JVC

SERVICE MANUAL

RADIO CASSETTE RECORDER

RC-W305

Area Suffix
U ----- Asia
UX ----- Middle East

SERVICE POLICY

No service part is available for this model.
Based on One to One exchange policy.

Contents

No: 28223
SEP. 2005

Safety Precautions

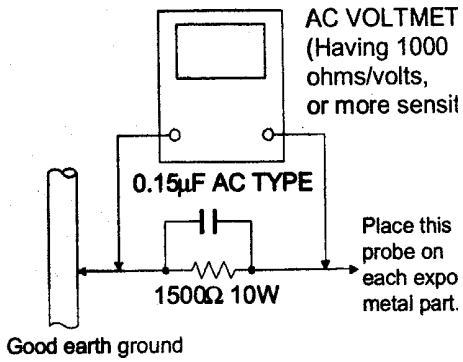
1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made ti the original design unless authorised in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personel only.

2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

3. Many eletrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtain by using replaement components rated for higher voltage, the Parts List of Service manual. Electrical components having such features ate identified by the shading on the schematics and by (**!**) on the parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service manual may create shock, fire, or other hazards.

4. The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperatures parts, moving parts and/or sharp edges for the prevention of electric shcok and fire hazard. When service is required, the original leat routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

5. Leakage current check (Electrical Shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metap Parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isloation transformer during this check.
   Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each ecposed metal parts of the cabinet, particularly and exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   Alternate check method
   Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitvity in the following manner. Connect a 1,500 ohm 10W resistor paralleled by a 0.15uF AC-type capacitor between an exposed metal part and a known good earth ground.
   Measure the AC voltage across the resistor with the AC voltmeter.
   Move the resistor connection to each exposed metal part, particularly and exposed metal part having a return path to te chassis and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. It mains voltage selector is provided, check setting for local voltage.

CAUTION **Burrs formed during moulding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.**

Preventing static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pcikup). Take care to prevent this when performing repairs.

1.1. Grounding to prevent damage by static electricity

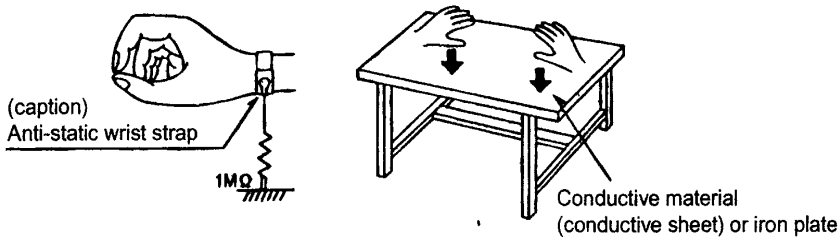
Static electricity in the work area can destroy the optical pickup in devicessuch.
Be careful to use proper grounding in the area where repairs are being performed.

1.1.1. Gound the workbench

1. Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

1.1.2. Ground yourself

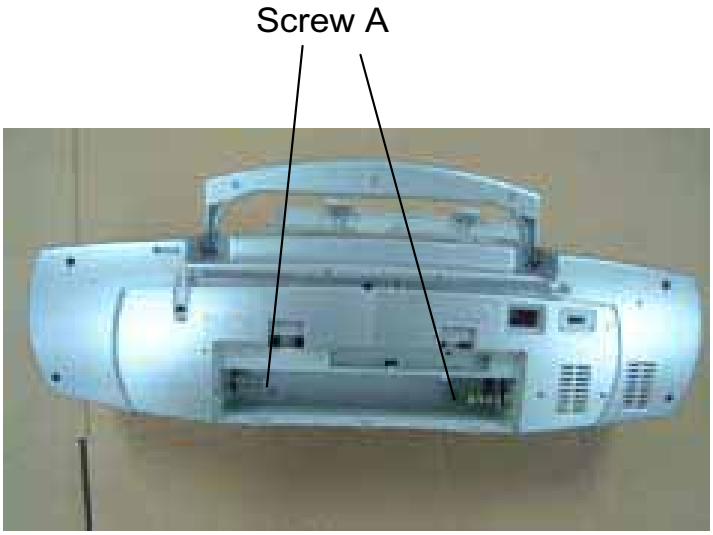
1. Use an anti-static wrist starp to release and static electricity built up in your body.



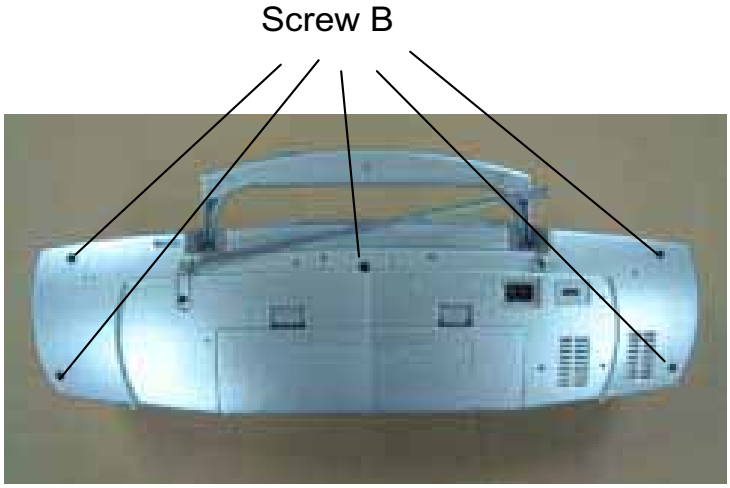
■ Disassembly Method

■ Remove the back cabinet

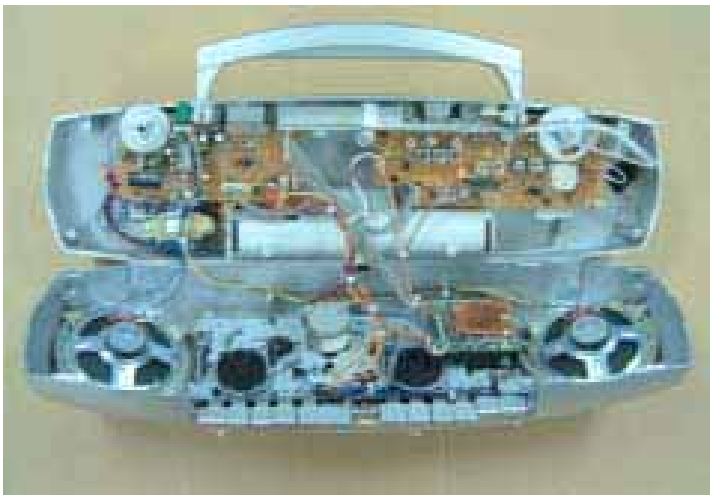
1, Open the battery cover and remove 2 screws inside it. (Screw A)



2, Remove 5 screws on back side. (Screw B)



■ Then the unit would be disassembled.



