

## SPECIFICATIONS

### Frequency Range

160 meter band	1.8 ~ 2.0 MHz
80 meter band	3.5 ~ 4.0 MHz
40 meter band	7.0 ~ 7.5 MHz
20 meter band	14.0 ~ 14.5 MHz
15 meter band	21.0 ~ 21.5 MHz
10 meter band A	28.0 ~ 28.5 MHz
10 meter band B	28.5 ~ 29.0 MHz
10 meter band C	29.0 ~ 29.5 MHz
10 meter band D	29.5 ~ 30.0 MHz
119 meter band (WWV)/JJY	15.0 ~ 15.5 MHz
Shortwave band:	
49 meter band	5.9 ~ 6.4 MHz
31 meter band	9.4 ~ 9.9 MHz
25 meter band	11.5 ~ 12.0 MHz
16 meter band	17.7 ~ 18.2 MHz

### Mode

SSB, CW, AM, RTTY

### Receiver Sensitivity

SSB 0.25  $\mu$ V (SW Band 0.5  $\mu$ V) S + N/N 10 dB or more  
 AM 1.5  $\mu$ V (SW Band 3  $\mu$ V) S + N/N 10 dB or more

### Image Ratio

Better than 80 dB (SW Band better than 50 dB)

### IF Rejection

IF Frequency is 90 dB or more down from output signal  
 (SW Band more than 40 dB)

### Receiver Selectivity

CW (0.25) more than 250 Hz (-6 dB), less than 500 Hz  
 (-6 dB) (\*<sub>1</sub>)  
 CW (0.5) more than 500 Hz (-6 dB), less than 850 Hz  
 (-60 dB) (\*<sub>2</sub>)  
 SSB (2.4) more than 2.4 kHz (-6 dB), less than 3.9 kHz  
 (-60 dB)  
 AM (6) more than 6 kHz (-6 dB), less than 12 kHz (-60  
 dB)

### Variable Bandwidth

CW (0.5) 150 Hz ~ 500 Hz (-6 dB) fully variable (\*<sub>3</sub>)  
 SSB (2.4) 600 Hz ~ 2.4 kHz (-6 dB) fully variable  
 AM (6) 4.3 kHz ~ 6 kHz (-6 dB) fully variable (\*<sub>4</sub>)

\*<sub>1</sub> Installed optional filter-YG-455CN

\*<sub>2</sub> Installed optional filter-YG-455C

\*<sub>3</sub> Installed optional filter-YG-88C and YG-455C

\*<sub>4</sub> Installed optional filter-YG-88A

### Notch Filter Attenuation

More than 50 dB

### Frequency Stability

Within 100 Hz during any 30 minute period after warm up  
 within  $\pm$  1 kHz during the first hour after 1 minute of  
 warm up.

### Antenna Impedance

50 ~ 75 $\Omega$  (unbalanced)

### AF Output

More than 1.5W (8 $\Omega$  load, 10% distortion)

### AF Load Impedance

4 ~ 16 $\Omega$  for both speaker and headphone

### Power Consumption

AC 120V, 30W  
 DC 13.8V, 1.6A

### Power Supply

AC 100, 120, 220, 240V, 50/60 Hz  
 DC 12 ~ 15V

### Semiconductors and Tubes

IC's	40
FET's	34
Transistors	89
Diodes	170
Tube	1

### Dimensions

13-1/8" (W) x 6" (H) x 13-3/16" (D)  
 (Protection not included)

### NOTE:

The circuit and ratings may change without notice due to  
 development in technology.

