

JVC

SERVICE MANUAL

PORTABLE CD SYSTEM

RC-BX33SL



Area Suffix
UX---Saudi and relative
U---Except ux

IMPORTANT

PLEASE TAKE NOTE BEFORE ORDERING

1. Order all service parts through JVC Asia Pte Ltd.- Customer Satisfaction Dept.
2. Two orders are available: Initial order and last order (Before End Of Line)
3. Minimum order quantity: 100pcs
4. Delivery term: Minimum 2 months upon confirmation of order.

Contents

| | |
|-------------------------------------|------|
| Safety precautions | 1-2 |
| Preventing static electricity | 1-3 |
| Disassembly method | 1-4 |
| Adjustment method..... | 1-7 |
| Description of major IC | 1-13 |

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 to 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 personnel 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 manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical 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 obtained by using replacement components rated for higher voltage, the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by () on the Parts List in the Service Manual. The use of a substitute replacement 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 temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead 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 metal 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.

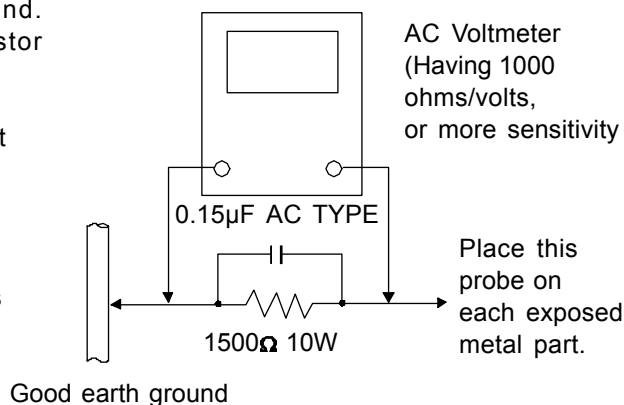
Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed 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 sensitivity in the following manner. Connect a 1,500 Ω 10W resistor paralleled by a 0.15 μ F 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 any exposed metal part having a return path to the 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. If 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 pickup). Take care to prevent this when performing repairs.

1.1. Grounding to prevent damage by static electricity

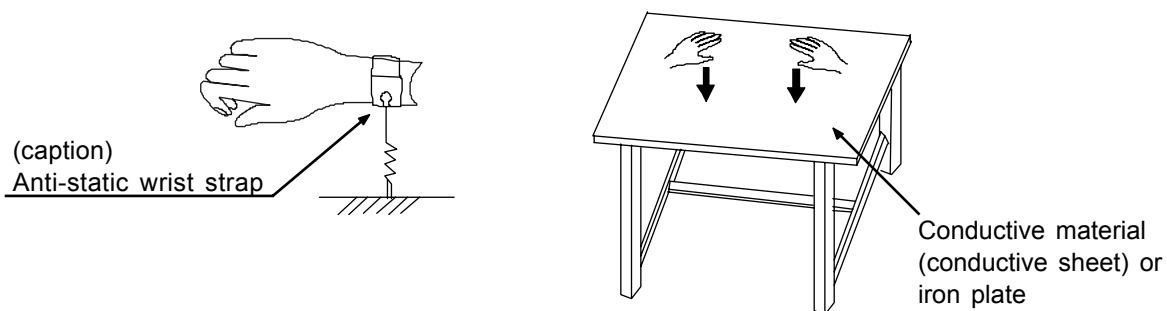
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players. Be careful to use proper grounding in the area where repairs are being performed.

1.1.1. Ground 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 strap to release any static electricity built up in your body.



1.1.3. Handling the optical pickup

1. In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
2. Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

1.2. Handling the traverse unit (optical pickup)

1. Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.
2. Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.
3. Handle the flexible cable carefully as it may break when subjected to strong force.
4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it.

Disassembly method

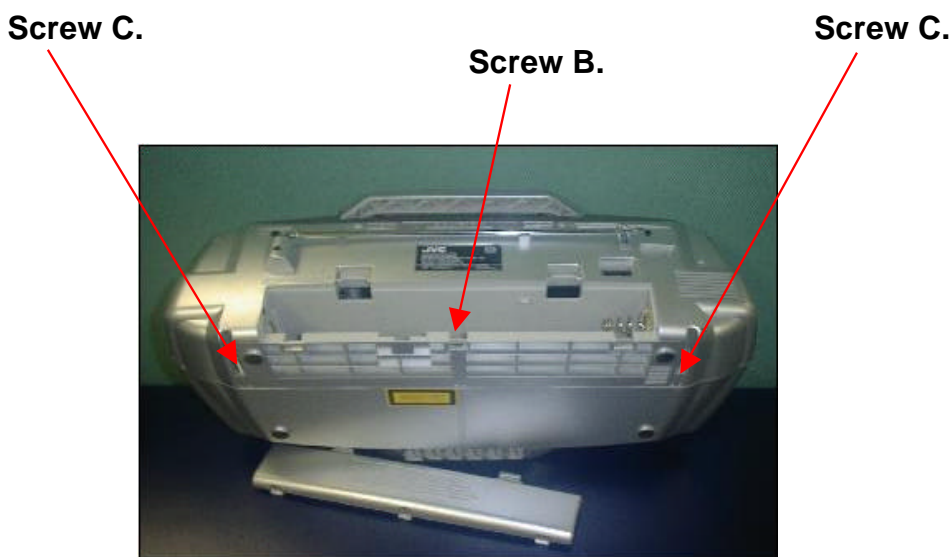
■ Removing the rear panel

1. From behind the body, remove the Five screws **A** retaining the rear panel.
2. Open the Battery door, then remove One Screw **B** retaining in the battery compartment bottom side.
- 3 Then remove the Two screws **C** retaining the bottom of rear panel.
- 4 Take out the rear panel from the body. And disconnect the CN302 on the main board right side.

Note:

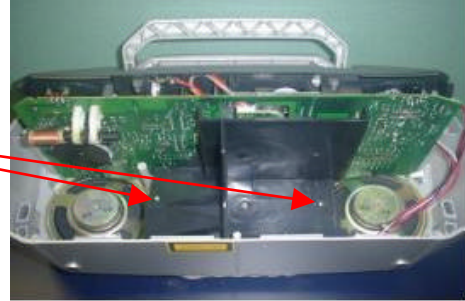
Be careful of the FM antenna white wire, it is connection with the tuner PCB up side. You can directly take out from the tuner PCB.

When you re-assembly the product, plug the FM antenna white wire into the Tuner PCB'S "FM ANT" position.

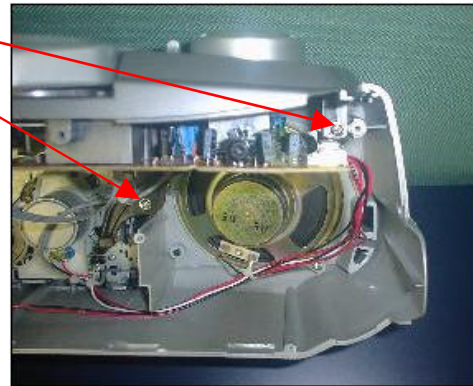


■ Removing the Main Board PCB (1)

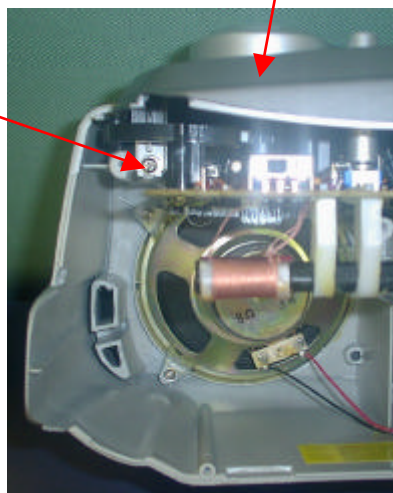
1. Open & remove the rear panel
2. Remove the Two Screws **D** on the Black Basket, then take out the black basket on the front panel.

