

# ST-SE520

## SERVICE MANUAL

AEP Model  
UK Model



### SPECIFICATIONS

#### FM tuner section

Frequency range 87.5 - 108.0 MHz

Aerial terminals 75Ω, unbalanced

Intermediate frequency  
10.7 MHz

Sensitivity at 26 dB quieting  
(mono) 10.3 dBf,  
0.9 μV/75Ω  
at 46 dB quieting  
(stereo) 38.5 dBf,  
23 μV/75Ω

Usable sensitivity (IHF) 10.3 dBf, 0.9 μV/75Ω

S/N at 40 kHz deviation  
74 dB (mono),  
69 dB (stereo)

Harmonic distortion 0.09% (mono),  
0.18% (stereo)

Frequency response 30 Hz - 15 kHz  
(+0.5/-1.0 dB)

Separation 45 dB at 1 kHz

Selectivity at 400 kHz  
85 dB  
at 300 kHz  
70 dB

Output at 40 kHz deviation  
600 mV

#### AM tuner section

Frequency range MW: 522 - 1,611 kHz  
(9 kHz step)  
LW: 144 - 288 kHz  
(1 kHz step)

Intermediate frequency  
450 kHz

Usable Sensitivity (with AM loop  
aerial)  
MW: 200 μV/m  
LW: 700 μV/m

Signal-to-noise ratio MW: 54 dB  
(50 mV/m,  
999 kHz)  
LW: 50 dB  
(50 mV/m,  
216 kHz)

Harmonic distortion 0.3% (50 mV/m,  
400 Hz)

Selectivity 50 dB

#### General

Power requirements 220 - 230 V,  
AC 50/60 Hz

Power consumption 10 W

Dimensions 430 × 82 × 295 mm  
(w/h/d)

Weight 2.5 kg

Supplied accessories

- Audio cord (1)
- AM loop aerial (1)
- FM wire aerial (1)
- EON connecting cord (1)

Design and specifications are  
subject to change without notice.

FM STEREO FM-AM TUNER

SONY®

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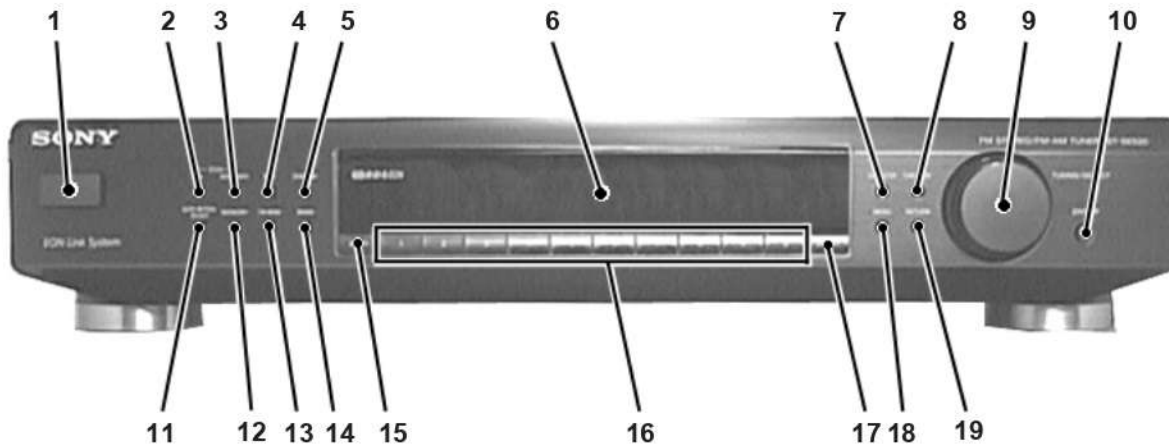
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## SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  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.

## SECTION 1 GENERAL

### Front Panel Descriptions



- |                        |                               |
|------------------------|-------------------------------|
| 1 ① (Power) switch     | 11 AUTO-BETICAL SELECT button |
| 2 EON TA button        | 12 MEMORY button              |
| 3 EON NEWS/INFO button | 13 FM MODE button             |
| 4 PTY button           | 14 BAND button                |
| 5 DISPLAY button       | 15 SHIFT button               |
| 6 Display window       | 16 Numeric buttons            |
| 7 CHARACTER button     | 17 DIRECT button              |
| 8 TUNE MODE button     | 18 MENU button                |
| 9 TUNING/SELECT knob   | 19 RETURN button              |
| 10 ENTER button        |                               |

## SECTION 2 TEST MODE

### 1. Circuit Check Mode

Set to the reception frequency that the circuit can STEREO RDS stations. (Set the input level to above 70 dB.)

This enables circuit check to be performed in any of the reception modes-FM, AM (MW, LW). Set to a desired band before setting the test mode.

1. Turn OFF the power.
2. While pressing [4] and [AUTO-BETICAL SELECT] together, turn ON [Ⓜ].

- The items in the following table will be checked automatically in order every 2 seconds.

Display	Items	DISPLAY		NG
		FM RDS	AM (MW, LW)	
Tuned	$\overline{AST}$ signal =LOW	OK or NG	/	IC201 NG, RV201 adjustments
IF Frq	IF COUNT OK	OK or NG	OK or NG	TB101, IC201 NG
Sig Level	SILEVELh70dB	OK or NG	OK or NG	TB101 NG
Stereo	$\overline{ST}$ signal=LOW	OK or NG	/	TB101 NG
RDS Signal	RDS DATA OK	OK or NG	/	IC802 NG

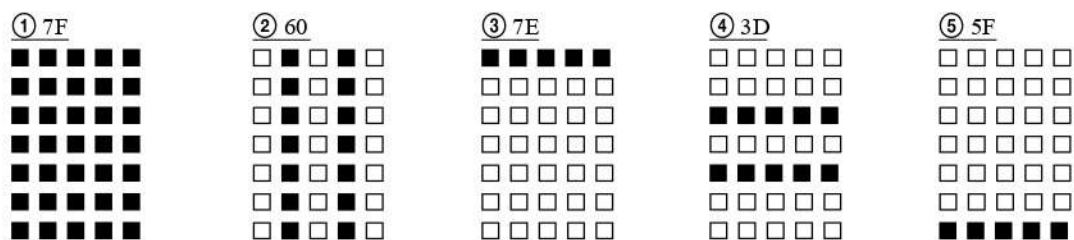
**NOTE :** The preset data will be erased when this test mode is used. Therefore, take down the data before setting this mode and preset the data again after completing operations in this mode.

## 2. Display Tube Check and KEY Check mode

1. Turn OFF the power.
2. While pressing [1] and [AUTO-BETICAL SELECT] together, turn ON [①].
3. While continuously pressing [1] and [AUTO-BETICAL SELECT] together, check the following.

Microcomputer version indication (1 sec) → All light up “7F” → Dot area only “60” → Dot area only “7E”  
 ↑ Dot area only “5F” ← Dot area only “3D” ↓

Indication test pattern



The display changes every 1 sec.

4. Release [1] and [AUTO-BETICAL SELECT]. The KEY CHECK mode will be set.
5. All key numbers will be displayed.  
Key Number : 25
6. Each time the key is pressed, the key number will be counted down.  
Each key will be counted only once, at the first time.
7. When all keys have been pressed, the process will end.