**SCHEMATHEEK**  
 Beh. T. Hultermans  
 Postbus 4228  
 5604 EE Eindhoven



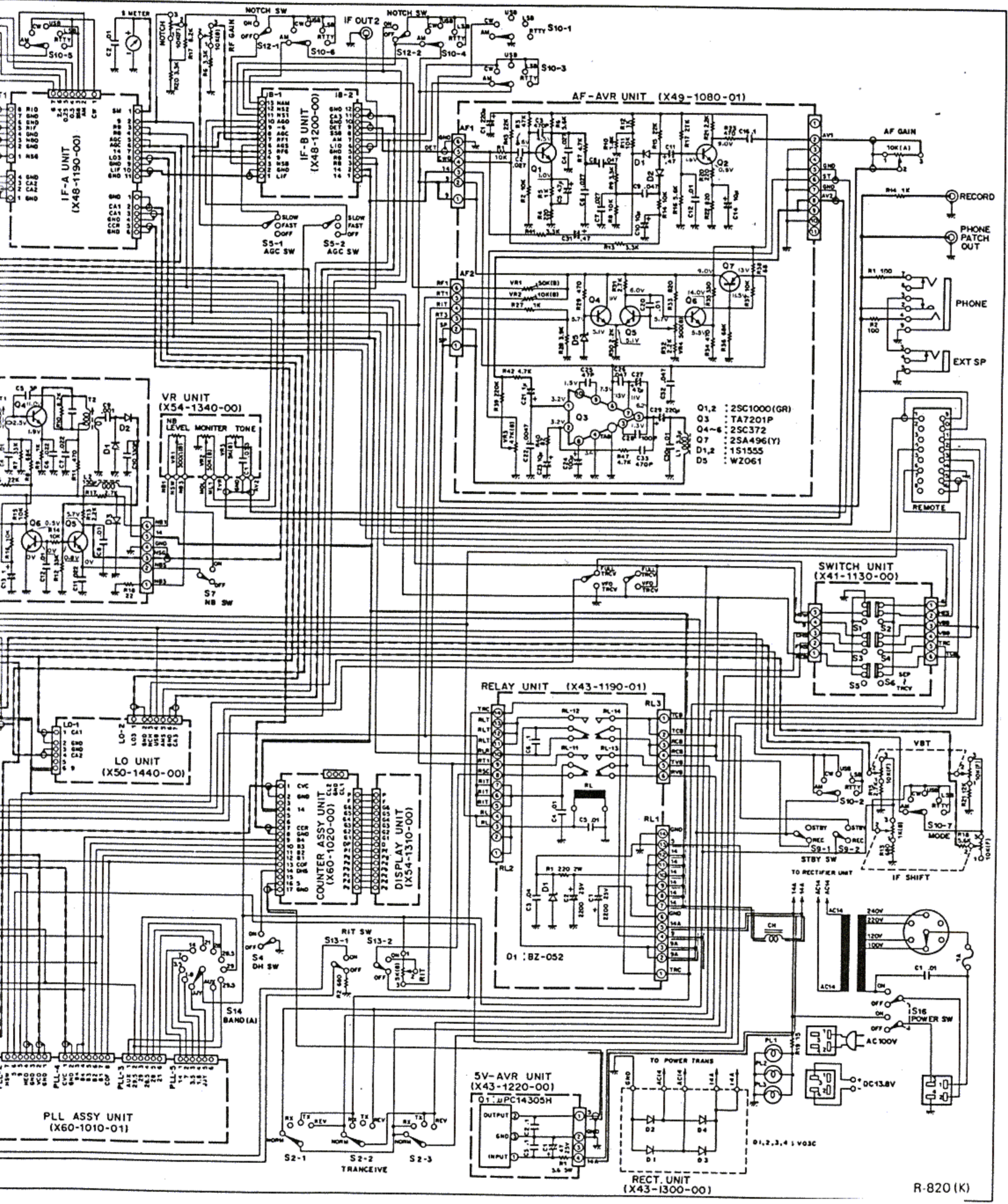




# SCHEMATIC DIAGRAM

Common Power Source

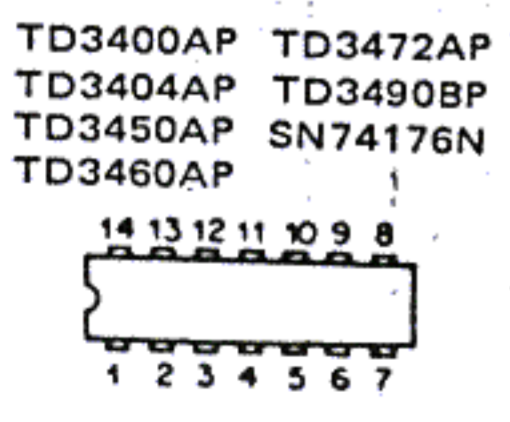
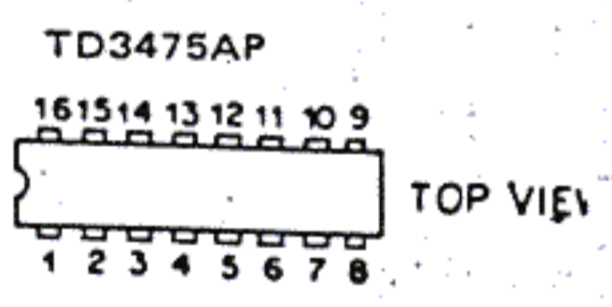
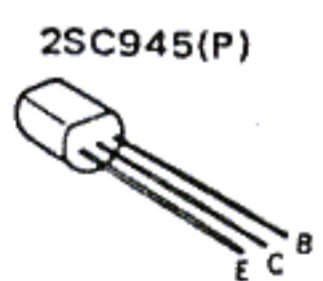
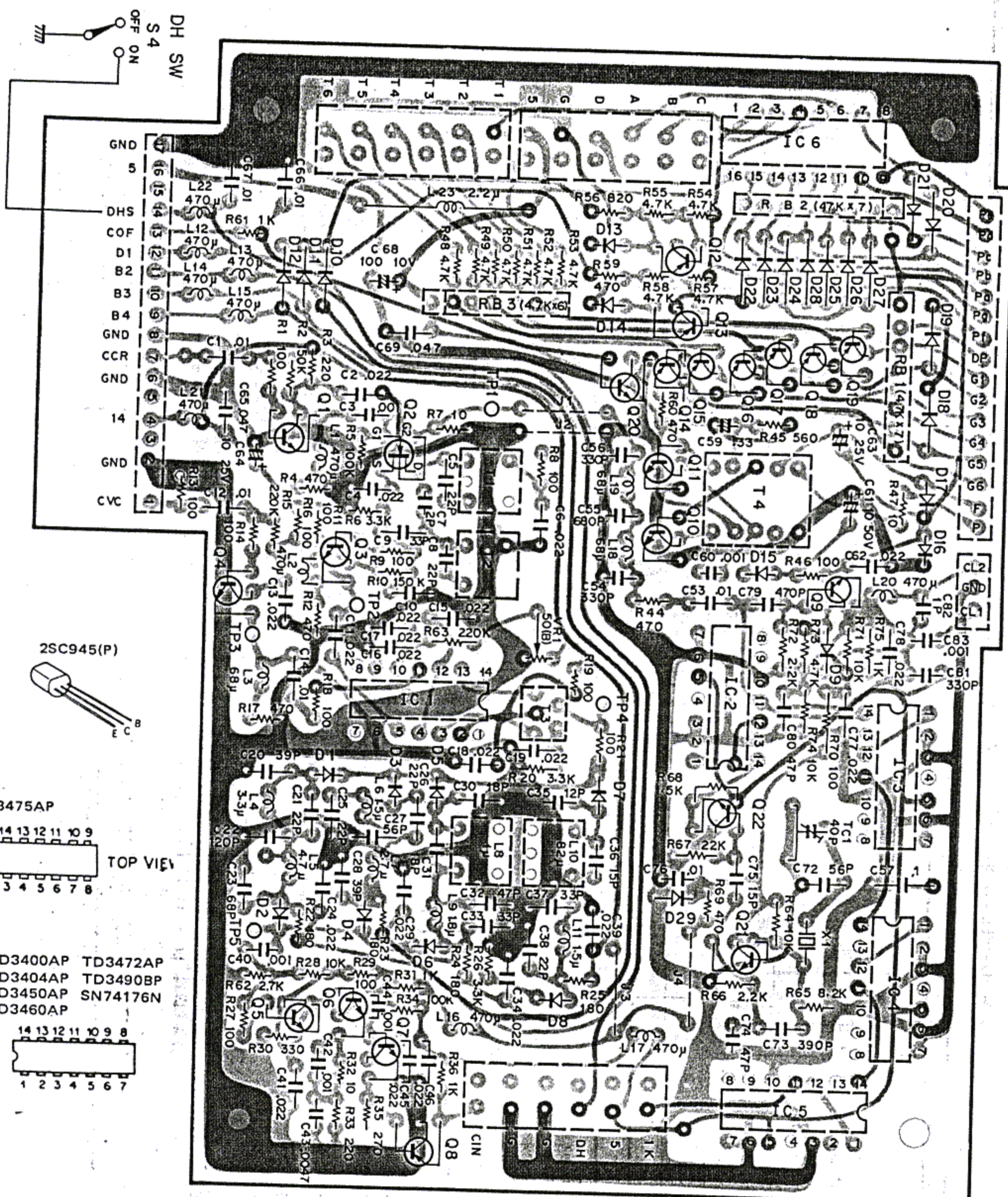
The circuit and ratings may change without notice due to development in technology.



R-820 (K)



**COUNTER MIXER UNIT (X54-1150-00)**

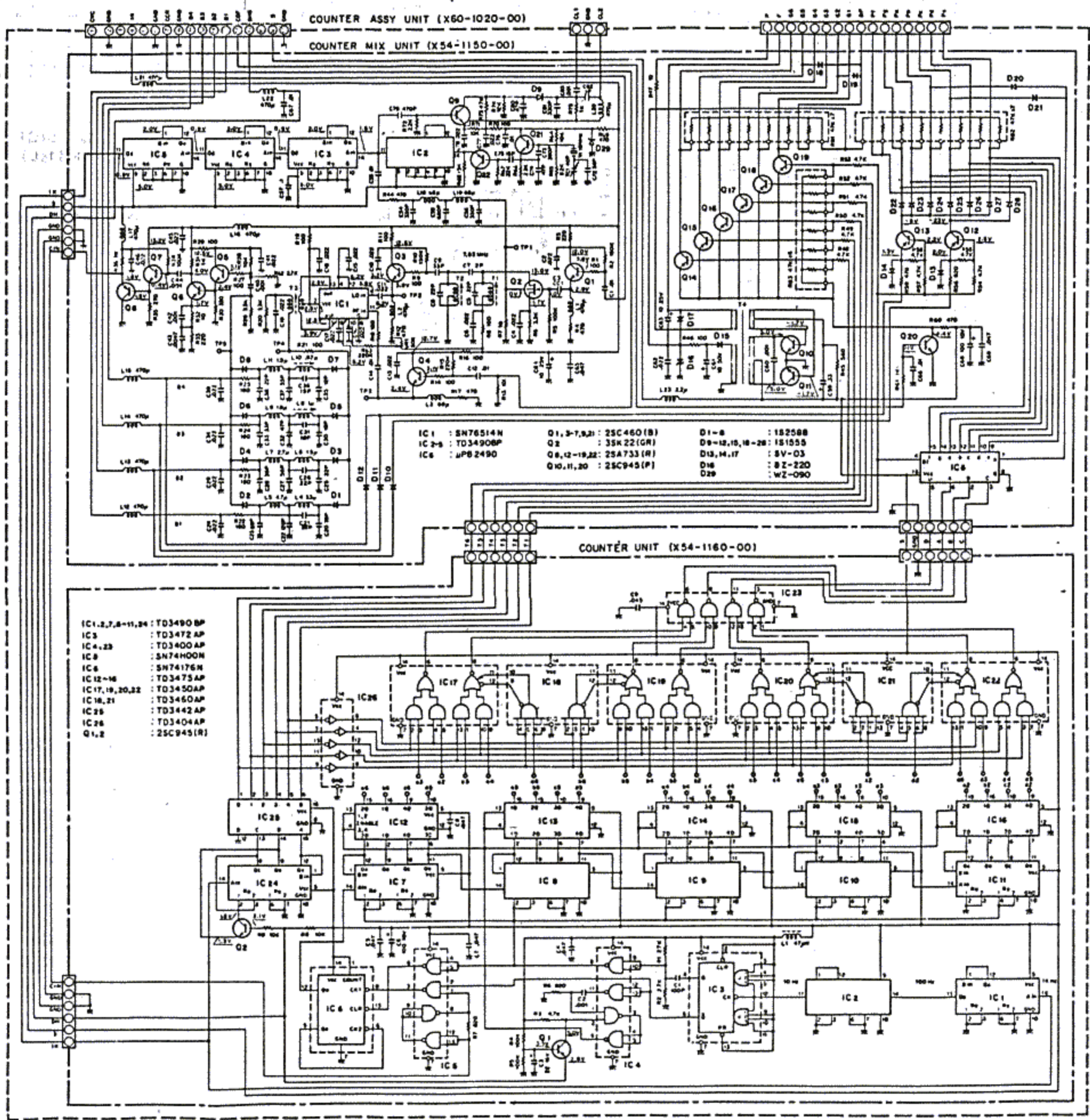


IC1: SN76514N, IC2-5: TD3490BP, IC6:  $\mu$ PB249D, Q1, 3-7, 9, 21: 2SC460(B)  
 Q2: 3SK22(GR), Q8, 12-19, 22: 2SA733(R), Q10, 11, 20: 2SC945(P), D1-8: 1S2588  
 D9-12, 15, 18-28: 1S1555, D13, 14, 17: SV-03, D16: BZ-220, D29: WZ-090

