

SERVICE MANUAL

MODEL : PC-XC370 (J)

AM/FM RADIO CASS
CD PORTABLE SYSTEM

TUNER ADJUSTMENT

use a plastic screws driver for adjustments.


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

Supply voltage: DC 12.0V


Speaker impedance: 3 OHMS

Function switch: RADIO

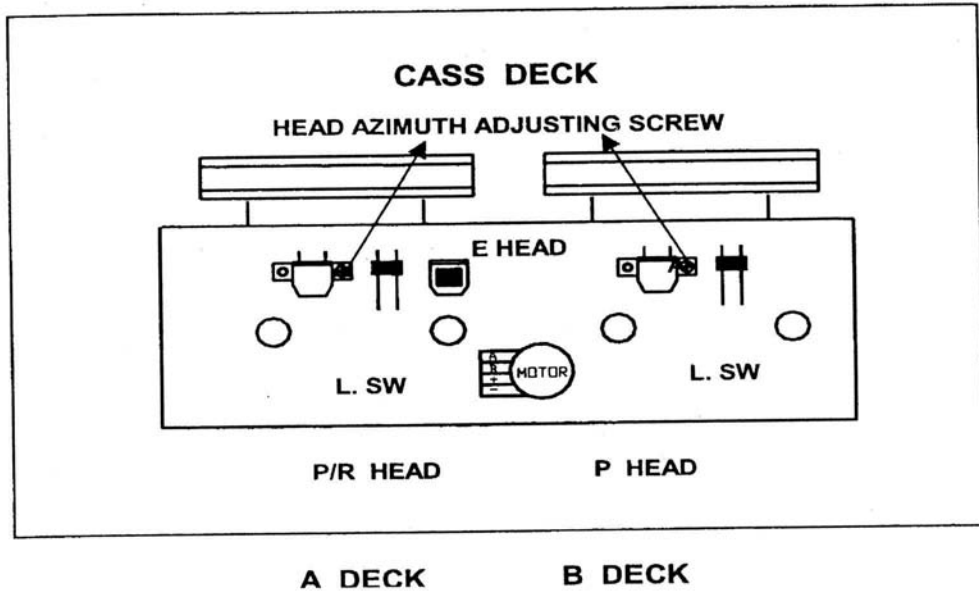
a. AM adjustment BAND SELECT SWITCH : AM

ste	Adjusting circuit	Tuning Frequency	Input Connection		Output Connection		Adjustment parts	VTVM Oscilloscope
			Measurement	input	Measurement	output		
1	IF (450 KHz)	1000 KHz	AM Sweep Generator	Loop ANT	VTVM Oscilloscope	TP16 (H) TP 8 (E)	T103	 (Non-adjustment)
2	Tuning Coversage	530 KHz			Digital Voltmeter	TP16 (H) TP 8 (E)	T102	1.2+/-0.05V Confirm 7.0+/-0.5V
3		1710 KHz						
4	Tracking	600 KHz	Am signal Generator	Loop ANT	VTVM Oscilloscope	TP12 (L) TP11 (R)	MW COIL CT102	Maximum
5		1500 KHz						

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

ste	Adjusting circuit	Tuning Frequency	Input Connection		Output Connection		Adjustment parts	VTVM Oscilloscope
			Measurement	input	Measurement	output		
1	IF (10.7 MHz)	98.0 MHz	FM Sweep Generator	TP4 (H) TP8 (E)	VTVM Oscilloscope	TP16 (H) TP8(E)	T104	 (Non-adjustment)
2	Tuning Coversage	87.5 MHz	--	--	Digital Voltmeter	TP16 (H) TP8(E)	L104	Confirm 1.4+/-0.1V 5.6+/-0.5V
3		108 MHz						
4	Tracking	90.0 MHz	FM Signal Generator	FM ANT TP1(E)	VTVM Oscilloscope	TP12 (L) TP11 (R)	L103	Confirm with being near by effective sensitivity
5		106.0 MHz						

CASSETTE MECHANISM SECTION



PC-XC370

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. Black tape
TYPE I : TDK-D60
8. Torque gauge : For play and tension
FWD(CT-120m), and FF/REW(CT-F)

■ Measurement conditions

Power supply voltage-----AC 120V (60Hz)
Reference output-----Speaker : 0.866V/3
Headphone : 0.245V/32
Reference frequency and -----1KHz, AUX : 450mV
input level
Input for confirming recording and-----CD : -10dB
playback characteristics
Measurement output terminal-----Speaker CN301
*Load resistance-----3

■ Radio Input signal

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

• Tuner section

Voltage applied to tuner ----- +B:DC 5.7V

VT: FM 2~5v / am 1.5~7.5v

Reference measurement ----- 26.1mV(0.866/3)
output

Input positions ----- AM : Standard loop antenna

FM : TP1 (hot) and TP2 (GND)

• Standard measurement position of volumett

Bass ----- Off

EQ ----- Flat

UP and down adjustment of volume ----- Vol : 16

Precautions for measurement

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

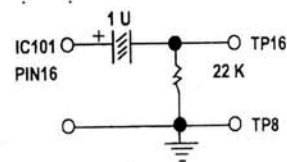


FIG.1

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 and 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. In the case of BTL connection amp., the minus terminal of speaker is not for earthing. Therefore, be sure not to connect any other earth terminal to this terminal. This system is of an BTL system.
8. For connecting a dummy resistor when measuring the output, use the wire with a greater code size.
9. Whenever any mixed tape is used, use the band pass filter (DV-12V)

■ Tape recorder section

Items	Measurement conditions	Measurement method	Standard Values	Adjusting position
Confirmation of head angle	Test tape : TCC-182A(8KHz) Measurement output terminal : Speaker terminal Speaker R/L (Load resistance: 3 : 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 leavers 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	VR401

■ Reference Values for Confirmation Items

Items	Measurement conditions	Measurement method	Standard Values	Adjusting position
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)	

