

ST-V902

SERVICE MANUAL

*AEP Model
UK Model*





This set is FM stereo/FM-AM

Tuner section in LBT-V902/V902CD.

SPECIFICATIONS

Tuner System	FM stereo FM/AM superheterodyne tuner
FM tuner section	
Tuning range	87.5 to 108 MHz
Antenna	75 ohms unbalanced
Intermediate frequency	10.7 MHz
MW/LW tuner section	
Tuning range	MW: 522 to 1,611kHz (Italian model) 531 to 1,602kHz (other models) LW: 144 to 288kHz (Italian model) 153 to 279kHz (other models)
Antenna	AM loop antenna External antenna terminal
Intermediate frequency	450 kHz
Power requirements	240V AC, 50Hz (UK model) 220V AC, 50Hz (other models)
Power consumption	10 W
AC outlet	2 switched, total 500 W max.
Weight	Approx. 2.4 kg
Dimensions	Approx. 355 × 80 × 312 mm (w/h/d, including projections)

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.

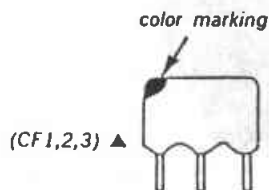
FM STEREO/FM-AM TUNER
SONY[®]



SECTION 1 SERVICING NOTES

Note on Ceramic Filter (CF1,2,3) ▲ Replacement.

This set employs three ceramic filters (CF1,2,3) ▲ which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by * D609 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)	* D609	
White	10.750	○	10.750
Red	10.700	×	10.700

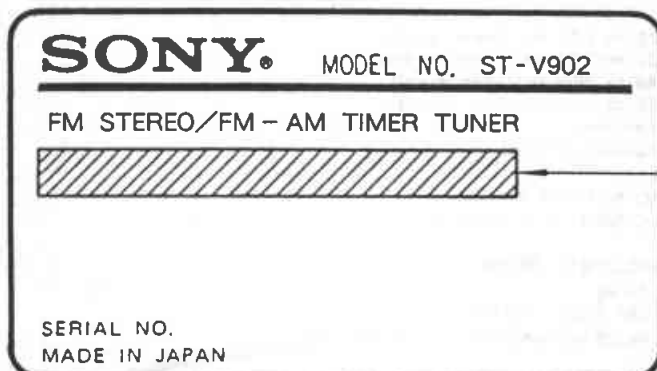
FM intermediate frequency is determined by the three types as shown above, Ceramic filters of same center frequency, i.e., of same color coding should be used for CF1, CF2, and CF3.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

▲ : AEP, UK Model : CF1, 2
WG, IT Model : CF1, 2, 3

MODEL IDENTIFICATION

— Specification Label —

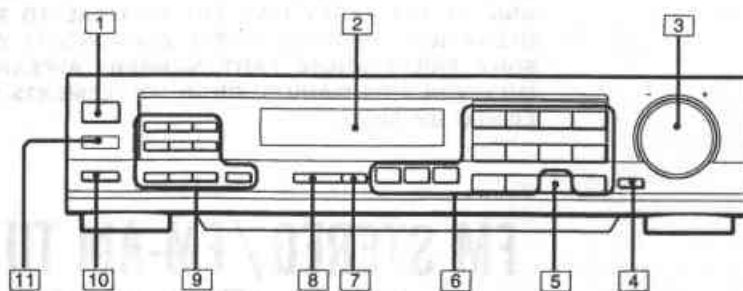


AEP, West Germany,

Italian Model : AC : 220V ~ 50/60 Hz

UK Model : AC : 240V ~ 50/60 Hz

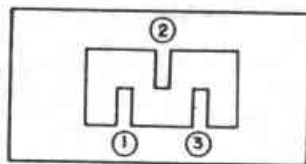
LOCATION OF CONTROLS



- 1 SYSTEM POWER switch
- 2 Display window
- 3 TUNING control
- 4 BAND selector
- 5 MEMORY SCAN button
- 6 Buttons for storing station frequencies
- 7 AUTO tuning button
- 8 FREQUENCY/TIME button
- 9 Buttons for setting the clock and timer
- 10 SLEEP button
- 11 Remote sensor

Signal of System Control Connector

CNJ702
AU BUS



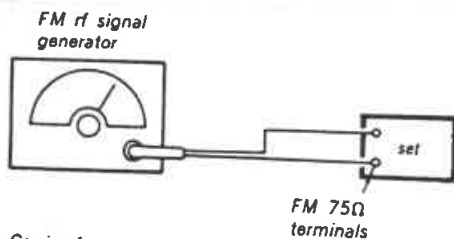
1	AUB
2	GND
3	

SECTION 2 ELECTRICAL ADJUSTMENTS

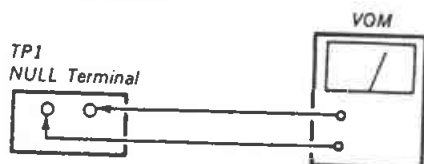
FM SECTION

FM DISCRIMINATOR ADJUSTMENT

Setting:



Carrier frequency : 98MHz
Modulation : 1kHz, 40kHz deviation (100%)
Output level : 1mV (60dB)



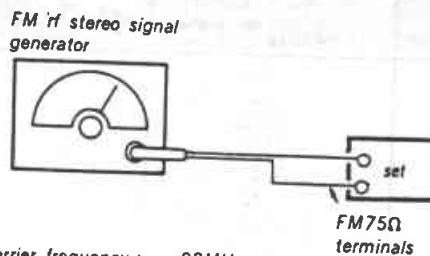
Procedure :

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 :



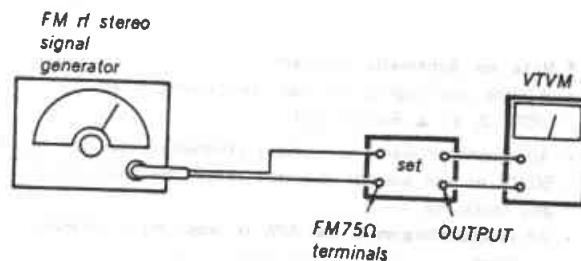
Carrier frequency : 98MHz
Modulation : 1kHz, 40kHz deviation (100%)
Output level : 17.8μV (25dB)

Procedure :

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

FM STEREO SEPARATION ADJUSTMENT

Procedure :



Carrier frequency : 98MHz
Output level : 1mV (60dB)
Modulation
Audio 400Hz : 16.25kHz deviation
Sub channel 38kHz : 16.25kHz deviation
Pilot signal 19kHz : 7.5kHz deviation

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 : Ⓒ-Ⓓ[Ⓟ]

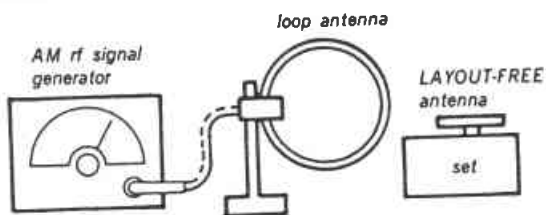
The separations of both channels should be equal.

MW/LW SECTION

AM TUNING LEVEL ADJUSTMENT

BAND select switch : LW

Setting :



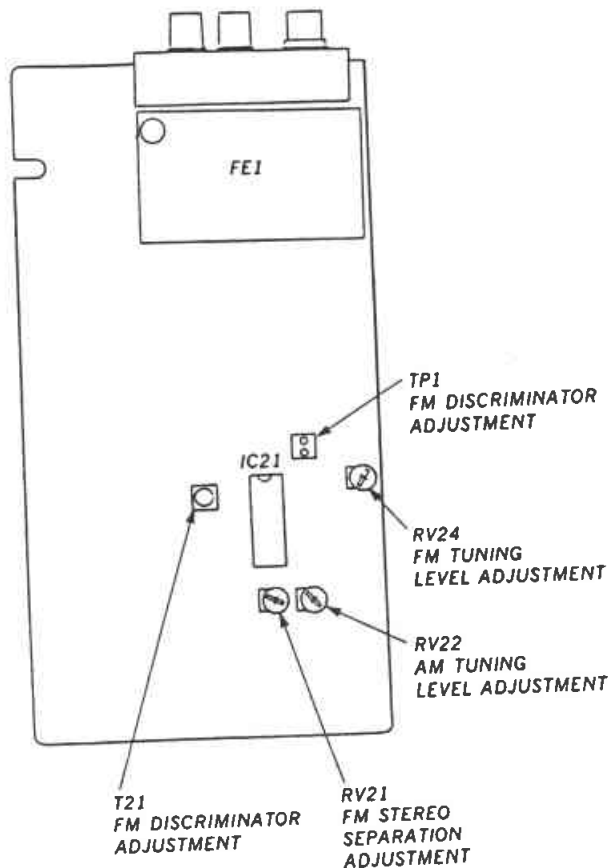
Carrier frequency : 216kHz
Modulation : 400Hz, 30% modulation

Procedure :

1. Set loop antenna so that the LAYOUT-FREE antenna input level becomes 2.5mV/m (68dB).
2. Tune the set to 216kHz.
3. Adjust the RV22 so that the TUNED LED goes on.

