

AIWA®

S/M Code No. 84-002

DATA OF ISSUE 2/1984

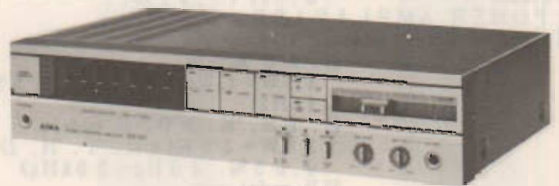
SERVICE MANUAL

TYPE. H, HB, UB, E, EB, K, KB, G

**STEREO INTEGRATED
AMPLIFIER**

MODEL NO.

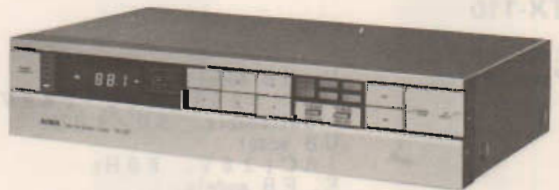
MX-90



FM/AM STEREO TUNER

MODEL NO.

TX-110

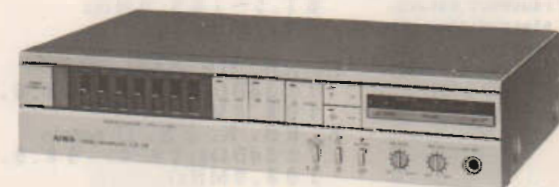


Shown above is TX-70H

STEREO PREAMPLIFIER

MODEL NO.

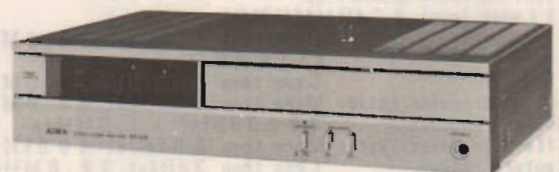
GX-110



**DC STEREO POWER
AMPLIFIER**

MODEL NO.

BX-110



SPECIFICATIONS

MX-90

<p>Power source: H, HB models AC 120/220/240V switchable, 50/60Hz UB model AC 120V, 60Hz E, EB models AC 220V, 50/60Hz K, KB, G models AC 240V, 50/60Hz</p> <p>Power consumption: H, HB models 8.5W UB model 7.0W E, EB, K, KB, G models 16.0W</p> <p>Dimensions: 330(W)×71(H)×200(D)mm (12-7/8"×2-5/8"×7-7/8")</p> <p>Weight: 3.6kg (7.92lbs.) <POWER AMPLIFIER></p> <p>Effective output power: H, HB models 4.5W+4.5W(8Ω, EIAJ 5% 1kHz) E, EB, K, KB, G models 3.0W+3.0W(8Ω, T.H.D. 0.05%, 40Hz~2.0kHz) UB model only <FTC Rule> 3.5 Watts per channel, Min. RMS at 8 ohms, from 40Hz~ 2.0kHz, with no more than 0.2% Total Harmonic Distortion</p>	<p>Total harmonic distortion: Less than 0.08%(1kHz, 30W, 8Ω) Output bandwidth: 40Hz to 50kHz(Less than 0.5%) [Both channels driven, 8Ω]</p> <p>Frequency response: 40Hz to 50kHz (+0.5/-3dB)</p> <p>Residual noise: Less than AUX 5mV Damping factor: More than 40 (1kHz 8Ω)</p> <p><PREAMPLIFIER></p> <p>Signal to noise ratio:(Weighted) PHONO(MM) More than 82dB TUNER, AUX More than 90dB TAPE PLAY More than 90dB</p> <p>D. S. L.: 60Hz 18dB±3dB RIAA deviation: ±0.5dB(30Hz~15kHz) Channel separation: More than 40dB</p> <p>Input jacks: PHONO(MM) 3mV/47kΩ (Sensitivity/output impedance): TUNER 150mV/47kΩ CD 150mV/47kΩ AUX 240mV/47kΩ TAPE 150mV/47kΩ MIC 1mV/5kΩ TAPE 150mV/47kΩ</p> <p>Output jacks: SPEAKERS 8Ω~16Ω (Level/output impedance):</p>
--	--

TX-110

<GENERAL>

<p>Power source: H, HB models AC 120V/220~240V Switchable, 50/60Hz UB model AC 120V, 60Hz E, EB models AC 220V, 50/60Hz K, KB, G models AC 240V, 50/60Hz</p> <p>Power consumption: 10W</p> <p>Dimensions: 330(W)×71(H)×200(D)mm (13"×2-3/4"×7-7/8")</p> <p>Weight: 1.9kg(4.18lbs.)</p> <p>Output level: FM 180mV AM 150mV</p> <p><FM TUNER SECTION></p> <p>Frequency ranges: 87.5~108.0MHz Intermediate frequency: 10.7MHz</p> <p>IHF sensitivity: H, HB, UB models (THD 3%) 7±3dB(at 87.5, 98.0, 108.0MHz) E, EB, K, KB, G models 7±3dB(at 88.0, 98.0, 108.0MHz) Less than 36dB(at 98.0MHz)</p> <p>50dB quieting sensitivity: Less than 36dB(at 98.0MHz)</p> <p>Image frequency interference ratio: More than 45dB(at 98.0MHz)</p> <p>Intermediate frequency interference ratio: More than 72dB(at 98.0MHz)</p> <p>SN ratio: (MONO) More than 74dB(98.0MHz) (STEREO) More than 66dB(98.0MHz)</p> <p>Total harmonic distortion: (Input level 60dB)(MONO) Less than 0.3%(at 98.0MHz) (STEREO) Less than 0.4%(at 98.0MHz)</p> <p>AM suppression ratio: More than 50dB(at 98.0MHz)</p> <p>Muting response: 30±3dB(at 98.0MHz)</p> <p>Effective selectivity: More than 70dB(at 400kHz)</p> <p>Capture ratio: Less than 3dB(at 98.0MHz)</p>	<p>Frequency response: 30Hz~50kHz(+0.5/-3dB) Separation: More than 35dB(at 1kHz) Auto stop level: 30+5/0dB(at 98.0MHz) Hi-Blend separation: 13±5dB(at 1kHz, 98.0MHz)</p> <p><AM TUNER SECTION></p> <p>Frequency ranges: MW 530~1605kHz LW 144~353kHz(E, EB, K, KB models only)</p> <p>Intermediate frequency: 450kHz</p> <p>Sensitivity: MW 52±3dB (S/N 20dB, bar antenna) (at 603kHz) 50±3dB (at 99.9, 1404kHz) LW 62±3dB (at 144, 200, 353kHz)(E, EB, K, KB models only)</p> <p>Image frequency interference ratio: MW More than 40dB (at 999kHz) LW More than 40dB (at 200kHz)(E, EB, K, KB models only)</p> <p>Intermediate frequency interference ratio: MW More than 40dB (at 999kHz) LW More than 25dB</p> <p>Selectivity: MW More than 25dB (±9kHz)</p> <p>Distortion: MW Less than 1.0%(at 999kHz)</p> <p>AGC characteristic: MW 56±10dB(at 999kHz)</p> <p>SN ratio: MW More than 48dB (100dB input) LW 58±10dB(E, EB, K, KB models only)</p> <p>Auto stop level: MW 55±10dB LW 58±10dB(E, EB, K, KB models only)</p> <p>Loop antenna: H, HB, UB, G models MW 300μV/m E, EB, K, KB models MW 400μV/m LW 800μV/m</p>
---	---

ELECTRICAL MAIN PARTS LIST

*** shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark
< MAIN CIRCUIT BOARD SECTION >				< Resistor >				< POWER CIRCUIT BOARD SECTION >			
PCB-A	*	Main circuit board		R231.232	87-025-154-01	270Ω 1W Metal film		△PCB-F	*	Power circuit board (H, HB models only)	
IC1	87-027-925-01	IC, M5220		< MIC CIRCUIT BOARD SECTION >				△PCB-F	*	Power circuit board (UB, E, EB, K, KB, G models only)	
IC2	87-027-978-01	IC, TC9152P		PCB-C	*	MIC circuit board		△F1	87-035-256-01	Fuse, 3.15A (H, HB models only)	
IC3	87-020-145-01	IC, M54563		IC4	87-027-895-01	IC, M5218L		△F1	87-035-302-01	Fuse, 3.15A (UB model only)	
IC7	87-027-895-01	IC, M5218L		J1	82-675-661-01	Jack, 6.3φ w/switch (MIC)		△F1	87-035-224-01	Fuse, 1.6A "T" (E, EB, K, KB, G models only)	
IC8	87-020-090-01	IC, STK-4151-2		VR2	87-021-847-01	Volume, 250kΩ-W(BALANCE)		△F2	87-035-252-01	Fuse, 1.6A (H, HB models only)	
IC9	87-027-787-01	IC, μPC1237H		VR3	87-021-848-01	Volume, 50kΩ-B(MIC VOLUME)		△S1	87-031-586-01	Rotary switch(VOLTAGE SELECTOR) (H, HB models only)	
Q1.2	89-318-156-01	Transistor, 2SC1815BL		CON1	82-798-640-01	Connector ass'y 7P	***		87-098-045-01	Fuse label 3.15A (H, HB, UB models only)	
Q3.4.5.7.31.32.33.34.42	89-318-155-01	Transistor, 2SC1815GR		< Capacitors >					87-098-018-01	Fuse label 1.6A "T" (E, EB, K, KB, G models only)	***
Q6.41	89-413-023-01	Transistor, 2SD1302S		C30	87-018-044-11	0.01μF Ceramic			87-098-042-01	Fuse label 1.6A (H, HB models only)	***
Q13	89-110-155-01	Transistor, 2SA1015(GR)		C32	87-018-042-01	6800pF Ceramic		< MISCELLANEOUS >			
Q35.36	89-320-011-01	Transistor, 2SC2001(K)		< FRONT CIRCUIT BOARD SECTION >				△T1	82-798-617-01	Power transformer (H, HB models only)	
Q40	89-412-653-01	Transistor, 2SD1265(O)		PCB-D	*	Front circuit board		△T1	82-798-618-01	Power transformer (UB models only)	
Q44	89-209-412-31	Transistor, 2SB941(PQ)		IC5	87-027-895-01	IC, M5218L		△T1	82-798-619-01	Power transformer (E, EB models only)	
DI.4.5.6.7.8.9.10.11.12.41.42.43.44.45.47.49.51.52.54.55.57.63.64.65.66	89-027-097-01	Diode, 1S1555		D15.16.17	87-020-128-01	LED, GL-2PR2(MUT. DSL, REC OUT)		△T1	82-798-620-01	Power transformer (K, KB, G models only)	
D2.13.69	87-027-431-01	Zener diode, RD6.2EB2		D23.24.25.26	87-027-543-01	LED, LN317GP(TAPE, TUNER, PHONO, CD)		△	87-034-962-01	AC power cord (H model only)	
D45	87-027-405-01	Zener diode, RD2.2EB		D29	87-020-130-01	LED, GL-9PG24		△	87-034-992-01	AC power cord (HB model only)	
D48	87-027-606-01	Zener diode, HZ7C2L		D30.31.32.33.34	87-020-127-01	LED, GL-9PR24(LEVEL)		△	87-034-578-01	AC power cord (UB model only)	
D53.56.62	87-027-365-01	Diode, S5277B		VR3	87-021-845-01	Slide volume, 100kΩ-W(VOLUME)		△	82-798-674-01	AC power cord (E, EB models only)	
D60	87-027-376-01	Diode, 1B4B41		VR4.5.6.7.8.9.10	87-021-846-01	Slide volume, 250kΩ-W(EQUALIZER VOL)		△	87-034-708-01	AC power cord (K, KB, G models only)	
D61	87-020-144-01	Diode, DBA4D0		SW1	87-031-692-01	Push-switch(POWER)		△	87-085-184-01	Cord bushing (H, HB models only)	
D68	87-027-347-01	Zener diode, HZ18-2L (E, EB, K, KB, G models only)		SW2.3.4.5.6	87-031-771-01	Tact switch(TUNER, TAPE, PHONE, CD, AUX)		△	87-085-189-01	Cord bushing (UB model only)	
D68	87-027-508-01	Zener diode, HZ15-1 (UB model only)		SW7.8.9	87-031-815-01	Push-switch(MUT. DSL, REC OUT)		Note: Combination Circuit Board			
L1.2	87-005-158-01	Inductor coil 1μH		PIN2.3	87-049-366-01	Pin, 20P	***	The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.			
RY1	87-045-201-01	Relay G2R 12V	***	< Capacitor >				Combination circuit board A 82-798-602-11			
CB1.2	87-030-077-01	Circuit breaker, 2.2A		C73.74.75.76.80	87-015-698-01	4.7μF 50V Electrolytic		PCB-A 82-798-604-11			
	82-795-613-01	Speaker terminal, 4P	***	< GRAPHIC CIRCUIT BOARD SECTION >				PCB-B 82-798-605-11			
14.5.6	82-798-626-01	Pin jack ass'y (REC/PLAY, CONTROL, TUNER)	***	PCB-E	*	GRAPHIC circuit board		PCB-F 82-798-608-11 (H, HB models only)			
17.8.9.10.11.12.13.14.15	81-731-614-01	Pin Jack ass'y (PHONO, CD, AUX, RECOUT)	***	Q11.12.13.14.15.16.17.18.19.20.21.22.23.24	89-318-155-01	Transistor, 2SC1815(GR)		PCB-F 82-798-607-11 (U, E, EB, K, KB, G models only)			
CON2.3	82-798-643-01	Heatsink	***	< Capacitors >				Combination circuit board B 82-798-609-11			
CON4	87-049-367-01	Connector ass'y, 10P	***	C43.44	87-015-697-01	3.3μF 50V Electrolytic		PCB-C 82-798-612-11			
	87-032-897-01	Connector ass'y, 3P	***	C47.48	87-015-695-01	1μF 50V Electrolytic		PCB-D 82-798-610-11			
PIN1	87-049-277-01	Pin, 7P	***	C51.52	87-015-693-01	0.33μF 50V Electrolytic		PCB-E 82-798-611-11			
< Resistors >				< PHONO CIRCUIT BOARD SECTION >							
△R228.229	87-029-119-01	100Ω 1/4W Fuse resistor		PCB-B	*	Phono circuit board					
△R243	87-029-114-01	4.7Ω 1/4W Fuse resistor		J2	87-049-352-01	Jack, 6.3φ w/switch (HEADPHONE)					
△R251.252	87-029-366-01	4.7Ω 1/2W Fuse resistor									
R265	87-025-351-01	33Ω 1W Nonflammable									
(H, HB, E, EB, K, KB, G models only)											
< Capacitors >											
C5.6	87-018-024-01	47pF Ceramic									
C89.90	87-018-032-01	100pF Ceramic									
C123.124	87-018-044-01	1000pF Ceramic									
C152.153	87-015-956-01	6800μF 50V Electrolytic									
C158.159	87-015-989-01	220μF 25V Electrolytic BP									

