

# SERVICE MANUAL

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STEREO RADIO RECEIVER

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This Service Manual is the "Revision Publishing" and replaces "Simple Manual" (S/M Code No. 09-006-346-0T1).

## SPECIFICATIONS

<b>Frequency range</b>	FM: 87.5 – 108 MHz AM: 530 – 1,605 kHz
<b>Maximum output</b>	4 mW + 4 mW (EIAJ 32 ohms)
<b>Power source</b>	DC 3 V using two R03 (size AAA) batteries
<b>Output</b>	Headphones jack (Stereo mini jack)
<b>Maximum outside dimensions</b>	54.3 (W) × 90.4 (H) × 18.9 (D) mm
<b>Weight</b>	Approx. 49 g (excluding batteries)
<b>Supplied headphones HP-M029</b>	Type: In-ear type Impedance: 32 ohms Sensitivity: 98 dB/mW
<b>Recommended commercially available headphones</b>	Type: In-ear type Impedance: 32 ohms Sensitivity: 98 dB/mW or less

- Design and specifications are subject to change without notice.

## ACCESSORIES/PACKAGE LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8A-RCG-902-010	IB, YHJ (ECC)C<YH1<S>, YJ1<S>>	
1	8A-RCG-906-010	IB, YZ (3L)C<YZ1<S>, YZ1<L>>	
1	8A-RCG-905-010	IB, YZ (6L)C<YZ1<S>, YZ1<L>>	
2	87-B30-145-210	HEADPHONE, HP-M029 (T)	

# ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
 If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

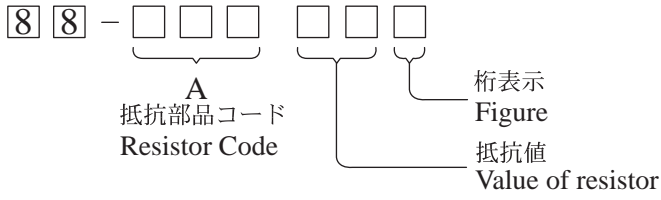
REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C120	87-A10-463-080		C-CAP,U 0.47-10 Z F
	87-A21-232-040	C-IC, TA2111FN		C121	87-010-829-080		CAP, U 0.047-16
	87-002-232-080	IC,NJM2073M		C122	87-A10-047-080		C-CAP,U 1-10 Z F
				C123	87-A10-249-080		C-CAP,U 1-10 ZF
				C124	87-010-787-080		C-CAP,U 0.022-25 K B
TRANSISTOR				C125	87-012-285-080		C-CAP,U 8200P-50 K B GRM
	89-508-824-080	C-FET, 2SK882Y		C126	87-012-166-080		C-CAP,U 4P-50 C CH
	89-113-625-080	C-TR, 2SA1362GR		C127	87-A10-047-080		C-CAP,U 1-10 Z F
	89-341-165-080	CHIP TRANSISITOR 2SC4116GR		C128	87-012-181-080		C-CAP,U 24P-50 J CH
				C201	87-010-831-080		C-CAP,U,0.1-16F
DIODE				C202	87-010-831-080		C-CAP,U,0.1-16F
	87-070-345-080	DIODE,IN4148		C203	87-010-076-010		22UF 6.3V ELECTROLYTIC
				C204	87-010-076-010		22UF 6.3V ELECTROLYTIC
				C205	87-012-278-080		C-CAP,U 2200P-50 K B
				C206	87-012-278-080		C-CAP,U 2200P-50 K B
MAIN C.B				C207	87-010-082-080		CAPACITOR, 220MF 4V/87-0
C101	87-012-167-080	C-CAP,U 5P-50 CH		C208	87-010-267-080		CAP,E 47-10 M 105 KM
C102	87-012-176-080	C-CAP,U 15P-50 J		C209	87-A10-463-080		C-CAP,U 0.47-10 Z F
CH<YH1<S>,YJ1<S>>				C210	87-A10-463-080		C-CAP,U 0.47-10 Z F
C102	87-012-178-080	C-CAP,U 18P-50 J		C211	87-010-588-010		CAP,E 220-2 M 5L MA
CH<YZ1<S>,YZ1<L>>				C212	87-010-588-010		CAP,E 220-2 M 5L MA
C103	87-012-181-080	C-CAP,U 24P-50 J CH		C213	87-010-831-080		C-CAP,U,0.1-16F
C104	87-012-166-080	C-CAP,U 4P-50 C CH		C214	87-010-831-080		C-CAP,U,0.1-16F
				C215	87-010-831-080		C-CAP,U,0.1-16F
C105	87-012-286-080	CAP, U 0.01-25		CD101	87-A90-739-010		FLTR,KIT
C106	87-012-286-080	CAP, U 0.01-25		CF101	8A-RCG-606-010		FLTR,CFAL-455
C107	87-A10-249-080	C-CAP,U 1-10 ZF		CF102	87-A90-739-010		FLTR,KIT
C108	87-012-274-080	CHIP CAP,U 1000P-50B		J101	8A-RCF-607-010		JACK,3.5 ST W/O SW
C109	87-A10-249-080	C-CAP,U 1-10 ZF		L1	ST-RCO-041-200		FERRITE BEAD INDUCTOR 120UH
				L2	8A-RCG-605-010		COIL,I FT 7005NN
C110	87-010-831-080	C-CAP,U,0.1-16F		L101	8A-RCG-611-010		BAR-ANT,ARC-G
C111	87-010-831-080	C-CAP,U,0.1-16F		L102	8Z-HJ9-609-010		COIL,FM RF(EX)
C112	87-012-286-080	CAP, U 0.01-25		L103	8Z-HJA-610-010		COIL,FM OSC(EX)
C113	87-012-286-080	CAP, U 0.01-25		L104	8A-RCG-604-010		COIL,I FT 5PNR
C114	87-012-178-080	C-CAP,U 18P-50 J CH<YH S>,YJ1<S>>		L105	87-A90-177-010		I FT,AM IF 5P
				PVC1	8A-RCG-603-010		TUN-CAP,20P-160P 16
C114	87-012-179-080	C-CAP,U 20P-50 J CH<YZ1<S>,YZ1<L>>		SW1	88-YC3-603-010		SW,SL SS058 PT022BA
C115	87-012-180-080	C-CAP,U 22P-50 J CH		SW2	87-A90-778-010		SW,SL 2-2-3 SS-337-B23
C116	87-010-082-080	CAPACITOR, 220MF 4V/87-0		SW3	88-YC3-603-010		SW,SL SS058 PT022BA
C118	87-010-419-080	CAP,E 4.7-16 M 5L SRE		VR1	87-A90-835-010		VR,RTRY 20KCX2 H
C119	87-010-309-080	C-CAP,1000P-50 CH					

