4130
2	Screw, 6-32 x 1/4 Inch	MS51957-25 NIIN 00-054-6649
2	Washer	MS35338-138 NIIN 00-933-8120
1	Earphones, H-87B/U	NIIN 01-056-7225
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

1. Pull the earcups away from the pile fastener on the inside of the helmet shell.

NOTE

Dimensions in illustration are not critical, technician should adjust location of components on helmet shell exterior to ensure interference with operation and movement of other exterior helmet components is minimized.

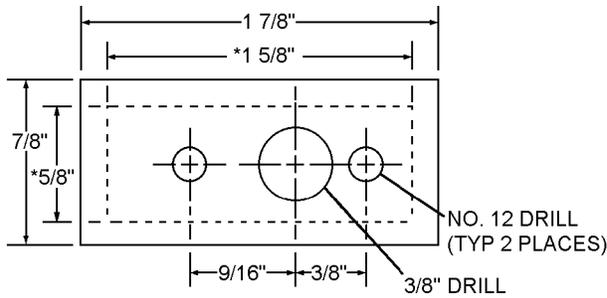
2. Drill mounting holes for cable assembly as follows:

- Fabricate a template from the illustration below.

NOTE

Illustration below is to scale. A copy may be used as the template.

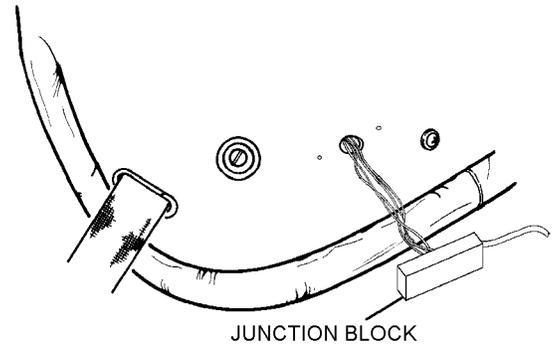
- Select a drilling location on the left side of the helmet. Selected location should not interfere with boom microphone installation and should permit junction block of cable assembly to lie flush on helmet shell exterior.



* ACTUAL DIMENSIONS OF CABLE ASSY JUNCTION BLOCK ARE 1 5/8" X 5/8"

Step 2a - Para 3-44

3p44s2a



Step 3a - Para 3-44

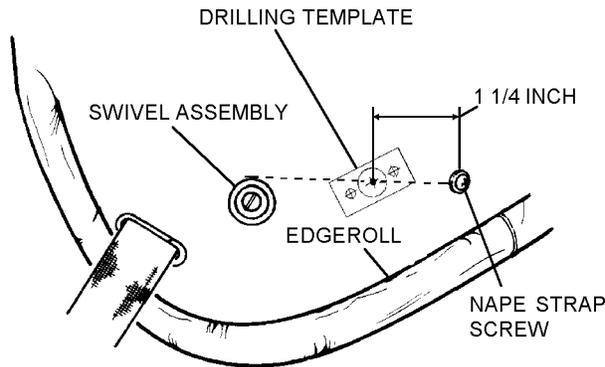
3p44s3a



Do not over torque 6-32 x 1/4-inch screws. Over torquing will cause damage to the cable assembly junction block.

b. Secure cable assembly junction block to outside of helmet, using two 6-32 x 1/4-inch screws and two 0.032-inch thick flat washers. Apply no more than 4 in-lbs. of torque to 6-32 x 1/4-inch screws.

4. Install earphones and earcup assemblies in accordance with [paragraph 3-47](#).



Step 2b - Para 3-44

3p44s2b

3-44A. Installation of Tempest Communication Cable and MJS-103 Switching Assembly (MK-1564/AIC). To install the MK-1564/AIC Tempest Communications Cable and the MJS-103 Switching Assembly, proceed as follows:

c. Pull pile fastener fabric from the inside of the helmet, away from the drilling position.

d. Drill center hole with a 3/8-inch drill in the outer shell assembly from the outside.

e. Drill the mounting holes with a No. 12 (0.189-inch) drill in the outer shell assembly from outside.

f. Re-cement pile fastener fabric to the interior of the helmet shell assembly. When dry, cut a hole in the pile fastener fabric positioned to match the position of the communications cable hole drilled in [step 2d](#).

3. Install cable assembly as follows:

a. Pass four cable assembly earphone leads with earphone contacts through 3/8-inch hole on left side of helmet shell assembly.

Materials Required

Quantity	Description	Reference Number
1	Tempest Communications Cable, with MJS-103 Switching Assembly	MK-1564/AIC NIIN 01-164-0561
1	Hardware Kit	89A7762-2
1	Clamp, Loop	BL1844-3
1	Clamp, Loop	MS25281-R2
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

NOTE

Communications assembly, P/N MK-1564/AIC, is delivered with earcups, earphones and earphone holders attached. The earcups and earphone holders are not used for this configuration and must be removed prior to proceeding with this installation.

1. Helmet Preparation for Installation of the MK-1564/AIC Communications Cable and the MJS-103 Switching Assembly.

- a. If installed, detach visor from helmet, and set aside for reinstallation.
- b. Remove internal components, if installed, in accordance with [paragraph 3-94, step 1, sub-paragraphs b. through i.](#) Detach leather covering edgeroll at the nape area on helmet shell interior.
- c. Remove existing communications cable, if installed and discard.
- d. Remove boom microphone assembly, if installed and set aside for use during reinstallation.
- e. Detach pile fastener material from interior surface of the left helmet shell earcup cavity and position clear of work area.

NOTE

Adjust the location of the MJS-103 switching assembly on the helmet surface to a position

that does not interfere with Boom Microphone operation.

f. On helmet shell exterior, from the center of the visor snap fastener stud, measure downward toward the edgeroll 2 1/8 inches on the size medium helmet, 2 7/8 inches for the size large helmet and 3 inches for sizes extra large and extra large wide helmets and place a mark indicating location of the upper switching assembly attaching screw.

g. From location marked in [step f](#) above, measure downward 3/16 inch and place a mark to indicate location of lower attaching screw.

h. At selected locations on helmet shell exterior, using a no. 41 drill bit, drill inward through helmet shell. Deburr holes using a jeweler's file.

i. Location of communications cable strain relief clip mounting screw is determined by measuring, from the center of the left rear integrated chin/nape strap attaching point screw hole, upward 1 1/4 inch on the helmet shell exterior and placing a mark.

j. At marked location, using a no. 12 (0.189-inch) bit, drill inward through helmet shell. Using a jeweler's file, deburr hole.

2. Installation of the MK-1564/AIC Communications Cable and the MJS-103 Switching Assembly.

a. On interior surface of left helmet shell earcup cavity, position one of the circular backing plates over the holes drilled in step h above. Pass switching assembly attaching screws outward through backing plate and helmet shell. Place second backing plate over protruding screws.

b. Align threaded mounting holes in the body of the MJS-103 communications switching assembly over attaching screws, ensuring the function switching lever arm points downward. While maintaining alignment, tighten attaching screws.

c. Route strain relief clamp and earphone connector leads of the branched communications cable into the helmet shell interior at the left rear corner of the helmet nape edgeroll.

d. Install strain relief clamp onto interior of helmet shell using a T-nut, flat washer and screw from kit P/N 9A7762-2 at location drilled in step j above. Adjust strain relief cord to proper length and trim off excess cord.

NOTE

The longer earphone leads must be positioned leading to the right earcup.

e. Assemble left and right earcups in accordance with instructions contained in paragraph 3-47, steps 1 through 1.

f. Route free end of communications cable, from left to right, across helmet nape edgeroll foam core exiting the helmet interior at the right rear corner.

g. Apply a coat of polychloroprene adhesive to the helmet shell interior surface where the leather edgeroll cover is to be attached. Allow adhesive to dry (approximately 30 minutes).

h. Apply a coat of adhesive to the underside of the leather edgeroll and apply a second coat, over the first coat, on the helmet shell interior. Allow adhesive to become tacky (approximately 15 minutes).

i. While ensuring communications cable remains positioned along upper surface of the foam core, press leather edgeroll cover firmly into place, onto the prepared area of the helmet shell.

NOTE

When using clamp loops to secure switching assembly communications cable to the helmet shell exterior omit external flat washers from the integrated chin/nape strap rear attaching point assemblies.

j. Apply adhesive to interior surface of left earcup cavity and allow to dry. Apply adhesive to underside of earcup cavity pile fastener material and apply a second coat of adhesive to the helmet earcup cavity. Allow adhesive to become tacky. Press pile fastener material firmly into place in earcup cavity.

k. Reinstall final component in accordance with paragraph 3-94, steps 2 through 4 and steps 6 through 10.

l. Install switching assembly boom microphone onto helmet boom swivel in accordance with paragraph 3-47, steps 1 through 6.

m. Contact aircrewmember to schedule a post maintenance helmet fit verification.

n. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 series manual.

3-45. Installation of Amp Mounting Bracket (As Applicable).

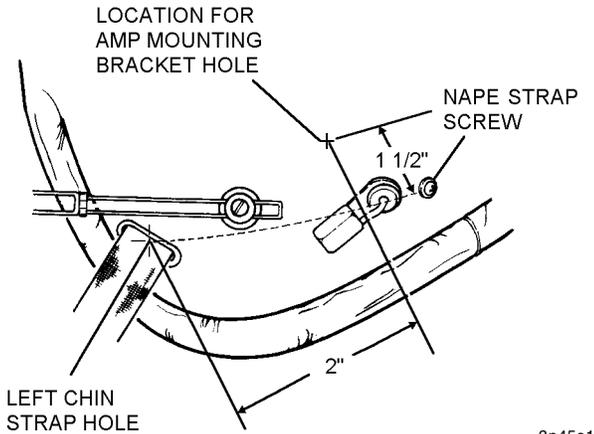
Materials Required		
Quantity	Description	Reference Number
1	Amp Mounting Bracket	80B4881 (CAGE 97427) NIIN 01-128-5334
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

NOTE

Dimensions given are not critical. Adjust location of hole with respect to the positioning of the boom swivel assembly.

NAVAIR 13-1-6.7-3

1. Locate position for amp mounting bracket on left side of helmet. Ensure location of amp mounting bracket will not interfere with microphone boom and will permit bracket with enclosed amp to lie flush with helmet surface.



Step 1 - Para 3-45

3p45s1

2. Drill a 0.288-inch (no. 1 drill bit) hole at location determined.

NOTE

A small amount of RTV may be applied to the first few threads of screws prior to installation.

3. Secure amp mounting bracket to helmet shell assembly with 8-32 x 1/4-inch screw, flat washer, and post. Do not tighten screw.

4. Re-cement pile fastener tape to helmet shell using polychloroprene adhesive.

3-46. Installation of M23595/1-2 (AM-3597C/A) Amplifier (As Applicable).

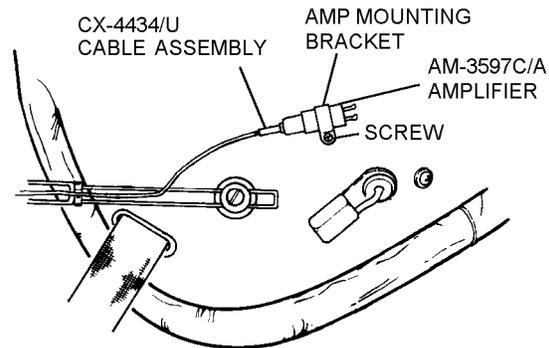
Materials Required

Quantity	Description	Reference Number
1	Amplifier, AM-3597C/A	M23595/1-2 NIIN 00-100-4932

1. Ensure Amp Mounting Bracket is installed in accordance with paragraph 3-45.

2. Connect amplifier to CX-4434/U cable assembly.

3. Install amplifier into amp mounting bracket and tighten screw.

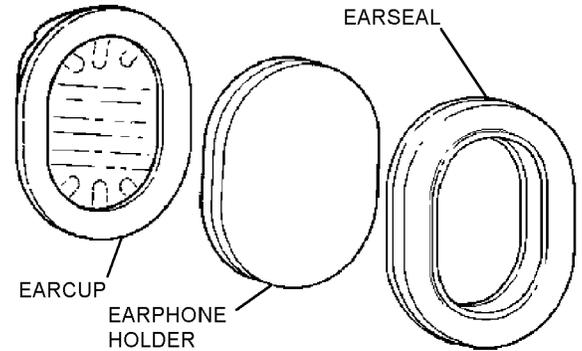


Step 3 - Para 3-46

3p46s3

4. Document in accordance with OPNAVINST 4790.2 Series.

3-47. Installation of Earphones and Earcup Assemblies. The radio frequency (communications) cable assembly must first be routed into the earcups and connected to the earphones, then the earcups are assembled. To install the earphones into the RH and LH earcup assemblies, proceed as follows:



Steps 2 and 3 - Para 3-47

3p47s2

Materials Required		
Quantity	Description	Reference Number
2	Earphones	H-87B/U NIIN 01-056-7225
1	Earcup Assembly	90C7885
1	Oregon Aero Softseal, 3/4-inch (Note 1)	20050
	-or-	
1	Oregon Aero Softseal, 1 1/8-inch (Note 1)	20025

Notes: 1. Oregon Aero Softseal ear cushions are authorized optional replacements for P/N 88C7589 earseals and if desired must be commercially procured from Oregon Aero Corporation, Scappoose, OR 97056. Telephone (503) 543-7399.



Due to inadequate lateral impact protection afforded by this configuration, Oregon Aero Hush Kit combo part number 28034 and part number 28118 are not authorized for use in the HGU-84/P Series or the HGU-67/P Protective Helmets.

1. Retrieve RH and LH earcup assemblies which were removed from helmet subassembly at beginning of build-up procedures.

2. Remove earseal by carefully stretching it away from lip of each earcup.

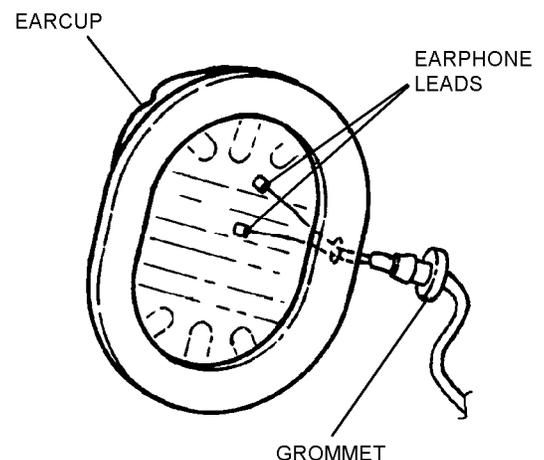
3. Remove earphone holder from each earcup.

NOTE

The RH and LH earcups can be distinguished by their positions inside the helmet assembly. The tapered ends of the earcups should face down. The small holes for the communications cable leads and grommet should face to the rear of the helmet assembly.

The longer communications cable lead must connect to the RH earcup.

4. Insert the LH and RH earphone leads through the small grommets. Press leads and grommets into holes of LH and RH earcups. Ensure grommets are secure.

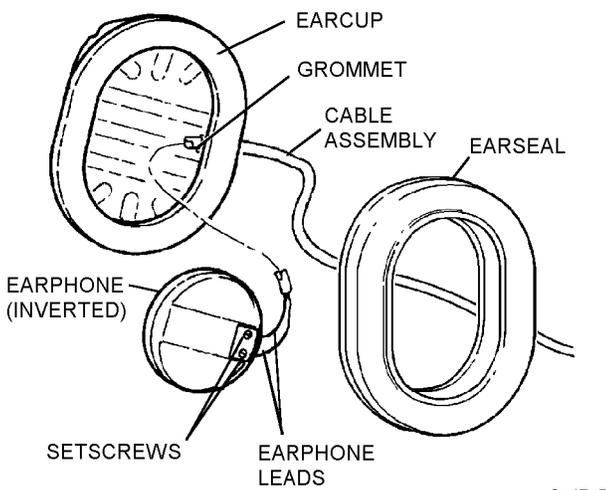


Step 4 - Para 3-47

3p47s4

NAVAIR 13-1-6.7-3

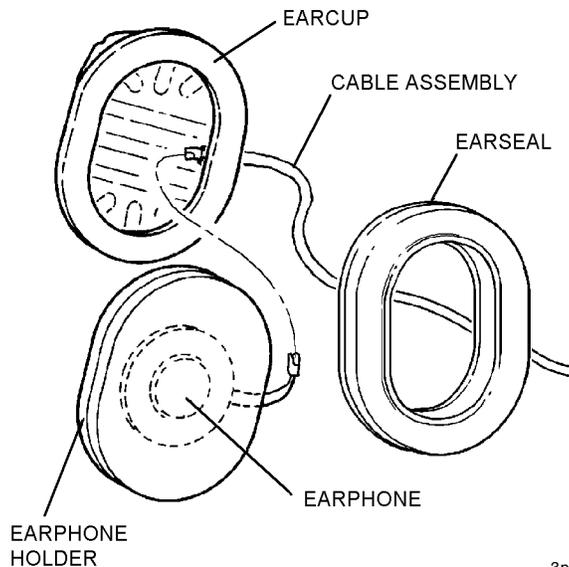
5. Insert earphone leads into earphones and tighten setscrews.



Step 5 - Para 3-47

3p47s5

6. Insert earphones into cavity of earphone holders.



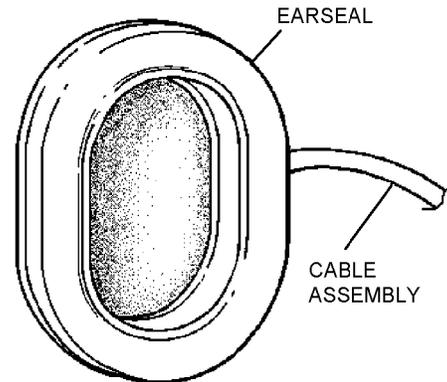
Step 6 - Para 3-47

3p47s6

7. Position earphone holders with enclosed earphones into LH and RHarcup. Smooth earphone holders inside earcups to prevent bunching.

8. Install P/N 88C7589 or 98C10311-1 earseals or optional Oregon Aero Softseal earseals by hooking them over

one end of the earcup and carefully stretching them over the lip of the earcup.



Step 8 - Para 3-47

3p47s8

9. Route RH earcup and cable around inside nape of helmet to RH side of helmet.

NOTE

Proper fitting of the earcup assembly inside the helmet assembly is not required at this time.

10. Install RH and LH earcup assemblies onto pile sections of the interior helmet assembly.

11. Document in accordance with OPNAVINST 4790.2 Series.

3-47A. Installation of Optional Communications Ear Plug (CEP) into HGU-84/P Series and HGU-67/P Helmets. The CEP is a device that provides the hearing protection of an expanding foam earplug while directly passing into the ear the clearest speech signal attainable. A miniature transducer and foam earplug are coupled to yield a light weight, high quality communications device. To install the CEP into the HGU-84/P series and HGU-67/P helmets, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Tape Measure, Dress Maker's	NIIN 00-782-3520
1	No. 12 Drill Bit	NIIN 00-189-9253
1	3/8 Inch Drill Bit	NIIN 00-227-9666

Materials Required

Quantity	Description	Reference Number
1	CEP Wiring Harness	CEP900-I04E (Not E)
1	Audio/Ear Plug Cable	CEP402-C05
AR	Foam Tip, Standard Slim Short	CEP199-ESTP CEP199-ESLP CEP199-ESHP

Notes: 1. CEP components are commercially available from:
 Communications & Ear Protection
 P.O. Box 311174
 3700 Salem Road
 Enterprise, AL 36331-1174
 Telephone (334) 347-1688.

NOTE

The right or left side of the helmet is determined by referring to the right or left side of the person wearing the helmet.

1. Place helmet on the work surface facing the technician, with the right side upright.
2. Remove the screw, washer, lock washer and knurled nut holding the right side of the nape strap and remove nape strap from the helmet. Reinstall removed hardware onto nape strap to prevent loss.
3. Remove the right side ear cup and any padded spacers from the helmet extending the ear cup and wiring from the rear of the helmet onto the work surface.
4. Using a cloth tape measure as a guide, draw a line using a No. 2 lead pencil from the center of the nape strap screw hole toward the rear edge of the oblong chin/nape pass through grommet. This is the CEP connector installation reference line.
5. Using the No. 2 pencil, place a mark 1 1/4 inches from the center of the nape strap screw hole on the reference line.
6. Using a No. 12 drill bit, drill a pilot hole on the 1 1/4-inch mark, ensure drill bit is kept perpendicular to the helmet surface while drilling. Enlarge the previously drilled hole using a 3/8-inch drill bit.
7. If necessary, use a small jeweler's file to deburr the edges of the drilled hole.

8. Thread the CEP wiring harness into the helmet interior through the 3/8-inch hole starting with the earphone pins, wrap the ground wire along or around the cable as you pass the cable through the hole.

9. Place the ABS spacer and connector into the hole pressing with your thumb so that they both are seated flush to the outside of the helmet.

10. On the inside of the helmet, feed the cable and ground wire through the ground lug and the CEP connector locking nut until the ground lug is flush to the inside of the helmet shell and the locking nut is in contact with the threads of the CEP connector.

NOTE

It may be necessary to trim the Velcro around the connector threads in order for the locking nut to be seated to the connector threads.

11. Align the ground lug so that the solder tab is pointed toward the crown of the helmet and tighten the locking nut to the connector using a 7/16-inch wrench.

12. Pull the solder tab on the ground lug up and away from the Velcro surface of the helmet.

13. Using a small pair of needle nose pliers, make a small hook in the ground wire and feed the wire through the solder tab hole, making sure the ground wire and not its insulation is contacting the ground tab.

14. Add flux to exposed area of ground wire and carefully solder the wire in place.

15. When the surface has cooled, press the solder tab and ground wire back down to the Velcro of the helmet shell.

16. Remove earphone and protective foam from the right ear cup.

17. Remove the protective foam from the earphone and position the earphone so the setscrews of the earphone are facing up.

18. Loosen the setscrews on the earphone until the cable pins are released and remove earphone leads and rubber grommet encircling the communications cable from ear cup. Set earphone aside for reinstallation.

19. Route CEP cable through the ear cup hole inserting the interface pins of the CEP into the earphone. Tighten the earphone setscrews so that the setscrews of the interface pins are facing up.

20. Route the communications cord through the ear cup hole and carefully loosen the setscrews on the interface pins. Insert the earphone pins from the helmet installed communications cord into the CEP interface pins and tighten the setscrews.

21. Encircle both sets of wires with the split rubber grommet and insert the grommet and encircled wires into the hole of the ear cup.

NOTE

When using communications cords with black and white wires, match them to the CEP interface wires for polarity.

22. Re-install earphone into protective foam and ear cup, and reinstall ear cup back into the helmet.

23. Using the screw, washer, lock washer and knurled nut, reattach right side nape strap to helmet.

24. Perform post maintenance communications test using a TTU-489/E or equivalent.

25. Contact aircrew for post maintenance fit check.

26. Document maintenance in accordance with OP-NAVINST 4790.2 Series.

3-47B. Communications Ear Plug (CEP) Fitting and Sizing. The CEP foam tips attach to the ear plugs of the audio/ear plug cable, and are available in three sizes: Standard, Slim, and Short.

1. To attach the foam tip to the ear plug, proceed as follows:

a. Carefully thread the foam tip onto the ear plug until the foam touches the black housing.

b. Grip the housing and the foam tip and tighten an additional 1/4 turn. This will ensure that flanking sound paths are minimized.



Do not over tighten foam tip. Over tightening could damage the threads and result in the foam tip becoming lodged in the ear cavity upon removal of the ear plug.

NOTE

Due to the variations in the sizes of the ear canal, determining the correct size foam tip for comfort and protection may require several flights with different sizes of foam tips.

2. To insert the ear plug into the wearer's ear, proceed as follows:

a. Place the audio/ear plug cable around the back of the neck with the long wire running toward the left ear.

b. Compress and roll the foam tip of the left side ear plug with the thumb and index finger of the right hand, forming a cylinder shape.

NOTE

Pinching or crimping the end of the foam tip may impede audio to the wearer resulting in muffled or unclear reception.

c. Grasp the black housing of the CEP in your left hand so the cable is between the thumb and index finger.

d. Quickly release the foam from the right thumb and index finger and reach behind the head and pull the left external ear away from the head.

e. Insert the compressed foam tip into the ear until the foam is completely in the ear canal, and hold in place for approximately 5 seconds.

f. Position the cable so that it exits through the notch at the lower part of the external ear.

g. Reversing the procedure, fit the right side in the same manner.

h. Don the helmet and plug the audio/ear plug cable into the CEP harness connector on the helmet.

3-48. INSTALLATION OF VISOR ASSEMBLIES AND VISOR COVER.

Materials Required

Quantity	Description	Reference Number
1	Visor Assemblies (Note)	
1	Visor Bag	93D8497
1	Black Leather Lens Cover	93B8447
As Required	Thread, Nylon, Size E	V-T-295

Notes: Table 3-1A lists all visors available for the HGU-84/P series helmets.

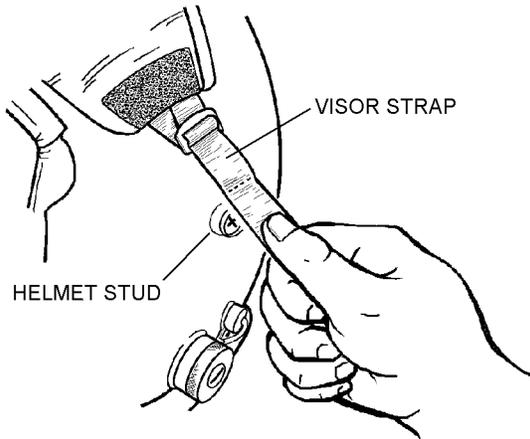


Avoid scratching the visor with objects such as rings, watches, buckles, tools, or bench surfaces.

When installing or repositioning visors, always lift visor away from helmet. To prevent scratching lens, do not pull visor across mounting block on brow of helmet. Do not bend or flex visor or damage may result.

1. Remove visors from protective packaging.

2. For dual visor configuration, position inner clear visor assembly on the helmet lens pad rest. Maintain visor position on pad and stretch visor elastic retention strap slightly past the installed helmet snap fastener stud. Fasten retention strap socket to the helmet stud from bottom to top. Repeat for opposite strap.



Step 2 - Para 3-48

3p48s2

NOTE

If desired by aircrewmember, after proper tension is achieved, adjustment strap friction adapters may be tacked using Size E nylon thread, single, two turns tied off with a surgeon's knot followed by a square knot.

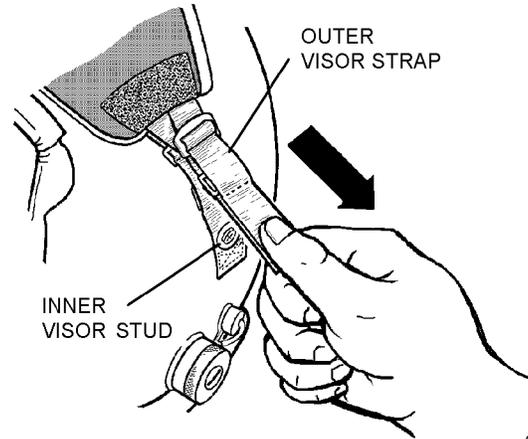
3. Adjust strap tension, on both retention straps, as desired. Once desired tension is achieved, tack retention strap friction adapters to prevent slippage or loosening during use.

NOTE

In addition to the standard neutral outer visor, four special purpose outer visors, procured separately, are authorized for use. The amber visor is a day use only visor and provides enhanced visual acuity under hazy conditions. The gradient visor provides glare protection similar to the neutral visor, but the clear area along the lower portion of the lens allows an unobstructed down-look capability for rapid scan of cockpit instruments and is limited to day use only. The reduced profile safety visor, stepped-in provides eye protection for aircrewmembers utilizing the AN/AVS-9(V)R Night Vision Image Intensifier Sets.

4. Select the neutral visor or any of the four special purpose visors for installation as the outer visor. Lower the

inner visor to the in-use position. Place the selected outer visor on the lens pad and attach the retention strap socket to the stud on the inner visor retention strap. Snap fasteners secure from top to bottom.

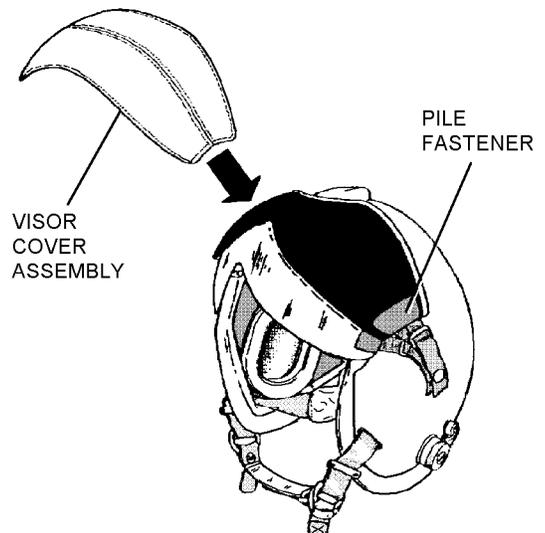


Step 4 - Para 3-48

3p48s4

5. Adjust strap tension, on both retention straps, as desired. Once desired tension is achieved, tack retention strap friction adapters to prevent slippage or loosening during use.

6. Install visor protective cloth cover onto the outer visor by mating the hook fastener strips on the underside of the lens cover with the pile fastener strips on the edges of the outer visor.



Step 6 - Para 3-48

3p48s6

7. For single visor applications, place unused visor in the visor bag provided as part of the helmet assembly.



When removing, installing, or re-positioning visors, always lift visor away from helmet. To prevent scratching lens, do not pull visor across mounting block on brow of helmet.

NOTE

To prevent scratching, lenses should be stored in lens bags provided, or covered with visor cover when not in use.

8. Document in accordance with OPNAVINST 4790.2 Series.

3-49. INSTALLATION OF BAYONET RECEIVER ASSEMBLY (HGU-67/P OR HGU-84/P). To install the bayonet receiver assemblies for high altitude SAR or for use in V-22, AH-1W, or KC-130 aircraft. Refer to Chapter 3 (MBU-12/P Series) or Chapter 6 (MBU-23/P Series).

3-50. BUILDUP OF QUICK DON MOUNT ASSEMBLY. The Quick Don Mount Assembly connects the standard NVIS accessory to the helmet block on the brow of the helmet, allowing for quick attachment and release with one hand. The mount provides vertical adjustment and electrical connections for the goggles. The quick don mount is assembled using components removed from the AN/AVS-6(V)1 or (V)2 mount assemblies combined with parts contained in kit P/N 93B8601.

Materials Required

Quantity	Description	Reference Number
1	Mounting Block Assembly	3151AS151-1 (From kit 93B8601)
1	Mount Assembly	(AN/AVS-6(V)1 or AN/AVS-6(V)2) and 5002530 NIIN 01-151-4229
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

NOTE

Components are removed from existing AN/AVS-6(V)1 or (V)2 mount assemblies and combined with new mounting block assembly (3151AS151-1) to produce the AN/AVS-6(V)3 quick don mount assembly.

1. Remove AN/AVS-6(V)1 or (V)2 mount assembly from aircrewmember's helmet if functional, or procure an RFI mount assembly from supply.

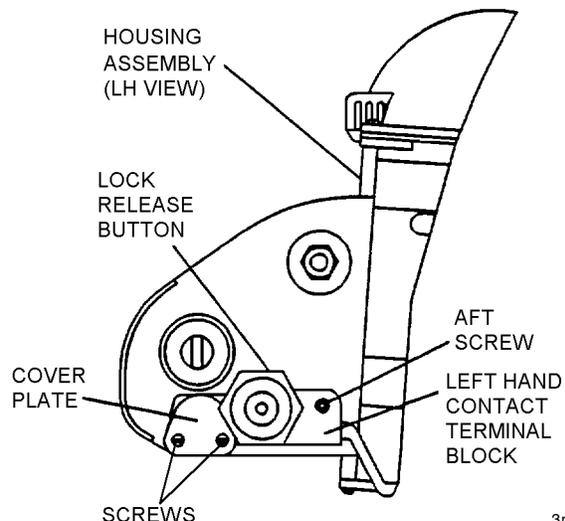
2. Invert mount assembly on work surface and remove the AN/AVS-6 housing assembly from the AN/AVS-6(V)1 or (V)2 mount by removing the four attaching screws on the inner surface of the visor cover.

3. Dislodge rubber grommet encircling the electrical cable connector to permit withdrawal of the AN/AVS-6 housing assembly and attached wiring harness from the visor cover.

4. Remove lock release button from left side of AN/AVS-6 housing assembly by turning button counterclockwise until free. Set aside button for re-use in assembly of AN/AVS-6(V)3.

5. Remove two screws securing the contact terminal junction cover plate to the left forward portion of the AN/AVS-6 housing. Set aside cover plate and screws for re-use.

6. Remove the aft screw securing the contact terminal block to the left side of the AN/AVS-6 housing assembly and set aside for re-use.



Steps 4 thru 6 - Para 3-50

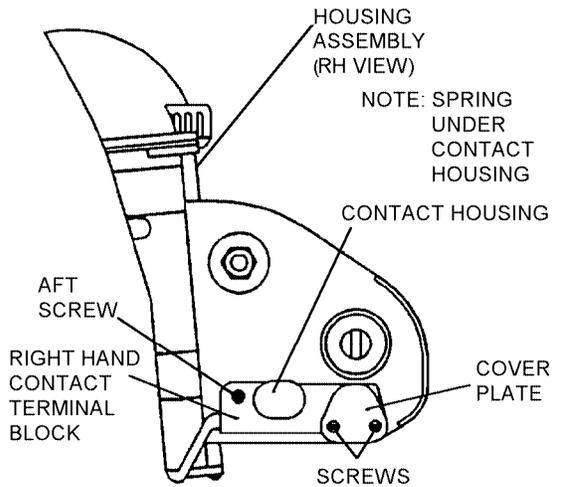
3p50s4

7. Remove left hand contact terminal block from housing.

CAUTION

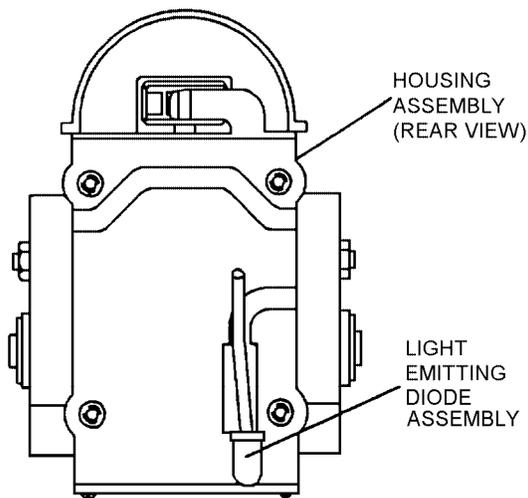
Hold RH module assembly in position until all three screws are removed. Compression spring under contact housing will force module assembly upward, damaging screw threads.

8. Repeat procedure on right hand contact terminal block, retaining the cover plate, three screws, and lock release compression spring under the right terminal block for re-use.



Step 8 - Para 3-50

9. Dislodge red Light Emitting Diode (LED) from channel on rear of housing assembly, and remove the AN/AVS-6(V)1 or (V)2 wiring harness from the AN/AVS-6 housing assembly.



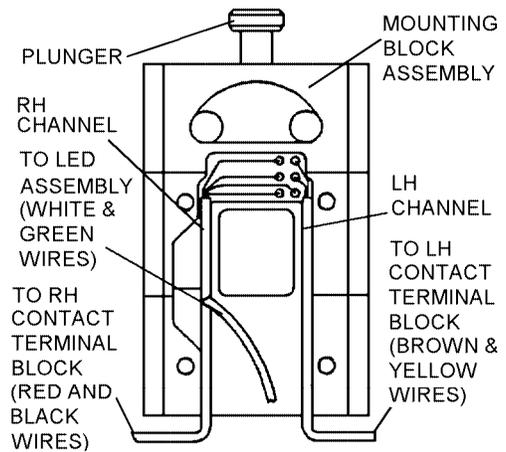
Step 9 - Para 3-50

NOTE

The AN/AVS-6(V)1 or (V)2 wiring harness may be retained for use in repairing any defective helmet systems requiring only a harness to make them RFI.

10. Place mounting block assembly (P/N 3151AS151-1) on work surface with wiring and wiring channels upward, quick release plunger away from technician and small end of tapered face toward the technician. Note wire positioning. The upper two left hand wires (yellow and brown) comprise the left contact terminal block cable. The upper two right hand wires (red and black) comprise the right contact terminal block cable. The lower wire pair (white and green) comprise the LED power cable.

11. Route the left and right contact block cables into the left and right cable channels on the tapered face of the mounting block assembly. To ensure full travel of the AN/AVS-6 housing, align edge of each cable's heat shrink wrapping with the upper edge of cable channel.



VIEW LOOKING AFT

Steps 10 and 11 - Para 3-50

CAUTION

Orient the flat on LED assembly upward in channel to prevent crushing damage to the LED.

12. Position LED and its power cable into the channel on rear of the AN/AVS-6 housing assembly.

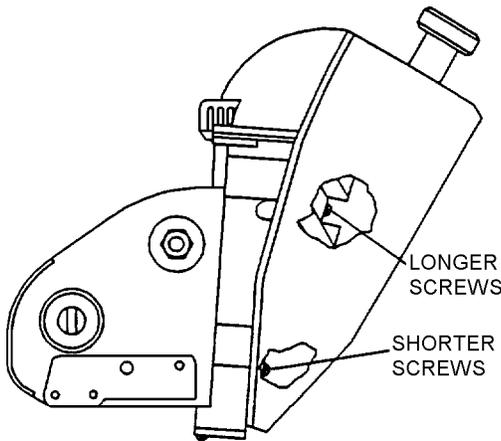
13. Align housing assembly screw holes with screw holes on tapered face of the mounting block assembly while the LED view port is facing towards the technician.

NOTE

Use screws and washers provided in modification kit.

Place a small amount of MIL-A-46106 adhesive on the first few threads of each screw.

14. While maintaining alignment, from the rear, install screws and washers provided in the modification kit, ensuring that the longer screws are installed in the upper screw holes and the shorter screws in the lower holes.



3p50s14

Step 14 - Para 3-50



Ensure protective sleeving remains in groove of terminal block.

Hold right hand contact terminal block in position until all three screws are installed. Compression spring under contact housing will force terminal block upward, damaging screw threads.

15. Insert the lock release compression spring into hole on the right side of the AN/AVS-6 housing assembly, and install the right hand contact terminal block using the 3 screws and cover plate removed in [step 8](#).



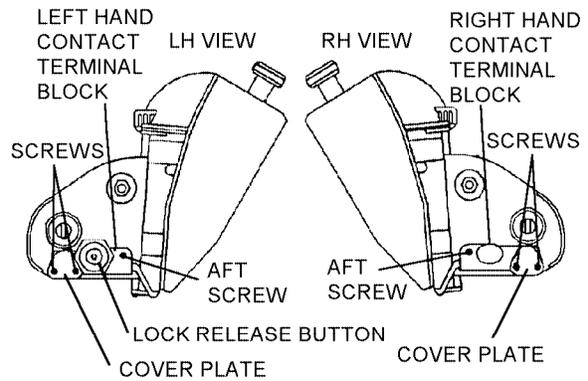
Ensure protective sleeving remains in groove of terminal block.

16. Install the left hand contact terminal block using 3 screws and cover plate removed in [step 6](#).

NOTE

Place a small amount of RTV adhesive on the first few threads of lock release button.

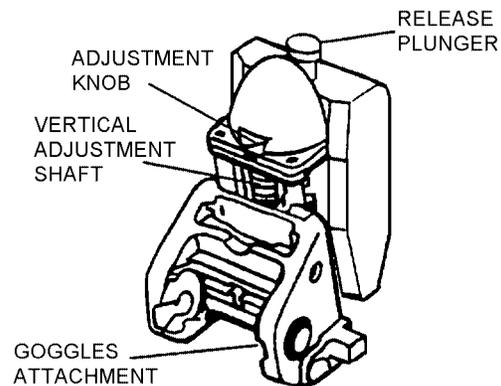
17. Install lock release button removed in [step 4](#) by turning the button clockwise until tight.



3p50s16

Steps 16 and 17 - Para 3-50

18. Attach assembled AN/AVS-6(V)3 Quick Don Mount to the helmet block and using the vertical height adjustment knob, verify full range of travel is available. If not, bunching of the contact terminal block cable should be suspected. To correct bunching, loosen four screws on rear of mounting block assembly and tug lightly on each contact terminal block cable. Tighten the screws and check again for full travel.



3p50s18

Step 18 - Para 3-50

19. Store the quick don mount assembly in accordance with [paragraph 3-106](#).

20. Document in accordance with OPNAVINST 4790.2 Series.

3-51. HELMET FITTING PROCEDURES. The following text contains instructions for fitting the helmet to the aircrewmember. These procedures include ear-cup positioning, chin/nape strap adjustment and tensioning, visor assembly adjustment and tacking, TPL layer removal, TPL custom-fitting (heat forming), and installation of the optional Oregon Aero Zetaliner. Proper fitting of the helmet is essential for helmet stability and aircrewmember comfort as well as ensuring that the NVHS and HSA accessories can be properly positioned. Once a satisfactory helmet fit has been achieved, the NVHS alignment check and helmet sighting assembly boresight are performed.

NOTE

As an additional aid in achieving safe, comfortable fit the use of the skull cap is authorized. The skull caps also absorb perspiration and when worn, assist in proper positioning of the helmet during donning by protecting the aircrewmember's ears. They are available through normal supply channels under P/N 765AS270-101 (size medium), NIIN 01-077-8909 or P/N 765AS271-101 (size large), NIIN 01-077-8910.

3-52. Installation of TPL Assembly. To install the TPL assembly to the helmet assembly, proceed as follows:

Materials Required

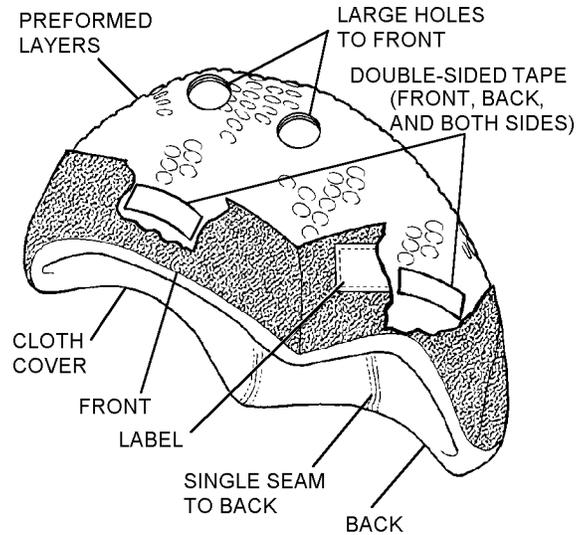
Quantity	Description	Reference Number
As Required	Tape, Pressure Sensitive Adhesive	A-A-1243 NIIN 00-782-6220

1. If four 1-inch x 2-inch pressure-sensitive hook fastener tabs are not present on the inside surface of the energy absorbing liner, installation is required.

a. Install two tabs on the inside front of the energy absorbing liner left and right of center over the eyes, 1/8 inch from front edge of the liner.

b. Install two tabs in the rear approximately 1 1/2 inch left and right of center and 1/2 inch from the bottom edge of the liner.

