

TA-FE320R/FE520R

SERVICE MANUAL

AEP Model
TA-FE320R/FE520R

UK Model
TA-FE320R



Photo: TA-FE520R

SPECIFICATIONS

Amplifier section

DIN power output

TA-FE520R: 100 W + 100 W (4 ohms at 1 kHz)
85 W + 85 W (8 ohms at 1 kHz)
TA-FE320R: 60 W + 60 W (4 ohms at 1 kHz)
50 W + 50 W (8 ohms at 1 kHz)

Frequency response

PHONO (20 Hz - 20 kHz): RIAA equalization curve
 ± 1.0 dB
TUNER, CD, AUX, TAPE1/DAT, TAPE2/MD:
7 Hz - 70 kHz ± 3 dB

S/N (network A)

PHONO: 80 dB
TUNER, CD, AUX, TAPE1/DAT, TAPE2/MD: 105 dB

Output voltage / impedance

RECOU: 200 mV, 1 kilohm
PHONES: 5 mW (at 8 ohms)

Speakers impedance

4 - 16 ohms

Damping factor

80 (8 ohms, 1 kHz)

General

System

Power amplifier with all stages directly coupled
Preamplifier: Low-noise, equalizer amplifier

Power requirements

230 V AC, 50/60 Hz

Power consumption

TA-FE520R: 190 W
TA-FE320R: 160 W

Dimensions (approx.) (w/h/d)

430 × 130 × 310 mm
incl. projecting parts and controls

Mass (approx.)

TA-FE520R: 6.5 kg
TA-FE320R: 5.5 kg

Supplied accessories

Remote commander (remote) RM-S325 (1)
Sony batteries R6 (size-AA) (2)

Design and specifications are subject to change without notice.

INTEGRATED STEREO AMPLIFIER



SONY®

TABLE OF CONTENTS

1. GENERAL	
Location of Controls	3
2. DISASSEMBLY	4
3. DIAGRAMS	
3-1. Notes for Printed Wiring Boards and Schematic Diagrams	6
3-2. Printed Wiring Board – MAIN Section –	7
3-3. Schematic Diagram – MAIN Section –	9
3-4. Printed Wiring Boards – PANEL Section –	11
3-5. Schematic Diagram – PANEL Section –	13
3-6. Printed Wiring Boards – POWER Section –	15
3-7. Schematic Diagram – POWER Section –	16
3-8. IC Pin Function Description	18
4. EXPLODED VIEWS	19
5. ELECTRICAL PARTS LIST	21

SAFETY-RELATED COMPONENT WARNING!!

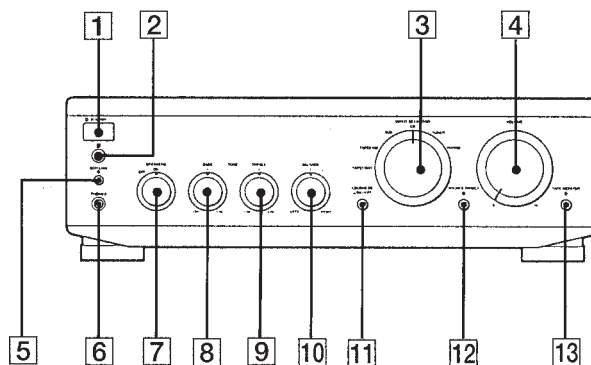
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

This section is extracted from instruction manual.

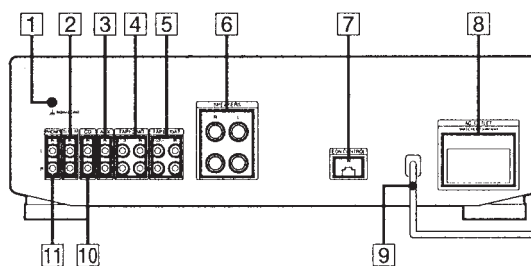
LOCATION OF CONTROLS

Front Panel



- 1** I/⏻ (POWER) button
- 2** Remote control sensor
- 3** INPUT SELECTOR switch
- 4** VOLUME control
- 5** EON LINK button (TA-FE520R only)
- 6** PHONES jack
- 7** SPEAKERS switch
- 8** BASS control
- 9** TREBLE control
- 10** BALANCE control
- 11** LOUDNESS button
- 12** SOURCE DIRECT button
- 13** TAPE MONITOR button (TA-FE520R only)

Rear Panel

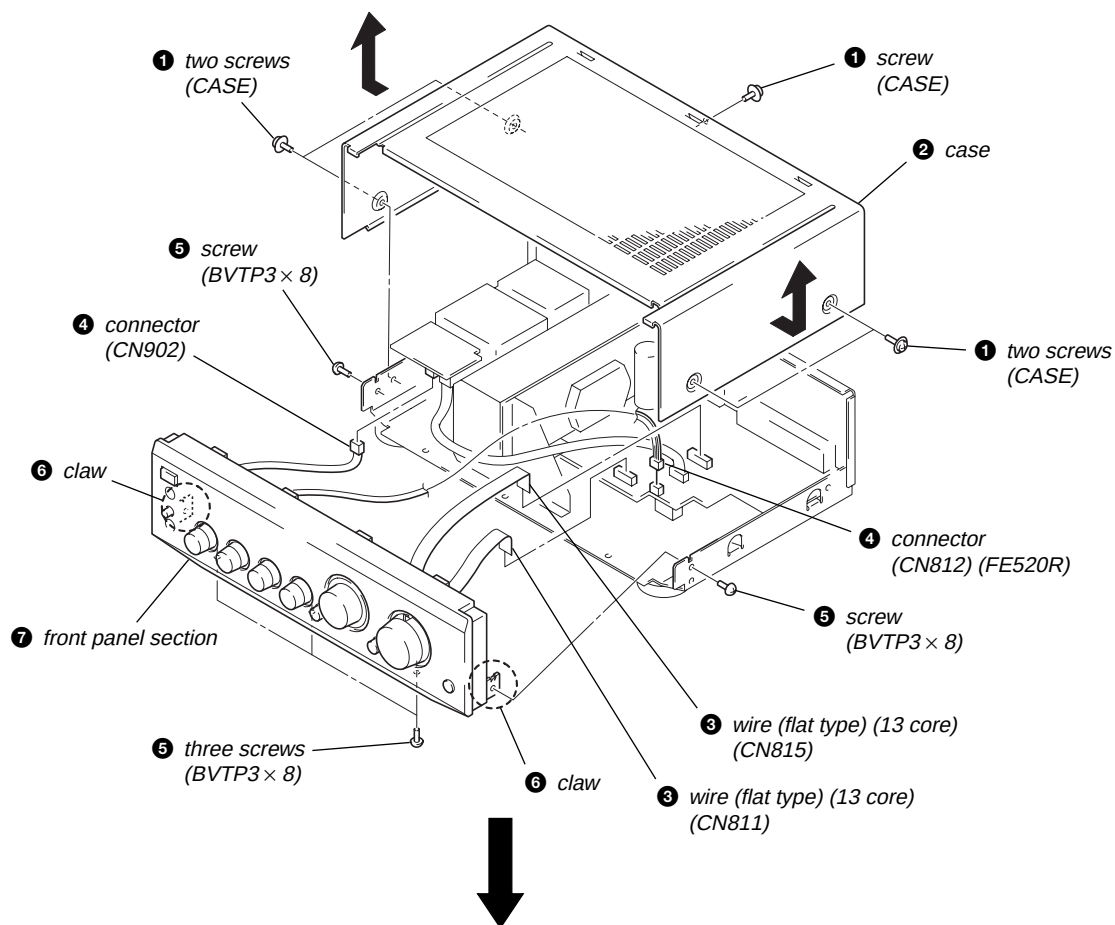


- 1** ⏻ (SIGNAL GND)
- 2** TUNER
- 3** AUX
- 4** TAPE2/MD
- 5** TAPE1/DAT
- 6** SPEAKERS
- 7** EON CONTROL IN (TA-FE520R only)
- 8** AC OUTLET (unavailable on the TA-FE320R (U.K. model))
- 9** Mains lead
- 10** CD
- 11** PHONO