- 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

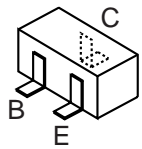
Chip Resistor Part Coding



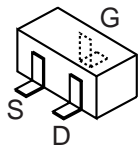
チップ抵抗  
Chip resistor

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

TRANSISTOR ILLUSTRATION

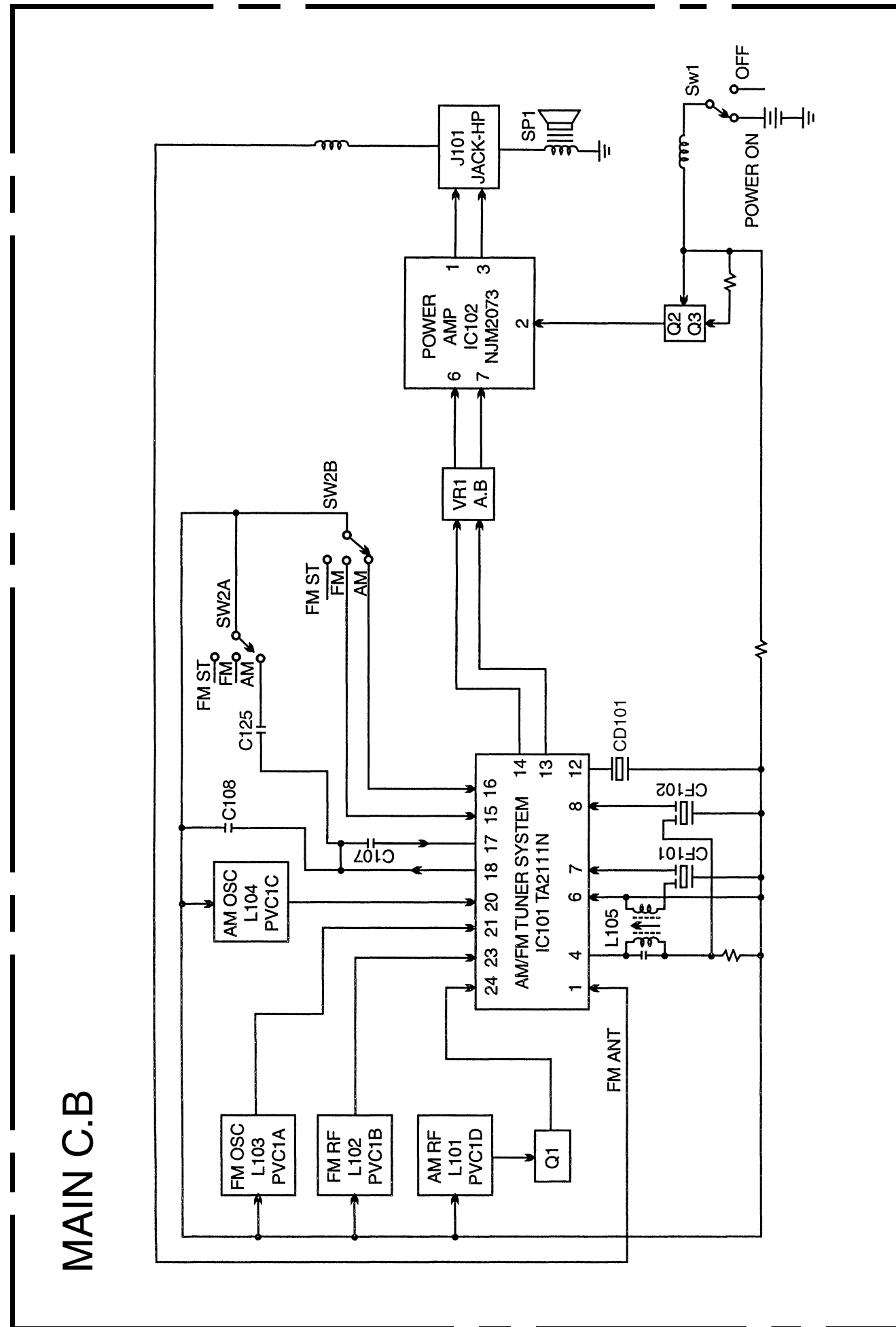


2SA1362  
2SC4116



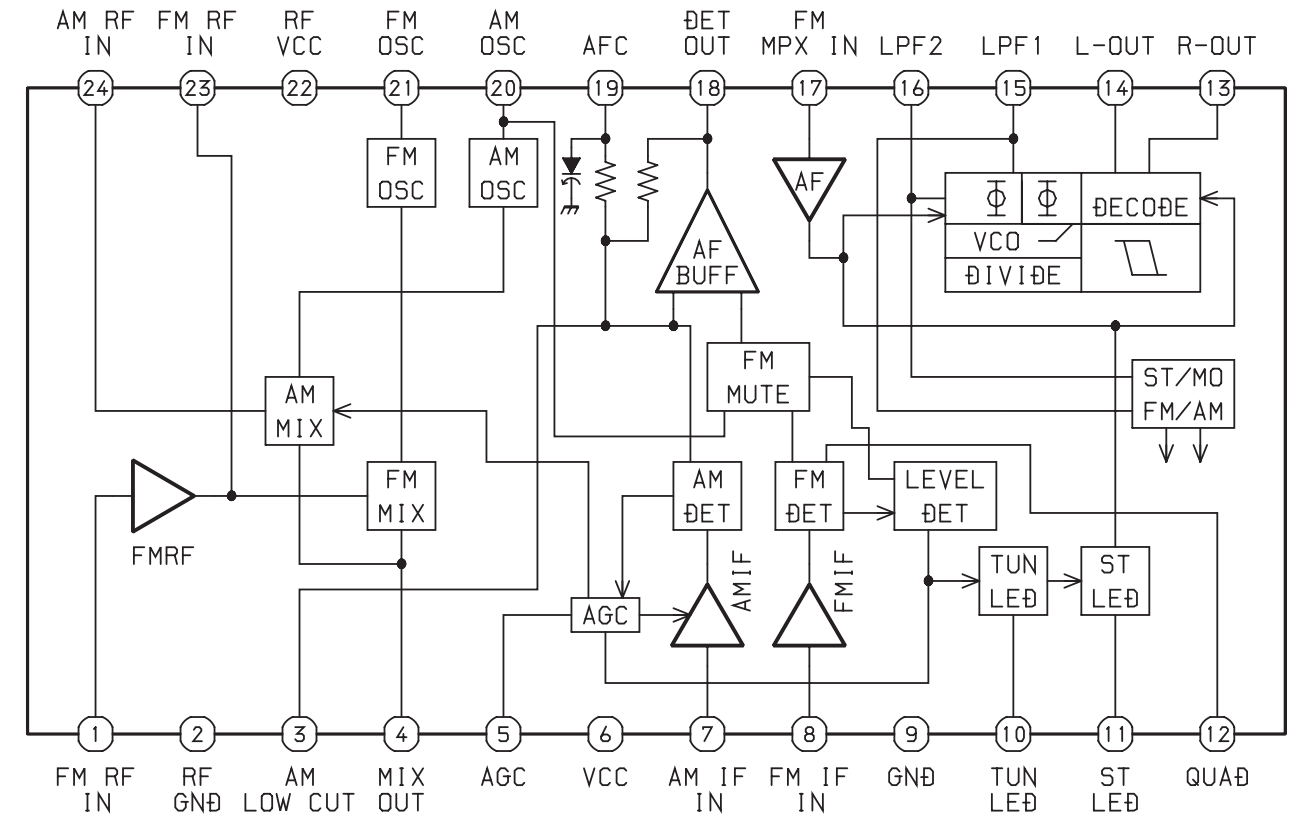
2SK882

BLOCK DIAGRAM

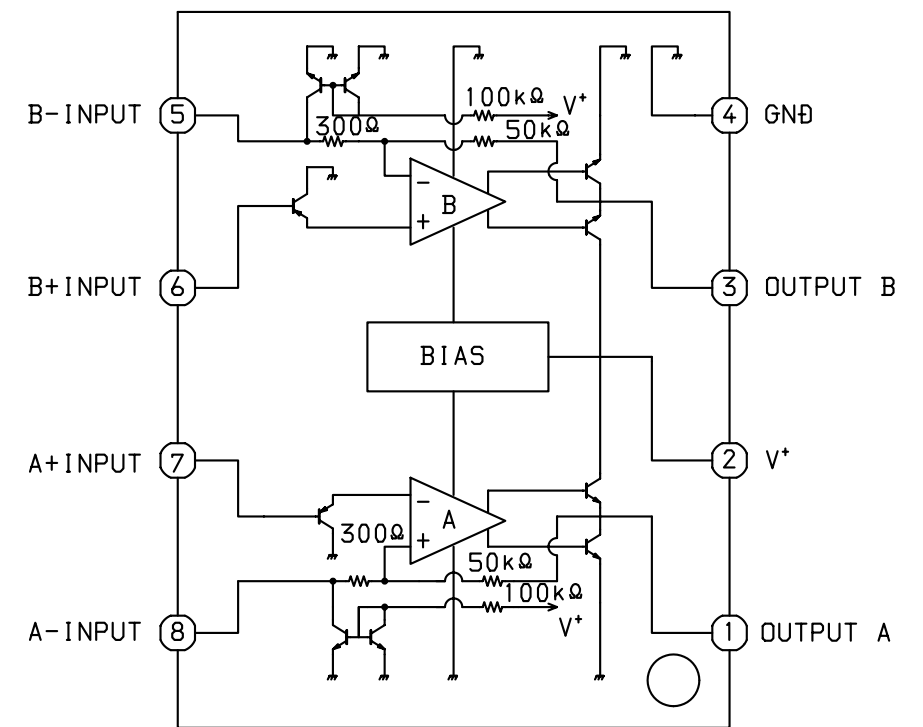


IC BLOCK DIAGRAM

IC, TA2111FN



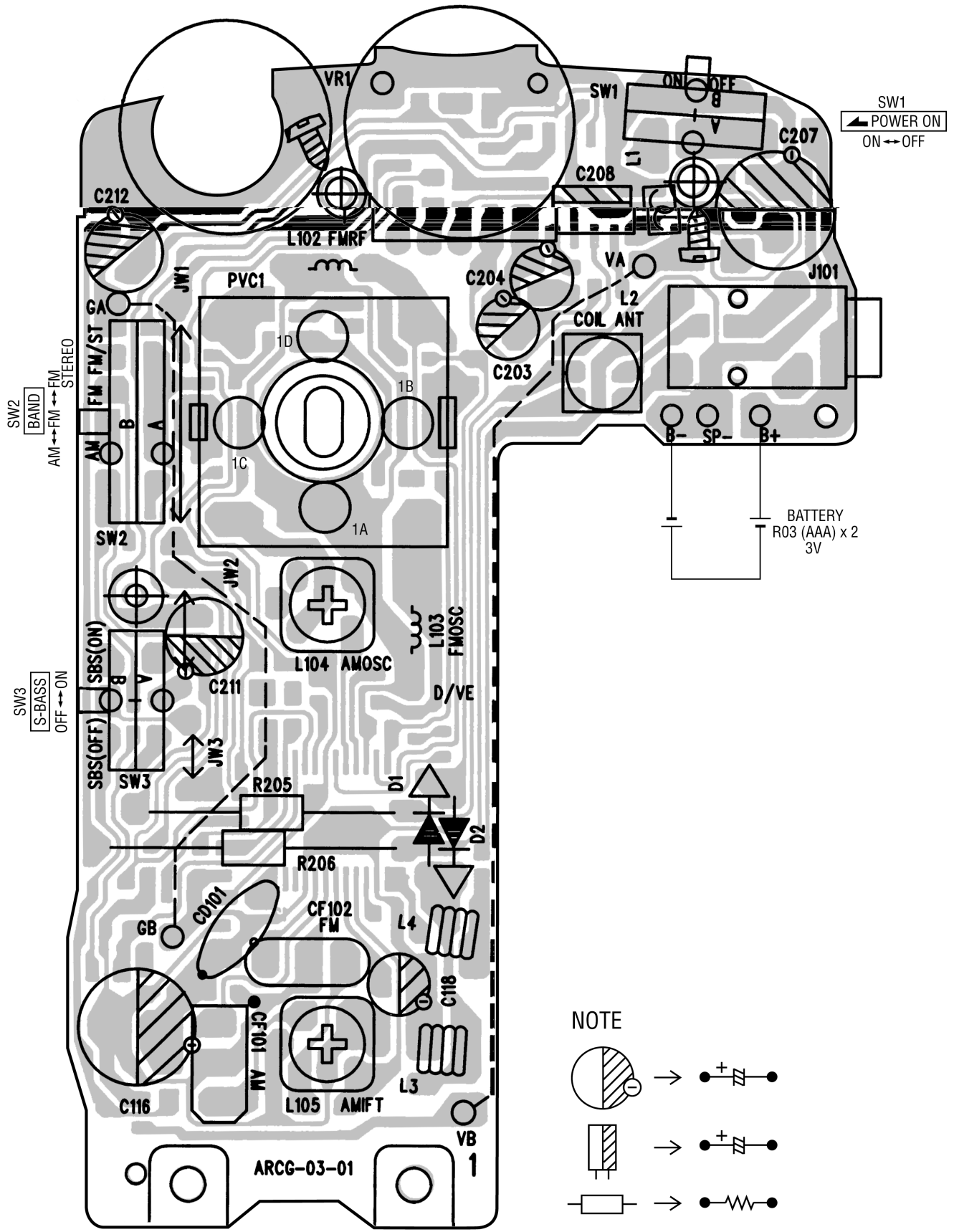
IC, NJM2073



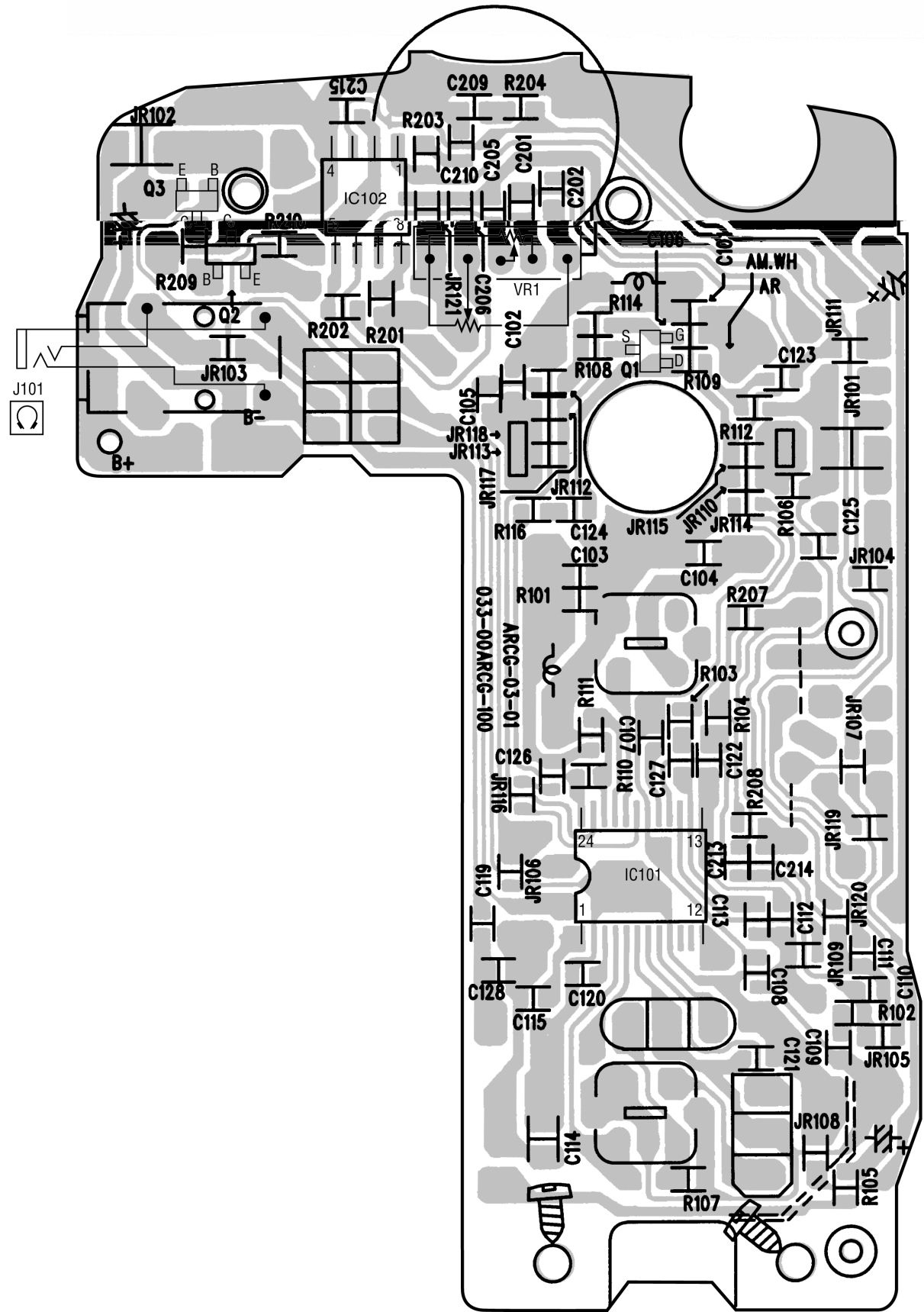
