

ST-S117

SERVICE MANUAL

AEP Model
UK Model



Discard ST-S117 Service Manual
(No. 9-956-373-11) previously issued.
This Service Manual contains it.

Photo : AEP model

SPECIFICATIONS

Tuner

Circuit system FM stereo, FM/AM superheterodyne tuner
Quartz-locked PLL digital synthesizer system

FM tuner

Frequency range 87.5 – 108 MHz
Antenna terminals 75 ohms unbalanced
Intermediate frequency 10.7 MHz
Sensitivity 18.0 dBf, 2.2 μ V (mono)
40.0 dBf, 24.5 μ V (stereo)
(at 46 dB quieting)
Signal-to-noise ratio 74 dB (mono)
69 dB (stereo)
(at 40 kHz deviation)
Harmonic distortion 0.3% (mono), 0.5% (stereo) (at 1 kHz)
Separation 40 dB (at 1 kHz)
Frequency response 40 Hz - 12.5 kHz $\pm$ 0.5 dB
Selectivity Model for German, Italian, and UK : 80 dB
(at 400 kHz)
Model for other countries: 55 dB (at 400 kHz)
Capture ratio 1.0 dB
AM suppression ratio 54 dB
Image response ratio 50 dB
IF response ratio 90 dB
Spurious response ratio 70 dB
Automatic tuning threshold 17.8 μ V (30 dBf)
Output 410 mV, 4.7 kohms (at 40 kHz deviation)

AM tuner

Frequency range MW: 531 – 1,602 kHz
LW: 153 – 279 kHz
Antenna AM loop antenna
External antenna terminal
Intermediate frequency 450 kHz
Usable sensitivity (with AM loop antenna)
300 μ V/m (999 kHz)
1 mV/m (216 kHz)
Signal-to-noise ratio 54 dB (50 mV/m) (999 kHz)
50 dB (50 mV/m) (216 kHz)
Harmonic distortion 0.5% (50 mV/m, 400 Hz)
Selectivity 32 dB

General

Power requirements 220 – 230 V AC, 50/60 Hz
Power consumption 9 W
Dimensions Approx. 430 $\times$ 85 $\times$ 295 mm (w/h/d)
(17 $\times$ 3 $\frac{3}{8}$ $\times$ 11 $\frac{5}{8}$ inches)
Weight Approx. 2.8 kg (6 lb 3 oz)
Accessories supplied Remote control cord (1)
Connecting cord (1)
FM antenna (1)
AM loop antenna (1)

Design and specifications subject to change without notice.

FM STEREO/FM-AM TUNER
SONY®

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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.

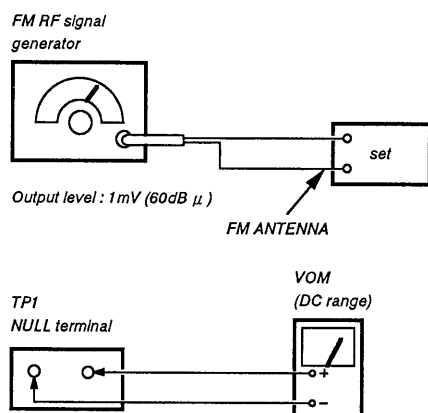
SECTION 1 ELECTRICAL ADJUSTMENTS

FM SECTION

SSG	Carrier frequency	98MHz
	Modulation	MONO : 1kHz, 40kHz deviation
		STEREO : Audio 1kHz, 16.25kHz deviation Pilot 19kHz, 7.5kHz deviation Sub-carrier 38kHz, 16.25kHz deviation

● FM Discriminator Alignment (NULL check)

Setting :



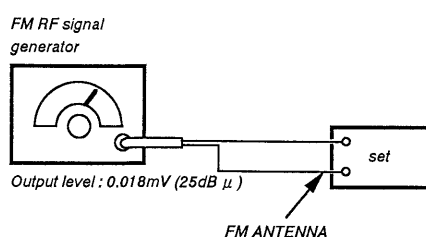
Procedure :

1. Tune the set to 98MHz.
2. Adjust T21 for 0V reading on the VOM

Note : FM tuning level adjustment should be made after FM discriminator alignment.

● FM Tuning Level Adjustment

Setting :

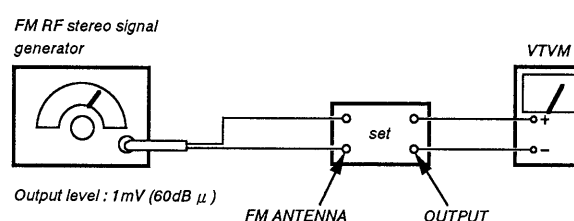


Procedure :

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

● FM Stereo Separation Adjustment

Setting :



Procedure :

Tune the set to 98MHz

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

L-CH Stereo separation : (A) – (B)

R-CH Stereo separation : (C) – (D)

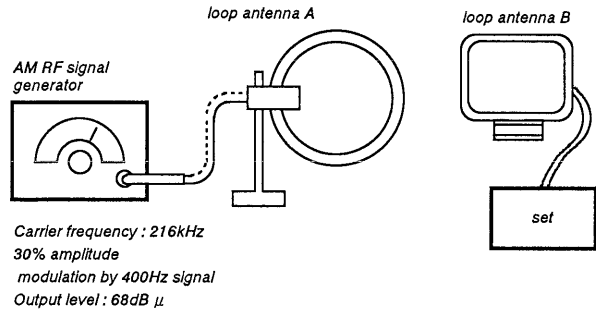
The separations of both channels should be equal.

AM SECTION

● AM Tuning Level Adjustment

Setting :
BAND selector : LW

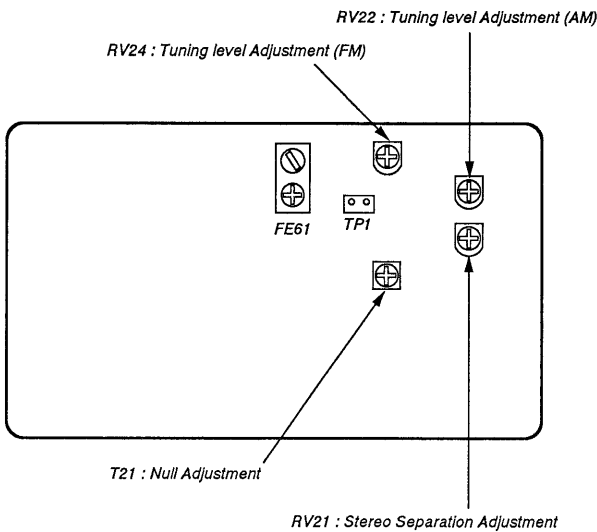
Procedure :



- 1. Set loop antenna A so that the loop antenna B input level becomes 65dB μ /m.
- 2. Tune the set to 216kHz.
- 3. Adjust the RV22 so that the TUNED LED goes on.

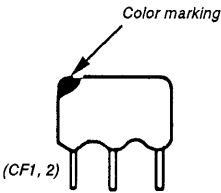
Parts Arrangement Diagram for Adjustments

— tuner board —



Note on Ceramic Filter (CF1, 2) Replacement.

This set employs three ceramic filters (CF1, 2) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by D708, D709 mounted is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



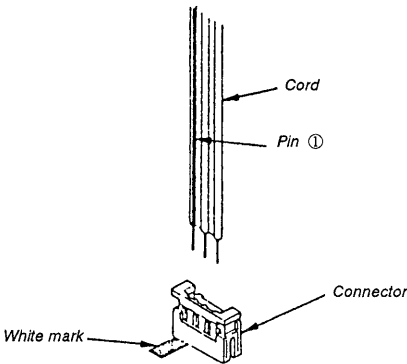
○ : Mounted
× : Not Mounted

Ceramic filter		Mount		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	*A D708	*B D709	
White	10.750	×	○	10.750
Red	10.700	○	○	10.700
Black	10.650	○	×	10.650

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency. i. e., of same color coding should be used for CF1 and CF2. When replacing the ceramic filters, perform, the FM Discriminator Adjustment.

[Note on Inserting the cord to the connector on Tuner Board]

- Insert the cord to the connector fitting Pin ① of the cord in accordance with the white mark on the board at the connector as shown in the figure.



SECTION 2

EXPLANATION OF IC TERMINALS

TMP47C670N-1247 is a hight-speed, hight-functional 4 bit single chip microcomputer with a built- in fluorescent display lamp drive circuit, a 4 bit A/D conversion input, and a 14 bit D/A conversion output.

PIN FUNCTIONS

Pin No.	Pin name	I/O	Description
1	VKK	Power	Power terminal for fluorescent display lamp drive.
2 – 11	S0 – S9	O	FL lamp segement output.
14	CINO	I	Signal input.
15	K01	I	Key input.
16	K02	I	Key input.
17	K03	I	Key input.
18	TEST	I	Terminal for shipping test. (Not used on the set)
19	X IN	I	Oscillator connection terminal .(Hight frequency)
20	X OUT	O	
21	$\overline{\text{RESET}}$	I	Reset signal input.
22	$\overline{\text{HOLD}}$	I	Demand/release signal input for hold operation.
24	R60	I	Key input.
25	R60	I	Key input.
27	R63	I	Signal meter level conversion.
28	P10	O	Key output.
29	P11	O	Key output.
30	P12	O	Key output.
31	P13	O	Key output.
32	VSS	Power	GND (0V)
33	P20	O	Key output.
34	P21	O	Key output.
35	P22	O	Key output.
37	R70	I	AUTO STOP level input. TUNED input.
39	R72	O	MUTING input.
40	R73	I	STEREO input.
41	$\overline{\text{INT2}}$	I	Remote controller input.
42	R81	I	Rotary encoder input.
43	R82	I	Rotary encoder input.
44	R83	O	CE output.
45	SI	I	Serial data input.
46	SO	O	Serial data output.
47	$\overline{\text{SCK}}$	O	Serial clock output.
54 – 62		O	FL lamp digit output.
64	VDD	Power	+5V

