

TA-F120/F220

SERVICE MANUAL

E Model
TA-F120/F220

West Germany Model
TA-F120



Photo: TA-F220

SPECIFICATIONS

Amplifier

Continuous RMS power output (both channels driven simultaneously)

		TA-F120	TA-F220
DIN, 1 kHz	4 ohms	40W + 40W	80W + 80W
20 Hz – 20 kHz THD 0.05%	8 ohms	30W + 30W (E model)	—

Input

Input jack	Jack type	Sensitivity	Impedance	S/N (weighting network, input level)
PHONO (MM)	Phono	2.0 mV	50 kilohms	70 dB (A, 2 mV)
TUNER, CD, VIDEO/AUX, TAPE/DAT	Phono	150 mV	50 kilohms	100 dB (150 mV)

Output

Output jack	Jack type	Voltage/impedance
REC OUT	Phono jacks	Voltage 150 mV Impedance 1 kohms
SPEAKERS	—	Accepts speakers of 8 ohms (E model) or 4 ohms (West Germany model)
HEAD-PHONES	Stereo phone jack	Accepts low and high impedance headphones.

Tone controls

	Response	Turnover frequency
BASS	±7 dB (100 Hz)	500 Hz
TREBLE	±8 dB (15 kHz)	3 kHz

Loudness (Attenuation 30 dB)

+7 dB (100 Hz)
+3 dB (10 kHz)

INTEGRATED STEREO AMPLIFIER
SONY®

Harmonic distortion	Less than 0.05% at rated output
Intermodulation (IM) distortion (60 Hz:7 kHz = 4:1)	Less than 0.05% at rated output
Frequency response	PHONO: RIAA equalization curve ±0.5 dB
	TUNER, CD, VIDEO/AUX, TAPE1, TAPE2/DAT: 7 Hz – 100 kHz ±3 dB
Residual noise	Less than 170 μV (network A)
Damping factor	40 (8 ohms, 1 kHz)

General

System	Preamplifier: Low-noise, high-gain equalizer amplifier Power amplifier: Pure-complementary SEPP OCL power amplifier with all stages directly coupled
Power requirements	E model: 120 V, 220 V or 240 V AC adjustable, 50/60 Hz West Germany model: 220 V AC, 50 Hz
Power consumption	TA-F120: E model: 70 W TA-F120: West Germany model: 95 W TA-F220: 150 W
Dimensions	Approx. 430 x 135 x 315 mm (w/h/d) (17 x 5 ³ / ₈ x 12 ¹ / ₂ inches)
Weight	TA-F120: Approx. 5.6 kg (12 lb 6 oz) TA-F220: Approx. 7.4 kg (16 lb 5 oz)

Design and specifications subject to change without notice.

Note

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

MODEL IDENTIFICATION

– Specification Label –

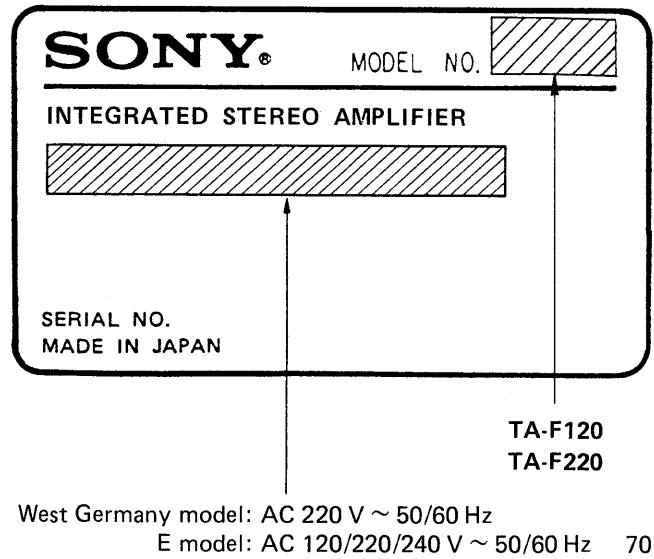


TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
Specifications	1
Model Identification	2
SECTION 1. GENERAL		
1-1.	Parts Identification	3
1-2.	Connections	3
SECTION 2. BLOCK DIAGRAM		
SECTION 3. ELECTRICAL ADJUSTMENTS		
SECTION 4. DIAGRAMS		
4-1.	Circuit Boards Location	6
4-2.	Semiconductor Lead Layouts	6
4-3.	IC Block Diagrams	6
4-4.	Printed Wiring Boards	8
4-5.	Schematic Diagram	13
SECTION 5. EXPLODED VIEWS		
SECTION 6. ELECTRICAL PARTS LIST		
	18

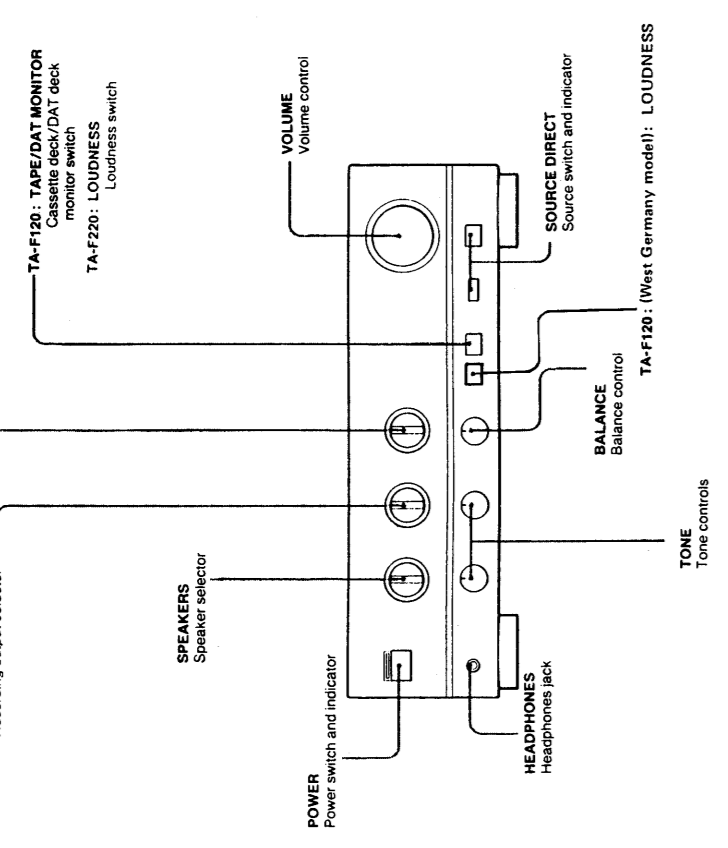
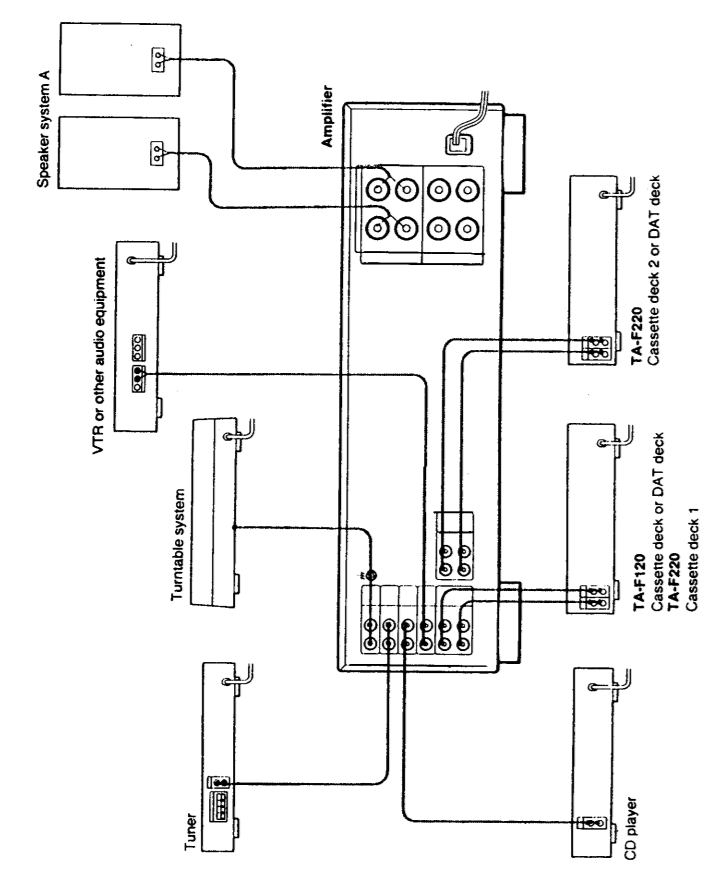
SAFETY-RELATED COMPONENT WARNING!!

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.

