

STR-DE135

SERVICE MANUAL

US Model
AEP Model
UK Model



Photo: US model

SPECIFICATIONS

Audio power specifications (US model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 8-ohm load, both channels driven, from 20 – 20,000 Hz, rated 100 watts per channel minimum RMS power, with no more than 0.09 % total harmonic distortion from 250 milliwatts to rated output.

Amplifier section

Stereo mode	(8 ohms at 20 Hz – 20 kHz less than 0.09 % total harmonic distortion) 100 W + 100 W (US model) (DIN 1 kHz, 4 ohms) 60 W + 60 W (AEP, UK models)
Frequency response	TV/SAT, CD, MD/TAPE, VIDEO (US model) TV/LD, CD, MD/TAPE, VIDEO (AEP, UK models) 10 Hz – 50 Hz ± 1 dB

Inputs

	Sensitivity	Impedance	S/N
CD, MD/TAPE, TV/SAT, VIDEO	150 mV	50 kilohms	78 dB
(US model)			
	Sensitivity	Impedance	S/N
CD, MD/TAPE, TV/LD, VIDEO	150 mV	50 kilohms	78 dB
(AEP, UK models)			

outputs

MD/TAPE REC OUT:
Voltage: 150 mV,
impedance: 10 kilohms
VIDEO AUDIO OUT:
Voltage: 150 mV,
impedance: 10 kilohms
PHONES: Accepts low and high
impedance headphones

Muting	Full mute
BASS BOOST	+ 10 dB at 70 Hz
TONE	± 8 dB at 100 Hz and 10 kHz

Tuner Section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5 – 108.0 MHz
Antenna terminals	75 ohms, unbalanced
Intermediate frequency	10.7 MHz
Sensitivity	Mono: 18.3 dBf, 4.5 μV Stereo: 38.3 dBf, 45 μV (US model) Mono: 18.3 dBf, 2.2 μV/75 ohms Stereo: 38.3 dBf, 22.5 μV/75 ohms (AEP, UK models)
Usable sensitivity	11.2 dBf, 2 μV (IHF) (US model) 11.2 dBf, 1 μV/75 ohms (IHF) (AEP, UK models)
S/N	Mono: 76 dB Stereo: 70 dB
Harmonic distortion at 1 kHz	Mono: 0.3 % Stereo: 0.5 %
Separation	45 dB at 1kHz
Frequency response	30 Hz – 15 kHz ^{+0.5} / ₋₂ dB
Selectivity	60 dB at 400 kHz

AM tuner section

Tuning range	10 kHz interval* 530 – 1710 kHz 9 kHz interval 531 – 1710 kHz (US model) 531 – 1602 kHz (AEP, UK models)
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– Continued on next page –

FM STEREO/FM-AM-RECEIVER

SONY®



Antenna	Loop antenna
Intermediate frequency	450 kHz
Usable sensitivity	50 dB/m (at 1,000 kHz)
S/N	54 dB (at 50 mV/m)
Harmonic distortion	0.5 % (50 mV/m, 400Hz)
Selectivity	At 10 kHz: 40 dB At 9 kHz: 35 dB (US model) 35 dB (AEP, UK models)

* You can change the AM tuning interval between 9 kHz and 10kHz. After tuning in any AM station, turn off the receiver. Hold down the PRESET TUNING + button and press the I/⏻ (power) button. All preset stations will be erased when you change the interval. To reset the interval, repeat the procedure. (US model)

General	
System	Tuner section: PLL quartz-locked digital synthesizer system Preamplifier section: Low-noise NF type equalizer Power amplifier section: Pure-complementary SEPP
Power requirements	120 V AC, 60 Hz (US model) 230 V AC, 50/60 Hz (AEP, UK models)
Power consumption	155 W (US model) 135 W (AEP, UK models)
AC outlets	1 switched, total 120 W/1A Max (US, UK models) switch 100 W max (AEP model)
Dimensions	430 × 144 × 306 mm (17 × 5 ⁷ / ₈ × 12 ¹ / ₈ inches)
Mass (Approx.)	8.1 kg (17 lb 13 oz) (US model) 6.7 kg (AEP, UK models)
Supplied accessories	FM wire antenna (1) AM loop antenna (1) Remote commander (remote) (1) Size AA (R6) batteries (2)
Specifications indicated are measured at 230 V AC, 50Hz.	(AEP, UK models)

Design and specifications are subject to change without notice.

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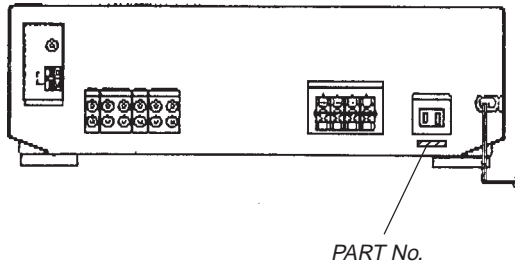
SAFETY-RELATED COMPONENT WARNING!!

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 SERVICING NOTES

MODEL IDENTIFICATION

– Rear view –



MODEL	PART No.
US model	4-216-802-0□
AEP model	4-216-802-1□
UK model	4-216-802-2□

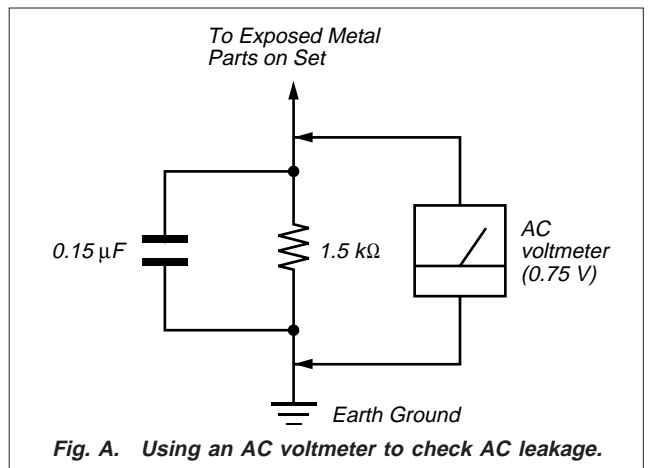
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers.). Leakage current can be measured by any one of three methods.

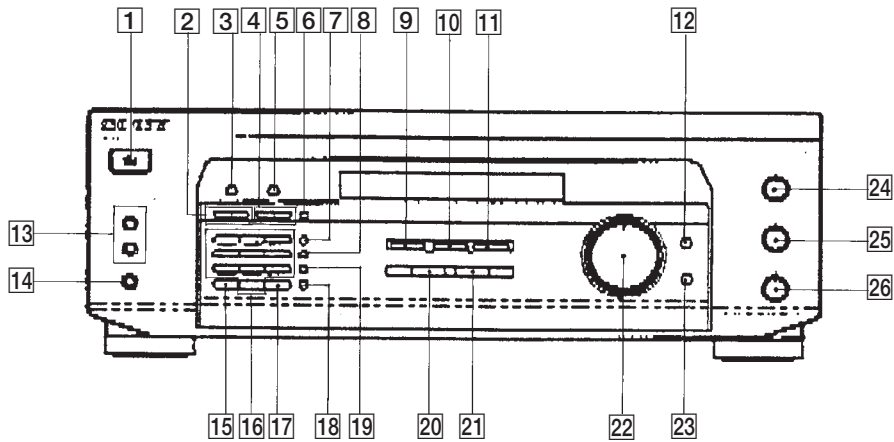
1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)



SECTION 2 GENERAL

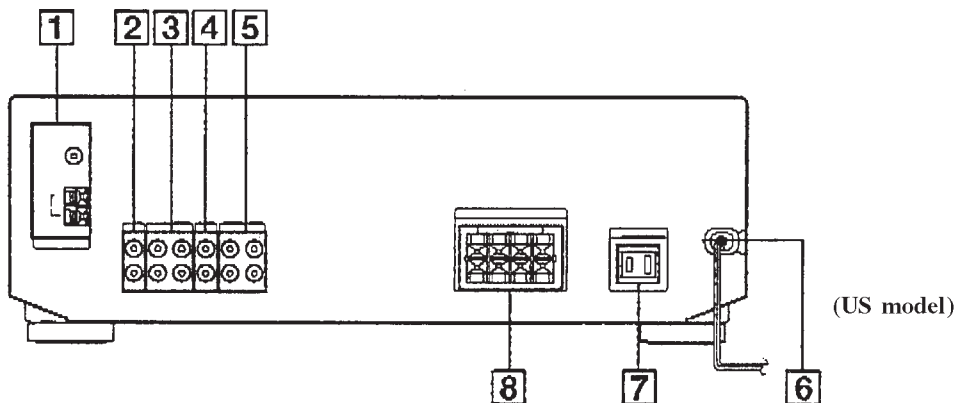
Location of controls

• Front view –



- | | | |
|---|------------------------------------|--------------------------------|
| 1 I/⏻ button | 8 FM button (US model) | 18 MEMORY button (US model) |
| 2 TUNING +, – buttons (US model) | FM/AM button (AEP, UK models) | MEMORY/ENTER button |
| TUNING/CHAR +, – buttons (AEP, UK models) | 9 VIDEO button | (AEP, UK models) |
| 3 NAME button (AEP, UK models) | 10 TV/SAT button (US model) | 19 FM MODE button |
| 4 PRESET/TUNING +, – buttons (US model) | TV/LD button (AEP, UK models) | 20 TUNER button |
| PRESET/PTY SELECT +, – buttons (AEP, UK models) | 11 MD/TAPE button | 21 CD button |
| 5 DISPLAY button (AEP, UK models) | 12 BASS BOOST button and indicator | 22 VOLUME control |
| 6 RDS PTY button (AEP, UK models) | 13 SPEAKERS A, B ON/OFF buttons | 23 MUTING button and indicator |
| 7 AM button (US model) | 14 PHONES jack | 24 TREBLE control |
| RDS EON button (AEP, UK models) | 15 SHIFT button | 25 BASS control |
| | 16 Numeric buttons | 26 BALANCE control |
| | 17 DIRECT button | |

• Rear view –

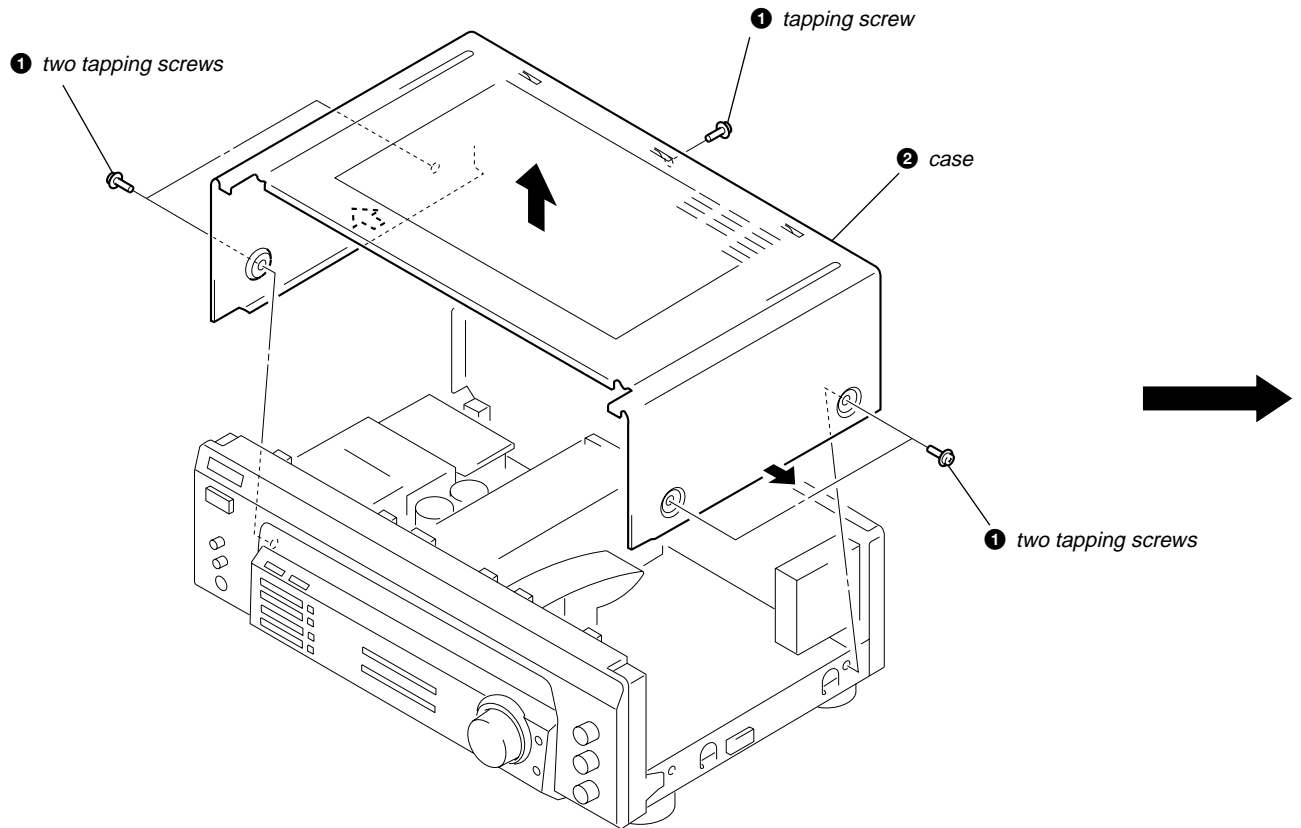


- | | | |
|-------------------|------------------------|----------------------|
| 1 ANTENNA (AM/FM) | 4 TV/SAT (US model) | 7 SWITCHED AC OUTLET |
| 2 CD | TV/LD (AEP, UK models) | 8 SPEAKERS (A/B) |
| 3 MD/TAPE | 5 VIDEO | |
| | 6 AC power cord | |

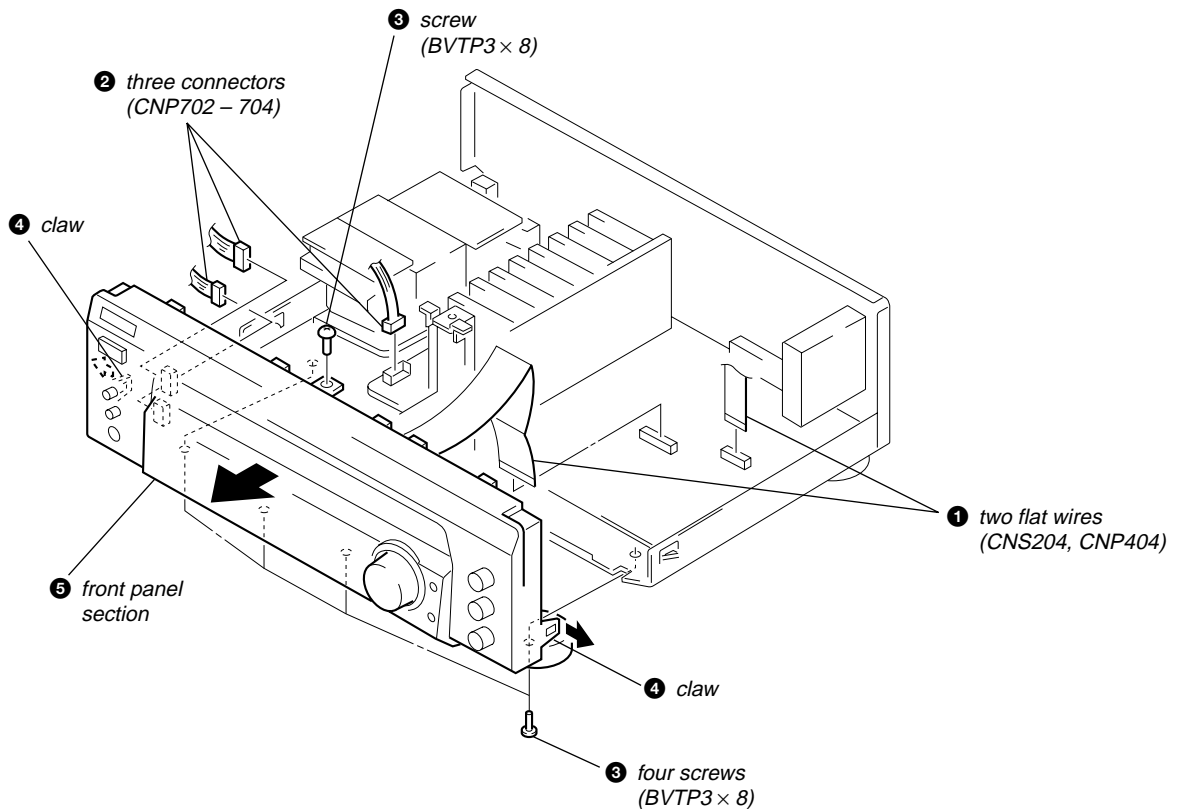
SECTION 3 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

