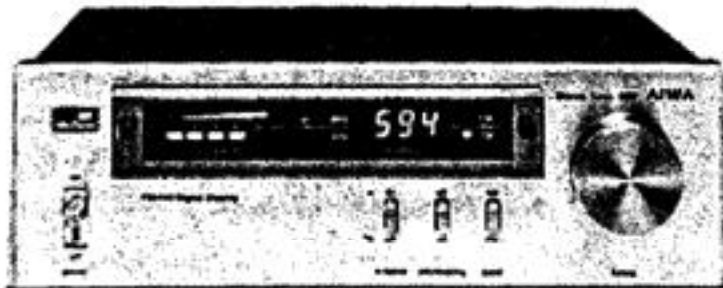
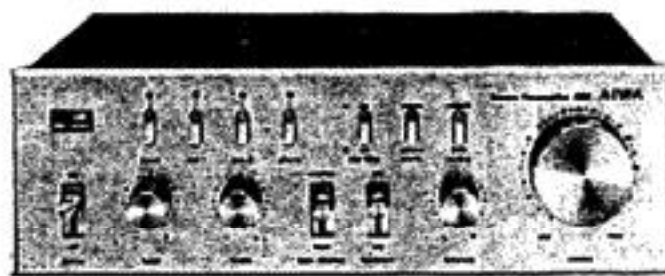



FM/AM STEREO TUNER MODEL No. **ST-R22H,E,K,G**
PRE AMPLIFIER MODEL No. **SA-C22H,E,K,G**
DC STEREO POWER AMPLIFIER MODEL No. **SA-P22H,E,K,G**

AIWA®

[SERVICE MANUAL]

DATE OF ISSUE 5/1979

| Cord No.15-220-000-53 | Cord No.16-220-000-53 | Cord No.17-220-000-53 |
|--|---|---|
|  |  |  |
| ST-R22 | SA-C22 | SA-P22 |
| <p>SPECIFICATIONS</p> <p>Semiconductors: 4 ICs, 2 FETs, 24 transistors, 21 diodes, 8 LEDs, 4-LED digit numerical display</p> <p>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)</p> <p>Power consumption: 8W</p> <p>Dimensions: 210(W) x 71(H) x 173.5(D)mm</p> <p>Weight: 2.0 kg</p> <p><FM SECTION></p> <p>Frequency range: 87.3 ~ 108.5 MHz</p> <p>Intermediate frequency: 10.7 ± 0.1 MHz</p> <p>Usable sensitivity: 6 ± 2 dB (at 88 MHz) 5 ± 3 dB (at 98, 108 MHz)</p> <p>S/N 50 dB sensitivity: 13 ± 2 dB (at 88, 98, 108 MHz)</p> <p>S/N ratio: More than 65 dB</p> <p>Distortion: Less than 0.2%</p> <p>Frequency response: 40 ~ 15,000 Hz (+0.5 dB / -1.5 dB)</p> <p>Image interference ratio: More than 40 dB</p> <p>IF interference ratio: More than 80 dB</p> <p>Capture ratio: Less than 2 dB</p> <p>AM suppression ratio: More than 50 dB</p> <p>Selectivity: 43 ± 10 dB (± 300 kHz)</p> <p>Stereo separation: More than 42 dB (at 1 kHz) (at 100 Hz, 6 kHz)</p> <p>Muting sensitivity: 20 ± 6 dB</p> <p>AFC holding range: 320 ± 30 kHz</p> <p><AM SECTION></p> <p>Frequency range: 515 ~ 1650 kHz</p> <p>Intermediate frequency: 455 ± 1.5 kHz (H,E,G model) 460 ± 1.5 kHz (K model)</p> <p>Sensitivity: 51 ± 3 dB (600 kHz) 49 ± 3 dB (1000, 14000 kHz)</p> <p>S/N ratio: 42 ± 5 dB</p> <p>Distortion: Less than 1.2%</p> <p>Image interference ratio: More than 40 dB</p> <p>Selectivity: 30 ± 5 dB (± 9 kHz)</p> <p>IF interference ratio: More than 35 dB</p> | <p>SPECIFICATIONS</p> <p>Semiconductors: 7 ICs, 4 transistors, 17 diodes, 4 LEDs</p> <p>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)</p> <p>Power consumption: 3W</p> <p>Dimensions: 210(W) x 71(H) x 173.5(D)mm</p> <p>Weight: 1.7 kg</p> <p>S/N ratio: phono More than 75 dB tuner More than 80 dB aux 1,2 More than 90 dB</p> <p>Distortion: Less than 0.1% (20 Hz ~ 20 kHz)</p> <p>Frequency response: 20 ~ 20,000 Hz (± 0.5 dB)</p> <p>Tone controls: Bass 100 Hz +8.5 ± 1.5 dB -11 ± 1.5 dB Treble 10kHz +6 ± 1.5 dB -10 ± 1.5 dB</p> <p>Loudness: 100 Hz +6 ± 1 dB 10 kHz +4 ± 1 dB 30Hz -2 ± 1 dB</p> <p>Low filter: 30Hz</p> <p>Channel separation: phono More than 48 dB tuner More than 45 dB aux 1,2</p> <p>Input sensitivity and impedance: phono 2.5mV (200mV max input) tuner 150mV/47 kΩ aux 1,2 150mV/47 kΩ play 150mV/1 kΩ recout 30mV/80 kΩ (H,G model) 30mV/80 kΩ (E,K model)</p> <p>Tape monitor:</p> <p>Output level: 580mV ± 1 dB (phono 2.5mV) 720mV ± 1 dB (tuner, aux 1,2 150mV)</p> <p>Residual noise: Less than 0.12mV</p> | <p>SPECIFICATIONS</p> <p>Semiconductors: 5 ICs, 12 transistors, 25 diodes, 6 LEDs</p> <p>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)</p> <p>Power consumption: 60W (H model) 160W (G model) 200W (E model) 210W (K model)</p> <p>Dimensions: 210(W) x 72(H) x 207(D)mm</p> <p>Weight: 3.8 kg</p> <p>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)</p> <p>Distortion: Less than 0.05% (H, G model) Less than 0.08% (E, K model)</p> <p>S/N ratio: More than 95 dB (1 kHz, IHF A curve)</p> <p>Frequency response: 10 ~ 50,000 Hz (± 1 dB)</p> <p>Power bandwidth: Less than 0.1% (20 Hz ~ 20 kHz) (H, G model) Less than 0.15% (20 Hz ~ 20 kHz) (E, K model)</p> <p>Residual noise: Less than 1mV</p> <p>Output voltage: phones More than 0.8mW (H, G model) More than 1mW (E, K model)</p> |
| <p>• Specifications and external appearance are subject to change without notice due to product improvement.</p> | | |

