

★
UNCLASSIFIED

TECHNICAL MANUAL

for

GENERAL PURPOSE RADIO

TRANSMITTER

MODEL SBT-1K(Q)

PART V

APPENDIX

RACK & ACCESSORIES



THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y.

OTTAWA, ONTARIO

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APPENDIX

RACK AND ACCESSORIES

V-1. INTRODUCTION

This part of the manual describes the rack and all accessory items included in the make-up of a complete SBT-1K(Q) transmitter, not covered by Parts I through IV. In addition, it is intended that this appendix and its revisions will serve to illustrate such items as minor wiring and component rating variations occurring within a production run of a model.

V-2. PARTS BREAKDOWN

The parts breakdown of the SBT-1K(Q) (by major sub-assemblies) is described in Table A, which lists all parts (except fastening hardware) that go into the assembly of an SBT-1K(Q). All parts arriving in the shipment of the SBT-1K(Q) are shipped in one crate. When re-ordering any major units (SWR-1K, VOX-5, etc.) reference to Table A will describe all the electrical parts that will be included in the shipment of the unit. In each case, when re-ordering, it should be specified that the unit is to be for an SBT-1K(Q).

V-3. SBT-1K(Q) EQUIPMENT RACK

Model RAK-9Q is a standard relay-type rack with a hinged rear door and comes equipped with 3 sets of tilt-lock drawer slides for mounting the RFD-1A, VOX-5, and PS-4A units. Tracks are provided on the rack floor for installation of the PS-5 unit.

RAK-9Q is the base-mounted rack which is designed to sit directly on the floor. RAK-9Q-S is the shock-mounted rack which is mounted

to the structure with 6 shock mounts, 4 at the bottom and 2 at the top. Dimensions of the shock-mounted rack are shown in figure V-1. Overall dimensions are the same for both shock-mounted and base-mounted racks with the exception of height; the shock-mounted rack is 73-3/4 inches high and the base-mounted is 74-3/4 inches. Mounting dimensions are shown for the shock-mounted model. In the case of the base-mounted model, the separate base sits directly on the floor and the rack bolts to the base.

Two reel-mounted springs are provided for retracting the wiring cables of the slide-mounted units to prevent cable snagging. One spring is located on the AX-198 chassis; the other is located on the left inside wall of the rack.

The exhaust blower for the rack forced-air cooling system is installed on the lower part of the rear door. Removable air filter (TMC #AD-103-9) is inserted in the front of the blower. Air intake is in the ceiling of the rack, through removable air filter TMC #AD-103-5.

TMC #AX-198 RF Output Assembly, (figure V-2) containing the antenna relays and output connectors, is a part of rack RAK-9Q assembly. TMC #APP-4 Auxiliary Power Panel is a separate assembly but arrives installed in the rack upon the initial shipment of the transmitter. Both units are standard equipment in all of the SBT-1K series of transmitters.

The Auxiliary Power Panel APP-4 is a front panel mounted unit which is part of all SBT-1K series transmitters. This unit serves

as a power distribution unit and also as a connection panel for making external connections to the SBT-1K(Q). Figure V-3 is a schematic diagram of the APP-4.

Large holes with cover plates are supplied at the bottom of the rack structure for passing out external wiring.

V-4. INTERCONNECTING CABLE INSTALLATION

The SBT-1K(Q) is shipped with all components and cabling installed and connected. A check of the cabling and connections can be made by referring to the rack wiring diagram figure V-4.

NOTE

Use only TMC #PL-150 RF plug to mate with ANTENNA jack J609 on AX-198 unit. The flange on the plug is required to depress the plunger on interlock switch S604 at this point.

TABLE A. LIST OF PARTS, SBT-1K(Q)

QTY /UNIT	TMC PART NUMBER	TITLE	DESCRIPTION
1	RAK-9Q	RACK	Consists of rack structure and electrical components listed in RAK-9Q parts list (Table B).
1	SWR-1K	STANDING WAVE RATIO INDICATOR	Consists of unit and parts as described in Part II (SWR-1K Manual).
1	RFD-1A (P/O PAL-1KA)	RF LINEAR AMPLIFIER	Consists of unit and parts as described in Part III (PAL-1KA Manual).

