TM 11-1520-210-20

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

ELECTRONIC EQUIPMENT CONFIGURATIONS

ARMY MODEL UH-1D/H HELICOPTER

HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1970

WARNING
DANGEROUS VOLTAGE
EXIST IN THESE CONFIGURATIONS

Be careful when working on the 115-volt ac output circuits of the inverters or on the high voltage dc output circuits of the dynamotors.

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.

DO NOT TAKE CHANCES!

TECHNICAL MANUAL
No. 1–1520–210–20

HEADQUARTERS
DEPARTMENT OF THE ARI
WASHINGTON, D.C., *23 July 1*:

Organizational Maintenance Manual
ELECTRONIC EQUIPMENT CONFIGURATIONS
ARMY MODEL UH–1D/H HELICOPTER

		Paragraph	Page
CHAPTER 1.	INTRODUCTION		
Section I.	General		
	Scope	1–1	1–1
	Indexes of publications	1–2	1–2
	Forms and records	1–3	1–2
II.	Description of Configurations and Electronic Equipment		
	Configurations and serial numbers	1–4	1–2
	Facilities and electronic equipment	1–5	1–3
	Differences in electronic equipment models	1–6	1–10
	Equipment technical characteristics	1–7	1–11
	Description of equipment components	1–8	1–12
CHAPTER 2.	MAINTENANCE INSTRUCTIONS		
Section I.	General Requirements		
	Scope of organizational maintenance	2–1	2–1
	Tools, test equipment, and materials required	2–2	2–1
	Fuse and circuit protective device locations	2–3	2–2
	Auxiliary power unit connection	2–4	2–6
II.	Preventive Maintenance Procedures		
	Preventive maintenance	2–5	2–7
	Preventive maintenance check and service intervals	2–6	2–8
	Periodic Preventive Maintenance Checks and Services Chart	2–7	2–11
	General cleaning and repainting instructions	2–8	2–33
	Servicing	2–9	2–33
III.	Troubleshooting		
	General troubleshooting information	2–10	2–34
	Troubleshooting chart	2–11	2–34
IV.	Electronic Equipment Configuration Repairs		
	General repair techniques	2–12	2–43
	Electronic equipment component removal and replacement	2–13	2–43
	Coordinating removal and replacement	2–14	2–44
	Removal and replacement of Receiver-Transmitter, Radio RT–294/ARC–44	2–15	2–44
	Removal and replacement of Dynamotor DY–107/AR (AN/ARC–44)	2–16	2–45
	Removal and replacement of Panel, Control SB–327/ARC–44 (fm liaison control panel)	2–17	2–45
	Removal and replacement of Panel, Signal Distribution, Radio SB–329/AR, A and B configurations	2–18	2–45
	Removal and replacement of Control, Intercommunication Set C–1611/AIC, C through J configurations	2–19	2–47
	Removal and replacement of Discriminator, Discrete Signal MD–736/A, configurations F through I	2–20	2–48
	Removal and replacement of Discriminator, Discrete Signal MD–736/A, configuration J	2–21	2–49
	Removal and replacement of Panel Assembly, Control 204–075–219 (SA–474/AR modified), A and B configurations	2–22	2–49
	Removal and replacement of Antenna AT–454(*)/ARC–44, A and B configurations	2–23	2–50
	Removal and replacement of Receiver-Transmitter RT–702/ARC–51X or RT–742/ARC–51BX or RT–334( )/ARC–51X, C through J configurations	2–24	2–50
	Removal and replacement of Control, Radio Set C–4677/ARC–51X, C, D, and E configurations	2–25	2–52

*This manual supersedes TM 11–1520–210–20, 12 July 1966, including all changes.

	Paragraph	Page
Removal and replacement of Control, Radio Set C-6287/ARC-51BX, C through G configurations	2-26	2-53
Removal and replacement of vhf/uhf Antenna AT-1108/ARC	2-27	2-53
Removal and replacement of Receiver-Transmitter RT-348/ARC-54 or RT-823/ARC-131	2-28	2-53
Removal and replacement of Antenna AT-765/ARC	2-29	2-53
Removal and replacement of Antenna AS-1703/ARC-54 and Antenna Coupler CU-942/ARC-54	2-30	2-53
Removal and replacement of Control, Radio Set C-3835/ARC-54 or C-7088/ARC-131	2-31	2-53
Removal and replacement of Homing Antenna Assembly AS-1922/ARC (637A-2)	2-32	2-53
	2-33	2-53
Removal and replacement of Receiver-Transmitter RT-349(*)/ARC-55	2-34	2-53
Removal and replacement of Antenna AT-450/ARC-55	2-35	2-56
Removal and replacement of Control, Radio Set C-1827/ARC-55	2-36	2-56
Removal and replacement of Receiver R-1123(*)/ARC-73	2-37	2-56
Removal and replacement of Transmitter, Radio T-879(*)/ARC-73	2-38	2-58
Removal and replacement of Antenna 37R-2 (T-366 transmitter)	2-39	2-58
Removal and replacement of Control, Radio Set C-4074A/ARC-73	2-40	2-59
Removal and replacement of Receiver-Transmitter, Radio RT-857/ARC-134	2-41	2-59
Removal and replacement of Control, Radio Set C-7197/ARC-134	2-42	2-59
Removal and replacement of Receiver-Transmitter RT-698/ARC-102		
Removal and replacement of Antenna, Longwire P/N 204-075-609 (AN/ARC-102)	2-43	2-63
Removal and replacement of Antenna, Longwire P/N 205-706-027	2-44	2-64
Removal and replacement of Control, Radio Set C-3940/ARC-94 (AN/ARC-102)	2-45	2-64
Removal and replacement of Network, Impedance Matching CU-991/AR (AN/ARC-102)	2-46	2-64
Removal and replacement of Transmitter T-366/ARC (emergency vhf)	2-47	2-64
Removal and replacement of Control Panel P/N 204-075-708 or Control Panel P/N 204-075-709 (T-366 ARC transmitter)	2-48	2-64
Removal and replacement of Dynamotor DY-86/ARN-30 (T366/ARC transmitter)	2-49	2-64
Removal and replacement of Control Panel ARC Type C-80B (T-366/ARC transmitter)	2-50	2-66
Removal and replacement of Receiver, Radio R-1021/ARN-30	2-51	2-67
Removal and replacement of Receiver, Radio R-1388/ARN-82	2-52	2-67
Removal and replacement of Antenna AS-1304/ARN-30 (DMN4-4)	2-53	2-67
Removal and replacement of Power Supply PP-2792/ARN-30	2-54	2-67
Removal and replacement of Converter, Signal Data CV-265A/ARN-30	2-55	2-69
Removal and replacement of Indicator, Course ID-453/ARN-30	2-56	2-69
Removal and replacement of Indicator, Course ID-1347/ARN-82	2-57	2-69
Removal and replacement of Control, Radio Set C-3436/ARN-30D or C-3436A/ARN-30E	2-58	2-69
Removal and replacement of Control, Radio Set C-6873/ARN-82	2-59	2-69
Removal and replacement of Receiver, Radio R-836/ARN-59 (ADF receiver)	2-60	2-71
Removal and replacement of Receiver, Radio R-1391/ARN-83 (ADF receiver)	2-61	2-72
Removal and replacement of Antenna AT-780/ARN	2-62	2-72
Removal and replacement of Antenna AS-1863/ARN-83	2-63	2-73
Removal and replacement of adf Dynamotor DY-150/ARN	2-64	2-74
Removal and replacement of Control, Receiver C-2275/ARN	2-65	2-74
Removal and replacement of Control, Direction Finder C-6899/ARN-83	2-66	2-75
Removal and replacement of adf Antenna, Sensing 204-075-328 or 205-075-325 (AN/ARN-59)	2-67	2-75
Removal and replacement of Receivers, Radio R-1041A/ARN or R-737/ARN (marker beacon)	2-68	2-76
Removal and replacement of Antenna 37X-2, or AT-604A/ARN (marker beacon)	2-69	2-76
	2-70	2-76
Removal and replacement of Element, Antenna AT-624/AR (AN/ARA-31)		
Removal and replacement of Network, Impedance Matching CU-459/AR (AN/ARA-31)	2-71	2-76
Removal and replacement of Keying Unit KY-149/AR (AN/ARA-31 only)	2-72	2-77
Removal and replacement of Remote Induction Compass Transmitter C-2 (aircraft magnetic compass type J2)	2-73	2-78

	Paragraph	Page
Removal and replacement of Electronic Control Amplifier A-2 (aircraft magnetic compass type J2)	2-74	2-80
Removal and replacement of Electrically Driven Gyro Control Type S-3A Aircraft Magnetic Compass Type J2)	2-75	2-80
Removal and replacement of Directional Gyro Type CN-998/ASN-43 (aircraft magnetic compass type AN/ASN-43)	2-76	2-81
Removal and replacement of Indicator, Course ID-998/ASN (C-6H)	2-77	2-82
Removal and replacement of Amplifier, Electronic Control AM-3209/ASN	2-78	2-82
Removal and replacement of Indicator, Course ID-250/ARN	2-79	2-83
Removal and replacement of Receiver-Transmitter, Radio RT-494/APX-44	2-80	2-83
Removal and replacement of Antenna AT-884/APX-44	2-81	2-84
Removal and replacement of Transponder Set Control C-2714/APX-44	2-82	2-84
Removal and replacement of Motor Generator PU-543(*)/A	2-83	2-85
Removal and replacement of Secure-Voice Coder TSEC/KY-28	2-84	2-87
Removal and replacement of Secure-Voice Control-Indicator C-8157/ARC	2-85	2-87
Removal and replacement of Mount MT-3802/ARC	2-86	2-87
Removal and replacement of remote cipher light, configurations C through H	2-87	2-87
Removal and replacement of remote cipher light, configurations I and J	2-88	2-88
Removal and replacement of Computer Transponder KIT-1A/TSEC	2-89	2-89
Removal and replacement of Receiver-Transmitter RT-859/APX-72	2-90	2-89
Removal and replacement of Control, Transponder Set C-6280/APX-72	2-91	2-89
Removal and replacement of Test Set TS-1843/APX-72	2-92	2-89
Removal and replacement of Receiver, Position Fixing R-1453/ASN-72	2-93	2-90
Removal and replacement of Computer, Flight Log CP-880/ASN-72	2-94	2-90
Removal and replacement of Indicator, Hyperbolic Grid Lane, Green ID-1425/ASN-72; Indicator, Hyperbolic Grid Lane, Red ID-1426/ASN-72; Indicator, Hyperbolic Grid Lane, Purple ID-1424/ASN-72, and Indicator, Lane Identification ID-1427/ASN-72	2-95	2-91
Removal and replacement of Control, Receiver C-7152/ASN-72	2-96	2-91
Removal and replacement of Control, Programmer C-7153/ASN-72	2-97	2-91
Removal and replacement of Amplifier, Radio Frequency AM-4740/ASN-72	2-98	2-91
Removal and replacement of Recorder-Viewer, Flight Log RD-323/ASN-72	2-99	2-91
Removal and replacement of cassette	2-100	2-92
Removal and replacement of Switch, Microphone SA-47A/AIC (foot switch)	2-101	2-92
Removal and replacement of Cyclic Stick Switch X942-2 (trigger switch)	2-102	2-93
Removal and replacement of Filter, Direct Current Power F-726/AR (power unit ARC type P-12)	2-103	2-93
Removal and replacement of Converter, Radio-Magnetic Indicator CV-1275/ARN or B-18A	2-104	2-94
Removal and replacement of Indicator, Attitude 4005G	2-105	2-96
Removal and replacement of Gyro, Roll and Pitch MD-1	2-106	2-96
Removal and replacement of Gyro, Rate Switching MC-1	2-107	2-96
Removal and replacement of Amplifier, Attitude Indicator 5404G	2-108	2-97
Removal and replacement of Indicator, Attitude J-8	2-109	2-97
Removal and replacement of IFF caution light	2-110	2-97
Removal and replacement of code hold light	2-111	2-98
Removal and replacement of code hold switch	2-112	2-98
Parts replacement of control unit panel lamps	2-113	2-98
Parts replacement of lamp in remote cipher light, IFF caution light, or code hold light	2-114	2-99
Safety wiring	2-115	2-99
Wiring repairs	2-116	2-99
Section V. Adjustments After Replacement or Repairs		
Extent of adjustments	2-117	2-113
Adjustment of Radio Set AN/ARC-44	2-118	2-114
Adjustment of Radio Set AN/ARC-54	2-119	2-114
Adjustment of Radio Set AN/ARC-55	2-120	2-114
Adjustment of Transmitter, Radio T-366/ARC	2-121	2-114
Adjustment of Radio Set AN/ARC-73	2-122	2-115
Adjustment of Radio Set AN/ARC-102	2-123	2-115
Adjustment of Receiving Set, Radio AN/ARN-30(*)	2-124	2-116
Adjustment of Direction Finder Set AN/ARN-59(V)	2-125	2-117

		Paragraph	Page
CHAPTER 3.	BLOCK DIAGRAM ANALYSIS		
	Configuration systems and facilities	3-1	3-1
	Radio Set AN/ARC-44	3-2	3-1
	Radio Set AN/ARC-54 or AN/ARC-131	3-3	3-1
	Radio Set AN/ARC-51(*)X	3-4	3-1
	Radio Set AN/ARC-55(*)	3-5	3-2
	Radio Set AN/ARC-73	3-6	3-2
	Radio Set AN/ARC-134	3-7	3-4
	Radio Set AN/ARC-102	3-8	3-4
	Transmitter, Radio T-366/ARC (emergency vhf)	3-9	3-4
	Receiving Set, Radio AN/ARN-30(*) (vhf navigation set)	3-10	3-4
	Receiving Set, Radio AN/ARN-82 (vhf navigation set)	3-11	3-7
	Direction Finder Set AN/ARN-59(V) adf receiver	3-12	3-8
	Direction Finder Set AN/ARN-83 (adf receiver)	3-13	3-9
	Aircraft magnetic compass system type J2	3-14	3-11
	Aircraft gyromagnetic compass system type AN/ASN-43	3-15	3-14
	Receiver, Radio R-737/ARN (marker beacon)	3-16	3-15
	Receiver, Radio R-1041/ARN (marker beacon)	3-17	3-16
	Panel, Signal Distribution, Radio SB-329/AR (control panel)	3-18	3-17
	Control, Intercommunication Set C-1611(*)/AIC (distribution panel)	3-19	3-19
	Auxiliary signal distribution box	3-20	3-23
	Antenna Group AN/ARA-31	3-21	3-24
	Antenna Assembly 637A-2 (205-075-345) (fm homing)	3-22	3-24
	Transponder Set AN/APX-44 (IFF set)	3-23	3-24
	Transponder Set AN/APX-72 (IFF set)	3-24	3-26
	Navigation Set, Position Fixing AN/ASN-72	3-25	3-29
	Battery, Storage BB-433/A	3-26	3-29
	Motor Generator PU-543(*)/A	3-27	3-29
	Attitude indicating system (pilot's)	3-28	3-29
	Attitude indicating system (co-pilot's)	3-29	3-29
	Secure-voice equipment	3-30	3-29
APPENDIX A.	REFERENCES		A-1
B.	MAINTENANCE ALLOCATION		B-1
C.	DEFINITIONS OF UNUSUAL TERMS		C-1
INDEX			I-1

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual covers organizational maintenance of the electronic equipment configuration in Army model YUH-1D, helicopters serial numbers 60-6028 through 60-6034 and model UH-1D/H serial numbers 62-2110 through 62-2113, 62-12351 through 62-12372, 63-8739 through 63-8859, 63-12956 through 63-13002, 64-13492 through 64-13901, 65-9565 through 65-10135, 65-12773 through 65-12776; 12847 through 65-12895, 66-746 through 66-1210, 66-8574 through 66-8577, 66-16000 through 66-17144, 67-17145 through 67-17402, 67-17405 through 67-17476, 67-17483 through 67-17556, 67-17558 through 67-17859, 67-18411 through 67-18413, 67-18558 through 67-18577, 67-19475 through 67-19537, 68-15214 through 68-15778, 68-16050 through 68-16628, 69-15000 through 69-15959, 69-16650 through 69-16670, 69-16692 and subsequent, and helicopters that have been retrofitted in accordance with MWO's 55-1520-210-34/2, 55-1520-210-34/9, 55-1520-210-34/10, 55-1520-210-30/13, 55-1520-210-30/14, 55-1520-210-30/15, 55-1520-210-30/16, 55-1520-210-30/22, and 55-1520-210-40/1. The manual includes instructions for organizational maintenance personnel to perform periodic preventive maintenance and troubleshooting procedures for the electronic communication and navigational equipment when the equipment is installed in the helicopter. This manual also lists tools and test equipment required by organizational maintenance personnel to maintain the configuration.

b. Operating instructions are contained in TM 55-1520-210-10. This manual supplements TM 55-1520-210-ESC, TM 55-1520-210-10, and TM 55-1520-210-20 to provide complete organizational maintenance instructions. Some of the electronic equipments used in this configuration are covered in detail in other manuals; the pertinent manuals are listed in appendix A. When servicing components of these electronic equipments independent of the helicopter, refer to the applicable technical manuals for detailed troubleshooting procedures and for replacing and repairing maintenance parts.

c. Equipment nomenclatures containing an asterisk given in (1) through (22) below are used throughout this manual to indicate that more than one model of an equipment may be used.

(1) Antenna AT-454(*)/ARC represents Antennas AT-454/ARC and AT-454A/ARC.

(2) Antenna AT-640(*)/ARN represents Antenna Elements AT-640A/ARN.

(3) Antenna Element AT-445(*)/ARC represents Antenna Elements AT-455/ARC and AT-455A/ARC.

(4) Antenna Element AT-624(*)/AR represents Antenna Elements AT-624/AR and AT-624A/AR.

(5) Base, Antenna AB-340(*)/ARC represents Bases, Antenna AB-340/ARC and AB-340A/ARC.

(6) Control, Radio Set C-3436(*)/ARN-30 represents C-3436/ARN-30 and C-3436A/ARN-30.

(7) Control, Radio Set C-4074(*)/ARC-73A represents Controls, Radio Set C-4074/ARC-73 and C-4074A/ARC-73.

(8) Control, Intercommunication Set C-1611(*)/AIC represents Controls, Intercommunication Set C-1611/AIC, C-1611A/AIC, C-1611B/AIC, and C-1611C/AIC.

(9) Coupler, Antenna CU-361(*)/ARC represents Couplers, Antenna CU-361/ARC, CU-361A/ARC, CU-361B/ARC, CU-361C/ARC, and CU-361D/ARC.

(10) Dynamotor DY-107(*)/AR represents Dynamotors DY-107/AR and DY-107A/AR.

(11) Headset-Microphone H-101(*)/U represents Headset-Microphones H-101/U and H-101A/U.

(12) Keyer KY-149(*)/AR represents Keyers KY-149/AR and KY-149A/AR.

(13) Motor Generator PU-543(*)/A represents Motor Generators PU-543/A, PU-543A/A, PU-543B/A, and PU-543C/A.

(14) Mounting MT-1267(*)/AR represents Mountings MT-1267/AR and MT-1267/AR.

(15) Mounting MT-2699(*)/ARC-73A represents Mountings MT-2699/ARC-73A and MT-2699A/ARC-73A.

(16) Radio Set AN/ARC-51(*)X represents Radio Sets AN/ARC-51X and AN/ARC-51BX.

(17) Radio Set AN/ARC-55(*) represents Radio Sets AN/ARC-55, AN/ARC-55A, and AN/ARC-55B.

(18) Receiver, Radio R-1041(*)/ARN represents Receiver, Radio R-1041/ARN and R-1041A/ARN.

(19) Receiver, Radio R-1123(*)/ARC-73 represents Receivers, Radio R-1123/ARC-73, R-1123A/ARC-73, and R-1123B/ARC-73.

(20) Receiver-Transmitter, Radio RT-294(*)/ARC-44 represents Receiver-Transmitters, Radio RT-294/ARC-44, RT-294A/ARC-44, and RT-294B/ARC-44.

(21) Receiver-Transmitter, Radio RT-349(*)/ARC-55 represents Receiver-Transmitters RT-349/ARC-55, RT-349A/ARC-55, RT-349B/ARC-55, and RT-469/ARC-55B.

(22) Transmitter, Radio T-879(*)/ARC-73 represents Transmitters, Radio T-879/ARC-73A, T-879A/ARC-73 and T-879B/ARC-73.

1-2. Indexes of Publications

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

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

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report to Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army), NAVSUP Pub 378 (Navy), AFR 71-4 (Air Force), and MCO P4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 (Army), NAVSUP Pub 459 (Navy), AFM 75-34 (Air Force), and MCO P4610.19 (Marine Corps).

d. Reporting of Equipment Manual Improvements. Reporting of errors, omissions, and recommendations for improving this manual by the individual user, is encouraged. Recommendations should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AD, Fort Monmouth, N.J. 07703.

Section II. DESCRIPTION OF CONFIGURATIONS AND ELECTRONIC EQUIPMENT

1-4. Configurations and Serial Numbers

Electronic configurations installed aboard the Army model YUH-1D and UH-1D/H helicopters with corresponding serial numbers are shown below.

Configuration	*Helicopter model*	*Helicopter serial number*
A	YUH-1D	60-6028 through 60-6034
B	UH-1D/H	62-2110 through 62-2113
		62-12351 through 62-12372
C	UH-1D/H	63-8739 through 63-8859
		63-12956 through 63-13002
D	UH-1D/H	64-13492 through 64-13901
E	UH-1D/H	65-9565 through 65-10135
		65-12773 through 65-12776
		65-12847 through 65-12852
		65-12857 through 65-12895
F	UH-1D/H	66-746 through 66-1210
		66-16000 through 66-16448
G	UH-1D/H	66-8574 through 66-8577
		66-16449 through 66-17144
H	UH-1D/H	67-17145 through 67-17402
		67-17405 through 67-17476
		67-17483 through 67-17556
		67-17558 through 67-17859
		67-18411 through 67-18413
		67-18558 through 67-18577
		67-19475 through 67-19537
I	UH-1D/H	68-15214 through 68-15324
J	UH-1D/H	68-15325 through 68-15778
		68-16050 through 68-16628
		69-15000 through 69-15959
		69-16650 through 69-16670
		69-16692 and subsequent

NOTE

The UH-1D is equipped with a T-53-L9, -9A, or -11 series engine. The UH-1H is equipped with a T-53-L13 engine. The avionics equipments installed in both helicopters are the same.

1-5. Facilities and Electronic Equipment

All operational facilities provided by individual equipments installed aboard each model helicopter are given in *a* through *e* below. Figures FO-1, FO-2, and FO-3 show item locations. The facilities are grouped according to general function. A letter *X* in the *Configuration* column indicates that the particular component is installed in the helicopter. A letter Y in the *Configuration* column indicates that complete facilities for the component are provided but the component is not installed. A letter *Z* in the *Configuration* column indicates that only adequate space, weight, and power for a specific component are provided and a helicopter retrofit or modification program will be required to add this component. Numbers in parentheses indicate quantities.

a. Communications Facility (figs. FO–1, FO–2, and FO–3).

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
Fm liaison	Radio Set AN/ARC–44	X	X	--	--	--	--	--	--	--	--	Operates with Antenna Group AN/ARA–31 to also provide fm homing (navigation).
	Antenna AT–454(*)/ARC	X	X									
	Base, Antenna AB–340(*)/ARC	X	X									
	Coupler, Antenna, CU–361(*)/ARC	X	X									
	Antenna Element AT–455(*)/ARC	X	X									
	Receiver-Transmitter, Radio, RT–294(*)/ ARC–44.	X	X									
	Mounting MT–1268/AR	X	X									
	Dynamotor DY–107(*)/AR	X	X									
	Mounting M–1267(*)/AR	X	X									
	Panel, Control SB–327/ARC–44	X	X									
	Control Panel Assembly P/N 204–075–219 (Switch Assembly SA–474/AR modified).	X	X									
	Radio Set AN/ARC–54	--	--	X	X	X	X	X	X	X	X	Operates with the 637–2 Antenna and the ID–453/ARN–30 or the ID–1347/ARN–82 to also provide fm homing (navigation). Radio set AN/ARC–131 may be installed in lieu of Radio Set AN/ARC–54. Radio Set AN/ARC–54 and AN/ARC–131 are functionally and physically interchangeable. References to Radio Set AN/ARC–54 in this manual apply also to Radio Set AN/ARC–131.
	Receiver-Transmitter, Radio RT–348/ ARC–54.	--	--	X	X	X	X	X	X	X	X	
	Mounting MT–1535/ARC–54	--	--	X	X	X	X	X	X	X	X	
	Antenna AT–765/ARC	--	--	--	X	X						
	Antenna AS–1703/AR	--	--	X	--	--	X	X	X	X	X	
	Coupler, Antenna CU–942/ARC–54	--	--	X	X	X	X	X	X	X	X	
	Control, Radio Set C–3835/ARC–54	--	--	X	X	X	X	X	X	X	X	
Voice Security	Computer, Voice Security TSEC/ KY–28	--	--	Y	Y	Y	Y	Y	Y	Y	Y	Operates with AN/ARC–54 fm liaison set to provide voice security.
	Control-Indicator, Voice Security C–8157/ARC	--	--	Y	Y	Y	Y	Y	Y	Y	Y	
	Mounting MT–3802/ARC	--	--	X	X	X	X	X	X	X	X	
	Light, Remote Cipher	--	--	X	X	X	X	X	X	X (2)	X (2)	
Uhf command set	Radio Set AN/ARC–55(*)	X	X									
	Receiver-Transmitter, Radio RT–349(*)/ ARC–55.	X	X									
	Control, Radio Set C–1827/ARC–55	X	X									
	Mounting MT–1536/ARC–55	X	X									
	Antenna AT–450/ARC	X										
	Radio Set AN/ARC–51(*)	--	--	X	X	X	X	X	X	X	X	
	Receiver-Transmitter, Radio RT–702/ARC–51X or RT–742/ARC–51BX.	--	--	X	X	X	X	X	X	X	X	
	Control, Radio Set C–4677/ARC–51X or C–6287/ARC–51BX.	--	--	X	X	X	X	X	X	X	X	The radio set controls are not interchangeable. The C–4677/

	Mounting MT-2653/ARC	--	--	X	X	X	X	X	X	X	X	ARC-51X must be used with the RT-702/ARC-51X and the C-6287/ARC-71X must be used with the RT-742/ARC-51BX.
	Indicator Standing Wave Ratio ID-1003/ARC.	--	--	X	X	X	X	X	X	X	X	Mounted on front of receiver-transmitter.
	Cooler, Air, Electronic Equipment HD-615/ARC-51X.	--	-	X	X	X	X	X	X	X	X	
	Antenna AT-1108/ARC	--	X	X	X	X	X	X	X	X	X	Also used for vhf command and emergency vhf, and in B configuration for AN/ARC-55(*).
Vhf command	Radio Set AN/ARC-73A	Y	Y	Y	Y	Y	Y	-	-	-	--	May be installed as an alternate to uhf command. Provisions for installation are on the forward equipment rack. Provisions only up to and including 66-16306 in configuration F.
	Receiver, Radio R-1123(*)/ARC-73	Y	Y	Y	Y	Y	Y					
	Transmitter, Radio T-879(*) ARC-73	Y	Y	Y	Y	Y	Y					
	Mounting MT-2699/ARC-73	Y	Y	Y	Y	Y	Y					
	Antenna, Collins model 37R-2	Y										
	Antenna, AT-1108/ARC (Collins model 37R-2U).	--	X	X	X	X	X	X	X	X	X	Used also for uhf command. (See above.)
	Control, Radio Set C-4074(*)/ARC-73A or 614U-5, 614-6 or 616U-6.	Y	Y	Y	Y	Y	Y					
	Power Relay K28	Y	Y	Y	Y	Y	Y					
	Radio Set AN/ARC-134	--	--	--	-	--	X	X	X	X	X	Installed begining with 6-16307 in configuration F.
	Receiver-Transmitter RT-857/ARC-134	--	-	--	-	--	X	X	X	X	X	
	Mounting MT-3791/ARC-134 Control, Radio Set C-7197/ARC-134.	--	--	--	--	--	X	X	X	X	X	
		--	-	--	--	--	X	X	X	X	X	
Vhf emergency radio transmitter.	Transmitter, Radio T-366A/ARC	X	X	X	-	X	X	--	-	--	--	Operated with R-1021/ARN-30D or R-1388/ARN-82 to provide vhf command communications. Installed only up to and including 16306 in configuration F.
	Dynamotor DY-86/ARN-30	X	X	X	--	X	X					
	Mounting MT-1142/ARC	X	X	X	-	X	X					
	Antenna, Collins model 37R-2	X										
	Filter, Direct Current Power R-726/AR (ARC Type P12).	X	X	X	-	X	X					
	Relay, Switch RE-275/AR (ARC Type K-18).	X	X	X	--	X	X					
	Control Panel, P/N 204-075-708	X	X									
	Switch Panel, P/N 204-075-709	X	X	-	-	--	--	--	-	--		Also used for uhf command communications. (See above.)
	Antenna AT-1108/ARC (Collins model 37R-2U).	--	X	X	--	X	X					
	Control Panel (ARC-type C-80B)	--	--	X	--	X	X					
	Sidetone Relay K-12 (MS24139-5)	X	X	X	--	X	X					
Hf ssb set	Radio Set AN/ARC-102	--	--	Y	Y	Y	Y	Y	Y	Y	Y	Configuration C in accordance with MWO 55-1520-210-34/2.
	Receiver-Transmitter RT-698/ARC-102	--	--	Y	Y	Y	Y	Y	Y	Y	Y	
	Control, Radio Set C-3940/ARC-94	--	--	Y	Y	Y	Y	Y	Y	Y	Y	
	Network, Impedance Matching CU-991/AR	--	--	Y	Y	Y	Y	Y	Y			

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
	Network, Impedance Matching CU–1658/A	–	–	–	–	–	–	–	–	Y	Y	
	Mounting, MT–3772/A	–	–	–	–	–	–	–	–	Y	Y	
	Antenna, Longwire, P/N 204–075–609	–	–	Y	Y							
	Antenna, Longwire, P/N 205–706–027	–	–	–	–	Y	Y	Y	Y	Y	Y	
	Power, Inverter-Mounting PP–3702/ARC–102.	–	–	Y	Y	Y	Y	Y	Y	Y	Y	
Auxiliary Fm receiver.	Receiving Set, Radio AN/AFF–49	Z	Z	Z	Z	Z	Z	Z				
	Control, Receiver C–2177/AR	Z	Z	Z	Z	Z	Z	Z				
	Receiver, Radio R–809/ARC	Z	Z	Z	Z	Z	Z	Z				
	Receiver R–1297	–	–	–	–	–	–	–	Z	Z	Z	
	Mounting MT–1835/AR	Z	Z	Z	Z	Z	Z	Z				
Intercommunications	Panel, Signal Distribution, Radio SB–329/AR	X (3)	X (3)									
	Control, Intercommunication Set C–1611(*)/AIC.	–	–	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)	
	Cyclic Stick Switch X942–2	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	
	Headset-Microphone H–101(*)/U	X (3)	X (3)	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)	X (4)	
	Foot Switch SA–47A/A1C	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	X (2)	
	Network, Impedance Matching A16 (fig. FO–4).	X	X	X	X	X	X	X	X	X	X	
	Relay Auxiliary Signal Switch K21	X	X									
	Relay K17 and K18	X	X									
	Network Impedance Matching CU–435/AIC.	X	X									
	Relays K1, K2		–	X	X	X	X	X	X	X	–	Para 1–6*j*.
	Discriminator MD–736/A	–	–	–	–	–	X (4)	X (4)	X (4)	X (4)	X (4)	

b. Navigation (figs. FO–1, FO–2, and FO–3).

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
Vhf navigation	Receiving Set, Radio AN/ARN–30D	X	X	X								
	or											
	Receiving Set, Radio AN/ARN–30E	–	–	–	X	X						
	or											
	Receiving Set, Radio AN/ARN–82	–	–	–	–	–	X	X	X	X	X	
	Receiver, Radio R–1021/ARN–30D	X	X	X	X	X						
	Receiver, Radio R–1388/ARN–82		–	–		–	X	X	X	X	X	
	Mounting MT–1174/ARN–30A	X	X	X	X	X	–	–	–	–	–	Rack baseplate.
	Mounting MT–1175/ARN–30A	X	X	X	X	X	–	–	–	–		Dual mount.

	Mounting MT–3600/ARN–82	--	--	--	--	--	X	X	X	X	X	
	Power Supply PP–2792/ARN–30D	X	X	X	X	X	--	--	--	--	--	Mounted on R–1021/ARN–30D.
	Converter, Signal Data CV–265A/ARN–30A.	X	X	X	X	X						
	Indicator, Course ID–453/ARN–30	X	X	X	X	X	--	--	--	--	--	Also used for homing display in C through J configurations in conjunction with the AN/ARC–54.
	Indicator, Course ID–1347/ARN–82	--	--	--	--	--	X	X	X	X	X	
	Antenna AS–1304/ARN–30 (Dorne-Margolin DMN4–4).	X	X	X	X	X	X	X	X	X	X	
	Control, Radio Set C–3436/ARN–30D	X	X	X								
	Control, Radio Set C–3436A/ARN–30E	--	--	--	X	X						
	Control, Radio Set C–6873/ARN–82	--	--	--	--	--	X	X	X	X	X	
Low frequency (lf) automatic direction finder (adf) navigation set.	Direction Finder Set AN/ARN–59(V)	X	X	X	X	X						
	or											
	Direction Finder Set AN/ARN–83	--	--	--	--	--	X	X	X	X	X	
	Receiver, Radio R–836/ARN	X	X	X	X	X						
	Receiver, Radio R–1391/ARN–83	--	--	--	--	--	X	X	X	X	X	
	Mount MT–2018/ARN	X	X	X	X	X	--	--			--	R–836/ARN mount.
	Mounting MT–3605/ARN–83	--	--	--	--	--	X	X	X	X	X	
	Antenna AT–780/ARN	X	X	X	X	X	--		-	--	-	Loop antenna.
	Antenna AS–1863/ARN–83	--	--	--	--	--	X	X	X	X	X	
	Dynamotor DY–150/ARN	X	X	X	X	X						
	Mount MT–2019/ARN	X	X	X	X	X	--	--	--	--	--	DY–150/ARN mount.
	Control, Receiver C–2275/ARN	X	X	X	X	X						
	Control, Direction Finder C–6899/ARN–83.	--	--	--	--	--	X	X	X	X	X	
	Antenna, Sensing, P/N 204–075–328	X	X	X	X	X						
	Antenna, Sensing P/N 205–075–325	--	--	--	--	--	X	X	X	X	X	
Gyromagnetic compass.	Aircraft Magnetic Compass type J2 or	X	X	X	X	X	X					
	Gyromagnetic Compass Set AN/ASN–43	--	-	--	--	--	--	X	X	X	X	
	Induction Compass Transmitter type C–2	X	X									
	Electronic Control Amplifier type A–2	X	X	X	X	X	X					
	Electrically Driven Gyro Control type S–3A.	X	X	X	X	X	X					
	Directional Gyro CN–998/ASN–43	--	--	--	--	--	--	X	X	X	X	
	Induction Compass Transmitter T–611/ASN.	--	--	X	X	X	X	X	X	X	X	
	Magnetic Flux Compensator CN–405/ASN.	X	X	X	X	X	X	X	X	X	X	
	Ac–dc power interlock relay	X	X	X	X	X	X					
Fm homing	Antenna Group AN/ARA–31	X	X	--	--	--	--	--	--	--	--	Operates with AN/ARC–44.
	Element Antenna AT–624(*)/AR	X	X									
	Network, Impedance Matching CU–459/AR	X	X									
	Keyer KY–149(*)/AR	X	X									
	Mounting MT–1620/AR	X	X									
	Switch Assembly SA–474/AR (modified)	X	X									

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
	Homing Antenna Assembly 637A–2 (205–075–345).	--	--	X	X	X	X	X	X	X	X	Operates with AN/ARC–54 and ID–453/ARN–30 (para 1–7*b*.) in C, D, and E configurations or ID–1347/ARN–82 in configurations F through J.
	Homing Facility Indicator Relays K53 and K54	--	--	X	X	X	X	X	X	X	X	See para 1–6*h*.
Marker beacon receiver.	Receiver, Radio R–1041A/ARN	--	X	X	X	X	X	X	X	X	X	
	Receiver, Radio R–737/ARN	X										
	Antenna, Collins Model 37RX–2	--	X									
	Antenna 37X–2	X	--	X								
	Antenna AT–640(*)/ARN	--	--	--	X	X	X	X	X	X	X	
	Mounting MT–2292/ARN	X	X	X	X	X	X	X	X	X	X	
Radar altimeter	Radar Set AN/APN–100	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	
	Calibrator, Electronic Altimeter Set, FR–129/APN–100.	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	
	Indicator, Height ID–721/APN–100	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	
	Receiver-Transmitter, Radar RT–446/APN–100	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	
Position fixing	Navigation Set, Position Fixing AN/ASN–72 (Decca Mark VIII):											Installed in helicopters modified in accordance with MWO–55–1520–210–34/10.
	Receiver, Position Fixing R–1453/ASN–72.	--	X	X	X	X	X	X	Z	Z	Z	
	Computer, Flight Log CP–880/ASN–72	--	X	X	X	X	X	X	Z	Z	Z	
	Amplifier, Radio Frequency AM–4740/ASN–72.	--	X	X	X	X	X	X	Z	Z	Z	
	Indicator, Hyperbolic Grid Lane, Green ID–1425/ASN–72.	--	X	X	X	X	X	X	Z	Z	Z	
	Indicator, Hyperbolic Grid Lane, Red ID–1426/ASN–72.	--	X	X	X	X	X	X	Z	Z	Z	
	Indicator, Hyperbolic Grid Lane, Purple ID–1424/ASN–72.	--	X	X	X	X	X	X	Z	Z	Z	
	Control Programer C–7153/ASN–72	--	X	X	X	X	X	X	Z	Z	Z	
	Indicator, Lane Identification ID–1427/ASN–72	--	X	X	X	X	X	X	Z	Z	Z	
	Control, Receiver C–7152/ASN–72	--	X	X	X	X	X	X	Z	Z	Z	
	Recorder-Viewer, Flight-Log RD–323/ASN–72.	--	X	X	X	X	X	X	Z	Z	Z	
	Case, Storage CY–6153/ASN–72	--	X	X	X	X	X	X	Z	Z	Z	
	Antenna Type 9203/AM	X	X	X	X	X	X	X	Z	Z	Z	

c. Indicating Facility (figs. FO–1 FO–2, and FO–3).

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
Radio magnetic	Indicator, Course ID–998/ASN (Sperry type	X	X	X	X	X	X	X	X	X	X	Pilot's indicator. Displays vhf

indicator (rmi) display.	C–6H).											navigation, lf-adf and gyro-magnetic compass data.
	Indicator, Course ID–250/ARN	X	X	X	X	X	X	X	X	X	X	Copilot's indicator. Displays vhf navigation, lf-adf, and gyro-magnetic compass data.
	Converter, Radio Magnetic Indicator CV–1275/ARN (ARC type B–18A).	X	X	X	X	X						Adapts vhf navigation data to rmi input.
	Amplifier, Electronic Control AM–3209/ASN (Sperry P/N 1783867–1).	X	X	X	X	X	X	X	X	X	X	
Attitude display	Amplifier, attitude indicator model 5404G	X	X	X	X							
	Attitude indicator, model 4005G	X	X	X	X	X	X	X	X	X	X	
	Attitude indicator type J8	X	X	X	X	X	X	X	X	X	X	
	Rate switching Gyro, type MC–1	X	X	X	X	X	X	X	X	X	X	
	Roll and Pitch Gyro, type MD–1	X	X	X	X	X	X	X	X	X	X	

d. Identification Facility (figs. FO–1, FO–2, and FO–3).

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
IFF transponder	Transponder Set AN/APX–44	Y	X	X	X	X	X	X	X	--	--	In configurations C through H, adapter cables are used with the AN/APX–44, which are removed upon installation of the AN/APX–72.
	Receiver-Transmitter RT–494/APX–44	Y	X	X	X	X	X	X	X			
	Antenna AT–884/APX–44	Y	X	X	X	X	X	X	X	X	X	
	Control, Transponder Set C–2714/APX–44	Y	X	X	X	X	X	X	X			
	Mount MT–2100/APX–44	Y	X	X	X	X	X	X	X			
	Relay IFF power failure K68	--	--	X	X	X	X	X	X	X	X	
	Light, IFF Caution	--	--	X	X	X	X	X	X			
	Transponder Set AN/APX–72	--	--	Y	Y	Y	Y	Y	Y	X	X	
	Test Set TS–1943/APX–72	--	--	Y	Y	Y	Y	Y	Y	X	X	
	Computer Transponder KIT–1A/TSEC	--	--	Y	Y	Y	Y	Y	Y	X	X	
	Receiver-Transmitter, Radar RT–859/APX–72.	--	--	Y	Y	Y	Y	Y	Y	X	X	
	Mounting MT–3809/APX–72	--	--	Y	Y	Y	Y	Y	Y	X	X	
	Control, Transponder Set C–6280/APX–72	--	--	Y	Y	Y	Y	Y	Y	X	X	
	Light, Code Hold	--	--	--	--	--	--	--	--	X	X	
	Switch, Code Hold	--	--	--	--	--	--	--	--	X	X	
	Mounting, MT–3513/APX–72	--	--	--	--	--	--	--	--	X	X	

e. Power Source.

Facility	Equipment or component	Configuration										Remarks
		A	B	C	D	E	F	G	H	I	J	
Dc Source	Battery BB–433/A	X	X	X	X	X	X	X	X	X	X	
Ac source	Motor Generator PU–543(*)/A	X	X	X	X	X	X	X	X	X	X	2 installed, main and spare.

1-6. Differences in Electronic Equipment Models

a. The major components of Radio Sets AN/ARC-51X and AN/ARC-51BX are not interchangeable. Control Unit C-4677/ARC-51X tunes Receiver-Transmitter, Radio RT-702/ARC-51X in 0.1-megahertz (MHz) increments, has a four-numbered frequency indicator, and has a SENS control. Control Unit C-6287/ARC-51BX must be used with Receiver-Transmitter, Radio RT-742/ARC-51BX or RT-334/ARC-51X. It tunes the receiver-transmitter in 0.05-MHz increments, has a five-numbered frequency indicator, and does not have a SENS control. Provision is made for selection of 20 preset channels by use of the C-6287/ARC-51BX.

b. Antenna Group AN/ARA-31 and Antenna Collins type 637A-2 (205-075-345) are different. Antenna 637A-2 does not use Keyer KY-149(*)/AR, its mount, or modified Switch Assembly SA-474/AR.

c. In configurations C through H, 22 more wires have been added to the wires existing for the AN/APX-44. These wires make provisions for using IFF Transponder Set AN/APX-72.

d. Transponder Set AN/APX-72 installations differ as follows:

(1) In configurations C through H, provisions only are made for the AN/APX-72.

(2) Test Set TS-1843/APX-72 and Computer Transponder KIT-1A/TSEC are the main additional components which are not included in the AN/APX-44 type interrogation system. Adapter cables are used to integrate the AN/APX-44 components into the AN/APX-72 system when the AN/APX-72 is not used. Range, frequency, input, and output signals carried by the cables are dc and audio. Input power is 28 volts dc.

(3) The AN/APX-72 is installed in configurations I and J.

(4) The AN/APX-72 consists of the following:

(*a*) Test Set TS-1843/APX-72.

(*b*) Computer Transponder KIT-1A/TSEC.

(*c*) Receiver-Transmitter, Radar RT-859/APX-72.

(*d*) Mounting MT-3809/APX-72.

(*e*) Control, Transponder Set C-6280/APX-72.

(*f*) Mounting MT-3513/APX-72.

(*g*) Antenna AT-884/APX-44.

e. The compass system components for the configurations differ as follows:

(1) In configurations A and B, the aircraft magnetic compass type J2 (gyrosyn magnetic compass system) is made up of the following components:

(*a*) Induction Compass Transmitter C-2 with error compensator.

(*b*) Electronic Control Amplifier type A-2.

(*c*) Electrically Driven Gyro Control Type S-3A (control gyro).

(*d*) Indicator, Course ID-998/ASN (C-6H) (pilot).

(*e*) Induction Compass Indicator ID-250/ARN (copilot).

(2) Components for configurations C, D, E, and F differ from those in configurations A and B only in the compass transmitter. In configurations C, D, E, and F, Induction Compass Transmitter C-2 is replaced by the T-611/ASN. Mounted on the T-611/ASN is Magnetic Flux Compensator CN-405/ASN (error compensator). Configurations G through J use Gyromagnetic Compass Set AN/ASN-43.

f. Receiving Set, Radio AN/ARN-30D is installed in configurations A, B, and C and Receiving Set, Radio AN/ARN-30E is installed in configurations D and E. Receiving Set, Radio AN/ARN-82 is installed in configurations F through J.

(1) The AN/ARN-30D receiver has Control, Radio Set C-3436/ARN-30D, which tunes Receiver, Radio R-1021/ARN-30D. The AN/ARN-30E receiver can use the same control. However, if a C-3436A/ARN-30E is used, in addition to controlling Receiver, Radio R-1021/ARN-30D, it can tune an associated glide-slope receiver (if installed). The C-3436A/ARN-30E changes the frequencies of the R-1021/ARN-30D receiver simultaneously with the glide-slope receiver, and automatically tunes both receivers to associated glide-slope and localizer frequencies.

(2) The C-3436/ARN-30D has two electrical connectors on the rear panel and the C-3436A/ARN-30E has three electrical connectors on the rear panel and has slightly greater physical depth. (Front panels of the two set controls are similar; however, C-3436A/ARN-30E is marked VHF ILS on the left side instead of VHF NAV.)

g. In configurations C through J, failure relay K68 is used in conjunction with the transponder identification friend or foe (IFF) interrogation system. In configurations C through H, on the AN/APX-44, K68 is connected to the adapter on Transponder Set Control C-2714/APX-44

(ground connection) and to pin 53 of the J906 adapter on Receiver-Transmitter RT–494/APX–44. If the system fails, the IFF caution light on the helicopter instrument panel indicates malfunctioning of the transponder system. In configurations I and J, on the AN/APX–72, K 68 is connected to pin 30 of J921 on Computer Transponder KIT–1A/TSEC. If the system fails the +28 v caution light on the KIT–1A/TSEC indicates malfunctioning of the transponder system.

h. In configurations C, D and E, two relays (K53 and K54) provide signal information to Indicator, Course ID–453/ARN–30 (omni-indicator). Left and right deviation indication signals from Converter, Radio Magnetic Indicator CV–1275/ARN and homing signals from Radio Set AN/ARC–54 (hf radio) are sent to the indicator through relay K53. Flag alarm signals from the AN/ARN–30E receiver, homing information form the AN/ARC–54, and flag left and right signals from the C–3835/ARC–54 control panel, are sent to Indicator, Course ID–453/ARN through relay K54.

i. In configurations F through J, two relays (K53 and K54) provide signal information to Indicator, Course ID–1347/ARN–82 (omni-indicator). Left and right deviation indication signals from the Receiver, R–1388/ARN–82 and homing signals from Radio Set AN/ARC–54 (hf radio) are sent to the indicator through relay K53. Flag alarm signals from the AN/ARN–82 receiver, homing information from the AN/ARC–54, and flag left and right signals from the C–3835/ARC–54 control panel, are sent to Indicator, Course ID–1347/ARN–82 through relay K54.

j. Configurations C through I use relays K1 and K2 (solder-mounted on the A16 impedance-matching network printed circuit board) to control application of IFF audio to the interphone system. These relays are not required in configuration J. In configurations A and B, the IFF audio is applied through diode CR3 on impedance-matching network A16 (fig. FO–4).

k. In configurations A and B, Control Panel Assembly 204–075–219 (Switching Assembly SA–474/AR modified) is mechanically and electrically identical with Switch Assembly SA–474/AR, except for the markings on the panel face. For information on Switch Assembly SA–474/AR, refer to TM 11–5985–200–12 and TM 11–5895–200–35 covering Antenna Group AN/ARA–31.

l. In configurations A, B, C, and D, the pilot's attitude indicating system consists of a pilot's attitude indicator type 4005G, rate switching gyro MC–1, roll and pitch gyro MD–1, and an indicator amplifier type 5404G. In configurations E through J, the components remain the same as in configurations A, B, C, and D, except indicator amplifier type 5404G is not used.

m. Radio Set AN/ARC–131 may be installed in lieu of Radio Set AN/ARC–54. Radio Sets AN/ARC–54 and AN/ARC–131 are functionally and physically interchangeable. References to Radio Set AN/ARC–54 in this manual apply also to Radio Set AN/ARC–131.

n. Battery BB–433/A can be installed in either the aft mounting position or the forward mounting position. The position used is determined by overall mission requirements.

o. The PU–543/A motor generators in configurations A and B are installed in the aft electronic compartment. In configurations C through J, they are installed in the nose electronic compartment.

p. The three SB–329/AR signal distribution panels are located as follows for configurations A and B only (fig. 2–8):

(1) Pilot station on right side of pedestal.

(2) Copilot station on left side of pedestal.

(3) Crewmember station in cargo compartment.

q. The four C–1611/AIC intercommunication set controls are located as follows for configurations C through J only:

(1) Pilot station on right side of pedestal.

(2) Copilot station on left side of pedestal.

(3) Right crewmember station, configurations C through H, on right side of cargo compartment as shown in figure 2–9.

(4) Right crewmember station, configurations I and J, on right side of cargo compartment as shown in figure 2–10.

(5) Left crewmember station, configurations C through H, on left side of cargo compartment as shown in figure 2–9.

(6) Left crewmember station, configurations I and J, on left side of cargo compartment as shown in figure 2–10.

1–7. Equipment Technical Characteristics

Electronic components within the scope of this manual not covered in separate Department of the Army technical manuals include the following:

a. Impedance-Matching Assembly A16 (fig. FO–4). Impedance-matching assembly A16 is installed in all configurations. The range of the

impedance pad is direct current (dc) through audio. The input signal and output signal are audio. Except for the pilot's and copilot's intercommunication system (ics) relays, no mechanical motion takes place within the assembly. The relays are mounted directly on the communications junction box chassis on configurations A and B, but are mounted on the impedance pad in configurations C through I. Relays are energized by +28 volts dc.

b. UHF FM Antenna. On configurations C through J, the AN/ARC–54 uses Antenna Assembly AS–1922/ARC (637A–2), which is a homing antenna mounted topside on the helicopter. It is 6.5 inches high and 26.8 inches long, resembling a towel rack, and is often referred to by this term. The antenna is used with the AN/ARC–54 in the homing mode, which allows the pilot to home on any signal transmitted within the frequency range from 30.00 to 69.95 MHz. The antenna is compact in comparison with the dual antennas used on configurations A and B.

1–8. Description of Equipment Components

a. Network, Impedance Matching A16 (fig. FO–4).

(1) Unique functional aspects. The A16 impedance matching network, located in the communication junction box, is a printed circuit board containing relays and network circuitry. This network matches various signals between related receivers and transmitters. It also serves as a coupler for all distribution panels in the interphone facility.

(2) Structural and assembly features. The A16 impedance matching network is rigidly mounted in the communication junction box. The impedance matching circuit board is easily replaced. (The junction box is on the aft end of the pedestal.)

b. Relays, Intercommunication System (figs. 1–1 through 1–4).

(1) *Unique functional aspects.*

(*a*) Two interphone control station (ics) relays (in the communication junction box) are provided for interphone operation. The ics relays are energized when the corresponding pilot and copilot trigger switches are depressed to either position 1 (first detent) or position 2 (second detent). Twenty-eight volt dc power is applied through the INTERCOM SB–329 or INTERCOM–C.PLT & CREW–L and INTERCOM–PLT & CREW–R circuit breakers to one side of the ics relay coils. The relays are energized when the associated trigger switches are closed, completing the circuits to ground.

(*b*) When the pilot's ics relay is energized, audio signals originating at the pilot's station are fed through the closed contacts of the relay to the pilot's distribution panel for interphone operation or for transmitting purposes.

(*c*) When the copilot's ics relay is energized, audio signals originating at the copilot's station are fed through the closed contacts of the relay to the copilot's ditribution panel for interphone operation or for transmitting purposes.

(*d*) When neither trigger switch is depressed, the ics relays are deenergized and neither operator can transmit.

(2) *Structural and assembly features.* The ics relays are located in the communication junction box on the aft end of the pedestal on configurations A through I (Fig. FO–1). Reference designators for the ics relays in the various configurations are as follows:

	Configuration									
Position	A	B	C	D	E	F	G	H	I	J
Pilot's	K17	K17	K1	K1	K1	K1	K1	K1	K1	K1
Co-pilot's	K18	K18	K2	K2	K2	K2	K2	K2	K2	K2

c. Adapter Cables, Transponder, P/N 762–1849–102 and 762–1848–101 (figs. 2–62 and 3–24).

(1) *Unique functional aspects.* The 762–1849–102 and 762–1848–101 cables adapt the configuration wiring of Transponder Set AN/APX–72 to provide the interconnections for Transponder Set AN/APX–44 components.

(2) *Structural and assembly features.* Provisions for installation of the KIT–1A/TSEC computer transponder are in the radio compartment beside the RT–859/APX–72 receiver-transmitter, when and if installed (figs. FO–1, FO–2, and FO–3). Test Set TS–1943/APX–72, when and if installed, is in the nose compartment radio rack in configurations C through E and in the radio compartment in configurations F through J. A UG–29B/U adapter couples the antenna coaxial cable when the AN/APX–44 is installed. A second adapter, UG–564A/U, is required for attaching the antenna coaxial cable to the RT–859/APX–72. In configurations C through E,

one of the cable assemblies is stowed in the radio compartment beside the RT–859/APX–72; the other is stowed beside the nose compartment radio rack. In configurations F through H, both cable assemblies are stowed in the radio compartment.

d. Antenna Assembly 637A–2 (205–075–345) (Fm Homing) (fig. 2–22①).

(1) *Unique functional aspects.* This antenna replaces the AN/ARA–31 antenna installed in configurations A and B. There is no functional change from the earlier antennas for receiving homing signals from 30.00 to 69.95 MHz.

(2) *Structural and assembly features.* The antenna is mounted on the roof of the helicopter. It protrudes less from the fuselage than earlier model antennas that are mounted on the nose of the helicopter on configurations A and B.

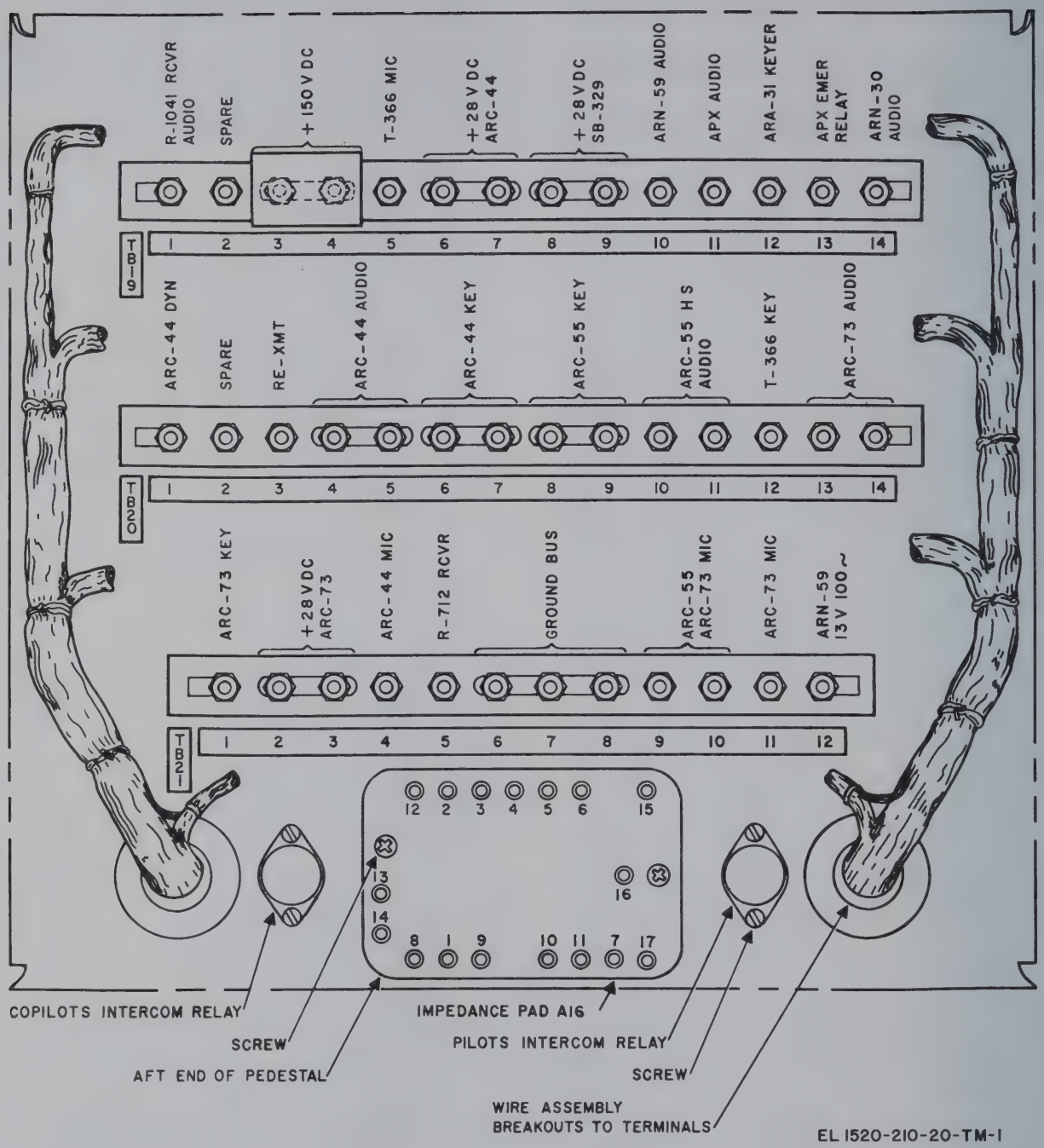
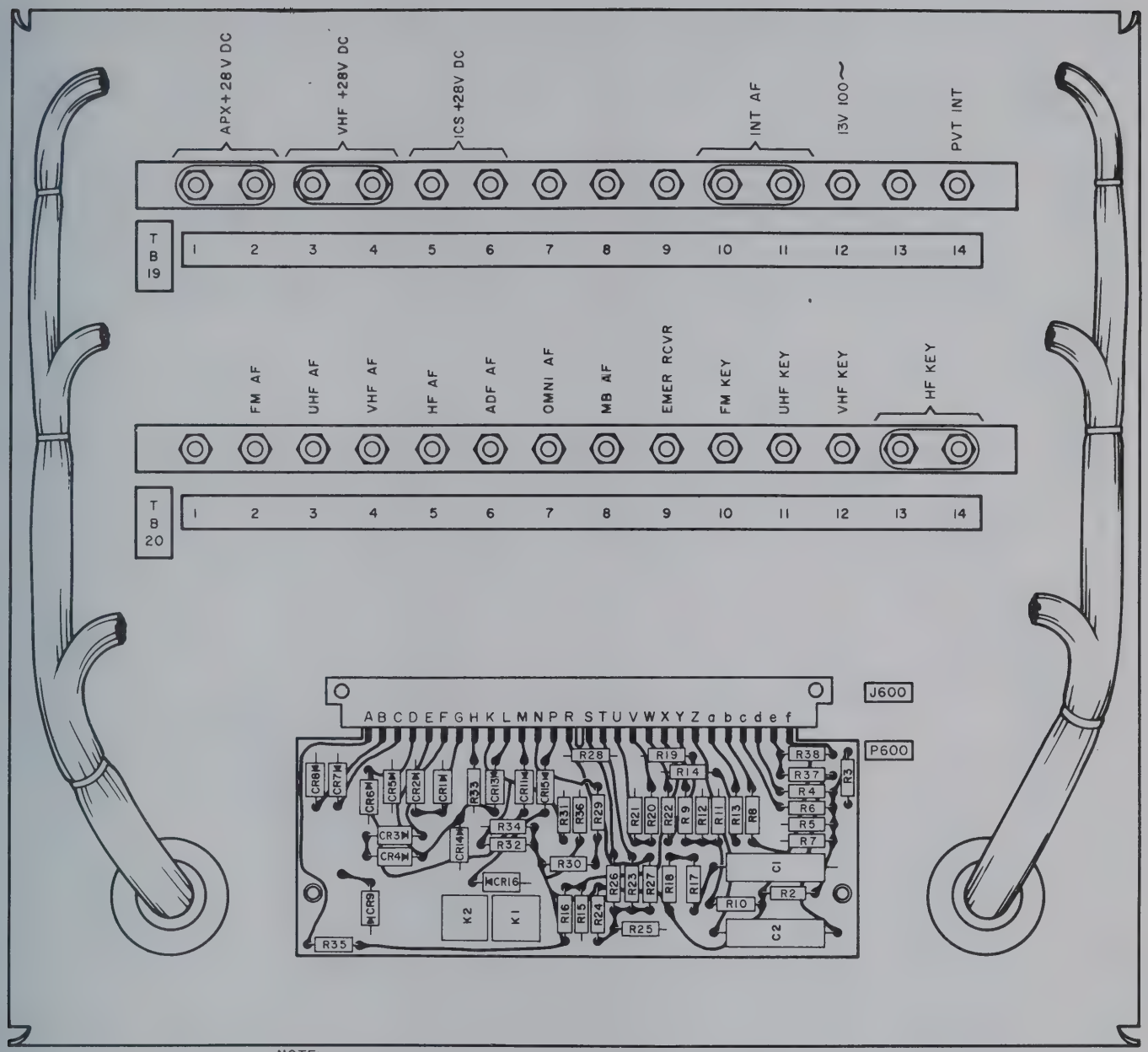


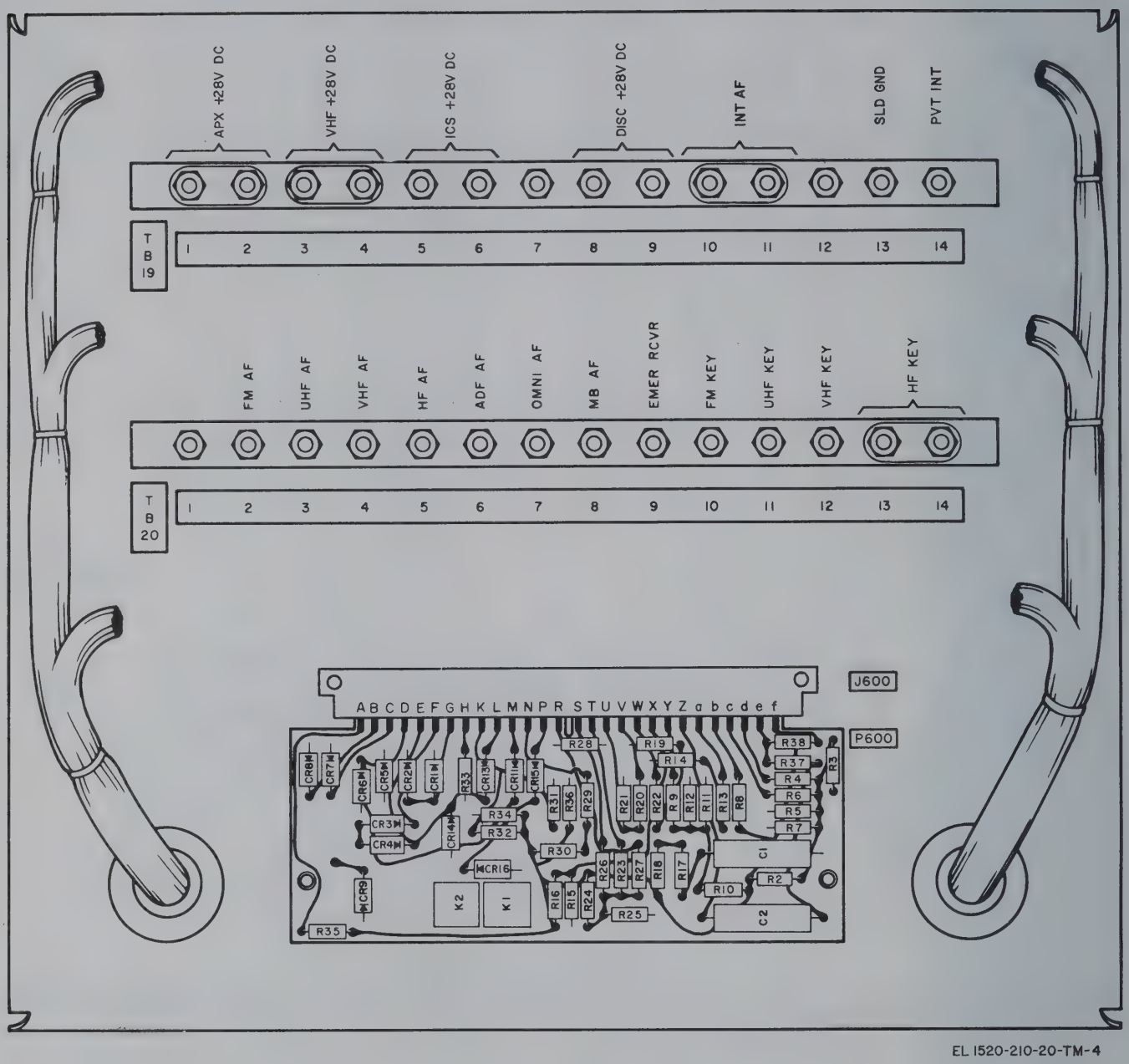
Figure 1-1. Communications junction box parts layout, configurations A and B.



NOTE:
ON CONFIGURATION E, PIN 12 ON TB19 IS NOT USED.

EL 1520-210-20-TM-2

Figure 1-2. Communications junction box parts layout, configurations C through E.



EL 1520-210-20-TM-4

Figure 1–3. Communications junction box parts layout, configuration F up to and including serial No. 66–16306.

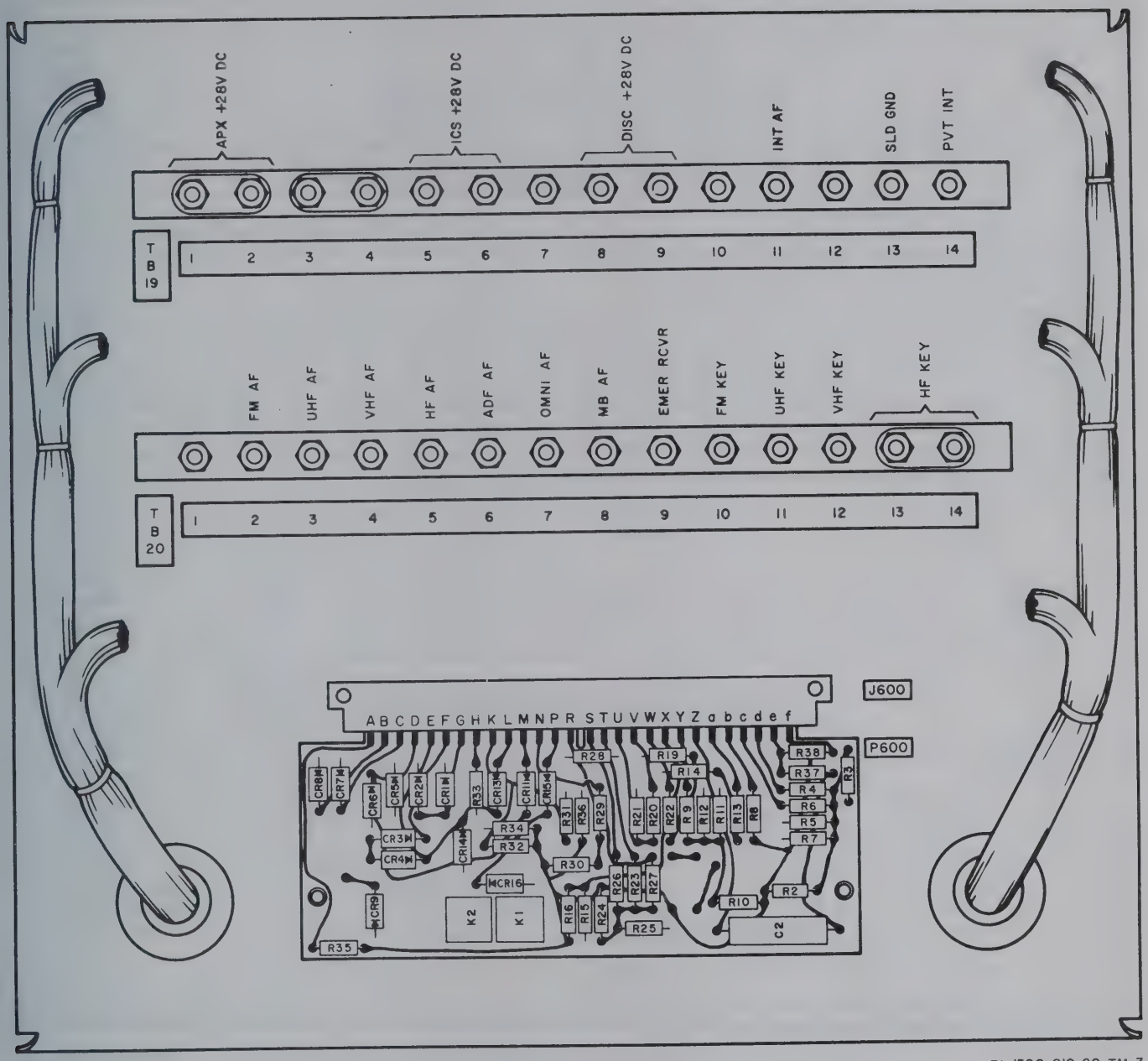
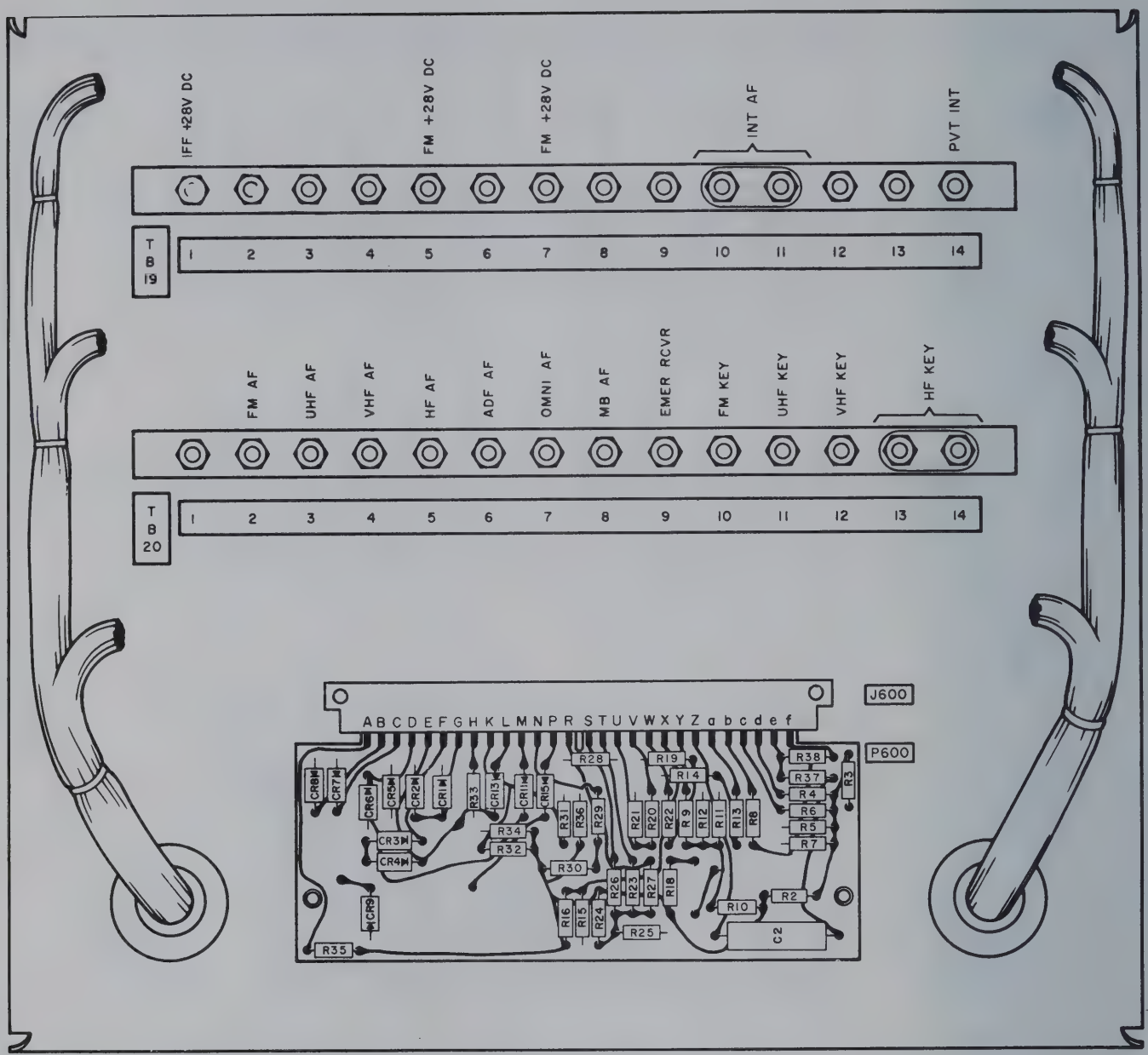


Figure 1–4. Communications junction box parts layout, configuration F beginning with serial No. 66–16307, and configurations G through I.



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Figure 1–5. Communications junction box parts layout, configuration J.

CHAPTER 2

MAINTENANCE INSTRUCTIONS

Section I. GENERAL REQUIREMENTS

2–1. Scope of Organizational Maintenance

The maintenance duties assigned to the organizational maintenance repairman of the helicopter electronic equipment configuration are listed below, together with references to the applicable paragraphs covering the specific maintenance functions. These maintenance duties supplement the daily, intermediate, and periodic preventive maintenance checks and services contained in the organizational maintenance manual of the helicopter (TM 55–1520–210–20). The procedures covered on this manual will be performed concurrently with the helicopter periodic preventive maintenance checks and services. The results of the preventive maintenance checks and services will be recorded on applicable maintenance forms in accordance with instructions in TM 38–750.

a. Periodic preventive maintenance checks and services (para 2–7).
b. Cleaning and repainting (Para 2–8).
c. Servicing (para 2–9).
d. Troubleshooting (para 2–10 and 2–11).
e. Repair (para 2–12).
f. Adjustment (para 2–117).

2–2. Tools, Test Equipment, and Materials Required

A list of parts authorized for organizational maintenance of the helicopter electronic configuration appears in TM 55–1520–210–20P and TM 11–1520–210–20P-series. Major electronic equipment components, when removed from the helicopter for higher category maintenance are replaced by serviceable components from maintenance float stock or on a direct exchange (DX) basis from higher category maintenance organizations (direct support maintenance). Tools, materials, and test equipment required for organizational maintenance are listed below.

a. Tools.

(1) Toolkit, Electronic Equipment TK–105/G (SM 11–4–5180–R).

(2) Toolkit, Battery Service TK–90/U (SM 11–4–5180).

(3) Apron, Battery workers (FSN 8415–234–9253).

4) Goggles, industrial type (FSN 4240–521–6586).

b. Test Equipment. The following chart lists the test equipment required for organizational maintenance and the applicable manual for each test equipment:

c. Materials.

(1) Cleaning compound, FSN 7930–395–9542.

(2) Clean, dry, lint free cloths.

(3) Lubricating oil, general purpose, preservative.

Test Equipment	Technical manual	Required for:
Multimeter AN/URM–105	TM 11–6625–203–12	All facilities
Test Set, Electrical power AN/UPM–93	TM 11–6625–303–12	Ac power source
Test Set, Transponder Set AN/APM–156 or Test Set, Transponder AN/APM–123.	TM 11–6625–509–12	IFF
Test Oscillator BC–376–(*)	TM 11–6625–522–15 or –15/1	Marker beacon
Decca test Sets:		Navigation Set, Position Fixing AN/ASN–72.
Decca LRO–1		
Decca Model 870		
Decca Model 306		
Test facilities kit (Laboratory for Electronics #101675)		
Decca model 336		

(4) Fine sandpaper No. 000.
(5) A soft bristle brush.
(6) The following safety wire can be requisitioned:

Description	*Diameter*	*Unit of issue*
Saftey wire, steel, corrosion-resistant, annealed.	0.047	Spool
Saftey wire, steel, corrosion-resistant, annealed.	0.063	Spool
Saftey wire, steel, corrosion-resistant, annealed.	0.032	Spool

2–3. Fuse and Circuit Protective Device Locations
(figs. 2–1, 2–2, 2–3, 2–4, and 2–30)

The only fuses in the electronic equipment configuration that are accessible without removal of electronic equipments from the helicopter are the fm liaison set fuses located on the front of Dynamotor DY–107(*)/AR (fig. 2–4) and the IFF transponder set fuses located on the front panel of Receiver-Transmitter RT–859/APX–72 (fig. 2–30). The push-pull type, dc circuit breakers are mounted on the overhead console. The ac circuit breakers are mounted on the right forward side of the pedestal. The chart below lists the locations of all accessible fuses and circuit breakers that provide circuit protection for the electronic equipment.

Equipment	Rating	Location	Figure No.
Radio Set AN/ARC–44	150V, 0.5 amp	Dynamotor DY–107/AR	2–4
	300V. 0.5 amp	Dynamotor DY–107/AR	2–4
	10 amp	DC circuit breaker panel	2–2
Radio Set AN/ARC–54	10 amp	DC circuit breaker panel	2–2
Radio Set AN/ARC–55	25 amp	DC circuit breaker panel	2–2
Radio Set AN/ARC–51	15 amp	DC circuit breaker panel	2–2
Radio Set AN/ARC–73 (XMTR)	10 amp	DC circuit breaker panel	2–2
(RCVR)	5 amp	DC circuit breaker panel	2–2
VHF Emergency Transmitter T–366A/ARC	5 amp	DC circuit breaker panel	2–2
Radio Set AN/ARC–102	50 amp	DC circuit breaker panel	2–2
Intercommunications			
Signal Distribution Panel SB–329/AR	5 amp	DC circuit breaker panel	2–2
Control Intercommunication Set C–1611(*)/AIC. (PILOT–CREW STA. R).	5 amp	DC circuit breaker panel	2–2
Control Intercommunication Set C–1611(*)/AIC (COPILOT–CREW STA. L.).	5 amp	DC circuit breaker panel	2–2
Radio Receiving Set AN/ARN–30	5 amp	DC circuit breaker panel	2–2
Radio Receiving Set AN/ARN–82	5 amp	DC circuit breaker panel	2–2
Direction Finder Set AN/ARN–59 (Radio Compass)	5 amp	DC circuit breaker panel	2–2
Direction Finder Set AN/ARN–83 (LF NAV ADF)	5 amp	DC circuit breaker panel	2–2
Magnetic Compass J–2	5 amp	DC circuit breaker panel	2–2
	2 amp	AC circuit breaker panel	2–3
	2 amp	AC circuit breaker panel	2–3
Course indicator	2.5 amp	AC circuit breaker panel	2–3
Magnetic Compass AN/ASN–43	1 amp	AC circuit breaker panel	2–3
Antenna Group AN/ARA–31 (fm Homing)	5 amp	AC circuit breaker panel	2–3
Radio Receiver R–737/ARN (marker beacon)	5 amp	DC circuit breaker panel	2–2
Radio Receiver R–1041/ARN (marker beacon)	5 amp	DC circuit breaker panel	2–2
Navigation Set AN/ASN–72 (Decca mark VIII)	15 amp	DC circuit breaker panel	2–2
Attitude Indicating System (Pilot's)	1 amp	AC circuit breaker panel	2–3
Attitude Indicationg System (Copilot's)	1 amp	AC circuit breaker panel	2–3
Transponder Set AN/APX–44 (IFF)	−10 amp	DC circuit breaker panel	2–2
Transponder Set AN/APX–72 (IFF)	10 amp	DC circuit breaker panel	2–2
	5 amp (spare)	Receiver-Transmitter RT–859/APX–72.	2–30
	115V, 5 amp	Receiver-Transmitter RT–859/APX–72.	2–30
	28V 5 amp	Receiver-Transmitter RT–859/APX–72.	2–30
Test Set TS–1843/APX–72	5 amp	DC circuit breaker panel	2–2
Secure-Voice Encoder/Decoder KY–28	5 amp	DC circuit breaker panel	2–2
Radio Set AN/ARC–134 (XMTR) (RCVR)	15 amp	DC circuit breaker panel	2–2
Motor Generators PU–543(*)/A:			
Main	25 amp	DC circuit breaker panel	2–2
Spare	25 amp	DC circuit breaker panel	2–2
Inverter control	5 amp	DC circuit breaker panel	2–2

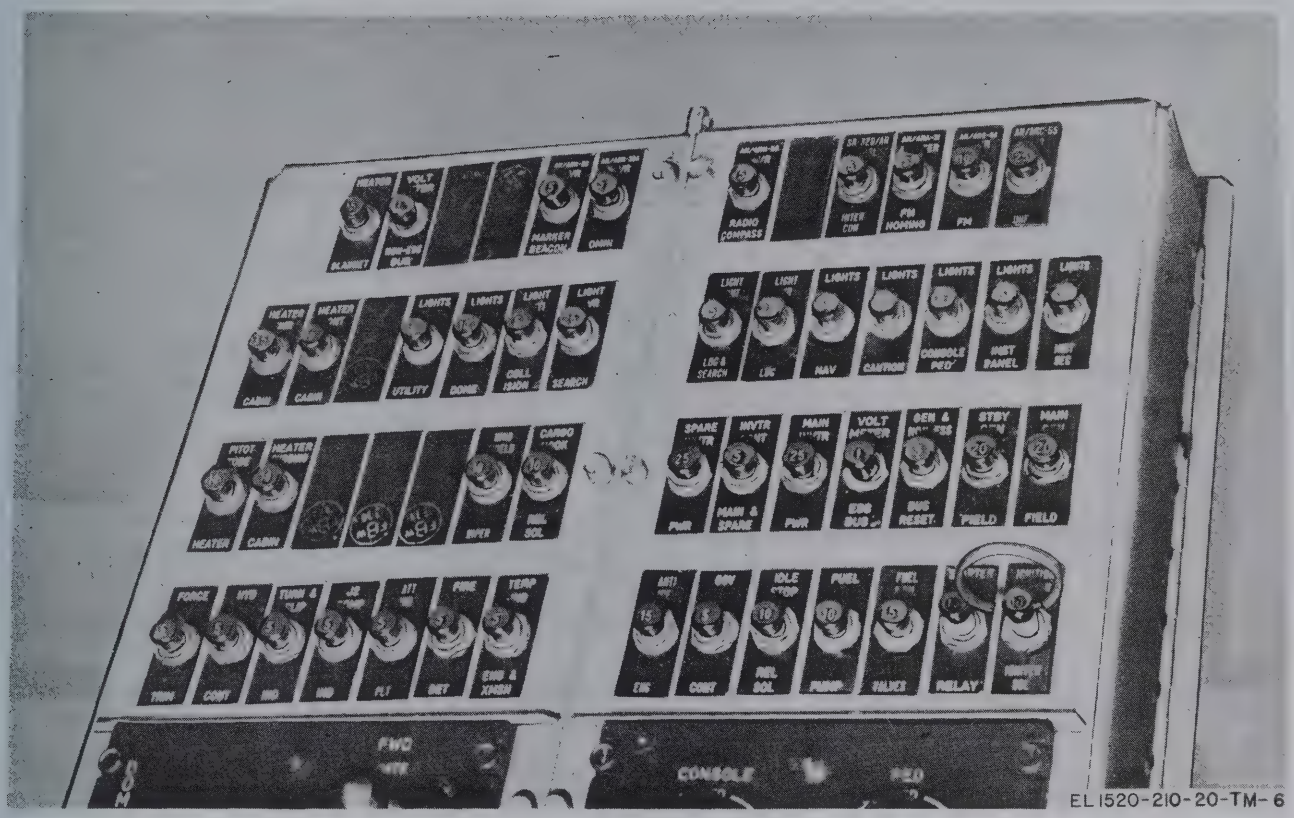
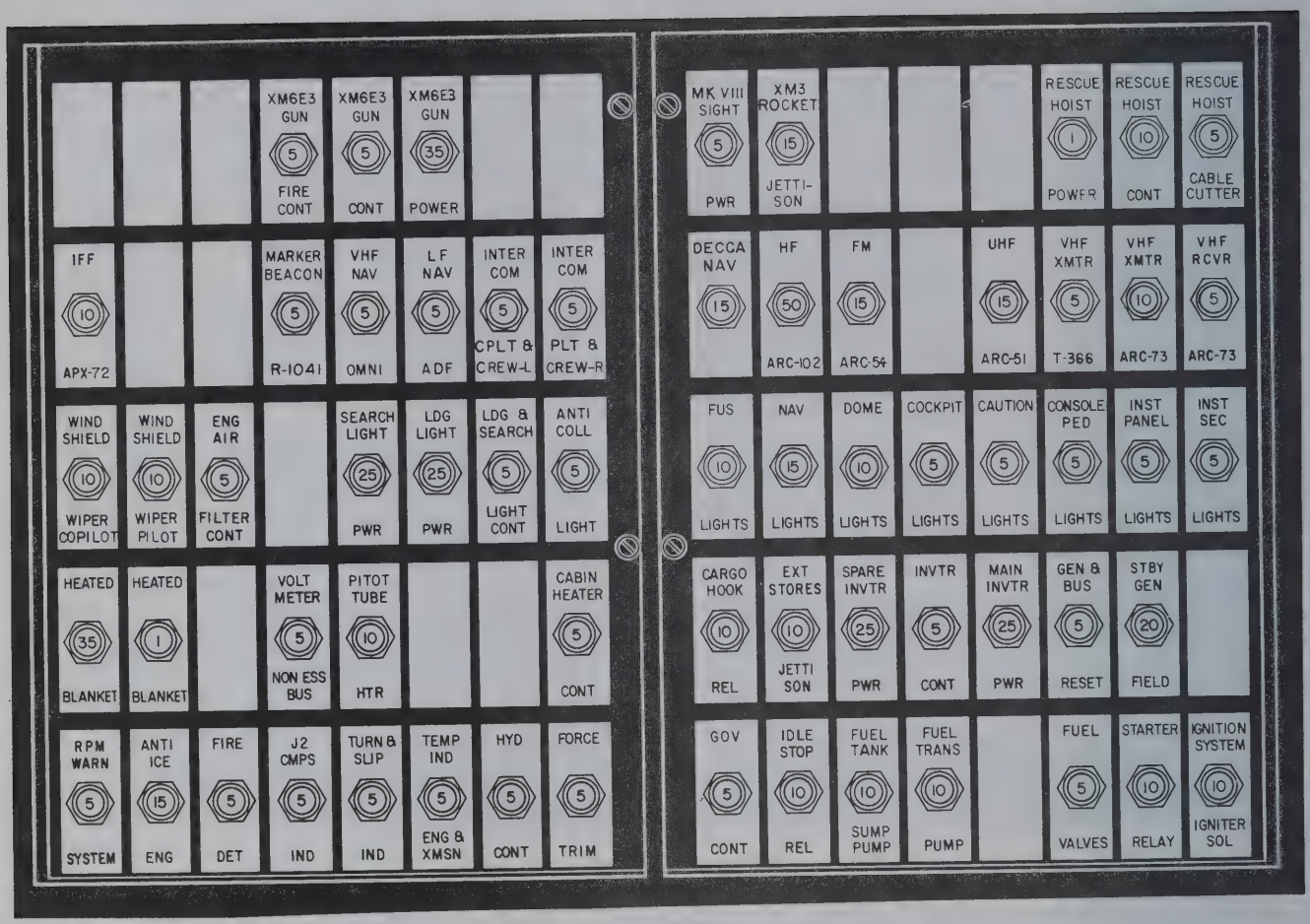


Figure 2–1. Overhead console location of dc circuit breakers, typical.



EL 1520-210-20-TM-8

Figure 2–2. Dc circuit breaker panel, typical.

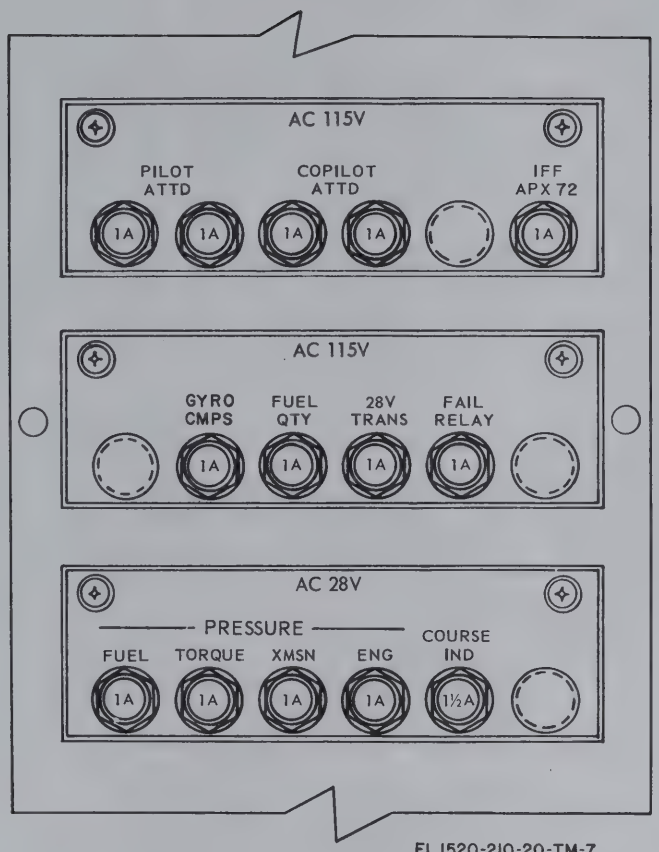


Figure 2–3. Ac circuit breaker panel, typical.

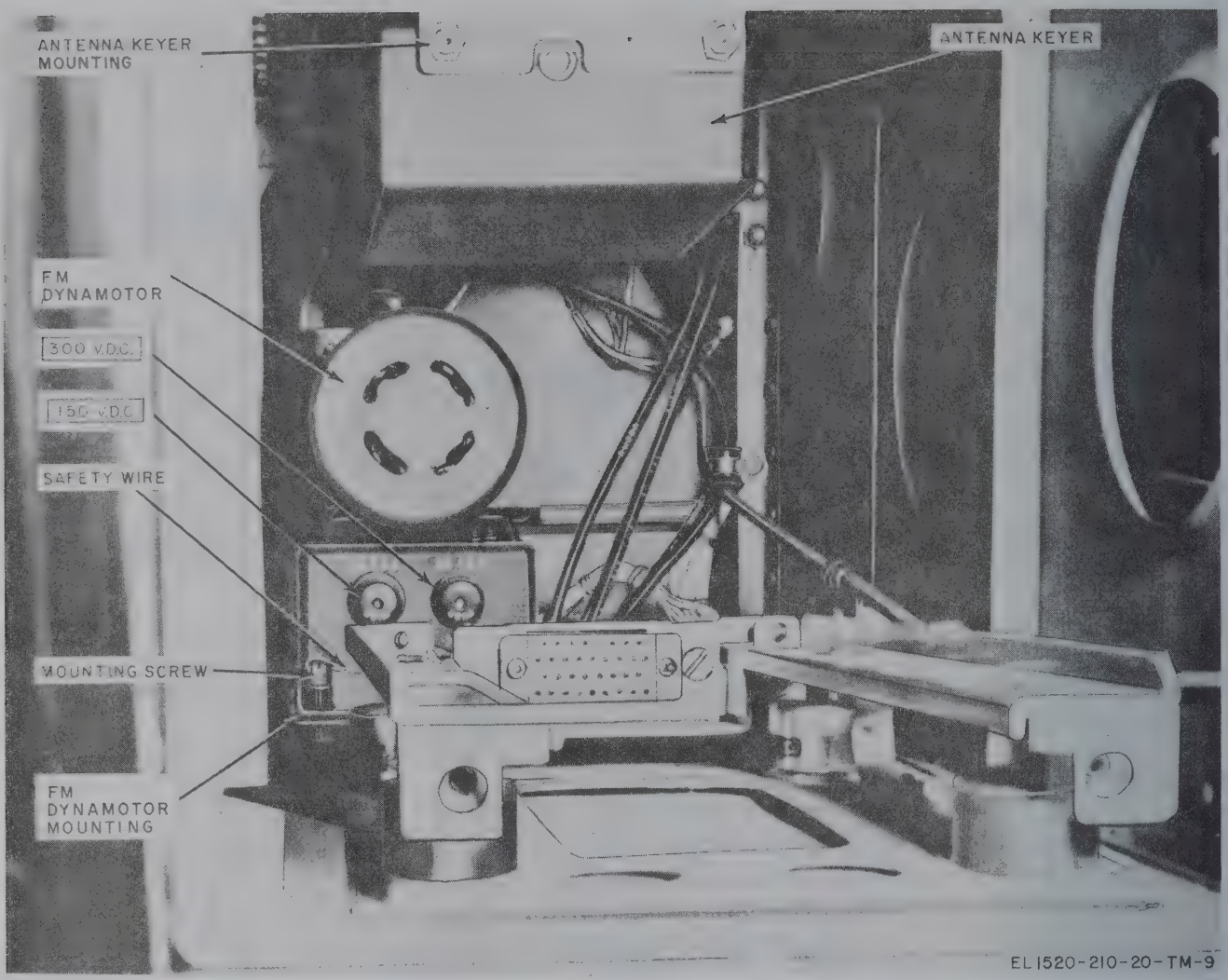


Figure 2–4. Location of Dynamotor DY–107/AR fuses and antenna keyer.

2–4. Auxiliary Power Unit Connection

To prevent excessive drain on the helicopter battery, connect an auxiliary power unit, aircraft ground servicing unit, multipurpose, type MA–1 or equivalent to the helicopter before performing the power-on periodic inspection (para 2–7) of the electronic equipment configuration. Do not connect the auxiliary power unit to the helicopter without checking with the organizational maintenance repairman or the helicopter crew chief.

a. Turn the helicopter battery switch on the dc power panel on the overhead console to the OFF position.

CAUTION

The helicopter battery switch must always be at the OFF position while the auxiliary power unit is connected to the helicopter. Reversed polarity between the helicopter battery circuit and the auxiliary power unit can damage electrical parts and cause a serious fire.

b. Connect the auxiliary power unit plug to the helicopter external power receptacle (fig. 2–5) on the left side of the helicopter below the electrical compartment door.

NOTE

When the auxiliary power unit plug is inserted in the receptacle, the auxiliary power unit relay is energized and electrical power is supplied directly to the main battery bus for distribution.

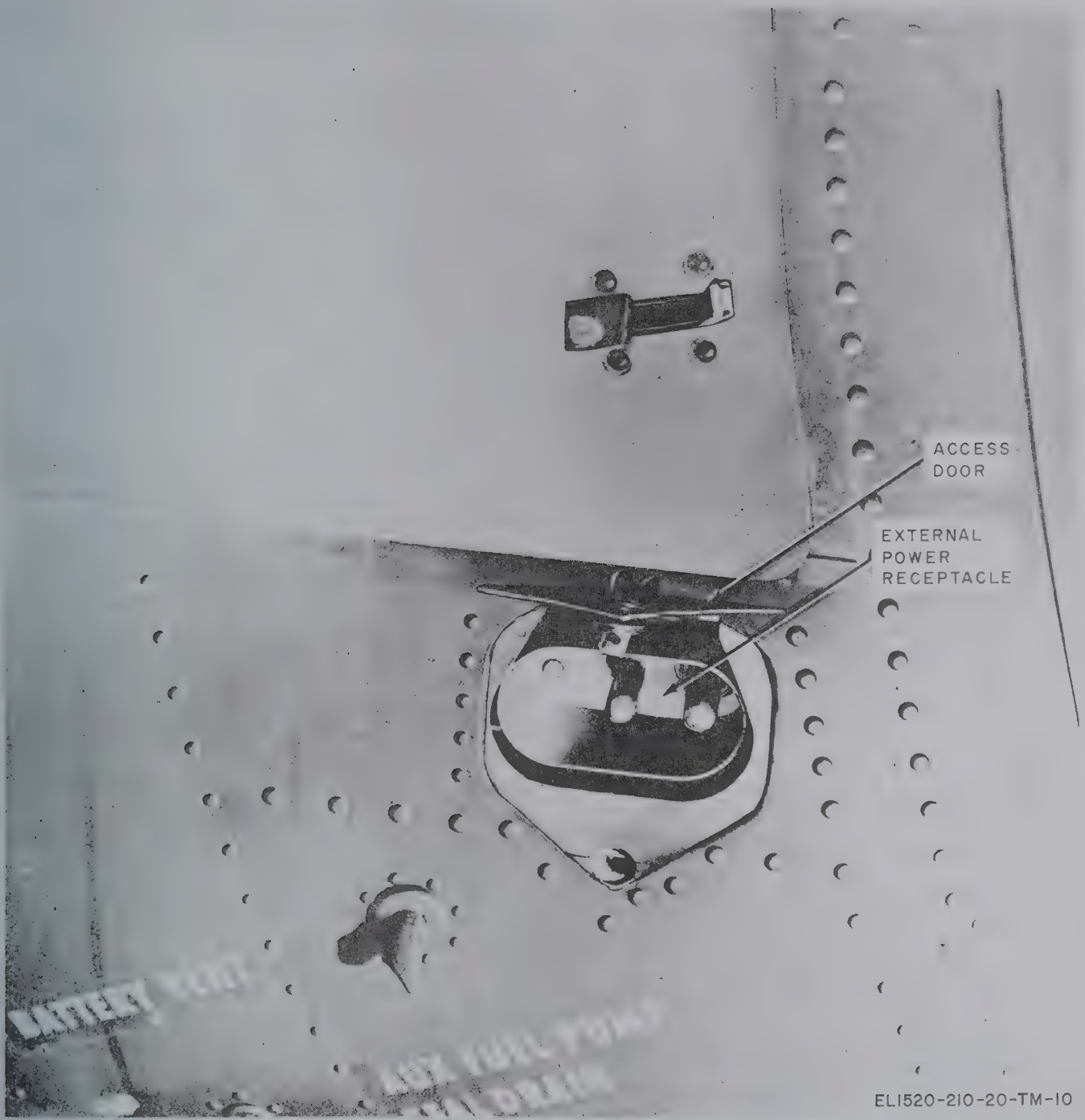


Figure 2–5. External power receptacle.

Section II. PREVENTIVE MAINTENANCE PROCEDURES

2–5. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce down time, and to assure maximum operational capability. Preventive maintenance is the responsibility of all maintenance categories concerned with the configurations, and includes the inspection, testing, and repair or replacement of components

that inspections and tests indicate would probably fail before the next scheduled service period. Preventive maintenance checks and services of the electronic equipment configuration for the helicopter at the organizational level are made at daily, intermediate, and periodic intervals (TM 55–1520–210–20PMI and TM 55–1520–210–20PMP) unless otherwise directed by the commanding officer. The maintenance checks and services of the electronic configuration should be performed concurrently with the inspection of the helicopter.

a. Maintenance Checks and Services. The maintenance check and service procedures provided by TM 55–1520–210–20 and this manual outline functions to be performed at specific intervals. These checks and services are to maintain combat serviceability; that is, to maintain the helicopter and its electronic equipment configuration in good general (physical) condition and in good operating condition. To assist the organizational maintenance repairman in maintaining combat serviceability, the periodic preventive maintenance checks and services chart (para 2–7) indicates what to check, how to check, and the normal conditions; the *References* column lists the paragraphs and publications that contain additional information. If a defect cannot be remedied by the organizational repairman, higher category maintenance or repair is required.

b. Maintenance Forms and Records. Records and reports of these checks and services and th maintnance forms and records to be used and maintained on the electronic equipment configuration are specified in TM 38–750. Paragraph 1–3 contains additional information concerning the submission of specific forms.

2–6. Preventive Maintenance Check

a. General. Preventive maintenance checks and services are performed on the helicopter on a daily, intermediate, and periodic basis. The helicopter daily preventive maintenance checks and services (TM 55–1520–210–20PMD) are performed each calendar day or after approximately 8 hours of flying time. The helicopter intermediate preventive maintenance checks and services (TM 55–1520–210–20PMI) are performed after approximately 25 hours of flying time. The helicopter periodic preventive maintenance checks and services (TM 55–1520–210–20PMP) are performed after approximately 10 hours of flying time. Preventive maintenance checks and services of the electronic equipment configuration will be scheduled concurrently with applicable preventive maintenance checks and services of the helicopter. The daily checks are accomplished when the pilot or operator performs the preflight checks. The preflight checks are in TM 55–1520–210–10 and TM 55–1520–210–10CL. The intermediate preventive maintenance checks and services of the electronic equipment configuration are performed concurrently with every second intermediate preventive maintenance checks and services of the helicopter. This action establishes an interval of approximately 50 flying hours between the electronic equipment configuration intermediate preventive maintenance checks and services. The periodic preventive maintenance checks and services of the electronic equipment configuration are performed concurrently with every second periodic preventive maintenance checks and services of the helicopter. This action establishes an interval of approximately 200 flying hours between the electronic equipment configuration periodic preventive maintenance checks and services. All deficiencies or shortcomings noted during the performance of the preventive maintenance checks and services of the electronic equipment configuration will be immediately reported to direct support maintenance personnel through the use of forms and procedures specified in TM 38–750. Equipment that has a deficiency that cannot be corrected at the organizational maintenance level should be deadlined and reported to a higher maintenance category, using the from specified in TM 38–750. Perform all of the checks and services in the preventive maintenance checks and services chart (para 2–7). Whenever an abnormal or unsatisfactory condition or result is observed, take corrective action in accordance with the paragraph listed in the *References* column.

b. Periodic Pullout Checks. During the periodic preventive maintenance checks and services of the electronic equipment configuration, certain major components are scheduled to be removed from the helicopter (*c* below) for bench checks and services that are performed by direct support maintenance personnel. When the components are removed from the helicopter, they are replaced by equivalent serviceable components from maintenance float stock or (on a direct exchange (DX) basis) from the direct support maintenance organization.

c. Pullout Intervals. The chart below lists electronic equipment components in the helicopter electronic equipment configuration, and indicates the interval (specified in hours of flying time) at which each component should be removed from

the helicopter for bench check interval preventive maintenance by direct support maintenance personnel. The chart also references the paragraph that provides removal and replacement instructions for that component.

