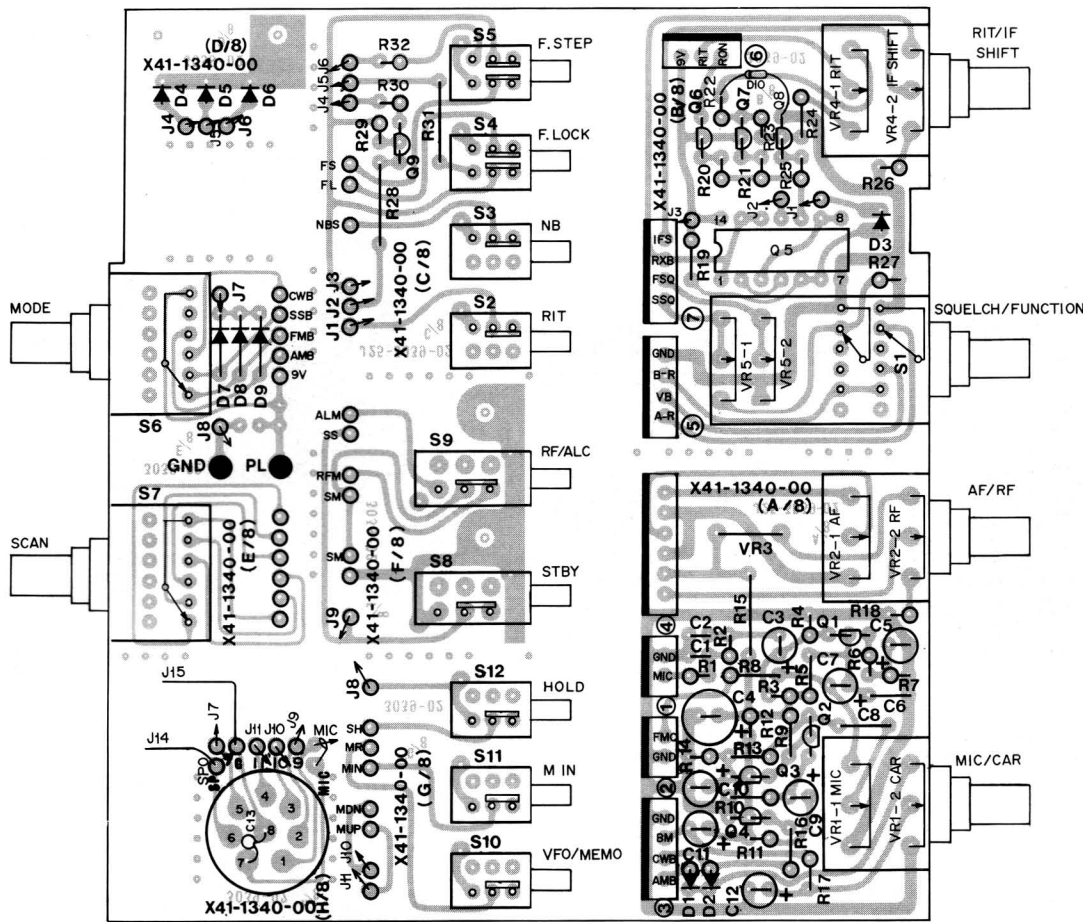
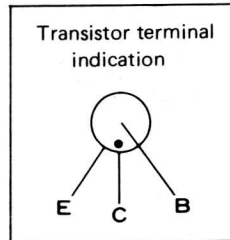
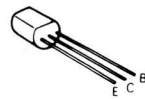


▼ SWITCH UNIT (X41-1340-00) Components side view

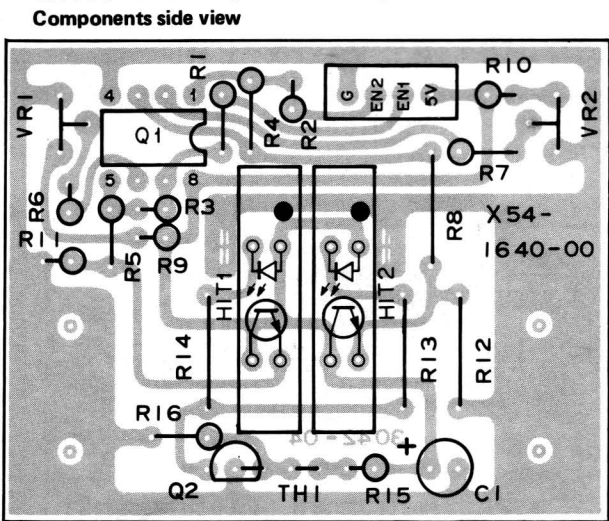


2SA1015  
2SC945  
2SC1815  
2SC2240



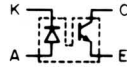
Q1 : 2SC2240(GR) Q2~4 : 2SC1815(Y) Q5 : TC4011BP Q6~9 : 2SC945(R)  
D1, 2, 7~9 : 1S1555 D3 : PR2112D D4 : SR538D D5 : SG238D D6 : SY438D D10 : WZ-071

▼ ENCODER UNIT (X54-1640-00) Components side view



Q1 : LM358P Q2 : 2SA1015(Y) HIT1, 2 : ON1105

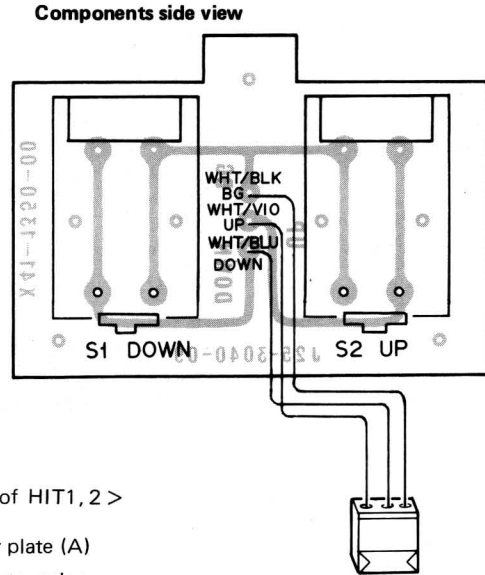
ON1105



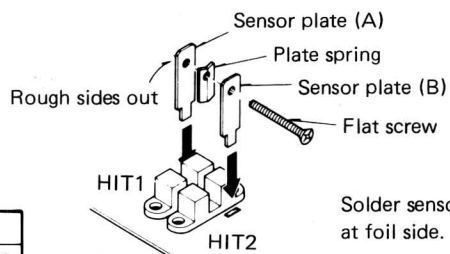
MAX. Rating

VR	IF	PD	IC	V <sub>CE0</sub>	V <sub>ECO</sub>	PC	Top.
3V	50mA	75mW	20mA	30V	5V	100mW	-25 ~ +85°C

