

MODEL AX-7400EE, UK

**AIWA®**  
**(SERVICE MANUAL)**



Set using ISO screws

DATE OF ISSUE 30/10/1977

**SPECIFICATIONS**

**GENERAL**

**Semiconductors:** 1 IC, 1 FET, 47 transistors, 25 diodes & 1 LED  
**Power source:** AX-7400EE: 120V/220V (Switchable) 50/60 Hz  
 AX-7400UK: AC120V/240V (Switchable) 50/60 Hz  
**Power consumption:** 205W (MAX)  
**Dimensions:** 420(W) x 150(H) x 360(D) mm  
**Weight:** 9.0 kg

**FM TUNER SECTION**

**Frequency ranges:** 87~109 MHz  
**Intermediate frequency:** 10.7 MHz  $\pm 0.1$  MHz  
**Frequency scale accuracy:**  
 $\pm 150$  kHz (88 MHz)  
 $\pm 200$  kHz (98 MHz)  
 $\pm 150$  kHz (108 MHz)  
**Noise limit sensitivity:** AX-7400EE: (SN26 dB, div 40 kHz)  
 $3 \pm 2$  dB (88, 98, 108 MHz)  
 AX-7400UK: (SN30 dB, div 75 kHz, THD 3%)  
 $7 \leq 10$  dB (88 MHz)  
 $7 \leq 9$  dB (98, 108 MHz)  
**Image frequency interference ratio:**  
 $45 \geq 40$  dB (98 MHz)  
**Intermediate frequency interference ratio:**  
 $75 \geq 70$  dB (98 MHz)  
**Muting sensitivity:**  $26 \pm 4$  dB  
**Effective selectivity:** AX-7400EE: (tune out 300 kHz, div 40 kHz)  
 $60 \geq 55$  dB  
 AX-7400UK: (tune out 400 kHz, div 75 kHz)  
 $65 \geq 60$  dB  
**Capture ratio:**  $1.5 \pm 1$  dB  
**Separation:**  $40 \geq 35$  dB (1 kHz)  
**SN ratio:**  $63 \geq 58$  dB (input 60 dB)

**AM TUNER SECTION**

**Frequency ranges:** 515~1650 kHz  
**Intermediate frequency:** AX-7400EE: 455 kHz  $\pm 5$  kHz  
 AX-7400UK: 468 kHz  $\pm 5$  kHz  
**Frequency scale accuracy:**  
 $\pm 20$  kHz (600 kHz)  
 $\pm 30$  kHz (1000 kHz)  
 $\pm 35$  kHz (1400 kHz)  
**Noise limit sensitivity:**  $46 \leq 50$  dB (600, 1000, 1400 kHz) (SN20 dB)

**Image frequency interference ratio:**  
 $40 \geq 35$  dB (1400 kHz)  
**Intermediate frequency interference ratio:**  
 $32 \geq 25$  (input 74 dB, 1000 kHz)  
**IF selectivity:**  $+25/-25 \pm 6$  dB (1000 kHz)  
**Tuning hum:**  $44 \geq 36$  dB (input 74 dB, 1000 kHz)  
**AGC characteristic:**  $50 \pm 5$  dB (1000 kHz)

**PRE AMP SECTION**

<PHONO AMP SECTION>

**Sensitivity/impedance:** 2.5 mV  $-52 +2$  dB/47 k $\Omega$   
**Gain:**  $35.5 \pm 1$  dB (1 kHz)  
**Allowable input:**  $120 \geq 100$  mV (1 kHz 0.5%)  
**Distortion:**  $0.4 \leq 0.5\%$  (input 100 mV  $\geq 1$  kHz)  
**RIAA curve deviation:**  $\pm 0 \pm 0.8$  dB (30 Hz~15 kHz)  
**Separation:**  $35 \begin{matrix} -5 \\ +10 \end{matrix}$  dB (1 kHz)  
**SN ratio:**  $65 \geq 60$  dB

<TAPE-1, AUX SECTION>

**Sensitivity/impedance:** 150 mV  $-16.5 +2$  dB/470 k $\Omega$   
**Gain:**  $0 \begin{matrix} +0 \\ -3 \end{matrix}$  dB (1 kHz)  
**Distortion:**  $0.05 \leq 0.1\%$   
**Frequency response:**  $+0$  dB (20 Hz~50 kHz)  
 $-1$   
**Separation:**  $40 \begin{matrix} -2 \\ +10 \end{matrix}$  dB  
**SN ratio:**  $70 \leq 65$  dB

**CONTROL MAIN AMP SECTION**

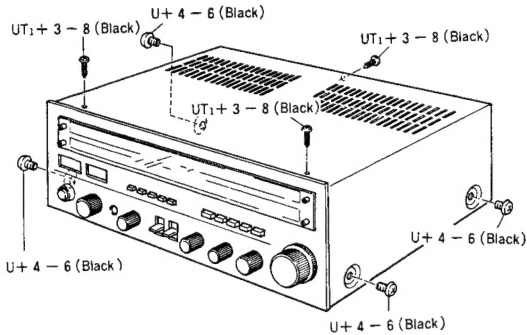
**Gain:**  $37.5 \pm 3$  dB (1 kHz)  
**Tone controls:** BASS  
 $+8, -7$  dB/+6,  $-5$  dB  $\pm 1.5$  dB (100 Hz)  
 400/200 Hz turnover frequency  
 TREBLE  
 $+8, -10$  dB/+5,  $-6$  dB  $\pm 1.5$  dB (10 kHz)  
 2.5/5 kHz turnover frequency  
**Loudness Response:**  $+7 \pm 1.5$  dB (100 Hz)  
 (With volume at -40dB)  $+4 \pm 1.5$  dB (10 kHz)  
**Continuous power output:** 32W + 32W  $\geq 30$ W + 30W (4 $\Omega$ )  
 1 kHz (both channels driven) (distortion 0.5%)  
**Harmonic Distortion:**  $0.5\% \leq 0.8\%$  (1 kHz, 30W + 30W)  
 $0.05\% \leq 0.1\%$  (1 kHz, 1W + 1W)  
**Power bandwidth:** 27W + 27W  $\geq 25$ W + 25W  
 (40 Hz~10 kHz, distortion 0.5%)  
**Residual noise:**  $0.6 \leq 0.8$  mV (4 $\Omega$ )

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

**DISASSEMBLY INSTRUCTIONS**

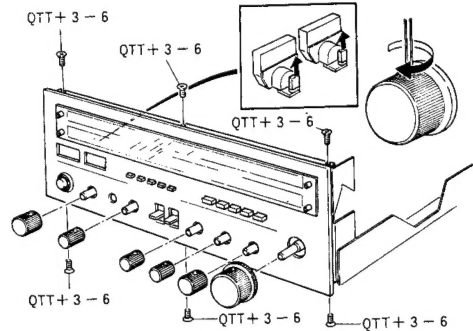
**To Remove Top Panel**

Remove 7 screws.



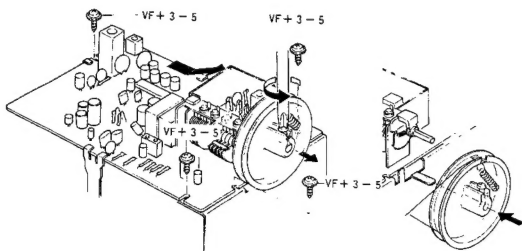
**To Remove Front Panel**

- 1) Pull out the 6 knobs.
- 2) Remove 6 screws.
- 3) Pull off the 2 connectors.



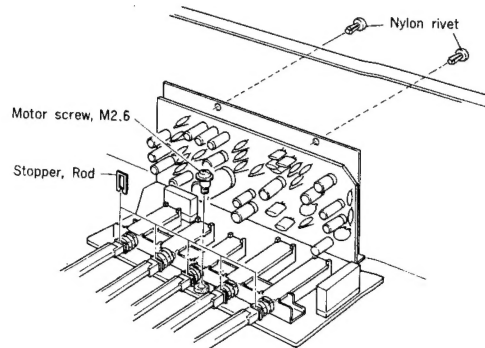
**To Remove Tuner Circuit Board**

- 1) Remove 3 screws.
- 2) In order to prevent the dial cord from slipping off the dial drum when removing the tuner circuit board, loosen setscrew and as shown in the figure, set dial drum on raised tab of chassis.



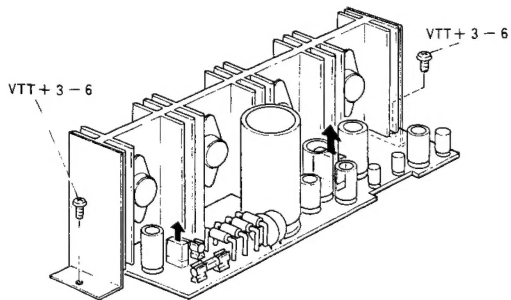
**To Remove Switch Circuit Board**

- 1) Remove 5 stoppers.
- 2) Remove 1 screw and 2 nylon rivet.



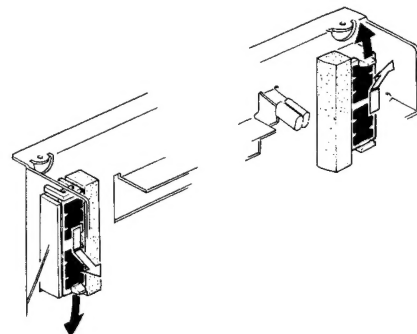
**To Remove Main Amp./Power Circuit Board**

Remove 2 screws.



**To Remove Lamp Circuit Board**

Press tab in direction shown by arrow to remove circuit board.





**To Remove Muting Circuit Board**  
Remove 2 screws.

**To Remove Control Circuit Board**

- 1) Pull out the lever knobs.
- 2) Remove 3 screws and 4 nuts.
- 3) Pull off the 2 connectors.

