

★

APPENDIX  
to  
TECHNICAL MANUAL  
for  
GENERAL PURPOSE TRANSMITTER  
MODEL SBT-1K(B)



THE TECHNICAL MATERIEL CORPORATION  
MAMARONECK, N.Y. OTTAWA, ONTARIO

★

**APPENDIX**  
**for**  
**GENERAL PURPOSE TRANSMITTER**  
**MODEL SBT-1K(B)**

TABLE OF CONTENTS

(APPENDIX - RACK AND ACCESSORIES, SBT-1K(B))

<u>Paragraph</u>		<u>Page</u>
1.	Introduction . . . . .	1
2.	Description of Equipment . . . . .	1
3.	Installation of APP-4, AX-198, and RAK-9B . . . .	3
4.	Parts Lists . . . . .	4
5.	Schematic Diagrams . . . . .	4

LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1.	Schematic Diagram, APP-4 . . . . .	16
2.	Schematic Diagram, AX-198 . . . . .	18

LIST OF TABLES

<u>Table</u>		<u>Page</u>
A.	Parts List, RAK-9B . . . . .	4
B.	Parts List, APP-4 . . . . .	9
C.	Parts List, AX-198 . . . . .	12

## APPENDIX

### RACK AND ACCESSORIES

#### 1. INTRODUCTION

This appendix contains technical information pertaining to the equipment rack and accessory units used in the SBT-1K(B) transmitter.

The units covered in this appendix are:

- a. Electrical Equipment Cabinet RAK-9B.
- b. Auxiliary Power Panel APP-4.
- c. RF Output Assembly AX-198.

#### 2. DESCRIPTION OF EQUIPMENT

a. ELECTRICAL EQUIPMENT CABINET RAK-9B. - RAK-9B is a standard relay-type rack providing an enclosure for the various modular units comprising the SBT-1K(B). The rack is equipped with four sets of tilt-lock drawer slides for mounting Amplifier RFD, Variable Frequency Oscillator VOX-5, Exciter Unit A-1516, and Control Unit PS-4; tracks are provided on the rack floor for installation of Power Supply PS-5. Reel-mounted springs are provided for retracting the wiring cables of slide-mounted units to prevent cable snagging. Cable access holes with removable cover plates are conveniently located on both sides, bottom, and rear of the rack for installation flexibility (refer to Section 2 of SBT-1K(B) system manual).

RAK-9B-B is a base-mounted rack; a separate base sits directly on the floor and the rack bolts to the base. RAK-9B-S is a shock-mounted rack which is mounted to the structure with six shock mounts, four at the bottom and two at the top.

RAK-9B contains a forced-air cooling system employing washable air filters. The exhaust blower for the cooling system is mounted on the lower portion of the rear door. Air intake is through the top of the rack.

Refer to Sections 1 and 2 of the SBT-1K(B) system manual for further information concerning RAK-9B.

b. AUXILIARY POWER PANEL APP-4. - Auxiliary Power Panel APP-4 distributes line voltage to various SBT-1K(B) modular units and facilitates connection of external equipment to the SBT-1K(B). Two individually fused utility outlets provide 115- or 230- vac (depending upon input power source) for external test equipment. Two terminal blocks (E501 and E502) are provided for connection of external equipment intended to function with the SBT-1K(B).

Refer to Sections 1 and 2 of the SBT-1K(B) systems manual for further information concerning the APP-4.

c. RF OUTPUT ASSEMBLY AX-198. - RF Output Assembly AX-198, containing Control Relay K602 and Antenna Relay K601, permits use of the SBT-1K(B) in a transmitter/receiver antenna system (refer to Section 4 of SBT-1K(B) system manual).

### 3. INSTALLATION OF APP-4, AX-198, AND RAK-9B

The APP-4 and AX-198 units are mounted in RAK-9B prior to shipment. Ensure that the APP-4 and AX-198 have not become loose during transit; secure units as required. Refer to Section 2 of the SBT-1K(B) system manual for information concerning the installation of RAK-9B and all other modular units.

