

FM/AM STEREO TUNER

MODEL No. ST-R22H,E,K,G

PRE AMPLIFIER

MODEL No. SA-C22H,E,K,G

DC STEREO POWER AMPLIFIER

MODEL No. SA-P22H,E,K,G

# AIWA®

## (SERVICE MANUAL)

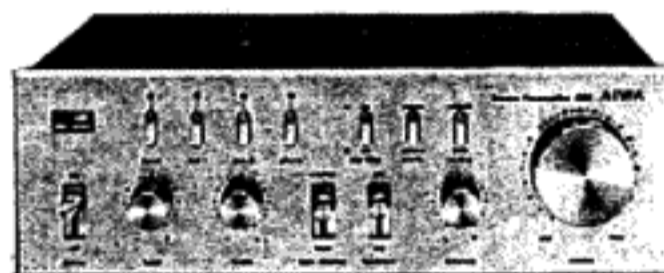
DATE OF ISSUE 5/1979

Cord No.15-220-000-53



ST-R22

Cord No.16-220-000-53



SA-C22

Cord No.17-220-000-53



SA-P22

### SPECIFICATIONS

**Semiconductors:** 4 ICs, 2 FETs, 24 transistors, 21 diodes, 8 LEDs, 4-LED digit numerical display

**Power source:** AC 110/220V switchable  
50/60 Hz (H model)  
AC 220V 50/60 Hz (E model)  
AC 240V 50/60 Hz (K, G model)

**Power consumption:** 8W

**Dimensions:** 210(W) x 71(H) x 173.5(D)mm

**Weight:** 2.0 kg

**<FM SECTION>**

**Frequency range:** 87.3 ~ 108.5 MHz

**Intermediate frequency:** 10.7 ± 0.1 MHz

**Usable sensitivity:** 6 ± 2 dB (at 88 MHz)  
5 ± 3 dB (at 98, 108 MHz)

**S/N 50 dB sensitivity:** 13 ± 2 dB (at 88, 98, 108 MHz)

**S/N ratio:** More than 65 dB

**Distortion:** Less than 0.2%

**Frequency response:** 40 ~ 15,000 Hz (+0.5 dB / -1.5 dB)

**Image interference ratio:** More than 40 dB

**IF interference ratio:** More than 80 dB

**Capture ratio:** Less than 2 dB

**AM suppression ratio:** More than 50 dB

**Selectivity:** 43 ± 10 dB (± 300 kHz)

**Stereo separation:** More than 42 dB (at 1 kHz)  
More than 38 dB (at 100 Hz, 6 kHz)

**Muting sensitivity:** 20 ± 6 dB

**AFC holding range:** 320 ± 30 kHz

**<AM SECTION>**

**Frequency range:** 515 ~ 1650 kHz

**Intermediate frequency:** 455 ± 1.5 kHz (H,E,G model)  
460 ± 1.5 kHz (K model)

**Sensitivity:** 51 ± 3 dB (600 kHz)

**(S/N 20 dB)** 49 ± 3 dB (1000, 14000 kHz)

**S/N ratio:** 42 ± 5 dB

**Distortion:** Less than 1.2%

**Image interference ratio:** More than 40 dB

**Selectivity:** 30 ± 5 dB (± 9 kHz)

**IF interference ratio:** More than 35 dB

### SPECIFICATIONS

**Semiconductors:** 7 ICs, 4 transistors, 17 diodes, 4 LEDs

**Power source:** AC 110/220V switchable  
50/60 Hz (H model)  
AC 220V 50/60 Hz (E model)  
AC 240V 50/60 Hz (K, G model)

**Power consumption:** 3W

**Dimensions:** 210(W) x 71(H) x 173.5(D)mm

**Weight:** 1.7 kg

**S/N ratio:** More than 75 dB (Weighted)

**Distortion:** Less than 0.1% (20 Hz ~ 20 kHz)

**Frequency response:** 20 ~ 20,000 Hz (± 0.5 dB)

**Tone controls:** Bass 100 Hz +8.5 ± 1.5 dB  
-11 ± 1.5 dB  
Treble 10kHz +6 ± 1.5 dB  
-10 ± 1.5 dB

**Loudness:** 100 Hz +6 ± 1 dB  
10 kHz +4 ± 1 dB  
30Hz -2 ± 1 dB

**Low filter:** 30Hz

**Channel separation:** phono More than 48 dB  
tuner More than 45 dB  
aux 1,2

**Input sensitivity and impedance:** phono 2.5mV (200mV max input)  
tuner 150mV/47 kΩ  
aux 1,2 150mV/47 kΩ  
play 150mV/1 kΩ (H,G model)  
recout 30mV/80 kΩ (E,K model)

**Tape monitor:**

**Output level:** 580mV ± 1 dB (phono 2.5mV)  
720mV ± 1 dB (tuner, aux 1,2 150mV)

**Residual noise:** Less than 0.12mV

### SPECIFICATIONS

**Semiconductors:** 5 ICs, 12 transistors, 25 diodes, 6 LEDs

**Power source:** AC 110/220V switchable  
50/60 Hz (H model)  
AC 220V 50/60 (E model)  
AC 240V 50/60 Hz (K, G model)

**Power consumption:** 60W (H model)  
160W (G model)  
200W (E model)  
210W (K model)

**Dimensions:** 210(W) x 72(H) x 207(D)mm

**Weight:** 3.8 kg

**Power output:** 30W + 30W (H, G model) (8Ω, 0.06% distortion, 20 Hz ~ 20 kHz)  
30W + 30W (E, K model) (4Ω, 0.1% distortion, 20 Hz ~ 20 kHz)

**Distortion:** Less than 0.05% (H, G model)  
Less than 0.08% (E, K model)  
More than 95 dB

**S/N ratio:** (1 kHz, IHF A curve)

**Frequency response:** 10 ~ 50,000 Hz (± 1 dB)

**Power bandwidth:** Less than 0.1% (20 Hz ~ 20 kHz) (H, G model)  
Less than 0.15% (20 Hz ~ 20 kHz) (E, K model)

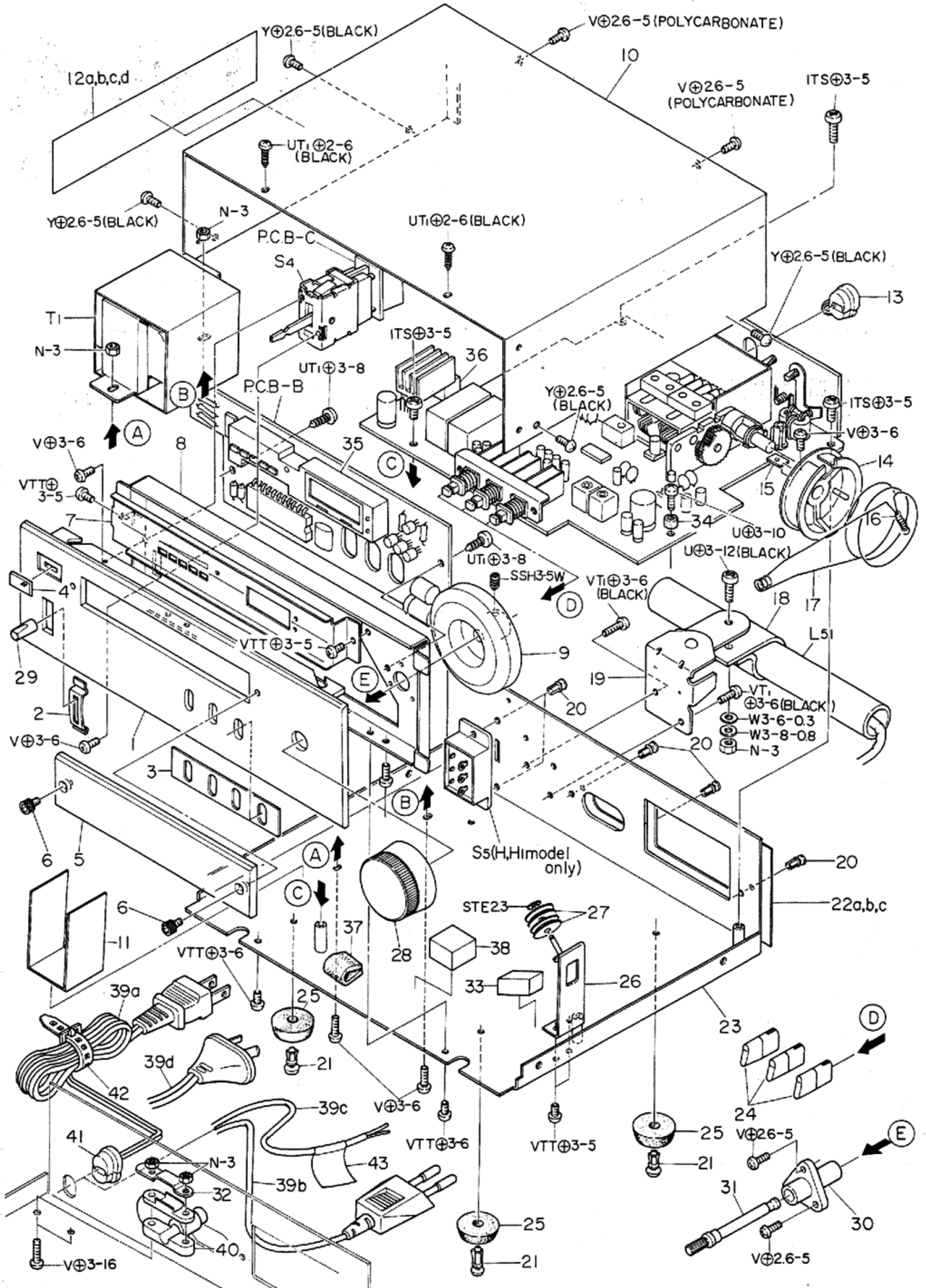
**Residual noise:** Less than 1mV

**Output voltage:** phones More than 0.8mW (H, G model)  
More than 1mW (E, K model)

• Specifications and external appearance are subject to change without notice due to product improvement.

