

FM/AM STEREO TUNER

MODEL NO. ST-R50H,U

STEREO PREAMPLIFIER

MODEL NO. SA-C50H,U

DC STEREO POWER AMPLIFIER MODEL NO. SA-P50H,U

AIWA®

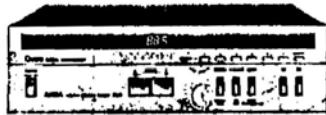
(SERVICE MANUAL)

DATE OF ISSUE 5/1980

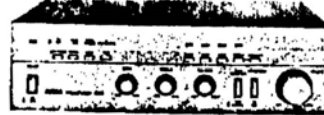
Code No. 15-500-000-63

Code No. 16-500-000-63

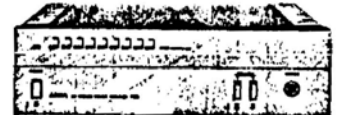
Code No. 17-500-000-63



ST-R50



SA-C50



SA-P50

SPECIFICATIONS

Semiconductors: 10 ICs, 2 FETs, 38 transistors, 13 LEDs, 4-LEDs, 82 diodes (H model), 83 diodes (U model), digit numerical display

Power source: 120V/220V/240V switchable 60/50 Hz (H model) 120V, 60 Hz (U model)

Power consumption: 9W

Dimensions: 250(W) x 71(H) x 290(D)mm [9-7/8"(W)x2-7/8"(H)x11-1/8"(D)]

Weight: 2.4 kg [5.3 lbs.]

< FM SECTION >

Frequency range: 87.5 ~ 108 MHz

Intermediate frequency: 10.7 ± 0.1 MHz

Usable sensitivity: 7 ± 2 dB (at 88,98,108 MHz)

S/N 60 dB sensitivity: 14 ± 2 dB (at 88, 98, 108 MHz)

S/N ratio: More than 70 dB

Distortion: Less than 0.1%

Frequency response: 30 ~ 18,000 Hz (+0.5 dB, -1.5 dB)

Image interference ratio: More than 70 dB

IF interference ratio: More than 80 dB

Capture ratio: Less than 2 dB

AM compression ratio: More than 60 dB

Selectivity: 65 ± 5 dB (±400 kHz)

Stereo separation: More than 40 dB (at 1 kHz) More than 33 dB (at 10 kHz)

Muting sensitivity: 20 +20 -5 dB

< AM SECTION >

Frequency range: 531 ~ 1802 kHz (H model) 526 ~ 1806 kHz (U model)

Intermediate frequency: 450 kHz (H model), 460 kHz (U model)

Selectivity: 48 ± 5 dB

S/N 20 dB: (803,1006,1404 kHz)

S/N ratio: 40 +8 dB (74 dB input) -3 dB

Distortion: 90 ± 3 dB (100 dB input) Less than 1.0%

Image interference ratio: More than 45 dB

Selectivity: 26 +8 dB (±9 kHz) -10 dB

IF interference ratio: More than 30 dB

SPECIFICATIONS

Semiconductors: 4 ICs, 2 FETs, 12 transistors, 9 diodes, 5 LEDs

Power source: 120V/220V/240V switchable 60/50 Hz (H model) 120V, 60 Hz (U model)

Power consumption: 6W

Dimensions: 250(W) x 71(H) x 257.5(D)mm [9-7/8"(W)x2-7/8"(H)x10-1/4"(D)]

Weight: 2.2 kg [4.81 lbs.]

S/N ratio: phono (MM) More than 83 dB phono (MC) More than 87 dB tuner aux 1,2 More than 97 dB tape in More than 97 dB

Distortion: Less than 0.008% (20 Hz ~ 20 kHz)

Frequency response: 10 ~ 100,000 Hz (+0.5 dB, -3 dB)

Tone controls: Bass 50 Hz +10 ± 1 dB -10 ± 1 dB Treble 20 kHz +10 ± 1 dB -10 ± 1 dB

Loudness: 100 Hz +6 ± 1 dB 20 kHz +3 ± 1 dB 30 Hz -2 ± 1 dB

Low filter: -2 ± 1 dB

Channel separation: phono More than 80 dB tuner More than 80 dB aux 1,2 More than 80 dB

Input sensitivity and impedance: phono (MM) 2.5 mV/47 kΩ (200 mV max input) phono (MC) 0.25 mV/100 Ω tuner aux 1,2 150 mV/47 kΩ play 150 mV/47 kΩ recout 150 mV/47 kΩ 900 mV ± 1 dB (phono 2.5 mV in) 900 mV ± 1 dB (tuner, aux 1,2 150 mV in)

Residual noise: phono (MM) Less than 0.1 mV phono (MC) Less than 0.5 mV tuner aux 1,2 Less than 0.01 mV

SPECIFICATIONS

Semiconductors: 3 ICs, 2 FETs, 17 transistors, 21 diodes, 10 LEDs

Power source: 120V/220V/240V switchable 60/50 Hz (H model) 120V, 60 Hz (U model)

Power consumption: 120W

Dimensions: 250(W) x 71(H) x 247.5(D)mm [9-7/8"(W)x2-7/8"(H)x9-3/4"(D)]

Weight: 4.1 kg [9.0 lbs.]

Power output: 50W + 50W (8Ω, 0.02% distortion, 20 Hz ~ 20 kHz) Less than 0.01%

Distortion: (1 kHz, 35W) More than 105 dB

S/N ratio: (1 kHz, IMF A curve) More than 105 dB

Frequency response: 10 ~ 100,000 Hz (More than -3 dB)

Power band: 10 ~ 80,000 Hz (Distortion: 0.05%)

Residual noise: Less than 0.5 mV

Output voltage: phono More than 0.95 mV ± 1 dB

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

ELECTRICAL MAIN PARTS LIST ST-R50H,U

Symbol No.	Part No.	Description
< MAIN CIRCUIT BOARD SECTION >		
PCB-A	82-747-601-21	Main circuit board (H model only)
PCB-A	82-747-644-01	Main circuit board (U model only)
	82-747-612-01	FM front end U
IC1	82-494-791-01	IC, MA-11211
IC2	87-027-676-01	IC, IIA-12016
IC3	87-027-546-01	IC, TD6102P
IC4	87-027-684-01	IC, TC9123P-GR
IC9	87-027-261-01	IC, LB-1406
IC10	87-027-327-01	IC, μ PCS74J
Q1	89-318-233-01	Transistor, 2SC1923(O)
Q2	89-303-804-01	Transistor, 2SC380(Y)
Q3,4,5,6,8, 9,10,18,37	89-318-154-01	Transistor, 2SC1815(Y)
Q7,17	89-110-154-01	Transistor, 2SA1015(Y)
Q11,12	89-402-276-01	Transistor, 2SD227(V)
Q13	89-110-165-01	Transistor, 2SA1015(IGR)
Q14,15,16, 19,20,22, 23,24,29	89-318,155-01	Transistor, 2SC1815(IGR)
Q21	89-110-153-01	Transistor, 2SA1015(O)
Q25,27	89-405-712-01	Transistor, 2SD571(L)
Q26,28	89-408-804-61	Transistor, 2SD880(Y,GR)
D1,2	87-027-535-01	Diode, KV1226Y 4(Y)
D3,6,8,9,10, 11,12,13,14, 15,16,17,21, 22,23,24, 25,26,27, 28,29,30, 31,32,36, 41,87,101, 102	87-027-097-01	Diode, 1S1555
D4,6,7,18,19, 20,88,89	88-062-188-11	Diode, 1S188(FM)
D33	87-027-368-01	Zener diode, HZ-12B1L
D34	87-027-684-01	Zener diode, HZ9LC1
D35	87-027-683-01	Zener diode, HZ-9LB1
D37,38,39	87-027-366-01	Diode, S6277B
D40	87-027-163-01	Encapsulated diode, 184B1
L2,7	87-005-121-01	Choke coil, 2.2 μ H
L3,5,8	87-005-130-01	Micro inductor coil, 10 μ H
L4	82-742-642-01	MW OSC coil
L6	82-742-641-01	Quad coil
X1	82-747-619-01	Crystal, 6.4 MHz
LPF1,2	82-497-635-01	Low-pass filter
CF1,2,3	87-008-206-01	FM ceramic filter
CF4	87-008-205-01	FM ceramic filter (H model only)
CF4	87-008-204-01	FM ceramic filter (U model only)
CFT1	87-008-204-01	AM ceramic filter transformer (H model only)
CFT1	87-008-207-01	AM ceramic filter transformer (U model only)
IFT1	87-008-160-01	AM IFT (DET)
TC1	87-011-108-01	Trimmer, 8pF
J1,2	82-747-618-01	Antenna terminal w/2p pin jack (FM/AM ANT. OUTPUT)
S1-5	82-747-626-01	Push-switch (FM, AM, MODE, HI-BLEND, TUNING)
Δ S15	87-031-647-01	Push-switch (POWER)
SFH1	87-021-611-01	Semi-fixed resistor, 3.3k Ω -B
SFH-2	87-021-617-01	Semi-fixed resistor, 220k Ω -B
PIN-2	87-032-903-01	Pin, 3P

Symbol No.	Part No.	Description
PIN-1,3	87-032-904-01	Pin, 4P
PIN-4	87-032-906-01	Pin, 6P
CON	87-032-968-01	Connector, 8P
< Resistor >		
Δ R133,134 202	87-029-007-01	22 Ω KW Fuse resistor
< Capacitors >		
C18	87-014-049-01	470pF PP
C49	87-014-057-01	1000pF PP
C57,60	87-014-058-01	1100pF PP
C67,68	87-014-062-01	1600pF PP
		(H model only)
		(U model only)
< DISPLAY CIRCUIT BOARD SECTION >		
PCB-B	82-747-603-11	Display circuit board
IC5	87-027-577-01	IC, TC9124AP
IC6	87-027-422-01	IC, TC5022
Q30,31	89-318-155-01	Transistor, 2SC1815(IGR)
Q32	89-110-165-01	Transistor, 2SA1015(IGR)
Q33,34,35, 36	89-319-694-01	Transistor, 2SC1959(Y)
D42,43,44, 46,46,53, 54,55,56, 57,58,59, 60,61,62, 63,71,72, 73,74,75, 76,77,78, 79,80,81, 82,83,86	87-027-097-01	Diode, 1S1555
D47-61	87-027-644-01	LED, LN05202P (SIGNAL LEVEL)
D52	87-027-218-01	LED, SR-105D (STEREO)
D64,65,66, 67,68,69	87-027-642-01	LED, LN217RP (PRESET1-6)
D70	87-027-643-01	LED, LN317CP (MEMORY)
D88	87-027-680-01	LED, TLG2120 (FREQUENCY INDICATOR)
D90	87-027-097-01	Diode, 1S1555 (U model only)
S6,7,8,9,10, 11,12,13,14	87-031-498-01	Push-switch (TUNING-UP, DOWN, PRESET-1-6, MEMORY)
< REMOTE CIRCUIT BOARD SECTION >		
PCB-C	82-747-622-11	Remote circuit board (H model only)
PCB-C	82-747-646-01	Remote circuit board (U model only)
IC7,8	87-027-429-01	IC, TC-4016BP
D84,85	87-027-097-01	Diode, 1S1555
CON	87-032-970-01	Connector, 10P
< REMOTE TERMINAL SECTION >		
PCB-D	82-747-624-21	Remote terminal circuit board
PCB-D	82-747-648-01	Remote terminal circuit board
J4	82-747-615-11	Connector ass'y (REMOTE)-
< VOLUME CIRCUIT BOARD SECTION >		
PCB-E	82-747-623-11	Volume circuit board (H model only)
PCB-E	82-747-647-01	Volume circuit board (U model only)
VR1	82-747-614-01	Volume, 10k Ω -B (MUTING LEVEL)

ELECTRICAL MAIN PARTS LIST SA-C50H,U

Symbol No.	Part No.	Description
◀ MAIN CIRCUIT BOARD SECTION ▶		
PCB-A	82-748-609-21	Main circuit board (H model only)
PCB-A	82-748-639-11	Main circuit board (U model only)
IC1,2	87-027-529-01	IC, TA7322P
IC3,4	87-027-446-01	IC, M5214L
Q1,2	89-500-307-01	FET, 2SK30A(GR)
Q3,4,5,6	89-110-847-91	Transistor, 2SA1084(E1-E3)
Q7,11	89-107-336-01	Transistor, 2SA733(P)
Q8	89-304-953-41	Transistor, 2SC495(O,Y)
Q9	89-105-053-41	Transistor, 2SA505(O,Y)
Q10,12,13,14	89-309-456-01	Transistor, 2SC945L(P)
D1	87-027-449-01	Zener diode, HZ-15L-3
D2,7,13,14	87-027-097-01	Diode, 1S1555
D3	87-027-349-01	Zener diode, HZ6A1L
D4	87-027-376-01	Diode, 1B4B41
D5,6	87-027-365-01	Diode, S5277B
△ CP1	87-019-105-01	Compound capacitor 0.022μF (H model only)
△ CP1	87-028-036-01	Compound capacitor 0.033μF+120Ω (U model only)
RY1,S13	87-045-134-01	Relay, 224S
PIN1	87-032-897-01	Pin, 3P
VR1	87-021-620-01	Volume, 100kΩ-Bx2, 10kΩ-Cx2 (VOLUME)
VR2	87-021-621-01	Volume, 10kΩ-MN(BALANCE)
VR3	87-021-632-01	Volume, 50kΩ-C OPEN TYPE (TREBLE)
VR4	87-021-631-01	Volume, 50kΩ-C Short TYPE (BASS)
S1~5	82-748-619-01	Push-switch (INPUT SELECTOR)
S6,7	82-748-617-01	Push-switch (LOUDNESS, TAPE MONITOR)
S8	82-748-616-01	Push-switch (TAPE)
△ S12	87-031-549-01	Push-switch (POWER) (H model only)
△ S12	87-031-550-01	Push-switch (POWER) (U model only)
J1~18	82-748-615-01	Pin jack ass'y, 18P (INPUT, TAPE, OUTPUT)
PIN1	87-032-897-01	Pin, 3P
< Resistors >		
R19,20	87-025-201-01	10Ω Metal film resistor
R17,18	87-025-234-01	82Ω Metal film resistor
R21,22	87-025-235-01	3.9kΩ Metal film resistor
R23,24	87-025-236-01	47kΩ Metal film resistor
R73,74,75,76	87-025-241-01	150kΩ Metal film resistor
R71,72	87-025-242-01	300kΩ Metal film resistor
< Capacitors >		
C13,14	87-015-640-01	3300μF 6.3V Electrolytic
C45,46	87-015-242-01	2.2μF 50V Electrolytic LL
C5,6	87-015-643-01	2.2μF 50V Electrolytic LL
C57,58	87-014-125-01	0.18μF Mylar
C17,18	87-014-121-01	0.0012μF PP
C15,16	87-014-122-01	0.018μF PP
C19,20	87-014-123-01	0.068μF PP
◀ INPUT SELECTOR CIRCUIT BOARD SECTION ▶		
PCB-B	82-748-610-01	Input selector circuit board (H model only)
PCB-B	82-748-640-01	Input selector circuit board (U model only)