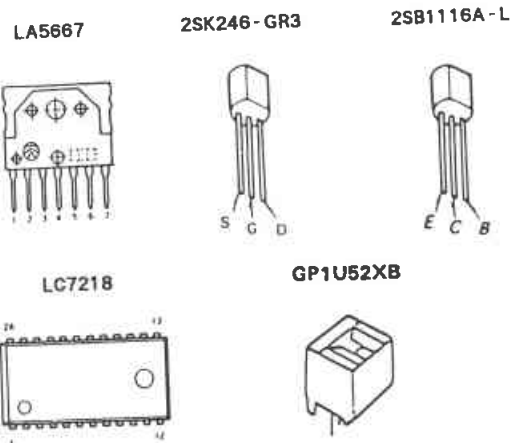
Adjustment Location :

—tuner board—



SECTION 3 DIAGRAMS

3-1. SEMICONDUCTOR LEAD LAYOUTS

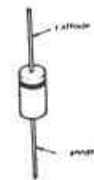


DTA144ES
DTC114ES
2SA1317-STU
2SC2603-EF
2SC2669-OY
2SC3113-A
2SC3330-STU
2SC3402

2SC2785-HFE

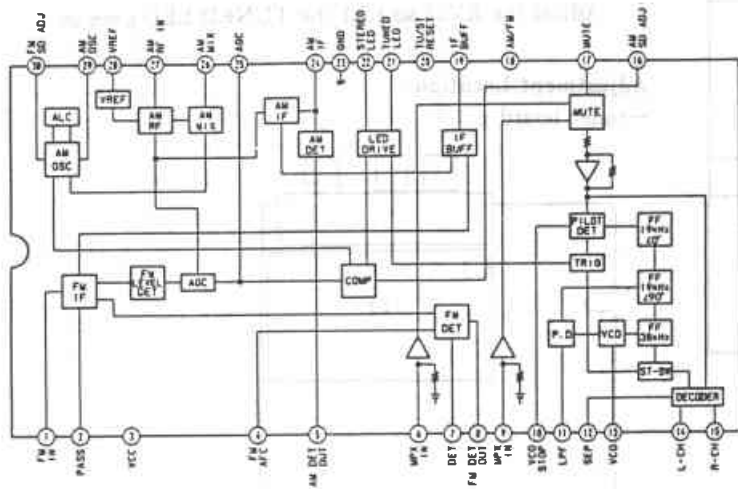
HZS27-2L
1SS120

UZP-6.8B
10E2N

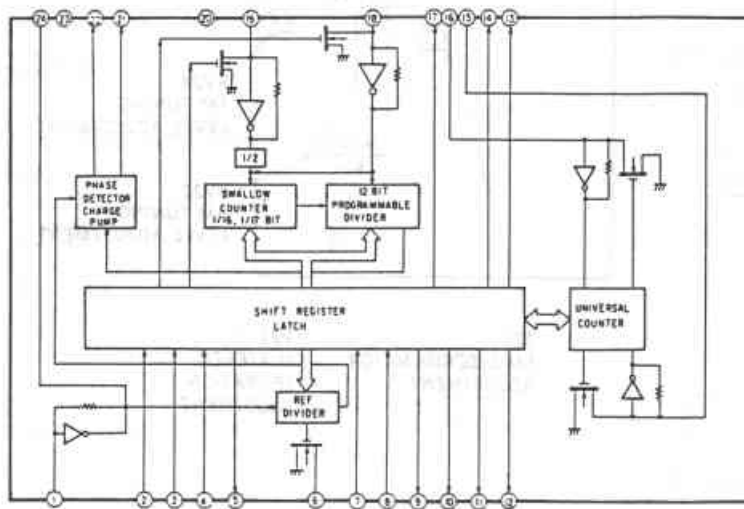


S 3-2. IC BLOCK DIAGRAMS

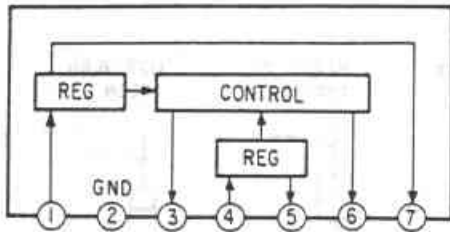
IC21 LA1851N



IC81 LC7218



IC701 LA5667



• Semiconductor Location

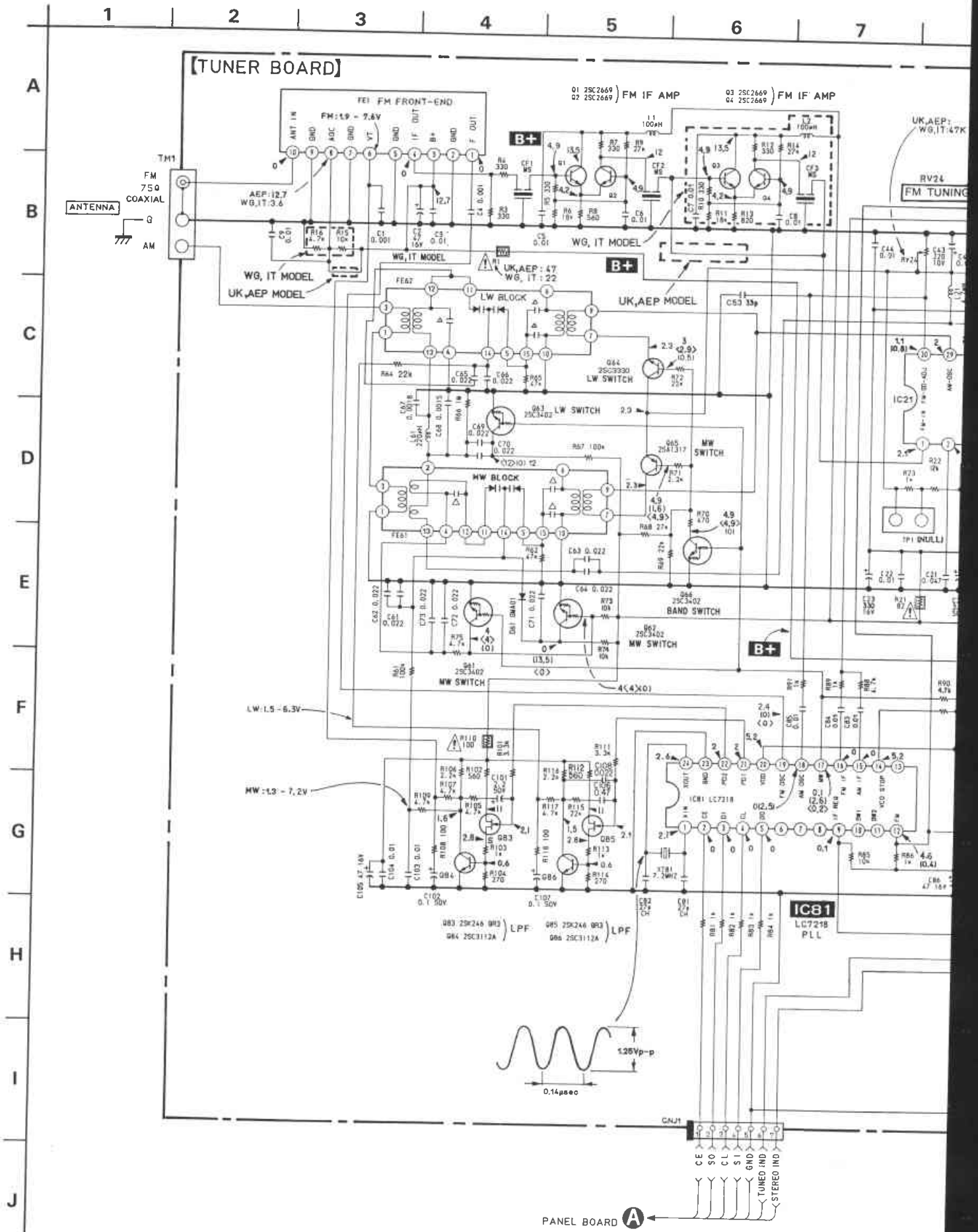
Ref. No.	Location
IC21	E-8
IC81	B-5
Q1	C-5
Q2	C-5
Q3	C-6
Q4	C-6
Q21	C-9
Q22	D-9
Q26	F-9
Q27	D-10
Q28	E-10
Q61	E-5
Q62	E-5
Q63	F-5
Q64	D-5
Q65	E-6
Q66	E-5
Q81	C-7
Q82	C-7
Q83	B-3
Q84	A-2
Q85	C-2
Q86	C-2
D21	E-10
D22	E-10
D23	E-11
D24	E-11
D61	E-6



• Note on Printed Wiring Board

- ○ — : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- □ ← : indicates side identified with part number.
- WG : West Germany model
- IT : Italian model

