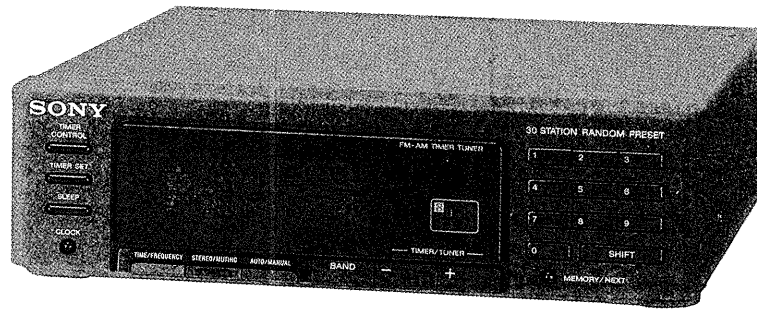


# ST-H500

## SERVICE MANUAL

*AEP Model  
UK Model*

This set is the tuner section in MHC-5500.



### SPECIFICATIONS

System FM stereo, FM/AM superheterodyne tuner

#### FM tuner section

Tuning range 87.5 – 108 MHz

Antenna terminals

75 ohms unbalanced

Intermediate frequency

10.7 MHz

#### AM tuner section

	MW	LW
Tuning range	531 – 1602 kHz (except Italian model) 522 – 1611 kHz (for the Italian model)	153 – 279 kHz (except Italian model) 144 – 288 kHz (for the Italian model)

Antenna AM loop antenna, External antenna terminals

Intermediate frequency

450 kHz

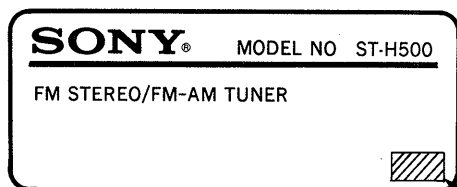
Dimensions Approx. 225 × 65 × 230 mm  
(w/h/d)

Weight 1.1 kg

FM-AM TIMER TUNER  
**SONY**®

**MODEL IDENTIFICATION**

—Model Number Label—



{ AEP, UK, Model : (AE)  
 { Itarian (IT) Model : (IT)

**• Power supply for service**

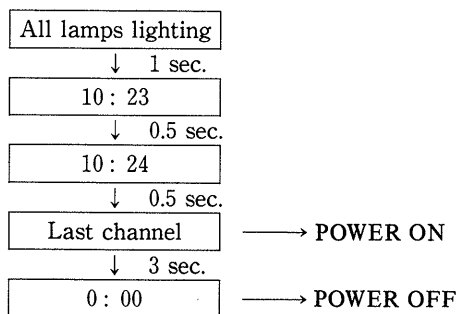
Since this machine has no power source in itself, the power is supplied form AMP TA-H500 used for this series. As shown in the following table, this machine requires 4types of voltage, and supplying each type of voltage separately makes complicated connections.

Accordingly, make connection with TA-H500 at time of service, such as electrifying repair.

- AC 3.9V    FL-tube filament voltage
- DC -24V    Display controller IC701, grid voltage
- DC 5V      Display controller IC701, V<sub>CC</sub>
- DC 13V    PLL control voltage



**• Service mode for checking the timer ON/OFF**

- 1) Connect with AMP TA-H500 and set the power switch of TA-H500 to the state of STANDBY.
- 2) Set the time of tuner to a proper time (any time).
- 3) Press 3 switches simultaneously, namely, PRESET <sup>1</sup>○, <sup>6</sup>○ and ○ BAND.
- 4) FL-tube display



- 5) End

**SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## —Caution for Service—

## • Reset of IC701

The display controller IC701 is reset by short-circuiting both edges of C702 (0.47 $\mu$ F) while power OFF and discharging electricity.

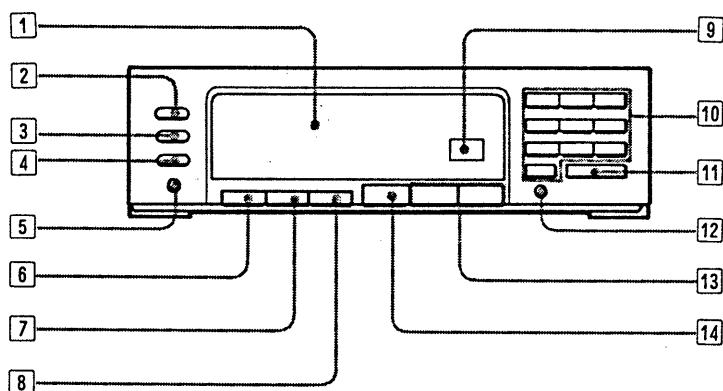
After resetting, the following frequencies are pre-set to the memory.

When the repair is completed, return the memory to the preceding state (content).

FM	AM/MW		LW	
	AEP, UK modol	Italian model	AEP, UK model	Italian model
A1 87.5 MHz	A6 531 kHz	A6 522 kHz	B1 153 kHz	B1 144 kHz
A2 88.0 MHz	A7 603 kHz	A7 603 kHz	B2 171 kHz	B2 162 kHz
A3 98.0 MHz	A8 999 kHz	A8 999 kHz	B3 216 kHz	B3 216 kHz
A4 100.0 MHz	A9 1404 kHz	A9 1404 kHz	B4 261 kHz	B4 270 kHz
A5 108.0 MHz	A0 1602 kHz	A0 1611 kHz	B5 281 kHz	B5 288 kHz

## SECTION 1 GENERAL

### 1-1. PARTS IDENTIFICATION



- 1 Display window
- 2 TIMER CONTROL button
- 3 SLEEP timer button
- 4 TIMER SET button
- 5 CLOCK button
- 6 TIME/FREQUENCY button
- 7 STEREO/MUTING button
- 8 AUTO/MANUAL tuning button
- 9 Remote control sensor
- 10 Preset stations buttons
- 11 SHIFT (memory page select) button
- 12 MEMORY/NEXT button
- 13 TUNING/TIMER +/- buttons
- 14 BAND selector

1-2. CLOCK SETTING

Setting the Clock

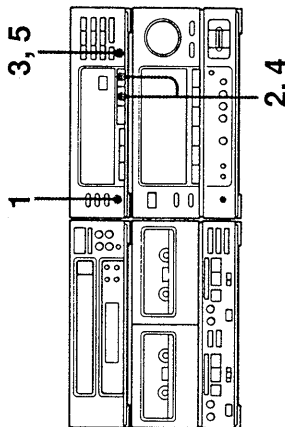
Example: Set to 9:25 in the morning.

- 1 Press CLOCK.
- 2 Set the hour with the TUNING/TIMER +/- buttons.
- 3 Press MEMORY/NEXT.
- 4 Set the minute with the TUNING/TIMER +/- buttons.
- 5 Press MEMORY/NEXT.

The clock starts operating.

**When a power interruption occurs**  
The time will blink and the clock will be behind by the length of time of the power interruption. After the power is restored, the display must be reset to the proper time. (Timer setting is not cancelled by power interruption.)

**To change the frequency display into the time display**  
Press TIME/FREQUENCY. Each time you press TIME/FREQUENCY, the display changes.



**1**

CLOCK

9:00

**2**

- TUNING/TIMER -

+

9:30

**3**

MEMORY/NEXT

9:25

**4**

- TUNING/TIMER -

+

9:25

**5**

MEMORY/NEXT

9:25

1-3. RADIO

Storing Stations A

A total of 30 stations can be stored in any desired sequence, so that you can tune in the stored station directly by entering the memory page and number.

- 1 Tune in the desired station.
- 2 Press MEMORY/NEXT. MEMORY appears for several seconds.
- 3 While MEMORY is on, press SHIFT to select the memory page (A, B or C). The memory pages (A, B or C) can be classified according to the music category, station band, etc.
- 4 While MEMORY is on, select the number (1, 2, 3 ... 8, 9, 0) with the numeric buttons. MEMORY disappears, and the station is stored.
- 5 Repeat 1 to 4 for each station to be stored.

To Tune in a Preset Station B

- 1 Press TUNER.
- 2 Press SHIFT and the numeric buttons to select the desired code.

**If you cannot store a station successfully**  
Press MEMORY/NEXT again so that MEMORY appears, and then select the desired page and number. Be sure to do this while MEMORY is on (approx. 4 seconds.)

**When you have selected the wrong page and number**  
Press MEMORY/NEXT and then select the correct one.

**Can a previously stored station be erased?**  
No. Erasing only is not possible, but storing a new station erases the previous one.