ELECTRICAL MAIN PARTS LIST

"***" shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark
< TUNER CIRCUIT BOARD SECTION >				< Capacitors >				D326.327. 87-027-097-01 Diode. 1S1555 (H, HB, UB, G models only)			
PCB-A	*	Tuner circuit board		C1.11	87-018-014-01	1.8pF Ceramic		FL	82-795-620-01	FL. 9MT21ZK	
IC1	87-020-140-01	IC. 178M12		C2.8.10.14.	87-018-047-01	0.01uF 16V Ceramic		X1	82-769-613-01	Crystal. 4.5M	
IC2	87-027-993-01	IC. uPC1167C2						TC301	87-011-131-01	Trimmer. 30P	
IC3	87-027-996-01	IC. LA1245						SW1.2.3.4.5.	87-031-771-01	Tact switch (PRESET. STATION 1~6. MEMORY/TIME SET. TIME/FREQ. SLEEP.TIMER. STANDBY. FM. AM. DOWN. UP)	
IC4	87-020-139-01	IC. LA3390						SW13.16	87-031-771-01	Tact switch (MW. LW) (E. EB. K. KB models only)	
IC5.6	87-027-840-01	IC. M54519P						SW17.18	87-031-760-01	Push switch (FM MUTE. HI-BLEND)	
Q1	87-026-165-01	FET. 3SK73(GR)						SW19	87-031-750-01	Push switch (POWER)	
Q2.3	89-319-233-01	Transistor. 2SC1923(O)						< Capacitors >			
Q4.5.15	89-501-615-01	FET. 2SK161(GR)						C301	87-015-990-01	2200uF 6.3V Electrolytic	
Q6	89-318-154-01	Transistor. 2SC1815(Y)						C302	87-018-020-01	33pF Ceramic	
Q7.12	89-502-464-01	FET. 2SK246(Y)						C300.305.307.	87-018-047-01	0.01uF 16V Ceramic	
Q8.9	89-318-155-01	Transistor. 2SC1815(GR)						308.309.310.			
Q10	89-110-154-01	Transistor. 2SA1015(Y)						318.319.320			
Q11.13	89-320-011-01	Transistor. 2SC2001(K)						C311.312.313.	87-018-040-01	470pF Ceramic	
Q14	89-318-464-01	Transistor. 2SC1846(R)						314.315.316.			
Q16.17	89-320-011-01	Transistor. 2SC2001(K) (E. EB. K. KB models only)						317			
D1.2.3.4	87-027-900-01	Diode. 1SV147						< POWER CIRCUIT BOARD SECTION > = "E. EB. K. KB. G" models			
D101.102.104.105.106	87-027-097-01	Diode. 1S1555						ΔPCR-C	82-799-613-01	Power circuit board	
D103	87-027-376-01	Diode. 1B4B41						ΔJ3.4.5	87-049-414-01	AC outlet (E. EB models only)	
D107	82-769-617-01	Diode. KV-1236Z-2						ΔJ3.4.5	87-049-416-01	AC outlet (K. KB. G models only)	
D108	87-027-097-01	Diode. 1S1555 (E. EB. K. KB models only)						ΔF1	87-035-139-01	Fuse. "T" 2.5A (E. EB models only)	
L1	82-791-630-01	FM antenna coil						Δ	87-033-147-01	Fuse clamp (E. EB models only)	
L2	82-791-631-01	FM antenna coil						< MISCELLANEOUS >			
L3.5.6	82-791-629-01	FM antenna coil						ΔT1	82-799-604-01	Power transformer (H. HB models only)	
L4	82-791-627-01	FM antenna coil						ΔT1	82-799-602-01	Power transformer (UB model only)	
L7.9	87-005-151-01	Choke coil. 2.2uH						ΔT1	82-799-603-01	Power transformer (E. EB. K. KB. G models only)	
L8	82-791-633-01	FM OSC coil						ΔSW21	87-031-617-01	Slide switch (AC VOLTAGE SELECTOR) (H. HB models only)	
TC1.2	87-011-142-01	Trimmer. 10P						Δ	87-034-956-01	AC power cord (H model only)	
TC201	87-011-108-01	Trimmer. 8P						Δ	87-034-958-01	AC power cord Black (HB model only)	
TC202	87-011-131-01	Trimmer. 30P (E. EB. K. KB models only)						Δ	87-034-578-01	AC power cord Black (UB model only)	
LPI.2	82-794-684-01	Low-pass filter						Δ	87-034-877-01	AC power cord (E. EB models only)	
CF1.2.3	82-785-669-01	Ceramic filter. MA8H(R)						Δ	87-034-975-01	AC power cord (K. KB models only)	
CF4	82-795-675-01	Ceramic filter. MA. 450(129)						Δ	87-034-892-01	AC power cord (G model only)	
CF5	82-794-670-01	Ceramic filter. BPU450C4N						ΔJ3.4.5	87-049-365-01	AC outlet 3P UNSW (H. HB. UB models only)	
T1	82-794-683-01	FM IFT. 6T						Δ	87-085-184-01	Cord bushing (H. HB. UB models only)	
T2	82-794-695-01	FM quad coil(P)						Δ	87-085-185-01	Cord bushing (E. EB. K. KB. G models only)	
T3	82-794-696-01	FM quad coil(S)						Note; Combination Circuit Board			
T4	82-794-699-01	MW antenna coil						The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.			
T5	82-794-687-01	MW OSC coil						Combination circuit board 82-799-610-21			
T7	82-794-700-01	LW antenna coil (E. EB. K. KB models only)						PCB-A 82-799-611-21			
T8	82-794-688-01	LW OSC coil (E. EB. K. KB models only)						PCB-B 82-799-612-21			
J1.2	82-799-632-01	Antenna terminal ass'y (OUTPUT. REMOTE. AM ANT. FM ANT) (H. HB. UB. G models only)									
J1.2	82-799-631-01	Antenna terminal ass'y (OUTPUT. REMOTE. AM ANT. FM ANT) (E. EB. models only)									
J1.2	82-799-634-01	Antenna terminal ass'y (OUTPUT. REMOTE. AM ANT. FM ANT) (K. KB models only)									
SW20	82-795-624-01	Slide switch (AM STEP) (H. HB. G models only)									
SFR1	87-021-742-01	Semi-fixed resistor. 10kΩ-B									
SFR2	87-021-743-01	Semi-fixed resistor. 22kΩ-B									
SFR3	87-021-689-01	Semi-fixed resistor. 47kΩ-B									
CN1	87-049-275-01	Pin. 5P									
CN2.3	87-032-967-01	Pin. 7P									
CN4.5	87-032-966-01	Pin. 6P									

Note; Combination Circuit Board
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-799-610-21
PCB-A 82-799-611-21
PCB-B 82-799-612-21

ELECTRICAL MAIN PARTS LIST

**** shows unavailable Repair Part.

Table with columns: Symbol No., Part No., Description, Remark. Includes sections: MAIN CIRCUIT BOARD SECTION, FRONT CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description, Remark. Includes sections: GEQ CIRCUIT BOARD SECTION, MIC CIRCUIT BOARD SECTION, LED CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description, Remark. Includes sections: SWITCH CIRCUIT BOARD SECTION, FUSE CIRCUIT BOARD SECTION, COMMAND CIRCUIT BOARD SECTION, KEY SWITCH CIRCUIT BOARD SECTION, MISCELLANEOUS.

Note: Combination Circuit Board. The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.
Combination circuit board A 81-731-640-11
PCB-A 81-731-641-11
PCB-E 81-731-642-11
PCB-F 81-731-643-11
Combination circuit board B 81-731-647-11
PCB-B 81-731-649-11
PCB-C 81-731-648-11
PCB-D 81-731-650-11

ELECTRICAL MAIN PARTS LIST

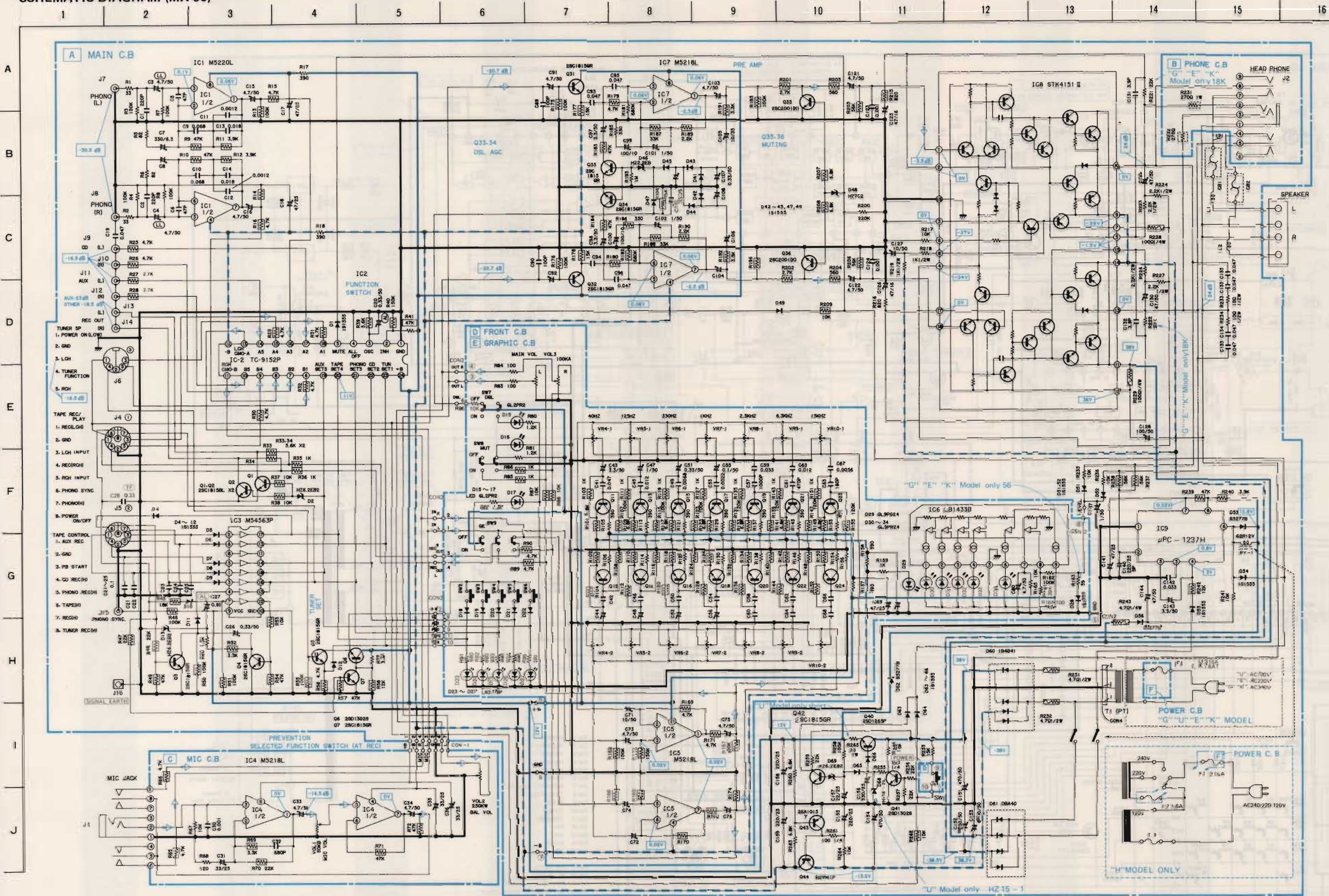
*** shows unavailable Repair Part.

Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark	Symbol No.	Part No.	Description	Remark
< MAIN CIRCUIT BOARD SECTION >				< DRIVER-1 CIRCUIT BOARD SECTION >				< FUSE-2 CIRCUIT BOARD SECTION > - "E, EB, K, KB, G" MODELS			
PCB-A	*	Main circuit board		PCB-C	*	Driver-1 circuit board		△PCB-H	*	Fuse-2 circuit board	
IC1.2	87-020-162-01	IC. STK1070		Q1	89-503-890-01	FET. 2SK389		△F1	87-035-190-01	Fuse. "T" 2A	
IC5	87-027-787-01	IC. μPC1237H		Q3	89-318-154-01	Transistor. 2SC1815(Y)			87-098-019-01	Fuse label. "T" 2A	
Q11.12	89-318-154-01	Transistor. 2SC1815(Y)		Q5	89-333-810-01	Transistor. 2SC3381		△	87-033-147-01	Fuse clamp	
Q13	89-334-210-01	Transistor. 2SC3421		Q7	89-111-246-01	Transistor. 2SA1124R		△	82-304-743-01	IP terminal	***
Q14	89-113-580-01	Transistor. 2SA1358		Q9	89-326-326-01	Transistor. 2SC2632(R)					
Q15	89-110-154-01	Transistor. 2SA1015(Y)		D1.5	87-027-469-01	Zener diode. HZ16-2		< MISCELLANEOUS >			
D2.6	87-027-469-01	Zener diode. HZ16-2		D3.7	87-027-097-01	Diode. 1S1555		△T1	81-730-606-01	Power transformer (H, HB, models only)	
D9.10	87-027-097-01	Diode. 1S1555		SFR1	87-021-856-01	Semi-fixed resistor. 100Ω-B		△T1	81-730-607-01	Power transformer (UB model only)	
D15.16.17.18	87-027-402-01	Zener diode. HZ24-2L		PIN4.5.6	87-049-113-01	Pin. 3P	***	△T1	81-730-608-01	Power transformer (E, EB models only)	
D19.20.21.22	87-027-626-01	Diode. S5277D		< Capacitor >				△T1	81-730-609-01	Power transformer (K, KB, G models only)	
D25.28	87-027-365-01	Diode. S5277B		C1	87-015-141-01	10μF 16V Electrolytic BP		△	87-034-962-01	AC power cord (H model only)	
D23	87-027-788-01	Diode. D5FB20		< DRIVER-2 CIRCUIT BOARD SECTION >				△	87-034-992-01	AC power cord (HB model only)	
D24	87-027-376-01	Diode. 1B4B41		PCB-D	*	Driver-2 circuit board		△	87-034-578-01	AC power cord (UB model only)	
LI.2	87-005-158-01	Inductor coil. 1μH		Q2	89-503-890-01	FET. 2SK389		△	82-788-674-01	AC power cord (E, EB models only)	
RY-1	87-045-223-01	RelayG4W. 24V-2		Q4	89-318-154-01	Transistor. 2SC1815Y		△	87-034-708-01	AC power cord (K, KB, G models only)	
RY-2	87-045-224-01	RelayG2R. 24V-2		Q6	89-333-810-01	Transistor. 2SC3381		△	87-085-184-01	Cord bushing (H, HB, UB models only)	
J1	81-730-623-01	Jack Ass'y (INPUT, SPEAKER)		Q8	89-111-246-01	Transistor. 2SA1124R		△	87-085-185-01	Cord bushing (E, EB, K, KB, G models only)	
SW1	87-031-822-01	Push-switch (INDICATOR)		Q10	89-326-326-01	Transistor. 2SC2632R		△	82-798-601-01	Heatsink (H, HB, UB models only)	
SW3.4	87-031-805-01	Push-switch (SPEAKER A, B)		D2.6	87-027-469-01	Zener diode. HZ16-2		△	81-730-624-01	Heatsink. EL (E, EB, K, KB, G models only)	
PIN1	87-032-897-01	Pin. 3P	***	D4.8	87-027-097-01	Diode. 1S1555					
PIN2	82-481-649-01	Pin. 2P	***	SFR2	87-021-856-01	Semi-fixed resistor. 100Ω-B					
CON3	87-049-362-01	Connector ass'y. 7P	***	PIN7.8.9	87-049-113-01	Pin. 3P	***				
< Resistors >				< Capacitor >							
R57.58	87-025-120-01	10Ω 1W Metal film		C2	87-015-141-01	10μF 16V Electrolytic BP		△ Safety component symbol			
R59.60	87-025-193-01	10Ω 2W Metal film		< JACK CIRCUIT BOARD SECTION >				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.			
△R123	87-029-361-01	3.3Ω 1/2W Fuse resistor		PCB-E	*	Jack circuit board		C-MOS IC handling precaution			
< Capacitors >				< Resistor >				The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.			
C53.54	87-015-914-01	47μF 100V Electrolytic		R75.76	87-025-055-01	270Ω 2W Metal film		1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.			
C55.56	87-015-916-01	22μF 100V Electrolytic		< FUSE-1 CIRCUIT BOARD SECTION > - "UB" MODEL				2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.			
C57.58	87-015-945-01	15.000μF 56V Electrolytic		PCB-F	*	Fuse-1 circuit board		3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.			
C60	87-015-450-01	220μF 25V Electrolytic BP		△F1	87-035-313-01	Fuse. 5A		4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (Ⓢ).			
C61	89-652-615-01	1000μF Ceramic		△	87-098-324-01	Fuse label	***				
< INDICATOR CIRCUIT BOARD SECTION >				< SWITCH CIRCUIT BOARD SECTION > - "H, HB" MODELS							
PCB-B	*	Indicator circuit board		△F2	87-035-256-01	Fuse. 3.15A	***				
IC3.4	87-020-161-01	IC. AN6891		△SW5	87-031-586-01	Rotary switch (VOLTAGE SELECTOR)	***				
Q16.17	89-318-154-01	Transistor. 2SC1815(Y)		△	87-033-147-01	Fuse clamp	***				
Q18	89-206-051-21	Transistor. 2SB605K(L)		△	82-304-743-01	IP terminal	***				
Q19	89-405-711-21	Transistor. 2SD571K(L)									
D11.12.13.14.27	87-027-097-01	Diode. 1S1555									
D26	87-027-499-01	Zener diode. HZ15-3									
D31.32.33.34.35.36.37.38.39.40.41.42	87-020-164-01	LED. Red. GL-106-R5									
D43.44.45.46.47.48.49.50.51.52	87-020-165-01	LED. Red. GL-105-R5									
D53.54	87-020-163-01	LED. Green. GL-9NG23									
D55	87-020-128-01	LED. Red. GL-2PR2									
△SW2	87-031-692-01	Push-switch (POWER)									
PIN3	87-049-361-01	Pin. 7P	***								
< Capacitors >											
C35.36.37.38.39.40	87-015-698-01	4.7μF 50V Electrolytic									

Note; Combination Circuit Board
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

- Combination circuit board 81-730-610-11**
 PCB-A 81-730-611-11
 PCB-B 81-730-612-01
 PCB-C 81-730-616-01
 PCB-D 81-730-617-01
 PCB-E 81-730-613-01
 PCB-F 81-730-614-01 (UB model only)
 PCB-G 81-730-615-01 (H,HB models only)
 PCB-H 81-730-618-01 (E,EB,K,KB,G models only)

SCHEMATIC DIAGRAM (MX-90)



NOTES:

- 1) B (+) power supply (-) 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. But () is with AM reception or recording.
 - 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 tolerance 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
 - For temperature compensation (SH)
 - 8) Explanation of symbols
 - Mylar capacitor
 - Aluminum solid capacitor
 - Polypropylene film capacitor
 - Bi-polarized capacitor
 - Low-leakage capacitor
 - Tantalum capacitor
 - Styrol capacitor
 - Printed resistor
 - Fuse resistor
 - Nonflammable resistor
 - Low noise 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.