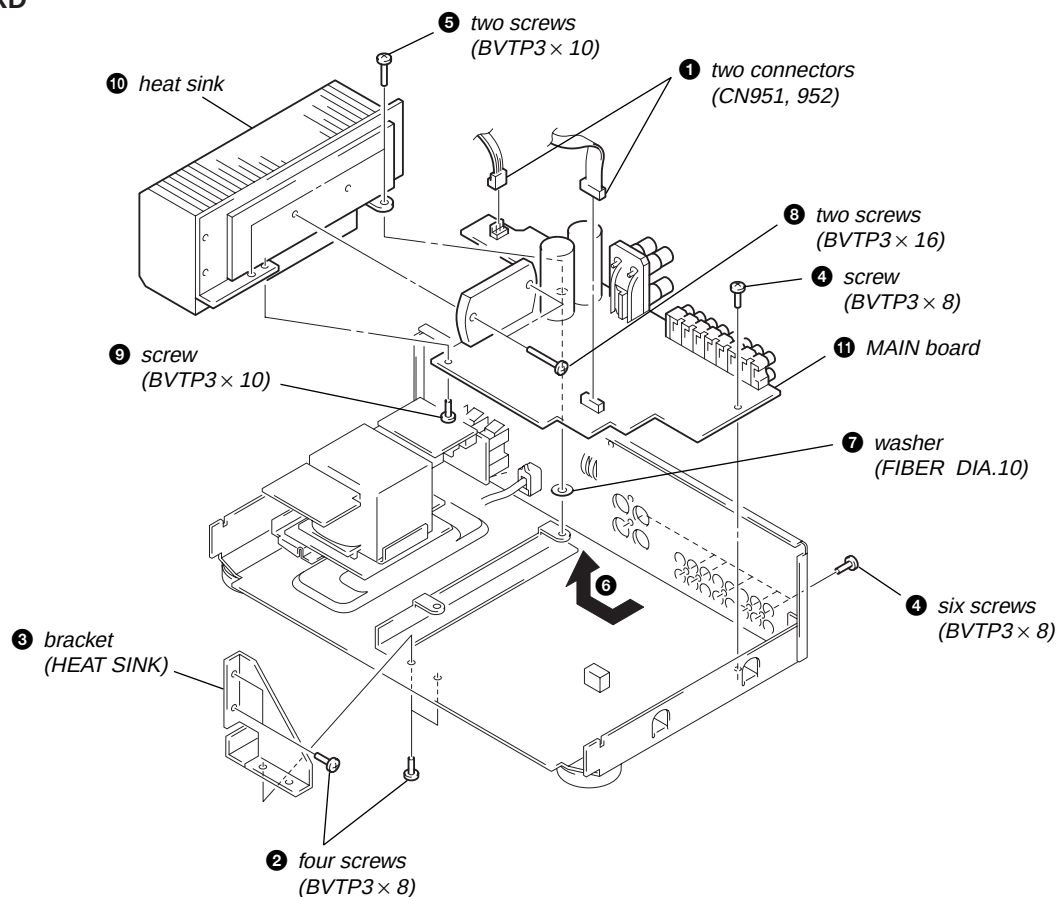
SECTION 2 DISASSEMBLY

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

FRONT PANEL SECTION

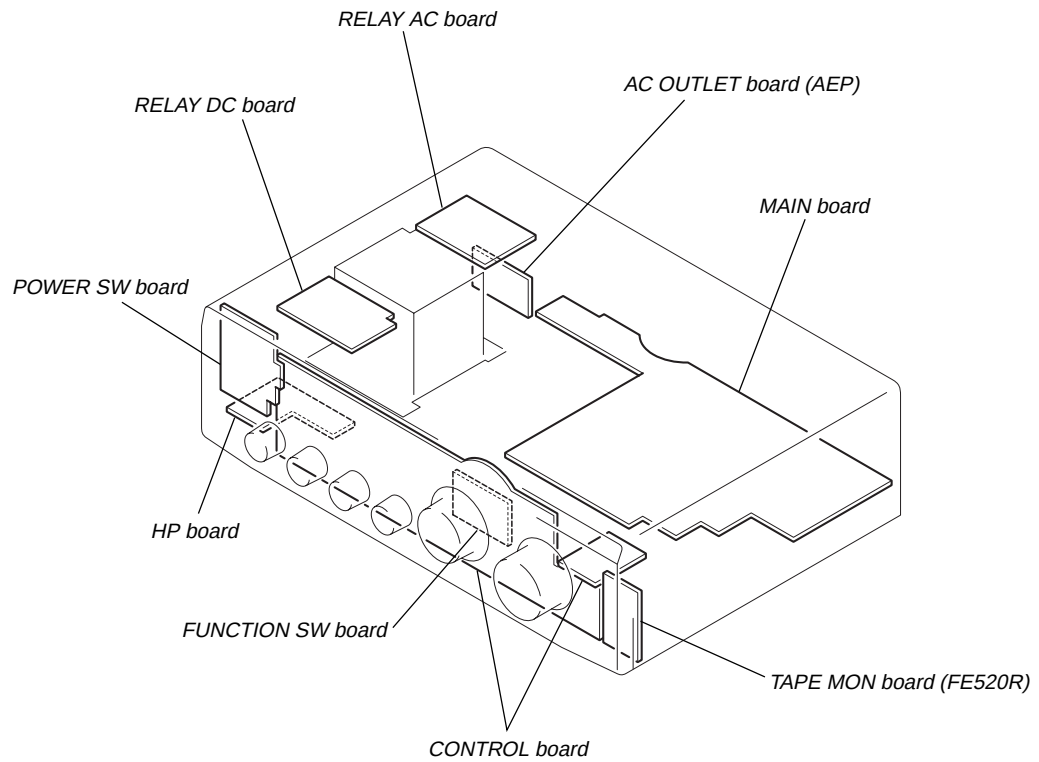


MAIN BOARD



SECTION 3 DIAGRAMS

• Circuit Boards Location



3-1. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Schematic Diagram:

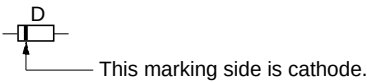
- All capacitors are in μF unless otherwise noted. pF: $\mu\mu\text{F}$ 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
-  : internal component.
-  : nonflammable resistor.
-  : fusible resistor.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

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

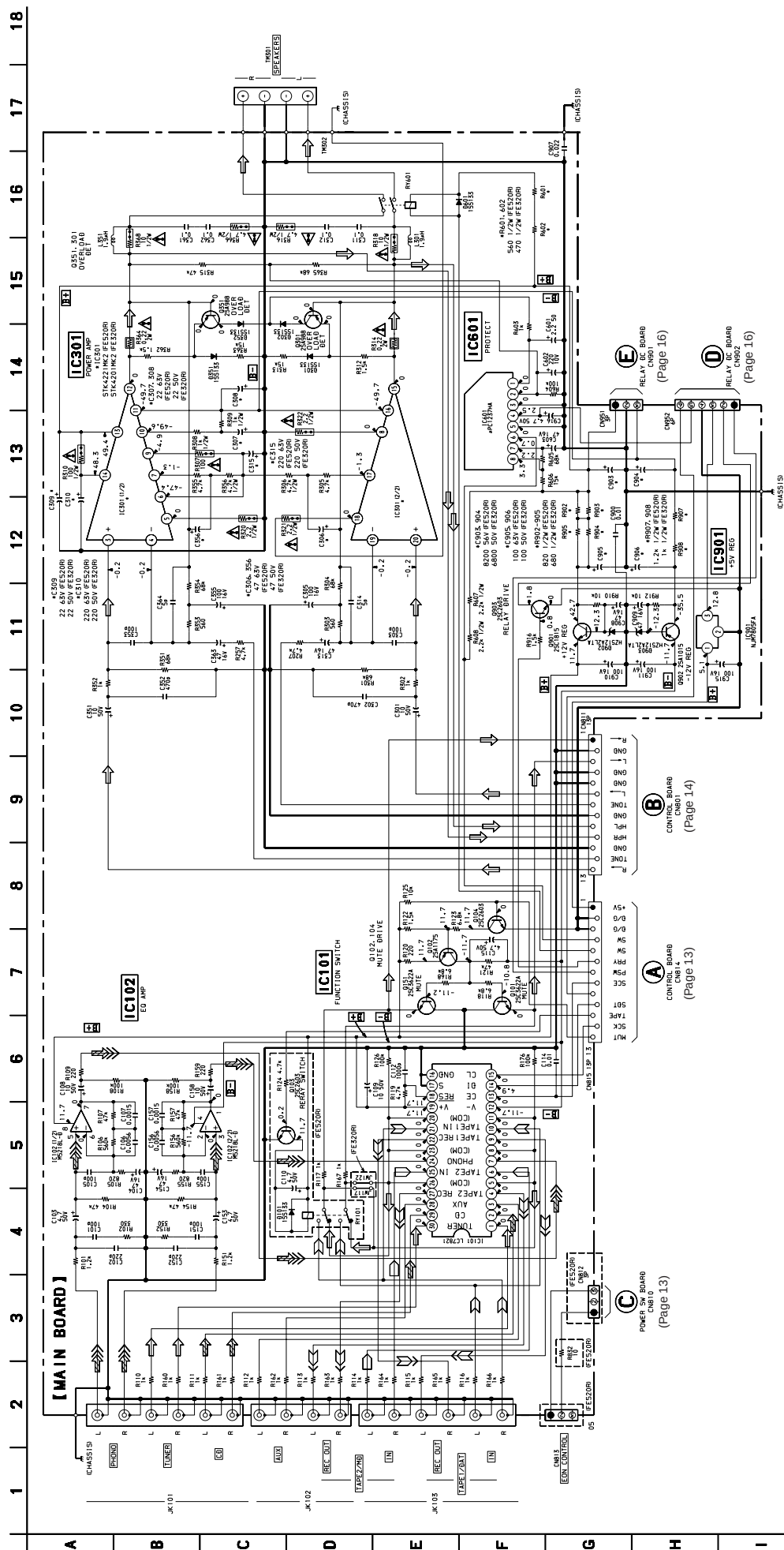
-  : B+ Line.
-  : B- Line.
- Voltages are dc with respect to ground under no-signal conditions.
no mark : TUNER
- Voltages are taken with a VOM (Input impedance $10\text{ M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 : TUNER
 : PB (TAPE1/DAT)
 : REC
 : PB (TAPE2/MD)
 : CD
 : PHONO