SECTION 3
DIAGRAMS

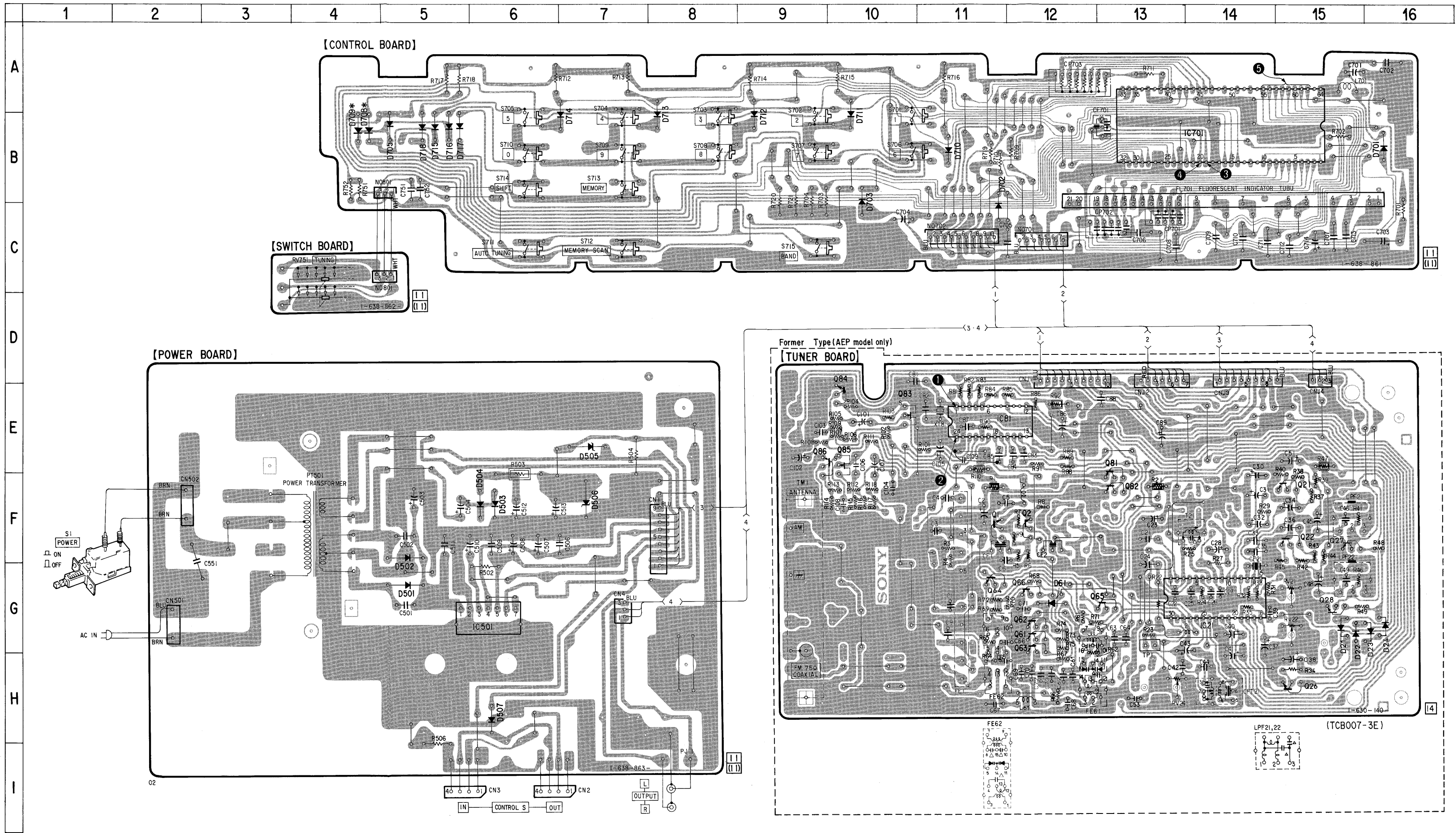
● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D21	G - 15	IC21	G - 14
D22	G - 15	IC81	E - 11
D23	G - 16	IC501	G - 6
D24	G - 16	IC701	B - 14
D61	G - 12		
D501	G - 5	Q1	F - 11
D502	F - 5	Q2	F - 12
D503	F - 6	Q21	F - 15
D504	F - 6	Q22	F - 15
D505	F - 7	Q26	H - 15
D506	F - 7	Q27	F - 15
D507	H - 6	Q28	G - 15
D701	B - 16	Q61	G - 12
D702	C - 11	Q62	G - 12
D703	B - 10	Q63	G - 12
D705	B - 5	Q64	G - 11
D708	B - 4	Q65	G - 13
D709	B - 4	Q81	E - 13
D710	B - 11	Q82	F - 13
D711	B - 11	Q83	E - 10
D712	B - 9	Q84	E - 10
D713	B - 8	Q85	E - 10
D714	B - 7	Q86	E - 9
D715	B - 5		
D716	B - 5		
D717	B - 5		
D718	B - 5		

Note:

- : parts extracted from the component side.
- : parts mounted on the conductor side.
- : indicates side identified with part number.
- : Pattern on the side which is seen.

3-1. PRINTED WIRING BOARDS



● SEMICONDUCTOR LOCATION

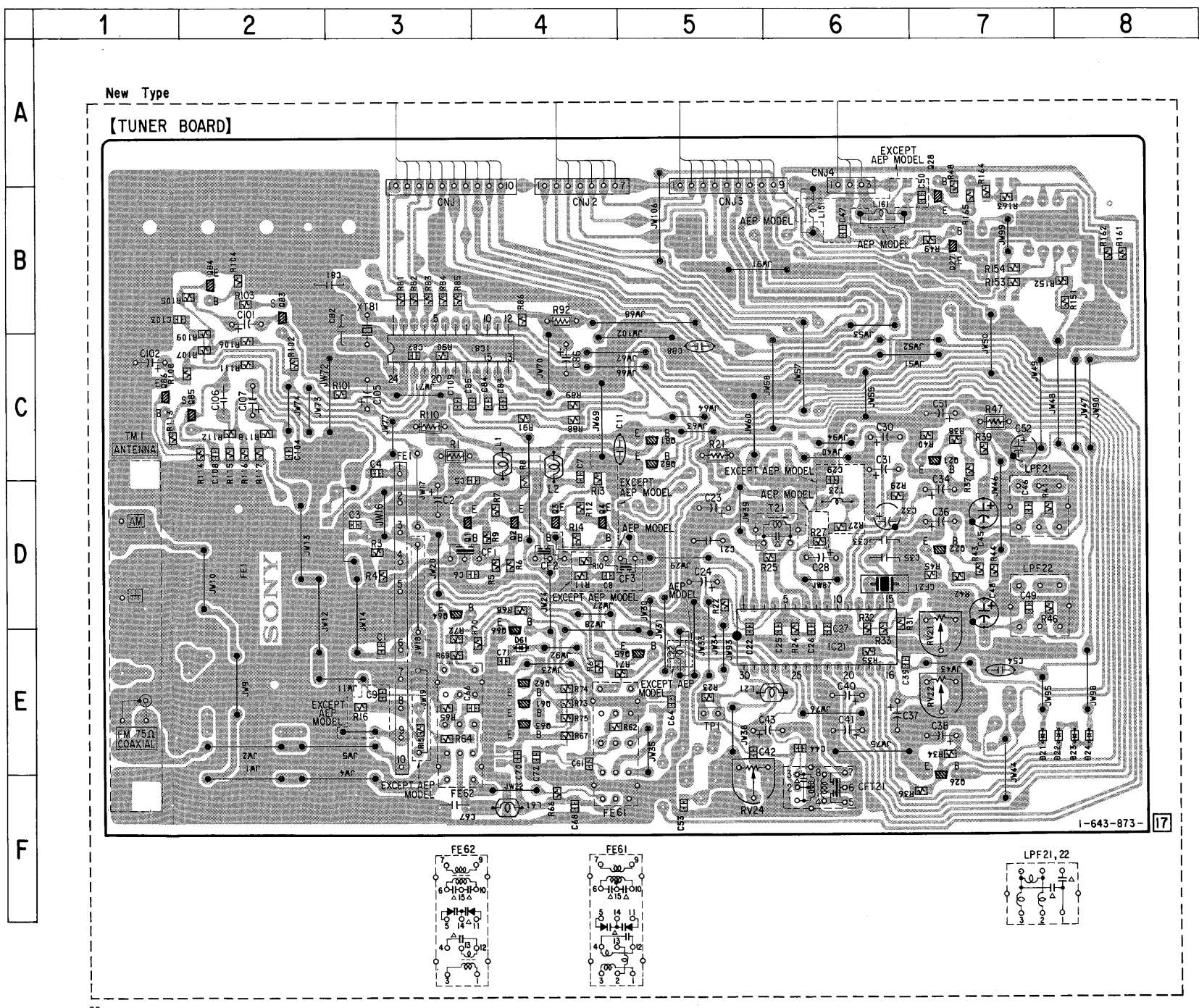
Ref. No.	Location	Ref. No.	Location
D21	E - 7	Q27	B - 7
D22	E - 7	Q28	B - 7
D23	E - 8	Q61	E - 4
D24	E - 8	Q62	E - 4
D61	E - 4	Q63	E - 4
		Q64	D - 3
		Q65	E - 5
		Q66	E - 4
IC21	E - 6	Q81	C - 5
IC81	C - 3	Q82	C - 5
		Q83	B - 2
		Q84	B - 2
		Q85	C - 2
		Q86	C - 1
Q1	D - 3		
Q2	D - 4		
Q3	D - 4		
Q4	D - 4		
Q21	C - 7		
Q22	D - 7		
Q26	F - 7		

Note:

