

Figure 6-1. 516E-1 12-Volt D-C Power Supply

C204-12-P

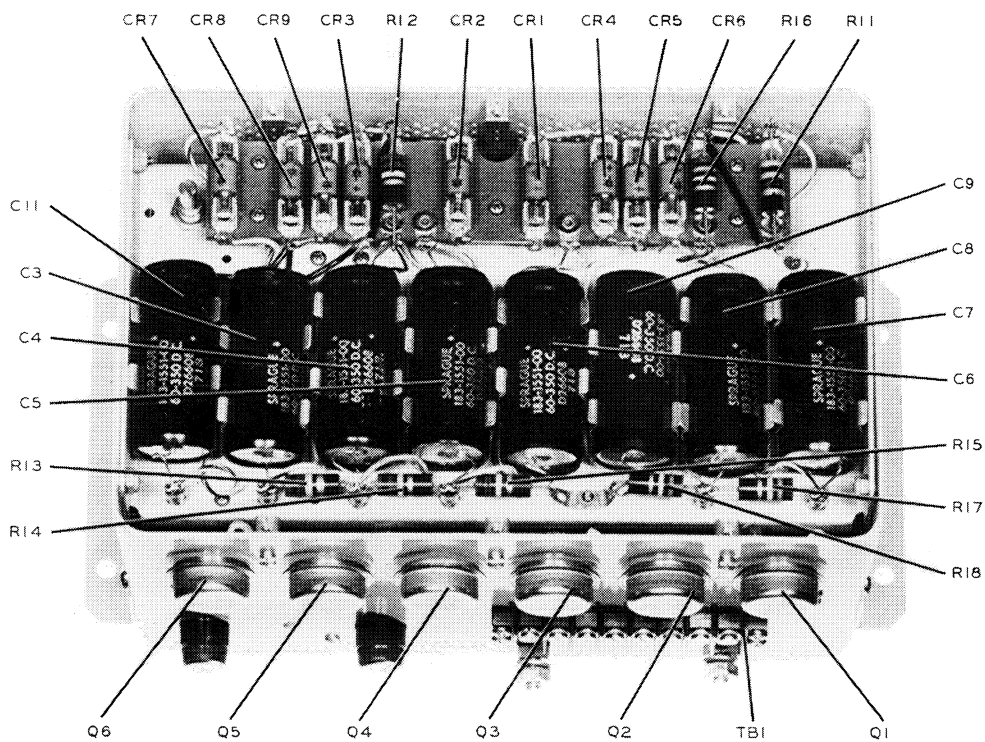
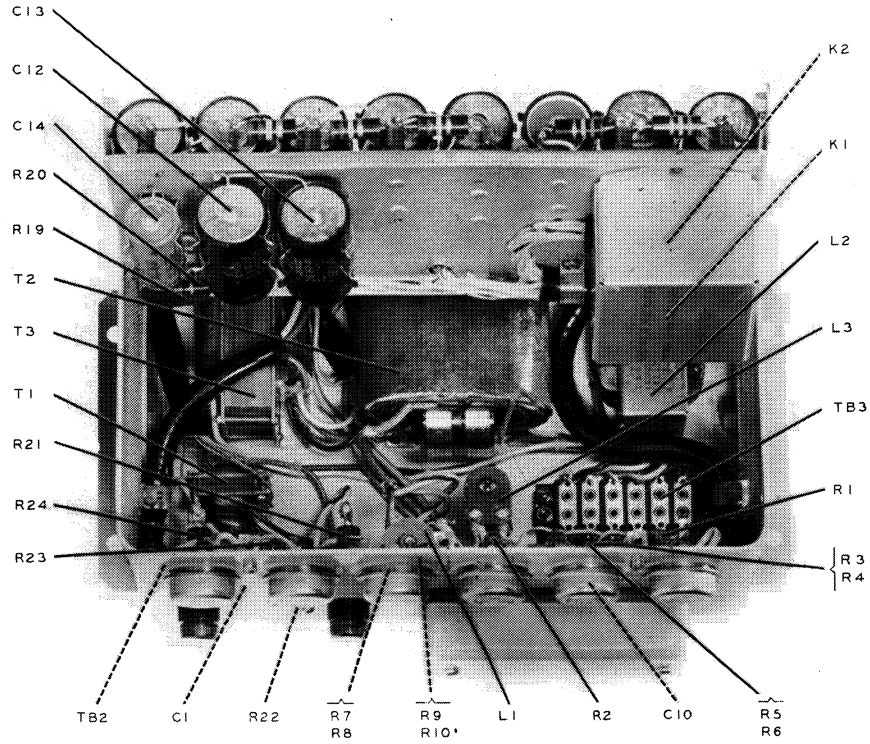


