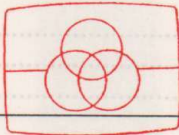


# TA-F419R/F519R

## SERVICE MANUAL

AEP Model



Free service manuals  
Gratis schema's

Photo : TA-F519R

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### SPECIFICATIONS

#### Amplifier

Continuous RMS power output (both channels driven simultaneously)

Model for Germany

		TA-F519R	TA-F419R
DIN, 1 kHz	4 ohms	105 W + 105 W	80 W + 80 W
	8 ohms	85 W + 85 W	75 W + 75 W
20 Hz - 20 kHz	4 ohms	80 W + 80 W	75 W + 75 W
	8 ohms	75 W + 75 W	65 W + 65 W

Model for Scandinavian countries, Switzerland, Spain and Portugal

		TA-F519R	TA-F419R
DIN, 1 kHz	6 ohms	100 W + 100 W	80 W + 80 W
	8 ohms	80 W + 80 W	70 W + 70 W
20 Hz - 20 kHz	6 ohms	75 W + 75 W	70 W + 70 W
	8 ohms	70 W + 70 W	60 W + 60 W

Model for other countries

		TA-F519R	TA-F419R
DIN, 1 kHz	4 ohms	105 W + 105 W	80 W + 80 W
	8 ohms	85 W + 85 W	75 W + 75 W
20 Hz - 20 kHz	4 ohms	80 W + 80 W	75 W + 75 W
	8 ohms	75 W + 75 W	65 W + 65 W

#### Input

Input jack	Jack type	Sensitivity	Impedance
PHONO (MM)	Phono	2.0 mV	50 kilohms
PHONO (MC)	Phono	0.17 mV	100 ohms
TUNER, CD, AUX, DAT/TAPE 1 TAPE 2	Phono	150 mV	50 kilohms

PHONO (MM/MC): only for TA-F519R

#### S/N

	TA-F519R	TA-F419R
PHONO (MM)	76 dB	—
PHONO (MC)	94 dB	94 dB
TUNER, CD, AUX, DAT/TAPE 1 TAPE 2	103 dB	103 dB

#### Output

Output jack	Jack type	Voltage/impedance
REC OUT	Phono jack	Voltage 150 mV Impedance 1 kohm
HEADPHONES	Stereo phono jack	Accepts low and high impedance headphones

INTEGRATED STEREO AMPLIFIER  
**SONY**

Tone controls

	Response	Turnover frequency
BASS	±7 dB (100 Hz)	300 Hz
TREBLE	±6 dB (10 kHz)	5 kHz

Harmonic distortion Less than 0.008% at 10 W output  
 Intermodulation (IM) distortion (60 Hz : 7 kHz = 4:1) Less than 0.008% at 10 W output

Frequency response  
 PHONO: RIAA equalization curve ±0.5 dB  
 TUNER, CD, AUX, DAT/TAPE 1, TAPE 2: 7 Hz - 100 kHz ±0.3 dB  
 Residual noise Less than 170 µV (network A)  
 Damping factor 70 (8 ohms, 1 kHz)

General

System  
 Preamp: Low-noise, equalizer amplifier  
 Power amp: Pure-complementary SEPP OCL power amplifier with all stages directly coupled

Power requirements 220 V - 230 V AC, 50/60 Hz

Power consumption  
 Model for Germany  
 TA-F 519R: 160 W  
 TA-F 419R: 160 W  
 Model for Scandinavian countries, Switzerland, Spain and Portugal  
 TA-F 519R: 160 W  
 TA-F 419R: 160 W

Model for other European countries  
 TA-F 519R: 260 W  
 TA-F 419R: 260 W

Dimensions  
 Approx. 430 x 150 x 375 mm (w/h/d)  
 (17 x 5 7/8 x 14 3/4 inches)  
 Weight  
 TA-F519R: Approx. 9.1 kg (20 lb 1 oz)  
 TA-F419R: Approx. 8.6 kg (18 lb 15 oz)  
 Supplied accessories  
 Remote commander RM-S311 (1)  
 Sony SUM-3 (NS) batteries (2)

The above values are measured at 230 V AC. (Models for European countries)

Design and specifications are subject to change without notice.

Note  
 This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

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3-1. Circuit Boards Location		4
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4-1. Front Panel Section		20
4-2. Chassis Section-1		21
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5. ELECTRICAL PARTS LIST		23

SAFETY-RELATED COMPONENT WARNING!!

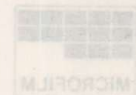
COMPONENTS IDENTIFIED BY MARK  $\Delta$  OR DOTTED LINE WITH MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Output	Jack type	Jack
Line	50 Ohm	50 Ohm
50 Hz - 20 kHz	8 Ohm	8 Ohm
20 Hz - 20 kHz	4 Ohm	4 Ohm
8 Ohm	8 Ohm	8 Ohm

Model for Germany	Model for Scandinavian countries, Switzerland, Spain and Portugal	Model for other countries
TA-F419R	TA-F519R	TA-F419R
4 Ohm	4 Ohm	4 Ohm
8 Ohm	8 Ohm	8 Ohm
8 Ohm	8 Ohm	8 Ohm

Model for other countries	Model for other countries	Model for other countries
TA-F419R	TA-F519R	TA-F419R
8 Ohm	8 Ohm	8 Ohm
8 Ohm	8 Ohm	8 Ohm
8 Ohm	8 Ohm	8 Ohm

Model for other countries	Model for other countries	Model for other countries
TA-F419R	TA-F519R	TA-F419R
4 Ohm	4 Ohm	4 Ohm
8 Ohm	8 Ohm	8 Ohm
8 Ohm	8 Ohm	8 Ohm

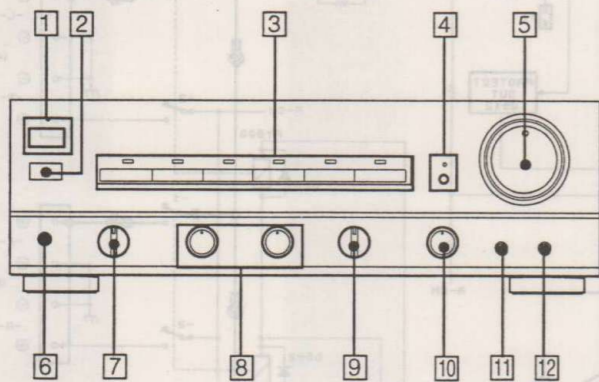


## SECTION 1 GENERAL

### Identifying the Parts and Controls

This section describes about each name of this amplifier and remote commander.

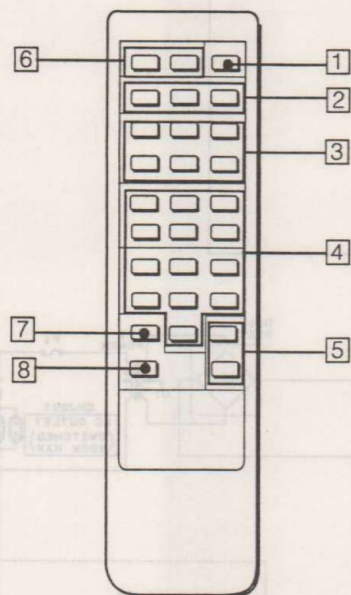
This section is extracted from instruction manual.



#### Front Panel

- 1 POWER switch and STANDBY indicator
- 2 Remote control sensor
- 3 Function selectors and indicators
- 4 SOURCE DIRECT button and indicator
- 5 VOLUME control and indicator  
Adjusts the sound level.  
Immediately after turning on the POWER switch, the VOLUME indicator blinks when the built-in muting circuit activates and the unit detects shorting of circuit of the speaker outputs or in case of short-circuit of the inputs of DC components. In such case, turn off the unit and check the connected components and speaker system.
- 6 HEADPHONES jack
- 7 SPEAKERS selector
- 8 TONE (BASS/TREBLE) controls
- 9 REC OUT SELECTOR
- 10 BALANCE control
- 11 SUBSONIC switch (TA-F519R)
- 12 CARTRIDGE selector (TA-F519R)

#### Remote Commander



RM-S311

- 1 POWER switch
- 2 TUNER operation buttons  
TUNER: Select the TUNER mode.  
PRESET +/- buttons: Select the preset station.
- 3 CD operation buttons  
◀▶▶▶: Automatic music sensor.  
D. (Disc) SKIP: Disc skip (for CD player equipped with a multi-disc changer)  
▶: The amplifier enters the CD mode and the CD player starts playback automatically.  
■: Stop.  
■: Pause.
- 4 TAPE 2 DECK A/DECK B operation buttons  
◀▶▶▶: Fast winding.  
■: Stop.  
◀: The amplifier enters the TAPE 2 mode and the tape deck starts reverse playback automatically.  
▶: The amplifier enters the TAPE 2 mode and the tape deck starts forward playback automatically.  
●: Recording.  
■: Pause. (Only for DECK B)
- 5 VOL (Volume) +/- buttons
- 6 PHONO operation buttons  
START: Pressing START automatically selects the PHONO mode on the amplifier and starts playback of the turntable system.  
STOP: Stops playback of the turntable system.
- 7 DAT/TAPE 1 button  
Selects the DAT or TAPE 1 mode.
- 8 AUX button  
Selects the AUX mode.

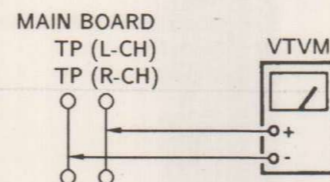
## SECTION 2 ELECTRICAL ADJUSTMENTS

Note :

1. DC BIAS adjustments should be made one minute after the POWER switch is turned on (POWER ON).
2. After replacing the power transistors, DC BIAS adjustments should be made.

#### DC Bias Adjustment (with no signal input)

Procedure :



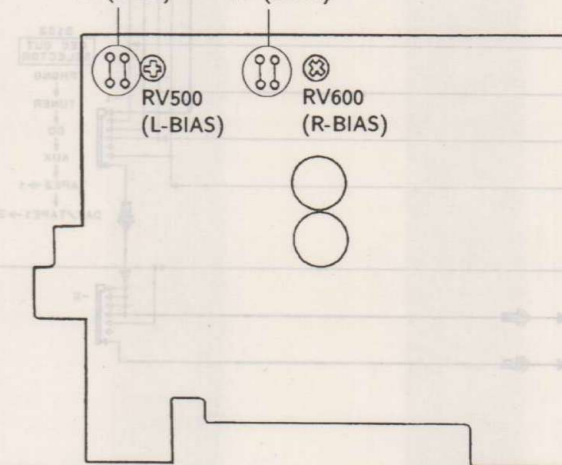
	Adjustment part	Reading on VTVM
L-CH	RV500	7mV
R-CH	RV600	7mV

Adjustment Location :

[MAIN BOARD]

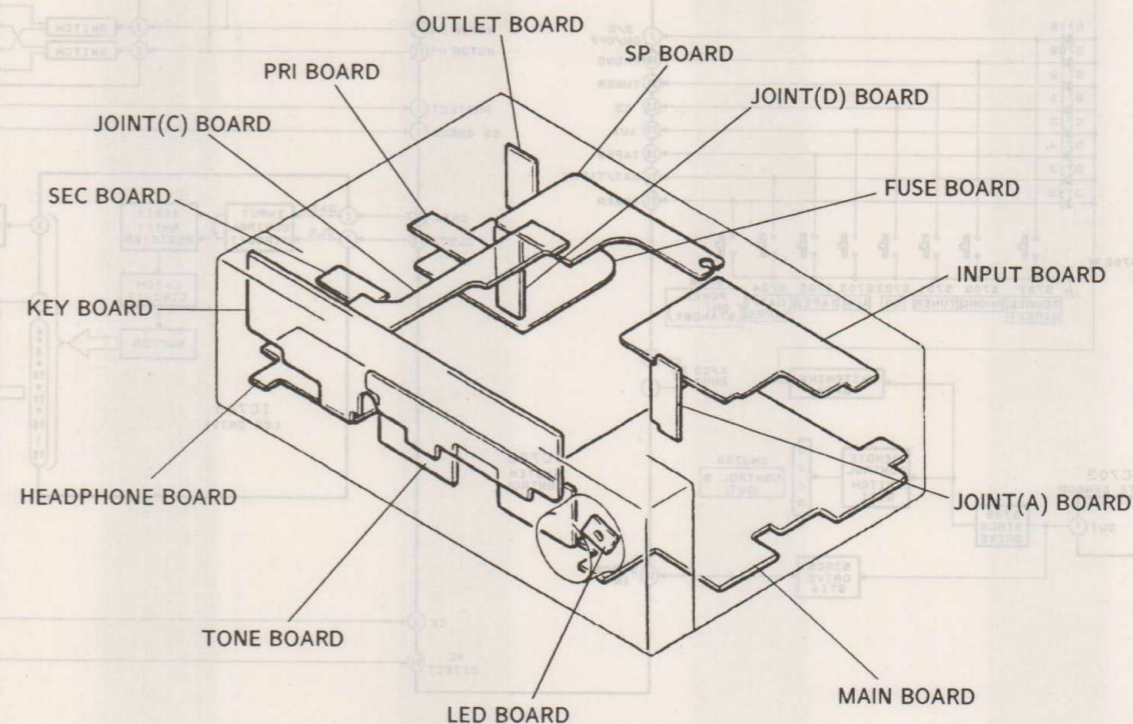
- COMPONENT SIDE -

TP (L-CH) TP (R-CH)

