

TC-RX50 / RX50ES

SERVICE MANUAL



Free service manuals

Gratis schema's

Digitized by

www.freesevicemanuals.info

US Model
 TC-RX50ES

AEP Model
UK Model
 TC-RX50


Photo : TC-RX50ES

SPECIFICATIONS

Recording system

4-track 2-channel stereo

Fast-forward and rewind time

Approx. 90 sec. (with C-60 cassette)

Bias

AC Bias

Signal-to-noise ratio (NAB, at peak level)

	DOLBY NR switch	OFF	B-TYPE ON	C-TYPE ON
Cassette				
TYPE IV (Sony METAL-ES)		58 dB	65 dB	71 dB
TYPE II (Sony UX-S)		57 dB	64 dB	70 dB
TYPE I (Sony HF-S)		54 dB	61 dB	67 dB

Total harmonic distortion

1.0 % (with Sony METAL-ES cassettes)

Frequency response

DOLBY NR OFF

- With TYPE IV cassette (Sony METAL-ES)
20–20,000 Hz (± 3 dB)
30–15,000 Hz (± 3 dB, OVU recording)
- With TYPE II cassette (Sony UX-S)
30–17,000 Hz (± 3 dB)
- With TYPE I cassette (Sony HF-S)
30–15,000 Hz (± 3 dB)

Wow and flutter

0.09% WRMS (NAB)

Inputs

Microphone inputs (phone jacks)

Sensitivity 0.25 mV (-70 dB)

For a low-impedance microphone

Line inputs (phono jacks)

Sensitivity 77.5 mV (-20 dB)

Input impedance 50 kilohms

Outputs

Line outputs (phono jacks)

Output level 0.44 V (-5 dB) at load

impedance 47 kilohms

Load impedance over 10 kilohms

Headphones output (stereo phone jack)

Output level -28 dB at load impedance

8 ohms

Model Name Using Similar Mechanism	TC-RX400
Tape Transport Mechanism Type	TCM-170RB2

General

Power requirements

US model : 120 V AC, 60 Hz

AEP model : 220 V AC, 50/60 Hz

UK model : 240 V AC, 50/60 Hz

Power consumption

15 W

Dimensions

Approx. 430 × 118 × 255 mm (w/h/d)
(17 × 4 $\frac{3}{4}$ × 10 $\frac{1}{8}$ inches)

including projecting parts and controls

Weight

Approx. 3.8 kg (8 lbs 7 oz)

Supplied accessories

Connecting cord (2)

Remote control cord (1)



MICROFILM

STEREO CASSETTE DECK

SONY®

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 microamperes). 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 2V AC range are suitable. (See Fig. A)

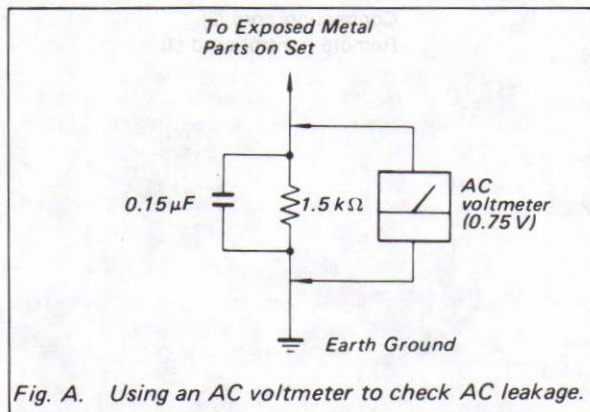


Fig. A. Using an AC voltmeter to check AC leakage.

TABLE OF CONTENTS

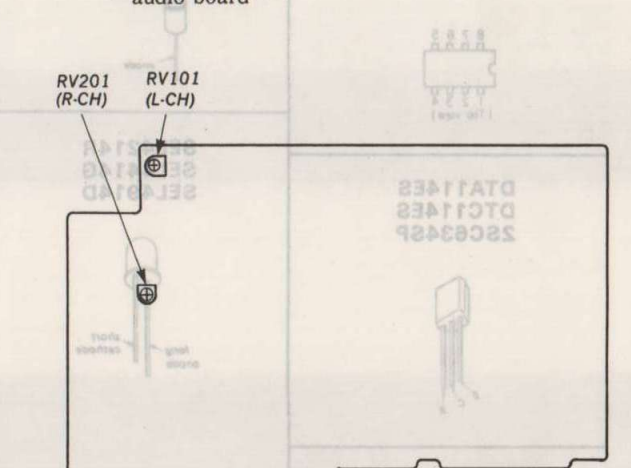
<u>Section</u>	<u>Title</u>	<u>Page</u>
SECTION1	GENERAL	
1-1.	Location of Controls	3
SECTION2	MECHANICAL ADJUSTMENTS	
2-1.	Torque Measurement	4
SECTION3	ELECTRICAL ADJUSTMENTS	
3-1.	Record/Playback Head Azimuth Adjustment	4
3-2.	Speed Adjustment	5
3-3.	Playback Level Adjustment	5
3-4.	Record Bias Adjustment	6
3-5.	Record Level Adjustment	6
SECTION4	DIAGRAMS	
4-1.	Printed Wiring Board	8
4-2.	Schematic Diagram	11
	• Semiconductor Lead Layouts	7
SECTION5	EXPLODED VIEWS	
5-1.	Cabinet Section	15
5-2.	Front Panel Section	16
5-3.	Mechanism Section(1)	17
5-4.	Mechanism Section(2)	18
SECTION6	ELECTRICAL PARTS LIST	19

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND 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.

