

# SRF-PSY04

## SERVICE MANUAL

US Model

Ver 1.0 1999.06



Photo: Blue model

### SPECIFICATIONS

#### Time display

12-hour system

#### Frequency range

Frequency	Channel step
FM : 87.5 - 108 MHz	0.1 MHz
AM : 530 - 1710 kHz	10 kHz
FM : 87.5 - 108 MHz	0.05 MHz*
AM : 531 - 1710 kHz	9 kHz

\* The frequency display is raised or lowered by steps of 0.1 MHz.  
(Example: Frequency 88.05 MHz is displayed as "88.0 MHz".)

#### Output

⌀ jack (stereo minijack)

#### Power output

18 mW + 18 mW (at 10 % harmonic distortion)

#### Power requirements

3 V DC, two size AAA (R03) batteries

#### Dimensions

Approx. 81 x 72 x 27.5 mm (w/h/d)  
(3 1/4 x 2 7/8 x 1 1/8 inches) not incl. guard

#### Mass

Main unit : Approx. 82 g (2.9 oz) not incl. batteries

Guard : Approx. 29 g (1.0 oz)

#### Supplied Accessories

Stereo headphones (1)  
Guard (1)  
Chain (1)

Design and specifications are subject to change without notice.

FM STEREO/AM PLL  
SYNTHESIZED RADIO



SONY®

## TABLE OF CONTENTS

<b>1.</b>	<b>GENERAL</b> .....	3
<b>2.</b>	<b>DISASSEMBLY</b> .....	4
<b>3.</b>	<b>ELECTRICAL ADJUSTMENTS</b> .....	5
<b>4.</b>	<b>DIAGRAMS</b>	
4-1.	Block Diagram .....	7
4-2.	Printed Wiring Boards .....	9
4-3.	Schematic Diagram .....	11
4-4.	IC Pin Function Description .....	15
<b>5.</b>	<b>EXPLODED VIEW</b> .....	16
<b>6.</b>	<b>ELECTRICAL PARTS LIST</b> .....	17

## Features

- FM stereo/ AM PLL (Phase Locked Loop) synthesized radio.
- Up to 10 stations (5 for each band FM or AM) can be stored for memory preset tuning.

### Notes on AM Channel Step

The AM channel step differs depending on the area. The Channel step of this unit is factory-set to 10 kHz.

Area	Channel step
North and South American countries	10 kHz
Other countries	9 kHz

### HOW TO CHANGED THE CERAMIC FILTERS

This model is used two ceramic filters of CF1 and CF3. You must use same type of color marked ceramic filters in order to meet same specifications. Therefore, the ceramic filter must be changed two pieces together since it's supply two pieces in one package as a spare parts.

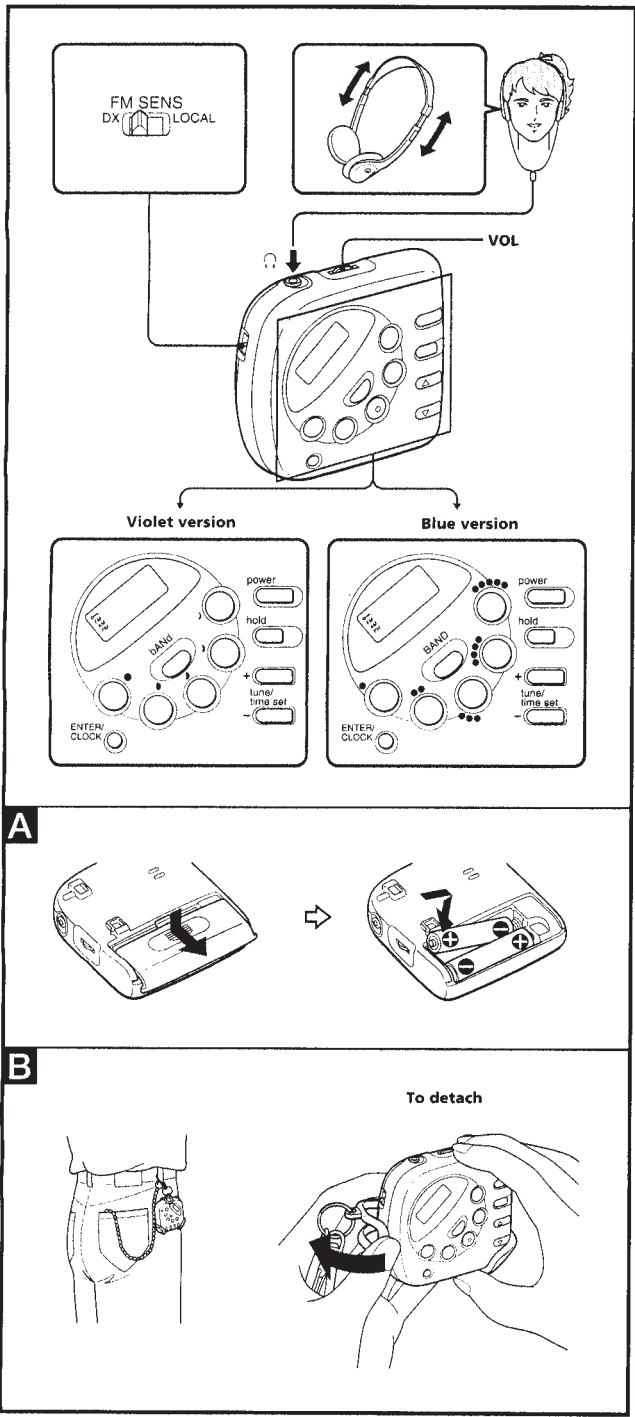
Mark	Center frequency
red	10.70 MHz
blue	10.67 MHz
orange	10.73 MHz
black	10.64 MHz
white	10.76 MHz

### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

# SECTION 1 GENERAL

This section is extracted from instruction manual.



## Installing Batteries (See Fig. A)

- 1 Detach the guard. (See Fig. B)
  - 2 Open the battery compartment lid at the rear of the radio.
  - 3 Install two size AAA (R03) batteries (not supplied) with correct polarity. Be sure to insert the batteries from the ⊕ terminal.
- When you install batteries for the first time, the display will flash "AM 12:00". To stop the flashing, press **ENTER/CLOCK**.

**Battery life**  
Using Sony batteries size AAA (R03)  
FM : Approx. 15 hours  
AM : Approx. 23 hours

- When to Replace the Batteries**
- When the batteries become weak, the sound becomes weak or distorted. When the batteries are completely exhausted, the power turns off and "0 0 0" in the display window flashes. When the power is turned on with the indication flashing, the power will be turned off right away.
  - When "0 0 0" starts flashing, replace both batteries with new ones.
  - Replace the batteries within about 40 seconds after removing the batteries. If not, the preset stations and the clock setting may be erased. In this case, "AM 12:00" will flash in the display. When the batteries are removed for a long time, preset stations and the clock setting will be erased and "AM 12:00" will appear in the display. Store stations and set the clock again.

- Notes on the battery**
- Align the battery correctly.
  - The dry battery cannot be charged.
  - To avoid damage from possible battery leakage, remove the battery when unit will not be used for a long time.

## Setting the Clock

- Set the clock when the radio is turned off.
- 1 When you insert batteries for the first time, "AM 12:00" will flash in the display. To stop flashing, press **ENTER/CLOCK**.
  - 2 While holding down **ENTER/CLOCK**, press **tune/time set +** or **-** repeatedly till the correct time appears in the display. When you release **ENTER/CLOCK**, the clock begins to operate and ":" flashes.