A
B
C
D
E
F
G
H
I
J

A MAIN C.B.

B PHONE C.B.

D FRONT C.B.

E GRAPHIC C.B.

C MIC C.B.

F POWER C.B.

G POWER C.B.

H MODEL ONLY

"U" Model only HZ 15-1

"G" "E" "K" Model only 56

"U" Model only short

"U" Model only

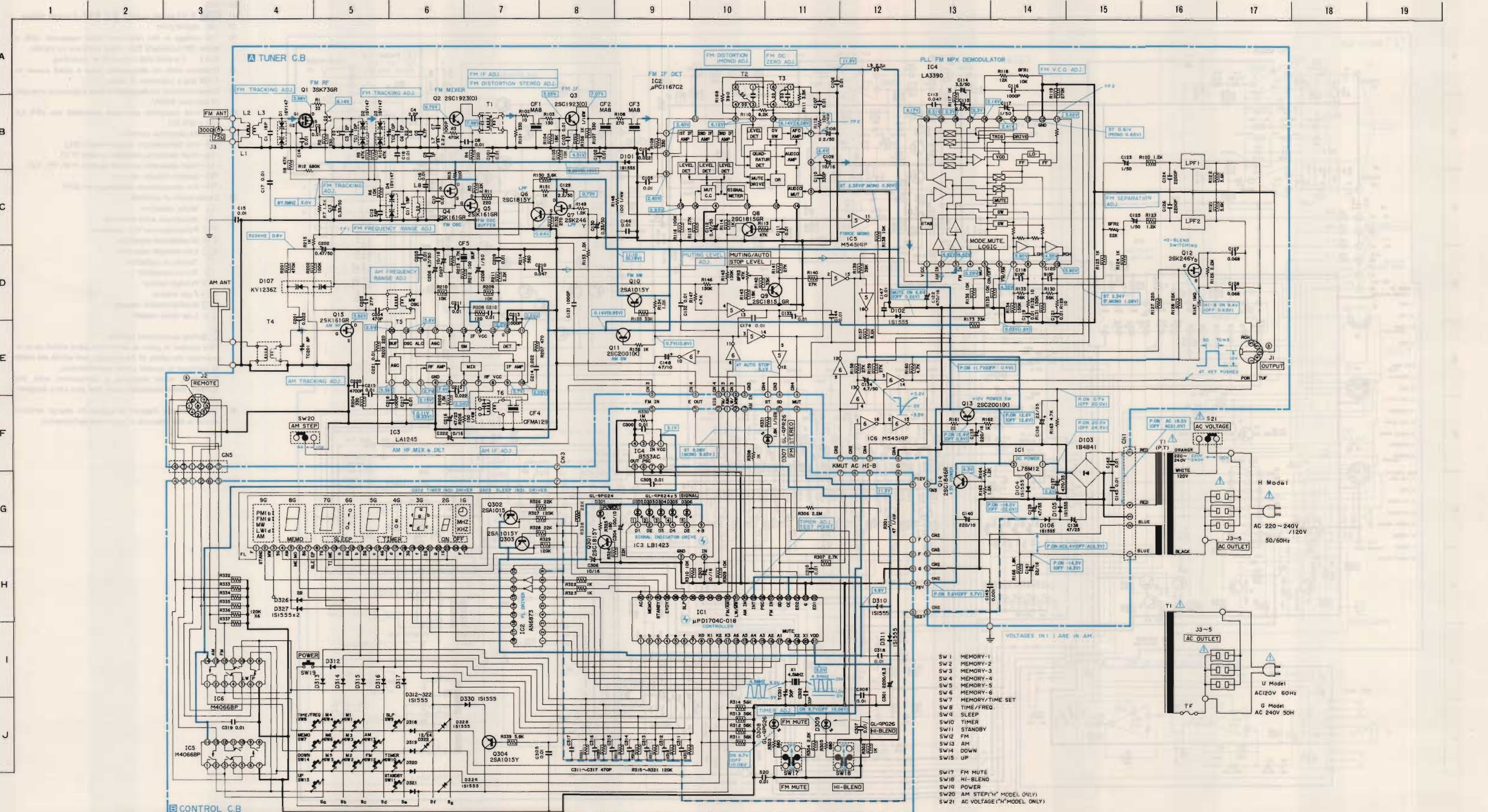
"U" Model only

"U" Model only

"U" Model only

"U" Model only

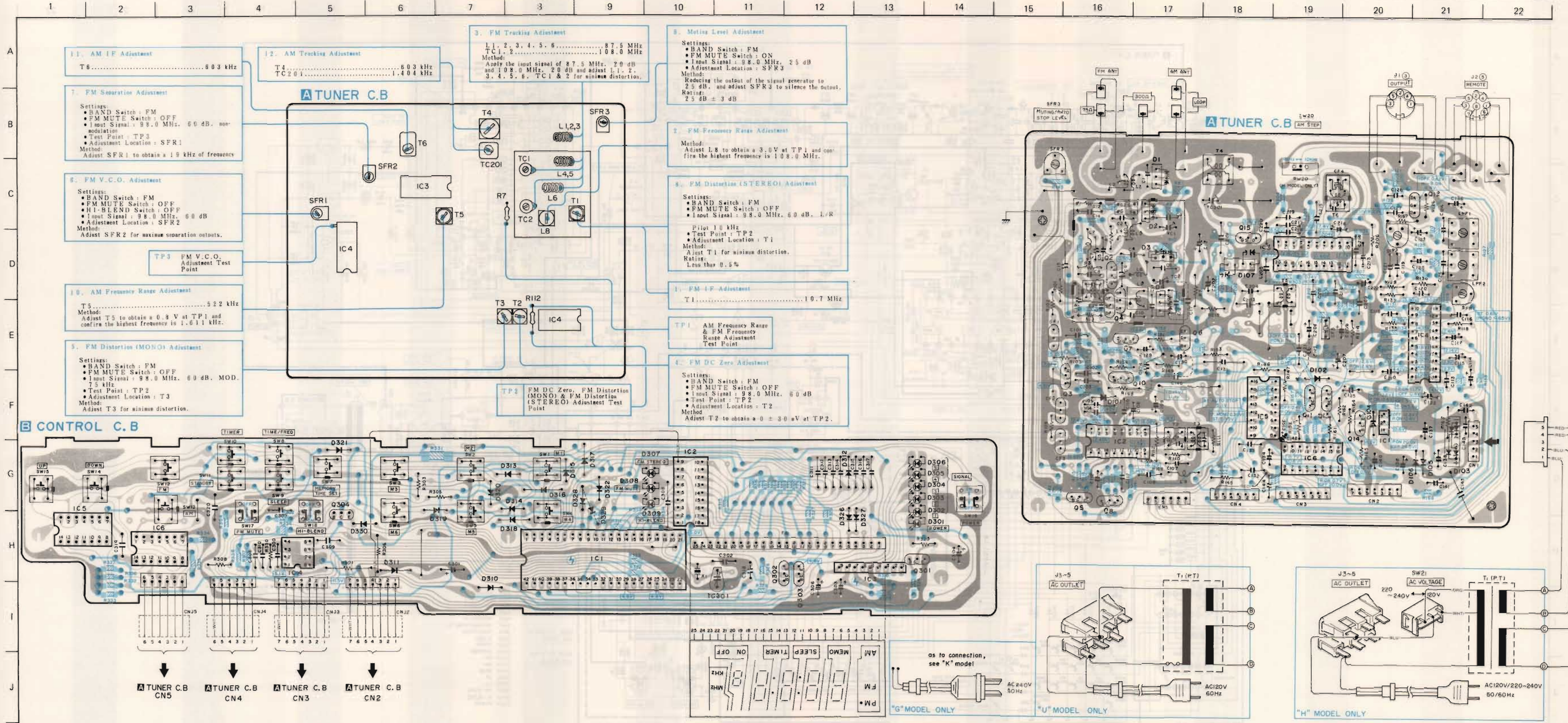
SCHEMATIC DIAGRAM (TX-110 H, U, G)



NOTES (1) Earth pattern Printed resistor pattern Component side 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.

The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

WIRING (TX-110 H, U, G)



1. AM IF Adjustment
 T6..... 603 kHz

2. AM Tracking Adjustment
 T4..... 603 kHz
 TC201..... 1.404 kHz

3. FM Tracking Adjustment
 L1, 2, 3, 4, 5, 6..... 87.5 MHz
 TC1, 2..... 108.0 MHz
 Method:
 Apply the input signal of 87.5 MHz, 20 dB and 108.0 MHz, 20 dB and adjust L1, 2, 3, 4, 5, 6, TC1 & 2 for minimum distortion.

8. Muting Level Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : ON
 • Input Signal : 98.0 MHz, 25 dB
 • Adjustment Location : SFR3
 Method:
 Reducing the output of the signal generator to 25 dB, and adjust SFR3 to silence the output.
 Rating:
 25 dB ± 3 dB

7. FM Separation Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB, non-modulation
 • Test Point : TP3
 • Adjustment Location : SFR1
 Method:
 Adjust SFR1 to obtain a 19 kHz of frequency

6. FM V.C.O. Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • HI-BLEND Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB
 • Adjustment Location : SFR2
 Method:
 Adjust SFR2 for maximum separation outputs.

TP3 FM V.C.O. Adjustment Test Point

10. AM Frequency Range Adjustment
 T5..... 522 kHz
 Method:
 Adjust T5 to obtain a 0.9 V at TP1 and confirm the highest frequency is 1.611 kHz.

5. FM Distortion (MONO) Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB, MOD. 75 kHz
 • Test Point : TP2
 • Adjustment Location : T3
 Method:
 Adjust T3 for minimum distortion.

TP2 FM DC Zero, FM Distortion (MONO) & FM Distortion (STEREO) Adjustment Test Point

2. FM Frequency Range Adjustment
 Method:
 Adjust L8 to obtain a 3.0V at TP1 and confirm the highest frequency is 108.0 MHz.

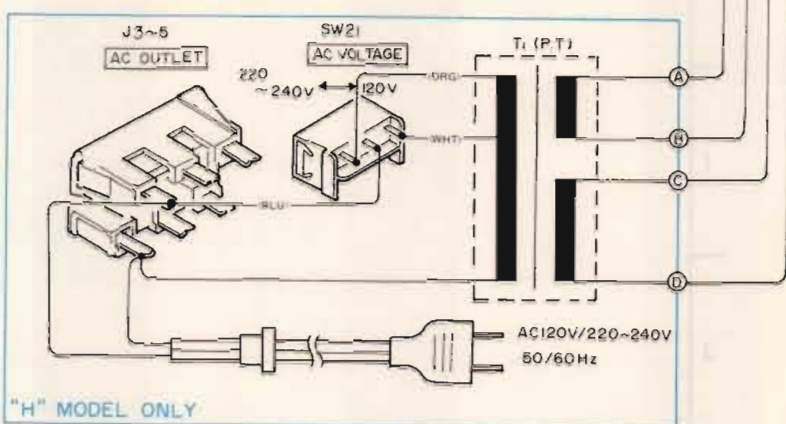
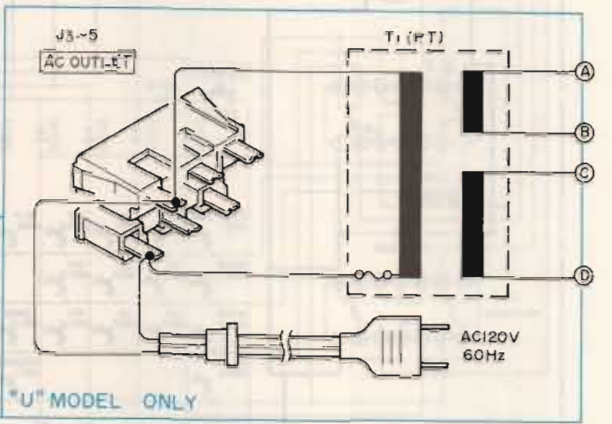
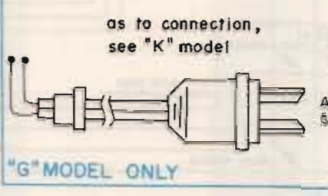
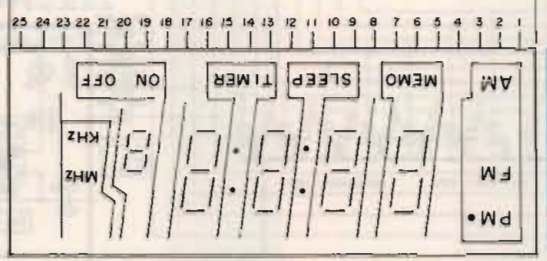
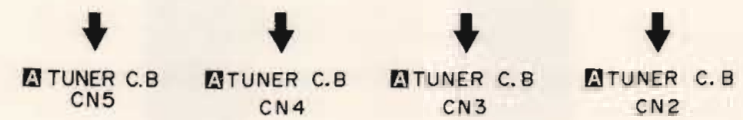
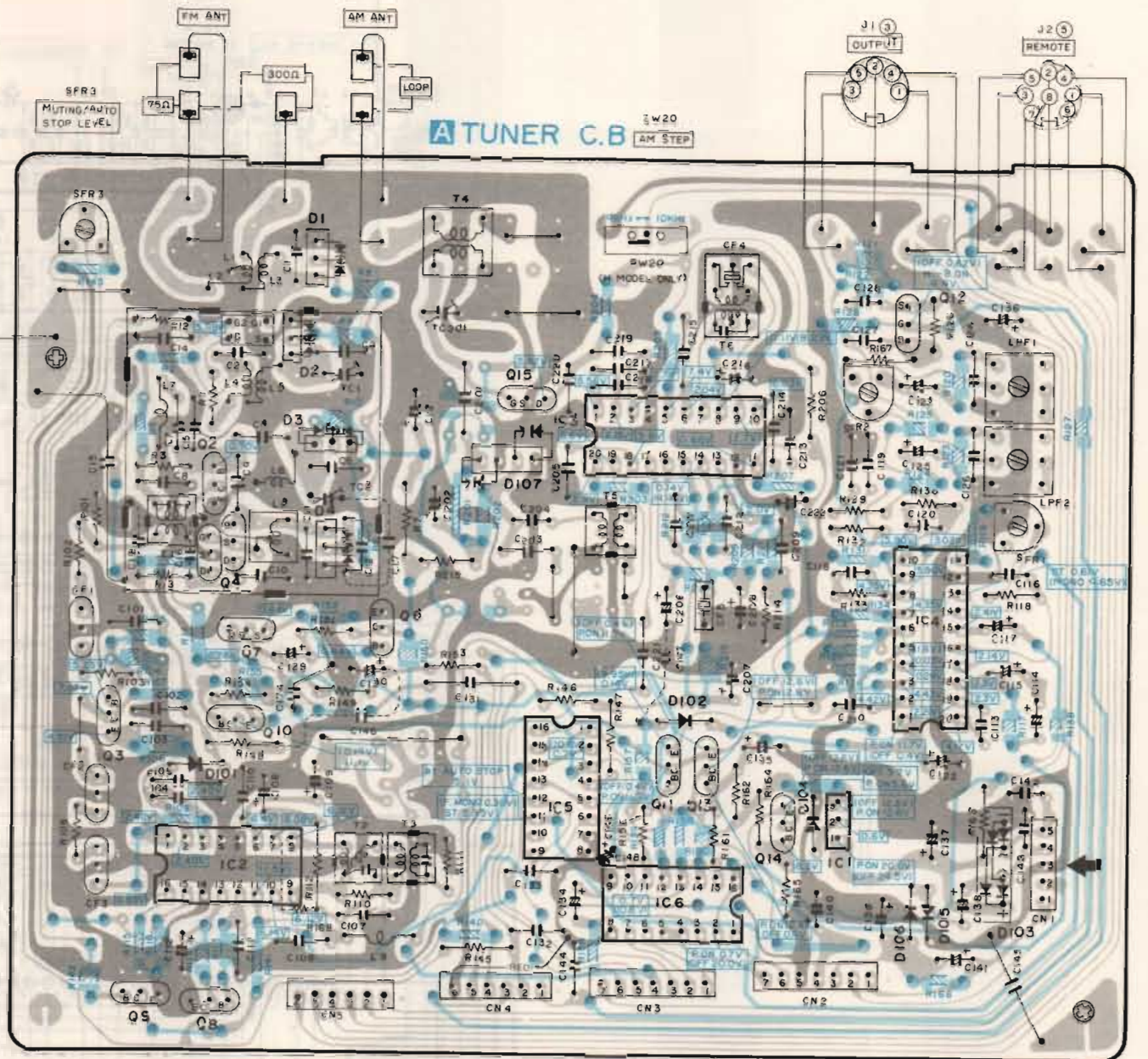
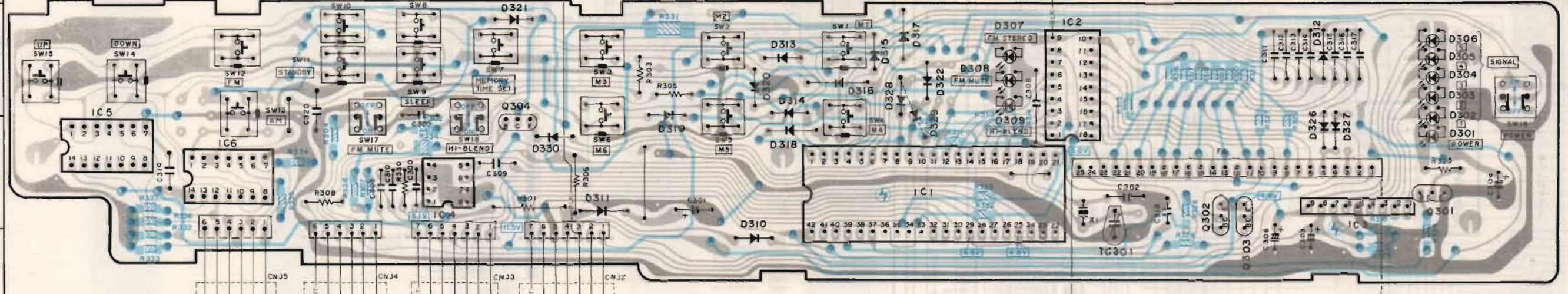
4. FM Distortion (STEREO) Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB, L/R
 • Pilot 10 kHz
 • Test Point : TP2
 • Adjustment Location : T1
 Method:
 Adjust T1 for minimum distortion.
 Rating:
 Less than 0.5%