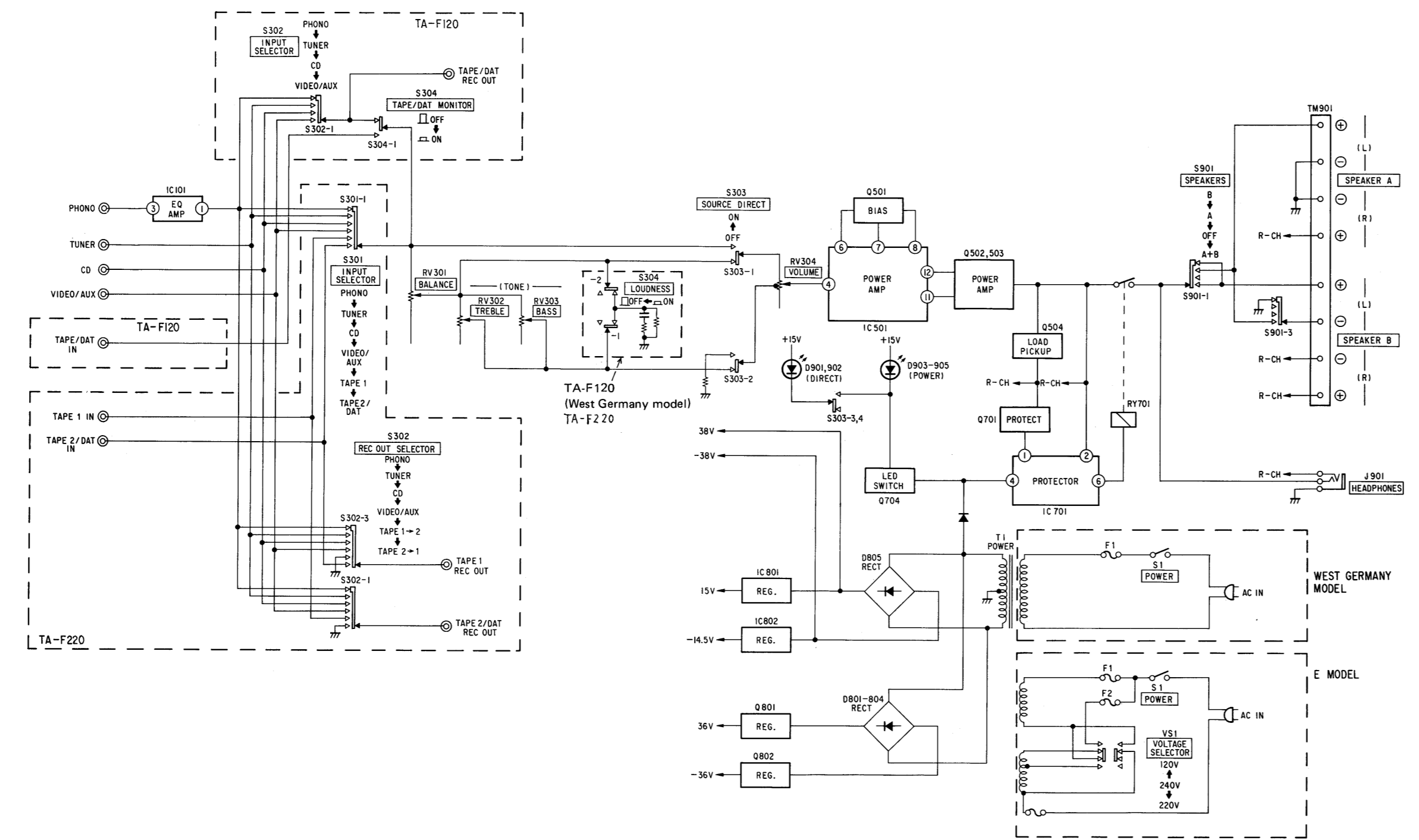
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SECTION 1 GENERAL



SECTION 2 BLOCK DIAGRAM



SECTION 3 ELECTRICAL ADJUSTMENTS

SECTION 4 DIAGRAMS

NOTE: Adjustment should be performed 10 minutes after the POWER switch is on (POWER ON).

Bias Current Adjustment

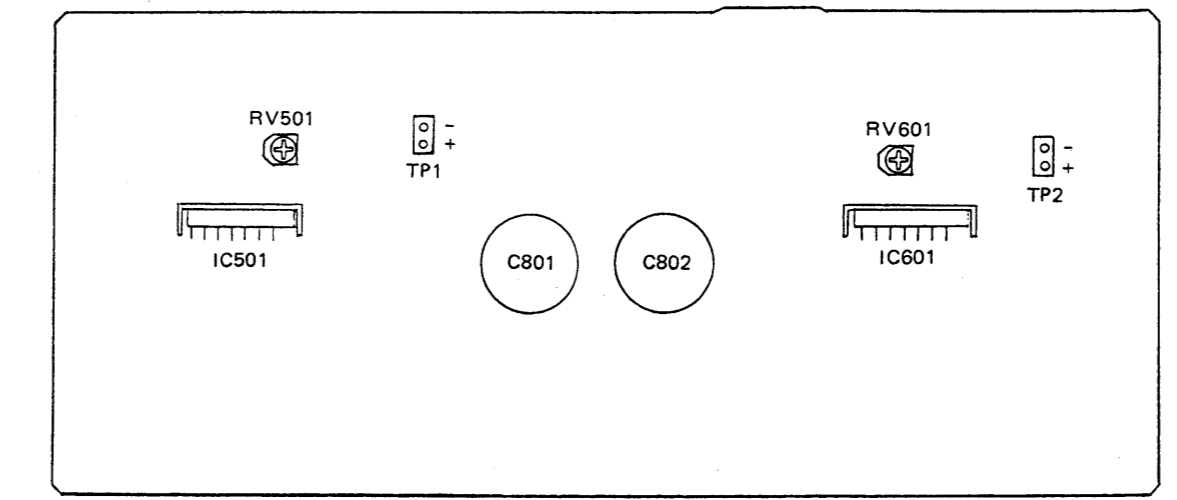
Note: This adjustment should be performed under thermal stable condition. Before starting the adjustment, wait for more than an hour after switch off for cooling, and perform the adjustment within one minute after switching on.

Procedure:

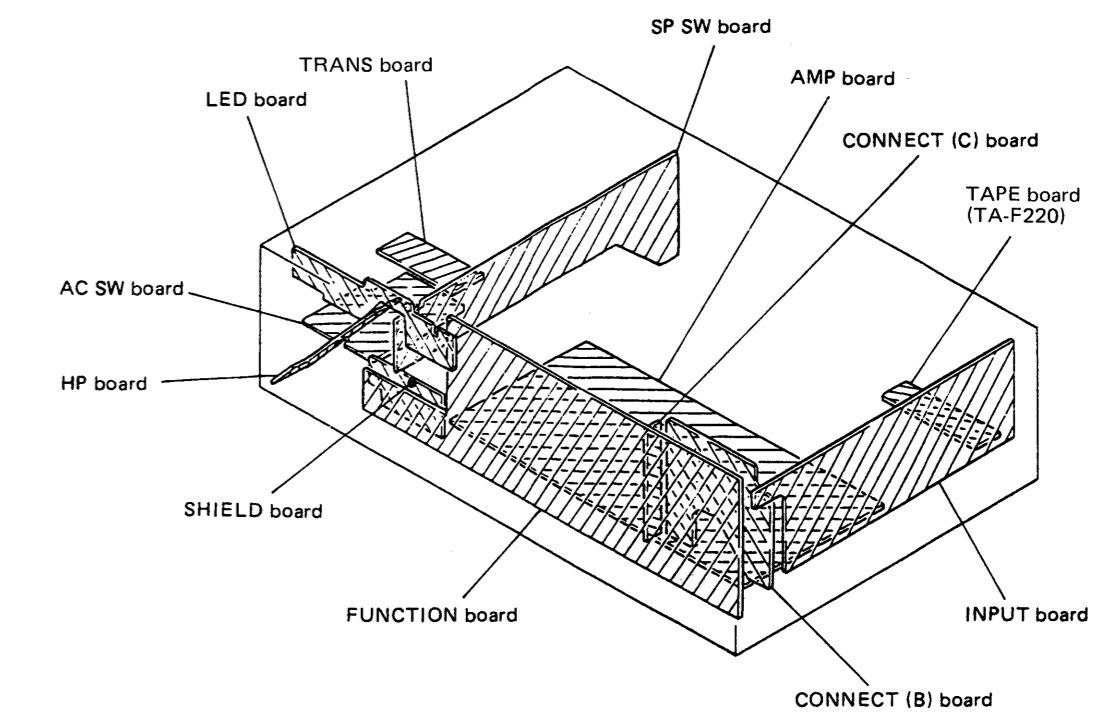
- 1. Set main volume to minimum position.
2. Switch on the set.
3. Adjust RV501 (RV601 for right channel) so that the voltage across TP1 and TP2 becomes the value indicated below.