- Each press of **tune/time set +** or **-** advances or returns the displayed time by one minute.
- To change the current time rapidly, keep pressing **tune/time set +** or **-** while holding down **ENTER/CLOCK**.

**Changing AM Channel Step**  
The AM channel step differs depending on areas. The channel step of this unit is factory-set to 10 kHz to match the frequency allocation system of the country as listed. You can change the channel step.

Area	Channel step
North and South American countries	10 kHz
Other countries	9 kHz

- 1 If the radio is on, turn it off.
- 2 While holding down **ENTER/CLOCK**, keep pressing **power** for more than 5 seconds. The AM channel step changes. Repeat step 2 to change the channel step again.

- When the AM channel step is changed, the preset stations and the clock setting will be erased and "AM 12:00" will flash in the display.

## Playing the Radio

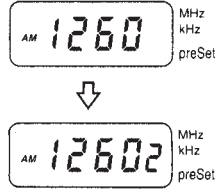
- Manual Tuning**
- 1 Connect the supplied headphones to the ◯ (headphones) jack.
  - 2 Press **power** to turn the radio on.
  - 3 Press **bAND (BAND)** to select the band. Each press changes the band alternately.
  - 4 Press **tune/time set +** or **-** to tune in to a station.
  - 5 Adjust **VOL** (volume).
- To turn off the radio, press **power**.

**Preset Tuning**  
Once you preset the desired stations, you can tune them in by a press of a button. You can preset up to 5 stations for each band.

**Presetting the Station**  
Example: To set AM 1260 kHz onto preset button 2.

Preset number	Display	1	2	3	4	5
Violet	●	●	●	●	●	●
Blue	●	●	●	●	●	●

- 1 Preset **power** to turn the radio on.
- 2 Tune in to the station to be preset. (See "Manual Tuning".)
- 3 While holding down **ENTER/CLOCK**, press the desired preset button (in this case, 2). The station will be stored and the preset number will appear in the display.



- To change the preset station, set a new station onto the preset button. The previous frequency will be overwritten.

- Tuning in to a Preset Station**
- 1 Press **power** to turn the radio on.
  - 2 Press **bAND (BAND)** to select the band.
  - 3 Press the desired preset number button. The preset number will appear in the display.
  - 4 Adjust **VOL** (volume).

- To improve reception  
**FM:** Extend the headphones cord which functions as the FM antenna.  
**AM:** Rotate the unit horizontally for optimum reception. A ferrite bar antenna is built in the unit.
- For FM, set **FM SENS** to **LOCAL** if a very strong station signal causes interference. Normally, set it to **DX**.

- To prevent accidental change of the receiving station, press **hold**. "0-0" is displayed, indicating that all the functions of the buttons are locked. To release key protection, press **hold** again.

## Using the Guard and Chain (See Fig. B)

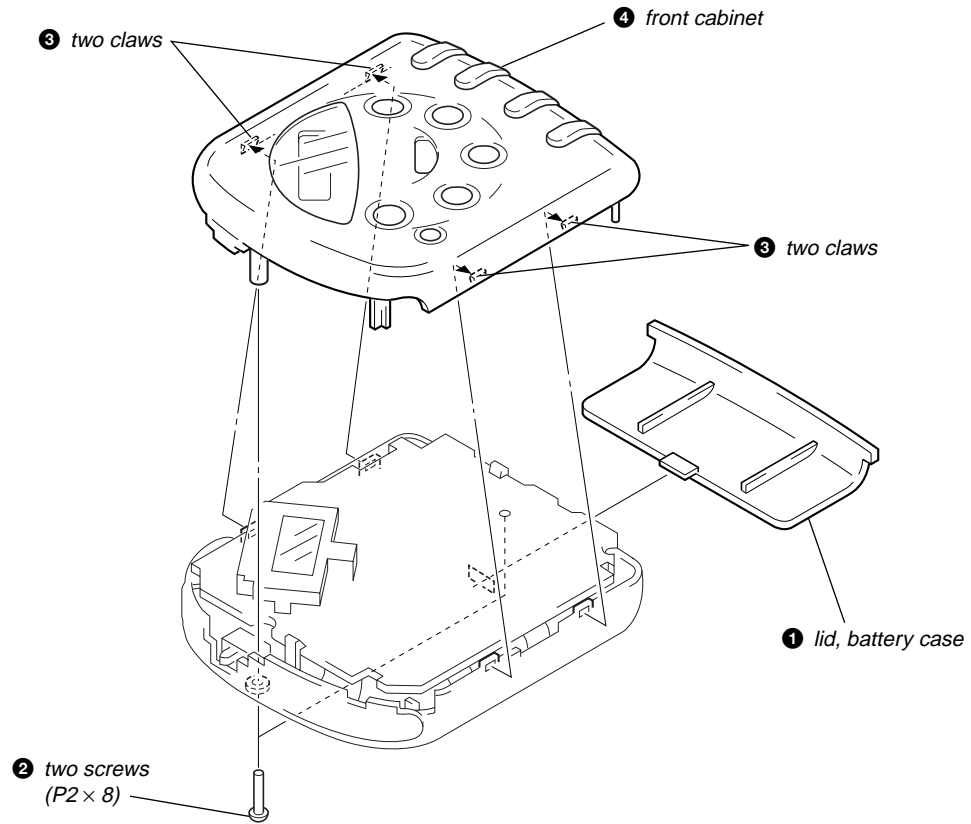
- 1 Attach the end of the chain onto the bumper guard hook.
- 2 Attach the unit to your belt loop with the hook. Attach your wallet to the chain and put it in your back pocket.

**Note**  
Use of this chain may cause scratching of the unit in normal use.

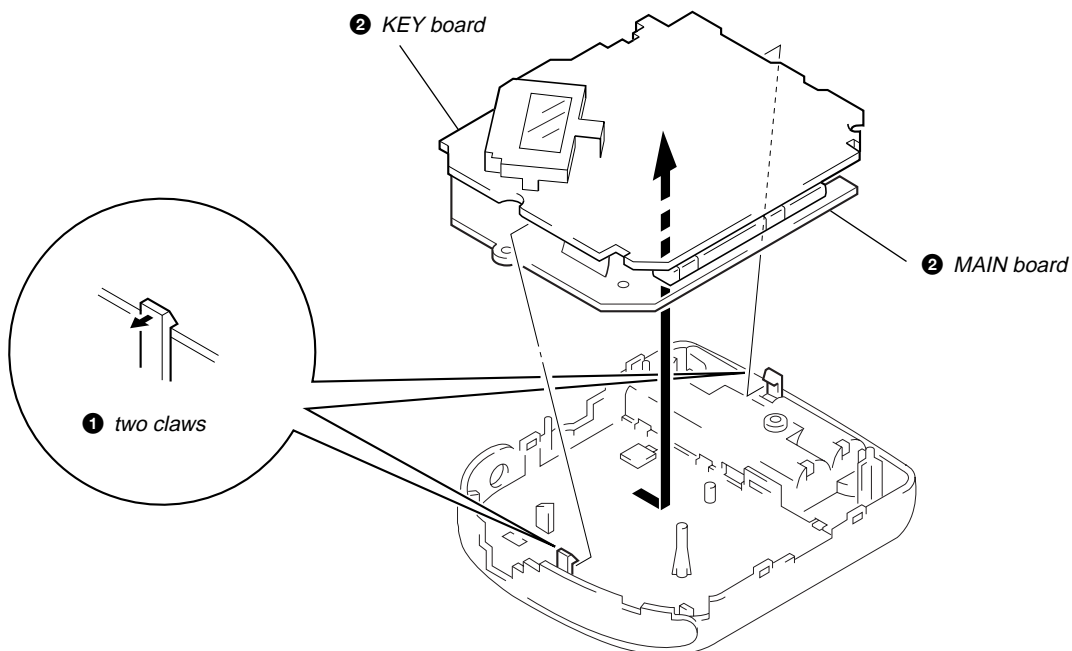
## SECTION 2 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