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

MECHANICAL PARTS

PARTS LIST

* 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 | | Steal 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 ₁ ,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 ₁ ,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 ₁ 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 ₁ model only) | SA-C22 | 2 |
| 13 | 87-225-094-11 | | P + 3 - 6 (H ₁ model only) | * | 4 |
| 14 | 87-051-130-11 | | Poly-vinyl sack (H ₁ model only) | * | 1 |
| 15 | 87-032-845-01 | | Siemens plug (H,H ₁ model only) | * | 1 |
| 16 | 85-450-001-01 | | Connection cord, CW-159K (H,H ₁ ,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 |

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

MECHANICAL PARTS

PARTS LIST

* 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 | | Steal 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 |

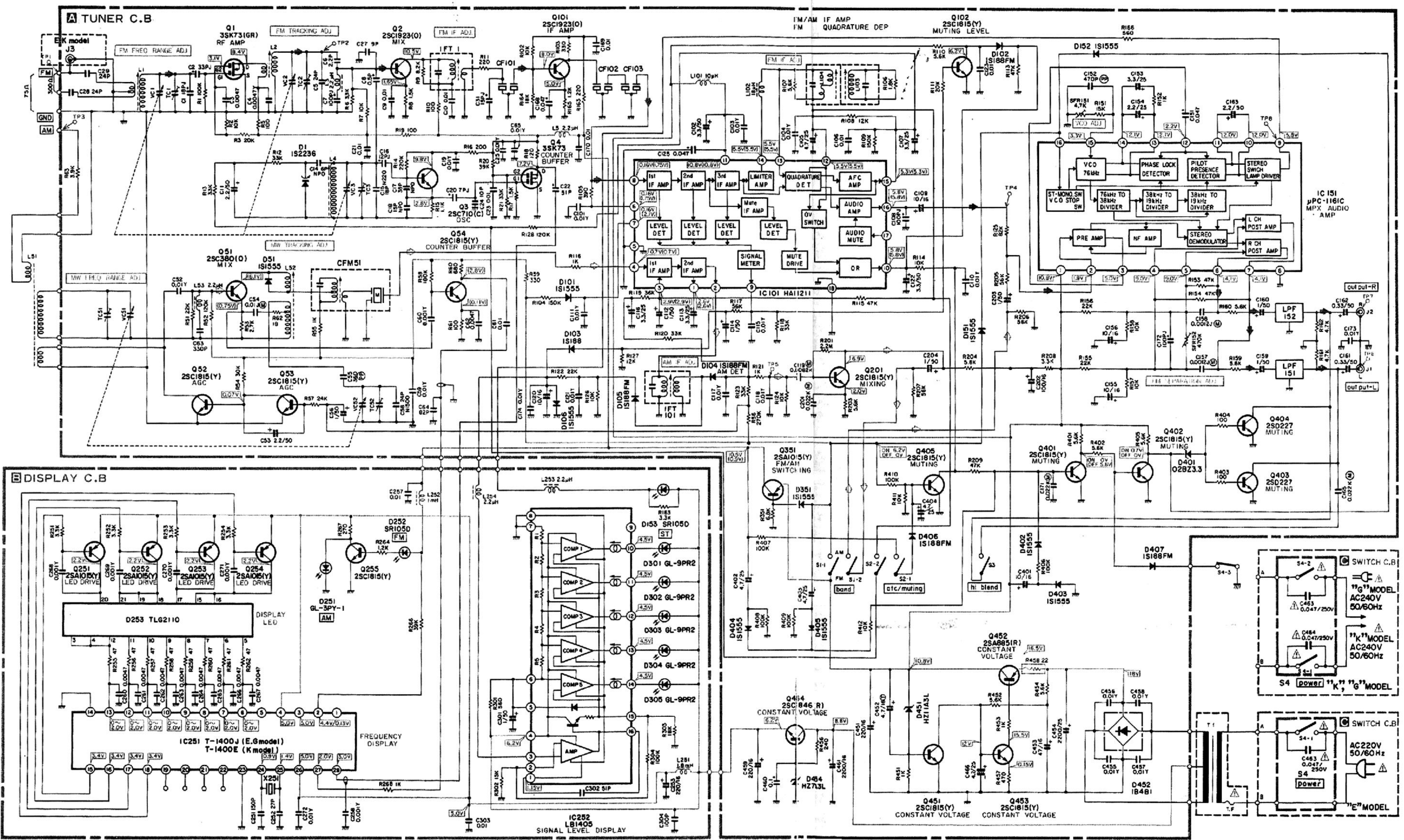
ACCESSORIES/PACKAGE

| 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 |

SCHEMATIC DIAGRAM

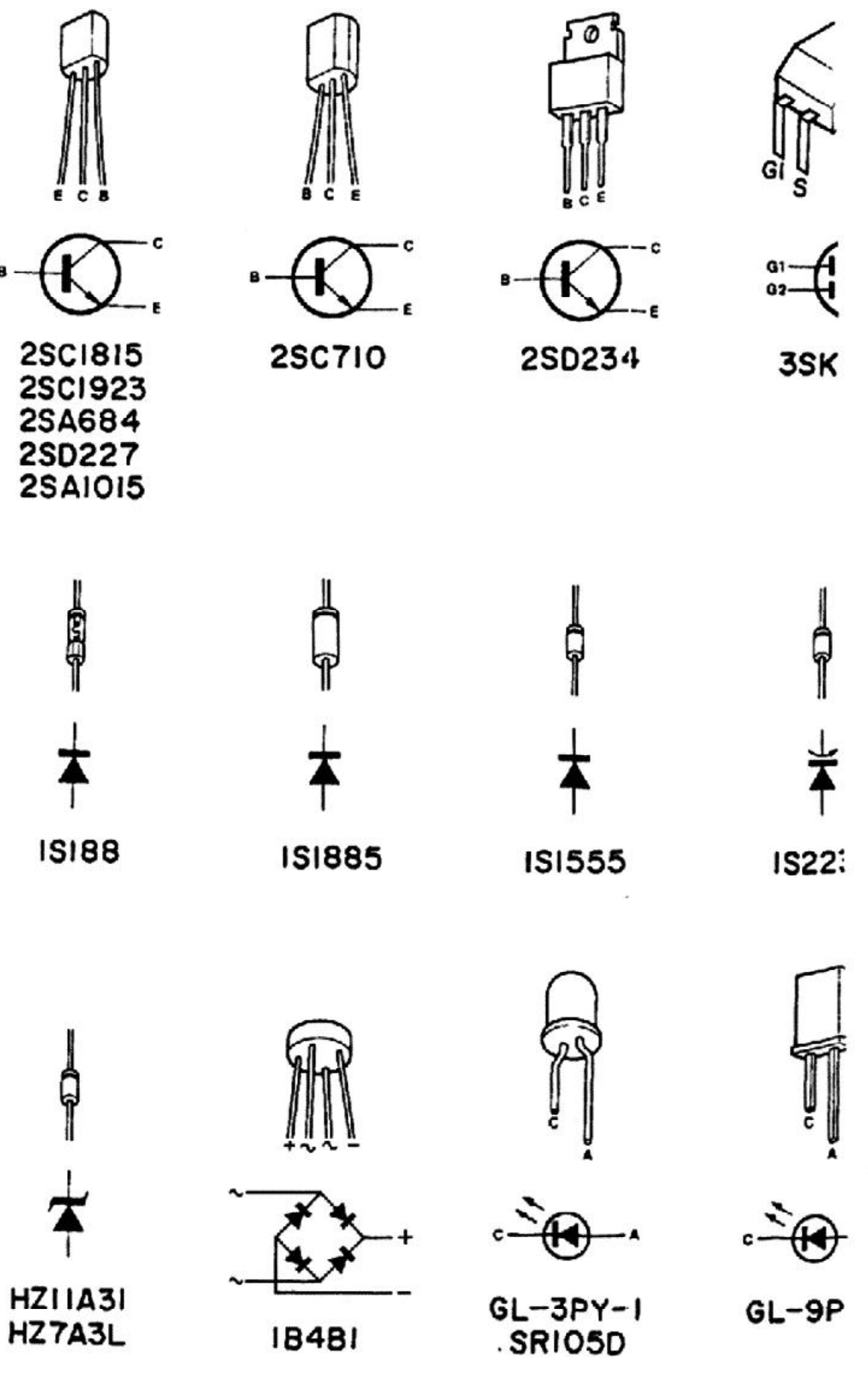
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A
B
C
D
E
F
G
H
I
C