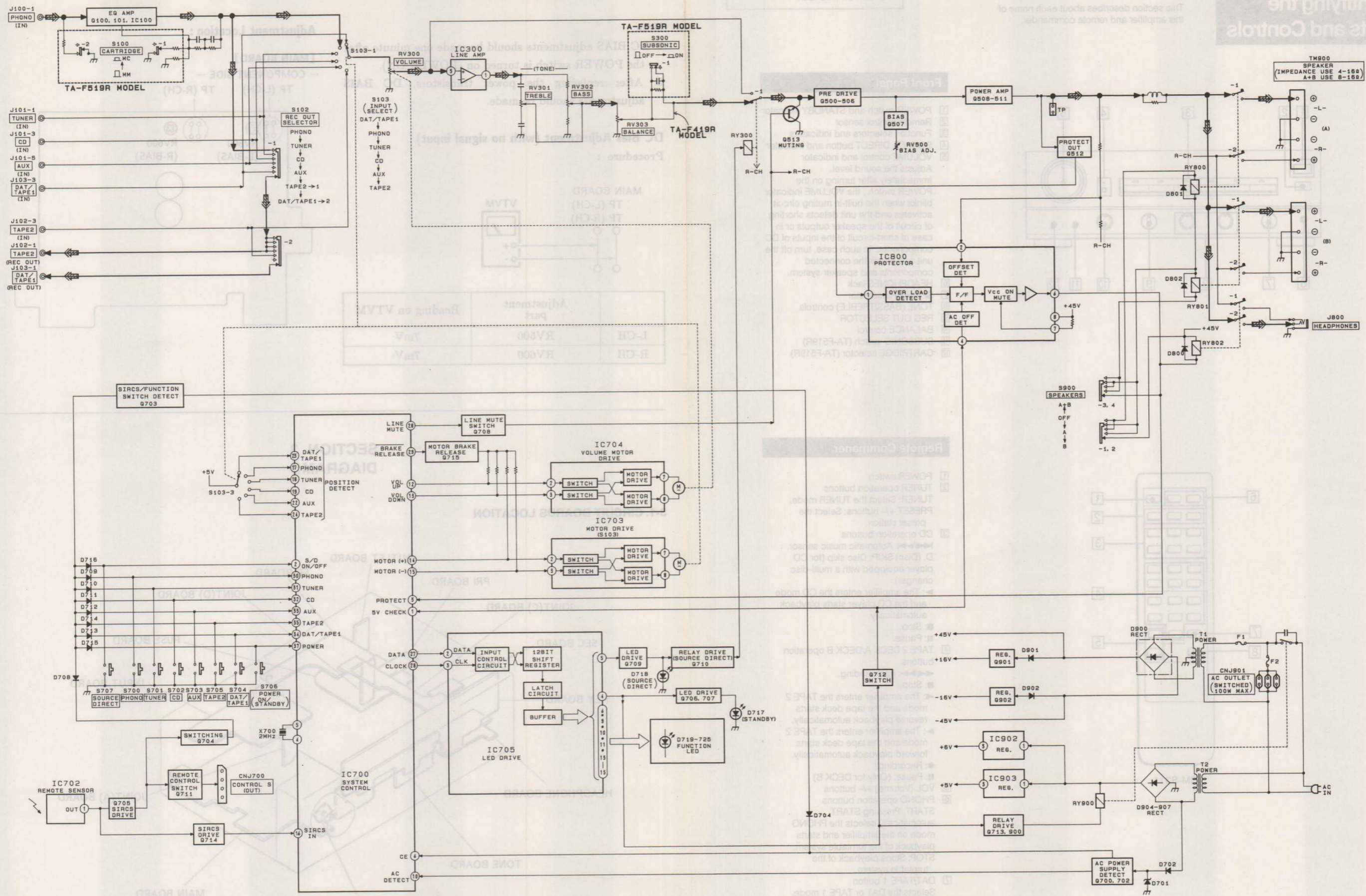


## SECTION 3 DIAGRAMS

### 3-1. CIRCUIT BOARDS LOCATION



### 3-2. BLOCK DIAGRAM



**IC700 System Controller (M50720-358SP)**

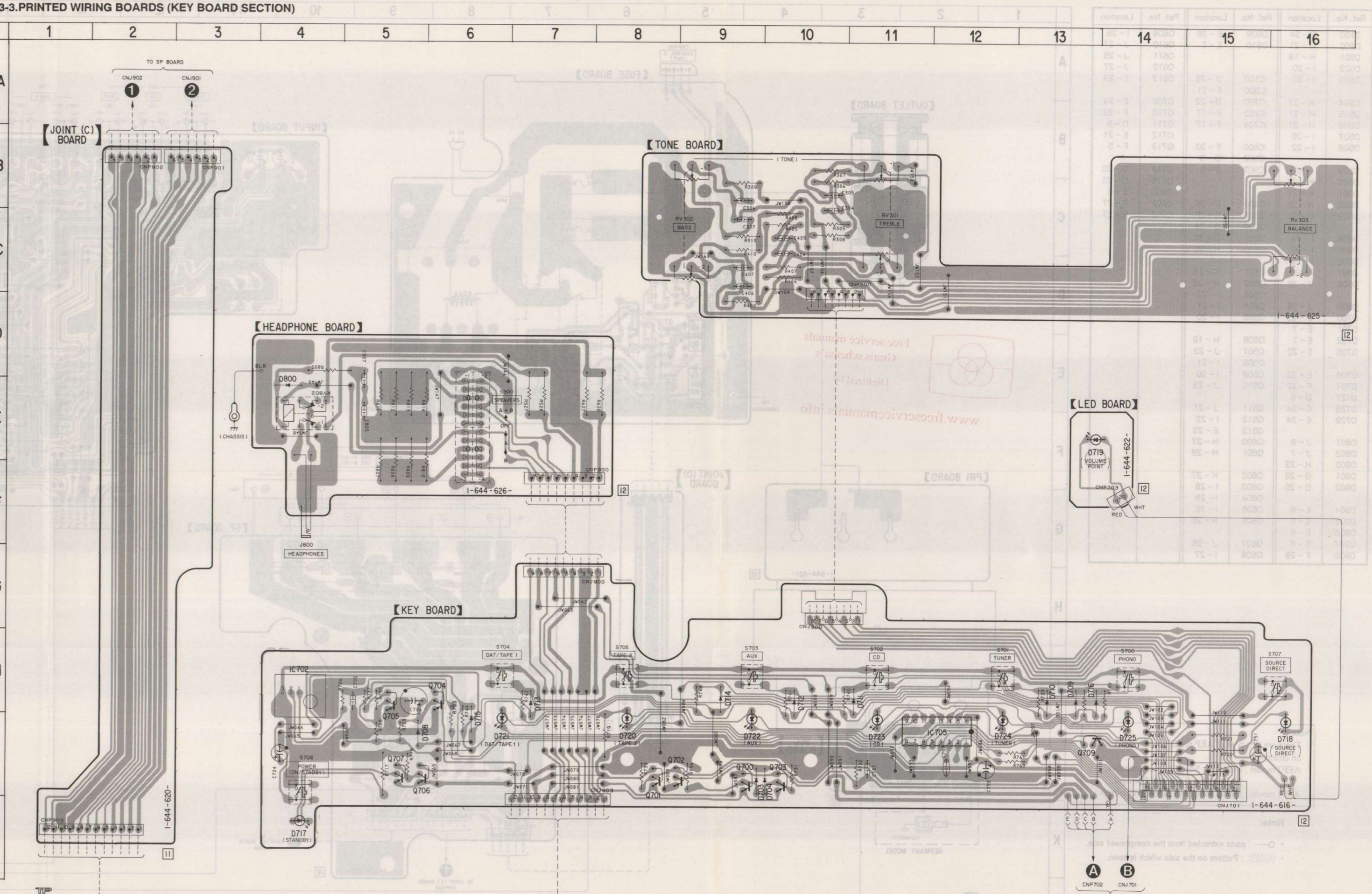
Pin No.	Pin Name	I/O	Description
1	5V CHECK	I	Power supply (+5V) check.
2	S/D ON/OFF	I	Source direct ON/OFF control input.
3	PROTECT	I	Protection signal input.
4	X OUT	O	Connected oscillator circuit.
5	X IN	I	Connected oscillator circuit.
6	CE	I	Signal input for a return to normal position.
7	RESET	I	Reset signal input. ("L" : RESET)
8	VDD	I	+5 Volts power supply.
9	CNTR	I	Ground.
10	AC DET	I	AC power supply detection input.
11	C	I	Connected 0.1μF capacitor.
12	VOL UP	O	Volume control (up) signal output.
13	VOL DOWN	O	Volume control (down) signal output.
14	MOTOR NORM	O	Motor (normal turn) signal output.
15	MOTOR RVS	O	Motor (reverse turn) signal output.
16	SIRCS IN	I	Serial data input (SIRCS).
17	S1	I	Function selector positioning detection input (PHONO).
18	S2	I	Function selector positioning detection input (TUNER).
19	S3	I	Function selector positioning detection input (CD).
20	CNVSS	-	Ground.
21	VSS	-	Ground.
22	S4	I	Function selector positioning detection input (AUX).
23	S5	I	Function selector positioning detection input (TAPE 1).
24	S6	I	Function selector positioning detection input (TAPE 2).
25	S7	I	Connected the resistor 22 kilohms.
26	CLOCK	O	Shift register for LED (CLK).
27	DATA	O	Shift register for LED (DATA).
28	LINE MUTE	O	Line mute signal output.
29	BRAKE RELEASE	O	Motor drive control signal output. ("L" : BRAKE RELEASE)
30	PHONO	I	Function control input for Phono mode.
31	TUNER	I	Function control input for Tuner mode.
32	CD	I	Function control input for CD mode.
33	AUX	I	Function control input for AUX mode.
34	TAPE1	I	Function control input for Tape 1 mode.
35	TAPE2	I	Function control input for Tape 2 mode.
36	-	-	Connected the resistor 22 kilohms.
37	POWER ON/OFF	I	Power ON/OFF control input.
38	K0	I	Ground.
39	K1	I	Ground.
40	K2	I	Microcomputer operation mode selection input.
41	K3	I	Microcomputer operation mode selection input.
42	MUTE	I	Connected the resistor 22 kilohms.