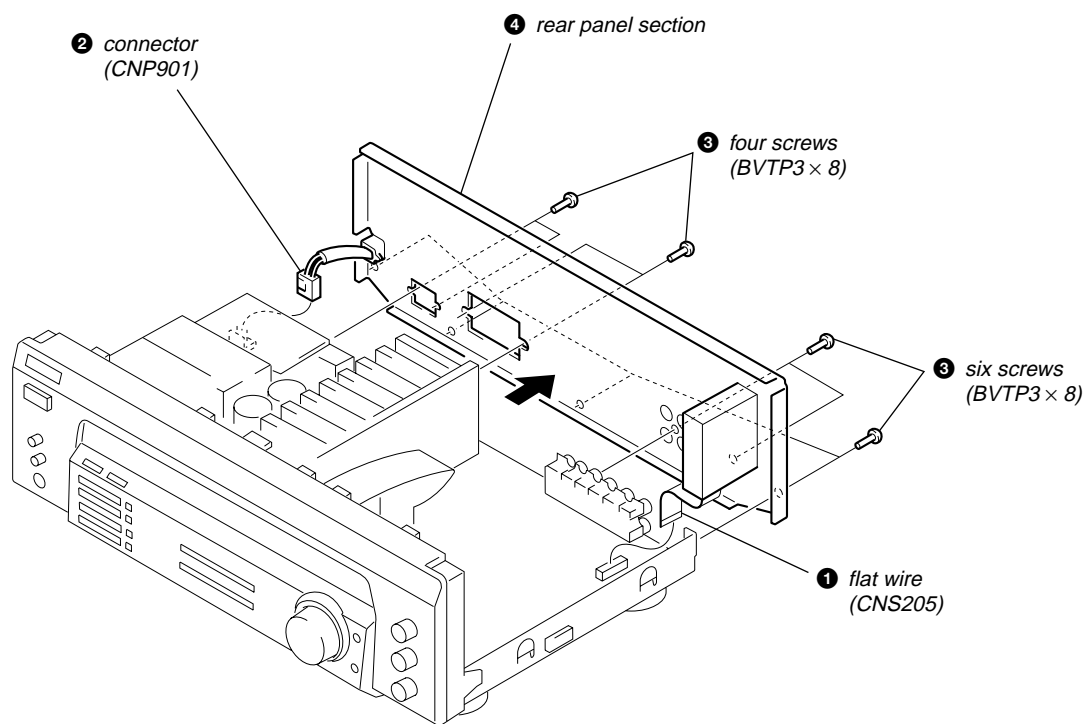
CASE



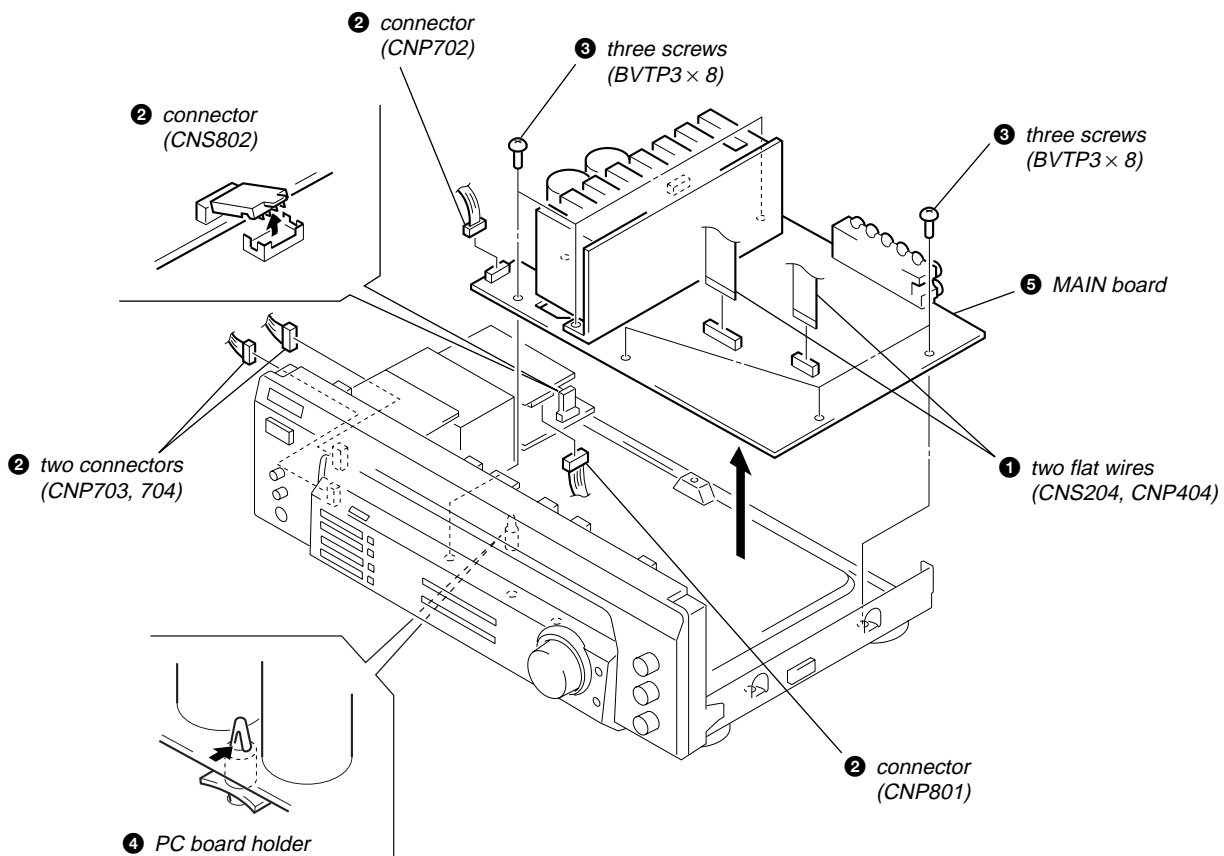
FRONT PANEL SECTION



REAR PANEL SECTION



MAIN BOARD



SECTION 4 TEST MODE

Fluorescent Indicator Tube Test Mode

All fluorescent segments are tested. When this test is activated, all segments turn on at the same time, then each segment turns on one after another.

Procedure:

1. While pressing two buttons of **TV/SAT** (US model)* and **DIRECT** simultaneously, press the **I/⏻** button to turn the power ON.
2. All segments turn on at the same time, then each segment turns on one after another.
3. The message "FINISH" appears when this test is complete.

*) AEP, UK models are **TV/LD**

AUTO-BETICAL Check Mode (AEP, UK models)

To auto-scanning and memories of RDS station.

Procedure:

1. While pressing the **MEMORY/ENTER** button, press the **I/⏻** button to turn the power ON.
2. The message "AUTO BET" appears and each function is selected one after another.

AM Tuning Interval Selection Mode (US model)

Either 9 kHz step or 10 kHz step can be selected for the AM tuning interval.

Procedure:

1. Set the **FUNCTION** to AM.
2. Press the **I/⏻** button to turn the power OFF.
3. While pressing the **TUNING+** button, press the **I/⏻** button to turn the power ON.
4. Either the message "9k STEP" or "10k STEP" appears.
5. Select the desired step.

Software Version Display Mode

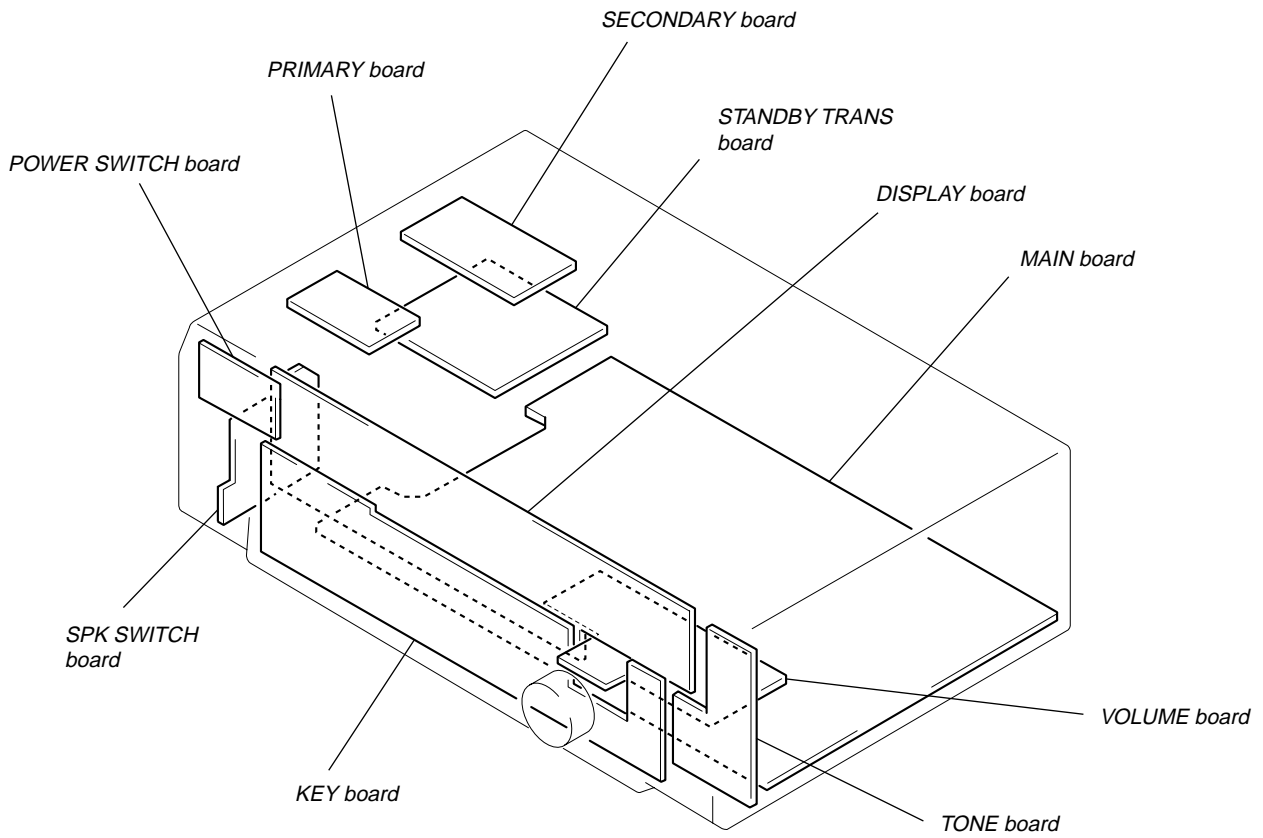
The software version is displayed.

Procedure:

1. While pressing two the buttons of **MD/TAPE** and **DIRECT** simultaneously, press the **I/⏻** button to turn the power ON.
2. The software version is displayed.

SECTION 5 DIAGRAMS

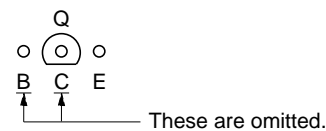
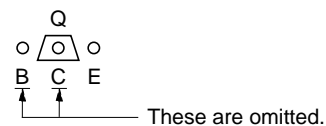
• Circuit Boards Location



5-1. NOTES FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- : parts extracted from the component side.
- ▨ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- ↑ : Indication of transistor.



Note on Schematic Diagram:

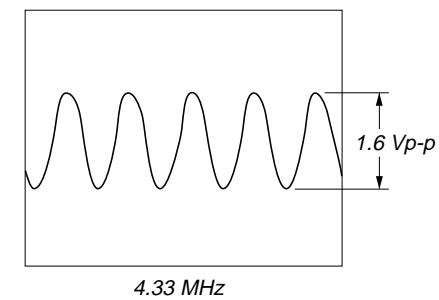
- All capacitors are in μF unless otherwise noted. pF: μpF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- \square : nonflammable resistor.
- \square : panel designation.

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

- \square : B+ Line.
- \square : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark : FM
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- \Rightarrow : FM

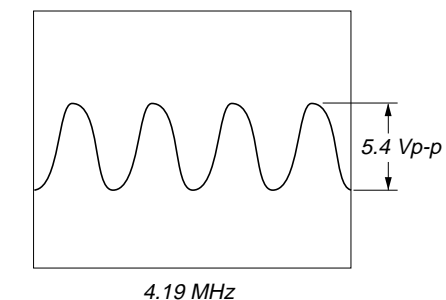
• Waveforms – MAIN Board –

① IC1 ⑭ (XO)



– DISPLAY Board –

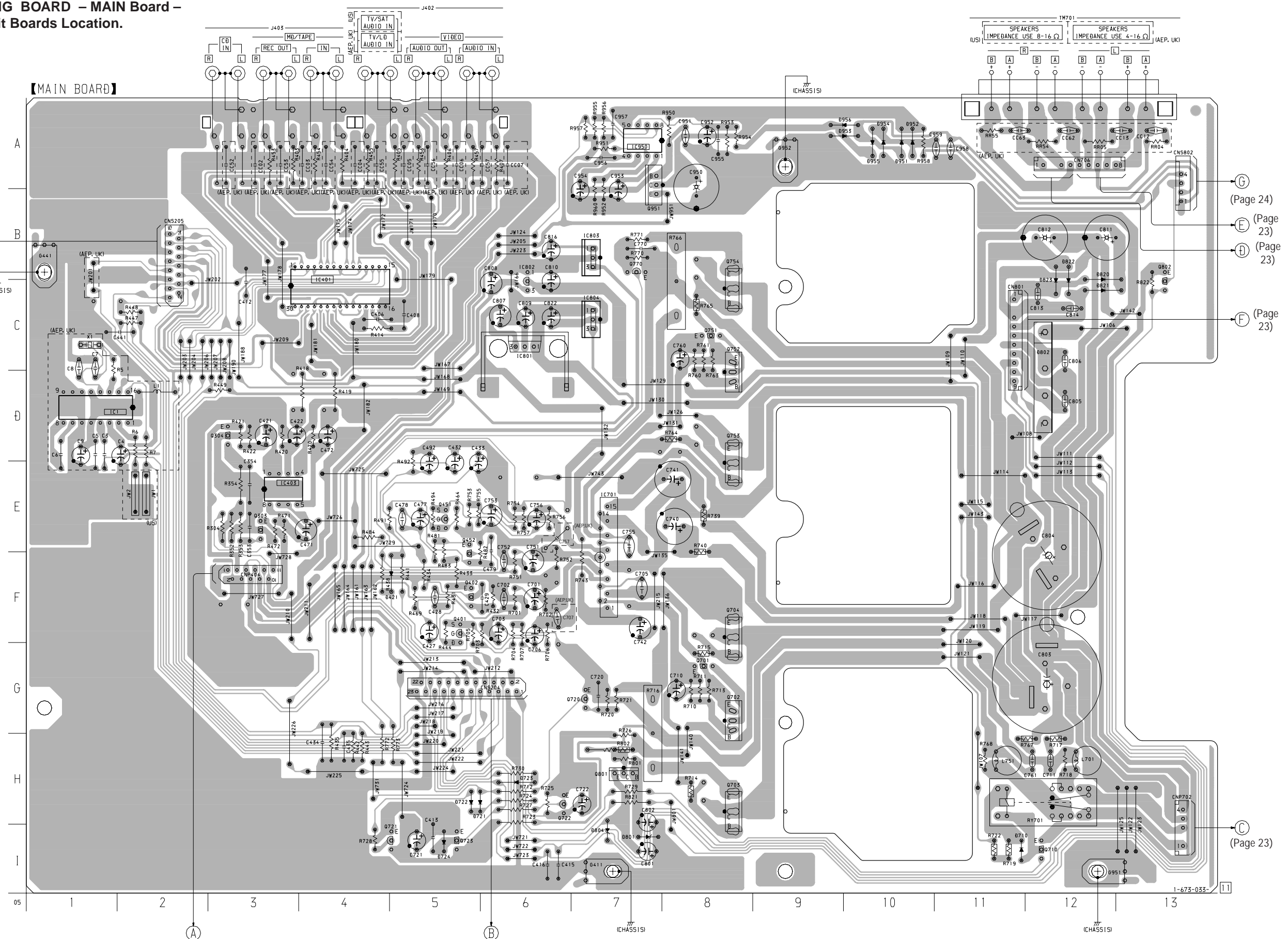
① IC201 ⑳ (X2)



