

## ■ ADJUSTMENTS

### ● Before adjustment

- 1) After the power switch is pushed on, wait for 5 minutes before measuring, to be sure of the most stable operation.
- 2) Adjust the OSC coil and IFT with a nonferrous screw driver.
- 3) Set the switches to the following positions.

TUNING MODE ..... AUTO

RECEIVING MODE ..... AUTO

- 4) Proceed with the AM section adjustments after having finished the FM section adjustment.
- 5)  $0 \text{ dB}\mu = 1 \mu\text{V}$                       Ex:  $60 \text{ dB}\mu = 1 \text{ mV}$
- 6)  $\text{dBf} = \text{xx dB}\mu + 11.2$
- 7) Confirm that a signal is output on the NORMAL OUTPUT terminal.

### ● Measuring instruments abbreviation

FM SG : FM signal generator

SSG : Stereo signal generator

AM SG : AM signal generator

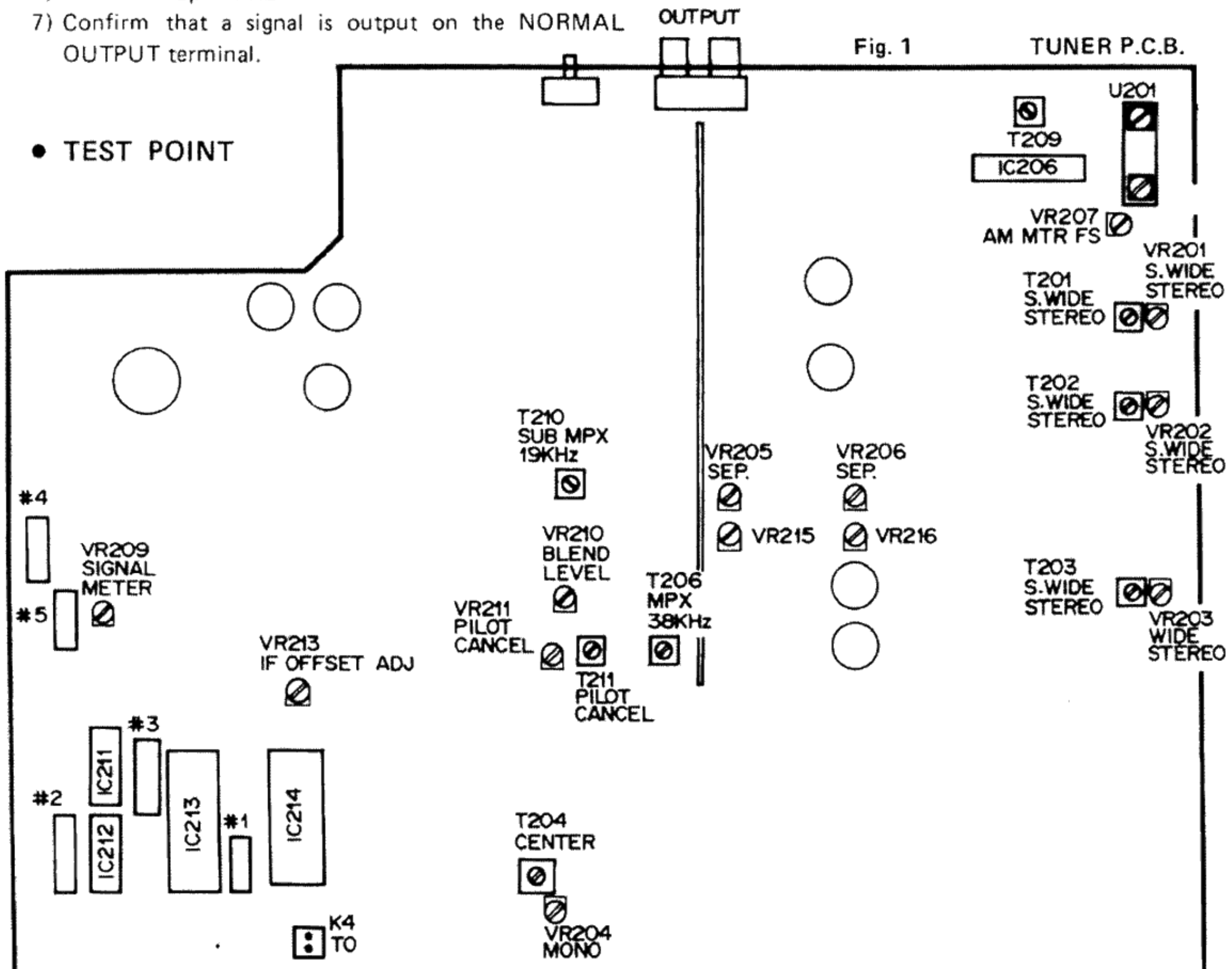
DIST.M : Distortion meter

FC : Frequency counter

ACVM : AC voltmeter

DCVM : DC voltmeter

### ● TEST POINT



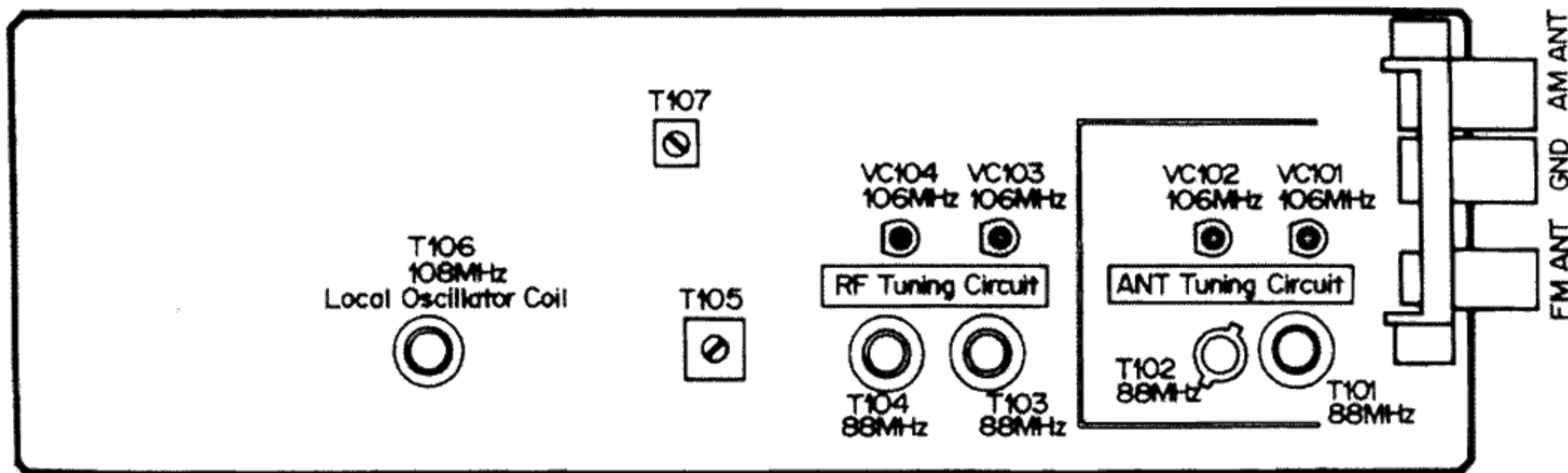


Fig. 1

FRONT-END P.C.B.

<CHECK OF POWER SUPPLY SECTION>

Check that the following voltages are obtained respectively across each test point and ground on tuner circuit.

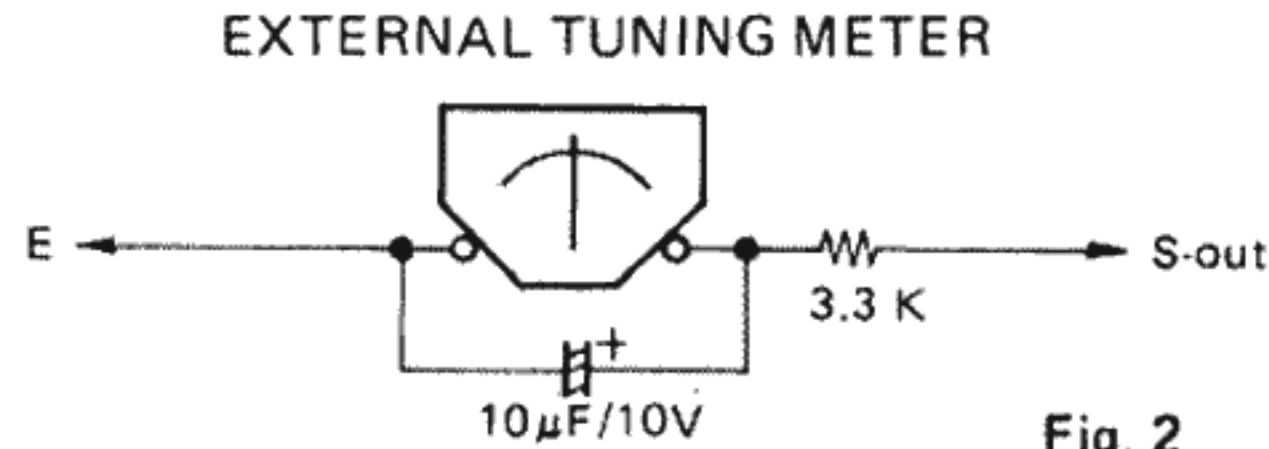
Test Point	Rating or Standard	Remark								
+12	+12.5 V ±0.5 V	Make sure that AC line voltage comes within <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Models</th> <th>AC line voltage</th> </tr> </thead> <tbody> <tr> <td>U, C</td> <td>120 V ±10%</td> </tr> <tr> <td>G</td> <td>220 V ±10%</td> </tr> <tr> <td>A, B</td> <td>240 V ±10%</td> </tr> </tbody> </table>	Models	AC line voltage	U, C	120 V ±10%	G	220 V ±10%	A, B	240 V ±10%
Models	AC line voltage									
U, C	120 V ±10%									
G	220 V ±10%									
A, B	240 V ±10%									
+5.6	+5.6 V ±0.5 V									
+30	+30 V ±3 V									
-6	-6.0 V ±0.5 V									
FB	At FM Reception mode +12 V ±1 V									
	At AM reception mode 0 V									
AB	At FM reception mode 0 V									
	At AM reception mode +12 V ±1 V									

<PRESET SECTION>

- Shorting K4 T0 while set at FM will result in automatic memory of each preset from P1/P11 to P10/P20 as given in the right table. This is convenient when making an adjustment.

P1/P11	P2/P12	P3/P13	P4/P14	P5/P15
AM 630 kHz	AM 1080 kHz	AM 1440 kHz	FM 87.5 MHz	FM 95.1 MHz
P6/P16	P7/P17	P8/P18	P9/P19	P10/P20
FM 98.1 MHz	FM 101.5 MHz	FM 108.0 MHz	FM 88.0 MHz	FM 106.0 MHz

- Use 19 kHz L.P.F. to measure the output.
- On step 1 and 2 connect the auxiliary center meter (ji00036 or similar) to confirm the best tuned point.
- 100% modulation means that the Frequency Deviation is 75 kHz.
- Connect the audio measuring equipments (Distortion meter, Oscilloscope, and Level meter) to the output terminals of tuner.
- Connect a tuning meter (Ji00036 or equivalent, current sensitivity of around 250  $\mu$ A) to between the terminals Sout and E (see Fig. 2).