**To Remove Speaker Switch Circuit Board**  
Remove 2 screws.

**DIAL CORD STRINGING**

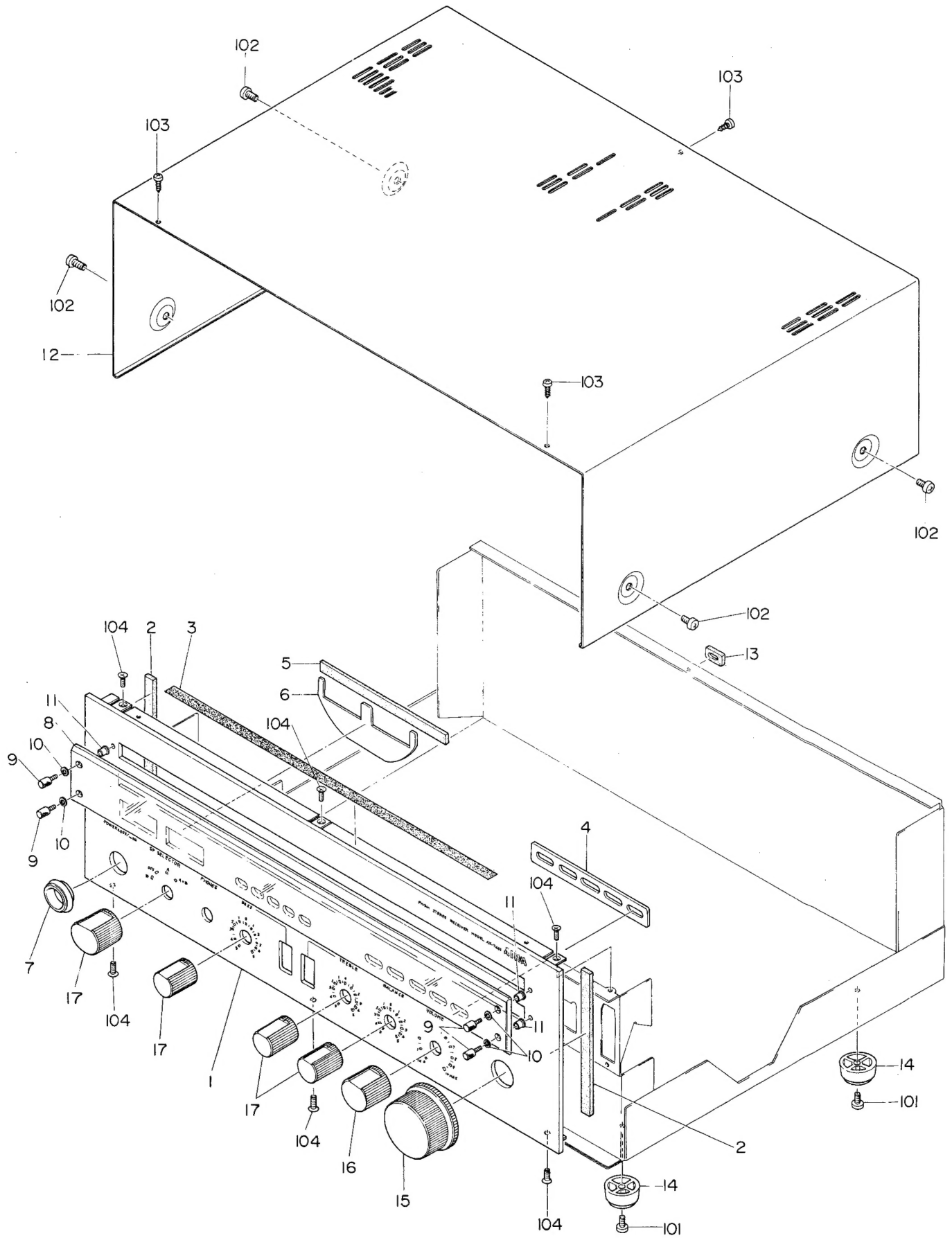
Always set tuning capacitor to this position before starting to string dial cord

Tuning point

3 TURN

1377mm

EXPLODED VIEW-1





PARTS LIST

MECHANICAL PARTS

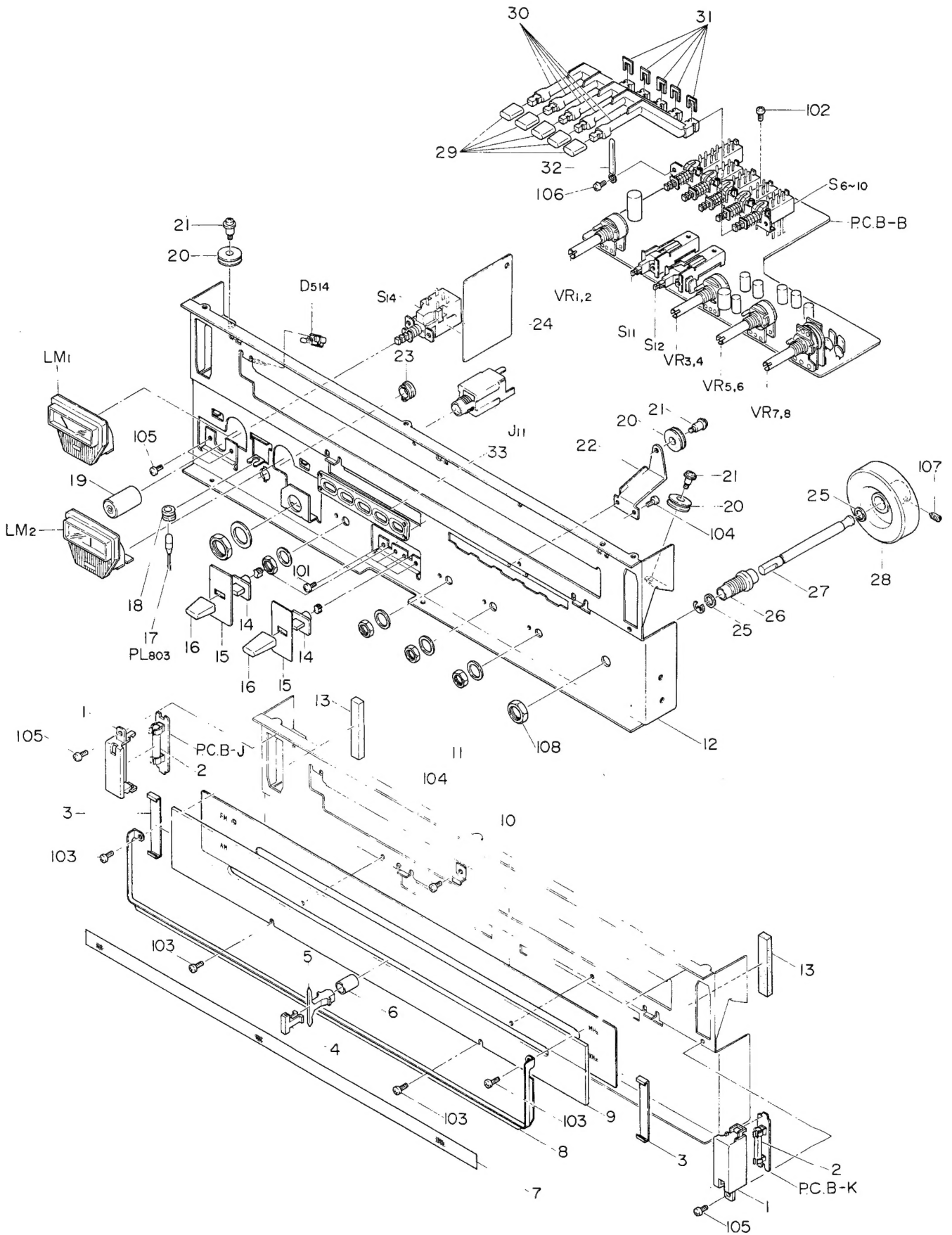
■ \* mark in this part list shows exclusive part (which is used) for only Model AX-7400.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1~7	09-047-099-01		<b>Panel Assembly</b>		
1-1	82-488-001-01		Front panel	*	1
1-2	82-488-224-01		Cushion, Tuning pointer holder	*	2
1-3	82-397-245-01		Himeron cloth, Cabinet	AD-6550	1
1-4	82-488-206-01		Guide, Button selector	*	1
1-5	82-488-205-01		S cushion	*	1
1-6	82-488-204-01		Spacer, Meter	*	1
1-7	82-397-027-01		Ring, AC switch button	AD-6550	1
1-8	82-488-012-01		Window, Tuning dial	*	1
1-9	82-488-016-01		Screw, Window	*	4
1-10	82-488-024-01		G washer	*	4
1-11	82-488-023-01		G sleeve	*	4
1-12	82-488-002-01		Steel cabinet	*	1
1-13	82-380-439-01		Spacer, Back panel	AD-6500	1
1-14	87-085-144-01		Leg		4
1-15	82-488-008-01		Knob, Tuning	*	1
1-16	82-488-004-01		Volume knob ass'y	*	1
1-17	82-488-006-01		Tone knob ass'y	*	4

Ref. No.	Part No.	Description	Q'ty
1-101	87-253-170-01	U + 4-8	4
1-102	87-257-169-01	U + 4-6 (Black)	4

Ref. No.	Part No.	Description	Q'ty
1-103	87-340-095-01	UT <sub>1</sub> + 3-8(Black)	3
1-104	87-081-531-01	QTT + 3-6	6