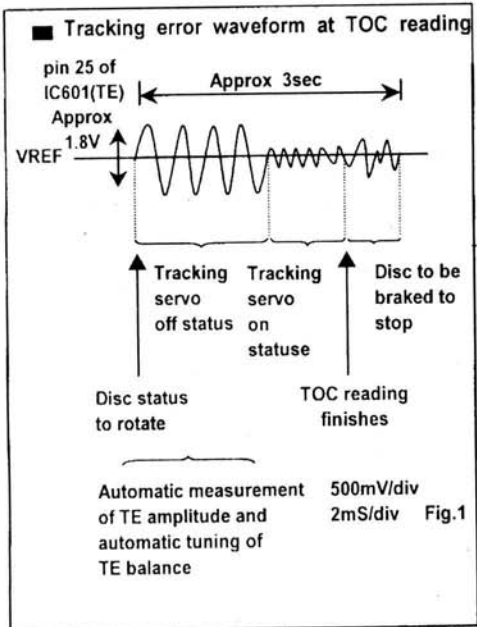
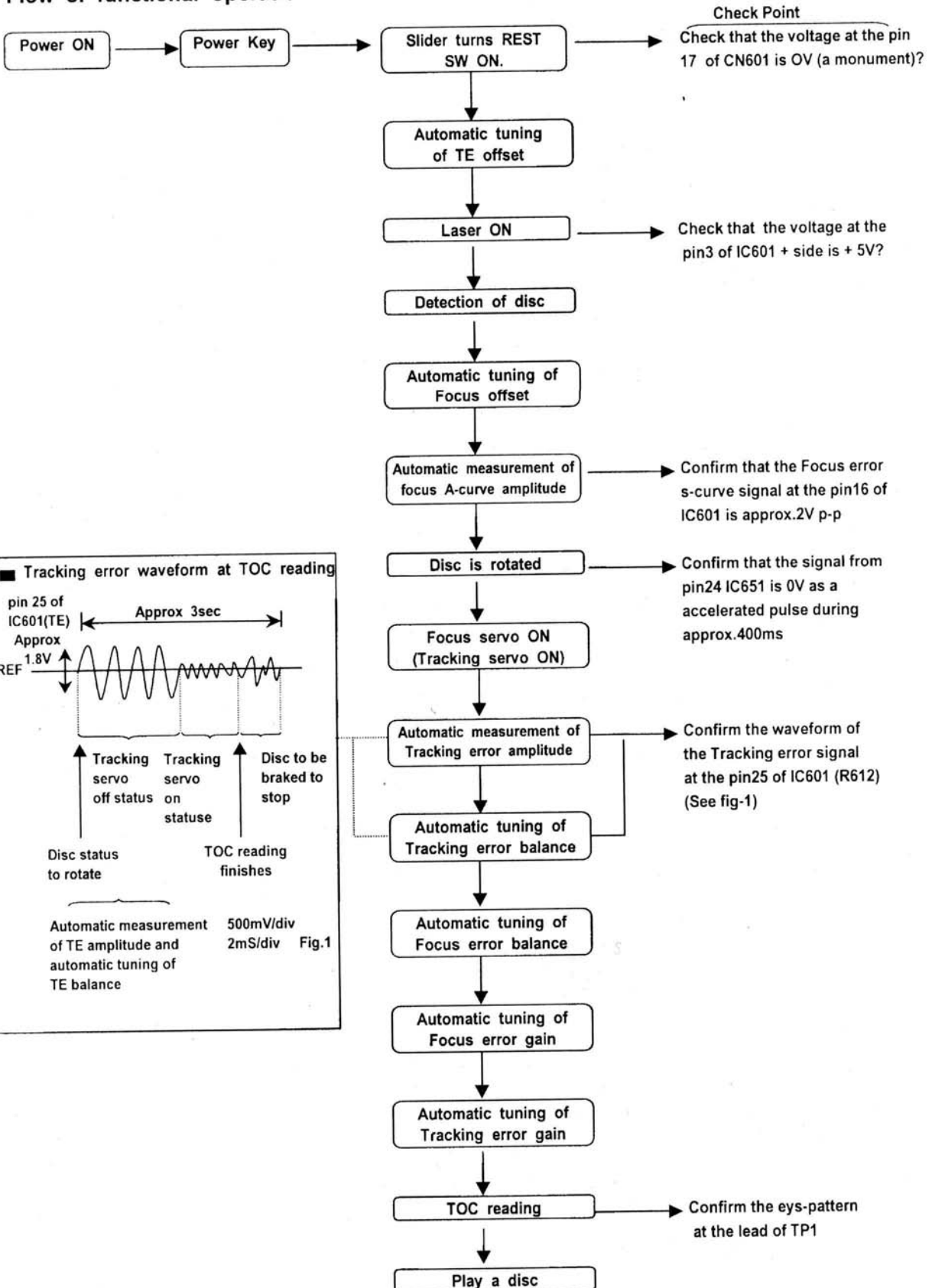
■ **Electrical Performance**

Items	Measurement conditions	Measurement method	Standard Values	Adjusting position
Adjustment of recording bias current (Reference Value)	<ul style="list-style-type: none"> • Mode: Playback 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 100 Ω in series to the recorder head, measure the bias current with a valve voltmeter at both of the terminals 	TDK-D60 4.5 μ A +/-0.5 μ 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 recording and playback the test tape Lch and Rch so that the output deviation between 1KHz and 8KHz from -1dB +/-2dB 	Output deviation between 1KHz and 8KHz :-1dB +/-2dB	