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

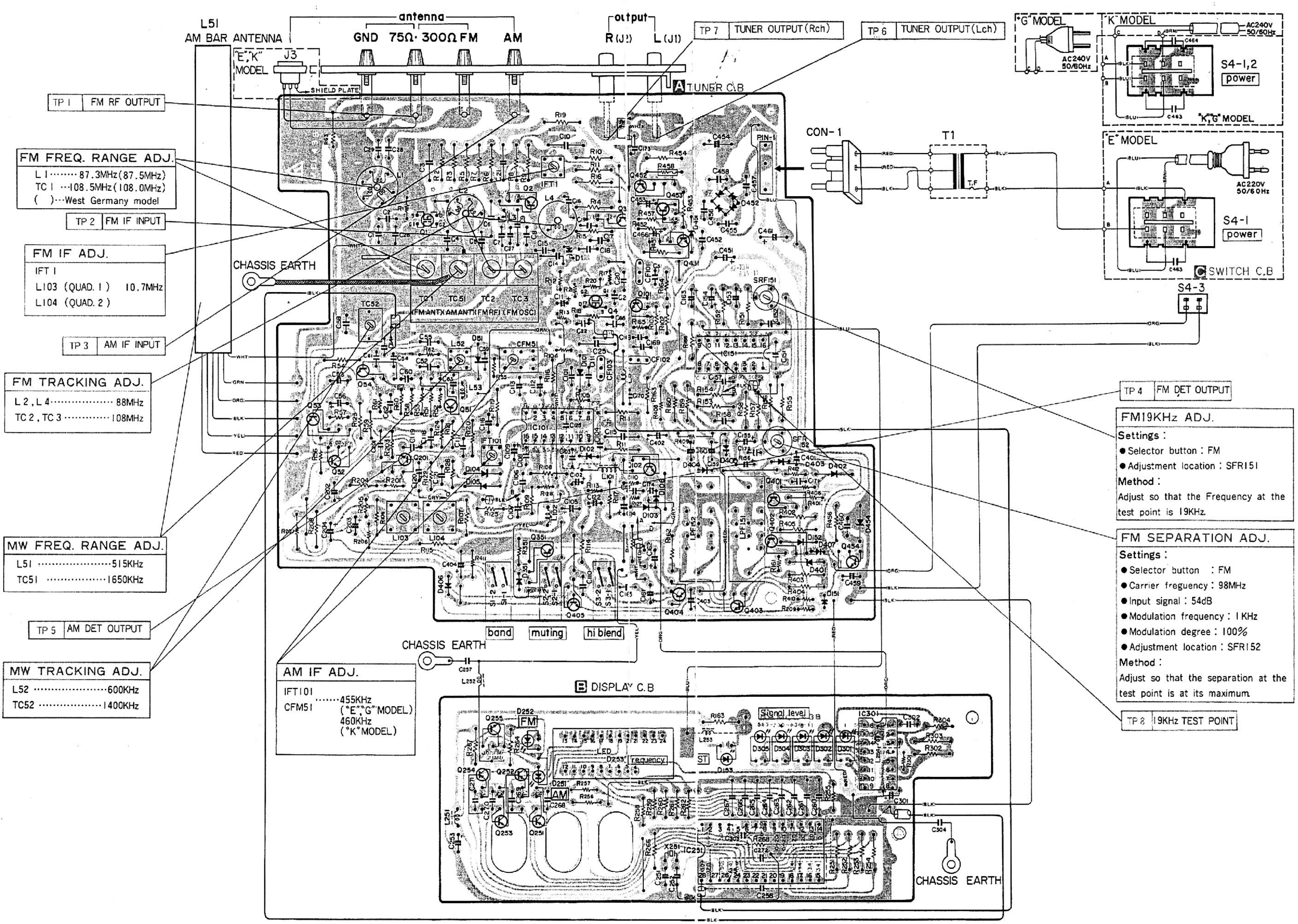
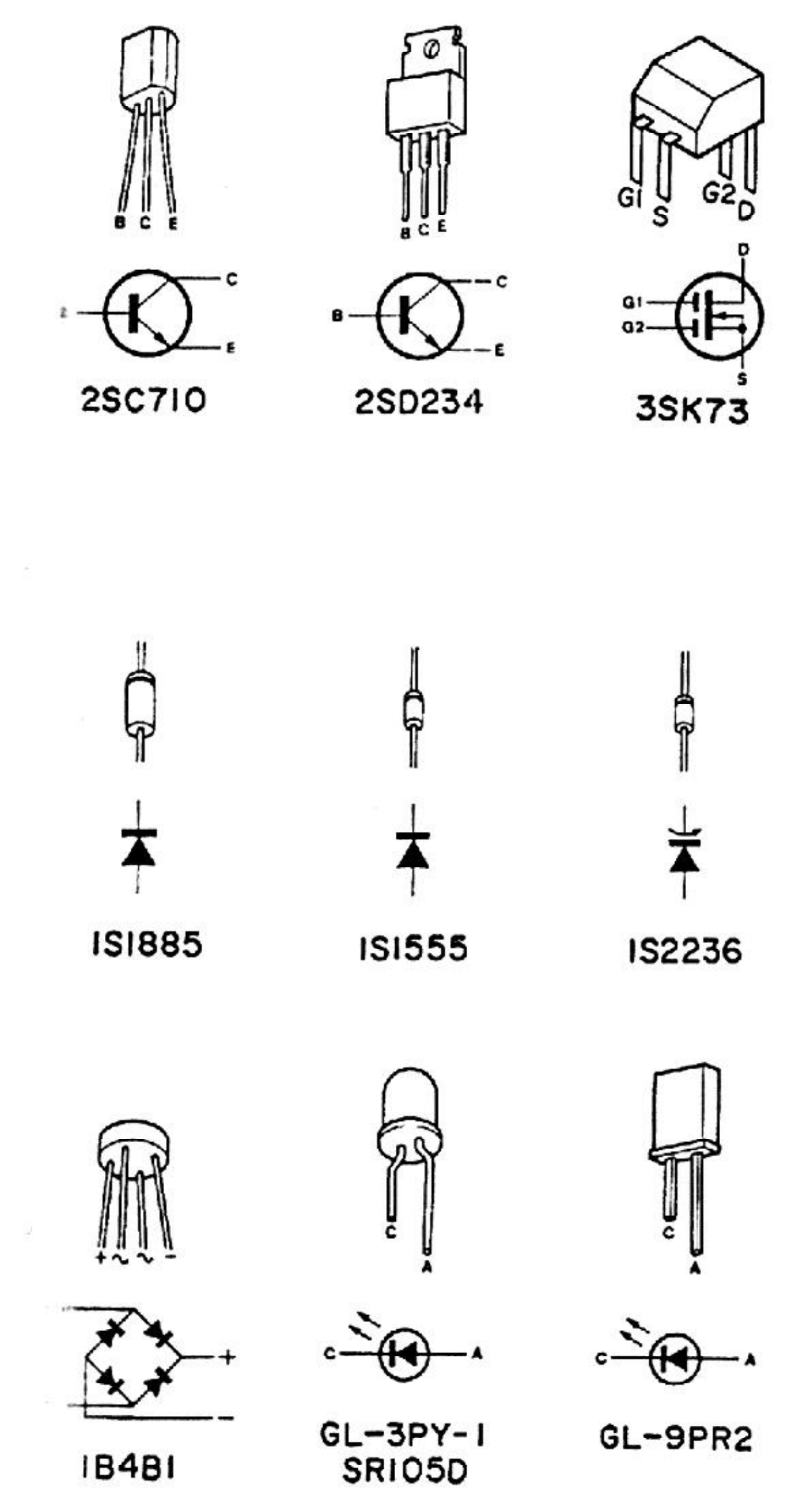
- NOTES:**
- 1) — B (+) power supply
 - 2) → Signal path
 - 3) ⇨ Rec path, AM signal path.
 - 3) The voltage is the reference value measured with tester (20 k-ohms/V DC) when there are no signals. But () is with AM reception.
 - 4) Resistors with no designation have a rated power 1/4W and a tolerance of ±5%.
 - 5) Capacitors with no designation have a dielectric strength of less than 50V.
 - 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
 ⎓ Fuse 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 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.
 schematic diagram is subject to change without
 the interests of improved performance.



FM FREQ. RANGE ADJ.
 L1 87.3MHz (87.5MHz)
 TC1 108.5MHz (108.0MHz)
 () West Germany model

FM IF ADJ.
 IFT1
 LI03 (QUAD.1) 10.7MHz
 LI04 (QUAD.2)

FM TRACKING ADJ.
 L2, L4 88MHz
 TC2, TC3 108MHz

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

MW TRACKING ADJ.
 L52 600KHz
 TC52 1400KHz

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

FM 19KHz 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 : 1 KHz
 ● Modulation degree : 100%
 ● Adjustment location : SFR152
 Method:
 Adjust so that the separation at the test point is at its maximum.

NOTES (1) [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. But () is with AM reception.

