

# SERVICE MANUAL

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RADIO RECEIVER

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This Service Manual is the "Revision Publishing" and replaces "Simple Manual" FR-A351 EZ<S>(S/M Code No.09-995-331-3T2).

## SPECIFICATIONS

Power source	AC 230 V, 50 Hz
Output	280 mW (EIAJ)
Power consumption	4 W
Speaker	57 mm, 8 ohms
Frequency range	FM : 87.5 - 108 MHz LW : 150 - 285 kHz
Antennas	FM wire antenna Ferrite bar antenna for LW
Dimensions (W x H x D)	124 x 126 x 160 mm (5 x 5 x 6 <sup>3</sup> / <sub>8</sub> in.)
Weight	754 g (1.66 lbs.)

- Design and specifications are subject to change without notice

# ELECTRICAL MAIN PARTS LIST

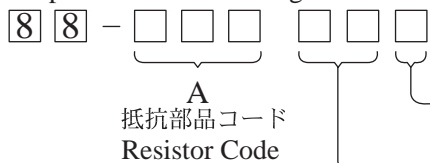
REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				L3	S2-26A-012-A00		LW OSC COIL
	87-A21-201-010	IC,LM8560(CLOCK)		L5	S2-11A-008-A00		LW ANT COIL
	S2-516-191-000	IC,CXA1619AS(RF+1F+AUDIO)		L6	S2-15A-005-A00		BEAD COIL 3.5T
	S1-87A-002-A00	IC,MC74HC4060N		LD1	S2-00A-005-A00		LED DISPLAY(FTTL-655)5 GREEN
TRANSISTOR				LD2	S2-01A-001-A00		LED DISPLAY(0.3)
	S1-71A-006-A00	TR,C3199-Y		△ PT51	S4-07A-005-A00		POWER TRANS
	S1-71H-003-E00	TR,A1267-Y		PVC1	S2-61A-031-A00		PVC
	S1-93A-012-B00	TR,A1267-GR		SP1	S3-23A-025-A00		SPEAKER 57P/8 OM 0.5W FER/MAG
	S1-94A-002-A00	TR,STS8050-D		SW1	S2-81A-055-A00		SLIDE SW 2C-2P RG 4MM(BAND)
DIODE				SW2	S2-81A-056-A00		SLIDE SW 2C-4P RG 4MM(POWER)
	82-135-799-080	DIODE,1N4148		SW3	S6-42A-065-A00		TACT SW TS114-16
	S1-722-400-100	DIODE,1N4001		SW4	S6-42A-065-A00		TACT SW TS114-16
	S1-96A-003-A00	DIODE,ZENER 4.7V		SW5	S6-42A-065-A00		TACT SW TS114-16
MAIN C.B				SW6	S6-42A-065-A00		TACT SW TS114-16
	BA1	S6-45A-011-A00	BATT SNAP TERMI	SW7	S6-42A-065-A00		TACT SW TS114-16
	C5	87-A10-189-040	CAP,E 220.0UF-10V	SW8	S6-42A-065-A00		TACT SW TS114-16
	C11	87-A10-189-040	CAP,E 220.0UF-10V	T1	S2-20A-025-A00		FM IFT 7-7-2 D30045
	C20	87-010-264-010	CAP,E 100.0UF-10V	T2	S2-22A-028-A00		AM IFT 7-7-2 2B467
	C28	87-015-694-010	CAP,E 0.47UF-50V	VR1	S2-56A-015-A00		SEMI V R 50K-B POINT CONTACT
	C33	87-016-141-080	CAP,E 1.0UF-50V	QUARTS C.B			
	C34	87-010-149-080	CAP,E 4.7UF-16V	C51	S2-14A-018-A00		INDUCTOR 21UH
	C37	87-010-264-010	CAP,E 100.0UF-10V	C52	87-010-221-810		CAP,E 470.0UF-10V
	C38	87-010-264-080	CAP,E 100UF-10V	C59	87-010-221-810		CAP,E 470.0UF-10V
	C41	87-A10-189-040	CAP,E 220.0UF-10V	C60	87-010-264-010		CAP,E 100.0UF-10V
	C43	87-010-237-080	CAP,E 1000.0UF-16V	C61	S1-41T-101-0M0		CAP,E 1.0UF-10V
	CF1	S3-33A-008-A00	AM C/FILTER SFU450B	XT1	S3-12A-078-A00		X-TAL(QUARTZ)KDS58S
	CF2	S3-32A-012-A00	FM C/FILTER SFE10.7				
	ICP1	87-001-196-080	IC,PROTECTOR 1CP-N10				
	ICP2	87-001-196-080	IC,PROTECTOR 1CP-N10				

- Regarding connectors, They are not stocked as they are not the initial order items. The connectors are available after they are supplied from connector manufacturers upon the order is received.

## チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

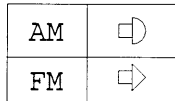
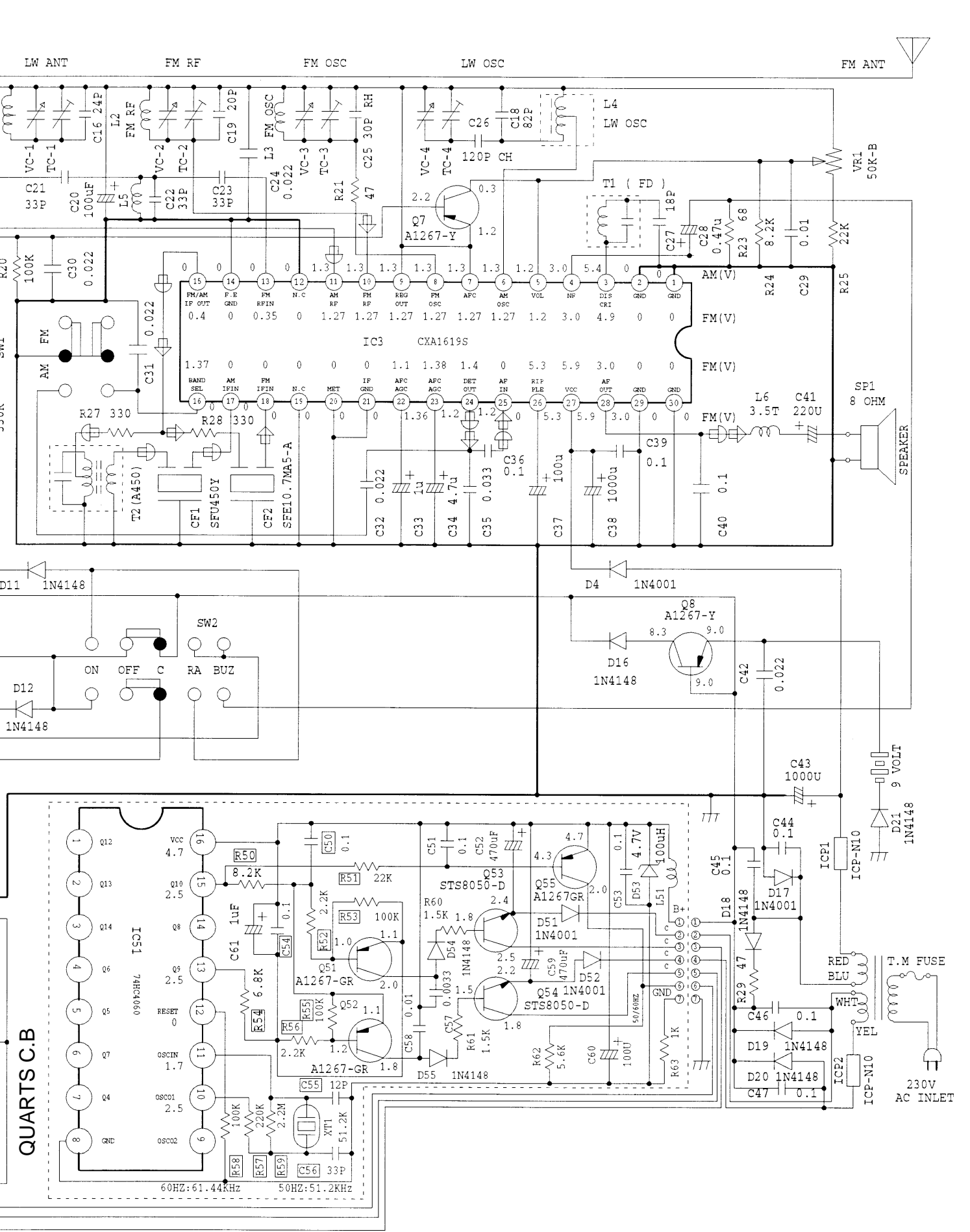
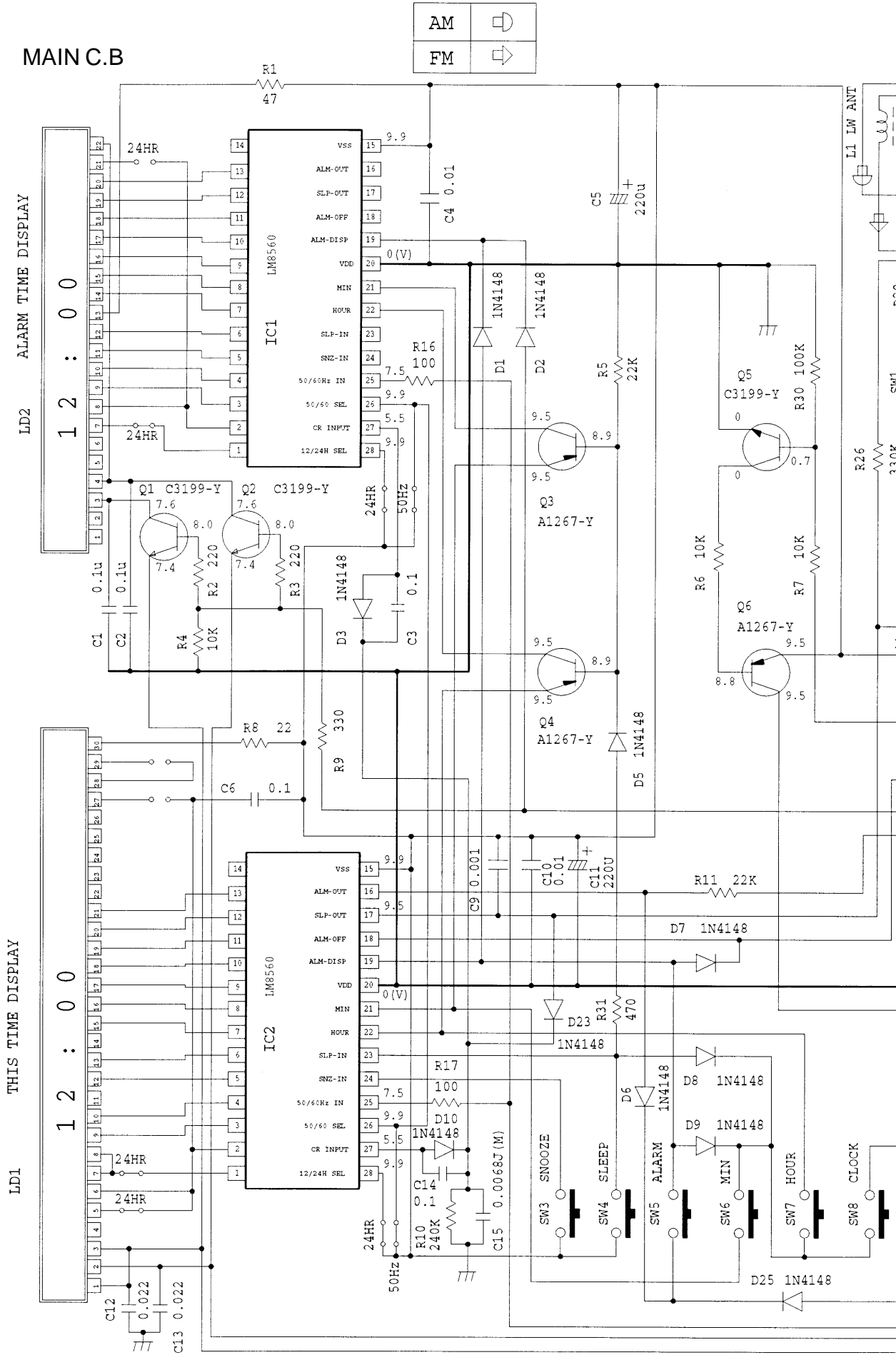
### Chip Resistor Part Coding