DIAGRAMS
SECTION 4

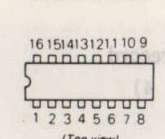
—6



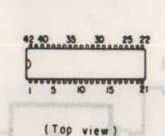
SECTION 4
DIAGRAMS

● Semiconductor Lead Layouts

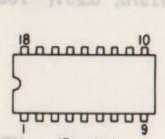
CX41198P



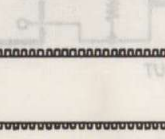
CX20187



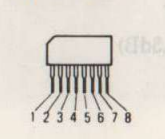
LC6528C-3175



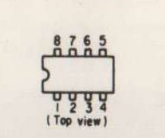
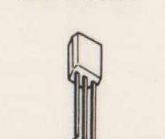
MB88514B



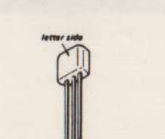
M5218L



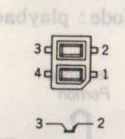
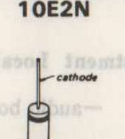
μPC4570C-1

DTA114ES
DTC114ES
2SC634SP

2SA1175

2SB1013
2SD13872SB1094-L
2SD1585-M

GP2S09-B

HZS6A1L
HZS6C3L
HZS7C1L1SS132
10E2NSEL4214R
SEL4414G
SEL4914D

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D11	D-7	Q11	D-3
D81	D-2	Q12	C-6
D101	D-20	Q81	D-2
D201	E-20	Q82	C-2
D501	B-12	Q83	C-2
D502	B-12	Q101	A-18
D503	B-12	Q102	C-20
D504	B-12	Q103	F-17
D505	B-12	Q104	B-16
D506	B-12	Q105	C-16
D507	C-12	Q201	D-18
D508	B-12	Q202	C-20
D509	B-15	Q203	E-16
D510	B-14	Q204	D-16
D511	D-13	Q205	C-16
D512	B-13	Q301	D-18
D513	C-12	Q302	D-16
D514	C-13	Q303	D-16
D515	D-15	Q304	D-16
D516	E-14	Q305	E-15
D517	E-14	Q306	D-16
D518	D-12	Q307	E-15
D519	H-15	Q501	B-15
D520	H-15	Q502	B-14
D521	H-14	Q503	B-15
D522	H-14	Q504	B-16
D523	H-16	Q505	A-15
D524	C-15	Q506	B-15
D525	C-15	Q507	B-13
D526	C-15	Q508	B-14
D527	C-16	Q508	B-14
D528	C-16	Q510	B-13
D529	C-16	Q511	B-13
D530	C-16	Q514	E-12
D531	D-15	Q515	E-12
		Q516	E-13
		Q517	E-13
		Q519	E-13
		Q520	E-14
		Q521	E-14
		Q522	E-14
		Q523	E-14
IC81	B-3		
IC301	F-19		
IC302	C-19		
IC303	F-21		
IC304	D-19		
IC305	E-16		
IC501	D-13		
IC502	D-15		

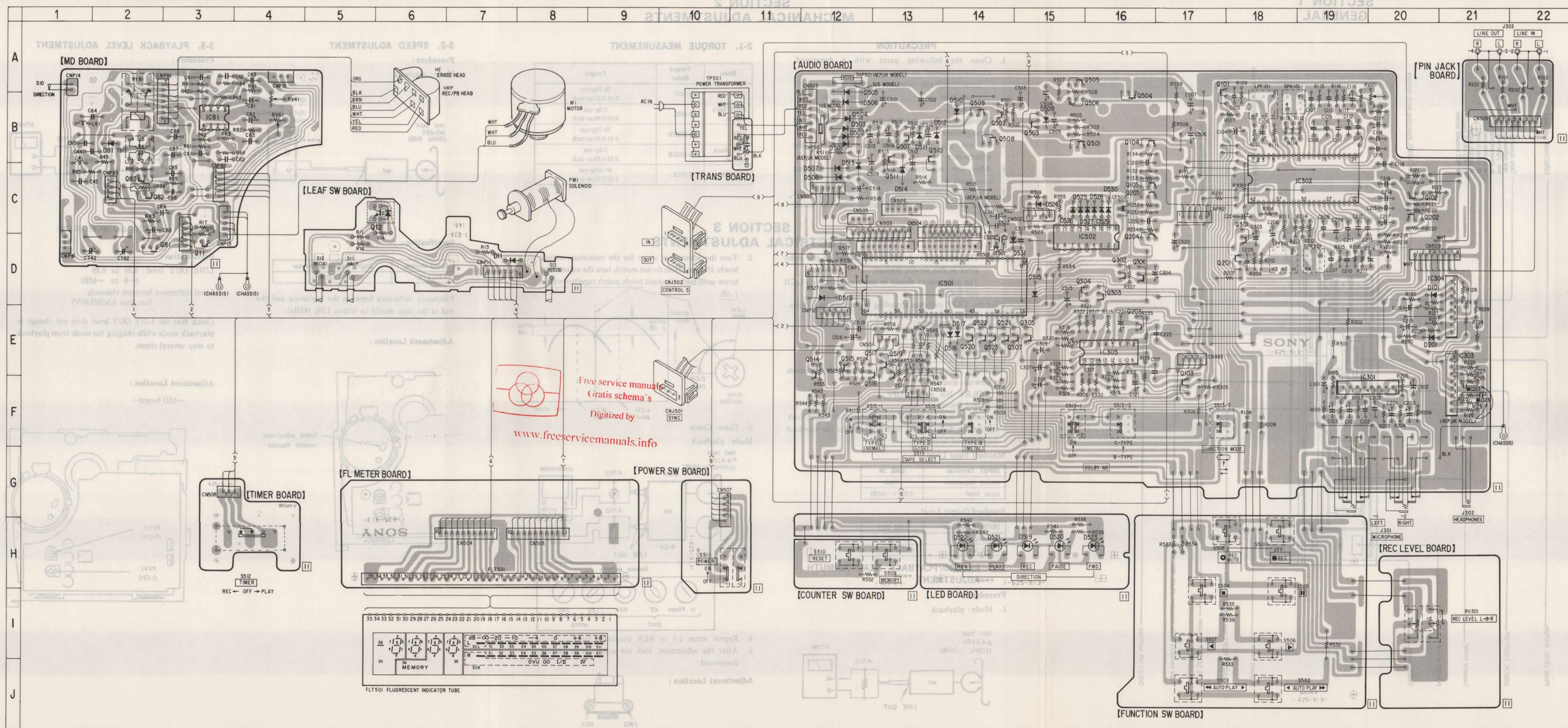
Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.