**SEMICONDUCTOR LEAD LAYOUTS**

**SEMICONDUCTOR LOCATION**

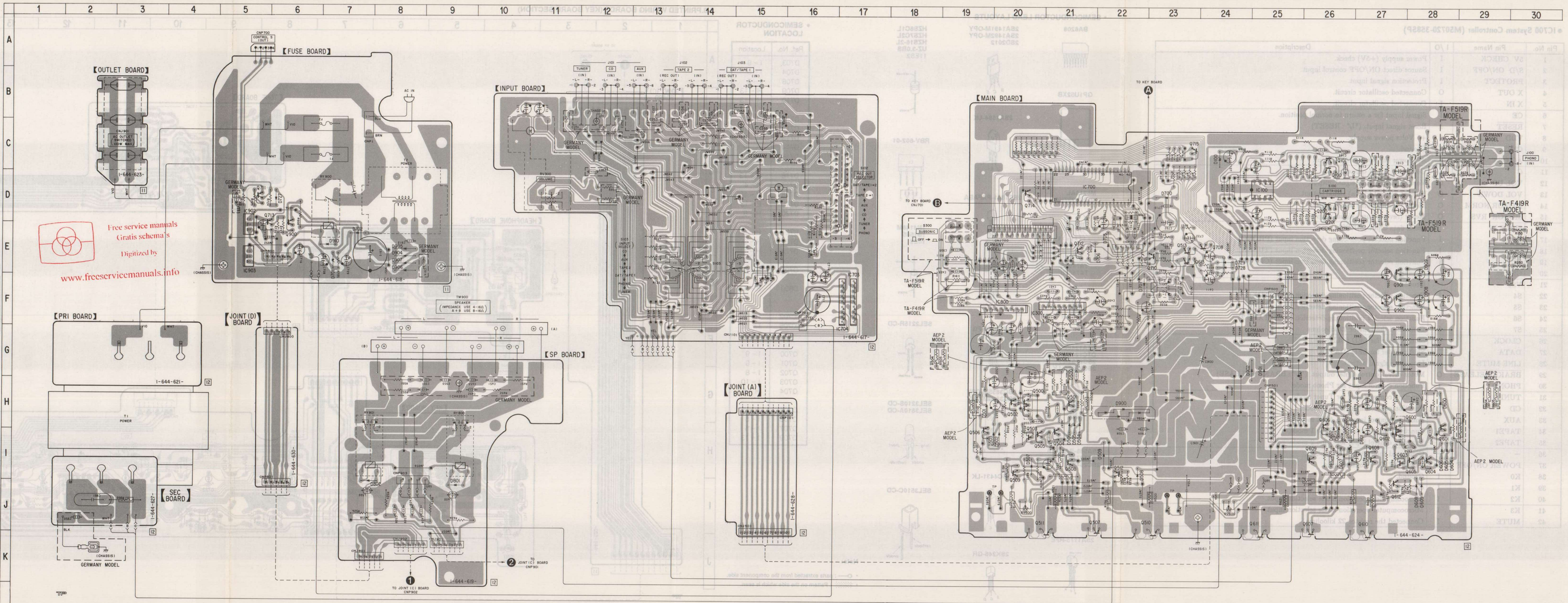
Ref. No.	Location
D703	I-9
D704	I-9
D708	I-5
D709	H-13
D710	H-13
D711	H-11
D712	H-10
D713	H-7
D714	H-9
D715	H-6
D716	H-13
D717	J-4
D718	H-16
D719	E-13
D720	H-8
D721	H-6
D722	H-9
D723	H-11
D724	H-12
D725	H-14
D800	E-4
IC702	H-4
IC705	I-12
Q700	I-9
Q701	I-8
Q702	I-8
Q703	I-10
Q704	H-6
Q705	H-5
Q706	I-5
Q707	I-5
Q709	I-13

**Note:**  
 ○ : parts extracted from the component side.  
 ● : Pattern on the side which is seen.



3-4.PRINTED WIRING BOARDS (MAIN BOARD SECTION) • Refer to Page 8 for Semiconductor Lead Layouts.

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D100	C-24	D909	E-28	Q609	I-26
D500	H-21	D910	E-7	Q610	J-27
D501	H-19			Q611	J-25
D502	I-20			Q612	J-27
D503	I-20	IC100	D-25	Q613	E-23
		IC300	F-21		
D504	H-21	IC700	D-22	Q708	E-24
D505	H-21	IC703	F-17	Q710	E-23
D506	H-21	IC704	F-17	Q711	D-5
D507	I-20			Q712	E-21
D508	I-22	IC800	F-20	Q713	F-5
		IC902	D-5		
		IC903	E-5	Q714	D-20
D509	I-22			Q715	C-23
D600	H-28			Q900	E-6
D601	H-27			Q901	E-27
D602	H-26	Q100	C-26	Q902	F-27
D603	H-26	Q101	C-26		
		Q200	D-26		
		Q201	D-26		
		Q500	H-20		
D604	I-28	Q501	H-21		
D605	I-28	Q502	H-20		
D606	I-28	Q503	I-20		
D607	I-26	Q504	I-21		
D608	J-28	Q505	I-20		
D609	J-28	Q506	H-19		
D700	D-23	Q507	J-22		
D701	E-7	Q508	I-21		
D702	E-7	Q509	I-20		
D705	E-22	Q510	J-23		
D706	E-22				
D707	F-22				
D727	D-6				
D728	E-24	Q511	J-21		
D729	E-24	Q512	I-22		
		Q513	E-23		
D801	J-9	Q600	H-27		
D802	J-7	Q601	H-28		
D900	H-22				
D901	G-25	Q602	H-27		
D902	G-25	Q603	I-28		
		Q604	I-28		
		Q605	I-28		
D904	E-8	Q606	H-26		
D905	E-8				
D906	E-8				
D907	E-8	Q607	J-26		
D908	F-28	Q608	I-27		

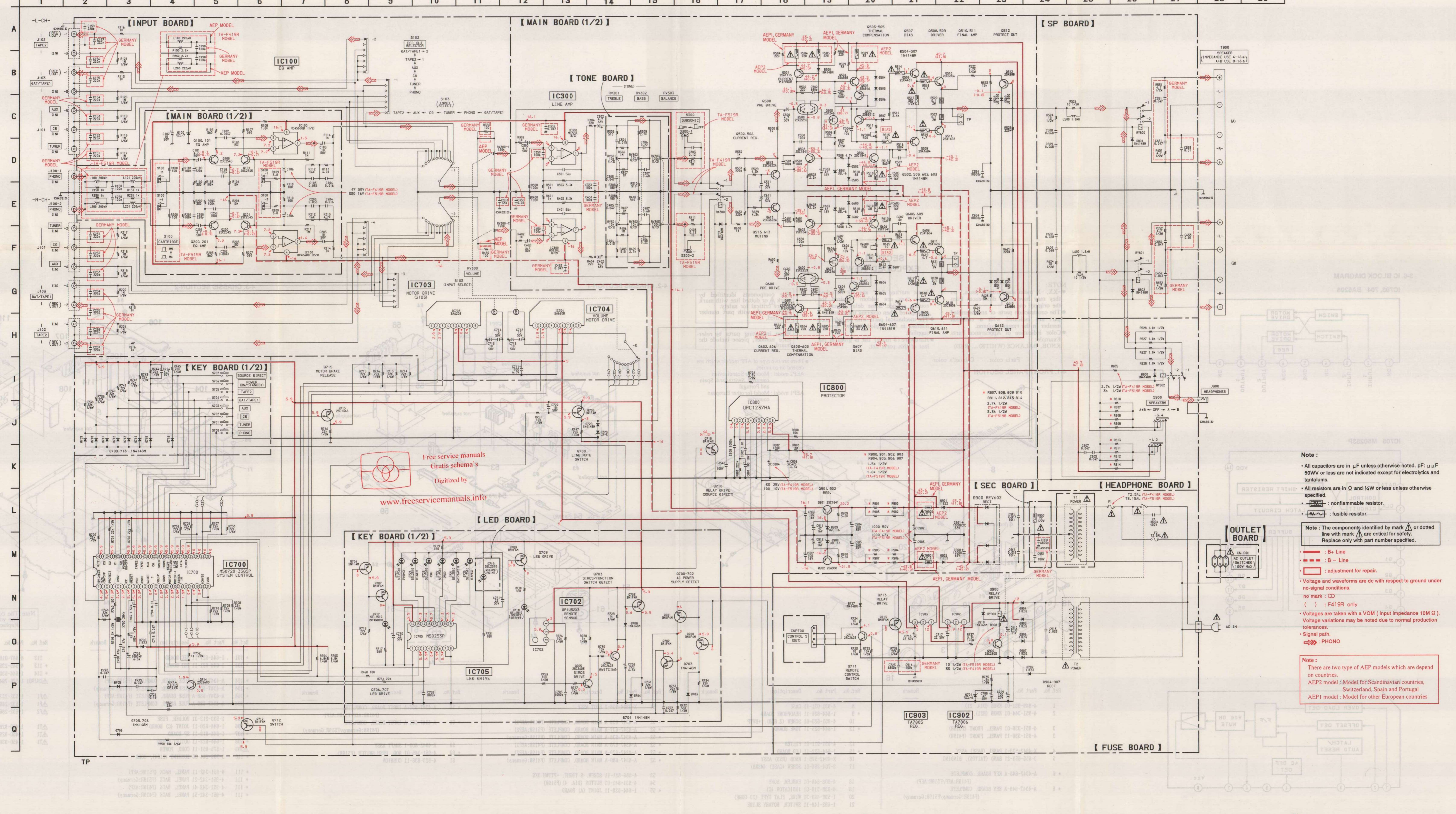


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Note:  
There are two type of AEP models which are depend on countries.  
AEP2 model: Model for Scandinavian countries, Switzerland, Spain and Portugal  
AEP1 model: Model for other European countries

Note:  
○ : parts extracted from the component side.  
□ : Pattern on the side which is seen.

3-5. SCHEMATIC DIAGRAM • Refer to Page 19 for IC Block Diagrams.

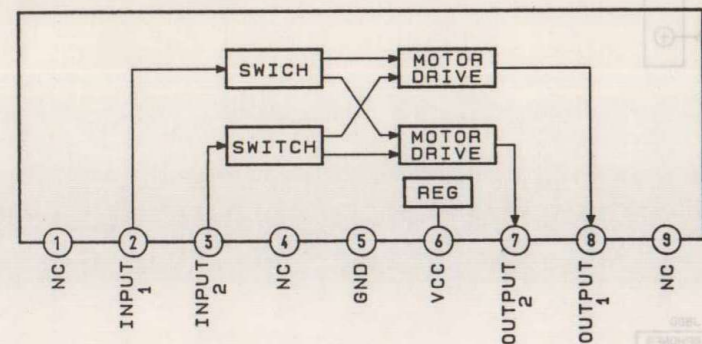


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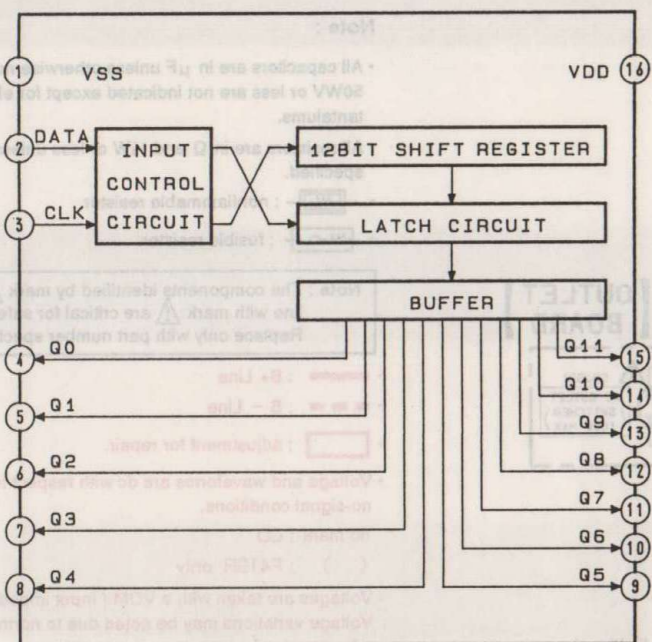
- Note :**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{p}\mu\text{F}$  50V or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
  - : nonflammable resistor.
  - : fusible resistor.
- 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
  - : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.  
no mark : CD  
( ) : F419R only
- Voltages are taken with a VOM ( Input impedance 10M  $\Omega$  ). Voltage variations may be noted due to normal production tolerances.
- Signal path  
 : PHONO
- Note :** There are two type of AEP models which are depend on countries.  
AEP2 model : Model for Scandinavian countries, Switzerland, Spain and Portugal  
AEP1 model : Model for other European countries

3-6. IC BLOCK DIAGRAM

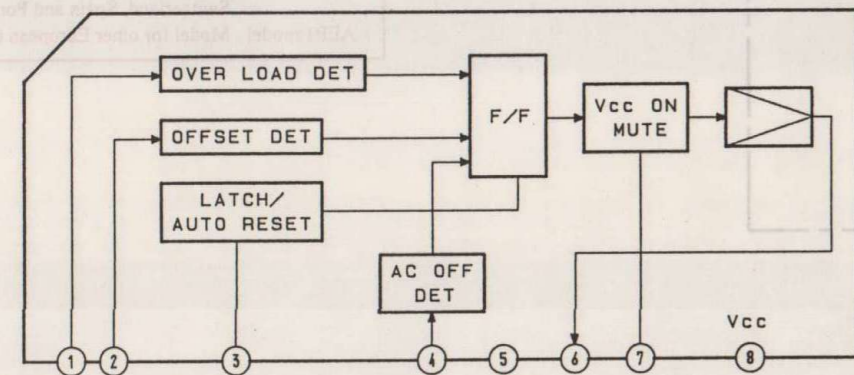
IC703, 704 BA6208



IC705 M50253P



IC800 UPC1237HA



SECTION 4 EXPLODED VIEWS

NOTE:

- XX, -X mean standardized parts...
• Items marked "\*" are not stocked since they are seldom required for routine service...
• The components identified by mark A or dotted line with mark A are critical for safety.

