



SCHEMATHEEK
Beh. T. Hultermans
Postbus 4228
5604 EE Eindhoven

SPECIFICATIONS

Countable Digits
Type

Six decimal digits.
Light-emitting diode frequency display with hold memory.

DISPLAY (in combination with TS-520S)

Frequency Range

All TS-520S transmit and receive channel frequencies as precise as 0.1 kHz digit.

Accuracy
Input

Reference time ± 0.2 count.
TS-520S heterodyne local oscillator signal, VFO signal, and all carrier oscillator signals.

COUNTER

Measurable Frequency Range

100 Hz to 40 MHz

Input Sensitivity
(at Room Temperature)

50 mV r.m.s. at 10 kHz to 10 MHz

Absolute Max. Input

200 mV r.m.s. at 100 Hz to 40 MHz

Level

200V (DC + peak).

Input Impedance

5V r.m.s. (continuous at 100 Hz to 40 MHz).

Accuracy

Approx. $5\text{ k}\Omega$, less than 22pF.

Count Time

Reference time ± 0.1 count.

Least Significant Digit

0.1 sec.

0.1 kHz.

REFERENCE TIME

Frequency

10 MHz

Error

Less than 1×10^{-5} (at room temperature).

Temperature Stability

Greater than 3×10^{-5} (at 0°C to $+50^\circ\text{C}$).

Aging Rate

Lower than 1×10^{-6} /month (at room temperature).

GENERAL

Ambient Temperature

-10°C to $+50^\circ\text{C}$.

Power

Supplied from TS-520S.

External Power

12 to 16V, 0.9A DC (with 13.8V reference).

Dimensions

167mm (6-9/16") wide X 260 mm (10-1/64")

[268mm (10-1/16"), max.] deep X (1-37/64")

[43mm (1-11/16"), max.] high

Net Weight

1.27 kg (2.8 lbs.)