Important

The stored stations remain for approximately 2-3 weeks even if no power is supplied (e.g. the power cord is disconnected, etc.). If the stations are erased, store them again.

**A**

**2**

MEMORY/NEXT

FM 95.5

**3**

SHIFT

1 2 3

4 5 6

7 8 9

0

FM 95.5

**B**

**1**

TUNER

FM 95.5

**2**

SHIFT

1 2 3

4 5 6

7 8 9

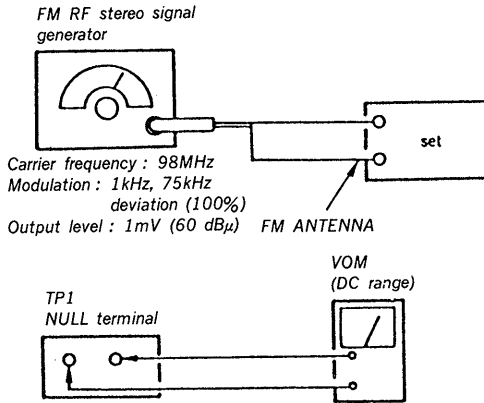
0

## SECTION 2 ELECTRICAL ADJUSTMENTS

### FM SECTION

#### • FM Discriminator Alignment (NULL check)

Setting :

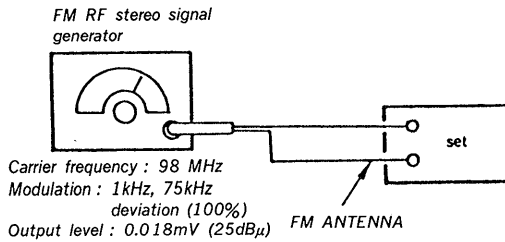


**Procedure :**

1. Tune the set to 98 MHz.
  2. Adjust T21 for 0 V reading on the VOM.
- Note: FM TUNING LEVEL adjustment should be made after FM discriminator alignment.

#### • FM TUNING LEVEL Adjustment

Setting :

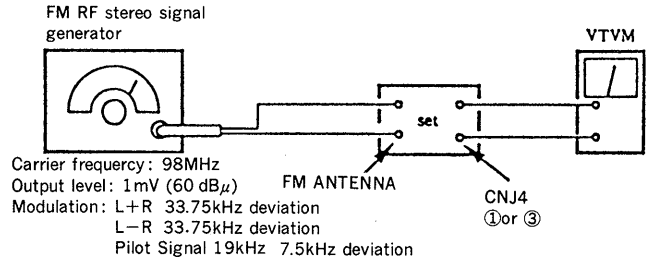


**Procedure :**

1. Tune the set to 98 MHz.
2. Adjust RV24 so that the TUNED LED goes on.

#### • FM Stereo Separation Adjustment

Setting :



**Procedure :**

Tune the set to 98 MHz

FM stereo Signal generator Output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV21 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV21 for minimum reading.

L-CH Stereo separation : Ⓐ-Ⓑ

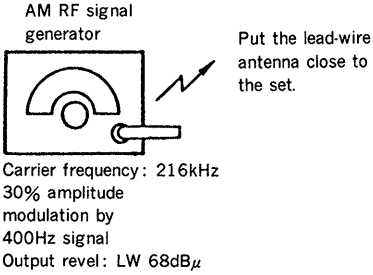
R-CH Stereo separation : Ⓒ-Ⓓ

The separations of both channels should be equal.

**AM SECTION**

**• AM TUNING LEVEL Adjustment**

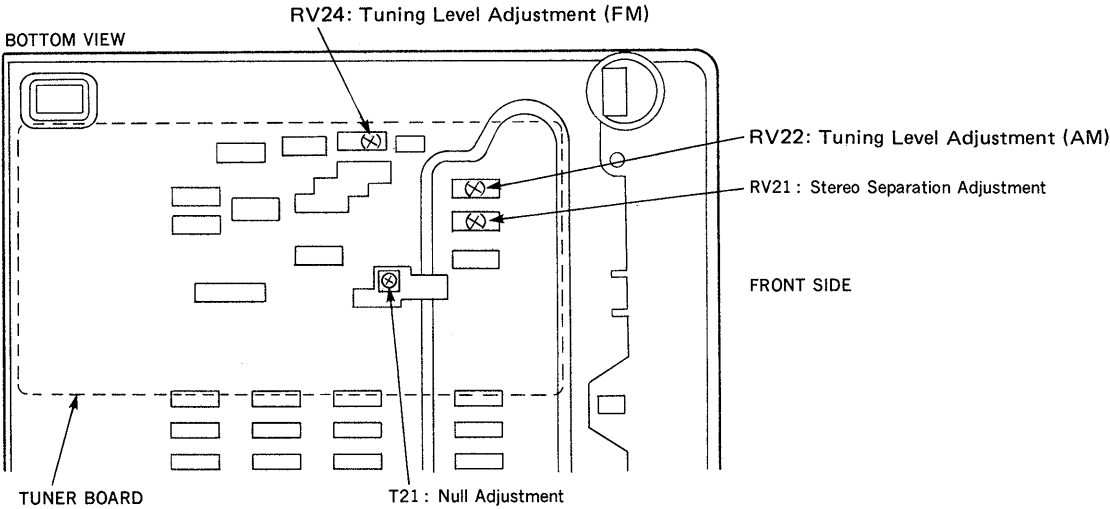
Setting :



**Procedure :**

1. Tune the set to 216 kHz.
2. Adjust the RV22 so that the TUNED LED goes on.

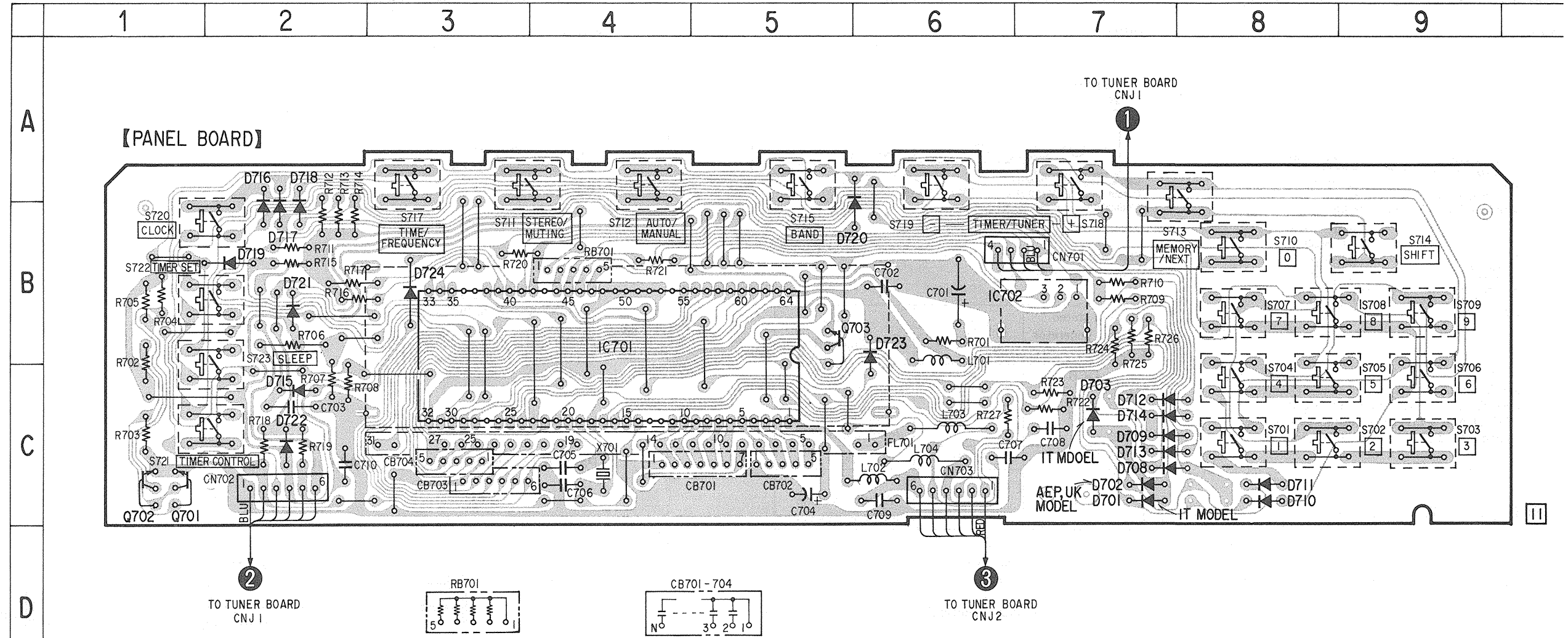
**[Parts Arrangement Diagram for Adjustments]**