Equipment component	Pullout intervals (flying hours)	Procedure (references)
Radio Set AN/ARC-44:		
RT-294(*)/ARC-44	200	Para 2-15
SB-327/ARC-44	600	Para 2-17
DY-107(*)/AR	300	Para 2-16
AT-454(*)/ARC-44	---	Para 2-23
MT-1267(*)/AR		
MT-1268/AR		
Control Panel 204-075-219	---	Para 2-22
Radio Set AN/ARC-54:		
RT-348/ARC-54	300	Para 2-28
C-3835/ARC-54	---	Para 2-31
CU-942/ARC-54	---	Para 2-30
AT-765/ARC	---	Para 2-29
MT-1535/ARC-54		
AS-1703 ( )/ARC-54 Antenna	---	Para 2-30
Radio Set AN/ARC-102:		
RT-698/ARC-102	100	Para 2-42
C-3940/ARC-94	---	Para 2-45
PP-3702/ARC-102	100	
CU-991/AR	---	Para 2-46
205-206-027 (antenna)	---	Para 2-44
209-075-609 (antenna)	---	Para 2-43
Intercommunications:		
SB-329/AR	600	Para 2-18
Switch X942-2	---	Para 2-102
CU-435/AIC		
Network A16		
H-101(*)/U		
SA-47A/AIC	---	Para 2-201
C-1611(*)/AIC	800	
Discriminator, Discrete Signal MD-736/A	500	Paras 2-20, 2-21
Radio Set AN/ARC-55 (*):		
RT-349(*)/ARC-55(*)	50	Para 2-33
MT-1536/ARC-55	---	
C-1827/ARC-55(*)	---	Para 2-35
AT-450/ARC	---	Para 2-34
AT-1108/ARC	---	Para 2-27
Radio Set AN/ARC-51(*)X:		
RT-702/ARC-51X or RT-742/ARC-51BX or RT-334/ARC-51X.	200	Para 2-24
C-4677/ARC-51X or C-6287/ARC-51BX.	---	Para 2-25 Para 2-26
AT-1108/ARC	---	Para 2-27
Radio Set AN/ARC-73A:		
Receiver, Radio R-1123(*)/ARC-73	200	Para 2-36
Transmitter, Radio T-879(*)/ARC-73	200	Para 2-37
Control, Radio Set C-4074(*)/ARC-73	---	Para 2-39
Antenna AT-1108/ARC	---	Para 2-27
Mounting MT-2699(*)/ARC-73		
T-366/ARC	500	Para 2-47
DY-86/ARN-30	300	Para 2-49
F-726/AR	---	Para 2-103
MT-1142/ARC		
C-80B (control)	---	Para 2-50
204-075-708 (control)	---	Para 2-48
204-075-709 (control)	---	Para 2-48

Equipment component	Pullout intervals (flying hours)	Procedure (references)
Receiving Set, Radio AN/ARN–30D and AN/ARN–30E:		
R–1021/ARN–30D	300	Para 2–51
CV–265A/ARN–30	300	Para 2–55
PP–2792/ARN–30D	300	Para 2–54
C–3436/ARN–30D or C–3436A/ARN–30E	---	Para 2–58
ID–453/ARN–30	800	Para 2–56
AS–1304/ARN (DMN4)	---	Para 2–53
MT–1174/ARN–30A		
MT–1175/ARN–30A		
Receiving Set, Radio AN/ARN–82:		
R–1388/ARN–82	300	Para 2–52
C–6873/ARN–82	---	Para 2–59
ID–1347/ARN–82	800	Para 2–57
MT–3600/ARN–82	---	
Direction Finder Set AN/ARN–59(V):		
R–836/ARN	300	Para 2–60
CY–2275/ARN	---	Para 2–65
DY–150/ARN	300	Para 2–64
Antenna 205–075–325	---	Para 2–67
AT–780/ARN	---	Para 2–62
MT–2018/ARN		
MT–2019/ARN		
Direction Finder Set AN/ARN–83:		
R–1391/ARN/83	300	Para 2–61
C–6899/ARN–83	---	Para 2–66
Antenna 205–075–325	---	Para 2–67
AS–1863/ARN–83	---	Para 2–63
MT–3605/ARN–83		
Aircraft Magnetic Compass Type J2 and Gyromagnetic Compass:		
Type AN/ASN–43 C–2 (transmitter)	300	Para 2–73
T–611/ASN (transmitter)	1,000	Para 2–73
A–2 (amplifier)	1,000	Para 2–74
S–3A (gyro)	300	Para 2–75
CN–405/ASN	1,000	Para 2–73
CN–998/ASN–43	---	Para 2–76
Antenna Group AN/ARA–31:		
KY–149(*)/AR (AN/ARA–31 only)	1,000	Para 2–72
AT–624(*)/AR	---	Para 2–70
CU–459/AR	---	Para 2–71
SA–474/AR	---	Para 2–22
MT–1620/AR		
Antenna 637A–2	---	Para 2–32
Marker Beacon:		
R–737/ARN	800	
R–1041(*)/ARN	800	Para 2–68
MT–2292/ARN		
AT–640/ARN	---	Para 2–69
Antenna 37RX–2	---	Para 2–69
Radio Set AN/ARC–134:		
Receiver-Transmitter, Radio RT–857/ARC–134	200	Para 2–40
Control Radio Set		
C–7197/ARC–134	---	Para 2–41
Antenna AT–1108/ARC	---	Para 2–27
Mounting MT–3791/ARC–134		
Indicating Systems:		
ID–998/ASN	800	Para 2–77
ID–250/ARN	800	Para 2–79
CV–1275/ARN	300	Para 2–104
AM–3209/ASN	200	Para 2–78
Amplifier 5404G	200	Para 2–108
Indicator 4005G	800	Para 2–105

Equipment component	Pullout intervals (flying hours)	Procedure (references)
Rate gyro MC–1	300	Para 2–107
Roll and pitch gyro MD–1	300	Para 2–106
J–8 indicator	800	Para 2–109
Transponder Set AN/APX–44:		
RT–494/APX–44	200	Para 2–80
C–2714/APX–44	---	Para 2–82
AT–884/APX–44	---	Para 2–81
MT–2100/APX–44		
Transponder Set AN/APX–72:		
RT–859/APX–72	200	Para 2–90
TS–1843/APX72	300	Para 2–92
MT–3809/APX–72	--	Para 2–89
MT–3513/APX–72		
KIT–1A/TSEC	---	Para 2–89
Motor generator PU–543(*)/A	500	Para 2–83
Navigation Set, Position Fixing AN/ASN–72:		
Receiver R–1453/ASN–72	100	Para 2–93
Control C–7152/ASN–72	300	Para 2–96
Computer CP–880/ASN–72	100	Para 2–96
Preamplifier AM–4740/ASN–72	200	Para 2–98
Antenna 9203/AM		
Decometers 1D–1424/ASN–72, 10–1425/ASN–72, and 10–1425/ASN–22.	300	Para 2–95
Lane meter 1D–1427/ASN–72	300	Para 2–95
Flight log control panel C–7153/ASN–72	200	Para 2–97
Flight log display head RD–323/ASN–72	100	Para 2–99

2–7. Periodic Preventive Maintenance Checks and Services Chart

Item No.	Item to be inspected	Procedure	References
		POWER-OFF INSPECTION	
1	Entire configuration	Inspect the entire electronic configuration (figs FO–1, FO–2, and FO–3) for completeness, general condition, and cleanliness. Remove all electronic equipment scheduled for bench tests (para 2–6*c*).	Para 2–1 and TM 55–1520–210–20.
2	Publications	Check to see that pertinent publications are available. *a.* Operator's manuals are complete and in usable condition without missing pages. *b.* All changes pertinent to the equipment are on hand. *c.* Organizational maintenance manuals are complete and in usable condition.	App. A.
3	Modification work orders	Check DA Pam 310–7 to determine if new applicable MWO's have been published; check to see if all URGENT MWO's have been applied to the equipment, and that all NORMAL MWO's have been scheduled.	DA Pam 310–4.
4	Frequency cards, decals, stencils, and other insignia.	Check for up-to-date frequency cards in the frequency card holders. Check all decals, stencils, and other insignia for legibility.	TM 55–1520–210–10.

Item No.	Item to be inspected	Procedure	References
5	Headset-microphones	Check the headset-microphones, microphone adapters, and associated receptacles for possible damage; check to see that they are clean and properly connected and that the wiring is free of cuts or breaks.	TN 11–5965–240–15 and TM 55–1520–210–20.
6	Microphone switches	Check all trigger and foot-operated switch wiring for fraying.	TM 55–1520–210–20.
7	Control panels and operating controls.	*a.* Check to see that all control panels are clean and the paint is not scratched or marred. *b.* Check all operating controls during operation: check knobs for looseness or binding; adjust as necessary so that knobs are tight on the shafts and have free movement without binding. Check switches for positive action and secure mounting. *c.* Check to see that control panel cable connectors are securely attached and that cable wiring is free of cuts or deterioration.	*a.* Para 2–8. *b.* Applicable technical manuals (app. A). *c.* None.
8	Flexible shaft (mechanical linkage).	Inspect the mechanical linkage flexible tuning shaft for broken or crushed casing and for excessive binding or backlash of the mechanical linkage.	TM 55–1520–210–20.
9	Connector plugs and receptacles.	Inspect all connector plugs and receptacles for cracks, corrosion, and evidence of overheating.	TM 55–1520–210–20.
10	Cables and wiring	Inspect all cables and wiring for signs of chafing, fraying, overheating, and for loose clamps and clamp supports.	TM 55–1520–210–20 and TM 55–1500–323–15.
11	Terminal boxes, junction boxes, and terminal strips.	Inspect the terminal boxes and junction boxes for— *a.* Cracks, structural failure, and security of mounting. *b.* Plugged drain holes. *c.* Electrical receptacles for cracks, corrosion, and loose wire connections. *d.* Terminal strips for security of attachment. *e.* Relays mounted in or on the boxes for damage and security of mounting.	TM 55–1500–323–15.
12	Internal equipment mountings.	Check equipment mountings of equipment mounted inside the helicopter for cracks, corrosion, and loose attaching bolts or rivets. Check shock-mount vibration isolators for deterioration of rubber and for loose or missing bonding.	Applicable technical manuals (app. A).
13	External equipment mountings.	Check equipment mountings of the equipment mounted on the tail	Applicable technical manuals (app. A).

Item No.	Item to be inspected	Procedure	References
		boom of the helicopter for the same defects listed in item No. 12.	
14	Antennas	Inspect all antenna systems as follows: *a.* Check for security of mounting and for any signs of damage or fatigue. Inspect insulators for cracks; clean with cleaning compound. *b.* Inspect all exposed lead-ins and connectors for signs of damaged or frayed wires or insulation.	None.
15	Equipment replacement	*a.* Replace all units of the electronic configuration that were removed for bench testing. *b.* Safety wire all units *c.* Perform the necessary adjustments to the uhf command set and the fm liaison set.	*a.* Para 2–14. *b.* Para 2–115. *c.* Applicable technical manuals (app. A).
		OPERATIONAL PRESET	
16	Auxiliary power unit	Connect an auxiliary power unit to the helicopter to supply the primary 28 volts dc for operational tests.	Para 2–4.
17	Helicopter power MASTER SWITCH.	Set the MASTER SWITCH to ON to energize the helicopter electrical circuits.	TM 55–1520–210–10.
18	RADIO POWER switch	Set the RADIO POWER switch to ON to energize the radio bus.	TM 55–1520–210–10.
		POWER-ON INSPECTION, INTERPHONE FACILITY	
19	FM circuit breaker	Depress FM circuit breaker button. The fm dynamotor starts, and distribution panels are energized.	Para 2–11, item No. 19.
20	Distribution panels	Set the distribution panel SB–329/ARC–44 or C–1611/AIC controls as follows: *a.* TRANS selector switch to INT. *b.* RECEIVERS 1 and 2 switches to the down (off) position. *c.* Turn the VOL control fully counterclockwise (ccw).	None.
21	Pilot's trigger switch and headset-microphone.	Depress pilot's trigger switch to the first position, and speak into microphone. Sidetone signals are heard in copilot's headset, and interphone signals are heard in copilot's headset.	Para 2–11, item No. 21.
22	Copilot's trigger switch and headset-microphone.	Depress copilot's trigger switch to the first position, and speak into microphone. Sidetone signals are heard in copilot's headset, and interphone signals are heard in pilot's headset.	Para 2–11, item No. 22.
23	Exterior surfaces	*a.* Clean control unit, receiver-transmitter, and mounting. *b.* Inspect exposed metal surfaces for rust, corrosion, and bare spots.	*a.* Para 2–8. *b.* Para 2–8.

Item No.	Item to be inspected	Procedure	References
24	Cable and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Refer to high maintenance category for replacement. Check all electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15.
25	Receiver-transmitter	*a.* Check to see that receiver-transmitter is securely mounted. *b.* Check the meter for dirty or broken glass. *c.* Check to see that all controls operate smoothly with no binding.	Applicable technical manual (app. A).
26	Mounting	Check to see that the mounting is securely fastened to the helicopter frame or rack. Check to see that the ground straps are secure and that the shock isolators work smoothly. Check for any signs of physical damage.	None.
27	Control unit	*a.* Check to see that the control unit is securely mounted. *b.* Check the controls for smooth mechanical action, and check to see that the knobs are tight.	*a.* None. *b.* None.
		POWER-ON INSPECTION, RADIO SETS AN/ARC–44 and AN/ARC–54 or AN/ARC–131	
28	Primary power	*a.* Set the helicopter primary power ON–OFF switch to ON, and close the main 28-volt dc circuit breaker. *b.* Check to see that the control unit panel lamps light. *Note.* Brilliance of lamps is controlled by helicopter panel light control.	*a.* TM 55–1520–210–10. *b.* Para 2–11, item 28.
29	Fm facility circuit breakers	Depress the FM and HOMING circuit breaker buttons. The fm dynamotor starts, and the distribution panels are energized.	Para 2–11, item No. 29.
30	Blower	Set the mode control on the control unit to PTT, and check to see that blower in the receiver-transmitter operates.	Para 2–11, item No. 30.
31	Distribution panels	Set the controls on the distribution panels as follows: *a.* Rotate the TRANS selectors so that 1 appears in the window. *b.* Set the RECEIVERS 1 switch in the up (on) position.	 *a.* None. *b.* None.
32	Fm control panels	*a.* Set the REM–LOCAL switch to LOCAL and the ON–OFF switch to ON. The fm receiver-transmitter is energized, and the panel lamps light. *b.* Operate the VOL control fully clockwise (cw), then fully ccw. The volume varies smoothly. Adjust the VOL control to a comfortable listening level.	*a.* None. *b.* Para 2–11, item No. 32.

Item No.	Item to be inspected	Procedure	References
33	Fm control panel	*a.* Set the FREQ control to the frequency of a local fm ground station. A 400-Hz tone is heard in the headsets while the receiver-transmitter is channeling.	*a.* Para 2–11, item No. 33.
		b. Noise or a signal is heard when the frequency is selected.	*b.* Para 2–11, item No. 33.
34	Fm switch assembly	*a.* Set the fm switch assembly HOME switch to 1 (off) position. The fm system is connected to the communication antenna.	*a.* None.
		b. Set the SQUEL switch to SQUEL. A loud rushing noise is heard in the headsets.	*b.* Para 2–11, item No. 34.
		c. Set the SQUEL to 2 (off). The noise in the headsets is considerably decreased.	*c.* Para 2–11, item No. 34.
35	Tuning	Turn the radio set to frequency of a local fm station. A channel-changing tone should be heard in the headset while the radio set is tuning. When the tone stops, the radio set is tuned.	None.
36	Pilot's microphone switches, microphone, and radio set, two-way communication operation.	*a.* Fully depress pilot's trigger switch, and establish two-way communication with the local fm ground station. The transmitted signals should be of adequate strength and readability, and the sidetones and received signals adequate to maintain reliable communication. Release trigger switch.	*a.* Para 2–11, item No. 36.
		b. Depress pilot's foot-operated switch, and establish communication with local fm ground station. The transmitted signals should be of adequate strength and readability, and the sidetone and received signals adequate to maintain reliable communication. Release foot-operated switch.	*b.* Para 2–11, item No. 36.
37	Copilot's microphone switches, microphone, and radio set, two-way communication operation.	*a.* Fully depress copilot's trigger switch and establish two-way communication with the local fm ground station. The transmitted signals should be of adequate strength and readability, and the sidetone and received signals adequate to maintain reliable communication. Release trigger switch.	*a.* Para 2–11, item No. 37.
		b. Depress copilot's foot-operated switch, and establish communication with the local fm ground station. The transmitted signals should be of adequate strength and readability, and the sidetone and received signals ade-	*b.* Para 2–11, item No. 37.

Item No.	Item to be inspected	Procedure	References
		quate to maintain reliable communication. Release foot-operated switch.	
38	Radio set, homing operation	Set the fm switch assembly HOME switch to HOME. The homing antenna circuits are energized. One of three signals listed below is heard in headsets, depending on the location of the ground station: Morse code D (dah-dit-dit), Morse code U (dit-dit-dah), or a steady 400-Hz on-course tone.	Para 2–11, item No. 38.
39	Radio set retransmission operation (used only when two radio sets are installed in the helicopter).	Establish two-way communication with local fm ground station. Ground station must operate on appropriate frequencies for each of the two radio sets.	None.
40	FM control panel and circuit breakers.	Set the fm control panel ON–OFF switch to OFF. Release the FM and HOMING circuit breaker buttons. The fm liaison facility is deenergized.	None.
		POWER-ON INSPECTION RADIO SETS AN/ARC–51(*)X, AN/ARC–55, and AN/ARC–73	
41	Exterior surfaces	*a.* Clean the receiver-transmitter, radio set control, and indicator front panels. Check for broken meter and indicator glasses. Refer to higher maintenance category for repair.	*a.* Para 2–8.
		b. Check all exposed metal surfaces for rust and corrosion.	*b.* Para 2–8.
42	Exterior items	*a.* Check safety wiring on the mounting wingnut fasteners.	*a.* TM 55–1500–323–15.
		b. Check to see that mechanical actions of switches and knobs are smooth and free of binding and scraping on the radio set control. Tighten loose mounting screw. Replace radio set control with defective controls and forward to higher maintenance category for repair.	*b.* None.
		c. Check handles for looseness and defects.	*c.* None.
43	Air pressure indicator	Check to see that air pressure indicator shows 3 to 5 psi internal air pressure in the receiver-transmitter (center head protrudes when air pressure is 3 to 5 psi). Refer to higher maintenance category for repair.	None.
44	External blower air filter	*a.* Remove and inspect the air filter	*a.* None.
		b. Clean the air filter if dirty	*b.* None.
		POWER-ON INSPECTION, RADIO SET AN/ARC–51(*)X	

Item No.	Item to be inspected	Procedure	References
		Note. If the helicopter engines are operated during the power-on inspection, the pilot or an authorized crewmember will start and operate the engines. If the helicopter engines are not operated, use an auxiliary power source to prevent excessive drain on the helicopter battery. Refer to the helicopter manuals for connections and power requirements, and for setting of communication power controls.	
45	Function select switch and external blower.	Set the function select switch to T/R. Check for operation of external blower on receiver-transmitter.	Para 2–11, item No. 45.
46	Radio set SENS control -----	Turn fully cw. Allow 1 minute for radio set to warm up. Listen for rushing audio noise in headset. Set SENS control fully ccw. Note that audio noise is cut off. Reset SENS control fully cw.	Para 2–11, item No. 46.
47	Radio set VOL control -------	Turn fully ccw and then fully cw. Listen for corresponding decrease and increase in headset audio noise.	Para 2–11, item No. 47.
48	Radio set 10-, 1-, and 0.1-MHz controls.	Operate controls to select assigned test frequency channel. Listen for 800-Hz audio tone in headset during channel-changing cycle. *Note.* If receiver-transmitter is remotely located from microphone push-to-talk switch, it will be necessary to use two men to perform 49 and 50 below.	Para 2–11, item No. 48.
49	RF wattmeter, transmitter power output.	Press microphone push-to-talk switch, and observe RF wattmeter indication. The power output should be at least 20 watts.	Para 2–11, item No. 49.
50	RF wattmeter, reflected power.	With microphone switch depressed, press PRESS FOR REFL POWER switch. Reflected power should be less than 5 watts.	Para 2–11, item No. 50.
51	Receiver-transmitter sidetone	Speak into the microphone, and listen for sidetone audio in the headset.	Para 2–11, item No. 51.
52	Receiver-transmitter operation test.	Communicate with base control tower or another uhf receiver-transmitter on at least three frequencies across the uhf band to test receiver-transmitter operation.	Para 2–11, item No. 52.
53	Guard receiver and radio set control function select switch.	Place radio set control function select switch on T/R+G. Arrange for communication check on receiver guard frequency of 243.0 MHz. Listen for clear, intelligible audio in headset.	Para 2–11, item No. 53.
		POWER-ON INSPECTION, RADIO SET AN/ARC–55(*)	
54	Uhf command facility circuit breakers.	*a.* Depress the AN/ARC–55, the AN/ARC–44 XCVR, and the SB–329/AR panel circuit breaker buttons. *b.* Check to see that the control unit panel lamps light.	*a.* None. *b.* Para 2–11, item No. 54.

Item No.	Item to be inspected	Procedure	References
		c. Check to see that blower motor operates.	*c.* Para 2–11, item No. 54.
55	Uhf control unit	Operate the selector switch on the Uhf control unit to T/R+G REC.	None.
56	Distribution panel	Operate the distribution panel TRANS selector switch until number 2 appears in the window.	None.
57	Distribution panel	Operate the RECEIVERS 2 switch to the up position.	None.
58	Distribution panel	Operate all other switches to the down position.	None.
59	AN/ARC–44 switch panel assembly.	Operate the fm switch assembly ICS switch to the up position.	None.
60	Uhf control panel	*a.* Set the uhf control unit frequency selector controls to correspond to the first frequency on the frequency card.	*a.* Para 2–11, item No. 60.
		b. Transmitter-receiver will stop cycling and will tune to desired frequency (channel tone will stop).	*b.* None.
61	Cyclic control grip trigger switch.	Fully depress the trigger switch on each cyclic control grip (pilot and copilot) in turn to position 2 (second detent), and sidetone signal will be heard in headset.	Para 2–11, item No. 61.
62	Distribution panel	While receiving signals from the ground station, operate the TRANS selector switch on the distribution panel to position 3, and listen for audio signals from ground station.	Para 2–11, item No. 62.
63	Distribution panel	To test set, refer to applicable publication.	App. A.
64	Uhf control panel	Remove the power from the uhf command set by operating the selector on the uhf control unit to OFF.	None.
65	Control panel	Operate the power switch to OFF	None.
		POWER-ON INSPECTION, RADIO SET AN/ARC–73(*)	
66	Control panel	Select desired frequency	TM 11–5821–217–12.
67	Receiver	Adjust SQUELCH control	TM 11–5821–217–12.
68	Control panel	Rotate SQ control fully ccw	None.
69	Control panel	Adjust VOL control to midposition	None.
70	Control panel	Operate power switch to ON (allow 15 minutes warmup time). Control panel lamps light and transmission and reception are possible.	Para 2–11, item No. 70.
71	Receiver	Adjust SQUELCH screwdriver control so that receiver operates on weakest of selected frequencies.	Para 2–11, item No. 71.
72	Control panel	Adjust SQ control for proper threshold level.	None.
73	Control panel	Adjust VOL control for audio output level.	Para 2–11, item No. 73.
74	Remote control	Operate the MHz dial and kilohertz (kHz) dial controls to all positions. Observe that frequency displayed in FREQ MC indicator window on	Para 2–11, item No. 74.

Item No.	Item to be inspected	Procedure	References
		receiver remote control is the same as that displayed in MC indicator window on receiver.	
75	Transmitter	Press the push-to-talk button on each cyclic control grip in turn (pilot and copilot). Speak into microphone and observe sidetone into headset. Squelching of receiver noise should occur.	Para 2–11, item No. 75.
76	Control panel	Operate the power switch to OFF	Para 2–11, item No. 76.
		POWER-OFF INSPECTION, RADIO SET AN/ARC–134.	
77	Exterior surfaces	*a.* Clean control unit, receiver-transmitter, mounting. *b.* Inspect exposed metal surface for rust, corrosion, and bare spots.	*a.* Para 2–8. *b.* Para 2–8.
78	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain.	None.
79	Receiver-transmitter, radio	*a.* Check to see that receiver-transmitter is securely mounted. *b.* Check the meter for dirty or broken glass. *c.* Check to see that all controls operate smoothly with no binding.	Applicable technical manual (app. A).
80	Mounting	Check to see that the mounting is securely fastened to the helicopter frame or rack. Check to see that the ground straps are secure and that the shock isolators work smoothly.	None.
81	Control unit	*a.* Check to see that the control unit is securely mounted. *b.* Check the controls for smooth mechanical action, and check to see that the knobs are tight.	*a.* None. *b.* None.
		POWER-ON INSPECTION, RADIO SET AN/ARC–134	
82	VHF COMM OFF/PWR switch.	*a.* Depress circuit breaker *b.* Set OFF/PWR switch to PWR position. The indicator dials should glow.	Para 2–11, item No. 82.
83	Receiver-transmitter meter switch.	*a.* Set receiver-transmitter meter switch to LINE V position. Meter shall indicate approximately 27 volts. *b.* Set receiver-transmitter meter switch to REG SUP position. Meter shall indicate approximately 20 volts.	Para 2–11, item No. 83.
84	COMM TEST switch	*a.* Set VHF COMM frequency selectors on the control unit to a frequency at which no signal is heard in the headset. Press the COMM TEST switch, and	Para 2–11, item No. 84.

Item No.	Item to be inspected	Procedure	References
		background noise will be heard in the headset. *b.* Set receiver-transmitter meter switch to AGC position. Meter shall indicate approximately 0.05 (1 scale division).	
85	VHF COMM frequency selectors.	Set the VHF COMM frequency selectors to the frequency of the control tower, and contact the control tower for a COMM check. Control tower should receive a clear and audible transmission, and reception from tower should be clear and audible.	Para 2–11, item No. 85.
86	VOL (volume) control	Set VOL control to a desired audio level when receiving tower transmission. VOL control on the control unit varies the audio level.	Para 2–11, item No. 86.
87	VHF COMM OFF/PWR switch.	Set OFF/PWR switch to OFF position. Indicator dials shall not glow.	Para 2–11, item No. 87.
		POWER-OFF INSPECTION, RECEIVING SET, RADIO AN/ARN–30( )	
88	Exterior surfaces	*a.* Clean control unit, receiver-transmitter, and mounting.	Para 2–8.
		b. Inspect exposed metal surfaces for rust, corrosion, and bare spots.	Para 2–8.
89	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Refer to higher maintenance category for replacement. Check all electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15.
90	Receiver	Check to see that receiver is securely mounted.	None.
91	Control unit	*a.* Check to see that the control unit is secured to its mounting panel by the lock fasteners.	None.
		b. Check the front panel control knobs to make certain that they are not broken and do not bind when turned.	None.
92	Course indicator	*a.* Make sure the course indicator is properly secured to the helicopter console panel.	None.
		b. Check the indicator glass for cracks and breaks.	None.
		c. Operate the course selector knob to be sure that the knob is tight on its shaft and turns freely.	None.
93	Mounting	*a.* See that the mounting is securely fastened to the helicopter frame or rack.	None.
		b. See that the ground straps are making good contact.	None.
		c. Check the rubber shock mounts on the mounting to make sure that they are not cracked or deteriorated.	None.

Item No.	Item to be inspected	Procedure	References
		POWER-ON INSPECTION, RECEIVING SET, RADIO AN/ARN–30(*)	
94	Circuit breaker	*a.* Press circuit breaker button *b.* Vertical flag on course indicator shifts out of sight. *c.* TO–FROM indicator on course indicator remains stable.	*a.* Para 2–11, item No. 94. *b.* Para 2–11, item No. 94. *c.* Para 2–11, item No. 94.
95	Control unit	Turn VOL–OFF switch and control knob completely cw. Receiver noise will be heard over headset-microphone.	Para 2–11, item No. 95.
96	Control unit	*a.* Set MHz channel selector switch to a designated frequency. *b.* OFF vertical flag on course indicator drops out of sight. *c.* TO–FROM meter indicates either TO or FROM and call signs from station are heard.	*a.* None. *b.* Para 2–11, item No. 96. *c.* Para 2–11, item No. 96.
97	Course indicator	*a.* Turn course selector knob *b.* Indicator shifts to selected station.	*a.* None. *b.* Para 2–11, item No. 97.
98	Control unit	*a.* Set MHz channel selector to frequency of local station. *b.* OFF vertical flag on course indicator drops out of sight. Station call letters can be heard on headset.	*a.* None. *b.* Para 2–11, item No. 98.
99	Control unit	*a.* Place VOL–OFF switch and control knob completely ccw. *b.* OFF vertical flag on course indicator appears.	*a.* None. *b.* Para 2–11, item No. 99.
100	Circuit breaker for AN/ARN–30(*).	*a.* Deenergize; place at OFF *b.* Control unit lamps go out	*a.* None. *b.* Para 2–11, item No. 100.
		POWER-OFF INSPECTION, DIRECTION FINDER SET AN/ARN–59(V)	
101	Exterior surfaces	Clean control, receiver, and mounting.	Para 2–8.
102	Control unit	*a.* Check for loose or insecure fastenings. Tighten if required. *b.* Cranks and knobs should be properly secured to shafts and should not bind. Tighten loose knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs. *c.* Check meter and indicator for broken or cracked glass. See that pointers are not bent, broken, or stuck.	*a.* None. *b.* None. *c.* None.
		POWER-ON INSPECTION DIRECTION FINDER SET, AN/ARN–59(V)	
103	Preliminary operation	Set helicopter instrument panel controls as follows:	

Item No.	Item to be inspected	Procedure	References
		a. Turn master power switch on *b.* Turn adf switch on *c.* Turn interphone power switches on. *d.* Check to see that the control unit panel lamps light.	*a.* None. *b.* None. *c.* Para 2–11, item No. 103. *d.* Para 2–11, item No. 103.
104	VOL control	Turn fully cw; the dynamotor runs	Para 2–11, item No. 104.
105	MC BAND selector switch and tuning crank.	Set MC BAND selector switch to desired frequency band, turning tuning crank to frequency of radio station. Maximum indication on tuning meter is achieved. If radio station is am., audio is heard in headset; if station is cw, intermittent hissing noise is heard.	Para 2–11, item No. 105.
106	Function switch	Set function switch to COMP. Indicator pointer rotates to azimuth of radio station in relation to the heading of the helicopter.	Para 2–11, item No. 106.
107	E–W VAR control knob	Turn control knob in either direction; azimuth scale on indicator rotates.	Para 2–11, item No. 107.
108	LOOP switch	Press switch to either the left or right. Indicator pointer rotates in direction of switch position, and returns to its original position when switch is released.	Para 2–11, item No. 108.
109	BFO switch	Place switch to ON. Beat signal (audio note) is heard in headset.	Para 2–11, item No. 109.
110	Function switch	Set function switch to ANT and BFO switch on, and tune receiver. Audio note varies in pitch as receiver is tuned. Zero beat occurs when receiver is tuned exactly to radio station frequency.	Para 2–11, item No. 110.
111	Function switch	Set function switch to LOOP. Hold LOOP switch to left or right. Aural null is effected when loop antenna is in the direction of the received radio station. A second aural null is apparent at an azimuth that is 180° from the first null.	Para 2–11, item No. 111.
112	VOL control	Turn control to OFF (fully ccw). Dynamotor stops running.	Para 2–11, item No. 112.
113	Stopping procedures	Set helicopter instrument panel controls as follows: *a.* Turn master power switch off. *b.* Turn adf switch off. *c.* Turn interphone power switches off.	None.
		POWER-OFF INSPECTION, RECEIVER, RADIO R–1041A/ARN	
114	Receiver	*a.* Clean exterior *b.* Check to see that the mechanical action of the switch is smooth and free of external or internal	*a.* Para 2–8. *b.* None.

Item No.	Item to be inspected	Procedure	References
		binding. If the knob requires frequent tightening, replace the setscrew.	
		POWER-IN INSPECTION, RECEIVER, RADIO R–1041A/ARN	
		Note. Receiver, Radio R–1041/ARN is energized automatically when the helicopter master communication or navigation switches are turned on.	
115	Indicator lamp on instrument panel.	Press lens of indicator lamp of R–1041A/ARN and note that the lamp lights.	Para 2–11, item No. 115.
116	Receiver	Fly helicopter over a marker beacon transmitter and note that the indicator lamp lights and an aural tone is heard in the headset.	Para 2–11, item No. 116.
		POWER-OFF INSPECTION, PANEL, CONTROL SB–329/ARC–44	
117	Panel	Knobs should be properly secured to shafts and should not bind. Tighten loose knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs.	None.
		POWER-ON INSPECTION, PANEL, CONTROL SB–329/ARC–44	
118	Circuit breakers	Depress the AN/ARC–44 XCVR and SB–329/AR panel circuit breakers. Control panel lamps will light.	Para 2–11, item No. 118.
119	Distribution panels	Set the distribution panel controls as follows: *a.* TRANS selector switch to INT. *b.* RECEIVERS 1 and 2 switches to the down (off) position. *c.* Turn the VOL control fully ccw.	None.
120	Pilot's trigger switch and headset-microphone.	Depress pilot's trigger switch to the first position, and speak into microphone. Sidetone signals are heard in pilot's headset, and interphone signals are heard in copilot's headset.	Para 2–11, item No. 120.
121	Copilot's trigger switch and headset-microphone.	Depress copilot's trigger switch to the first position, and speak into microphone. Sidetone signals are heard in copilot's headset, and interphone signals are heard in pilot's headset.	Para 2–11, item No. 121.
		POWER-OFF INSPECTION, CONTROL, INTERCOMMUNICATION SET C–1611/AIC	
122	Panel	Knobs should be properly secured to shafts and should not bind. Tighten loose knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs.	None.
		POWER–ON INSPECTION, CONTROL, INTERCOMMUNICATION SET C–1611/AIC	

Item No.	Item to be inspected	Procedure	References
123	Circuit breaker panel	Depress AN/ARC-54 XCVR and the C-1611/AIC panel circuit breakers. Panel lamps will light.	Para 2-11, item No. 123.
124	Control panel	Set transmit-interphone selector switch at positions 1, 2, 3, and 4.	None.
125	Control panel	Set RECEIVERS switches to ON	None.
126	Entire system	Set transmit-interphone selector switch to interphone (PVT) and make audio test.	Para 2-11, item No. 126.
		POWER-ON INSPECTION ANTENNA AN/ARA-31 or 637A-2 (205-075-345)	
127	Circuit breaker panel	Depress circuit breaker for AN/ARC-44 and AN/ARA-31 (no circuit breaker for 637A-2 antenna system).	None.
128	Fm control panel	Turn on radio set	None.
129	Keying unit (AN/ARA-31 models only).	Set FM HOME toggle switch to on (up) position. Select fm station, preferably one whose relative bearing is known. One of three signals listed below is heard in headsets, depending on the location of the ground station: Morse code D, Morse Code U, or a steady 400-Hz on-course tone.	Para 2-11, item No. 129.
130	Switch assembly	Set FM HOME toggle switch to OFF.	None.
131	Fm radio set	Turn off	Para 2-11, item No. 131.
		POWER-OFF INSPECTION, TRANSPONDER SET AN/APX-44	
132	Control unit	Knobs should be properly secured to shafts and should not bind. Tighten loose knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs.	None.
133	Receiver-transmitter	Check for loose and missing knobs. Knobs should be properly secured to shafts and should not bind. Tighten loose knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs.	None.
134	Mounting	Check for cracks, corrosion, loose attaching bolts or rivets, deterioration of rubber, and loose or missing bonding.	None.
		POWER-ON INSPECTION TRANSPONDER SET AN/APX-44.	
135	Circuit breaker panel	Depress the AN/APX-44 and C-1611/AIC panel circuit breaker buttons.	None.
136	Control panel	Place the master control at STBY. The pilot light should light (allow 3 to 5 minutes for warm up).	Para 2-11, item No. 136.
137	Transponder set control	To test the set, refer to applicable publication.	App. A.

Item No.	Item to be inspected	Procedure	References
138	Control panel	Place the master control at OFF	None.
		POWER-OFF INSPECTION TRANSPONDER SET AN/APX–72	
139	Control unit	Knobs should be properly secured to shafts and should not bind. Tighten loose knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs.	None.
140	Receiver-transmitter	Check for loose and missing knobs. Knobs should be properly secured to shafts and should not bind. Tighten loosen knobs and be sure that knobs do not rub against panels. Replace defective or broken knobs.	None.
141	Mounting	Check for cracks, corrosion, loose attaching bolts or rivets, deterioration of rubber, and loose or missing bonding.	None.
		POWER-ON INSPECTION TRANSPONDER SET AN/APX–72	
142	Circuit breaker panel	Depress the AN/APX–72 and C–1611/AIC panel circuit breaker buttons.	None.
143	Control panel	Place the master control at STBY. The pilot light should light (allow 3 to 5 minutes for warm up).	Para 2–11, item No. 136.
144	Transponder set control	To test the set, refer to applicable publication.	App. A and para 2–11, items 143, 144, and 145.
145	Control panel	Place the master control at OFF	None.
		POWER-OFF INSPECTION, AIRCRAFT MAGNETIC COMPASS J2	
146	Indicator	Check the response of the heading dial and pointer to the rotation of the indicator set course knob. Both heading dial and pointer should rotate freely as the set course knob is rotated.	Para 2–11, item No. 146.
147	Gyro control	Inspect the desiccant crystals in the humidity indicator for proper color. Desiccant crystals should be blue.	Para 2–11, item No. 147.
148	Slaving cutout switch	Check slaving cutout switch for proper mechanical action.	Para 2–11, item No. 148.
		POWER-ON INSPECTION, AIRCRAFT MAGNETIC COMPASS J2	
149	Helicopter main line switch and inverter switch.	The J2 compass is connected directly to the main electrical supply of the helicopter. Turning on the main power supply starts the operation of the compass system. Both ac and dc power must be turned on simultaneously.	None.
150	Indicator	Set the compass slaving switch to IN. Ground-swing the helicopter so that its longitudinal axis is aligned	Para 2–11, item No. 150.

Item No.	Item to be inspected	Procedure	References
		with a known heading. The indicator heading should be within 2° of the known heading reference.	
		POWER-OFF INSPECTION, RADIO SET AN/ARC–102	
151	Receiver-transmitter	*a.* Clean exterior *b.* Check to see that the knob is secured to the shaft and does not bind. *c.* Check the meter for broken or cracked glass.	*a.* Para 2–8. *b.* None. *c.* None.
152	Control unit	*a.* Clean exterior *b.* Check to see that the knobs are secured to shaft and do not bind. *c.* Check the meter for broken or cracked glass.	*a.* Para 2–8. *b.* None. *c.* None.
		POWER-ON INSPECTION, RADIO SET AN/ARC–102	
153	Circuit breaker panel	*a.* Depress the AN/ARC–102 circuit breaker. *b.* Lamps on panel should light and blower motor should start.	*a.* None. *b.* Para 2–11, item No. 153.
154	Receiver-transmitter	To test, refer to applicable publication.	App. A.
		POWER-OFF INSPECTION, AC INVERTERS	
155	Exterior surfaces	*a.* Clean inverters *b.* Inspect exposed metal surfaces for rust, corrosion, and bare spots.	*a.* Para 2–8. *b.* Para 2–8.
156	Cables and connectors	Check cables for evidence of chafing, cracking, or excessive strain. Check electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15; higher maintenance category for replacement.
157	Inverter	Check to see that inverter is securely mounted.	None.
		POWER-ON INSPECTION, AC INVERTERS	
158	Circuit breakers	Press MAIN INVTR SPARE INVTR, and INVTR CONT circuit breakers on dc circuit breaker panel.	None.
159	AC POWER control panel	*a.* Place inverter switch in MAIN ON or SPARE ON position. *b.* Inverter should start	*a.* None. *b.* Para 2–11, item No. 159.
160	AC voltmeter	*a.* Rotate AC VM switch on AC POWER control panel to AB, AC, or BC phase. *b.* Ac voltage should be indicated on the ac voltmeter on the instrument panel.	*a.* None. *b.* Para 2–11, item No. 160.
161	Ac voltmeter	*a.* Rotate AC VM switch on AC POWER control panel to AB, AC, or BC phase. *b.* Ac voltage of 115 (±2.5) volts ac should be indicated on the AC voltmeter on the instrument panel.	*a.* None. *b.* Para 2–11, item No. 161.

Item No.	Item to be inspected	Procedure	References
		POWER-OFF INSPECTION NAVIGATION SET AN/ASN–72 (DECCA VIII)	
162	Cable connectors	Check all connections to all components of the navigation set and assure that they are clean, intact, and not loose fitting.	TM 55–1500–323–15.
163	Exterior surfaces	*a.* Remove all dirt, grease, and moisture from all external surfaces as required. *b.* Check general condition of each component. *c.* Inspect for missing screws, and bent or broken hardware.	*a.* Para 2–8. *b.* None. *c.* None.
164	Indicators	Check to see that the indicators are in good condition and that their glass surfaces are clean and not cracked or damaged.	None.
165	Control units	Check each control for proper mechanical action of knobs, dials, and switches. Observe that the mechanical action of each is positive without backlash, binding, or scraping.	None.
166	Receiver	Check to see that the receiver is securely mounted.	None.
167	Computer	Check to see that the computer is securely mounted.	None.
168	Flight log display head	Check to see that the flight log display head is securely mounted.	None.
169	Preamplifier	Check to see that the preamplifier is securely mounted.	None.
170	Antenna	Check to see that the antenna is securely mounted.	None.
		POWER-ON INSPECTION NAVIGATION SET AN/ASN–72 (DECCA VIII)	
171	AN/ASN–72	To perform POWER ON INSPECTION, refer to TM 11–5826–228–12.	App. A.
		POWER-OFF INSPECTION, RECEIVING SET, RADIO AN/ARN–82	
172	Exterior surfaces	*a.* Clean control unit, receiver, and mounting. *b.* Inspect exposed metal surfaces for rust, corrosion, and bare spots.	*a.* Para 2–8. *b.* Para 2–8.
173	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Refer to higher maintenance category for replacement. Check all electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15.
174	Receiver	Check to see that receiver is securely mounted.	None.

Item No.	Item to be inspected	Procedure	References
175	Control unit	*a.* Check to see that the control unit is secured to its mounting panel by the lock fasteners.	*a.* None.
		b. Check the front panel control knobs to make certain they are not broken and do not bind when turned.	*b.* None.
176	Course indicator	*a.* Make sure the course indicator is properly secured to the helicopter instrument panel.	*a.* None.
		b. Check the indicator glass for cracks and breaks.	*b.* None.
		c. Operate the course selector knob to be sure that the knob is tight on its shaft and turns freely.	*c.* None.
177	Mounting	*a.* See that the mounting is securely fastened to the helicopter frame or rack.	*a.* None.
		b. See that the ground straps are making good contact.	*b.* None.
		c. Check the rubber shock mounts on the mounting to make sure they are not cracked or deteriorated.	*c.* None.
		POWER-ON INSPECTION RECEIVING SET, RADIO AN/ARN–82	
178	Circuit breaker for AN/ARN–82.	Press circuit breaker for AN/ARN–82	None.
179	Control unit	*a.* Set power switch to PWR	*a.* None.
		b. Panel lamps light	*b.* Para 2–11, item No. 179.
180	Course indicator	Set OBS control for a 0 indicator under course index.	None.
181	Control unit	*a.* Set power switch to TEST	*a.* None.
		b. Vor/localizer needle should center and to/from indicator should indicate FR.	*b.* Para 2–11, item No. 181.
182	Control unit	*a.* Set kHz and MHz controls to a tower frequency within 118-MHz and 126.95 MHz-band. Call control tower on one of the helicopter transceivers and request a communications check on frequency selected.	*a.* None.
		b. Set VOL control to midrange	*b.* None.
		c. When the communications check is received, set VOL control for a clear and comforable audio level.	*c.* Para 2–11, item No. 182.
183	Control unit	*a.* After tower has stopped transmitting, set power switch to TEST.	*a.* None.
		b. Noise should be heard in headset	*b.* Para 2–11, item No. 183.
184	Control unit	*a.* Set power switch to PWR	*a.* None.
		b. Noise should be heard in headset (this indicates that squelch circuit is working properly).	*b.* Para 2–11, item No. 184.
185	Control unit	*a.* Set power switch to OFF	*a.* None.
		b. Panel lights should go out	*b.* Para 2–11, item No. 185.

Item No.	Item to be inspected	Procedure	References
186	Circuit breaker for AN/ARN–82.	Deenergize and place to off	None.
		POWER-OFF INSPECTION, DIRECTION FINDER SET AN/ARN–83	
187	Exterior surfaces	*a.* Clean control unit, receiver, and mounting.	*a.* Para 2–8.
		b. Inspect exposed metal surfaces for rust, corrosion, and bare spots.	*b.* Para 2–8.
188	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Check all electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15. Refer to higher maintenance category for replacement.
189	Control unit	*a.* Check to see that the control unit is secured to its mounting panel by the lock fasteners.	*a.* None.
		b. Check the front panel control knobs, dials, and switches to make certain that they are not broken and do not bind when turned.	*b.* None.
		c. Check for broken tuning meter lens, and FREQUENCY dial window.	*c.* None.
190	Receiver	*a.* Check to see that the receiver is securely mounted.	*a.* None.
		b. Clean air ventilating holes in receiver dust cover.	*b.* None.
191	Antenna	Check surface of loop for dents, deep scratches, and cracks.	None.
192	Mounting	*a.* See that the mounting is securely fastened to the helicopter frame or rack.	*a.* None.
		b. See that the ground straps are making good contact.	*b.* None.
		c. Check the rubber shock mounts on the mounting to make sure they are not cracked or deteriorated.	*c.* None.
		POWER-ON INSPECTION, DIRECTION FINDER SET AN/ARN–83	
193	Circuit breaker for AN/ARN–83.	Press circuit breaker for AN/ARN–83	None.
194	Circuit breakers for distribution panels.	Press circuit breakers for C–1611/AIC distribution panels.	None.
195	Distribution panels	Position the NAV switch to the ON position.	None.
196	Control unit	*a.* Set the function switch to the ANT position.	*a.* None.
		b. Check the front panel tuning meter and FREQUENCY dial window for dirt.	*b.* Para 2–11, item No. 196.
197	Control unit	Rotate GAIN control cw for noise in headset.	Para 2–11, item No. 197.

Item No	Item to be inspected	Procedure	References
198	Control unit	*a.* Set range switch to each of the three frequency ranges and tune to radio station. *b.* Range switching takes place and dial indicates correct frequency range.	*a.* None. *b.* Para 2–11, item No. 198.
199	Control unit	*a.* Set range switch to each of the three frequency ranges and turn tune control to frequency of radio station. *b.* Tuning meter indicates signal strength and audio can be heard in headset.	*a.* None. *b.* Para 2–11, item No. 199.
200	Control unit	*a.* Set BFO–OFF switch to BFO. Tune to radio station. *b.* Beat notes can be heard in headset.	*a.* None. *b.* Para 2–11, item No. 200.
201	Control unit	Set function switch to ANT and tune to a radio station of a known bearing.	None.
202	Control unit	Set function switch to LOOP. Hold LOOP switch to L position for an aural null in headset.	Para 2–11, item No. 201.
203	Control unit	Set function switch to LOOP, hold LOOP switch to R position, and rotate bearing indicator pointer. Bearing indicator pointer will indicate two nulls displaced 180° apart.	Para 2–11, item No. 203.
204	Control unit	*a.* Release LOOP switch to center position and set function switch to ADF. *b.* Bearing indicator pointer rotates and shows bearing of radio station (one null).	*a.* None. *b.* Para 2–11, item No. 204.
205	Control unit	Set function switch to OFF	None.
206	Distribution panels	Position the NAV switch on the distribution panel to the OFF position.	None.
207	Circuit breakers for AN/ARN–83.	Deenergize and place to on	None.
		POWER-OFF INSPECTION, GYROMAGNETIC COMPASS SET AN/ASN–43	
208	Exterior surfaces	*a.* Clean gyro, transmitter, compensator indicator, and amplifier. *b.* Inspect exposed metal surfaces for rust corrosion, and bare spots.	*a.* Para 2–8. *b.* Para 2–8.
209	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Check all electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15. Refer to higher maintenance category for replacement.
210	Indicator	*a.* Make sure the indicator is properly secured to the helicopter instrument panel. *b.* Check the indicator glass for cracks and damage. *c.* Operate knobs, dials, and switches for proper mechanical action,	*a.* None. *b.* None.

Item No.	Item to be inspected	Procedure	References
		and make sure the knobs are tight on shafts.	
211	Gyro	Check to see that gyro is securely mounted.	None.
212	Transmitter and compensator	Check to see that transmitter and compensator are securely mounted.	None.
213	Amplifier	Check to see that amplifier is securely mounted.	None.
		POWER-ON INSPECTION, GYROMAGNETIC COMPASS SET, AN/ASN–43	
214	Circuit breaker for AN/ASN–43.	*a.* Press circuit breaker *b.* Power failure indicator on ID–998/ASN disappears and panel lamps light.	*a.* None. *b.* Para 2–11, item No. 214.
215	Slaving switch (MAG–DG)	Set MAG–DG switch to MAG	None.
216	Indicator	Turn synchronizing knob on ID–998/ASN in the direction indicated by the annunciator until the annunciator is centered (nulled).	Para 2–11, item No. 216.
217	Indicator	With annunciator centered, magnetic heading shown on the scale dial of the ID–998/ASN should agree with a known magnetic heading.	Para 2–11, item No. 217.
218	Slaving switch (MAG–DG)	*a.* Set MAG–DG switch to DG *b.* Annunciator on ID–998 moves to center position and remains.	*a.* None. *b.* Para 2–11, item No. 218.
219	Gyro	Set LATITUDE knob on base of CN–998/ASN–43 to the local latitude and set the LATITUDE switch to the N position for northern hemisphere operation or to the S position for southern hemisphere operation.	None.
220	Indicator	*a.* Rotate the synchronizing knob on the ID–998/ASN to set the scale on the ID–998/ASN to a known heading reference. *b.* The annunciator on the ID–998/ASN remains in the center position.	*a.* None. *b.* Para 2–11, item No. 220.
221	Circuit breaker for AN/ASN–43.	*a.* Deenergize and place to off *b.* Power failure indicator on ID–998/ASN will appear and panel lamps remain lighted.	*a.* None. *b.* Para 2–11, item No. 221.
		POWER-OFF INSPECTION, PILOT'S ATTITUDE INDICATING SYSTEM	
222	Exterior surfaces	*a.* Clean the attitude indicator, rate gyro, roll and pitch gyro and the indicator amplifier. *b.* Check all exposed metal surfaces for rust and corrosion.	*a.* Para 2–8. *b.* Para 2–8.
223	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Check all electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15. Refer to higher maintenance category for replacement.

Item No.	Item to be inspected	Procedure	References
224	Attitude indicator	*a.* Make sure the attitude indicator is properly secured to the helicopter instrument panel.	*a.* None.
		b. Check the indicator glass for cracks and breaks.	*b.* None.
		c. Operate the pitch and roll trim knobs to be sure the knobs are tight on their shafts and turn freely.	*c.* None.
225	Attitude amplifier	Check to see that the amplifier is securely mounted.	None.
226	Roll and pitch gyro	Check to see that the gyro is securely mounted.	None.
227	Rate switching gyro	Check to see that the gyro is securely mounted.	None.
		POWER-ON INSPECTION, PILOT'S ATTITUDE INDICATING SYSTEM	
228	Circuit breakers	*a.* Press PILOT ATTD circuit breakers on ac circuit breaker panel.	*a.* None.
		b. OFF warning flag on attitude indicator should disappear in approximately 2 minutes.	*b.* Para 2–11, item No. 228.
229	Attitude indicator	*a.* Adjust the roll trim knob to align the vertical axis of the sphere with the center mark at the top of the indicator.	*a.* None.
		b. The pointer on the indicator sphere should align with the center mark at the top of the indicator.	*b.* Para 2–11, item No. 229.
230	Attitude indicator	*a.* Adjust the pitch trim knob to center the horizon on the indicator sphere with the miniature airplane that indicates normal flight attitude of the helicopter.	*a.* None.
		b. The horizon on the indicator sphere should center the miniature airplane.	*b.* Para 2–11, item No. 230.
231	Circuit breakers	*a.* Deenergize PILOT ATTD circuit breakers on the ac circuit breaker panel.	*a.* None.
		b. The OFF warning flag on the attitude indicator should appear.	*b.* Para 2–11, item No. 231.
		POWER-OFF INSPECTION, COPILOT'S ATTITUDE INDICATING SYSTEM	
232	Exterior surfaces	*a.* Clean the attitude indicator	*a.* Para 2–8.
		b. Check exposed metal surfaces for rust and corrosion.	*b.* Para 2–8.
233	Cables and connectors	Check cables for evidence, of chafing, cracking, or excessive strain. Check electrical connectors for dents, cracks, or improper mating.	TM 55–1500–323–15. Refer to higher maintenance category for replacement.

Item No.	Item to be inspected	Procedure	References
234	Attitude indicator	*a.* Make sure the attitude indicator is properly secured to the helicopter instrument panel.	*a.* None.
		b. Check the indicator glass for cracks and breaks.	*b.* None.
		POWER-ON INSPECTION, COPILOT'S ATTITUDE INDICATING SYSTEM	
235	Circuit breakers and attitude indicator.	*a.* Press the COPILOT ATTD circuit breakers on the ac circuit breaker panel.	*a.* None.
		b. Operation of the indicator is noted by the movement of horizon bar with relation to the miniature airplane in the center of the indicator.	*b.* Para 2–11, item No. 235.
236	Circuit breaker	Deenergize the COPILOT ATTD circuit breaker panel to turn system off.	None.
		POST OPERATIONAL SHUTDOWN	
237	RADIO POWER switch	Set to OFF (down) to deenergize the radio bus.	None.
238	Helicopter power MASTER SWITCH.	Set to OFF to deenergize the helicopter electrical circuits.	None.
239	Auxiliary power unit	Disconnect the auxiliary power unit from the helicopter.	Para 2–4.
	Battery *Note.* Do not service battery while installed in the helicopter. The battery should be removed and serviced every 100 hours by authorized battery shop personnel only.	Check the battery (fig. 2–24) for—	
		a. Evidence of leakage or overflow of electrolyte.	*a.* TM 11–6140–203–15–1.
		b. Freedom from obstructions of the vents.	*b.* TM 55–1520–210–20.
		c. Proper electrolyte level	*c.* TM 11–6140–203–15–1.
		d. Evidence of corrosion on cables and leads and the terminals.	*d.* TM 55–1520–210–20.
		e. Flight terminal connections	*e.* TM 55–1520–210–20.

2–8. General Cleaning and Repainting Instructions

Inspect all items of each configuration for dirt and corrosion. The surfaces should be free of dirt, grease, lint, and fungus.

a. Remove moisture, dust, and loose dirt with a clean, soft cloth.

WARNING

Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. Do not use near a flame.

b. Remove grease, fungus, and ground-in dirt with a cloth dampened (not wet) with cleaning compound.

c. Remove dust and lint from the exposed connectors with a soft bristle brush; remove moisture with a dry cloth.

d. Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion. For painting instructions and materials, refer to SB 11–573, and to the applicable cleaning and refinishing practices specified in TM 9–213 and TB 746–10. Use lacquer for all items originally painted with lacquer. Use enamel base paint for all items originally painted with enamel base paint.

CAUTION

Do not apply lacquer to enamel painted surfaces. Lacquer will loosen the existing enamel.

2–9. Servicing

a. AN/ARN–59. Grease should be applied as follows:

(1) *Control unit gearing.* Remove the flexible mechanical linkage from the control unit. Use

a thin, longhandled brush, and apply a small amount of grease to the control unit gears.

(2) *Receiver gearing.* Remove the flexible mechanical linkage from the receiver, and remove two screws and washers holding the gearing unit cover in place. Remove the cover, and apply a small amount of grease to the exposed gears. Replace gearing unit cover, washers and screws, and mechanical linkage.

b. Battery BB–433/A.

(1) Release the snap fasteners that secure the cover and remove the battery cover. Tighten the filler vent caps if necessary. Using a nylon brush (never a wire brush), clean the tops of the cell cases and battery terminal links. Remove any white deposit on the battery terminals.

(2) Clean the battery sump jar by removing the pad and rinsing in water. Wash the pad in boric acid or vinegar.

Section III. TROUBLESHOOTING

2–10. General Troubleshooting Information

Troubleshooting of the helicopter electronic equipment configuration supplements the checks in the periodic preventive maintenance checks and services chart (para 2–7). Item numbers in the troubleshooting chart are not in numerical sequence as they are keyed to the same item numbers in the periodic preventive maintenance checks and services chart. To troubleshoot the equipment, perform all functions starting with item number 19 in the periodic preventive maintenance checks and services chart and proceed through the items until an abnormal condition or result is observed. When any abnormal condition or result is observed, note the sympton number and turn to the corresponding symptom in the troubleshooting chart (para 2–11). If the corrective measures indicated do not result in correction of the trouble, higher category of maintenance is required. Paragraphs 2–12 through 2–113 contain step-by-step instruction for performing equipment removal and replacement, and paragraph 2–117 contains adjustments to be performed after the equipment is replaced.

2–11. Troubleshooting Chart

Item No.	Symptom	Probable trouble	Correction
19	Fm dynamotor does not start.	*a.* Primary 28 volts dc not applied to dynamotor.	*a.* Check FM circuit breaker; replace if defective. Replace SA–474/AR fm switch assembly (para 2–22).
		b. Defective fm dynamotor	*b.* Replace DY–107/AR fm dynamotor (para 2–16).
21	No sidetone or interphone signals heard when pilot's cyclic stick trigger switch is operated.	*a.* Defective pilot's headset-microphone.	*a.* Replace pilot's headset-microphone.
		b. Defective trigger switch	*b.* Check pilot's trigger switch; replace as necessary (para 2–102).
		c. Defective interphone relay	*c.* Check for 28 volts dc between terminals A and B of pilot's interphone relay; check for continuity between terminals M and N. Replace applicable relay as necessary (para 1–8*b*(2)).
		d. Defective distribution panel	*d.* Replace SB–329/AR or C–1611/AIC distribution panel (para 2–18 or 2–19).
22	No sidetone or interphone signals heard when copilot's cyclic stick trigger switch is operated.	*a.* Defective copilot's headset-microphone.	*a.* Replace copilot's headset-microphone.
		b. Defective trigger switch	*b.* Check copilot's trigger switch; replace as necessary (para 2–102).
		c. Defective interphone relay	*c.* Check for 28 volts dc between terminals A and B of copilot's interphone relay; check for continuity between terminals M and N. Replace applicable relay as necessary (para 1–8*b*(2)).

Item No.	Symptom	Probable trouble	Correction
28	Control unit panel lamps do not light.	Panel lamps loose in sockets or burned out.	Check panel lamps for proper seating and replace if necessary (para 2-113).
29	Fm dynamotor fails to start	*a.* Defective fm circuit breaker	*a.* Replace FM ARC-44 or FM ARC-54 circuit breaker.
		b. Defective fm dynamotor	*b.* Replace DY-107/AR fm dynamotor (para 2-16).
30	Blower in receiver-transmitter does not operate.	Defective receiver-transmitter	Replace receiver-transmitter (para 2-15 or 2-28).
32	Volume does not vary smoothly, the received signal lamps do not light.	*a.* Defective fm control panel	*a.* Replace SB-327/ARC-44, or fm control panel (para 2-17 or 2-31).
		b. Defective receiver-transmitter	*b.* Replace receiver-transmitter (para 2-15 or 2-28).
		c. Defective panel lamps	*c.* Replace panel lamps (para 2-113).
33	No 400-Hz tone heard while the fm set is cycling.	*a.* Defective fm control panel	*a.* Replace SB-327/ARC-44 or C-3835/ARC-54 fm control panel (para 2-17 or 2-31).
		b. Defective receiver-transmitter	*b.* Replace RT-294(*)/ARC-44 or RT-348/ARC-54 receiver-transmitter (para 2-15 or 2-28).
34	No rushing noise is heard, background noise is not decreased.	Defective squelch circuit	*a.* Replace control panel assembly 204-075-219 (Switch Assembly SA-474/AR modified) (para 2-22). *b.* Replace receiver-transmitter (para 2-15 or 2-28).
36	No sidetone is heard in pilot's headset; transmitted signals are not loud and clear; received signals are not adequate to maintain communications.	*a.* Defective pilot's headset-microphone.	*a.* Replace pilot's H-101/U headset-microphone.
		b. Defective pilot's trigger or foot-operated switch.	*b.* Replace pilot's defective X942-2 trigger or SA-47A/AIC foot-operated switch (para 2-102 or 2-101).
		c. Defective receiver-transmitter	*c.* Replace receiver-transmitter (para 2-15 or 2-28).
		d. Defective fm antenna	*d.* Replace AT-454(*)/ARC or AT-765/ARC fm antenna (para 2-23 or 2-29).
37	No sidetone is heard in copilot's headset; transmitted signals are not loud and clear; received signals are not adequate to maintain communications.	*a.* Defective copilot's headset-microphone.	*a.* Replace H-101/U headset-microphone.
		b. Defective copilot's trigger or foot-operated switch. *Note.* Receiver-transmitter and fm antenna are not probable sources of trouble if procedure 36 was trouble free.	*b.* Replace defective X942-2 trigger or SA-47A/AIC foot-operated switch (para 2-102 or 2-101).
38	No coded audio signal heard in the headsets.	*a.* Defective homing antenna	*a.* Replace AN/ARA-31, or 637A-2 (205-075-345) homing antenna (para 2-70, 2-71, or 2-32).
		b. Defective antenna keyer (A and B configurations only).	*b.* Replace KY-149/AR antenna keyer (para 2-72).
		c. Defective fm switch assembly	*c.* Replace control panel assembly (modified 204-075-219) Switch Assembly (SA-474/AR) (para 2-22).
		d. Defective receiver-transmitter	*d.* Replace RT-294(*)/ARC-44 or RT-348/ARC-54 receiver-transmitter (para 2-15 or 2-28).
45	External blower does not operate.	Defective radio set control or receiver-transmitter.	Check C-4677/ARC-51X radio set control and RT-702/ARC-51X receiver-transmitter by substitution. (Radio Set AN/ARC-51BX uses

Item No.	Symptom	Probable trouble	Correction
			C–6287/ARC–51BX and RT–742/ARC–51BX). Replace defective unit (para 2–25, 2–26, or 2–24).
46	*a.* No audio in headset	*a.* Defective headset-microphone or receiver-transmitter.	*a.* Replace defective headset-microphone. Replace RT–702/ARC–51X or RT–742/ARC–51BX receiver-transmitter (para 2–24).
	b. Radio set control SENS control does not cut off audio completely at full counterclockwise position.	*b.* Defective radio set control or malfunction in receiver-transmitter.	*b.* Check C–4677/ARC–51 radio set control (or C–6287/ARC–51BX) and RT–702/ARC–51X receiver-transmitter (or RT–472/ARC–51BX) by substitution. Replace defective unit (para 2–25, 2–26, or 2–24).
47	Headset audio level cannot be controlled by radio set control.	Defective VOL control on radio set control.	Replace radio set control (para 2–25 or 2–26).
48	No audio tone in headset during channel changing cycle.	Fault in receiver-transmitter	Replace RT–702/ARC–51X or RT–742/ARC–51BX receiver-transmitter (para 2–24). Higher category of maintenance required.
49	Transmitter power output indication is less than 20 watts.	*a.* Receiver-transmitter is defective	*a.* Replace RT–702/ARC–51X or RT–742/ARC–51BX receiver-transmitter (para 2–22). Higher category of maintenance required.
		b. Reflectometer is defective	*b.* Replace ID–1003/ARC reflectometer. Higher category of maintenance required.
50	Reflected power indication is more than 5 watts.	*a.* Defective receiver-transmitter	*a.* Replace receiver-transmitter (para 2–24). Higher category of maintenance required.
		b Improper cable connections between receiver-transmitter and uhf antenna.	*b.* Check antenna cable connections. Replace defective cable.
		c. Reflectometer is defective	*c.* Replace ID–1003/ARC reflectometer. Higher category of maintenance required.
51	No sidetone audio in headset during transmission.	Defective receiver-transmitter	Replace receiver-transmitter (para 2–24). Higher category of maintenance required.
52	Radio set fails to provide two-way communication with base control tower, or other uhf receiver-transmitter, on all assigned test frequencies.	Receiver-transmitter is defective	Replace RT–702/ARC–51X or RT–742/ARC–51BX receiver-transmitter (para 2–24). Higher category of maintenance required.
53	No guard receiver audio output.	Defective receiver-transmitter or radio set control.	Check RT–702/ARC–51X or RT–742/ARC–51BX receiver-transmitter and C–4677/ARC–51X or C–6287/ARC–51BX radio set control by substitution. Replace defective unit (para 2–24, 2–25, or 2–26). Higher category of maintenance is required.
54	*a.* Control unit panel lamps do not light when helicopter primary power switch is set to on.	*a.* Panel lamps loose in sockets or burned out.	*a.* Check panel lamps for proper seating and replace if necessary (para 2–113).

Item No.	Symptom	Probable trouble	Correction
	b. Blower does not operate	*b.* Defective blower motor	*b.* Remove and replace RT–349(*)/ ARC–55 receiver-transmitter (para 2–33).
60	*a.* Uhf control unit frequency controls do not work properly.	*a.* Defective control unit or loose frequency control knobs.	*a.* Check knobs for tightness and tighten or replace as necessary. Remove and replace C–1827/ ARC–55 control unit if necessary (para 2–35).
	b. Radio set will not tune to desired frequency.	*b.* Defective control unit or defective receiver-transmitter.	*b.* Remove and replace C–1827/ ARC–55 control unit (para 2–35). If this does not correct fault, remove and replace RT–349(*)/ARC–55 receiver-transmitter (para 2–33).
	c. Radio set continues to tune (channel tone does not stop).	*c.* Defective receiver-transmitter, defective control unit or wiring.	*c.* Remove and replace RT–349(*)/ ARC–55 receiver-transmitter (para 2–33). Remove and replace C–1827/ARC–55 control unit (para 2–35). Check wiring.
61	No sidetone heard in headset	*a.* Defective interphone system	*a.* Check interphone system (para 2–7, items 19 through 22 and 19 through 22 above).
		b. Defective receiver-transmitter	*b.* Remove and replace RT–349(*)/ ARC–55 receiver-transmitter (para 2–33).
62	Audio is distorted	*a.* Defective interphone system	*a.* Check interphone system (para 2–7, items 19 through 22 and 19 through 22 above).
		b. Defective receiver-transmitter	*b.* Remove and replace RT–349(*)/ ARC–55 receiver-transmitter (para 2–33).
70	Control panel lamps do not come on; transmission and reception not functional.	*a.* Interunit cabling not secure *b.* Radio set components defective	*a.* Check interunit cabling. *b.* Replace radio set components in order listed below: (1) C–4074A/ARC–73 control unit (para 2–39). (2) R–1123(*)/ARC–73 (para 2–36). (3) T–879(*)/ARC–73 (para 2–37).
71	Audio intelligibility poor	Defective receiver	Replace R–1123(*)/ARC–73 (para 2–36).
73	Audio intelligibility poor	Defective VOL control	Replace C–4074A/ARC–73 control (para 2–39).
74	Frequency displayed in remote window is not the same as control window.	Defective control	Replace C–4074A/ARC–73 control (para 2–39).
75	No sidetone. Receiver noise not squelched.	Defective receiver	Replace R–1123(*)/ARC–73 receiver (para 2–36).
76	Transmitter, receiver, and remote control units continue to operate.	*a.* Defective interunit cabling *b.* Defective control unit	*a.* Check connectors and cables. *b.* Replace C–4074A/ARC–73 control unit (para 2–39).
82	Dial indicators do not glow	*a.* Defective circuit breaker *b.* Defective VHF COMM OFF/PWR switch.	*a.* Reset or replace circuit breaker. *b.* Replace control unit.

Item No.	Symptom	Probable trouble	Correction
83	No meter indication on receiver-transmitter meter in the LINE V or REG SUP position.	*a.* Defective meter switch	*a.* Replace RT–857/ARC–134 (para 2–40).
		b. Defective meter	*b.* Replace RT–857/ARC–134 (para 2–40).
84	No background noise heard in headset and no meter indication on receiver-transmitter meter in the AGC position.	*a.* Defective COMM TEST switch	*a.* Replace C–7197/ARC–134 (para 2–41).
		b. Defective squelch circuit in the transceiver.	*b.* Replace RT–857/ARC–134 (para 2–40).
85	No transmission or reception from the receiver-transmitter.	*a.* Defective transmitter	*a.* Replace RT–857/ARC–134 (para 2–40).
		b. Defective receiver	*b.* Replace RT–857/ARC–134 (para 2–40).
		c. Defective antenna	*c.* Replace AT–1108/ARC (para 2–27).
86	Audio level cannot be varied by VOL control.	Defective VOL control	Replace Control, Radio Set C–7197/ARC–34 (para 2–41).
87	Dial indicators continue to glow.	Defective VHF COMM OFF/PWR switch.	Replace Control, Radio Set C–7197/ARC–34 (para 2–41).
94	*a.* OFF vertical flag on course indicator remains in position.	*a.* Defective receiver	*a.* Replace R–1021/ARN–30D receiver (para 2–51).
	b. TO–FROM indicator shifts from TO to FROM.	*b.* Defective control unit	*b.* Replace C–3436/ARN–30D or C–3436/ARN–30E control unit (para 2–58).
		c. Defective receiver power supply	*c.* Replace Power Supply PP–2792/ARN–30.
95	Call signs inaudible over intercommunication system.	*a.* Defective receiver	*a.* Replace R–1021/ARM–30D receiver (para 2–51).
		b. Defective converter	*b.* Replace CV–265A/ARM–30A converter (para 2–55).
		c. Defective antenna	*c.* Remove and replace antenna AS–1304/ARN (Dorne-Margolin DMN4–4) (para 2–53).
96	OFF vertical flag on course indicator remains in sight. Station call letters either cannot be heard at all or are indistinct over helicopter intercommunication system.	*a.* Defective converter	*a.* Replace CV–265A/ARN–30A converter (para 2–55).
		b. Defective receiver	*b.* Replace R–1021/ARN–30D receiver (para 2–51).
		c. Defective course indicator	*c.* Replace Course Indicator ID–453/ARN–30 (para 2–56).
97	Course pointer either does not move at all or moves erratically.	Defective course indicator	Replace ID–453/ARN course indicator (para 2–56).
98	OFF vertical flag on course indicator remains in sight.	Defective course indicator	Replace ID–453/ARN course indicator (para 2–56).
99	OFF vertical flag disappears or appears erratically.	Defective course indicator	Replace ID–453/ARN–30 course indicator (para 2–56).
100	Control unit lamps burn, and set continues to operate.	Defective switch or circuit breaker	Replace switch or circuit breaker.
103	Panel markings and MC dials on vhf navigation control unit do not light.	*a.* Power unavailable	*a.* Use multimeter to determine if helicopter power is available at switch or circuit breaker.
		b. Panel lamps loose in socket or burned out.	*b.* Check panel lamps for proper seating; replace if necessary (para 2–113).

Item No	Symptom	Probable trouble	Correction
104	Dynamotor does not run	*a.* Power source or power cabling connections defective.	*a.* Check power source and power cabling connections.
		b. Interconnecting cables are defective.	*b.* Check continuity of cabling between units.
		c. VOL control on control unit is defective.	*c.* Replace C–2275/ARN control unit (para 2–65).
		d. Dynamotor is defective	*d.* Replace DY–150/ARN dynamotor (para 2–64).
105	No audio or intermittent noise is heard in headset; tuning indicator does not indicate.	*a.* MC BAND selector switch is improperly set.	*a.* Check position of MC BAND selector switch.
		b. Mechanical linkage is out of alignment.	*b.* Check alignment of mechanical linkage (para 2–125).
		c. MC BAND selector switch is defective.	*c.* Replace C–2275/ARN control unit (para 2–65).
		d. Sense antenna is defective	*d.* Replace 204–075–328 sense antenna (para 2–67).
106	Indicator does not rotate to azimuth of radio station.	*a.* Loop antenna wiring is defective.	*a.* Check loop antenna wiring; if necessary, replace antenna (para 2–62).
		b. Indicator is defective	*b.* Replace ID–250/ARN indicator.
		c. Receiver is defective	*c.* Replace R–836/ARN receiver (para 2–60).
107	Azimuth scale does not rotate	E–W VAR control is defective	Replace ID–250/ARN indicator.
108	Indicator pointer does not rotate when LOOP switch is held momentarily.	*a.* Loop antenna wiring is defective.	*a.* Check loop antenna wiring.
		b. Loop control on the control unit is defective.	*b.* Replace C–2275/ARN control unit (para 2–65).
		c. Indicator is defective	*c.* Replace ID–250/ARN indicator.
		d. Loop antenna is defective	*d.* Replace AT–780/ARN loop antenna (para 2–62).
109	Beat signal (audio note) is not heard in headset.	*a.* BFO control is defective	*a.* Replace C–2275/ARN control unit (para 2–65).
		b. BFO circuit is defective	*b.* Replace R–836/ARN receiver (para 2–60).
110	Set does not tune exactly to desired frequency.	*a.* Mechanical linkage is out of alignment.	*a.* Check alignment of mechanical linkage (para 2–125).
		b. Tuning crank is defective	*b.* Replace C–2275/ARN control unit (para 2–65).
111	Aural null is not obtained when the loop antenna is rotated.	*a.* Loop antenna wiring is defective	*a.* Check loop antenna wiring.
		b. LOOP switch is defective	*b.* Replace C–2275/ARN control unit (para 2–65).
		c. Loop antenna is defective	*c.* Replace AT–780/ARN loop antenna (para 2–62).
112	Dynamotor does not stop running.	VOL control on control unit is defective.	Replace C–2275/ARN control unit (para 2–65).
115	Indicator lamp does not light	Defective indicator lamp	Replace indicator lamp (para 2–113).
116	Audio tone inaudible and/or indicator lamp does not light as helicopter enters the field of the marker beacon.	*a.* Defective dc power source	*a.* Check the +28-volt dc power source.
		b. Defective receiver	*b.* Replace the R–1041A/ARN receiver set (para 2–68).
		c. Defective indicator lamp	*c.* Replace indicator lamp (para 2–113).
118	Panel lamps do not light	*a.* Defective panel lamp	*a.* Replace panel lamp (para 2–113).
		b. Power source interrupted	*b.* Check for power at main power switch and at circuit breakers.
120	No sidetone or interphone signals heard when pilot's	*a.* Defective pilot's headset-microphone.	*a.* Replace pilot's headset-microphone.

Item No.	Symptom	Probable trouble	Correction
	cyclic stick trigger switch is operated.	*b.* Defective trigger switch	*b.* Check pilot's trigger switch; replace as necessary (para 2–102).
		c. Defective interphone relay	*c.* Check for 28 volts dc between terminals A and B of pilot's interphone relay; check for continuity between terminals M and N. Replace relay as necessary.
		d. Defective relay No. 2	*d.* Check for continuity between contacts 9 and 17 of signal switching relay No. 2; if not present, replace relay.
		e. Defective distribution panel	*e.* Replace SB–329/AR distribution panel (para 2–18).
121	No sidetone or interphone signals heard when copilot's cyclic stick trigger switch is operated.	*a.* Defective copilot's headset-microphone.	*a.* Replace copilot's headset-microphone.
		b. Defective trigger switch	*b.* Check pilot's trigger switch; replace as necessary (para 2–102).
		c. Defective interphone relay	*c.* Check for 28 volts dc between terminals A and B of copilot's interphone relay; check for continuity between terminals M and N. Replace relay as necessary.
		d. Defective fail-safe relay No. 2	*d.* Check for continuity between contacts 9 and 17 of fail-safe relay No. 2; if not present, replace relay.
		e. Defective distribution panel	*e.* Replace SB–329/AR distribution panel (para 2–18).
123	Panel lamps do not light	*a.* Defective panel lamp	*a.* Replace panel lamp (para 2–113).
		b. Defective circuit breaker	*b.* Replace circuit breaker.
		c. Defective system cabling	*c.* Check cabling.
126	No audio is heard in headset	Defective control unit	Replace C–1611/AIC control unit (para 2–19).
129	No 400-Hz tone signal is heard; coded signal is inaudible.	*a.* Cable defective	*a.* Check cable continuity.
		b. Keyer unit defective	*b.* Replace KY–149/AR keyer unit (para 2–72).
		c. Antenna element defective	*c.* Replace AT–624/AR or 637A–2 antenna (para 2–70 or 2–32).
131	Associated fm radio set continues to operate.	Defective ON–OFF switch	Replace ON–OFF switch.
136	Transponder set will not energize.	*a.* No power input	*a.* Check helicopter power source.
		b. Defective MASTER control switch.	*b.* Check control continuity in STBY, LOW, NORM, and EMER.
		c. Defective interconnect cable	*c.* Check continuity.
		d. Defective receiver-transmitter	*d.* Replace Transponder receiver-transmitter (para 2–80 or 2–90).
143	No output in any mode of operation.	*a.* No helicopter power	*a.* Check that C–6280(P)/APX panel is lighted. Apply helicopter power.
		b. MASTER switch of control C-6280(P)/APX–72 set to OFF or STBY.	*b.* Check MASTER control position. Place in LOW or NORM.
		c. Defective cable or loose connections.	*c.* Check cable and connections. Replace or tighten as applicable.

Item No.	Symptom	Probable trouble	Correction
		d. Defective fuse in RT-859/APX-72.	*d.* Check and replace defective fuse.
		e. Defective RT-859/APX-72	*e.* Replace RT-859/APX-72 (para 2-90).
144	Output low or intermittent in any or all modes of operation.	*a.* Power supply in RT-859/APX-72 abnormal.	*a.* Replace RT-859/APX-72 (para 2-90).
		b. RT-859/APX-72 coder operations abnormal.	*b.* Replace RT-859/APX-72 (para 2-90).
145	No output from a single mode. All others normal.	*a.* Applicable mode enable switch C-6280(P)/APX-72 in OUT or TEST position.	*a.* Check that applicable mode enable switch is set to ON.
		b. Improper code setting in applicable mode switch.	*b.* Check for proper code setting.
146	*a.* Action erratic with backlash binding or scraping.	*a.* Defective indicator	*a.* Replace ID-250/ARN indicator.
	b. Loose course knob	*b.* Worn setscrews	*b.* Replace setscrews.
147	Desiccant crystals pink in color.	Saturated crystals	Replace crystals.
148	Erratic switch action	Defective switch	Replace switch.
150	Indicator heading error greater than ±2°.	Defective indicator	Refer to higher category of maintenance.
153	Panel lamps do not light	Defective lamps	Replace defective lamps (para 2-113).
159	Main inverter fails to operate; spare inverter fails to operate.	*a.* Open circuit breaker	*a.* Reset circuit breaker.
		b. Faulty wiring or connections in switch or power circuits.	*b.* Check continuity of dc wiring. Repair wiring and tighten connections.
		c. Poor bonding to ground	*c.* Clean and tighten ground connections.
		d. Faulty inverter control	*d.* Check for 28 volts dc on both main and spare switch terminals; replace faulty control.
		e. Defective inverter	*e.* Replace inverter (para 2-83).
160	Inverter runs but no voltage to instrument.	*a.* Faulty wiring	*a.* Check continuity of ac wiring; repair wiring.
		b. Defective inverter changeover relay.	*b.* Check continuity of relay contacts; replace faulty relay.
		c. Defective inverter	*c.* Check for 115-volt ac output from inverter; replace faulty inverter (para 2-83).
161	Improper inverter output voltage or frequency.	*a.* Low input voltage	*a.* Check for proper input voltage to inverter; correct low primary voltage condition.
		b. Defective inverter voltage regulator.	*b.* Check inverter output voltage and frequency with voltmeter and frequency meters; replace defective inverter (para 2-83).
179	Panel lamps do not light	Defenctive control unit	Replace C-6873/ARN-82 control unit (para 2-59).
181	Vor/localizer needle does not center or to/from indicator indicates from.	*a.* Defective receiver	*a.* Replace R-1388/ARN-82 receiver (para 2-52).
		b. Defective course indicator	*b.* Replace ID-1347/ARN-82 indicator (para 2-57).
		c. Defective control unit	*c.* Replace C-6873/ARN-82 control unit (para 2-59).
		d. Defective antenna	*d.* Remove and replace Antenna AS-1304/ARN (Dorne-Margolin DMN4-4) (para 2-53).

Item No.	Symptom	Probable trouble	Correction
182	Voice reception is not heard in headset.	*a.* Defective receiver	*a.* Replace R–1388/ARN–82 receiver (para 2–52).
		b. Defective antenna	*b.* Remove and replace Antenna AS–1304/ARN (Dorne-Margolin DMN4–4) (par 2–53).
183	Noise is not heard in headset	Defective receiver	Replace R–1388/ARN–82 receiver (para 2–52).
184	Noise is heard in headset	Defective squelch	Replace R–1388/ARN–82 receiver (para 2–52).
185	Panel lamps do not go out	*a.* Defective control unit	*a.* Replace C–6873/ARN–82 control unit (para 2–59).
		b. Defective circuit breaker	*b.* Replace circuit breaker.
196	Front panel, tuning meter, and dial window not illuminated.	Lamps burned out in control unit	Replace C–6899/ARN–83 control unit (para 2–66).
197	No noise in headset	Defective receiver	Replace R–1391/ARN–83 receiver (para 2–61).
198	Receiver does not switch frequency range.	*a.* Defective receiver	*a.* Replace R–1391/ARN–83 receiver (para 2–61).
		b. Defective control unit	*b.* Replace C–6899/ARN–83 control unit (para 2–66).
199	Tuning meter inoperative	Defective meter	Replace C–6899/ARN–83 control unit (para 2–66).
200	No beat notes can be heard in headset.	Defective BFO circuit in receiver	Replace R–1391/ARN–83 receiver (para 2–61).
202	Null cannot be obtained in loop mode.	*a.* Defective LOOP switch	*a.* Replace C–6899/ARN–83 control unit (para 2–66).
		b. Defective receiver	*b.* Replace R–1391/ARN–83 receiver (para 2–61).
		c. Defective loop antenna or RF inductance compensator.	*c.* Replace AS–1863/ARN–83 loop antenna (para 2–63).
203	Positioning LOOP switch has no effect on bearing pointer but sound can be heard in headset.	*a.* Defective LOOP switch	*a.* Replace C–6899/ARN–83 control unit (para 2–66).
		b. Dececive loop antenna	*b.* Replace AS–1863/ARN–83 loop antenna (para 2–63).
		c. Defective cable between loop antenna and receiver.	*c.* Check antenna cable connection. Replace defective cable.
		d. Defective bearing indicator	*d.* Replace ID–998/ASN indicator (para 2–77).
204	Bearing pointer will not rotate in ADF mode.	*a.* Defective bearing indicator	*a.* Replace ID–998/ASN indicator (para 2–77).
		b. Defective loop servosystem in receiver.	*b.* Replace R–1391/ARN–83 receiver (para 2–61).
214	Power failure indicator does not disappear and panel lamps do not light.	*a.* Defective ID–998/ASN indicator.	*a.* Replace ID–998/ASN indicator (para 2–77).
		b. Defective circuit in CN–998/ASN–43.	*b.* Replace CN–998/ASN–43 gyro (para 2–76).
		c. Defective intercabling or connectors.	*c.* Replace defective cables and connectors.
216	Annunciator will not move	*a.* Defective circuit in CN–998/ASN –43.	*a.* Replace CN–998/ASN–43 gyro (para 2–76).
		b. Defective annunciator in ID–998/ASN.	*b.* Replace ID–998/ASN indicator (para 2–77).
		c. Defective T–611/ASN or CN–405/ASN	*c.* Refer trouble to higher category of maintenance.

Item No.	Symptom	Probable trouble	Correction
217	Scale dial does not move but annunciator does move.	*a.* Defective AM-3209/ASN	*a.* Replace ID-998/ASN indicator (para 2-77).
		b. Defective AM-3209/ASN	*b.* Replace AM-3209/ASN amplifier (para 2-78).
218	Annunicator will not go to center position, or keeps moving, when MAG-DG switch is set to DG.	*a.* Defective MAG-DG switch	*a.* Replace defective MAG-DG switch.
		b. Defective circuit in CN-998/ASN gyro.	*b.* Replace CN-998/ASN-43 gyro (para 2-76).
220	Annunciator will not remain in center position.	*a.* Defective MAG-DG switch	*a.* Replace defective MAG-DG switch.
		b. Defective circuit in CN-998/ASN gyro.	*b.* Replace CN-998/ASN-43 gyro (para 2-76).
221	Power failure indicator does not appear and panel lamps remain lighted.	Defective ID-998/ASN indicator	Replace ID-998/ASN indicator (para 2-77).
228	OFF warning flag does not disappear.	*a.* Defective circuit breaker	*a.* Check circuit breaker.
		b. Defective indicator	*b.* Replace indicator (para 2-105).
229	Pointer on the indicator sphere will not align with the center mark on the indicator.	*a.* Defective indicator	*a.* Replace indicator (para 2-105).
		b. Defective roll and pitch gyro	*b.* Replace roll and pitch gyro (para 2-106).
		c. Defective rate switching gyro	*c.* Replace rate switching gyro (para 2-107).
		d. Defective indicator amplifier	*d.* Replace indicator amplifier (para 2-108).
230	Horizon on the indicator sphere will not center with the miniature airplane.	*a.* Defective indicator	*a.* Replace indicator (para 2-105).
		b. Defective roll and pitch gyro	*b.* Replace roll and pitch gyro. (para 2-106).
		c. Defective rate switching gyro	*c.* Replace rate switching gyro (para 2-107).
		d. Defective indicator amplifier	*d.* Replace indicator amplifier (para 2-108).
231	OFF warning flag will not appear.	*a.* Defective circuit breaker	*a.* Check circuit breaker.
		b. Defective indicator	*b.* Replace indicator (para 2-105).
235	Horizon bar will not move	*a.* Defective circuit breaker	*a.* Check circuit breaker.
		b. Defective indicator	*b.* Replace indicator (para 2-109).

Section IV. ELECTRONIC EQUIPMENT CONFIGURATION REPAIRS

2-12. General Repair Techniques

Repair of the helicopter electronic configuration at the organizational maintenance level consists of removal of defective major electronic equipment components and replacement of these components with serviceable components from maintenance float stock. When the troubleshooting procedures indicate that a componenet is defective, follow the applicable removal procedures in this section. Replace the removed component with a known serviceable equivalent component. After the component has been replaced, install safety wiring on the mounting hardware and electrical connectors (para 2-115). If replacement of major components still does not correct the trouble, check the electronic equipment configuration wiring, and repair the wiring or cabling as required (para 2-116).

2-13. Electronic Equipment Component Removal and Replacement

The procedures that follow include information required for the removal and replacement of the major electronic equipment components installed in the helicopter configurations.

WARNING

Be sure that the DC POWER control panel BAT switch is at OFF prior to removal and replacement of any electronic equipment components.

2–14. Coordinating Removal and Replacement

When removal or replacement of any component requires disassembly or reassembly of any portion of the airframe, be sure to coordinate removal or replacement with the organizational maintenance man or the crew chief.

2–15. Removal and Replacement of Receiver-Transmitter, Radio RT–294/ARC–44

(fig. 2–6)

a. Removal of RT–394(*)/ARC–44.

(1) Disconnect the mechanical linkage, the antenna connector, and the two electrical connec-

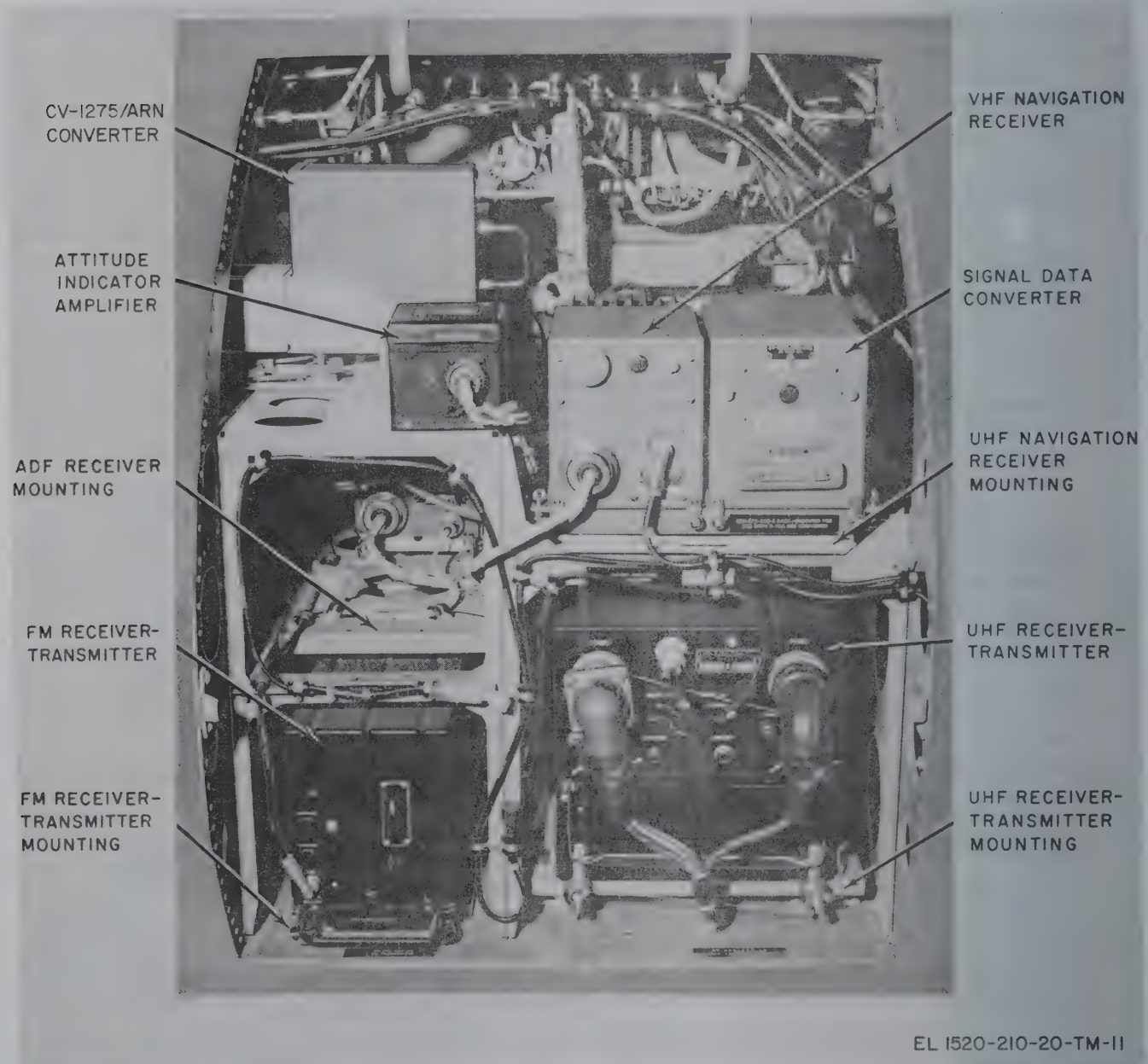


Figure 2–6. Radio set compartment, location of components for Radio Set AN/ARC–44, Radio Set AN/ARC–55(*), Receiving Set, Radio AN/ARN–30(*), and Direction Finder Set AN/ARN–59(V).

tors from the front of the RT–294(*)/ARC–44.

(2) Remove the safety wire, and slide the snap-slide fasteners away from the grooved studs on the mounting rack.

(3) Lift the RT–294(*)/ARC–44 free of the grooved studs, and slide it forward to disengage it from the mounting rack guide rail.

b. Replacement of RT–294(*)/ARC–44.

(1) Slide the RT–294(*)/ARC–44 onto the mounting rack to engage the unit with the mounting rack guide rail.

(2) Place the RT–294(*)/ARC–44 so that the grooved studs on the mounting rack fit through the mounting holes on the front of the bottom cover.

(3) Slide the snap-slide fasteners onto the grooved studs to secure the RT–294(*)/ARC–44 to the mounting rack.

(4) Install safety wire on each snap-slide fastener.

(5) Connect the electrical connectors, the antenna connector, and the mechanical linkage to the RT–294(*)/ARC–44.

2–16. Removal and Replacement of Cynamotor DY–107/AR (AN/ARC–44)

(fig. 2–4)

a. Removal of DY–107/AR.

(1) Remove the RT–294(*)/ARC–44 receiver-transmitter (para 2–15).

(2) Remove the safety wire from the mounting screws on the front of the dynamotor, and remove the screws.

(3) Slide the dynamotor forward to disconnect it from the electrical connector and guide pins at the rear of the dynamotor mounting.

(4) Slide the dynamotor out of the guide rail, and lift it from the mounting.

b. Replacement of DY 107/AR.

(1) Place the dynamotor in its mounting.

(2) Slide the dynamotor to the rear of the mounting until the electrical connectors and guide pins mate. Firmly seat the dynamotor on the electrical connector.

(3) Secure the dynamotor to its mounting with the mounting screws.

(4) Secure the mounting screws with safety wire.

(5) Replace the fm receiver-transmitter (para 2–15*b*).

2–17. Removal and Replacement of Panel, Control SB–327/ARC–44 (Fm Liaison Control Panel)

(fig. 2–7)

a. Removal of SB–327/ARC–44.

(1) Loosen the spring-lock fasteners that secure the fm liaison control panel to the bracket assembly.

(2) Lift the panel far enough from the bracket assembly to reach the spring-lock fasteners that secure the connector assembly at the rear of the panel.

(3) Loosen the spring-lock fasteners, and remove the connector assembly from the rear of the panel.

(4) Lift out the fm liaison control panel.

b. Replacement of SB–327/ARC–44.

(1) Slide the fm control panel into the bracket assembly until the connector assembly can be mated with the connector at the rear of the fm control panel.

(2) Seat the connector assembly in the connector at the rear of the fm control panel, and tighten the spring-lock fasteners to secure the connector assembly to the fm control panel.

(3) Push the fm control panel into the bracket assembly, and secure it in place with the spring-lock fasteners.

2–18. Removal and Replacement of Panel, Signal Distribution, Radio SB–329/AR, A and B Configurations

(fig. 2–8)

a. Removal of SB–329/AR.

(1) Loosen the spring-lock fasteners that secure the distribution panel to the bracket assembly.

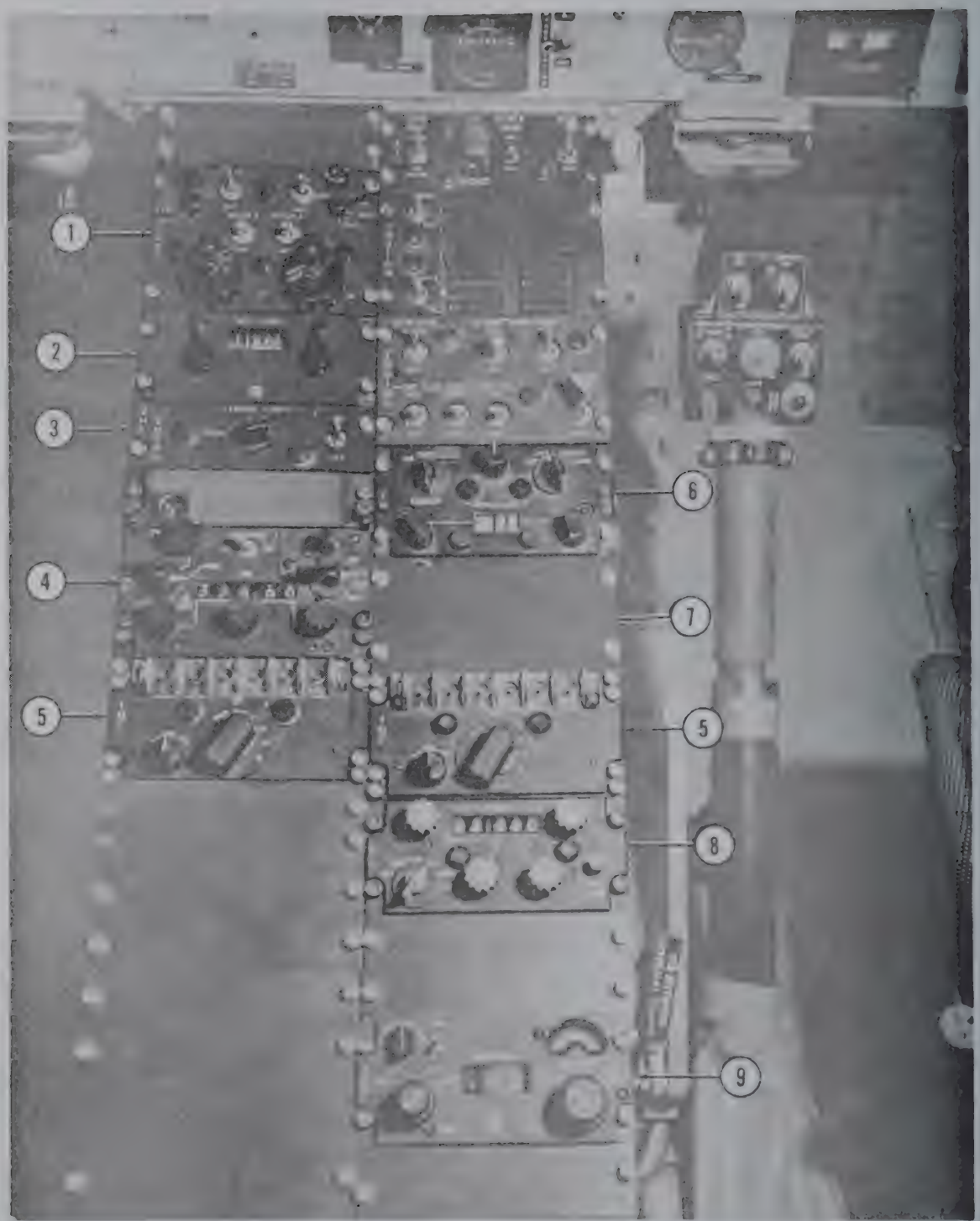
(2) Lift the distribution panel far enough from the bracket assembly to gain access to the spring-lock fasteners that secure the connector assembly to the rear of the distribution panel.

(3) Loosen the spring-lock fasteners, and remove the connector assembly from the rear of the distribution panel.

(4) Lift out the distribution panel.

b. Replacement of SB–329/AR.

(1) Slide the SB–329/AR into the bracket assembly until the connector assembly can be mated with the connector at the rear of the SB–329/AR.



1. TRANSPONDER CONTROL
2. VHF NAV CONTROL
3. VHF EMERGENCY CONTROL
4. UHF CONTROL
5. SIGNAL DISTRIBUTION CONTROL
6. FM LIAISON CONTROL
7. PROVISIONS FOR VOICE SECURITY CONTROL
8. HF CONTROL
9. ADF NAV CONTROL

EL 1520-210-20-TM-30

Figure 2-7. Radio control console, typical.



Figure 2–8. Location of crewmember's panel, Signal Distribution, Radio SB–329/AR.

(2) Seat the connector assembly in the connector at the rear of the SB–329/AR and tighten the spring-lock fasteners to secure the connector assembly.

(3) Position the SB–329/AR into the bracket assembly, and secure with the spring-lock fasteners.

2–19. Removal and Replacement of Control, Intercommunication Set C–1611/AIC (C through J Configurations)

(figs. 2–9 and 2–10)

Procedures for removal and replacement of the C–1611/AIC are the same as for Panel, Signal Distribution, Radio SB–329/AR (para 2–18).

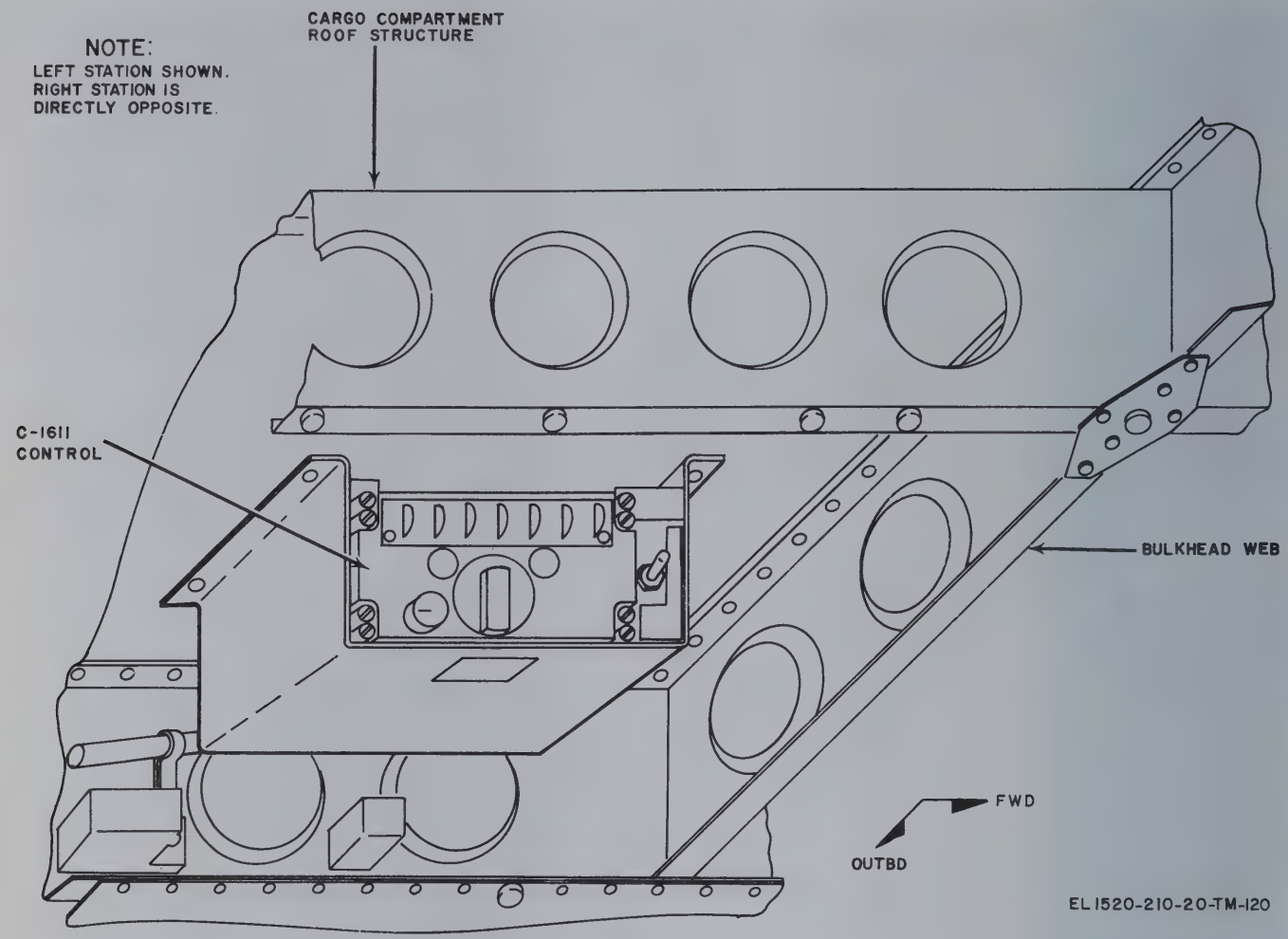


Figure 2–9. Location of crewmember's control, Intercommunication Set C–1611/AIC, configurations C through H.

2–20. Removal and Replacement of Discriminator, Discrete Signal MD–736/A, Configurations F Through I
(fig. 2–11)

a. Removal of Left or Right Crew MD–736/A.

(1) Remove the cover by loosening the two screws in the cover.

(2) Disconnect and tag the discriminator wires.

(3) Remove four screws, four washers, and four nuts that mount the discriminator to the one below and pull the discriminator from the pedestal.

b. Replacement of Left or Right Crew MD–736/A.

(1) Position the discriminator in the pedestal and secure it in place with the four screws, four washers and four nuts.

(2) Connect the discriminator wires.

(3) Install the cover by tightening the two screws in the cover.

c. Removal of Pilot or Copilot MD–736/A.

(1) Remove the four screws, four washers, and four nuts that mount the upper discriminator and displace the upper discriminator to gain access to the two screws that secure the cover of the lower discriminator.

(2) Remove the cover of the lower discriminator by loosening the two screws in the cover.

(3) Disconnect and tag the discriminator wires.

(4) Remove the four screws that hold the printed circuit boards to the base and remove the printed circuit boards.

(5) Remove the four screws and four washers that secure the discriminator to the bracket and pull the discriminator from the pedestal.

