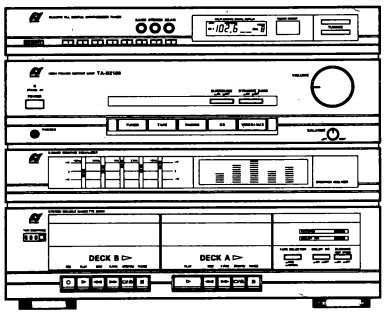
SANSUI

SERVICE MANUAL

TA-D2100

STEREO SOUND SYSTEM



CAUTION

1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTICE

1. The symbols UL, SS and XX <EXPORT> on the parts list and the schematic diagram mean followings respectively.

   UL . . . . . Manufactured for U.S.A. market. (Underwriters Laboratories approved model.)
   SS . . . . . Manufactured for Saudi Arabian market.
   XX . . . . . Standard Version.
   <EXPORT>
   NON MARK . . . Common Parts.

2. Some printed circuit boards are not supplied assembled. To separate these in this service manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.

3. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.

4. Abbreviations in this service manual are as follows:

Abbreviations List

C.R.	: Carbon Resistor	E.B.L.	: Low Leak Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor		
Ce.R.	: Cement Resistor		
M.R.	: Metal Film Resistor	Ta.C.	: Tantalum Capacitor
F.R.	: Fusing Resistor	F.C.	: Film Capacitor
N.I.R.	: Non-Inflammable Resistor	M.P.	: Metalized Paper Capacitor
A.R.	: Array Resistor	P.C.	: Polystyrene Capacitor
C.C.	: Ceramic Capacitor	M.M.C.	: Metalized Mylar Capacitor
C.T.	: Ceramic Capacitor, Temperature Compensation	A.C.	: Array Capacitor
		V.R.	: Variable Resistor
E.C.	: Electrolytic Capacitor	S.V.R.	: Semi-Variable Resistor
E.L.	: Low Leak Electrolytic Capacitor	SW.	: Switch
		Chip R.	: Chip Resistor
E.B.	: Bi-Polar Electrolytic Capacitor	Chip C.	: Chip Capacitor
		S.C.	: Styrol Capacitor

SPECIFICATIONS

Tuner Section
Tuning range . . . . . AM: 530 kHz/1,720 kHz
FM: 87.5 MHz/108 MHz
Intermediate frequency . . . . . AM: 450 kHz
FM: 10.7 MHz

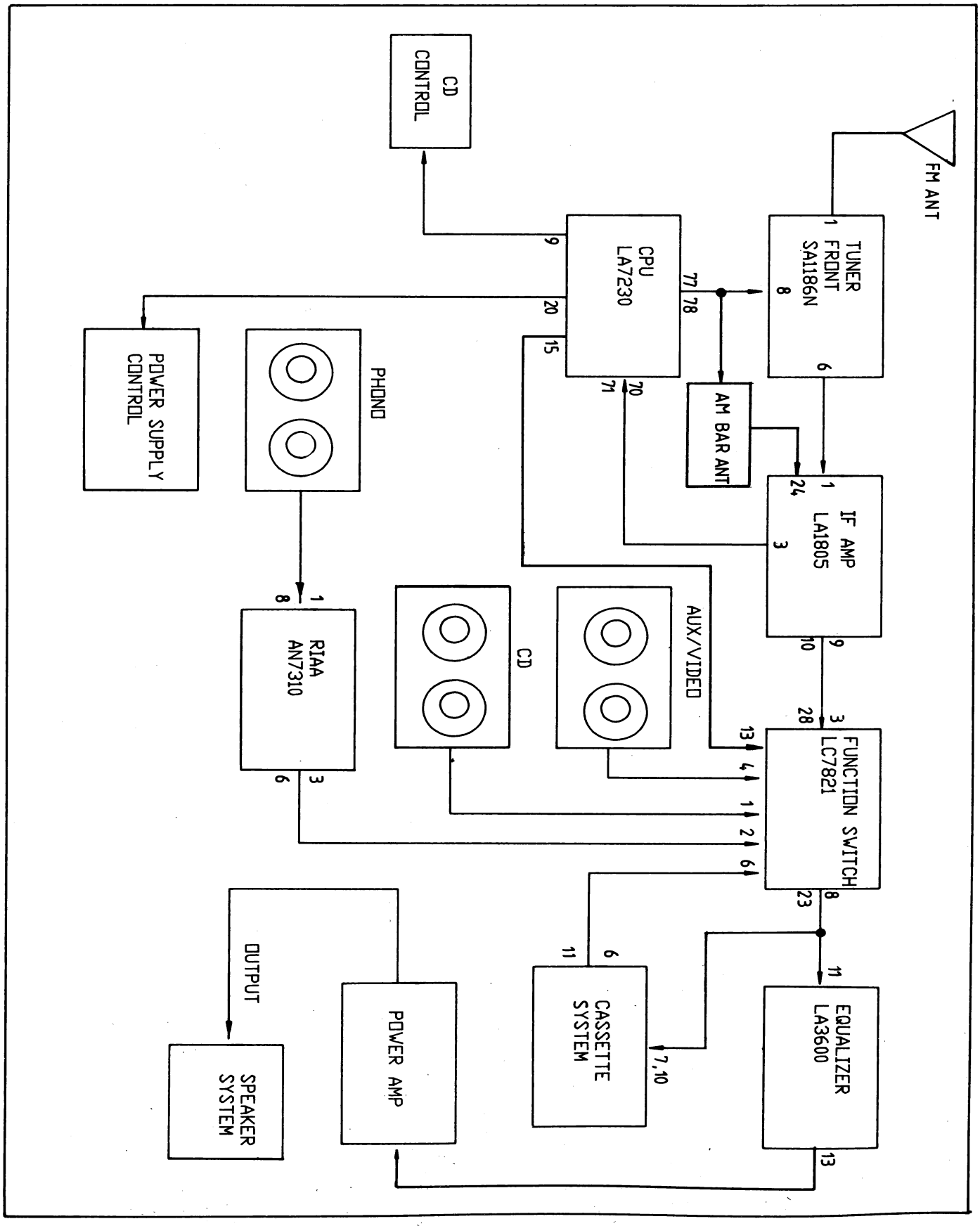
Cassette Section
Tape speed . . . . . 4.75 cm/sec.
Wow & flutter 0.15%
Frequency response . . . . . 125 Hz to 12.5 kHz

Amplifier Section
Total harmonic distortion at (1 kHz) . . . 0.4%
Signal-to-noise ratio 50dB
Power output
Min RMS. both channels driven, from 40 Hz to 20 kHz with no more than 0.9% total harmonic distortion.
100 watts per channel into 8 ohms.

Power requirements . . . . . AC 120V/220–240V (60/50 Hz)
For USA and Canada . . . . . AC 120V/60 Hz
Power consumption . . . . . 600 watts 410VA
Dimensions . . . . . 430 mm (16-15/16") W
369 mm (14-9/16") H
406 mm (16") D
Weight . . . . . 12.1 kgs (26.7 lbs) net

- Design and specifications subject to changes without notice for improvements.
- Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- "DOLBY", the double-D symbol (DD) are trade marks of Dolby Laboratories Licensing Corporation.

1. BLOCK DIAGRAM



2. ADJUSTMENTS

(See Fig. 2-9 & 2-10 Adjustment points on page 7)

2-1. AM IF & RF Adjustment

Equipment required:

1. AM signal generator.
2. FM signal generator.
3. VTVM.
4. DC volt meter.

Notes:

1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator).
2. Volume control at maximum, balance and tone control, at mechanical center.
3. Standard modulation is 400 Hz at 30% amplitude for AM, 1000 Hz at 22.5 kHz deviation for FM.
4. Connect 8 ohm load across speaker jack.

(1) AM IF Adjustment

Signal Source	Signal Generator Frequency	Alignment Indicator	Frequency Setting	Adjustment	Remarks
AM IF sweep generator connected to a standard radiating loop (Refer to Fig. 2-1)	Sweep centered 450 kHz	Oscilloscope connected to AM test point IF/OP (TP4) and ground (TP3)	Tuning to Lowest freq.	T103 (Refer to Fig. 2-9)	Adjust for maximum output (Refer to Fig. 2-1a)
	Repeat adjustment as necessary for maximum sensitivity.				

(2) AM RF Adjustment

Signal Source	Signal Generator Frequency	Alignment Indicator	Frequency Setting	Adjsutment	Remarks
AM signal generator connected to a standard radiating loop (Refer to Fig. 2-1)	530 kHz (Modulated)	DC meter across TP1 and ground (TP2)	Lowest freq.	L104 (Refer to Fig. 2-9)	DC Meter 1V
	1610 kHz (Modulated)		Highest freq.	TC104 (Refer to Fig. 2-9)	DC Meter 9.5V
	Repeat adjustments as necessary to obtain frequency range.				
	600 kHz (Modulated)	VTVM across speaker jack (Using 8 ohm resistive load)	600 kHz	*L105 (Refer to Fig. 2-9)	Adjust for maximum output
	1400 kHz (Modulated)		1400 kHz	TC102 (Refer to Fig. 2-9)	
	Repeat adjustments as necessary to minimize tracking error.				

*Note: L105 is the AM antenna coil. Adjust by sliding the ferrite bar in or out.

2-2. FM RF & Auto Tuning Adjustment

(1) FM RF Adjustment

Signal Source	Signal Generator Frequency	Alignment Indicator	Frequency Setting	Adjustment	Remarks
FM signal generator connected to Ext. Ant. terminal. Matching network used (Refer to Fig. 2-2)	87.9 MHz	DC meter connected to (TP1) and GND (TP2)	Lowest freq.	L103 (Refer to Fig. 2-9)	DC Meter to indicate 1.2V
	107.9 MHz		Highest freq.	NONE	DC Meter to indicate 8V
	Repeat adjustments as necessary to obtain frequency range.				
	90 MHz (Modulated)	VTVM across SP. jack (Using 8 ohm resistive load)	90 MHz	L102 (Refer to Fig. 2-9)	Adjust for maximum output
	106 MHz (Modulated)		106 MHz	TC101 (Refer to Fig. 2-9)	
	Repeat adjustments as necessary to minimize tracking error.				

(2) FM Auto Tuning Adjustment

Signal Source	Signal Generator Frequency	Alignment Indicator	Frequency Setting	Adjustment	Remarks
FM signal generator connected to Ext. Ant. terminal. Matching network used. (Refer to Fig. 2-2)	98 MHz ± 2 kHz 22.5 kHz Deviation 1mV carrier O/P	VTVM across SP. jack (Using 8 ohm resistive load)	98 MHz	Adjust SFR102 (Refer to Fig. 2-9)	DC Meter to indicate 0V

2-3. FM MPX Adjustment

Equipment required:

1. Signal generator . . . . . Modulation rate by pilot signal 10%
   Modulation rate by main signal (L + R) 45%
   Modulation rate by sub signal (L − R) 45%
2. Frequency counter, Dummy antenna, VTVM.
   Band switch to FM. Tuning approx., 98 MHz.

Item	Signal Source	Signal Generator Frequency	Alignment Indicator	Dial Setting	Tuning Adjustment	Remarks
Adjustment of pilot signal (Refer to Fig. 2-3)	FM signal generator connected to FM Ext. Ant. terminal. Matching network used. Modulation OFF.	98 MHz (1 mV)	Frequency counter connected to TP5 (+) and GND	**98 MHz**	SFR101 (See Fig. 2-9)	Measure pilot signal only and adjust for 76 kHz ± 50 Hz

2-4. FM IF Adjustment

Signal Source	Signal Generator	Alignment Indicator	Frequency Setting	Adjustment	Remarks
FM IF sweep generator connected to FM Ext. Ant. Matching network used. (Refer to Fig. 2-1)	Sweep centered 10.7 MHz	Oscilloscope connected to IF test point IF/OP TP4 and ground (TP3).	Tuning capacitor counter clockwise (Lowest freq.)	T101 T102 (Refer to Fig. 2-9)	Adjust for maximum amplitude and proper linearity between ± 100 kHz markers. **(Refer to Fig. 2-1b)**

2-5. Idle Current Adjustment

The Idle Current Adjustment should be made in accordance with the information shown in Table 1. Perform this adjustment after the amplifier has been allowed 15 minutes to warm up. Set the power switch to the "OFF" position before connecting the DC volt-meter to the circuit. Turn power switch "ON" and set the volume control to "MINIMUM". Use of DVM is recommended for adjustment. The use of an AC line operated VTVM requires the use of an isolation Transformer in conjunction with VTVM so as to avoid any semiconductor or PCB circuitry damage. Refer to Figure 2-4 for Test Point locations.

2-6. Idle Current Adjustment

Channel	Connection	Adjust	Specification
Left	Digital voltmeter across emitters of Q519 and Q521.	SFR501	5mV DC ± 0.1 mV
Right	Digital voltmeter across emitters of Q522 and Q520.	SFR502	5mV DC ± 0.1 mV

Table 1

Fig. 2-1

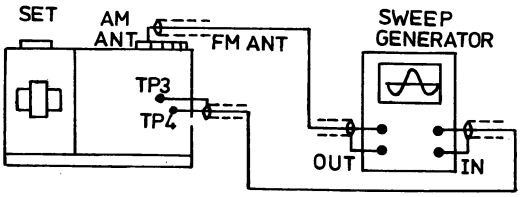


Fig. 2-2

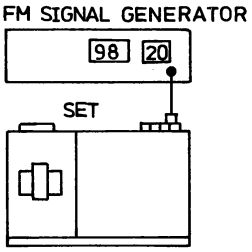


Fig. 2-1a

AM IF BW≅2-3kHz

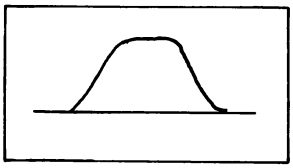


Fig. 2-1b

FM IF BW≅10.5-10.9MHz

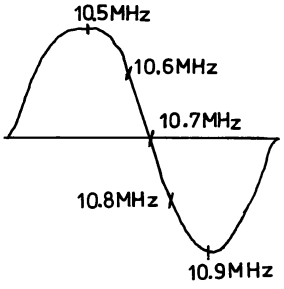


Fig. 2-3

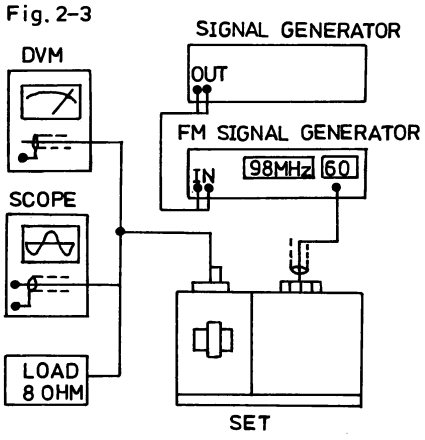
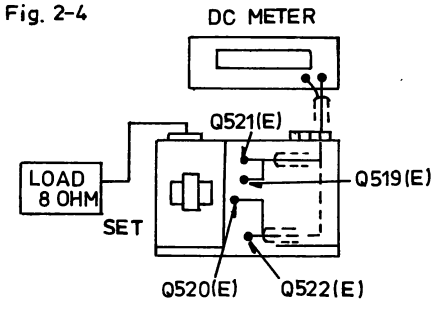


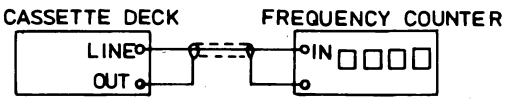
Fig. 2-4



2-7. Tape Speed Adjustment (See Fig 2-11 Adjustment points on page 8)

Notes: 1. Use Sansui Test Tape, SCT-3SK.
(3 kHz signals are recorded on the tape.)
2. Connections are shown in Fig. 2-5.

