# SRF-M903

# SERVICE MANUAL

*AEP Model*
*UK Model*
*E Model*




## SPECIFICATIONS

| | |
|---|---|
| Frequency range | FM: 87.5 — 108 MHz (0.05 MHz* scan step)<br>AM: 531 — 1602 kHz<br>*The frequency display is raised or lowered by steps of 0.1 MHz. (Example: Frequency 88.05 MHz is displayed as 88.00 MHz.) |
| Intermediate frequency | FM: 10.7 MHz<br>AM: 450 kHz |
| Antenna | FM: Earphone cord antenna<br>AM: Built-in ferrite bar antenna |
| Output | Stereo earphone jack (stereo ϕ2.5 mm, load impedance 16 ohms) |
| Power output | 18 mW + 18 mW (at 10% harmonic distortion) |
| Power requirements | 3 V DC, two R03 (size AAA) batteries |
| Battery life | Using Sony batteries UM-4 (NU)<br>FM: Approx. 16 hours<br>AM: Approx. 23 hours |
| Dimensions | Approx. 59 × 100 × 18.3 mm (w/h/d) incl. projecting parts and controls |
| Weight | Approx. 90 g incl. batteries |
| Supplied accessories | Earphones (1), Ear pad (2), Carrying case (1) |

Design and specifications are subject to change without notice.

**Note**
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

## FEATURES

- AM/FM stereo PLL (Phase Locked Loop) synthesized receiver.
- UP to 14 stations (7 for each band) can be stored for button-touch tuning (memory preset tuning).
- The tuned frequency is digitally displayed to make searching for the desired station easier. When the radio is off, the current time is displayed.
- Beep sound notifies you of the preset time (timer and alarm function).
- Power goes off automatically in about 90 minutes (power saving features).

## 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.

MICROFILM

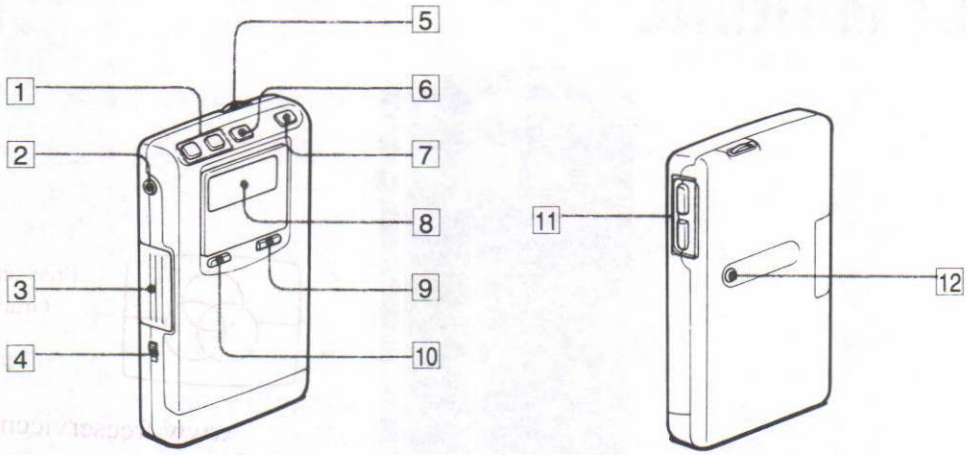
## AM/FM STEREO PLL SYNTHESIZED RECEIVER

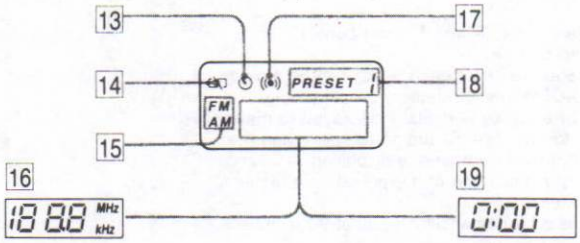
SONY®

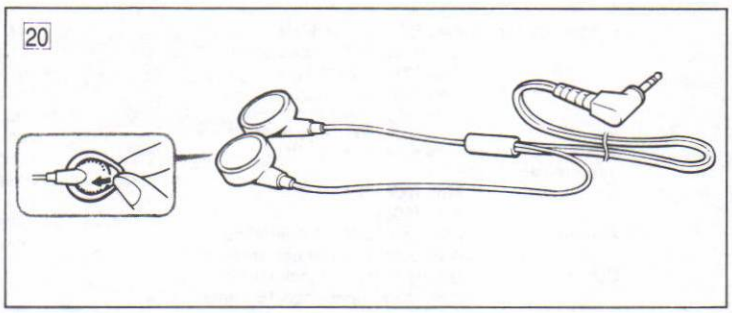
# SECTION 1
# GENERAL

## Location of Controls

This section is extracted from instruction manual.




**Front Panel**

1 MEMORY PRESET +/– buttons
2 ∩ (stereo earphones) jack
The earphone cord serves as the FM antenna.
3 Battery compartment
4 ST/MONO (stereo/monaural) selector
5 VOLUME control
6 BAND selector
7 AUTO OFF/POWER button
8 Display window
9 ALARM button
10 TIMER button

**Rear panel**

11 TUNE (tuning)/TIME SET +/– buttons
12 ENTER/CLOCK button

**Display window**

13 Timer indicator
Appears when you set the timer.
14 Battery indicator
Flashes when the batteries become weak.
15 Band indicator
16 Frequency indicator
Appears while the radio is on.
17 Alarm indicator
Appears when you set the alarm.
18 PRESET and preset number indicators
19 Time indicator
Appears when the radio is off.

**Earphones**

20 To attach the supplied ear pad

## Battery Installation B

Insert two R03 (size AAA) batteries with correct polarity. When you insert the batteries for the first time, 0:00 flahes in the display window. To stop flashing, press ENTER/CLOCK.

**Battery replacement**
When the batteries become weak, the radio is turned off, the time indicator appears and ⌓ flashes in the display window. (The sound may become weak or distorted before ⌓ starts flashing.) If you turn on the power again, you can listen to the radio for a short time. But the power will be soon turned off and ⌓ flashes again.
When ⌓ flashes, replace both batteries with new ones. Even after you replace the batteries, ⌓ remains flashing. To turn off ⌓, press AUTO OFF/POWER.

**Replace the batteries within about 60 seconds after turning off the power.**
If more than 60 seconds has passed, the preset stations are canceled and the time indicator becomes 0:00.
In this case, perform the clock setting and preset tuning again.

**Notes on the battery**
- Insert the batteries with correct polarity.
- Do not mix new and used batteries.
- The batteries cannot be charged.
- To avoid damage from possible battery leakage, remove the batteries when the unit will not be used for a long time.
- Concerning the battery life, see "Specifications".

## Clock Setting C

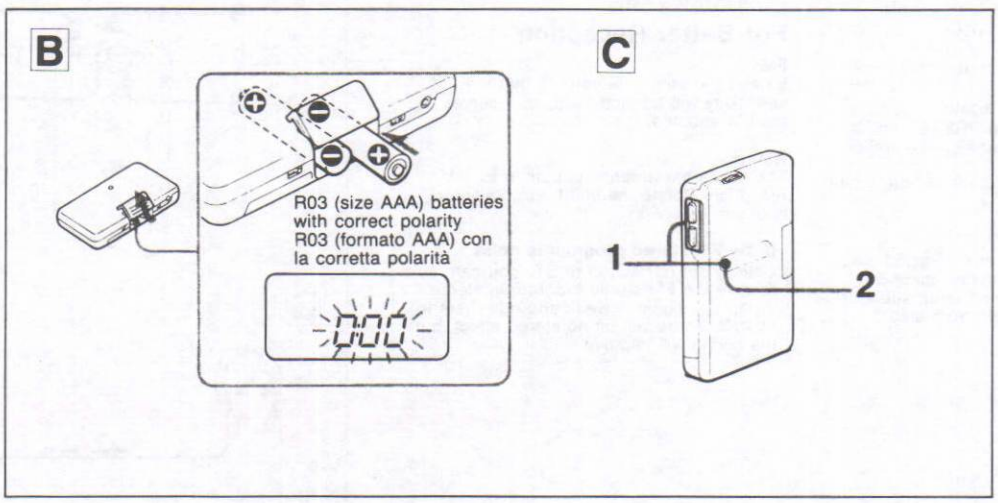
1 **While keeping ENTER/CLOCK pressed, press TUNE/TIME SET + or − button until the display shows the current time.**
Press + to increase or − to decrease the digits. When you keep the button pressed, the digits change rapidly.
While setting the time, : is flashing.