MODEL NO. ST-R22H,E,K,G

EXPLODED VIEW



PARTS LIST

MECHANICAL PARTS

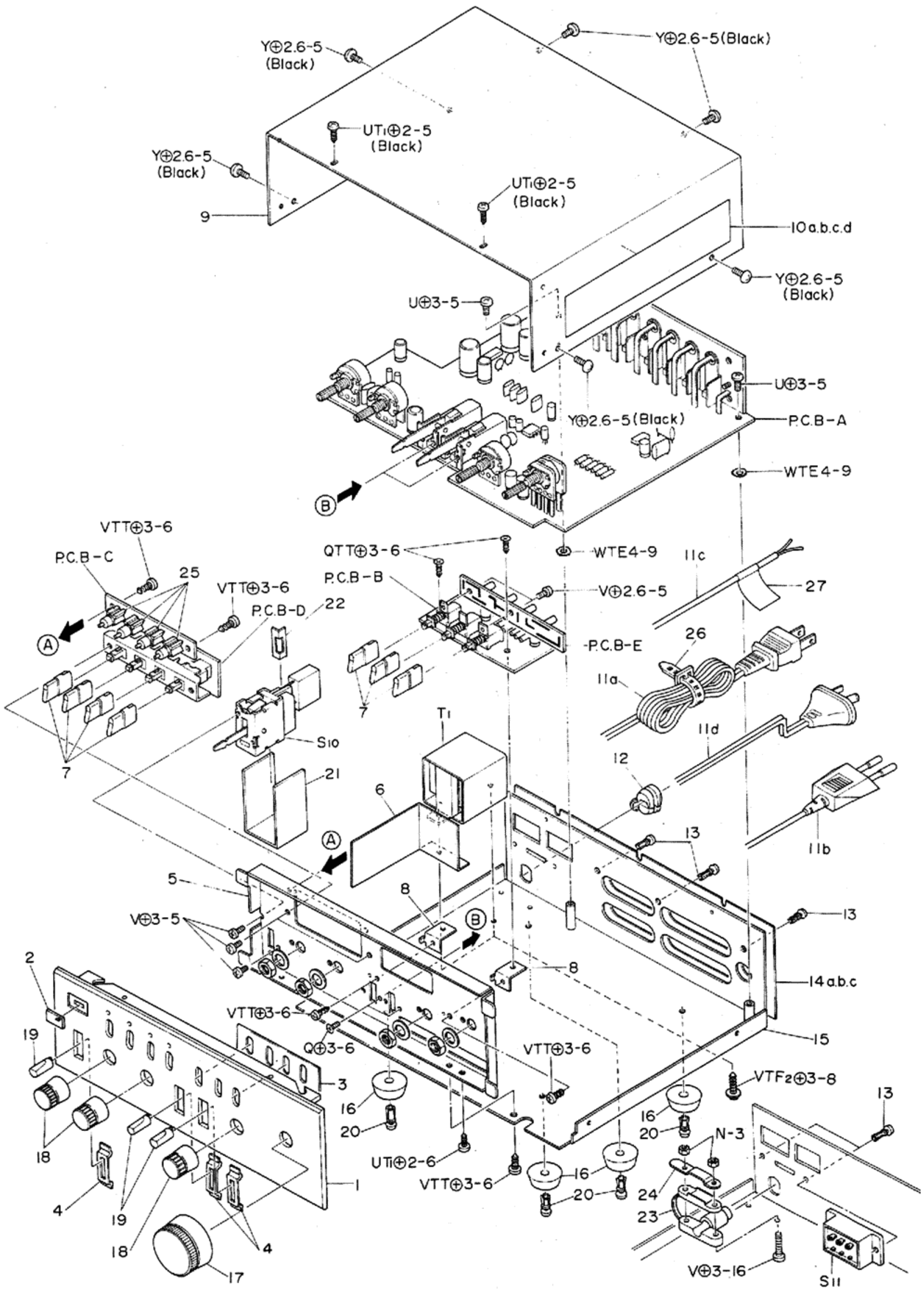
\* mark in this part list shows exclusive part (which is used) for only Model No. ST-R22.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-730-015-01		Panel, Front	*	1
1-2	82-498-008-01		Lever guide	SA-C22	1
1-3	82-498-206-01		Guide, Button	SA-C22	1
1-4	86-992-013-01		Badge		1
1-5	82-730-006-01		Dial window	*	1
1-6	82-730-008-01		Decorative screw	*	2
1-7	82-730-005-01		Dial plate	*	1
1-8	82-730-201-01		Chassis, Front	*	1
1-9	82-730-217-01		Tuning flywheel	*	1
1-10	82-498-002-01		Steel cabinet	SA-C22	1
1-11	82-498-209-01		Cover, Insulation	SA-C22	1
1-12a	82-730-017-01		Name plate, Spec. (H model only)	*	1
1-12b	82-730-016-01		Name plate, Spec. (E model only)	*	1
1-12c	82-730-019-01		Name plate, Spec. (K model only)	*	1
1-12d	82-730-020-01		Name plate, Spec. (G model only)	*	1
1-13	87-085-101-01		Cord bushing		1
1-14	82-470-240-01		Drum, Tuning dial	AF-3200	1
1-15	82-461-378-01		Leaf nut	TPR-900	1
1-16	82-439-359-01		Spring, Drum	TPR-150	1
1-17	87-096-086-01		Dial string		1
1-18	82-473-013-01		Holder C, Antenna	AX-7500	1
1-19	82-473-010-31		Antenna holder ass'y	AX-7500	1
1-20	87-085-102-01		Nylon rivet 3.5-5.5		5
1-21	87-084-072-01		Nylon rivet 3.5-7		4
1-22a	82-730-013-01		Jack plate (H model only)	*	1
1-22b	82-730-014-01		Jack plate (E, K model only)	*	1
1-22c	82-730-038-01		Jack plate (G model only)	*	1
1-23	82-730-215-01		Amp. chassis H ass'y	*	1
1-24	82-498-003-01		Push-button	SA-C22	3
1-25	82-735-012-01		Rubber foot	SA-A22	4
1-26	82-730-203-01		Roller holder ass'y	*	1
1-27	82-473-220-01		Roller	AX-7500	2
1-28	82-730-012-01		Knob, Tuning	*	1
1-29	82-498-012-01		Knob, Power switch	SA-C22	1
1-30	82-730-206-01		Shaft bearing	*	1
1-31	82-730-207-01		Shaft, Tuning	*	1
1-32	82-735-206-01		Plate, IC (E, K model only)	SA-A22	1
1-33	81-301-040-01		Cushion, Circuit board		1
1-34	82-463-216-01		Rubber bushing	TPR-900	1
1-35	82-730-210-01		Cushion, Dial	*	1
1-36	82-730-216-01		Cushion	*	1
1-37	93-464-154-01		Cushion, Case	*	1
1-38	82-730-219-01		Cushion, Push-switch (H, E, K model only)	*	1
1-39a	87-034-826-01		AC power cord (H model only)		1
1-39b	87-034-877-01		AC power cord (E model only)		1
1-39c	87-034-872-01		AC power cord (K model only)		1
1-39d	87-034-878-01		AC power cord (G model only)		1
1-40	87-085-166-01		Holder, AC power cord (E, K model only)		1
1-41	87-085-165-01		Cord bushing (H, G model only)		1
1-42	87-085-023-01		Cord binder		1
1-43	87-056-008-01		Label, AC power cord (K model only)		1

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-730-853-01		Printed indiv., Packing	*	1
2	82-498-857-01		Cushion L, Printed indiv. (H,K model only)	SA-C22	1
3	82-498-857-11		Cushion L, Printed indiv. (H <sub>1</sub> ,E,G model only)	SA-C22	1
4	82-498-858-01		Cushion R, Printed indiv. (H,K model only)	SA-C22	1
5	82-498-858-11		Cushion R, Printed indiv. (H <sub>1</sub> ,E,G model only)	SA-C22	1
6	87-056-603-01		Poly-vinyl sack (for case)		1
7a	82-730-904-01		Instructions booklet (H model only)	*	1
7b	82-730-907-01		Instructions booklet (H <sub>1</sub> model only)	*	1
7c	82-730-905-01		Instructions booklet (E model only)	*	1
7d	82-730-906-01		Instructions booklet (K model only)	*	1
7e	82-730-910-01		Instructions booklet (G model only)	*	1
8	87-051-171-11		Poly-vinyl sack (for instruction)		1
9	87-056-009-41		Distributors list		1
10	87-056-008-01		Label, AC power cord (K model only)		1
11	87-058-023-01		Cord binder		1
12	82-498-010-01		Handle (H <sub>1</sub> model only)	SA-C22	2
13	87-225-094-11		P + 3 - 6 (H <sub>1</sub> model only)		4
14	87-051-130-11		Poly-vinyl sack (H <sub>1</sub> model only)		1
15	87-032-845-01		Siemens plug (H,H <sub>1</sub> model only)		1
16	85-450-001-01		Connection cord, CW-159K (H,H <sub>1</sub> ,G model only)		1
17	87-043-025-01		FM antenna		1
18	87-051-131-11		Poly-vinyl sack		1
19	87-051-136-11		Poly-vinyl sack		1

EXPLODED VIEW



PARTS LIST

MECHANICAL PARTS

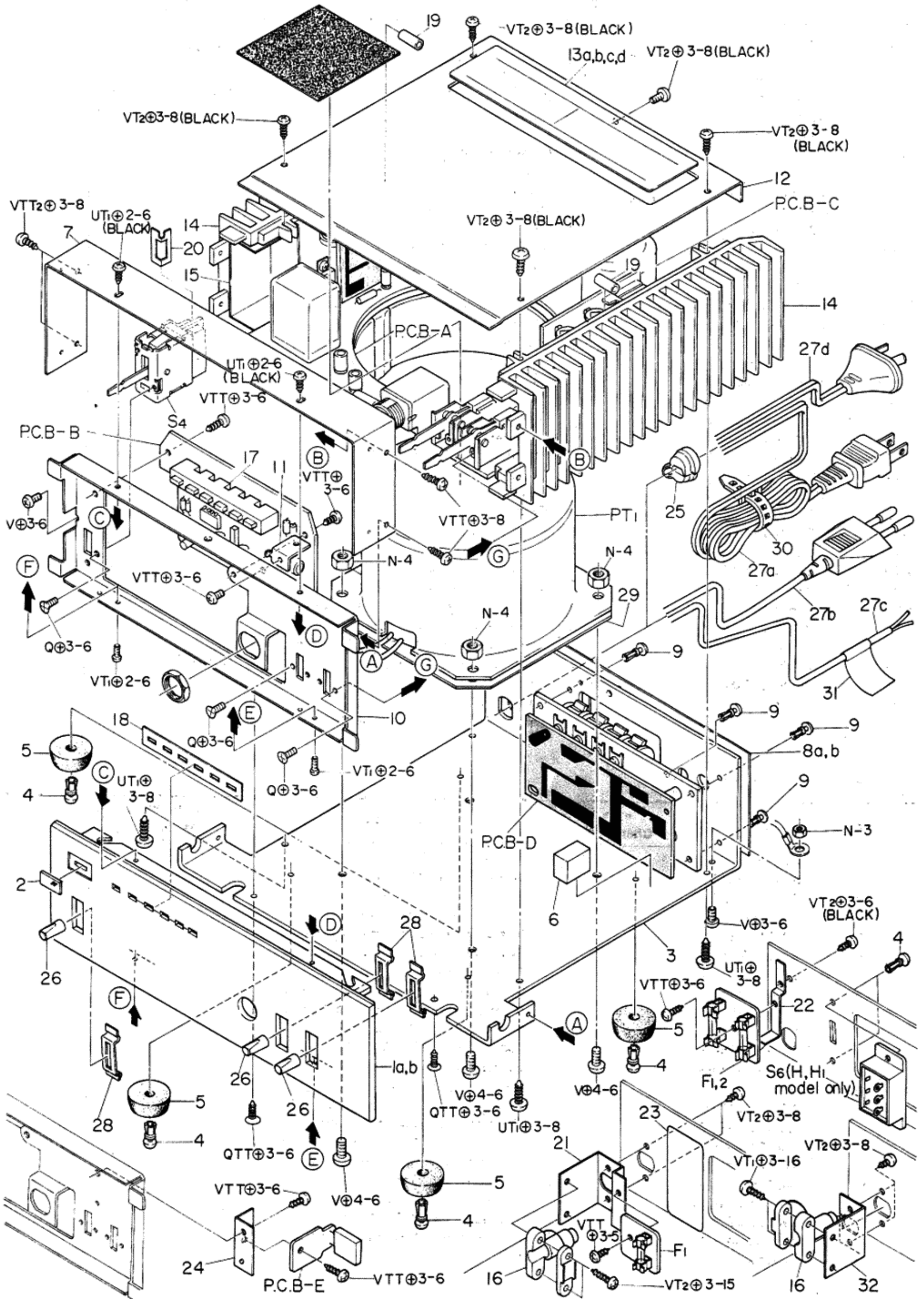
\* mark in this part list shows exclusive part (which is used) for only Model No. SA-C22.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-498-016-01		Panel, Front	*	1
1-2	86-992-013-01		Badge	MT-20	1
1-3	82-498-206-01		Guide, Button	*	1
1-4	82-498-008-01		Lever guide	*	3
1-5	82-498-201-01		Chassis, Front	*	1
1-6	82-498-622-01		Shield plate	*	1
1-7	82-498-003-01		Push-button	*	7
1-8	82-498-203-01		Holder, Circuit board	*	2
1-9	82-498-002-01		Steel cabinet	*	1
1-10a	82-498-018-01		Name plate, Spec. (H model only)	*	1
1-10b	82-498-017-01		Name plate, Spec. (E model only)	*	1
1-10c	82-498-021-01		Name plate, Spec. (K model only)	*	1
1-10d	82-498-022-01		Name plate, Spec. (G model only)	*	1
1-11a	87-034-826-01		AC power cord (H model only)		1
1-11b	87-034-877-01		AC power cord (E model only)		1
1-11c	87-034-872-01		AC power cord (K model only)		1
1-11d	87-034-878-01		AC power cord (G model only)		1
1-12	87-085-165-01		Cord bushing (H, G model only)		1
1-13	87-085-102-01		Nylon river 3.5-5.5		5
1-14a	82-498-014-01		Jack plate (H model only)	*	1
1-14b	82-498-015-01		Jack plate (E, K model only)	*	1
1-14c	82-498-025-01		Jack plate (G model only)	*	1
1-15	82-498-204-01		Amp. chassis ass'y	*	1
1-16	82-735-012-01		Rubber foot	SA-A22	4
1-17	82-735-001-01		Knob, Volume	SA-A22	1
1-18	82-735-003-01		Knob, Tone	SA-A22	1
1-19	82-498-012-01		Knob, Power switch	*	3
1-20	87-084-072-01		Nylon rivet 3.5-7		4
1-21	82-498-209-01		Cover, Insulation (E,K,G model only)	*	1
1-22	82-498-629-01		Barrier (E,K,G model only)	*	1
1-23	87-085-166-01		Holder, AC power cord (E,K,G model only)		1
1-24	82-735-206-01		Plate, IC (E,K,G model only)	SA-A22	1
1-25	82-498-207-01		Rubber cushion	*	4
1-26	87-058-023-01		Cord binder		1
1-27	87-056-008-01		Label, AC power cord (K model only)		1