1 2 3 4 5 6 7 8 9 10 11 12 13 14

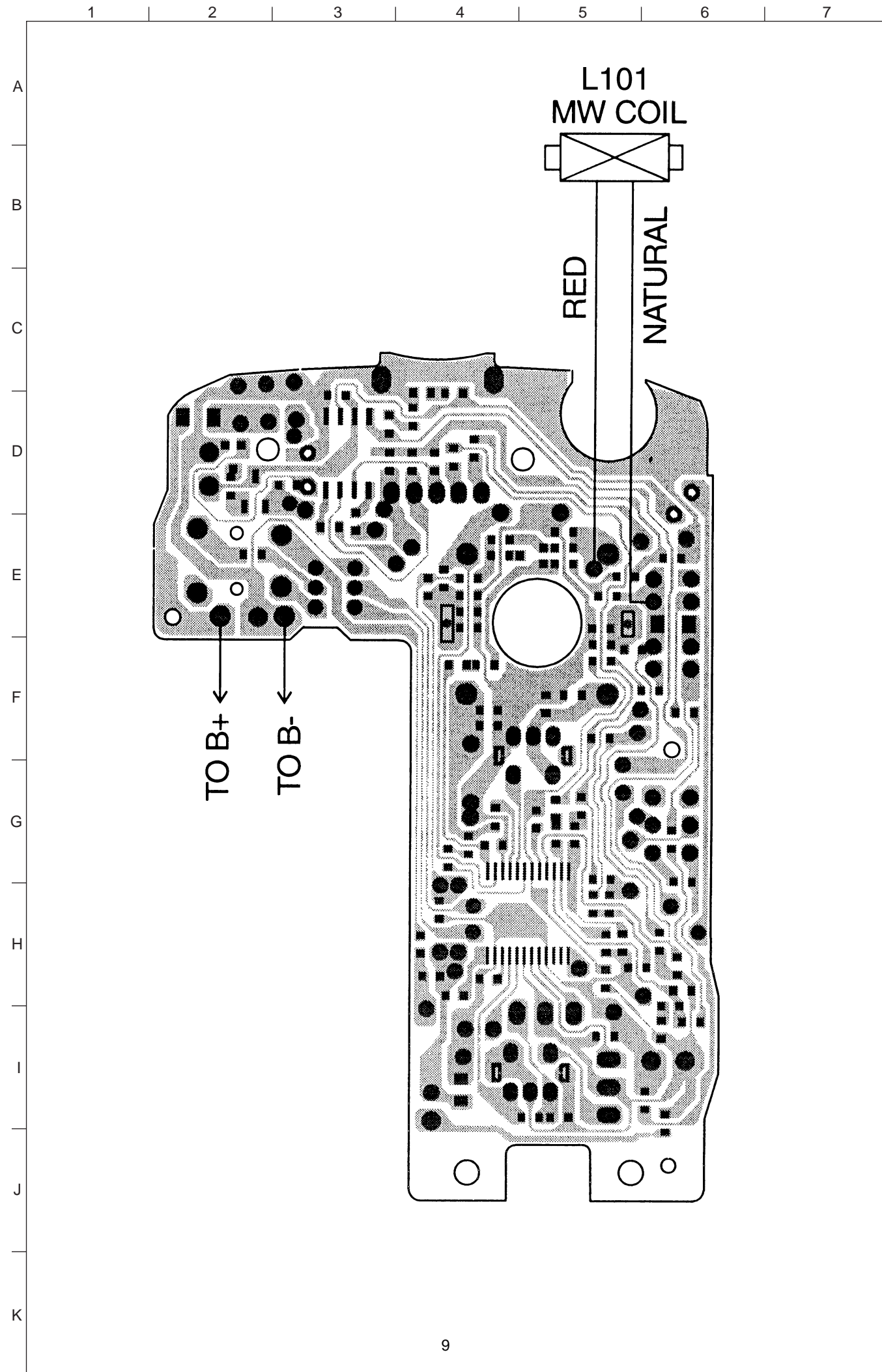
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K

MAIN C. B (COMPONENT SIDE)



MAIN C. B (CONDUCTOR SIDE)





**TUNER SECTION**

TEST CONDITION: SET AM/FM TUNER ON A STATION

IC101 (TA2111FN)

PIN'S NUMBER	1	2	3	4	5	6	7	8	9	10	11	12
AM	0	0	1.15	2.82	0.43	2.94	2.26	2.94	0	0	0.19	0.02
FM	0.79	0	0.68	2.37	0.46	2.90	2.38	2.90	0	0	0.35	2.10
PIN'S NUMBER	13	14	15	16	17	18	19	20	21	22	23	24
AM	1.25	1.25	2.22	2.94	0.70	1.04	1.15	2.94	2.94	2.94	2.94	2.94
FM	1.25	1.25	2.90	2.12	0.70	0.62	0.80	2.89	2.89	2.89	2.89	2.89