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

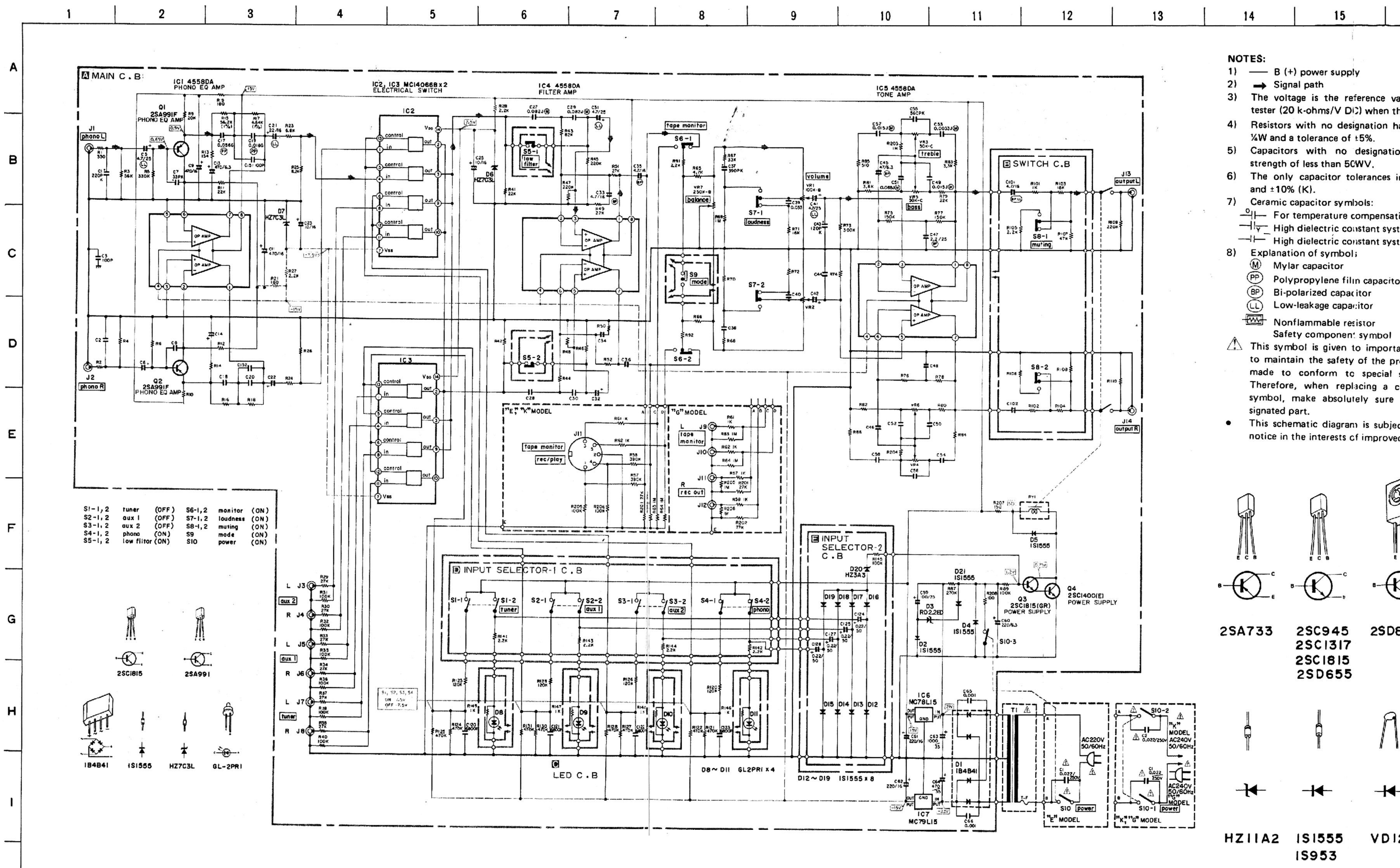
| Symbol No. | Description | 108 MHz | 104 MHz |
|------------|-------------------|--------------------|--------------------|
| C15 | Ceramic capacitor | 18pF 88-254-180-01 | 39pF 88-254-270-01 |