4-1. FRONT PANEL SECTION

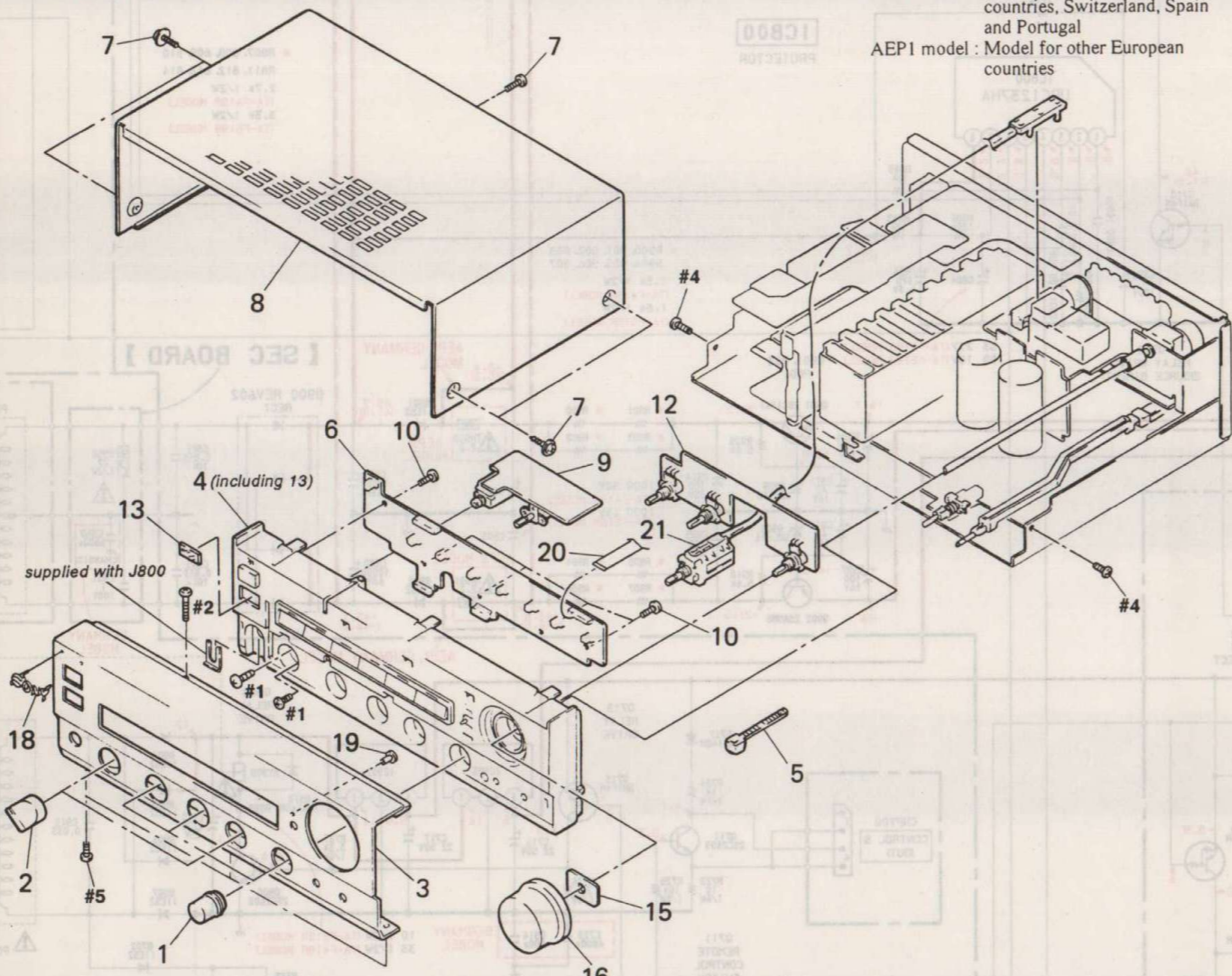


Table with 4 columns: Ref. No., Part No., Description, Remark. Lists parts like knobs, panels, and key boards.

Table with 4 columns: Ref. No., Part No., Description, Remark. Lists parts like case, main boards, filter, and LED board.

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

When indicating parts by reference number, please include the board. There are two type of AEP models which are depend on countries.

4-2. CHASSIS SECTION-1

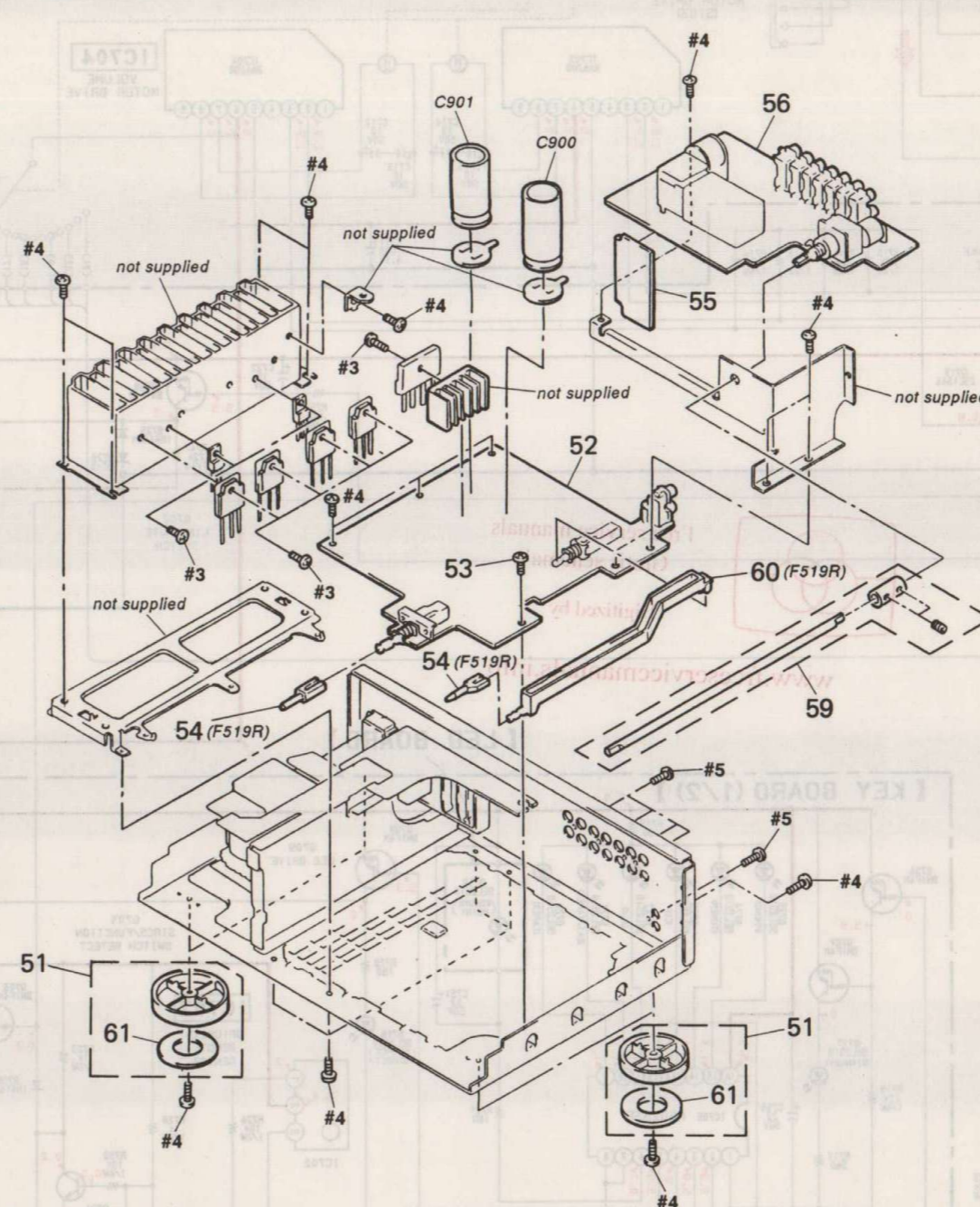


Table with 4 columns: Ref. No., Part No., Description, Remark. Lists parts like foot assembly, main boards, and shaft assembly.

4-3. CHASSIS SECTION-2

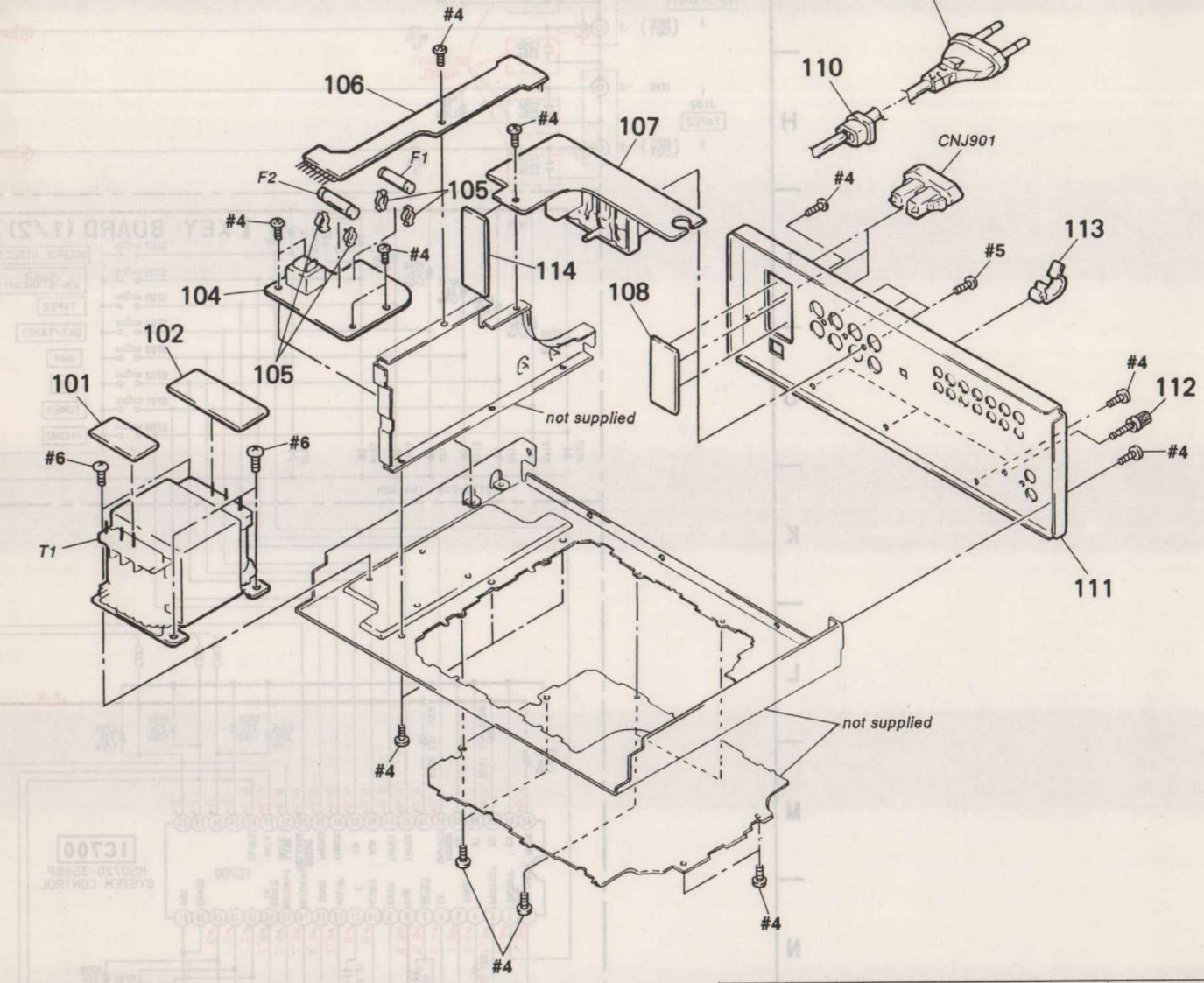


Table with 4 columns: Ref. No., Part No., Description, Remark. Lists parts like sec board, fuse board, and various boards.