### FRONT CABINET



### MAIN BOARD, KEY BOARD



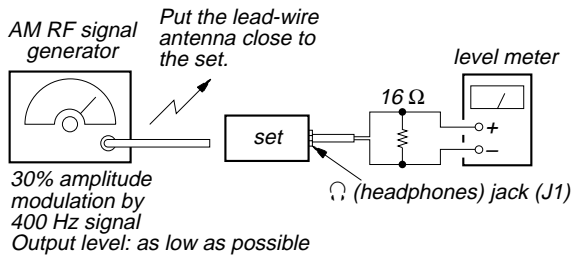
## SECTION 3 ELECTRICAL ADJUSTMENTS

0 dB=1  $\mu$ V

### [AM]

#### Setting:

BAND switch: AM

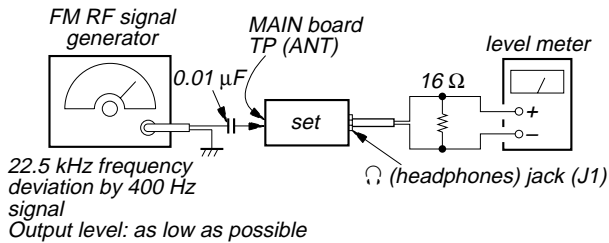


### [FM]

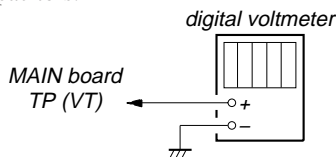
#### Setting:

BAND switch: FM

FM SENS switch: DX



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally done by the trimmer capacitors.



**Adjustment Location:** Main Board (See page 6)

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter	
T1	450 kHz

AM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter
L5	530 kHz	$2.7 \pm 0.1$ V
Confirmation	1,710 kHz	$8.9 \pm 1$ V

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter	
L2	580 kHz
CT1	1,490 kHz

FM VCO VOLTAGE CONFIRMATION	
Frequency Display	Reading on Digital Voltmeter
87.5 MHz	$2.7 \pm 0.1$ V
108 MHz	$8.9 \pm 1$ V

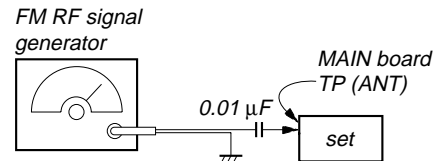
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter	
L3	87.5 MHz
CT2	108 MHz

### FM STEREO (76 kHz) Adjustment

#### Setting:

BAND switch: FM

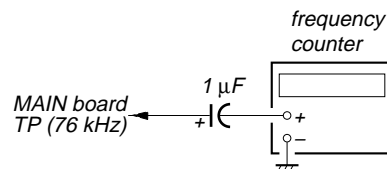
FM SENS switch: DX



#### Procedure:

- Connect the frequency counter to TP (76 kHz) as shown the figure below.
- Tune the set to 98 MHz.
- Adjust RV1 for 76 kHz reading on the frequency counter.

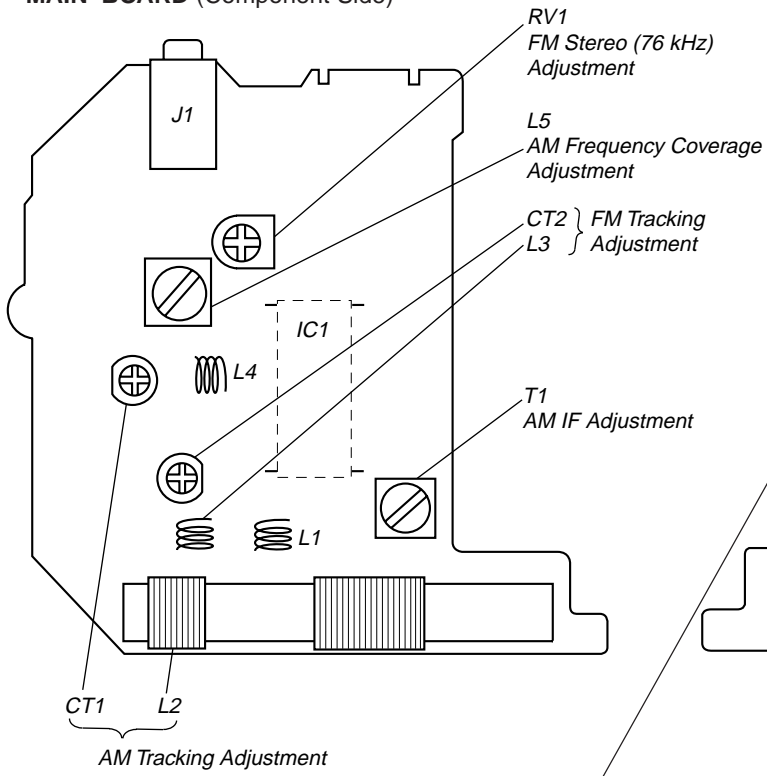
**Specification:** 75.5 to 76.5 kHz



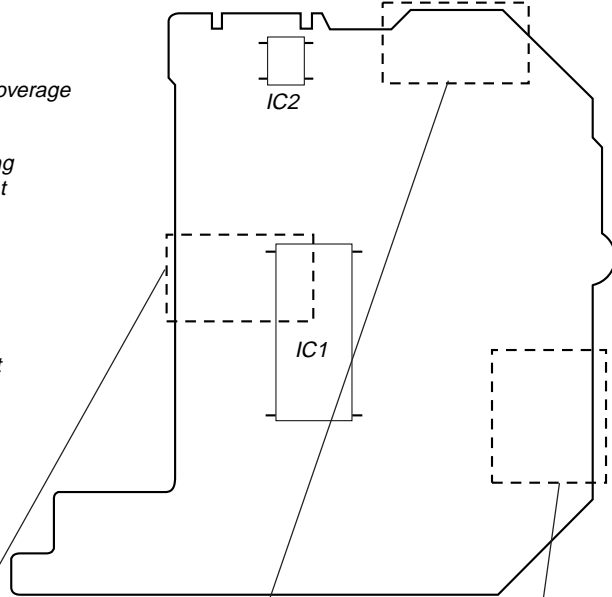
**Adjustment Location:** MAIN board (See page 6)

**Adjustment Location:**

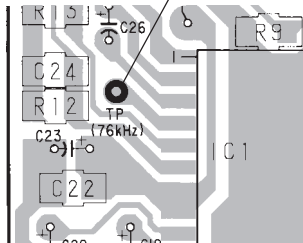
**- MAIN BOARD (Component Side) -**



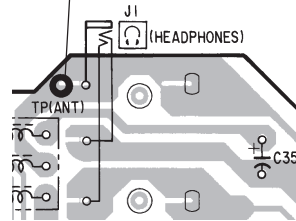
**- MAIN BOARD (Conductor Side) -**



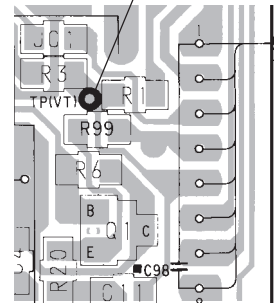
TP (76 kHz)



TP (ANT)