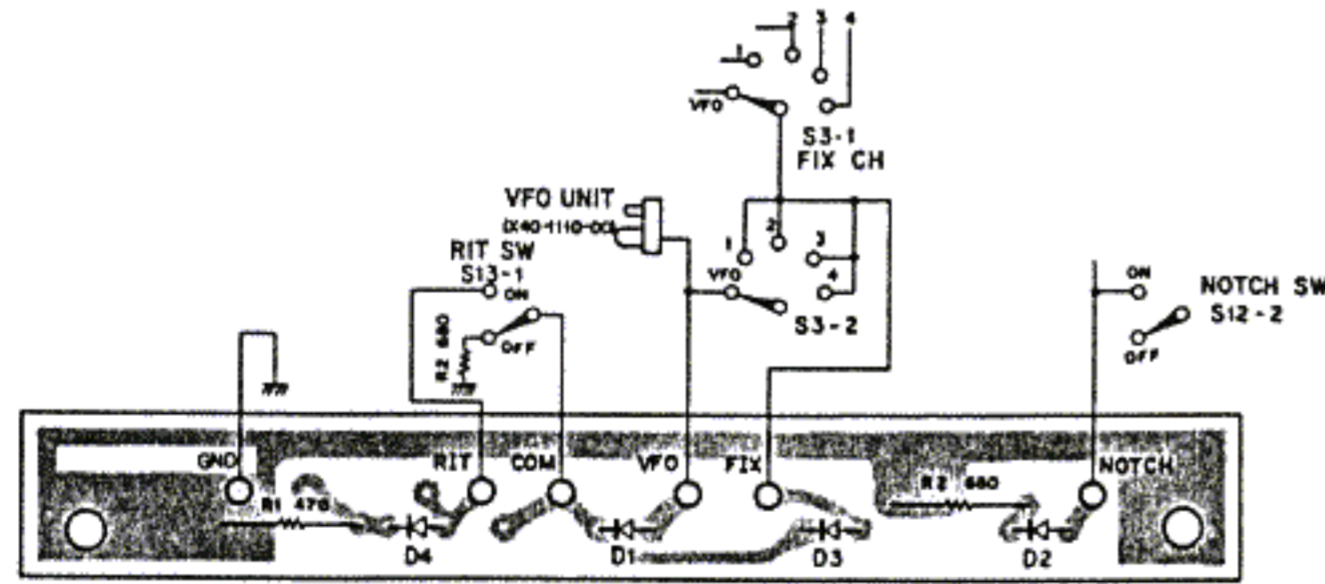


100-045/001

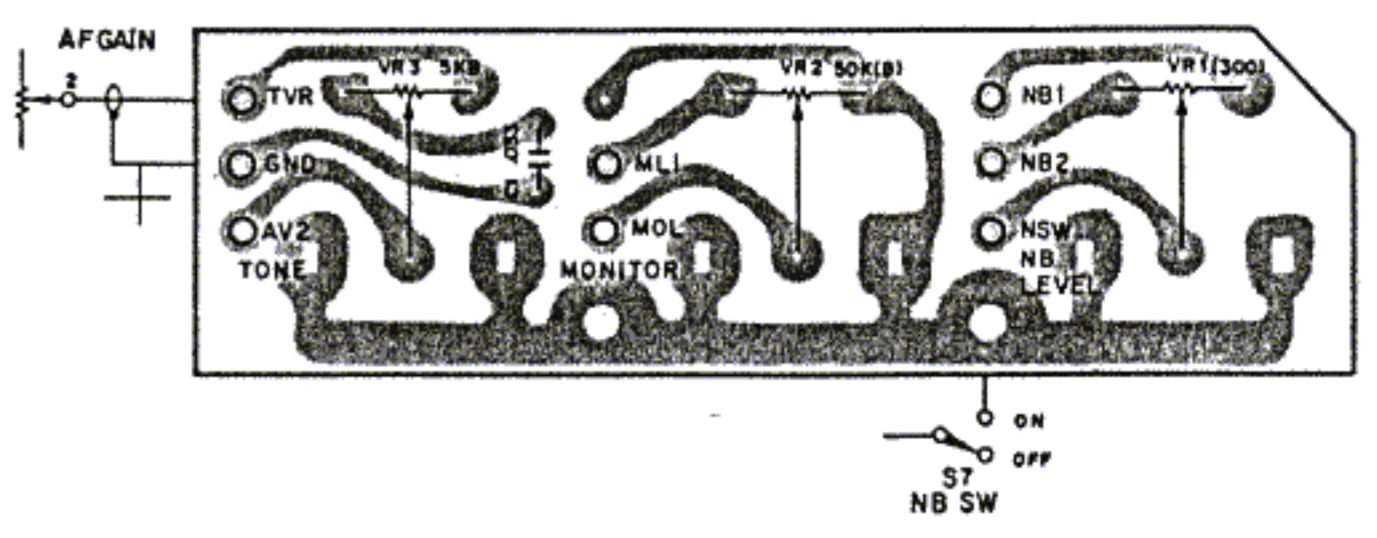
■ COUNTER ASS'Y UNIT (X60-1020-00)



■ INDICATOR UNIT (X54-1180-00)

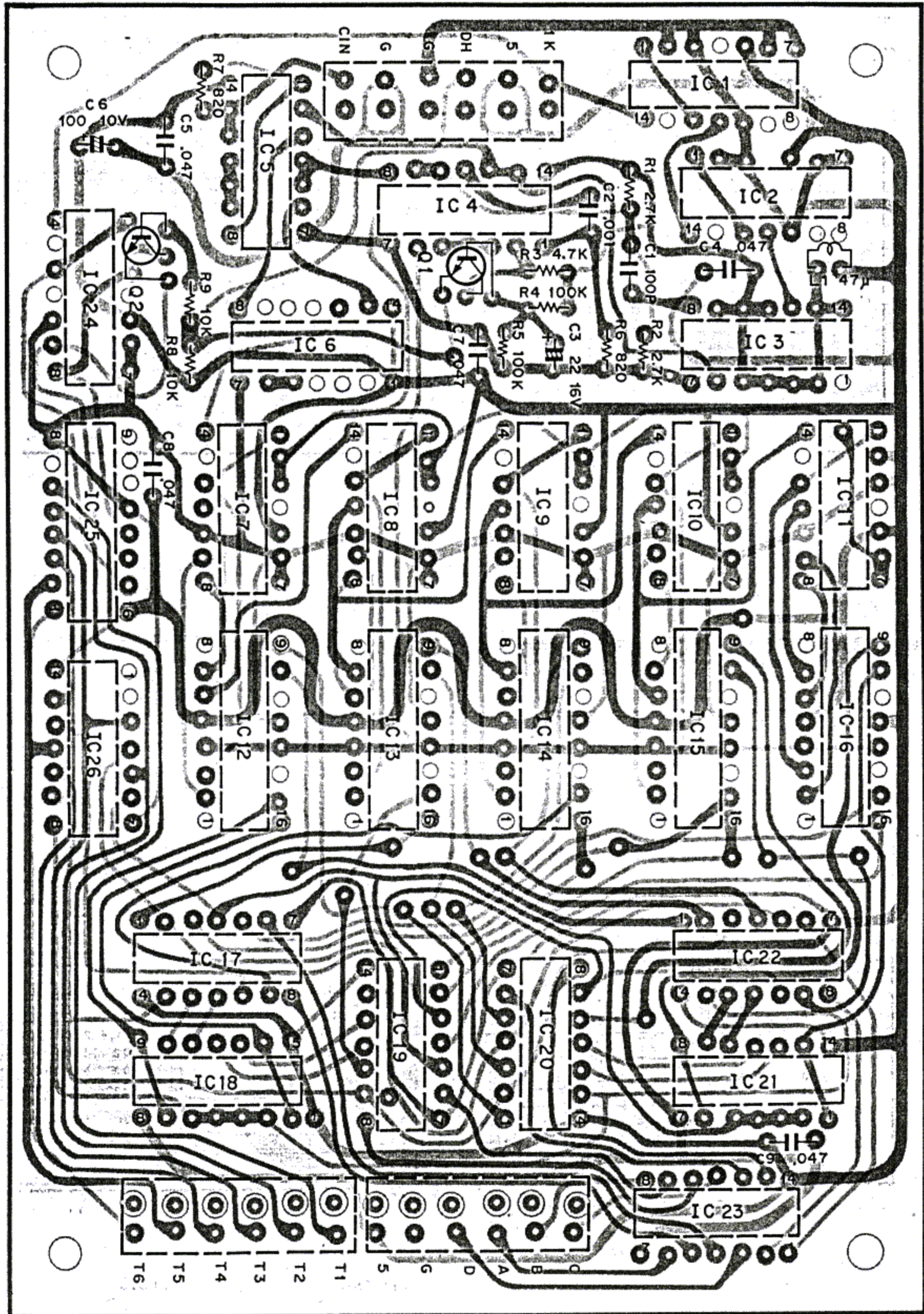


■ VR UNIT (X54-1340-00)