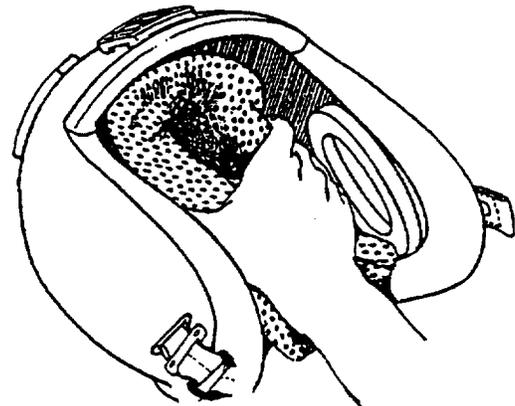
2. To prevent bunching of TPL cover fabric, secure the TPL cover to the preformed layer assembly using four 1-inch x 2-inch pieces of double-sided tape. Position tape strips with the 2-inch length horizontal at the front, rear, and both sides of the preformed layer assembly under the cover fabric overlap. The single seam is positioned to the rear. Press cover into place over the tape strips.



Step 2 - Para 3-52

3p52s2

3. Place the TPL inside the helmet shell by squeezing the TPL sides together to clear the earcups. Ensure that large holes on top of the TPL are facing forward. Release TPL, and attach liner cover to hook fastener tabs.



Step 3 - Para 3-52

3p52s3

4. Ensure that the front edge of the TPL is aligned with the front edge of the energy-absorbing liner inside the helmet and that the TPL is centered in the helmet.

3-53. Helmet Fitting.

1. Have the aircrewmember don the helmet as follows:

CAUTION

Spread helmet only enough to allow ease of donning and doffing. Excessive spreading may damage helmet.

- a. Hook thumbs in earcups and spread helmet slightly.
- b. Place edgeroll on helmet brow against forehead.
- c. Rotate helmet toward the rear and down onto head.



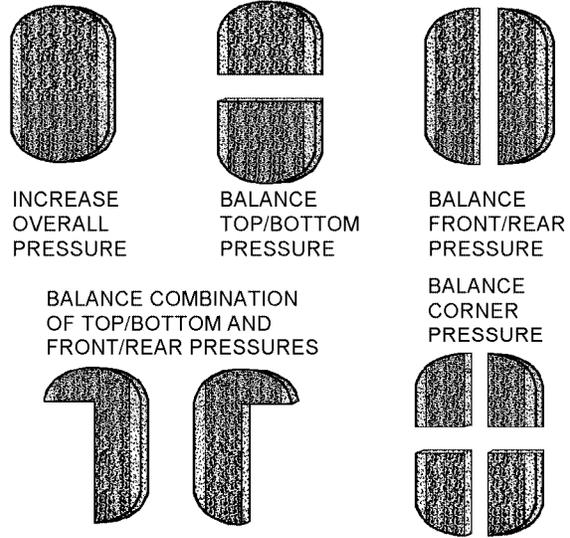
Steps 1a thru 1c - Para 3-53

3p53s1a

NOTE

The edgeroll on the helmet brow should be positioned just out of the aircrewmember's line of sight as the aircrewmember looks upward.

2. Rotate the helmet toward the rear until the edgeroll on the brow is out of the field-of-view.
3. Check earcup position, ensuring that the earseals completely surround the ears.
4. Check earseal compression. If necessary, adjust compression by adding earcup spacer pads.



Step 4 - Para 3-53

3p53s4

NOTE

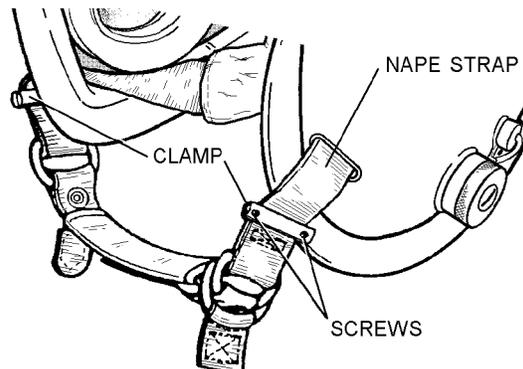
For optimum sound attenuation and comfort, the earseals should be compressed to about half of their original thickness.

Earcup spacer pads can be used whole, cut into quarters, or cut in half lengthwise or crosswise.

Use of clamps is optional.

Due to anatomical variations, e.g.; unusual head breadth, thick/muscular neck, some aircrewmembers will be unable to don the helmet with the barrel clamps installed. In these instances removal of the clamps from the integrated chin/nape strap is authorized.

5. Loosen clamp screws, and slide clamps down as far as possible on the nape strap. Adjust the nape straps for a snug fit. Slide the clamps upward until they contact the shell, and tighten the screws. Clamps will now hold adjusted nape straps in place.



Step 5 - Para 3-53

3p53s5

6. If you cannot achieve a snug fit by adjusting the nape straps, install spacer pads (supplied with the helmet) as needed between the nape pad and the TPL.

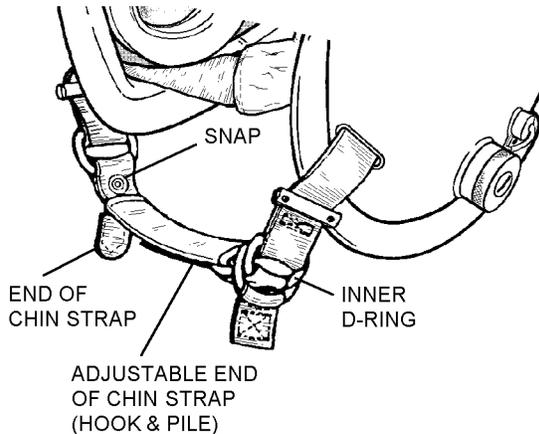
7. If not already done, insert the end of the chin strap through the single D-ring and fasten the strap.

8. Have the aircrewmember fasten the chin strap as follows:

a. Feed the end of the chin strap through the D-rings on the left side of the helmet.

b. Split the D-rings and loop the end of the chin strap through the inner D-ring.

c. Tighten the chin strap to the desired tension. Once the desired tension is attained, the chin strap can be fastened and unfastened via the snap fastener and stud on opposite end of the chin strap.



Steps 8a thru 8c - Para 3-53

NOTE

Ensure that the end of the chin strap is fastened at all times when the helmet is worn.

9. Attach the end of the chin strap to the chin pad by engaging the hook fastener on the chin strap to the pile fastener on the chin pad.

10. Adjust the inner and outer visor straps so that the visors slide easily over the helmet, yet stay in place.

11. Raise and lower the visors to check proper operation. Once adjusted to satisfactory tension, visor straps can be tacked with 2 turns of Size E thread single, to prevent slippage of loosening during use.

12. After a trial wearing period of approximately 30 minutes, have the aircrewmember evaluate the helmet

fit. If the aircrewmember is satisfied with the fit, follow procedures in [paragraph 3-56](#) for NVIS alignment check and [3-57](#) for boresighting the Helmet Sight Assembly (HSA) as necessary. If the helmet does not fit properly, (i.e. pressure points exist, the helmet is too tight or sits high on aircrewmembers head, or aircrewmember complains of hot spots) have aircrewmember describe and point out areas where the problem is located. Take note of the location, size and shape of any exposed skin areas that appear irritated (red coloration or grooves in soft tissue of the scalp). To correct these fit problems, follow [paragraph 3-54](#) procedures for fitting the TPL assembly.

3-54. Fitting the TPL Assembly. To fit the TPL assembly to the aircrewmembers, proceed as follows:

NOTE

Remove layers from the outside of the TPL assembly to lower the helmet onto the aircrewmember's head without changing the fit. Remove layers from the inside of the TPL assembly to relieve pressure and to optimize fit.

TPL layers can be modified, by cutting out areas in the layer/layers over the hot spots or pressure points. No cutting should be done on the layer that comes in contact with the aircrewmember's head (the inside layer). The size and shape of the removed area of TPL should match the shape and size of the irritated area on the aircrewmember's head. Circular shapes, (i.e. penny, nickel, quarter, etc.) work best for correction of hot spots, while half round shapes (i.e. half-moon, quarter-moon and crescent-moon) usually alleviate areas of pressure.

1. After preliminary adjustments to the TPL have been accomplished, have the aircrewmember don the helmet to check fit and comfort. If further adjustment/modification is required follow procedures below.

WARNING

The TPL assembly requires a maximum of five layers and a minimum of two layers to provide proper fit and impact attenuation protection.

2. Remove TPL layers one at a time from the liner. Pressure relief around the ears can be achieved by removing layers from the outside of the liner. Number each layer as it is removed (first layer No. 1, second layer No. 2, etc.) to aid in reassembly, if required. Remove up to, but no more than, three layers from the assembly. Check for proper fit after each layer is removed.

NAVAIR 13-1-6.7-3

3. If a satisfactory fit has been achieved, have the aircrewmember doff the helmet.

4. If after the above steps have been performed, a safe, stable fit cannot be obtained, then the TPL may be heated so that it conforms to the aircrewmember's head shape. Perform custom fitting in accordance with [paragraph 3-55](#).



To prevent heat damage to the TPL plastic layers, do not store the helmet in a closed cockpit or automobile. Temperatures in these closed areas can exceed 200°F (93.3°C) on an 85°F (30°C) day.

3-55. Custom Fitting of TPL Assembly and Installation Instructions for the Oregon Aero Zetaliner. To custom fit the TPL assembly or to install the optional Oregon Aero Zetaliner, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Oregon Aero Zetaliner (Note 1)	95132, 3, 4, 5 (medium); 95142, 3, 4, 5 (large); 95152, 3, 4, 5 (extra large); 95162, 3, 4, 5 (extra large wide) NIINs TBD.

Notes: 1. Oregon Aero Zetaliners are commercially available from Oregon Aero Corporation, Scappoose, OR 97056. Telephone (503) 543-7399.

NOTE

Refer to local Aeromedical Safety Officer (AMSO) for location of nearest suitable oven to conduct the heating and forming of TPL assembly. If unable to achieve a satisfactory fit after heat forming the TPL or using the optional Oregon Aero Zetaliner, contact area FAILSAFE Tiger Team for helmet fitting assistance.

Oregon Aero Zetaliners are optional (commercially available) comfort liners that are approved for use in place of the supplied thermoplastic liner. The liners are provided in 4 sizes, with 4 different foam thicknesses available in each size. The last three digits of the

part number indicate the liner size and thickness, for example in P/N 95162, the digits "16" denote the size extra large wide, the last digit "2" represents a 1/4-inch thick foam layer, the thinnest foam layer provided. Other layers available are "3" (3/8-inch), "4" (1/2-inch), "5" (5/8-inch). When replacing the TPL with the Zetaliner, remove the TPL cover and count the number of plastic layers. Order the Zetaliner corresponding to the correct size for the helmet with the last digit of the part number matching the number of thermoplastic layers being replaced. To replace a 4 layer TPL in a size extra large helmet, order P/N 95154.

1. Reassemble the TPL by replacing the removed layers in the order in which they were removed. After the TPL is assembled, secure the layers by passing a heated soldering pencil through all five layers at the original attachment point.

2. Reinstall the TPL cover on the layers prior to heating.

3. Set the oven rack to the lowest position, and heat the oven to 200° ± 5°F. Place a thermometer on the rack in a position where it may be observed throughout the entire heating process.

4. Thoroughly brief the aircrewmember on the fitting procedures, emphasizing those to be performed by the aircrewmember.



Do not attempt to heat the TPL in a microwave oven (which will not heat the layers) or a toaster oven (which will damage the liner).

Do not remove the cloth cover; the TPL is heated as a unit.

Monitor the oven temperature constantly to avoid overheating. Do not leave the TPL unattended while heating.

5. After 15 minutes, ensure the oven is stabilized at the pre-set temperature, and place the TPL with the fabric side down in the center of the oven rack. Set timer. See [table 3-5](#).

Table 3-5. Maximum Heating Time per Number of Layers

Number of Layers	Time (Minutes)
5	8
4	7
3	6
2	5

NOTE

Heating characteristics of ovens vary. The time stated above is a guideline and may have to be adjusted to suit your oven.

- To allow easy positioning of the heated liner into the helmet, place masking tape over the rear hook fastener tapes on the energy absorbing liner.



The TPL plastic layers will be hot. When removing the TPL from the oven, touch the fabric cover only.

NOTE

The following steps are to be performed by the aircrewmember assisted by the Aircrew Survival Equipmentman (PR), and should be accomplished within 30 seconds of removal of the heated liner from the oven.

- Remove the TPL from the oven, touching only the fabric-covered portion. Squeeze the sides of the TPL to clear the earcups, and insert the heated TPL into the helmet with the wide end toward the front. The Aircrew Survival Equipmentman should hold the rear portion of the TPL tightly against the energy-absorbing liner during donning to ensure the TPL does not bunch up in the rear.

- With the TPL symmetrically aligned in the helmet, have the aircrewmember hook thumbs over the edgeroll, spread the helmet slightly, place the brow of the helmet against the forehead, and rotate the helmet rearward and downward to don. Ensure that the edgeroll on the helmet brow is positioned just out of the line of sight as the aircrewmember looks upward.

- Have the aircrewmember apply downward pressure on helmet with palms of hands until the ears are centered in the earcups. Maintain this pressure for five minutes.

- Have the aircrewmember release downward pressure at the end of five minutes. Check helmet fit. If necessary, remove one layer from the inside of the TPL and repeat [steps 2 through 8](#) until the fit is satisfactory.

- Once a satisfactory fit is achieved, have the aircrewmember doff the helmet. Lift the rear portion of the TPL away from the energy-absorbing liner and remove masking tape from the hook fastener tapes. Secure TPL to the hook fastener tapes.

- If unable to achieve a satisfactory fit with the TPL following procedures outlined in [steps 4 through 10](#) above, order the appropriate size and thickness Oregon Aero Zetaliner.

- Place the Zetaliner inside the helmet by centering the folded liner onto the energy absorbing liner, spread sides outward to mate with the installed hook fastener tabs. Ensure the widest end (with three sewn segments) is facing the front of the helmet.

3-56. NVIIS ALIGNMENT CHECK. To check for proper assembly of helmet, perform the NVIIS alignment check as follows:

NOTE

Improper installation of the energy-absorbing liner may result in shifting of the helmet on the head, causing misalignment of the goggles in front of the eyes.

- Have the aircrewmember install the NVIIS battery pack on the helmet and connect the electrical lead.

- Have the aircrewmember don the helmet by placing the edgeroll on the helmet brow against the forehead and rotating the helmet rearward down onto the head.

- For proper eye offset, ensure that the edgeroll on the helmet brow is positioned just out of the aircrewmember's line of sight as the aircrewmember looks upward.

- Have the aircrewmember install the goggles onto the quick don mount.

- Have the aircrewmember enter a darkened room and turn battery pack ON.

- Have the aircrewmember adjust the goggles for proper viewing. The goggles should not block or limit the aircrewmember's normal range of vision in any way.

- If the view is affected, make notes of the affected area of vision as described by the aircrewmember.

- If the goggles cannot be adjusted to prevent obstruction to vision, remove and re-install the energy-absorbing liner in accordance with replacement procedures in [paragraph 3-94](#).

- Once the goggles can be adjusted to prevent view obstruction, have the aircrewmember remove them and the battery pack. They must be stored in the NVIIS carry-case when not in use.

3-57. BORESIGHTING OF HELMET SIGHT ASSEMBLY (HGU-67/P). To align the helmet assembly and helmet sight assembly to the individual aircrewmember, perform the boresight check as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Helmet Sight Alignment Set	2278335-02

1. Have the aircrewmember don the helmet by placing the edgeroll on the helmet brow against the forehead and rotating the helmet rearward down onto the head.

2. For proper eye offset, ensure that the edgeroll on the helmet brow is positioned just out of the crewmember's line of sight as the aircrewmember looks upward.

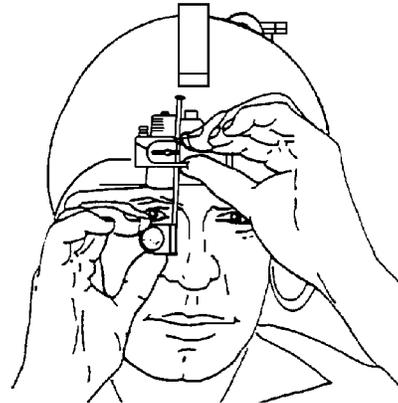
3. Have the aircrewmember attach helmet sight assembly to helmet block assembly.

4. Have the aircrewmember manually position the eyepiece to the LOCKED DOWN position.

5. To align the reticle to the aircrewmember's eye, proceed as follows:

a. Adjust the eyepiece vertically by squeezing the flat spring and sliding the shaft up and down.

b. Adjust the eyepiece laterally by loosening the center screw located on the backside of the HSA mount, rotating the eyepiece, and tightening the screw.



VERTICAL ADJUSTMENT

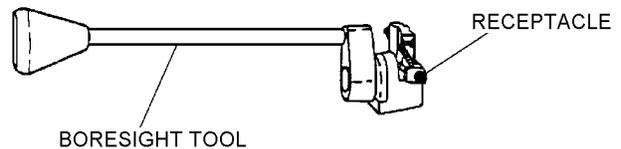
Step 5a - Para 3-57

3p57s5a



Sudden movement of helmet and boresight tool (figure 3-11) can cause eye injury to person viewing through boresight tool.

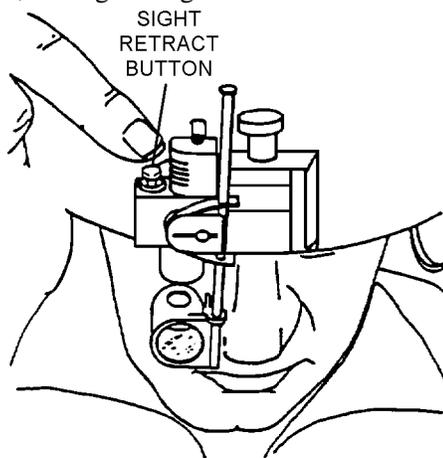
6. Perform helmet sight assembly test and boresight adjustment in accordance with table 3-6 and figure 3-12.



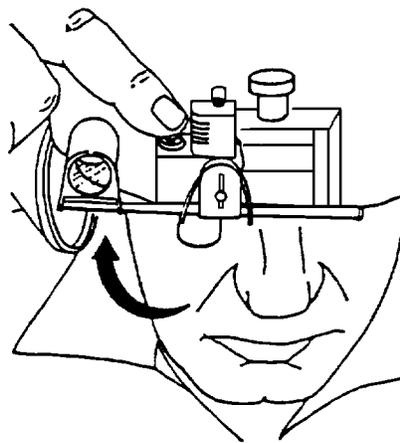
BORESIGHT TOOL

Figure 3-11. Boresight Tool

3-11



DOWN POSITION



RETRACTED POSITION

Figure 3-12. Helmet Sight Assembly (HSA) Retract Button

3-12

Table 3-6. Helmet Sight Assembly Test and Boresight Adjustment

Test Sequence	Test and/or Check	Result and Remedy		
1	Connect helmet A1P1 plug to test set lead.			
2	Attach boresight tool (figure 3-11) to receptacle assembly on helmet assembly.	<div style="border: 2px solid black; padding: 5px; display: inline-block;">WARNING</div> <p>Sudden movement of helmet and boresight tool can cause injury to person viewing through boresight tool.</p>		
3	Turn test set HELMET CURRENT switch ON.			
4	Adjust DIM-BRIGHT knob to desirable reticle intensity.			
5	Aircrewmember sights through eyepiece on a distant target (1000 meters or more). Technician sights through boresight tool at same target.	Boresight should view exactly as eyepiece. If boresight tool views above, below, left, or right of target, adjust screws on receptacle as specified below.		
		Position of view through boresight tool relative to target	Loosen	Tighten
		Above	Top, Left, and Right	Top
		Below	Top	Left and Right
		Left	Right	Left
Right	Left	Right		
			If adjustment cannot be made, check alignment of helmet boresight tool; then check position of receptacle assembly.	
6	Turn test set HELMET CURRENT switch OFF.			
7	Disconnect boresight tool from helmet.			
8	Disconnect A1P1 plug from test set lead.			
9	Press SIGHT RETRACT button on helmet sight assembly (figure 3-12).	Eyepiece retracts (rotates upward).		

3-58. INSTALLATION AND PRELIMINARY FITTING OF CBR ADAPTER STRAP ASSEMBLIES.

NOTE

Materials Required

Quantity	Description	Reference Number
1	Helmet Modification Kit	91B8215 (Not E1)
1	Helmet Attachment Kit	CL6616 NIIN 99-141-2092 (Not E2)
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

- Notes: 1. The Helmet Modification Kit is used for the A/P23P-14A(V) Respirator Assembly.
 2. The Helmet Attachment Kit is used for the A/P22P-14(V) Series Respirator Assemblies.

NOTE

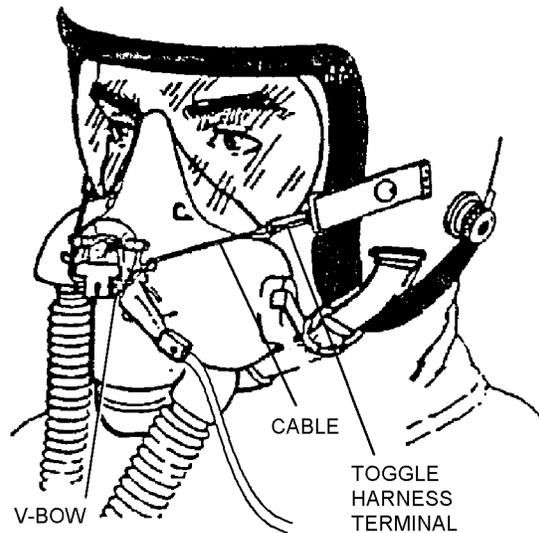
Before beginning this procedure, ensure that the helmet and CBR mask have been properly sized and fitted. Refer to NAVAIR 13-1-6.10 for mask sizing and fitting instructions.

During installation of socket, orient the pull-the-dot socket so the strap can be pulled directly forward to release the adapter strap socket from the snap that will be mounted on the helmet.

- (For A/P23P-14A(V)) Install the socket in the center of the adapter strap ensuring that the orientation of the pull-the-dot socket allows the strap to be pulled directly forward to release the adapter strap socket from the snap mounted on the helmet.
- (For A/P22P-14(V)1 only) The respirator assembly comes with the adapter strap attached to the toggle harness and the socket installed on the adapter strap.
- Remove visor assemblies from helmet to prevent damage to lenses.
- Locate the position of the snap fastener stud as follows:
 - Have the aircrewmember don the respirator assembly and helmet and fasten chinstrap.
 - Adjust the toggle harness terminal to the mid-point range (to allow for further adjustment later).
 - Hold the mask in the proper position on the aircrewmember's face.

The toggle harness cables should lie over the hooks on the facepiece front, when the V-bow is down.

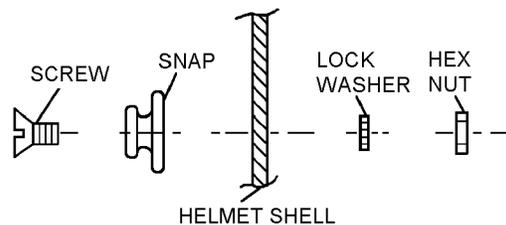
- Flip the V-bow down into the flight position as shown. Using the center of the socket on the adapter strap as a guide, place the socket against the helmet and mark the location for drilling. Repeat for the opposite side. Remove the helmet and mask.



3p58s4a

Steps 4a thru 4d - Para 3-58

- Ensure that all internal and external helmet components have been cleared away from the points to be drilled. Drill the marked positions using a #25 or #26 drill bit.
- Deburr edges of hole. Remove all drilling debris from inside helmet.
- Apply RTV sealing compound to the first two threads of the screw. Assemble the snap fastener studs as shown below. Tighten the hex nuts.



3p58s7

Step 7 - Para 3-58

8. Reassemble external and internal components.

nal as necessary and evaluate fit. Ensure that mask position and tension are in accordance with NAVAIR 13-1-6.10.

9. Install visor assemblies onto helmet.

10. Have aircrewmember don mask and helmet. Snap straps to helmet. Adjust toggle harness cable and termi-

11. Document maintenance actions in accordance with OPNAVINST 4790.2 Series.

Section 3-4. Modifications

3-59. GENERAL.

3-60. There are no approved modifications to either the HGU-67/P or HGU-84/P helmet assemblies.

Section 3-5. Maintenance

3-61. GENERAL.

3-62. Proper maintenance of helmet assemblies is essential for optimum helmet performance. The aircrewmember's responsibility for maintenance is limited to preflight/postflight inspections and cleaning. Replacement of components and repair of the helmet assembly will be performed at the organizational level. All inspections and maintenance actions shall be documented in accordance with OPNAVINST 4790.2 Series. Repair and replacement instructions for maintaining serviceability are listed in [Tables 3-7 and 3-8](#).

NOTE

The inspection interval for helicopter helmet assemblies assigned selected air reserve aircrewmembers has been extended to 180 days vice 90 days, provided helmets are stowed under controlled conditions.

3-63. INSPECTION

3-64. PREFLIGHT/POSTFLIGHT INSPECTIONS.

The preflight/postflight inspection is a visual helmet inspection performed before/after each flight by the aircrewmember to whom the helmet assembly is issued. To perform the helmet assembly inspection, visually inspect for the general overall condition of the helmet assembly. Refer to [paragraph 3-66](#), Visual Inspection.

NOTE

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

3-65. SPECIAL INSPECTION. The special inspection shall be performed every 90 days at the organizational level. The inspection shall consist of a visual inspection ([paragraph 3-66](#)), a functional check ([paragraph 3-67](#)), and cleaning in accordance with [paragraph 3-73](#).

3-66. VISUAL INSPECTION. Perform the visual inspection as follows:

1. Inspect chin/nape assembly for loose or broken stitching, snap fastener retention, and fraying. Repair broken stitching, reset loose snap fasteners or replace chin/nape assembly.

2. Visually inspect all snap fasteners for proper clinching of the fastener components. The rolled barrels in each

socket must be rolled over all around. They should have a symmetrical, doughnut-shaped appearance. Any fastener on which the barrel material is not completely rolled over the edge of the stud or socket must be discarded.

3. Inspect helmet shell assembly for splits, cracks, chips, and delaminations. Replace helmet shell assembly if damage is deemed extensive.

4. Inspect MK-634/AIC cable clip (if installed) for security of attachment to communications cable grommet.

CAUTION

A laser visor is considered damaged and shall not be used if a scratch is detected that exceeds one third of the thickness of the lens. A lens can continue to be used if a scratch of lesser depth is detected and is not in the critical visor areas or reported as bothersome by the aircrewmember.

NOTE

Refer to [paragraph 3-66A](#) for instructions for disposal of laser visor.

5. Inspect visor assemblies for cracks, splits, chips, and delaminations; and inspect lenses for scratches and cracks. Replace visors deemed to have extensive damage.

6. Inspect edgeroll and visor pad for rips, tears, splits, or loosening from helmet shell assembly. Small (under 2-inch total length) tears, rips, or splits may be repaired in accordance with [paragraph 3-103A](#).

7. Inspect NVIIS wiring harness cable, HSA wiring harness cable, communication cable and cordsets for cut, split, or abraded insulation. Small areas of abrasion may be covered with suitable electrical tape, cut or split insulation may require cable replacement.

8. Inspect boom microphone assembly and swivel assembly for security and adjustability.

9. Inspect earcup assemblies for proper retention to pile fastener inside helmet assembly.

10. Inspect earseals for sound attenuation, cuts, splits, and pliability. Replace earseal if required.

11. Inspect all hardware for damage, corrosion, and security of attachment. Treat corrosion in accordance with NAVAIR 01-1A-509, replace damaged hardware, and tighten any loose hardware.

Table 3-7. Repairs/Fabrications/Replacements

Description of Repair/Fabrication/Replacement	Paragraph
Replacement of Visor Assemblies	3-76
Replacement of Thermoplastic Liner (TPL) Assembly or Oregon Aero Zetaliner	3-77
Replacement of Earcup Assembly Components	3-79
Replacement of Communications Cable Assembly (Radio Frequency to Aircraft Audio)	3-80
Replacement of Boom Microphone Assembly	3-84
Replacement of Boom Swivel Assembly	3-85
Replacement of Amp Mounting Bracket	3-86
Replacement of M23595/1-2 (AM-3597C/A) Amplifier	3-87
Repair of Integrated Chin/Nape Assembly: Nape Pad, Chin Strap, Chin Pad, and Clamp	3-88
Replacement of Integrated Chin/Nape Assembly	3-93
Replacement of Energy-Absorbing Liner	3-94
Replacement of CBR Snap Fastener Stud	3-96
Replacement of Visor Snap Fastener Stud	3-97
Replacement of Helmet Block Assembly	3-98
Replacement of NVIIS Wiring Harness Assembly	3-99
Replacement of Gunsight Wiring Harness Assembly	3-100
Replacement of Receptacle Bracket Assembly	3-101
Replacement of Helmet Shell Assembly	3-102
Repair of Helmet Shell Assembly	3-103
Repair of Edgeroll	3-103A
Replacement of Strobe Light Securing Patch	3-104
Replacement of Battery Securing Patch	3-105
Fabrication of Medium/Large Battery Securing Patch	3-107
Fabrication of Extra-Large and Extra-Large Wide Battery Securing Patch	3-108
Replacement of Reflective Tape	3-109
Fabrication of Removable Camouflage Cover	3-110

Table 3-8. Repairs/Fabrications/Replacements (HGU-84/P Only)

Description of Repair/Fabrication/Replacement	Paragraph
Replacement of M22442/37-4708 (CX-4708A/AIC) Cable Assembly, MK-634/AIC Cable Clip, and MIL-C-22442/30-1 (CX-13155/A) or M22442/30-2 (CX-13164/A) Cordsets	3-81
Replacement of M22442/15-1 (CX-4832A/AR) Cable Assembly or M22442/19-1 (CX-12972/AR) Cable Assembly	3-83
Replacement of Bayonet Receivers	3-95

12. Inspect CBR adapter strap assemblies for proper function and retention to helmet assembly.

13. Inspect installed TPL or Zetaliner cover fabric for tears, cuts, broken or skipped stitches. Repair/replace as required.

NOTE

Defects determined from this inspection shall be referred to the proper maintenance activity for required corrective action.

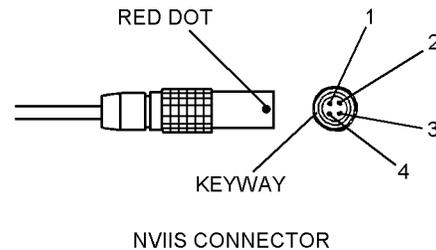
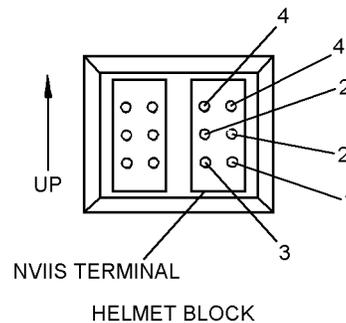
3-66A. DISPOSAL OF LASER VISOR. The Laser Eye Protective Visor is a controlled item and shall be destroyed at the organizational maintenance level by any means available (incinerated, crushed, shattered) prior to final disposal.

3-67. FUNCTIONAL CHECK. To check the function of various parts of the HGU-67/P and HGU-84/P helmet assemblies, proceed as follows:

3-68. Communications System. Functionally check the helmet assembly communications in accordance with the procedures in NAVAIR 17-15BC-22, using TTU-489/E Oxygen Tester (P/N 1827AS100-1/NIIN-01-317-7799.)

3-69. NVIIS Wiring Harness Assembly. Perform continuity check on the NVIIS wiring harness assembly as follows:

1. Locate four electrical pins in end of NVIIS connector on back of helmet. Note red dot and keyway.
2. Locate six pins of NVIIS terminal block in helmet block assembly on brow of helmet.
3. Check for continuity between matching numbered circuits. Note that circuits 2 and 4 have two pins on the helmet block.



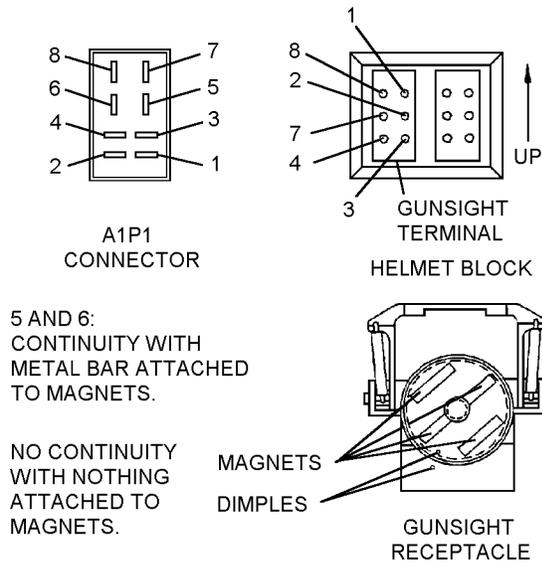
Steps 1 thru 3 - Para 3-69

3p69s1

3-70. Gunsight Wiring Harness Assembly. Perform continuity check on the gunsight wiring harness assembly as follows:

1. Align two white dimples on magnet of receptacle assembly.
2. Locate eight electrical pins in end of A1P1 connector on back of helmet. Note orientation of connector.
3. Locate six pins of gunsight terminal block in helmet block assembly on brow of helmet.
4. Check for continuity between matching numbered circuits 1, 2, 3, 4, 7, and 8 which connect to the helmet block pins.

5. Check for continuity between pins 5 and 6 which connect to a reed switch in the gunsight receptacle assembly. There should be continuity with a metal bar attached to the magnet. There should be no continuity when nothing is attached.



3p70s1

Steps 1 thru 5 - Para 3-70

3-71. Boresighting. Perform boresighting of the helmet sight assembly in accordance with paragraph 3-57.

3-72. Quick Don Mount Assembly. Turn the adjustment knob to check for smooth vertical movement of the goggles attachment bracket.

3-73. CLEANING.

3-74. To clean the various parts of the helmet, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Detergent, Mild Liquid	Commercial
As Required	Saddle Soap, or Equivalent	—
As Required	Cloth, Lint-Free	MIL-C-85043 NIIN 00-165-7195
As Required	Sponge	—

Materials Required (Cont)

Quantity	Description	Reference Number
As Required	Alcohol, Isopropyl	TT-I-735
As Required	Tape, Pressure Sensitive Adhesive	A-A-1243 NIIN 00-782-6220

1. Clean the helmet shell as follows:
 - a. Wipe the shell with a cloth dampened with a mild detergent.
 - b. Wipe the shell with a cloth dampened with water, then allow to air dry.
2. Clean the leather edgeroll and chin/nape assembly as follows:
 - a. Apply a small amount of saddle soap or equivalent with a damp sponge, to leather surfaces and a mild solution of detergent and water to synthetic surfaces.
 - b. Rub vigorously to create a thin soap film.
 - c. Wipe with a damp cloth, and let dry overnight.
3. Clean the thermoplastic liner cover assembly as follows:
 - a. Remove the cover from the layer assembly. Remove the double-sided tape.
 - b. Hand-wash the cover with mild detergent and water.
 - c. Rinse the cover in clear water, and allow to air dry.
 - d. Install new double-sided tape.
 - e. Reinstall the cover.



Handle visors by edges only.

Avoid scratching of visors by rings, watches, buckles, and other metal or glass objects.

Do not spray or splash cleaner directly onto visor or submerge visor in any liquid.

4. Clean visor lenses with a soft, lint-free cloth dampened with isopropyl alcohol.



Do not use any liquids to clean the helmet block assembly and the electrical contacts.

5. Clean helmet block assembly and gold-plated electrical contacts with a dry, soft, lint-free cloth.



Do not use any liquids to clean the helmet sight assembly, eyepiece, and electrical contacts.

6. Clean helmet sight assembly, the eyepiece, and the gold plated electrical contacts with a dry, soft, lint-free cloth.



Do not use any liquids to clean the quick don mount and the electrical contacts.

7. Clean quick don mount and gold-plated electrical contacts with a dry, soft, lint-free cloth.



Do not use any liquids to clean the receptacle assembly or the magnetic contact.

8. Clean receptacle assembly and magnetic contact with a dry, soft, lint-free cloth.



Do not use any liquids to clean the boom microphone assembly.

9. Clean boom microphone assembly with a dry, soft, lint-free cloth.

10. Document in accordance with OPNAVINST 4790.2 Series.

3-75. REPLACEMENT/REPAIR OF HELMET COMPONENTS.

3-76. REPLACEMENT OF VISOR ASSEMBLIES. Removal and re-installation procedures necessary

to replace the clear inner visor and any one of the four outer visor assemblies are as follows:

Materials Required

Quantity	Description	Reference Number
1	Visor Assemblies (Note)	

Notes: Table 3-1A lists all visors available for the HGU-84/P series helmets.



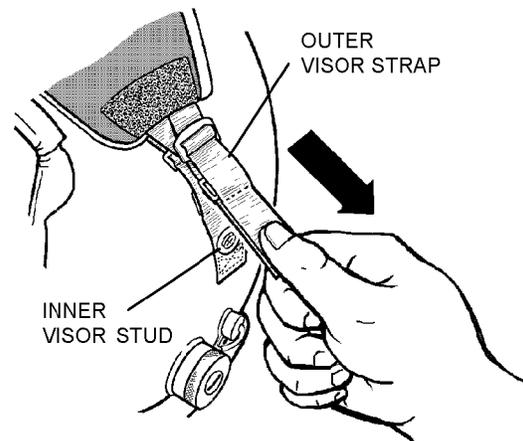
Avoid scratching the visor with objects such as rings, watches, buckles, tools, or bench surfaces.

Do not damage the visor by bending or flexing it.

NOTE

The neutral, neodymium, amber, gradient and reduced profile safety visor assemblies feature pull-the-dot fasteners which have been installed to un-snap in a direction opposite that of the inner visor assembly. This is done to prevent inadvertent release of both visors during operation and to facilitate rapid doffing in an emergency situation.

1. Remove the outer visor by grasping the strap tabs and pulling the straps away from the helmet.



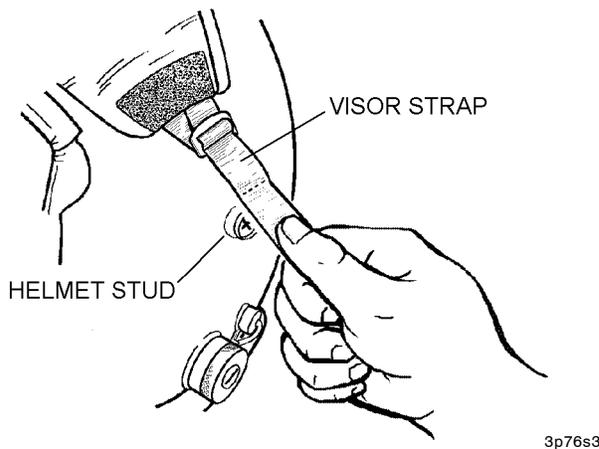
Step 1 - Para 3-76

NOTE

If not replacing the inner visor, obtain new outer visor and go to [step 5](#).

2. Remove the inner visor by placing a hand beneath the straps and pushing the straps away from the helmet. Both inner and outer visors may be removed as a unit in this manner.

3. Position the replacement inner visor assembly on the helmet over the visor pad. Stretch the end of the visor strap slightly past the helmet snap fastener stud, and fasten visor snap to helmet stud from bottom to top. Repeat for the opposite strap.



Step 3 - Para 3-76

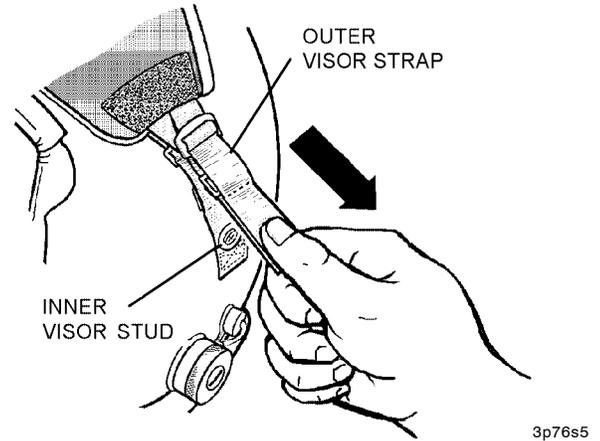
3p76s3

NOTE

If desired by aircrewmember, after proper tension is achieved, adjustment strap friction adapters may be tacked using Size E nylon thread, single, two turns tied off with a surgeon's knot followed by a square knot.

4. Adjust the inner visor strap tension as desired. Tack visor strap friction adapters to prevent slippage or loosening of the visor assembly during operations.

5. Lower inner visor to the in-use position and place replacement outer visor onto helmet lens pad. Fasten the outer visor snap fastener socket to the inner visor snap fastener stud from top to bottom. Repeat for the opposite side.

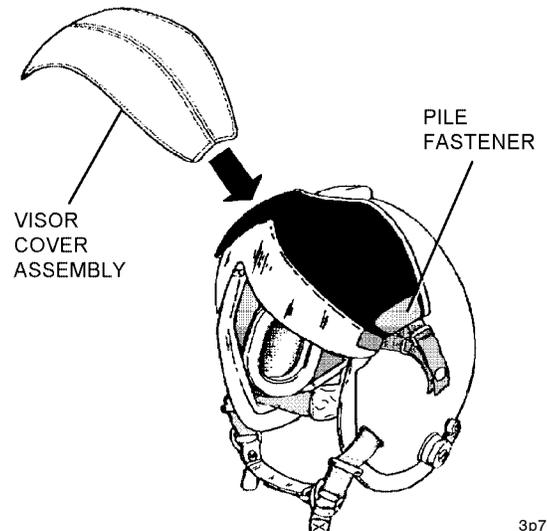


Step 5 - Para 3-76

3p76s5

6. Adjust the outer visor strap tension as desired. Tack visor strap friction adapters to prevent slippage or loosening of the visor assembly during operations.

7. Install the black leather lens cover by attaching hook fastener strips on the inside of the cover to the pile fastener strips on the outer visor.