### 4. PARTS LISTS

Reference designations have been assigned to identify all maintenance parts of the equipment. These designations are used for marking the equipment (adjacent to the part they identify) and are included on drawings, diagrams, and in the parts lists. Parts lists for RAK-9B, APP-4, and AX-198 are given in Tables A, B, and C respectively.

The TMC part number given in these tables is the number by which the part may be ordered.

5. SCHEMATIC DIAGRAMS

Schematic diagrams for the APP-4 and the AX-198 are given in figures 1 and 2 respectively.

TABLE A. PARTS LIST, RAK-9B

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
B601	FAN, AXIAL: 115 v, 50/60 cps; single phase, nominal rpm 1650; running capacitor 2 uf; full load watts 35; CW; 450 cfm at 60 cps; 8 in. blade with fan guard.	Rack Cooling	BL-101
C613	CAPACITOR, FIXED, PAPER DIELECTRIC: 2 uf, ±10%; 600 vdcw.	Phase Shift Capacitor	CP53B1FF205K
CP609	ADAPTER, CONNECTOR: RF type; 1 male and 1 female contact; right angle HN to HN.	CU-2-50/U Input Adapter	UG-212C/U
CP610	Same as CP609.	CU-2-50 Output Adapter	
CP612	ADAPTER, CONNECTOR: RF type; 2 round male contacts; straight type; HN to UHF.	CU-2-50/U Input Adapter	SA-103
CP613	Same as CP612	CU-2-50/U Output Adapter	
CP615	ADAPTER, CONNECTOR: RF type; two round female and one male contact; tee type; BNC to BNC; (supplied as a loose item).	VOX Output Adapter	UG-274/U
E601	TERMINAL BOARD: barrier type; two double screw terminals, 6-32 thd; phenolic type.	Blower Voltage Terminal Bd.	TM-101-2
E604	TERMINAL BOARD: fanning type; 11 angle type terminals, left end feed; part of symbol no. W610.	PS-4 Control Voltage Output	TM-105-11AL
E605	TERMINAL BOARD: fanning type; 14 angle type terminals; right end feed.	P/O W609	TM-105-14AR

TABLE A. PARTS LIST, RAK-9B (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
J601	CONNECTOR, RECEPTACLE, ELECTRICAL: twist locking type; 3 half round, male contacts; straight type; part of symbol no. W612.	AC Input	JJ-194-NG
J602	CONNECTOR, RECEPTACLE, ELECTRICAL: twist locking type; 2 half round, male contacts; straight type.	Utility AC Line Input	JJ-100
J603	CONNECTOR, RECEPTACLE, ELECTRICAL: 4 round #16 female contacts; straight type.	Blower Interconnect	MS3102A14S-2S
J604	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round #12 female contact; straight type; part of symbol no. W605.	P/O W605	MS3102A18-16S
J605	CONNECTOR, RECEPTACLE, ELECTRICAL: 35 round female contacts; 28 #16 contacts, 7 #12 contacts; straight type; part of symbol no. W606.	Power & Control Interconnect	MS3102A32-7S
J612	CONNECTOR, RECEPTACLE, ELECTRICAL: twist lock type; 2 half round, straight female contacts; supplied with mounting brackets and hardware.	AC Outlet	JJ-170
J613	Same as J612.	AC Outlet	
J614	Same as J613.	AC Outlet	



TABLE A. PARTS LIST, RAK-9B (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
MP601	FILTER, AIR CONDITIONING: replaceable type; filtering medium, steel mesh; steel frame; capacity 640 cfm; o/a dimensions 10-1/8 x 9-7/8 x 1/2".	Air Filter	AD-103-9
MP602	FILTER, AIR CONDITIONING: replaceable type; filtering medium, steel mesh; steel frame; capacity 640 cfm; o/a dimensions 16-7/8 x 7-5/8 x 1/2".	Air Filter	AD-103-5
P601	CONNECTOR, PLUG, ELECTRICAL: twist lock type; 3 half round female contacts straight type; part of symbol W611.	AC Input	PL-134-NG
P603	CONNECTOR, PLUG, ELECTRICAL: 4 round #16 male contacts; angle type.	Blower Interconnect	MS3108A14S-2P
P604	CONNECTOR, PLUG, ELECTRICAL: RF type; 1 round male coaxial contact; straight type; series BNC to BNC.	Signal Input	UG-260/U
P606	CONNECTOR, PLUG, ELECTRICAL: RF type; 1 #33 male contact; straight type; (supplied as a loose item)	Antenna Plug	PL-150
P607	CONNECTOR, PLUG, ELECTRICAL: 14 female contacts; 14 #16 contacts; straight type; (supplied as a loose item).	P/O W610	MS3106B20-27S
P609	CONNECTOR, PLUG, MIL type MS3106B28-11P, male.	P/O W609	MS3106B28-11P
P611	Same as P604	P/O W607	
P612	Same as P608	Signal Input	