■ COUNTER UNIT (X54-1160-00)



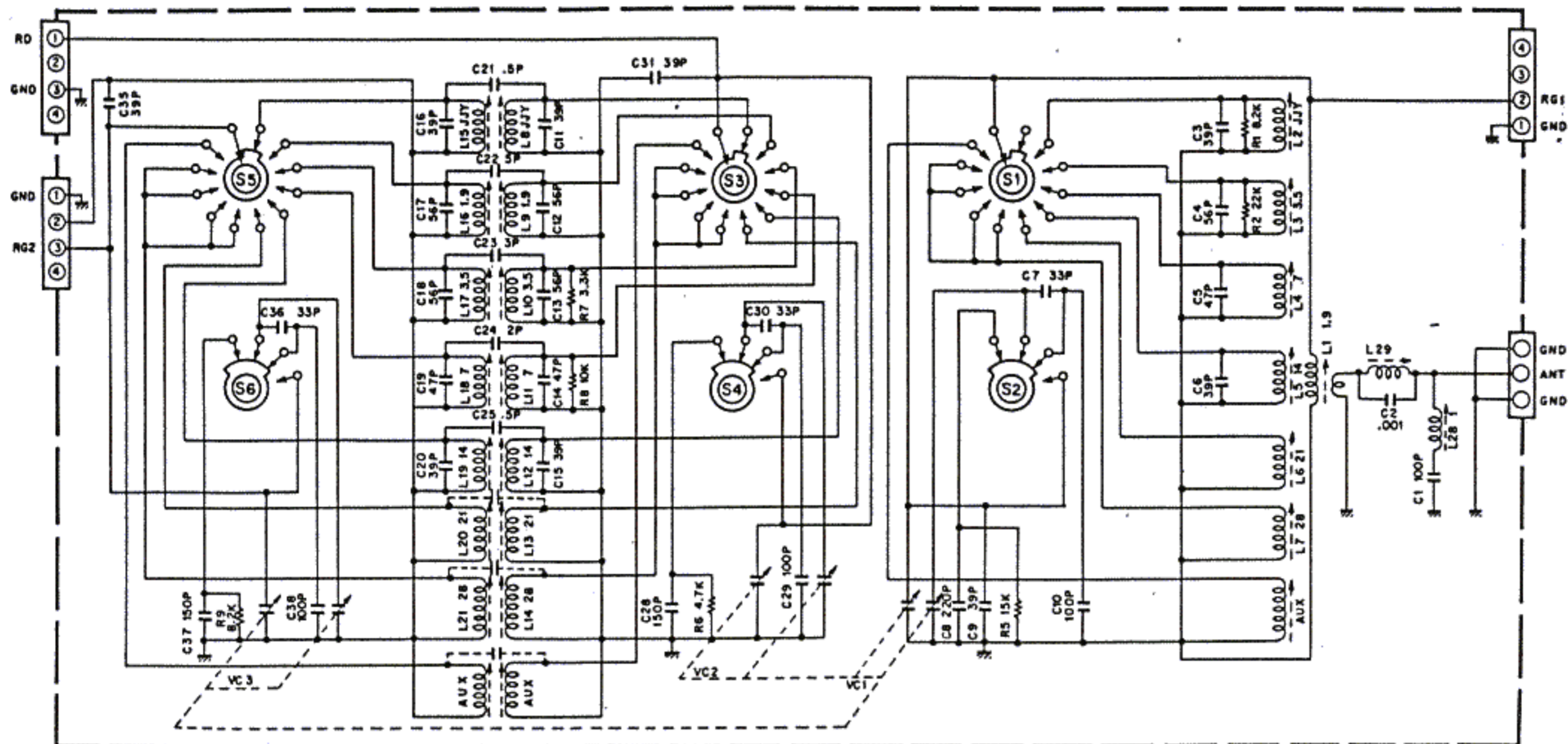
IC1, 2, 7, 8~11, 24: TD3490BP, IC3: TD3472AP, IC4, 23: TD3400AP, IC5: SN74H00N  
 IC6: SN74176N, IC12~16: TD3475AP, IC17, 19, 20, 22: TD3450AP, IC18, 21: TD3460AP  
 IC25: TD3442AP, IC26: TD3404AP, Q1, 2: 2SC945(R)