TRANSISTOR	Q1(2SK882Y)		
	S	G	D
AM	0.34	0	2.30

**POWER AMP. SECTION**

TEST CONDITION: TUNER

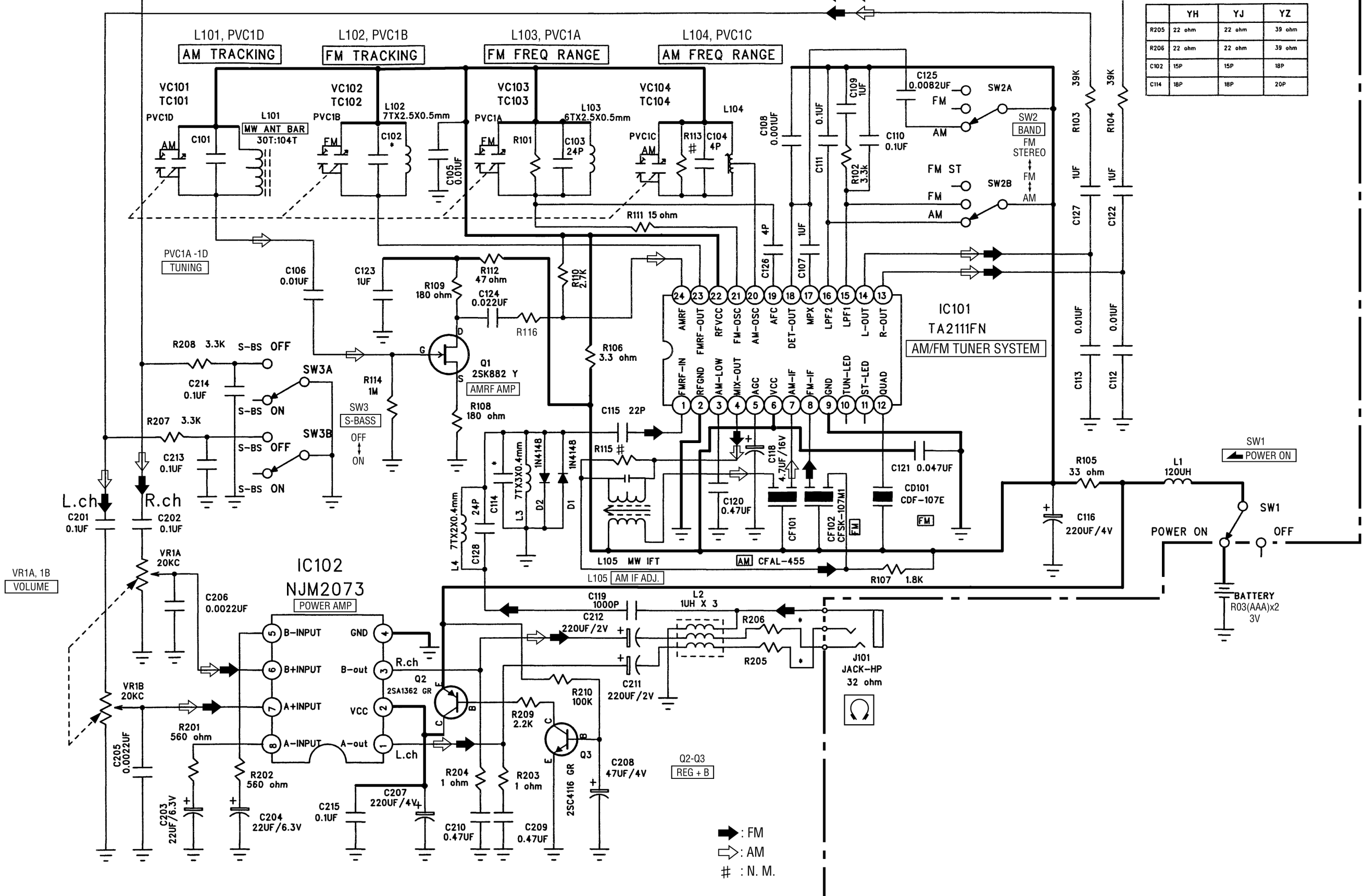
IC102 (NJM2073)

PIN'S NUMBER	1	2	3	4	5	6	7	8
FM	1.22	2.99	1.22	0	0.60	0	0	0.60

TRANSISTOR	Q2(2SA1362)			Q3(2SC4116GR)		
	E	C	B	E	C	B
	2.98	2.98	2.27	0	0.07	0.63

MAIN C. B

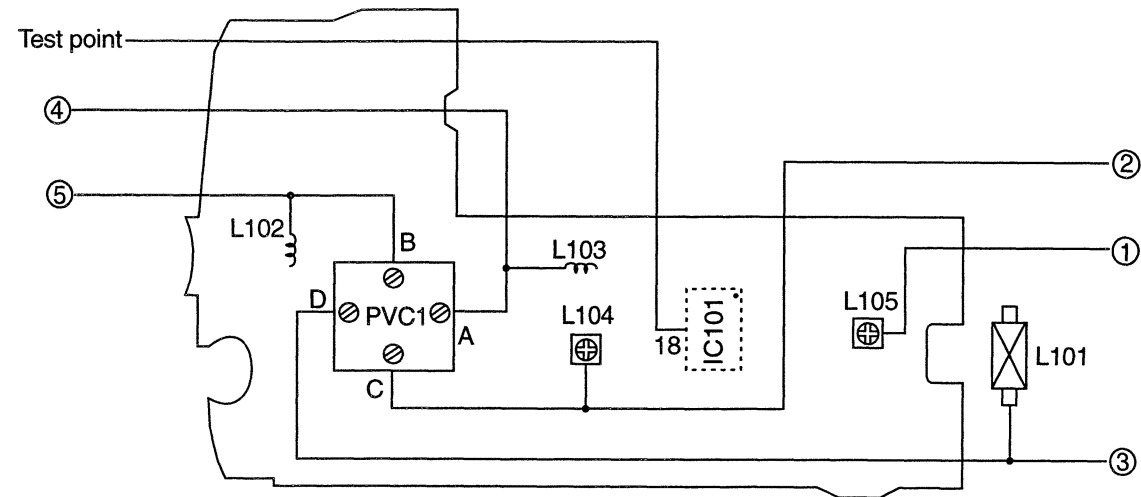
TC101-104 } PVC1  
VC101-104



	YH	YJ	YZ
R205	22 ohm	22 ohm	39 ohm
R206	22 ohm	22 ohm	39 ohm
C102	15P	15P	18P
C114	18P	18P	20P



## ELECTRICAL ADJUSTMENT



1. AM IF Adjustment  
Test point: IC101(TA2111FN) 18PIN  
Adjustment location: L105  
L105 ----- 455KHz
2. AM Frequency Range Adjustment  
Test point: IC101(TA2111FN) 18PIN  
Adjustment location: L104,PVC1C  
L104----- 515KHz  
PVC1C----- 1635KHz(YH, YZ, YJ)
3. AM Tracking Adjustment  
Test point: IC101(TA2111FN) 18PIN  
Adjustment location: L101,PVC1D  
L101----- 600KHz waveform max.  
PVC1D ----- 1400KHz waveform max.
4. FM Frequency Range Adjustment  
Test point: IC101(TA2111N) 18PIN  
Adjustment Location: L103,PVC1A  
L103----- 87MHz(YH, YJ,) 87.4MHz(YZ)  
PVC1A----- 109MHz(YH, YJ) 108.3MHz(YZ)
5. FM Tracking Adjustment  
Test point: IC101(TA2111FN) 18PIN  
Adjustment Location: L102,PVC1B  
L102----- 90MHz waveform max.  
PVC1B----- 106MHz waveform max.