5-2. PRINTED WIRING BOARD – MAIN Board –
 • See page 8 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D421	F-5
D710	I-11
D721	H-5
D722	H-5
D723	H-6
D724	I-5
D801	I-7
D802	D-12
D804	I-7
D820	C-12
D821	C-12
D822	C-12
D823	C-12
D951	A-10
D952	A-10
D953	A-10
D954	A-10
D955	A-10
D956	A-10
IC1	D-1
IC401	C-4
IC403	E-3
IC701	E-7
IC801	C-6
IC802	C-6
IC803	B-7
IC804	C-7
IC950	A-7
Q303	E-3
Q304	D-3
Q401	F-5
Q402	F-5
Q451	E-5
Q452	F-5
Q701	G-8
Q702	G-8
Q703	H-8
Q704	F-8
Q710	I-12
Q720	G-7
Q721	I-5
Q722	H-6
Q723	I-5
Q751	C-8
Q752	D-8
Q753	E-8
Q754	C-8
Q770	B-7
Q801	H-7
Q802	C-13
Q951	A-7



(Page 17)

(Page 15)

(Page 24)

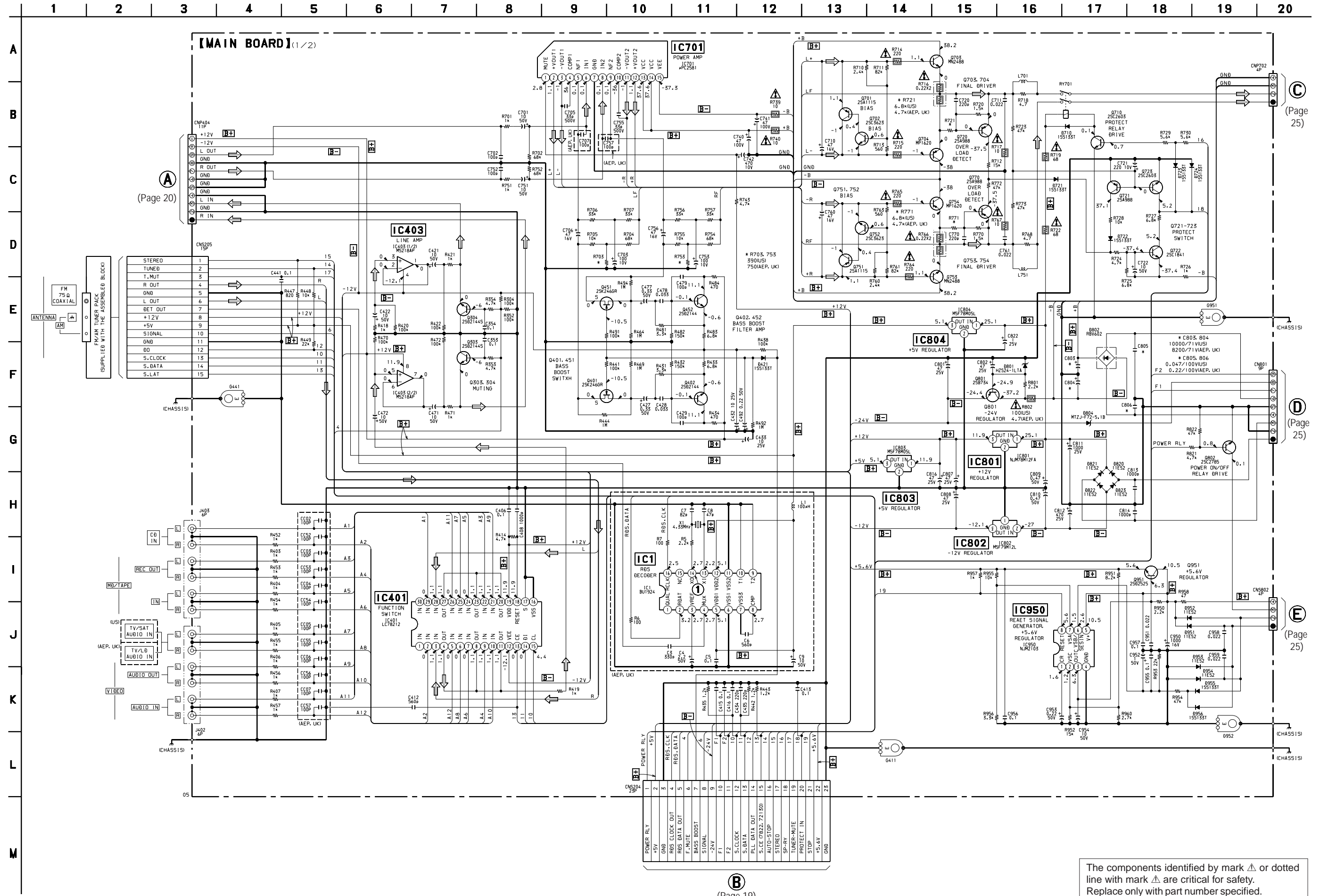
(Page 23)

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5-3. SCHEMATIC DIAGRAM – MAIN Board (1/2) – • See page 10 for Waveform. • See page 21 for IC Block Diagrams.



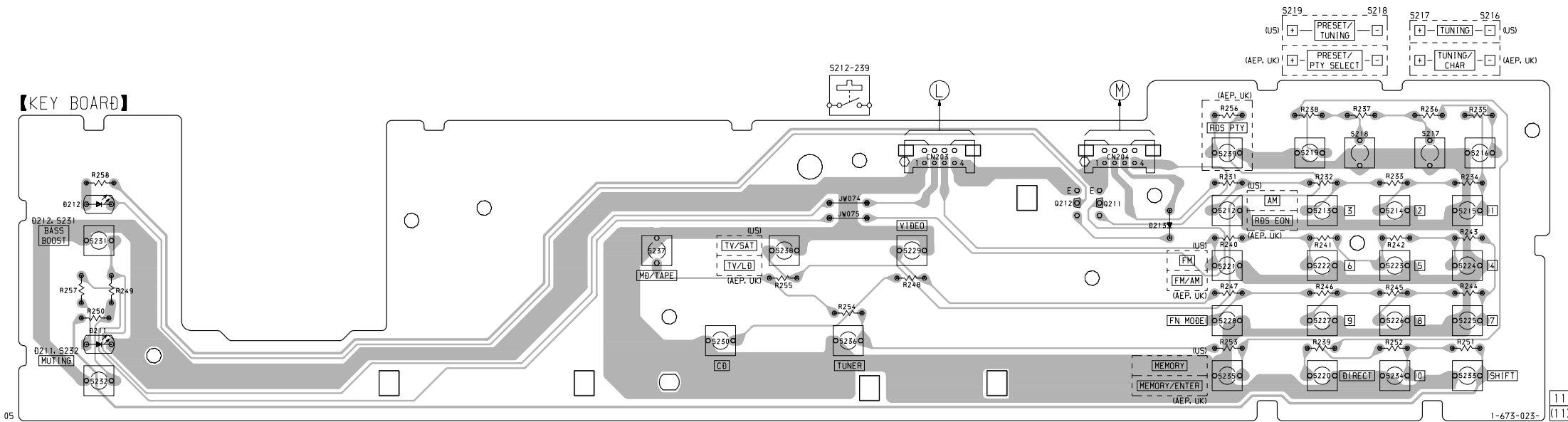
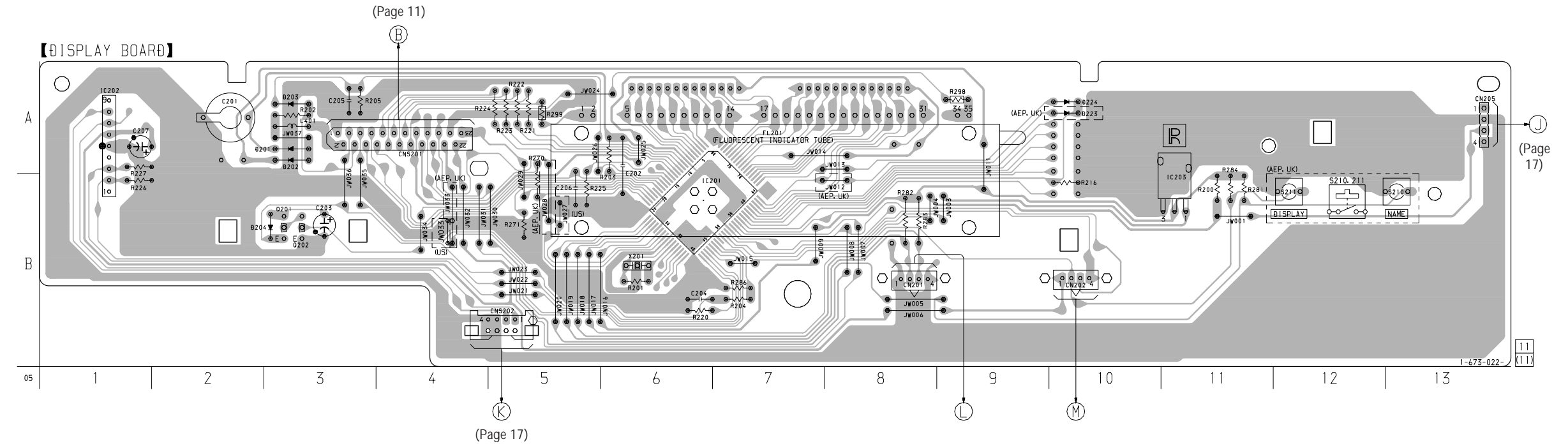
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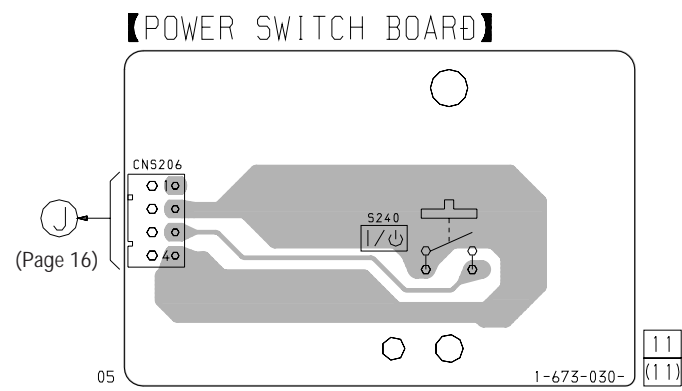
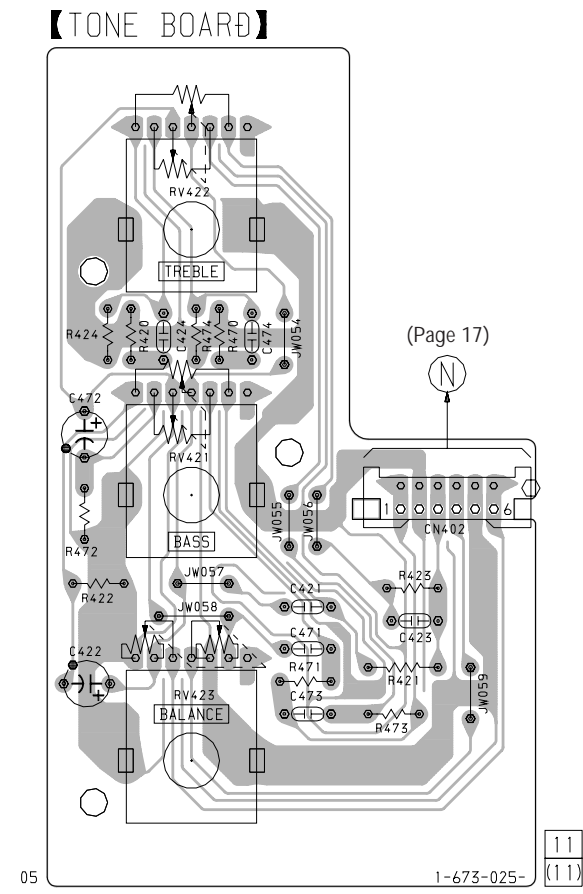
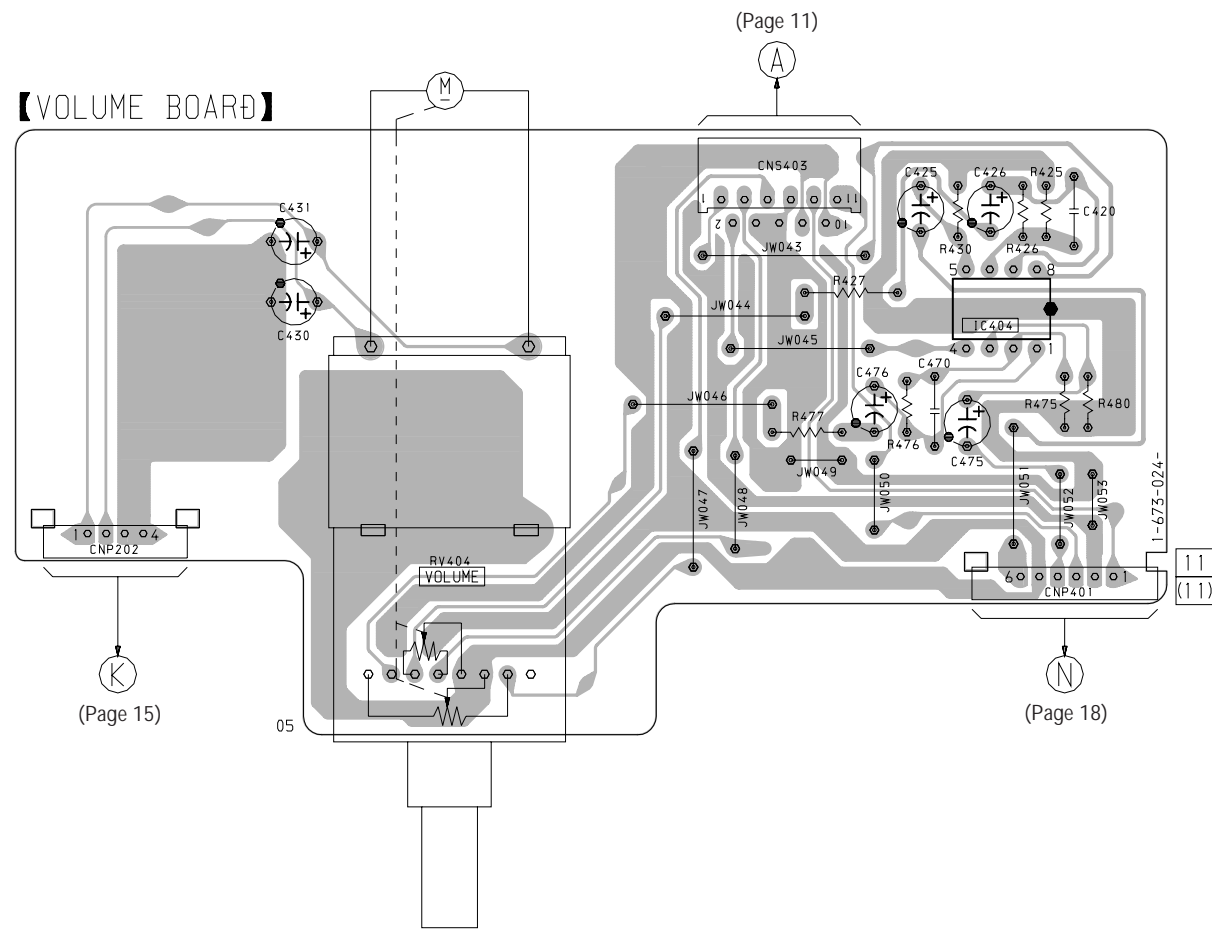
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

5-4. PRINTED WIRING BOARDS – PANEL Section – • See page 8 for Circuit Boards Location.

