

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

**ELECTRONIC EQUIPMENT CONFIGURATIONS
ARMY MODELS AH-1G, AH-1Q, AND AH-1S(MOD) HELICOPTERS**

This copy is a reprint which includes current pages from Changes 1 through 3. The title was changed by C 3 to read as shown above.

Technical Manual

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Direct Support and General Support Maintenance Manual

ELECTRONIC EQUIPMENT CONFIGURATIONS

ARMY MODEL AH-1G AND AH-1Q HELICOPTERS

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*This manual supersedes TM 11-1620-221-35, 24 March 1967, including all changes.

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WARNING**DANGEROUS VOLTAGES
EXIST IN THESE CONFIGURATIONS**

Be careful when working on the 115-volt ac output circuits of the inverters.

**DEATH ON CONTACT
MAY RESULT IF SAFETY PRECAUTIONS ARE NOT OBSERVED**

Be careful not to come in contact with or close proximity to high-voltage connections or any power connections when using this equipment. Turn off the power and discharge all high-voltage capacitors before making any connections or doing any work inside the equipment. Voltages as high as 1,500 volts dc are present in these configurations.

RF BURNS

Do not touch or stand too close to radiating antennas. Serious RF burns may result. Move away from antenna or transmitting equipment if any part of the body area feels flushed.

DANGEROUS CHEMICALS ARE USED IN NICKEL-CADMIUM BATTERIES

The electrolyte used in nickel-cadmium batteries contains potassium hydroxide (KOH), which is a caustic agent. Serious and deep burns of body tissue will result if the electrolyte comes in contact with the eyes or any part of the body. Use rubber gloves, rubber apron, and protective goggles when handling the electrolyte. If accidental contact with the electrolyte is made, use ONLY clean water and immediately (seconds count) flush contaminated areas. Continue flushing with large quantities of clean water for at least 15 minutes. Seek medical attention without delay.

DO NOT TAKE CHANCES!

Change 2

CHAPTER 1 INTRODUCTION

1-1. Scope

a. This manual covers direct and general support of the electronic equipment configuration for Army Model AH-1G, and AH-1Q Helicopters, Serial Numbers 6615249 through 66-15357, 67-15450 through 67-15869, 68-15000 through 68- 15213, 68-17020 through 68-17113, 69-16410 through 69-16447, 70-15936 through 70-16105; and helicopters that have been retrofitted in accordance with MWO's 55-1520-221-20/5, 55-1520-221-20/7, 55-1520-221-20/9, 55-1520-221-30/1, 55-1520-221-30/12, 55-1520-221-30/13, 55-1520-221-30/17, 55-1520-221-30/26, and 55-1520-221-30/36. It includes instructions appropriate to direct support maintenance personnel for troubleshooting electronic equipment when the equipment is installed in the helicopter. This manual lists tools, test equipments, and materials required by direct support maintenance personnel to maintain the helicopter electronic equipment configuration. Also included in this manual are complete direct and general support instructions with appropriate lists of tools, test equipments, and materials required for performing bench or shop maintenance of certain electronic equipment components.

b. Bench maintenance of many of the electronic equipment configuration components is covered in other technical manuals. The pertinent technical manuals for these electronic equipments are listed in appendix A. When servicing these electronic equipments, refer to those manuals for detailed troubleshooting, testing, aligning, and repair procedures, and for replacing or repairing maintenance parts.

c. Block diagram analysis of the entire electronic equipment configuration and the individual facilities that are contained in the electronic equipment configuration is covered in TM 11-1520-221-20. Analysis of the electronic configuration interunit circuits is covered in paragraphs 2-3 through 2-14 of this manual. Block diagrams and detailed circuit analyses of electronic equipment components that do not have separate manuals are covered in section II, chapter 2, and chapter 5 of this manual. For electronic equipments covered by separate technical manuals, refer to appendix A for pertinent manuals regarding the block diagrams and detailed circuit analyses.

d. The addition of an asterisk inclosed in parentheses to the official nomenclature is used to indicate all models of the equipment discussed in this manual. TM 11-1520-221-20 lists the equipment to which this symbol will apply.

e. The reporting of errors, omissions and recommendations for improving this publication by the individual user is encouraged. Reports should be

submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, NJ 07703.

NOTE

For applicable forms and records, see TM 11-1520-221-20.

1-2. Indexes of Publications

a. *DA Pam 310-4.* Refer to the latest issue of DA Pam 3104 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. *DA Pam 310-7.* Refer to the latest issue of DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Reference Designations and Equipment Identification

a. *General.* The electronic equipment components illustrated in this manual are grouped by the facility and the configuration they are associated with, and are identified by part number or official nomenclature. The subassemblies and parts of these equipments are identified by reference designations. Reference designations consist of groups of letters and numbers that identify the subassemblies and parts. Some of the subassemblies and parts within the electronic equipments have reference designations assigned to items according to the unit numbering system, and some equipments use the block numbering system. For the reference designation system and the grouping of items within a particular electronic equipment, refer to appendix A for the applicable technical manual covering the equipment.

b. *Electronic Configuration.* The facilities in the configuration covered by this manual, and the model and serial numbers of the helicopters included in the configuration are in the chart below. For detailed electronic equipment breakdown of each facility, with its associated configurations, helicopter models, and serial numbers, refer to TM 11-1520-221-20.

NOTE

The electronic configuration in the AH-1Q, designated as configuration F, is the same as in configurations A, B, C, D, and E except for location of components, and the main inverter. All other components, wire numbers, etc. are the same. Refer to TM 11-1520-221-20 for specific equipment relocation.

<i>Facility</i>	<i>Equipment</i>
Interphone and audio -----	Control, Intercommuni- cation Set C-1611/AIC
Fm liaison -----	Radio Set AN/ARC-54 or AN/ARC-131
Uhf command -----	Radio Set ANIARC-51BX
Automatic direction find- ing (Adf) system-----	Direction Finder Set AN/ARN-83
Gyromagnetic compass-----	Gyromagnetic Compass System AN/ASN-43
Iff system -----	Transponder Set AN/ APX-44 or ANIAPX-72
Vhf command-----	Radio Set AN/ARC-134
Stability and control augmentation system -----	SCAS, Model 570A
(SCAS) -----	
Dc source-----	Battery BB-433/A or BB-649/A

<i>Facility</i>	<i>Equipment</i>
Ac source (Main inver- ----- ter) (A through E configuration	Motor Generator PU-542 (A)/A or PU-542(*)/A
Ac source (Main inverter)----- (F configuration)	Inverter, Power 209-075-572
Standby ac source ----- (standby inverter)-----	Inverter, Power, Static PP-6508/U
<i>Configuration -----</i>	<i>Helicopter Serial No.</i>
A -----	66-15249 - 66-15257
B-----	66-15258 - 66-15357
C -----	67-15450 - 67-15869
D -----	68-15000 - 68-15213
	68-17020 - 68-17113
	68-16410 - 69-16447
E-----	7015936- 70-16105
F -----	AH-1Q

Change 2 1-2