**NOTE :** As contents of the Factory Preset will be written into memory after completing this check mode, delete contents of memory according to 4. Forced RESET.

## 3. Entering the Factory Preset (In case perform just to write memory of the Factory Preset.)

1. Turn OFF the power.
2. While pressing [3] and [AUTO-BETICAL SELECT] together, turn ON [①].

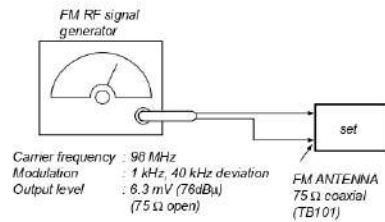
## 4. Forced RESET (Used to delete the contents of Factory Preset when it is written into the preset memory.)

Clears all the RAMs and sets the initial state

1. Turn OFF the power.
2. While pressing [5] and [AUTO-BETICAL SELECT] together, turn ON [①].
3. When “All clear” is indicated on the fluorescent display tube, it means that “Forced Reset” has been completed.

## SECTION 3 ELECTRICAL ADJUSTMENTS

### FM Signal Level Adjustment

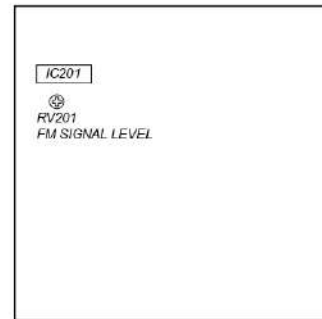


#### Procedure:

1. Tune the set to 98 MHz.
2. Push the [DISPLAY] button for digital signal meter indication.
3. Adjust RV201 to the place where level and "70dB ↑" indication lights on fluorescent indicator tube.

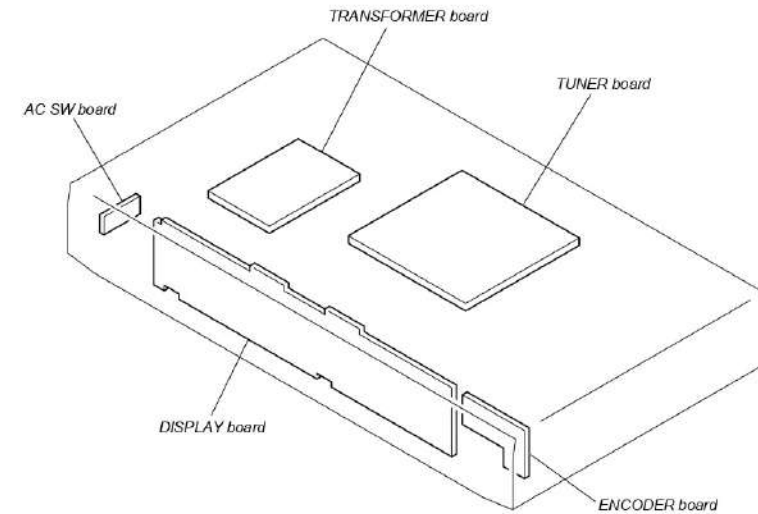
Adjustment Location:

[TUNER BOARD] — Component Side —



## SECTION 4 DIAGRAMS

### 4-1. CIRCUIT BOARDS LOCATION



**THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.**  
 (In addition to this, the necessary note is printed in each block.)

#### For schematic diagrams.

##### Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{pF}$
- 50 WV 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.
- : nonflammable resistor.
- : panel designation.

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

- : B+ Line.
- : B- Line.
- : adjustment for repair.

- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
- \* : Can not be measured.

- Voltages are taken with a VOM (input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- : FM

#### For printed wiring boards.

##### Note:

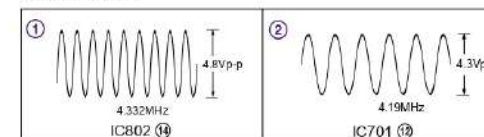
- : parts extracted from the component side.
- : parts mounted on the conductor side.
- : Pattern from the side which enables seeing.