Adjustment values:
TA-F120 4mV ± 0.3mV
TA-F220 2mV ± 0.3mV

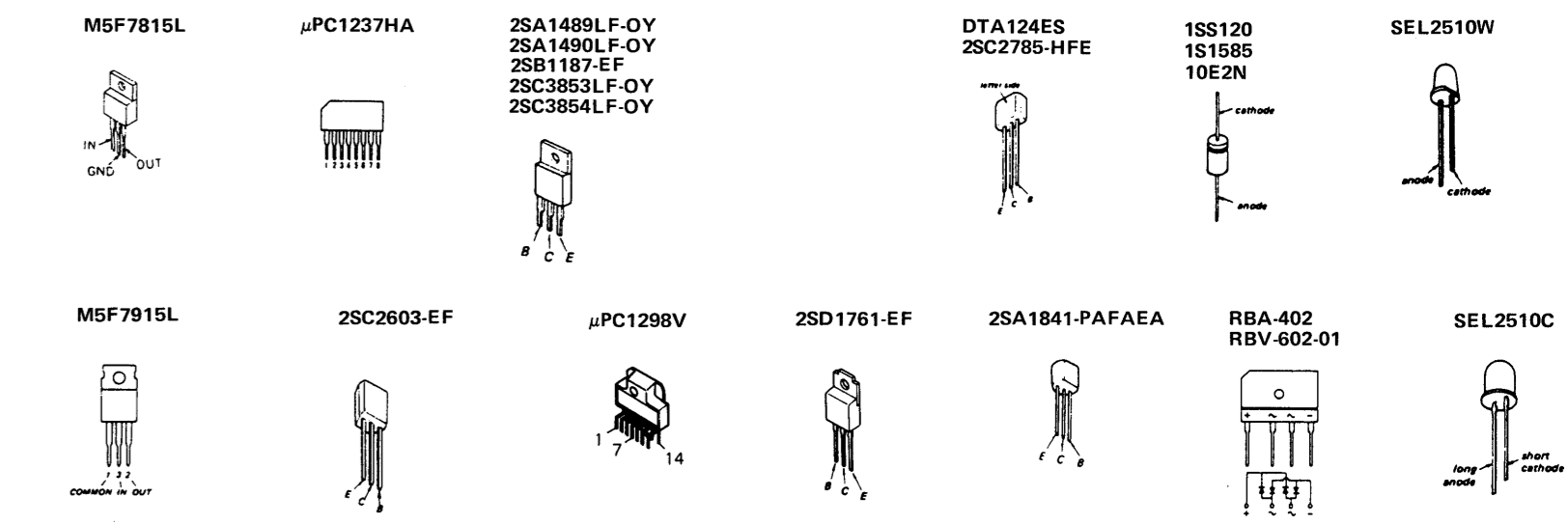
Adjustment Location: [AMP BOARD] - Component Side -



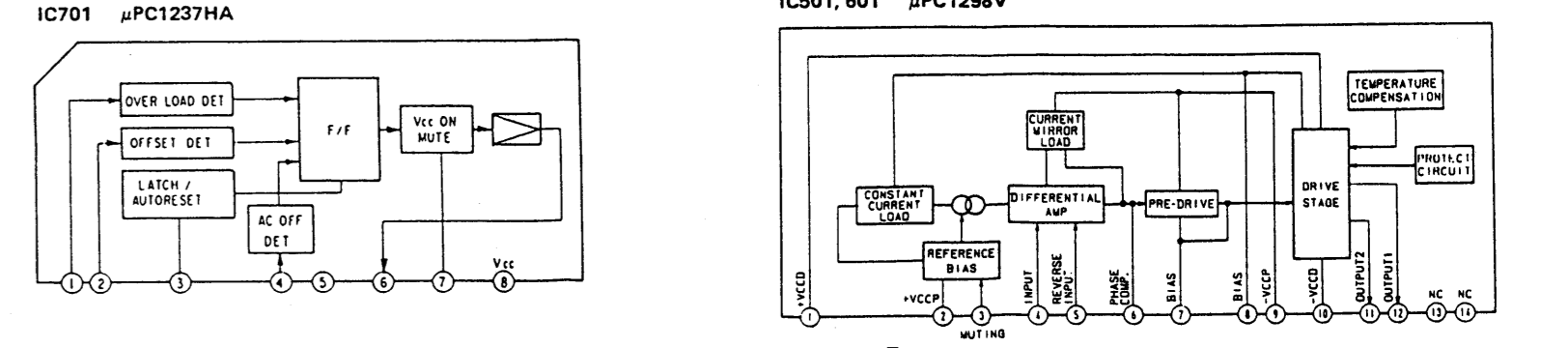
4-1. CIRCUIT BOARDS LOCATION



4-2. SEMICONDUCTOR LEAD LAYOUTS



4-3. IC BLOCK DIAGRAMS



1-2. Connections

NOTE on Connection: Connect the AC power cord last. Make sure power is off. Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for left channel (L). ...