3-4. TUNER SECTION SCHEMATIC DIAGRAM



IC21
LA1858N
FM DET, MPX
AM IF, DET

RV22
AM TUNING

Q21 25C3330
Q22 25C3330
PRE AMP

RV21
STEREO
SEPARATION

WG, IT MODEL

Q27,28 25C3330
MUTING

B+

* C27
UKAEP:100P
WG,IT:480P

Q81,82
FM B+
SWITCH

UKAEP:2.2K
WG,IT:4.7K

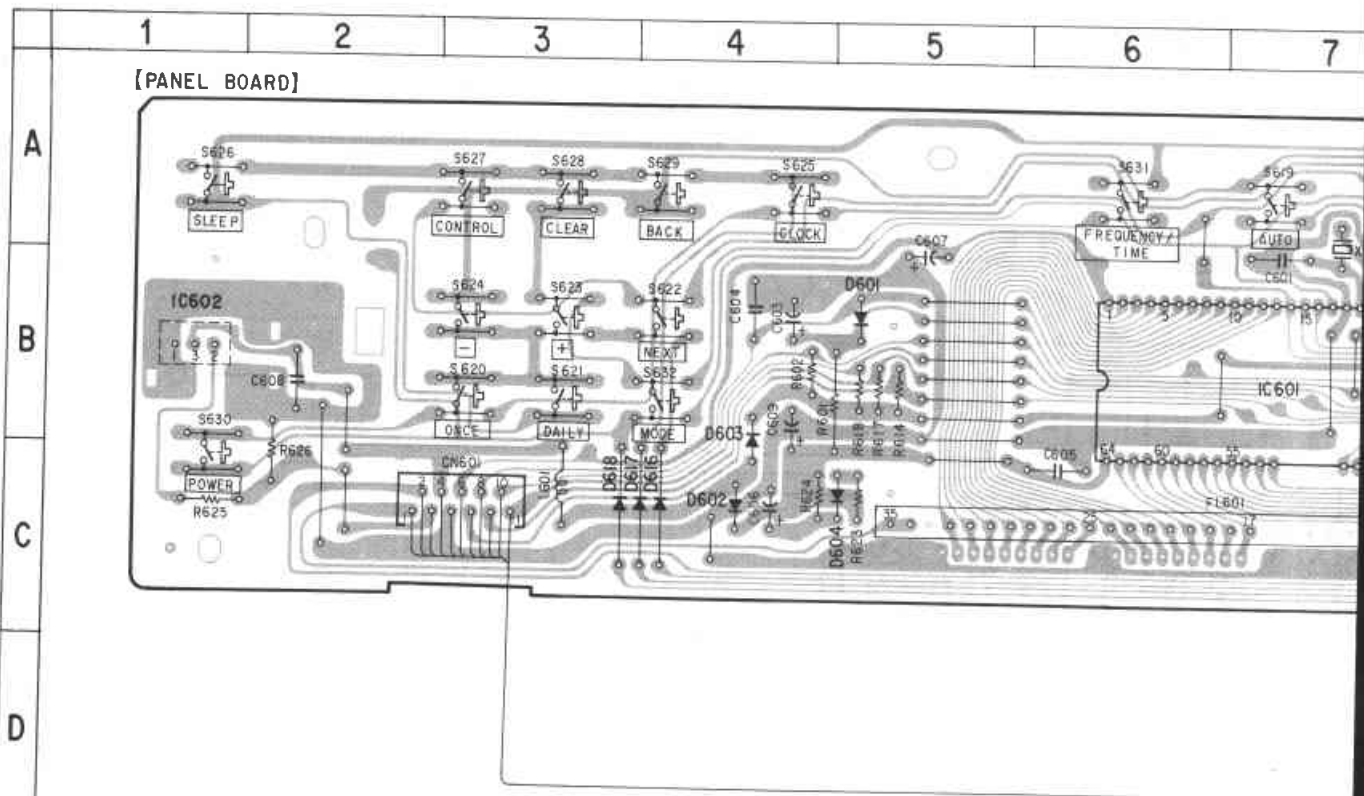
PJ1
OUTPUT

CH/B

B POWER BOARD

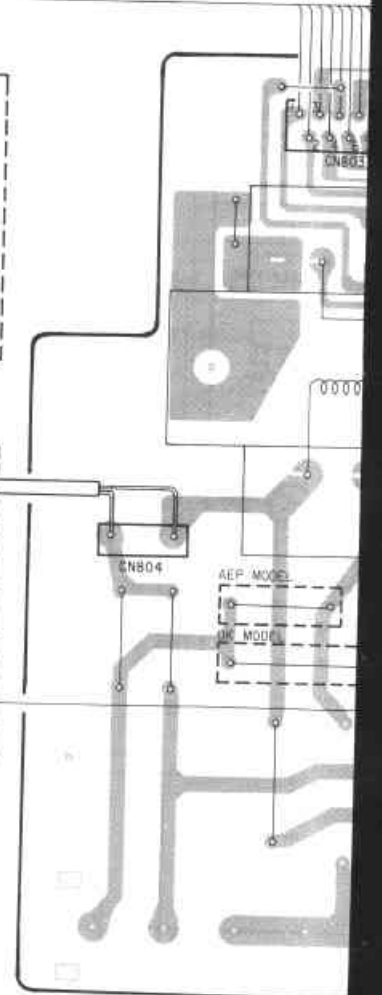
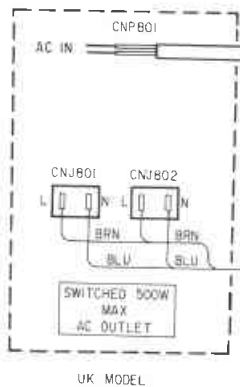
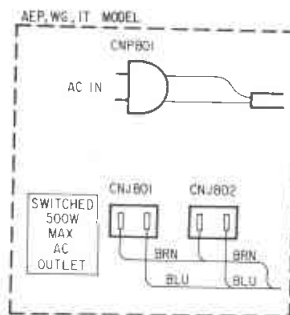
Note: The components identified by mark **▲** or dotted line with mark **▲** are critical for safety. Replace only with part number specified.

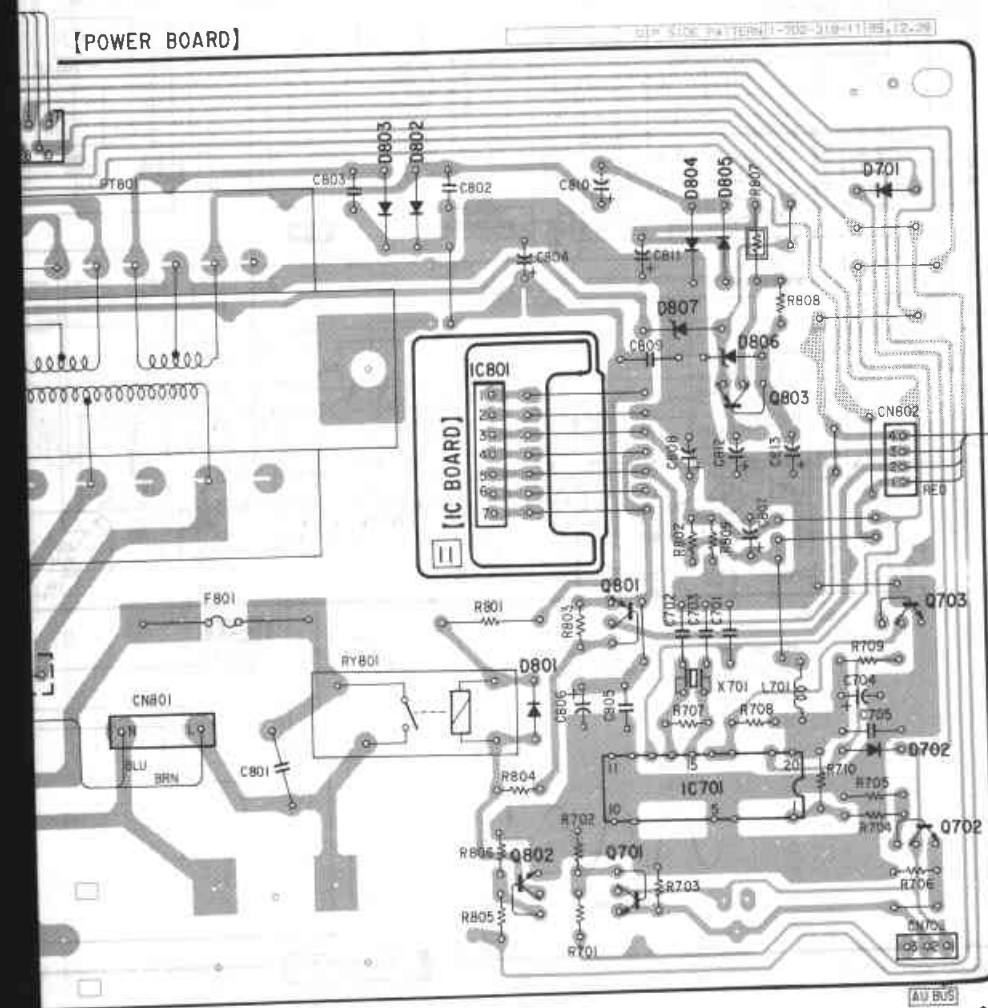
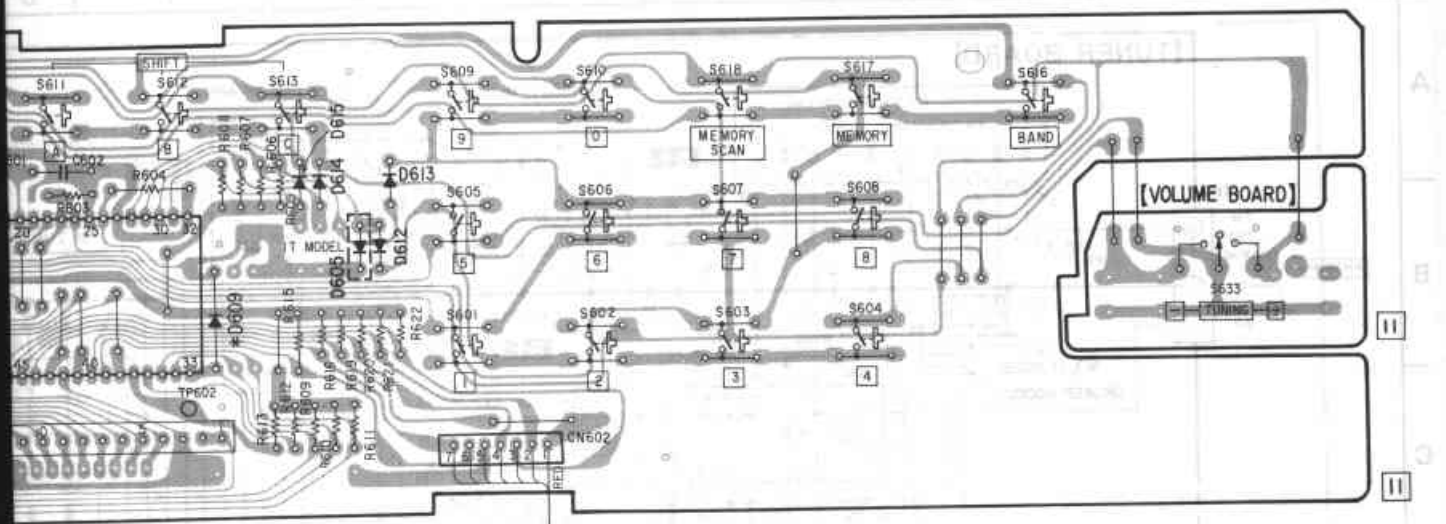
3-5. CONTROL AND POWER SUPPLY SECTION PRINTED WIRING BOARDS