Symbol No.	Part No.	Description
◀ SWITCH CIRCUIT BOARD SECTION ▶		
PCB-C	82-748-611-01	Switch circuit board (H model only)
PCB-C	82-748-641-01	Switch circuit board (U model only)
S9,10,11	82-748-618-01	Push-switch (MODE, MUTING, LOW FILTER)
◀ LED-1 CIRCUIT BOARD SECTION ▶		
PCB-D	82-748-613-01	LED-1 circuit board (H model only)
PCB-D	82-748-643-01	LED-1 circuit board (U model only)
D9,10,11,12	87-027-542-01	LED, LN217RP (AUX2, AUX1, TUNER, PHONO)
◀ LED-2 CIRCUIT BOARD SECTION ▶		
PCB-E	82-748-612-01	LED-2 circuit board (H model only)
PCB-E	82-748-642-01	LED-2 circuit board (U model only)
DB	87-027-543-01	LED, LN317GP (POWER)
◀ VOLTAGE SELECTOR SWITCH CIRCUIT BOARD SECTION ▶ = H model		
△ PCB-F	82-748-644-01	Voltage selector circuit board
△ S14	87-031-551-01	Rotary switch (VOLTAGE SELECTOR)
△ J19,20	87-032-937-01	AC outlet, 1P
◀ MISCELLANEOUS ▶		
△ T1	82-748-603-01	Power transformer (H model only)
△ T1	82-748-602-01	Power transformer (U model only)
△ J19,20,21	87-032-948-01	AC outlet, 3P (U model only)
△	87-034-934-01	AC power cord (H model only)
△	87-034-935-01	AC power cord (U model only)
△	87-085-165-01	Cord bushing

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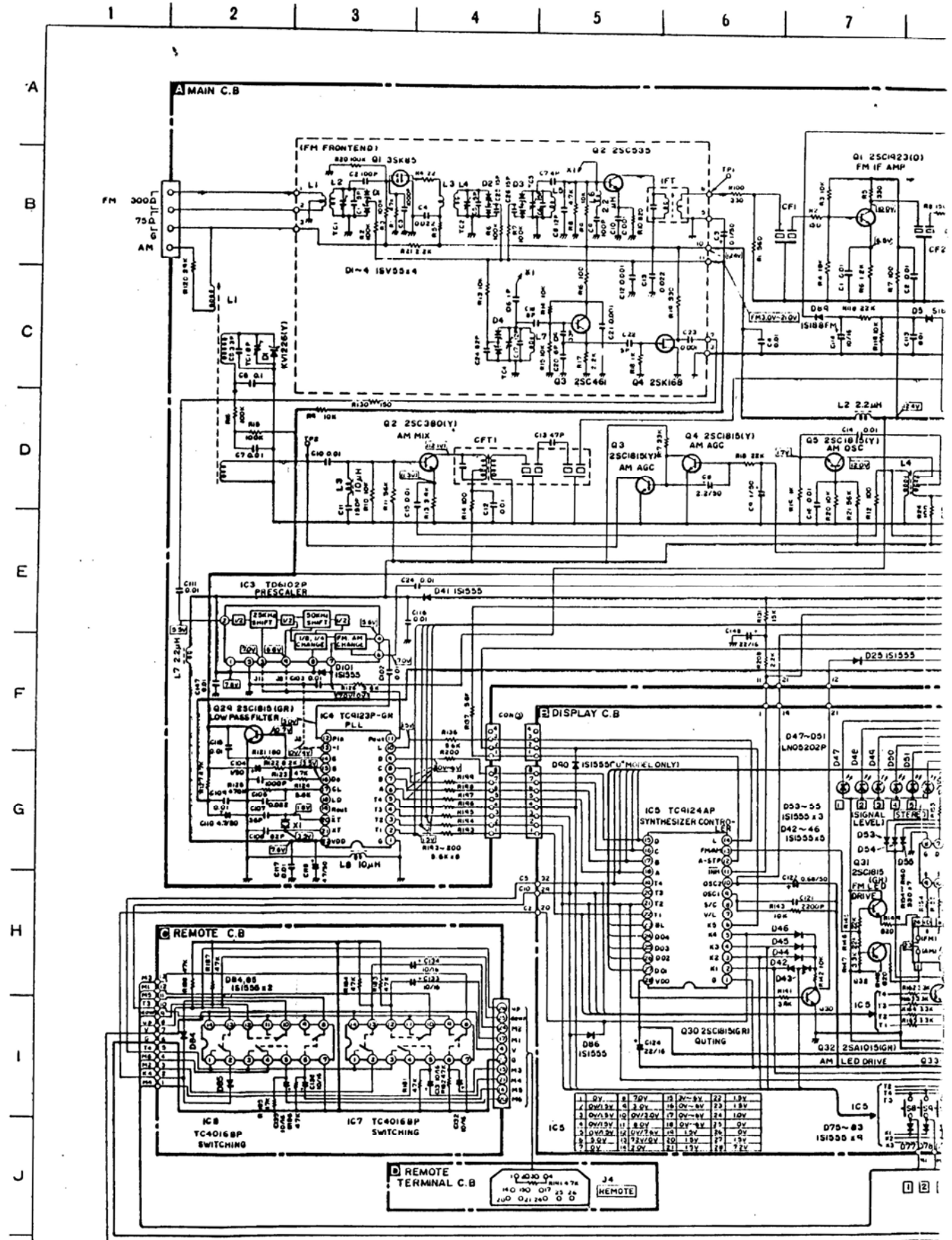
ELECTRICAL MAIN PARTS LIST SA-P50H,U

Symbol No.	Part No.	Description
◀ MAIN CIRCUIT BOARD SECTION ▶		
PCB-A	82-749-602-11	Main circuit board
IC3	87-027-379-01	IC, TA7317(P)
Q15,16	89-325-253-41	Transistor, 2SC2525(XB)
Q17,18	89-110-753-41	Transistor, 2SA1075(XB)
D17	87-027-365-01	Diode, S5277B
D20	87-027-376-01	Diode, 1B4B41
D21	87-027-541-01	Diode, M4C41
L1,2	82-478-632-11	Coil, 1.7μH
△ CB1,2	87-030-074-01	Circuit breaker, 2.7A
RY1,S4	87-045-137-01	Relay, 12V MY-2 (H model only)
SY1,S4	87-045-143-01	Relay, 12V MY-2 (U model only)
S1,2	87-031-545-01	Push-switch (SPEAKERS A,B)
J3	82-499-623-01	Jack, 6.3φ (PHONES)
PIN-2	87-032-897-01	Pin, 3P
PIN-3	82-481-647-01	Pin, 4P
PIN-1	82-481-697-01	Pin, 5P
PIN	87-032-637-01	Pin, 7P
< Resistors >		
△ R92	87-029-066-01	1.5Ω ¼W Fuse resistor
△ R51,52	87-029-116-01	220Ω ¼W Fuse resistor
R53,54	87-025-246-01	0.33Ω 3W Cement resistor
R55~58	87-025-120-01	10Ω 1W Metal film resistor
R69,70	87-025-055-01	270Ω 2W Metal film resistor
< Capacitors >		
C33,34	87-015-639-01	47μF 10V Electrolytic BP
C61,62	87-015-644-01	15000μF 60V Electrolytic
◀ DISPLAY CIRCUIT BOARD SECTION ▶		
PCB-B	82-749-603-01	Display circuit board
IC1	87-027-380-01	IC, LB-1405S
IC2	87-027-261-01	IC, LB-1405
Q19	89-405-712-01	Transistor, 2SD671(L)
D13~16,18	87-027-097-01	Diode, 1S1555
D19	82-481-638-01	Zener diode, XZ-080
D22~30	87-027-542-01	LED, LN217RP(0.1W~100W)
D31	87-027-543-01	LED, LN317GP (POWER)
SFR5	87-021-615-01	Semi-fixed resistor, 47kΩ-B
◀ DRIVER CIRCUIT BOARD LCH, RCH SECTION ▶		
PCB-C	82-749-605-11	Driver circuit board Lch
PCB-C	82-749-604-11	Driver circuit board Rch
Q1,2	89-501-094-01	FET, 2SK109(D)
Q3,4	89-309-456-01	Transistor, 2SC945L(P)
Q5,6	89-315-834-01	Transistor, 2SC1583(F)
Q7,8	89-111-246-01	Transistor, 2SA1124(R)
Q9,10	89-326-326-01	Transistor, 2SC2632(R)
Q11,12	89-325-916-01	Transistor, 2SC2591
Q13,14	89-111-116-01	Transistor, 2SA1111
D1,2	82-385-622-01	Zener diode, WZ-210
D3,4,9,10	87-027-097-01	Diode, 1S1555
D5,6	87-027-287-01	Zener diode, WZ-160
D7,8	82-415-637-01	Zener diode, WZ-061
D11,12	87-026-135-01	Diode, STV-4H
D33~36	87-027-620-01	Diode, SV-04
SFR1~4	87-021-559-01	Semi-fixed resistor, 100Ω-B
PIN-4,5	87-032-913-01	Pin, 3P
< Resistors >		
△ R47,48,49,50	87-029-082-01	100Ω ¼W Fuse resistor (H model only)
R47,48,49,50	87-029-060-01	33Ω ¼W Fuse resistor (U model only)
R23,24	82-473-707-01	2.2kΩ 1W Metal film resistor
R25,26	87-025-078-01	3.3kΩ 1W Metal film resistor

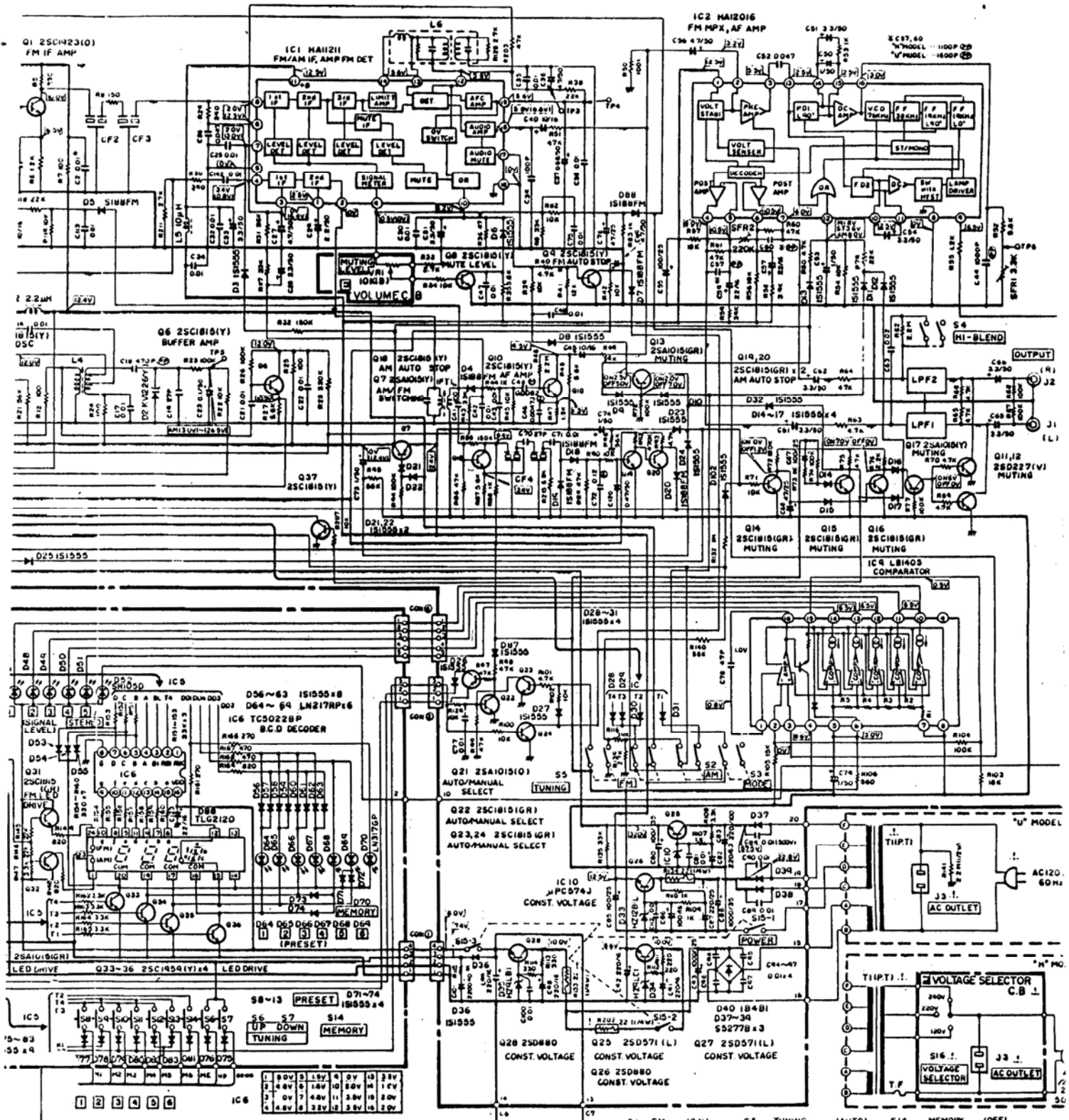
Symbol No.	Part No.	Description
R35,36	82-473-706-01	4.7kΩ 1W Metal film resistor
< Capacitor >		
C1,2	87-015-141-01	10μF 16V Electrolytic BP
◀ VOLTAGE SELECTOR CIRCUIT BOARD SECTION ▶		
= H model		
△ PCB-D	82-749-620-01	Voltage selector circuit board
△ S5	87-031-551-01	Rotary switch (VOLTAGE SELECTOR)
△ F1	87-035-215-01	Fuse, 6.3A
	87-098-048-01	Fuse label
	87-033-147-01	Fuse clamp
◀ MISCELLANEOUS ▶		
△ T1	82-749-619-01	Power transformer (H model only)
△ T1	82-749-618-01	Power transformer (U model only)
△ CP1	87-019-105-01	Compound capacitor 0.0022μF (H model only)
△ CP1	87-028-036-01	Compound capacitor 0.033μF+120μF (U model only)
△ S3	87-031-552-01	Push-switch (POWER) (H model only)
△ S3	87-031-553-01	Push-switch (POWER) (U model only)
△ F1	87-035-313-01	Fuse, 5A (U model only)
△	87-098-168-01	Fuse label (U model only)
△	87-033-163-01	Fuse holder, 2P (U model only)
△	87-034-936-01	AC power cord (H model only)
△	87-034-935-01	AC power cord (U model only)
△	87-085-165-01	Cord bushing
△	87-033-140-01	Splice connector (U model only)
J1,2	82-749-611-01	Jack plate ass'y
CON-2	82-749-615-01	Connector ass'y, 3P
CON-4	82-749-609-01	Connector ass'y, 3P
CON-5	82-749-610-01	Connector ass'y, 3P
CON-3	82-749-607-01	Connector ass'y, 4P