Figure 6-2. 516E-1, Top View, Cover Removed

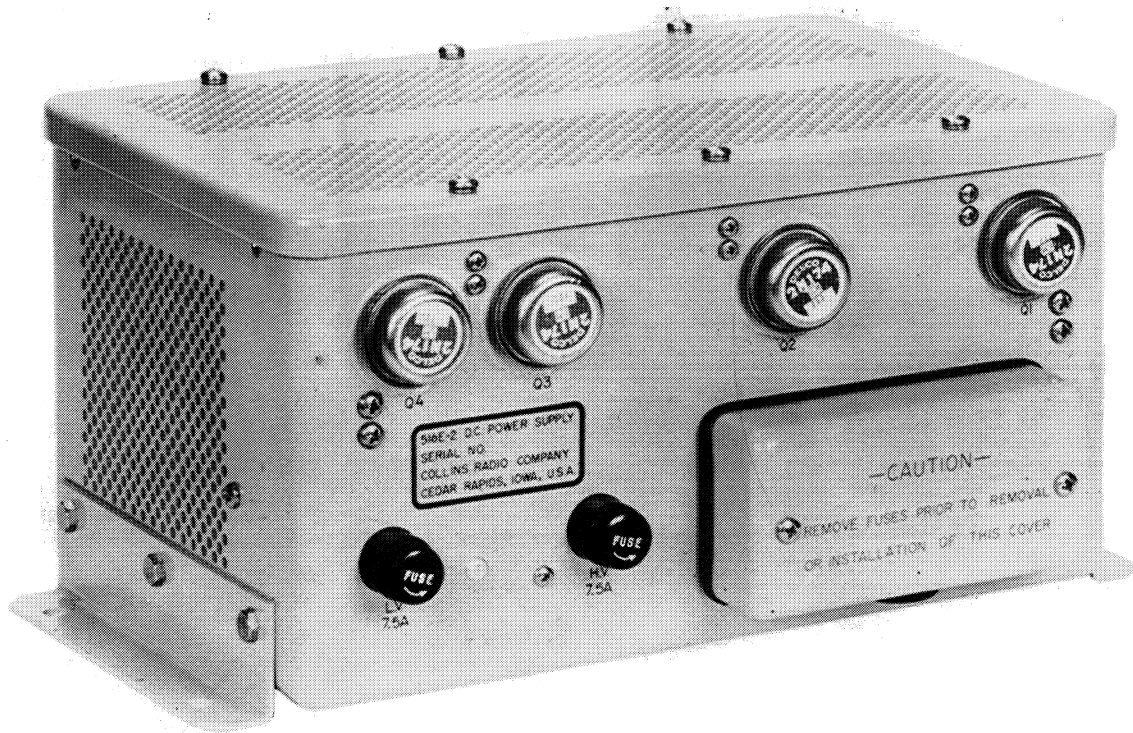
C204-13-P

SECTION VI
Accessories



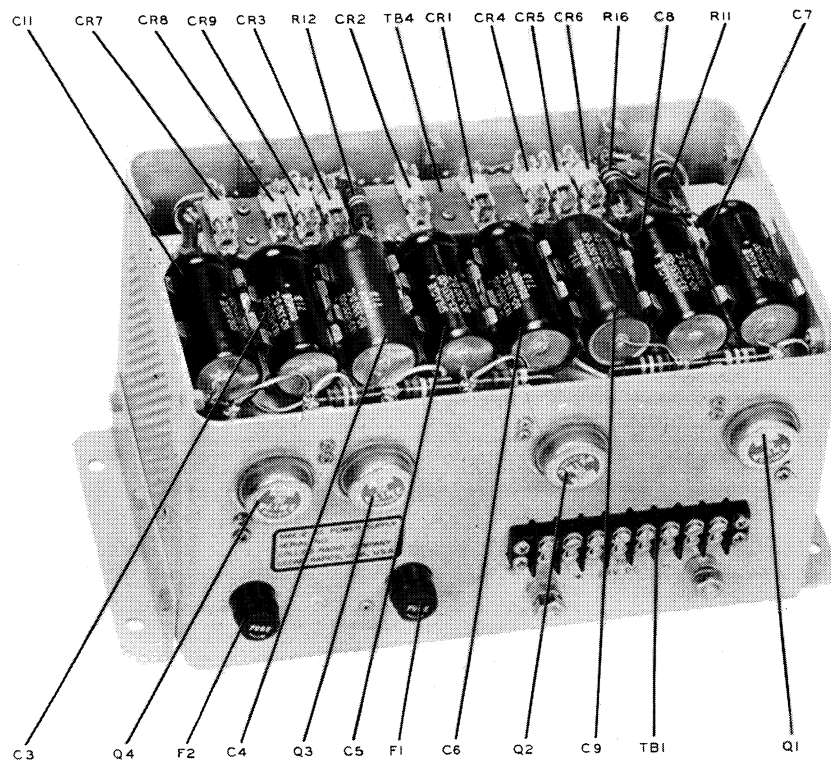
C204-14-P

Figure 6-3. 516E-1, Top View, Chassis Swung Out



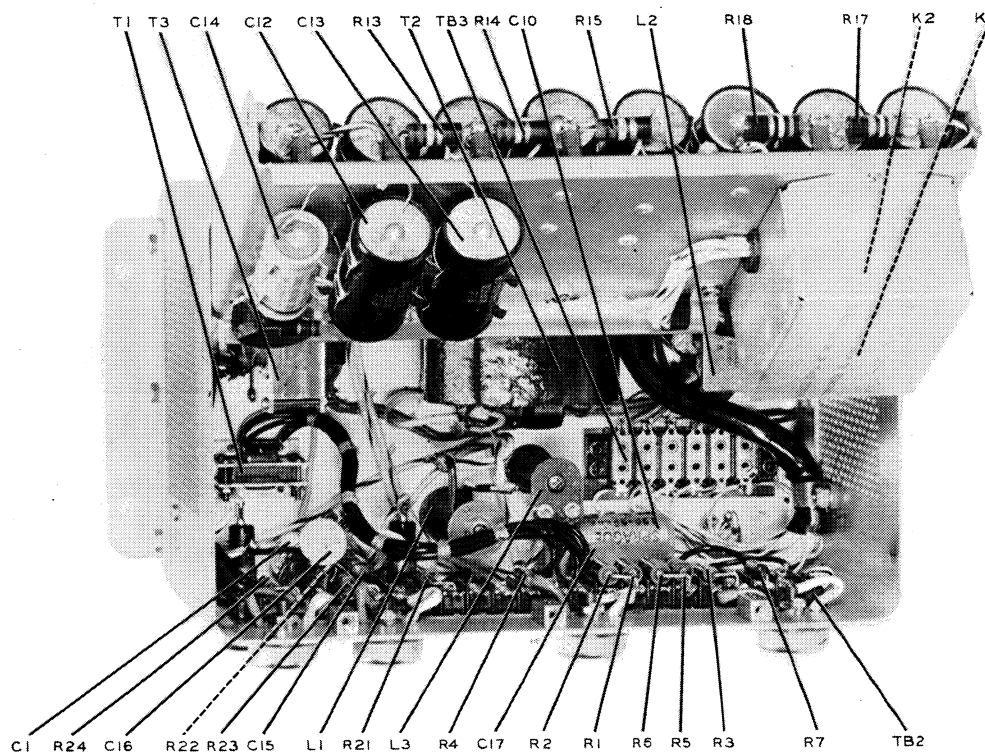
C204-34-P

Figure 6-4. 516E-2 28-Volt D-C Power Supply



C204-35-P

Figure 6-5. 516E-2, Top View, Cover Removed



C204-36-P

Figure 6-6. 516E-2, Top View, Chassis Swung Out

KWM-1 Amateur Transceiver

ITEM	DESCRIPTION	COLLINS PART NUMBER
V10	TUBE, ELECTRON: 6AL5	257 0018 00
V11	TUBE, ELECTRON: 6AH6	255 0191 00
V12	TUBE, ELECTRON: 6AL5	257 0018 00
V13	TUBE, ELECTRON: same as V1	255 0185 00
V14	TUBE, ELECTRON: same as V1	255 0185 00
V15	TUBE, ELECTRON: 12AU7	255 0199 00
V16	TUBE, ELECTRON: 12AT7	255 0205 00
V17	TUBE, ELECTRON: 6AQ5	255 0195 00
V18	TUBE, ELECTRON: 6U8	255 0232 00
V19	TUBE, ELECTRON: 12AX7	255 0201 00
V20	TUBE, ELECTRON: 6U8	255 0232 00