Note on Printed Wiring Boards:

-  : parts extracted from the component side.
-  : internal component.
-  : Pattern from the side which enables seeing.
- Indication of diode



3-3. SCHEMATIC DIAGRAM – MAIN Section – • See page 17 for IC Block Diagrams.



3-5



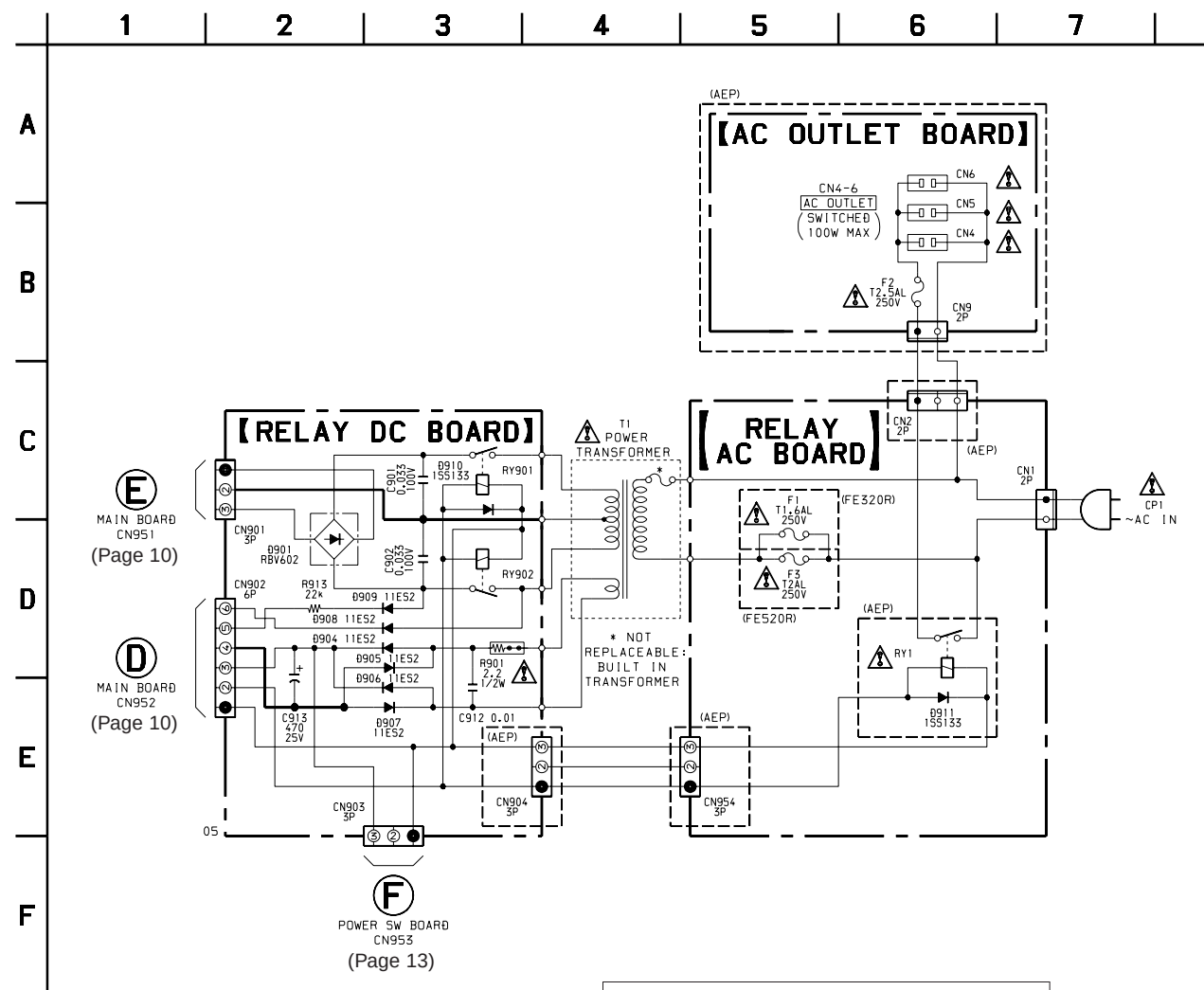
3-6. PRINTED WIRING BOARDS – POWER Section –

- See page 5 for Circuit Boards Location.

• Semiconductor Location

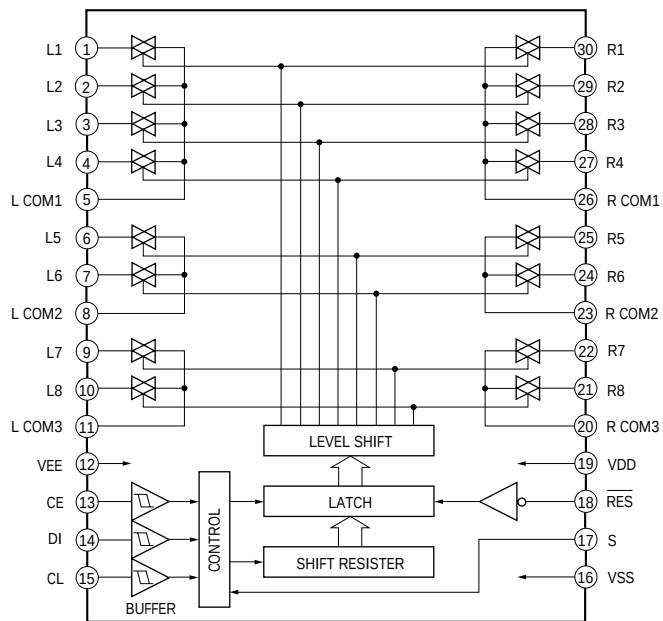
Ref. No.	Location
D901	B-2
D904	A-1
D905	B-1
D906	B-1
D907	B-1
D908	B-1
D909	B-1
D910	A-2
D911	E-2

3-7. SCHEMATIC DIAGRAM – POWER Section –

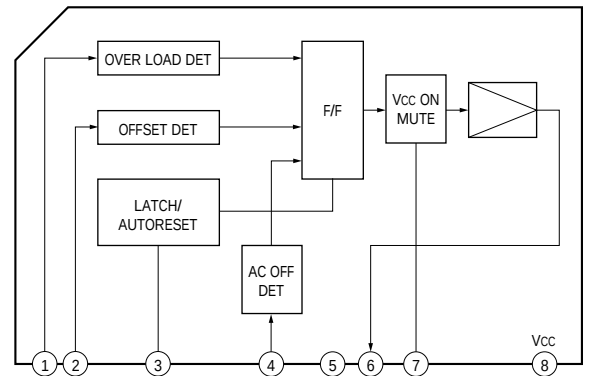


• IC Block Diagrams

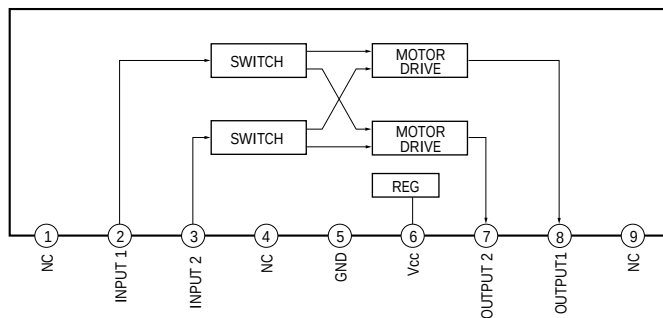
IC101 LC7821 (MAIN BOARD)