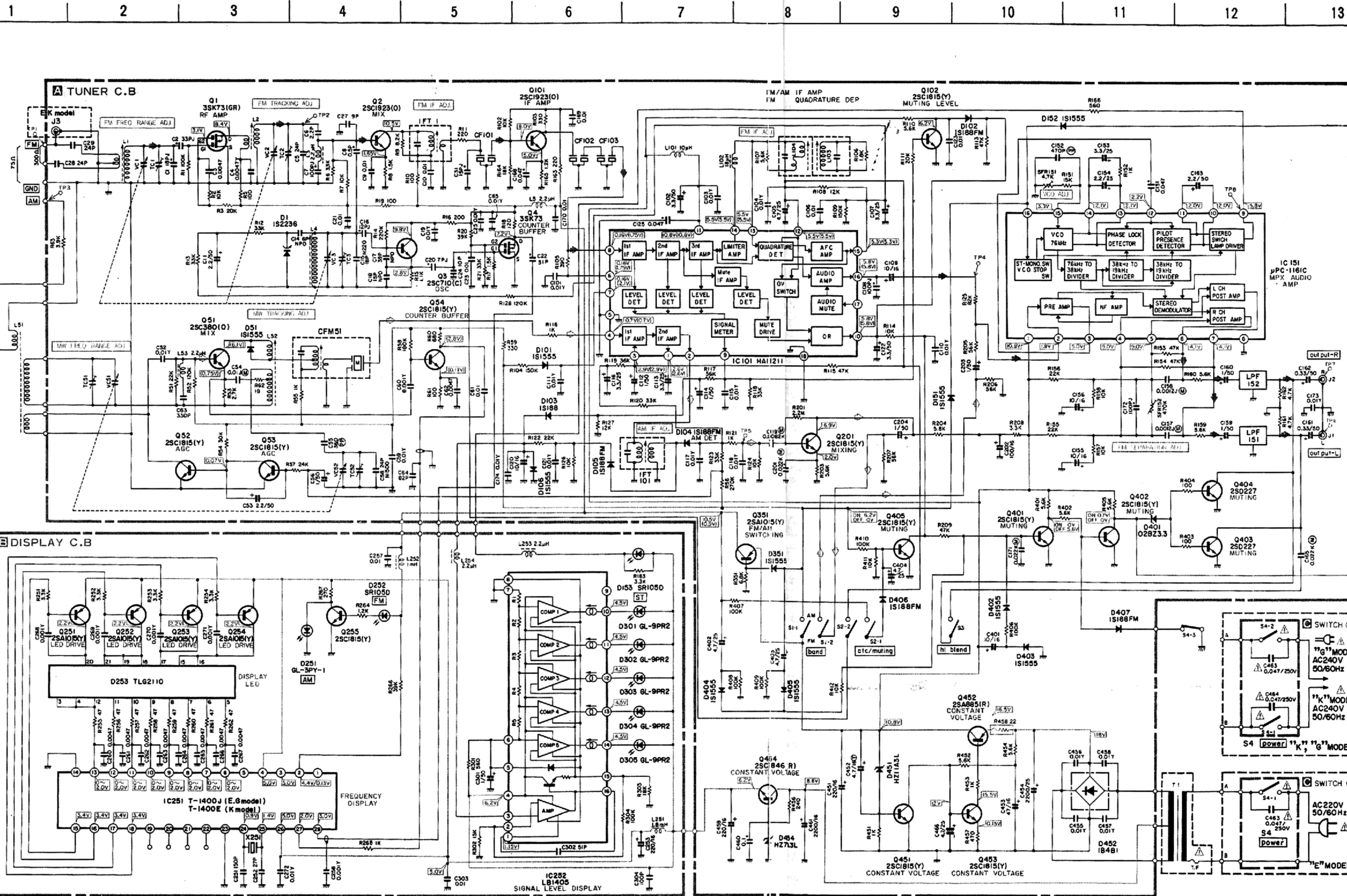
ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-498-855-01		Printed indiv., Packing	*	1
2	82-498-857-11		Cushion L, Printed indiv.	*	1
3	82-498-858-11		Cushion R, Printed indiv.	*	1
4	87-056-603-01		Poly-vinyl sack (for case)		1
5a	82-498-904-01		Instructions booklet (H model only)	*	1
5b	82-498-907-01		Instructions booklet (H1 model only)	*	1
5c	82-498-905-01		Instructions booklet (E1 model only)	*	1
5d	82-498-906-01		Instructions booklet (K model only)	*	1
5e	82-498-910-01		Instructions booklet (G model only)	*	1
6	87-051-171-11		Poly-vinyl sack (for instruction)		1
7	87-051-135-11		Poly-vinyl sack (K, G model only)		1
8	87-056-009-41		Distributors list		1
9	87-056-008-01		Label, AC power cord (K model only)		1
10	87-056-014-01		Tag, Main voltage (K model only)		1
11	87-056-032-01		Guarantee card (G model only)		1
12	87-051-130-11		Poly-vinyl sack (H1, E1 model only)		1
13	87-051-131-11		Poly-vinyl sack (H, H1 model only)		1
14	82-498-010-01		Handle (H1, E1 model only)	*	2
15	87-225-094-11		P + 3 - 6 (H1, E1 model only)		4
16	84-450-001-01		Connection cord, CW-159K		1
17	87-032-845-01		Siemens plug (H, H1 model only)		1
18	87-058-023-01		Cord binder		1

EXPLODED VIEW

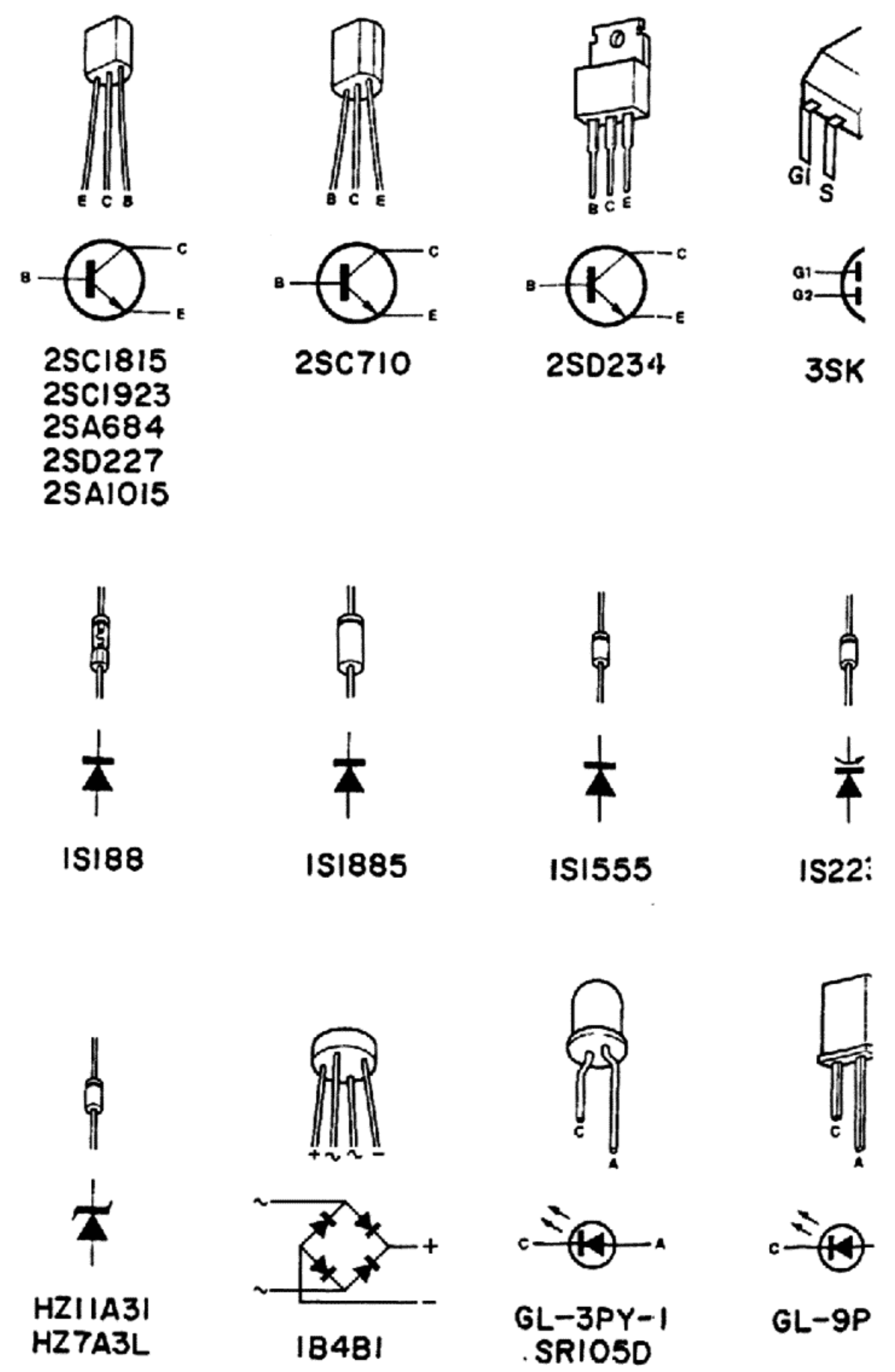


**SCHEMATIC DIAGRAM**



S1-1,2 band (FM)      S4 power (off)  
 S2-1,2 afc/muting (off)  
 S3 hi blend (off)