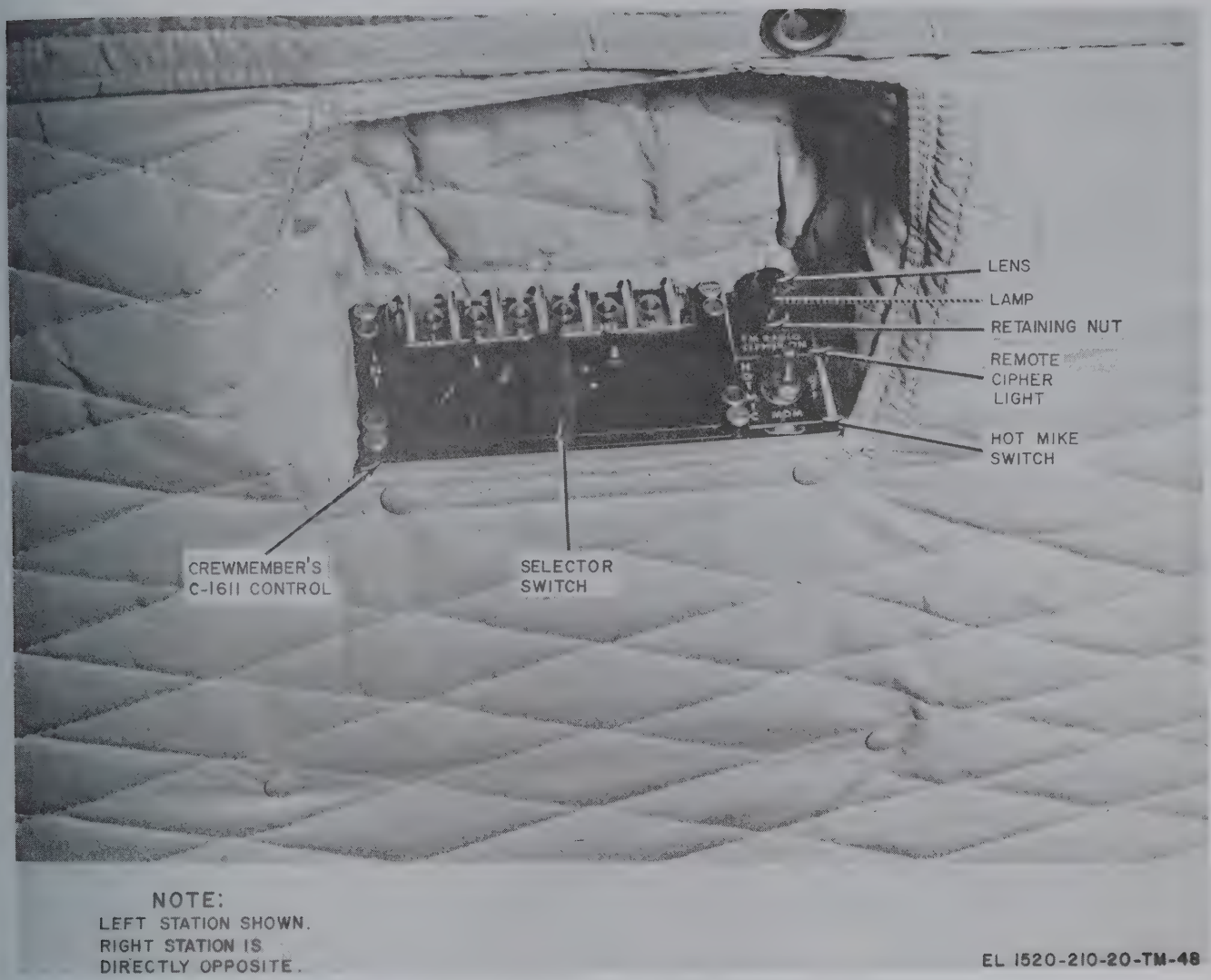


Figure 2–10. Location of crewmember's control, Intercommunication Set C–1611/AIC and remote cipher light, configurations I and J.

d. Replacement of Pilot or Copilot MD–736/A.

(1) Mount the discriminator to the pedestal bracket with four screws and four washers.

(2) Install the printed circuit boards into the base with four screws.

(3) Connect the discriminator wiring.

(4) Install the discriminator cover by tightening the two screws in the cover.

(5) Mount the upper discriminator to the lower discriminator with four screws, four washers, and four nuts.

2–21. Removal and Replacement of Discriminator, Discrete Signal MD–736/A, Configuration J (fig. 2–12)

a. Removal.

(1) Remove the cover and disconnect and tag the discriminator wiring.

(2) Remove the screws that secure the discriminator to its mount.

(3) Pull the discriminator from the pedestal.

b. Replacement.

(1) Position the discriminator on the pedestal mount and secure it in place with the screws.

(2) Connect the discriminator wiring.

(3) Replace the cover.

2–22. Removal and Replacement of Panel Assembly, Control 204–075–219 (SA–474/AR Modified), A and B Configurations (fig. 2–13)

Procedures for removal and replacement of

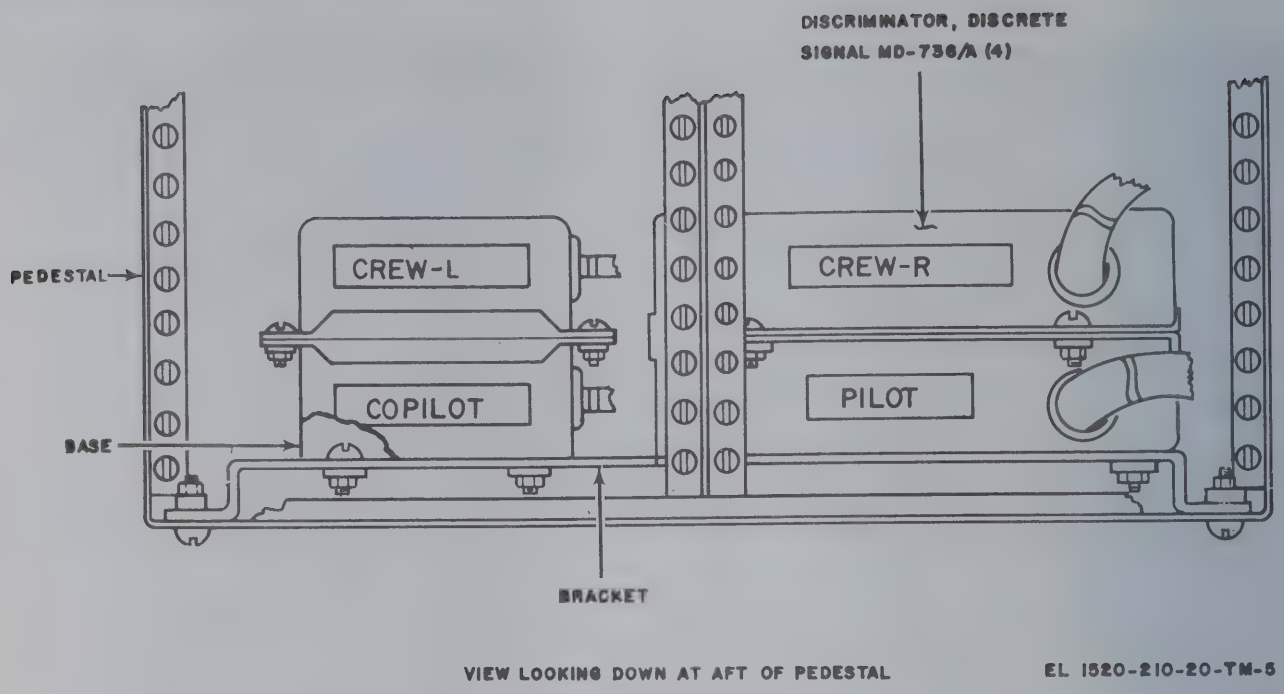


Figure 2–11. Installation of Discriminators, Discrete Signal MD–736/A, configurations F through I.

204–075–219 (SA–474/AR modified) are the same as for Panel, Signal Distribution, Radio SB–329/AR (para 2–18).

2–23. Removal and Replacement of Antenna AT–454(*)/ARC–44, A and B Configurations
(fig. 2–14)

a. Removal of AT–454(*)/ARC–44.

(1) Remove the setscrew in Base AB–340(*)/ARC with a ¼-inch Allen wrench.

(2) Loosen the nut that secures the AT–455(*)/ARC to the base and remove the fm antenna element.

(3) Disconnect the fm antenna cable connector from the base.

(4) Remove the screws that secure the AB–340(*)/ARC to the mounting bracket, and remove the AB– 40(*)/ARC.

(5) Remove the screws that secure the cover to the housing of Coupler CU–361(*)/ARC. Disconnect the antenna keyer cable from the receptacle on the CU–361(*)/ARC (figs. FO–1 and 2–15).

(6) Remove the mounting screws that secure the CU–361(*)/ARC (fig. 2–15) to the tail boom and remove the CU–361(*)/ARC.

b. Replacement of AT–454(*)/ARC–44.

(1) Secure the CU–361(*)/ARC to the tail boom with the mounting screws.

(2) Attach the antenna cable from the antenna keyer to the receptacle on the CU–361(*)/ARC.

(3) Place the cover in position over the CU–361(*)/ARC housing, and secure the cover with screws.

(4) Place Base AB–340(*)/ARC in position on the mounting bracket, and secure with the mounting screws.

(5) Screw element AT–455(*)/ARC into the AB–340(*)/ARC, and secure with nut.

(6) Replace and tighten the setscrew to prevent loosening of the antenna element nut.

(7) Connect the AT–455(*)/ARC cable connector from the CU–361(*)/ARC to the receptacle in the AB–340(*)/AR.

2–24. Removal and Replacement of Receiver-Transmitter-RT–702/ARC–51X or RT–742/ARC–51BX or RT–334( )/ARC–51X, C Through J Configurations
(fig. FO–2)

a. Removal of RT–702/ARC–51X or RT–742/ARC–51BX or RT–334( )/ARC–51X.

(1) Disconnect the electrical connectors and the antenna cable from the receptacles on the front of the receiver-transmitter.

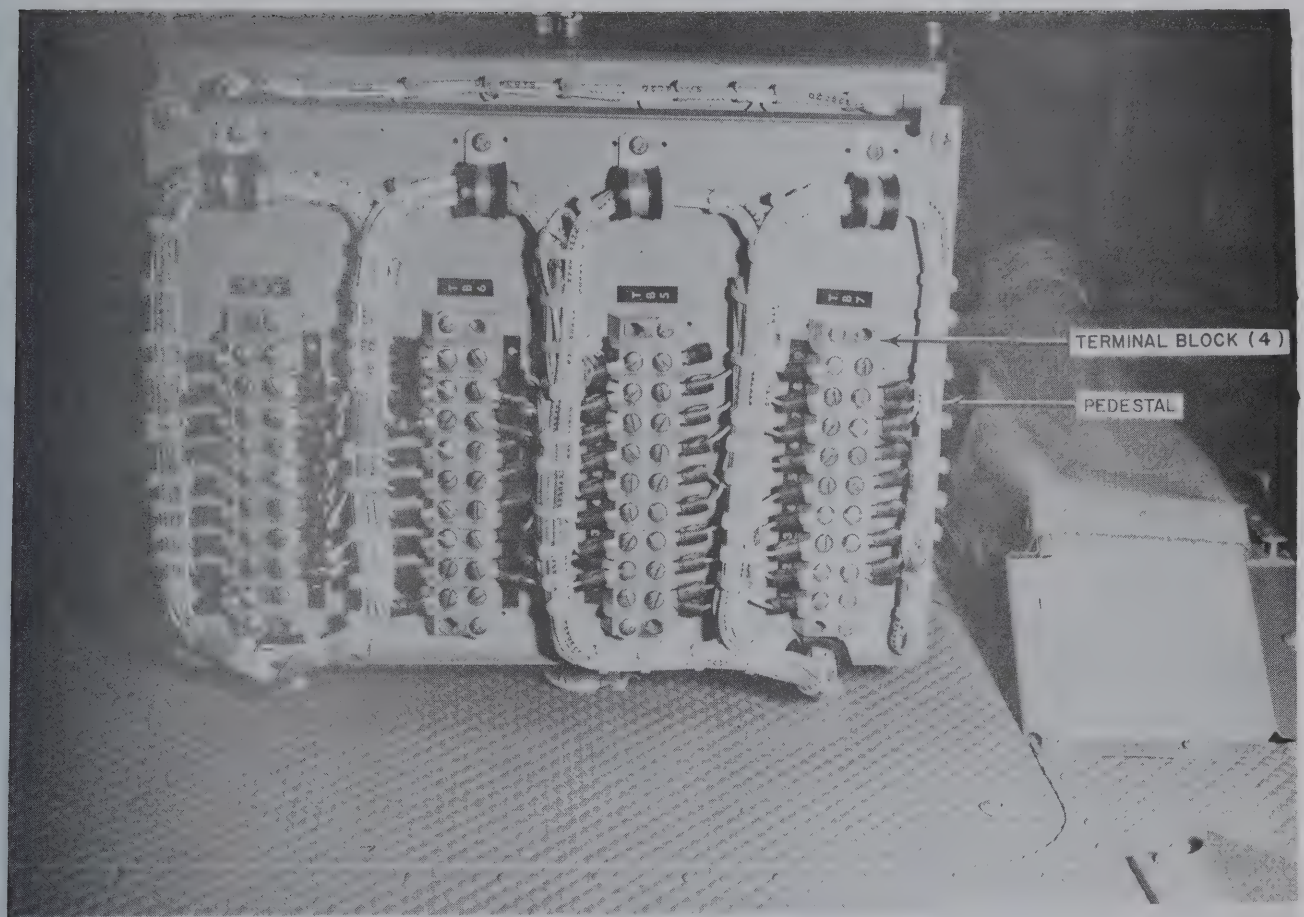


Figure 2–12. Mounting location of Discriminators, Discrete Signal MD–736/A, configuration J.

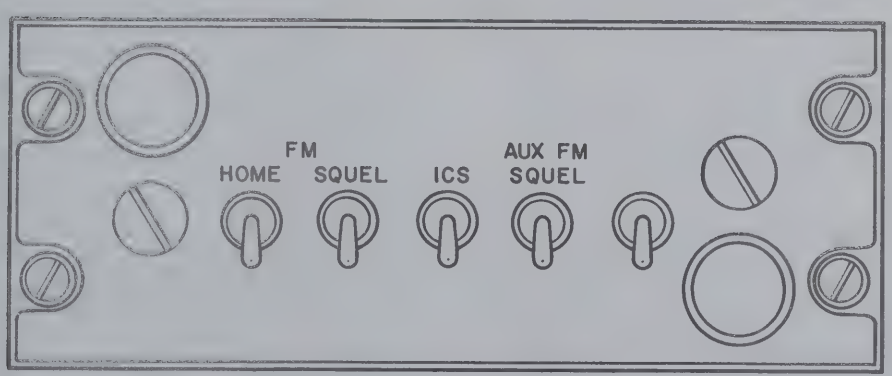


Figure 2–13. Control panel assembly P/N 204–075–219 (Switch Assembly SA–474/AR modified.)

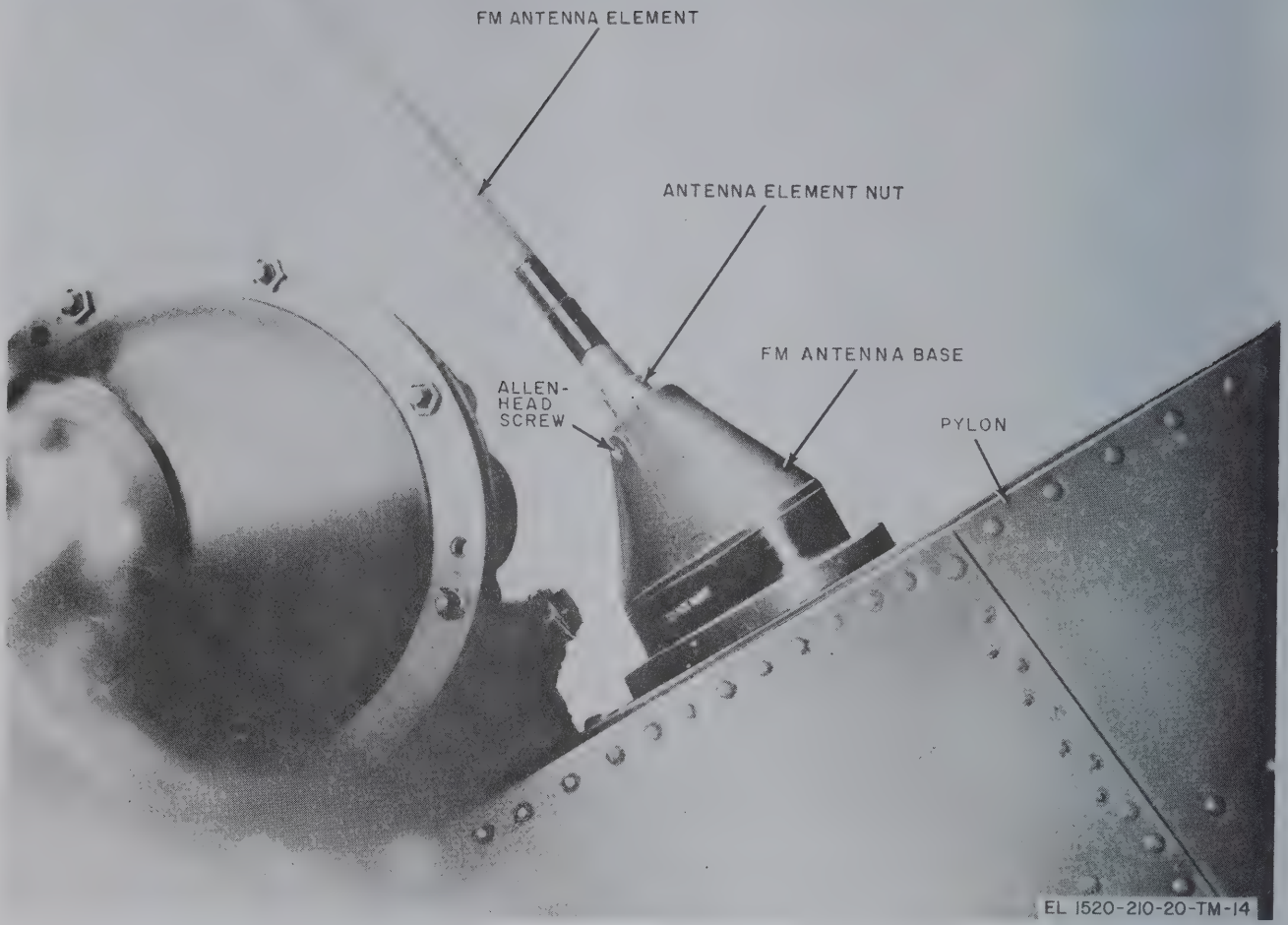


Figure 2–14. Antenna AT–454(*)/ARC (A and B configurations) or Antenna AT–765/ARC (D and E configurations) installation.
Figure 2–15. Coupler CU–361(*)/ARC installation.

(2) Cut the safety wire, and unscrew the wingnuts that secure the receiver-transmitter to Mounting MT–2653/ARC.

(3) Slide the receiver-transmitter forward to disengage the guide pins at the rear of the mounting and remove the receiver-transmitter.

b. Replacement of RT–702/ARC–51X or RT–742/ARC–51BX or RT–334( )/ARC–51X.

(1) Carefully place the receiver-transmitter on Mounting MT–2653/ARC and slide it into the guide pins at the rear of the MT–2653/ARC.

(2) Secure the receiver-transmitter to the MT–2653/ARC, and tighten the wingnuts.

(3) Install safety wire on each wingnut.

(4) Connect the electrical cables and the antenna cable to receptacles at the front of the receiver-transmitter.

2–25. Removal and Replacement of Control, Radio Set C–4577/ARC–51X, C, D, AND E Configurations (fig. 2–7)

a. Removal of C–4677/ARC–51X.

(1) Loosen the spring-lock fasteners that secure the uhf control unit to the radio control console.

(2) Lift the uhf control unit from the radio control console, and disconnect the electrical cable from the back of the control unit.

(3) Lift the control unit free of the console.

b. Replacement of C–4677/ARC–51X.

(1) Connect the electrical cable to the rear of the control unit.

(2) Position the control unit in the console.

(3) Secure the control unit to the console with the spring-lock fasteners.

2–26. Removal and Replacement of Control, Radio Set C–6287/ARC–51BX, C Through G Configurations

Procedures for removal and replacement of the C–6287/ARC–51BX control panel are the same as for the C–4677/ARC–51X control panel (para 2–25).

2–27. Removal and Replacement of VHF/UHF Antenna AT–1108/ARC (fig. 2–16)

a. Removal of AT–1108/ARC.

(1) Remove the screws that secure the communication antenna to the mounting plate on the helicopter.

(2) Lift the communication antenna, and disconnect the antenna cable connector from the receptacle in its base.

b. Replacement of AT–1108/ARC.

(1) Connnct the antenna cable connector from the helicopter to the communication antenna receptacle in the antenna base.

(2) Position the communication antenna on its mounting plate, and secure it with screws.

2–28. Removal and Replacement of Receiver-Transmitter RT–348/ARC–54 or RT–823/ARC–131 (fig. FO–2)

Procedures for removal and replacement of the receiver-transmitter are the same as for the RT–294(*)/ARC–44 receiver-transmitter (para 2–15).

2–29. Removal and Replacement of Antenna AT–765/ARC (fig. 2–14)

Procedures for removal and replacement of the AT–765/ARC antenna are the same as for the AT–454(*)/ARC antenna (para 2–23).

2–30. Removal and Replacement of Antenna AS–1703/ARC–54 and Antenna Coupler CU–942/ARC–54 (fig. 2–17)

a. Removal of AS–1703/ARC–54 and CU–942/ARC–54.

(1) Remove screws that secure the antenna coupler support to the tail boom assembly of the helicopter.

(2) Lift the antenna coupler support and disconnect the cables from the antenna coupler.

b. Replacement of AS–1703/ARC 54 and CU–942/ARC–54.

(1) Connect the cables of the antenna coupler and position the antenna coupler support on the tail boom assembly of the helicopter.

(2) Secure the coupler support to the tail boom assembly with screws.

2–31. Removal and Replacement of Control, Radio Set C–3835/ARC–54 or C–7088/ARC–131 (fig. 2–7)

Procedures from removal and replacement of the control panel are the same as for the SB–327/AR control panel (para 2–17).

2–32. Removal and Replacement of Homing Antenna Assembly AS–1922/ARC (637A–2) (fig. 2–18 and 2–19)

a. Removal of 637A–2 Antenna.

(1) Remove the mounting screws at each end of the antenna.

CAUTION

In removing the antenna, be careful not to damage the cable.

(2) Lift the antenna gently from skin of helicopter.

(3) Disconnect the antenna cable.

b. *Replacement of 637A–2 Antenna.*

(1) Connect the antenna cable.

(2) Position the antenna, being careful to avoid damaging the cable.

(3) Secure the antenna to the helicopter skin with mounting screws.

2–33. Removal and Replacement of Receiver-Transmitter RT–349(*)/ARC–55 (figs. 2–6 and 2–20)

Procedures for removal and replacement of the RT–349(*)/ARC–55 receiver-trasmitter are the same as for the RT–702/ARC–51X receiver-transmitter (para 2–24).

2–34. Removal and Replacement of Antenna AT–450/ARC–55 (fig. 2–21)

Procedures for removal and replacement of the AT–450/ARC–55 antenna are the same as for the AT–1108/ARC antenna (para 2–27).



Figure 2–15. Location of Antenna AT–1108/ARC.

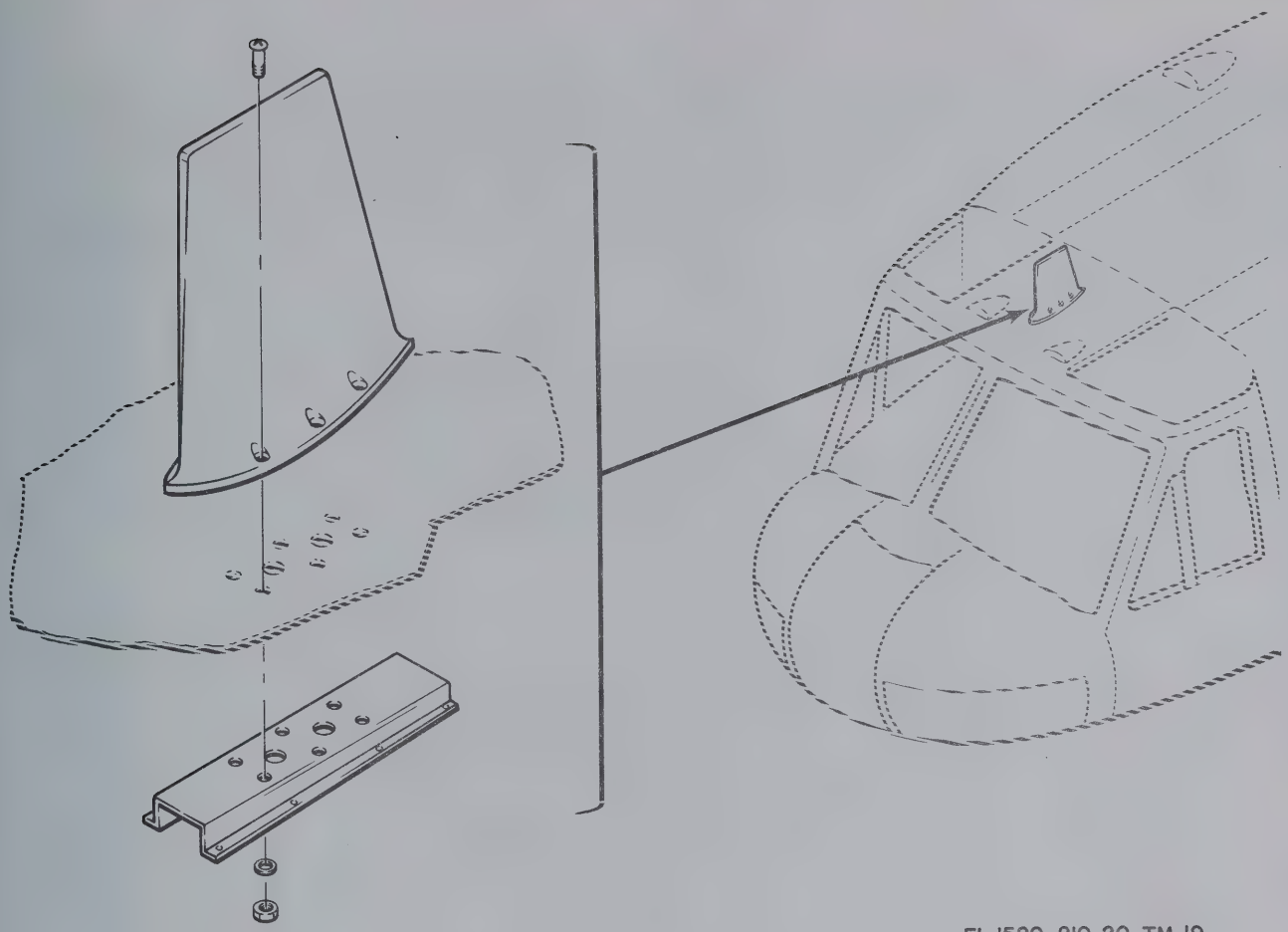


Figure 2-16. Location of Antenna AT-1108/ARC.

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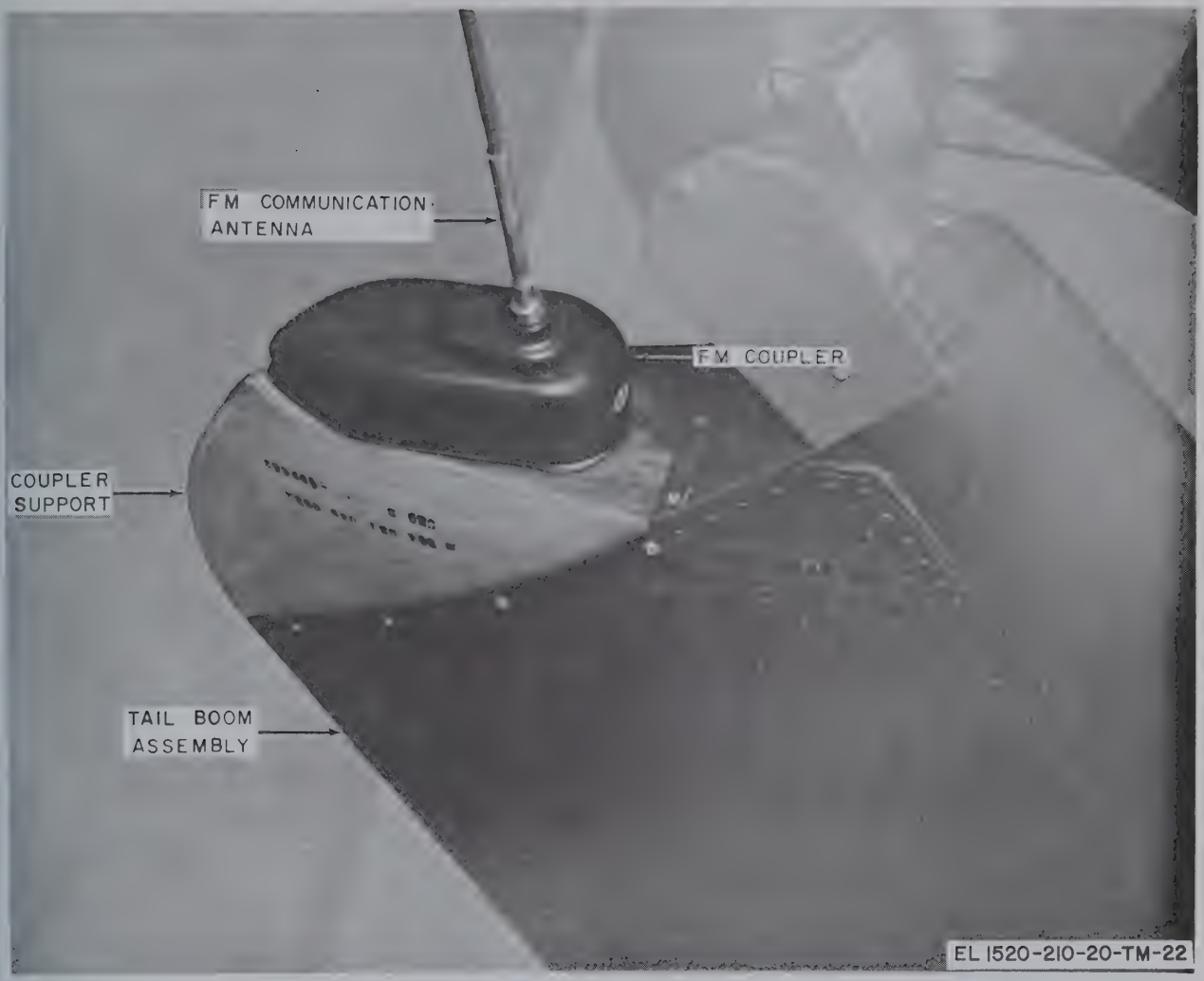


Figure 2-17. Location of Antenna AD-1703/ARC-54 and Antenna Coupler CU-942/ARC-54.

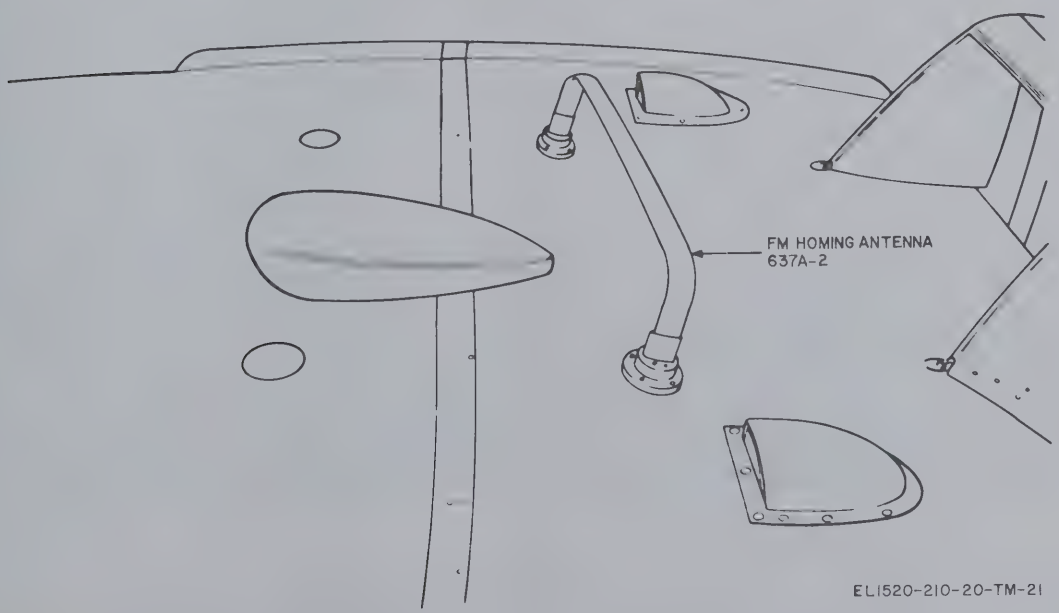


Figure 2-18. Location of Fm Homing Antenna AS-1922/ARC, configurations C and D.

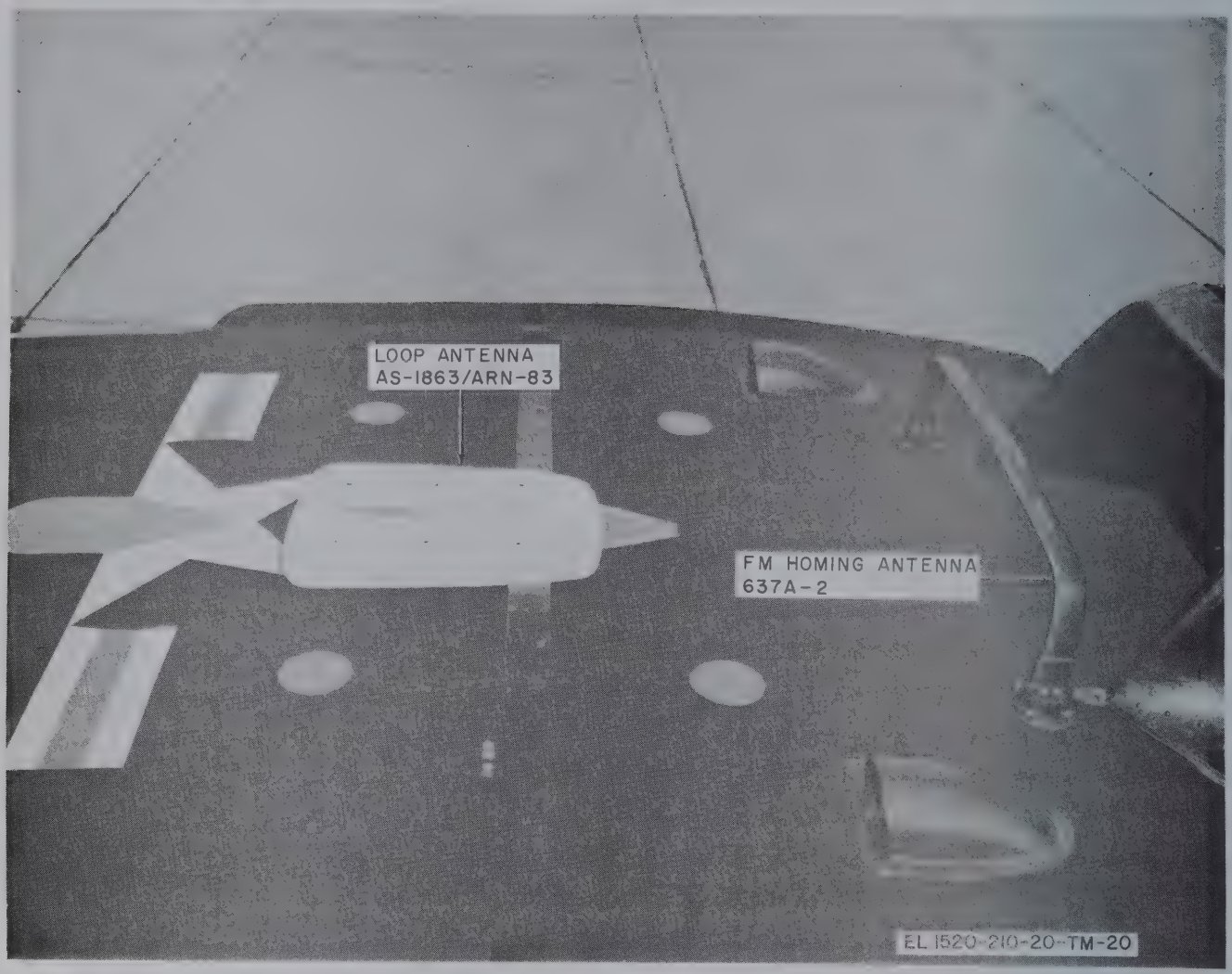


Figure 2–19. Location of ADF Loop Antenna AS–1863/ARN–83 (configurations F through J) and Fm Homing Antenna AS–1922/ARC (configurations E through J).

2–35. Removal and Replacement of Control, Radio Set C–1827/ARC–55 (fig. 2–7)

Procedures for removal and replacement of the C–1827/ARC–55 control panel are the same as for the C–4677/ARC–51X control panel (para 2–25).

2–36. Removal and Replacement of Receiver R–1123(*)/ARC–73 (fig. FO–1)

a. Removal of R–1123(*) Receiver.

(1) Cut the safety wire, and loosen the holddown clamps on the lower side of the receiver.

(2) Using the front pullout handle, slide the receiver forward until the plug-in connector is disengaged, and lift the receiver from the mount.

b. Replacement of R–1123(*) Receiver.

(1) Position the receiver on the rack. Make sure the plug-in connectors are properly aligned, and push the receiver into place.

(2) Tighten the holddown clamps, and install the safety wire.

2–37. Removal and Replacement of Transmitter, Radio T–879(*)/ ARC–73 (fig. FO–1)

a. Removal of T–879(*)/ARC–73 Transmitter.

(1) Cut the safety wire, and loosen the holddown clamps on the lower side of the transmitter.

(2) Using the front pullout handle, slide the transmitter forward until the plug-in connector is disengaged.

(3) Lift the transmitter from the mount.

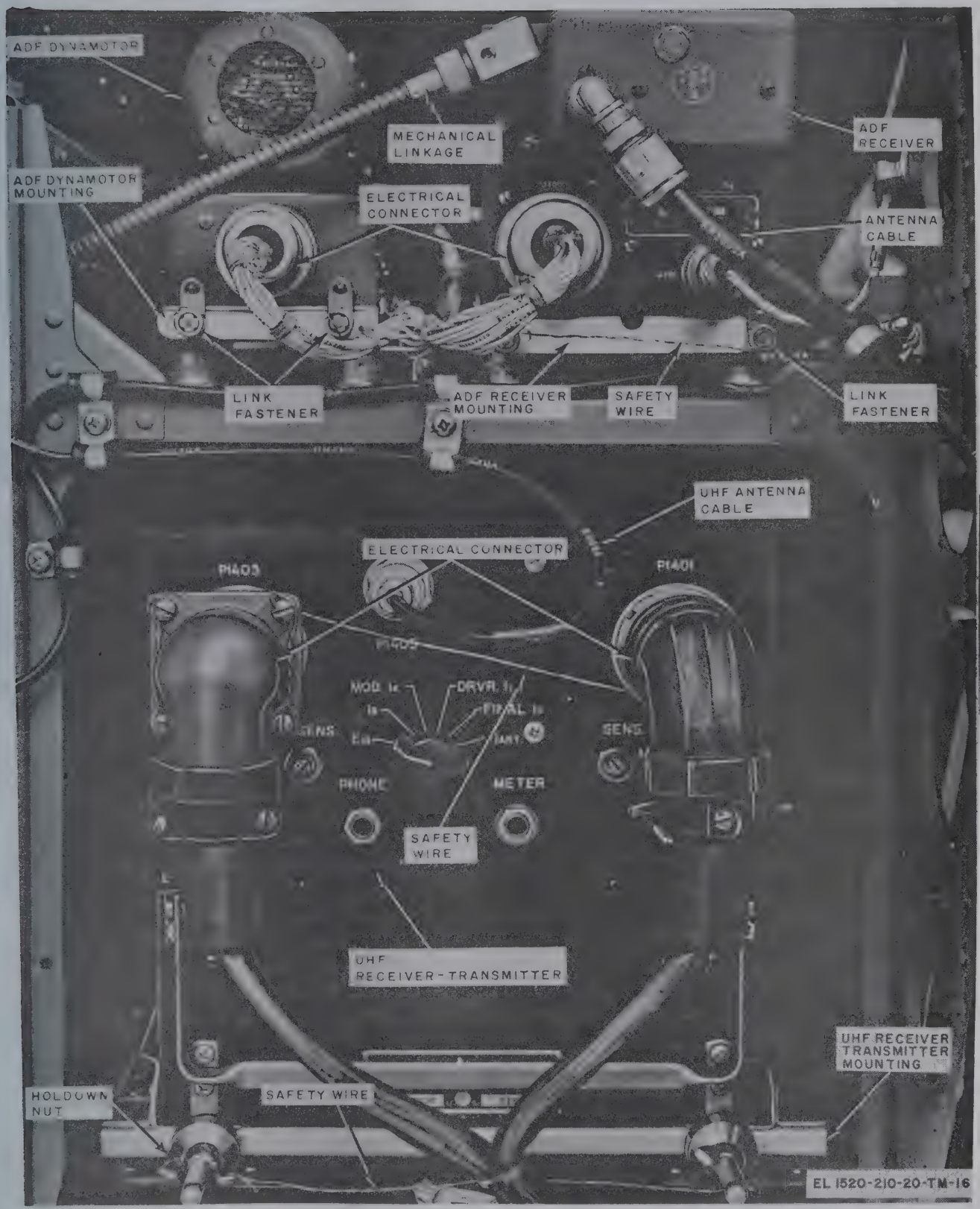


Figure 2–20. Radio set compartment, location of Receiver-Transmitter RT–349(*)/ ARC–55 and components of Direction Finder Set AN/ARN–59(V).

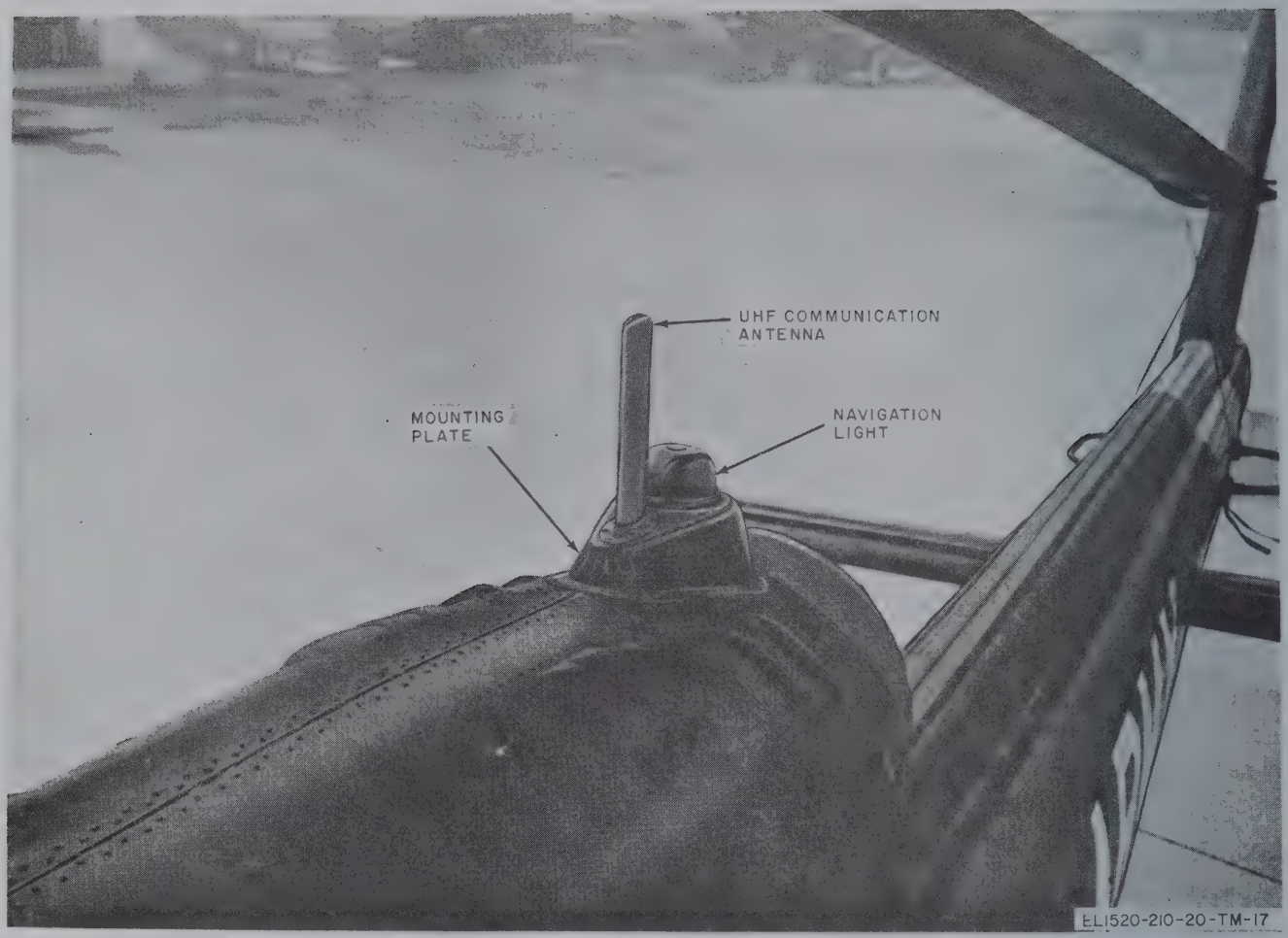


Figure 2-21. Location of Antenna AT-450/ARC.

b. Replacement of T-879(*)/ARC-73 Transmitter.

(1) Position the transmitter on the rack.

(2) Align the plug-in connectors, and push the transmitter into place.

(3) Tighten the holddown clamps, and secure with the safety wire.

2-38. Removal and Replacement of Antenna 37R-2 (T-366 Transmitter)

(fig. 2-22 ①)

a. Removal of 37R-2 Antenna.

(1) Remove mounting screws, nuts, and washers holding the antenna to the cabin.

(2) Pull the antenna out as far as the wires will permit, and disconnect the electrical connectors.

b. Replacement of 37R-2 Antenna.

(1) Position the antenna in place, and connect the electrical connectors.

(2) Install the mounting screw, nuts, and washers.

2-39. Removal and Replacement of Control Radio Set C-4074A/ARC-73

(fig. FO-1)

a. Removal of C-4074A/ARC-73.

(1) Disconnect the cable from the rear of the remote control unit.

(2) Loosen and remove the mounting screws on the left and right edges of the front panel.

(3) Pull the remote control unit out of the mounting panel.

b. Replacement of C-4074A/ARC-73.

(1) Place the remote control unit in the mounting panel.

(2) Replace the mounting screws on the left and right edges of the front panel. Make sure that the remote control units is held firmly in place.

(3) Connect the cable to the connector at the rear of the remote control unit.

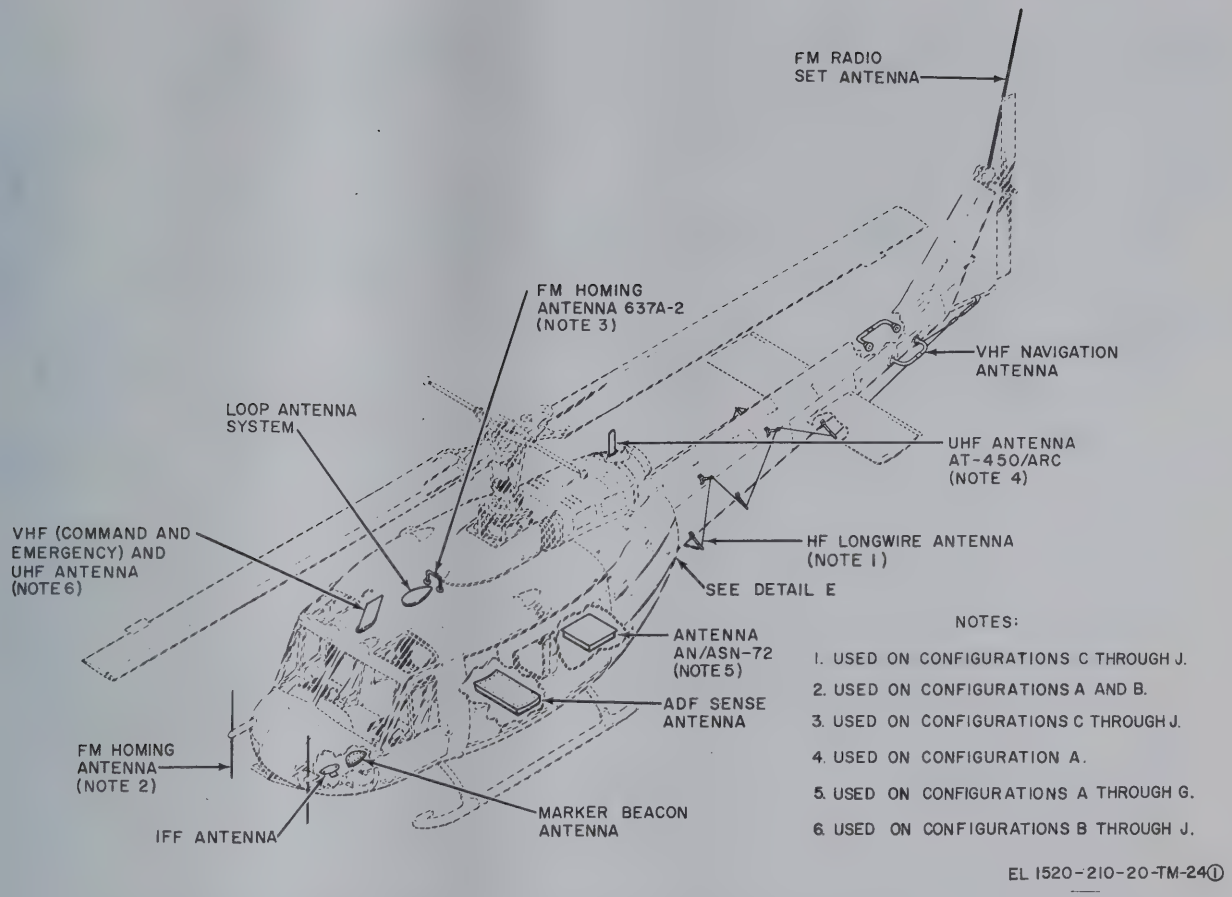


Figure 2–22①. Helicopter antennas and antenna groups (part 1 of 4).

2–40. Removal and Replacement of Receiver-Transmitter, Radio RT–857/ARC–134
(fig. 2–23)

a. Removal.

(1) Loosen the knurled retainer nuts on the front of the mount until the holddown clamps can be slipped off the lugs on the front of the RT–857/ARC–134.

(2) Slide the RT–857/ARC–134 out of its mount.

b. Replacement.

(1) Place the RT–857/ARC–134 on the mount and push toward the rear until the connector on the rear of the receiver-transmitter is mated with the receptacle in the mount.

(2) Connect the holddown clamps to the lugs on the front of the RT–857/ARC–134 and tighten the knurled retainer nuts on the front of the mount.

2–41. Removal and Replacement of Control, Radio Set C–7197/ARC–134
(fig. 2–7)

a. Removal.

(1) Loosen the spring-lock fasteners that secure the C–7197/ARC–134 to the bracket assembly.

(2) Lift the panel far enough from the bracket assembly to reach and disconnect the electrical cable from the back of the unit.

(3) Lift the C–7197/ARC–134 free of the mounting.

b. Replacement.

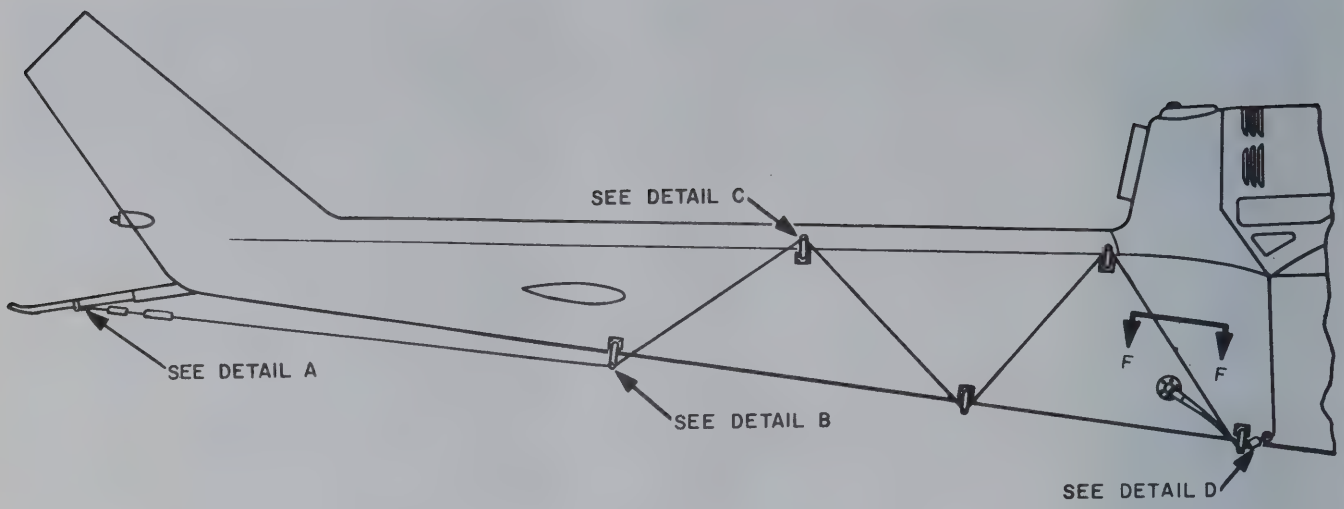
(1) Connect the electrical cable to the rear of the C–7197/ARC–134.

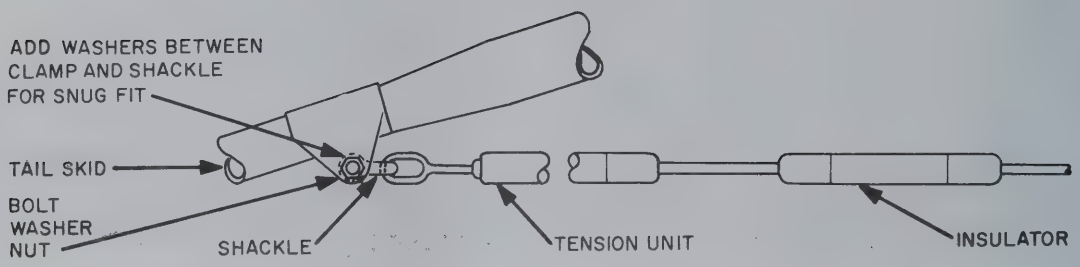
(2) Secure the unit to the mounting with the spring-lock fasteners.

2–42. Removal and Replacement of Receiver-Transmitter RT–698/ARC–102
(fig. FO–1)

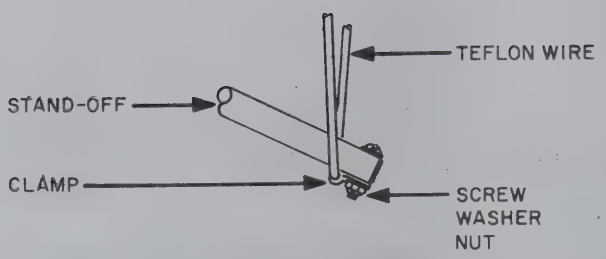
a. Removal of RT–698/ARC–102.

(1) Disconnect, tag, and protect the cables attached to the front connectors of the receiver-transmitter.

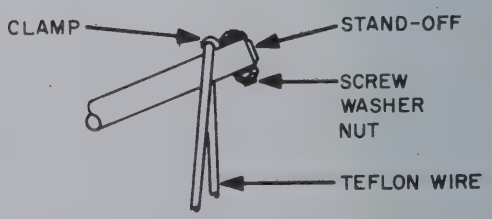




DETAIL A



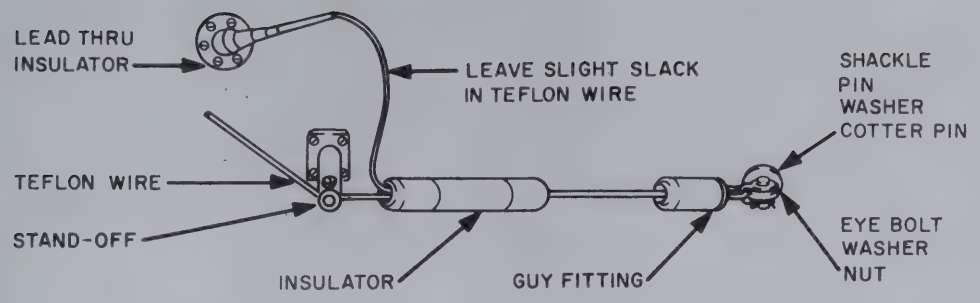
DETAIL B



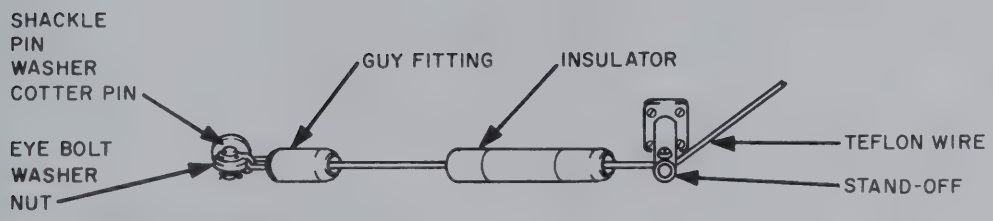
DETAIL C

EL 1520-210-20-TM-24②

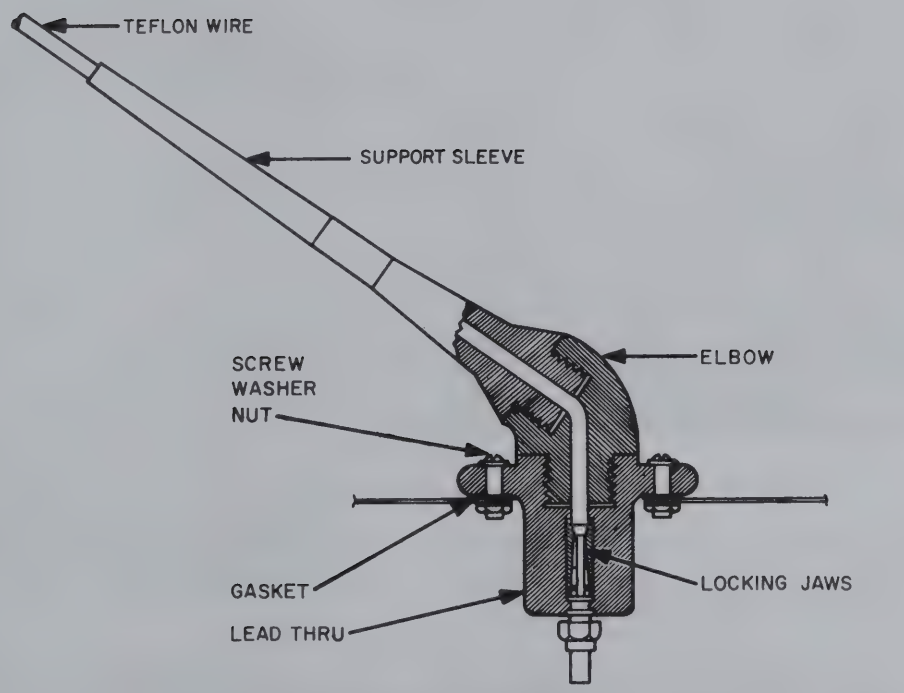
Figure 2-22②. Helicopter antennas and antenna groups (part 2 of 4).



DETAIL D



DETAIL E



VIEW F-F EL 1520-210-20-TM-24③

Figure 2-22③. Helicopter antennas and antenna groups (part 3 of 4).

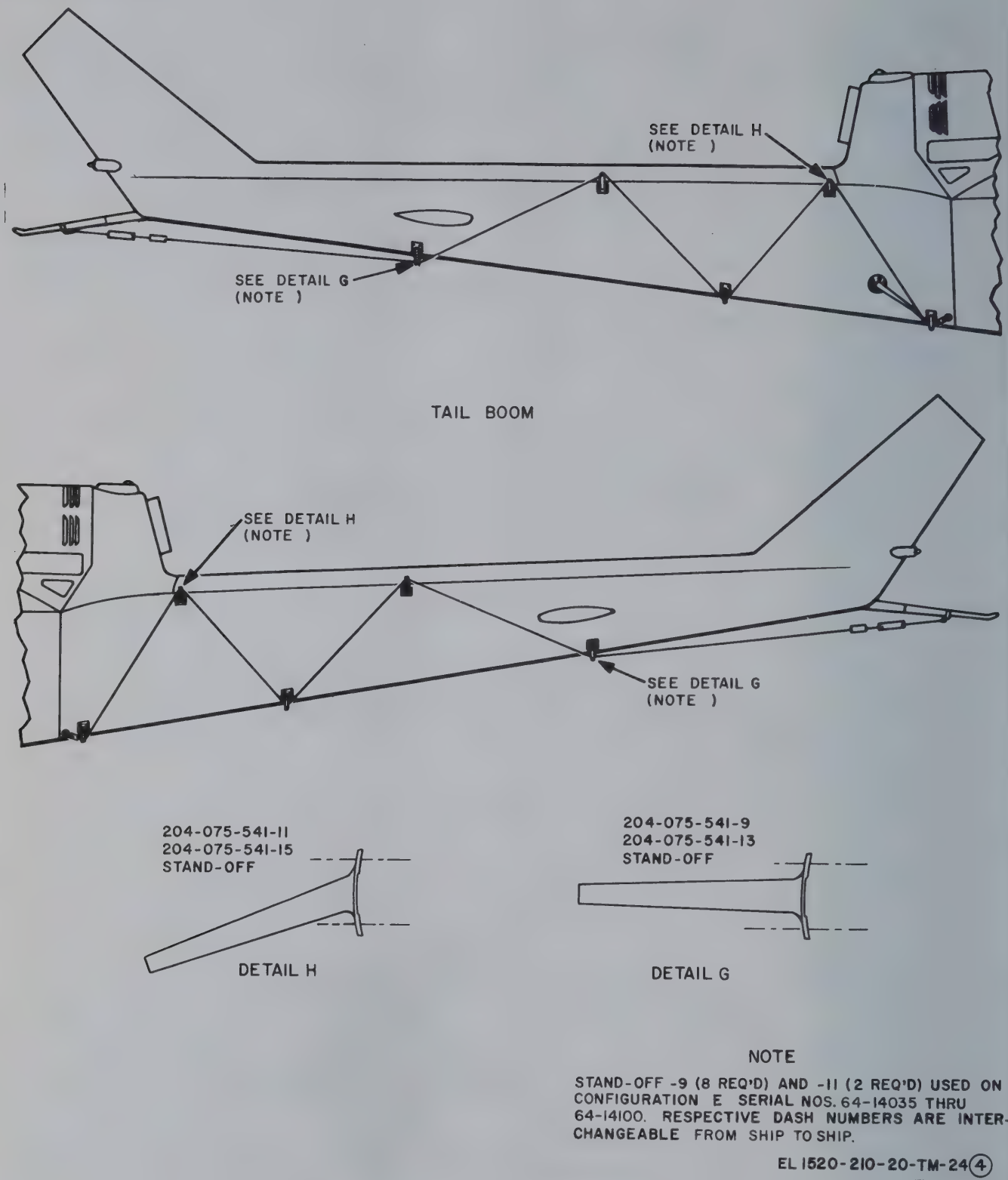


Figure 2-22④. Helicopter antennas and antenna groups (part 4 of 4).

(2) Remove the safety wiring from the holddown clamp, and loosen the holddown clamp assembly.

(3) Carefully remove the receiver-transmitter.

b. Replacement of RT-698/ARC-102.

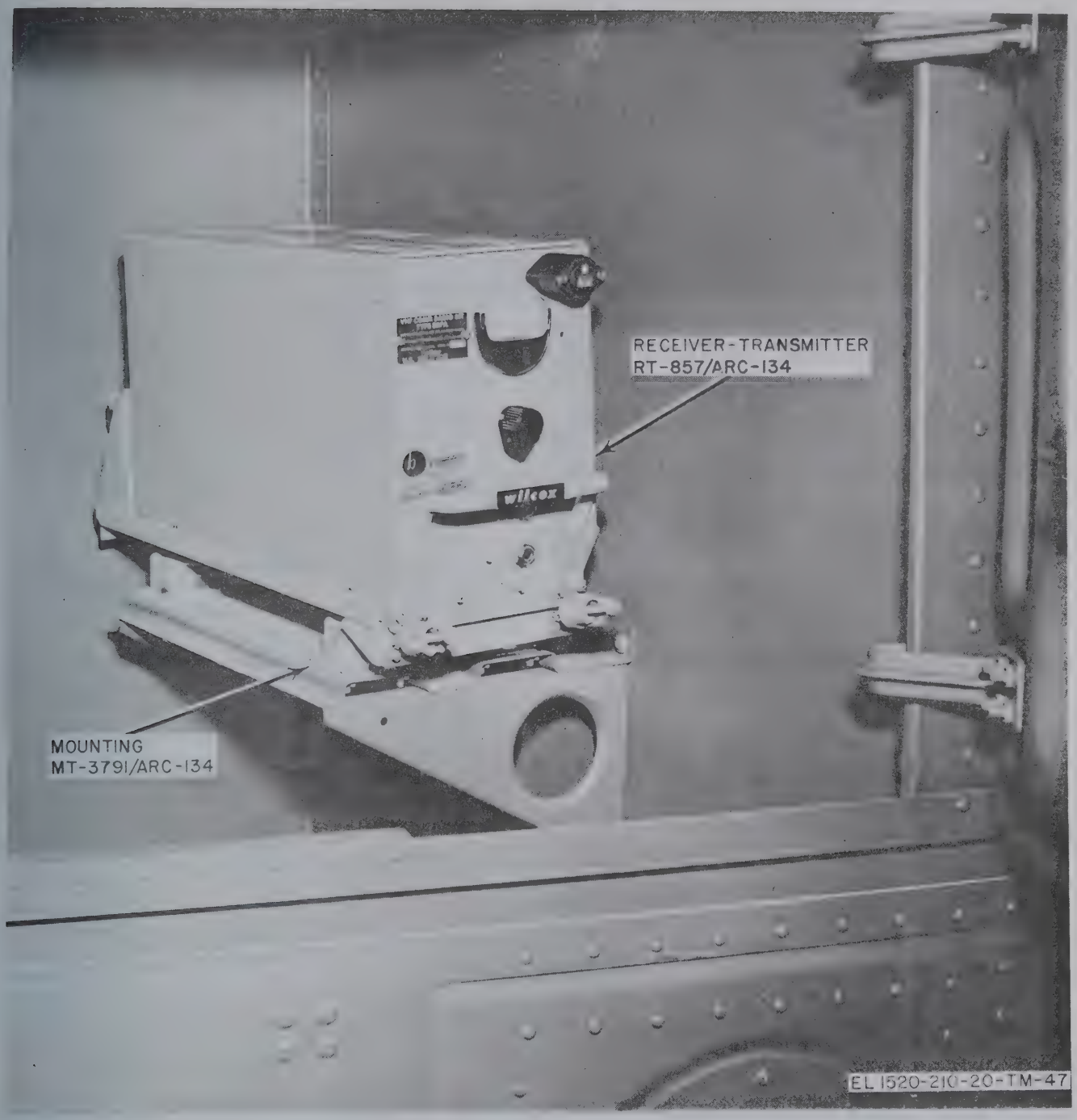


Figure 2–23. Location of Receiver-Transmitter, Radio RT–857/ARC–134.

(1) Place the receiver-transmitter on its mount, and push to engage the connector with the mount receptacle.

(2) Engage and tighten the holddown clamp assembly to the receiver-transmitter angle bracket.

(3) Safety wire the holddown clamp, and connect cables to the front connectors.

2–43. Removal and Replacement of Antenna, Longwire P/N 204–075–609 (AN/ARC–102)

(fig. 2–22)

a. Removal of P/N 204–075–609.

(1) Carefully disconnect the hf longwire antenna by disconnecting from feedthrough insulator, front and rear shackles, and standoff insulators.

(2) Coil the longwire antenna into a neat package and stow.

b. Replacement of P/N 204-075-609.

(1) Uncoil the hf longwire antenna, and lay out under the tail boom to follow the tail boom pattern (both sides).

(2) Carefully install the hf longwire antenna with the existing hardware by attaching to feedthrough insulator, standoff insulators, front support shackle and rear support shackle.

(3) Equalize tautness between all supports, and tighten all nuts.

(4) Secure the shackle pins with cotter pins, installing them in front and rear shackles.

2-44. Removal and Replacement of Antenna, Longwire P/N 205-706-027 (fig. 2-22)

Procedures for removal and replacement of 205-706-027 antenna are the same as for 204-075-609 antenna (para 2-43).

2-45. Removal and Replacement of Control, Radio Set C-3940/ARC-94 (AN/ARC-102) (fig. 2-7)

a. Removal of C-3940/ARC-94.

(1) Release the four fasteners holding the control unit.

(2) Remove the control unit from the pedestal, and disconnect the cable.

b. Replacement of C-3940/ARC-94.

(1) Place the control unit above the pedestal, and reconnect the cable.

(2) Place the control unit into the pedestal, and secure with four mounting fasteners.

2-46. Removal and Replacement of Network, Impedance Matching CU-991/AR (AN/ARC-102) (fig. FO-1)

a. Removal of CU-991/AR.

(1) Disconnect the cables from the tuner.

(2) Cut the safety wire from the knurled thumbnuts of the mounting, and release the clamp by loosening the nuts.

(3) Pull the tuner forward from the rear retaining flange, and lift from the mount.

b. Replacement of CU-991/AR.

(1) Place the tuner on its mount, and connect the cables.

(2) Slide the tuner into place to engage it to the rear retaining flange.

(3) Tighten the knurled thumbnuts of the mounting, and fasten with wire.

2-47. Removal and Replacement of Transmitter T-366/ARC (Emergency Vhf) (fig. 2-24)

a. Removal of T-366/ARC.

(1) Disconnect the electrical connectors from the transmitter, and cover the openings.

(2) Remove the nuts, bolts, and washers that secure the transmitter to the shelf.

(3) Lift the transmitter from the shelf.

b. Replacement of T-366/ARC.

(1) Position the transmitter in place.

(2) Install bolts, washers, and nuts and tighten securely.

(3) Remove the covers from the openings, and install electrical connectors.

2-48. Removal and Replacement of Control Panel P/N 204-075-708 or Control Panel P/N 204-075-709 (T-336/ARC Transmitter) (fig. 2-7)

a. Removal.

(1) Remove the panel from the left side of the pedestal by loosening the attaching hardware.

(2) Disconnect the electrical connector from the rear of the control panel, and cover the openings.

b. Replacement.

(1) Connect the electrical connector at the rear of the control panel.

(2) Position the panel of the pedestal.

(3) Tighten the panel fasteners.

2-49. Removal and Replacement of Dynamotor DY-86/ARN-30 (T-366/ARC Transmitter) (fig. 2-25)

a. Removal of DY-86/ARN-30.

(1) Remove fm receiver-transmitter RT-294(*)/ARC-44 (para 2-15*a*).

(2) Remove the safety wire that secures the mounting screws on the front of the dynamotor, and remove the mounting screws.

(3) Slide the dynamotor forward to disconnect it from the electrical connector and guide pins at the rear of the dynamotor mounting.

(4) Slide the dynamotor out of the guide rail, and lift it from the mounting.

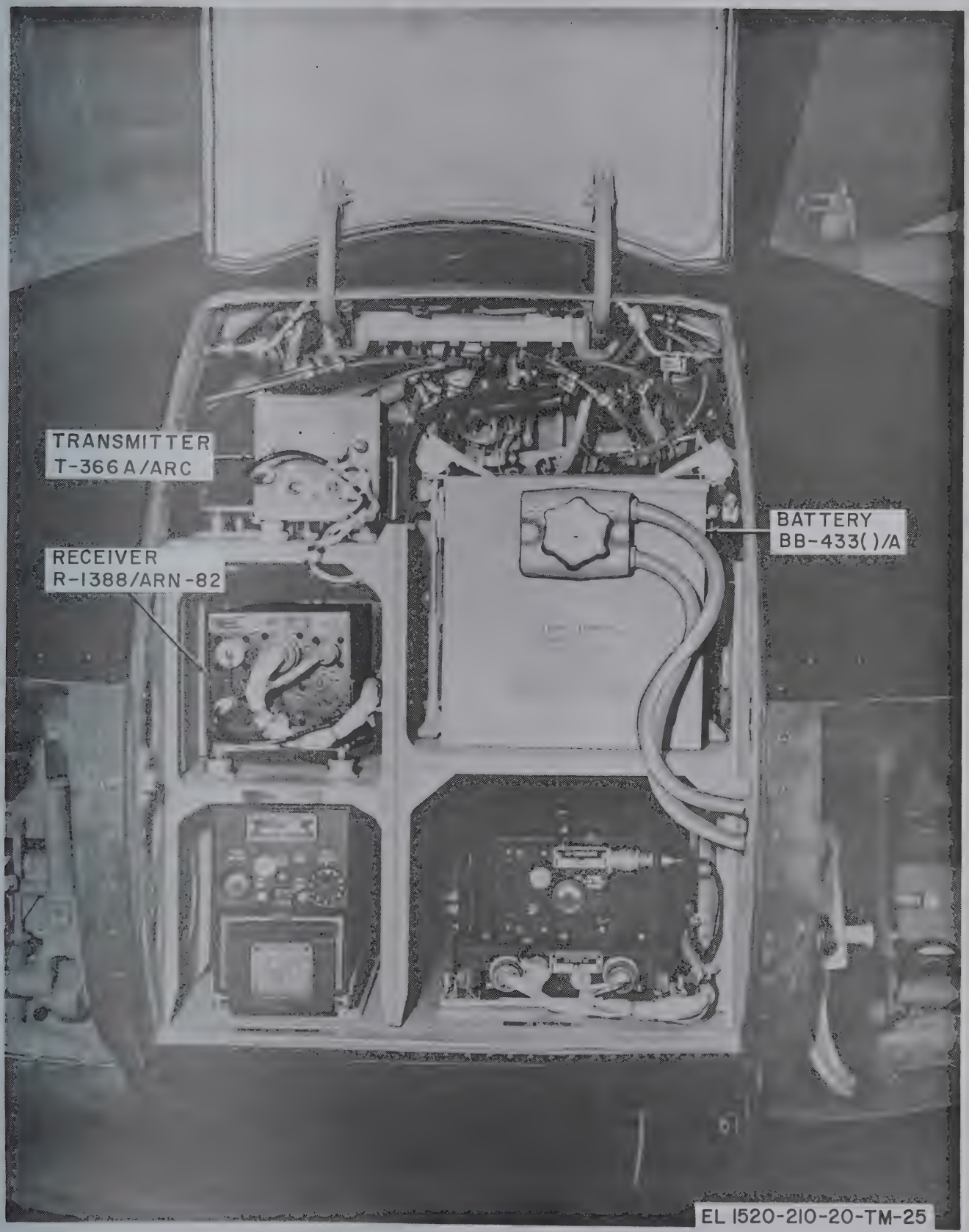


Figure 2-24. Location of Radio Receiving Set AN/ARN-82, Radio Transmitter T-366A/ARC, and Battery BB-433/A.

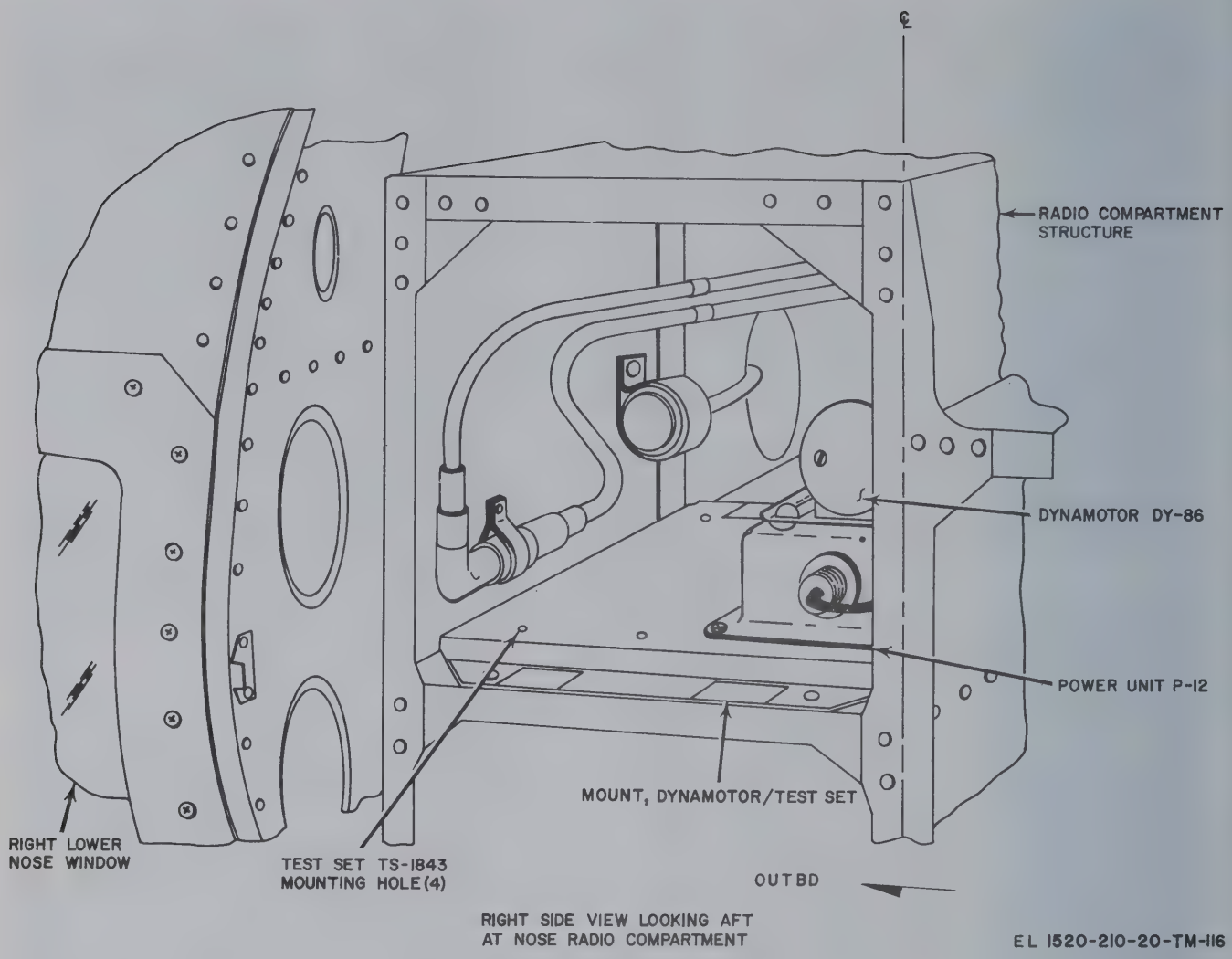


Figure 2–25. Mounting provisions for Test Set TS–1843 (configurations C through E) and location of Dynamotor DY–86 and Power Unit P–12.

b. Replacement of DY–86/ARN–30.

(1) Place the dynamotor in the dynamotor mounting.

(2) Slide the dynamotor to the rear of the dynamotor mounting until the electrical connectors and guide pins mate. Firmly seat the dynamotor on the electrical connector.

(3) Secure the dynamotor to its mounting with mounting screws.

(4) Secure the mounting screws with safety wire.

(5) Replace the fm receiver-transmitter (para 2–15*b*).

2–50. Removal and Replacement of Control Panel ARC Type C–80B (T–366/ARC Transmitter)

(fig. 2–7)

a. Removal of C–80B.

(1) Remove the pedestal cover panel from the left side of the pedestal.

(2) Disconnect the electrical connector from the rear of the control panel, and cover the opening.

(3) Remove the control panel by loosening the four spring-lock fasteners on the panel.

b. Replacement of C–80B.

(1) Position the control panel on the pedestal, and tighten the mounting fasteners.

(2) Connect the electrical connector inside the pedestal, and install the cover panel on the side of the pedestal.

(3) Tighten the four spring-lock fasteners on the face of the control panel.

2–51. Removal and Replacement of Receiver, Radio R–1021/ARN–30 (fig. 2–6)

a. Removal of R–1021/ARN–30.

(1) Disconnect the antenna cable and electrical cable or mechanical linkage from the receptacles on the front of the vhf navigation receiver.

(2) Remove the link fasteners from the securing posts on the front of the vhf navigation receiver.

(3) Pull the vhf navigation receiver forward and out to disengage the electrical connectors from the receiver mounting.

b. Replacement of R–1021/ARN–30.

(1) Place the vhf navigation receiver on its mounting, and slide it back to engage the connectors with the receptacles on the mounting.

(2) Place the link fastners over the securing posts on the vhf navigation receiver, and secure the screws.

(3) Connect the electrical cable or mechanical linkage and the antenna cable to the receptacles on the front of the vhf navigation receiver.

(4) Safety wire the connectors and link fasteners.

2–52. Removal and Replacement of Receiver, Radio R–1388/ARN–82 (fig. 2–24)

a. Removal of R–1388/ARN–82.

(1) Disconnect the cables on the front of the receiver.

(2) Remove the safety wire (not shown) from the thumbnut on the front of the mounting.

(3) Loosen the thumbnut on the front of the mounting.

(4) Lift up the cylindrical latch beneath the thumbnut, and swivel the cylindrical latch down so that it is free of the lip on the receiver.

(5) Slide the receiver out of the mounting.

b. Replacement of R–1388/ARN–82.

(1) Slide the receiver into the mounting.

NOTE

The lip on the back of the receiver must fit snugly under the groove in the back of the mounting.

(2) Switch the cylindrical latch on the mounting up and engage it with the lip on the front of the receiver.

(3) Tighten the thumbscrew on the mount to secure the cylindrical latch.

(4) Safety wire the thumbscrew to prevent it from working loose.

(5) Connect the receiver cables to the front of the receiver.

2–53. Removal and Replacement of Antenna AS–1304/ARN–30 (DMN4–4) (fig. 3–26)

a. Removal of Antenna.

(1) Remove the hardware that secures the antenna to the skin of the helicopter.

(2) Pull the antenna a short distance from the surface of the helicopter.

(3) Disconnect the coaxial connector from the antenna base.

b. Replacement of Antenna.

(1) Hold the antenna a short aistance from its mounting, and connect the coaxial cable from the vhf navigation receiver to the vor and localizer connector.

(2) Secure the antenna to the helicopter with the appropriate hardware removed in *a*(1) above.

2–54. Removal and Replacement of Power Supply PP–2792/ARN–30

a. Removal of Power Supply.

(1) Remove the vhf navigation receiver (para 2–51).

(2) Cut the safety wire, and slide the snap-slide fasteners away from the securing posts of the power supply.

(3) Lift the power supply free of its mounting.

b. Replacement of Power Supply.

(1) Position the power supply on its mounting, and firmly engaged the connector with the mounting receptacle.

(2) Secure the power supply to the mounting with the self-contained snap slide fasteners.

(3) Install the safety on each snap-slide fastener.

(4) Replace the vhf navigation receiver (para 2–51).

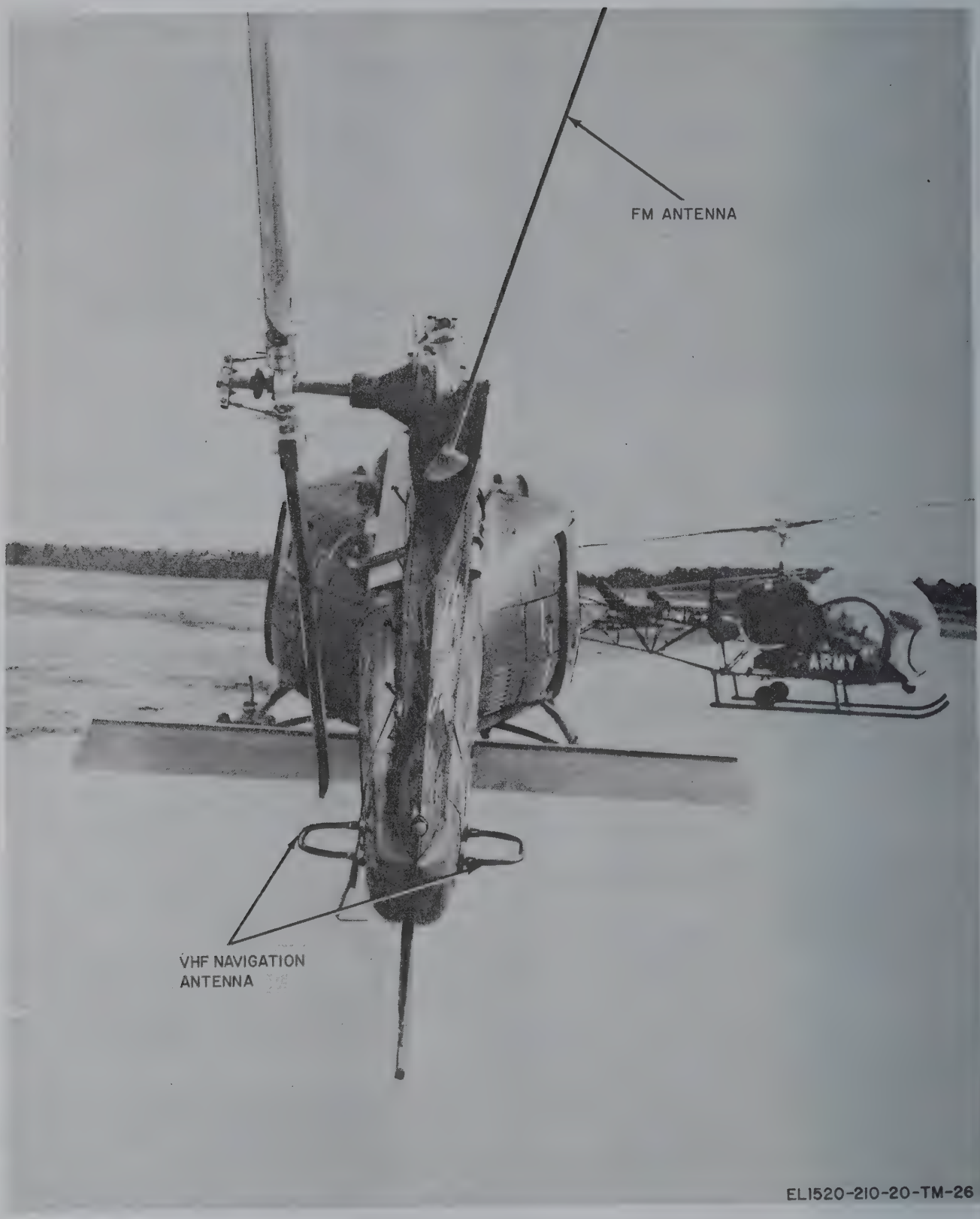


Figure 2-26. Location of vhf navigation Antenna AS-1304/ARN-30 (DMN4-4).

2-55. Removal and Replacement of Converter, Signal Data CV-265A/ARN-30
(fig. 2-27)

a. Removal of CV-265A/ARN-30.

(1) Loosen the knurled nuts, and drop the link fasteners from the securing posts on the front of the converter.

(2) Pull the converter slightly forward to disconnect the electrical connectors at the rear of the converter mounting.

(3) Slide the converter forward, and lift it from the mounting.

b. Replacement of CV-265A/ARN-30.

(1) Place the converter on its mounting, and slide it back to engage its connector with the mounting receptacle.

(2) Place the link fasteners over the securing posts on the converter.

(3) Tighten the knurled nuts on the link fasteners to secure the converter to its mounting.

2-56. Removal and Replacement of Indicator, Course ID-453/ARN-30
(fig. 2-28)

a. Removal of ID-453/ARN-30.

(1) Snap down the light shield, and remove the lamps.

(2) Remove the mounting screws (at each corner), and remove the light shield from the course indicator.

(3) Slide the indicator out of the instrument panel, and disconnect the electrical connector at the rear of the course indicator.

(4) Remove the course indicator.

b. Replacement of ID-453/ARN-30.

(1) Connect the electrical connector to the course indicator.

(2) Slide the course indicator into the instrument panel.

(3) Place the light shield on the course indicator, and secure the light shield and the course indicator to the instrument panel with the mounting screws.

(4) Insert the lamps in the lamp shield, and snap up the light shield.

2-57. Removal and Replacement of Indicator Course ID-1347/ARN-82
(fig. 2-28)

a. Removal of ID-1347/ARN-82.

(1) Remove the screws that secure the light shield to the course indicator and remove the light shield.

(2) Loosen the four screws that secure the course indicator to the helicopter instrument panel.

(3) Pull the course indicator out of the helicopter instrument panel and disconnect the cable from the rear of the course indicator.

b. Replacement of ID-1347/ARN-82.

(1) Connect the course indicator cable to the rear of the course indicator.

(2) Insert the course indicator into the helicopter instrument panel and secure the course indicator with the four screws.

(3) Place the light shield on the course indicator and secure the light shield to the course indicator with the mounting screws.

2-58. Removal and Replacement of Control Radio Set C-3436/ARN-30D or C-3436A/ARN-30E
(fig. 2-7)

a. Removal of Control.

(1) Loosen the spring-lock fasteners that secure the vhf navigation control unit to the radio control console.

(2) Lift the vhf navigation control unit from the radio control console.

(3) Disconnect the mechanical linkage and electrical connectors from the rear of the vhf navigation control unit as necessary to free the control unit.

b. Replacement of Control.

(1) Connect the mechanical linkage and electrical connector at the rear of the vhf navigation control unit.

(2) Position the vhf navigation control unit in the radio control console.

(3) Secure the vhf navigation control unit to the radio control console with the spring-lock fasteners.

2-59. Removal and Replacement of Control, Radio Set C-6873/ARN-82
(fig. 2-7)

a. Removal of C-6873/ARN-82.

(1) Loosen the four captive Dzus fasteners that secure the control unit to the radio control console.

(2) Pull the control unit out of the radio control console and disconnect the cable from the rear of the control unit.

b. Replacement of C-6873/ARN-82.

(1) Connect the control unit cable to the rear of the unit.

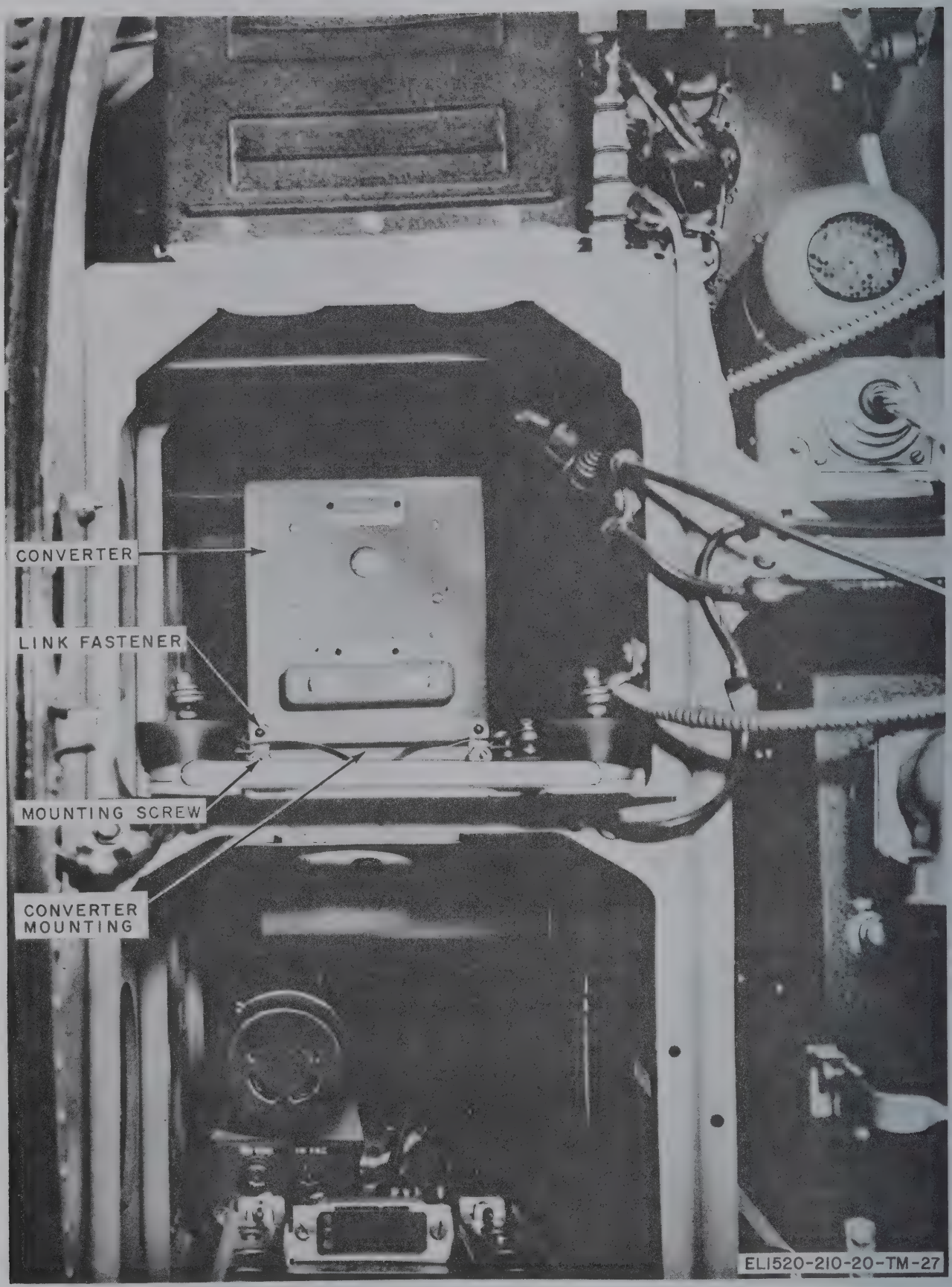


Figure 2-27. Converter, Signal Data CV-265A/ARN-30A installation.

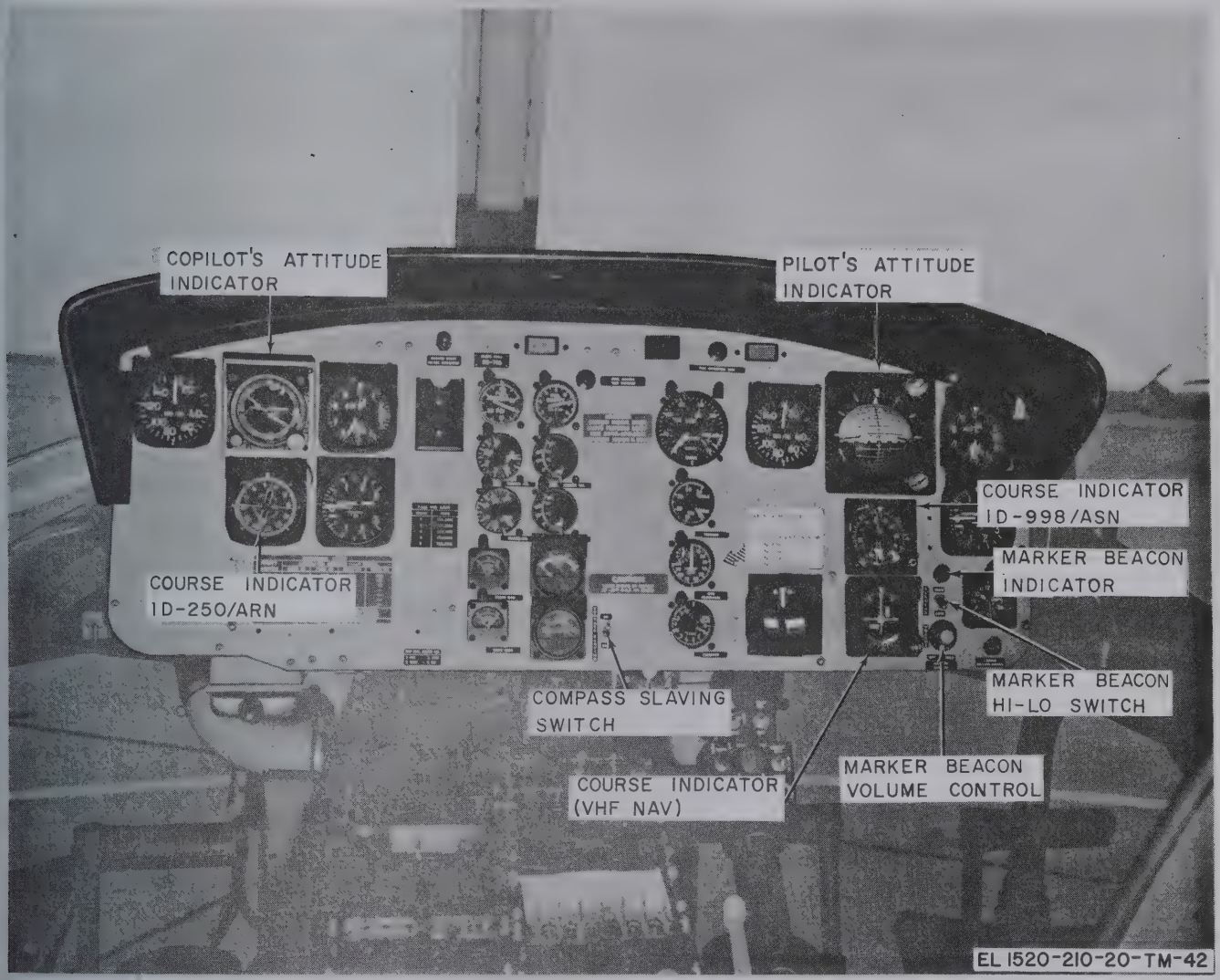


Figure 2-28. Instrument panel, typical.

(2) Insert the control unit into the radio control console and fasten the four Dzus fasteners securely.

2-60. Removal and Replacement of Receiver, Radio R-836/ARN-59 (ADF Receiver)

(figs. 2-6 and 2-20)

a. Removal of R-836/ARN-59.

(1) Disconnect the mechanical linkage from the adf receiver front panel.

(2) Disconnect the antenna cable plugs from the receptacles on the adf receiver.

(3) Disconnect the front panel electrical connectors from receptacles J101 and J103.

(4) Cut and remove the safety wire, and loosen the two link fasteners on the front of the adf receiver mounting.

(5) Lift up the front of the adf receiver to clear the mounting, and remove the adf receiver.

b. Replacement of R-836/ARN-59.

(1) Position the adf receiver on its mounting.

(2) Secure the adf receiver to its mounting with two link fasteners on the front of the receiver mounting.

(3) Engage the electrical and antenna connectors with their receptacles on the adf receiver front panel.

(4) Connect the mechanical linkage to the receptacle on the receiver front panel.

(5) Install safety wire on the two link fasteners.

2–61. Removal and Replacement of Receiver, Radio R–1391/ARN–83 (ADF Receiver)
(fig. 2–29)

a. Removal of R–1391/ARN–83.

(1) Disconnect the sense antenna and loop antenna cable connectors at the front of the receiver.

(2) Cut and remove the safety wire, and loosen the nut at the front of the reciever mount, which engages a hook on the reciever. After loosening, push the nut down to clear the front of the receiver.

(3) Grasp the handle at the front of the receiver and pull the receiver forward, removing the receiver from the mount.

b. Replacement of R–1391/ARN–83.

(1) Slide the receiver onto the receiver mount and make certain that the connector at the rear of the receiver mates with the connector at the rear of the receiver mount.

(2) Engage the nut at the front of the receiver mount with the hook at the front of the receiver and tighten the nut.

(3) Connect the sense and loop antenna cables.

(4) Install safety wire on the nut.

2–62. Removal and Replacement of Antenna AT–780/ARN
(fig. 2–31)

a. Removal of AT–780/ARN.

(1) From inside the helicopter, disconnect the two cables from the adf antenna.

(2) Outside the helicopter, remove the machine screws that secure the adf antenna cover to its housing.

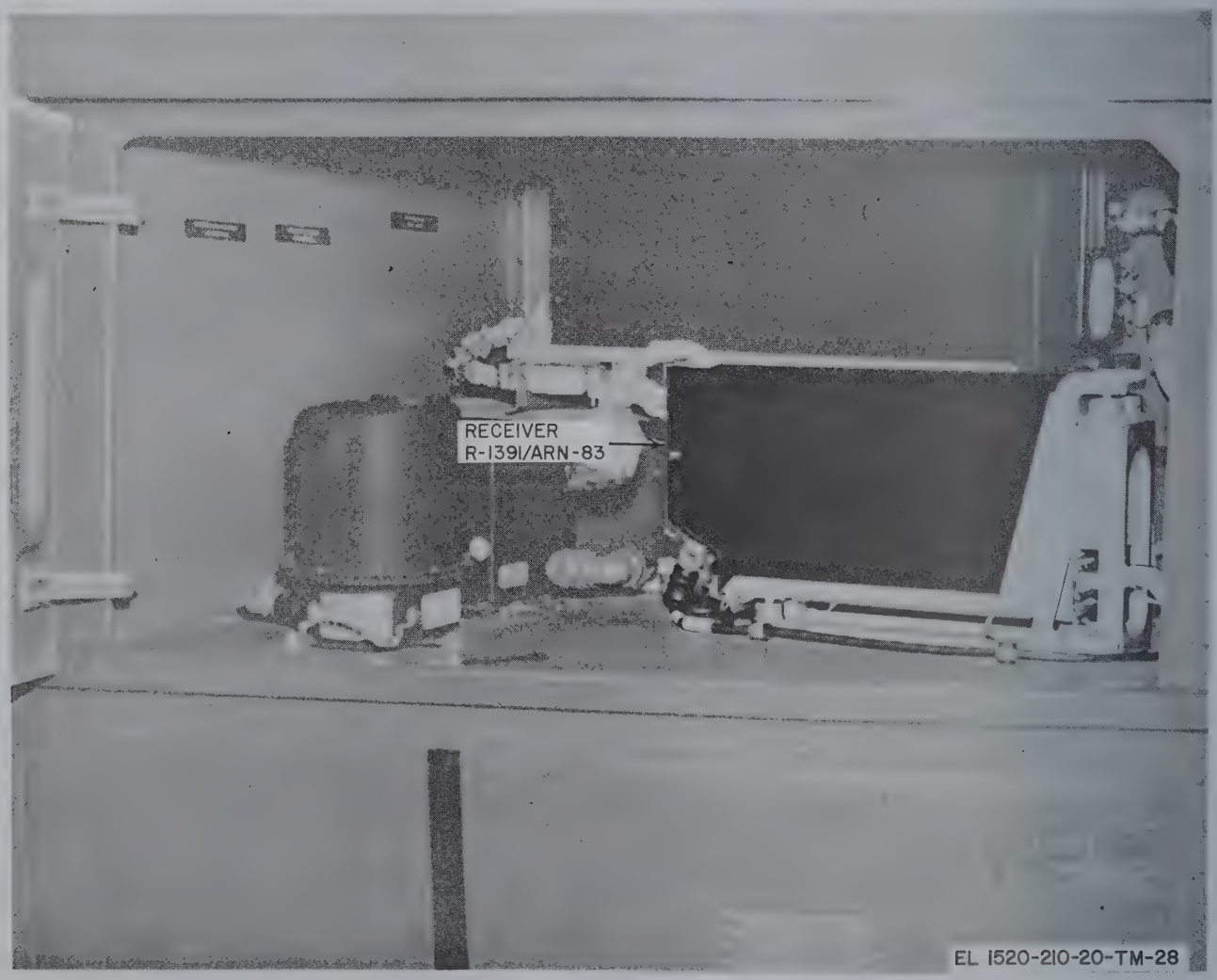


Figure 2–29. Location of Radio Receiver R–1391/ARN–83, configurations F through H.