TC-RX50/RX50ES

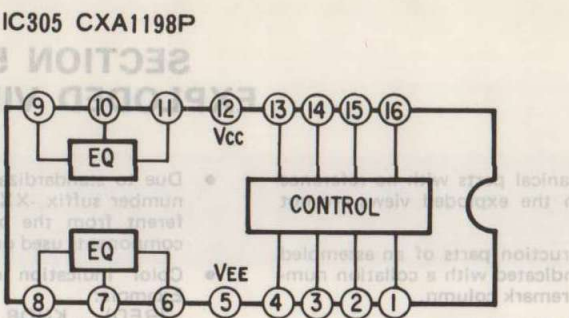
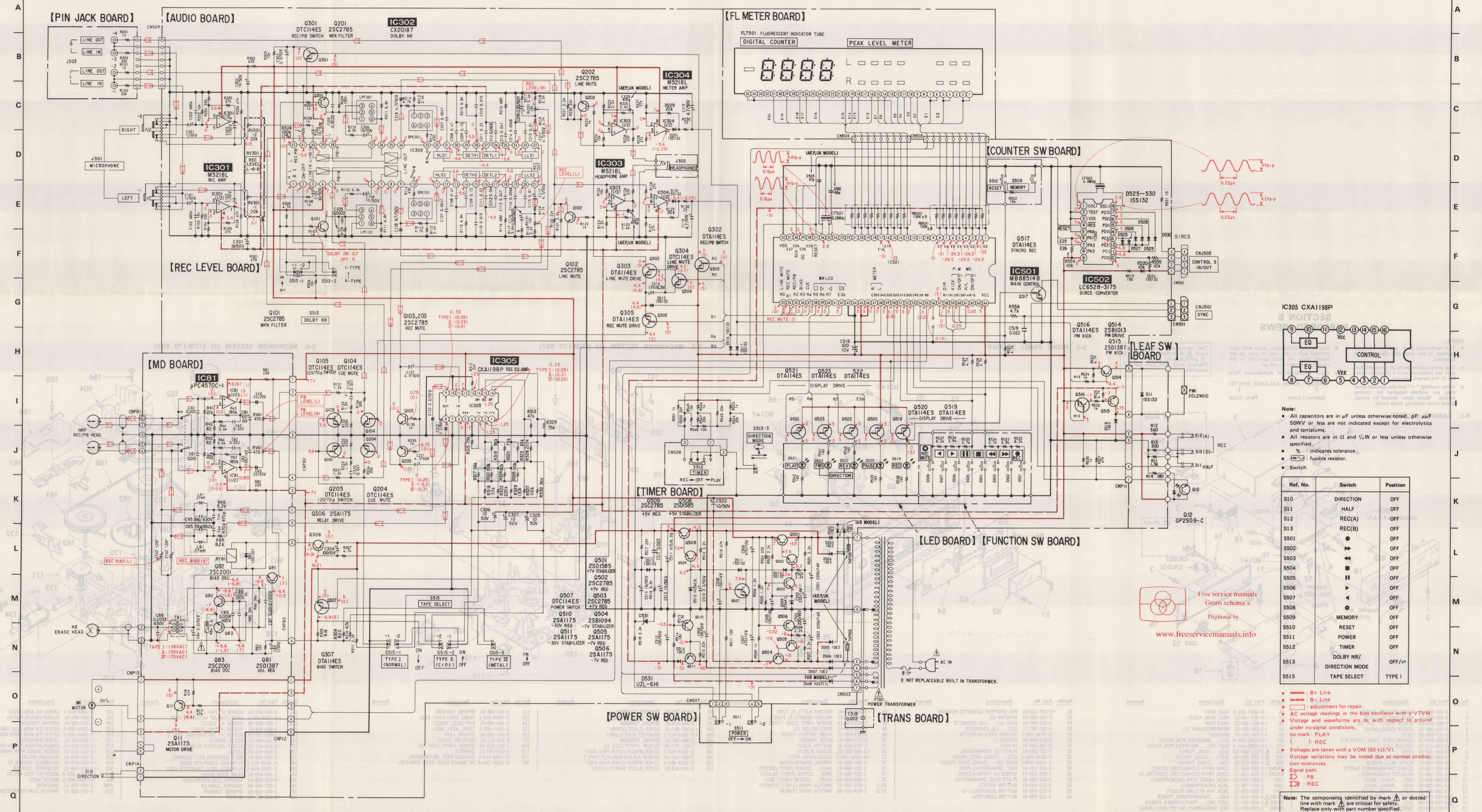
TC-RX50/RX50ES

4-1. PRINTED WIRING BOARDS



TC-RX50/RX50ES

TC-RX50/RX50ES



- Note:
- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{F} \times 10^{-6}$. 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
 - % : indicates tolerance.
 - $\text{f} = \text{fusible resistor}$.
 - Switch

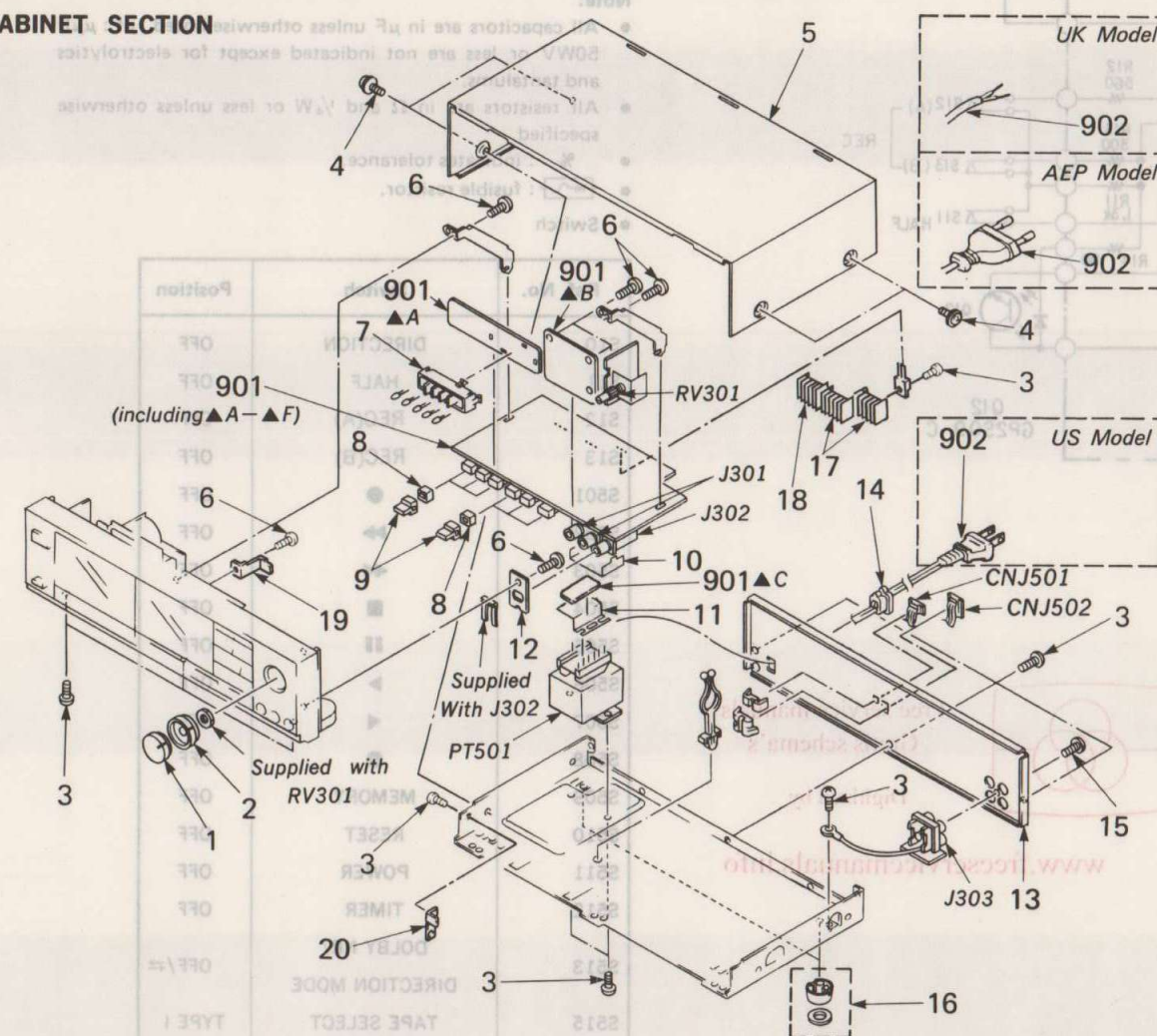
Ref. No.	Switch	Position
S10	DIRECTION	OFF
S11	HALF	OFF
S12	REC(A)	OFF
S13	REC(B)	OFF
S501		OFF
S502		OFF
S503		OFF
S504		OFF
S505		OFF
S506		OFF
S507		OFF
S508		OFF
S509	MEMORY	OFF
S510	RESET	OFF
S511	POWER	OFF
S512	TIMER	OFF
S513	DOLBY NR/	OFF/±
S515	DIRECTION MODE	TYPE I
	TAPE SELECT	