Semiconductors Used

42 ICs, 31 transistors, 19 diodes, 3 two-digit LEDs, and 1 LED indicator.

SCHEMATHEEK

Beh. T. Hultermans

Postbus 4228

5604 EE Eindhoven

9

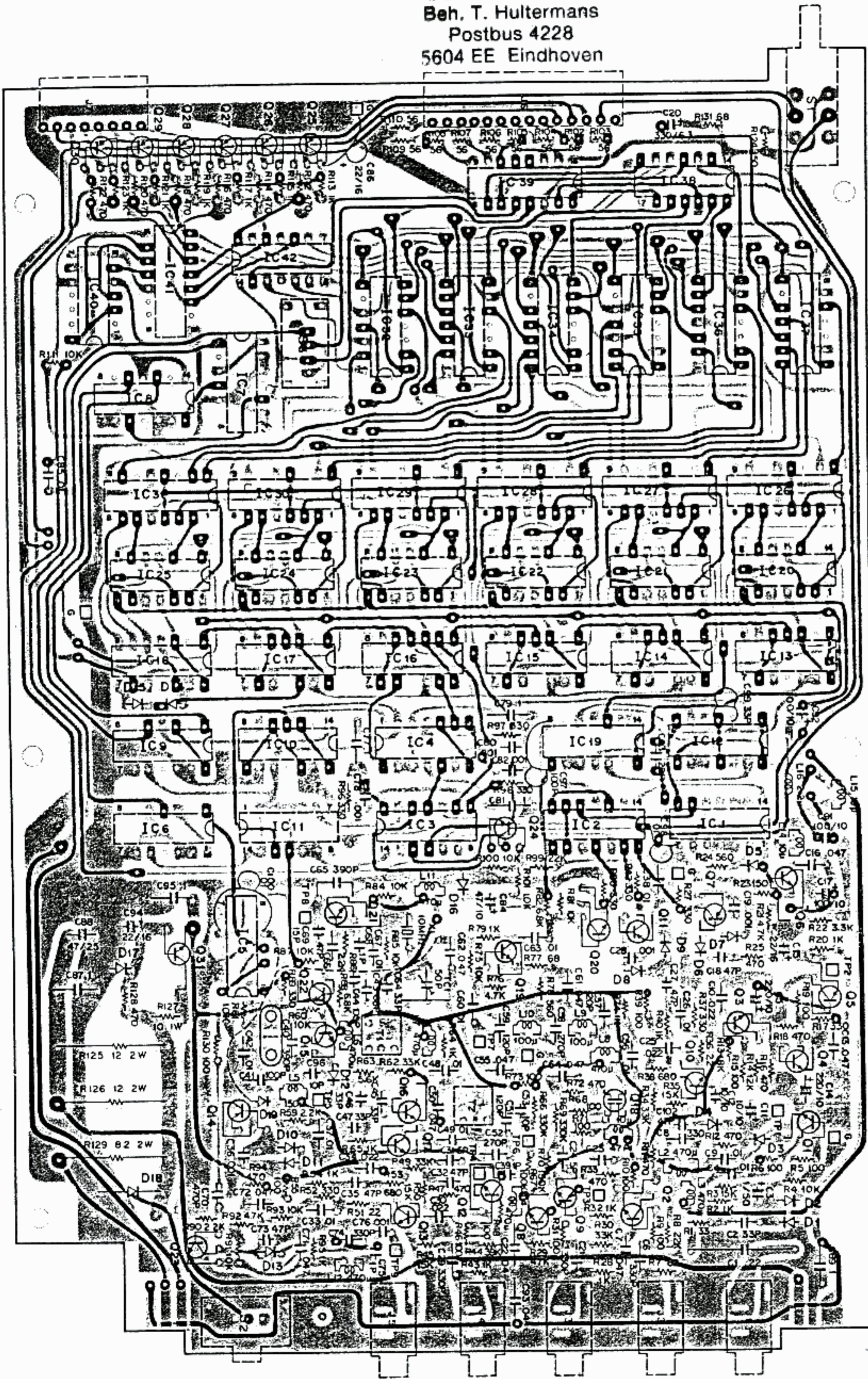
9

DG-5

KENWOOD

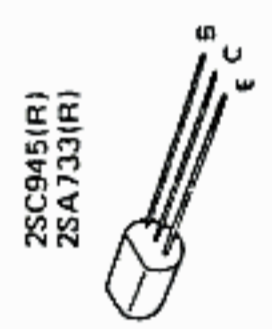
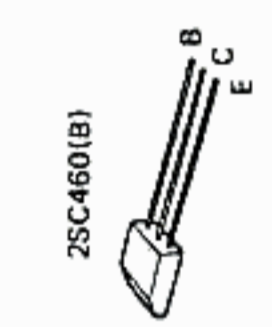
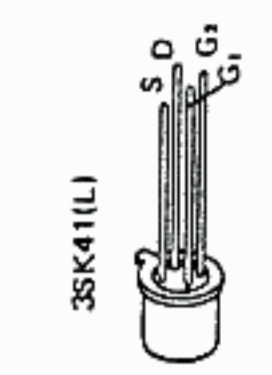
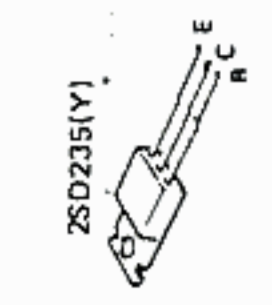
▼ Counter Unit (X54-1260-00)

SCHEMATHEEK
Beh. T. Hultermans
Postbus 4228
5604 EE Eindhoven



IC1:SN74S00N, IC2~4, 38:TD3400AP, IC5~10, 13~18:SN74LS90N, IC11:TD3472AP, IC12:SN74196N,
IC19~25:SN74176N, IC26~31:SN74LS75N, IC32, 34, 35, 37:SN7454N, IC33, 36:TD3451AP,
IC39:TD3447AP, IC40:TD3492BP, IC41:TD3442AP, IC42:TD3404AP, Q1~3, 5, 6, 9, 10, 12, 13, 19, 20,
22, 24:2SC945(R), Q4, 8, 15~17, 21, 23:2SC460(B), Q7, 11, 14, 25~30:2SA733(R), Q18:3SK41(L),
Q31:2SD235(Y), D1~5, 12~16, 19:1S1587, D6~11:1N60, D17:WZ-090, D18:U05B

SN74S00N SN74176N
TD3400AP SN7454N
SN74LS90N TD3451AP
TD3472AP TD3492BP
SN74196N TD3404AP
14 13 12 11 10 9
1 2 3 4 5 6 7 8