• Semiconductor Location

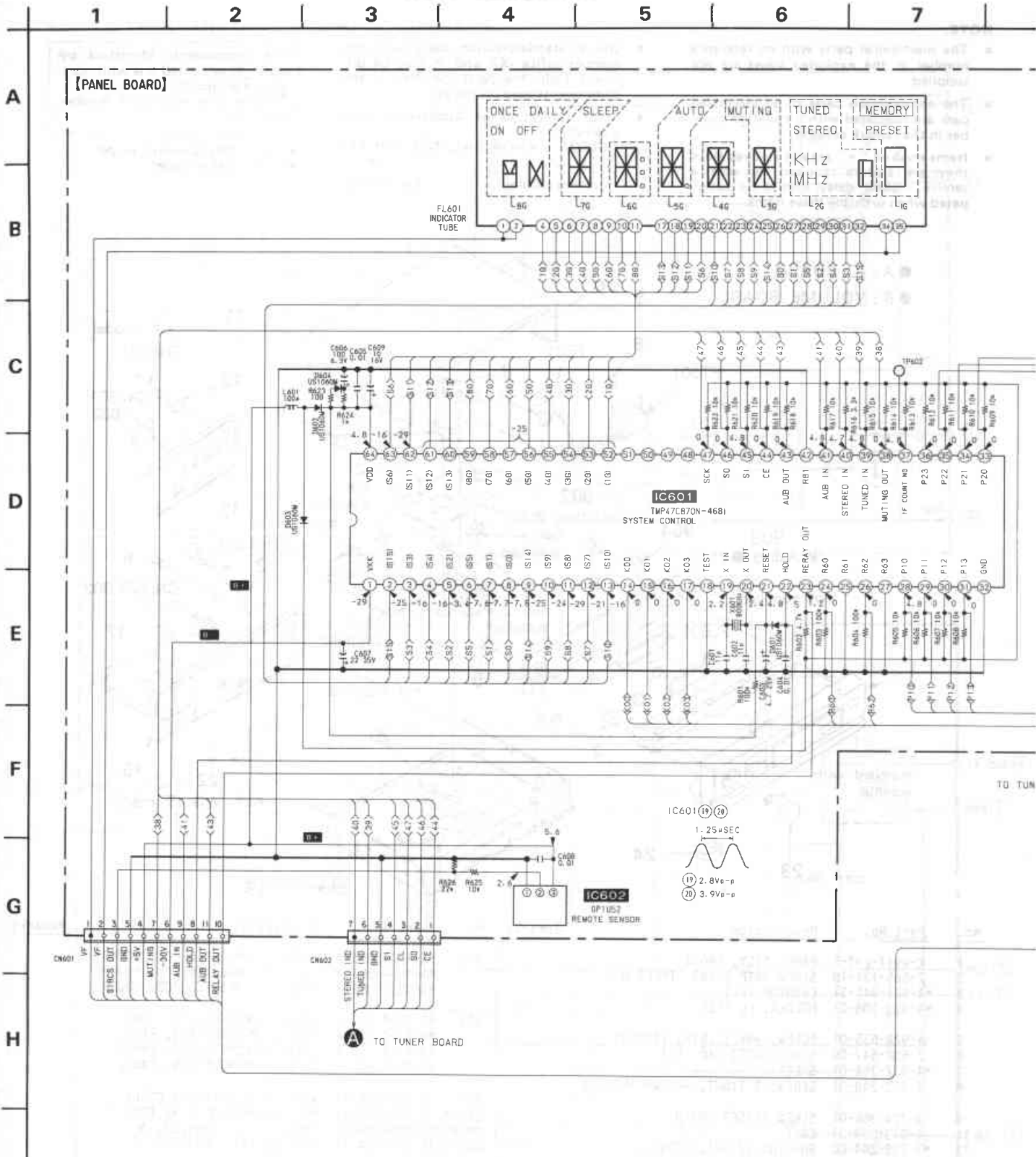
Ref. No.	Location	Ref. No.	Location
IC601	B-7	D613	A-9
IC602	B-1	D614	A-9
IC701	H-11	D615	A-9
IC801	F-10	D616	C-4
		D617	C-4
Q701	I-10	D618	C-3
Q702	H-12	D701	E-12
Q703	G-12	D702	H-12
Q801	G-10	D801	H-10
Q802	I-10	D802	E-9
Q803	F-11		
		D803	E-9
D601	B-5	D804	E-11
D602	C-4	D805	E-11
D603	B-4	D806	F-11
D604	C-5	D807	F-11
D605	B-9		
D609	B-8		
D612	B-9		

