

# ICF-C203

## SERVICE MANUAL

*US Model  
Canadian Model  
AEP Model  
E Model  
Australian Model*



### SPECIFICATIONS

Frequency range	Model for North and South America FM: 87.5 – 108 MHz AM: 530 – 1,710 kHz Model for other countries FM: 87.5 – 108 MHz AM: 531 – 1,602 kHz Intermediate frequency FM: 10.7 MHz AM: 450 kHz	Antennas	FM: FM wire antenna AM: Built-in ferrite bar antenna Approx. 6.6 cm (2 5/8 inches) dia.
Scan step	Model for North and South America FM: 0.1 MHz (fixed) AM: 10 kHz (fixed) Model for other countries FM: 0.05* MHz (fixed) AM: 9 kHz (fixed) * The frequency display is raised or lowered by steps of 0.1 MHz. (Example: Frequency 88.05 MHz is displayed as "88.0 MHz".)	Speaker	Approx. 6.6 cm (2 5/8 inches) dia.
		Power output	120 mW (at 10% harmonic distortion)
		Power requirements	North and South American model: 120 V AC, 60 Hz UK model: 240 V AC, 50 Hz Other models: 220 – 230 V AC, 50 Hz
		Dimensions	Approx. 201 x 59 x 146 mm (w/h/d) (8 x 2 3/8 x 5 3/4 inches) incl. projecting parts and controls
		Weight	Approx. 600 g (1 lb 5 oz)
		Accessory supplied	FM antenna coupler (1. Models for Netherlands, Belgium, Switzerland, Austria and Scandinavia only)
		Design and specifications are subject to change without notice.	
		<b>Note</b>	This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

**FM/AM PLL SYNTHESIZED  
CLOCK RADIO  
SONY®**



## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

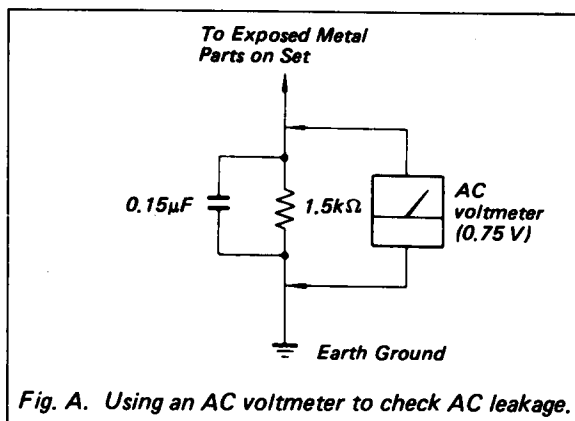
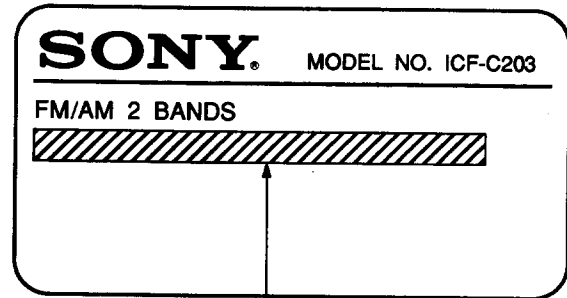


Fig. A. Using an AC voltmeter to check AC leakage.

## MODEL IDENTIFICATION

— Specification Label —



US, CND model: AC: 120V 60Hz 3W

AUS model: AC: 240V~50Hz 3W

5AEC, AEC, AEZ, IT, E model: AC: 220-230V~50Hz 3W



CND: Canadian model

IT: Italian model


AUS: Australian model

AEC, 5AEC: North European model

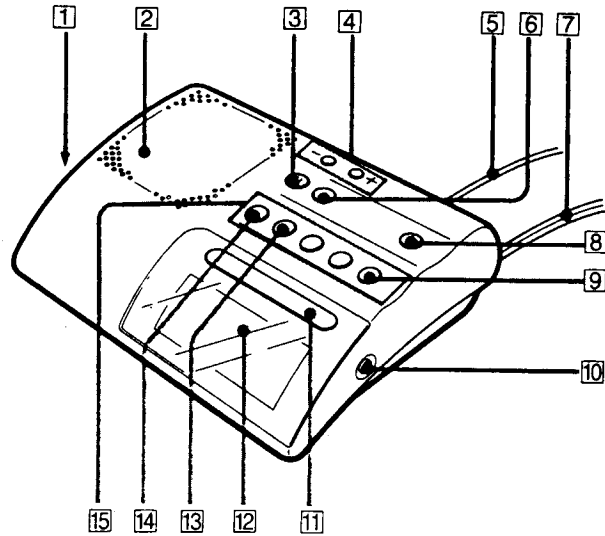
### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