0:00 = midnight
12:00 = noon

2 **When the display shows the current time, release ENTER/CLOCK.**
: stops flashing and the clock starts operating.

**To set clock to the second**
After adjusting the time, keep ENTER/CLOCK pressed. Release ENTER/CLOCK by using the time signal.



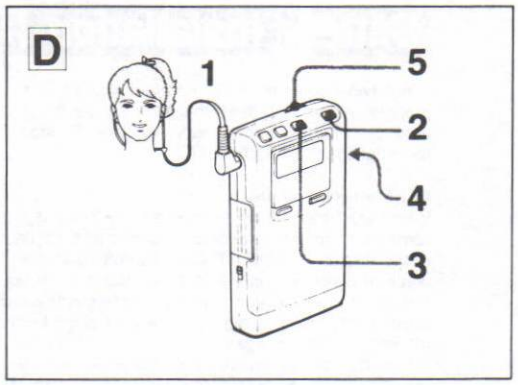


# Radio Operation D

1 **Connect the earphones.**
Extend the cord as it serves as the FM antenna.
2 **Press AUTO OFF/POWER to turn on the power.**
The display window shows a frequency.
3 **Select FM or AM with BAND.**
4 **Tune in the desired station by pressing TUNE/TIME SET +/− button.**
At each press of +, the FM frequency becomes 0.05 MHz higher (the display changes by 0.1 MHz) and the AM frequency becomes 9 kHz higher. At each press of −, the FM and AM frequencies become lower by the same intervals.
To change the frequency rapidly, keep the button pressed.
5 **Adjust VOLUME.**

**To turn off the radio**
Press AUTO OFF/POWER again.
The display shows the current time.

**When the power is turned off automatically**
The radio will be turned off automatically in about 90 minutes to prevent unnecessary wear of the batteries.
To continue listening to the radio, press AUTO OFF/POWER again. If the batteries are exhausted, the power is turned off automatically to protect the preset contents.




# Memory Preset Tuning

Once you store the desired stations, you can tune them in by a simple operation. You can store 7 stations for each of the FM and AM bands.

## How to Preset E

1 **Turn on the power.**
2 **Tune in the desired station to preset.**
See "Radio Operation".
3 **Keep ENTER/CLOCK pressed for more than 1 second.**
Release ENTER/CLOCK when PRESET and a preset number indicator flash in the display window with the beep sound.
4 **Select a preset number from 1 to 7 by pressing MEMORY PRESET +/− button.**
Press + to increase the digit (1→2→ . . . . →6→7)
Press − to decrease the digit. (7→6→ . . . . →2→1)
5 **Press ENTER/CLOCK again.**
Beep-beep sounds, and PRESET and a preset number stop flashing. The station has been stored.
To preset other stations, repeat steps 2 to 5.

**Note**
Go to the next step while the PRESET and preset number are flashing (for about 5 seconds). Otherwise the unit returns to step 2. If this happens, try again from step 3.

## To Tune in a Preset Station F

1 **Turn on the power.**
2 **Select the band, FM or AM.**
3 **Select the desired preset number by pressing MEMORY PRESET +/− button.**
4 **Adjust VOLUME.**

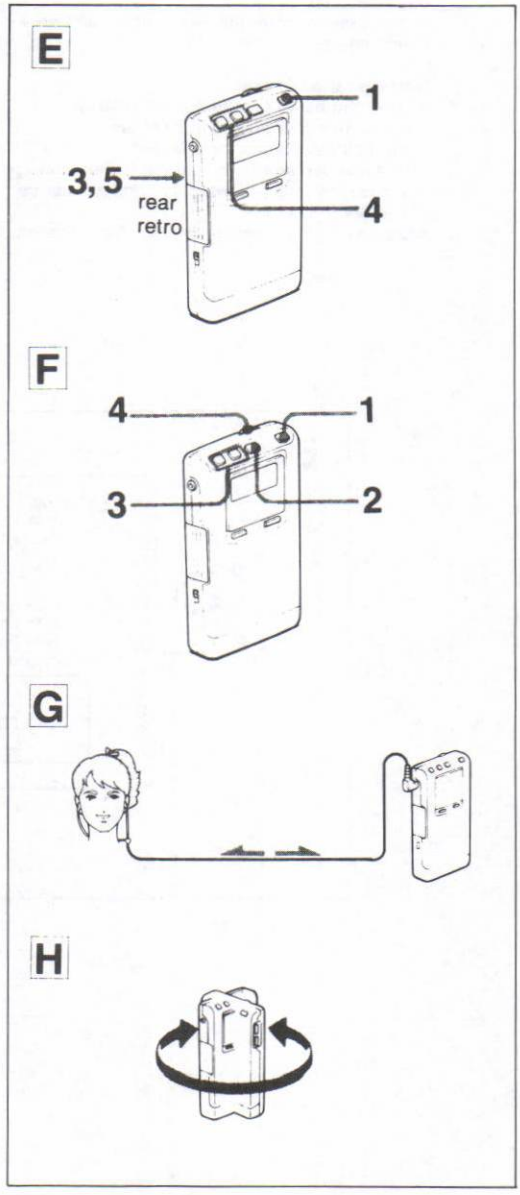
**To change the preset station**
Tune in the desired station to be newly preset. Preset the tuned station to the desired button. The station previously preset to the button is lost.

## For Better Reception

**FM G**
Extend the earphone cord so that the FM sensitivity will be increased, as it serves as the FM antenna.

**AM H**
The ferrite bar antenna is built in for AM reception. Rotate the unit horizontally for optimum reception.

**If the FM stereo program is noisy**
Usually set ST/MONO to ST. You can receive the FM stereo program in stereo. When the signal is weak and noisy, set to MONO. There will be no stereo effect, but the sound will improve.



# Sounding the Beep at Desired Time

You can make the unit sound its beep through the connected earphones at the desired time. Use this feature to remind you of an appointment, etc.

There are two ways of setting:
- Timer setting — to sound the beep a certain number of minutes later than the present.
- Alarm setting — to sound the beep at a certain time.

You can set the timer and alarm while the radio is either on or off.

## Timer Setting I

**1 While keeping TIMER pressed, press TUNE/TIME SET +/− button to store the desired period in minutes after which you want the beep to sound.**
You can store periods from 1 to 180 minutes.
⏲ is flashing in the display window while you press TIMER.
To sound the beep after 30 minutes, for example, while keeping TIMER pressed, press TUNE/TIME SET +/− until 30 appears in the display window.

**2 Release TIMER.**
⏲ stops flashing.
The display returns to the current time or to the frequency which was shown before you pressed TIMER to start the timer setting. When the stored period has passed, ⏲ flashes and the beep sounds.

**To cancel the timer setting**
Press TIMER again. ⏲ disappears.

## Alarm Setting J

Make sure that the clock is correctly set. (See "Clock Setting".)

**1 While keeping ALARM pressed, press TUNE/TIME SET +/− button to set the time when you want the beep to sound.**
((•)) is flashing while you press ALARM.
To set the alarm for 7:00 in the morning, for example, while keeping ALARM pressed, press TUNE/TIME SET +/− until 7:00 appears in the display window.

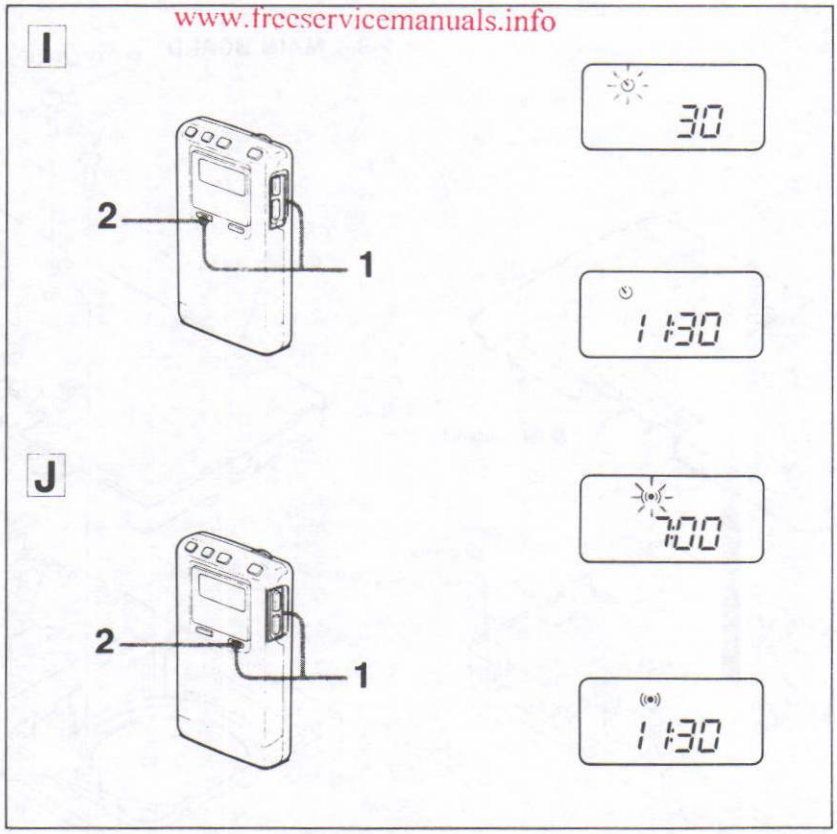
**2 Release ALARM.**
((•)) stops flashing. The display returns to the current time or the frequency which was shown before you pressed ALARM to start the alarm setting.
When the time comes, ((•)) flashes and the beep sounds.