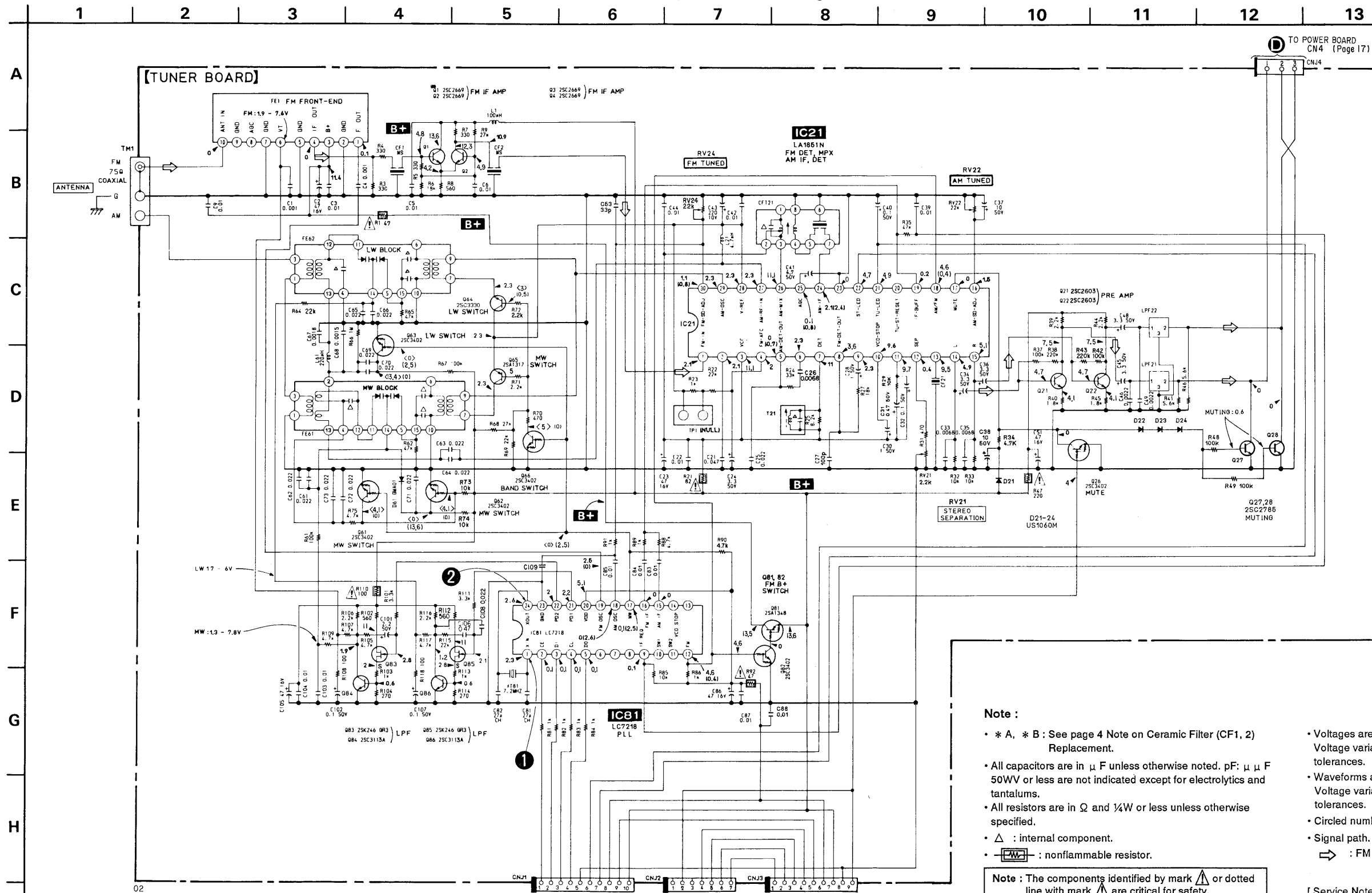
- : parts extracted from the component side.
- : indicates side identified with part number.
- : Pattern on the side which is seen.

Abbreviation
IT : Italian
G : German

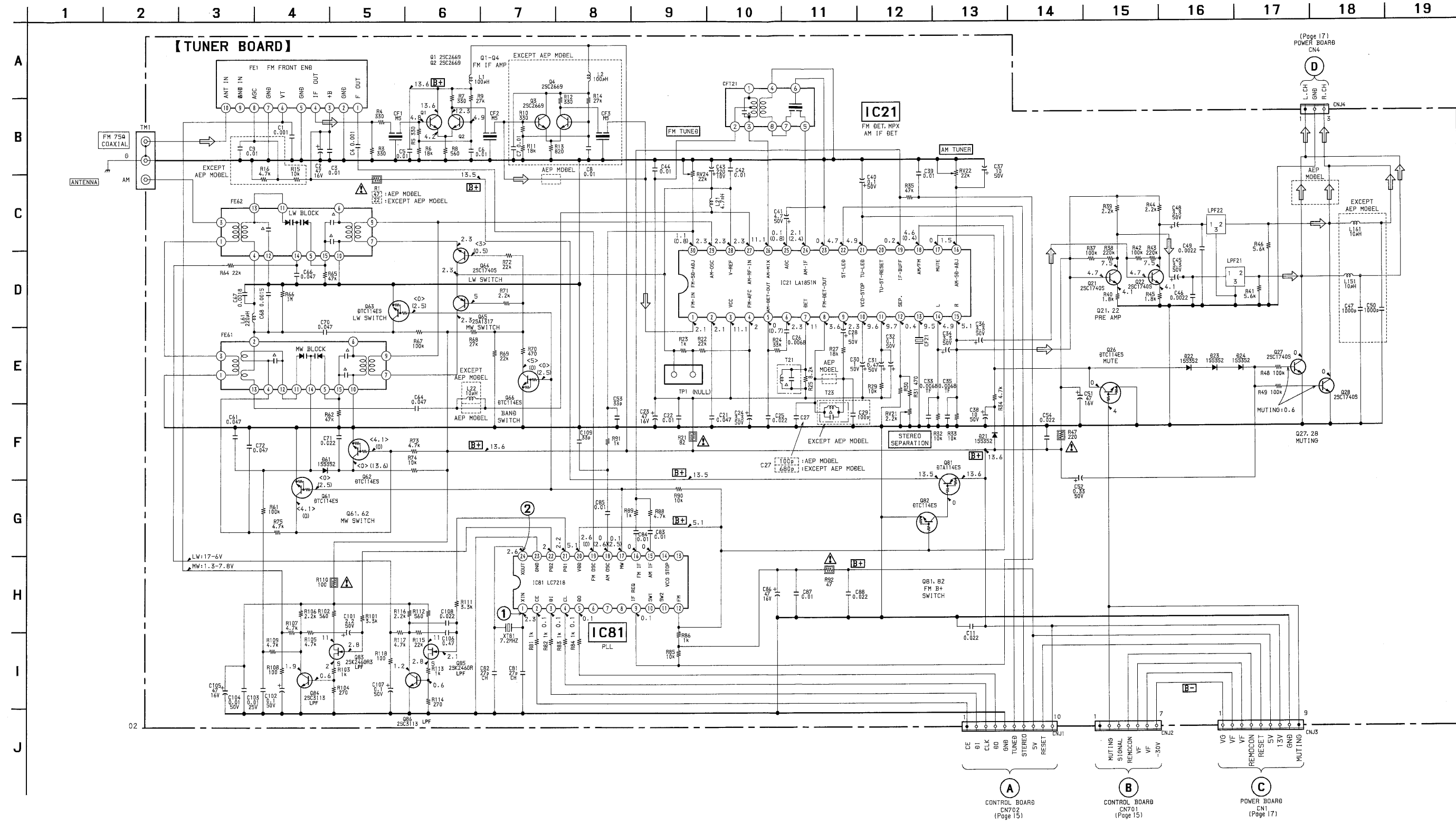
3-2. PRINTED WIRING BOARDS - TUNER BOARD -



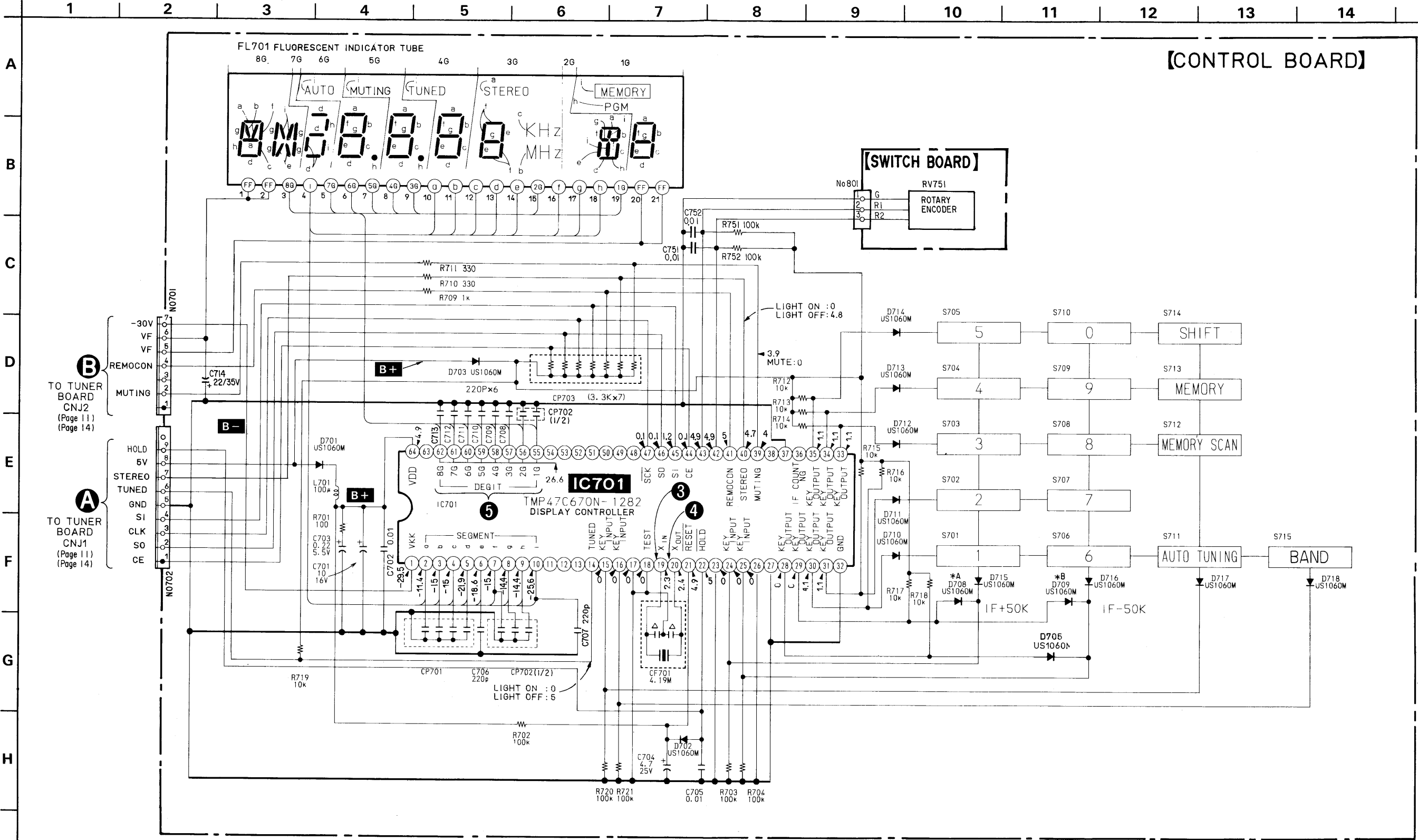
3-3. SCHEMATIC DIAGRAM – TUNER SECTION – (FORMER TYPE : AEP model only) ● Refer to page 17 for IC Block Diagrams.