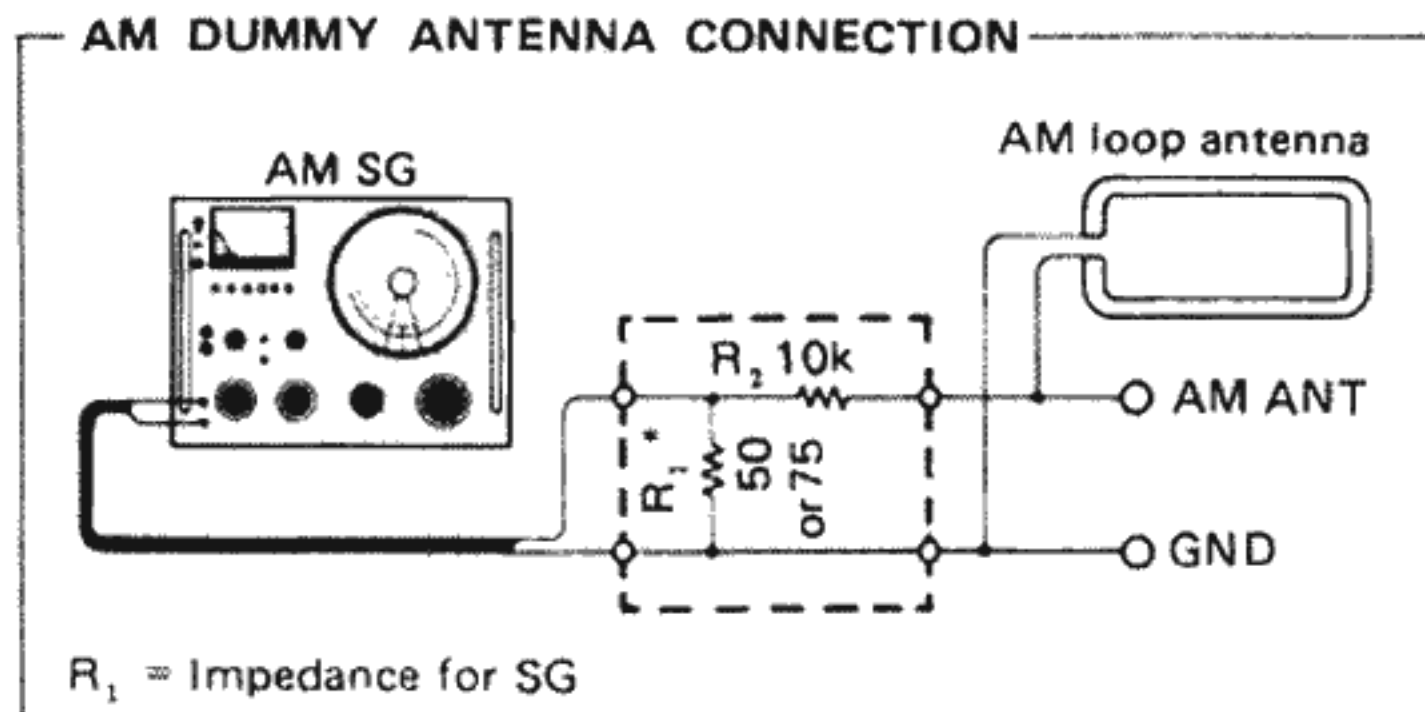


- Use a lowpass filter with an exception for CARRIER LEAK ADJUSTMENT.
- Unless otherwise specified: TUNING MODE, IF MODE, DYNAMIC BLEND → AUTO MODE → AUTO STEREO, RF MODE → NORMAL
- Equipments: FM SG, STEREO SG, DISTORTION METER, OSCILLOSCOPE, TUNING METER (SG signal is applied to 75  $\Omega$  ANT terminal)

Step	Item	Input signal (Frequency)	Adjustment Point	Adjustment/Confirmation	Reference
1	Discriminator balance		T204	As operating SEARCH, adjust T204 to the tuning meter 0-point.	Use EXTERNAL TUNING METER connected to S-out terminal
2	Confirmation of tuning center	98 MHz 70 dB $\mu$	Up or DOWN SW	Confirm that the signal is received at around 0 point	
3	Local oscillator coil	108 MHz	T106	Confirm a change of $V_T$ with adjusting the oscillator coil (T106) – PLL lock Adjust T106 to $V_T = +25 \pm 0.2$ V	Connections: Same as the finished tuner  TUNING MODE: → MANUAL
		87.5 MHz	–	Confirm – $V_T > 5$ V	
		88 MHz	T103	Adjust T103 to the maximum sensitivity	
4	RF tuning circuit	106 MHz	VC103	Adjust VC103 to the maximum sensitivity	
		88 MHz	T104	Adjust T104 to the maximum sensitivity	
		106 MHz	VC104	Adjust VC104 to the maximum sensitivity	
				Repeat the above adjustments	
5	ANT tuning circuit	88 MHz	T101	Adjust T101 to the maximum sensitivity	
		106 MHz	VC101	Adjust VC101 to the maximum sensitivity	
		88 MHz	T102	Adjust T102 to the maximum sensitivity	
		106 MHz	VC102	Adjust VC102 to the maximum sensitivity	
				Repeat the above adjustment	
6	Confirmation of sensitivity	88 MHz 98 MHz 106 MHz	–	Confirm that the sensitivity on the each frequency is satisfied the specifications	

Step	Item	IF MODE	Input Signal	Adjustment Point	Adjustment/ Confirmation	Rating	Reference
7	MONO distortion	S. WIDE	Mono 100 Hz (400 Hz) 100% MOD	VC201 VR204 (MONO)	Adjust to the minimum distortion		
8	PLL input phase		STEREO (L-R) 1 kHz 100% MOD	T206 T210 (SUB)	Adjust to the maximum (TUNER OUTPUT)		
9	STEREO distortion	S. WIDE	STEREO (L or R) 1 kHz 100% MOD	T107 T201, VR201 T202, VR202 (STEREO)	Adjust to the minimum distortion	< -56 dB (0.2%)	
10		WIDE		T203 VR203 (STEREO)	Adjust to the minimum distortion		
11	Confirmation of STEREO distortion	NARROW				< -40 dB (1%)	
12		S. NARROW				< -30 dB (3%)	
13	Confirmation of MONO distortion	S. WIDE	MONO 1 kHz 100% MOD			< -56 dB (0.2%)	
14	Separation	S. WIDE	STEREO L, R 1 kHz 100% MOD	VR205 VR206	Adjust to the maximum separation	> 40 dB	
		WIDE		VR215 VR216			
15	Pilot cancel		Pilot 9% MOD only	T211 VR211 (PILOT CANCEL)	Adjust to the minimum carrier leak	< -50 dB	
16	Discriminator balance confirmation		-10 dB $\mu$ (1.2 dBff) or detune		Confirm that the tuning meter indicates 0 while searching		If not: Repeat from step-1
17	Signal meter full-scale	S. WIDE	80 dB $\mu$ (91.2 dBf)	VR209	Adjust to the point all LEDs light up and -		
			detuning		All fade out		
18	Blend level	S. NARROW	20 dB $\mu$ (31.2 dBf) STEREO (L-R) 1 kHz, 30% MOD	VR210	Adjust to the point that the detector output is 0.2 dB down from the maximum level		
19	IF off-set		98 MHz $\pm$ 1 kHz 70 dB $\mu$ (81.2 dBf) No modulation	VR213	With each shorting of the terminals K4 and T0, the frequency display shifts 1 digit, so that adjust VR213 for 10 kHz position comes to 9 or 0		CSL reception K4, K0 short
20	Confirmation of Auto-search (UP/DOWN SW)	AUTO	20 dB $\mu$ 1 kHz, 100% MOD		Confirm Auto-reception by operating UP/DOWN SW. Also confirm that the mute is working while searching		K4, T0: open
21	Confirmation of RF MODE				Confirm a decline of sensitivity with RF MODE SW at DIRECT position		Observe waveform

- FM Adjustment must be completed.
- Equipments: AM SG, Dummy Ant, Oscilloscope, Distortion meter.
- Connect the AM loop antenna to the AM ANT terminals.
- Connect the AM dummy antenna for adjustment.



Item	Conditions	Adjustment Point	Adjustment	Confirmation	
0	AM/FM SW → FM Short K4 and T0	The following frequencies are automatically preset in P1-10/P11-20 MEMORIES.			
1	Confirmation of sensitivity 400 Hz, 30% MOD	630 kHz	P1/P11	Obtain AM SG output level where distortion become 10%.	< 58 dB $\mu$ (69.2 dBf)
		1080 kHz	P2/P12		< 58 dB $\mu$ (69.2 dBf)
		1440 kHz	P3/P13		< 58 dB $\mu$ (69.2 dBf)
2	Signal meter full-scale 1080 kHz 80 dB $\mu$ (91.2 dBf)	VR207 (AM MTR FS)	Adjust to the point all LEDs light up.	P2/P12	
	Detuning		All LEDs goes off		
3	Confirmation of auto-search (UP/DOWN SW) 60 dB $\mu$ (71.2 dBf)	UP/DOWN SW	Confirm auto-reception by operating UP/DOWN SW	Tuning mode: → AUTO	

<DIGITAL CONTROL SECTION>

Connections: Same as FM, AM SECTION  
 Equipments: Same as FM, AM SECTION  
 Input Signal: FM – 98 MHz, 70 dBμ (81.2 dBf), STEREO (L or R), 100% MOD  
 AM – 1080 KHz, 80 dBμ (91.2 dBf), 400 Hz, 30% MOD

Item	Condition/Procedure	Confirmation	Reference	
1	Confirmation of Power supply mute and Initial State	Operate POWER SW On → OFF	Confirm the function of Muting circuit.	
2	Preset memory	AM/FM SW → FM	Confirm that the indicator shows FM band's frequency and "FM", "MHz" indications	
	Operating TUNING MODE SW	Confirm that the MODE is alternately switched AUTO → MAN'L	Check by AUTO-INDICATOR	
	Press UP/DOWN SW repeatedly	Confirm that f-indication changes by 100 kHz-step (A, E, B models and G model are 50 kHz-step)	TUNING MODE SW: → MAN'L	
	Press UP/DOWN SW continuously	Confirm that f-indication changes by 100 kHz-step continuously		
	Press MEMORY SW	MEMORY INDICATOR flashes	TUNING MODE: AUTO RF MODE: DIRECT IF MODE: AUTO DYNAMIC BLEND: AUTO MODE: AUTO STEREO	
	Set P1-10 and press P1	MEMORY INDICATOR goes off and P1-LED lights up (preset has done)		
	Function → AM	Confirm that "AM" "kHz" indicators light up		
	Press UP/DOWN SW repeatedly	Confirm that f-indication changes by 9 kHz- step (U, C models and G model are 10 kHz-step)		
	Press UP/DOWN SW continuously	Confirm that f-indication changes by 9 (10) kHz-step continuously		
	Press MEMORY SW	MEMORY INDICATOR flashes		
	Press P2	MEMORY INDICATOR goes off and P2-LED lights up (preset has done)		
	Confirmation: Press P1 (P2)	Confirm that the content is read out and P1 (P2)-LED lights up		
	Press P11-20	P11-20 LED flashes		
	Press MEMORY SW	MEMORY INDICATOR flashes		
Press P11	MEMORY LED goes off and P11-20 LED lights up (Content of P2 was preset in P11)			
Confirmation: Press P11	Confirm that the content is read out and P11-LED lights up			
3	MODE AUTO STEREO/MONO	MODE SW → MONO Receive STEREO signal	Confirm it results FORCED-MONO reception	STEREO IND: goes off
4	FINE TUNING	Press P1 and P2	Read out P1 and P2	
	Press FINE TUNING SW + or -	Confirm FINE TUNING IND lights up	Digit of 10 kHz indicates Q on FM (except A, B, and E models)	
	Press again	Confirm searching action FM per 10 kHz, AM per 1 kHz		
5	IF MODE	Press P1	Read out P1	Also check LEDs properly switched over
	AUTO/MAN'L SW → AUTO Press IF MODE SW	Confirm that MODE is automatically switched over to MANUAL when whichever the IF MODE SW (S, WIDE, WIDE, NARROW, and S. NARROW) and pressed		
	AUTO/MAN'L SW → AUTO IF MODE: S. WIDE Gradually reduce ANT input level	Confirm IF MODE automatically switched over from S. WIDE through S.NARROW		
6	Last station memory	PWER SW → OFF → ON again 5 sec. later	Read out PRESET Confirm PRESET is read out	P1-LED lights up

PRINTED CIRCUIT BOARD (Pattern Side)