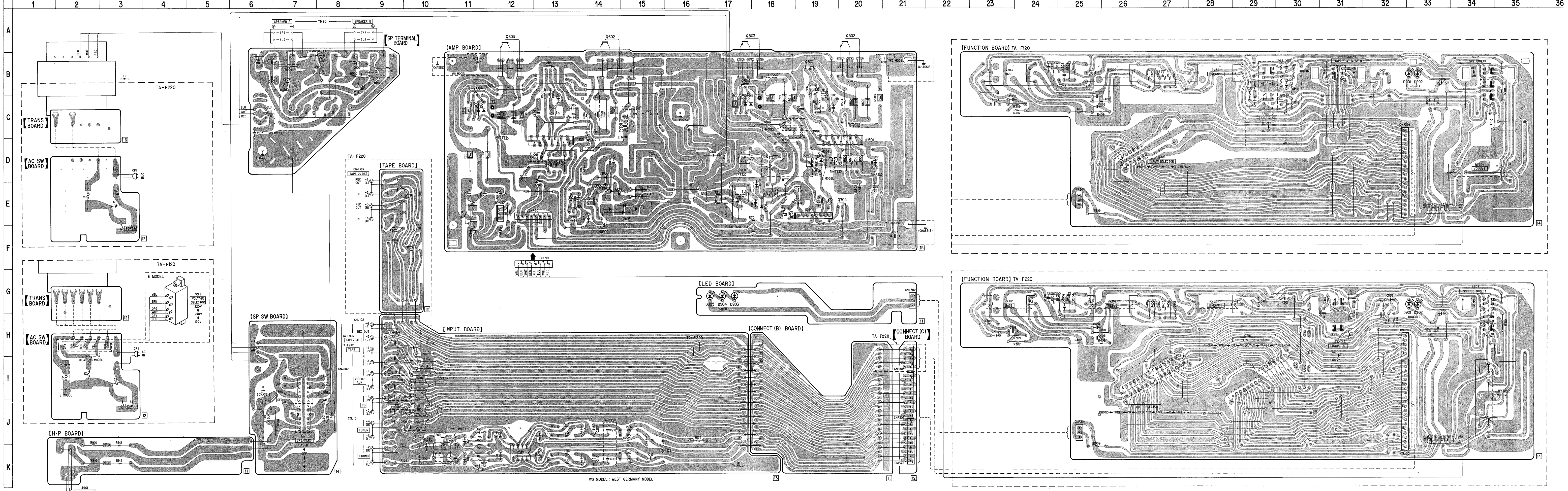
1-1. Parts Identification

• Semiconductor Location

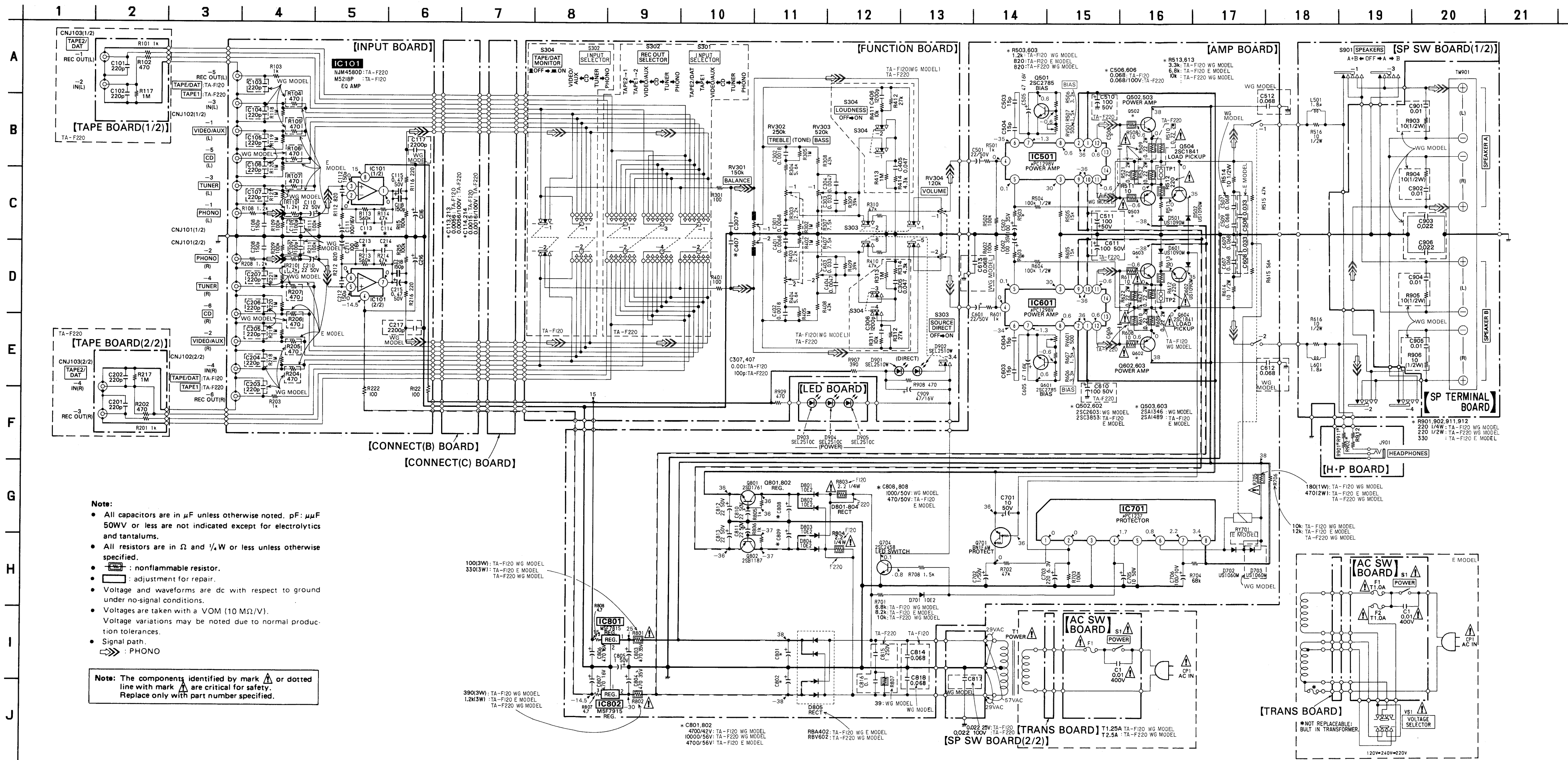
Ref. No.	Location	Ref. No.	Location
D501	C-17	IC101	K-12
D502	C-17	IC501	D-20
D601	C-11	IC601	D-13
D602	C-11	IC701	E-19
D701	E-18	IC801	E-11
D702	D-19	IC802	E-12
D703	D-19		
D801	D-14	Q501	B-19
D802	E-14	Q502	A-20
D803	E-14	Q503	A-17
D804	E-14	Q504	B-17
D805	E-15	Q501	B-13
D901	B-33	Q602	A-14
	* G-33	Q603	A-12
D902	B-33	Q604	B-11
	* G-33	Q701	E-18
D903	G-17	Q704	E-20
D904	G-17	Q801	E-13
D905	G-17	Q802	F-14

* = F220 Model only

Note:
• ○ : parts extracted from the component side.



4-5. SCHEMATIC DIAGRAM • See page 6 for IC Block Diagrams.



Note:

- All capacitors are in μF unless otherwise noted. pF : μF 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.
- : nonflammable resistor.
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (10 M Ω /V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- : PHONO

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

SECTION 5 EXPLODED VIEWS

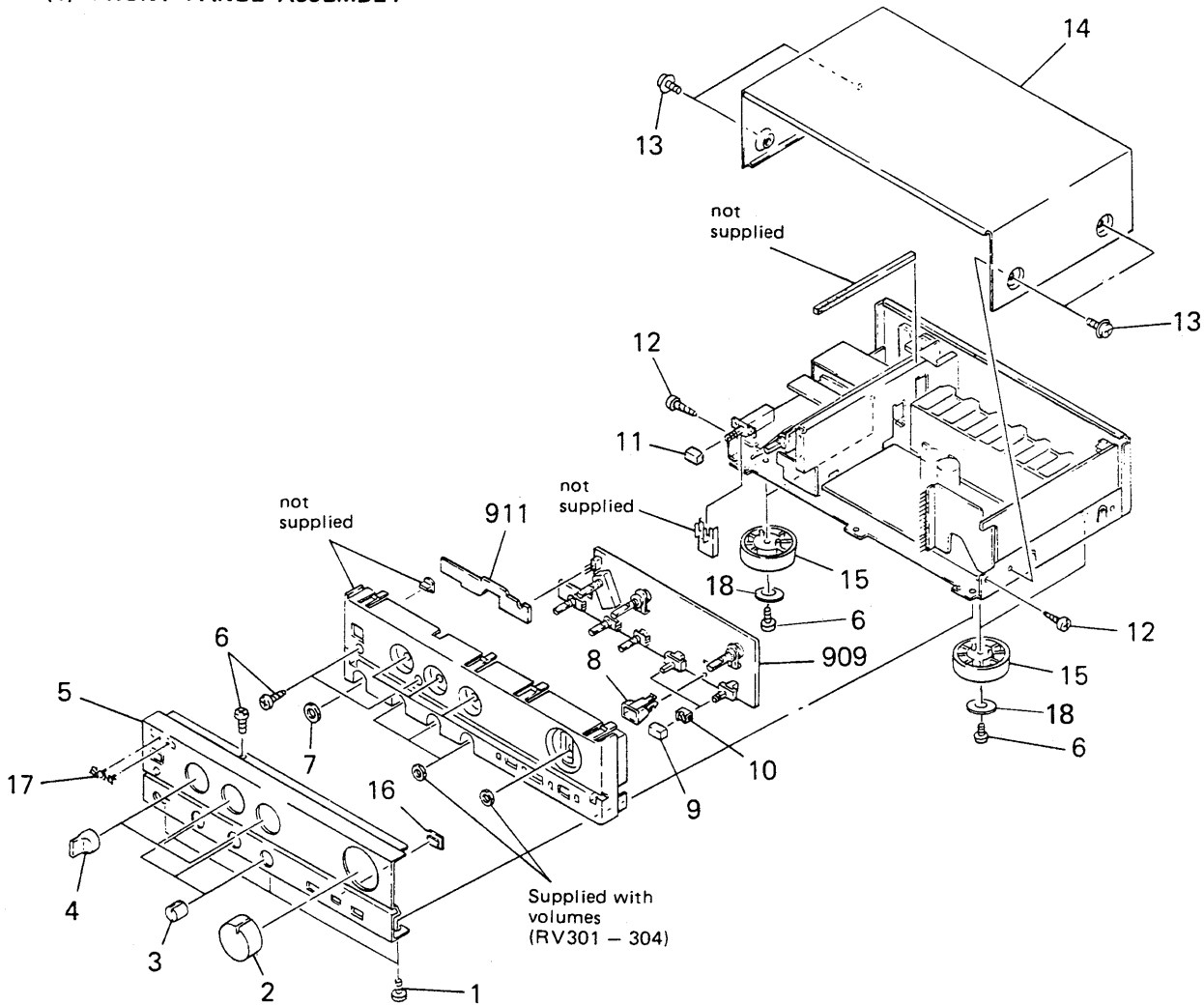
NOTE:

- 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.