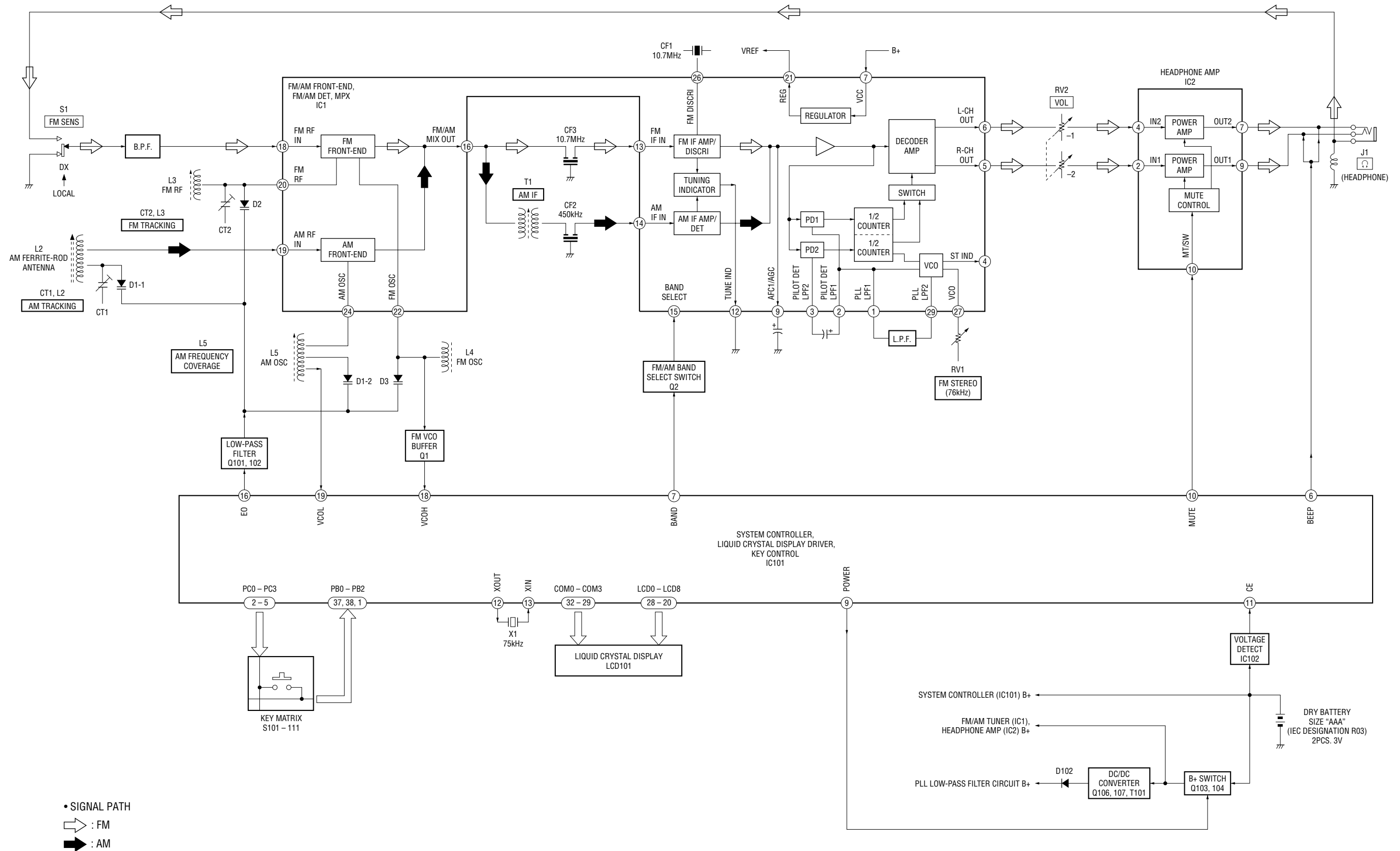


TP (VT)