EXPLODED VIEW-2

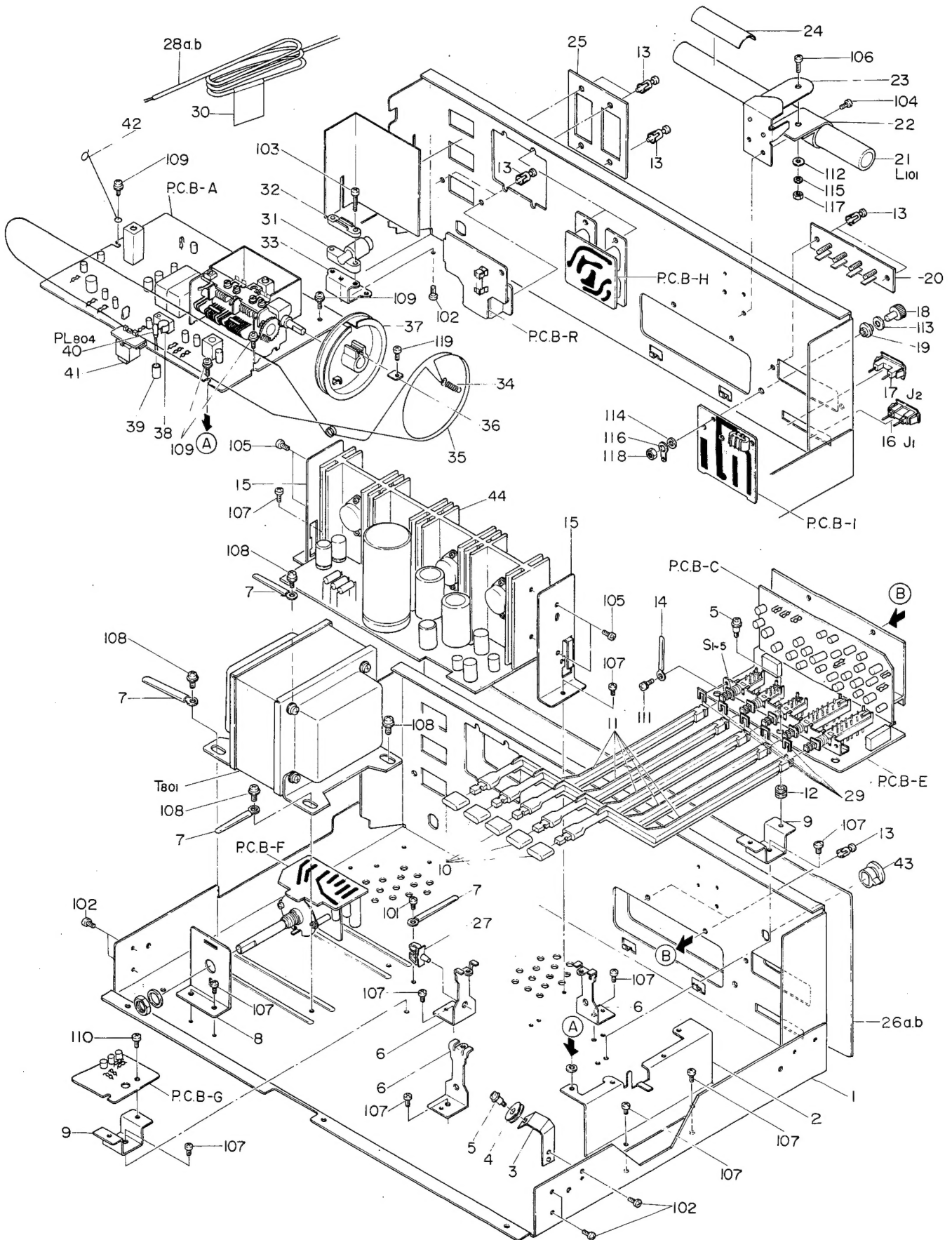


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-488-203-01		Holder, Lamp	*	2
2-2	82-488-647-01		Lamp	*	2
2-3	82-474-241-01		Clamp, Dial panel	AF-5050	2
2-4	82-488-017-01		Tuning pointer	*	1
2-5	82-488-027-01		Holder, Tuning pointer	*	1
2-6	82-488-028-01		Tube, Tuning pointer	*	1
2-7	82-488-021-01		Sheet, Tuning dial	*	1
2-8	82-488-015-01		Frame, Tuning dial	*	1
2-9	82-488-013-01		Dial plate	*	1
2-10	82-488-014-01		Dial back plate	*	1
2-11	82-490-214-01		Holder, Dial plate		1
2-12	82-488-202-01		Front chassis	*	1
2-13	82-488-225-01		Cushion B,	*	2
2-14	82-488-022-01		Holder, Knob	*	2
2-15	82-488-019-01		Decorative palte, Switch	*	2
2-16	82-488-020-01		Lever, Knob	*	2
2-17	82-488-626-01		Lamp	*	1
2-18	87-087-029-01		Rubber cushion		1
2-19	82-397-033-01		AC switch button ass'y	AD-6550	1
2-20	82-470-276-01		Roller, 14φ	AF-3030	3
2-21	87-081-483-01		Motor screw, M2.6		3
2-22	82-488-214-01		Roller holder A	*	1
2-23	82-488-228-01		Supporter, Switch	*	1
2-24	82-488-227-01		Cover, Insulation	*	1
2-25	87-081-548-01		PW6.1-8-0.3		2
2-26	82-488-211-01		Tuning shaft bearing	*	1
2-27	82-488-210-01		Tuning shaft	*	1
2-28	82-473-259-01		Flywheel, Tuning	AX-7500	1
2-29	82-488-011-01		Push button, FUNCTION	*	5
2-30	82-488-213-01		Shaft, FUNCTION	*	5
2-31	82-385-383-01		Stopper, Rod	AD-6300	1
2-32	87-038-039-01		Wire binder		1
2-33	82-488-207-01		Button guide, FUNCTION	*	1

Ref. No.	Part No.	Description	Q'ty
2-101	82-263-092-01	V + 3-4	4
2-102	87-253-092-01	U + 3-4	1
2-103	87-253-035-01	U + 2-6	4
2-104	87-253-072-01	U + 2.6-5	3

Ref. No.	Part No.	Description	Q'ty
2-105	87-081-511-01	VTT + 3-6	4
2-106	87-480-093-01	VS + 3-5	1
2-107	87-364-093-01	SSH3-5	1
2-108	87-081-253-01	N-9	1

EXPLODED VIEW-3



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
3-1	82-488-201-01		Amp. chassis	*	1
3-2	82-488-216-01		Holder A, Circuit board	*	1
3-3	82-488-215-01		Holder B, Roller	*	1
3-4	82-470-276-01		Roller, 14φ	AF-3030	1
3-5	87-081-483-01		Motor screw, M2.6		2
3-6	82-488-218-01		Holder C, Circuit board	*	3
3-7	87-064-080-01		Wire binder		4
3-8	82-488-208-01		Holder, Rotary switch	*	1
3-9	82-488-219-01		Holder D, Circuit board	*	2
3-10	82-488-010-01		Push button, Selector	*	5
3-11	82-488-212-01		Shaft, Selector	*	5
3-12	87-087-029-01		Rubber cushion		1
3-13	87-085-102-01		Nylon rivet bushing		10
3-14	87-038-039-01		Wire binder		1
3-15	82-488-220-01		Holder, Power amp.	*	2
3-16	82-445-656-01		FM external antenna terminal	TPR-250	1
3-17	82-445-655-01		AM external antenna terminal	TPR-250	1
3-18	87-033-008-01		Terminal, Earth		1
3-19	82-303-333-01		Spring bearing (FR-A)		1
3-20	82-488-646-01		Antenna terminal	*	1
3-21	82-488-645-01		Bar antenna	*	1
3-22	82-473-013-01		Holder C, Antenna	AX-7500	1
3-23	82-473-010-01		Antenna holder ass'y	AX-7500	1
3-24	82-473-051-01		Caution label, Antenna	AX-7500	1
3-25	82-488-226-01		Spacer, Jack plate	*	1
3-26(a)	82-488-030-01		Jack plate (UK model only)	*	1
3-26(b)	82-488-018-01		Jack plate (EE model only)	*	1
3-27	87-064-038-01		Wire clip A		1
3-28(a)	87-034-835-01		AC cord (EE model only)		1
3-28(b)	87-034-872-01		AC cord (UK model only)		1
3-29	82-385-383-01		Stopper, Rod	AD-6300	5
3-30	87-056-008-01		Label, AC cord		1
3-31	87-085-094-01		Holder A, AC cord		1
3-32	87-085-095-01		Holder B, AC cord		1
3-33	82-397-244-01		Holder, AC cord	AD-6550	1
3-34	82-473-252-01		Spring, Tuning dial	AX-7500	1
3-35	87-096-082-01		String, Tuning dial		1
3-36	82-461-378-01		Leaf nut	TPR-930	1
3-37	82-488-223-01		Drum, Tuning dial	*	1
3-38	82-473-019-01		Lock plate, Pointer	AX-7500	1
3-39	82-830-102-01		UL tube, 1.6φ - 2mm		1
3-40	82-488-627-01		Lamp	*	1
3-41	82-473-018-01		Holder, Pointer	AX-7500	1
3-42	82-471-212-01		Guide, Dial wire	AF-5080	1
3-43	87-085-101-01		Cord bushing		1
3-44	82-471-244-01		Heatsink	AF-5080	1


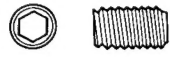
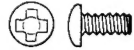

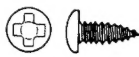



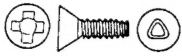

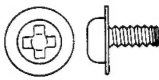


Ref. No.	Part No.	Description	Q'ty
3-101	82-263-092-01	V + 3-4	1
3-102	87-253-092-01	U + 3-4	7
3-103	87-253-099-01	U + 3-15	2
3-104	87-257-092-01	U + 3-4 (Black)	2
3-105	87-253-094-01	U + 3-6	4
3-106	87-257-097-01	U + 3-12 (Black)	1
3-107	87-081-511-01	VTT + 3-2	11
3-108	87-500-169-01	VF + 4-6	4
3-109	87-500-093-01	VF + 3-5	4

Ref. No.	Part No.	Description	Q'ty
3-110	87-480-033-01	VS + 2.6-4	1
3-111	87-480-093-11	VS + 3-5	1
3-112	87-410-316-01	W3-8-0.8	1
3-113	87-410-324-01	W4-10-0.4	1
3-114	87-081-053-01	FW4.2-10-0.8	1
4-115	87-421-306-01	WS-3	1
3-116	87-450-416-01	LB-6	1
3-117	87-391-017-01	N-3	1
3-118	87-391-024-01	N-4	1
3-119	87-253-095-01	U + 3-8	1

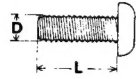
ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-473-861-01		Cushion, Bar antenna	AX-7500	1
2	82-488-851-01		Printed indiv., Packing	*	1
3	82-488-852-01		Cushion L, Printed indiv.	*	1
4	82-488-853-01		Cushion R, Printed indiv.	*	1
5	87-051-131-01		Poly-vinyl sack		1
6	87-051-146-01		Poly-vinyl sack (for case)		1
7	87-056-500-01		Curly stopper		2
8	82-488-901-01		Instructions booklet (EE model only)	*	1
9	82-488-902-01		Instructions booklet (UK model only)	*	1
10	87-051-171-01		Poly-vinyl sack (for instruction)		1
11	87-056-008-01		Label, AC cord (UK model only)		1
12	87-056-009-01		Distributors list		1
13	87-056-016-01		Tag, Main voltage (UK model only)		1

HARDWARE NOMENCLATURE

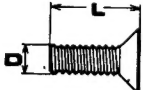
V:	Pan head screw		SSH:	Hexagon Socket SET screw	
U:	Binding head screw		W:	Washer	
UT1:	Binding head tapping screw		FW:	Fiber washer	
VTT:	Pan head tap-tight screw		SW:	Spring washer	
QTT:	Flat countersunk tap-tight screw		N:	Nut	
VF:	Flange and Pan head screw		LB:	Lug terminal plate	
VS:	Pan head screw with spring washer		Example:		