TABLE A. (Cont'd)

QTY /UNIT	TMC PART NUMBER	TITLE	DESCRIPTION
1	PS-4A (P/O PAL-1KA)	LOW VOLTAGE POWER SUPPLY	Consists of unit and parts as described in Part III (PAL-1KA Manual).
1	PS-5 (P/O PAL-1KA)	HIGH VOLTAGE POWER SUPPLY	Consists of unit and parts as described in Part III (PAL-1KA Manual).
1	VOX-5	VARIABLE FREQUENCY OSCILLATOR	Consists of unit and parts as described in Part IV (VOX-5 Manual).
1	APP-4	AUXILIARY POWER PANEL	Panel mounted unit consists of electrical components listed in Table C, plus fanning strips TM 105-26AL and TM 105-16AR.

TABLE B. EQUIPMENT RACK MODEL RAK-9Q, PARTS LIST (SERIES 600)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
B601	BLOWER, axial: 1650 RPM, 450 CFM, 115VAC, 60 cycle, single phase, running capacitor 2 uf.	Rack cooling	BL-101
C601	CAPACITOR, fixed: 10,000 uuf min., 500 WVDC (P/O AX-198)	RF bypass	CC-100-16
C602	Same as C601	RF bypass	
C603	Same as C601	RF bypass	

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C604	Same as C601	RF bypass	
C605	Same as C601	RF bypass	
C606	Same as C601	RF bypass	
C607	Same as C601	RF bypass	
C608	Same as C601	RF bypass	
C609	Same as C601	RF bypass	
C610	Same as C601	RF bypass	
C611	Same as C601	RF bypass	
C612	Same as C601	RF bypass	
C613	CAPACITOR, fixed: paper dielectric, bathtub type, 2 uf $\pm 10\%$, 600 WVDC.	B601 running capacitor	CP53B1FF205K
CP601	ADAPTER, connector: RF, series UHF, right angle (P/O AX-198).	Receiver input adapter	UG-646/U
CP602	Same as CP601	Receiver input adapter	
CP603	Same as CP601	Antenna adapter	

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
CP604	Same as CP601	Transmitter output adapter	
CP605	Same as CP601	Receiver input adapter	
CP606	ADAPTER, connector: RF, series UHF, straight (P/O AX-198)	Transmitter output adapter	SA-104
CP607	Same as CP606	Relay adapter	
CP608	NOT USED		
CP609	NOT USED		
CP610	NOT USED		
CP611	NOT USED		
CP612	NOT USED		
CP613	NOT USED		
CP614	NOT USED		
CP615	ADAPTER, connector: RF, tee, series BNC	VOX output adapter	UG-274/U
E601	TERMINAL BLOCK: Barrier type, 2-terminal, 4 #6-32 binder head screws, bakelite body.	B601 blower connection	TM-102-2

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
E602	CONTACT ASSEMBLY: RF connector (P/O AX-198).	RFD-1A output contact	AX-154
E603	TERMINAL BLOCK: Barrier lug type, 3 terminals, 3 #6-32 binder head screws (P/O AX-198).	Interlock jumper board	TM-100-3
E604	FANNING STRIP: 11-terminal, right angle, left end feed (P/O W610).	PS-4A control voltage outputs	TM-105-11AL
J601	CONNECTOR, receptacle: AC, 3-prong, male, polarized, locking type, non-grounded (P/O W612).	AC input jack	JJ-194-NG
J602	CONNECTOR, receptacle: AC, 2-prong, male, twist lock (P/O W610).	Utility AC line input	JJ-100
J603	CONNECTOR, receptacle: MIL type MS3102A14S-2S, female.	B601 blower connection. Mates with P603	MS3102A14S-2S
J604	CONNECTOR, receptacle: MIL type MS3102A18-16S, female (P/O W605).	PS-4A to RFD-1A.	MS3102A18-16S
J605	CONNECTOR, receptacle: MIL type MS3102A32-7S, female (P/O W606).	PS-5 to RFD-1A. Mates with P201.	MS3102A32-7S
J606	CONNECTOR, receptacle: RF, series BNC, straight feed-thru (P/O AX-198).	Antenna to receiver. Mates with P624.	UG-492A/U