SECTION 3  
DIAGRAMS

• Semiconductor Location 3-1. PRINTED WIRING BOARD—PANEL BOARD—

Ref. No.	Location
D701	C-7
D702	C-7
D703	C-7
D708	C-7
D709	C-7
D710	C-8
D711	C-8
D712	C-7
D713	C-7
D714	C-7
D715	C-2
D716	B-2
D717	B-2
D718	B-2
D719	B-2
D720	B-6
D721	B-2
D722	C-2
D723	B-6
D724	B-3
IC701	B-4
IC702	B-7
Q701	C-1
Q702	C-1
Q703	B-5

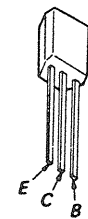


Note:

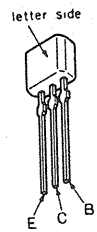
- — : parts extracted from the component side.
- IT: Itarian Model

3-2. SEMICONDUCTOR LEAD LAYOUTS

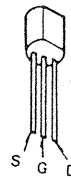
DTA114ES  
DTC114ES  
DTC144ES  
2SC1317-SU  
2SC2669-OY  
2SC3113-AB  
2SC3330-T



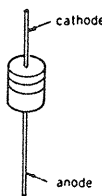
2SC2785-HFE



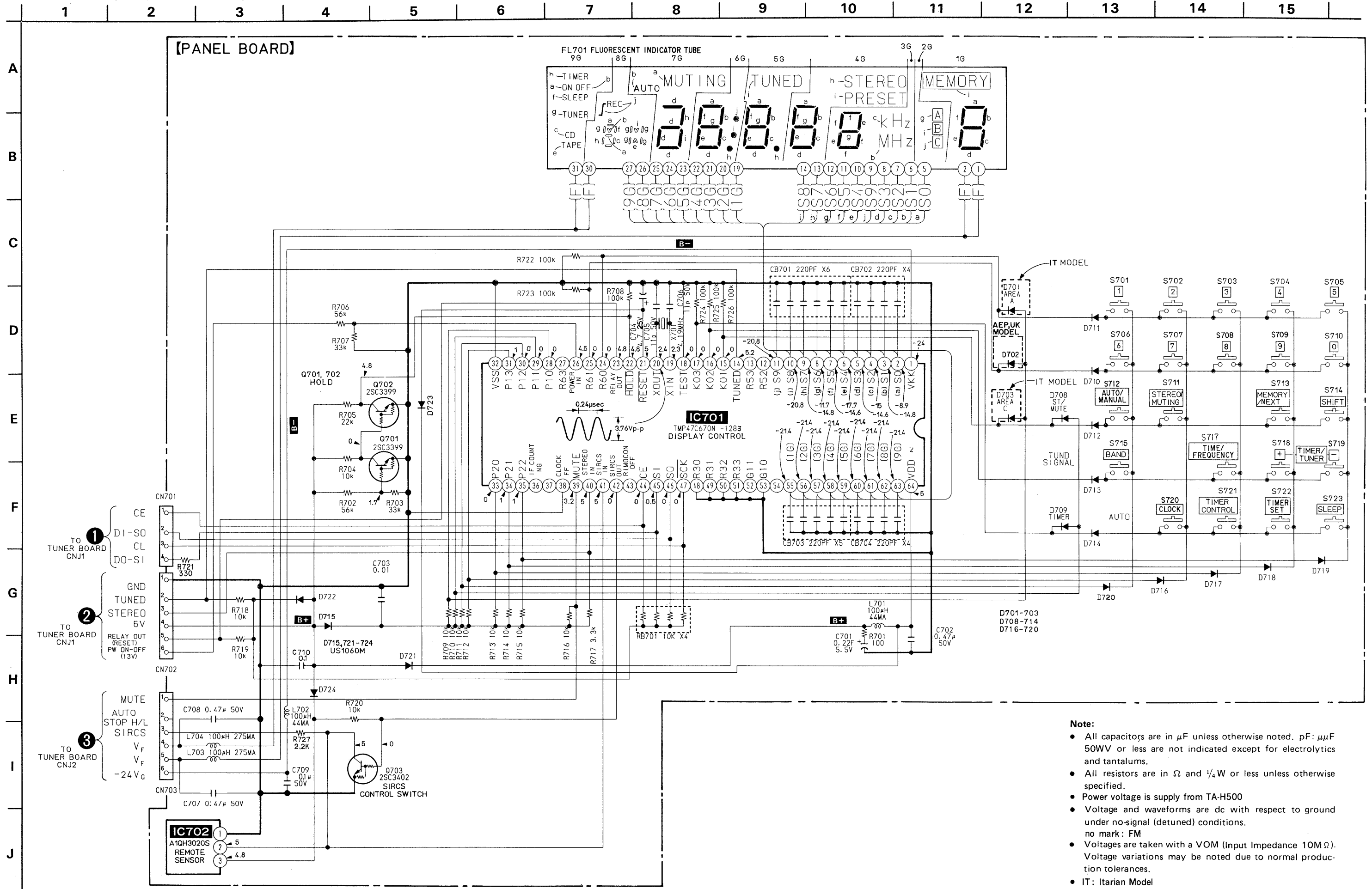
2SK246-GR3



1S5120



3-3. SCHEMATIC DIAGRAM—PANEL BOARD—

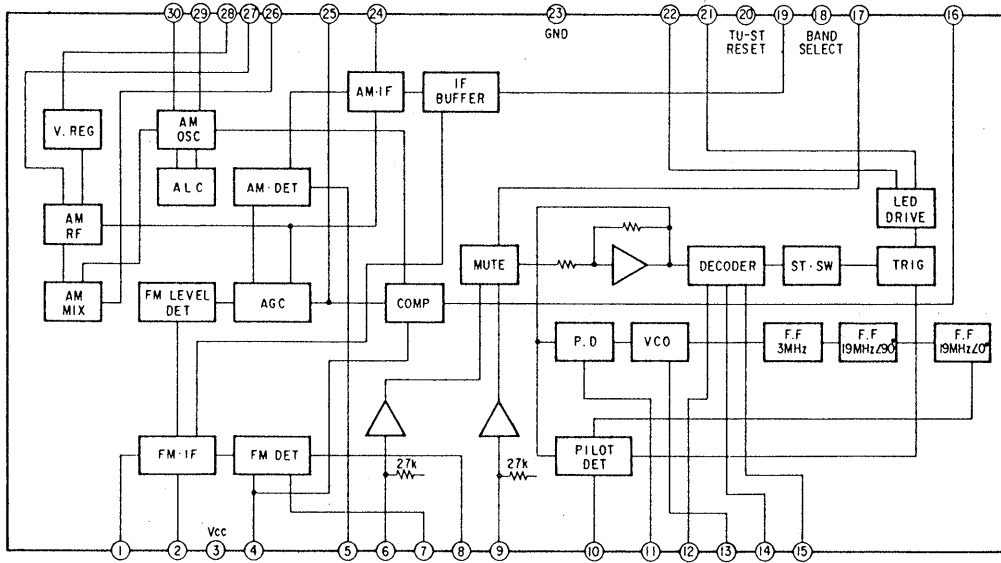


- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\mu\text{F}$ . 50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
  - Power voltage is supply from TA-H500
  - Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark : FM
  - Voltages are taken with a VOM (Input Impedance  $10\text{M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
  - IT: Italian Model