■ Adjustment Method

■ Instrument required

1 Low frequency oscillator
This oscillator should have a capacity to output 0dB to 600Ω at an oscillation frequency of 50Hz-20KHz

2 Electronic voltmeter
3 Distortion meter
4 Frequency counter
5 Wow & flutter meter
6 Test tape
TCC-112 : Tape speed and running unevenness (3KHz)
TCC-140 : Reference level (1KHz)
TCC-182A : Head angle (8KHz) , playback frequency characteristics (1KHz) and dubbing frequency characteristics (125Hz and 8KHz)

7 Blank tape
TYPE I : TDK-D60

8 Torque gauge : For play and back tension
FWD(CT-120m) , and FF/REW(CT-F)

■ General conditions

Power supply voltage ---------- **RC-S205**(U) AC 110V/220V 60Hz/50
Reference output ---------- Speaker : 0.63V/8Ω
Headphone : 0.245V/32Ω

playback characteristics
Measurement output terminal ---------- Speaker CN301
* Load resistance ---------- 8Ω

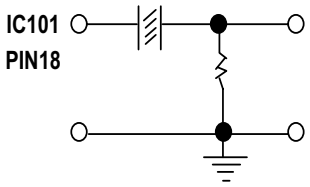
■ Tuner conditions

AM frequency ---------- 400Hz
AM modulation ---------- 30%
FM frequency ---------- 1 KHz
FM frequency deviation ---------- 22.5KHz

Reference measurement ----- 26.1mV(0.63V/8Ω)
output
Input positions ----- AM : Standard loop antenna
FM : TP2 (hot) and TP3 (GND)
Reference measurement ----- 26.1mV(0.63V/8Ω)
output
Input positions ----- AM : Standard loop antenna
FM : TP2 (hot) and TP3 (GND)

Precautions for alignment

1 Direct connect to the IF sweeper output side and 1 UF and 22 Kohm connect to the sweeper input side . Same as FIG1 .



2 The IF sweeper output level should be made as low as possible within the adjustable range .
3 Since the IF sweeper is a fixed device , there is no need to adjust this sweeper .
4 Since a ceramic oscillator is used , there is no need to perform any MIX adjustment .
5 Since a fixed coil is used , there is no need to adjust the FM tracking .
6 The input and output earth systems are separated . In case of simultaneously measuring the voltage in both of the input and output systems with an electronic voltmeter for two channels , therefore , the earth should be connected particularly carefully .
7 For connecting a dummy resistor when measuring the output , use the wire with a greater code size .
8 Whenever any mixed tape is used , use the band pass filter (DV-12V)

TUNER ADJUSTMENTS

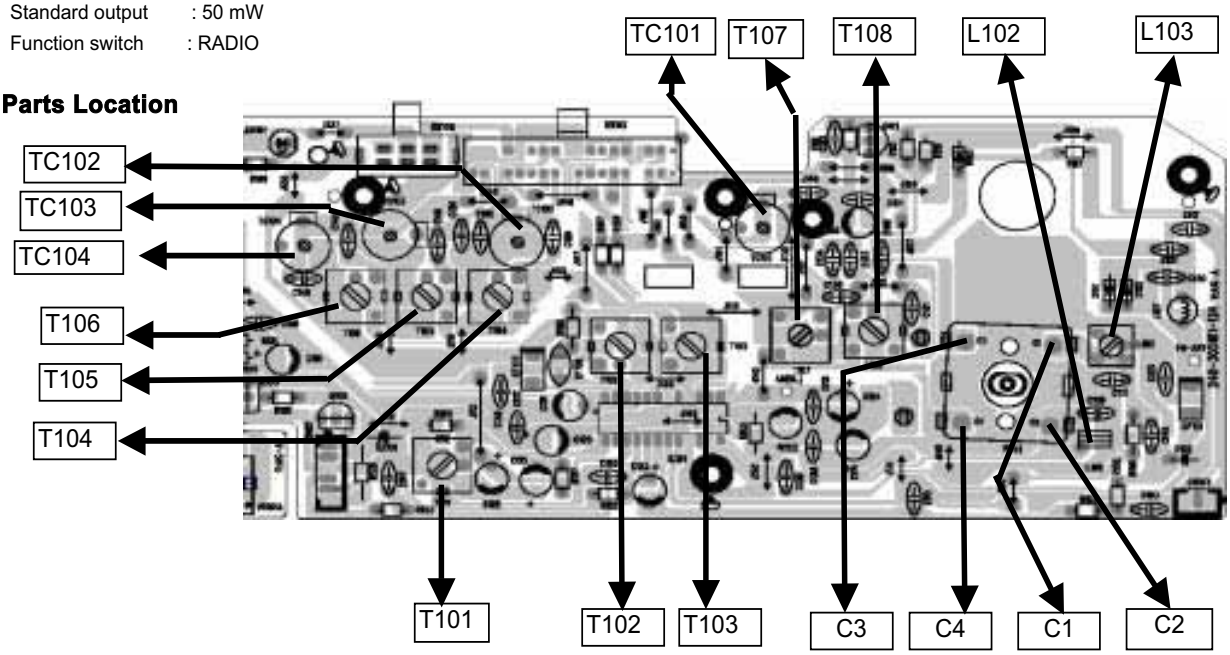
Use a plastic screw driver for adjustments.

Adjust the intermediate frequency of AM and FM to the frequency of ceramic filter.