Screws D.

3. Remove the Two Screws **E** retaining on the left of front panel.

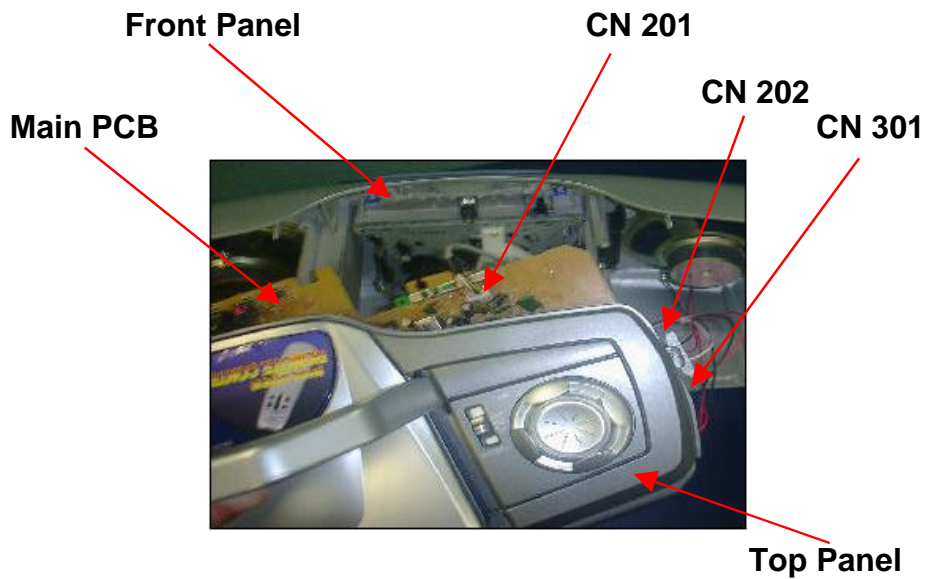
Screws E.

4. Remove the One Screw **F** retaining on the right of front panel.

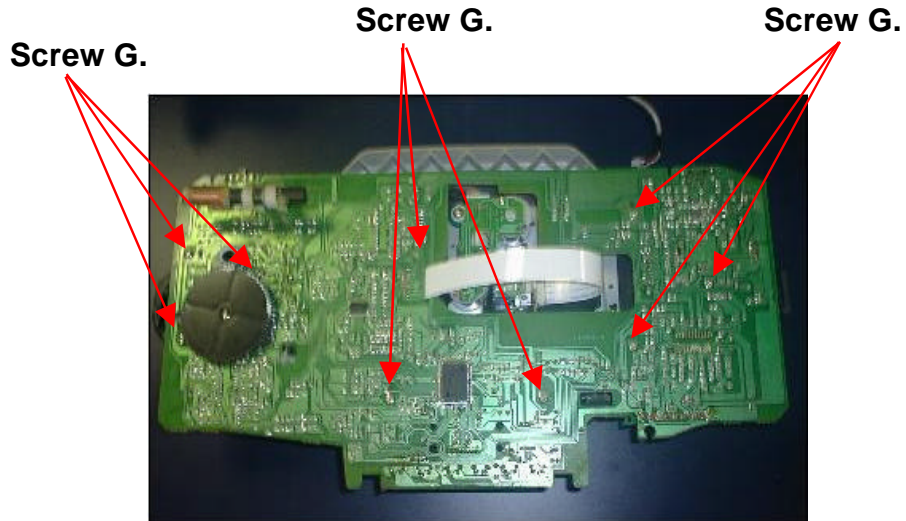
Top panel**Screw F.**

■ Removing the Main Board PCB (2)

- 5 Disconnect the CN201, CN202 & C301 on the top of the Main Board PCB.



- 6 Then, take out the top panel from the front panel.
- 7 Remove the nine screws **G** from the Main Board PCB.



- 8 Take out the Main Board PCB from the front panel, & disconnect the CN901 & CN903 on the Main Board PCB.

Adjustment method

■ Measurement instruments required for adjustment

- 1 Low frequency oscillator
This oscillator should have a capacity to output 0dB to 600 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)

■ Measurement conditions

Power supply voltage ----- AC120V (60Hz)
Reference output ----- Speaker : 0.63V/8
Headphone : 0.245V/32

Input for confirming recording and ----- CD : -10dB
playback characteristics
Measurement output terminal ----- Speaker CN301
* Load resistance ----- 8

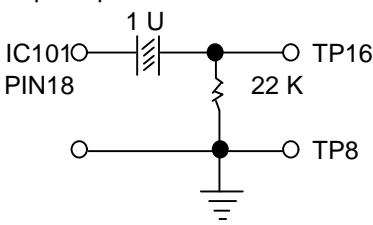
■ Radio Input signal

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

● Tuner section

Reference measurement ----- 26.1mV(0.63/8)
output
Input positions ----- AM : Standard loop antenna
FM : TP1 (hot) and TP2 (GND)

Precautions for measurement

- 1 Direct connect to the IF sweeper output side and 1UF 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 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 adjustment 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 and 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).

TAPE DECK ADJUSTMENTS

1 HEAD AZIMUTH ADJUSTMET

- (1) Load the test tape TCC-182A 8KHz for azimuth adjustment.
- (2) Press the PLAY button.
Use a cross-tip screwdriver to turn the screw for azimuth
- (3) 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.

2 AC BIAS FREQUENCY ADJUSTMENTS

- (1) Connect frequency counter to CN201(BS);
- (2) R/P swith in recording state;
- (3) Adjusting T201 use a plastic screwdriver, AC bias frepency;62+-1KHZ..

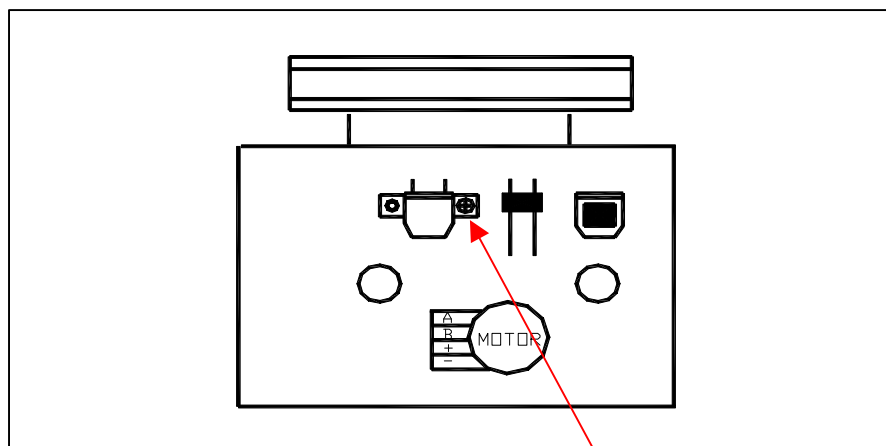
3 TAPE SPEED ADJUSTMENT

- (1) Insert the test tape(MTT-111N,3,000 HZ)
- (2) Press the PLAY button.
- (3) Use a flat-tip screwdriver to turn the MOTOR VR