SA-C22E,K,G

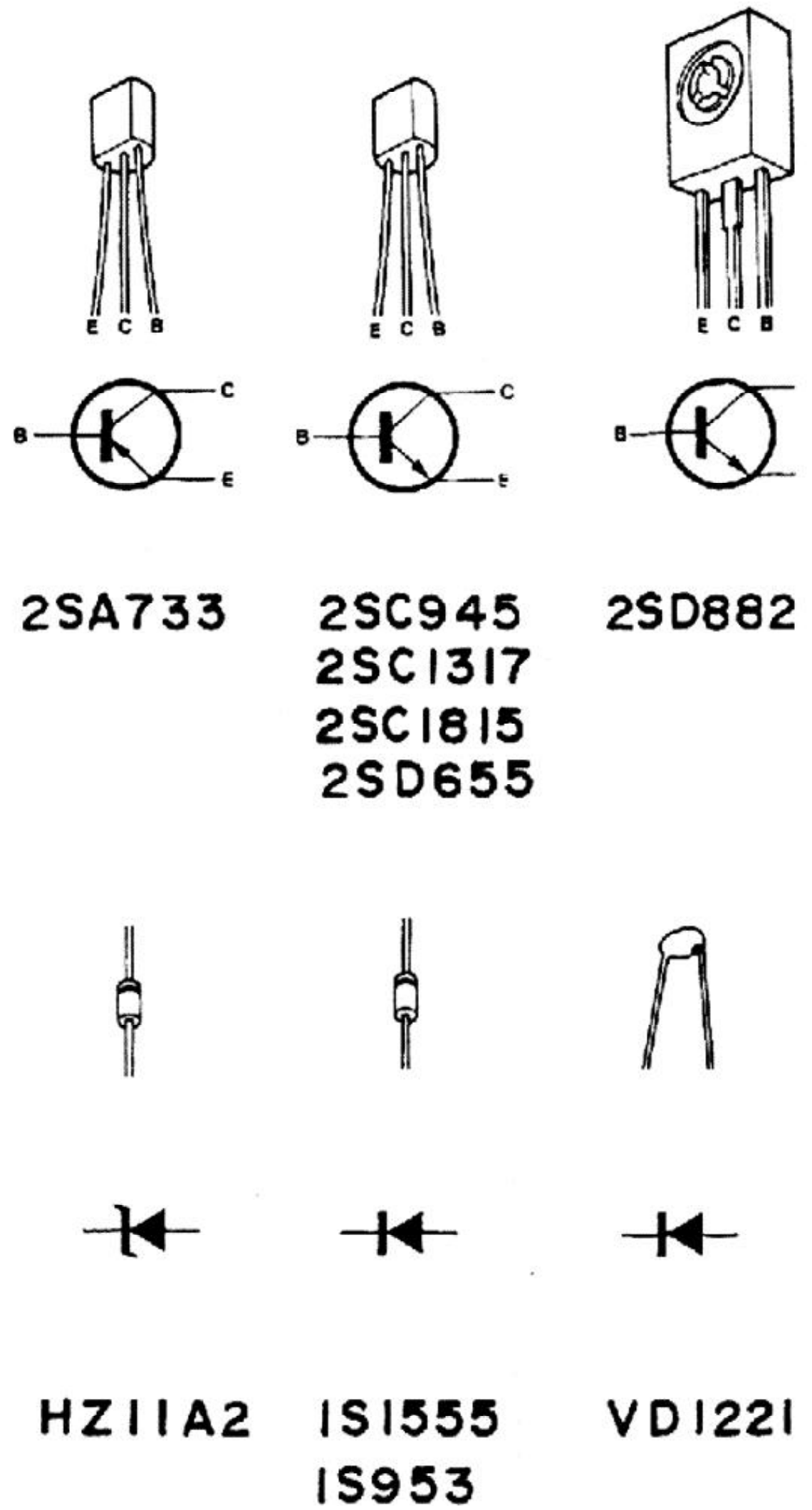
SA-C22E,K,G

SA-C22E,K,G

SCHEMATIC DIAGRAM



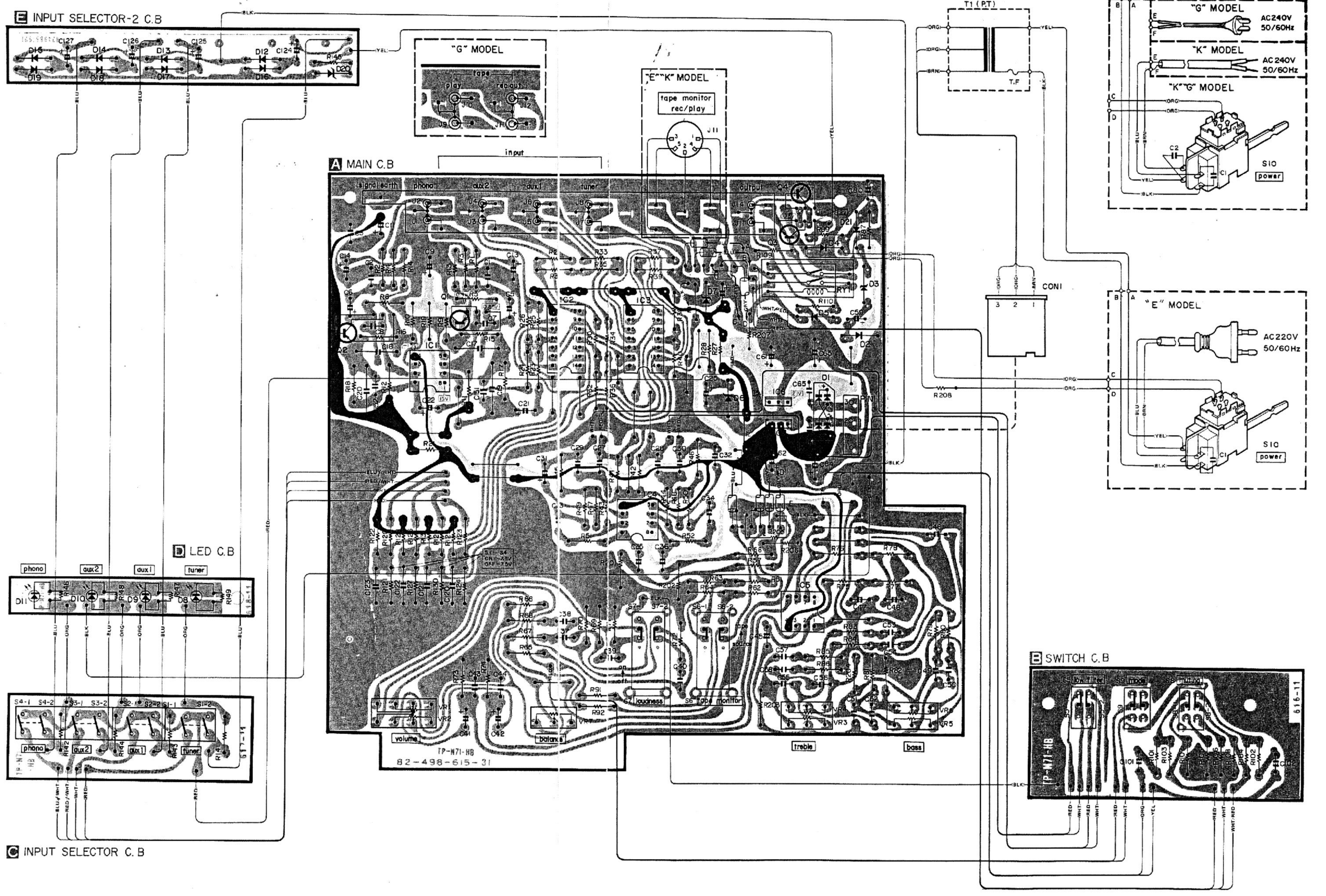
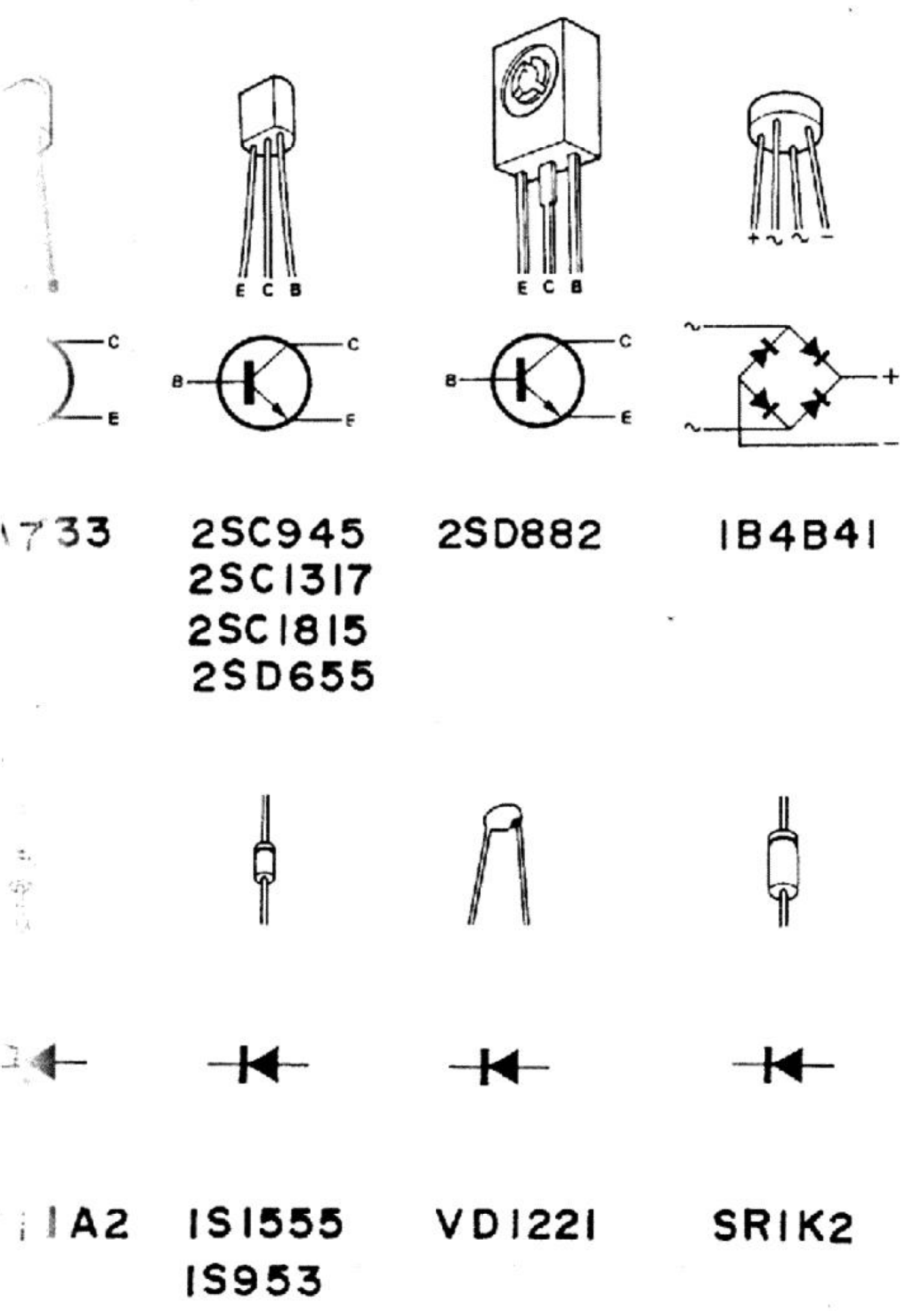
- NOTES:**
- 1) — B (+) power supply
 - 2) → Signal path
 - 3) The voltage is the reference value tester (20 k-ohms/V DC) when there
 - 4) Resistors with no designation have 1/4W and a tolerance of ±5%.
 - 5) Capacitors with no designation strength of less than 50WV.
 - 6) The only capacitor tolerances indicate ±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
 (W) 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 signified 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