#### Indication of transistor



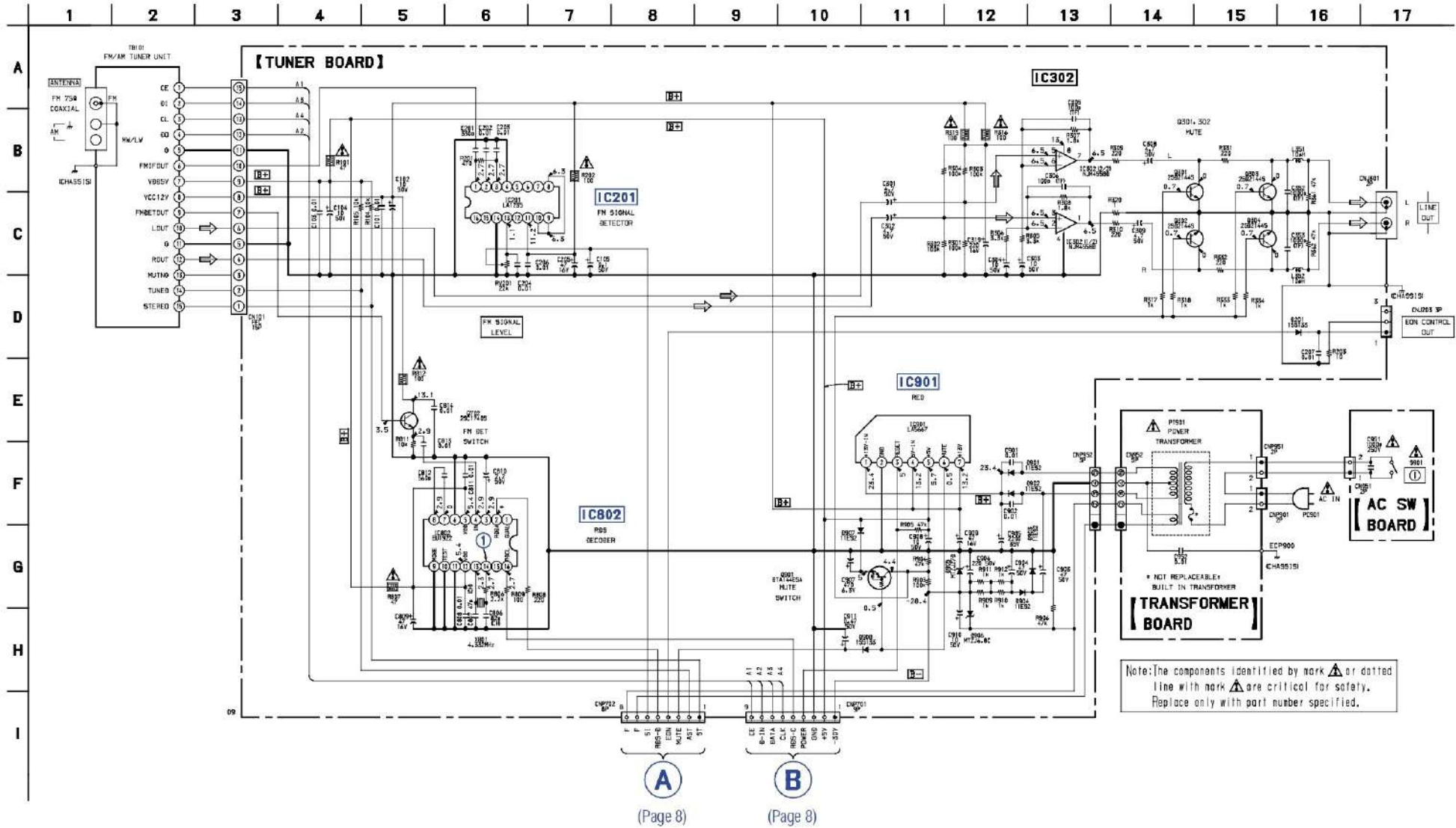
These are omitted

### WAVEFORMS

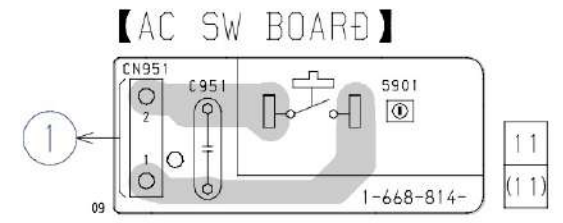
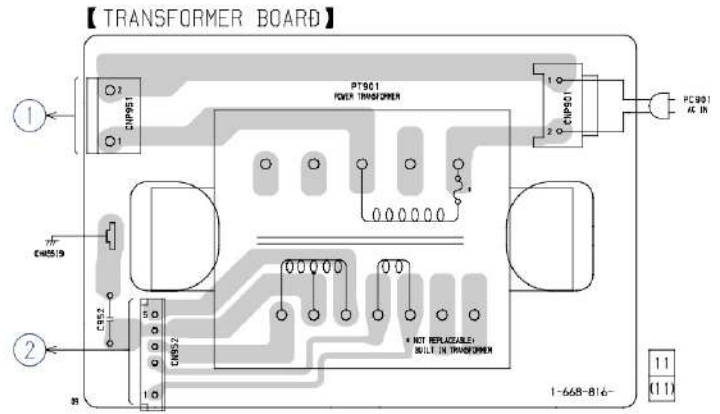
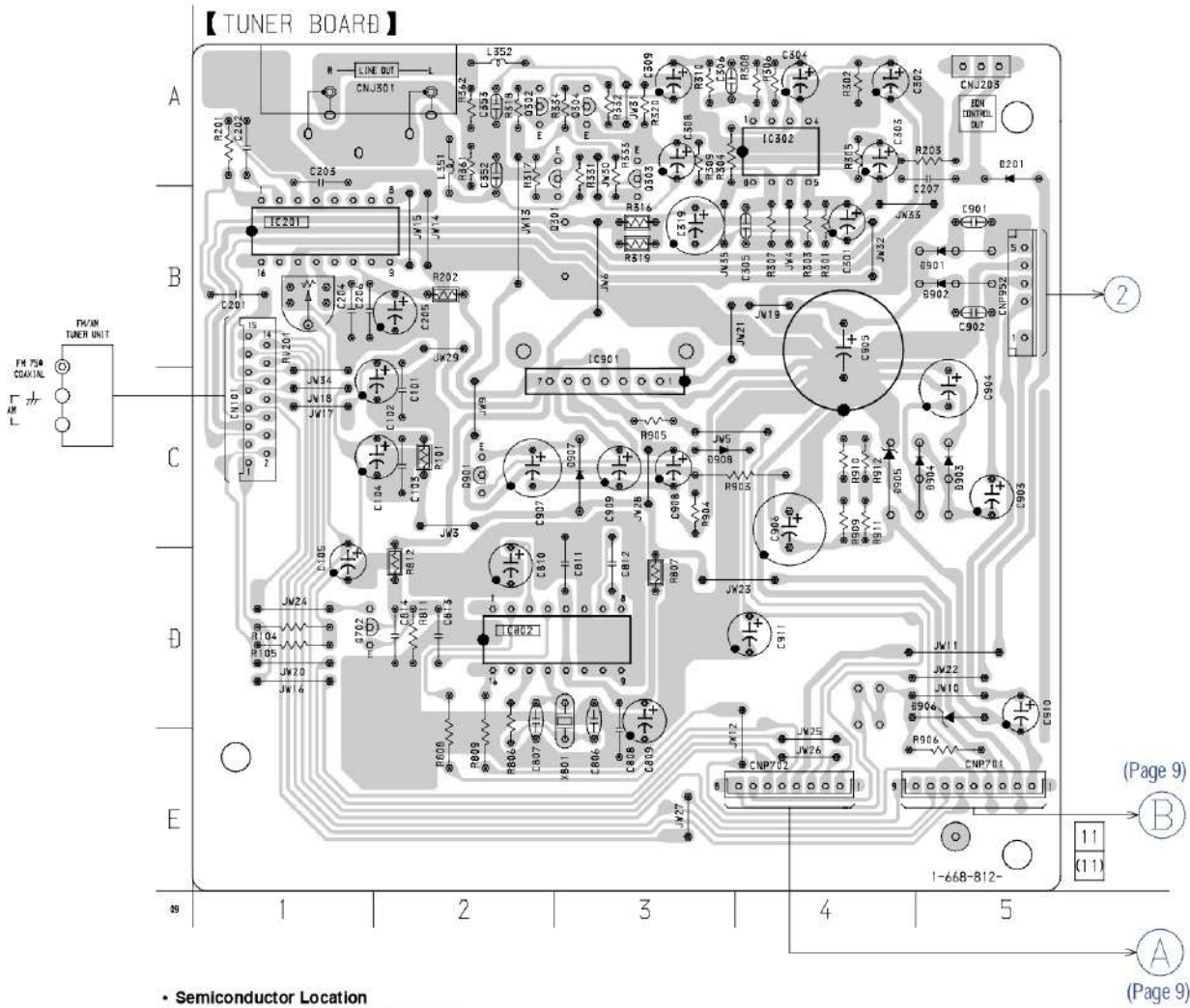


4-2. SCHEMATIC DIAGRAM – TUNER SECTION –

- See page 5 for Waveform.
- See page 11 for IC Block Diagram.



4-3. PRINTED WIRING BOARD -TUNER SECTION -  
 • See page 5 for Circuit Boards Location.