IC601 μ PC1237HA (MAIN BOARD)



IC802 BA6208 (CONTROL BOARD)



3-8. IC PIN FUNCTION DESCRIPTION

• CONTROL BOARD IC801 TMP47C103N-JP47 (FUNCTION SWITCH CONTROL, LED DRIVER)

Pin No.	Pin Name	I/O	Function
1	XOUT	O	Main system clock output terminal (4 MHz)
2	XIN	I	Main system clock input terminal (4 MHz)
3	<u>RESET</u>	I	System reset signal input terminal “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
4	PMD	I	Mode select input terminal Fixed at “H” in this set
5	VOL+	O	Motor drive signal output to the volume motor drive (IC802) (volume up direction)
6	VOL-	O	Motor drive signal output to the volume motor drive (IC802) (volume down direction)
7	SW0	I	Rotary switch input of the INPUT SELECTOR (S801)
8	SW1	I	
9	SW2	I	
10	EON	I	Detection signal input of the enhanced other networks (EON) Used for the TA-FE520R only
11	PHONO	O	LED drive signal output of the PHONO LED (D808) “L”: LED on
12	TUNER	O	LED drive signal output of the TUNER LED (D809) “L”: LED on
13	CD	O	LED drive signal output of the CD LED (D810) “L”: LED on
14	GND	—	Ground terminal
15	AUX	O	LED drive signal output of the AUX LED (D811) “L”: LED on
16	DAT	O	LED drive signal output of the TAPE2/MD LED (D812) “L”: LED on
17	TAPE	O	LED drive signal output of the TAPE1/DAT LED (D813) “L”: LED on
18	MON	O	Tape monitor on/off control signal output terminal “L”: tape monitor on Used for the TA-FE520R only
19	PRY	O	AC on/off relay drive signal output terminal “L”: power on, “H”: standby mode
20	PKY	I	Power switch (S1; I/⏻) input terminal “H”: power on
21	MON	I	Tape monitor switch (S802) input terminal When pressing the key: “H”
22	SIRCS	I	Sircs signal input from the remote control receiver (IC803)
23	MUTE	O	Audio line muting on/off control signal output terminal “H”: muting on
24	SCE	O	Chip enable signal output to the function switch (IC101)
25	SDT	O	Serial data output to the function switch (IC101)
26	SCK	O	Serial data transfer clock signal output to the function switch (IC101)
27	STOP	I	Detection signal input of the AC input
28	+3V	—	Power supply terminal (+3V)

SECTION 4 EXPLODED VIEWS

NOTE:

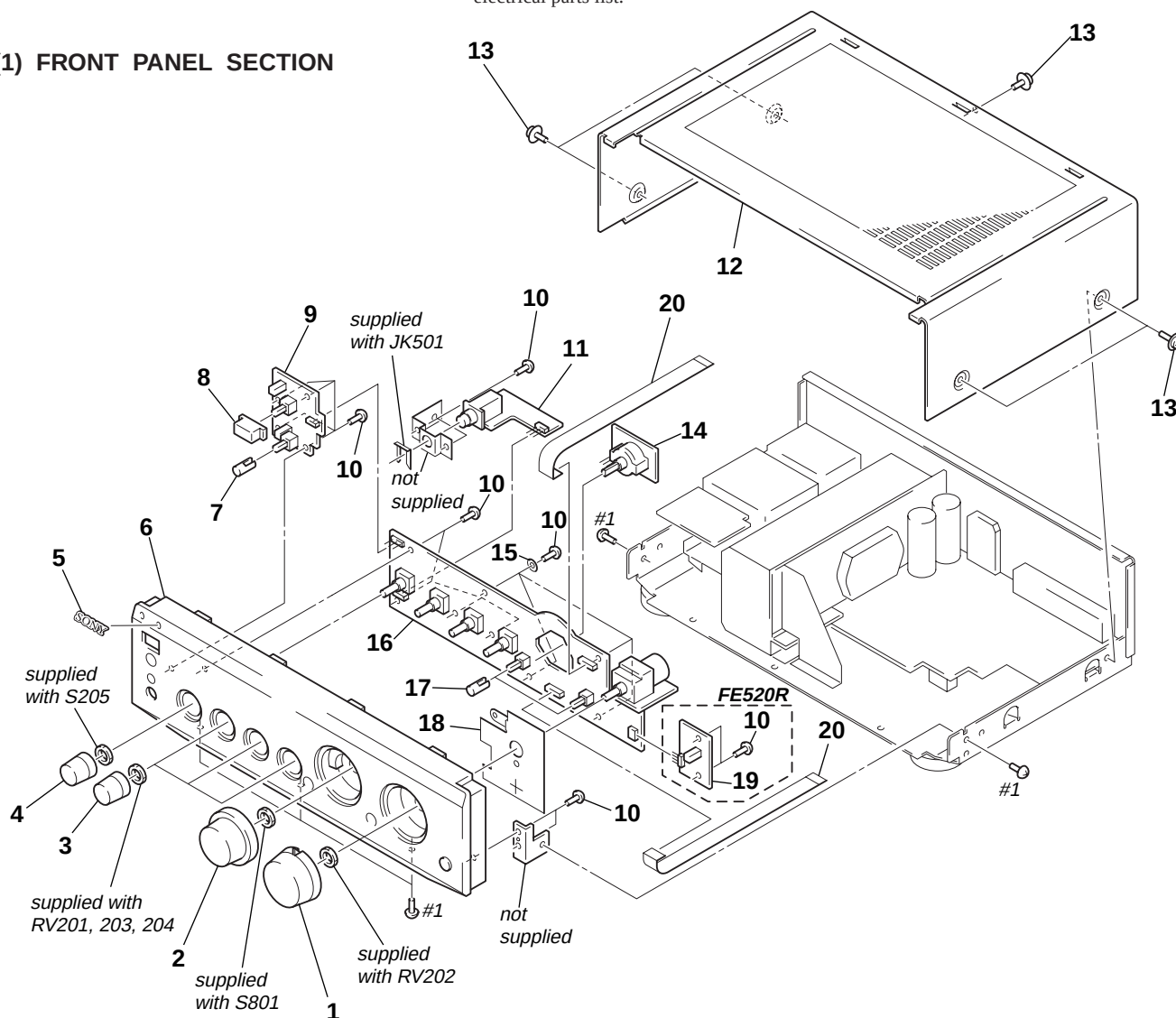
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)

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.

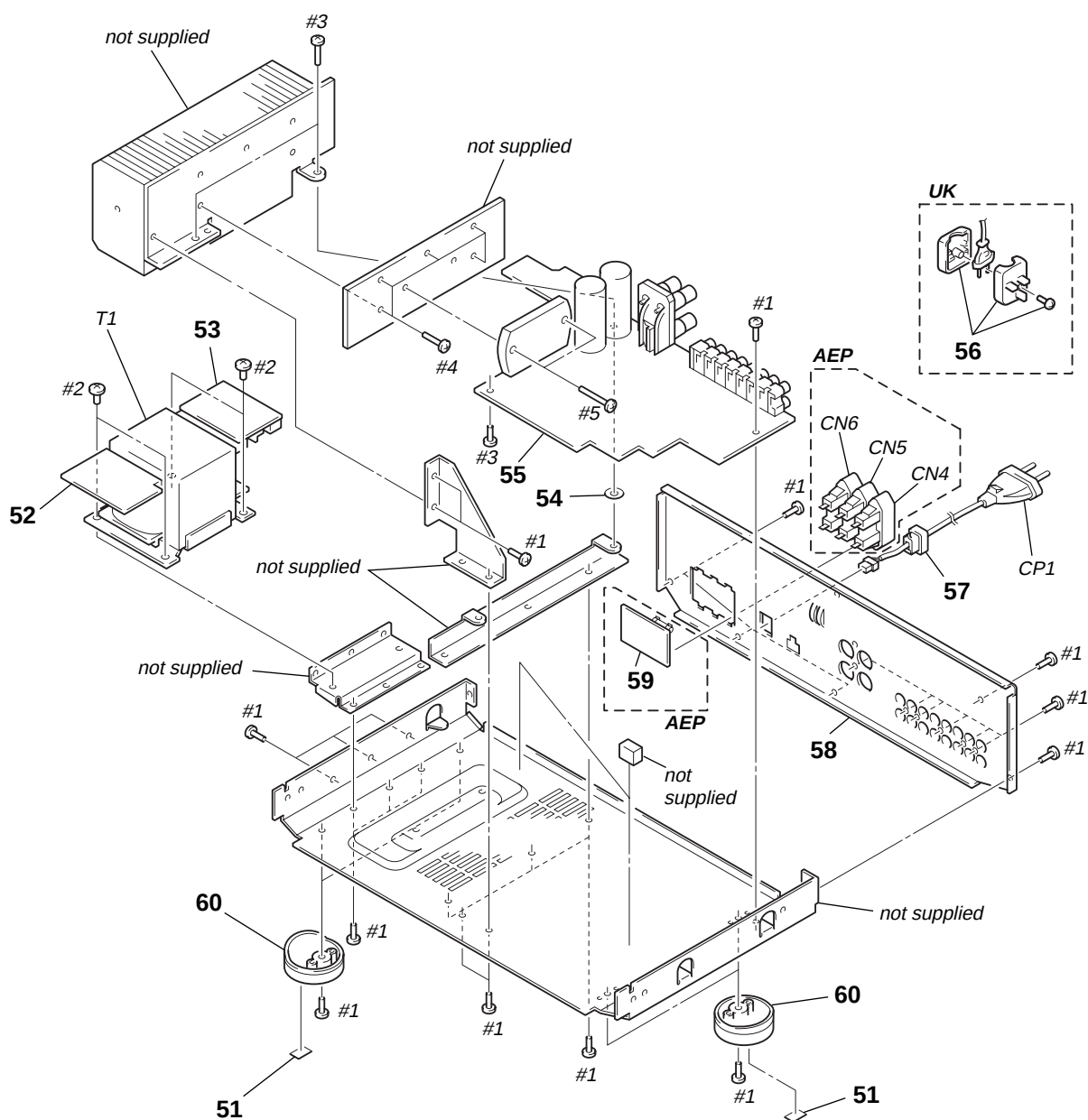
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