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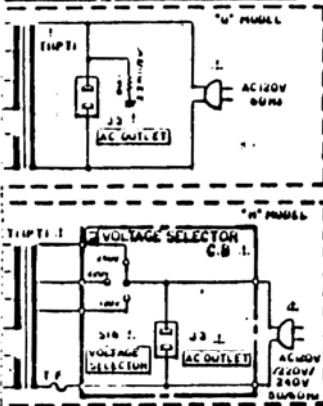
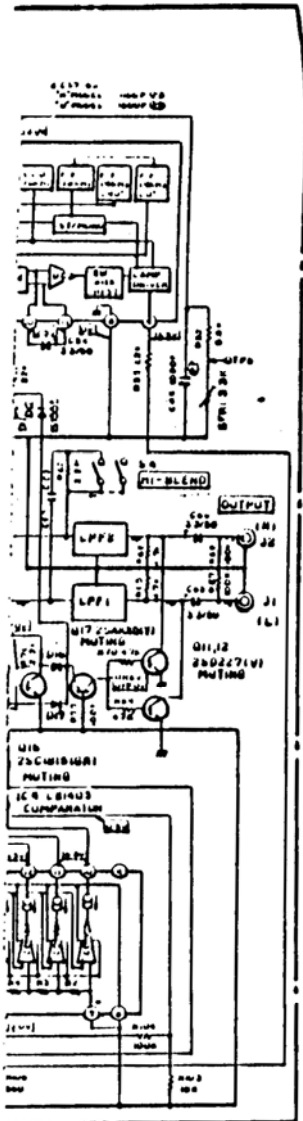
SCHEMATIC DIAGRAM ST-R50H,U



20P 512 3627
36 5



- S1 FM (ON)
- S2 AM (OFF)
- S3 MODE (ST)
- S4 HI-BLEND (OFF)
- S5 TUNING (AUTO)
- S6 TUNING-UP (OFF)
- S7 TUNING-DOWN (OFF)
- S8-13 PRESET (OFF)
- S14 MEMORY (OFF)
- S15-13 POWER (OFF)
- S16 VOLTAGE SELECTOR (1240V) (*M* MODEL ONLY)

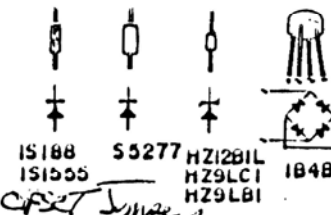
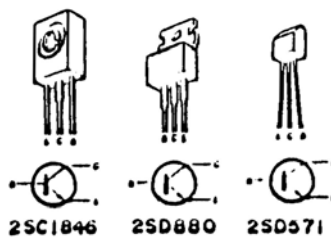
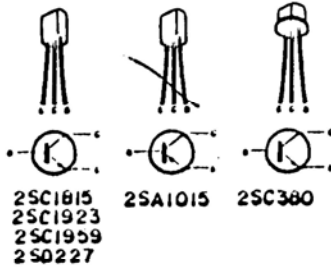


- 31 514 PA POINT 100F1
- 315-3 POWER 100F1
- 316 VOLTAGE SELECTOR (240V)

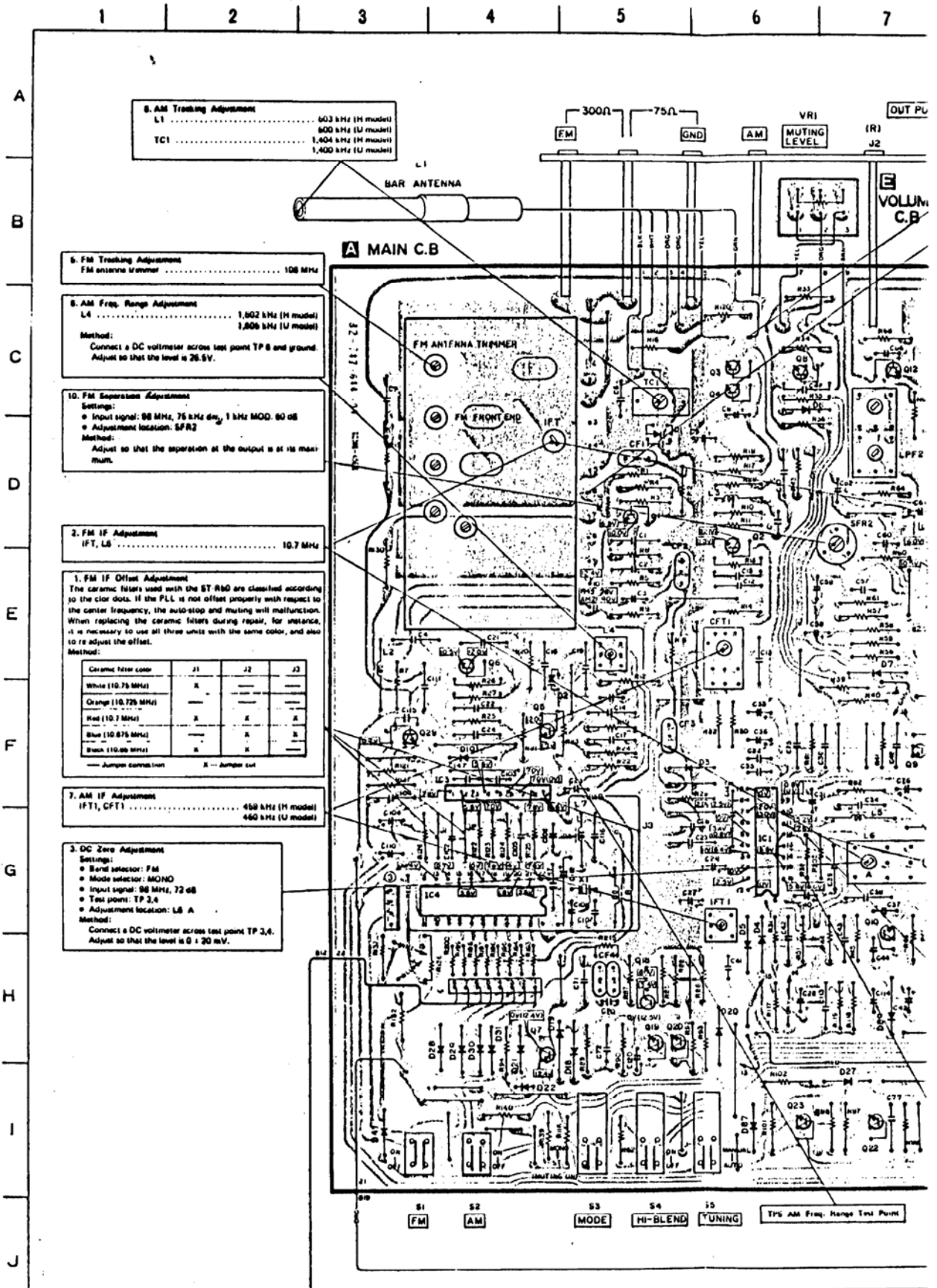
K Ceramic Filter color dots & IF CAPSET Imped

NOTES:

- 1) ———— 2 ————
 - 2) ———— 2 ————
 - 3) 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 or recording. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
 - 4) Resistors with no designation have a rated power of 1/2W 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% (J) 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
 - (A) Aluminum solid capacitor
 - (PP) Polypropylene film capacitor
 - (BP) Bi-polarized capacitor
 - (FR) Fuse resistor
 - (S) 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.



WIRING ST-R50H,U



5. AM Tracking Adjustment
 L1 603 kHz (H model)
 600 kHz (U model)
 TC1 1,404 kHz (H model)
 1,400 kHz (U model)

6. FM Tracking Adjustment
 FM antenna trimmer 108 MHz

8. AM Freq. Range Adjustment
 L4 1,802 kHz (H model)
 1,806 kHz (U model)
Method:
 Connect a DC voltmeter across test point TP 8 and ground. Adjust so that the level is 26.5V.

10. FM Separation Adjustment
Settings:
 • Input signal: 88 MHz, 75 kHz dev., 1 kHz MOD. 80 dB
 • Adjustment location: SFR2
Method:
 Adjust so that the separation of the output is at its maximum.

2. FM IF Adjustment
 IFT, L5 10.7 MHz

1. FM IF Offset Adjustment
 The ceramic filters used with the ST-R50 are classified according to the color dots. If the PLL is not offset properly with respect to the center frequency, the auto-stop and muting will malfunction. When replacing the ceramic filters during repair, for instance, it is necessary to use all three units with the same color, and also to re-adjust the offset.
Method:

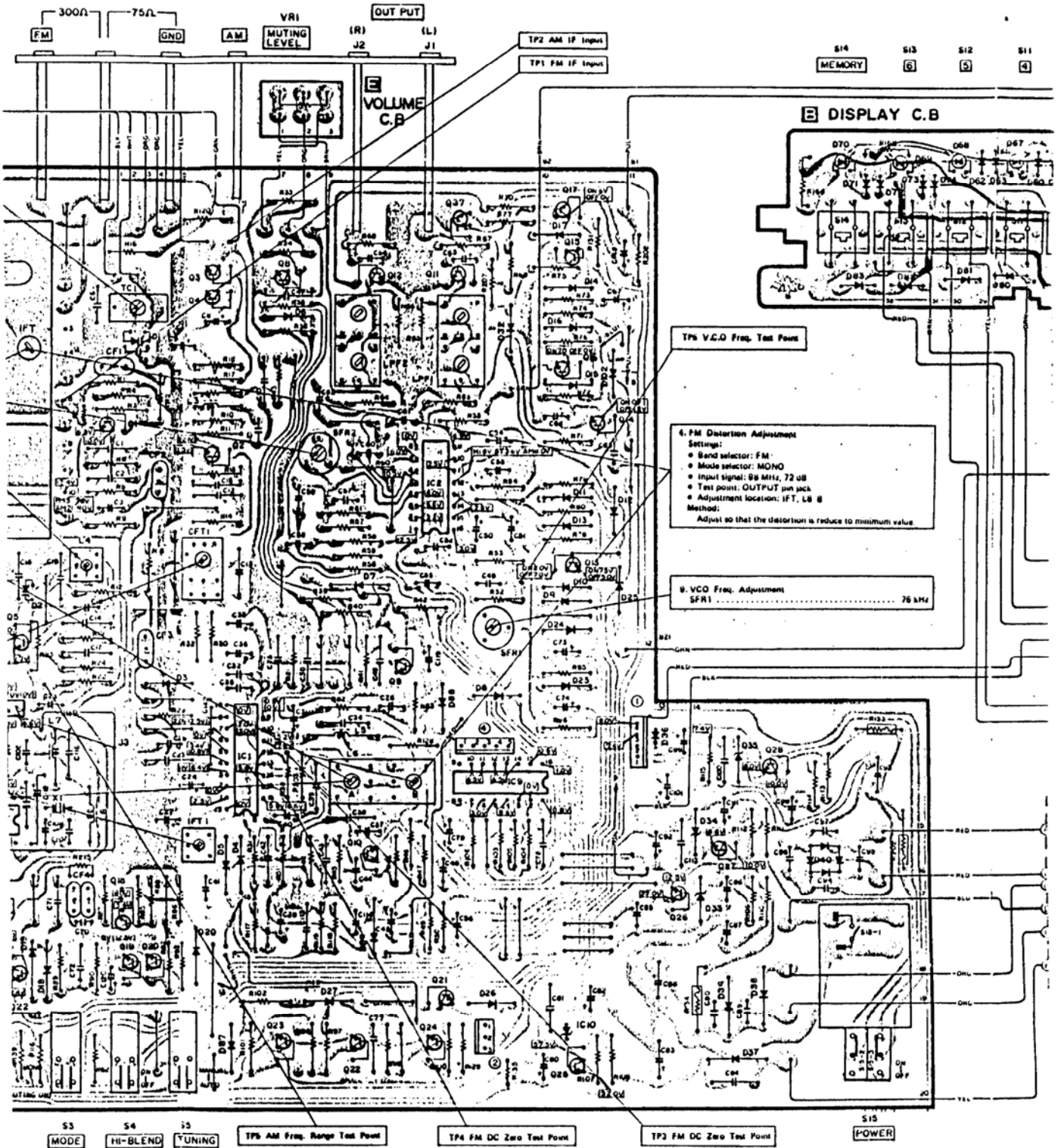
Ceramic filter color	J1	J2	J3
White (10.75 MHz)	X		
Orange (10.726 MHz)		X	
Red (10.7 MHz)	X	X	X
Blue (10.676 MHz)		X	X
Black (10.65 MHz)	X	X	

— Jumper connection X — Jumper cut

7. AM IF Adjustment
 IFT1, CFT1 458 kHz (H model)
 460 kHz (U model)

3. DC Zero Adjustment
Settings:
 • Band selector: FM
 • Mode selector: MONO
 • Input signal: 88 MHz, 72 dB
 • Test point: TP 3,4
 • Adjustment location: L6 A
Method:
 Connect a DC voltmeter across test point TP 3,4. Adjust so that the level is 0 ± 20 mV.