V21	TUBE, ELECTRON: 6AL5	257 0018 00
V22	TUBE, ELECTRON	253 0005 00
V23	TUBE, ELECTRON: 6146	256 0101 00
V24	TUBE, ELECTRON: 6146	256 0101 00
XFL1	SOCKET, ELECTRON TUBE: 9 contact miniature	220 1216 00
XV1	SOCKET, ELECTRON TUBE: 7 pin miniature tube socket; molded construction, plastic	220 1111 00
XV2	SOCKET, ELECTRON TUBE: 9 pin miniature tube socket; molded plastic body	220 1103 00
XV3	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV4	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV5	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV6	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV7	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV8	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV9	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV10	SOCKET, ELECTRON TUBE: 7 contact miniature top mtg tube socket w/o shield base; ceramic, MFE	220 1152 00
XV11	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV12	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV13	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV14	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV15	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV16	SOCKET, ELECTRON TUBE: 9 contact miniature top mtg tube socket w/o shield base; plastic MFE	220 1274 00
XV17	SOCKET, ELECTRON TUBE: same as XV10	220 1152 00
XV18	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV19	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV20	SOCKET, ELECTRON TUBE: same as XV2	220 1103 00
XV21	SOCKET, ELECTRON TUBE: same as XV10	220 1152 00
XV22	SOCKET, ELECTRON TUBE: same as XV1	220 1111 00
XV23	SOCKET, ELECTRON TUBE: 8 prong octal tube socket; molded plastic construction	220 1005 00
XV24	SOCKET, ELECTRON TUBE: same as XV23	220 1005 00
XV25	SOCKET, ELECTRON TUBE: 9 contact UHF type miniature tube socket	220 1216 00