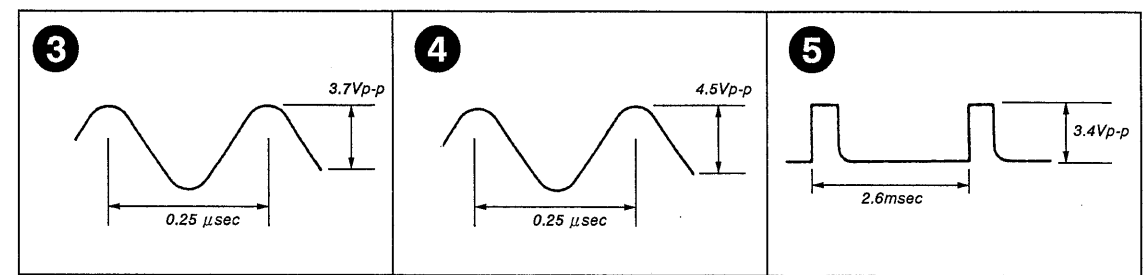
3-4. SCHEMATIC DIAGRAM – TUNER SECTION – (NEW TYPE)



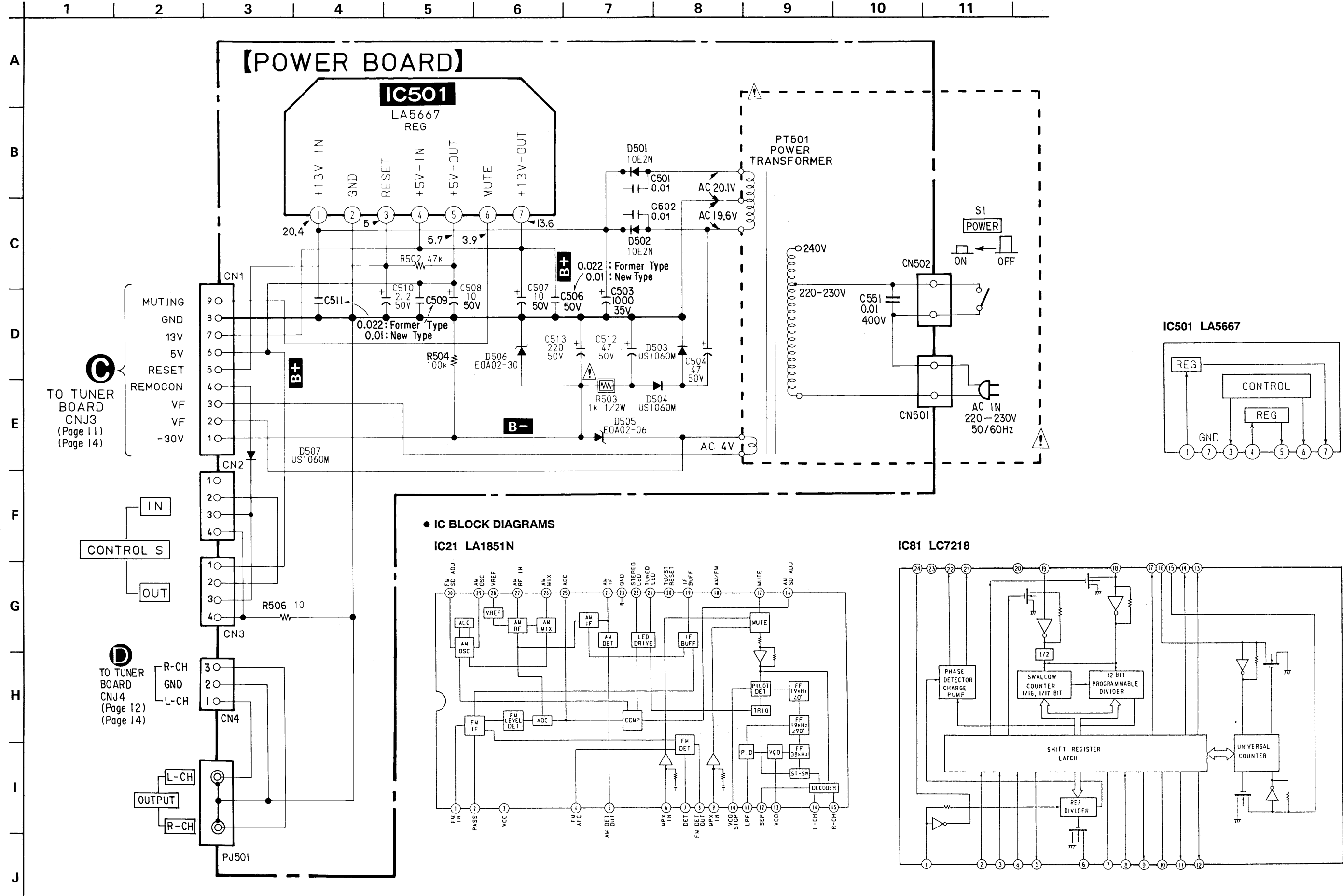
3-5. SCHEMATIC DIAGRAM - CONTROL SECTION - • Refer to page 12 for Note.



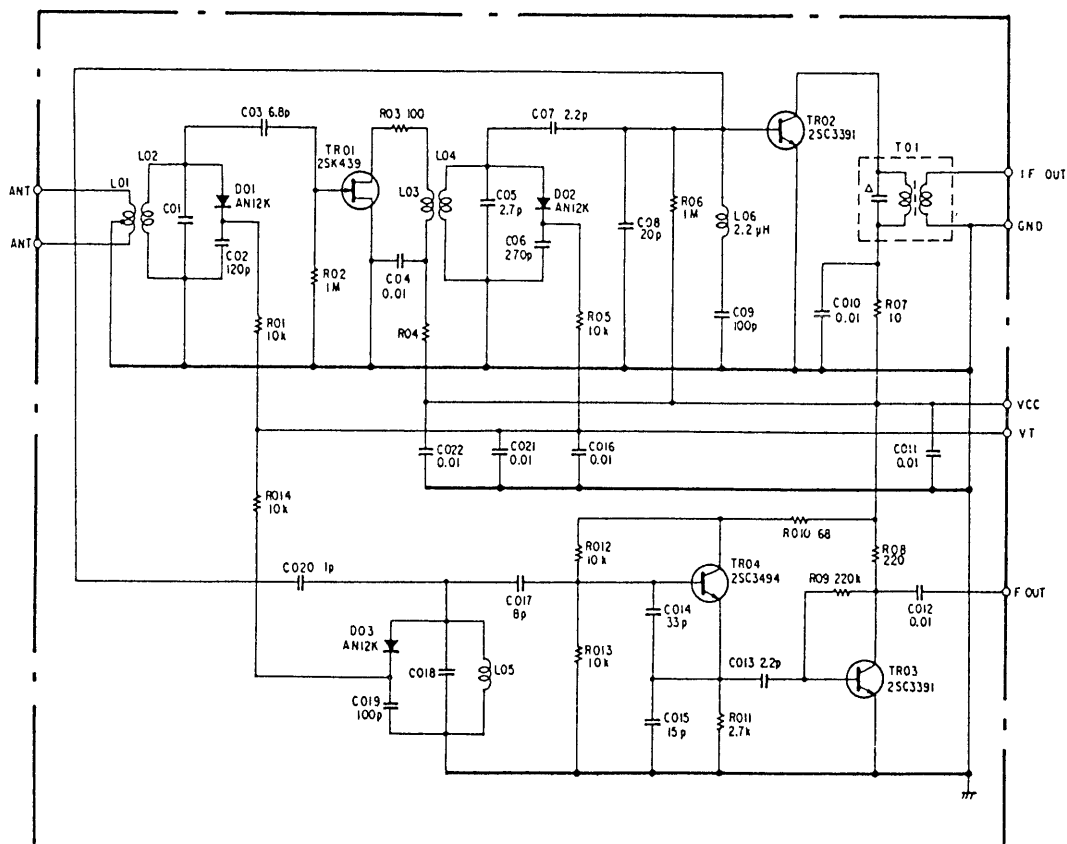
• WAVEFORMS



3-6. SCHEMATIC DIAGRAM - POWER SECTION - • Refer to page 12 for Note.