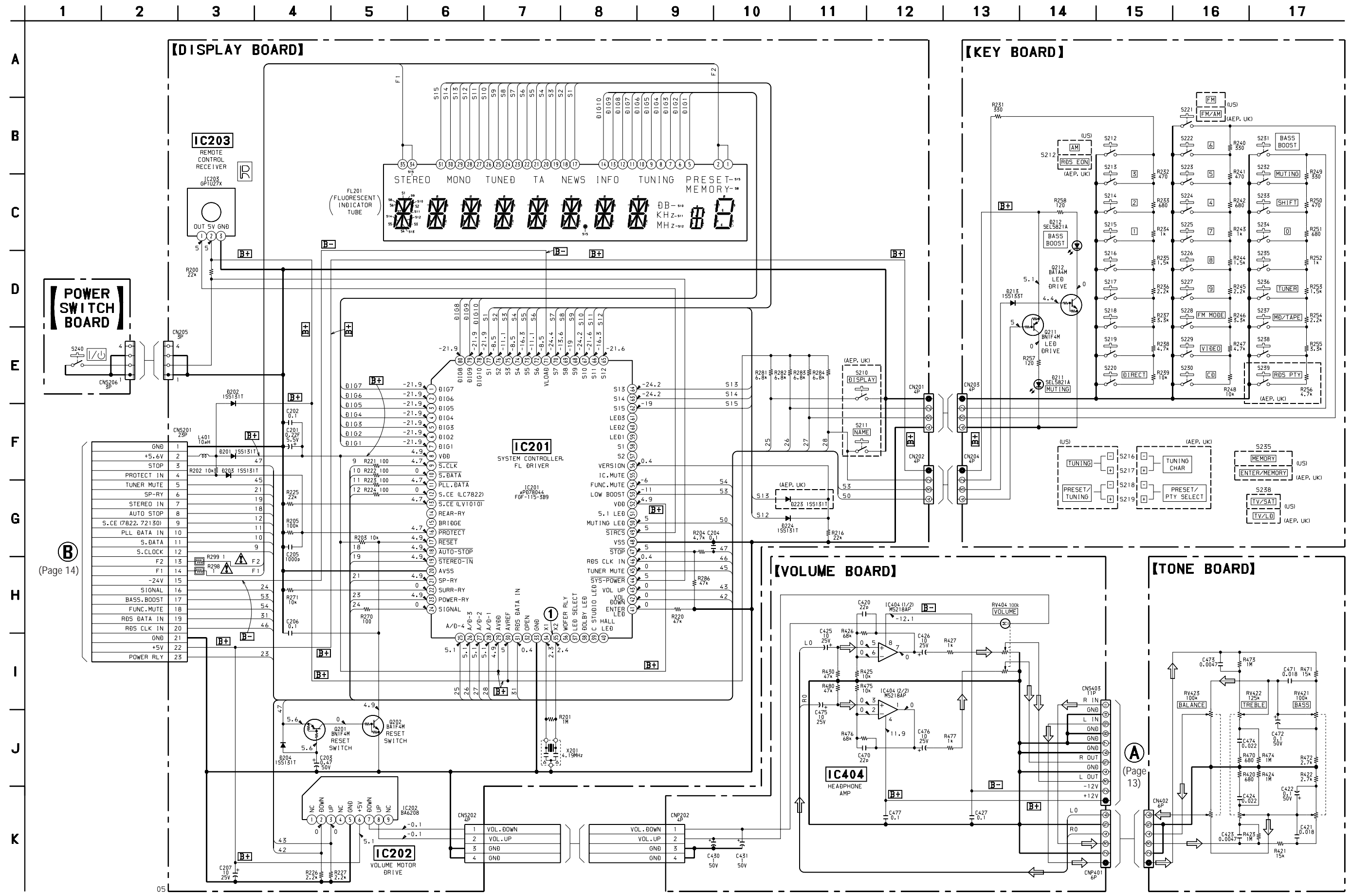
• Semiconductor Location

Ref. No.	Location
D201	A-3
D202	A-3
D203	A-3
D204	B-3
D223	A-10
D224	A-10
IC201	B-6
IC202	A-1
IC203	B-11
Q201	B-3
Q202	B-3





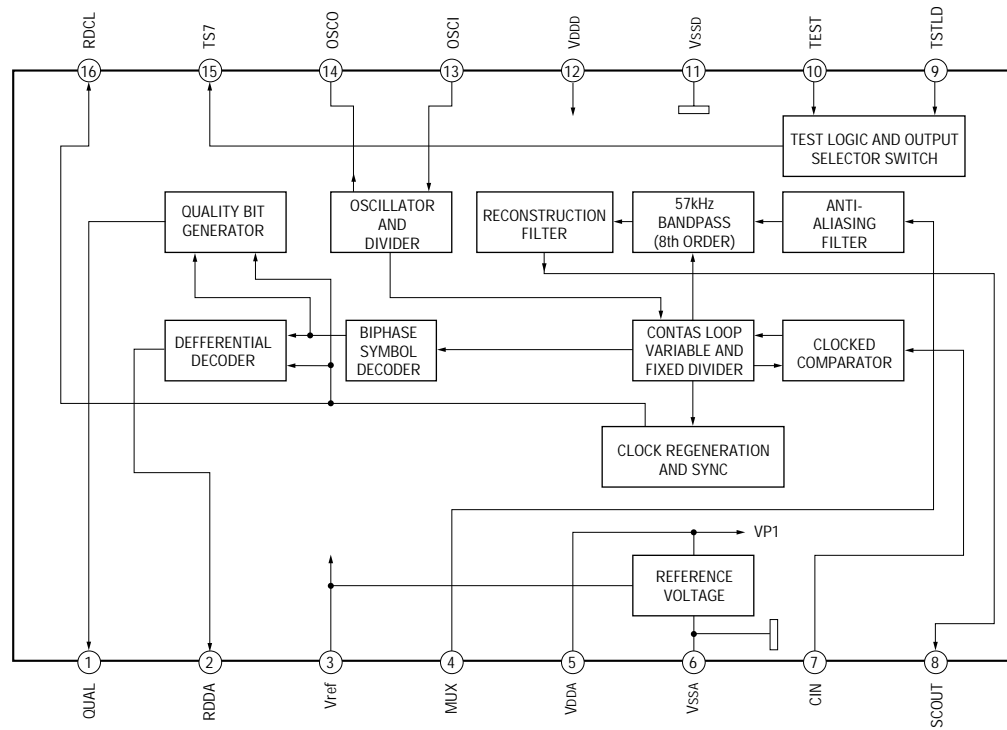
5-5. SCHEMATIC DIAGRAM – PANEL Section – • See page 10 for Waveform. • See page 22 for IC Block Diagram.



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

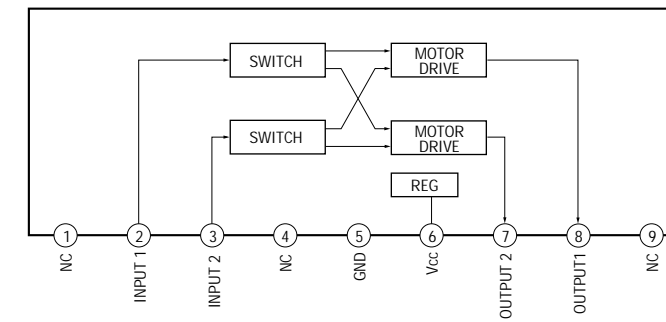
• IC Block Diagrams
– MAIN Board –

IC1 BU1922 (AEP, UK models)

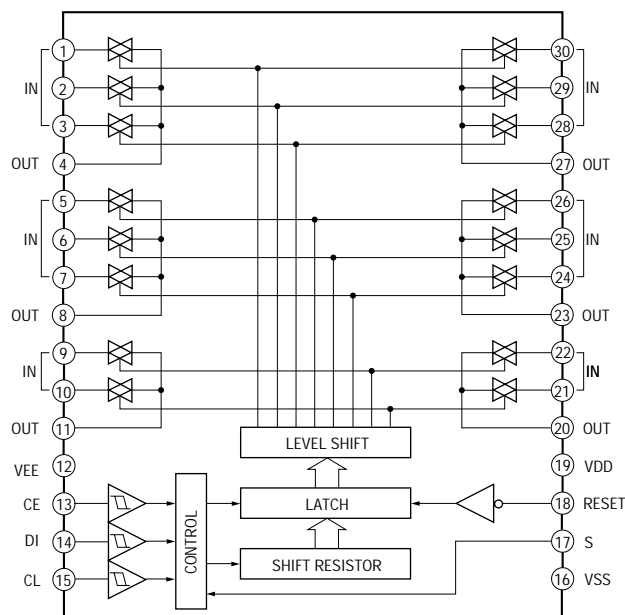


– DISPLAY Board –

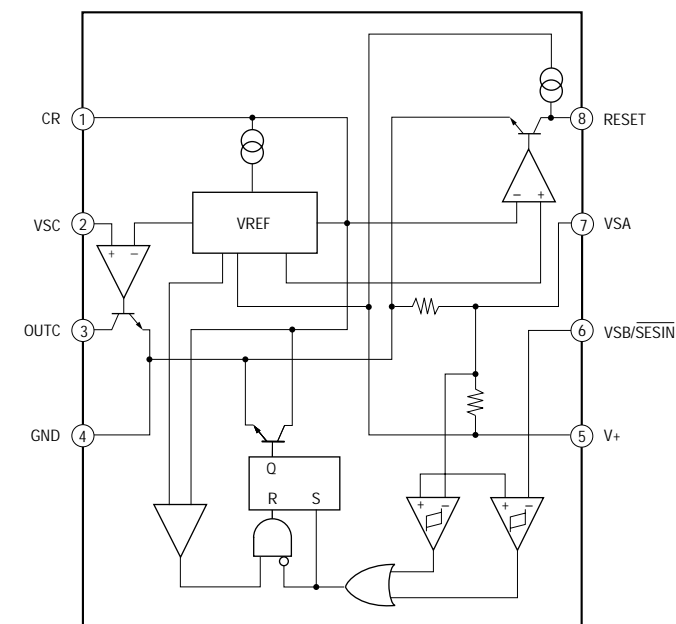
IC202 BA6208



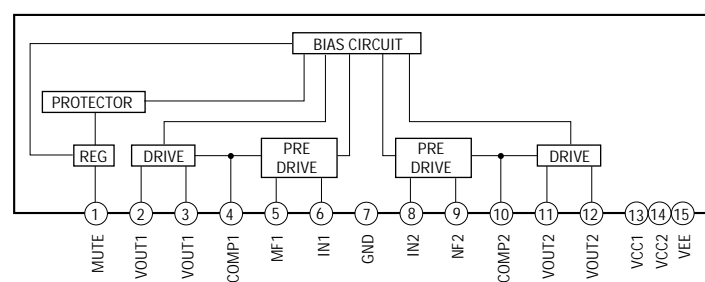
IC401 LC78212



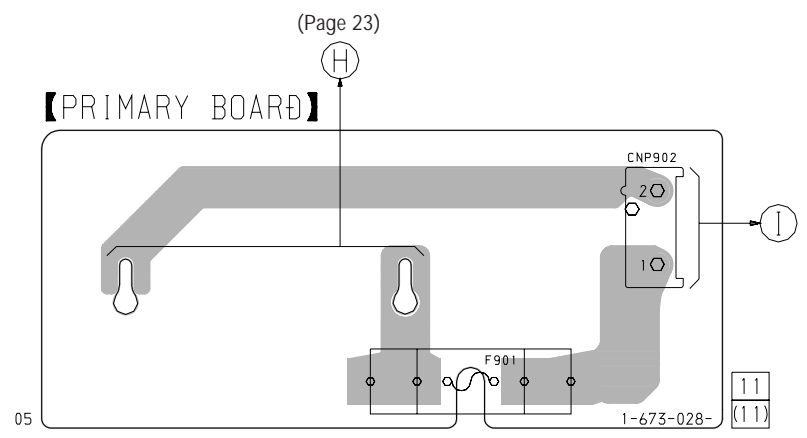
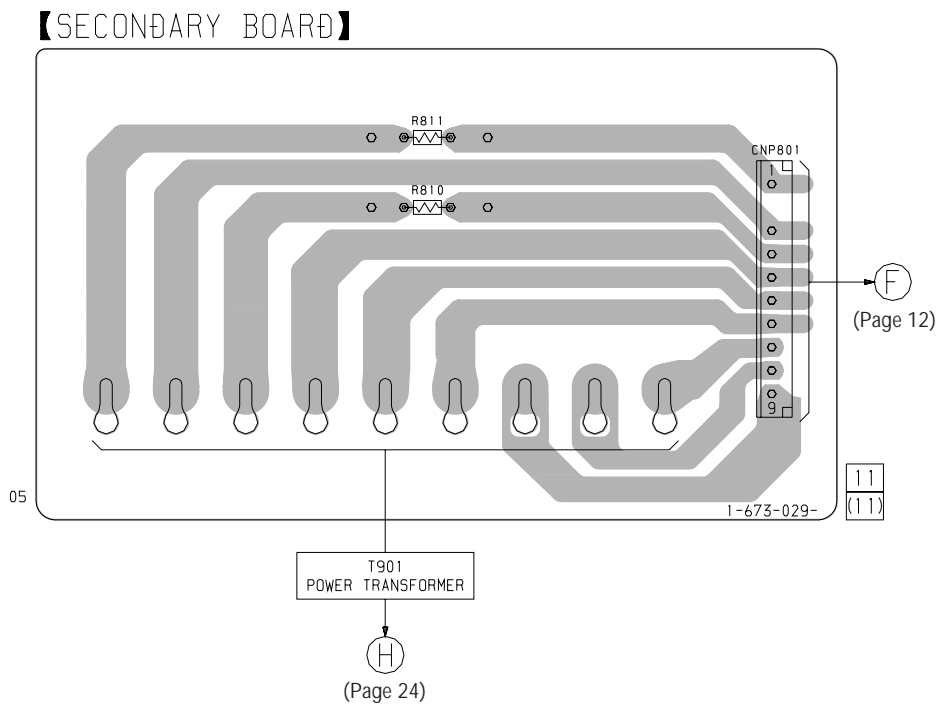
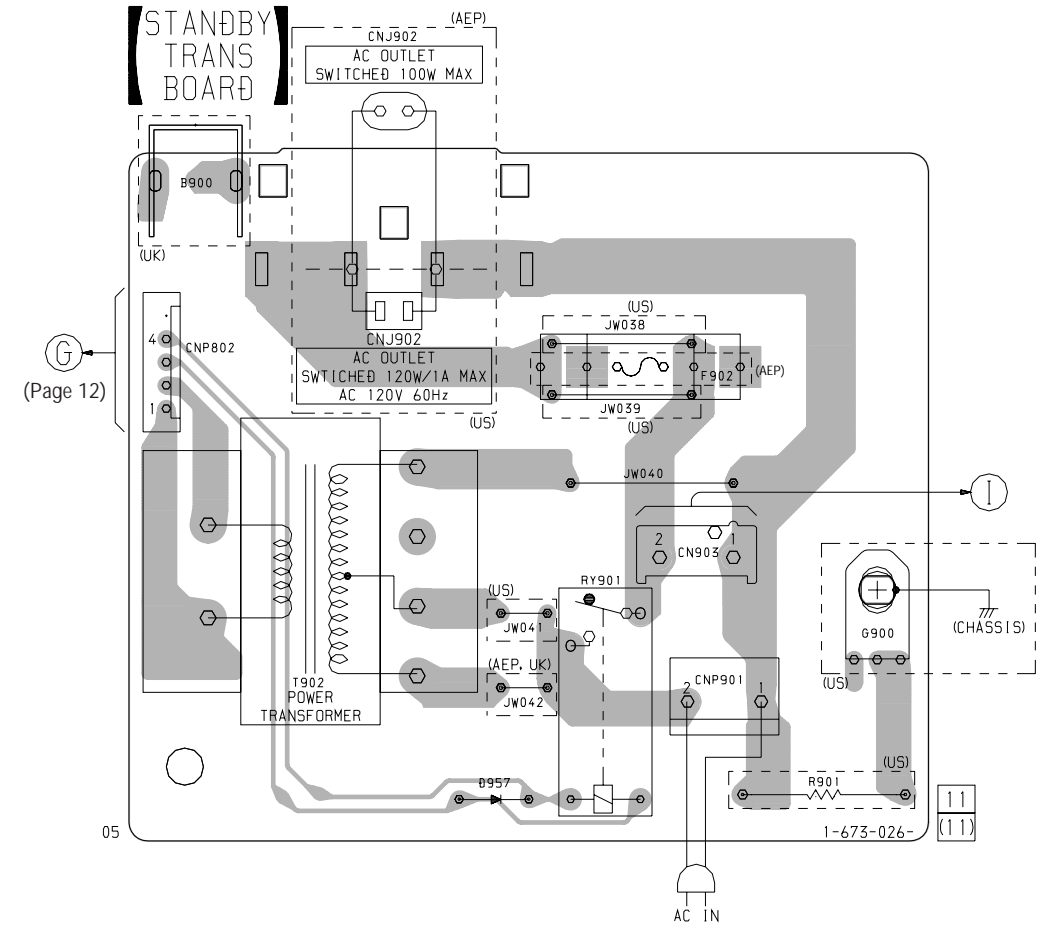
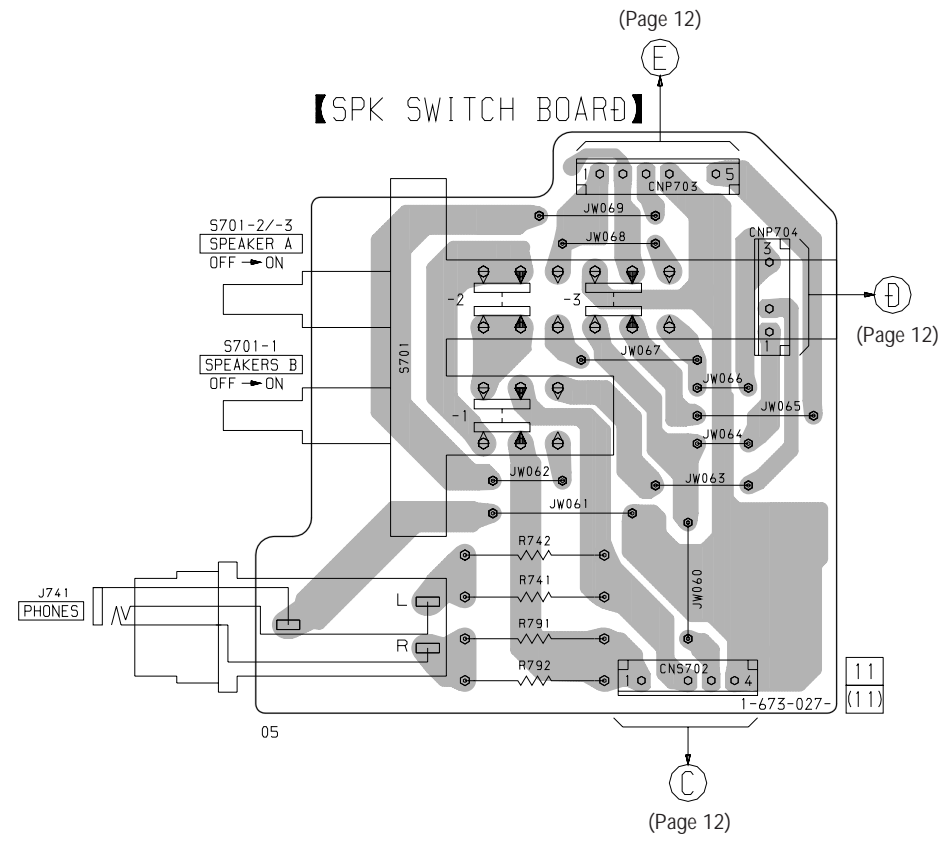
IC950 NJM2103D