(1) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-4950-306-1	KNOB ASSY, VOLUME (BLACK)		* 9	1-670-966-11	POWER SW BOARD	
1	X-4950-307-1	KNOB ASSY, VOLUME (SILVER)		10	4-951-620-01	SCREW (2.6X8), +BVTP	
2	4-211-947-01	KNOB (FUNCTION) (BLACK)		* 11	1-670-967-11	HP BOARD	
2	4-211-947-11	KNOB (FUNCTION) (SILVER)		* 12	4-211-940-21	CASE (BLACK)	
3	4-211-945-01	KNOB (BALANCE) (BLACK)		* 12	4-211-940-31	CASE (SILVER)	
3	4-211-945-11	KNOB (BALANCE) (SILVER)		13	3-704-366-01	SCREW (CASE) (M3X8) (BLACK)	
4	4-211-950-01	KNOB (SPEAKER) (BLACK)		13	3-704-366-71	SCREW (CASE) (M3X8) (SILVER)	
4	4-211-950-11	KNOB (SPEAKER) (SILVER)		* 14	1-670-968-11	FUNCTION SW BOARD	
5	4-996-698-41	EMBLEM, SONY		15	4-211-951-01	WASHER (FIBER DIA. 8)	
6	X-4950-304-1	PANEL ASSY, FRONT (FE520R: BLACK)		* 16	A-4417-046-A	CONTROL BOARD, COMPLETE (FE520R)	
6	X-4950-305-1	PANEL ASSY, FRONT (FE520R: SILVER)		* 16	A-4417-056-A	CONTROL BOARD, COMPLETE (FE320R)	
6	X-4950-308-1	PANEL ASSY, FRONT (FE320R)		17	4-211-948-01	BUTTON (LOUDNESS) (BLACK)	
7	4-211-946-01	BUTTON (LINK) (BLACK)		17	4-211-948-11	BUTTON (LOUDNESS) (SILVER)	
7	4-211-946-11	BUTTON (LINK) (SILVER)		* 18	4-211-953-01	SHIELD (VOLUME)	
8	4-211-949-01	BUTTON, POWER (BLACK)		* 19	1-670-969-11	TAPE MON BOARD (FE520R)	
8	4-211-949-11	BUTTON, POWER (SILVER)		* 20	1-769-983-11	WIRE (FLAT TYPE) (13 CORE)	

(2) 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
* 51	4-978-398-21	CUSHION		* 58	4-211-938-21	PANEL, REAR (FE320R: UK)	
* 52	1-670-972-11	RELAY DC BOARD		* 59	1-670-970-11	AC OUTLET BOARD (AEP)	
* 53	1-670-971-11	RELAY AC BOARD		60	4-977-591-01	FOOT (F50150S) (BLACK)	
54	4-211-952-01	WASHER (FIBER DIA. 10)		60	4-977-591-31	FOOT (F50150S) (SILVER)	
* 55	A-4417-045-A	MAIN BOARD, COMPLETE (FE520R)		CN4	1-526-794-11	OUTLET, AC (AEP)	
* 55	A-4417-055-A	MAIN BOARD, COMPLETE (FE320R)		CN5	1-526-794-11	OUTLET, AC (AEP)	
△ 56	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK)		CN6	1-526-794-11	OUTLET, AC (AEP)	
* 57	3-703-244-00	BUSHING (2104), CORD		△ CP1	1-575-651-21	CORD, POWER	
* 58	4-211-938-01	PANEL, REAR (FE520R)		△ T1	1-431-802-11	TRANSFORMER, POWER (FE520R)	
* 58	4-211-938-11	PANEL, REAR (FE320R: AEP)		△ T1	1-431-803-11	TRANSFORMER, POWER (FE320R)	

SECTION 5 ELECTRICAL PARTS LIST

AC OUTLET

CONTROL

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX 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
*	1-670-970-11	AC OUTLET BOARD (AEP) *****		CN802	1-770-396-11	HOUSING, CONNECTOR (PC BOARD) 3P	
	1-533-293-11	FUSE HOLDER		CN808	1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P (FE520R)	
		< CONNECTOR >		CN804	1-770-397-11	HOUSING, CONNECTOR (PC BOARD) 4P	
Δ CN4	1-526-794-11	OUTLET, AC		* CN814	1-568-832-11	SOCKET, CONNECTOR 13P	
Δ CN5	1-526-794-11	OUTLET, AC					
Δ CN6	1-526-794-11	OUTLET, AC		* CN817	1-565-970-11	SOCKET, CONNECTOR (PC BOARD) 5P (FE520R)	
		< FUSE >					
Δ F2	1-532-464-51	FUSE (T2.5AL/250V)					

*	A-4417-046-A	CONTROL BOARD, COMPLETE (FE520R)		D801	8-719-985-59	DIODE HZS4CLL-TA	
*	A-4417-056-A	CONTROL BOARD, COMPLETE (FE320R) *****		D802	8-719-200-82	DIODE 11ES2	
				D803	8-719-911-19	DIODE 1SS119	
				D804	8-719-911-19	DIODE 1SS119	
*	4-211-967-01	HOLDER (LED)		D805	8-719-911-19	DIODE 1SS119	
		< CAPACITOR >		D806	8-719-911-19	DIODE 1SS119	
C201	1-136-153-00	FILM 0.01uF 5% 50V		D807	8-719-301-49	LED SEL2810A (SOURCE DILECT)	
C202	1-136-165-00	FILM 0.1uF 5% 50V		D808	8-719-301-49	LED SEL2810A (PHONO)	
C203	1-130-477-00	MYLAR 0.0033uF 5% 50V		D809	8-719-301-49	LED SEL2810A (TUNER)	
C204	1-130-489-11	MYLAR 0.033uF 5% 50V		D810	8-719-301-49	LED SEL2810A (CD)	
C205	1-130-473-00	MYLAR 0.0015uF 5% 50V		D811	8-719-301-49	LED SEL2810A (AUX)	
C251	1-136-153-00	FILM 0.01uF 5% 50V		D812	8-719-301-49	LED SEL2810A (TAPE2/MD)	
C252	1-136-165-00	FILM 0.1uF 5% 50V		D813	8-719-301-49	LED SEL2810A (TAPE1/DAT)	
C253	1-130-477-00	MYLAR 0.0033uF 5% 50V		D814	8-719-911-19	DIODE 1SS119	
C254	1-130-489-11	MYLAR 0.033uF 5% 50V		D816	8-719-911-19	DIODE 1SS119	
C255	1-130-473-00	MYLAR 0.0015uF 5% 50V		D817	8-719-911-19	DIODE 1SS119	
C319	1-136-153-00	FILM 0.01uF 5% 50V		D819	8-719-911-19	DIODE 1SS119	
C801	1-126-964-11	ELECT 10uF 20% 50V		D820	8-719-200-82	DIODE 11ES2	
C802	1-126-916-11	ELECT 1000uF 20% 6.3V				< IC >	
C803	1-136-165-00	FILM 0.1uF 5% 50V		IC801	8-759-392-41	IC TMP47C103N-JP47	
C806	1-164-085-11	CERAMIC 0.001uF 10% 50V		IC802	8-759-962-08	IC BA6208	
C807	1-126-964-11	ELECT 10uF 20% 50V				< TRANSISTOR >	
C808	1-126-956-11	ELECT 0.1uF 20% 50V		Q801	8-729-119-78	TRANSISTOR 2SC403SP-51	
C809	1-128-578-11	ELECT 1uF 20% 100V		Q802	8-729-620-05	TRANSISTOR 2SC2603-EF	
C811	1-136-165-00	FILM 0.1uF 5% 50V		Q803	8-729-029-20	TRANSISTOR RT1P141S-TP (FE520R)	
		< CONNECTOR >		Q804	8-729-029-20	TRANSISTOR RT1P141S-TP	
* CN801	1-568-832-11	SOCKET, CONNECTOR 13P		Q806	8-729-620-05	TRANSISTOR 2SC2603-EF	
				Q807	8-729-620-05	TRANSISTOR 2SC2603-EF	
				Q808	8-729-620-05	TRANSISTOR 2SC2603-EF	
				Q810	8-729-029-66	TRANSISTOR DTC114ESA	
				Q811	8-729-029-66	TRANSISTOR DTC114ESA	