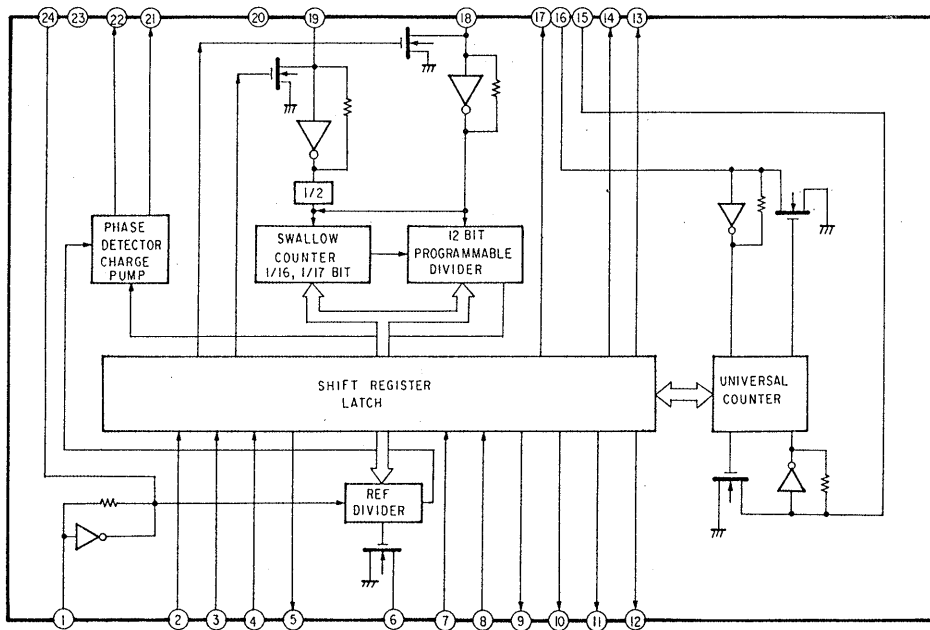


• IC Block Diagrams

IC21 LA1851N

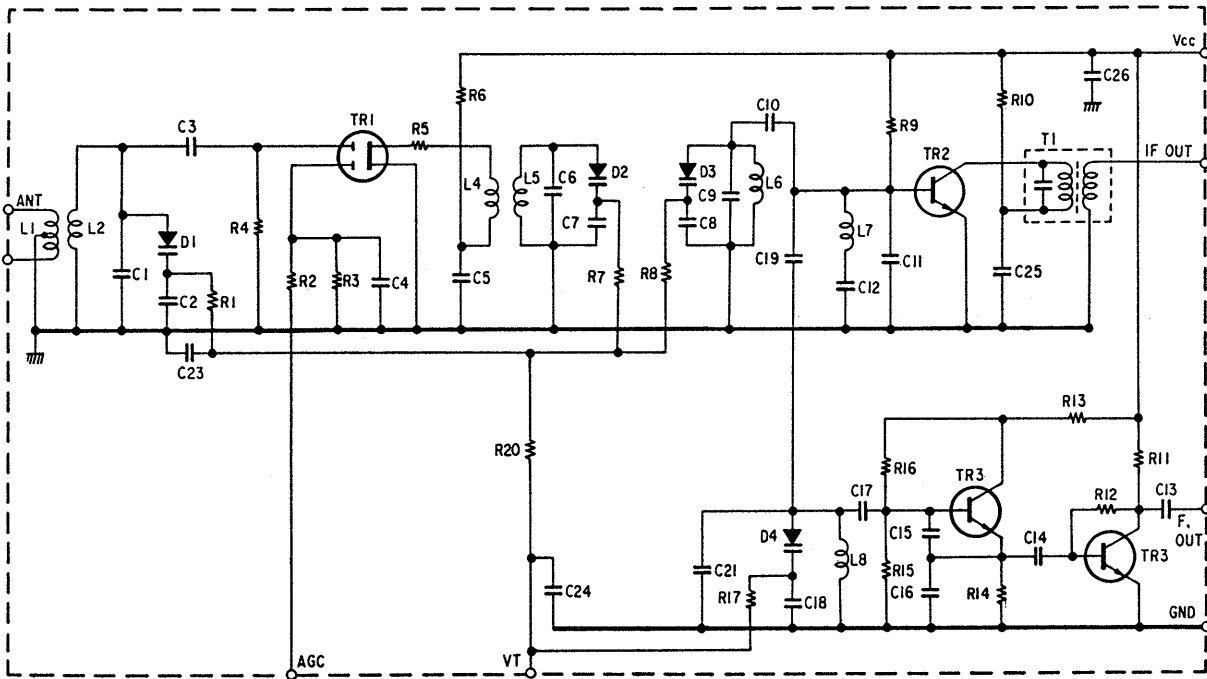


IC81 LC7218

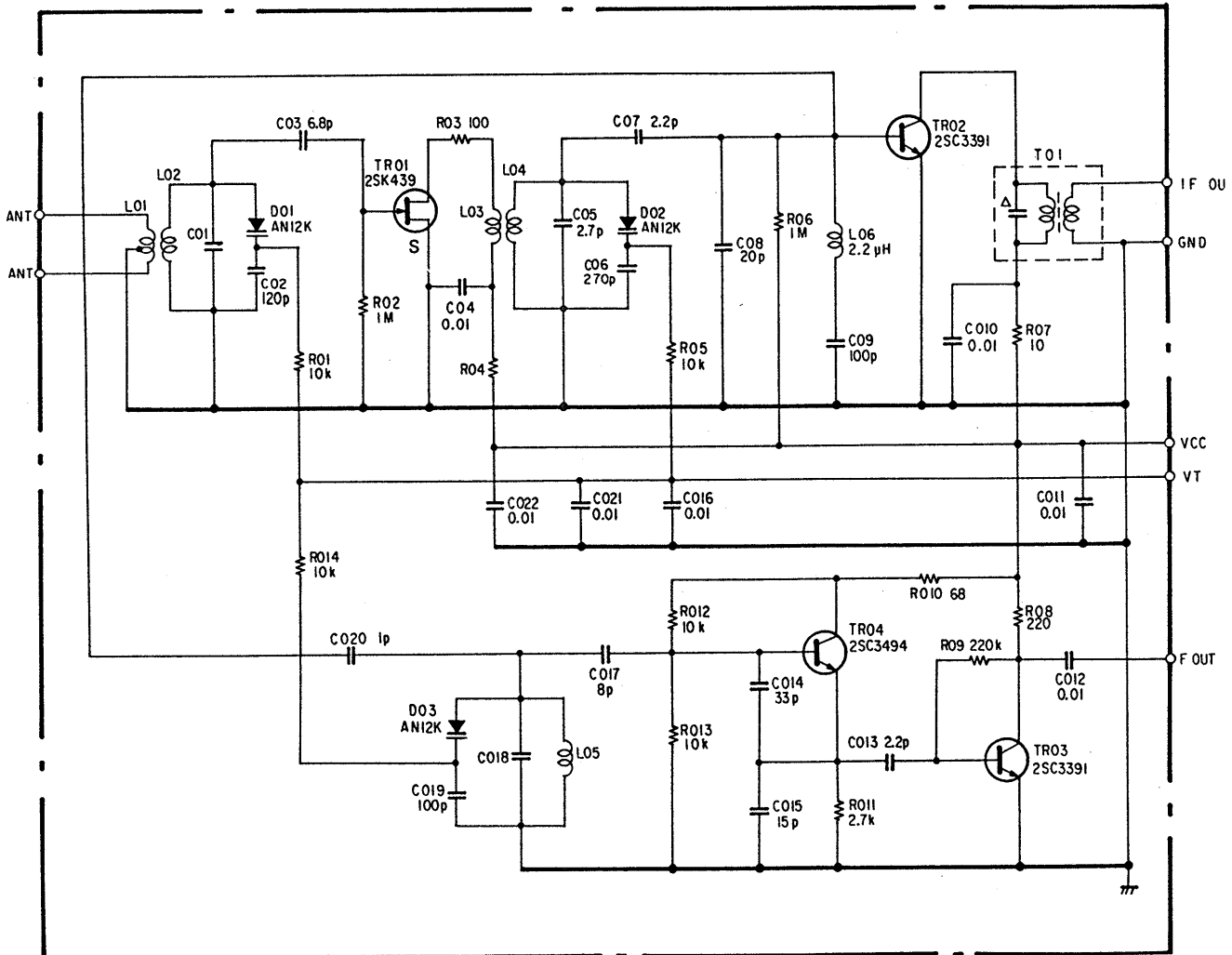


3-4. FM FRONT-END SCHEMATIC DIAGRAMS

FE1 (IT Model)