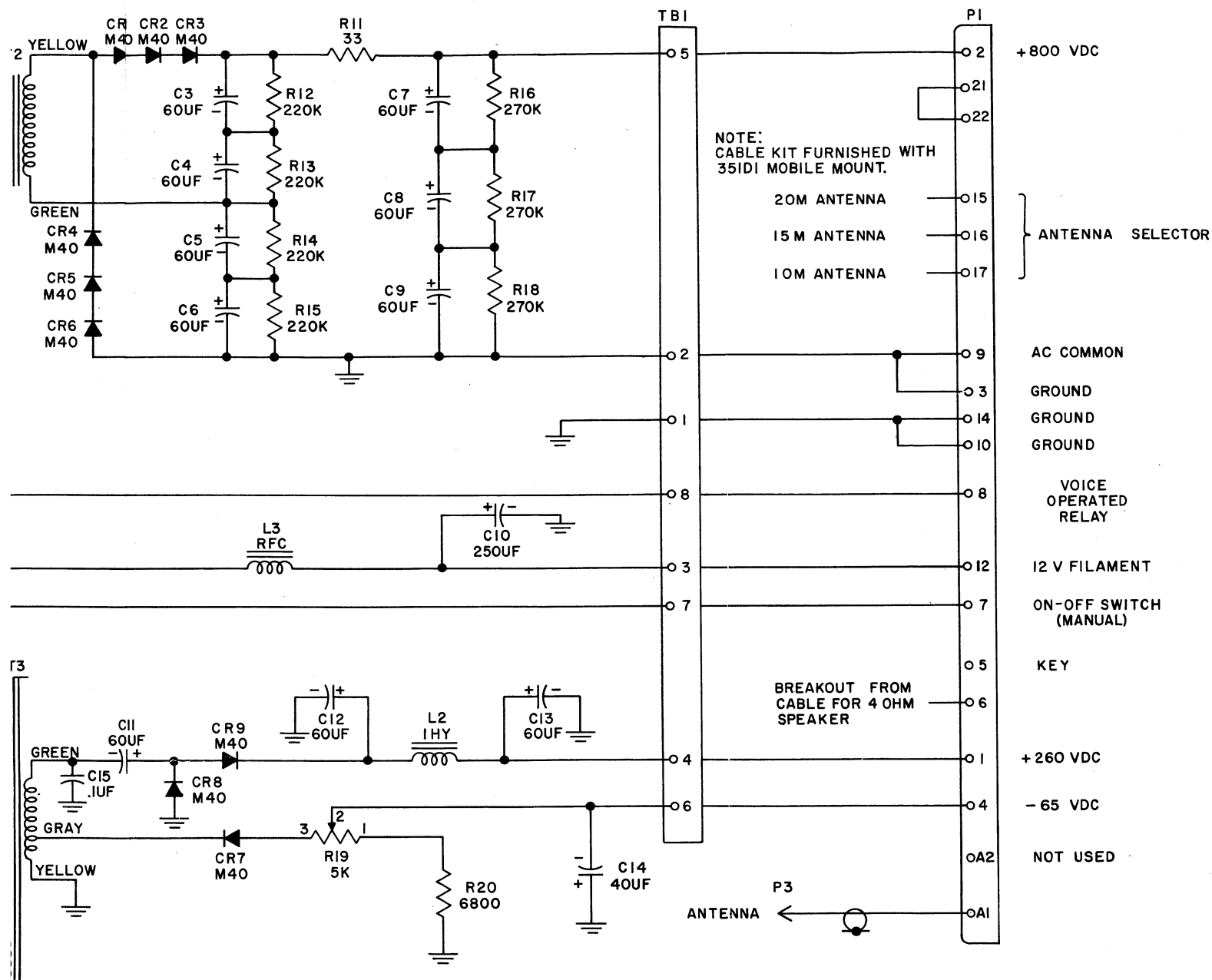
ITEM	DESCRIPTION	COLLINS PART NUMBER
XY1	SOCKET, CRYSTAL: 2 regularly spaced contact positions, 0.486 in. c to c each contact 0.243 in. from center; cadmium plated phosphor bronze or beryllium copper	292 0082 00
XY2	SOCKET, CRYSTAL: same as XY1	292 0082 00
Y1	CRYSTAL UNIT: type CR-46/U Frequency 456.65 kc Frequency 456.75 kc Frequency 456.85 kc Frequency 456.95 kc Frequency 457.05 kc Y-1 and FL-1 matched set according to frequency	290 1605 00 290 1606 00 290 1607 00 290 1608 00 290 1609 00
Y2	CRYSTAL UNIT: CR-37/U type metal plated, plate, wire mounted in metal holder, holder HC-13/U, 100,000 KC/sec frequency range $\pm 2\%$ tolerance, 5,000 ohms resistance	290 8454 00
	SWITCH UNIT: Assembly of S1, C59, and following 10 crystals:	522 0879 00
Y3	CRYSTAL UNIT: quartz CR-18/U 9,000.000 kc frequency	291 8083 00
Y4	CRYSTAL UNIT: quartz CR-18/U, 9,100.000 kc frequency	291 8081 00
Y5	CRYSTAL UNIT: quartz CR-18/U, 9450 kc frequency	291 8224 00
Y6	CRYSTAL UNIT: quartz, CR-18/U, 12500.000 kc frequency	291 8141 00
Y7	CRYSTAL UNIT: quartz, CR-18/U, 12.65 mc frequency	291 8225 00
Y8	CRYSTAL UNIT: quartz CR-18/U, 12.7 frequency	291 8221 00