Fig. 2-5



(1) Normal Speed Adjustment

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Normal speed adj.	LINE OUT. Frequency counter.	Playback the TEST TAPE SCT-S3K. B side mecha.	Turn the SFR706 on the main board.	2940Hz – 3060Hz	See Fig. 2–11

(2) High Speed Adjustment

Notes: 1. Set the DUBBING switch . . . . . ON
2. Set the NORMAL/HIGH switch . . . . . HIGH

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	High speed adj.	LINE OUT. Frequency counter.	Playback the TEST TAPE SCT-S3K. A side mecha.	Turn the SFR705 on the main board.	5172Hz – 5380Hz	See Fig. 2–11

2-8. Playback Adjustment

Notes: 1. Before this adjustment, clean REC/P.B. head surface.
2. For this adjustment, use Sansui Test Tape, SCT-F10K, and SCT-L400N.
3. Set the Dolby NR switch to OFF.
4. Connection are shown in Fig. 2-6.

Fig. 2-6

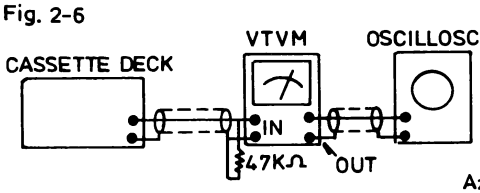
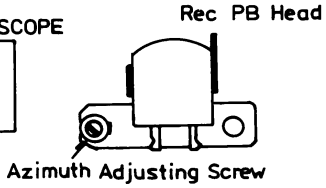


Fig. 2-7



(1) a-Side Mecha. Adjustment

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	P.B. head adj.	LINE OUT VTVM and scope.	Playback the TEST TAPE SCT-F10K.	Adjust the azimuth adjusting screw In Fig. 2-7.	Max. output both channels.	After this adjustment, lock the screw with paint.
2	Playback level adj.	Same as above.	Playback the TEST TAPE SCT-L400N.	Adjust each SFR703(L) and SFR704(R), main board.	548 mV ± 1 dB	See Fig. 2–11

(2) b-Side Mecha. Adjustment

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	REC/P.B. head adj.	LINE OUT VTVM and scope.	Playback the TEST TAPE SCT-F10K.	Adjust the **azimuth adjusting screw** in Fig. 2-7.	Max. output both channels.	After this adjustment, lock the screw with paint.
2	Playback level adj.	Same as above.	Playback the TEST TAPE SCT-L400N.	Adjust each SFR701(L) and SFR702(R), main board.	548 mV ± 1 dB	See Fig. 2–11

2-9. Bias Adjustment

Notes: 1. For, this adjustment, use Sansui Test Tape, SCT-MA.
2. Set the Dolby NR switch . . . . . OFF
3. REC LEVEL volume . . . . . Max.
4. Connections are shown in Fig. 2-5.

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Bias frequency adj.	Frequency counter connected to TP710 and GND.	1. Load the TEST TAPE SCT-MA. 2. Push the REC and PLAY button.	Turn the core of L704 (main board).	132 kHz ± 5 kHz	See Fig. 2-11

2-10. Bias Leakage Adjustment

Notes: 1. Connections are shown Fig. 2-6.
2. Use Sansui Test Tape SCT-SA.

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Trap coil adj.	Between test point TP707 and GND L-CH, test point TP709 and GND R-CH. Volt meter and scope.	SCT-SA. Push the REC and PLAY button.	Turn the core of L705 L-CH, L706 R-CH. (Main board)	Min. output both channels.	See Fig. 2-9.

2-11. Filter Adjustment <b-Side Mecha. Only>

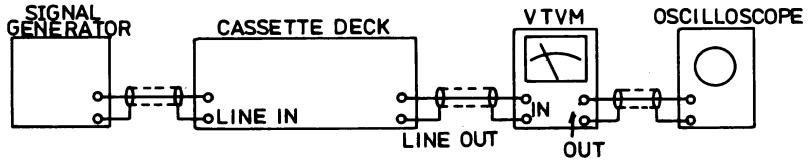
Notes: 1. Set the REC LEVEL volume to be max. position.
2. Connections are shown in Fig. 2-8.
3. Dolby SW; Hi-speed SW. OFF.

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	19 kHz filter adj.	Feed 19 kHz from audio S.G. into LINE IN.	VTVM connected to TP705(L), TP704(R) & TP706 (GND).	Push the REC and PLAY button.	Turn the core of L703 L-CH and L704 R-CH. Min. output both channels.	See Fig. 2-9.

2-12. Bias Current Adjustment <b-Side Mecha. Only>

Notes: 1. Connections are shown in Fig. 2-8.
2. Set tape selector in normal position.

Fig. 2-8



Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Bias current	VTVM connected to TP712 and TP702(R).	Push the REC & PLAY button.	Adjust for SFR802.	O/P = 3.8 mV	See Fig. 2-8.
2	Bias current	VTVM connected to TP713 and TP701(L).	Same as above.	Adjust for SFR801.	O/P = 3.8 mV	See Fig. 2-8.

2-13. R/P Level Adjustment

Notes: 1. Connections are shown in Fig. 2-7.
2. Set Dolby SW. and HI-speed SW. OFF.

Step	Subject	Measure Output	Input Signal	Setting	Adjustment	Adjust For	Remarks
1	R/P level adj.	VTVM connected to TP705(L), TP206(G) and TP704(R).	f = 400 Hz from audio S.G. into LINE IN.	Push the REC and PLAY button.	Adjust for SFR803(L) and SFR804(R).	O/P = 200 mV	See Fig. 2-9.

◆ **List of Sansui Test Tape**

Name of TEST TAPE	Recorded Frequency	Description	Equivalent To
SCT-F40	40 Hz	Playback Frequency Response Check	–
SCT-F1K	1 kHz	High Frequency Equialization Check	–
SCT-F10K	10 kHz	REC/PB Head Adjustment	–
SCT-L400N	400 Hz	Playback Level and Indicator Level Adjustment	–
SCT-S3K	3 kHz	Speed Check and Wow & Flutter Check	–
* SCT-AD (NORMAL)	–	Recording Bias Adjsutment	TDK AD
* SCT-SA (HIGH)	–	REC/PB Level Adjustment	TDK SA
* SCT-MA (METAL)	–	Frequency Response Check	TDK MA

● **Notes:** Some reference tapes marked * are not supplied.
As these are equivalent to ones indicated above, please obtain these blank tapes on your side as possible.

Fig. 2-9 Adjustment points on Tuner board

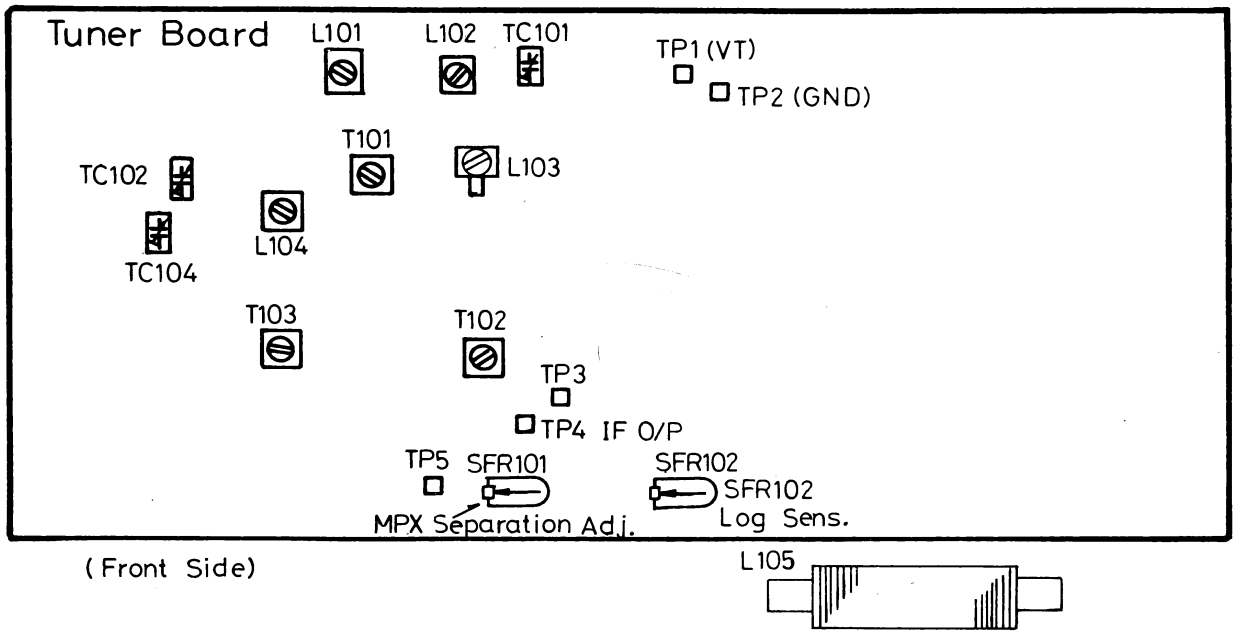


Fig. 2-10 Adjustment points on Power Amplifier board

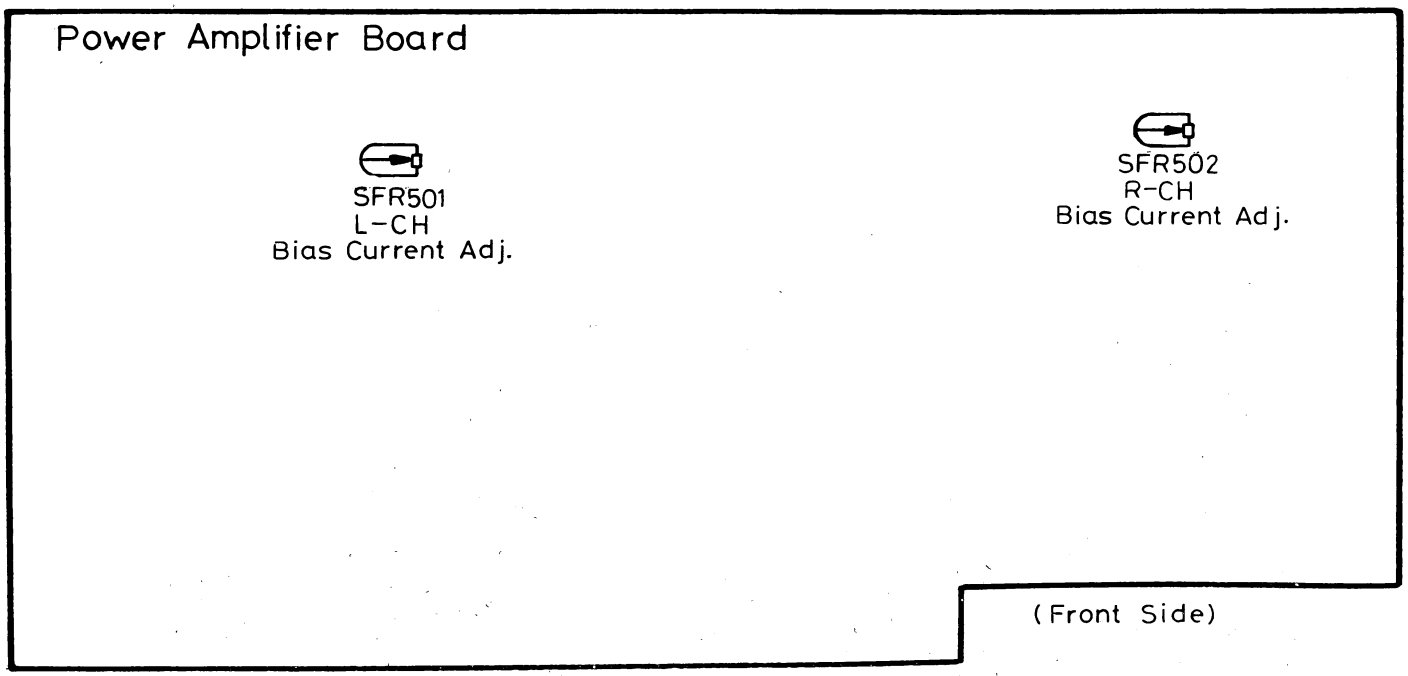
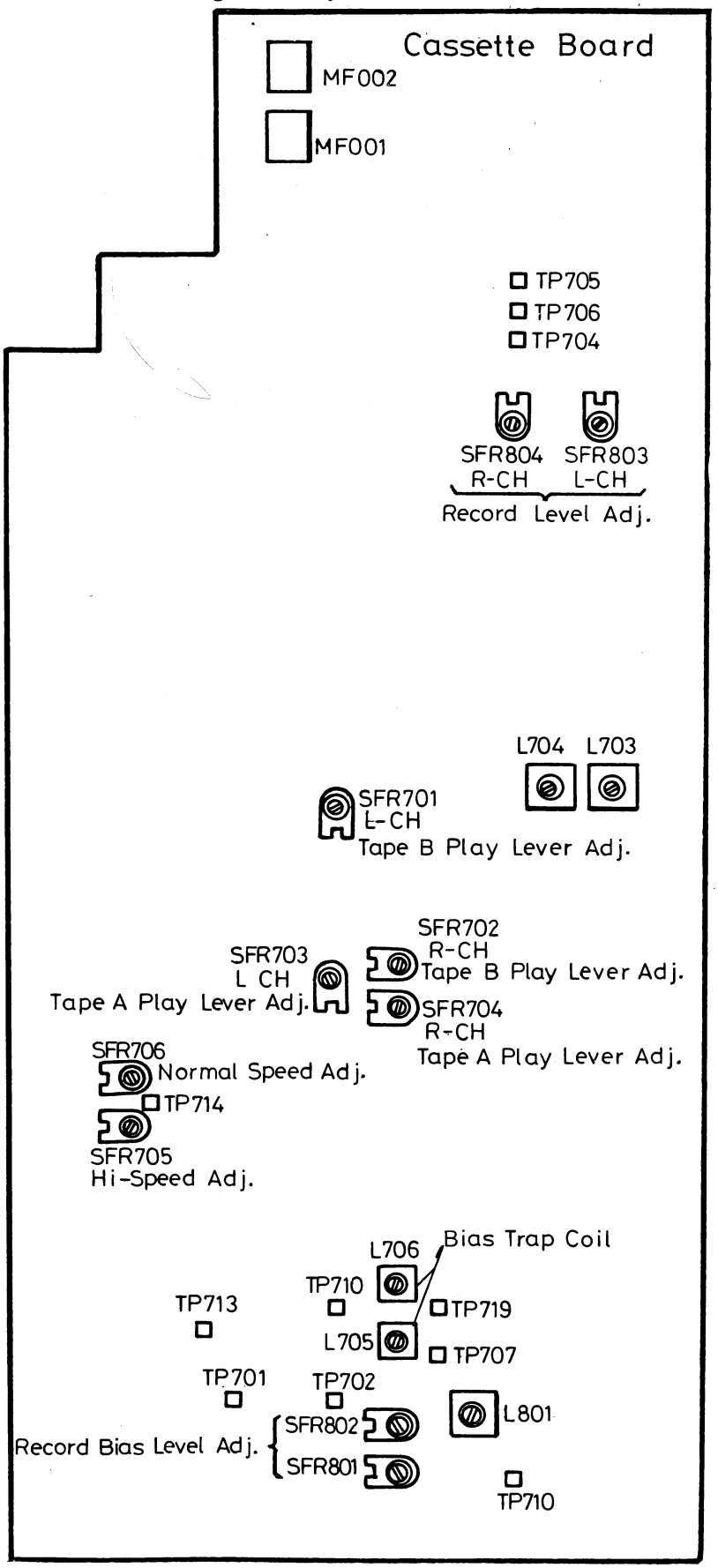