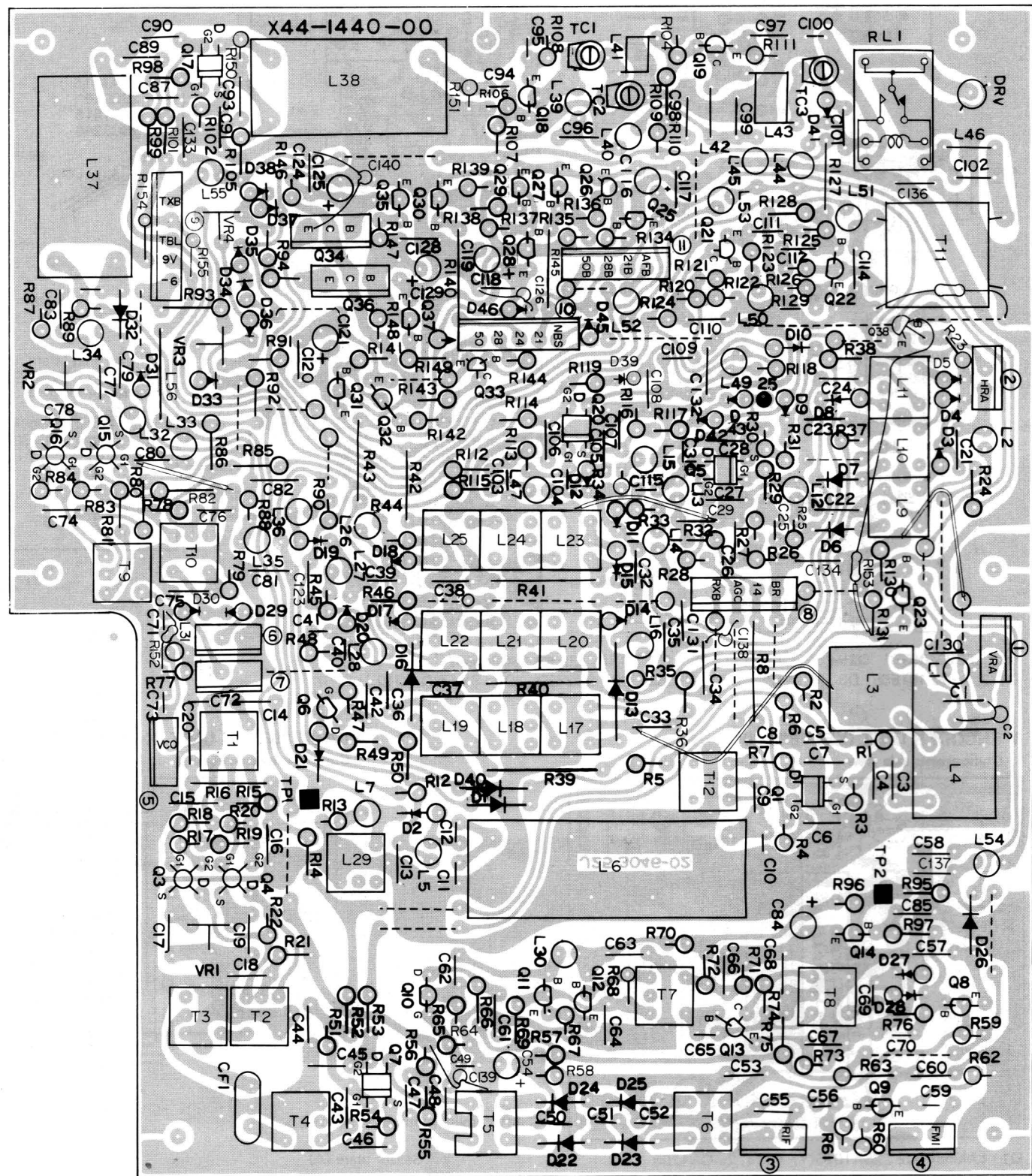
▼ BAND SWITCH UNIT (X41-1350-00) Components side view



< Attachment method of HIT1, 2 >



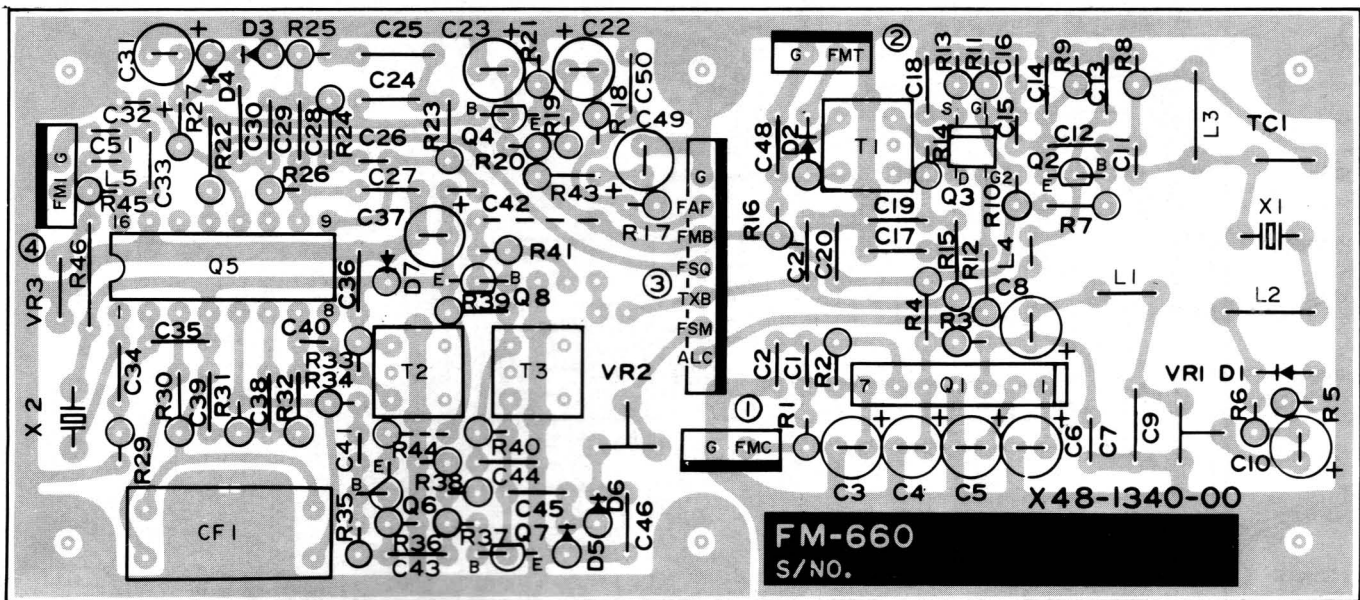
Solder sensor plate (A) and (B) at foil side.