1. FM IF Adjustment
 T1..... 10.7 MHz

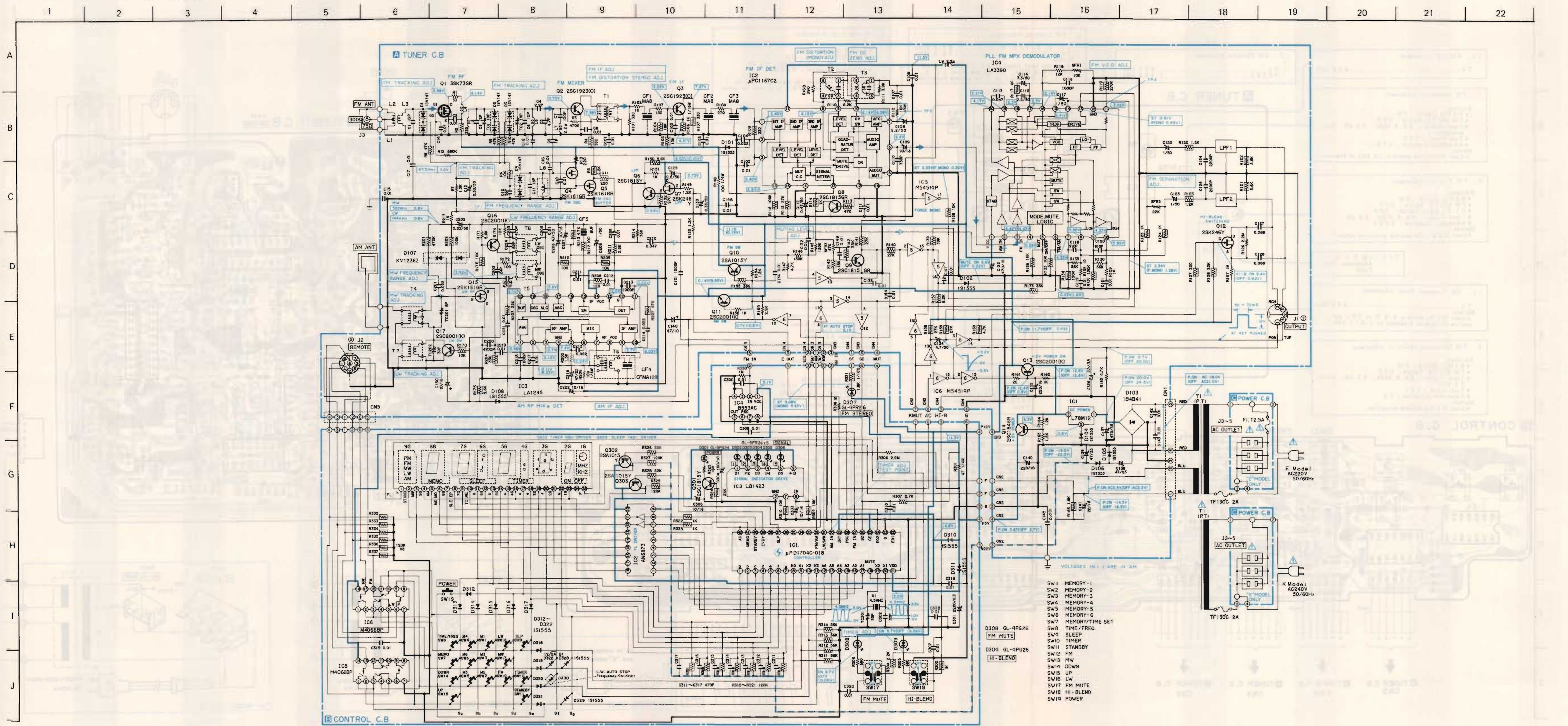
TP1 AM Frequency Range & FM Frequency Range Adjustment Test Point

4. FM DC Zero Adjustment
 Settings:
 • BAND Switch : FM
 • FM MUTE Switch : OFF
 • Input Signal : 98.0 MHz, 60 dB
 • Test Point : TP2
 • Adjustment Location : T2
 Method:
 Adjust T2 to obtain a 0 ± 30 μV at TP2.

B CONTROL C.B

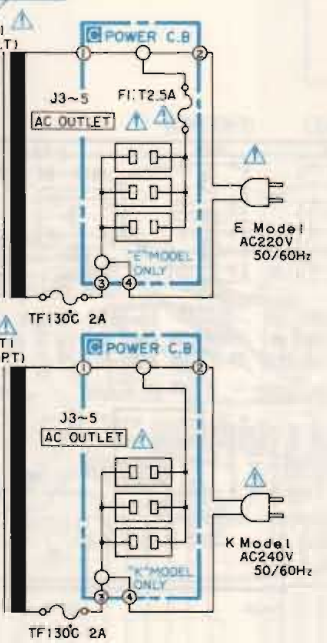


SCHEMATIC DIAGRAM (TX-110 E, K)



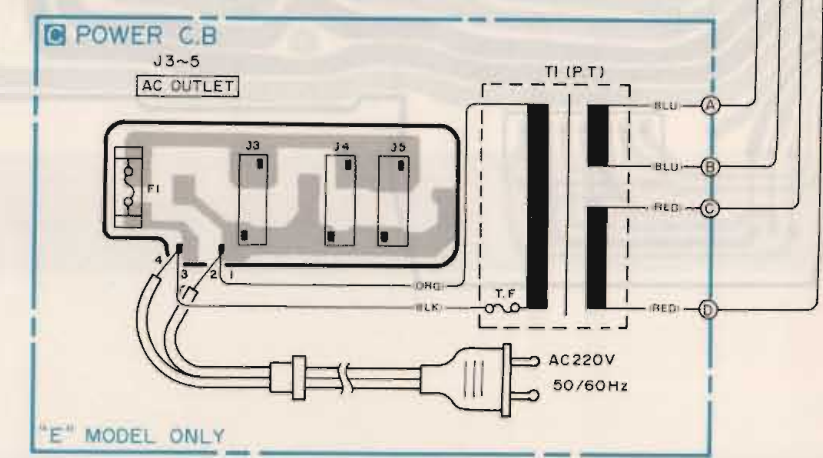
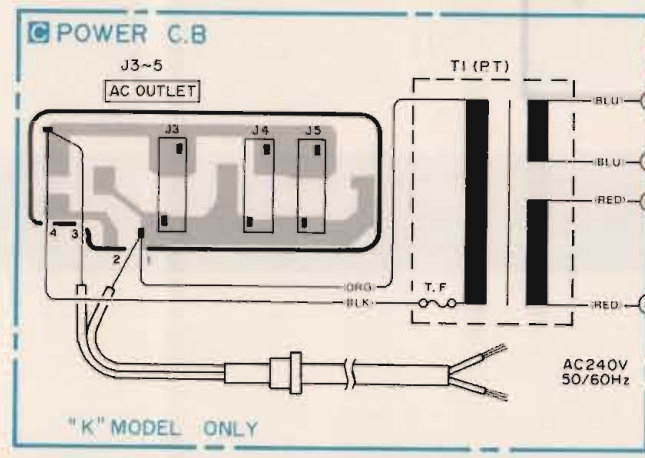
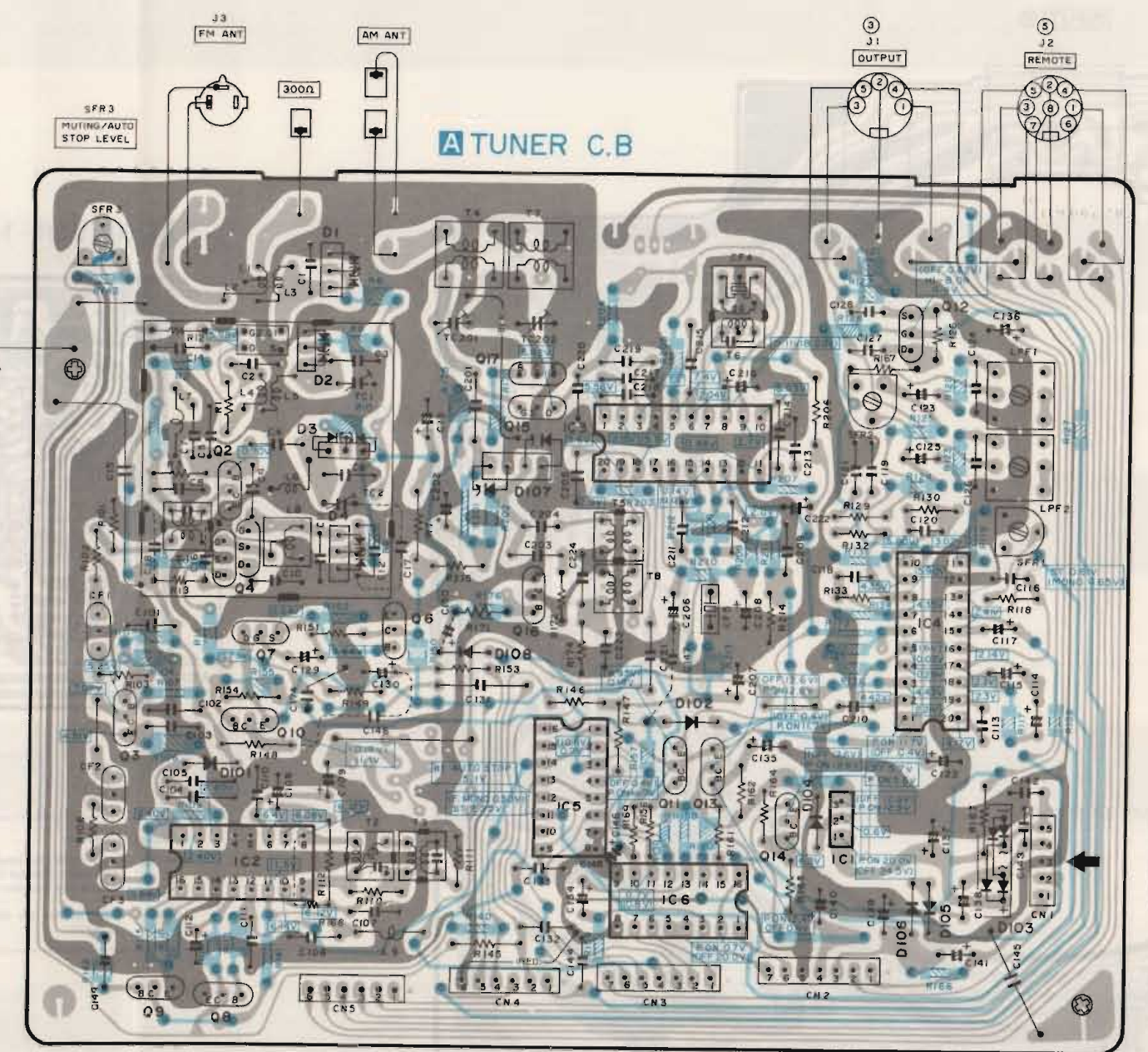
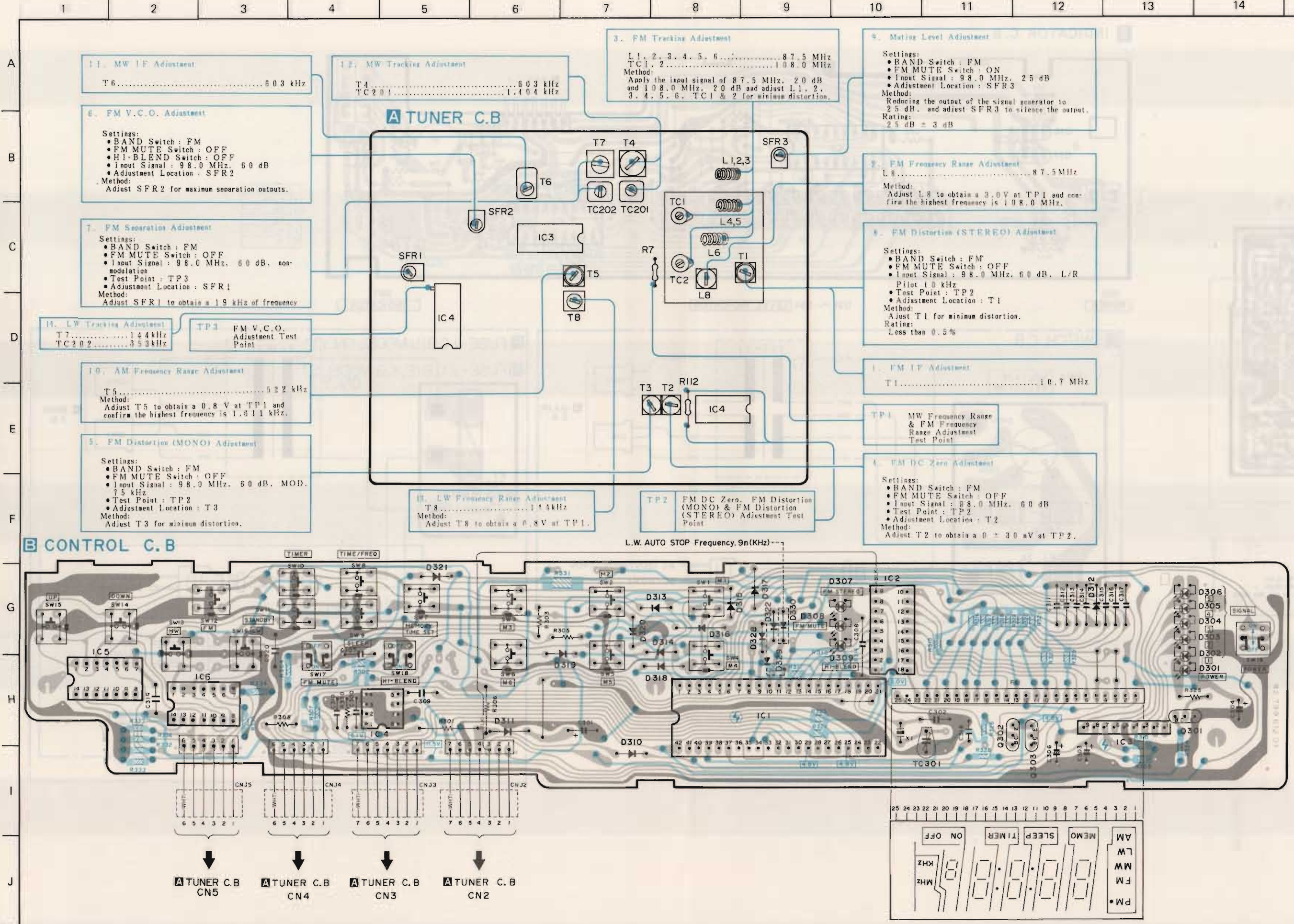
- SW1 MEMORY-1
- SW2 MEMORY-2
- SW3 MEMORY-3
- SW4 MEMORY-4
- SW5 MEMORY-5
- SW6 MEMORY-6
- SW7 MEMORY/TIME SET
- SW8 TIME/FREQ.
- SW9 SLEEP
- SW10 TIMER
- SW11 STANDBY
- SW12 FM
- SW13 MW
- SW14 DOWN
- SW15 UP
- SW16 LW
- SW17 FM MUTE
- SW18 HI-BLEND
- SW19 POWER