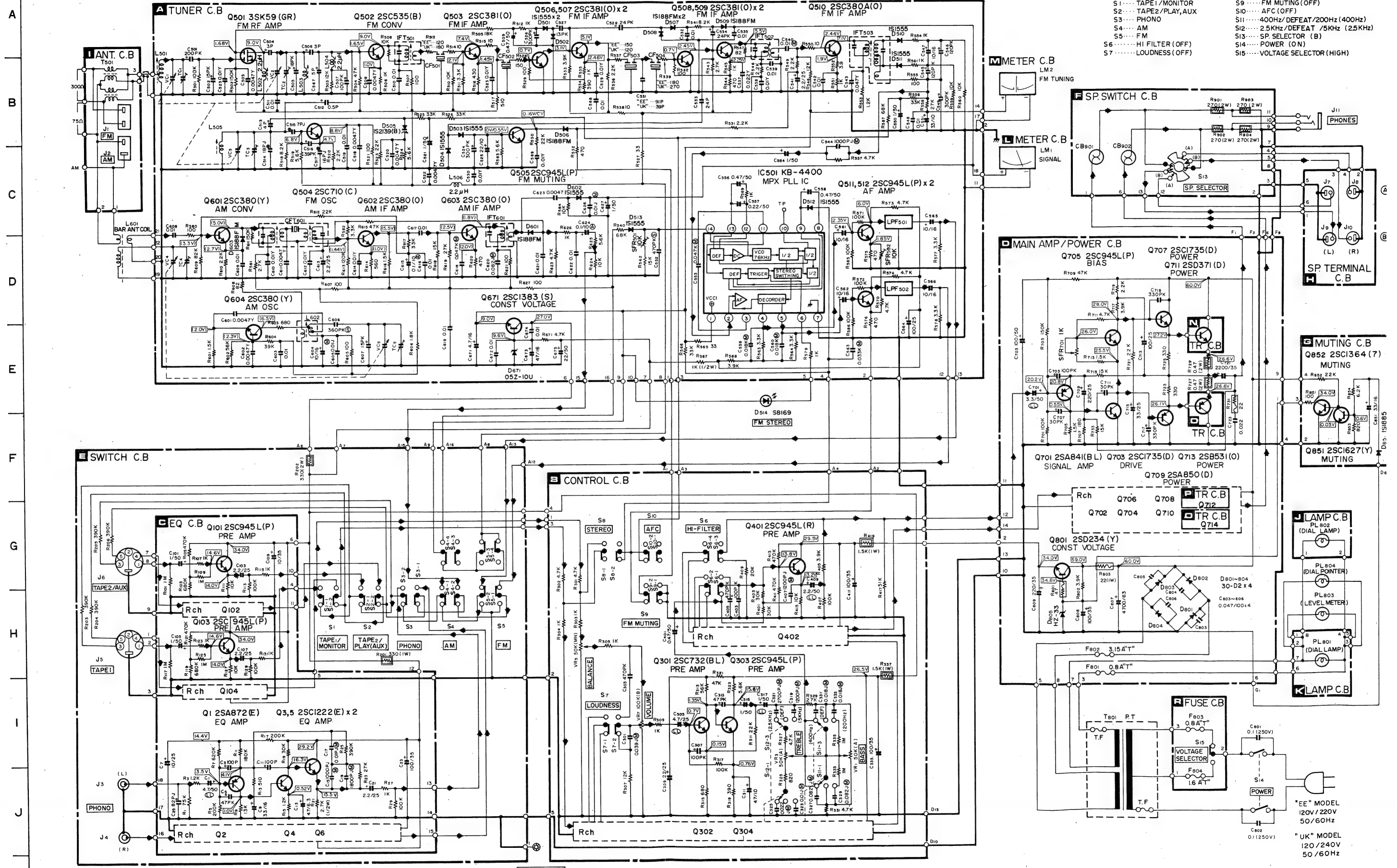
$V + 3 - 6$

- Length in mm
- Diameter in mm
- Type of Slot
- Type of Head



$Q + 3 - 6$

- Length in mm
- Diameter in mm
- Type of Slot
- Type of Head

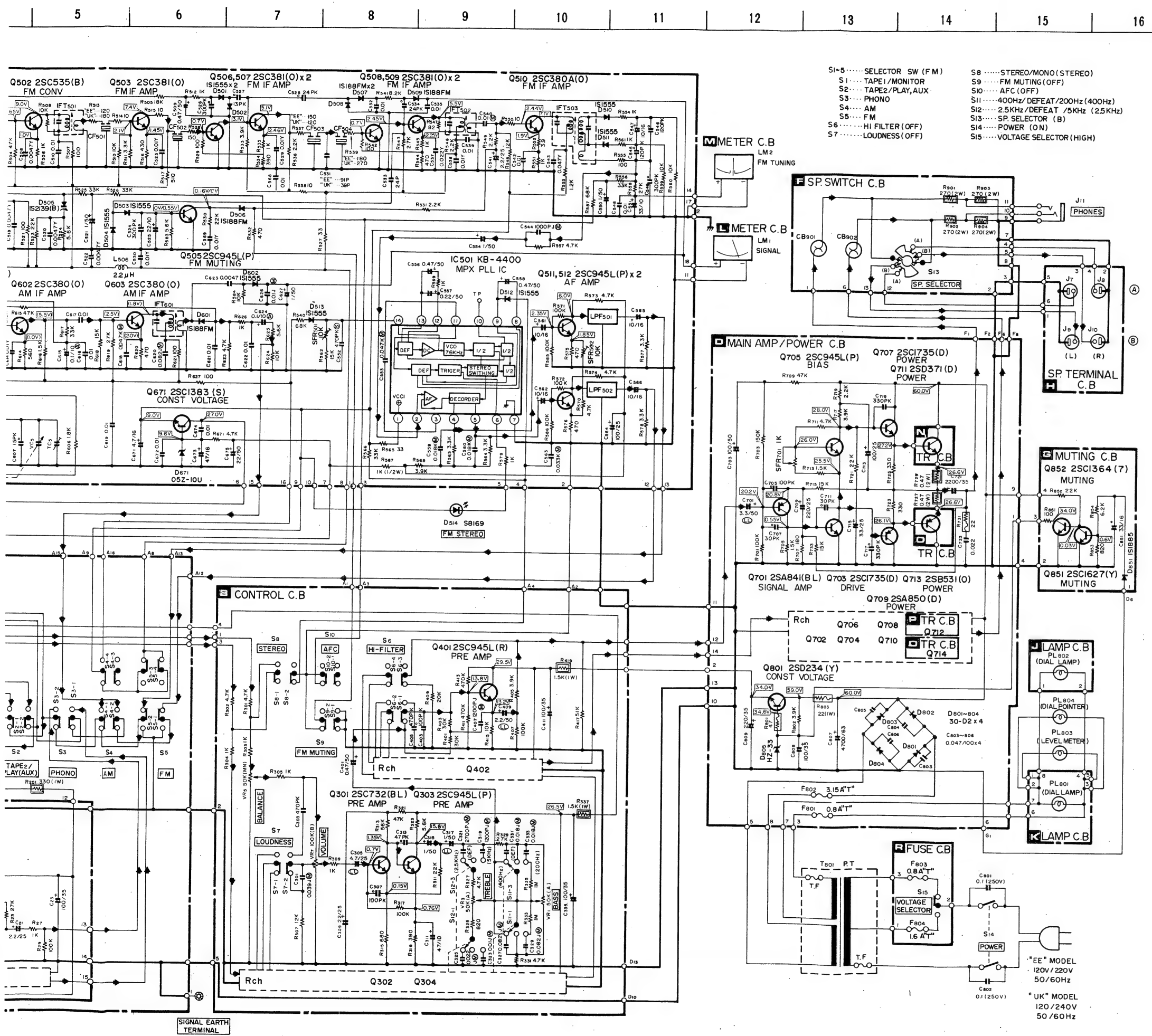


- S1-5 ..... SELECTOR SW (FM)
- S1 ..... TAPE1 / MONITOR
- S2 ..... TAPE2 / PLAY, AUX
- S3 ..... PHONO
- S4 ..... AM
- S5 ..... FM
- S6 ..... HI FILTER (OFF)
- S7 ..... LOUDNESS (OFF)
- S8 ..... STEREO/MONO (STEREO)
- S9 ..... FM MUTING (OFF)
- S10 ..... AFC (OFF)
- S11 ..... 400KHz / DEFEAT / 200Hz (400Hz)
- S12 ..... 2.5KHz / DEFEAT / 5KHz (2.5KHz)
- S13 ..... SP. SELECTOR (B)
- S14 ..... POWER (ON)
- S15 ..... VOLTAGE SELECTOR (HIGH)

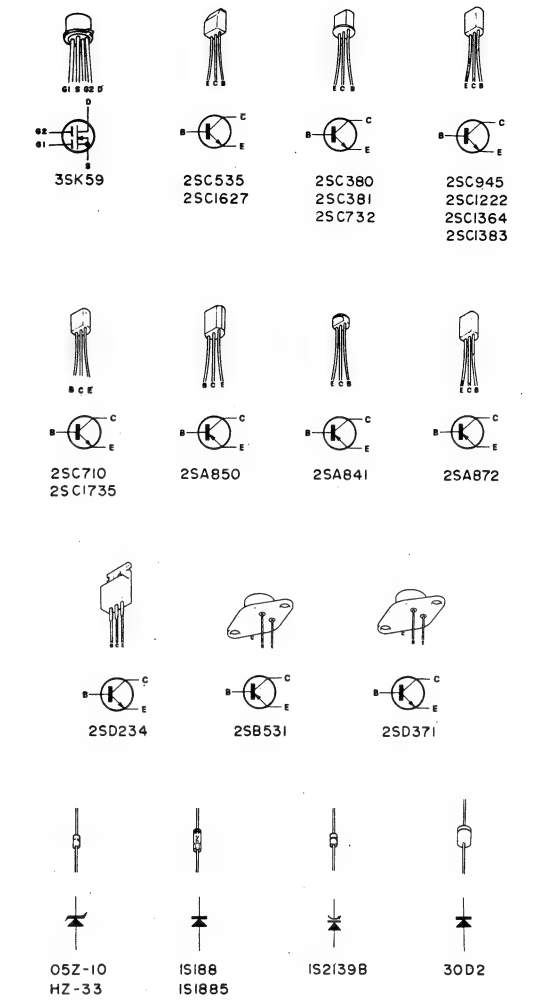
"EE" MODEL  
120V / 220V  
50 / 60Hz

"UK" MODEL  
120 / 240V  
50 / 60Hz





- S1-5.....SELECTOR SW (FM)  
 S1.....TAPE1/MONITOR  
 S2.....TAPE2/PLAY,AUX  
 S3.....PHONO  
 S4.....AM  
 S5.....FM  
 S6.....HI FILTER (OFF)  
 S7.....LOUDNESS (OFF)
- S8.....STEREO/MONO (STEREO)  
 S9.....FM MUTING (OFF)  
 S10.....AFC (OFF)  
 S11.....400Hz/DEFEAT/200Hz (400Hz)  
 S12.....2.5KHz/DEFEAT /5KHz (2.5KHz)  
 S13.....SP. SELECTOR (B)  
 S14.....POWER (ON)  
 S15.....VOLTAGE SELECTOR (HIGH)