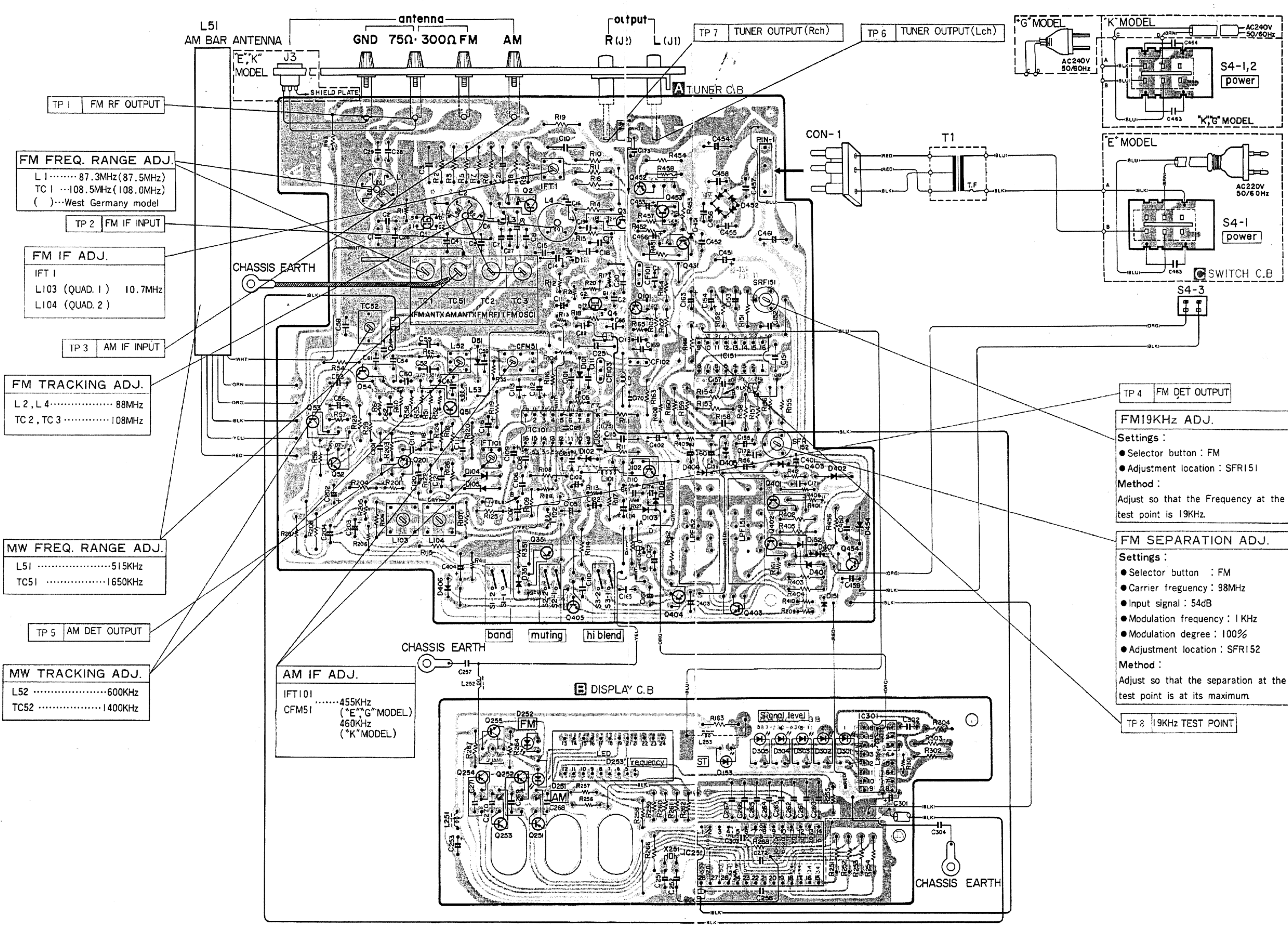
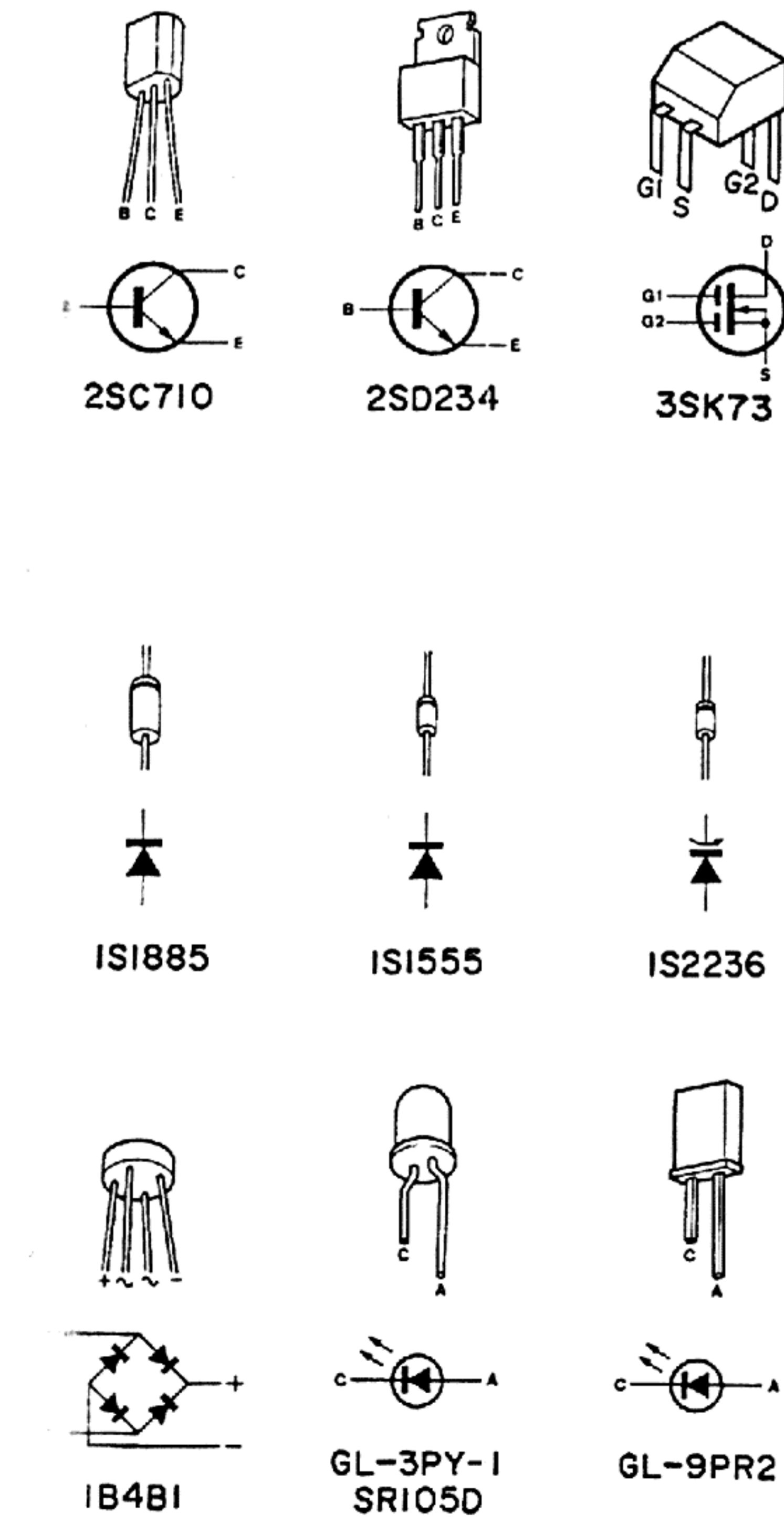
- NOTES:**
- 1) — B (+) power supply
  - 2) → Signal path
  - 3) Rec path, AM signal path.
  - 3) The voltage is the reference value measured with tester (20 k-ohms/V DC) when there are no signals. But ( ) is with AM reception.
  - 4) Resistors with no designation have a rated power 1/4W and a tolerance of ±5%.
  - 5) Capacitors with no designation have a dielectric strength of less than 50WV.
  - 6) The only capacitor tolerances indicated are ±5% and ±10% (K).
  - 7) Ceramic capacitor symbols:  
 ○ For temperature compensation (SL)  
 □ High dielectric constant system (YY)  
 ▭ High dielectric constant system (YW, YP, YZ)  
 ● Semiconductor ceramic
  - 8) Explanation of symbols  
 (M) Mylar capacitor  
 (PP) Polypropylene film capacitor  
 (T) Tantalum capacitor  
 (F) Fuse resistor  
 (Safety symbol) Safety component symbol
- This symbol is given to important parts which are to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with a symbol, make absolutely sure that you use a signated part.
- This schematic diagram is subject to change with notice in the interests of improved performance.



WIRING

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

power supply path  
 path, AM signal path.  
 is the reference value measured with a  
 ohms/V DC) when there are no signals.  
 is with AM reception.  
 with no designation have a rated power of  
 tolerance of ±5%.  
 with no designation have a dielectric  
 less than 50WV.  
 capacitor tolerances indicated are ±5% (J  
 K).  
 capacitor symbols:  
 temperature compensation (SL)  
 dielectric constant system (YY)  
 dielectric constant system (YW, YP, YZ)  
 conductor ceramic  
 of symbols  
 capacitor  
 polypropylene film capacitor  
 aluminum capacitor  
 resistor  
 component symbol  
 is given to important parts which serve  
 the safety of the product, and which are  
 conform to special safety specifications.  
 when replacing a component with this  
 make absolutely sure that you use a de-  
 part.  
 diagram is subject to change without  
 the interests of improved performance.



TP 1 FM RF OUTPUT

FM FREQ. RANGE ADJ.  
 L 1 ..... 87.3MHz (87.5MHz)  
 TC 1 ..... 108.5MHz (108.0MHz)  
 ( ) ..... West Germany model

TP 2 FM IF INPUT

FM IF ADJ.  
 IFT 1  
 L103 (QUAD. 1) 10.7MHz  
 L104 (QUAD. 2)

TP 3 AM IF INPUT

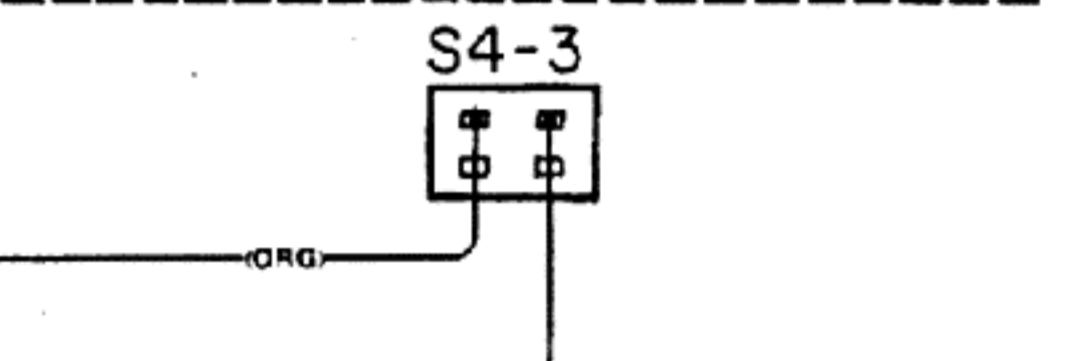
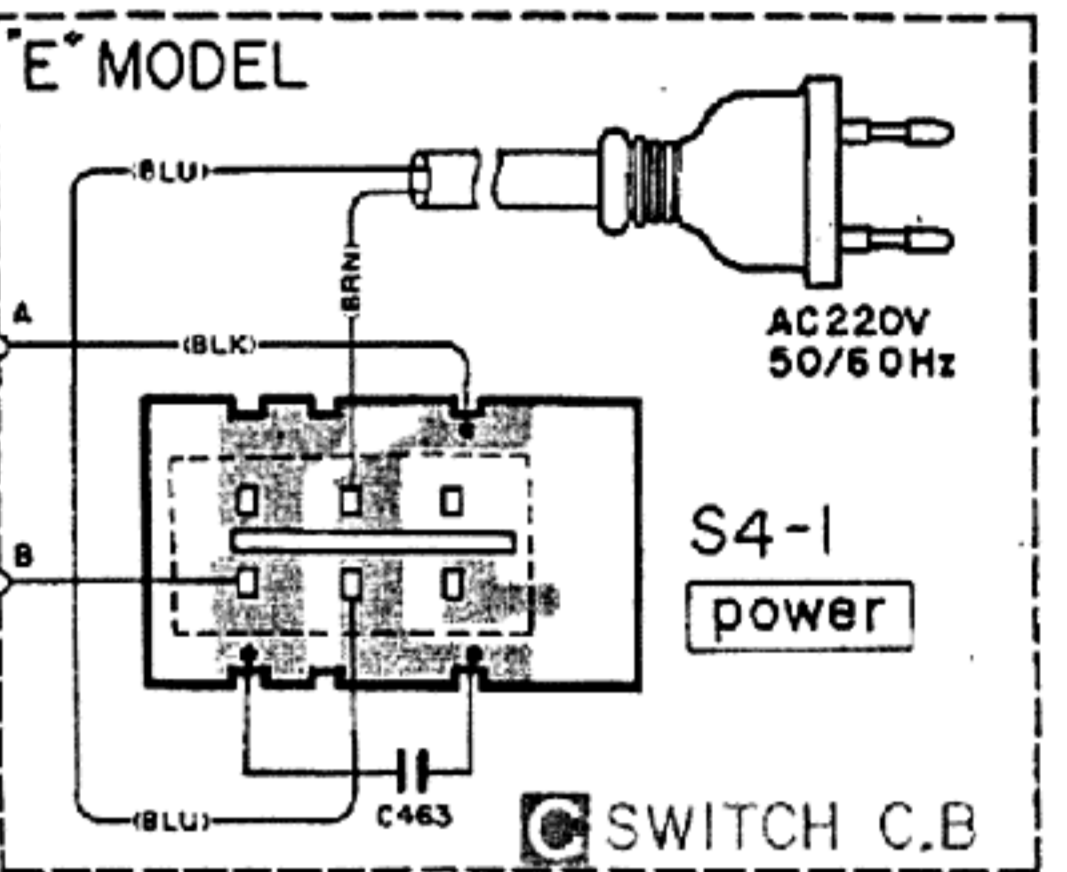
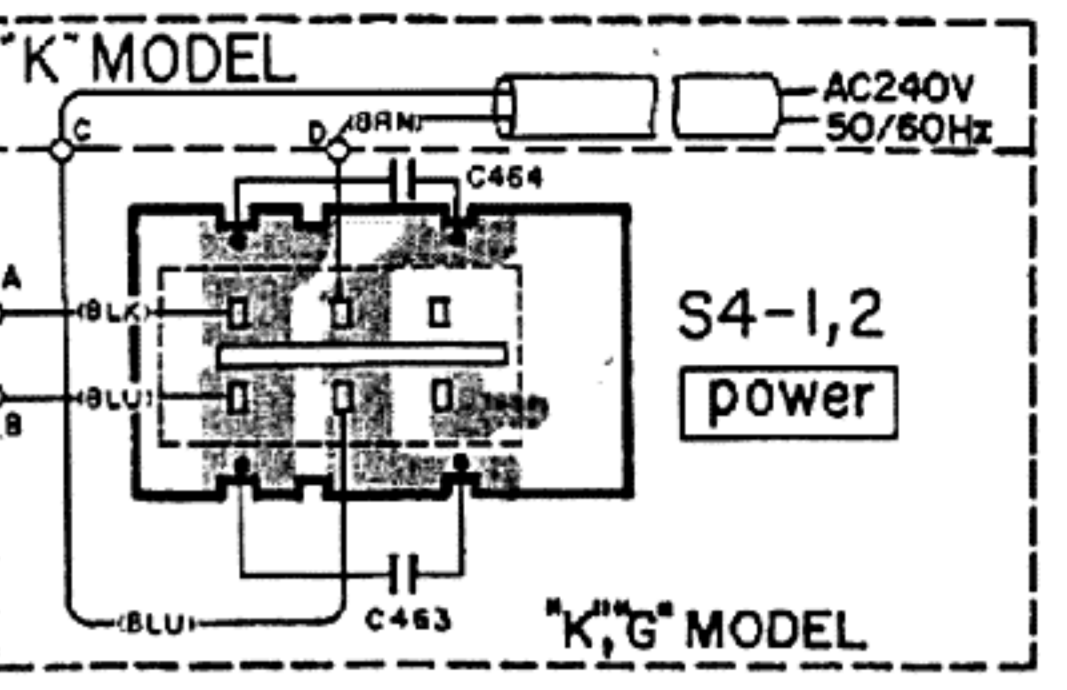
FM TRACKING ADJ.  
 L 2, L 4 ..... 88MHz  
 TC 2, TC 3 ..... 108MHz