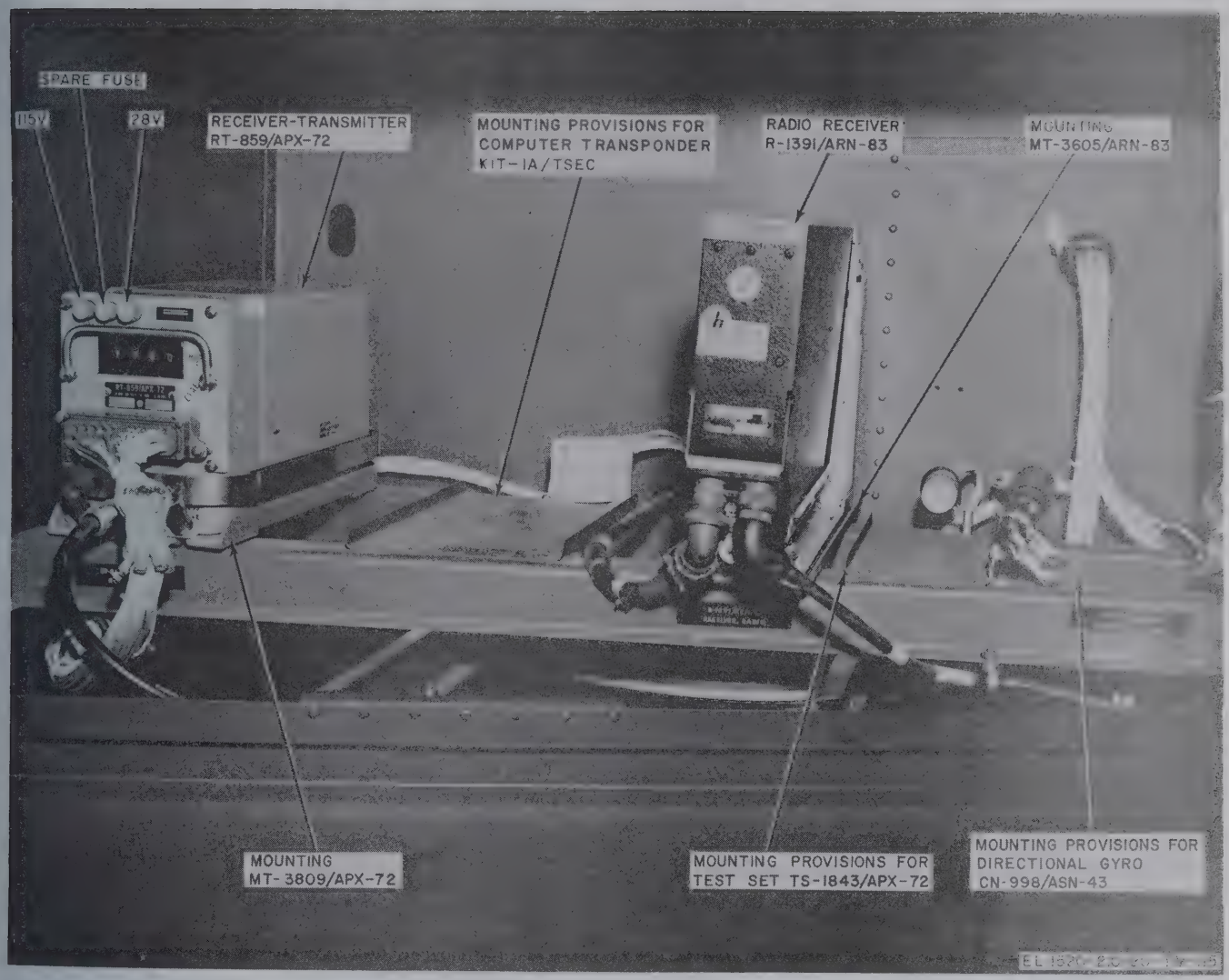


Figure 2-30. Location of Radio Receiver R-1391/ARN-83, Receiver-Transmitter RT-859/APX-72, Transponder Computer KIT-1A/TSEC, Test Set TS-1843/APX-72, and Directional Gyro CN-998/ASN-43, configurations I and J.

(3) Lift the cover, and remove the gasket from the antenna housing.

(4) Remove the screws that secure the antenna to its mounting, and carefully remove the antenna.

b. Replacement of AT-780/ARN.

(1) Position the antenna on its mounting, and secure it with screws.

(2) Replace and cement a new gasket between the antenna housing and the antenna cover.

(3) Cement the underside of the antenna cover, and position the cover over the antenna housing.

(4) Secure the cover to the antenna housing with machine screws.

(5) From inside the helicopter, connect the two cables to the antenna.

2-63. Removal and Replacement of Antenna AS-1863/ARN-83 (fig. 2-19)

a. Removal of AS-1863/ARN-83.

(1) From inside the helicopter, disconnect the cable fron the adf antenna.

(2) From outside the helicopter, remove the machine screws that secure the adf antenna to the helicopter roof.

(3) Lift the antenna, and remove the sealant from the antenna.

b. Replacement of AS-1863/ARN-83.

(1) Seal the underside of the antenna.

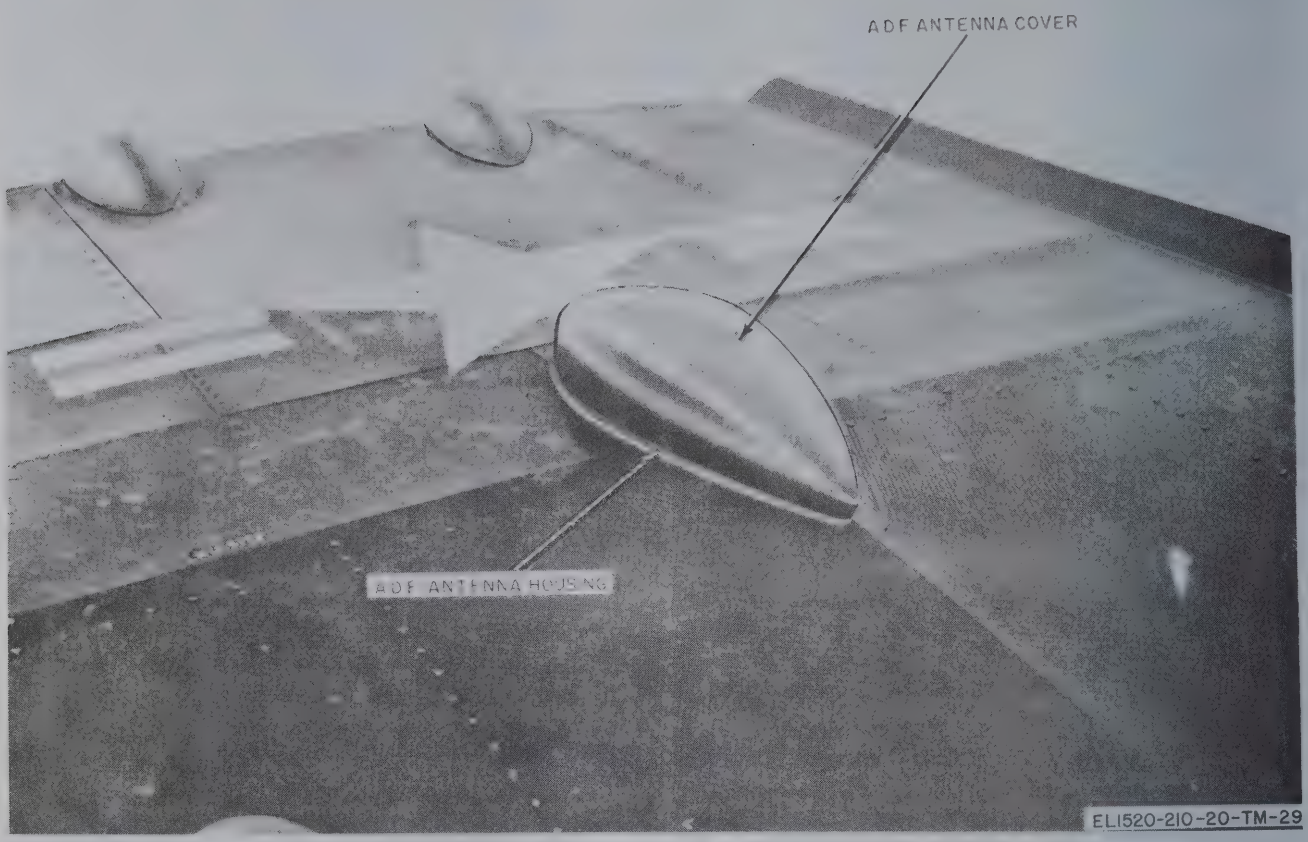


Figure 2-31. Location of adf Antenna AT-780/ARN and antenna housing, configurations A through E.

(2) Position the antenna on helicopter roof and secure it with screws.

(3) From inside the helicopter, connect the cable to the antenna.

2-64. Removal and Replacement of ADF Dynamotor DY-150/ARN (fig. 2-20)

a. Removal of DY-150/ARN.

(1) Disconnect the electrical connector from the adf dynamotor.

(2) Cut the safety wire from the link fasteners.

(3) Remove the link fasteners from the securing posts on the front of the dynamotor.

(4) Lift up the dynamotor, and remove it from its mounting.

b. Replacement of DY-150/ARN.

(1) Place the dynamotor on its mounting, and secure it with link fasteners.

(2) Connect the electrical connector to the dynamotor receptacle.

(3) Install safety wire on the link fasteners.

2-65. Removal and Replacement of Control Receiver C-2275/ARN (fig. 2-7)

a. Removal of C-2275/ARN.

(1) Loosen the spring-lock fasteners that secure the control panel to the radio control console.

(2) Lift the adf control, and disconnect the mechanical linkage at the rear of the control panel.

(3) Disconnect the electrical connector from the rear of the control panel.

(4) Remove the control panel.

b. Replacement of C-2275/ARN.

(1) Engage the electrical connector with the receptacle at the rear of the control panel.

(2) Connect the mechanical linkage to the receptacle at the rear of the control panel.

(3) Position the control panel in the radio

control console, and secure it with the spring-lock fasteners.

2–66. Removal and Replacement of Control, Direction Finder C–6899/ ARN–83
(fig. 2–7)

a. Removal of C–6899/ARN–83.

(1) The control unit is secured to the radio control console with four Dzus type, quarter-turn fasteners (one fastener at each corner of control panel). Loosen the four fasteners and remove the control unit.

(2) Remove the cable and connector at the rear of control unit.

b. Replacement of C–6899/ARN–83.

(1) Reconnect the cable and connector at the rear of the control unit.

(2) Mount the control unit on the radio control console and tighten the four quarter-turn fasteners.

2–67. Removal and Replacement of ADF Antenna, Sensing 204–075–328 or 205–075–325 (AN/ARN–59)
(fig. 2–32)

a. Removal of ADF Sense Antenna.

(1) From inside the helicopter, disconnect the electrical connector from the sense antenna connector.

NOTE

The sense antenna connector can be reached through the access door on the left side of the helicopter at the forward end of the tail boom.

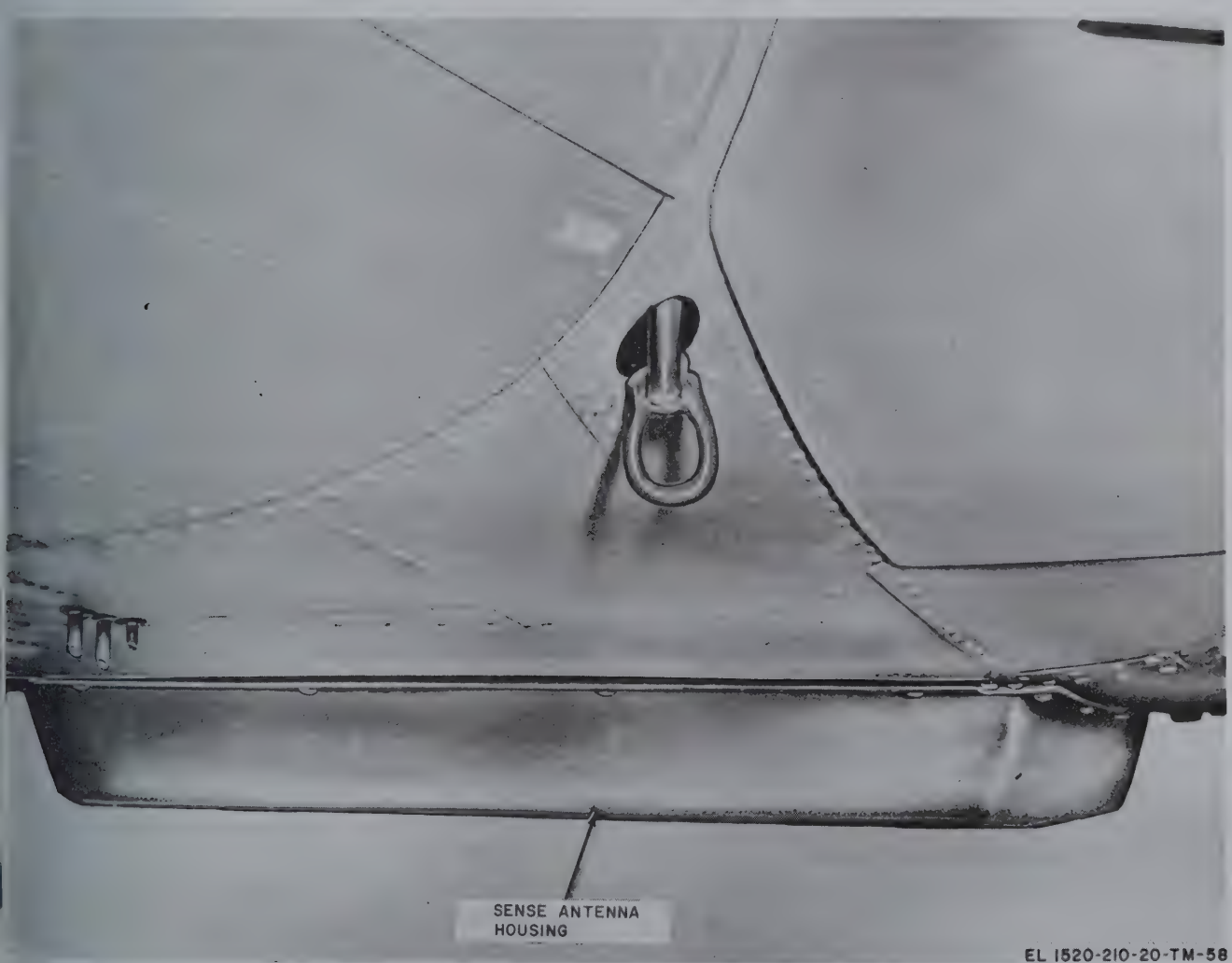


Figure 2–32. Location of automatic direction finder (adf) sense antenna (204–075–328).

(2) From outside the helicopter, remove the screws that secure the sense antenna housing to the bottom of the helicopter.

(3) Remove the sense antenna housing and the sense antenna inside the housing as a unit.

b. Replacement of ADF Sense Antenna.

(1) Place the sense antenna housing, with the sense antenna inside, in position at the underside of the helicopter.

(2) Secure the sense antenna housing to the helicopter with screws.

(3) Inside the helicopter, connect the electrical connector to the sense antenna connector.

2-68. Removal and Replacement of Receivers, Radio R-1041A/ARN or R-737/ARN (Marker Beacon)
(fig. FO-2)

a. Removal of R-1041A/ARN.

(1) Remove the R-836/ARN adf receiver (para 2-60).

(2) Loosen the four spring-lock fasteners on the receiver front panel, and pull the R-1041/ARN panel forward.

(3) Disconnect the antenna connector.

(4) Disconnect the power plug and lift out the receiver.

b. Replacement of R-1041A/ARN.

(1) Connect the power plug.

(2) Connect the antenna connector.

(3) Insert the receiver in its mounting bracket, and secure the spring-lock fasteners.

(4) Set the R-836/ARN adf receiver in place (para 2-60).

2-69. Removal and Replacement of Antenna 37X-2, 37RX-2, or AT-640A/ARN (Marker Beacon)
(fig. 2-33)

a. Removal of Marker Beacon Antenna.

(1) Remove the screws that secure the antenna to the helicopter frame.

(2) Pull the antenna down to reach the antenna cable connector.

(3) Disconnect the antenna cable connector from the base of the antenna.

(4) Remove the antenna.

b. Replacement of Marker Beacon Antenna.

(1) Connect the cable connector from the helicopter to the receptacle in the antenna base.

(2) Position the antenna over the cutout in the helicopter frame, and secure it in place with the screws.

2-70. Removal and Replacement of Element, Antenna AT-624/AR (AN/ARA-31)
(figs. 2-34 and 2-35)

a. Removal of AT-624/AR.

(1) Loosen the setscrew (fig. 2-35) that secures each homing antenna element.

(2) Unscrew the homing antenna elements from the antenna adapter.

(3) Remove the three mounting screws that secure the antenna adapter to the adapter housing.

(4) Lift the antenna adapter out of the adapter housing, and disconnect the homing antenna cable from the antenna adapter.

(5) Remove the bolts and washers that secure the antenna support (fig. 2-34), and remove the antenna support.

CAUTION

Be careful not to damage the homing antenna cable that runs through the antenna support.

b. Replacement of AT-624/AR.

(1) Run the homing antenna cable, which extends through the antenna keyer cover, through the antenna support.

(2) Secure the antenna support with bolts and washers.

(3) Connect the homing antenna cable to the receptacle at the rear of the antenna adapter.

(4) Insert the antenna adapter into the adapter housing.

(5) Screw the two homing antenna elements into the antenna adapter, and handtighten each homing antenna element.

(6) Secure each homing antenna element to the antenna adapter.

(7) Apply staking lacquer to both setscrews in each homing antenna element, and tighten the setscrews.

(8) Adjust the completed assembly so that the homing antenna elements are in a vertical position.

(9) Secure the antenna adapter to the adapter housing with the mounting screws.

2-71. Removal and Replacement of Network, Impedance Matching CU-459/AR (AN/ARA-31)
(fig. 2-35)

a. Removal of CU-459/AR.

(1) Remove the three screws that hold the antenna impedance-matching network units to their mounts.

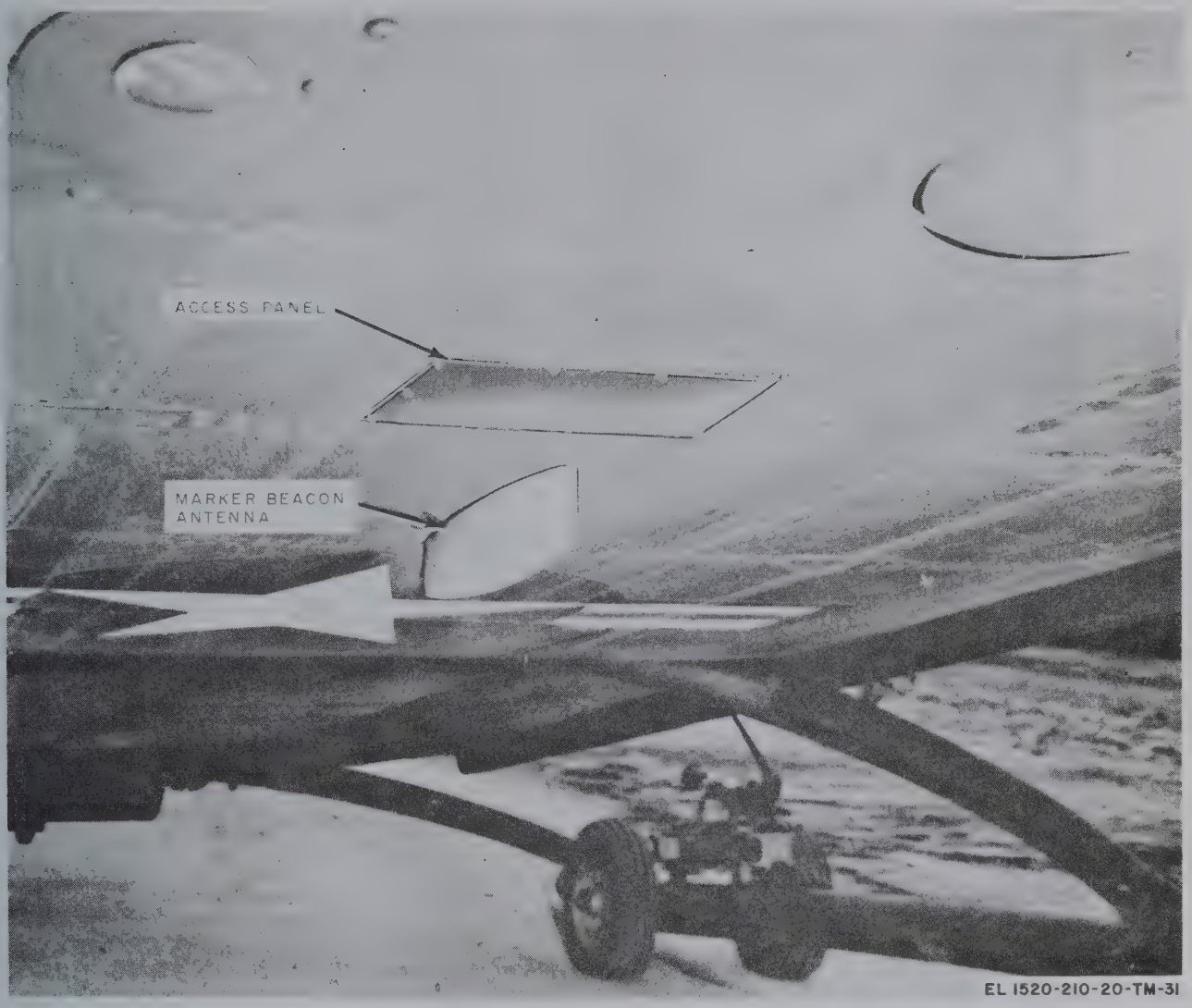


Figure 2–33. Location of Antenna 37X–2, 37RX–2, or AT 640A/ARN.

(2) Disconnect the cables attached to the impedance-matching units.

(3) Remove the CU–459/AR.

b. Replacement of CU–459/AR.

(1) Connect cables to the impedance-matching units.

(2) Mount the antenna impedance-matching network so that the elements are in a vertical position. When the elements are placed in a vertical position, the mounting holes on the impedance-matching units should be aligned with the mounting holes on their mounts.

NOTE

When installing impedance-matching units, rotate one unit 180° in relation to the other.

(3) Secure impedance-matching units in position with the mounting screws.

2–72. Removal and Replacement of Keying Unit KY–149/AR (AN/ARA–31 Only)

(fig. 2–36)

a. Removal of Antenna Keyer.

(1) Loosen the spring latches on each side of the antenna keyer cover, and raise the cover.

(2) Tag each of the antenna cables for identification, and disconnect the four antenna cables from the front receptacles on the antenna keyer.

(3) Remove safety wire, and disconnect the power connector from the 28-volt dc receptacle.

(4) Remove safety wire, and unscrew the two mounting screws at the front of the antenna keyer.

(5) Lift the front of the antenna keyer over the front mounting stud (not shown), and pull the antenna keyer forward to disengage the two guide pins at the rear of the mounting.



Figure 2–34. Location of fm Homing Antenna Group AN/ARA–31, configurations A and B.

b. Replacement of Antenna Keyer.

(1) Slide the antenna keyer onto its mounting until it is firmly engaged with the rear guide pins and the front mounting stud.

(2) Tighten and safety wire the two mounting screws.

(3) Connect and safety wire the power connector to the 28-volt dc receptacle.

(4) Connect the four antenna cable connectors to the tagged front receptacles (*a*(2) above) on the antenna keyer.

(5) Set the antenna keyer cover in place, and secure the spring latches on each side.

2–73. Removal and Replacement of Remote Induction Compass Transmitter C–2 (Aircraft Magnetic Compass Type J2) (fig. 2–37)

a. Removal of C–2 or T–611/AS.

(1) Remove the screws that secure the remote compass transmitter to its mounting bracket.

(2) Remove the remote compass transmitter and single-cycle error compensator (CN–405/ASN) as a unit.

(3) Remove the screws that secure the sin-

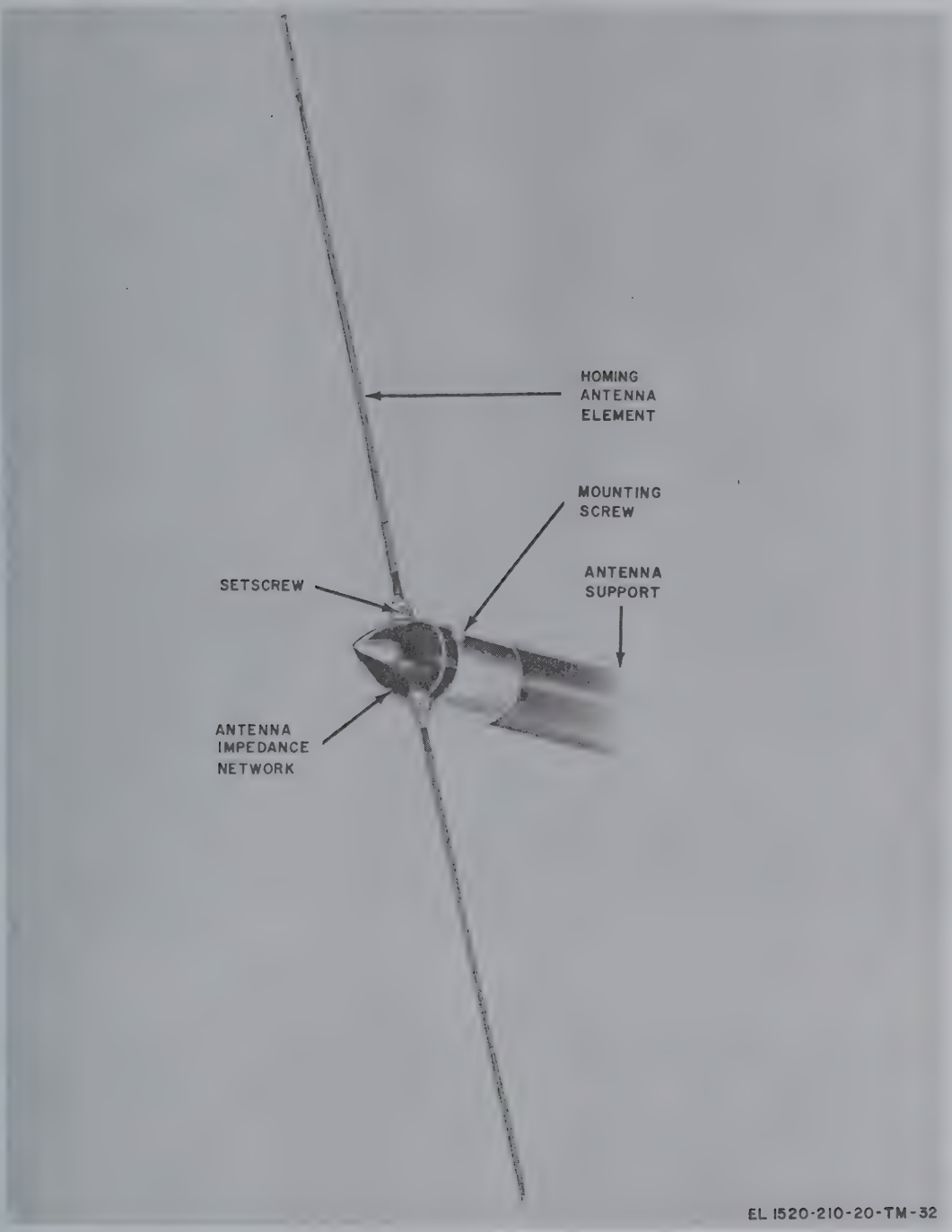


Figure 2–35. Antenna Elements AT–624(*)/AR with Network, Impedance Matching CU–459/AR.

gle-cycle error compensator (CN–405/ASN) to he remote compass transmitter.

(4) Remove the single-cycle error compensa-or.

(5) Remove the nuts and washers that se-ure the wires to the remote compass transmitter nd tag the wires.

b. Replacement of C–2 or T–611/ASN.

(1) Connect the tagged wires to the remote compass transmitter and secure with washers and nuts.

(2) Place the single-cycle error compensator on the remote compass transmitter and secure with mounting screws.

(3) Place the remote compass transmitter and single-cycle error compensator (CN–405/

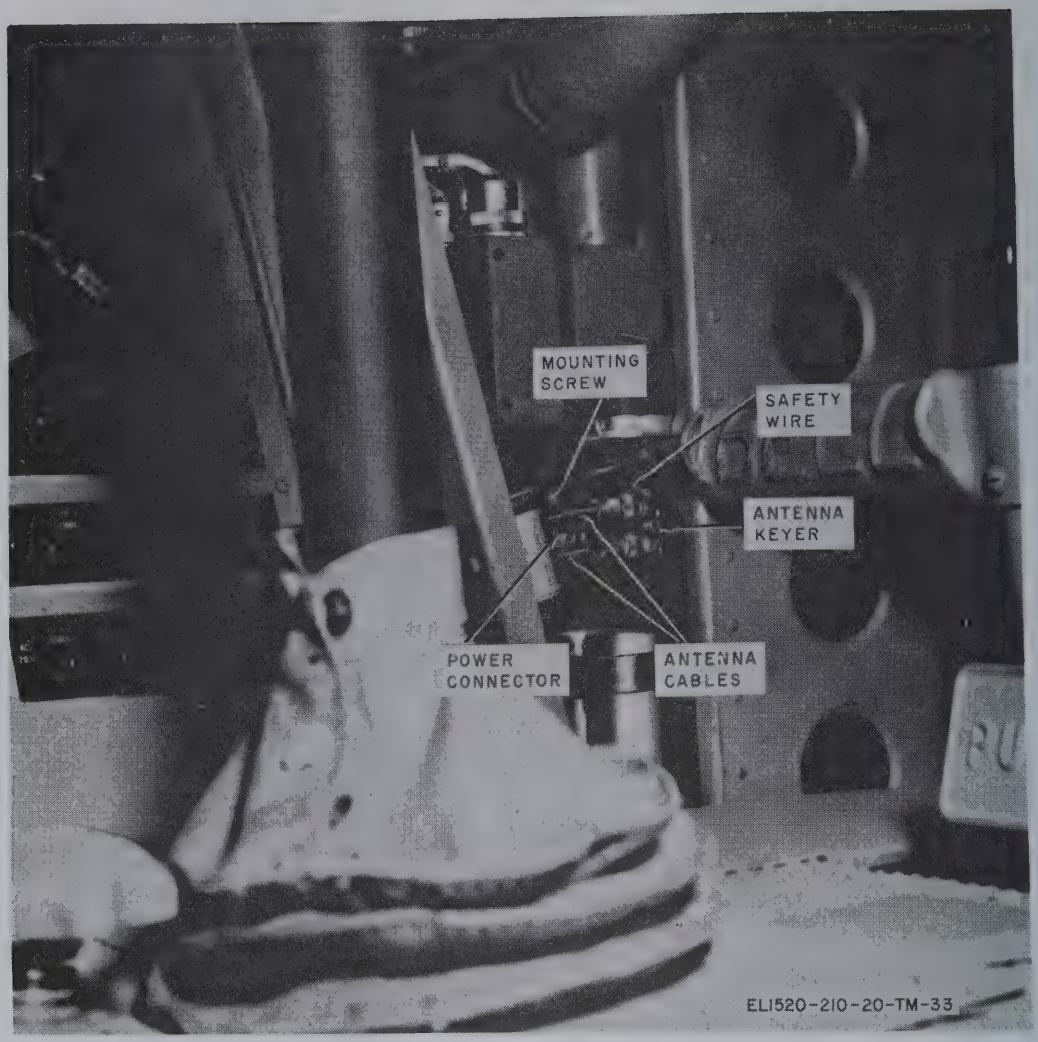


Figure 2–36. Location of Keying Unit KY–149(*)/AR.

ASN), as a unit, into the mounting bracket.

NOTE

Check to see that the mounting flange graduations on the remote compass transmitter are facing the forward portion of the helicopter.

(4) Secure the remote compass transmitter to its mounting bracket with the mounting screws.

2–74. Removal and Replacement of Control Amplifier A–2 (Aircraft Magnetic Compass Type J2)

(figs. 2–38, 2–39, and 2–40)

a. Removal of A–2.

(1) Cut the safety wire, and disconnect the electrical connector from the magnetic compass amplifier.

(2) Cut the safety wire, and disengage the snap-slide fasteners.

(3) Remove the magnetic compass amplifier from its mounting studs.

b. Replacement of A–2.

(1) Position the magnetic compass amplifier on its mounting studs, and secure with the snap-slide fasteners.

(2) Connect the electrical connector to the magnetic compass amplifier.

(3) Safety wire the electrical connector and the snap-slide fasteners.

2–75. Removal and Replacement of Electrically Driven Gyro Control Type S–3A (Aircraft Magnetic Compass Type J2)

(figs. 2–38, 2–39, and 2–40)

a. Removal of S–3A.

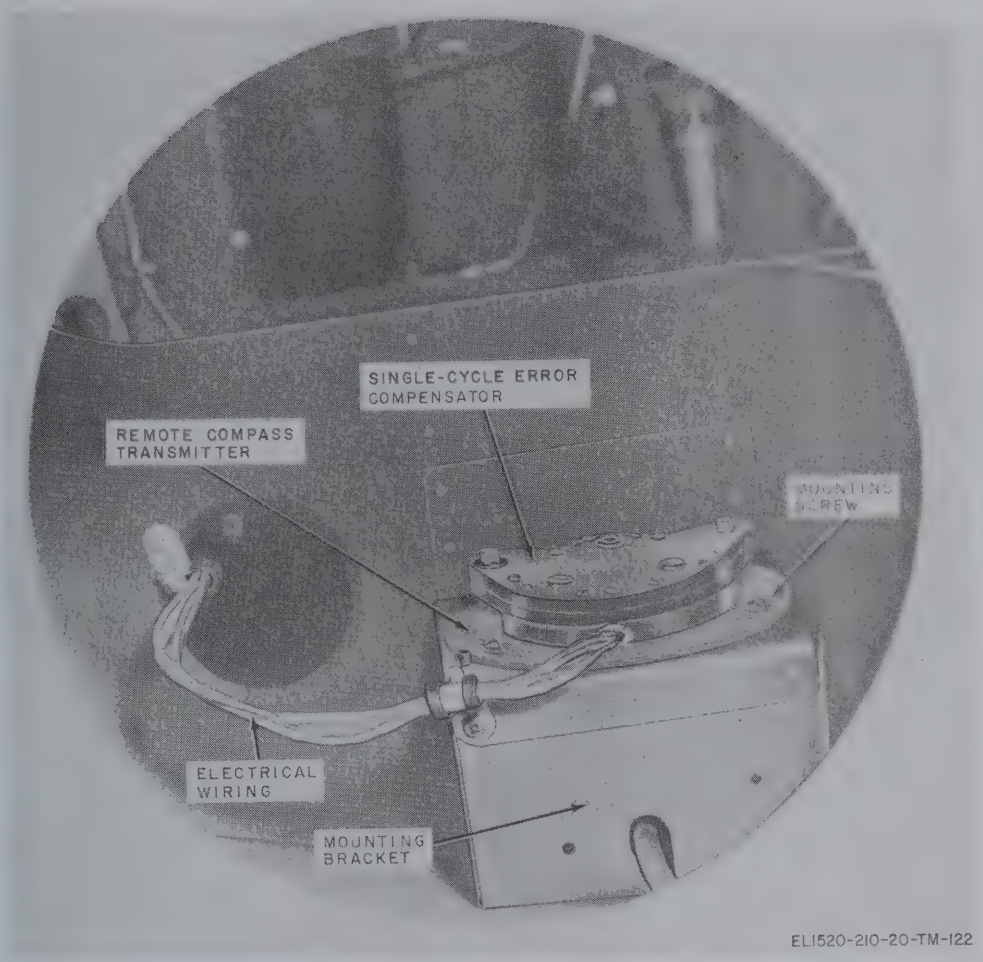


Figure 2–37. Location of Remote Induction Compass Transmitter C–2.

(1) Disconnect the electrical connector from the gyro control.

(2) Remove the nuts, bolts, and washers that secure the gyro control to the electrical compartment shelf.

(3) Remove the gyro control from the electrical compartment shelf.

b. Replacement of S–3A.

(1) Position the gyro control on electrical compartment shelf with the arrow on the gyro control pointing toward the front of the helicopter.

(2) Secure the gyro control to the electrical compartment shelf with the nuts, washers, and bolts.

(3) Connect the electrical connector to the gyro control.

2–76. Removal and Replacement of Directional Gyro Type CN–998/ASN–43 (Aircraft Magnetic Compass Type AN/ASN–43) (fig. 2–41)

a. Removal of CN–998/ASN–43.

(1) Disconnect the electrical connector from the gyro.

(2) Remove the nuts, bolts, and washers that secure the gyro to the electrical compartment shelf.

(3) Remove the gyro from the electrical compartment shelf.

b. Replacement of CN–998/ASN–43.

(1) Secure the gyro to the electrical compartment shelf with the nuts, washers, and bolts.

(2) Connect the electrical connector to the gyro.

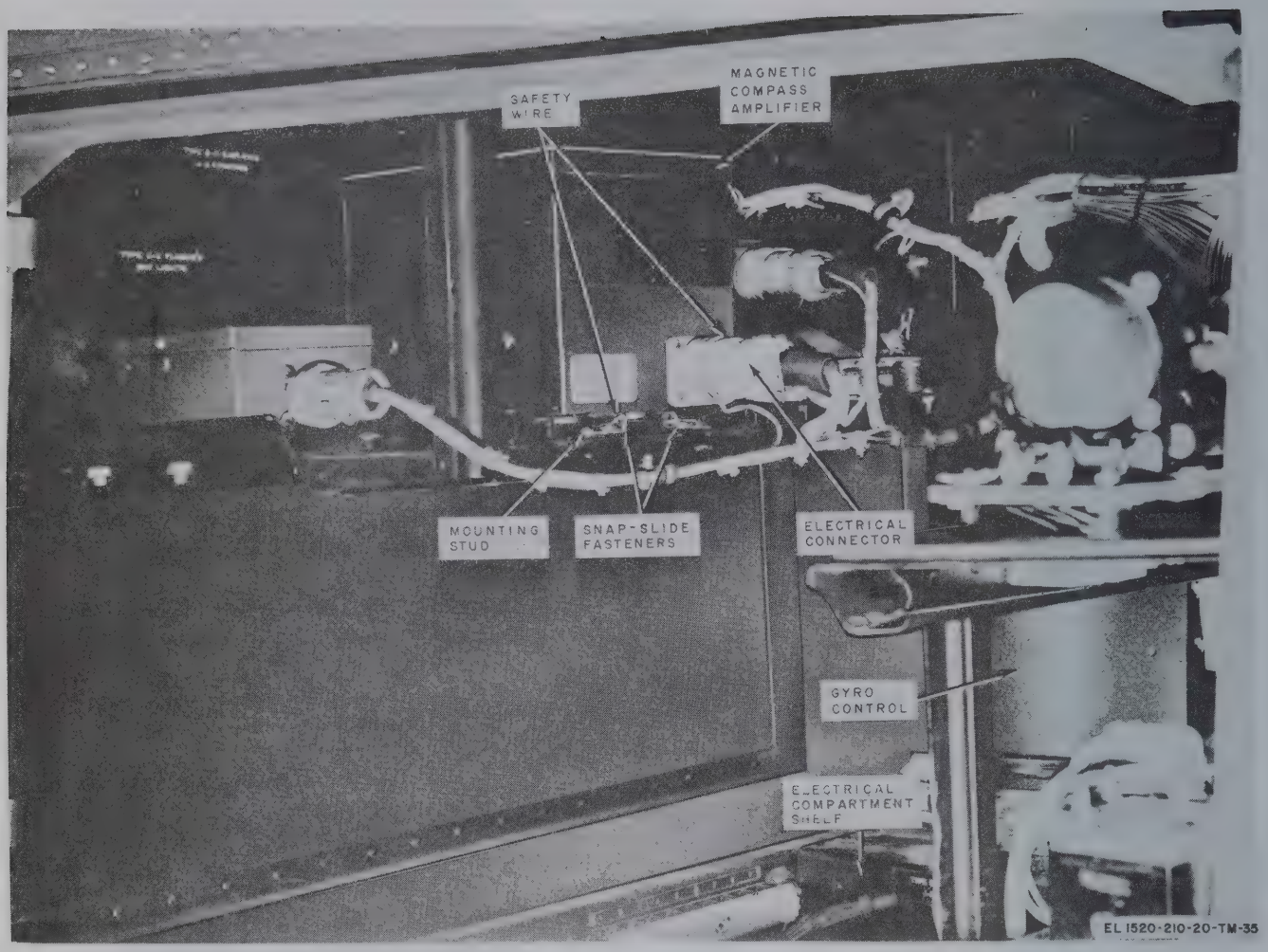


Figure 2–38. Location of electrically driven gyro control type S–3A and electronic control amplifier type A–2, configurations A and B.

2–77. Removal and Replacement of Indicator, Course ID–998/ASN (C–6H)
(fig. 2–42)

a. Removal of ID–998/ASN (C–6H).

(1) Remove the mounting screw from each corner of the magnetic compass indicator.

(2) Slowly pull the magnetic compass indicator out from the instrument panel far enough to reach the electrical connector at the rear.

(3) Disconnect the electrical connector from the magnetic compass indicator and remove the indicator.

b. Replacement of ID–998/ASN (C–6H).

(1) Connect the electrical connector to the rear of the magnetic compass indicator.

(2) Position the magnetic compass indicator in the instrument panel, and secure with screws.

2–78. Removal and Replacement of Amplifier, Electronic Control AM–3209/ASN
(fig. 2–43)

a. Removal of AM–3209/ASN.

(1) Remove the nuts and washers from the lugs that secure the amplifier to its mounting bracket.

(2) Lift the amplifier from the mating connector.

b. Replacement of AM–3209/ASN.

(1) Insert the amplifier into the mating connector.

(2) Secure the amplifier to the mounting bracket with washers and nuts.

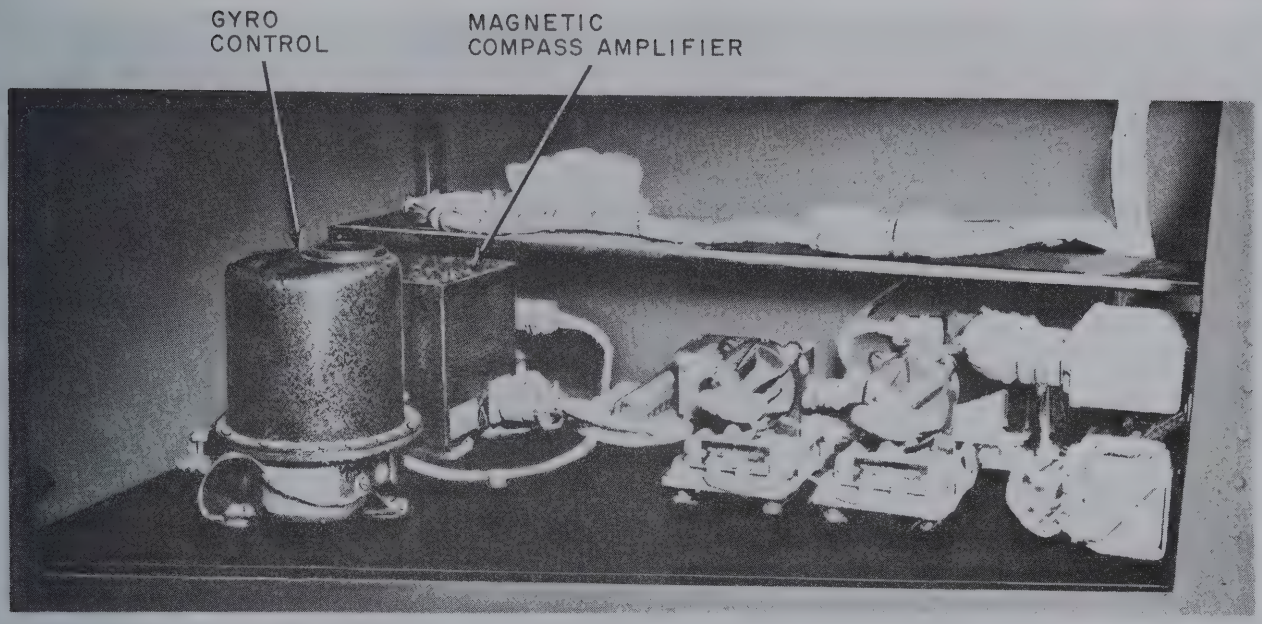


Figure 2–39. Location of electrically driven gyro control type S–3A and electronic control amplifier type A–2, configuration C.

2–79. Removal and Replacement of Indicator, Course ID–250/ARN
(fig. 2–28)

a. Removal of ID–250/ARN.

(1) Remove the screws that secure the light shield to the course indicator, and remove the light shield.

(2) Remove the mounting screw from each corner of the course indicator.

(3) Slowly pull the course indicator out from the instrument panel far enough to reach the electrical connector at the rear.

(4) Disconnect the electrical connector from the course indicator and remove the indicator.

b. Replacement of ID–250/ARN.

(1) Connect the electrical connector to the rear of the course indicator.

(2) Position the course indicator in the instrument panel, and secure it with screws.

(3) Place the light shield on the course indicator, and secure the light shield to the course indicator with the mounting screws.

2–80. Removal and Replacement of Receiver-Transmitter, Radio RT–494/APX–44
(fig. FO–1)

a. Removal.

(1) Disconnect all cables from the front panel connectors.

(2) Loosen the two knurled knobs of holddown clamps on the mount by turning ccw.

(3) Turn the injector-ejector knob ccw several turns. When the receiver-transmitter has been brought out far enough to disengage the holddown hooks, lift the front end slightly to clear the front panel lip from the injector-ejector groove engaged. Turn the injector-ejector knob the mount, and remove the detachable sideplates by turning the fasteners ccw.

b. Replacement of RT–494/APX–44.

(1) Place the receiver-transmitter between the side rails of the mount.

(2) Slide the receiver-transmitter to the rear until the guide pins at the rear of the mount engage the guide holes at the rear of the receiver-transmitter case.

(3) Before the mount and the receiver-transmitter connectors engage, raise the receiver-transmitter slightly and match the lip of its case with the groove of the injector-ejector mechanism.

(4) Lower the case front, with the lip and groove engaged. Turn the injector-ejector knob cw until the receiver-transmitter is fully seated.

(5) Lock the receiver-transmitter in place by engaging and tightening the holddown clamps and turning the knurled knobs cw.

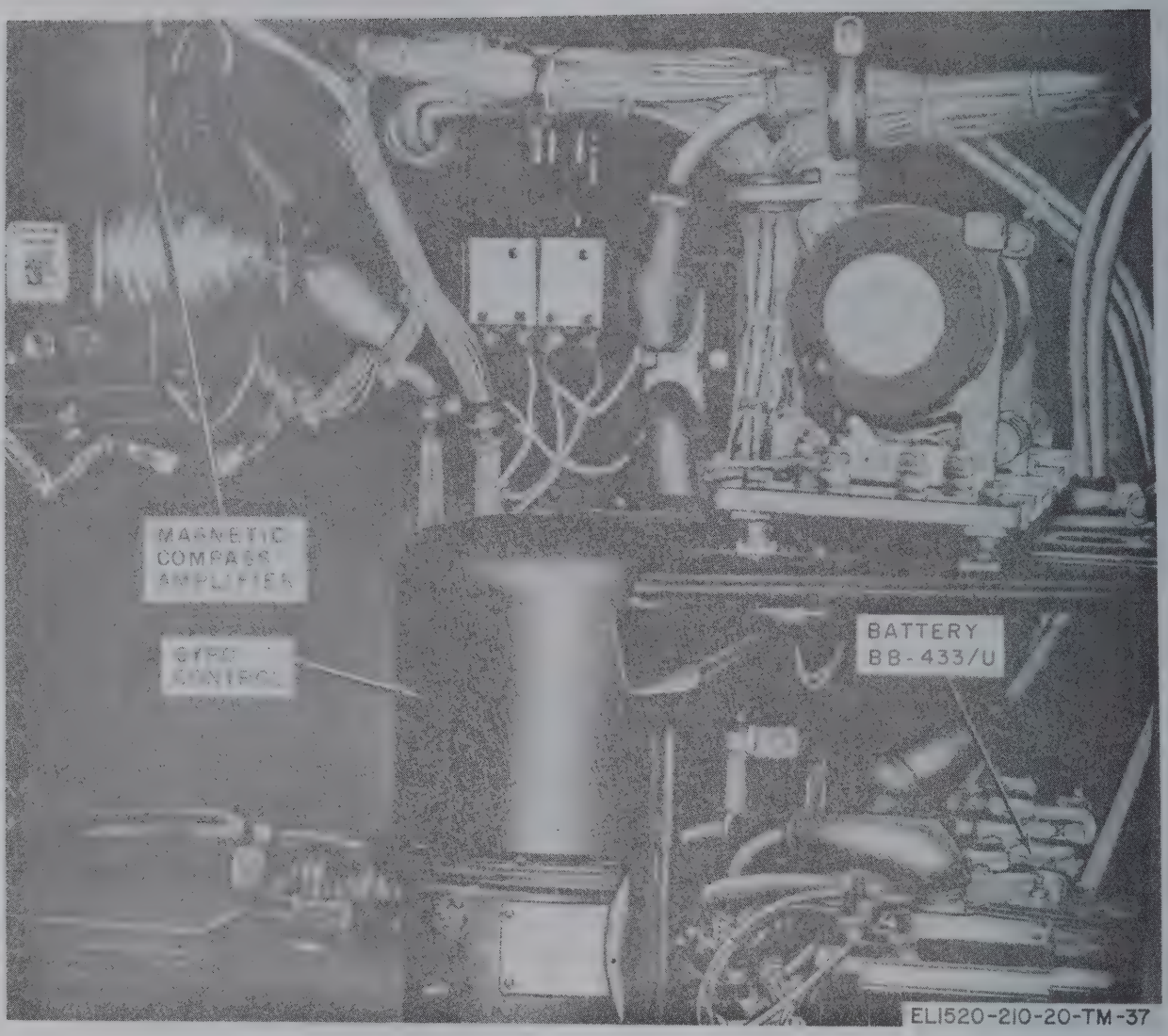


Figure 2–40. Location of electrically driven gyro control type S–3A and electronic control amplifier type A–2, configurations D through F.

2–81. Removal and Replacement of Antenna AT–884/APX–44

(figs. 2–44 and FO–1)

a. Removal of AT–884/APX–44.

(1) Remove the mounting screws, nuts, and washers that secure the antenna to the helicopter.

(2) Pull the antenna out as far as the wiring will permit, and disconnect the wires from the antenna.

(3) Remove the antenna.

b. Replacement of AT–884/APX–44.

(1) Connect the wires to the antenna.

(2) Position the antenna, and install the mounting screws, nuts, and washers.

2–82. Removal and Replacement of Transponder Set Control C–2714/APX–44

(fig. 2–7)

a. Removal of C–2714/APX–44.

(1) Release the mounting fasteners, and lift the panel from the pedestal.

(2) Disconnect the electrical connector from the rear of the control panel, and cover the connector openings.

b. Replacement of C–2714/APX–44.

(1) Connect the electrical connector to the rear of the control panel.

(2) Position the control panel in the pedestal, and secure the mounting fasteners.

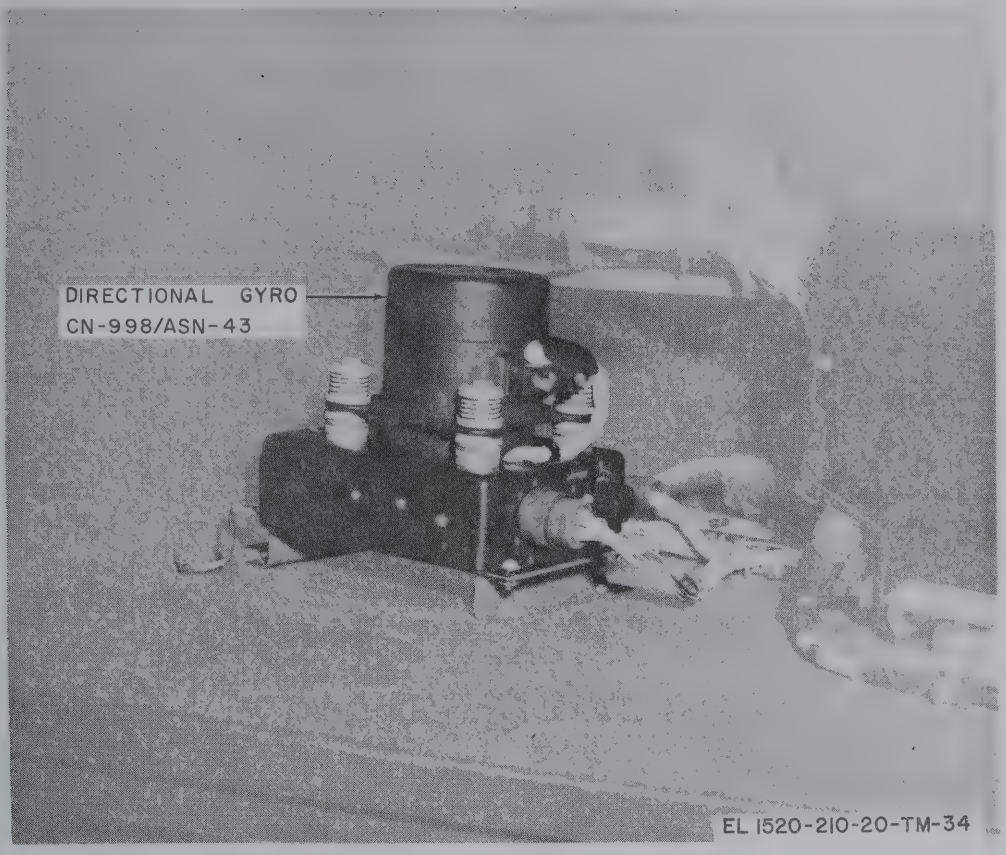


Figure 2–41. Location of Directional Gyro CN–998/ASN–43 configurations G and H.

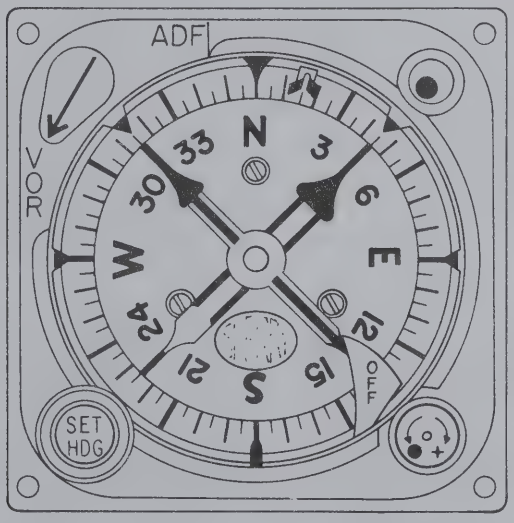


Figure 2–42. Indicator, Course ID–998/ASN.

2–83. Removal and Replacement of Motor Generator PU–543(*)/A (fig. 2–45)

a. Removal of Inverter.

(1) Disconnect the electrical connector from the inverter.

(2) Remove the four bolts and nuts that secure the inverter mounting plate to the electrical shelf.

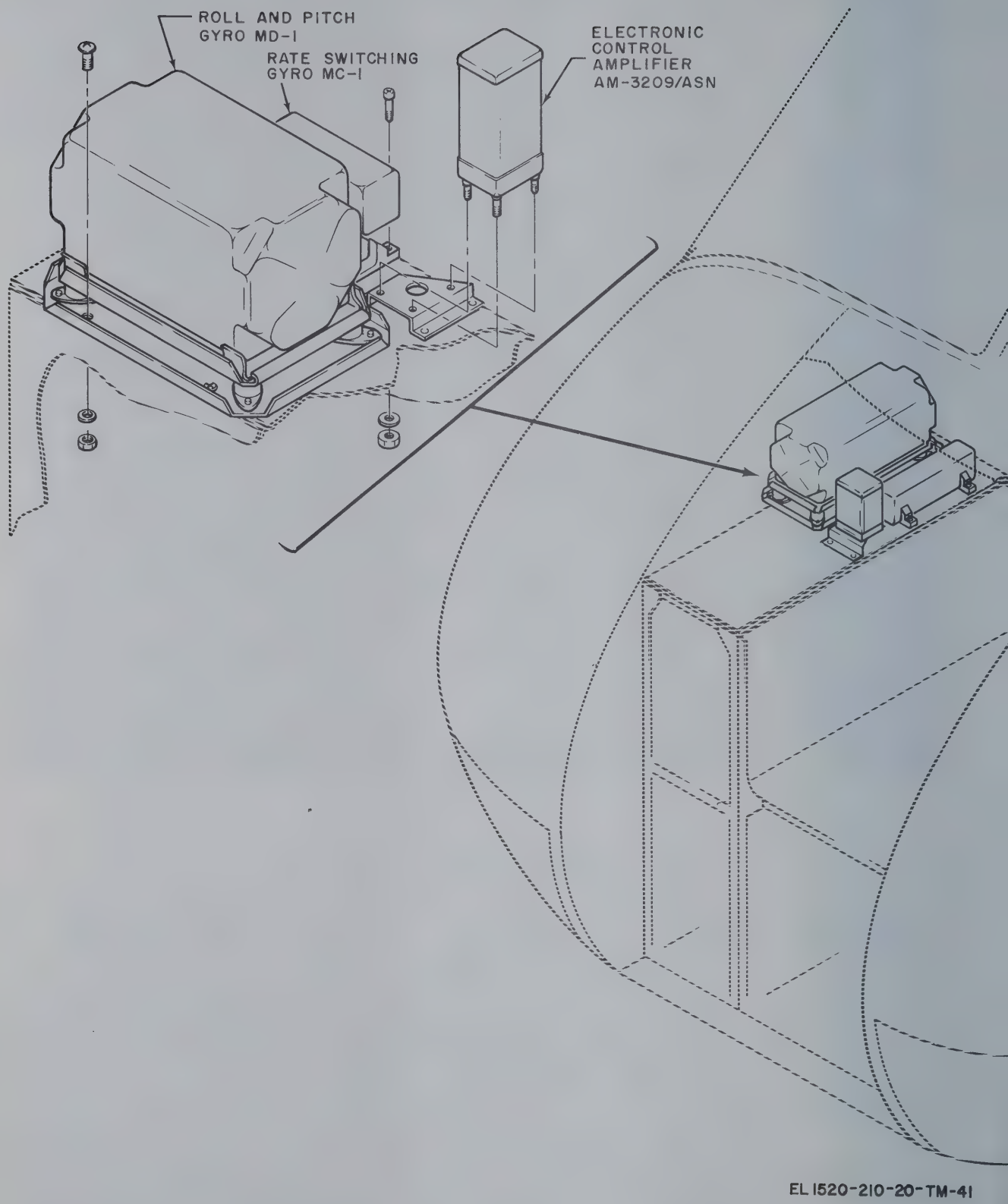


Figure 2-43. Roll and Pitch Displacement Gyroscope MD-1, Rate Switching Gyroscope MC-1, and Electronic Control Amplifier AM-3209/ASN location.

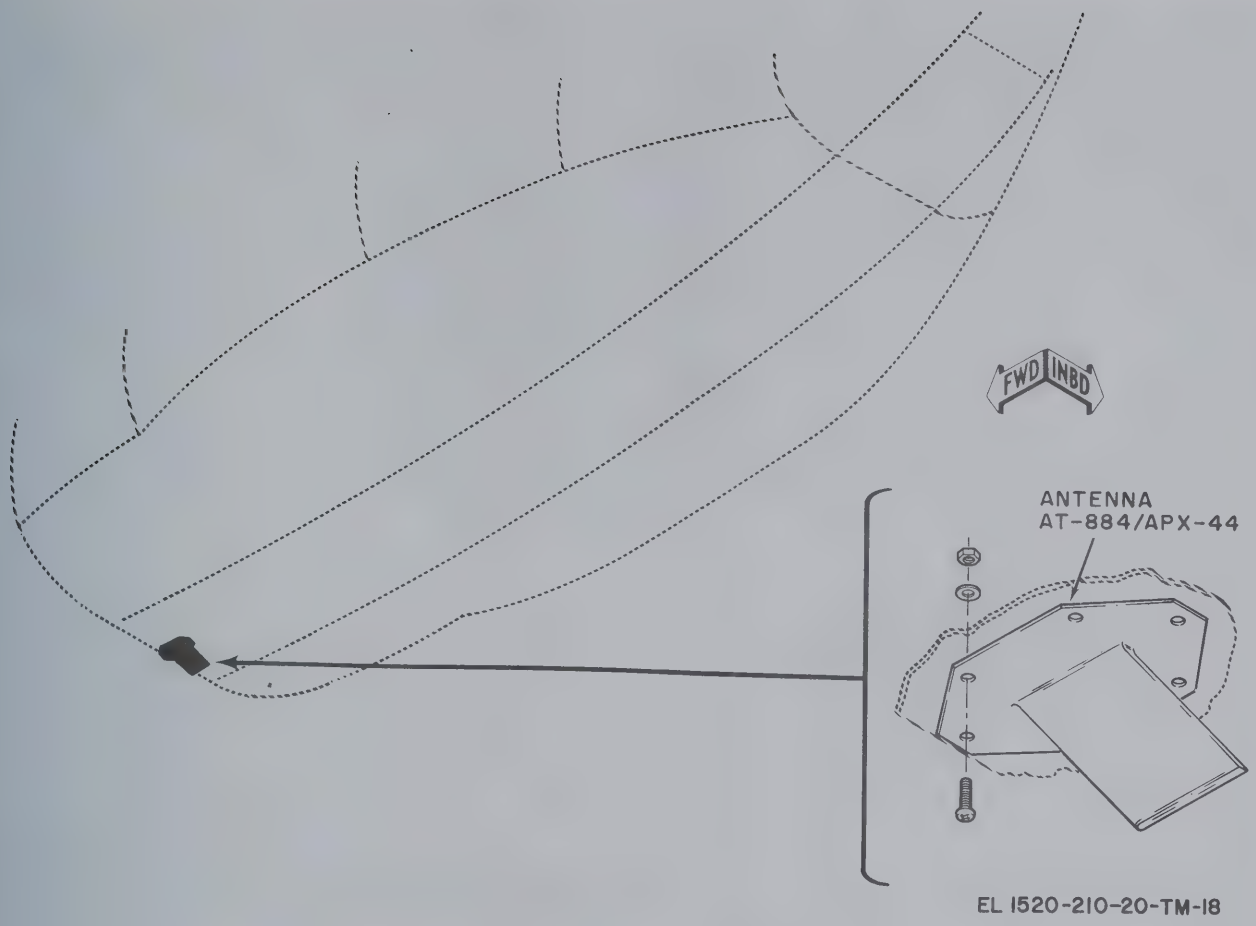


Figure 2-44. Location of IFF antenna.

(3) Remove the inverter assembly.

b. Replacement of Inverter.

(1) Remove the cover from the inverter regulator box and check to see that the terminal block is wired as the removed (or the other) inverter.

(2) Replace the regulator cover.

(3) Check to see that the electrical shelf, where the inverter mounting plate will make contact, is free from oil and grease.

(4) Set the inverter on the shelf and secure in place with the nuts and bolts remove in *a*(2) above.

(5) Connect the electrical connector to the inverter and safety wire in place.

2-84. Removal and Replacement of Secure-Voice Coder TSEC/KY-28
(fig. FO-1)

For removal and replacement procedures, refer to the applicable Army Security Agency publication.

2-85. Removal and Replacement of Secure-Voice Control-Indicator C-8157/ARC
(fig. 2-7)

For removal and replacement procedures, refer to the applicable Army Security Agency publication.

2-86. Removal and Replacement of Mount MT-3802/ARC

For removal and replacement procedures, refer to the applicable Army Security Agency publication.

2-87. Removal and Replacement of Remote Cipher Light (Configurations C Through H)
(fig. 2-46)

a. Removal.

(1) Remove lens and lamp by grasping firmly and turning ccw.

(2) Remove retaining nut by turning ccw.

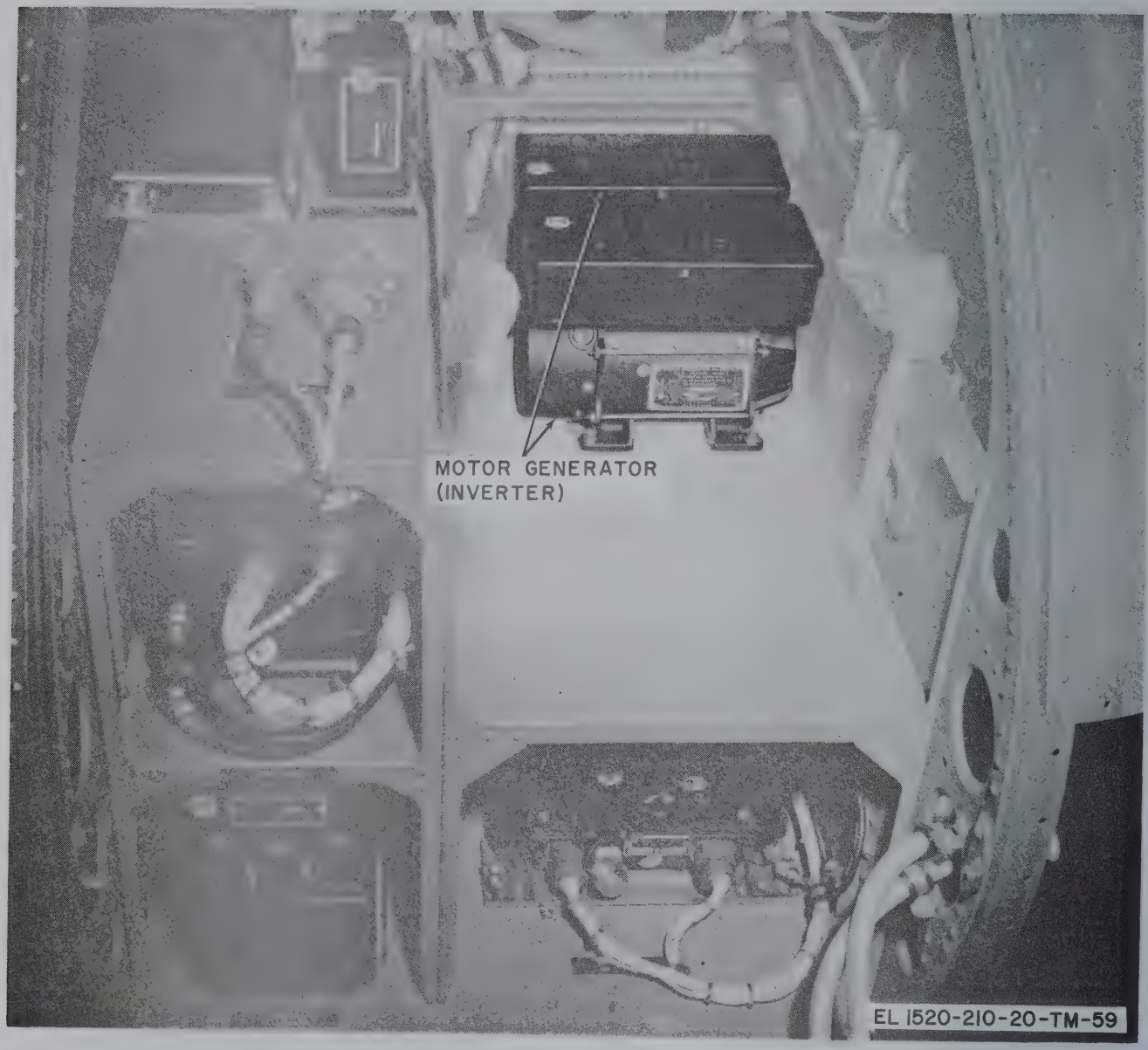


Figure 2–45. Installation of Motor Generator PU–543(*)/A.

(3) Remove four screws and four washers from cipher light cover.

(4) Remove cipher light cover.

(5) Disconnect and tag the cipher light wires.

(6) Remove the cipher light.

b. Replacement.

(1) Connect the wires to the cipher light.

(2) Install the cipher light into its hole in the cipher light cover and position the cipher light cover onto the base plate.

(3) Install the four screws and four washers to secure the cipher light cover.

(4) Install the retaining nut by turning cw.

(5) Install the lens and lamp by turning cw.

2–88. Removal and Replacement of Remote Cipher Light Configurations I and J) (fig. 2–10)

a. Removal.

(1) Remove C–1611/AIC control (para 2–19).

(2) Remove lens and lamp by grasping firmly and turning ccw.

(3) Remove retaining nut by turning ccw.

(4) Disconnect and tag the cipher light wires.

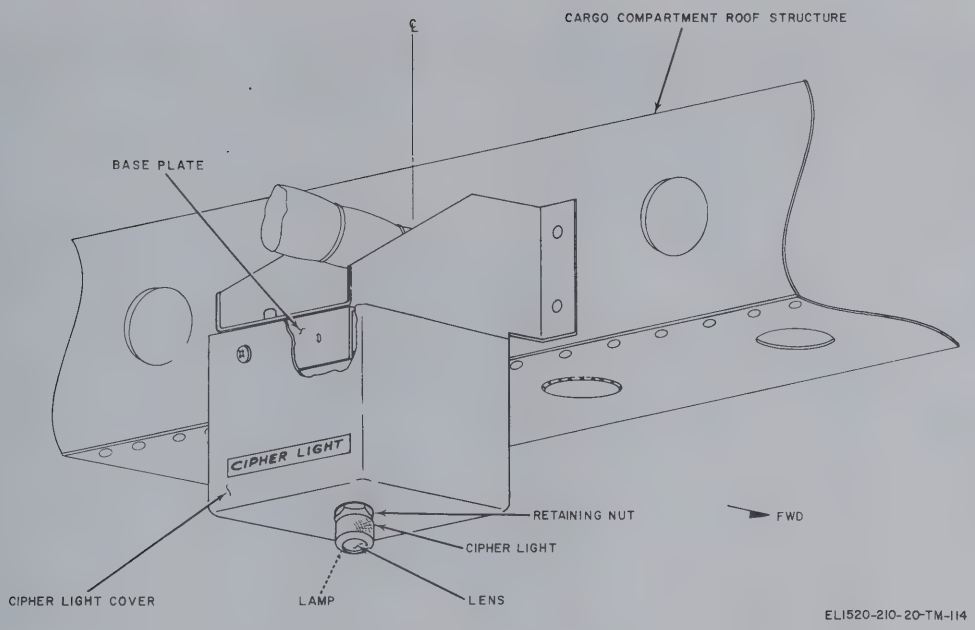


Figure 2–46. Remote cipher light location, configurations C through H.

(5) Remove the cipher light.

b. Replacement.

(1) Connect the wires to the cipher light.

(2) Place the cipher light into position above the HOT MIC switch.

(3) Install the retaining nut by turning cw.

(4) Install the lens and lamp by turning cw.

(5) Install the C–1611/AIC control (para 2–19).

2–89. Removal and Replacement of Computer Transponder KIT–1A/TSEC

(figs. 2–30, FO–1, FO–2, and FO–3)

a. Removal.

(1) Disconnect the cables from their connectors.

(2) Release the fasteners that attach the unit to the mount.

(3) Remove the unit from the mount.

b. Replacement.

(1) Position the unit onto the mount.

(2) Secure the unit to the mount by turning the fasteners.

(3) Reconnect the cables.

2–90. Removal and Replacement of Receiver-Transmitter RT–859/APX–72

(figs. 2–30, FO–1, FO–2, and FO–3)

Procedures for removal and replacement of the RT–859/APX–72 transponder are the same as for the RT–494/APX–44 transponder (para 2–80).

2–91. Removal and Replacement of Control, Transponder Set C–6280/APX–72

(fig. 2–7)

Procedures for removal and replacement of the C–6280/APX–72 control are the same as for the C–2714/APX–44 control (para 2–82).

2–92. Removal and Replacement of Test Set TS–1843/APX–72

(figs. 2–25, 2–30, FO–1, and FO–3)

a. Removal.

(1) Disconnect POWER and ANTENNA cables from their respective connectors.

(2) Remove the holddown screws that secure the unit to the mount.

(3) Remove the transponder test set from the mount.

b. Replacement.

(1) Place the transponder test set into position.

(2) Install the holddown screws that secure the unit to the mount.

(3) Reconnect the POWER and ANTENNA cables.

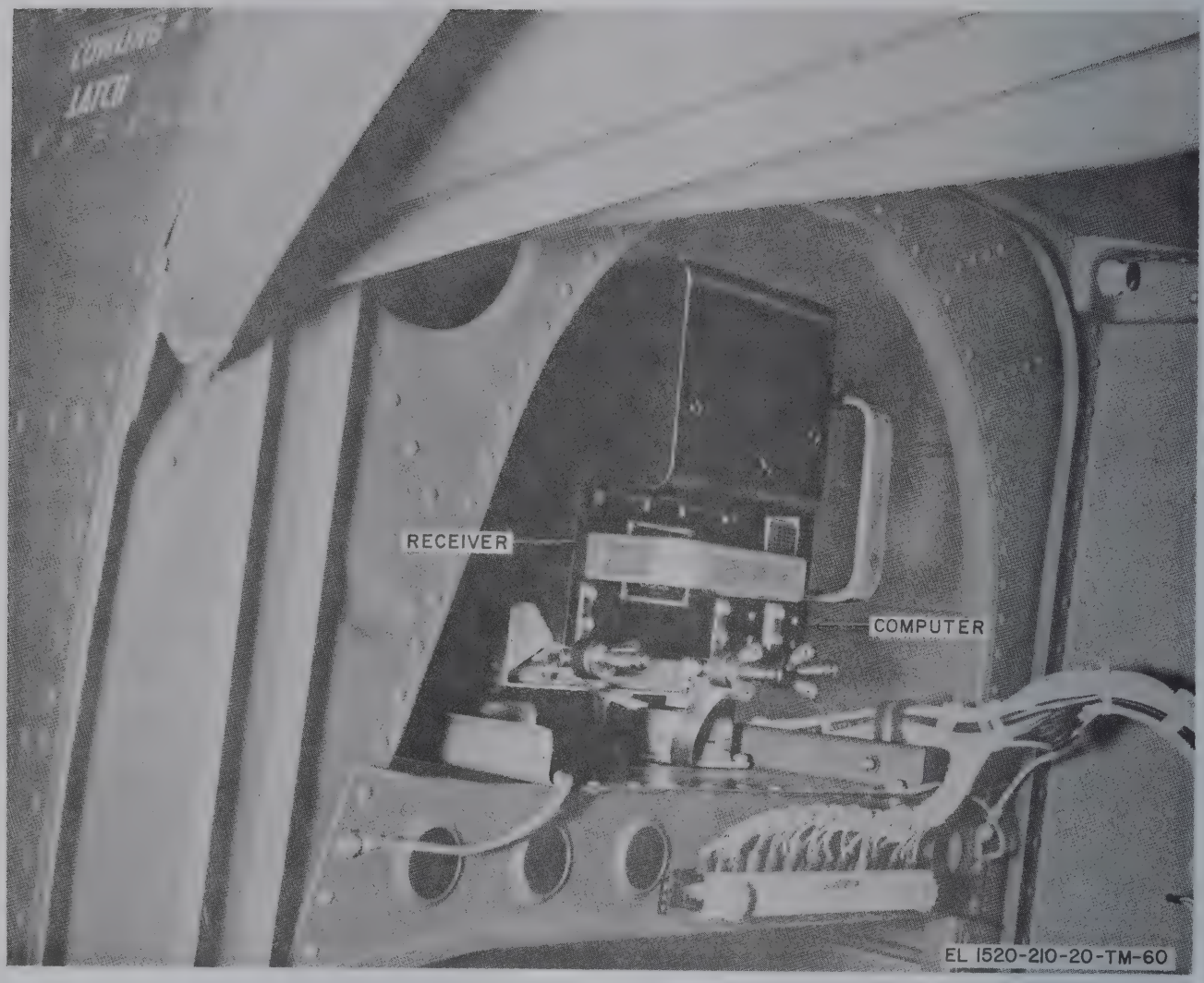


Figure 2-47. AN/ASN-72, receiver and computer location.

2-93. Removal and Replacement of Receiver, Position Fixing R-1453/ASN-72
(fig. 2-47)

a. Removal.

(1) Disengage the two screw clamps from the holddown brackets at the front of the receiver by turning the knurled nuts ccw.

(2) Using the handle at the front of the receiver, pull the receiver forward and away from the mounting.

b. Replacement.

(1) Using the handle at the front of the receiver, place the receiver on the mounting and push toward the rear of the mounting.

(2) Engage the two screw clamps to the holddown brackets at the front of the receiver by turning the knurled nuts cw.

2-94. Removal and Replacement of Computer, Flight Log CP-880/ASN-72
(fig. 2-47)

a. Removal.

(1) Disengage the screw clamp from the holddown bracket at the front of the computer by turning the knurled nut ccw.

(2) Using the handle at the front of the computer, pull the computer forward and away from the mounting.

b. Replacement.

(1) Using the handle at the front of the computer, place the computer on the mounting and push toward the rear of the mounting.

(2) Engage the screw clamp to the holddown bracket at the front of the computer by turning the knurled nut cw.

2–95. Removal and Replacement of Indicator, Hyperbolic Grid Lane, Green ID–1425/ASN–72; Indicator, Hyperbolic Grid Lane, Red ID–1426/ASN–72; Indicator, Hyperbolic Grid Lane, Purple ID–1424/ASN–72, and Indicator, Lane Identification ID–1427/ASN–72

(fig. 2–48)

a. Removal.

(1) Remove the two mounting screws and hardware at the front corners of the decometer (or lane identification meter) and slide the meter housing from the mounting panel hole.

(2) Unscrew and disconnect the cable connector from the connector at the rear of the meter housing.

NOTE

If more than one decometer is removed, tag and identify the cable connectors so that they may be reconnected to the proper decometer during replacement.

b. Replacement.

(1) Connect and screw the cable connector to the connector at the rear of the meter housing.

(2) Slide the meter housing into the mounting panel hole and install the two mounting screws and hardware at the front corners of the meter.

2–96. Removal and Replacement of Control, Receiver C–7152/ASN–72

(fig. 2–48)

a. Removal.

(1) Loosen the four turnlock fasteners at the front of the receiver control panel.

(2) Slide the receiver control panel from its mounting panel hole.

(3) Disconnect the cable connector at the rear of the receiver control panel and remove the control panel.

b. Replacement.

(1) Connect the cable connector at the rear of the control panel.

(2) Slide the receiver control panel into its mounting panel hole.

(3) Tighten the four turnlock fasteners at the front of the receiver control panel.

2–97. Removal and Replacement of Control Programmer C–7153/ASN–72

(fig. 2–48)

a. Removal.

(1) Loosen the four turnlock fasteners at the front of the flight log control.

(2) Slide the flight log control from its mounting panel hole.

(3) Disconnect the cable connectors at the rear of the flight log control box. Make sure that the two connectors are tagged and identified so that they can be correctly mated with the connectors on the flight log control box during replacement.

b. Replacement.

(1) Connect the two cable connectors to the correct mating connectors at the rear of the flight log control box.

(2) Slide the flight log control into its mounting panel hole.

(3) Tighten the four turnlock fasteners at the front of the flight log control.

2–98. Removal and Replacement of Amplifier, Radio Frequency AM–4740/ASN–72

a. Removal.

(1) Loosen the four captive mounting screws at the top of the preamplifier; retain all hardware.

(2) Lift the preamplifier from its mounting.

(3) Disconnect the four-pin connector and the coaxial connector at the underside of the preamplifier.

b. Replacement.

(1) Connect the four-pin connector and the coaxial connector at the underside of the preamplifier.

(2) Place the preamplifier on its mounting.

(3) Tighten the four captive mounting screws at the top of the preamplifier.

2–99. Removal and Replacement of Recorder-Viewer, Flight Log RD–323/ASN–72

(fig. 2–49)

a. Removal.

(1) Remove the three screws and associated hardware at the back of the flight log display.

(2) Lift the flight log display from its mounting.

(3) Disconnect the cable connector at the back of the flight log display and remove the display.

b. Replacement.

(1) Connect the cable connector at the back of the flight log display.

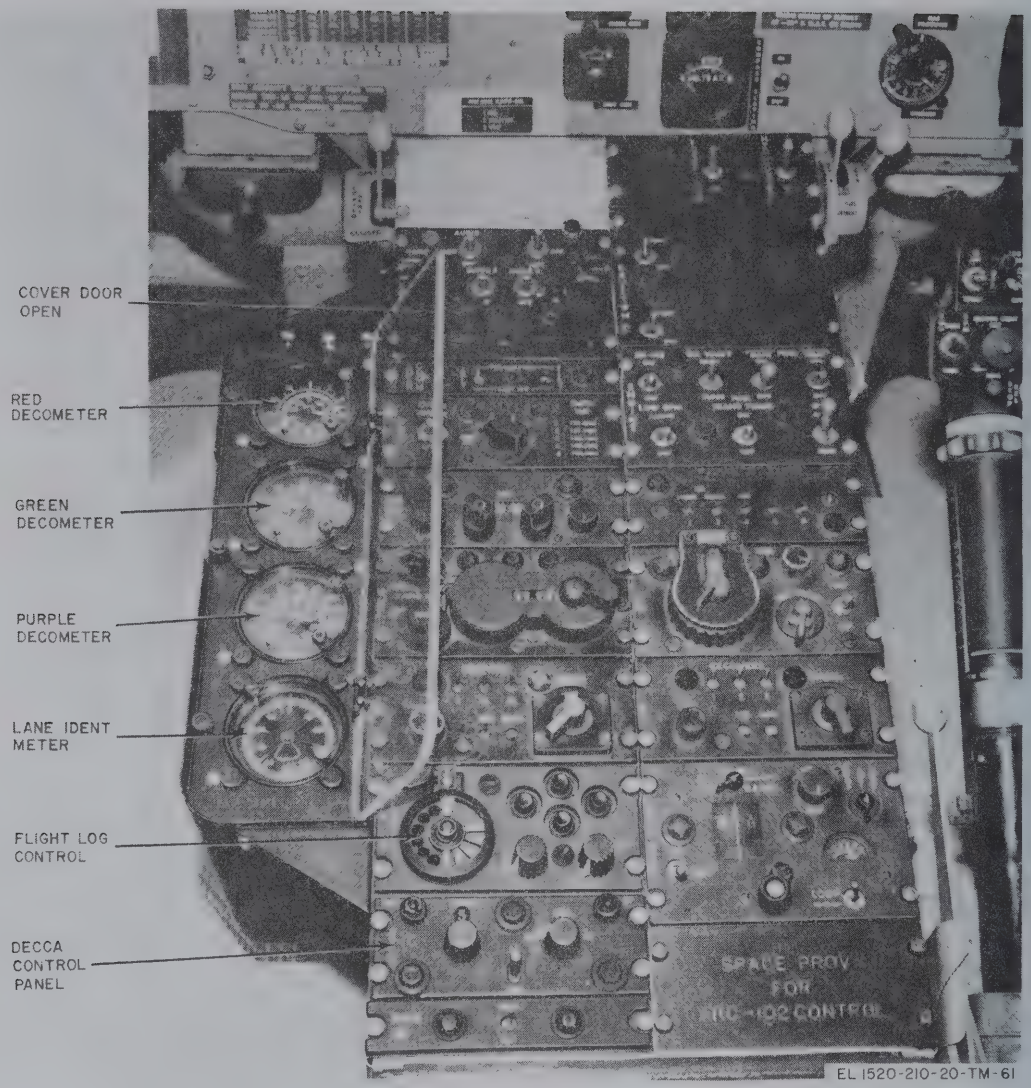


Figure 2–48. AN/ASN–72, control panels and instruments location.

(2) Place the flight log display onto its mounting.

(3) Install the three screws and associated hardware at the back of the flight log display.

2–100. Removal and Replacement of Cassette

a. Removal.

(1) Depress the two upper triangular-shaped levers, and the top part of the cassette will be disengaged from the case.

(2) Depress the two lower levers, and the cassette can be lifted from the case.

b. Replacement.

(1) Press the ends of the lower roller into the holes at the sides of the case at the triangular-shaped levers.

(2) Press the cassette firmly into the holes until it is locked in place; then press the upper part of the cassette firmly into the case until it is engaged by the upper levers.

2–101. Removal and Replacement of Switch, Microphone SA–47A/AIC (Foot Switch)

(fig. 2–50)

a. Removal.

(1) Remove flight controls access doors.

(2) Disconnect and tag the wires attached to the foot switch.

(3) Remove the screws and washers that secure the foot switch to the cabin floor.

b. Replacement.

(1) Connect the wires to the foot switch.

(2) Secure the foot switch to the cabin floor with screws and washers.

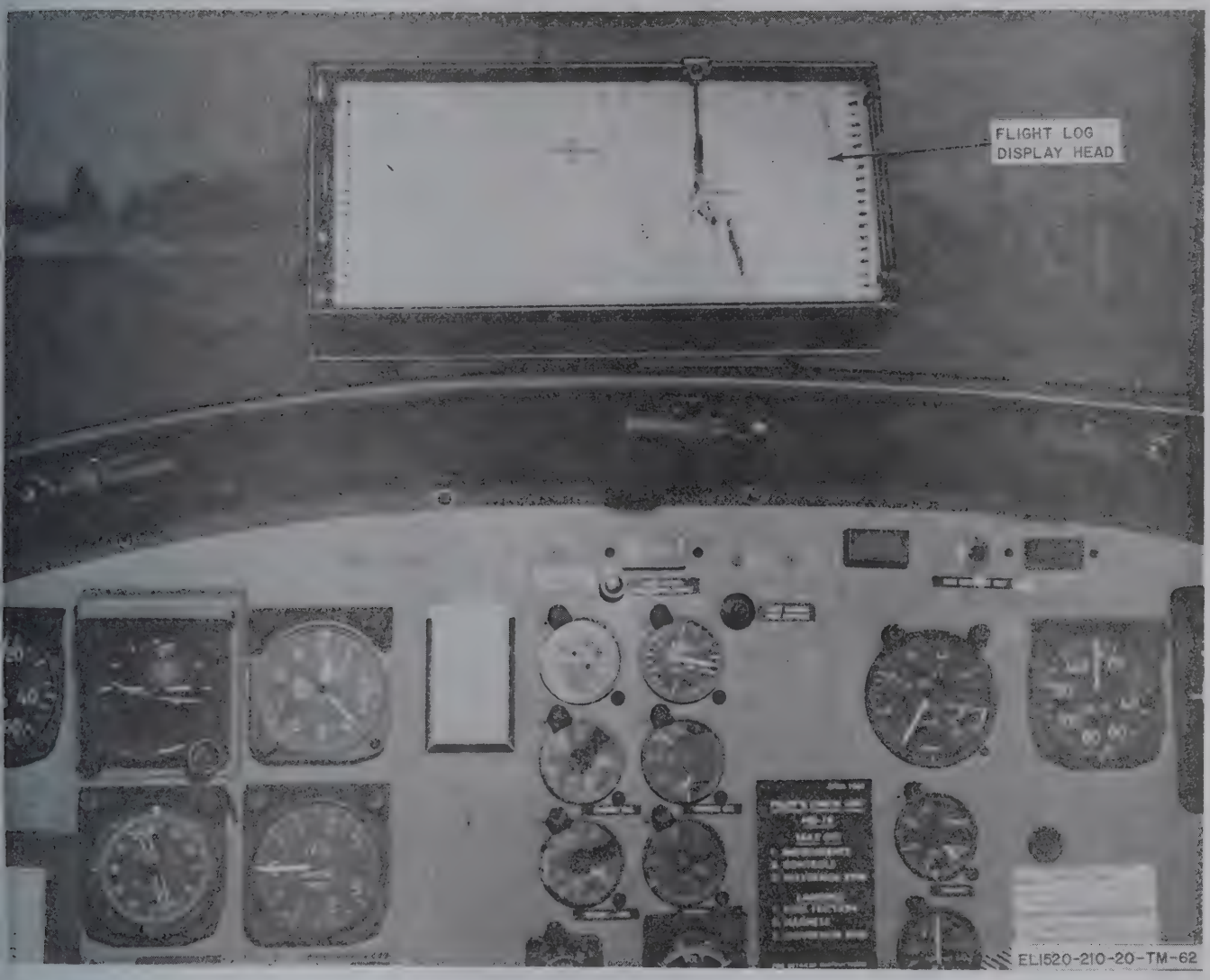


Figure 2–49. AN/ASN–72, flight log display head location.

(3) Replace flight controls access doors.

2–102. Removal and Replacement of Cyclic Stick Switch X942–2 (Trigger Switch)

(fig. 2–51)

a. Removal.

(1) Remove the two screws at the top of the cyclic stick grip.

(2) Remove the cyclic stick grip cover.

(3) Loosen the clamps at the base of the stick and slide the microphone switch upward.

(4) Disconnect and tag all wires and remove the microphone switch.

b. Replacement.

(1) Connect the tagged wires to the microphone switch.

(2) Slide the microphone switch down into the cyclic stick grip.

(3) Remove slack from the cable assembly and tighten the clamps at the base of the cyclic grip.

(4) Secure the cyclic stick grip cover with screws.

2–103. Removal and Replacement of Filter, Direct Current Power R–726/AR (Power Unit ARC Type P–12)

(fig. 2–25)

a. Removal.

(1) Remove Dynamotor DY–86/ARN–30 (para 2–49).

(2) Cut and remove safety wire on the power unit.

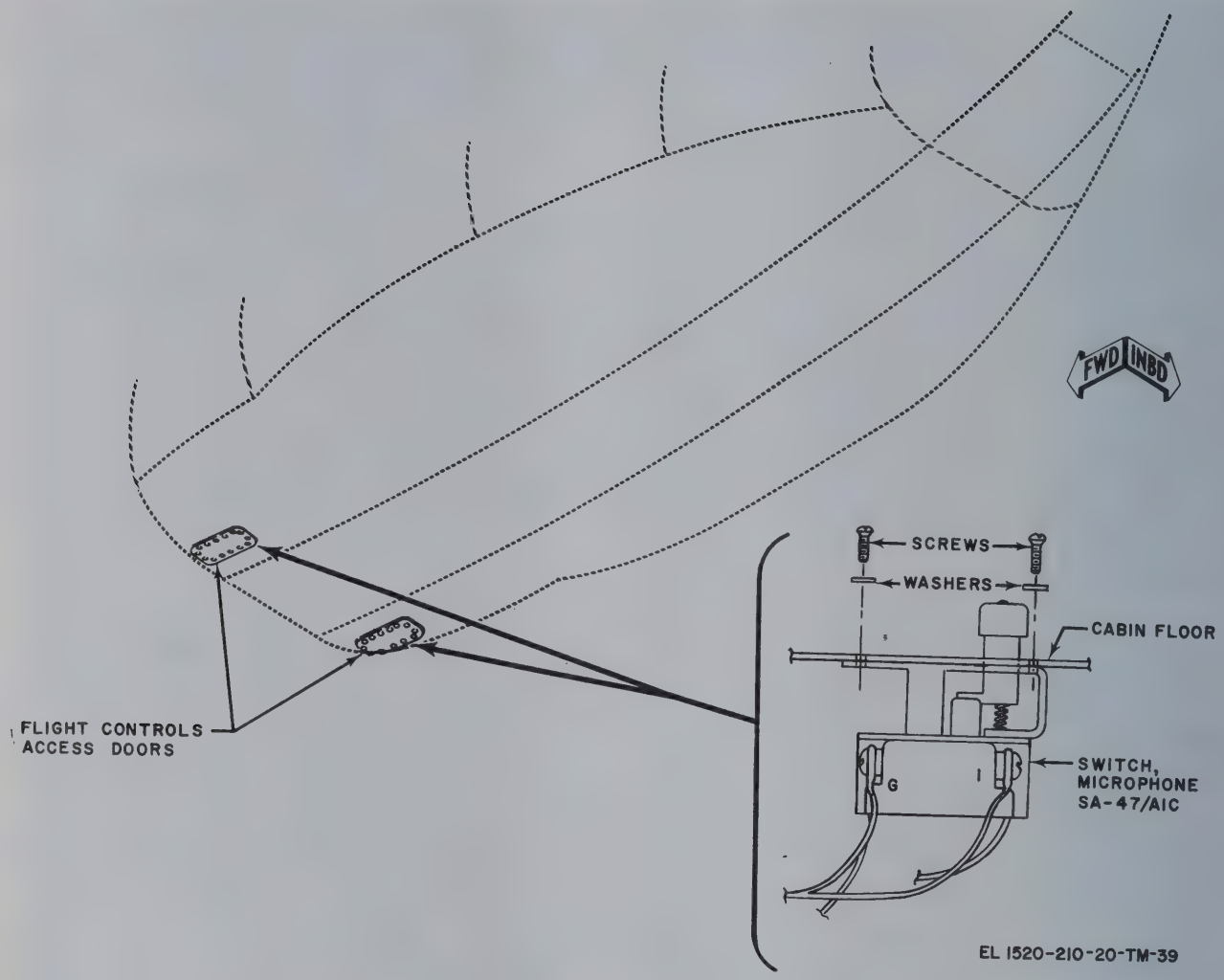


Figure 2–50. Microphone SA–47A/AIC foot switch location.

(3) Loosen the slide fasteners and remove the holddown screws and washers.

(4) Disconnect the connector on the power unit and lift the unit from its mounting.

b. Replacement.

(1) Position the power unit on its mounting.

(2) Install the holddown screws and washers and close the slide fasteners.

(3) Secure the connector to the receptacle and install all safety wire as removed in *a*(2) above.

(4) Relace Dynamotor DY–86/ARN–30 (para 2–49).

2–104. Removal and Replacement of Converter, Radio-Magnetic Indicator CV–1275/ARN or B–18A

(figs. 2–52 and 2–53)

a. Removal.

(1) Clip the safety wire, loosen the thumbscrews, and turn the retainer clips.

(2) Slide the CV–1275/ARN or B–18A converter forward.

(3) Disconnect the connector and cable from the back of the unit.

(4) Lift the CV–1275/ARN or B–18A converter from its mounting.

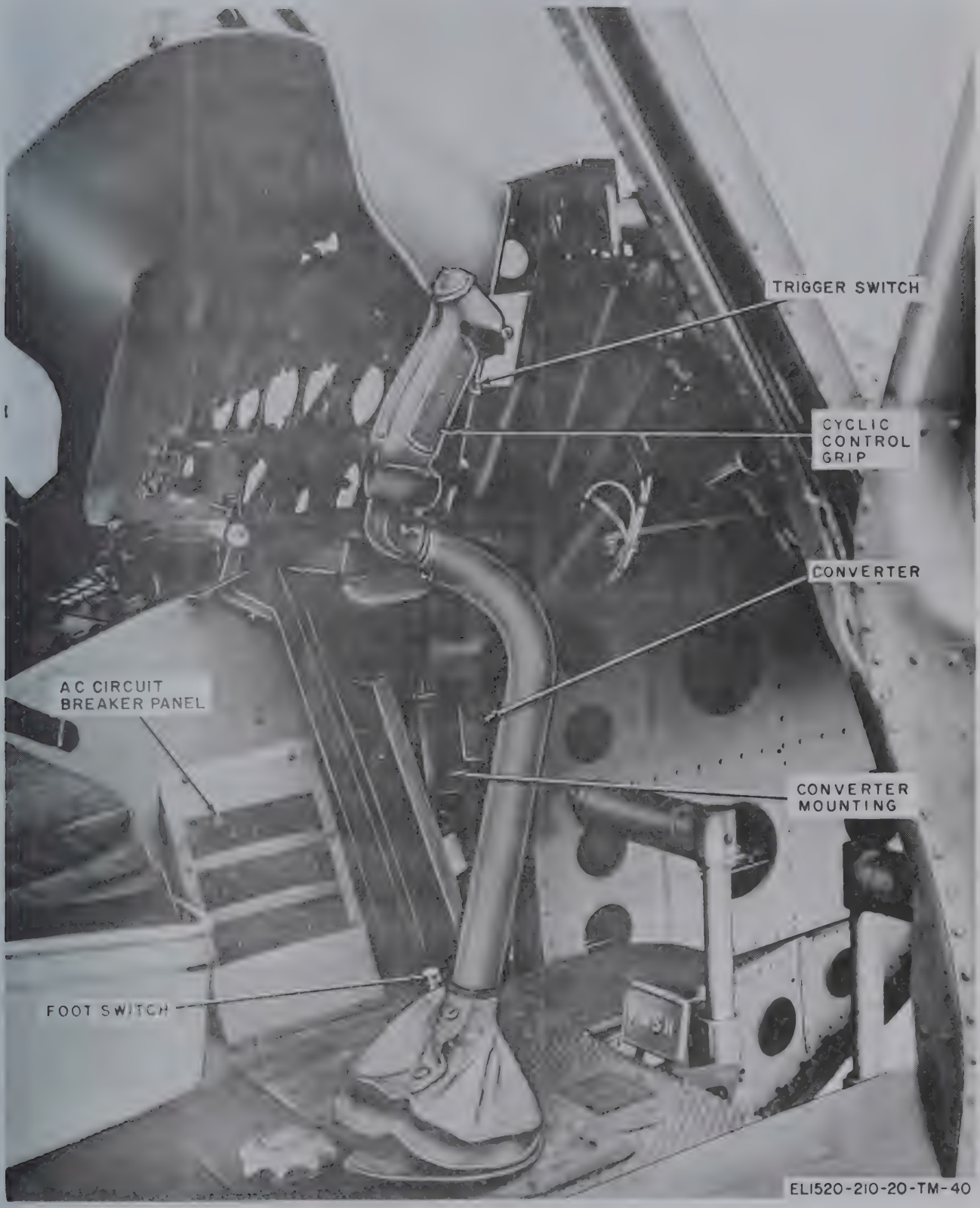


Figure 2–51. Location of Cyclic Stick Switch X942–2 and Switch, Microphone SA–47A/AIC.

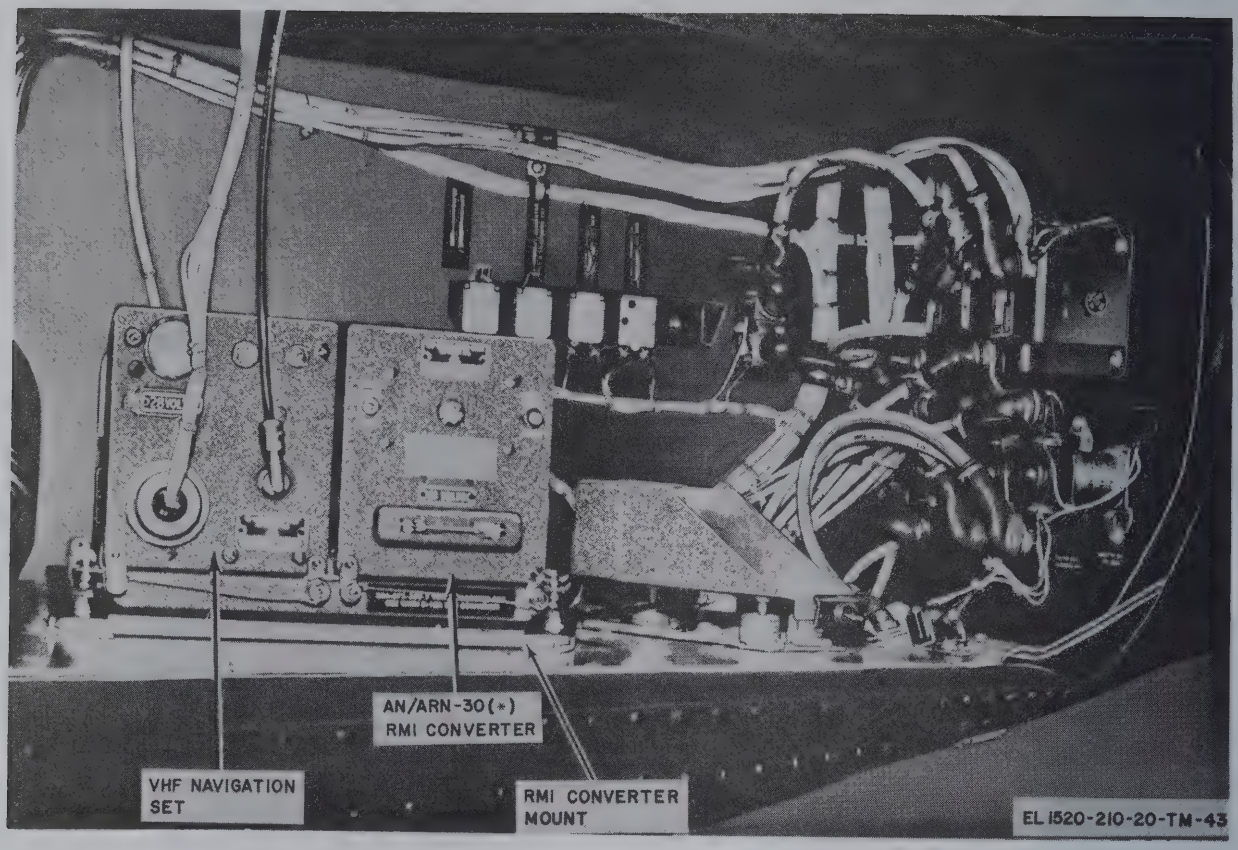


Figure 2–52. Location of Converter, Radio-Magnetic Indicator CV–1275/ARN or B–18A.

b. Replacement.

(1) Position the CV–1275/ARN or B–18A converter onto its mounting.

(2) Engage the connector (at the back of the unit) and the electrical cable.

(3) Slide the CV–1275/ARN or B–18A converter into position.

(4) Turn the retainer clips until they lock into position, and tighten the thumbscrews.

2–105. Removal and Replacement of Indicator, Attitude 4005G (fig. 2–28)

a. Removal of Indicator.

(1) Remove the mounting screw from each corner of the attitude indicator.

(2) Slowly pull the attitude indicator out from the instrument panel far enough to reach the electrical connector at the rear.

(3) Disconnect the electrical connector from the attitude indicator and remove the indicator.

b. Replacement of Indicator.

(1) Connect the electrical connector to the rear of the attitude indicator.

(2) Position the attitude indicator in the instrument panel, and secure it with screws.

2–106. Removal and Replacement of Gyro, Roll and Pitch MD–1 (fig. 2–43)

a. Removal of MD–1 Gyro.

(1) Disconnect the electrical connector on the front of the gyro.

(2) Remove the mounting screws that secure the gyro and remove the gyro.

b. Replacement of MD–1 Gyro.

(1) Secure the gyro with the mounting screws.

(2) Connect the electrical connector to the front of the gyro.

2 107. Removal and Replacement of Gyro, Rate Switching MC–1 (fig. 2–43)

a. Removal of MC–1 Gyro.

(1) Disconnect the electrical connector on the front of tthe gyro.

(2) Remove the mounting screws that secure the gyro, and remove the gyro.

b. Replacement of MC–1 Gyro.