■ **Reference Values for Electrical Function Confirmation Items**

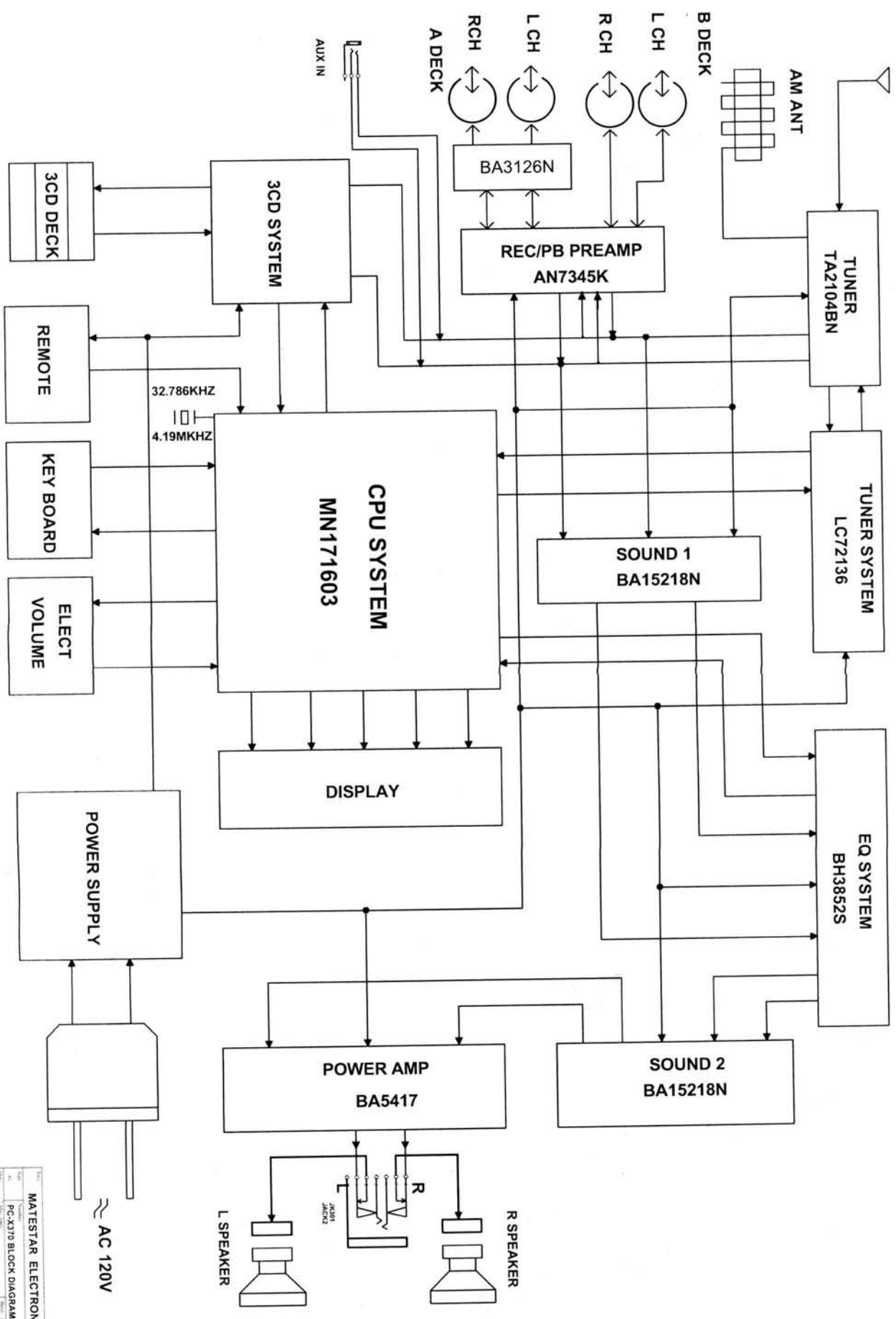
Items	Measurement conditions	Measurement method	Standard Values	Adjusting position
Recording bias frequency	<ul style="list-style-type: none"> Playback • Test tape TDK-D60 • Measurement terminal : BIAS TP on P.C. board 	<ol style="list-style-type: none"> 1 While changing over t and form BIAS 1 and 2, 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 64KHz +/-6KHz 	64KHz +/-6KHz	T201