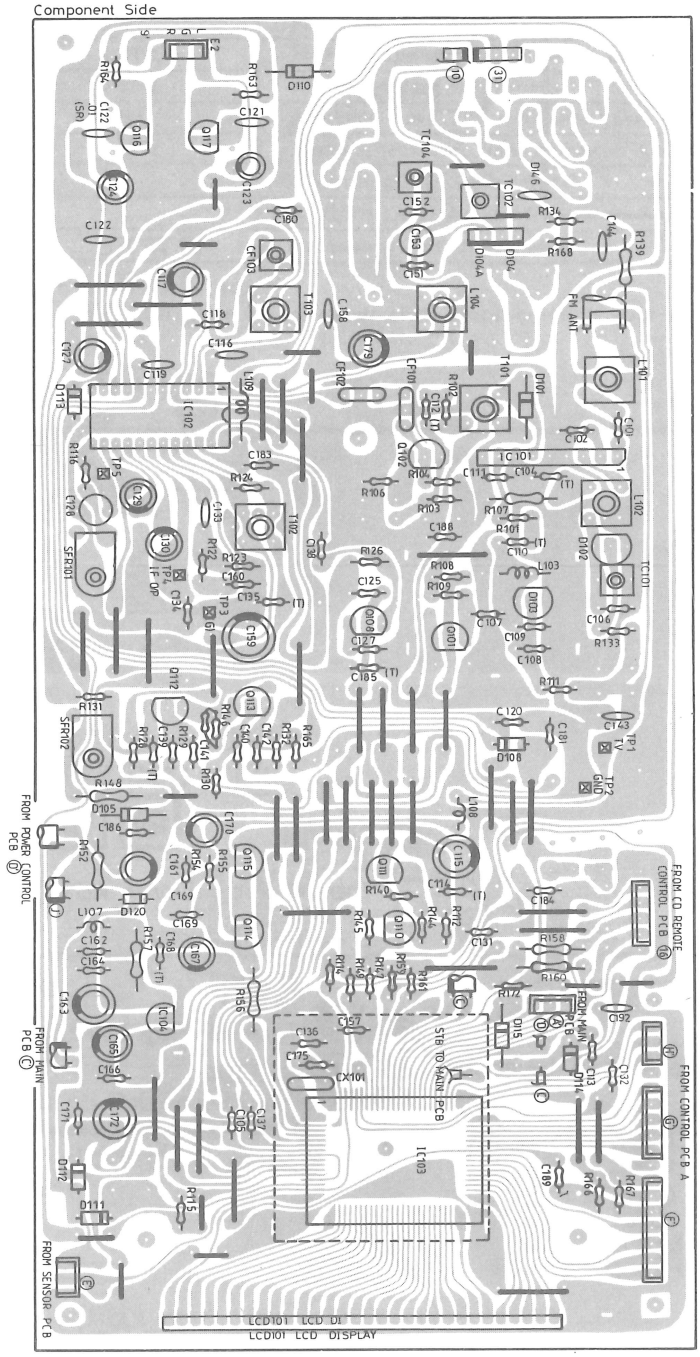
Fig. 2-11 Adjustment points on Cassette board



3. PARTS LOCATION ON BOARD

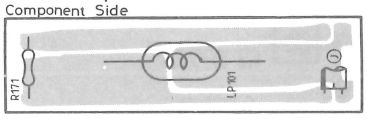
3-1. Tuner Board

Component Side



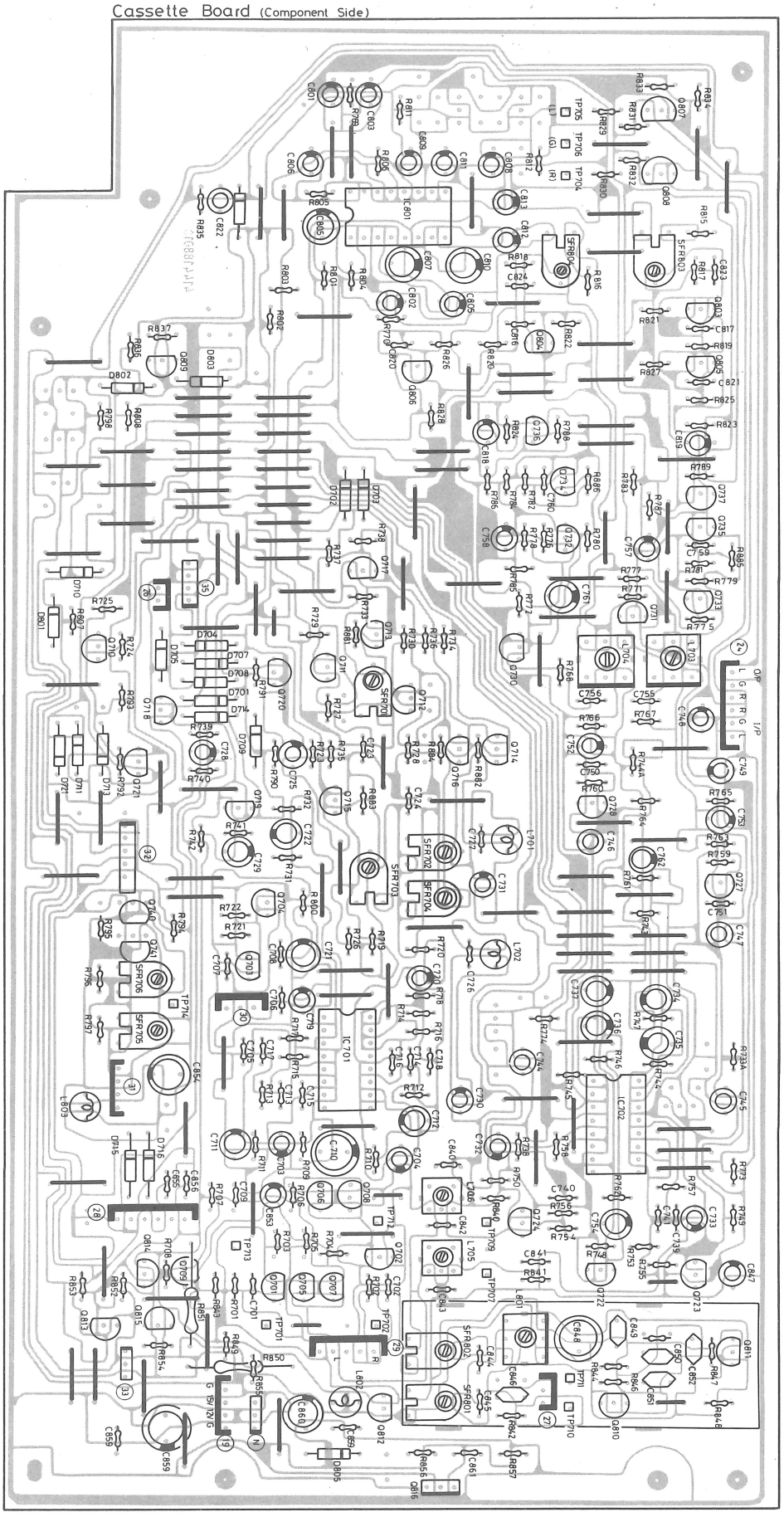
3-2. Lamp Board

Component Side



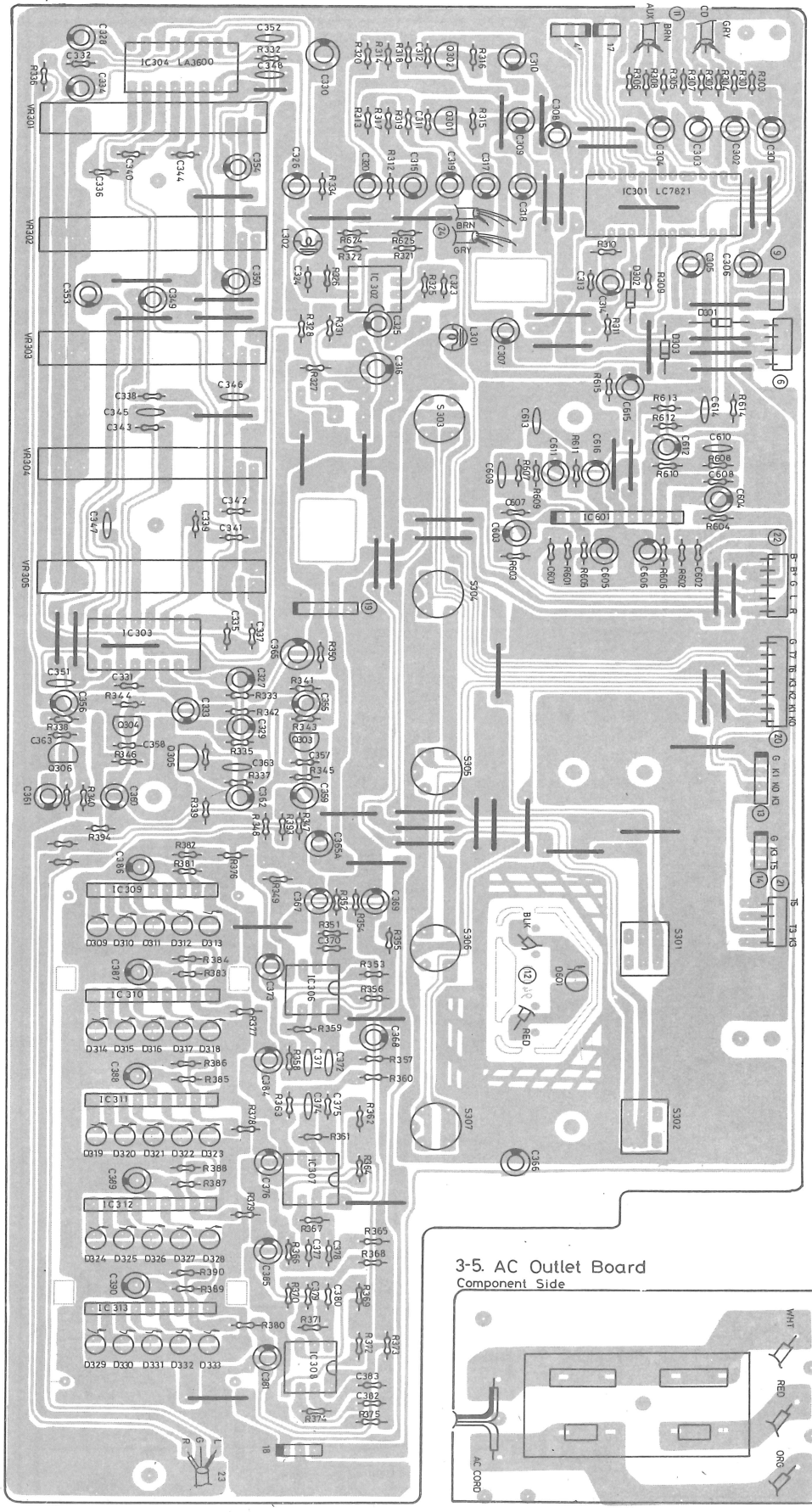
3-3. Cassette Board

Cassette Board (Component Side)



3-4. Front Board

Component Side

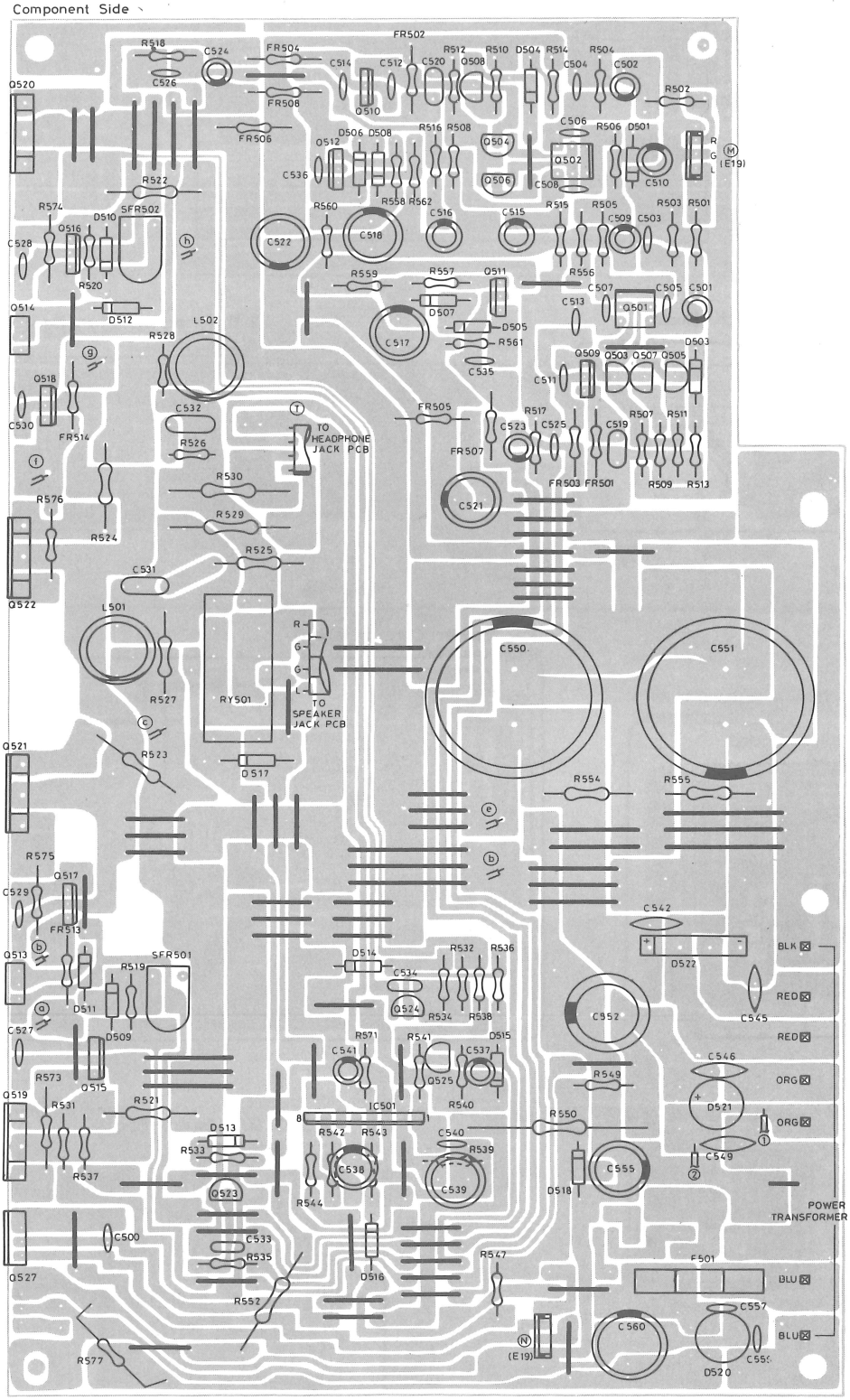


3-5. AC Outlet Board

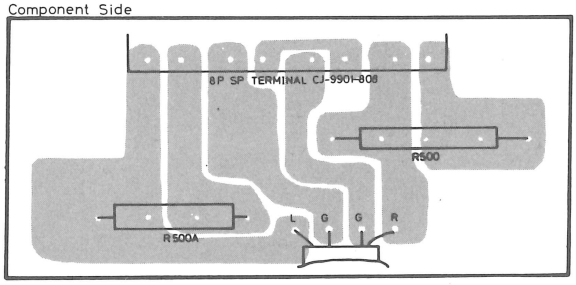
Component Side

3-6. Power Amplifier Board

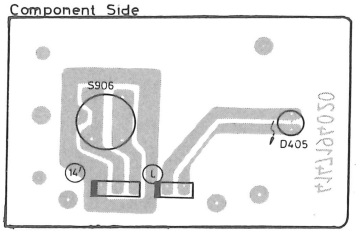
Component Side



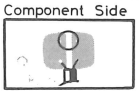
3-7. Speaker Jack Board
Component Side



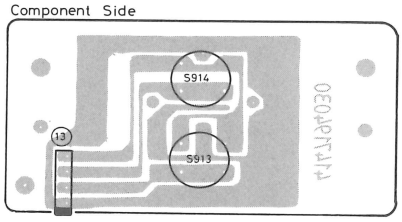
3-8. Power Switch Board
Component Side



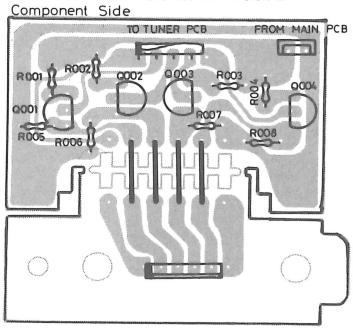
3-10. LED Board
Component Side



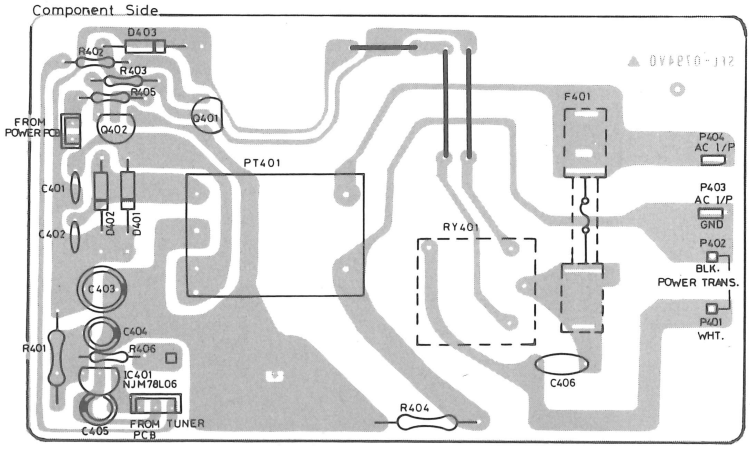
3-11. Tuner Up/Down Board
Component Side