- D308 GL-9P626
[FM MUTE]
- D309 GL-9P626
[HI-BLEND]



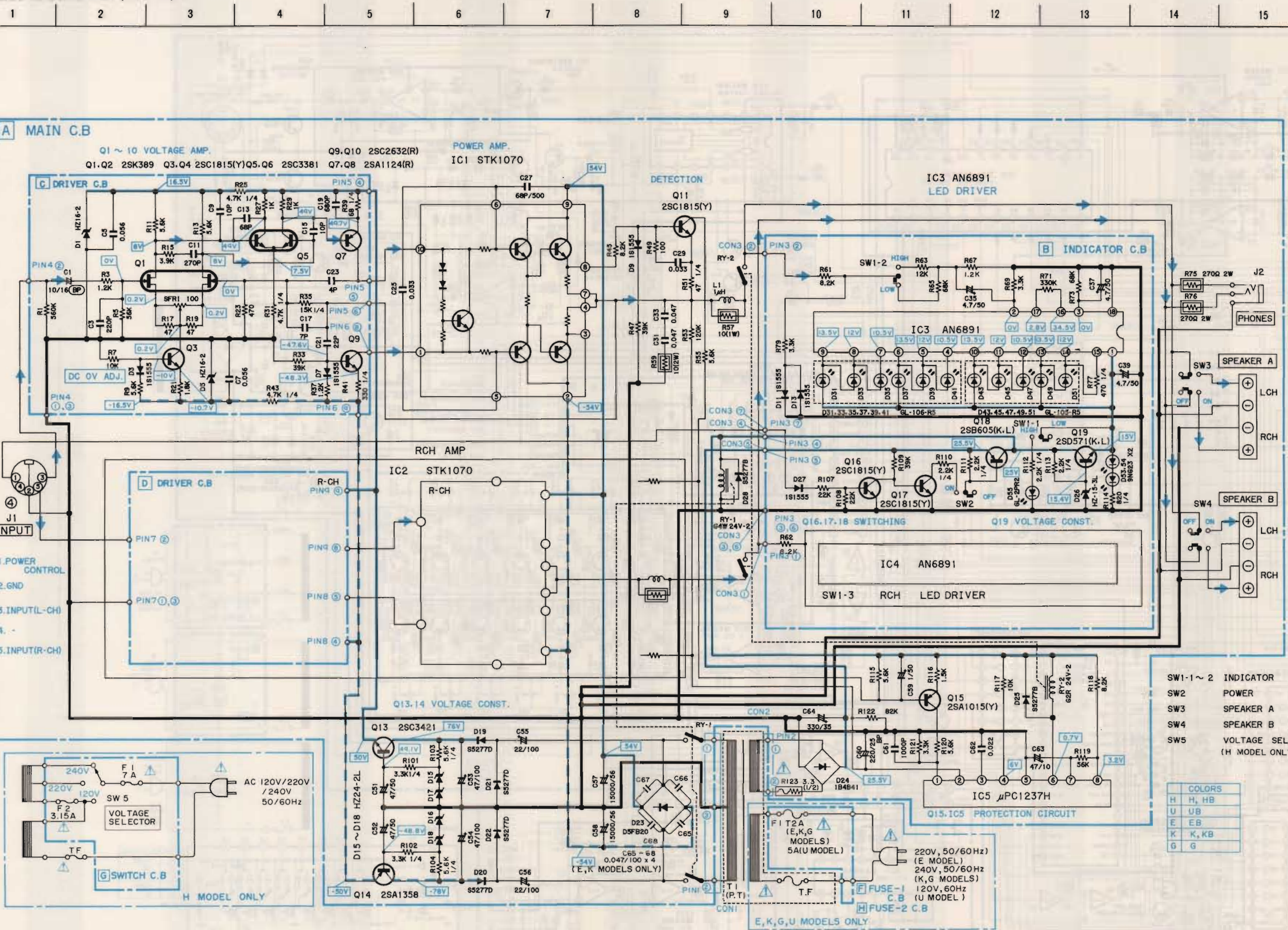
NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 But () is with AM reception.

WIRING (TX-110 E, K)

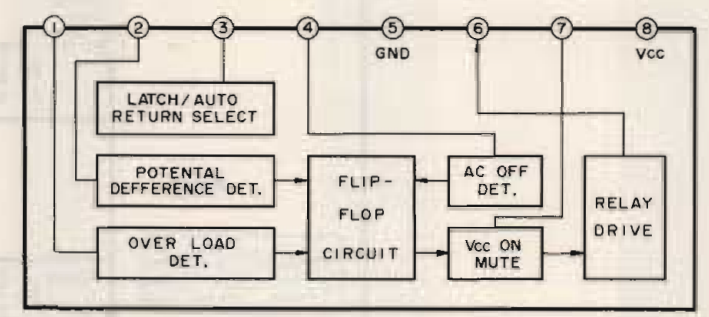


MEMO

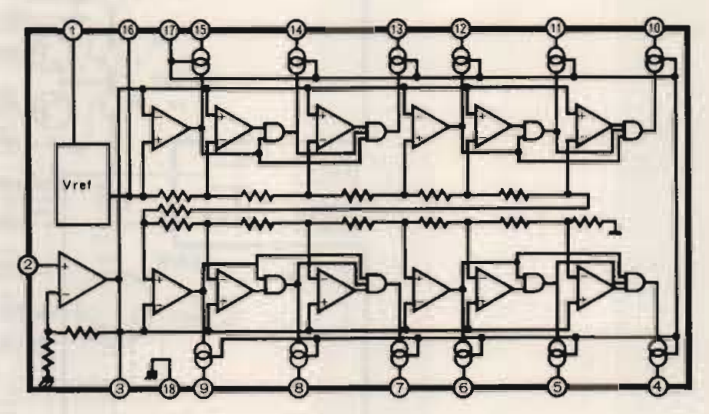
SCHEMATIC DIAGRAM (BX-110)



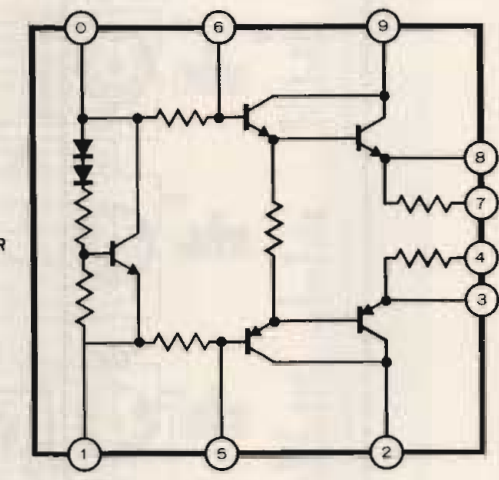
• μ PC1237H



IC AN6891



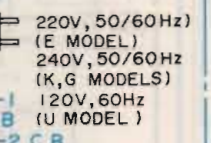
IC STK1070



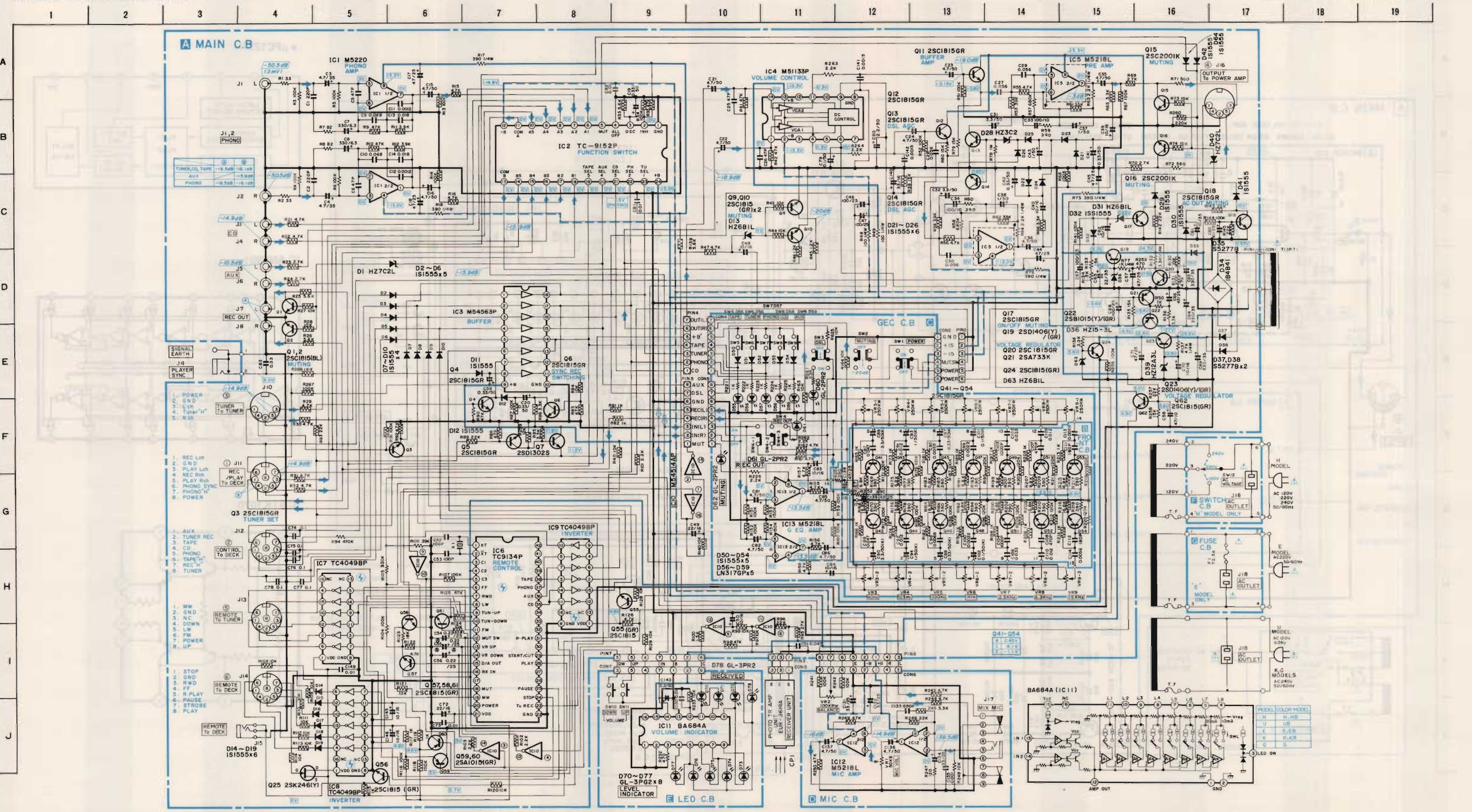
- SW1-1 ~ 2 INDICATOR
- SW2 POWER
- SW3 SPEAKER A
- SW4 SPEAKER B
- SW5 VOLTAGE SELECTOR (H MODEL ONLY)

COLORS	
H	H, HB
U	UB
E	EB
K	K, KB
G	G

- 1. POWER CONTROL
- 2. GND
- 3. INPUT (L-CH)
- 4. -
- 5. INPUT (R-CH)



SCHEMATIC DIAGRAM (GX-110)