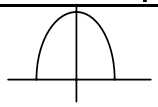
Set of unit

Supply voltage : DC 9.0V
Speaker impedance :8 ohms
Standard output : 50 mW
Function switch : RADIO

a. Parts Location



b. MW Adjustment Band switch : MW

Step	Adjusting Circuit	Connections		SG Frequency	Position of Tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	IF	Connect AM sweep generator to loop ANT.	Connect sweep generator to IC101 (18)PIN(A)	455KHz	Low	T102	
2	Tuning coverage	Connect AM SG to loop ANT	Connect VTVM to speaker terminals.	515 KHz	Low end	T104	Max.
3				1640 KHz	High end	TC102	
4	Tracking	Connect AM SG to loop ANT	Connect VTVM to speaker terminals	600 KHz	600 KHz	MW ANT COIL	Max.
5				1400 KHz	1400 KHz	PVC101-C3	

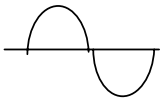
c. SW Adjustment Band switch : SW1 SW Dummy antenna : 75 ohms unbalance

Step	Adjusting Circuit	Connections		SG Frequency	Position of Tuning dial	Adiustmen	VTVM Oscilloscope
		Input	Output				
1	Tuning coverage	Connect AM SG to FM ANT & D105(-)	Connect VTVM to speaker terminals.	5.8 MHz	Low end	T105	Max.
2				15.4 MHz	High end	TC103	
3	Tracking	Connect AM SG to FM ANT &D105(-)	Connect VTVM to speaker terminals.	7.0 MHz	7.0 MHz	T107	Max.
4				12.0 MHz	16.0 MHz	TC101	

d. SW Adjustment Band switch : SW2 SW Dummy antenna : 75 ohms unbalance

Step	Adjusting Circuit	Connections		SG Frequency	Position of Tuning dial	Adiustmen	VTVM Oscilloscope
		Input	Output				
1	Tuning coverage	Connect AM SG to FM ANT & D105(-)	Connect VTVM to speaker terminals.	14.8 MHz	Low end	T106	Max.
2				22.4 MHz	High end	TC104	
3	Tracking	Connect AM SG to FM ANT &D105(-)	Connect VTVM to speaker terminals.	15.0 MHz	15.0 MHz	T108	Max.
4				22.0 MHz	22.0 MHz	PVC101-C4	

e. FM Adjustment Band switch : FM FM Dummy antenna : 75 ohms unbalance

Step	Adjusting Circuit	Connection		SG Frequency	position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	IF	Connect sweep generator to IC101(24)pin (B)	Connect sweep generator to IC101 (18)PIN(A)	10.7 MHz	Low	T101~ T103	
2	Tuning coverage	Connect FM SG to FM ANT & D105(-)	Connect VTVM to speaker terminals.	87.4 MHz	Low end	L103	Max.
3				108.4 MHz	High end	PVC101-C1	
4	Tracking	Connect FM SG to FM ANT &D105(-)	Connect VTVM to speaker terminals.	90.0 MHz	90.0 MHz	L102	Max.
5				106.0 MHz	106.0 MHz	PVC101-C2	

倆.TAPE DECK ADJUSTMENTS

1. HEAD REPLACEMENT

After replacement, demagnetize. the heads by using a degausser.
Be sure to clean the head before attempting to make any adjustments.
All wiring should be returned to the original position after work is completed.

2. HEAD AZIMUTH ADJUSTMENT

(1) Load the test tape(VTT-703, etc., 10 KHZ) for azimuth adjustment.
(2) Press the PLAY button.
(3) Use a cross-tip screwdriver to turn the screw for azimuth adjustment so that the left and right output are maximized
(4) Press the STOP button.
(5) After completion of the adjustment, use thread lock(TB-1401B) to secure the azimuth-adjustment screw.

3. MOTOR SPEED ADJUSTMENT

(1) Insert the test tape(MTT-111N, etc., 3,000 HZ)
(2) Press the PLAY button.
(3) Use a flat-tip screwdriver to turn the SVR(located inside the rear of the motor) to adjust SVR so that the frequency counter become 3,000 HZ

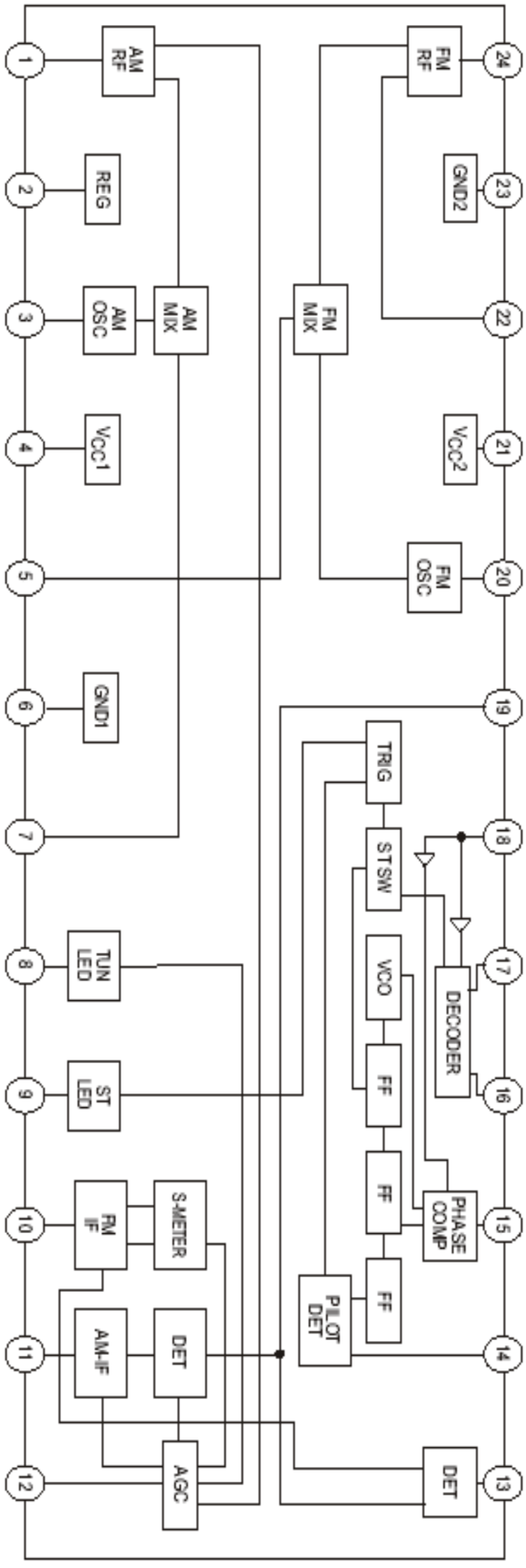
4. CHECKING THE MECHANISM TORQUSE AND TENSION

Clean the head, capstan and pinch roller making any measurement.