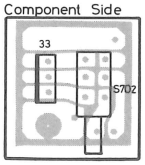
3-9. Remote Control Board
Component Side



3-12. Power Control Board
Component Side

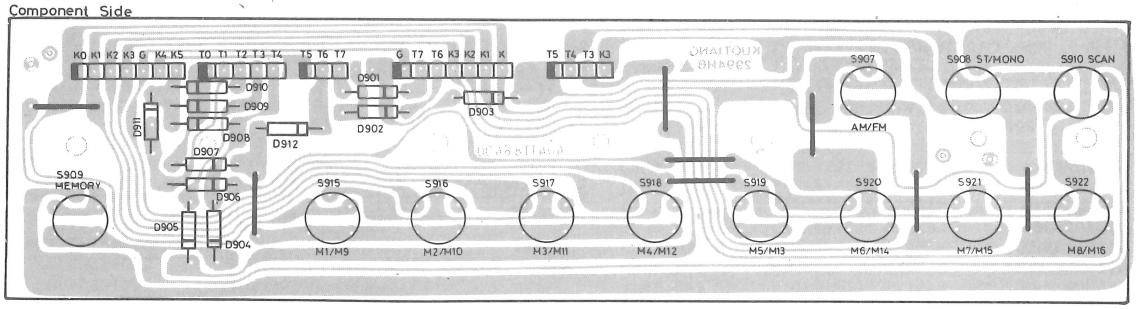


3-13. R/P Switch Board
Component Side



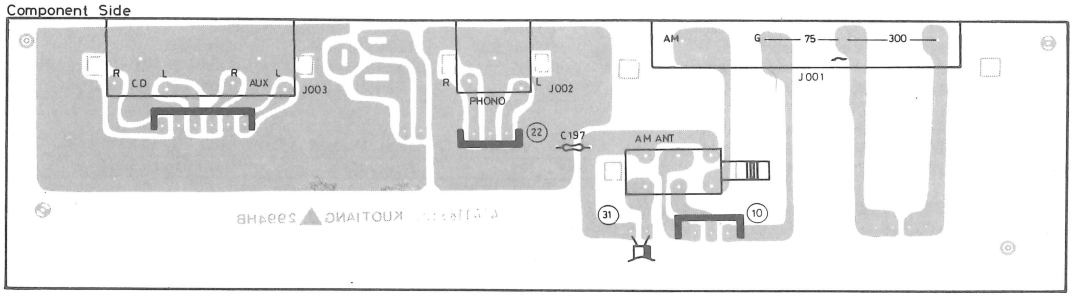
3-14. Tuner Control Board

Component Side



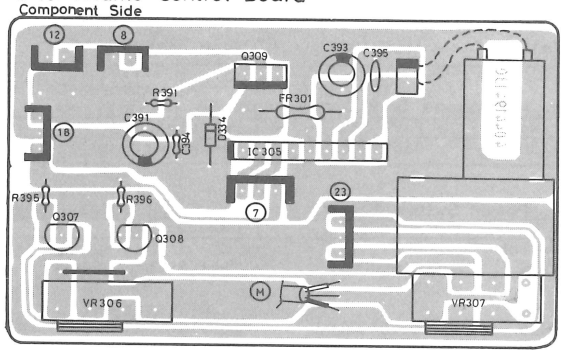
3-15. RCA Jack Board

Component Side



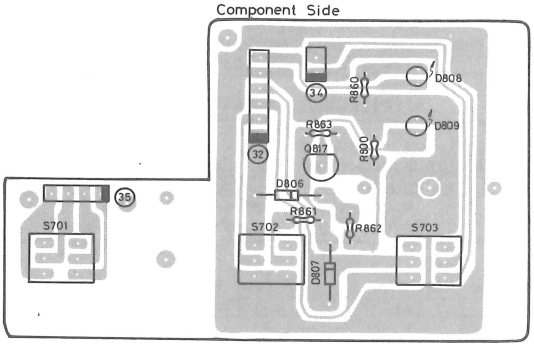
3-16. Volume Control Board

Component Side



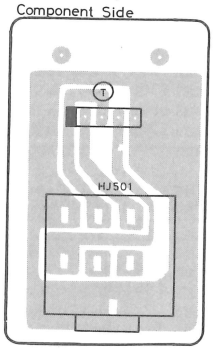
3-17. Tape Select Board

Component Side



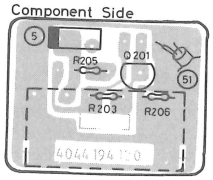
3-18. Headphone Jack Board

Component Side



3-19. Sensor Board

Component Side



4. PARTS LIST OF BOARD

4-1. Front Board (Part No. C147194010)

Ref. No.	Part No.	Description
● Transistor		
Q301-306	410020945P,Q	2SC945P,Q
● IC		
IC301	4152078210	LC7821
IC302	415904558A	NJM4558DA
or	4159045580	BA4558
IC303,304	4152036000	LA3600
IC306-308	415904558A	NJM4558DA
or	4159045580	BA4558
IC309-313	4159061240	BA6124
IC601	4150073100	AN7310
● Diode		
D301-303	4121141480	1N4148
D309-333	4120639104	LED 3Q LTL-3910A AMBER
S301	4430206415	Push Switch, Surround
S302	4430206415	Push Switch, Bass Boost
S303-307	4430206415	Tact Switch, Function
vR301-305	5210215206	V.R. 100KBx2 Graphic EQ.
L301,302	4329247311	Inductance 47mH
⚠F501	5266200020	Fuse UL, CSA T2A/125V
C311,312	7306522115	220pF 50V C.C.
C313	7308622345	.022uF 25V C.C.
C323,324	7306510215	.001uF 50V C.C.
C331,332	7306510215	.001uF 50V C.C.
C335,336	7306533115	330pF 50V C.C.
C337,338	7307868215	.0068uF 16V C.C.
C339,340	7306510215	.001uF 50V C.C.
C341,342	7308622345	.022uF 25V C.C.
C343,344	7307847215	.0047uF 16V C.C.
C357,358	7306522115	220pF 50V C.C.
C370	7306956055	56pF 50V C.C.
C377	7307110335	.01uF 16V C.C.
C378	7307822215	.0022uF 16V C.C.
C379	7307839215	.0039uF 16V C.C.
C380	7306547115	470pF 50V C.C.
C382	7306568115	680pF 35V C.C.
C383	7306527115	270pF 50V C.C.

4-2. Tuner Control Board (Part No. C144204210)

Ref. No.	Part No.	Description
● Diode		
D901-910	4120141480	1N4148
D911	4120901760	1SS176
S907	4400000094	Tact Switch, AM/FM Select
S908	4400000094	Tact Switch, Stereo/Mono
S909	4400000094	Tact Switch, Memory
S915-922	4400000094	Tact Switch, Preset

4-3. CD Remote Control Board (Part No. C041188506)

Ref. No.	Part No.	Description
● Transistor		
Q001-004	410020945P,Q	2SC945P,Q

4-4. Power Control Board (Part No. C041192901)

Ref. No.	Part No.	Description
● Transistor		
Q401,402	410020945P,Q	2SC945P,Q
IC		
IC401	4159780060	IC. NJM78L06
Diode		
D401-403	4138104002	1N4002L
⚠T401	4208281214	Back Up Trans. EI-28 (M)
⚠F401	5269600050	Fuse UL T6A/250V
⚠F402,403	5267400060	Semko T4A/250V (XX,SS)
RY401	4390000018	Relay SRUT-SS-112DM
R401	4050222059	220 Ohm 1/2W
R404	4050233512	3.3 M Ohm 1/2W Solid
C406	5106472121	4700pF/125V Spark "M"

4-5. Speaker Jack Board (Part No. C041198200)

Ref. No.	Part No.	Description
● Resistor		
R500,500A	4091180957	10W 809J-S Cement

4-6. LED Control Board (Part No. C041202400)

Ref. No.	Part No.	Description
● Transistor		
Q051-054	410020945P	2SC945P
D051-053	4120141480	1N4148

4-7. Record/Play Switch Board (Part No. C044188046)

Ref. No.	Part No.	Description
S702	4430202492	Push Switch, R/P Switch

4-8. Tape Select Board (Part No. C044194110)

Ref. No.	Part No.	Description
● Transistor		
Q817	410000733P,Q	2SA733P,Q
Diode		
D806,807	4120141480	1N4148
D808	4120632102	LED 3Q SEL-3210S RED
D809	4120639104	LED 3Q SEL-3910A

4-9. Volume Control Board (Part No. C044194130)

Ref. No.	Part No.	Description
● Transistor		
Q307,308	410020945P,Q	2SC945P,Q
Q309	410030882P,Q	2SD882P,Q
IC		
IC305	4159062080	BA6208
Diode		
D334	4120520565	RD5.6EB2 Zener
vR306	5020115115	VR 100KW, Balance
vR307	5025254121	VR 100KW, Volume
fR301	4180210957	Fuse Resistor 1/2W

4-10. Headphone Jack Board (Part No. C044194140)

Ref. No.	Part No.	Description
HJ501	4500500265	Headphone Jack JY-6311-01-060

4-11. Power Switch Board (Part No. C047194020)

Ref. No.	Part No.	Description
● Switch		
⚠ S906	4400000094	Tact Switch, Power
Diode		
D405	4120632102	LED LTL-3210 RED

4-12. Tuning Up/Down Board (Part No. C047194030)

Ref. No.	Part No.	Description
● Switch		
S913	4400000094	Tact Switch, Tuning Down
S914	4400000094	Tact Switch, Tuning Up

4-13. LED Board (Part No. C047194060)

Ref. No.	Part No.	Description
● Diode		
D601	4120632102	LED LTL-3210 RED

4-14. AC Outlet Board (Part No. C047194060)

Ref. No.	Part No.	Description
J401	4570101040	AC Outlet AC-T05LB57

4-15. Power Amplifier Board (Part No. C141159810)

Ref. No.	Part No.	Description
● Transistor		
Q501,502	410023067F,G	2SC3067F,G
Q503-506	410021570F	2SC1570F
or	410021571F	2SC1571F
Q507,508	410000608F	2SA608K (F)
Q509,510	410001209S	2SA1209S
Q511,512	410022911S	2SC2911S
Q513,514	4100309470	2SD947
Q515,516	410023117S,R	2SC3117S,R
Q517,518	410001249S,R	2SA1249S,R
Q519,520	410023280R	2SC3280R
or	4100239070	2SC3907-0

Parts List (Power Amplifier Board)

Ref. No.	Part No.	Description
Q521,522	410001301R	2SA1301R
or	4100015160,R	2SA1516-0,R
Q523,524	410021841E,F	2SC1841E,F
Q525	410000988E,F	2SA988E,F
Q527	410030313E,F	2SD313E,F
● IC		
IC501	415101237H	UPC1237H
● Diode		
D501	4120501805	RD18EB23, Zener
D503-516	4121141480	1N4148
D517	4138014002	1N4002L
D518	4120501505	RD15EB23, Zener
D520,521	4138150020	B20SL
D522	4130800060	K8060
RY501	4390000013	Relay OMI-SS-212D
L501,502	4320189131	Audio coil 1.8uH
sFR501,502	5228101150	100 ohm, S. V. R. Idle Current Adj.
⚠ fR501,502	4180482057	Fuse Resistor 82 ohm 1/4W
⚠ fR503-508	4180447057	Fuse Resistor 47 ohm 1/4W
⚠ fR513,514	4180233157	Fuse Resistor 330 ohm 1/2W
R513,514	4170456056	56 ohm 1/4W Metal
R521-524	4095022858	.22 ohm 5W Cement
R525-528	4171047955	4.7 ohm 1W Metal
R529,530	4172047155	470 ohm 2W Metal
R549	4050210259	1K ohm 1/2W
R550	4173015055	150 ohm 3W Metal
R552	4171082055	820 ohm 1W Metal
R554,555	4050222359	22K ohm 1/2W
R556	4050247259	4.7K ohm 1/2W
R559,560	4170410056	10 ohm 1/4W Metal
R573-576	4170247055	47 ohm 1/2W Metal
R577	4172068955	6.8 ohm 2W Metal

4-16. Cassette Board (Part No. C144188011)

Ref. No.	Part No.	Description
● Transistor		
Q701,702	410020945P,Q	2SC945P,Q
Q710	410020945P,Q	2SC945P,Q
Q705-708	410020945P,Q	2SC945P,Q
Q709	410000733P,Q	2SA733P,Q
Q711-719	410020945P,Q	2SC945P,Q
Q720,721	410000733P,Q	2SA733P,Q
Q730-737,740	410020945P,Q	2SC945P,Q
Q741	410000733P,Q	2SA733P,Q
Q722-724,727	410020945P,Q	2SC945P,Q
Q728,812	410020945P,Q	2SC945P,Q
Q803-808,813	410020945P,Q	2SC945P,Q
Q810,811	410022001L	2SC2001L
Q809,814,815	410000733P,Q	2SA733P,Q
Q816	410030313E	2SD313E
● IC		
IC701	415307784P	TA7784P
IC702	415308135P	TA8135P
IC801	415C011010	CXA1101
● Diode		
D701-714	4121141480	1N4148
D801-804	4121141480	1N4148
D715,716	4138104002	1N4002L
D805	4120501205	RD12EB23, Zener
L701,702	4329210311	Inductance 103K
L703,704	4160400051	Dolby MPX. F. TWS-358-356
L705,706	4360900520	Bias Trap Coil TWS-358-533
L801	4330801370	Bias OSC TWS-358-532
L802,803	4328247186	Motor Choke 470uH "K"
sFR701	5221082436	20k ohm, S. V. R. Tape B Play Lever (L)
sFR702	5221082436	20k ohm, S. V. R. Tape B Play Lever (R)
sFR703	5221082436	20k ohm, S. V. R. Tape A Play Lever (L)
sFR704	5221082436	20k ohm, S. V. R. Tape A Play Lever (R)
sFR705	5221081418	10k ohm, S.V. R. Hi-Speed Adj.
sFR706	5221081418	10k ohm, S. V. R. Normal Speed Adj.
sFR803,804	5221082436	20k ohm, S. V. R. Record Level Adj.
R850	4172082055	820 ohm 2W Metal
R851	4172039055	390 ohm 2W Metal

Ref. No.	Part No.	Description
C701,702	7306510215	.001uF 50V C.C.
C705,706	7306547115	470pF 50V C.C.
C709	7308622345	.022uF 25V C.C.
C713-716	7306510115	100pF 50V C.C.
C723,724	7307110335	.01uF 16V C.C.
C726,727	7306510115	100pF 50V C.C.
C738-741	7306527115	270pF 50V C.C.
C750,751	7306522115	220pF 50V C.C.
C755,756	7306510215	.001uF 50V C.C.
C816,817	7307182215	.0082uF 16V C.C.
C820,821	7307847215	.0047uF 16V C.C.
C823,824	7306582115	820pF 50V C.C.
C840,841	7306568115	680pF 50V C.C.
C842,843	7306510115	100pF 50V C.C.
C844,845	7306522115	220pF 50V C.C.
C855,856	7308622345	.022uF 25V C.C.
C857,859,861	7308622345	.022uF 25V C.C.
C759,760	7307822215	.0022uF 16V C.C.