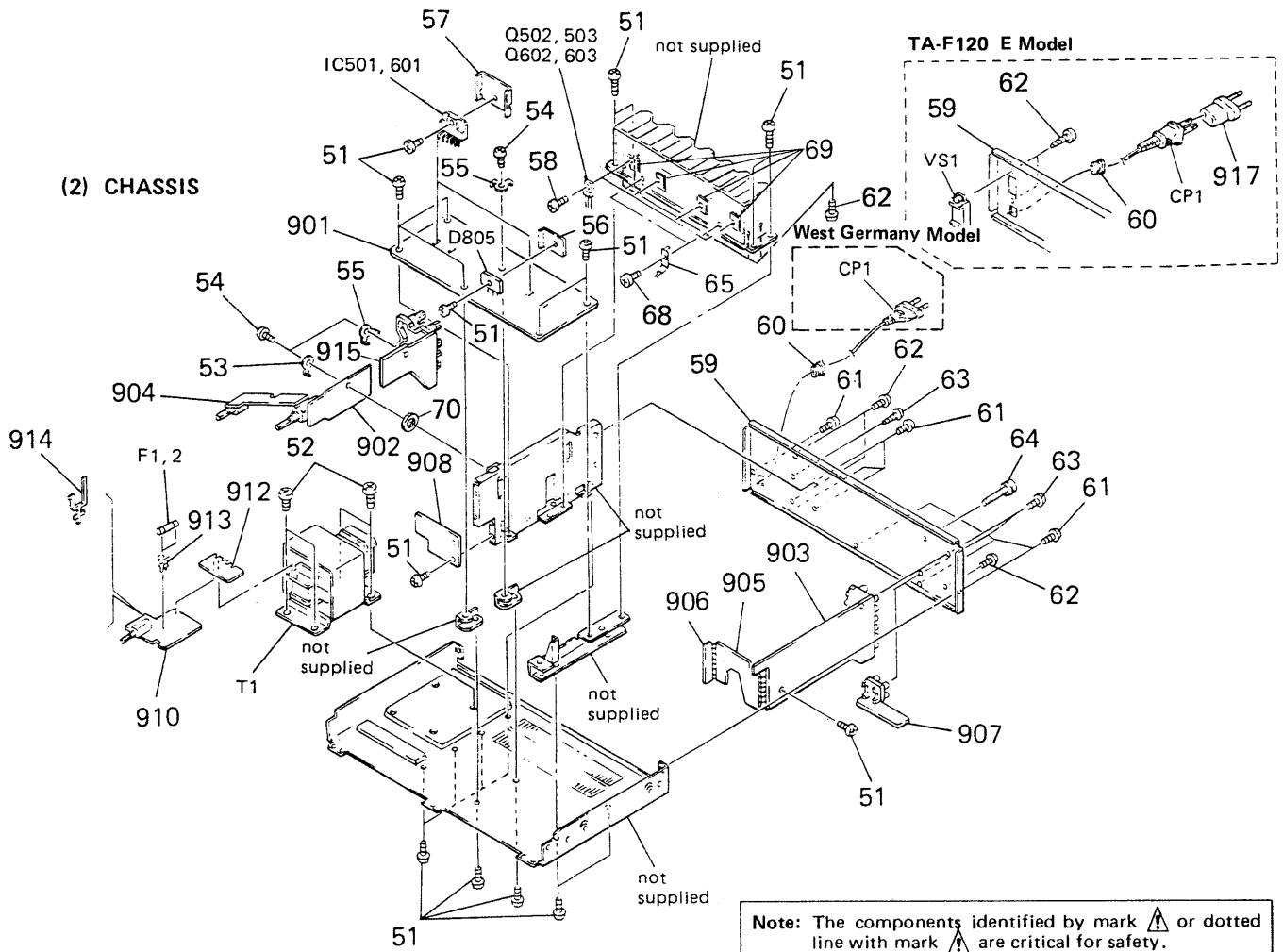
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
Example:
(RED) ... KNOB, BALANCE (WHITE)
↑ Cabinet's Color ↑ Parts Color

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

(1) FRONT PANEL ASSEMBLY



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	3-703-685-21	SCREW (+BV 3X8)		9	4-908-875-01	KNOB, SQUARE	
2	4-929-288-11	(F120:E)...KNOB (VOL 47)		10	4-864-307-00	RING	
	4-929-299-01	(F220)...KNOB (47)		11	4-929-289-01	BUTTON	
	4-937-837-01	(F120:WG)...KNOB (47)		12	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
3	4-916-746-11	(F120)...KNOB (DIA. 21), ROUND		13	3-704-366-01	SCREW (CASE) (M3X8)	
	4-937-840-01	(F220)...KNOB (ROUND-21)		14	4-929-294-11	CASE	
4	4-916-729-01	(F120)...KNOB (DIA.29)		15	X-3304-938-?	FOOT ASSY	
	4-937-839-01	(F220)...KNOB (FLAT-32)		16	4-929-284-01	PLATE, INDICATION	
5	4-929-293-41	(F120:E)...PANEL, FRONT		17	4-908-848-01	EMBLEM, SONY	
	4-929-293-51	(F120:WG)...PANEL, FRONT		18	4-923-836-11	CUSHION	
	4-929-293-61	(F220)...PANEL, FRONT		909	*1-630-937-14	(F220)...PC BOARD, FUNCTION	
6	7-682-547-09	SCREW +BVTT 3X6 (S)			*1-630-941-11	(F120)...PC BOARD, FUNCTION	
7	4-931-902-01	NUT (M12X1)		911	*1-630-939-11	(F220)...PC BOARD, LED	
8	*4-921-389-01	HOUSE			*1-630-943-11	(F120)...PC BOARD, LED	



No.	Part No.	Description	Remarks
51	7-682-548-04	SCREW +BVTT 3X8 (S)	
52	7-682-560-04	SCREW +BVTT 4X6 (S)	
53	4-870-539-00	PLATE, GROUND	
54	3-703-685-21	SCREW (+BV 3X8)	
55	*3-346-266-12	PLATE, GROUND	
56	4-931-903-11	(F220)...HEAT SINK (DI)	
57	*4-931-998-01	(F220)...HEAT SINK (S)	
	*4-931-998-11	(F120)...HEAT SINK (S)	
58	7-682-950-01	SCREW +PSW 3X12	
59	*4-929-269-61	(F220).....PANEL, BACK	
	*4-931-974-21	(F120:WG)...PANEL, BACK	
	*4-931-974-41	(F120:E).....PANEL, BACK	
60	*3-703-244-00	BUSHING (2104), CORD	
61	7-682-547-09	SCREW +BVTT 3X6 (S)	
62	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
63	7-621-849-00	SCREW, TAPPING	
64	3-706-165-00	SCREW	
65	*4-929-285-01	BRACKET (TR)	
68	7-682-546-04	SCREW +B 3X5	
69	4-911-232-01	SHEET, INSULATING	
70	3-564-542-11	WASHER, FIBER	
901	*A-4334-216-A	(F120:WG)...MOUNTED PCB, AMPLIFIER	
	*A-4334-220-A	(F120:E)....MOUNTED PCB, AMPLIFIER	
	*A-4334-232-A	(F220).....MOUNTED PCB, AMPLIFIER	

No.	Part No.	Description	Remarks
902	*1-630-930-12	PC BOARD, SP SW	
903	*1-630-931-13	PC BOARD, INPUT	
904	*1-630-932-11	PC BOARD, H.P	
905	*1-630-933-11	PC BOARD, CONECT (B)	
906	*1-630-934-12	PC BOARD, CONECT (C)	
907	1-630-935-12	(F220)...PC BOARD, TAPE	
908	*1-630-936-11	PC BOARD, SHIELD	
910	*1-630-938-12	(F220)...PC BOARD, AC SW	
	*1-630-942-11	(F120)...PC BOARD, AC SW	
912	*1-630-940-12	(F220)...PC BOARD, TRANS	
	*1-630-944-11	(F120)...PC BOARD, TRANS	
913	*1-533-213-31	HOLDER, FUSE	
914	*1-535-771-11	TERMINAL	
915	*1-635-656-11	PC BOARD, SP TERMINAL	
917	1-569-007-11	(F120:E)...ADAPTOR, CONVERSION 2P	
CP1	⚠.1-551-188-XX	(F120:E)...CORD, POWER	
CP1	⚠.1-555-750-00	(WG).....CORD, POWER	
F1	⚠.1-532-078-11	(F120:E)....FUSE, TIME-LAG T1.0A	
F1	⚠.1-532-285-00	(F120:WG)...FUSE, TIME-LAG T1.0A	
F1	⚠.1-532-286-00	(F220).....FUSE, TIME-LAG T2.5A	
T1	⚠.1-449-585-12	(F120:E)....TRANSFORMER, POWER	
T1	⚠.1-450-061-11	(F120:WG)...TRANSFORMER, POWER	
T1	⚠.1-450-142-11	(F220).....TRANSFORMER, POWER	
VS1	⚠.1-570-307-11	(F120:E)...SWITCH, VOLTAGE CHANGE	