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
J607	CONNECTOR, receptacle: MIL type MS3102A-20-27P, male. (P/O AX-198).	AX-198 main connector. Mates with P607.	MS3102A-20-27P
J608	CONNECTOR, receptacle: RF, series UHF (P/O AX-198).	Output to SWR-1K. Mates with P608	UG-307/U
J609	ADAPTER, connector: RF, series UHF to series QDS, female (P/O AX-198).	Output to antenna. Mates with P616 and P606.	JJ-147
J610	Same as J608	Output to antenna. Mates with P610.	
J611	CONNECTOR, receptacle: RF, series UHF, female. (P/O AX-198)	Input from RFD-1A. Mates with CP606.	JJ-195
J612	CONNECTOR, receptacle: AC, 2-prong, female, w/bracket.	AC outlet	JJ-170
J613	Same as J612	AC outlet	
J614	Same as J612	AC outlet	
K601	RELAY, coaxial: 220 VDC coil, RF switch SPDT, aux. switch DPDT, 1 kw power, with 3 series UHF connectors (P/O AX-198).	Antenna relay	RL-139-4-220DC
K602	RELAY, AC coil: 115 VAC coil, 5-amp non-inductive contacts (P/O AX-198).	Control relay	RL-116-AC-2C-115

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
MP601	FILTER, air: forced-air cooling system.	Rack exhaust air filter	AD-103-9
MP602	FILTER, air: forced-air cooling system.	Rack intake air filter	AD-103-5
P601	CONNECTOR, plug: AC, 3-prong, locking type, polarized, non-grounded (P/O W611).	AC input. Mates with J703 on PS-4A.	PL-134-NG
P602	CONNECTOR, plug: RF, series BNC (P/O W604).	Mates with J305 on SWR-1K.	PL-169
P603	CONNECTOR, Plug: elbow, MIL type MS3108A14S-2P, male.	Blower inter-connect. Mates with J603 on blower box.	MS3108A14S-2P
P604	CONNECTOR, plug: RF, series BNC (P/O W608).	Mates with CP615 on VOX-5.	UG-260/U
P605	CONNECTOR, plug: RF, series QDS, male, universal (W603).	Mates with J304 on SWR-1K.	PL-149
P606	CONNECTOR, plug: RF, series QDS, male, universal, with plates.	Antenna cable plug. Mates with J609 on AX-198.	PL-150
P607	CONNECTOR, plug: MIL type MS3106B20-27S, female (P/O W610).	Mates with J607 on AX-198.	MS3106B20-27S

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
P609	NOT USED		
P610	Same as P608 (P/O W604)	Mates with J610 on AX-198.	
P611	NOT USED		
P612	Same as P608 (P/O W607)	Mates with J201 on RFD-1A.	
P613	NOT USED		
P614	CONNECTOR, plug: MIL type MS3106B32-7P, male (P/O W606).	Power and control interconnect. Mates with J701 on PS-4A.	MS3106B32-7P
P615	CONNECTOR, plug: MIL type MS3106B18-16P, male (P/O W605).	HV interconnect plug. Mates with J401 on PS-5.	MS3106B18-16P
P616	Same as P608 (P/O W601)	Mates with J609 inside AX-198.	
P617	Same as P604 (P/O W602)	Mates with J606 inside AX-198.	
P618	Same as P608 (P/O W602)	Mates with CP602 inside AX-198.	
P619	Same as P608 (P/O W601)	Mates with CP605 inside AX-198.	

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
P620	CONNECTOR, plug: AC, 3-prong, locking type, polarized, non-grounded.	AC input plug for main line voltage cables. Mates with J601 on rack.	PL-190-NG
P621	NOT USED		
P622	NOT USED		
P623	NOT USED		
P624	Same as P604	For receiver cable. Mates with J606 on AX-198.	
P625	NOT USED		
P626	NOT USED		
P627	CONNECTOR, plug: AC, 2-prong, twist lock, female.	Utility AC input. Mates with J602 on rack.	PL-100
P628 THRU P634	NOT USED		
P635	Same as P604	ALDC	PL-169
P636	NOT USED		

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
R601	RESISTOR, fixed: wire-wound, 35K, 10 watts.	Voltage drop	RW-109-40
S601	SWITCH, micro: push-pull; 15 amps at 120, 250VAC; 2 amps 250VDC.	Safety switch for B601 blower line supply. Works from rack door.	SW-230
S602	Same as S601	Link in main interlock circuit. Works from rack door.	
S603	Same as S601 (P/O AX-198)	Link in main interlock circuit. Closes upon insertion of RFD-1A into rack.	
S604	SWITCH, micro: push-button type; SPDT; operating force 6 to 14 oz., release force 4 oz. min; 10 amp at 125/250 VAC; 1/2 amp at 125 VDC.	Link in main interlock circuit. Closes when P606 mates with J609.	SW-189
W601	CABLE, RF: consists of RG-8/U coaxial cable, P616 and P619, 5-1/4 in. long. (P/O AX-198).	Internal cable in AX-198. J609 to CP605.	CA-512-1-5.25
W602	CABLE, RF: consists of RG-59/U coaxial cable, P617 and P618, 11-1/4 in. long. (P/O AX-198).	Internal cable in AX-198. J606 to CP602.	CA-383-11.25C