**To cancel the alarm setting**
Press ALARM again. ((•)) disappears.

**To stop the beep**
Press any button.
If you do not stop the beep, the beep stops automatically after about 3 minutes.
When the beep sounds while you are listening to the radio, the radio reception stops and resumes when the beep stops.

**Notes**
- When 0:00 flashes, you cannot set the alarm.
- When you stop the beep, the timer setting is canceled. The alarm setting remains.
- Even if you are listening to radio, you can set the timer and alarm.



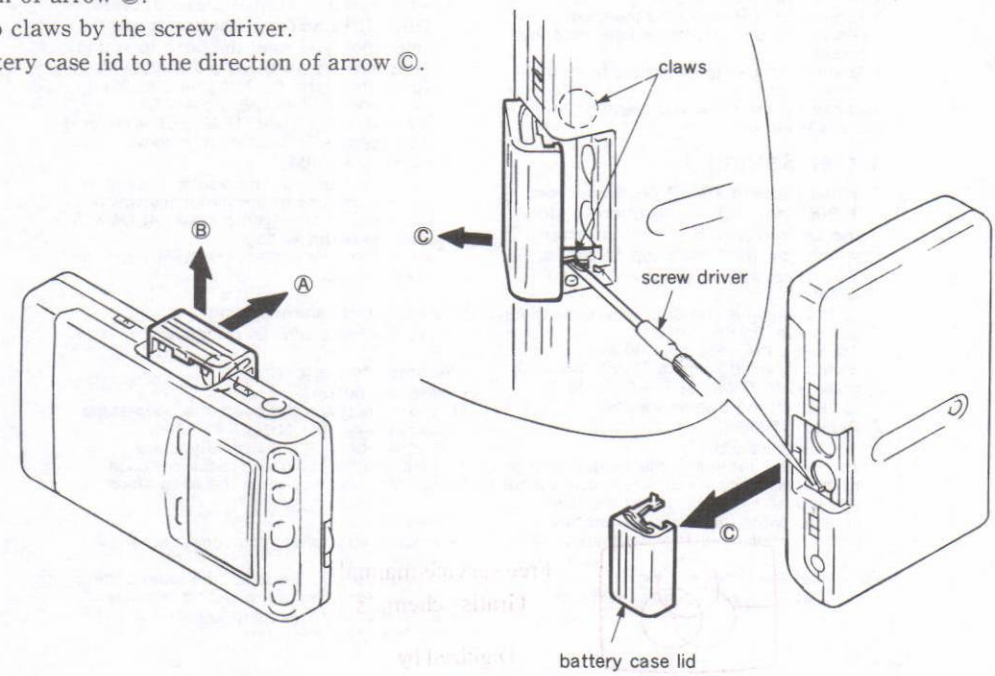


# SECTION 2
# DISASSEMBLY

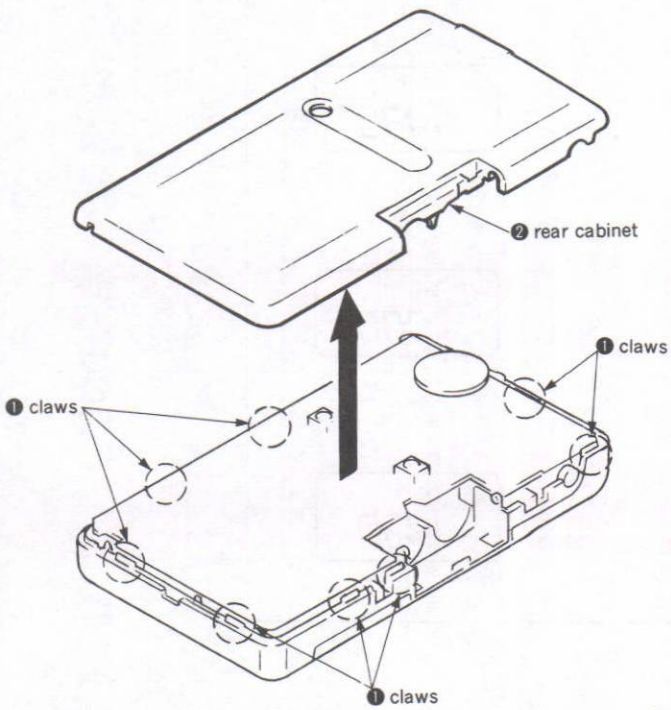
• Follow the disassembly procedue in the numerical order given.

## 2-1. BATTERY CASE LID

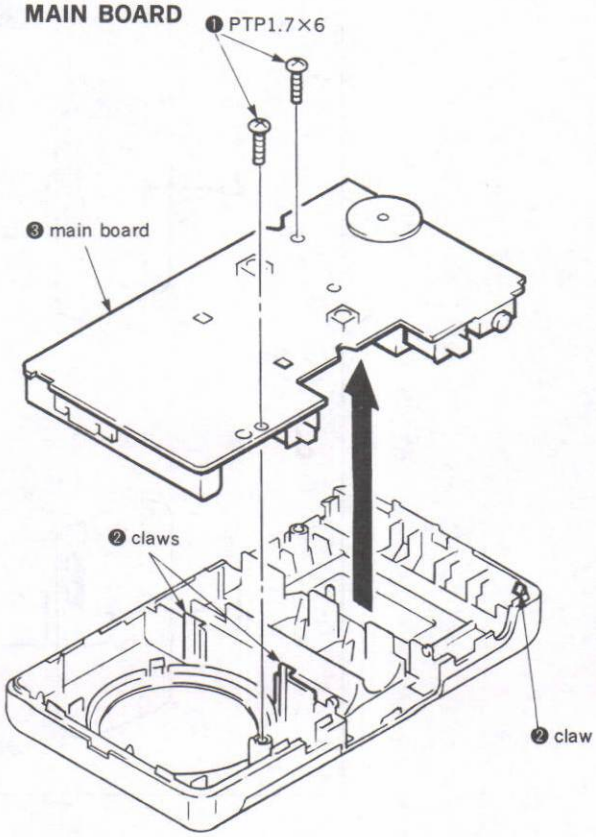
1) Slide the battery case lid to the direction of arrow Ⓐ.
2) Insert the screw driver in to the ⓐ, and slide the battery case lid direction of arrow Ⓑ.
3) Remove the two claws by the screw driver.
4) Remove the battery case lid to the direction of arrow Ⓒ.