adjust MOTOR VR so that the frequency counter become 3,000Hz

CASSETTE MECHANISM SECTION

CASS DECK



P/R HEAD

HEAD AZIMUTH ADJUSTING SCREW

■ Tape recorder section

| Items | Measurement conditions | Measurement method | Standard Values | Adjusting positions |
|----------------------------|--|--|-------------------------------------|------------------------------------|
| Confirmation of head angle | Test tape :TCC-182A(8KHz) Measurement output terminal :Speaker terminal Sparker R (Load resistance:8) :Headphone terminal | 1 Playback the test tape TCC-182A (8KHz) 2 With the recording & playback mechanism, adjust the head azimuth screw so that the left and right output levers become maximum, After adjustment, lock the head azimuth at least by half turn. | Maximum output | Adjust the head azimuth screw only |
| Confirmation of tape speed | Test tape :TCC-112(3KHz) Measurement output terminal :Headphone terminal | Adjust VR401 so that the frequency counter reading becomes 3,010Hz +/-15Hz when playing back the test tape TCC-112 (3KHz) with playback and recording mechanism after ending forward winding of the tape. | Tape speed of deck :3,010Hz +/-15Hz | MOTOR VR |

■ Reference Values for Confirmation Items

| ITEMS | Measurement conditions | Measurement method | Standard Values | Adjusting] positions |
|---------------|---|--|----------------------|----------------------|
| Wow & flutter | Test tape :TCC-112(3KHz) Measurement output terminal :Headphone terminal | When the test tape TCC-112 (3KHz) has been played back with the recording and playback mechanism at the beginning of forward winding, the frequency counter reading of wow & flutter should be 0.25% or less (WRMS). | 0.25% or less (WRMS) | |

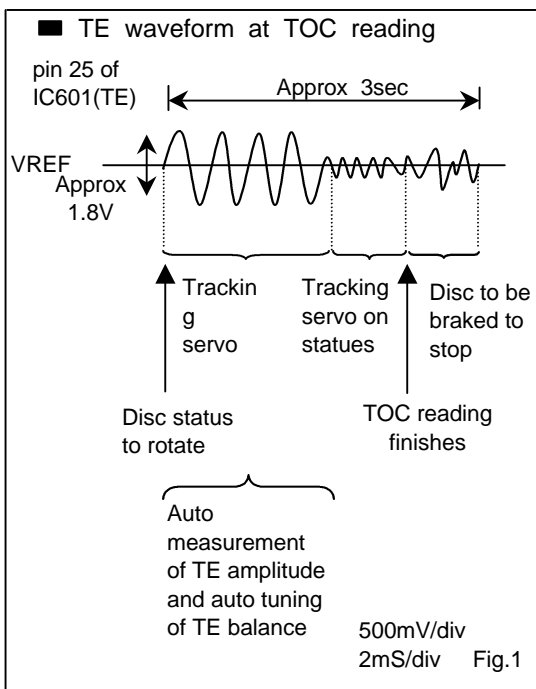
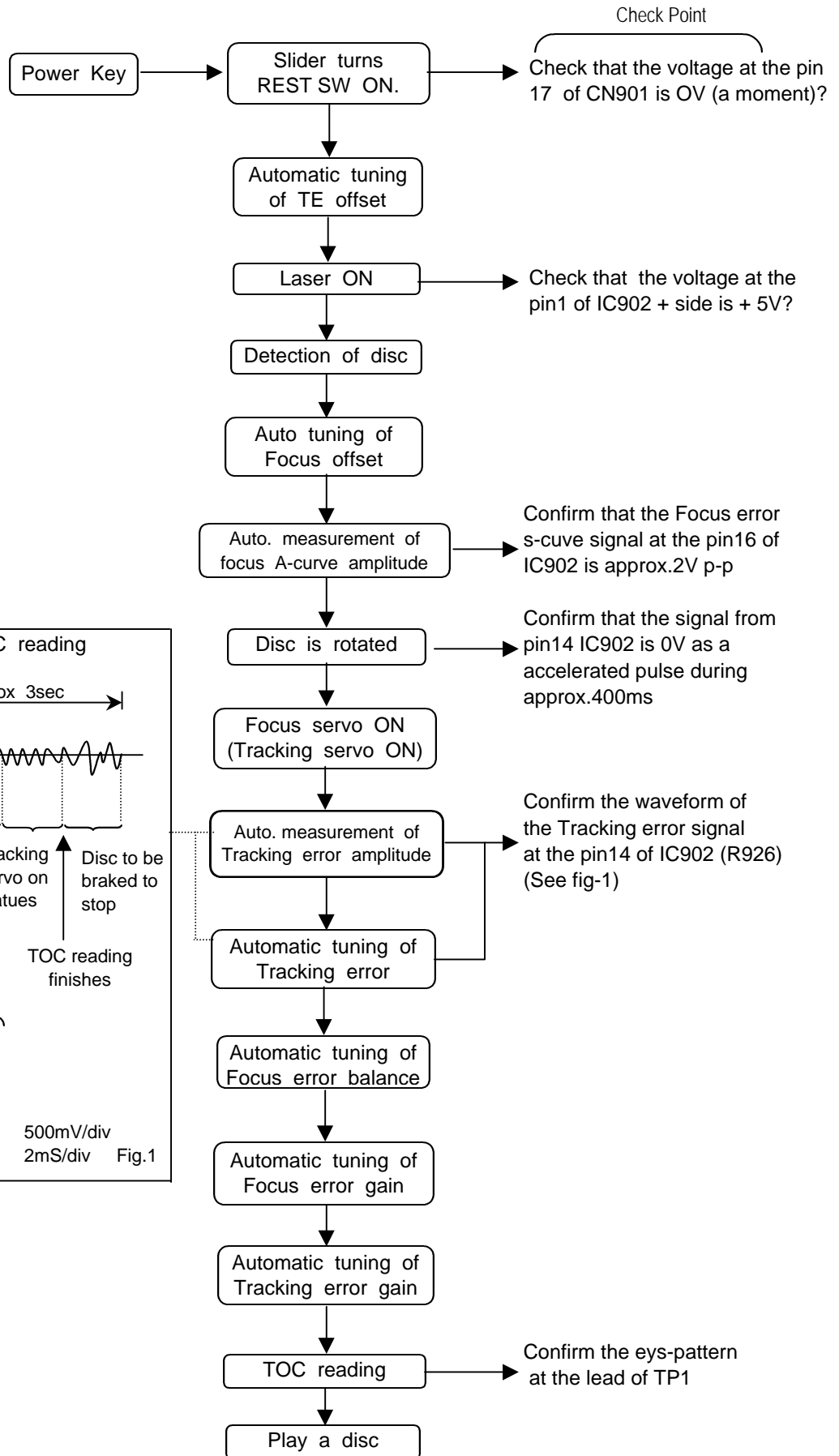
■ Electrical Performance

