

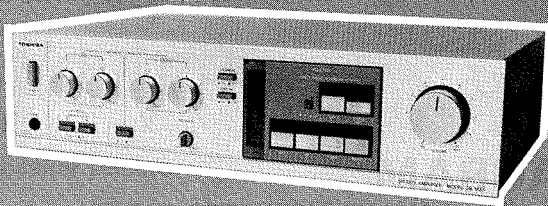
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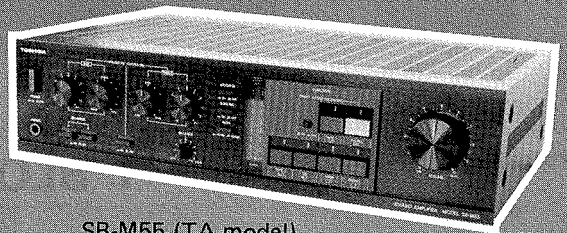
# TOSHIBA

## STEREO AMPLIFIER

# SB-M33/M55



SB-M33 (TE model)



SB-M55 (TA model)

### SPECIFICATIONS

		SB-M33	SB-M55
Power supply		AC 220V, 50 Hz (TE, FR) AC 240V, 50 Hz (TU, AY) AC 120V, 60 Hz (TA, TC)	AC 220V, 50 Hz (TE, FR) AC 120V, 60 Hz (TA, TC)
Power consumption		350W (TE, FR), 240W (TU, AY) 2.6A (TA, TC)	410W (TE, FR) 3.2A (TA, TC)
Weight		6.2 kg	6.3 kg
Dimensions		420(W) x 108(H) x 277(D) mm	420(W) x 108(H) x 277(D) mm
Continuous power output 60 Hz ~ 12.5 kHz both ch. driven (TE, FR, TU, AY)		60W + 60W (8Ω IEC)	80W + 80W (8Ω IEC)
Continuous power output 20 Hz ~ 20 kHz both ch. driven (TA, TC)		50W + 50W (8Ω)	85W + 85W (8Ω)
Total harmonic distortion		at rated output: 0.7% (TE, FR, TU, AY) at rated output: 0.09% (TA, TC) at 1/2 rated output, 1 kHz: 0.008%	at rated output: 0.7% (TE, FR) at rated output: 0.05% (TA, TC) at 1/2 rated output, 1 kHz: 0.007%
Frequency response		10 Hz ~ 100 kHz (±0.5 dB) 30 Hz ~ 20 kHz (±0.3 dB) (RIAA equ.)	10 Hz ~ 100 kHz (±0.5 dB) 30 Hz ~ 20 kHz (±0.3 dB) (RIAA equ.)
Power band width (IHF)		10 Hz ~ 80 kHz (0.2% THD)	10 Hz ~ 80 kHz (0.2% THD)
Load impedance		4Ω ~ 16Ω (TE, FR, TA, TC) 8Ω ~ 16Ω (TU, AY)	4Ω ~ 16Ω
S/N (IHF A Network)		104 dB (TUNER/AUX/CD) 73 dB (PHONO)	105 dB (TUNER/AUX/CD) 80 dB (PHONO)
Input sensitivity/Impedance		PHONO 2.5 mV/47 kΩ TUNER/CD 150 mV/21 kΩ AUX/TAPE 150 mV/21 kΩ	PHONO 2.5 mV/47 kΩ TUNER/CD 150 mV/21 kΩ AUX/TAPE 150 mV/21 kΩ
Output level		TAPE REC 150 mV/3.3 kΩ	TAPE REC 150 mV/3.3 kΩ
Tone control	Bass	±8 dB at 100 Hz (PARAMETRIC CONTROLLER at center) turn over freq. 100 Hz ~ 1 kHz	±8 dB at 100 Hz (PARAMETRIC CONTROLLER at center) turn over freq. 100 Hz ~ 1 kHz
	Treble	±8 dB at 10 kHz (PARAMETRIC CONTROLLER at center) turn over freq. 1 kHz ~ 10 kHz	±8 dB at 100 Hz (PARAMETRIC CONTROLLER at center) turn over freq. 1 kHz ~ 10 kHz
Subsonic filter		30 Hz, 6 dB/oct	30 Hz, 6 dB/oct
Loudness control		+7 dB (at 100 Hz -30 dB)	+7 dB (at 100 Hz -30 dB)
Phono overload level		140 mV (0.05% THD)	140 mV (0.05% THD)

Specifications are subject to change without notice.

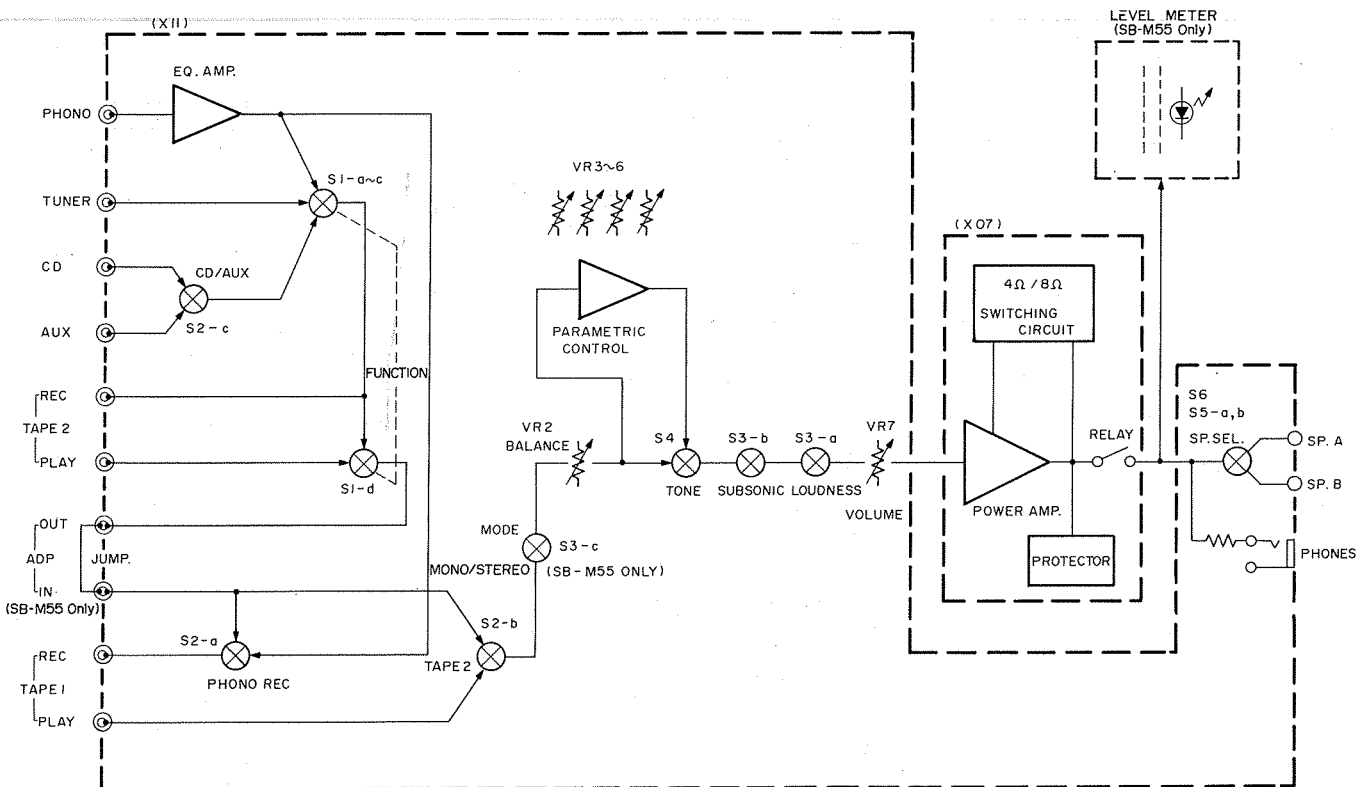
M33-TE, FR, TU, AY, TA, TC, M55-TE, FR, TA, TC