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

Table with 4 columns: Ref. No., Part No., Description, Remark. Lists parts like screws, hooks, and transformers.



## SECTION 5 ELECTRICAL PARTS LIST

### FUSE

**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
- G: Germany
- AEP2: Model for Scandinavian countries, Switzerland, Spain and Portugal
- AEP1: Model for other European countries

- 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:  $\mu$ , for example:  
uA.:  $\mu$ A.    uPA.:  $\mu$ PA.  
uPB.:  $\mu$ PB.    uPC.:  $\mu$ PC.    uPD.:  $\mu$ PD.
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  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-4347-654-A	FUSE BOARD, COMPLETE (F519R:AEP)			D905	8-719-200-82	DIODE 11ES2	
*	A-4347-655-A	FUSE BOARD, COMPLETE (F519R:G)			D906	8-719-200-82	DIODE 11ES2	
*	A-4347-688-A	FUSE BOARD, COMPLETE (F419R:AEP)			D907	8-719-200-82	DIODE 11ES2	
*	A-4347-689-A	FUSE BOARD, COMPLETE (F419R:G)			D910	8-719-987-63	DIODE 1N4148M	
*****								
*	1-533-213-31	HOLDER, FUSE			< FUSE >			
		< CAPACITOR >			$\Delta$ F1	1-532-237-00	FUSE, TIME LAG (T3. 15A) (F519R)	
$\Delta$ C1	1-161-741-00	CERAMIC	0.001uF 10% 400V		$\Delta$ F1	1-532-286-00	FUSE (T2. 5A) (F419R)	
C708	1-124-126-00	ELECT	47uF 20% 10V		$\Delta$ F2	1-532-286-00	FUSE (T2. 5A)	
C709	1-124-478-11	ELECT	100uF 20% 25V		< IC >			
C716	1-126-233-11	ELECT	22uF 20% 50V		IC902	8-759-231-54	IC TA7806S	
C717	1-126-233-11	ELECT	22uF 20% 50V		IC903	8-759-234-64	IC TA7805S	
C723	1-164-094-11	CERAMIC	0.0068uF 10% 25V (F419R:G/F519R:G)		< TRANSISTOR >			
C910	1-124-563-11	ELECT	2200uF 20% 25V		Q711	8-729-620-05	TRANSISTOR 2SC2603-EF	
C913	1-136-159-00	FILM	0.033uF 5% 50V		Q713	8-729-900-63	TRANSISTOR DTA124ES	
C914	1-164-073-11	CERAMIC	100PF 10% 50V (F419R:G/F519R:G)		Q900	8-729-620-05	TRANSISTOR 2SC2603-EF	
		< CONNECTOR >			< RESISTOR >			
* CNP1	1-564-321-00	PIN, CONNECTOR 2P			R723	1-249-393-11	CARBON 10 5% 1/4W	
CNP700	1-566-213-11	PIN, CONNECTOR 4P (CONTROL S OUT)			R724	1-249-417-11	CARBON 1K 5% 1/4W	
CNP800	1-691-162-11	PIN, CONNECTOR 5P			R725	1-249-429-11	CARBON 10K 5% 1/4W	
		< DIODE >			R735	1-249-419-11	CARBON 1.5K 5% 1/4W	
D701	8-719-933-39	DIODE HZS6C1L			R736	1-249-433-11	CARBON 22K 5% 1/4W	
D702	8-719-200-82	DIODE 11ES2			R737	1-249-423-11	CARBON 3.3K 5% 1/4W	
D727	8-719-987-63	DIODE 1N4148M			R908	1-247-733-11	CARBON 33 5% 1/2W(F419R)	
D904	8-719-200-82	DIODE 11ES2			R908	1-247-727-11	CARBON 10 5% 1/2W(F519R)	
					< RELAY >			
					$\Delta$ RY900	1-515-516-00	RELAY (F419R)	
					$\Delta$ RY900	1-515-617-11	RELAY (F519R)	
					< TRANSFORMER >			
					$\Delta$ T2	1-449-071-11	TRANSFORMER, POWER	

## HEADPHONE

## INPUT

Ref. No.	Part No.	Description	Remark
*	1-644-626-11	HEADPHONE BOARD *****	
		< CAPACITOR >	
C805	1-136-161-00	FILM	0.047uF 5% 50V
C807	1-136-161-00	FILM	0.047uF 5% 50V
		< CONNECTOR >	
* CNP900	1-560-943-00	PIN, CONNECTOR 9P	
		< DIODE >	
D800	8-719-987-63	DIODE 1N4148M	
		< JACK >	
J800	1-573-203-11	JACK, LARGE TYPE (HEADPHONES)	
		< RESISTOR >	
R527	1-247-752-11	CARBON	1K 5% 1/2W
R528	1-247-752-11	CARBON	1K 5% 1/2W
R627	1-247-752-11	CARBON	1K 5% 1/2W
R628	1-247-752-11	CARBON	1K 5% 1/2W
R805	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R805	1-247-251-00	CARBON	3K 5% 1/2W (F519R)
R807	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R807	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R808	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R808	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R809	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R809	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R810	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R810	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R811	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R811	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R812	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R812	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R813	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R813	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
R814	1-247-757-11	CARBON	2.7K 5% 1/2W (F419R)
R814	1-247-758-11	CARBON	3.3K 5% 1/2W (F519R)
		< RELAY >	
RY802	1-515-793-11	RELAY	
		< SWITCH >	
S900	1-692-147-11	SWITCH, ROTARY SLIDE (SPEAKERS)	

Ref. No.	Part No.	Description	Remark
*	A-4347-650-A	INPUT BOARD, COMPLETE (F419R:AEP/F519R:AEP)	
*	A-4347-651-A	INPUT BOARD, COMPLETE (F419R:G/F519R:G) *****	
		< CAPACITOR >	
C151	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C152	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C153	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C154	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C155	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C156	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C157	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C159	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C251	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C252	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C253	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C254	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C255	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C256	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C257	1-162-286-31	CERAMIC	220PF 10% 50V (F419R:G/F519R:G)
C353	1-164-058-11	CERAMIC	33PF 5% 50V (F419R:G/F519R:G)
C711	1-124-471-00	ELECT	1000uF 20% 6.3V
C712	1-124-907-11	ELECT	10uF 20% 50V
C713	1-124-907-11	ELECT	10uF 20% 50V
C714	1-124-907-11	ELECT	10uF 20% 50V
C715	1-124-907-11	ELECT	10uF 20% 50V
		< CONNECTOR >	
* CNJ101	1-691-180-11	CONNECTOR (BOARD TO BOARD) 10P	
* CNP702	1-564-505-11	PLUG, CONNECTOR 2P	
		< IC >	
IC703	8-759-962-08	IC BA6208	
IC704	8-759-962-08	IC BA6208	
		< JACK >	
J101	1-566-883-71	JACK, PIN 6P (AUX/CD/TUNER)	
J102	1-566-882-51	JACK, PIN 4P (TAPE2)	
J103	1-566-882-51	JACK, PIN 4P (DAT/TAPE1) (F419R:AEP/F519R:AEP)	
J103	1-566-882-61	JACK, PIN 4P (DAT/TAPE1) (F419R:G/F519R:G)	

**INPUT**      **JOINT (A)**      **JOINT (C)**      **JOINT (D)**      **KEY**

Ref. No.	Part No.	Description	Remark		
< RESISTOR >					
R115	1-247-713-11	CARBON	1K	5%	1/4W
R116	1-247-713-11	CARBON	1K	5%	1/4W
R117	1-259-500-11	CARBON	1M	5%	1/6W
R118	1-259-500-11	CARBON	1M	5%	1/6W
R119	1-259-500-11	CARBON	1M	5%	1/6W
R120	1-259-500-11	CARBON	1M	5%	1/6W
R121	1-259-500-11	CARBON	1M	5%	1/6W
R215	1-247-713-11	CARBON	1K	5%	1/4W
R216	1-247-713-11	CARBON	1K	5%	1/4W
R217	1-259-500-11	CARBON	1M	5%	1/6W
R218	1-259-500-11	CARBON	1M	5%	1/6W
R219	1-259-500-11	CARBON	1M	5%	1/6W
R220	1-259-500-11	CARBON	1M	5%	1/6W
R221	1-259-500-11	CARBON	1M	5%	1/6W
R350	1-247-700-11	CARBON	100	5%	1/4W (F419R:G/F519R:G)
R450	1-247-700-11	CARBON	100	5%	1/4W (F419R:G/F519R:G)
< VARIABLE RESISTOR >					
RV300	1-241-913-11	RES, VAR, CARBON	120K/120K (VOLUME)		
< SWITCH >					
S102	1-571-115-11	SWITCH, SLIDE	(REC OUT SELECTOR)		
S103	1-692-142-11	SWITCH, ROTARY	(WITH MOTOR) (INPUT SELECTOR)		
*****					
*	1-644-628-11	JOINT (A) BOARD	*****		
< CONNECTOR >					
* CNJ501	1-691-180-11	CONNECTOR (BOARD TO BOARD)	10P		
CNP101	1-691-167-11	PIN, CONNECTOR	10P		
*****					
*	1-644-620-11	JOINT (C) BOARD	*****		
< CONNECTOR >					
* CNP901	1-580-854-11	PIN, CONNECTOR (PC BOARD)	6P		
* CNP902	1-580-854-11	PIN, CONNECTOR (PC BOARD)	6P		
* CNP903	1-560-443-11	PIN, CONNECTOR	12P		
*****					