| ITEMS | Measurement conditions | Measurement method | Standard Values | Adjusting positions |
|--|--|--|--|---------------------|
| Adjustment of recording bias current (Reference Value) | <ul style="list-style-type: none"> * Mode: PB mode * Recording mode * Test tape: TDK-D60 * Measurement output terminal :Both recording and headphone terminals | <ol style="list-style-type: none"> 1 With the recording and playback mechanism, load the test tapes TDK-D60, and set the mechanism to the recording and pausing condition in advance . 2 After connecting 100ohms in series to the recorder head, measure the bias current with a valve voltmeter at both of the terminals | TDK-D60 4.5 A +/-0.5 A | |
| Adjustment of recording and playback frequency characteristics | <ul style="list-style-type: none"> * Reference frequency :1KHz and 8KHz (REF.:- 10dB) * Test tape: TDK-D60 * Measurement input terminal: OSC IN | <ol style="list-style-type: none"> 1 with the recording and playback mechanism, load the test tapes (TDK-D60) and set the mechanism to the recording and pausing condition in advance. 2 While repetitively inputting the reference frequency signal of 1KHz and 8KHz from OSC IN, record and playback the tape. 3 While receding and playback the test tape Lch and Rch so that the output deviation between 1KHz and 8KHz becomes -1dB +/-2dB | Output deviation between 1KHz and 8KHz :-1dB +/-2dB | |

■ Reference Values for Electrical Function Confirmation Items

| Items | Measurement conditions | Measurement method | Standard Values | Adjusting positions |
|--------------------------|--|---|------------------|---------------------|
| Recording bias frequency | <ul style="list-style-type: none"> * Playback * Test tape: TDK-D60 * Measurement terminal : BIAS TP on P.C. board | <ol style="list-style-type: none"> 1 While changing over to and form BIAS 1 and 2, confirm that the frequency is changed 2 With the recording and playback mechanism, load the test tape. (TDK-D60) , and set the mechanism to the recording and pausing condition in advance. 3 Confirm that the BIAS TP frequency on the P.C. board is 62KHz +/-6KHz | 62KHz +/-6KHz | T201 |

Flow of functional operation until TOC read



TUNER ADJUSTMENTS

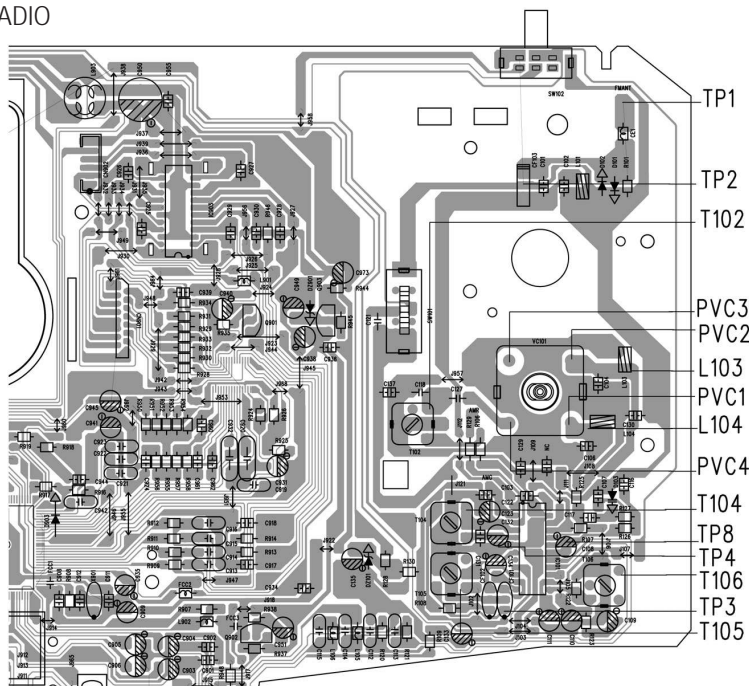
use a plastic screw driver for adjustments.

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

Supply voltage : DC 12.0 V

Speaker impedance : 8 OHMS

Function switch : RADIO



a. AM Adjustment BAND SELECT SWITCH : AM

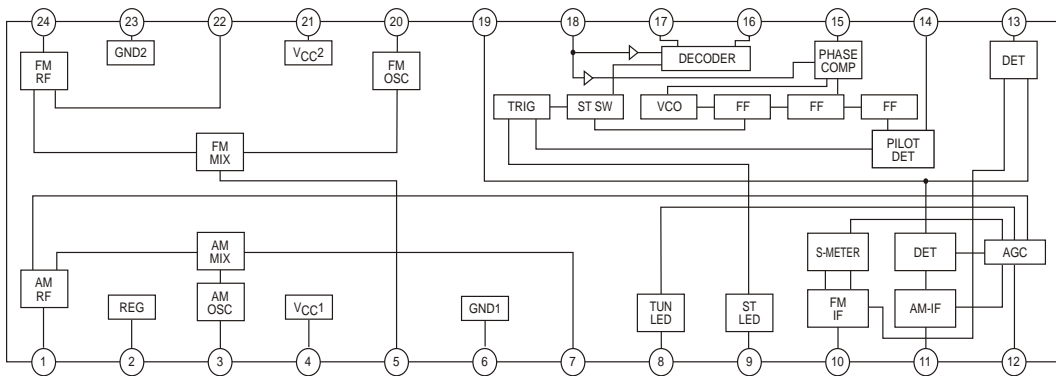
| ste | Adjusting circuit | Tuning Frequency | Input Connection | | Output Connection | | Adjustment parts | Oscilloscope |
|-----|----------------------|------------------|-----------------------|-------------|-------------------|------------------|------------------|----------------------|
| | | | Measurement | input | Measurement | output | | |
| 1 | IF (455 / 465KHz) | 1000 KHz | AM Sweep Generior | Loop ANT | Oscilloscope | TP4(H) TP8(E) | T105 | (Non-adjustment) |
| 2 | Tuning | 520KHz | -- | -- | Oscilloscope | TP4(H) TP8(E) | T102 | |
| 3 | Coverage | 1640/1740 KHz | | | | | PVC4 | |
| 4 | | 600 KHz | AM Signal Generior | Loop ANT | Oscilloscope | TP4(H) TP8(E) | MW COIL | Maximum |
| 5 | | 1400 KHz | | | | | PVC3 | |

b. FM Adjustment BAND SELECT SWITCH : FM FM Dummy Antenna : 75 ohm unbalance

| ste | Adjusting circuit | Tuning Frequency | Input Connection | | Output Connection | | Adjustment parts | Oscilloscope |
|-----|-------------------|------------------|------------------------|-----------------------------|-------------------|------------------|------------------|--|
| | | | Measurement | input | Measurement | output | | |
| 1 | IF (10.7 MHz) | 98.0 MHz | FM Sweep Generator | TP4(H) TP3(E) | Oscilloscope | TP4(H) TP8(E) | T104 T106 | (Non-adjustment) |
| 2 | Tuning | 87.4 MHz | -- | FM ANT. | Oscilloscope | TP4(H) TP8(E) | L104 | |
| 3 | Coverage | 108.3 MHz | | | | | PVC2 | |
| 4 | Tracking | 90.0 MHz | FM Signal Generator | FM ANT TP1 (E) TP2(H) | Oscilloscope | TP4(H) TP8(E) | L103 | Confirm with being near by effective sensitivity |
| 5 | | 106.0 MHz | | | | | PVC1 | |