Step 7 - Para 3-76

3p76s7

8. Place unused visor in visor bag and stow in helmet bag, if desired.

9. Document in accordance with OPNAVINST 4790.2 Series.

3-77. REPLACEMENT OF THERMOPLASTIC LINER (TPL) ASSEMBLY OR OREGON AERO ZETALINER.

To replace the TPL or Zetaliner, proceed as follows:

NOTE

Oregon Aero Zetaliners are optional (commercially available) comfort liners that are approved for use in place of the supplied thermoplastic liner. The liners are provided in 4 sizes, with 4 different foam thicknesses available in each size. The last three digits of the part number indicate the liner size and thickness. For example in P/N 95162, the digits "16" denote the size extra large wide, the last digit "2" represents a 1/4-inch thick foam layer, the thinnest foam layer provided. Other layers available are "3" (3/8-inch), "4" (1/2-inch), and "5" (5/8-inch). When replacing a properly fitted TPL with the Zetaliner, remove the TPL cover and count the number of plastic layers. Order the Zetaliner corresponding to the correct size for the helmet with the last digit of the part number matching the number of thermoplastic layers being replaced. To replace a 4 layer TPL in a size extra large helmet, order P/N 95154.

Materials Required

Quantity	Description	Reference Number
1	TPL Assembly, Medium	85D7087-1
1	TPL Assembly, Large	85D7087-2
1	TPL Assembly, Extra-Large	85D7087-3
1	TPL Assembly, Extra-Large Wide	85D7087-30P
1	TPL Cover Assembly, Medium	85D7088-1
1	TPL Cover Assembly, Large	85D7088-2
1	TPL Cover Assembly, Extra-Large	85D7088-3
1	Oregon Aero Zetaliner ^[Note 1]	95132, 3, 4, 5 (medium); 95142, 3, 4, 5 (large); 95152, 3, 4, 5 (extra large); 95162, 3, 4, 5 (extra large wide) NIINs TBD
1	Scissors	COML
As Required	Tape, Pressure Sensitive Adhesive	A-A-1243 NIIN 00-782-6220

Notes: 1. Oregon Aero Zetaliners are commercially available from Oregon Aero Corporation, Scappoose, OR 97056. Telephone (503) 543-7399.

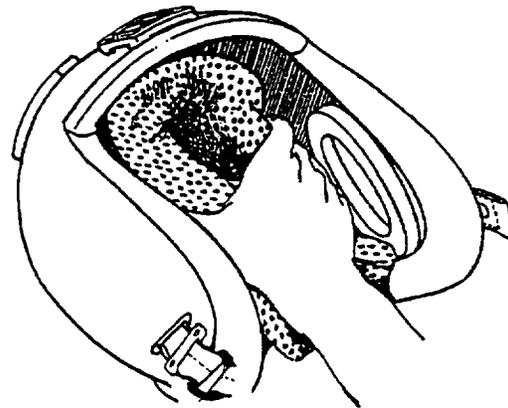


Avoid scratching the visor with objects such as rings, watches, buckles, tools, or bench surfaces.

Do not damage the visor by bending or flexing it during TPL removal and installation.

1. To remove the TPL assembly or the Zetaliner, proceed as follows:

a. Squeeze the sides of the TPL assembly or the Zetaliner together to clear the earcups and remove by detaching from the hook fastener tabs on the underlying energy absorbing liner.



Step 1a - Para 3-77

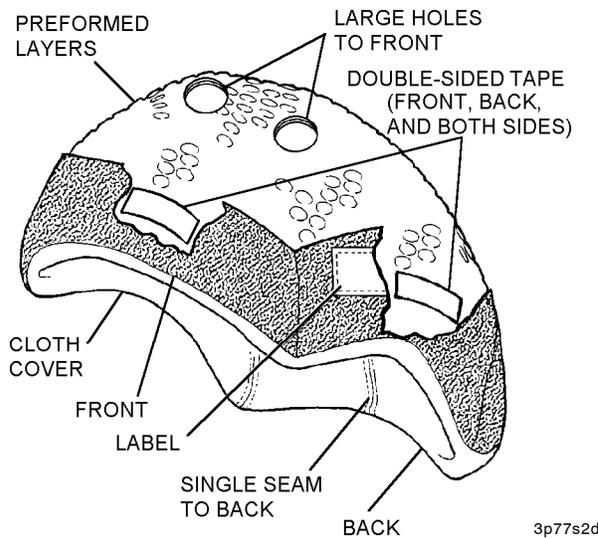
3p77s1a

b. If replacing entire TPL assembly or Zetaliner, proceed to [step 3](#).

2. If replacing TPL cover assembly or removing it for cleaning, proceed as follows:

a. Fold the sides of the TPL cover down, and remove the cover from the layer assembly.

- b. Remove and discard the double-sided tape attached to the layer assembly or cover.
- c. Cut four pieces of double-sided tape approximately 1 inch x 2 inches.
- d. Attach the new pieces of double-sided tape to the layer assembly or cover where the old tape was removed.



3p77s2d

Step 2d - Para 3-77

NOTE

The front panel of the TPL cover is longer than the rear edge. Large holes in the top of the layer assembly face the front. The single seam on the cover is positioned toward the rear.

- e. Locate the front of the TPL cover and layer assembly. Turn the TPL cover inside out.
- f. Align the front edge of the TPL cover with the front edge of the layer assembly.
- g. Fold the front of the TPL cover over the front of the layer assembly, ensuring that the corners of the layer assembly are pushed completely into the corners of the cover.
- h. Align the rear edge of the TPL cover with the rear of the layer assembly.
- i. Fold the rear of the TPL cover over the layer assembly, ensuring that the corners of the layer assembly are pushed completely into the corners of the cover.

j. Fold the sides of the TPL cover over the sides of the TPL layer assembly and attach them to the double-sided tape, following the contour of the layers.

k. Push the TPL cover up inside the layer assembly, ensuring that cover lies smoothly.

3. To install the TPL assembly or Zetaliner, proceed as follows:

a. Squeeze inward on the sides of the TPL or Zetaliner to clear the earcups. Align the front edge of the liner with the brow edge of the energy absorbing liner. Relax inward pressure and attach liner to the hook fastener tabs on the front of the energy absorbing liner.

b. Attach the rear of the TPL or Zetaliner to the hook fastener tabs on the rear portion of the energy absorbing liner. Ensure the TPL or Zetaliner are positioned against the energy absorbing liner at the front, rear and crown areas.

4. Check the helmet fit in accordance with [paragraph 3-53](#).

5. Document in accordance with [OPNAVINST 4790.2 Series](#).

3-78. REPLACEMENT OF COMMUNICATIONS COMPONENTS. The following procedures list the steps necessary to repair or replace individual components of the helmet assemblies. Disassembly should be conducted only as far as required to repair/replace the specific item(s) involved.

3-79. Replacement of Earcup Assembly Components. Repair of either the RH or LH earcup assembly is limited to replacement of the earseal, earphone holder, right earcup, or left earcup. To replace the entire earcup assembly, it must be completely disassembled to remove the earphone element located inside. These same procedures are also used to replace the earphone element.

NOTE

Select only the necessary repair parts from the materials required list.

Materials Required		
Quantity	Description	Reference Number
1	Earcup Assembly	90C7885
1	Earcup, Left Hand	90C7886-1
1	Earcup, Right Hand	90C7886-2

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Materials Required (Cont)

Quantity	Description	Reference Number
1	Earphone Holder	765AS233-1
1	Earseal	88C7589
1	Oregon Aero Softseal Earseal, 3/4-inch (Note 1)	20050
1	Oregon Aero Softseal Earseal, 1 1/8-inch (Note 1)	20025
1	Earphone Element	H-87B/U

Notes: 1. Oregon Aero Softseal ear cushions are authorized optional replacements for P/N 88C7589 earseals and if desired must be commercially procured from Oregon Aero Corporation, Scappoose, OR 97056. Telephone (503) 543-7399.



Due to inadequate lateral impact protection afforded by this configuration, Oregon Aero Hush Kit combo part number 28034 and part number 28118 are not authorized for use in the HGU-84/P Series or the HGU-67/P Protective Helmets.

NOTE

This procedure is written for complete disassembly and reassembly of the earcup assembly. Always begin with [step 1](#), and do not skip steps unless directed by the text.

1. Disassembly of Earcup Assembly.

a. Remove the outer and inner visors in accordance with [paragraph 3-76](#), to prevent damage during maintenance.

b. Invert the helmet assembly on a padded surface to prevent damage to the receptacle assembly.

c. Remove earseal as follows:

(1) Pull the earcup assembly away from the pile fastener inside helmet assembly.

(2) Remove the earseal by carefully stretching it away from the lip of the earcup shell.

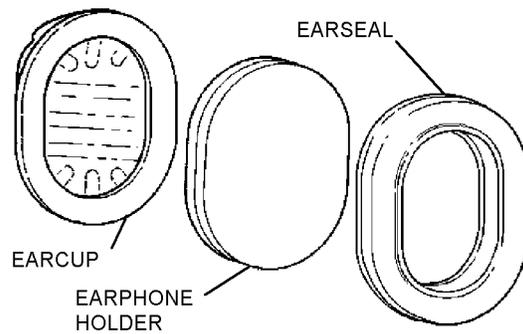
(3) If replacing only the earseal, obtain new earseal and go to [Step 2e](#).

d. Remove earphone holder as follows:

(1) Remove the earphone holder with earphone from the earcup shell.

(2) Remove the earphone holder from the earphone.

(3) If replacing only the earphone holder, obtain new holder and go to [Step 2c](#).



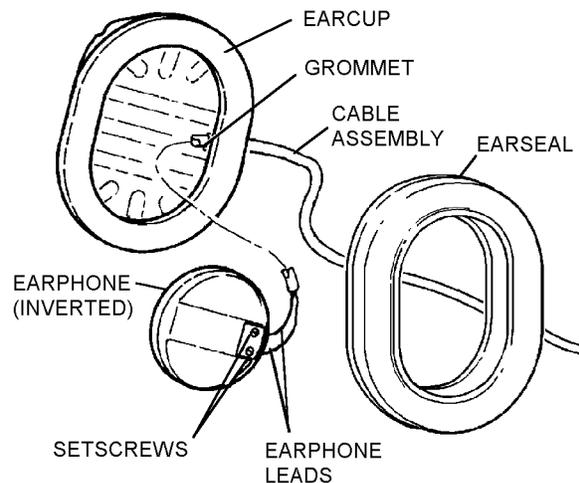
Steps 1c and 1d - Para 3-79

3p79s1c

e. Remove earphone as follows:

(1) Loosen two setscrews attaching the earphone leads to the earphone and remove leads.

(2) If replacing only the earphone, obtain new earphone and go to [Step 2b](#).



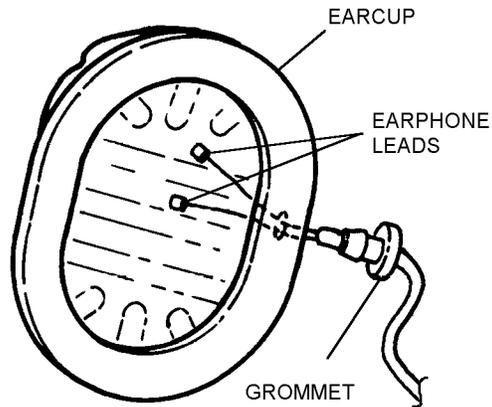
Step 1e - Para 3-79

3p79s1e

f. Remove earcup as follows:

(1) Remove the earphone leads and grommet from the earcup, being careful not to damage the grommet.

(2) If replacing the earcup, obtain new earcup and continue with [Step 2a](#).



3p79s1f

Step 1f - Para 3-79

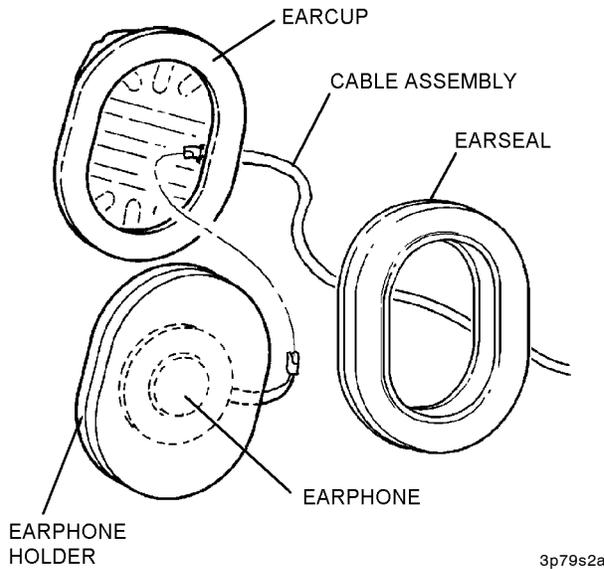
2. Assembly of Earcup Assembly.

a. Insert earphone leads through grommet into hole of earcup. Secure grommet.

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b. Insert earphone leads into earphone and tighten setscrews.

c. Insert the earphone into the earphone holder.

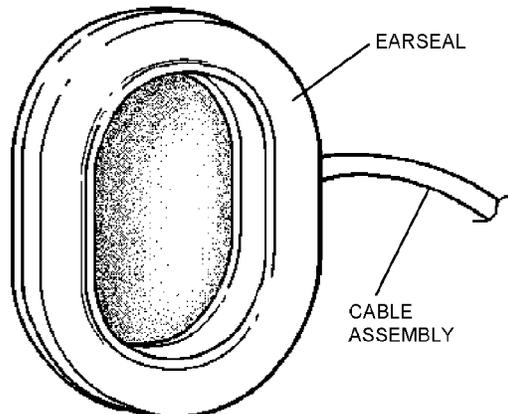


Steps 2a thru 2c - Para 3-79

3p79s2a

d. With the slot positioned toward the grommet, insert the earphone holder into the earcup. Smooth earphone holder inside earcup to eliminate bunching.

e. Install the earseal by hooking it over one end of the earcup and carefully stretching it over the lip of the earcup shell.



Step 2e - Para 3-79

3p79s2e

f. Install the earcup onto pile section of helmet assembly.

g. Check the helmet fit in accordance with [paragraph 3-53](#).

h. Install the outer and inner visors in accordance with [paragraph 3-76](#).

i. Document in accordance with [OPNAVINST 4790.2 Series](#).

3-80. Replacement of Communications Cable Assembly (Radio Frequency Cable to Aircraft Audio). Replace the radio frequency cable (communications cable) assembly as follows:

Materials Required

Quantity	Description	Reference Number
1	Cable Assembly, Radio Frequency	M22442/57-1 NIIN 01-297-6818
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#), to prevent damage during maintenance.

2. Place helmet on RH side on padded work surface.

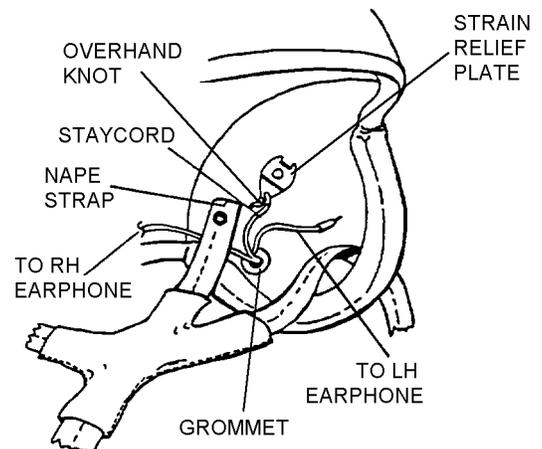
3. Disconnect boom microphone cable from cable connector.

4. Disassemble LH and RH earcup assemblies in accordance with [paragraph 3-79, step 1](#).

5. Remove nape strap screw and washer from LH side of helmet. Remove lockwasher and end of nape strap from T-nut. Remove strain relief plate from T-nut.

6. Untie staycord from strain relief plate.

7. Dislodge grommet from LH side of helmet and remove communications cable assembly from helmet.



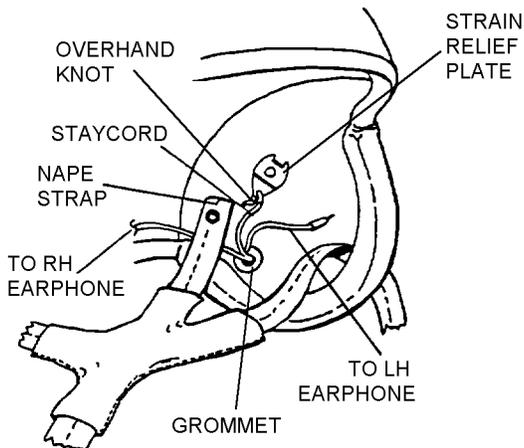
Steps 5 thru 7 - Para 3-80

3p80s5

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8. Pass earphone leads and staycord of replacement communications cable through hole in LH side of helmet.

9. Press grommet on cable into hole and secure.



Steps 8 and 9 - Para 3-80

3p80s8

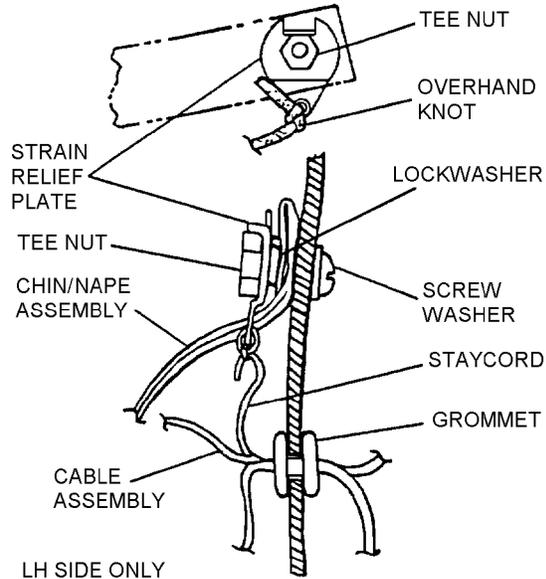
10. Pull excess communications cable through grommet into the helmet.

11. Tie staycord to strain relief plate using an overhand knot.

NOTE

The strain relief plate has a bent tab which fits around one side of the T-nut and prevents the strain relief plate from rotating.

12. Apply RTV adhesive to nape strap screw. Place communications cable strain relief plate under T-nut, then install lockwasher and nape strap. Reattach to helmet shell with washer and screw.



Steps 11 and 12 - Para 3-80

3p80s11

13. Assemble LH and RH earcup assemblies in accordance with [paragraph 3-79, step 2](#).

14. Functionally check the helmet assembly communications in accordance with the procedures in NAVAIR 17-15BC-22, using TTU-489 Oxygen Tester (P/N 1827AS100-1/NIIN 01-317-7799.)

15. Check the helmet fit in accordance with [paragraph 3-53](#).

16. Install the outer and inner visors in accordance with [paragraph 3-76](#).

17. Document in accordance with OPNAVINST 4790.2 Series.

3-81. Replacement of the M22442/37-4708 (CX-4708A/AIC) Cable Assembly, MK-634/AIC Cable Clip, and MIL-C-22442/30-1 (CX-13155/A) or M22442/30-2 (CX-13164/A) Cordsets. To replace the M22442/37-4708 (CX-4708A/AIC) cable assembly, MK-634/AIC cable clip (if installed), and MIL-C-22442/30-1 (CX-13155/A) or M22442/30-2 (CX-13164/A) cordsets, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Cable Assembly, CX-4708A/AIC (Use until exhausted)	M22442/37-4708 NIIN 00-816-3657
	-or-	
1	Cable Assembly, CX-4708A/AIC (MOD) (Alt. for CX-4708A/AIC)	89B7742 (CAGE 97427)
1	Cable Clip, (optional)	MK-634/AIC NIIN 00-864-8047
1	Cordset, CX-13155/A	MIL-C-22442/30-1 NIIN 01-128-9733
	-or-	
1	Cordset, CX-13164/A	M22442/30-2 NIIN 01-140-3501

NOTE

Use of the MK-634/AIC cable clip is optional.

1. If only the MK-634/AIC cable clip is defective, proceed as follows:

- a. Remove U-173/U connector from cable clip.
- b. Remove cable clip by rotating it clockwise and pulling away from large grommet.
- c. Replace MK-634/AIC cable clip by pressing it against large grommet and rotating counterclockwise.
- d. Reinstall U-173 connector into cable clip.
- e. Go to [step 4](#).

2. If only the MIL-C-22442/30-1 (CX-13155/A) or M22442/30-2 (CX-13164/A) cordset is defective, proceed as follows:

a. Disconnect either the MIL-C-22442/30-1 (CX-13155/A) or the M22442/30-2 (CX-13164/A) cordset from the U-173/U cordset connector on the M22442/37-4708 (CX-4708A/AIC) cable assembly.

b. Discard defective MIL-C-22442/30-1 (CX-13155/A) cordset or M22442/30-2 (CX-13164/A) cordset.

c. (HGU-84/4P and HGU-84/5P). Connect MIL-C-22442/30-1 (CX-13155/A) cordset to

M22442/37-4708 (CX-4708A/AIC) cable connection (U-173/U).

d. (HGU-84/1P, HGU-84/2P, and HGU-84/3P). Connect M22442/30-2 (CX-13164/A) cordset to M22442/37-4708 (CX-4708A/AIC) cable connection (U-173/U).

e. Go to [step 4](#).

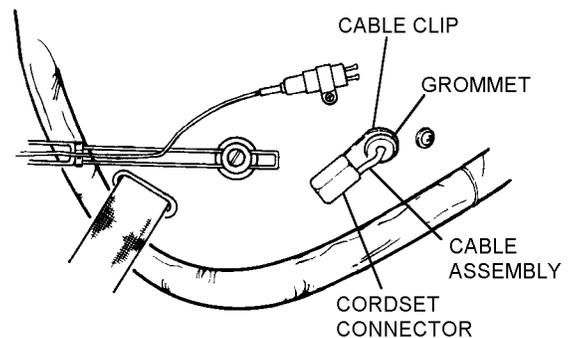
3. If only the M22442/37-4708 (CX-4708A/AIC) cable assembly is defective, remove M22442/37-4708 (CX-4708A/AIC) cable assembly, MK-634/AIC cable clip (if installed), and MIL-C-22442/30-1 (CX-13155/A) or M22442/30-2 (CX-13164/A) cordset as follows:

a. Disconnect either the MIL-C-22442/30-1 (CX-13155/A) cordset or M22442/30-2 (CX-13164/A) cordset from the U-179/U cordset connector on the M22442/37-4708 (CX-4708A/AIC) cable assembly.

b. Disassemble earcup assemblies in accordance with [paragraph 3-79, step 1](#).

c. Remove U-173/U cordset connector from MK-634/AIC cable clip (if installed).

d. Remove large grommet encircling cable from helmet shell assembly.



Steps 3c and 3d - Para 3-81

3p81s3c

e. Discard defective M22442/37-4708 (CX-4708A/AIC) cable assembly.

4. Replace M22442/37-4708 (CX-4708A/AIC) cable assembly, MK-634/AIC cable clip, and MIL-C-22442/30-1 (CX-13155/A) or M22442/30-2 (CX-13164/A) cordset as follows:

NOTE

The use of MK-634/AIC cable clip is optional.

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a. Pass two M22442/37-4708 (CX-4708A/AIC) cable leads with earphone contacts through large hole in bottom rear of helmet shell assembly. Press large grommet encircling cable assembly into large hole and secure.

b. Assemble and install earcup assemblies in accordance with [paragraph 3-79, step 2](#).

c. Secure M22442/37-4708 (CX-4708A/AIC) cable assembly connector (U-173/U) to helmet shell assembly, using MK-634/AIC cable clip (if desired).

d. (HGU-84/4P, and HGU-84/5P). Connect MIL-C-22442/30-1 (CX-13155/A) cordset to M22442/37-4708 (CX-4703/AIC) cable connection (U-173/U).

e. (HGU-84/1P, HGU-84/2P, and HGU-84/3P). Connect M22442/30-2 (CX-13164/A) cordset to M22442/37-4708 (CX-4708A/AIC) cable connection (U-173/U).

f. Document in accordance with OPNAVINST 4790.2 Series.

3-82. Deleted.

3-83. Replacement of M22442/15-1 (CX-4832A/AR) Cable Assembly or M22442/19-1 (CX-12972/AR) Cable Assembly. To replace the M22442/15-1 (CX-4832A/AR) cable assembly or M22442/19-1 (CX-12972/AR) cable assembly, proceed as follows:

Materials Required (Cont)

Quantity	Description	Reference Number
2	Flat Washer, 0.032-Inch Thick 0.382-Inch O.D. 0.166-Inch I.D.	NAS1197-8 NIIN 00-722-6091

Notes: 1. Use Cable Assembly M22442/14-1 attached to the teardrop fitting of Cable Assembly M22442/15-1 to connect to aircraft audio system.

1. Remove earcup assemblies in accordance with [paragraph 3-79, step 1](#).

2. Remove screws and flat washers, securing the cable assembly junction block to helmet shell assembly.

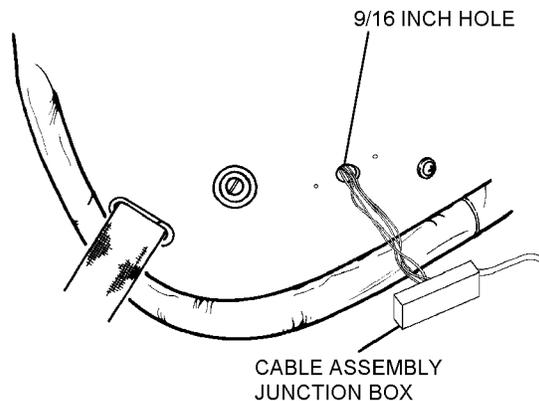
3. Remove and discard defective cable assembly.

4. Press four cable assembly earphone leads with the earphone contacts of replacement cable assembly through 9/16-inch hole on left side of helmet shell assembly.



Do not over torque 6-32 x 1/4-inch screws. Over torquing will cause damage to cable assembly junction block.

5. Secure cable assembly junction block to outside of helmet shell assembly using two 6-32 x 1/4-inch screws and two 0.032-inch thick flat washers. Apply no more than 4 in-lbs. of torque to 6-32 x 1/4-inch screws.



Step 5 - Para 3-83

3p83s5

Materials Required

Quantity	Description	Reference Number
1	Cable Assembly, CX-4832A/AR -or-	M22442/15-1 NIIN 00-961-8516
1	Cable Assembly, CX-12972/AR	M22442/19-1 NIIN 01-016-4130
1	Cable Assembly, CX-4831/AR (Note 1)	M22442/14-1 NIIN 00-631-8566
2	Screws, 6-32 x 1/4 Inch	NIIN 00-638-5517

3-54 Change 5

6. Install earcup assemblies in accordance with [paragraph 3-79, step 2](#).

7. Document in accordance with OPNAVINST 4790.2 Series.

3-84. Replacement of Boom Microphone Assembly. To replace the boom microphone assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Boom Microphone Assembly (Note 1)	M-33A/AIC NIIN 00-755-4643
1	Boom Microphone Assembly (Note 2)	M26542/2-01 NIIN 01-188-8529
1	Boom Microphone Assembly (Note 3)	M26542/2-02 NIIN 01-188-8530
1	Boom Microphone Assembly (Note 4)	M26542/2-03 NIIN 01-188-8528

Materials Required (Cont)

- Notes:
1. The M-33A/AIC Boom Microphone Assembly is an M-87/AIC Microphone supplied with a 6-inch CX-4434/U extension cable.
 2. The M26542/2-01 Boom Microphone Assembly is an M-87/AIC microphone supplied with a 13-inch CX-4434/U extension cable.
 3. The M26542/2-02 Boom Microphone Assembly is an M-87/AIC microphone supplied with a 16-inch CX-4434/U extension cable.
 4. The M26542/2-03 Boom Microphone Assembly is an M-87/AIC microphone supplied with a 23-inch CX-4434/U extension cable.

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#), to prevent damage during maintenance.

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2. Place helmet on RH side on padded work surface, with boom swivel assembly pointing up.

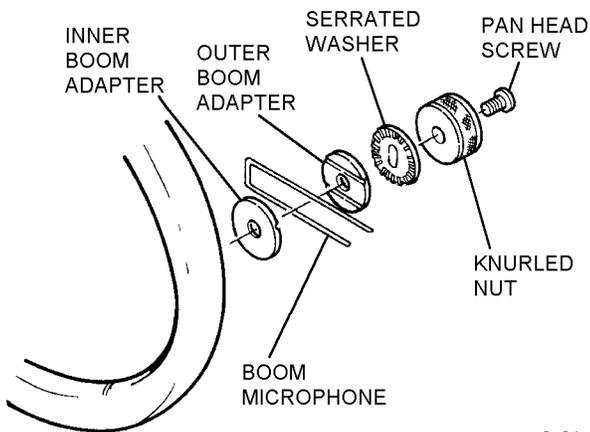
3. Disconnect the boom microphone CX-4434/U cable assembly.

4. Remove the outer pan head screw from the knurled nut of the swivel assembly.

5. Remove the knurled nut from the swivel assembly by twisting it counterclockwise.

6. Remove the serrated washer, the two boom adapters, and the boom microphone assembly.

7. Remove the boom microphone assembly from between the boom adapters.



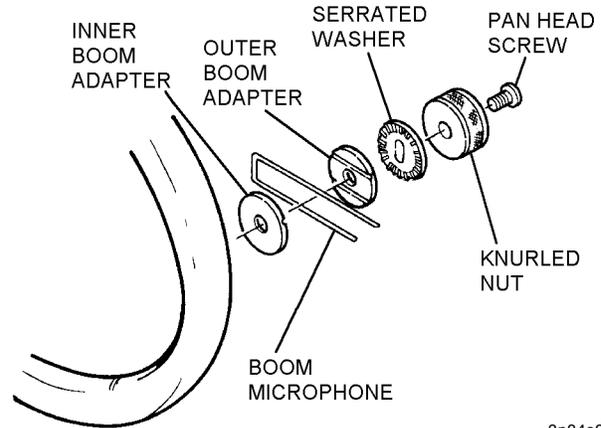
Steps 5 thru 7 - Para 3-84

3p84s5

8. If necessary, remove the CX-4434/U cable assembly from the boom microphone assembly by loosening two setscrews on the microphone.

9. Place the replacement boom microphone assembly between the inner and outer boom adapters, ensuring that the boom is aligned in the adapter grooves. Hold parts together.

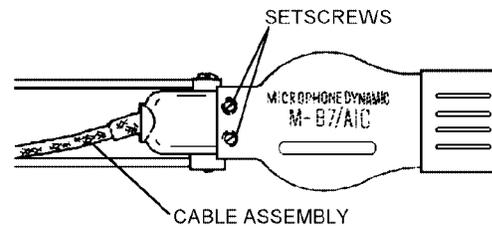
10. Install the boom microphone and adapters; install the serrated washer with serration inboard. Install the knurled nut with the countersink outboard. Tighten knurled nut by turning clockwise. Secure with pan head screw.



Steps 9 and 10 - Para 3-84

3p84s9

11. If the CX-4434/U extension cable assembly was removed from the boom microphone assembly, loosen two setscrews on the microphone, install plug of cable assembly, and tighten setscrews.



Step 11 - Para 3-84

3p84s11

NOTE

If 13-inch CX-4434/U extension cable assembly is used, loosely wrap excess cable around boom swivel assembly prior to connection.

12. Connect plug of CX-4434/U extension cable assembly to communications cable connector.

13. Loosen swivel assembly, adjust extension and angle of boom assembly, and re-tighten swivel assembly to check installation.

14. Functionally check helmet assembly communications in accordance with the procedures in NAVAIR 17-15BC-22, using TTU-489 Oxygen Tester (P/N 1827AS100-1/NIIN 01-317-7799.)

15. Install the outer and inner visors in accordance with [paragraph 3-76](#).

16. Document in accordance with OPNAVINST 4790.2 Series.

3-85. Replacement of Boom Swivel Assembly. To replace a boom swivel assembly, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
1	Boom Swivel Assembly	765AS300-1
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

1. Remove the outer and inner visor assemblies in accordance with paragraph 3-76, to prevent damage during maintenance.

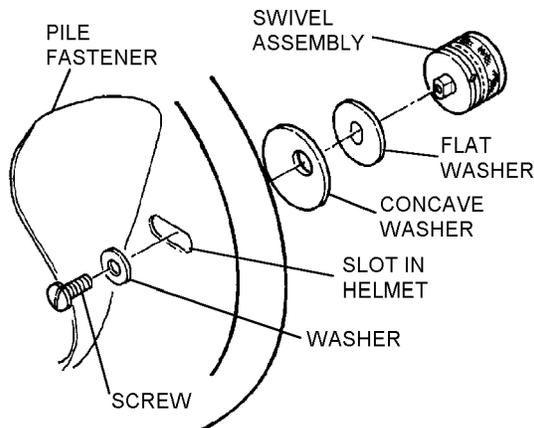
2. Remove the boom microphone assembly from the boom swivel assembly in accordance with paragraph 3-84.

3. On the side of the helmet to which the boom swivel assembly is mounted, pull the earcup assembly away from the pile fastener on the inside.

4. Pull the pile fastener back to expose the screw attaching the boom swivel assembly to the helmet.

5. Remove the screw and washer from the inside of the helmet assembly.

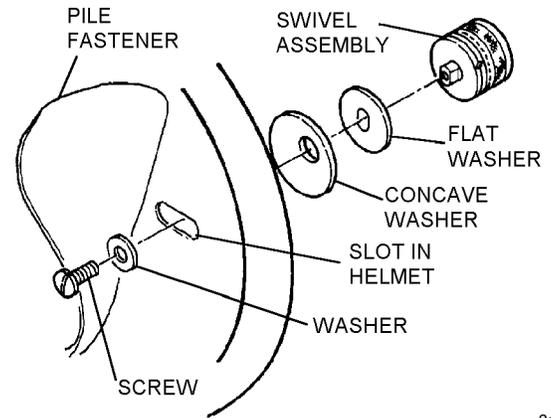
6. Gently pry the flat washer from the shaft of the swivel assembly.



Steps 4 thru 6 - Para 3-85

3p85s4

7. Install the new swivel assembly with the cupped side of the concave washer against the outside of the helmet assembly. Secure with screw and washer; tighten screw.



Step 7 - Para 3-85

3p85s7

8. Using adhesive, reattach the pile fastener to the helmet shell assembly.

9. Reinstall the earcup assembly onto pile section of helmet assembly.

10. Reinstall the boom microphone assembly in accordance with paragraph 3-84.

11. Reinstall inner and outer visor assemblies in accordance with paragraph 3-76.

12. Document in accordance with OPNAVINST 4790.2 Series.

3-86. Replacement of Amp Mounting Bracket. To replace the amp mounting bracket, proceed as follows:

Materials Required		
Quantity	Description	Reference Number
1	Amp Mounting Bracket	80B4881 (CAGE 97427) NIIN 01-128-5334
As Required	Adhesive, Polychloroprene	MIL-A-5540 NIIN 00-515-2246
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Disconnect all applicable cables from M23595/1-2 (AM-3597C/A) amplifier.

2. Loosen screw attaching amp mounting bracket to helmet shell assembly.

3. Remove amplifier from amp mounting bracket.

4. Remove earpad assembly and loosen pile fastener tape.

5. Remove screw, washer, and post securing amp mounting bracket to helmet shell assembly.

NAVAIR 13-1-6.7-3

6. Discard defective amp mounting bracket.

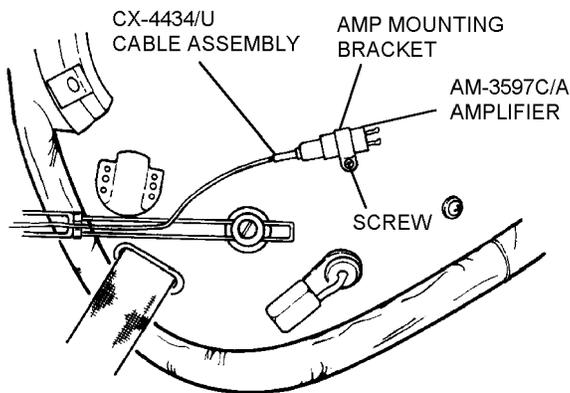
NOTE

A small amount of RTV may be applied to the first few threads of screws prior to installation.

7. Insert replacement amp mounting bracket onto helmet shell assembly and secure with 8-32 x 1/4-inch screw, flat washer, and post. Do not tighten screw.

8. Install amplifier into amp mounting bracket and tighten screw.

9. Connect applicable cable assemblies to amplifier.



Steps 8 and 9 - Para 3-86

3p86s8

10. Recement pile fastener tape to helmet shell using polychloroprene adhesive.

11. Reinstall earpad assembly.

12. Document in accordance with OPNAVINST 4790.2 Series.

3-87. Replacement of M23595/1-2 (AM-3597C/A) Amplifier. To replace the M23595/1-2 (AM-3597C/A) amplifier, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Amplifier, AM-3597C/A	M23595/1-2 NIIN 00-100-4932

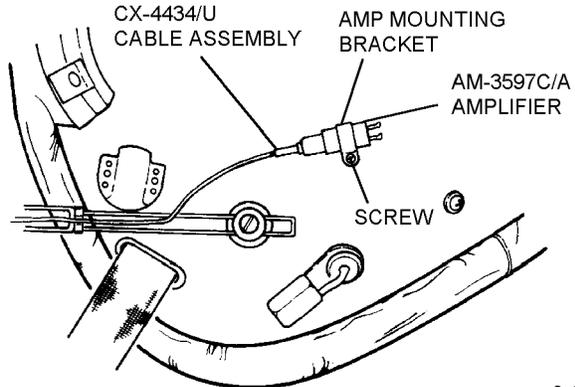
1. Disconnect all applicable cables from amplifier.

2. Loosen screw attaching amp mounting bracket to helmet shell assembly.

3. Remove and discard defective amplifier.

4. Install replacement AM-3597C/A amplifier into amp mounting bracket and tighten screw.

5. Connect applicable cable assembly to amplifier.



3p87s4

Steps 4 and 5 - Para 3-87

6. Document in accordance with OPNAVINST 4790.2 Series.

3-88. REPAIR OF INTEGRATED CHIN/NAPE ASSEMBLY COMPONENTS. Repair of the integrated chin/nape assembly is limited to replacement of the nape pad, chin strap, clamp, chin pad, or T-nut. To replace the chin/nape assembly, use [para 3-93](#). To repair the integrated chin/nape assembly, determine the required parts and proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Nape Pad, Medium	90D7865-1
	-or-	
1	Nape Pad, Large	90D7865-2
	-or-	
1	Nape Pad, Extra-Large	90D7865-3
	-or-	
1	Chin pad	93B8456
	-or-	
1 or 2	Clamp Assembly - Nape strap	93B8471
	-or-	
1	Chin strap	90B7868

Materials Required (Cont)

Quantity	Description	Reference Number
1 or 2	T-nut	10-32
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

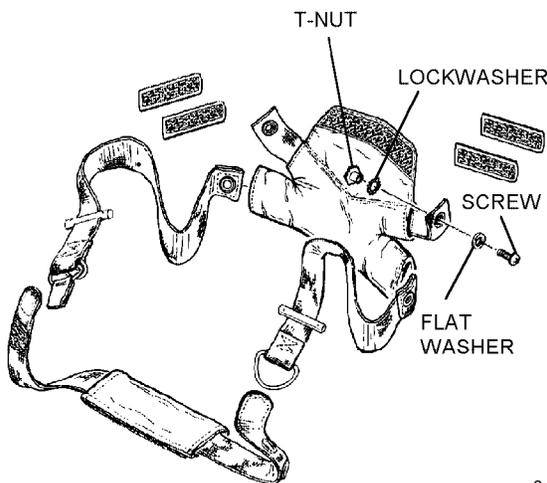
3-89. Replacement of Nape Pad. To replace nape pad on the integrated chin/nape assembly, proceed as follows:

1. Remove the outer and inner visor assemblies in accordance with [paragraph 3-76](#), to prevent damage during maintenance.
2. Squeezing the sides of the thermoplastic liner together, remove TPL from the helmet.
3. Detach the left and right earcup assemblies from the pile fastener inside helmet assembly, and position earcups clear of the work area.

NOTE

Observe how the nape straps are laced through the nape pad and helmet before disassembling. Make a note indicating whether the single D-ring nape strap is routed through the slot on the right-hand or left-hand side of the helmet.

4. Remove the screws, washers, lock washers, and T-nuts fastening the nape straps to the left and right rear of the helmet assembly. Retain the screws, washers, and T-nuts for reinstallation.



Step 4 - Para 3-89

3p89s4

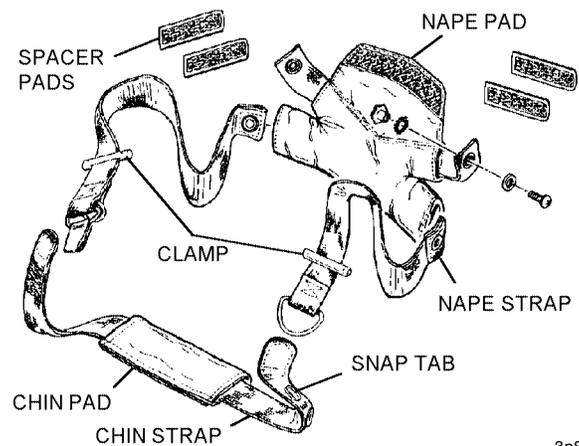
5. Remove the nape straps from the nape pad. Remove and retain spacer pads from the nape pad for later use in helmet fitting.

NOTE

The hook fastener strip at the top of the nape pad should face the inside of the helmet assembly.

To ease lacing of the straps through the pad, you may use a piece of wire with a hook at one end.

6. Pass the right-hand nape strap through the replacement nape pad from lower right to upper left.
7. Pass the left-hand nape strap through the nape strap pad from lower left to upper right.



3p89s6

Steps 6 and 7 - Para 3-89

8. Apply a small amount of RTV adhesive to the first few threads of one nape strap screw. Install the T-nut, lockwasher, washer, and screw to fasten the nape strap to the RH side of the helmet.

NOTE

If utilizing the radio frequency cable assembly, a strain relief plate will be installed under the T-nut for attachment of the radio frequency cable assembly staycord.

9. Apply a small amount of RTV adhesive to first few threads of nape strap screw, then install T-nut lockwasher and nape strap. Reattach to helmet shell with washer and screw.

10. Squeezing the sides of the TPL assembly to clear the earcups, align the front of the TPL assembly with the front edge of the energy-absorbing liner.

NAVAIR 13-1-6.7-3

11. Attach the rear of the TPL assembly to the hook fastener on the rear of the energy-absorbing liner. Ensure that the TPL assembly is positioned against the energy-absorbing liner.