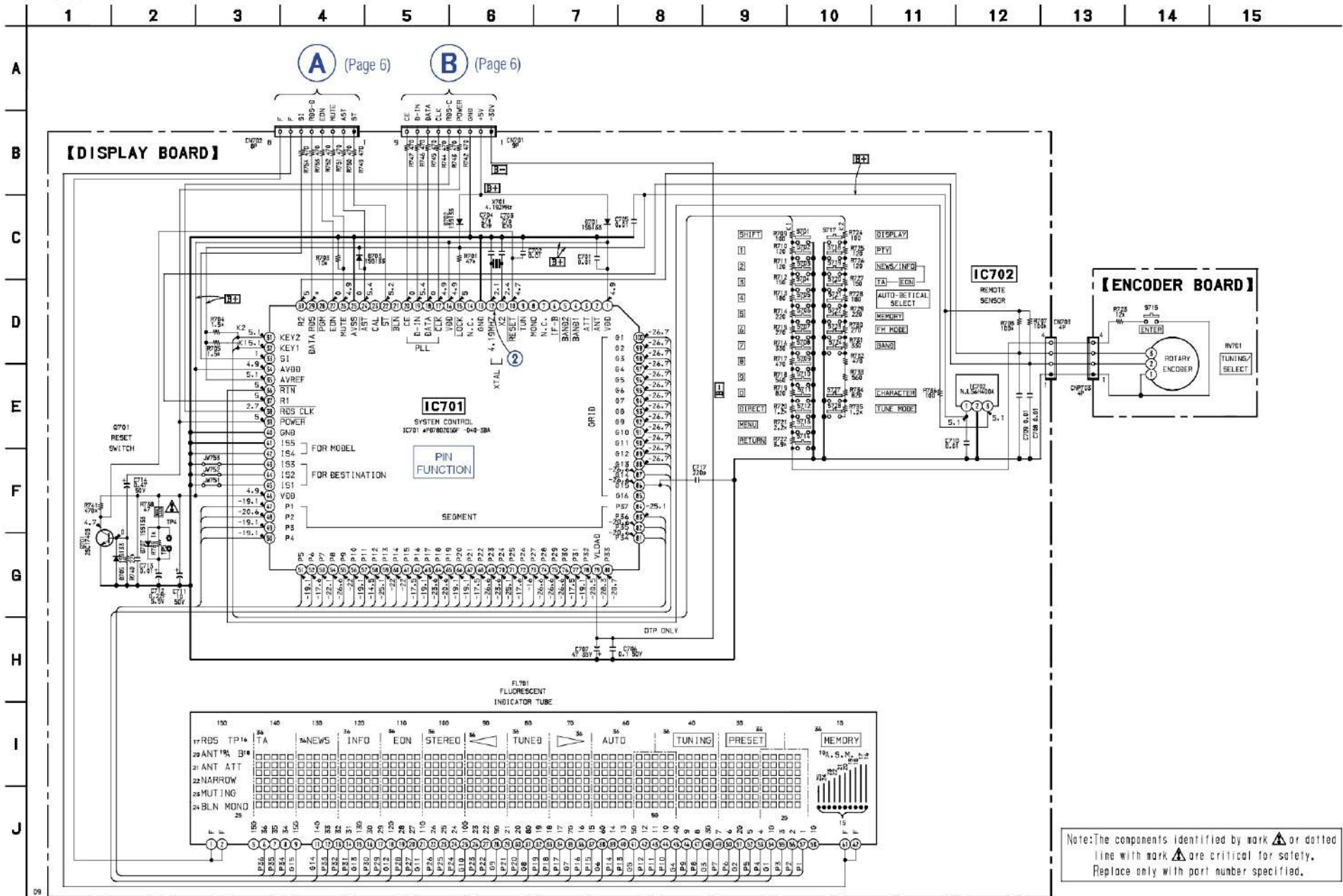


• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D201	A-5	IC201	B-1
D901	B-5	IC302	A-4
D902	B-5	IC802	D-3
D903	C-5	IC901	C-3
D904	C-5		
D905	C-4	Q301	A-3
D906	D-5	Q302	A-2
D907	C-3	Q303	A-3
D908	C-3	Q304	A-3
		Q702	D-1
		Q801	C-2

4-4. SCHEMATIC DIAGRAM – DISPLAY SECTION –

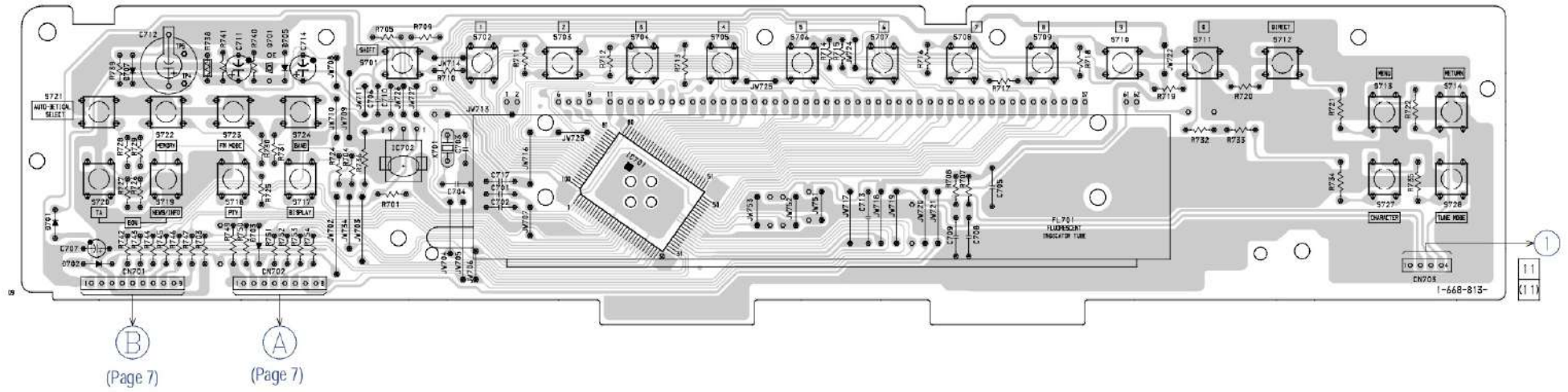
- See page 5 for Waveform.
- See page 10 for IC Pin function.



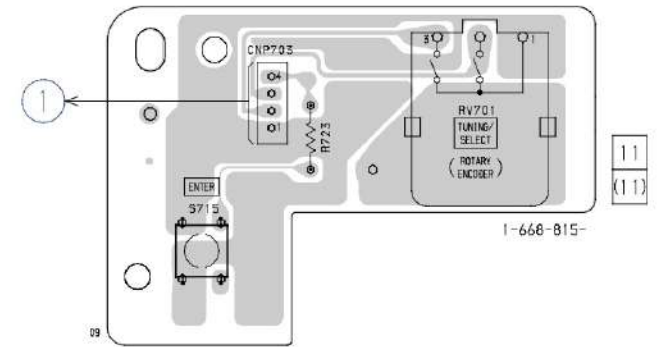


4-5. PRINTED WIRING BOARD – DISPLAY SECTION –  
 • See page 5 for Circuit Boards Location.

【 DISPLAY BOARD 】



【 ENCODER BOARD 】



#### 4-6. IC PIN FUNCTION

##### • IC701 System Control (μPD78205GF-040-3BA)

	Pin Name	I/O	Function
1	VDD	—	Power supply (+5V)
2	ANT	—	Not used
3	ANT	—	Not used
4	BAND 1	—	Not used
5	BAND 2	—	Not used
6	IF-B	—	Not used
7	NC	—	Not used
8	MONO	—	Not used
9	TUN	—	Not used
10	RESET	I	System reset input
11	X2	O	Oscillation signal output (4.19MHz)
12	4.19MHz	I	Oscillation signal output (4.19MHz)
13	GND	—	Ground
14	NC	—	Not used
15	LOCK	I	Lock signal input
16	VDD	—	Power supply (+5V)
17	CLK	O	PLL clock to TB101
18	DATA	O	PLL data to TB101
19	D-IN	I	PLL clock from TB101
20	CE	O	PLL Latch to TB101
21	BLN	—	Not used.
22	ST	I	Stereo display detection.
23	CAL	—	Not used
24	AST	I	Auto stop signal detection
25	AVSS	—	Ground
26	MUTE	O	Muting signal output
27	E ON	O	External control
28	PGM	—	Not used
29	DATA RDS	I	RDS data input
30	R2	O	Rotary encoder phase detection
31	KEY 2	I	Key input
32	KEY 1	I	Key input
33	SI	I	Signal input
34	AVDD	—	Analog power supply (+5V)
35	AVREF	I	Reference voltage (+5V)
36	R IN	I	Remote control input
37	R 1	I	Rotary encoder number of rotation detection
38	RDS CLK	I	RDS data clock input
39	POWER	I	Power supply ON/OFF monitor
40	GND	—	Ground