(1) Secure the gyro with the mounting screws.

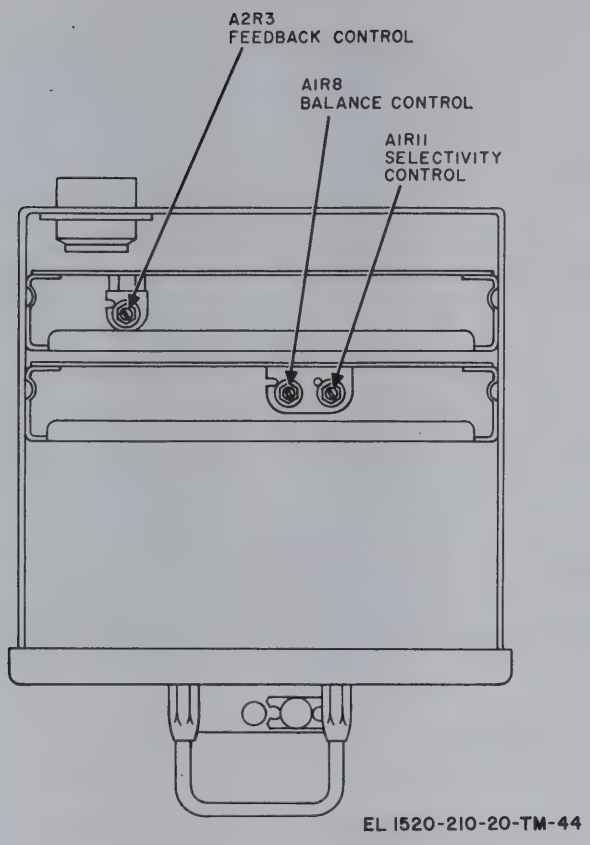


Figure 2–53. Converter, Radio-Magnetic Indicator CV–1275/ARN or B–18A adjustment controls.

(2) Connect the electrical connector to the front of the gyro.

2–108. Removal and Replacement of Amplifier, Attitude Indicator 5404G
(fig. 2–28)

a. Removal of Amplifier.

(1) Disconnect the electrical connector on the front of the amplifier.

(2) Remove the mounting screws that secure the amplifier, and remove the amplifier.

b. Replacement of Amplifier.

(1) Secure the amplifier with the mounting screws.

(2) Connect the electrical connector to the front of the amplifier.

2–109. Removal and Replacement of Indicator, Attitude J–8
(fig. 2–28)

a. Removal of Indicator J–8.

(1) Remove the screws that secure the light shield to the attitude indicator, and remove the light shield.

(2) Remove the mounting screw from each corner of the attitude indicator.

(3) Slowly pull the attitude indicator out from the instrument panel far enough to reach the electrical connector at the rear.

(4) Disconnect the electrical connector from the attitude indicator, and remove the indicator.

b. Replacement of Indicator J–8.

(1) Connect the electrical connector to the rear of the attitude indicator.

(2) Position the attitude indicator in the instrument panel, and secure with screws.

(3) Place the light shield on the attitude indicator, and secure the light shield to the indicator with the mounting screws.

2–110. Removal and Replacement of IFF Caution Light
(fig. 2–54)

a. Removal.

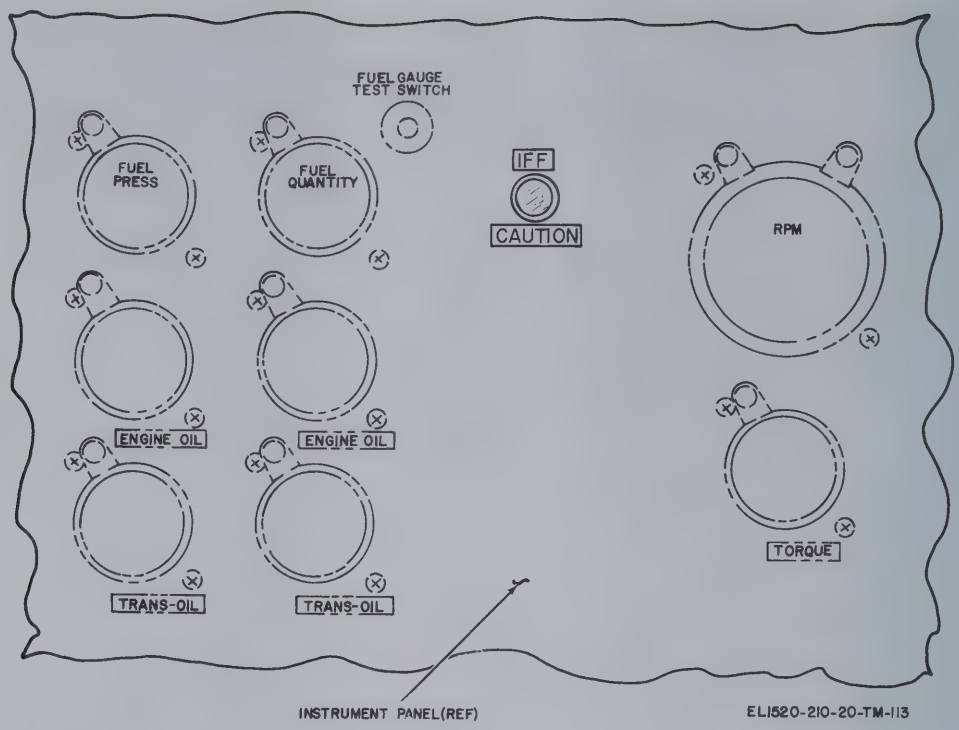


Figure 2-54. Location of IFF caution light, configurations C through H.

(1) Remove lens and lamp by grasping firmly and turning ccw.

(2) Remove retaining nut by turning ccw.

(3) Pulling from the rear of the instrument panel, pull the IFF caution light out of the instrument panel hole.

(4) Disconnect and tag the IFF caution light wires.

(5) Remove the IFF caution light.

b. Replacement.

(1) Connect the tagged wires to the IFF caution light.

(2) From the rear of the instrument panel, insert the IFF caution light into its hole in the instrument panel.

(3) Install the retaining nut by turning cw.

(4) Install the lens and lamp by turning cw.

2-111. Removal and Replacement of Code Hold Light (fig. 2-55)

Procedures for removal and replacement of the code hold light are the same as for the IFF caution light (para 2-110).

2-112. Removal and Replacement of Code Hold Switch (fig. 2-55)

a. Removal.

(1) Remove the retaining nut by turning ccw.

(2) Pulling from the rear of the instrument panel, pull the code hold switch out of the instrument panel hole.

(3) Disconnect and tag the code hold switch wires.

(4) Remove the code hold switch.

b. Replacement.

(1) Connect the tagged wires to the code hold switch.

(2) From the rear of the instrument panel, insert the code hold switch into its hole in the instrument panel.

(3) Install the retaining nut by turning cw.

2-113. Parts Replacement of Control Unit Panel Lamps

To replace panel lamps installed on control units, proceed as follows:

a. Remove the lamp housing from the control unit by grasping it firmly and turning it ccw.

b. Pull the lamp forward and out from the housing mounting.

c. Replace the defective lamp with a newly tested unit. Make sure that the flange on the lamp is flush with the housing mounting.

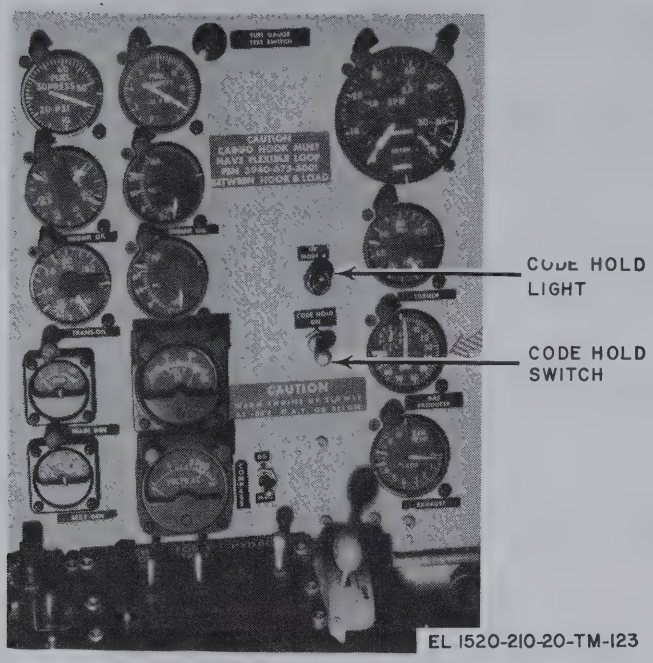


Figure 2–55. Instrument panel showing location of code hold light and code hold switch.

d. Insert the lamp housing into the control panel and turn it cw until it is secure.

2–114. Parts Replacement of Lamp in Remote Cipher Light, IFF Caution Light, or Code Hold Light (figs. 2–10 and 2–46)

a. Remove the lamp and lens by grasping them firmly and turning ccw.

b. Pull the lamp from the lens.

c. Relpace the defective lamp with a newly tested unit.

d. Place the lamp and lens into position and secure them by turning cw.

2–115. Safety Wiring

To prevent loosening during service, all attaching hardware and electrical connectors for the components of the electronic configuration must be secured with safety wire. Tighten the applicable mounting hardware and install safety wire, arranged in such a manner that loosening of the hardware will cause the safety wire to tighten. Use new safety wire and be careful not to kink the wire.

2–116. Wiring Repairs

a. General. When removal and replacement of major components have not corrected a trouble within a facility of the electronic equipment configuration, troubles in the electronic equipment configuration wiring may be the cause. Refer to the electronic configuration facility schematic diagrams (figs. 2–56 through 2–63, FO–5 through FO–14, and FO–20 through FO–33) for interunit wiring details. For general instructions in repairing the helicopter electronic configuration, refer to TM 55–1500–323–15 and TM 55–1500–204–25/1.

b. Wire Identification Code. The wires of the electronic configuration are identified by wire numbers; *for example*, RC130A20N. The first two symbols are code letters (*RC* in the above example) that identify the facility in accordance with the chart below. The second symbol *130* is the cable number; it differentiates between cables in a particular facility. The third symbol *A* identifies the cable segment, the cable run between terminals or connections. The next symbol *20* indicates the wire size. The last symbol *N*, commonly called the ground letter, identifies a cable which completes a circuit to ground.

Code letters	*Functions*
RZ	Interphone
RF	Fm liaison set (vhf liaison)
RU	Uhf command set
RC	Emergency vhf transmitter (command)
RV	Vhf radio set (vhf command)

Code letters	*Functions*
SX	IFF transponder set (radar recognition)
RN	Vhf navigation set, adf set (navigation), and AN/ASN-72
RM	Marker Beacon
F	Compass and attitude indicating systems
RL	Hf ssb/am radio set (liaison)
RA	Instruments, landing
RH	Homing
RS	Ship communication
RX	Records
RP	Radio power

c. Connector Replacement. The chart below lists all the electronic configuration wiring connectors that can be replaced at the organizational maintenance level.

Facility	Connectors in configurations									
	A	B	C	D	E	F	G	H	I	J
Fm liaison set AN/ARC–44 (fig. FO–6)	P803	P608								
	P815	P815								
	P101	P101								
	P602	P602								
	P603	P603								
	P604	P604								
	P605	P605								
	P606	P606								
	P307	P307								
	P201	P201								
	P702	P702								
	J609	J609								
	P609	P609								
	P601R	P601R								
	P601L	P601L								
	P701	P701								
	P610	P610								
AN/ARC–54 (fig. FO–30)	------	------	P605	P605	P605	P605	P605	P605	P605	P605
			P609	P609	P609	P609	P609	P609	P609	P609
			P1601	P1601	P1601	P1601	P1601	P1601	P1601	P1601
			P2105	P2105	P2105	P2105	P2105	P2105	P2105	P2105
			P2106	P2106	P2106	P2106	P2106	P2106	P2106	P2106
			P2107	P2107	P2107	P2107	P2107	P2107	P2107	P2107
			P601R	P601R	P601R	P601R	P601R	P601R	P601R	P601R
			P601L	P601L	P601L	P601L	P601L	P601L	P601L	P601L
			P2103	P2103	P2103	P2103	P2103	P2103	P2103	P2103
			P2101	P2101	P2101	P2101	P2101	P2101	P2101	P2101
			P2102	P2102	P2102	P2102	P2102	P2102	P2102	P2102
			J2102	J2102	J2102	J2102	J2102	J2102	J2102	J2102
			P2104	P2104	P2104	P2104	P2104	P2104	P2104	P2104
			J2104	J2104	J2104	J2104	J2104	J2104	J2104	J2104
Voice Security KY–28 (fig. FO–30)	------	------	P2201	P2201	P2201	P2201	P2201	P2201	P421	P421
			P2202	P2202	P2202	P2202	P2202	P2202	P422	P422
			P2203	P2203	P2203	P2203	P2203	P2203	P423	P423
Vhf emergency transmitter T–366/ARC (fig. 2–59).	P2302	P2302	P2302	------	P2302	P2302				
	P2303	P2303	P2303	------	P2303	P2303				
	P2304	P2304	P2304	------	P2304	P2304				
	P2306	P2306	P2306	------	P2306	P2306				
	P802	P802	P802	------	P802	P802				
	P804	P804	P804	------	P804	P804				
	P806	P806	P806	------	P806	P806				
	P2307	P2307	P2307	------	P2307	P2307				
	P162	P162	P162	------	P162	P162				
	P163	P163	P163	------	P163	P163				

Facility	Connectors in configurations									
	A	B	C	D	E	F	G	H	I	J
Uhf command set AN/ARC-51(*) (fig. FO-7).	------	------	P1401	P1401	P1401	P1401	P1401	P1401	P1401	P1401
			P1403	P1403	P1403	P1403	P1403	P1403	P1403	P1403
			P1405	P1405	P1405	P1405	P1405	P1405	P1405	P1405
			P3801	P3801	P3801	P3801	P3801	P3801	P3801	P3801
			P1407	P1407	P1407	P1407	P1407	P1407	P1407	P1407
AN/ARC-55(*) (fig. FO-31)	P1401	P1401								
	P1403	P1403								
	P1405	P1405								
	P1408									
	J1407	P1407								
	P1407									
	P3801	P3801								
Vhf command set AN/ARC-73 (fig. 2-58 and FO-32).	P1905	P1905	P1905	P1905	P1905	P1905				
	P1904	P1904	P1904	P1904	P1904	P1904				
	P1903	P1903	P1903	P1903	P1903	P1903				
	P1902									
	P1901	P1901	P1901	P1901	P1901	P1901				
	P804	P804	P804	------	P804	P804				
	P805	P805	P805	------	P805	P805				
	P1906	P1906	P1906	P1906	P1906	P1906				
Vhf command set AN/ARC-134 (fig. FO-33).	------	------	------	------	------	P3200A	P3200A	P3200A	P3200A	P3200A
						P3200B	P3200B	P3200B	P3200B	P3200B
										P3200C (See note.)
						P3201	P3201	P3201	P3201	P3201
						P1906	P1906	P1906	P1906	P1906
						P600	P600	P600	P600	P600
Hf ssb set AN/ARC-102 (fig. FO-8)	------	------	P1801	P1801	P1801	P1801	P1801	P1801	P1801	P1801
			P1806	P1806	P1806	P1806	P1806	P1806	P1806	P1806
			P1809	P1809	P1809	P1809	P1809	P1809	P1809	P1809
			P1805	P1805	P1805	P1805	P1805	P1805	P1805	P1805
			J1805	J1805	J1805	J1805	J1805	J1805	J1805	J1805
			P1807	P1807	P1807	P1807	P1807	P1807	P1807	P1807
			J1807	J1807	J1807	J1807	J1807	J1807	J1807	J1807
			P1804	P1804	P1804	P1804	P1804	P1804	P1804	P1804
			P1803	P1803	P1803	P1803	P1803	P1803	P1803	P1803
			P1808	P1808	P1808	P1808	P1808	P1808	P1808	P1808
			P1802	P1802	P1802	P1802	P1802	P1802	P1802	P1802
			J1802	J1802	J1802	J1802	J1802	J1802	J1802	J1802
Vhf navigation set AN/ARN-30(*) (fig. 2-57 and FO-29).	P303	P303	P303	P303	P303					
	P310	P310	P310	P310	P310					
	P305	P304	P304	P304	P304					
	P306	P305	P305	P305	P305					

	P306	P306	P306	P306	P306					
	P1706	P1706	P1706	P1706	P1706					
	P311	P311	P311	P311	P311					
	P1501	P1501	P1501	P1501	P1501					
	P1601	P1601	P1601	P1601	P1601					
	P1303	P1303	P1303	P1303	P1303					
	J1303	J1303	J1303	J1303	J1303					
	P801	P801	P801	P801	P801					
	J801	J801	J801	J801	J801					
	P1305	P1305	P1305	P1305	P1305					
	P1307	P1307	P1307	P1307	P1307					
	P610	P610								
	P403	P403	P403	P403	P403					
Vhf navigation set AN/ARN-82 (fig. FO-27).	------	------	------	------	------	P303	P303	P303	P303	P303
						P304	P304	P304	P304	P304
						P306	P306	P306	P306	P306
						P403	P403	P403	P403	P403
						P409	P409	P409	P409	P409
						P311	P311	P311	P311	P311
						P1601	P1601	P1601	P1601	P1601
						P1303	P1303	P1303	P1303	P1303
						J1303	J1303	J1303	J1303	J1303
						P601	P601	P601	P601	P601
						P801	P801	P801	P801	P801
						J801	J801	J801	J801	J801
						P1305	P1305	P1305	P1305	P1305
						P1307	P1307	P1307	P1307	P1307
Lf adf navigation set AN/ARN-59(V) (fig. FO-9).	P407	P407	P407	P407	P407					
	P404	P404	P404	P404	P404					
	P406	P406	P406	P406	P406					
	P408	P408	P408	P408	P408					
	P302	P302	P302	P302	P302					
	P405	P405	P405	P405	P405					
	P402	P402	P402	P402	P402					
	P403	P403	P403	P403	P403					
	P401	P401	P401	P401	P401					
Lf adf navigation set AN/ARN-83 (fig. FO-25).	------	------	------	------	------	P404	P404	P404	P404	P404
						P406	P406	P406	P406	P406
						P407	P407	P407	P407	P407
						P302	P302	P302	P302	P302
						P403	P403	P403	P403	P403
						P401	P401	P401	P401	P401
						P402	P402	P402	P402	P402
Gyromagnetic J2 compass system (fig. FO-10).	P410	P410	P410	P410	P410	P410				
	J410	J410	J410	J410	J410	J410				
	P411	P411	P411	P411	P411	P411				
	P412	P412	P412	P412	P412	P412				

Facility	Connectors in configurations									
	A	B	C	D	E	F	G	H	I	J
	P413	P413	P413	P413	P413	P413				
	P409	P409	P409	P409	P409	P409				
	P506	P506	P506	P506	P506	P506				
	J506	J506	J506	J506	J506	J506				
AN/ASN–43 Gyromagnetic compass system (fig. FO–26).	------	------	------	------	------	------	P410	P410	P410	P410
							J410	J410	J410	J410
							P411	P411	P411	P411
							P409	P409	P409	P409
							P415	P415	P415	P415
							P506	P506	P506	P506
							J506	J506	P506	P506
Marker beacon, Receivers, Radio R–737/ARN or R–1041/ARN (figs. 2–60, 2–61 and FO–5).	P501	P501	P501	P501	P501	P501	P501	P501	P501	P501
	P506	P506	P506	P506	P506	P506	P506	P506	P506	P506
	J506	J506	J506	J506	J506	J506	J506	J506	J506	J506
37X2 or 37RX–2 antenna ----------	P503	P503	P503	P503	P503	P503	P503	P503	P503	P503
	P502	P502	P502	P502	P502	P502	P502	P502	P502	P502
Intercommunication (figs. FO–21, FO–22, FO–23, and FO–24).	P301A	P301A	P301A	P301A	P301A	P301A	P301A	P301A	P301A	P301A
			P301B	P301B	P301B	P301B	P301B	P301B	P301B	P301B
	P301L	P301L	P301L	P301L	P301L	P301L	P301L	P301L	P301L	P301L
	P301R	P301R	P301R	P301R	P301R	P301R	P301R	P301R	P301R	P301R
	P600	P600	J600	J600	J600	J600	J600	J600	J600	J600
	P610	P610								
	J610	J610								
	J308L	J308L	J308L	J308L	J308L	J308L	J308L	J308L	J308L	J308L
	J308R	J308R	J308R	J308R	J308R	J308R	J308R	J308R	J308R	J308R
	J309	J309	J309	J309	J309	J309	J309	J309	J309	J309
	P20	P20	P20	P20	P20	P20	P20	P20	P20	P20
	J20	J20	J20	J20	J20	J20	J20	J20	J20	J20
	P22	P22	P22	P22	P22	P22	P22	P22	P22	P22
	J22	J22	J22	J22	J22	J22	J22	J22	J22	J22
	P162	P162	P162	P162	P162	P162				
								P319	P319	P319
								J319	J319	J319
IFF transponder facility AN/APX–44 (figs. 2–62, FO–11, and FO–12).	P902	P902	P902	P902	P902	P902	P902	P902		
	P903	P903	P903	P903	P903	P903	P903	P903		
			P906	P906	P906	P906	P906	P906		
			J906	J906	J906	J906	J906	J906		
	P901	P901	P901	P901	P901	P901	P901	P901		
			P907	P907	P907	P907	P907	P907		
			J907	J907	J907	J907	J907	J907		
	P904	P904	P904	P904	P904	P904	P904	P904		
			P909	P909	P909	P909	P909	P909		
			CP6	CP6	CP6	CP6	CP6	CP6		
			P910	P910	P910	P910	P910	P910		

IFF transponder AN/APX–72 (fig. FO–13).	------	------	------	------	------	------	------	------	P916 P913 P917 P918 P919 P920 P914 P921 P506 J506	P916 P913 P917 P918 P919 P920 P914 P921 P506 J506
Navigation Set, Position Fixing AN/ASN–72 (fig. FO–20).	------	P5001 P5002 P5003 P5005 P5006 P5007 P5008 P5009 P5010 J5010 P5011 P5012 P5013 P5014 P5015 J5015	P5001 P5002 P5003 P5004 P5005 P5006 P5007 P5008 P5009 P5010 J5010 P5011 P5012 P5013 P5014 P5015 J5015	P5001 P5002 P5003 P5004 P5005 P5006 P5007 P5008 P5009 P5010 J5010 P5011 P5012 P5013 P5014 P5015 J5015	P5001 P5002 P5003 P5004 P5005 P5006 P5007 P5008 P5009 P5010 J5010 P5011 P5012 P5013 P5014 P5015 J5015	P5001 P5002 P5003 P5004 P5005 P5006 P5007 P5008 P5009 P5010 J5010 P5011 P5012 P5013 P5014 P5015 J5015	P5001 P5002 P5003 P5004 P5005 P5006 P5007 P5008 P5009 P5010 J5010 P5011 P5012 P5013 P5014 P5015 J5015			
Attitude Indicating System (fig. FO–28)	P131 P6 P129 P130 P164 P165	P131 P6 P129 P130 P164 P165	P131 P6 P129 P130 P164 P165	P131 P6 P129 P130 P164 P165	P131 P6 P129 P130	P131 P6 P129 P130	P131 P6 P129 P130	P131 P6 P129 P130	P131 P6 P129 P130	P131 P6 P129 P130
Motor generator PU–543 (fig. FO–10)	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24	P191 P192 P24

Note. Used beginning with serial No. 68–16073.

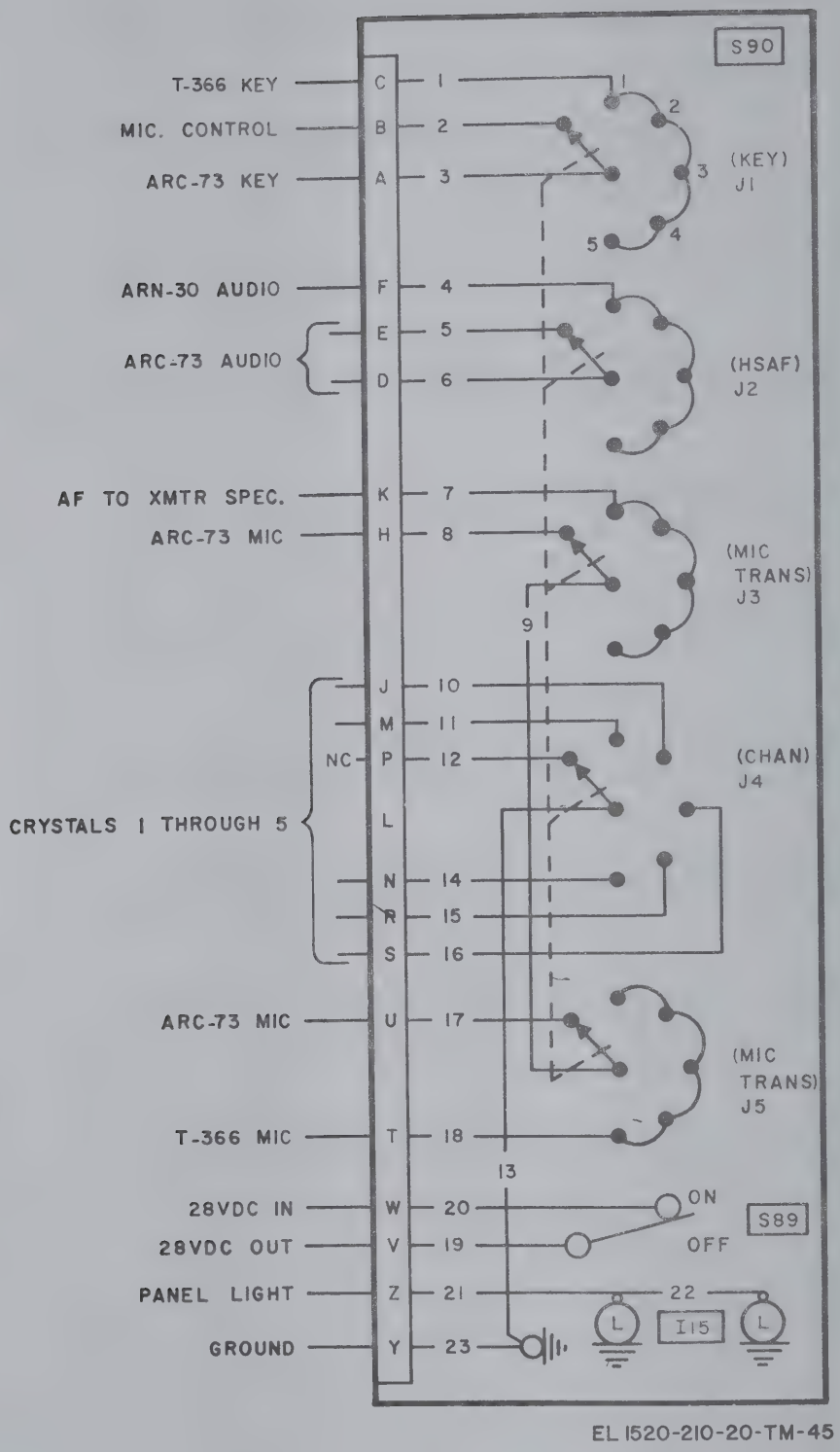


Figure 2–56. Fm liaison facility, Panel, Control SB–327/ARC–44, wiring diagram.

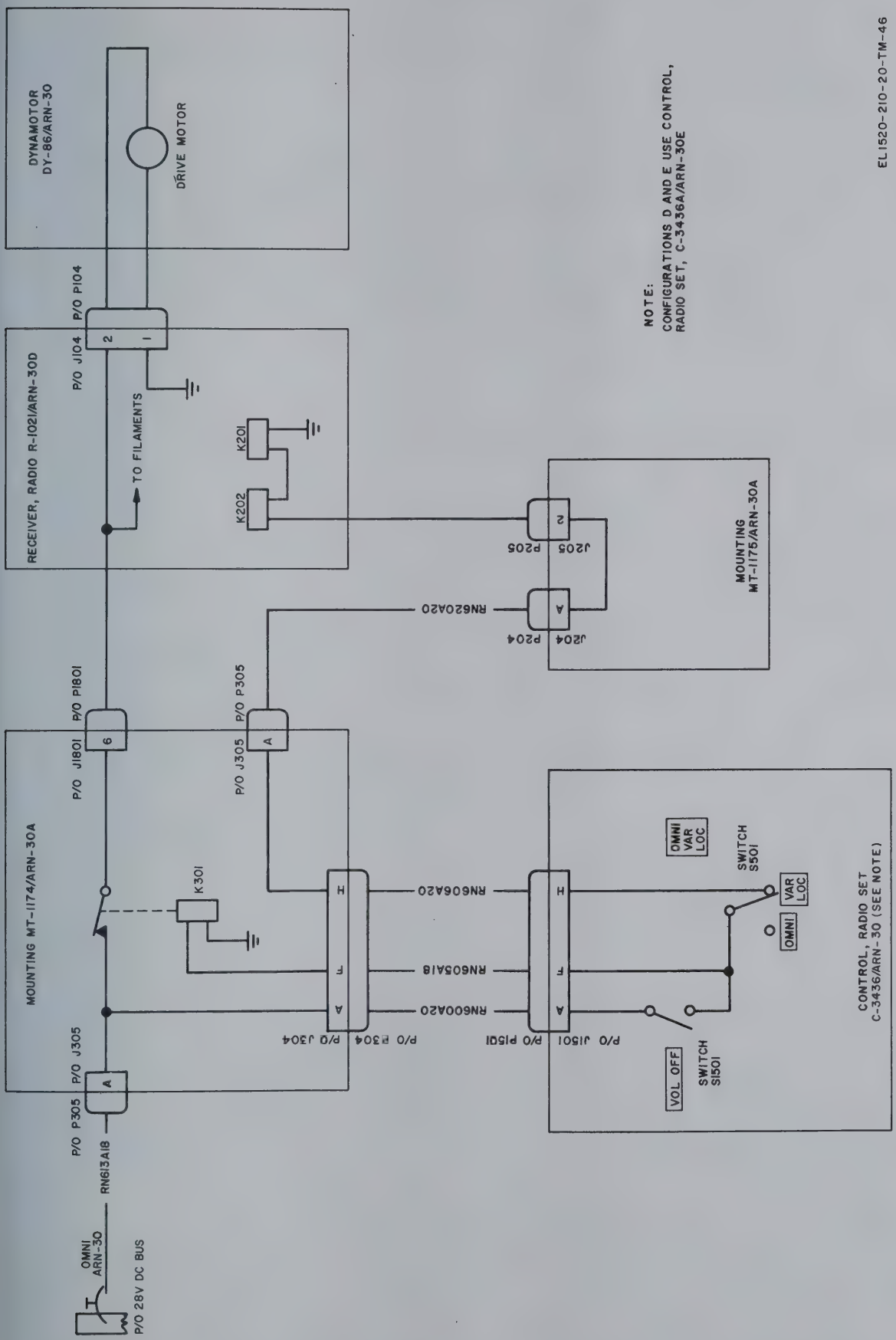


Figure 2-57. AN/ARN-30 (*) vhf navigation facility, power circuitry.

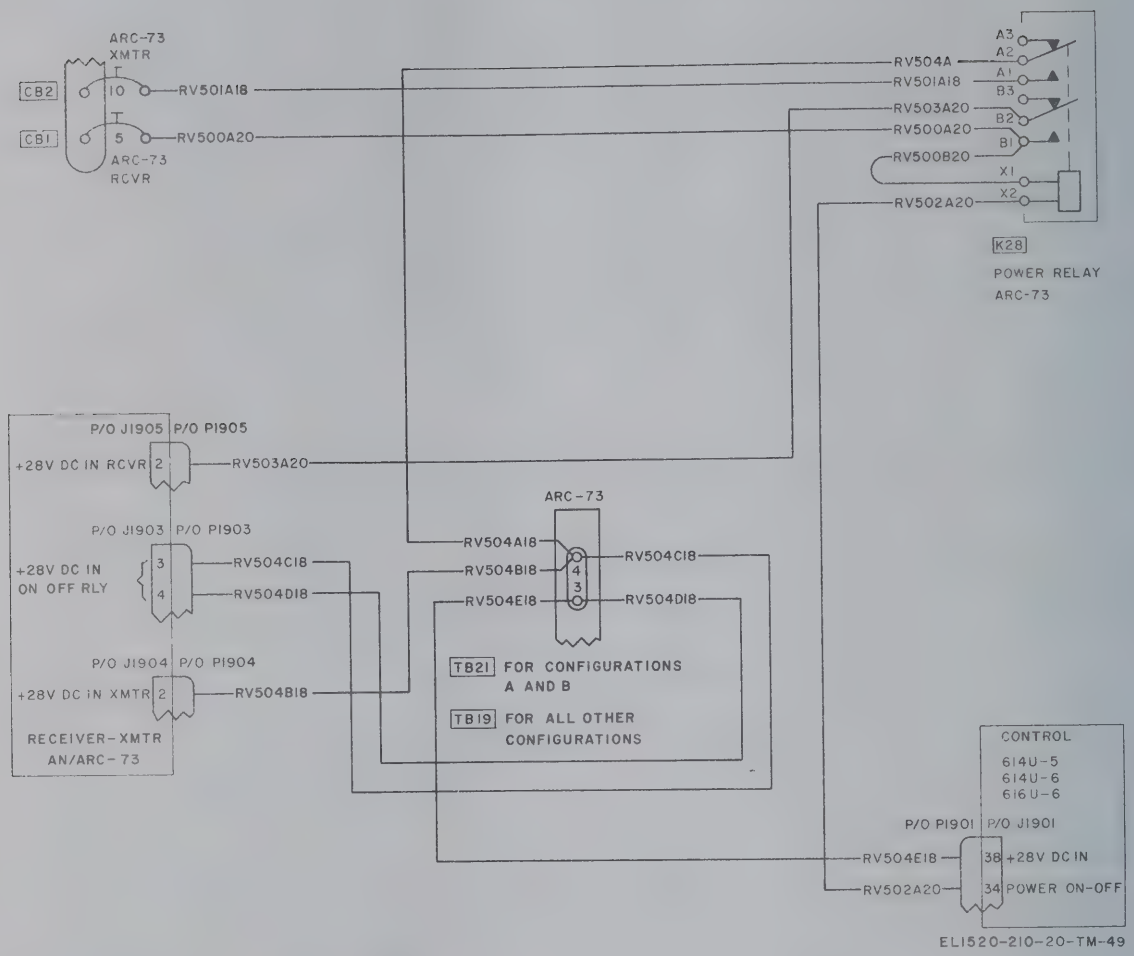


Figure 2-58. AN/ARC-73 vhf command facility, power circuitry.

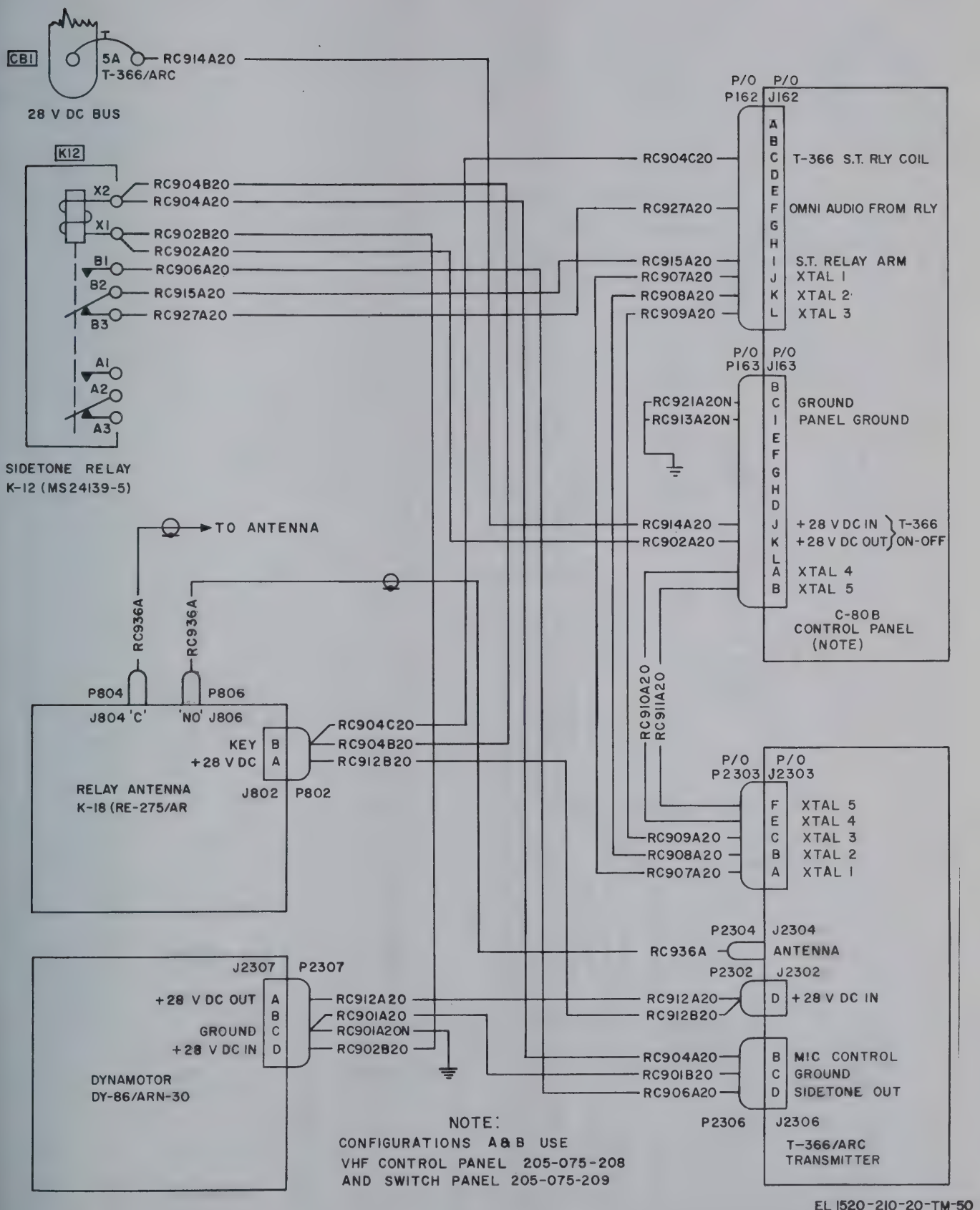


Figure 2-59. T-366/ARC vhf emergency radio transmitter facility, power circuitry.

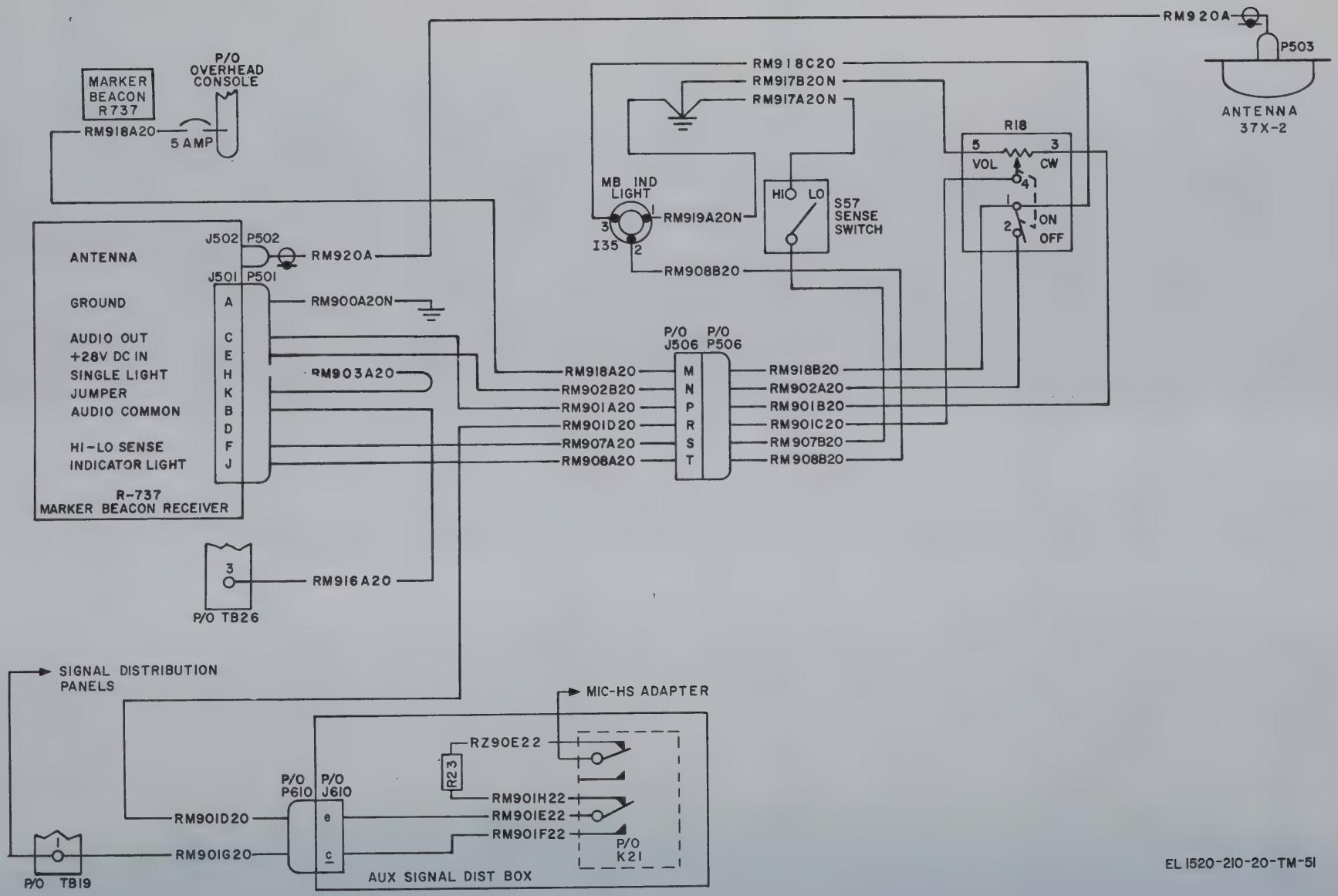


Figure 2–60. Marker beacon receiver facility, power circuitry, configuration A.

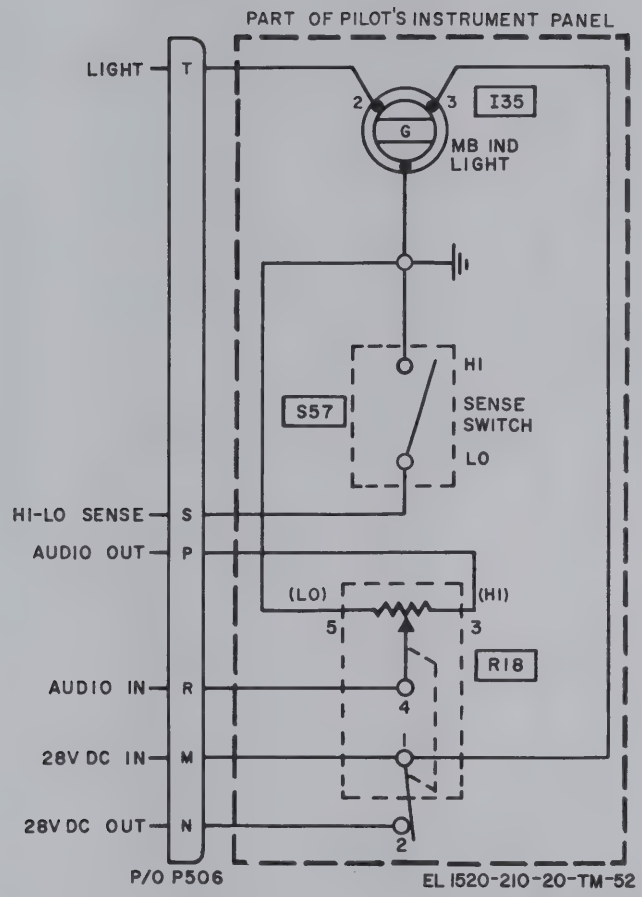


Figure 2-61. Marker beacon receiver controls, instrument panel.

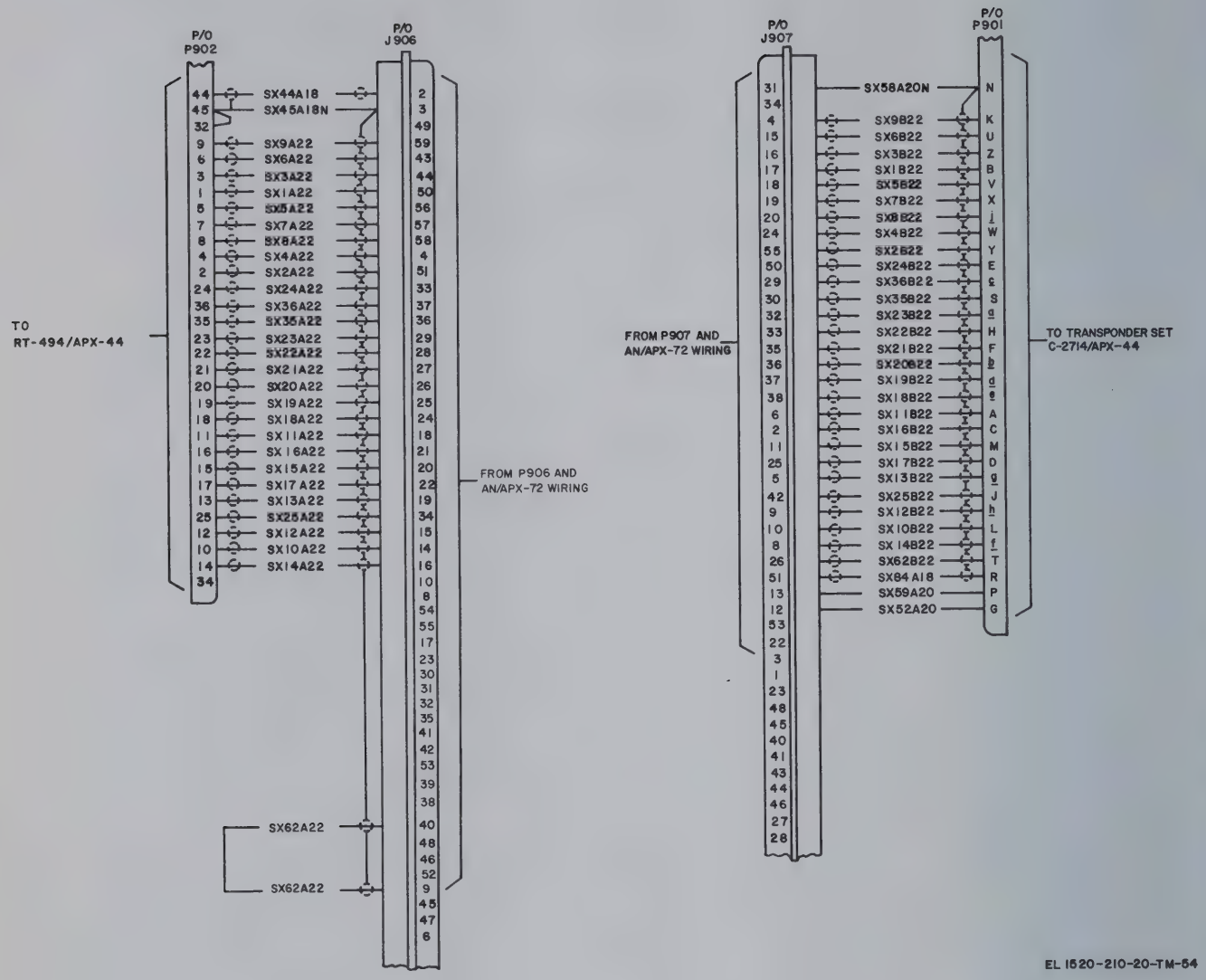


Figure 2-62. IFF Transponder Set AN/APX-44 adapter cables, wiring diagram.

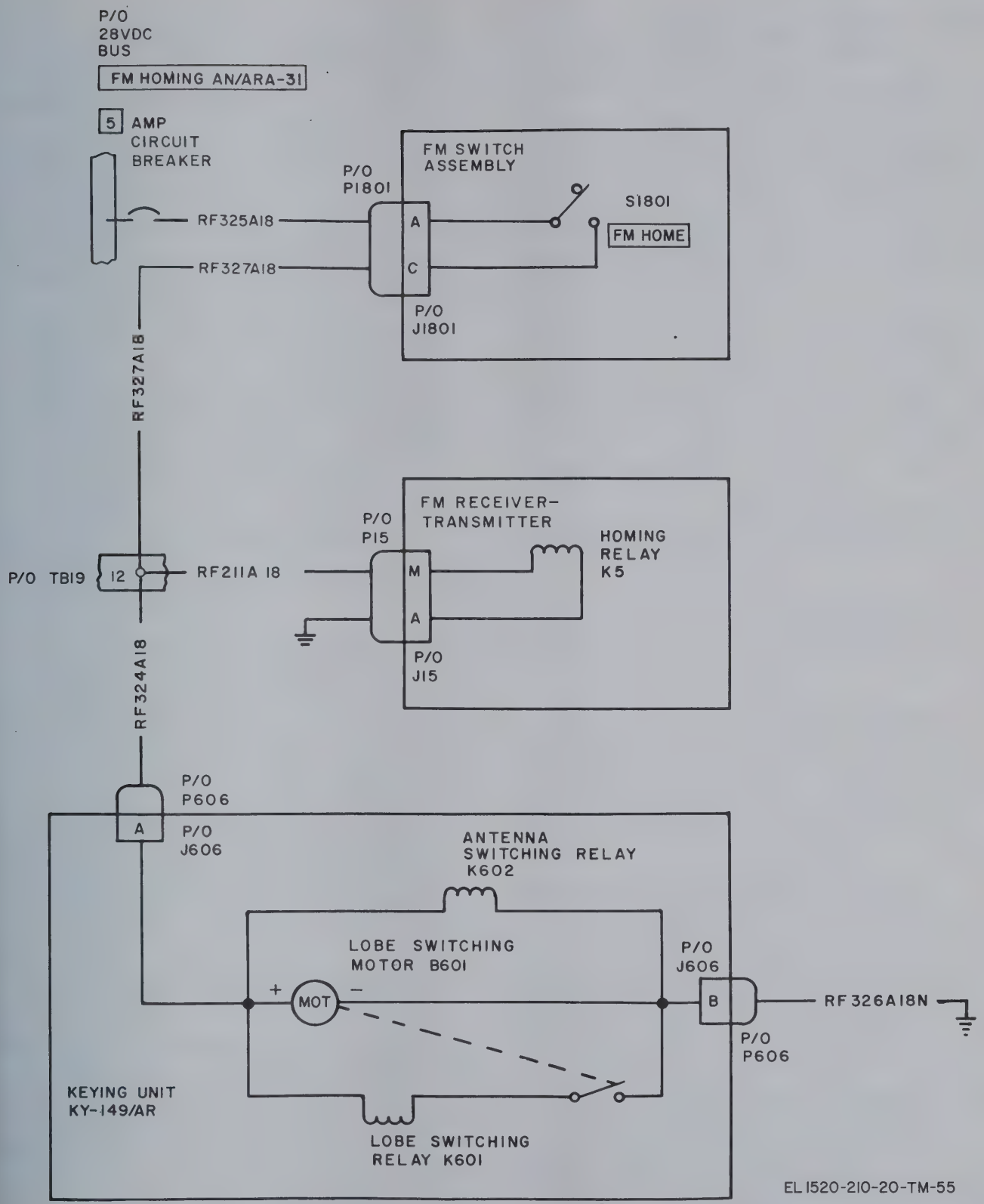


Figure 2-63. Fm homing facility, power circuitry, Antenna Group AN/ARA-31.

2-117. Extent of Adjustments

Paragraphs 2-118 through 2-125 contain installation adjustments for electronic equipment reinstalled in the helicopter after repairs or after scheduled periodic pullout checks. The procedures described below must be accomplished before further maintenance checks or operation.

2–118. Adjustment of Radio Set AN/ARC–44

a. Press the FM ARC–44 and INTERCOM SB–329 circuit breaker buttons.

b. Place the BAT switch on the dc power control panel and the POWER switch on the fm control panel to the ON position.

c. Operate the ics switch on the frequency modulation (fm) switch assembly to the up position (only when Panels, Signal Distribution, Radio SB–329/AR (signal distribution panels) are installed in the helicopter).

d. Place the operating controls of the fm control panel to the desired operating positions.

e. Connect the receiver output to the pilot's and copilot's headsets by placing the RECEIVERS 1 switch (figs. 2–8 and 2–48) on each distribution panel to the up position.

f. Set the VOL control on the pilot's distribution panel to midposition.

g. Adjust the VOL control on the fm control panel until background noise level is at a minimum.

h. Set the FM SQUELCH switch on the fm switch assembly to the down position.

i. Adjust the SQUELCH control on the fm receiver-transmitter as instructed below:

NOTE

The SQUELCH control is adjusted with no signal input to the receiver.

(1) Place the fm receiver-transmitter in the receive condition.

(2) Adjust the VOL control (on fm control panel or on pilot's distribution panel) until background noise is at a minimum.

(3) Rotate the SQUELCH control on the front panel of the fm receiver-transmitter fully cw.

(4) Rotate the SQUELCH control ccw to the position where background noise ceases; then rotate the SQUELCH control slightly cw until a slight amount of background noise is present.

2–119. Adjustment of Radio Set AN/ARC–54 or AN/ARC–131

a. Press the FM ARC–54 and both INTERCOM–C.PLT & CREW–L and INTERCOM–PLT & CREW–R circuit breaker buttons.

b. Place the BAT switch on the power control panel to ON, and place the power switch on the fm control panel to PPT (ON) (TR position for AN/ARC–131).

c. Place the controls on the control panel to the desired operating condition.

d. Place the RECEIVERS 1 switch on each distribution panel (figs. 2–8 and 2–48) to the up position.

e. Set the VOL control on the pilot's distribution panel to midposition.

f. Set the SQUELCH control on the fm control panel to the CARR position.

g. Adjust the VOL control on the fm control panel until the background noise level in the headset is at a minimum.

h. Adjust the SQUELCH control on the fm receiver-transmitter as instructed below.

(1) Disconnect the coaxial cable at the tail boom disconnect point.

(2) With the SQ ADJ control on the receiver-transmitter turned fully ccw, adjust the VOL control on the control panel until the background noise in the headset is at a minimum.

(3) Rotate the receiver-transmitter SQ ADJ control cw until the background noise just cuts out. Do not rotate the control beyond this point.

(4) Check the squelch setting on several frequencies. If all frequencies selected are not fully squelched, rotate the SQ ADJ control slightly cw.

2–120. Adjustment of Radio Set AN/ARC–55

a. Set the ultra high frequency (uhf) command set in its normal operating condition.

b. Rotate the SENS control knob on the uhf control unit fully ccw.

c. Adjust the MAIN SENS control on the front panel of the uhf receiver-transmitter until a slight hiss is heard in the headset-microphone on the highest gain channel of all channel to be used. Readjust the control slightly until the hissing sound is eliminated.

NOTE

The highest gain channel should be in the vicinity of 280 to 360 MHz.

d. Set the selector switch on the uhf control unit to T/R+ G REC.

e. Adjust the GUARD SENS control on the front panel of the uhf receiver-transmitter to a point just below the position at which the squelch circuit operates.

2–121. Adjustment of Transmitter, Radio T–366/ARC

When Transmitter, Radio T–366/ARC is replaced, the power amplifier-doubler plate circuit of the new transmitter must be tuned. The added length of the very high frequency (vhf) antenna

cable may cause the final tank circuit to be slightly out of resonance despite bench tuning. Tune the vhf transmitter for maximum radio frequency (RF) output as follows:

a. Remove the cover of the T–366/ARC vhf transmitter (fig. 2–64), and connect the multimeter (10-volt dc range) between test jack J207 and chassis ground.

b. Turn the switch on the vhf control panel to ON and the TRANS selector switch to position 3, and allow 3 minutes to warm up to insure stabilization.

c. Key the T–366/ARC by depressing the trigger switch on the cyclic stick grip (fig. 2–51) to the second detent. Do not voice-modulate the transmitter during the adjustment procedure.

d. Tune L201 and L202 (fig. 2–64) for maximum reading on the multimeter.

e. Turn the switch on the vhf control panel to the OFF position.

f. Remove the multimeter and replace the transmitter cover.

g. Disconnect the auxiliary power unit.

NOTE:
T–366/ARC TRANSMITTER NOT INSTALLED ON CONFIGURATION D

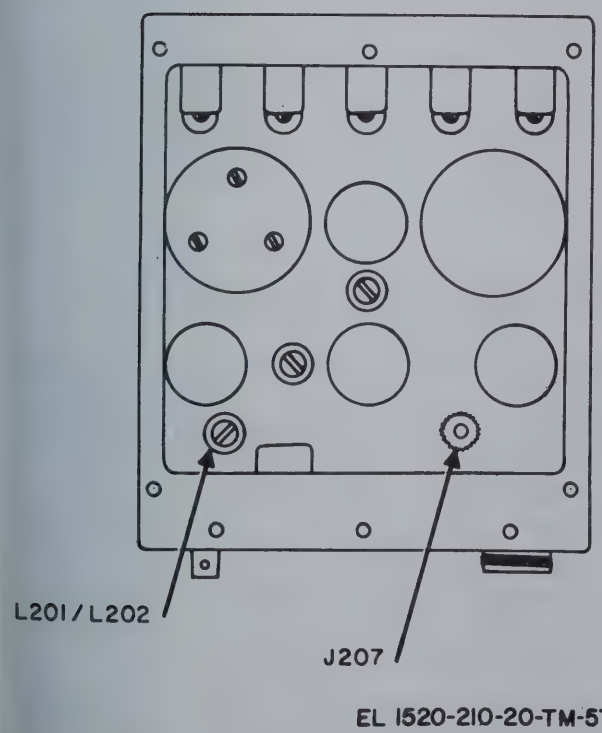


Figure 2–64. Adjustment screw and test jack location, Transmitter, Radio T–366/ARC.

2–122. Adjustment of Radio Set AN/ARC–73

a. Transmitter Tuning. Turn on the radio set, and tune it as follows:

(1) Turn the MHz dial control knob on the transmitter remote control until the assigned MHz transmitting frequency appears in the FREQ MC indicator window.

(2) Turn the kHz dial control knob until the assigned 50-kHz frequency appears in the FREQ MC indicator window.

b. Receiver Tuning.

(1) Turn the MHz dial control knob on the receiver remote control until the assigned receiving frequency (in MHz) appears in the FREQ MC indicator window.

(2) Turn the kHz dial control knob until the assigned 50-kHz receiving frequency appears in the FREQ MC indicator window.

(3) Adjust the SQUELCH control so that no annoying noise is heard in the headset when a signal is not being received.

NOTE

Any channel may be opened to permit reception of weak signals by pressing the SQUELCH pushbutton switch on the receiver.

(4) Adjust the VOL control for proper volume of received signal.

c. Stopping Procedure. Operate the POWER switch on the receiver remote control to OFF. This condition deenergizes all components of the radio set.

2–123. Adjustment of Radio Set AN/ARC–102

a. Depress the HF ARC–102 and both INTERCOM–C.PLT & CREW–L and INTERCOM–PLT & CREW–R circuit breaker buttons.

b. Place the BAT switch on the DC POWER control panel to ON.

c. On the pilot's and copilot's distribution panels, place the RECEIVERS 4 switches to ON and the TRANS selector switches to position 4. On the same panels, set VOL controls to their midpositions.

d. Set the mode selector switch on Control, Radio Set C–3940/ARC–94 control unit to the AM position. Allow 5 minutes for Receiver-Transmitter RT–698/ARC–102 to warm up.

e. Check to see that the blower in the RT–698/ARC–102 is operating.

f. Tune the RT–698/ARC–102 to each of the following WWV frequencies:

2.500 MHz
5.000 MHz
10.000 MHz
15.000 MHz
20.000 MHz
25.000 MHz

Perform an approximate frequency check by listening to WWV with the mode selector switch in the USB, LSB and AM positions during an announcement interval. Voice quality should be good in all three modes.

g. Set the meter selector switch on the front panel to 130 V. The meter should indicate in the red area.

h. Set the meter selector switch to 28 V. The meter should again indicate in the red area.

i. Tune the RT–698/ARC–102 to a frequency on which the transmitter may be keyed.

NOTE

To key the transmitter, depress the pilot's or copilot's trigger switch to position 2, or depress the foot switch.

j. Set the meter selector switch to 1500 watts. When the transmitter is not being keyed, the meter should read zero. Key the transmitter, and the meter should indicate in the red area.

CAUTION

The blower must speed up when the RT–698/ARC–102 is keyed. If it does not, immediately unkey the transmitter and investigate.

k. Set the selector switch to PA MA. When the transmitter is not being keyed, the meter should read zero. Disconnect the coaxial cable jumper from the 500 KC STD jack on the right front panel of the RT–698/ARC–102. Key the transmitter, and the meter should read approximately 300 milliamperes (ma). Unkey the transmitter and replace the coaxial jumper. Again key the transmitter and speak into the microphone. The meter should indicate in the red area and should not vary while the transmitter is being modulated.

l. Set the mode selector switch on the control panel to LSB. When the front panel switch is set to PA MA and the transmitter is not being keyed, the meter should read approximately 260 ma. Key the transmitter, and speak into the microphone. The meter indication should follow the applied audio. The meter indication on aduio peaks should be about 300 ma. Note the presence of adequate sidetone.

m. Set the mode selector switch on the control panel to USB. Repeat the procedure in l above.

n. Set the mode selector switch on Control, Radio Set C–3940/ARC–94 to the AM position. The RT–698/ARC–102 and Network, Impedance Matching CU–991/AR must have been turned on for at least 5 minutes before the tests in *o* through *s* are initiated.

o. Rotate the channel selector of the radio set control to any channel, making certain that the channel used is free of other radio communication.

p. The CU–991/AR should begin the tuning cycle unless connected for radio silence. In this case, the tuning cycle will not start until the transmitter is keyed. The antenna coupler should complete the tuning cycle in less than 30 seconds.

CAUTION

The maximum duty cycle of the CU–991/AR is 5 minutes on and 5 minutes off. Do not key the transmitter beyond this time limit.

q. Upon completion of the tuning cycle, observe the CU–991/AR SWR meter. The SWR meter should indicate below the red mark.

r. Select several channels at random within the 2- to 24-MHz range, and repeat the checks outlined in *p* and *q* above for each channel.

CAUTION

Upon completion of each tuning cycle, wait at least 30 seconds before selecting a new channel. This condition will prevent overheating time-delay relay K711.

s. After the CU–991/AR has passed the preceding tests, a test of actual communication is advisable. Use at least three frequencies (if possible) within the range of 2 to 25 MHz, and establish two-way communication with the operation tower or with ground stations located several miles from the helicopter.

2–124. Adjustment of Receiving Set, Radio AN/ARN–30(*)

For proper operation, the mechanical linkage between Control, Radio Set C–3436(*)/ARN–30 and Receiving Set, Radio R–1021/ARN–30D must be adjusted. This is accomplished as follows:

a. Connect the mechanical linkage cable between the C–3436(*)/ARN–30 vhf navigation control unit and the R–1021/ARN–30D vhf navigation receiver, without regard to the setting of the dial on the vhf navigation control unit or to the tuning of the vhf navigation receiver.

b. Use the tuning crank on the C–3436(*)/ARN–30 vhf navigation control unit to turn the frequency dial fully ccw.

c. Disconnect the mechanical linkage at the

rear of the C–3436(*)/ARN–30 vhf navigation control unit.

d. Turn the tuning dial on the C–3436(*)/ARN–30 vhf navigation control unit with 1/8 inch to to the right of the 125-MHz line comes directly under the triangular-shaped reference mark.

e. Replace the mechanical linkage. Be careful not to change the relative position of the shaft or the spline to which it is attached.

f. Test the accuracy of the dial positioning by tuning in several stations of known frequency.

2–125. Adjustment of Direction Finder Set AN/ARN–59(V)

a. Tuning Dial. To calibrate the tuning dial of Control, Receiver C–2275/ARN with the adf receiver tuning capacitor, follow the procedure below:

(1) On the C–2275/ARN, rotate the tuning crank ccw until it hits the mechanical stop. Do not force it beyond this point.

(2) Disconnect the mechanical linkage at the rear of the C–2275/ARN.

(3) Turn the tuning crank until the line just to the right of the high frequency end of the dial is aligned with the reference line.

(4) Reconnect the mechanical linkage to the rear of the C–2275/ARN. Be careful not to change the relative position of the shaft or the spline to which it is attached.

b. Loop Compensation. For loop compensation procedures, refer to TB 11–5826–217–30–1.

CHAPTER 3

BLOCK DIAGRAM ANALYSIS

3-1. Configuration Systems and Facilities

The purpose, operation, and interoperation of the various circuits (electronic, electrical, mechanical, and electromechanical) in those electronic equipment configurations (figs. FO-15 through FO-19) and in their individual electronic equipments are explained in this chapter and also in the technical manuals covering certain electronic equipments of the electronic equipment configuration (app. A). Familiarity with the electronic equipment configuration and the individual electronic equipments, how they work, and why they work the way they do, is important in rapidly and effectively troubleshooting the electronic equipment configuration and the individual electronic equipments.

3-2. Radio Set AN/ARC-44 (fig. 3-1)

The AN/ARC-44 fm liaison set provides the following facilities:

a. Two-way audio communication within the helicopter (interphone) and two-way communication between the helicopter and ground stations in a frequency range of 24.0 to 51.9 MHz are provided. Primary power of +28 volts dc is supplied through circuit breakers FM ARC-44 and INTERCOM SB-329 on the dc circuit breaker panel. Components of the AN/ARC-44 fm liaison set include Receiver-Transmitter, Radio RT-294(*)/ARC-44, Control Panel Assembly 204-075-219 (SA-474/AR modified) (fm switch assembly), and three Panels, Signal Distribution, Radio SB-329/AR. Antenna AT-454(*)/ARC for the system is mounted on the tail boom. Keying Unit KY-149/AR is used in conjunction with the AN/ARC-44 fm liaison set to allow for the use of Antenna Group AN/ARA-31 with the RT-294(*)/ARC-44 fm receiver-transmitter.

b. Selection of fm or homing reception is accomplished by means of the fm switch assembly on each of the distribution panels.

3-3. Radio Set AN/ARC-54 or AN/ARC-131 (fig. 3-2)

a. This radio set is a lightweight airborne radio set that provides the pilot and copilot of the helicopter with two-way communication between helicopter and ground stations within the tactical frequency modulation band of 30 to 69.9 MHz.

b. This fm liaison set is used for air-to-air and air-to-ground communication and for homing. Primary +28 volts dc is supplied through circuit breakers AN/ARC-54 (AN/ARC-131) or both INTERCOM-C.PLT & CREW-L and INTERCOM-PLT & CREW-R on the dc circuit panel. Components of the radio set include a receiver-transmitter, a radio set control, and Antenna AT-765/ARC, which is mounted on the tail boom. Antenna Assembly 637A-2 is also used with the receiver-transmitter to provide a homing mode. Two external relays, designated K53 and K54 and mounted near the receiver-transmitter, are controlled by a switch on the control panel and are energized when the switch is set to HOME. The energized relays transfer homing signals from Radio Sets AN/ARN-30(*) or AN/ARN-82 to the AN/ARC-54 (ARC-131) to operate Indicators, Course ID-453/ARN-30 or ID-1347/ARN-82. Voice encoding/decoding equipment is installed to provide secure-voice liaison communications when used with the receiver-transmitter.

3-4. Radio Set AN/ARC-51(*)X (fig. 3-3)

a. The AN/ARC-51(*)X uhf command set provides amplitude modulation (am) voice communication within the uhf band of 225.0 to 399.9 MHz Radio Set AN/ARC-51X is tuned in increments of -1 MHz, and Radio Set AN/ARC-51BX is tuned in increments of .05 MHz. Two-way communication is provided between helicopters in flight, helicopter and ground, or helicopter and surface ships. Trans-

mission and reception are conducted on the same frequency using a common antenna. Components of the AN/ARC-51X are: Receiver-Transmitter RT-702/ARC-51X, Mounting MT-2653/ARC, and Control, Radio Set C-4677/ARC-51X, an external blower, and a reflectometer. Components of the AN/ARC-51BX are the RT-742/ARC-51BX, the MT-2653/ARC, and the C-6287/ARC-51BX, an external blower, and a reflectometer. Control units and receiver-transmitters are not interchangeable and must be used only with their respective radio sets. Primary power +28 volts dc is applied to the AN/ARC-51(*)X through circuit breaker UHF ARC-51.

b. A guard channel, which is a part of the receiver-transmitter, monitors a fixed frequency channel. The receiver-transmitter is the main unit of the radio set and is pressurized. The external blower and reflectometer are installed on the receiver-transmitter case. Connections for primary power and signals for the AN/ARC-51(*)X are made on the front of the receiver-transmitter and on the rear of the radio set control. Connections to Antenna AT-1108/ARC are made from the reflectometer. The transmitter portion of the AN/ARC-51(*)X may be tone-modulated for emergency or direction finding purposes.

3-5. Radio Set AN/ARC-55(*)
(fig. 3-4)

a. The AN/ARC-55(*) provides two-way communication between the helicopter and ground installations. The AN/ARC-55(*) is capable of providing transmission and reception on any one of 1,750 frequency channels in the frequency band of 225.0 to 399.9 MHz. A guard channel, in the frequency range of 238.0 to 248.0 MHz, is provided to monitor a predetermined frequency. The transmitter portion of the AN/ARC-55(*) can be tone-modulated for emergency or direction finding purposes. Transmission and reception are accomplished with Antenna AT-450/ARC or Antenna AT-1108/ARC (Antenna 37R-2U).

b. Primary +28 volts dc is supplied to the AN/ARC-55(*) through the UHF ARC-55 circuit breaker. The +28 volts dc for the auxiliary signal distribution relay, designated K21, is supplied through the FM ARC-44 circuit breaker, and +28 volts dc for the filaments of the Panel, Signal Distribution, Radio SB-329/AR panels is supplied through the INTERCOM SB-329 circuit breaker. When the selector switch on Control C-1827/ARC-55 is set to the T/R+G REC, +28 volts dc is applied to Receiver-Transmitter RT-349(*)/ARC-55. Frequency setting and receiver sensitivity are controlled at the C-1827/ARC-55. When the cyclic stick switch on either the pilot's or copilot's cyclic stick grip is pressed to the second position (second detent), a ground (mike control) is placed on relays in the RT-349(*)/ARC-55 from the cyclic stick switch, through the SB-329/AR panels and the C-1827/ARC-55, to the RT-349(*)/ARC-55.

c. With the RT-349(*)/ARC-55 prepared for operation (*b* above), the pilot or copilot may transmit from the microphone portion of Headset-microphone H-101/U, depending on which cyclic stick switch is operated (pilot's or copilot's). The mike audio signal (audio normal) originating in the microphone portion of the headset-microphone is amplified in the SB-329/AR and coupled through Network Impedance Pad A-16 through energized contacts of relay K21, to the RT-349(*)/ARC-55.

d. Incoming amplitude-modulated signals received by the AT-450/ARC or AT-1108/ARC are fed to the receiver portion of the RT-349(*)/ARC-55. The signals are demodulated and amplified and coupled, through the C-1827/ARC-55 (audio normal), pilot's auxiliary signal distribution panel, impedance pad, and the SB-329/AR panels, to the H-101/U headsets. If the power supply to the AN/ARC-55(*) fails, making the SB-329/AR and relay K21 inoperative, audio signals (audio emergency)can be applied from the microphone portion of the H-101/U, through deenergized contacts of relay K21, Headset-Microphone Adapter MX-1646/AIC, relay K21, and the C-1827/ARC-55, to the RT-349(*)/ARC-55.

3-6. Radio Set AN/ARC-73
(fig. 3-5)

a. The AN/ARC-73 is an airborne radio communications set that provides air-to-ground and air-to-air transmission and reception of AM in the vhf range of 116.00 to 151.95 MHz. Transmission and reception can be accomplished at the same or different frequencies, but not simultaneously, by the use of Control, Radio Set C-4074A/ARC-73. The C-4074A/ARC-73 enables the operator to turn on the set and select the function and frequency desired and to adjust the audio volume and squelch level. Other components of the AN/ARC-73 include Receiver, Radio R-1123(*)/ARC-73, Transmitter, Radio T-

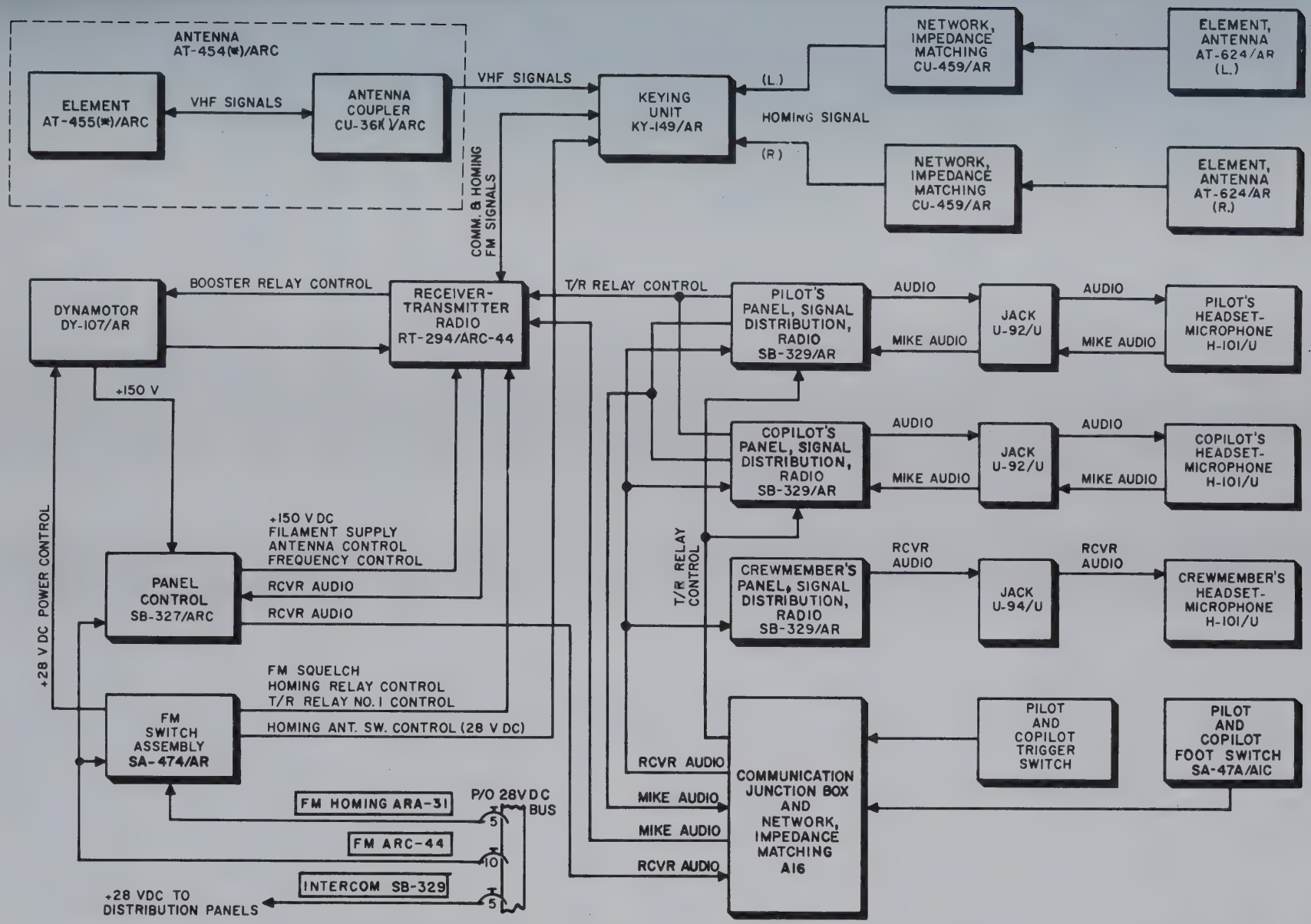


Figure 3–1. Fm liaison facility diagram, Radio Set AN/ARC–44, configurations A and B.

879(*)/ARC-73, and Antenna AT-1108/ARC (or Antenna 37R-2U). Primary power (+28 volts dc) is applied to the AN/ARC-73 through VHF XMTR ARC-73 and VHF RCVR ARC-73 circuit breakers on the dc circuit breaker panel. When the power switch on the C-4074A/ARC-73 is in the ON position, power relay K28 is energized, and +28 volts dc is applied to the T-879(*)/ARC-73 and R-1123(*)/ARC-73.

b. Selecting a frequency on the C-4074A/ARC-73 causes a voltage to be applied in the receiver and transmitter to the autopositioner that tunes them to the selected frequency.

3-7. Radio Set AN/ARC-134
(fig. 3-6)

a. Radio Set AN/ARC-134 is a lightweight airborne radio set that provides two-way communication between helicopter and ground stations within the hf frequency range of 116.000 through 149.975 MHz.

b. Primary +28 volts dc is supplied to the AN/ARC-134 through circuit breaker VHF XCVR ARC-134 on the dc circuit breaker panel. Components of Radio Set AN/ARC-134 are Receiver-Transmitter, Radio RT-857/ARC-134, Mounting MT-3791/ARC-134, Control, Radio Set C-7197/ARC-134, and Antenna AT-1108/ARC.

3-8. Radio Set AN/ARC-102
(fig. 3-7)

a. The AN/ARC-102 is an airborne communications set that provides air-to-air and also air-to-ground communication with fixed or mobile ground stations. The AN/ARC-102 transmits and receives communication in the high frequency (hf) band over a 28-MHz band between 2.0 MHz and 29.999 MHz.

b. The AN/ARC-102 includes Receiver-Transmitter RT-698/ARC-102; Control, Radio Set C-3940/ARC-94; Network, Impedance Matching CU-991/AR; and Antenna, Longwire PN 205-706-027 or PN 204-075-609. Primary +28 volts dc is supplied through the HF ARC-102 circuit breaker on the dc circuit breaker panel.

c. The primary operating mode for the AN/ARC-102 is the single sideband (ssb) mode. The AN/ARC-102 can also transmit a compatible am. signal to provide for communications with stations that have only am. capability. In the ssb mode, the maximum power of the RT-698/ARC-102 is used to transmit one sideband, instead of both sidebands and the carrier as in the AM mode. This provides more effective and reliable communications.

d. The pilot or copilot may select the mode of operation by setting the mode selector switch on Control, Radio Set C-3940/ARC-94 to USB (upper sideband), LSB (lower sideband), AM (amplitude modulation), DATA, or cw (continuous wave). Selection of transmission and reception is controlled by the selector swicth on Control, Intercommunication Set C-1611/AIC. The crewmember can receive signals from the receiver only by setting the selector switch on the C-1611/AIC control to position 4.

3-9. Transmitter, Radio T-366/ARC (Emergency Vhf)
(fig. 3-8)

a. The vhf radio transmitter is a five-channel, crystal-controlled, voice, amplitude-modulated transmitter that permits transmission of signals from the helicopter to ground in any 2-MHz band between 116.0 and 132.0 MHz. Components of the emergency vhf transmitter include the transmitter, oscillator relay, dynamotor power unit F-726/AR (ARC type P-12), relay switch, control panel, and switch panel.

b. The control panel (204-075-708), located on the pedestal between the pilot and copilot, contains the operating controls for the vhf communication system. The internal components include a selector switch and an emergency transmitter switch. The selector in position 1 is for normal operation with the vhf AN/ARC-73(*) radio set. In case of failure of the vhf AN/ARC-73(*), the emergency transmitter switch can be set to EMERG XMTR, and the selector switch can be turned to the desired frequency.

c. The switch panel (204-075-704) is mounted on the pedestal between the pilot and copilot. In case of vhf transmitter failure, either may switch to STBY VHF for emergency transmission.

3-10. Receiving Set, Radio AN/ARN-30(*) (Vhf Navigation Set)
(fig. 3-9)

a. When receiving vhf navigation signals, the RECEIVERS NAV switches on the distribution panels are in the UP position and the VOL controls on the navigation control units are set cw (on). Power is supplied to the vhf navigation facility through the OMNI ARN-30 circuit breaker. Power is applied to the copilot's signal distribution relay through the FM ARC-44 cir-

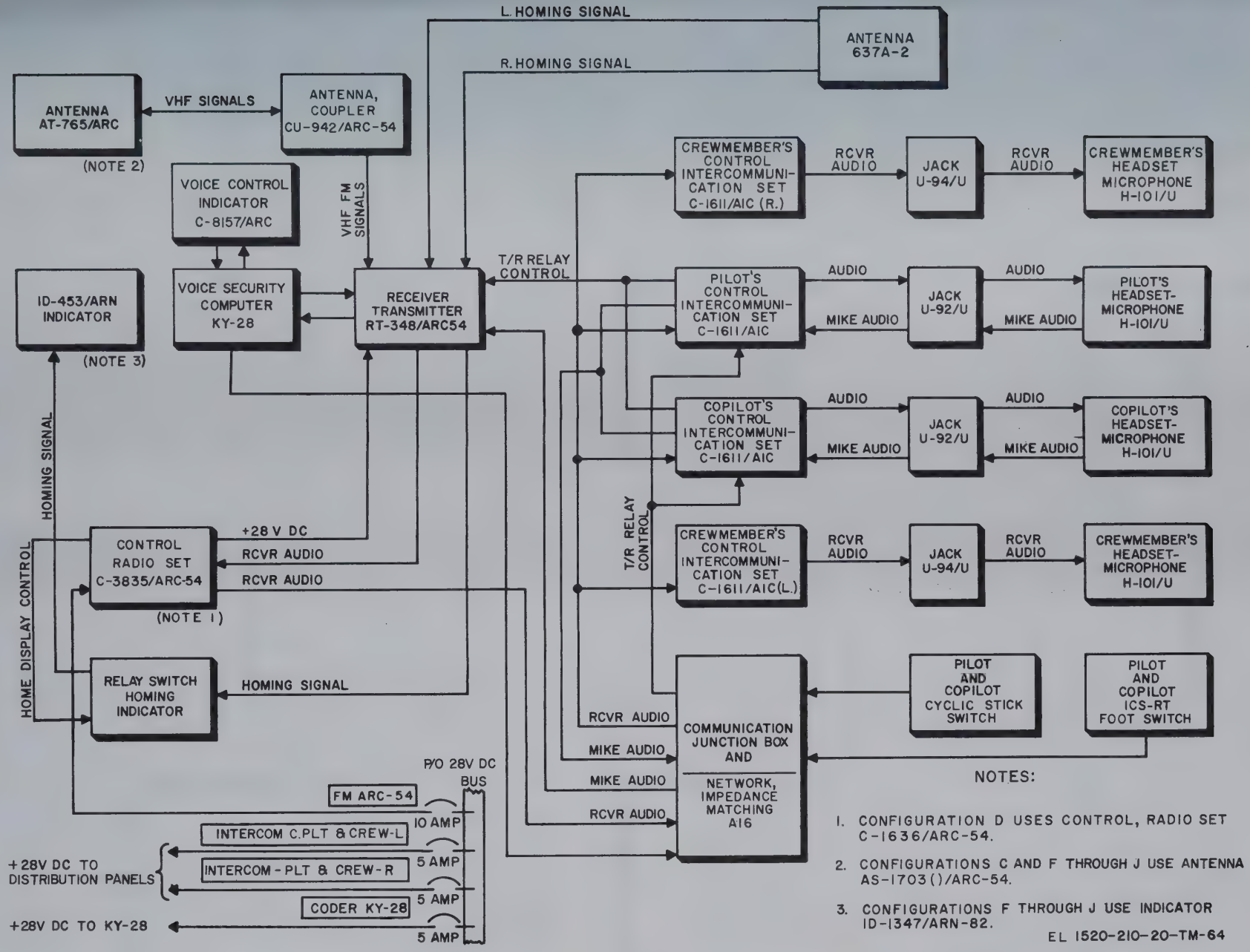


Figure 3-2. Fm liaison facility diagram, Radio Set AN/ARC-54/Coder KY-28, configurations C through J.

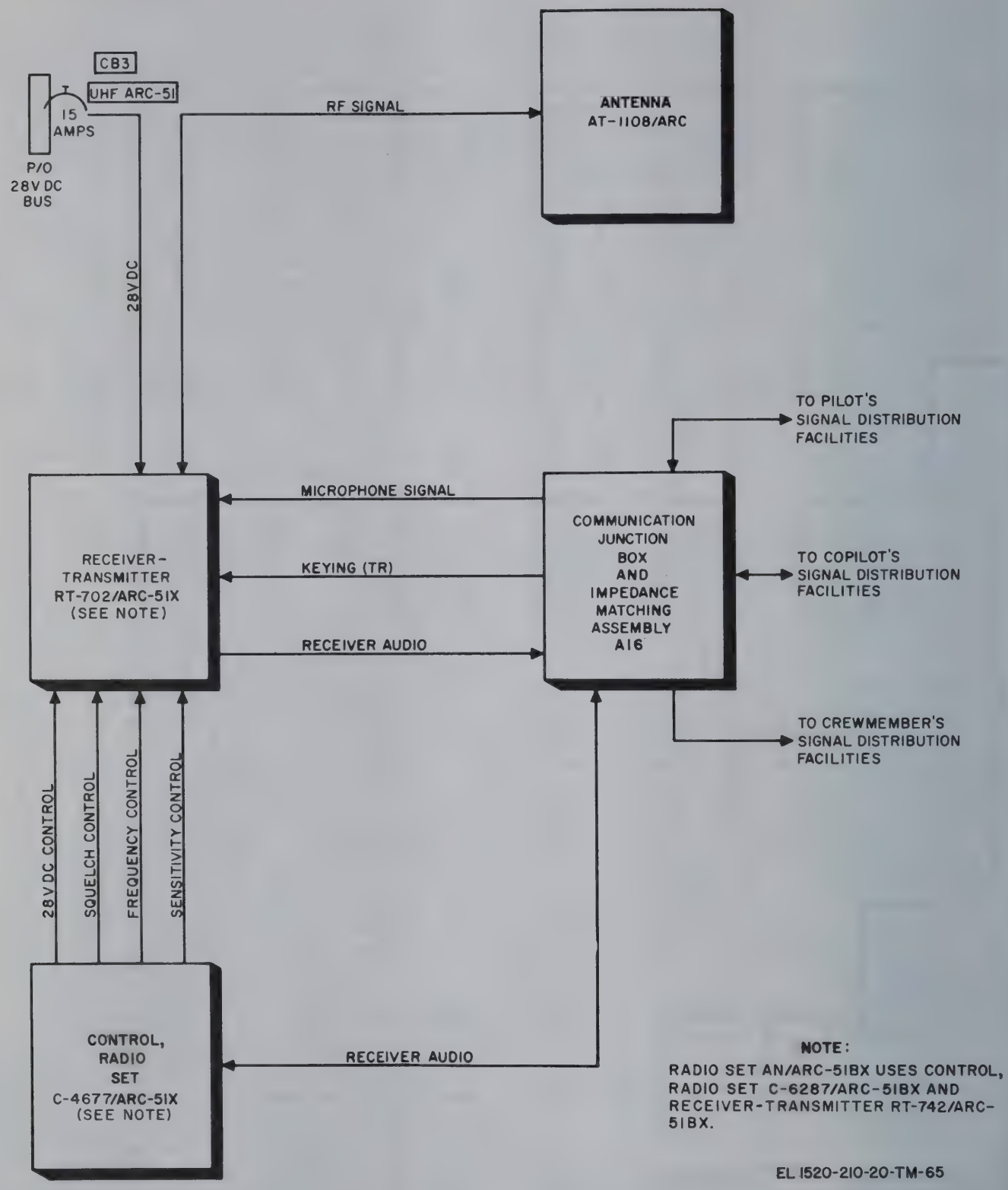


Figure 3-3. Uhf command facility block diagram, Radio Set AN/ARC-51(*)X.

cuit breaker power is supplied to the distribution panels through the INTERCOM SB-329 or both INTERCOM-C.PLT & CREW-L and INTERCOM-PLT & CREW-R circuit breakers. All other dc supplies for the vhf navigation set are supplied by Power Supply PP-2792/ARN-30D. Signals picked up by the vhf navigation antenna are coupled to the vhf navigation receiver. The op-

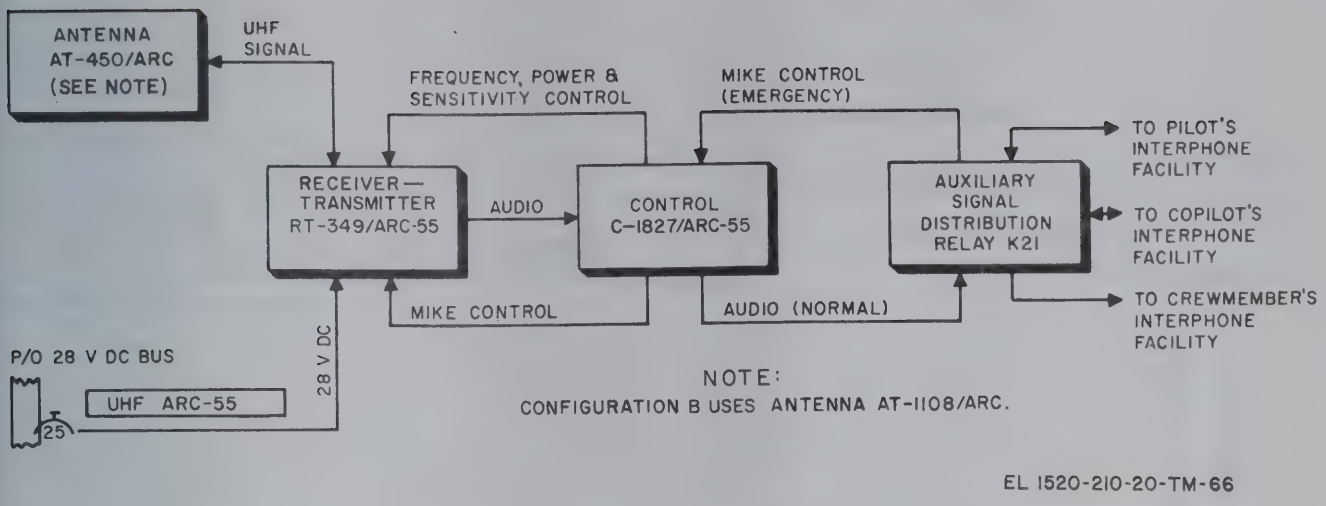


Figure 3-4. Uhf command facility block diagram, Radio Set AN/ARC-55.

erating frequency of the vhf navigation receiver is controlled by the vhf navigation control unit. The type of signal reception desired is selected by frequencies tuned on the navigation control unit. Selection of very high frequency omnidirectional radio range (vor) frequencies causes the vhf signal from the vor station to be fed to the omnicircuits of the converter. The signal is then converted to visual-track information and fed to the course indicator. Selection of localizer frequencies causes the received signal to be fed to the localizer circuits in the converter, which, in turn, feeds the signal to the course indicator. At the same time, flag alarm data are fed to the course indicator from the vhf navigation receiver.

b. The audio part of the receiver signal is routed to the vhf navigation control unit where its level may be adjusted. Under normal operating conditions, the audio output of the vhf navigation control unit is fed through the energized copilot's auxiliary signal distribution relay and the impedance pad to the distribution panels where the signal is further amplified and coupled to the headset portions of the headset-microphones. Under emergency operating conditions, the audio output of the vhf navigation control unit is fed through the deenergized copilot's auxiliary signal distribution relay, the copilot's headset-microphone adapter, the deenergized copilot's auxiliary signal distribution relay, and the deenergized headset transfer relay to the headset portions of the pilot's and copilot's headset-microphones.

c. The AN/ARN-30E is functionally the same as the AN/ARN-30D but includes the C-3436A/ARN-30E control unit, which has the additional capability of tuning an associated glideslope receiv[illegible] (if installed) while controlling the R-1021/ARN [illegible]ver. Both glideslope and localizer frequencies [illegible] automatically tuned by the control unit.

3-11. Receiving Set, Radio ARN-82 (Vhf Navigation Set)
(fig. 3-10)

a. When receiving vhf navigation signals, the RECEIVERS NAV switches on the distribution panels are in the UP position. Set the power switch to the PWR position and the VOL control to approximately midrange on the navigation control unit (C-6873/ARN-82). Power is supplied to the vhf navigation facility through the VHF NAV OMNI circuit breaker. Power is supplied to the distribution panel through the INTERCOM-C.PLT & CREW-L and INTERCOM-PLT & CREW-R circuit breakers. Signals picked up by the vhf navigation antennas are coupled to the vhf navigation receiver. The operating frequency of the vhf navigation receiver (R-1388/ARN-82) is controlled by the vhf navigation control unit. The type of signal reception desired is selected by frequencies tuned on the navigation control unit. Selection of very high frequency omnidirectional radio range (vor) frequencies causes the vhf signal from the vor station to be fed to the omni circuits of the receiver. The signal is then converted to visual-track information and fed to the pilot's and copilot's course indicators. Selection of localizer fre-

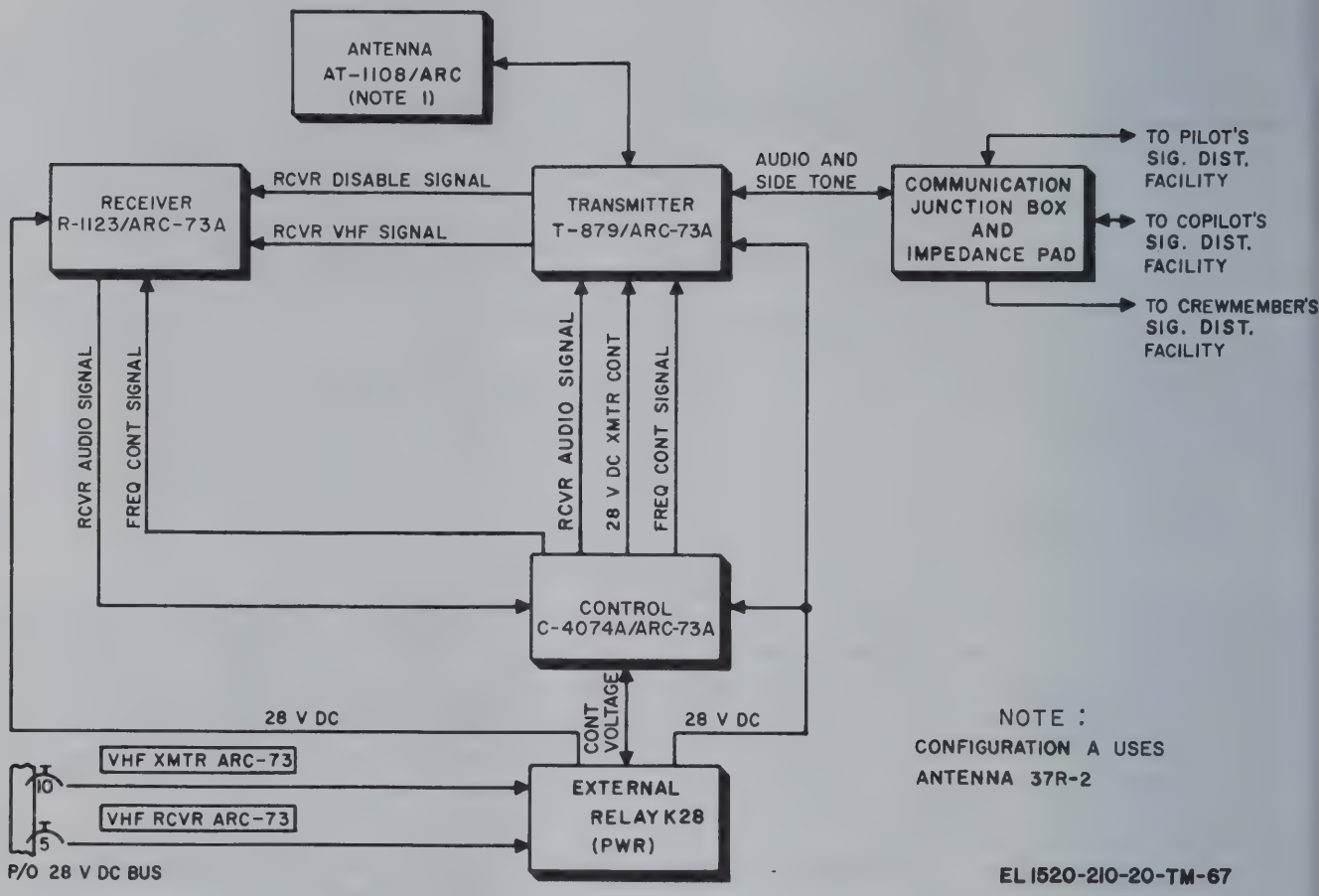


Figure 3–5. AN/ARC–73 vhf command facility, block diagram.

quencies causes the received signal to be fed to the localizer circuits in the receiver, which in turn feeds the signal to the course indicator (ID–1347/ARN–82). At the same time, flag alarm data is fed to the course indicator (ID–1347/ARN–82) from the vhf navigation reciver.

NOTE

When the AN/ARC–54 is operating in the HOME mode, the ID–1347/ARN–82 course indicator is automatically switched by relays K53 and K54 to homing inputs from the AN/ARC–54.

b. The audio part of the receiver signal is routed to the vhf navigation control unit where its level may be adjusted. The audio output of the vhf navigation control unit is fed to the impedance pad and to the distribution panels where the signal is further amplified and coupled to the headset portions of the headset-microphones.

3–12. Direction Finder Set AN/ARN–59(V) (ADF Receiver) (fig. 3–11)

When receiving automatic directional signals, th RECEIVER NAV switches on the distributio panels are in the UP position and the COMP-ANT–LOOP switches on the adf control unit are at COMP. Power is applied to the facilit through the RADIO CMPS AN/ARN–59 circui breaker. The FM RCVR circuit breaker supplie power to the auxiliary signal distribution relays and the distribution panel circuit breaker sup plies low power to the distribution panels. All al ternating current (ac) and dc power for the ad set are supplied by the adf dynamotor. Operatio of the adf dynamotor is controlled from the ad control unit (C–2275/ARN). The adf control uni also controls the operating frequency of the ad receiver. The directional signals picked up by th sense antenna are coupled to the adf receive

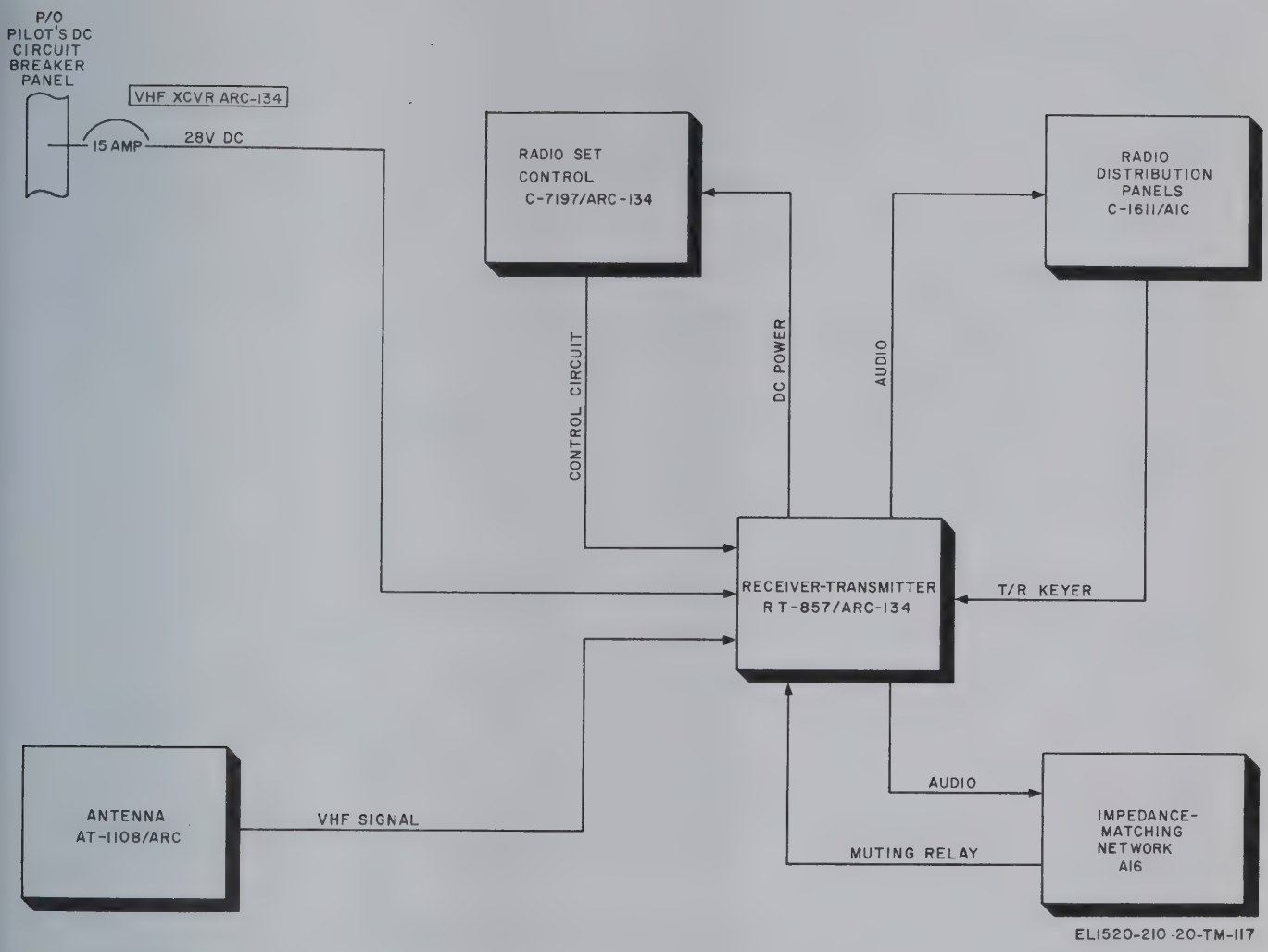


Figure 3-6. AN/ARC-134 vhf command facility, block diagram.

where they are combined to produce an antenna drive control voltage and an audio signal. The antenna drive control voltage is applied to the drive motor in the adf antenna (Antenna, Loop AT-780/ARN). The motor drives the antenna so that it continues to face the transmitting station. Synchro positioning signals are sent from the adf antenna to the azimuth indicator, which displays directional information to the pilot and copilot. Under normal operating conditions, the audio signals are applied to the distribution panels through energized copilot's auxiliary signal distribution relay and impedance matching pad A16. The audio signals are amplified in the distribution panels and routed to the headsets. Under emergency operation, the audio signals are coupled through the deenergized copilot's auxiliary signal distribution relay, through the copilot's headset-microphone adapter, through the copilot's auxiliary signal distribution relay again, and through the deenergized headset transfer relay, to the headset portions of the pilot's and copilot's headset-microphones.