3-7. FE/(FRONT END) SCHEMATIC DIAGRAM



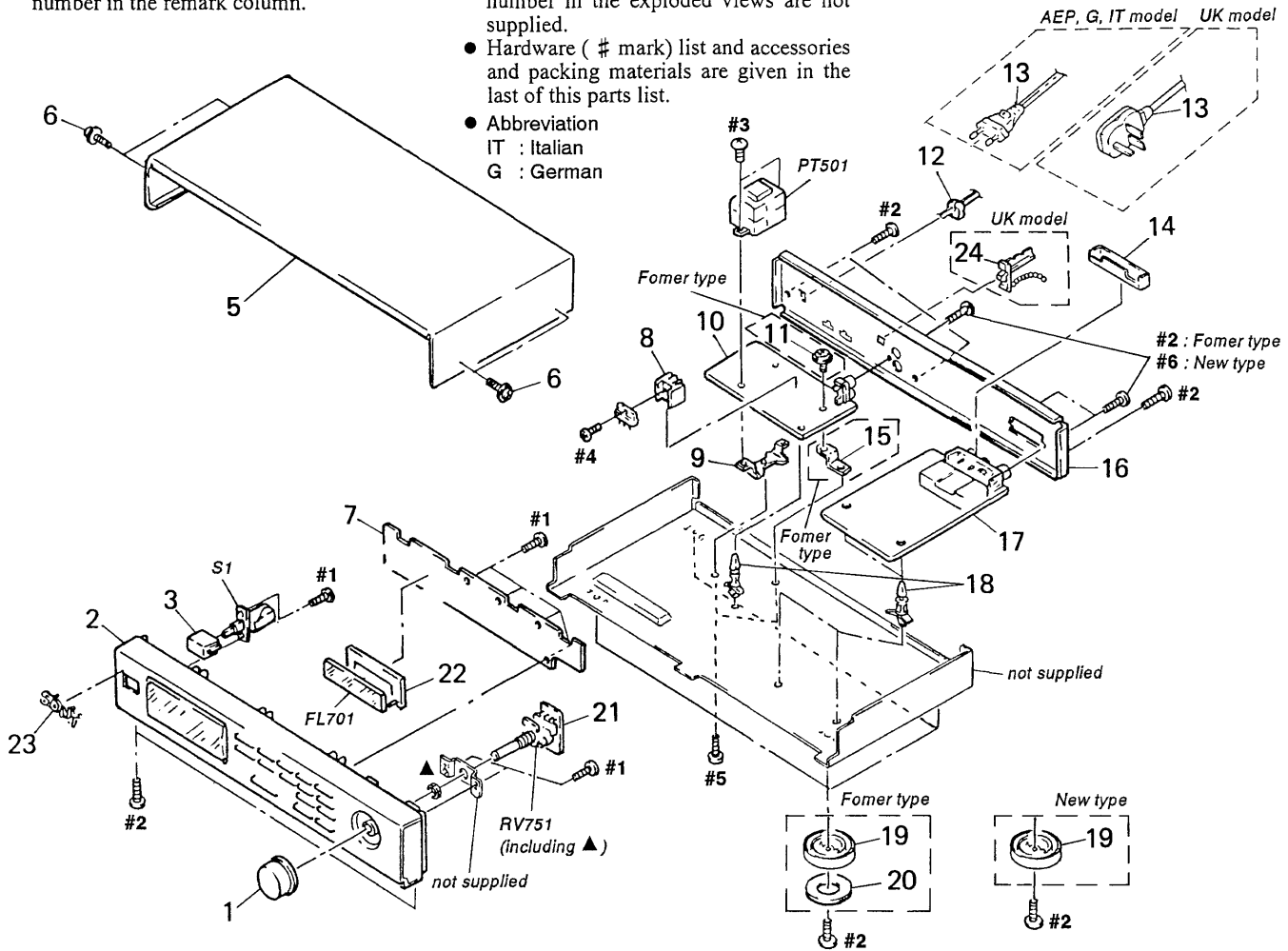
SECTION 4 EXPLODED VIEW

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- 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.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
IT : Italian
G : German

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



Ref.No.	Part No.	Description	Remark
1	4-945-523-01	KNOB (TUNE)	
2	X-4941-649-1	PANEL ASSY, FRONT (Former Type)	
2	X-4946-105-1	PANEL ASSY, FRONT (New Type)	
3	3-354-912-01	KNOB, POWER (Former Type)	
3	4-917-460-01	KNOB, POWER (New Type)	
5	4-923-457-01	CASE	
6	3-704-366-01	SCREW (CASE) (M3×8)	
* 7	A-4345-162-A	CONTROL BOARD, COMPLETE (Former Type)	
* 7	A-4378-124-A	CONTROL BOARD, COMPLETE (New Type)	
* 8	4-363-146-31	HEAT SINK, V. OUT	
* 9	4-917-044-01	BRACKET (PT)	
* 10	1-638-863-11	POWER BOARD	
11	4-886-821-11	SCREW, S TIGHT, +PTTWH 3×6 (Former Type)	
12	3-703-244-00	BUSHING, CORD	
△13	1-575-651-11	CORD, POWER (AEP) (Former Type)	
△13	1-575-651-21	CORD, POWER (AEP, G, IT) (New Type)	
△13	1-696-907-11	CORD, POWER (UK)	
* 14	4-924-988-11	PLATE (ST), GROUND	
* 15	3-332-563-01	BRACKET (P) (Former Type)	
* 16	4-944-121-61	PANEL, BACK (AE1) (Former Type)	
* 16	4-944-121-91	PANEL, BACK (AE2) (Former Type)	

Ref.No.	Part No.	Description	Remark
* 16	4-975-134-01	PANEL, BACK (AEP) (New Type)	
* 16	4-975-134-11	PANEL, BACK (G, IT)	
* 16	4-975-134-21	PANEL, BACK (UK)	
* 17	A-4345-492-A	TUNER BOARD, COMPLETE (AEP) (Former Type)	
* 17	A-4378-126-A	TUNER BOARD, COMPLETE (AEP) (New Type)	
* 17	A-4378-128-A	TUNER BOARD, COMPLETE (UK, G, IT)	
* 18	3-346-265-11	HOLDER, PC BOARD (Former Type)	
* 18	3-346-265-31	HOLDER, PC BOARD (New Type)	
19	X-3304-938-2	FOOT ASSY (Former Type)	
19	4-956-885-11	FOOT (F58175S2W) (New Type)	
* 20	4-923-836-11	CUSHION (Former Type)	
* 21	1-638-862-11	SWITCH BOARD	
* 22	4-945-525-01	HOLDER, FL TUBE	
23	4-925-334-11	EMBLEM (5-A), SONY	
24	4-956-370-12	BAND, PLUG FIXED (UK)	
FL701	1-519-512-11	INDICATOR TUBE, FLUORESCENT	
△PT501	1-450-009-11	TRANSFORMER, POWER	
RV751	1-466-513-11	ENCODER, ROTARY (TUNING)	
S1	1-554-920-21	SWITCH, PUSH (AC POWER) (1 KEY) (Former Type)	
S1	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY) (New Type)	

SECTION 5 ELECTRICAL PARTS LIST

CONTROL

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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL : Metal-film resistor
METAL OXIDE : Metal oxide-film resistor
F : nonflammable

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u : μ , for example :
uA.... : μ A.... , uPA.... : μ PA....
uPB.... : μ PB.... , uPC.... : μ PC....
uPD.... : μ PD....
- CAPACITORS
uF : μ F
- COILS
uH : μ H

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

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

- Abbreviation
IT : Italian
G : German

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
*	A-4345-162-A	CONTROL BOARD, COMPLETE (Former Type)				< FLUORESCENT INDICATOR TUBE >	
*	A-4378-124-A	CONTROL BOARD, COMPLETE (New Type)					
		*****		FL701	1-519-512-11	INDICATOR TUBE, FLUORESCENT	
		< CAPACITOR >				< IC >	
C701	1-126-157-11	ELECT 10uF	20% 16V	IC701	8-759-246-23	IC TMP47C670N-1247	
C702	1-162-306-11	CERAMIC 0.01uF	30% 16V			< COIL >	
C703	1-104-905-11	CAP, DOUBLE LAYERS 0.22F					
C704	1-126-163-11	ELECT 4.7uF	20% 50V	L701	1-410-521-11	INDUCTOR 100uH	
C705	1-162-306-11	CERAMIC 0.01uF	30% 16V			< RESISTOR >	
C706-713				R701	1-247-807-31	CARBON 100 5% 1/4W	
	1-162-286-21	CERAMIC 220PF	10% 50V	R702	1-249-441-11	CARBON 100K 5% 1/4W	
C714	1-124-916-11	ELECT 22uF	20% 63V	R703	1-249-441-11	CARBON 100K 5% 1/4W	
C751	1-162-306-11	CERAMIC 0.01uF	30% 16V	R704	1-249-441-11	CARBON 100K 5% 1/4W	
C752	1-162-306-11	CERAMIC 0.01uF	30% 16V	R709	1-249-417-11	CARBON 1K 5% 1/4W	
		< VIBRATOR >		R710	1-249-411-11	CARBON 330 5% 1/4W	
CF701	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)		R711	1-249-411-11	CARBON 330 5% 1/4W	
		< COMPOSITION CIRCUIT BLOCK >		R712-719			
CP701	1-233-148-11	COMPOSITION CIRCUIT BLOCK			1-249-429-11	CARBON 10K 5% 1/4W	
CP702	1-233-187-11	COMPOSITION CIRCUIT BLOCK		R720	1-249-441-11	CARBON 100K 5% 1/4W	
CP703	1-233-185-11	COMPOSITION CIRCUIT BLOCK		R721	1-249-441-11	CARBON 100K 5% 1/4W	
		< DIODE >		R751	1-249-441-11	CARBON 100K 5% 1/4W	
D701	8-719-815-85	DIODE 1S1585		R752	1-249-441-11	CARBON 100K 5% 1/4W	
D702	8-719-815-85	DIODE 1S1585				< SWITCH >	
D703	8-719-815-85	DIODE 1S1585		S701	1-554-303-21	SWITCH, TACTILE (1)	
D705	8-719-815-85	DIODE 1S1585		S702	1-554-303-21	SWITCH, TACTILE (2)	
D708	8-719-815-85	DIODE 1S1585 (Former Type)		S703	1-554-303-21	SWITCH, TACTILE (3)	
D709	8-719-815-85	DIODE 1S1585 (Former Type)		S704	1-554-303-21	SWITCH, TACTILE (4)	
D710-718				S705	1-554-303-21	SWITCH, TACTILE (5)	
	8-719-815-85	DIODE 1S1585		S706	1-554-303-21	SWITCH, TACTILE (6)	
				S707	1-554-303-21	SWITCH, TACTILE (7)	

CONTROL**POWER****SWITCH****TUNER (Former)**

Ref.No.	Part No.	Description	Remark
S708	1-554-303-21	SWITCH, TACTILE ()	
S709	1-554-303-21	SWITCH, TACTILE ()	
S710	1-554-303-21	SWITCH, TACTILE ()	
S711	1-554-303-21	SWITCH, TACTILE (AUTO TUNING)	
S712	1-554-303-21	SWITCH, TACTILE (MEMORY SCAN)	
S713	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S714	1-554-303-21	SWITCH, TACTILE (SHIFT)	
S715	1-554-303-21	SWITCH, TACTILE (BAND)	