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 MF.**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	Ref.No.	Part No.	Description
901	*A-4334-216-A	(F120:WG)...MOUNTED PCB, AMPLIFIER	C204	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V
	*A-4334-220-A	(F120:E)...MOUNTED PCB, AMPLIFIER	C205	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V
	*A-4334-232-A	(F220).....MOUNTED PCB, AMPLIFIER	C206	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V
902	*1-630-930-12	PC BOARD, SP SW	C207	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V
903	*1-630-931-13	PC BOARD, INPUT	C208	1-164-075-11	CERAMIC 150PF 10% 50V
904	*1-630-932-11	PC BOARD, H.P	C209	1-164-070-11	(F120:WG/F220)...CERAMIC 100PF 5% 50V
905	*1-630-933-11	PC BOARD, CONECT (B)	C210	1-126-233-11	ELECT 22MF 20% 50V
906	*1-630-934-12	PC BOARD, CONECT (C)	C211	1-126-101-11	(F120)...ELECT 100MF 20% 16V
907	1-630-935-12	(F220)...PC BOARD, TAPE	C212	1-164-075-11	CERAMIC 150PF 10% 50V
908	*1-630-936-11	PC BOARD, SHIELD	C213	1-130-339-00	(F220)...FILM 0.0056MF 5% 100V
909	*1-630-937-14	(F220)...PC BOARD, FUNCTION	C213	1-130-480-00	(F120)...MYLAR 0.0056MF 5% 50V
	*1-630-941-11	(F120)...PC BOARD, FUNCTION	C214	1-130-473-00	(F120)...MYLAR 0.0015MF 5% 50V
910	*1-630-938-12	(F220)...PC BOARD, AC SW	C214	1-136-229-11	(F220)...FILM 0.0016MF 5% 100V
	*1-630-942-11	(F120)...PC BOARD, AC SW	C215	1-124-902-00	ELECT 0.47MF 20% 50V
911	*1-630-939-11	(F220)...PC BOARD, LED	C216	1-124-120-11	ELECT 220MF 20% 25V
	*1-630-943-11	(F120)...PC BOARD, LED	C217	1-164-091-11	(F120)...CERAMIC 0.0022MF 10% 50V
912	*1-630-940-12	(F220)...PC BOARD, TRANS	C218	1-104-282-11	FILM 150PF 5% 50V
	*1-630-944-11	(F120)...PC BOARD, TRANS	C301	1-130-481-00	MYLAR 0.0068MF 5% 50V
913	*1-533-213-31	HOLDER, FUSE	C302	1-130-474-00	MYLAR 0.0018MF 5% 50V
914	*1-535-771-11	TERMINAL	C303	1-136-159-00	FILM 0.033MF 5% 50V
915	*1-635-656-11	PC BOARD, SP TERMINAL	C304	1-130-479-00	MYLAR 0.0047MF 5% 50V
917	1-569-007-11	(F120:E)...ADAPTOR, CONVERSION 2P	C305	1-136-161-00	(WG)...FILM 0.047MF 5% 50V
C1	1-161-744-00	CERAMIC 0.01MF 400V	C306	1-164-086-11	(WG)...CERAMIC 0.0012MF 10% 50V
C101	1-162-286-31	(F120)...CERAMIC 220PF 10% 50V	C307	1-164-070-11	(F220)...CERAMIC 100PF 5% 50V
C102	1-162-286-31	(F120)...CERAMIC 220PF 10% 50V	C307	1-164-085-11	(F120)...CERAMIC 0.001MF 10% 50V
C103	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V	C401	1-130-481-00	MYLAR 0.0068MF 5% 50V
C104	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V	C402	1-130-474-00	MYLAR 0.0018MF 5% 50V
C105	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V	C403	1-136-159-00	FILM 0.033MF 5% 50V
C106	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V	C404	1-130-479-00	MYLAR 0.0047MF 5% 50V
C107	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V	C405	1-136-161-00	(WG)...FILM 0.047MF 5% 50V
C108	1-164-075-11	CERAMIC 150PF 10% 50V	C406	1-164-086-11	(WG)...CERAMIC 0.0012MF 10% 50V
C109	1-164-070-11	(F120:WG/F220)...CERAMIC 100PF 5% 50V	C407	1-164-070-11	(F220)...CERAMIC 100PF 5% 50V
C110	1-126-233-11	ELECT 22MF 20% 50V	C407	1-164-085-11	(F120)...CERAMIC 0.001MF 10% 50V
C111	1-126-101-11	(F120)...ELECT 100MF 20% 16V	C501	1-126-233-11	ELECT 22MF 20% 50V
C112	1-164-075-11	CERAMIC 150PF 10% 50V	C502	1-126-052-11	ELECT 100MF 20% 35V
C113	1-130-339-00	(F120)...FILM 0.0056MF 5% 100V	C503	1-164-023-11	CERAMIC 15PF 5% 50V
C113	1-130-480-00	(F120)...MYLAR 0.0056MF 5% 50V	C504	1-164-023-11	CERAMIC 15PF 5% 50V
C114	1-130-473-00	(F120)...MYLAR 0.0015MF 5% 50V	C505	1-124-477-11	ELECT 47MF 20% 16V
C114	1-136-229-11	(F220)...FILM 0.0016MF 5% 100V	C506	1-130-317-00	(F220)...FILM 0.068MF 5% 100V
C115	1-124-902-00	ELECT 0.47MF 20% 50V	C506	1-136-163-00	(F120)...FILM 0.068MF 5% 50V
C116	1-124-120-11	ELECT 220MF 20% 25V	C507	1-136-163-00	(F120:WG/F220)...FILM 0.068MF 5% 50V
C117	1-164-091-11	(F120:WG)...CERAMIC 0.0022MF 10% 50V	C508	1-136-159-00	(F120:E).....FILM 0.033MF 5% 50V
C118	1-104-282-11	FILM 150PF 5% 50V	C509	1-136-163-00	(F120:WG/F220)...FILM 0.068MF 5% 50V
C201	1-162-286-31	(F220)...CERAMIC 220PF 10% 50V			
C202	1-162-286-31	(F220)...CERAMIC 220PF 10% 50V			
C203	1-162-286-31	(F120:WG/F220)...CERAMIC 220PF 10% 50V			

Ref.No.	Part No.	Description			
C510	1-124-122-11	(F220)...ELECT	100MF	20%	50V
C511	1-124-122-11	(F220)...ELECT	100MF	20%	50V
C512	1-136-163-00	(F120:WG/F220)...FILM	0.068MF	5%	50V
C601	1-126-233-11	ELECT	22MF	20%	50V
C602	1-126-052-11	ELECT	100MF	20%	35V
C603	1-164-023-11	CERAMIC	15PF	5%	50V
C604	1-164-023-11	CERAMIC	15PF	5%	50V
C605	1-124-477-11	ELECT	47MF	20%	16V
C606	1-130-317-00	(F220)...FILM	0.068MF	5%	100V
C606	1-136-163-00	(F120)...FILM	0.068MF	5%	50V
C607	1-136-163-00	(F120:WG/F220)...FILM	0.068MF	5%	50V
C608	1-136-159-00	(F120:E).....FILM	0.033MF	5%	50V
C609	1-136-163-00	(F120:WG/F220)...FILM	0.068MF	5%	50V
C610	1-124-122-11	(F220).....FILM	100MF	20%	50V
C611	1-124-122-11	(F220).....FILM	100MF	20%	50V
C612	1-136-163-00	(F120:WG/F220)...FILM	0.068MF	5%	50V
C613	1-136-163-00	(F120:WG/F220)...FILM	0.068MF	5%	50V
C701	1-123-875-11	ELECT	10MF	20%	50V
C702	1-124-791-11	ELECT	1MF	20%	50V
C703	1-126-176-11	ELECT	220MF	20%	6.3V
C705	1-123-875-11	ELECT	10MF	20%	50V
C706	1-124-443-00	ELECT	100MF	20%	10V
C801	1-126-258-51	(F120:E).....ELECT	4700MF	20%	56V
C801	1-126-975-11	(F120:WG/F220)...ELECT	4700MF	20%	42V
C802	1-126-258-51	(F120:E).....ELECT	4700MF	20%	56V
C802	1-126-975-11	(F120:WG/F220)...ELECT	4700MF	20%	42V
C803	1-126-104-11	ELECT	470MF	20%	35V
C804	1-126-104-11	ELECT	470MF	20%	35V
C805	1-124-791-11	ELECT	1MF	20%	50V
C806	1-126-103-11	ELECT	470MF	20%	16V
C807	1-126-103-11	ELECT	470MF	20%	16V
C808	1-124-913-51	(F120:E).....ELECT	470MF	20%	50V
C808	1-126-170-11	(F120:WG/F220)...ELECT	1000MF	20%	50V
C809	1-124-913-51	(F120:E).....ELECT	470MF	20%	50V
C809	1-126-170-11	(F120:WG/F220)...ELECT	1000MF	20%	50V
C810	1-126-233-11	(F120:WG/F220)...ELECT	22MF	20%	50V
C811	1-126-233-11	(F120:WG/F220)...ELECT	22MF	20%	50V
C812	1-126-233-11	(F120:WG/F220)...ELECT	22MF	20%	50V
C813	1-126-233-11	(F120:WG/F220)...ELECT	22MF	20%	50V
C814	1-102-394-11	(F120:E)....CERAMIC	0.01MF	5%	250V
C814	1-136-163-00	(F120:WG)...FILM	0.068MF	5%	50V
C817	1-130-973-00	(F220).....FILM	0.022MF	10%	100V
C817	1-164-097-11	(F120:WG)...CERAMIC	0.022MF		50V
C818	1-136-163-00	(F120)....FILM	0.068MF	5%	50V
C901	1-164-096-11	(F120:WG/F220)...CERAMIC	0.01MF		50V
C902	1-164-096-11	(F120:WG/F220)...CERAMIC	0.01MF		50V
C903	1-161-494-00	(F120:WG/F220)...CERAMIC	0.022MF		25V
C904	1-164-096-11	(F120:WG/F220)...CERAMIC	0.01MF		50V
C905	1-164-096-11	(F120:WG/F220)...CERAMIC	0.01MF		50V
C906	1-161-494-00	(F120:WG/F220)...CERAMIC	0.022MF		25V
C909	1-124-477-11	ELECT	47MF	20%	16V
CNJ101	1-565-320-11	JACK, PIN 6P			
CNJ102	1-565-320-11	JACK, PIN 6P			
CNJ103	1-568-529-21	(F220)...LACK, PIN 4P			
CNJ301	1-565-961-11	(F120)...SOCKET, CONNECTOR 20P			
CNJ302*1	1-565-835-11	(F120)...SOCKET, CONNECTOR 3P			
CNJ303*1	1-506-906-11	(F220)...PIN, CONNECTOR 5P			