Y9	CRYSTAL UNIT: quartz CR-18/U, 16 mc frequency	291 8226 00
Y10	CRYSTAL UNIT: quartz CR-18/U, 16.05 mc	291 8227 00
Y11	CRYSTAL UNIT: quartz CR-18/U, 16.25 mc frequency	291 8228 00
Y12	CRYSTAL UNIT: quartz CR-18/U, 16.3 mc frequency	291 8222 00
	KNOB: zinc alloy bar knob to mount on single flatted shaft w/ one 8-36 multiple spline cup point setscrew; 3/4 in. h by 15/16 in. OD	281 0093 00
	CORE: ferrite type for permeability tuning; insert 0.020 inch diameter beryllium copper wire, rh on 0.022 in. dia mandrel to an OD of 0.063 inch; incl commercial brass slug screws, markings white and orange dots, frequency 0.5 to 32 mc	288 2214 00
	PLUG, TELEPHONE: 3 circuit, 3/16 in. nom. barrel dia, black plastic, straight, 3.218 in. lg by 0.500 in. dia	361 0001 00
516E-1 D-C POWER SUPPLY		
C1	CAPACITOR, FIXED DRY ELECTROLYTIC: 250 uf 25 vdcw	183 1305 00
C2	Not Used	
C3 thru C9	CAPACITOR, FIXED ELECTROLYTIC: 60 uf -10% +40%, 350 vdcw	183 1551 00
C10	CAPACITOR, FIXED DRY ELECTROLYTIC: same as C1	183 1305 00
C11	CAPACITOR, FIXED ELECTROLYTIC: same as C3	183 1551 00
C12	CAPACITOR, FIXED ELECTROLYTIC: same as C3	183 1551 00
C13	CAPACITOR, FIXED ELECTROLYTIC: same as C3	183 1551 00