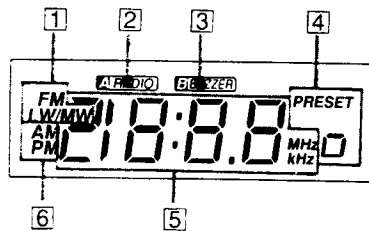
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

## Location of Controls



- 1 VOL (volume) control (left side)
- 2 Speaker
- 3 ALARM RESET/RADIO **OFF** button
- 4 TIME SET/TUNE (tuning) + and - buttons
- 5 FM wire antenna
- 6 SLEEP/RADIO **ON** button
- 7 AC power cord
- 8 BAND button
- 9 ALARM MODE button
- 10 ENTER/CLOCK button
- 11 DREAM BAR SNOOZE/SLEEP OFF bar (North and South American model)  
REPEAT ALARM/SLEEP OFF bar (other models)
- 12 Display window
- 13 **B BUZZER** ALARM button
- 14 **A RADIO** ALARM (WAKE UP STATION) button
- 15 Preset number 1 - 5 buttons

## Display window



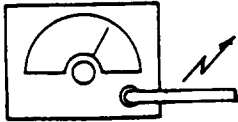
## Display window

- 1 Band indication
- 2 **A RADIO** alarm indication
- 3 **B BUZZER** alarm indication
- 4 PRESET number indication
- 5 Time/frequency indication
- 6 AM/PM indication (North and South American and UK model only)

## SECTION 2 ELECTRICAL ADJUSTMENTS

### AM Section

AM RF signal generator

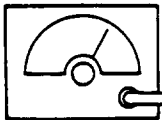


Put the lead-wire antenna close to the set.

30 % amplitude modulation by 400Hz signal  
Output level: as low as possible

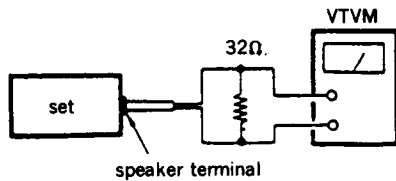
### FM Section

FM RF signal generator



FM ANT terminal

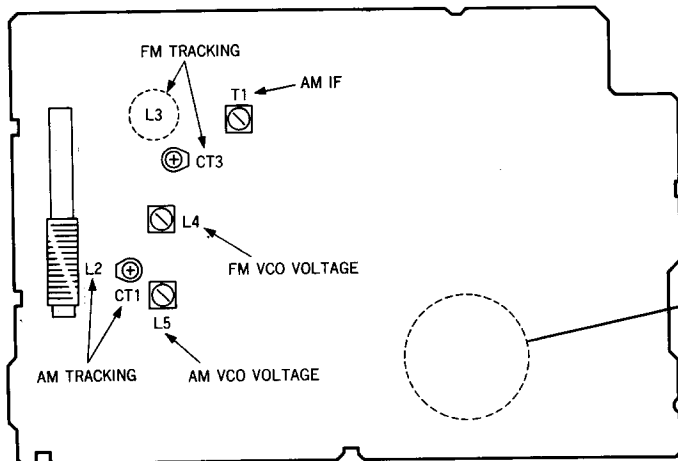
±22.5kHz frequency deviation by 400Hz signal  
Output level: as low as possible



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

Adjustment Location :

**[MAIN BOARD] -COMPONENT SIDE-**



( ) : EXCEPT US, CND model

#### AM IF ADJUSTMENT

Adjust for a maximum reading on VTVM.

T1	450kHz
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Note : Receive 530kHz (531kHz).

#### AM VCO VOLTAGE ADJUSTMENT

Adjustment Part	Frequency Display	Reading on Digital voltmeter
L5	530kHz (531kHz)	1.2V
(confirmation)	1,710kHz (1,602kHz)	Less than 9V (Less than 8V)

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

#### AM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

CT1	L2
1,490kHz (1,404kHz)	580kHz (621kHz)