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
W603	CABLE, RF: consists of RG-8/U coaxial cable, P605 and P608, 23 in. long.	J608 (AX-198) to J304 (SWR-1K)	CA-512-2-23
W604	Same as W603	J305 (SWR-1K) to J610 (AX-198)	
W605	CABLE, single conductor: consists of TMC #WI-131 hi-voltage wire, J604 and P615, 96 in. long.	J401 (PS-5) to P202 (RFD-1A). High voltage	CA-490
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-1A to PS-4A	CA-491
W607	NOT USED		
W608	NOT USED		
W609	NOT USED		
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., P607; one terminal board, symbol no., E604.	Main rack cable harness	CA-506

TABLE B. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
W611	CABLE ASSEMBLY, POWER, ELECTRICAL: consists of 60 in. of black HWC14(19)U0; WH/BLK HWC10(37)U90; white HWC10(37)U9 insulated cable; one connector, symbol no., P601; 3 terminal lugs.	AC line input to PS-4A	CA-509
W612	CABLE ASSEMBLY, POWER, ELECTRICAL: consists of 31 in. of black HWC14(19)U0; 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 C. AUXILIARY POWER PANEL MODEL APP-4 (SERIES 500)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C501	CAPACITOR, fixed: ceramic dielectric, 1000 uuf $\pm 20\%$, Char. A.	RF bypass	CK70A102M
C502 THRU C520	Same as C501	RF bypass	
C521	CAPACITOR, fixed: mica dielectric, .01 uf $\pm 10\%$, Char. B.	RF bypass	CM-35B103K

TABLE C. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C522	Same as C501	RF bypass	
C523	Same as C501	RF bypass	
C524	Same as C501	RF bypass	
CB501	CIRCUIT BREAKER, dual type: calibrating tap, 15 amps, 60 cycle, 230 VAC.	SBT-1K(Q) MAIN POWER switch	SW-261
E501	TERMINAL BLOCK: Barrier lug type: 16 terminals, 16 #6-32 binder head screws.	SBT-1K(Q) external connections	TM-100-16
E502	Same as E501	SBT-1K(Q) external connections	
F501	FUSE, cartridge: hi-rating, 15 amps, 250 max voltage, medium blow-time.	Utility AC circuit protection	FU-103-15
F502	Same as F501	Utility AC circuit protection	
I501	LAMP, incandescent: 120 volts, 3 watts, S-6 clear bulb, bayonet base.	MAIN POWER indicator	BI-102-3
J501	CONNECTOR, receptacle: MIL type MS3102A28-11S, female.	Main APP-4 connector	MS3102A28-11S

TABLE C. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
J502	CONNECTOR, receptacle: AC power, grounding type.	Utility outlet	JJ-173
J503	Same as J502	Utility outlet	
L501	COIL, RF, fixed: 150 uh $\pm 10\%$, 100 ma.	Choke, RF	CL-140-2
L502 THRU L520	Same as L501	Choke, RF	
L521	COIL, RF, fixed: 2 uh ± 0.1 uhy, Q = 200 or more at 7.9 mc.	Choke, RF	CL-269
L522	Same as L521	Choke, RF	
R501	SHUNT, power: .0042-ohm +5% -1%, 20 ma at 115 VAC.	115- to 230-V conversion	AR-132
R502	Same as R501	115- to 230-V conversion	
R503	SHUNT, power: .075-ohm $\pm 10\%$, 5 amps at 115 VAC.	115- to 230-V conversion	AR-133
R504	Same as R503	115- to 230-V conversion	
R505	RESISTOR, fixed: wire- wound 5K, 10 watts.	Voltage dropping	RW-109-32

TABLE C. (Cont'd)