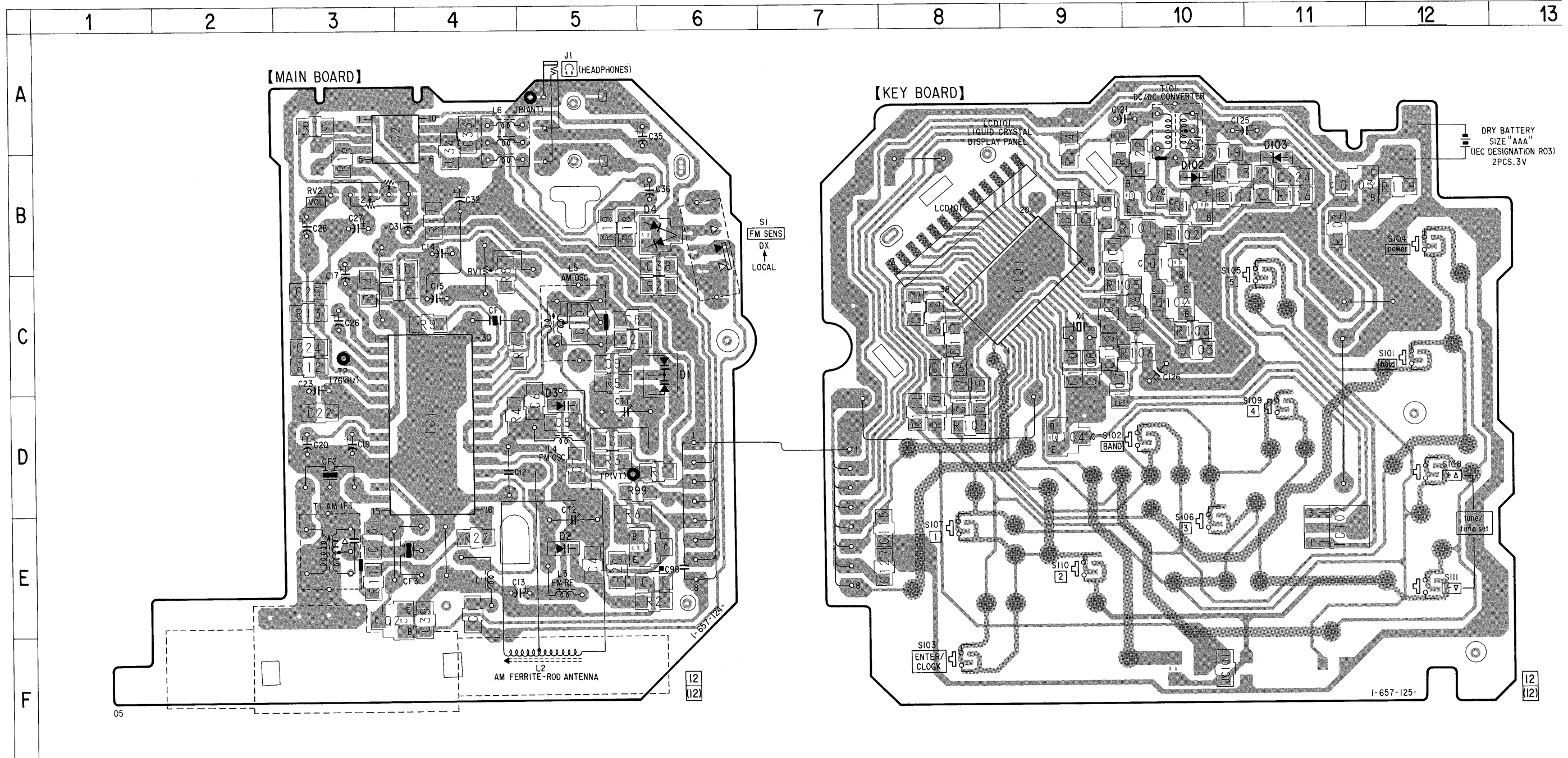
SECTION 4  
DIAGRAMS

4-1. BLOCK DIAGRAM



05

4-2. PRINTED WIRING BOARDS



• Semiconductor Location

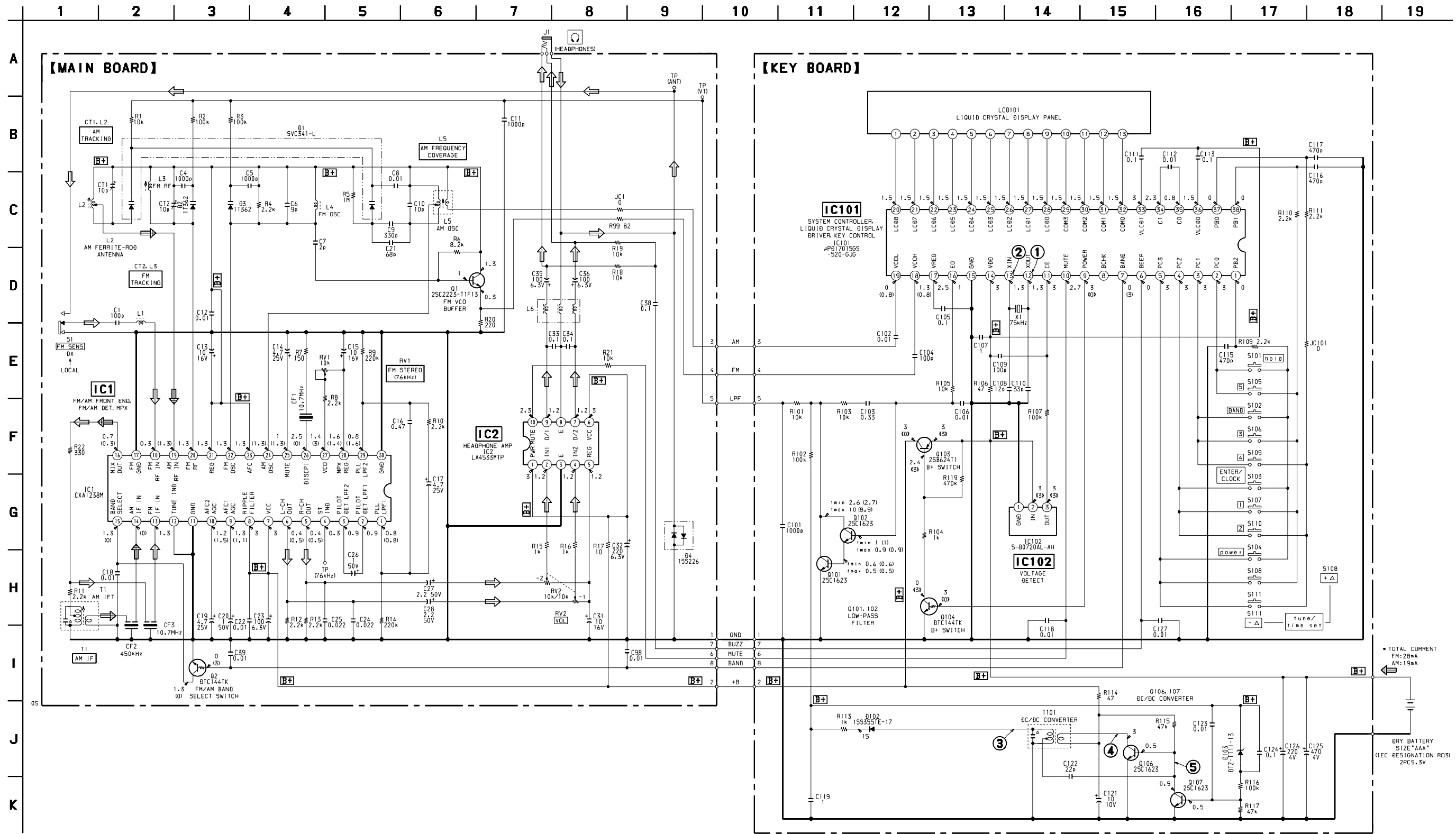
Ref. No.	Location	Ref. No.	Location
D1	C-6	IC102	E-11
D2	E-5	Q1	E-6
D3	D-5	Q2	E-3
D4	B-6	Q101	B-10
D102	B-10	Q102	C-10
D103	B-11	Q103	B-11
IC1	D-4	Q104	D-9
IC2	A-3	Q106	B-10
IC101	C-9	Q107	B-10

Note on Printed Wiring Boards:

- ○ : parts extracted from the component side.
- — : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- □ : indicates side identified with part number.
- △ : internal component.
- [Pattern] : Pattern from the side which enables seeing.
- [Carbon Pattern] : Carbon pattern.



4-3. SCHEMATIC DIAGRAM • See page 13 for Waveforms. • See page 14 for IC Block Diagrams.



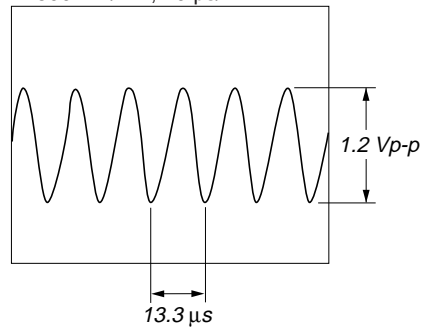
**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- $\Delta$  : internal component.
- $\square$  : panel designation.
- $\text{B}+$  : B+ Line.
- $\square$  : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.

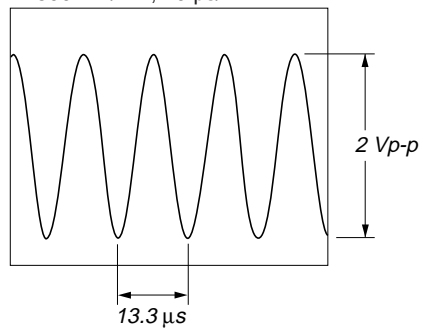
- no mark : FM
- ( ) : AM
- { } : POWER OFF
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - $\Rightarrow$  : FM
  - $\Rightarrow$  : AM