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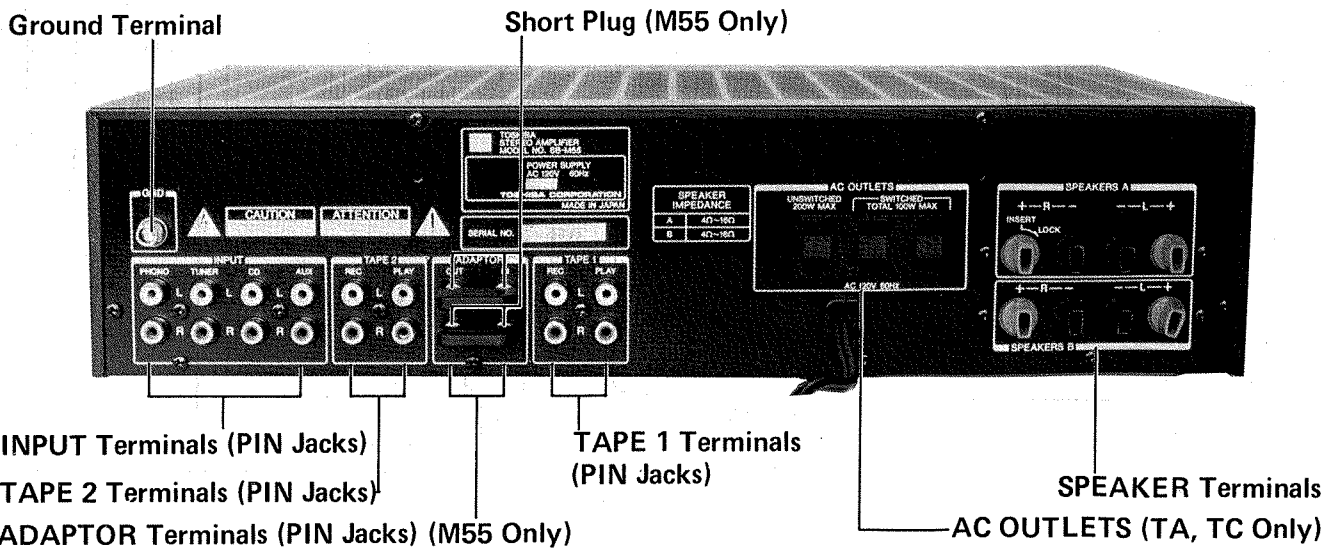
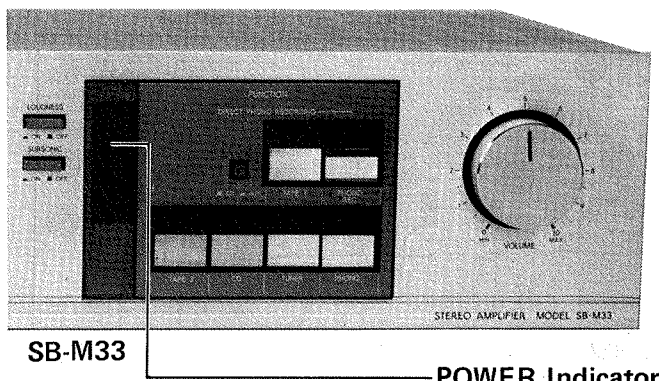
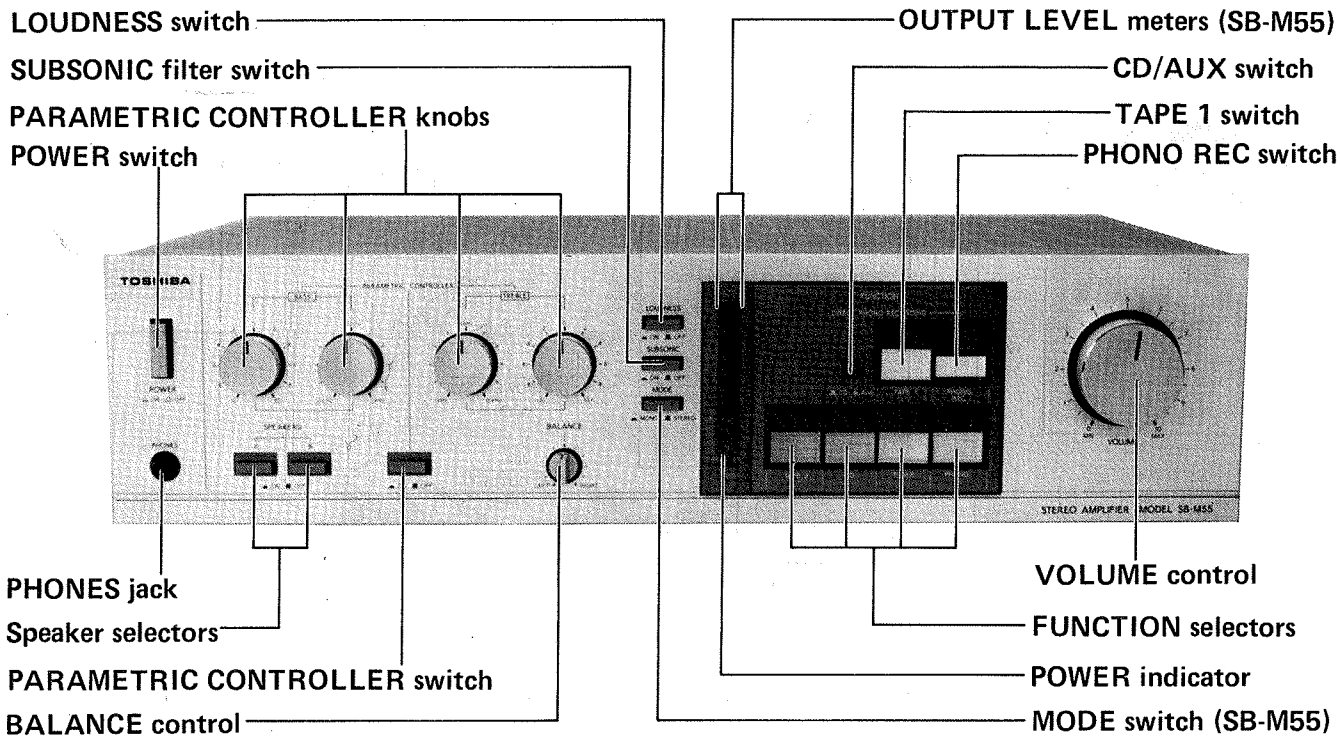
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## 1. BLOCK DIAGRAM



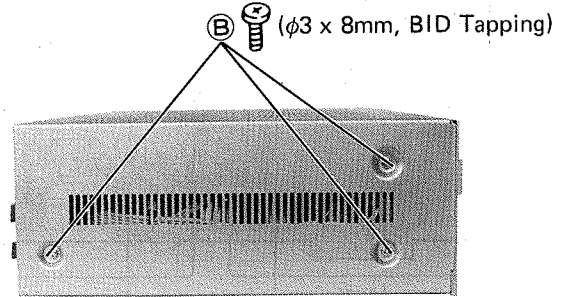
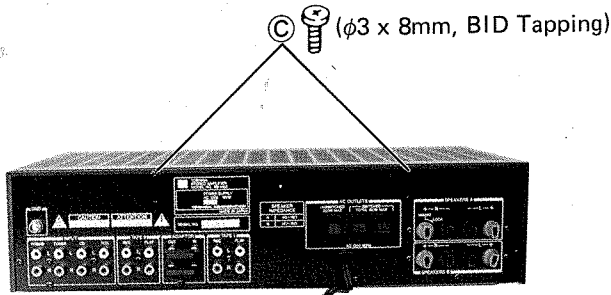
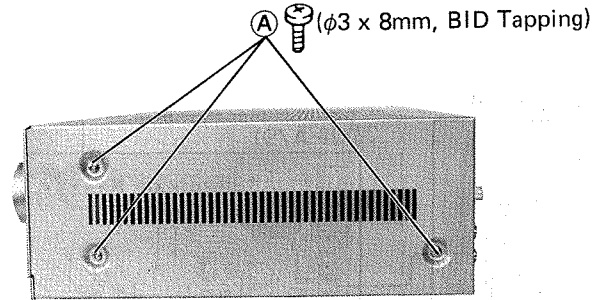
## 2. OPERATING CONTROLS