Ref.No.	Part No.	Description
CNP301	1-565-419-11	PIN, CONNECTOR 10P
CNP302	1-565-419-11	PIN, CONNECTOR 10P
CNP303	1-506-906-11	(F220)...PIN, CONNECTOR 5P
CNP304	1-568-577-11	(F120)...PIN, CONNECTOR (PC BOARD) 3P
CNP501*1	1-564-511-11	PLUG, CONNECTOR 8P
CP1	△.1-551-188-XX	(F120:E)...CORD, POWER
CP1	△.1-555-750-00	(WG).....CORD, POWER
D501	8-719-815-85	DIODE 1S1585
D502	8-719-815-85	DIODE 1S1585
D601	8-719-815-85	DIODE 1S1585
D602	8-719-815-85	DIODE 1S1585
D701	8-719-200-77	DIODE 10E2N
D702	8-719-912-20	DIODE 1SS120
D703	8-719-912-20	(F120:WG/F220)...DIODE 1SS120
D801	8-719-200-77	DIODE 10E2N
D802	8-719-200-77	DIODE 10E2N
D803	8-719-200-77	DIODE 10E2N
D804	8-719-200-77	DIODE 10E2N
D805	8-719-302-38	(F220)...DIODE RBV-602
D805	8-719-312-09	(F120)...DIODE RBA-402
D901	8-719-304-14	LED SEL2510W (DIRECT)
D902	8-719-304-14	LED SEL2510W (DIRECT)
D903	8-719-303-00	LED SEL2510C (POWER)
D904	8-719-303-00	LED SEL2510C (POWER)
D905	8-719-303-00	LED SEL2510C (POWER)
F1	△.1-532-078-11	(F120:E)...FUSE, TIME-LAG T1.0A
F1	△.1-532-285-00	(F120:WG)...FUSE, TIME-LAG T1.0A
F1	△.1-532-286-00	(F220).....FUSE, TIME-LAG T2.5A
F2	△.1-532-078-11	(F120:E)...FUSE, TIME-LAG T1.0A
F2	△.1-532-285-00	(F120:WG)...FUSE, TIME-LAG T1.0A
IC101	8-759-601-02	(F120)...IC M5218P
IC101	8-759-711-35	(F220)...IC NJM4580D
IC501	8-759-109-06	IC UPC1298V
IC601	8-759-109-06	IC UPC1298V
IC701	8-759-111-68	IC UPC1237HA
IC801	8-759-604-34	IC M5F7815L
IC802	8-759-604-52	IC M5F7915L
J901	1-507-863-51	JACK, LARGE TYPE (HEADPHONES)
L501	*1-420-872-00	COIL, AIR CORE
L601	*1-420-872-00	COIL, AIR CORE
Q501	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q502	8-729-321-99	(F220)...TRANSISTOR 2SC3854LF-0Y
Q502	8-729-322-08	(F120)...TRANSISTOR 2SC3853LF-0Y
Q503	8-729-322-05	(F220)...TRANSISTOR 2SA1490LF-0Y
Q503	8-729-322-11	(F120)...TRANSISTOR 2SA1489LF-0Y
Q504	8-729-140-84	TRANSISTOR 2SA1841-PAFAEA
Q601	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q602	8-729-321-99	(F220)...TRANSISTOR 2SC3854LF-0Y
Q602	8-729-322-08	(F120)...TRANSISTOR 2SC3853LF-0Y
Q603	8-729-322-05	(F220)...TRANSISTOR 2SA1490LF-0Y
Q603	8-729-322-11	(F120)...TRANSISTOR 2SA1489LF-0Y
Q604	8-729-140-84	TRANSISTOR 2SA1841-PAFAEA
Q701	8-729-900-63	TRANSISTOR DTA124ES
Q704	8-729-620-05	TRANSISTOR 2SC2603-EF

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

TA-F120/F220

Ref.No.	Part No.	Description				
Q801	8-729-920-98	TRANSISTOR 2SD1761-EF				
Q802	8-729-920-97	TRANSISTOR 2SB1187-EF				
R101	1-247-713-11	(F220)...CARBON	1K	5%	1/4W	
R102	1-247-708-11	(F220)...CARBON	470	5%	1/4W	
R103	1-247-713-11	CARBON	1K	5%	1/4W	
R104	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R105	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R106	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R107	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R108	1-247-714-11	CARBON	1.2K	5%	1/4W	
R109	1-249-469-11	CARBON	100K	5%	1/4W	
R110	1-247-714-11	(F120:WG/F220)...CARBON	1.2K	5%	1/4W	
R111	1-249-469-11	CARBON	100K	5%	1/4W	
R112	1-247-712-11	CARBON	820	5%	1/4W	
R113	1-246-539-00	CARBON	560K	5%	1/4W	
R114	1-249-465-11	CARBON	47K	5%	1/4W	
R115	1-249-469-11	CARBON	100K	5%	1/4W	
R116	1-247-704-11	CARBON	220	5%	1/4W	
R117	1-247-903-00	(F220)...CARBON	1M	5%	1/4W	
R118	1-247-903-00	CARBON	1M	5%	1/4W	
R119	1-247-903-00	CARBON	1M	5%	1/4W	
R120	1-247-903-00	CARBON	1M	5%	1/4W	
R121	1-247-903-00	CARBON	1M	5%	1/4W	
R122	1-247-700-11	CARBON	100	5%	1/4W	
R202	1-247-708-11	(F220)...CARBON	470	5%	1/4W	
R203	1-247-713-11	CARBON	1K	5%	1/4W	
R204	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R205	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R206	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R207	1-247-708-11	(F120:WG/F220)...CARBON	470	5%	1/4W	
R208	1-247-714-11	CARBON	1.2K	5%	1/4W	
R209	1-249-469-11	CARBON	100K	5%	1/4W	
R210	1-247-714-11	(F120:WG/F220)...CARBON	1.2K	5%	1/4W	
R211	1-249-469-11	CARBON	100K	5%	1/4W	
R212	1-247-712-11	CARBON	820	5%	1/4W	
R213	1-246-539-00	CARBON	560K	5%	1/4W	
R214	1-249-465-11	CARBON	47K	5%	1/4W	
R215	1-249-469-11	CARBON	100K	5%	1/4W	
R216	1-247-704-11	CARBON	220	5%	1/4W	
R217	1-247-903-11	(F220)...CARBON	1M	5%	1/4W	
R218	1-247-903-00	CARBON	1M	5%	1/4W	
R219	1-247-903-00	CARBON	1M	5%	1/4W	
R220	1-247-903-00	CARBON	1M	5%	1/4W	
R221	1-247-903-00	CARBON	1M	5%	1/4W	
R222	1-247-700-11	CARBON	100	5%	1/4W	
R301	1-247-700-11	CARBON	100	5%	1/4W	
R302	1-246-545-00	CARBON	1M	5%	1/4W	
R303	1-247-717-11	CARBON	2.2K	5%	1/4W	
R304	1-247-722-11	CARBON	5.6K	5%	1/4W	
R305	1-246-545-00	CARBON	1M	5%	1/4W	
R307	1-247-152-00	CARBON	7.5K	5%	1/4W	
R308	1-247-170-00	CARBON	43K	5%	1/4W	
R309	1-249-464-11	CARBON	39K	5%	1/4W	
R310	1-249-465-11	CARBON	47K	5%	1/4W	
R311	1-249-429-11	(F120:WG/F220)...CARBON	10K	5%	1/4W	
R312	1-249-434-11	(F120:WG/F220)...CARBON	27K	5%	1/4W	
R313	1-247-903-00	(F120:WG/F220)...CARBON	1M	5%	1/4W	
R314	1-247-846-11	(F120:WG/F220)...CARBON	4.3K	5%	1/4W	