Note)  
文字面 Component Side

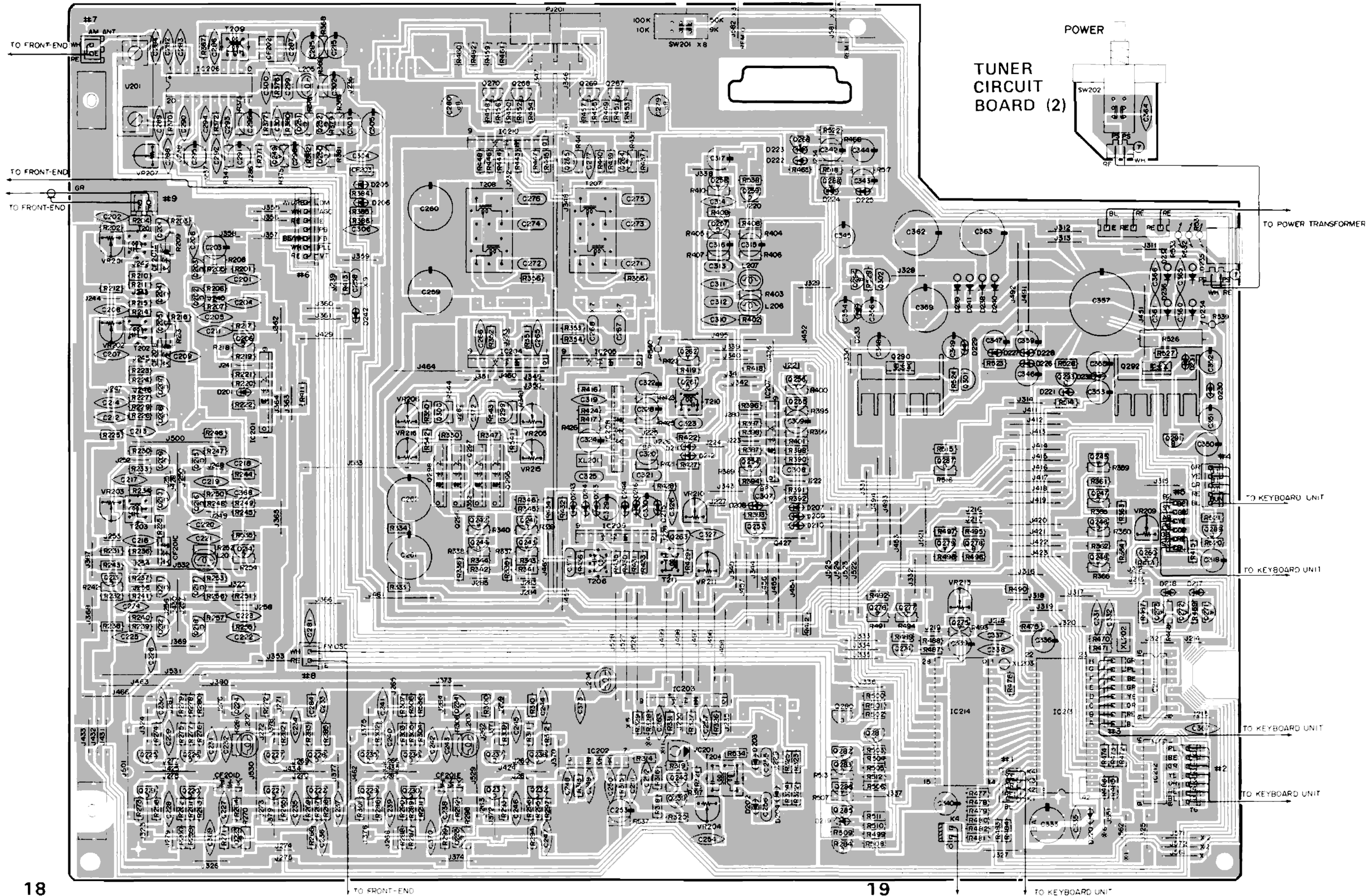
Note: \* marked

1	J561, 562	○	U, C	A	G, B
2	J571, 572	○	○		
3	J581, 582	○	○		
4	R328	10K	10K	10K	6.8K
5	R329	12K	12K	12K	18K
6	J551			○	○
7	C267, 268	0.075	0.075	0.051	0.051
8	SW201	○			
9	C258	0.15	0.15	0.15	0.1
10	JK201	○	○		
11	R331	33K	33K	33K	47K

TUNER CIRCUIT BOARD (1)

TUNER CIRCUIT BOARD (3)

TUNER CIRCUIT BOARD (2)



PRINTED CIRCUIT BOARD (Pattern Side)

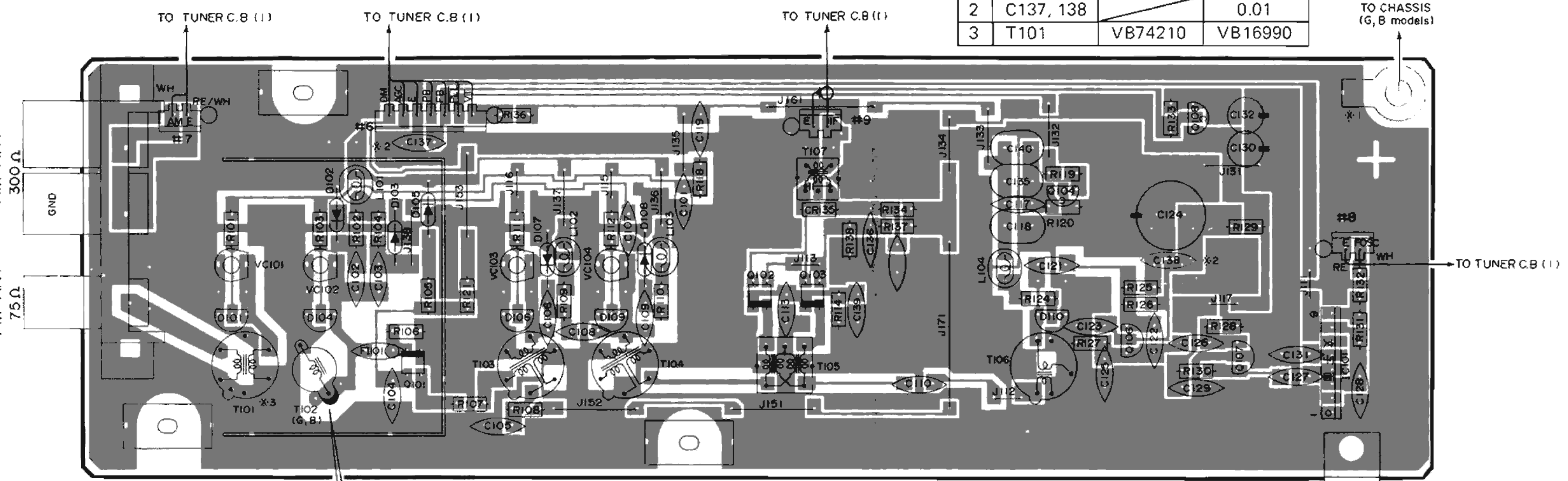
Note)  
文字面 : Component Side

Note: \* marked

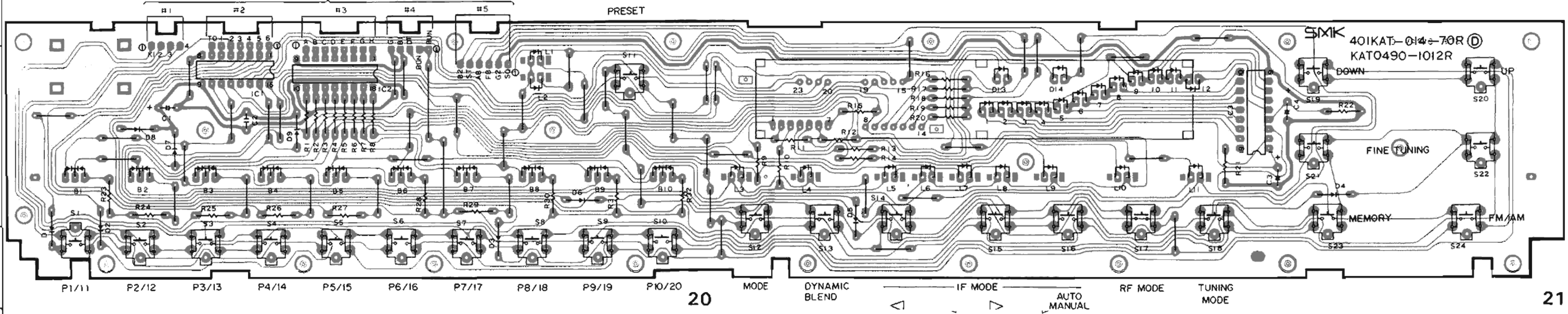
T-85

FRONT-END CIRCUIT BOARD

		R, U, C, A	G, B
1	Ground		○
2	C137, 138		0.01
3	T101	VB74210	VB16990



KEYBOARD CIRCUIT BOARD



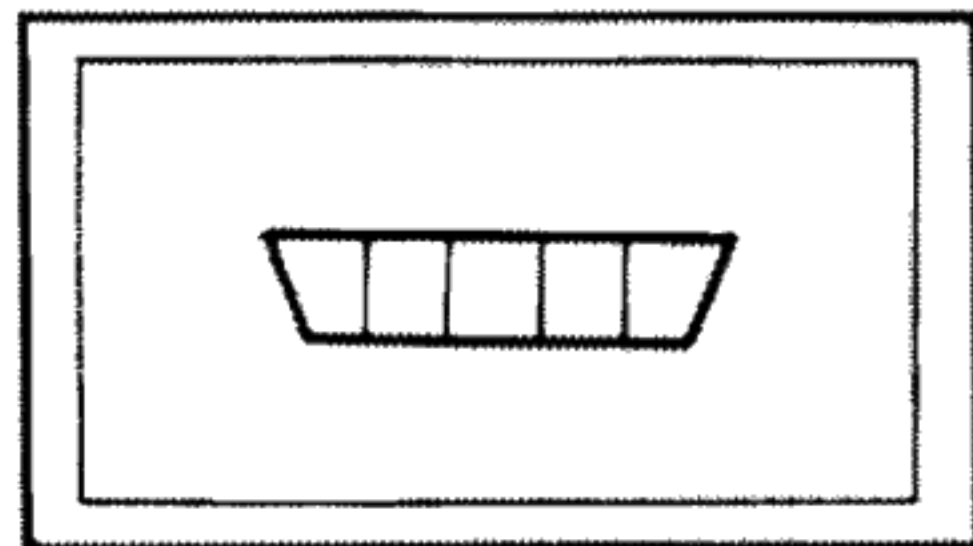


## INPUT DATA

0 =  $V_L$  0 – 1.5 V  
1 =  $V_H$  3.3 – 5 V

2 pin	3 pin	FUNCTION MODE
0	0	—
1	0	CH UP
0	1	CH DOWN
1	1	P1/10 ↔ P11/20

## REMOTE CONTROL Terminals



1 2 3 4 5

● IC214: LC7210

This is the CMOS LSI utilized to tune the CSL (Computer Servo Lock) tuning system for FM/AM radio which has realized stable station selection by PLL (Phase Locked Loop) synthesizer, precise automatic station search (applicable to all areas of the world and multiple bands) by SL<sup>2</sup> (Signal Locked Loop) voltage synthesizer, and optimum tuning point reception by AFC operation.

When combined with a prescaler ( $\div 100$ ), this LSI can be controlled by a 4-bit microcomputer in the controller.

The functions are:

- SL<sup>2</sup> auto search control
- PLL control
- Analog switch for S-curve AFC
- Station-originated frequency counter
- Data generation for FM band IF offset adjustment (5 bits)

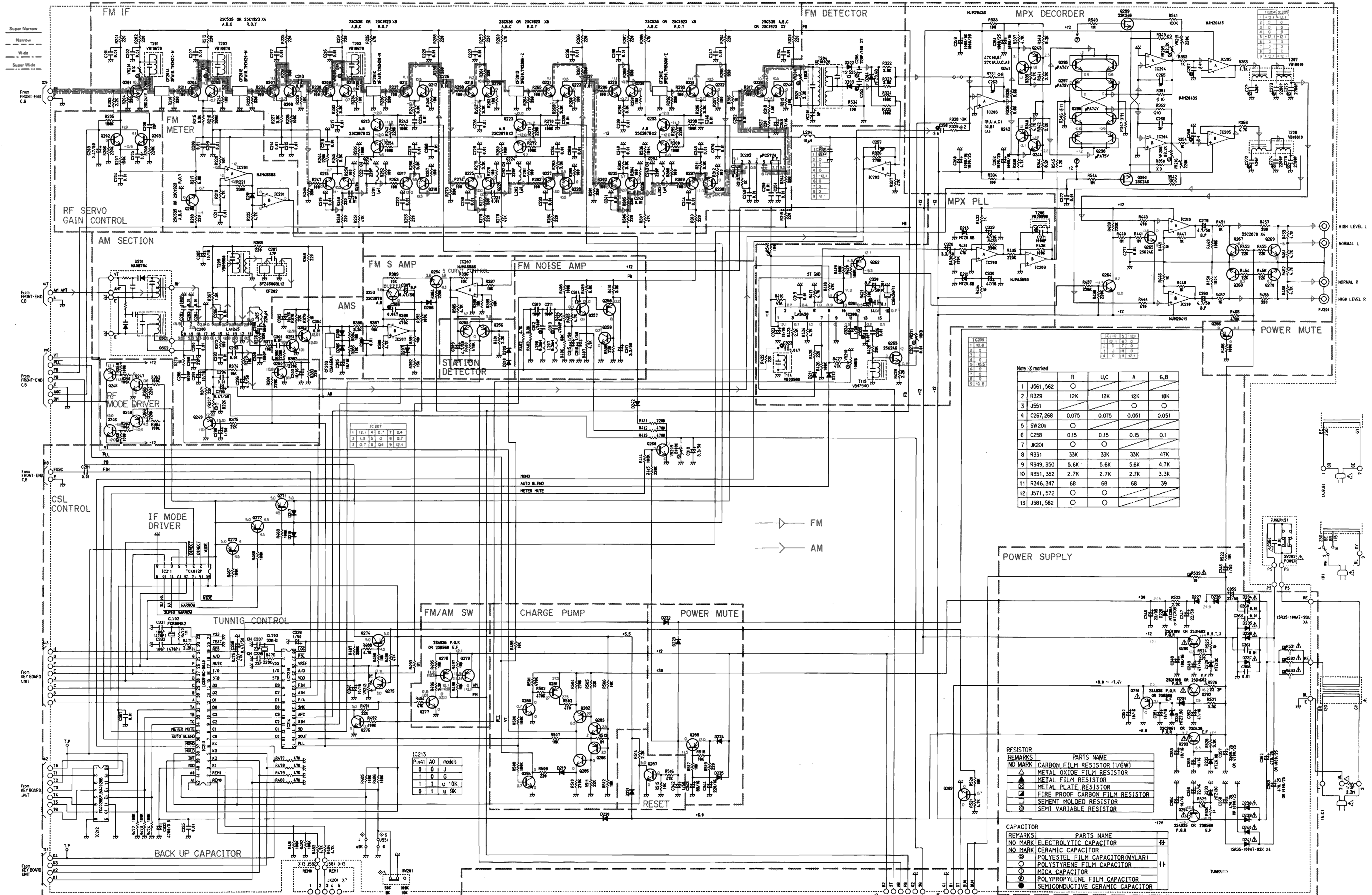
Terminal No.	Description	I/O	Function
1	Xin	IN	Oscillation terminals. By connecting Quartz across Xin and Xout, and load capacity across both terminals and Vss, basic clock signal is generated (32kHz).
2	Xout	OUT	
3	Vss	—	Ground terminal
4	DI/DO	IN	Pull-up feature. Input terminal which controls whether data terminal (D <sub>0</sub> ~ 3) signal is input mode (DI/DO = 1) or output mode. (DI/DO = 0).
5	STB	IN	Pull-up feature. Determines the timing of internal latch, FF clock pulse and set/reset signal which are determined by control input (C <sub>0</sub> ~ 3).
6	D <sub>3</sub>	I/O	I/O terminals. Push-pull output. Transfers (DI/DO = 1) data to internal data bus (4 bits) or outputs the contents of internal data bus.
7	D <sub>2</sub>		
8	D <sub>1</sub>		
9	D <sub>0</sub>		
10	C <sub>3</sub>	IN	Pull-up feature. Input used to create signal which specifies which logic is to be connected with internal data bus.
11	C <sub>2</sub>		
12	C <sub>1</sub>		
13	C <sub>0</sub>		
14	M/L	OUT	Outputs "1" only when received band is MW, NC.
15	PLL	OUT	Push-pull. Outputs "1" while PLL operation is made.
16	Sout	OUT	Tri-state. Connected with push-pull output and analog switch. ● PLL mode: Charge pump output can be obtained. ● SEARCH mode: Auto search output can be obtained. ● AFC mode: Conducts to Sin terminal via analog switch. High impedance state in other modes
17	SD	IN	Controls whether reception is made by SL <sup>2</sup> or PLL when FM is received.
18	Sin	IN	Connected with analog switch or comparator input. ● AFC mode: Conducts to Sout terminal via analog switch and makes reception by AFC. ● AUTO SEARCH mode: Discriminates S signal between SH and SL via wind comparator and uses as input which controls search speed limit and stop.
19	AFC	OUT	Outputs "1" in AFC mode. Outputs "0" in other than AFC mode.
20	SMK	IN	Prohibits search stop and speed control by SH and SL in AUTO SEARCH mode ("1"). Controls when "0" is input.
21	F/A	OUT	Band data output terminal. Outputs "1" in FM mode.
22	Ain	IN	AM (FM) local oscillator frequency input terminal. Pull-down transistor is turned on in FM mode.
23	Fin	IN	1/100 dividing output of AM (FM) local oscillator frequency is input. Pull-down transistor is turned off in FM mode in which reception is not made by AFC.
24	VDD	—	Power source +5V
25	A/D	IN	Input used to generate data for compensating the shift of center frequency of FM IF filter.
26	Vref	—	Power source for setting wind comparator level (Sin) and power source for A/D converter ladder network of FM fine.
27	PSC	OUT	Outputs "0" when PLL or counter is operated in FM mode. Outputs "1" in other cases (other than when reception is made in FM mode, and other than in FM mode).
28	LOC	I/O	Detects the locking of CSL operation, connected with CR integration circuit. Judges as LOCK state when "1" is input and as UNLOCK state when "0" is input.