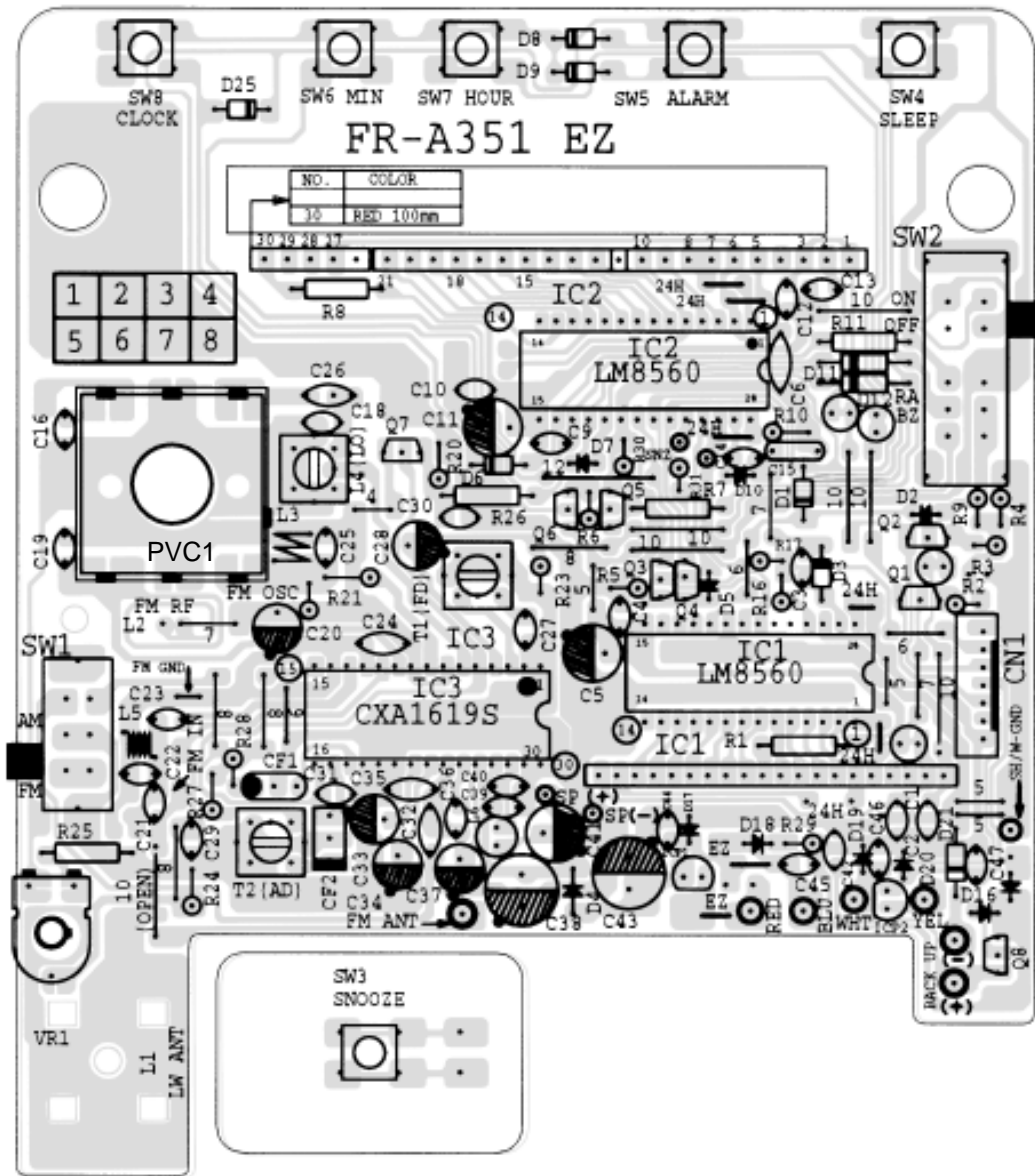
## チップ抵抗 Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法/Dimensions (mm)			抵抗コード : A Resistor Code : A	
				外形/Form	L	W		t
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