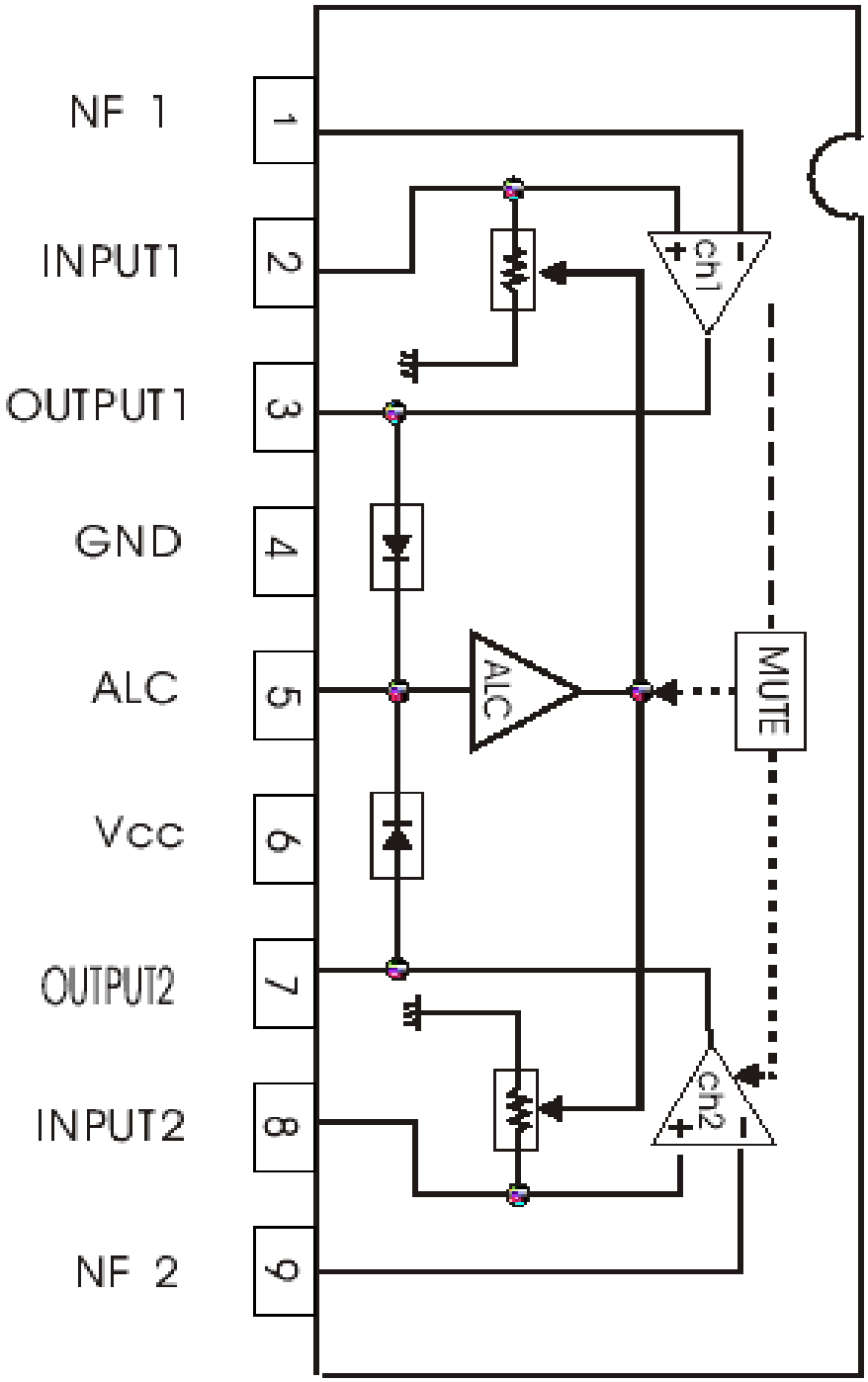
Measurement	Take-up torqe	Back tension	Tape tension
Cassette ofr measurement	PLAY:TW-211A F.FWD/REW:TW-2231	PLAY: TW-2111A	Drive-power cassette TW-2412
PLAY	30-60 gr.cm	2.0 - 4.5 gr. cm	60 gr or more
F.FWD	55-120 gr.cm	------	------
REW	55-120 gr.cm	------	------