1-chip type 4-bit microcomputer which incorporates 4096 x 8 bit ROM (for programming) and 256 x 4 bit RAM (for data memory)

Terminal No.	Description	I/O	Function
1	PA <sub>2</sub> REM $\phi$	IN	Remote Control INPUT
2	PA <sub>3</sub> REM 1	IN	Remote Control INPUT
3	PB <sub>0</sub> K1	IN	} Key matrix input. Judges the switches 101 to 117.
4	PB <sub>1</sub> K2	IN	
5	PB <sub>2</sub> K3	IN	
6	PB <sub>3</sub> K4	IN	
7	PC <sub>0</sub> CO	OUT	} Control output. Specifies which logic of LC7210 is connected with data bus.
8	PC <sub>1</sub> C1	OUT	
9	PC <sub>2</sub> C2	OUT	
10	PC <sub>3</sub> C3	OUT	
11	PD <sub>0</sub> D0	I/O	} Data bus. Sends and receives data to and from LC7210.
12	PD <sub>1</sub> D1	I/O	
13	PD <sub>2</sub> D2	I/O	
14	PD <sub>3</sub> D3	I/O	
15	PE <sub>n</sub> STB	OUT	Strobe output.
16	PE <sub>1</sub> DI/DO	OUT	Specifies the direction of I/O of data bus.
17	PE <sub>2</sub> MUTE	OUT	Muting output. +4.5V (reference value) in MUTING mode.
18	PE <sub>3</sub> A/D	OUT	Signal Quality/IF Offset select. Signal Quality at "1" IF Offset at "0".
19	RES	IN	Reset input. +5V in normal condition.
20	TEST	-	
21	V <sub>ss</sub>	-	Power ground.
22	OSC1	IN	} Terminals for clock oscillating circuit.
23	OSC2	OUT	
24	PF <sub>0</sub> H	OUT	} Display, segment output.
25	PF <sub>1</sub> G	OUT	
26	PF <sub>2</sub> F	OUT	
27	PF <sub>3</sub> E	OUT	
28	PG <sub>0</sub> D	OUT	
29	PG <sub>1</sub> C	OUT	
30	PG <sub>2</sub> B	OUT	
31	PG <sub>3</sub> A	OUT	a segment.
32	PH <sub>0</sub> TA	OUT	} Display, digit output
33	PH <sub>1</sub> TB	OUT	
34	PH <sub>2</sub> TC	OUT	
35	PH <sub>3</sub> MUTE	OUT	Meter Mute Control
36	PI <sub>0</sub> AUTO BLEND	OUT	AUTOBLEND ON: "0"
37	PI <sub>1</sub> MONO	OUT	Mono Mode Control Mono: "0"
38	HOLD	IN	Hold mode demand input terminal.
39	INT	-	INTVAL
40	V <sub>dd</sub>	-	Power source +5V.
41	PA <sub>0</sub> U	IN	} Destination symbol.
42	PA <sub>1</sub> G	IN	

42 pin	0	1
41 pin	J	-
0	J	-
1	G	U

■ SCHEMATIC DIAGRAM (Tuner)



• MATRIX OF DISPLAY (D1, B1 ~ 10, L1 ~ 11, 13, 14)

IC213	A	B	C	D	E	F	G	H
IC212	[23 Pin]	[30 Pin]	[28 Pin]	[28 Pin]	[27 Pin]	[26 Pin]	[25 Pin]	[24 Pin]
T8	D5	D4	D3	D2	D1	D0	D9	D8
T7	D4	D3	D2	D1	D0	D9	D8	D7
T6	D3	D2	D1	D0	D9	D8	D7	D6
T5	D2	D1	D0	D9	D8	D7	D6	D5
T4	D1	D0	D9	D8	D7	D6	D5	D4
T3	D0	D9	D8	D7	D6	D5	D4	D3
T2	D9	D8	D7	D6	D5	D4	D3	D2
T1	D8	D7	D6	D5	D4	D3	D2	D1
T0	D7	D6	D5	D4	D3	D2	D1	D0

• IC212 DATA TABLE

INPUT	OUTPUT							
	TC	TB	TA	TO	T1	T2	T3	T4
[12 Pin]	[12 Pin]	[10 Pin]	[14 Pin]	[12 Pin]	[11 Pin]	[6 Pin]	[12 Pin]	[4 Pin]
0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14

• MATRIX OF INPUT KEY

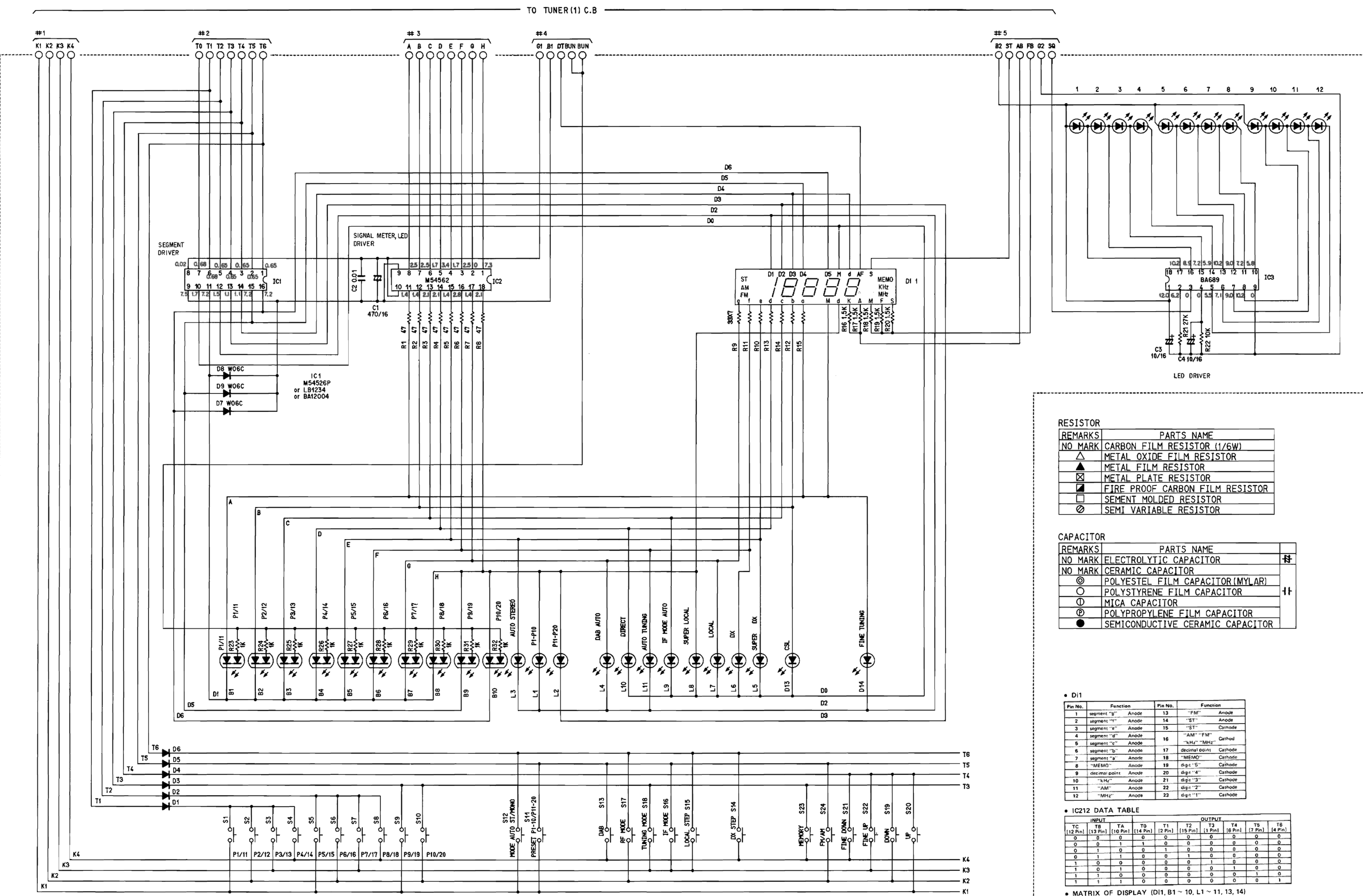
IC212	T1	T2	T3	T4	T5	T6
IC213	[2 Pin]	[15 Pin]	[11 Pin]	[6 Pin]	[7 Pin]	[4 Pin]
K1	P1/11	P6/15	P9/19	UP	S10	S11
K2	P2/12	P6/16	P10/20	DOWN	F1/AM	S12
K3	P3/13	P7/17	TUNING	MCIE	UP	S13
K4	P4/14	P8/18	MEMORY	S23	DAB	S14

All voltages measured with a 10M $\Omega$ /VDC electric volt meter, under no-signal condition.  
 FUNCTION → FM  
 TUNING MODE → AUTO  
 RECEIVING MODE → AUTO  
 The voltages are measured at FM reception mode. Only the voltages at ( ) are at AM reception mode.  
 Components having special characteristics are marked  $\Delta$  and must be replaced  $\Delta$  with parts having specifications equal to those originally installed.