Q1, 5, 7, 17, 20 : 3SK73(GR) Q3, 4, 15, 16 : 3SK74(L) Q6 : 2SK61(GR) Q8, 9, 14, 21, 26, 27, 29, 30, 32, 33, 35, 37, 38 : 2SC1815(Y)  
 Q10 : 2SK19(Y) Q11~13 : 2SC460(B) Q18, 19, 22 : 2SC2086 Q23 : 2SA562(Y) Q25, 28, 31 : 2SC1959(Y) Q34, 36 : 2SD880(Y)  
 D1, 5, 9, 10, 29, 30~36, 40~46 : 1S1555 D2~4, 21 : 1S2586 D6~8, 11~20, 22~25 : 1S1587 D26 : MV13 D27, 28 : 1N60



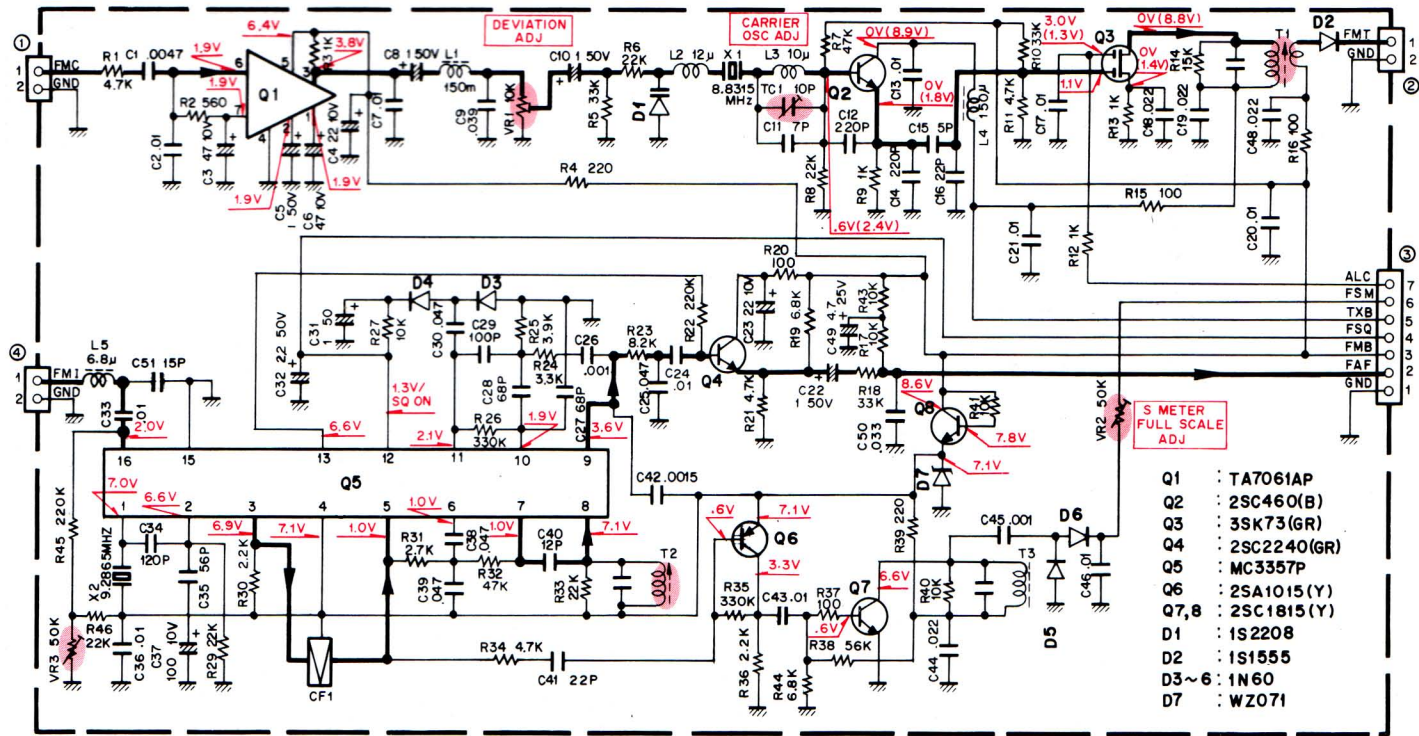
▼ FM UNIT (X48-1340-00) Components side view



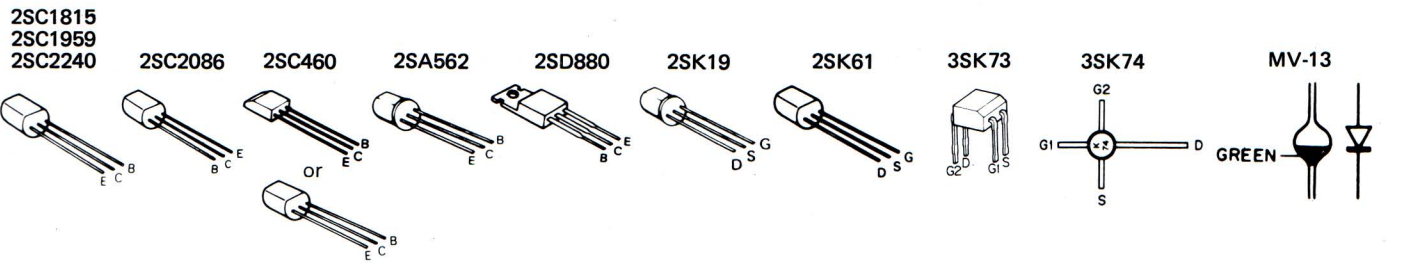
**FM-660**  
S/NO.

X48-1340-00

# FM UNIT (X48-1340-00)



- Q1 : TA7061AP
- Q2 : 2SC460(B)
- Q3 : 3SK73(GR)
- Q4 : 2SC2240(GR)
- Q5 : MC3357P
- Q6 : 2SA1015(Y)
- Q7,8 : 2SC1815(Y)
- D1 : 1S2208
- D2 : 1S1555
- D3~6 : 1N60
- D7 : WZ071