A
B
C
D
E
F
G
H
I
C

TUNER	18.548	18.148
AUX	15.98	15.98
PHONO	18.548	18.148

- 1. POWER
- 2. GND
- 3. LSR
- 4. Tuner "H"
- 5. RSR

- 1. REC Lch
- 2. GND
- 3. PLAY Lch
- 4. REC Rch
- 5. PLAY Rch
- 6. PHONO SYNC
- 7. PHONO "H"
- 8. POWER

- 1. AUX
- 2. TUNER REC
- 3. TAPE
- 4. CD
- 5. PHONO SYNC
- 6. TAPE "H"
- 7. REC "H"
- 8. TUNER

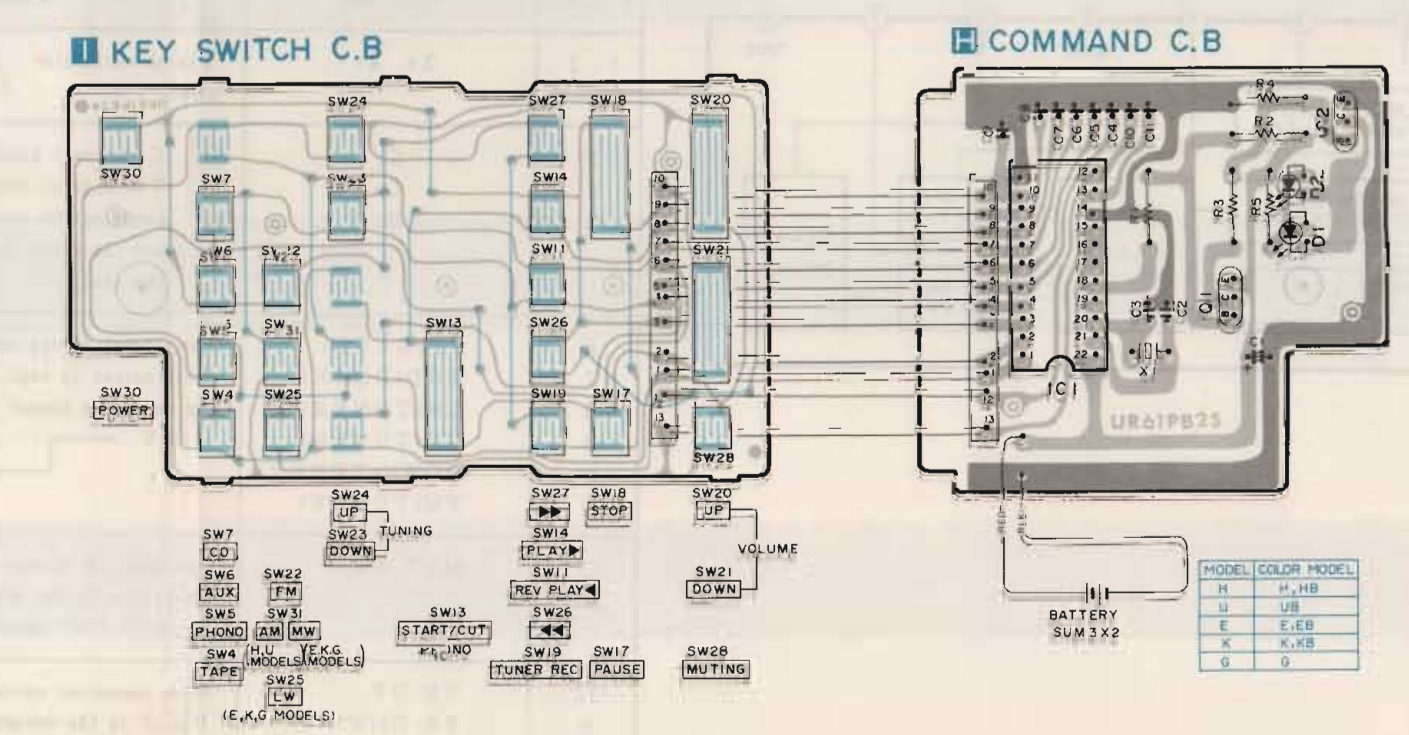
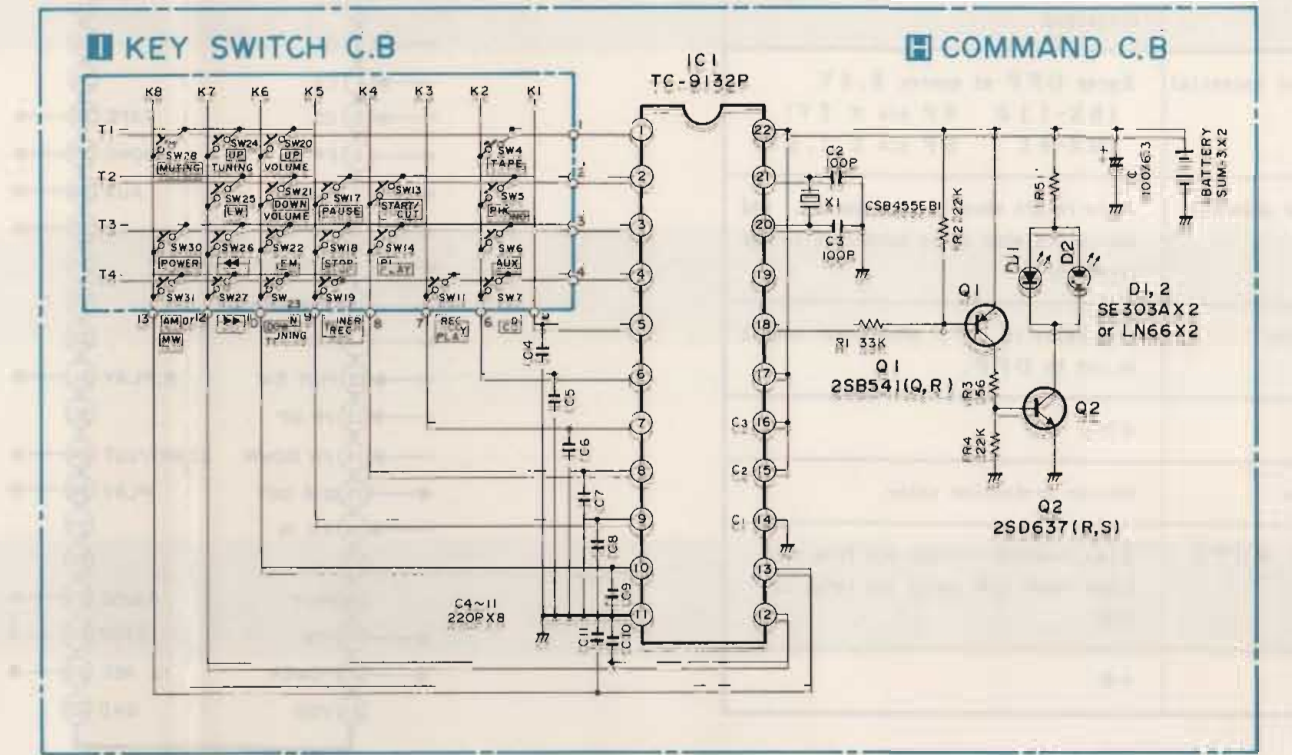
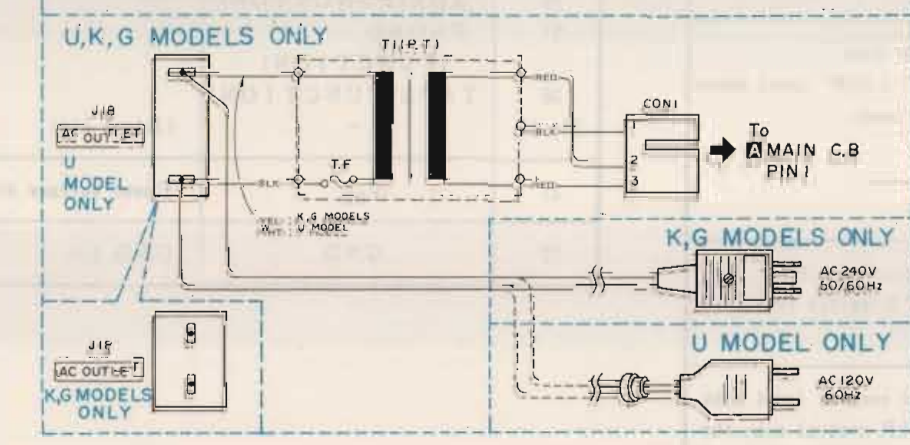
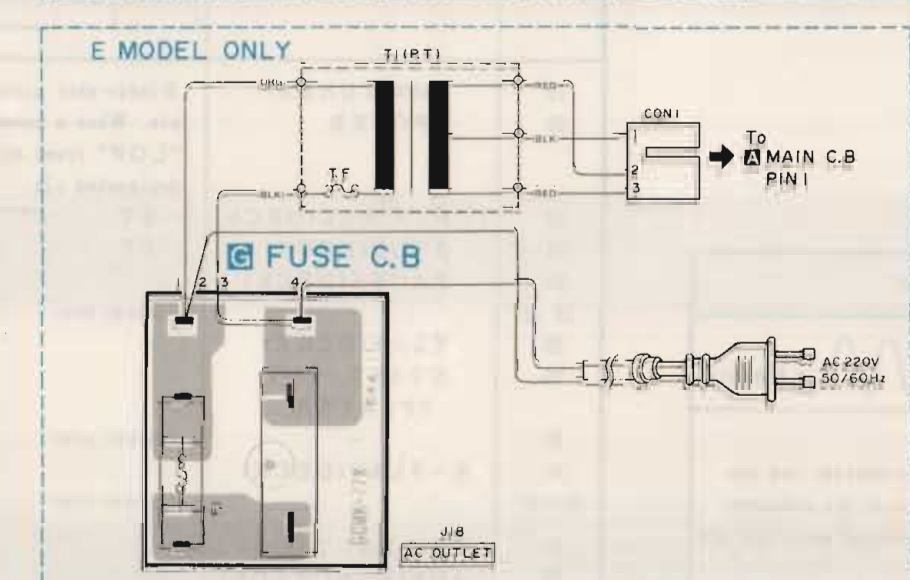
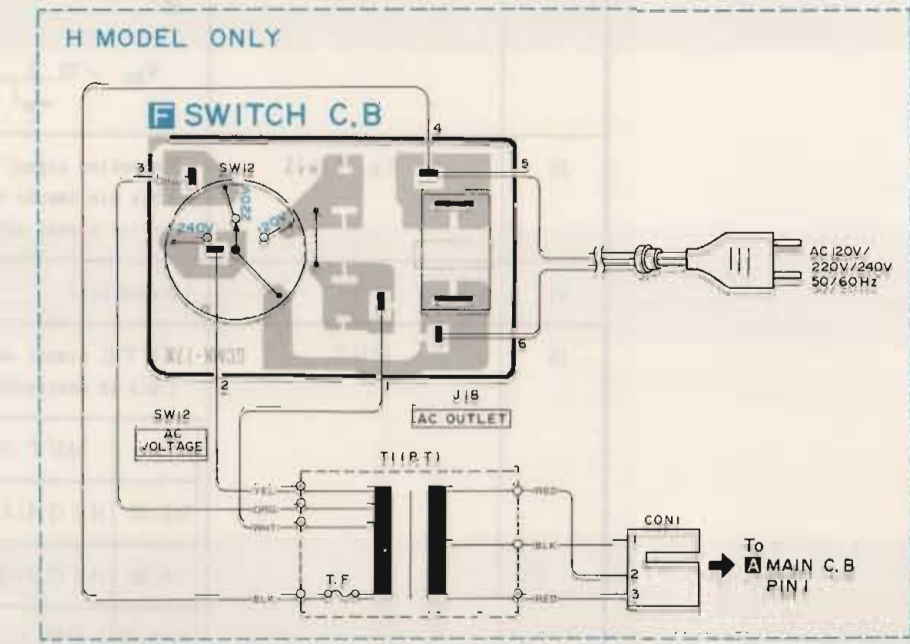
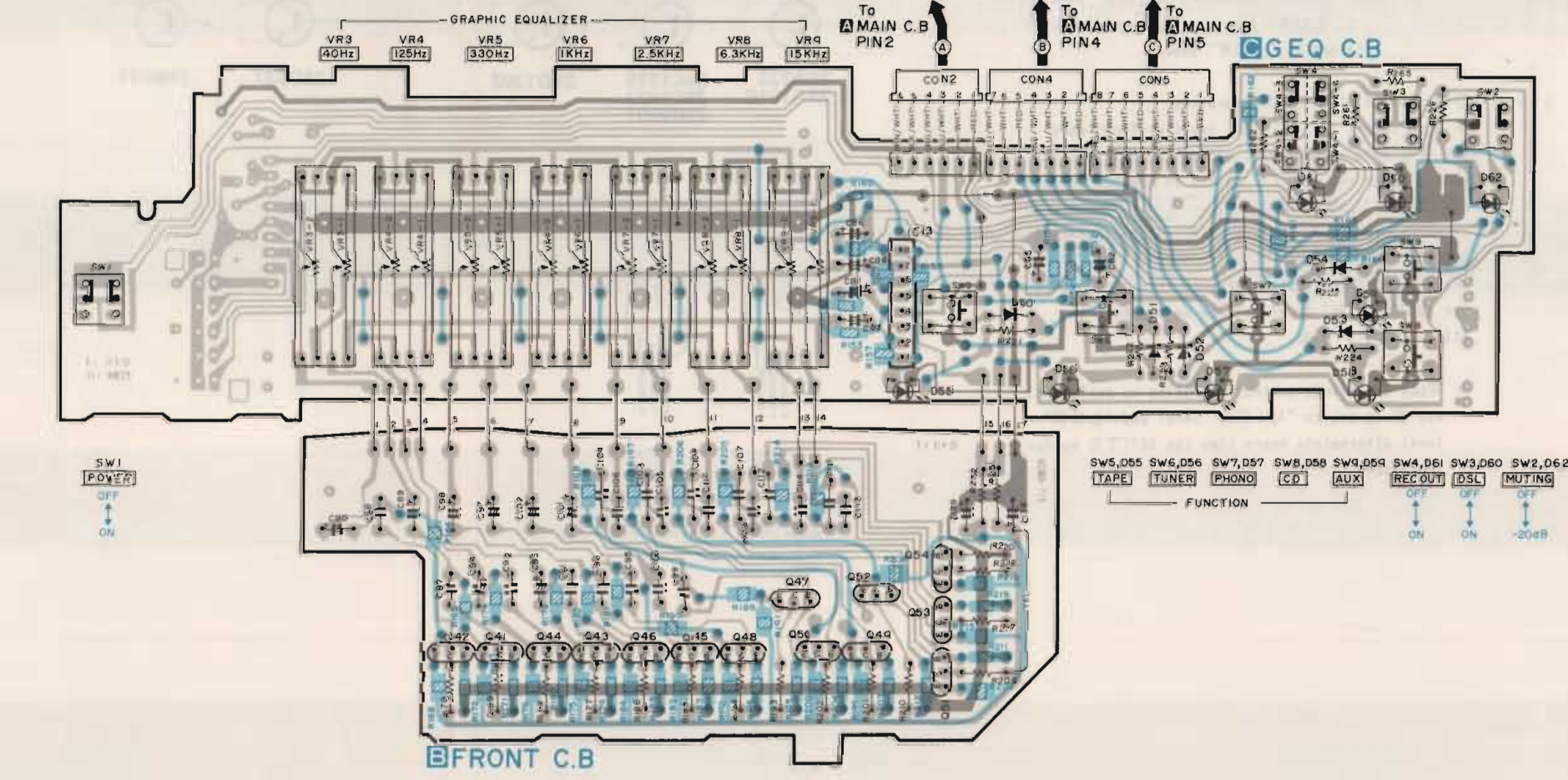
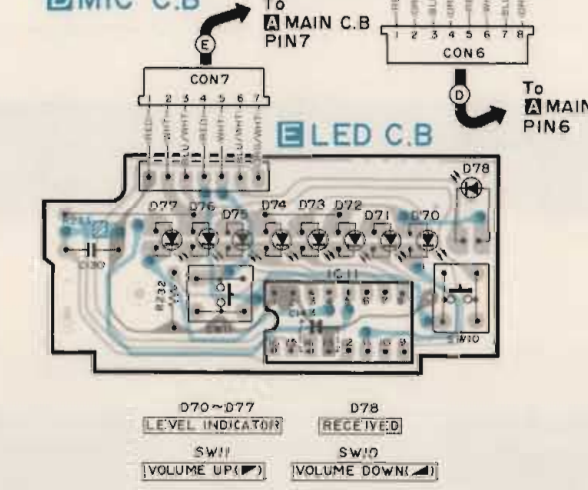
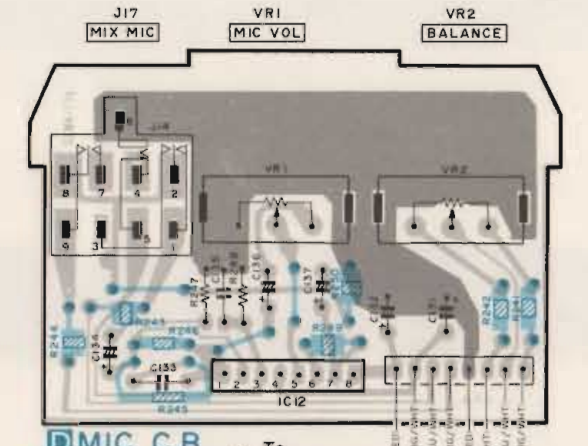
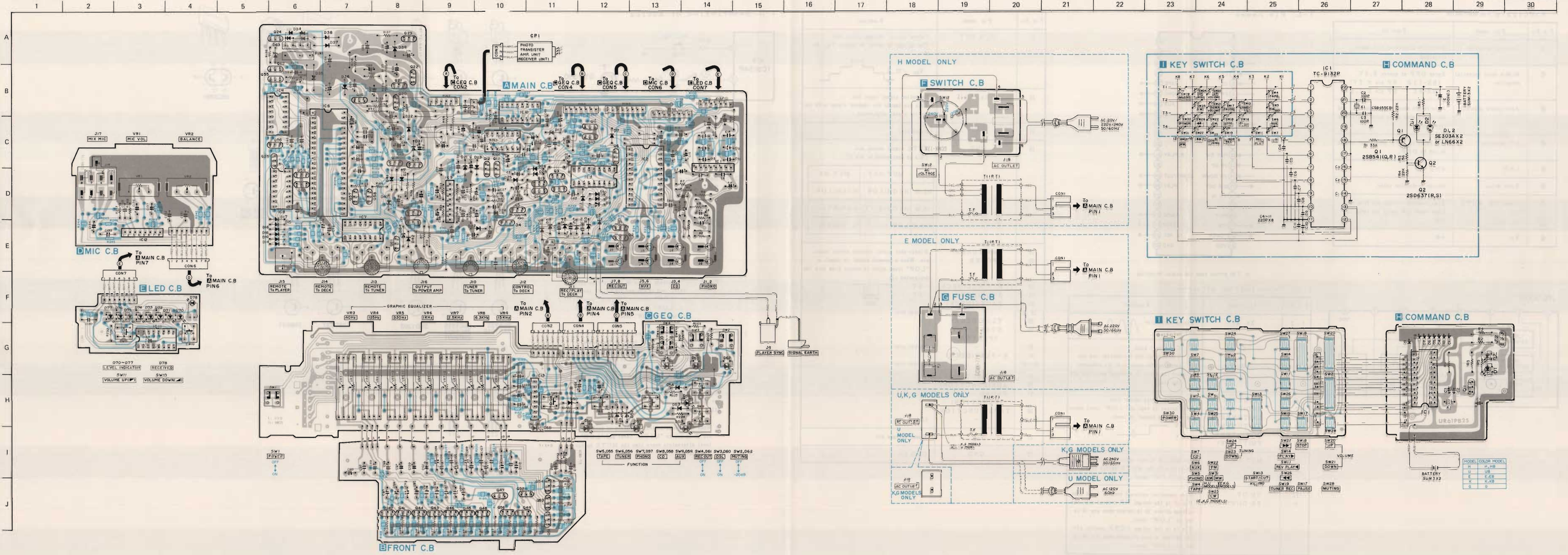
- 1. MW
- 2. GND
- 3. NC
- 4. DOWN
- 5. LW
- 6. FM
- 7. POWER
- 8. UP

- 1. STOP
- 2. GND
- 3. RWD
- 4. FF
- 5. R PLAY
- 6. PAUSE
- 7. STROBE
- 8. PLAY

MODEL	COLOR MODEL
H	H, HB
U	UB
E	E, EB
K	K, KB
G	G

- NOTES (1) Earth pattern Printed resistor pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

WIRING (GX-110)