- B+ Line
 - B- Line
 - adjustment for repair.
 - AC voltage readings in the bias oscillator with a VTVM.
 - Voltage and waveforms are dc with respect to ground, under no-signal conditions.
 - no mark: PLAY
 - () : REC
 - Voltages are taken with a VOM (50 k Ω /V).
 - Voltage variations may be noted due to normal production tolerances.
 - Signal path.
 - PB
 - REC
- Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

**SECTION 5
EXPLODED VIEWS****NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts (RED) ... KNOB, BALANCE (WHITE)
↑ Cabinet's Color Parts Color

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

5-1. CABINET SECTION

SECTION 6 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

SEMICONDUCTORSIn 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.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
901	*A-2095-637-A	(US)....MOUNTED, PCB, AUDIO		C202	1-162-292-31	CERAMIC	680PF 10% 50V
901	*A-2095-642-A	(AEP, UK)....MOUNTED, PCB, AUDIO		C203	1-124-499-11	ELECT	1MF 20% 50V
902	Δ 1-551-506-XX	(US)....CORD, POWER		C204	1-123-875-11	ELECT	10MF 20% 50V
902	Δ 1-555-795-00	(AEP)....CORD, POWER		C205	1-161-375-00	CERAMIC	0.0022MF 30% 16V
902	Δ 1-556-035-00	(UK)....CORD, POWER		C206	1-123-875-11	ELECT	10MF 20% 50V
903	*1-624-148-11	PC BOARD, LEAF SW		C207	1-130-479-00	MYLAR	0.0047MF 5% 50V
904	*A-2010-263-A	MOUNTED PCB, MD (B)		C208	1-136-173-00	FILM	0.47MF 5% 50V
905	A-2108-124-A	PC BOARD ASSY, HEAD (HRP/HE)		C209	1-136-167-00	FILM	0.15MF 5% 50V
CAPACITOR				C210	1-136-155-00	FILM	0.015MF 5% 50V
C41	1-130-471-00	MYLAR	0.001MF 5% 50V	C211	1-136-169-00	FILM	0.22MF 5% 50V
C42	1-136-157-00	FILM	0.022MF 5% 50V	C212	1-136-163-00	FILM	0.068MF 5% 50V
C43	1-124-282-00	ELECT	22MF 20% 25V	C213	1-136-161-00	FILM	0.047MF 5% 50V
C44	1-162-290-31	CERAMIC	470PF 10% 50V	C214	1-130-481-00	MYLAR	0.0068MF 5% 50V
C45	1-136-440-11	FILM	39PF 5% 630V	C215	1-136-153-00	FILM	0.01MF 5% 50V
C61	1-130-471-00	MYLAR	0.001MF 5% 50V	C216	1-124-252-00	ELECT	0.33MF 20% 50V
C62	1-136-157-00	FILM	0.022MF 5% 50V	C217	1-124-927-11	ELECT	4.7MF 20% 50V
C63	1-124-282-00	ELECT	22MF 20% 25V	C218	1-124-274-00	ELECT	4.7MF 20% 50V
C64	1-162-290-31	CERAMIC	470PF 10% 50V	C219	1-124-927-11	ELECT	4.7MF 20% 50V
C65	1-136-440-11	FILM	39PF 5% 630V	C220	1-136-161-00	FILM	0.047MF 5% 50V
C81	1-126-101-11	ELECT	100MF 20% 16V	C221	1-124-927-11	ELECT	4.7MF 20% 50V
C82	1-126-101-11	ELECT	100MF 20% 16V	C222	1-124-767-00	ELECT	2.2MF 20% 50V
C83	1-124-499-11	ELECT	1MF 20% 50V	C223	1-162-290-11	(AEP, UK)....CERAMIC	470PF 10% 50V
C84	1-124-925-11	ELECT	2.2MF 20% 50V	C301	1-123-875-11	ELECT	10MF 20% 50V
C85	1-130-279-91	FILM	0.0018MF 5% 100V	C302	1-123-875-11	ELECT	10MF 20% 50V
C86	1-130-275-91	FILM	0.0012MF 5% 100V	C303	1-123-382-00	ELECT	3.3MF 20% 50V
C87	1-130-275-91	FILM	0.0012MF 5% 100V	C304	1-124-443-00	ELECT	100MF 20% 10V
C88	1-136-557-91	FILM	0.0033MF 5% 630V	C305	1-123-875-11	ELECT	10MF 20% 50V
C101	1-124-499-11	ELECT	1MF 20% 50V	C306	1-123-875-11	ELECT	10MF 20% 50V
C102	1-162-292-31	CERAMIC	680PF 10% 50V	C307	1-123-875-11	ELECT	10MF 20% 50V
C103	1-124-499-11	ELECT	1MF 20% 50V	C501	1-124-556-11	ELECT	2200MF 20% 16V
C104	1-123-875-11	ELECT	10MF 20% 50V	C502	1-124-556-11	ELECT	2200MF 20% 16V
C105	1-161-375-00	CERAMIC	0.0022MF 30% 16V	C503	1-124-120-11	ELECT	220MF 20% 16V
C106	1-123-875-11	ELECT	10MF 20% 50V	C504	1-124-120-11	ELECT	220MF 20% 16V
C107	1-130-479-00	MYLAR	0.0047MF 5% 50V	C505	1-124-443-00	ELECT	100MF 20% 10V
C108	1-136-173-00	FILM	0.47MF 5% 50V	C506	1-124-472-11	ELECT	470MF 20% 10V
C109	1-136-167-00	FILM	0.15MF 5% 50V	C507	1-124-472-11	ELECT	470MF 20% 10V
C110	1-136-155-00	FILM	0.015MF 5% 50V	C508	1-126-101-11	ELECT	100MF 20% 16V
C111	1-136-169-00	FILM	0.22MF 5% 50V	C509	1-124-122-11	ELECT	100MF 20% 50V
C112	1-136-163-00	FILM	0.068MF 5% 50V	C510	1-124-925-11	ELECT	2.2MF 20% 50V
C113	1-136-161-00	FILM	0.047MF 5% 50V	C511	1-124-472-11	ELECT	470MF 20% 6.3V
C114	1-130-481-00	MYLAR	0.0068MF 5% 50V	C512	1-124-122-11	ELECT	100MF 20% 50V
C115	1-136-153-00	FILM	0.01MF 5% 50V	C513	1-123-875-11	ELECT	10MF 20% 50V
C116	1-124-252-00	ELECT	0.33MF 20% 50V	C514	1-123-875-11	ELECT	10MF 20% 50V
C117	1-124-927-11	ELECT	4.7MF 20% 50V	C515	1-124-444-00	ELECT	220MF 20% 6.3V
C118	1-124-274-00	ELECT	4.7MF 20% 50V	C516	1-124-443-00	ELECT	100MF 20% 10V
C119	1-124-927-11	ELECT	4.7MF 20% 50V	C517	1-161-494-00	CERAMIC	0.022MF 30% 25V
C120	1-136-161-00	FILM	0.047MF 5% 50V	C518	1-161-494-00	CERAMIC	0.022MF 30% 25V
C121	1-124-927-11	ELECT	4.7MF 20% 50V	C519	1-161-494-00	CERAMIC	0.022MF 30% 25V
C122	1-124-767-00	ELECT	2.2MF 20% 50V	C520	1-123-875-11	ELECT	10MF 20% 50V
C123	1-162-290-11	(AEP, UK)....CERAMIC	470PF 10% 50V	C522	1-162-219-11	(AEP, UK)....CERAMIC	68PF 5% 50V
C201	1-124-499-11	ELECT	1MF 20% 50V	C523	1-162-215-11	(AEP, UK)....CERAMIC	47PF 5% 50V
CF501	1-567-771-11	VIBRATOR, CERAMIC (6.0MHz)					
CF502	1-577-082-11	VIBRATOR, CERAMIC (4.0MHz)					