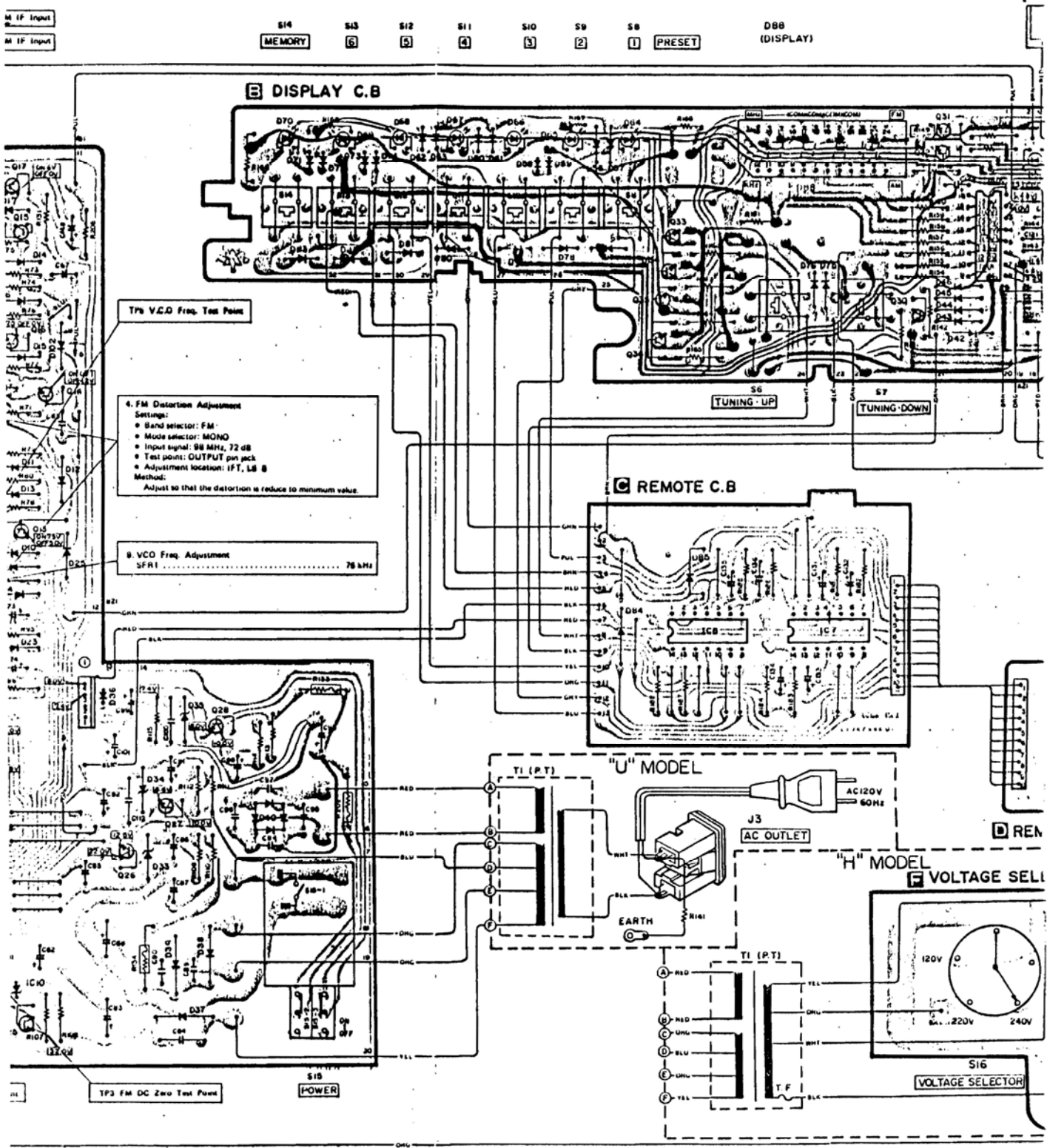
NOTES (1) C
 (2) The vo
 But (8



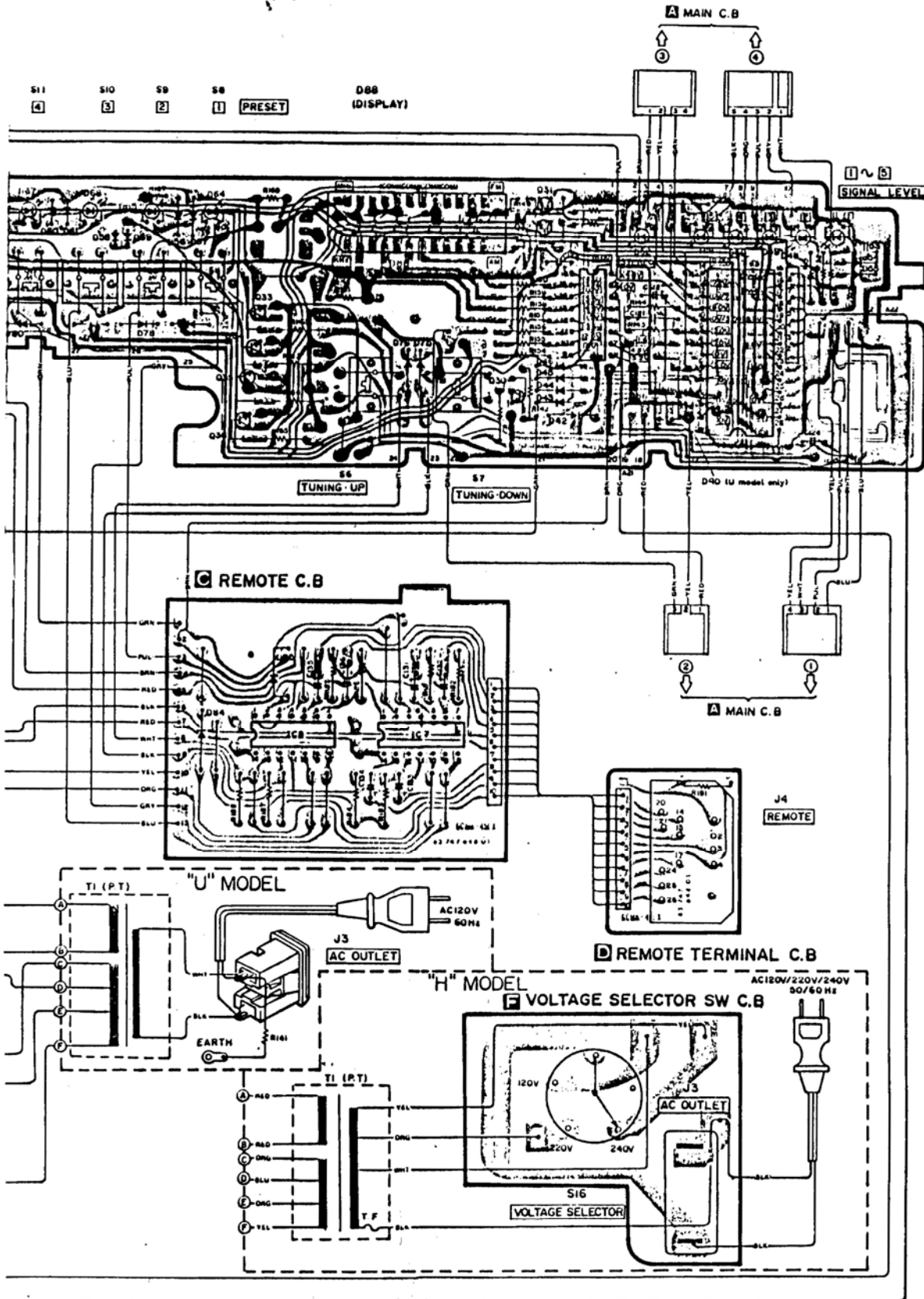
6. FM Distortion Adjustment
 Settings:
 • Band selector: FM
 • Mode selector: MONO
 • Input signal: 98 MHz, 72 uB
 • Test point: OUTPUT pin jack
 • Adjustment location: IFT, L8 8
 Method:
 Adjust so that the distortion is reduce to minimum value

9. VCO Freq. Adjustment
 SFR1 76 MHz

NOTES (1) Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are 9
 But () is with AM reception.

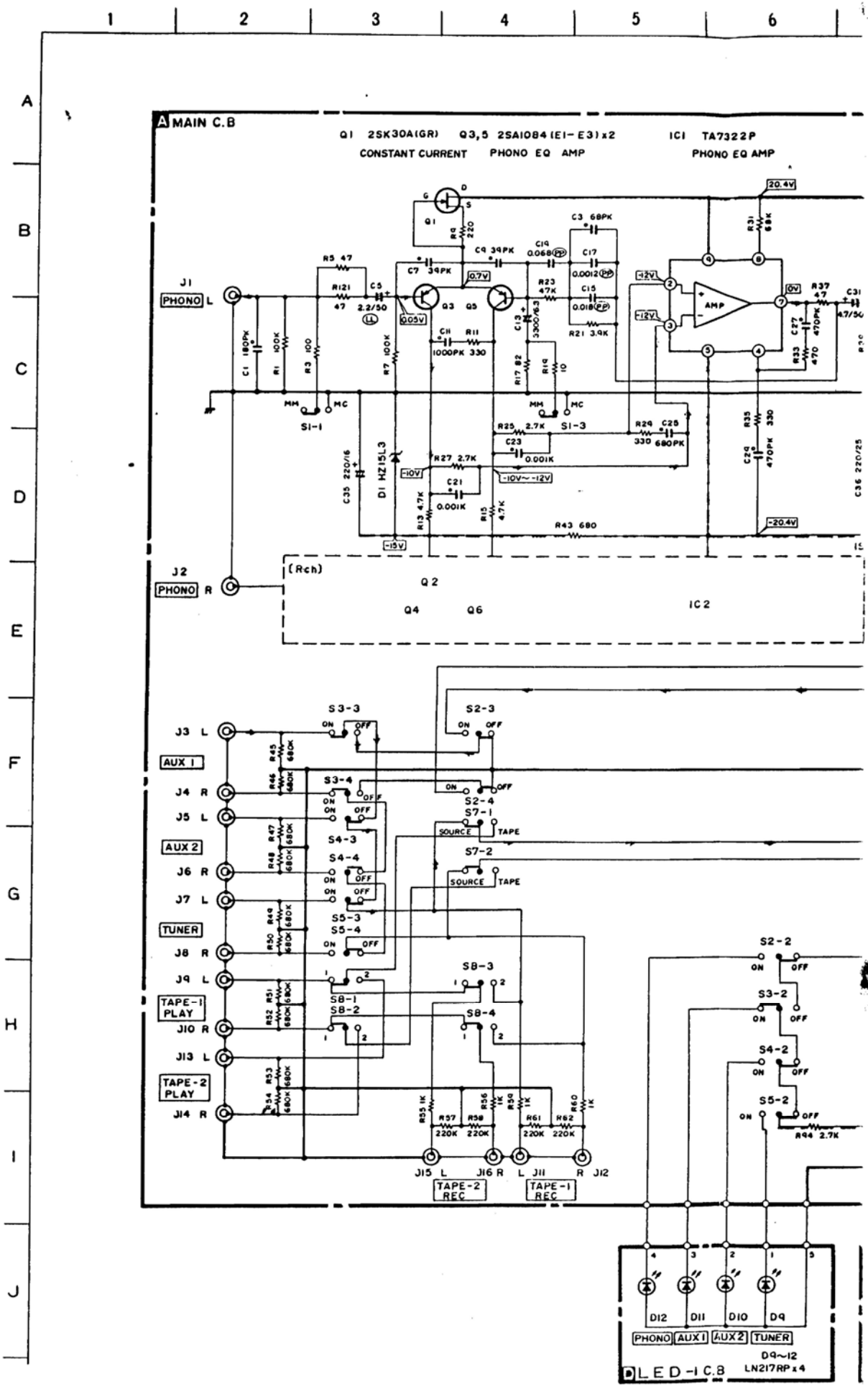


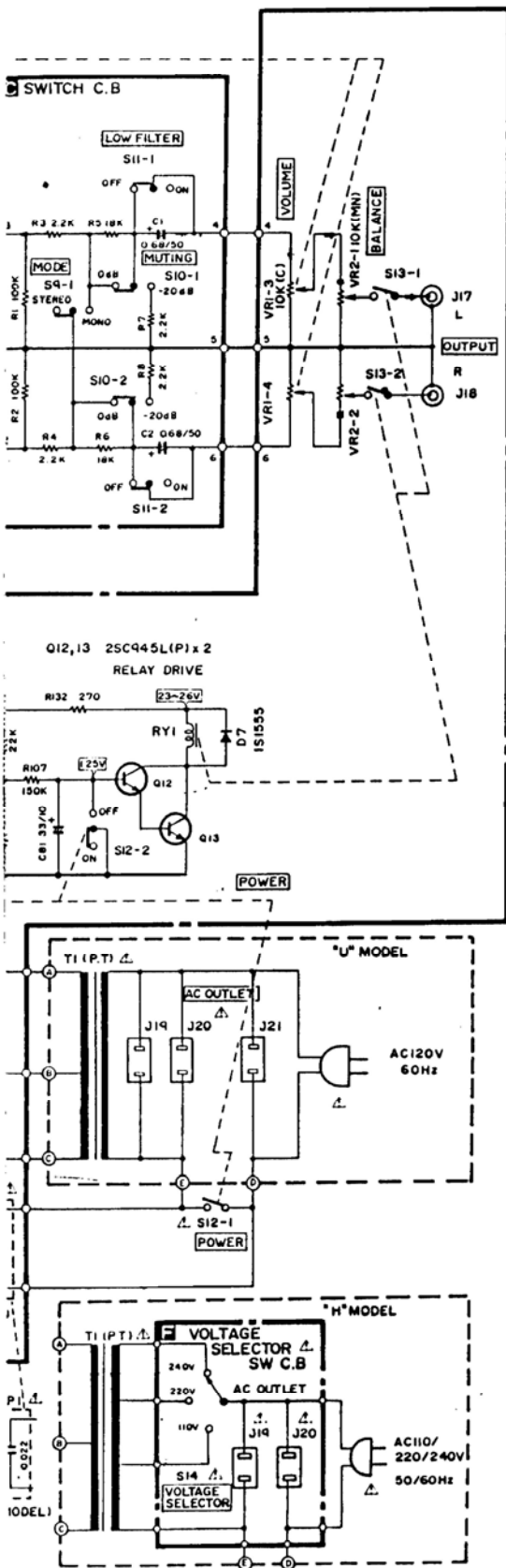
Others pattern value measured with a tester (20 K ohms/V DC) when there are no signals. ception.



re are no signals.