## 2-2. REAR CABINET

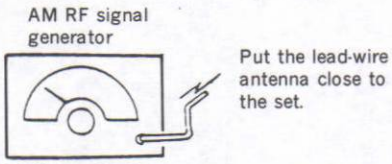



## 2-3. MAIN BOARD

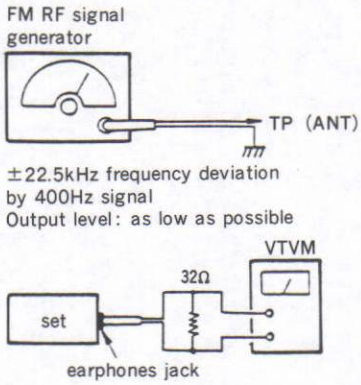


# SECTION 3
# ELECTRICAL ADJUSTMENTS

## AM Section




## FM Section




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

| AM IF ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| T1 | 450kHz |

| AM VCO VOLTAGE ADJUSTMENT | | |
|---|---|---|
| Adjustment Part | Frequency Display | Reading on Digital voltmeter |
| L5 | 1,602kHz | 7.3±0.05V |

**Note**: Not use the AM rf signal generator in this adjustment.

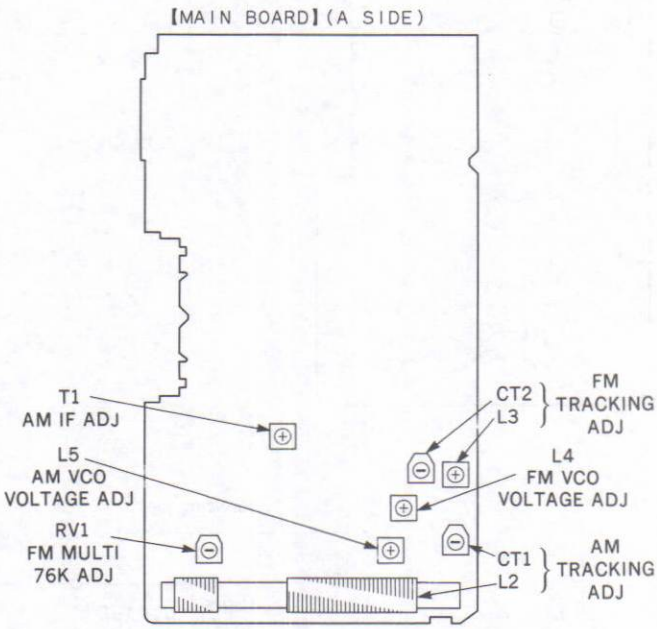
| AM TRACKING ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| CT1 | L2 |
| 1,485kHz | 585kHz |

| FM VCO VOLTAGE ADJUSTMENT | | |
|---|---|---|
| Adjustment Part | Frequency Display | Reading on Digital voltmeter |
| L4 | 108MHz | 11±1.5V |

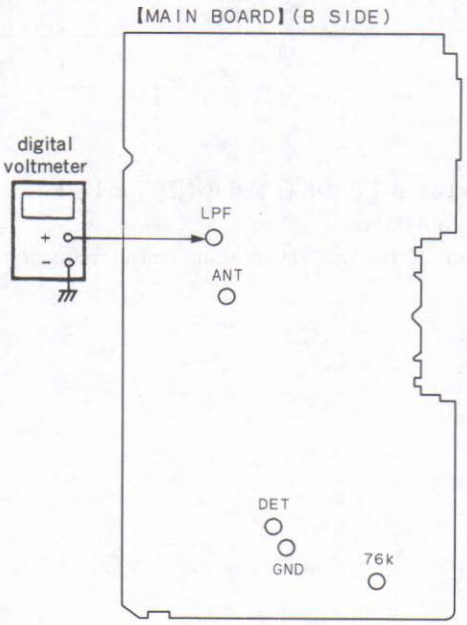
**Note**: Not use the FM signal generator in this adjustment.

| FM TRACKING ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| CT2 | L3 |
| 108MHz | 87.5MHz |

**Adjustment Location :**

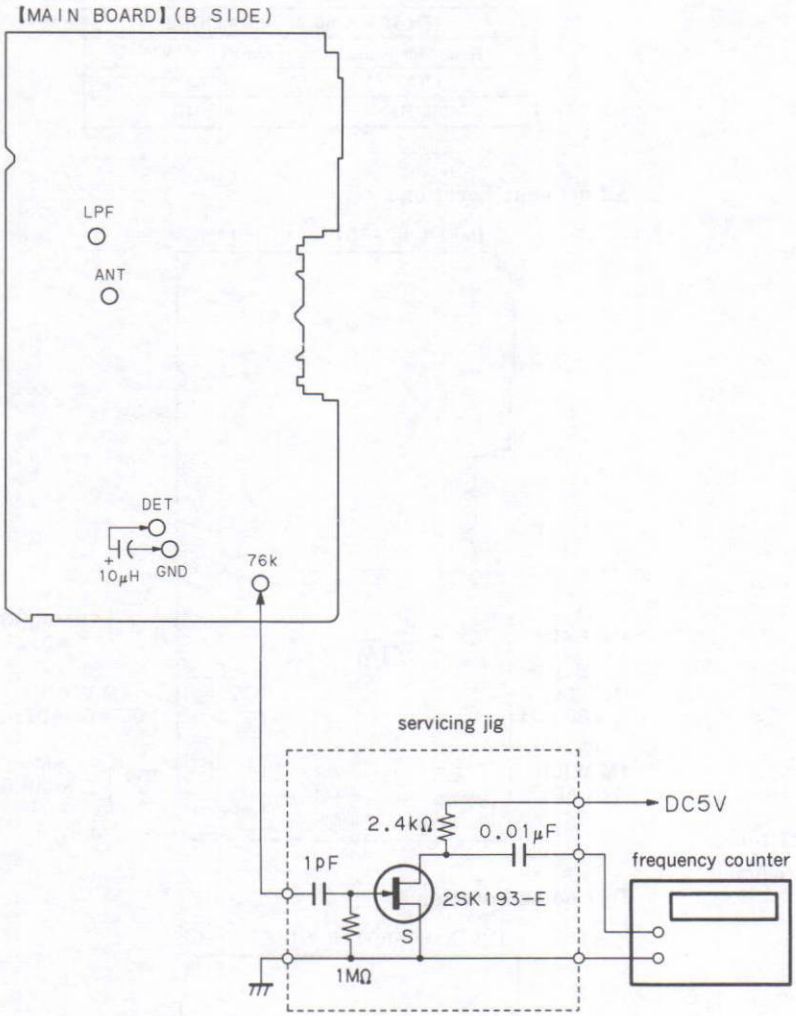



**Test point Location :**



**FM STEREO Adjustment**

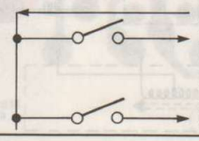
**Setting :** MONO/ST switch (S1) ···ST




1. Connect to between TP (DET) and (GND) for 10$\mu$F.
2. Tune the set to 98MHz.
3. Adjust RV1 for 76kHz ± 200Hz reading on the frequency counter.

# SECTION 4
# PIN DESCRIPTION

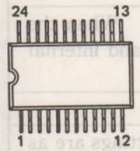
Pin description of $\mu$PD1724GB-555-1A7 (IC5)

| Pin number | Mark | Pin name | I/O | Pin description |
|---|---|---|---|---|
| 1<br>\|<br>10<br>51<br>\|<br>56 | LCD10<br>\|<br>LCD1<br>LCD16<br>\|<br>LCD11 | LCD10<br>\|<br>LCD1<br>LCD16<br>\|<br>LCD11 | O | LCD drive segment signal output. |
| 11<br>21<br>49<br>50 | NC | NC | — | |
| 12<br>\|<br>14 | COM3<br>\|<br>COM1 | COM3<br>\|<br>COM1 | O | LCD drive common signal output. |
| 15<br>16<br>17<br>18 | VSS1<br>CAP2<br>CAP1<br>VSS2 | VSS1<br>CAP2<br>CAP1<br>VSS2 | — | Terminals used for connecting a capacitor of a doubler circuit which supplies LCD drive voltage. |
| 19 | VDP | MUTE | O | Andio mute output signal. Active when Low. Audio noises are reduced before and after the mute signal when PLL, radio power supply or key strobe change is controlled. |
| 20 | CGP | BEEP | O | Buzzer output using CGP. Sound to check keys, to check settings, to indicate that a setting time of timer is reached or to alarm is produced by using two kinds of musical intervals and the sound modulation. |
| 22 | VDD | VDD | — | 5 V power supply input terminal. |
| 23 | VCOH | VHF | I | Not used. |
| 24 | VCOM | HF | I | FM VCO input. |
| 25 | VCOL | AM | I | AM VCO input. |
| 26 | VSS1 | VSS1 | — | GND |
| 27<br>28 | EO1<br>EO2 | EO1<br>EO2 | O | PLL error output terminal. |
| 29 | CE | CE | I | Detects the voltage reduction of the AC battery. When the battery energy is reduced, the microcomputor is in the reducedvoltage mode. The battery mark blinks and the microcomputer waits for a clock's reset/display and Power ON Key. |
| 30<br>31 | XO<br>XI | XO<br>XI | O<br>I | A quartz oscillating element connecting terminal. (75 kHz) |
| 32 | VSS4 | VSS4 | — | Connected to a capacitor for a regulator circuit which supplies the oscillator' stable drive voltage. |
| 33 | PA3 | INIT IN1 | I | Time display switching input. It is a 24-hour system display when Low and a 12-hour system display (AM/PM) when High. When the setting is changed, backup power supply must be set to OFF and internal RAM must be initialized. |
| 34 | PA2 | POWER OUT | O | ON/OFF switching output for the radio power supply.<br>(ON : High ; OFF : LOW) |
| 35 | PA1 | INIT OUT | O | Strobe output for initial switch input.<br>  <br>INIT OUT (Active : High)<br>INIT IN 1 : 12-/24-hour system display<br>LOW (OFF) : 24-hour system display ; High (ON) : 12-hour system display<br>INIT IN 2 : Band selection |
| 36 | PA0 | INIT IN2 | I | 1-bit input which sets two kinds of receiving band versions. When the setting is changed, backup power supply must be set to OFF and internal RAM must be initialized. |
| 37 | PB3 | | O | Not used |
| 38 | PB2 | BAND | O | 1-bit output which sets two kinds of receiving bands. Two settings are as follows.<br>AM = H ; FM = L ; POWER OFF = L |
| 39 | PB1 | BEEP Vol | O | BEEP volume. Output for increasing the volume of the BEEP sound when a setting time of timer is reached or an alarm is ON. The volune is increased when high. |
| 40 | PB0 | | O | Not used |
| 41 | PC3 | | O | Not used |
| 42<br>\|<br>44 | PC2<br>\|<br>PC0 | Key SOURCE | O | Strobe and return signals in 3×4 key matrix. A strobe signal change makes an audio noise. A strobe signal must be set to the fixed value when a key input is not changed. When the key input is decoded, the mute signal must be added. |
| 45<br>\|<br>48 | K3<br>\|<br>K0 | Key RETURN | I | |