Flow of functional operation until TOC read

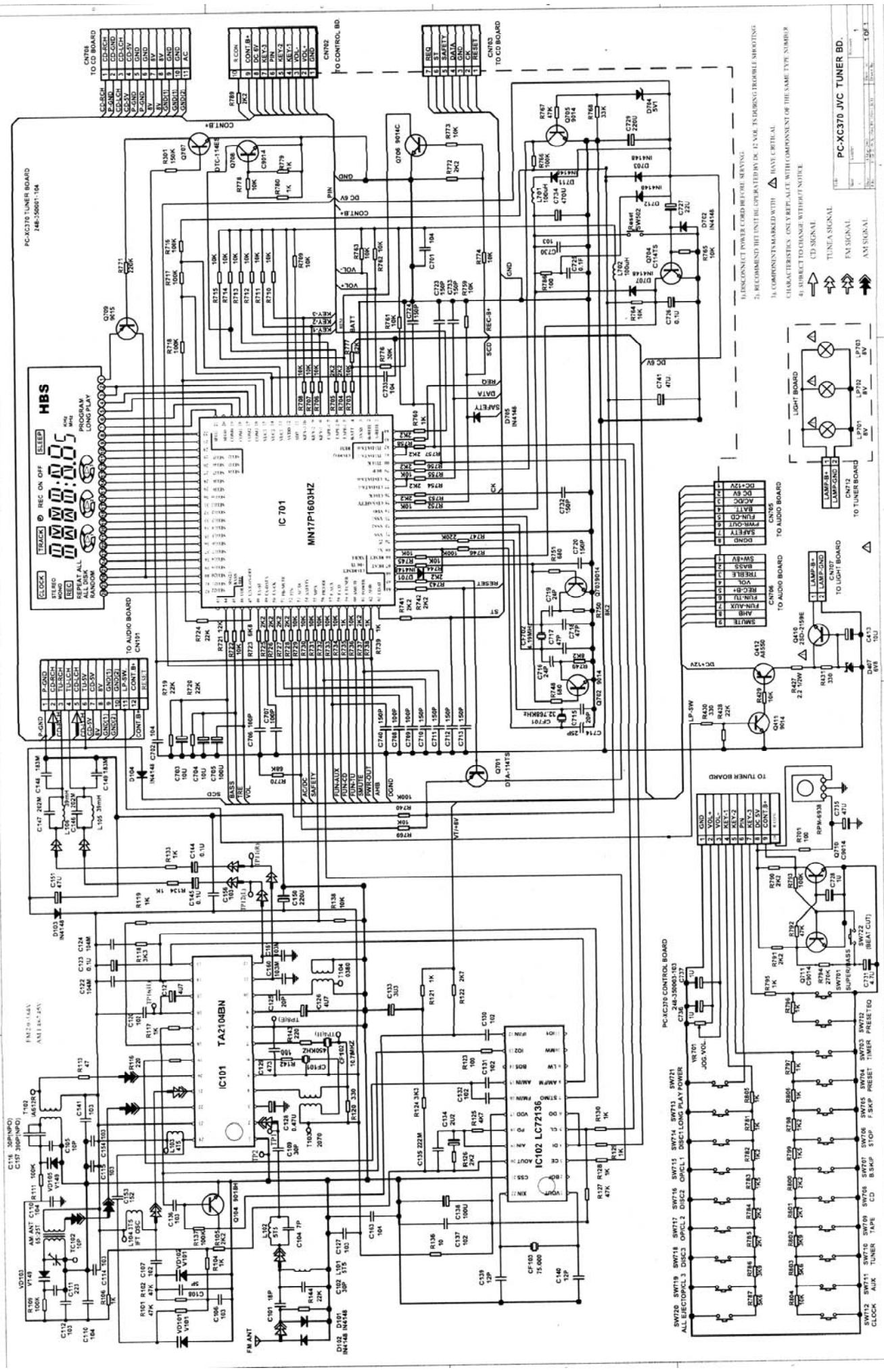


FM ANT

PC-XC370 BLOCK DIAGRAM



AC 120V



PC-XC370 TUNER BOARD
148-35001-104

HBS
REPEAT ALL PROGRAM LONG PLAY
STOP PAUSE REWIND F.F. STOP
RECALL

TO AUDIO BOARD
CN101

FM ANT
D132, D107
IN4148 IN4148

TO CONTROL BOARD
CN102

TO CD BOARD
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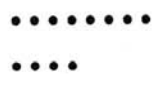
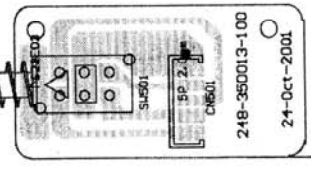
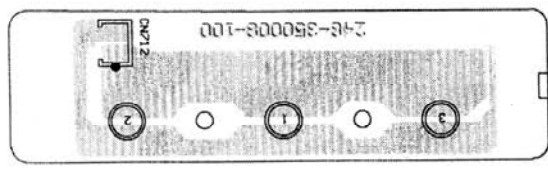
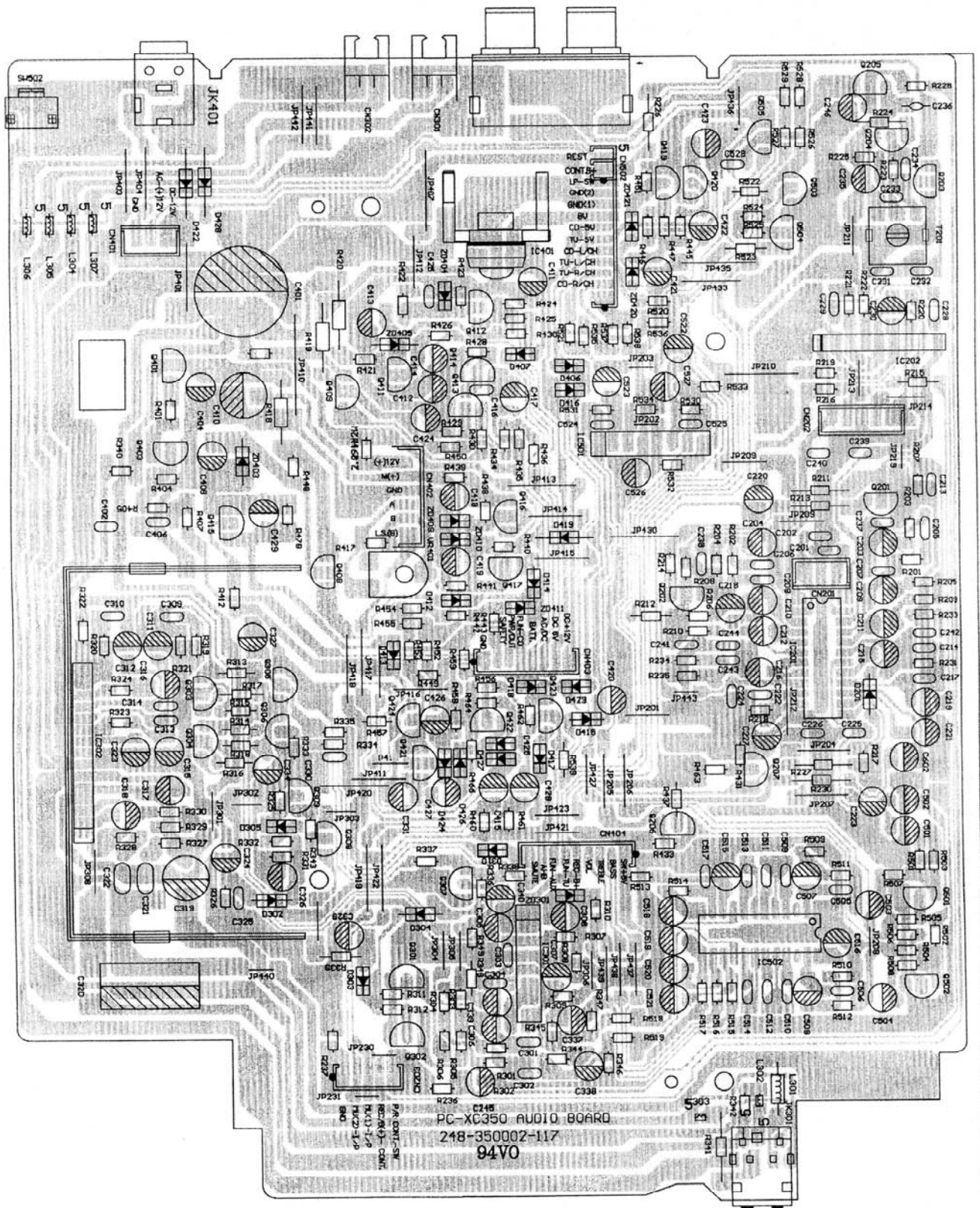
TO CD BOARD
CN103