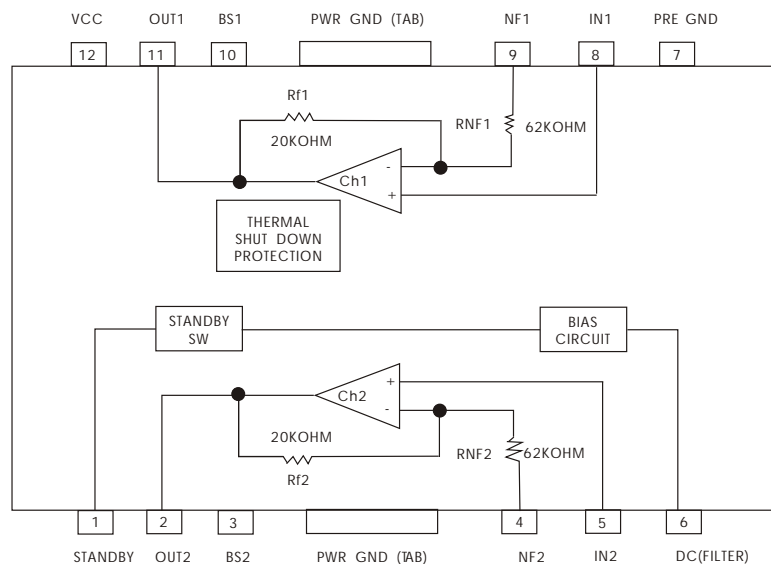
Major ICs Description

LA1824



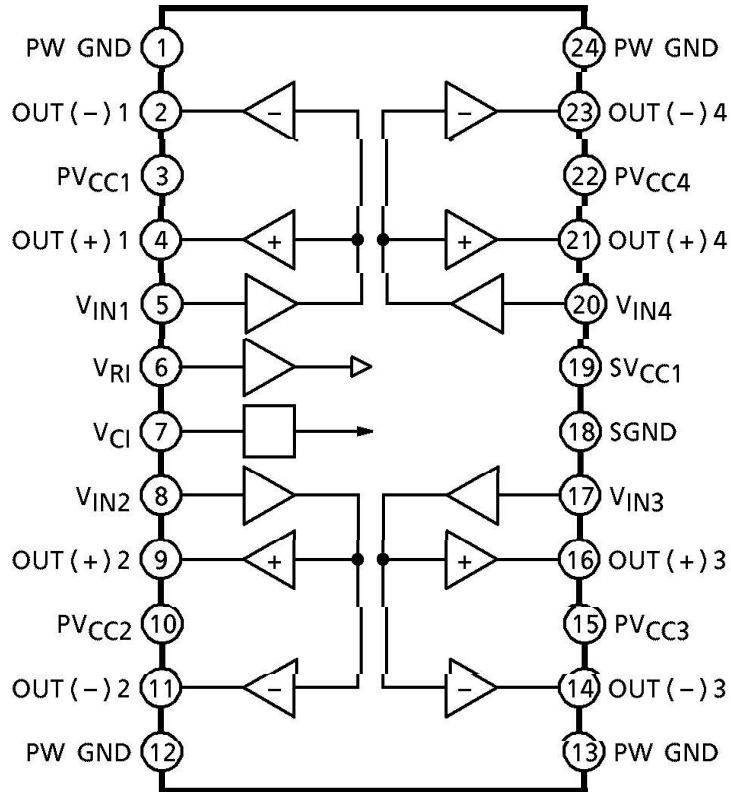
| Pin No. | Function | Pin No. | Function | Pin No. | Function |
|---------|-------------------|---------|-----------------------|---------|-----------------------|
| 1 | AM-RF Input | 9 | AM-IF output | 17 | R output |
| 2 | Reg | 10 | FM-IF Input | 18 | MPX Input |
| 3 | AM-OSC | 11 | AM-IF input | 19 | AM/FM detector output |
| 4 | VCC1 | 12 | AM-AGC | 20 | FM-OSC |
| 5 | FM-MIX output | 13 | FM-DET | 21 | VCC2 |
| 6 | GND1 | 14 | Pilot detector filter | 22 | FM-RF output |
| 7 | AM-MIX output | 15 | AM/FM Switch | 23 | GND2 |
| 8 | Tuning In dicator | 16 | L output | 24 | FM-RF Input |

LA4227



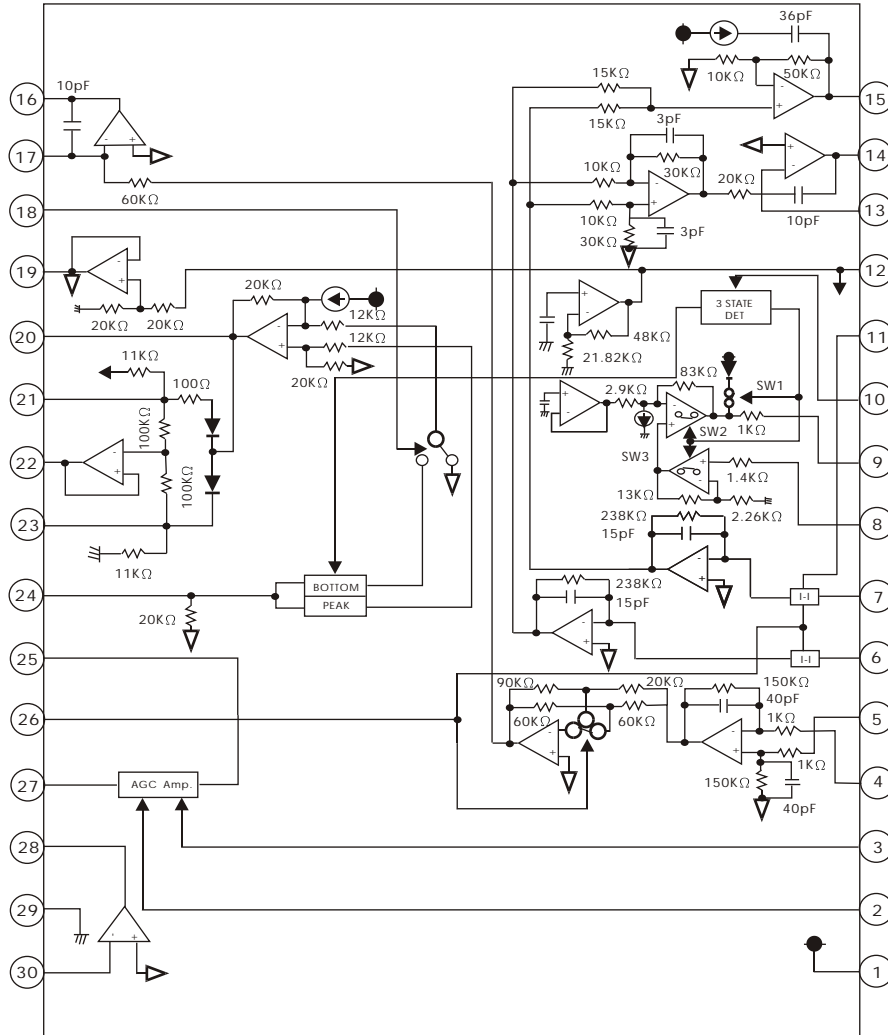
| | | | |
|---|------------|----|---------|
| 1 | STANDBY | 7 | PRE GND |
| 2 | OUT2 | 8 | IN1 |
| 3 | BS2 | 9 | NF1 |
| 4 | NF2 | 10 | BS1 |
| 5 | IN2 | 11 | OUT1 |
| 6 | DC(FILTER) | 12 | VCC |