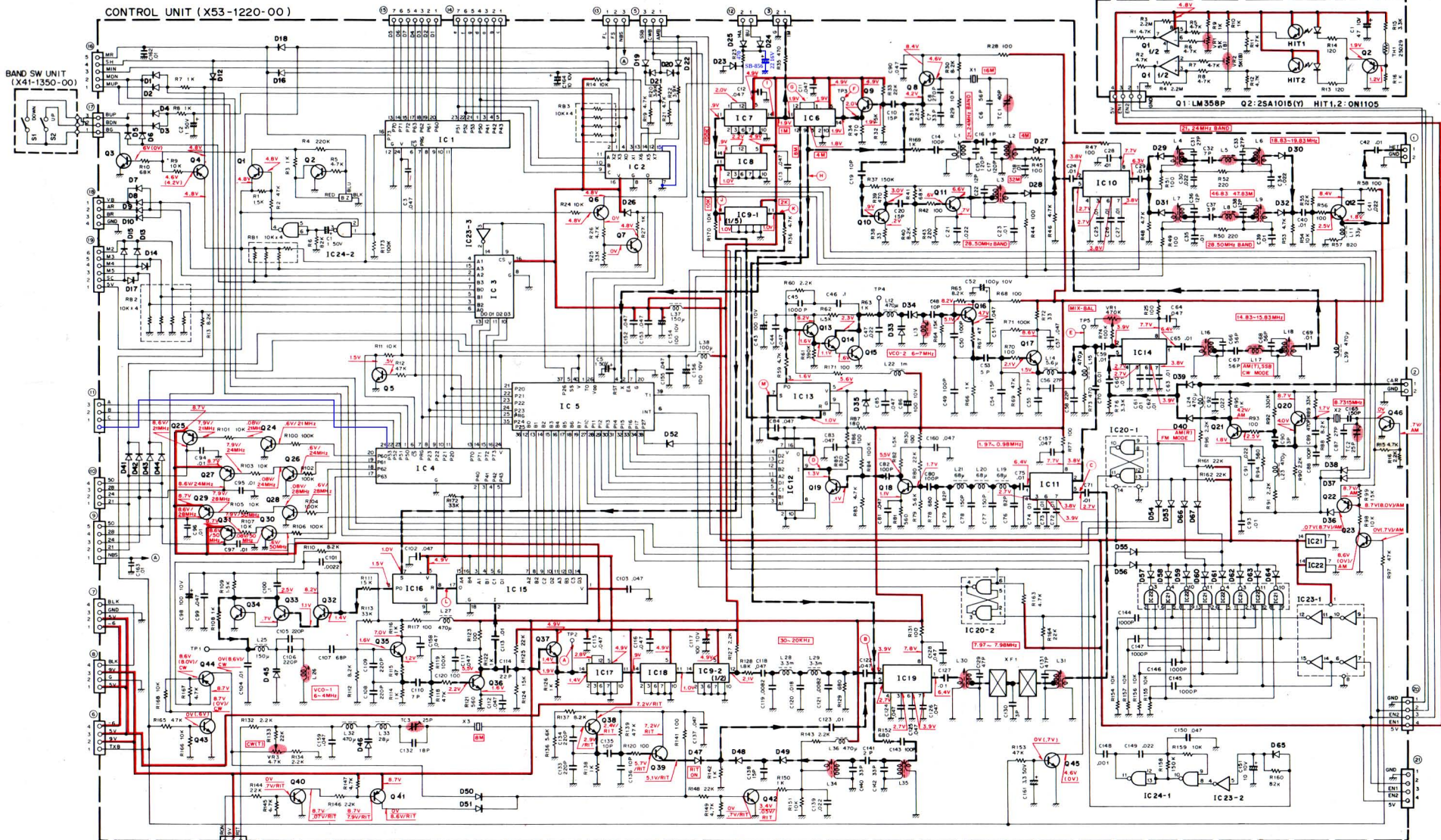




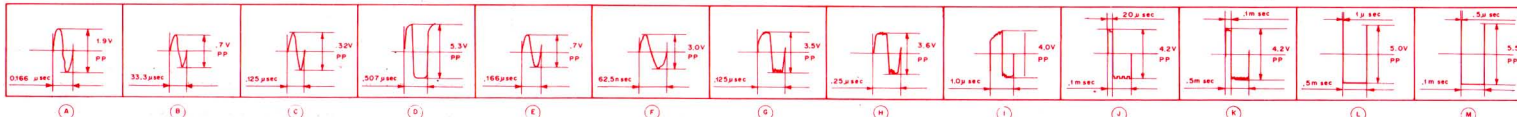


▼ CONTROL UNIT (X53-1220-00) ©2016 WB4KDT

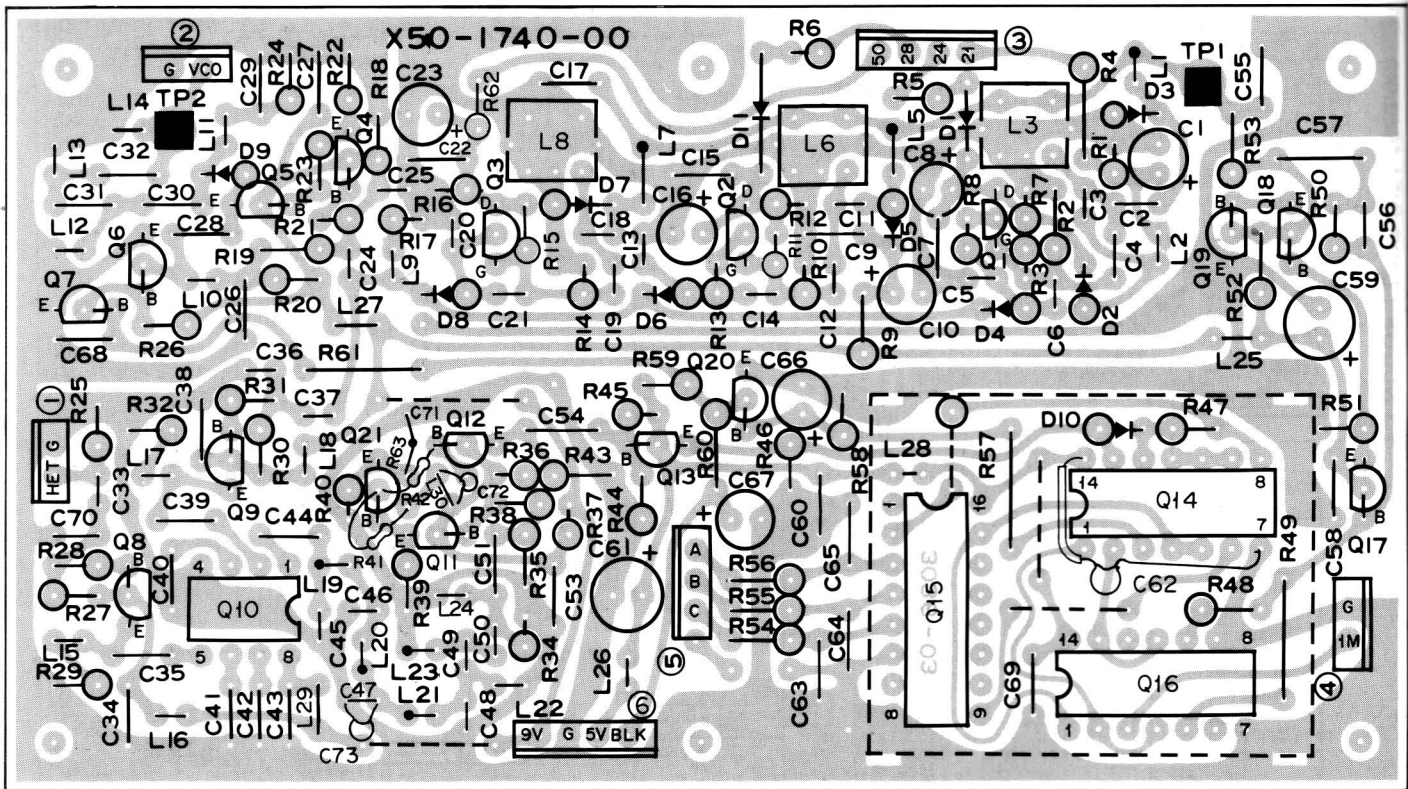
▼ ENCODER UNIT (X54-1640-00)