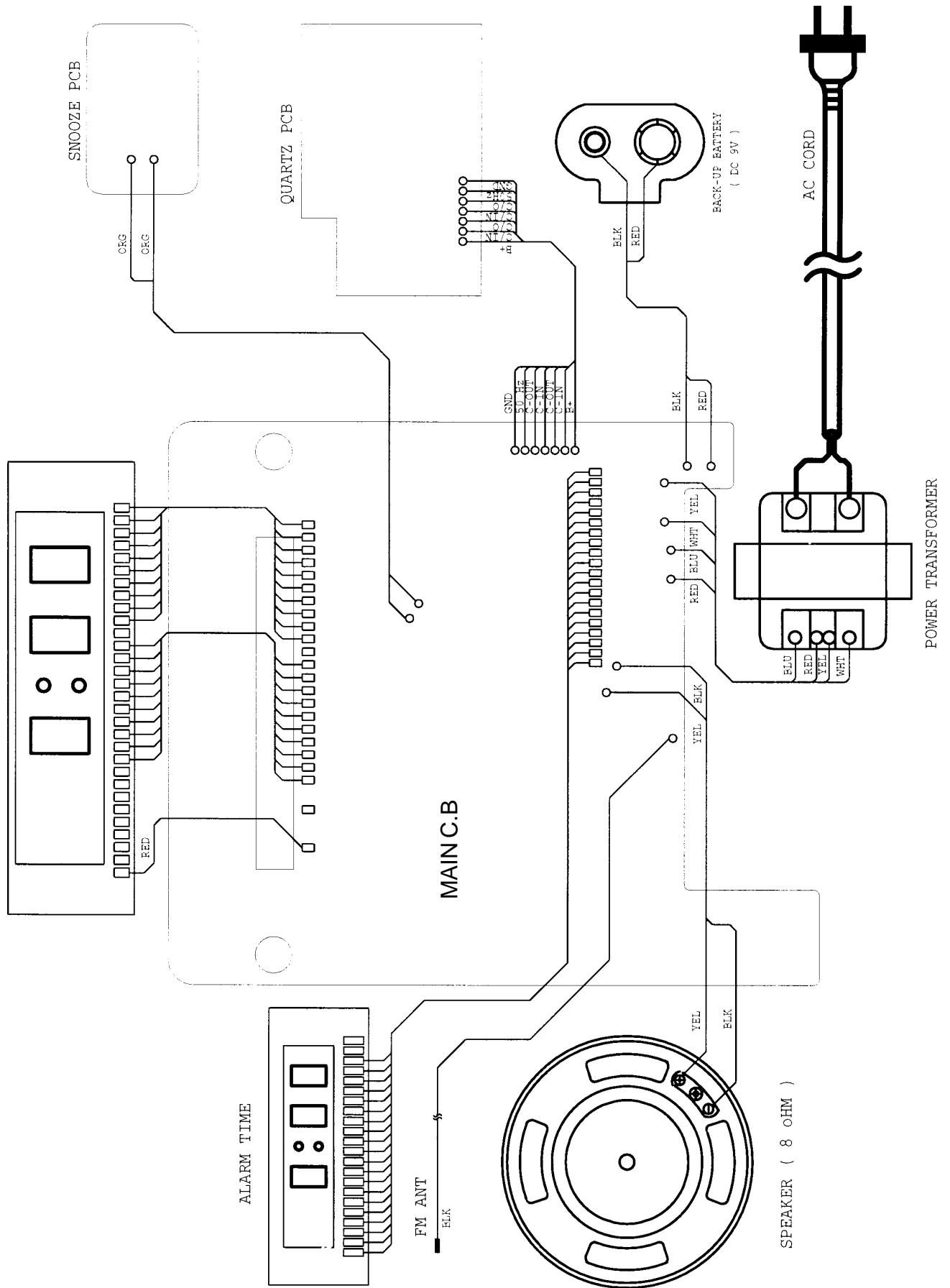
MAIN C.B



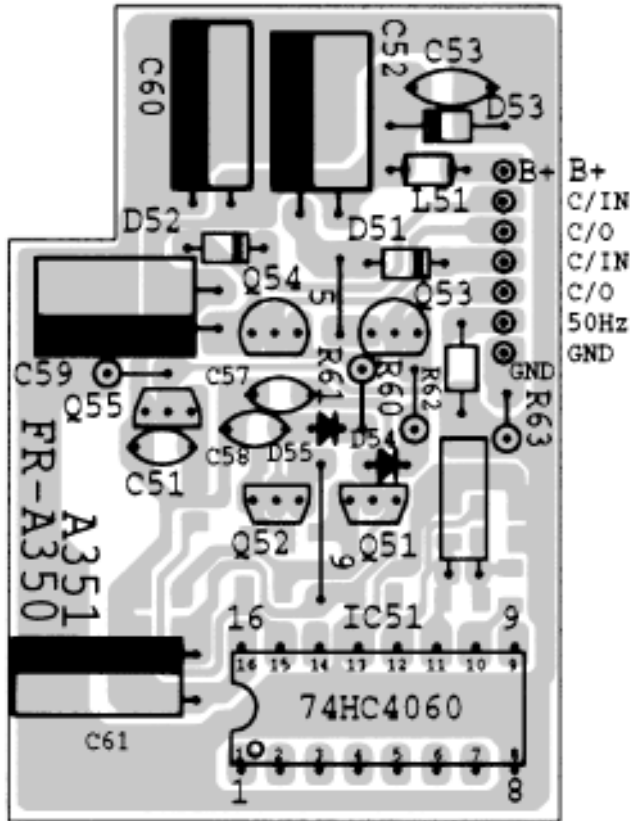
MAIN C.B