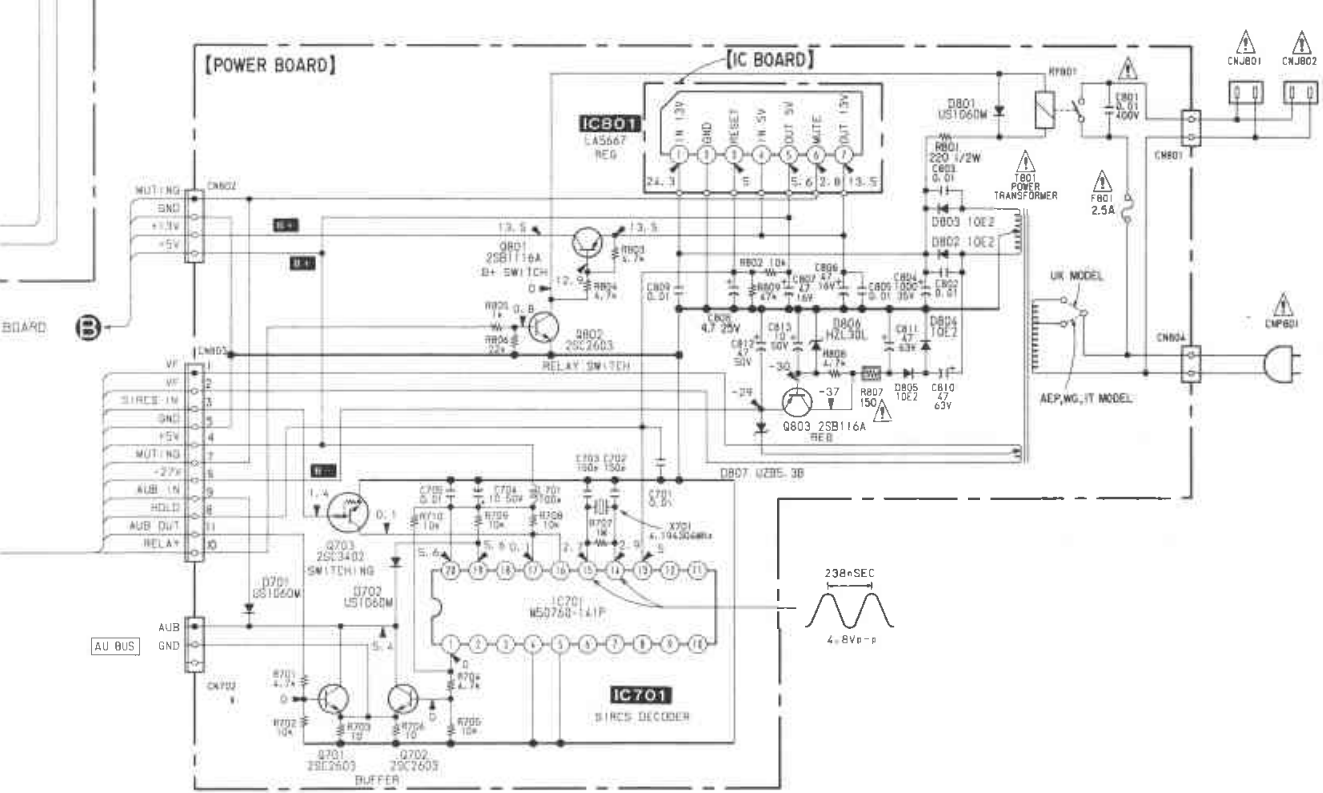
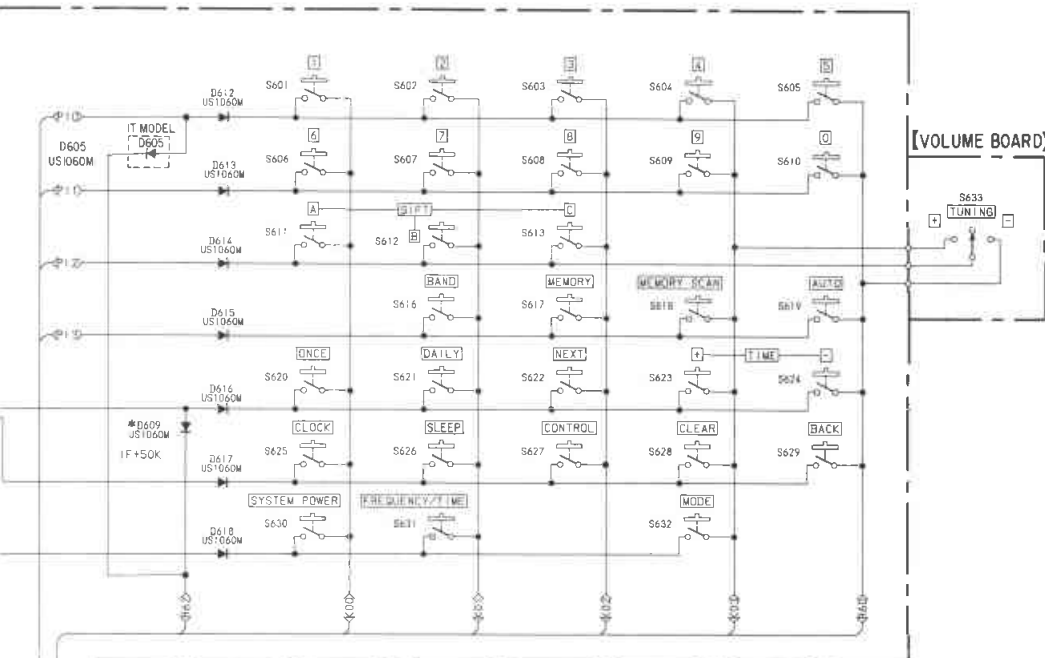




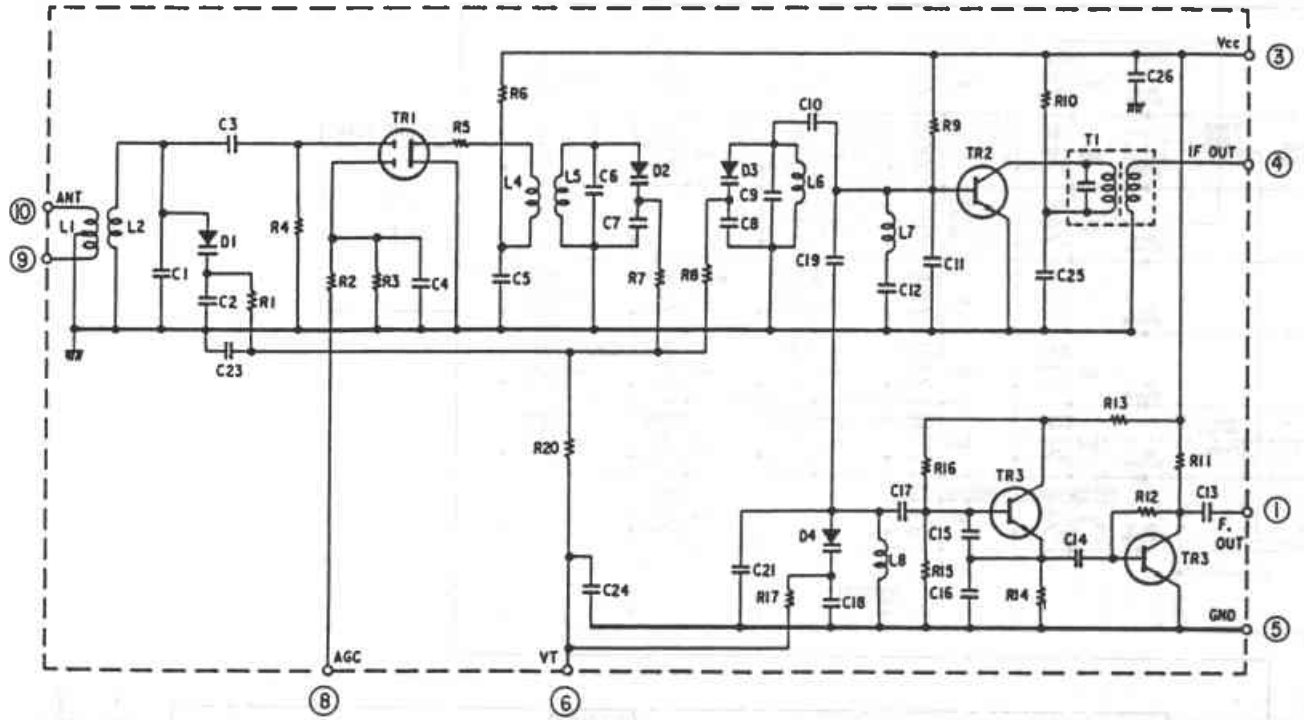
- Note on Printed Wiring Board**
- — : parts extracted from the component side.
 - : parts mounted on the conductor side.
 - — : indicates side identified with part number.
 - WG : West Germany model
 - IT : Italian model

3-6. CONTROL AND POWER SUPPLY SECTION SCHEMATIC DIAGRAM • See page 6 for Notes.