# SECTION 5
# DIAGRAMS

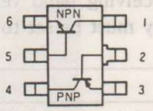
## 5-1. SEMICONDUCTOR LEAD LAYOUTS

CX20111

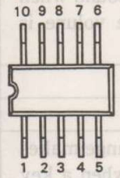



(TOP VIEW)

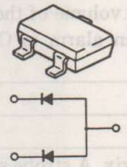
XN4608



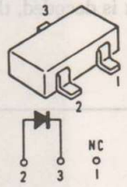

LA3335M
LA4533M



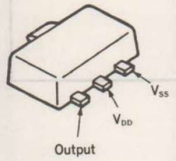

DAP202U



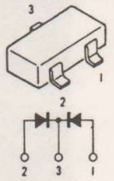
RD13M-B2



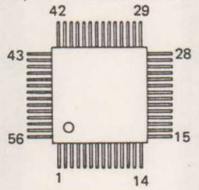

S-8051HN-CD




SB007W039

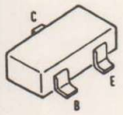



μPD1724GB-555-1A7

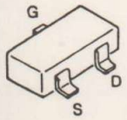



MARKING SIDE VIEW

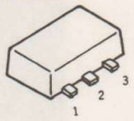
DTA144TU
DTC144EU
DTC144TU
2SC4177-L6
2SC4178-F13