### 3. DISASSEMBLY INSTRUCTIONS

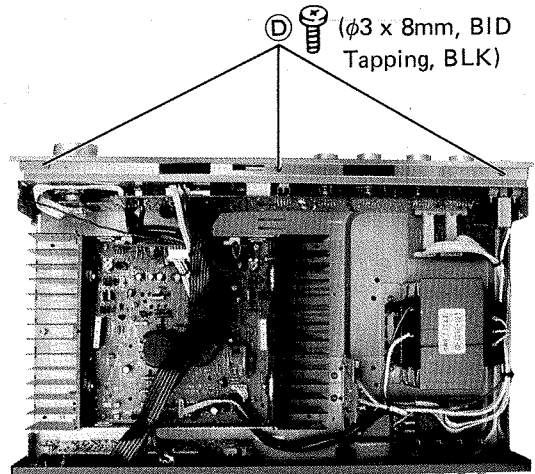
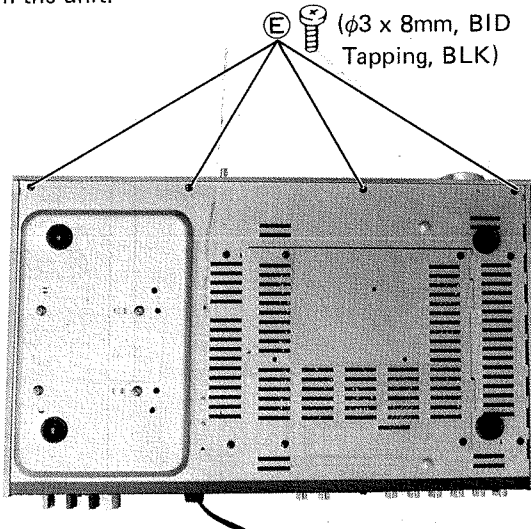
#### TOP COVER REMOVAL

1. Remove eight screws **A**, **B** and **C** ( $\phi 3 \times 8\text{mm}$ , BID Tapping), and the top cover can be removed from the unit.



#### FRONT PANEL REMOVAL

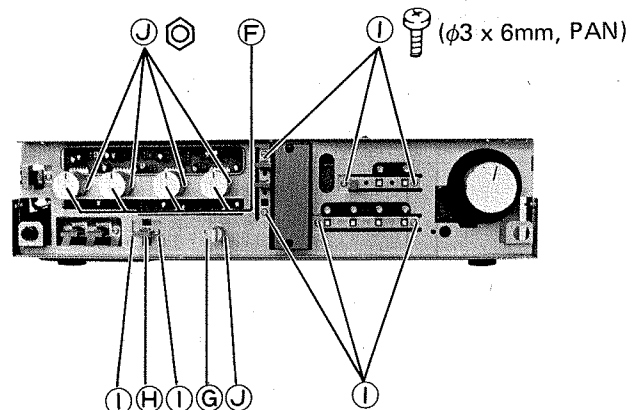
1. Remove the top cover.
2. Remove seven screws **D** and **E** ( $\phi 3 \times 8\text{mm}$ , BID Tapping, BLK), and the front panel can be removed from the unit.



#### CONTROL UNIT (X07-A/2) REMOVAL

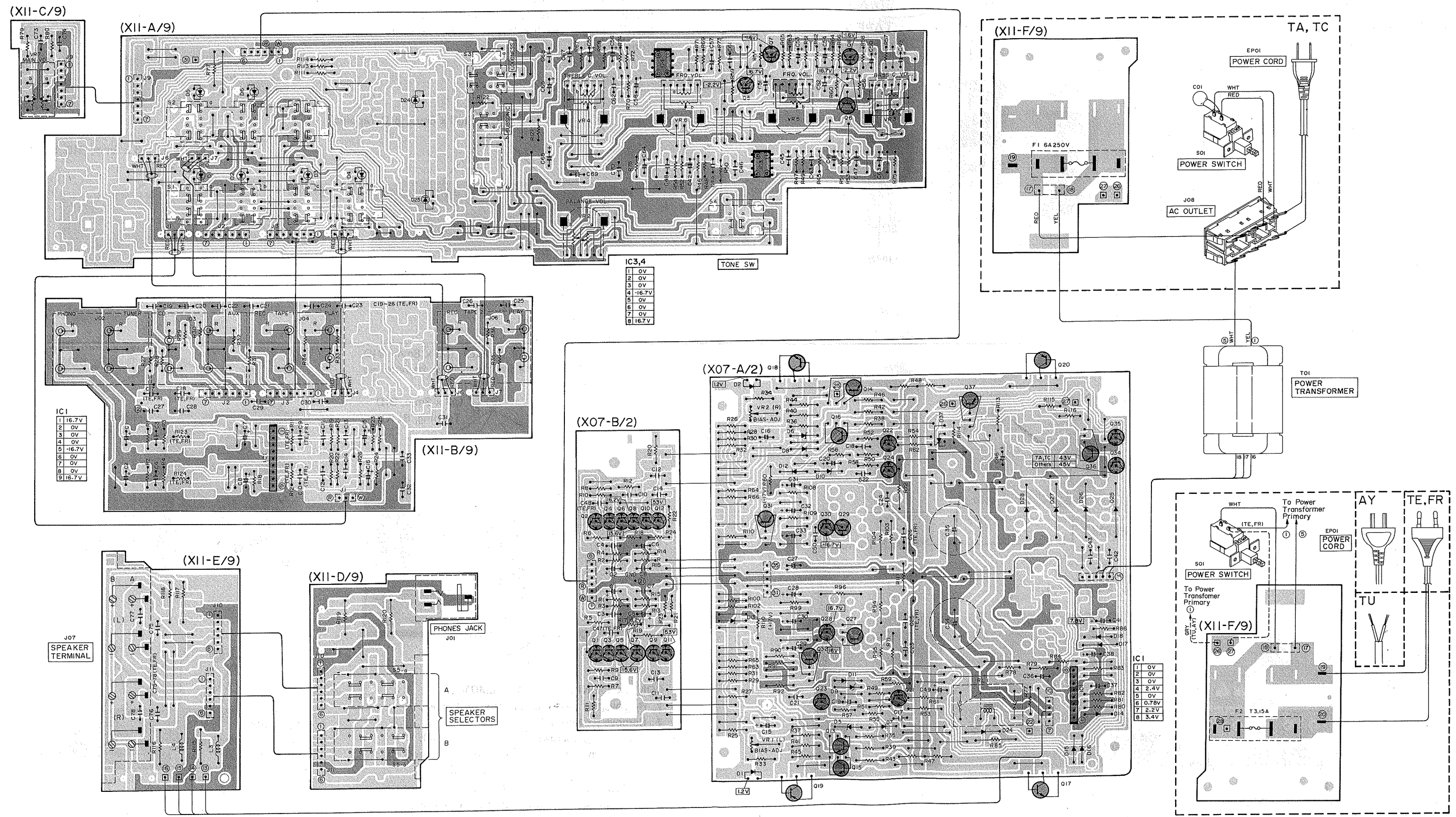
1. Remove the top cover and the front panel.
2. Remove six knobs **F**, **G** and **H**.
3. Remove eight screws **I** ( $\phi 3 \times 6\text{mm}$ , PAN).
4. Remove five nuts **J** behind knobs **F** and **G**, and the Control unit can be removed.