• NOTICE

- (U) ..... U.S.A model
- (C) ..... Canadian model
- (A) ..... Australian model
- (G) ..... European model
- (B) ..... British model
- (R) ..... General model

T-85  
**SCHEMATIC DIAGRAM (Keyboard)**



**RESISTOR**

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
▲	METAL OXIDE FILM RESISTOR
△	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
▣	FIRE PROOF CARBON FILM RESISTOR
□	SEMENT MOLDED RESISTOR
⊙	SEMI VARIABLE RESISTOR

**CAPACITOR**

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	POLYESTER FILM CAPACITOR (MYLAR)
○	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊕	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

**• D1**

Pin No.	Function	Pin No.	Function
1	segment "a" Anode	13	"FM" Anode
2	segment "b" Anode	14	"ST" Anode
3	segment "c" Anode	15	"ST" Cathode
4	segment "d" Anode	16	"AM" "FM" Cathode
5	segment "e" Anode	17	"kHz" "MHz" Cathode
6	segment "f" Anode	18	decimal point Cathode
7	segment "g" Anode	19	"MEMO" Cathode
8	"MEMO" Anode	20	digit "5" Cathode
9	decimal point Anode	21	digit "4" Cathode
10	"kHz" Anode	22	digit "3" Cathode
11	"AM" Anode	23	digit "2" Cathode
12	"MHz" Anode	23	digit "1" Cathode

**• IC12 DATA TABLE**

INPUT		OUTPUT							
TC	TB	TA	T0	T1	T2	T3	T4	T5	T6
(12 Pin)	(13 Pin)	(10 Pin)	(14 Pin)	(12 Pin)	(15 Pin)	(11 Pin)	(8 Pin)	(7 Pin)	(4 Pin)
0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0
0	1	0	0	1	0	0	0	0	0
0	1	1	0	0	0	0	0	0	0
1	0	0	0	0	0	1	0	0	0
1	0	1	0	0	0	0	0	1	0
1	1	0	0	0	0	0	0	0	1
1	1	1	0	0	0	0	0	0	1

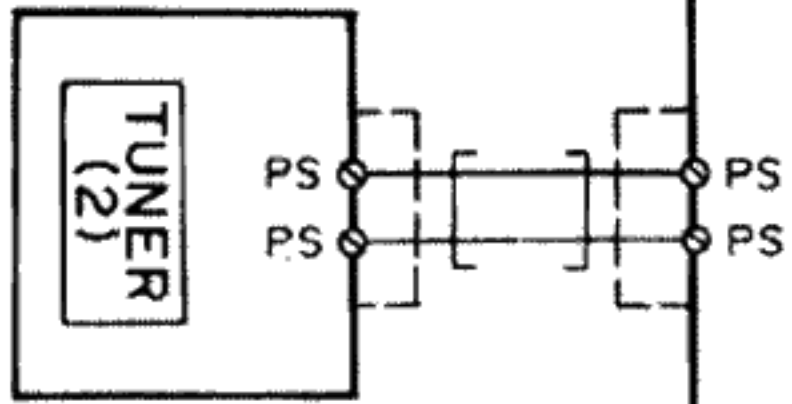
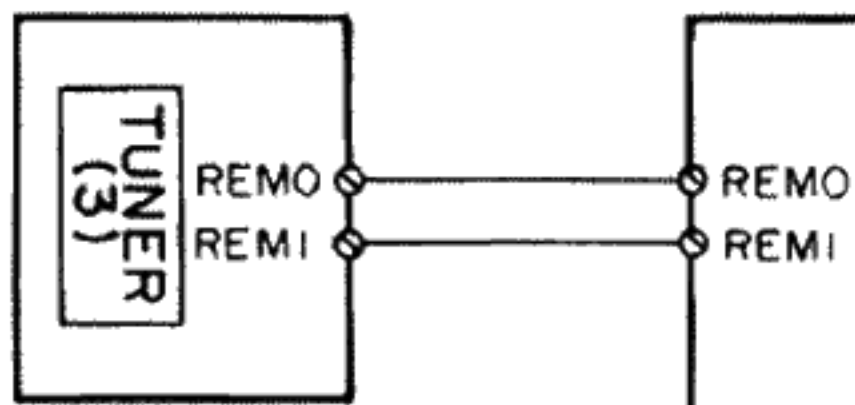
**• MATRIX OF DISPLAY (D1, B1 ~ 10, L1 ~ 11, 13, 14)**

IC212	A	B	C	D	E	F	G	H
T6 (14 Pin)	D5	D5	D5	D5	D5	D5	D5	P-10/20 (8 Pin)
T5 (17 Pin)	D4	D4	D4	D4	D4	D4	D4	P-9/18 (8 Pin)
T4 (11 Pin)	D2	D2	D2	D2	D2	D2	D2	P-11/20 (11 Pin)
T3 (18 Pin)	TUNING (L4)	D1	D1	diagonal points	diagonal points	diagonal points	diagonal points	P-10 (8 Pin)
T1 (2 Pin)	P-7/17 (8 Pin)	P-2/12 (8 Pin)	P-3/13 (8 Pin)	P-4/14 (8 Pin)	P-5/15 (8 Pin)	P-6/16 (8 Pin)	P-7/17 (8 Pin)	P-8/18 (8 Pin)
T0 (14 Pin)	CSL (D13)	IF MODE AUTO (L9)	DIRECT (L10)	SUPER (L5)	DX (L6)	LOCAL (L7)	SUPER LOCAL (L8)	

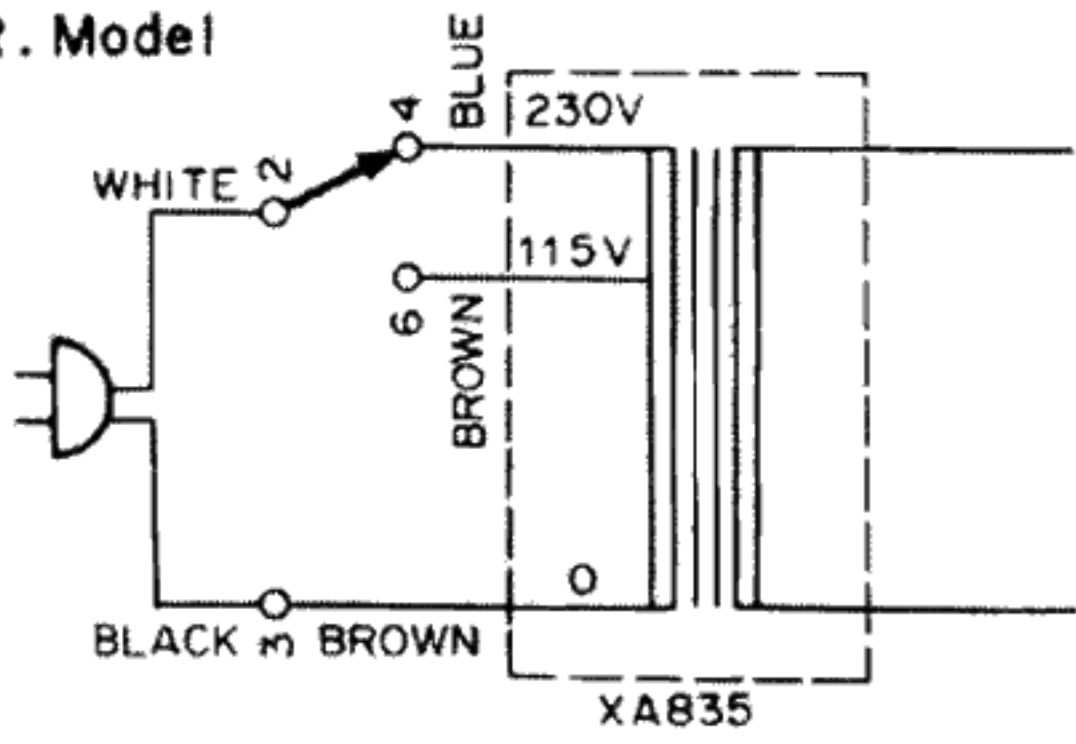
<p>2SA935 (P,Q,R)                  2SB560 (E,F)                  2SA933S (O,P)                  2SA1115 (E,F)                  2SA1310 (R,S,T)                  2SC1809 (N,P)                  2SC535 (A,B,C)                  2SC1925 (R,O,Y)                  2SC2878 (A,B)                  2SC1740S (S,R)</p>	<p>2SC2603 (E,F)                  2SC3312 (R,S,T)</p>	<p>2SK241 (Y)                  2SK105 (H)                  2SK161</p>	<p>2SC2061 (R,Q,P)                  2SD438 (E,F)                  (2SK246 (Y))                  2SC2995 (R,O,Y)</p>	<p>2SD1189 (P,Q,R)                  2SD1682 (R,S,T,U)</p>	<p>μPA74HA</p>	<p>3SK107</p>	<p>1S5287                  1SR35-100AT-93X                  MTZ5.1C                  MTZ3.6B                  MTZ6.8B                  MTZ30A                  MTZ7.5C</p>	<p>W06C                  1S1555                  1S2473</p>	<p>μPC577H (E,F)</p>	<p>LA1245</p>	<p>LC7210</p>	<p>NJM4558S</p>	<p>TC4042P                  TC4028BP                  BU4028B</p>	<p>NJM2068S</p>	<p>M54459L</p>	<p>LC6510C-3040</p>	<p>M54526P</p>	<p>LB1234                  BA12004</p>	<p>BA689                  M54562P</p>	<p>LA3430</p>
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■ WIRING