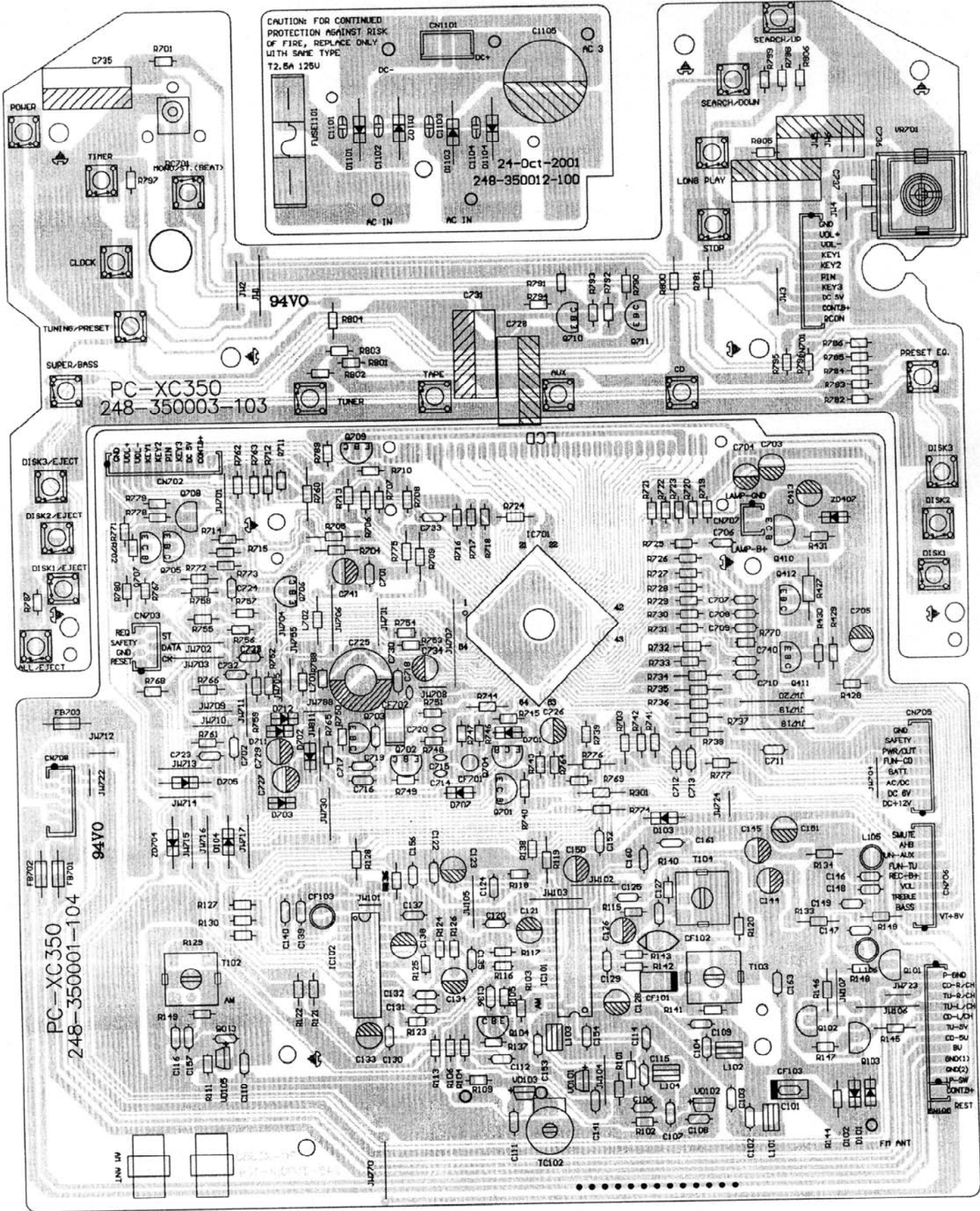
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CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE T2.5A 125V

24-Oct-2001
248-350012-100

PC-XC350
248-350003-103

PC-XC350
248-350001-104

1	P-GND
2	CD-B-CH
3	TU-B-CH
4	TU-S-CH
5	CD-L-CH
6	TU-SV
7	CD-SU
8	BU
9	GND(1)
10	GND(2)
11	PA-SW
12	CONTB+
13	REST

IC & TRANSISTOR VOLTAGES**MODEL : PC-XC370****IC701 MN171603Hz (CD MODE)**

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage (v)	4.86	4.86	0	3.15	5.13	5.14	5.13	5.12	5.12	5.11	2.57	5.14	3.81	3.01	1.93	3.58
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Voltage (v)	3.54	3.52	3.48	3.28	3.28	3.28	3.41	3.28	3.41	3.36	3.49	3.28	3.40	3.28	3.48	3.41
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Voltage (v)(play)	3.02	3.25	3.29	3.27	3.48	3.39	3.42	3.21	3.28	3.52	3.53	3.65	3.85	1.8	0	0
Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Voltage (v)(play)	0	5.7	5.0	5.0	0	0.4	0.43	0	5	0	0.01	5.19	5.04	5.04	5.0	0.01
Pin No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage (v)(play)	0	0	5.08	5.08	1.85	2.51	0	2.23	2.34	5.09	5.41	5.41	0	0	0	5.01
Pin No.	81	82	83	84												
Voltage (v)(play)	5.11	5.13	0	5												

IC301 BA15218N (CD MODE)

Pin No.	1	2	3	4	5	6	7	8
Voltage (v)	4.03	4.03	3.96	0	3.95	4.03	4.03	7.23

IC302 BA5417 (CD MODE)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Voltage (v)	0	6.12	6.21	13	6.25	12.1	0	12.41	6.58	0.6	0	0	0.6	0	0

IC102 LC72136N (TUNER MODE)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage (v)	2.6	0	0	5.12	5.13	5.12	0	0	0	0	0	0	0.9	0	2.6	0
Pin No.	17	18	19	20	21	22										
Voltage (v)(stop)	5.4	0.99	0.99	0.89	0	2.5										

IC101 TA2104 (TUNER MODE)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AM Voltage (v)	0	0	1.13	4.45	4.48	3.81	4.49	0	0.38	3.91	1.21	1.21	0	0	0.7	1.05
FM Voltage (v)	0	0.78	0	3.97	4.14	3.66	4.14	0	0	3.36	1.21	1.21	3.26	3.5	0.1	0.9
Pin No.	17	18	19	20	21	22	23	24								
AM Voltage (v)	0.9	4.48	4.32	4.48	4.48	4.48	4.48	4.48								
FM Voltage (v)	1.06	4.12	3.99	4.12	4.12	4.13	4.12	4.12								