MW FREQ. RANGE ADJ.  
 L51 ..... 515KHz  
 TC51 ..... 1650KHz

TP 5 AM DET OUTPUT

MW TRACKING ADJ.  
 L52 ..... 600KHz  
 TC52 ..... 1400KHz

AM IF ADJ.  
 IFT101 ..... 455KHz  
 CFM51 ("E" "G" MODEL)  
 460KHz  
 ("K" MODEL)



TP 4 FM DET OUTPUT

FM19KHz ADJ.  
 Settings:  
 • Selector button : FM  
 • Adjustment location : SFR151  
 Method:  
 Adjust so that the Frequency at the test point is 19KHz.

FM SEPARATION ADJ.  
 Settings:  
 • Selector button : FM  
 • Carrier frequency : 98MHz  
 • Input signal : 54dB  
 • Modulation frequency : 1KHz  
 • Modulation degree : 100%  
 • Adjustment location : SFR152  
 Method:  
 Adjust so that the separation at the test point is at its maximum.

TP 2 19KHz TEST POINT

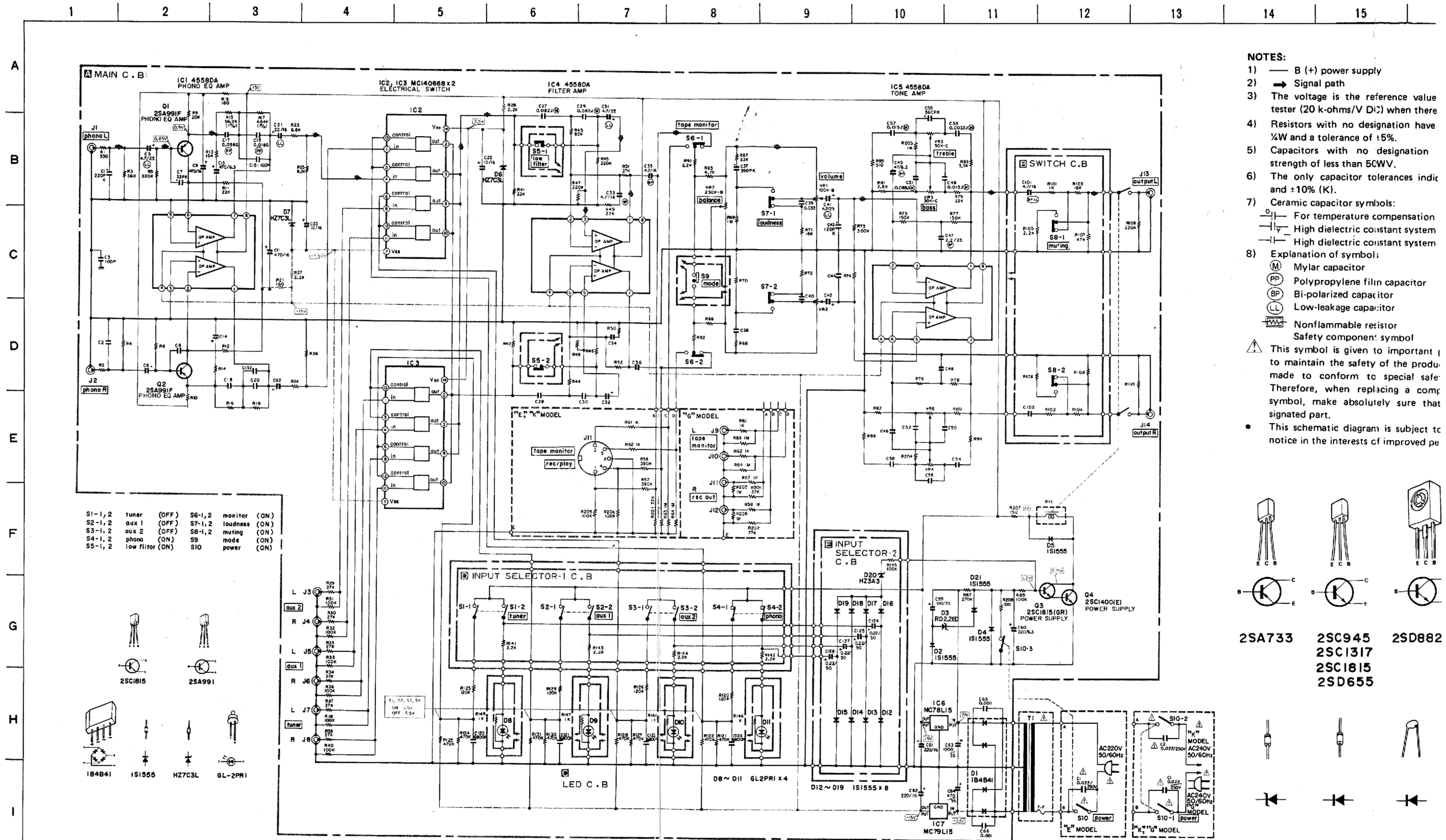
NOTES (1) B(+) Pattern Others pattern  
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. But ( ) is with AM reception.

How to change the upper limit of FM frequency range from 108 MHz to 104 MHz

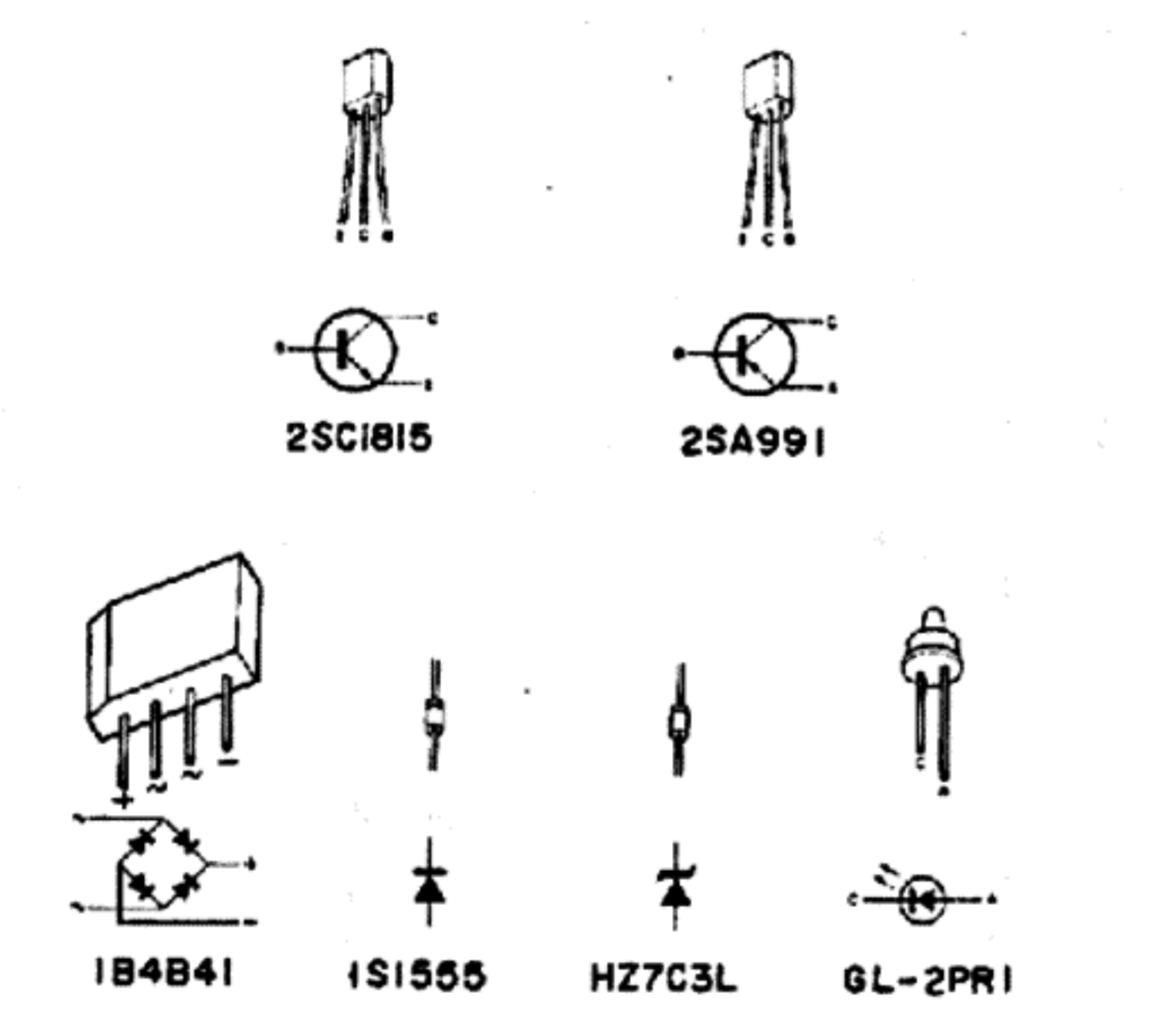
Symbol No.	Description	108 MHz	104 MHz
C15	Ceramic capacitor	18pF 88-254-180-01	39pF 88-254-270-01