**Note:** When knob **H** is not removed smoothly, unsolder the switch and remove the switch with knob from unit.



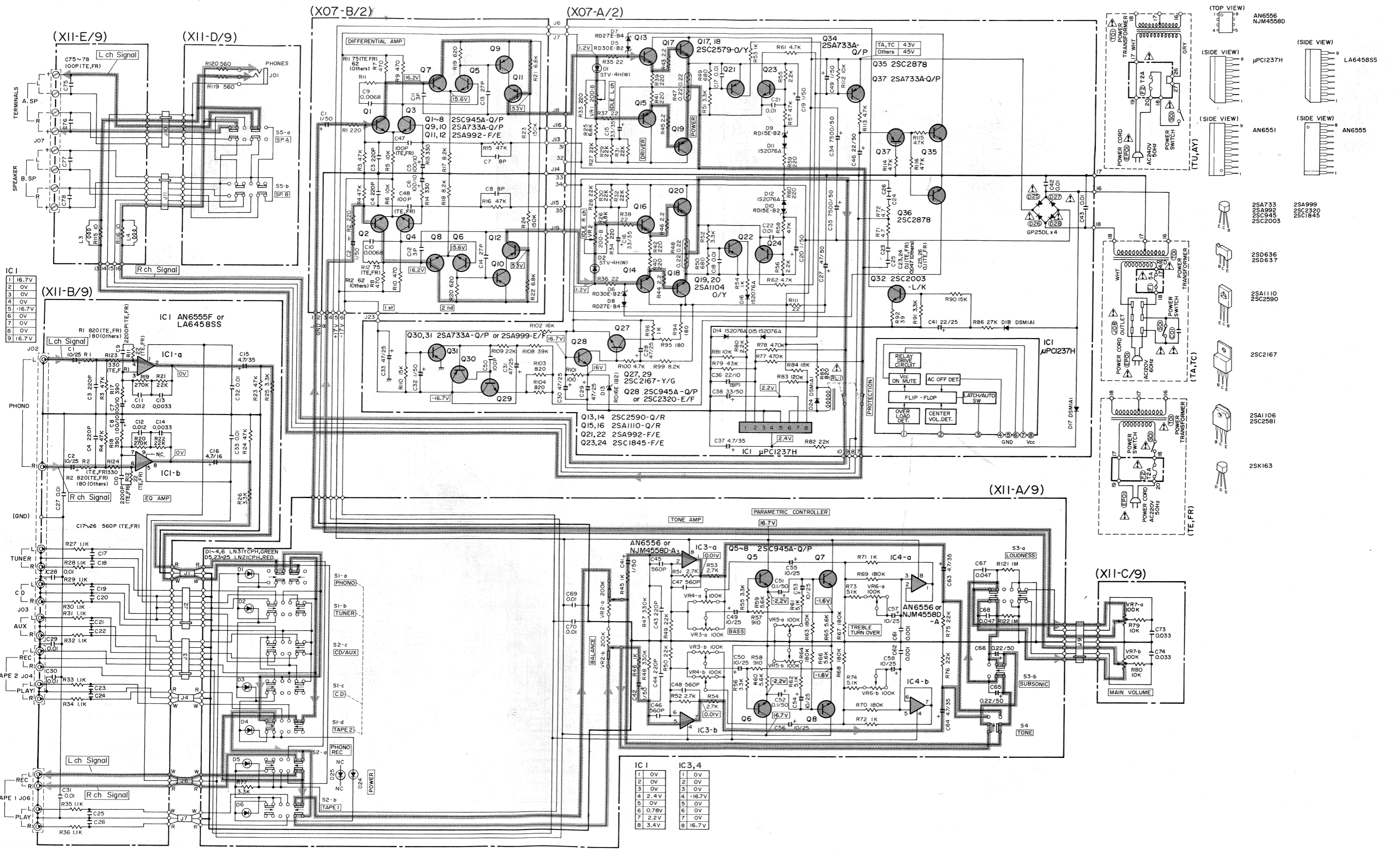
# SB-M33

## 4. ELECTRICAL PARTS LOCATIONS



# SB-M33

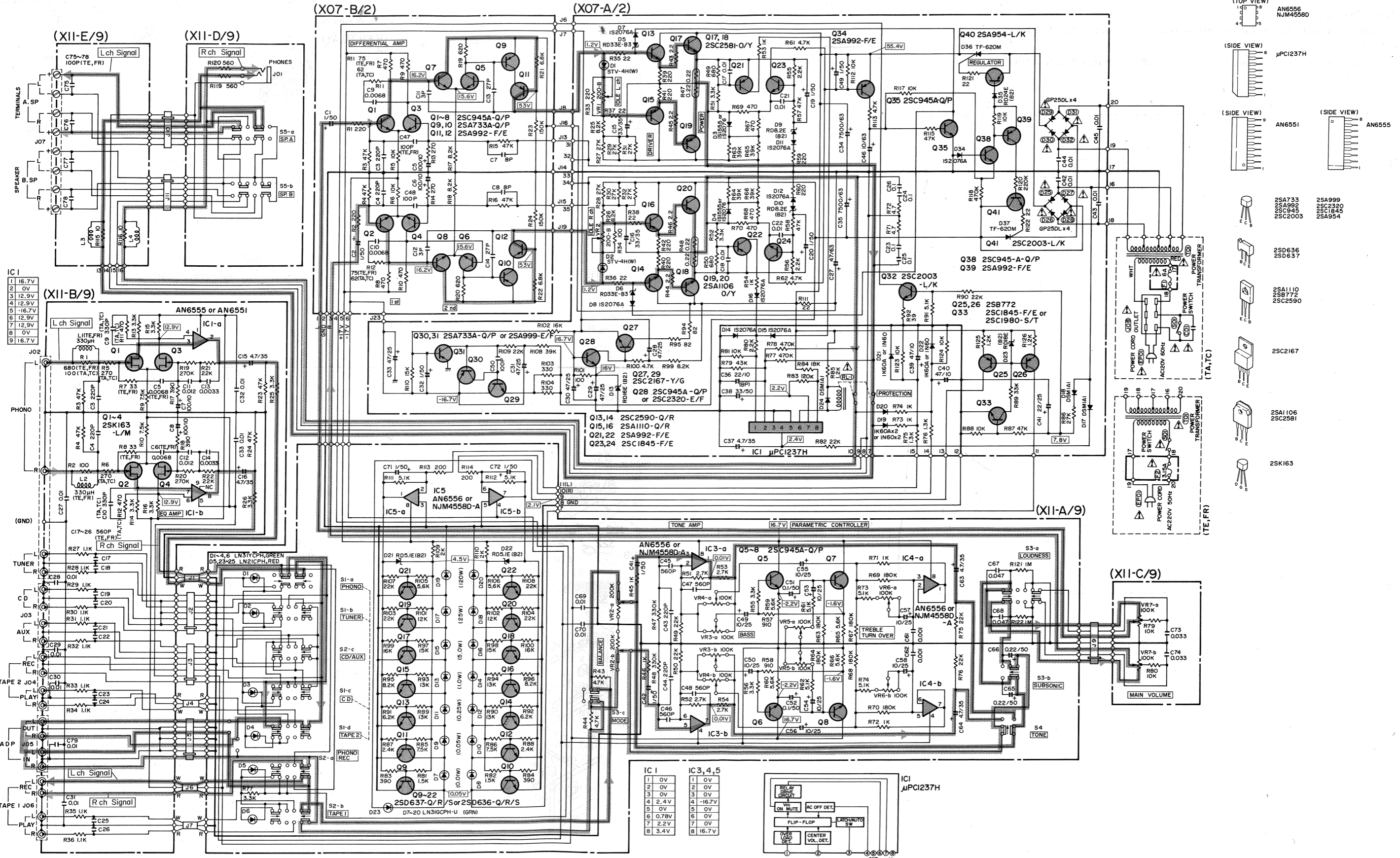
## 5. SCHEMATIC DIAGRAM



**CAUTION:** The  $\Delta$  mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

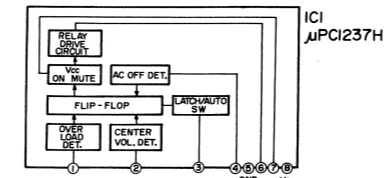


7. SCHEMATIC DIAGRAM



- (TOP VIEW) AN6556 NJM4558D
- (SIDE VIEW)  $\mu$ PC1237H
- (SIDE VIEW) AN6551
- (SIDE VIEW) AN6555
- 2SA735
- 2SA999
- 2SC945
- 2SC1845
- 2SC2003
- 2SA954
- 2SD636
- 2SD637
- 2SA1110
- 2SB772
- 2SC2590
- 2SC2167
- 2SA1106
- 2SC2581
- 2SK163

IC 1	IC 3, 4, 5
1 16.7V	1 0V
2 0V	2 0V
3 12.9V	3 0V
4 12.9V	4 -16.7V
5 -16.7V	5 0V
6 12.9V	6 0V
7 12.9V	7 0V
8 0V	8 0V
9 16.7V	8 16.7V