2SK209-G

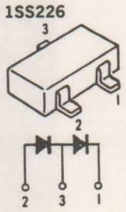



SVC341-L

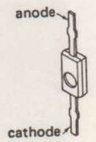



1. anode
2. cathode
3. anode

1SS226




1T33



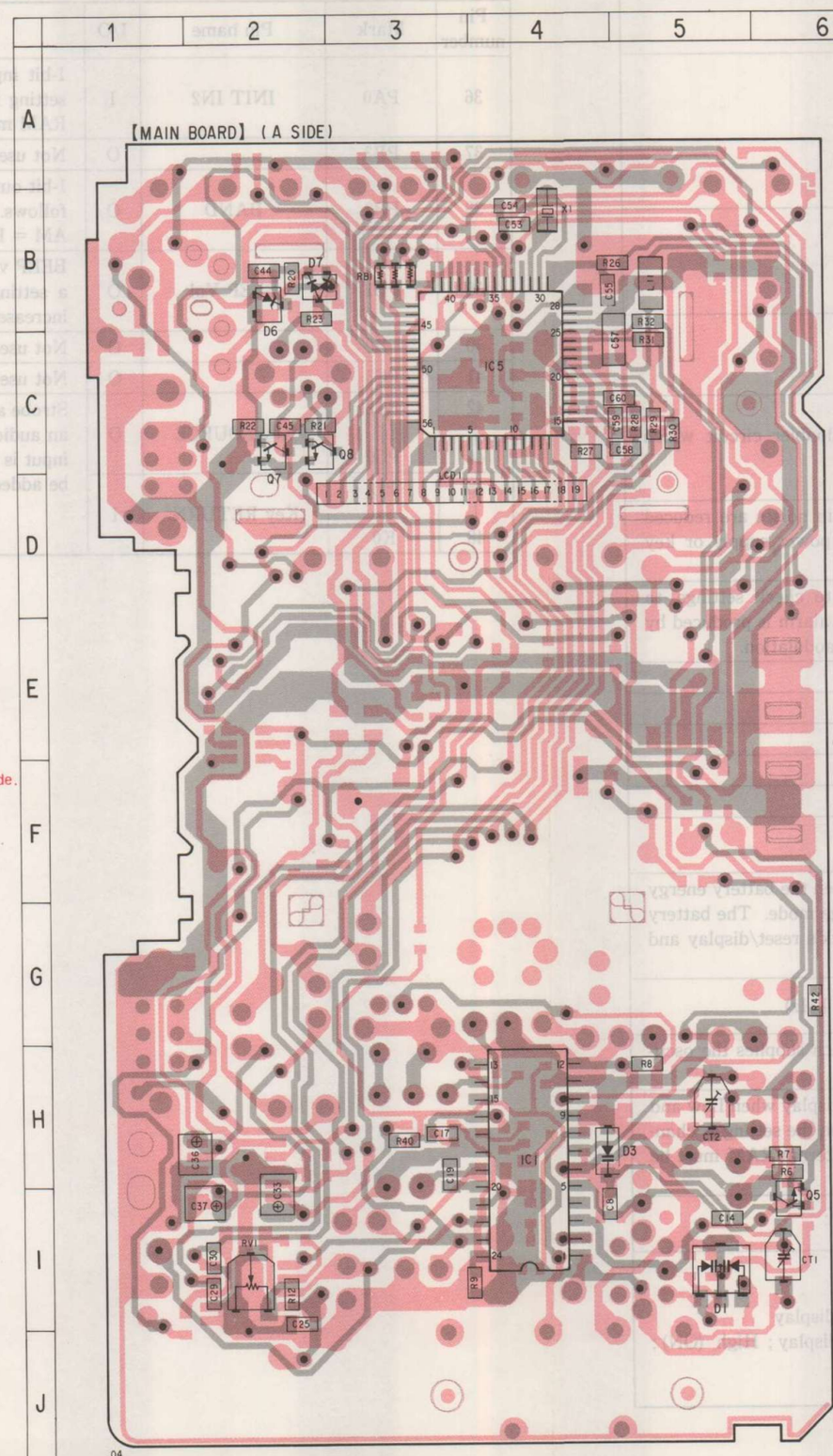

## • Semiconductor Location

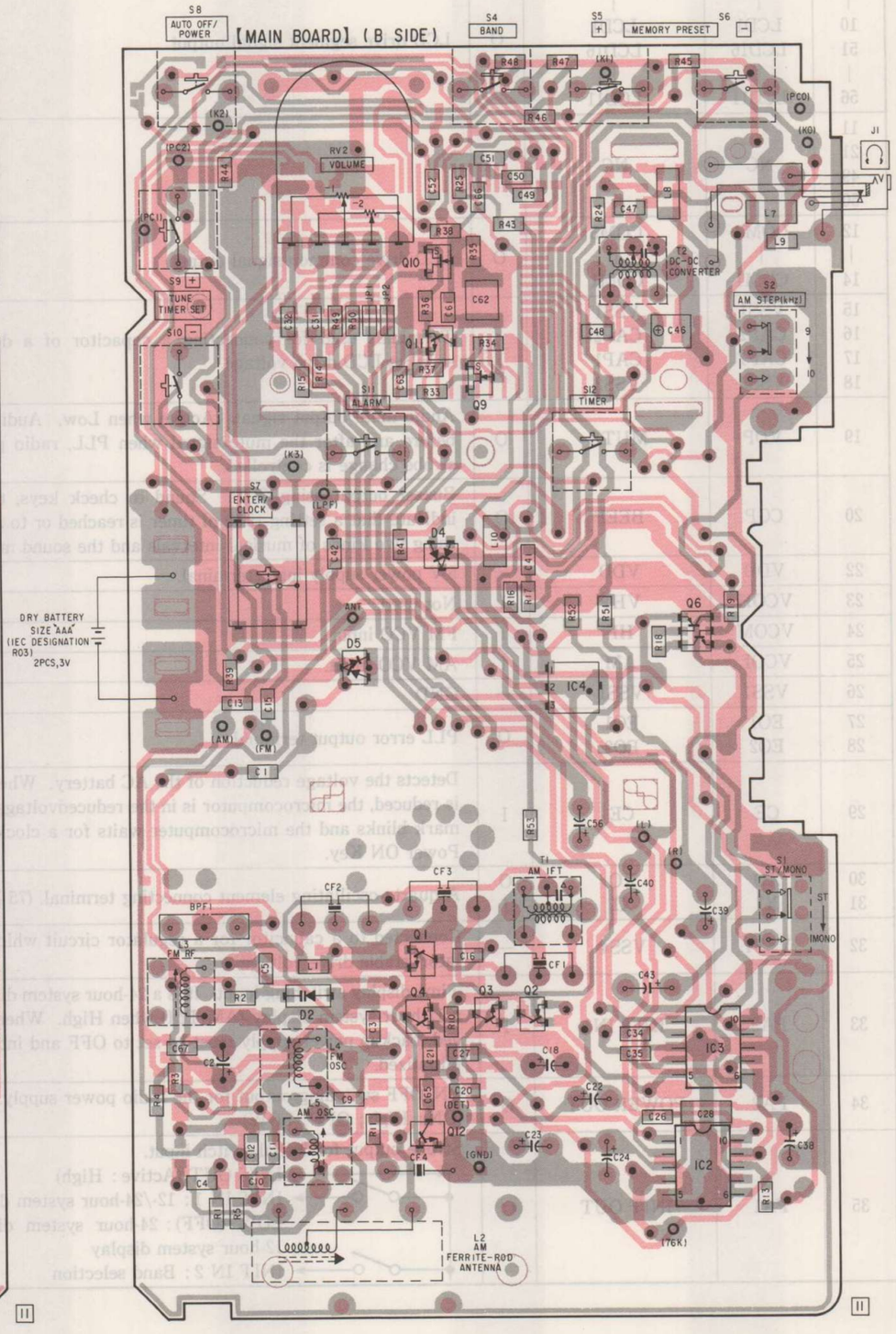
| Ref. No. | Location |
|---|---|
| D1 | I-5 |
| D2 | H-8 |
| D3 | H-4 |
| D4 | E-9 |
| D5 | F-9 |
| D6 | B-2 |
| D7 | B-2 |
| IC1 | H-4 |
| IC2 | I-11 |
| IC3 | H-11 |
| IC4 | F-10 |
| IC5 | C-4 |
| Q1 | H-9 |
| Q2 | H-10 |
| Q3 | H-9 |
| Q4 | H-9 |
| Q5 | I-6 |
| Q6 | E-11 |
| Q7 | C-2 |
| Q8 | C-2 |
| Q9 | D-9 |
| Q10 | C-9 |
| Q11 | C-9 |
| Q12 | I-9 |

Note:

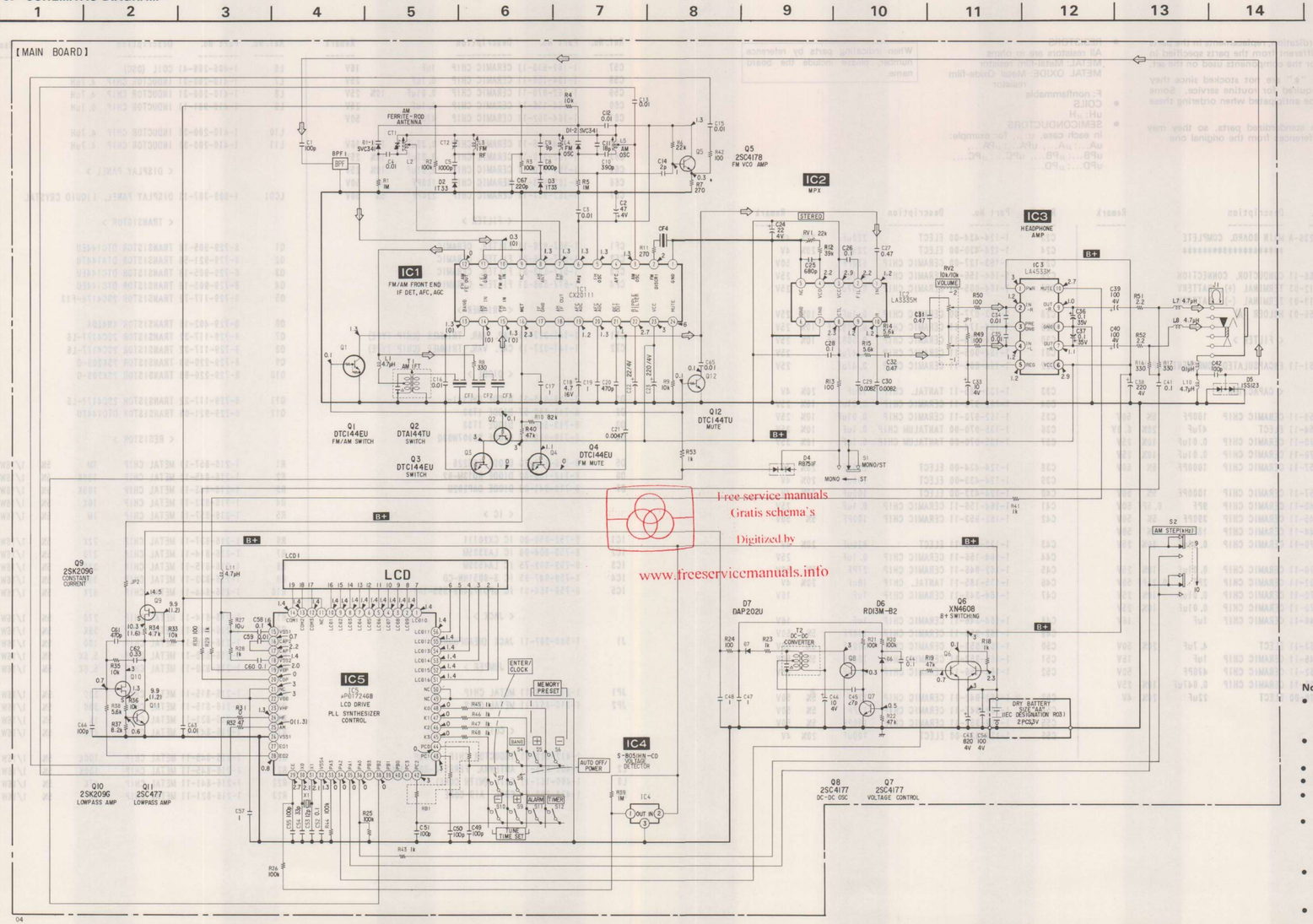
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