*	1-638-863-11	POWER BOARD	

		< CAPACITOR >	
C501	1-164-096-11	CERAMIC 0.01uF	50V
C502	1-164-096-11	CERAMIC 0.01uF	50V
C503	1-126-952-11	ELECT 1000uF	20% 35V
C504	1-126-967-11	ELECT 47uF	20% 50V
C506	1-101-005-00	CERAMIC 22000PF	50V
		(Former Type)	
C506	1-164-096-11	CERAMIC 0.01uF	50V
		(New Type)	
C507	1-126-964-11	ELECT 10uF	20% 50V
C508	1-126-964-11	ELECT 10uF	20% 50V
C509	1-101-005-00	CERAMIC 22000PF	50V
		(Former Type)	
C509	1-164-096-11	CERAMIC 0.01uF	50V
		(New Type)	
C510	1-124-925-11	ELECT 2.2uF	20% 100V
C511	1-101-005-00	CERAMIC 22000PF	50V
		(Former Type)	
C511	1-164-096-11	CERAMIC 0.01uF	50V
		(New Type)	
C512	1-126-967-11	ELECT 47uF	20% 50V
C513	1-126-969-11	ELECT 220uF	20% 50V
△C551	1-161-744-00	CERAMIC 0.01uF	400V
		< CONNECTOR >	
CN1	1-506-503-11	PIN, CONNECTOR 9P	
CN2	1-564-980-11	PIN, CONNECTOR 4P	
CN3	1-564-980-11	PIN, CONNECTOR 4P	
CN4	1-564-337-00	PIN, CONNECTOR 3P	
CN501	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
CN502	1-564-321-00	PIN, CONNECTOR 2P	
		< DIODE >	
D501	8-719-200-82	DIODE 11ES2	
D502	8-719-200-82	DIODE 11ES2	
D503	8-719-815-85	DIODE 1S1585	

Ref.No.	Part No.	Description	Remark
D504	8-719-815-85	DIODE 1S1585	
D505	8-719-903-61	LED SLP361B	
D506	8-719-982-22	DIODE MTZJ-30D	
D507	8-719-815-85	DIODE 1S1585	
		< IC >	
IC501	8-759-820-09	IC LA5667	
		< JACK >	
PJ501	1-565-352-11	JACK, PIN 2P (OUT PUT)	
		< TRANSFORMER >	
△PT501	1-450-009-11	TRANSFORMER, POWER	
		< RESISTOR >	
R502	1-249-437-11	CARBON 47K 5% 1/4W	
△R503	1-247-752-11	CARBON 1K 5% 1/2W F	
R504	1-249-441-11	CARBON 100K 5% 1/4W	
R506	1-249-393-11	CARBON 10 5% 1/4W	

*	1-638-862-11	SWITCH BOARD	

		< VARIABLE RESISTOR >	
RV751	1-466-513-12	ENCODER, ROTARY (TUNING)	

*	A-4345-492-A	TUNER BOARD, COMPLETE (AEP)	
		(Former Type)	

		< CAPACITOR >	
C1	1-162-294-31	CERAMIC CHIP 0.001uF	20% 25V
C2	1-124-477-11	ELECT 47uF	20% 25V
C3	1-163-059-00	CERAMIC MELF 0.01uF	20% 16V
C4	1-162-294-31	CERAMIC CHIP 0.001uF	20% 25V
C5	1-163-059-00	CERAMIC MELF 0.01uF	20% 16V
C6	1-163-059-00	CERAMIC MELF 0.01uF	20% 16V
C9	1-163-059-00	CERAMIC MELF 0.01uF	20% 16V
C21	1-101-006-00	CERAMIC 0.047uF	50V
C22	1-163-059-00	CERAMIC MELF 0.01uF	20% 16V
C23	1-124-477-11	ELECT 47uF	20% 25V
C24	1-123-382-00	ELECT 3.3uF	20% 100V
C25	1-163-063-00	CERAMIC MELF 0.022uF	25V
C26	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C27	1-163-516-11	CERAMIC CHIP 100PF	10% 50V
C28	1-124-903-11	ELECT 1uF	20% 50V
C30	1-124-903-11	ELECT 1uF	20% 50V

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

TUNER (Former)

Ref. No.	Part No.	Description	Remark
C31	1-124-902-00	ELECT	0. 47uF 20% 50V
C32	1-124-463-00	ELECT	0. 1uF 20% 50V
C33	1-130-481-00	MYLAR	0. 0068uF 5% 50V
C34	1-123-382-00	ELECT	3. 3uF 20% 100V
C35	1-130-481-00	MYLAR	0. 0068uF 5% 50V
C36	1-123-382-00	ELECT	3. 3uF 20% 100V
C37	1-124-907-11	ELECT	10uF 20% 50V
C38	1-124-907-11	ELECT	10uF 20% 50V
C39	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C40	1-124-463-00	ELECT	0. 1uF 20% 50V
C41	1-124-927-11	ELECT	4. 7uF 20% 100V
C42	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C43	1-126-176-11	ELECT	220uF 20% 10V
C44	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C45	1-123-382-00	ELECT	3. 3uF 20% 100V
C46	1-163-059-00	CERAMIC MELF	0. 0022uF 20% 25V
C48	1-123-382-00	ELECT	3. 3uF 20% 100V
C49	1-161-375-00	CERAMIC MELF	0. 0022uF 20% 25V
C51	1-124-477-11	ELECT	47uF 20% 25V
C53	1-163-467-11	CERAMIC CHIP	33PF 5% 50V
C61	1-163-063-00	CERAMIC MELF	0. 022uF 25V
C62	1-163-063-00	CERAMIC MELF	0. 022uF 25V
C63	1-163-063-00	CERAMIC MELF	0. 022uF 25V
C64	1-163-063-00	CERAMIC MELF	0. 022uF 25V
C65	1-163-063-00	CERAMIC MELF	0. 022uF 25V
C66	1-163-063-00	CERAMIC MELF	0. 022uF 25V
C67	1-102-120-00	CERAMIC	0. 0018uF 10% 50V
C68	1-162-523-11	CERAMIC CHIP	0. 0015uF 20% 25V
C69	1-163-063-00	CERAMIC CHIP	0. 022uF 25V
C70	1-163-063-00	CERAMIC CHIP	0. 022uF 25V
C71	1-163-063-00	CERAMIC CHIP	0. 022uF 25V
C72	1-163-063-00	CERAMIC CHIP	0. 022uF 25V
C73	1-163-063-00	CERAMIC CHIP	0. 022uF 25V
C81	1-102-961-00	CERAMIC	27PF 5% 50V
C82	1-102-961-00	CERAMIC	27PF 5% 50V
C83	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C84	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C85	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C86	1-124-477-11	ELECT	47uF 20% 25V
C87	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C88	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C101	1-124-925-11	ELECT	2. 2uF 20% 100V
C102	1-124-463-00	ELECT	0. 1uF 20% 50V
C103	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C104	1-163-059-00	CERAMIC MELF	0. 01uF 20% 16V
C105	1-124-477-11	ELECT	47uF 20% 25V
C106	1-136-173-00	FILM	0. 47uF 5% 50V
C107	1-124-463-00	ELECT	0. 1uF 20% 50V
C108	1-163-063-00	CERAMIC CHIP	0. 022uF 25V

Ref. No.	Part No.	Description	Remark
C109	1-102-963-00	CERAMIC 33PF	5% 50V
		< FILTER >	
CF1	1-567-389-11	FILTER, CERAMIC	
CF2	1-567-389-11	FILTER, CERAMIC	
CFT21	1-404-853-11	TRANSFORMER, 1F(CERAMIC FILTER)	
		< VIBRATOR >	
CF21	1-577-075-11	OSCILLATOR, CERAMIC	
		< CONNECTOR >	
* CNJ1	1-564-666-11	PIN, CONNECTOR 10P	
* CNJ2	1-564-341-11	PIN, CONNECTOR 7P	
* CNJ3	1-568-313-11	SOCKET, CONNECTOR 9P	
CNJ4	1-568-269-11	SOCKET, CONNECTOR 3P	
		< DIODE >	
D21-24	8-719-912-20	DIODE 1SS120	
D61	8-719-912-20	DIODE 1SS120	
		< FRONT END >	
FE1	1-463-862-21	FRONT END (FM)	
FE61	1-236-462-11	ENCAPSULATED COMPONENT	
FE62	1-236-463-11	ENCAPSULATED COMPONENT	
		< IC >	
IC21	8-759-821-45	IC LA1851N	
IC81	8-759-820-91	IC LC7218	
		< COIL >	
L1	1-410-645-31	INDUCTOR 100uH	
L21	1-407-500-00	INDUCTOR 4. 7mH	
L61	1-410-525-11	INDUCTOR 220uH	
		< FILTER >	
LPF21	1-235-164-00	FILTER, LOW PASS	
LPF22	1-235-164-00	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q21	8-729-119-78	TRANSISTOR 2SC2785HFE	
Q22	8-729-119-78	TRANSISTOR 2SC2785HFE	
Q26	8-729-900-80	TRANSISTOR DTC114ES	
Q27	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q28	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q61	8-729-900-80	TRANSISTOR DTC114ES	
Q62	8-729-900-80	TRANSISTOR DTC114ES	

TUNER (Former)