A

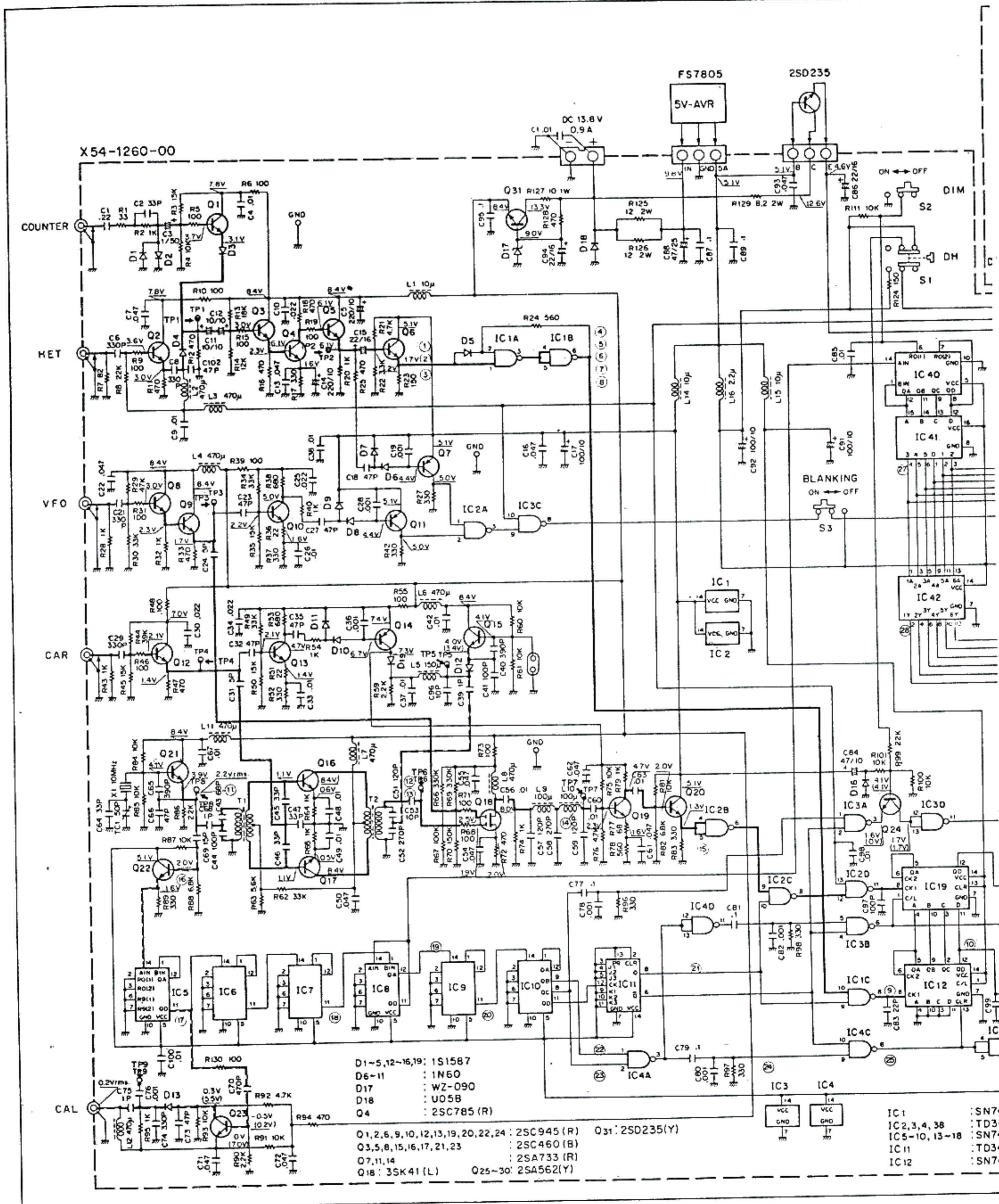
B

C

D

With regard to the numbers in this diagram, refer to the the wave forms on page 37.