R-820

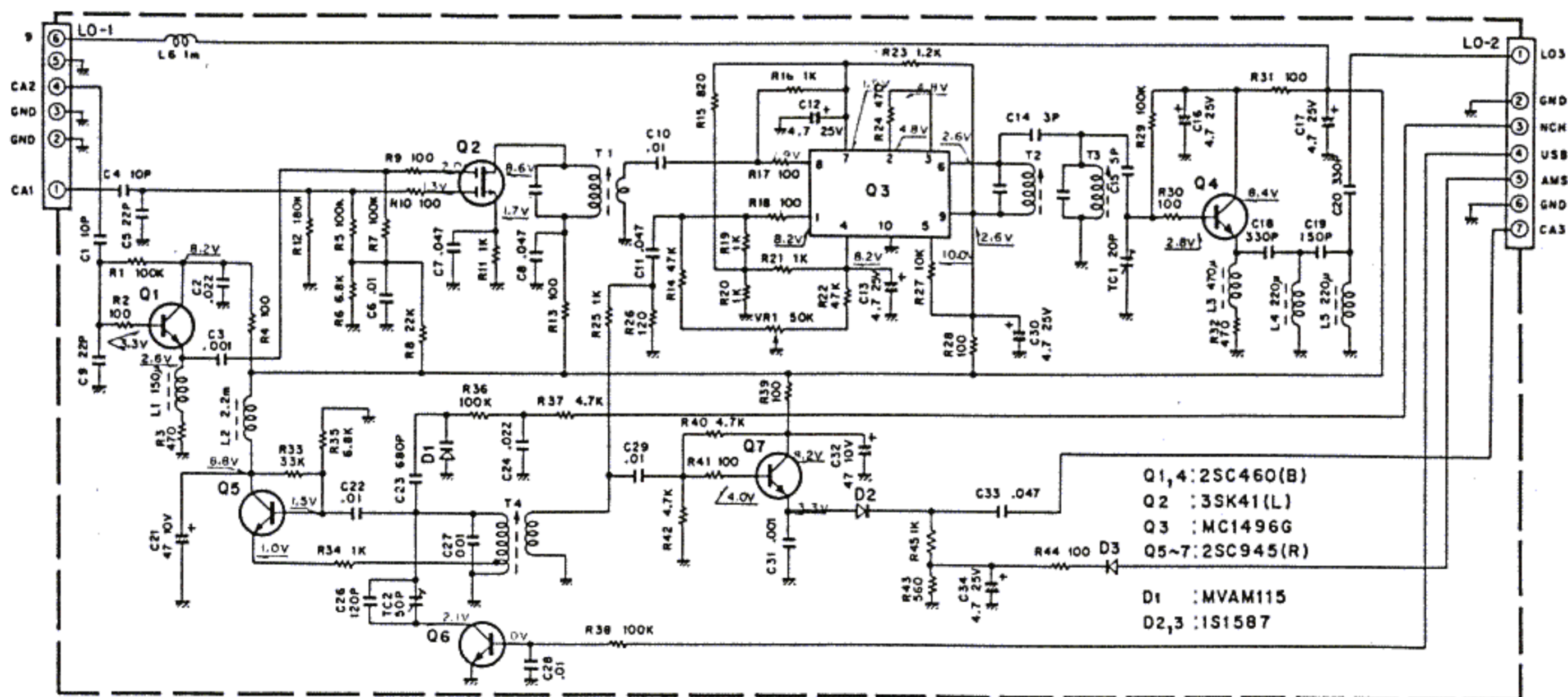
KENWOOD



### COIL PACK UNIT (X44-1230-00)

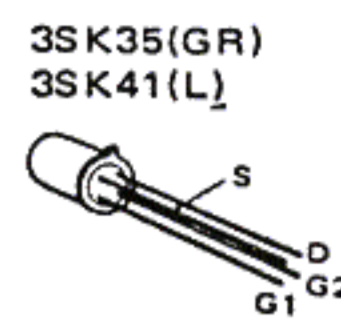
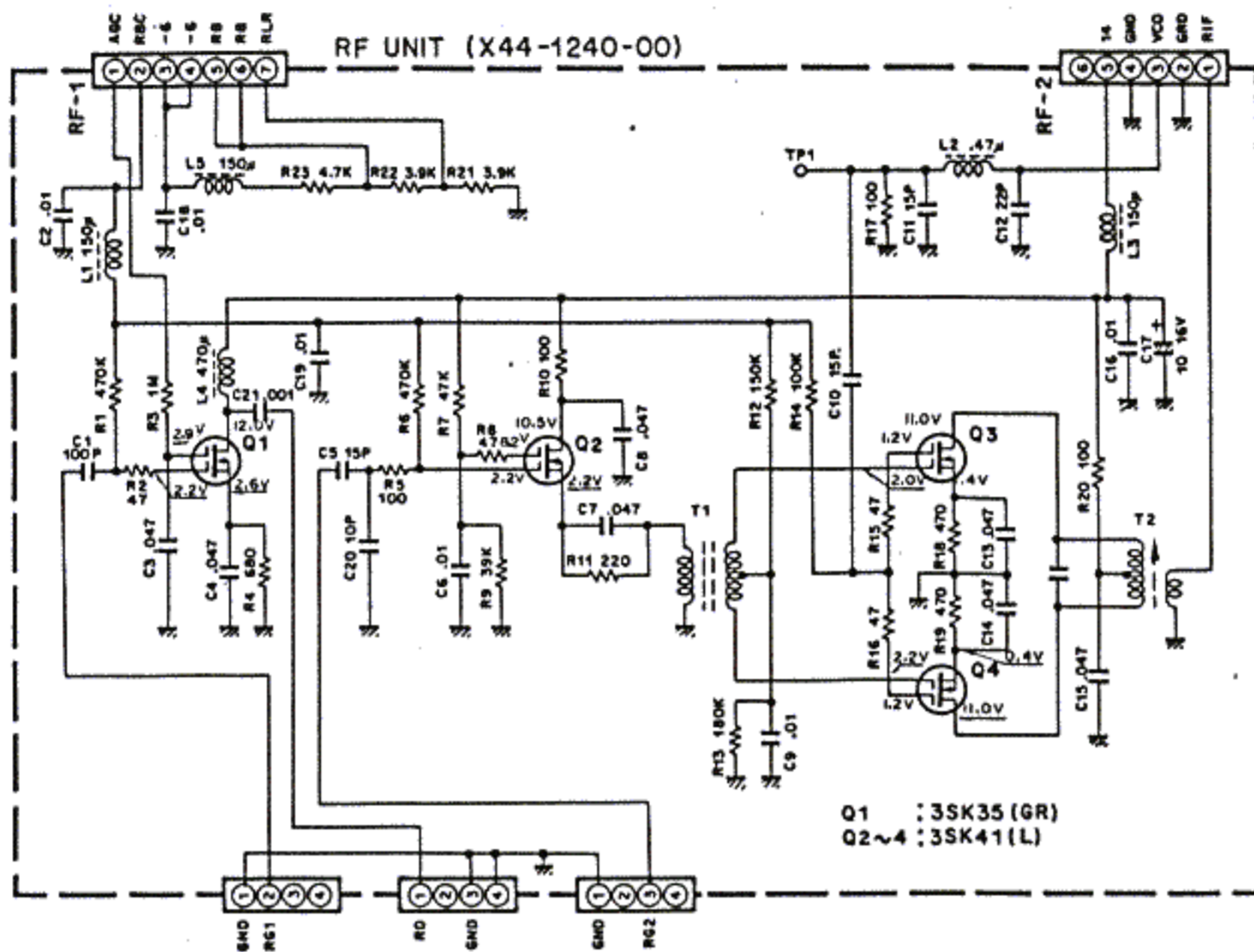


### LOCAL OSCILLATOR UNIT (X50-1440-00)

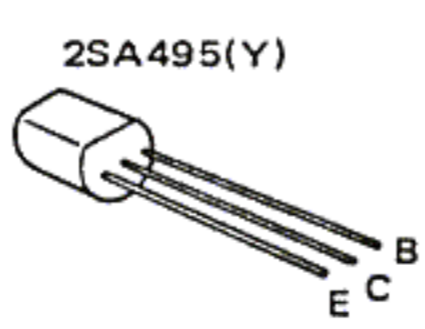
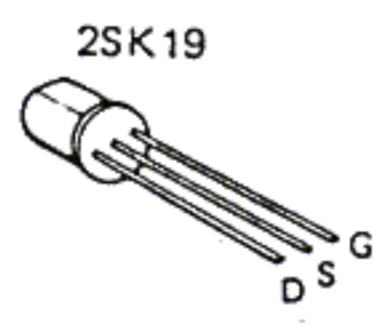
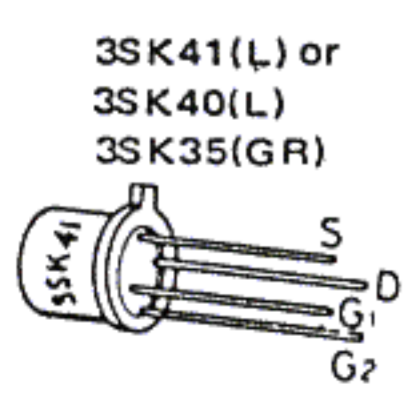
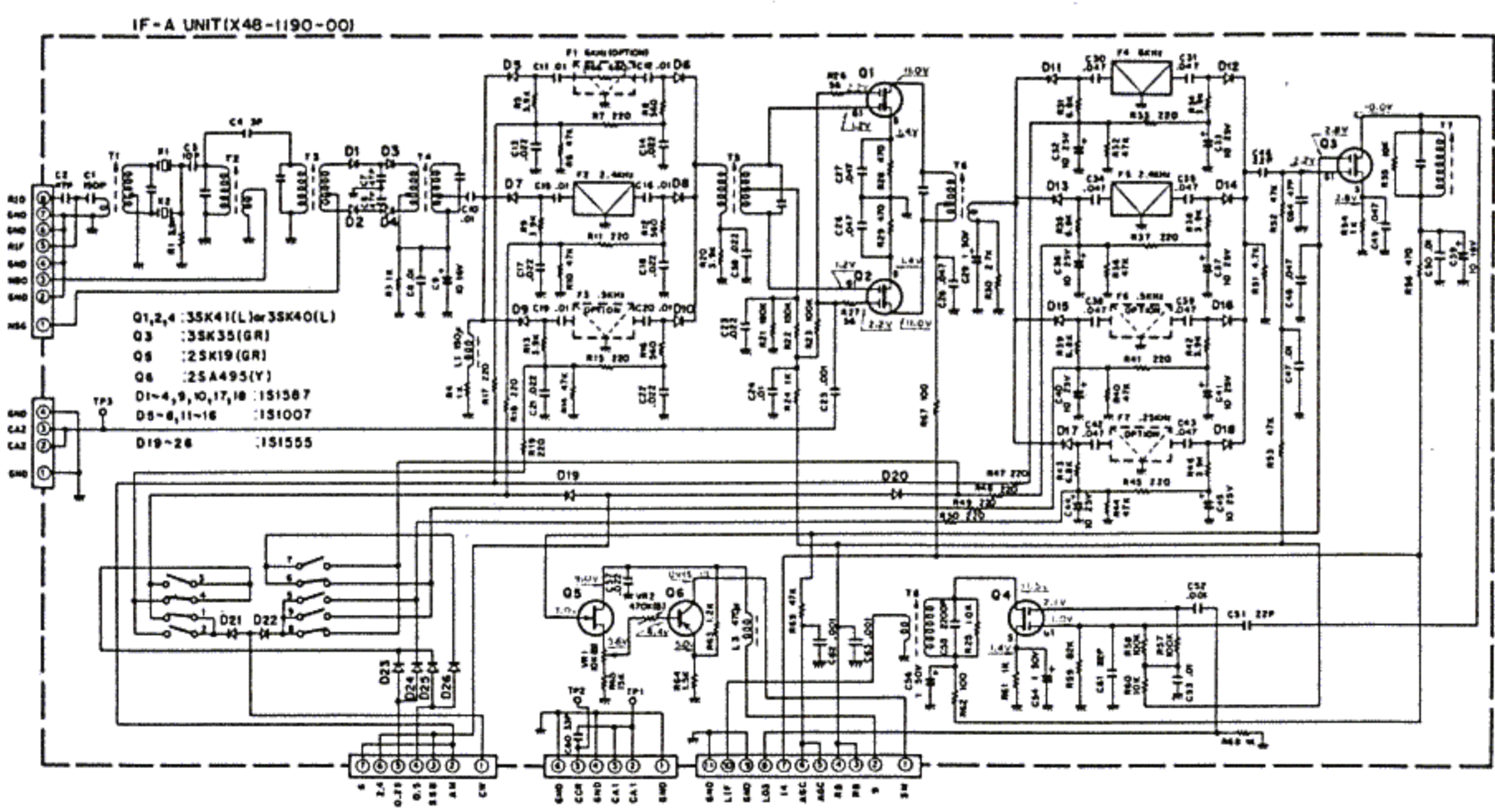