TA2092N



| | | | | | |
|---|----------|----|----------|----|----------|
| 1 | PW GND | 9 | OUT(+)2 | 17 | VIN3 |
| 2 | OUT(-)1 | 10 | PVCC2 | 18 | SGND |
| 3 | PVCC1 | 11 | OUT(-)2 | 19 | SVCC1 |
| 4 | OUT(+)1 | 12 | PW GND | 20 | VIN4 |
| 5 | VIN1 | 13 | PW GND | 21 | OUT(+)4 |
| 6 | Vr1 | 14 | OUT(-)3 | 22 | PVCC4 |
| 7 | Vc1 | 15 | PVCC3 | 23 | OUT(-)4 |
| 8 | VIN2 | 16 | OUT(-)3 | 24 | PW GND |

TA2153FN



| Pin No. | Function | Pin No. | Function | Pin No. | Function | Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| 1 | VCC | 7 | TNI | 13 | TEN | 19 | VRO | 25 | RFGO |
| 2 | RFGC | 8 | MDI | 14 | TEO | 20 | RFRP | 26 | GVSW |
| 3 | GMAD | 9 | LDO | 15 | SBAD | 21 | BTC | 27 | AGCIN |
| 4 | FNI | 10 | SEL | 16 | FEO | 22 | RFCT | 28 | RFO |
| 5 | FPI | 11 | TEB | 17 | FEN | 23 | PKC | 29 | GND |
| 6 | TPI | 12 | 2VRO | 18 | SEB | 24 | RFRPIN | 30 | RFN2 |

JVC

JVC Asia Pte Ltd

101 Thomson Road, #28-04 United Squares, Singapore 307591

JVC

SERVICE MANUAL

PORTABLE CD SYSTEM

RC-BX33SL



Area Suffix
UX---Saudi and relative
U---Except UX

IMPORTANT

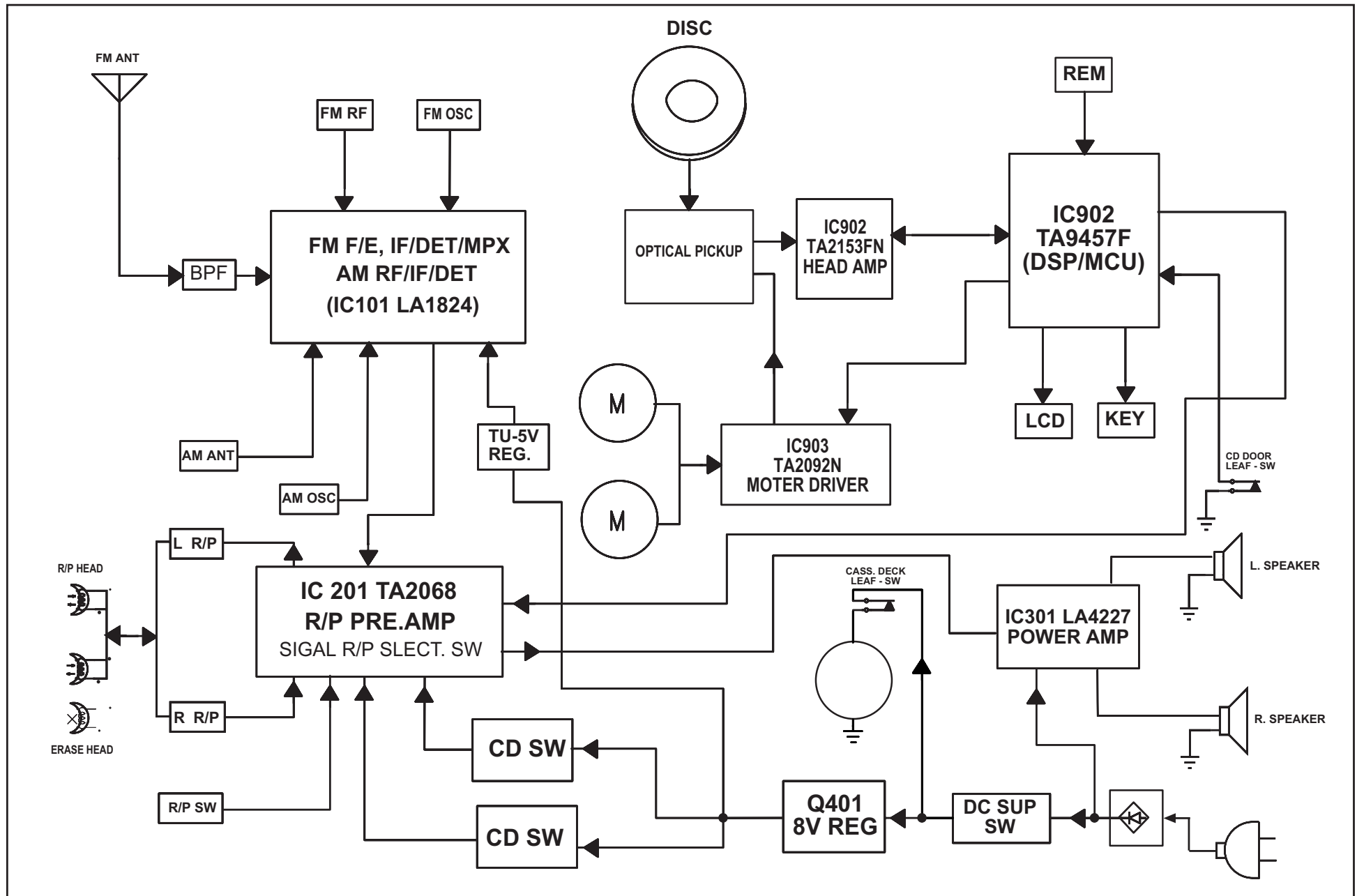
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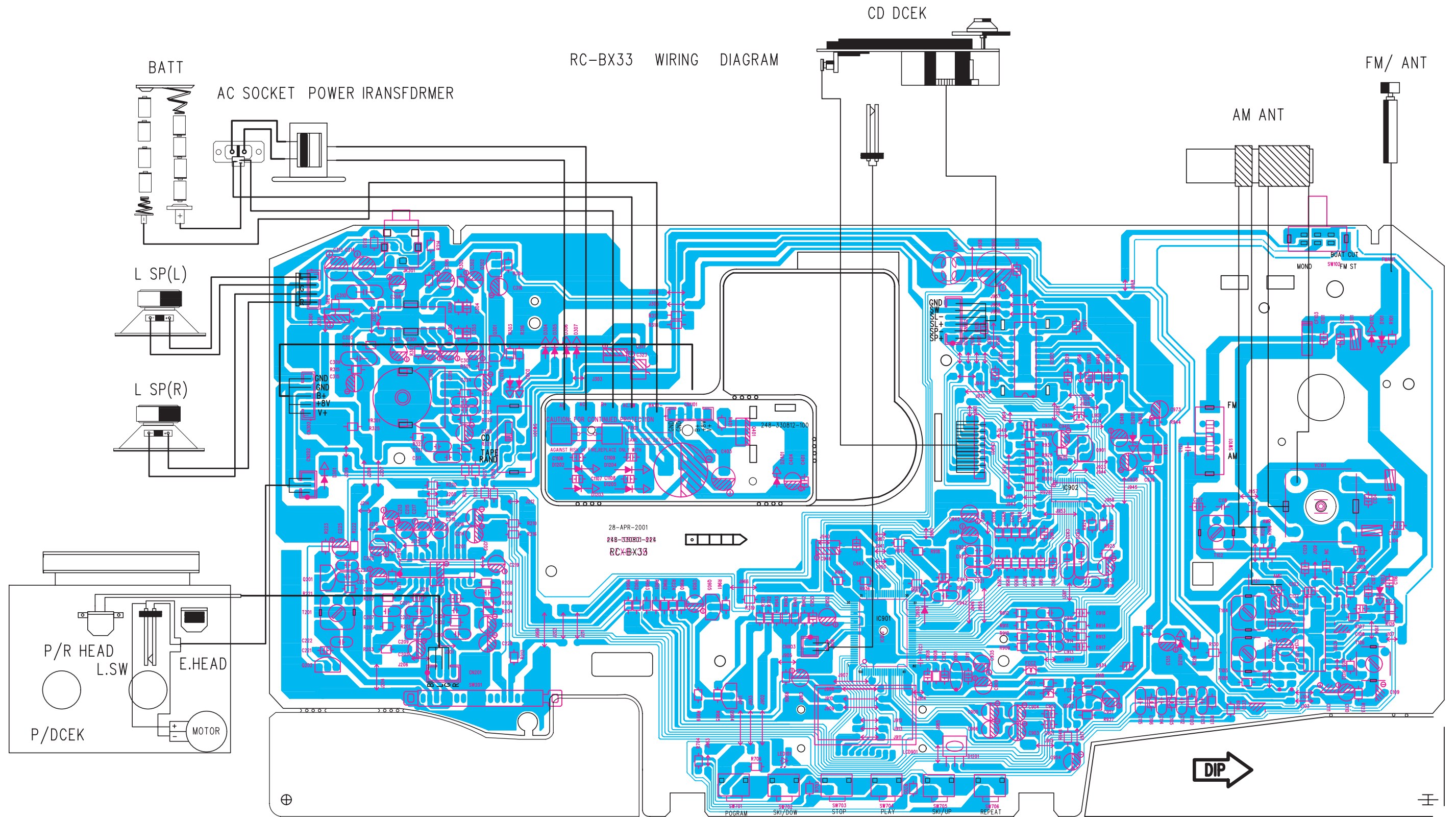
Contents