Ref. No.	Part No.	Description	Remark
Q63	8-729-900-80	TRANSISTOR DTC114ES	
Q64	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q65	8-729-821-04	TRANSISTOR 2SA1317-STU	
Q66	8-729-900-80	TRANSISTOR DTC114ES	
Q81	8-729-900-61	TRANSISTOR DTA114ES	
Q82	8-729-900-80	TRANSISTOR DTC114ES	
Q83	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q84	8-729-230-93	TRANSISTOR 2SC3113-AB	
Q85	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q86	8-729-230-93	TRANSISTOR 2SC3113-AB	
< RESISTOR >			
△R1	1-249-401-11	CARBON 47 5% 1/4W F	
R3	1-249-329-11	CARBON MELF 330 5% 1/8W	
R4	1-249-329-11	CARBON MELF 330 5% 1/8W	
R5	1-249-329-11	CARBON MELF 330 5% 1/8W	
R6	1-249-350-11	CARBON MELF 18K 5% 1/8	
R7	1-249-329-11	CARBON MELF 330 5% 1/8W	
R8	1-249-332-11	CARBON MELF 560 5% 1/8W	
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W	
△R21	1-249-404-00	CARBON 82 5% 1/4W F	
R22	1-249-433-11	CARBON 22K 5% 1/4W	
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W	
R25	1-249-346-11	CARBON MELF 8.2K 5% 1/8W	
R27	1-249-432-11	CARBON 18K 5% 1/4W	
R29	1-249-347-11	CARBON MELF 10K 5% 1/8W	
R31	1-249-331-11	CARBON MELF 470 5% 1/8W	
R32	1-249-347-11	CARBON MELF 10K 5% 1/8W	
R33	1-249-347-11	CARBON MELF 10K 5% 1/8W	
R34	1-249-425-11	CARBON 4.7K 5% 1/4W	
R35	1-249-355-11	CARBON MELF 47K 5% 1/8W	
R37	1-249-359-11	CARBON MELF 100K 5% 1/8W	
R38	1-249-363-11	CARBON MELF 220K 5% 1/8W	
R39	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	
R40	1-249-338-11	CARBON MELF 1.8K 5% 1/8W	
R41	1-249-344-11	CARBON MELF 5.6K 5% 1/8W	
R42	1-249-359-11	CARBON MELF 100K 5% 1/8W	
R43	1-249-363-11	CARBON MELF 220K 5% 1/8W	
R44	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	
R45	1-249-338-11	CARBON MELF 1.8K 5% 1/8W	
R46	1-249-344-11	CARBON MELF 5.6K 5% 1/8W	
△R47	1-249-409-11	CARBON 220 5% 1/4W F	
R48	1-249-359-11	CARBON MELF 100K 5% 1/8W	
R49	1-249-359-11	CARBON MELF 100K 5% 1/8W	
R61	1-249-359-11	CARBON MELF 100K 5% 1/8W	
R62	1-249-355-11	CARBON MELF 47K 5% 1/8W	
R64	1-249-351-11	CARBON MELF 22K 5% 1/8W	
R65	1-249-355-11	CARBON MELF 47K 5% 1/8W	

Ref. No.	Part No.	Description	Remark
R66	1-249-073-11	CARBON MELF 1M 5% 1/5W	
R67	1-249-359-11	CARBON MELF 100K 5% 1/8W	
R68	1-249-352-11	CARBON MELF 27K 5% 1/8W	
R69	1-249-351-11	CARBON MELF 22K 5% 1/8W	
R70	1-249-331-11	CARBON MELF 470 5% 1/8W	
R71	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	
R72	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	
R73	1-249-347-11	CARBON MELF 10K 5% 1/8W	
R74	1-249-347-11	CARBON MELF 10K 5% 1/8W	
R75	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
R81	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R82	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R83	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R84	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R85	1-249-347-11	CARBON MELF 10K 5% 1/8W	
R86	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R88	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
R89	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R90	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
R91	1-249-335-11	CARBON MELF 1K 5% 1/8W	
△R92	1-249-401-11	CARBON 47 5% 1/4W F	
R101	1-249-341-11	CARBON MELF 3.3K 5% 1/8W	
R102	1-249-332-11	CARBON MELF 560 5% 1/8W	
R103	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R104	1-249-328-11	CARBON MELF 270 5% 1/8W	
R105	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
R106	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	
R107	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
R108	1-249-323-11	CARBON MELF 100 5% 1/8W	
R109	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
△R110	1-249-405-11	CARBON 100 5% 1/4W F	
R111	1-249-341-11	CARBON MELF 3.3K 5% 1/8W	
R112	1-249-332-11	CARBON MELF 560 5% 1/8W	
R113	1-249-335-11	CARBON MELF 1K 5% 1/8W	
R114	1-249-328-11	CARBON MELF 270 5% 1/8W	
R115	1-249-351-11	CARBON MELF 22K 5% 1/8W	
R116	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	
R117	1-249-343-11	CARBON MELF 4.7K 5% 1/8W	
R118	1-249-323-11	CARBON MELF 100 5% 1/8W	
< VARIABLE RESISTOR >			
RV21	1-238-013-11	RES, ADJ, CARBON 2.2K (STEREO SEPARATION)	
RV22	1-238-017-11	RES, ADJ, CARBON 22K (AM TUNED)	
RV24	1-238-017-11	RES, ADJ, CARBON 22K (FM TUNED)	
< TRANSFORMER >			
T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR	

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

TUNER (Former)

TUNER (New)

Ref. No.	Part No.	Description	Remark
< TERMINAL >			
* TM1	1-537-138-31	TERMINAL BOARD (ANTENNA)	
< TEST PIN >			
* TP1	1-560-060-00	PIN, CONNECTOR 2P (NULL)	
< VIBRATOR >			
XT81	1-577-126-11	VIBRATOR, CRYSTAL (7.2MHz)	

*	A-4378-126-A	TUNER BOARD, COMPLETE (AEP) (New Type)	
*	A-4378-128-A	TUNER BOARD, COMPLETE (UK, G, IT)	

< CAPACITOR >			
C1	1-163-141-00	CERAMIC CHIP 0.001uF	5% 50V
C2	1-126-967-11	ELECT 47uF	20% 16V
C3	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C4	1-163-141-00	CERAMIC CHIP 0.001uF	5% 50V
C5	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C6	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C7	1-164-232-11	CERAMIC CHIP 0.01uF	50V (UK, G, IT)
C8	1-164-232-11	CERAMIC CHIP 0.01uF	50V (UK, G, IT)
C9	1-164-232-11	CERAMIC CHIP 0.01uF	50V (UK, G, IT)
C11	1-164-097-11	CERAMIC 0.022uF	50V
C21	1-101-006-00	CERAMIC 0.047uF	50V
C22	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C23	1-126-967-11	ELECT 47uF	20% 16V
C24	1-126-111-11	ELECT 3.3uF	20% 50V
C25	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C26	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C27	1-163-137-00	CERAMIC CHIP 680PF	5% 50V (UK, G, IT)
C27	1-163-117-00	CERAMIC CHIP 100PF	5% 50V (AEP)
C28	1-124-903-11	ELECT 1uF	20% 50V
C29	1-163-117-00	CERAMIC CHIP 100PF	5% 50V (UK, G, IT)
C30	1-124-903-11	ELECT 1uF	20% 50V
C31	1-124-902-00	ELECT 0.47uF	20% 50V
C32	1-124-463-00	ELECT 0.1uF	20% 50V
C33	1-130-481-00	MYLAR 0.0068uF	5% 50V
C34	1-126-111-11	ELECT 3.3uF	20% 50V
C35	1-130-481-00	MYLAR 0.0068uF	5% 50V
C36	1-126-111-11	ELECT 3.3uF	20% 50V
C37	1-126-964-11	ELECT 10uF	20% 50V

Ref. No.	Part No.	Description	Remark
C38	1-126-964-11	ELECT 10uF	20% 50V
C39	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C40	1-124-463-00	ELECT 0.1uF	20% 50V
C41	1-124-927-11	ELECT 4.7uF	20% 100V
C42	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C43	1-126-923-11	ELECT 220uF	20% 10V
C44	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C45	1-126-111-11	ELECT 3.3uF	20% 50V
C46	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C47	1-163-141-00	CERAMIC CHIP 0.001uF	5% 50V (UK, G, IT)
C48	1-126-111-11	ELECT 3.3uF	20% 50V
C49	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C50	1-163-141-00	CERAMIC CHIP 0.001uF	5% 50V (UK, G, IT)
C51	1-126-967-11	ELECT 47uF	20% 16V
C52	1-124-252-00	ELECT 0.33uF	20% 50V
C53	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C54	1-164-097-11	CERAMIC 0.022uF	50V
C61	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C64	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C66	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C67	1-102-120-00	CERAMIC 0.0018uF	10% 50V
C68	1-163-011-11	CERAMIC CHIP 0.0015uF	10% 50V
C70	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C71	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C72	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C81	1-102-961-00	CERAMIC 27PF	5% 50V
C82	1-102-961-00	CERAMIC 27PF	5% 50V
C83	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C84	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C85	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C86	1-126-967-11	ELECT 47uF	20% 16V
C87	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C88	1-164-097-11	CERAMIC 0.022uF	50V
C101	1-124-925-11	ELECT 2.2uF	20% 100V
C102	1-124-463-00	ELECT 0.1uF	20% 50V
C103	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C104	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C105	1-126-967-11	ELECT 47uF	20% 16V
C106	1-136-173-00	FILM 0.47uF	5% 50V
C107	1-124-463-00	ELECT 0.1uF	20% 50V
C108	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C109	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
< FILTER >			
CF1	1-567-389-11	FILTER, CERAMIC	
CF2	1-567-389-11	FILTER, CERAMIC	
CF3	1-567-389-11	FILTER, CERAMIC (UK, G, IT)	

TUNER (New)