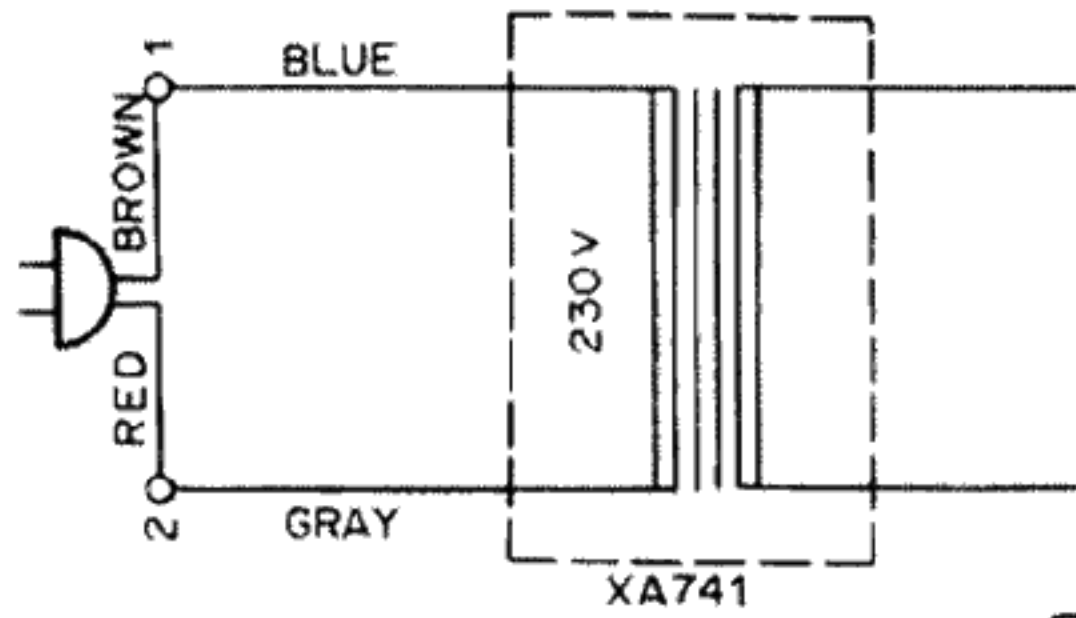
R, U, C. Only



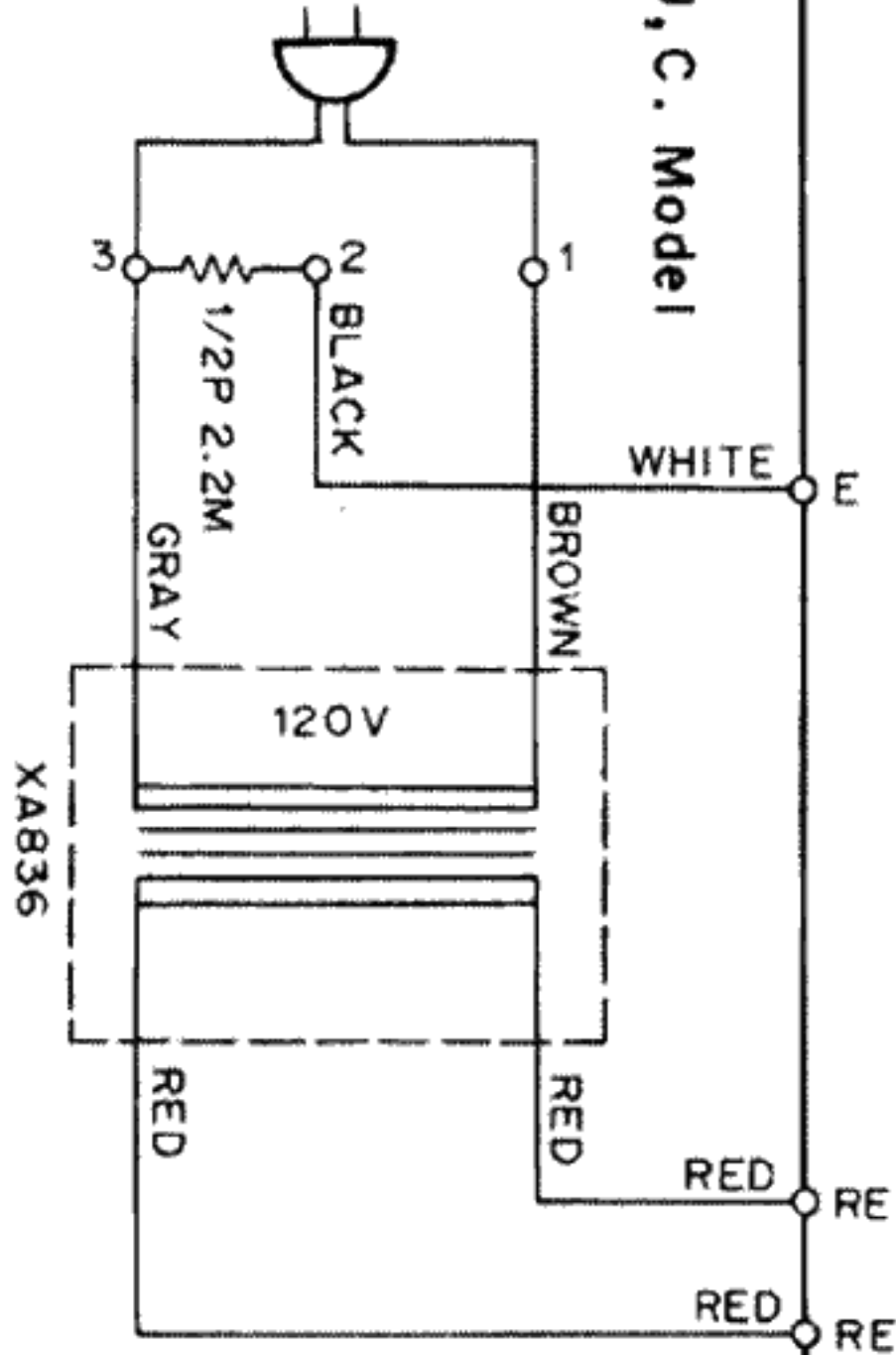
R. Model



A, G, B. Model

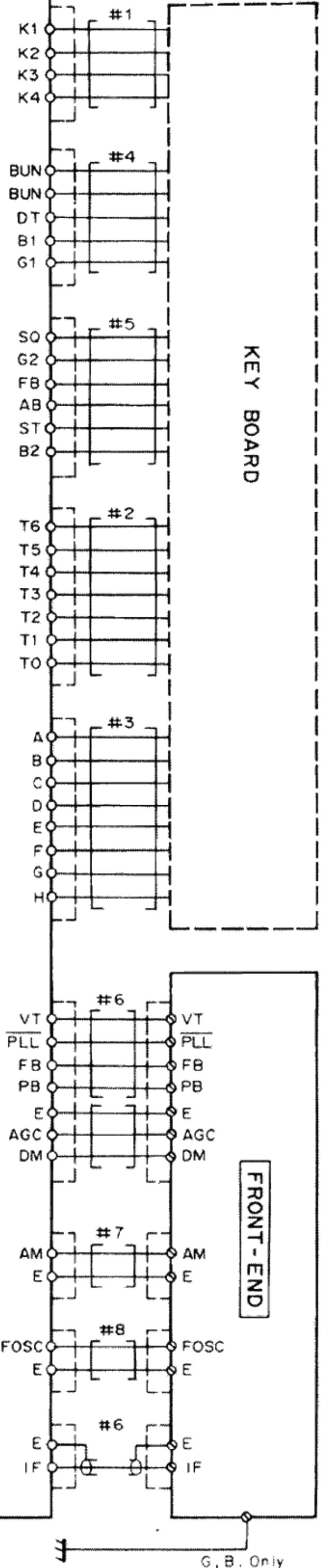


U, C. Model



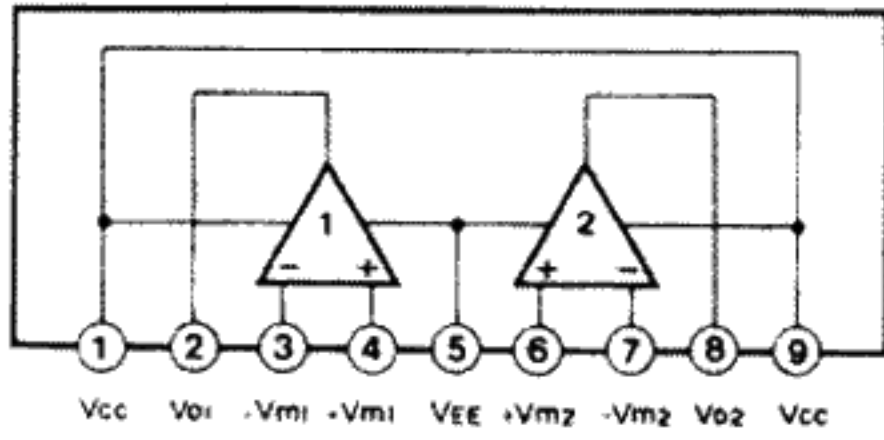
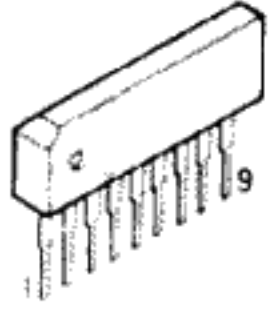
TUNER (1)

15

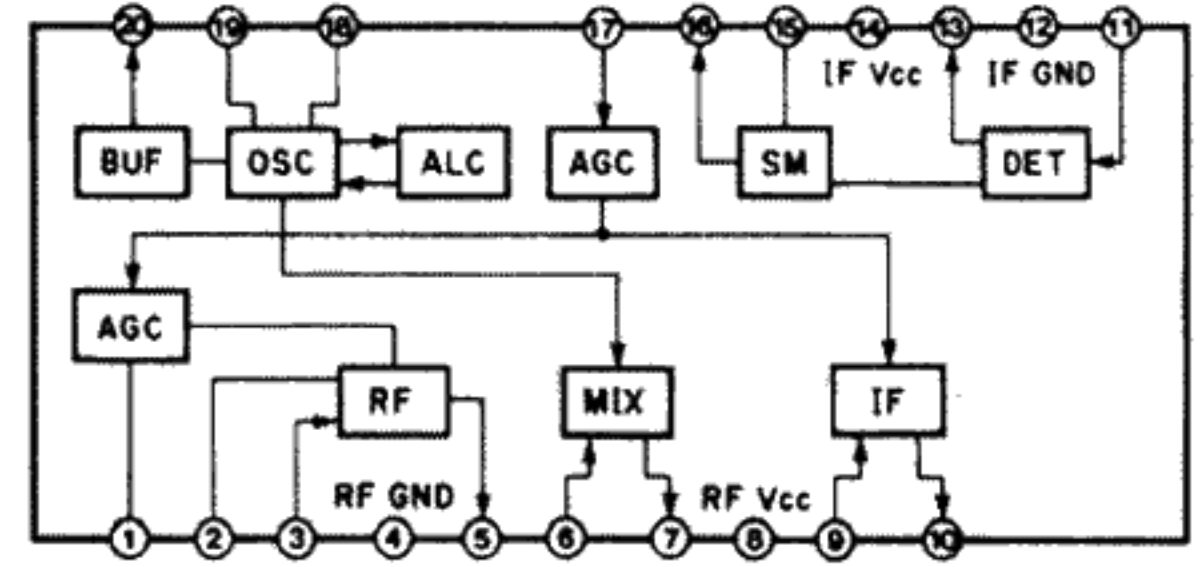
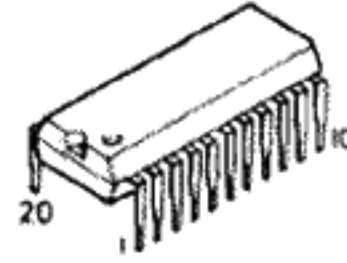


### IC BLOCK DIAGRAM

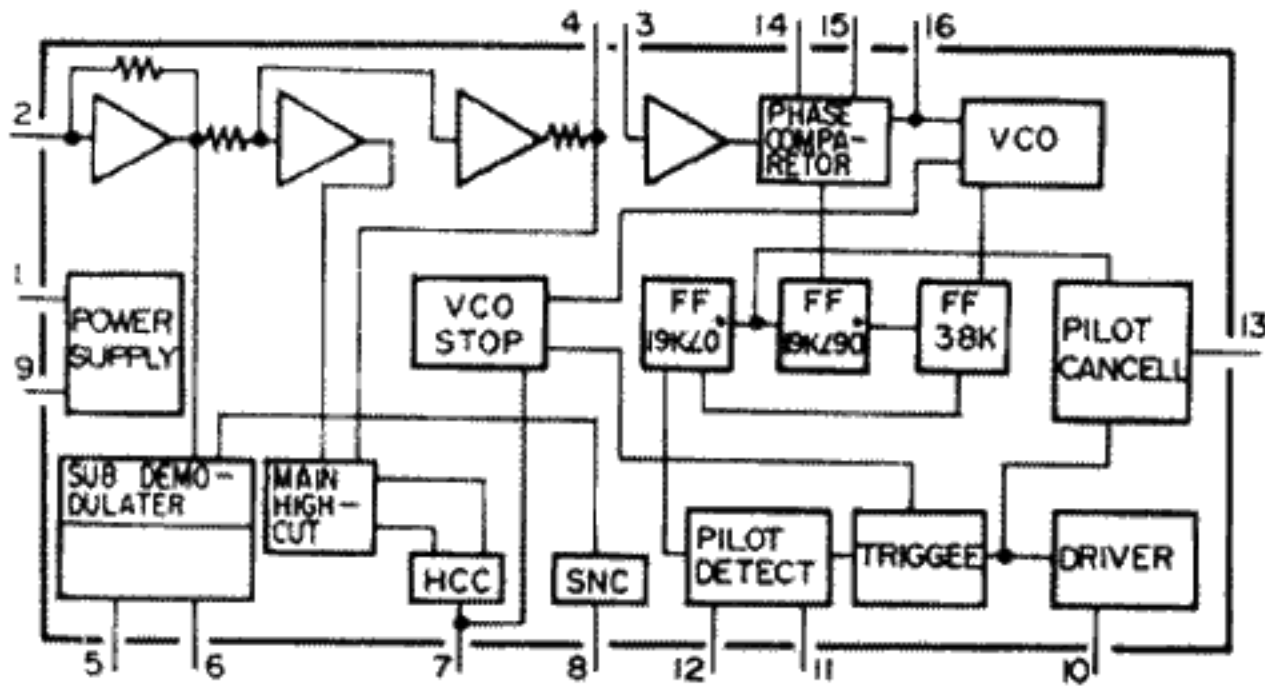
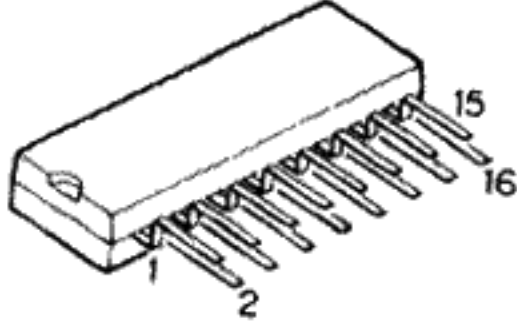
IC201, 207  
NJM4558S