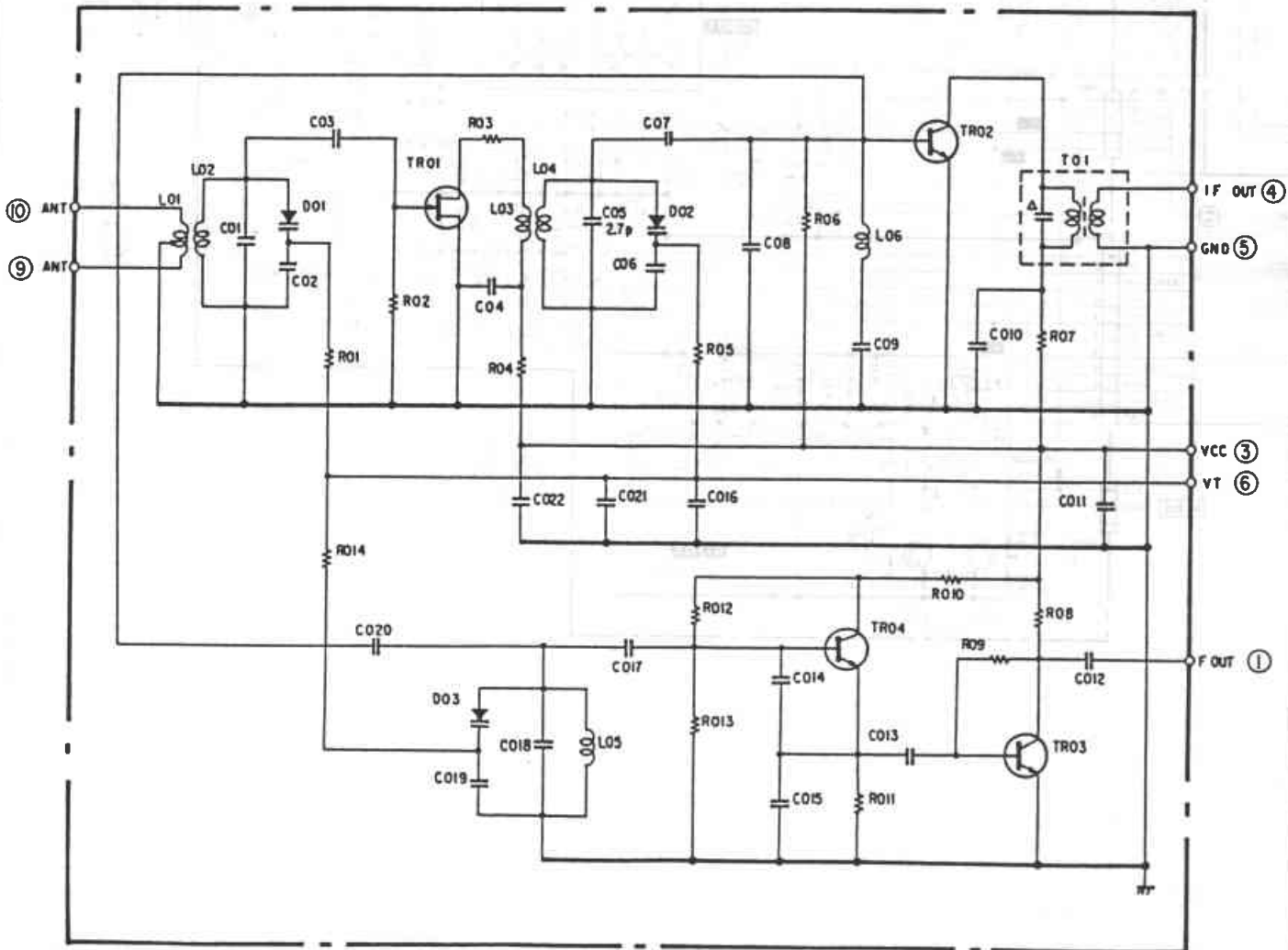




3-7. FM FRONT-END (FE1) SCHEMATIC DIAGRAMS
(West Germany, Italian Model)



(AEP, UK Model)



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: μ F, PF: μ F.**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:
 UA...: μ A..., UPA...: μ PA...,
 UPC...: μ PC, UPD...: μ PD...

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

- WG: West Germany model
- IT : Italian model

TUNER SECTION

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
C1	1-162-294-31	CERAMIC CHIP	0.001MF	20%	25V	C67	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C2	1-124-477-11	ELECT	47MF	20%	16V	C68	1-163-111-11	CERAMIC CHIP	0.0015MF	20%	25V
C3	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	C69	1-163-063-00	CERAMIC MELF	0.022MF		25V
C4	1-162-294-31	CERAMIC CHIP	0.001MF	20%	25V	C70	1-163-063-00	CERAMIC MELF	0.022MF		25V
C5	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	C71	1-163-063-00	CERAMIC MELF	0.022MF		25V
C6	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	C72	1-163-063-00	CERAMIC MELF	0.022MF		25V
C7	1-163-059-00	(WG,IT)...CERAMIC MELF	0.01MF	20%	16V	C73	1-163-063-00	CERAMIC MELF	0.022MF		25V
C8	1-163-059-00	(WG,IT)...CERAMIC MELF	0.01MF	20%	16V	C81	1-102-961-00	CERAMIC	27PF	5%	50V
C9	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	C82	1-102-961-00	CERAMIC	27PF	5%	50V
C11	1-101-005-00	(WG,IT)...CERAMIC	0.022MF		50V	C83	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C21	1-101-006-00	CERAMIC	0.047MF		50V	C84	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C22	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	C85	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C23	1-124-119-00	ELECT	330MF	20%	16V	C86	1-124-477-11	ELECT	47MF	20%	16V
C24	1-123-382-00	ELECT	3.3MF	20%	50V	C87	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C25	1-163-063-00	CERAMIC MELF	0.022MF		25V	C88	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C26	1-163-019-00	CERAMIC CHIP	0.0068MF	20%	16V	C101	1-124-925-11	ELECT	2.2MF	20%	50V
C27	1-162-516-11	(AEP,UK)..CERAMIC CHIP	100PF	10%	50V	C102	1-124-463-00	ELECT	0.1MF	20%	50V
C27	1-163-007-11	(WG,IT)...CERAMIC CHIP	680PF	20%	50V	C103	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C28	1-124-791-11	ELECT	1.0MF	20%	50V	C104	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C29	1-162-516-11	(WG,IT)...CERAMIC CHIP	100PF	10%	50V	C105	1-124-477-11	ELECT	47MF	20%	16V
C30	1-124-791-11	ELECT	1.0MF	20%	50V	C106	1-136-173-00	MYLAR	0.47MF	5%	50V
C31	1-124-902-00	ELECT	0.47MF	20%	50V	C107	1-124-463-00	ELECT	0.1MF	20%	50V
C32	1-124-463-00	ELECT	0.1MF	20%	50V	C108	1-163-063-00	(WG,IT)...CERAMIC MELF	0.022MF		25V
C33	1-130-481-00	FILM	0.0068MF	5%	50V	CF1	1-567-389-11	FILTER, CERAMIC			
C34	1-123-382-00	ELECT	3.3MF	20%	50V	CF2	1-567-389-11	FILTER, CERAMIC			
C35	1-130-481-00	FILM	0.0068MF	5%	50V	CF3	1-567-389-11	(WG,IT)...FILTER, CERAMIC			
C36	1-123-382-00	ELECT	3.3MF	20%	50V	CF21	1-577-075-11	OSCILLATOR, CERAMIC (19kHz)			
C37	1-123-875-11	ELECT	10MF	20%	50V	CFT21	1-404-853-11	TRANSFORMER, 1F (CERAMIC FILTER)			
C38	1-123-875-11	ELECT	10MF	20%	50V	CNJ1	*1-568-273-11	SOCKET, CONNECTOR 7P			
C39	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	CNJ3	*1-568-308-11	SOCKET, CONNECTOR 4P			
C40	1-124-463-00	ELECT	0.1MF	20%	50V	D21	8-719-912-20	DIODE 1SS120			
C41	1-124-927-11	ELECT	4.7MF	20%	50V	D22	8-719-912-20	DIODE 1SS120			
C42	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	D23	8-719-912-20	DIODE 1SS120			
C43	1-126-176-11	ELECT	220MF	20%	10V	D24	8-719-912-20	DIODE 1SS120			
C44	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V	D61	8-719-912-20	DIODE 1SS120			
C45	1-123-382-00	ELECT	3.3MF	20%	50V	FE1	1-463-857-11	(WG,IT)...FRONT END (FM)			
C46	1-161-375-00	CERAMIC CHIP	0.0022MF	20%	25V	FE1	1-463-862-21	(AEP,UK)...FRONT END (FM)			
C47	1-163-170-00	(WG,IT)...CERAMIC CHIP	0.0047MF	20%	25V	FE61	1-236-462-11	ENCAPSULATED COMPONENT (MW RF BLOCK)			
C48	1-123-382-00	ELECT	3.3MF	20%	50V	FE62	1-236-463-11	ENCAPSULATED COMPONENT (LW RF BLOCK)			
C49	1-161-375-00	CERAMIC CHIP	0.0022MF	20%	25V	IC21	8-759-821-45	IC LA1851N			
C50	1-163-170-00	(WG,IT)...CERAMIC CHIP	0.0047MF	20%	25V	IC81	8-759-820-91	IC LC7218			
C51	1-124-477-11	ELECT	47MF	20%	16V	L1	1-410-645-31	MICRO INDUCTOR 100UH			
C52	1-124-252-00	ELECT	0.33MF	20%	50V	L2	1-410-645-31	(WG,IT)...MICRO INDUCTOR 100UH			
C53	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	L21	1-407-500-00	MICRO INDUCTOR 4.7UH			
C54	1-101-005-00	(WG,IT)...CERAMIC	0.022MF		50V	L61	1-410-525-11	MICRO INDUCTOR 220UH			
C61	1-163-063-00	CERAMIC MELF	0.022MF		25V	LPF21	1-235-164-00	FILTER, LOW PASS			
C62	1-163-063-00	CERAMIC MELF	0.022MF		25V	LPF22	1-235-164-00	FILTER, LOW PASS			
C63	1-163-063-00	CERAMIC MELF	0.022MF		25V	PJ1	1-565-352-21	JACK, PIN 2P(OUTPUT)			
C64	1-163-063-00	CERAMIC MELF	0.022MF		25V						
C65	1-163-063-00	CERAMIC MELF	0.022MF		25V						
C66	1-163-063-00	CERAMIC MELF	0.022MF		25V						