SECTION VII
Parts List

KWM-1 Amateur Transceiver

ITEM	DESCRIPTION	COLLINS PART NUMBER
C14	CAPACITOR, FIXED DRY ELECTROLYTIC: 40 uf -10% +100%, 150 vdcw	183 1044 00
CR1 thru CR9	RECTIFIER: silicon, low power, 400 v max peak inverse, 0.5 amp at +100°C d-c current max, ferrule mounted	353 1567 00
E1	TERMINAL, LUG: phosphor bronze, hot tin, solder coat or electro-tinned finish; bent soldering lug; 57/64 in. lg, 5/16 in. wd overall w/ hole in one end for no. 4 screw and 0.218 in. lg by 0.093 in. w slot in other end	304 0317 00
E2	TERMINAL, LUG: rd tongue end; w/ clamping ears; 5/16 in. by 1/2 in. by 1-3/32 in. overall	304 1500 00
E3	TERMINAL, LUG: phosphor bronze, hot tin dipped; w/ shakeproof hole to fit 1/4 in. bolt; 7/8 in. lg, 1/2 in. w, 11/64 in. thk	304 1000 00
E4	TERMINAL, LUG: same as E1	304 0317 00
E5	TERMINAL, STUD: brass; 1/4 in. hex by 0.632 in. lg overall	306 0234 00
E6	TERMINAL, LUG: same as E1	304 0317 00
E7	TERMINAL, LUG: same as E5	306 0234 00
E8	TERMINAL, LUG: same as E5	306 0234 00
E9	TERMINAL, LUG: same as E5	306 0234 00
E10	TERMINAL, LUG: same as E1	304 0317 00
E11	TERMINAL, LUG: same as E5	306 0234 00
E12	TERMINAL, LUG: same as E5	306 0234 00
E13	TERMINAL, LUG: same as E1	304 0317 00
E14	TERMINAL, LUG: same as E1	304 0317 00
E15	TERMINAL, LUG: same as E5	306 0234 00
E16	TERMINAL, LUG: same as E5	306 0234 00
E17	TERMINAL, LUG: same as E1	304 0317 00
E18	TERMINAL, LUG: same as E1	304 0317 00
E19	TERMINAL, LUG: same as E1	304 0317 00
F1	FUSE, CARTRIDGE: 15 amp, 25 v d-c high speed instantaneous operation; ferrule type terminals, glass body	264 4150 00
F2	FUSE, CARTRIDGE: same as F1	264 4150 00
K1	RELAY, ARMATURE: 1A contact arrangement, 15 amp at 28 v d-c or 115 v a-c resistive; coil, 12 v d-c, 60 ohm ±10% resistance	970 1858 00
K2	RELAY, ARMATURE: same as K1	970 1858 00
L1	CHOKE, RADIO FREQUENCY: 5.5 uh ±20% at 1000 cycles, coil 15-3/4 turns, powdered iron core, 2-3/4 in. lg overall w/ 8-32 NC-2 thd one end	240 0002 00
L2	REACTOR: filter, 0.75 hy min inductance at 10 v rms, 210 ma d-c current, 25 ohms d-c resistance, 1400 v rms test volts, continuous duty cycle; exposed core and coil; wire lead terminals; 3-1/4 in. lg, 2 in. w, 2 in. h overall, two 3/16 in. dia holes for mtg	668 0270 00
L3	COIL, RADIO FREQUENCY: choke; single layer wound; unshielded; 26 turns no. 14 AWG wire; 2.218 in. max lg by 31/32 in. w by 3/4 in. d overall; phenolic form, powdered iron core	240 0021 00
Q1 thru Q6	TRANSISTOR: germanium, junction PNP type contact, 1-1/4 in. dia, 1-1/16 in. h overall, hermetically sealed, collector voltage 50 v, collector current 12 amp; saturation resistance 0.200 ohm max	352 0058 00