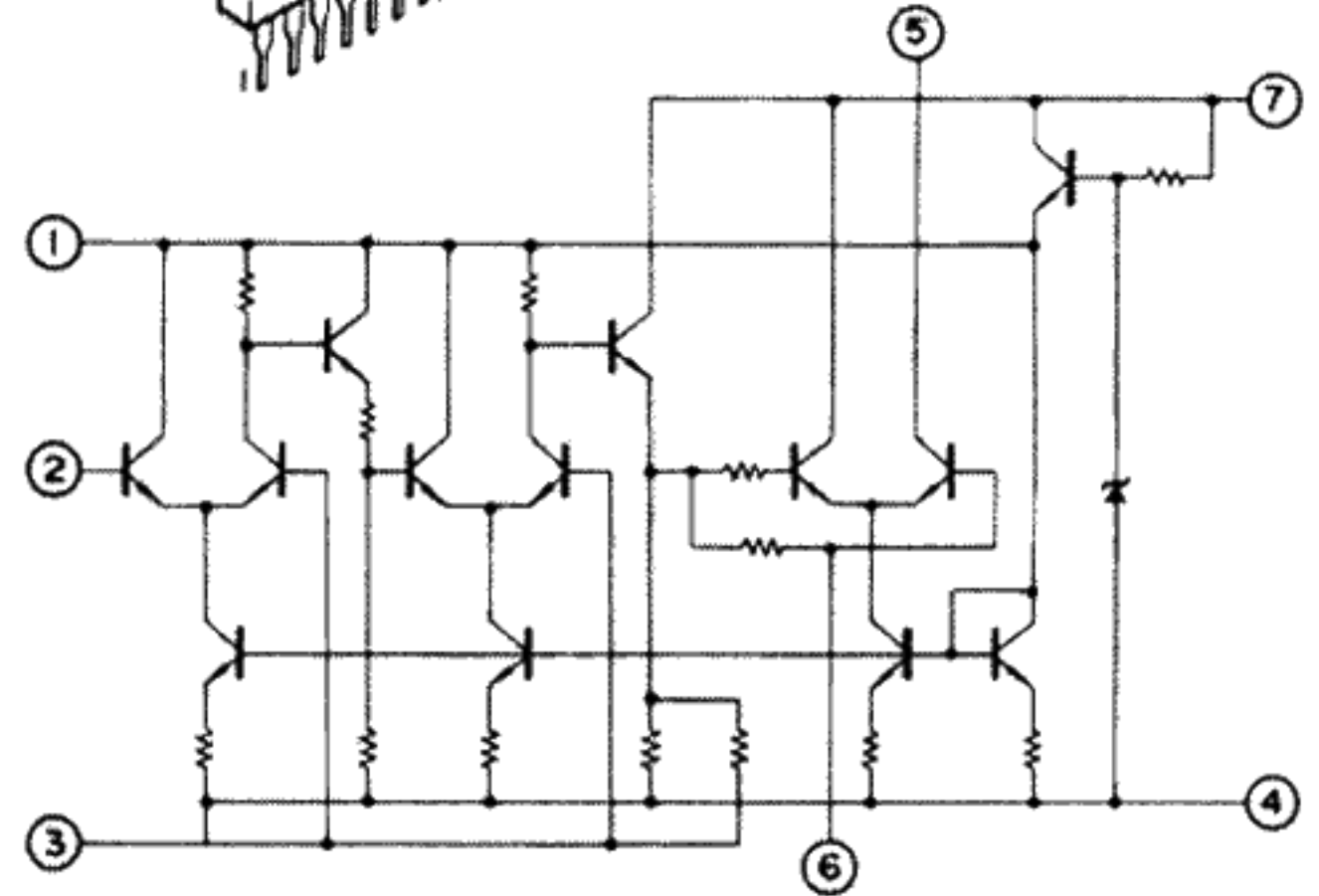
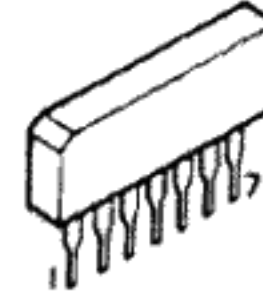
IC206  
LA1245



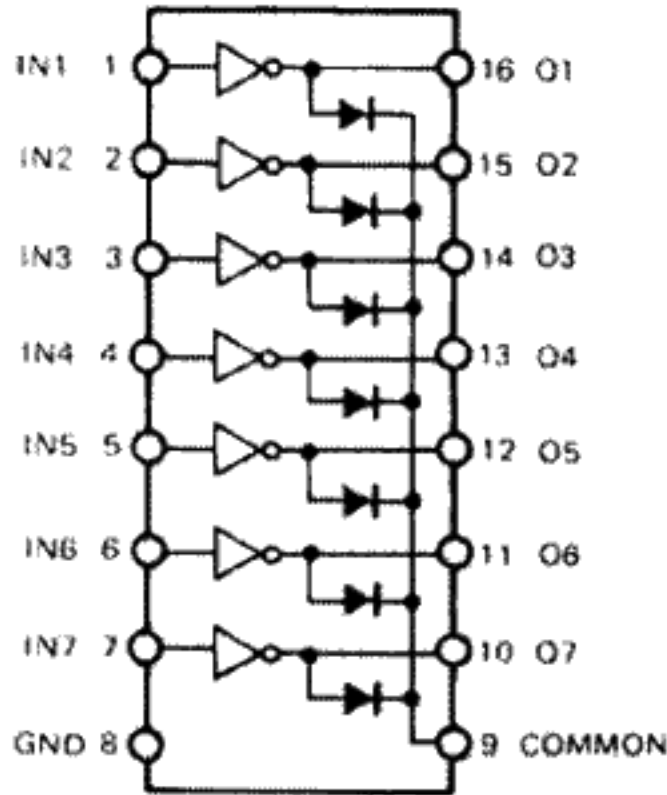
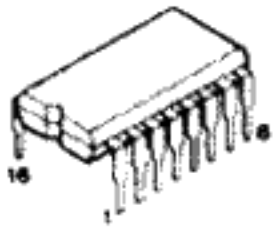
IC208  
LA3430



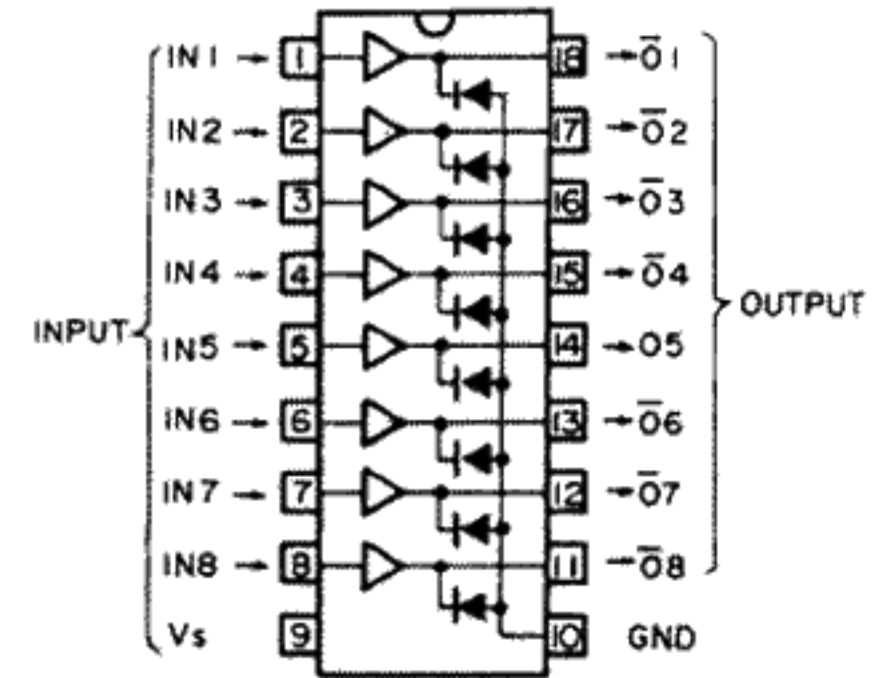
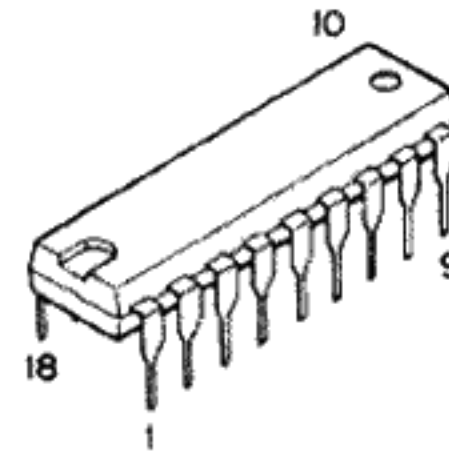
IC202  
 $\mu$ PC577H



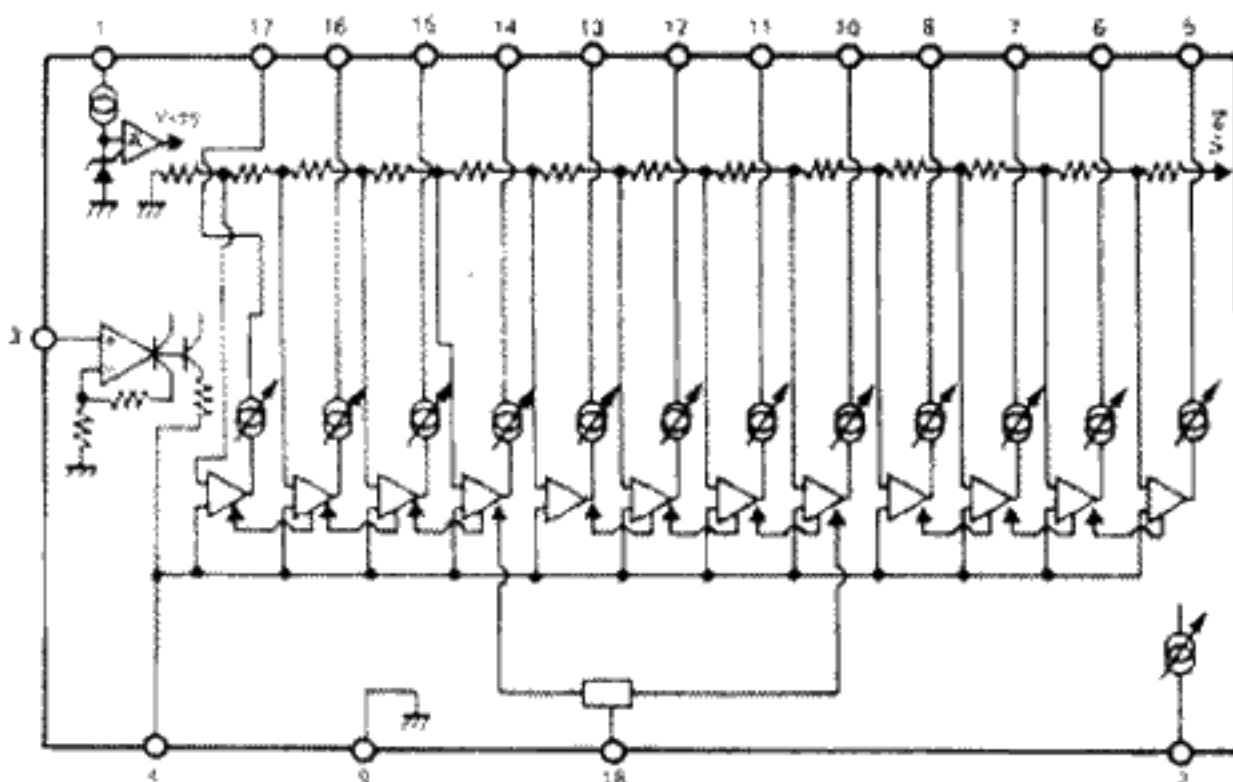
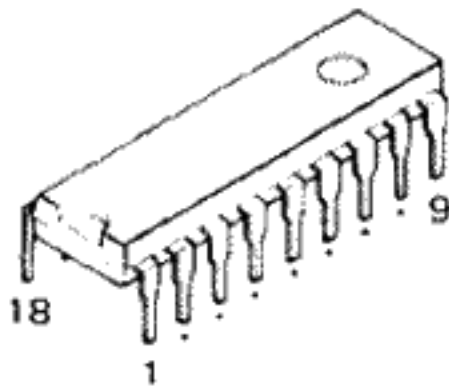
IC1  
M54526P



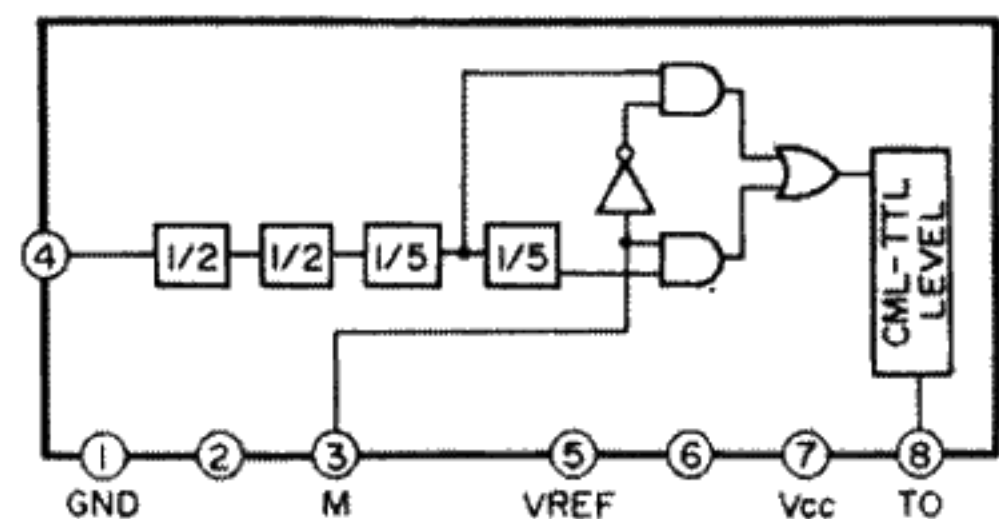
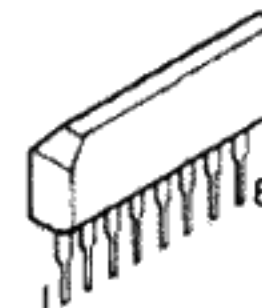
IC2  
M54562P