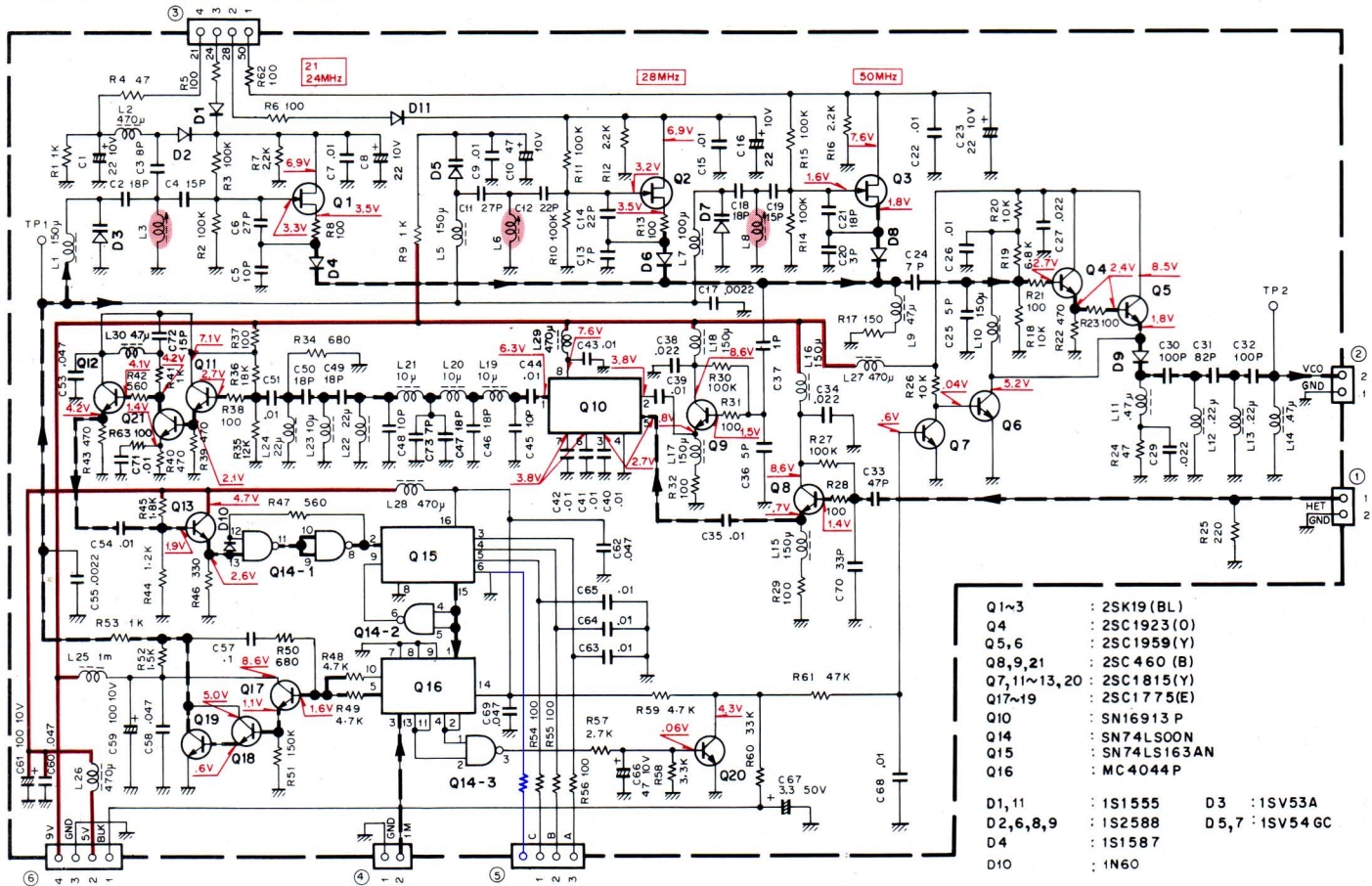


- |                     |                              |                         |                                                                                          |                                 |                        |
|---------------------|------------------------------|-------------------------|------------------------------------------------------------------------------------------|---------------------------------|------------------------|
| IC 1, 4 : μPD8243C  | IC 6 : SN74LS93N             | IC 13, 16 : TC5081P     | Q 1, 4, 6, 22, 25, 27, 29, 31, 41, 44 : 2SA1015(Y)                                       | D 23 : WZ-050                   | D 1~10, 12~22 : 1S1587 |
| IC 2 : SN74LS151N   | IC 7~9, 17, 18 : SN74LS90N   | IC 15 : TC9122P         | Q 2, 8~11, 16~21, 35~39 : 2SC1815(Y)                                                     | D 27~32, 39, 40, 47~49 : 1S1587 | 24~26, 36~38 : 1S1555  |
| IC 3 : TC4019BP     | IC 10, 11, 14, 19 : SN16913P | IC 20~22, 24 : TC4011BP | Q 3, 5, 7, 23, 24, 26, 28, 30, 40, 42, 43, 45, 46 : 2SC1815(Y) or 2C93945(Q), 2C2C458(Y) | D 33, 34, 46 : 1S1546C          | 41~44, 50~67 : 1S1555  |
| IC 5 : μPD8048C-292 | IC 12 : MC14569B             | IC 23 : TC4049BP        | Q 13~15, 32~34 : 2SC1775(E)                                                              | D 35 : XZ-055                   |                        |
|                     |                              |                         | Q 12 : 2SC1923(O)                                                                        | D 45 : KV1236                   |                        |



Measurement conditions f = 50.000MHz





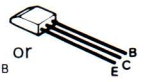
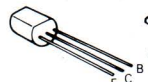
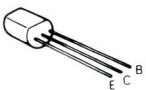
2SC1815 2SC1923  
2SC1775 2SC1959