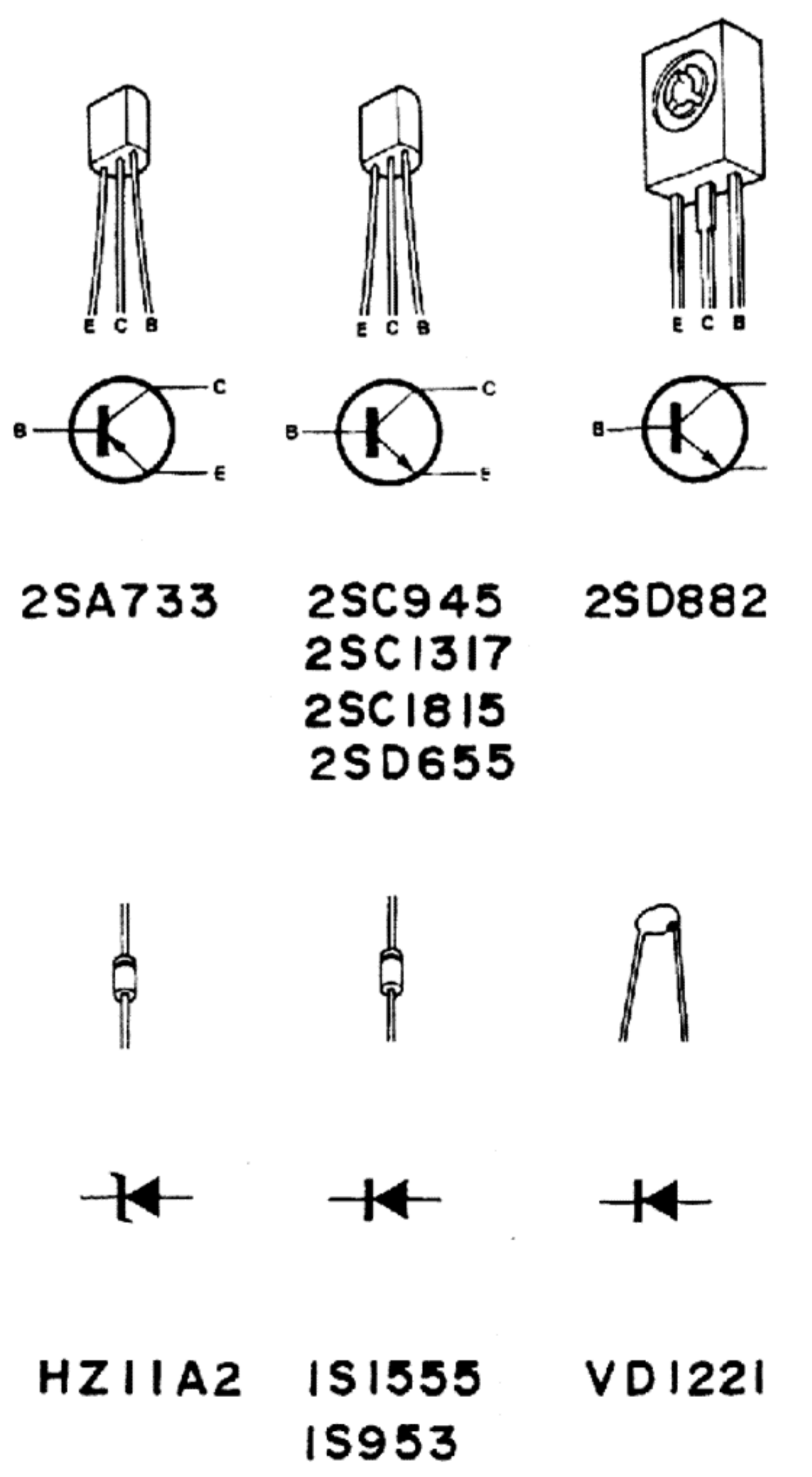
SCHEMATIC DIAGRAM



- S1-1, 2 tuner (OFF) S6-1, 2 monitor (ON)
- S2-1, 2 aux 1 (OFF) S7-1, 2 loudness (ON)
- S3-1, 2 aux 2 (OFF) S8-1, 2 muting (ON)
- S4-1, 2 phono (ON) S9 mode (ON)
- S5-1, 2 low filter (ON) S10 power (ON)



- NOTES:**
- 1) — B (+) power supply
  - 2) → Signal path
  - 3) The voltage is the reference value tester (20 k-ohms/V DC) when there
  - 4) Resistors with no designation have 1/4W and a tolerance of ±5%.
  - 5) Capacitors with no designation strength of less than 50WV.
  - 6) The only capacitor tolerances indic and ±10% (K).
  - 7) Ceramic capacitor symbols:
    - For temperature compensation
    - High dielectric constant system
    - High dielectric constant system
  - 8) Explanation of symbol:
    - (M) Mylar capacitor
    - (PP) Polypropylene film capacitor
    - (BP) Bi-polarized capacitor
    - (LL) Low-leakage capacitor
    - ⊞ Nonflammable resistor
    - ⚠ Safety component symbol
- This symbol is given to important parts to maintain the safety of the product made to conform to special safety standards. Therefore, when replacing a component symbol, make absolutely sure that the signated part.
- This schematic diagram is subject to change without notice in the interests of improved performance.



WIRING

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

ES:

- B (+) power supply
- Signal path

The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.

Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.

Capacitors with no designation have a dielectric strength of less than 50WV.

The only capacitor tolerances indicated are ±5% (J) and ±10% (K).

Ceramic capacitor symbols:

- For temperature compensation (SL)
- High dielectric constant system (YY)
- High dielectric constant system (YW, YP, YZ)

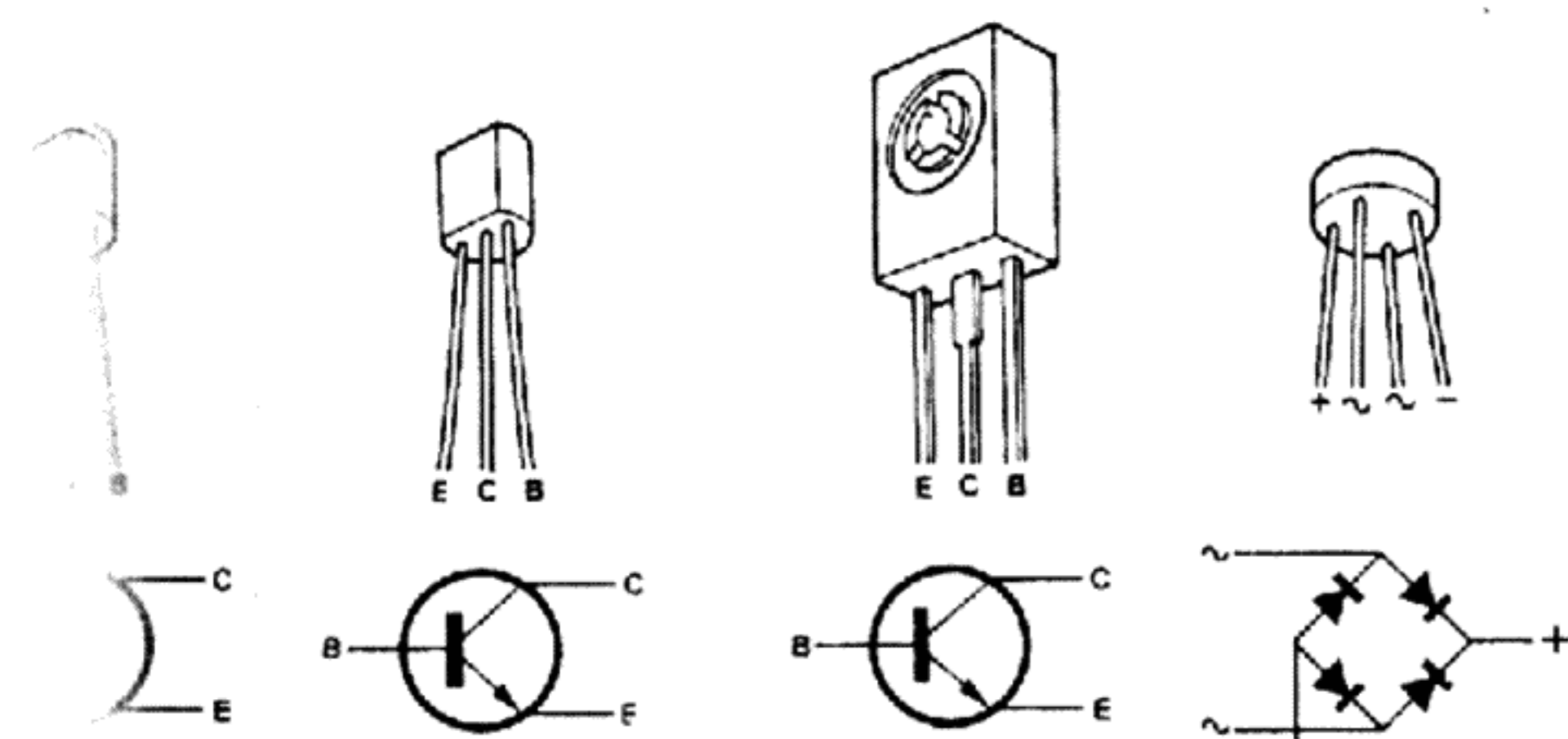
Explanation of symbol:

- Ⓜ Mylar capacitor
- Ⓟ Polypropylene film capacitor
- Ⓡ Bi-polarized capacitor
- Ⓛ Low-leakage capacitor
- Ⓢ Nonflammable resistor

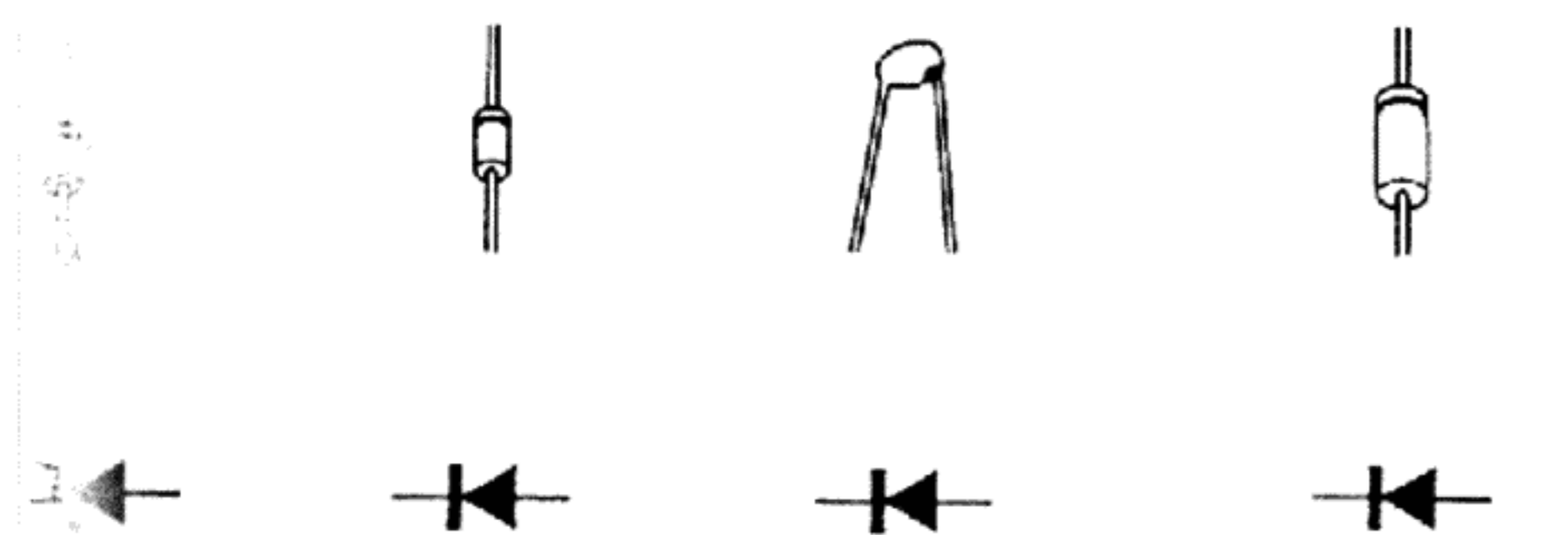
Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