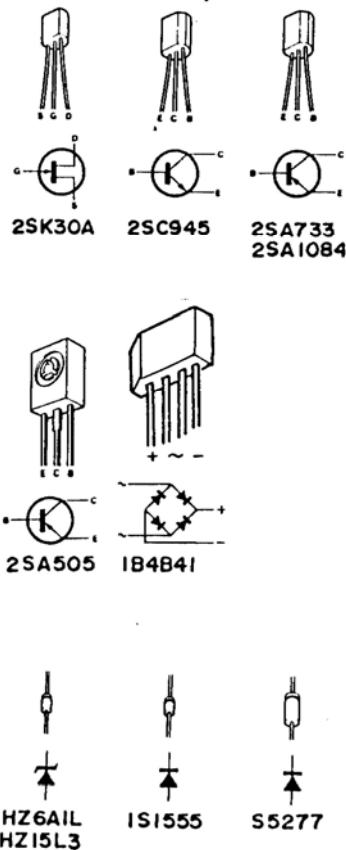
SCHEMATIC
SA-C50



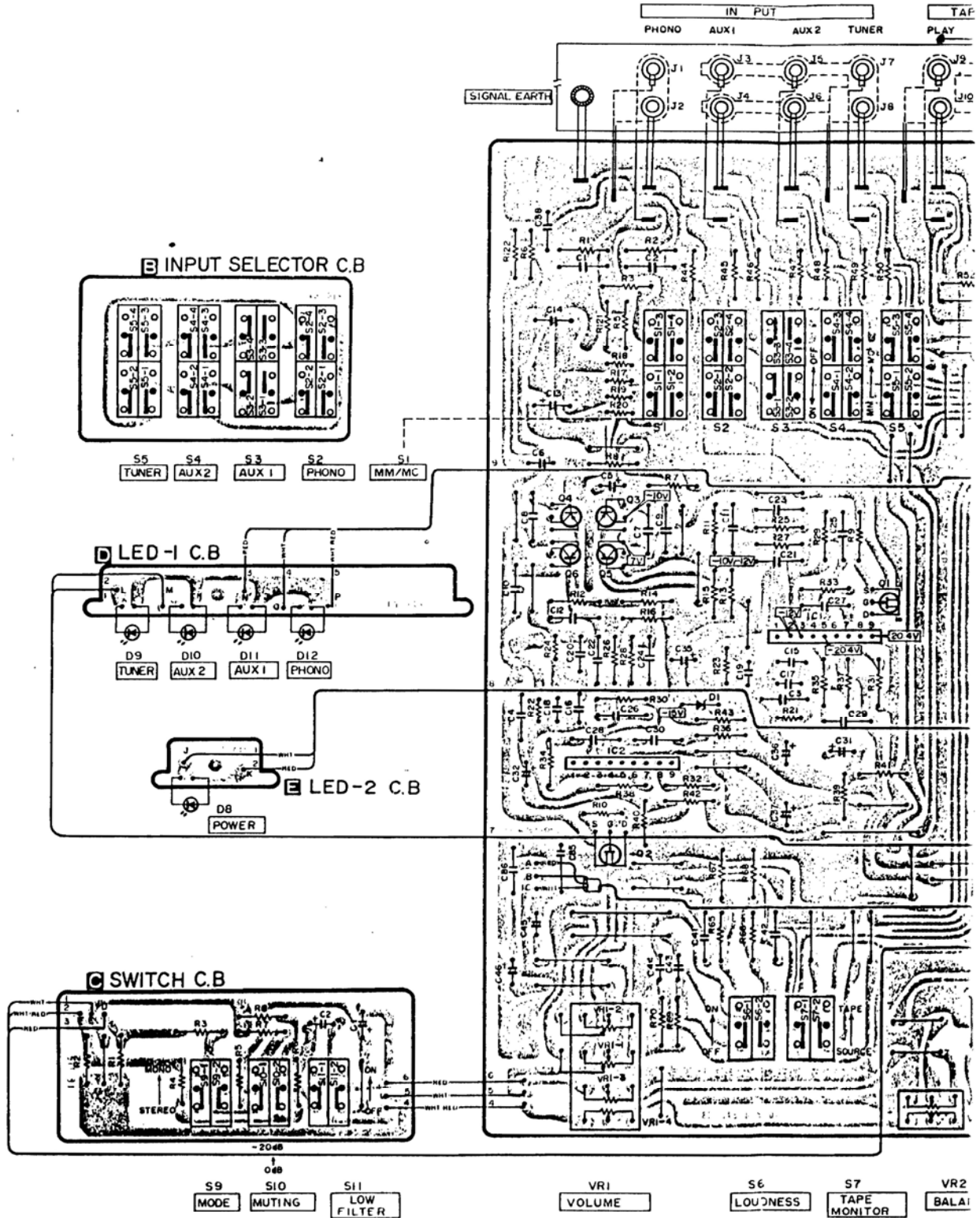


NOTES:

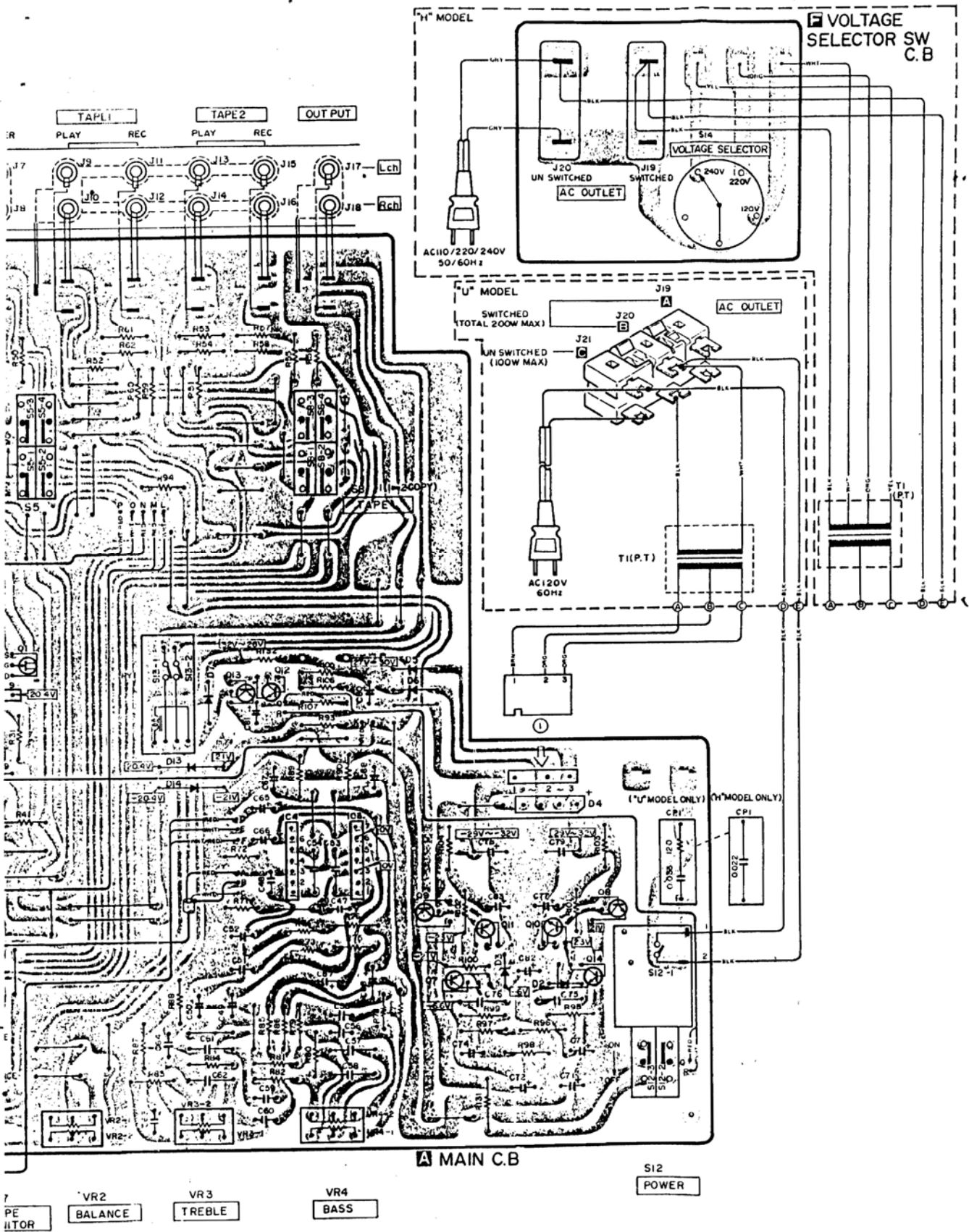
- 1) B (+) power supply B (-) power supply
 - 2) Signal path
 - 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
 - 4) Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
 - 5) Capacitors with no designation have a dielectric strength of less than 50WV.
 - 6) The only capacitor tolerances indicated are ±5% (J) and ±10% (K).
 - 7) Ceramic capacitor symbols:
 - For temperature compensation (SL)
 - High dielectric constant system (YY)
 - High dielectric constant system (YW, YP, YZ)
 - 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 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.



WIRING- SAC50

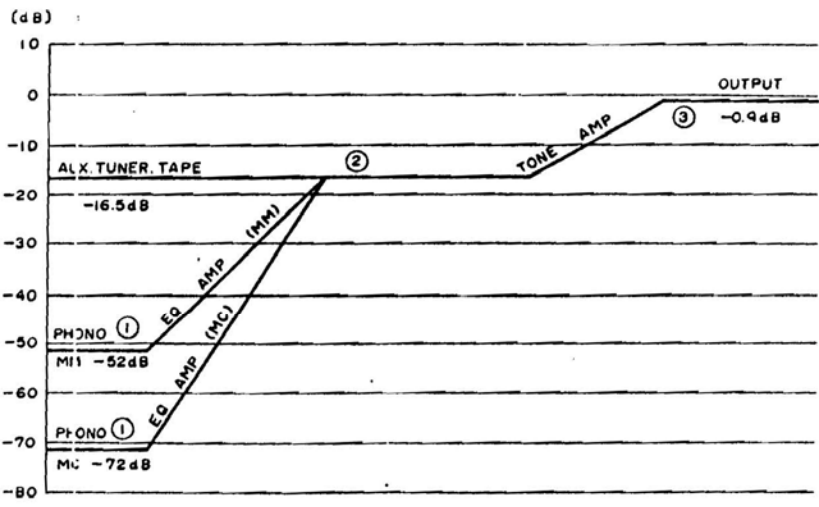
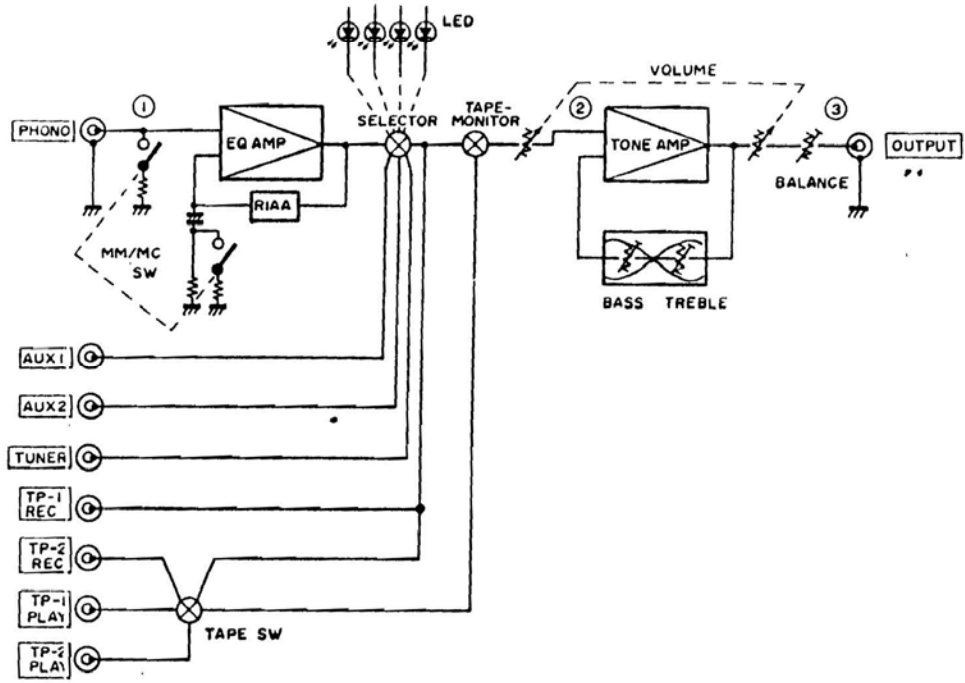


NOTES The voltage is the reference value measured with a tester (20 K ohms/V DC)