• Waveforms  
– KEY Board –

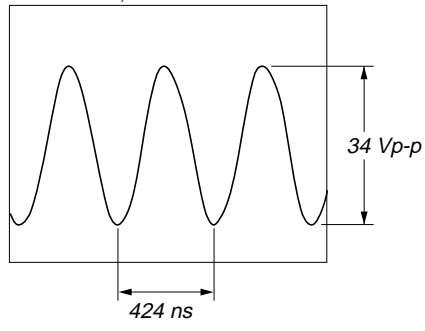
1 IC101 ⑫ XOUT  
500 mV/DIV, 10 μs/DIV



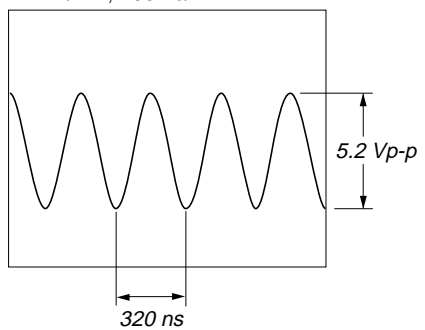
2 IC101 ⑬ XIN  
500 mV/DIV, 10 μs/DIV



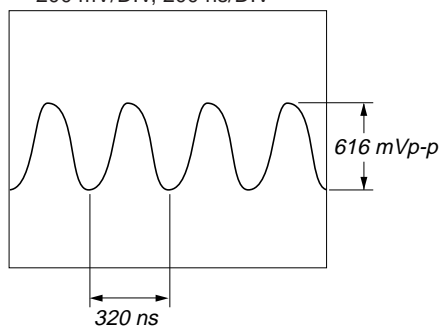
3 T101  
10 V/DIV, 200 ns/DIV



4 Q106 Collector  
2 V/DIV, 200 ns/DIV

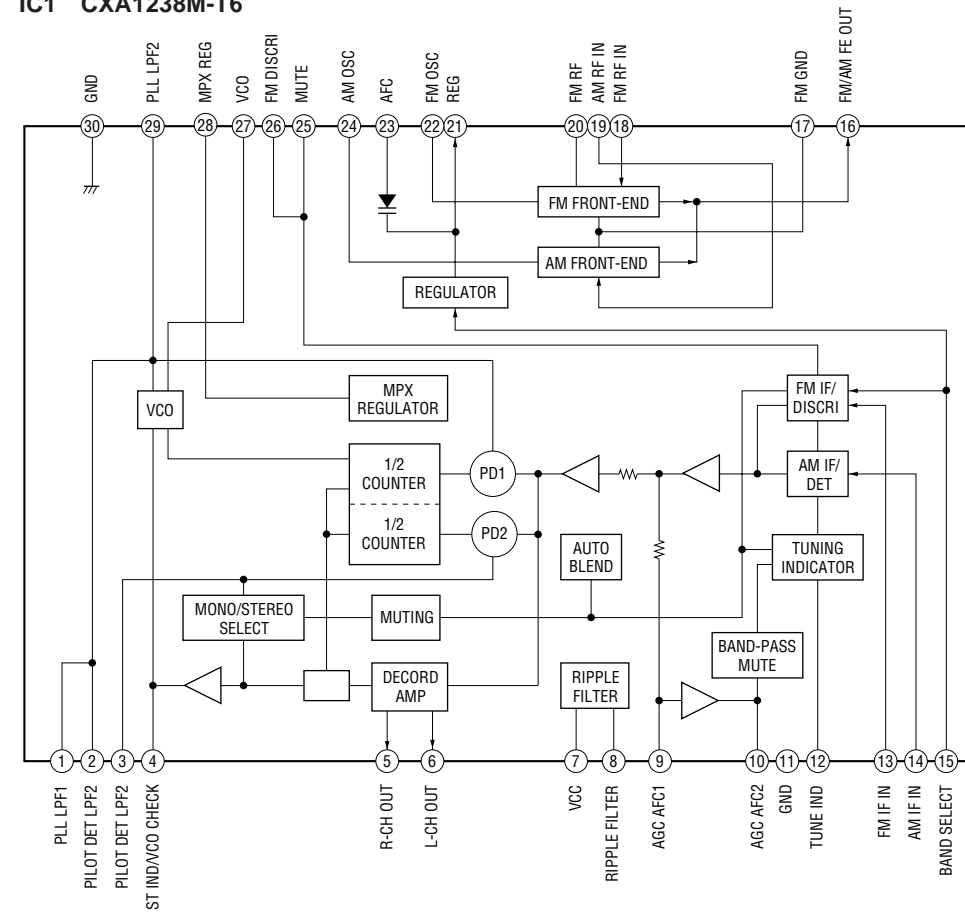


5 Q106 Base, Q107 Collector  
200 mV/DIV, 200 ns/DIV

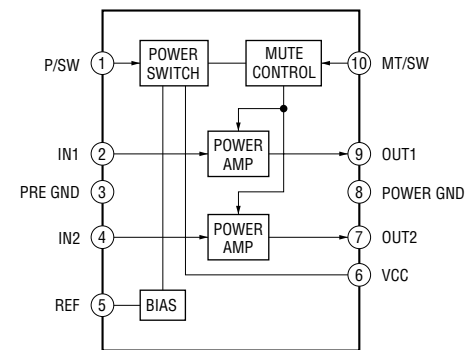


• IC Block Diagrams  
– MAIN Board –

IC1 CXA1238M-T6



IC2 LA4533M



#### 4-4. IC PIN FUNCTION DESCRIPTION

- KEY BOARD IC101  $\mu$ PD17015GS-520-GJG  
(SYSTEM CONTROLLER, LIQUID CRYSTAL DISPLAY DRIVER, KEY CONTROL)

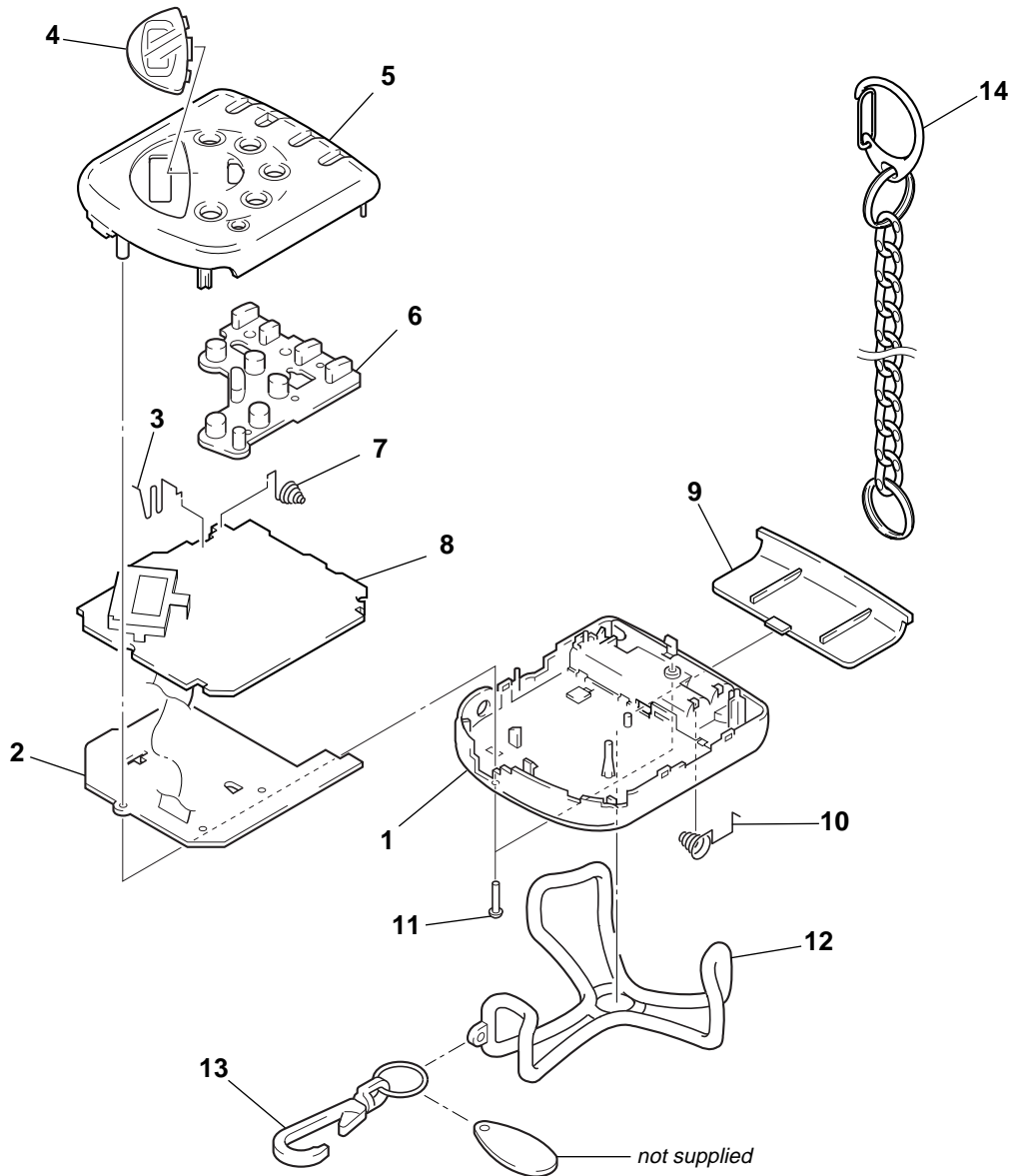
Pin No.	Pin Name	I/O	Description
1	PB2	I	Key return signal input for the key matrix
2 to 5	PC0 to PC3	O	Key scan signal output for the key matrix
6	BEEP	O	Beep sound drive signal output terminal
7	BAND	O	FM/AM band selection signal output terminal “L”: FM, “H”: AM
8	BCHK	—	Not used (open)
9	POWER	O	Power on/off control signal output for the radio system power supply “H”: power on
10	MUTE	O	Muting on/off control signal output to the headphone amplifier (IC2) “L”: muting on
11	CE	I	Power failure detection signal input from the voltage detect (IC102) Normally: “H”
12	XOUT	O	System clock output terminal (75 kHz)
13	XIN	I	System clock input terminal (75 kHz)
14	VDD	—	Power supply terminal (+3V)
15	GND	—	Ground terminal
16	EO	O	PLL error signal output terminal
17	VREG	—	Power supply terminal (connected to the coupling capacitor)
18	VCOH	I	FM VCO input terminal
19	VCOL	I	AM VCO input terminal
20 to 28	LCD8 to LCD0	O	Segment drive signal output to the liquid crystal display (LCD101)
29 to 32	COM3 to COM0	O	Common drive signal output to the liquid crystal display (LCD101)
33	VLCD1	—	Terminal for doubler circuit capacitor connection to develop liquid crystal display drive voltage
34	C1	—	
35	C0	—	
36	VLCD0	—	
37, 38	PB0, PB1	I	Key return signal input for the key matrix