TABLE A. PARTS LIST, RAK-9B (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
P613	Same as P604.	P/O W608	
P614	CONNECTOR, PLUG, ELECTRICAL: 35 round male contacts; 28 #16 contacts, 7 #12 contacts, straight type; part of symbol no. W606.	Power and Control Interconnect	MS3106B32-7P
P615	CONNECTOR, PLUG, ELECTRICAL: 1 round male contact; 1 #12 contact; straight type; part of symbol no. W605.	HV Interconnect Plug	MS3106B18-16P
P620	CONNECTOR, PLUG, ELECTRICAL: twist lock type; 3 round female contacts; straight type; (supplied as a loose item).	AC Input Plug	PL-190-NG
P624	Same as P604 (supplied as a loose item)	Receiver Input (mates with J606 on AX-198)	
P627	CONNECTOR, PLUG, ELECTRICAL: twist lock type; 2 half round female contacts; straight type; with cable clamp; (supplied as a loose item).	Utility AC Input	PL-100
S601	SWITCH, PUSH-PULL: SPDT; 15 amps at 120,250 vac; .2 amps at 250 vdc.	Interlock	SW-230
S602	Same as S601.	Interlock	
W605	CABLE ASSEMBLY, POWER, ELECTRICAL: consists of, 96 in. high voltage wire; two connectors, symbol nos. J604, P615.	HV Interconnect Cable PS-5 to RFD	CA-490

TABLE A. PARTS LIST, RAK-9B (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
W606	CABLE ASSEMBLY, POWER, ELECTRICAL: consists of 76 in. of various colors of insulated stranded MIL type MWC wire; two connectors, symbol nos., J605, P614.	Power and Control Interconnect Cable RFD to PS-4	CA-491
W607	CABLE, RF: consists of RG-59/U coaxial cable, P611 and P612, 78 in. long.	RF Interconnect Cable; SBE-2 to RFD.	CA-383-78C
W608	CABLE, RF: consists of RG-59/U coaxial cable, P604 and P613, 49 in. long.	RF Interconnect cable; VOX-5 to SBE-2.	CA-480-6-49
W609	CABLE, SPECIAL PURPOSE; consists of, 11 lengths of insulated stranded MIL type MWC wire; one connector, symbol number P609; 48 inches long.	Interconnect cable; APP-4 to SBE-2	CA-507-1
W610	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECT., BRANCHED: consists of, various colors and lengths of insulated stranded MIL type MWC and HWC wire; one connector, symbol no., P607; one terminal board, symbol no., E604.	Power/Control Cable	CA-506
W611	CABLE ASSEMBLY, POWER, ELECTRICAL: consists of, 60 in. of black HWC14(19)UO; WH/BLK HWC10(37)U90; white HWC10(37)U9 insulated cable; one connector, symbol no., P601; 3 terminal lugs.	AC Line Input to PS-4	CA-509
W612	CABLE ASSEMBLY, POWER, ELECTRICAL: consists of, 31 in. of black HWC14(19)UO; WH/BLK/HWC10(37)U90; white HWC10(37)U9 insulated cable; one connector, symbol no., J601; 3 terminal lugs.	AC Input to APP-4	CA-493