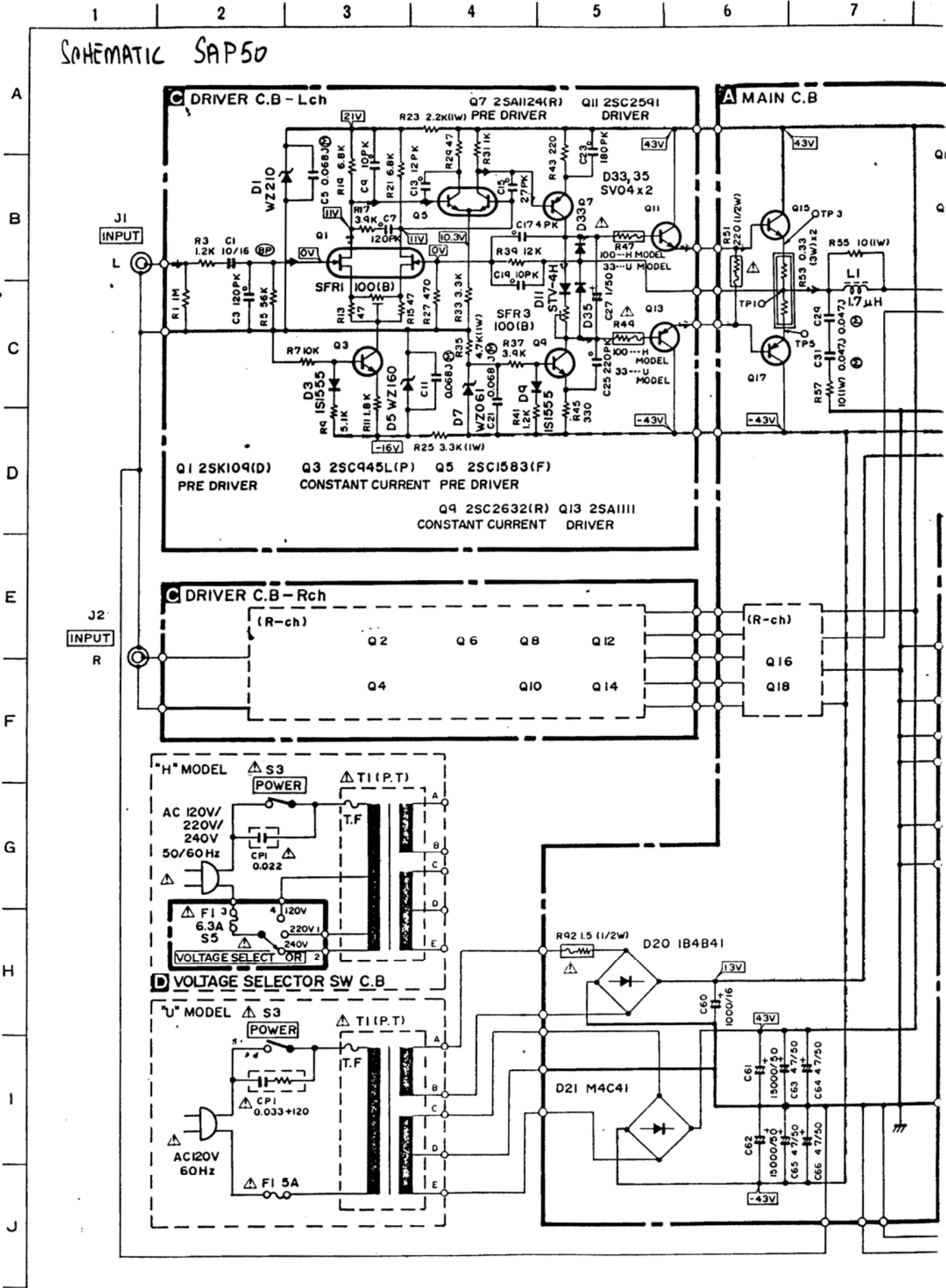


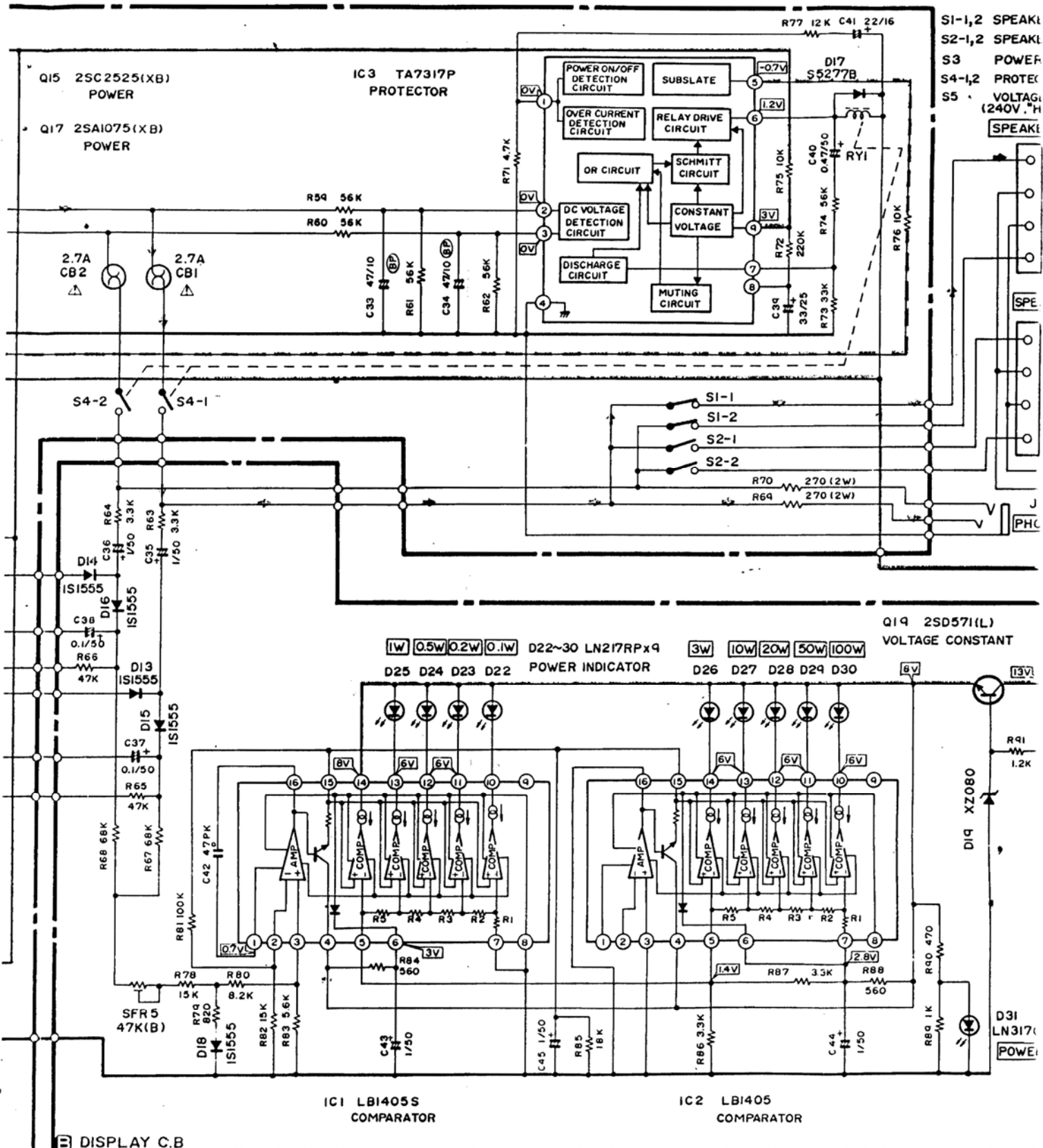
7 K ohms/V DC) when there are no signals.

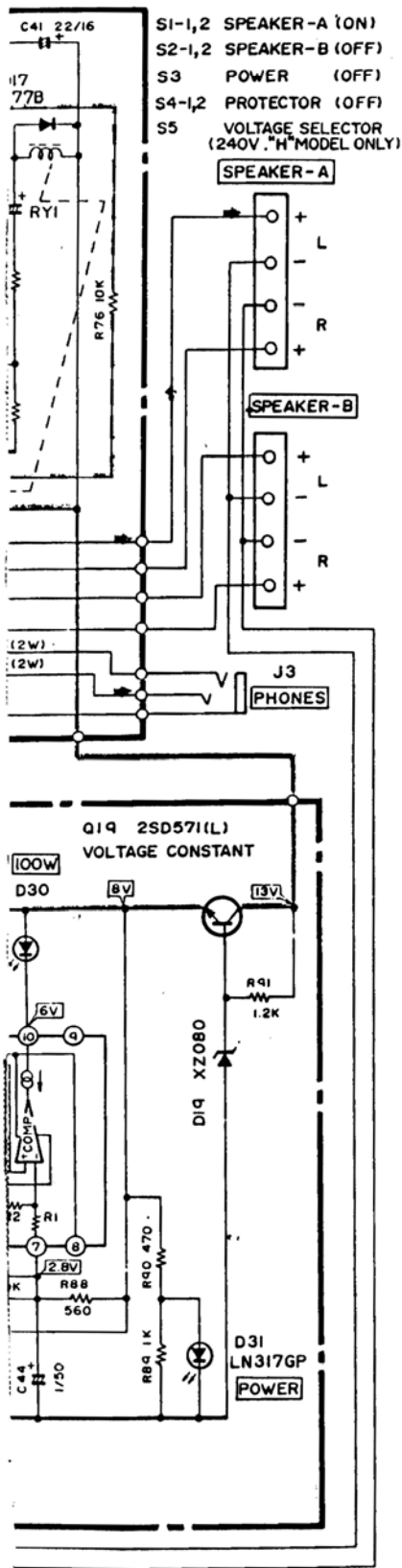
LEVEL DIAGRAM SA-C50H,U



SCHEMATIC SAP50

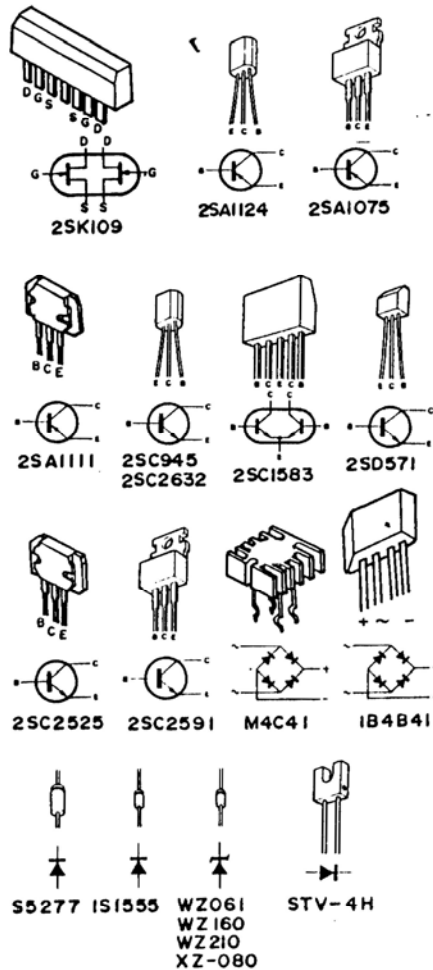




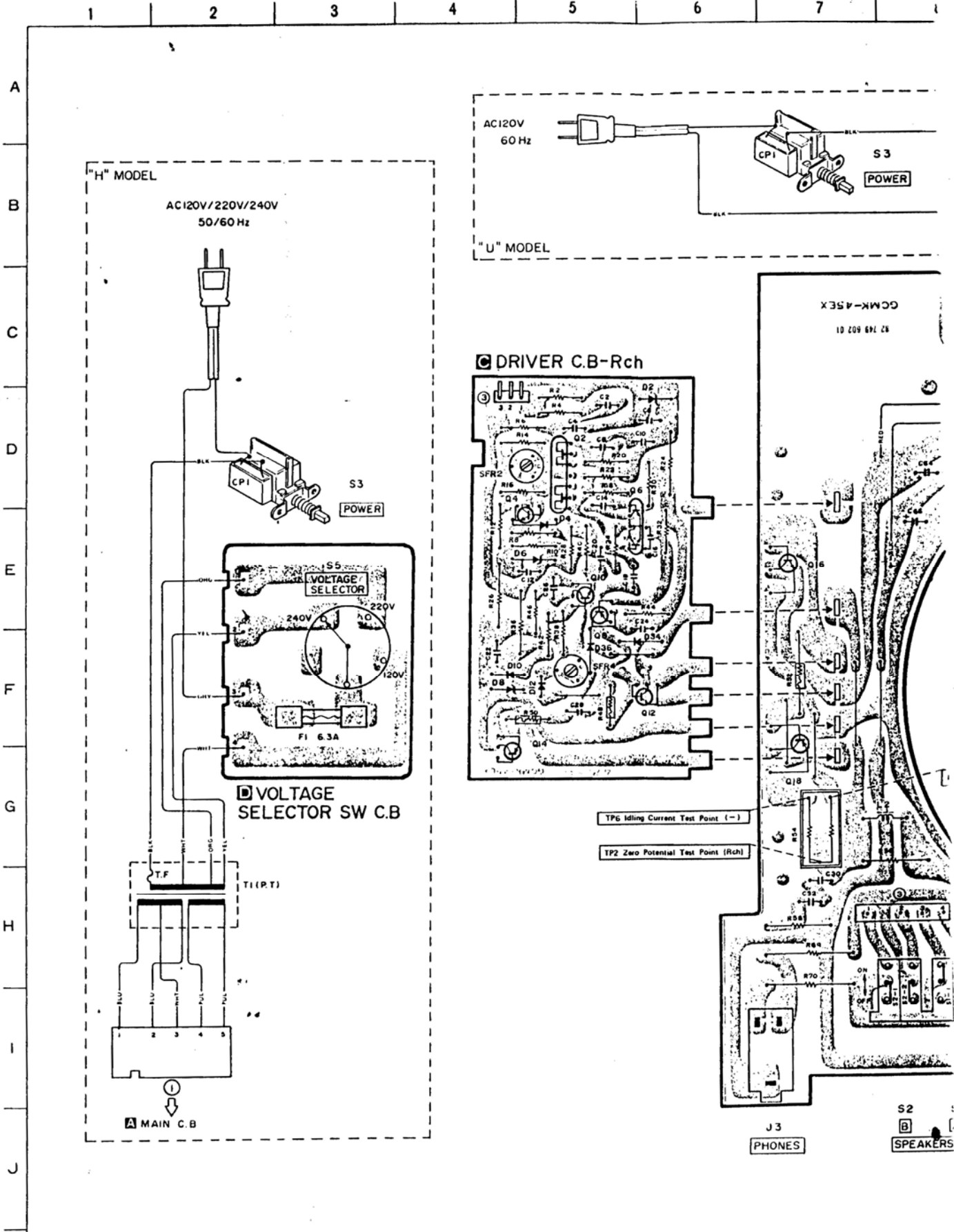


NOTES:

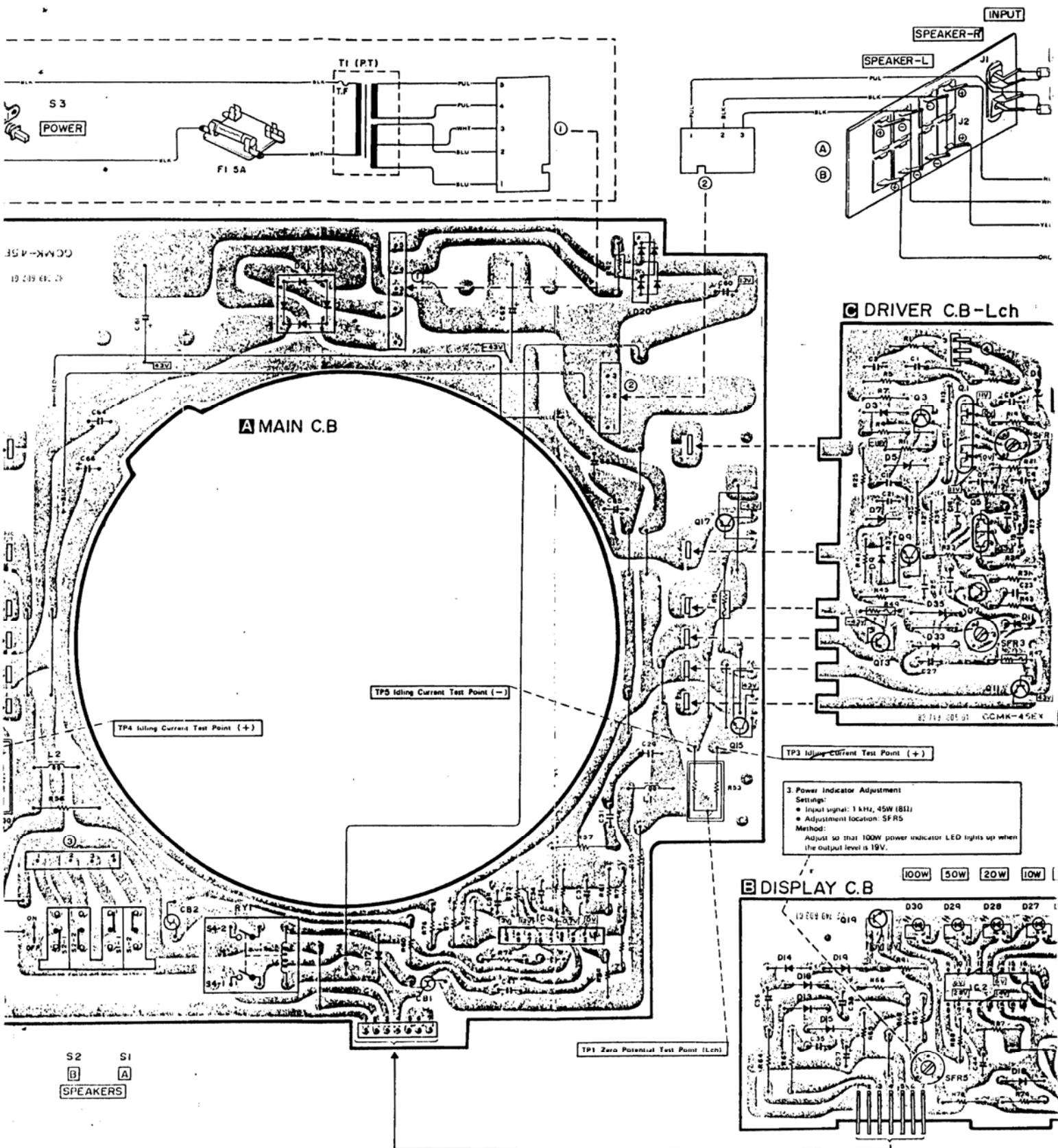
- 1) B (+) power supply L B (-) power supply
 - 2) Signal path
 - 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
 - 4) Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
 - 5) Capacitors with no designation have a dielectric strength of less than 50WV.
 - 6) The only capacitor tolerances indicated are ±5% (J) and ±10% (K).
 - 7) Ceramic capacitor symbols:
 - For temperature compensation (SL)
 - High dielectric constant system (YY)
 - High dielectric constant system (YW, YP, YZ)
 - 8) Explanation of symbols
 - Mylar capacitor
 - Polypropylene film capacitor
 - Bi-polarized capacitor
 - Low-leakage capacitor
 - Fuse resistor
 - 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.



WIRING SA-P50H,U



NOTES The voltage is the reference value measured



value measured with a tester (20 K ohms/V DC) when there are no signals.

12

13

14

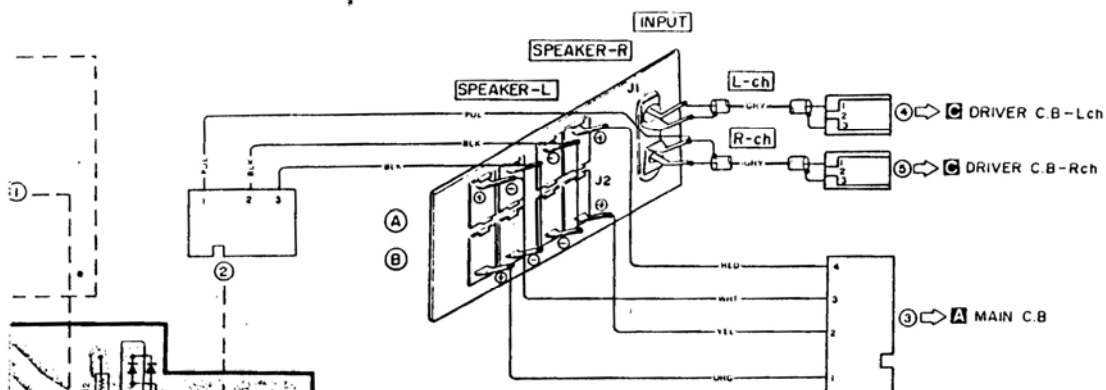
15

16

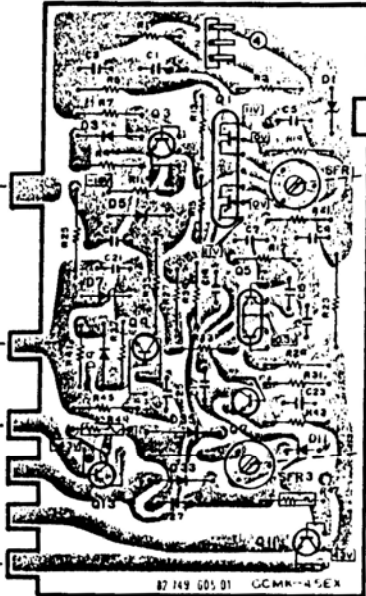
17

18

19



C DRIVER C.B-Lch



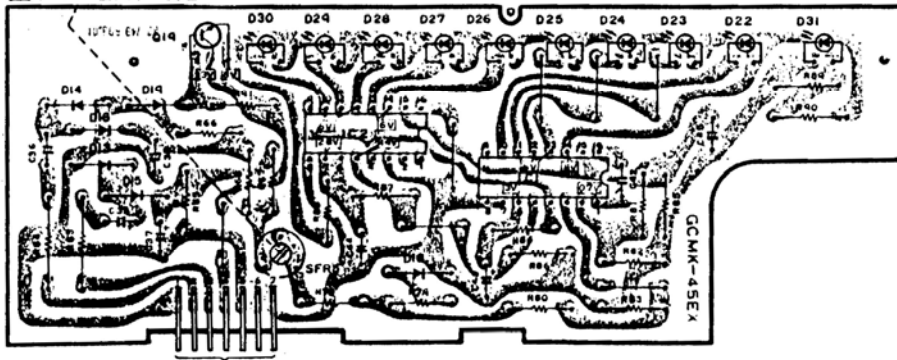
1. Zero potential (DC Balance) Adjustment
 Settings:
 • Test point: TP1 (Lch), TP2 (Rch)
 • Adjustment location: SFR1 (Lch), SFR2 (Rch)
 Method:
 Connect a DC voltmeter across test point and ground.
 Adjust so that the level is 0 ± 5 mV.

2. Idling Current Adjustment
 Settings:
 • Test point: TP3.5 (Lch), TP4.6 (Rch)
 • Adjustment location: SFR3 (Lch), SFR4 (Rch)
 Method:
 Connect a DC voltmeter across test point.
 Adjust so that the level is 8 mV. (12 mA)

TP3 Idling Current Test Point (+)

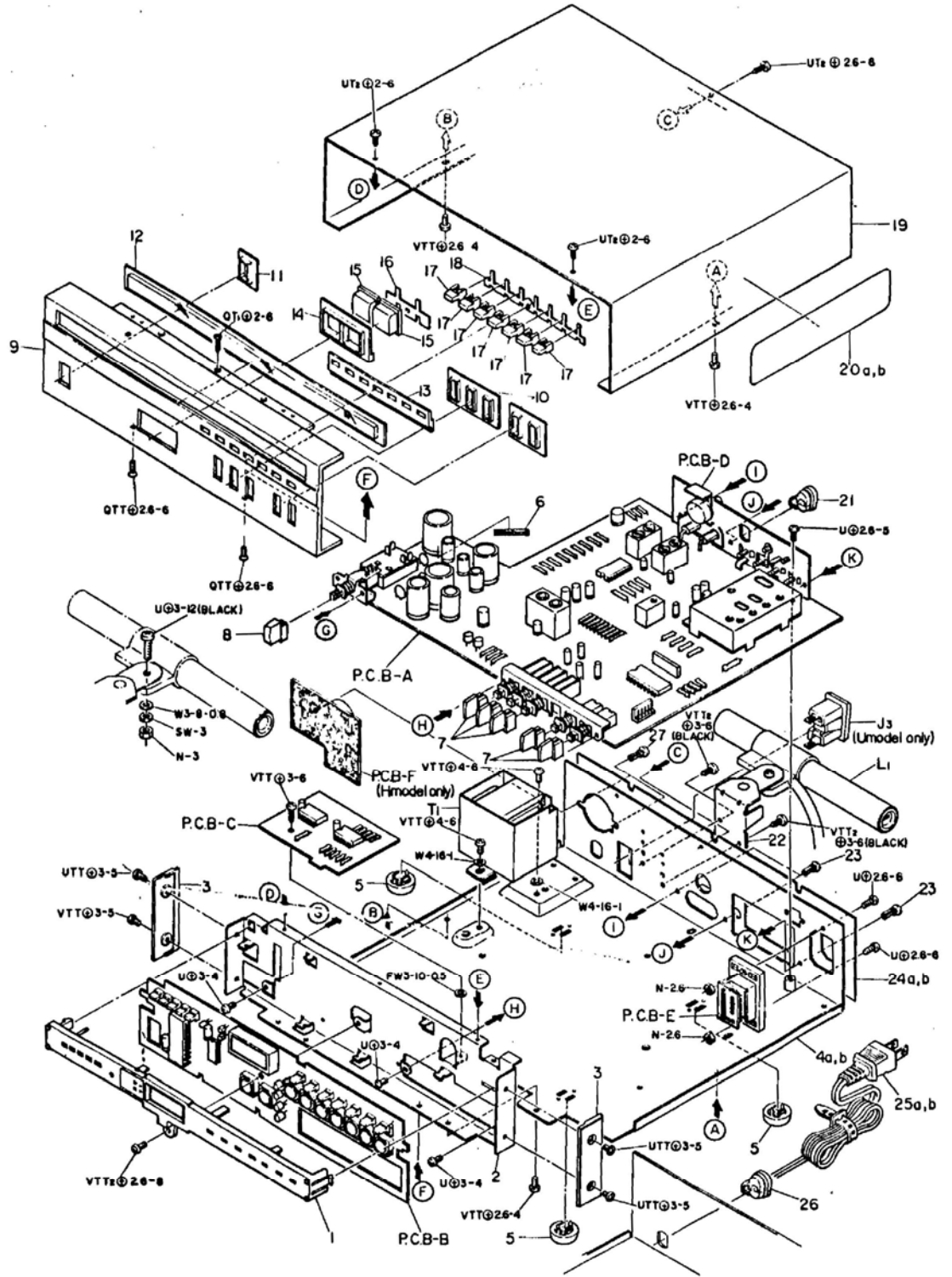
3. Power Indicator Adjustment
 Settings:
 • Input signal: 1 kHz, 45W (BLI)
 • Adjustment location: SFR5
 Method:
 Adjust so that 100W power indicator LED lights up when the output level is 18V.

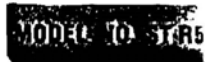
B DISPLAY C.B



TP1 Zero Potential Test Point (Lch)