12. Reinstall the earcups onto pile section of helmet assembly.

13. Fit helmet in accordance with [paragraph 3-53](#). Spacer pads will be reinstalled during fitting.

14. Reinstall inner and outer visor assemblies in accordance with [paragraph 3-76](#).

15. Document in accordance with OPNAVINST 4790.2 Series.

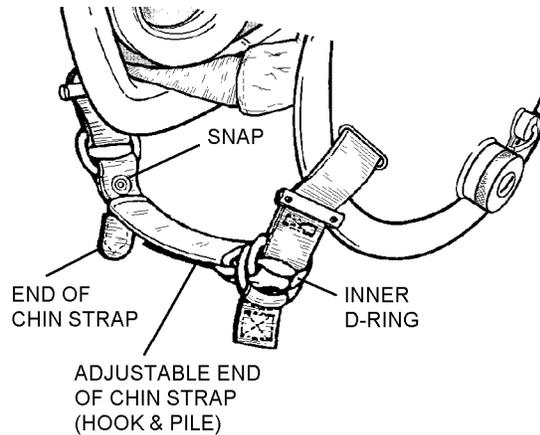
3-90. Replacement of Chin Strap Assembly. To replace the chin strap on the integrated chin/nape assembly, proceed as follows:

1. Unlace the chin strap from the double D-rings.
2. Unsnap the other end of the chin strap from the single D-ring.
3. Remove the chin pad from the chin strap.
4. Slide the chin pad onto the replacement chin strap.

NOTE

Ensure that the pile side of the chin pad will face outward when the helmet is worn.

5. Insert the snap end of the chin strap through the single D-ring, and snap it into place.



3p90s1

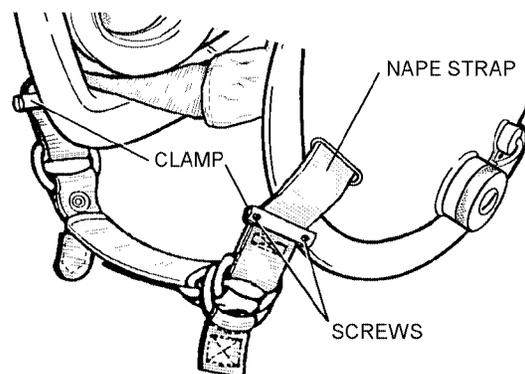
Steps 1 thru 5 - Para 3-90

6. Lace the chin strap through the double D-rings.

7. Document in accordance with OPNAVINST 4790.2 Series.

3-91. Replacement of Clamp. To replace clamp on the integrated chin/nape assembly, proceed as follows:

1. Remove the screws attaching the clamp to the nape strap, and remove the clamp from the nape strap.
2. Attach the replacement clamp to the nape strap at the desired position.
3. Secure the clamp with screws. Tighten screws.



3p91s1

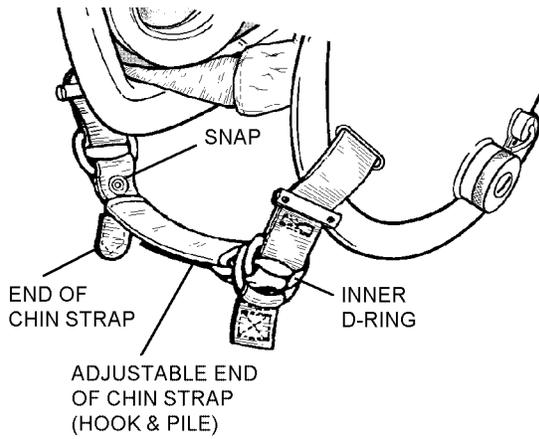
Steps 1 thru 3 - Para 3-91

4. Check helmet fit and adjust napestraps in accordance with [paragraph 3-53](#).

5. Document in accordance with OPNAVINST 4790.2 Series.

3-92. Replacement of Chin Pad. To replace a chin pad on the integrated chin/nape assembly, proceed as follows:

1. Unsnap chin strap from single D-ring and slide chin pad off chinstrap.
2. Slide a replacement chin pad onto the chin strap, ensuring that the pile side of the chin pad will face outward when the helmet is worn.
3. Route chin strap through single D-ring and snap into place.



Steps 1 thru 3 - Para 3-92

3p92s1

4. Document in accordance with OPNAVINST 4790.2 Series.

3-93. REPLACEMENT OF INTEGRATED CHIN/NAPE ASSEMBLY. Paragraph 3-88 covers authorized repairs to the integrated chin/nape assembly. To replace the entire integrated chin/nape assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Integrated Chin/Nape Assembly, Medium	90C7864-1
1	Integrated Chin/Nape Assembly, Large	90C7864-2
1	Integrated Chin/Nape Assembly, Extra-Large	90C7864-3

Materials Required (Cont)

Quantity	Description	Reference Number
1	Integrated Chin/Nape Assembly, Extra-Large-Wide	90C7864-4
1	Nape Pad, Medium	90D7865-1
1	Nape Pad, Large	90D7865-2
1	Nape Pad, Extra-Large	90D7865-3
1	Nape Pad, Extra-Large-Wide	90D7865-4
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. To remove the integrated chin/nape assembly, proceed as follows:

a. Remove the outer and inner visor assemblies in accordance with paragraph 3-76, to prevent damage during maintenance.

b. Squeezing the sides of the thermoplastic liner together, remove TPL from the helmet.

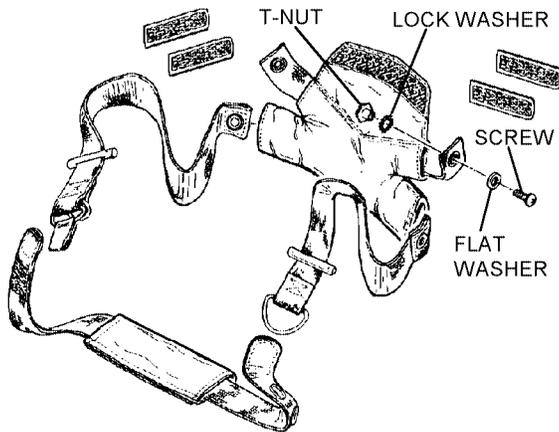
c. Detach the left and right earcup assemblies from the pile fastener inside helmet assembly, and position earcups clear of the work area.

NOTE

Note how the nape straps are laced through the nape pad and helmet before disassembling. Make a note indicating whether the single D-ring nape strap is routed through the slot on the right or left side of the helmet.

NAVAIR 13-1-6.7-3

d. Remove the screws, flat washers, lock washers, and T-nuts fastening the nape straps to the left and right rear of the helmet assembly. Retain the screws, washers, and T-nuts for reinstallation.



Step 1d - Para 3-93

3p93s1d

e. Remove the nape straps from the nape pad. Do not remove spacer pads from nape pad.

f. Withdraw the nape straps through the slots in the helmet assembly.

2. To install the replacement integrated chin/nape assembly, proceed as follows:

a. A new integrated chin/nape assembly is not fully assembled, to allow for installation according to aircrew-member preference for either right-hand or left-hand use. Install the new assembly with the single D-ring strap on the same side noted above before disassembly.

b. Lace the single D-ring nape strap through the right or left-hand slot; depending on aircrewmember preference.

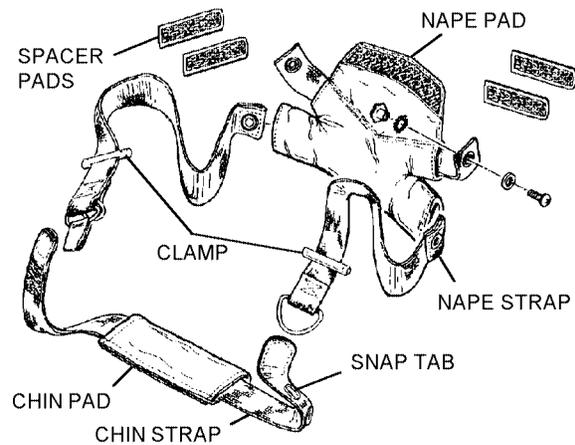
NOTE

The hook fastener strip at the top of the nape pad should face forward inside the helmet assembly. To ease lacing of the straps through the pad, you may use a piece of wire with a hook at one end.

c. Pass the nape strap through the nape pad from lower right to upper left (if strap was installed on right) or lower left to upper right (if strap was installed on left).

d. Lace the double D-ring nape strap through the opposite helmet slot.

e. Pass the strap through the nape pad from lower left to upper right (if installed on left) or lower right to upper left (if installed on right).



3p93s2b

Steps 2b thru 2e - Para 3-93

f. Apply RTV adhesive to one nape strap screw. Install the T-nut, lockwasher, washer and screw to fasten the nape strap to the RH side of the helmet.

NOTE

If utilizing the radio frequency cable assembly, a strain relief plate will be installed under the T-nut for attachment of the radio frequency cable assembly staycord.

g. Apply RTV adhesive to nape strap screw, then install T-nut, lockwasher, and nape strap. Fasten to helmet with washer and screw.

h. If the clamp assemblies, chin pad, or chin strap were not installed on the replacement assembly, install them in accordance with [paragraph 3-88](#).

3. Reinstall the TPL assembly as follows:

a. Squeezing the sides of the TPL assembly to clear the earcups, align the front of the TPL assembly with the front edge of the energy-absorbing liner. Two large holes on top of TPL are forward.

b. Attach the rear of the TPL assembly to the hook fastener on the rear of the energy-absorbing liner. Ensure that the TPL assembly is positioned against the energy-absorbing liner.

4. Reinstall the earcups onto pile section of helmet assembly.

5. Fit helmet in accordance with [paragraph 3-53](#). Spacer pads will be installed onto nape pad during fitting.

6. Reinstall inner and outer visor assemblies in accordance with [paragraph 3-76](#).

7. Document in accordance with OPNAVINST 4790.2 Series.

3-94. REPLACEMENT OF ENERGY-ABSORBING LINER. Replace energy-absorbing liner as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Spatula, Metal	GGG-C-74G TY18GRD NIIN 00-680-2634

Materials Required

Quantity	Description	Reference Number
1	Energy-Absorbing Liner, Medium	90D7860
	-or-	
1	Energy-Absorbing Liner, Large	90D7861
	-or-	
1	Energy-Absorbing Liner, Extra-Large	90D7862
	-or-	
1	Energy-Absorbing Liner, Extra-Large Wide	90D7863
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. To remove the TPL and energy-absorbing liner assemblies, proceed as follows:

a. Remove the outer and inner visor assemblies in accordance with [paragraph 3-76](#), to prevent damage during maintenance.

b. Invert the helmet on a padded work surface.

c. Detach the right and left earcup assemblies from the pile fastener on the inside of the helmet assembly, and position the earcups clear of the work area.

d. Squeezing the sides of the TPL assembly together, remove TPL from the helmet.

e. Remove the screws, washers, lockwashers, and T-nuts securing the chin/nape straps to the rear of the helmet assembly. Reattach loose hardware to straps. Allow the straps to hang outside the helmet assembly.

f. Mark the centerline of the liner and helmet shell at the brow and nape before removing.

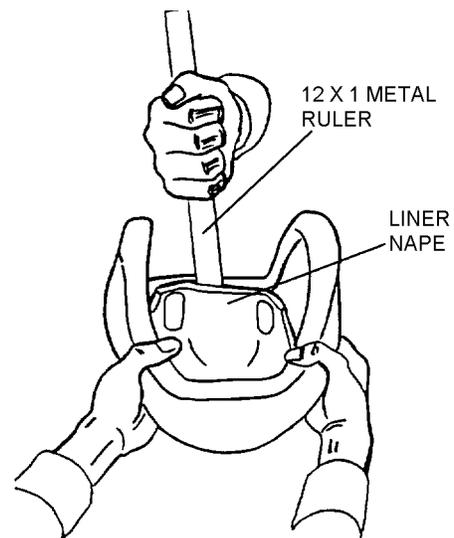


Use extreme caution when removing energy-absorbing liner assembly to prevent damage to NVIIS or gunsight wiring harness assemblies routed beneath liner.

Use of liner removal aids, other than the approved metal spatula or a 1-inch x 12-inch flexible metal machinists rule, to remove the energy absorbing liner is not authorized. Use of unauthorized removal aids will damage the liner, which will result in reduced impact protection.

g. With the helmet inverted on the work surface and the helmet front facing you, insert a thin, metal spatula or a metal ruler (12 inches x 1 inch) between the helmet shell and the energy-absorbing liner at the nape of the helmet.

h. Using the spatula/metal ruler, gently pry inward and upward on energy absorbing liner to obtain enough clearance to allow grasping the liner nape with the free hand.



Step 1h - Para 3-94

3p94s1h

NAVAIR 13-1-6.7-3

i. Maintain inward and upward pressure withdrawing the liner rearward from the helmet. Rotate the liner as required to clear the helmet shell earcup cavities.

2. To install the replacement energy-absorbing liner and TPL assemblies, proceed as follows:

CAUTION

The energy absorbing liner assembly is installed tightly over the NVIIS and HSA wiring harness assemblies at the interior brow area of the helmet. Use of the webbing cradle, as a positioning aid, during liner installation procedures will prevent damage to either wiring harness. Also, avoid placing undue pressure on the receptacle and receptacle bracket on the outside of the helmet.

NOTE

Proper installation of the energy-absorbing liner is critical for proper alignment of the goggles to the aircrewmember's eyes. Incorrect installation may cause restrictions to the range of view through the goggles.

a. Mark centerline of liner brow and nape to use as a reference during installation.

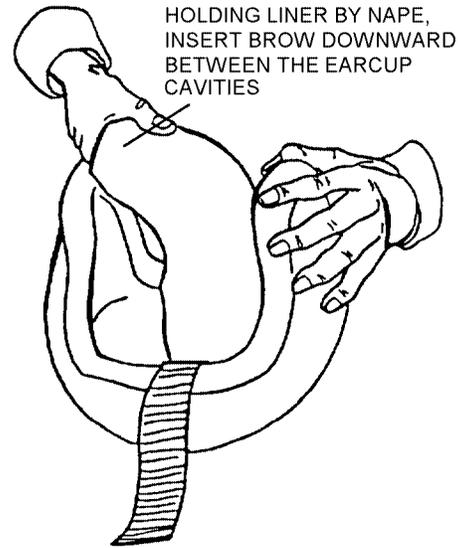
NOTE

Before inserting the liner, ensure that all attaching hardware that will be covered by the liner is in place. Make sure both wiring harnesses are undamaged and properly attached.

b. Invert the helmet assembly on a padded surface to prevent damage to the receptacle assembly. Position helmet with the brow away from the technician. Move wiring harness retaining sleeves outboard, away from area to be occupied by the liner.

c. As an aid for repositioning the liner, cut a 36-inch length of type VI webbing and place the webbing inside helmet from brow to nape.

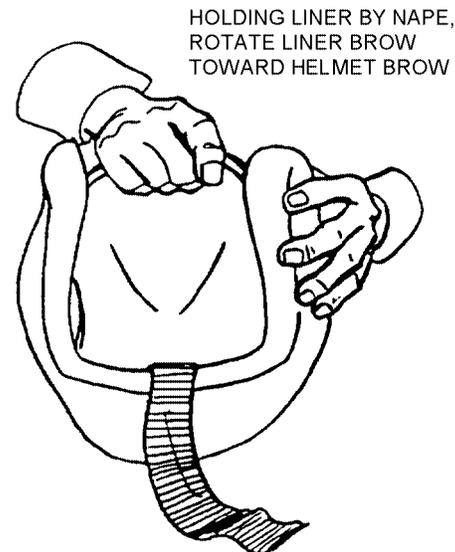
d. Holding the liner by the nape, insert the brow downward into the helmet between the two earcup cavities.



Step 2d - Para 3-94

3p94s2d

e. Slowly rotate the liner brow toward the helmet brow until centerline mark on liner brow can be aligned with centerline of helmet brow.

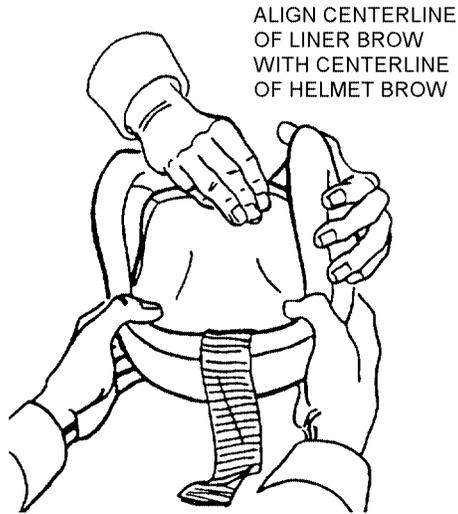


Step 2e - Para 3-94

3p94s2e

f. With brow centerlines aligned, and the liner centered within the helmet, grasp free ends of webbing and bring together over center of inverted helmet. Slide hand downward on webbing and grasp firmly to slightly compress both ends of the liner inward, while maintaining compression, move brow of liner forward over the mounting block backup plate and into contact with the inner surface of the helmet brow edgeroll. Ensuring

brow alignment is established, while maintaining compression, gently but firmly apply downward pressure on liner nape to seat crown of liner against helmet shell interior surface. Release tension on webbing cradle to relax liner compression.

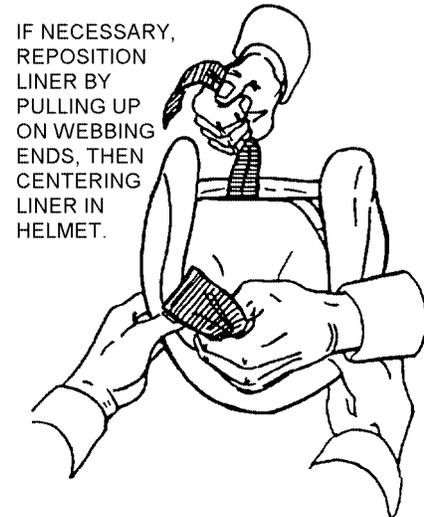


Step 2f - Para 3-94

3p94s2f

erly installed liner will misalign gunsight and NVIS accessories.

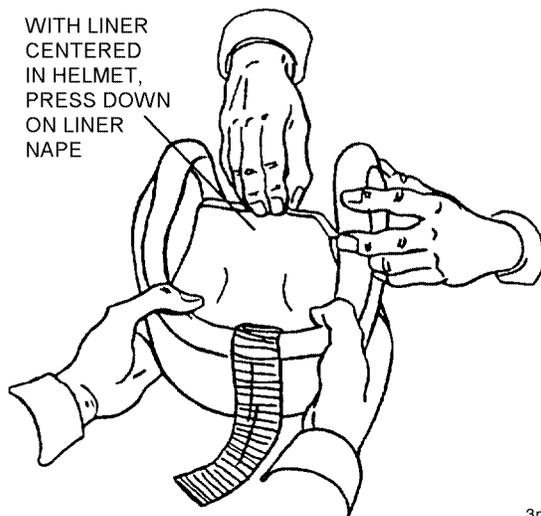
j. If realignment of liner is necessary, compress liner with webbing cradle and adjust position as required.



Step 2j - Para 3-94

3p94s2j

g. Press the nape of the liner downward past the nape edgeroll, while ensuring the liner brow is in firm contact with the inner surface of helmet brow edgeroll.



Step 2g - Para 3-94

3p94s2g

k. Work liner into correct position, then press down on liner nape to seat the liner. Repeat liner loosening and adjustment as necessary until liner is correctly positioned in the helmet assembly.

l. Remove repositioning webbing by slowly pulling on end of webbing at front of helmet.

3. If four 1-inch x 2-inch pressure-sensitive hook fastener tabs are not present on the inside surface of the energy-absorbing liner, install tabs as follows:

a. Install two tabs on the inside front of the liner left and right of center over the eyes, 1/8 inch from front edge of the liner.

b. Install two tabs in the rear approximately 1 1/2 inches right and left of the centerline, and 1/2 inch from the bottom edge of the liner.

NOTE

Ensure that the chin/nape straps are routed through the nape pad and are not twisted.

h. When the liner is seated in the helmet, pull the compressed nape edgeroll from beneath the liner.

i. Check the liner for centerline alignment at the brow and nape. Check for firm contact between the liner brow and the helmet brow edgeroll. An improper

4. Apply a small amount of RTV adhesive to first few threads of one nape strap screw. Install the T-nut, lockwasher, washer, and screw to fasten the RH nape strap to the RH side of the helmet.

NOTE

A rubber coated loop clamp anchors the NVIIS connector to the helmet shell to prevent stress of normal use and potential failure of connector cable.

When loop clamp is installed the external washer is not required.

If utilizing the radio frequency cable assembly, a strain relief plate will be installed under the left hand side T-nut for attachment of the radio frequency cable assembly staycord.

5. Replace left hand nape strap as follows:

a. Place communications cable strain relief plate (if required) on T-nut followed by lockwasher and left-side nape strap. Insert T-nut assembly into its position in helmet.

b. Slide NVIIS connector into loop clamp and center clamp at mid point of connector with red dot on connector facing aft.

c. Insert attaching screw through holes in loop clamp. Apply a small amount of RTV adhesive to first few threads of screw and reinstall in T-nut to secure internal and external assemblies to helmet.

d. Rotate grommet as necessary to align with NVIIS cable.

6. Reinstall the earcups onto pile section of helmet assembly.

7. Reinstall the TPL assembly as follows:

a. Squeezing the sides of the TPL assembly to clear the earcups, align the front of the TPL assembly with the front edge of the energy-absorbing liner. Two large holes on top of TPL are forward.

b. Attach the rear of the TPL assembly to the hook fasteners on the rear of the energy-absorbing liner. Ensure that the TPL assembly is positioned against the energy-absorbing liner.

8. Check helmet fit in accordance with [paragraph 3-53](#).

9. Reinstall inner and outer visor assemblies in accordance with [paragraph 3-76](#).

10. Document maintenance actions in accordance with [OPNAVINST 4790.2 Series](#).

3-95. REPLACEMENT OF BAYONET RECEIVERS (HGU-84/P). To replace defective bayonet receivers proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Bayonet Receiver Assembly	93A8514
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

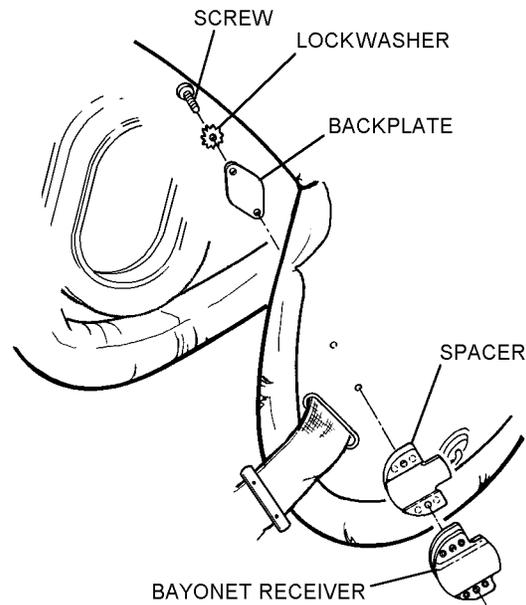
1. Remove the earcups from the helmet.
2. Pull the earcup cavity pile fastener away from the inner surface of the helmet shell.
3. Remove the screws attaching the right and/or left bayonet receiver assemblies to the helmet shell.
4. Discard the defective bayonet receiver assembly.

NOTE

Each spacer should be fitted against the rivet head side of the bayonet receiver.

A small amount of RTV may be applied to first few threads of each screw before lock washer and backplate are added.

5. Insert the screws with the lock washers through the backplate from the inside of the helmet shell. Attach the replacement bayonet receivers and spacers to the outside of the helmet shell. Ensure that the projections on the bayonet receivers are pointed toward the rear of the helmet shell.



Step 5 - Para 3-95

3p95s5

6. Tighten all screws so that the bayonet receivers and spacers are firmly attached to the helmet shell.

7. Reattach earcup cavity pile fastener using poly-chloroprene adhesive.

8. Install earcups onto pile section of helmet shell assembly.

9. Document in accordance with OPNAVINST 4790.2 Series.

3-96. REPLACEMENT OF CBR SNAP FASTENER STUD. Replace defective CBR snap fastener stud on the MCK-3A/P, Rotary Wing upgrade or MBU-21/P mask as follows:

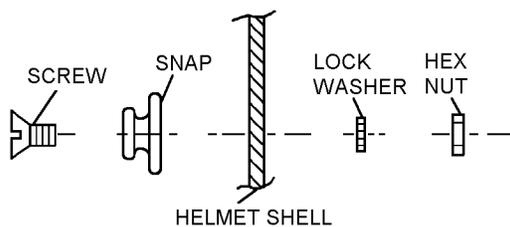
Materials Required		
Quantity	Description	Reference Number
1	MCK-3A/P Helmet Modification Kit	91B8215
1	MBU-21/P Helmet Modification Kit	CL 6616
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#) to prevent damage during maintenance.

2. Detach the earcup assembly away from the pile fastener on the inside.

3. Remove the screw, hex nut, and lockwasher attaching the stud to the helmet.

4. Apply a small amount of RTV adhesive to first few threads of screw. Attach the new snap fastener stud to the helmet with the screw, lockwasher, and hex nut, as shown below.



Step 4 - Para 3-96

3p96s4

5. Reinstall the earcup assembly onto pile section of helmet assembly.

6. Check helmet fit in accordance with [paragraph 3-53](#).

7. Install the inner and outer visors in accordance with [paragraph 3-76](#).

8. Document in accordance with OPNAVINST 4790.2 Series.

3-97. REPLACEMENT OF VISOR SNAP FASTENER STUD. Replace visor snap fastener stud on side of helmet assembly as follows:

Materials Required

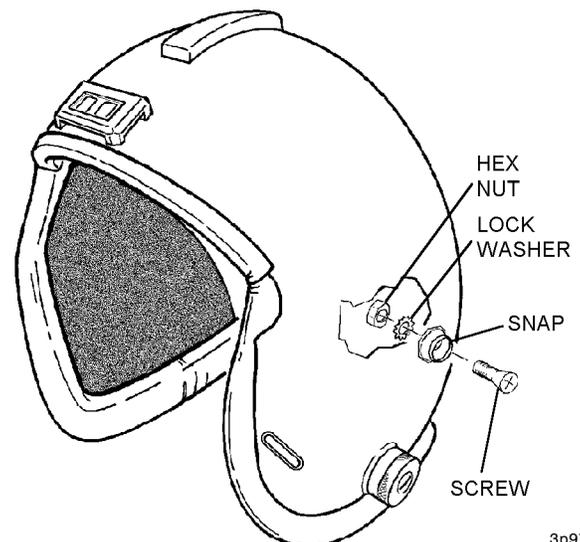
Quantity	Description	Reference Number
1	Snap Fastener Stud #4	MS27983-3
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#), to prevent damage during maintenance.

2. On the side of the helmet where the snap fastener stud is to be replaced, remove the earcup assembly.

3. Remove the screw, hex nut, and lockwasher attaching the stud to the helmet.

4. Apply a small amount of RTV adhesive to first few threads of the screw. Attach the new snap fastener stud to the helmet with the screw, lockwasher, and hex nut, as shown below.



Step 4 - Para 3-97

3p97s4

NAVAIR 13-1-6.7-3

5. Reinstall the earcup onto pile section of helmet assembly.

6. Check helmet fit in accordance with [paragraph 3-53](#).

7. Install the inner and outer visors in accordance with [paragraph 3-76](#).

8. Document in accordance with OPNAVINST 4790.2 Series.

3-98. REPLACEMENT OF HELMET BLOCK ASSEMBLY. Replace helmet block assembly as follows:

Materials Required

Quantity	Description	Reference Number
1	Helmet Block Assembly	3151AS130-1
As Required	Tape, Pressure Sensitive, 2-Inch Wide	PPP-T-60-91B Type IV, Class 1
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#) to prevent damage during maintenance.

2. Remove the TPL and energy-absorbing liner assemblies in accordance with [paragraph 3-94](#), and set aside.

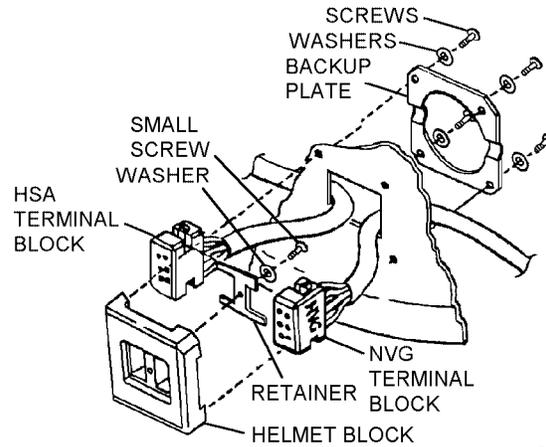
3. Invert helmet on the work surface, with the brow turned away from the technician. Detach both the NVIIS and gunsight wiring harness retention sleeves from pile fastener tape inside the helmet.

4. Remove pressure-sensitive tape covering backup plate inside brow of helmet.

5. Remove four screws and washers securing the backup plate to the helmet block assembly.

6. Lift the helmet block with attached NVIIS and gunsight terminal blocks away from the helmet, withdrawing the wiring harness cables slightly from the exit hole. Do not pull on NVIIS or gunsight cables, if installed.

7. Remove screw and washer holding the terminal block retainer in place. Holding the two terminal blocks and retainer together, remove and discard the helmet block assembly.



Steps 1 thru 7 - Para 3-98

NOTE

The terminal block retainer is designed to prevent improper installation of the two wiring harness terminal blocks. The arms of the retainer are of different lengths and widths to accommodate specific foolproofing shapes in the terminal blocks. The NVIIS terminal block is marked NVIIS, and the gunsight terminal block is marked HSA for ease of identification.

8. If terminal blocks and retainer were not held together, position terminal blocks of gunsight wiring harness assembly and NVIIS wiring harness assembly on terminal block retainer. Hold in place.

NOTE

The longer legs on the rear of the helmet block should be toward the edgeroll; the shorter legs should be toward the top of the helmet.

The NVG terminal block should be on the LH side; the HSA terminal block should be on the RH side.

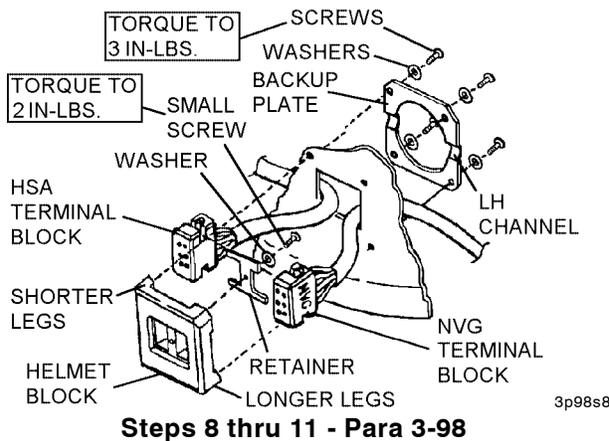
9. Insert terminal blocks into replacement helmet block assembly, ensuring that the longer legs of the helmet block are toward the edgeroll. Ensure that terminal blocks are installed on the correct sides.

CAUTION

If new self-locking screws are not available, re-use of screw removed is authorized provided the old screw is reinstalled with RTV adhesive.

10. Attach terminal block retainer to helmet block with one small, new screw and washer. Torque screw to 2 in-lbs. Do not over-torque screw.

11. Position the helmet block assembly on the outside of the helmet assembly with longer legs toward edgeroll. Position backup plate on the inside of the helmet, ensuring that the NVIIS cable exits under the LH channel and the HSA cable exits under the RH channel of the backup plate.



CAUTION

Ensure that wiring harness cables are not pinched beneath backup plate when tightening screws.

To prevent cracking damage to the legs of the helmet block, do not over-torque screws.

If new self-locking screws are not available, re-use of screws removed is authorized provided that the old screw is reinstalled with RTV adhesive.

12. Secure the backup plate with four new screws and washers. Torque screws to 3 in-lbs. Do not pinch cables and do not over-torque screws.

13. Cover backup plate with a 3 x 2-inch piece of pressure-sensitive tape.

14. Inside helmet, route gunsight and NVIIS wiring harnesses outboard, and attach hook fastener of retainer sleeves to pile fastener on helmet. Ensure that cables are not loose and are flat against helmet shell.

15. Install the energy-absorbing liner and TPL assemblies in accordance with [paragraph 3-94](#).

16. Check helmet fit in accordance with [paragraph 3-53](#).

17. Install inner and outer visor assemblies in accordance with [paragraph 3-76](#).

18. Document in accordance with OPNAVINST 4790.2 Series.

3-99. REPLACEMENT OF NVIIS WIRING HARNESS ASSEMBLY. Repair of the NVIIS wiring harness assembly is limited to replacement of the heat shrinkable sleeving, loop clamp, and attaching hardware. Replace NVIIS wiring harness and helmet block assemblies as follows:

Materials Required		
Quantity	Description	Reference Number
1	NVIIS Wiring Harness Assembly	3151AS135-1
1	Sleeving, Heat Shrinkable, 1/2 to 5/8-Inch Long	M23053/5-108-0 MIL-I-23053/5
As Required	Tape, Pressure Sensitive, 2-Inch Wide	PPP-T-60-91B Type IV, Class 1
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#) to prevent damage during maintenance.

2. Remove the TPL and energy-absorbing liner assemblies in accordance with [paragraph 3-94](#), and set aside.

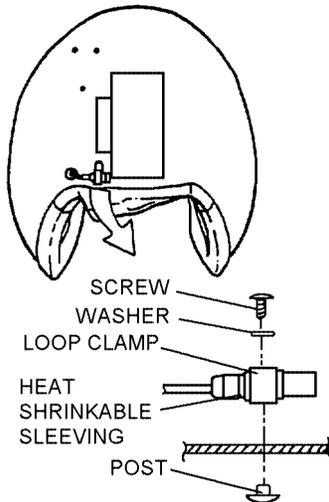
3. Invert helmet on padded work surface, with the brow turned away from the technician.

4. Remove screw, washer, post, and loop clamp securing electrical connector to back of helmet. Remove shrink sleeving from connector.

5. Detach both the NVIIS and gunsight wiring harness retention sleeves from pile fastener tape inside the helmet.

NAVAIR 13-1-6.7-3

6. Working from the exterior inward, dislodge the rubber grommet encircling the NVIIS wiring harness cable, and feed the free end of the cable with the electrical connector into the helmet.



Steps 1 thru 6 - Para 3-99

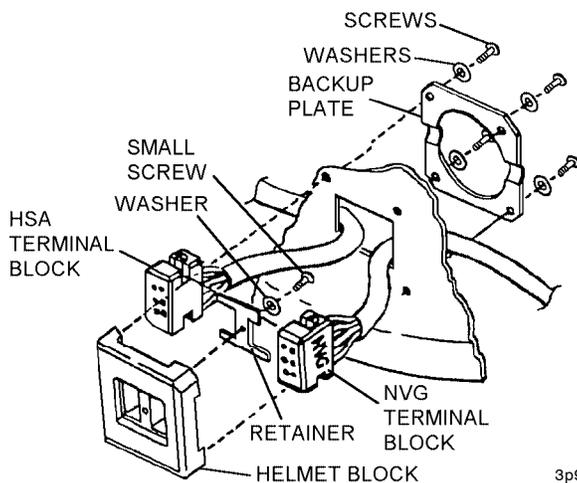
3p99s1

7. Remove pressure-sensitive tape covering backup plate inside helmet brow.

8. Remove four screws, washers, and backup plate securing the helmet block to the helmet assembly.

9. Lift the helmet block with attached NVIIS and gunsight terminal blocks away from the helmet, withdrawing the wiring harness cables slightly from the exit hole. Do not pull on NVIIS or gunsight cables.

10. Remove screw and washer holding the terminal block retainer in place. Remove retainer and NVIIS wiring harness assembly.



Steps 7 thru 10 - Para 3-99

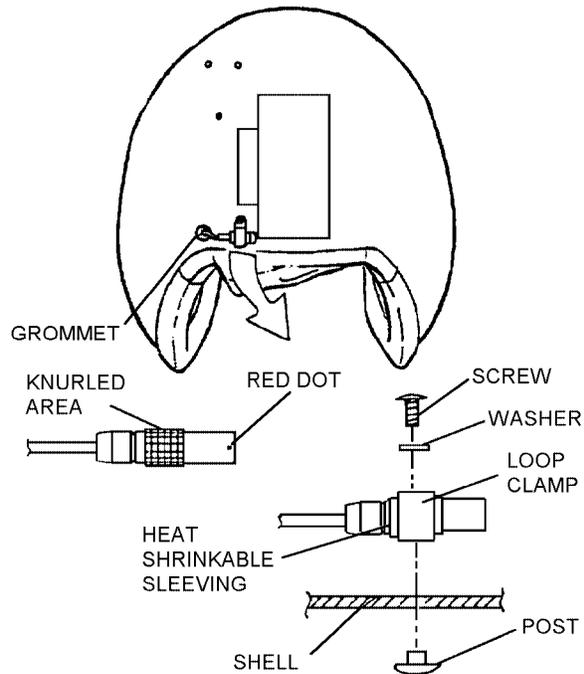
3p99s7

11. Route connector end of replacement NVIIS cable through hole in back of helmet. Make sure cable is not twisted or crimped.

12. Orient aft slot on cable grommet inboard, and press grommet into hole in helmet shell.

13. Position heat shrinkable sleeving over knurled area on electrical connector. Shrink sleeving.

14. Place loop clamp over sleeving and attach loosely to helmet assembly with screw, washer, and post. Orient red dot on electrical connector aft, and tighten screw.



Steps 11 thru 14 - Para 3-99

3p99s11

15. Inside helmet, route gunsight and NVIIS wiring harnesses outboard, and attach hook fastener of retainer sleeves to pile fastener. Ensure that cables are not loose and are flat against helmet shell.

16. Route terminal block of new NVIIS wiring harness assembly through the square hole in front of helmet assembly.

NOTE

The terminal block retainer is designed to prevent improper installation of the two wiring harness terminal blocks. The arms of the retainer are of different lengths and widths to accommodate specific foolproofing shapes in the terminal blocks. The terminal block for the NVIIS is marked NVG, and the gunsight terminal block is marked HSA for ease of identification.

17. Position terminal blocks of gunsight wiring harness assembly and new NVIS wiring harness assembly on terminal block retainer. Hold in place.

NOTE

The longer legs on the rear of the helmet block should be toward the edgeroll; the shorter legs should be toward the top of the helmet.

The NVG terminal block should be on the LH side; the HSA terminal block should be on the RH side.

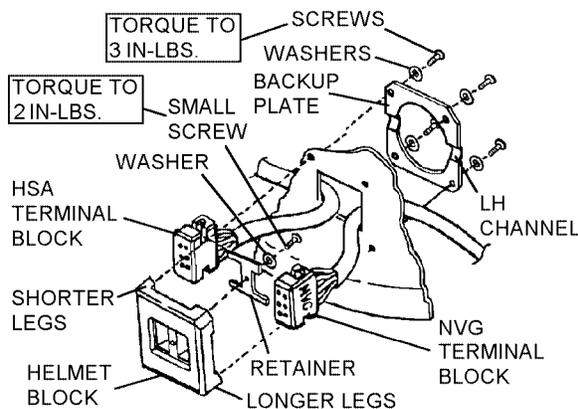
18. Insert terminal blocks into helmet block assembly, ensuring that the longer legs of the helmet block are toward the edgeroll. Ensure that terminal blocks are installed on the correct sides.



If new self-locking screws are not available, re-use of screw removed is authorized provided the old screw is reinstalled with RTV adhesive.

19. Attach terminal block retainer to helmet block with one new screw and washer. Torque screw to 2 in-lbs.

20. Position the helmet block assembly on the outside of the helmet assembly with longer legs toward edgeroll. Position backup plate on the inside of the helmet, ensuring that the NVIS cable exits under the LH channel and the gunsight cable exits under the RH channel of the backup plate.



Steps 16 thru 20 - Para 3-99

3p99s16



Ensure that wiring harness cables are not pinched beneath backup plate when tightening screws.

To prevent cracking damage to the legs of the helmet block, do over-torque screws.

If new self-locking screws are not available, re-use of screws removed is authorized provided the old screws are reinstalled with RTV adhesive.

21. Secure the backup plate with four new screws and washers. Torque screws to 3 in-lbs. Do not pinch cables and do not over-torque screws.

22. Cover backup plate with a 3 x 2-inch piece of pressure-sensitive tape.

23. Install the energy-absorbing liner in accordance with [paragraph 3-94](#).

24. Check helmet fit in accordance with [paragraph 3-53](#).

25. Install inner and outer visor assemblies in accordance with [paragraph 3-76](#).

26. Document in accordance with OPNAVINST 4790.2 Series.

3-100. REPLACEMENT OF GUNSIGHT WIRING HARNESS ASSEMBLY (HGU-67/P). Replace gunsight wiring harness assembly as follows:

NAVAIR 13-1-6.7-3

Materials Required

Quantity	Description	Reference Number
1	Gunsight Wiring Harness Assembly	7636589 NIIN 01-491-0818
As Required	Tape, Pressure-Sensitive, 2-Inch Wide	PPP-T-60-91B, Type IV, Class 1
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

1. Remove the outer and inner visors in accordance with paragraph 3-76 to prevent damage during maintenance.

2. Remove the energy-absorbing liner in accordance with paragraph 3-94 and set aside.

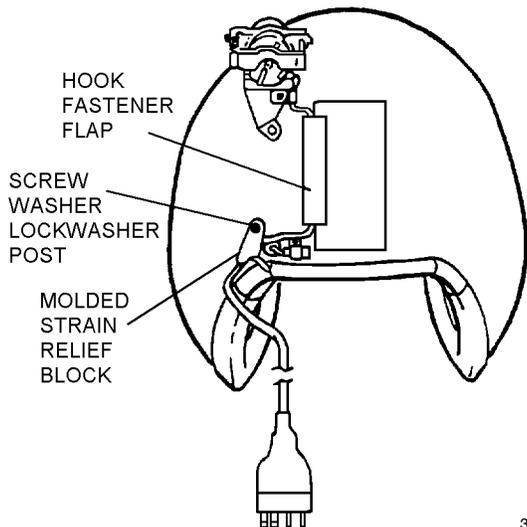


Do not pull on receptacle wires.