Ref.No	Part No.	Description	Remark
CNJ501	1-559-684-11	CORD (WITH CONNECTOR) (SYNC)	
CNJ502	1-559-135-41	CORD (WITH CONNECTOR) (CONTROL S)	
CNP11	*1-564-499-11	PIN, CONNECTOR 6P	
CNP12	*1-564-339-61	PIN, CONNECTOR 5P	
CNP13	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P	
CNP14	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P	
CNP81	*1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P	
CNP82	*1-564-339-51	PIN, CONNECTOR 5P	
CNP83	*1-564-338-51	PIN, CONNECTOR 4P	
CT42	1-141-391-11	CAP, ADJ	
CT62	1-141-391-11	CAP, ADJ	
D11	8-719-940-77	DIODE 1SS132T	
D81	8-719-940-77	DIODE 1SS132T	
D101	8-719-940-76	DIODE 1SS132	
D201	8-719-940-76	DIODE 1SS132	
D501	8-719-940-76	DIODE 1SS132	
D502	8-719-940-76	DIODE 1SS132	
D503	8-719-200-77	DIODE 10E2N	
D504	8-719-200-77	DIODE 10E2N	
D505	8-719-200-77	DIODE 10E2N	
D506	8-719-200-77	DIODE 10E2N	
D507	8-719-200-77	DIODE 10E2N	
D508	8-719-933-49	DIODE HZS7C1L	
D509	8-719-933-33	DIODE HZS6A1L	
D510	8-719-940-76	DIODE 1SS132	
D511	8-719-940-76	DIODE 1SS132	
D512	8-719-933-41	DIODE HZS6C3L	
D513	8-719-940-76	DIODE 1SS132	
D514	8-719-200-77	DIODE 10E2N	
D515	8-719-940-76	DIODE 1SS132T	
D516	8-719-940-76	DIODE 1SS132T	
D517	8-719-940-76	DIODE 1SS132T	
D518	8-719-200-77	DIODE 10E2N	
D519	8-719-303-74	DIODE SEL4214R	
D520	8-719-303-84	DIODE SEL4914D	
D521	8-719-303-79	DIODE SEL4414G	
D522	8-719-303-84	DIODE SEL4914D	
D523	8-719-303-84	DIODE SEL4914D	
D524	8-719-940-76	DIODE 1SS132	
D525	8-719-940-76	DIODE 1SS132	
D526	8-719-940-76	DIODE 1SS132	
D527	8-719-940-76	DIODE 1SS132	
D528	8-719-940-76	DIODE 1SS132	
D529	8-719-940-76	DIODE 1SS132	
D530	8-719-940-76	DIODE 1SS132	
D531	8-719-933-39	DIODE HZS6C1L	
FLT501	1-519-447-11	INDICATOR TUBE, FLUORESCENT	
IC81	8-759-111-44	IC UPC4570C-1	
IC301	8-759-600-02	IC M5218L	
IC302	8-752-018-70	IC CX20187	
IC303	8-759-600-02	IC M5218L	
IC304	8-759-600-02	IC M5218L	
IC305	8-752-032-60	IC CXA1198P	
IC501	8-759-971-73	IC MB88514B	
IC502	8-759-803-33	IC LC6528C-3175	
J301	1-507-797-21	JACK, LARGE TYPE (MICROPHONE)	
J302	1-507-796-21	JACK (HEADPHONES)	
J303	1-565-259-11	JACK, PIN 4P (LINE IN/OUT)	
L41	1-410-780-11	INDUCTOR 27MMH	
L61	1-410-780-11	INDUCTOR 27MMH	
LPF101	1-231-388-00	FILTER, LOW PASS	
LPF201	1-231-388-00	FILTER, LOW PASS	