| | |
|------------------------------|-----|
| Block diagram..... | 2-2 |
| Wiring diagram | 2-3 |
| Schematic diagram | 2-4 |
| Printed circuit boards | 2-6 |

BLOCK DIAGRAM

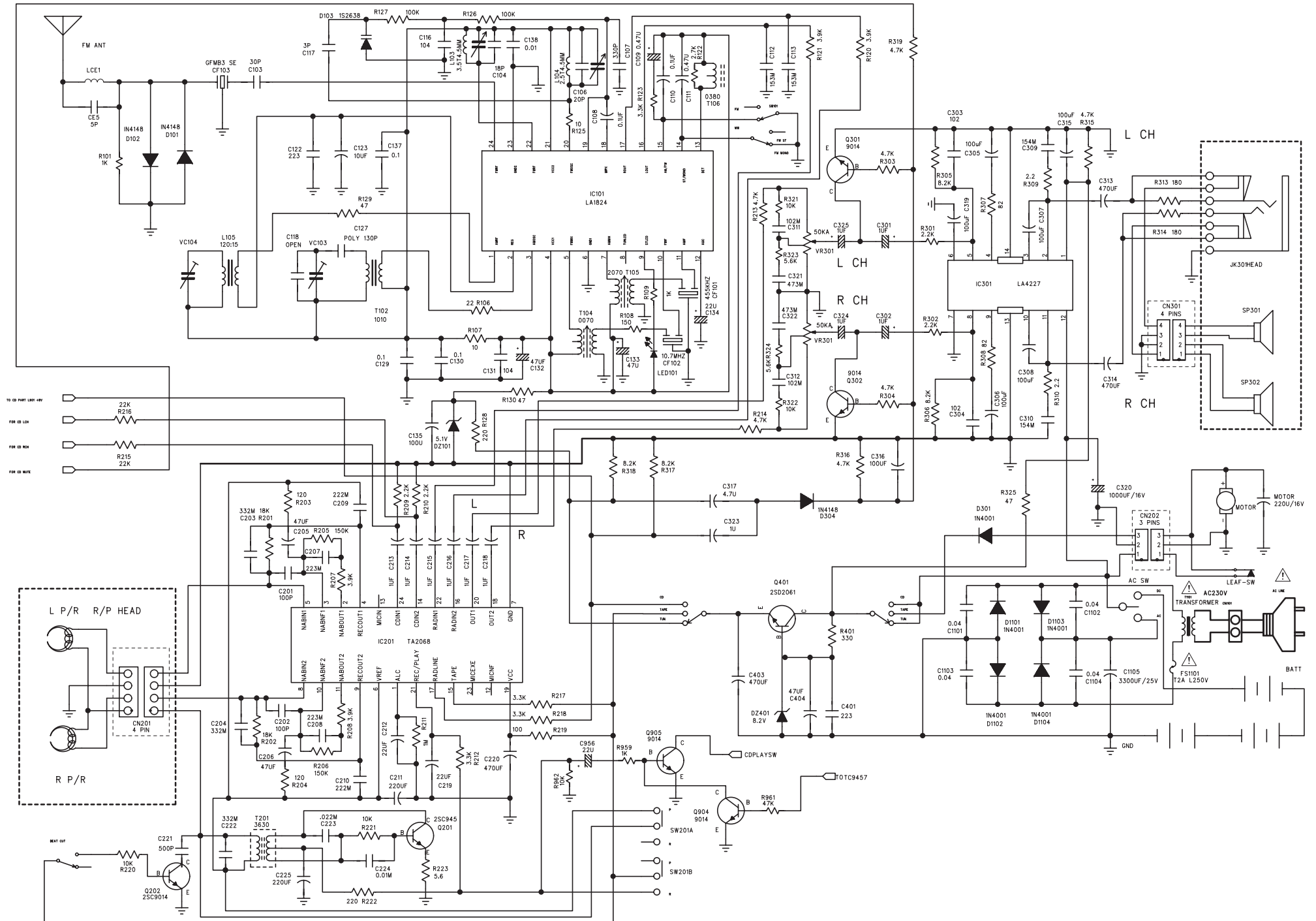