3. Carefully peel leather away from edgeroll at nape to expose cable routed beneath leather.

4. Loosen hook fastener flap to release receptacle cable from battery securing patch on back of helmet.

5. Remove screw, washer, lockwasher, and post securing molded strain-relief block to back of helmet.



Steps 3 thru 5 - Para 3-100

3p100s3

6. Invert helmet on padded work surface, with the brow turned away from the technician.

7. Detach both the gunsight and NVIIS wiring harness retention sleeves from pile fastener tape inside the helmet.

8. Remove three screws and flat washers securing receptacle bracket assembly to the receptacle doubler inside the helmet. Set receptacle doubler aside.

a. Remove three screws and flat washers attaching receptacle assembly to receptacle bracket assembly. Set aside screws and flat washers

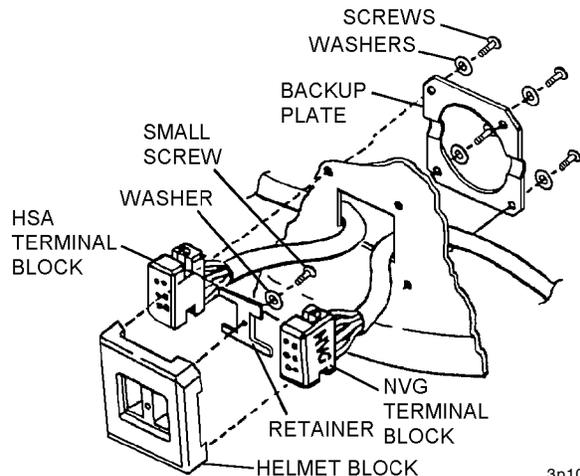
b. De-solder the two wiring harness power leads from their attachment points on the underside of the receptacle assembly.

c. Solder replacement wiring harness power leads to the replacement receptacle assembly attachment points.

9. Remove pressure-sensitive tape covering backup plate inside brow of helmet.

10. Remove four screws, washers, and backup plate securing the helmet block to the helmet assembly.

11. Lift the helmet block with attached HSA and NVG terminal blocks away from the helmet, withdrawing the wiring harness cables slightly from the exit hole. Do not pull on gunsight or NVIIS cables.



Steps 9 thru 11 - Para 3-100

3p100s9

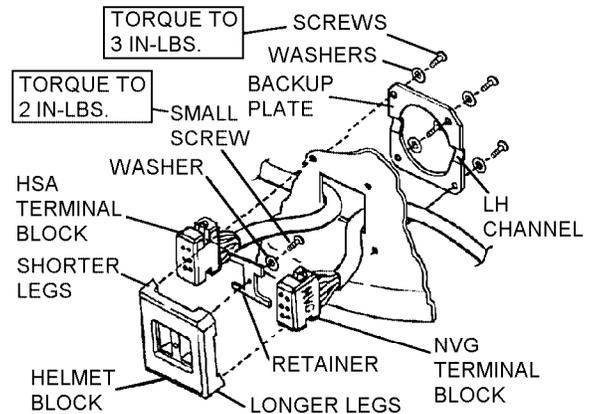
12. Remove screw and washer holding the terminal block retainer in place. Remove retainer and gunsight wiring harness assembly.

13. Route terminal block of new gunsight wiring harness assembly through the square hole in front of helmet assembly.

NOTE

The terminal block retainer is designed to prevent improper installation of the two wiring harness terminal blocks. The arms of the retainer are of different lengths and widths to accommodate specific foolproofing shapes in the terminal blocks. The terminal block for the NVIS is marked NVG, and the gunsight terminal block is marked HSA for ease of identification.

14. Position terminal blocks of NVIS wiring harness assembly and gunsight wiring harness assembly on terminal block retainer. Hold in place.



Steps 13 thru 17 - Para 3-100

3p100s13

NOTE

The longer legs on the rear of the helmet block should be toward the edgeroll; the shorter legs should be toward the top of the helmet.

The NVG terminal block should be on the LH side; the gunsight terminal block should be on the RH side.

15. Insert terminal blocks into helmet block assembly, ensuring that the longer legs of the helmet block are toward the edgeroll. Ensure that terminal blocks are installed on the correct sides.



Re-use of screw removed is authorized provided the removed screw is reinstalled with RTV adhesive.

16. Attach terminal block retainer to helmet block with one new small screw and washer. Torque screw to 2 in-lbs. Do not over-torque screw.

17. Position the helmet block assembly on the outside of the helmet assembly with longer legs toward edgeroll. Position backup plate on the inside of the helmet, ensuring that the NVIS cable exits under the LH channel and the gunsight cable exits under the RH channel of the backup plate.



Ensure that wiring harness cables are not pinched beneath backup plate when tightening screws.

To prevent cracking damage to the legs of the helmet block, do not over-torque screws.

Re-use of screws removed is authorized provided the removed screws are reinstalled with RTV adhesive.

18. Secure the backup plate with four new screws and washers. Torque screws to 3 in-lbs. Do not pinch cables and do not over-torque screws.

19. Cover backup plate with a 3 x 2 inch piece of pressure-sensitive tape.

20. Install receptacle bracket assembly in accordance with [paragraph 3-101, steps 7 thru 10.](#)



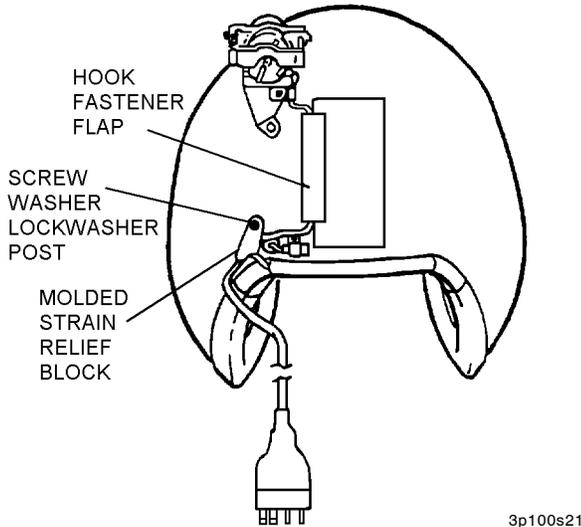
Re-use of screw removed is authorized provided the removed screw is reinstalled with RTV adhesive.

21. Place washer on screw. Insert screw through strain relief block and install lockwasher on screw. Orient molded strain relief block on back of helmet assembly and secure to post.

22. Align receptacle wiring with edge of battery curing patch, and fold hook fastener flap over cable.

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23. Route gunsight wiring harness cable beneath leather of nape edgeroll. Harness should enter at LH corner of leather and make a smooth transition around the edgeroll to inside of helmet. Make sure cable is not twisted or crimped.



Steps 21 thru 23 - Para 3-100

24. Inside helmet, route gunsight and NVIIS wiring harnesses outboard, and attach hook fastener of retainer sleeves to pile fastener inside helmet. Ensure that harnesses are not loose and are flat against helmet shell.

25. Apply adhesive to inside of helmet, allowing to dry for approximately 30 minutes.

26. Apply adhesive to underside of leather, and apply a second coat to inside of helmet. Allow adhesive to become tacky (approximately 15 minutes).

27. Carefully fold leather over edgeroll and gunsight wiring harness, smoothing out wrinkles and bubbles.

28. Install the energy-absorbing liner and TPL assemblies in accordance with paragraph 3-94.

29. Check helmet fit in accordance with paragraph 3-53.

30. Install inner and outer visor assemblies in accordance with paragraph 3-76.

31. Document in accordance with OPNAVINST 4790.2 Series.

3-101. REPLACEMENT OF RECEPTACLE BRACKET ASSEMBLY (HGU-67/P). Replace receptacle bracket assembly as follows:

Materials Required

Quantity	Description	Reference Number
1	Bracket Assembly, Medium/Large	3151AS123-1 (Not E)
	-or-	
1	Bracket Assembly, Extra-Large	3151AS124-1 (Not E)
	-or-	
1	Bracket Assembly, Extra-Large, Wide	3151AS121-1 (Not E)
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246
As Required	Adhesive, RTV 102/732	MIL-A-46106 NIIN 00-877-9872

Notes: 1. Receptacle bracket assemblies are commercially available from:
AMRON International
759 West Fourth Avenue
Escondido, CA 92025-1508
Telephone (760) 746-3834.

1. Remove the outer and inner visors in accordance with paragraph 3-76, to prevent damage during maintenance.

2. Remove the TPL and energy-absorbing liner assemblies in accordance with paragraph 3-94 and set aside.



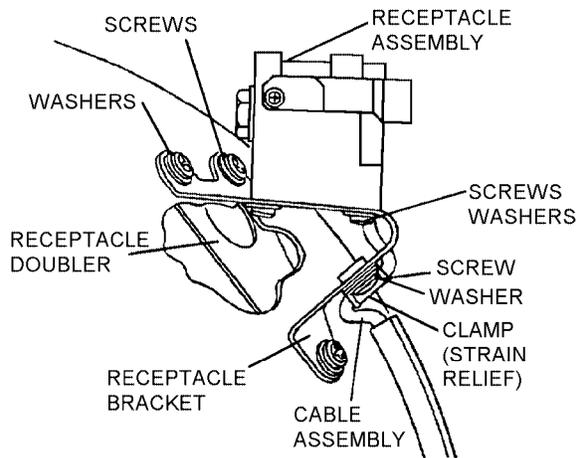
Avoid pulling on receptacle wires.

3. Detach hook fastener, releasing receptacle cable from battery securing patch on back of helmet.

4. Remove three screws and washers attaching receptacle bracket assembly to receptacle doubler inside helmet assembly. Set receptacle doubler aside.

5. Remove three screws and washers attaching receptacle assembly to receptacle bracket assembly.

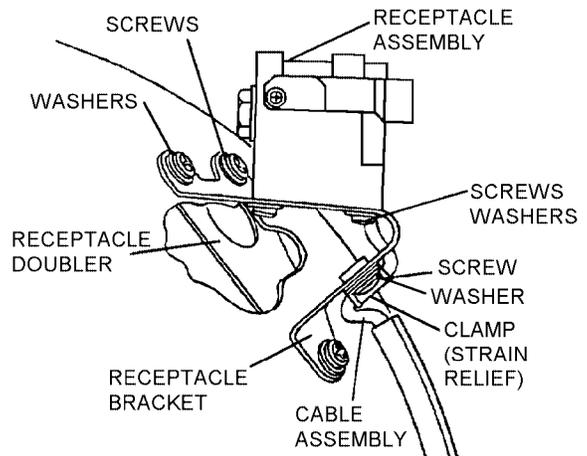
6. Remove screw, washer, and clamp securing receptacle cable to receptacle bracket assembly.



Steps 3 thru 6 - Para 3-101

3p101s3

9. Position receptacle doubler inside helmet over three holes. Align receptacle bracket on outside of helmet and secure to doubler with 3 washers and longest screws.



Steps 7 thru 9 - Para 3-101

3p101s7



Do not pull on receptacle wiring.

To avoid damage to gunsight wiring harness assembly, make sure wires are not pinched between receptacle assembly and receptacle bracket assembly as screws are tightened.

Re-use of screws removed is authorized provided the removed screws are reinstalled with RTV adhesive.

7. Attach replacement receptacle bracket to receptacle assembly with three washers and smallest screws. Avoid pinching wires. Cable assembly must exit through slot in receptacle bracket.

8. Loosely attach receptacle cable to receptacle bracket assembly with loop clamp, shorter screw, and washer. This is a strain relief. Make sure cable is inside receptacle and there is no tension on cable between clamp and receptacle. Tighten screw.

10. Align receptacle cable with edge of battery securing patch, and fold hook fastener strip over cable.

11. Install the TPL and energy-absorbing liner in accordance with [paragraph 3-94](#).

12. Check helmet fit in accordance with [paragraph 3-53](#).

13. Perform boresighting of HSA in accordance with [paragraph 3-57](#).

14. Install inner and outer visor assemblies in accordance with [paragraph 3-76](#).

15. Document in accordance with OPNAVINST 4790.2 series.

3-102. REPLACEMENT OF HELMET SHELL ASSEMBLY. Replacement of the helmet shell assembly involves removal of all component parts and re-assembly of the helmet assembly. [Table 3-9](#) lists the suggested order of disassembly and [table 3-10](#) lists the suggested order of assembly.

Table 3-9. Order of Disassembly for Replacement of Helmet Shell Assembly

Order	Component/Assembly to be Removed	Paragraph
1	Remove Outer and Inner Visor Assemblies	3-76
2	Remove Thermoplastic Liner Assembly	3-77
3	Remove LH and RH Earcup Assemblies	3-79
4	Remove Boom Microphone Assembly	3-84
5	Remove Boom Swivel Assembly	3-85
6	Remove Radio Frequency (Communications) Cable Assembly	3-80
7	Remove Integrated Chin/Nape Assembly	3-93
8	Remove Energy-Absorbing Liner Assembly	3-94
9	Remove CBR Snap Stud	3-96
10	Remove Helmet Block Assembly	3-98
11	Remove NVIIS Wiring Harness Assembly	3-99
12	Remove Gunsight Wiring Harness Assembly (HGU-67/P)	3-100
13	Remove Battery Securing Patch	3-105

Table 3-10. Order of Assembly for Replacement of Helmet Shell Assembly

Order	Component/Assembly to be Installed	Paragraph
1	Installation of Reflective Tape	3-30
2	Installation of Battery Securing Patch	3-31
3	Installation of Strobe Light Securing Patch	3-32
4	Wiring of Helmet Block Assembly	3-34
5	Installation of NVIIS Wiring Harness Assembly	3-35
6	Installation of Gunsight Wiring Harness Assembly (HGU-67/P only)	3-36
7	Installation of Energy-Absorbing Liner Assembly	3-38
8	Installation of Radio Frequency (Communications) Cable Assembly	3-40
9	Installation of Earphones	3-47
10	Installation of Boom Swivel Assembly	3-85
11	Installation of Boom Microphone Assembly	3-41
12	Installation and Fitting of Thermoplastic Liner Assembly	3-52
13	Installation of Visor Assemblies and Visor Cover Assembly	3-48

3-103. REPAIR OF HELMET SHELL ASSEMBLY.

Repair of the helmet shell assembly is intended for, but not limited to, patching of holes resulting from removal of superceded CBR assemblies, repositioning of oxygen mask receivers and internal communications cable replacements. Repair the helmet shell assembly as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Tape, Pressure Sensitive, Adhesive	NIIN 00-283-0612
As Required	Adhesive, Epoxy, Two-Part	NIIN 00-738-6429 or equivalent
As Required	Sandpaper, Fine	Commercial

1. Remove the outer and inner visors in accordance with [paragraph 3-76](#) to prevent damage during maintenance.

2. Remove earcup assemblies from pile fastener inside helmet assembly and position clear of work area.

3. Detach pile fastener material from inside helmet assembly and fold clear of work area.

4. Remove receiver assemblies.

5. Prepare helmet exterior by removing reflective tape from area surrounding holes to be filled. Sand this area lightly.

6. On helmet interior, firmly apply masking tape over hole(s) to be filled.

7. On a clean, dry, flat surface, thoroughly mix equal amounts of Epoxy Part A (Resin) and Part B (Hardener), ensuring that Parts A and B blend into a smooth, uniform color.

8. Using a putty knife or tongue depressor, fill holes completely with epoxy mixture. Overfilling the holes slightly will compensate for settling as the mixture dries.

9. Allow mixture to dry for approximately four hours.

10. Sand away excess mixture from the helmet shell surface.

11. Remove masking tape from helmet interior.

12. Install reflective tape in accordance with [paragraph 3-30](#).

13. Install the inner and outer visors in accordance with [paragraph 3-76](#).

14. Document in accordance with OPNAVINST 4790.2 Series.

3-103A. REPAIR OF EDGEROLL. To repair small (under 3-inch total length) tears, splits and rips to the edgeroll leather, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Moleskin, Adhesive	NIIN 01-456-2000
As Required	Thread, Nylon, Size "E"	V-T-295 NIIN 00-244-0609

NOTE

Tears, splits and rips, larger than the 3-inch limit shall be evaluated by the technician for determination of reparability. If leather is too brittle or otherwise deteriorated for repair procedures to be effective, replace the helmet shell.

1. Using size "E" nylon thread single, whip stitch or baseball stitch the raw edges of the torn, split or ripped edgeroll leather together. Secure stitching ends with a surgeon's knot followed by a square knot.

2. Using pinking shears, cut a patch from the Moleskin material large enough to cover the damaged edgeroll area plus a 1/4-inch clearance.

3. Darken the upper surface of the Moleskin material with a black magic marker or equivalent to match the color of the edgeroll and allow to dry.

4. Remove covering over adhesive on Moleskin material and firmly press into position over the repaired area of the edgeroll.

5. Document repair procedures in accordance with OPNAVINST 4790.2 Series.

3-104. REPLACEMENT OF STROBE LIGHT SECURING PATCH. Replace strobe light securing patch on helmet assembly as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Sandpaper, Fine	Commercial
As Required	Detergent, Mild	Commercial
As Required	Cloth, Lint-Free	MIL-C-85043 NIIN 00-165-7195
2 Inches	Tape, Pile, Type I, 2-Inch Width	MIL-F-21840 NIIN 00-296-4930
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

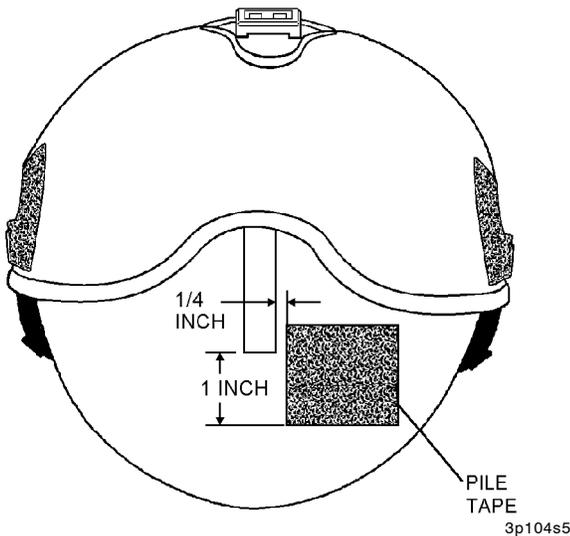


Do not damage reflective tape covering helmet shell when removing strobe light securing patch or when sanding to remove adhesive.

NOTE

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

1. Work a beveled (not sharp) short putty knife under the strobe light securing patch, stripping the patch from the helmet.
2. Clean helmet surface intended for strobe light securing patch with fine sandpaper.
3. Remove sanding residue with a mild solution of detergent and water, rinsing thoroughly.
4. Wipe dry with a clean, lint-free cloth. Allow surface to air dry thoroughly.
5. Position a piece of 2-inch x 2-inch pile fastener tape on the crown of the helmet at a point 1/4 inch to the right of the lens pad and 1 inch from the aft end of the lens pad. Hold in place and trace around the tape with a lead pencil.



Step 5 - Para 3-104

6. Apply adhesive to the outlined area, and allow adhesive to dry approximately 30 minutes.
7. Apply adhesive to the underside of the pile fastener tape and apply a second coat to the outlined area

on the helmet. Allow adhesive to become tacky (approximately 15 minutes).

8. Align pile fastener tape with outlined area and press firmly onto helmet shell assembly.

9. Document in accordance with OPNAVINST 4790.2 Series.

3-105. REPLACEMENT OF BATTERY COMPARTMENT SECURING PATCH. Replace battery compartment securing patch on the helmet assembly as follows:

Materials Required

Quantity	Description	Reference Number
1	Battery Compartment Securing Patch, Medium, Large, Extra-Large	(Not [redacted])
As Required	Detergent, Mild	Commercial
As Required	Cloth, Lint-Free	MIL-C-85043 NIIN 00-165-7195
As Required	Sandpaper, Fine	Commercial
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

Notes: 1. Fabricate battery compartment securing patch in accordance with paragraph 3-107 or 3-108.

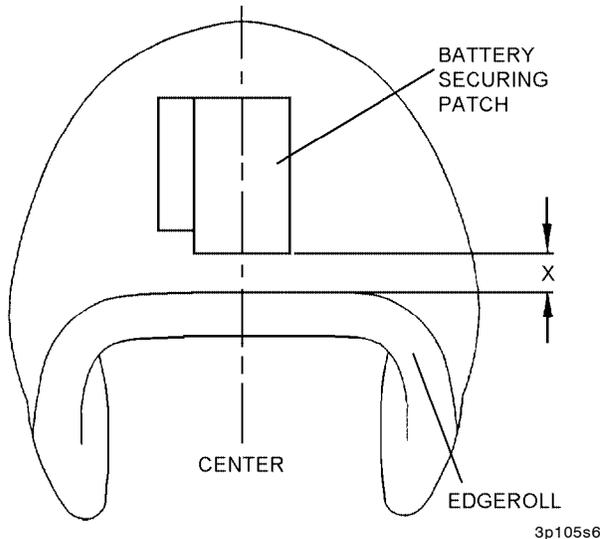


Do not damage reflective tape covering helmet shell when removing battery securing patch or when sanding to remove adhesive.

1. Work a beveled (not sharp) short putty knife under the battery securing patch, stripping the patch from the helmet.
2. Clean helmet surface intended for battery securing patch with a fine sandpaper.
3. Remove sanding residue with a mild solution of detergent and water, rinsing thoroughly.
4. Wipe dry with a clean, lint-free cloth. Allow surface to air dry thoroughly.
5. Determine the proper vertical location of the battery securing patch from the edgeroll according to patch size:

Medium Helmet = 1/2 inch from edgeroll
 Large Helmet = 3/4 inch from edgeroll
 Extra-Large Helmet = 1 inch from edgeroll

6. Position a replacement battery securing patch on the centerline of helmet at nape edgeroll. Offset the patch from nape edgeroll based on helmet size. Hold in place and trace around the large rectangular portion of the patch with a lead pencil. Do not trace around the velcro hook flap.



7. Apply adhesive to the outlined area, and allow adhesive to dry approximately 30 minutes.

8. Apply adhesive to the underside of the battery securing patch and apply a second coat to the outlined area on the helmet. Allow adhesive to become tacky (approximately 15 minutes).

NOTE

Ensure that hook strip is on the LH side when installing battery securing patch.

9. Align battery securing patch with outlined area and press firmly onto helmet shell assembly.

10. Document in accordance with OPNAVINST 4790.2 Series.

3-106. STORAGE OF EQUIPMENT.

1. Store the quick don mount assembly with the helmet assembly, but not attached to the helmet block.

2. Store the NVIS, which includes the goggles and battery pack, in the NVIS case. Note that the NVIS case is not issued with the helmet assembly; it is a separate issue item.

3-107. FABRICATION OF MEDIUM/LARGE BATTERY SECURING PATCH. Construct a medium/large battery securing patch for a medium or large helmet assembly, in accordance with [figure 3-13.](#)

3-108. FABRICATION OF EXTRA-LARGE AND EXTRA-LARGE WIDE BATTERY SECURING PATCH. Construct an extra-large or extra-large wide battery securing patch for an extra-large or extra-large wide helmet assembly in accordance with [figure 3-14.](#)

3-109. REPLACEMENT OF REFLECTIVE TAPE. Remove and replace reflective tape as follows:

Materials Required		
Quantity	Description	Reference Number
As Required	Denatured Alcohol	TT-I-734A NIIN 01-136-7012

1. Using care not to damage helmet surface, work a beveled (not sharp) short putty knife under the reflective tape and strip the sheeting from the adhesive.

2. Remove adhesive using cloth dampened with alcohol.

3. Install new reflective tape in accordance with [paragraph 3-30.](#)

4. Document in accordance with OPNAVINST 4790.2 Series.

3-110. FABRICATION OF REMOVABLE CAMOUFLAGE COVER. Fabricate removable camouflage cover templates, using suitably durable material and patterns provided in [figures 3-15 through 3-18](#) and [figures 3-19](#), Lens Pad/Helmet Mounting Block Template, and [3-20](#), Battery Securing Patch Template, as follows:

NAVAIR 13-1-6.7-3

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Aramid, Fire Resistant, Sage Green (Not [redacted])	MIL-C-83429 NIIN 01-147-2064
As Required	Cloth, Camouflage, De [redacted] (Not [redacted])	NIIN TBD
As Required	Cloth, Camouflage, Woodland (Not [redacted])	NIIN 01-167-8403
As Required	Fastener Tape, Hook, 1-Inch	MIL-F-21840 NIIN 00-106-5973
As Required	Fastener Tape, Pile, 1-Inch	MIL-F-21840 NIIN 00-106-5974
As Required	Fastener Tape, Hook, 2-Inch	MIL-F-21840 NIIN 00-926-4931
As Required	Fastener Tape, Pile, 2-Inch	MIL-F-21840 NIIN 00-926-4930
As Required	Thread, Nylon, High Temperature Resistant Polyamide	MIL-T-83193 NIIN 00-130-6245
As Required	Adhesive, Polychloroprene, Class 3	MIL-A-5540 NIIN 00-515-2246

Notes: 1. Use of any camouflage material readily available is authorized for removable cover fabrication.

NOTE

Ensure correct pattern size has been selected for helmet being covered.

All machine stitching shall conform to ASTM-D-6193, Type 301 Lockstitch. Stitches shall be set at 8 to 10 stitches per inch with a minimum backstitch of one inch.

1. Lay out fabric and trace template outline onto material. Transfer all markings for placement of hook fastener tape from template to fabric. Cut fabric.

2. Assemble left and right cover center panel sections by machine stitching forming a 3/8-inch seam from the forward edge of the cover to the rear edge.

3. Reverse fabric and top stitch the seam 1/4-inch from folded edge.

4. Using top stitching as a centerline for template placement, trace outline of lens pad/helmet mounting

block cut-out template (figure [redacted]) onto forward portion of assembled center section.

5. At the rear of the center section, using top stitching as a centerline for template placement, trace outline of battery securing patch cut-out template (figure [redacted]).

6. At the area where the lens pad/helmet mounting block cut-out was traced, cut material and fold excess fabric under, and stitch 1/4-inch from the edge around the entire slot forming a neat clean edge. Repeat for the area where the battery securing patch cut-out was traced.

7. Using a 3/8-inch seam, sew together the darts marked AA and BB on the right and left side panels of the helmet cover. Top stitch the outer surface of the side panels over the 3/8-inch seam sewing 1/4 inch from the folded edge of the side panel darts.

8. Attach right and left side panels to the helmet cover center section using a 3/8-inch seam. Top stitch 1/4 inch from the folded edge of the seam on the outer fabric surface of each panel.

9. For HGU-67/P helmets only, perform the following steps for receptacle assembly cut-out:

a. Position helmet upright on work surface with rear of helmet facing technician, remove receptacle and receptacle bracket from rear of helmet shell by removing three screws and flat washers attaching receptacle and receptacle bracket to receptacle doubler on helmet shell interior. Remove receptacle cable from hook fastener strip on battery securing patch, and place gently on work surface.

b. Fabricate a receptacle cut-out template (3 inch x 3 inch square) from suitably durable material.

c. Place assembled cover, right side out, evenly over helmet shell exterior. Mark location of upper and lower receptacle bracket attaching points on cover exterior. With cover held securely in place, mark the upper and lower edges of the battery securing patch on cover exterior.

d. Reverse assembled cover and place evenly over helmet shell exterior. Hold firmly in place and mark upper and lower edges of battery securing patch on cover interior surface.

e. Using three screws and washers removed in step a above, reinstall receptacle and bracket to helmet shell exterior by securing them to the receptacle doubler located on the helmet shell interior. Secure receptacle cable to hook fastener strip on battery securing patch. Set helmet aside for later installation of helmet cover.

f. At marked location on helmet cover interior surface, center a 2-inch x 4-inch length of hook fastener tape vertically between marks and sew around entire patch 1/4 inch from the edge.

g. Reverse helmet cover. At location marked with the upper and lower receptacle bracket positions in step c above, center the receptacle cut-out template between the marks and trace outline onto helmet cover exterior surface. Cut material, fold under excess fabric, and stitch 1/4 inch from edge around entire cut-out forming a neat clean edge.

h. At location marked for battery securing patch attachment on cover exterior, center a 2-inch x 4-inch length of pile fastener tape between marks and sew in

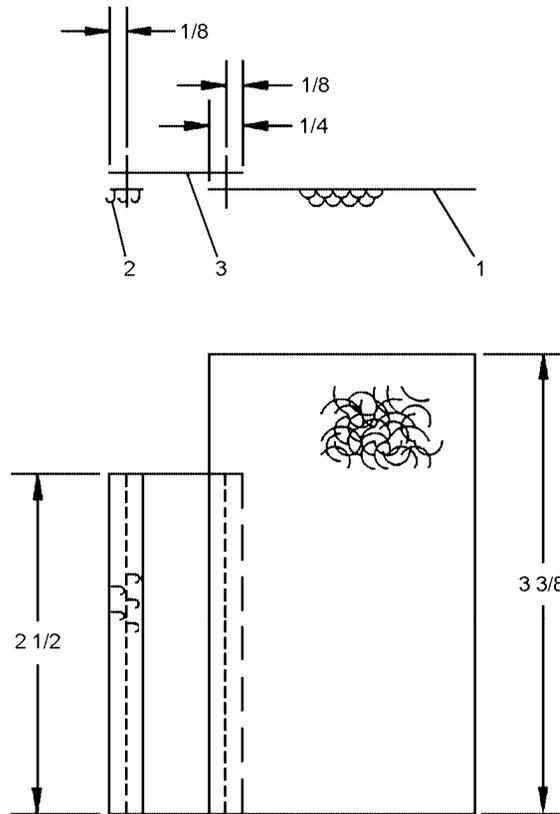
position stitching 1/4 inch from edge around entire patch.

10. Attach 1-inch square hook fastener tape to interior surface of helmet cover as indicated on pattern.

11. Fold under a 3/8-inch hem and stitch 1/4 inch from edge of hem around entire helmet cover.

11A. On exterior of completed cover, sew a strobe light securing patch into place using dimensions from paragraph 3-32 as a guideline for positioning patch.

12. Following procedure established in paragraph 3-32, install 1-inch square pile fastener tape on helmet shell exterior surface in locations corresponding to hook fastener locations on helmet cover.



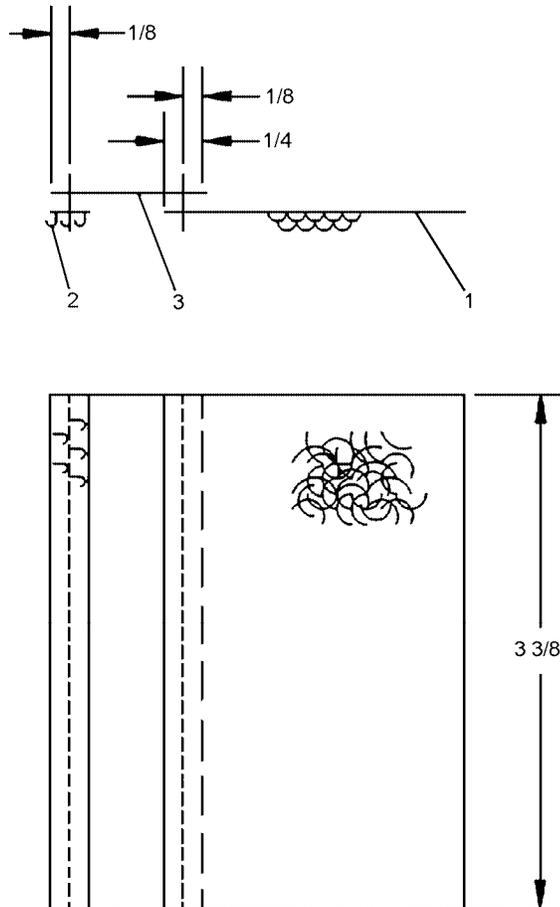
3-13

List of Materials

No.	Description	Material	Specification
1	Pile Tape, 2 x 3-3/8 In.	Tape, Pile, Black	MIL-F-21840, Type I, Class I
2	Hook Tape, 1/4 x 2-1/2 In.	Tape, Hook, Black	MIL-F-21840, Type I, Class I
3	Binding Tape, 1 x 2-1/2 In.	Tape, Binding, Black	MIL-T-5038, Type III, Class 2
4	Thread, Size F	Thread, Black	V-T-295, Type II, Class A

Note: Sear edges of material; do not form sharp edges. Backstitch not less than 3/4 inch.

Figure 3-13. Fabrication of Medium/Large Battery Securing Patch (3151AS112-2)



3-14

List of Materials

No.	Description	Material	Specification
1	Pile Tape, 2 x 3-3/8 In.	Tape, Pile, Black	MIL-F-21840, Type I, Class I
2	Hook Tape, 1/4 x 3-3/8 In.	Tape, Hook, Black	MIL-F-21840, Type I, Class I
3	Binding Tape, 1 x 3-3/8 In.	Tape, Binding, Black	MIL-T-5038, Type III, Class 2
4	Thread, Size F	Thread, Black	V-T-295, Type II, Class A

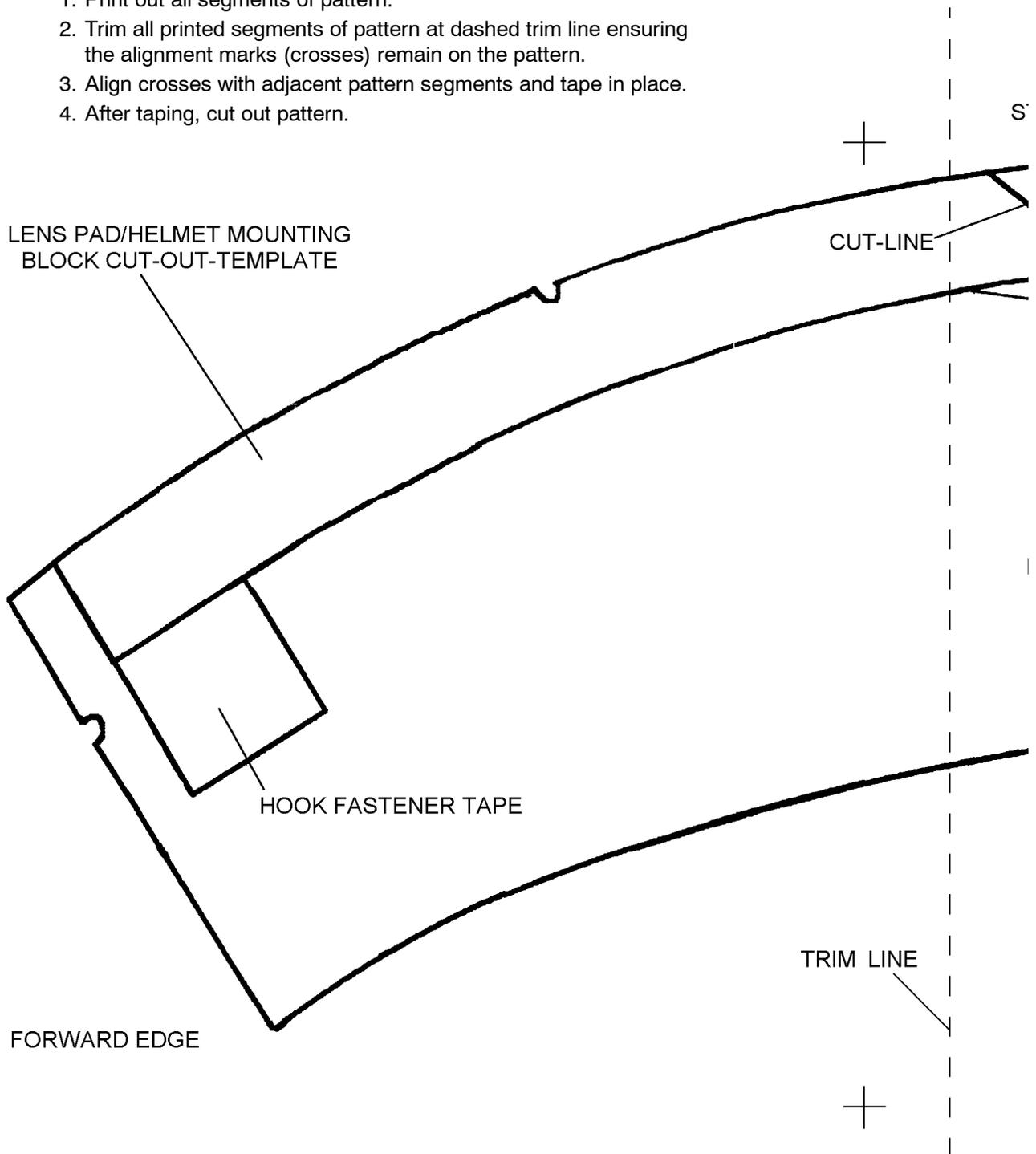
Note: Sear edges of material; do not form sharp edges. Backstitch not less than 3/4 inch.

Figure 3-14. Fabrication of Extra-Large and Extra-Large Wide Battery Securing Patch (3151AS112-1)

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NOTE: Procedures for the construction of the pattern.

1. Print out all segments of pattern.
2. Trim all printed segments of pattern at dashed trim line ensuring the alignment marks (crosses) remain on the pattern.
3. Align crosses with adjacent pattern segments and tape in place.
4. After taping, cut out pattern.



This figure has been divided into multiple segments to facilitate the printing of the pattern.