TABLE B. PARTS LIST, APP-4

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C501	CAPACITOR, feed-thru type: 1000 uuf, $\pm 20\%$ , 500 wvdc, char. A.	RF Bypass	CK70A102M
C502	Same as C501.	RF Bypass	
C503	Same as C501.	RF Bypass	
C504	Same as C501.	RF Bypass	
C505	Same as C501.	RF Bypass	
C506	Same as C501.	RF Bypass	
C507	Same as C501.	RF Bypass	
C508	Same as C501.	RF Bypass	
C509	Same as C501.	RF Bypass	
C510	Same as C501.	RF Bypass	
C511	Same as C501.	RF Bypass	
C512	Same as C501.	RF Bypass	
C513	Same as C501.	RF Bypass	
C514	Same as C501.	RF Bypass	
C515	Same as C501.	RF Bypass	
C516	Same as C501.	RF Bypass	
C517	Same as C501.	RF Bypass	
C518	Same as C501.	RF Bypass	
C519	Same as C501.	RF Bypass	
C520	Same as C501.	RF Bypass	
C521	CAPACITOR, fixed: mica; .01 uf, $\pm 10\%$ , char. B, 300 wvdc.	Filter	CM35B103K
C522	Same as C521.	Filter	

TABLE B. PARTS LIST, APP-4 (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C523	Same as C521.	Filter	
C524	Same as C521.	Filter	
CB501	CIRCUIT BREAKER, dual, companion trip; 15 amp, curve 5, 230 VAC operation	Main Power	SW-261
E501	TERMINAL, strip: barrier lug type; 16 terminals, base material black bakelite.	Terminal Board Rear Apron	TM-100-16
E502	Same as E501.	Terminal Board Rear Apron	
F501	FUSE, cartridge: hi-rating 250 v, 15 amps.	Utility Outlet	FU-103-15
F502	Same as F501.	Utility Outlet	
I501	LAMP, incandescent: double contact; 120 volts, 3 watts, S-6 clear bulb; bayonet base.	Main Power Indicator	BI-102-3
J501	CONNECTOR, receptacle: AN socket; 22 contacts.	Power Connector	MS3102A-28-11S
J502	PLUG, receptacle: U-shape grounding type - 3 prongs.	Utility Outlet	JJ-173
J503	Same as J502.	Utility Outlet	
L501	COIL, R.F.: fixed; 2.5 millihenries.	RF Choke	CL-140-2
L502	Same as L501.	RF Choke	
L503	Same as L501.	RF Choke	
L504	Same as L501.	RF Choke	
L505	Same as L501.	RF Choke	
L506	Same as L501.	RF Choke	
L507	Same as L501.	RF Choke	

TABLE B. PARTS LIST, APP-4 (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
L508	Same as L501.	RF Choke	
L509	Same as L501.	RF Choke	
L510	Same as L501.	RF Choke	
L511	Same as L501.	RF Choke	
L512	Same as L501.	RF Choke	
L513	Same as L501.	RF Choke	
L514	Same as L501.	RF Choke	
L515	Same as L501.	RF Choke	
L516	Same as L501.	RF Choke	
L517	Same as L501.	RF Choke	
L518	Same as L501.	RF Choke	
L519	Same as L501.	RF Choke	
L520	Same as L501.	RF Choke	
L521	COIL, R.F.: 2 microhenries, $\pm .1$ microhenry, $Q=200$ at 7.9 mc.	Filter Choke	CL-269
L522	Same as L521.	Filter Choke	
R501	SHUNT ASSY., .0042 ohms, +5% -1%; 20 amps at 115 VAC.	Shunt Input	AR-132
R502	Same as R501.	Shunt Input	
R503	SHUNT ASSY., .075 ohms, $\pm 10\%$ , 5 amps at 115 VAC.	Shunt Input	AR-133
R504	Same as R503.	Shunt Input	
R505	RESISTOR, fixed: wire wound; 5000 ohms, $\pm 5\%$ , 10 watts.	Shunt	RW-109-32

TABLE B. PARTS LIST, APP-4 (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
XF501	FUSE, extractor post: end terminal is removable.	F501 Socket	FH-100-1
XF502	Same as XF501.	F502 Socket	
XI501	SOCKET, lens: red; for bayonet base using S6 bulb.	1501 Socket	TS-124-1