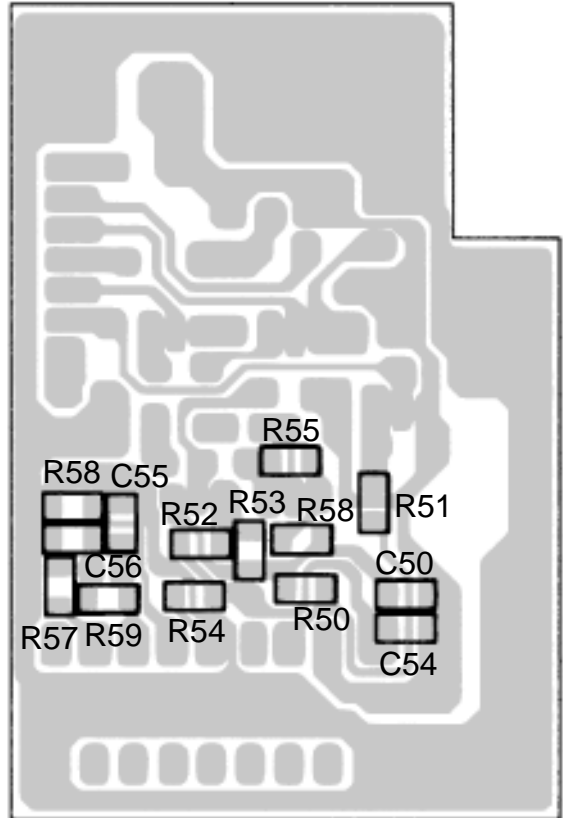
WIRING-2



QUARTS C.B



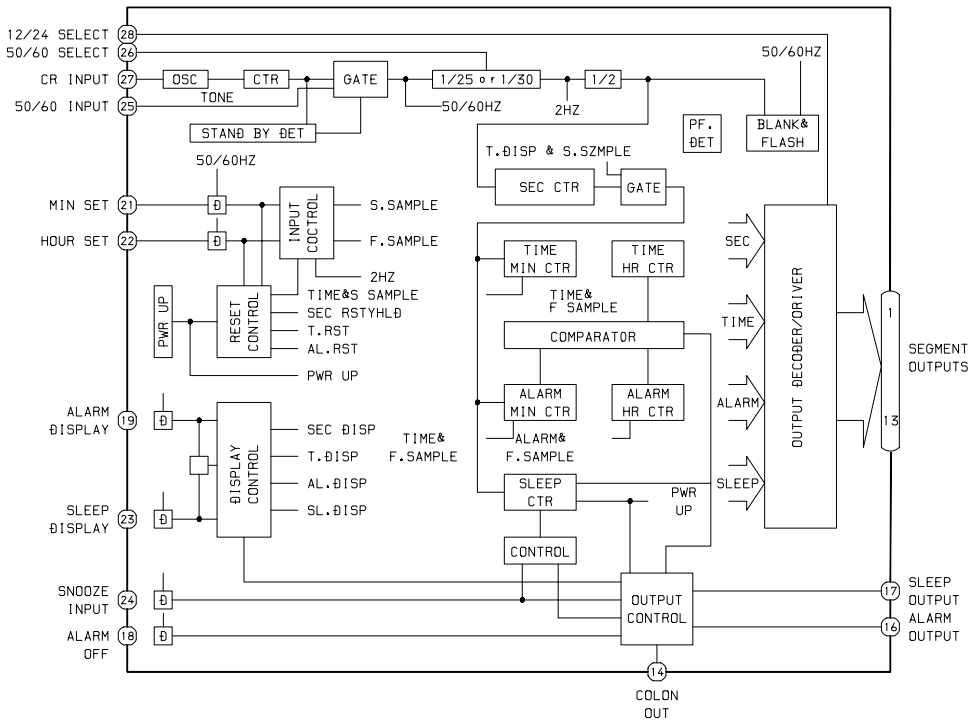
DISCRETE PARTS  
(PARTS SIDE VIEW)