3-15-1

Figure 3-15. Removable Camouflage Helmet Cover (Medium) (1 of 5)

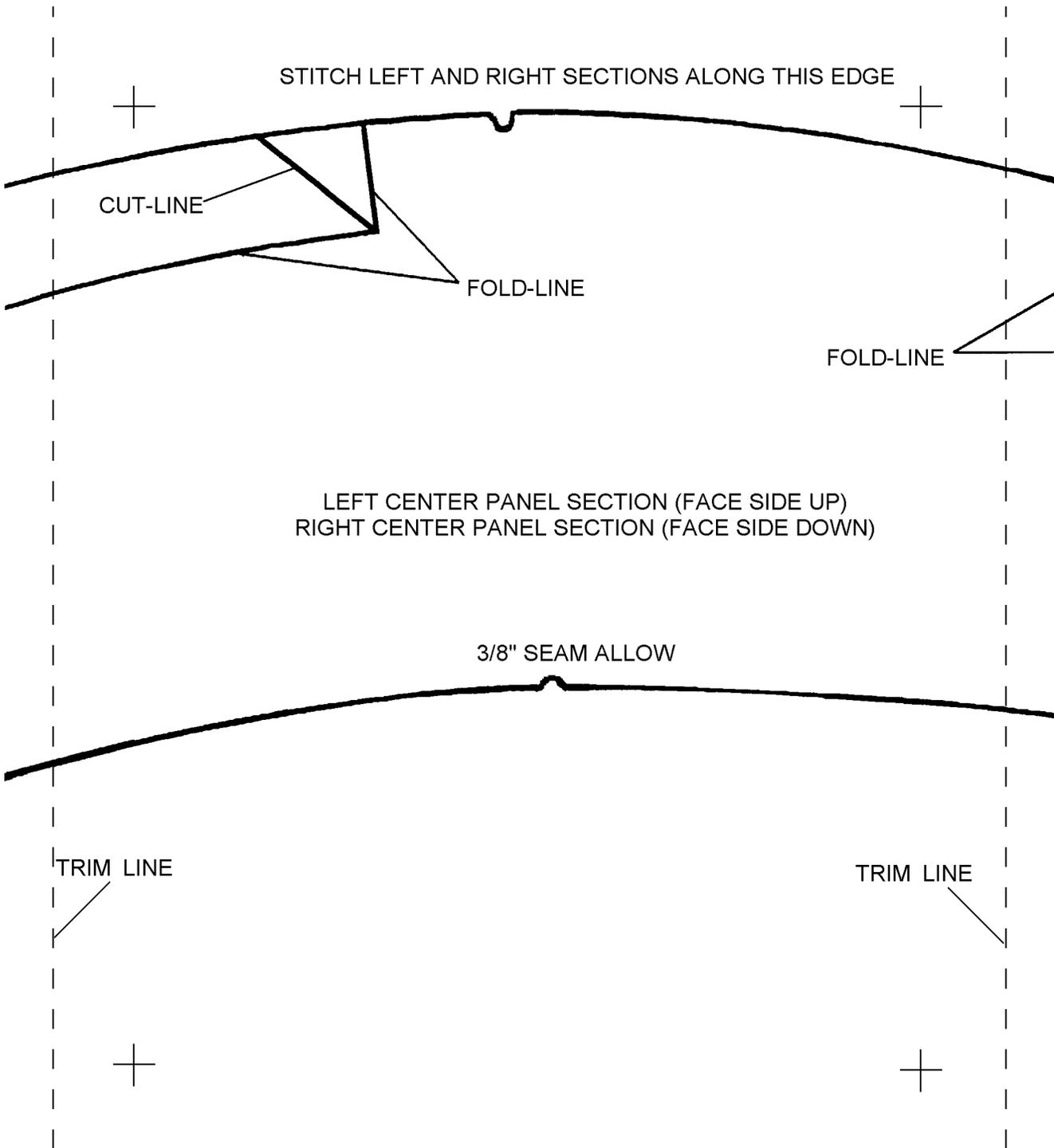


Figure 3-15. Removable Camouflage Helmet Cover (Medium) (2 of 5)

3-15-2

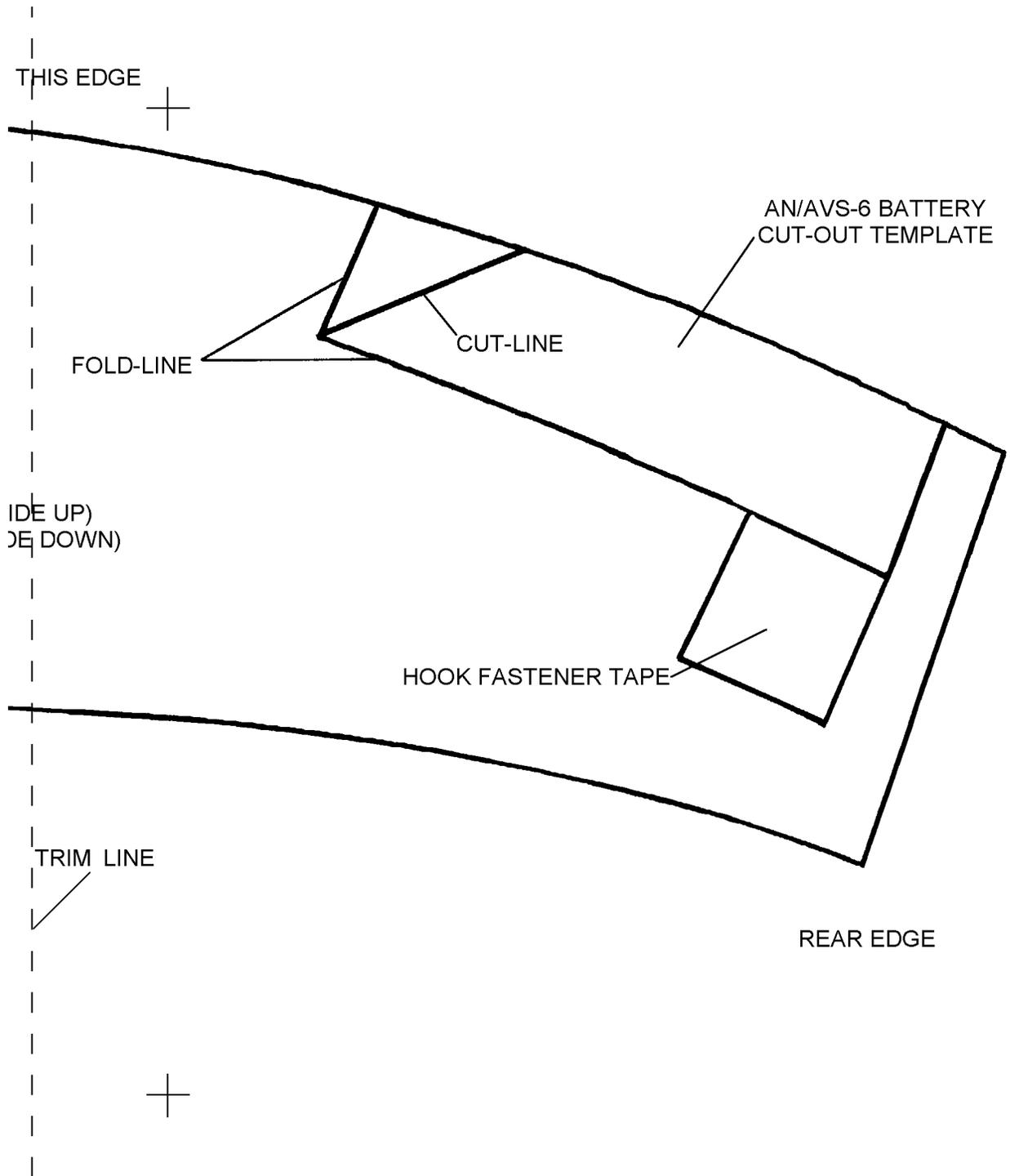
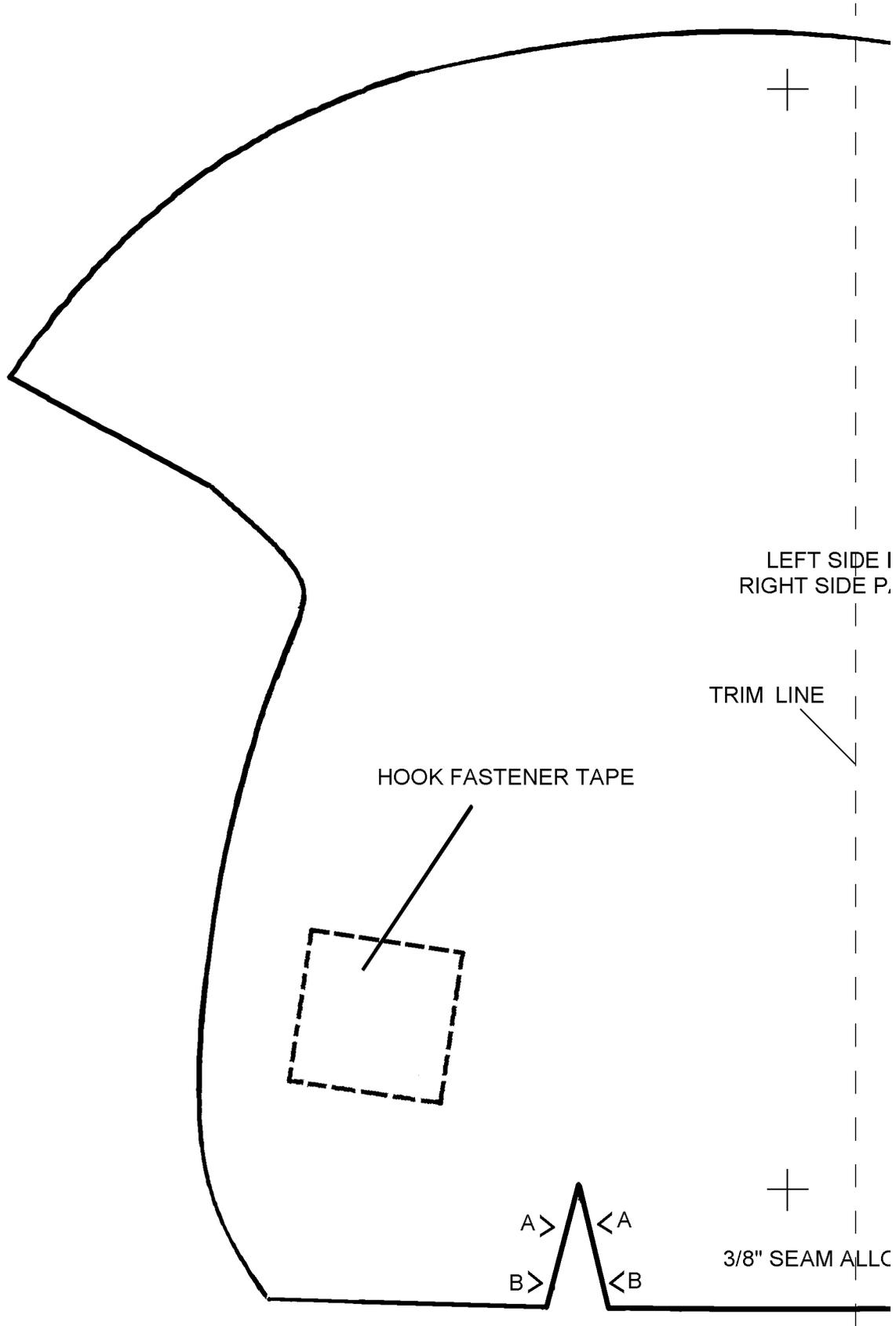
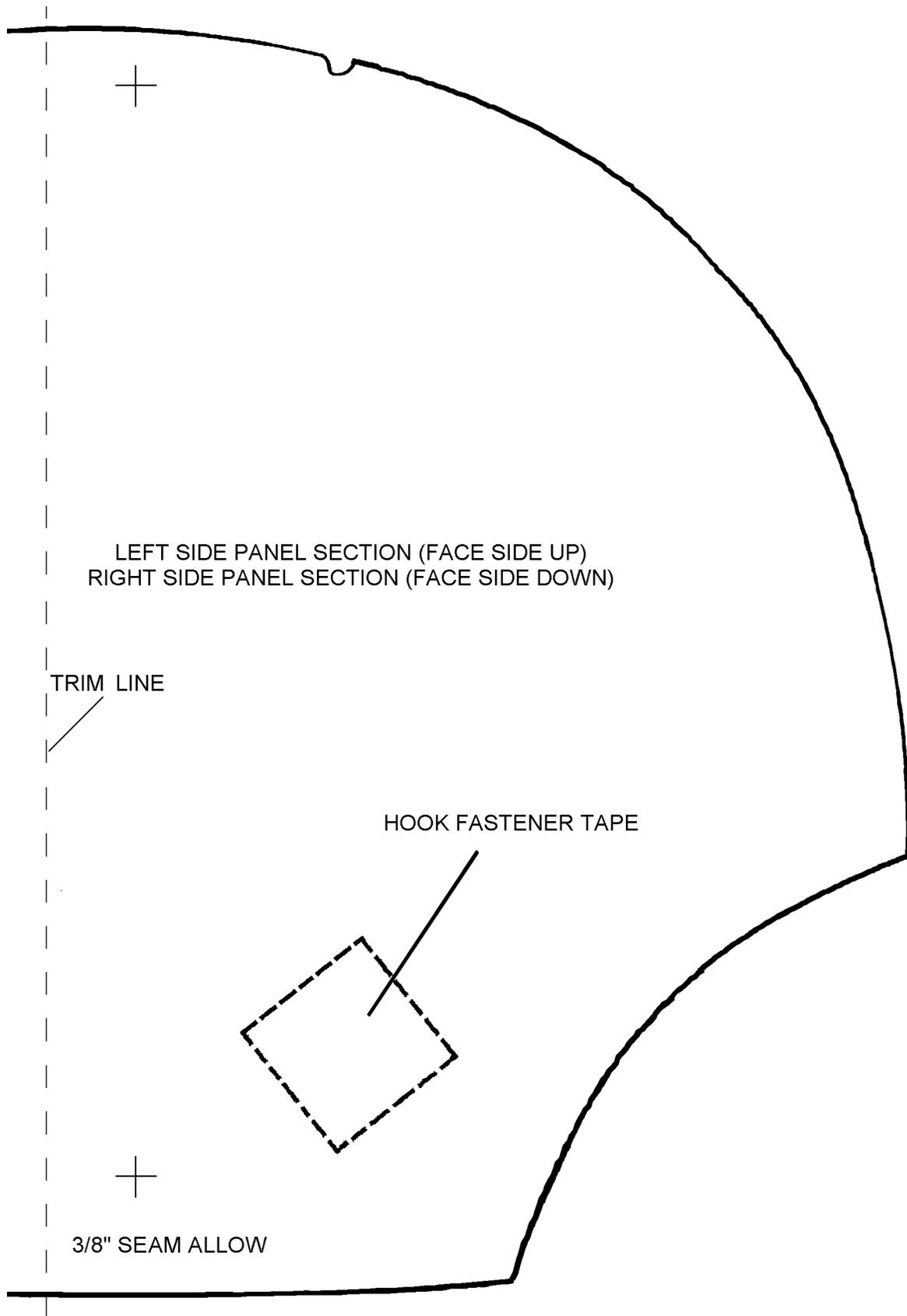


Figure 3-15. Removable Camouflage Helmet Cover (Medium) (3 of 5)



3-15-4

Figure 3-15. Removable Camouflage Helmet Cover (Medium) (4 of 5)



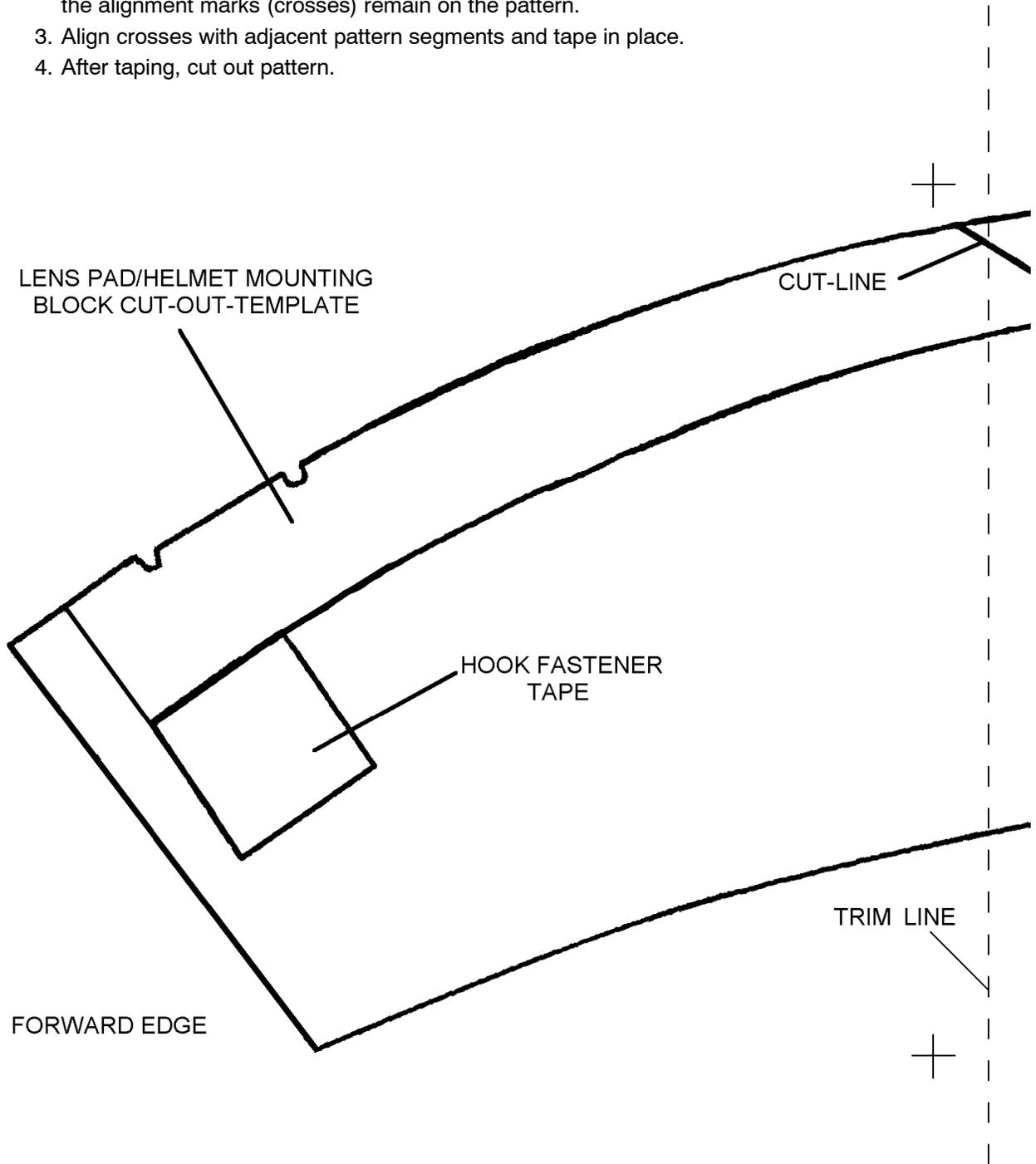
3-15-5

Figure 3-15. Removable Camouflage Helmet Cover (Medium) (5 of 5)

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NOTE: Procedures for the construction of the pattern.

1. Print out all segments of pattern.
2. Trim all printed segments of pattern at dashed trim line ensuring the alignment marks (crosses) remain on the pattern.
3. Align crosses with adjacent pattern segments and tape in place.
4. After taping, cut out pattern.



This figure has been divided into multiple segments to facilitate the printing of the pattern.

Figure 3-16. Removable Camouflage Helmet Cover (Large) (1 of 5)

3-16-1

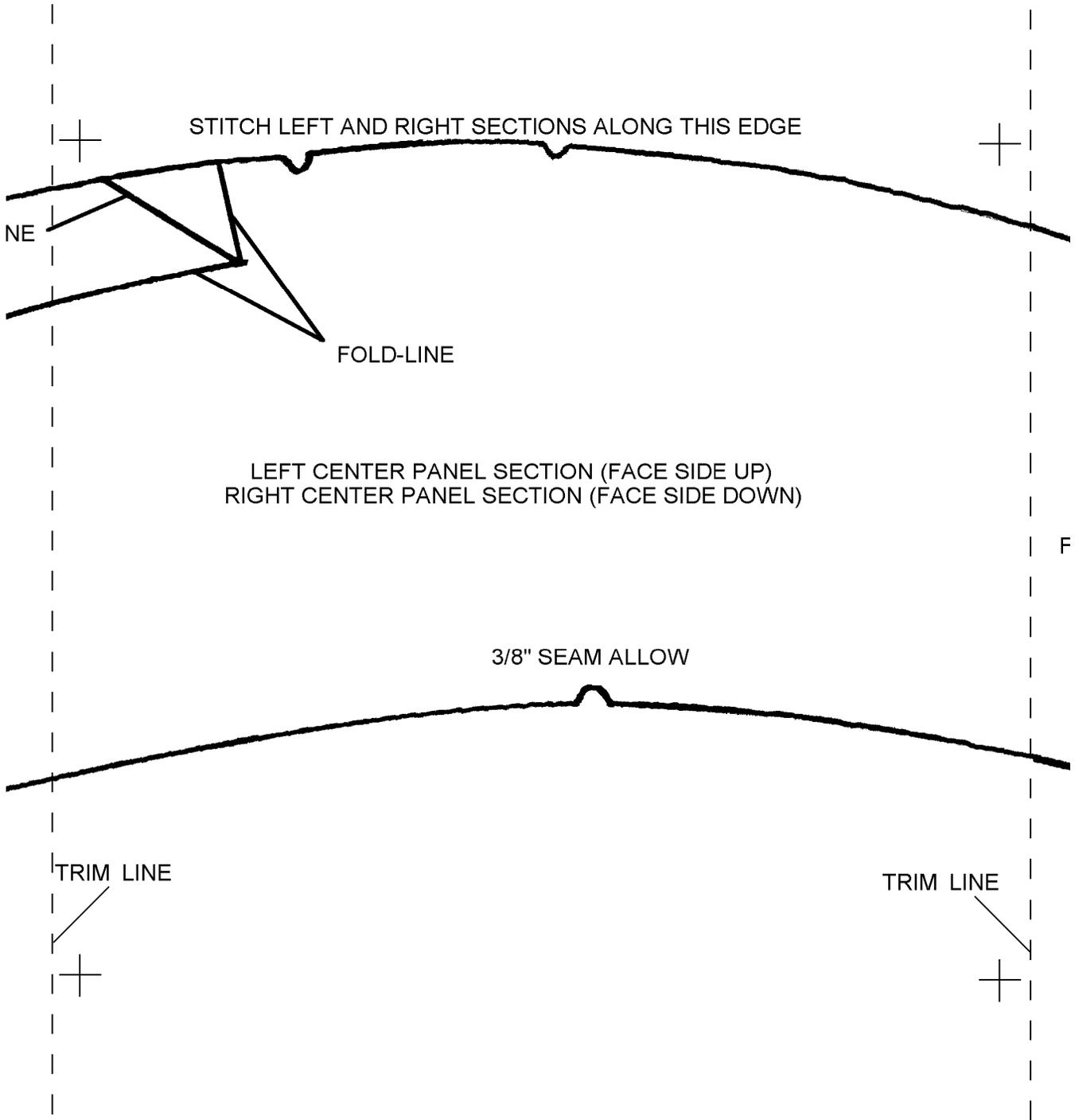


Figure 3-16. Removable Camouflage Helmet Cover (Large) (2 of 5)

3-16-2

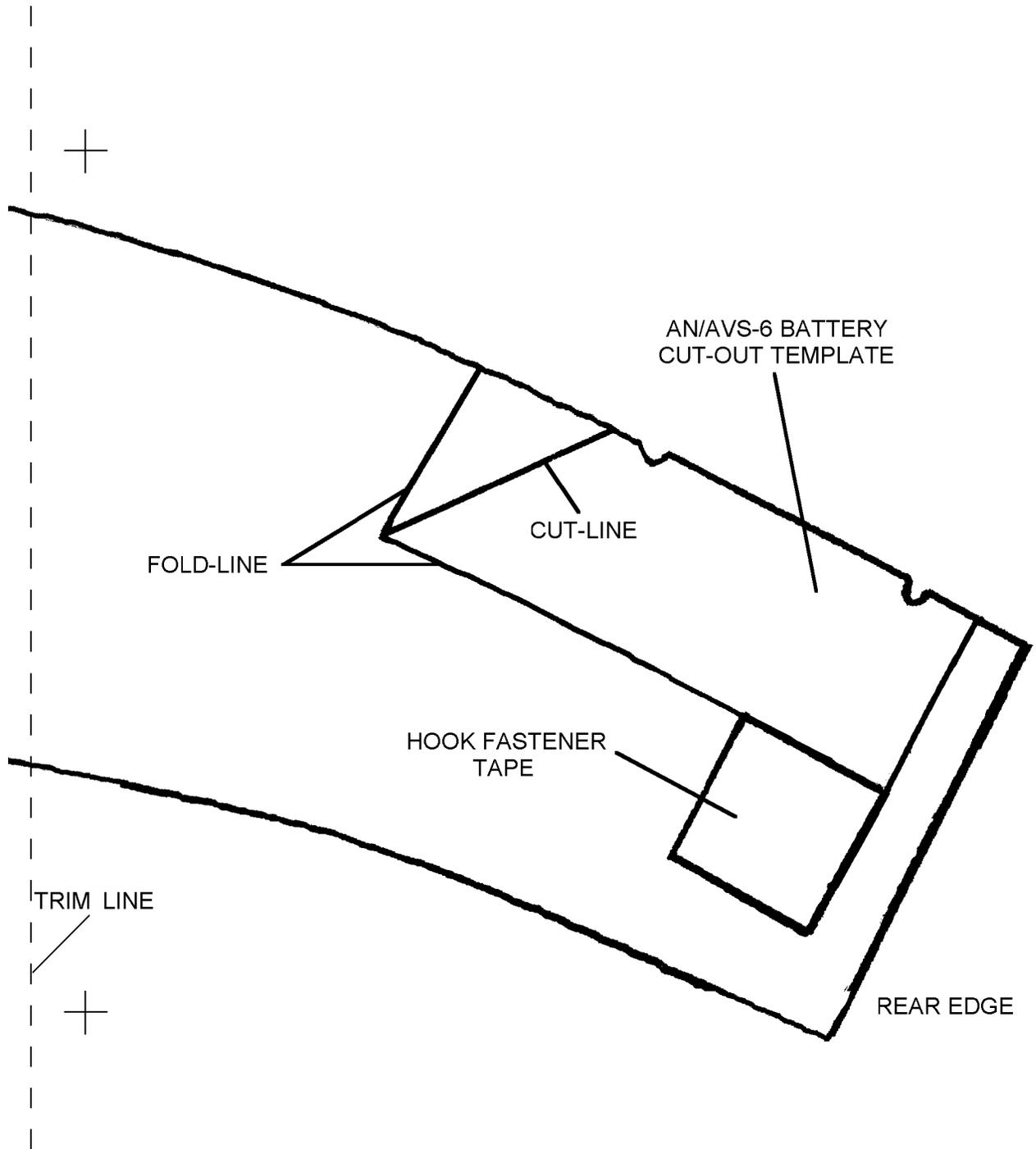
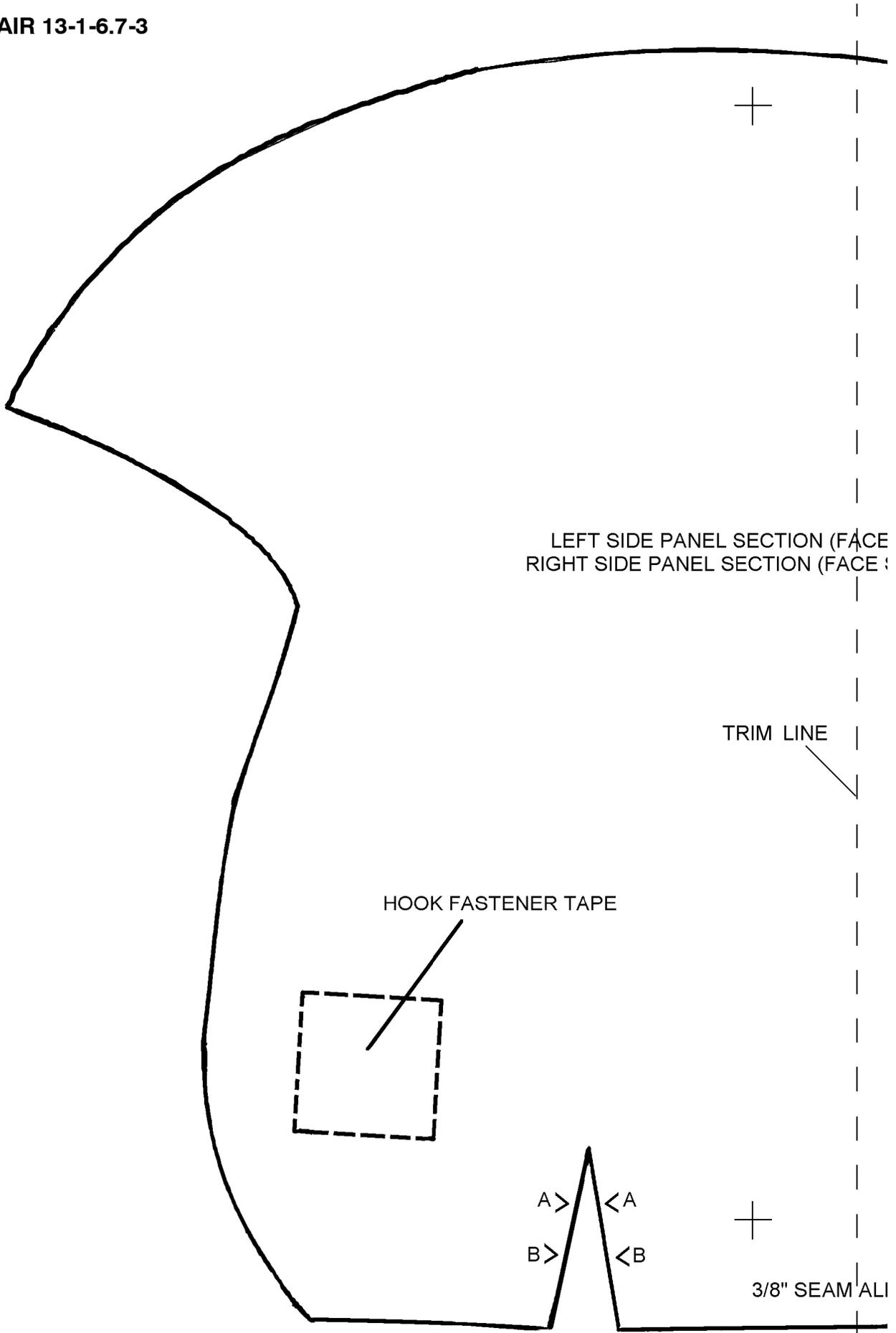
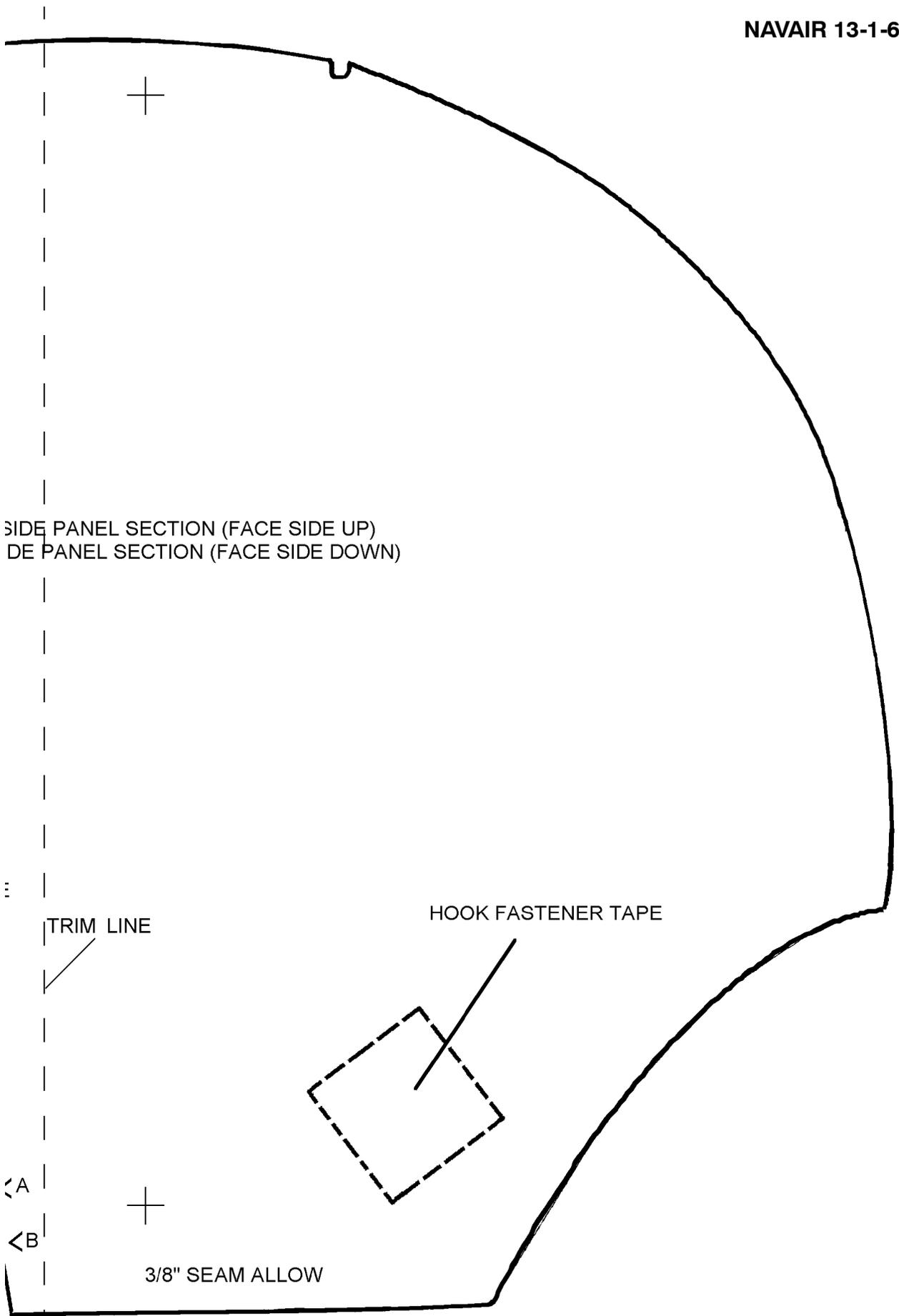


Figure 3-16. Removable Camouflage Helmet Cover (Large) (3 of 5)

3-16-3



3-16-4



SIDE PANEL SECTION (FACE SIDE UP)
DE PANEL SECTION (FACE SIDE DOWN)

TRIM LINE

HOOK FASTENER TAPE

<A
<B

3/8" SEAM ALLOW

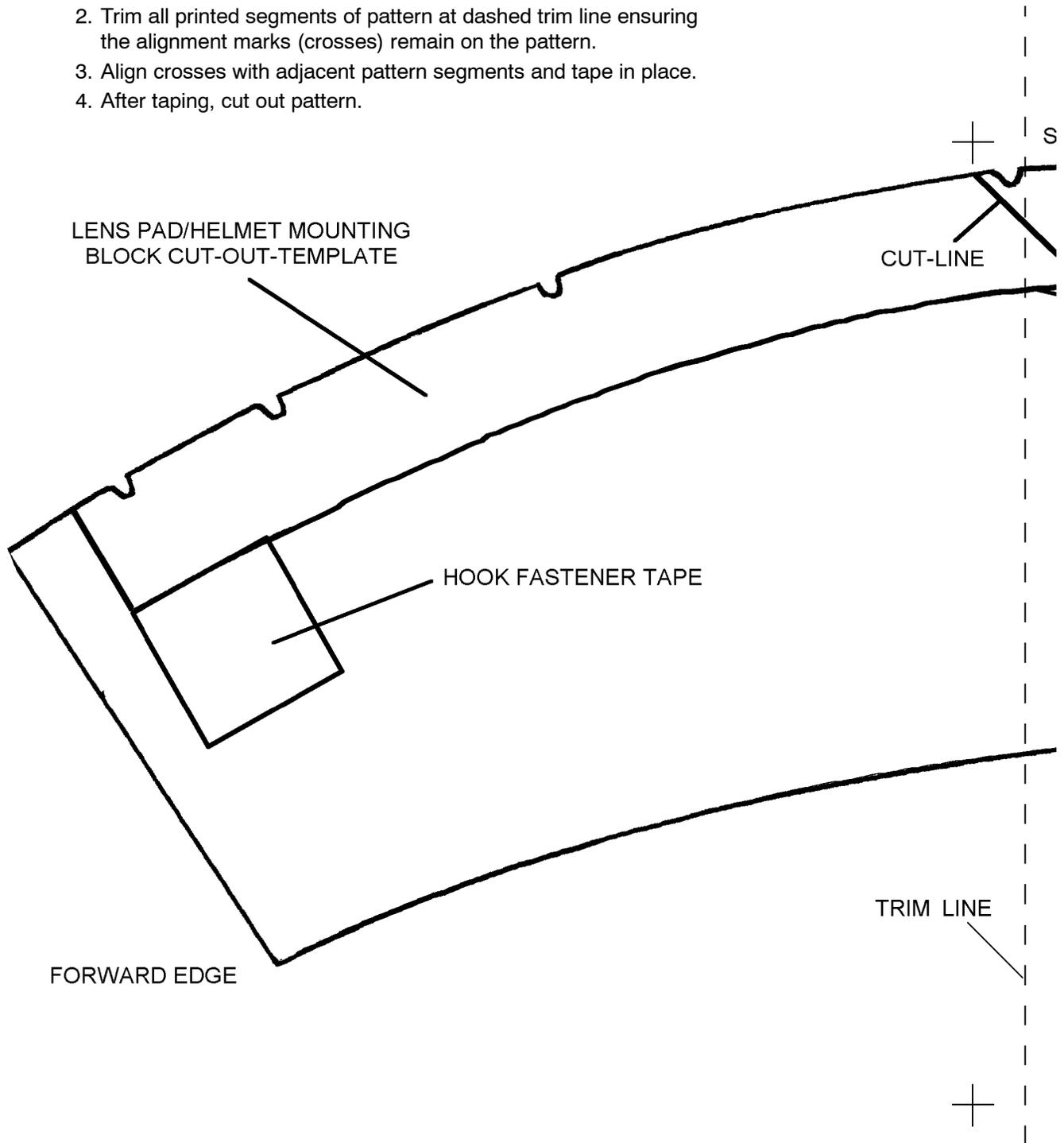
3-16-5

Figure 3-16. Removable Camouflage Helmet Cover (Large) (5 of 5)

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NOTE: Procedures for the construction of the pattern.

1. Print out all segments of pattern.
2. Trim all printed segments of pattern at dashed trim line ensuring the alignment marks (crosses) remain on the pattern.
3. Align crosses with adjacent pattern segments and tape in place.
4. After taping, cut out pattern.



This figure has been divided into multiple segments to facilitate the printing of the pattern.

3-17-1

Figure 3-17. Removable Camouflage Helmet Cover (Extra-Large) (1 of 5)

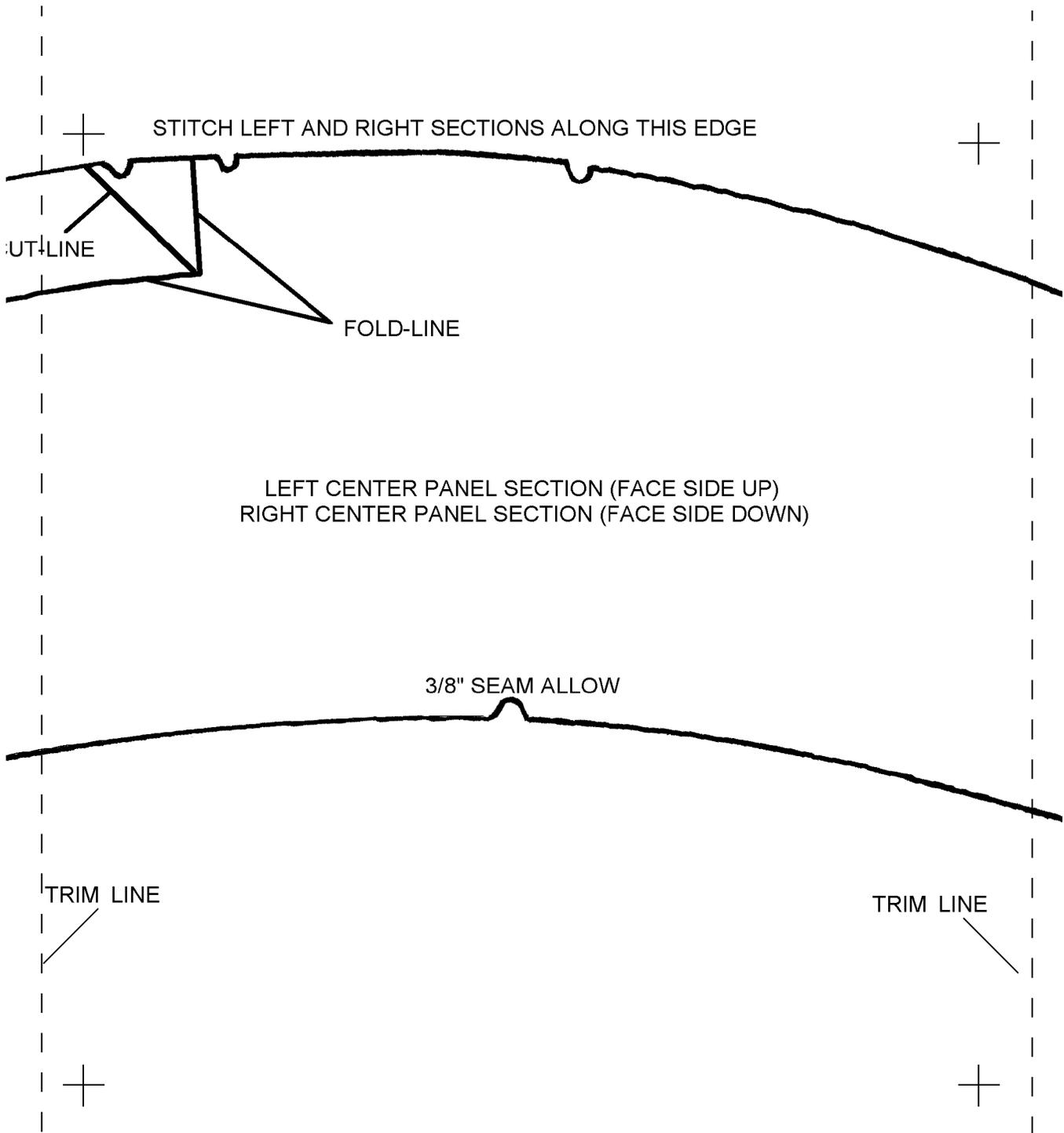


Figure 3-17. Removable Camouflage Helmet Cover (Extra-Large) (2 of 5)

3-17-2

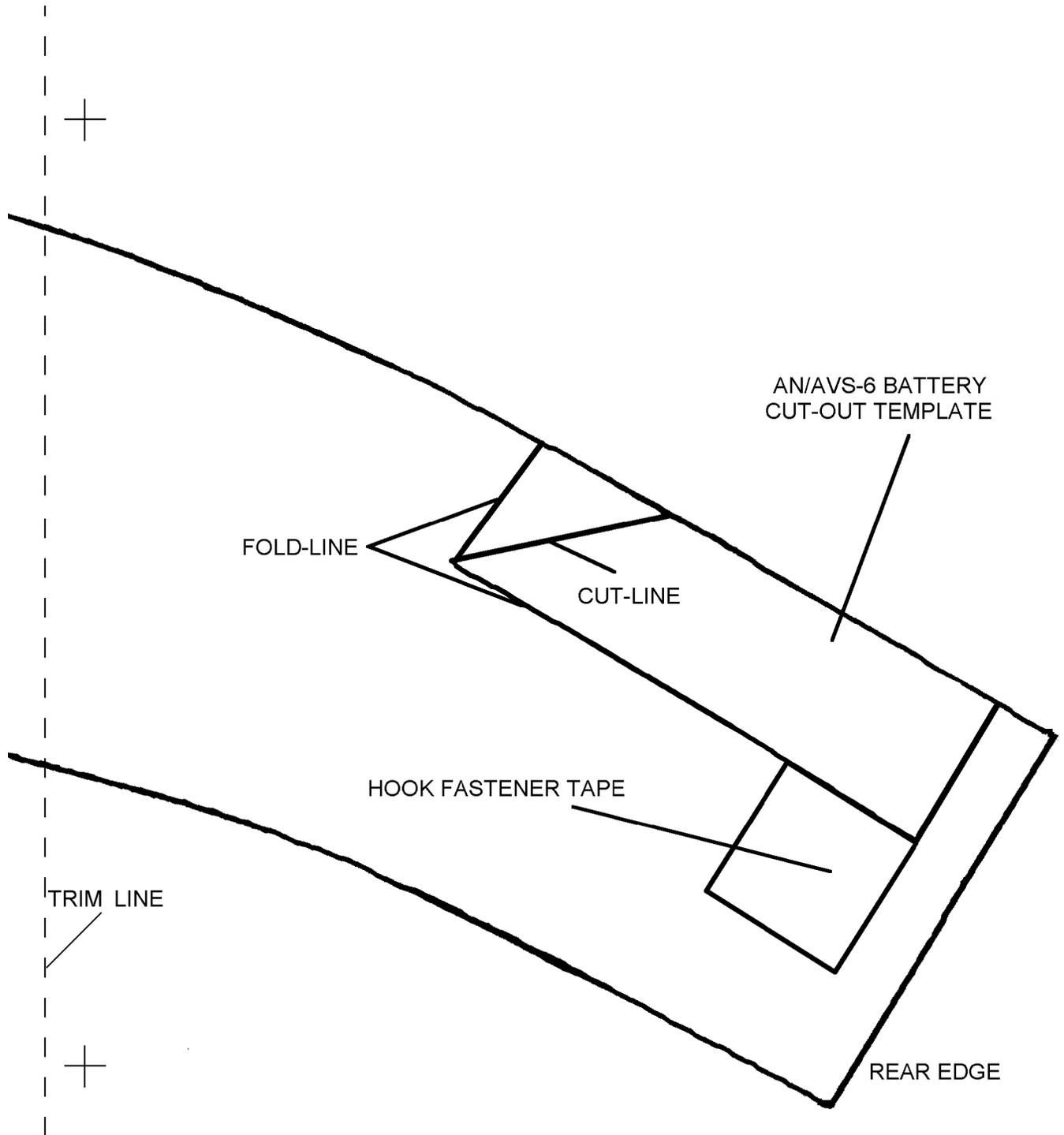


Figure 3-17. Removable Camouflage Helmet Cover (Extra-Large) (3 of 5)