CONTROL	FUNCTION SW	HP	MAIN
----------------	--------------------	-----------	-------------

Ref. No.	Part No.	Description	Remark		
< RESISTOR >					
R201	1-247-863-11	CARBON	22K	5%	1/4W
R202	1-247-839-11	CARBON	2.2K	5%	1/4W
R203	1-249-427-11	CARBON	6.8K	5%	1/4W
R204	1-247-827-11	CARBON	680	5%	1/4W
R205	1-247-839-11	CARBON	2.2K	5%	1/4W
R206	1-249-469-11	CARBON	100K	5%	1/4W
R208	1-249-439-11	CARBON	68K	5%	1/4W
R251	1-247-863-11	CARBON	22K	5%	1/4W
R252	1-247-839-11	CARBON	2.2K	5%	1/4W
R253	1-249-427-11	CARBON	6.8K	5%	1/4W
R254	1-247-827-11	CARBON	680	5%	1/4W
R255	1-247-839-11	CARBON	2.2K	5%	1/4W
R256	1-249-469-11	CARBON	100K	5%	1/4W
R258	1-249-439-11	CARBON	68K	5%	1/4W
R317	1-247-750-11	CARBON	680	5%	1/2W
R367	1-247-750-11	CARBON	680	5%	1/2W
R801	1-249-411-11	CARBON	330	5%	1/4W
R802	1-247-807-11	CARBON	100	5%	1/4W
R803	1-247-855-11	CARBON	10K	5%	1/4W
R804	1-247-855-11	CARBON	10K	5%	1/4W
R805	1-247-847-11	CARBON	4.7K	5%	1/4W
R806	1-247-843-11	CARBON	3.3K	5%	1/4W
R807	1-247-843-11	CARBON	3.3K	5%	1/4W
R808	1-247-855-11	CARBON	10K	5%	1/4W
R809	1-247-855-11	CARBON	10K	5%	1/4W
R810	1-247-855-11	CARBON	10K	5%	1/4W
R811	1-247-855-11	CARBON	10K	5%	1/4W
R812	1-249-399-11	CARBON	33	5%	1/4W
R814	1-249-413-11	CARBON	470	5%	1/4W
R815	1-247-855-11	CARBON	10K	5%	(FE520R) 1/4W
R816	1-247-855-11	CARBON	10K	5%	1/4W
R817	1-247-855-11	CARBON	10K	5%	1/4W
R818	1-247-855-11	CARBON	10K	5%	1/4W
R820	1-247-855-11	CARBON	10K	5%	(FE320R) 1/4W
R821	1-247-855-11	CARBON	10K	5%	1/4W
R822	1-247-855-11	CARBON	10K	5%	1/4W
R823	1-247-871-11	CARBON	47K	5%	1/4W
R824	1-247-879-11	CARBON	100K	5%	1/4W
R824	1-247-881-11	CARBON	120K	5%	(FE320R) (FE520R) 1/4W
R826	1-249-399-11	CARBON	33	5%	1/4W
R827	1-249-393-11	CARBON	10	5%	1/4W
R829	1-247-855-11	CARBON	10K	5%	(FE520R) 1/4W
R830	1-247-855-11	CARBON	10K	5%	1/4W
R834	1-249-413-11	CARBON	470	5%	1/4W
R837	1-249-407-11	CARBON	150	5%	1/4W
< VARIABLE RESISTOR >					
RV201	1-223-396-11	RES, VAR, CARBON 100K/100K (BALANCE)			
RV202	1-241-426-11	RES, VAR, CARBON 100KX2 (VOLUME)			
RV203	1-223-397-11	RES, VAR, CARBON 100K/100K (BASS)			
RV204	1-223-397-11	RES, VAR, CARBON 100K/100K (TREBLE)			

Ref. No.	Part No.	Description	Remark			
< SWITCH >						
S201	1-571-112-21	SWITCH, PUSH (1 KEY) (LOUDNESS)				
S202	1-571-828-11	SWITCH, PUSH (1 KEY) (SOURCE DIRECT)				
S205	1-771-369-11	SWITCH, ROTARY (SPEAKERS)				
< VIBRATOR >						
X801	1-577-358-21	VIBRATOR, CERAMIC (4MHz)				

*	1-670-968-11	FUNCTION SW BOARD				

< SWITCH >						
S801	1-692-974-11	SWITCH, ROTARY (INPUT SELECTOR)				

*	1-670-967-11	HP BOARD				

< JACK >						
JK501	1-785-094-11	JACK (LARGE TYPE) (PHONES)				

*	A-4417-045-A	MAIN BOARD, COMPLETE (FE520R)				
*	A-4417-055-A	MAIN BOARD, COMPLETE (FE320R)				

< CAPACITOR >						
C101	1-164-073-11	CERAMIC	100PF	10%	50V	
C102	1-164-077-11	CERAMIC	220PF	10%	50V	
C103	1-126-963-11	ELECT	4.7uF	20%	50V	
C104	1-126-967-11	ELECT	47uF	20%	16V	
C105	1-164-073-11	CERAMIC	100PF	10%	50V	
C106	1-130-480-00	MYLAR	0.0056uF	5%	50V	
C107	1-130-473-00	MYLAR	0.0015uF	5%	50V	
C108	1-126-964-11	ELECT	10uF	20%	50V	
C109	1-126-964-11	ELECT	10uF	20%	50V	
C110	1-126-963-11	ELECT	4.7uF	20%	50V	(FE520R)
C112	1-164-085-11	CERAMIC	0.001uF	10%	50V	
C114	1-164-096-11	CERAMIC	0.01uF		50V	
C115	1-126-963-11	ELECT	4.7uF	20%	50V	
C151	1-164-073-11	CERAMIC	100PF	10%	50V	
C152	1-164-077-11	CERAMIC	220PF	10%	50V	
C153	1-126-963-11	ELECT	4.7uF	20%	50V	
C154	1-126-967-11	ELECT	47uF	20%	16V	
C155	1-164-073-11	CERAMIC	100PF	10%	50V	
C156	1-130-480-00	MYLAR	0.0056uF	5%	50V	
C157	1-130-473-00	MYLAR	0.0015uF	5%	50V	
C158	1-126-964-11	ELECT	10uF	20%	50V	
C301	1-126-964-11	ELECT	10uF	20%	50V	
C302	1-164-081-11	CERAMIC	470PF	10%	50V	
C303	1-164-073-11	CERAMIC	100PF	10%	50V	
C305	1-126-933-11	ELECT	100uF	20%	16V	
C306	1-126-967-11	ELECT	47uF	20%	50V	(FE320R)
C306	1-128-552-11	ELECT	47uF	20%	63V	(FE520R)