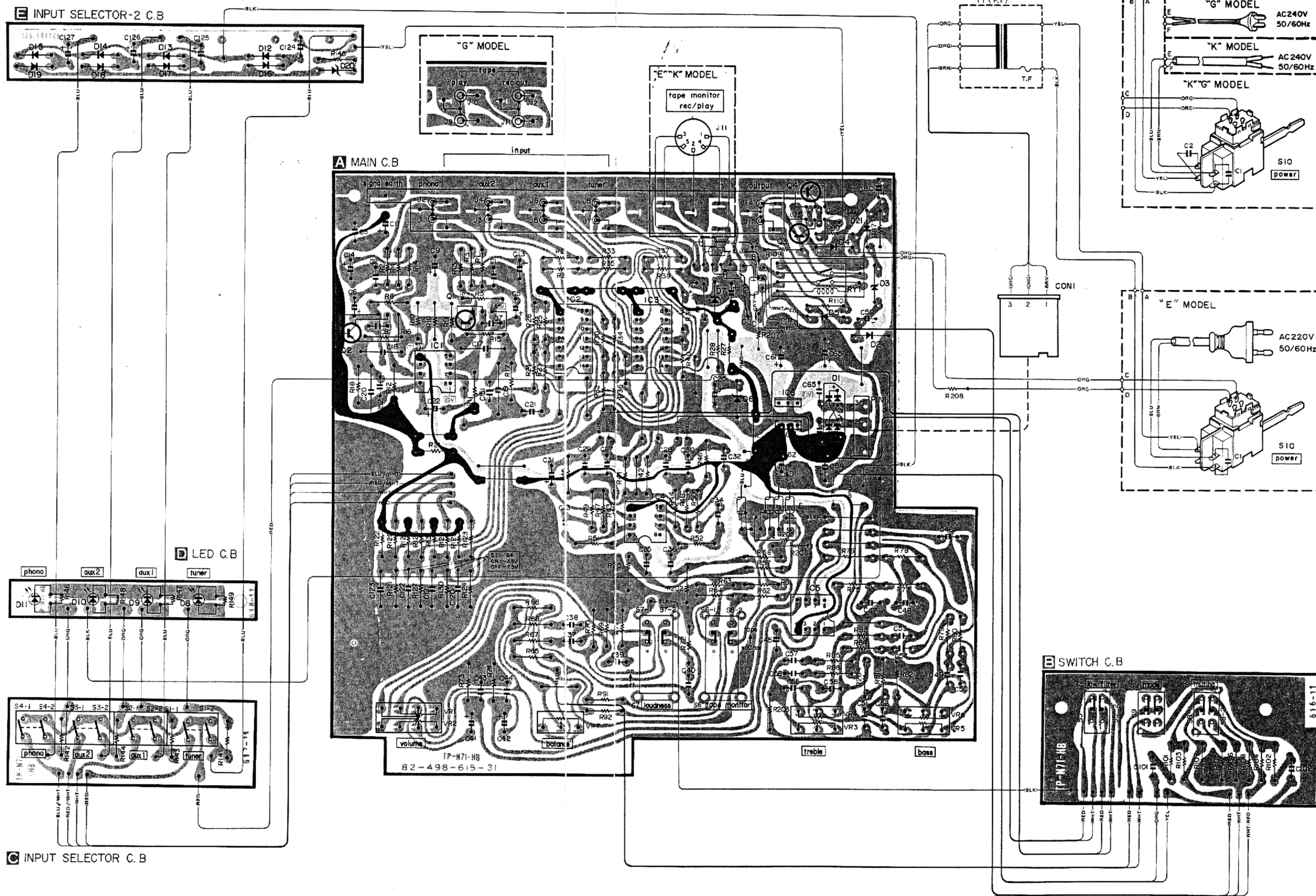
This schematic diagram is subject to change without notice in the interests of improved performance.



- 1733 25C945 2SD882 1B4B41
- 25C1317
- 25C1815
- 25D655



- 11A2 IS1555 VD1221 SRIK2
- IS953

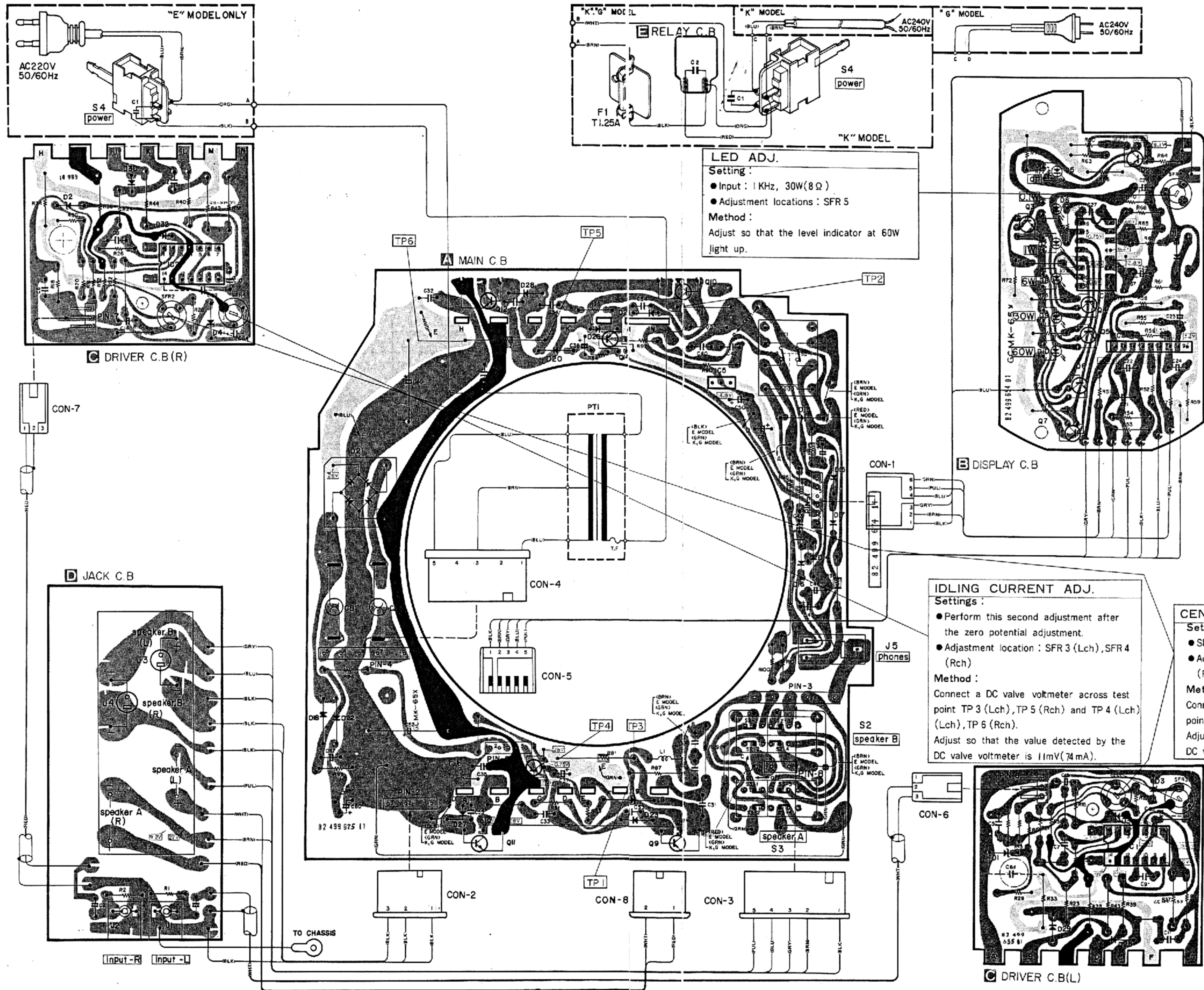


NOTES (1) [Pattern] B(+) Pattern [Pattern] B(-) Pattern [Pattern] Others pattern  
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

WIRING

15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30

power supply  
 al path  
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 k-ohms/V DC) when there are no signals.  
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 with no designation have a dielectric  
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 capacitor tolerances indicated are ±5% (J)  
 (K).  
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 e, when replacing a component with this  
 make absolutely sure that you use a de-  
 part.  
 amatic diagram is subject to change without  
 the interests of improved performance.



**LED ADJ.**  
 Setting:  
 ● Input : 1 KHz, 30W(8 Ω)  
 ● Adjustment locations : SFR 5  
 Method:  
 Adjust so that the level indicator at 60W  
 light up.

**IDLING CURRENT ADJ.**  
 Settings:  
 ● Perform this second adjustment after  
 the zero potential adjustment.  
 ● Adjustment location : SFR 3 (Lch), SFR 4  
 (Rch)  
 Method:  
 Connect a DC valve voltmeter across test  
 point TP 3 (Lch), TP 5 (Rch) and TP 4 (Lch)  
 (Lch), TP 6 (Rch).  
 Adjust so that the value detected by the  
 DC valve voltmeter is 11mV(74mA).

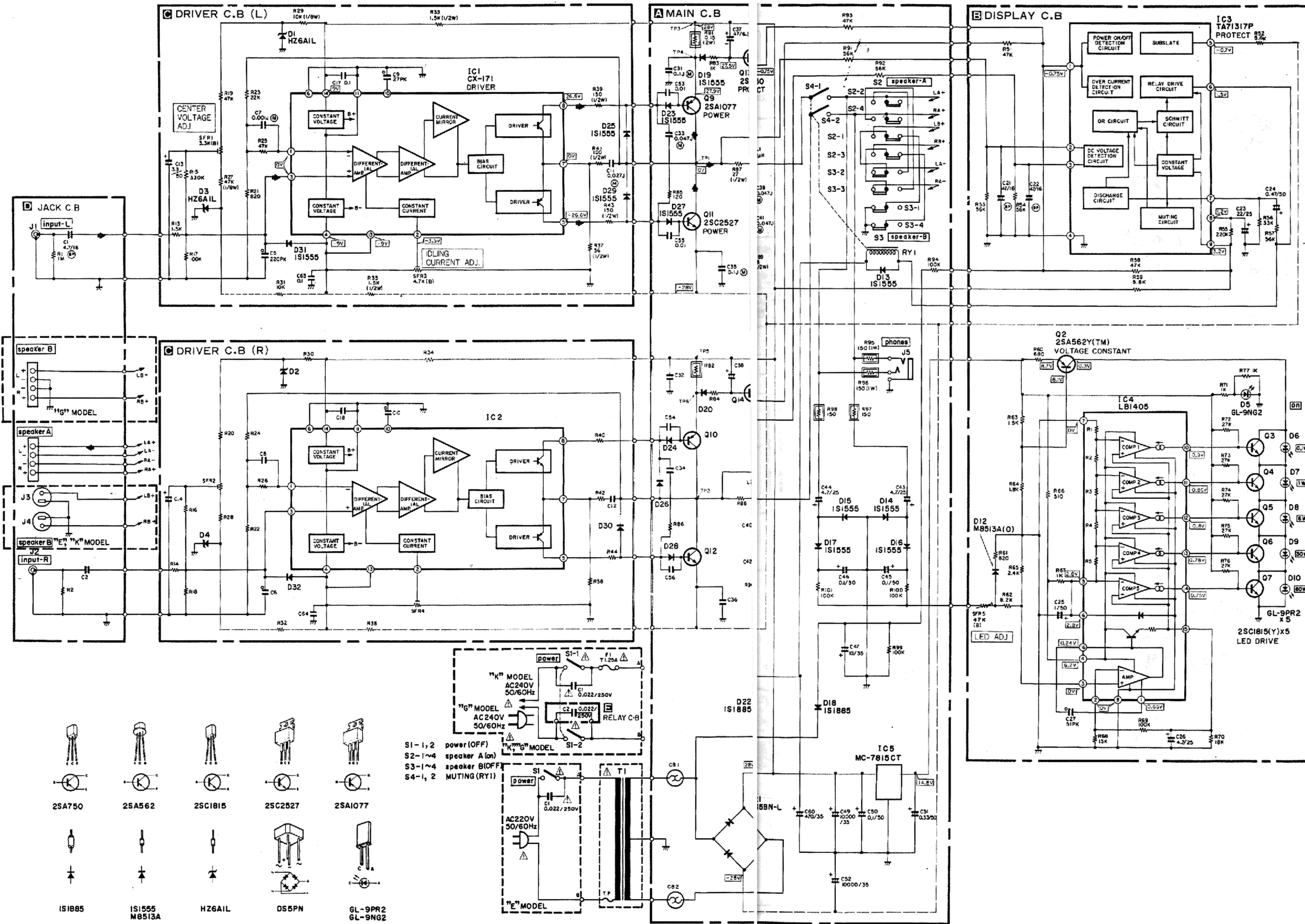
**CENTER VOLTAGE "0" ADJ.**  
 Settings:  
 ● SFR3,4(for idling current adjustment)  
 ● Adjustment location : SFR 1 (Lch), SFR 2  
 (Rch)  
 Method:  
 Connect DC valve voltmeter between test  
 point TP 1 (Lch), TP 2 (Rch) and ground.  
 Adjust so that the value detected by the  
 DC valve voltmeter is 0V.