**CAUTION:** The  $\Delta$  mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.



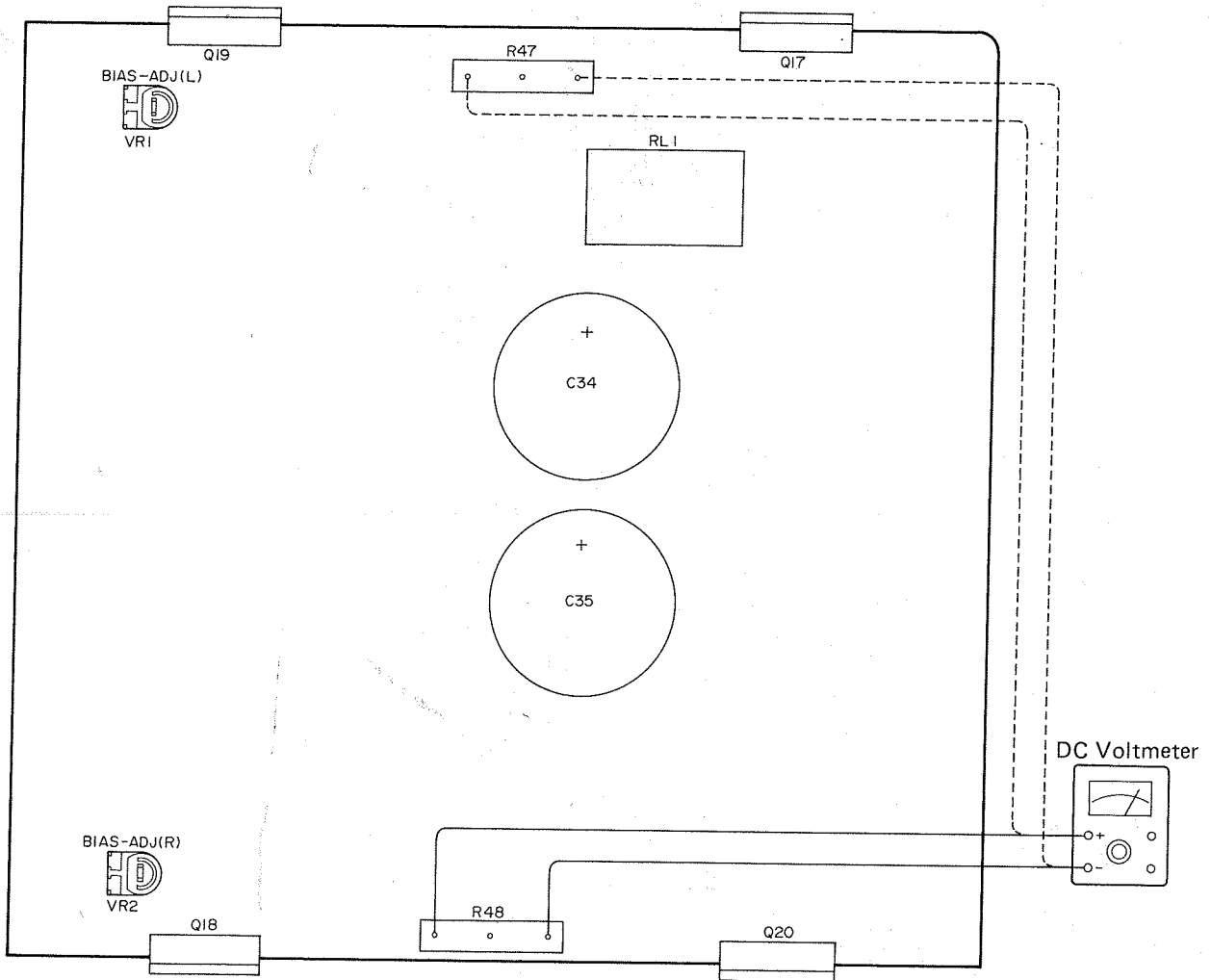
## 8. IDLE CURRENT ADJUSTMENTS

(Left Channel)

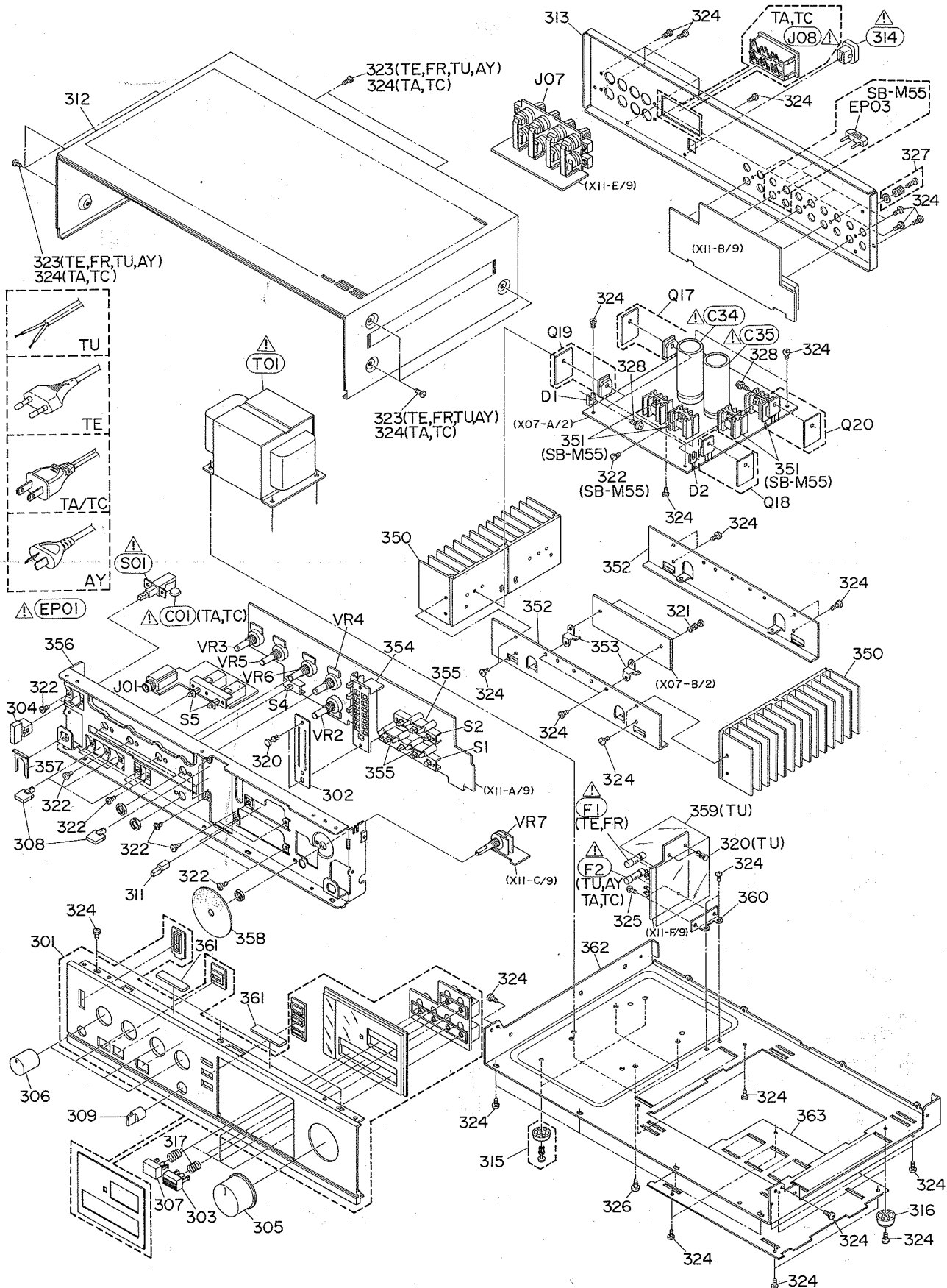
Adjust the resistance value of VR1 so that idle current is 25mA (11mV).

(Right Channel)

Adjust the resistance value of VR2 so that idle current is 25mA (11mV).