■ Description of Major IC

LA1824 Block Diagram

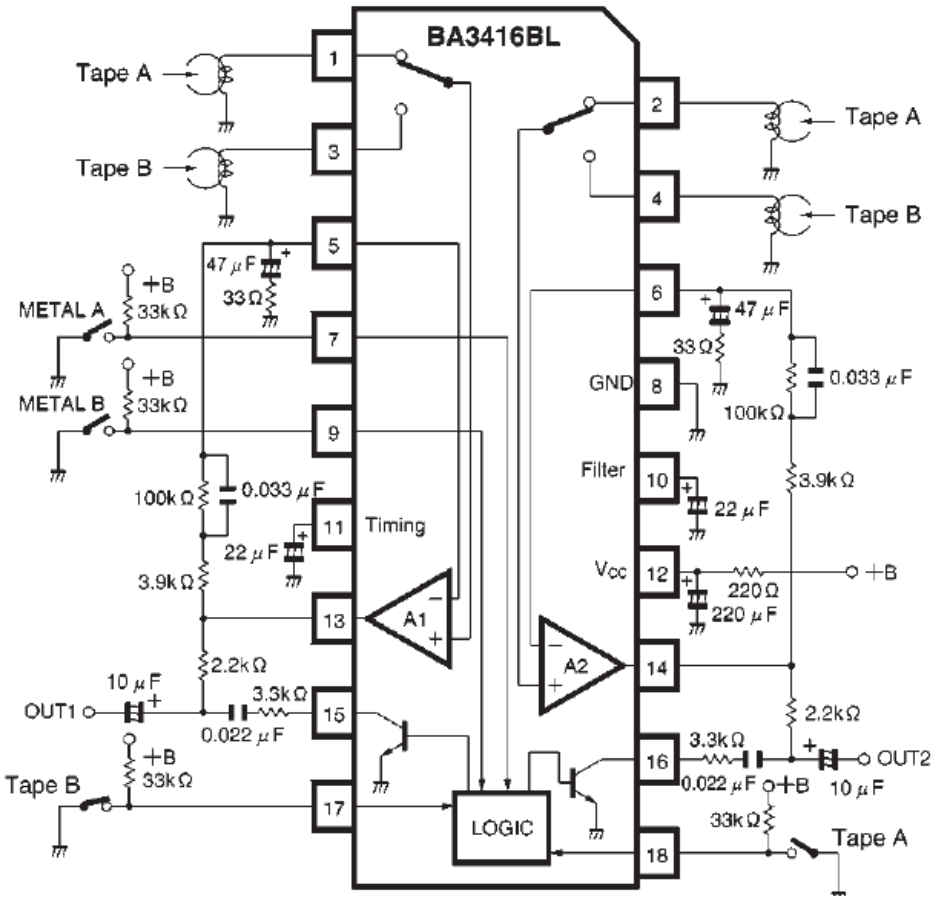


BA3308 Block Diagram



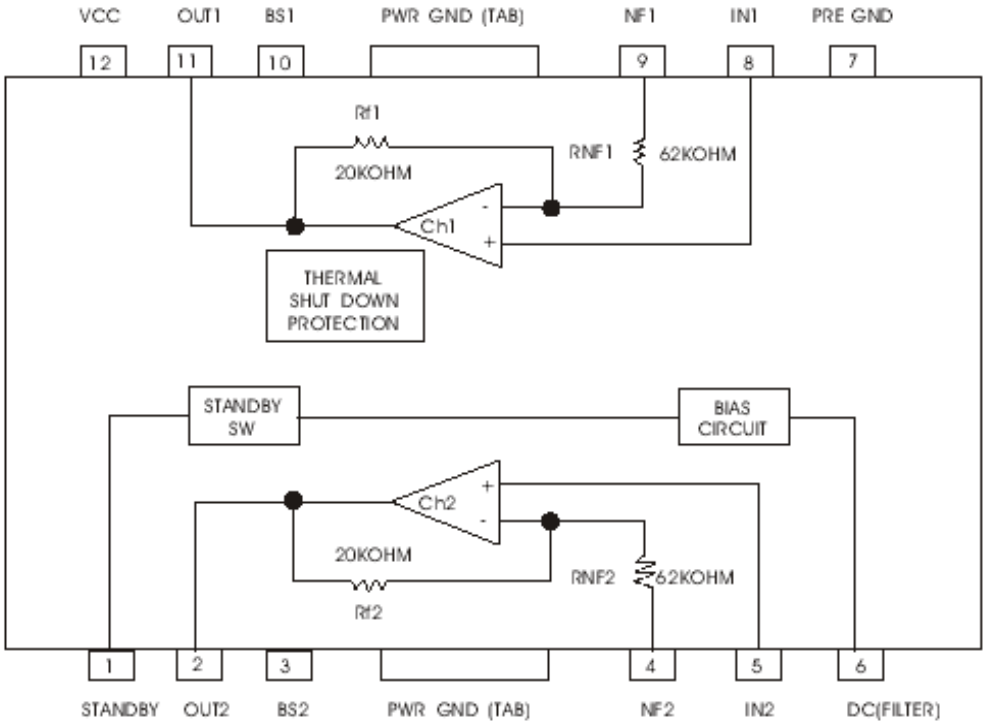
BA3416BL

Block Diagram



LA4227

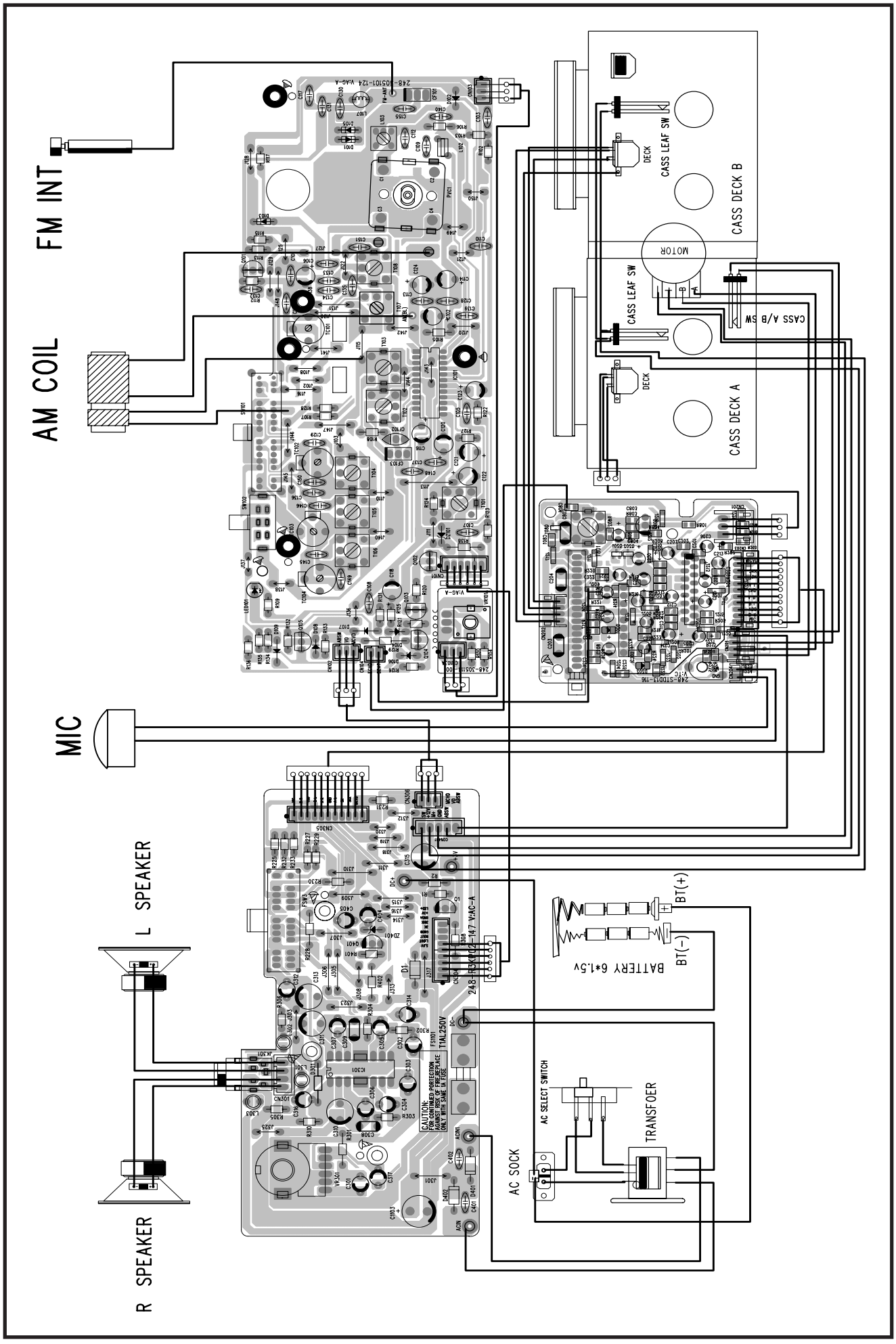
Block diagram



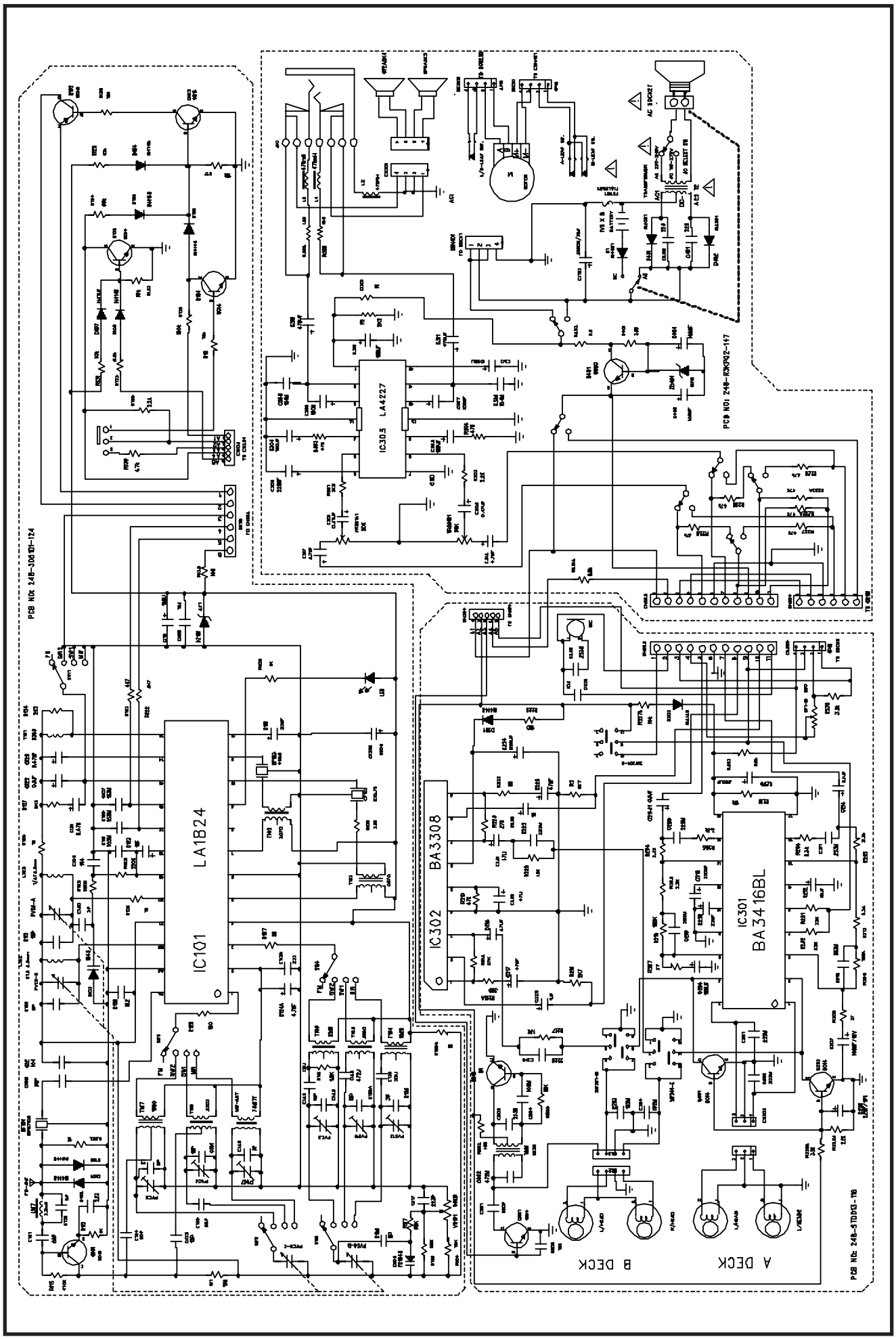
■ Voltage Charts

IC No.	IC101 LA-1824 TUNER FM																		
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DC9V	0.04	1.31	3.04	4.37	4.37	0.00	4.37	0.10	2.84	1.30	1.30	0.17	4.37	3.65	3.66	1.22	1.22	1.26	1.39
Item	21	22	23	24															
DC9V	4.34	4.34	0.00	0.29															
IC No.	IC101 LA-1824 TUNER AM																		
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DC9V	1.29	1.29	4.61	4.62	4.62	0.00	4.62	1.25	3.38	1.29	1.29	0.69	4.62	3.01	0.00	1.26	1.25	1.26	0.48
Item	21	22	23	24															
DC9V	4.62	4.62	0.00	0.00															
IC No.	IC101 LA-1824 TUNER SW1																		
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DC9V	1.29	1.29	4.59	4.61	4.61	0.00	4.61	1.23	3.35	1.29	1.29	0.55	4.61	3.00	0.00	1.26	1.25	1.26	0.40
Item	21	22	23	24															
DC9V	4.61	4.61	0.00	0.00															
IC No.	IC101 LA-1824 TUNER SW2																		
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DC9V	1.29	1.29	4.61	4.63	4.63	0.00	4.63	1.21	3.38	1.29	1.29	0.57	4.63	3.02	0.0	1.26	1.25	1.26	0.41