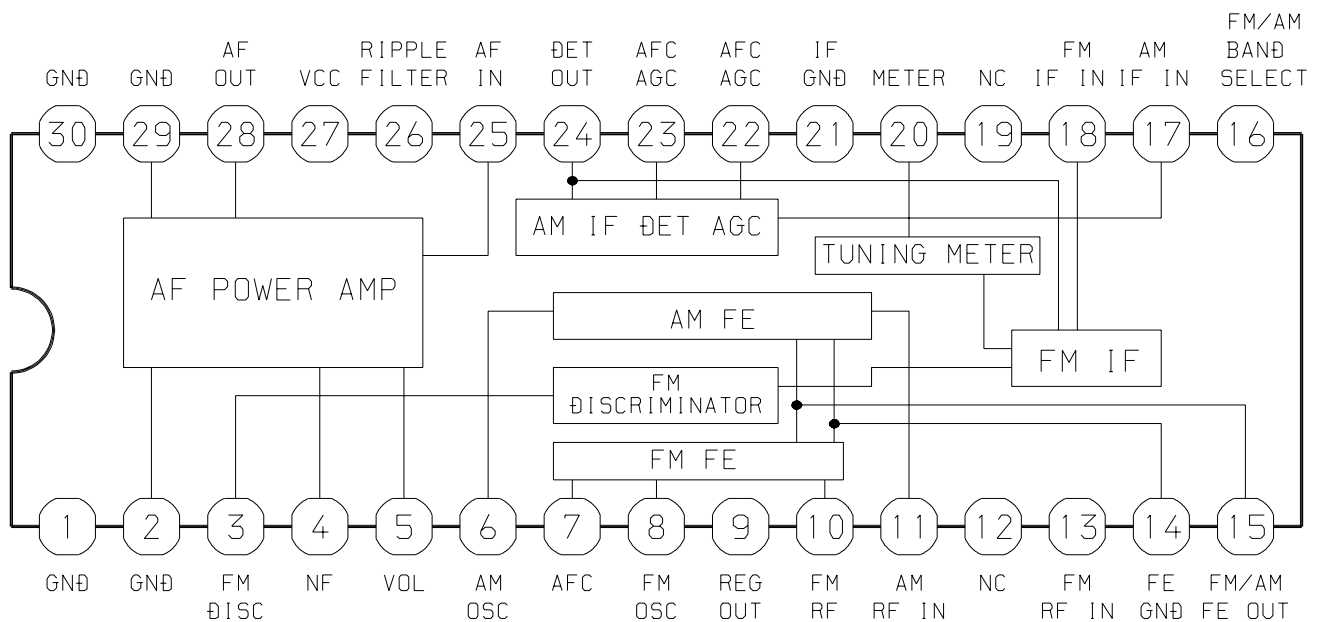
CHIP PARTS  
(PATTERN SIDE VIEW)