3-17-3

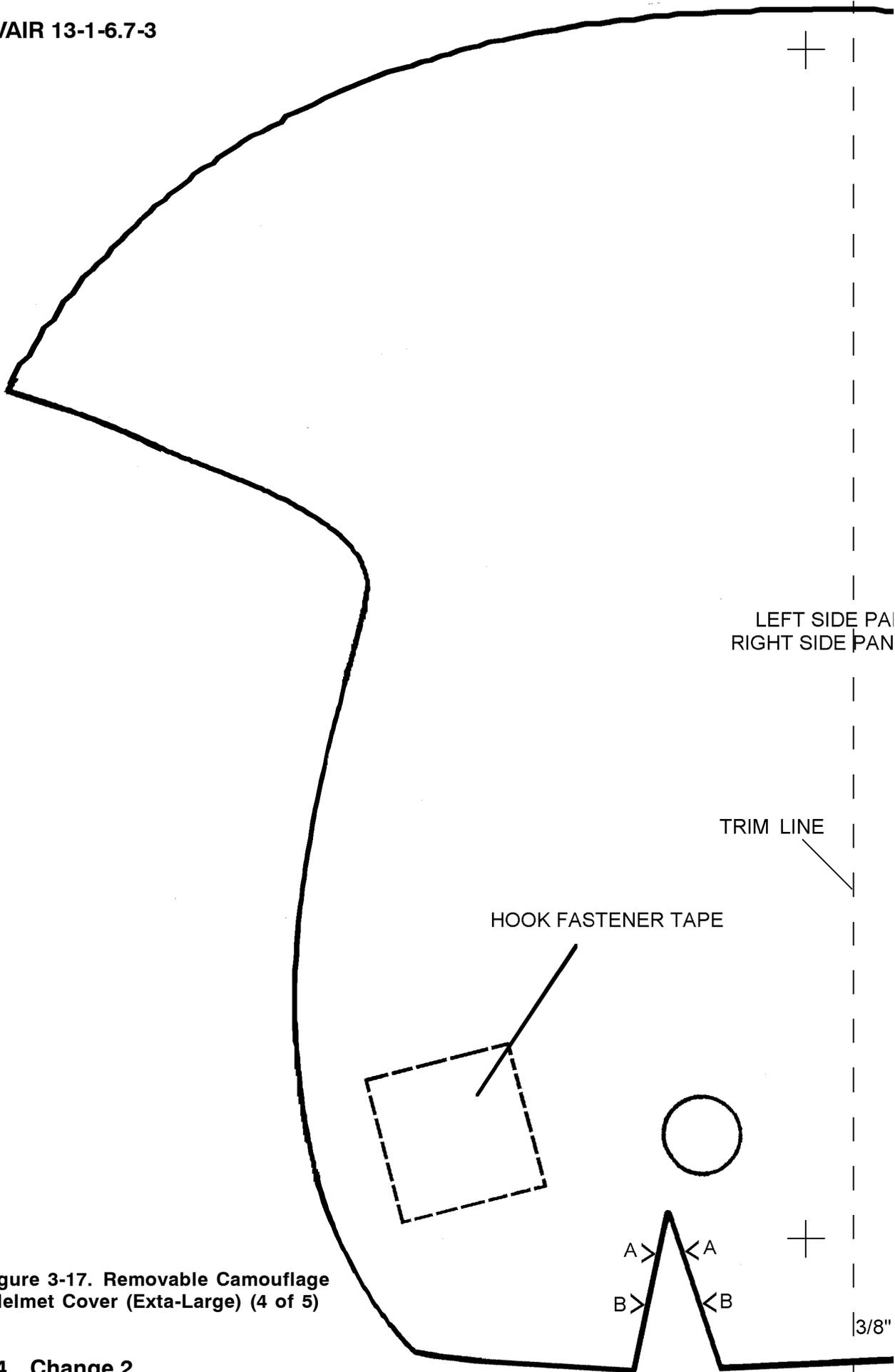
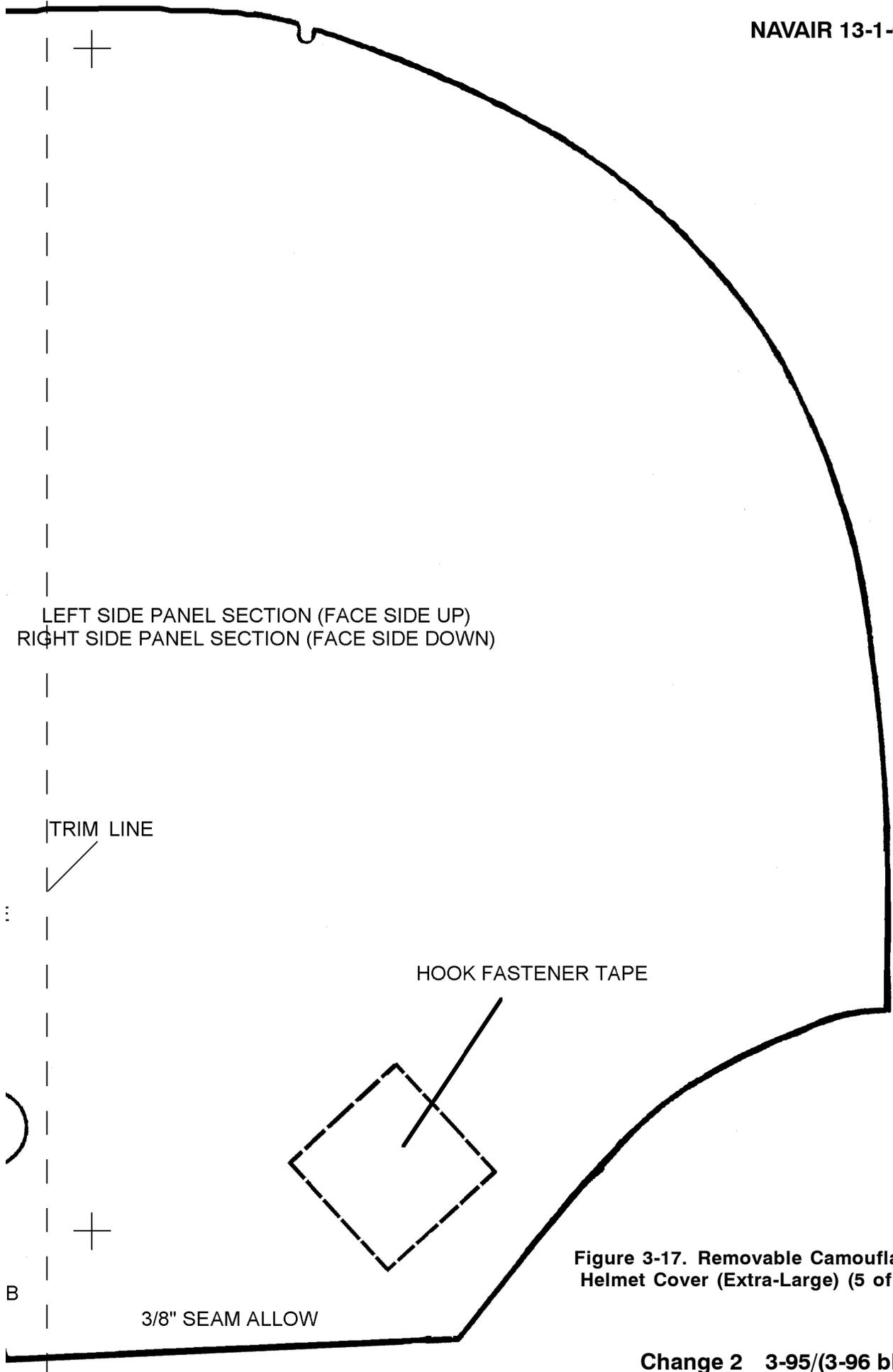


Figure 3-17. Removable Camouflage
Helmet Cover (Extra-Large) (4 of 5)



LEFT SIDE PANEL SECTION (FACE SIDE UP)
RIGHT SIDE PANEL SECTION (FACE SIDE DOWN)

TRIM LINE

HOOK FASTENER TAPE

3/8" SEAM ALLOW

B

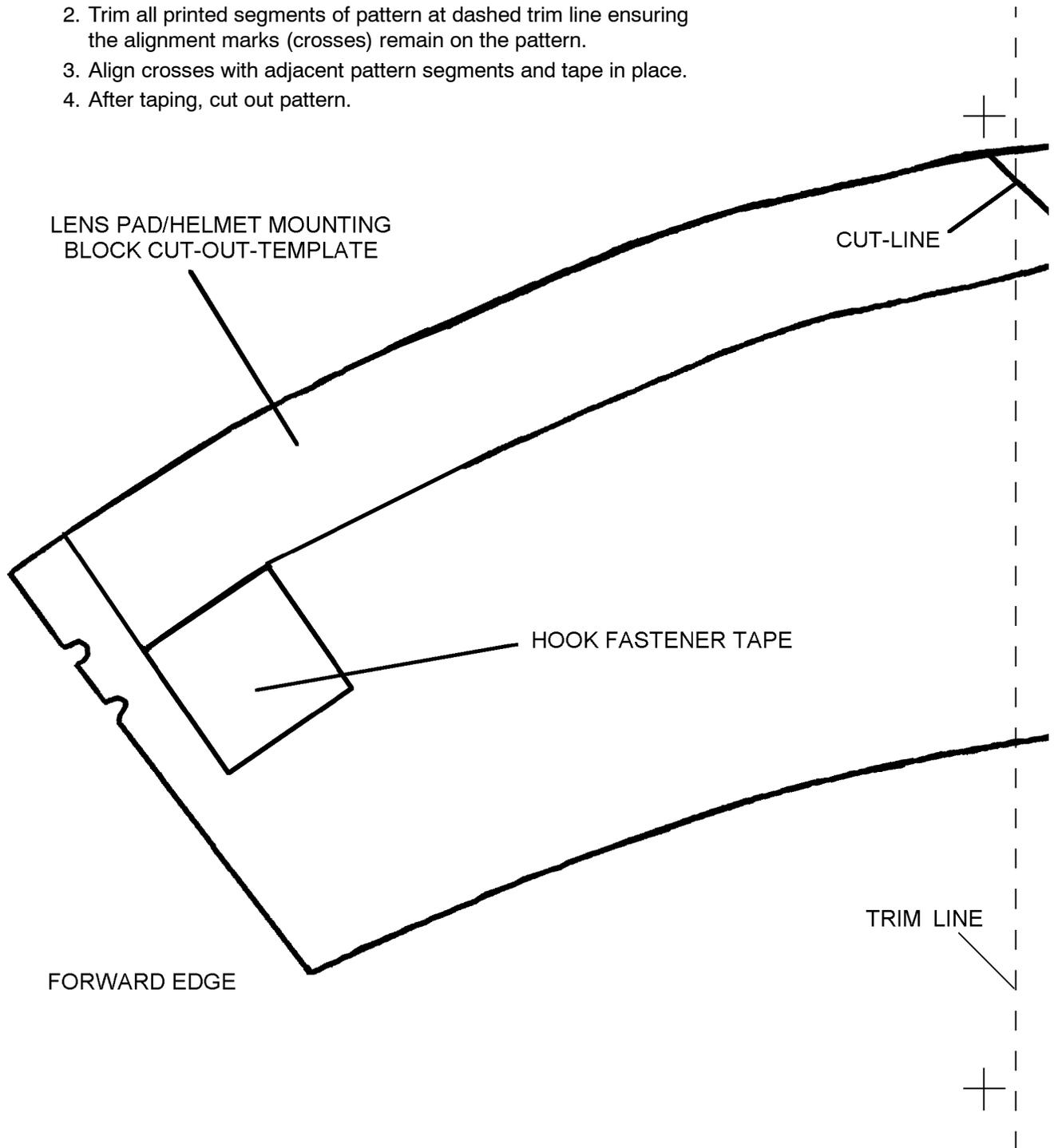
Figure 3-17. Removable Camouflage
Helmet Cover (Extra-Large) (5 of 5)

3-17-5

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NOTE: Procedures for the construction of the pattern.

1. Print out all segments of pattern.
2. Trim all printed segments of pattern at dashed trim line ensuring the alignment marks (crosses) remain on the pattern.
3. Align crosses with adjacent pattern segments and tape in place.
4. After taping, cut out pattern.



This figure has been divided into multiple segments to facilitate the printing of the pattern.

3-18-1

Figure 3-18. Removable Camouflage Helmet Cover (Extra-Large Wide) (1 of 5)

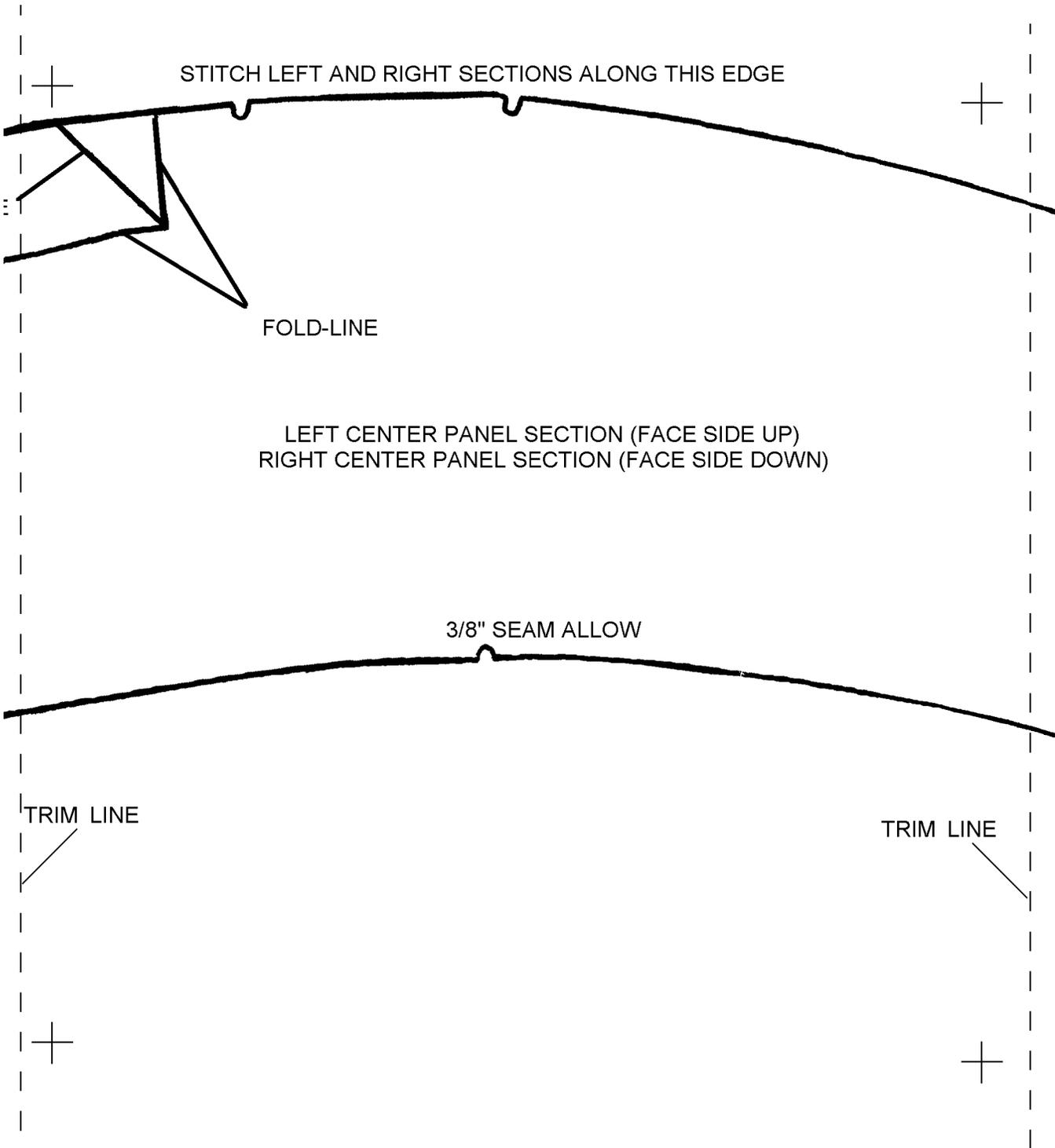


Figure 3-18. Removable Camouflage Helmet Cover (Extra-Large Wide) (2 of 5)

3-18-2

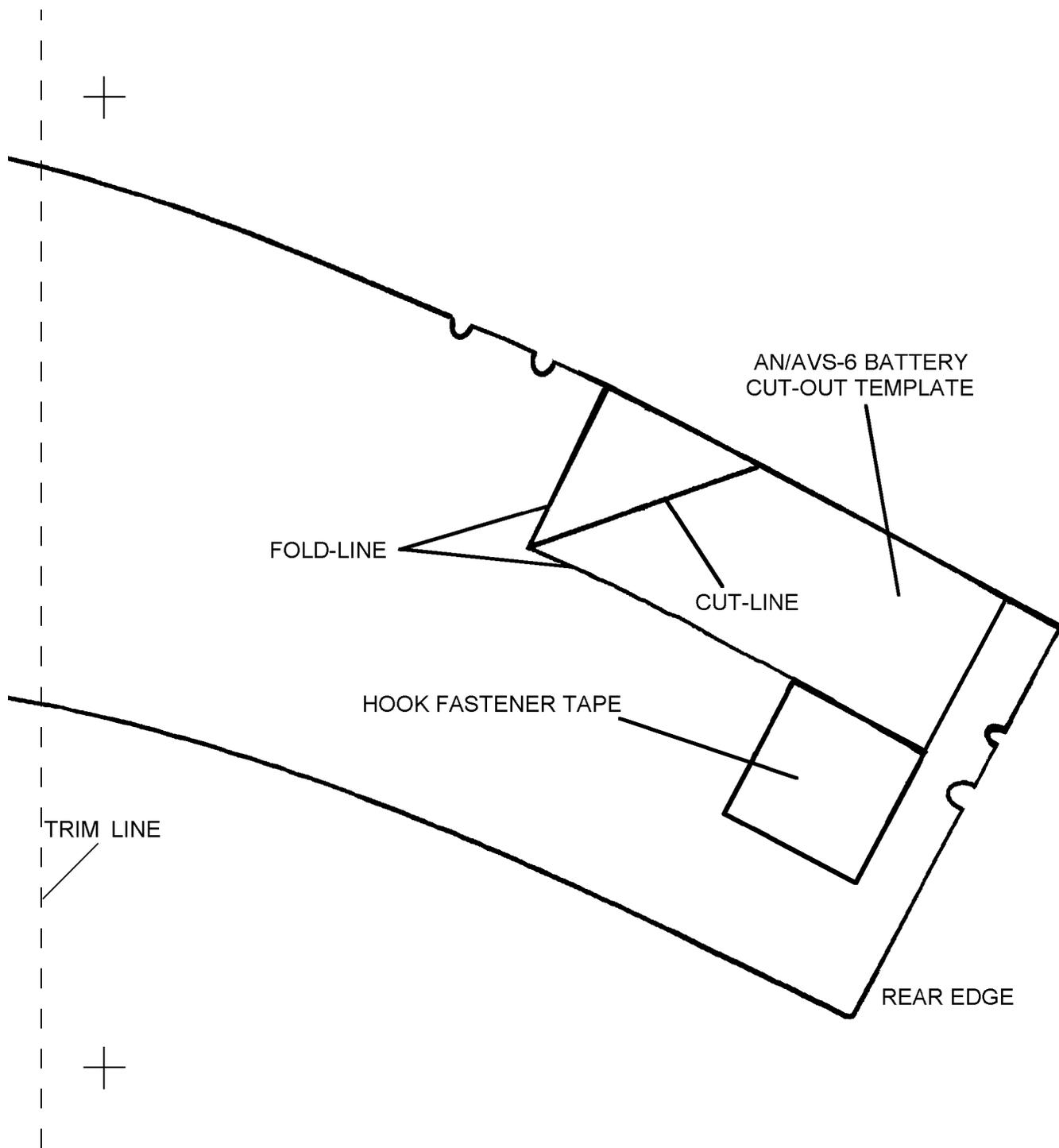
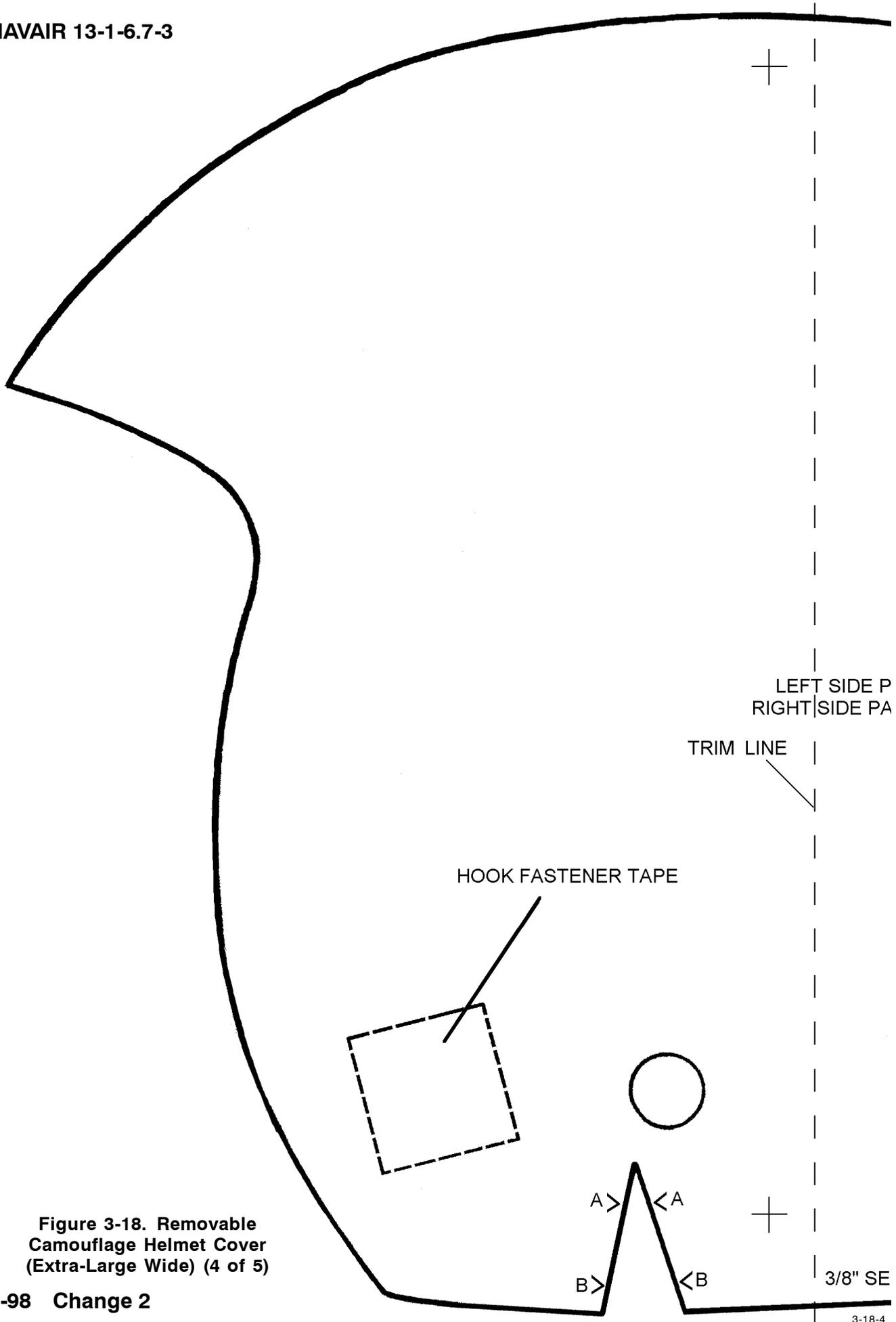


Figure 3-18. Removable Camouflage Helmet Cover (Extra-Large Wide) (3 of 5)



LEFT SIDE P
RIGHT SIDE PA

TRIM LINE

HOOK FASTENER TAPE

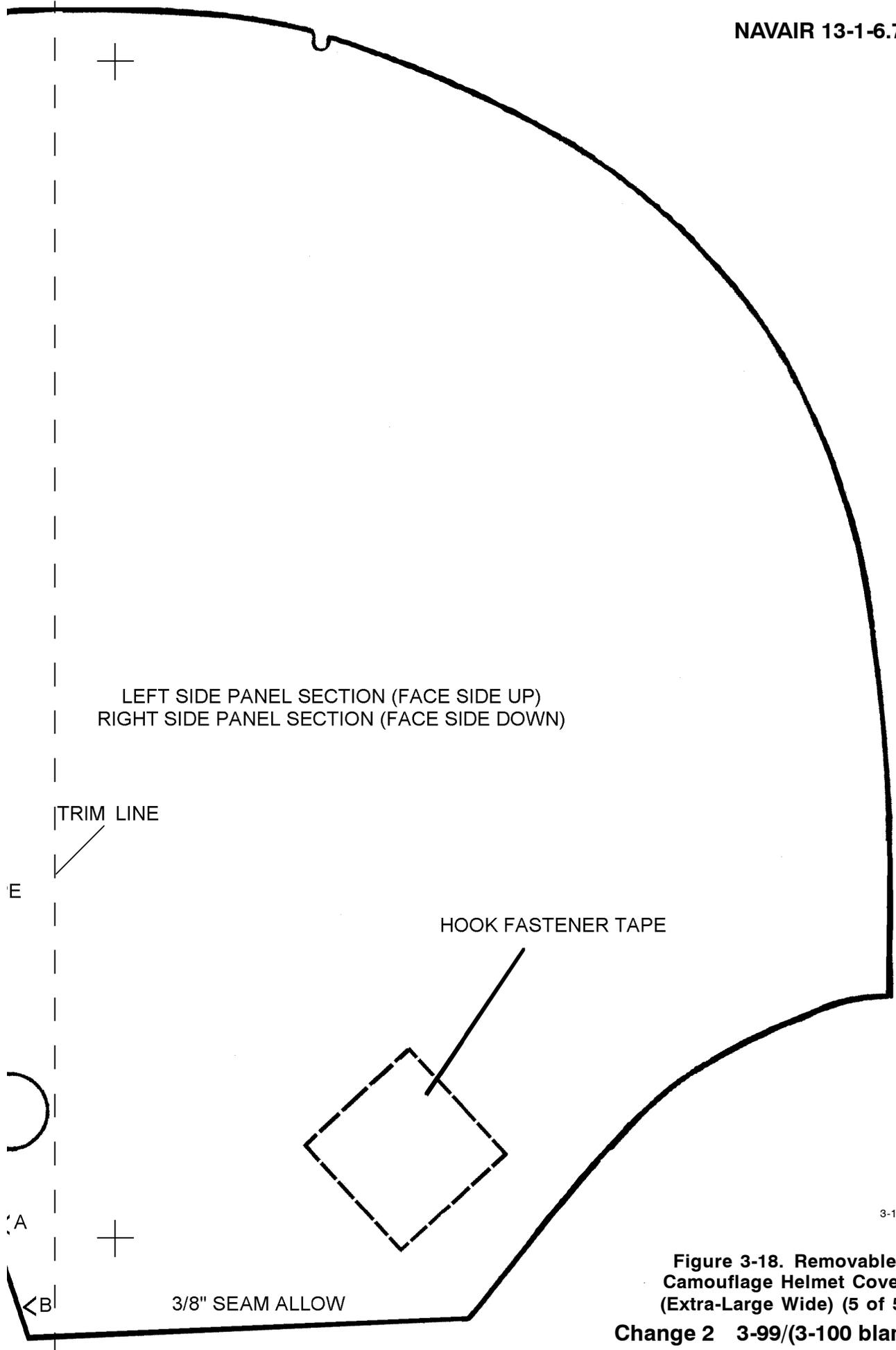
A > < A

B > < B

3/8" SE

Figure 3-18. Removable Camouflage Helmet Cover (Extra-Large Wide) (4 of 5)

3-98 Change 2



3-18-5

Figure 3-18. Removable Camouflage Helmet Cover (Extra-Large Wide) (5 of 5) Change 2 3-99/(3-100 blank)

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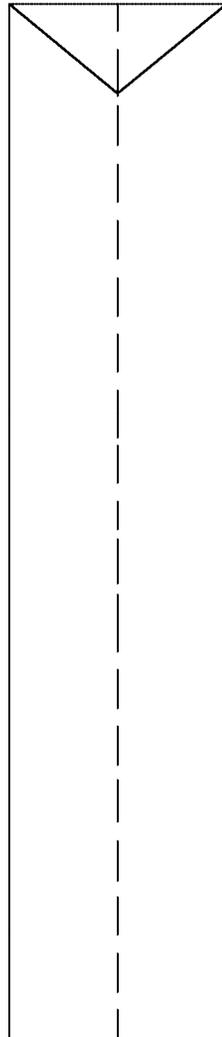


Figure 3-19. Lens Pad/Helmet Mounting Block Template

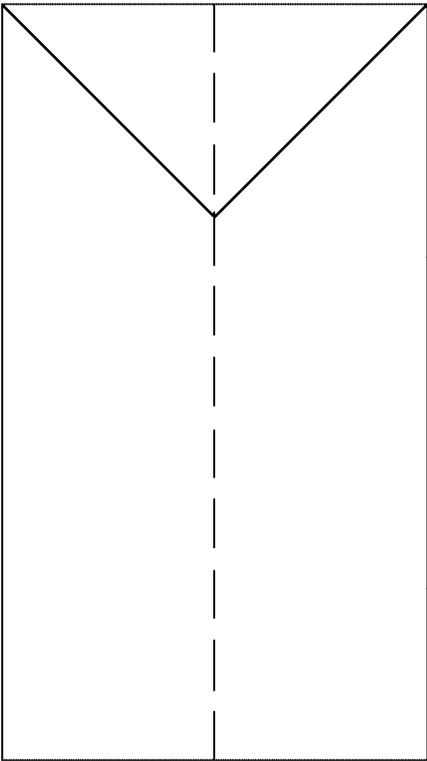


Figure 3-20. Battery Securing Patch Template

Section 3-6. Illustrated Parts Breakdown

3-111. GENERAL.

3-112. This section lists and illustrates the assemblies and detail parts of the HGU-84/P and HGU-67/P Helmet Assemblies as manufactured by Gentex Corporation (CAGE 97427).

3-113. 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 this helmet shall be performed only by authorized personnel using the instructions documented in the preceding sections.

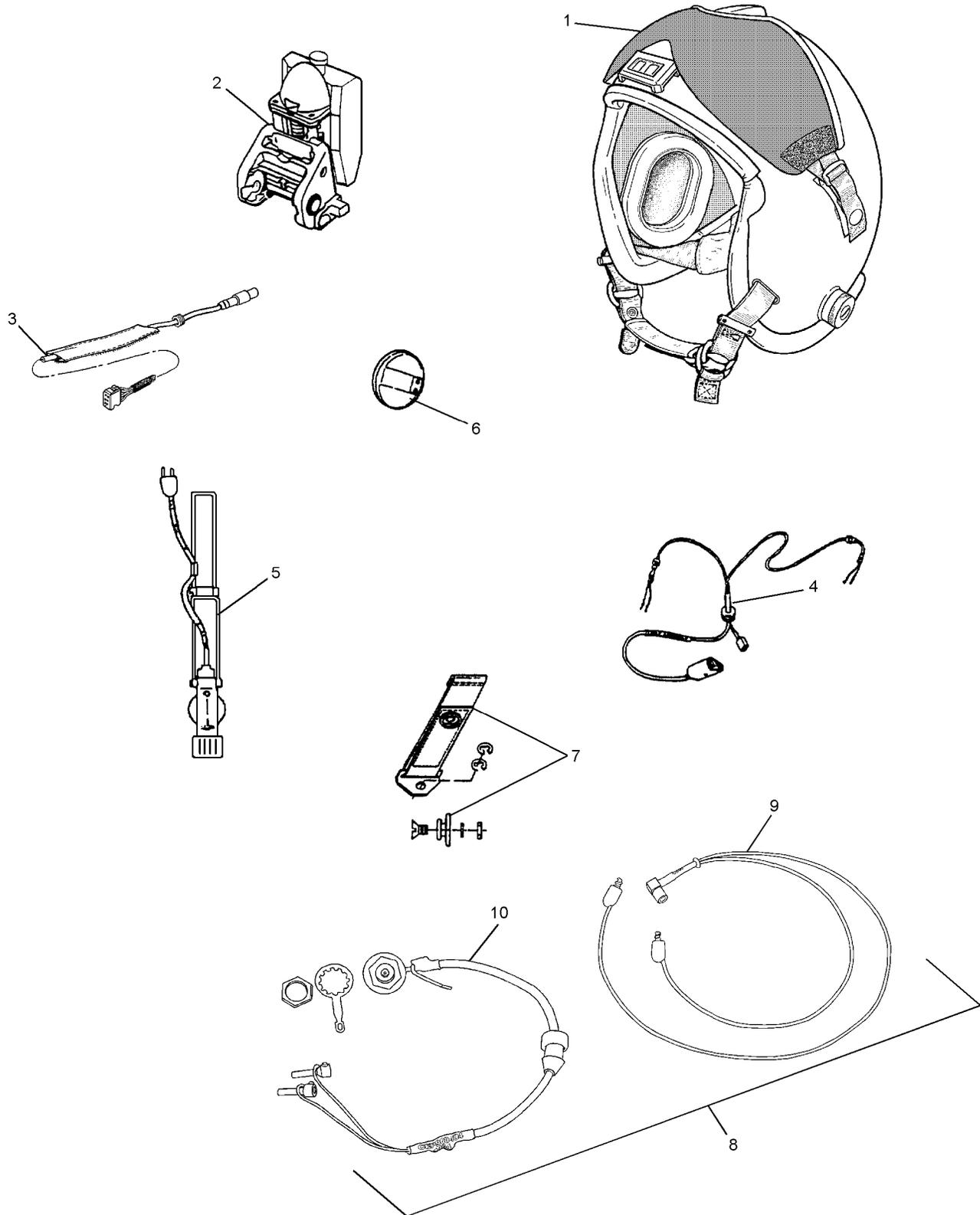


Figure 3-21. HGU-84/P Helmet Assembly Components

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
3-21	—	HGU-84/P HELMET ASSEMBLY	REF	
		COMPONENTS		
-1	89D7748-1	. HELMET ASSEMBLY, HGU-84/P, Medium (Figure 3-28 for BKDN)	1	A
	89D7748-2	. HELMET ASSEMBLY, HGU-84/P, Large (Figure 3-28 for BKDN)	1	B
	89D7748-3	. HELMET ASSEMBLY, HGU-84/P, Extra-Large (Figure 3-28 for BKDN)	1	C
	89D7748-4	. HELMET ASSEMBLY, HGU-84/P, Extra-Large Wide (Figure 3-28 for BKDN)	1	D
-2	3151AS150-1	. QUICK DON MOUNT ASSEMBLY (Figure 3-28 for BKDN)	1	
-3	3151AS135-1	. NVHS WIRING HARNESS ASSEMBLY (ATTACHING PARTS)	1	
	NAS1397-P-6C-B	. CLAMP, Loop (Not Shown)	1	
	NAS1635-08LE5P	. SCREW, Machine, Pan Head (Not Shown)	1	*
	MS51957-42B	. SCREW, Machine, Pan Head (Not Shown)	1	*
		---*---		
-4	M22442/37-4708	. COMMUNICATIONS CABLE ASSEMBLY, CX-4708A/AIC	1	
	765AS286-1	. COMMUNICATIONS CABLE ASSEMBLY	1	
	M22442/15-1	. COMMUNICATIONS CABLE ASSEMBLY, CX-4832A/AR	1	
	M22442/19-1	. COMMUNICATIONS CABLE ASSEMBLY, CX-12972/AR	1	
-5	MIL-M-26542/2	. M-87/AIC BOOM MICROPHONE ASSEMBLY (97427/73B2620-1) (NIIN 00-755-4643)	1	
	MIL-M-26542/2-01	. M-87/AIC BOOM MICROPHONE ASSEMBLY	1	
-6	H-87B/U	. EARPHONE ELEMENT (97427/76A3242)	2	
-7	91B8215	CBR ADAPTER STRAP ASSEMBLY FITTING KIT (Note 1) (Figure 3-22 for BKDN)	1	
-8	CEP104-K04E	CEP KIT (Note 2)	1	
-9	CEP402-C05	. CEP AUDIO/EARPLUG CABLE (Note 2)	1	
-10	CEP900-I04E	. CEP WIRING HARNESS (Note 2)	1	
		Notes: 1. CBR Adapter Strap Assemblies Kit, P/N 91B8215, replaces CBR Receivers, P/N 3151AS114. 2. Optional Item. CEP402-C05 and CEP900-I04E can be purchased separately or together as a kit (P/N CEP104-K04E).		

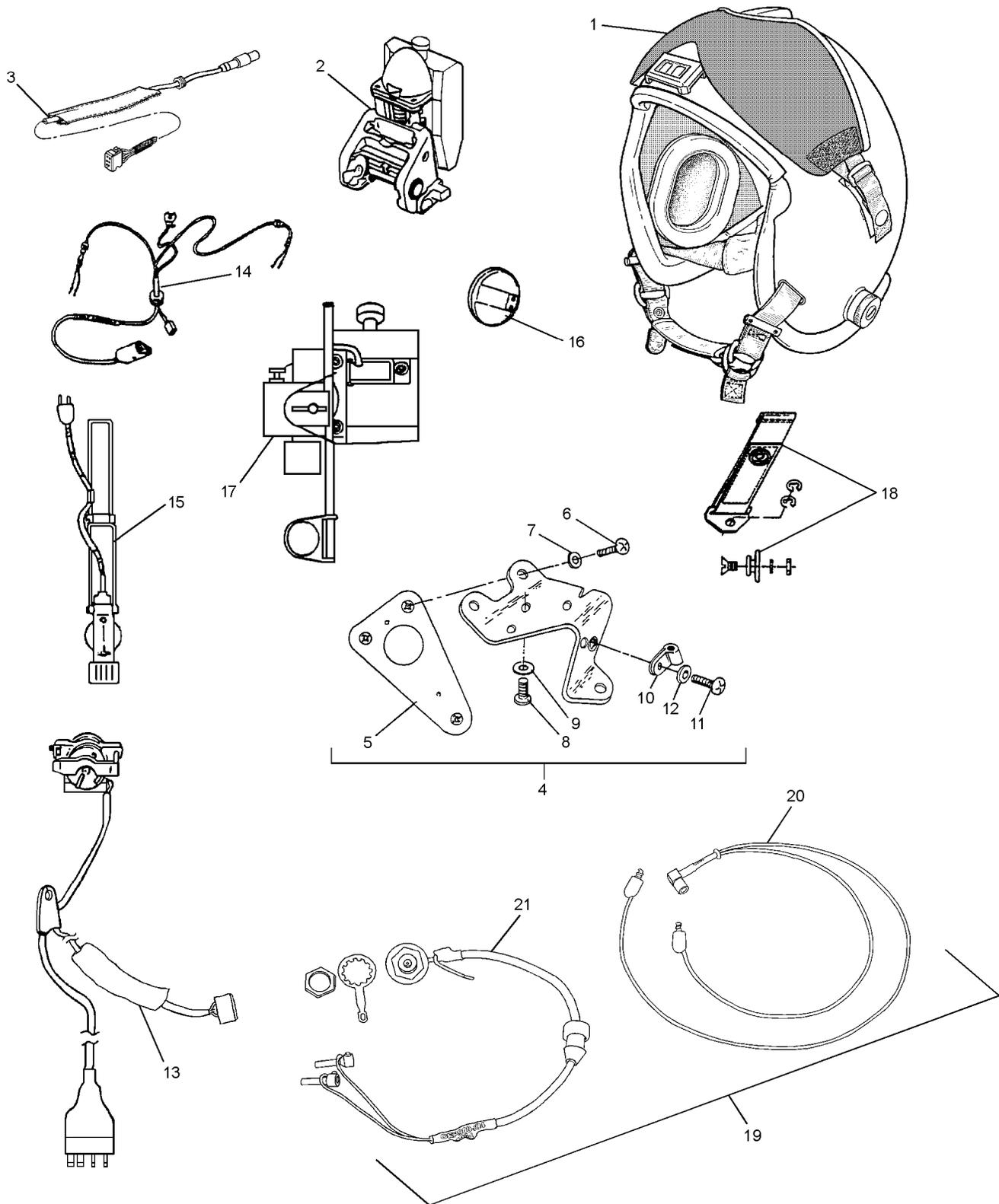


Figure 3-22. HGU-67/P Helmet Assembly Components

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code		
					1	2
3-22	3151AS101-1	HGU-67/P HELMET ASSEMBLY COMPONENTS, Medium	REF	A		
	3151AS101-2	HGU-67/P HELMET ASSEMBLY COMPONENTS, Large	REF	B		
	3151AS101-3	HGU-67/P HELMET ASSEMBLY COMPONENTS, Extra-Large	REF	C		
	3151AS101-4	HGU-67/P HELMET ASSEMBLY COMPONENTS, Extra-Large, Wide	REF	D		
-1	89D7748-1	. HELMET ASSEMBLY, HGU-84/P, Medium (Figure 3-28 Top BKDN)	1	A		
	89D7748-2	. HELMET ASSEMBLY, HGU-84/P, Large (Figure 3-28 Top BKDN)	1	B		
	89D7748-3	. HELMET ASSEMBLY, HGU-84/P, Extra-Large ... (Figure 3-28 Top BKDN)	1	C		
	89D7748-4	. HELMET ASSEMBLY, HGU-84/P, Extra-Large, Wide (Figure 3-28 Top BKDN)	1	D		
-2	3151AS150-1	. QUICK DON MOUNT ASSEMBLY (Figure 3-28 Top BKDN)	1			
-3	3151AS135-1	. NVIIS WIRING HARNESS ASSEMBLY (ATTACHING PARTS)	1			
	NAS1397-P-6C-B	. CLAMP, Loop (Not Shown)	1			
	NAS1635-08LE5P	. SCREW, Machine, Pan Head (Not Shown)	1	*		
	MS51957-42B	. SCREW, Machine, Pan Head (Not Shown)	1	*		
		---*---				

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Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
-4	3151AS121-1	. BRACKET ASSEMBLY, Receptacle, Extra-Large Wide	1	A
	3151AS123-1	. BRACKET ASSEMBLY, Receptacle, Medium	1	B
	3151AS124-1	. BRACKET ASSEMBLY, Receptacle, Extra-Large (ATTACHING PARTS TO HELMET SHELL)	1	C
-5	3151AS119-1	. . DOUBLER, Receptacle	1	
-6	NAS1635-06LE5P	. . SCREW, Machine, Pan Head	3	*
	MS51957-27B	. . SCREW, Machine, Pan Head	3	*
-7	NAS1149CN616B	. . WASHER, Flat	3	
		---*--- (ATTACHING PARTS FOR RECEPTACLE)		
-8	NAS1635-04LE4P	. . SCREW	3	
-9	NAS1149CN416B	. . WASHER, Flat	3	
		---*--- (ATTACHING PARTS FOR CABLE)		
-10	DS14243-03PB	. . CLAMP, Loop	1	
-11	NAS1635-06LE4P	. . SCREW	1	
-12	NAS1149CN616B	. . WASHER, Flat	1	
		---*---		
-13	7636589	. GUNSIGHT WIRING HARNESS ASSEMBLY ... (06401) (Figure 3-20) (BKDN) (ATTACHING PARTS)	1	
	NAS1635-08LE6P	. SCREW, Machine, Pan Head (Not Shown)	1	*
	MS51957-43B	. SCREW, Machine, Pan Head (Not Shown)	1	*
	NAS1149CN816B	. WASHER, Lock (Not Shown)	1	
	632104-1	. POST (Not Shown)	1	
		---*---		
-14	M22442/61-1	. COMMUNICATIONS CABLE ASSEMBLY	1	
	M22442/57-1	. COMMUNICATIONS CABLE ASSEMBLY, CX-1365/A	1	
-15	MIL-M-26542/2	. M-87/AIC BOOM MICROPHONE	1	
		ASSEMBLY (97427/73B2620-1) (NIIN 00-755-4643)		
	MIL-M-26542/2-01	. M-87/AIC BOOM MICROPHONE	1	
		ASSEMBLY		
-16	H-87B/U	. EARPHONE ELEMENT (97427/76A3242)	2	
-17	7636587	HELMET GUNSIGHT ASSEMBLY (06401)	1	
-18	91B8215	CBR ADAPTER STRAP ASSEMBLY	1	
		FITTING KIT (Note 1) (Figure 3-21) (BKDN)		
-19	CEP104-K04E	CEP KIT (Note 2)	1	
-20	CEP402-C05	. CEP AUDIO/EARPLUG CABLE (Note 2)	1	
-21	CEP900-I04E	. CEP WIRING HARNESS (Note 2)	1	
<p>Notes: 1. CBR Adapter Strap Assemblies Kit, P/N 91B8215, replaces CBR Receivers, P/N 3151AS114.</p> <p>2. Optional Item. CEP402-C05 and CEP900-I04E can be purchased separately or together as a kit (P/N CEP104-K04E).</p>				