Pin No.	Pin Name	I/O	Function
41	IS 5	I	Model detection
42	IS 4	I	
43	IS 3	I	
44	IS 2	I	
45	IS 1	I	
46	VDD	—	Power supply (+5V)
47 to 78	P1 to P32	O	FL segment output
79	V LOAD	—	Power supply (-30V)
80 to 84	P33 to P37	O	FL segment output
85	G16	—	Not used
86 to 100	G15 to G1	O	FL grid output

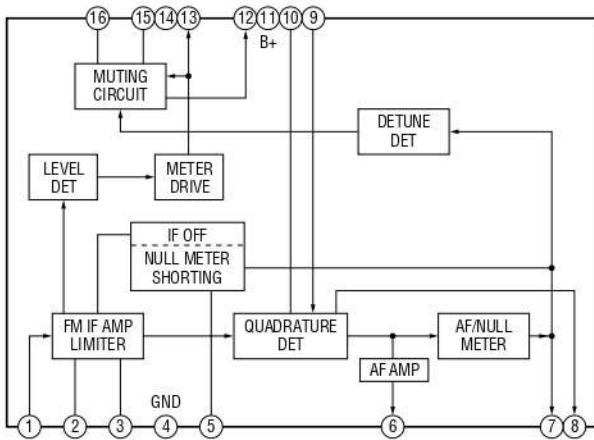
##### • Abbreviation

FL: FLUORESCENT INDICATOR TUBE

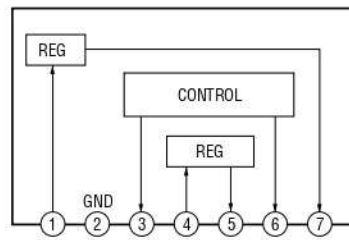
## 4-7. IC BLOCK DIAGRAMS

### • Tuner section

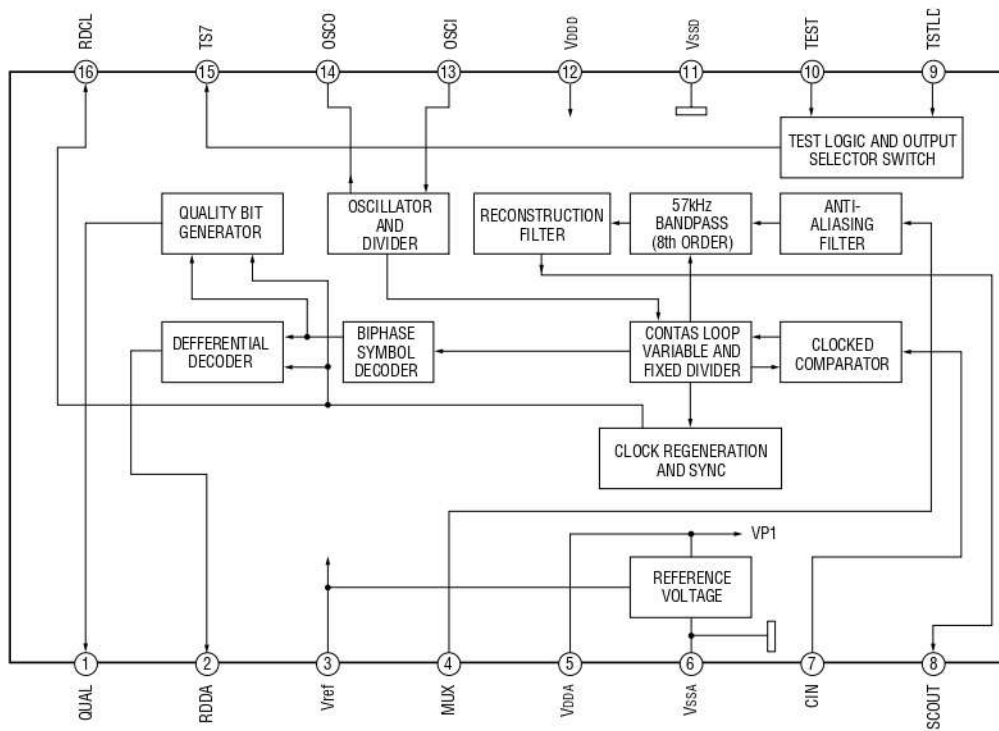
#### IC201 LA1235



#### IC901 LA5667



#### IC802 BU1922



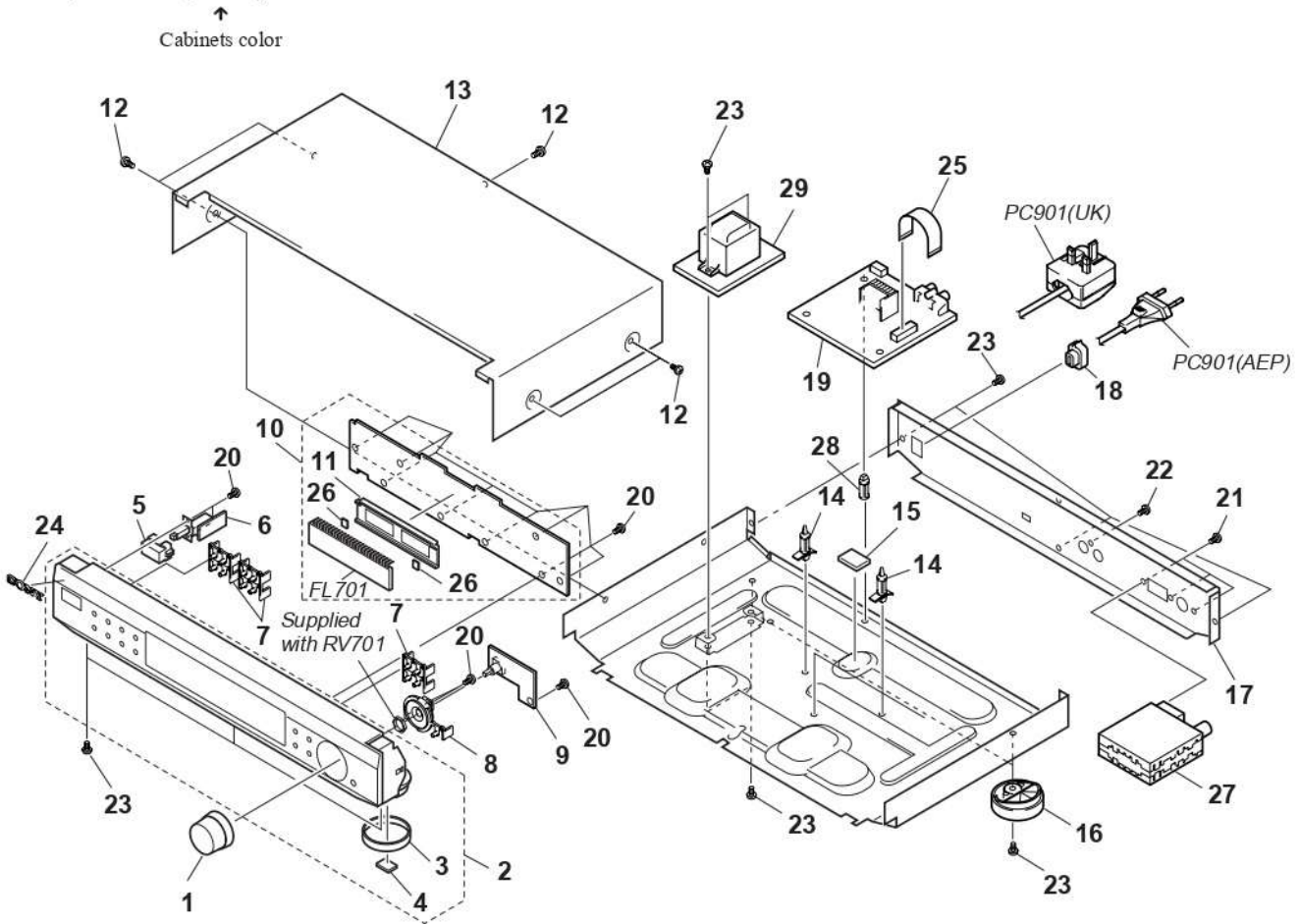
## SECTION 5 EXPLODED VIEW

**NOTE:**

- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example: KNOB, BALANCE (WHITE)

- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.

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



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-997-882-01	KNOB (T)(BLACK)		* 14	3-346-265-31	HOLDER, PC BOARD	
1	4-997-882-11	KNOB (T)(SILVER)		* 15	3-697-679-01	CUSHION, LS	
2	X-4949-582-2	PANEL ASSY, FRONT (BLACK)		16	X-4947-124-1	FOOT ASSY (F50150S)(SILVER)	
2	X-4949-583-2	PANEL ASSY, FRONT (SILVER)		16	X-4947-207-1	FOOT ASSY (F50150S)(BLACK)	
3	4-977-593-01	RING (DIA. 50), ORNAMENTAL		* 17	4-215-931-01	PANEL, BACK (AEP)	
4	4-977-358-31	CUSHION		17	4-215-931-51	PANEL, BACK (UK)	
5	3-931-429-71	BUTTON (POWER)(BLACK)		18	3-703-244-00	BUSHING, CORD	
5	3-931-429-81	BUTTON (POWER)(SILVER)		* 19	A-4407-374-A	TUNER BOARD, COMPLETE	
* 6	1-668-814-11	AC SW BOARD		20	4-951-620-01	SCREW (2.6X8), +BVTP	
7	4-981-264-01	BUTTON (4)(BLACK)		21	3-703-685-21	SCREW (+BV 3X8)	
7	4-981-264-21	BUTTON (4)(SILVER)		22	3-704-515-31	SCREW (BV/RING)	
8	4-997-881-01	ESCUTCHEON (BLACK)		23	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
8	4-997-881-11	ESCUTCHEON (SILVER)		24	4-963-404-21	EMBLEM (5-A), SONY	
* 9	1-668-815-11	ENCODER BOARD		25	1-773-002-11	WIRE (FLAT TYPE)(15 CORE)	
* 10	A-4407-375-A	DISPLAY BOARD, COMPLETE		* 26	4-921-941-01	CUSHION (FL)	
* 11	4-945-292-01	HOLDER, INDICATION TUBE		27	1-693-410-21	TUNER (PACK)	
12	3-710-901-01	SCREW, TAPPING (SILVER)		* 28	3-669-610-00	SPACER	
12	3-710-901-11	SCREW, TAPPING (BLACK)		* 29	1-668-816-11	TRANSFORMER BOARD	
* 13	4-978-901-41	CASE (407026)(BLACK)		FL701	1-517-177-21	INDICATOR TUBE, FLUORESCENT	
* 13	4-985-744-01	CASE (407026)(SILVER)		$\Delta$ PC901	1-575-651-21	CORD, POWER (AEP)	
				$\Delta$ PC901	1-751-523-11	CORD, POWER (UK)	

## SECTION 6 ELECTRICAL PARTS LIST

AC SW

DISPLAY

Note:

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

When indicating parts by reference number, please include the board name.

- 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS  
All resistors are in ohms  
METAL: Metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F : nonflammable

- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...:  $\mu$ PA..., uPB...:  $\mu$ PB...,  
uPC...:  $\mu$ PC..., uPD...:  $\mu$ PD...
- CAPACITORS  
uF :  $\mu$ F
- COILS  
uH :  $\mu$ H

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-668-814-11	AC SW BOARD *****				< TRANSISTOR >	