LEGEND:
 — 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 symbols:
 (M) Mylar capacitor
 (P) Polypropylene film capacitor
 (BP) Bi-polarized capacitor
 (L) Low-leakage capacitor
 (NF) 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.

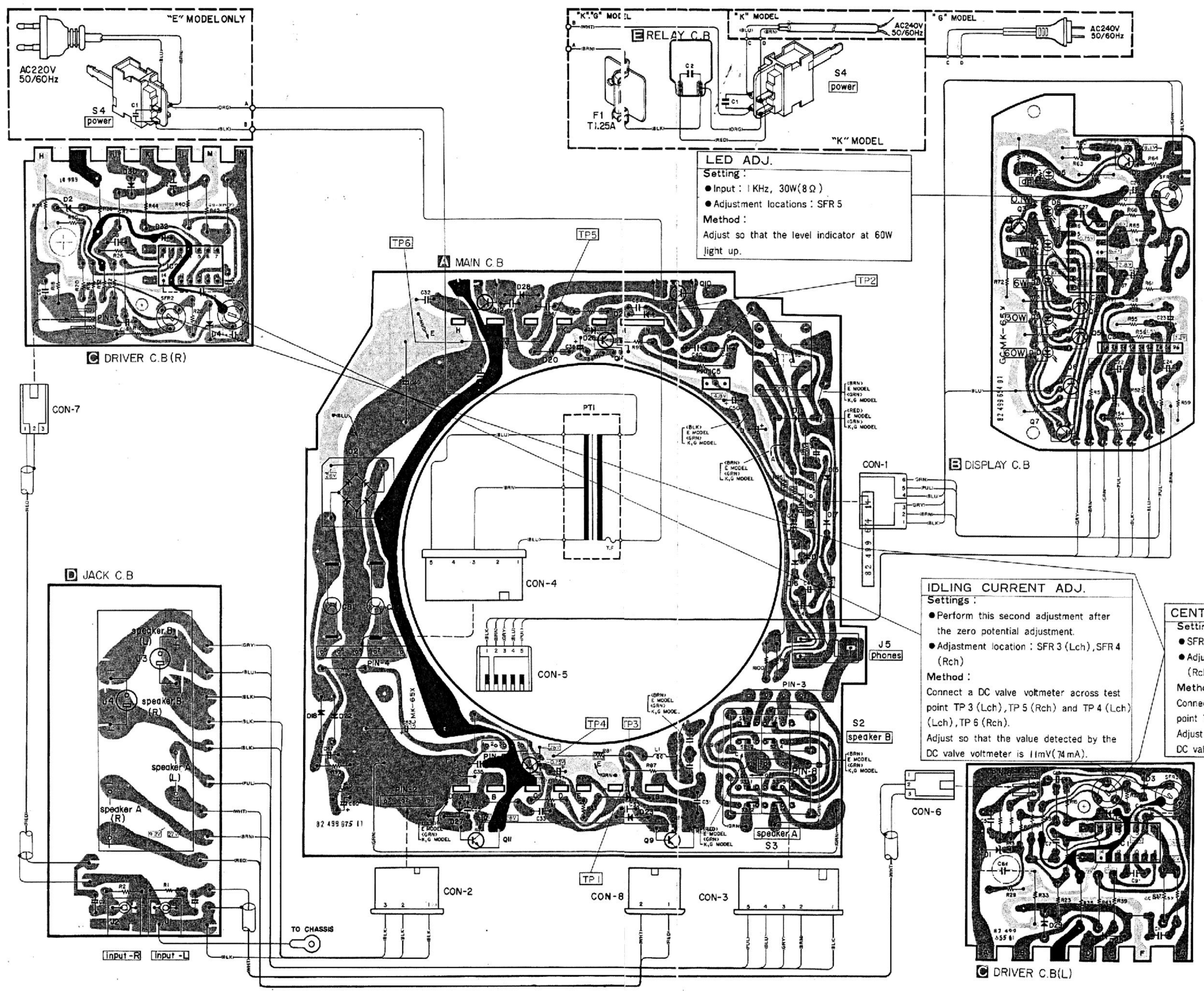


NOTES (1) [Pattern] B(+) Pattern [Pattern] B(-) Pattern [Pattern] Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