4-17. Tuner Board (Part No. C144204210)

Ref. No.	Part No.	Description
● Transistor		
Q101	410021674L	2SC1674L
Q102	410021675L	2SC1675L
Q108	410020945P,Q	2SC945P,Q
Q110,111	410000733P,Q	2SA733P,Q
Q112	410021675L	2SC1675L
Q113-117	410020945P,Q	2SC945P,Q
CX101	410090450M	X'TAL 4.5MHz
● IC		
IC101	415201186N	LA1186N
IC102	4152018050	LA1805
IC103	4152723007	LC7230-8307
IC104	4157780053	MC78L05CT
or	4151078005	UPC78L05
● Diode		
D101	4120200602	1N60P
D102,103	4120400550	1SV55
D104	4120112360	KV1236Z1
D105	4120520565	RD5.6EB2
D108	4121901760	1SS176
D110,116	4121141480	1N4148
D111-114,120	4121901760	1SS176
LCD1	4110440143	LCD Display HLC9861-01-2211
L101	4300400720	FM Antenna coil TWS-358-599
L102	4310400850	FM RF coil PC8867
L103	4330400820	FM Oscillator Coil
L104	4330101690	AM Oscillator Coil PC9026
L107,108	4328247186	Motor Choke 470uH "K"
T101	4340201010	FM IFT TWS-358-425
T102	4340201340	FM DET Coil R22-E788
T103	4340101240	AM IFT R22-E792
TC101,102	5010110025	Trimmer C. CTC-10pF
TC104	5010200026	Trimmer C. CTC-20pF
cF101	4160220044	Ceramic Filter SFE10.7MS3GYM RED
cF102	4160200003	Ceramic Filter SFE10.7MA5 RED
cF103	4160500200	Ceramic Filter SFP450G
cF104,105	4160100097	Low Pass Filter B3ZN4503-32
sFR101	5221081418	10k ohm, S.V.R. Sep. Adj.
sFR102	5221081510	100k ohm,S.V.R. Log Sens.
C101,102	7306510215	.001uF 50V C.C.
C104	7308622345	.022uF 25V C.C.
C105	7306510115	100pF 50V C.C.
C106,107	7306022915	2.2pF 50V C.C.
C108	7306968055	68pF 50V C.C.
C109	7306047915	4.7pF 50V C.C.
C110	7306020055	20pF 50V C.C.
C111	7308622345	.022uF 25V C.C.
C112	7307110335	.01uF 16V C.C.
C113,114	7308622345	.022uF 25V C.C.
C120	7306515115	150pF 50V C.C.
C131,132	7306515115	150pF 50V C.C.
C134	7306547115	470pF 50V C.C.
C135,137	7306510215	.001uF 50V C.C.
C136	7306015055	15pF 50V C.C.
C138	7306510115	100pF 50V C.C.
C139	7306930055	30pF 50V C.C.
C140-142	7306510215	.001uF 50V C.C.

to be continued

Parts List (Tuner Board)

Ref. No.	Part No.	Description
C151	7306510115	100pF 50V C.C.
C152	7306047915	4.7pF 50V C.C.
C157,160	7308622345	.022uF 25V C.C.
C169	7308622345	.022uF 25V C.C.
C162,164	7307110335	.01uF 16V C.C.
C166,168	7307110335	.01uF 16V C.C.
C171	7307110335	.01uF 16V C.C.
C175	7306930055	30pF 50V C.C.
C181	7306515115	150pF 50V C.C.
C180	7308622345	.022uF 25V C.C.
C183	7306920055	20pF 50V C.C.
C184,185	7308622345	.022uF 25V C.C.
C186	7308622345	.022uF 25V C.C.
C188	7308622345	.022uF 25V C.C.
C189	7307110335	.01uF 50V C.C.
C198	7308622345	.022uF 25V C.C.

4-18. Lamp Board (Part No. C144204220)

Ref. No.	Part No.	Description
Lamp1	4703126124	Fuse Lamp 12V/60mA

4-19. Remote Jack Board (Part No. C047194051) (XX,SS)

Ref. No.	Part No.	Description
S009	4410102136	Step Switch Radio Receiver Step Change

5. MAIN PARTS REPLACEMENT

5-1. Mechanism Ass'y

1) Remove 2 screws (M73a) and 5 screws (M97a) To remove R (M85) & L (M86) side cabinet.
2) Remove 4 screws (M22b) from the back board (M96) and remove RCA Jack PCB assembly (M103).
3) Remove 2 screw (M107c) from the back board and remove CD Remote Control PCB assembly (M100).
4) Remove 4 screws (M95d) to remove the back board (M96).
5) Remove 2 screws (M22e) from the back board (M96) and remove AC Outlet PCB assembly (M99).
6) Remove 3 screws (M22f) and remove the Tuning up/down PCB assembly (M31).
7) Remove 2 screws (M22g) and remove the Tuner PCB assembly (M49).
8) Remove 4 screws (M22h) and remove the Tuner Control PCB assembly (M25).
9) Remove 9 screws (M22j) and remove the front PCB assembly (M40).
10) Remove 4 screws (M22k) and remove the Cassette PCB assembly (M37).
11) Remove 2 screws (M22ℓ) and remove the Power switch PCB assembly (M20).
12) Remove 1 screw (M19n) and remove the Headphone Jack PCB assembly (M18).
13) Remove 3 screws (M22m) and remove Tape Select PCB assembly (M33).
14) Remove 6 screws (M22p) and remove the Cassette Deck assembly (M55).
15) Remove 5 screws (M51q) and remove the Power Amplifier PCB assembly (M84).
16) Remove 2 screws (M52r) and remove the Power Control PCB assembly (M77).

5-2. Cassette door L and R

1) Remove the mechanism assembly (M55).
2) Remove 4 screws (M22s) and remove the gear damper(M26).
3) Remove the eject spring (M1).
4) Remove the cassette door L (M3) and R(M2) from the front panel assembly.

6. PARTS LIST OF CABINET & MECHANISM

6-1. Cabinet

Ref. No.	Part No.	Description
M1	2004079303	Eject spring
M2	1003079303	Cassette door (R)
M3	1002079303	Cassette door (L)
M4	1004079303	Volume knob
M5	1024079303	LED window (B)
M6	1035079303	Foot overlay
M7	1017079902	Mirror
M8	1012079303	Balance knob
M9	C047194060	LED PCB assembly
M10	1025079303	LED window (C)
M11	0003079303	LED window (A) assembly
M12	JS27833300	Logo badge (SANAUI 1/12)
M13	1026079303	Power lens
M14	1022079303	Display window
M15	1009079303	Power knob
M16	2013175909	Counter bracket
M16A	2022070935	Counter belt 40¢x0.8
M17	5390000084	Counter T3SA100-120-703
M18	C044194140	Headphone jack PCB assembly
M20	----------	Power Switch PCB assembly
M21	2004079336	PCB holder
M23	1006079303	Preset knob (A)
M24	1007079303	Preset knob (B)
M25	----------	Tuner Control PCB assembly
M26	2000001065	Gear damper
M27	1021079303	Knob cover
M28	----------	Sensor PCB assembly
M29	1027079303	Volume lens
M30	1005079303	Tuning knob
M31	C047194030	Tuning up/down PCB assembly
M32	C044194130	Volume Control PCB assembly
M33	C044194110	Tape Select PCB assembly
M34	1011079303	H.S.D. knob
001	0001079303	Front escutcheon assembly
(M35)	2017071880	Escutcheon nut
M36	2008078116	Main PCB bracket (L)
M37	C144188011	Cassette PCB assembly
M38	1013079303	Slide knob
M39	1008079303	Function knob
M40	C147194010	Front PCB assembly
M41	----------	LED Control PCB assembly
M42	1010079303	Push knob
M43	2001079303	LED holder (A)
M44	2038076670	Shield plate (A)
M45	2010077500	Transistor spring holder
M46	2003079302	Record PCB holder
M47	2004079302	Tuning PCB bracket
M47A	2013079130	Shield plate
M48	2017077500	Display plate
M48A	2002077500	Display chassis
M49	C144204210	Tuner PCB assembly
M50	----------	Lamp PCB assembly
M55	4380603940	Cassette deck TN-21ZSW-134
M57	2007078110	Record Switch plate
M58	----------	Record/Play Switch PCB assembly
M60	0182131306	Button frame assembly
M61	1014079303	Button, PLAY (A)
M62	1015079303	Button, PLAY (B)
M63	1016079303	Button, RECORD
M64	1017079303	Button, REW
M65	1018079303	Button, FAST FORWARD
M66	1019079303	Button, STOP/EJECT
M67	1020079303	Button, PAUSE
M68	7159151001	Remote control assembly
002	0002079303	Bottom board assembly
(M69)	2000000840	Tet nut
(M70)	0002078910	Leg assembly
(M78)	2006079303	Transformer bracket
M72	2056076075	Back board bracket (A)
M77	----------	Power control PCB assembly
M79	2028078900	Relay PCB holder
M82	2010078900	Back holder (B)
M83	2029078900	Amplifier holder
M84	----------	Power Amplifier PCB assembly
M85	1030079303	Side board (R)
M86	1029079303	Side board (L)
M87	1031079303	Top Cabinet
M88	2019078900	Heat sink (L)
M89	2015078900	Back holder (A)
M90	2027178900	Side holder
M91	2016078900	Heat sink (R)
M94	----------	Remote jack PCB Ass'Y (XX,SS)
M96	1028079303	Back board
M98	----------	Speaker Jack PCB assembly
M99	----------	AC Outlet PCB assembly (UL)

Parts List (Cabinet)

Ref. No.	Part No.	Description
M100	----------	CD Remote Control PCB Ass'y
M101	2013076302	Pin jack holder
M103	----------	RCA Jack PCB Ass'y
M105	2006079302	AC Outlet bracket
M108	4580200006	Cord stopper SR-4N-6
⚠M109	4631372070	AC cord UL/CSA 7FBLK STP2
⚠M110	4420131260	Voltage change switch
	or 4420141220	Voltage change switch
⚠S906	4400000094	Tact switch SKHHQ2720-CP

Ref. No.	Part No.	Description
⚠F401	5269600050	Fuse UL T6A/250V
⚠F402,403	5267400060	Semko T4A/250V (XX,SS)
⚠F501	5266200020	Fuse UL/CSA T2A/125V
⚠T401	4208281214	Back up transformer (EI-28)
⚠TP1	4208961181	Power Transformer (EI-96)

Note: Parts without Parts Nos, are not supplied even parts names are listed in the Parts List.

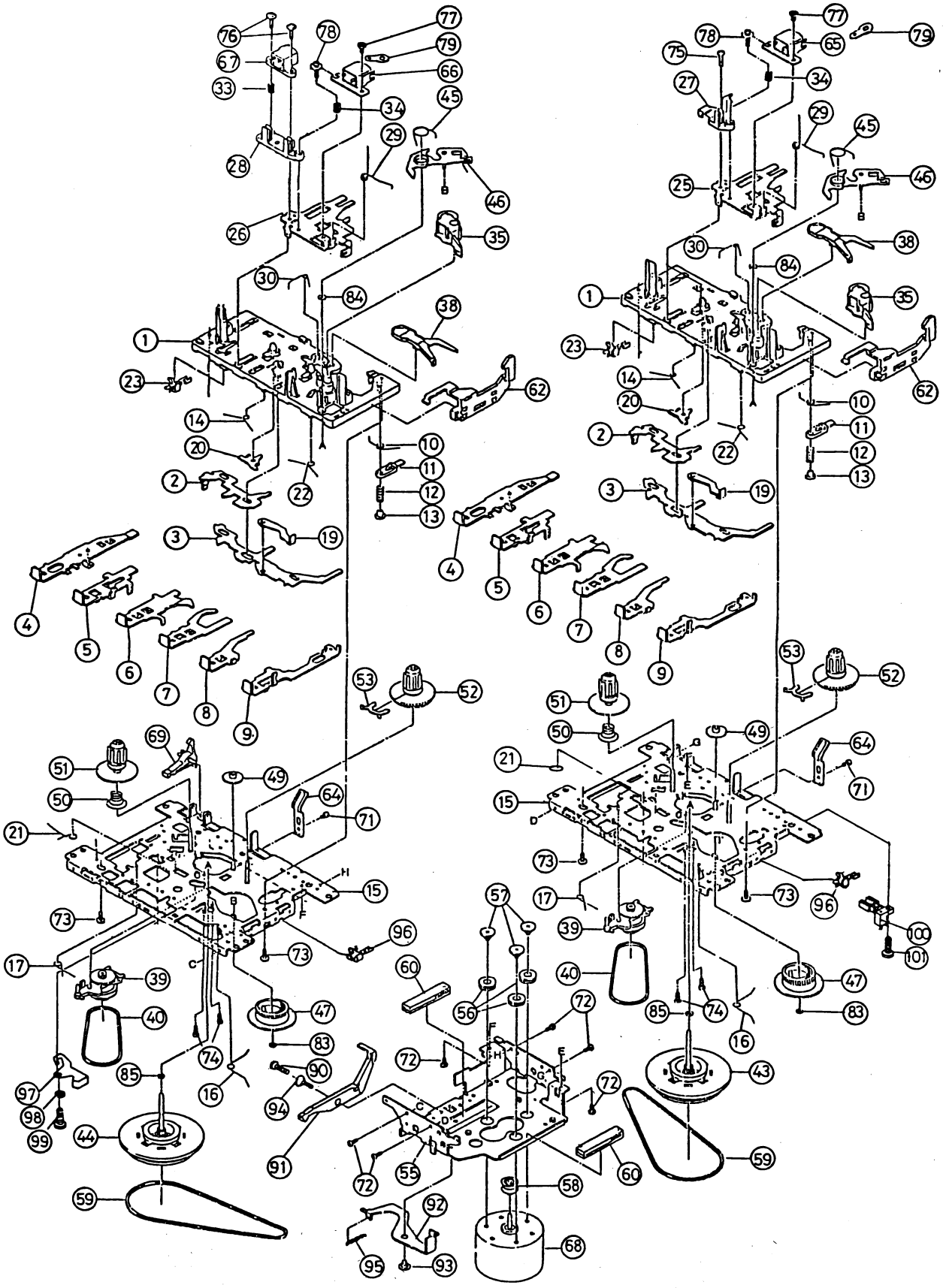
6-2. Mechanism

Ref. No.	Part No.	Description
1	0192114301	Base assembly
2	0019211409	Switch actuator
3	0019211408	Push button actuator
4	0019211422	Record button lever
5	0019211423	Play button lever
6	0019211424	Rewind button lever
7	0019211425	FF button lever
8	0019211426	Stop button lever
9	0019211461	Pause button lever
10	019211413A	P control spring
11	0019211455	Pause lever
12	0019211412	Pause lever spring
13	0019211411	Pause stopper
14	0019211414	Button lever spring (A)
15	0192101501	Chassis assembly
16	0019211416	E actuator spring
17	0019211417	P.S. lever spring
19	0182101159	E kick lever
20	0019211420	P.R. stopper
21	0019211421	Record button lever spring
22	0019211415	Button lever spring (B)
23	4400000101	Leaf switch (MSW-1541T)
25	0019210301	Head panel
26	0019210302	Head panel
27	0019210304	Head base
28	0019210306	Head base
29	0019210303	Panel P spring
30	0019211418	M control spring
33	0018210308	E.H. spring
34	0018210307	Azimuth spring
35	0192104301	Pinch roller arm assembly
38	0019212604	Sensing lever
39	0192107302	RF clutch assembly
40	0019210703	RF belt (Square)
43	0192109304	Flywheel assembly
44	0192109303	Flywheel assembly
45	0019212605	Gear plate spring
46	0192126501	Gear plate assembly
47	0019212602	Cam gear
49	0018211070	FF gear
50	0018291010	Back tension spring
51	0192105306	Supply reel assembly