Ref.No	Part No.	Description	Remark
M1	X-3343-408-1	MOTOR ASSY	
PM1	1-454-456-11	SOLENOID, PLUNGER	
PT501	1-449-160-11	(US)....TRANSFORMER, POWER	
PT501	1-449-161-11	(AEP, UK)....TRANSFORMER, POWER	
Q11	8-729-117-54	TRANSISTOR 2SA1175	
Q12	8-719-939-11	TRANSISTOR GP2509-B	
Q81	8-729-801-93	TRANSISTOR 2SD1387	
Q82	8-729-100-13	TRANSISTOR 2SC2001	
Q83	8-729-100-13	TRANSISTOR 2SC2001	
Q101	8-729-600-27	TRANSISTOR 2SC634SP	
Q102	8-729-600-27	TRANSISTOR 2SC634SP	
Q103	8-729-600-27	TRANSISTOR 2SC634SP	
Q104	8-729-900-80	TRANSISTOR DTC114ES	
Q105	8-729-900-80	TRANSISTOR DTC114ES	
Q201	8-729-600-27	TRANSISTOR 2SC634SP	
Q202	8-729-600-27	TRANSISTOR 2SC634SP	
Q203	8-729-600-27	TRANSISTOR 2SC634SP	
Q204	8-729-900-80	TRANSISTOR DTC114ES	
Q205	8-729-900-80	TRANSISTOR DTC114ES	
Q301	8-729-900-80	TRANSISTOR DTC114ES	
Q302	8-729-900-61	TRANSISTOR DTA114ES	
Q303	8-729-900-61	TRANSISTOR DTA114ES	
Q304	8-729-900-80	TRANSISTOR DTC114ES	
Q305	8-729-900-61	TRANSISTOR DTA114ES	
Q306	8-729-117-54	TRANSISTOR 2SA1175	
Q307	8-729-900-61	TRANSISTOR DTA114ES	
Q501	8-729-107-25	TRANSISTOR 2SD1585-M	
Q502	8-729-600-27	TRANSISTOR 2SC634SP	
Q503	8-729-600-27	TRANSISTOR 2SC634SP	
Q504	8-729-111-67	TRANSISTOR 2SB1094-L	
Q505	8-729-117-54	TRANSISTOR 2SA1175-HFE	
Q506	8-729-117-54	TRANSISTOR 2SA1175	
Q507	8-729-900-80	TRANSISTOR DTC114ES	
Q508	8-729-107-25	TRANSISTOR 2SD1585-M	
Q509	8-729-600-27	TRANSISTOR 2SC634SP	
Q510	8-729-117-54	TRANSISTOR 2SA1175	
Q511	8-729-140-	TRANSISTOR 2SB1116A-K-TP	
Q514	8-729-801-83	TRANSISTOR 2SB1013	
Q515	8-729-801-93	TRANSISTOR 2SD1387	
Q516	8-729-900-61	TRANSISTOR DTA114ES	
Q517	8-729-900-80	TRANSISTOR DTC114ES	
Q519	8-729-900-61	TRANSISTOR DTA114ES	
Q520	8-729-900-61	TRANSISTOR DTA114ES	
Q521	8-729-900-61	TRANSISTOR DTA114ES	
Q522	8-729-900-61	TRANSISTOR DTA114ES	
Q523	8-729-900-61	TRANSISTOR DTA114ES	
RESISTOR			
R11	1-247-834-11	CARBON 1.3K	5% 1/4W
R12	1-249-414-11	CARBON 560	5% 1/4W
R13	1-247-818-11	CARBON 300	5% 1/4W
R14	1-249-408-11	CARBON 180	5% 1/4W
R17	1-249-437-11	CARBON 47K	5% 1/4W
R18	1-249-437-11	CARBON 47K	5% 1/4W
R41	1-249-433-11	CARBON 22K	5% 1/4W
R42	1-249-404-00	CARBON 82	5% 1/4W
R43	1-247-885-00	CARBON 180K	5% 1/4W
R44	1-249-426-11	CARBON 5.6K	5% 1/4W
R45	1-249-428-11	CARBON 8.2K	5% 1/4W
R61	1-249-433-11	CARBON 22K	5% 1/4W
R62	1-249-404-00	CARBON 82	5% 1/4W
R63	1-247-885-00	CARBON 180K	5% 1/4W
R64	1-249-426-11	CARBON 5.6K	5% 1/4W