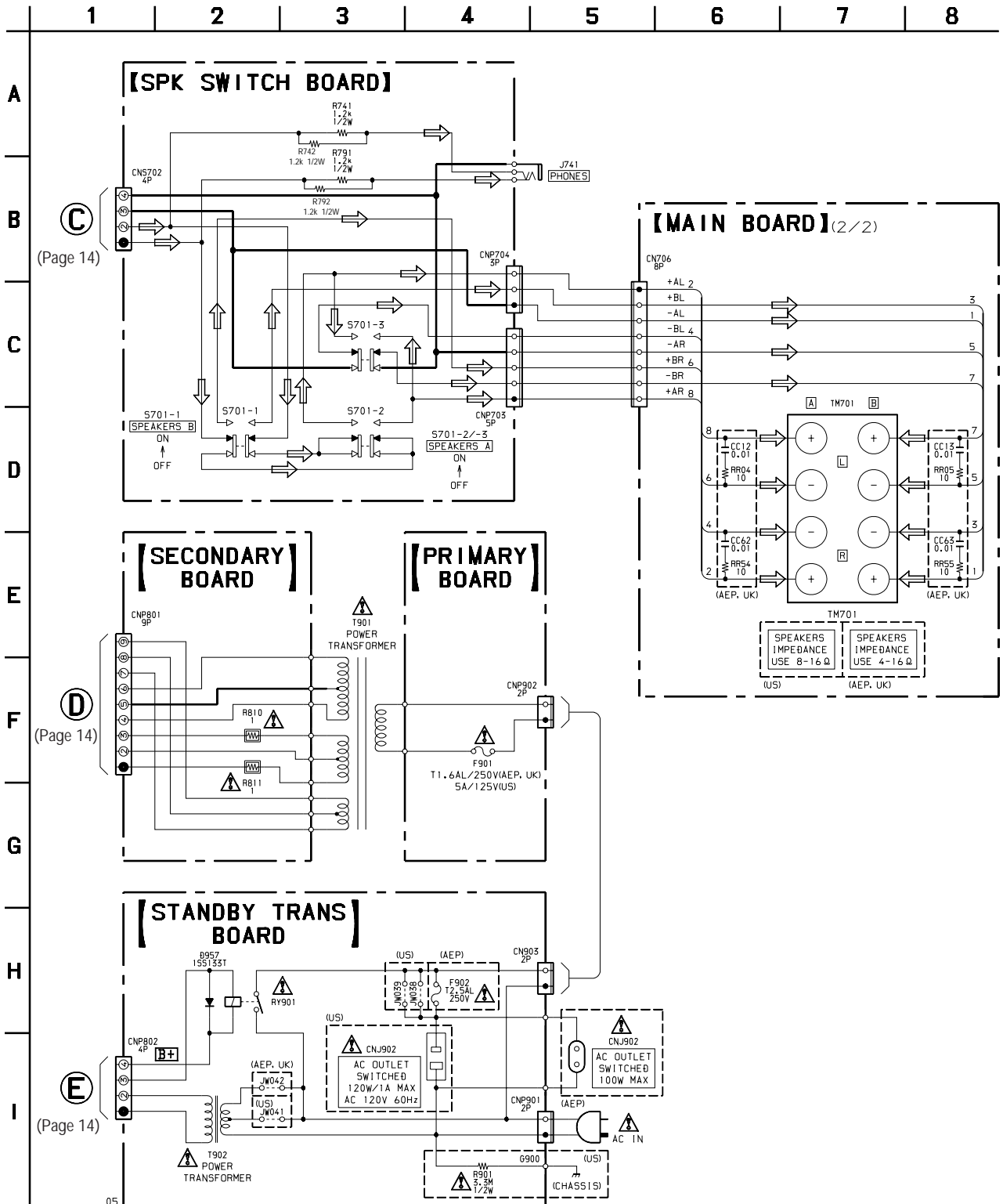
IC701 μ PC2581V



5-6. PRINTED WIRING BOARDS – SPK SWITCH Board/SECONDARY Board/PRIMARY Board/STANDBY TRANS Board –
 • See page 8 for Circuit Boards Location.



5-7. SCHEMATIC DIAGRAM – MAIN Board (2/2)/SPK SWITCH Board/SECONDARY Board/
PRIMARY Board/STANDBY TRANS Board –



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

5-8. IC PIN FUNCTION DESCRIPTION

• DISPLAY BOARD IC201 μ PD78044FGF-115-3B9 (SYSTEM CONTROLLER, FL DRIVER)

Pin No.	Pin Name	I/O	Description
1 to 7	DIG7 to DIG1	O	Digit drive signal output to the fluorescent indicator tube (FL201)
8	VDD	—	Power supply terminal (+5V)
9	$\overline{\text{S.CLK}}$	O	Serial data transfer clock signal output to the LC78212 (IC401), PLL IC on FM/AM tuner pack “L” active
10	$\overline{\text{S.DATA}}$	O	Serial data output to the LC78212 (IC401), PLL IC on FM/AM tuner pack “L” active
11	$\overline{\text{PLL.DATA}}$	I	Serial data input from the PLL IC on FM/AM tuner pack “L” active
12	S.CE (LC7822)	O	Serial chip enable signal output to the LC78212 (IC401), PLL IC on FM/AM tuner pack “H” active
13	$\overline{\text{S.CE}}$ (LV1010)	O	Serial chip enable signal output terminal “L” active Not used (pull down)
14	REAR-RY	O	Relay drive signal output for the rear side speaker “H”: relay on Not used (open)
15	BRIDGE	O	Bridgeable relay drive signal output terminal “H”: relay on Not used (open)
16	$\overline{\text{PROTECT}}$	I	Over load detect signal input from the protect circuit “L”: protect detect
17	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC950, Q201) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
18	$\overline{\text{AUTO-STOP}}$	I	Tuned display detection signal input from the FM/AM tuner pack “L”: tuned
19	$\overline{\text{STEREO-IN}}$	I	Stereo detection signal input from the FM/AM tuner pack “L”: stereo
20	AVSS	—	Ground terminal (for A/D converter analog system)
21	SP-RY	O	Relay drive signal output for the speaker protect “H”: relay on
22	SURR-RY	O	Relay drive signal output for the surround speaker “H”: relay on Not used (pull down)
23	POWER-RY	O	Relay drive signal output for the power on/off control “H”: relay on
24	SIGNAL	I	FM and AM signal meter voltage detection signal input from the FM/AM tuner pack
25	A/D-4	I	Key input terminal (A/D input) S210 (NAME) key input (Used for the AEP and UK models only)
26	A/D-3	I	Key input terminal (A/D input) S231 to S239 (BASS BOOST, MUTING, SHIFT, 0, MEMORY or MEMORY/ENTER, CD, MD/TAPE, TV/SAT or TV/LD, RDS PTY) keys input (S239 RDS PTY key: used for the AEP and UK models only)
27	A/D-2	I	Key input terminal (A/D input) S221 to S230 (FM or FM/AM, 6, 5, 4, 7, 8, 9, FM MODE, VIDEO, TUNER) keys input
28	A/D-1	I	Key input terminal (A/D input) S211 to S220 (DISPLAY, AM or RDS EON, 3, 2, 1, TUNING or TUNING/CHAR -/+, PRESET TUNING or PRESET/PTY SELECT -/+, DIRECT) keys input (S211 DISPLAY key: used for the AEP and UK models only)
29	AVDD	—	Power supply terminal (+5V) (for A/D converter analog system)
30	AVREF	I	Reference voltage (+5V) input terminal (for A/D converter)
31	RDS DATA IN	I	RDS data input from the RDS decoder (IC1) (Used for the AEP and UK models only)
32	OPEN	—	Not used (open)
33	GND	—	Ground terminal
34	X1	I	Main system clock input terminal (4.19 MHz)
35	X2	O	Main system clock output terminal (4.19 MHz)
36	WOOFER RLY	O	Relay drive signal output for the woofer speaker “H”: relay on Not used (open)
37	LED SELECT	O	LED select signal output terminal “H” active Not used (open)
38	DOLBY LED	O	LED drive signal output terminal “H”: LED on Not used (open)
39	C STUDIO LED	O	LED drive signal output terminal “H”: LED on Not used (open)
40	HALL LED	O	LED drive signal output terminal “H”: LED on Not used (open)
41	ENTER LED	I	Not used (fixed at “L”)
42	VOL DOWN	O	Motor drive signal (volume down direction) output to the volume motor drive (IC202) “H” active
43	VOL UP	O	Motor drive signal (volume up direction) output to the volume motor drive (IC202) “H” active

Pin No.	Pin Name	I/O	Description
44	$\overline{\text{SYS-POWER}}$	I	Power on/off switch (S240 I/⏻) input terminal “L” is input when key pressing
45	TUNER MUTE	O	Muting control signal output to the FM/AM tuner pack “H”: muting on
46	RDS CLK IN	I	RDS serial clock signal input from the RDS decoder (IC1) (Used for the AEP and UK models only)
47	$\overline{\text{STOP}}$	I	Power down detection signal input from the reset signal generator (IC950) “L”: power down, normally: “H”
48	VSS	—	Ground terminal
49	$\overline{\text{SIRCS}}$	I	Sircs remote control signal input from the remote control receiver (IC203)
50	MUTING LED	O	LED drive signal output of the MUTING indicator (D211) “L”: LED on
51	5.1 LED	O	LED drive signal output terminal “L”: LED on Not used (open)
52	VDD	—	Power supply terminal (+5V)
53	LOW BOOST	O	Control signal output of the BASS BOOST circuit and LED drive signal output of the BASS BOOST indicator (D212) “H”: BASS BOOST on (LED on)
54	FUNC. MUTE	O	Audio line muting on/off control signal output terminal “H”: muting on
55	IC. MUTE	O	Muting on/off control signal output terminal “H”: muting on Not used (open)
56	VERSION	I	Setting terminal for the version
57, 58	S2, S1	O	Not used (open)
59 to 61	LED1 to LED3	O	LED drive signal output terminal “H”: LED on Not used (open)
62 to 70	S15 to S7	O	Segment drive signal output to the fluorescent indicator tube (FL201)
71	VLOAD	—	Negative power supply terminal for the fluorescent indicator tube drive (–24V)
72 to 77	S6 to S1	O	Segment drive signal output to the fluorescent indicator tube (FL201)
78 to 80	DIG10 to DIG8	O	Digit drive signal output to the fluorescent indicator tube (FL201)

SECTION 6 EXPLODED VIEWS

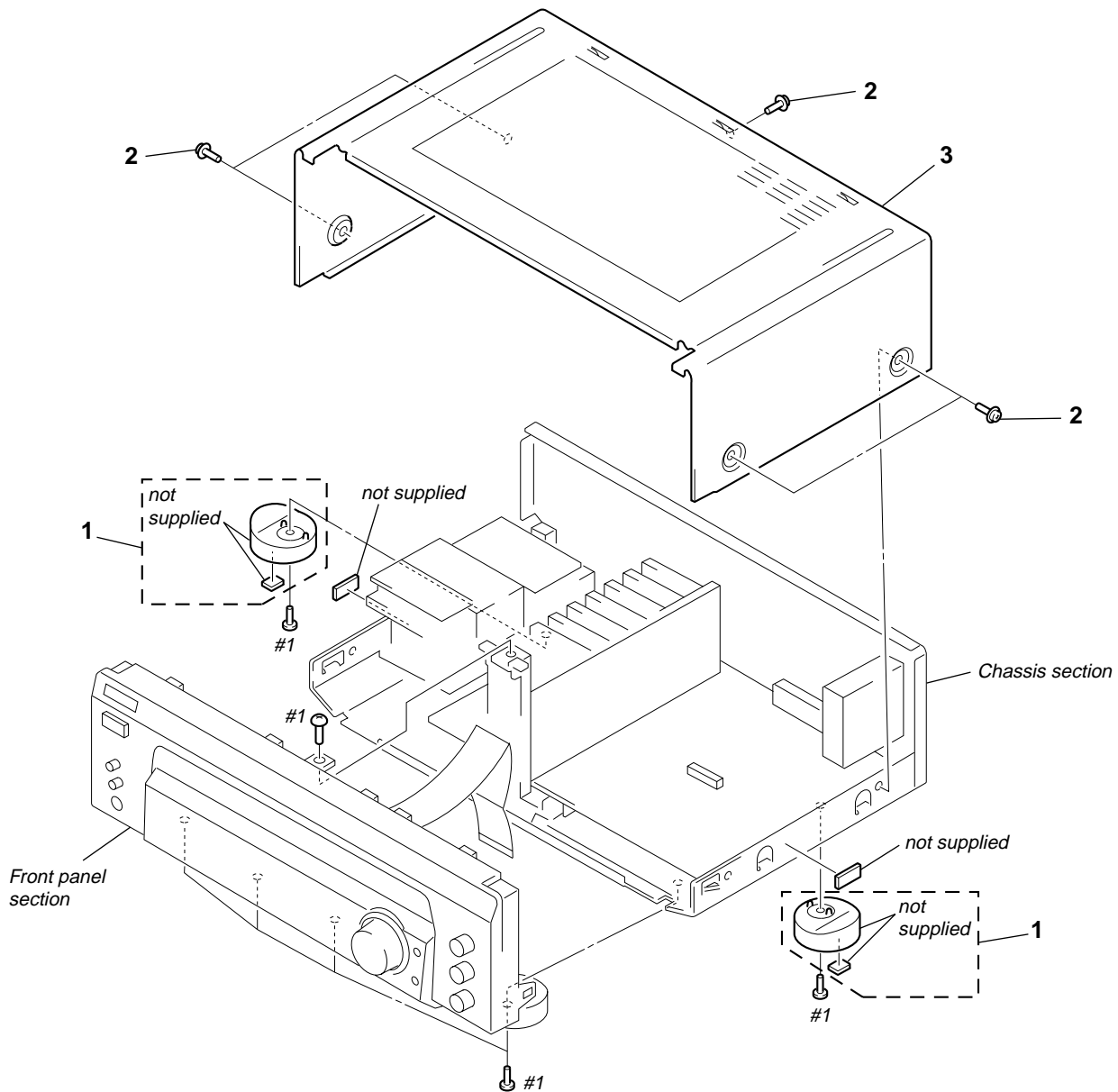
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)
 ↑ ↑
 Parts Color Cabinet's Color

- 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 the electrical parts list.