IC201 AN7345K (TAPE MODE)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage (v) PLAY	0	0	0.5	2.5	0	1.29	0	0.59	2.57	2.53	0	0	5.1	3.25	0.25	2.5
Voltage (v) REC	0	0	0.57	2.5	0	0	0	0.6	2.5	2.5	0	0	5.1	3.25	0.3	2.5
Pin No.	17	18	19	20	21	22	23	24								
Voltage (v) PLAY	0.5	0	0.8	0	2.5	0.57	0	0								
Voltage (v) REC	0.6	0	0	0	2.5	0.5	0	0								

IC202 BA3416N (TAPE MODE)

Pin No.	1	2	3	4	5	6	7	8	9
Voltage (v) PLAY	0	0	0	0	0	6.52	0	0	0
Voltage (v) REC	0	0	0.25	5.96	0	7.8	0.25	0	0

IC502 BH3852S (CD MODE)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Voltage (v)	0	3.3	3.34	3.35	3.36	3.35	3.35	3.36	3.11	6.3	3.69	3.77	3.05	2.54	1.8	3.11
Pin No.	17	18	19	20	21	22	23	24								
Voltage (v)	3.37	3.3	3.36	3.3	3.35	3.35	3.34	3.1								

IC501 BA15218N (CD MODE)

Pin No.	1	2	3	4	5	6	7	8
Voltage (v)	3.74	3.74	3.74	0	3.74	3.74	3.74	7.5

IC401 KIA7808 (CD MODE)

Pin No.	1	2	3
Voltage (v)	12.1	0	7.9

Transistors (TUN MODE)

Transistor No.	Q104			Q102			Q103		
Pin Name	E	B	C	E	B	C	E	B	C
Voltage (V) TUN	0	0.6	1.7	0	0	0	0	0.6	0
Voltage (V) TAPE	/	/	/	0	0.6	0	0	0	0

Transistors (TUN MODE)

Transistor No.	Q101			Q420			Q419		
Pin Name	E	B	C	E	B	C	E	B	C
Voltage (V) TUN	0	0	0	6.1	6.7	7.5	7.5	6.8	7.5
Voltage (V) TAPE	0	0.6	0	/	/	/	/	/	/

Transistors

Transistor No.	Q711			Q710			Q203		
Pin Name	E	B	C	E	B	C	E	B	C
BEAT ON	0	0	2.6	0	0.6	0	0	0.6	0
BEAT OFF	0	0.65	0	0	0	4.7	0	0	0

Transistor No.	Q709			Q702			Q703			Q704			Q708		
Pin Name	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
Voltage (v)	2.6	3.4	0	0	0	0	0	0	0	0	0	4.8	0	0	5.6

Transistor No.	Q705			Q706			Q707			Q412		
Pin Name	E	B	C	E	B	C	E	B	C	E	B	C
Voltage (V)	0	0.6	0	0	0.13	4.8	0	0	2.9	0	0.6	0

Transistor No.	Q701			Q401			Q403		
	Pin Name	E	B	C	E	B	C	E	B
POWER ON (v) CD	4.9	4.1	4.89	12.0	11.3	12.0	0	0.7	0.35
POWER ON (v) TUN	4.8	4.1	4.8	12.8	12.0	12.75	0	0.7	0.4
POWER ON(v)TAPE	4.9	4.1	4.9	12.75	11.9	12.69	0	0.7	0.4
POWER ON(v)AUX	4.9	4.1	4.9	12.9	12.1	12.9	0	0.7	0.4
POWER OFF	5.29	5.28	0	14.6	14.1	0.6	0	0	0.5

Transistor No.	Q408		
	Pin Name	E	B
POWER ON (v) CD	8.1	7.5	12.1
POWER ON (v) TUN	8.1	7.5	12.1
POWER ON(v)TAPE	8.1	7.5	12.3
POWER ON(v)AUX	8.1	7.5	12.6
POWER OFF	0.6	0	0.6

Transistor No.	Q410			Q412			Q411		
	Pin Name	E	B	C	E	B	C	E	B
LAMP ON	6.58	7.0	12.2	12.8	12.0	12.7	0	0.7	0
LAMP OFF	0	0.4	0.4	0.5	0	0.6	0	0.6	0

Transistor No. (CD MODE)

Transistor No.	Q409			Q413			Q417			Q308			Q309		
	Pin Name	E	B	C	E	B	C	E	B	C	E	B	C	E	B
Voltage (V)	12	11.2	12	0	0.7	0.3	4.2	4.8	7.9	8.6	8	0.6	0	0	7.9

Transistor No.	Q421			Q422			Q424		
	Pin Name	E	B	C	E	B	C	E	B
Voltage (V)	0	0	4.68	0	0	0	0	0	0

Transistor No. (AUX MODE)

Transistor No.	Q503			Q504			Q505			Q423		
	Pin Name	E	B	C	E	B	C	E	B	C	E	B
Voltage(V) AUX	0	0	0	0	0	0	7.5	0	0	5.1	4.5	5.1
Voltage(V) TAPE	0	0.7	0	0	0.7	0	7.5	4.5	3.9	5.1	4.8	0.6

Transistor No.	Q204			Q205		
	Pin Name	E	B	C	E	B
Voltage(V) STOP	0	0.6	0.6	8.5	9.4	0.35
Voltage(V) PLAY	0	0	0	8.5	9.5	0.37
Voltage(V) REC	0.2	0.6	5.5	8.5	7.78	6.45

Transistor No.	Q201			Q202			Q415		
	Pin Name	E	B	C	E	B	C	E	B
Voltage (V) STOP	0	0.7	0	0	0.7	0	0	0.6	0
Voltage (V) PLAY	0	0	0	0	0	0	0	0	0