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

Ref.No	Part No.	Description	Remark		
R65	1-249-428-11	CARBON	8.2K	5%	1/4W
R81	1-249-409-11	CARBON	220	5%	1/4W
R82	1-249-409-11	CARBON	220	5%	1/4W
R83	1-249-429-11	CARBON	10K	5%	1/4W
R84	△ 1-217-384-00	FUSIBLE	5.6	5%	1/4W F
R85	1-249-436-11	CARBON	39K	5%	1/4W
R86	1-249-436-11	CARBON	39K	5%	1/4W
R101	1-249-417-11	CARBON	1K	5%	1/4W
R102	1-249-435-11	CARBON	33K	5%	1/4W
R103	1-249-429-11	CARBON	10K	5%	1/4W
R104	1-249-411-11	CARBON	330	5%	1/4W
R105	1-249-434-11	CARBON	27K	5%	1/4W
R106	1-249-437-11	CARBON	47K	5%	1/4W
R107	1-249-417-11	CARBON	1K	5%	1/4W
R108	1-249-417-11	CARBON	1K	5%	1/4W
R109	1-249-441-11	CARBON	100K	5%	1/4W
R110	1-249-423-11	CARBON	3.3K	5%	1/4W
R111	1-249-427-11	CARBON	6.8K	5%	1/4W
R112	1-247-840-00	CARBON	2.4K	5%	1/4W
R113	1-249-425-11	CARBON	4.7K	5%	1/4W
R114	1-247-822-11	CARBON	430	5%	1/4W
R115	1-249-427-11	CARBON	6.8K	5%	1/4W
R116	1-249-415-11	CARBON	680	5%	1/4W
R117	1-249-426-11	CARBON	5.6K	5%	1/4W
R118	1-249-421-11	CARBON	2.2K	5%	1/4W
R119	1-249-425-11	CARBON	4.7K	5%	1/4W
R120	1-249-433-11	CARBON	22K	5%	1/4W
R121	1-249-421-11	CARBON	2.2K	5%	1/4W
R122	1-249-417-11	CARBON	1K	5%	1/4W
R123	1-249-421-11	CARBON	2.2K	5%	1/4W
R124	1-249-429-11	CARBON	10K	5%	1/4W
R125	1-247-840-00	CARBON	2.4K	5%	1/4W
R126	1-249-409-11	CARBON	220	5%	1/4W
R127	1-249-434-11	CARBON	27K	5%	1/4W
R128	1-249-434-11	CARBON	27K	5%	1/4W
R129	1-247-862-11	CARBON	20K	5%	1/4W
R130	1-249-397-11	CARBON	22	5%	1/4W
R131	1-249-418-11	CARBON	1.2K	5%	1/4W
R132	1-247-887-00	CARBON	220K	5%	1/4W
R133	1-249-419-11	CARBON	1.5K	5%	1/4W
R134	1-249-412-11	CARBON	390	5%	1/4W
R135	1-249-417-11	CARBON	1K	5%	1/4W
R201	1-249-417-11	CARBON	1K	5%	1/4W
R202	1-249-435-11	CARBON	33K	5%	1/4W
R203	1-249-429-11	CARBON	10K	5%	1/4W
R204	1-249-411-11	CARBON	330	5%	1/4W
R205	1-249-434-11	CARBON	27K	5%	1/4W
R206	1-249-437-11	CARBON	47K	5%	1/4W
R207	1-249-417-11	CARBON	1K	5%	1/4W
R208	1-249-417-11	CARBON	1K	5%	1/4W
R209	1-249-441-11	CARBON	100K	5%	1/4W
R210	1-249-423-11	CARBON	3.3K	5%	1/4W
R211	1-249-427-11	CARBON	6.8K	5%	1/4W
R212	1-247-840-00	CARBON	2.4K	5%	1/4W
R213	1-249-425-11	CARBON	4.7K	5%	1/4W
R214	1-247-822-11	CARBON	430	5%	1/4W
R215	1-249-427-11	CARBON	6.8K	5%	1/4W
R216	1-249-415-11	CARBON	680	5%	1/4W
R217	1-249-426-11	CARBON	5.6K	5%	1/4W
R218	1-249-421-11	CARBON	2.2K	5%	1/4W
R219	1-249-425-11	CARBON	4.7K	5%	1/4W
R220	1-249-433-11	CARBON	22K	5%	1/4W
R221	1-249-421-11	CARBON	2.2K	5%	1/4W
R222	1-249-417-11	CARBON	1K	5%	1/4W
R223	1-249-421-11	CARBON	2.2K	5%	1/4W

Ref.No	Part No.	Description	Remark		
R224	1-249-429-11	CARBON	10K	5%	1/4W
R225	1-247-840-00	CARBON	2.4K	5%	1/4W
R226	1-249-409-11	CARBON	220	5%	1/4W
R227	1-249-434-11	CARBON	27K	5%	1/4W
R228	1-249-434-11	CARBON	27K	5%	1/4W
R229	1-247-862-11	CARBON	20K	5%	1/4W
R230	1-249-397-11	CARBON	22	5%	1/4W
R231	1-249-418-11	CARBON	1.2K	5%	1/4W
R232	1-247-887-00	CARBON	220K	5%	1/4W
R233	1-249-419-11	CARBON	1.5K	5%	1/4W
R234	1-249-412-11	CARBON	390	5%	1/4W
R235	1-249-417-11	CARBON	1K	5%	1/4W
R301	1-249-413-11	CARBON	470	5%	1/4W
R302	1-249-413-11	CARBON	470	5%	1/4W
R303	1-249-429-11	CARBON	10K	5%	1/4W
R304	1-215-469-00	METAL	100K	1%	1/6W
R305	1-249-425-11	CARBON	4.7K	5%	1/4W
R306	1-249-429-11	CARBON	10K	5%	1/4W
R307	1-249-425-11	CARBON	4.7K	5%	1/4W
R308	1-247-854-11	CARBON	9.1K	5%	1/4W
R309	1-249-416-11	CARBON	820	5%	1/4W
R310	1-249-425-11	CARBON	4.7K	5%	1/4W
R311	1-249-421-11	CARBON	2.2K	5%	1/4W
R312	1-247-864-11	CARBON	24K	5%	1/4W
R313	1-249-437-11	CARBON	47K	5%	1/4W
R315	1-247-876-11	CARBON	75K	5%	1/4W
R317	1-249-438-11	CARBON	56K	5%	1/4W
R318	1-249-435-11	CARBON	33K	5%	1/4W
R319	1-249-438-11	CARBON	56K	5%	1/4W
R320	1-247-876-11	CARBON	75K	5%	1/4W
R321	1-247-883-00	CARBON	150K	5%	1/4W
R322	1-247-887-11	CARBON	220K	5%	1/4W
R323	1-249-435-11	CARBON	33K	5%	1/4W
R324	1-249-440-11	CARBON	82K	5%	1/4W
R325	1-247-882-00	CARBON	130K	5%	1/4W
R326	1-247-896-81	CARBON	510K	5%	1/4W
R327	1-247-880-11	CARBON	110K	5%	1/4W
R328	1-247-887-11	CARBON	220K	5%	1/4W
R329	1-215-466-00	CARBON	75K	5%	1/4W
R330	1-249-438-11	CARBON	56K	5%	1/4W
R501	1-249-421-11	CARBON	2.2K	5%	1/4W
R502	1-249-421-11	CARBON	2.2K	5%	1/4W
R503	1-249-421-11	CARBON	2.2K	5%	1/4W
R504	1-249-409-11	CARBON	220	5%	1/4W
R505	1-249-418-11	CARBON	1.2K	5%	1/4W
R506	1-249-418-11	CARBON	1.2K	5%	1/4W
R507	1-249-421-11	CARBON	2.2K	5%	1/4W
R508	1-249-421-11	CARBON	2.2K	5%	1/4W
R509	1-249-417-11	CARBON	1K	5%	1/4W
R510	1-249-437-11	CARBON	47K	5%	1/4W
R511	1-249-405-11	CARBON	100	5%	1/4W
R512	1-249-421-11	CARBON	2.2K	5%	1/4W
R513	1-249-433-11	CARBON	22K	5%	1/4W
R514	1-249-432-11	CARBON	18K	5%	1/4W
R515	1-249-423-11	CARBON	3.3K	5%	1/4W
R516	1-249-423-11	CARBON	3.3K	5%	1/4W
R517	1-249-433-11	CARBON	22K	5%	1/4W
R518	1-249-421-11	CARBON	2.2K	5%	1/4W
R519	1-249-405-11	CARBON	100	5%	1/4W
R520	1-249-429-11	CARBON	10K	5%	1/4W
R521	1-249-393-11	CARBON	10	5%	1/4W
R524	1-249-417-11	CARBON	1K	5%	1/4W
R525	1-249-425-11	CARBON	4.7K	5%	1/4W
R526	1-249-417-11	CARBON	1K	5%	1/4W
R527	1-249-437-11	CARBON	47K	5%	1/4W