### RF UNIT (X44-1240-00)



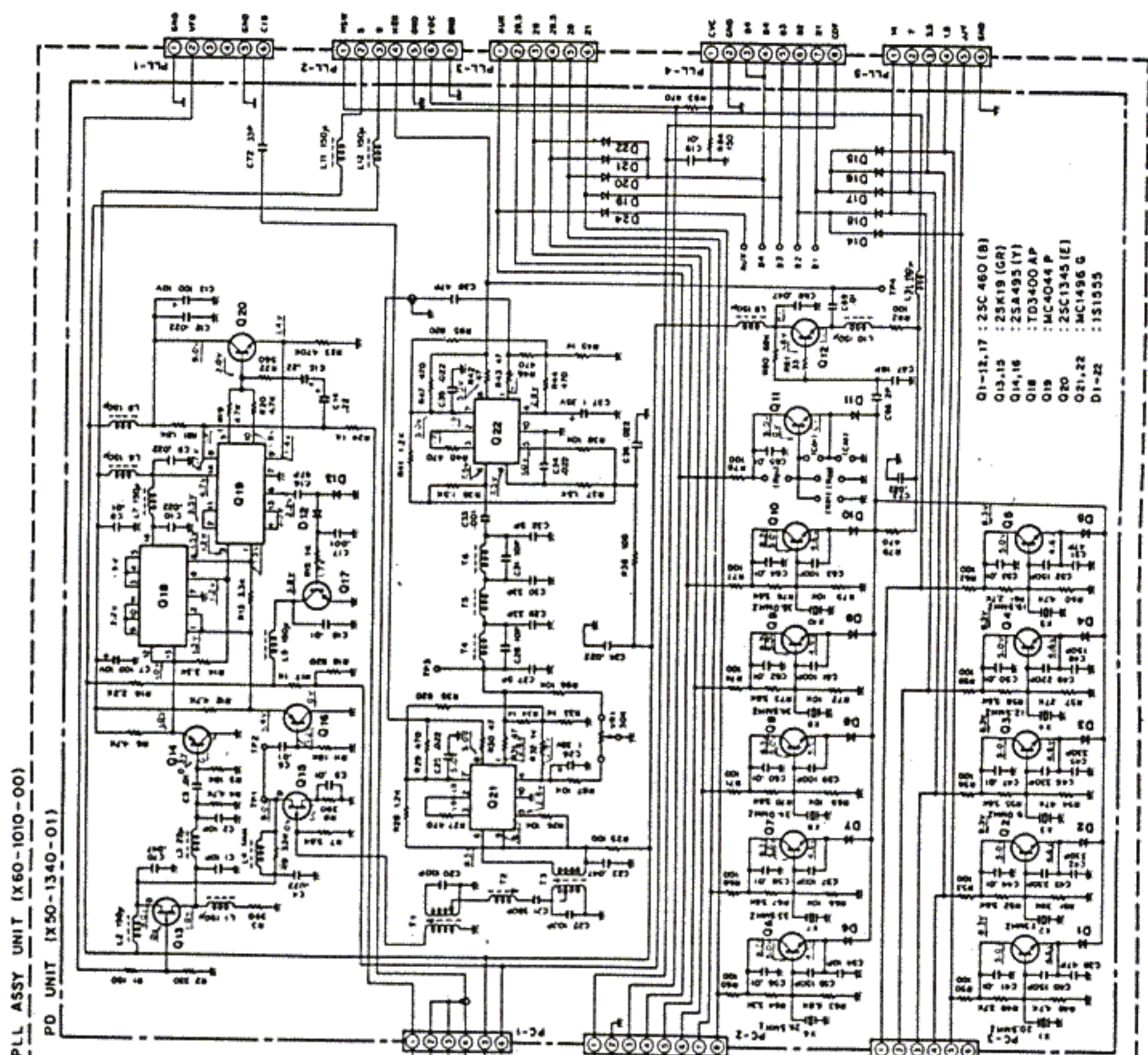
### IF-A UNIT (X48-1190-00)