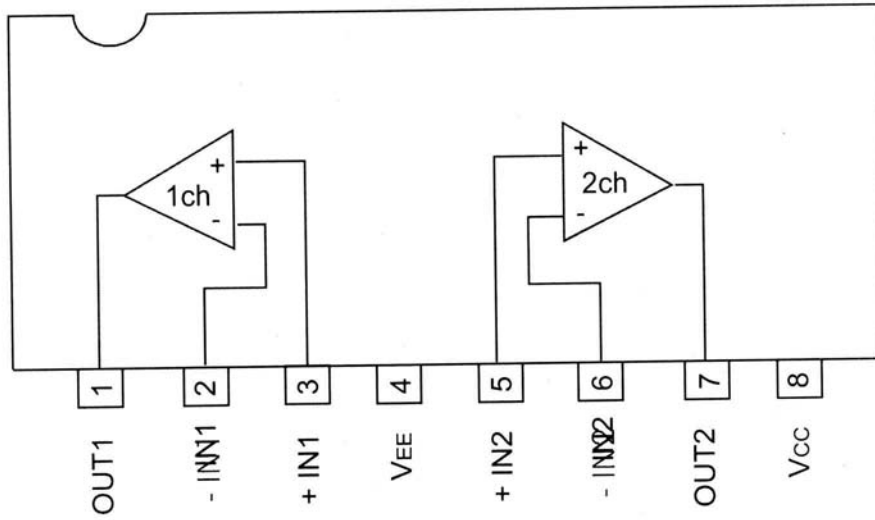
Transistor No.	Q303			Q304			Q305			Q306		
	Pin Name	E	B	C	E	B	C	E	B	C	E	B
Voltage (V) STOP	0	0.6	0	0	0.6	0	5.1	5	5.4	0	0.6	0
Voltage (V) PLAY	0	0	0	0	0	0	5.6	5	0	0	0.6	0

Transistor No.	Q307			Q301			Q302		
Pin Name	E	B	C	E	B	C	E	B	C
SBP OFF(V)	0	0	2.7	0	0.6	0	0	0.6	0
SBP ON(V)	0	0.6	0	0	0	0	0	0	0

Transistor No.	Q206			Q207			Q416			Q501			Q502		
Pin Name	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
Voltage (V) STOP	0	0.3	2.1	0	0.17	0.5	0.25	0	0	0	0.6	0	0	0.6	0
Voltage (V) PLAY	0	0.3	2.1	0	0.17	1.38	6.2	6.9	11.7	0	0.6	0	0	0.6	0
Voltage (V) REC.	0	0.6	0	0	0.69	0	6.2	6.9	11.7	0	0	0	0	0	0