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C307	1-126-965-11	ELECT	22uF	20%	50V (FE320R)	C911	1-126-933-11	ELECT	100uF	20%	16V
C307	1-128-551-11	ELECT	22uF	20%	63V (FE520R)	C915	1-126-933-11	ELECT	100uF	20%	16V
C308	1-126-965-11	ELECT	22uF	20%	50V (FE320R)	C916	1-126-963-11	ELECT	4.7uF	20%	50V
C308	1-128-551-11	ELECT	22uF	20%	63V (FE520R)	< CONNECTOR >					
C309	1-126-965-11	ELECT	22uF	20%	50V (FE320R)	* CN811	1-568-832-11	SOCKET, CONNECTOR 13P			
C309	1-128-551-11	ELECT	22uF	20%	63V (FE520R)	CN812	1-564-506-11	PLUG, CONNECTOR 3P (FE520R)			
C310	1-126-969-11	ELECT	220uF	20%	50V (FE320R)	CN813	1-566-212-11	PIN, CONNECTOR 3P (EON CONTROL)			(FE520R)
C310	1-128-553-11	ELECT	220uF	20%	63V (FE520R)	* CN815	1-568-832-11	SOCKET, CONNECTOR 13P			
C311	1-136-165-00	FILM	0.1uF	5%	50V	* CN951	1-564-104-00	PIN, CONNECTOR (B3P-VH) 3P			
C312	1-136-165-00	FILM	0.1uF	5%	50V	CN952	1-691-768-11	PLUG (MICRO CONNECTOR) 6P			
C313	1-126-967-11	ELECT	47uF	20%	16V	< DIODE >					
C314	1-164-014-11	CERAMIC	5PF	0.25PF	50V	D101	8-719-911-19	DIODE 1SS119 (FE520R)			
C315	1-126-969-11	ELECT	220uF	20%	50V (FE320R)	D301	8-719-911-19	DIODE 1SS119			
C315	1-128-553-11	ELECT	220uF	20%	63V (FE520R)	D302	8-719-911-19	DIODE 1SS119			
C351	1-126-964-11	ELECT	10uF	20%	50V (FE320R)	D351	8-719-911-19	DIODE 1SS119			
C352	1-164-081-11	CERAMIC	470PF	10%	50V	D352	8-719-911-19	DIODE 1SS119			
C353	1-164-073-11	CERAMIC	100PF	10%	50V	D601	8-719-911-19	DIODE 1SS119			
C355	1-126-933-11	ELECT	100uF	20%	16V	D902	8-719-986-25	DIODE HZS12A2LTA			
C356	1-126-967-11	ELECT	47uF	20%	50V (FE320R)	D903	8-719-986-25	DIODE HZS12A2LTA			
C356	1-128-552-11	ELECT	47uF	20%	63V (FE520R)	< IC >					
C361	1-136-165-00	FILM	0.1uF	5%	50V	IC101	8-759-805-13	IC LC7821			
C362	1-136-165-00	FILM	0.1uF	5%	50V	IC102	8-759-184-02	IC NJM2068L-D			
C363	1-126-967-11	ELECT	47uF	20%	16V	IC301	8-749-920-90	IC STK-4201MK2 (FE320R)			
C364	1-164-014-11	CERAMIC	5PF	0.25PF	50V	IC301	8-749-922-65	IC STK-4221MK2 (FE520R)			
C601	1-126-961-11	ELECT	2.2uF	20%	50V	IC601	8-759-111-68	IC uPC1237HA			
C602	1-126-934-11	ELECT	220uF	20%	10V	IC901	8-759-701-75	IC NJM7805FA			
C603	1-126-967-11	ELECT	47uF	20%	16V	< JACK >					
C900	1-136-153-00	FILM	0.01uF	5%	50V	JK101	1-774-411-11	JACK, PIN 6P (PHONO, TUNER, CD)			
C903	1-125-793-11	ELECT	8200uF	20%	56V (FE520R)	JK102	1-573-028-31	JACK, PIN 4P (AUX, TAPE2/MD REC OUT)			
C903	1-125-815-11	ELECT	6800uF	20%	50V (FE320R)	JK103	1-770-015-11	JACK, PIN 6P (TAPE2/MD IN, TAPE1/DAT REC OUT, IN)			
C904	1-125-793-11	ELECT	8200uF	20%	56V (FE520R)	< COIL >					
C904	1-125-815-11	ELECT	6800uF	20%	50V (FE320R)	L301	1-420-872-00	COIL, AIR-CORE 1.9uH			
C905	1-126-968-11	ELECT	100uF	20%	50V (FE320R)	L351	1-420-872-00	COIL, AIR-CORE 1.9uH			
C905	1-128-576-11	ELECT	100uF	20%	63V (FE520R)	< TRANSISTOR >					
C906	1-126-968-11	ELECT	100uF	20%	50V (FE320R)	Q101	8-729-141-26	TRANSISTOR 2SC3622A-LK			
C906	1-128-576-11	ELECT	100uF	20%	63V (FE520R)	Q102	8-729-119-77	TRANSISTOR 2SA1175-FEK			
C907	1-164-097-11	CERAMIC	0.022uF		50V	Q103	8-729-620-05	TRANSISTOR 2SC2603-EF (FE520R)			
C908	1-126-967-11	ELECT	47uF	20%	16V	Q104	8-729-620-05	TRANSISTOR 2SC2603-EF			
C909	1-126-967-11	ELECT	47uF	20%	16V	Q151	8-729-141-26	TRANSISTOR 2SC3622A-LK			
C910	1-126-933-11	ELECT	100uF	20%	16V	Q301	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
						Q351	8-729-140-82	TRANSISTOR 2SA988-PAFAEA			
						Q901	8-729-119-78	TRANSISTOR 2SC403SP-51			
						Q902	8-729-201-53	TRANSISTOR 2SA1015-GR			
						Q903	8-729-620-05	TRANSISTOR 2SC2603-EF			
						< RESISTOR >					
						R101	1-249-418-11	CARBON 1.2K	5%		1/4W
						R102	1-249-411-11	CARBON 330	5%		1/4W
						R104	1-247-871-11	CARBON 47K	5%		1/4W
						R105	1-249-416-11	CARBON 820	5%		1/4W

MAIN

Ref. No.	Part No.	Description			Remark
R106	1-247-897-11	CARBON	560K	5%	1/4W
R107	1-247-871-11	CARBON	47K	5%	1/4W
R108	1-247-879-11	CARBON	100K	5%	1/4W
R109	1-249-409-11	CARBON	220	5%	1/4W
R110	1-249-417-11	CARBON	1K	5%	1/4W
R111	1-249-417-11	CARBON	1K	5%	1/4W
R112	1-249-417-11	CARBON	1K	5%	1/4W
R113	1-249-417-11	CARBON	1K	5%	1/4W
R114	1-249-417-11	CARBON	1K	5%	1/4W
R115	1-249-417-11	CARBON	1K	5%	1/4W
R116	1-249-417-11	CARBON	1K	5%	1/4W
R117	1-249-417-11	CARBON	1K	5%	1/4W
R118	1-249-427-11	CARBON	6.8K	5%	1/4W
R119	1-247-847-11	CARBON	4.7K	5%	1/4W
R120	1-249-409-11	CARBON	220	5%	1/4W
R121	1-247-871-11	CARBON	47K	5%	1/4W
R122	1-247-835-11	CARBON	1.5K	5%	1/4W
R123	1-249-427-11	CARBON	6.8K	5%	1/4W
R124	1-247-847-11	CARBON (FE520R)	4.7K	5%	1/4W
R125	1-247-855-11	CARBON	10K	5%	1/4W
R126	1-247-879-11	CARBON	100K	5%	1/4W
R151	1-249-418-11	CARBON	1.2K	5%	1/4W
R152	1-249-411-11	CARBON	330	5%	1/4W
R154	1-247-871-11	CARBON	47K	5%	1/4W
R155	1-249-416-11	CARBON	820	5%	1/4W
R156	1-247-897-11	CARBON	560K	5%	1/4W
R157	1-247-871-11	CARBON	47K	5%	1/4W
R158	1-247-879-11	CARBON	100K	5%	1/4W
R159	1-249-409-11	CARBON	220	5%	1/4W
R160	1-249-417-11	CARBON	1K	5%	1/4W
R161	1-249-417-11	CARBON	1K	5%	1/4W
R162	1-249-417-11	CARBON	1K	5%	1/4W
R163	1-249-417-11	CARBON	1K	5%	1/4W
R164	1-249-417-11	CARBON	1K	5%	1/4W
R165	1-249-417-11	CARBON	1K	5%	1/4W
R166	1-249-417-11	CARBON	1K	5%	1/4W
R167	1-249-417-11	CARBON	1K	5%	1/4W
R168	1-249-427-11	CARBON	6.8K	5%	1/4W
R176	1-247-879-11	CARBON	100K	5%	1/4W
R207	1-247-847-11	CARBON	4.7K	5%	1/4W
R257	1-247-847-11	CARBON	4.7K	5%	1/4W
R301	1-249-439-11	CARBON	68K	5%	1/4W
R302	1-249-417-11	CARBON	1K	5%	1/4W
R303	1-247-825-11	CARBON	560	5%	1/4W
R304	1-249-439-11	CARBON	68K	5%	1/4W
R305	1-247-721-11	CARBON	4.7K	5%	1/4W
R306	1-247-760-11	CARBON	4.7K	5%	1/2W
△ R307	1-212-881-11	FUSIBLE	100	5%	1/4W F
R308	1-247-752-11	CARBON	1K	5%	1/2W
R309	1-247-752-11	CARBON	1K	5%	1/2W
△ R310	1-212-982-00	FUSIBLE	100	5%	1/2W F
R312	1-247-715-11	CARBON	1.5K	5%	1/4W
R313	1-249-460-11	CARBON	15K	5%	1/4W
△ R314	1-217-151-00	METAL	0.22	10%	2W F
R315	1-249-465-11	CARBON	47K	5%	1/4W
△ R316	1-212-950-00	FUSIBLE	4.7	5%	1/2W F