3-13. Direction Finder Set AN/ARN-83 (ADF Receiver)
(fig. 3-12)

When receiving automatic directional signals, the RECEIVERS NAV switches on the distribution panels are in the UP position and the function switch on the direction finder control (C-6899/ARN-83) is in the ADF position. Power is applied to the facility through the LF NAV ADF AN/ARN-83 circuit breaker. The INTERCOM-C.PLT & CREW-L and INTERCOM-PLT & CREW-R circuit breakers apply power to the distribution panels. The adf control unit (C-6899/ARN-83) controls the operating frequency of the adf receiver. The directional sig-

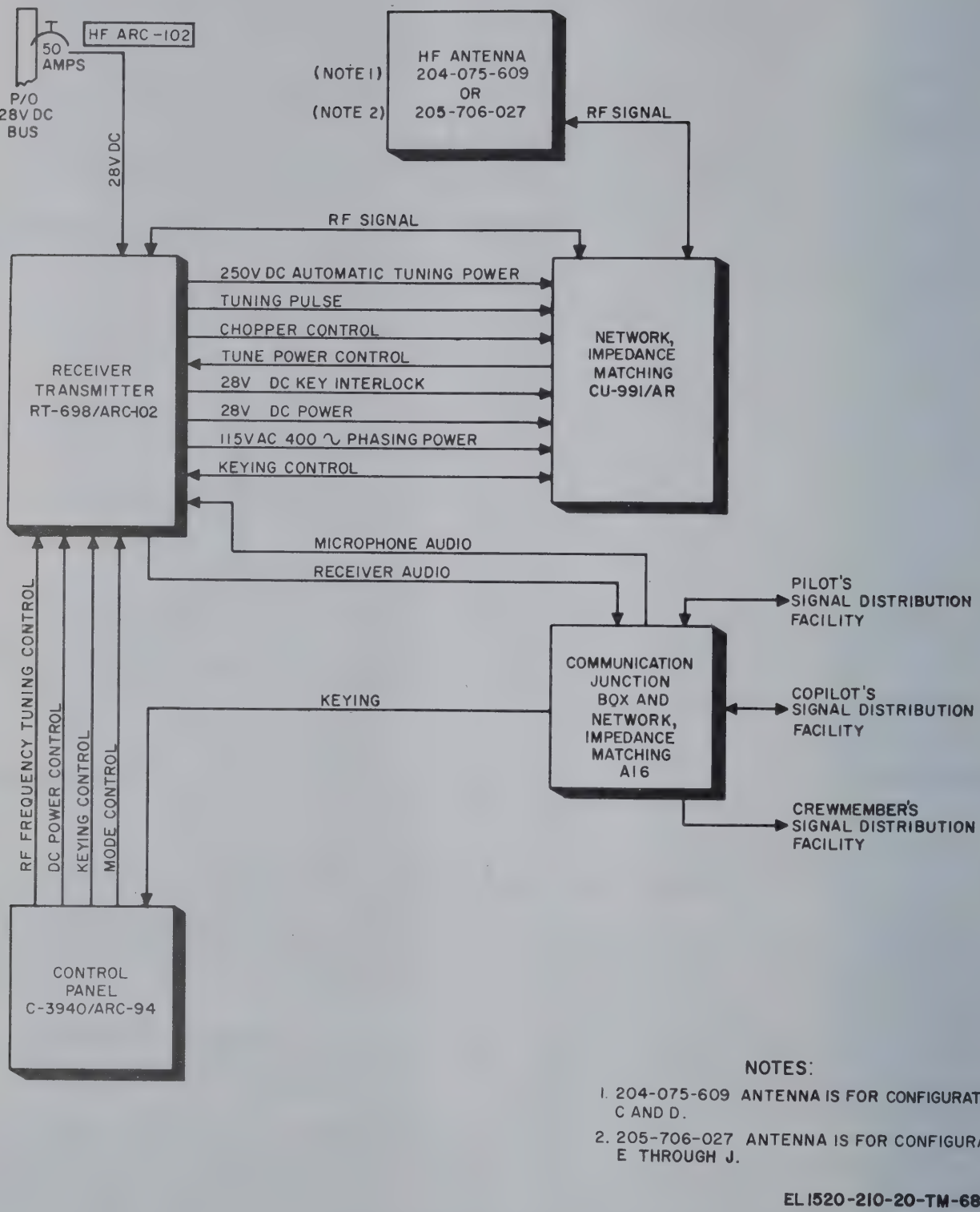


Figure 3-7. Hf ssb/am facility, block diagram.

nals picked up by the sense antenna are coupled to the adf receiver where they are combined with the direction signals picked up by the loop antenna (AS-1863/ARN-83) to position the indicator synchros that display directional information to the pilot and copilot indicators. The audio signals are applied to the distribution panels through impedance-matching pad A16. The audio signals are amplified in the distribution panels and routed to the headsets.

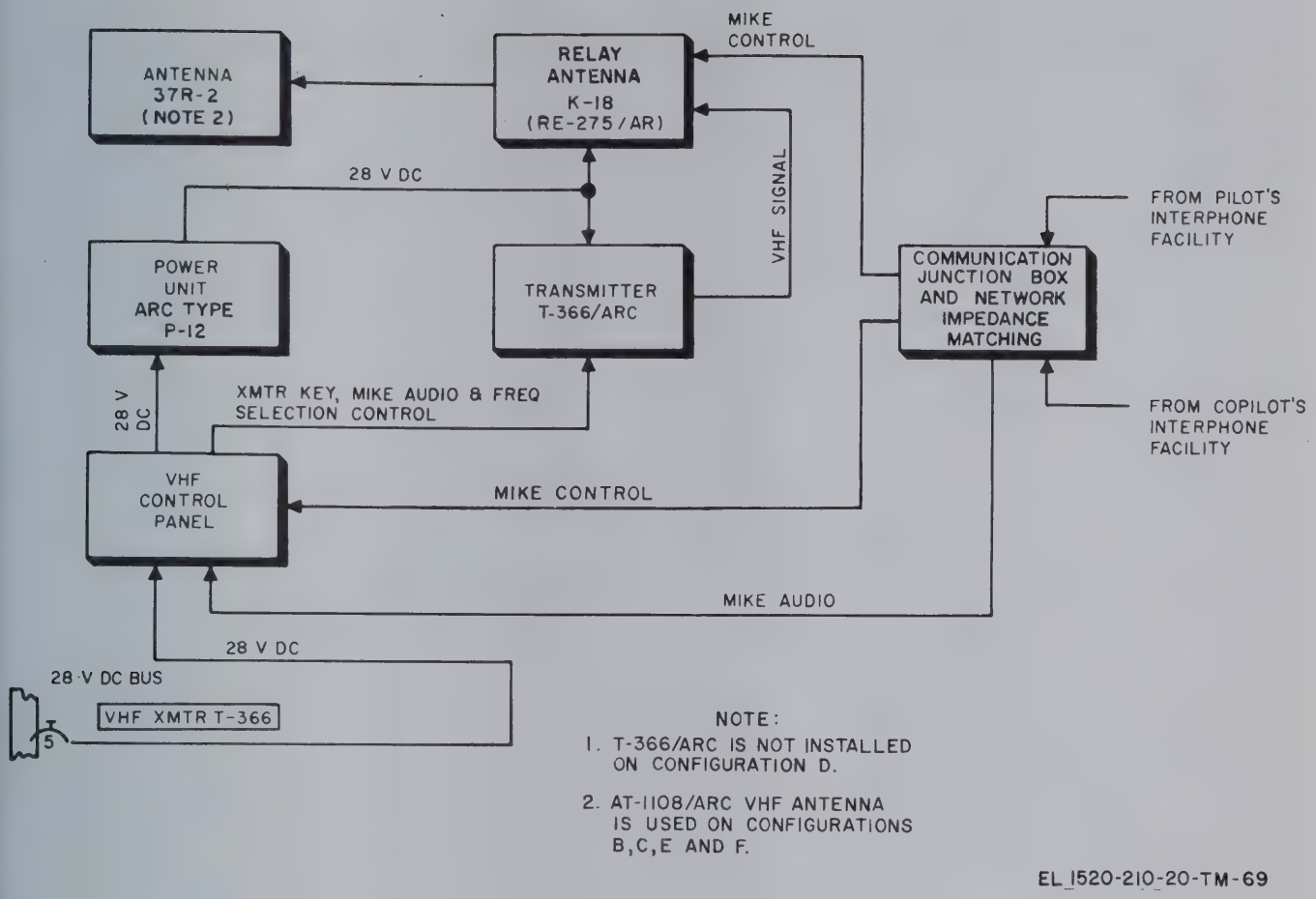


Figure 3–8. T–366/ARC vhf emergency radio transmitter facility, block diagram.

3–14. Aircraft Magnetic Compass System Type J2
(fig. 3–13)

a. The magnetic compass system consists of a remote compass transmitter with a single-cycle error compensator, a gyro control, a magnetic compass amplifier, a magnetic compass indicator, and a COMPASS SLAVING switch. The magnetic compass system is a directional indicating system in which the indication of a magnetic compass is stabilized by a gyro. The gyro control provides a stable magnetic reference from which the heading of the helicopter may be determined. The remote compass transmitter slaves the spin axis of the gyro to the magnetic heading of the helicopter. The remote compass transmitter is a direction-sensing unit and is provided with a single-cycle error compensator to reduce distortion caused by magnetic parts and electrical equipment in the vicinity of the remote compass transmitter. The magnetic compass amplifier is used to amplify the slaving drive signals to the gyro. The COMPASS SLAVING switch is used to start and stop gyro slaving. The output signals of the gyro control are displayed on the pilot's and copilot's compass indicators. The indication represents the magnetic heading of the helicopter in degrees.

b. The remote compass transmitter contains a flux valve that is suspended in the horizontal plane. The remote compass transmitter develops three synchro stator voltages that represent the sensed direction of the helicopter. The single-cycle error compensator provides a magnetic-quadrant error correction for the flux valve directional signal to compensate for any error introduced by the airframe or any magnetic material or electrical equipment in the vicinity. The compensated flux valve directional signal is applied to the three stator connections on the flux valve synchro in the gyro control. If the gyro is misaligned with the sensed direction, a synchro error signal is developed that is amplified in the magnetic compass amplifier. The amplifier signal is fed back to the gyro control as a gyro slaving drive signal. The

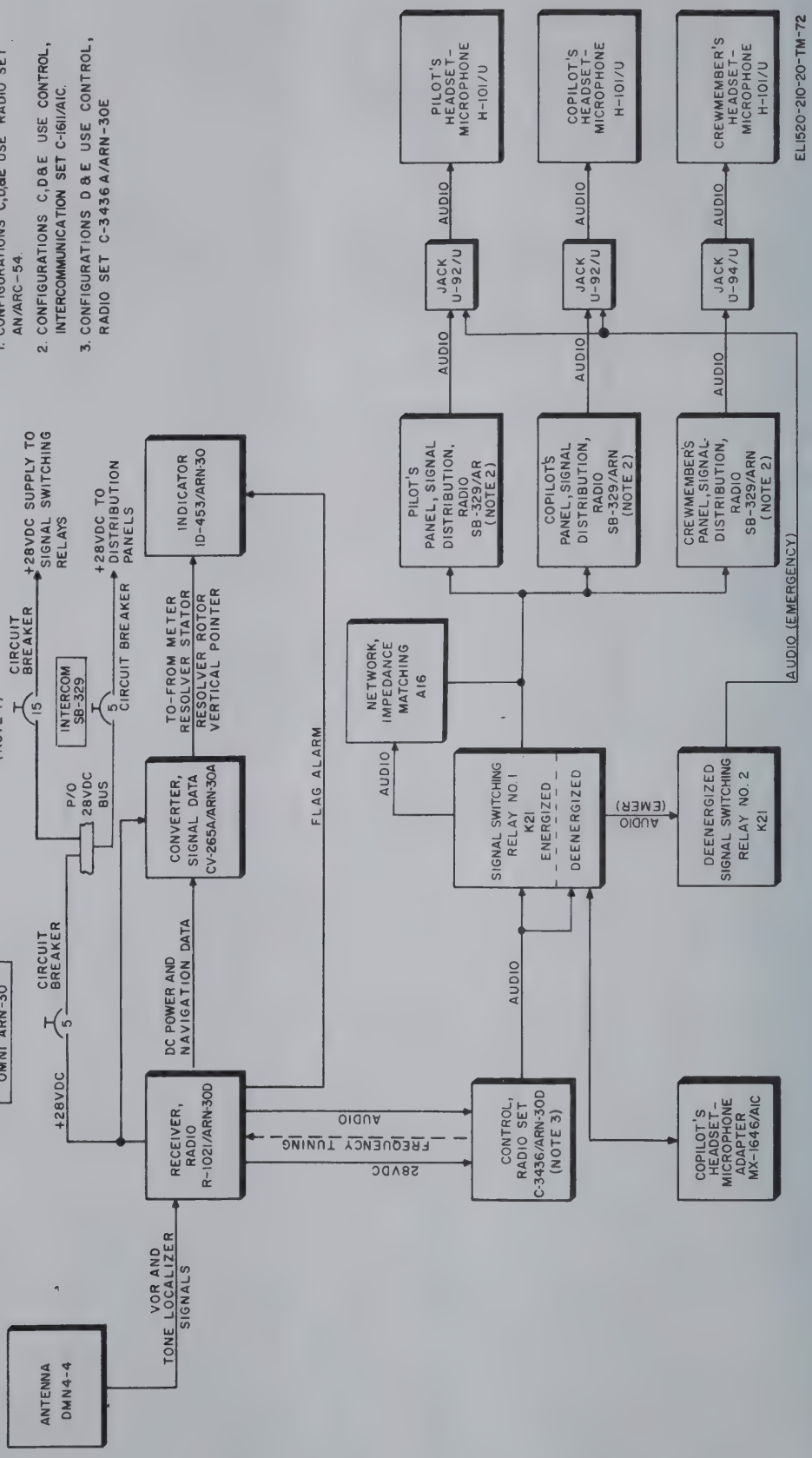


Figure 3-9. Vhf navigation and fm homing facilities, block diagram, AN/ARN-30(*).

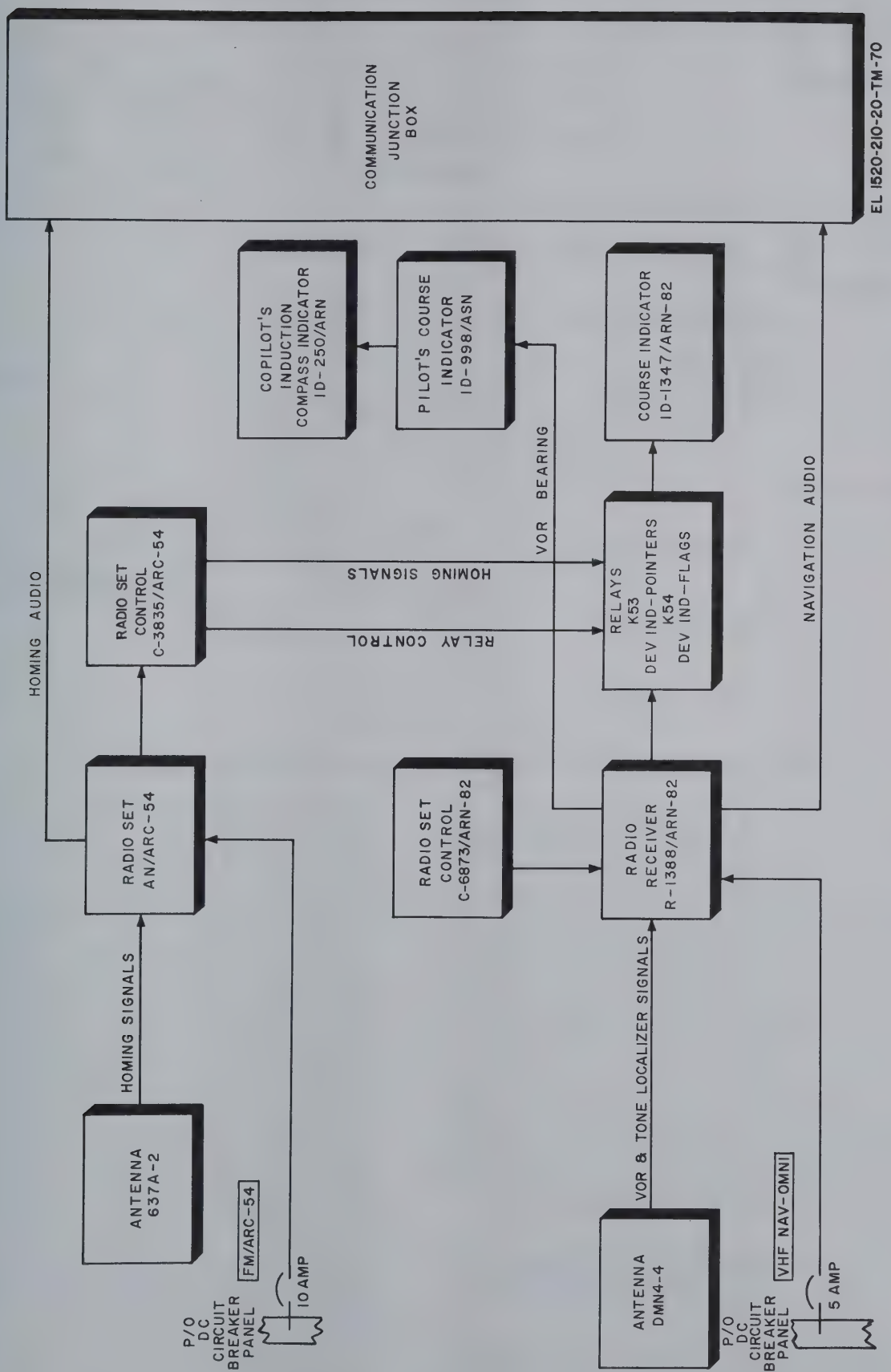


Figure 3-10. Vhf navigation and fm homing facilities, block diagram, AN/ARN-82.

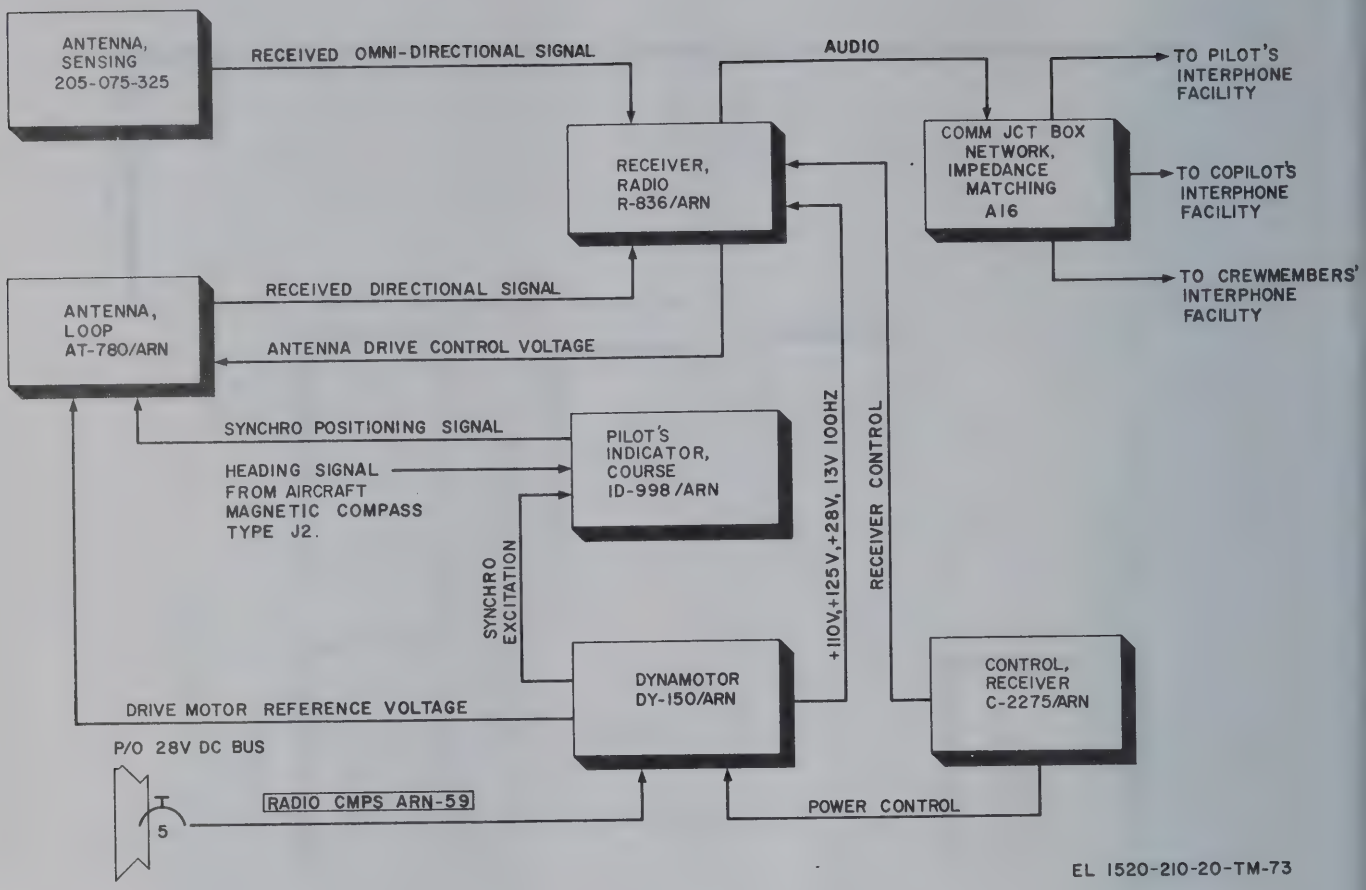


Figure 3–11. Lower frequency (lf) adf navigation facility, block diagram.

drive signal controls a torque motor that drives the gyro (in the gyro control) into alignment with the remote compass transmitter. This action slaves the gyro to the earth's magnetic meridian. The COMPASS SLAVING switch allows the operator to slave or free the gyro. The gyro can be slaved only when the COMPASS SLAVING switch is placed to IN. When the switch is placed to OUT, a relay in the magnetic compass amplifier operates to cut off the drive signal to the control field of the slaving torque motor in the gyro control. The gyro is no longer slaved to the remote compass transmitter, and the heading will be determined by the gyro control only. The output of the gyro control is applied to the magnetic compass indicator as magnetic heading synchro data.

3–15. Aircraft Gyromagnetic Compass System Type AN/ASN–43
(fig. 3–14)

a. The gyromagnetic compass system consists of a remote compass transmitter with a single-cycle error compensator, a directional gyro, a magnetic compass indicator, a course indicator, and a COMPASS SLAVING switch. The gyromagnetic compass system is a directional indicating system in which the indication of a magnetic compass is stabilized by a gyro. The gyro provides a stable magnetic reference from which the heading of the helicopter may be determined. The remote compass transmitter slaves the spin axis of the gyro to the magnetic heading of the helicopter. The remote compass transmitter is a direction-sensing unit and is provided with a single-cycle error compensator to reduce distortion caused by magnetic parts and electrical equipment in the vicinity of the remote compass transmitter. The COMPASS SLAVING switch is used to start and stop gyro slaving. The output signals of the directional gyro are displayed on the pilot's and copilot's compass indicators. The indication represents the magnetic heading of the helicopter in degrees.

b. The remote compass transmitter contains a flux valve that is suspended in the horizontal

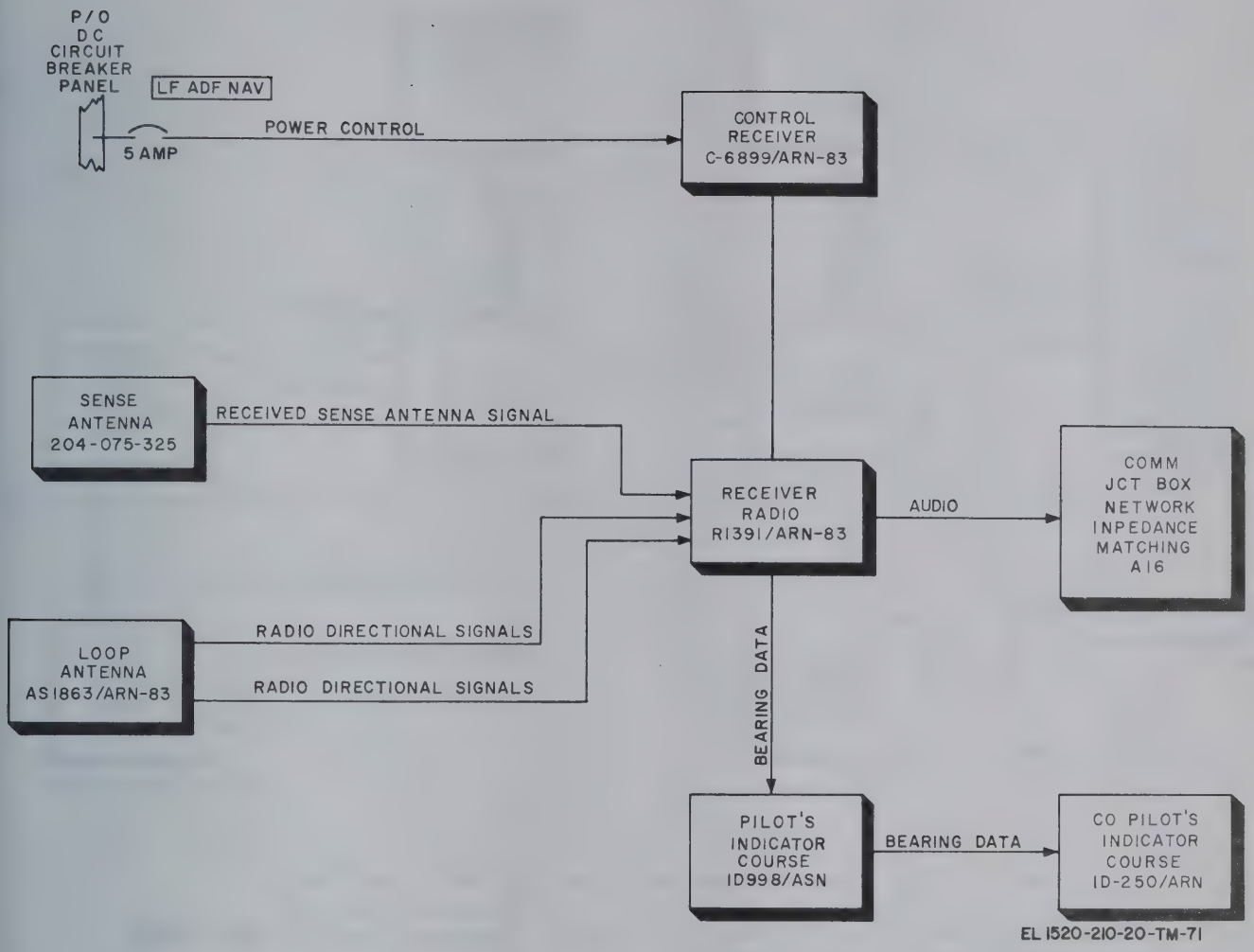


Figure 3–12. Direction Finder Set AN/ARN–83, block diagram.

plane. The remote compass transmitter develops three synchro stator voltages that represent the sensed direction of the helicopter. The single-cycle error compensator provides a magnetic-quadrant error correction for the flux valve directional signal to compensate for any error introduced by the airframe or any magnetic material or electrical equipment in the vicinity. The compensated flux valve directional signal (reference heading) is applied to the magnetic compass indicator. A heading error signal is developed and applied directly to the directional gyro. If the directional gyro is misaligned with the sensed direction, a synchro heading error signal is developed that is amplified in the directional gyro. The amplified signal is a gyro slaving drive signal. The drive signal controls a torque motor that drives the gyro into alignment with the remote compass transmitter. This action slaves the gyro to the earth's magnetic meridian. The COMPASS SLAVING switch allows the operator to slave or free the gyro. The gyro can be slaved only when the COMPASS SLAVING switch is placed to MAG. When the switch is placed to DG, a relay in the directional gyro cuts off the drive signal to the control field of the slaving torque motor in the directional gyro. The gyro is no longer slaved to the remote compass transmitter, and the heading will be determined by the directional gyro only. The output (stabilized reference) of the directional gyro is applied to the magnetic compass indicator as magnetic heading synchro data.

3–16. Receiver, Radio R–737/ARN (Marker Beacon) (fig. 3–15)

The marker beacon receiver set provides the pilot and copilot with visual and aural indications for determining the position of the helicopter in rela-

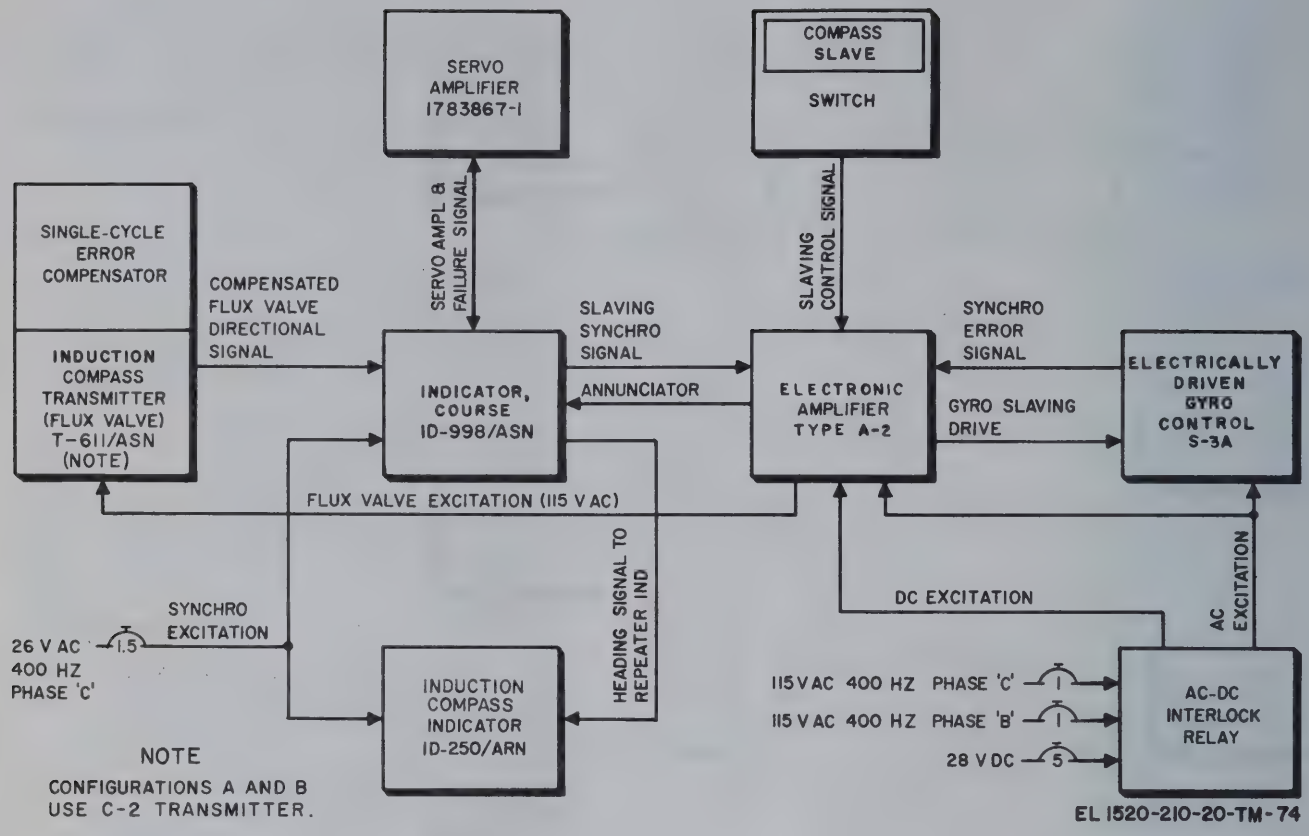


Figure 3–13. Gyromagnetic compass error compensator facility block diagram.

tion to a 75-MHz marker beacon transmitting station. The marker beacon receiver set is used in conjunction with the fm liaison set. When the helicopter is within the radiated field of the marker beacon transmitting station, the MARKER BEACON indicator lamp illuminates, and an aural tone (continuous or coded, depending on the type of marker beacon) is heard in the headset. The audio signal is strongest directly over the transmitting station and diminishes in strength as the helicopter passes through the singal cone. With proper maps and the marker beacon facility, the pilot can determine the exact position of the helicopter. Components of the marker beacon receiver set include the marker beacon antenna, the marker beacon receiver, the MARKER BEACON indicator lamp, and the marker beacon VOLUME CONTROL. Primary power (+28 volts dc) is applied to the marker beacon receiver set through the MARKER BEACON circuit breaker on the dc circuit breaker panel.

3–17. Receiver, Radio R–1041/ARN (Marker Beacon)
(fig. 3–15)

When receiving marker beacon signals, the RECEIVERS MB switches on the distribution panels are in the UP position, and the MARKER BEACON VOLUME control is rotated cw to turn on the marker beacon receiver. Power is supplied to the marker beacon facility through the marker beacon receiver circuit breaker. Power is applied to the auxiliary signal distribution relays through the FM XCVR circuit breaker and to the distribution panels through the distribution panel circuit breaker. With the marker beacon receiver operating, signals received by the marker beacon antenna are coupled to the marker beacon receiver where the 75-MHz marker beacon signal is converted to an audio signal. When the signal is received, a relay in the marker beacon receiver is energized, which applies the lamp illuminating

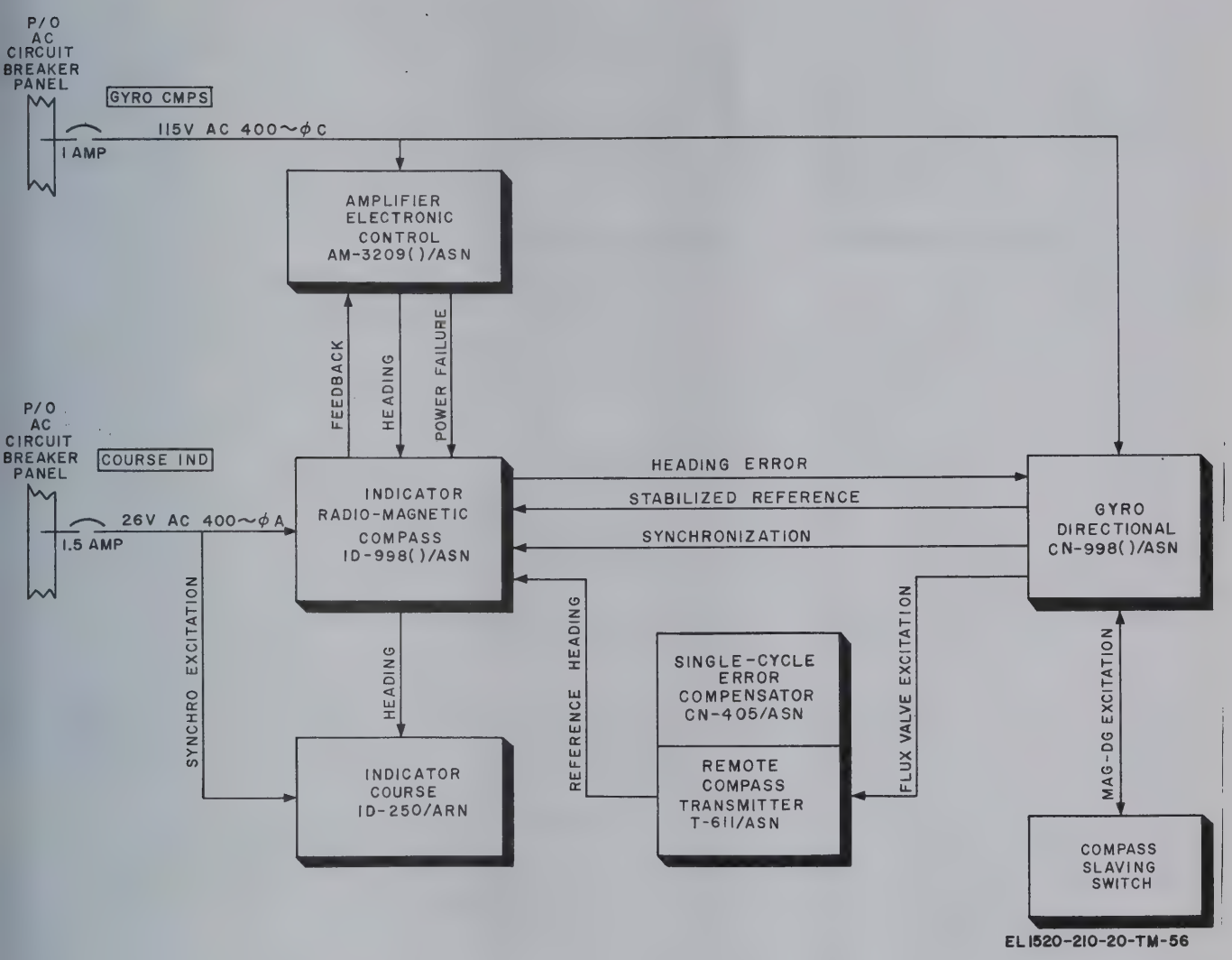


Figure 3–14. Gyromagnetic compass facility, block diagram.

signal to the MARKER BEACON indicator lamp. The lamp lights at the same rate and for the same duration as the modulation of the marker beacon signal. The audio signal in the marker beacon receiver is amplified and applied through the volume control on the marker beacon instrument panel (fig. 2–61) to the copilot's auxiliary signal distribution relay. When the copilot's auxiliary signal distribution relay is energized (normal operating condition), the audio signal is applied to the distribution panels, where the signal is further amplified and then distributed to the headset portions of the headset-microphones. In emergency operation, when the copilot's auxiliary signal distribution relay is deenergized, the audio signal from the marker beacon control panel is coupled through the deenergized copilot's auxiliary signal distribution relay again and to the headset portions of the pilot's and copilot's headset-microphones. The HI–LO switch on the marker beacon instrument panel selects the marker beacon sensitivity. When the switch is set to LO, receiver sensitivity is reduced, and the marker beacon reacts to nearby transmitting stations only.

3–18 Panel, Signal Distribution, Radio SB–329/AR (Control Panel)
(fig. 3–16)

a. For interphone operation, the fm liaison set must be energized by pressing the FM ARC–44 and SB–329/AR PANEL circuit breakers on the dc circuit breaker panel and operating the ICS switch on the fm switch assembly to the up position. This provides a +28-volt dc supply for the

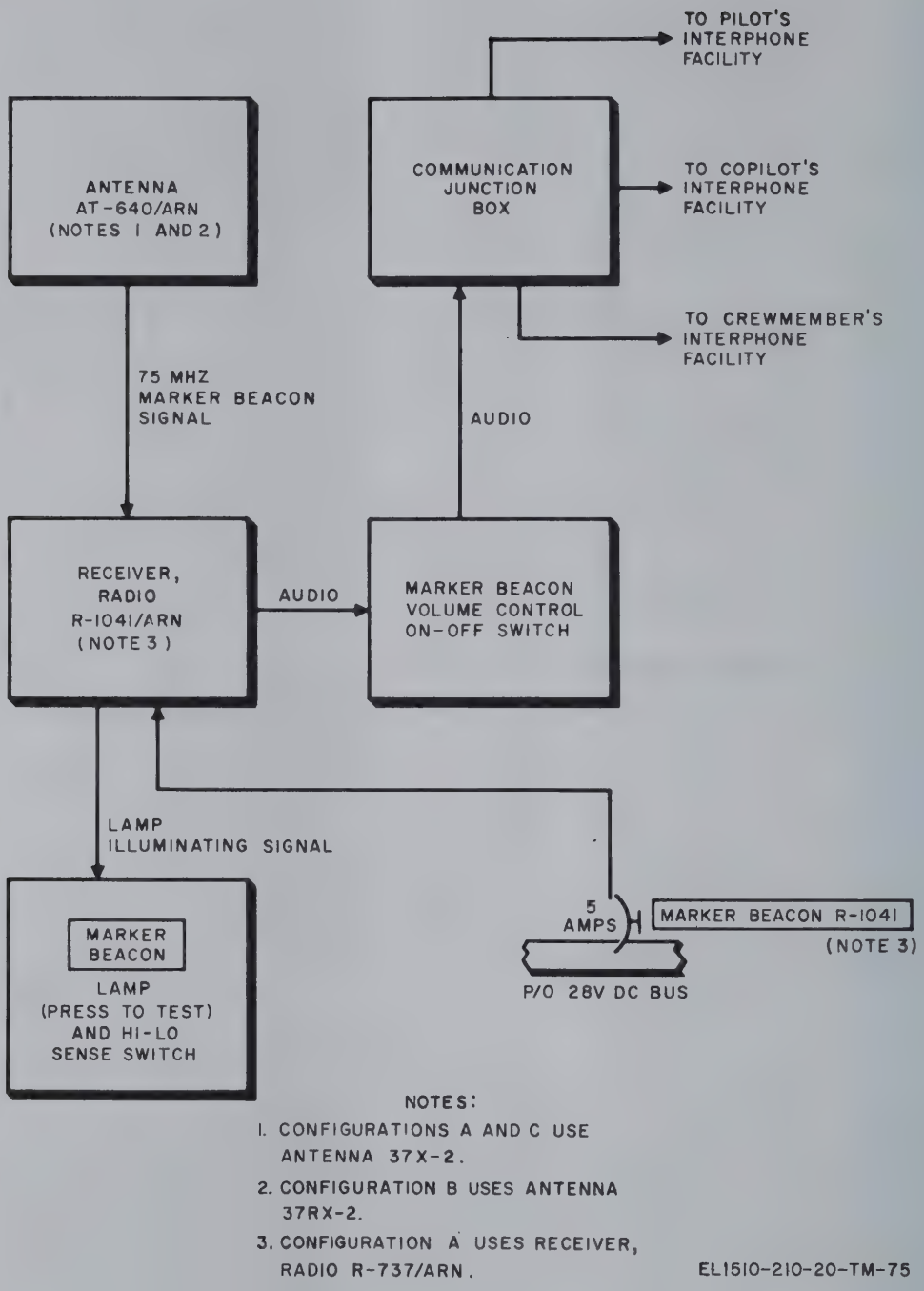


Figure 3-15. Marker beacon receiver facility, block diagram.

pilot's and the copilot's ics relays and the auxiliary signal distribution relays. Operating power for the distribution panels is supplied by Dynamotor DY-107/AR. Primary power for the dynamotor and +28 volts dc for the distribution panels are supplied through the SB-329/AR PANEL circuit breaker. Before a particular station (pilot or copilot) can transmit over the interphone system, the TRANS selector switch on the distribution panel of the transmitting station must be placed to INT. This allows interphone transmission from the transmitting station to the other distribution panels, regardless of the position of the TRANS selector switches on the other distribution panels. If all stations with to transmit and receive from and to each station, the

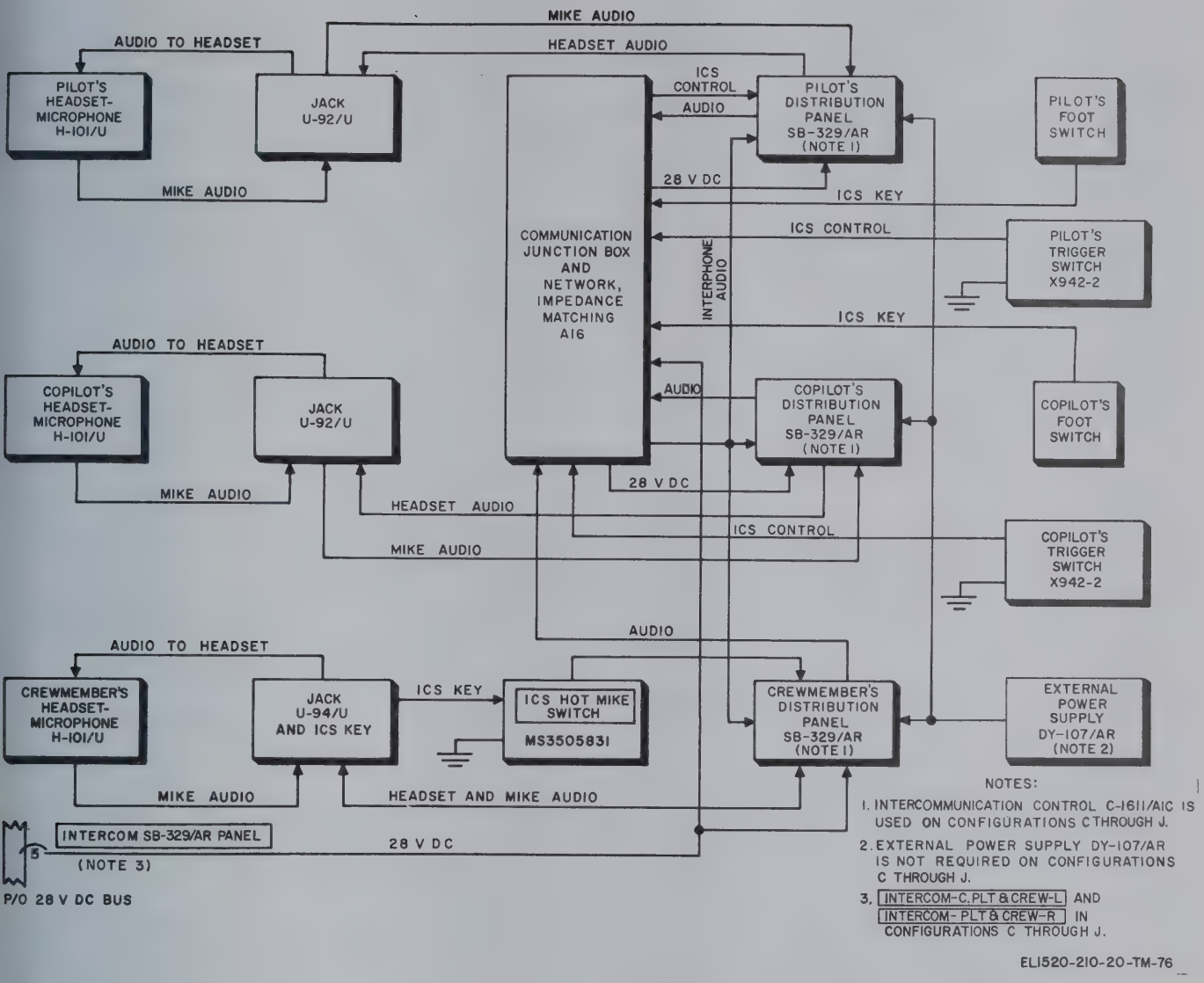


Figure 3-16. Interphone facility, block diagram, configurations A and B.

TRANS selector switch on each distribution panel must be positioned to INT.

b. When the TRANS selector switch on the distribution panel is set so that INT appears in the window and the trigger switch on either the pilot's or copilot's cyclic control grip is depressed to position 1 (first detent), the resultant interphone audio signal is presented in all headsets. When the pilot's or copilot's trigger switch is depressed to position 1 (first detent), the corresponding interphone relay is energized, and the audio signal (microphone audio) from the microphone is fed through Jack U-92/U, the energized auxiliary signal distribution relay, the distribution panel (interphone audio), and the applicable ics relay, to the audio impedance matching network. The signal is routed through the audio impedance matching network and through the other distribution panels (microphone audio) to the corresponding headset.

3-19. Control, Intercommunication Set C-1611(*)/AIC (Distribution Panel (fig. 3-17)

a. In configurations C through J, which use the C-1611(*)/AIC, the auxiliary signal distribution box, which also contains the pilot's and copilot's auxiliary signal distribution relays, keying diodes, and emergency microphone-headset adapters, is eliminated. The functions of these components are no longer required due to the

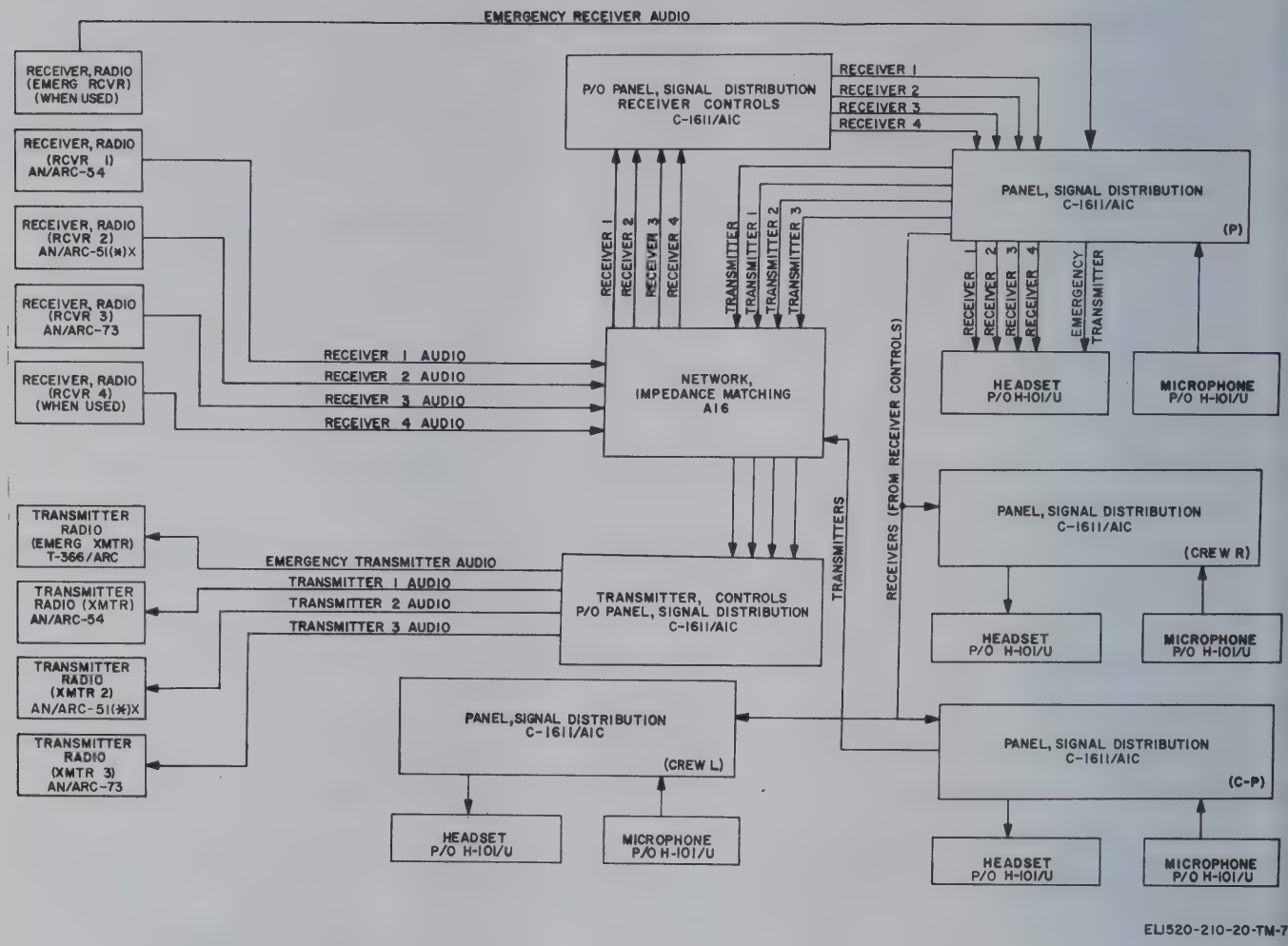


Figure 3–17. Intercommunication interaction, block diagram, C–1611/AIC.

high reliability of the transistors incorporated in the C–1611(*)/AIC radio distribution panels.

b. The C–1611(*)/AIC distribution panel differs from the SB–329/AR distribution panel in several respects, as follows:

(1) The C–1611(*)/AIC is a solid-state (transistor) unit consisting of a microphone preamplifier with automatic gain control (agc), feedback signal line control, a microphone power amplifier, a headset amplifier, and a power filter.

(2) The C–1611(*)/AIC requires only 28-volt dc power for complete operation of all amplifiers.

(3) The C–1611(*)/AIC is ready for service as soon as the 28 volts dc is applied.

(4) The C–1611(*)/AIC is independent of other systems, since it does not require the power supply required by the SB–329/AR distribution panel.

(5) A group of 150-ohm resistors is provided across one section of the transmitter interphone selector switch to provide constant impedance to the input of the transmitter modulator when one or more transmitters are selected. Transmitter keying control is provided by another section of the same switch.

(6) When is use, the C–1611(*)/AIC may be operated in any of three modes, as determined by the settings of the switch (transmitter-interphone selector switch) and RECEIVERS switches S1 through S7 in the control circuits. The three modes of operation used are two-way (air-to-air and air-to-ground) radio communication, radio navigation monitoring, and intercom-

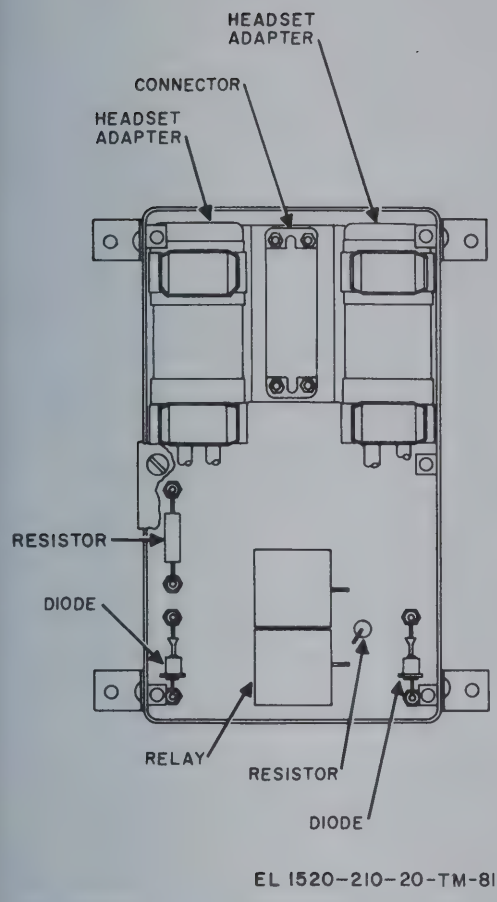


Figure 3–18. Auxiliary signal distribution box.

nunication (interphone and private interphone) etween members of the helicopter crew (refer to M 11–5831–201–35).

(7) In the two-way radio communication node of operation, the microphone signal is con- ected to the microphone preamplifier, the micro- hone amplifier, and the control circuit to the adio transmitter selected by the transmit-inter- hone selector switch. The output of the radio re- eiver associated with the selected radio trans- nitter is also selected by the transmit-interphone elector switch through the control circuits to the eadset amplifier for amplification and applica- ion to the earphones.

(8) In the control circuits, all receiver out- ut in the helicopter (except the emergency re- eiver output) are selected by the RECEIVERS witches. Regardless of the selected mode of oper- tion, the output of the emergency receiver is ap- lied through the control circuits to the headset mplifier. The output signal of the receiver se- ected by a RECEIVERS switch is passed hrough the control circuits to the headset ampli-

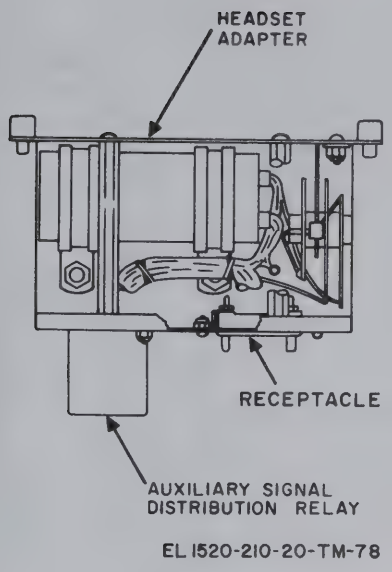


Figure 3–19. Auxiliary signal distribution relay location.

fier, where it is amplified and applied to the earphones.

(9) If members (pilot, copilot, or crewmember) of the helicopter crew desire to intercommunicate, they may do so by setting the transmitter phone selector switch to INT or to PVT for private, uninterrupted conversation. Through this arrangement, the microphone output signaled by a member's voice is passed through the microphone preamplifier, the microphone amplifier, and the control circuits to the headset amplifier to the interphone or private interphone line. The signal portion applied to the headset amplifier is received by the earphone as sidetone. The amplified signal is applied to the interphone line and received by other stations connected to the same line (PVT).

(10) The C–1611(*)/AIC has positions for four receiver-transmitters, and all four positions are connected at the pilot's and copilot's stations. Only the receiver mixer switch is connected at the crew station. The rotary function selector switch has six positions, which are connected as follows at the pilot's and copilot's stations.

Position	*Function*
PVT	Hot mike.
INT	Ics.
1	Fm liaison (AN/ARC–54).
2	Uhf command (AN/ARC–51X).
3	Vhf liaison (AN/ARC–73).
4	Hf ssb (AN/ARC–102).

(11) Regardless of the position selected on the C–1611(*)/AIC control panel at the crew station, the microphone will always be connected to

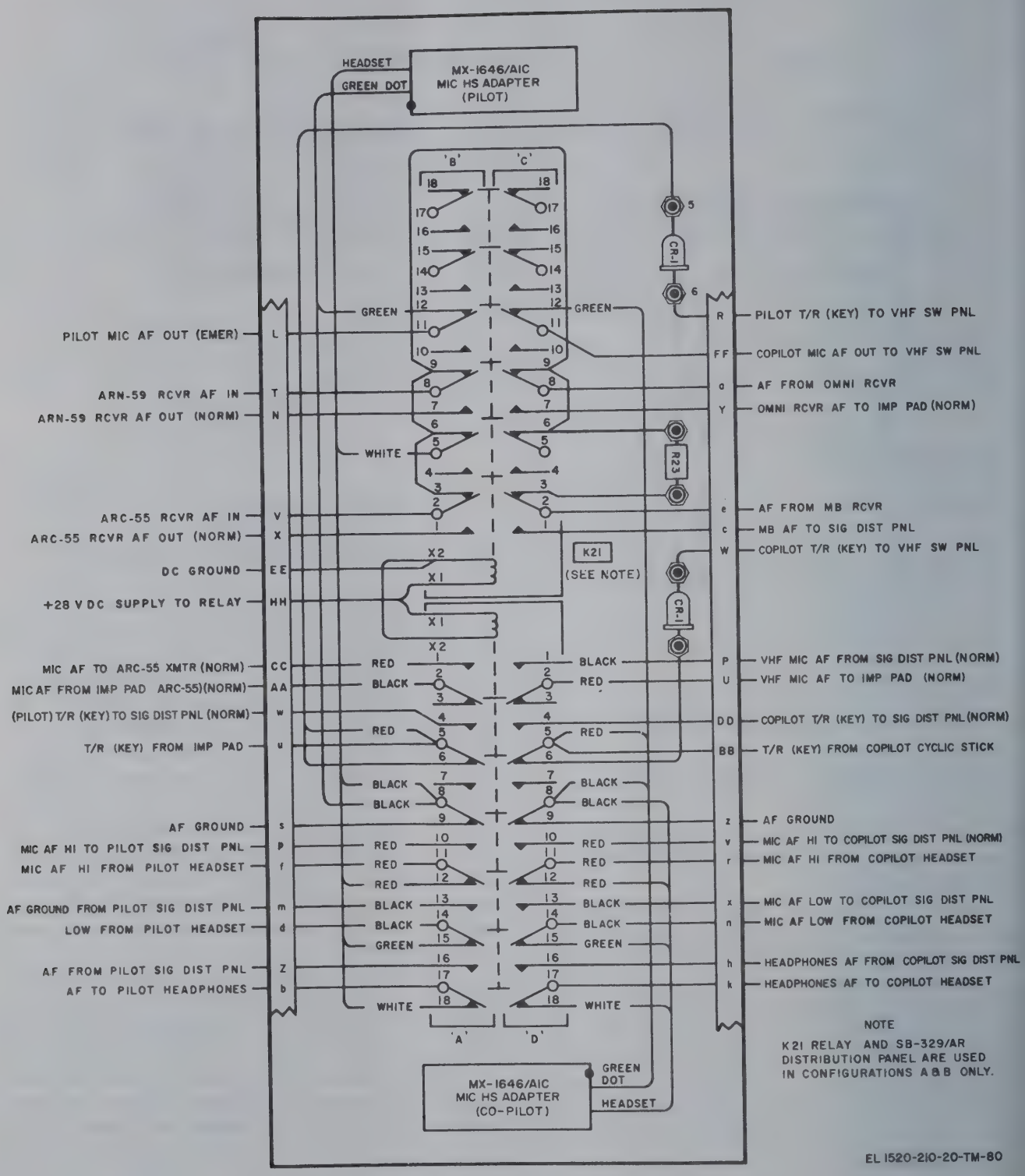


Figure 3-20. Auxiliary signal distribution box, schematic diagram, typical.

the interphone. For the headset to be connected at the crew station, the mixer switch must be in the ON position, or the rotary function selector switch must be in the PVT (hot mike) or INT position. The NAV receiving switch and associated circuitry are designed to accept up to three navigation receivers, to be mixed and fed simulta neously into the intercommunication system Three receivers, the AN/ARN-30(*) o AN/ARN-82 omnirange, the R-1041(*)/ARN marker beacon and the AN/ARN-59(V) o AN/ARN-83 adf receiver are connected to th

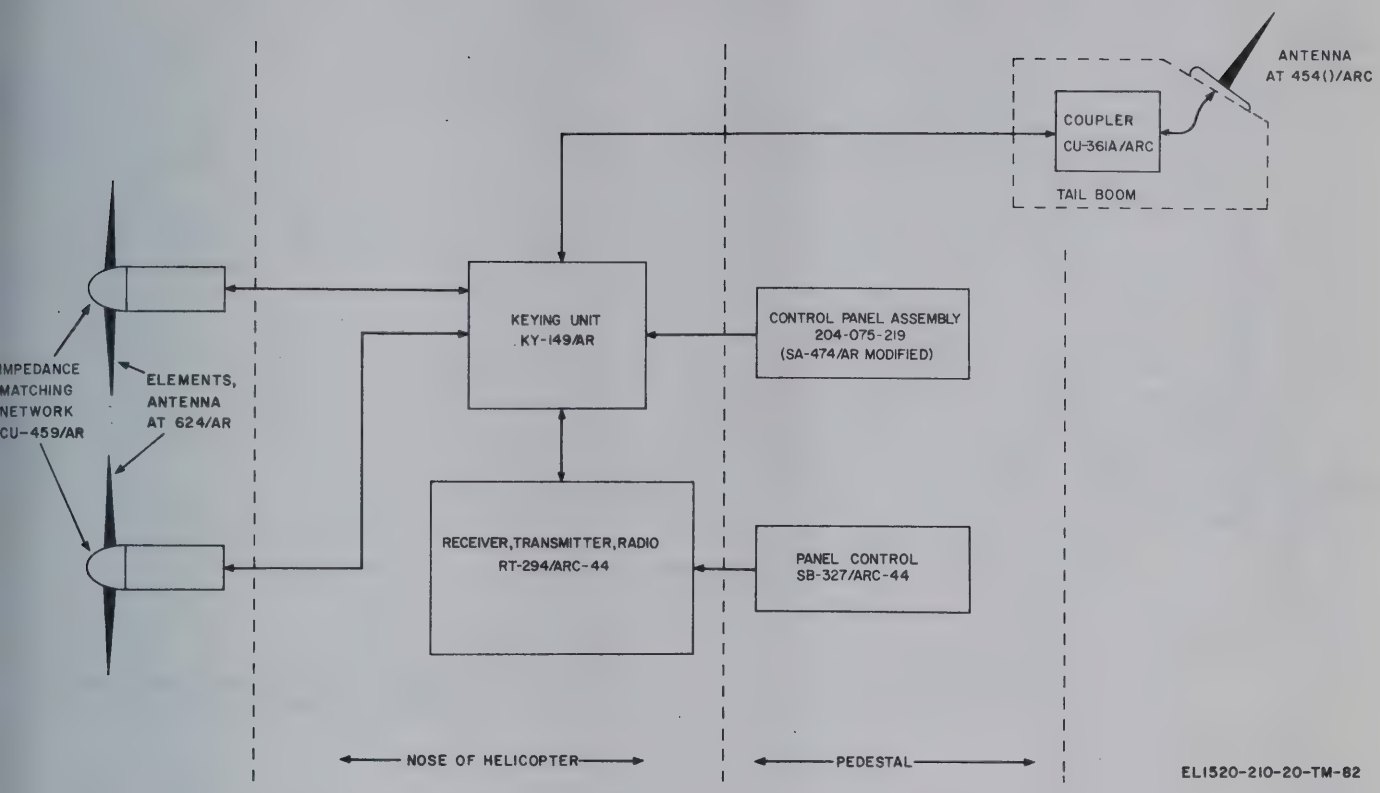


Figure 3-21. Fm homing facility, block diagram, Antenna Group AN/ARA-31, configurations A and B.

NAV receiving mixer switch. There are six mixer switches, in all, including the NAV receiving switch. The switches other than the NAV switch are connected as follows at interphone stations:

Switch	*Function*
1	Fm liaison (AN/ARC-54).
2	Uhf command (AN/ARC-51X).
3	Vhf command (AN/ARC-73).
4	Hf ssb (AN/ARC-102).
INT	Ics audio.

NOTE

The AN/ARC-73 vhf system is an alternate for the AN/ARC-51(*)X uhf system. Both will not be installed at the same time. The AN/ARC-102 hf is an alternate for the AN/ARC-54 fm.

3-20. Auxiliary Signal Distribution Box (figs. 3-18, 3-19, and 3-20)

a. The auxiliary signal distribution box contains a relay and two headset-microphone adapters, one each for the pilot and copilot. The auxiliary signal distribution box enables the pilot and copilot to communicate with the uhf command set and to pick up signals from the navigation equipment if the distribution panels should become inoperative.

b. The auxiliary signal distribution relay is energized by 28 volts dc furnished by Dynamotor DY-107/AR when the fm liaison set is energized. Audio signals from the headset-microphones are fed through the closed contacts of the energized auxiliary signal distribution relay to the distribution panels for application to all headsets and to the uhf command set for transmission purposes.

c. When the auxiliary signal distribution relay is energized, audio from the adf set, the marker beacon receiver set, and the navigation set are fed through the closed contacts of the auxiliary signal distribution relay to the distribution panels for application to all crewmembers' headsets.

d. The auxiliary signal distribution relay cannot be energized if dc power is not available at the FM ARC-44 circuit breaker. With the relay in a deenergized condition, audio signals cannot pass into the distribution panels. Under these conditions, the deenergized relay will connect the audio signals to and from the operating equipment through headset-microphone adapters.

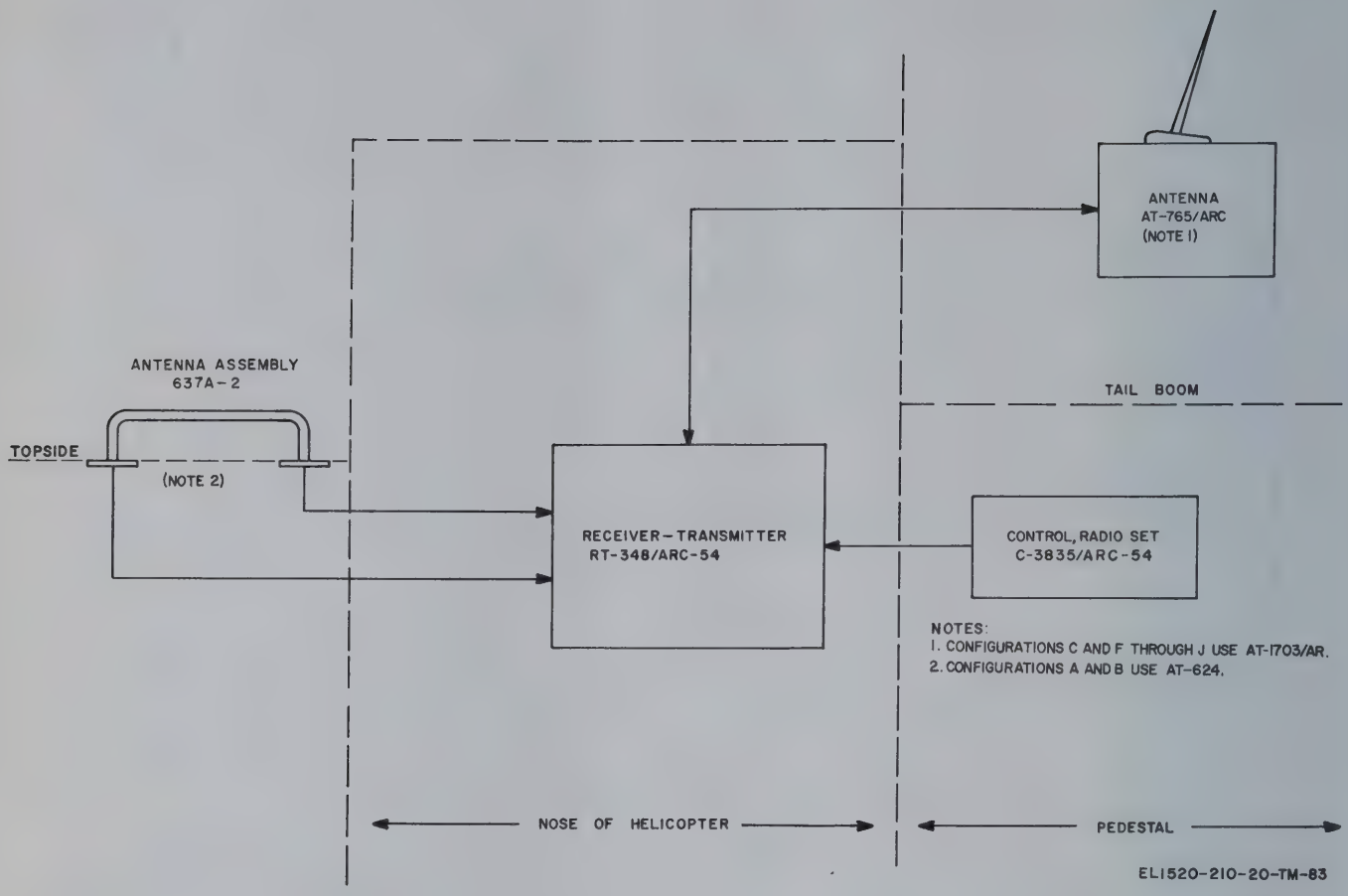


Figure 3-22. Fm homing facility, block diagram, Antenna Assembly 637A-2, configurations C through J.

3-21. Antenna Group AN/ARA-31
(fig. 3-21)

When the FM HOME switch on the fm switch assembly is up, the homing signal input circuit to the fm receiver-transmitter is connected to the homing antenna through the antenna keyer. At the same time, homing circuits in the fm receiver-transmitter are energized. Homing signals received by each of the homing antenna elements are coupled to the antenna keyer, where they are compared in phase to produce a resultant signal at each end of a phasing line. The resultant signals are combined and fed to the fm receiver-transmitter, where they are amplified and detected before being fed to the headset portions of the headset-microphones through the same route as the received fm signals.

3-22. Antenna Assembly 637A-2 (205-075-345) (Homing)
(figs. 3-22 and 3-23)

Configurations C through J use the Collins, type 637A-2 homing antenna, mounted laterally on the helicopter to provide left and right signal comparison. It is connected to the left and right dipole antenna connections of the AN/ARC-54 radio. The antenna is a one-piece unit resembling a towel rack in appearance.

3-23. Transponder Set AN/APX-44 (IFF Set)
(figs. 3-24 and 3-25)

a. The transponder set receives all interrogations through Antenna AT-884/APX-44. The an-

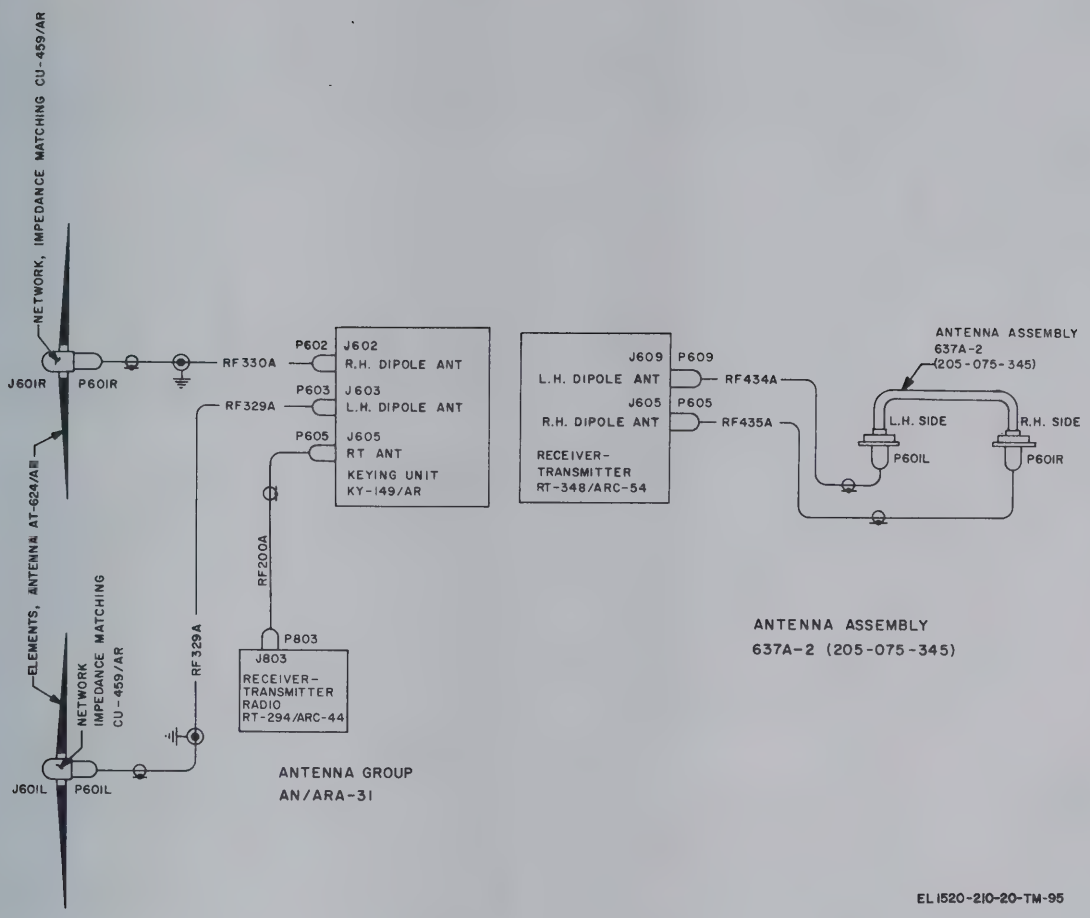


Figure 3-23. Fm homing antenna groups AN/ARA-31 and 637A-2, wiring diagram.

tenna receives and transmits horizontally polarized signals in all directions. The received signal frequency is 1,030 MHz. Interrogations received by the antenna are fed through the duplexer to the receiver section of Radar Receiver-Transmitter RT-494/APX-44. The duplexer allows the transponder set to receive and transmit with the same antenna, without using mechanical switching parts. The receiver is the superheterodyne type with broadband characteristics to accommodate RF pulses without distortion. Its sensitivity is controlled by the NORM and LOW positions of the master control in the transponder set Control C-2714/APX-44 and, automatically, by the interrogation rate. The video pulses from the receiver have had all undesirable pulses, such as pulses of unequal amplitude, pulses too narrow in width, or pulses spaced less than 2 microseconds (μsec) after the first pulse, eliminated. The video pulses from the receiver are a pulse pair for each interrogation; the time between the pulses of a pair will be either 3, 5, or 8μsec, depending on the interrogation mode.

b. The video from the receiver, in the form of interrogation pulse pairs, is applied to the decoder, which performs the following functions:

(1) Determines whether a proper interrogation has been received.

(2) Determines interrogation mode of the received signal.

(3) Generates mode-sensing gate pulses that enable the mode sensitivity encoder circuits to accept a selected reply train of pulses.

(4) Generates main gate pulses to blank out all interrogations for a period of 120 μsec after a received pulse pair (which allows time to complete a reply and avoids multiple replies), and to synchronize encoder reply train construction.

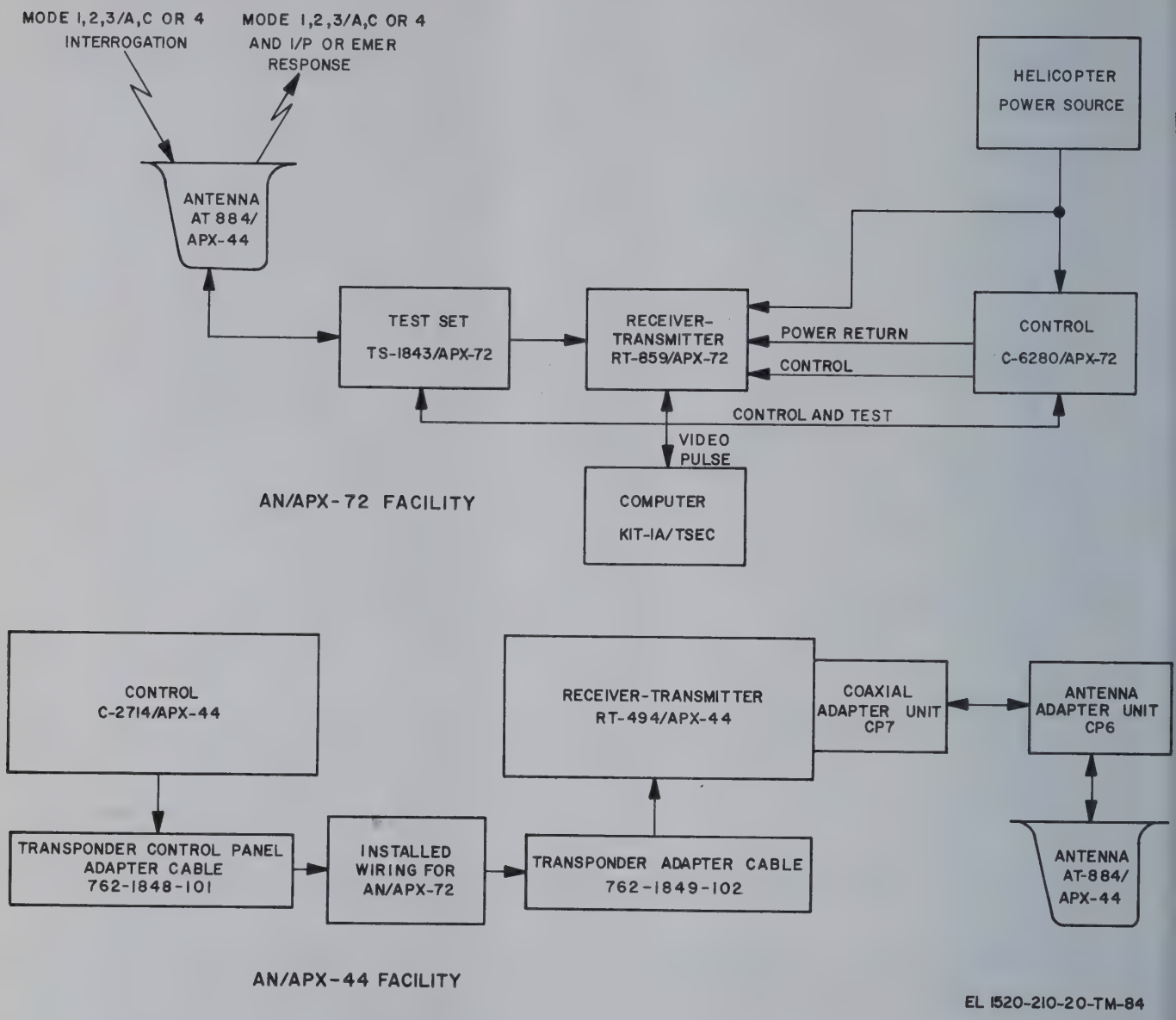


Figure 3-24. IFF transponder, block diagram, Transponder Sets AN/APX-44 and AN/APX-72.

3-24. Transponder Set AN/APX-72 (IFF Set)

(fig. 3-24)

a. Antenna AT-884/APX-44. The transponder set receives all interrogation through Antenna AT-884/APX-44. The antenna receives and transmits horizontally-polarized signals in all directions. The received signal frequency is 1,030 MHz and the transmitted frequency is 1,090 MHz. The mode 1, 2, 3/A, C, or 4 coded interrogating pulse is received at the AT-884/APX-44 and fed direct to the RT-859/APX-72. If the interrogating signal is determined to be valid, a coded reply pulse will be transmitted through the AT-884/APX-44 to the interrogating station.

b. Receiver-Transmitter RT-859/APX-72. The coded interrogating pulse input to the RT-859/APX-72 is tested for validity and, if it conforms to the mode and code preset in the RT-859/APX-72, a coded reply pulse will be generated and fed to the AT-884/APX-44 for transmission. Mode 1, 2, and 3/A interrogations are processed within the RT-859/APX-72, but mode C and 4 interrogations are applied to external equipment that generates the coded reply pulse for transmission through the RT-859/APX-72. The RT-859/APX-72 contains only the MODE 2

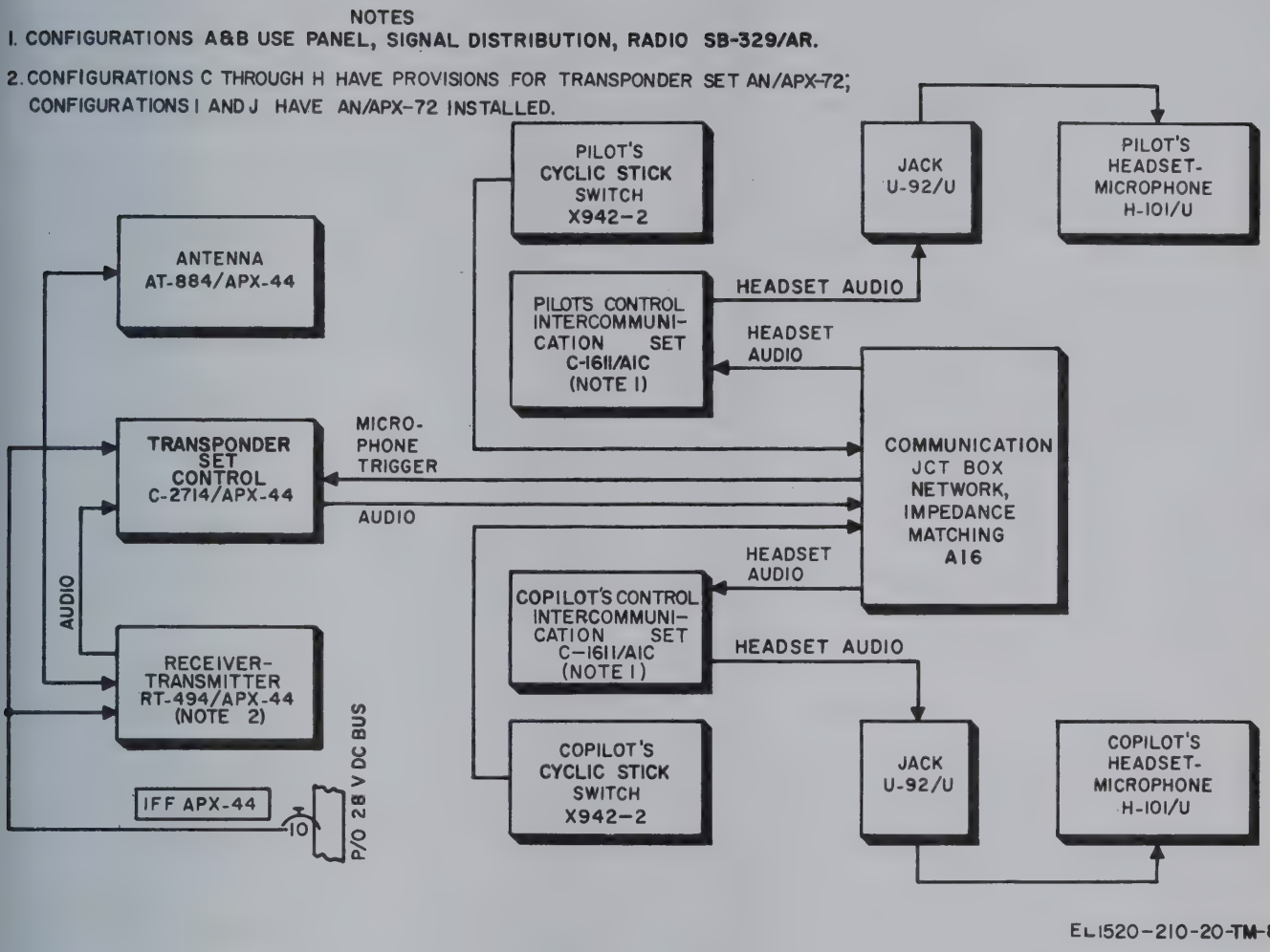


Figure 3-25. IFF transponder and intercommunications, block diagram, Transponder Set AN/APX-44.

code setting switch; all other controls, including the source power switch, are on the C-6280/APX-72. Additional reply reponses for identification of position and emergency are available for transmission by the RT-859/APX-72 when so selected at the C-6280/APX-72.

c. Control C-6280/APX-72. The C-6280/APX-72 provides the control functions for the RT-859/APX-72. It controls the application of source power, presets the modes and codes (except mode 2 code setting), and selects the enabling switches that determine the modes of operation for which the RT-859/APX-72 will function. The C-6280/APX-72 also selects the degree of RT-859/APX-72 sensitivity and the identification of position and emergency output functions.

d. Computer Transponder KIT-1A/TSEC. The RT-859/APX-72 can be operated without the KIT-1A/TSEC. When the KIT/1A/TSEC is connected, mode 4 interrogations bypass the decoder in the RT-859/APX-72 and are applied directly to the KIT-A/TSEC. The coded interrogation pulse is decoded in the KIT-1A/TSEC and a coded reply pulse is generated which is returned to the RT-859/APX-72 for transmission to the interrogating source.

e. Test Set TS-1843/APX-72. The RT-859/APX-72 can be operated without the TS-1843/APX-72. When used, the TS-1843/APX-72 is activated by controls on the C-6280/APX-72 and provides signals for processing by the RT-859/APX-72. The processed signals are returned to the TS-1843/APX-72, which

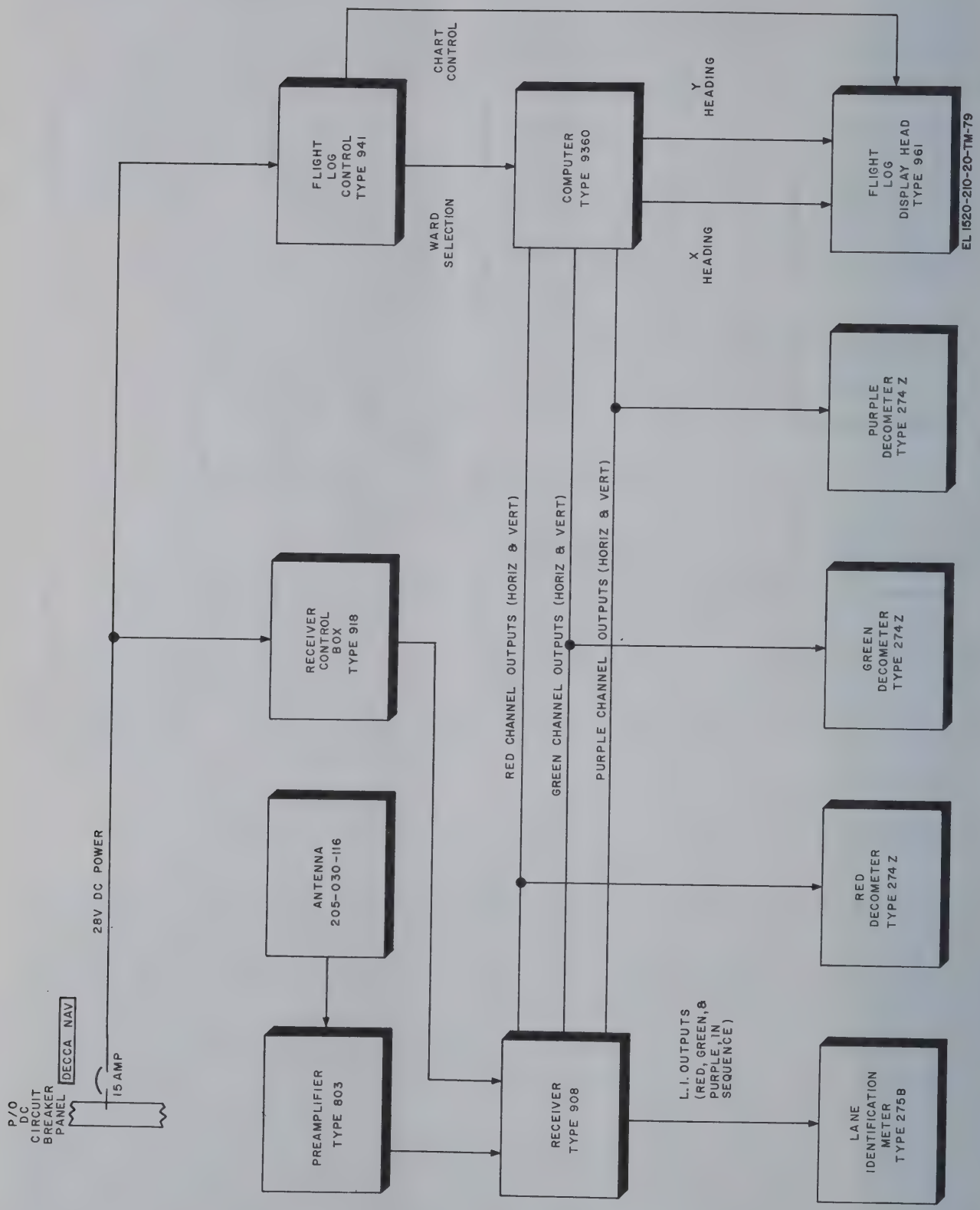


Figure 3-26. AN/ASN-72 facility, block diagram.

then activates a test light on the C–6280/APX–72 if the proper response has occurred.

3–25. Navigation Set, Position Fixing AN/ASN–72 (fig. 3–26)

Navigation Set, Position Fixing AN/ANS–72 is an airborne hyperbolic navigational system, which receives low-frequency, unmodulated, continuous-wave signals from four ground stations and provides the pilot with helicopter present-position data. The navigation set provides the following visual displays of helicopter present position:

a. Three decometers, designated as red, green, and purple, are calibrated in the lane and zone units into which the area covered by the ground stations is divided by the hyperbolic system of grids. The readings obtained from any two of the decometers are referred to maps or charts on which are imprinted the lane and zone units. When the readings from the two decometers are plotted on the chart, the point at which the readings intersect indicate helicopter present-position.

b. The navigation set consists of a preamplifier and receiver (fig. 2-47); with a control box and four display meters (fig. 2–48); and a computer (fig. 2–47) with a flight log control and a flight log display (fig. 2–49).

3–26. Battery, Storage BB–433/A

Battery, Storage BB–433/A is a rechargeable, 24-volt, nickel-cadmium battery. Electrical connection to the storage battery is made through a two-terminal, male connector at the front of the battery case. Each of the 19 cells contains a removable filler cap vent plug that allows any gas given off by the cell to escape. During charge or discharge of the storage battery, no appreciable chemical change takes place in the electrolyte; therefore, testing the specific gravity of the electrolyte cannot determine the state of discharge of the battery. Refer to charging procedures in TM 11–6140–203–15–1.

3–27. Motor Generators PU–543(*)/A (fig. 2–45)

Two inverters, one in use and one spare to be switched in should the first inverter fail, are provided. The 28-volt dc motor drives a 115-volt, 400-Hz generator to supply power to the J2 compass system (fig. FO–10). Inverter output, both voltage and frequency, is regulated by a transistorized regulator system mounted above the motor generator housing.

3–28. Attitude Indicating System (Pilot's)

The attitude indicating system consists of a pilot's attitude indicator, type 4005G, located on the pilot's section of the instrument panel. Also included are Rate Switching Gyro MC–1, Roll and Pitch Gyro MD–1, and Indicator Amplifier Type 5404G, which are located in the nose compartment. The attitude indicating system is operated by three-phase, 115-volt ac electrical power, supplied by the inverter, and is protected by PILOT ATTD circuit breakers on the ac circuit breaker panel. Integral lighting, operated by 28 volts dc from the essential bus, is incorporated in the indicator.

3–29. Attitude Indicating System (Copilot's)

The copilot's attitude indicating system, type J–8, is a self-contained system located on the copilot's section of the instrument panel. The attitude indicator is operated by three-phase, 115-volt ac electrical power, supplied by the inverter, and is protected by COPILOT ATTD circuit breakers on the ac circuit breaker panel.

3–30. Secure-Voice Equipment (fig. 3–2)

The secure-voice encoder/decoder (TSEC/KY–28) and secure-voice control-indicator (C–8157/ARC) are used in conjunction with the AN/ARC–54 fm facility only, to provide secure, two-way voice communications. The encoder portion of the secure-voice encoder/decoder translates the microphone audio to coded voice for application to the AN/ARC–54 fm radio transmitter. Secure audio signals from the AN/ARC–54 fm radio receiver are applied to the secure-voice encoder/decoder for translation to clear-voice audio.

APPENDIX A

REFERENCES

The technical manuals listed below for the electronic equipment configurations in UH–1D/H helicopters supplement organizational maintenance data contained in this manual.

DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310–7	U.S. Army Index of Modification Work Orders.
MWO 55–1520–210–34/2	Complete Provisions for AN/ARC–102 Single Sideband HF Radio (UH–1D Aircraft).
MWO 55–1520–210–34/10	Modification of UH–1D Aircraft and Installation of Decca Navigation System (UH–1D Aircraft).
SB 11–573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
TB 746–10	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 9–213	Painting Instruction for Field Use.
TM 11–520	Operation and Maintenance: Radio Receiving Set AN/ARN–30.
TM 11–525–25	Maintenance Instructions: Radio Set, ARC Type 12.
TM 55–1500–323–15	Installation Practices for Aircraft Electric and Electronic Wiring.
TM 11–5820–518–20	Organizational Maintenance Manual (Including Repair Parts and Special Tool Lists), Radio Set AN/ARC–51X and AN/ARC–51BX.
TM 11–5820–670–12	Organizational Maintenance Manual: Radio Set AN/ARC–131.
TM 11–5821–204–12	Operator's and Organizational Maintenance Manual: Radio Set AN/ARC–44.
TM 11–5821–217–12	Operator and Organizational Maintenance Manual: Radio Sets AN/ARC–73 and AN/ARC–73A.
TM 11–5821–225–24	Organizational and Field Maintenance Manual: Radio Sets AN/ARC–27, AN/ARC–27A, AN/ARC–55, AN/ARC–55A, and AN/ARC–55B.
TM 11–5821–244–12	Operator and Organizational Maintenance Manual: Radio Set AN/ARC–54 and Control Indicator C–8157/ARC.
TM 11–5821–248–12	Organizational Maintenance Manual: Radio Set AN/ARC–102.
TM 11–5821–277–25–1	Organizational DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tools Lists: Receiver-Transmitter RT–857/ARC–134 and Mounting MT–3791/ARC–134 (Part of Radio Set AN/ARC–134).
TM 11–5821–277–25–2	Organizational, DS, GS, and Depot Maintenance Manual; Control, Radio Set C–7197/ARC–134.
TM 11–5826–204–12	Organizational Maintenance Manual: Direction Finder Set AN/ARC–59(V).
TM 11–5826–207–10	Operator's Manual: Radio Receiving Sets AN/ARN–30A, AN/ARN–30B, and AN/ARN–30C.
TM 11–5826–208–12	Operator's and Organizational Maintenance Manual: Receiving Set, Radio AN/ARN–68 and Receiver, Radio R–1041/ARN.
TM 11–5826–215–12	Organizational Maintenance Manual: Receiving Sets, Radio AN/ARN–30D and AN/ARN–30E, Including Repair Parts and Special Tool Lists.
TM 11–5826–219–12	Operator and Organizational Maintenance Manual: Receivers, Radio R–1041/ARN and R–1041A/ARN and R–1041B/ARN.

TM 11–5826–225–12	Organizational Maintenance Manual: Direction Finder Set AN/ARN–83.
TM 11–5826–226–12	Organizational Maintenance Manual: Radio Receiving Set AN/ARN–82.
TM 11–5826–228–12	Organizational Maintenance Manual: Navigation Set, Position Fixing AN/ASN–72.
TM 11–5831–201–15	Organizational, DS, GS, and Depot Maintenance Manual (Including Repair Parts and Special Tool Lists): Controls, Intercommunication Set C–1611/AIC, C–1611A/AIC, C–1611B/AIC, C–1611C/AIC, and C–1611D/AIC.
TM 11–5841–268–25P	Organizational, DS, GS, and Depot Maintenance Manual; Control, Transponder Set C–6280(P)/APX–72.
TM 11–5895–217–12	Operator and Organizational Maintenance Manual: Transponder Sets AN/APX–44 and AN/APX–44B.
TM 11–5895–490–20	Organizational Maintenance Manual: Receiver-Transmitter, Radio RT–859/APX–72 and Mountings MT–3809/APX–72 and MT–3948/APX–72.
TM 11–5985–200–12	Operator and Organizational Maintenance Manual: Antenna Groups AN/ARA–31 and AN/ARA–56 and Switch Assemblies SA–474/AR and SA–474A/AR.
TM 11–6125–220–12	Organizational Maintenance Manual: Motor-Generators PU–543/A, PU–543A/A, PU–543B/A, and PU–543C/A.
TM 11–6140–203–15–1	Operator and Organizational Maintenance Manual: Battery, Storage BB–433/A.
TM 11–6605–200–12	Operation and Organizational Maintenance: Aircraft Magnetic Compass, Type J–2.
TM 11–6605–200–35	Field and Depot Maintenance Manual: Compass, Magnetic, Aircraft J–2 System.
TM 11–6605–202–12	Organizational Maintenance Manual: Gyromagnetic Compass Set AN/ASN–43.
TM 11–6605–202–35	DS, GS, and Depot Maintenance Manual: Gyromagnetic Compass Set AN/ASN–43.
TM 11–6625–203–12	Operator and Organizational Maintenance: Multimeter AN/URM–105, Including Multimeter ME–77/U.
TM 38–750	The Army Maintenance Management System (TAMMS).
TM 55–1520–210–10	Operator's Manual: Army Model YUH–1D Helicopter.
TM 55–1520–210–20	Organizational Maintenance Manual: Army Model YUH–1D Helicopter.
TM 55–1500–323–25	Installation Practices for Aircraft Electric and Electronic Wiring.

APPENDIX B

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

B-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for the electronic equipment configuration Army models UH-1B and UH-1D. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc. This is accomplished with external test equipment and does not include operation of the equipment and operator type tests using internal meters or indicating devices.

c. Service. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as painting and lubricating, be defined separately, they may be so listed.

d. Adjust. To rectify to the extent necessary to bring into proper operating range.

e. Align. To adjust two or more components or assemblies of an electrical or mechanical system so that their functions are properly synchronized. This does not include setting the frequency control knob of radio receivers or transmitters to the desired frequency.

f. Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

g. Install. To set up for use in an operational environment such as an encampment, site, or vehicle.

h. Replace. To replace unserviceable items with serviceable like items.

i. Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than by the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize time work in process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.

k. Rebuild. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

l. Symbols. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

B–3. Explanation of Format

a. Column 1, Group Number. Not applicable.

b. Column 2, Functional Group. Column 2 lists the noun names of components, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	*Maintenance category*
C	Operator/crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

d. Column 4, Tools and Test Equipment. Column 4 specifies, by code, those tools and test equipment required to perform the designated function. The numbers appearing in this column refer to specific tools and test equipment which are identified in table 1.

e. Column 5, Remarks. Self-explanatory.

B–4. Explanation of Format of Table I, Tool and Test Equipment Requirements

The column in table I are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the maintenance allocation chart. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number of the specific tool or test equipment.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	INSTALLATION ITEMS SUCH AS CABLE HARNESSES, JUNCTION BOXES, COUPLES, PLUGS, SOCKETS AND SWITCHES FOR ELECTRONIC EQUIPMENT IN UH-1B AND UH-1D	O	O	O				O		F			1 3 2	
	CABLE ASSEMBLY, RF	O	O						O	O			1 3	
	RADIO SET AN/ARC-51(*)X								#					See TM 11-5820-518-12
	RADIO SET AN/ARC-73(*)								#					CPO, See TM 11-5821-217-12
	RADIO SET AN/ARC-54								#					See TM 11-5821-244-12
	RADIO SET AN/ARC-102								#					See TM 11-5821-248-12
	RECEIVER SET R-1297( )/AR								O				3	SWP
	CONTROL, INTERCOMMUNICATION SET C-1611(*)/AIC								#					See TM 11-5831-201-15
	ANTENNA GROUP AN/ARA-31, AN/ARA-56								#					See TM 11-5985-200-12
	RECEIVING SET, RADIO AN/ARN-30(*)								#					See TM 11-5826-215-12
	DIRECTION FINDER SET AN/ARN-59(*)								#					See TM 11-5826-204-12
	RMI INDICATOR ID-250/ARN								O				3	
	RMI INDICATOR ID-998/ASN								O				3	
	ANTENNA AS-1304/ARN-30 (DMN 4-4)	O	O						O	O			1 3	
	ANTENNA AT-640( )/ARN	O	O						O	O			1 3	

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	UH-1B, -ID (continued)													
	ANTENNA COUPLER CN-942( )/ARC-54								0				3	
	ANTENNA COUPLER CU-991( )/AR								#					See TM 11-5915-201-15
	ANTENNA KIT (ANTIPRECIPITATION)								0				3	
	RADIO RECEIVER SET R-1041(*)/ARN								#					CPO, See TM 11-5826-219-12
	EMERGENCY UHF T-366/ARC								#					See TM 11-5821-207-12P
	NAVIGATION RECEIVER AN/ASN-72								0				3	
	IFF MARK XII COMPUTER KIT-1A/TSEC								0				3	SWP
	VOICE SECURITY TSEC/KY-28								0				3	CPO Army Security Agency
	TRANSPONDER SET AN/APX-68, AN/APX-72								0				3	CPO
	GYRO MAGNETIC COMPASS J2								#					See TM 11-6605-200-12
	AMPLIFIER, ELECTRONIC CONTROL AM-3209( )/ASN								#					See TM 11-6110-211-15
	VERTICAL GYRO DISPLACEMENT CONTROL MD-1	0							0				3	
	VGI RATE SWITCHING GYRO MC-1	0							0				3	
	MOTOR GENERATOR PU-543(*)/A								#					See TM 11-6125-220-12
	CONVERTER CV-1275/ARN								#					See TM 11-5826-223-15P
	BATTERY BB-433( )/A								#					See TM 11-6140-203-15-2
	ANTENNA AT-1108( )/ARC	0							0				1 3	

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	UH-1B, -1D (continued)													
	FM HOMER AS-1922/ARC	0	0						0	0			1 3	
	RADIO SET AN/ARC-44								#					See TM 11-5821-204-12
	RADIO SET AN/ARC-55(*)								#					See TM 11-5821-210-12P
	ANTENNA AT-450/ARC								0				3	
	PANEL, SIGNAL DISTRIBUTION RADIO SB-329/AR								#					See TM 11-5821-204-12
	HEADSET MICROPHONE H-101(*)/U								#					See TM 11-5965-215-15
	TRANSPONDER SET AN/APX-44								#					See TM 11-5895-217-12

#Indicates that maintenance guidance will be found in documents referenced in remarks column.

TABLE I. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		UH-1B, -1D (continued)		
1	O	MULTIMETER AN/URM-105	6625-581-2036	
2	H , D	TOOL KIT ELECTRONIC EQUIPMENT TK-100/G	5180-605-0079	
3	O , F	TOOL KIT ELECTRONIC EQUIPMENT TK-101/G	5180-064-5178	

APPENDIX C

DEFINITIONS OF UNUSUAL TERMS

The list of unusual terms and their definitions is as follows:

Aft—At, near, or toward the rear of a helicopter; also the rear section of a helicopter.

Airframe—Structural components of a helicopter, including the framework and the skin.

Attitude—The aspect that a helicopter presents at any given moment, as determined by its inclinations about its three axes.

Automatic direction finder—Radio compass facility that permits automatic indication of the direction of the station to which it is tuned.