		< CAPACITOR >		Q701	8-729-119-78	TRANSISTOR 2SC2785-HFE	
$\Delta$ C951	1-113-915-11	CERAMIC 0.001uF 20% 250V				< RESISTOR >	
		< SWITCH >		R701	1-249-437-11	CARBON 47K 5% 1/4W	
$\Delta$ S901	1-572-267-51	SWITCH, PUSH (AC POWER)(1 KEY)(①)		R703	1-249-429-11	CARBON 10K 5% 1/4W	
*****				R704	1-249-419-11	CARBON 1.5K 5% 1/4W F	
*	A-4407-375-A	DISPLAY BOARD, COMPLETE *****		R705	1-249-419-11	CARBON 1.5K 5% 1/4W F	
*	4-921-941-01	CUSHION (FL)		R707	1-249-441-11	CARBON 100K 5% 1/4W	
*	4-945-292-01	HOLDER, INDICATION TUBE		R708	1-249-441-11	CARBON 100K 5% 1/4W	
	7-685-872-09	SCREW +BVTT 3X8 (S)		R709	1-247-807-31	CARBON 100 5% 1/4W	
		< CAPACITOR >		R710	1-249-406-11	CARBON 120 5% 1/4W F	
C701	1-162-306-11	CERAMIC 0.01uF 20% 16V		R711	1-249-406-11	CARBON 120 5% 1/4W F	
C702	1-162-306-11	CERAMIC 0.01uF 20% 16V		R712	1-249-407-11	CARBON 150 5% 1/4W F	
C703	1-162-209-31	CERAMIC 27PF 5% 50V		R713	1-249-408-11	CARBON 180 5% 1/4W F	
C704	1-162-209-31	CERAMIC 27PF 5% 50V		R714	1-247-815-91	CARBON 220 5% 1/4W	
C705	1-162-306-11	CERAMIC 0.01uF 20% 16V		R715	1-249-410-11	CARBON 270 5% 1/4W F	
C706	1-164-159-21	CERAMIC 0.1uF 50V		R716	1-249-411-11	CARBON 330 5% 1/4W	
C707	1-126-947-11	ELECT 47uF 20% 35V		R717	1-249-413-11	CARBON 470 5% 1/4W F	
C708	1-162-306-11	CERAMIC 0.01uF 20% 16V		R718	1-249-414-11	CARBON 560 5% 1/4W F	
C709	1-162-306-11	CERAMIC 0.01uF 20% 16V		R719	1-249-416-11	CARBON 820 5% 1/4W F	
C710	1-162-306-11	CERAMIC 0.01uF 20% 16V		R720	1-249-418-11	CARBON 1.2K 5% 1/4W F	
C711	1-126-964-11	ELECT 10uF 20% 50V		R721	1-249-421-11	CARBON 2.2K 5% 1/4W F	
C712	1-104-905-11	CAPACITOR 0.22F 5.5V		R722	1-249-424-11	CARBON 3.9K 5% 1/4W F	
C713	1-162-306-11	CERAMIC 0.01uF 20% 16V		R724	1-247-807-31	CARBON 100 5% 1/4W	
C714	1-126-959-11	ELECT 0.47uF 20% 50V		R725	1-249-406-11	CARBON 120 5% 1/4W F	
C717	1-162-286-21	CERAMIC 220PF 10% 50V		R726	1-249-406-11	CARBON 120 5% 1/4W F	
		< DIODE >		R727	1-249-407-11	CARBON 150 5% 1/4W F	
D701	8-719-991-33	DIODE 1SS133T-77		R728	1-249-408-11	CARBON 180 5% 1/4W F	
D702	8-719-991-33	DIODE 1SS133T-77		R729	1-247-815-91	CARBON 220 5% 1/4W	
D703	8-719-991-33	DIODE 1SS133T-77		R730	1-249-410-11	CARBON 270 5% 1/4W F	
D705	8-719-991-33	DIODE 1SS133T-77		R731	1-249-411-11	CARBON 330 5% 1/4W	
D707	8-719-991-33	DIODE 1SS133T-77		R732	1-249-413-11	CARBON 470 5% 1/4W F	
		< FLUORESCENT INDICATOR >		$\Delta$ R733	1-249-414-11	CARBON 560 5% 1/4W F	
FL701	1-517-177-21	INDICATOR TUBE, FLUORESCENT		R734	1-249-416-11	CARBON 820 5% 1/4W F	
		< IC >		R735	1-249-418-11	CARBON 1.2K 5% 1/4W F	
IC701	8-759-495-96	IC uPD780205GF-040-3BA		R736	1-247-807-31	CARBON 100 5% 1/4W	
IC702	8-749-014-66	IC NJL64H400A		R738	1-249-401-11	CARBON 47 5% 1/4W F	
				R739	1-249-417-11	CARBON 1K 5% 1/4W F	
				R740	1-247-863-91	CARBON 22K 5% 1/4W	
				R741	1-247-895-91	CARBON 470K 5% 1/4W	
				R742	1-249-413-11	CARBON 470 5% 1/4W F	
				R743	1-249-413-11	CARBON 470 5% 1/4W F	
				R744	1-249-413-11	CARBON 470 5% 1/4W F	
				R745	1-249-413-11	CARBON 470 5% 1/4W F	
				R746	1-249-413-11	CARBON 470 5% 1/4W F	