NOTES:

- 1) — B(+) power supply
- 2) → Signal path
- 3) → AM 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.
- 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) Ceramic capacitor symbols:  
 (SH) For temperature compensation (SH)  
 (SL) For temperature compensation (SL)  
 (YY) High dielectric constant system (YY)  
 (YP, YZ) High dielectric constant system (YP, YZ)
- 7) The only capacitor tolerances indicated are ±2% (G), ±5% (J) and ±10% (K).
- 8) Explanation of symbols  
 (M) Mylar capacitor  
 (S) Styrol capacitor  
 (T) Tantalum capacitor  
 (LL) Low-leakage capacitor  
 (PP) Polypropylene film capacitor  
 (LN) Low-noise resistor

"EE" MODEL  
 120V/220V  
 50/60Hz

"UK" MODEL  
 120/240V  
 50/60Hz

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

**ADJUSTMENTS**

● Instruments Required

- Signal Source**  
 1. RF Signal generator (AM, FM).  
 2. IF sweep generator (Centered 455/468 kHz for AM and 10.7 MHz for FM).  
**Output Indicator**  
 1. V.T.V.M.  
 2. Oscilloscope

● Regulator Adjusting Steps

For band	For stages on each band
1. AM (MW)	1st: IF 2nd: RF frequency range 3rd: RF tracking
2. FM	1st: IF 2nd: RF frequency range 3rd: RF tracking

**AM-IF Alignment**

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust for
	Connect to		Connect to			
1	AM IF sweep gen.	Sweep centered 455 kHz (EE) 468 kHz (UK)	Oscilloscope	Min. Freq	CFT601 IFT601	Maximum
	TP3 (AM IF input)		AM det. output tab			

**AM-RF Alignment**

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust for
	Connect to		Connect to			
1	AM signal gen	515 kHz (Modulated)	V.T.V.M.	515 kHz (Low end)	L602 (OSC coil)	Maximum
	Loop antenna		AM det. output tab			
2	Loop antenna	1650 kHz (Modulated)	AM det. output tab	1650 kHz (High end)	TC-5 (OSC trim.)	Maximum
3	(Repeat steps 1 and 2 to obtain frequency range.)					
4	Loop antenna	600 kHz (Modulated)	AM det. output tab	600 kHz	L601 (ANT coil)	Maximum
5	Loop antenna	1400 kHz (Modulated)	AM det. output tab	1400 kHz	TC-4 (ANT trim.)	Maximum
6	(Repeat steps 4 and 5 to minimize tracking error, and also step 3 if necessary.)					

**FM-IF Alignment**

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust for
	Connect to		Connect to			
1	FM IF sweep gen.	Sweep centered 10.7 MHz	Oscilloscope	Max. Freq.	IFT501 IFT502	Max Symmetrical response equal height
	TP1 (FM IF input)		FM det. output tab			
2	TP1 (FM IF input)	Sweep centered 10.7 MHz	FM det. output tab	Max. Freq.	IFT503	Symmetrical response, centered 10.7 MHz
3	(Repeat 1 and 2 to obtain a balanced "S" curve linearity.)					

**FM-RF Alignment**

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust for
	Connect to		Connect to			
1	FM signal gen.	87 MHz (Modulated)	V.T.V.M.	87 MHz	L505 (OSC coil)	Maximum
	Antenna terminal		FM det. output tab			
2	Antenna terminal	109 MHz (Modulated)	FM det. output tab	109 MHz	TC-3 (OSC trim)	Maximum
3	(Repeat steps 1 and 2 to obtain frequency range.)					
4	Antenna terminal	88 MHz (Modulated)	FM det. output tab	88 MHz	L501 (ANT coil) L503 (RF coil)	Maximum
5	Antenna terminal	108 MHz (Modulated)	FM det. output tab	108 MHz	TC-1 (ANT trim) TC-2 (RF trim)	Maximum
6	(Repeat steps 4 and 5 to minimize tracking error, and step 3 if necessary.)					

**MPX Adjustment**

● 19 kHz

- Conditions:**  
 Selector switch: FM  
 ST/MONO switch: STEREO  
 Dial position: detuned from station  
 Adjust SFR501 for 19 kHz  $\pm$  30 Hz frequency at 19 kHz test point (TP-5).

● MPX

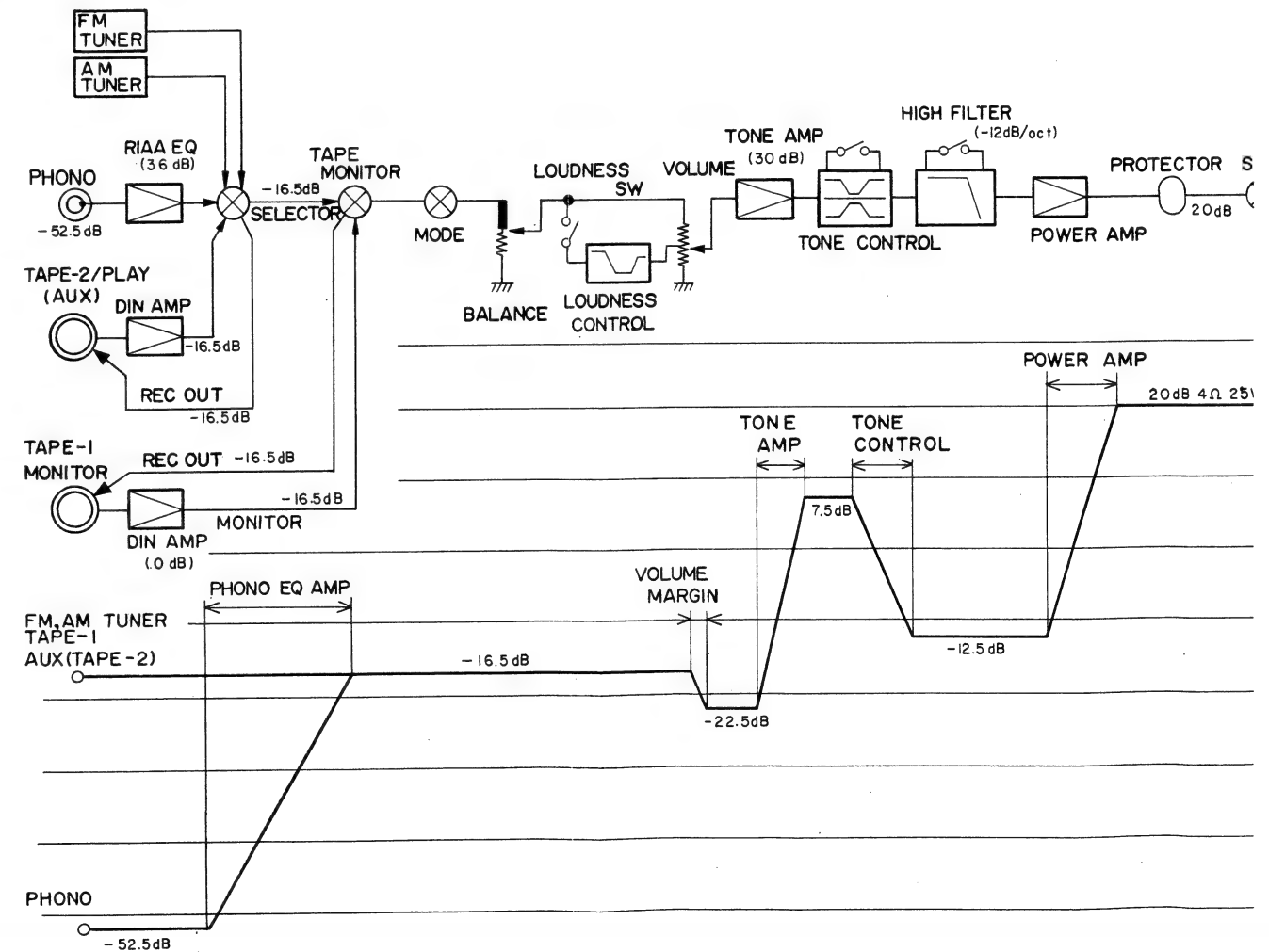
- Conditions:**  
 Carrier frequency: 98 MHz  
 Input Signal: 60 dB  
 Modulation: Pilot signal 10%  
                   Composite signal 90%  
 Modulation frequency: 1 kHz  
 Tune dial to 98 MHz and adjust SFR502 for optimum separation (40 dB).

How to change the upper limit of FM frequency range from 109 MHz to 104 MHz. (EE model only)

Symbol No.	Description	109 MHz		104 MHz	
		Value	Part No.	Value	Part No.
C514	Ceramic Capacitor	18 pF	88-251-180-01	18 pF + 10 pF	88-251-100-01

\* Attach a 10 pF ceramic capacitor to the rear of the C514 on the tuner circuit board.

**LEVEL DIAGRAM**



**ulator Adjusting Steps**

	For stages on each band
MW)	1st: IF 2nd: RF frequency range 3rd: RF tracking
	1st: IF 2nd: RF frequency range 3rd: RF tracking

Set radio dial to	Adjust	Adjust for
Min. Freq	CFT601 IFT601	Maximum

Set radio dial to	Adjust	Adjust for
515 kHz (Low end)	L602 (OSC coil)	Maximum
1650 kHz (High end)	TC-5 (OSC trim.)	Maximum
600 kHz	L601 (ANT coil)	Maximum
1400 kHz	TC-4 (ANT trim.)	Maximum

step 3 if necessary.)

Set radio dial to	Adjust	Adjust for
Max. Freq.	IFT501 IFT502	Max Symmetrical response equal height
Max. Freq.	IFT503	Symmetrical response, centered 10.7 MHz

Set radio dial to	Adjust	Adjust for
87 MHz	L505 (OSC coil)	Maximum
109 MHz	TC-3 (OSC trim)	Maximum
88 MHz	L501 (ANT coil) L503 (RF coil)	Maximum
108 MHz	TC-1 (ANT trim) TC-2 (RF trim)	Maximum

3 if necessary.)