Ref. No.	Part No.	Description	Remark		
*	1-644-630-11	JOINT (D) BOARD	*****		
< CONNECTOR >					
* CNJ800	1-691-175-11	CONNECTOR (BOARD TO BOARD)	5P		
CNP801	1-691-162-11	PIN, CONNECTOR	5P		
*****					
*	A-4347-648-A	KEY BOARD, COMPLETE	(F419R:AEP/F519R:AEP)		
*	A-4347-649-A	KEY BOARD, COMPLETE	(F419R:G/F519R:G)		
*****					
< CAPACITOR >					
C705	1-164-085-11	CERAMIC	0.001uF	10%	50V
C706	1-126-176-11	ELECT	220uF	20%	10V
C707	1-136-161-00	FILM	0.047uF	5%	50V
C724	1-124-927-11	ELECT	4.7uF	20%	100V
C750	1-126-233-11	ELECT	22uF	20%	50V
C751	1-126-233-11	ELECT	22uF	20%	50V
C752	1-164-085-11	CERAMIC	0.001uF	10%	50V
< CONNECTOR >					
* CNJ300	1-565-321-11	SOCKET, CONNECTOR (PC BOARD)	8P		
* CNJ701	1-568-865-11	SOCKET, CONNECTOR	23P		
CNJ900	1-562-088-00	SOCKET, CONNECTOR	9P		
* CNJ903	1-561-652-00	SOCKET, CONNECTOR	12P		
< DIODE >					
D703	8-719-987-63	DIODE	1N4148M		
D704	8-719-987-63	DIODE	1N4148M		
D708	8-719-987-63	DIODE	1N4148M		
D709	8-719-987-63	DIODE	1N4148M		
D710	8-719-987-63	DIODE	1N4148M		
D711	8-719-987-63	DIODE	1N4148M		
D712	8-719-987-63	DIODE	1N4148M		
D713	8-719-987-63	DIODE	1N4148M		
D714	8-719-987-63	DIODE	1N4148M		
D715	8-719-987-63	DIODE	1N4148M		
D716	8-719-987-63	DIODE	1N4148M		
D717	8-719-313-69	DIODE	SEL3210S-CD		
D718	8-719-313-72	LED	SEL3810A-CD		
D720	8-719-018-46	LED	SEL3510C-CD		
D721	8-719-018-46	LED	SEL3510C-CD		
D722	8-719-018-46	LED	SEL3510C-CD		
D723	8-719-018-46	LED	SEL3510C-CD		
D724	8-719-018-46	LED	SEL3510C-CD		
D725	8-719-018-46	LED	SEL3510C-CD		

KEY

LED

MAIN

Ref. No.	Part No.	Description	Remark
< IC >			
IC702	8-749-920-83	IC GP1U52XB	
IC705	8-759-635-31	IC M50253P	
< TRANSISTOR >			
Q700	8-729-900-63	TRANSISTOR DTA124ES	
Q701	8-729-900-63	TRANSISTOR DTA124ES	
Q702	8-729-900-36	TRANSISTOR DTC124ES	
Q703	8-729-900-63	TRANSISTOR DTA124ES	
Q704	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q705	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q706	8-729-900-63	TRANSISTOR DTA124ES	
Q707	8-729-900-63	TRANSISTOR DTA124ES	
Q709	8-729-900-63	TRANSISTOR DTA124ES	
< RESISTOR >			
R717	1-247-710-11	CARBON 560 5% 1/4W	
R718	1-249-433-11	CARBON 22K 5% 1/4W	
R719	1-247-702-11	CARBON 150 5% 1/4W	
R720	1-247-703-11	CARBON 180 5% 1/4W	
R721	1-247-703-11	CARBON 180 5% 1/4W	
R726	1-249-429-11	CARBON 10K 5% 1/4W	
R727	1-249-429-11	CARBON 10K 5% 1/4W	
R728	1-249-417-11	CARBON 1K 5% 1/4W	
R729	1-249-417-11	CARBON 1K 5% 1/4W	
R730	1-249-429-11	CARBON 10K 5% 1/4W	
R731	1-249-433-11	CARBON 22K 5% 1/4W	
R732	1-249-438-11	CARBON 56K 5% 1/4W	
R733	1-249-433-11	CARBON 22K 5% 1/4W	
R734	1-249-433-11	CARBON 22K 5% 1/4W	
R738	1-249-433-11	CARBON 22K 5% 1/4W	
R739	1-249-433-11	CARBON 22K 5% 1/4W	
R740	1-249-433-11	CARBON 22K 5% 1/4W	
R741	1-249-433-11	CARBON 22K 5% 1/4W	
R742	1-249-433-11	CARBON 22K 5% 1/4W	
R743	1-249-433-11	CARBON 22K 5% 1/4W	
R744	1-249-433-11	CARBON 22K 5% 1/4W	
R745	1-249-433-11	CARBON 22K 5% 1/4W	
R753	1-249-429-11	CARBON 10K 5% 1/4W	
R760	1-249-405-11	CARBON 100 5% 1/4W	
R761	1-249-405-11	CARBON 100 5% 1/4W	
< SWITCH >			
S700	1-554-303-21	SWITCH, TACTILE (PHONO)	
S701	1-554-303-21	SWITCH, TACTILE (TUNER)	
S702	1-554-303-21	SWITCH, TACTILE (CD)	
S703	1-554-303-21	SWITCH, TACTILE (AUX)	
S704	1-554-303-21	SWITCH, TACTILE (DAT/TAPE 1)	

Ref. No.	Part No.	Description	Remark
S705	1-554-303-21	SWITCH, TACTILE (TAPE 2)	
S706	1-554-303-21	SWITCH, TACTILE (POWER)	
S707	1-554-303-21	SWITCH, TACTILE (SOURCE DIRECT)	
*****			
*	1-644-622-11	LED BOARD	
*****			
< CONNECTOR >			
* CNP703	1-564-505-11	PLUG, CONNECTOR 2P	
< DIODE >			
D719	8-719-028-38	DIODE SEL2215R-CD-TP	
*****			
*	A-4347-636-A	MAIN BOARD, COMPLETE (F519R:AEP1)	
*	A-4347-637-A	MAIN BOARD, COMPLETE (F519R:AEP2)	
*	A-4347-638-A	MAIN BOARD, COMPLETE (F519R:G)	
*	A-4347-678-A	MAIN BOARD, COMPLETE (F419R:AEP1)	
*	A-4347-679-A	MAIN BOARD, COMPLETE (F419R:AEP2)	
*	A-4347-680-A	MAIN BOARD, COMPLETE (F419R:G)	
*****			
< CAPACITOR >			
C100	1-164-077-11	CERAMIC 220PF 10% 50V	
C101	1-123-369-00	ELECT 4.7uF 20% 50V	
C102	1-161-377-00	CERAMIC 0.0047uF 30% 16V	
C103	1-136-162-00	FILM 0.056uF 5% 50V	
C104	1-137-471-11	FILM 0.016uF 5% 50V	
C105	1-126-059-11	ELECT 10uF 20% 50V	
C106	1-124-910-11	ELECT 47uF 20% 50V(F419R)	
C106	1-126-541-11	ELECT 330uF 20% 16V(F519R)	
C107	1-126-059-11	ELECT 10uF 20% 50V	
C150	1-162-282-31	CERAMIC 100PF 10% 50V	
(F419R:G/F519R:G)			
C158	1-164-073-11	CERAMIC 100PF 10% 50V	
C200	1-164-077-11	CERAMIC 220PF 10% 50V	
C201	1-123-369-00	ELECT 4.7uF 20% 50V	
C202	1-161-377-00	CERAMIC 0.0047uF 30% 16V	
C203	1-136-162-00	FILM 0.056uF 5% 50V	
C204	1-137-471-11	FILM 0.016uF 5% 50V	
C205	1-126-059-11	ELECT 10uF 20% 50V	
C206	1-124-910-11	ELECT 47uF 20% 50V(F419R)	
C206	1-126-541-11	ELECT 330uF 20% 16V(F519R)	

MAIN
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C250	1-162-282-31	CERAMIC	100PF 10% 50V (F419R:G/F519R:G)	C703	1-124-903-11	ELECT	1uF 20% 50V
C258	1-164-073-11	CERAMIC	100PF 10% 50V	C704	1-136-153-00	FILM	0.01uF 5% 50V
C300	1-123-369-00	ELECT	4.7uF 20% 50V	C718	1-136-161-00	FILM	0.047uF 5% 50V
C301	1-164-064-11	CERAMIC	56PF 5% 50V	C719	1-136-161-00	FILM	0.047uF 5% 50V
C302	1-123-369-00	ELECT	4.7uF 20% 50V	C720	1-136-161-00	FILM	0.047uF 5% 50V
C303	1-136-166-00	FILM	0.12uF 5% 50V(F519R)	C721	1-136-168-00	FILM	0.18uF 5% 50V
C351	1-164-073-11	CERAMIC	100PF 10% 50V (F419R:G/F519R:G)	C722	1-124-907-11	ELECT	10uF 20% 50V
C352	1-136-161-00	FILM	0.047uF 5% 50V (F419R:G/F519R:G)	C800	1-164-085-11	CERAMIC	0.001uF 10% 50V
C354	1-124-791-11	ELECT	1.0uF 20% 100V	C801	1-124-443-00	ELECT	100uF 20% 10V
C355	1-162-306-11	CERAMIC	0.01uF 20% 16V (F419R:G/F519R:G)	C802	1-136-153-00	FILM	0.01uF 5% 50V
C400	1-123-369-00	ELECT	4.7uF 20% 50V	C804	1-124-482-11	ELECT	33uF 20% 35V(F419R)
C401	1-164-064-11	CERAMIC	56PF 5% 50V	C804	1-124-443-00	ELECT	100uF 20% 10V(F519R)
C402	1-123-369-00	ELECT	4.7uF 20% 50V	C806	1-124-472-11	ELECT	470uF 20% 10V
C403	1-136-166-00	FILM	0.12uF 5% 50V(F519R)	C900	1-125-748-11	ELECT	10000uF 20% 50V(F419R)
C451	1-164-073-11	CERAMIC	100PF 10% 50V (F419R:G/F519R:G)	C900	1-125-747-11	ELECT	10000uF 20% 63V(F519R)
C452	1-136-161-00	FILM	0.047uF 5% 50V (F419R:G/F519R:G)	C901	1-125-748-11	ELECT	10000uF 20% 50V(F419R)
C500	1-123-369-00	ELECT	4.7uF 20% 50V	C901	1-125-747-11	ELECT	10000uF 20% 63V(F519R)
C501	1-164-073-11	CERAMIC	100PF 10% 50V	C902	1-126-170-11	ELECT	1000uF 20% 50V(F419R)
C502	1-164-083-11	CERAMIC	680PF 10% 50V	C902	1-124-922-11	ELECT	1000uF 20% 63V(F519R)
C503	1-124-910-11	ELECT	47uF 20% 50V	C903	1-126-170-11	ELECT	1000uF 20% 50V(F419R)
C504	1-162-550-11	CERAMIC	39PF 5% 500V	C903	1-124-922-11	ELECT	1000uF 20% 63V(F519R)
C505	1-124-120-11	ELECT	220uF 20% 25V	C904	1-124-122-11	ELECT	100uF 20% 50V
C506	1-123-306-00	ELECT	47uF 20% 10V	C905	1-124-122-11	ELECT	100uF 20% 50V
C507	1-102-943-00	CERAMIC	6.0PF +0.5PF 50V	C906	1-124-122-11	ELECT	100uF 20% 50V
C511	1-126-049-11	ELECT	22uF 20% 50V	C907	1-124-122-11	ELECT	100uF 20% 50V
C550	1-164-073-11	CERAMIC	100PF 10% 50V	C908	1-106-379-12	MYLAR	0.033uF 5% 200V
C554	1-162-306-11	CERAMIC	0.01uF 20% 16V	C909	1-106-379-12	MYLAR	0.033uF 5% 200V
C600	1-123-369-00	ELECT	4.7uF 20% 50V	C911	1-124-910-11	ELECT	47uF 20% 50V
C601	1-164-073-11	CERAMIC	100PF 10% 50V	C912	1-124-910-11	ELECT	47uF 20% 50V
C602	1-164-083-11	CERAMIC	680PF 10% 50V	< CONNECTOR >			
C603	1-124-910-11	ELECT	47uF 20% 50V	* CNJ700	1-568-839-11	SOCKET, CONNECTOR 23P	
C604	1-162-550-11	CERAMIC	39PF 5% 500V	* CNP500	1-564-511-11	PLUG, CONNECTOR 8P	
C605	1-124-120-11	ELECT	220uF 20% 25V	CNP501	1-691-167-11	PIN, CONNECTOR 10P	
C606	1-123-306-00	ELECT	47uF 20% 10V	* CNP702	1-564-508-11	PLUG, CONNECTOR 5P	
C607	1-102-943-00	CERAMIC	6.0PF +0.5PF 50V	< DIODE >			
C611	1-126-049-11	ELECT	22uF 20% 50V	D100	8-719-933-50	DIODE	HZS7C2L
C650	1-164-073-11	CERAMIC	100PF 10% 50V	D500	8-719-987-63	DIODE	1N4148M
C654	1-162-306-11	CERAMIC	0.01uF 20% 16V	D501	8-719-933-39	DIODE	HZS6C1L
C700	1-164-062-11	CERAMIC	47PF 5% 50V	D502	8-719-987-63	DIODE	1N4148M
C701	1-164-062-11	CERAMIC	47PF 5% 50V	D503	8-719-987-63	DIODE	1N4148M
C702	1-124-471-00	ELECT	1000uF 20% 6.3V	D504	8-719-987-63	DIODE	1N4148M
				D505	8-719-987-63	DIODE	1N4148M
				D506	8-719-987-63	DIODE	1N4148M

## MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D507	8-719-987-63	DIODE 1N4148M		Q201	8-729-354-52	TRANSISTOR 2SC2545-E	
D508	8-719-815-85	DIODE 1S1585		Q500	8-729-620-17	TRANSISTOR 2SC2259-FG	
D509	8-719-815-85	DIODE 1S1585		Q501	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D600	8-719-987-63	DIODE 1N4148M		Q502	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
D601	8-719-933-39	DIODE HZS6C1L		Q503	8-729-224-62	TRANSISTOR 2SK246-GR	
D602	8-719-987-63	DIODE 1N4148M		Q504	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
D603	8-719-987-63	DIODE 1N4148M		Q505	8-729-803-76	TRANSISTOR 2SA1371-E	
D604	8-719-987-63	DIODE 1N4148M		Q506	8-729-142-01	TRANSISTOR 2SC1941-LK	
D605	8-719-987-63	DIODE 1N4148M		Q507	8-729-209-15	TRANSISTOR 2SD2012	
D606	8-719-987-63	DIODE 1N4148M		Q508	8-729-141-46	TRANSISTOR 2SC4431-LK	
D607	8-719-987-63	DIODE 1N4148M		Q509	8-729-141-37	TRANSISTOR 2SA1684-LK	
D608	8-719-815-85	DIODE 1S1585		Q510	8-729-011-14	TRANSISTOR 2SC3855M-OPY (F419R)	
D609	8-719-815-85	DIODE 1S1585		Q510	8-729-010-97	TRANSISTOR 2SC3856M-OPY (F519R)	
D700	8-719-200-82	DIODE 11ES2		Q511	8-729-011-13	TRANSISTOR 2SA1491M-OPY (F419R)	
D705	8-719-987-63	DIODE 1N4148M		Q511	8-729-010-98	TRANSISTOR 2SA1492M-OPY (F519R)	
D706	8-719-987-63	DIODE 1N4148M		Q512	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
D707	8-719-987-63	DIODE 1N4148M		Q513	8-729-141-26	TRANSISTOR 2SC3622A-LK	
D728	8-719-010-15	DIODE UZ-3. OBS		Q600	8-729-620-17	TRANSISTOR 2SC2259-FG	
D729	8-719-987-63	DIODE 1N4148M		Q601	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D900	8-719-302-38	DIODE RBV-602-01		Q602	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
D901	8-719-200-02	DIODE 10E2		Q603	8-729-224-62	TRANSISTOR 2SK246-GR	
D902	8-719-200-02	DIODE 10E2		Q604	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
D908	8-719-933-88	DIODE HZS16-2L		Q605	8-729-803-76	TRANSISTOR 2SA1371-E	
D909	8-719-933-88	DIODE HZS16-2L		Q606	8-729-142-01	TRANSISTOR 2SC1941-LK	
		< IC >		Q607	8-729-209-15	TRANSISTOR 2SD2012	
IC100	8-759-745-61	IC NJM4560D-D		Q608	8-729-141-46	TRANSISTOR 2SC4431-LK	
IC300	8-759-634-50	IC M5218AL		Q609	8-729-141-37	TRANSISTOR 2SA1684-LK	
IC700	8-759-082-11	IC M50720-358SP		Q610	8-729-011-14	TRANSISTOR 2SC3855M-OPY (F419R)	
IC800	8-759-111-68	IC $\mu$ PC1237HA		Q610	8-729-010-97	TRANSISTOR 2SC3856M-OPY (F519R)	
		< JACK >		Q611	8-729-011-13	TRANSISTOR 2SA1491M-OPY (F419R)	
J100	1-580-054-21	JACK, PIN 2P		Q611	8-729-010-98	TRANSISTOR 2SA1492M-OPY (F519R)	
		< COIL >		Q612	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
L100	1-410-979-11	INDUCTOR 220 $\mu$ H (F419R:G)		Q613	8-729-141-26	TRANSISTOR 2SC3622A-LK	
L100	1-424-397-11	COIL, CHOKE 200 $\mu$ H (F519R:G)		Q708	8-729-900-63	TRANSISTOR DTA124ES	
L101	1-424-397-11	COIL, CHOKE 200 $\mu$ H (F519R:G)		Q710	8-729-900-36	TRANSISTOR DTC124ES	
L200	1-410-979-11	INDUCTOR 220 $\mu$ H (F419R:G)		Q712	8-729-900-63	TRANSISTOR DTA124ES	
L200	1-424-397-11	COIL, CHOKE 200 $\mu$ H (F519R:G)		Q714	8-729-620-05	TRANSISTOR 2SC2603-EF	
L201	1-424-397-11	COIL, CHOKE 200 $\mu$ H (F519R:G)		Q715	8-729-900-63	TRANSISTOR DTA124ES	
		< TRANSISTOR >		Q901	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q100	8-729-354-52	TRANSISTOR 2SC2545-E		Q902	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q101	8-729-354-52	TRANSISTOR 2SC2545-E				< RESISTOR >	
Q200	8-729-354-52	TRANSISTOR 2SC2545-E		R100	1-247-700-11	CARBON 100 5% 1/4W (F519R)	
				R101	1-249-469-11	CARBON 100K 5% 1/4W	
				R102	1-247-706-11	CARBON 330 5% 1/4W	
				R103	1-249-469-11	CARBON 100K 5% 1/4W	
				R104	1-247-725-11	CARBON 10K 5% 1/4W	

MAIN

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R105	1-247-710-11	CARBON	560	5%	1/4W	R504	1-247-704-11	CARBON	220	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R106	1-247-702-11	CARBON	150	5%	1/4W	△R504	1-212-889-00	FUSIBLE	220	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R107	1-247-710-11	CARBON	560	5%	1/4W	R505	1-247-704-11	CARBON	220	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R108	1-247-716-11	CARBON	1.8K	5%	1/4W	△R505	1-212-889-00	FUSIBLE	220	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R109	1-260-661-11	CARBON	6.8	5%	1/4W(F519R)	R506	1-247-704-11	CARBON	220	5%	1/4W
R110	1-247-700-11	CARBON	100	5%	1/4W	R507	1-249-490-11	CARBON	27K	5%	1/2W
R111	1-246-545-00	CARBON	1.0M	5%	1/4W	R508	1-247-721-11	CARBON	4.7K	5%	1/4W
R112	1-249-844-11	CARBON	56K	5%	1/2W	R509	1-249-516-11	CARBON	33	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R113	1-249-689-11	CARBON	4.7K	5%	1/2W	△R509	1-212-869-00	FUSIBLE	33	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R114	1-247-713-11	CARBON	1K	5%	1/4W	R510	1-249-524-11	CARBON	68	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R150	1-259-436-11	CARBON	2.2K	5%	1/6W(F419R:G)	△R510	1-212-877-11	FUSIBLE	68	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R150	1-259-428-11	CARBON	1K	5%	1/6W(F519R:G)	R511	1-247-713-11	CARBON	1K	5%	1/4W
R151	1-259-428-11	CARBON	1K	5%	1/6W(F519R:G)	R512	1-249-561-11	CARBON	2.4K	5%	1/4W
R200	1-247-700-11	CARBON	100	5%	1/4W(F519R)	R513	1-247-710-11	CARBON	560	5%	1/4W
R201	1-249-469-11	CARBON	100K	5%	1/4W	△R514	1-212-857-00	FUSIBLE	10	5%	1/4W F
R202	1-247-706-11	CARBON	330	5%	1/4W	△R515	1-212-857-00	FUSIBLE	10	5%	1/4W F
R203	1-249-469-11	CARBON	100K	5%	1/4W	R516	1-249-469-11	CARBON	100K	5%	1/4W
R204	1-247-725-11	CARBON	10K	5%	1/4W	△R517	1-212-994-00	FUSIBLE	330	5%	1/2W F
R205	1-247-710-11	CARBON	560	5%	1/4W	△R518	1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R206	1-247-702-11	CARBON	150	5%	1/4W	△R519	1-212-849-00	FUSIBLE	4.7	5%	1/4W F
R207	1-247-710-11	CARBON	560	5%	1/4W	R520	1-217-611-00	METAL PLATE	0.1		
R209	1-260-661-11	CARBON	6.8	5%	1/4W(F519R)	R521	1-217-611-00	METAL PLATE	0.1		
R210	1-247-700-11	CARBON	100	5%	1/4W	R522	1-249-421-11	CARBON	2.2K	5%	1/4W
R211	1-246-545-00	CARBON	1.0M	5%	1/4W	R523	1-249-431-11	CARBON	15K	5%	1/4W
R212	1-249-844-11	CARBON	56K	5%	1/2W	R525	1-247-887-00	CARBON	220K	5%	1/4W
R213	1-249-689-11	CARBON	4.7K	5%	1/2W	R529	1-247-846-11	CARBON	4.3K	5%	1/4W
R214	1-247-713-11	CARBON	1K	5%	1/4W	R530	1-247-713-11	CARBON	1K	5%	1/4W
R250	1-259-436-11	CARBON	2.2K	5%	1/6W(F419R:G)	R531	1-247-887-00	CARBON	220K	5%	1/4W
R250	1-259-428-11	CARBON	1K	5%	1/6W(F519R:G)	R600	1-247-713-11	CARBON	1K	5%	1/4W
R251	1-259-428-11	CARBON	1K	5%	1/6W(F519R:G)	R601	1-249-469-11	CARBON	100K	5%	1/4W
R300	1-249-469-11	CARBON	100K	5%	1/4W	R602	1-247-704-11	CARBON	220	5%	1/4W
R301	1-247-713-11	CARBON	1K	5%	1/4W	R603	1-247-717-11	CARBON	2.2K	5%	1/4W
R302	1-247-713-11	CARBON	1K	5%	1/4W	R604	1-247-704-11	CARBON	220	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R303	1-247-719-11	CARBON	3.3K	5%	1/4W	△R604	1-212-889-00	FUSIBLE	220	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R304	1-247-704-11	CARBON	220	5%	1/4W	R605	1-247-704-11	CARBON	220	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R311	1-246-545-00	CARBON	1.0M	5%	1/4W(F519R)	△R605	1-212-889-00	FUSIBLE	220	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R400	1-249-469-11	CARBON	100K	5%	1/4W	R605	1-247-704-11	CARBON	220	5%	1/4W (F419R:AEP1,G/F519R:AEP1,G)
R401	1-247-713-11	CARBON	1K	5%	1/4W	△R605	1-212-889-00	FUSIBLE	220	5%	1/4W F (F419R:AEP2/F519R:AEP2)
R402	1-247-713-11	CARBON	1K	5%	1/4W						
R403	1-247-719-11	CARBON	3.3K	5%	1/4W						
R404	1-247-704-11	CARBON	220	5%	1/4W						
R411	1-246-545-00	CARBON	1.0M	5%	1/4W(F519R)						
R500	1-247-713-11	CARBON	1K	5%	1/4W						
R501	1-249-469-11	CARBON	100K	5%	1/4W						
R502	1-247-704-11	CARBON	220	5%	1/4W						
R503	1-247-717-11	CARBON	2.2K	5%	1/4W						