# IC BLOCK DIAGRAM

## IC, LM8560

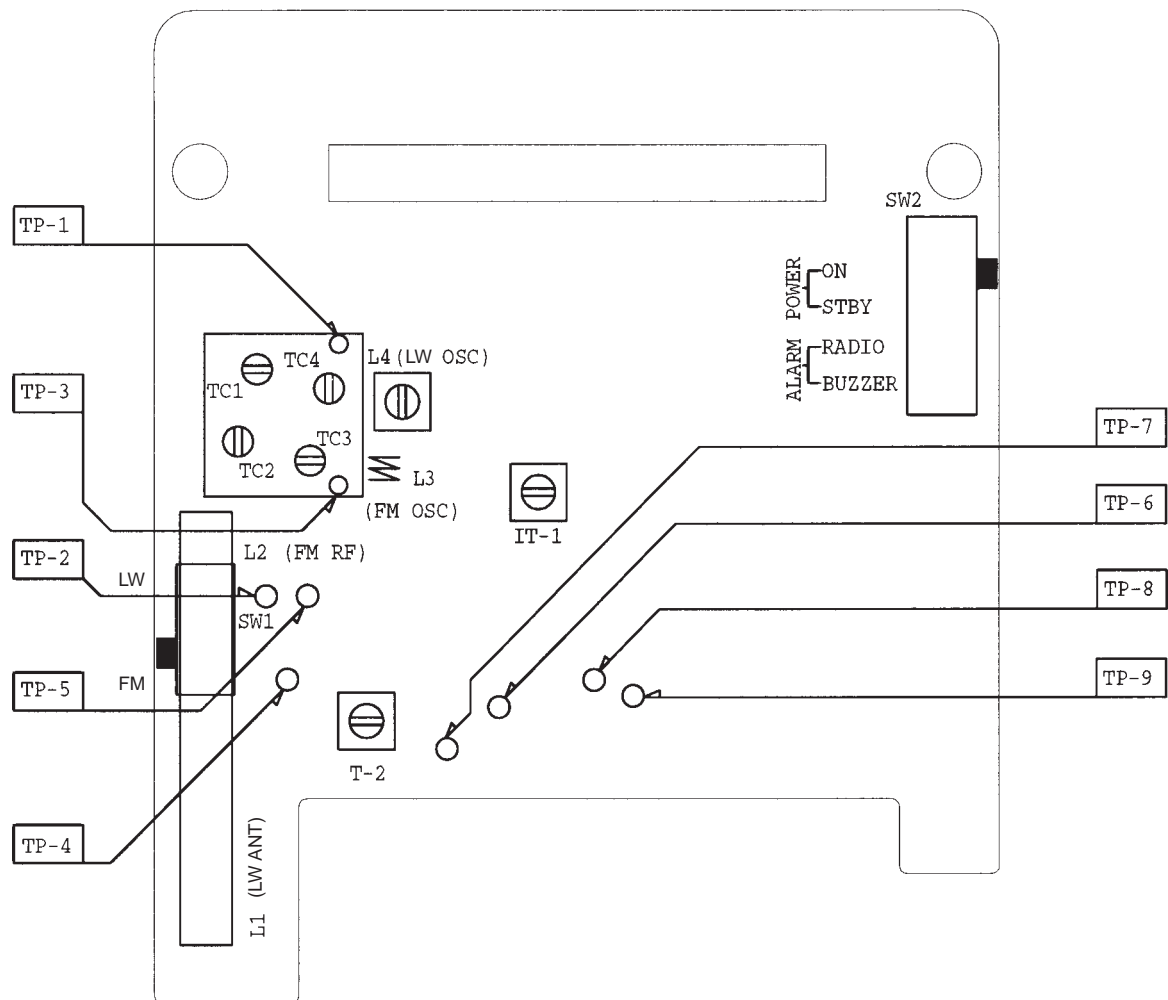


## IC, CXA1619S





# ELECTRICAL ADJUSTMENT



## ELECTRICAL ADJUSTMENT

### 1. LW IF Adjustment

Setting : • Test point : TP1, 2(IN), TP8, 9(OUT)  
 T2 ..... 450 kHz

### 2. FM IF Adjustment

Setting : • Test point : TP2, 3(IN), TP8, 9(OUT)  
 IT1 ..... 10.7 MHz

### 3. LW FREQ, RANGE Adjustment

Setting : • Test point : L1(IN), TP6, 7, 8, 9(OUT)  
 L4 ..... 145 kHz  
 TC4 ..... 295 kHz

### 4. LW Tracking Adjustment

Setting : • Test point : L1(IN), TP6, 7(OUT)  
 L1 ..... 150 kHz  
 TC1 ..... 285 kHz

### 5. FM FREQ, RANGE Adjustment

Setting : • Test point : TP4, 5(IN), TP6, 7, 8, 9(OUT)  
 L3 ..... 87.4 MHz  
 TC3 ..... 108.3 MHz

### 6. FM Tracking Adjustment

Setting : • Test point : TP4, 5(IN), TP6, 7(OUT)  
 TC2 ..... 106 MHz

## PRACTICAL SERVICE FIGURE

### <LW SECTION>

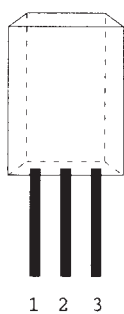
Sensitivity	Less than 60 dB (150 kHz)
(S/N 10dB)	Less than 58 dB (200/285 kHz)
S/N (Input 70dB)	Less than 15 dB (150/200/285 kHz)
Distortion	Less than 3 % (1000 kHz)
Intermediate frequency	450kHz

### <FM SECTION>

Sensitivity (3% dist.)	Less than 20 dB (88/98/108 MHz)
Distortion (at 60dB)	Less than 2% (98MHz)
Intermediate frequency	10.7MHz