**MPX Adjustment**

• 19 kHz

**Conditions:**  
Selector switch: FM  
ST/MONO switch: STEREO  
Dial position: detuned from station  
Adjust SFR501 for 19 kHz  $\pm$  30 Hz frequency at 19 kHz test point (TP-5).

• MPX

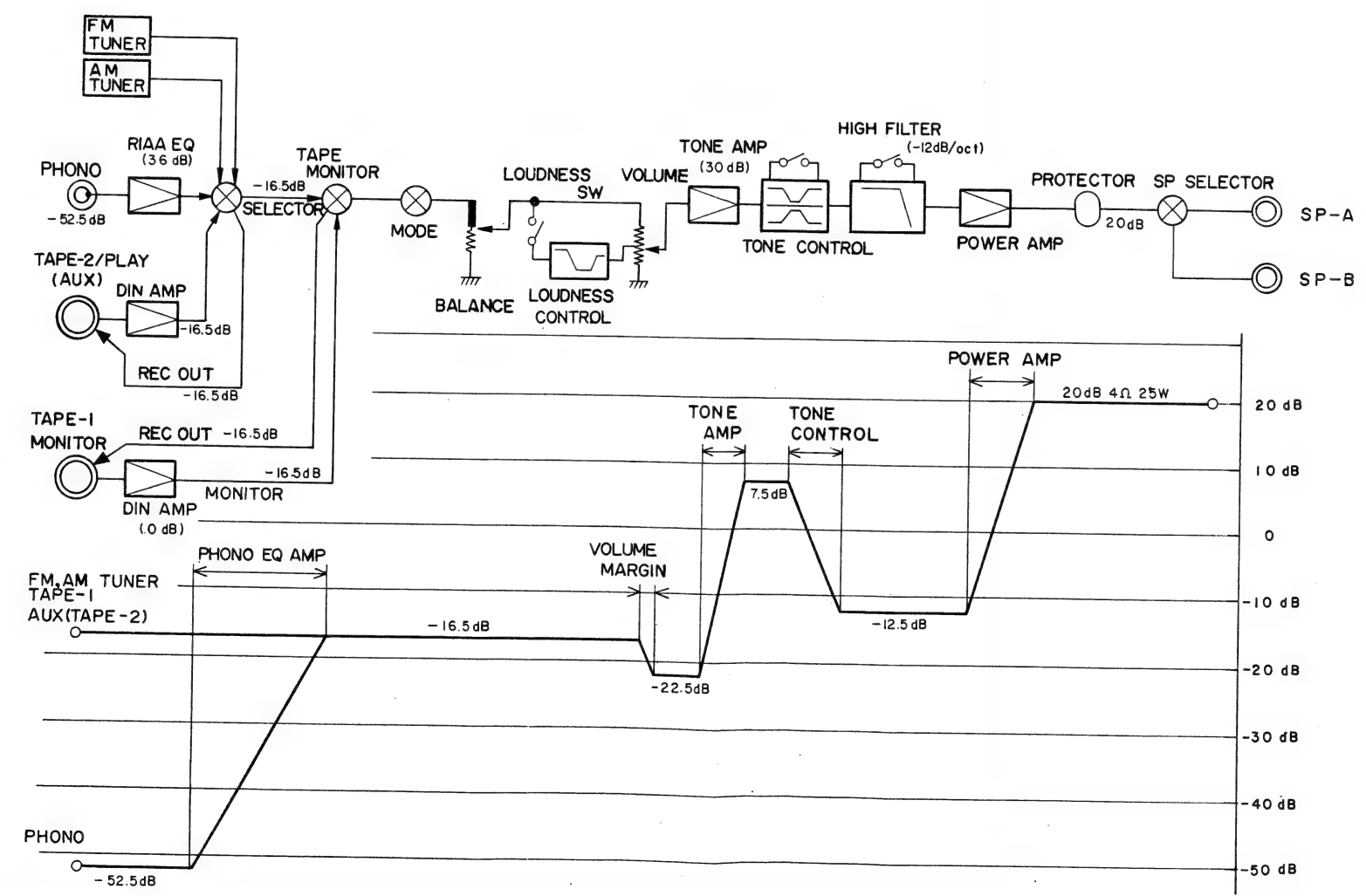
**Conditions:**  
Carrier frequency: 98 MHz  
Input Signal: 60 dB  
Modulation: Pilot signal 10%  
Composite signal 90%  
Modulation frequency: 1 kHz  
Tune dial to 98 MHz and adjust SFR502 for optimum separation (40 dB).

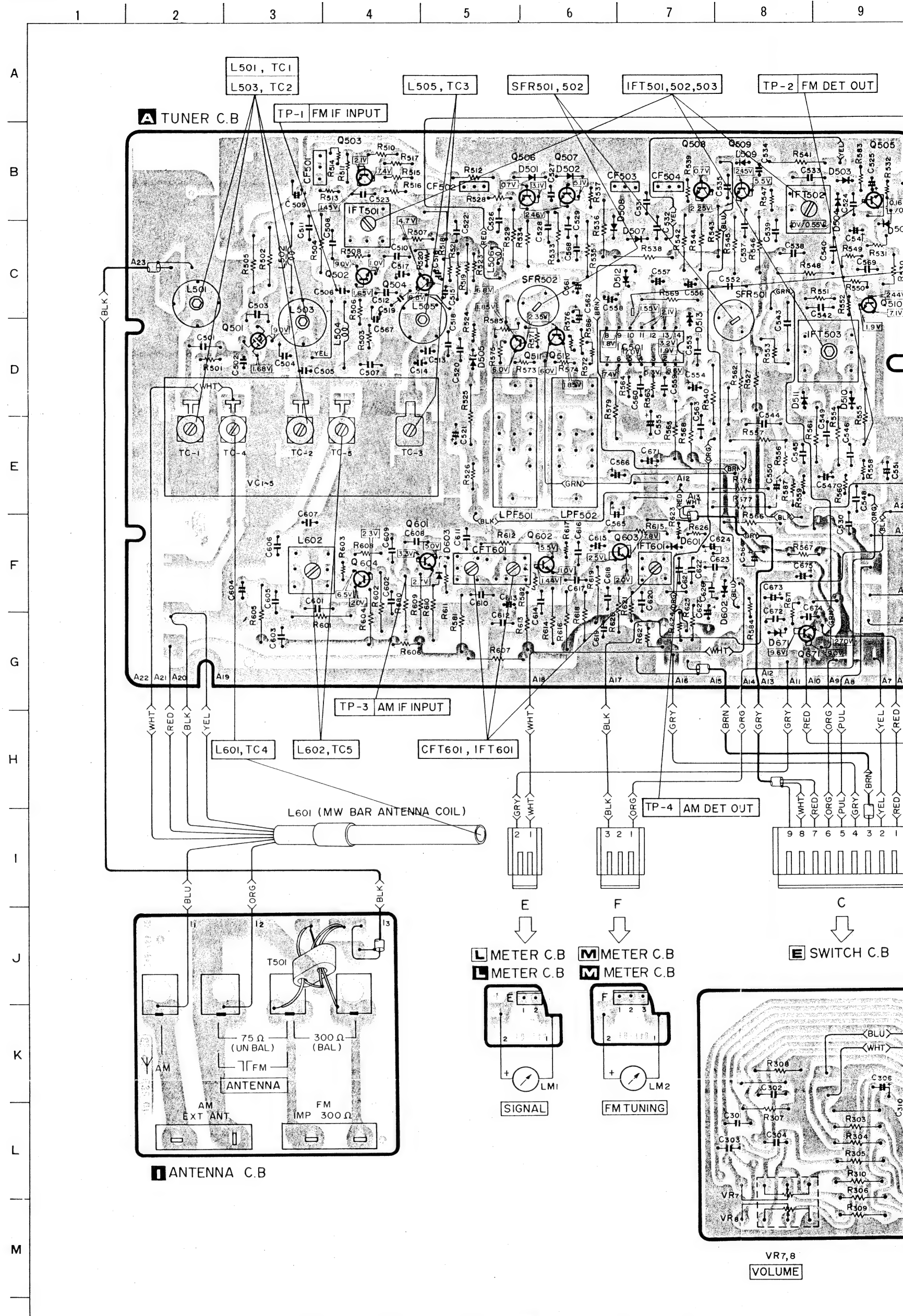
How to change the upper limit of FM frequency range from 109 MHz to 104 MHz. (EE model only)

Symbol No.	Description	109 MHz		104 MHz	
C514	Ceramic Capacitor	18 pF	88-251-180-01	18 pF + 10 pF	88-251-180-01 88-251-100-01

\* Attach a 10 pF ceramic capacitor to the rear of the C514 on the tuner circuit board.

**LEVEL DIAGRAM**





NOTES (1) B(+) Pattern Others pattern (2) The voltage is the reference value

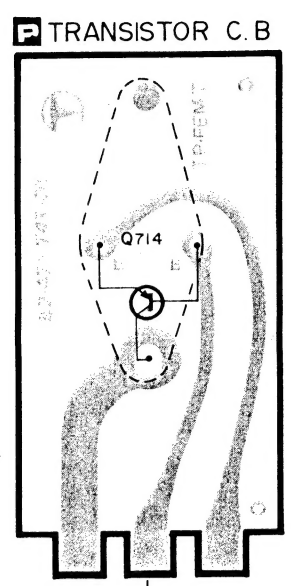
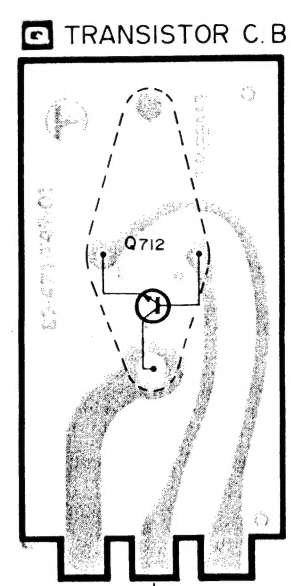
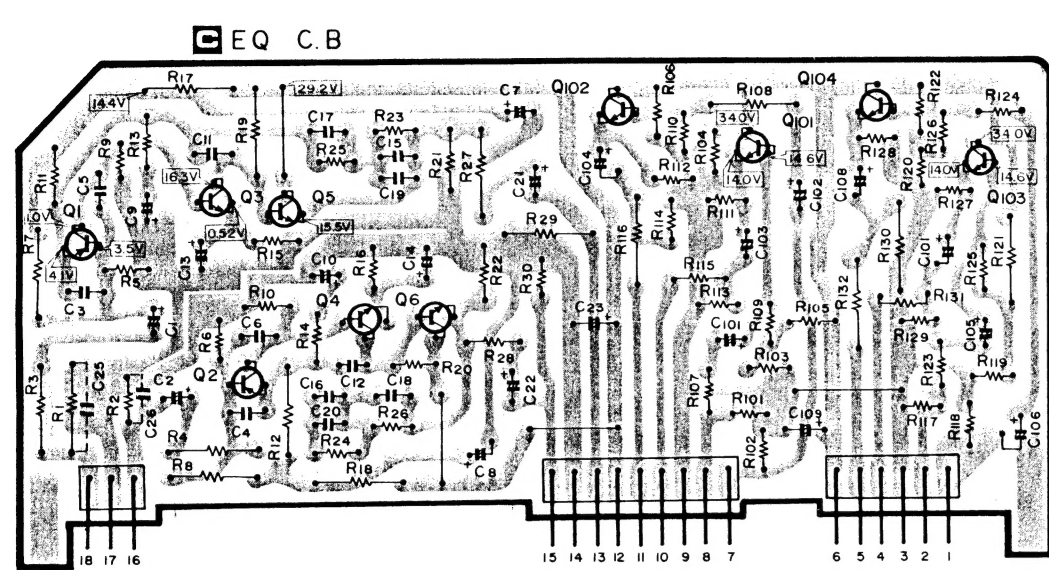