Basic signals electronic equipment—Equipment for which the Electronics Command has logistic and maintenance responsibility and for which there are Department of the Army publications covering troubleshooting, testing, aligning, and repairing of the equipment through replacing maintenance parts and repairing specific maintenance parts. These equipments are used without modification in more than one helicopter, and are Government-furnished to the helicopter manufacturer for installation.

Bearing—Position of a helicopter with respect to true or magnetic north. Measured in degrees, 0° to 360°.

Bus—A conductor or group of conductors that serve as a common connection for two or more circuits.

Compass rose—A graduated circle, marked in degrees and/or directions, for calibration of aircraft magnetic compasses.

Configuration—A group of various equipments interconnected and interrelated to provide a large system that has numerous functions and capabilities.

Course—A planned route or direction of flight referenced to points on the earth.

Flux valve—A direction-sensing element activated by the earth's magnetic field.

Fore—At, near, or toward the front of the helicopter; also, the front section of a helicopter.

Heading—The relative direction in which the helicopter is pointed.

Homing—Navigation toward a point.

Hot mike—Microphone always on (no push-to-talk function).

Marker beacon—Radio beacon placed along a runway to indicate the position of the helicopter.

Null—Zero signal indication.

Omnidirectional—In all directions.

Safety wire—Steel wire tied through holes in equipment mounting hardware to keep the equipment fastenings securely mounted, regardless of vibrations.

Sense antenna—An antenna used to resolve a 180° ambiguity in a directional antenna.

Slaved—Synchronized with, forced to follow or duplicate an action.

To–from meter—Indicates the direction a helicopter is heading in relation to a vor station.

Tone localizer—A transmitted signal tones that identify the helicopter's direction from the runway during final approach or landing.

Visual–aural range—Radio range that transmits information for visual and aural interpretation in the helicopter. Information enables the pilot to follow a prescribed course.

INDEX

	Paragraph	Page
Adapter cables, Transponder Set AN/APX-44, description	1-8*c*	1-12
Adjustments after replacements or repairs:		
Direction Finder Set AN/ARN-59(V)	2-125	2-117
Extent of adjustments	2-117	2-113
Radio Set AN/ARN-30(*)	2-124	2-116
Radio Set AN/ARC-44	2-118	2-114
Radio Set AN/ARC-54	2-119	2-114
Radio Set AN/ARC-131	2-119	2-114
Radio Set AN/ARC-55	2-120	2-114
Radio Set AN/ARC-73	2-122	2-115
Radio Set AN/ARC-102	2-123	2-115
Transmitter, Radio T-366/ARC	2-121	2-114
Adjustment screw locations, fig. 2-64		2-115
Amplifier, Attitude Indicator 5404G, removal and replacement	2-108	2-97
Amplifier, Electronic Control AM-3209/ASN, removal and replacement	2-78	2-82
Amplifier, Electronic Control Type A-2, removal and replacement	2-74	2-80
Amplifier, Radio Frequency AM-4740/ASN-72, removal and replacement	2-98	2-91
Antenna AS-1304/ARN-30 (DMN4-4), removal and replacement	2-53	2-67
Antenna AS-1703/ARC-54, removal and replacement	2-30	2-53
Antenna AS-1863/ARN-83, removal and replacement	2-63	2-73
Antenna AT-450/ARC-55, removal and replacement	2-34	2-53
Antenna AT-454(*)/ARC, removal and replacement	2-23	2-50
Antenna AT-765/ARC, removal and replacement	2-29	2-53
Antenna AT-780/ARN, removal and replacement	2-62	2-72
Antenna AT-884/APX-44, removal and replacement	2-81	2-84
Antenna AT-1108/ARC (37R-2U), removal and replacement	2-27	2-53
Antenna 37R-2, removal and replacement	2-38	2-58
Antenna 37RX-2, 37X-2 or AT-640A/ARN, removal and replacement	2-69	2-76
Antenna Assembly, Homing 637A-2 (205-075-345):		
Block diagram analysis	3-22	3-24
Description	1-8*d*	1-12
Removal and replacement	2-32	2-53
Technical characteristics	1-7*b*	1-12
Antenna Coupler CU-942/ARC-54, removal and replacement	2-30	2-53
Antenna Element AT-624/AR, removal and replacement	2-70	2-76
Antenna Group AN/ARA-31, block diagram analysis	3-21	3-24
Antenna, Longwire 204-075-609, removal and replacement	2-43	2-63
Antenna, Longwire 205-706-027, removal and replacement	2-44	2-64
Antenna, Sensing 205-075-325, removal and replacement	2-67	2-75
Antenna, Sensing 204-075-328, removal and replacement	2-67	2-75
Auxiliary power unit connectors	2-4	2-6
External power receptacle, fig. 2-5		2-7
Battery BB-433/A, block diagram analysis	3-26	3-29
Block diagram analysis, configuration systems:		
Antenna Assembly, Homing 637A-2 (205-075-345)	3-22	3-24
Block diagram, fig. 3-22		3-24
Antenna Group AN/ARA-31	3-21	3-24
Block diagram, fig. 3-21		3-23
Auxiliary signal distribution box	3-20	3-23
Battery BB-433/A	3-26	3-29
Compass System, Gyromagnetic, Aircraft Type AN/ASN-43	3-15	3-14
Block diagram, fig. 3-14		3-17
Compass System, Magnetic, Aircraft Type J2	3-14	3-11
Block diagram, fig. 3-13		3-16

	Paragraph	Page
Control, Intercommunication Set C-1611(*)/AIC	3-19	3-19
Block diagram, fig. 3-17		3-20
Direction Finder Set AN/ARN-59(V)	3-12	3-8
Block diagram, fig. 3-11		3-14
Direction Finder Set AN/ARN-83	3-13	3-9
Block diagram, fig. 3-12		3-15
Indicating system, attitude type J-8	3-29	3-29
Indicating system, attitude type 4005G	3-28	3-29
Inverter (motor generator	3-27	3-29
Motor Generator PU-543(*)/A (inverter)	3-27	3-29
Navigation Set, Position Fixing AN/ASN-72	3-25	3-29
Block diagram, fig. 3-26		3-28
Panel, Signal Distribution, Radio SB-329/AR	3-18	3-17
Block diagram, fig. 3-16		3-19
Radio Set AN/ARC-44	3-2	3-1
Block diagram, fig. 3-1		3-3
Radio Set AN/ARC-51(*)X	3-4	3-1
Block diagram, fig. 3-3		3-6
Radio Set AN/ARC-54	3-3	3-1
Block diagram, fig. 3-2		3-5
Radio Set AN/ARC-55	3-5	3-2
Block diagram, fig. 3-4		3-7
Radio Set AN/ARC-73	3-6	3-2
Block diagram, fig. 3-5		3-8
Radio Set AN/ARC-102	3-8	3-4
Block diagram, fig. 3-7		3-10
Radio Set AN/ARC-131	3-3	3-1
Radio Set AN/ARC-134	3-7	3-4
Block diagram, fig. 3-6		3-9
Receiver, Radio R-737/ARN (marker beacon)	3-16	3-15
Block diagram, fig. 3-15		3-18
Receiver, Radio R-836/ARN-59	3-12	3-8
Block diagram, fig. 3-11		3-14
Receiver, Radio R-1021/ARN-30	3-10	3-4
Block diagram, fig. 3-9		3-12
Receiver, Radio R-1041/ARN (marker beacon)	3-17	3-16
Block diagram, fig. 3-15		3-18
Receiving Set, Radio AN/ARN-30(*)	3-10	3-4
Block diagram, fig. 3-9		3-12
Receiving Set, Radio AN/ARN-82	3-11	3-7
Block diagram, fig. 3-10		3-13
Secure-voice system	3-30	3-29
Block diagram, fig. 3-2		3-5
Transmitter, Radio T-366/ARC	3-9	3-4
Block diagram, fig. 3-8		3-11
Transponder Set AN/APX-44	3-23	3-24
Block diagram, figs. 3-24, and 3-25		3-26, 3-27
Transponder Set AN/APX-72	3-24	3-26
Block diagram, fig. 3-24		3-26
Cassette AN/ASN-72, removal and replacement	2-100	2-92
Circuit protective device locations	2-3	2-2
Cleaning and repainting instructions	2-8	2-33
Code hold light, removal and replacement	2-111	2-98
Code hold switch, removal and replacement	2-112	2-98
Coder, Secure-Voice TSEC/KY, removal and replacement	2-84	2-87
Compass System, Gyromagnetic, Aircraft, Type AN/ASN-43, block diagram analysis	3-15	3-14
Compass System, Magnetic, Aircraft, Type J-2, block diagram analysis	3-14	3-11
Computer, Flight Log CP-880/ASN-72, removal and replacement	2-94	2-90
Computer Transponder KIT-1A/TSEC, removal and replacement	2-89	2-89
Configurations and serial numbers	1-4	1-2
Connector replacement	2-116*c*	2-100
Control, Direction Finder C-6899/ARN-83, removal and replacement	2-66	2-75
Control, Gyro Type S-3A, removal and replacement	2-75	2-80

	Paragraph	Page
Control, Intercommunication Set C-1611(*)/AIC:		
Block diagram analysis	3-19	3-19
Removal and replacement	2-19	2-47
Control Panel C-80B, removal and replacement	2-50	2-66
Control Panel C-6280/APX-72, removal and replacement	2-91	2-89
Control Panel SB-327/ARC-44, removal and replacement	2-17	2-45
Control Panel 204-075-708, removal and replacement	2-48	2-64
Control Panel 204-075-709, removal and replacement	2-48	2-64
Control Panel Assembly 204-075-219 (SA-474/AR modified), removal and replacement	2-22	2-49
Control, Programer C-7153/ASN-72, removal and replacement	2-97	2-91
Control, Radio Set C-1827/ARC-55, removal and replacement	2-35	2-56
Control, Radio Set C-3436(*)/ARN-30(*), removal and replacement	2-58	2-69
Control, Radio Set C-3835/ARC-54, removal and replacement	2-31	2-53
Control, Radio Set C-3940/ARC-94 (AN/ARC-102), removal and replacement	2-45	2-64
Control, Radio Set C-4074A/ARC-73, removal and replacement	2-39	2-58
Control, Radio Set C-4677/ARC-51X(*), removal and replacement	2-25	2-52
Control, Radio Set C-6287/ARC-51BX, removal and replacement	2-26	2-53
Control, Radio Set C-6873/ARN-82, removal and replacement	2-59	2-69
Control, Radio Set C-7088/ARC-131, removal and replacement	2-31	2-53
Control, Radio Set C-7197/ARC-134, removal and replacement	2-41	2-59
Control, Receiver C-2275/ARN, removal and replacement	2-65	2-74
Control, Receiver C-7152/ASN-72, removal and replacement	2-96	2-91
Control, Transponder Set C-2714/APX-44, removal and replacement	2-82	2-84
Control, Transponder Set C-6280/APX-72, removal and replacement	2-91	2-89
Control-Indicator, Secure-Voice C-8157/ARC, removal and replacement	2-85	2-87
Converter CV-1275/ARN-30 or B-18A, removal and replacement	2-104	2-94
Converter, Signal Data CV-265A/ARN-30, removal and replacement	2-55	2-69
Cyclic Stick Switch X942-2 (trigger switch), removal and replacement	2-102	2-93
Description:		
Configuration and electronic equipment:		
Configuration and serial numbers	1-4	1-2
Facilities and electronic equipment	1-5	1-3
Equipment components:		
Adapter cables, Transponder Set AN/APX-44	1-8*c*	1-12
Antenna Assembly, Homing 637A-2 (205-075-345)	1-8*d*	1-13
Network, Impedance Matching A16	1-8*a*	1-12
Relays, intercommunication system	1-8*b*	1-12
Differences in electronic equipment models:		
Antenna Assembly 637A-2	1-6*b*	1-10
Antenna Group AN/ARA-31	1-6*b*	1-10
Battery BB-433/A	1-6*n*	1-11
Compass System, Magnetic Type J-2	1-6*e*	1-10
Compensator, Flux CN-405/ASN	1-6*e*	1-10
Control, Intercommunication Set C-1611/AIC	1-6*q*	1-11
Control Panel Assembly 204-075-219	1-6*k*	1-11
Filter, Rfi suppression	1-6*j*	1-11
IFF audio	1-6*j*	1-11
Indicating system, attitude	1-6*l*	1-11
Indication, omni deviation	1-6*h, i*	1-11
Indicator, homer deviation	1-6*h, i*	1-11
Motor Generator PU-543/A	1-6*o*	1-11
Panel, Signal Distribution SB-329/AR	1-6*p*	1-11
Radio Set AN/ARC-51BX	1-6*a*	1-10
Radio Set AN/ARC-51X	1-6*a*	1-10
Radio Set AN/ARC-54	1-6*m*	1-11
Radio Set AN/ARC-131	1-6*m*	1-11
Receiving Set AN/ARN-30D	1-6*f*	1-10
Receiving Set AN/ARN-30E	1-6*f*	1-10
Relay, failure	1-6*g*	1-10
Transmitter, Induction Compass T-611/ASN	1-6*e*	1-10
Transponder Set AN/APX-44	1-6*c*	1-10
Transponder Set AN/APX-72	1-6*d*	1-10

	Paragraph	Page
Direction Finder Set AN/ARN-59(V):		
Block diagram analysis	3-12	3-8
Loop compensation	2-125*b*	2-117
Tuning dial	2-125*a*	2-117
Direction Finder Set AN/ARN-83, block diagram analysis	3-13	3-9
Discriminator, Discrete Signal MD-736/A, removal and replacement	2-20, 2-21	2-48, 2-49
Dynamotor DY-86/ARN-30, removal and replacement	2-49	2-64
Dynamotor DY-107/AR, removal and replacement	2-16	2-45
Dynamotor DY-150/ARN, removal and replacement	2-64	2-74
Element, Antenna AT-624/AR, removal and replacement	2-70	2-76
Equipment technical characteristics:		
Antenna Assembly AS-1922/ARC (637A-2)	1-7*b*	1-12
Network, Impedance Matching	1-7*a*	1-11
Facilities and electronic equipment	1-5	1-3
Filter, Direct Current Power R-726/AR, removal and replacement	2-103	2-93
Forms and records:		
Discrepancy in shipment report	1-3*c*	1-2
Report of packaging and handling deficiencies	1-3*b*	1-2
Reporting of equipment manual improvements	1-3*d*	1-2
Reports of maintenance and unsatisfactory equipment	1-3*a*	1-2
Fuse and circuit protective device locations	2-3	2-2
Ac circuit breaker panel, fig. 2-3		2-5
Dc circuit breaker panel, fig. 2-2		2-4
Location, Dynamotor DY-107/AR fuses, fig. 2-4		2-6
Location, Receiver-Transmitter RT-859/APX-72 fuses, fig. 2-30		2-73
Gyro, Directional Type CN-998/ASN-43, removal and replacement	2-76	2-81
Gyro, Rate Switching MC-1, removal and replacement	2-107	2-96
Gyro, Roll and Pitch MD-1, removal and replacement	2-106	2-96
Homing Antenna Assembly 637A-2 (205-075-345):		
Block diagram analysis	3-22	3-24
Description	1-8*d*	1-13
Removal and replacement	2-32	2-53
Technical characteristics	1-7*b*	1-12
IFF caution light, removal and replacement	2-110	2-97
Impedance Matching Assembly A16:		
Description	1-8*a*	1-12
Technical characteristics	1-7*a*	1-11
Index of publications	1-2	1-2
Indicating System, Attitude Type J-8:		
Block diagram analysis	3-29	3-29
Removal and replacement	2-109	2-97
Indicating System, Attitude Type 4005G:		
Block diagram analysis	3-28	3-29
Removal and replacement	2-105	2-96
Indicator, Course ID-250/ARN, removal and replacement	2-79	2-83
Indicator, Course ID-453/ARN-30, removal and replacement	2-56	2-69
Indicator, Course ID-998/ASN, removal and replacement	2-77	2-82
Indicator, Course ID-1347/ARN-82, removal and replacement	2-57	2-69
Indicator, Hyperbolic Grid Lane, removal and replacement	2-95	2-91
Indicator, Lane Identification ID-1427/ASN-72, removal and replacement	2-95	2-91
Inverter (Motor Generator), block diagram analysis	3-27	3-29
Keying Unit KY-149/AR, removal and replacement	2-72	2-77
Lamp, Code Hold Light, removal and replacement	2-114	2-99
Lamp, control unit panel, removal and replacement	2-113	2-98
Lamp, IFF caution light, removal and replacement	2-114	2-99
Lamp, remote cipher light, removal and replacement	2-114	2-99
Light, code hold, removal and replacement	2-111	2-98
Light, IFF caution, removal and replacement	2-110	2-97
Light, remote cipher, removal and replacement	2-87, 2-88	2-87, 2-88

	Paragraph	Page
Magnetic Compass Type J–2:		
Block diagram analysis	3–14	3–11
Electronic control amplifier A–2, removal and replacement	2–74	2–80
Gyro control type S–3A, removal and replacement	2–75	2–80
Maintenance forms	2–5*b*	2–8
Maintenance instructions	2–1	2–1
Maintenance organizational:		
Adjustment	2–117	2–113
Battery	2–9*b*	2–34
Cleaning and repainting	2–8	2–33
Lubrication	2–9	2–33
Periodic preventive checks and services	2–5, 2–7	2–7, 2–11
Repair	2–12	2–43
Scope, organizational maintenance	2–1	2–1
Tools, test equipment, and materials required	2–2*a, b, c*	2–1
Troubleshooting chart	2–11	2–34
Troubleshooting, general	2–10	2–34
Materials required	2–2	2–1
Microphone Switch SA–47A/AIC (foot switch), removal and replacement	2–101	2–92
Motor Generator PU–543(*)/A:		
Block diagram analysis	3–27	3–29
Removal and replacement	2–83	2–85
Mount 3802/ARC, removal and replacement	2–86	2–87
Navigation Set, Position Fixing AN/ASN–72, block diagram analysis	3–25	3–29
Network, Impedance Matching CU–459/AR, removal and replacement	2–71	2–76
Network, Impedance Matching CU–991/AR, removal and replacement	2–46	2–64
Painting and cleaning instructions	2–8	2–33
Periodic preventive maintenance checks and services chart	2–7	2–11
Power Supply PP–2792/ARN–30D, removal and replacement	2–54	2–67
Power Unit ARC Type P–12, removal and replacement	2–103	2–93
Power unit connection, auxiliary	2-4	2–6
Preventive maintenance:		
Checks and services	2–5*a*	2–8
Forms and records	2–5*b*	2–8
Intervals:		
General	2–6*a*	2–8
General cleaning and repainting instructions	2–8	2–33
Lubrication	2–9	2–33
Periodic preventive maintenance checks and services chart	2–7	2–11
Periodic pullout checks	2–6*b*	2–8
Pullout intervals	2–6*c*	2–8
Pullout intervals chart	2–6*c*	2–8
Radio Set AN/ARC–44:		
Adjustment after replacement or repairs	2–118	2–114
Block diagram analysis	3–2	3–1
Radio Set AN/ARC–51(*)X, block diagram analysis	3–4	3–1
Radio Set AN/ARC–54:		
Adjustments after replacement or repairs	2–119	2–114
Block diagram analysis	3–3	3–1
Radio Set AN/ARC–55:		
Adjustments after replacement or repairs	2–120	2–114
Block diagram analysis	3–5	3–2
Radio Set AN/ARC–73:		
Adjustments after replacement or repairs	2–122	2–115
Block diagram analysis	3–6	3–2
Radio Set AN/ARC–102:		
Adjustments after replacement or repairs	2–123	2–115
Block diagram analysis	3–8	3–4
Radio Set AN/ARC–131:		
Adjustments after replacement or repairs	2–119	2–114
Block diagram analysis	3–3	3–1
Radio Set AN/ARC–134, block diagram analysis	3–7	3–4

	Paragraph	Page
Receiver, Position Fixing R-1453/ASN-72, removal and replacement	2-93	2-90
Receiver, Radio R-737/ARN or R-1041/ARN:		
Block diagram analysis:		
R-737 facility	3-16	3-15
R-1041 facility	3-17	3-16
Removal and replacement	2-68	2-76
Receiver, Radio R-836/ARN-59:		
Block diagram analysis, facility	3-12	3-8
Loop compensation	2-125*b*	2-117
Removal and replacement	2-60	2-71
Tuning dial	2-125*a*	2-117
Receiver, Radio R-1021/ARN-30:		
Adjustments after replacement or repairs	2-124	2-116
Block diagram analysis, facility	3-10	3-4
Removal and replacement	2-51	2-67
Receiver, Radio R-1123(*)/ARC-73A:		
Removal and replacement	2-36	2-56
Tuning	2-122*b*	2-115
Receiver, Radio R-1388/ARN-82, removal and replacement	2-52	2-67
Receiver, Radio R-1391/ARN-83, removal and replacement	2-61	2-72
Receiver-Transmitter, Radio RT-294/ARC-44:		
Adjustments after replacement or repairs	2-118	2-114
Block diagram analysis	3-2	3-1
Removal and replacement	2-15	2-44
Receiver-Transmitter RT-334( )/ARC-51X, removal and replacement	2-24	2-50
Receiver-Transmitter RT-348/ARC-54:		
Adjustments after replacement or repairs	2-119	2-114
Block diagram analysis, facility	3-3	3-1
Removal and replacement	2-28	2-53
Receiver-Transmitter RT-349(*)/ARC-55:		
Adjustments after replacements or repairs	2-120	2-114
Block diagram analysis, facility	3-5	3-2
Removal and replacement	2-33	2-53
Receiver-Transmitter RT-494/APX-44:		
Block diagram analysis, facility	3-23	3-24
Removal and replacement	2-80	2-83
Receiver-Transmitter RT-698/ARC-102:		
Adjustments after replacement or repairs	2-123	2-115
Block diagram analysis, facility	3-8	3-4
Removal and replacement	2-42	2-59
Receiver-Transmitter RT-702/ARC-51X or RT-742/ARC-51BX:		
Block diagram analysis, facility	3-4	3-1
Removal and replacement	2-24	2-50
Receiver-Transmitter RT-823/ARC-131:		
Adjustments after replacement or repairs	2-119	2-114
Block diagram analysis, facility	3-3	3-1
Removal and replacement	3-28	3-29
Receiver-Transmitter RT-857/ARC-134, removal and replacement	2-40	2-59
Receiver-Transmitter RT-859/APX-72, removal and replacement	2-90	2-89
Receiving Set, Radio AN/ARN-30(*):		
Adjustments after replacement or repairs	2-124	2-116
Block diagram analysis	3-10	3-4
Receiving Set, Radio AN/ARN-82, block diagram analysis	3-11	3-7
Recorder-Viewer, Flight Log RD-323/ASN-72, removal and replacement	2-99	2-91
Relays, intercommunication system	1-8*b*	1-12
A and B communications junction box parts layout, fig. 1-1		1-14
C through E, communications junction box parts layout, fig. 1-2		1-15
F communications junction box parts layout, figs. 1-3, 1-4		1-16, 1-17
G through R commuications junction box parts layout, fig. 1-4 munications junction box parts layout, fig. 1-4		1-17
Remote cipher light, removal and replacement	2-87, 2-88	2-87, 2-88
Removal and replacement:		
Amplifier, Attitude Indicator 5404G	2-108	2-97

	Paragraph	Page
Amplifier, Electronic Control AM–3209/ASN	2–78	2–82
Amplifier, Electronic Control Type A–2	2–74	2–80
Amplifier, Radio Frequency AM–4740/ASN–72	2–98	2–91
Antenna AS–1304/ARN–30 (DMN4–4)	2–53	2–67
Antenna AS–1703/ARC–54	2–30	2–53
Antenna AS–1863/ARN–83	2–63	2–73
Antenna AT–450/ARC	2–34	2–53
Antenna AT–454(*)/ARC–44	2–23	2–50
Antenna AT–640/ARN	2–69	2–76
Antenna AT–765/ARC	2–29	2–53
Antenna AT–780/ARN	2–62	2–72
Antenna AT–884/APX–44	2–81	2–84
Antenna AT–1108/ARC	2–27	2–53
Antenna 37R–2	2–38	2–58
Antenna 37R–2U (AT–1108/ARC)	2–27	2–53
Antenna 37RX–2	2–69	2–76
Antenna 37X–2	2–69	2–76
Antenna Assembly, Homing 637A–2 (205–075–345) (AS–1922/ARC)	2–32	2–53
Antenna Coupler CU–942/ARC–54	2–30	2–53
Antenna Element AT–624/AR	2–70	2–76
Antenna Element AN/ARA–31	2–70	2–76
Antenna, Longwire 204–075–609	2–43	2–63
Antenna, Longwire 205–706–027	2–44	2–64
Antenna, Sensing 204–075–328	2–67	2–75
Antenna, Sensing 205–075–325	2–67	2–75
Cassette AN/ASN–72	2–100	2–92
Coder, Secure-Voice TSEC/KY–28	2–84	2–87
Compass System, Gyromagnetic AN/ASN–43	2–76	2–81
Compass System, Magnetic, Aircraft Type J–2	2–73	2–78
Computer, Flight Log CP–880/ASN–72	2–94	2–90
Computer Transponder KIT–1A/TSEC	2–89	2–89
Control, Direction Finder C–6899/ARN–83	2–66	2–75
Control, Gyro, Electrically Driven Type S–3A	2–75	2–80
Control, Intercommunication Set C–1611(*)/AIC	2–19	2–47
Control Panel C–80B	2–50	2–66
Control Panel SB–327/ARC–44	2–17	2–45
Control Panel 204–075–708	2–48	2–64
Control Panel 204–075–709	2–48	2–64
Control Panel Assembly 204–075–219 (SA–474/AR modified)	2–22	2–49
Control, Programer C–7153/ASN–72	2–97	2–91
Control, Radio Set C–1827/ARC–55	2–35	2–56
Control, Radio Set C–3436(*)/ARN–30(*)	2–58	2–69
Control, Radio Set C–3835/ARC–54	2–31	2–53
Control, Radio Set C–3940/ARC–94	2–45	2–64
Control, Radio Set C–4074A/ARC–73	2–39	2–58
Control, Radio Set C–4677/ARC–51X	2–25	2–52
Control, Radio Set C–6287/ARC–51BX	2–26	2–53
Control, Radio Set C–6873/ARN–82	2–59	2–69
Control, Radio Set C–7088/ARC–131	2–31	2–53
Control, Radio Set C–7197/ARC–134	2–41	2–59
Control, Receiver C–2275/ARN	2–65	2–74
Control, Receiver C–7152/ASN–72	2–96	2–91
Control, Transponder Set C–2714/APX–44	2–82	2–84
Control, Transponder Set C–6280/APX–72	2–91	2–89
Control-Indicator, Secure-Voice C–8157/ARC	2–85	2–87
Converter BA–18A	2–104	2–94
Converter CV–1275/ARN–30	2–104	2–94
Converter, Signal Data CV–265A/ARN–30	2–55	2–69
Coordinating removal and replacement	2–14	2–44
Discriminator, Discrete Signal MD–736/A	2–20, 2–21	2–48, 2–49
Dynamotor DY–86/ARN–30	2–49	2–64
Dynamotor DY–107/AR (AN/ARC–44) (fm liaison)	2–16	2–45
Dynamotor DY–150/ARN	2–64	2–74

	Paragraph	Page
Electronic equipment component	2–13	2–43
Element, Antenna AT–624/AR	2–70	2–76
Filter, Direct Current Power R–726/AR	2–103	2–93
Gyro, Directional Type CN–998/ASN–43	2–76	2–81
Gyro, Rate Switching MC–1	2–107	2–96
Gyro, Roll and Pitch MD–1	2–106	2–96
Indicator, Attitude J–8	2–109	2–97
Indicator, Attitude 4005G	2–105	2–96
Indicator, Course ID–250/ARN	2–79	2–83
Indicator, Course ID–453/ARN–30	2–56	2–69
Indicator, Course ID–998/ASN (C–6H)	2–77	2–82
Indicator, Course ID–1347/ARN–82	2–57	2–69
Indicators, Hyperbolic Grid Lane, ID–1424/ASN–72, ID–1425/ASN–72, ID–1426/ASN–72	2–95	2–91
Indicator, Lane Identification ID–1427/ASN–72	2–95	2–91
Keying Unit KY–149/AR	2–72	2–77
Lamps:		
Panel, control unit	2–113	2–98
Light, code hold	2–114	2–99
Light, IFF caution	2–114	2–99
Light, remote cipher	2–114	2–99
Light, code hold	2–111	2–98
Light, IFF caution	2–110	2–97
Light, remote cipher	2–87, 2–88	2–87, 2–88
Motor Generator PU–543(*)/A	2–83	2–85
Mount 3802/ARC	2–86	2–87
Network, Impedance Matching CU–459/AR	2–71	2–76
Network, Impedance Matching CU–991/AR	2–46	2–64
Panel, Signal Distribution SB–329/AR	2–18	2–45
Power Supply PP–2792/ARN–30	2–54	2–67
Power Unit ARC Type P–12	2–103	2–93
Receiver, Position Fixing R–1453/ASN–72	2–93	2–90
Receiver, Radio R–737/ARN	2–68	2–76
Receiver, Radio R–836/ARN–59	2–60	2–71
Receiver, Radio R–1021/ARN–30	2–51	2–67
Receiver, Radio R–1041/ARN	2–68	2–76
Receiver, Radio R–1123(*)/ARC–73A	2–36	2–56
Receiver, Radio R–1388/ARN–82	2–52	2–67
Receiver, Radio R–1391/ARN–83	2–61	2–72
Receiver-Transmitter, Radio RT–294/ARC–44 (fm liaison)	2–15	2–44
Receiver-Transmitter RT–334( )/ARC–51X	2–24	2–50
Receiver-Transmitter RT–348/ARC–54	2–28	2–53
Receiver-Transmitter RT–349/ARC–55	2–33	2–53
Receiver-Transmitter RT–494/APX–44	2–80	2–83
Receiver-Transmitter RT–698/ARC–102	2–42	2–59
Receiver-Transmitter RT–702/ARC–51X	2–24	2–50
Receiver-Transmitter RT–742/ARC–51BX	2–24	2–50
Receiver-Transmitter RT–823/ARC–131	2–28	2–53
Receiver-Transmitter RT–857/ARC–134	2–40	2–59
Receiver-Transmitter RT–859/APX–72	2–90	2–89
Recorder-Viewer, Flight Log RD–323/ASN–72	2–99	2–91
Switch, Code Hold	2–112	2–98
Switch, Cyclic Stick X942–2 (trigger switch)	2–102	2–93
Switch, Microphone SA–47A/AIC (foot switch)	1–101	2–92
Repair techniques, general	2–12	2–43
Safety wiring	2–115	2–99
Scope of manual	1–1	1–1
Secure-voice system, block diagram analysis	3–30	3–29
Servicing:		
Battery BB–433/A	2–9*b*	2–34
Control unit and receiver gearing	2–9*a*	2–33
Signal distribution box, auxiliary, block diagram analysis	3–20	3–23

	Paragraph	Page
Signal Distribution Panel, Radio SB-329/ARC-44:		
Block diagram analysis	3-18	3-17
Removal and replacement	2-18	2-45
Switch, code hold, removal and replacement	2-112	2-98
Switch, cyclic stick X942-2 (trigger switch), removal and replacement	2-102	2-93
Switch, Microphone SA-47A/AIC (foot switch), removal and replacement	2-101	2-92
Test equipment required	2-2	2-1
Test Set TS-1843/APX-72, removal and replacement	2-92	2-89
Tools, test equipment, and materials required	2-2	2-1
Transmitter, Induction Compass C-2, removal and replacement	2-73	2-78
Transmitter, Induction Compass T-1611/ASN, removal and replacement	2-73	2-78
Transmitter, Radio T-366/ARC:		
Adjustments after replacement or repairs	2-121	2-114
Block diagram analysis, facility	3-9	3-4
Removal and replacement	2-47	2-64
Transmitter T-879(*)/ARC-73:		
Removal and replacement	2-37	2-56
Tuning	2-122*a*	2-115
Transponder Set AN/APX-44, block diagram analysis	3-23	3-24
Transponder Set AN/APX-72, block diagram analysis	3-24	3-26
Transponder Set Control C-2714/APX-44, removal and replacement	2-82	2-84
Transponder Set Control C-6280/APX-72, removal and replacement	2-91	2-89
Troubleshooting:		
General information	2-10	2-34
Troubleshooting chart	2-11	2-34
Wiring identification code	2-116*b*	2-99
Wiring repairs	2-116	2-99
Connector replacement	2-116*c*	2-100
General	2-116*a*	2-99
Wiring identification code	2-116*b*	2-99

By Order of the Secretary of the Army:

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General, United States Army,
Chief of Staff.

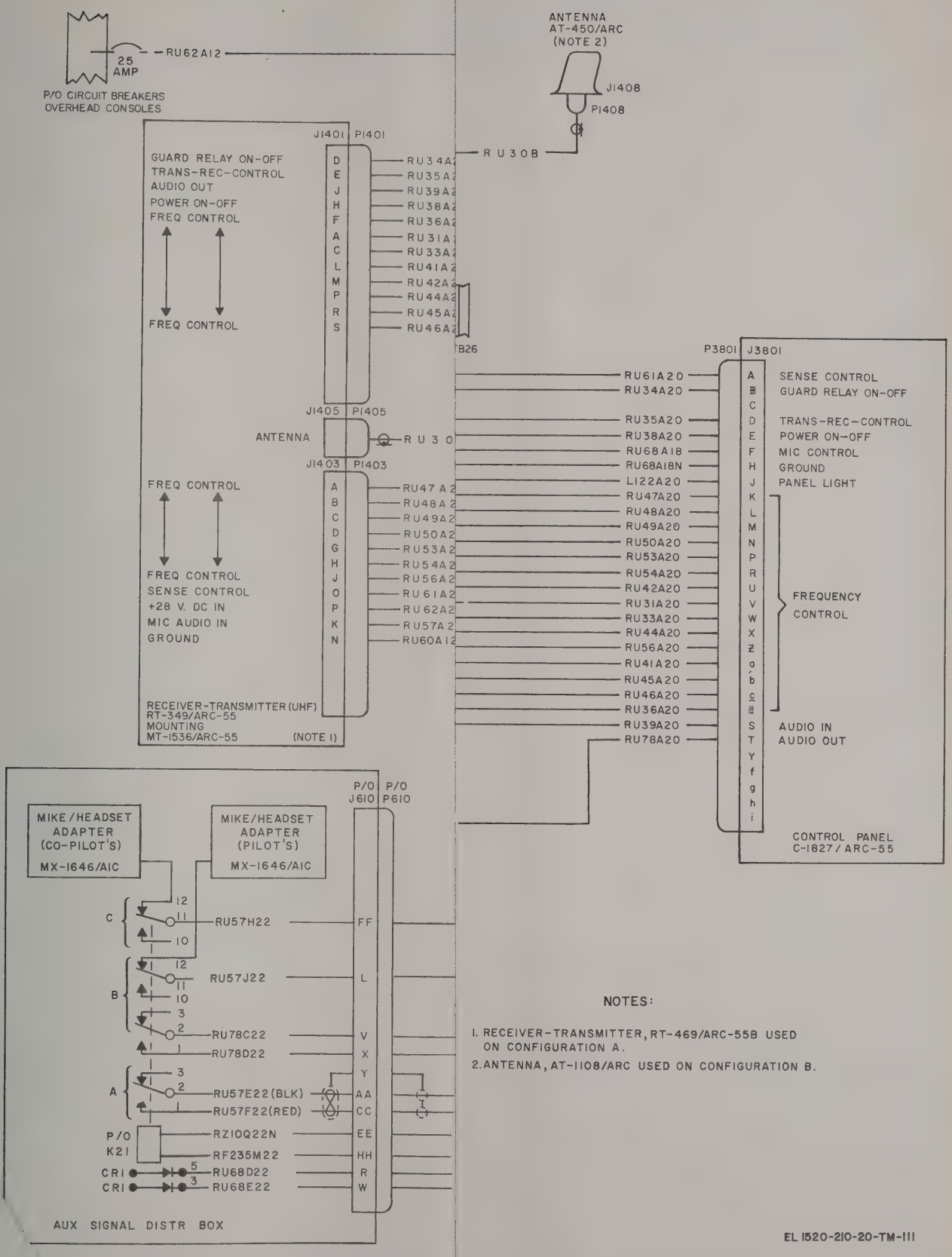
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NOTES:

1. RECEIVER-TRANSMITTER, RT-469/ARC-55B USED ON CONFIGURATION A.
2. ANTENNA, AT-1108/ARC USED ON CONFIGURATION B.

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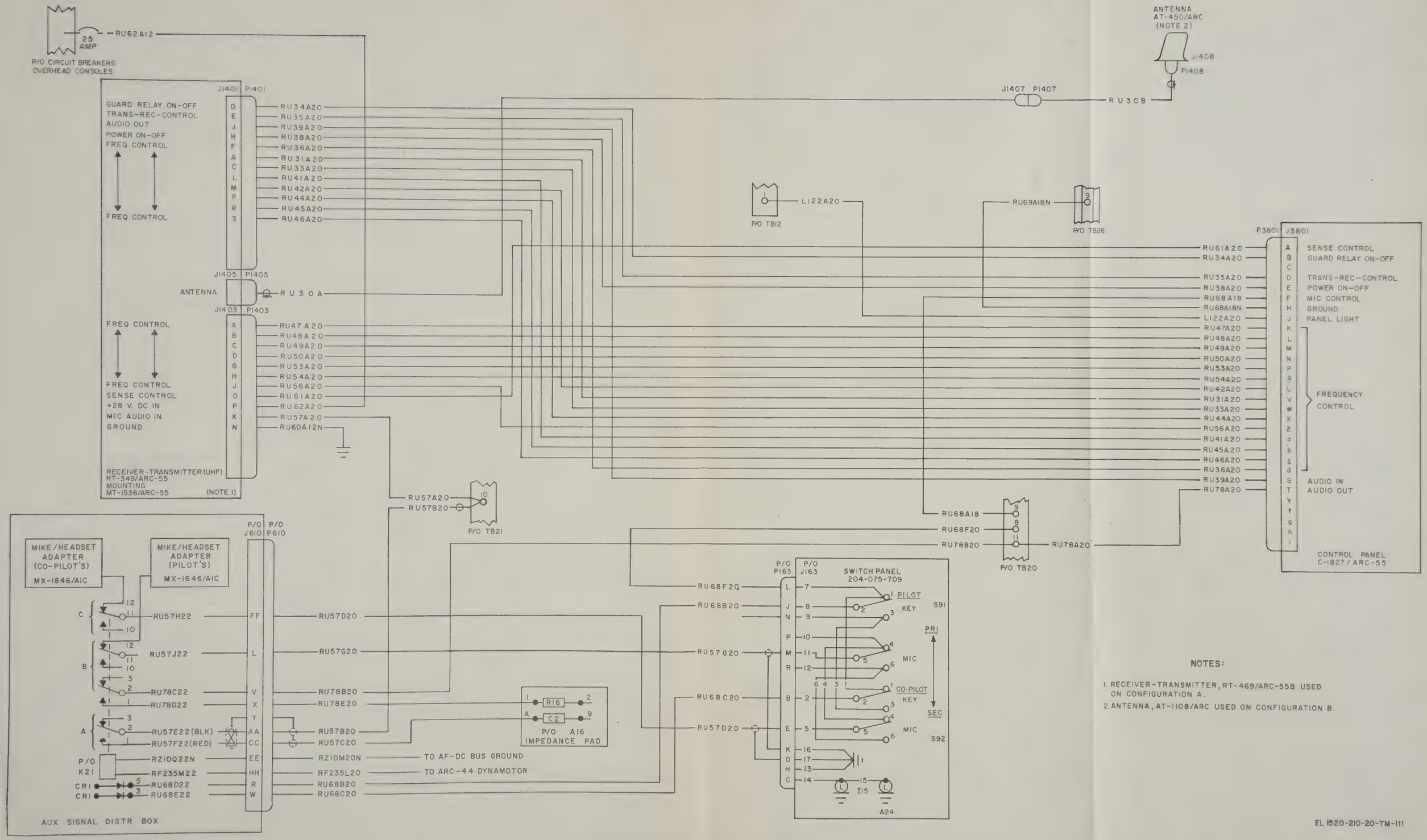
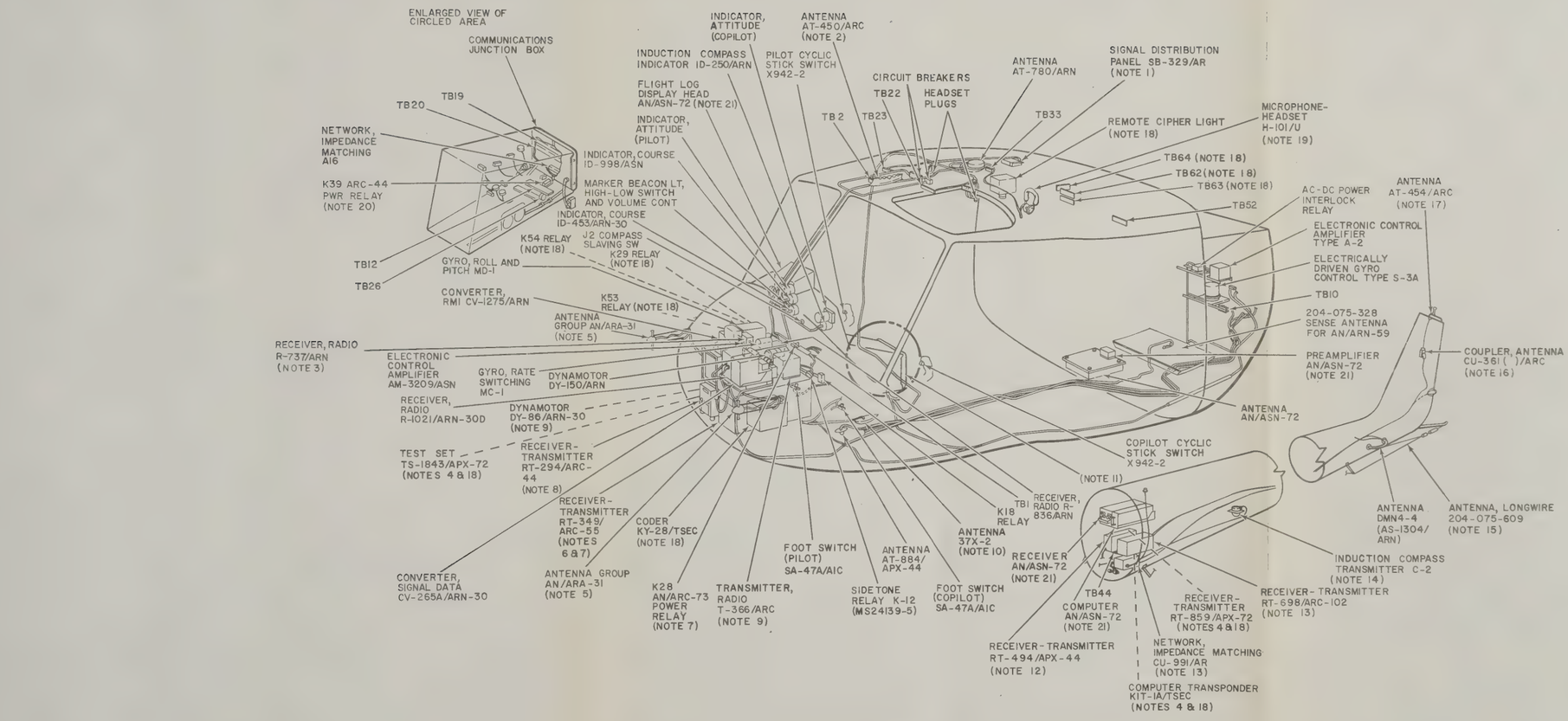


Figure FO-31. Radio Set AN/ARC-55, wiring diagram.

NOTES:

1. RECEIVER-TRANSMITTER, RT-469/ARC-55B USED ON CONFIGURATION A.
2. ANTENNA, AT-1108/ARC USED ON CONFIGURATION B.

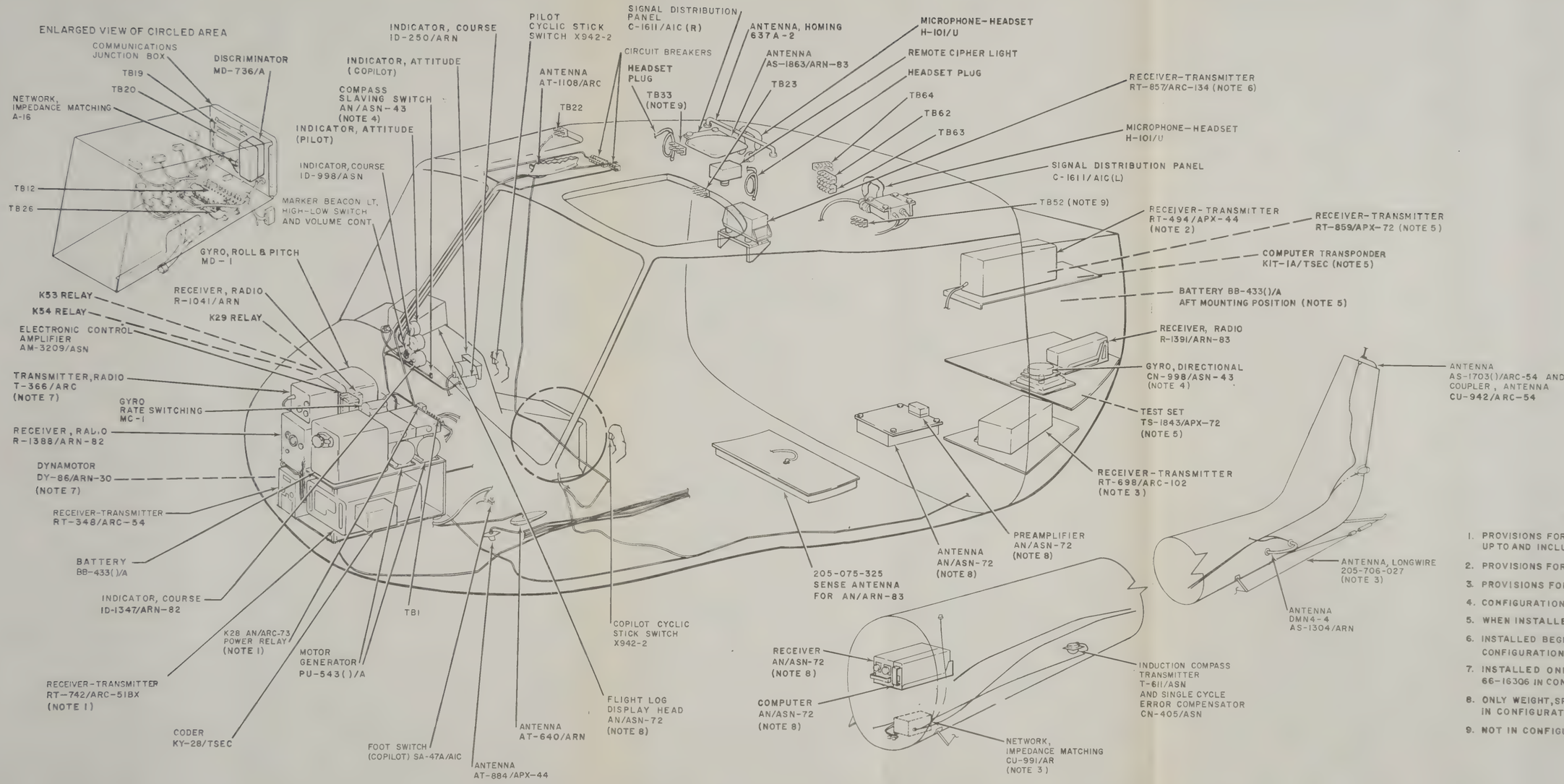
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NOTES:

1. CONFIGURATIONS C, D, AND E USE CONTROL AMPLIFIER C-1611/AIC AT FOUR STATIONS.
2. CONFIGURATIONS B, C, D, AND E USE ANTENNA AT-1108/ARC.
3. CONFIGURATIONS B, C, D, AND E USE RECEIVER, RADIO R-1041/ARN
4. WHEN INSTALLED.
5. CONFIGURATIONS C, D, AND E USE ANTENNA ASSEMBLY 637A-2(205-075-345).
6. CONFIGURATIONS A AND B USE RECEIVER-TRANSMITTER RT-349/ARC-55 CONFIGURATIONS C, D, AND E USE RECEIVER-TRANSMITTER RT-702/ARC-51X OR RT-742/ARC-51BX.
7. PROVISIONS FOR RADIO SET AN/ARC-73.
8. CONFIGURATIONS C, D, AND E USE RECEIVER-TRANSMITTER RT-348/ARC-54
9. TRANSMITTER, RADIO T-366/ARC IS NOT USED IN CONFIGURATION D.
10. CONFIGURATION B USES ANTENNA 37RX-2 CONFIGURATIONS D AND E USE ANTENNA AT-640/ARN
11. WIRING INSTRUCTIONS FOR RADIO SET AN/ARC-73 ARE CONTAINED ON THE INSIDE OF THE PEDESTAL COVER.
12. CONFIGURATIONS C, D, AND E CONTAIN PROVISIONS FOR TRANSPONDER SET AN/APX-72. CONFIGURATION A ONLY HAS PROVISIONS FOR AN/APX-44.
13. CONFIGURATIONS C, D, AND E CONTAIN PROVISIONS FOR THIS EQUIPMENT.
14. CONFIGURATIONS C, D, AND E USE INDUCTION COMPASS TRANSMITTER T-611/ASN.
15. CONFIGURATIONS C AND D CONTAIN PROVISIONS FOR ANTENNA, LONGWIRE 204-075-609. CONFIGURATION E CONTAINS PROVISIONS FOR ANTENNA, LONGWIRE 205-706-027.
16. CONFIGURATIONS C, D, AND E USE COUPLER, ANTENNA CU-942/ARC-54
17. CONFIGURATION C USES ANTENNA AS-703 AR. CONFIGURATIONS D AND E USE ANTENNA AT-765/ARC.
18. NOT USED ON CONFIGURATIONS A AND B.
19. CONFIGURATIONS C, D, AND E USE H-101/U AT FOUR STATIONS.
20. USED ONLY ON CONFIGURATIONS A AND B
21. AN/ASN-72 NOT USED IN CONFIGURATION A.
22. BATTERY BB-433/A IS MOUNTED EITHER IN FORWARD OR AFT MOUNTING POSITION DEPENDING ON MISSION REQUIREMENTS (SEE F THROUGH J ILLUSTRATIONS).
23. PU-543/A MOTOR GENERATORS INSTALLED IN AFT ELECTRONIC COMPARTMENT IN CONFIGURATIONS A AND B. INSTALLED IN NOSE ELECTRONIC COMPARTMENT IN C THROUGH E.

Figure FO-1. Outline drawing of helicopter, showing relative location of electronic equipment components and cable routing, configurations A through E.



NOTES:

1. PROVISIONS FOR RADIO SET AN/ARC-73 ONLY UP TO AND INCLUDING 66-16306 IN CONFIGURATION F.
2. PROVISIONS FOR TRANSPONDER SET AN/APX-72.
3. PROVISIONS FOR RADIO SET AN/ARC-102.
4. CONFIGURATION F USES J2 COMPASS SYSTEM.
5. WHEN INSTALLED.
6. INSTALLED BEGINNING WITH 66-16307 IN CONFIGURATION F.
7. INSTALLED ONLY UP TO AND INCLUDING 66-16306 IN CONFIGURATION F.
8. ONLY WEIGHT, SPACE, AND POWER PROVISIONS IN CONFIGURATIONS H, I, AND J.
9. NOT IN CONFIGURATION H.

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Figure FO-2. Outline drawing of helicopter, showing relative location of electronic equipment components and cable routing, configurations F through H.

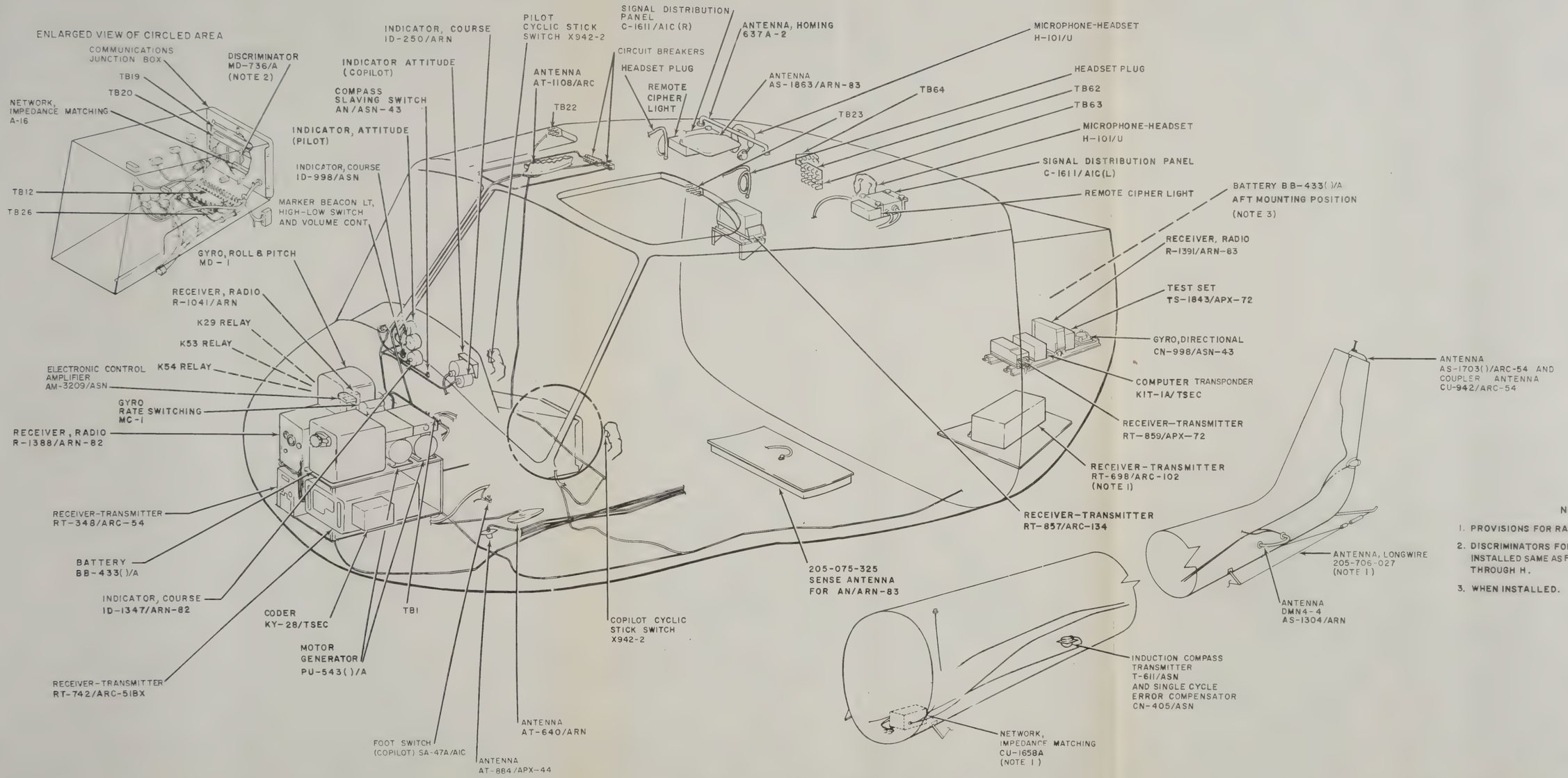
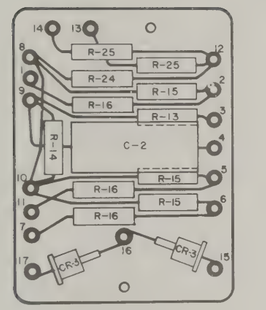


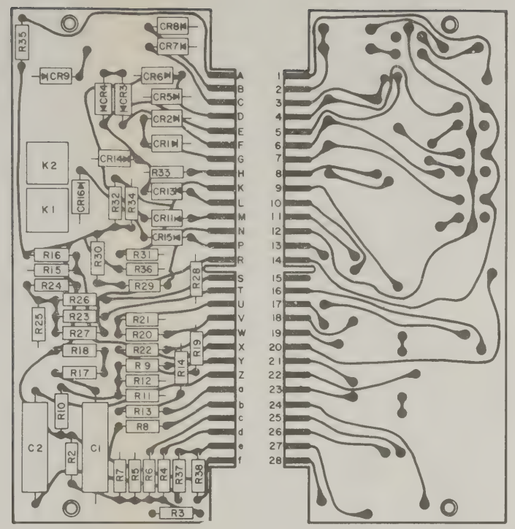
Figure FO-3. Outline drawing of helicopter, showing relative location of electronic equipment components and cable routing, configurations I and J.



REF DESIG	PART NUMBER	PART DESIGNATION
C2	CP05AIK8474K	CAPACITOR, 47ufd 100V. DC
CR3	IN440B	DIODE, PIV 100V. 300MA
R13	RC32GF182J	RESISTOR, 100V, .3 MA
R14	RC30GF122J	1.2K ±, 1 W.
R15	RC32GF121J	120 ±, 1 W.
R16	RC30GF221J	220 ±, 1 W.
R24	RC30GF681J	680 ±, 1 W.
R25	RC32GF682J	RESISTOR, 6.8K ±, 1 W.

204-075-349
CONFIGURATIONS A&B

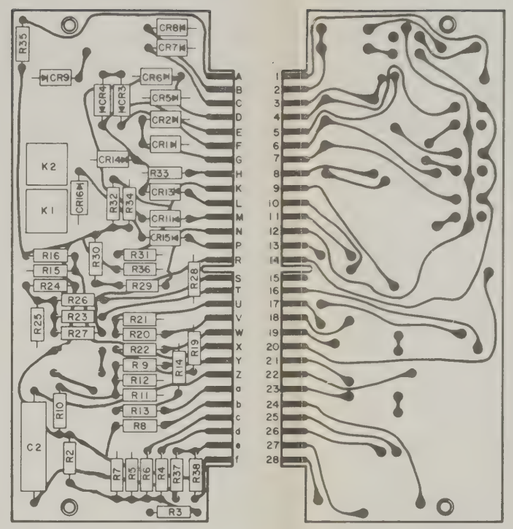
NOTE:
REFERENCE DESIGNATORS
APPLY TO 600 SERIES



-1 REF DESIG	PART NUMBER	PART DESIGNATION
C1	CL25BJ180UP3	CAPACITOR, 18ufd 50V DC
C2	CL25BJ180UP3	CAPACITOR, 18ufd 50V DC
CR1	IN2071	DIODE
CR2		
CR3		
CR4		
CR5		
CR6		
CR7		PIV 600 VOLTS 750 MA @ 25°C
CR8		
CR9		
CR11		
CR12		
CR13		
CR14		
CR15		
CR16	IN2071	DIODE
K1	C2A-126	RELAY, SPDT
K2	C2A-126	RELAY, SPDT
R2	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
R3	101J	100
R4	101J	100
R5	101J	100
R6	101J	100
R7	101J	100
R8	151J	150
R9	101J	100
R10	680J	68
R11	101J	100
R12	101J	100
R13	101J	100
R14	101J	100
R15	331J	330
R16	221J	220
R17	820J	82
R18	560J	56
R19	121J	120
R20	121J	120
R21	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
	CONTINUED-	

-1 REF DESIG	PART NUMBER	PART DESIGNATION
R22	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
R23	561J	560
R24	151J	150
R25	680J	68
R26	680J	68
R27	680J	68
R28	680J	68
R29	151J	150
R30	151J	150
R31	820J	82
R32	221J	220
R33	820J	82
R34	221J	220
R35	151J	150
R36	151J	150
R37	560J	56
R38	RC20GF560J	RESISTOR, 56 ±, 1/2 W, 5%

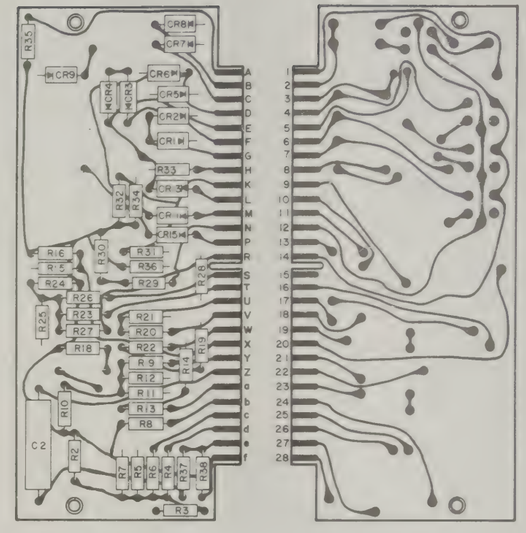
204-075-399 CONFIGURATIONS C,D,E, AND F UP TO AND INCLUDING 66-16306.



-1 REF DESIG	PART NUMBER	PART DESIGNATION
C2	CL25BJ180UP3	CAPACITOR, 18ufd 50V.DC
CR1	IN2071	DIODE
CR2		
CR3		
CR4		
CR5		
CR6		PIV 600 VOLTS 750 MA @ 25°C
CR7		
CR8		
CR9		
CR11		
CR12		
CR13		
CR14		
CR15		
CR16	IN2071	DIODE
K1	C2A-126	RELAY, SPDT
K2	C2A-126	RELAY, SPDT
R2	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
R3	101J	100
R4	101J	100
R5	101J	100
R6	101J	100
R7	101J	100
R8	151J	150
R9	101J	100
R10	680J	68
R11	101J	100
R12	101J	100
R13	101J	100
R14	101J	100
R15	331J	330
R16	221J	220
R19	121J	120
R20	121J	120
R21	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
	CONTINUED-	

-1 REF DESIG	PART NUMBER	PART DESIGNATION
R22	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
R23	561J	560
R24	151J	150
R25	680J	68
R26	680J	68
R27	680J	68
R28	680J	68
R29	151J	150
R30	151J	150
R31	391J	39
R32	181J	180
R33	391J	39
R34	181J	180
R35	151J	150
R36	151J	150
R37	820J	82
R38	RC20GF560J	RESISTOR, 56 ±, 1/2 W, 5%

204-075-399 CONFIGURATION F BEGINNING WITH 66-16307, AND CONFIGURATIONS G THROUGH I.



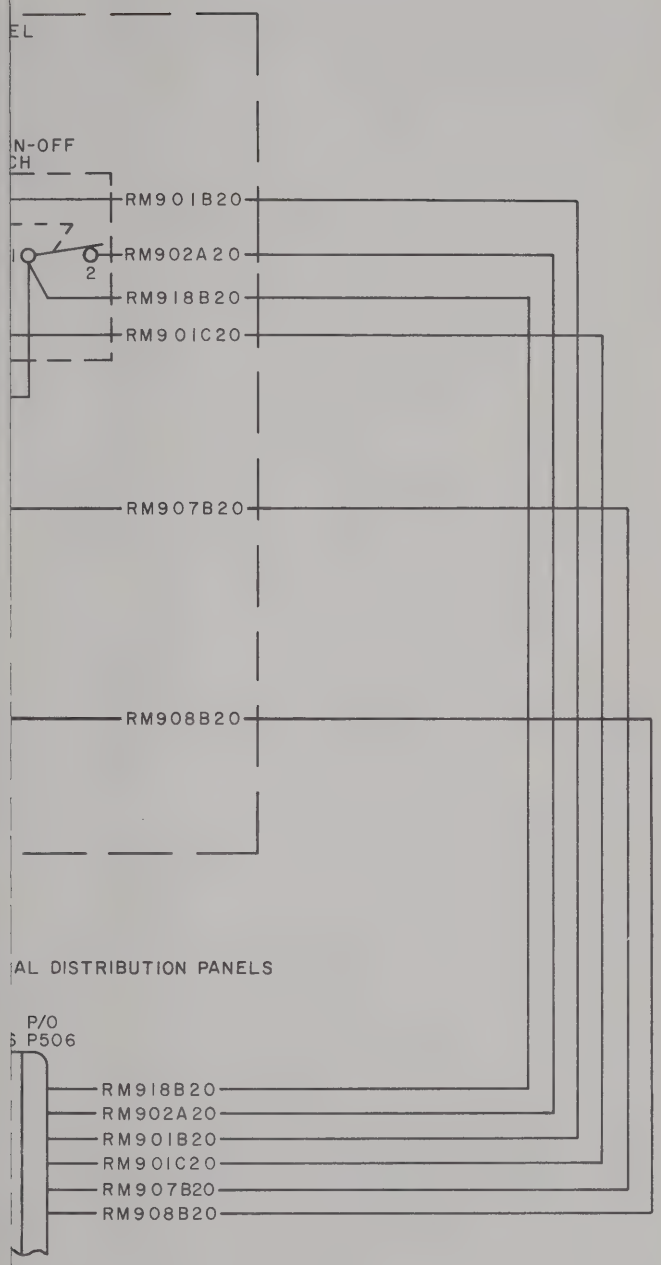
-1 REF DESIG	PART NUMBER	PART DESIGNATION
C2	CL25BJ180UP3	CAPACITOR, 18ufd 50V.DC
CR1	IN2071	DIODE
CR2		
CR3		
CR4		
CR5		
CR6		
CR7		
CR8		PIV 600 VOLTS 750 MA @ 25°C
CR9		
CR11		
CR12		
CR13		
CR15	IN2071	DIODE
R2	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
R3	101J	100
R4	101J	100
R5	101J	100
R6	101J	100
R7	101J	100
R8	151J	150
R9	101J	100
R10	121J	120
R11	101J	100
R12	101J	100
R13	101J	100
R14	101J	100
R15	331J	330
R16	221J	220
R18	151J	150
R19	121J	120
R20	121J	120
R21	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
	CONTINUED-	

-1 REF DESIG	PART NUMBER	PART DESIGNATION
R22	RC20GF121J	RESISTOR, 120 ±, 1/2 W, 5%
R23	561J	560
R24	102J	100
R25	680J	68
R26	680J	68
R27	680J	68
R28	680J	68
R29	151J	150
R30	151J	150
R31	391J	39
R32	181J	180
R33	391J	39
R34	181J	180
R35	151J	150
R36	151J	150
R37	820J	82
R38	RC20GF560J	RESISTOR, 56 ±, 1/2 W, 5%

204-075-399
CONFIGURATION J

EL 1520-210-20-TM-88

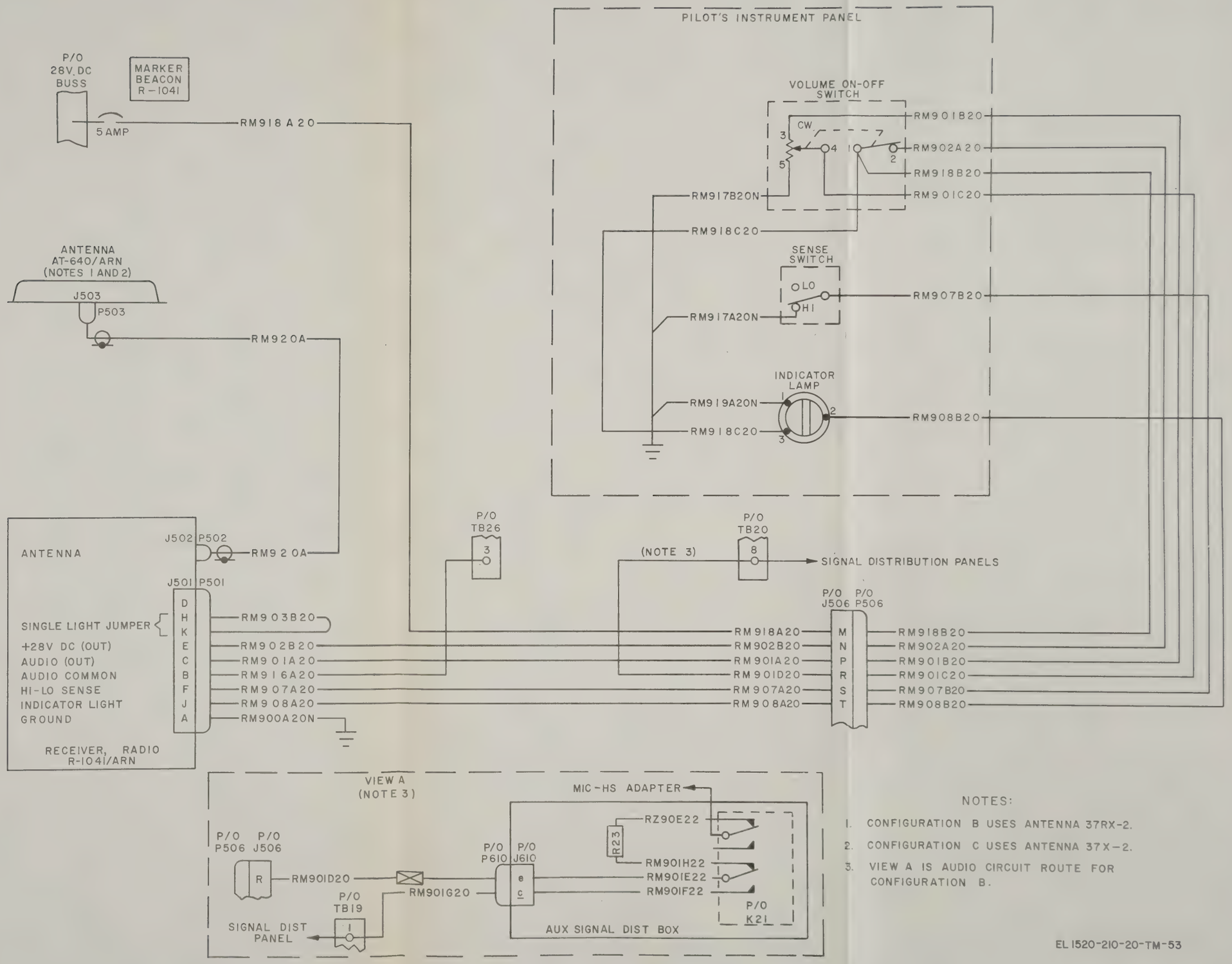
Figure FO-4. Impedance matching network (A16), parts layout and wiring diagram.



NOTES:

1. CONFIGURATION B USES ANTENNA 37RX-2.
2. CONFIGURATION C USES ANTENNA 37X-2.
3. VIEW A IS AUDIO CIRCUIT ROUTE FOR CONFIGURATION B.

EL 1520-210-20-TM-53

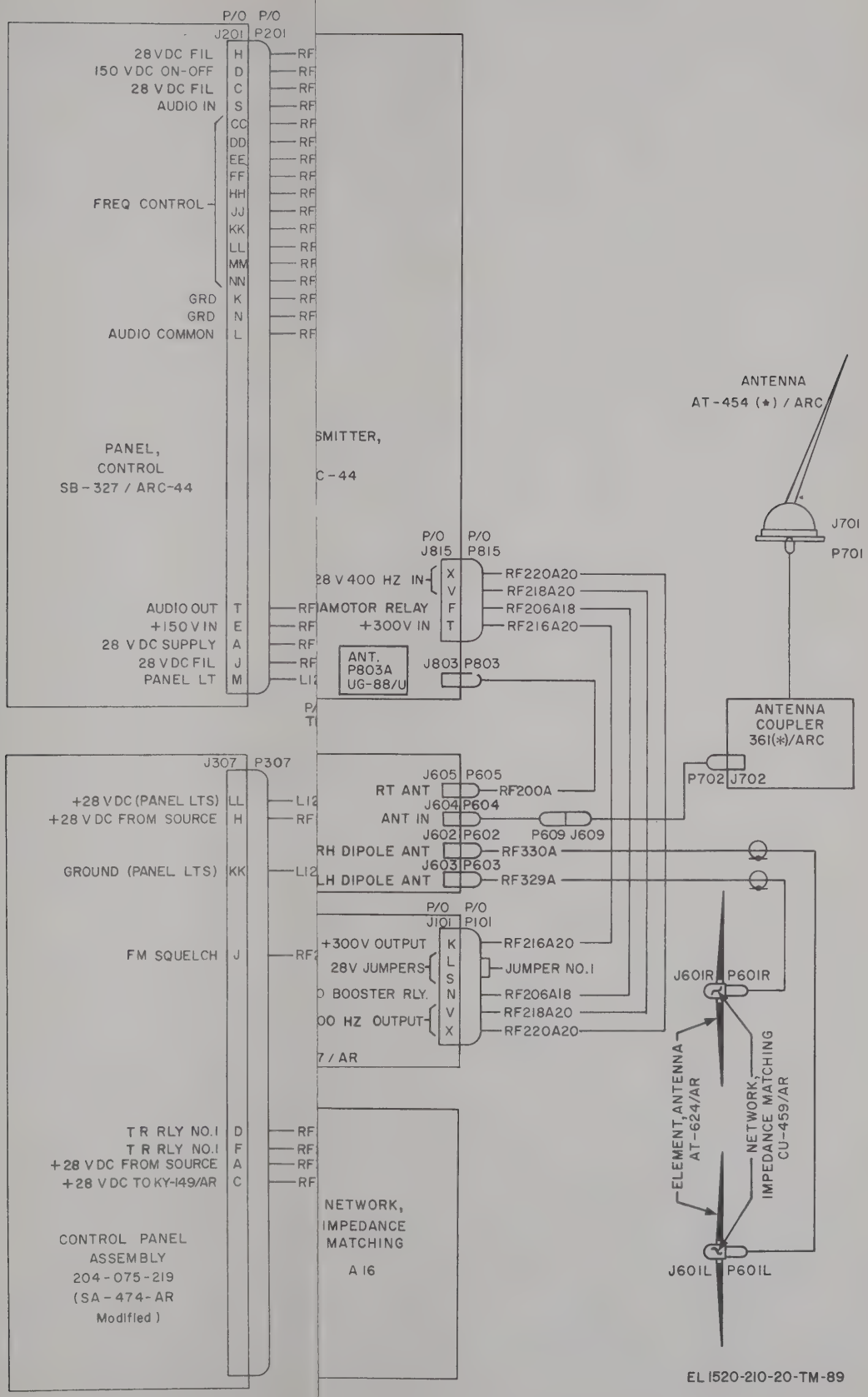


NOTES:

1. CONFIGURATION B USES ANTENNA 37RX-2.
2. CONFIGURATION C USES ANTENNA 37X-2.
3. VIEW A IS AUDIO CIRCUIT ROUTE FOR CONFIGURATION B.

EL1520-210-20-TM-53

Figure FO-5. Marker beacon facility, power circuitry, Radio Receiver Set R-1041/ARN.



EL 1520-210-20-TM-89

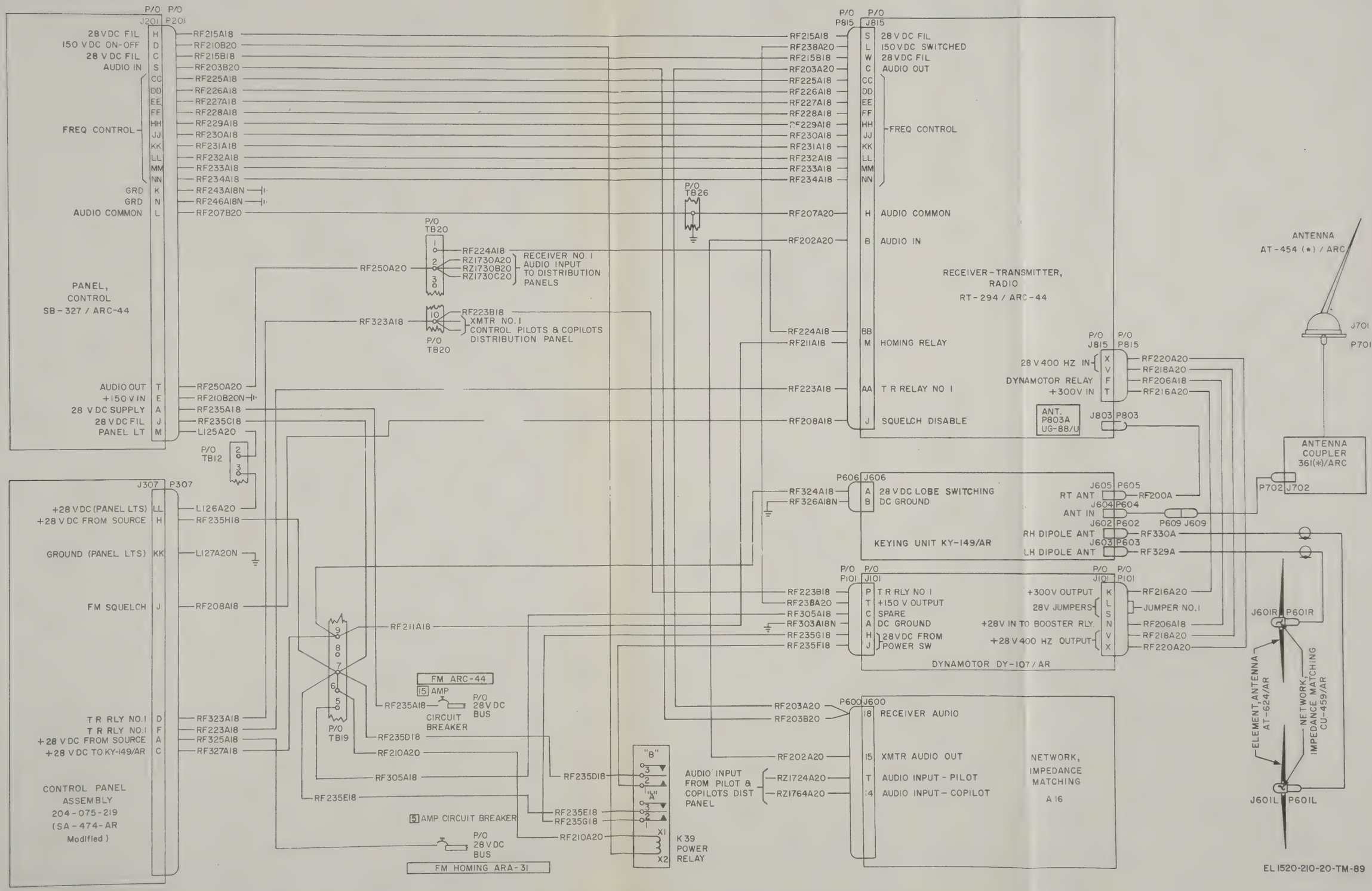
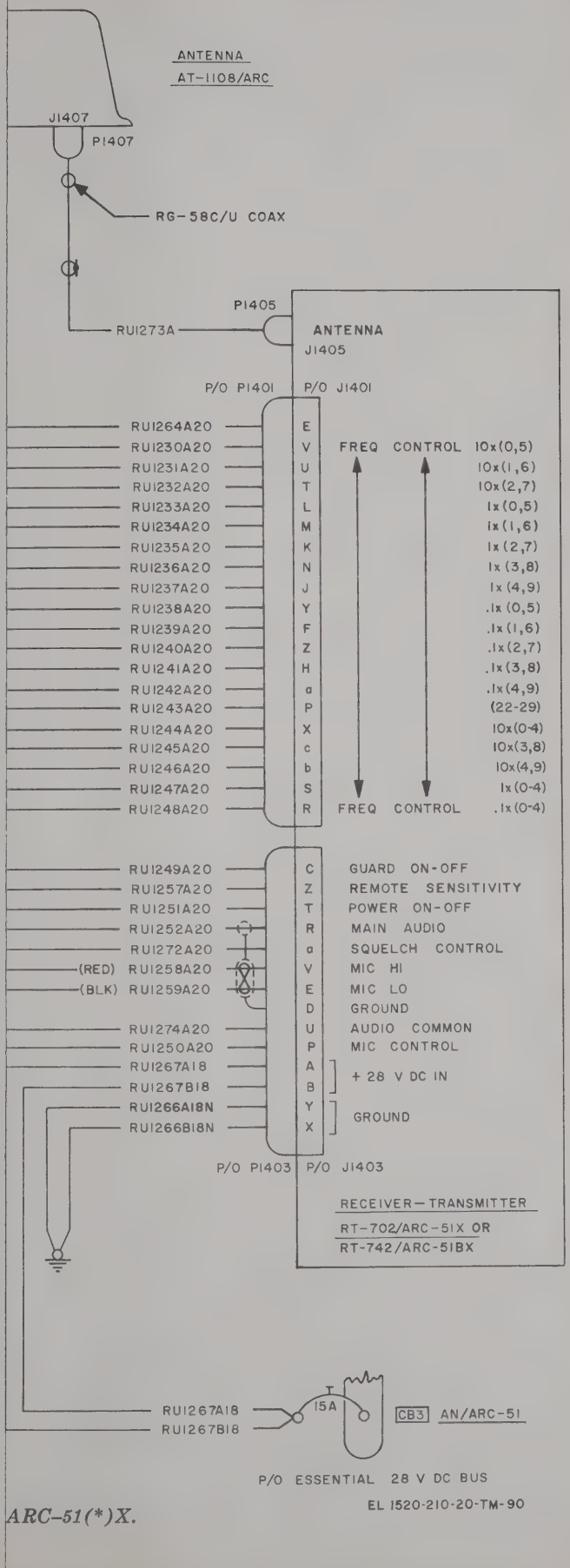


Figure FO-6. Fm liaison facility, wiring diagram, Radio Set AN/ARC-44.


ANTENNA
AT-1108/ARC
J1407
P1407
RG-58C/U COAX
P1405
RU1273A
ANTENNA
J1405
P/O P1401
P/O J1401
RU1264A20 E
RU1230A20 V FREQ CONTROL 10x(0,5)
RU1231A20 U 10x(1,6)
RU1232A20 T 10x(2,7)
RU1233A20 L 1x(0,5)
RU1234A20 M 1x(1,6)
RU1235A20 K 1x(2,7)
RU1236A20 N 1x(3,8)
RU1237A20 J 1x(4,9)
RU1238A20 Y .1x(0,5)
RU1239A20 F .1x(1,6)
RU1240A20 Z .1x(2,7)
RU1241A20 H .1x(3,8)
RU1242A20 a .1x(4,9)
RU1243A20 P (22-29)
RU1244A20 X 10x(0-4)
RU1245A20 c 10x(3,8)
RU1246A20 b 10x(4,9)
RU1247A20 S 1x(0-4)
RU1248A20 R FREQ CONTROL .1x(0-4)
RU1249A20 C GUARD ON-OFF
RU1257A20 Z REMOTE SENSITIVITY
RU1251A20 T POWER ON-OFF
RU1252A20 R MAIN AUDIO
RU1272A20 a SQUELCH CONTROL
(RED) RU1258A20 V MIC HI
(BLK) RU1259A20 E MIC LO
D GROUND
RU1274A20 U AUDIO COMMON
RU1250A20 P MIC CONTROL
RU1267A18 A + 28 V DC IN
RU1267B18 B
RU1266A18N Y GROUND
RU1266B18N X
P/O P1403
P/O J1403
RECEIVER-TRANSMITTER
RT-702/ARC-51X OR
RT-742/ARC-51BX
RU1267A18
RU1267B18
15A
CB3 AN/ARC-51
P/O ESSENTIAL 28 V DC BUS
EL 1520-210-20-TM-90

ARC-51(*)X.

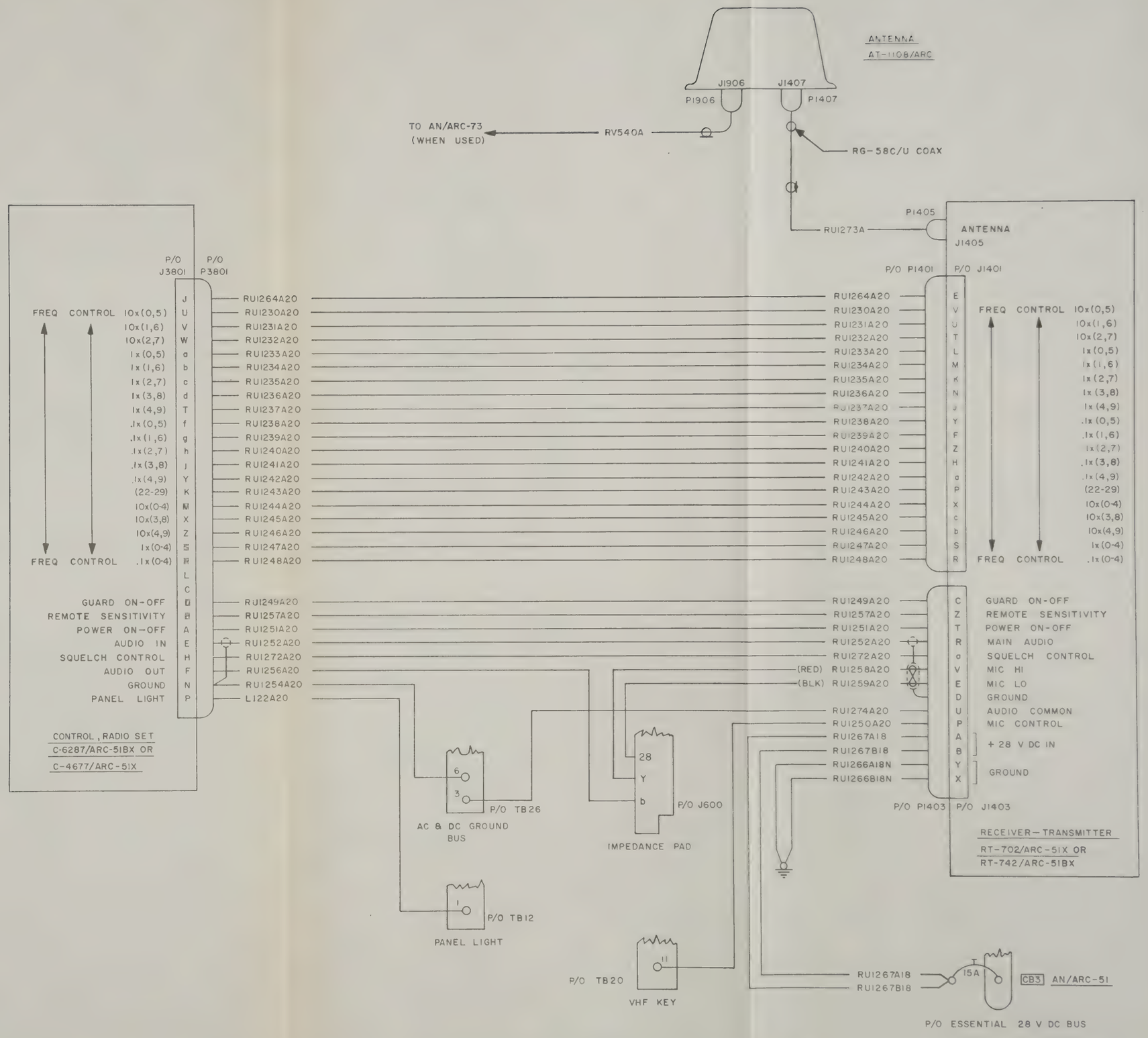
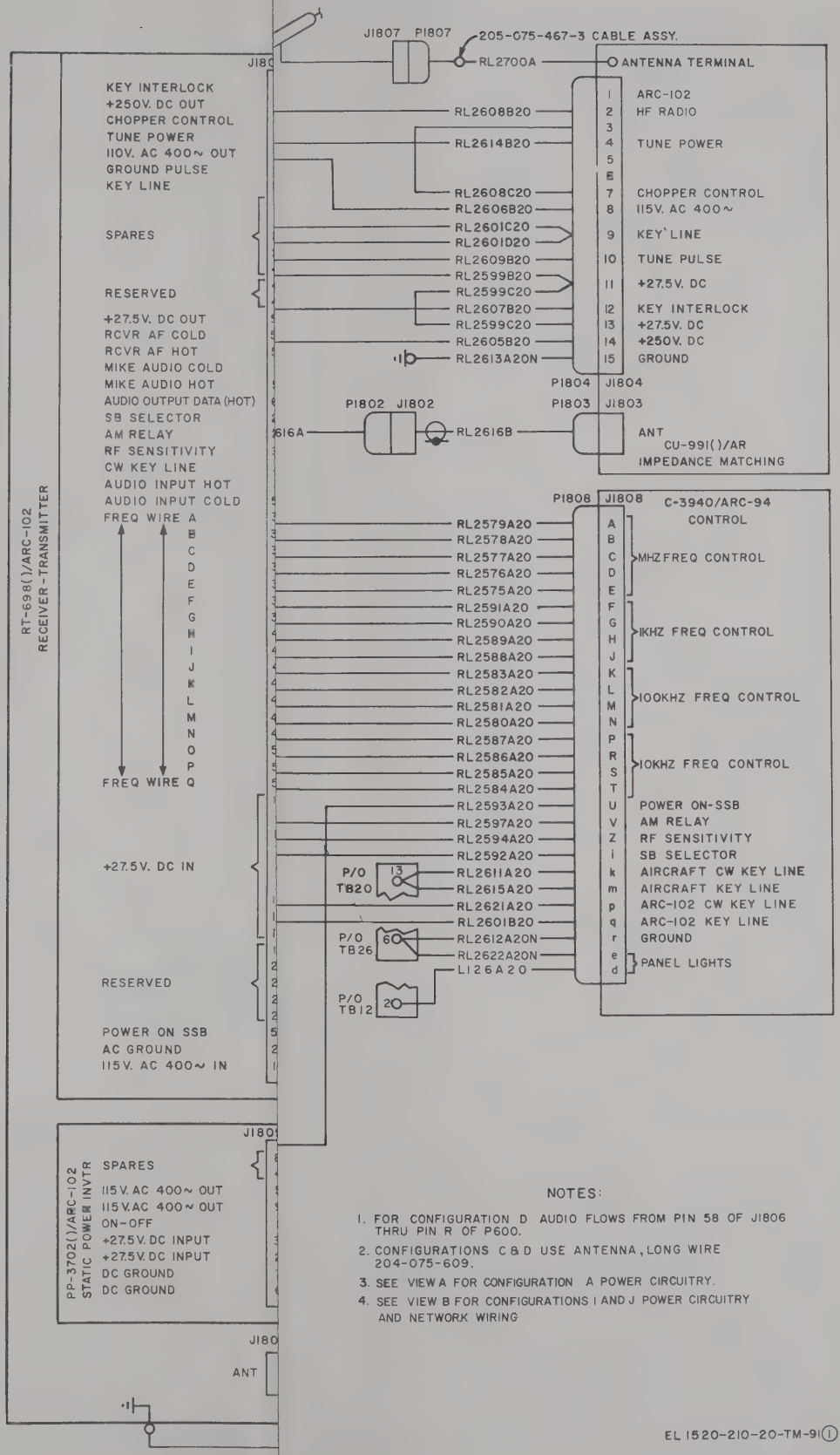
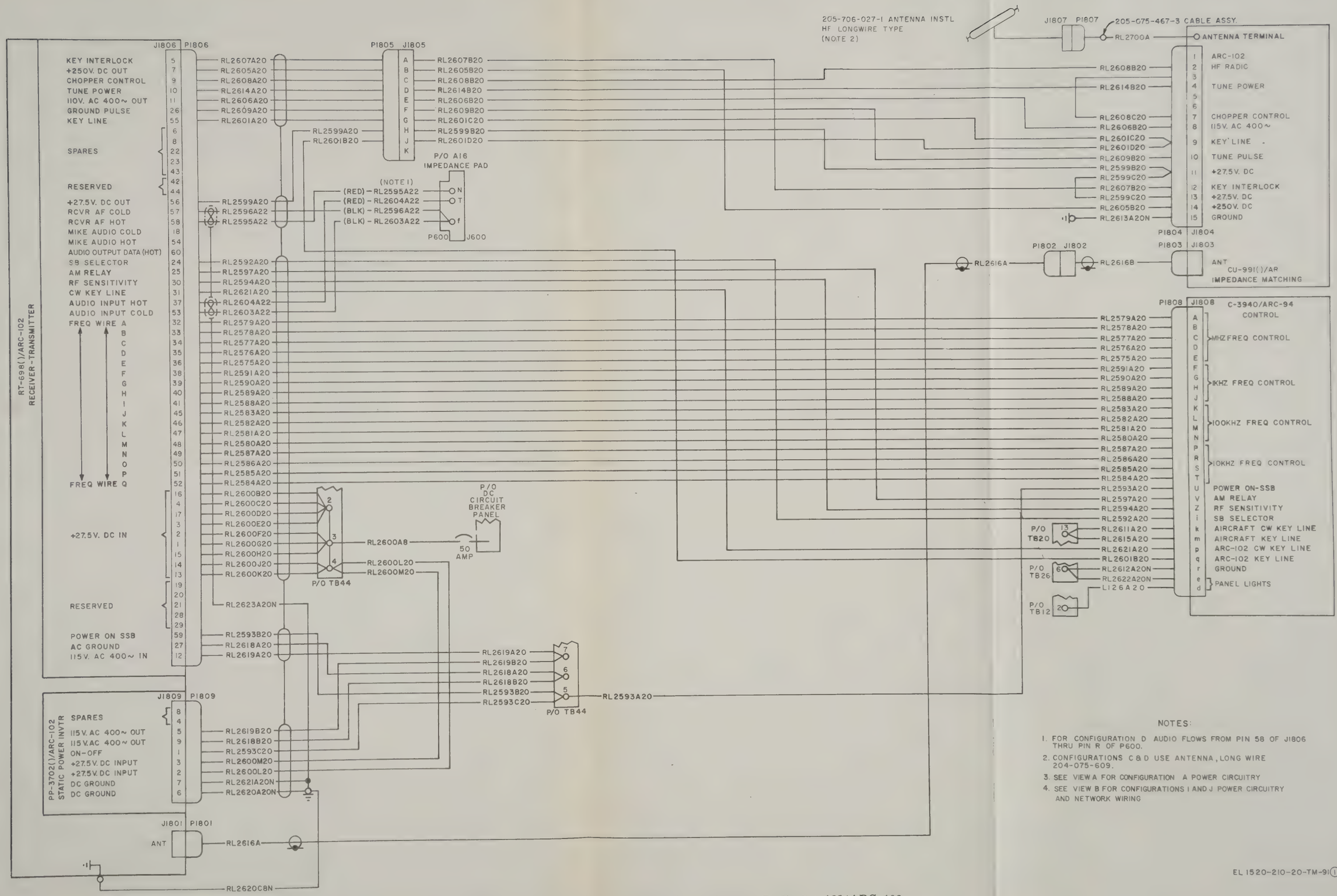


Figure FO-7. Uhf command facility, wiring diagram, Radio Set AN/ARC-51(*)X.



NOTES:

1. FOR CONFIGURATION D AUDIO FLOWS FROM PIN 58 OF J1806 THRU PIN R OF P600.
2. CONFIGURATIONS C & D USE ANTENNA, LONG WIRE 204-075-609.
3. SEE VIEW A FOR CONFIGURATION A POWER CIRCUITRY.
4. SEE VIEW B FOR CONFIGURATIONS I AND J POWER CIRCUITRY AND NETWORK WIRING

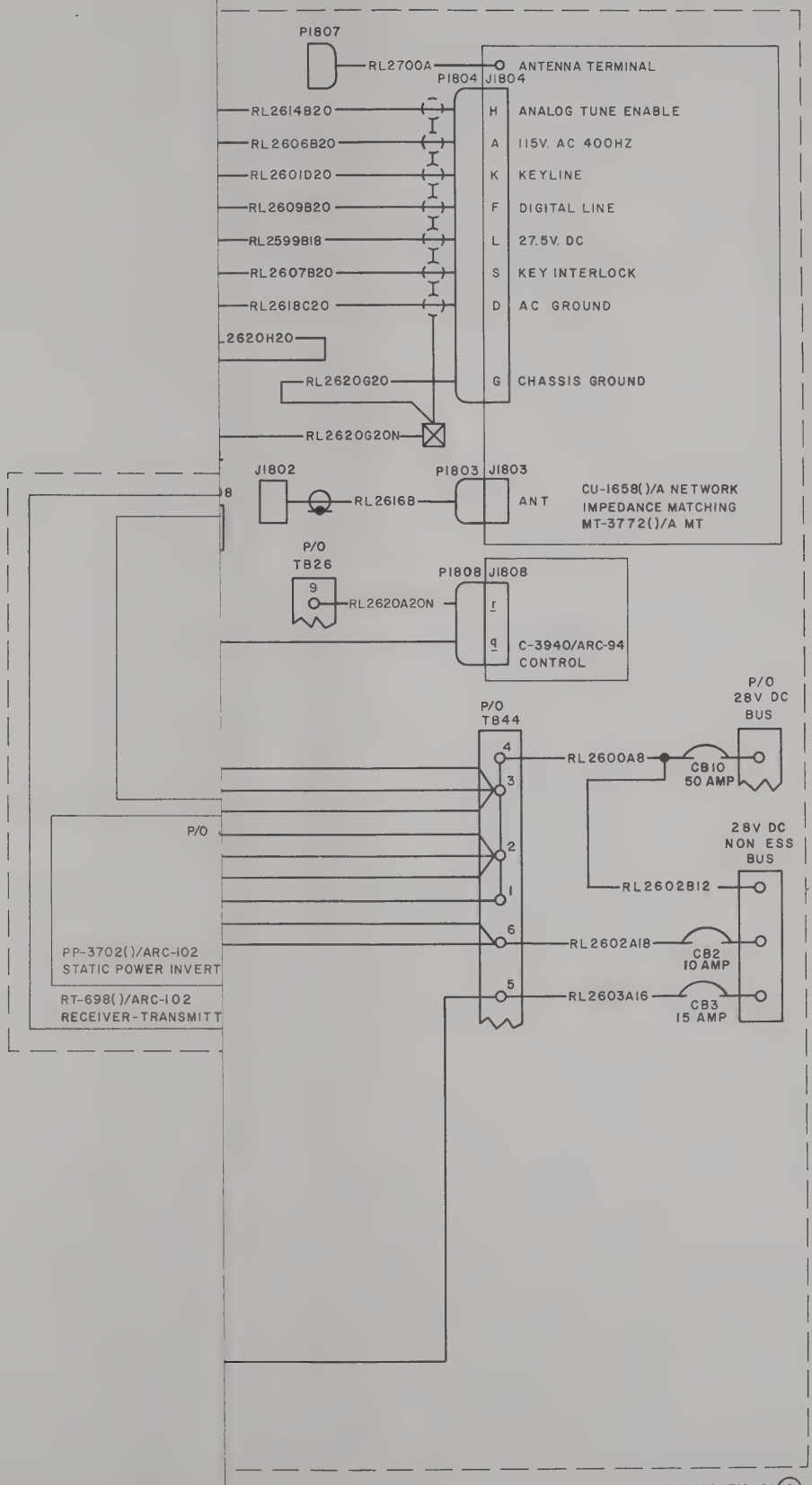


NOTES:

1. FOR CONFIGURATION D AUDIO FLOWS FROM PIN 58 OF J1806 THRU PIN R OF P600.
2. CONFIGURATIONS C & D USE ANTENNA, LONG WIRE 204-075-609.
3. SEE VIEW A FOR CONFIGURATION A POWER CIRCUITRY
4. SEE VIEW B FOR CONFIGURATIONS I AND J POWER CIRCUITRY AND NETWORK WIRING

EL 1520-210-20-TM-91①

Figure FO-8①. Hf ssb am facility, wiring diagram, Radio Set AN/ARC-102 (part 1 of 2).


P1807
RL2700A
ANTENNA TERMINAL
P1804 J1804
RL2614B20
H
ANALOG TUNE ENABLE
RL2606B20
A
115V. AC 400HZ
RL2601D20
K
KEYLINE
RL2609B20
F
DIGITAL LINE
RL2599B18
L
27.5V. DC
RL2607B20
S
KEY INTERLOCK
RL2618C20
D
AC GROUND
L2620H20
RL2620G20
G
CHASSIS GROUND
RL2620G20N
J1802
RL2616B
P1803 J1803
ANT
CU-1658()/A NETWORK
IMPEDANCE MATCHING
MT-3772()/A MT
P/O
TB26
9
RL2620A20N
P1808 J1808
r
q
C-3940/ARC-94
CONTROL
P/O
TB844
4
3
2
1
6
5
P/O
28V DC
BUS
RL2600A8
CB10
50 AMP
28V DC
NON ESS
BUS
RL2602B12
RL2602A18
CB2
10 AMP
RL2603A16
CB3
15 AMP
P/O
PP-3702()/ARC-102
STATIC POWER INVERT
RT-698()/ARC-102
RECEIVER-TRANSMITT

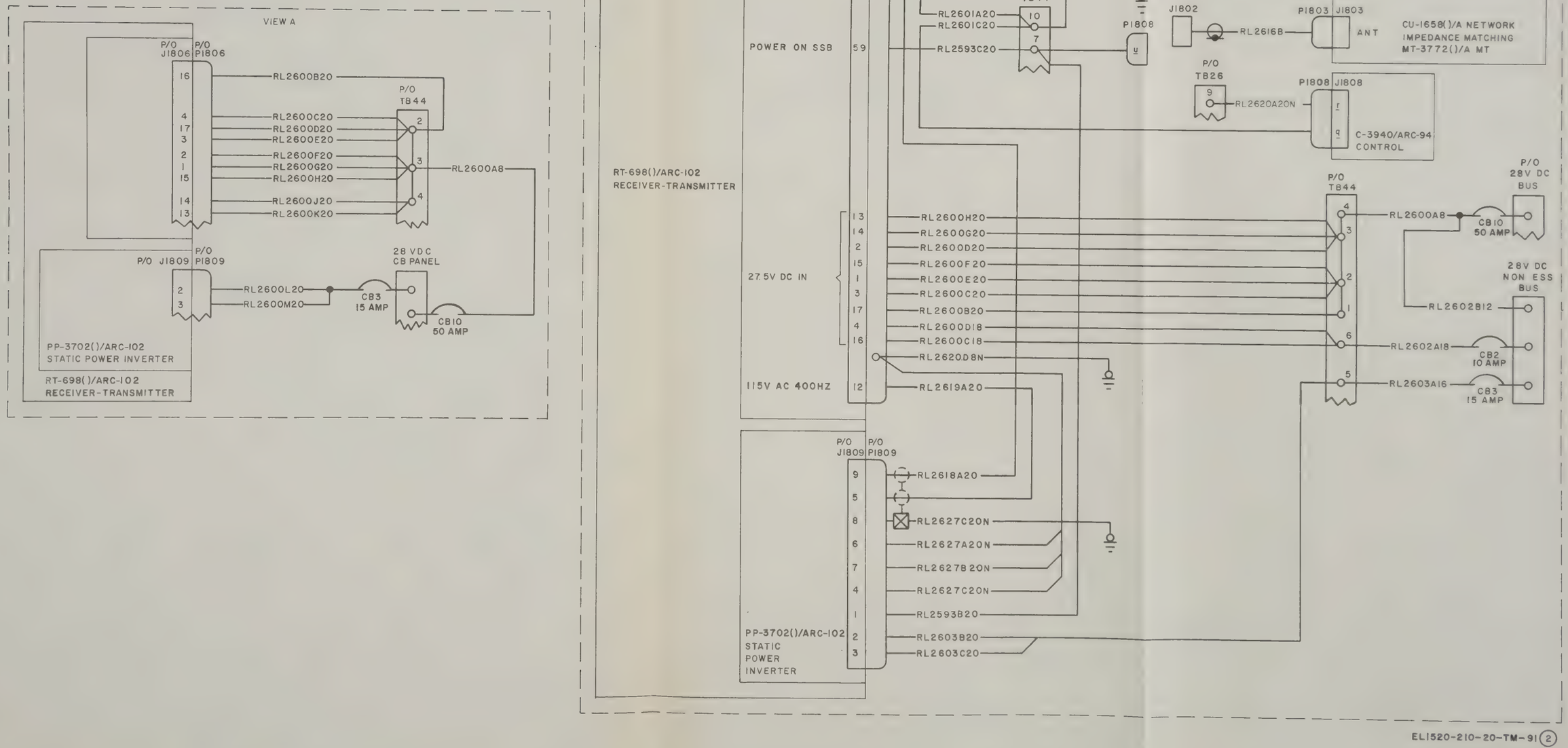


Figure FO-8②. Hf ssb am facility, wiring diagram, Radio Set AN/ARC-102 (part 2 of 2).