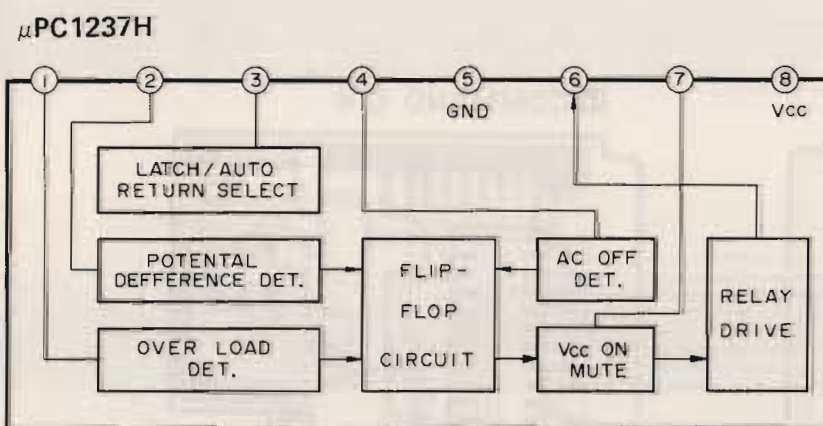


MODEL	COLOR	MODEL
H	HB	H, HB
U	UB	U, UB
E	EB	E, EB
K	KB	K, KB
G	G	G

Circuit description

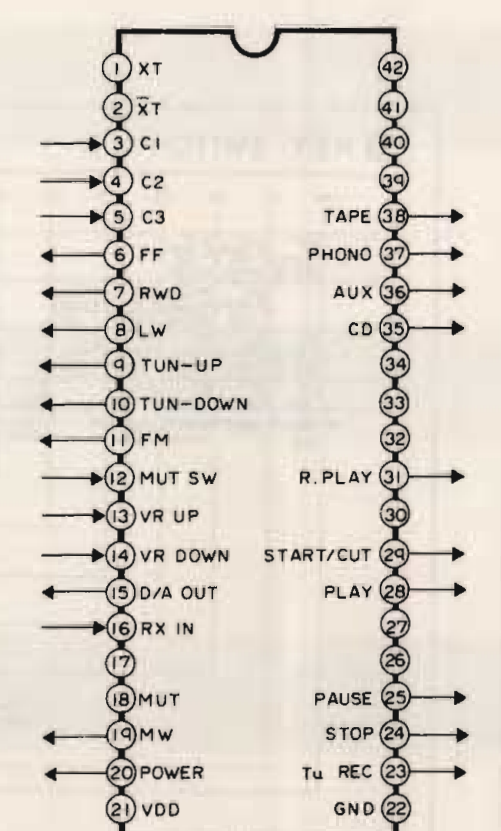
• μ PC1237H Pin description

Pin No.	Pin names	Function
①	Overload detection	Detection of speaker pins short-circuited
②	Middle point potential detection	Relay OFF at approx 0.6 V (BX-110 SP pin \pm 2 V) (MX-90 SP pin \pm 1.5 V)
③	Auto-return selection	Auto-return when it is grounded, and non-return when it is connected to the capacitor.
④	AC detection	Set relay to OFF when power switch is set to OFF.
⑤	GND	GND
⑥	Relay drive	Drives protection relay.
⑦	Power ON. MUTE	Time constant circuit pin from the timer power ON until the relay is ON.
⑧	Vcc	+ B



1. DESCRIPTION OF IC TC9134P

1-1. Pin names



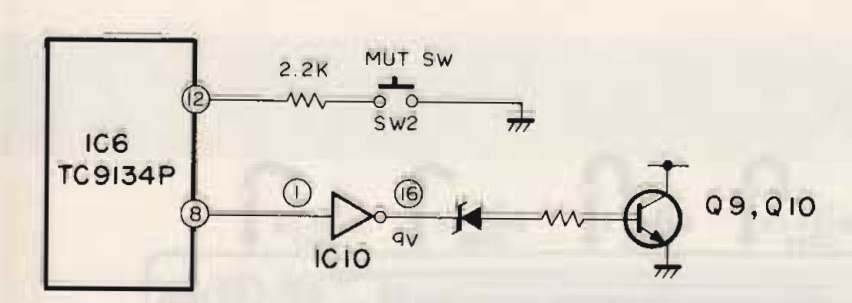
* The arrows show the signal direction

1-2. Description of pins

Pin No.	Pin names	Function
1, 2	Xt, Xt	Timing oscillator pins. 4.50 kHz
3	C ₁	0 Code input pins.
4	C ₂	1 The code of the transmitter and the cords set by these pins are compared, and the input is accepted when they are the same.
5	C ₃	1
6	FF(DECK)	Continuous signal output pins. This output is kept at "LOW" level while the reception signal is input.
7	RWD(DECK)	5 V
8	LW(TUNER)	0 V
9	UP(TUNER)	
10	DOWN(TUNER)	
11	FM(TUNER)	
12	MUT SW	The MUTE signal output pin 18 is inverted with the MUTE switch input pin set to "LOW" level.
13	VR UP	D/A converter external control input pins. Pin 13 is the volume UP control pin; the voltage at pin 15 is raised when pin 13 is set to "LOW" level.
14	VR DOWN	Pin 14 is the volume DOWN control pin; the voltage at pin 15 drops when pin 14 is set to "LOW" level.

Pin No.	Pin names	Function												
15	D/A OUT	Volume control voltage output pin. The voltage is output by diving V _{DD} by 32.												
16	Rx. IN	Reception signal input pin. This pin inputs the command signal with the carrier signal eliminated.												
17	-	(Blank pin)												
18	MUT	MUTE signal output pin. This is controlled by pin 12. <table border="1" style="margin-left: 20px;"> <tr> <td></td> <td>MUT OFF</td> <td>MUT ON</td> </tr> <tr> <td>IC6.⑩</td> <td>HIGH/LOW</td> <td>HIGH/LOW</td> </tr> <tr> <td>IC6.⑩</td> <td>HIGH(3.5V)</td> <td>LOW(0V)</td> </tr> <tr> <td>IC10.⑩</td> <td>LOW(0V)</td> <td>HIGH(9V)</td> </tr> </table>		MUT OFF	MUT ON	IC6.⑩	HIGH/LOW	HIGH/LOW	IC6.⑩	HIGH(3.5V)	LOW(0V)	IC10.⑩	LOW(0V)	HIGH(9V)
	MUT OFF	MUT ON												
IC6.⑩	HIGH/LOW	HIGH/LOW												
IC6.⑩	HIGH(3.5V)	LOW(0V)												
IC10.⑩	LOW(0V)	HIGH(9V)												
19	MW(TUNER)	Single-shot signal (single pulse) output pin. When a command signal is input, a "LOW" level pulse is output from only the designated pin.												
20	POWER	5 V												
23	TUNER REC(DECK)	0 V												
24	STOP(DECK)	140ms												
25	PAUSE(DECK)													
26-27	-	(Blank pin)												
28	PLAY(DECK)													
29	START/CUT (PLAYER)													
30	-	(Blank pin)												
31	R·PLAY(DECK)													
32-34	-	(Blank pin)												
35	CD(FUNCTION)													
36	AUX(FUNCTION)													
37	PHONO (FUNCTION)													
38	TAPE(FUNCTION)													
39-42	-	(Blank pin)												
21	V _{DD}	Power voltage pin.												
22	GND	GND pin.												

1-3. Description of muting



	MUT OFF	MUT ON
IC6 ⑩	HIGH/LOW	HIGH/LOW
IC6 ⑩	HIGH(3.5V)	LOW(0V)
IC10 ⑩	LOW(0V)	HIGH(9V)

1-3-1. Description of pins and SW2

SW2 ... This is a non-locking switch; pin ⑩ is set to "LOW" level (0 V) only when this switch is pressed.

Pin ⑩ ... This is the pin ⑩ control pin and is set to "HIGH" level (5 V) in general; pin ⑩ is changed over "HIGH" level \rightarrow "LOW" level \rightarrow "HIGH" level \rightarrow "LOW" level ... every time this pin is set to "LOW" level.

Pin ⑩ ... The inside of pin ⑩ is flip-flop circuit, and is changed "HIGH" level \rightarrow "LOW" level \rightarrow "HIGH" level \rightarrow "LOW" level ... every time pin ⑩ is set to "LOW" level.

1-3-2. Description of MUTE operation

Pin ⑩ is set to "HIGH" level at first (when the AC cord is plugged), and in the MUTE OFF mode. When the MUTE switch is pressed to set pin ⑩ to "LOW" level (5 V), pin ⑩ is set to the "LOW" level and the unit enters the MUTE ON mode. When the MUTE switch pressed then, pin ⑩ is set to "HIGH" level and the unit enters the MUTE OFF mode.

* When the remote control operation is performed, pin ⑩ is set to "HIGH" level and "LOW" level alternately every time the MUTE button is pressed.

GX-110

Power source: H, HB models
AC 120/220/240V
Switchable, 50/60Hz
UB model
AC 120V, 60Hz
E, EB models
AC 220V, 50/60Hz
K, KB, G models
AC 240V, 50/60Hz

Power consumption: 10W

Dimensions: 330(W)×71(H)×200(D)mm
(12-7/8"×2-5/8"×7-7/8")

Weight: 2.1kg(4.62lbs.)

S/N ratio: PHONO(MM), TUNER, AUX
(IHF-A) CD, TAPE, INPUT
76±3dB
50±3dB

Distortion: MIC
Less than 0.5%
(1kHz, 0.75V)

Frequency response: 35~50,000Hz(+0.5/-3dB)

RIAA deviation: ±0.5dB(30Hz~15kHz, 0dB)
(1kHz, 0dB)

Muting level: 20±3dB

DSL response: 18±3dB(50Hz)

PHONO MAX. allowance input: 100±20mV(REC OUT)
(1kHz, 0.1%)

Graphic EQ. +10±3dB

response: -10±3dB
(40Hz, 125Hz, 330Hz,
1kHz, 2.5kHz, 6.3kHz,
15kHz)

Channel separation: PHONO, AUX, TUNER
(1kHz) 50±2dB

Input sensitivity/impedance:
PHONO(MM) 3mV/47kΩ
TUNER, CD 180mV/47kΩ
TAPE 180mV/47kΩ
AUX 300mV/47kΩ
MIC 1mV/10kΩ

Output/impedance: TAPE 150mV/47kΩ
Headphones 8Ω~16Ω
Speakers 8Ω~16Ω

<WIRELESS TRANSMITTER SECTION>

Power source: DC3V(SUM-3 "AA" cells)

Current consumption: Below 50mA(Balanced, during
use); 30mA(When not in use)

Dimensions: 63(W)×22(H)×141.5(D)mm
(2-1/2"×7/8"×5-1/2")

Weight: 100g(0.22lbs.)

Transmission field: ±4.5"

Transmission distance: approx. 6m(20 feet)

Clock frequency: 38kHz±1%

BX-110

Power source: H, HB models
AC 120/220/240V
switchable, 50/60Hz
UB model
AC 120V, 60Hz
E, EB models
AC 220V, 50/60Hz
K, KB, G models
AC 240V, 50/60Hz

Power consumption: H, HB models
115W
UB models
100W
E, EB, K, KB, G models
270W

Dimensions: 330(W)×71(H)×200(D)mm
(12-7/8"×2-5/8"×7-7/8")

Weight: 4.8kg(10.57lbs.)

Power output: H, HB, E, EB, K, KB, G
models
60W+60W(8Ω, T. H. D.
0.01%, 20Hz~20kHz)
<FTC Rule UB model only>
60Watts per channel, Min.
RMS at 8Ω, from 20Hz~
20kHz, with no more than
0.02% Total Harmonic
Distortion.

Distortion: Less than 0.008%

Intermodulation distortion: Less than 0.02%(50W, 8Ω)

Damping factor: More than 30

S/N ratio: More than 110dB

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

Output bandwidth: 10~50,000Hz(Less than
0.05%)
[Both channels driven, 8Ω]

Residual noise: Less than 1mV

Input/impedance: 700mV/47kΩ

Output: A or B 8Ω~16Ω
A + B 16Ω

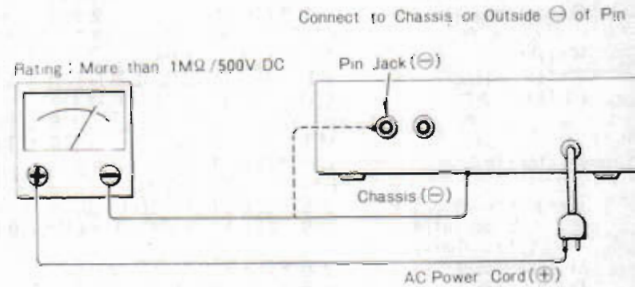
- The specifications and external appearance of this set are subject to change without prior notice.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.

5. After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.

Measuring Point



PARTS LIST

MECHANICAL PARTS (MX-90)

※ mark in this part list shows exclusive part.
 ※※※※ shows unavailable Repair Part.

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark	
1	82-798-004-01		Front cabinet ass'y (H model only)	※	1		
	82-798-046-01		Front cabinet ass'y (E, K, G models only)	※	1		
	82-798-034-01		Front cabinet ass'y (HB, UB models only)	※	1		
	82-798-072-01		Front cabinet ass'y (EB, KB models only)	※	1		
	A	82-798-036-11		POWER button ass'y (H, E, K, G models only)	※	1	
		82-798-062-01		POWER button ass'y (HB, UB, EB, KB models only)	※	1	
	B	82-798-209-01		C-spring, POWER	※	1	
	C	82-798-037-01		Tape hinge ass'y (H, E, K, G models only)	※	1	
		82-798-057-01		Tape hinge ass'y (HB, UB, EB, KB models only)	※	1	
	D	82-798-040-01		Tuner hinge ass'y (H, E, K, G models only)	※	1	
		82-798-060-01		Tuner hinge ass'y (HB, UB, EB, KB models only)	※	1	
	E	82-798-039-01		PHONO hinge ass'y (H, E, K, G models only)	※	1	
		82-798-059-01		PHONO hinge ass'y (HB, UB, EB, KB models only)	※	1	
F	82-798-041-01		CD hinge ass'y (H, E, K, G models only)	※	1		
	82-798-061-01		CD hinge ass'y (HB, UB, EB, KB models only)	※	1		
G	82-798-038-01		AUX hinge ass'y (H, E, K, G models only)	※	1		
	82-798-058-01		AUX hinge ass'y (HB, UB, EB, KB models only)	※	1		
2	82-197-212-01		C-spring, Earth	FX-90	1		
3	82-798-023-11		Push-button, MUT	※	3		
4	82-798-207-01		Holder, A	※	2		
5	82-798-206-01		Holder, G	※	2		
6	82-798-210-01		Guide B, LED	※	1		
7	82-798-043-01		Knob I (H, E, K, G models only)	※	2		
	82-798-070-01		Knob (HB, UB, EB, KB models only)	※	2		
8	87-085-186-01		Foot	※	3		
9	82-798-024-01		Rubber foot	※	1		
10	82-798-204-01		Amp. chassis ass'y (H, HB models only)	※	1	※※※	
	82-798-202-01		Amp. chassis ass'y (UB, E, EB, K, KB, G models only)	※	1	※※※	
11	82-798-026-01		Name plate, Jack (H model only)	※	1	※※※	
	82-798-066-01		Name plate, Jack (HB model only)	※	1	※※※	
	82-798-065-01		Name plate, Jack (UB model only)	※	1	※※※	
	82-798-029-01		Name plate, Jack (E model only)	※	1	※※※	
	82-798-067-01		Name plate, Jack (EB model only)	※	1	※※※	
	82-798-030-01		Name plate, Jack (K model only)	※	1	※※※	
	82-798-068-01		Name plate, Jack (KB model only)	※	1	※※※	
	82-798-031-01		Name plate, Jack (G model only)	※	1	※※※	
12	82-798-232-01		Sheet, IC	※	1	※※※	
13	87-085-102-01		Nylon rivet 3.5-5.5		4		
14	82-798-208-01		Holder, IC	※	1		
15	82-798-601-11		Heat sink, Main	※	1	※※※	
16	82-798-022-01		Cabinet, Steel (H, E, K, G models only)	※	1		
	82-798-050-01		Cabinet, Steel (HB, UB, EB, KB models only)	※	1		
17	87-057-642-01		Label, TEMP	MX-100	1	※※※	
18	87-085-184-01		Cord bushing (H, HB, UB models only)		1		
	87-085-185-01		Cord bushing (E, EB, K, KB, G models only)		1		
19	87-034-962-01		AC power cord (H model only)		1		
	87-034-992-01		AC power cord (HB model only)		1		
	87-034-578-01		AC power cord (UB model only)		1		
	82-788-674-01		AC power cord (E, EB models only)		1		
	87-034-708-01		AC power cord (K, KB, G models only)		1		
20	82-798-212-01		T-spring, Earth	※	1		
21	82-798-208-01		G cushion	SA-P50	4	※※※	
22	87-085-090-01		Nylon rivet 3-6.5 (H, HB models only)		2		

PARTS LIST

MECHANICAL PARTS (TX-110)