## SECTION 5 EXPLODED VIEW

**NOTE:**

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE (WHITE) . . . (RED)  
                                  ↑                  ↑  
                                  Parts Color Cabinet's Color

- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-925-196-21	CABINET (REAR) (BLUE)		7	3-925-192-01	SPRING (-), BATTERY	
1	3-925-196-31	CABINET (REAR) (VIOLET)		8	A-3679-693-A	KEY BOARD, COMPLETE	
2	A-3679-692-A	MAIN BOARD, COMPLETE		9	3-925-197-11	LID, BATTERY CASE (BLUE)	
3	3-925-201-01	SPRING (+), BATTERY		9	3-925-197-21	LID, BATTERY CASE (VIOLET)	
4	3-925-198-11	PLATE, TRANSPARENT (for BLUE)		10	3-925-193-01	SPRING (+/-), BATTERY	
4	3-925-198-21	PLATE, TRANSPARENT (for VIOLET)		11	7-685-105-14	TAPPING +P 2X8 NON-SLIT	
5	3-925-195-11	CABINET (FRONT) (BLUE)		12	3-037-724-01	GUARD (YELLOW)... (BLUE)	
5	3-925-195-21	CABINET (FRONT) (VIOLET)		12	3-037-724-11	GUARD (BLUE)... (VIOLET)	
6	1-762-412-21	SWITCH, RUBBER KEY (BLUE)...(VIOLET)		13	3-028-093-01	CLIP	
6	1-762-412-31	SWITCH, RUBBER KEY (VIOLET)...(BLUE)		14	3-036-709-01	CHAIN	

# SECTION 6 ELECTRICAL PARTS LIST

KEY
MAIN

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case,  $\mu$ :  $\mu$ , for example:  
 $\mu A. . . : \mu A. . .$        $\mu PA. . . : \mu PA. . .$   
 $\mu PB. . . : \mu PB. . .$        $\mu PC. . . : \mu PC. . .$   
 $\mu PD. . . : \mu PD. . .$
- CAPACITORS  
 $\mu F: \mu F$
- COILS  
 $\mu H: \mu H$

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3679-693-A	KEY BOARD, COMPLETE *****				< TRANSISTOR >	
		< CAPACITOR >					
C101	1-163-009-11	CERAMIC CHIP 0.001 $\mu$ F	10%	50V		Q101 8-729-120-28 TRANSISTOR 2SC1623-L5L6	
C102	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F		50V		Q102 8-729-120-28 TRANSISTOR 2SC1623-L5L6	
C103	1-164-336-11	CERAMIC CHIP 0.33 $\mu$ F		25V		Q103 8-729-141-48 TRANSISTOR 2SB624-BV345	
C104	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		Q104 8-729-027-60 TRANSISTOR DTC144TKA-T146	
C105	1-163-038-00	CERAMIC CHIP 0.1 $\mu$ F		25V		Q106 8-729-120-28 TRANSISTOR 2SC1623-L5L6	
C106	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F		50V			
C107	1-164-346-11	CERAMIC CHIP 1 $\mu$ F		16V			
C108	1-163-229-11	CERAMIC CHIP 12PF	5%	50V		Q107 8-729-120-28 TRANSISTOR 2SC1623-L5L6	
C109	1-163-251-11	CERAMIC CHIP 100PF	5%	50V			
C110	1-163-239-11	CERAMIC CHIP 33PF	5%	50V		< RESISTOR >	
C111	1-163-038-00	CERAMIC CHIP 0.1 $\mu$ F		25V		R101 1-216-073-00 METAL CHIP 10K 5% 1/10W	
C112	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F		50V		R102 1-216-097-00 RES, CHIP 100K 5% 1/10W	
C113	1-163-038-00	CERAMIC CHIP 0.1 $\mu$ F		25V		R103 1-216-073-00 METAL CHIP 10K 5% 1/10W	
C115	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		R104 1-216-049-11 RES, CHIP 1K 5% 1/10W	
C116	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		R105 1-216-073-00 METAL CHIP 10K 5% 1/10W	
C117	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		R106 1-216-017-00 RES, CHIP 47 5% 1/10W	
C118	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F		50V		R107 1-216-097-00 RES, CHIP 100K 5% 1/10W	
C119	1-164-346-11	CERAMIC CHIP 1 $\mu$ F		16V		R109 1-216-057-00 METAL CHIP 2.2K 5% 1/10W	
C121	1-124-261-00	ELECT 10 $\mu$ F	20%	50V		R110 1-216-057-00 METAL CHIP 2.2K 5% 1/10W	
C122	1-163-235-11	CERAMIC CHIP 22PF	5%	50V		R111 1-216-057-00 METAL CHIP 2.2K 5% 1/10W	
C123	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F		50V		R113 1-216-049-11 RES, CHIP 1K 5% 1/10W	
C124	1-163-038-00	CERAMIC CHIP 0.1 $\mu$ F		25V		R114 1-216-017-00 RES, CHIP 47 5% 1/10W	
C125	1-126-518-11	ELECT 470 $\mu$ F	20%	4V		R115 1-216-089-00 RES, CHIP 47K 5% 1/10W	
C126	1-124-434-00	ELECT 220 $\mu$ F	20%	4V		R116 1-216-097-00 RES, CHIP 100K 5% 1/10W	
C127	1-163-031-11	CERAMIC CHIP 0.01 $\mu$ F		50V		R117 1-216-089-00 RES, CHIP 47K 5% 1/10W	
		< DIODE >				R119 1-216-113-00 METAL CHIP 470K 5% 1/10W	
D102	8-719-988-61	DIODE 1SS355TE-17				< TRANSFORMER >	
D103	8-719-977-40	DIODE DTZ-TT11-13				T101 1-449-138-11 TRANSFORMER, DC-DC CONVERTER	
		< IC >				< VIBRATOR >	
IC101	8-759-343-08	IC $\mu$ PD17015GS-520-GJG				X1 1-567-769-11 VIBRATOR, CRYSTAL (75kHz)	
IC102	8-759-542-36	IC S-80720AL-AH-T1				*****	
		< SHORT >				* A-3679-692-A MAIN BOARD, COMPLETE *****	
JC101	1-216-295-00	SHORT 0				< CAPACITOR >	
		< LIQUID CRYSTAL DISPLAY >					
LCD101	1-810-932-11	DISPLAY PANEL, LIQUID CRYSTAL				C1 1-163-251-11 CERAMIC CHIP 100PF 5% 50V	
						C4 1-163-141-00 CERAMIC CHIP 0.001 $\mu$ F 5% 50V	
						C5 1-163-141-00 CERAMIC CHIP 0.001 $\mu$ F 5% 50V	
						C6 1-163-092-00 CERAMIC CHIP 9PF 0.25PF 50V	
						C7 1-163-085-00 CERAMIC CHIP 2PF 50V	