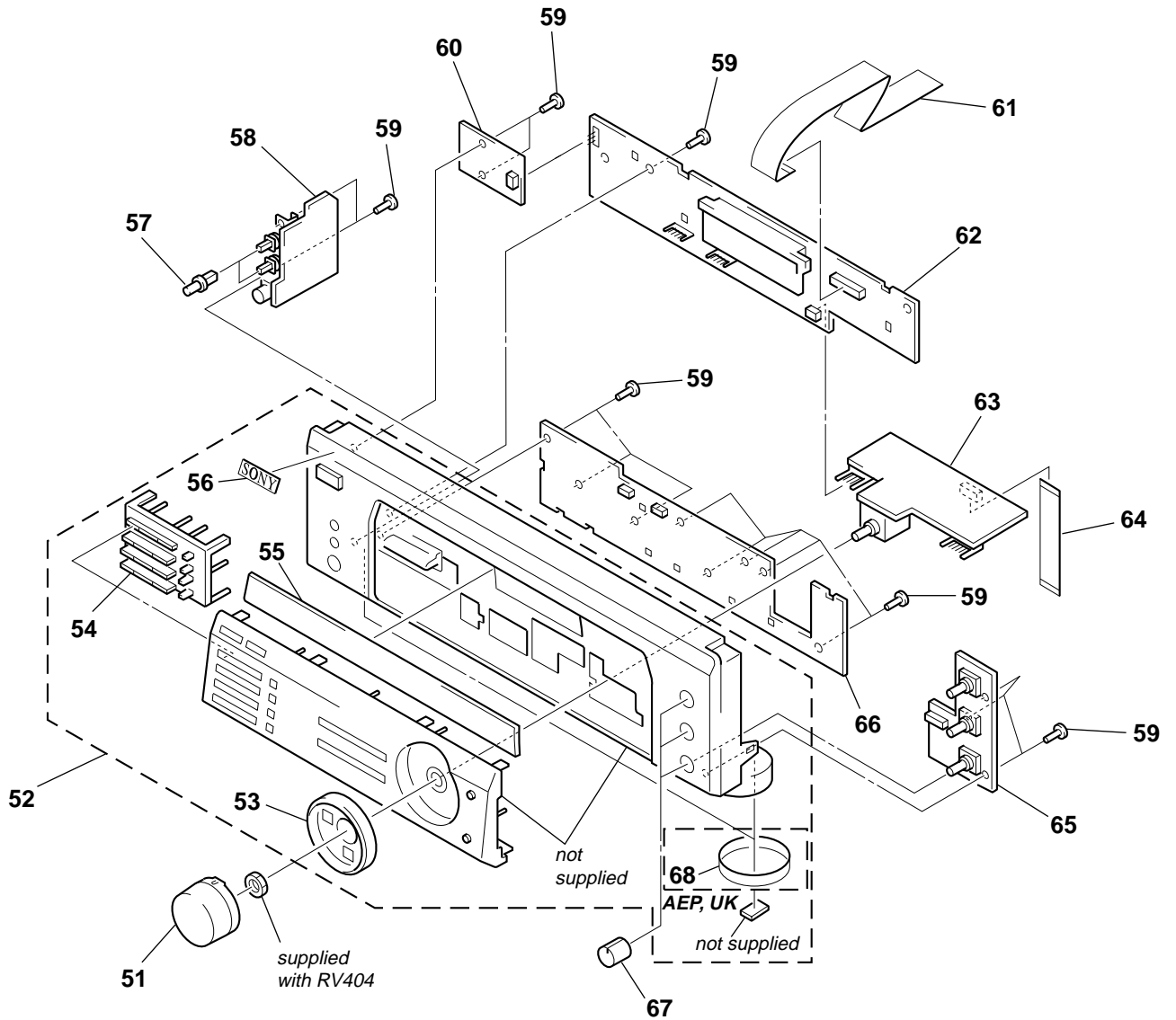
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

(1) CASE SECTION



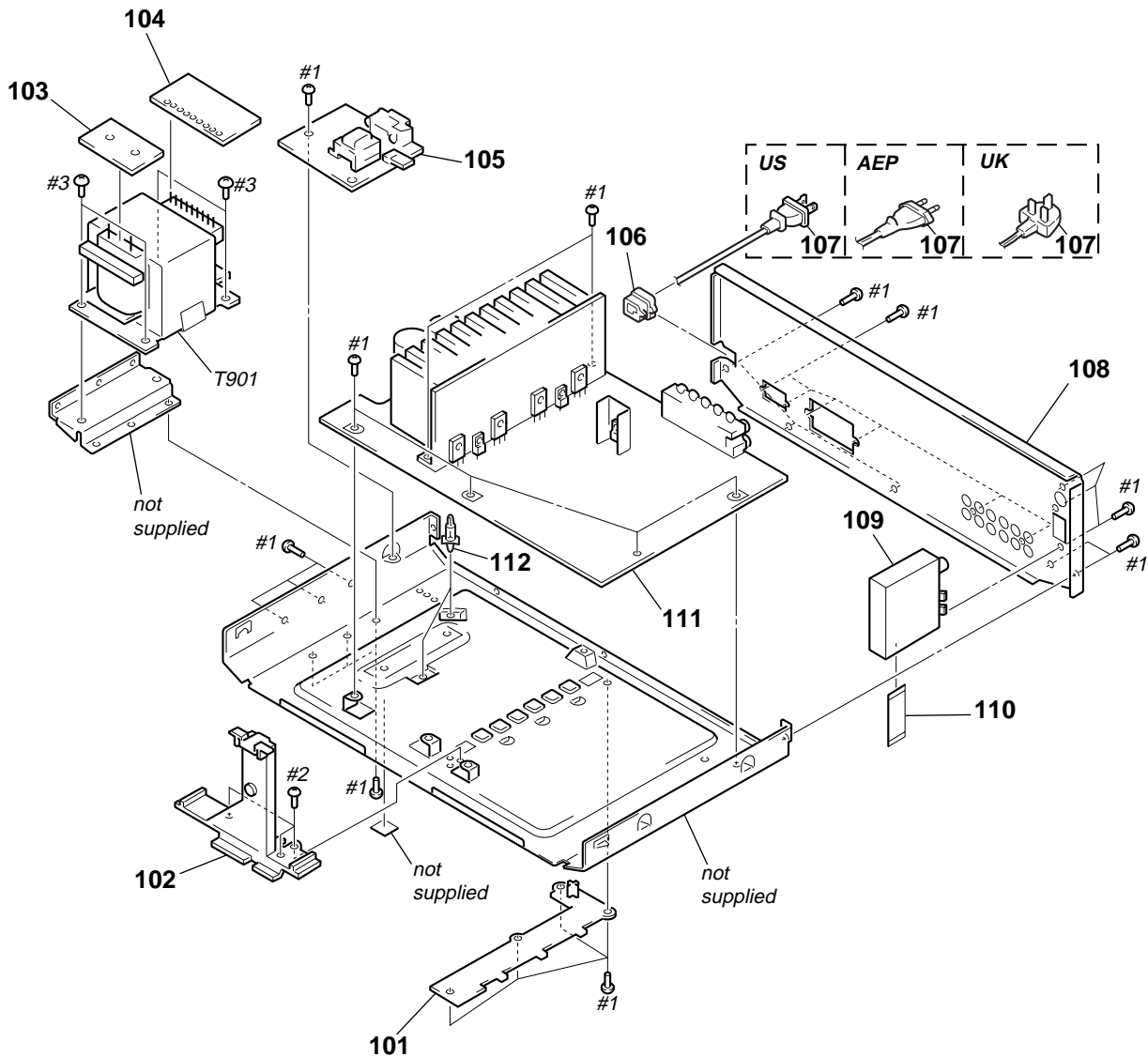
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-4947-207-1	FOOT ASSY (F50150S) (AEP, UK)		2	3-710-901-11	SCREW, TAPPING	
1	X-4947-208-1	FOOT ASSY (F50150S) (US)		* 3	4-998-206-21	CASE (413226)	

(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-4951-035-1	KNOB (VOL) ASSY		60	1-673-030-11	POWER SWITCH BOARD	
52	X-4951-038-1	FRONT PANEL ASSY (US)		61	1-782-084-11	WIRE (FLAT TYPE) (23 CORE)	
52	X-4951-078-1	FRONT PANEL ASSY (AEP, UK)		62	A-4417-997-A	DISPLAY BOARD, COMPLETE (US)	
53	4-216-792-01	RING (VOL)		62	A-4419-176-A	DISPLAY BOARD, COMPLETE (AEP, UK)	
54	4-216-779-01	BUTTON (KEY)		63	1-673-024-11	VOLUME BOARD	
55	4-216-794-11	PLATE INDICATION (US)		64	1-769-941-11	WIRE (FLAT TYPE) (11 CORE)	
55	4-216-794-21	PLATE INDICATION (AEP, UK)		65	1-673-025-11	TONE BOARD	
56	4-996-698-01	EMBLEM, SONY		66	A-4419-001-A	KEY BOARD, COMPLETE (US)	
57	4-951-801-01	BUTTON (S)		66	A-4419-178-A	KEY BOARD, COMPLETE (AEP, UK)	
58	1-673-027-11	SPK SWITCH BOARD		67	4-998-717-01	KNOB (BAL)	
59	4-951-620-01	SCREW (2.6X8), +BVTP		68	4-977-593-11	RING (DIA. 50), ORNAMENTAL	

(3) CHASSIS SECTION



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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	4-217-872-11	BOTTOM COVER		108	4-216-802-11	BACK PANEL (E20) (AEP)	
102	4-216-798-11	SUB (MOLD)		108	4-216-802-21	BACK PANEL (E20) (UK)	
103	1-673-028-11	PRIMARY BOARD		109	1-493-407-51	TUNER PACK (AEP, UK)	
104	1-673-029-11	SECONDARY BOARD		109	1-693-408-61	TUNER PACK (US)	
105	1-673-026-11	STANDBY TRANS BOARD		110	1-773-001-11	WIRE (FLAT TYPE) (15 CORE)	
* 106	3-703-244-00	BUSHING (2104), CORD		111	A-4419-005-A	MAIN BOARD, COMPLETE (US)	
\triangle 107	1-777-071-21	CORD, POWER (AEP)		111	A-4419-179-A	MAIN BOARD, COMPLETE (AEP, UK)	
\triangle 107	1-783-820-11	CORD, POWER (US)		112	4-924-098-01	HOLDER, PC BOARD	
\triangle 107	1-790-226-11	CORD, POWER (UK)		\triangle T901	1-433-712-11	TRANSFORMER, POWER (AEP, UK)	
108	4-216-802-01	BACK PANEL (E20) (US)		\triangle T901	1-433-720-11	TRANSFORMER, POWER (US)	

SECTION 7 ELECTRICAL PARTS LIST

DISPLAY

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 and -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.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-4417-997-A	DISPLAY BOARD, COMPLETE (US)				< TRANSISTOR >	
	A-4419-176-A	DISPLAY BOARD, COMPLETE (AEP, UK)					
		*****		Q201	8-729-900-63	TRANSISTOR DTA124ES	
				Q202	8-729-900-36	TRANSISTOR DTC124ES	
*	4-921-941-01	CUSHION (FL)				< RESISTOR >	
*	4-943-107-11	HOLDER (FL TUBE)					
		< CAPACITOR >		R200	1-249-433-11	CARBON 22K 5%	1/4W
C201	1-104-905-11	CAPACITOR 0.22F	5.5V	R201	1-247-903-00	CARBON 1M 5%	1/4W
C202	1-164-159-11	CERAMIC 0.1uF	50V	R202	1-249-429-11	CARBON 10K 5%	1/4W
C203	1-124-465-00	ELECT 0.47uF	20% 50V	R203	1-249-429-11	CARBON 10K 5%	1/4W
C204	1-164-159-11	CERAMIC 0.1uF	50V	R204	1-249-425-11	CARBON 4.7K 5%	1/4W
C205	1-162-294-31	CERAMIC 0.001uF	10% 50V	R205	1-249-441-11	CARBON 100K 5%	1/4W
C206	1-164-159-11	CERAMIC 0.1uF	50V	R216	1-249-433-11	CARBON 22K 5%	1/4W
C207	1-126-096-11	ELECT 10uF	20% 35V	R220	1-249-437-11	CARBON 47K 5%	1/4W
		< CONNECTOR >		R221	1-247-807-31	CARBON 100 5%	1/4W
CN201	1-779-366-11	CONNECTOR, BOARD TO BOARD 4P		R222	1-247-807-31	CARBON 100 5%	1/4W
CN202	1-779-366-11	CONNECTOR, BOARD TO BOARD 4P		R223	1-247-807-31	CARBON 100 5%	1/4W
CN205	1-770-397-11	HOUSING, CONNECTOR (PC BOARD) 4P		R224	1-247-807-31	CARBON 100 5%	1/4W
		< DIODE >		R225	1-249-433-11	CARBON 22K 5%	1/4W
D201	8-719-911-19	DIODE 1SS119		R226	1-249-421-11	CARBON 2.2K 5%	1/4W
D202	8-719-911-19	DIODE 1SS119		R227	1-249-421-11	CARBON 2.2K 5%	1/4W
D203	8-719-911-19	DIODE 1SS119		R270	1-247-807-31	CARBON 100 5%	1/4W
D204	8-719-911-19	DIODE 1SS119		R271	1-249-429-11	CARBON 10K 5%	1/4W
D223	8-719-911-19	DIODE 1SS119 (AEP, UK)		R281	1-249-427-11	CARBON 6.8K 5%	1/4W
D224	8-719-911-19	DIODE 1SS119-25		R282	1-249-427-11	CARBON 6.8K 5%	1/4W
		< FLOURESCENT INDICATOR TUBE >		R283	1-249-427-11	CARBON 6.8K 5%	1/4W
FL201	1-517-662-11	INDICATOR TUBE, FLUORESCENT		R284	1-249-427-11	CARBON 6.8K 5%	1/4W
		< IC >		R286	1-249-437-11	CARBON 47K 5%	1/4W
IC201	8-759-542-29	IC uPD78044FGF-115-3B9		Δ R298	1-249-381-11	CARBON 1 5%	1/4W F
IC202	8-759-962-08	IC BA6208		Δ R299	1-249-381-11	CARBON 1 5%	1/4W F
IC203	8-759-332-18	IC GP1U27XB				< SWITCH >	
		(REMOTE CONTROL RECEIVER)		S210	1-762-751-11	SWITCH, TACTILE (DISPLAY) (AEP, UK)	
		< COIL >		S211	1-762-751-11	SWITCH, TACTILE (NAME) (AEP, UK)	
L401	1-410-509-11	INDUCTOR 10uH				< VIBRATOR >	
				X201	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	

KEY

Ref. No.	Part No.	Description	Remark
	A-4419-001-A	KEY BOARD, COMPLETE (US)	
	A-4419-178-A	KEY BOARD, COMPLETE (AEP, UK)	

		< CONNECTOR >	
CN204	1-770-397-11	HOUSING, CONNECTOR (PC BOARD) 4P	
CNS201	1-568-742-11	SOCKET, CONNECTOR 23P	
		< DIODE >	
D211	8-719-046-39	LED SEL5821A-TH15 (MUTING)	
D212	8-719-046-39	LED SEL5821A-TH15 (BASS BOOST)	
D213	8-719-911-19	DIODE 1SS119-25	
		< TRANSISTOR >	
Q211	8-729-900-63	TRANSISTOR DTA124ES	
Q212	8-729-900-36	TRANSISTOR DTC124ES	
		< RESISTOR >	
R231	1-249-411-11	CARBON 330 5% 1/4W	
R232	1-249-413-11	CARBON 470 5% 1/4W	
R233	1-249-415-11	CARBON 680 5% 1/4W	
R234	1-249-417-11	CARBON 1K 5% 1/4W	
R235	1-249-419-11	CARBON 1.5K 5% 1/4W	
R236	1-249-421-11	CARBON 2.2K 5% 1/4W	
R237	1-247-843-11	CARBON 3.3K 5% 1/4W	
R238	1-249-425-11	CARBON 4.7K 5% 1/4W	
R239	1-249-429-11	CARBON 10K 5% 1/4W	
R240	1-249-411-11	CARBON 330 5% 1/4W	
R241	1-249-413-11	CARBON 470 5% 1/4W	
R242	1-249-415-11	CARBON 680 5% 1/4W	
R243	1-249-417-11	CARBON 1K 5% 1/4W	
R244	1-249-419-11	CARBON 1.5K 5% 1/4W	
R245	1-249-421-11	CARBON 2.2K 5% 1/4W	
R246	1-247-843-11	CARBON 3.3K 5% 1/4W	
R247	1-249-425-11	CARBON 4.7K 5% 1/4W	
R248	1-249-429-11	CARBON 10K 5% 1/4W	
R249	1-249-411-11	CARBON 330 5% 1/4W	
R250	1-249-413-11	CARBON 470 5% 1/4W	
R251	1-249-415-11	CARBON 680 5% 1/4W	
R252	1-249-417-11	CARBON 1K 5% 1/4W	
R253	1-249-419-11	CARBON 1.5K 5% 1/4W	
R254	1-249-421-11	CARBON 2.2K 5% 1/4W	
R255	1-247-843-11	CARBON 3.3K 5% 1/4W	
R256	1-249-425-11	CARBON 4.7K 5% 1/4W	
		(AEP, UK)	
R257	1-249-406-11	CARBON 120 5% 1/4W	
R258	1-249-406-11	CARBON 120 5% 1/4W	
		< SWITCH >	
S212	1-762-751-11	SWITCH, TACTILE (RDS EON) (AEP, UK)	
S212	1-762-875-21	SWITCH, KEYBOARD (AM) (US)	
S213	1-762-751-11	SWITCH, TACTILE (3) (AEP, UK)	
S213	1-762-875-21	SWITCH, KEYBOARD (3) (US)	
S214	1-762-751-11	SWITCH, TACTILE (2) (AEP, UK)	
S214	1-762-875-21	SWITCH, KEYBOARD (2) (US)	
S215	1-762-751-11	SWITCH, TACTILE (1) (AEP, UK)	
S215	1-762-875-21	SWITCH, KEYBOARD (1) (US)	