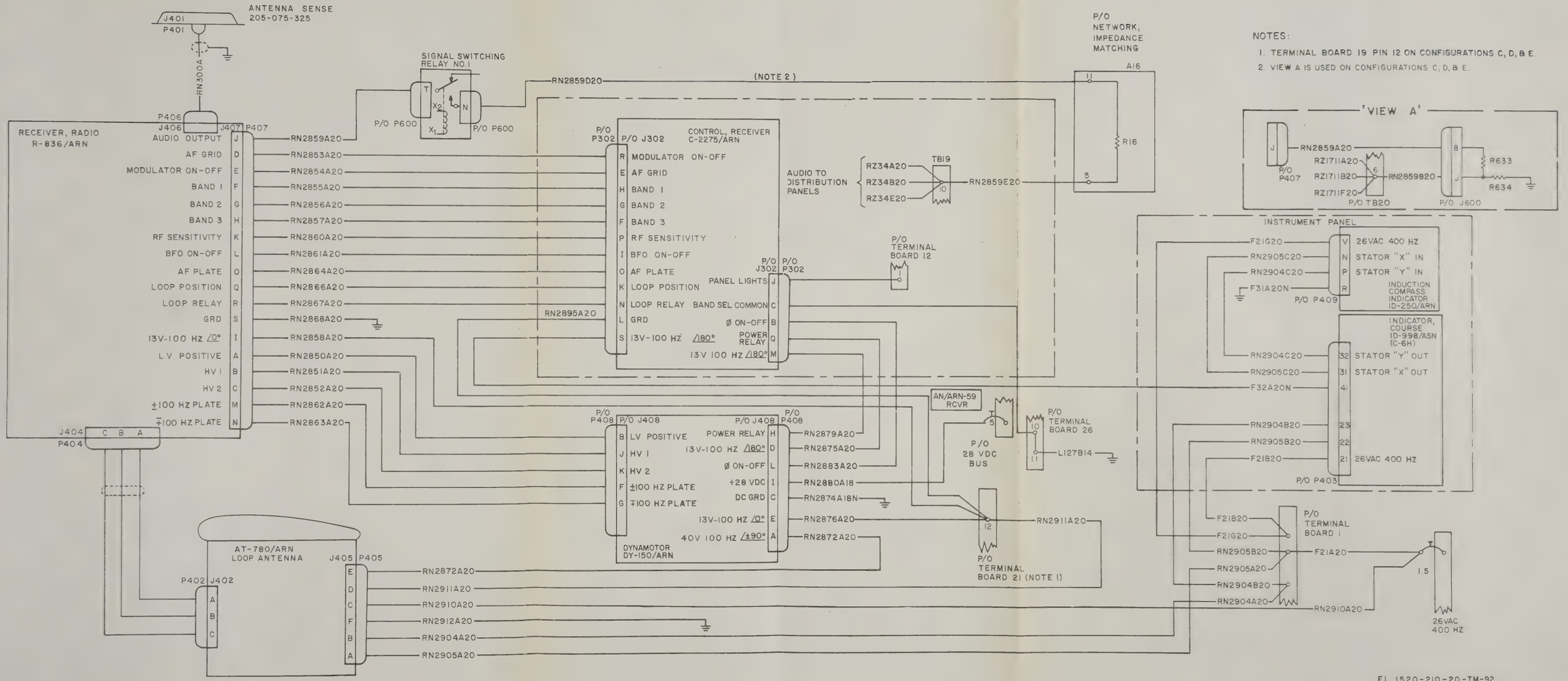


Figure FO-9. Lf adf navigation facility, wiring diagram AN/ARN-59(V).

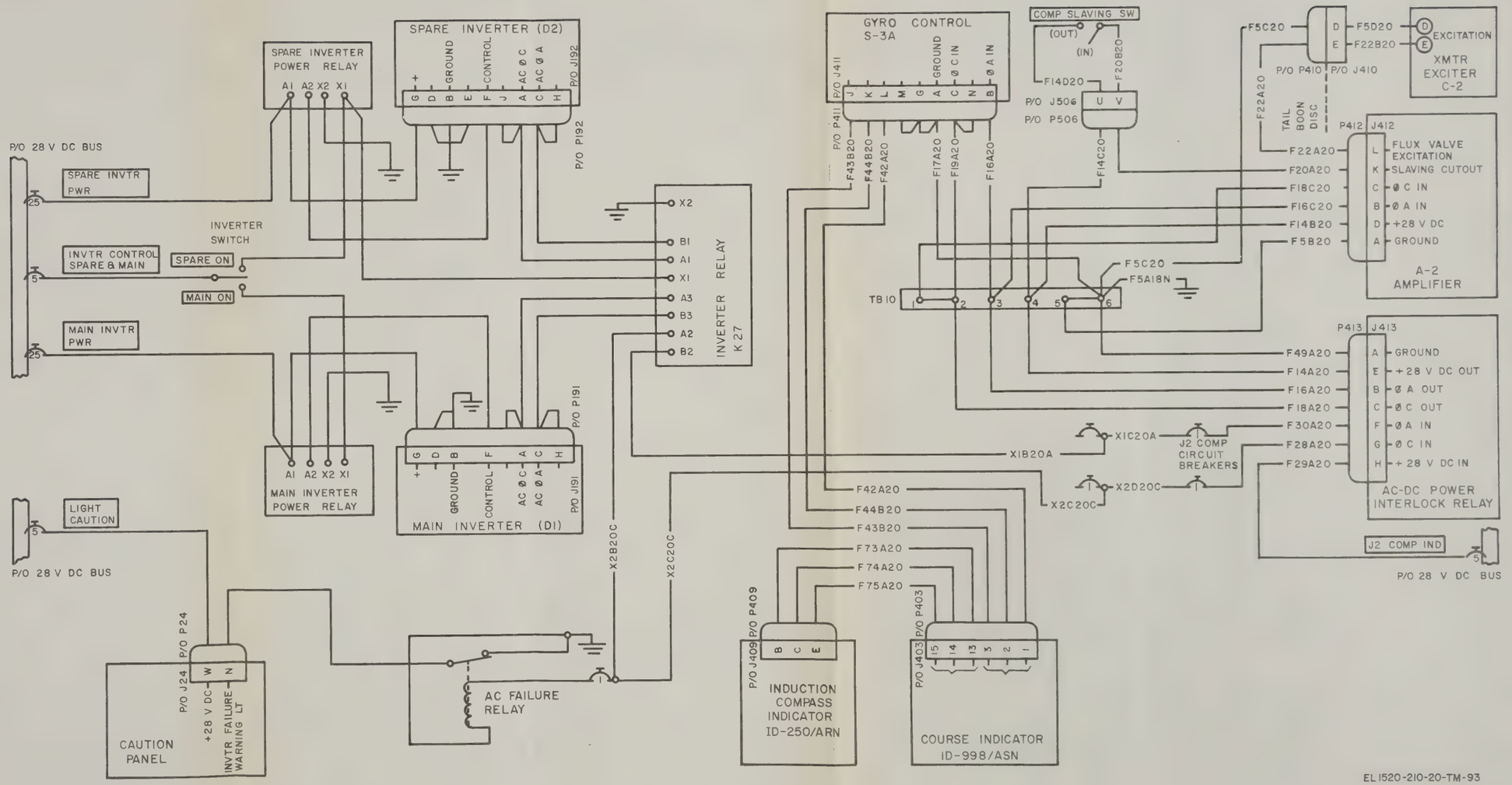
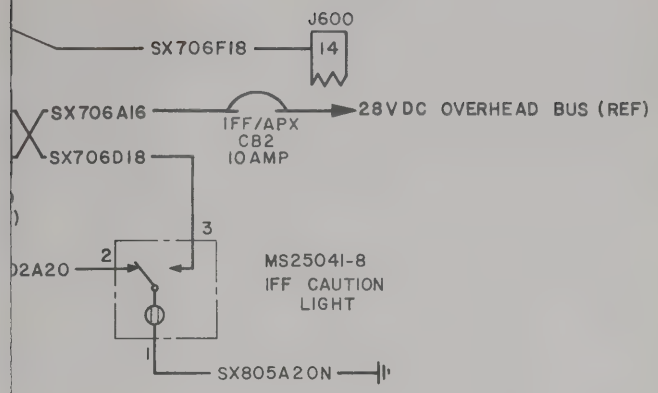
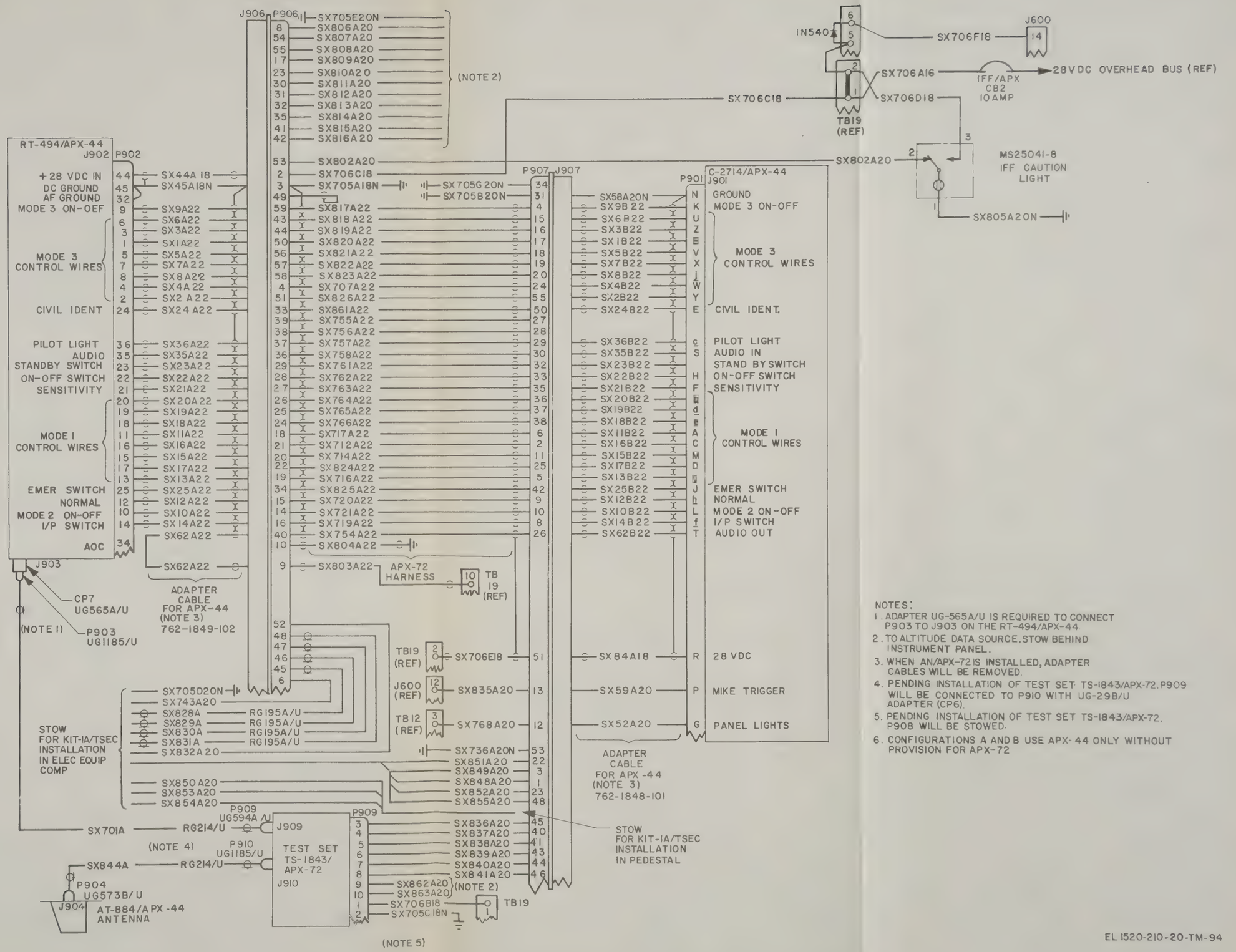


Figure FO-10. Gyromagnetic J2 compass facility, wiring diagram.



NOTES:

1. ADAPTER UG-565A/U IS REQUIRED TO CONNECT P903 TO J903 ON THE RT-494/APX-44.
2. TO ALTITUDE DATA SOURCE, STOW BEHIND INSTRUMENT PANEL.
3. WHEN AN/APX-72 IS INSTALLED, ADAPTER CABLES WILL BE REMOVED.
4. PENDING INSTALLATION OF TEST SET TS-1843/APX-72, P909 WILL BE CONNECTED TO P910 WITH UG-29B/U ADAPTER (CP6).
5. PENDING INSTALLATION OF TEST SET TS-1843/APX-72, P908 WILL BE STOWED.
6. CONFIGURATIONS A AND B USE APX-44 ONLY WITHOUT PROVISION FOR APX-72

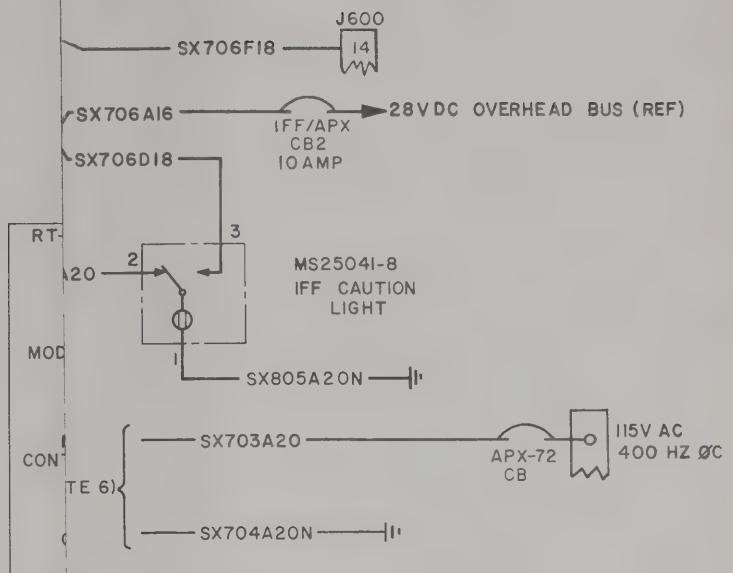


NOTES:

1. ADAPTER UG-565A/U IS REQUIRED TO CONNECT P903 TO J903 ON THE RT-494/APX-44.
2. TO ALTITUDE DATA SOURCE. STOW BEHIND INSTRUMENT PANEL.
3. WHEN AN/APX-72 IS INSTALLED, ADAPTER CABLES WILL BE REMOVED.
4. PENDING INSTALLATION OF TEST SET TS-1843/APX-72, P909 WILL BE CONNECTED TO P910 WITH UG-29B/U ADAPTER (CP6).
5. PENDING INSTALLATION OF TEST SET TS-1843/APX-72, P908 WILL BE STOWED.
6. CONFIGURATIONS A AND B USE APX-44 ONLY WITHOUT PROVISION FOR APX-72

EL 1520-210-20-TM-94

Figure FO–11. IFF Transponder Set AN/APX–44/72 facility, wiring diagram, configurations A through D.



TES:

ADAPTER UG-565/A IS REQUIRED TO CONNECT
P903 TO J903 ON THE RT-494/APX-44.
TO ALTITUDE DATA SOURCE. STOW BEHIND
NSTRUMENT PANEL.
WHEN AN/APX-72 IS INSTALLED, ADAPTER
CABLES WILL BE REMOVED.
PENDING INSTALLATION OF TEST TS-1843/APX-72
P909 WILL BE CONNECTED TO P910 WITH
UG29B/U ADAPTER (CP6).
PENDING INSTALLATION OF TEST SET TS-1843/APX-72
P908 WILL BE STOWED.
STOW.

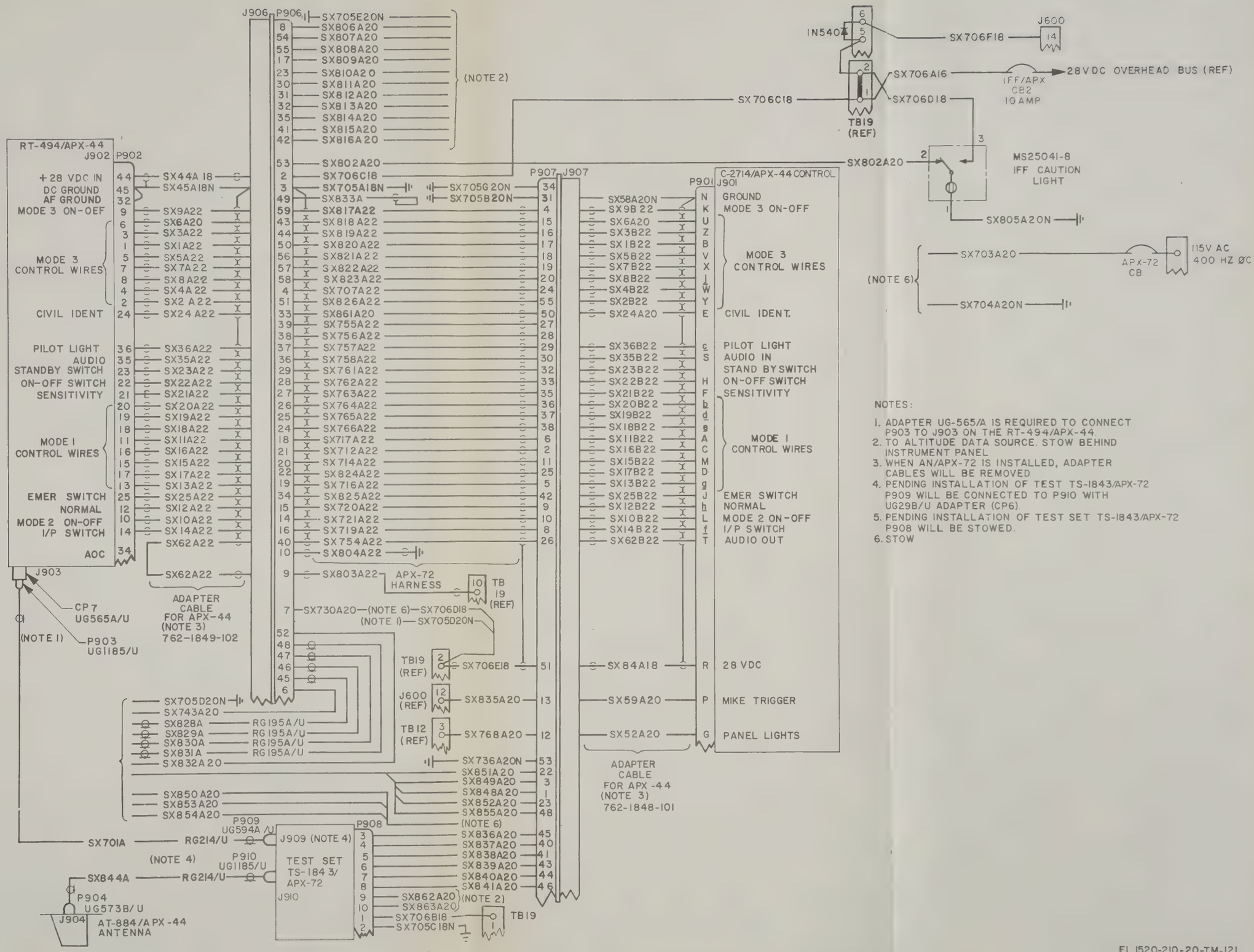
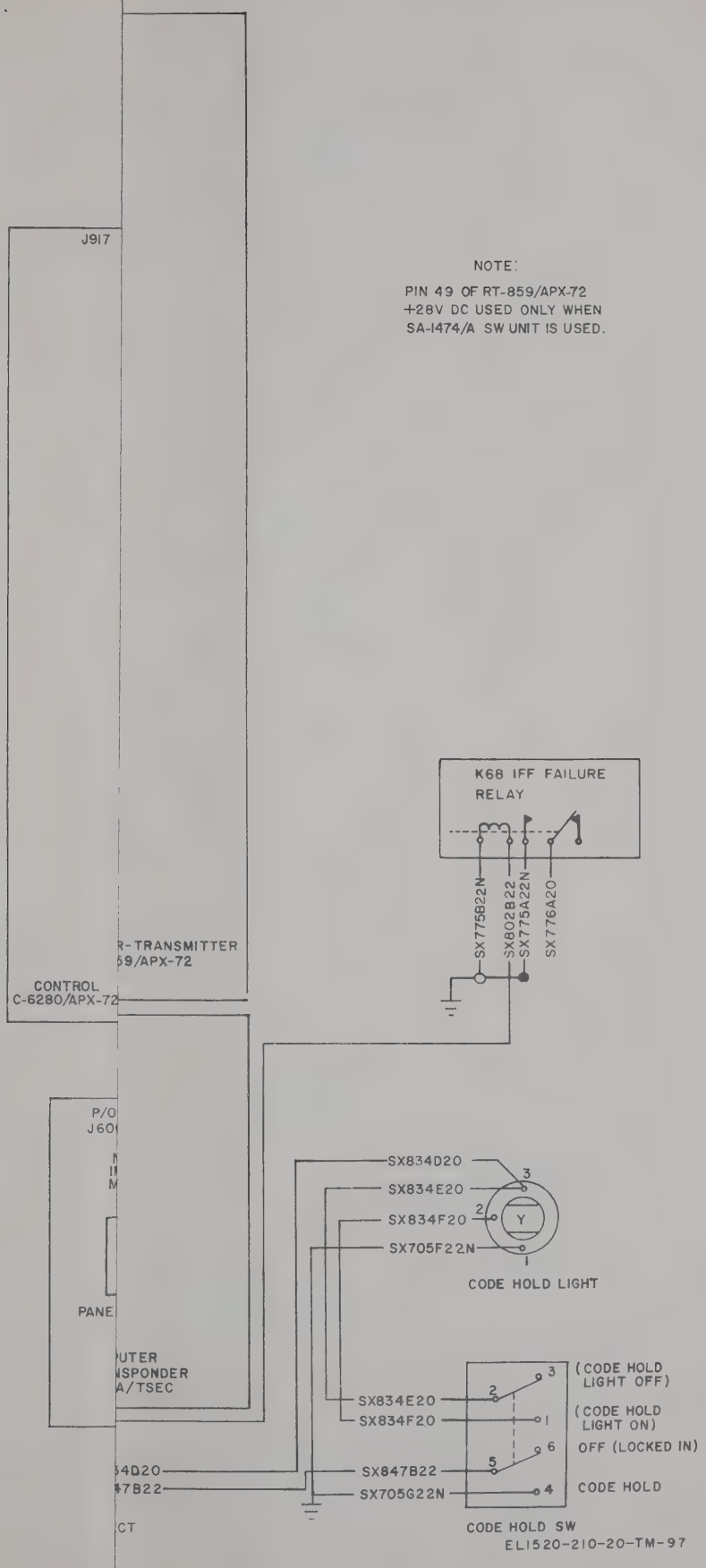
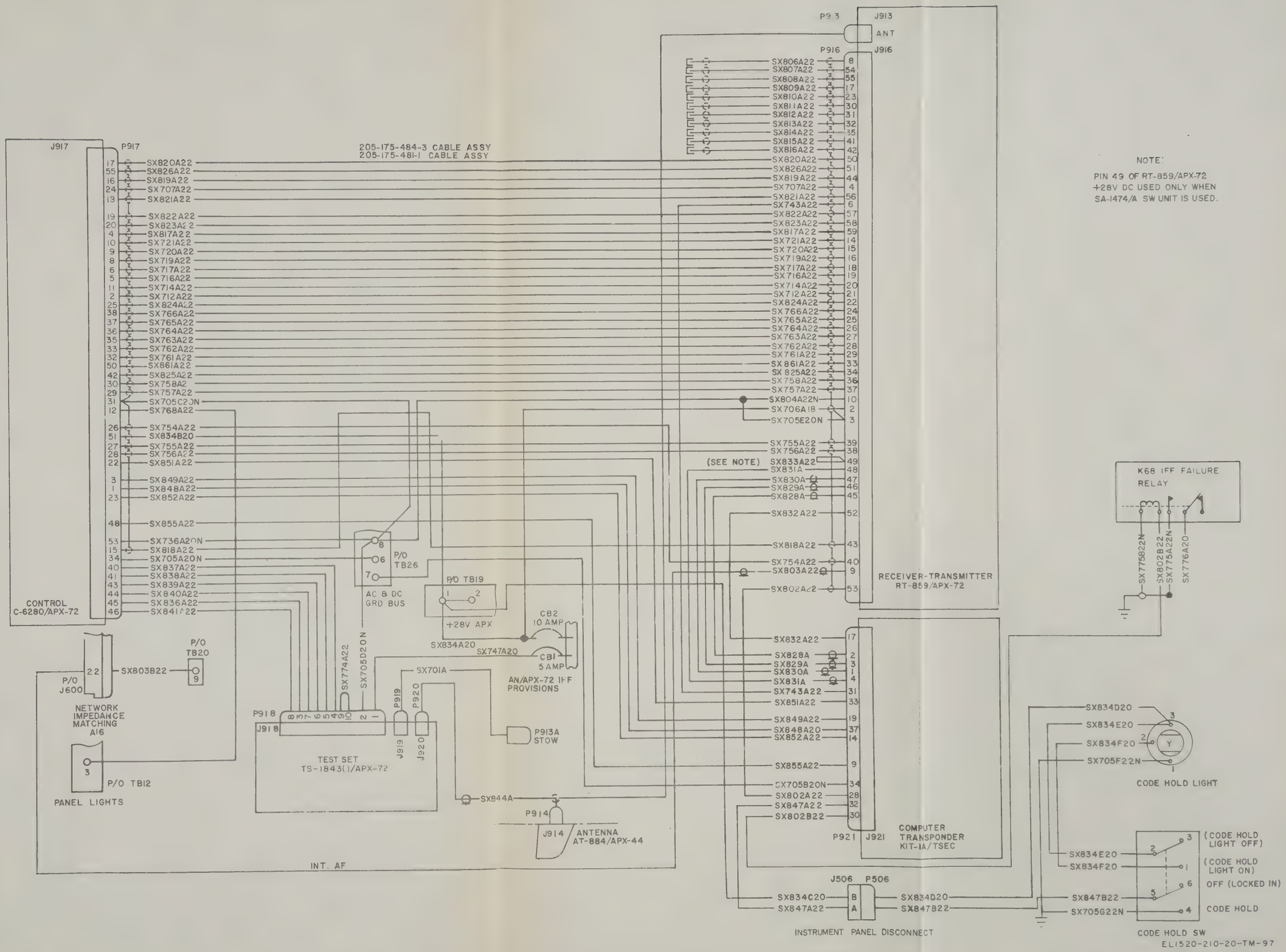


Figure FO-12. IFF Transponder Set AN/APX-44/72 facility, wiring diagram, configurations E through H.


J917
NOTE:
PIN 49 OF RT-859/APX-72
+28V DC USED ONLY WHEN
SA-1474/A SW UNIT IS USED.
K68 IFF FAILURE
RELAY
SX775B22N
SX802B22
SX775A22N
SX776A20
R-TRANSMITTER
59/APX-72
CONTROL
C-6280/APX-72
P/O
J60
PANE
UTER
NSPONDER
A/TSEC
SX834D20
SX834E20
SX834F20
SX705F22N
Y
CODE HOLD LIGHT
(CODE HOLD
LIGHT OFF)
(CODE HOLD
LIGHT ON)
OFF (LOCKED IN)
CODE HOLD
SX847B22
SX705G22N
CODE HOLD SW
CT
EL1520-210-20-TM-97



NOTE:

PIN 49 OF RT-859/APX-72 +28V DC USED ONLY WHEN SA-1474/A SW UNIT IS USED.

Figure FO–13. IFF Transponder Set AN/APX–72 facility, wiring diagram, configurations I and J.

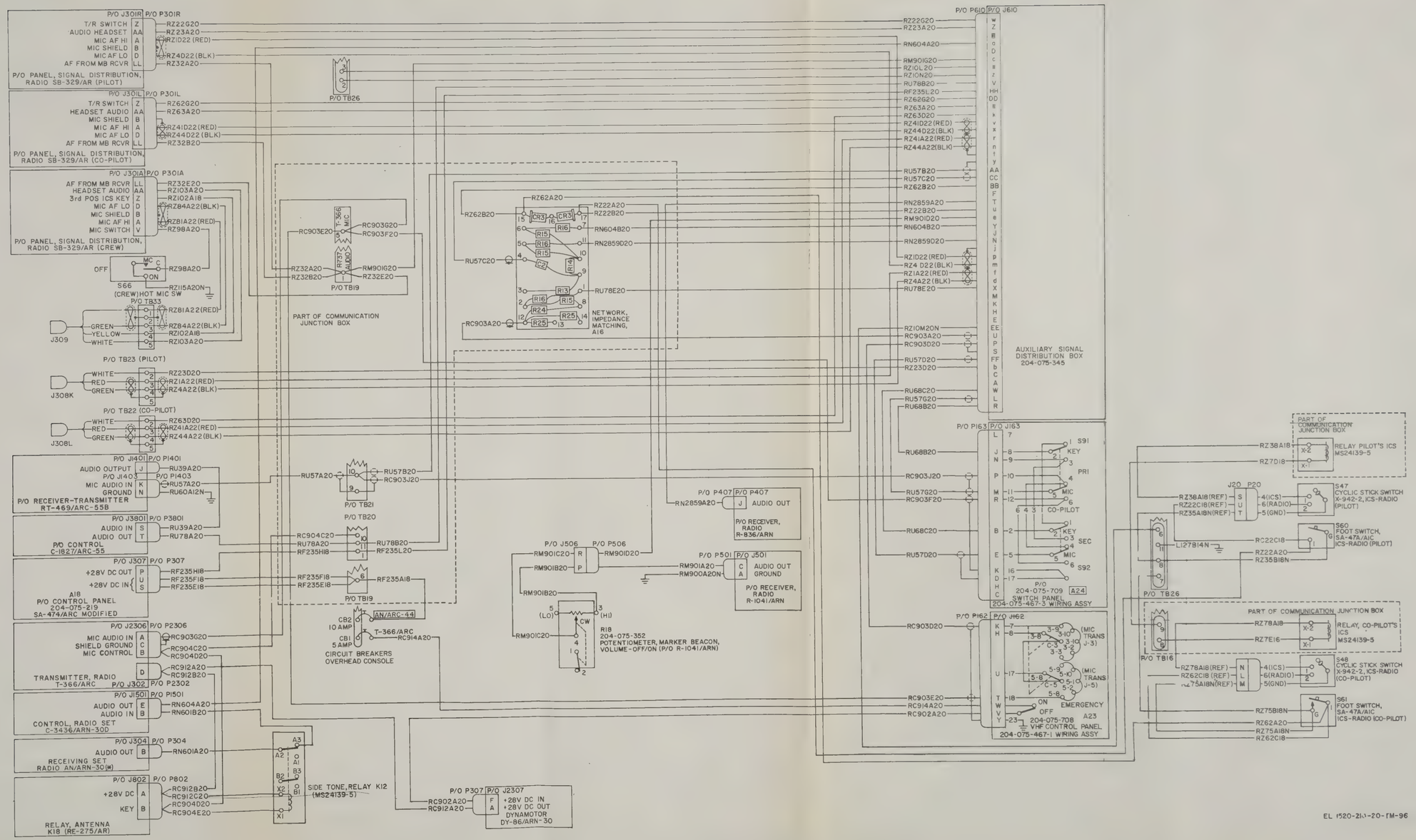


Figure FO–14. Auxiliary signal distribution box, interconnecting wiring diagram, configurations A and B.

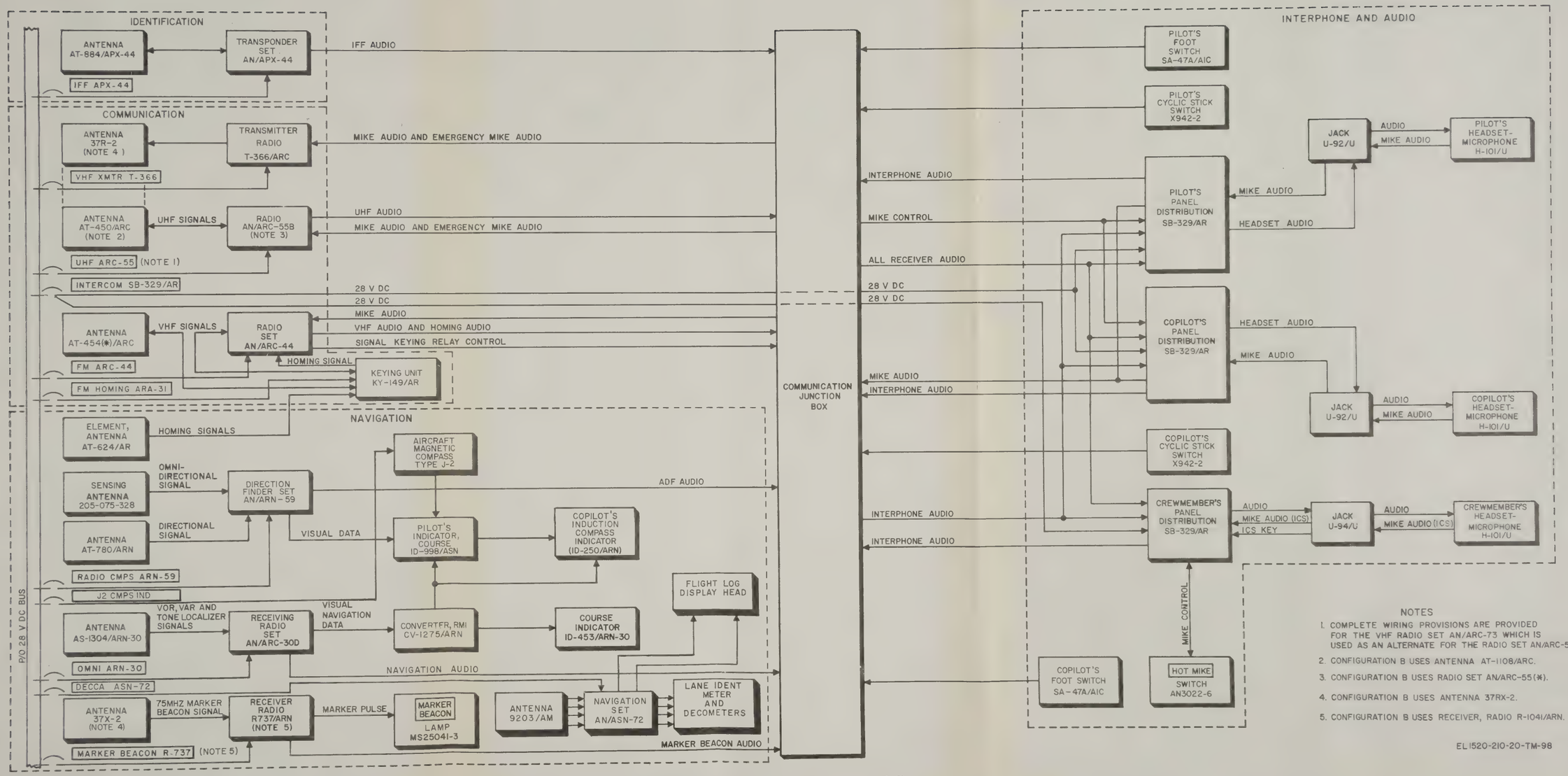


Figure FO-15. Configurations A and B, block diagram.

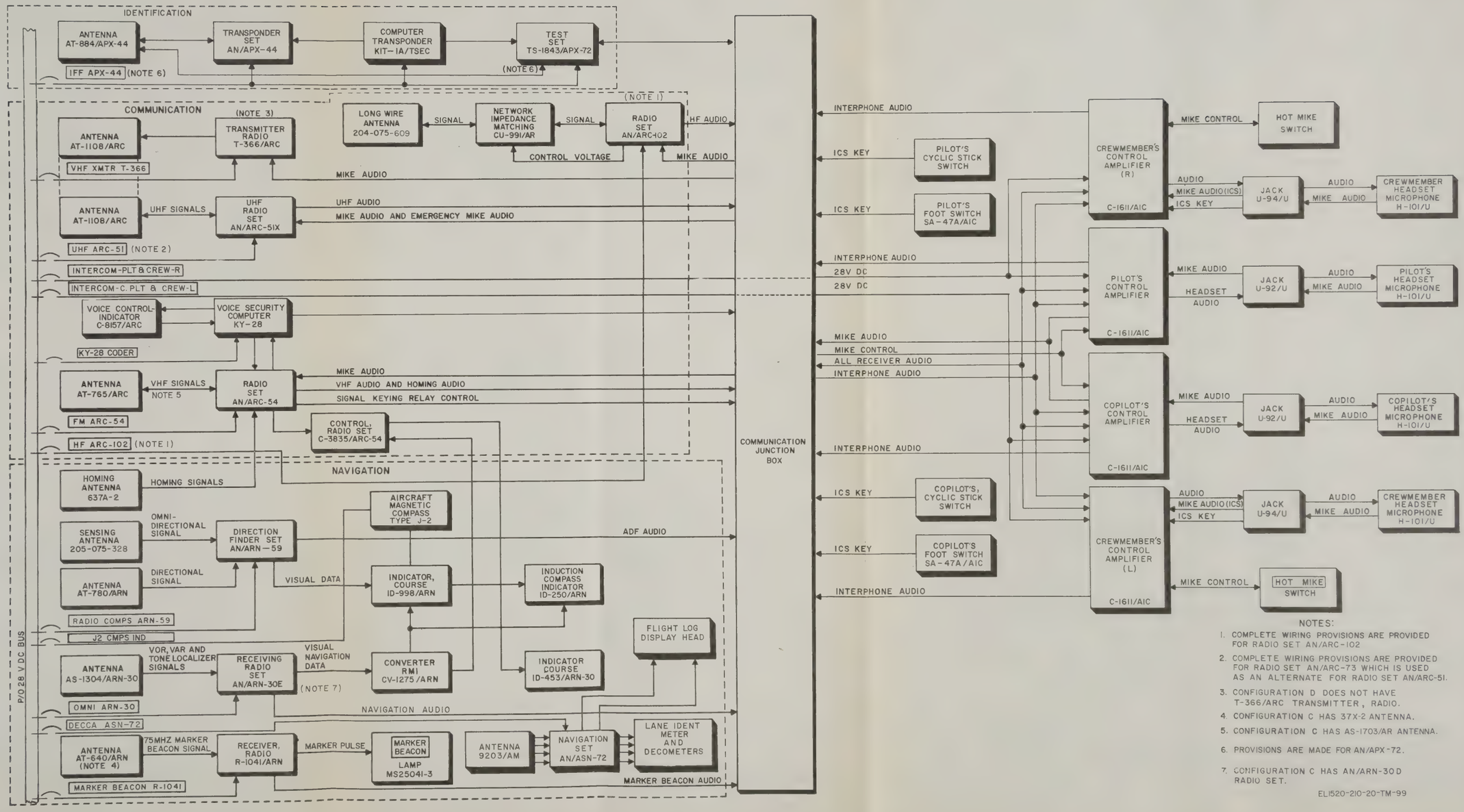


Figure FO-16. Configurations C and D, block diagram.

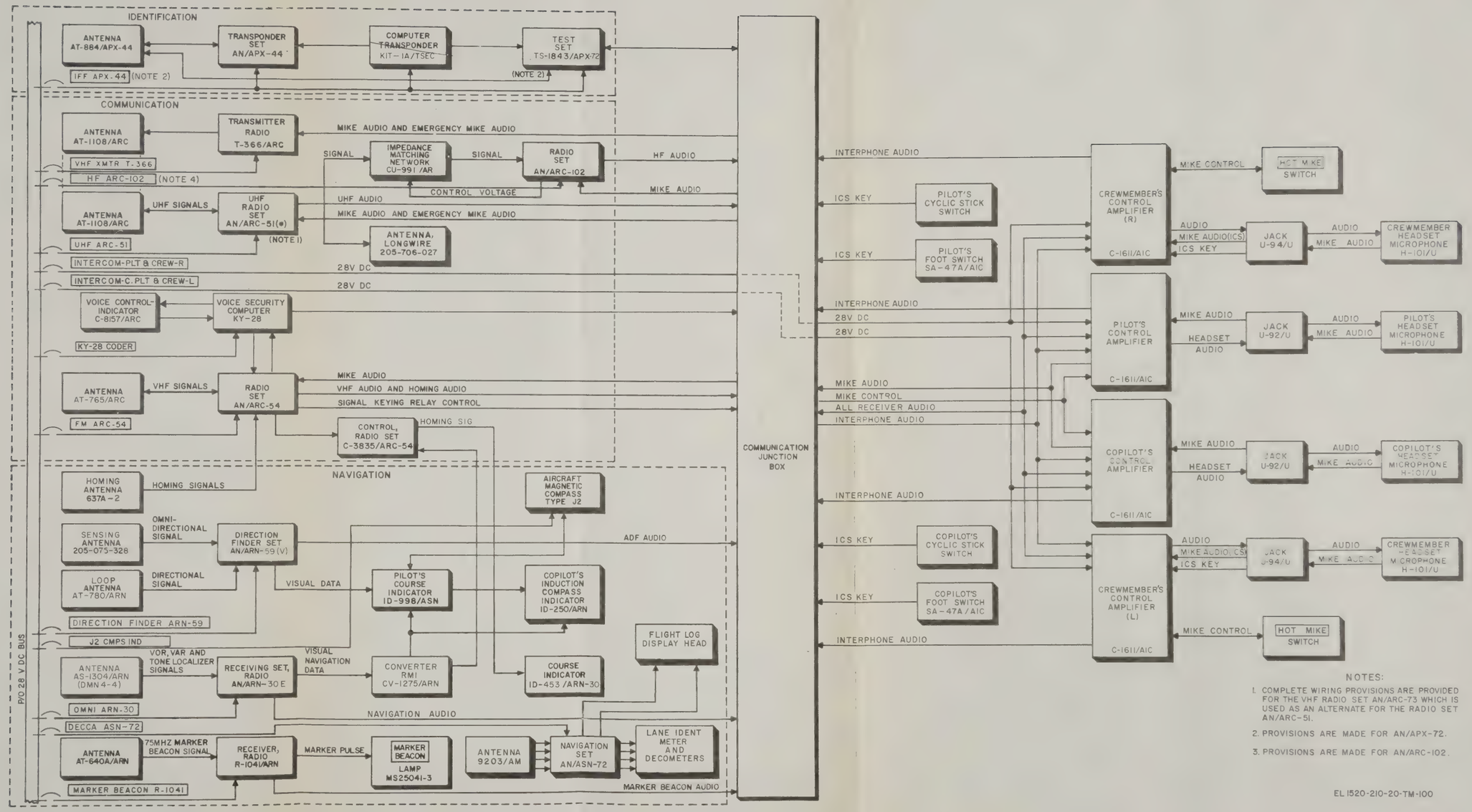


Figure FO-17. Configuration E, block diagram.

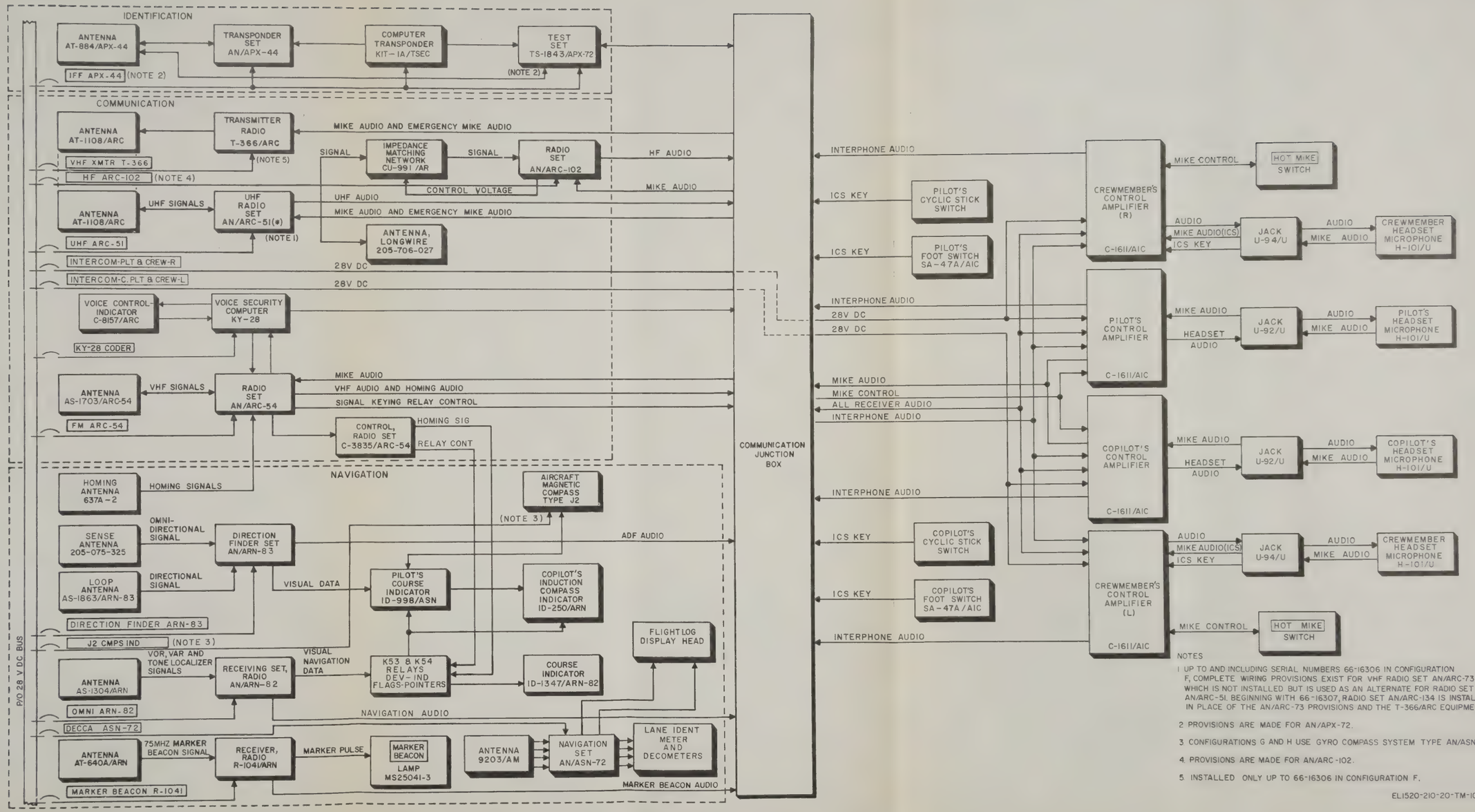


Figure FO-18. Configurations F through H, block diagram.

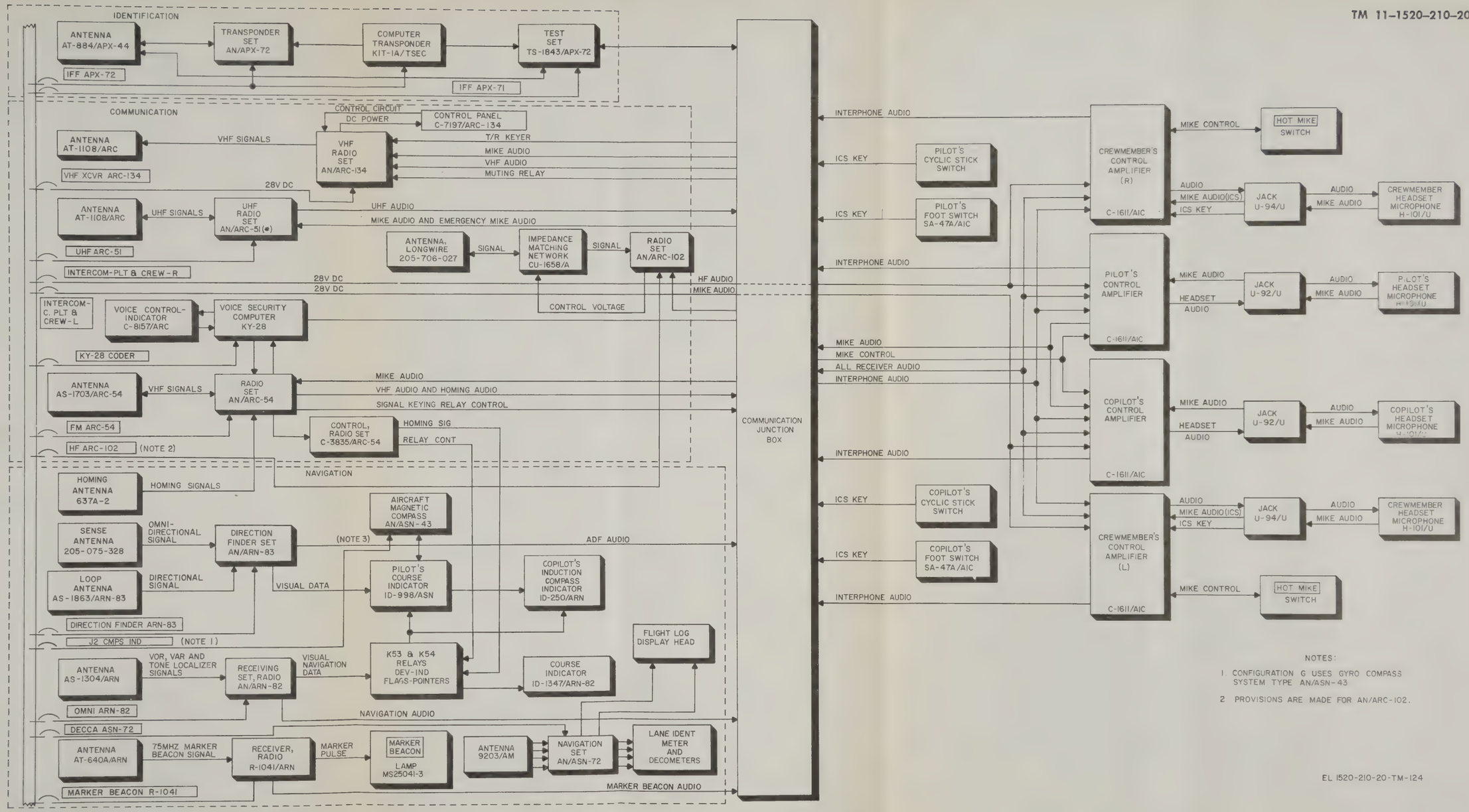
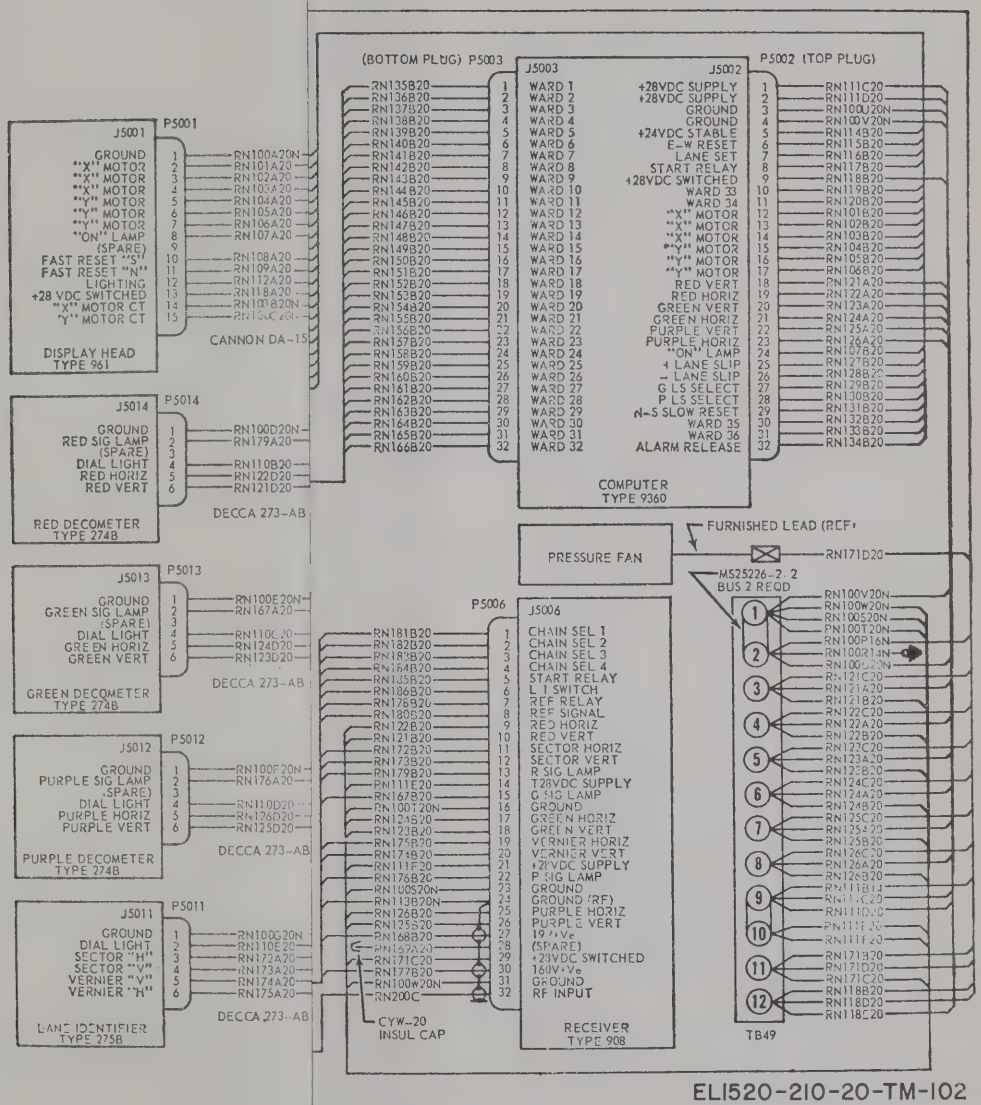
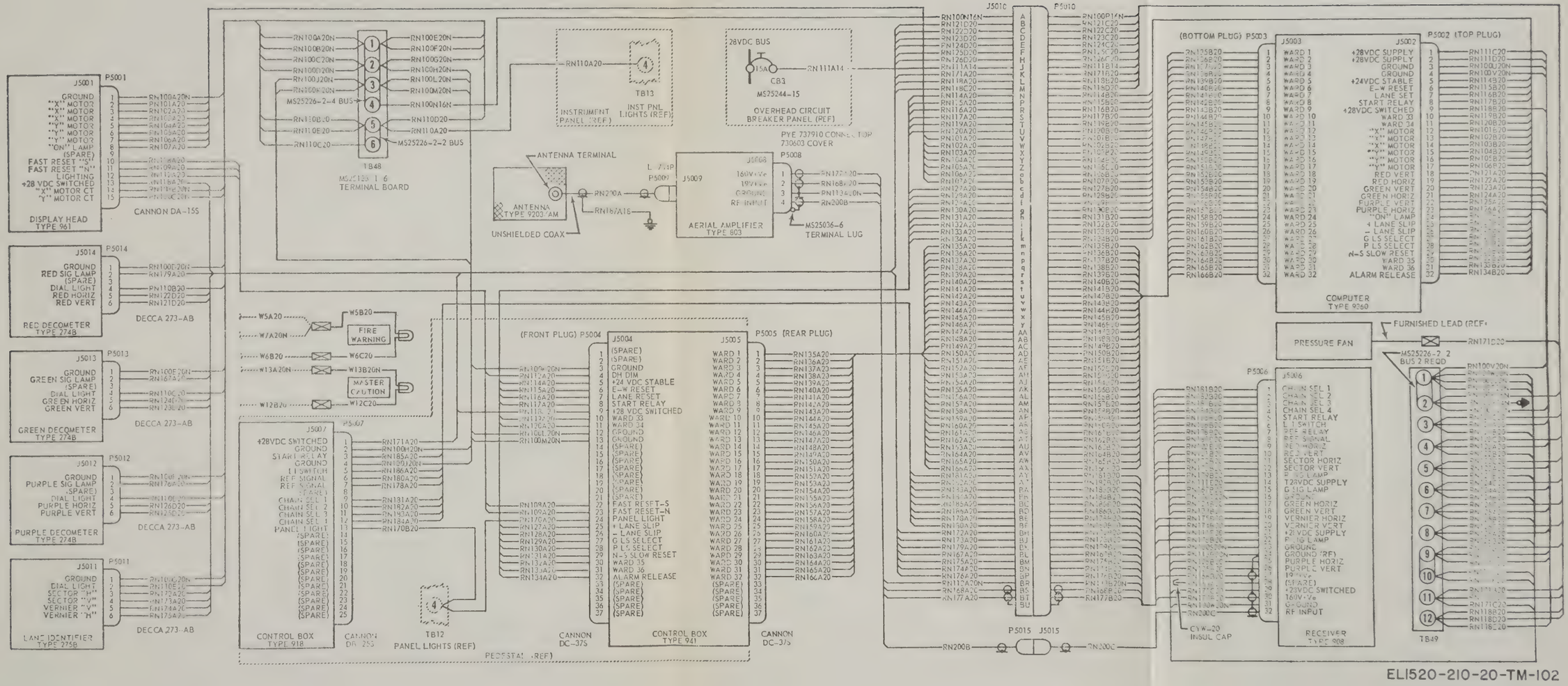


Figure FO–19. Configurations I and J, block diagram.



ELI520-210-20-TM-102



ELI520-210-20-TM-102

Figure FO-20. Navigation Set, Position Fixing AN/ASN-72 facility, wiring diagram.

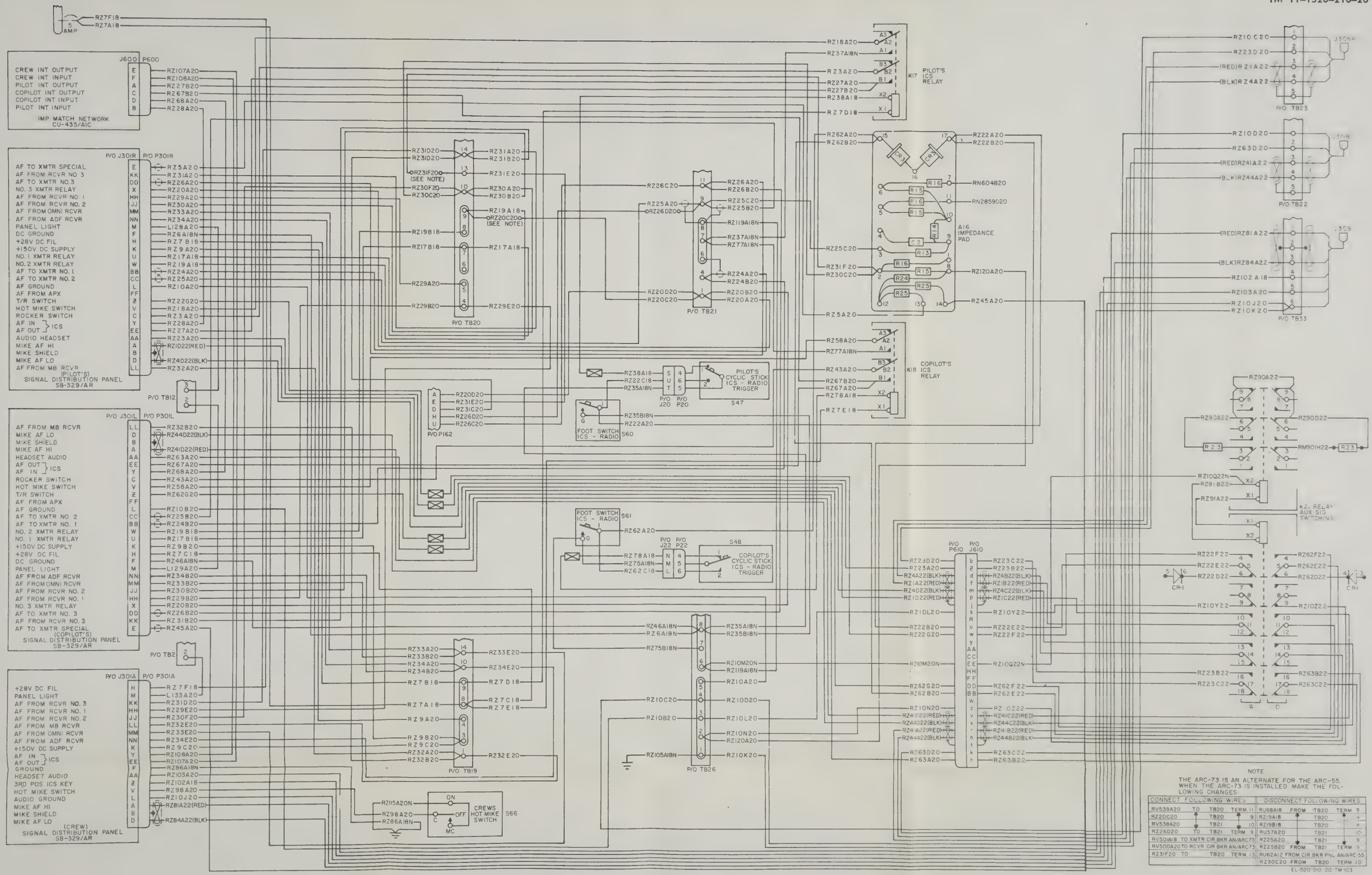
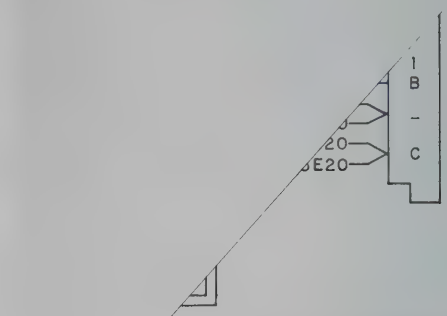


Figure FO–21. Interunit circuitry, wiring diagram, SB–329/AR, configurations A and B.



EL 1520-210-20-TM-104

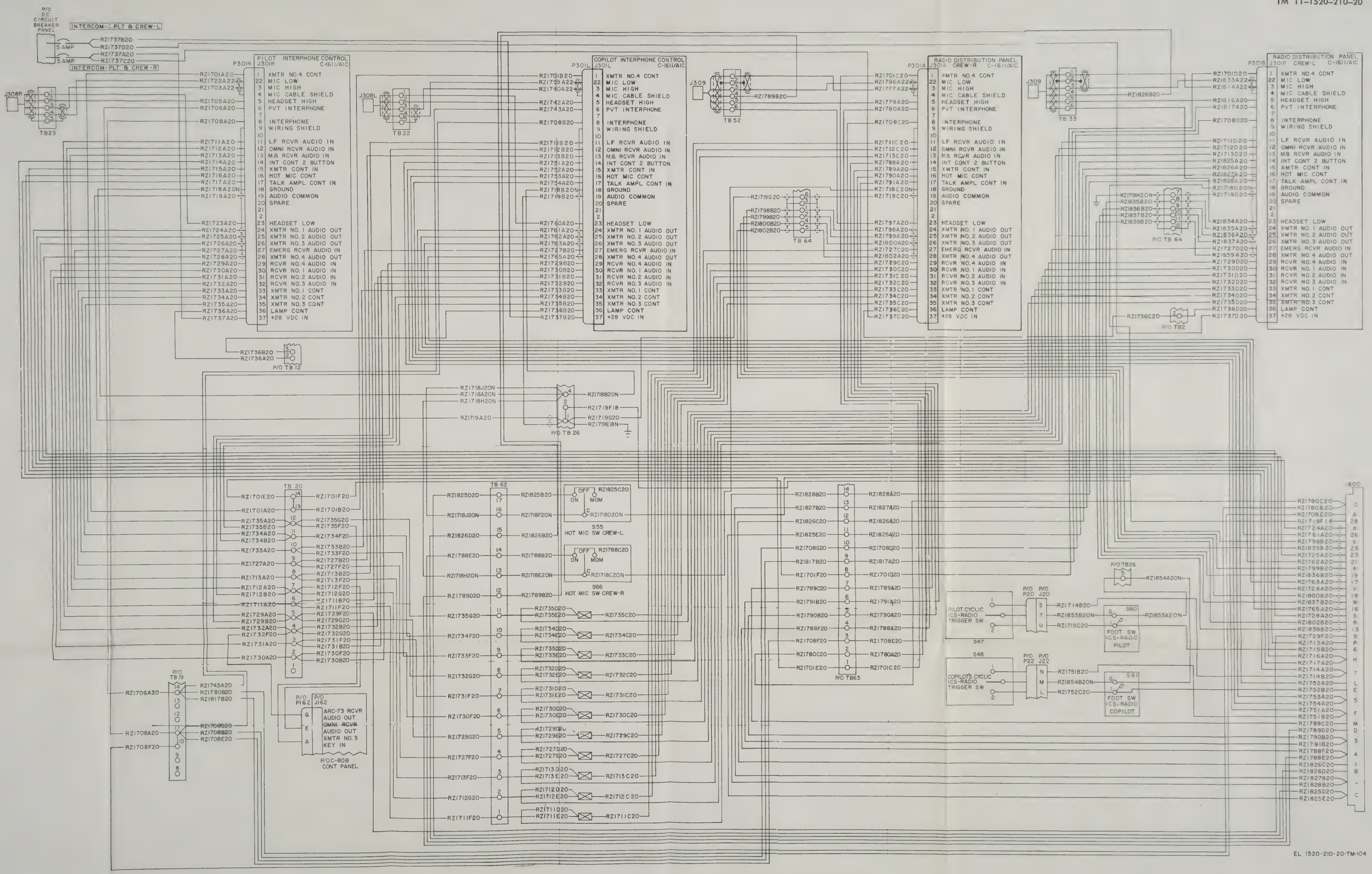


Figure FO–22. Intercommunications Control Set C–1611/AIC, interunit circuitry, wiring diagram, configurations C through E.

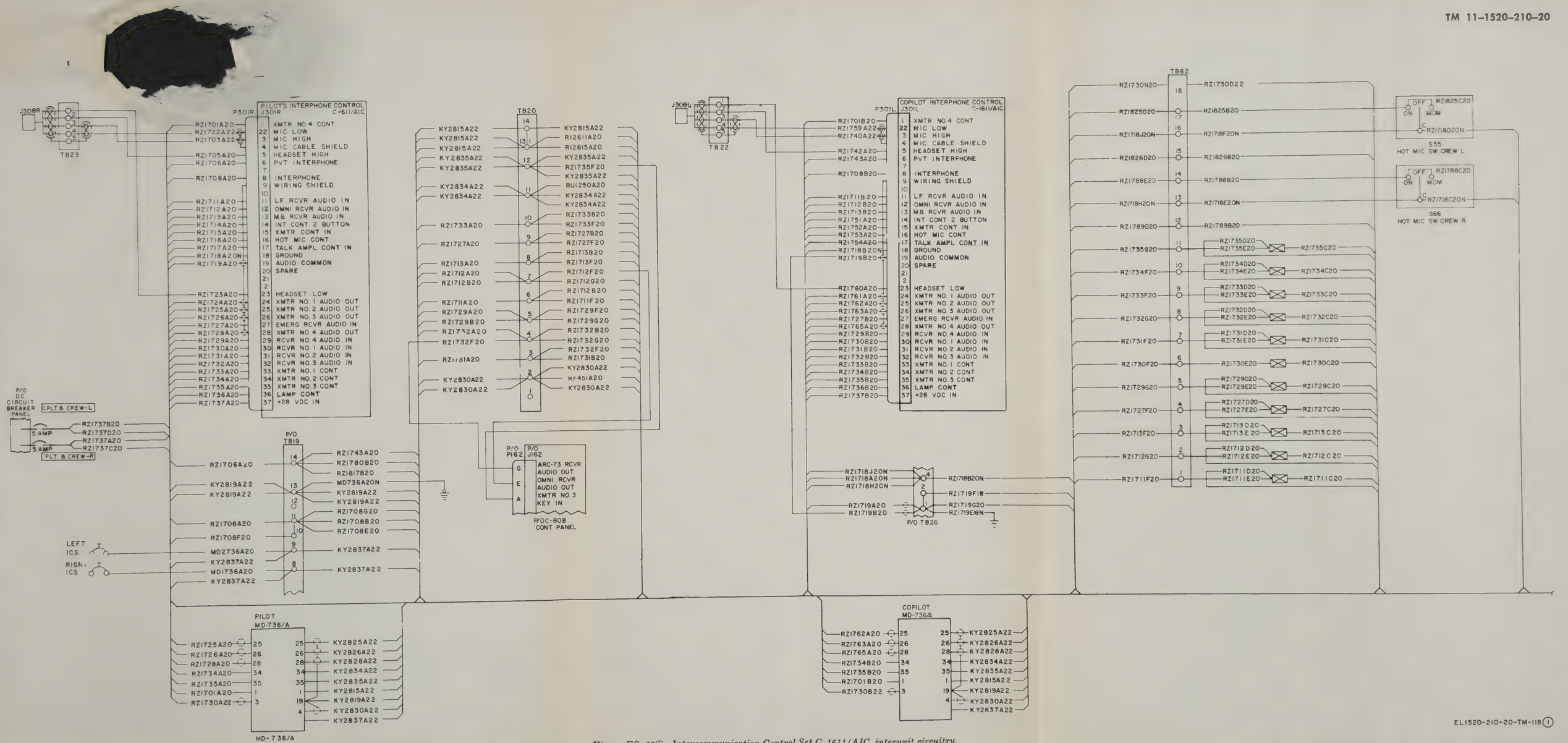


Figure FO-23①. Intercommunication Control Set C-1611/AIC, interunit circuitry, wiring diagram, configurations F through I (part 1 of 2).

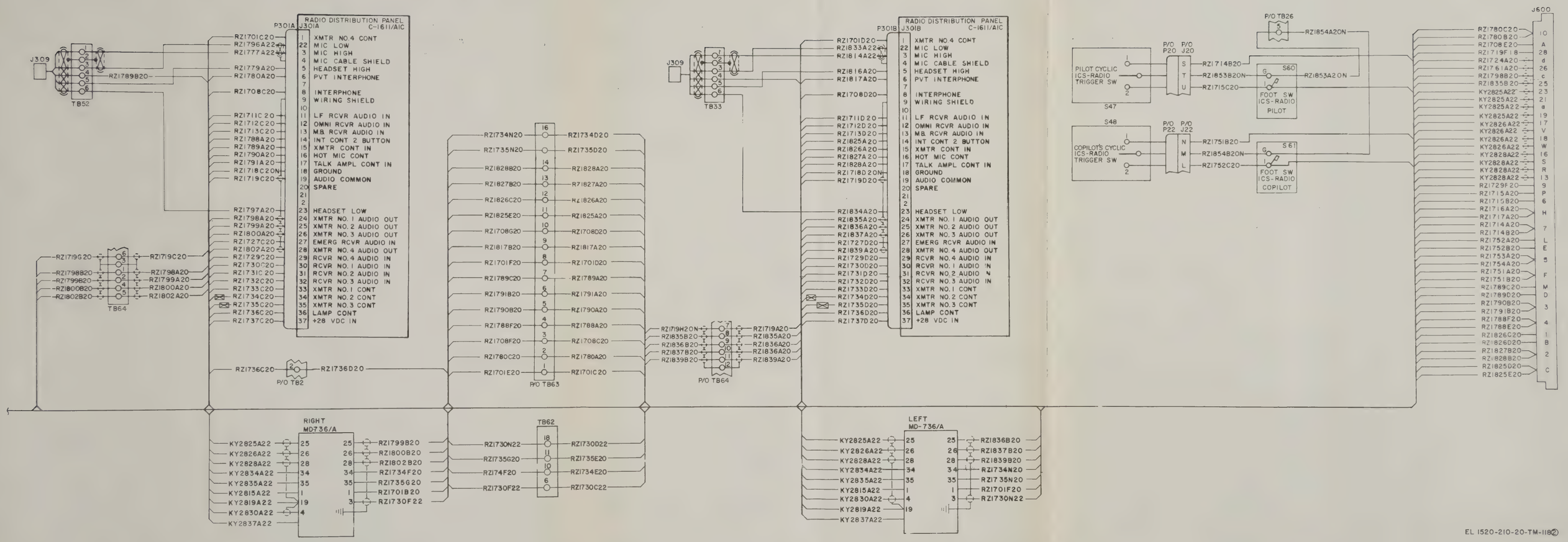


Figure FO-23②. Intercommunication Control Set C-1611/AIC, interunit circuitry, wiring diagram, configurations F through I (part 2 of 2).

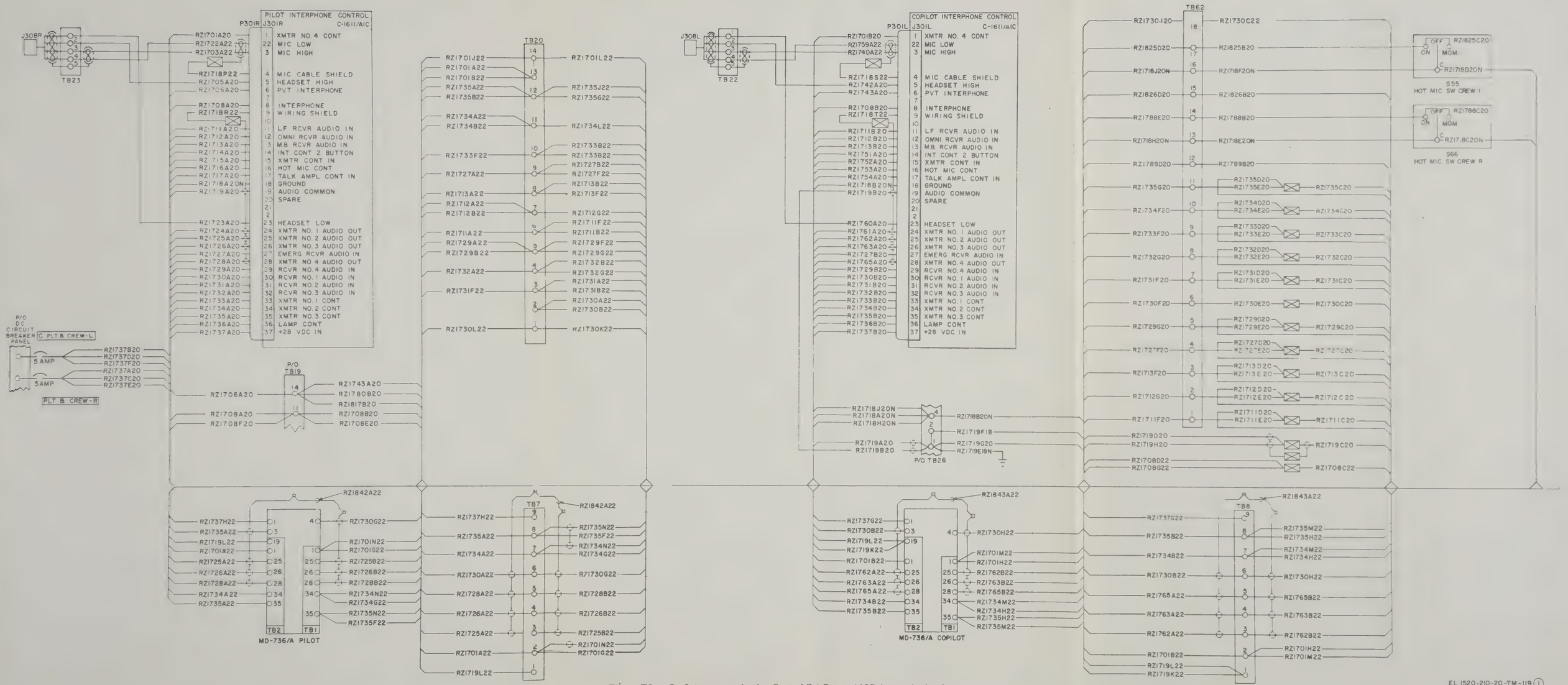


Figure FO-24①. Intercommunication Control Set C-1611/AIC, interunit circuitry, wiring diagram, configuration J (part 1 of 2).

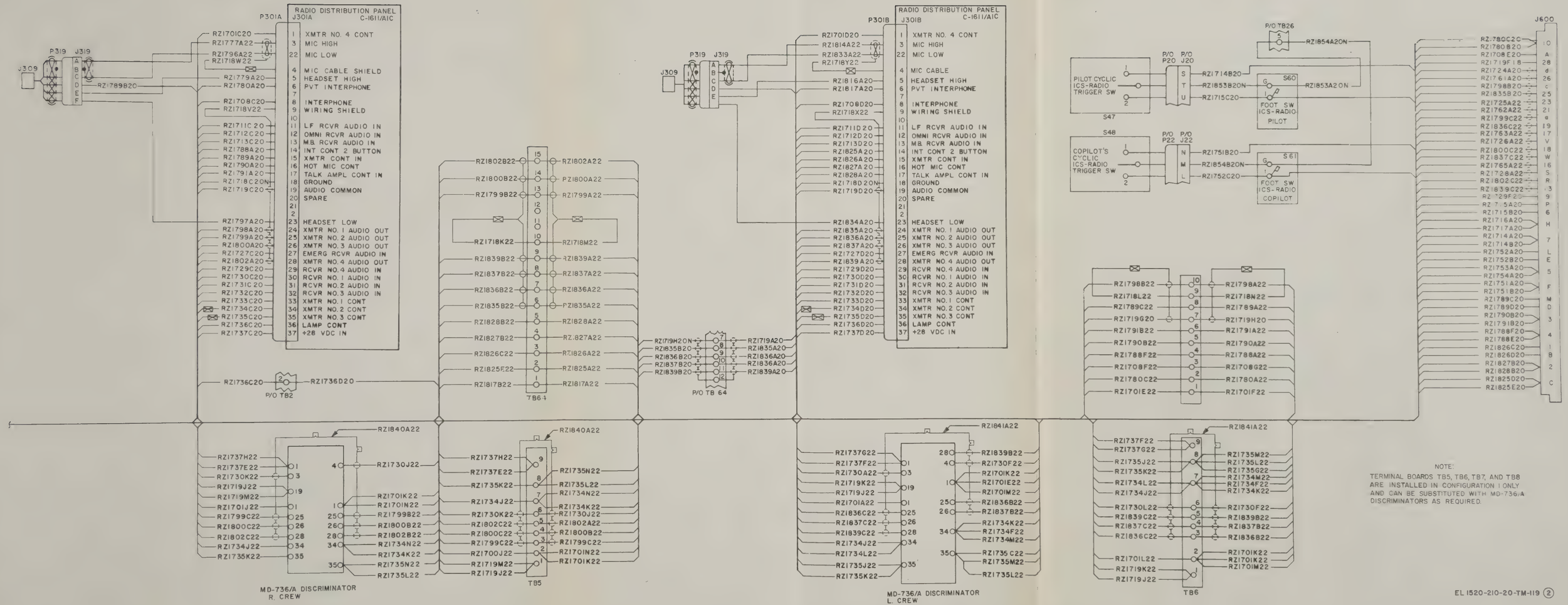


Figure FO-24②. Intercommunication Control Set C-1611/AIC, interunit circuitry, wiring diagram, configuration J (part 2 of 2).

P/O DC CIRCUIT BREAKER PANEL — LF NAV ADF — 5 AMP — RN5379A20

P/O AC CIRCUIT BREAKER PANEL — COURSE IND — 26V AC 400~ØC — 2 AMP — RN5390A20

LOOP ANT INPUT — J404 P404

SENSE ANT INPUT (150 UUF INPUT) — J406 P406 — A B C D E F — RN5395A

P/O J407 P/O P407

GRD	36	RN5361A20
BAND 1	30	RN5362A20
BAND 2	31	RN5363A20
BAND 3	32	RN5364A20
ADF	12	RN5365A20
ANT	13	RN5366A20
LOOP	14	RN5367A20
TUNING X	9	RN5368A22
TUNING Y	10	RN5369A22
TUNING Z	11	RN5370A22
LOOP CONTROL BRG INCR	27	RN5373A20
LOOP CONTROL COMM	28	RN5372A20
LOOP CONTROL BRG DECR	29	RN5371A20
RF SENSE CW	33	RN5374A22
RF SENSE ARM	34	RN5375A22
RF SENSE CCW	35	RN5376A22
BFO	15	RN5377A20
TUNING METER	22	RN5378A20
AUDIO HI	23	RN5386A22
AUDIO LO	24	RN5387A22
+28V DC IN SWITCHED	26	RN5388A20
26V AC TUNING (INPUT)	8	RN5390C20
	18	RN5390D20
BEARING DATA Z	21	RN5391A20N
BEARING DATA Y	20	RN5392A20
BEARING DATA X	19	RN5393A20
BEARING DATA C	17	RN5389B20N
AC GRD	16	RN5389C20N

R-1391/ARN-83 RECEIVER
MT-3605/ARN-83 MOUNT

P/O P600 P/O J600

RZ1719F18	28	AUDIO COMMON
RN5384A22	8	R633 — R634
RN5384B20	J	

P/O IMPEDANCE PAD

P/O TB20 — ADF 6 AF — TO C-1611/AIC DISTRIBUTION PANELS

AS-1863/ARN-83 ANTENNA — P402 J402 — CORRECTOR PN 522-3176-004

RN5395A

P/O TB 12 — RN5383A20, RN5382A20

204-075-325 ANTENNA ADF SENSE — J401 P401

P/O P302 P/O J302

RN5379A20	K	+28 V DC
RN5382A20	G	PANEL-DIAL LIGHTS
RN5383A20	b	PANEL-DIAL LIGHTS
RN5384A22	W	CONTROLLED AUDIO
RN5385A22	V	CONTROLLED AUDIO TO INTERPHONE
RN5361B20N	M	GRD
RN5362A20	q	1 BAND
RN5363A20	r	2 BAND
RN5364A20	s	3 BAND
RN5365A20	m	ADF
RN5366A20	n	ANTENNA
RN5367A20	p	LOOP
RN5368A22	X	TUNING
RN5369A22	Y	TUNING
RN5370A22	Z	TUNING
RN5373A20	k	BRG DECR
RN5372A20	j	COMM
RN5371A20	i	BRG INCR
RN5374A22	f	CW RF SENSE
RN5375A22	g	ARM RF SENSE
RN5376A22	h	CCW RF SENSE
RN5377A20	F	BFO
RN5378A20	t	TUNING METER
RN5386A22	T	HI AUDIO
RN5387A22	U	LO AUDIO
RN5388B20	L	+28V DC SWITCHED
RN5390F20	J	26V AC
	a	GRD

C-6899/ARN-83 DIRECTION FINDER CONT.

RN5361C20N — RN5361A20N — RN5390B20 — RN5389A20N

P/O TB 26 AC & DC GRD BUS — 11 — L127B14N

RN5389B20N — RN5389C20N — RN5389A20N — RN5361C20N

P/O TB 1 — ADF 9 X — ADF 8 Y

P/O J403 P/O P403

SWITCHED TO POINTER NO. 1 26V AC	53	RN5390G20
SWITCHED TO POINTER NO. 1 STATOR-Y	32	RN5393C20
SWITCHED TO POINTER NO. 1 STATOR-X	31	RN5392C20
ADF-1 IN THRU SW TO POINTER NO. 1 STATOR-X	22	RN5392B20
ADF-1 IN THRU SW TO POINTER NO. 1 STATOR-Y	23	RN5393B20
ADF-1 IN THRU SW TO POINTER NO. 1 26V AC	27	RN5390E20

ID-998/ASN COURSE IND

P/O P409 P/O J409

RN5390G20	M	ROTOR POINTER NO. 1 ADF SYNCHRO
RN5393C20	P	STATOR-Y POINTER NO. 1 ADF SYNCHRO
RN5392C20	N	STATOR-X POINTER NO. 1 ADF SYNCHRO

ID-250/ARN COURSE IND

ELI520-210-20-TM-105

Figure FO-25. Adf navigation facility, wiring diagram, configurations F and G.

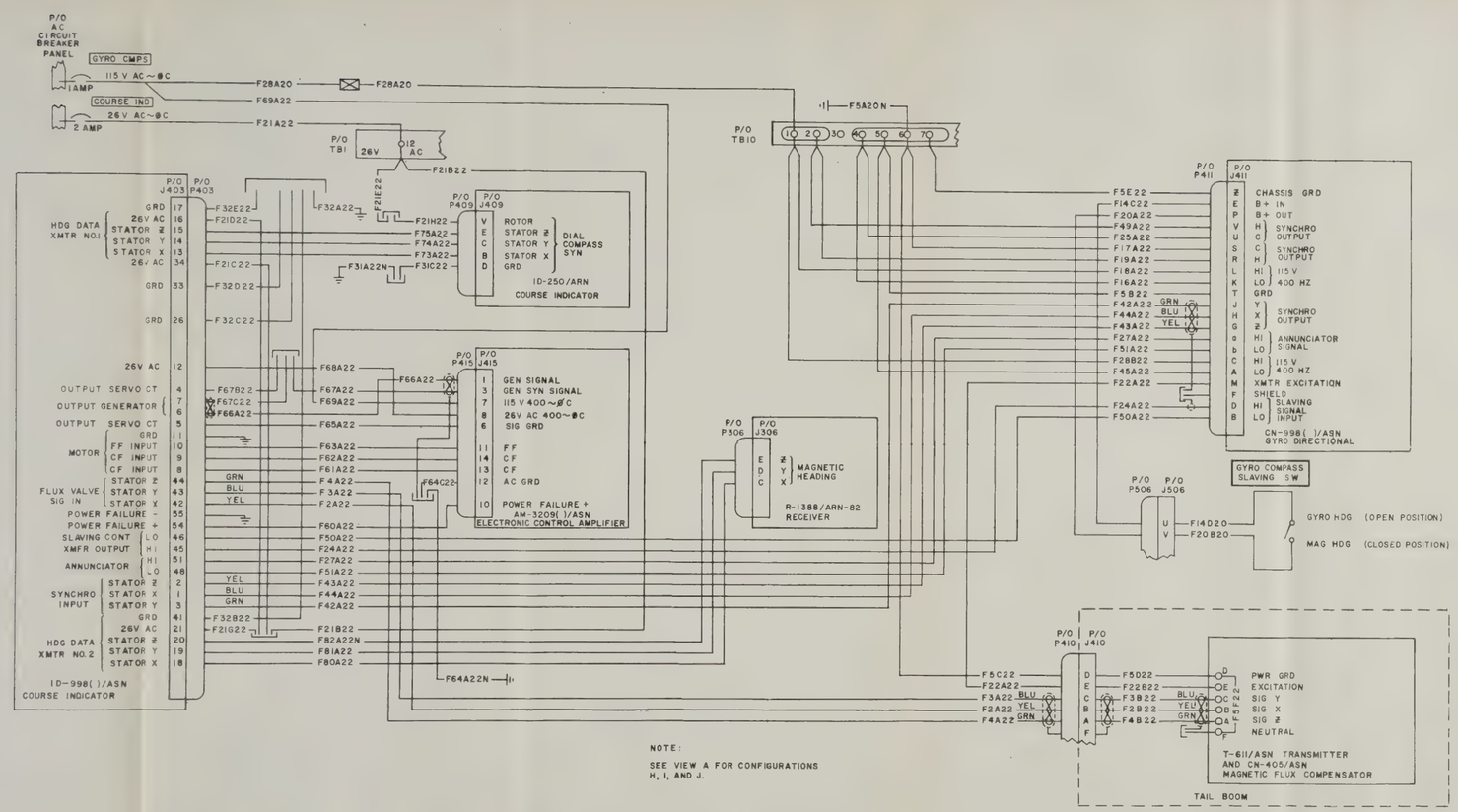
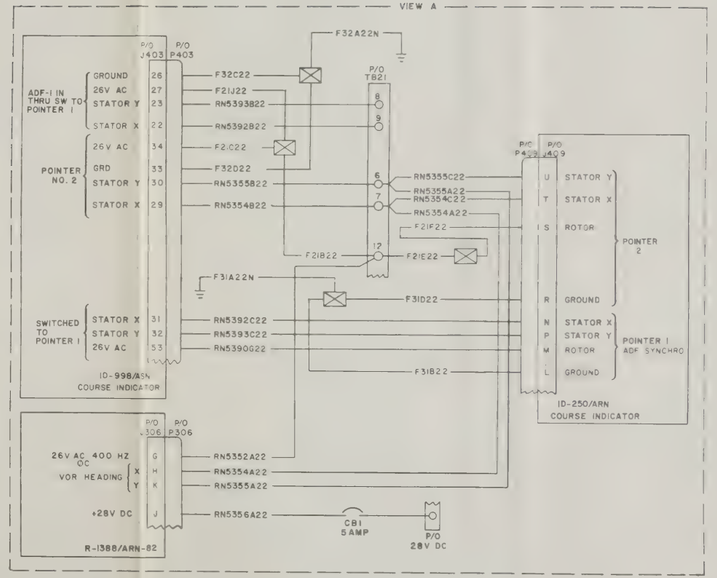
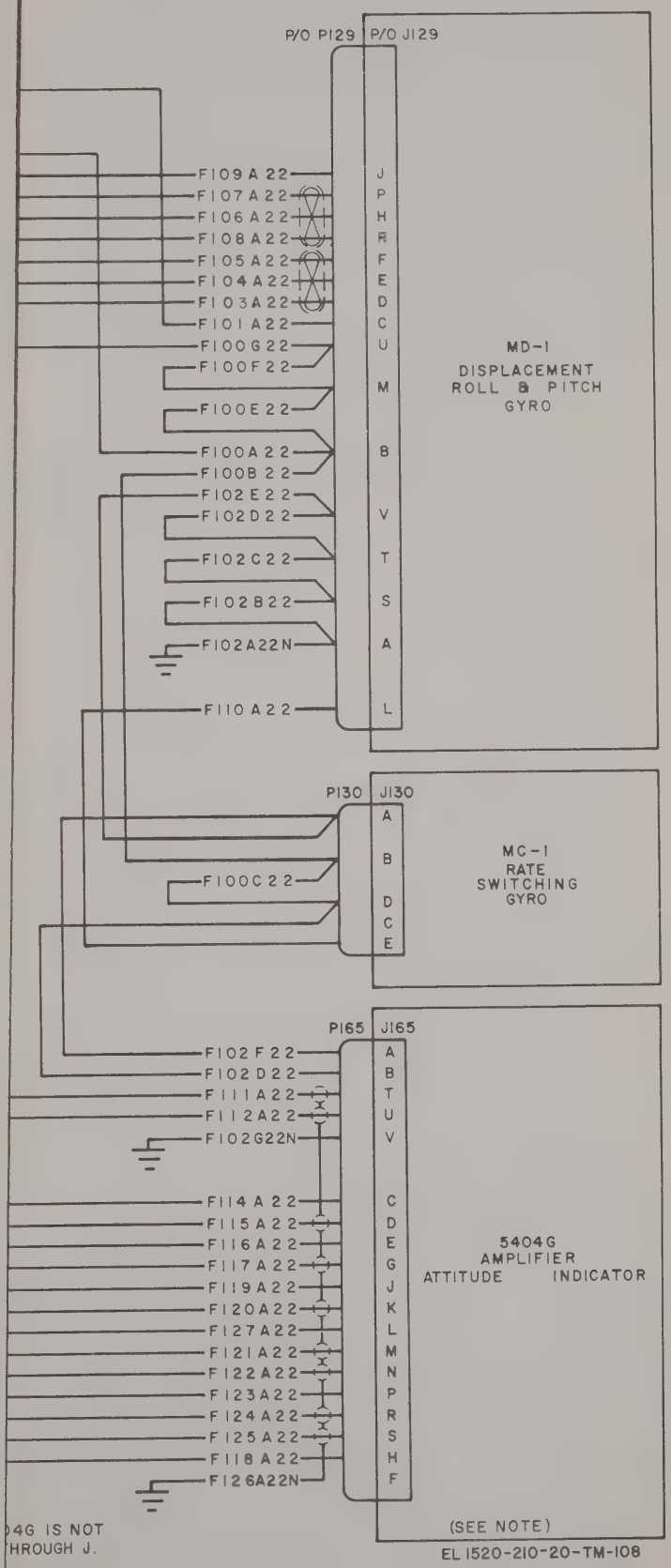


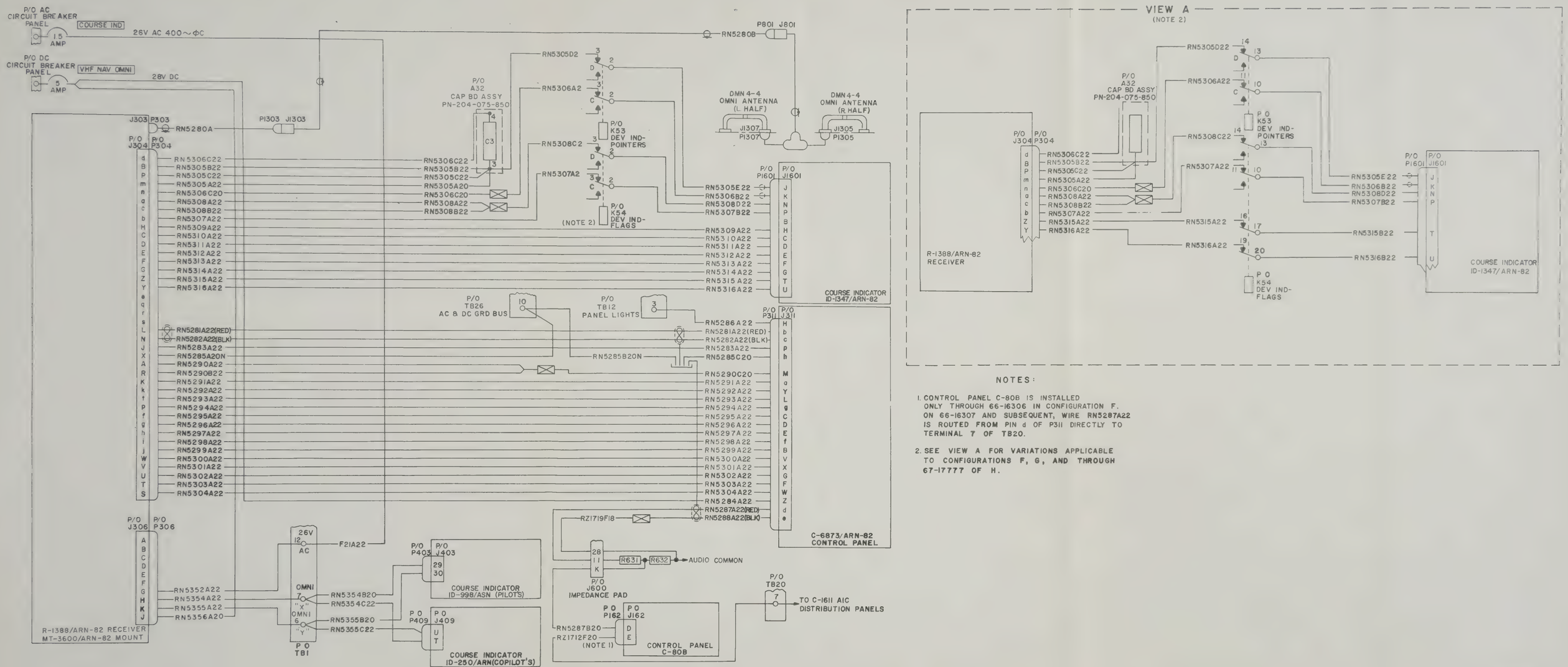
Figure FO-26. Gyromagnetic Compass Set AN/ASN-43, wiring diagram.





)4G IS NOT
THROUGH J.

m.



NOTES:

1. CONTROL PANEL C-808 IS INSTALLED ONLY THROUGH 66-16306 IN CONFIGURATION F. ON 66-16307 AND SUBSEQUENT, WIRE RN5287A22 IS ROUTED FROM PIN d OF P311 DIRECTLY TO TERMINAL 7 OF TB20.
2. SEE VIEW A FOR VARIATIONS APPLICABLE TO CONFIGURATIONS F, G, AND THROUGH 67-17777 OF H.

Figure FO-27. Radio Receiving Set AN/ARN-82, wiring diagram.

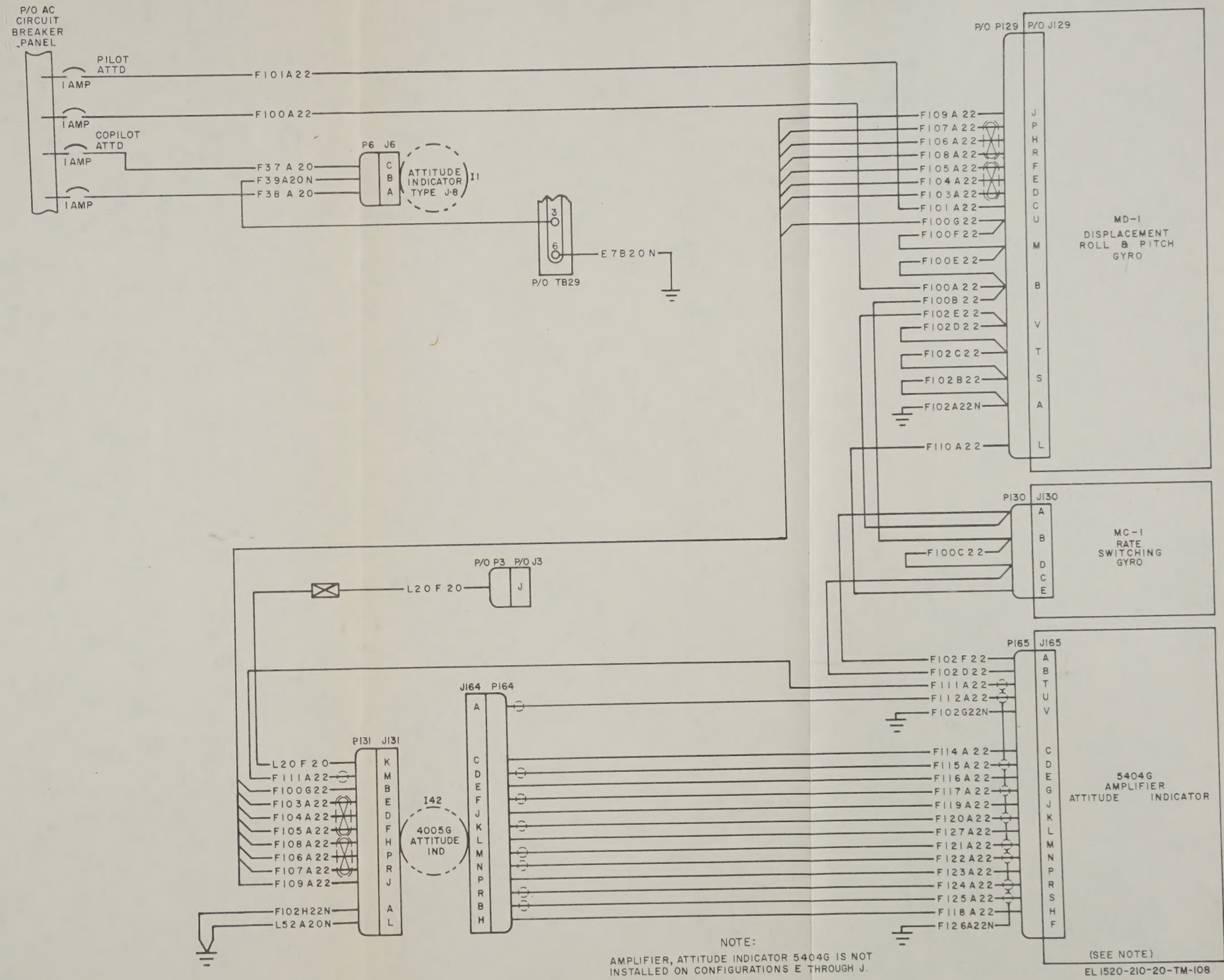


Figure FO-28. Attitude indicating system, wiring diagram.

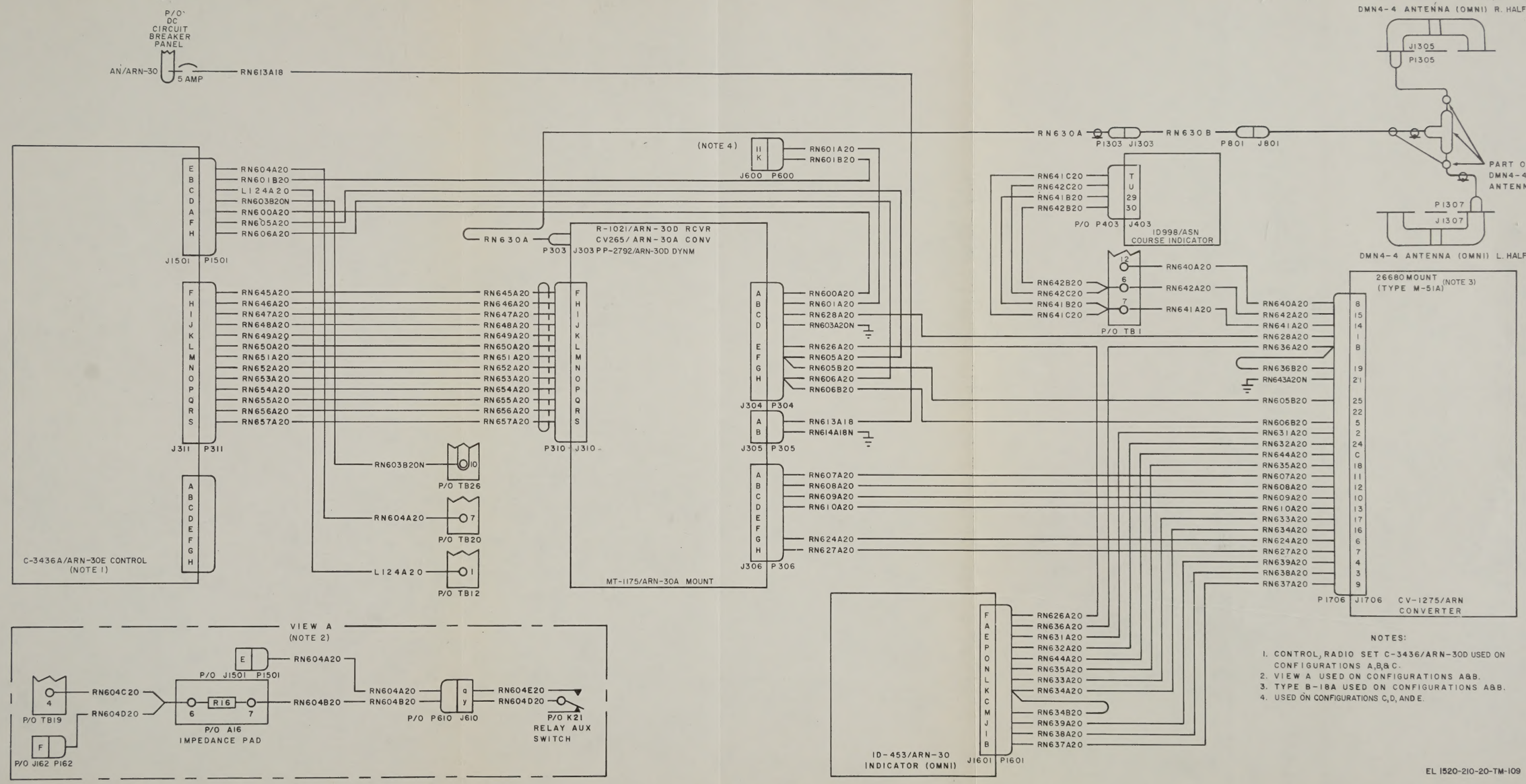


Figure FO-29. Radio Set AN/ARN-30, wiring diagram.