## 5-2. PRINTED WIRING BOARD

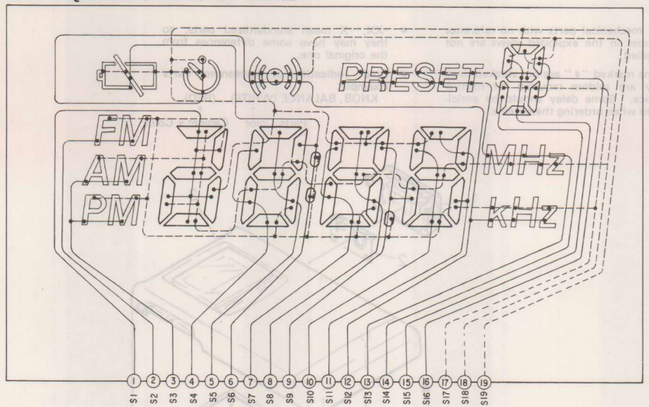


## 5-3. SCHEMATIC DIAGRAM

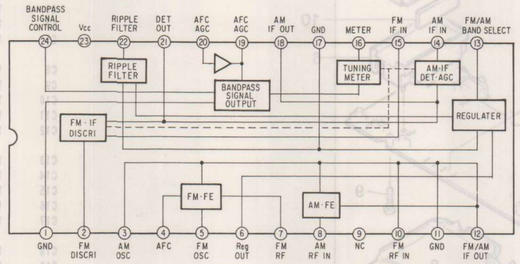



## LCD1 LIQUID CRYSTAL DISPLAY PANEL

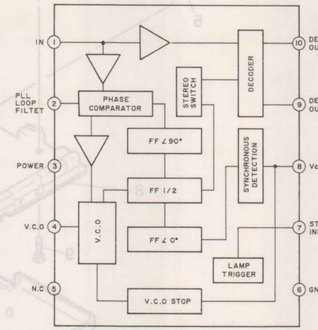



## • IC BLOCK DIAGRAMS

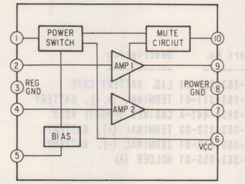
### IC1 CX20111




### IC2 LA3335M




### IC3 LA4533M



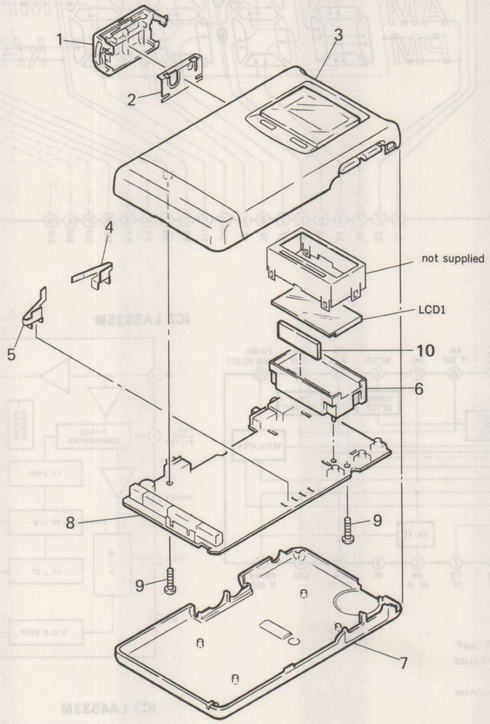

**Note:**

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : adjustment for repair.
- Power voltage is dc 3V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM

# SECTION 6
# EXPLODED VIEWS

**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "＊" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts Color ↑ Cabinet's Color




| Ref.No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 3-363-357-01 | LID, BATTERY CASE | |
| 2 | 3-363-311-01 | TERMINAL (+,-), BATTERY | |
| 3 | A-3635-441-A | CABINET (FRONT) ASSY | |
| 4 | 3-363-313-03 | TERMINAL (+), BATTERY | |
| 5 | 3-363-313-01 | TERMINAL (-), BATTERY | |
| 6 | 3-363-356-01 | HOLDER (A) | |
| 7 | 3-363-321-21 | CABINET (REAR) | |
| 8 | ＊ A-3679-239-A | MAIN BOARD, COMPLETE | |
| 9 | 3-363-895-01 | SCREW (M1.7) | |
| 10 | 1-535-866-11 | CONDUCTOR, CONNECTION | |
| LCD1 | 1-809-307-11 | DISPLAY PANEL, LIQUID CRYSTAL | |



# SECTION 7
# ELECTRICAL PARTS LIST



**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.
- Items marked "＊" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- CAPACITORS
  uF: μF
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD....

When indicating parts by reference number, please include the board name.