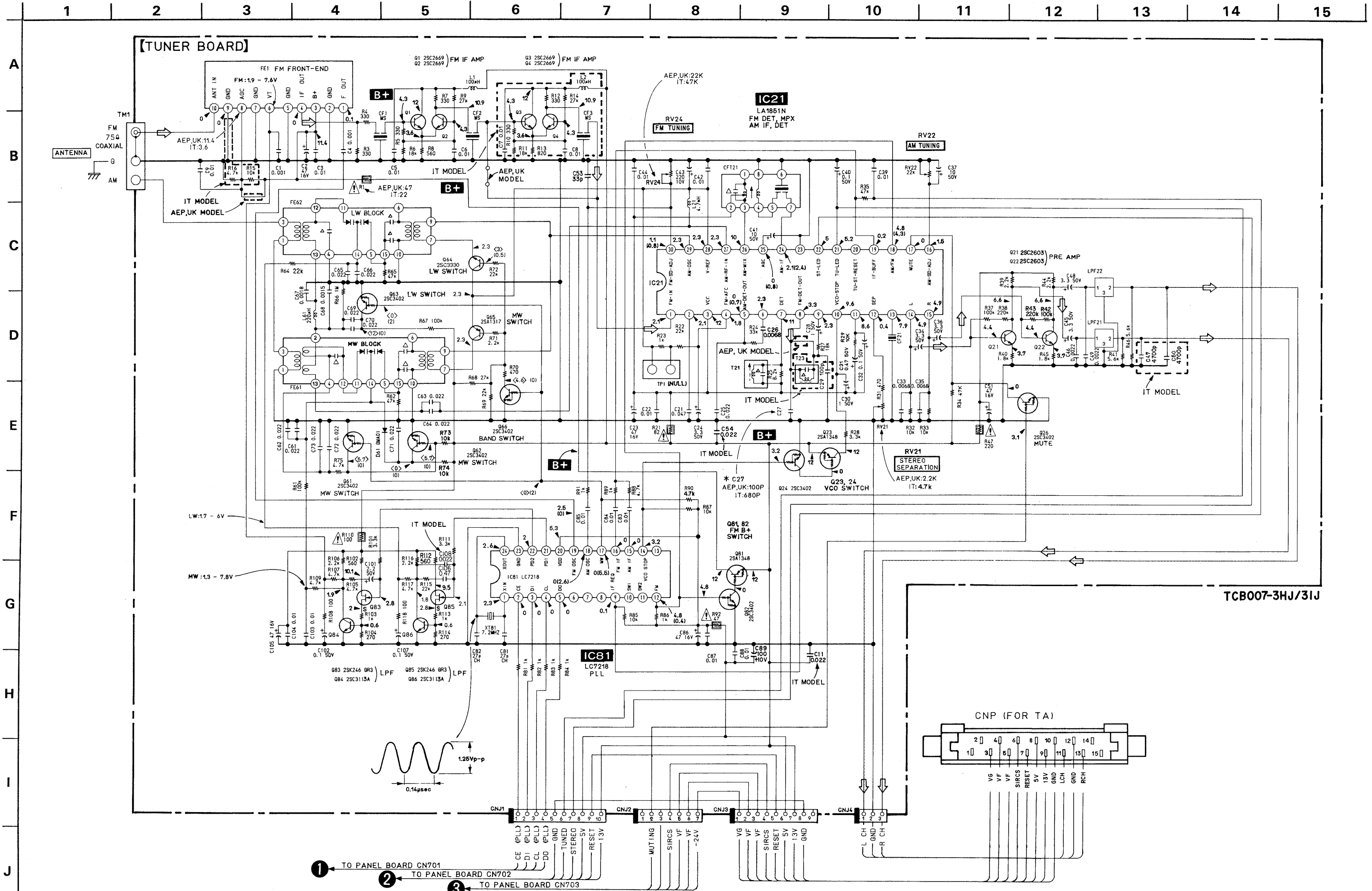


FE1 (AEP, UK Model)

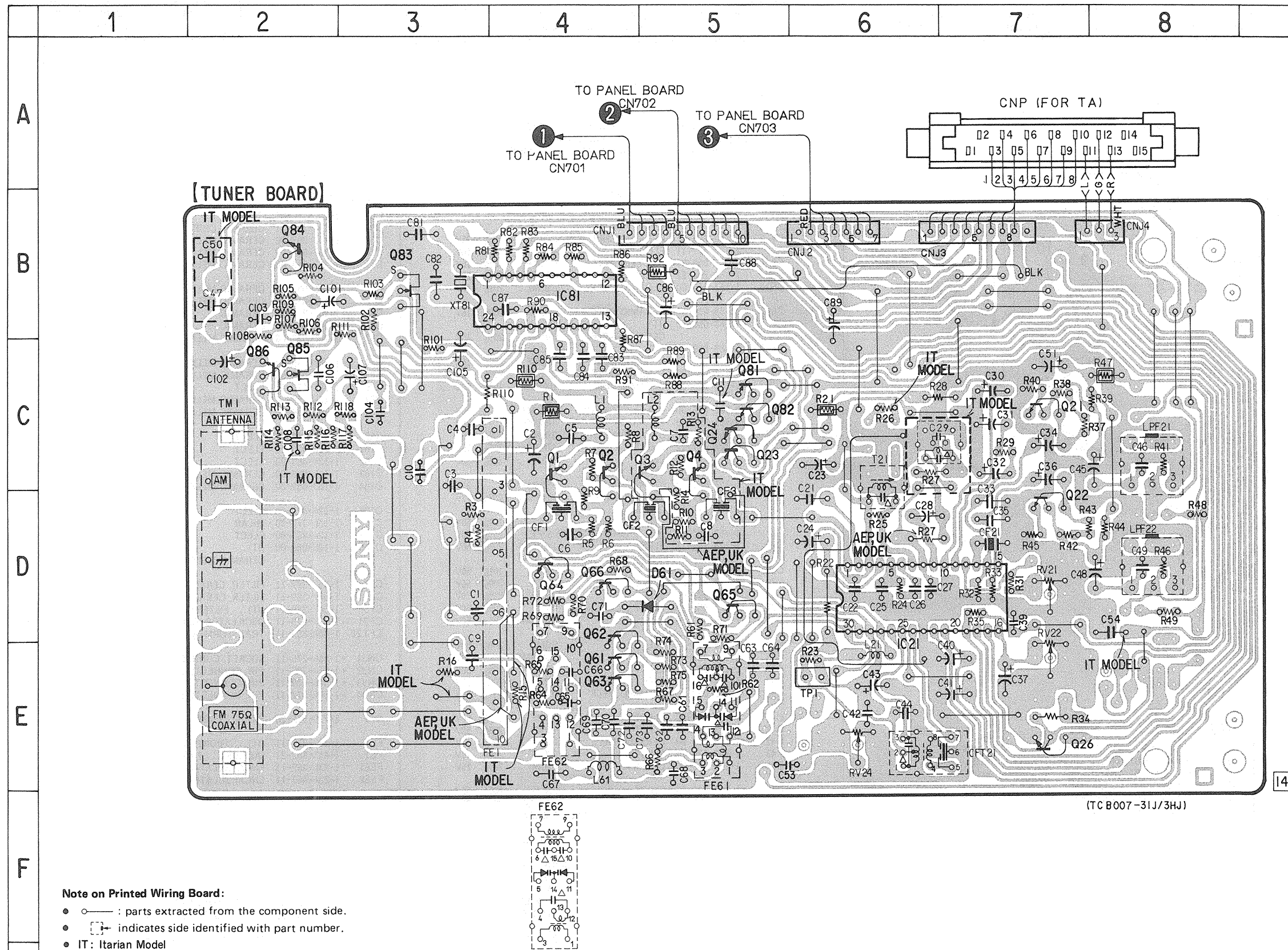


3-5. SCHEMATIC DIAGRAM—TUNER BOARD—

• Refer to page 11 for IC Block Diagrams.



3-6. PRINTED WIRING BOARD—TUNER BOARD—



• Semiconductor Location

Ref. No.	Location
D61	D-5
IC21	D-6
IC81	B-4
Q1	C-4
Q2	C-4
Q3	C-5
Q4	C-5
Q21	C-7
Q22	D-7
Q23	C-5
Q24	C-5
Q26	E-7
Q61	E-4
Q62	E-4
Q63	E-4
Q64	D-4
Q65	D-5
Q66	D-4
Q81	C-5
Q82	C-5
Q83	B-3
Q84	B-2
Q85	C-2
Q86	C-2

Note on Schematic Diagram:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{M}$ F  
50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
- $\triangle$ : internal component.
- $\square$ : nonflammable resistor.
- $\square$ : adjustment for repair.
- Power voltage is supply from TA-H500
- Voltage are dc with respect to ground under no-signal (detuned) conditions.  
no mark: FM  
( ): MW  
< >: LW
- Voltages are taken with a VOM (Input Impedance  $10\text{M}\Omega$ ).  
Voltage variations may be noted due to normal production tolerances.
- Signal path.  
 $\Rightarrow$ : FM
- IT: Itarian Model

Note on Printed Wiring Board:

- $\circ$ : parts extracted from the component side.
- $\square$ : indicates side identified with part number.
- IT: Itarian Model