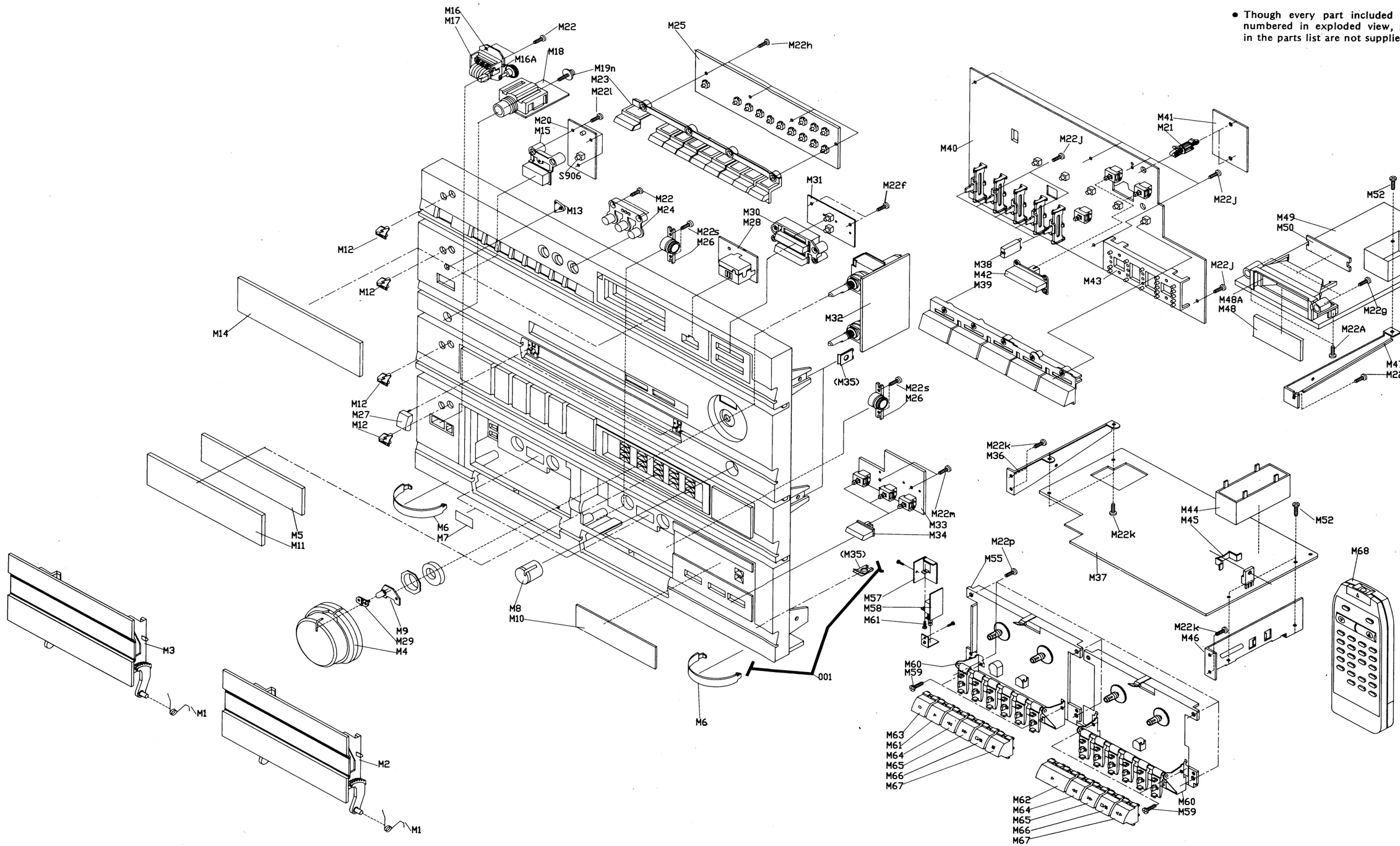
Ref. No.	Part No.	Description
52	0192105305	Take up reel assembly
53	0019210506	Senser
55	0019211211	Motor bracket
56	0018201306	Motor rubber
57	0018211202	Motor collar screw
58	0019211213	Motor pulley
59	0018211222	Main belt (Square)
60	0019211212	Anti vibration felt mat
62	0019211302	Eject slide lever
64	0018291001	Pack spring
65	4030120149	P. head (283-35-102)
66	4030420148	R/P head (283-30-102)
67	4030320174	E. head (862-01-102)
68	4020100149	Motor (SHU2L)
69	0018211069	Record safety lever
71	3049042003	C tapping screw M2x3
72	3049042004	C tapping screw M2x4
73	3049052005	P tapping bing screw M2x5
74	3049222045	Tapping screw (for camera) M2x4.5
75	3019002006	Screw M2x6
76	3019082075	(+) (-) Cap screw M2x7.5
77	3019272003	(+) Bind screw M2x3
78	0099220000	Azimuth screw M2x7
79	0094800000	B3 lug plate
83	3029123803	P washer cut 1.2¢x3.8¢x0.3t
84	3029143805	P washer cut 1.45¢x3.8¢x0.5¢
85	3029203503	P washer 2¢x3.5¢x0.3t
90	3019002006	Screw 2x6
91	0019211209	P kick lever (B)
92	0018211268	P kick lever (A)
93	0018211223	P.K. collar screw (A)
94	0018211265	P.K. collar screw (B)
95	0018211225	P kick lever spring
96	0640101161	Leaf switch
97	0019210201	Record arm
98	0019211437	Collar
99	8611200300	6 (Taptite-S) PAN2003 ZN3A
100	4400000089	Leaf switch (MSW-1665)
101	8611200500	6 (Taptite-S) PAN2005 ZN3A

7. EXPLODED VIEW OF MECHANISM & CABINET

7-1. Mechanism Exploded View



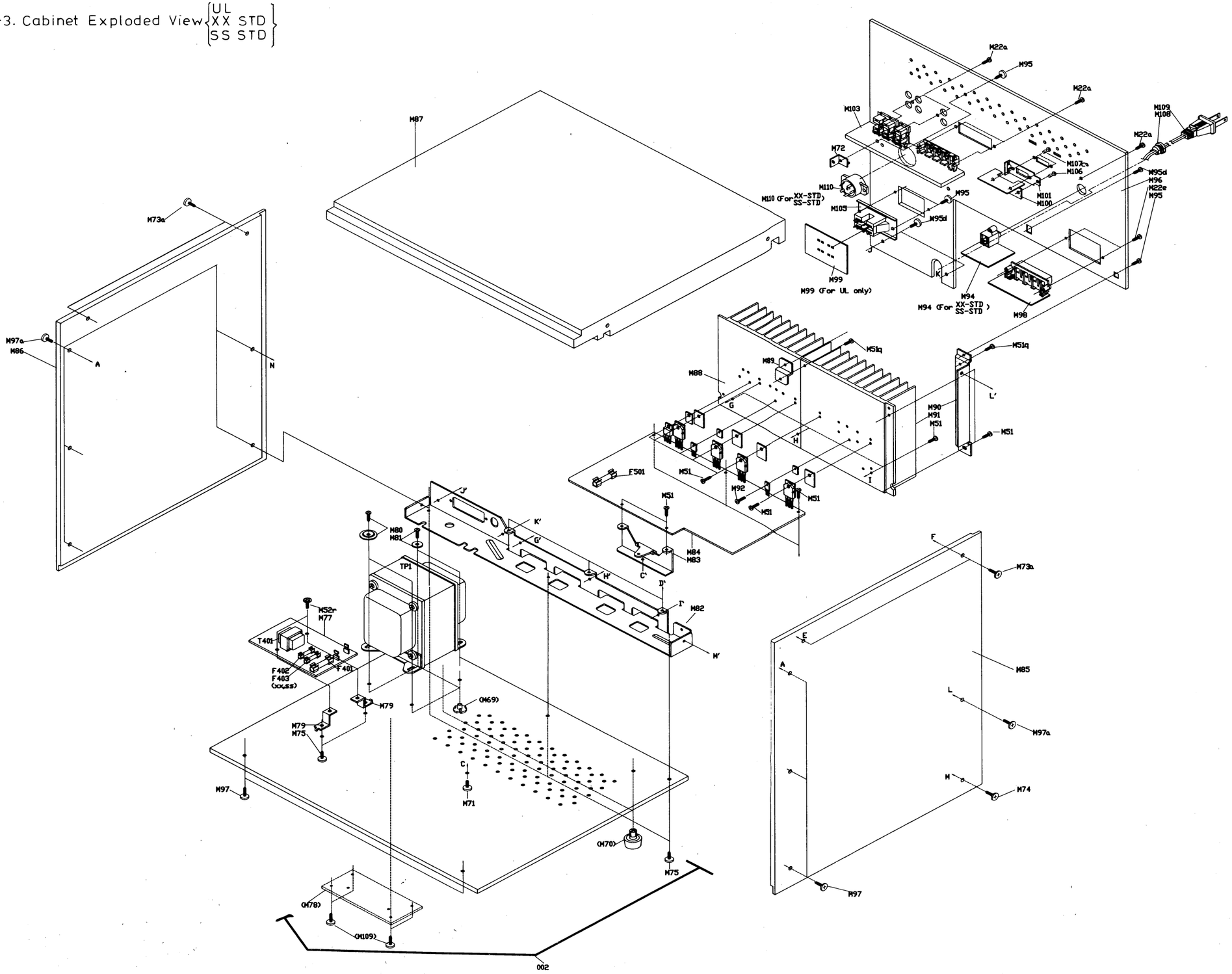
7-2. Cabinet Exploded View



- Though every part included in Cabinet is numbered in exploded view, parts unlisted in the parts list are not supplied.

7-3. Cabinet Exploded View {UL / XX STD / SS STD}

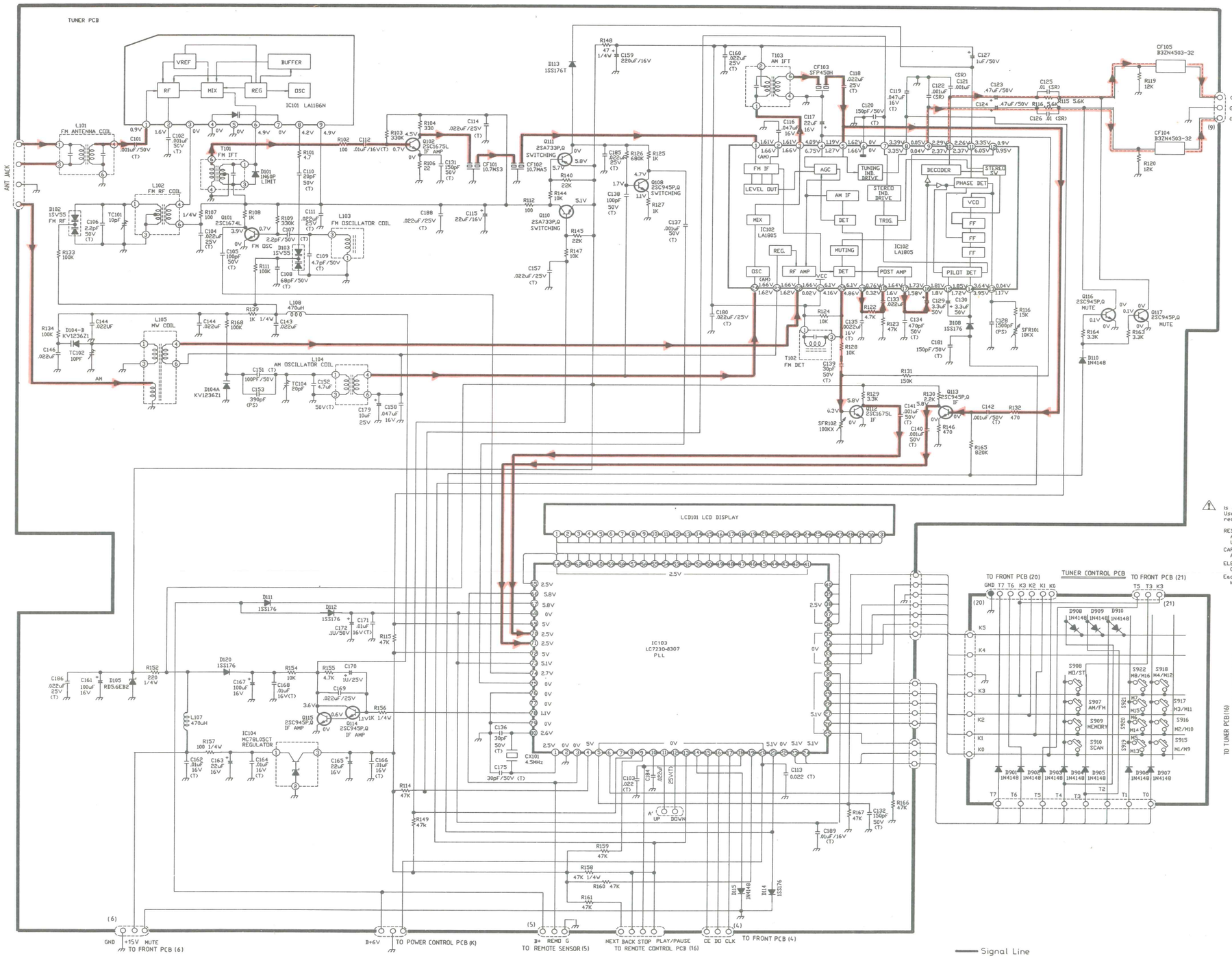
- Though every part included in Cabinet is numbered in exploded view, parts unlisted in the parts list are not supplied.

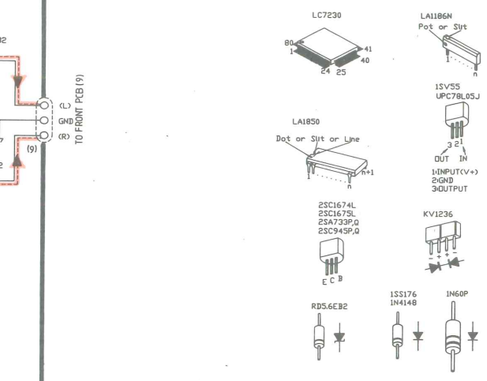


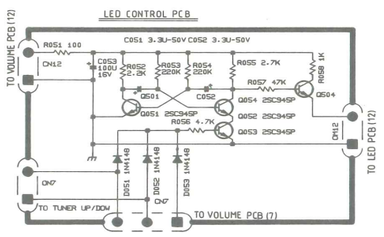
8. SCHEMATIC DIAGRAM

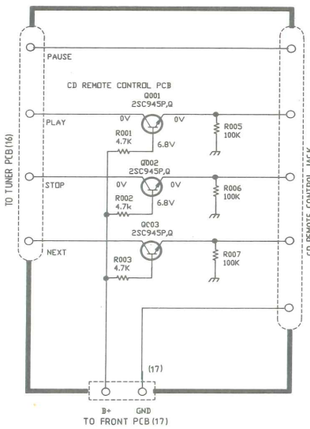
8-1. TA-D2100 (Tuner Section)

- Design and specifications subject to change without notice for improvement.
- La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.