Item	21	22	23	24															
DC9V	4.63	4.63	0.00	0.00															
IC No.	IC303 LA-4227 TUNER																		
Item	1	2	3	4	5	6	7	8	9	10	11	12							
DC9V	10.03	5.12	9.20	1.19	0.00	10.03	0.00	0.00	1.19	9.18	5.13	10.16							
IC No.	IC303 LA-4227 CASS PLAY																		
Item	1	2	3	4	5	6	7	8	9	10	11	12							
DC9V	9.30	4.77	8.47	1.20	0.00	9.32	0.00	0.00	1.20	8.49	4.70	9.32							
IC No.	IC301 BA3416 A CASS PLAY																		
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
DC9V	0.99	0.00	0.00	0.00	2.16	2.14	5.50	1.87	5.13	1.07	0.00	1.31	0.59	0.59	0.00	0.00	0.00	0.00	
IC No.	IC301 BA3416 B CASS PLAY																		
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
DC9V	0.06	0.00	0.00	0.00	2.16	2.15	5.50	0.67	5.14	1.07	0.00	1.31	0.59	0.59	0.00	0.00	0.00	0.00	
IC No.	IC302 BA3308 CASS PLAY																		
Item	1	2	3	4	5	6	7	8	9										
DC9V	0.95	0.00	0.92	0.46	0.00	0.00	0.90	0.00	0.89										
IC No.	IC302 BA3308 CASS REC																		
Item	1	2	3	4	5	6	7	8	9										
DC9V	1.80	0.00	1.80	5.06	0.00	0.00	1.79	0.00	1.78										
Transistor No.	Q401 (CASS PLAY)			Q401 (TUNER)															
Item	E	B	C	E	B	C													
Votage(v)	6.10	6.80	9.35	6.10	6.80	9.05													