Ref. No.	Part No.	Description	Remark
S216	1-762-751-11	SWITCH, TACTILE (TUNING/CHAR -)	(AEP, UK)
S216	1-762-875-21	SWITCH, KEYBOARD (TUNING -) (US)	
S217	1-762-751-11	SWITCH, TACTILE (TUNING/CHAR +)	(AEP, UK)
S217	1-762-875-21	SWITCH, KEYBOARD (TUNING +) (US)	
S218	1-762-751-11	SWITCH, TACTILE (PRESET/PTY SELECT -)	(AEP, UK)
S218	1-762-875-21	SWITCH, KEYBOARD (PRESET/TUNING -)	(US)
S219	1-762-751-11	SWITCH, TACTILE (PRESET/PTY SELECT +)	(AEP, UK)
S219	1-762-875-21	SWITCH, KEYBOARD (PRESET/TUNING +)	(US)
S220	1-762-751-11	SWITCH, TACTILE (DIRECT) (AEP, UK)	
S220	1-762-875-21	SWITCH, KEYBOARD (DIRECT) (US)	
S221	1-762-751-11	SWITCH, TACTILE (FM/AM) (AEP, UK)	
S221	1-762-875-21	SWITCH, KEYBOARD (FM) (US)	
S222	1-762-751-11	SWITCH, TACTILE (6) (AEP, UK)	
S222	1-762-875-21	SWITCH, KEYBOARD (6) (US)	
S223	1-762-751-11	SWITCH, TACTILE (5) (AEP, UK)	
S223	1-762-875-21	SWITCH, KEYBOARD (5) (US)	
S224	1-762-751-11	SWITCH, TACTILE (4) (AEP, UK)	
S224	1-762-875-21	SWITCH, KEYBOARD (4) (US)	
S225	1-762-751-11	SWITCH, TACTILE (7) (AEP, UK)	
S225	1-762-875-21	SWITCH, KEYBOARD (7) (US)	
S226	1-762-751-11	SWITCH, TACTILE (8) (AEP, UK)	
S226	1-762-875-21	SWITCH, KEYBOARD (8) (US)	
S227	1-762-751-11	SWITCH, TACTILE (9) (AEP, UK)	
S227	1-762-875-21	SWITCH, KEYBOARD (9) (US)	
S228	1-762-751-11	SWITCH, TACTILE (FM MODE) (AEP, UK)	
S228	1-762-875-21	SWITCH, KEYBOARD (FM MODE) (US)	
S229	1-762-751-11	SWITCH, TACTILE (VIDEO) (AEP, UK)	
S229	1-762-875-21	SWITCH, KEYBOARD (VIDEO) (US)	
S230	1-762-751-11	SWITCH, TACTILE (CD) (AEP, UK)	
S230	1-762-875-21	SWITCH, KEYBOARD (CD) (US)	
S231	1-762-751-11	SWITCH, TACTILE (BASS BOOST) (AEP, UK)	
S231	1-762-875-21	SWITCH, KEYBOARD (BASS BOOST) (US)	
S232	1-762-751-11	SWITCH, TACTILE (MUTING) (AEP, UK)	
S232	1-762-875-21	SWITCH, KEYBOARD (MUTING) (US)	
S233	1-762-751-11	SWITCH, TACTILE (SHIFT) (AEP, UK)	
S233	1-762-875-21	SWITCH, KEYBOARD (SHIFT) (US)	
S234	1-762-751-11	SWITCH, TACTILE (0) (AEP, UK)	
S234	1-762-875-21	SWITCH, KEYBOARD (0) (US)	
S235	1-762-751-11	SWITCH, TACTILE (MEMORY/ENTER)	(AEP, UK)
S235	1-762-875-21	SWITCH, KEYBOARD (MEMORY) (US)	
S236	1-762-751-11	SWITCH, TACTILE (TUNER) (AEP, UK)	
S236	1-762-875-21	SWITCH, KEYBOARD (TUNER) (US)	
S237	1-762-751-11	SWITCH, TACTILE (MD/TAPE) (AEP, UK)	
S237	1-762-875-21	SWITCH, KEYBOARD (MD/TAPE) (US)	
S238	1-762-751-11	SWITCH, TACTILE (TV/LD) (AEP, UK)	
S238	1-762-875-21	SWITCH, KEYBOARD (TV/SAT) (US)	
S239	1-762-751-11	SWITCH, TACTILE (RDS PTY) (AEP, UK)	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
A-4419-005-A		MAIN BOARD, COMPLETE (US)		C741	1-128-562-11	ELECT	47uF 20% 100V
A-4419-179-A		MAIN BOARD, COMPLETE (AEP, UK)		C742	1-126-925-11	ELECT	470uF 20% 10V

3-905-609-01		SCREW (TRANSISTOR)		C751	1-126-964-11	ELECT	10uF 20% 50V
4-812-134-00		RIVET (DIA. 3.5), NYLON		C752	1-162-282-31	CERAMIC	100PF 10% 50V
7-685-872-09		SCREW +BVTT 3X8 (S)		C753	1-104-665-11	ELECT	100uF 20% 25V
		< CAPACITOR >		C755	1-102-233-00	CERAMIC	33PF 10% 500V
				C756	1-104-664-11	ELECT	47uF 20% 25V
C3	1-162-288-31	CERAMIC	330PF 10% 50V (AEP, UK)	C757	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)
C4	1-126-961-11	ELECT	2.2uF 20% 50V (AEP, UK)	C760	1-104-664-11	ELECT	47uF 20% 25V
C5	1-164-159-11	CERAMIC	0.1uF 50V (AEP, UK)	C761	1-137-372-11	FILM	0.022uF 5% 50V
C6	1-162-291-31	CERAMIC	560PF 10% 50V (AEP, UK)	C770	1-162-286-31	CERAMIC	220PF 10% 50V
C7	1-102-527-11	CERAMIC	82PF 5% 50V (AEP, UK)	C801	1-104-664-11	ELECT	47uF 20% 25V
C8	1-102-852-91	CERAMIC	47PF 5% 50V (AEP, UK)	C802	1-104-664-11	ELECT	47uF 20% 25V
C9	1-126-795-11	ELECT	10uF 20% 25V (AEP, UK)	C803	1-107-766-11	ELECT (BLOCK)	8200uF 20% 71V (AEP, UK)
C353	1-164-159-11	CERAMIC	0.1uF 50V	C803	1-125-897-11	ELECT	10000uF 20% 71V (US)
C354	1-164-159-11	CERAMIC	0.1uF 50V	C804	1-107-766-11	ELECT (BLOCK)	8200uF 20% 71V (AEP, UK)
C406	1-164-159-11	CERAMIC	0.1uF 50V	C804	1-125-897-11	ELECT	10000uF 20% 71V (US)
C408	1-162-294-31	CERAMIC	0.001uF 10% 50V	C805	1-130-781-00	FILM	0.22uF 10% 100V (AEP, UK)
C412	1-162-291-31	CERAMIC	560PF 10% 50V	C805	1-137-420-11	FILM	0.047uF 10% 100V (US)
C413	1-164-159-11	CERAMIC	0.1uF 50V	C806	1-130-781-00	FILM	0.22uF 10% 100V (AEP, UK)
C415	1-164-159-11	CERAMIC	0.1uF 50V	C806	1-137-420-11	FILM	0.047uF 10% 100V (US)
C416	1-164-159-11	CERAMIC	0.1uF 50V	C807	1-104-664-11	ELECT	47uF 20% 25V
C421	1-126-964-11	ELECT	10uF 20% 50V	C808	1-104-664-11	ELECT	47uF 20% 25V
C422	1-126-964-11	ELECT	10uF 20% 50V	C809	1-126-959-11	ELECT	0.47uF 20% 50V
C427	1-124-252-00	ELECT	0.33uF 20% 50V	C810	1-126-959-11	ELECT	0.47uF 20% 50V
C428	1-130-489-00	MYLAR	0.033uF 5% 50V	C811	1-126-942-61	ELECT	1000uF 20% 25V
C429	1-162-282-31	CERAMIC	100PF 10% 50V	C812	1-126-941-11	ELECT	470uF 20% 25V
C432	1-126-795-11	ELECT	10uF 20% 25V	C813	1-101-001-00	CERAMIC	0.001uF 50V
C433	1-126-795-11	ELECT	10uF 20% 25V	C814	1-101-001-00	CERAMIC	0.001uF 50V
C434	1-162-286-31	CERAMIC	220PF 10% 50V	C816	1-104-664-11	ELECT	47uF 20% 25V
C435	1-162-286-31	CERAMIC	220PF 10% 50V	C822	1-126-960-11	ELECT	1uF 20% 50V
C441	1-164-159-11	CERAMIC	0.1uF 50V	C950	1-126-767-11	ELECT	1000uF 20% 16V
C471	1-126-964-11	ELECT	10uF 20% 50V	C951	1-164-097-11	CERAMIC	0.022uF 50V
C472	1-126-964-11	ELECT	10uF 20% 50V	C952	1-126-960-11	ELECT	1uF 20% 50V
C477	1-124-252-00	ELECT	0.33uF 20% 50V	C953	1-124-464-11	ELECT	0.22uF 20% 50V
C478	1-130-489-00	MYLAR	0.033uF 5% 50V	C954	1-126-964-11	ELECT	10uF 20% 50V
C479	1-162-282-31	CERAMIC	100PF 10% 50V	C955	1-164-159-11	CERAMIC	0.1uF 50V
C492	1-124-464-11	ELECT	0.22uF 20% 50V	C956	1-164-159-11	CERAMIC	0.1uF 50V
C701	1-126-964-11	ELECT	10uF 20% 50V	C957	1-164-159-11	CERAMIC	0.1uF 50V
C702	1-162-282-31	CERAMIC	100PF 10% 50V	C958	1-164-097-11	CERAMIC	0.022uF 50V
C703	1-104-665-11	ELECT	100uF 20% 25V	C959	1-164-097-11	CERAMIC	0.022uF 50V
C705	1-102-233-00	CERAMIC	33PF 10% 500V	CC02	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)
C706	1-104-664-11	ELECT	47uF 20% 25V	CC03	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)
C707	1-162-282-31	CERAMIC	100PF 10% 50V (AEP,UK)	CC04	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)
C710	1-104-664-11	ELECT	47uF 20% 16V	CC05	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)
C711	1-137-372-11	FILM	0.022uF 5% 50V	CC06	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)
C720	1-162-286-31	CERAMIC	220PF 10% 50V				
C721	1-104-666-11	ELECT	220uF 20% 25V				
C722	1-126-964-11	ELECT	10uF 20% 50V				
C740	1-128-562-11	ELECT	47uF 20% 100V				