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | ＊ A-3679-239-A | MAIN BOARD, COMPLETE | | | |
| | | ＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊ | | | |
| | 1-535-866-11 | CONDUCTOR, CONNECTION | | | |
| | 3-363-312-03 | TERMINAL (+), BATTERY | | | |
| | 3-363-313-01 | TERMINAL (-), BATTERY | | | |
| | 3-363-356-01 | HOLDER (A) | | | |
| | | < FILTER > | | | |
| BPF1 | 1-239-061-11 | ENCAPSULATED COMPONENT (BPF) | | | |
| | | < CAPACITOR > | | | |
| C1 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C2 | 1-126-154-11 | ELECT | 47uF | 20% 6.3V | |
| C3 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C4 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C5 | 1-164-357-11 | CERAMIC CHIP | 1000PF | 5% 50V | |
| C8 | 1-164-357-11 | CERAMIC CHIP | 1000PF | 5% 50V | |
| C9 | 1-162-940-11 | CERAMIC CHIP | 9PF | 0.5PF 50V | |
| C10 | 1-164-145-11 | CERAMIC CHIP | 390PF | 5% 50V | |
| C11 | 1-162-944-11 | CERAMIC CHIP | 18PF | 5% 50V | |
| C12 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C13 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C14 | 1-162-932-11 | CERAMIC CHIP | 2PF | 0.25PF 50V | |
| C15 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C16 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C17 | 1-164-346-11 | CERAMIC CHIP | 1uF | 16V | |
| C18 | 1-126-163-11 | ELECT | 4.7uF | 20% 50V | |
| C19 | 1-164-346-11 | CERAMIC CHIP | 1uF | 16V | |
| C20 | 1-164-362-11 | CERAMIC CHIP | 470PF | 50V | |
| C21 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% 25V | |
| C22 | 1-124-430-00 | ELECT | 22uF | 20% 4V | |
| C23 | 1-124-434-00 | ELECT | 220uF | 20% 4V | |
| C24 | 1-124-430-00 | ELECT | 22uF | 20% 4V | |
| C25 | 1-163-137-00 | CERAMIC CHIP | 680PF | 5% 50V | |
| C26 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | 25V | |
| C27 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | 25V | |
| C28 | 1-163-077-00 | CERAMIC CHIP | 0.1uF | 10% 25V | |
| C29 | 1-164-174-11 | CERAMIC CHIP | 0.0082uF | 10% 25V | |
| C30 | 1-164-174-11 | CERAMIC CHIP | 0.0082uF | 10% 25V | |
| C31 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | 25V | |
| C32 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | 25V | |
| C33 | 1-135-185-11 | TANTAL, CHIP | 10uF | 20% 4V | |
| C34 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C35 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C36 | 1-135-070-00 | TANTALUM CHIP | 0.1uF | 10% 35V | |
| C37 | 1-135-070-00 | TANTALUM CHIP | 0.1uF | 10% 35V | |
| C38 | 1-124-434-00 | ELECT | 220uF | 20% 4V | |
| C39 | 1-124-433-00 | ELECT | 100uF | 20% 4V | |
| C40 | 1-124-433-00 | ELECT | 100uF | 20% 4V | |
| C41 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | 25V | |
| C42 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C43 | 1-128-150-11 | ELECT | 820uF | 20% 4V | |
| C44 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | 25V | |
| C45 | 1-162-946-11 | CERAMIC CHIP | 27PF | 5% 50V | |
| C46 | 1-135-185-11 | TANTAL, CHIP | 10uF | 20% 4V | |
| C47 | 1-164-346-11 | CERAMIC CHIP | 1uF | 16V | |
| C48 | 1-164-346-11 | CERAMIC CHIP | 1uF | 16V | |
| C49 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C50 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C51 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C52 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | 25V | |
| C53 | 1-162-942-11 | CERAMIC CHIP | 12PF | 5% 50V | |
| C54 | 1-162-947-11 | CERAMIC CHIP | 33PF | 5% 50V | |
| C55 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C56 | 1-124-433-00 | ELECT | 100uF | 20% 4V | |
| C57 | 1-162-638-11 | CERAMIC CHIP | 1uF | 16V | |
| C58 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | 25V | |
| C59 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C60 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | 25V | |
| C61 | 1-164-362-11 | CERAMIC CHIP | 470PF | 50V | |
| C62 | 1-164-006-11 | CERAMIC CHIP | 0.33uF | 10% 16V | |
| C63 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C65 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% 25V | |
| C66 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% 50V | |
| C67 | 1-162-957-11 | CERAMIC CHIP | 220PF | 5% 50V | |
| | | < FILTER > | | | |
| CF1 | 1-567-929-11 | FILTER, CERAMIC | | | |
| CF2 | 1-577-658-81 | FILTER, CERAMIC | | | |
| CF3 | 1-577-658-81 | FILTER, CERAMIC | | | |
| CF4 | 1-577-658-81 | FILTER, CERAMIC | | | |
| | | < TRIMMER > | | | |
| CT1 | 1-141-327-11 | CAP, VAR, TRIMMER (CHIP TYPE) | | | |
| CT2 | 1-141-327-11 | CAP, VAR, TRIMMER (CHIP TYPE) | | | |
| | | < DIODE > | | | |
| D1 | 8-719-945-31 | DIODE SVC341-L | | | |
| D2 | 8-713-300-57 | DIODE 1T33 | | | |
| D3 | 8-713-300-57 | DIODE 1T33 | | | |
| D4 | 8-719-988-78 | DIODE SB007W03Q | | | |
| D5 | 8-719-800-76 | DIODE 1SS226 | | | |
| D6 | 8-719-106-80 | DIODE RD13M-B2 | | | |
| D7 | 8-719-941-09 | DIODE DAP202U | | | |
| | | < IC > | | | |
| IC1 | 8-752-050-00 | IC CX20111 | | | |
| IC2 | 8-759-804-98 | IC LA3335M | | | |
| IC3 | 8-759-802-75 | IC LA4533M | | | |
| IC4 | 8-759-947-95 | IC S-8051HN-CD | | | |
| IC5 | 8-759-154-31 | IC uPD17124GB-555-1A7 | | | |
| | | < JACK > | | | |
| J1 | 1-580-237-11 | JACK (HEADPHONE) | | | |
| | | < JUMPER > | | | |
| JP1 | 1-216-864-11 | METAL CHIP | 0 | | |
| JP2 | 1-216-864-11 | METAL CHIP | 0 | | |
| | | < COIL > | | | |
| L1 | 1-412-002-31 | INDUCTOR CHIP | 4.7uH | | |
| L2 | 1-402-515-11 | ANTENNA, FERRITE-ROD (AM) | | | |
| L3 | 1-460-161-11 | COIL (WITH CORE) | | | |
| L4 | 1-428-209-11 | COIL, AIR-CORE | | | |
| L5 | 1-406-269-41 | COIL (OSC) | | | |
| L7 | 1-410-200-31 | INDUCTOR CHIP | 4.7uH | | |
| L8 | 1-410-200-31 | INDUCTOR CHIP | 4.7uH | | |
| L9 | 1-410-981-11 | INDUCTOR CHIP | 0.1uH | | |
| L10 | 1-410-200-31 | INDUCTOR CHIP | 4.7uH | | |
| L11 | 1-410-200-31 | INDUCTOR CHIP | 4.7uH | | |
| | | < DISPLAY PANEL > | | | |
| LCD1 | 1-809-307-11 | DISPLAY PANEL, LIQUID CRYSTAL | | | |
| | | < TRANSISTOR > | | | |
| Q1 | 8-729-905-18 | TRANSISTOR DTC144EU | | | |
| Q2 | 8-729-921-58 | TRANSISTOR DTA144TU | | | |
| Q3 | 8-729-905-18 | TRANSISTOR DTC144EU | | | |
| Q4 | 8-729-905-18 | TRANSISTOR DTC144EU | | | |
| Q5 | 8-729-117-72 | TRANSISTOR 2SC4178-F13 | | | |
| Q6 | 8-729-402-16 | TRANSISTOR XN4608 | | | |
| Q7 | 8-729-117-32 | TRANSISTOR 2SC4177-L6 | | | |
| Q8 | 8-729-117-32 | TRANSISTOR 2SC4177-L6 | | | |
| Q9 | 8-729-220-93 | TRANSISTOR 2SK209-G | | | |
| Q10 | 8-729-220-93 | TRANSISTOR 2SK209-G | | | |
| Q11 | 8-729-117-32 | TRANSISTOR 2SC4177-L6 | | | |
| Q12 | 8-729-921-08 | TRANSISTOR DTC144TU | | | |
| | | < RESISTOR > | | | |
| R1 | 1-216-857-11 | METAL CHIP | 1M | 5% 1/16W | |
| R2 | 1-216-845-11 | METAL CHIP | 100K | 5% 1/16W | |
| R3 | 1-216-845-11 | METAL CHIP | 100K | 5% 1/16W | |
| R4 | 1-216-833-11 | METAL CHIP | 10K | 5% 1/16W | |
| R5 | 1-216-857-11 | METAL CHIP | 1M | 5% 1/16W | |
| R6 | 1-216-837-11 | METAL CHIP | 22K | 5% 1/16W | |
| R7 | 1-216-814-11 | METAL CHIP | 270 | 5% 1/16W | |
| R8 | 1-216-815-11 | METAL CHIP | 330 | 5% 1/16W | |
| R9 | 1-216-833-11 | METAL CHIP | 10K | 5% 1/16W | |
| R10 | 1-216-844-11 | METAL CHIP | 82K | 5% 1/16W | |
| R11 | 1-216-814-11 | METAL CHIP | 270 | 5% 1/16W | |
| R12 | 1-216-840-11 | METAL CHIP | 39K | 5% 1/16W | |
| R13 | 1-216-809-11 | METAL CHIP | 100 | 5% 1/16W | |
| R14 | 1-216-830-11 | METAL CHIP | 5.6K | 5% 1/16W | |
| R15 | 1-216-830-11 | METAL CHIP | 5.6K | 5% 1/16W | |
| R16 | 1-216-815-11 | METAL CHIP | 330 | 5% 1/16W | |
| R17 | 1-216-815-11 | METAL CHIP | 330 | 5% 1/16W | |
| R18 | 1-216-821-11 | METAL CHIP | 1K | 5% 1/16W | |
| R19 | 1-216-841-11 | METAL CHIP | 47K | 5% 1/16W | |
| R20 | 1-216-845-11 | METAL CHIP | 100K | 5% 1/16W | |
| R21 | 1-216-845-11 | METAL CHIP | 100K | 5% 1/16W | |
| R22 | 1-216-841-11 | METAL CHIP | 47K | 5% 1/16W | |
| R23 | 1-216-821-11 | METAL CHIP | 1K | 5% 1/16W | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R24 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R25 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R26 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R27 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R28 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R29 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R30 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R31 | 1-216-864-11 | METAL CHIP | 0 | | |
| R32 | 1-216-805-11 | METAL CHIP | 47 | 5% | 1/16W |
| R33 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R34 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R35 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R36 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R37 | 1-216-832-11 | METAL CHIP | 8.2K | 5% | 1/16W |
| R38 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R39 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R40 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R41 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R42 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R43 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R44 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R45 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R46 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R47 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R48 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R49 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R50 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R51 | 1-216-298-00 | METAL CHIP | 2.2 | 5% | 1/10W |
| R52 | 1-216-298-00 | METAL CHIP | 2.2 | 5% | 1/10W |
| R53 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| | | < NETWORK RESISTOR > | | | |
| RB1 | 1-236-631-11 | RES, NETWORK | | | |
| | | < VARIABLE RESISTOR > | | | |
| RV1 | 1-238-992-11 | RES, ADJ, METAL GLAZE 22K | | | |
| RV2 | 1-238-334-11 | RES, VAR, CARBON 10K/10K (VOLUME) | | | |
| | | < SWITCH > | | | |
| S1 | 1-572-485-11 | SWITCH, SLIDE (MONO/ST) | | | |
| S2 | 1-572-485-11 | SWITCH, SLIDE (AM STEP kHz) | | | |
| S4 | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) (BAND) | | | |
| S5 | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) (MEMORY PRISET +) | | | |
| S6 | 1-572-482-11 | SWITCH, KEY BOARD (1 KEY) (MEMORY PRISET -) | | | |
| S7 | 1-572-484-21 | SWITCH, KEY BOARD (1 KEY) (ENTER/CLOCK) | | | |
| S8 | 1-572-481-11 | SWITCH, KEY BOARD (1 KEY) (AUTO OFF/POWER) | | | |
| S9 | 1-572-481-11 | SWITCH, KEY BOARD (1 KEY) (TUNE TIME SET +) | | | |
| S10 | 1-572-481-11 | SWITCH, KEY BOARD (1 KEY) (TUNE TIME SET -) | | | |
| S11 | 1-572-483-11 | SWITCH, KEY BOARD (1 KEY) (ALARM) | | | |
| S12 | 1-572-483-11 | SWITCH, KEY BOARD (1 KEY) (TIMER) | | | |
| | | < TRANSFORMER > | | | |
| T1 | 1-404-444-71 | TRANSFORMER, IF | | | |
| T2 | 1-449-138-51 | TRANSFORMER, DC-DC CONVERTER | | | |
| | | < CRYSTAL > | | | |
| X1 | 1-567-769-11 | VIBRATOR, CRYSTAL | | | |

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MISCELLANEOUS

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| | | |
|---|---|---|
| 10 | 1-535-866-11 | CONDUCTOR, CONNECTION |
| LCD1 | 1-809-307-11 | DISPLAY PANEL, LIQUID CRYSTAL |

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ACCESSORY & PACKING MATERIAL

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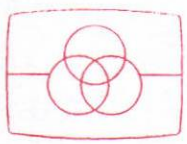
| | | |
|---|---|---|
| * | 3-362-015-01 | CASE, INDIVIDUAL |
| | 3-368-541-01 | CASE, CARRYING |
| | 3-753-275-11 | MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) |
| | 3-753-275-41 | MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP, UK) |
| | 8-953-419-90 | HEADPHONE MDR-E753//K SET |
| | X-3321-270-1 | ATTACHMENT |



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