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark	
1	82-799-004-11		Front cabinet ass'y (H model only)	※	1		
	82-799-036-01		Front cabinet ass'y (HB, UB models only)	※	1		
	82-799-005-11		Front cabinet ass'y (E, K, G models only)	※	1		
	82-799-074-01		Front cabinet ass'y (EB, KB models only)	※	1		
	A	82-798-036-11		POWER button ass'y (H, E, K, G models only)	MX-90	1	
		82-798-062-01		POWER button ass'y (HB, UB, EB, KB models only)	MX-90	1	
	B	82-798-209-01		C-spring, POWER	MX-90	1	
	C	82-799-038-01		Hinge 1 ass'y (H, E, K, G models only)	※	1	
		82-799-061-01		Hinge 1 ass'y (HB, UB, EB, KB models only)	※	1	
	D	82-799-039-01		Hinge 2 ass'y (H, E, K, G models only)	※	1	
		82-799-062-01		Hinge 2 ass'y (HB, UB, EB, KB models only)	※	1	
	E	82-799-040-01		Hinge 3 ass'y (H, E, K, G models only)	※	1	
		82-799-063-01		Hinge 3 ass'y (HB, UB, EB, KB models only)	※	1	
	F	82-799-041-01		Hinge 4 ass'y (H, E, K, G models only)	※	1	
		82-799-064-01		Hinge 4 ass'y (HB, UB, EB, KB models only)	※	1	
	G	82-799-042-01		Hinge 5 ass'y (H, E, K, G models only)	※	1	
		82-799-065-01		Hinge 5 ass'y (HB, UB, EB, KB models only)	※	1	
	H	82-799-043-01		Hinge 6 ass'y (H, E, K, G models only)	※	1	
		82-799-066-01		Hinge 6 ass'y (HB, UB, EB, KB models only)	※	1	
	I	82-799-044-01		Hinge FM ass'y (H, E, K, G models only)	※	1	
82-799-067-01			Hinge FM ass'y (HB, UB, EB, KB models only)	※	1		
J	82-799-045-01		Hinge AM ass'y (H model only)	※	1		
	82-799-068-01		Hinge AM ass'y (HB, UB models only)	※	1		
K	82-799-046-11		Hinge UP ass'y (H, E, K, G models only)	※	1		
	82-799-070-01		Hinge UP ass'y (HB, UB, EB, KB models only)	※	1		
L	82-799-050-01		Hinge MW ass'y (E, K, G models only)	※	1		
	82-799-069-01		Hinge MW ass'y (EB, KB models only)	※	1		
2	82-799-025-11		Push-button	※	2		
3	82-798-210-01		Guide, LED	MX-90	1		
4	87-085-186-01		Foot		4		
5	82-799-204-01		Amp. chassis ass'y (H, HB models only)	※	1	★ ★ ★	
	82-799-202-01		Amp. chassis ass'y (UB model only)	※	1	★ ★ ★	
	82-799-206-01		Amp. chassis ass'y (E, EB models only)	※	1	★ ★ ★	
	82-799-212-01		Amp. chassis ass'y (K, KB models only)	※	1	★ ★ ★	
	82-799-208-01		Amp. chassis ass'y (G model only)	※	1	★ ★ ★	
6	82-799-028-01		Name plate, Jack (H model only)	※	1	★ ★ ★	
	82-799-081-01		Name plate, Jack (HB model only)	※	1	★ ★ ★	
	82-799-080-01		Name plate, Jack (UB model only)	※	1	★ ★ ★	
	82-799-031-01		Name plate, Jack (E model only)	※	1	★ ★ ★	
	82-799-082-01		Name plate, Jack (EB model only)	※	1	★ ★ ★	
	82-799-032-01		Name plate, Jack (K model only)	※	1	★ ★ ★	
	82-799-083-01		Name plate, Jack (KB model only)	※	1	★ ★ ★	
	82-799-033-01		Name plate, Jack (G model only)	※	1	★ ★ ★	
7	87-085-102-01		Nylon rivet 3.5-5.5		3		
8	87-085-184-01		Cord bushing (H, HB, UB models only)		1		
	87-085-185-01		Cord bushing (E, EB, K, KB, G models only)		1		
9	87-034-956-01		AC power cord (H model only)		1		
	87-034-958-01		AC power cord (HB model only)		1		
	87-034-578-01		AC power cord (UB model only)		1		
	87-034-877-01		AC power cord (E, EB models only)		1		
	87-034-975-01		AC power cord (K, KB models only)		1		
	87-034-892-01		AC power cord (G model only)		1		
10	82-799-026-01		Cabinet, Steel (H, E, K, G models only)	※	1		
	82-799-072-01		Cabinet, Steel (HB, UB, EB, KB models only)	※	1		
11	82-791-652-01		Loop antenna ass'y (H, E, K, G models only)	TX-70	1		
	82-795-670-01		Loop antenna ass'y (HB, UB, EB, KB models only)	RX-30	1		
12	82-773-216-01		Plate nut (E, EB models only)	AT-9500	3		

PARTS LIST

MECHANICAL PARTS (GX-110)

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-731-002-01		Front cabinet ass'y (H, E, K, G models only)	※	1	
	81-731-004-01		Front cabinet ass'y (HB, UB, EB, KB models only)	※	1	
A	82-798-036-11		POWER button ass'y (H, E, K, G models only)	MX-90	1	
	82-798-062-01		POWER button ass'y (HB, UB, EB, KB models only)	MX-90	1	
B	82-798-209-01		C-spring, POWER	MX-90	1	
C	82-798-037-01		TAPE hinge ass'y (H, E, K, G models only)	MX-90	1	
	82-798-057-01		TAPE hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
D	82-798-040-01		TUNER hinge ass'y (H, E, K, G models only)	MX-90	1	
	82-798-060-01		TUNER hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
E	82-798-039-01		PHONO hinge ass'y (H, E, K, G models only)	MX-90	1	
	82-798-059-01		PHONO hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
F	82-798-041-01		CD hinge ass'y (H, E, K, G models only)	MX-90	1	
	82-798-061-01		CD hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
G	82-798-038-01		AUX hinge ass'y (H, E, K, G models only)	MX-90	1	
	82-798-058-01		AUX hinge ass'y (HB, UB, EB, KB models only)	MX-90	1	
H	81-731-019-01		Push-key, VR (H, E, K, G models only)	※	1	
	81-731-024-01		Push-key, VR (HB, UB, EB, KB models only)	※	1	
2	82-798-043-01		Knob (H, E, K, G models only)	MX-90	2	
	82-798-070-01		Knob (HB, UB, EB, KB models only)	MX-90	2	
3	82-798-023-11		Push-button, MUT	MX-90	3	
4	82-798-212-01		T-spring, Earth	MX-90	1	
5	82-197-212-01		C-spring, Earth	FX-90	1	
6	82-798-206-01		Holder G	MX-90	2	
7	87-085-186-01		Foot		4	
8	87-063-116-01		Cushion 30-15		1	★ ★ ★
9	82-157-226-01		G cushion, Main	SD-L50	2	★ ★ ★
10	81-731-206-01		Amp. chassis ass'y (H, HB models only)	※	1	★ ★ ★
	81-731-210-01		Amp. chassis ass'y (UB model only)	※	1	★ ★ ★
	81-731-204-01		Amp. chassis ass'y (E, EB models only)	※	1	★ ★ ★
	81-731-216-01		Amp. chassis ass'y (K, KB, G models only)	※	1	★ ★ ★
11	81-731-015-01		Name plate, Jack (H model only)	※	1	★ ★ ★
	81-731-026-01		Name plate, Jack (HB model only)	※	1	★ ★ ★
	81-731-025-01		Name plate, Jack (UB model only)	※	1	★ ★ ★
	81-731-012-01		Name plate, Jack (E model only)	※	1	★ ★ ★
	81-731-027-01		Name plate, Jack (EB model only)	※	1	★ ★ ★
	81-731-013-01		Name plate, Jack (K model only)	※	1	★ ★ ★
	81-731-028-01		Name plate, Jack (KB model only)	※	1	★ ★ ★
	81-731-014-01		Name plate, Jack (G model only)	※	1	★ ★ ★
12	87-085-102-01		Nylon rivet 3.5-5.5		5	
13	87-085-184-01		Cord bushing (H, HB, UB models only)		1	
	87-085-185-01		Cord bushing (E, EB, K, KB, G models only)		1	
14	87-034-962-01		AC power cord (H model only)		1	
	87-034-992-01		AC power cord (HB model only)		1	
	87-034-578-01		AC power cord (UB model only)		1	
	82-788-674-01		AC power cord (E, EB models only)	MX-100	1	
	87-034-708-01		AC power cord (K, KB, G models only)		1	
15	82-799-026-01		Cabinet, Steel (H, E, K, G models only)	TX-110	1	
	82-799-072-01		Cabinet, Steel (HB, UB, EB, KB models only)	TX-110	1	
16	82-773-216-01		Plate nut (E, EB models only)	AT-9500	1	
17	87-085-090-01		Nylon rivet 3-6.5 (H, HB models only)		2	

PARTS LIST

MECHANICAL PARTS (BX-110)

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-730-004-11		Front Cabinet ass'y (H, E, K, G models only)	※	1	
	81-730-031-01		Front Cabinet ass'y (HB, UB, EB, KB models only)	※	1	
A	82-798-036-11		POWER button ass'y (H, E, K, G models only)	MX-90	1	
	82-798-062-01		POWER button ass'y (HB, UB, EB, KB models only)	MX-90	1	
B	82-798-209-01		C-spring. POWER	MX-90	1	
2	82-798-023-11		Push-button. MUT	MX-90	3	
3	81-730-206-01		Guide. LED	※	2	★ ★ ★
4	81-730-204-01		Amp. chassis ass'y (H, HB models only)	※	1	★ ★ ★
	81-730-202-01		Amp. chassis ass'y (UB, E, EB, K, KB, G models only)	※	1	★ ★ ★
5	82-798-024-01		Rubber foot	MX-90	4	
6	82-798-232-01		Sheet. IC	MX-90	2	★ ★ ★
7	82-749-208-01		G cushion	SA-P50	2	★ ★ ★
8	82-798-601-11		Heat sink. Main (H, HB, UB models only)	MX-90	2	★ ★ ★
9	82-781-206-01		Plate nut	SA-P80	2	
10	81-730-209-01		G cushion 6-6-3	※	2	★ ★ ★
11	81-730-208-11		Sheet 30-36-0.1	※	1	★ ★ ★
12	87-085-102-01		Nylon rivet 3.5-5.5		3	
13	81-730-013-01		Name plate. Jack (H model only)	※	1	★ ★ ★
	81-730-027-01		Name plate. Jack (HB model only)	※	1	★ ★ ★
	81-730-026-01		Name plate. Jack (UB model only)	※	1	★ ★ ★
	81-730-014-01		Name plate. Jack (E model only)	※	1	★ ★ ★
	81-730-028-01		Name plate. Jack (EB model only)	※	1	★ ★ ★
	81-730-015-01		Name plate. Jack (K model only)	※	1	★ ★ ★
	81-730-029-01		Name plate. Jack (KB model only)	※	1	★ ★ ★
	81-730-016-01		Name plate. Jack (G model only)	※	1	★ ★ ★
	81-730-010-01		Cabinet. Steel (H, E, K, G models only)	※	1	
	81-730-025-01		Cabinet. Steel (HB, UB, EB, KB models only)	※	1	
15	87-057-642-01		Label. TEMP (H, HB, UB models only)		1	★ ★ ★
	87-057-712-01		Label. TEMP (E, EB, K, KB, G models only)		1	★ ★ ★
16	82-752-206-01		Cover. Nut	SA-P50	4	★ ★ ★
17	87-034-962-01		AC power cord (H model only)		1	
	87-034-992-01		AC power cord (HB model only)		1	
	87-034-578-01		AC power cord (UB model only)		1	
	82-788-674-01		AC power cord (E, EB models only)	MX-100	1	
	87-034-708-01		AC power cord (K, KB, G models only)		1	
18	87-085-184-01		Cord bushing (H, HB, UB models only)		1	
	87-085-185-01		Cord bushing (E, EB, K, KB, G models only)		1	
19	87-085-090-01		Nylon rivet (H, HB models only)		2	
20	81-730-624-01		Heat sink L (E, EB, K, KB, G models only)	※	1	★ ★ ★
21	81-730-625-01		Heat sink R (E, EB, K, KB, G models only)	※	1	★ ★ ★
22	81-730-211-01		G cushion	※	2	★ ★ ★

ACCESSORIES/PACKAGE LIST

MX-90

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	82-798-853-01		Printed indiv., Packing	※	1	★ ★ ★
2	81-730-852-11		Cushion L. Printed indiv.		1	★ ★ ★
3	81-730-853-21		Cushion R. Printed indiv.		1	★ ★ ★
4	87-056-610-01		Poly-vinyl sack (for case)		1	★ ★ ★
5	82-798-854-01		Carton, Outer (H, HB, E, EB, K, KB, G models only)	※	1/4	★ ★ ★
6	82-798-855-01		Carton, Outer (UB model only)	※	1/2	★ ★ ★
7	87-056-651-01		Color label, Black (HB, UB, EB, KB models only)		1	★ ★ ★
8	82-798-904-01		Instructions booklet	※	1	
9	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
10	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
11	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
12	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
13	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
14	87-056-008-11		Label, AC power cord (K, KB models only)		1	
15	87-056-084-01		Limited, Warranty (UB model only)		1	

TX-110

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	82-799-855-01		Printed indiv., Packing	※	1	★ ★ ★
2	82-799-852-01		Cushion L. Printed indiv.	※	1	★ ★ ★
3	82-799-853-11		Cushion R. Printed indiv.	※	1	★ ★ ★
4	82-799-856-01		Carton, Outer (H, HB, E, EB, K, KB, G models only)	※	1/4	★ ★ ★
5	82-799-857-01		Carton, Outer (UB model only)	※	1/2	★ ★ ★
6	87-056-610-01		Poly-vinyl sack (for case)		1	★ ★ ★
7	87-056-651-01		Color label, Black (HB, UB, EB, KB models only)		1	★ ★ ★
8	82-799-904-01		Instruction booklet	※	1	
9	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
10	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
11	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
12	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
13	87-056-008-11		Label, AC power cord (K, KB models only)		1	★ ★ ★
14	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
15	87-056-084-01		Limited, Warranty (UB model only)		1	★ ★ ★
16	82-791-652-01		Loop antenna ass'y (H, E, K, G models only)	TX-70	1	
17	82-795-670-01		Loop antenna ass'y (HB, UB, EB, KB models only)		1	
18	87-032-845-01		Siemens plug (H, HB models only)		1	
19	87-043-065-01		FM feeder antenna		1	
20	87-034-968-01		Connection cord CW-255GSK		1	

GX-110

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-731-853-01		Printed indiv., Packing	※	1	★ ★ ★
2	82-799-852-01		Cushion L., Printed indiv.	TX-110	1	★ ★ ★
3	82-799-853-11		Cushion R., Printed indiv.	TX-110	1	★ ★ ★
4	81-731-854-01		Carton, Outer (H, HB, E, EB, K, KB, G models only)	※	1/4	★ ★ ★
5	81-731-855-01		Carton, Outer (UB model only)	※	1/2	★ ★ ★
6	81-731-856-01		Sleeve, Corrugated board	※	1	★ ★ ★
7	85-263-854-01		Bag, Air-cap (for remote control)		1	★ ★ ★
8	87-056-610-01		Poly-vinyl sack (for case)		1	★ ★ ★
9	87-056-651-01		Color label, Black (HB, UB, EB, KB models only)		1	★ ★ ★
10	81-731-904-01		Instructions booklet	※	1	
11	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
12	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
13	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
14	87-056-084-01		Limited, Warranty (UB model only)		1	★ ★ ★
15	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
16	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
17	81-731-638-01		Remote control T-110 (H, K, G models only)	※	1	
18	81-731-653-01		Remote control T-110 Black (HB, UB, KB models only)	※	1	
19	81-731-654-01		Remote control T-110A Black (EB model only)	※	1	
20	81-731-639-01		Remote control T-110A (E model only)	※	1	
21	85-439-002-01		Syncrate cord, CW-150K		1	
	87-056-008-11		Label, AC power cord (K, KB models only)			★ ★ ★

BX-110

Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty	Remark
1	81-730-855-01		Printed indiv., Packing	※	1	★ ★ ★
2	81-730-852-11		Cushion L., Printed indiv.	※	1	★ ★ ★
3	81-730-853-21		Cushion R., Printed indiv.	※	1	★ ★ ★
4	81-730-856-01		Carton, Outer (H, HB, E, EB, K, KB, G models only)	※	1/4	★ ★ ★
5	81-730-857-01		Carton, Outer (UB model only)	※	1/2	★ ★ ★
6	81-730-858-01		Auxiliary cushion	※	1	★ ★ ★
7	87-056-610-01		Poly-vinyl sack (for case)		1	★ ★ ★
8	87-056-651-01		Color label Black (HB, UB, EB, KB models only)		1	★ ★ ★
9	81-730-904-01		Instructions booklet	※	1	
10	87-051-171-11		Poly-vinyl sack (for instruction)		1	★ ★ ★
11	87-056-009-51		Distributors list (H, HB, E, EB, K, KB, G models only)		1	★ ★ ★
12	87-056-059-01		Guarantee card (G model only)		1	★ ★ ★
13	87-056-045-01		Guarantee card (UB model only)		1	★ ★ ★
14	87-056-084-01		Limited, Warranty (UB model only)		1	★ ★ ★
15	87-056-074-01		Poly-vinyl sack (for guarantee card)		1	★ ★ ★
16	87-056-008-11		Label, AC power cord (K, KB models only)		1	★ ★ ★
17	87-056-050-01		Safety instruction (UB model only)		1	★ ★ ★
18	87-034-968-01		Connection cord CW-255GSK		1	

AIWA Co., Ltd. Tokyo Japan