## PRACTICAL SERVICE FIGURE

### < TUNER SECTION >

#### < FM SECTION >

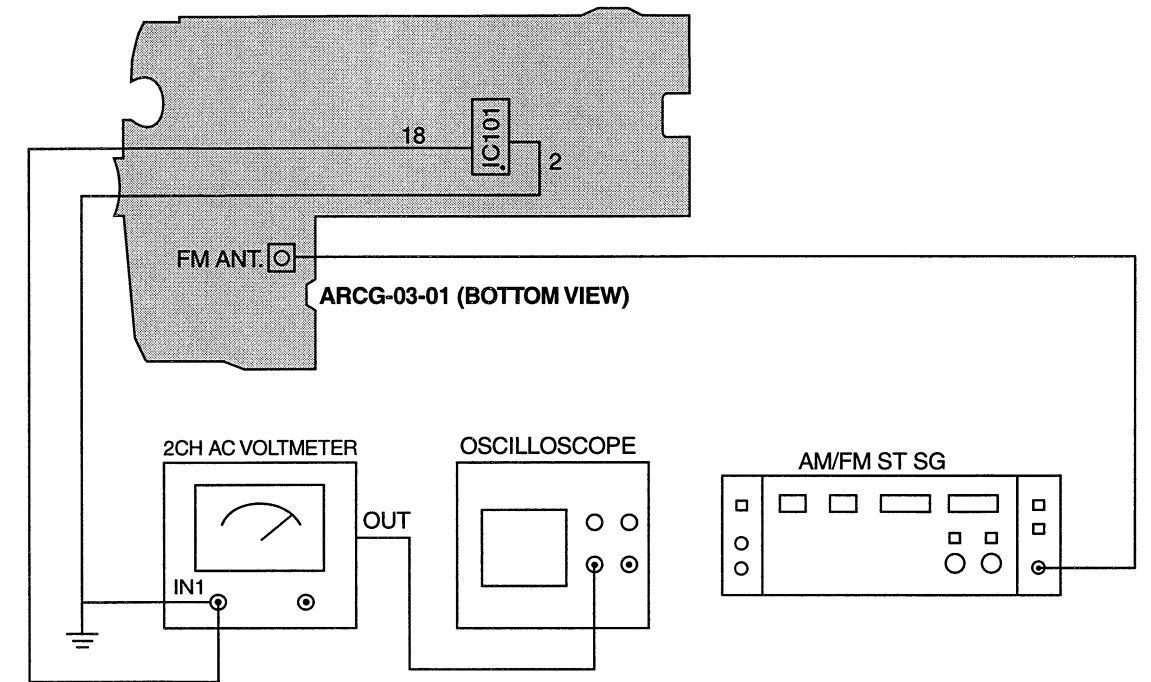
Sensitivity:	Less than 15dB (88MHz)
(THD 3%)	Less than 15dB (98MHz)
	Less than 15dB (108MHz)
Distortion:	Less than 2% (at 98.0MHz)
Intermediate frequency:	10.7MHz
Stereo separation:	More than 20dB

#### < AM SECTION >

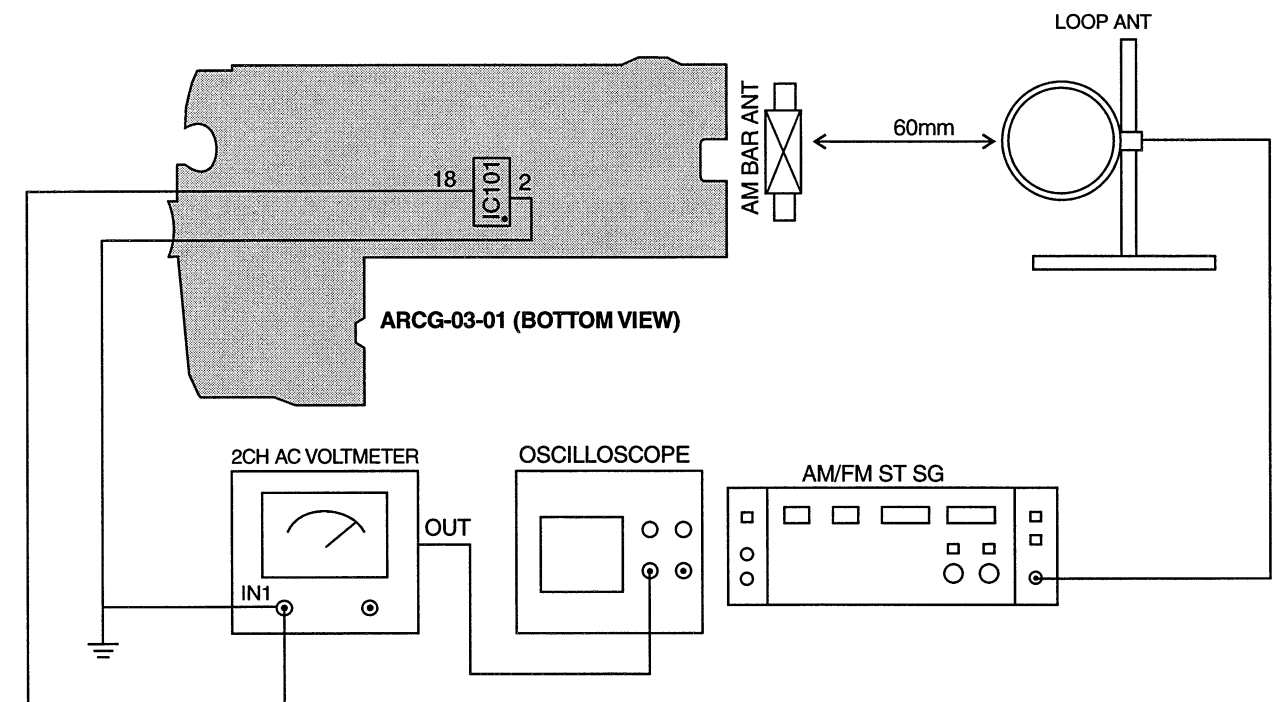
Sensitivity:	Less than 50dB (at 600kHz)
(S/N 10dB)	Less than 48dB (at 1000kHz)
	Less than 47dB (at 1400kHz)
Distortion:	Less than 3%
(Input 74dB)	
Intermediate frequency:	455kHz