EXPLODED VIEW





MECHANICAL PARTS

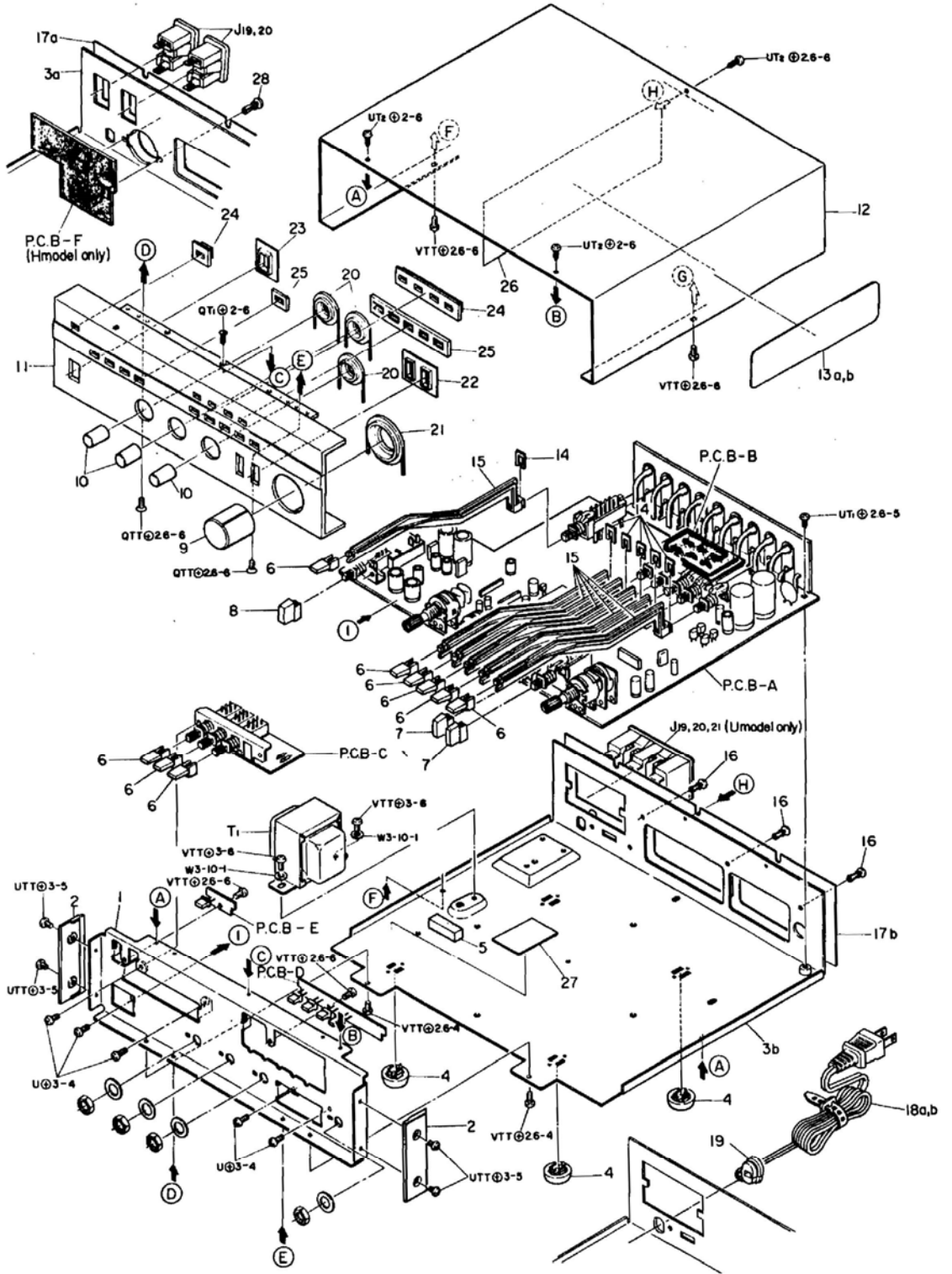
PARTS LIST

* mark in this part list shows exclusive part
(which is used) for only Model No. ST-R5Q.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-747-004-01		Display	*	1
1-2	82-747-201-01		Chassis, Front	*	1
1-3	82-745-003-01		Panel L, Side		2
1-4a	82-747-202-01		Amp. chassis ass'y (H model only)	*	1
1-4b	82-747-208-01		Amp. chassis ass'y (U model only)	*	1
1-5	82-745-019-01		Foot		4
1-6	82-748-208-01		Cushion	SA-C50	1
1-7	82-745-009-01		Push-button B		6
1-8	82-745-010-01		Push-button C		1
1-9	82-747-027-01		Panel, Front	*	1
1-10	82-745-011-01		Guide, Push-button B		1
1-11	82-745-012-01		Guide, Push-button C		1
1-12	82-747-003-01		Window	*	1
1-13	82-747-008-01		Guide D	*	1
1-14	82-747-009-01		Guide E	*	1
1-15	82-747-006-01		Push-key E	*	2
1-16	82-747-206-01		Plate spring B	*	1
1-17	82-747-005-01		Push-key D	*	7
1-18	82-747-205-01		Plate spring A	*	1
1-19	82-747-002-01		Cabinet, Steel	*	1
1-20a	82-747-014-01		Name plate, Spec. (H model only)	*	1
1-20b	82-747-015-01		Name plate, Spec. (U model only)	*	1
1-21	87-085-101-01		Cord bushing		1
1-22	82-473-010-01		Antenna holder ass'y		1
1-23	87-085-102-01		Nylon rivet, 3.5-5.5		3
1-24a	82-747-021-01		Jack plate (H model only)	*	1
1-24b	82-747-022-01		Jack plate (U model only)	*	1
1-25a	87-034-936-01		AC power cord (H model only)		1
1-25b	87-034-935-01		AC powr cord (U model only)		1
1-26	87-085-165-01		Cord bushing		1
1-27	87-085-090-01		Nylon rivet (H model only)		2

MODEL NO. SA C50H U

EXPLODED VIEW



MECHANICAL PARTS

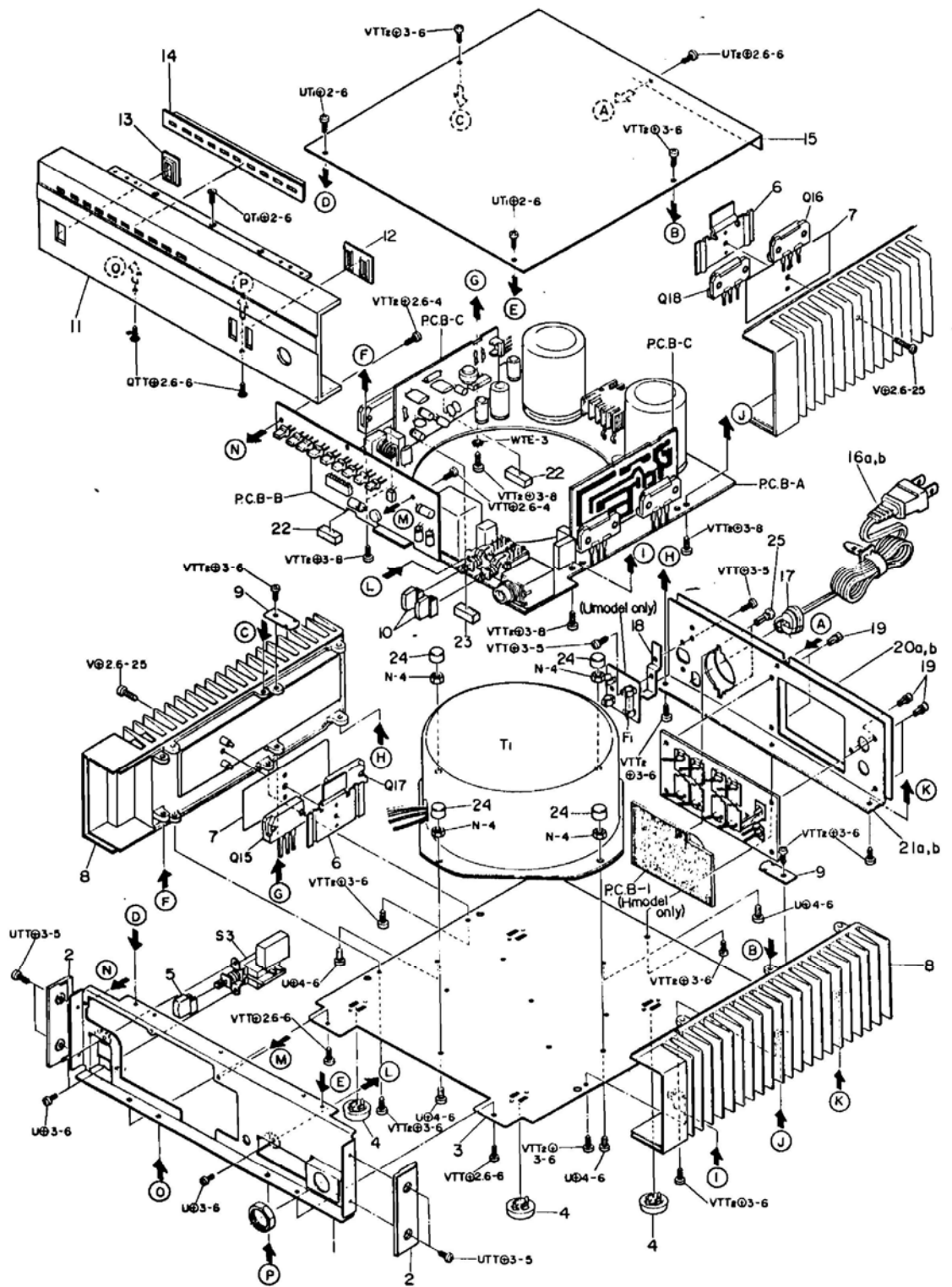
PARTS LIST

* mark in this part list shows exclusive part (which is used) for only Model No. SA-C50.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-748-201-01		Chassis, Front	*	1
1-2	82-745-003-01		Panel L, Side		2
1-3a	82-748-206-01		Amp. chassis ass'y (H model only)	*	1
1-3b	82-748-209-01		Amp. chassis ass'y (U model only)	*	1
1-4	82-745-019-01		Foot		4
1-5	82-748-208-01		Cushion	*	1
1-6	82-745-008-01		Push-button A		9
1-7	82-745-009-01		Push-button B		2
1-8	82-745-010-01		Push-button C		1
1-9	82-748-002-01		Knob, Volume	*	1
1-10	82-745-013-01		Knob		3
1-11	82-748-017-01		Panel, Front	*	1
1-12	82-747-002-01		Cabinet, Steel	ST-R50	1
1-13a	82-748-008-01		Name plate, Spec. (H model only)	*	1
1-13b	82-748-009-01		Name plate, Spec. (U model only)	*	1
1-14	82-385-383-01		Stopper, Rod	AD-6300	6
1-15	82-748-203-01		Rod	*	6
1-16	87-085-102-01		Nylon rivet, 3.6-5.5		3
1-17a	82-748-014-01		Jack plate (H model only)	*	1
1-17b	82-748-015-01		Jack plate (U model only)	*	1
1-18a	87-034-934-01		AC power cord (H model only)		1
1-18b	87-034-935-01		AC power cord (U model only)		1
1-19	87-085-165-01		Cord bushing		1
1-20	82-745-014-01		Decorative plate, Knob		3
1-21	82-748-003-01		Decorative plate, Volume knob	*	1
1-22	82-745-011-01		Guide, Push-button B		1
1-23	82-745-012-01		Guide, Push-button C		1
1-24	82-748-204-01		Guide, LED	*	1
1-25	82-748-205-01		Guide, Switch	*	1
1-26	82-748-633-01		Shield plate	*	1
1-27	82-748-217-01		Sheet, Insulation (U model only)	*	1
1-28	87-085-090-01		Nylon rivet (H model only)		2

MODEL NO SA-P50H1

EXPLODED VIEW



MECHANICAL PARTS

PARTS LIST

* mark in this part list shows exclusive part (which is used) for only Model No. SA-P50.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-749-201-01		Chassis, Front	*	1
1-2	82-745-003-01		Panel L, Side		2
1-3	82-749-202-01		Chassis, Amp.	*	1
1-4	82-745-019-01		Foot		4
1-5	82-745-010-01		Push-button C		1
1-6	82-749-205-01		Holder, IC	*	2
1-7	82-749-617-01		Insulation mica	*	2
1-8	82-749-003-01		Heatsink	*	2
1-9	82-749-204-01		Holder, Circuit board	*	2
1-10	82-745-009-01		Push-button B		2
1-11	82-749-017-01		Panel, Front	*	1
1-12	82-745-011-01		Guide, Push-button B		1
1-13	82-745-012-01		Guide, Push-button C		1
1-14	82-749-206-01		Guide, LED	*	1
1-15	82-749-002-01		Cabinet, Steel	*	1
1-16a	87-034-936-01		AC power cord (H model only)		1
1-16b	87-034-935-01		AC power cord (U model only)		1
1-17	87-085-165-01		Cord bushing		1
1-18	82-499-209-01		Holder B, Fuse		1
1-19	87-085-102-01		Nylon rivet, 3.5-5.5		1
1-20a	82-749-014-01		Jack plate (H model only)	*	1
1-20b	82-749-015-01		Jack plate (U model only)	*	1
1-21a	82-749-209-01		Chassis, Back (H model only)	*	1
1-21b	82-749-203-01		Chassis, Back (U model only)	*	1
1-22	85-740-204-01		Spacer rubber (H model only)		2
1-23	82-749-211-01		Spacer rubber	*	1
1-24	82-752-206-01		Cover, Nut	SA-P30	4
1-25	87-085-090-01		Nylon rivet (H model only)		2

ACCESSORIES/PACKAGE ST-R50H,U

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-747-855-01		Printed indiv., Packing	*	1
2	82-747-853-21		Cushion L, Printed indiv.	*	1
3	82-747-854-21		Cushion R, Printed indiv.	*	1
4	87-081-131-11		Poly-vinyl sack, (for AC power cord)		1
5	87-056-604-01		Poly-vinyl sack (for case)		1
6	82-747-904-01		Instructions booklet (H model only)	*	1
7	82-747-905-01		Instructions booklet (U model only)	*	1
8	87-051-171-11		Poly-vinyl sack (for instruction)		1
9	87-056-009-41		Distributors list (H model only)		1
10	87-056-034-01		Service station list (U model only)		1
11	87-056-035-01		Card, Limited warranty (U model only)		1
12	87-056-045-01		Guarantee card (U model only)		1
13	86-944-016-01		Connection cord, CW-129DSK		1
14	87-032-845-01		Siemens plug (H model only)		1
15	87-051-155-01		Poly-vinyl sack		1
16	86-944-016-01		Connection cord, CW-129DSK		1
17	87-043-025-01		FM antenna		1

ACCESSORIES/PACKAGE SA-C50H,U

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-748-855-01		Printed indiv., Packing	*	1
2	82-748-856-01		Cushion L, Printed indiv.	*	1
3	82-748-857-01		Cushion R, Printed indiv.	*	1
4	87-051-131-11		Poly-vinyl sack		1
5	87-056-604-01		Poly-vinyl sack		1
6	82-748-904-01		Instructions booklet (H model only)	*	1
7	82-748-905-01		Instructions booklet (U model only)	*	1
8	87-051-171-11		Poly-vinyl sack (for instruction)		1
9	87-056-009-41		Distributors list (H model only)		1
10	87-056-034-01		Service station list (U model only)		1
11	87-056-035-01		Card, Limited warranty (U model only)		1
12	87-056-045-01		Guarantee card (U model only)		1
13	87-032-845-01		Siemens plug (H model only)		1

ACCESSORIES/PACKAGE SA-P50H,U

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-749-855-11		Printed indiv., Packing	*	1
2	82-749-852-01		Cushion L, Printed indiv.	*	1
3	82-749-853-01		Cushion R, Printed indiv.	*	1
4	87-051-131-11		Poly-vinyl sack, (for AC power cord)		1
5	87-056-604-01		Poly-vinyl sack (for case)		1
6	82-749-904-01		Instructions booklet (H model only)	*	1
7	82-749-905-01		Instructions booklet (U model only)	*	1
8	87-051-171-11		Poly-vinyl sack (for instruction)		1
9	87-056-009-41		Distributors list (H model only)		1
10	87-056-034-01		Service station list (U model only)		1
11	87-056-035-01		Card, Limited warranty (U model only)		1
12	87-056-045-01		Guarantee card (U model only)		1
13	86-944-016-01		Connection cord, CW-129DSK		1
14	87-032-845-01		Siemens plug (H model only)		1

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