TABLE C. PARTS LIST, AX-198

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C601	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10,000 uuf; GMV; 500 vdcw.	Bypass	CC-100-16
C602	Same as C601.	Bypass	
C603	Same as C601.	Bypass	
C604	Same as C601.	Bypass	
C605	Same as C601.	Bypass	
C606	Same as C601.	Bypass	
C607	Same as C601.	Bypass	
C608	Same as C601.	Bypass	
C609	Same as C601.	Bypass	
C610	Same as C601.	Bypass	
C611	Same as C601.	Bypass	
C612	Same as C601.	Bypass	
CP601	ADAPTER, CONNECTOR: RF type; 1 male and 1 female contact; angle type; series UHF to UHF.	Receiver Input Adapter	UG-646/U
CP602	Same as CP601.	Receiver Input Adapter	
CP603	Same as CP601.	Antenna Adapter	
CP604	Same as CP601.	Transmitter Output Adapter	

TABLE C. PARTS LIST, AX-198 (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
CP605	Same as CP601.	Antenna Adapter	
CP606	ADAPTER, CONNECTOR: RF type; 2 round male contacts; straight type UHF to UHF.	Transmitter Output Adapter	SA-104
CP607	Same as CP606.	Relay Adapter	
E601	(See Table A)		
E602	CONTACT, ELECTRICAL: beryllium copper silver plated; spring loaded 3/4 x 1-1/8 x 3/4 over all.	Transmitter Output Contact	AX-154
E603	TERMINAL BOARD: barrier type; three single screw terminals and feed thru solder lugs 8-32thd; phenolic body.	Interlock Jumper Board	TM-100-3
J606	ADAPTER, CONNECTOR: RF type; 2 round female contact; straight type; series BNC to BNC.	Receiver Input Jack	UG-492A/U
J607	CONNECTOR, RECEPTACLE, ELECTRICAL: 14 #16 round male contacts; straight type	Power Input Jack	MS3102A-20-27P
J608	ADAPTER, CONNECTOR: RF type, two round female contacts; straight type series UHF to UHF	Coupler Jack	UG-307/U
J609	ADAPTER, CONNECTOR: RF type; 2 round female contacts 1 round female contact each end; straight type; series QDS to UHF	Antenna Jack	JJ-147
J610	Same as J608.	Coupler Jack	
J611	CONNECTOR, RECEPTACLE, ELECTRICAL: RF type; 1 round female contact; straight type; series UHF to UHF	Transmitter Jack	JJ-195



TABLE C. PARTS LIST, AX-198 (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
K601	RELAY, SOLENOID: coaxial type; coil rating, 220 vdc at 2 watts; auxiliary contacts, DPDT; transmit-receive contact, 1 KW power rating to 400 mc; c/o three 50 ohm UHF connectors	Antenna Relay	RL-139-4-220DC
K602	RELAY, ARMATURE: 10,000 ohm coil resistance; 115 VAC; contacts rated at 5 amps 115 V non-inductive	Control Relay	RL-116-AC-2C115
P605	(See Table A)		
P606	(See Table A)		
P608	(See Table A)		
P616	CONNECTOR, PLUG, ELECTRICAL: RF type; 1 round male coaxial contact; straight type; teflon dielectric	P/O W601	PL-259-A/TEF
P617	CONNECTOR, PLUG, ELECTRICAL: RF type; 1 round male coaxial contact; straight type; series BNC to BNC	P/O W602	UG-260/U
P618	Same as P616	P/O W602	
P619	Same as P616	P/O W601	
R601	RESISTOR, FIXED, WIRE-WOUND: 35,000 ohms; $\pm 5\%$ ; 10 watts with solder lug type terminals	Dropping Resistor	RW-109-40
S603	SWITCH, PUSH-PULL: SPDT; 15 amps at 120, 250 VAC; .2 amps at 250 vdc	Interlock Switch	SW-230

TABLE C. PARTS LIST, AX-198 (Cont)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
S604	SWITCH, SENSITIVE: SPDT; operating force 6 to 14 oz. release force, 4 oz. min.; 10 amps at 125/250 vac; 1/2 amp at 125 vdc	Interlock Switch	SW-189
W601	CABLE, ASSEMBLY, RADIO FREQUENCY: c/o 5-1/4" of RF cable RG-8/U and two connector plugs symbol no. P616,619	Interconnect Cable, Coupler Output Jack to Antenna Input Jack	CA-512-1-5. 25
W602	CABLE, ASSEMBLY, RADIO FREQUENCY: c/o 11-1/4" of RF cable RG-59/U and two connectors symbol no. P617,618	Interconnect Cable, Relay to Receiver Input	CA-383-11. 25C