2SC460

2SC496

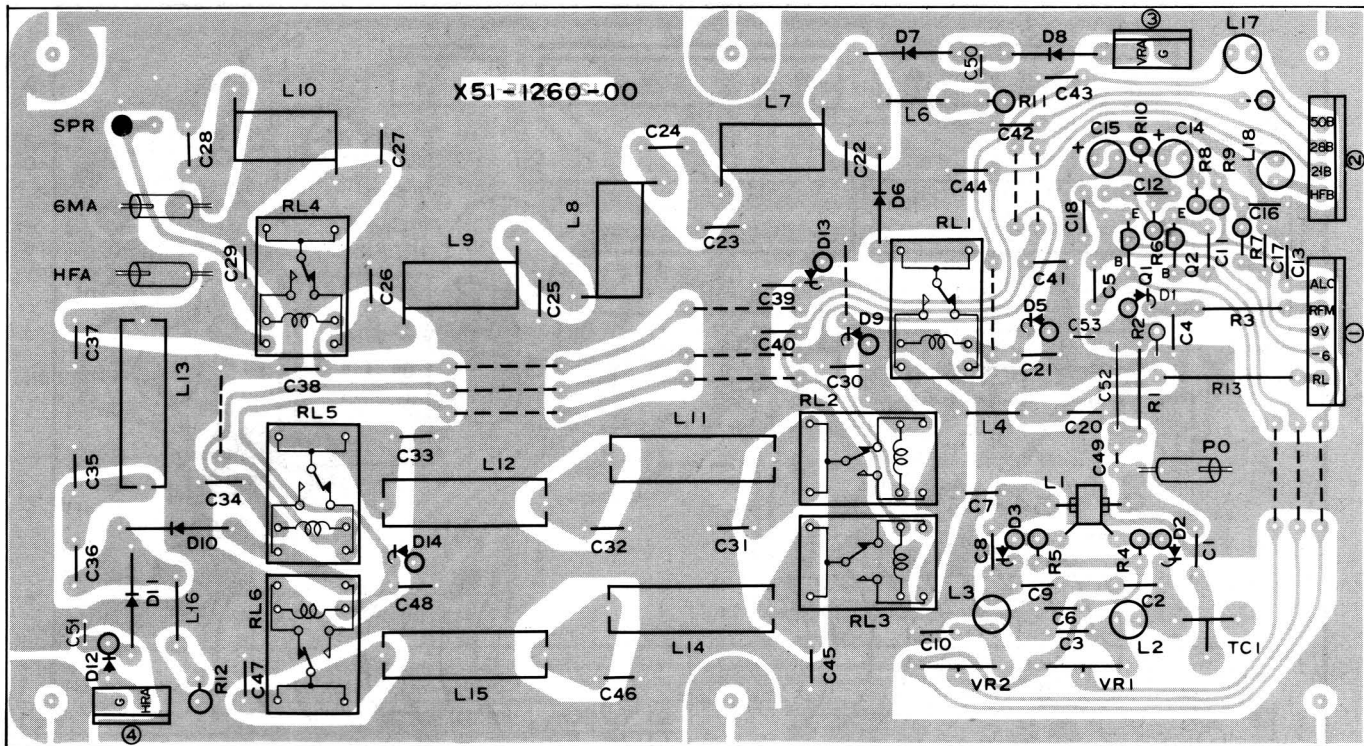
2SC1971  
2SC1972

2SK19



- Q1~3 : 2SK19 (BL)
- Q4 : 2SC1923 (O)
- Q5,6 : 2SC1959 (Y)
- Q8,9,21 : 2SC460 (B)
- Q7,11~13,20 : 2SC1815 (Y)
- Q17~19 : 2SC1775 (E)
- Q10 : SN16913 P
- Q14 : SN74LS00N
- Q15 : SN74LS163AN
- Q16 : MC4044P
- D1,11 : 1S1555
- D2,6,8,9 : 1S2588
- D4 : 1S1587
- D10 : 1N60
- D3 : 1SV53A
- D5,7 : 1SV54 GC

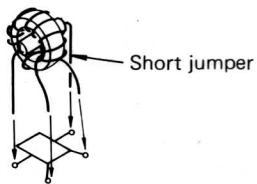
▼ FILTER UNIT (X51-1260-00) Components side view



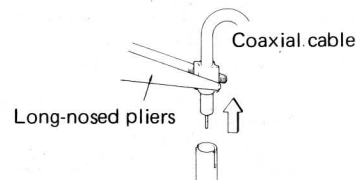
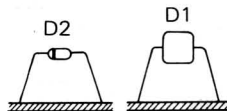
< Attachment direction of L1 >

Q1, 2 : 2SC1815(Y) D1~3 : 1N60 D5, 9, 13, 14 : 1S1555  
D6, 7, 10, 11 : MI402 D12 : V06B D8 : MI301

< Disconnecting the coaxial cable >

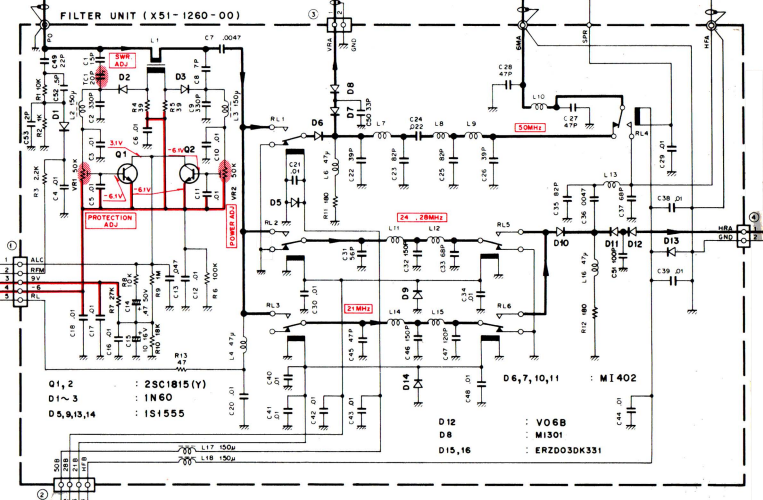


< Attachment direction of D1, 2 >

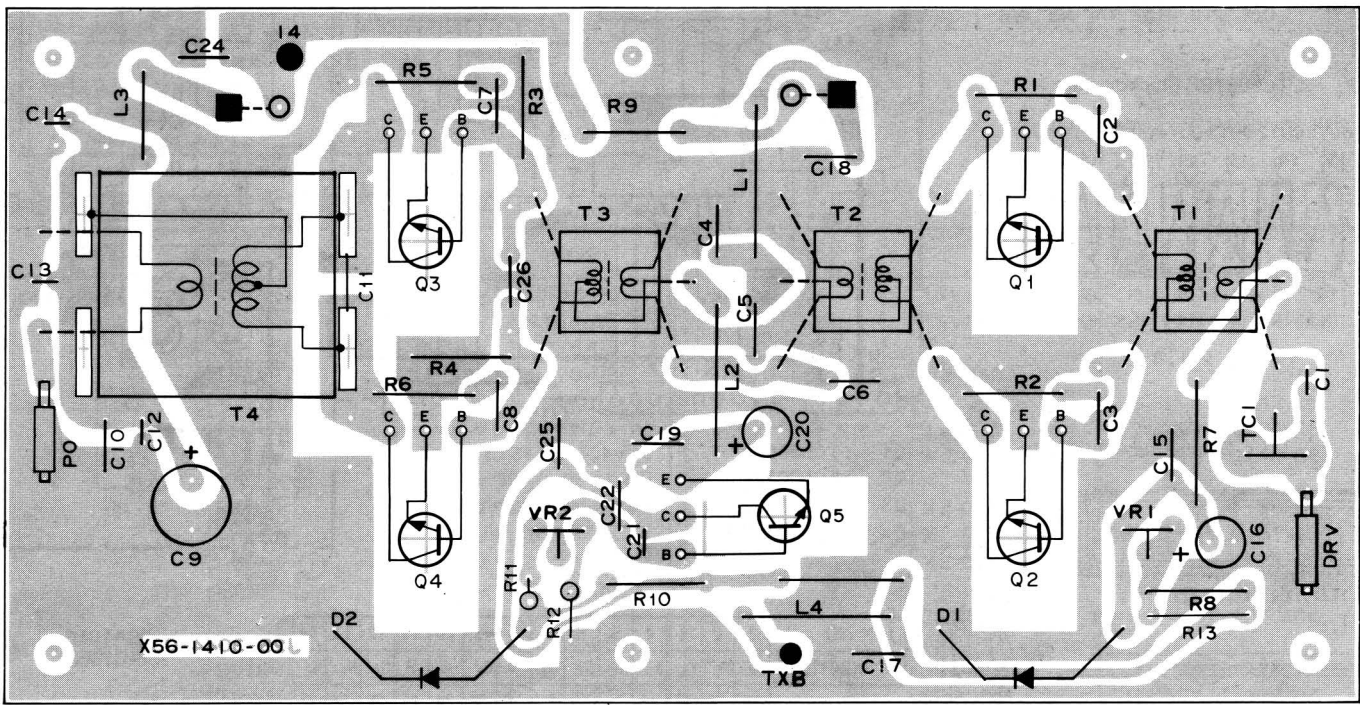


Hold the crimped metal sleeve with Pliers and pull up as shown.  
Caution : DO NOT pull on the cable.