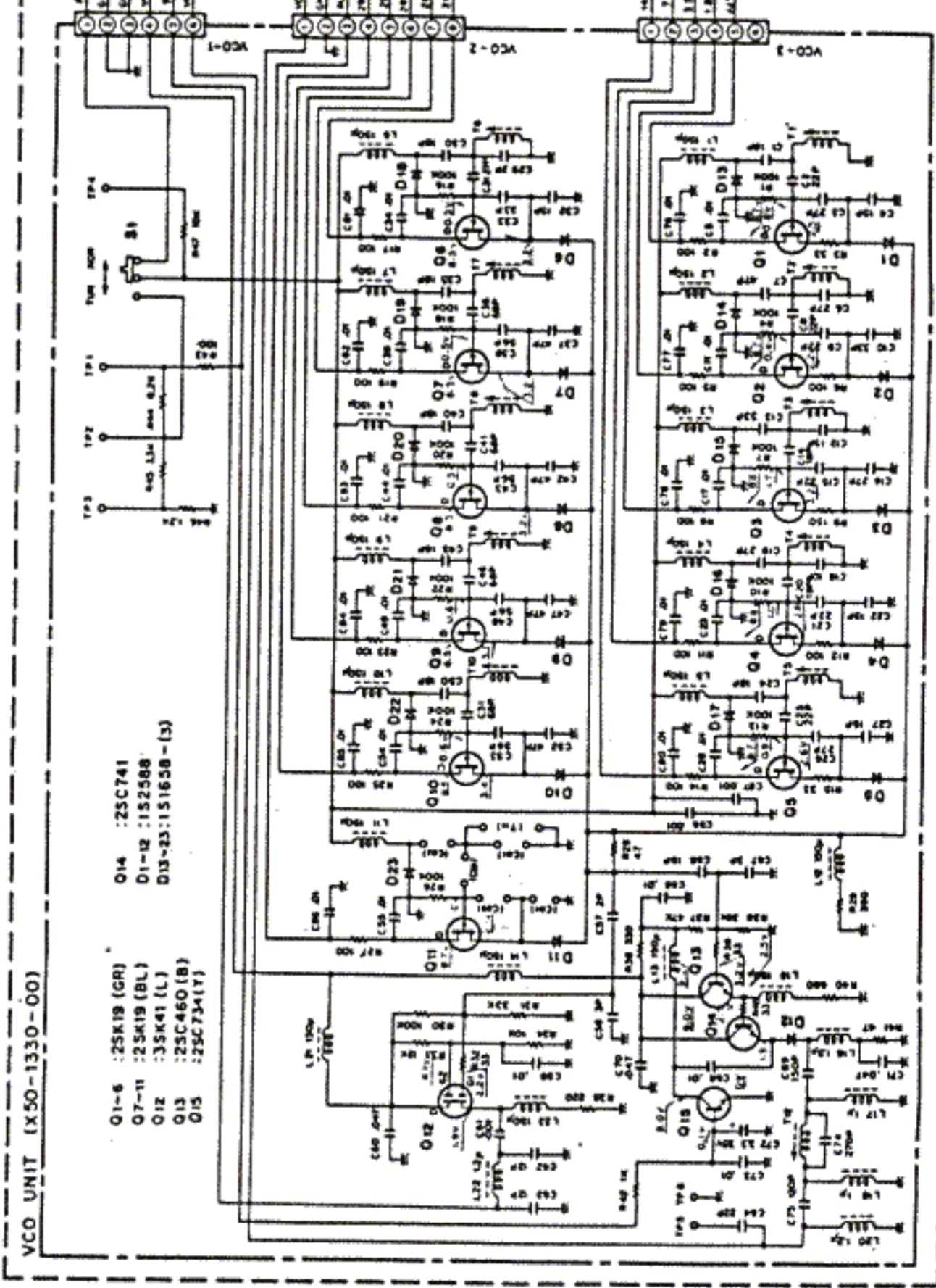
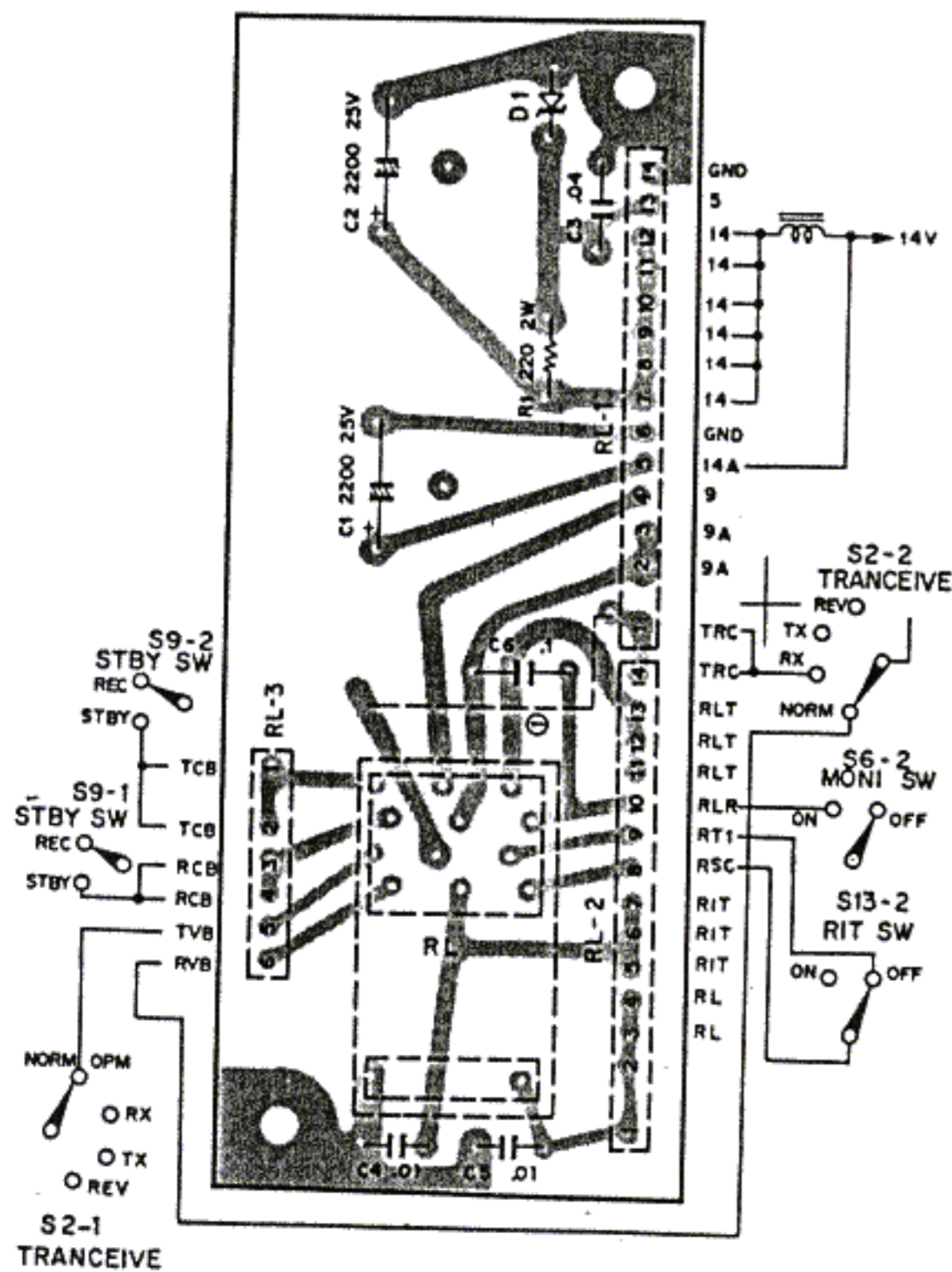


### ■ PLL ASS'Y UNIT (X60-1010-01)

**SCHEMATHEEK**  
 Beh. T. Hultermans  
 Postbus 4228  
 5604 EE Eindhoven



### ■ RELAY UNIT (X43-1190-00)





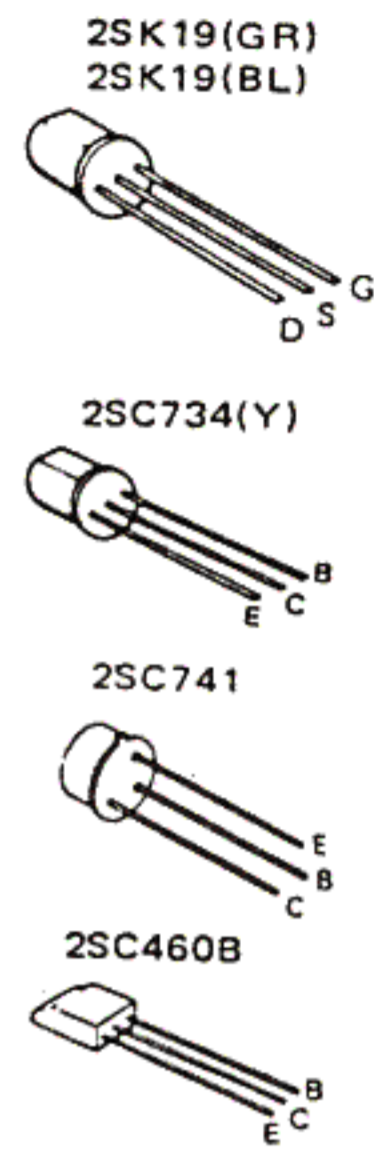
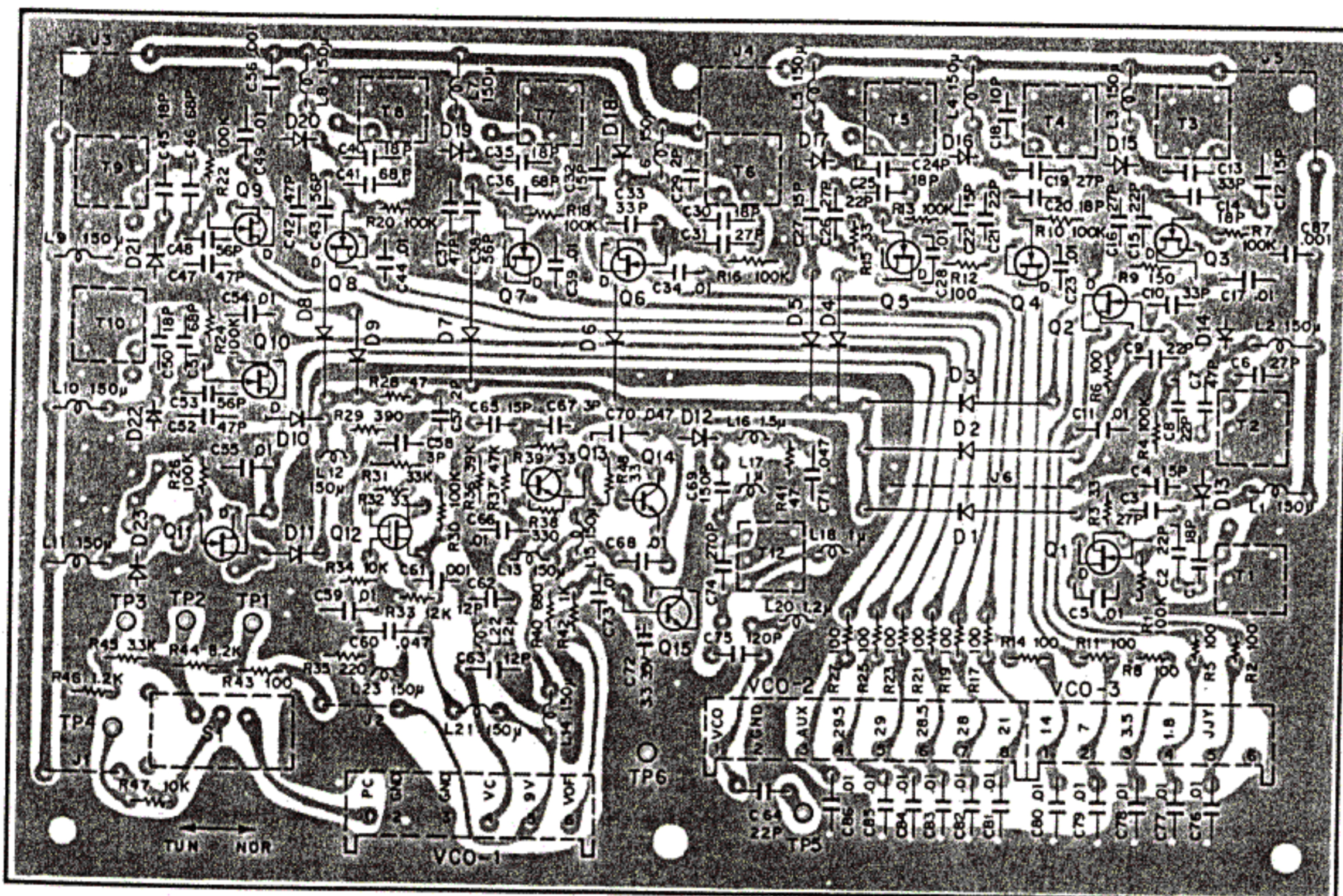
A