TUNER SECTION

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	R45	1-249-338-11	CARBON MELF 1.8K 5% 1/8W
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	R46	1-249-344-11	CARBON MELF 5.6K 5% 1/8W
Q3	8-729-230-99	(WG,IT)...TRANSISTOR 2SC2669-OY	R47	△.1-249-409-11	CARBON (SMALL)220 5% 1/4W F
Q4	8-729-230-99	(WG,IT)...TRANSISTOR 2SC2669-OY	R48	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE	R49	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE	R61	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q26	8-729-900-80	TRANSISTOR DTC114ES	R62	1-249-355-11	CARBON MELF 47K 5% 1/8W
Q27	8-729-820-24	TRANSISTOR 2SC3330-T	R64	1-249-351-11	CARBON MELF 22K 5% 1/8W
Q28	8-729-820-24	TRANSISTOR 2SC3330-T	R65	1-249-355-11	CARBON MELF 47K 5% 1/8W
Q61	8-729-900-80	TRANSISTOR DTC114ES	R66	1-215-493-00	CARBON MELF 1M 5% 1/5W
Q62	8-729-900-80	TRANSISTOR DTC114ES	R67	1-249-359-11	CARBON MELF 100K 5% 1/8W
Q63	8-729-900-80	TRANSISTOR DTC114ES	R68	1-249-352-11	CARBON MELF 27K 5% 1/8W
Q64	8-729-820-24	TRANSISTOR 2SC3330-T	R69	1-249-351-11	CARBON MELF 22K 5% 1/8W
Q65	8-729-821-04	TRANSISTOR 2SA1317-STU	R70	1-249-331-11	CARBON MELF 470 5% 1/8W
Q66	8-729-900-80	TRANSISTOR DTC114ES	R71	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
Q81	8-729-900-61	TRANSISTOR DTA114ES	R72	1-249-351-11	CARBON MELF 22K 5% 1/8W
Q82	8-729-900-80	TRANSISTOR DTC114ES	R73	1-249-347-11	CARBON MELF 10K 5% 1/8W
Q83	8-729-202-67	TRANSISTOR 2SK246-GR3	R74	1-249-347-11	CARBON MELF 10K 5% 1/8W
Q84	8-729-107-84	TRANSISTOR 2SC3113A	R75	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
Q85	8-729-202-67	TRANSISTOR 2SK246-GR3	R81	1-249-335-11	CARBON MELF 1K 5% 1/8W
Q86	8-729-107-84	TRANSISTOR 2SC3113A	R82	1-249-335-11	CARBON MELF 1K 5% 1/8W
R1	△.1-249-397-11	(WG,IT)...CARBON (SMALL)22 5% 1/4W F	R83	1-249-335-11	CARBON MELF 1K 5% 1/8W
R1	△.1-249-401-11	(AEP,UK)...CARBON (SMALL)47 5% 1/4W F	R84	1-249-335-11	CARBON MELF 1K 5% 1/8W
R3	1-249-329-11	CARBON MELF 330 5% 1/8W	R85	1-249-347-11	CARBON MELF 10K 5% 1/8W
R4	1-249-329-11	CARBON MELF 330 5% 1/8W	R86	1-249-335-11	CARBON MELF 1K 5% 1/8W
R5	1-249-329-11	CARBON MELF 330 5% 1/8W	R87	1-249-347-11	CARBON MELF 10K 5% 1/8W
R6	1-249-350-11	CARBON MELF 18K 5% 1/8W	R88	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R7	1-249-329-11	CARBON MELF 330 5% 1/8W	R89	1-249-335-11	CARBON MELF 1K 5% 1/8W
R8	1-249-332-11	CARBON MELF 560 5% 1/8W	R90	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R9	1-249-352-11	CARBON MELF 27K 5% 1/8W	R91	1-249-335-11	CARBON MELF 1K 5% 1/8W
R10	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W	R92	△.1-249-401-11	CARBON (SMALL)47 5% 1/4W F
R11	1-249-350-11	(WG,IT)...CARBON MELF 18K 5% 1/8W	R101	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R12	1-249-329-11	(WG,IT)...CARBON MELF 330 5% 1/8W	R102	1-249-332-11	CARBON MELF 560 5% 1/8W
R13	1-249-334-11	(WG,IT)...CARBON MELF 820 5% 1/8W	R103	1-249-335-11	CARBON MELF 1K 5% 1/8W
R14	1-249-352-11	(WG,IT)...CARBON MELF 27K 5% 1/8W	R104	1-249-328-11	CARBON MELF 270 5% 1/8W
R15	1-249-347-11	(WG,IT)...CARBON MELF 10K 5% 1/8W	R105	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R16	1-249-343-11	(WG,IT)...CARBON MELF 4.7K 5% 1/8W	R106	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R21	△.1-249-404-00	CARBON (SMALL)82 5% 1/4W F	R107	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R22	△.1-249-430-11	CARBON (SMALL)12K 5% 1/4W F	R108	1-249-323-11	CARBON MELF 100 5% 1/8W
R23	1-249-335-11	CARBON MELF 1K 5% 1/8W	R109	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R24	1-249-353-11	CARBON MELF 33K 5% 1/8W	R110	△.1-249-405-11	CARBON (SMALL)100 5% 1/4W F
R25	1-249-346-11	CARBON MELF 8.2K 5% 1/8W	R111	1-249-341-11	CARBON MELF 3.3K 5% 1/8W
R26	1-249-340-11	(WG,IT)...CARBON MELF 2.7K 5% 1/8W	R112	1-249-332-11	CARBON MELF 560 5% 1/8W
R27	△.1-249-432-11	CARBON (SMALL)18K 5% 1/4W F	R113	1-249-335-11	CARBON MELF 1K 5% 1/8W
R29	1-249-347-11	CARBON MELF 10K 5% 1/8W	R114	1-249-328-11	CARBON MELF 270 5% 1/8W
R31	1-249-331-11	CARBON MELF 470 5% 1/8W	R115	1-249-351-11	CARBON MELF 22K 5% 1/8W
R32	1-249-347-11	CARBON MELF 10K 5% 1/8W	R116	1-249-339-11	CARBON MELF 2.2K 5% 1/8W
R33	1-249-347-11	CARBON MELF 10K 5% 1/8W	R117	1-249-343-11	CARBON MELF 4.7K 5% 1/8W
R34	1-249-425-11	CARBON (SMALL)4.7K 5% 1/4W	R118	1-249-323-11	CARBON MELF 100 5% 1/8W
R35	1-249-355-11	CARBON MELF 47K 5% 1/8W	RV21	1-238-013-11	(AEP,UK)...RES, ADJ, CARBON 2.2K
R37	1-249-359-11	CARBON MELF 100K 5% 1/8W	RV21	1-238-015-11	(WG,IT)...RES, ADJ, CARBON 4.7K
R38	1-249-363-11	CARBON MELF 220K 5% 1/8W	RV22	1-238-017-11	RES, ADJ, CARBON 22K
R39	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	RV24	1-238-017-11	(AEP,UK)...RES, ADJ, CARBON 22K
R40	1-249-338-11	CARBON MELF 1.8K 5% 1/8W	RV24	1-238-019-11	(WG,IT)...RES, ADJ, CARBON 47K
R41	1-249-344-11	CARBON MELF 5.6K 5% 1/8W	T21	1-404-807-11	TRANSFORMER, DISCRIMINATOR
R42	1-249-359-11	CARBON MELF 100K 5% 1/8W	T23	1-236-465-11	(WG,IT)...ENCAPSULATED COMPONENT
R43	1-249-363-11	CARBON MELF 220K 5% 1/8W	TM1	*1-537-138-31	TERMINAL BOARD (ANT)(ANTENNA)
R44	1-249-339-11	CARBON MELF 2.2K 5% 1/8W	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 TUNER SECTION

Ref.No.	Part No.	Description			
902	*A-4334-855-A	(AEP)....MOUNTED PCB, POWER			
	*A-4334-857-A	(WG,IT)...MOUNTED PCB, POWER			
	*A-4334-863-A	(UK).....MOUNTED PCB, POWER			
903	*A-4334-854-A	(AEP)...MOUNTED PCB, PANEL			
	*A-4334-856-A	(WG)....MOUNTED PCB, PANEL			
	*A-4334-858-A	(IT)....MOUNTED PCB, PANEL			
	*A-4334-862-A	(UK)....MOUNTED PCB, PANEL			
904	1-575-666-11	WIRE, FLAT TYPE (11 CORE)			
C601	1-162-200-31	CERAMIC	11PF	5%	50V
C602	1-162-200-31	CERAMIC	11PF	5%	50V
C603	1-126-094-11	ELECT	4.7MF	20%	25V
C604	1-161-379-00	CERAMIC	0.01MF	30%	16V
C605	1-161-379-00	CERAMIC	0.01MF	30%	16V
C606	1-126-177-11	ELECT	100MF	20%	6.3V
C607	1-123-357-00	ELECT	22MF	20%	35V
C608	1-161-379-00	CERAMIC	0.01MF	30%	16V
C609	1-126-157-11	ELECT	10MF	20%	16V
C701	1-161-379-00	CERAMIC	0.01MF	30%	16V
C702	1-162-284-31	CERAMIC	150PF	10%	50V
C703	1-162-284-31	CERAMIC	150PF	10%	50V
C704	1-123-875-11	ELECT	10MF	20%	50V
C705	1-161-379-00	CERAMIC	0.01MF	30%	16V
C801	1-161-744-00	CERAMIC	0.01MF		400V
C802	1-101-004-00	CERAMIC	0.01MF		50V
C803	1-101-004-00	CERAMIC	0.01MF		50V
C804	1-126-105-11	ELECT	1000MF	20%	35V
C805	1-161-379-00	CERAMIC	0.01MF	30%	16V
C806	1-124-477-11	ELECT	47MF	20%	16V
C807	1-124-477-11	ELECT	47MF	20%	16V
C808	1-126-094-11	ELECT	4.7MF	20%	25V
C809	1-161-379-00	CERAMIC	0.01MF	30%	16V
C810	1-124-918-11	ELECT	47MF	20%	63V
C811	1-124-918-11	ELECT	47MF	20%	63V
C812	1-124-910-11	ELECT	47MF	20%	50V
C813	1-123-875-11	ELECT	10MF	20%	50V
CN601	*1-568-854-11	SOCKET, CONNECTOR 11P			
CN602	*1-568-273-11	SOCKET, CONNECTOR 7P			
CN702	*1-565-561-11	PIN, CONNECTOR 3P (AU BUS)			
CN801	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P			
CN802	*1-568-308-11	SOCKET, CONNECTOR 4P			
CN803	*1-568-830-11	SOCKET, CONNECTOR 11P			
CN804	*1-564-321-00	PIN, CONNECTOR 2P			