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
XF501	HOLDER, fuse: extractor post, for 1/4 in. x 1-1/4 in. cartridge fuse.	F501 socket	FH-100-1
XF502	Same as XF501	F502 socket	
XI501	SOCKET, lamp: for 5-6 bayonet bulb, with red lens.	I501 socket	TS-124-1

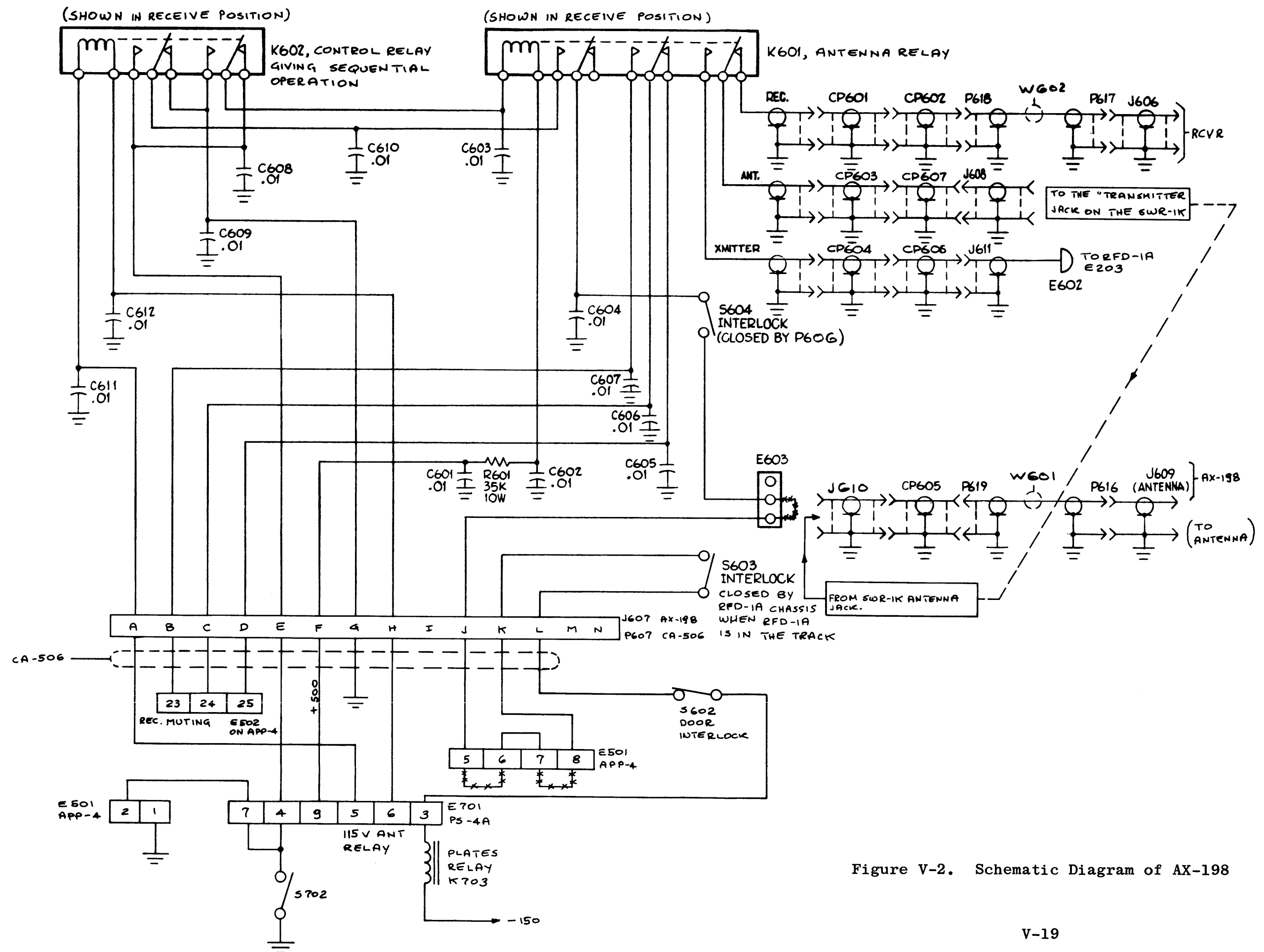
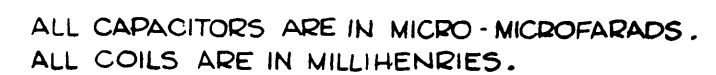


Figure V-2. Schematic Diagram of AX-198

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



V-20