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

# MAIN

Ref. No.	Part No.	Description	Remark
R606	1-247-704-11	CARBON	220 5% 1/4W
R607	1-249-490-11	CARBON	27K 5% 1/2W
R608	1-247-721-11	CARBON	4.7K 5% 1/4W
R609	1-249-516-11	CARBON	33 5% 1/4W
△R609	1-212-869-00	FUSIBLE	(F419R:AEP1,G/F519R:AEP1,G) 33 5% 1/4W F (F419R:AEP2/F519R:AEP2)
R610	1-249-524-11	CARBON	68 5% 1/4W
△R610	1-212-877-11	FUSIBLE	(F419R:AEP1,G/F519R:AEP1,G) 68 5% 1/4W F (F419R:AEP2/F519R:AEP2)
R611	1-247-713-11	CARBON	1K 5% 1/4W
R612	1-249-561-11	CARBON	2.4K 5% 1/4W
R613	1-247-710-11	CARBON	560 5% 1/4W
△R614	1-212-857-00	FUSIBLE	10 5% 1/4W F
△R615	1-212-857-00	FUSIBLE	10 5% 1/4W F
R616	1-249-469-11	CARBON	100K 5% 1/4W
△R617	1-212-994-00	FUSIBLE	330 5% 1/2W F
△R618	1-212-849-00	FUSIBLE	4.7 5% 1/4W F
△R619	1-212-849-00	FUSIBLE	4.7 5% 1/4W F
R620	1-217-611-00	METAL PLATE	0.1
R621	1-217-611-00	METAL PLATE	0.1
R622	1-249-421-11	CARBON	2.2K 5% 1/4W
R623	1-249-431-11	CARBON	15K 5% 1/4W
R625	1-247-887-00	CARBON	220K 5% 1/4W
R629	1-247-846-11	CARBON	4.3K 5% 1/4W
R630	1-247-713-11	CARBON	1K 5% 1/4W
R631	1-247-887-00	CARBON	220K 5% 1/4W
R700	1-249-433-11	CARBON	22K 5% 1/4W
R701	1-249-433-11	CARBON	22K 5% 1/4W
R702	1-249-433-11	CARBON	22K 5% 1/4W
R703	1-249-427-11	CARBON	6.8K 5% 1/4W
R704	1-249-427-11	CARBON	6.8K 5% 1/4W
R705	1-249-433-11	CARBON	22K 5% 1/4W
R706	1-249-433-11	CARBON	22K 5% 1/4W
R707	1-249-433-11	CARBON	22K 5% 1/4W
R708	1-249-433-11	CARBON	22K 5% 1/4W
R709	1-249-433-11	CARBON	22K 5% 1/4W
R710	1-249-433-11	CARBON	22K 5% 1/4W
R711	1-249-441-11	CARBON	100K 5% 1/4W
R713	1-249-433-11	CARBON	22K 5% 1/4W
R714	1-249-433-11	CARBON	22K 5% 1/4W
R715	1-249-433-11	CARBON	22K 5% 1/4W
R716	1-249-433-11	CARBON	22K 5% 1/4W
R722	1-247-757-11	CARBON	2.7K 5% 1/2W
R746	1-249-433-11	CARBON	22K 5% 1/4W
R747	1-249-433-11	CARBON	22K 5% 1/4W

Ref. No.	Part No.	Description	Remark
R748	1-249-433-11	CARBON	22K 5% 1/4W
R749	1-247-903-00	CARBON	1M 5% 1/4W
R750	1-249-429-11	CARBON	10K 5% 1/4W
R751	1-249-430-11	CARBON	12K 5% 1/4W
R752	1-249-417-11	CARBON	1K 5% 1/4W
R753	1-249-433-11	CARBON	22K 5% 1/4W
R760	1-249-405-11	CARBON	100 5% 1/4W
R761	1-249-433-11	CARBON	22K 5% 1/4W
R800	1-249-429-11	CARBON	10K 5% 1/4W
R801	1-247-887-00	CARBON	220K 5% 1/4W
R802	1-247-881-00	CARBON	120K 5% 1/4W
R803	1-249-432-11	CARBON	18K 5% 1/4W
R900	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R900	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R901	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R901	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R902	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R902	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R903	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R903	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R904	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R904	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R905	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R905	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R906	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R906	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R907	1-247-754-11	CARBON	1.5K 5% 1/2W (F419R)
R907	1-247-755-11	CARBON	1.8K 5% 1/2W (F519R)
R909	1-247-722-11	CARBON	5.6K 5% 1/4W
R910	1-247-722-11	CARBON	5.6K 5% 1/4W
		< VARIABLE RESISTOR >	
RV500	1-237-455-11	RES, ADJ, CARBON 500 (DC BIAS L-CH)	
RV600	1-237-455-11	RES, ADJ, CARBON 500 (DC BIAS R-CH)	
		< RELAY >	
RY300	1-515-793-11	RELAY	
		< SWITCH >	
S100	1-571-111-11	SWITCH, PUSH (1 KEY) (CARTRIDGE) (F519R)	
S300	1-692-146-11	SWITCH, PUSH (1 KEY) (SUBSONIC) (F519R)	
		< THERMISTOR >	
△TH900	1-806-882-11	THERMISTOR, POSITIVE 2.2 (F419R:AEP2/F519R:AEP2)	
△TH901	1-806-882-11	THERMISTOR, POSITIVE 2.2 (F419R:AEP2/F519R:AEP2)	

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



**MAIN**

**OUTLET**

**PRI**

**SEC**

**SP**

**STONE**

Ref.No.	Part No.	Description	Remark
		< VIBRATOR >	
X700	1-567-254-11	VIBRATOR, CERAMIC	
*****			
*	1-644-623-11	OUTLET BOARD	*****
		< OUTLET >	
△CNJ901	1-526-794-11	OUTLET, AC	
*****			
*	1-644-621-11	PRI BOARD	*****
		< CAPACITOR >	
C508	1-136-163-00	FILM 0.068uF 5% 50V	
C509	1-136-163-00	FILM 0.068uF 5% 50V	
C608	1-136-163-00	FILM 0.068uF 5% 50V	
C609	1-136-163-00	FILM 0.068uF 5% 50V	
		< CONNECTOR >	
* CNJ801	1-691-175-11	CONNECTOR (BOARD TO BOARD) 5P	
CNJ901	1-561-115-00	SOCKET, CONNECTOR 6P	
CNJ902	1-561-115-00	SOCKET, CONNECTOR 6P	
* CNP903	1-564-241-00	PIN, CONNECTOR (B4P-VH) 4P	
		< DIODE >	
D801	8-719-987-63	DIODE 1N4148M	
D802	8-719-987-63	DIODE 1N4148M	
		< COIL >	
L500	1-428-133-11	COIL, AIR-CORE	
L600	1-428-133-11	COIL, AIR-CORE	
		< RESISTOR >	
R524	1-247-727-11	CARBON 10 5% 1/2W	
R526	1-247-727-11	CARBON 10 5% 1/2W	
R624	1-247-727-11	CARBON 10 5% 1/2W	
R626	1-247-727-11	CARBON 10 5% 1/2W	
		< RELAY >	
RY800	1-515-676-11	RELAY	
RY801	1-515-676-11	RELAY	
*****			

Ref.No.	Part No.	Description	Remark
*	1-644-627-11	SEC BOARD	*****
*	1-690-880-31	LEAD (WITH CONNECTOR) (F419R:G/F519R:G)	
		< CAPACITOR >	
C950	1-164-094-11	CERAMIC 0.0068uF 10% 25V	(F419R:G/F519R:G)
C951	1-130-789-00	FILM 1uF 5% 100V	
		< RESISTOR >	
△R950	1-212-966-00	FUSIBLE 22 5% 1/2W F	
*****			
*	1-644-619-11	SP BOARD	*****
		< CAPACITOR >	
C551	1-136-161-00	FILM 0.047uF 5% 50V (F419R:G/F519R:G)	
C552	1-136-161-00	FILM 0.047uF 5% 50V (F419R:G/F519R:G)	
C553	1-136-153-00	FILM 0.01uF 5% 50V (F419R:G/F519R:G)	
C651	1-136-161-00	FILM 0.047uF 5% 50V (F419R:G/F519R:G)	
C652	1-136-161-00	FILM 0.047uF 5% 50V (F419R:G/F519R:G)	
C653	1-136-153-00	FILM 0.01uF 5% 50V (F419R:G/F519R:G)	
		< RESISTOR >	
R551	1-249-482-11	CARBON 4.7 5% 1/2W (F419R:G/F519R:G)	
R552	1-249-482-11	CARBON 4.7 5% 1/2W (F419R:G/F519R:G)	
R651	1-249-482-11	CARBON 4.7 5% 1/2W (F419R:G/F519R:G)	
R652	1-249-482-11	CARBON 4.7 5% 1/2W (F419R:G/F519R:G)	
		< TERMINAL >	
TM900	1-537-227-11	TERMINAL BOARD (SP)	(F419R:AEP2/F519R:AEP2)
TM900	1-537-228-11	TERMINAL BOARD (SP)	(F419R:AEP1,G/F519R:AEP1,G)
*****			
*	1-644-625-11	STONE BOARD	*****
		< CAPACITOR >	
C304	1-136-155-00	FILM 0.015uF 5% 50V	
C305	1-136-161-00	FILM 0.047uF 5% 50V	
C306	1-136-169-00	FILM 0.22uF 5% 50V	
C307	1-136-175-00	FILM 0.68uF 5% 50V	

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

**STONE**

Ref. No.	Part No.	Description	Remark		
C404	1-136-155-00	FILM	0.015uF	5%	50V
C405	1-136-161-00	FILM	0.047uF	5%	50V
C406	1-136-169-00	FILM	0.22uF	5%	50V
C407	1-136-175-00	FILM	0.68uF	5%	50V
< CONNECTOR >					
CNP300	1-695-240-11	PIN, CONNECTOR 8P			
< RESISTOR >					
R305	1-259-421-11	CARBON	510	5%	1/4W
R306	1-246-545-00	CARBON	1.0M	5%	1/4W
R307	1-246-545-00	CARBON	1.0M	5%	1/4W
R308	1-247-703-11	CARBON	180	5%	1/4W
R309	1-247-718-11	CARBON	2.7K	5%	1/4W
R310	1-249-551-11	CARBON	910	5%	1/4W
R405	1-259-421-11	CARBON	510	5%	1/4W
R406	1-246-545-00	CARBON	1.0M	5%	1/4W
R407	1-246-545-00	CARBON	1.0M	5%	1/4W
R408	1-247-703-11	CARBON	180	5%	1/4W
R409	1-247-718-11	CARBON	2.7K	5%	1/4W
R410	1-249-551-11	CARBON	910	5%	1/4W
< VARIABLE RESISTOR >					
RV301	1-241-974-11	RES, VAR, CARBON 10K (TREBLE)			
RV302	1-241-972-11	RES, VAR, CARBON 10K (BASS)			
RV303	1-241-973-11	RES, VAR, CARBON 100K/100K (BALANCE)			

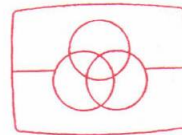
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MISCELLANEOUS  
\*\*\*\*\*

20	1-590-499-31	WIRE, FLAT TYPE (23 CORE)			
21	1-692-148-11	SWITCH, ROTARY SLIDE			
△109	1-575-651-11	CORD, POWER			
△T1	1-450-928-11	TRANSFORMER, POWER (F519R)			
△T1	1-450-929-11	TRANSFORMER, POWER (F419R:AEP1, Germany)			
△T1	1-450-930-12	TRANSFORMER, POWER (F419R:AEP2)			

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Ref. No.	Part No.	Description	Remark
ACCESSORIES & PACKING MATERIALS			
*****			
	1-693-131-11	REMOTE COMMANDER (RM-S311)	
	2-181-754-01	COVER, BATTERY	
	3-755-074-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/PORTUGUESE) (F419R:AEP/F519R:AEP)	
	3-755-074-41	MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH/ITALIAN)	
*	4-951-287-01	INDIVIDUAL CARTON (F419R)	
*	4-951-288-01	INDIVIDUAL CARTON (F519R)	
*	4-952-575-01	CUSHION	
*****			
***** HARDWARE LIST *****			
#1	7-682-547-04	SCREW +BVTT 3X6 (S)	
#2	7-685-651-79	SCREW +BVTP 3X20 TYPE2 N-S	
#3	7-685-648-79	SCREW +BVTP 3X12 TYPE2	
#4	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#5	7-621-849-00	SCREW (BV/RING)	
#6	7-682-560-04	SCREW +BVTT 4X6 (S)	



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