**DISPLAY**      **ENCODER**      **TRANSFORMER**      **TUNER**

Ref. No.	Part No.	Description	Remark
R747	1-249-413-11	CARBON	470 5% 1/4W F
R749	1-249-413-11	CARBON	470 5% 1/4W F
R750	1-249-413-11	CARBON	470 5% 1/4W F
< SWITCH >			
S701	1-554-303-21	SWITCH, TACTILE (SHIFT)	
S702	1-554-303-21	SWITCH, TACTILE (1)	
S703	1-554-303-21	SWITCH, TACTILE (2)	
S704	1-554-303-21	SWITCH, TACTILE (3)	
S705	1-554-303-21	SWITCH, TACTILE (4)	
S706	1-554-303-21	SWITCH, TACTILE (5)	
S707	1-554-303-21	SWITCH, TACTILE (6)	
S708	1-554-303-21	SWITCH, TACTILE (7)	
S709	1-554-303-21	SWITCH, TACTILE (8)	
S710	1-554-303-21	SWITCH, TACTILE (9)	
S711	1-554-303-21	SWITCH, TACTILE (0)	
S712	1-554-303-21	SWITCH, TACTILE (DIRECT)	
S713	1-554-303-21	SWITCH, TACTILE (MENU)	
S714	1-554-303-21	SWITCH, TACTILE (RETURN)	
S717	1-554-303-21	SWITCH, TACTILE (DISPLAY)	
S718	1-554-303-21	SWITCH, TACTILE (PTY)	
S719	1-554-303-21	SWITCH, TACTILE (EON NEWS/INFO)	
S720	1-554-303-21	SWITCH, TACTILE (EON TA )	
S721	1-554-303-21	SWITCH, TACTILE (AUTO-BETICAL SELECT)	
S722	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S723	1-554-303-21	SWITCH, TACTILE (FM MODE)	
S724	1-554-303-21	SWITCH, TACTILE (BAND)	
S727	1-554-303-21	SWITCH, TACTILE (CHARACTER)	
S728	1-554-303-21	SWITCH, TACTILE (TUNE MODE)	
< VIBRATOR >			
X701	1-760-422-11	VIBRATOR, CRYSTAL (4.192MHz)	
*****			
*	1-668-815-11	ENCODER BOARD	*****
< RESISTOR >			
R723	1-249-430-11	CARBON	12K 5% 1/4W
< VARIABLE RESISTOR >			
RV701	1-475-696-11	ENCODER, ROTARY (TUNING/SELECT)	
< SWITCH >			
S715	1-554-303-21	SWITCH, TACTILE (ENTER)	
*****			
*	1-668-816-11	TRANSFORMER BOARD	*****
< CAPACITOR >			
C952	1-162-306-11	CERAMIC	0.01uF 20% 16V

Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
CNP901	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
CNP951	1-564-321-00	PIN, CONNECTOR 2P	
< LEAD >			
ECP900	1-690-880-51	LEAD (WITH CONNECTOR)	
< TRANSFORMER >			
△PT901	1-423-525-11	TRANSFORMER, POWER	
*****			
*	A-4407-374-A	TUNER BOARD, COMPLETE	*****
< CAPACITOR >			
C101	1-162-306-11	CERAMIC	0.01uF 20% 16V
C102	1-126-964-11	ELECT	10uF 20% 50V
C103	1-162-306-11	CERAMIC	0.01uF 20% 16V
C104	1-126-964-11	ELECT	10uF 20% 50V
C105	1-124-463-00	ELECT	0.1uF 20% 50V
C201	1-162-288-31	CERAMIC	330PF 10% 50V
C202	1-162-306-11	CERAMIC	0.01uF 20% 16V
C203	1-162-306-11	CERAMIC	0.01uF 20% 16V
C204	1-162-306-11	CERAMIC	0.01uF 20% 16V
C205	1-126-967-11	ELECT	47uF 20% 16V
C206	1-162-306-11	CERAMIC	0.01uF 20% 16V
C207	1-162-306-11	CERAMIC	0.01uF 20% 16V
C301	1-126-963-11	ELECT	4.7uF 20% 50V
C302	1-126-963-11	ELECT	4.7uF 20% 50V
C303	1-126-964-11	ELECT	10uF 20% 50V
C304	1-126-964-11	ELECT	10uF 20% 50V
C305	1-110-335-11	MYLAR	100PF 5% 50V
C306	1-110-335-11	MYLAR	100PF 5% 50V
C308	1-126-963-11	ELECT	4.7uF 20% 50V
C309	1-126-963-11	ELECT	4.7uF 20% 50V
C319	1-126-934-11	ELECT	220uF 20% 16V
C352	1-130-471-00	MYLAR	0.001uF 5% 50V
C353	1-130-471-00	MYLAR	0.001uF 5% 50V
C806	1-102-527-11	CERAMIC	82PF 5% 50V
C807	1-102-852-91	CERAMIC	47PF 5% 50V
C808	1-162-306-11	CERAMIC	0.01uF 20% 16V
C809	1-126-967-11	ELECT	47uF 20% 16V
C810	1-126-961-11	ELECT	2.2uF 20% 50V
C811	1-162-306-11	CERAMIC	0.01uF 20% 16V
C812	1-162-291-31	CERAMIC	560PF 10% 50V
C813	1-162-306-11	CERAMIC	0.01uF 20% 16V
C814	1-162-306-11	CERAMIC	0.01uF 20% 16V
C901	1-101-004-00	CERAMIC	0.01uF 50V
C902	1-101-004-00	CERAMIC	0.01uF 50V
C903	1-126-967-11	ELECT	47uF 20% 50V
C904	1-126-967-11	ELECT	47uF 20% 50V
C905	1-126-953-11	ELECT	2200uF 20% 35V
C906	1-126-969-11	ELECT	220uF 20% 50V
C907	1-126-935-11	ELECT	470uF 20% 6.3V
C908	1-126-964-11	ELECT	10uF 20% 50V