WIRING-2

1 2 3 4 5 6 7 8 9 10 11

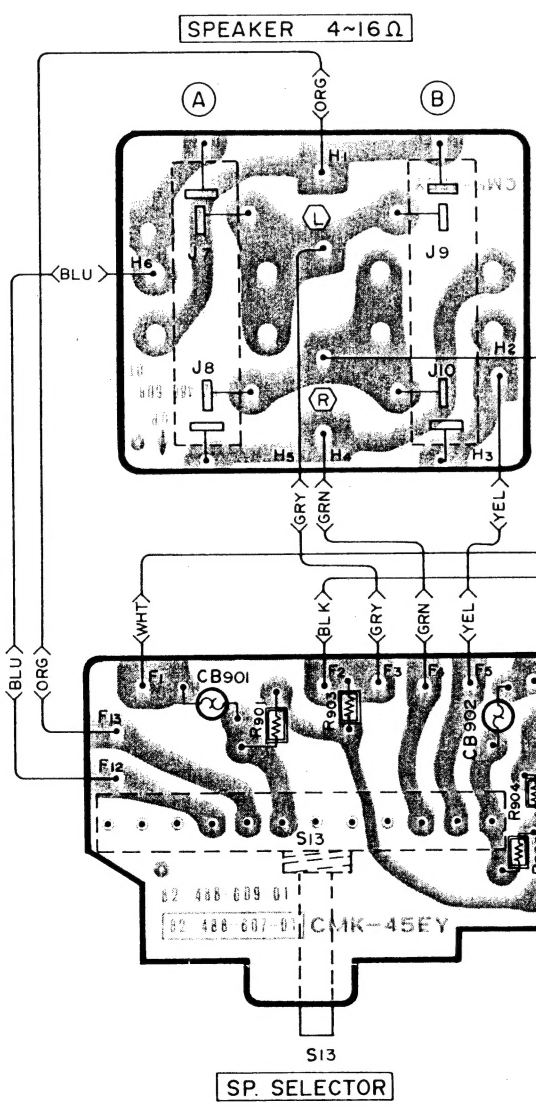
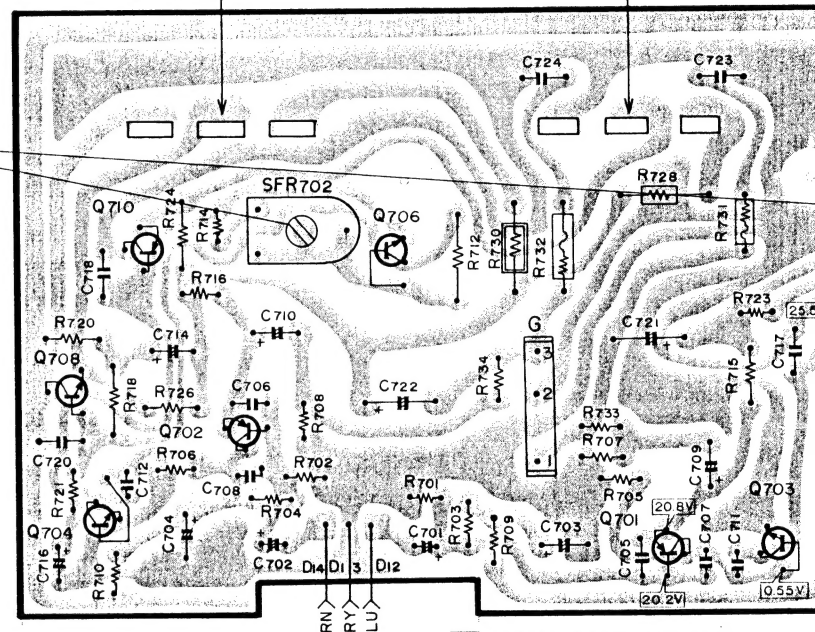
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M



**Main amp idling current adjustment**

Method: Adjust semi-fixed resistor SFR701 (702) so that the voltage between Q 711 (712) and Q 713 (714) emitters is set to 23.5 mV.

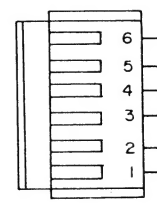
Rating: Idling current: 25 mA  
 Emitter resistance  $0.47\Omega \times 2 = 0.94\Omega$   
 $0.94\Omega \times 25 \text{ mA} = 23.5 \text{ mV}$



SP. TERMINAL C.B

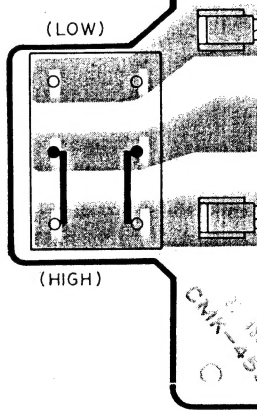
SP. SWITCH C.B

CONTROL C.B



MAIN AMP/POWER C.B

FUSE C.B



PHONES

PL804 (TUNING POINTER)

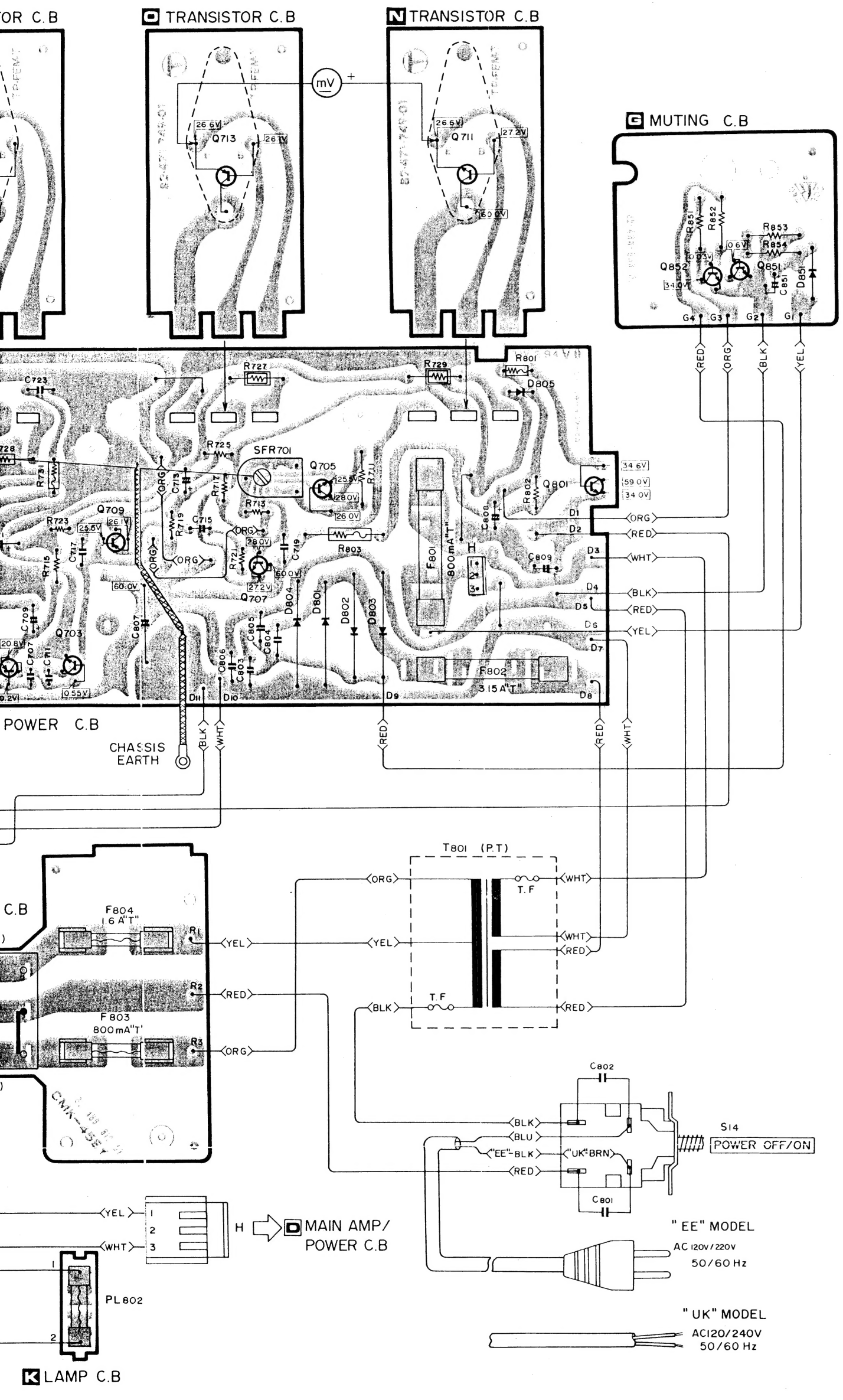
PL803 (LEVEL METER)

LAMP C.B

LAMP

NOTES (1) B(+) Pattern Others pattern

(2) The voltage is the reference value measured with a tester (20K ohm)



tester (20K ohms/VDC) when there are no signals.



ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
<b>◀ TUNER CIRCUIT BOARD SECTION ▶</b>		
PCB-A	82-488-649-01	Tuner circuit board
IC501	87-027-148-11	IC, KB4400
Q501	87-026-129-01	FET, 3SK59 (GR)
Q502	89-305-352-01	Transistor, 2SC535 (B)
Q503,506,507, 508,509	89-303-813-01	Transistor, 2SC381 (O)
Q504	89-307-103-01	Transistor, 2SC710 (C)
Q505,511,512	89-309-456-01	Transistor, 2SC945L (P)
Q510	87-026-045-01	Transistor, 2SC380A (O)
Q601,604	89-303-804-01	Transistor, 2SC380 (Y)
Q602,603	89-303-803-01	Transistor, 2SC380 (O)
Q671	89-313-834-01	Transistor, 2SC1383 (S)
D501,502,503, 504,510,511 512,513,602	87-027-097-01	Diode, 1S1555
D505	87-026-049-01	Diode, 1S2139 (B)
D506,507,508 509,601,603	88-052-188-11	Diode, 1S188 (FM)
D671	87-027-239-01	Zener diode, 05Z-10U
L501	82-473-729-01	FM antenna coil
L502,504,506	82-470-604-01	FM choke coil, 2.2μH
L503	82-473-730-01	FM RF coil
L505	82-471-717-01	FM OSC coil
L602	87-007-066-01	MW OSC coil
IFT501	84-173-614-01	FM IFT
IFT502	82-488-651-01	FM IFT
IFT503	87-008-159-01	FM coil (Ratio)
IFT601	87-008-160-01	AM IFT
VC1~5 TC1~5	82-471-620-01	VC
CF501,502, 503,504	87-030-053-01	FM ceramic filter (EE model only)
CF501,502, 503,504	87-030-054-01	FM ceramic filter (UK model only)
CFT601	87-008-118-01	AM ceramic filter transformer (EE model only)
CFT601	87-008-152-01	AM ceramic filter transformer (UK model only)
LPF501,502	87-030-048-01	Low pass filter
SFR501,502	87-021-366-01	Semi-fixed resistor, 10kΩ-B
<b>&lt; Capacitors &gt;</b>		
C615,624	87-015-318-01	0.1μF 50V Aluminum solid
<b>◀ CONTROL CIRCUIT BOARD SECTION ▶</b>		
PCB-B	82-488-604-01	Control circuit board
Q301,302	89-307-326-01	Transistor, 2SC732 (BL)
Q303,304, 401,402	89-309-456-01	Transistor, 2SC945L (P)
VR1,2,3,4	82-488-622-01	Volume, 50kΩ-A (BASS, TREBLE)
VR5,6	82-488-621-01	Volume, 50kΩ-MN (BALANCE)
VR7,8	82-488-620-01	Volume, 100kΩ-B-CT (VOLUME)
S6~10	82-488-602-01	Push switch (HI-FILTER, LOUDNESS, STEREO/MONO, FM MUTING, AFC)
S11,12	87-031-409-01	Lever switch (TURNOVER FREQUENCY/DEFEAT SELECTOR)
PIN-A	87-032-774-01	Pin, 4P
PIN-B	87-032-776-01	Pin, 6P
<b>&lt; Resistor &gt;</b>		
R337,419	87-025-103-01	1.5kΩ 1W Nonflammable resistor

Symbol No.	Part No.	Description
<b>&lt; Capacitors &gt;</b>		
C401,402	87-015-240-01	0.47μF 50V LL Electrolytic
C317,318	87-015-241-01	1μF 50V LL Electrolytic
C409,410	87-015-242-01	2.2μF 50V LL Electrolytic
C305,306	87-015-244-01	4.7μF 50V LL Electrolytic
<b>◀ EQ CIRCUIT BOARD SECTION ▶</b>		
PCB-C	82-488-605-01	EQ circuit board
Q1,2	89-108-725-01	Transistor, 2SA872 (E)
Q3,4,5,6	89-312-222-01	Transistor, 2SC1222 (E)
Q101,102,103, 104	89-309-456-01	Transistor, 2SC945L (P)
	87-032-633-01	Pin, 3P
	87-032-636-01	Pin, 6P
	87-032-639-01	Pin, 9P
<b>&lt; Capacitors &gt;</b>		
C1,2	87-015-244-01	4.7μF 50V LL Electrolytic
<b>◀ MAIN AMP/POWER CIRCUIT BOARD SECTION ▶</b>		
PCB-D	82-488-650-01	Main amp/Power circuit board
Q701,702	89-108-416-01	Transistor, 2SA841 (BL)
Q703,704, 707,708	89-317-353-01	Transistor, 2SC1735 (D)
Q705,706	89-309-456-01	Transistor, 2SC945L (P)
Q709,710	89-108-503-01	Transistor, 2SA850 (D)
Q801	89-402-344-01	Transistor, 2SD234 (Y)
D801,802, 803,804	87-027-185-01	Diode, 30D2
D805	87-027-229-01	Zener diode, HZ-33 (FN)
F801	87-035-060-01	Fuse, 800mA "T"
	87-098-015-01	Fuse label, 800mA "T"
F802	87-035-119-01	Fuse, 3.15A "T"
	87-098-021-01	Fuse label, 3.15A "T"
	87-032-527-01	Fuse clamp
SFR701,702	87-021-464-01	Semi-fixed resistor, 1kΩ-B
PIN-G	87-032-437-01	Pin, 3P
PIN-H	87-032-773-01	Pin, 3P
<b>&lt; Resistors &gt;</b>		
R727,728, 729,730	87-025-064-01	0.47Ω Nonflammable resistor
R803	87-029-009-01	22Ω 1W Fuse resistor
R731,732	87-029-007-01	22Ω 1/4W Fuse resistor
R801	87-029-023-01	47Ω 1/4W Fuse resistor
<b>&lt; Capacitors &gt;</b>		
C721,722	87-015-334-01	2200μF 35V Electrolytic
C807	87-015-335-01	4700μF 63V Electrolytic
C701,702	87-015-243-01	3.3μF 50V LL Electrolytic
C723,724	87-012-099-01	0.022μF Ceramic
C803,804, 805,806	87-012-098-01	0.047μF 100V Ceramic
<b>◀ SWITCH CIRCUIT BOARD SECTION ▶</b>		
PCB-E	82-488-606-01	Switch circuit board
J3,4,5,6	82-488-624-01	Terminal plate ass'y (PHONO-L,R,TAPE-1,TAPE-2)
S1,2,3,4,5	82-488-601-01	Push switch (SELECTOR SW)
PIN-D	87-032-776-01	Pin, 6P
PIN-C	87-032-779-01	Pin, 9P
<b>&lt; Resistors &gt;</b>		
R201	87-025-104-01	330Ω 1W Nonflammable resistor
R202	87-025-105-01	330Ω 2W Nonflammable resistor

Symbol No.	Part No.	Description
<b>« SPEAKER SWITCH CIRCUIT BOARD SECTION »</b>		
PCB-F	82-488-609-01	Speaker switch circuit board
S13	82-488-628-01	Rotary switch (SPEAKER SELECTOR)
C-B901,902	82-488-636-01	Circuit breaker, 2.5A
R901,902, 903,904	87-025-055-01	< Resistor > 270Ω 2W Nonflammable resistor
<b>« MUTING CIRCUIT BOARD SECTION »</b>		
PCB-G	82-488-653-01	Muting circuit board
Q851	89-316-274-01	Transistor, 2SC1627 (Y)
Q852	89-313-647-01	Transistor, 2SC1364 (7)
D851	87-027-083-01	Diode, 1S1885
<b>« SPEAKER TERMINAL CIRCUIT BOARD SECTION »</b>		
PCB-H	82-488-608-01	Speaker terminal circuit board
J7,8,9,10	82-471-678-01	DIN speaker terminal (SP A-L,R,B-L,R)
<b>« ANT CIRCUIT BOARD SECTION »</b>		
PCB-I	82-488-642-01	ANT circuit board
T501	87-006-050-01	Balun transformer
J1	82-488-656-01	DIN FM antenna terminal
J2	82-488-655-01	DIN AM antenna terminal
	82-488-646-01	Antenna terminal, 4P
<b>« LAMP CIRCUIT BOARD SECTION »</b>		
PCB-J-K	82-488-643-01	Lamp circuit board
PL801,802	82-488-647-01	Pilot lamp
	87-032-527-01	Pilot lamp clamp
<b>« METER CIRCUIT BOARD SECTION »</b>		
PCB-L-M	82-488-641-01	Meter circuit board
LM1	82-488-618-01	Level meter (SIGNAL)
LM2	82-488-619-01	Level meter (TUNING)
PIN-E	87-032-772-01	Pin, 2P
PIN-F	87-032-773-01	Pin, 3P

Symbol No.	Part No.	Description
<b>« TRANSISTOR CIRCUIT BOARD SECTION »</b>		
PCB-N-O-P-Q	82-471-749-11	Transistor circuit board
Q711,712	89-403-713-01	Transistor, 2SD371(O)
Q713,714	89-205-313-01	Transistor, 2SB531(O)
<b>« FUSE CIRCUIT BOARD SECTION »</b>		
PCB-R	82-488-612-01	Fuse circuit board
S15	87-031-364-01	Slide switch (VOLTAGE SELECTOR)
F803	87-035-060-01	Fuse, 800mA "T"
	87-098-015-01	Fuse label, 800mA "T"
F804	87-035-068-01	Fuse, 1.6A "T"
	87-098-018-01	Fuse label, 1.6A "T"
	87-032-744-01	Fuse clamp
<b>« MISCELLANEOUS »</b>		
T801	82-488-613-11	Power transformer (EE model only)
T801	82-488-614-01	Power transformer (UK model only)
D514	87-026-082-01	Light emitting diode, (RED) S8169 (FM STEREO)
L601	82-488-645-11	MW bar antenna coil
PL803	82-488-626-01	Pilot lamp (METER)
PL804	82-488-627-01	Pilot lamp (TUNING POINTER)
J11	87-032-673-01	Jack 6.3φ (PHONES)
S14	87-031-408-01	Push switch (POWER)
CON-E	82-488-657-01	Connector ass'y, 2P
CON-I	82-488-633-01	Connector ass'y, 2P
CON-H	82-488-638-01	Connector ass'y, 2P
CON-G	82-488-637-01	Connector ass'y, 3P
CON-F	82-488-639-01	Connector ass'y, 3P
CON-A	82-488-632-01	Connector ass'y, 4P
CON-B	82-488-631-01	Connector ass'y, 6P
CON-D	82-488-630-01	Connector ass'y, 6P
CON-C	82-488-629-11	Connector ass'y, 9P
< Capacitor >		
C801,802	84-190-622-01	0.1μF 250V Line capacitor