Note: The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

**SECTION 4  
EXPLODED VIEW**

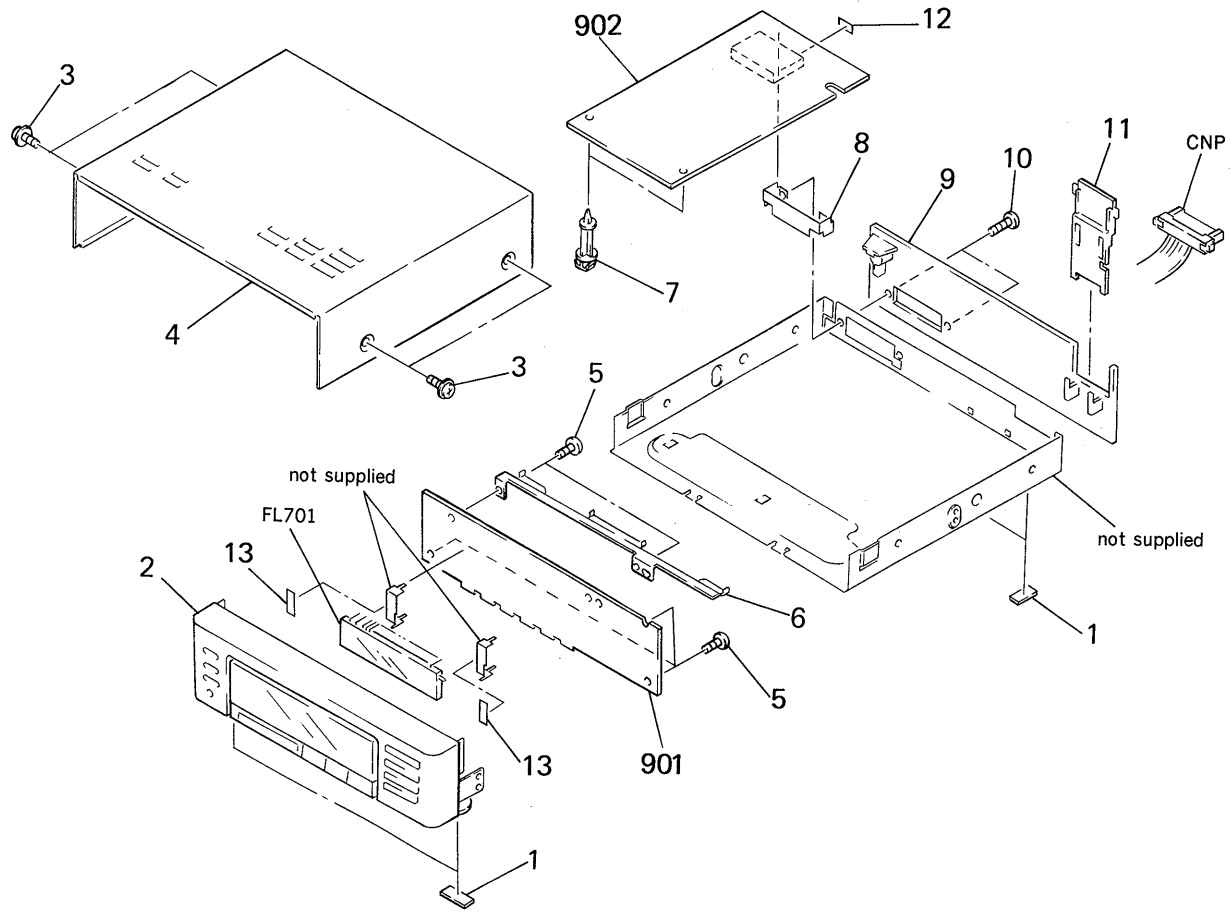
**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts  
Example:  
(RED) ... KNOB, BALANCE (WHITE)  
↑ Cabinet's Color                    ↑ Parts Color

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

- IT: Italian Model



Ref.No	Part No.	Description	Remarks
1	4-930-336-01	FOOT (FELT)	
2	X-4930-314-1	PANEL ASSY, FRONT	
3	3-704-366-01	SCREW (CASE) (M3X8)	
4	4-932-844-11	CASE	
5	4-928-635-01	(IT)... SCREW, +BV (2.6X8) TAPPING	
5	7-685-534-19	(AEP,UK)... SCREW +BTP 2.6X8 TYPE2 N-S	
6	*4-932-859-01	BRACKET (CASE)	
7	*4-914-008-01	HOLDER, PCB	
8	*4-924-988-11	PLATE (ST), GROUND	
9	*4-930-346-01	PANEL (ST), BACK	

Ref.No	Part No.	Description	Remarks
10	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
11	*4-930-344-01	HOLDER (CONNECTION CORD)	
12	*4-612-009-01	(IT)... SPACER (A)	
13	*4-932-856-01	CUSHION (FL)	
901	*A-4334-432-A	(AEP,UK)... MOUNTED PCB, PANEL	
901	*A-4334-843-A	(IT)... MOUNTED PCB, PANEL	
902	*A-4303-187-A	(AEP, UK)... MOUNTED PCB, TUNER (TCB007-3HJ)	
902	*A-4303-188-A	(IT)... MOUNTED PCB, TUNER (TCB007-3IJ)	
CNP	1-575-679-11	CORD (WITH CONNECTOR)	
FL701	1-519-517-11	INDICATOR TUBE, FLUORESCENT	

## SECTION 5 ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**MF:  $\mu$ F, PF:  $\mu$ MF.**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**

- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**In each case, U:  $\mu$ , for example:UA....:  $\mu$ A...., UPA....:  $\mu$ PA....,  
UPC....:  $\mu$ PC, UPD....:  $\mu$ PD....

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

- IT: Italian Model

**TUNER**

Ref.No	Part No.	Description	Ref.No	Part No.	Description
<b>CAPACITOR</b>					
C1	1-162-294-31	CERAMIC CHIP	C67	1-102-120-00	CERAMIC
C2	1-124-477-11	ELECT	C68	1-163-111-11	CERAMIC CHIP
C3	1-163-059-00	CERAMIC MELF	C69	1-163-063-00	CERAMIC MELF
C4	1-162-294-31	CERAMIC CHIP	C70	1-163-063-00	CERAMIC MELF
C5	1-163-059-00	CERAMIC MELF	C71	1-163-063-00	CERAMIC MELF
C6	1-163-059-00	CERAMIC MELF	C72	1-163-063-00	CERAMIC MELF
C7	1-163-059-00	(IT).... CERAMIC MELF	C73	1-163-063-00	CERAMIC MELF
C8	1-163-059-00	(IT).... CERAMIC MELF	C81	1-102-961-00	CERAMIC
C9	1-163-059-00	CERAMIC MELF	C82	1-102-961-00	CERAMIC
C10	1-162-516-11	CERAMIC CHIP	C83	1-163-059-00	CERAMIC MELF
C11	1-101-005-00	(IT).... CERAMIC	C84	1-163-059-00	CERAMIC MELF
C12	1-101-006-00	CERAMIC	C85	1-163-059-00	CERAMIC MELF
C22	1-163-059-00	CERAMIC MELF	C86	1-124-477-11	ELECT
C23	1-124-477-11	ELECT	C87	1-163-059-00	CERAMIC MELF
C24	1-123-382-00	ELECT	C88	1-163-059-00	CERAMIC MELF
C25	1-163-063-00	CERAMIC MELF	C89	1-124-443-00	ELECT
C26	1-163-019-00	CERAMIC CHIP	C101	1-124-925-11	ELECT
C27	1-162-516-11	(AEP,UK).... CERAMIC CHIP	C102	1-124-463-00	ELECT
C27	1-163-007-11	(IT).... CERAMIC CHIP	C103	1-163-059-00	CERAMIC MELF
C28	1-124-791-11	ELECT	C104	1-163-059-00	CERAMIC MELF
C29	1-162-516-11	(IT).... CERAMIC CHIP	C105	1-124-477-11	ELECT
C30	1-124-791-11	ELECT	C106	1-136-173-00	MILAR
C31	1-124-902-00	ELECT	C107	1-124-463-00	ELECT
C32	1-124-463-00	ELECT	C108	1-163-063-00	(IT).... CERAMIC MELF
C33	1-130-481-00	FILM	CF1	1-567-389-11	FILTER, CERAMIC
C34	1-123-382-00	ELECT	CF2	1-567-389-11	FILTER, CERAMIC
C35	1-130-481-00	FILM	CF3	1-567-389-11	(IT).... FILTER, CERAMIC
C36	1-123-382-00	ELECT	CF21	1-577-075-11	OSCILLATOR, CERAMIC (19KHz)
C37	1-123-875-11	ELECT	CFT21	1-404-853-11	TRANSFORMER, IF (CERAMIC FILTER)
C39	1-163-059-00	CERAMIC MELF	CNJ1	*1-568-276-11	SOCKET, CONNECTOR 10P
C40	1-124-463-00	ELECT	CNJ2	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P
C41	1-123-875-11	ELECT	CNJ3	*1-568-419-11	PIN, CONNECTOR 9P
C42	1-163-059-00	CERAMIC MELF	CNJ4	*1-568-372-11	PIN, CONNECTOR 3P
C43	1-126-176-11	ELECT	D61	8-719-912-20	DIODE 1SS120
C44	1-163-059-00	CERAMIC MELF	FE1	1-463-857-11	(IT).... FRONT END (FM)
C45	1-123-382-00	ELECT	FE1	1-463-862-21	(AEP,UK).... FRONT END, FM
C46	1-161-375-00	CERAMIC CHIP	FE61	1-236-462-11	ENCAPSULATED COMPONENT (MW RF)
C47	1-163-170-00	(IT).... CERAMIC CHIP	FE62	1-236-463-11	ENCAPSULATED COMPONENT (LW RF)
C48	1-123-382-00	ELECT	IC21	8-759-821-45	IC LA1851N
C49	1-161-375-00	CERAMIC CHIP	IC81	8-759-820-91	IC LC7218
C50	1-163-170-00	(IT).... CERAMIC CHIP	L1	1-410-645-31	MICRO INDUCTOR 100UH
C51	1-124-477-11	ELECT	L2	1-410-645-31	(IT).... MICRO INDUCTOR 100UH
C53	1-163-105-00	CERAMIC CHIP	L21	1-407-500-00	MICRO INDUCTOR 4.7MMH
C54	1-101-005-00	(IT).... CERAMIC	L61	1-410-525-11	MICRO INDUCTOR 220UF
C61	1-163-063-00	CERAMIC MELF	LPF21	1-235-164-00	FILTER, LOW PASS
C62	1-163-063-00	CERAMIC MELF	LPF22	1-235-164-00	FILTER, LOW PASS
C63	1-163-063-00	CERAMIC MELF	Q1	8-729-230-99	TRANSISTOR 2SC2669-OY
C64	1-163-063-00	CERAMIC MELF	Q2	8-729-230-99	TRANSISTOR 2SC2669-OY
C65	1-163-063-00	CERAMIC MELF	Q3	8-129-230-99	(IT).... TRANSISTOR 2SC2669-OY
C66	1-163-063-00	CERAMIC MELF	Q4	8-129-230-99	(IT).... TRANSISTOR 2SC2669-OY
			Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE

Ref.No	Part No.	Description	Ref.No	Part No.	Description
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE	R46	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
Q23	8-729-900-61	TRANSISTOR DTA114ES	R47	△.1-249-409-11	CARBON (SMALL) 220 5% 1/4W F
Q24	8-729-900-80	TRANSISTOR DTC114ES	R48	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q26	8-729-900-80	TRANSISTOR DTC114ES	R49	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q61	8-729-900-80	TRANSISTOR DTC114ES	R61	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q62	8-729-900-80	TRANSISTOR DTC114ES	R62	1-249-355-11	CARBON MELF 47K 5% 1/8W
Q63	8-729-900-80	TRANSISTOR DTC114ES	R64	1-249-351-11	CARBON MELF 22K 5% 1/8W
Q64	8-729-820-24	TRANSISTOR 2SC3330-T	R65	1-249-355-11	CARBON MELF 47K 5% 1/8W
Q65	8-729-820-10	TRANSISTOR 2SA1317-SU	R66	1-215-493-00	CARBON MELF 1M 5% 1/5W
Q66	8-729-900-80	TRANSISTOR DTC114ES	R67	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q81	8-729-900-61	TRANSISTOR DTA114ES	R68	1-249-352-11	CARBON MELF 27K 5% 1/8W
Q82	8-729-900-80	TRANSISTOR DTC114ES	R69	1-249-351-11	CARBON MELF 22K 5% 1/8W
Q83	8-729-202-67	TRANSISTOR 2SK246GR3	R70	1-249-331-11	CARBON MELF 470 5% 1/8W
Q84	8-729-230-93	TRANSISTOR 2SC3113-AB	R71	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
Q85	8-729-202-67	TRANSISTOR 2SK246GR3	R72	1-249-351-11	CARBON MELF 22K 5% 1/8W
Q86	8-729-230-93	TRANSISTOR 2SC3113-AB	R73	1-249-347-11	CARBON MELF 10K 5% 1/8W
<b>RESISTOR</b>					
R1	△.1-249-397-11	(IT).... CARBON (SMALL) 22 5% 1/4W F	R74	1-249-347-11	CARBON MELF 10K 5% 1/8W
R1	△.1-249-401-11	(AEP,UK).... CARBON (SMALL) 47 5% 1/4W F	R75	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R3	1-249-329-11	CARBON MELF 330 5% 1/8W	R81	1-249-335-11	CARBON MELF 1K 5% 1/8W
R4	1-249-329-11	CARBON MELF 330 5% 1/8W	R82	1-249-335-11	CARBON MELF 1K 5% 1/8W
R5	1-249-329-11	CARBON MELF 330 5% 1/8W	R83	1-249-335-11	CARBON MELF 1K 5% 1/8W
R6	1-249-350-11	CARBON MELF 18K 5% 1/8W	R84	1-249-335-11	CARBON MELF 1K 5% 1/8W
R7	1-249-329-11	CARBON MELF 330 5% 1/8W	R85	1-249-347-11	CARBON MELF 10K 5% 1/8W
R8	1-249-332-11	CARBON MELF 560 5% 1/8W	R86	1-249-335-11	CARBON MELF 1K 5% 1/8W
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W	R87	1-249-347-11	CARBON MELF 10K 5% 1/8W
R10	1-249-329-11	(IT).... CARBON MELF 330 5% 1/8W	R88	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R11	1-249-350-11	(IT).... CARBON MELF 18K 5% 1/8W	R89	1-249-335-11	CARBON MELF 1K 5% 1/8W
R12	1-249-329-11	(IT).... CARBON MELF 330 5% 1/8W	R90	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R13	1-249-334-11	(IT).... CARBON MELF 820 5% 1/8W	R91	1-249-335-11	CARBON MELF 1K 5% 1/8W
R14	1-249-352-11	(IT).... CARBON MELF 27K 5% 1/8W	R92	△.1-249-401-11	CARBON (SMALL) 47 5% 1/4W F
R15	1-249-347-11	(IT).... CARBON MELF 10K 5% 1/8W	R101	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R16	1-249-343-11	(IT).... CARBON MELF 4.7K 5% 1/8W	R102	1-249-332-11	CARBON MELF 560 5% 1/8W
R21	△.1-249-404-00	CARBON (SMALL) 82 5% 1/4W F	R103	1-249-335-11	CARBON MELF 1K 5% 1/8W
R22	1-249-433-11	CARBON (SMALL) 22K 5% 1/4W	R104	1-249-328-11	CARBON MELF 270 5% 1/8W
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W	R105	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W	R106	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R25	1-249-346-11	CARBON MELF 8.2K 5% 1/8W	R107	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R26	1-249-340-11	(IT).... CARBON MELF 2.7K 5% 1/8W	R108	1-249-323-11	CARBON MELF 100 5% 1/8W
R27	1-249-432-11	CARBON (SMALL) 18K 5% 1/4W	R109	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R28	1-249-423-11	CARBON (SMALL) 3.3K 5% 1/4W	R110	△.1-249-405-11	CARBON (SMALL) 100 5% 1/4W F
R29	1-249-347-11	CARBON MELF 10K 5% 1/8W	R111	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R31	1-249-331-11	CARBON MELF 470 5% 1/8W	R112	1-249-332-11	CARBON MELF 560 5% 1/8W
R32	1-249-347-11	CARBON MELF 10K 5% 1/8W	R113	1-249-335-11	CARBON MELF 1K 5% 1/8W
R33	1-249-347-11	CARBON MELF 10K 5% 1/8W	R114	1-249-328-11	CARBON MELF 270 5% 1/8W
R34	1-249-437-11	CARBON (SMALL) 47K 5% 1/4W	R115	1-249-351-11	CARBON MELF 22K 5% 1/8W
R35	1-249-355-11	CARBON MELF 47K 5% 1/8W	R116	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R37	1-249-359-11	CARBON MELF 100K 5% 1/8W	R117	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R38	1-249-363-11	CARBON MELF 220K 5% 1/8W	R118	1-249-323-11	CARBON MELF 100 5% 1/8W
R39	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	RV21	1-238-013-11	(AEP,UK)....RES. ADJ. CARBON 2.2K
R40	1-249-338-11	CARBON MELF 1.8K 5% 1/8W	RV21	1-238-015-11	(IT)....RES. ADJ. CARBON 4.7K
R41	1-249-344-11	CARBON MELF 5.6K 5% 1/8W	RV22	1-238-017-11	RES. ADJ. CARBON 22K
R42	1-249-359-11	CARBON MELF 100K 5% 1/8W	RV24	1-238-017-11	(AEP,UK)....RES. ADJ. CARBON 22K
R43	1-249-363-11	CARBON MELF 220K 5% 1/8W	RV24	1-238-019-11	(IT)....RES. ADJ. CARBON 47K
R44	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR
R45	1-249-338-11	CARBON MELF 1.8K 5% 1/8W	T23	1-236-465-11	(IT)....ENCAPSULATED COMPONENT
			TM1	*1-537-138-31	TERMINAL BOARD (ANTENNA)
			TP1	*1-560-060-00	PIN, CONNECTOR 2P
			XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## EXCEPT FOR TUNER