Ref.No.	Part No.	Description			
CNJ801	1-526-751-00	(UK).....OUTLET, AC			
CNJ801	1-526-794-11	(AEP,WG,IT)...OUTLET, AC			
CNJ802	1-526-751-00	(UK).....OUTLET, AC			
CNJ802	1-526-794-11	(AEP,WG,IT)...OUTLET, AC			
CNP801	1-575-651-11	(AEP,WG,IT)...CORD, POWER			
CNP801	1-575-652-11	(UK).....CORD, POWER			
D601	8-719-912-20	DIODE 1SS120			
D602	8-719-912-20	DIODE 1SS120			
D603	8-719-912-20	DIODE 1SS120			
D604	8-719-912-20	DIODE 1SS120			
D605	8-719-912-20	(IT)...DIODE 1SS120			
D609	8-719-912-20	DIODE 1SS120			
D612	8-719-912-20	DIODE 1SS120			
D613	8-719-912-20	DIODE 1SS120			
D614	8-719-912-20	DIODE 1SS120			
D615	8-719-912-20	DIODE 1SS120			
D616	8-719-912-20	DIODE 1SS120			
D617	8-719-912-20	DIODE 1SS120			
D618	8-719-912-20	DIODE 1SS120			
D701	8-719-912-20	DIODE 1SS120			
D702	8-719-912-20	DIODE 1SS120			
D801	8-719-912-20	DIODE 1SS120			
D802	8-719-200-77	DIODE 10E2N			
D803	8-719-200-77	DIODE 10E2N			
D804	8-719-200-77	DIODE 10E2N			
D805	8-719-200-77	DIODE 10E2N			
D806	8-719-934-22	DIODE HZS30-2L			
D807	8-719-014-66	DIODE UZP-5.6B			
F801	1-532-286-00	FUSE, TIME-LAG (2.5A)			
FH801	1-533-213-31	HOLDER, FUSE			
FH802	1-533-213-31	HOLDER, FUSE			
FL601	1-519-595-11	INDICATOR TUBE, FLUORESCENT			
IC601	8-759-243-14	IC TMP47C870N-4681			
IC602	8-749-920-83	IC GP1U52XB			
IC701	8-759-634-73	IC M50760-141P			
IC801	8-759-820-09	IC LA5667			
L601	1-410-521-11	INDUCTOR 100UH			
L701	1-410-521-11	INDUCTOR 100UH			
PT801	1-449-979-11	TRANSFORMER, POWER			
Q701	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q702	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q703	8-729-900-80	TRANSISTOR DTC114ES			

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



EXCEPT TUNER SECTION

Ref.No.	Part No.	Description				
Q801	8-729-140-04	TRANSISTOR 2SB1116A-L				
Q802	8-729-620-05	TRANSISTOR 2SC2603-EF				
Q803	8-729-140-04	TRANSISTOR 2SB1116A-L				
R601	1-249-441-11	CARBON	100K	5%	1/4W	
R602	1-249-425-11	CARBON	4.7K	5%	1/4W	
R603	1-249-441-11	CARBON	100K	5%	1/4W	
R604	1-249-441-11	CARBON	100K	5%	1/4W	
R605	1-249-429-11	CARBON	10K	5%	1/4W	
R606	1-249-429-11	CARBON	10K	5%	1/4W	
R607	1-249-429-11	CARBON	10K	5%	1/4W	
R608	1-249-429-11	CARBON	10K	5%	1/4W	
R609	1-249-429-11	CARBON	10K	5%	1/4W	
R610	1-249-429-11	CARBON	10K	5%	1/4W	
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R612	1-249-429-11	CARBON	10K	5%	1/4W	
R613	1-249-429-11	CARBON	10K	5%	1/4W	
R614	1-249-429-11	CARBON	10K	5%	1/4W	
R615	1-249-429-11	CARBON	10K	5%	1/4W	
R616	1-249-423-11	CARBON	3.3K	5%	1/4W	
R617	1-249-429-11	CARBON	10K	5%	1/4W	
R618	1-249-429-11	CARBON	10K	5%	1/4W	
R619	1-249-429-11	CARBON	10K	5%	1/4W	
R620	1-249-429-11	CARBON	10K	5%	1/4W	
R621	1-249-429-11	CARBON	10K	5%	1/4W	
R622	1-249-429-11	CARBON	10K	5%	1/4W	
R623	1-249-405-11	CARBON	100	5%	1/4W	
R624	1-249-417-11	CARBON	1K	5%	1/4W	
R625	1-249-429-11	CARBON	10K	5%	1/4W	
R626	1-249-433-11	CARBON	22K	5%	1/4W	
R701	1-249-425-11	CARBON	4.7K	5%	1/4W	
R702	1-249-429-11	CARBON	10K	5%	1/4W	
R703	1-249-393-11	CARBON	10	5%	1/4W	
R704	1-249-425-11	CARBON	4.7K	5%	1/4W	
R705	1-249-429-11	CARBON	10K	5%	1/4W	
R706	1-249-393-11	CARBON	10	5%	1/4W	
R707	1-247-903-00	CARBON	1M	5%	1/4W	
R708	1-249-429-11	CARBON	10K	5%	1/4W	
R709	1-249-429-11	CARBON	10K	5%	1/4W	
R710	1-249-429-11	CARBON	10K	5%	1/4W	
R801	1-247-743-11	CARBON	220	5%	1/2W	
R802	1-249-429-11	CARBON	10K	5%	1/4W	
R803	1-249-425-11	CARBON	4.7K	5%	1/4W	
R804	1-249-425-11	CARBON	4.7K	5%	1/4W	
R805	1-249-417-11	CARBON	1K	5%	1/4W	
R806	1-249-433-11	CARBON	22K	5%	1/4W	

Ref.No.	Part No.	Description				
R807	△ 1-247-702-11	CARBON	150	5%	1/4W	F
R808	1-249-425-11	CARBON	4.7K	5%	1/4W	
R809	1-249-437-11	CARBON	47K	5%	1/4W	
RY801	1-515-720-11	RELAY				
S601	1-554-303-21	SWITCH, KEY BOARD (1)				
S602	1-554-303-21	SWITCH, KEY BOARD (2)				
S603	1-554-303-21	SWITCH, KEY BOARD (3)				
S604	1-554-303-21	SWITCH, KEY BOARD (4)				
S605	1-554-303-21	SWITCH, KEY BOARD (5)				
S606	1-554-303-21	SWITCH, KEY BOARD (6)				
S607	1-554-303-21	SWITCH, KEY BOARD (7)				
S608	1-554-303-21	SWITCH, KEY BOARD (8)				
S609	1-554-303-21	SWITCH, KEY BOARD (9)				
S610	1-554-303-21	SWITCH, KEY BOARD (0)				
S611	1-554-303-21	SWITCH, KEY BOARD (A.SHIFT)				
S612	1-554-303-21	SWITCH, KEY BOARD (B.SHIFT)				
S613	1-554-303-21	SWITCH, KEY BOARD (C.SHIFT)				
S616	1-554-303-21	SWITCH, KEY BOARD (BAND)				
S617	1-554-303-21	SWITCH, KEY BOARD (MEMORY)				
S618	1-554-303-21	SWITCH, KEY BOARD (MEMORY SCAN)				
S619	1-554-303-21	SWITCH, KEY BOARD (AUTO)				
S620	1-554-303-21	SWITCH, KEY BOARD (ONCE)				
S621	1-554-303-21	SWITCH, KEY BOARD (DAILY)				
S622	1-554-303-21	SWITCH, KEY BOARD (NEXT)				
S623	1-554-303-21	SWITCH, KEY BOARD (TIME +.)				
S624	1-554-303-21	SWITCH, KEY BOARD (TIME -.)				
S625	1-554-303-21	SWITCH, KEY BOARD (CLOCK)				
S626	1-554-303-21	SWITCH, KEY BOARD (SLEEP)				
S627	1-554-303-21	SWITCH, KEY BOARD (CONTROL)				
S628	1-554-303-21	SWITCH, KEY BOARD (CLEAR)				
S629	1-554-303-21	SWITCH, KEY BOARD (BACK)				
S630	1-554-303-21	SWITCH, KEY BOARD (SYSTEM POWER)				
S631	1-554-303-21	SWITCH, KEY BOARD (FREQUENCY/TIME)				
S632	1-554-303-21	SWITCH, KEY BOARD (MODE)				
S633	1-571-955-11	SWITCH, ROTARY (TUNING +/-)				
X601	1-567-821-21	VIBRATOR, CRYSTAL (4.194304MHZ)				
X701	1-578-699-11	OSCILLATOR, CERAMIC (800KHz)				

ACCESSORY & PACKING MATERIAL

4-920-940-01	SHEET (A), PROTECTION
*4-934-860-01	CUSHION

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