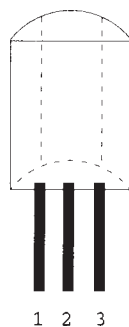
## TRANSISTOR ILLUSTRATION

A1267-Y/GR  
C3199-Y



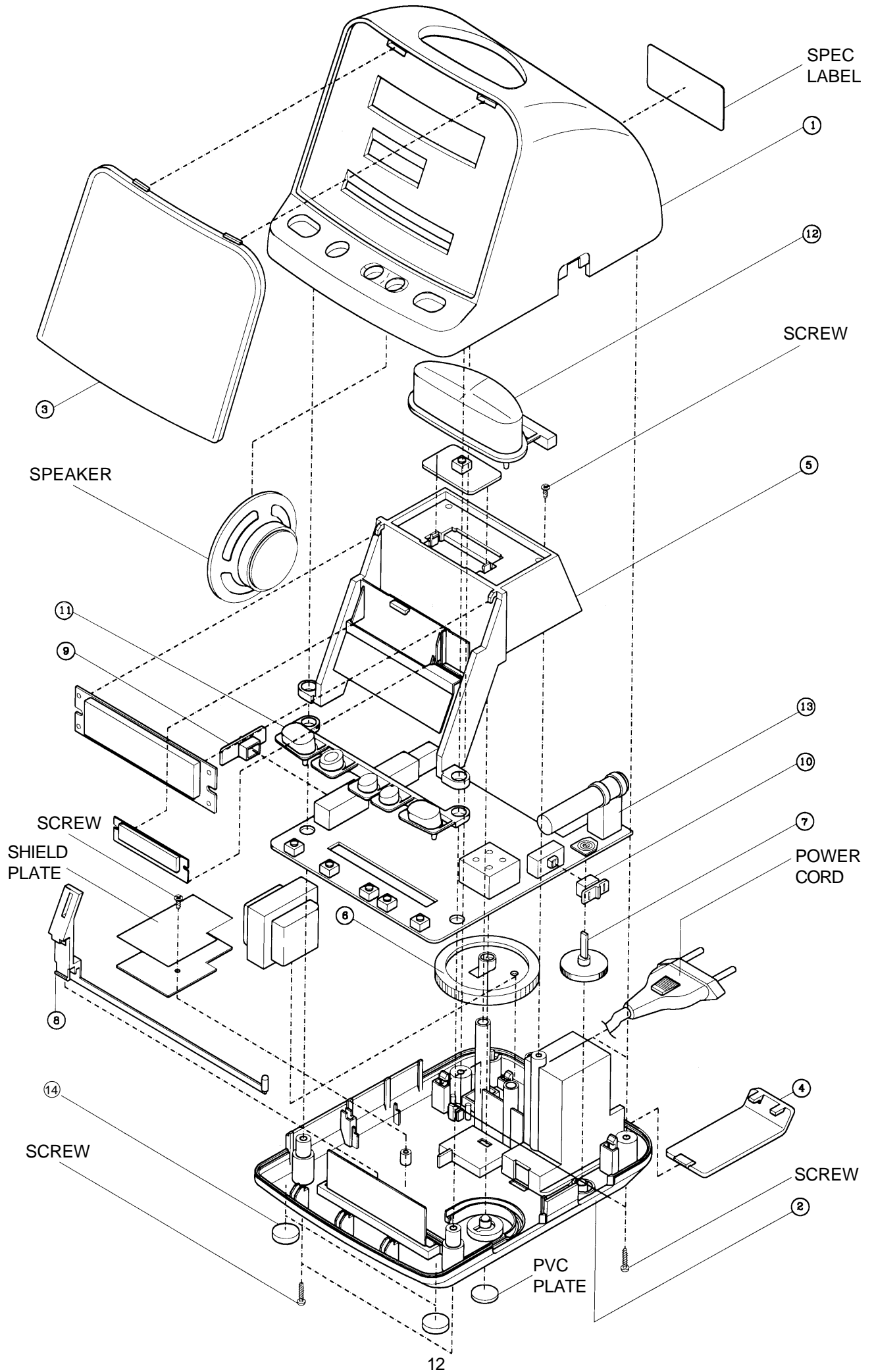
1. EMITTER  
 2. COLLECTOR  
 3. BASE

STS8050-D



1. EMITTER  
 2. COLLECTOR  
 3. BASE

MECHANICAL EXPLODED VIEW - 1/1



# MECHANICAL PARTS LIST 1/1

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	S6-73A-045-A00		TOP CABINET
2	S6-74A-053-A00		BOTTOM CABINET
3	S6-87A-087-A00		DIAL LENS
4	S6-97A-017-A00		BATTERY COVER
5	S6-12A-050-A00		BRACKET LED
6	S7-08A-053-A00		TUNING KNOB
7	S7-08A-061-A00		VOLUME KNOB
8	S7-01A-021-A00		DIAL POINTER
9	S7-08A-071-A00		POWER KNOB
10	S7-08A-081-A00		BAND KNOB
11	S7-08A-083-A00		CLOCK BUTTON
12	S7-08A-091-A00		SNOOZE BUTON
13	S6-12A-041-A00		HOLDER, ANT
14	S6-35A-010-A00		RUBBER FOOT(BLK)

## COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

# ACCESSORIES LIST

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	S8-00A-281-A00		INSTRUCTION BOOK (A)
1	S8-00A-282-A00		INSTRUCTION BOOK (B)
1	S8-00A-283-A00		INSTRUCTION BOOK (C)

サービス技術ニュース	
番号	連絡内容
G- -	
G- -	
G- -	

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