IC3  
BA689

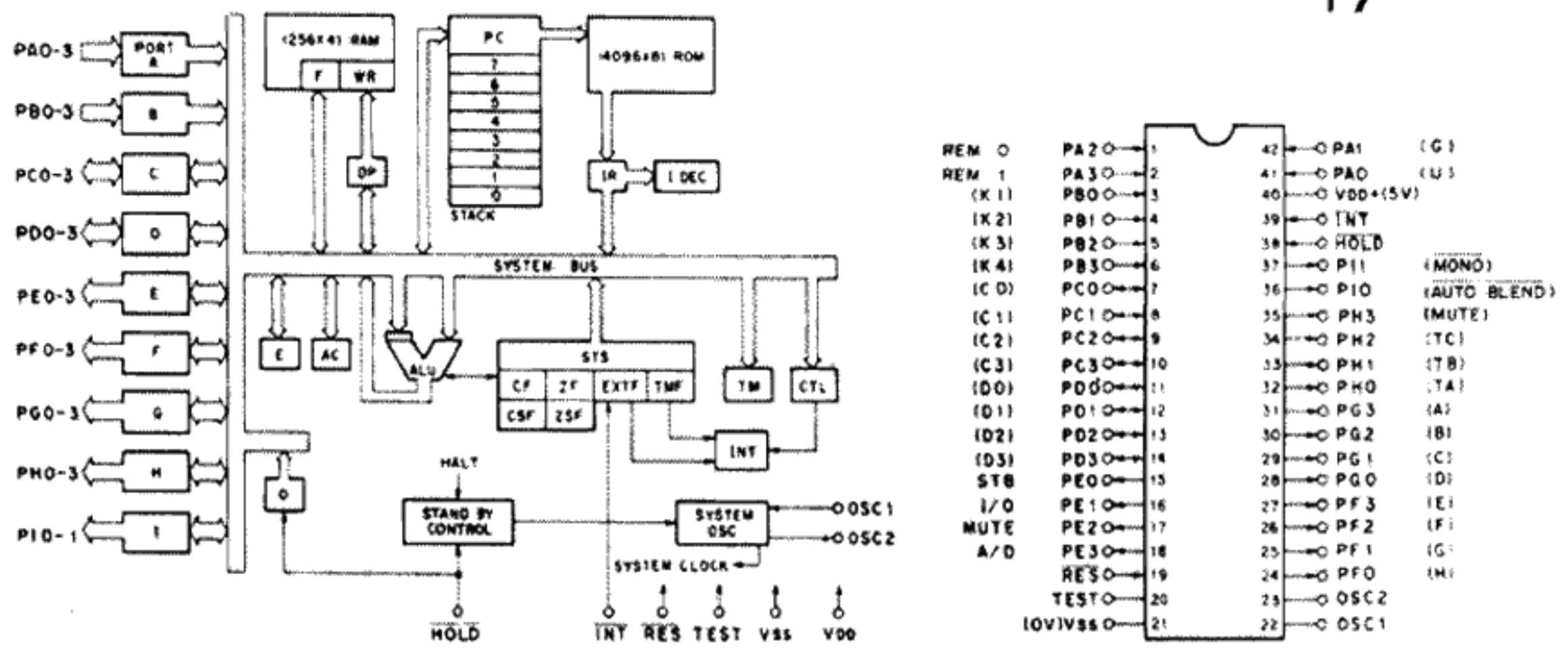
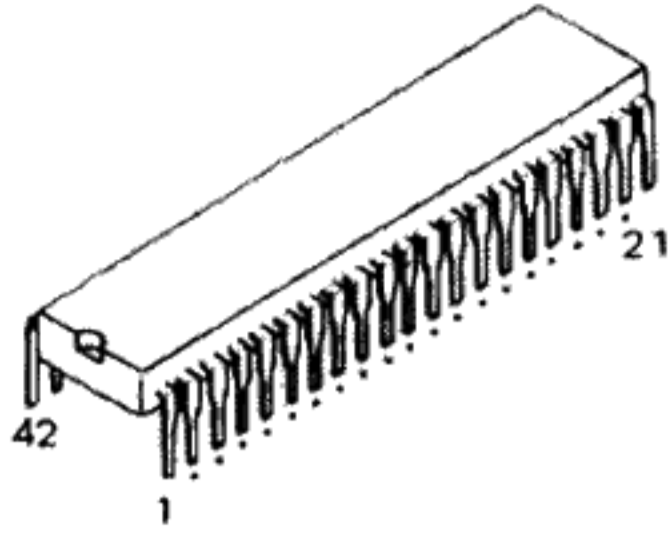


IC101  
M54459L

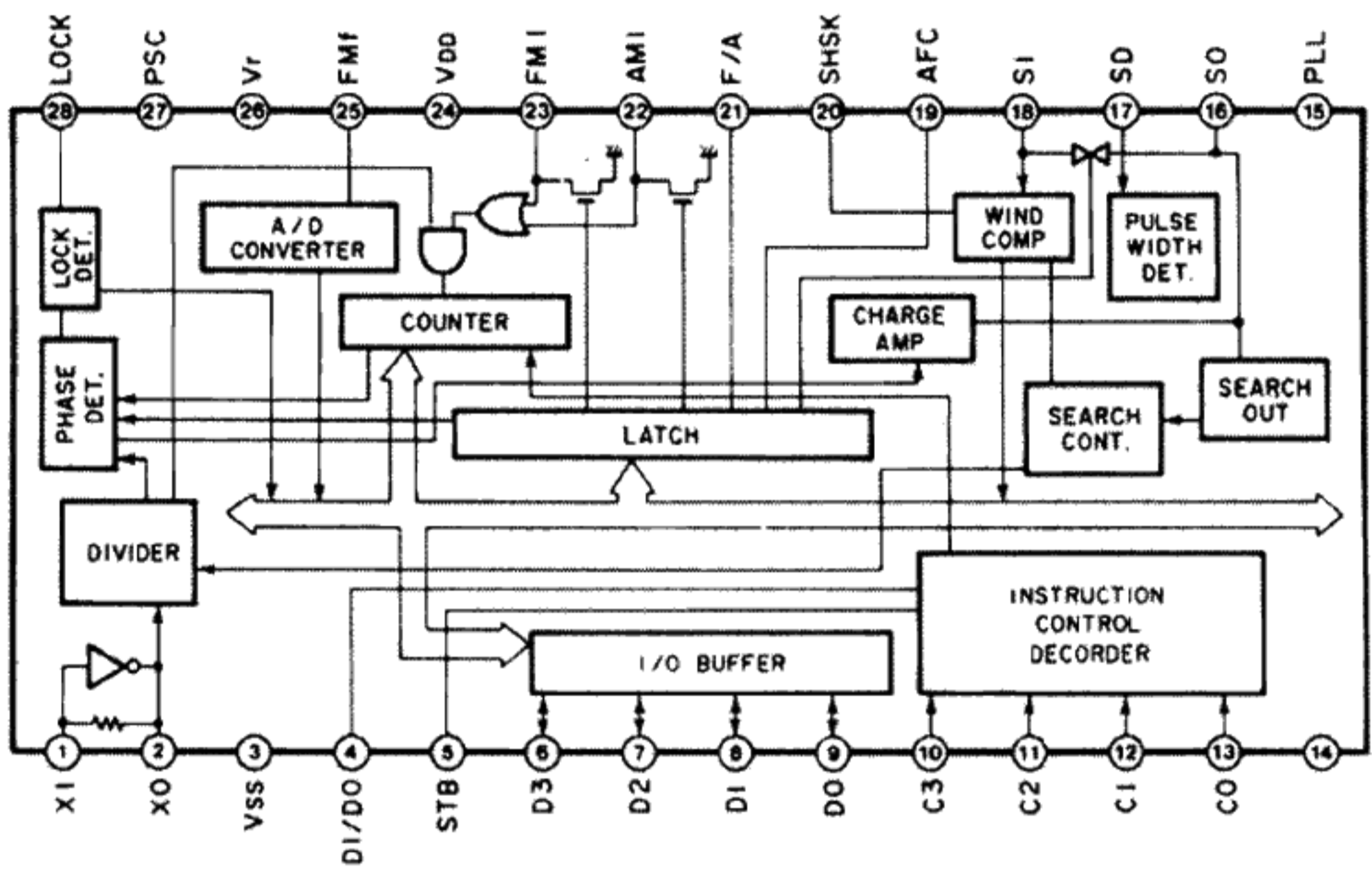
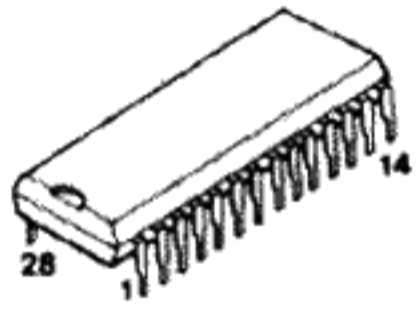


■ IC BLOCK DIAGRAM

IC213  
LC6510C-3040

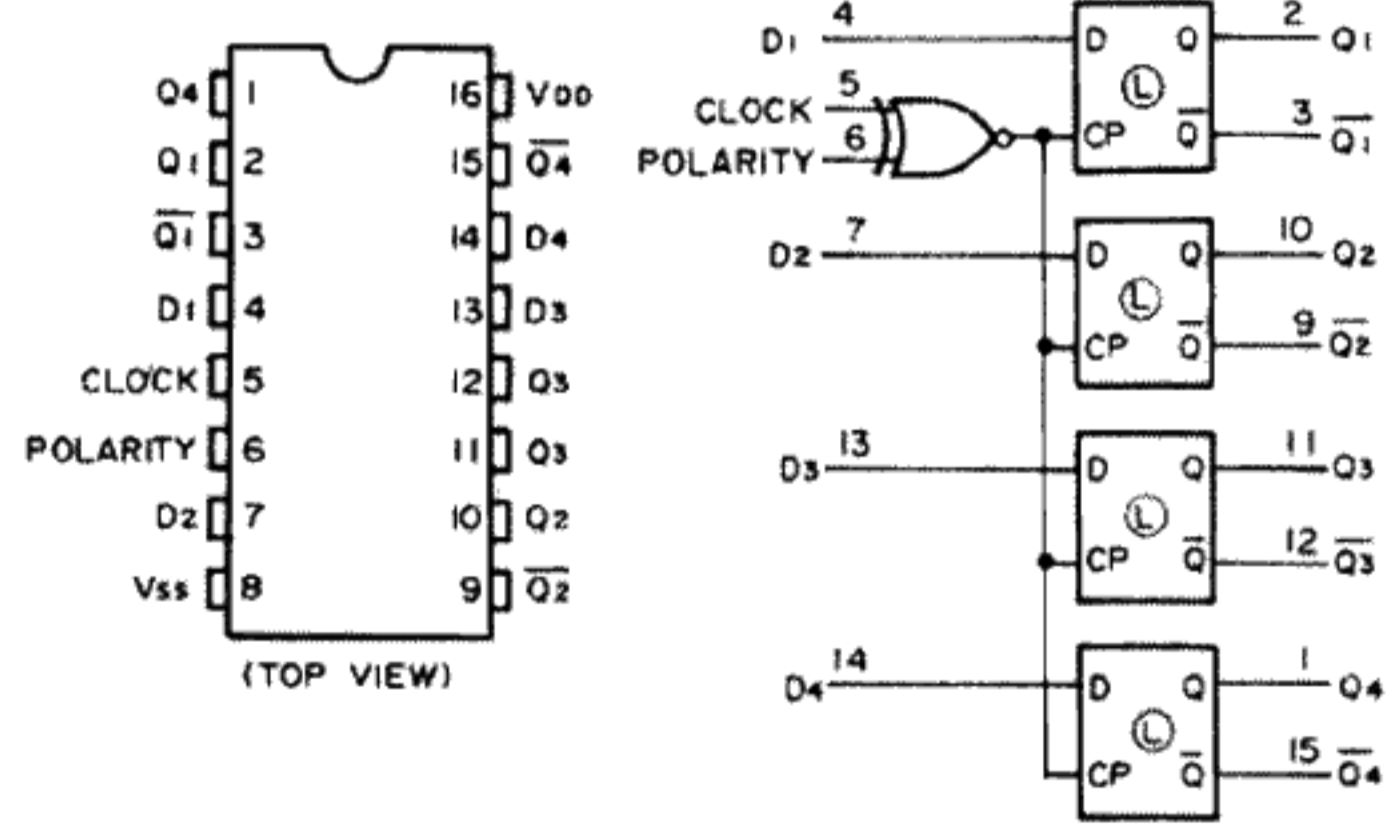
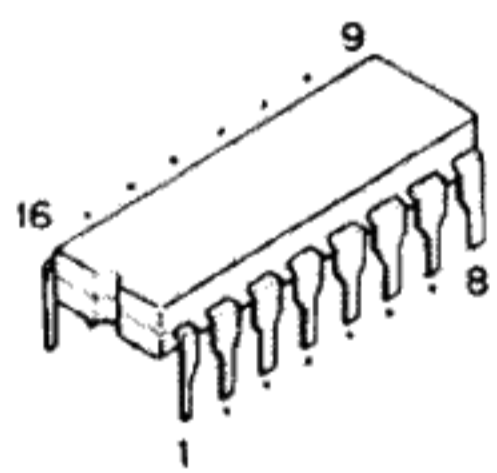


IC214  
LC7210



IC211  
TC4042P

IC212  
TC4028BP or BU4028B



IC203, 204, 205, 209, 210  
NJM2068S