B

C

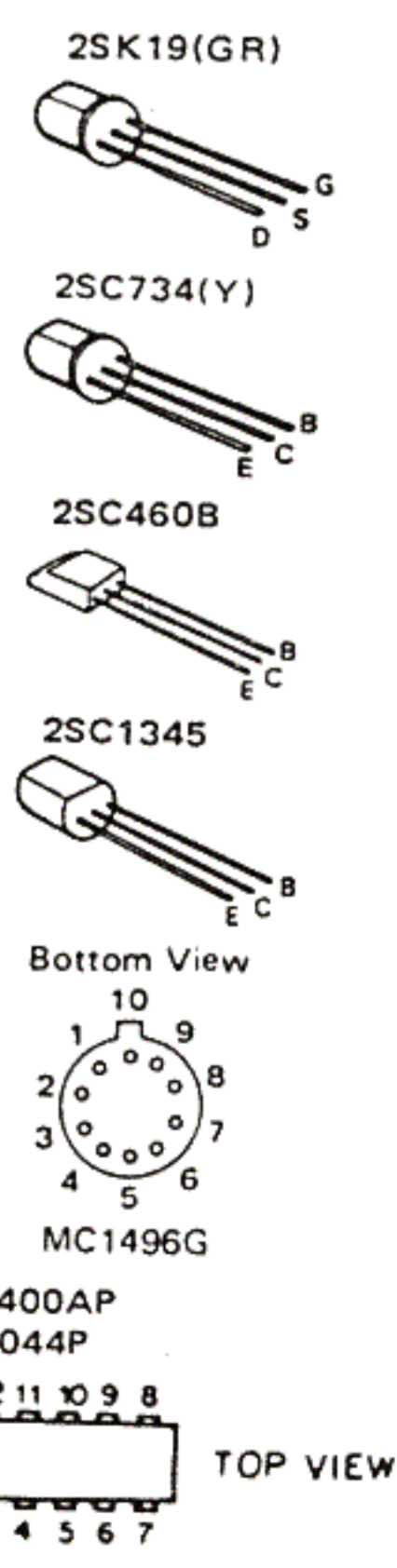
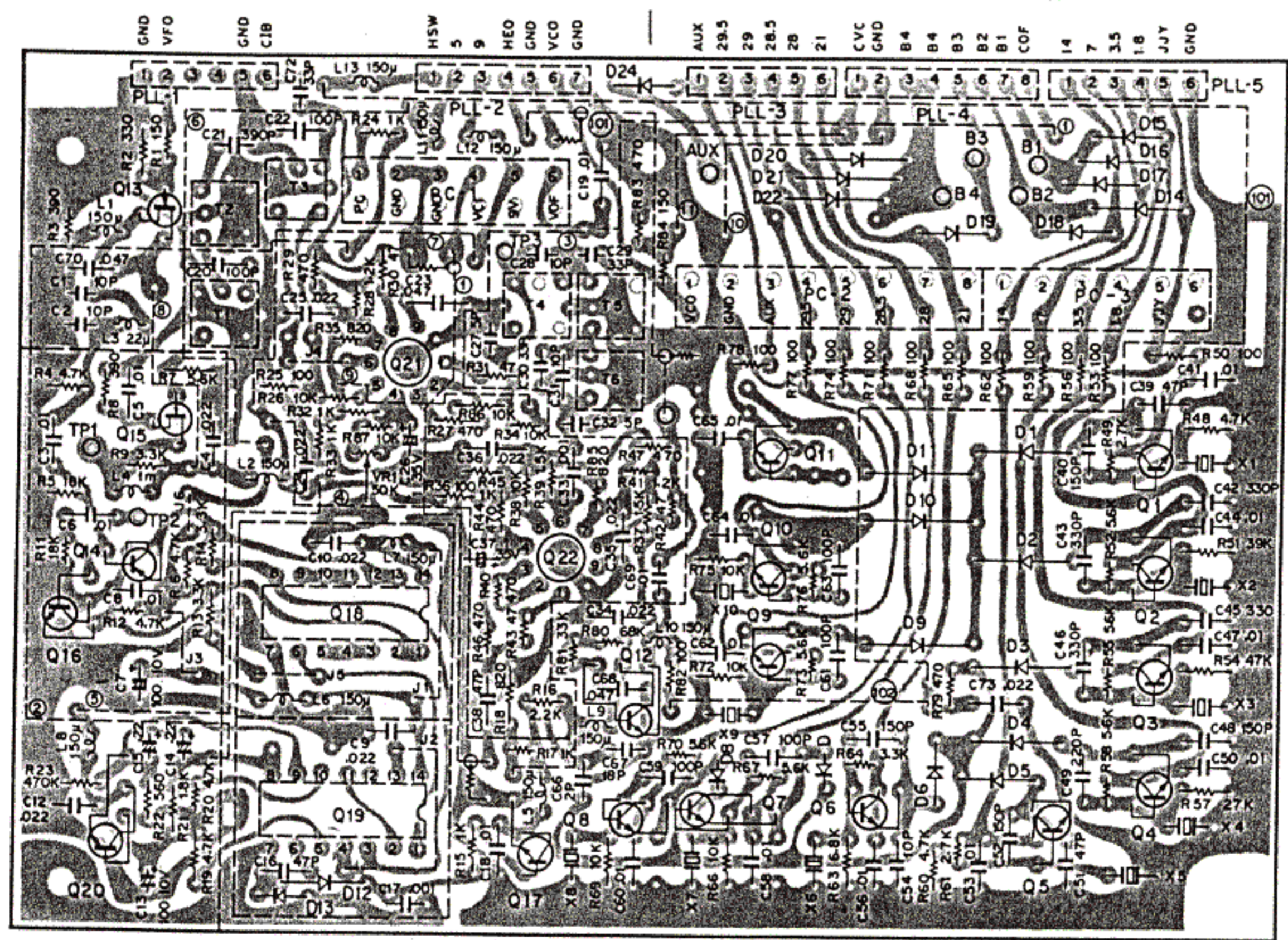
D

### VCO UNIT (X50-1330-00)



Q1 ~ 6: 2SK19(GR), Q7 ~ 11: 2SK19(BL), Q12: 3SK41(L), Q13: 2SC460(B), Q15: 2SC734(Y)  
 Q14: 2SC741, D1 ~ 12: 1S2588, D13 ~ 23: 1S1658-(3)

### PD UNIT (X50-1340-00)



Q1 ~ 12, 17: 2SC460(B), Q13, 15: 2SK19(GR), Q14, 16: 2SA495(Y), Q18: TD3400AP  
 Q19: MC4044P, Q20: 2SC1345(E), Q21, 22: MC1496G, D1 ~ 22: 1S1555