⚠ is Safety Part.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6 Watts, ±5% Tolerance
Unless Otherwise Noted. kK ohm, MM ohm

CAPACITORS
Are in uF, Unless Otherwise Noted. PipF

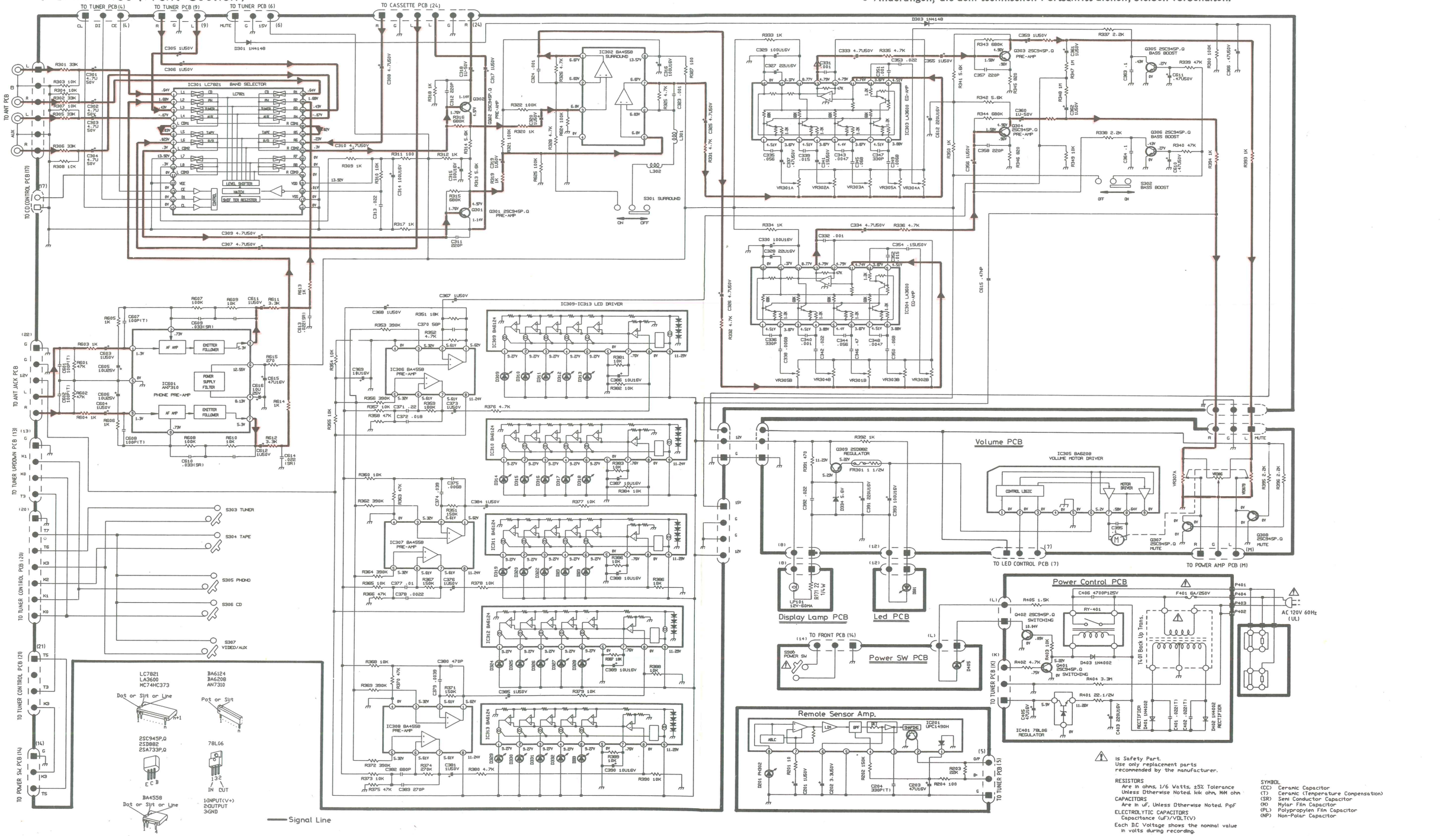
ELECTROLYTIC CAPACITORS
Capacitance (uF)/VOLT(V)

Each D.C Voltage shows the nominal value in volts during recording.

SYMBOL
(CC) Ceramic Capacitor
(T) Ceramic (Temperature Compensation)
(SR) Semi Conductor Capacitor
(M) Mylar Film Capacitor
(PL) Polypropylen Film Capacitor
(NP) Non-Polar Capacitor

- Design and specifications subject to change without notice for improvement.
- La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

8-2. TA-D2100 (Front Section)



⚠ Is Safety Part.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6 Watts, ±5% Tolerance
Unless Otherwise Noted. kk ohm, MM ohm

CAPACITORS
Are in uF, Unless Otherwise Noted. PpF

ELECTROLYTIC CAPACITORS
Capacitance (uF)/VOLT(V)

Each D.C Voltage shows the nominal value in volts during recording.

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(T) Ceramic (Temperature Compensation)
(SR) Semi Conductor Capacitor
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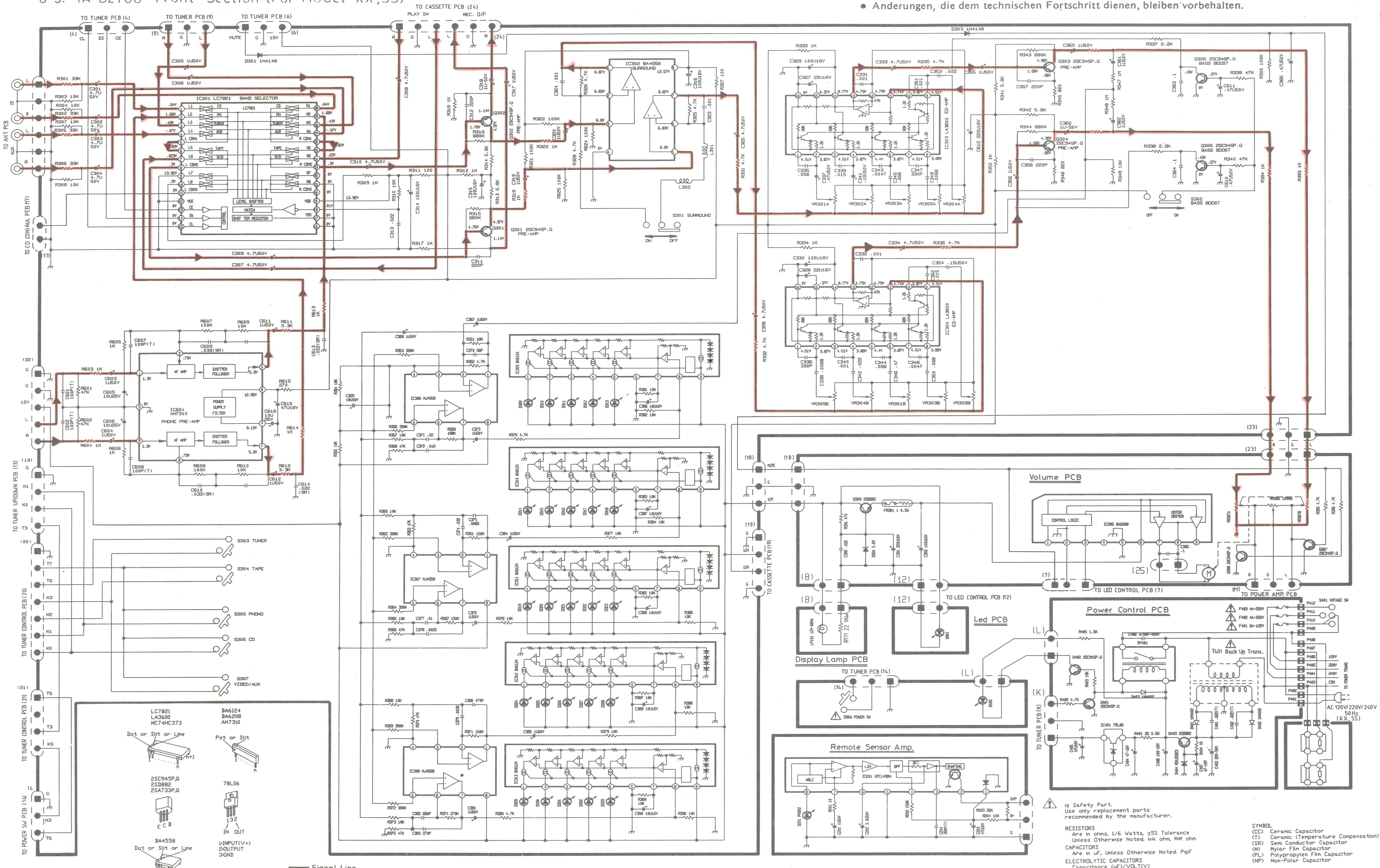
- Design and specifications subject to change without notice for improvement.
- La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

8-3. TA-D2100 Front Section (For Model XX,SS)



⚠ is Safety Part.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6 Watts, ±5% Tolerance
Unless Otherwise Noted. k:k ohm, M:M ohm

CAPACITORS
Are in uF, Unless Otherwise Noted. P:pF

ELECTROLYTIC CAPACITORS
Capacitance (uF)/VOLT(V)

Each D.C Voltage shows the nominal value in volts during recording.

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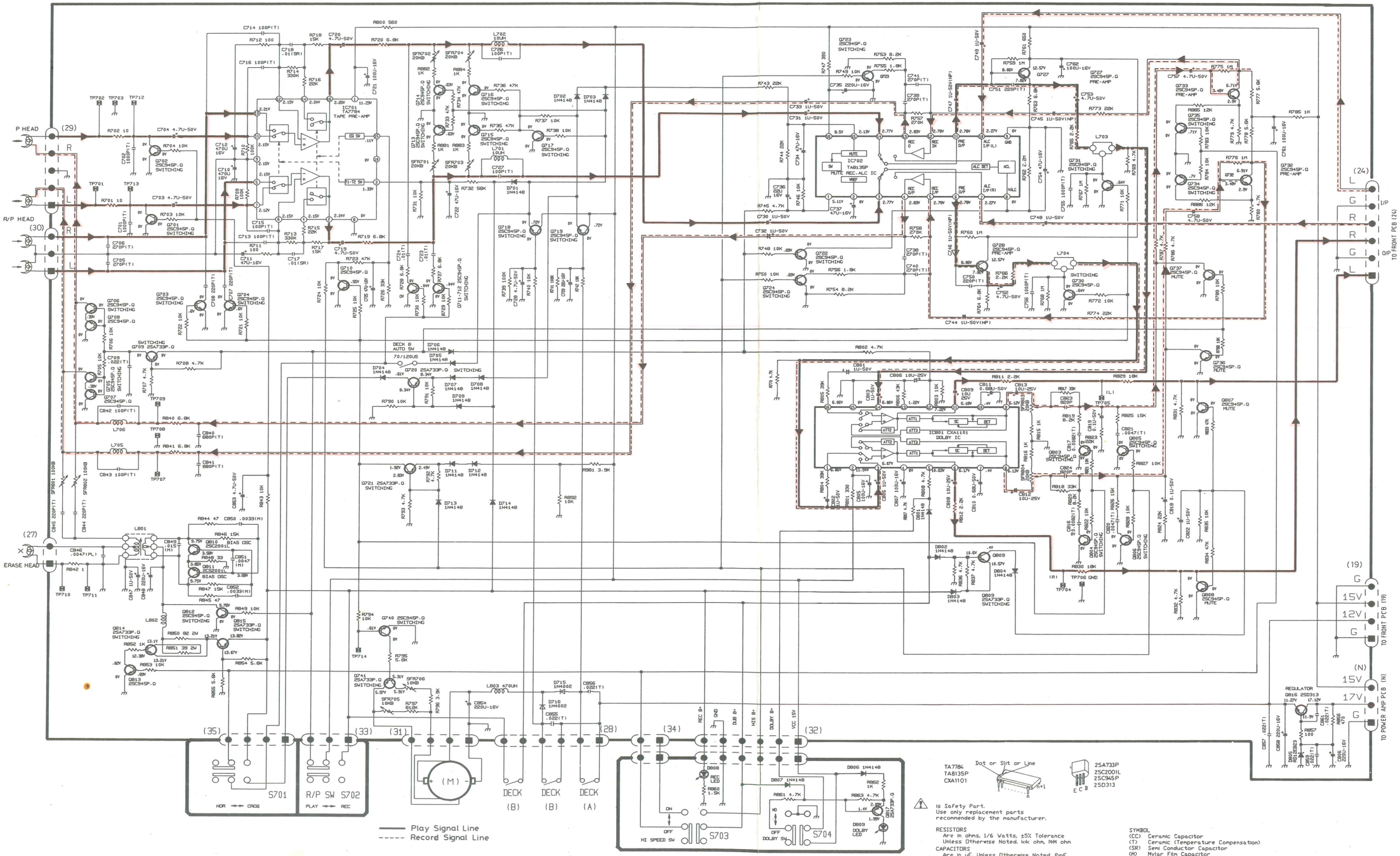
- Design and specifications subject to change without notice for improvement.
- La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

8-4. TA-D2100 (Cassette Section)



TA7784 TA8135P CXA1101

2SA733P 2SC2001L 2SC945P 2SD313

⚠ Is Safety Part.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6 Watts, ±5% Tolerance
Unless Otherwise Noted. kk ohm, MM ohm

CAPACITORS
Are in uF, Unless Otherwise Noted. Ppf

ELECTROLYTIC CAPACITORS
Capacitance (uF)/VOLT(V)

Each D.C Voltage shows the nominal value in volts during recording.

SYMBOL
(CC) Ceramic Capacitor
(T) Ceramic (Temperature Compensation)
(SR) Semi Conductor Capacitor
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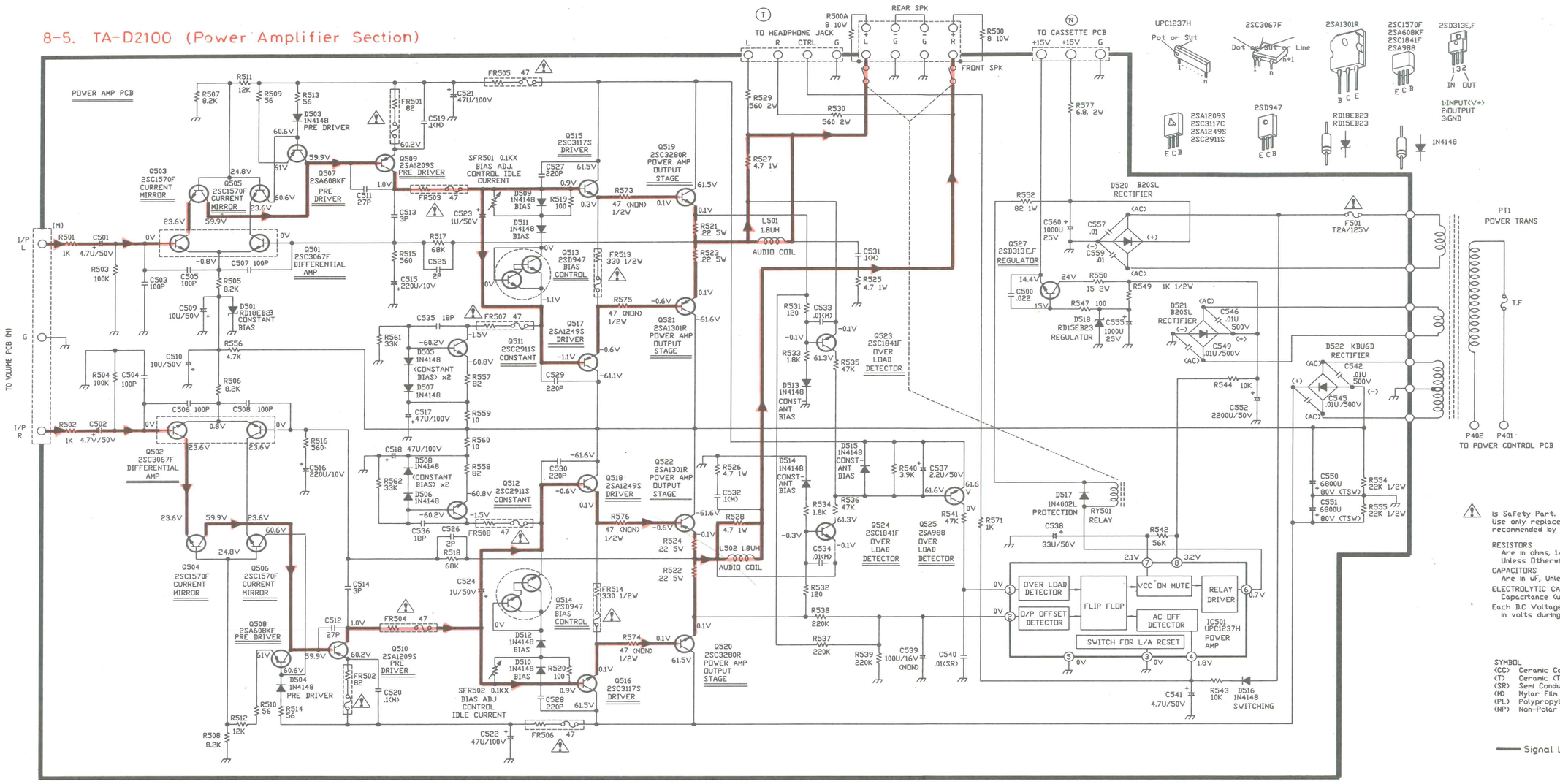
(NP) Non-Polar Capacitor

- Design and specifications subject to change without notice for improvement.
- La présention et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

8-5. TA-D2100 (Power Amplifier Section)



⚠ Is Safety Part.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6 Watts, ±5% Tolerance
Unless Otherwise Noted. kk ohm, MM ohm

CAPACITORS
Are in uF, Unless Otherwise Noted. PipF

ELECTROLYTIC CAPACITORS
Capacitance (uF)/VOLT(V)

Each D.C Voltage shows the nominal value in volts during recording.