# 9. EXPLODED VIEW CABINET



**NOTE:** Parts exclude in the parts list are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering they items.

# 10. CABINET PARTS LIST

**CAUTION:**

The  $\Delta$  mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
<b>SB-M33</b>		
TE, FR, TU, AY ~ Silver model		
TA, TC ~ Black model		
301	22825343	Panel Ass'y (TE, TU, AY)
301	22825344	Panel Ass'y (FR)
301	22825360	Panel Ass'y (TA, TC)
302	22838235	Decoration Plate (TE, TU, AY)
302	22838236	Decoration Plate (FR)
302	22838239	Decoration Plate (TA, TC)
303	22827013	Knob Ass'y, Phono (Silver)
303	22827012	Knob Ass'y, Phono (Black)
304	22824460	Knob Ass'y, Power (Silver)
304	22827009	Knob Ass'y, Power (Black)
305	22826413	Knob, Volume (Silver)
305	22884545	Knob, Volume (Black)
306	22826432	Knob, Treble, Bass (Silver)
306	22826434	Knob, Treble, Bass (Black)
307	22827014	Knob Ass'y, Tape 1, 2, CD, Tuner, Phono (Silver)
307	22827011	Knob Ass'y, Tape 1, 2, CD, Tuner, Phono (Black)
308	22884520	Knob, Speaker, Loudness, Subsonic (Silver)
308	22884542	Knob, Speaker, Loudness, Subsonic (Black)
309	22826417	Knob, Balance (Silver)
309	22884544	Knob, Balance (Black)
311	22884522	Knob, CD/AUX (Silver)
311	22884543	Knob, CD/AUX (Black)
312	22841497	Top Cover (TE, FR, AY)
312	22841498	Top Cover (TU)
312	22841500	Top Cover (TA, TC)
313	22841431	Jack Plate (TE)
313	22841433	Jack Plate (TU, AY)
313	22841432	Jack Plate (FR)
313	22841435	Jack Plate (TA, TC)
$\Delta$ 314	25848041	Cord Bush $\Delta$
315	22828090	Foot, Left
316	22828091	Foot, Right
317	25777398	Spring, Coil
320	22705026	Plastic Rivet, $\phi 3 \times 6\text{mm}$
321	22705031	Plastic Rivet, $\phi 3.5 \times 4.5\text{mm}$
322	22701482	Screw, $\phi 3 \times 6\text{mm}$ , PAN
323	22707327	Screw, $\phi 3 \times 8\text{mm}$ , BID Tapping (Silver)
324	22707911	Screw, $\phi 3 \times 8\text{mm}$ , BID Tapping, BLK
325	22707490	Screw, $\phi 3 \times 6\text{mm}$ , Tapping
326	22707269	Screw, $\phi 4 \times 10\text{mm}$ , Tapping
327	22708058	Screw, Ground
328	22708223	Screw, $\phi 3 \times 12\text{mm}$

Symbol No.	Part No.	Description
<b>SB-M55</b>		
TE, FR ~ Silver model		
TA, TC ~ Black model		
301	22825348	Panel Ass'y (TE)
301	22825349	Panel Ass'y (FR)
301	22825361	Panel Ass'y (TA, TC)
302	22838237	Decoration Plate (TE)
302	22838238	Decoration Plate (FR)
302	22838240	Decoration Plate (TA, TC)
303	22827013	Knob Ass'y, Phono (Silver)
303	22827012	Knob Ass'y, Phono (Black)
304	22824460	Knob Ass'y, Power (Silver)
304	22827009	Knob Ass'y, Power (Black)
305	22826413	Knob, Volume (Silver)
305	22884545	Knob, Volume (Black)
306	22826432	Knob, Treble, Bass (Silver)
306	22826434	Knob, Treble, Bass (Black)
307	22827014	Knob Ass'y, Tape 1, 2, CD, Tuner, Phono (Silver)
307	22827011	Knob Ass'y, Tape 1, 2, CD, Tuner, Phono (Black)
308	22884520	Knob, Speaker, Loudness, Subsonic, Mode (Silver)
308	22884542	Knob, Speaker, Loudness, Subsonic, Mode (Black)
309	22826417	Knob, Balance (Silver)
309	22884544	Knob, Balance (Black)
311	22884522	Knob, CD/AUX (Silver)
311	22884543	Knob, CD/AUX (Black)
312	22841497	Top Cover (Silver)
312	22841498	Top Cover (Black)
313	22841426	Jack Plate (TE)
313	22841427	Jack Plate (FR)
313	22841429	Jack Plate (TA, TC)
$\Delta$ 314	25848041	Cord Bush $\Delta$
315	22828090	Foot, Left
316	22828091	Foot, Right
317	25777398	Spring, Coil
320	22705026	Plastic Rivet, $\phi 3 \times 6\text{mm}$
321	22705031	Plastic Rivet, $\phi 3.5 \times 4.5\text{mm}$
322	22701482	Screw, $\phi 3 \times 6\text{mm}$ , PAN
323	22707327	Screw, $\phi 3 \times 8\text{mm}$ , BID Tapping (Silver)
324	22707911	Screw, $\phi 3 \times 8\text{mm}$ , BID Tapping, BLK
325	22707490	Screw, $\phi 3 \times 6\text{mm}$ , Tapping
326	22707269	Screw, $\phi 4 \times 10\text{mm}$ , Tapping
327	22708058	Screw, Ground
328	22708223	Screw, $\phi 3 \times 12\text{mm}$

## 11. PARTS LIST

## CAUTION:

The  $\Delta$  mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
<b>IC'S, TRANSISTORS &amp; DIODES</b>					
<b>MAIN, AMPLIFIER UNIT (X07-A/2, B/2)</b>					
IC1	22117386	IC, $\mu$ PC1237H	D7, 8	22115592	Diode, RD27E-B4 (M33)
Q1, 2, 3, 4, 5, 6, 7, 8	22114768	Transistor, 2SC945A-Q/P	D7, 8	22115882	Diode, 1S2076A (M55)
Q9, 10	22114206	Transistor, 2SA733A-Q/P	D9, 10	22119013	Diode, RD15E-B2 (M33)
Q11, 12	22117256	Transistor, 2SA992-F/E	D9, 10	22115910	Diode, RD8.2E-B2 (M55)
Q13, 14	22117530	Transistor, 2SC2590-Q/R	D11, 12	22115882	Diode, 1S2076A
Q15, 16	22117529	Transistor, 2SA1110-Q/R	D13	22115450	Diode, RD16E-B2
Q17, 18	22117342	Transistor, 2SC2579-O/Y (M33)	D14, 15, 16	22115882	Diode, 1S2076A
Q17, 18	22117266	Transistor, 2SC2581-O/Y (M55)	D17, 18	22119029	Diode, DSM1A1
Q19, 20	22117341	Transistor, 2SA1104-O/Y (M33)	D19, 20	22115808	Diode, 1K60A (or 1N60) (M55)
Q19, 20	22117258	Transistor, 2SA1106-O/Y (M55)	D23	22115539	Diode, RD18E-B2 (M55)
Q21, 22	22117256	Transistor, 2SA992-F/E	D24	22119029	Diode, DSM1A1
Q23, 24	22117262	Transistor, 2SC1845-F/E (or 2SC1980-S/T)	$\Delta$ D25, 26, 27, 28	22119047	Diode, GP25DL
Q25, 26	22117493	Transistor, 2SB772-R/Q/P/E (M55)	$\Delta$ D29, 30, 31, 32	22119047	Diode, GP25DL (M55)
Q27	22117397	Transistor, 2SC2167-Y/G	D34	22115882	Diode, 1S2076A (M55)
Q28	22114768	Transistor, 2SC2167-Y/G	D35	22119030	Diode, RD24E-B2 (M55)
Q28	22114768	Transistor, 2SC945A-Q/P (or 2SA2320-E/F)	D36, 37	22119056	Thyristor, TF620M (M55)
Q29	22117397	Transistor, 2SC2167-Y/G	<b>CONTROL UNIT (X11-A/9 ~ F/9)</b>		
Q30, 31	22114206	Transistor, 2SA733A-Q/P (or 2SA999-E/F)	IC1	22117271	IC, LA6458SS (M33)
Q32	22114577	Transistor, 2SC2003-L/K	IC1	22114877	IC, AN6551 (M55-TE, FR)
Q33	22117262	Transistor, 2SC1845-F/E (or 2SC1980-S/T) (M55)	IC1	22117272	IC, AN6555 (M55-TA, TC) (or AN6551)
Q34, 37	22114206	Transistor, 2SA733A-Q/P (or 2SA999-E/F) (M33)	IC3, 4	22117408	IC, NJM4558D-A (or AN6556)
Q35, 36	A6342200	Transistor, 2SC2878-A/B (M33)	IC5	22117408	IC, NJM4558D-A (M55) (or AN6556)
Q34, 39	22117256	Transistor, 2SA992-F/E (M55)	Q1, 2, 3, 4	22117302	Transistor, 2SK163-L/K (M55)
Q35, 38	22114768	Transistor, 2SC945A-Q/P (or 2SC2320-E/F) (M55)	Q5, 6, 7, 8	22117262	Transistor, 2SC945A-Q/P
Q40	22114571	Transistor, 2SA954-L/K	Q9 ~ 22	22117495	Transistor, 2SD637-Q/R/S (or 2SD636-Q/R/S) (M55)
Q41	22114577	Transistor, 2SC2003-L/K	D1, 2, 3, 4	22119045	Diode, LN31YCPH, LED, UMBER
D1, 2	22119048	Diode, STV-4H-W	D5	22115971	Diode, LN21CPH, LED, RED
D3, 4	A7246703	Diode, 1S1555 (M55) (or 1S2076, 1S2473)	D6	22119045	Diode, LN31YCPH, LED, UMBER
D5, 6	22119046	Diode, RD30E-B2 (M33)	D7 ~ 20	22115972	Diode, LN31GCPH-U, LED, GREEN (M55)
D5, 6	22119055	Diode, RD33E-B2 (M55)	D21, 22	22115518	Diode, RD5.1E-B2 (M55)
			D23	22115971	Diode, LN21CPH, LED, RED (M55)
			D24, 25	22115971	Diode, LN21CPH, LED, RED (M33)