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# TUNER

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C909	1-126-967-11	ELECT	47uF 20% 16V	R310	1-247-815-91	CARBON	220 5% 1/4W
C910	1-126-964-11	ELECT	10uF 20% 50V	△ R316	1-249-405-11	CARBON	100 5% 1/4W F
C911	1-126-959-11	ELECT	0.47uF 20% 50V	R317	1-249-417-11	CARBON	1K 5% 1/4W F
		< CONNECTOR >		R318	1-249-417-11	CARBON	1K 5% 1/4W F
				△ R319	1-249-405-11	CARBON	100 5% 1/4W F
CN101	1-568-834-11	SOCKET, CONNECTOR 15P		△ R320	1-249-381-11	CARBON	100 5% 1/4W F
CNJ203	1-566-212-11	PIN, CONNECTOR 3P (EON CONTROL OUT)		R331	1-247-815-91	CARBON	220 5% 1/4W
CNJ301	1-568-250-11	JACK, PIN 2P (LINE OUT)		R332	1-247-815-91	CARBON	220 5% 1/4W
* CNP701	1-568-936-11	PIN, CONNECTOR 9P		R333	1-249-417-11	CARBON	1K 5% 1/4W F
* CNP702	1-568-935-11	PIN, CONNECTOR 8P		R334	1-249-417-11	CARBON	1K 5% 1/4W F
CNP952	1-766-267-11	PIN, CONNECTOR (PC BOARD) 5P		R361	1-249-437-11	CARBON	47K 5% 1/4W
		< DIODE >		R362	1-249-437-11	CARBON	47K 5% 1/4W
D201	8-719-991-33	DIODE 1SS133T-77		R806	1-249-421-11	CARBON	2.2K 5% 1/4W F
D901	8-719-200-82	DIODE 11ES2		△ R807	1-249-401-11	CARBON	47 5% 1/4W F
D902	8-719-200-82	DIODE 11ES2		R808	1-247-815-91	CARBON	220 5% 1/4W
D903	8-719-200-82	DIODE 11ES2		R809	1-247-807-31	CARBON	100 5% 1/4W
D904	8-719-200-82	DIODE 11ES2		R811	1-249-429-11	CARBON	10K 5% 1/4W
D905	8-719-110-69	DIODE RD27ES-B4		△ R812	1-249-405-11	CARBON	100 5% 1/4W F
D906	8-719-109-97	DIODE RD6.8ES-B2		△ R902	1-247-752-11	CARBON	1K 5% 1/2W F
D907	8-719-200-82	DIODE 11ES2		R903	1-249-441-11	CARBON	100K 5% 1/4W
D908	8-719-991-33	DIODE 1SS133T-77		R904	1-249-437-11	CARBON	47K 5% 1/4W
		< IC >		R905	1-249-437-11	CARBON	47K 5% 1/4W
IC201	8-759-812-35	IC LA1235		R906	1-249-437-11	CARBON	47K 5% 1/4W
IC302	8-759-634-51	IC M5218AP		R909	1-249-417-11	CARBON	1K 5% 1/4W F
IC802	8-759-450-86	IC BU1922		R910	1-249-417-11	CARBON	1K 5% 1/4W F
IC901	8-759-820-09	IC LA5667		R911	1-249-417-11	CARBON	1K 5% 1/4W F
		< COIL >		R912	1-249-417-11	CARBON	1K 5% 1/4W F
L351	1-410-509-11	INDUCTOR 10uH				< VARIABLE RESISTOR >	
L352	1-410-509-11	INDUCTOR 10uH		RV201	1-241-765-11	RES, ADJ, CARBON 22K	
		< TRANSISTOR >				< VIBRATOR >	
Q301	8-729-922-37	TRANSISTOR 2SD2144S-UVW		X801	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHZ)	
Q302	8-729-922-37	TRANSISTOR 2SD2144S-UVW				*****	
Q303	8-729-922-37	TRANSISTOR 2SD2144S-UVW				MISCELLANEOUS	
Q304	8-729-922-37	TRANSISTOR 2SD2144S-UVW				*****	
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE		25	1-773-002-11	WIRE (FLAT TYPE)(15 CORE)	
Q901	8-729-029-56	TRANSISTOR DTA144ESA		27	1-693-410-21	TUNER (PACK)	
		< RESISTOR >		FL701	1-517-177-21	INDICATOR TUBE, FLUORESCENT	
△ R101	1-249-401-11	CARBON	47 5% 1/4W F	△ PC901	1-575-651-21	CORD, POWER (AEP)	
R104	1-249-429-11	CARBON	10K 5% 1/4W	△ PC901	1-751-523-11	CORD, POWER (UK)	
R105	1-249-429-11	CARBON	10K 5% 1/4W			*****	
R201	1-249-413-11	CARBON	470 5% 1/4W F			ACCESSORIES & PACKING MATERIALS	
△ R202	1-249-405-11	CARBON	100 5% 1/4W F			*****	
R203	1-249-393-11	CARBON	10 5% 1/4W F			1-501-594-11	ANTENNA (FM)
R301	1-249-441-11	CARBON	100K 5% 1/4W			1-501-721-11	ANTENNA (LOOP)
R302	1-249-441-11	CARBON	100K 5% 1/4W			1-558-271-11	CORD, CONNECTION (AUDIO, 108cm)
R303	1-249-441-11	CARBON	100K 5% 1/4W			1-765-383-11	CORD (WITH CONNECTOR)
R304	1-249-441-11	CARBON	100K 5% 1/4W			3-865-569-12	MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH,PORTUGUESE)(AEP,UK)
R305	1-247-843-11	CARBON	3.3K 5% 1/4W			3-865-569-22	MANUAL, INSTRUCTION (GERMAN,DUTCH,SWEDISH,ITALIAN)(AEP)
R306	1-247-843-11	CARBON	3.3K 5% 1/4W			3-865-569-32	MANUAL,INSTRUCTION (DANISH,FINNISH)(AEP)
R307	1-249-420-11	CARBON	1.8K 5% 1/4W F				
R308	1-249-420-11	CARBON	1.8K 5% 1/4W F				
R309	1-247-815-91	CARBON	220 5% 1/4W				

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