#### FM VCO VOLTAGE ADJUSTMENT

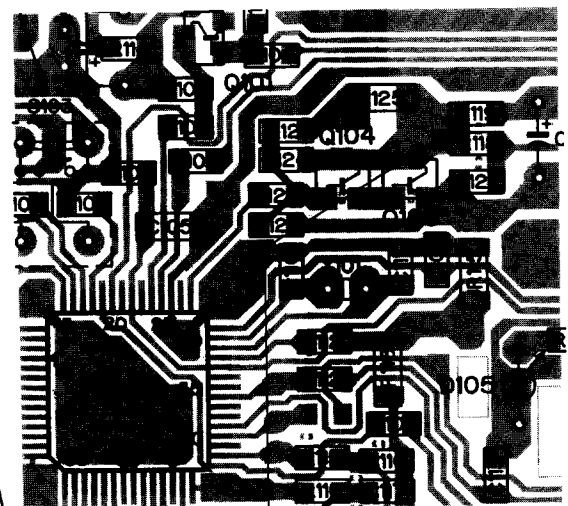
Adjustment Part	Frequency Display	Reading on Digital voltmeter
L4	108MHz	10 ± 1.0V
(confirmation)	87.5MHz	More than 1.8V (Standard 2.2V)

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

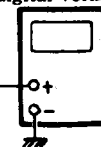
#### FM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

CT3	L3(confirmation)
108MHz	87.5MHz

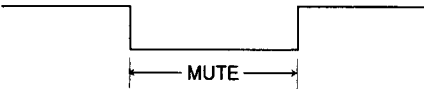


digital voltmeter



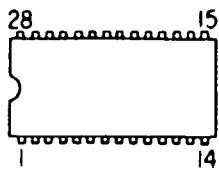
## SECTION 3 PIN DESCRIPTION

101  $\mu$  PD1724GB-590-1P7

Pin No.	Pin Name	Signal Name	I/O	Description
1-10	LCD10-LCD1	LCD10-LCD1	O	LCD drive
11	NC		—	
12-14	COM3-COM1	COM3-COM1	O	LCD common
15	VSS3		—	Pin for doubler circuit capacitor connection to develop LCD drive voltage
16	CAP2			
17	CAP1			
18	VSS2			
19	VDP	<u>MUTE</u>	O	<p>Audio signal mute. Active : Low. LOW when MUTE ON.</p> 
20	CGP	BEEP	O	Activates buzzer.
21	NC		—	
22	VDD		—	3V power supply input terminal
23	VCOH		I	Unused pin
24	VCOM	FM VCO	I	FM VCO input
25	VCOL	AM VCO	I	AM VCO input
26	VSS1		—	GND
27	EO1		O	PLL error output pin
28	EO2			
29	CE	CE	I	<p>Detects power supply line status.</p> <p>Power supply line OFF : Low</p> <p>Power supply line ON : High</p>
30	XO		O	Crystal oscillator connection pin
31	XI		I	
32	VSS4		—	Pin for regulator circuit capacitor connection to attain stable drive voltage of the oscillator
33	PA3	AC/DC	I	AC/DC select input AC : High DC : Low
34	PA2	ALARM OUT	O	Unused pin
35	PA1	TV OUT	O	Unused pin
36	PA0	BATT/BAND AM	I/O	BATTERY CHECK input, BAND FM/AM output FM : Low AM : High
37	PB3	LIGHT	O	Unused pin
38	PB2	POWER	O	Unused pin
39	PB1	INITIALIZE	O	KEY IN control output
40	PB0	BAND LOW/TV H	O	Unused pin
41-44	PC3-PC0	KEY SOURCE	O	Conducts Key Scan
45-48	K3-K0	KEY RETURN	I	Key Return input
49, 50	NC		—	
51-56	LCD16-LCD11	LCD16-LCD11	O	LCD drive

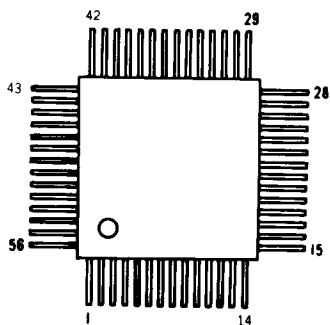
4-2. SEMICONDUCTOR LEAD LAYOUTS

CXA1019M



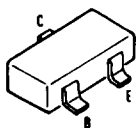
(Top view)

$\mu$ PD1724GB-590-1P7

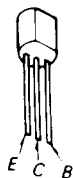


MARKING SIDE VIEW

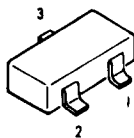
2SA1162-G  
2SC1623-L5L6  
2SC2223-F13  
2SC2223-F14



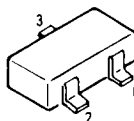
2SC2001-LK



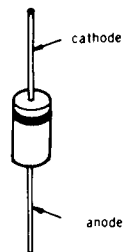
KV1560  
MA152WK



1S2836



10E2



GL3EG8