Note: 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
R528	1-249-425-11	CARBON	4.7K 5% 1/4W
R529	1-249-425-11	CARBON	4.7K 5% 1/4W
R530	1-249-417-11	CARBON	1K 5% 1/4W
R531	1-249-425-11	CARBON	4.7K 5% 1/4W
R532	1-249-428-11	CARBON	8.2K 5% 1/4W
R533	1-249-424-11	CARBON	3.9K 5% 1/4W
R534	1-249-422-11	CARBON	2.7K 5% 1/4W
R535	1-249-422-11	CARBON	2.7K 5% 1/4W
R536	1-249-424-11	CARBON	3.9K 5% 1/4W
R537	1-249-428-11	CARBON	8.2K 5% 1/4W
R538	1-247-812-11	CARBON	160 5% 1/4W
R539	1-247-812-11	CARBON	160 5% 1/4W
R540	1-247-812-11	CARBON	160 5% 1/4W
R541	1-247-812-11	CARBON	160 5% 1/4W
R542	1-247-812-11	CARBON	160 5% 1/4W
R543	1-249-417-11	CARBON	1K 5% 1/4W
R544	1-247-862-11	CARBON	20K 5% 1/4W
R545	1-247-862-11	CARBON	20K 5% 1/4W
R546	1-249-417-11	CARBON	1K 5% 1/4W
R547	1-247-862-11	CARBON	20K 5% 1/4W
R548	1-249-429-11	CARBON	10K 5% 1/4W
R549	1-249-429-11	CARBON	10K 5% 1/4W
R550	1-247-862-11	CARBON	20K 5% 1/4W
R551	1-249-417-11	CARBON	1K 5% 1/4W
R552	1-249-429-11	CARBON	10K 5% 1/4W
R553	1-249-425-11	CARBON	4.7K 5% 1/4W
R554	1-249-429-11	CARBON	10K 5% 1/4W
R555	1-249-429-11	CARBON	10K 5% 1/4W
R556	1-249-425-11	CARBON	4.7K 5% 1/4W
RB501	1-233-140-11	COMPOSITION CIRCUIT BLOCK 100KX8	
RB502	1-233-141-11	COMPOSITION CIRCUIT BLOCK 100KX9	
RV41	1-228-989-00	RES, ADJ, CARBON 470	
RV61	1-228-989-00	RES, ADJ, CARBON 470	
RV101	1-228-994-00	RES, ADJ, CARBON 10K	
RV201	1-228-994-00	RES, ADJ, CARBON 10K	
RV301	1-238-097-11	RES, VAR, CARBON 20K/20K (REC LEVEL)	
RY81	1-515-614-11	RELAY	
S10	1-571-028-11	SWITCH, LEAF (DIRECTION)	
S11	1-571-281-21	SWITCH, LEAF (HALF)	
S12	1-571-281-21	SWITCH, LEAF (REC (A))	
S13	1-571-281-21	SWITCH, LEAF (REC (B))	
S501	1-554-303-21	SWITCH, KEY BOARD (● REC)	
S502	1-554-303-21	SWITCH, KEY BOARD (▶▶)	
S503	1-554-303-21	SWITCH, KEY BOARD (◀◀)	
S504	1-554-303-21	SWITCH, KEY BOARD (■)	
S505	1-554-303-21	SWITCH, KEY BOARD (II)	
S506	1-554-303-21	SWITCH, KEY BOARD (▶)	
S507	1-554-303-21	SWITCH, KEY BOARD (◀)	
S508	1-554-303-21	SWITCH, KEY BOARD (REC MUTE)	
S509	1-554-303-21	SWITCH, KEY BOARD (MEMORY)	
S510	1-554-303-21	SWITCH, KEY BOARD (RESET)	
S511	1-570-103-21	SWITCH, PUSH (1 KEY) (POWER)	
S512	1-554-423-00	SWITCH, SLIDE (TIMER)	
S513	1-571-369-11	SWITCH, PUSH (3 KEY) (DOLBY NR/DIRECTION MODE)	
S515	1-571-370-11	SWITCH, PUSH (3 KEY) (TAPE SELECT)	
SPK101	1-235-186-00	ENCAPSULATED COMPONENT	
SPK201	1-235-186-00	ENCAPSULATED COMPONENT	
T81	1-433-333-11	TRANSFORMER, BIAS OSCILLATION	
THP501	1-808-065-11	(AEP, UK)....THERMISTOR, POSITIVE	
THP502	1-808-065-11	(AEP, UK)....THERMISTOR, POSITIVE	

ACCESSORY & PACKING MATERIAL

Part No.	Description	Remark
1-558-233-11	CORD (WITH CONNECTOR)(SIRCS)4P	
1-559-533-11	CORD, CONNECTION	
*3-327-844-51	(AEP, UK)....INDIVIDUAL CARTON	
*3-327-844-61	(US)....INDIVIDUAL CARTON	
*3-332-555-01	(US, UK)....CUSHION	
*3-346-203-01	(AEP)....CUSHION	
3-701-630-00	BAG, POLYETHYLENE	
3-703-450-01	(US)....INSTRUCTION	
*3-704-343-01	SHEET (STANDARD), PROTECTION	
3-769-894-11	(AEP, UK)....MANUAL, INSTRUCTION	
3-769-894-21	(US)....MANUAL, INSTRUCTION	
3-769-894-41	(AEP)....MANUAL, INSTRUCTION	