Ref.No	Part No.	Description
901	*A-4334-432-A	(AEP,UK)....MOUNTED PCB, PANEL
901	*A-4334-843-A	(IT)....MOUNTED PCB, PANEL
902	*A-4303-187-A	(AEP, UK)....MOUNTED PCB, TUNER (TCB007-3HJ)
902	*A-4303-188-A	(IT)....MOUNTED PCB, TUNER (TCB007-3IJ)

## CAPACITOR

C701	1-125-486-11	DOUBLE LAYERS	0.22F		5.5V
C702	1-136-173-00	FILM	0.47MF	5%	50V
C703	1-162-306-11	CERAMIC	0.01MF	20%	16V
C704	1-126-094-11	ELECT	4.7MF	20%	25V
C705	1-162-200-31	CERAMIC	11PF	5%	50V
C706	1-162-200-31	CERAMIC	11PF	5%	50V
C707	1-136-173-00	FILM	0.47MF	5%	50V
C708	1-136-173-00	FILM	0.47MF	5%	50V
C709	1-164-159-11	CERAMIC	0.1MF		50V
C710	1-164-159-11	CERAMIC	0.1MF		50V

CB701	1-233-130-11	COMPOSITION CIRCUIT BLOCK
CB702	1-233-148-11	COMPOSITION CIRCUIT BLOCK
CB703	1-233-187-11	COMPOSITION CIRCUIT BLOCK
CB704	1-233-148-11	COMPOSITION CIRCUIT BLOCK

CN701	*1-568-279-11	SOCKET, CONNECTOR 4P
CN702	*1-568-281-11	SOCKET, CONNECTOR 6P
CN703	*1-568-281-11	SOCKET, CONNECTOR 6P

CNP	*1-575-679-11	CORD (WITH CONNECTOR)
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D701	8-719-912-20	(IT)....DIODE ISS120
D702	8-719-912-20	(AEP, UK)....DIODE ISS120
D703	8-719-912-20	(IT)....DIODE ISS120
D708	8-719-912-20	DIODE ISS120
D709	8-719-912-20	DIODE ISS120

D710	8-719-912-20	DIODE ISS120
D711	8-719-912-20	DIODE ISS120
D712	8-719-912-20	DIODE ISS120
D713	8-719-912-20	DIODE ISS120
D714	8-719-912-20	DIODE ISS120

D715	8-719-912-20	DIODE ISS120
D716	8-719-912-20	DIODE ISS120
D717	8-719-912-20	DIODE ISS120
D718	8-719-912-20	DIODE ISS120
D719	8-719-912-20	DIODE ISS120

D720	8-719-912-20	DIODE ISS120
D721	8-719-912-20	DIODE ISS120
D722	8-719-912-20	DIODE ISS120
D723	8-719-912-20	DIODE ISS120
D724	8-719-912-20	DIODE ISS120

FL701	1-519-517-11	INDICATOR TUBE, FLUORESCENT
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IC701	8-759-234-35	IC TMP47C670N-1283
IC702	8-749-920-59	IC A1QH3020S

L701	1-410-521-11	INDUCTOR	100UH
L702	1-410-521-11	INDUCTOR	100UH
L703	1-408-080-00	INDUCTOR	100UH
L704	1-408-080-00	INDUCTOR	100UH

Q701	8-729-900-89	TRANSISTOR DTC144ES
Q702	8-729-900-89	TRANSISTOR DTC144ES
Q703	8-729-900-80	TRANSISTOR DTC114ES

Ref.No	Part No.	Description
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## RESISTOR

R701	1-249-405-11	CARBON	100	5%	1/4W
R702	1-249-438-11	CARBON	56K	5%	1/4W
R703	1-249-435-11	CARBON	33K	5%	1/4W
R704	1-249-429-11	CARBON	10K	5%	1/4W
R705	1-249-433-11	CARBON	22K	5%	1/4W

R706	1-249-438-11	CARBON	56K	5%	1/4W
R707	1-249-435-11	CARBON	33K	5%	1/4W
R708	1-249-441-11	CARBON	100K	5%	1/4W
R709	1-249-429-11	CARBON	10K	5%	1/4W
R710	1-249-429-11	CARBON	10K	5%	1/4W

R711	1-249-429-11	CARBON	10K	5%	1/4W
R712	1-249-429-11	CARBON	10K	5%	1/4W
R713	1-249-429-11	CARBON	10K	5%	1/4W
R714	1-249-429-11	CARBON	10K	5%	1/4W
R715	1-249-429-11	CARBON	10K	5%	1/4W

R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-249-423-11	CARBON	3.3K	5%	1/4W
R718	1-249-429-11	CARBON	10K	5%	1/4W
R719	1-249-429-11	CARBON	10K	5%	1/4W
R720	1-249-429-11	CARBON	10K	5%	1/4W

R721	1-249-411-11	CARBON	330	5%	1/4W
R722	1-249-441-11	CARBON	100K	5%	1/4W
R723	1-249-441-11	CARBON	100K	5%	1/4W
R724	1-249-441-11	CARBON	100K	5%	1/4W
R725	1-249-441-11	CARBON	100K	5%	1/4W

R726	1-249-441-11	CARBON	100K	5%	1/4W
R727	1-249-421-11	CARBON	2.2K	5%	1/4W

RB701	1-233-125-11	COMPOSITION CIRCUIT BLOCK
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S701	1-554-303-21	SWITCH, KEY BOARD (1)
S702	1-554-303-21	SWITCH, KEY BOARD (2)
S703	1-554-303-21	SWITCH, KEY BOARD (3)
S704	1-554-303-21	SWITCH, KEY BOARD (4)
S705	1-554-303-21	SWITCH, KEY BOARD (5)

S706	1-554-303-21	SWITCH, KEY BOARD (6)
S707	1-554-303-21	SWITCH, KEY BOARD (7)
S708	1-554-303-21	SWITCH, KEY BOARD (8)
S709	1-554-303-21	SWITCH, KEY BOARD (9)
S710	1-554-303-21	SWITCH, KEY BOARD (10)

S711	1-554-303-21	SWITCH, KEY BOARD (STEREO/MUTING)
S712	1-554-303-21	SWITCH, KEY BOARD (AUTO/MANUAL)
S713	1-554-303-21	SWITCH, KEY BOARD (MEMORY/NEXT)
S714	1-554-303-21	SWITCH, KEY BOARD (SHIFT)
S715	1-554-303-21	SWITCH, KEY BOARD (BAND)

S717	1-554-303-21	SWITCH, KEY BOARD (TIME/FREQUENCY)
S718	1-554-303-21	SWITCH, KEY BOARD (TIMER/TUNER +)
S719	1-554-303-21	SWITCH, KEY BOARD (TIMER/TUNER -)
S720	1-554-303-21	SWITCH, KEY BOARD (CLOCK)
S721	1-554-303-21	SWITCH, KEY BOARD (TIMER CONTROL)

S722	1-554-303-21	SWITCH, KEY BOARD (TIMER SET)
S723	1-554-303-21	SWITCH, KEY BOARD (SLEEP)

X701	1-567-821-21	VIBRATOR, CRYSTAL (4.19MHz)
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