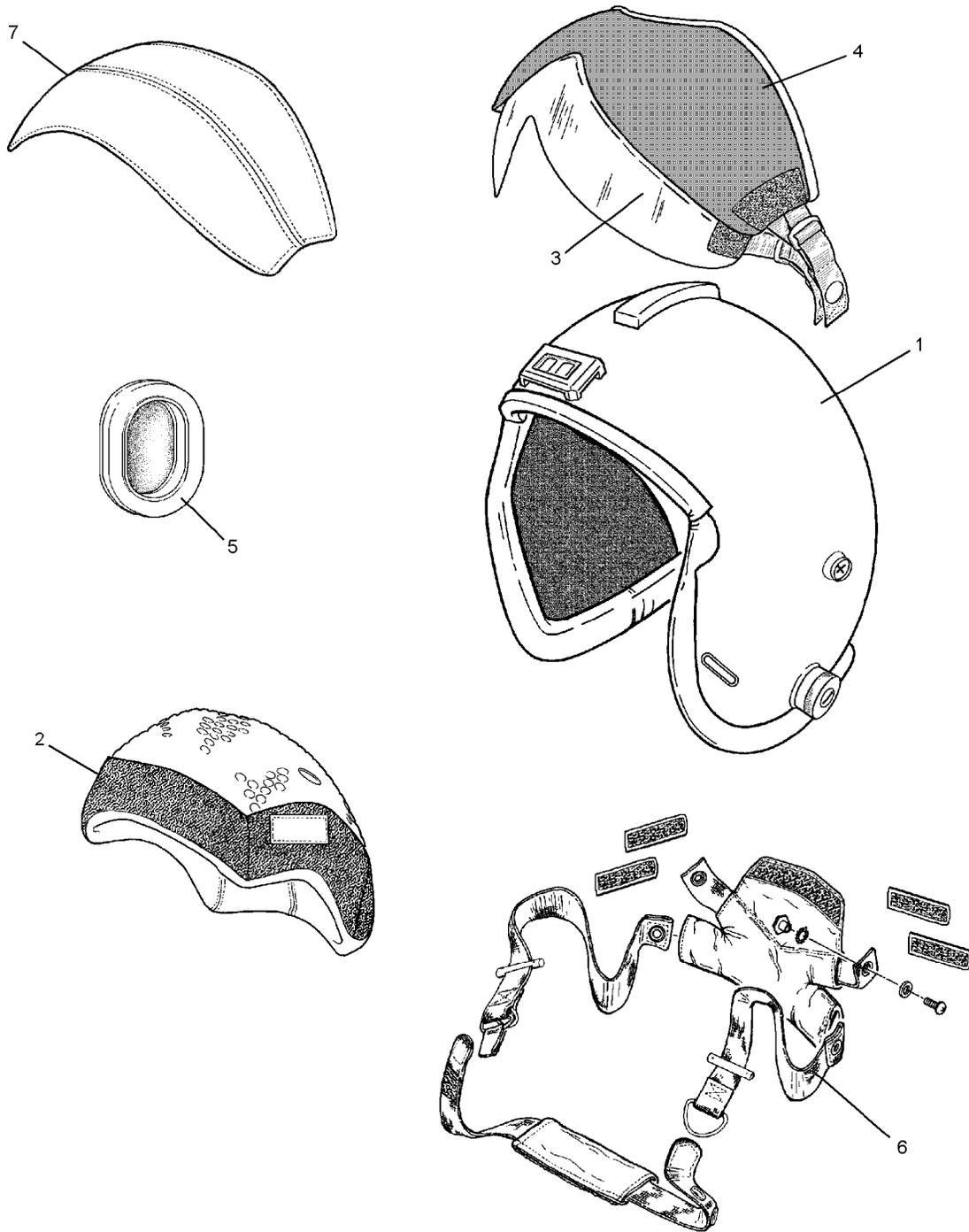


Figure 3-23. Helmet Assembly, HGU-84/P

003023

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code		
					1	2
3-23	89D7748-1	HELMET ASSEMBLY, HGU-84/P, Medium	REF	A		
	89D7748-2	HELMET ASSEMBLY, HGU-84/P, Large	REF	B		
	89D7748-3	HELMET ASSEMBLY, HGU-84/P, Extra-Large	REF	C		
	89D7748-4	HELMET ASSEMBLY, HGU-84/P, Extra-Large Wide	REF	D		
-1	90C7859-1	. HELMET SHELL ASSEMBLY, Medium (Figure 3-24 for BKDN)	1	A		
	90C7859-2	. HELMET SHELL ASSEMBLY, Large (Figure 3-24 for BKDN)	1	B		
	90C7859-3	. HELMET SHELL ASSEMBLY, Extra-Large (Figure 3-24 for BKDN)	1	C		
	90C7859-4	. HELMET SHELL ASSEMBLY, Extra-Large Wide (Figure 3-24 for BKDN)	1	D		
-2	85D7087-1P	. TPL ASSEMBLY, Preformed, PRU-52/P, Medium (Figure 3-27 for BKDN)	1	A		
	85D7087-2P	. TPL ASSEMBLY, Preformed, PRU-52/P, Large (Figure 3-27 for BKDN)	1	B		
	85D7087-3P	. TPL ASSEMBLY, Preformed, PRU-52/P, Extra-Large (Figure 3-27 for BKDN)	1	C		
	85D7087-30P	. TPL ASSEMBLY, Preformed, PRU-52/P, Extra-Large Wide (Figure 3-27 for BKDN)	1	D		
-3	90D7914-1	. VISOR ASSEMBLY, Inner, Clear	1			
-4	90D7915-1	. VISOR ASSEMBLY, Outer, Neutral	1			
-5	90C7885	. EARCUP ASSEMBLY (Figure 3-25 for BKDN)	2			
-6	90C7864-1	. INTEGRATED CHIN/NAPE ASSEMBLY, Medium (Note 1) (Figure 3-26 for BKDN)	1	A		
	90C7864-2	. INTEGRATED CHIN/NAPE ASSEMBLY, Large (Note 1) (Figure 3-26 for BKDN)	1	B		
	90C7864-3	. INTEGRATED CHIN/NAPE ASSEMBLY, Extra-Large (Note 1) (Figure 3-26 for BKDN)	1	C		
	90C7864-4	. INTEGRATED CHIN/NAPE ASSEMBLY, Extra-Large Wide (Note 1) (Figure 3-26 for BKDN)	1	D		
-7	93D8470	. VISOR LENS COVER, Black Leather (Note 2)	1			
	93D8497	VISOR BAG (Not Shown)	3			
	95A9255-1	VISOR ASSEMBLY, Amber (Not Shown) (Note 3)	1			
	95A9255-2	VISOR ASSEMBLY, Gradient (Not Shown) (Note 3)	1			
	GW9651-01	VISOR ASSEMBLY, Reduced Profile, Safety Stepped-in, Medium (Not Shown) (Note 4)	1			
	GW9651-03	VISOR ASSEMBLY, Reduced Profile, Safety Stepped-in, Large (Not Shown) (Note 4)	1			
	GW9651-05	VISOR ASSEMBLY, Reduced Profile, Safety Stepped-in, Extra-Large (Not Shown) (Note 4)	1			
	GW9651-09	VISOR ASSEMBLY, Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-in, Medium (Not Shown) (Note 4)	1			
GW9651-11	VISOR ASSEMBLY, Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-in, Large (Not Shown) (Note 4)	1				

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Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
	GW9651-13	VISOR ASSEMBLY, Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-in, Extra-Large (Not Shown) (Note 4)	1	
	GW9652-01	VISOR ASSEMBLY, Visor Assembly, Reduced Profile, Safety Stepped-in, Medium (Not Shown) (Note 4)	1	
	GW9652-03	VISOR ASSEMBLY, Visor Assembly, Reduced Profile, Safety Stepped-in, Large/Extra-Large (Not Shown) (Note 4)	1	
	GW9652-05	VISOR ASSEMBLY, Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-in, Medium (Not Shown) (Note 4)	1	
	GW9652-07	VISOR ASSEMBLY, Neodymium Laser Eye Protective (LEP), Low Profile, Safety Stepped-in, Large/Extra-Large (Not Shown) (Note 4)	1	
	GW9653	VISOR ASSEMBLY, Neodymium Laser Eye Protective (LEP) (Not Shown) (Note 4)	1	
<p>Notes: 1. Integrated Chin/Nape Assemblies, P/N 90C7864-1 thru P/N 90C7864-4, replace Integrated Chin/Nape Assemblies, P/N 90D7916-1 thru P/N 90D7916-4.</p> <p>2. Lens Cover, P/N 93B8447, replaces Lens Cover, P/N 85C7049-1.</p> <p>3. Additional authorized optional visor for use with the HGU-84/P and HGU-67/P protective helmets. These visors are commercially available from: GENTEX Corporation, Carbondale, PA, 18470. Telephone 570-282-8505.</p> <p>4. Special purpose visors with part numbers beginning with GW are commercially available from Gentex Western Operations, Rancho Cucamonga, CA., 91730. Telephone (909) 481-7667 (at menu prompt, choose USN MBU-23/P Order Desk).</p>				

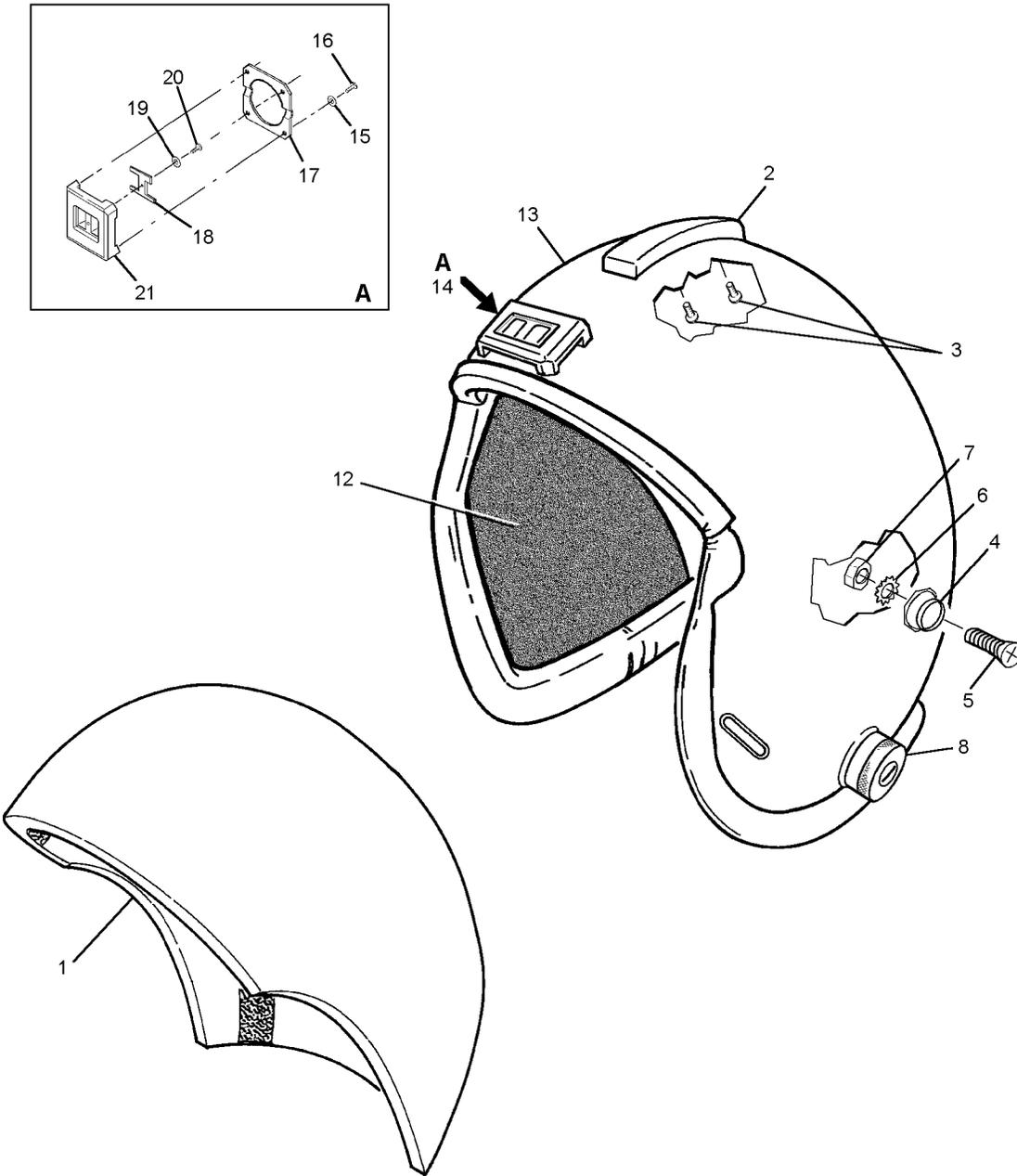


Figure 3-24. Helmet Shell Assembly

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
3-24	90C7859-1	HELMET SHELL ASSEMBLY, Medium (Figure 3-23 for NHA)	REF	A
	90C7859-2	HELMET SHELL ASSEMBLY, Large (Figure 3-23 for NHA)	REF	B
	90C7859-3	HELMET SHELL ASSEMBLY, Extra-Large (Figure 3-23 for NHA)	REF	C
	90C7859-4	HELMET SHELL ASSEMBLY, Extra-Large Wide (Figure 3-23 for NHA)	REF	D
-1	90D7860	. LINER, Energy-Absorbing, Medium	1	A
	90D7861	. LINER, Energy-Absorbing, Large	1	B
	90D7862	. LINER, Energy-Absorbing, Extra-Large	1	C
	90D7863	. LINER, Energy-Absorbing, Extra-Large Wide	1	D
-2	90B7954	. LENS PAD (ATTACHING PARTS)	1	
-3	92A8241	. SCREW, Truss Head ---*---	2	
-4	MS27983-3	. SNAP FASTENER, Visor (ATTACHING PARTS)	2	
-5	MS51959-28B	. SCREW, Flat Head	1	
-6	MS35335-58	. WASHER, Lock	1	
-7	MS35649-264B	. NUT, Hex ---*---	1	
-8	765AS300-1	. SWIVEL ASSEMBLY, Microphone Boom	1	
	69A2142	. WASHER, Swivel Assembly (Not Shown)	1	
-9	DELETED			
-10	DELETED			
-11	DELETED			
-12	90C7968M	. EARSHELL PILE FASTENER SET, Medium	1	A
	90C7968L	. EARSHELL PILE FASTENER SET, Large	1	B
	90C7968XL	. EARSHELL PILE FASTENER SET, Extra-Large/Extra-Large Wide	1	C, D
-13	90D7887	. HELMET SHELL, Medium	1	A
	90D7888	. HELMET SHELL, Large	1	B
	90D7889	. HELMET SHELL, Extra-Large	1	C
	90D7890	. HELMET SHELL, Extra-Large Wide	1	D

NAVAIR 13-1-6.7-3

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
3-24-14	3151AS130-1	.							1	
-15	AN960-XC4L	.							4	
-16	NAS1635-04LN5	.							4	
-17	3151AS139	.	.						1	
-18	3151AS132	.	.						1	
-19	NAS620-2	.	.						1	
-20	NAS1635-02LE3P	.	.						1	
-21	3151AS131	.	.						1	

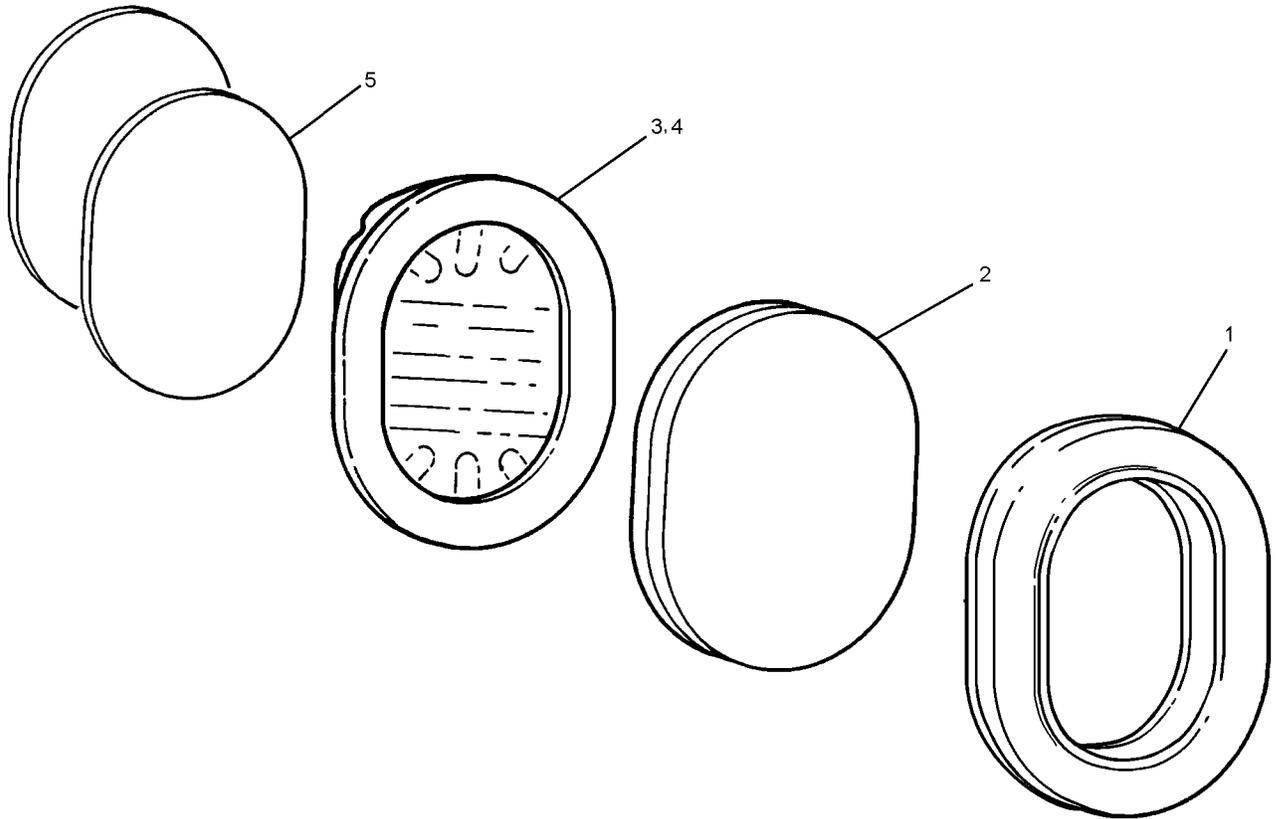


Figure 3-25. Earcup Assembly

3-25

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
3-25	90C7885	EARCUP ASSEMBLY	REF	
-1	88C7589	. EARSEAL (Note 1)	2	
-2	765AS233-1	. EARPHONE HOLDER (974401-1)	2	
-3	90C7886-1	. EARCUP, Left Hand	1	
-4	90C7886-2	. EARCUP, Right Hand	1	
-5	79C4416-40	. FITTING PADS, EARCUP	2	
Notes: 1. The Oregon Aero Softseal Ear Cushions are authorized optional alternates for P/N 88C7589 earseals. Oregon Aero Ear Cushions are procured commercially using P/N 20050 (3/4 inch) and P/N 20025 (1 1/8 inch) from Oregon Aero Corporation, Scappoose, OR 97056. Telephone (503) 543-7399.				

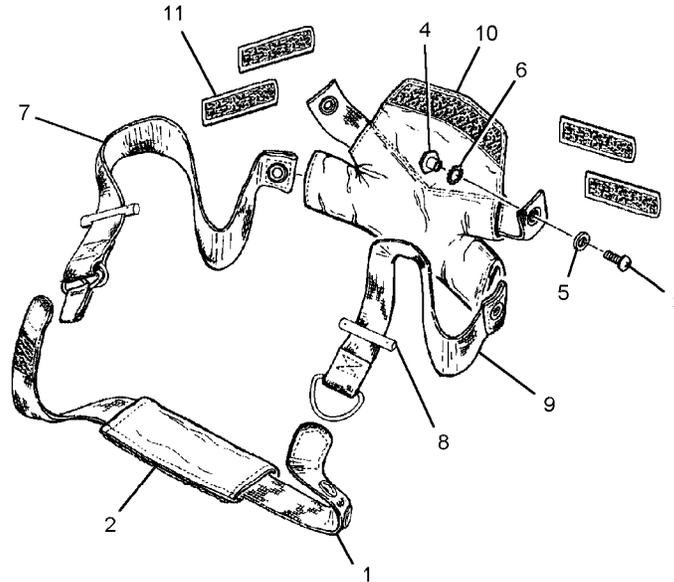
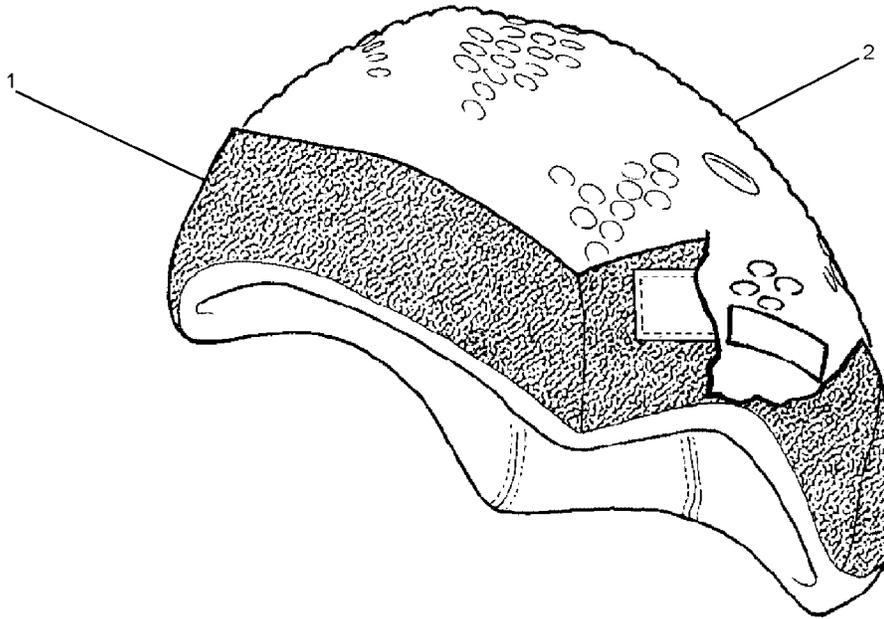


Figure 3-26. Integrated Chin/Nape Assembly

3-26

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
3-26	90C7864-1	INTEGRATED CHIN/NAPE ASSEMBLY, Medium (Note 1) (Figure 3-23 for NHA)	REF	A
	90C7864-2	INTEGRATED CHIN/NAPE ASSEMBLY, Large (Note 1) (Figure 3-23 for NHA)	REF	B
	90C7864-3	INTEGRATED CHIN/NAPE ASSEMBLY, Extra-Large (Note 1) (Figure 3-23 for NHA)	REF	C
	90C7864-4	INTEGRATED CHIN/NAPE ASSEMBLY, Extra-Large Wide (Note 1) (Figure 3-23 for NHA)	REF	D
-1	90B7868	. CHIN STRAP (Note 2)	1	
-2	93B8456	. CHIN PAD (Note 3)	1	
-3	MS51958-61B	. SCREW, Machine, Pan Head	2	
-4	765AS245-2	. T-NUT (Note 4)	2	
-5	AN960-XC416	. WASHER, Flat	2	
-6	MS35335-34	. WASHER, Lock	2	
-7	90D7866-1	. NAPE STRAP, Double D-Ring, Medium (Note 5)	1	A
	90D7866-2	. NAPE STRAP, Double D-Ring, Large/Extra-Large (Note 5)	1	B, C
	90D7866-3	. NAPE STRAP, Double D-Ring, Extra-Large Wide (Note 5)	1	D
-8	93B8471	. CLAMP ASSEMBLY, Nape Strap	2	
-9	90D7867	. NAPE STRAP, Single D-Ring (Note 6)	1	

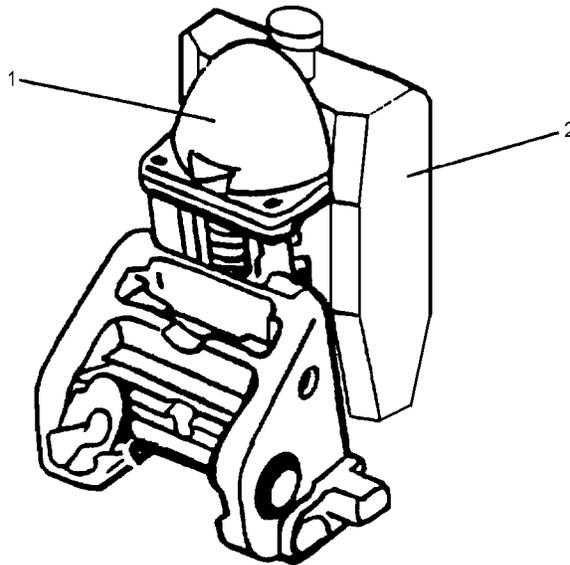
Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
		1 2 3 4 5 6 7		
3-26-10 -11	90D7865-1	. NAPE PAD, Medium (Note 7)	1	A
	90D7865-2	. NAPE PAD, Large (Note 7)	1	B
	90D7865-3	. NAPE PAD, Extra-Large (Note 7)	1	C
	90D7865-4	. NAPE PAD, Extra-Large Wide (Note 7)	1	D
	90B7872	. NAPE SPACER PAD KIT	1	
Notes:		1. Integrated Chin/Nape Assemblies, P/N 90C7864-1 thru -4, replace Integrated Chin/Nape Assemblies, P/N 90D7916-1 thru -4. 2. Chin Strap, P/N 90B7868, replaces Chin Strap, P/N 89C6708. 3. Chin Pad, P/N 93B8456, replaces Chin Pad, P/N 89C7764-1. 4. T-Nut, P/N 765AS245-2, replaces T-Nut, P/N 734434. 5. Double D-Ring Nape Straps, P/N 90D7866-1 thru -3, replace Nape Strap D-Rings, P/N 89B7730-1 and -2. 6. Single D-Ring Nape Strap, P/N 90D7867, replaces Nape Strap D-Ring, P/N 89B7729. 7. Nape Pads, P/N 90D7865-1 thru -4, replace Nape Pads, P/N 84D6899-1 thru -4.		



3-27

Figure 3-27. Thermoplastic Liner (TPL) Assembly

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
3-27	85D7087-1P	TPL ASSEMBLY, Preformed, PRU-52/P, Medium (Figure 3-23 for NHA) (Note 1)	REF	A
	85D7087-2P	TPL ASSEMBLY, Preformed, PRU-52/P, Large (Figure 3-23 for NHA) (Note 1)	REF	B
	85D7087-3P	TPL ASSEMBLY, Preformed, PRU-52/P, Extra-Large (Figure 3-23 for NHA) (Note 1)	REF	C
	85D7087-30P	TPL ASSEMBLY, Preformed, PRU-52/P, Extra-Large Wide (Figure 3-23 for NHA) (Note 1)	REF	D
-1	85D7088-1	. TPL COVER ASSEMBLY, Removable, Medium	1	A
	85D7088-2	. TPL COVER ASSEMBLY, Removable, Large	1	B
	85D7088-3	. TPL COVER ASSEMBLY, Removable, Extra-Large	1	C
	85D7088-30	. TPL COVER ASSEMBLY, Removable, Extra-Large Wide	1	D
-2	88D7518-1	. TPL LAYER ASSEMBLY, Preformed, Medium	1	A
	88D7518-2	. TPL LAYER ASSEMBLY, Preformed, Large	1	B
	88D7518-3	. TPL LAYER ASSEMBLY, Preformed, Extra-Large	1	C
	88D7518-30	. TPL LAYER ASSEMBLY, Preformed, Extra-Large Wide	1	D
Notes: 1. Oregon Aero Zetaliners are authorized optional alternates for the TPL assembly. To order, use Oregon Aero P/N 95132, 3, 4, 5 (medium); 95142, 3, 4, 5 (large); 95152, 3, 4, 5 (extra large); 95162, 3, 4, 5 (extra large wide) NIINs TBD.				



3-28

Figure 3-28. Quick Don Mount Assembly

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
3-28	3151AS150-1	QUICK DON MOUNT ASSEMBLY (Note 1) (Figure 3-21 or 3-22 for NHA)	REF	
-1	5002501	. HOUSING ASSEMBLY	1	
-2	3151AS151-1	. MOUNTING BLOCK ASSEMBLY (ATTACHING PARTS)	1	
	NAS1635-04LN5	. SCREW, Machine, Pan Head (Not Shown)	2	
	NAS1635-04LE7P	. SCREW, Machine, Pan Head (Not Shown)	2	
	NAS620-4L	. WASHER, Flat (Not Shown)	4	
	93B8601	---*--- QUICK DON MOUNT MODIFICATION KIT	1	
Notes: 1. The Quick Don Mount Assembly, P/N 3151AS150-1, is not repairable, however, it may be assembled from a Quick Don Mount Modification Kit, P/N 93B8601, and a Housing Assembly, P/N 5002501, removed from existing AN/AVS-6(V)1 or AN/AVS-6(V)2 mounts. Refer to paragraph 3-50 for buildup instructions.				

Figure 3-29. Deleted

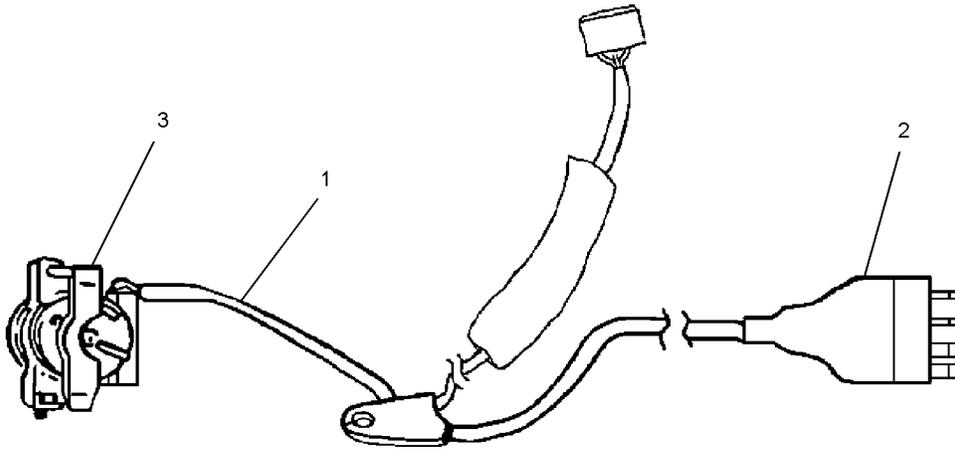


Figure 3-30. Gunsight Wiring Harness Assembly

3-30

Figure and Index Number	Part Number	Description							Units Per Assembly	Usable On Code
		1	2	3	4	5	6	7		
3-30	7636589	GUNSIGHT WIRING HARNESS ASSEMBLY (Figure 3-22 for NHA) (ATTACHING PARTS)							REF	
	NAS1635-08LE6P	SCREW, Machine, Pan Head (Not Shown)							1	*
	MS51957-43B	SCREW, Machine, Pan Head (Not Shown)							1	*
	NAS1149CN816B	WASHER, Flat (Not Shown)							1	
	632104-1	POST (Not Shown)							1	
		---*---								
-1	11318A	. CABLE ASSEMBLY (18068)							1	
-2	261-31-08-030	. CONNECTOR PLUG, A1P1							1	
-3	2278613-00	. RECEPTACLE ASSEMBLY							1	

Figure 3-31. Deleted

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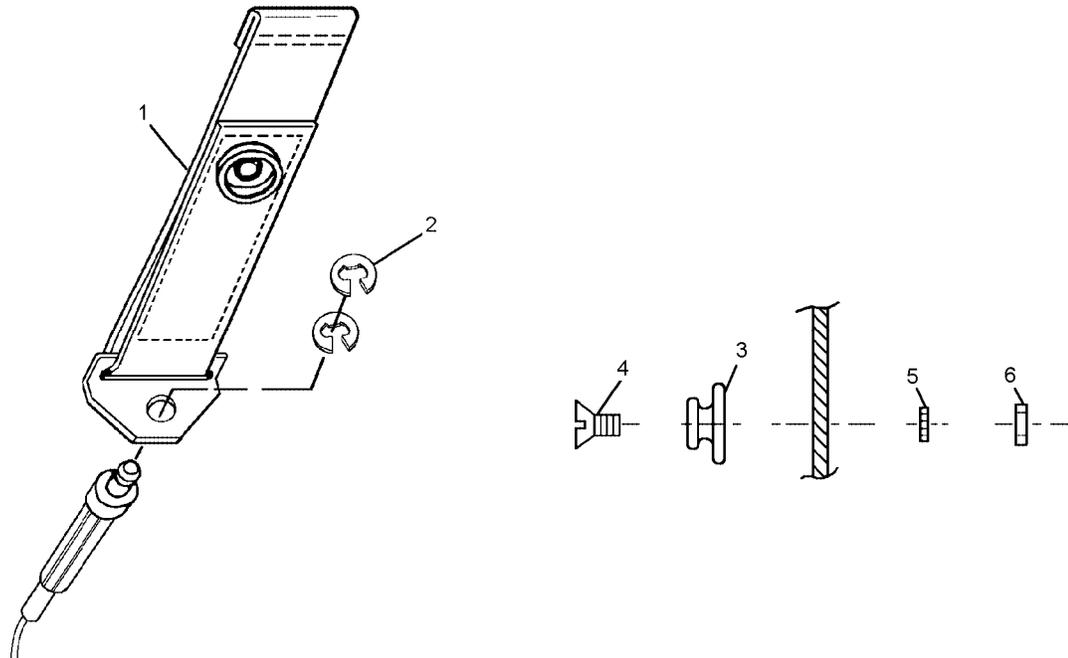


Figure 3-32. CBR Adapter Strap Assembly Fitting Kit

3-32

Figure and Index Number	Part Number	Description	Units Per Assembly	Usable On Code
3-32	91B8215	CBR ADAPTER STRAP ASSEMBLY FITTING KIT (Note 1)	REF	
-1	91B8215-1	. CBR ADAPTER STRAP ASSEMBLY (ATTACHING PARTS)	2	
-2	MS16634-4014	. RING, Retaining ---*---	2	
-3	MS27983-3	. STUD, Snap Fastener (ATTACHING PARTS)	2	
-4	MS51959-28B	. SCREW, Flat	1	
-5	MS35335-58	. WASHER, Lock	1	
-6	MS35649-264B	. NUT, Hex ---*---	1	
Notes: 1. CBR Adapter Strap Assemblies, P/N 91B8215, replace CBR Receivers, P/N 3151AS114.				

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code	Part Number	Figure and Index Number	SM&R Code
AN960-XC4L	3-24-15	PAOZZ	NAS1635-02LE3P	3-24-20	PAOZZ
AN960-XC416	3-26-5	PAOZZ	NAS1635-04LE4P	3-22-8	PAOZZ
CEP104-K04E	3-21-8	XDOZZ	NAS1635-04LE7P	3-28-2	
	3-22-19	XDOZZ	NAS1635-04LN5	3-24-16	PAOZZ
CEP402-C05	3-21-9	XDOZZ		3-28-2	PAOZZ
	3-22-20	XDOZZ	NAS1635-06LE4P	3-22-11	PAOZZ
CEP900-I04E	3-21-10	XDOZZ	NAS1635-06LE5P	3-22-6	PAOZZ
	3-22-21	XDOZZ	NAS1635-08LE6P	3-30	PAOZZ
DS14243-03PB	3-22-10	XAOZZ	NAS620-2	3-24-19	PAOZZ
GW9651-01	3-23		NAS620-4L	3-28-2	PAOZZ
GW9651-03	3-23		11318A	3-30-1	PAOZZ
GW9651-05	3-23		2278613-00	3-30-3	PAOZZ
GW9651-09	3-23		261-31-08-030	3-30-2	PAHZZ
GW9651-11	3-23		3151AS101-1	3-22	A0000
GW9651-13	3-23		3151AS101-2	3-22	A0000
GW9652-01	3-23		3151AS101-3	3-22	A0000
GW9652-03	3-23		3151AS101-4	3-22	A0000
GW9652-05	3-23		3151AS119-1	3-22-5	XAOZZ
GW9652-07	3-23		3151AS121-1	3-22-4	PDOZZ
GW9653	3-23		3151AS123-1	3-22-4	PDOZZ
H-87B/U	3-21-6	PAOZZ	3151AS124-1	3-22-4	PDOZZ
	3-22-16	PAOZZ	3151AS130-1	3-24-14	PAOZZ
MIL-M-26542/2	3-21-5	PA--Z	3151AS131	3-24-21	XAOZZ
	3-22-15	PA--Z	3151AS132	3-24-18	XAOZZ
MIL-M-26542/2-01	3-21-5	PA--Z	3151AS135-1	3-21-3	PAOZZ
	3-22-15	PA--Z		3-22-3	PAOZZ
MS16634-4014	3-32-2	PA---	3151AS139	3-24-17	XAOZZ
MS27983-3	3-24-4	PAOZZ	3151AS150-1	3-21-2	A0000
	3-32-3	PAOZZ		3-22-2	A0000
MS35335-34	3-26-6	PAOZZ		3-28	A0000
MS35335-58	3-24-6	PAOZZ	3151AS151-1	3-28-2	
	3-32-5	PAOZZ	5002501	3-28-1	PA--Z
MS35649-264B	3-24-7	PAOZZ	632104-1	3-22-13	
	3-32-6	PAOZZ		3-30	
MS51957-27B	3-22-6	PAGZZ	69A2142	3-24-8	PAOZZ
MS51957-42B	3-21-3	PAOZZ	7636587	3-22-17	PAOZZ
	3-22-3	PAOZZ	7636589	3-22-13	PAOOO
MS51957-43B	3-22-13	PAOZZ		3-30	PAOOO
	3-30	PAOZZ	765AS233-1	3-25-2	PA---
MS51958-61B	3-26-3	PAOZZ	765AS245-2	3-26-4	PAOZZ
MS51959-28B	3-24-5	PAOZZ	765AS286-1	3-21-4	PAOZZ
	3-32-4	PAOZZ	765AS300-1	3-24-8	PAOZZ
M22442/15-1	3-21-4	PAOZZ	79C4416-40	3-25-5	PAOZZ
M22442/19-1	3-21-4	PAOZZ	85D7087-1P	3-23-2	PAOOO
M22442/37-4708	3-21-4	PAOZZ		3-27	PAOOO
M22442/57-1	3-22-14	PAOZZ	85D7087-2P	3-23-2	PAOOO
M22442/61-1	3-22-14	PAOZZ		3-27	PAOOO
NAS1149CN416B	3-22-9	PAGZZ	85D7087-3P	3-23-2	PAOOO
NAS1149CN616B	3-22-7	PAOZZ		3-27	PAOOO
	3-22-12	PAOZZ	85D7087-30P	3-23-2	PAOOO
NAS1149CN816B	3-22-13	PAOZZ		3-27	PAOOO
	3-30	PAOZZ	85D7088-1	3-27-1	PAOZZ

NUMERICAL INDEX (Cont)

Part Number	Figure and Index Number	SM&R Code	Part Number	Figure and Index Number	SM&R Code
85D7088-2	3-27-1	PAOZZ	90C7885	3-23-5	PDOOO
85D7088-3	3-27-1	PAOZZ		3-25	PDOOO
85D7088-30	3-27-1	PAOZZ	90C7886-1	3-25-3	PAOZZ
88C7589	3-25-1	PAOZZ	90C7886-2	3-25-4	PAOZZ
88D7518-1	3-27-2	XAOZZ	90C7968L	3-24-12	XAOZZ
88D7518-2	3-27-2	XAOZZ	90C7968M	3-24-12	XAOZZ
88D7518-3	3-27-2	XAOZZ	90C7968XL	3-24-12	XAOZZ
88D7518-30	3-27-2	XAOZZ	90D7860	3-24-1	PAOZZ
89D7748-1	3-21-1	PDOOO	90D7861	3-24-1	PAOZZ
	3-22-1	PDOOO	90D7862	3-24-1	PAOZZ
	3-23	PDOOO	90D7863	3-24-1	PAOZZ
89D7748-2	3-21-1	PDOOO	90D7865-1	3-26-10	PAOZZ
	3-22-1	PDOOO	90D7865-2	3-26-10	PAOZZ
	3-23	PDOOO	90D7865-3	3-26-10	PAOZZ
89D7748-3	3-21-1	PDOOO	90D7865-4	3-26-10	PAOZZ
	3-22-1	PDOOO	90D7866-1	3-26-7	
	3-23	PDOOO	90D7866-2	3-26-7	
89D7748-4	3-21-1	PDOOO	90D7866-3	3-26-7	
	3-22-1	PDOOO	90D7867	3-26-9	
	3-23	PDOOO	90D7887	3-24-13	XAOZZ
90B7868	3-26-1	PAOZZ	90D7888	3-24-13	XAOZZ
90B7872	3-26-11	PAOZZ	90D7889	3-24-13	XAOZZ
90B7954	3-24-2	XAOZZ	90D7890	3-24-13	XAOZZ
90C7859-1	3-23-1	PAOOO	90D7914-1	3-23-3	PAOZZ
	3-24	PDOOO	90D7915-1	3-23-4	PAOZZ
90C7859-2	3-23-1	PDOOO	91B8215	3-21-7	PAOZZ
	3-24	PDOOO		3-22-18	PAOZZ
90C7859-3	3-23-1	PDOOO		3-32	PAOZZ
	3-24	PDOOO	91B8215-1	3-32-1	XAOZZ
90C7859-4	3-23-1	PDOOO	92A8241	3-24-3	PAOZZ
	3-24	PDOOO	93B8456	3-26-2	PAOZZ
90C7864-1	3-23-6	PDOOO	93B8471	3-26-8	PAOZZ
	3-26	PDOOO	93B8601	3-28-2	PAOZZ
90C7864-2	3-23-6	PDOOO	93D8470	3-23-7	PAOZZ
	3-26	PDOOO	93D8497	3-23	PAOZZ
90C7864-3	3-23-6	PDOOO	95A9255-1	3-23	
	3-26	PDOOO	95A9255-2	3-23	
90C7864-4	3-23-6	PDOOO			
	3-26	PDOOO			

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