**NOTES** (1) B(+) Pattern B(-) Pattern Others pattern  
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

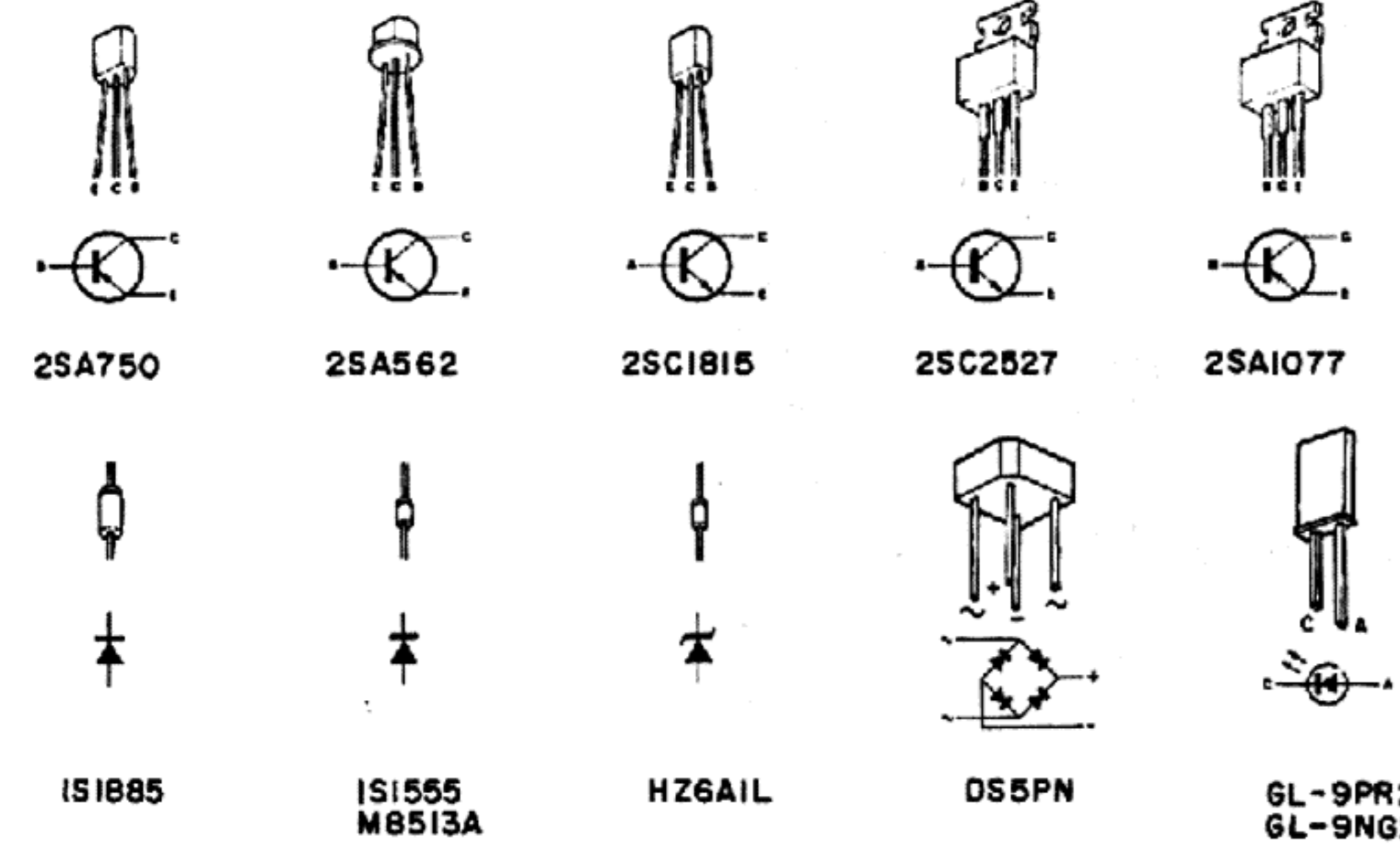
**SCHEMATIC DIAGRAM**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

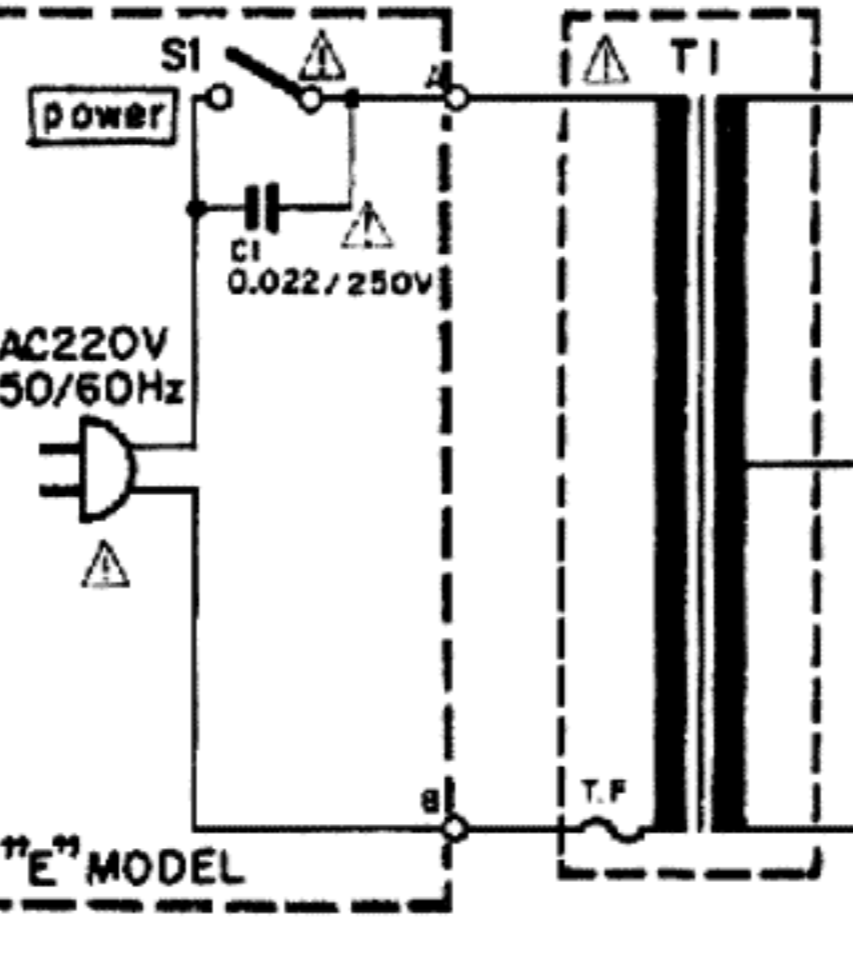
A  
B  
C  
D  
E  
F  
G  
H  
I



- NOTES:**
- 1) — B (+) power supply
  - 2) → Signal path
  - 3) The voltage is the reference value measured by a multimeter (20 k-ohms/V DC) when there are no load.
  - 4) Resistors with no designation have a rated value of 1/4W and a tolerance of ±5%.
  - 5) Capacitors with no designation have a tolerance of less than 50WV.
  - 6) The only capacitor tolerances indicated are ±10% (K).
  - 7) Ceramic capacitor symbols:
    - For temperature compensation (SL)
    - ⊥ High dielectric constant system (YY)
    - ⊥ High dielectric constant system (YW, Y)
  - 8) Explanation of symbols:
    - Ⓜ Mylar capacitor
    - Ⓟ Polypropylene film capacitor
    - Ⓟ Bi-polarized capacitor
    - Ⓛ Low-leakage capacitor
    - Ⓜ Nonflammable resistor
    - ⚠ Safety component symbol
- This symbol is given to important parts which are important to maintain the safety of the product, and made to conform to special safety specifications. Therefore, when replacing a component symbol, make absolutely sure that you sign part.
- This schematic diagram is subject to change without notice in the interests of improved performance.



S1-1, 2 power (OFF)  
S2-1~4 speaker A (on)  
S3-1~4 speaker B (OFF)  
S4-1, 2 MUTING (RY1)



## PARTS LIST

## MECHANICAL PARTS

\* mark in this part list shows exclusive part  
(which is used) for only Model No. SA-P22.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1a	82-499-009-01		Panel, Front (H model only)	*	1
1-1b	82-499-008-01		Panel, Front (E, K, G model only)	*	1
1-2	86-992-013-01		Badge	MT-20	1
1-3	82-499-207-01		Amp. chassis	*	1
1-4	87-084-072-01		Nylon rivet		H, H <sub>1</sub> : 6 E, K, G: 4
1-5	82-735-012-01		Rubber foot	SA-A22	4
1-6	82-533-230-01		Cushion		1
1-7	82-499-002-01		Steel cabinet	*	1
1-8a	82-499-006-01		Jack plate (H model only)	*	1
1-8b	82-499-007-01		Jack plate (E, K, G model only)	*	1
1-9	87-085-102-01		Nylon rivet 3.5-5.5		5
1-10	82-499-201-21		Chassis, Front	*	1
1-11	82-498-203-01		Holder, Circuit board	SA-C22	1
1-12	82-499-012-01		Panel A, Top	*	1
1-13a	82-499-011-01		Name plate, Spec. (H model only)	*	1
1-13b	82-499-010-01		Name plate, Spec. (E model only)	*	1
1-13c	82-499-016-01		Name plate, Spec. (K model only)	*	1
1-13d	82-499-017-01		Name plate, Spec. (G model only)	*	1
1-14	82-499-601-01		Heat sink	*	2
1-15	82-499-638-01		Insulation fiber	*	1
1-16	87-085-166-01		Holder, AC power cord (E, K model only)		1
1-17	82-499-204-01		Cushion	*	1
1-18	82-499-206-01		Guide, LED	*	1
1-19	87-085-146-01		Spacer		2
1-20	82-498-629-01		Barrier (E, K model only)	SA-C22	1
1-21	82-499-208-01		Holder A, AC (K model only)	*	1
1-22	82-499-209-01		Holder B, Fuse	*	1
1-23	82-499-210-01		Sheet, Insulation (K, G model only)	*	1
1-24	82-499-211-01		Holder C (K model only)	*	1
1-25	87-085-165-01		Gord bushing (H, G model only)		1
1-26	82-498-012-01		Knob, Power switch	SA-C22	3
1-27a	87-034-826-01		AC power cord (H model only)		1
1-27b	87-034-877-01		AC power cord (E model only)		1
1-27c	87-034-872-01		AC power cord (K model only)		1
1-27d	87-034-878-01		AC power cord (G model only)		1
1-28	82-498-008-01		Lever guide	SA-C22	3
1-29	82-499-644-01		Shield plate (P.T)	*	1
1-30	87-058-023-01		Cord binder		1
1-31	87-056-008-01		Label, AC power cord (K model only)		1
1-32	82-499-212-01		Holder D (E model only)	*	1

## ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-499-856-01		Printed indiv., Packing	*	1
2	82-499-860-11		Cushion L, Printed indiv.	*	1
3	82-499-861-11		Cushion R, Printed indiv.	*	1
4	87-056-603-01		Poly-vinyl sack (for case)		1
5	82-499-855-01		Cushion, Sub A	*	1
6a	82-499-905-01		Instructions booklet (H model only)	*	1
6b	82-499-908-01		Instructions booklet (H <sub>1</sub> model only)	*	1
6c	82-499-904-01		Instructions booklet (E <sub>1</sub> model only)	*	1
6d	82-499-906-01		Instructions booklet (K model only)	*	1
6e	82-499-910-01		Instructions booklet (G model only)	*	1
7	87-051-171-11		Poly-vinyl sack (for instruction)		1
8	87-056-009-41		Distributors list		1
9	87-056-008-01		Label, AC power cord (K model only)		1
10	87-058-023-01		Cord binder		1
11	87-051-135-11		Ploy-vinyl sack (E <sub>1</sub> , K, G model only)		1
12	87-051-130-11		Poly-vinyl sack (H <sub>1</sub> , E <sub>1</sub> model only)		1
13	87-051-131-11		Poly-vinyl sack (H, H <sub>1</sub> model only)		1
14	87-056-032-01		Guarantee card (G model only)		1
15	82-498-010-01		Handle (H <sub>1</sub> , E <sub>1</sub> model only)	SA-C22	2
16	87-225-094-11		P + 3 - 6 (H <sub>1</sub> , E <sub>1</sub> model only)		4

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