**FILTER UNIT (X51-1260-00)**



▼ FINAL UNIT (X56-1410-00) Components side view



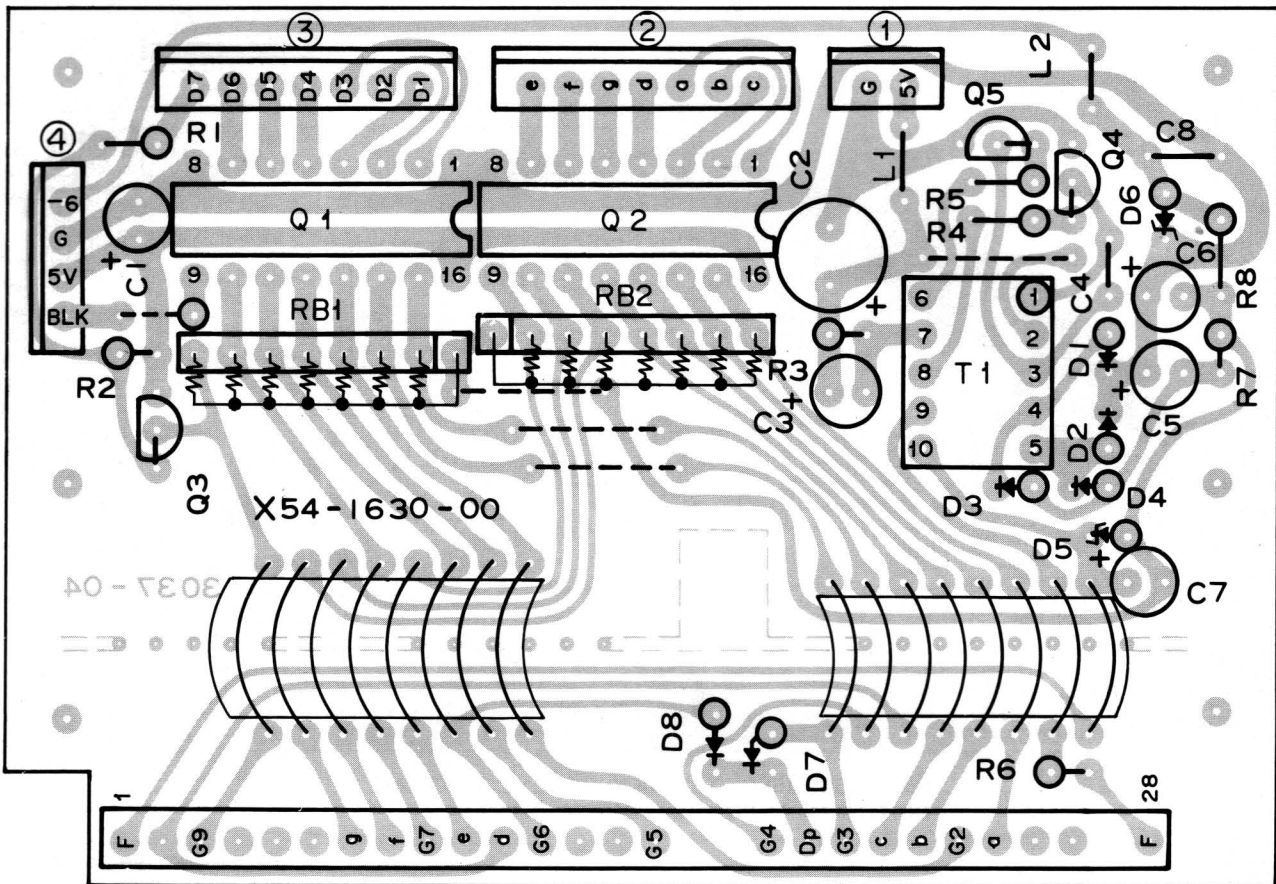
X56-1410-00

Q1, 2 : 2SC1971 Q3, 4 : 2SC1972 Q5 : 2SC496(Y) D1 : SV4A D2 : SV03



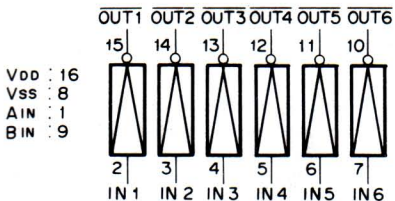
▼ DISPLAY UNIT (X54-1630-00)

Components side view

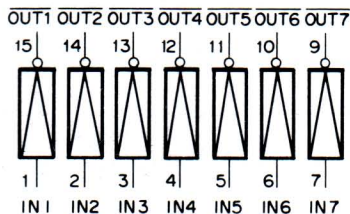




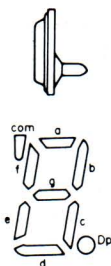
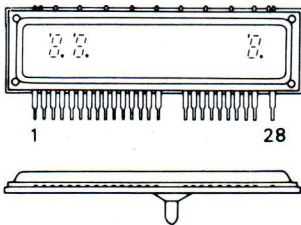
< TC5065BP Blockdiagram >



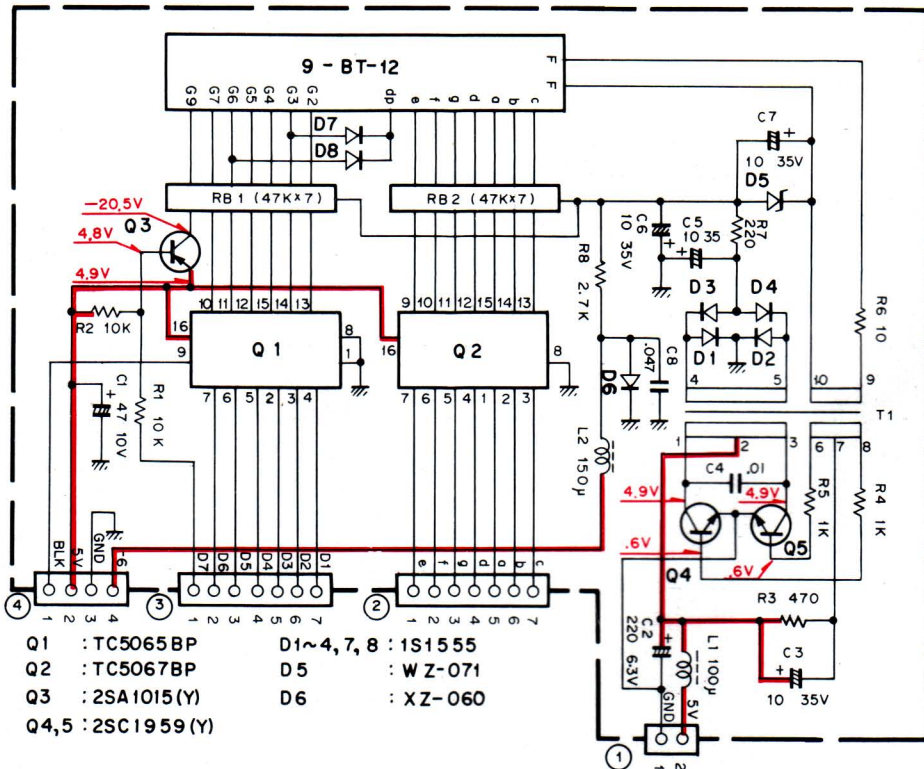
< TC5067BP Blockdiagram >



< Display tube 9-BT-12 >



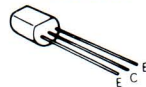
# DISPLAY ( X54- 1630- 00 )