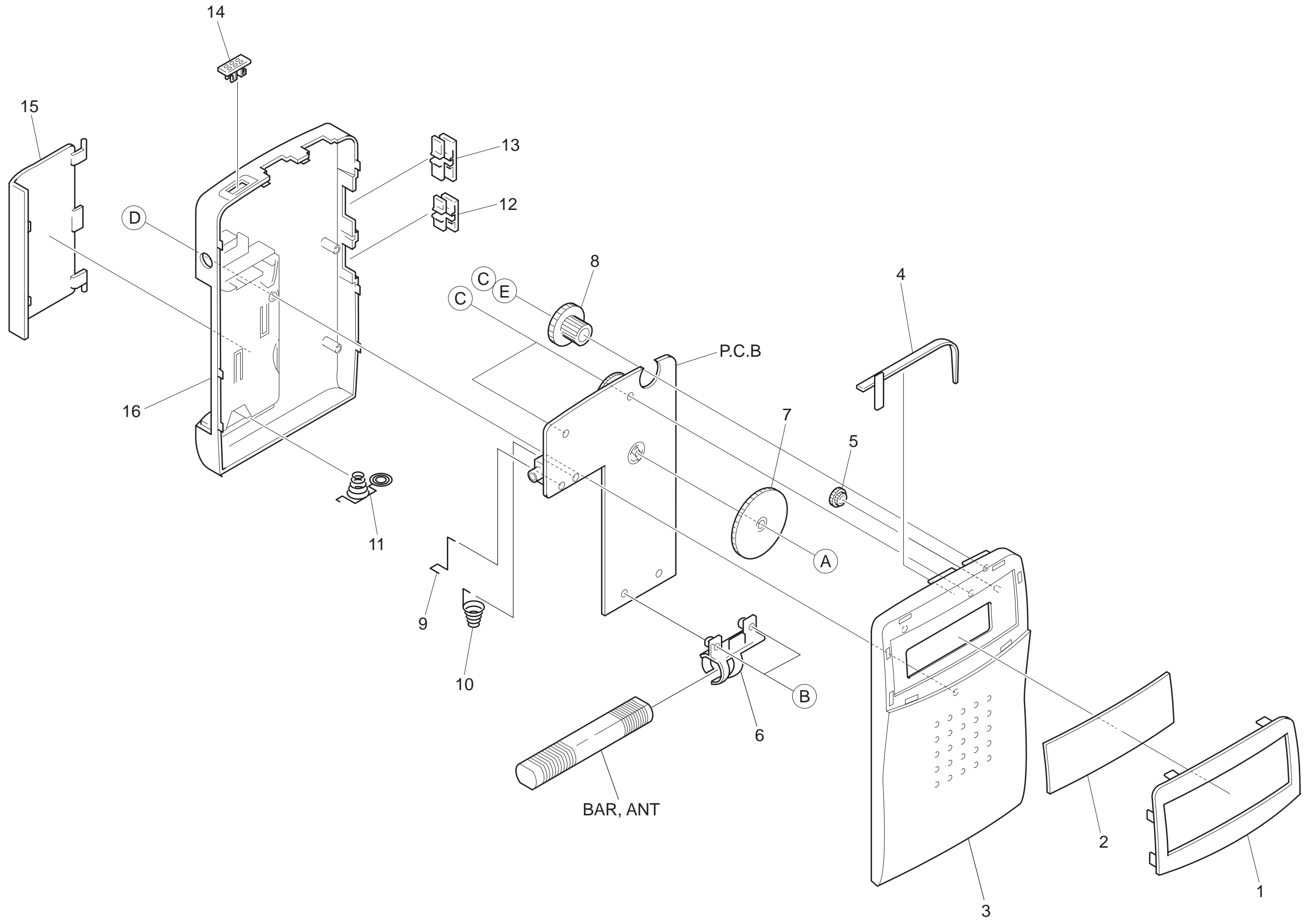
## EQUIPMENT CONNECTION DIAGRAMS

### FM SECTION



### AM SECTION





# MECHANICAL PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
 If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8A-RCG-003-010		PANEL, WINDOW
2	8A-RCG-004-010		WINDOW, DIAL
3	8A-RCG-001-010		CABI, FRONT<EXCEPT YZ1<L>>
3	8A-RCG-007-010		CABI, FRONT L<YZ1<L>>
4	8A-RCF-007-010		POINTER, DIAL
5	8A-RCF-202-010		GEAR, MIDDLE
6	8A-RCF-201-010		HLD, AM ANT
7	8A-RCF-203-010		GEAR, PVC
8	8A-RCF-008-010		KNOB, RTRY TUN<EXCEPT YZ1<L>>
8	8A-RCF-018-010		KNOB, RTRY TUN L<YZ1<L>>
9	8A-RCF-204-010		BAT-CONTACT, (+)
10	8A-RCF-205-010		BAT-CONTACT, (-)
11	8A-RCF-206-010		BAT-CONTACT, (+/-)
12	8A-RCF-011-010		KNOB, SL SP/EAR<YH1<S>, YJ1<S>>
12	8A-RCF-021-010		KNOB, SL SP/EAR L<YZ1<L>>
13	8A-RCF-010-010		KNOB, SL BAND<EXCEPT YZ1<L>>
13	8A-RCF-020-010		KNOB, SL BAND L<YZ1<L>>
14	8A-RCF-009-010		KNOB, SL POWER<EXCEPT YZ1<L>>
14	8A-RCF-019-010		KNOB, SL POWER L<YZ1<L>>
15	8A-RCF-005-010		LID, BATT<EXCEPT YZ1<L>>
15	8A-RCF-017-010		LID, BATT L<YZ1<L>>
16	8A-RCG-008-010		CABI, REAR L YZ<YZ1<L>>
16	8A-RCG-006-010		CABI, REAR YH<YH1<S>>
16	8A-RCG-005-010		CABI, REAR YJ<YJ1<S>>
16	8A-RCG-002-010		CABI, REAR YZ<YZ1<S>>
A	87-264-527-310		V+1.7-3.0 CR
B	87-351-549-310		VT2+2-4
C	87-352-529-310		VT2+1.7-4.0 BLK
D	87-B10-302-010		QT2+2-4 W/O BLACK
E	S5-017-040-300		PVC WASHER 01.7X4X0.3MM

## 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		

**アイワ株式会社** 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)  
**AIWA CO.,LTD.** 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110-8710, JAPAN TEL:03 (3827) 3111