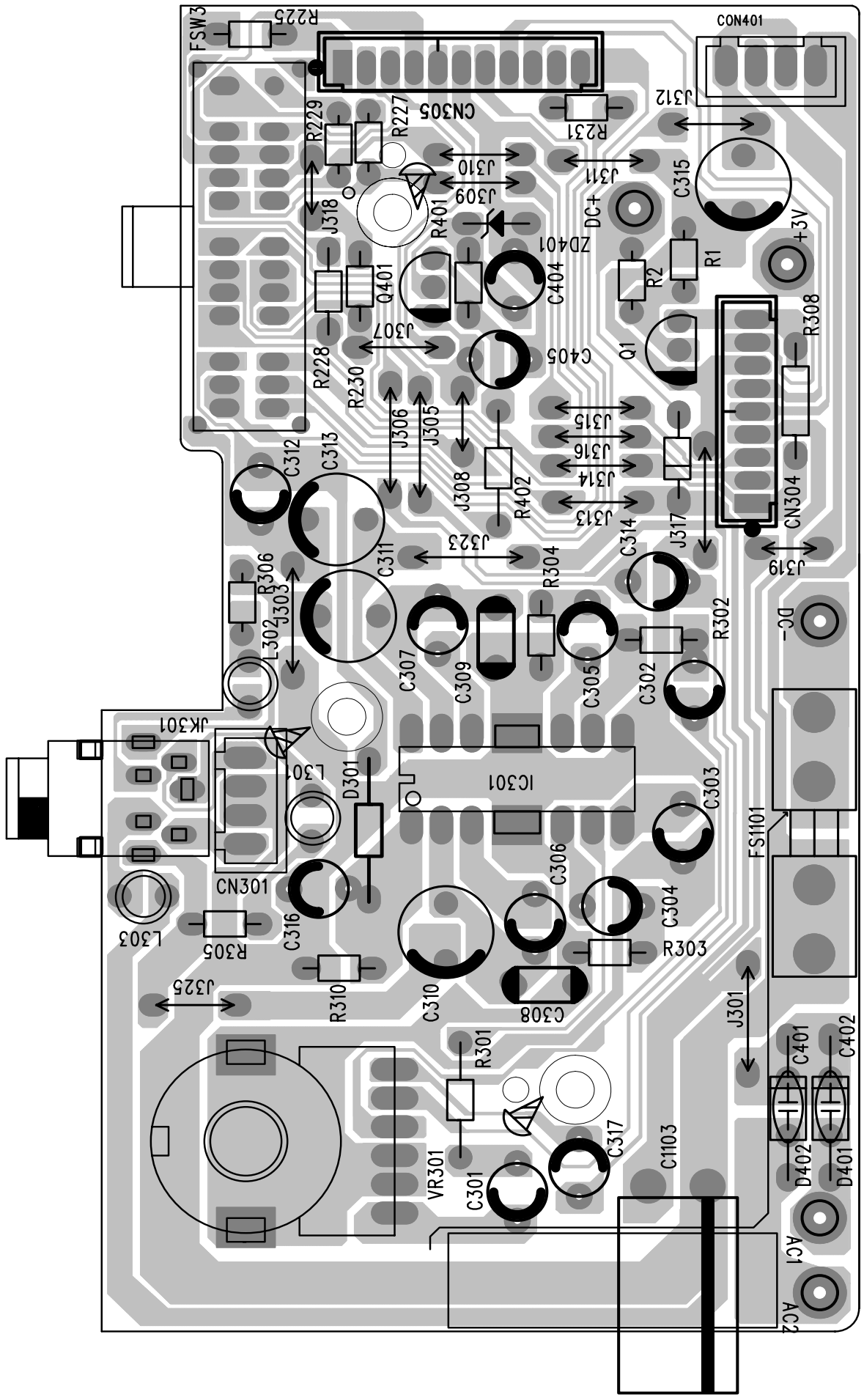
■ Wiring Connections Diagram

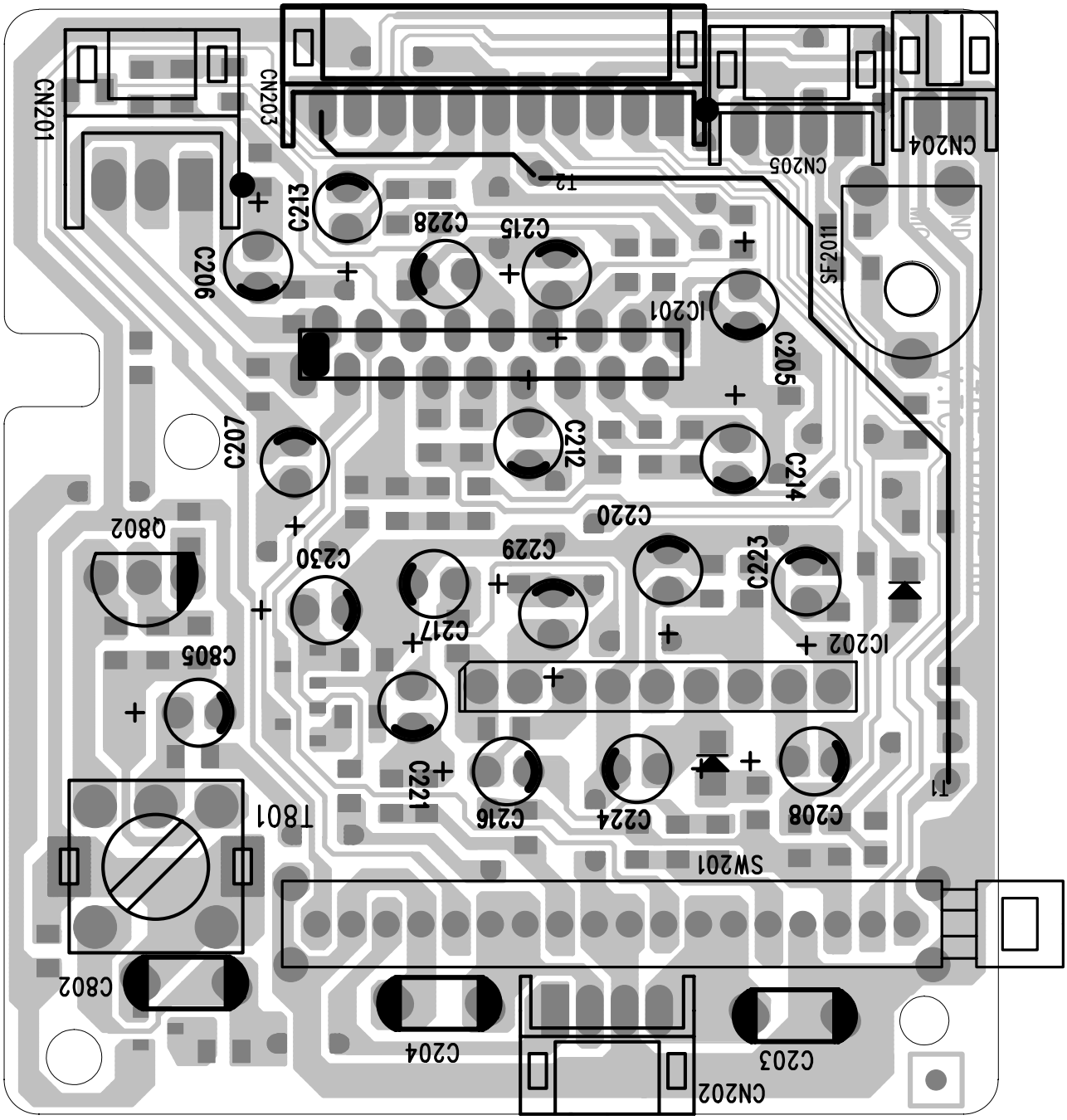


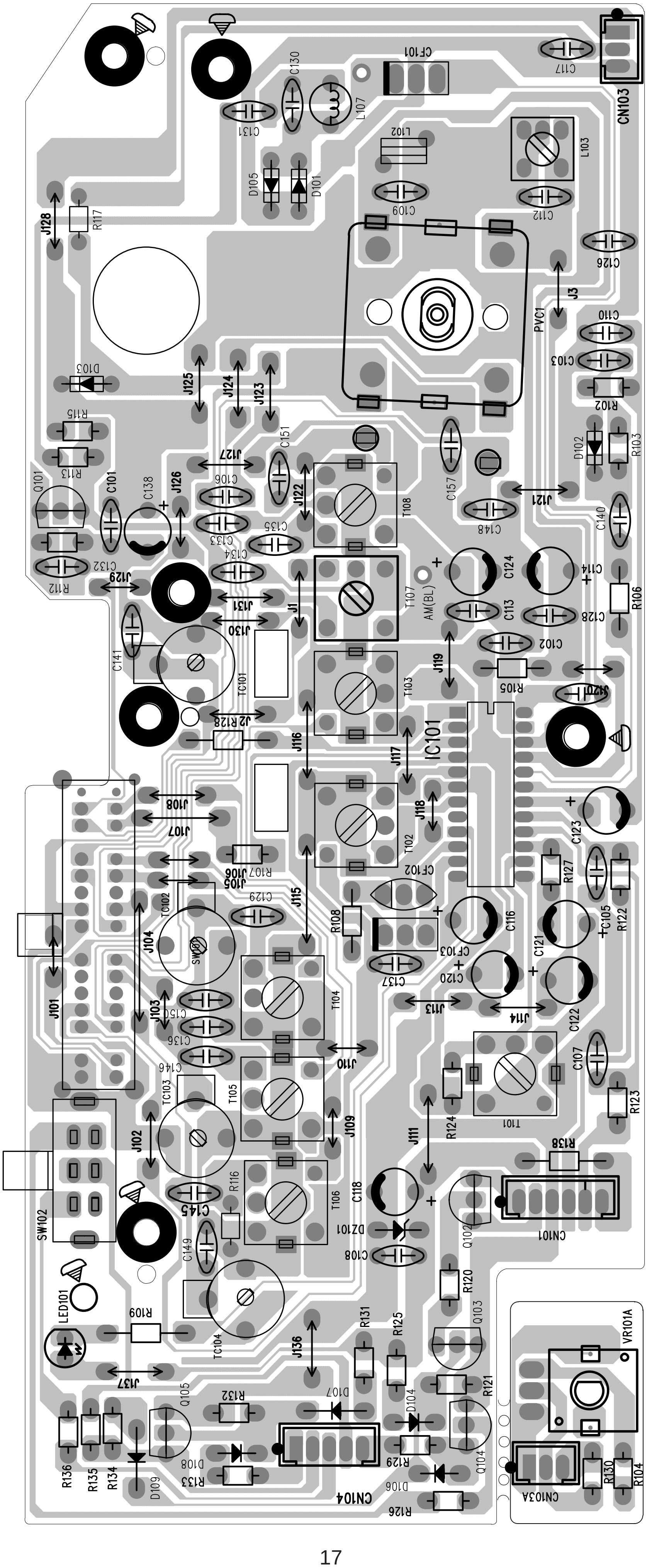
■ Schematic Diagram



■ Printed Circuit Board




CN201
CN203
CN204
CN205
T2
T1
SF2011
C213
C228
C215
C206
IC201
C205
C207
C212
C214
Q802
C230
C229
C220
C223
C217
IC202
C805
C221
C216
C224
C208
T801
SW201
C802
C204
C203
CN202


CF101
C117
CN103
C130
C131
L107
L102
L103
D105
D101
C109
C112
R117
J128
C126
J3
PVC1
C110
C103
R102
D103
J125
J124
J123
R115
R113
Q101
C101
C138
J126
J127
C106
C151
J122
T108
D102
R103
C157
J121
C140
C133
C135
C134
C132
R112
J129
C148
C124
C114
T107
AM(BL)
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J1
C113
C128
R106
J130
C141
TC101
C102
J119
R105
J120
T103
J2 R128
J116
IC101
J117
J108
J118
J107
T102
C123
R107
J106
J105
CF102
R127
R122
C129
J115
R108
C116
C121
C105
TC102
SW101
J104
CF103
C137
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J101
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C150
C136
T104
J113
J114
C122
C146
J110
C107
TC103
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R124
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C108
Q102
R120
LED101
R109
TC104
Q103
R131
R125
J136
J137
Q105
R132
D107
D104
R121
VR101A
R136
R135
R134
D109
D108
R133
CN104
R129
Q104
D106
R126
CN103A
R130
R104

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JVC Asia Pte Ltd
101 Thomson Road, #28-04 United Squares, Singapore 307591

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