Symbol No.	Part No.	Description
<b>ELECTRICAL PARTS</b>		
<b>MAIN AMPLIFIER UNIT (X07-A/2, B/2)</b>		
RL1	22148692	Magnet Relay (M33)
RL1	22148688	Magnet Relay (M55)
<b>CONTROL UNIT (X11-A/9 ~ F/9)</b>		
S1a-d	22196485	Push Switch, Tape 2/CD/ Tuner/Phono
S2a-b	22196486	Push Switch, Tape 1/Phono Rec
S3a-b	22196487	Push Switch, Loudness/Sub- sonic (M33)
S3a-c	22196501	Push Switch, Loudness/Sub- sonic/Mode (M55)
S4	22196488	Push Switch, Tone
S5a-b	22196486	Push Switch, Speaker A/B
J01	22198056	Jack, Headphones
J02, 03, 04, 05, 06	22198053	Jacks, 4P, Phono/Tuner CD/AUX Tape 2 Adaptor (M55) Tape 1
J07	22162541	Speaker Terminals, 8P
J08	22169040	AC Outlets, 3P (TA, TC)
L1, 2	22211289	Coil, 330 $\mu$ H, (M55-TE, FR)
L3, 4	22210188	Coil
F1	22144530	Fuse, 5A, 250V (M33-TA, TC)
F1	22144531	Fuse, 6A, 250V (M55-TA, TC)
F2	22144477	Fuse, T2A, 250V (M33-TE, FR, TU, AY)
F2	22144528	Fuse, T3.15A, 250V (M55-TE, FR)
EP02	22165036	Fuse Holder
<b>OTHERS</b>		
T01	22224375	Power Transformer (M33-TE, FR)
T01	22224374	Power Transformer (M33-TU, AY)
T01	22224387	Power Transformer (M33-TA, TC)
T01	22224382	Power Transformer (M55-TE, FR)
T01	22224388	Power Transformer (M55-TA)
T01	22224389	Power Transformer (M55-TC)
S01	22196401	Push Switch, Power

Symbol No.	Part No.	Description
EP01	22176286	Power Cord (TE, FR)
EP01	22176573	Power Cord (TA, TC)
EP01	22176628	Power Cord (TU)
EP01	22176588	Power Cord (AY)
EP03	22164957	Short Plug (M55)
<b>CAPACITORS</b>		
C = $\pm 0.25\mu$ F, D = $\pm 0.5\mu$ F, J = $\pm 5\%$ , K = $\pm 10\%$ , Z = $-20 \sim + 80\%$		
ABBREVIATIONS: CD = Ceramic Disk, MY = Mylar, EL = electrolytic		
<b>MAIN AMPLIFIER UNIT (X07-A/2, B/2)</b>		
C1, 2	22488109	EL, 1mfd, 50V
C3, 4	22362221	CD, 220pF, 50V, J
C5, 6	22483101	EL, 100mfd, 10V
C7, 8	22361809	CD, 8pF, 50V, D
C9, 10	22371682	MY, 6800pF, 50V, J
C11, 12	22361309	CD, 3pF, 50V, C
C13, 14	22361270	CD, 27pF, 50V, J
C15, 16	22487330	EL, 33mfd, 35V, J
C17, 18	22342103	CD, 0.01mfd, 50V, Z
C19, 20	22488109	EL, 1mfd, 50V, Z
C21, 22	22342103	CD, 0.01mfd, 50V, Z
C23, 24	22321333	MY, 0.047mfd, 50V, K (M33-TU, AY, TA, TC)
C23, 24 25, 26	22371104	MY, 0.1mfd, 50V, J (Others)
C27	22488470	EL, 47mfd, 50V (M33)
C27	22440319	EL, 47mfd, 63V (M55)
C28, 29, 30, 31	22486470	EL, 47mfd, 25V
C32	22488109	EL, 1mfd, 50V
C33	22486470	EL, 47mfd, 25V
C34, 35	22440693	EL, 7500mfd, 50V (M33)
C34, 35	22440695	EL, 7500mfd, 63V (M55)
C36	22403114	EL, 22mfd, 10V, BP
C37	22447479	EL, 4.7mfd, 35V
C38	22488330	EL, 33mfd, 50V
C39, 40	22483470	EL, 47mfd, 10V (M55)
C41	22486220	EL, 22mfd, 25V
C42, 43	22342103	CD, 0.01mfd, 50V, Z
C44, 45	22342103	CD, 0.01mfd, 50V, Z (M55)
C46	22488220	EL, 22mfd, 50V (M33)
C46	22440109	EL, 10mfd, 63V (M55)
C47, 48	22362101	CD, 100pF, 50V, J (TE, FR)
C49	22488109	EL, 1mfd, 50V
C50	22362101	CD, 100pF, 50V

Symbol No.	Part No.	Description
<b>CONTROL UNIT (X11-A/9 ~ F/9)</b>		
C1, 2	22486100	EL, 10mfd, 25V (M33)
C3, 4	22362221	CD, 220pF, 50V, J
C5, 6	22371682	MY, 6800pF, 50V, K (M55-TE, FR)
C7, 8	22483101	EL, 100mfd, 10V
C9, 10	22349222	CD, 2200pF, 50V, K (M33-TE, FR)
C9, 10	22362331	CD, 330pF, 50V, J (M55-TA, TC)
C11, 12	22371123	MY, 0.012mfd, 50V, J
C13, 14	22371332	MY, 3300pF, 50V, J
C15, 16	22447479	EL, 4.7mfd, 35V
C17 ~ 26	22349561	CD, 560pF, K (TE, FR)
C27 ~ 33	22342103	CD, 0.01mfd, 50V, Z
C41, 42	22488109	EL, 1mfd, 50V
C43, 44	22362221	CD, 220pF, 50V, J
C45, 46,	22349561	CD, 560pF, 50V, K
C47, 48		
C49, 50	22486100	EL, 10mfd, 25V
C51, 52	22488108	EL, 0.1mfd, 50V
C53 ~ 58	22486100	EL, 10mfd, 25V
C61, 62	22360789	CD, 1000pF, 25V, J
C63, 64	22447479	EL, 4.7mfd, 35V
C65, 66	22488228	EL, 0.22mfd, 50V
C67, 68	22371473	MY, 0.047mfd, 50V, J
C69, 70	22342103	CD, 0.01mfd, 50V, Z
C71, 72	22488109	EL, 1mfd, 50V (M55)
C73, 74	22371333	MY, 0.033mfd, 50V, J
C75, 76,	22362101	CD, 100pF, 50V, J (TE, FR)
77, 78		
C79	22342103	CD, 0.01mfd, 50V, Z (M55)
<b>OTHER</b>		
△ C01	22340147	CD, 0.01mfd, 400V (TA, TC)
<b>RESISTORS</b>		
All resistors are 1/4W, ±5% carbon film, unless otherwise noted. 1K ohm = 1000 ohm, 1M ohm = 1000K ohm		
<b>MAIN AMPLIFIER UNIT (X07-A/2, B/2)</b>		
VR1, 2	22658730	200 ohm, Semi-fixed Variable
R1, 2	22584221	220 ohm, 1/6W, J
R3, 4	22584473	47K ohm, 1/6W, J
R5, 6	22584103	10K ohm, 1/6W, J
R7, 8, 9, 10	22584471	470 ohm, 1/6W, J
R11, 12	22580056	75 ohm, 1/6W, J (TE, FR)
R11, 12	22540662	62 ohm, 1/6W, J (TU, AY, TA, TC)