Ref.No.	Part No.	Description	Remark
CFT21	1-404-853-11	TRANSFORMER, IF (CERAMIC FILTER)	
		< VIBRATOR >	
CF21	1-577-075-11	OSCILLATOR, CERAMIC	
		< CONNECTOR >	
* CNJ1	1-568-937-11	PIN, CONNECTOR 10P	
* CNJ2	1-568-934-11	PIN, CONNECTOR 7P	
* CNJ3	1-568-936-11	PIN, CONNECTOR 9P	
CNJ4	1-506-468-11	PIN, CONNECTOR 3P	
		< DIODE >	
D21-24	8-719-988-62	DIODE 1SS355	
D61	8-719-988-62	DIODE 1SS355	
		< FRONT END >	
FE1	1-463-857-11	FRONT END (FM) (UK, G, IT)	
FE1	1-463-862-21	FRONT END (FM) (AEP)	
FE61	1-236-462-11	ENCAPSULATED COMPONENT	
FE62	1-236-463-11	ENCAPSULATED COMPONENT	
		< IC >	
IC21	8-759-821-45	IC LA1851N	
IC81	8-759-175-87	IC LC7218-S	
		< COIL >	
L1	1-410-482-31	INDUCTOR 100uH	
L2	1-410-482-31	INDUCTOR 100uH (UK, G, IT)	
L21	1-407-500-00	INDUCTOR 4.7mH	
L22	1-410-509-11	INDUCTOR 10uH (UK, G, IT)	
L61	1-408-425-00	INDUCTOR 220uH	
L151	1-410-509-11	INDUCTOR 10uH (UK, G, IT)	
L161	1-410-509-11	INDUCTOR 10uH (UK, G, IT)	
		< FILTER >	
LPF21	1-235-164-00	FILTER, LOW PASS	
LPF22	1-235-164-00	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q3	8-729-230-99	TRANSISTOR 2SC2669-OY (UK, G, IT)	
Q4	8-729-230-99	TRANSISTOR 2SC2669-OY (UK, G, IT)	
Q21	8-729-901-40	TRANSISTOR 2SC1740S-QT	
Q22	8-729-901-40	TRANSISTOR 2SC1740S-QT	
Q26	8-729-900-80	TRANSISTOR DTC114ES	
Q27	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q28	8-729-119-78	TRANSISTOR 2SC2785-HFE	

Ref.No.	Part No.	Description	Remark
Q61	8-729-900-80	TRANSISTOR DTC114ES	
Q62	8-729-900-80	TRANSISTOR DTC114ES	
Q63	8-729-900-80	TRANSISTOR DTC114ES	
Q64	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q65	8-729-821-04	TRANSISTOR 2SA1317-STU	
Q66	8-729-900-80	TRANSISTOR DTC114ES	
Q81	8-729-900-61	TRANSISTOR DTA114ES	
Q82	8-729-900-80	TRANSISTOR DTC114ES	
Q83	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q84	8-729-230-93	TRANSISTOR 2SC3113-AB	
Q85	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q86	8-729-230-93	TRANSISTOR 2SC3113-AB	
		< RESISTOR >	
△R1	1-249-397-11	CARBON 22 5% 1/4W F	(UK, G, IT)
△R1	1-249-401-11	CARBON 47 5% 1/4W F	(AEP)
R3	1-216-037-00	METAL CHIP 330 5% 1/10W	
R4	1-216-037-00	METAL CHIP 330 5% 1/10W	
R5	1-216-037-00	METAL CHIP 330 5% 1/10W	
R6	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R7	1-216-037-00	METAL CHIP 330 5% 1/10W	
R8	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R9	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R10	1-216-037-00	METAL CHIP 330 5% 1/10W	(UK, G, IT)
R11	1-216-079-00	METAL CHIP 18K 5% 1/10W	(UK, G, IT)
R12	1-216-037-00	METAL CHIP 330 5% 1/10W	(UK, G, IT)
R13	1-216-047-91	METAL GLAZE 820 5% 1/10W	(UK, G, IT)
R14	1-216-083-00	METAL CHIP 27K 5% 1/10W	(UK, G, IT)
R15	1-216-073-00	METAL CHIP 10K 5% 1/10W	(UK, G, IT)
R16	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	(UK, G, IT)
△R21	1-249-404-00	CARBON 82 5% 1/4W F	
R22	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R23	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R24	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R25	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R27	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R29	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R31	1-216-041-00	METAL CHIP 470 5% 1/10W	
R32	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R33	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R34	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	

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

TUNER (New)

Ref. No.	Part No.	Description	Remark
R35	1-216-089-91	METAL GLAZE	47K 5% 1/10W
R36	1-216-295-91	CONDUCTOR, CHIP (2012)	
R37	1-216-097-91	METAL GLAZE	100K 5% 1/10W
R38	1-216-105-91	METAL GLAZE	220K 5% 1/10W
R39	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R40	1-216-055-00	METAL CHIP	1. 8K 5% 1/10W
R41	1-216-067-00	METAL CHIP	5. 6K 5% 1/10W
R42	1-216-097-91	METAL GLAZE	100K 5% 1/10W
R43	1-216-105-91	METAL GLAZE	220K 5% 1/10W
R44	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R45	1-216-055-00	METAL CHIP	1. 8K 5% 1/10W
R46	1-216-067-00	METAL CHIP	5. 6K 5% 1/10W
△R47	1-249-409-11	CARBON	220 5% 1/4W F
R48	1-216-097-91	METAL GLAZE	100K 5% 1/10W
R49	1-216-097-91	METAL GLAZE	100K 5% 1/10W
R61	1-216-097-91	METAL GLAZE	100K 5% 1/10W
R62	1-216-089-91	METAL GLAZE	47K 5% 1/10W
R64	1-216-081-00	METAL CHIP	22K 5% 1/10W
R65	1-216-089-91	METAL GLAZE	47K 5% 1/10W
R66	1-216-121-91	METAL GLAZE	1M 5% 1/10W
R67	1-216-097-91	METAL GLAZE	100K 5% 1/10W
R68	1-216-083-00	METAL CHIP	27K 5% 1/10W
R69	1-216-081-00	METAL CHIP	22K 5% 1/10W
R70	1-216-041-00	METAL CHIP	470 5% 1/10W
R71	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R72	1-216-081-00	METAL CHIP	22K 5% 1/10W
R73	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R74	1-216-073-00	METAL CHIP	10K 5% 1/10W
R75	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R81	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R82	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R83	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R84	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R85	1-216-073-00	METAL CHIP	10K 5% 1/10W
R86	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R88	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R89	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R90	1-216-073-00	METAL CHIP	10K 5% 1/10W
R91	1-216-049-91	METAL GLAZE	1K 5% 1/10W
△R92	1-249-401-11	CARBON	47 5% 1/4W F
R101	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R102	1-216-043-91	METAL GLAZE	560 5% 1/10W
R103	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R104	1-216-035-00	METAL CHIP	270 5% 1/10W
R105	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R106	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R107	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R108	1-216-025-91	METAL GLAZE	100 5% 1/10W
R109	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W

Ref. No.	Part No.	Description	Remark
△R110	1-249-405-11	CARBON	100 5% 1/4W F
R111	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R112	1-216-043-91	METAL GLAZE	560 5% 1/10W
R113	1-216-049-91	METAL GLAZE	1K 5% 1/10W
R114	1-216-035-00	METAL CHIP	270 5% 1/10W
R115	1-216-081-00	METAL CHIP	22K 5% 1/10W
R116	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R117	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R118	1-216-025-91	METAL GLAZE	100 5% 1/10W
R151	1-216-295-91	CONDUCTOR, CHIP (2012)	
R152	1-216-295-91	CONDUCTOR, CHIP (2012)	
R153	1-216-295-91	CONDUCTOR, CHIP (2012)	
R154	1-216-295-91	CONDUCTOR, CHIP (2012)	
R161-165	1-216-295-91	CONDUCTOR, CHIP (2012)	
		< VARIABLE RESISTOR >	
RV21	1-241-762-11	RES, ADJ, CARBON 2. 2K	(STEREO SEPARATION)
RV22	1-241-765-11	RES, ADJ, CARBON 22K (AM TUNED)	
RV24	1-241-765-11	RES, ADJ, CARBON 22K (FM TUNED)	
		< TRANSFORMER >	
T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR	
T23	1-235-126-00	ENCAPSULATED COMPONENT (UK, G, IT)	
		< TERMINAL >	
* TM1	1-537-138-31	TERMINAL BOARD (ANTENNA)	
		< TEST PIN >	
* TP1	1-560-060-00	PIN, CONNECTOR 2P (NULL)	
		< VIBRATOR >	
XT81	1-577-126-21	VIBRATOR, CRYSTAL (7. 2MHz)	

		MISCELLANEOUS	

△13	1-575-651-11	CORD, POWER (AEP) (Former Type)	
△13	1-575-651-21	CORD, POWER (AEP, G, IT) (New Type)	
△13	1-696-907-11	CORD, POWER (UK)	
FL701	1-519-512-11	INDICATOR TUBE, FLUORESCENT	
△PT501	1-450-009-11	TRANSFORMER, POWER	
RV751	1-466-513-11	ENCODER, ROTARY (TUNING)	
S1	1-554-920-21	SWITCH, PUSH (AC POWER) (1 KEY)	(Former Type)

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

Ref. No.	Part No.	Description	Remark
S1	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY)	(New Type)

		ACCESSORIES & PACKING MATERIALS	

	1-501-369-11	ANTENNA (FM) (Former Type)	
	1-501-374-11	ANTENNA, LOOP	
	1-501-594-11	ANTENNA (FM) (New Type)	
	1-558-233-11	CORD (WITH CONNECTOR) (SIRCS) 4P	
	1-559-533-11	CORD, CONNECTION (Former Type)	
	1-558-271-11	CORD, CONNECTION (New Type)	
*	3-704-343-01	SHEET (STANDARD), PROTECTION	(Former Type)
	3-753-281-11	MANUAL, INSTRUCTION (AEP, UK, IT)	
		(ENGLISH/FRENCH/SPANISH/ITALIAN)	
	3-753-281-41	MANUAL, INSTRUCTION (AEP, G)	
		(DUTCH/SWEDISH/PORTUGUESE/GERMAN)	
*	3-948-574-01	SHEET (ROLL), PROTECTION (New Type)	
*	4-917-074-01	CUSHION (Former Type)	
*	4-966-661-02	CUSHION (New Type)	
*	4-966-660-51	INDIVIDUAL CARTON (New Type)	
*	4-944-049-11	INDIVIDUAL CARTON (Former Type)	

		HARDWARE LIST	

#1	7-672-773-93	SCREW (PANEL 2.6 TP2) (Former Type)	
#1	4-951-620-01	SCREW (2.6×8), +BVTP (New Type)	
#2	7-685-646-79	SCREW +BVTP 3×8 TYPE2 N-S	
#3	7-682-550-04	SCREW +BVTT 3×12 (S)	
#4	7-685-646-79	SCREW +BVTP 3×8 TYPE2 (Former Type)	
#4	7-685-646-81	SCREW +BVTP 3×8 TYPE2 (New Type)	
#5	7-685-871-01	SCREW +BVTT 3×6 (S)	
#6	3-704-515-11	SCREW (BV/RING) (New Type)	