**MAIN**

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C8	1-163-031-11	CERAMIC CHIP	0.01uF	50V		< COIL >	
C9	1-163-129-00	CERAMIC CHIP	330PF	5%	50V		
C10	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V		
C11	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		
C12	1-101-004-00	CERAMIC	0.01uF		50V		
C13	1-104-396-11	ELECT	10uF	20%	16V		
C14	1-126-163-11	ELECT	4.7uF	20%	50V		
C15	1-104-396-11	ELECT	10uF	20%	16V		
C16	1-164-005-11	CERAMIC CHIP	0.47uF		25V		
C17	1-126-163-11	ELECT	4.7uF	20%	50V		
C18	1-163-031-11	CERAMIC CHIP	0.01uF		50V		
C19	1-126-163-11	ELECT	4.7uF	20%	50V		
C20	1-104-942-11	ELECT	1uF	20%	50V		
C21	1-163-113-00	CERAMIC CHIP	68PF	5%	50V		
C22	1-163-031-11	CERAMIC CHIP	0.01uF		50V		
C23	1-126-382-11	ELECT	100uF	20%	6.3V		
C24	1-163-033-00	CERAMIC CHIP	0.022uF		50V		
C25	1-163-033-00	CERAMIC CHIP	0.022uF		50V		
C26	1-104-942-11	ELECT	1uF	20%	50V		
C27	1-124-257-00	ELECT	2.2uF	20%	50V		
C28	1-124-257-00	ELECT	2.2uF	20%	50V		
C31	1-104-396-11	ELECT	10uF	20%	16V		
C32	1-124-635-00	ELECT	220uF	20%	6.3V		
C33	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V		
C34	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V		
C35	1-126-382-11	ELECT	100uF	20%	6.3V		
C36	1-126-382-11	ELECT	100uF	20%	6.3V		
C38	1-163-038-00	CERAMIC CHIP	0.1uF		25V		
C39	1-163-031-11	CERAMIC CHIP	0.01uF		50V		
C98	1-101-004-00	CERAMIC	0.01uF		50V		
		< FILTER >					
CF1	1-577-324-11	FILTER, CERAMIC (10.7MHz)					
CF2	1-577-072-21	FILTER, CERAMIC (450kHz)					
CF3	1-577-324-11	FILTER, CERAMIC (10.7MHz)					
		< TRIMMER >					
CT1	1-141-304-21	CAP, TRIMMER	10PF				
CT2	1-141-304-21	CAP, TRIMMER	10PF				
		< DIODE >					
D1	8-719-945-31	DIODE SVC341-L					
D2	8-713-100-11	DIODE 1T362					
D3	8-713-100-11	DIODE 1T362					
D4	8-719-800-76	DIODE 1SS226					
		< IC >					
IC1	8-752-062-48	IC CXA1238M-T6					
IC2	8-759-802-75	IC LA4533M					
		< JACK >					
J1	1-770-894-11	JACK (⊘ (HEADPHONES))					
		< SHORT >					
JC1	1-216-295-00	SHORT	0				
L1	1-428-772-11	COIL, AIR-CORE					
L2	1-501-781-11	ANTENNA, FERRITE-ROD (AM)					
L3	1-411-529-11	COIL, AIR-CORE (FM RF)					
L4	1-428-817-11	COIL, AIR-CORE (FM OSC)					
L5	1-406-485-11	COIL (AM OSC)					
L6	1-411-393-11	COIL, TRAP					
		< TRANSISTOR >					
Q1	8-729-102-07	TRANSISTOR	2SC2223-F13				
Q2	8-729-027-60	TRANSISTOR	DTC144TKA-T146				
		< RESISTOR >					
R1	1-216-073-00	METAL CHIP	10K	5%	1/10W		
R2	1-216-097-00	RES, CHIP	100K	5%	1/10W		
R3	1-216-097-00	RES, CHIP	100K	5%	1/10W		
R4	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		
R5	1-216-121-00	RES, CHIP	1M	5%	1/10W		
R6	1-216-071-00	METAL CHIP	8.2K	5%	1/10W		
R7	1-216-029-00	METAL CHIP	150	5%	1/10W		
R8	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		
R9	1-216-105-00	RES, CHIP	220K	5%	1/10W		
R10	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		
R11	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		
R12	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		
R13	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		
R14	1-216-105-00	RES, CHIP	220K	5%	1/10W		
R15	1-216-049-11	RES, CHIP	1K	5%	1/10W		
R16	1-216-049-11	RES, CHIP	1K	5%	1/10W		
R17	1-216-001-00	METAL CHIP	10	5%	1/10W		
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W		
R19	1-216-073-00	METAL CHIP	10K	5%	1/10W		
R20	1-216-033-00	METAL CHIP	220	5%	1/10W		
R21	1-216-073-00	METAL CHIP	10K	5%	1/10W		
R22	1-216-037-00	METAL CHIP	330	5%	1/10W		
R99	1-216-023-00	METAL CHIP	82	5%	1/10W		
		< VARIABLE RESISTOR >					
RV1	1-228-994-00	RES, ADJ, METAL	10K				
RV2	1-223-939-11	RES, VAR, CARBON	10K/10K (VOL)				
		< SWITCH >					
S1	1-572-552-11	SWITCH, SLIDE (FM SENS)					
		< TRANSFORMER >					
T1	1-404-790-11	TRANSFORMER, IF (AM IFT)					
*****							
MISCELLANEOUS							
*****							
6	1-762-412-21	SWITCH, RUBBER KEY (BLUE)...(VIOLET)					
6	1-762-412-31	SWITCH, RUBBER KEY (VIOLET)...(BLUE)					
*****							

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
		ACCESSORIES & PACKING MATERIALS	
		*****	
	3-028-093-01	CLIP	
	3-036-709-01	CHAIN	
	3-037-724-01	GUARD (YELLOW)... (BLUE)	
	3-037-724-11	GUARD (BLUE)... (VIOLET)	
	3-867-370-11	MANUAL, INSTRUCTION (ENGLISH) (US)	
	8-953-342-99	HEADPHONE, STEREO MDR-24	