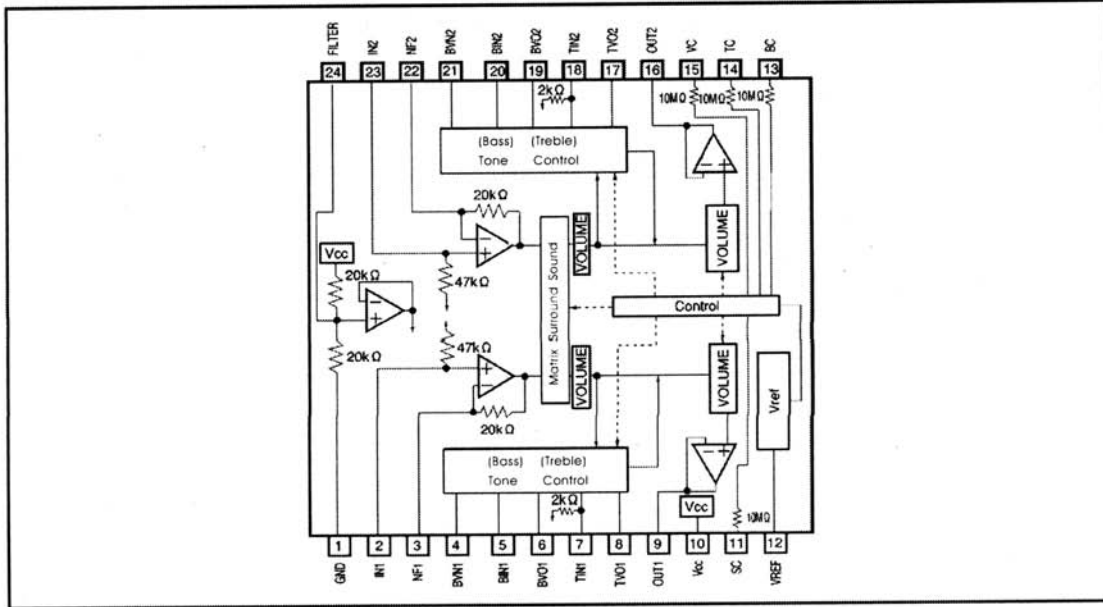
BA15218N

BLOCK DIAGRAM



BH3852S

1. Block diagrams

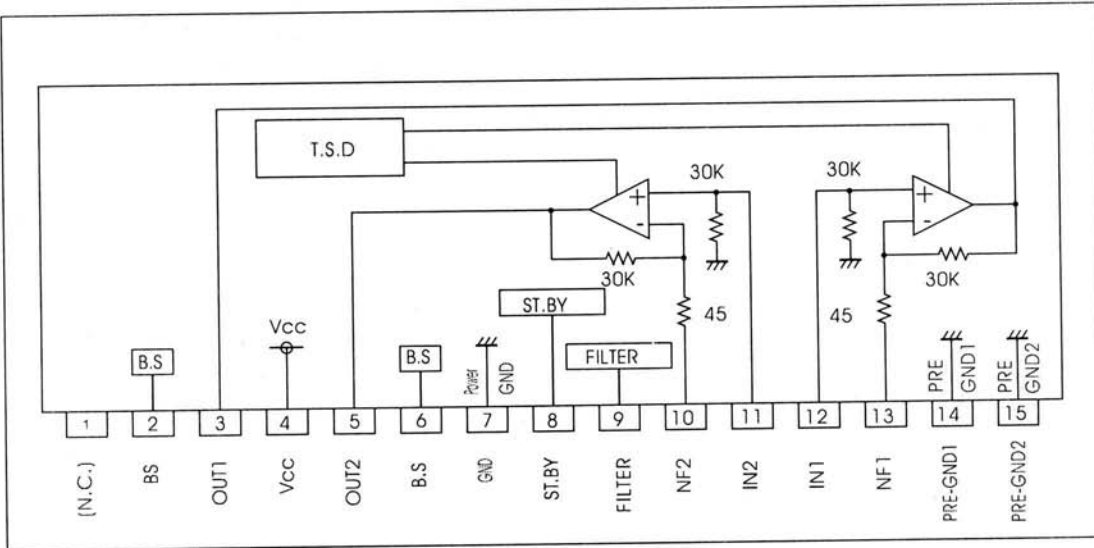


2. Pin function

Pin No.	Pin name	Function	Pin No.	Pin name	Function
1	GND	Ground	13	BC	Bass control pin
2	IN1	Channel 1 volume input	14	TC	Treble control pin
3	NF1	Input-stage amplifier gain setting	15	VC	Volume control pin
4	BVN1	Channel 1 bass filter	16	OUT2	Channel 2 volume output
5	BIN1	Channel 1 bass filter	17	TVO2	Channel 2 treble filter
6	BVO1	Channel 1 bass filter	18	TIN2	Channel 2 treble filter
7	TIN1	Channel 1 treble filter	19	BVO2	Channel 2 bass filter
8	TVO1	Channel 1 treble filter	20	BIN2	Channel 2 bass filter
9	OUT1	Channel 1 volume out	21	BVN2	Channel 2 bass filter
10	Vcc	Power supply	22	NF2	Input-stage amplifier gain stage
11	SC	Surround control pin	23	IN2	Channel 2 volume input
12	VREF	Reference voltage output	24	FILTER	Filter pin

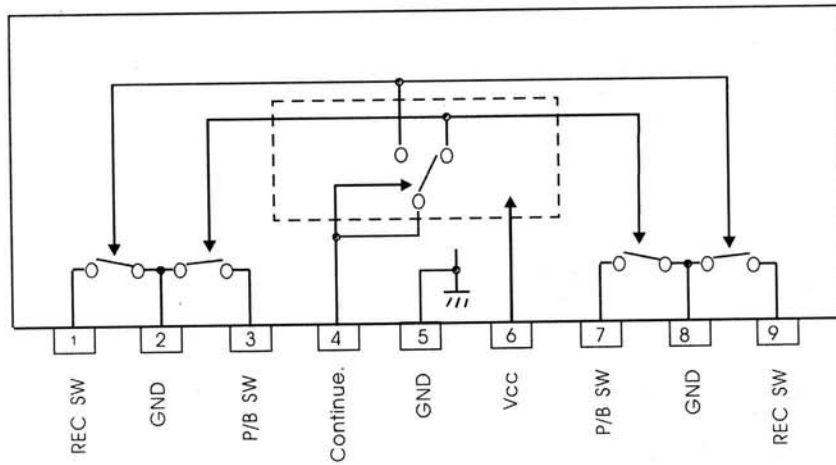
BA5417

BLOCK DIAGRAM



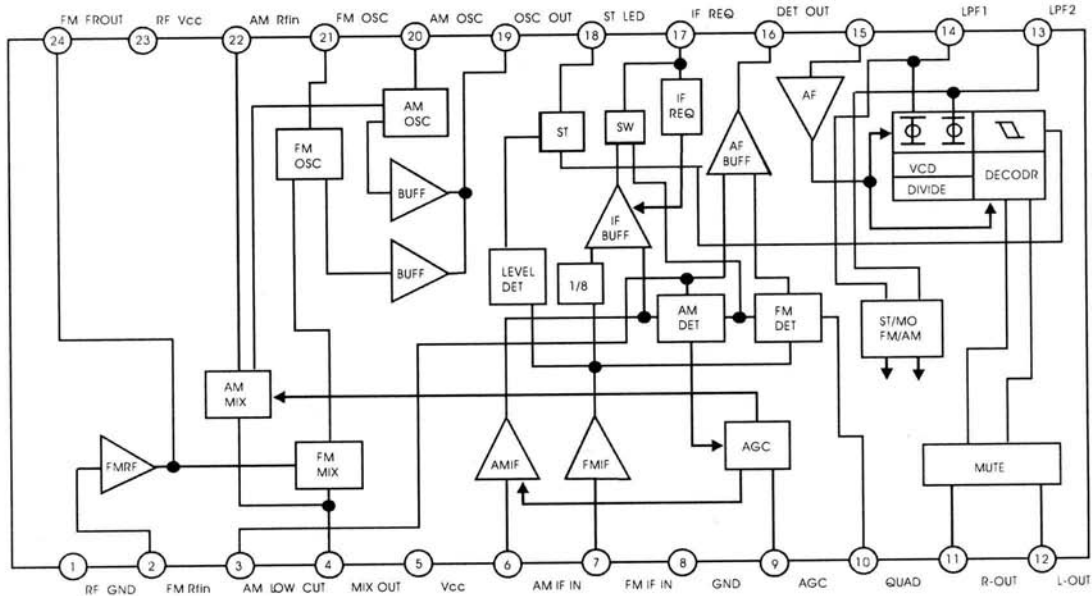
BA3126N

BLOCK DIAGRAM



TA2104BN

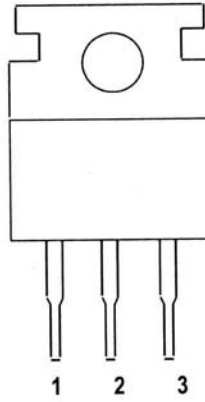
BLOCK DIAGRAM



1. Pin function

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	RF GND	-	RF GND	13	LPF2	I	LPF terminal for phase detector & bias terminal AM/FM/SW
2	FM IN	I	FM-RF Signal Input	14	LPF1	I	LPF terminal for Synchronous detector VCO stop terminal
3	AM CUT	-	AM Low Cut	15	MPX IN	I	Multi Plex Signal Input
4	MIX OUT	O	MIX. Output Terminal	16	DET OUT	O	Detection Signal Output
5	VCC	-	Power Supply	17	IF REQ	O	IF REQ
6	AM IF IN	I	Input of AM IF Signal	18	ST LED	-	Stereo Indicator Output
7	FM IF IN	I	Input of FM IF Signal	19	OSC OUT	O	Local Oscillation Signal Output
8	GND	-	GND	20	AM OSC	I	AM Local Oscillation Circuit
9	AGC	-	AGC Voltage Input Terminal	21	FM OSC	I	FM Local Oscillation Circuit
10	QUAD	-	QUAD	22	AM RF IN	I	AM RF Signal Input
11	ROUT	O	Output RCH	23	RF VCC	-	RF Power Supply
12	LOUT	O	Output LCH	24	FM RF OUT	O	FM RF Signal Output

■ KIA-7808AP (IC401) : VOLTAGE REGULATOR



Pin No.	Function
1	INPUT
2	COMMON
3	OUTPUT