WIRING

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

power supply
 path
 is the reference value measured with a
 k-ohms/V DC) when there are no signals.
 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)
 notation of symbols
 capacitor
 propylene film capacitor
 polarized capacitor
 leakage capacitor
 nonflammable resistor
 safety component symbol
 symbol is given to important parts which serve
 to maintain the safety of the product, and which are
 to conform to special safety specifications.
 one, when replacing a component with this
 to make absolutely sure that you use a de-
 sign part.
 schematic diagram is subject to change without
 the interests of improved performance.



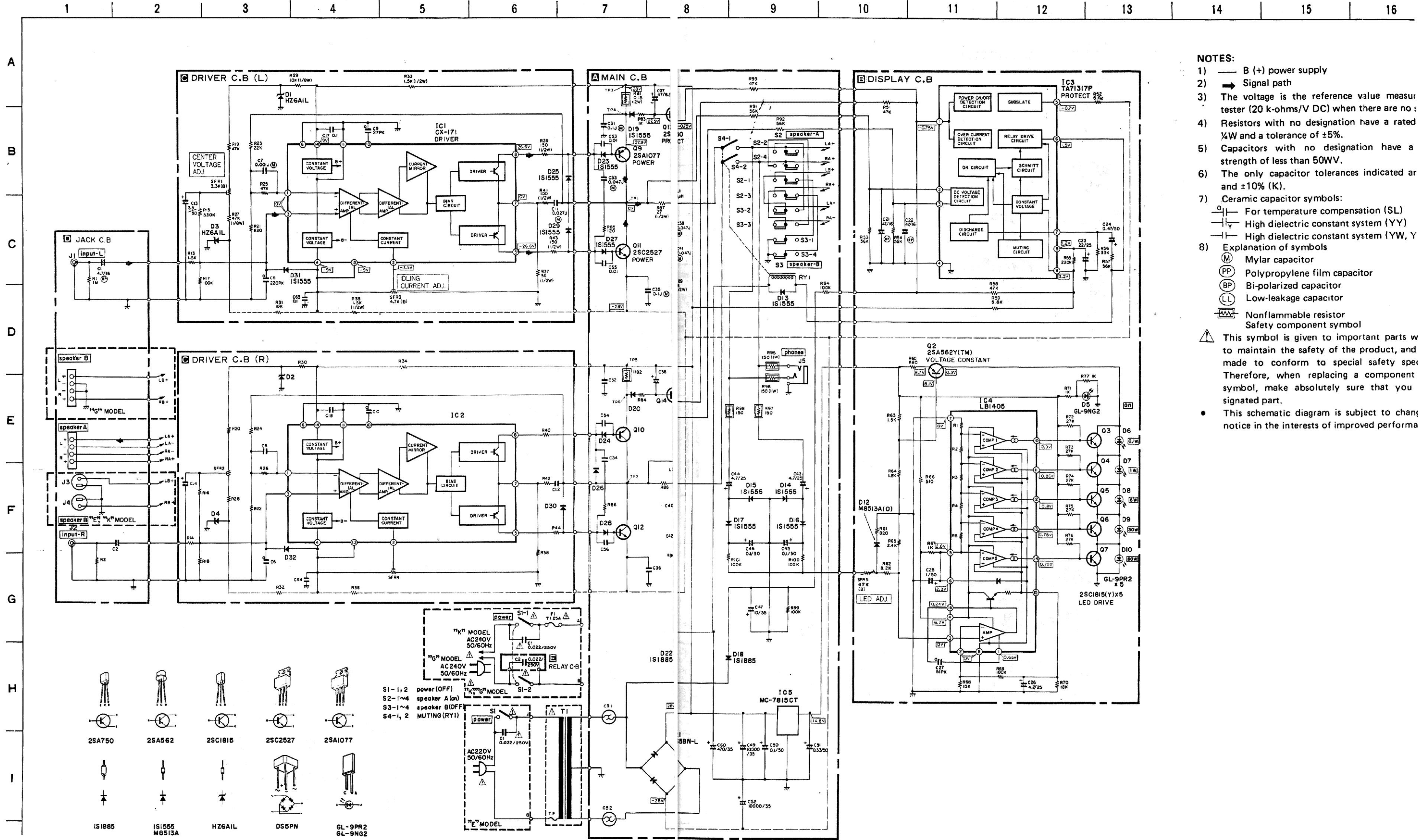
LED ADJ.
Setting:
 ● Input : 1 KHz, 30W(8 Ω)
 ● Adjustment locations : SFR 5
Method:
 Adjust so that the level indicator at 60W
 light up.

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(74 mA).

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



- 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 power of 1/4W and a tolerance of ±5%.
 - 5) Capacitors with no designation have a voltage rating 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 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 signified part.
- This schematic diagram is subject to change without notice in the interests of improved performance.

IWA

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

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 ₁ : 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 ₁ model only) | * | 1 |
| 6c | 82-499-904-01 | | Instructions booklet (E ₁ 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 ₁ , K, G model only) | | 1 |
| 12 | 87-051-130-11 | | Poly-vinyl sack (H ₁ , E ₁ model only) | | 1 |
| 13 | 87-051-131-11 | | Poly-vinyl sack (H, H ₁ model only) | | 1 |
| 14 | 87-056-032-01 | | Guarantee card (G model only) | | 1 |
| 15 | 82-498-010-01 | | Handle (H ₁ , E ₁ model only) | SA-C22 | 2 |
| 16 | 87-225-094-11 | | P + 3 - 6 (H ₁ , E ₁ model only) | | 4 |

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