FOR 230V AC OPERATION OF CB-501

1. REMOVE STRAP MARKED FROM TERMINAL 1, AND ATTACH TO TERMINAL 3.
2. " " " " " " " " 4, " " " " 6.
3. " " " " " " " " 7, " " " " 9

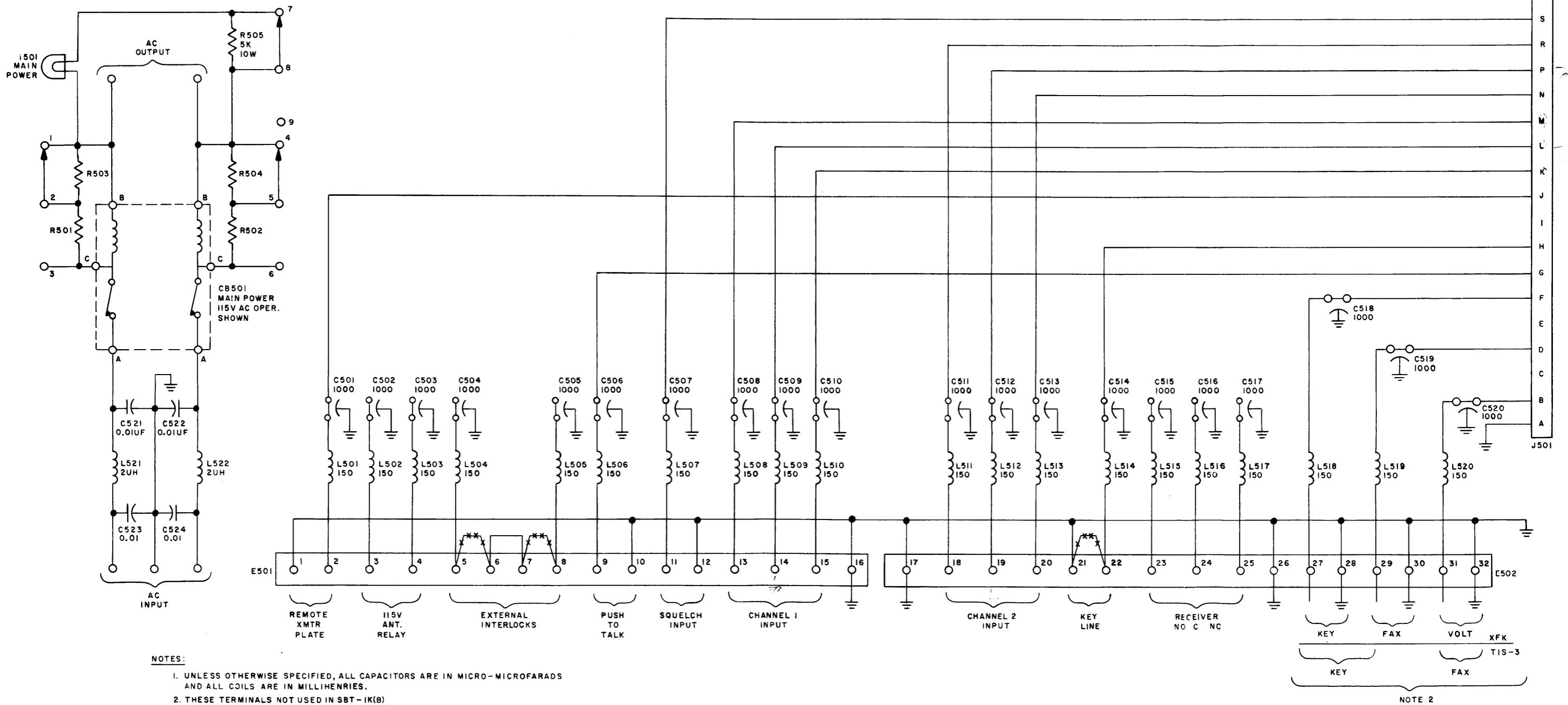


FIGURE 1. SCHEMATIC DIAGRAM, APP-4

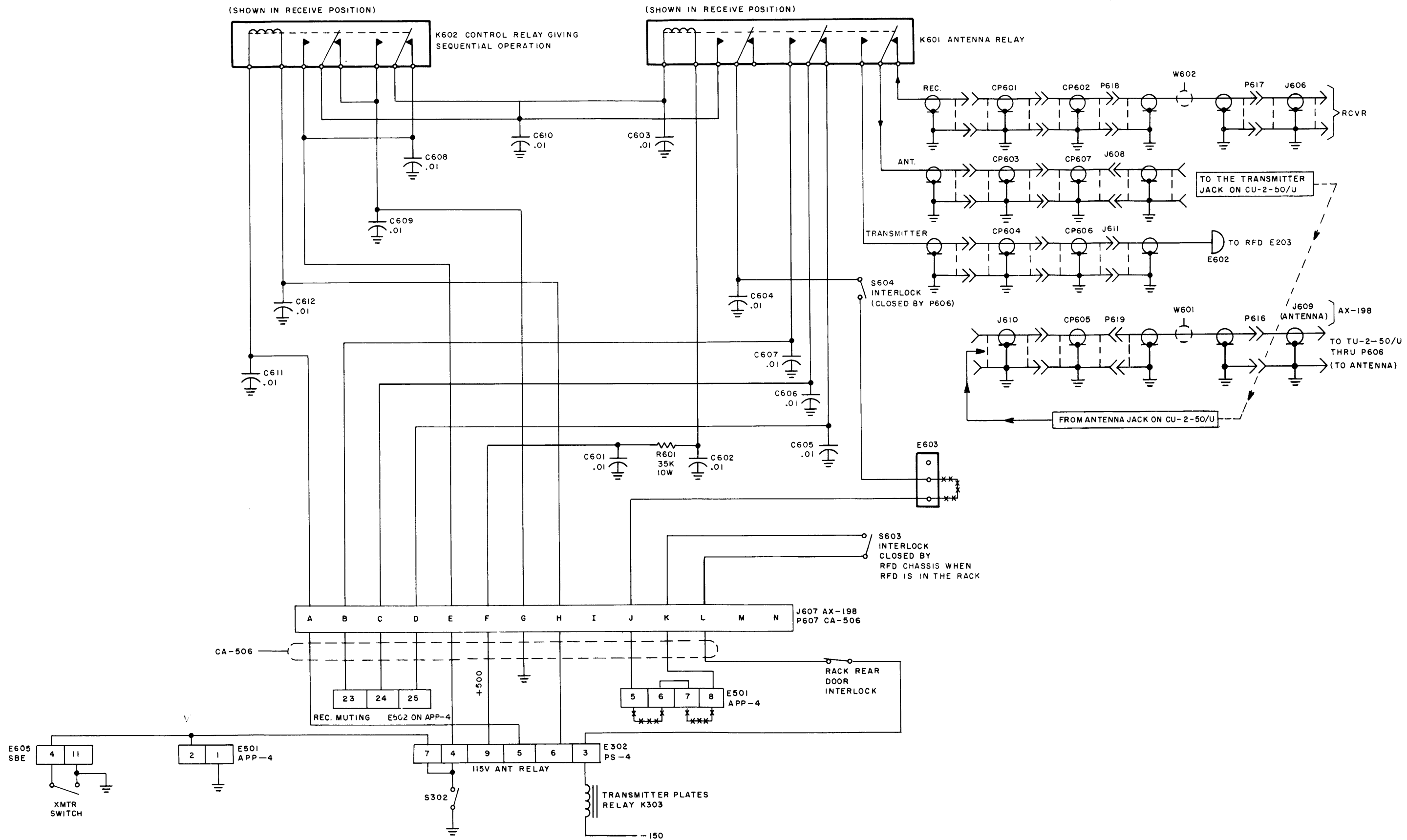


FIGURE 2. SCHEMATIC DIAGRAM, AX-198