ITEM	DESCRIPTION	COLLINS PART NUMBER
R1	RESISTOR, FIXED WIRE WOUND: 300 ohms ±5%, 2 w	747 9321 00
R2	RESISTOR, FIXED WIRE WOUND: same as R1	747 9321 00
R3 thru R10	RESISTOR, FIXED COMPOSITION: 10 ohms ±10%, 1/2 w	745 1268 00
R11	RESISTOR, FIXED COMPOSITION: 33 ohms ±10%, 2 w	745 5589 00
R12	RESISTOR, FIXED COMPOSITION: 0.22 megohms ±10%, 1 w	745 3450 00
R13	RESISTOR, FIXED COMPOSITION: same as R12	745 3450 00
R14	RESISTOR, FIXED COMPOSITION: same as R12	745 3450 00
R15	RESISTOR, FIXED COMPOSITION: same as R12	745 3450 00
R16	RESISTOR, FIXED COMPOSITION: 0.27 ohms ±10%, 1 w	745 3454 00
R17	RESISTOR, FIXED COMPOSITION: same as R16	745 3454 00
R18	RESISTOR, FIXED COMPOSITION: same as R16	745 3454 00
R19	RESISTOR, VARIABLE COMPOSITION: 5,000 ohms ±20%, 2 w	380 0614 00
R20	RESISTOR, FIXED COMPOSITION: 6800 ohms ±10%, 1 w	745 3387 00
R21	RESISTOR, FIXED COMPOSITION: 12 ohms ±10%, 2 w	745 5572 00
R22	RESISTOR, FIXED COMPOSITION: 470 ohms ±10%, 2 w	745 5638 00
R23	RESISTOR, FIXED COMPOSITION: 10 ohms ±10%, 1 w	745 3268 00
R24	RESISTOR, FIXED COMPOSITION: same as R23	745 3268 00
T1	TRANSFORMER, POWER, STEP-UP: open frame, pri 1 ct, approx 27 v peak, 20 ohms max d-c resistance; sec 1 and 2, 0.5 ohms max ea; saturable core, 1-3/8 in. lg, 15/16 in. h, 15/16 in. w overall	664 1004 00
T2	TRANSFORMER, POWER, STEP-UP: open frame, d-c input 13.5 nom, d-c output cur 185 ma nom; pri 1 ct, 1000 v rms test voltage, sec 1 and 2, 1500 v rms; 400 cps operating freq continuous duty cycle, non-saturating core, 3-11/16 in. lg, 3-5/16 in. h, 3-1/4 in. w overall	664 0276 00
T3	TRANSFORMER, POWER, STEP-UP: open frame, d-c input 13.8 nom, d-c output 265 v, min at 220 ma d-c load cur w/ nom input; d-c load cur 210 ma nom; 400 cps min operating freq, continuous duty cycle, 3-1/16 in. lg, 1-7/8 in. h, 2 in. w overall	664 1005 00
TB1	TERMINAL, STRIP: phenolic barrier type w/ lug for back connection, 8 terminals 3-3/8 in. lg approx, 13/32 in. h, 7/8 in. w overall	367 0016 00
TB2	TERMINAL, STRIP: electrical, barrier type w/ double ended solder terminals eyeletted to strip, brass, tin pl terminals, phenolic insulation, 15 amps, 1200 v rms w/ marker strip, 21 terminals, 8-17/32 in. lg, 1-7/32 in. w, 13/32 in. thk overall	367 0829 00
TB3	TERMINAL, STRIP: electrical, barrier type w/ double ended solder terminals eyeletted to strip, brass, tin pl terminals, phenolic insulation, 15 amps, 1200 v rms w/ marker strip, 8 terminals, 3-21/32 in. lg, 1-7/32 in. w, 13/32 in. thk overall	367 0819 00
XF1	FUSE, HOLDER: for 3 AG fuses, 1-1/4 by 1/4; bakelite, 1/16 in. locking, slug included	265 1002 00
XF2	FUSE, HOLDER: same as XF1	265 1002 00



BOTTOM VIEW OF TRANSISTOR
TYPE 2N442



- NOTE 1 FAILURE TO MAKE PROPER POLARITY CONNECTIONS MAY DESTROY TRANSISTORS. NEGATIVE INPUT MUST BE GROUNDED.
2. R23 & R24 BYPASSED WHEN 2N442 USED IN PLACE OF 2N278.
3. SLO BLO FUSES NOT RECOMMENDED, AS TRANSISTOR DAMAGE MAY RESULT.

Figure 8-2. 516E-1 12-Volt D-C Power Supply,
Schematic Diagram