- Q1 : TC5065BP D1~4, 7, 8 : 1S1555  
 Q2 : TC5067BP D5 : WZ-071  
 Q3 : 2SA1015(Y) D6 : XZ-060  
 Q4,5 : 2SC1959(Y)

PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CONNECTION	F	N <sub>C</sub>	G <sub>a</sub>	N <sub>C</sub>	N <sub>C</sub>	G <sub>a</sub>	g	f	G <sub>7</sub>	e	d	G <sub>6</sub>	N <sub>C</sub>	N <sub>C</sub>
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	G <sub>5</sub>	N <sub>P</sub>	N <sub>P</sub>	G <sub>4</sub>	D <sub>P</sub>	G <sub>3</sub>	c	b	G <sub>2</sub>	a	COM	G <sub>1</sub>	N <sub>P</sub>	F

2SA1015  
 2SC1959



Signal Line

Control Line

Common DC Line

# SCHEMATIC DIAGRAM

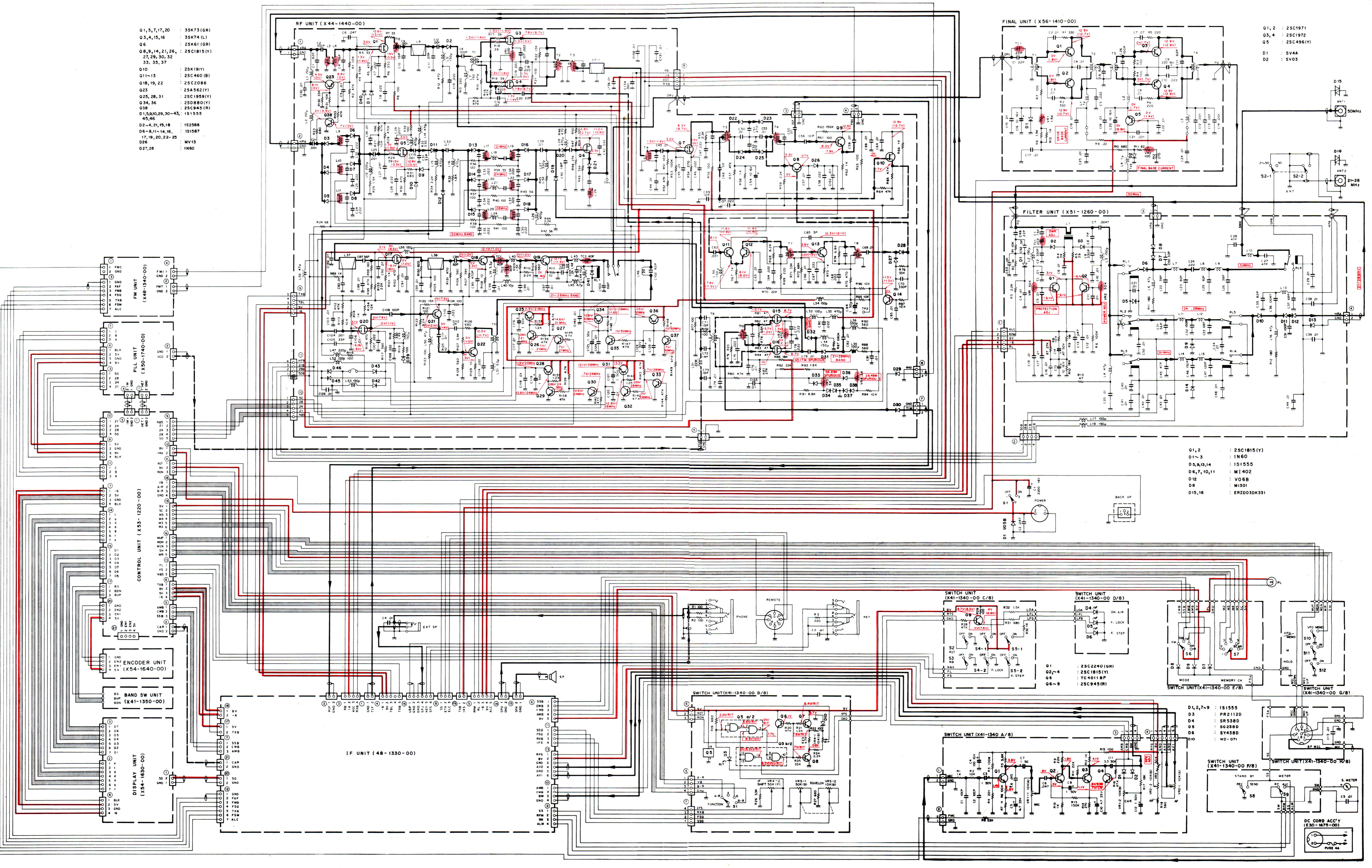
- Q1, 5, 7, 17, 20 : 3SK73 (GR)
- Q3, 4, 15, 16 : 3SK74 (L)
- Q6 : 2SK61 (GR)
- Q7, 8, 9, 14, 21, 25, 27, 29, 30, 32, 33, 35, 37
- Q10 : 2SK191(Y)
- Q11-13 : 2SC460 (B)
- Q18, 19, 22 : 2SC2086
- Q23 : 2SA562 (Y)
- Q25, 28, 31 : 2SC1959 (Y)
- Q34, 36 : 2SC680 (Y)
- Q38 : 2SC945 (R)
- D1, 5, 9, 10, 29, 30-43, 45, 46 : 1S1555
- D2-4, 21, 15, 18 : 1S2588
- D5-8, 11, 14, 16, 17, 19, 20, 22-25 : 1S187
- D26 : MV13
- D27, 28 : 1N60

- Q1, 2 : 2SC1971
- Q3, 4 : 2SC1972
- Q5 : 2SC496 (Y)
- D1 : SV4A
- D2 : SV03

- Q1, 2 : 2SC1815 (Y)
- D1-3 : 1N60
- D5, 9, 13, 14 : 1S1555
- D6, 7, 10, 11 : M1402
- D12 : V06B
- D8 : M1301
- D15, 16 : ERZ0030K331

- Q1 : 2SC2240 (GR)
- Q2-4 : 2SC1815 (Y)
- Q5 : TC4011 BP
- Q6-9 : 2SC945 (R)

- D1, 2, 7-9 : 1S1555
- D3 : PR2112D
- D4 : SR538D
- D6 : SG258D
- D8 : SY458D
- D10 : W2-071



Voltage measurement condition f = 52.05MHz, USB. ( ) : in TX.