Signal line



X54-1260-00

COUNTER

MET

VFO

CAR

CAL

F57805
5V-AVR

2SD235

DC 13.8V
0.9A

DIM

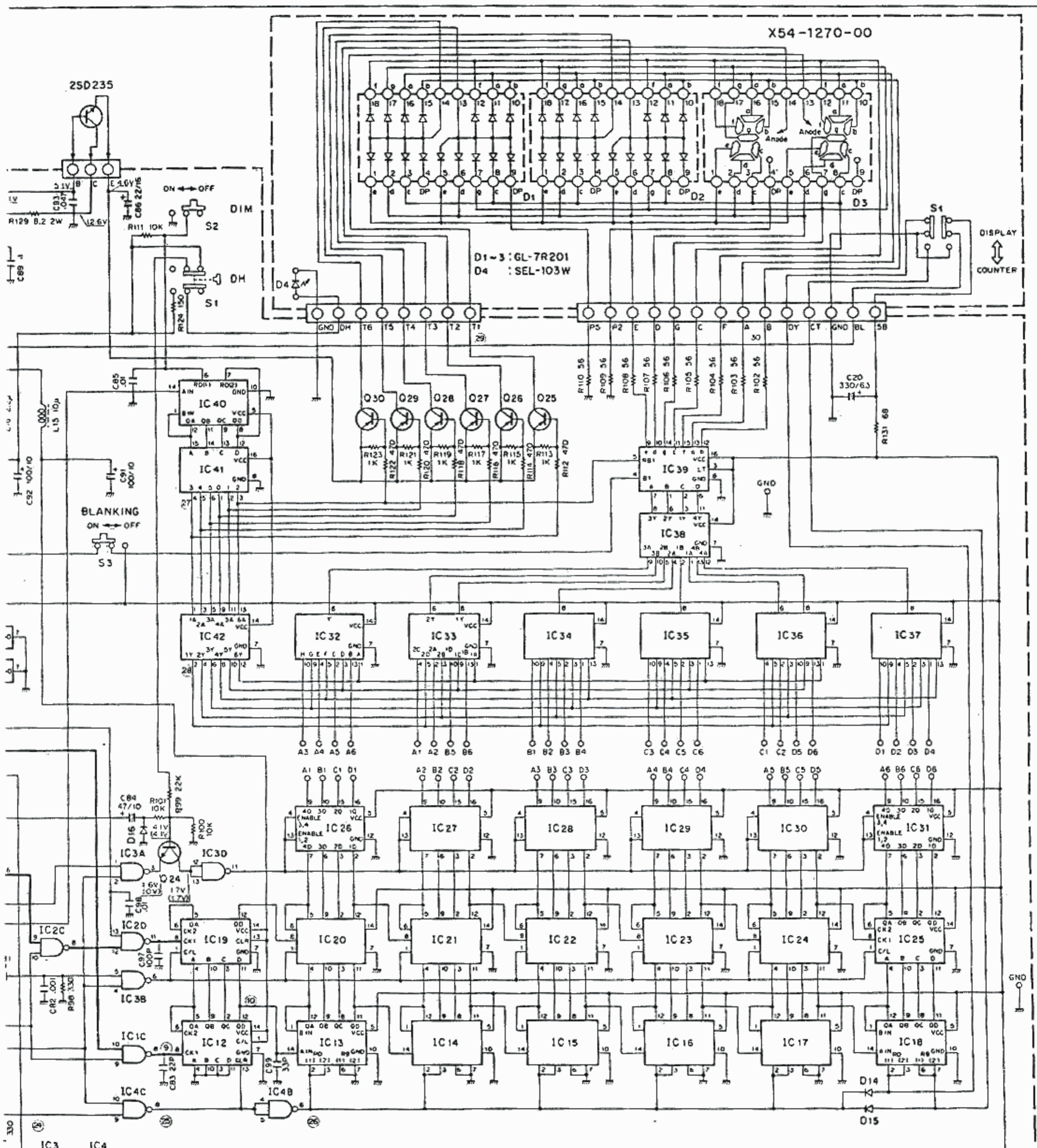
BLANKING
ON OFF

- D1-5, 12-16, 19: 1S1587
- D6-11: 1N60
- D17: WZ-090
- D18: U05B
- Q4: 2SC785 (R)
- Q1, 2, 6, 9, 10, 12, 13, 19, 20, 22, 24: 2SC945 (R)
- Q3, 5, 8, 15, 16, 17, 21, 23: 2SC460 (B)
- Q7, 11, 14: 2SA733 (R)
- Q18: 3SK41 (L)
- Q25-30: 2SA562 (Y)
- Q31: 2SD235 (Y)

- IC1: SN74
- IC2, 3, 4, 38: TD34
- IC5-10, 13-18: SN74
- IC11: TD34
- IC12: SN74

1
2
3
4
5
6

— Signal line - - - - - Control signal line



- | | | | | | |
|--------------------|-------------|-------------------|-------------|-------|------------|
| IC 1 | : SN74S00N | IC 19 - 25 | : SN74176N | IC 40 | : TD3492BP |
| IC 2, 3, 4, 38 | : TD3400AP | IC 26 - 31 | : SN74LS75N | IC 41 | : TD3442AP |
| IC 5 - 10, 13 - 18 | : SN74LS90N | IC 32, 34, 35, 37 | : SN7454N | IC 42 | : TD3404AP |
| IC 11 | : TD3472AP | IC 33, 36 | : TD3451AP | | |
| IC 12 | : SN74196N | IC 39 | : SN74247N | | |

SCHEMATHEEK
 Beh. T. Hultermans
 Postbus 4228
 5604 EE Eindhoven