Wiring Diagram



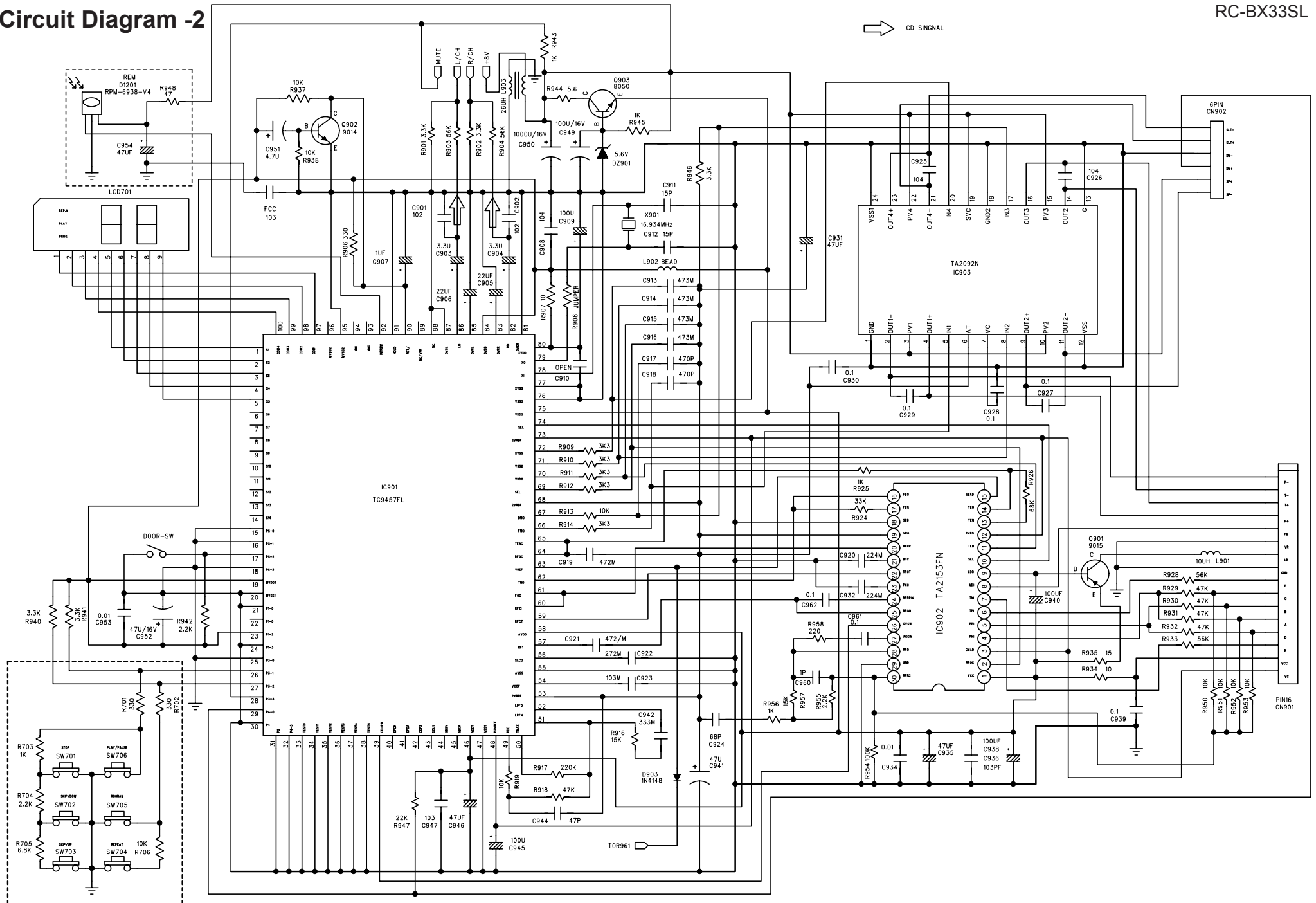
Circuit Diagram -1

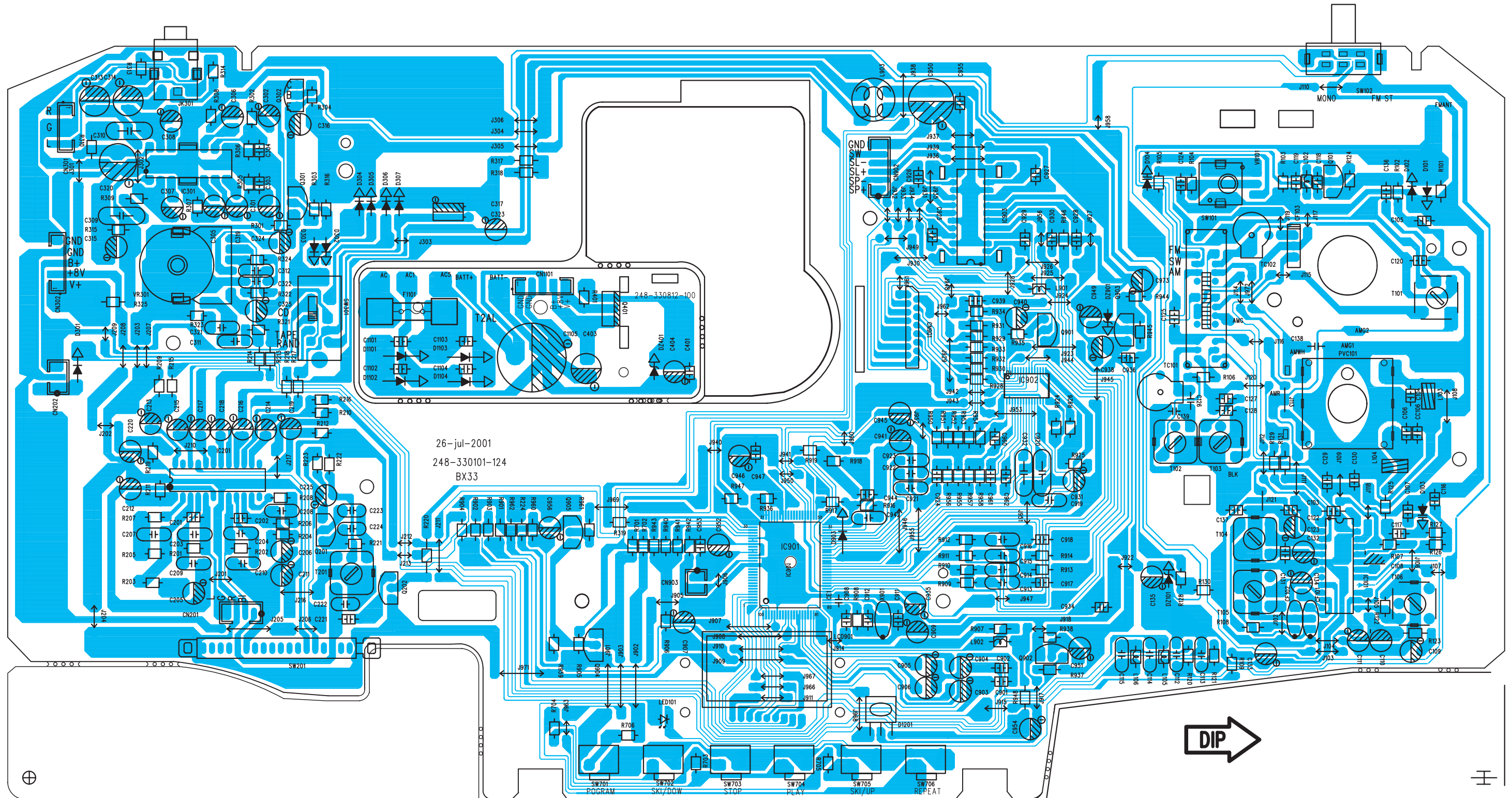
RC-BX33SL



Circuit Diagram -2

RC-BX33SL





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