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
CC07	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)	IC801	8-759-231-58	IC TA7812S	
CC12	1-162-306-11	CERAMIC	0.01uF 20% 16V (AEP, UK)	IC802	8-759-604-45	IC M5F79M12	
CC13	1-162-306-11	CERAMIC	0.01uF 20% 16V (AEP, UK)	IC803	8-759-604-35	IC M5F78M05L	
CC52	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)	IC804	8-759-604-35	IC M5F78M05L	
CC53	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)	IC950	8-759-333-83	IC NJM2103D	
CC54	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)			< JACK >	
CC55	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)	J402	1-691-887-11	JACK, PIN 6P (TV/SAT AUDIO IN, VIDEO AUDIO IN/OUT) (US)	
CC56	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)	J402	1-691-887-11	JACK, PIN 6P (TV/LD AUDIO IN, VIDEO AUDIO IN/OUT) (AEP, UK)	
CC57	1-162-282-31	CERAMIC	100PF 10% 50V (AEP, UK)	J403	1-580-825-11	JACK, PIN 6P (CD IN, MD/TAPE REC OUT, MD TAPE IN)	
CC62	1-162-306-11	CERAMIC	0.01uF 20% 16V (AEP, UK)			< COIL >	
CC63	1-162-306-11	CERAMIC	0.01uF 20% 16V (AEP, UK)	L1	1-410-521-11	INDUCTOR 100uH (AEP, UK)	
		< CONNECTOR >		L701	1-420-872-00	COIL, AIR-CORE	
CNP404	1-569-060-11	SOCKET, CONNECTOR 11P		L751	1-420-872-00	COIL, AIR-CORE	
CNS204	1-568-742-11	SOCKET, CONNECTOR 23P				< TRANSISTOR >	
CNS205	1-774-289-11	PIN, CONNECTOR (PC BOARD) 15P		Q303	8-729-922-37	TRANSISTOR 2SD2144S	
		< DIODE >		Q304	8-729-922-37	TRANSISTOR 2SD2144S	
D421	8-719-911-19	DIODE 1SS119-25		Q401	8-729-202-67	FET 2SK246-GR3	
D710	8-719-911-19	DIODE 1SS119-25		Q402	8-729-922-37	TRANSISTOR 2SD2144S	
D721	8-719-911-19	DIODE 1SS119-25		Q451	8-729-202-67	FET 2SK246-GR3	
D722	8-719-911-19	DIODE 1SS119-25				< TRANSISTOR >	
D723	8-719-911-19	DIODE 1SS119-25		Q452	8-729-922-37	TRANSISTOR 2SD2144S	
D724	8-719-911-19	DIODE 1SS119-25		Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D801	8-719-986-54	DIODE HZS24-1LTA		Q702	8-729-141-30	TRANSISTOR 2SC3623A-LK	
D802	8-719-302-38	DIODE RBV-602-01		Q703	8-749-010-25	IC MN2488-OPY-M	
D804	8-719-109-85	DIODE RD5.1ES-B2				< TRANSISTOR >	
D820	8-719-024-99	DIODE 11ES2-NTA2B		Q704	8-749-010-26	IC MP1620-OPY-M	
D821	8-719-024-99	DIODE 11ES2-NTA2B		Q710	8-729-620-05	TRANSISTOR 2SC2603-EF	
D822	8-719-024-99	DIODE 11ES2-NTA2B		Q720	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
D823	8-719-024-99	DIODE 11ES2-NTA2B		Q721	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
D951	8-719-024-99	DIODE 11ES2-NTA2B		Q722	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
D952	8-719-024-99	DIODE 11ES2-NTA2B				< TRANSISTOR >	
D953	8-719-024-99	DIODE 11ES2-NTA2B		Q723	8-729-620-05	TRANSISTOR 2SC2603-EF	
D954	8-719-024-99	DIODE 11ES2-NTA2B		Q751	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D955	8-719-911-19	DIODE 1SS119-25		Q752	8-729-141-30	TRANSISTOR 2SC3623A-LK	
D956	8-719-911-19	DIODE 1SS119-25		Q753	8-749-010-25	IC MN2488-OPY-M	
		< EARTH TERMINAL >				< TRANSISTOR >	
* G411	1-537-738-21	TERMINAL, EARTH		Q754	8-749-010-26	IC MP1620-OPY-M	
* G441	1-537-738-21	TERMINAL, EARTH		Q770	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
* G951	1-537-738-21	TERMINAL, EARTH		Q801	8-729-140-97	TRANSISTOR 2SB734-34	
* G952	1-537-738-21	TERMINAL, EARTH		Q802	8-729-119-78	TRANSISTOR 2SC403SP-51	
		< IC >		Q951	8-729-026-68	TRANSISTOR 2SD2525 (TP)	
IC1	8-759-541-48	IC BU1924 (AEP, UK)				< RESISTOR >	
IC401	8-759-545-64	IC LC78212		R5	1-249-421-11	CARBON 2.2K 5% 1/4W (AEP, UK)	
IC403	8-759-636-74	IC M5218AP-22		R6	1-247-807-31	CARBON 100 5% 1/4W (AEP, UK)	
IC701	8-759-326-52	IC uPC2581V		R7	1-247-807-31	CARBON 100 5% 1/4W (AEP, UK)	
				R304	1-249-441-11	CARBON 100K 5% 1/4W	
				R352	1-249-441-11	CARBON 100K 5% 1/4W	
				R353	1-249-425-11	CARBON 4.7K 5% 1/4W	
				R354	1-249-425-11	CARBON 4.7K 5% 1/4W	
				R403	1-249-417-11	CARBON 1K 5% 1/4W	
				R404	1-249-417-11	CARBON 1K 5% 1/4W	
				R405	1-249-417-11	CARBON 1K 5% 1/4W	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R406	1-249-417-11	CARBON	1K 5% 1/4W	R720	1-249-419-11	CARBON	1.5K 5% 1/4W
R407	1-249-417-11	CARBON	1K 5% 1/4W	R721	1-249-425-11	CARBON	4.7K 5% 1/4W
R414	1-249-425-11	CARBON	4.7K 5% 1/4W				(AEP, UK)
R418	1-249-417-11	CARBON	1K 5% 1/4W	R721	1-249-427-11	CARBON	6.8K 5% 1/4W
R419	1-249-417-11	CARBON	1K 5% 1/4W				(US)
				△R722	1-249-403-11	CARBON	68 5% 1/4W F
R420	1-249-441-11	CARBON	100K 5% 1/4W	R723	1-249-437-11	CARBON	47K 5% 1/4W
R421	1-249-417-11	CARBON	1K 5% 1/4W	R724	1-249-425-11	CARBON	4.7K 5% 1/4W
R422	1-249-441-11	CARBON	100K 5% 1/4W	R725	1-249-427-11	CARBON	6.8K 5% 1/4W
R431	1-247-843-11	CARBON	3.3K 5% 1/4W	R726	1-249-417-11	CARBON	1K 5% 1/4W
R432	1-247-883-00	CARBON	150K 5% 1/4W	R727	1-249-427-11	CARBON	6.8K 5% 1/4W
R433	1-249-427-11	CARBON	6.8K 5% 1/4W	R728	1-249-429-11	CARBON	10K 5% 1/4W
R434	1-249-413-11	CARBON	470 5% 1/4W	R729	1-249-426-11	CARBON	5.6K 5% 1/4W
R435	1-249-418-11	CARBON	1.2K 5% 1/4W	R730	1-249-426-11	CARBON	5.6K 5% 1/4W
R438	1-249-441-11	CARBON	100K 5% 1/4W	△R739	1-249-393-11	CARBON	10 5% 1/4W F
R441	1-249-441-11	CARBON	100K 5% 1/4W	△R740	1-249-393-11	CARBON	10 5% 1/4W F
R442	1-249-418-11	CARBON	1.2K 5% 1/4W	R743	1-249-425-11	CARBON	4.7K 5% 1/4W
R443	1-249-418-11	CARBON	1.2K 5% 1/4W	R751	1-249-417-11	CARBON	1K 5% 1/4W
R444	1-247-903-00	CARBON	1M 5% 1/4W	R752	1-249-439-11	CARBON	68K 5% 1/4W
R447	1-249-416-11	CARBON	820 5% 1/4W	R753	1-247-828-11	CARBON	750 5% 1/4W
R448	1-249-429-11	CARBON	10K 5% 1/4W				(AEP, UK)
R449	1-249-433-11	CARBON	22K 5% 1/4W	R753	1-249-412-11	CARBON	390 5% 1/4W
R453	1-249-417-11	CARBON	1K 5% 1/4W				(US)
R454	1-249-417-11	CARBON	1K 5% 1/4W	R754	1-249-439-11	CARBON	68K 5% 1/4W
R455	1-249-417-11	CARBON	1K 5% 1/4W	R755	1-249-429-11	CARBON	10K 5% 1/4W
R456	1-249-417-11	CARBON	1K 5% 1/4W	R756	1-249-435-11	CARBON	33K 5% 1/4W
R457	1-249-417-11	CARBON	1K 5% 1/4W	R757	1-249-435-11	CARBON	33K 5% 1/4W
R464	1-247-903-00	CARBON	1M 5% 1/4W	R760	1-247-840-00	CARBON	2.4K 5% 1/4W
R469	1-247-903-00	CARBON	1M 5% 1/4W	R761	1-249-440-11	CARBON	82K 5% 1/4W
R470	1-249-441-11	CARBON	100K 5% 1/4W	R763	1-249-414-11	CARBON	560 5% 1/4W
R471	1-249-417-11	CARBON	1K 5% 1/4W	△R764	1-249-409-11	CARBON	220 5% 1/4W F
R472	1-249-441-11	CARBON	100K 5% 1/4W	△R765	1-249-409-11	CARBON	220 5% 1/4W F
R481	1-247-843-11	CARBON	3.3K 5% 1/4W	△R766	1-233-352-41	ENCAPSULATED COMPONENT (0.22+0.22)	
R482	1-247-883-00	CARBON	150K 5% 1/4W	△R767	1-249-393-11	CARBON	10 5% 1/4W F
R483	1-249-427-11	CARBON	6.8K 5% 1/4W	R768	1-249-389-11	CARBON	4.7 5% 1/4W
R484	1-249-413-11	CARBON	470 5% 1/4W	R770	1-249-419-11	CARBON	1.5K 5% 1/4W
R491	1-249-441-11	CARBON	100K 5% 1/4W	R771	1-249-425-11	CARBON	4.7K 5% 1/4W
R492	1-247-903-00	CARBON	1M 5% 1/4W				(AEP, UK)
R494	1-247-903-00	CARBON	1M 5% 1/4W	R771	1-249-427-11	CARBON	6.8K 5% 1/4W
R701	1-249-417-11	CARBON	1K 5% 1/4W				(US)
R702	1-249-439-11	CARBON	68K 5% 1/4W	R772	1-249-437-11	CARBON	47K 5% 1/4W
R703	1-247-828-11	CARBON	750 5% 1/4W	R773	1-249-437-11	CARBON	47K 5% 1/4W
				R801	1-249-421-11	CARBON	2.2K 5% 1/4W
R703	1-249-412-11	CARBON	390 5% 1/4W	△R802	1-249-389-11	CARBON	4.7 5% 1/4W F
							(AEP, UK)
R704	1-249-439-11	CARBON	68K 5% 1/4W	△R802	1-249-405-11	CARBON	100 5% 1/4W F
R705	1-249-429-11	CARBON	10K 5% 1/4W				(US)
R706	1-249-435-11	CARBON	33K 5% 1/4W	R821	1-249-425-11	CARBON	4.7K 5% 1/4W
R707	1-249-435-11	CARBON	33K 5% 1/4W	R822	1-249-437-11	CARBON	47K 5% 1/4W
R710	1-247-840-00	CARBON	2.4K 5% 1/4W	R950	1-249-421-11	CARBON	2.2K 5% 1/4W
R711	1-249-440-11	CARBON	82K 5% 1/4W	R951	1-249-428-11	CARBON	8.2K 5% 1/4W
R712	1-249-431-11	CARBON	15K 5% 1/4W	R952	1-249-431-11	CARBON	15K 5% 1/4W
R713	1-249-414-11	CARBON	560 5% 1/4W	R953	1-249-433-11	CARBON	22K 5% 1/4W
△R714	1-249-409-11	CARBON	220 5% 1/4W F	R954	1-249-437-11	CARBON	47K 5% 1/4W
△R715	1-249-409-11	CARBON	220 5% 1/4W F	R955	1-249-429-11	CARBON	10K 5% 1/4W
△R716	1-233-352-41	ENCAPSULATED COMPONENT (0.22+0.22)		R956	1-247-843-11	CARBON	3.3K 5% 1/4W
△R717	1-249-393-11	CARBON	10 5% 1/4W F	R957	1-249-417-11	CARBON	1K 5% 1/4W
R718	1-249-425-11	CARBON	4.7K 5% 1/4W	R958	1-249-401-11	CARBON	47 5% 1/4W
△R719	1-249-403-11	CARBON	68 5% 1/4W F	R960	1-249-422-11	CARBON	2.7K 5% 1/4W

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

MAIN	POWER SWITCH	PRIMARY	SECONDARY
SPK SWITCH	STANDBY TRANS	tone	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
RR04	1-249-393-11	CARBON 10 5%	1/4W (AEP, UK)			< JACK >	
RR05	1-249-393-11	CARBON 10 5%	1/4W (AEP, UK)	J741	1-750-733-11	JACK (LARGE TYPE) (PHONES)	
RR54	1-249-393-11	CARBON 10 5%	1/4W (AEP, UK)			< RESISTOR >	
RR55	1-247-398-11	CARBON 10 5%	1/4W (AEP, UK)	R741	1-247-753-11	CARBON 1.2K 5% 1/2W	
		< RELAY >		R742	1-247-753-11	CARBON 1.2K 5% 1/2W	
RY701	1-515-921-11	RELAY (12V)		R791	1-247-753-11	CARBON 1.2K 5% 1/2W	
		< TERMINAL >		R792	1-247-753-11	CARBON 1.2K 5% 1/2W	
TM701	1-537-376-11	TERMINAL BOARD (SP) (SPEAKERS A/B)				< SWITCH >	
		< VIBRATOR >		S701	1-762-529-11	SWITCH, PUSH (2 KEY) (SPEAKERS A/B)	
X1	1-579-900-21	VIBRATOR, CRYSTAL (4.33MHz) (AEP, UK)		*****			
		*****			1-673-026-11	STANDBY TRANS BOARD	
		1-673-030-11	POWER SWITCH BOARD			*****	
		*****			1-533-233-21	HOLDER, FUSE (AEP)	
		< CONNECTOR >				< JACK >	
CNS206	1-573-105-11	CONNECTOR, PC BOARD 4P		△ CNJ902	1-785-834-11	OUTLET (1P) (US)	
		< SWITCH >		△ CNJ902	1-785-834-11	OUTLET (AC) (AEP)	
S240	1-762-875-21	SWITCH, KEYBOARD (I/Ⓞ)				< CONNECTOR >	
		*****		CNP802	1-779-495-11	PLUG, CONNECTOR PIN 4P	
		1-673-028-11	PRIMARY BOARD	CNP901	1-564-321-00	PIN, CONNECTOR 2P	
		*****				< DIODE >	
		1-533-293-11	FUSE HOLDER	D957	8-719-911-19	DIODE 1SS119-25	
		< FUSE >				< FUSE >	
△ F901	1-532-503-11	FUSE (T1.6AL/250V) (AEP, UK)		△ F902	1-532-464-51	FUSE (T2.5AL/250V) (AEP)	
△ F901	1-576-109-11	FUSE (5A/125V) (US)				< EARTH TERMINAL >	
		*****		* G900	1-537-738-21	TERMINAL, EARTH (US)	
		1-673-029-11	SECONDARY BOARD			< RESISTOR >	
		*****		△ R901	1-202-725-00	SOLID 3.3M 10% 1/2W (US)	
		< CONNECTOR >				< RELAY >	
CNP801	1-764-478-11	PIN, CONNECTOR (PC BOARD) 9P		△ RY901	1-755-018-11	RELAY	
		< RESISTOR >				< TRANSFORMER >	
△ R810	1-249-381-11	CARBON 1 5%	1/4W F	△ T902	1-433-685-11	TRANSFORMER, POWER (UK)	
△ R811	1-249-381-11	CARBON 1 5%	1/4W F	△ T902	1-433-686-11	TRANSFORMER, POWER (US)	
		*****		△ T902	1-450-361-11	TRANSFORMER, POWER (AEP)	
		1-673-027-11	SPK SWITCH BOARD			*****	
		*****			1-673-025-11	tone BOARD	
		< CONNECTOR >				*****	
CNP703	1-764-474-11	PIN, CONNECTOR (PC BOARD) 5P				< CAPACITOR >	
CNP704	1-764-473-11	PIN, CONNECTOR (PC BOARD) 3P		C421	1-137-440-11	FILM 0.018uF 5% 50V	
CNS702	1-770-378-11	CONNECTOR, BOARD TO BOARD 5P		C422	1-124-463-00	ELECT 0.1uF 20% 50V	
				C423	1-137-368-11	FILM 0.0047uF 5% 50V	
				C424	1-137-372-11	FILM 0.022uF 5% 50V	
				C471	1-137-440-11	FILM 0.018uF 5% 50V	

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

STONE

VOLUME

Ref. No.	Part No.	Description	Remark
C472	1-124-463-00	ELECT	0.1uF 20% 50V
C473	1-137-368-11	FILM	0.0047uF 5% 50V
C474	1-137-372-11	FILM	0.022uF 5% 50V
< RESISTOR >			
R420	1-249-415-11	CARBON	680 5% 1/4W
R421	1-249-431-11	CARBON	15K 5% 1/4W
R422	1-249-422-11	CARBON	2.7K 5% 1/4W
R423	1-247-903-00	CARBON	1M 5% 1/4W
R424	1-247-903-00	CARBON	1M 5% 1/4W
R470	1-249-415-11	CARBON	680 5% 1/4W
R471	1-249-431-11	CARBON	15K 5% 1/4W
R472	1-249-422-11	CARBON	2.7K 5% 1/4W
R473	1-247-903-00	CARBON	1M 5% 1/4W
R474	1-247-903-00	CARBON	1M 5% 1/4W
< VARIABLE RESISTOR >			
RV421	1-223-962-11	RES, VAR, CARBON 100K/100K (BASS)	
RV422	1-223-963-11	RES, VAR, CARBON 125K/125K (TREBLE)	
RV423	1-238-965-21	RES, VAR, CARBON 100K/100K (BALANCE)	

	1-673-024-11	VOLUME BOARD	*****
< CAPACITOR >			
C420	1-162-207-31	CERAMIC	22PF 5% 50V
C425	1-126-795-11	ELECT	10uF 20% 25V
C426	1-126-795-11	ELECT	10uF 20% 25V
C427	1-124-463-00	ELECT	0.1uF 20% 50V
C430	1-104-942-11	ELECT	1uF 20% 50V
C431	1-104-942-11	ELECT	1uF 20% 50V
C470	1-162-207-31	CERAMIC	22PF 5% 50V
C475	1-126-795-11	ELECT	10uF 20% 25V
C476	1-126-795-11	ELECT	10uF 20% 25V
C477	1-124-463-00	ELECT	0.1uF 20% 50V
< CONNECTOR >			
CNP202	1-770-388-11	PIN, CONNECTOR (PC BOARD) 4P	
CNP401	1-770-390-11	PIN, CONNECTOR (PC BOARD) 6P	
CNS403	1-569-060-11	SOCKET, CONNECTOR 11P	
< IC >			
IC404	8-759-636-74	IC M5218AP-22	
< RESISTOR >			
R425	1-249-429-11	CARBON	10K 5% 1/4W
R426	1-249-439-11	CARBON	68K 5% 1/4W
R427	1-249-417-11	CARBON	1K 5% 1/4W
R430	1-249-437-11	CARBON	47K 5% 1/4W
R475	1-249-429-11	CARBON	10K 5% 1/4W
R476	1-249-439-11	CARBON	68K 5% 1/4W
R477	1-249-417-11	CARBON	1K 5% 1/4W
R480	1-249-437-11	CARBON	47K 5% 1/4W
< VARIABLE RESISTOR >			
RV404	1-225-769-11	RES, VAR, CARBON 100K/100K (VOLUME)	

Ref. No.	Part No.	Description	Remark
MISCELLANEOUS			

61	1-773-195-11	WIRE (FLAT TYPE) (23 CORE) (AEP)	
61	1-782-084-11	WIRE (FLAT TYPE) (23 CORE) (US)	
64	1-769-941-11	WIRE (FLAT TYPE) (11 CORE)	
△ 107	1-777-071-21	CORD, POWER (AEP)	
△ 107	1-783-820-11	CORD, POWER (US)	
△ 107	1-790-226-11	CORD, POWER (UK)	
109	1-493-407-51	TUNER PACK (AEP, UK)	
109	1-693-408-61	TUNER PACK (US)	
110	1-773-001-11	WIRE (FLAT TYPE) (15 CORE)	
△ T901	1-433-712-11	TRANSFORMER, POWER (AEP, UK)	
△ T901	1-433-720-11	TRANSFORMER, POWER (US)	

HARDWARE LIST			

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-685-881-09	SCREW +BVTT 4X8 (S)	

ACCESSORIES & PACKING MATERIALS			

1-418-295-11	REMOTE COMMANDER (RM-U204)		
1-501-374-11	ANTENNA, LOOP		
1-501-594-11	ANTENNA (FM) (AEP, UK)		
3-866-250-11	MANUAL, INSTRUCTION (ENGLISH) (US)		
3-866-250-21	MANUAL, INSTRUCTION (FINNISH, GERMAN, SPANISH, ITALIAN, PORTUGUESE) (AEP)		
3-866-250-31	MANUAL, INSTRUCTION (ENGLISH, FRENCH, DUTCH, SWEDISH, DANISH) (AEP, UK)		
4-861-643-01	COVER, BATTERY (FOR RM-U204)		

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