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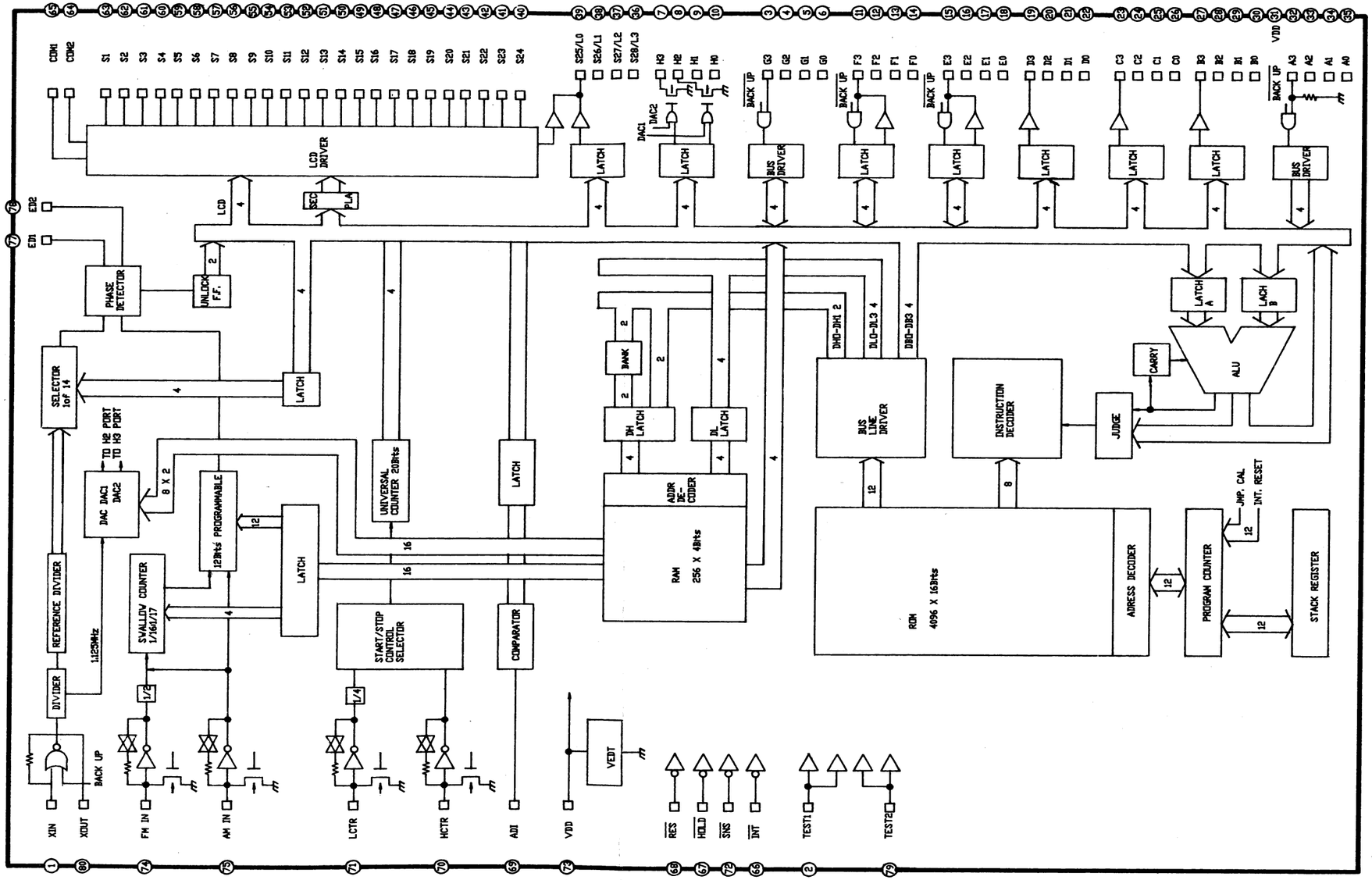
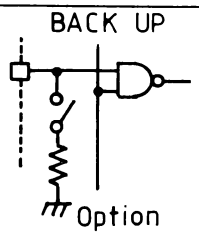
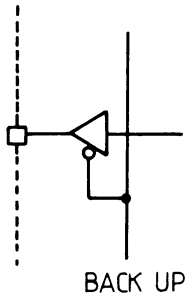
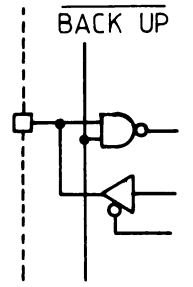
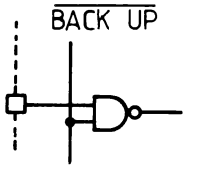
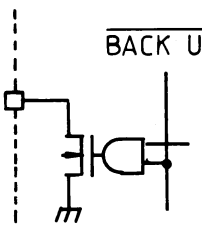
(M) Mylar Film Capacitor
(PL) Polypropylen Film Capacitor
(NP) Non-Polar Capacitor

Signal Line

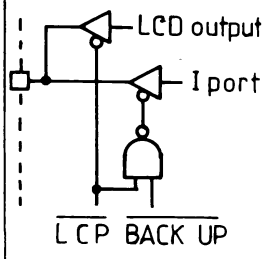
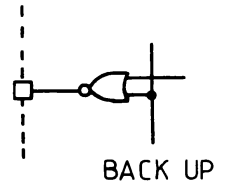
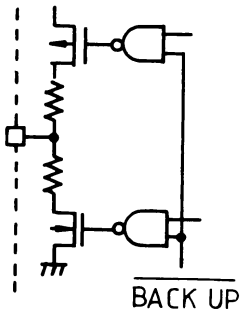
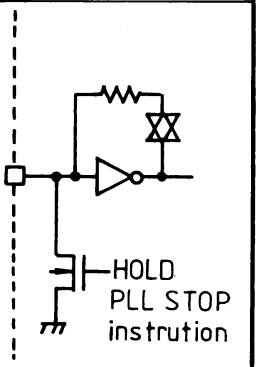
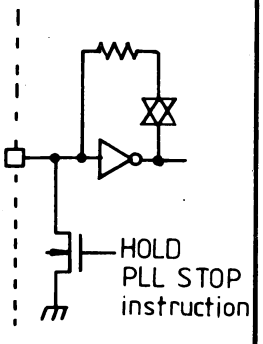
9. INTERRIOR BLOCK DIAGRAM OF IC (IC103 LC7230-8307)



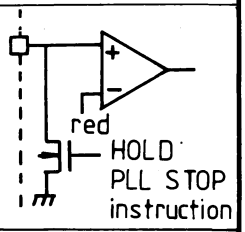
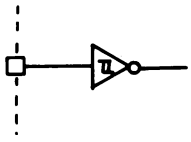
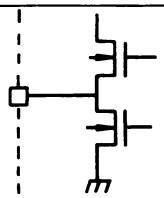
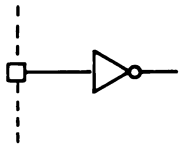
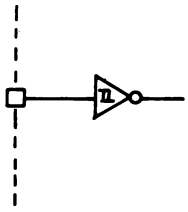
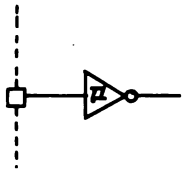
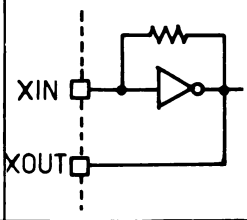
FUNCTIONAL EXPLANATION OF SYNTHESIZER IC103 TERMINALS

Pin Name	Pin No.	Functional Description	I/O	I/O Circuit Type
PA_0 PA_1 PA_2 PA_3	35 34 33 32	Used exclusively for data input. Low threshold type. These port pins can be used for key data entry. Pull-down resistance can be selected by the user option. In this selection, all the four port pins are controlled at a time. That is, the pull-down resistor cannot be selected for each port pin individually. Input to the port pins is inhibited during the BACKUP mode ON.	Input	
PB_0 PB_1 PB_2 PB_3 PC_0 PC_1 PC_2 PC_3	30 29 28 27 26 25 24 23	Used exclusively for data output. Can be used for key scan timing signal output because these ports are composed of CMOS transistors with unbalanced impedance. Enter into output high impedance state at the BACKUP mode. Placed in "L" level state at the reset ($\overline{RES}$ = "L").	Output	
PD_0 PD_1 PD_2 PD_3	22 21 20 19	Used exclusively for data output. Normal CMOS output type. Enter into output high impedance state at the BACKUP mode. Placed in the "L" level state at the reset ($\overline{RES}$ = "L").		
PE_0 PE_1 PE_2 PE_3	18 17 16 15	Used for data input and output. The port is set to the input mode once the input instruction (IN, TPT, or TPF) is executed in your application program while set to the output mode if the output instruction (OUT, SPB, RPB) is used. The operation mode once selected by such an instruction can be effective until an instruction of different type is used in your application program. Set to the input mode at the reset ($\overline{RES}$ = "L"). Set to the input mode at the BACKUP mode. In this case, note that data input to this port is inhibited.	Input/ Output	
PF_0 PF_1 PF_2 PF_3	14 13 12 11	Used for data input and output. This port is controlled by the FPC instruction. Each port pin can be set to the input mode or the output mode by that instruction. Set to the input mode at the reset ($\overline{RES}$ = "L"). This port is set to the input mode at the BACKUP mode. In this case, note that data input to this port is inhibited.		
PG_0 PG_1 PG_2 PG_3	6 5 4 3	Used exclusively for data input. Data input to the port is inhibited at the BACKUP mode.	Input	
PH_0 PH_1 PH_2 PH_3	10 9 8 7	Used exclusively for data output. This port can be used for frequency band power source selection because this port has Nch open drain output circuit at high withstand voltage level. Port pins H_2 and H_3 can be also used as the DAC_1 and DAC_2 outputs, respectively. Enter into high impedance state at the reset ($\overline{RES}$ = "L") and the BACKUP mode.	Output	

FUNCTIONAL EXPLANATION OF SYNTHESIZER IC103 TERMINALS (Continued)

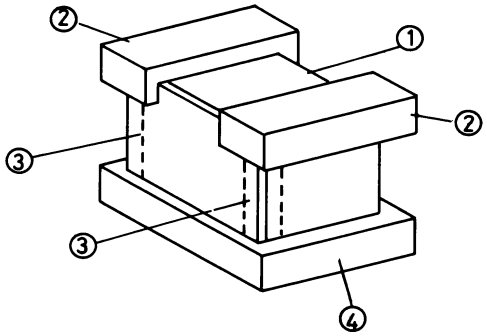
Pin Name	Pin No.	Functional Description	I/O	I/O Circuit Type
PI_0/S25 PI_1/S26 PI_2/S27 PI_3/S28	39 38 37 36	Used exclusively for data output. This port has the CMOS type output circuit and can be selected as the LCD driver output ports. The port operation mode can be selected by the SS or RS instruction. The output mode cannot be selected by such an instruction in bit units. This port is set to the LCD driver output mode at the reset ($\overline{RES}$ = "L") and at power supply. In this case, segment display is forced into the OFF state. This port is fixed to the "L" level at the BACKUP mode.	Output	
S1 to S24	63 to 40	Used for driving segments. That is, these ports are used as the LCD output drivers. The frame frequency for segment output is 100 Hz. The lighting format is 1/2 duty and 1/2 bias. The segment display is forced into the OFF state at the reset ($\overline{RES}$ = "L") and power supply. This port is set to the "L" level at the BACKUP mode.	Output	
COM 1 COM 2	65 64	Used for LCD drive common signal output. The lighting format is 1/2 duty and 1/2 bias. Normal output at the reset ($\overline{RES}$ = "L") and power supply. These ports are set to the "L" level at the BACKUP mode.	Output	
FM IN		Used for FM VCO input (local oscillation). Note that the VCO means Voltage-Controlled Oscillation. Input through capacitor coupling is required. The input frequency range is between 10 MHz and 130 MHz.	Input	
AM IN		Used for AM VCO input (local oscillation). Note that the VCO means Voltage-Controlled Oscillation. Input through capacitor coupling is required. Frequency bands can be selected by CW1 of the PLL instruction. Hi (2 to 40 MHz) → SW Lo (0.5 to 10 MHz) → LW, MW		
HCTR	70	Used for universal counter input. Input through capacitor coupling is required. The input frequency range is between 0.4 MHz and 12 MHz. This port can be used for counting FM IF and AM IF.	Input	
LCTR	71	Used for universal counter input. Input through capacitor coupling is required when the input frequency range is between 100 kHz and 500 kHz. Input through capacitor coupling is not required when the input frequency range is between 1 Hz and 20 kHz. This port can be used for counting AM IF.		

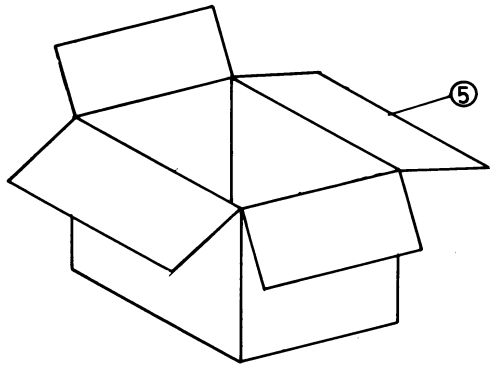
FUNCTIONAL EXPLANATION OF SYNTHESIZER IC103 TERMINALS (Continued)

Pin Name	Pin No.	Functional Description	I/O	I/O Circuit Type
ADI	69	Used for AD converter input. The AD converter is composed of a 6-bit sequential comparator requiring a conversion time of 1.28 milliseconds. Full-scale data (3FH): V_{DD} x 63/96.	Input	
INT	66	Used for interrupt request signal input. Interrupt request becomes active if falling signal edge is detected at the port with the INTEN flag already set. Note that this flag is set by the SS instruction.	Input	
EO_1 EO_2	77 78	Used for phase comparison error output. Note that reference signal frequency and programmable divider output signal frequency are compared in their. On-chip charge pump available. The EO_1 and the EO_2 has the same circuit type.	Output	
SNS	72	Used at the BACKUP mode for power failure signal input. This port can be used as a normal input port.	Input	
HOLD	67	Used for HOLD mode request signal input. The HOLD mode becomes active if the HOLD pin logic changes to "L" with the HOLDEN flag already ON. Note that this flag is set by the SS instruction. The withstand voltage level of this port is high in order that the port can be used together with a power switch.	Input	
RES	68	Used for the system reset request input. The power up "L" level reset request signal must be applied to this port for more than 75 milliseconds. The reset "L" level start request signal must be applied to this port for more than five fundamental clock cycles.	Input	
XIN XOUT	1 80	These two pins are used for X'tal oscillation frequency (4.5 MHz) input and output. On-chip feedback resistor available.	Input/ output	
TEST 1 TEST 2	2 79	These two pins are used for LST test signal input. They should be open-circuited or connected with the V_{SS} pin.	–	–
V_{DD} V_{SS}	31, 73 76	Power source.	–	–

10. PACKING LIST

Ref. No.	Part No.	Description
1	9908808046	Poly bag (88x80)
2	9003079303	Snow box (Top)
3	9060075556	Soft sheet
4	9001079303	Gift box (UL)
5	9013079303	Gift box (XX,SS)





11. ACCESSORY LIST

Ref. No.	Part No.	Description
	9080017360	Instruction book (UL)
	9080017560	Instruction book (XX,SS)
	9902304046	Poly bag 23x40 (I/B)

SANSUI

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Printed in Taiwan (1990.10)