Symbol No.	Part No.	Description
R13, 14	22584331	330 ohm, 1/6W, J (M33)
R13, 14	22584271	270 ohm, 1/6W, J (M55)
R15, 16	22584473	47K ohm, 1/6W, J
R17, 18	22584822	8.2K ohm, 1/6W, J
R19, 20	22540681	620 ohm, 1/4W, J
R21, 22	22584682	6.8K ohm, 1/6W, J
R23, 24	22584154	150K ohm, 1/6W, J
R25, 26	22545682	6.8K ohm, 1/4W, J (M33)
R25, 26	22545822	8.2K ohm, 1/4W, J (M55)
R27 ~ 32	22545223	22K ohm, 1/4W, J (M33)
R27 ~ 32	22545273	27K ohm, 1/4W, J (M55)
R33, 34	22545221	220 ohm, 1/4W, J
R35, 36,	22545220	22 ohm, 1/4W, J
37, 38		
R39, 40,	22545221	220 ohm, 1/4W, J
41, 42		
R43, 44,	22545229	2.2 ohm, 1/4W, J
45, 46		
R47, 48	22570597	0.22 ohm x 2, 5W, Wire Wound
R49, 50	22584681	680 ohm, 1/6W, J
R51, 52	22584332	3.3K ohm, 1/6W, J
R53, 54	22545102	1K ohm, 1/4W, J
R55, 56	22584222	2.2K ohm, 1/6W, J
R57, 58	22584473	47K ohm, 1/6W, J
R59, 60	22545221	220 ohm, 1/4W, J
R61, 62	22545472	4.7K ohm, 1/4W, J
R63, 64,	22545393	39K ohm, 1/4W, J (M55)
65, 66		
R67, 68	22545471	470 ohm, 1/4W, J (M55)
69, 70		
R71, 72	22570657	4.7 ohm, 2W, Metal Oxide Film
R73, 74	22570274	1K ohm, 1W, Metal Oxide Film (M55)
R75, 76	22580054	1.3K ohm, 1/6W, J (M55)
R77	22545474	470K ohm, 1/4W, J
R78	22584474	470K ohm, 1/6W, J
R79	22540682	43K ohm, 1/4W, J
R80	22545222	2.2K ohm, 1/4W, J
R81	22545103	10K ohm, 1/4W, J
R82	22545223	22K ohm, 1/4W, J
R83	22545124	120K ohm, 1/4W, J
R84	22545183	18K ohm, 1/4W, J
R85	22570318	820 ohm, 2W, Metal Oxide Film (M33)
R85	22570153	1.2K ohm, 2W, Metal Oxide Film (M55)
R86	22584273	27K ohm, 1/6W, J
R87	22584473	47K ohm, 1/6W, J (M55)
R88	22584103	10K ohm, 1/6W, J (M55)
R89	22584333	33K ohm, 1/6W, J (M55)

Symbol No.	Part No.	Description
R90	22545153	15K ohm, 1/4W, J (M33)
R90	22545223	22K ohm, 1/4W, J (M55)
R91	22545332	3.3K ohm, 1/4W, J (M33)
R91	22540694	5.1K ohm, 1/4W, J (M55)
R92	22545390	39 ohm, 1/4W, J
R94, 95	22570265	180 ohm, 1W, J (M33)
R94, 95	22570273	820 ohm, 1W, Metal Oxide Film (M55)
R96	22570319	1K ohm, 2W, Metal Oxide Film (M33)
R99	22584822	8.2K ohm, 1/4W, J
R100	22545472	4.7K ohm, 1/4W, J
R101	22545101	100 ohm, 1/4W, J
R102	22550142	16K ohm, 1/4W, J
R103, 104	22570273	820 ohm, 1W, Metal Oxide Film (M33)
R103, 104	22570268	330 ohm, 1W, Metal Oxide Film (M55)
R108	22545393	39K ohm, 1/4W, J
R109	22545223	22K ohm, 1/4W, J
R110	22545153	15K ohm, 1/4W, J
R111	22545220	22 ohm, 1/4W, J
R112	22584103	10K ohm, 1/6W, J
R113	22584472	4.7K ohm, 1/6W, J
R114, 116	22584473	47K ohm, 1/6W, J (M33)
R115	22584473	47K ohm, 1/6W, J
R117	22584103	10K ohm, 1/6W, J (M55)
R118	22584474	470K ohm, 1/6W, J (M55)
R119	22584103	10K ohm, 1/6W, J (M55)
R120	22584224	220K ohm, 1/6W, J (M55)
R121, 122	22545220	22 ohm, 1/4W, J (M55)
R123, 124	22584103	10K ohm, 1/6W, J (M55)
R125, 126	22570275	1.2K ohm, 1W, Metal Oxide Film (M55)

## CONTROL UNIT (X11-A/9 ~ F/9)

VR2a-b	22651636	200K x 2, Variable, Balance
VR3a-b	22651638	100K x 2, Variable, Bass
VR4a-b	22651638	100K x 2, Variable, Treble
VR5, 6a-b	22651637	100K x 2, Variable, Frequency
VR7a-b	22651590	100K x 2, Variable, Main Volume
R1, 2	22584821	820 ohm, 1/6W, J (M33-TE, FR)
R1, 2	22584181	180 ohm, 1/6W, J (M33-TU, AY)
R1, 2	22584681	680 ohm, 1/6W, J (M55-TE, FR)
R1, 2	22584101	100 ohm, 1/6W, J (M55-TA, TC)

Symbol No.	Part No.	Description
R3, 4	22584473	47K ohm, 1/6W, J
R5, 6	22584271	270 ohm, 1/6W, J (M55-TE, FR)
R7, 8	22584330	33 ohm, 1/6W, J (M55)
R9, 10	22540712	7.5K ohm, 1/6W, J (M55)
R11, 12	22584220	22 ohm, 1/6W, J (M33-TE, FR)
R11, 12	22584471	470 ohm, 1/6W, J (M55-TA, TC)
R13, 14, R15, 16	22584332	3.3K ohm, 1/6W, J (M55)
R17, 18	22584391	390 ohm, 1/6W, J
R19, 20	22584274	270K ohm, 1/6W, J
R21, 22	22584223	22K ohm, 1/6W, J
R23, 24	22584473	47K ohm, 1/6W, J
R25, 26	22584332	3.3K ohm, 1/6W, J
R27 ~ 36	22540733	1.1K ohm, 1/6W, J
R43, 44	22584472	4.7K ohm, 1/6W, J (M55)
R45, 46	22584102	1K ohm, 1/6W, J
R47, 48	22584334	330K ohm, 1/6W, J
R47, 48	22584104	100K ohm, 1/6W, J
R49, 50	22584223	22K ohm, 1/6W, J
R51, 52, 53, 54	22584272	2.7K ohm, 1/6W, J
R55, 56	22584332	3.3K ohm, 1/6W, J
R57, 58	22540697	910 ohm, 1/6W, J
R59, 60	22584562	5.6K ohm, 1/6W, J
R61, 62	22540694	5.1K ohm, 1/6W, J
R63, 64	22545184	180K ohm, 1/6W, J
R65, 66	22584562	5.6K ohm, 1/6W, J
R67, 68, 69, 70	22545184	180K ohm, 1/6W, J
R71, 72	22584102	1K ohm, 1/6W, J
R73, 74	22540694	5.1K ohm, 1/6W, J
R75, 76	22584223	22K ohm, 1/6W, J
R77	22584332	3.3K ohm, 1/6W, J
R79, 80	22584103	10K ohm, 1/6W, J
R81, 82	22584152	1.5K ohm, 1/6W, J (M55)
R83, 84	22545391	390 ohm, 1/4W, J (M55)
R85, 86	22540712	7.5K ohm, 1/6W, J (M55)
R87, 88	22545242	2.4K ohm, 1/6W, J (M55)
R89, 90	22580054	13K ohm, 1/6W, J (M55)
R91, 92	22550491	6.2K ohm, 1/6W, J (M55)
R93, 94	22580054	13K ohm, 1/6W, J (M55)
R95, 96	22584823	82K ohm, 1/6W, J (M55)
R97, 98	22584153	15K ohm, 1/6W, J (M55)
R99, 100	22580055	16K ohm, 1/6W, J (M55)
R101, 102	22584123	12K ohm, 1/6W, J (M55)
R103, 104	22584223	22K ohm, 1/6W, J (M55)
R105, 106	22584562	5.6K ohm, 1/6W, J (M55)
R107, 108	22584223	22K ohm, 1/6W, J (M55)
R109, 110	22550235	2K ohm, 1/4W, J (M55)
R111, 112	22540694	5.1K ohm, 1/6W, J (M55)
R113, 114	22540706	200 ohm, 1/6W, J (M55)