Ref. No.	Part No.	Description			Remark
△ R318	1-212-958-00	FUSIBLE	10	5%	1/2W F
△ R320	1-212-942-00	FUSIBLE	2.2	5%	1/2W F
△ R321	1-212-942-00	FUSIBLE	2.2	5%	1/2W F
△ R322	1-212-942-00	FUSIBLE	2.2	5%	1/2W F
R351	1-249-439-11	CARBON	68K	5%	1/4W
R352	1-249-417-11	CARBON	1K	5%	1/4W
R353	1-247-825-11	CARBON	560	5%	1/4W
R354	1-249-439-11	CARBON	68K	5%	1/4W
R355	1-247-721-11	CARBON	4.7K	5%	1/4W
R356	1-247-760-11	CARBON	4.7K	5%	1/2W
R362	1-247-715-11	CARBON	1.5K	5%	1/4W
R363	1-249-460-11	CARBON	15K	5%	1/4W
△ R364	1-217-151-00	METAL	0.22	10%	2W F
R365	1-249-467-11	CARBON	68K	5%	1/4W
△ R366	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
△ R368	1-212-958-00	FUSIBLE	10	5%	1/2W F
R601	1-247-747-11	CARBON	470	5%	1/2W (FE320R)
R601	1-247-749-11	CARBON	560	5%	1/2W (FE520R)
R602	1-247-747-11	CARBON	470	5%	1/2W (FE320R)
R602	1-247-749-11	CARBON	560	5%	1/2W (FE520R)
R603	1-249-417-11	CARBON	1K	5%	1/4W
R604	1-247-879-11	CARBON	100K	5%	1/4W
R605	1-249-439-11	CARBON	68K	5%	1/4W
R606	1-249-431-11	CARBON	15K	5%	1/4W
R607	1-247-756-11	CARBON	2.2K	5%	1/2W
R608	1-247-756-11	CARBON	2.2K	5%	1/2W
R832	1-249-393-11	CARBON	10	5%	1/4W (FE520R)
R902	1-247-750-11	CARBON	680	5%	1/2W (FE320R)
R902	1-247-751-11	CARBON	820	5%	1/2W (FE520R)
R903	1-247-750-11	CARBON	680	5%	1/2W (FE320R)
R903	1-247-751-11	CARBON	820	5%	1/2W (FE520R)
R904	1-247-750-11	CARBON	680	5%	1/2W (FE320R)
R904	1-247-751-11	CARBON	820	5%	1/2W (FE520R)
R905	1-247-750-11	CARBON	680	5%	1/2W (FE320R)
R905	1-247-751-11	CARBON	820	5%	1/2W (FE520R)
R907	1-247-752-11	CARBON	1K	5%	1/2W (FE320R)
R907	1-247-753-11	CARBON	1.2K	5%	1/2W (FE520R)
R908	1-247-752-11	CARBON	1K	5%	1/2W (FE320R)
R908	1-247-753-11	CARBON	1.2K	5%	1/2W (FE520R)
R910	1-247-725-11	CARBON	10K	5%	1/4W
R912	1-247-725-11	CARBON	10K	5%	1/4W
R916	1-247-835-11	CARBON	1.5K	5%	1/4W

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	Ref. No.	Part No.	Description	Remark
		< RELAY >				< FUSE >	
RY101	1-515-614-11	RELAY (FE520R)		△F1	1-532-503-51	FUSE (T1.6AL/250V) (FE320R)	
RY601	1-515-920-11	RELAY (24V)		△F3	1-532-388-51	FUSE (T2AL/250V) (FE520R)	
		< TERMINAL >				< RELAY >	
TM301	1-537-894-11	TERMINAL BOARD (SP) (SPEAKERS)		△RY1	1-755-018-11	RELAY (AEP)	
* TM302	1-537-738-21	TERMINAL, EARTH		*****			

*	1-670-966-11	POWER SW BOARD		*	1-670-972-11	RELAY DC BOARD	
		*****				*****	
		< CAPACITOR >					
*	4-211-967-01	HOLDER (LED)		C901	1-106-379-12	MYLAR 0.033uF 5% 200V	
		< CONNECTOR >		C902	1-106-379-12	MYLAR 0.033uF 5% 200V	
				C912	1-136-153-00	FILM 0.01uF 5% 50V	
CN807	1-770-397-11	HOUSING, CONNECTOR (PC BOARD) 4P		C913	1-126-941-11	ELECT 470uF 20% 25V	
		< DIODE >				< CONNECTOR >	
D821	8-719-301-49	LED SEL2810A (EON LINK) (FE520R)		* CN903	1-564-506-11	PLUG, CONNECTOR 3P	
D822	8-719-302-45	LED SEL1210S (STANDBY)				< DIODE >	
		< IC >		D901	8-719-302-37	DIODE RBV-602	
IC803	8-749-014-66	IC NJL56H400A (R)		D904	8-719-200-82	DIODE 11ES2	
		< TRANSISTOR >		D905	8-719-200-82	DIODE 11ES2	
Q809	8-729-029-66	TRANSISTOR DTC114ESA (FE520R)		D906	8-719-200-82	DIODE 11ES2	
Q812	8-729-620-05	TRANSISTOR 2SC2603-EF (FE520R)		D907	8-719-200-82	DIODE 11ES2	
Q813	8-729-620-05	TRANSISTOR 2SC2603-EF (FE520R)		D908	8-719-200-82	DIODE 11ES2	
		< RESISTOR >		D909	8-719-200-82	DIODE 11ES2	
R831	1-249-399-11	CARBON 33 5% 1/4W		D910	8-719-911-19	DIODE 1SS119	
		(FE520R)				< RESISTOR >	
R833	1-247-839-11	CARBON 2.2K 5% 1/4W		△R901	1-212-942-00	FUSIBLE 2.2 5% 1/2W F	
R835	1-247-855-11	CARBON 10K 5% 1/4W		R913	1-247-863-11	CARBON 22K 5% 1/4W	
		(FE520R)				< RELAY >	
R836	1-247-847-11	CARBON 4.7K 5% 1/4W		RY901	1-755-018-11	RELAY	
		(FE520R)		RY902	1-755-018-11	RELAY	
R838	1-249-407-11	CARBON 150 5% 1/4W		*****			
		(FE520R)					
		< SWITCH >		*	1-670-969-11	TAPE MON BOARD (FE520R)	

S1	1-571-112-21	SWITCH, PUSH (1 KEY) (I/⏏) (POWER)		*	4-211-967-01	HOLDER (LED)	
S803	1-571-112-21	SWITCH, PUSH (1 KEY) (EON LINK) (FE520R)				< DIODE >	
*****				D823	8-719-301-49	LED SEL2810A (TAPE MONITER)	
*	1-670-971-11	RELAY AC BOARD				< SWITCH >	
		*****		S802	1-554-303-21	SWITCH, TACTILE (TAPE MONITER)	

	1-533-293-11	FUSE HOLDER				MISCELLANEOUS	
		< CONNECTOR >				*****	
* CN1	1-580-230-31	PIN, CONNECTOR (PC BOARD) 2P		△56	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK)	
CN2	1-564-321-00	PIN, CONNECTOR 2P (AEP)		△CP1	1-575-651-21	CORD, POWER	
* CN954	1-564-506-11	PLUG, CONNECTOR 3P (AEP)		△T1	1-431-802-11	TRANSFORMER, POWER (FE520R)	
		< DIODE >		△T1	1-431-803-11	TRANSFORMER, POWER (FE320R)	
D911	8-719-911-19	DIODE 1SS119 (AEP)		*****			

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

HARDWARE LIST

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-880-09	SCREW +BVTT 4X6 (S)	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S	
#5	7-685-650-79	SCREW +BVTP 3X16 TYPE2 N-S	

ACCESSORIES & PACKING MATERIALS

1-473-655-31	REMOTE COMMANDER (RM-S325)	
3-862-730-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE)	
3-862-730-21	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP)	
3-862-730-41	MANUAL, INSTRUCTION (ENGLISH, POLISH, RUSSIAN) (AEP)	
4-981-643-01	COVER, BATTERY (for RM-S325)	