Ref.No.	Part No.	Description				
R401	1-247-700-11	CARBON	100	5%	1/4W	
R402	1-246-545-00	CARBON	1M	5%	1/4W	
R403	1-247-717-11	CARBON	2.2K	5%	1/4W	
R404	1-247-722-11	CARBON	5.6K	5%	1/4W	
R405	1-246-545-00	CARBON	1M	5%	1/4W	
R407	1-247-152-00	CARBON	7.5K	5%	1/4W	
R408	1-247-170-00	CARBON	43K	5%	1/4W	
R409	1-249-464-11	CARBON	39K	5%	1/4W	
R410	1-249-465-11	CARBON	47K	5%	1/4W	
R411	1-249-429-11	(F120:WG/F220)...CARBON	10K	5%	1/4W	
R412	1-249-434-11	(F120:WG/F220)...CARBON	27K	5%	1/4W	
R413	1-247-903-00	(F120:WG/F220)...CARBON	1M	5%	1/4W	
R414	1-247-846-11	(F120:WG/F220)...CARBON	4.3K	5%	1/4W	
R501	1-247-713-11	CARBON	1K	5%	1/4W	
R502	1-249-469-11	CARBON	100K	5%	1/4W	
R503	1-247-712-11	(F120:E/F220)...CARBON	820	5%	1/4W	
R503	1-247-714-11	(F120:WG).....CARBON	1.2K	5%	1/4W	
R504	1-249-496-11	CARBON	100K	5%	1/2W	
R505	1-249-460-11	CARBON	15K	5%	1/4W	
R506	1-249-423-11	CARBON	3.3K	5%	1/4W	
R507	1-249-419-11	CARBON	1.5K	5%	1/4W	
R508	△.1-247-688-11	CARBON	10	5%	1/4W	F
R509	△.1-216-361-00	METAL OXIDE	0.22	5%	2W	F
R510	1-216-361-00	(F120:E)...METAL OXIDE	0.22	5%	2W	
R511	△.1-247-688-11	CARBON	10	5%	1/4W	F
R512	△.1-247-704-11	CARBON	220	5%	1/4W	F
R513	1-247-719-11	(F120:WG)...CARBON	3.3K	5%	1/4W	
R513	1-247-723-11	(F120:E)....CARBON	6.8K	5%	1/4W	
R513	1-247-725-11	(F220).....CARBON	10K	5%	1/4W	
R514	1-247-727-11	CARBON	10	5%	1/2W	
R515	1-249-465-11	CARBON	47K	5%	1/4W	
R516	1-247-727-11	CARBON	10	5%	1/2W	
R521	△.1-216-361-00	(F120:WG/F220) ...METAL OXIDE	0.22	5%	2W	F
R522	1-216-361-00	(F220)...METAL OXIDE	0.22	5%	2W	
R601	1-247-713-11	CARBON	1K	5%	1/4W	
R602	1-249-469-11	CARBON	100K	5%	1/4W	
R603	1-247-712-11	(F120:E/F220)...CARBON	820	5%	1/4W	
R603	1-247-714-11	(F120:WG).....CARBON	1.2K	5%	1/4W	
R604	1-249-496-11	CARBON	100K	5%	1/2W	
R605	1-249-460-11	CARBON	15K	5%	1/4W	
R606	1-249-423-11	CARBON	3.3K	5%	1/4W	
R607	1-249-419-11	CARBON	1.5K	5%	1/4W	
R608	△.1-247-688-11	CARBON	10	5%	1/4W	F
R609	△.1-216-361-00	METAL OXIDE	0.22	5%	2W	F
R610	1-216-361-00	(F120:E/F220) ...METAL OXIDE	0.22	5%	2W	
R611	△.1-247-688-11	CARBON	10	5%	1/4W	F
R612	△.1-247-704-11	CARBON	220	5%	1/4W	F
R613	1-247-719-11	(F120:WG)...CARBON	3.3K	5%	1/4W	
R613	1-247-723-11	(F120:E)....CARBON	6.8K	5%	1/4W	
R613	1-247-725-11	(F220).....CARBON	10K	5%	1/4W	
R614	1-247-727-11	CARBON	10	5%	1/2W	
R615	1-249-466-11	CARBON	56K	5%	1/4W	
R616	1-247-727-11	CARBON	10	5%	1/2W	

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
R621	△.1-216-361-00	(F120:WG/F220) ...METAL OXIDE 0.22 5% 2W F
R622	1-216-361-00	(F220)...METAL OXIDE 0.22 5% 2W
R701	1-247-723-11	(F120:WG)...CARBON 6.8K 5% 1/4W
R701	1-247-724-11	(F120:E)...CARBON 8.2K 5% 1/4W
R702	1-249-437-11	CARBON 47K 5% 1/4W
R703	1-249-441-11	CARBON 100K 5% 1/4W
R704	1-249-439-11	CARBON 68K 5% 1/4W
R705	△.1-215-890-11	(F120:E)...METAL OXIDE 470 5% 2W
R705	△.1-216-428-00	(F120:WG)...METAL OXIDE 180 5% 1W F
R706	1-247-725-11	(F120:WG)...CARBON 10K 5% 1/4W
R706	1-249-459-11	(F120:E)...CARBON 12K 5% 1/4W
R708	1-249-419-11	CARBON 1.5K 5% 1/4W
R801	△.1-215-911-11	(F120:WG)...METAL OXIDE 100 5% 3W F
R801	△.1-215-914-11	(F120:E/F220) ...METAL OXIDE 330 5% 3W
R802	△.1-216-478-11	(F120:WG)...METAL OXIDE 390 5% 3W F
R802	△.1-216-481-11	(F120:E/F220) ...METAL OXIDE 1.2K 5% 3W
R803	△.1-249-451-11	CARBON 2.2 5% 1/4W F
R804	△.1-249-451-11	CARBON 2.2 5% 1/4W F
R805	1-247-713-11	CARBON 1K 5% 1/4W
R806	1-247-713-11	CARBON 1K 5% 1/4W
R807	1-247-695-11	(F120)...CARBON 39 5% 1/4W
R807	1-249-455-11	(F220)...CARBON 4.7 5% 1/4W
R808	1-249-455-11	CARBON 4.7 5% 1/4W
R901	1-246-461-85	(F120:E)...CARBON 330 5% 1/4W
R901	1-247-704-11	(F120:WG)...CARBON 220 5% 1/4W
R902	1-246-461-85	(F120:E)...CARBON 330 5% 1/4W
R902	1-247-704-11	(F120:WG)...CARBON 220 5% 1/4W
R903	1-247-727-11	(F120:WG/F220)...CARBON 10 5% 1/2W
R904	1-247-727-11	(F120:WG/F220)...CARBON 10 5% 1/2W
R905	1-247-727-11	(F120:WG/F220)...CARBON 10 5% 1/2W
R906	1-247-727-11	(F120:WG/F220)...CARBON 10 5% 1/2W
R907	1-249-412-11	CARBON 390 5% 1/4W
R908	1-249-413-11	CARBON 470 5% 1/4W
R909	1-249-413-11	CARBON 470 5% 1/4W
R911	1-246-461-85	(F120:E)...CARBON 330 5% 1/4W
R911	1-247-704-11	(F120:WG)...CARBON 220 5% 1/4W
R912	1-246-461-85	(F120:E)...CARBON 330 5% 1/4W
R912	1-247-704-11	(F120:WG)...CARBON 220 5% 1/4W

Ref.No.	Part No.	Description
RV301	1-238-513-11	RES, VAR CARBON 150K/150K (BALANCE)
RV302	1-238-514-11	RES, VAR 250K/250K (TONE:TREBLE)
RV303	1-238-515-11	RES, VAR, CARBON 520K/520K (TONE:BASS)
RV304	1-238-512-11	RES, VAR, CARBON 120K/120K (VOLUME)
RV501	1-237-455-11	RES, ADJ, CARBON 500
RV601	1-237-455-11	RES, ADJ, CARBON 500
RY701	1-515-533-11	RELAY
S1	△.1-554-920-21	SWITCH, PUSH (AC POWER)(1 KEY)(POWER)
S301	1-571-871-11	(F220)...SWITCH, ROTARY SLIDE (INPUT SELECTOR)(LOUDNESS)
S302	1-571-871-11	(F220)...SWITCH, ROTARY SLIDE (REC OUT SELECTOR)
S302	1-571-873-11	(F120)...SWITCH, ROTARY SLIDE (INPUT SELECTOR)
S303	1-571-828-11	SWITCH, PUSH (1 KEY)(SOURCE DIRECT)
S304-2	1-571-828-11	(F120:WG/F220)...SWITCH, PUSH (1 KEY) (LOUDNESS)
S304-1	1-571-872-11	(F120:)...SWITCH, PUSH (1 KEY) (TAPE/DET MONITOR)
S901	1-571-870-11	SWITCH, ROTARY SLIDDE (SPEAKER)
T1	△.1-449-585-12	(F120:E)...TRANSFORMER, POWER
T1	△.1-450-061-11	(F120:WG)...TRANSFORMER, POWER
T1	△.1-450-142-11	(F220)...TRANSFORMER, POWER
TM901	1-537-228-11	TERMINAL BOARD (SPEAKER A/B)
VS1	1-570-307-11	(F120:E)...SWITCH, VOLTAGE CHANGE

ACCESSORY & PACKING MATERIAL

*3-703-710-41	STICKER, SONY SYMBOL (12)
3-751-336-11	(E)...MANUAL, INSTRUCTION
3-751-336-51	(WG)...MANUAL, INSTRUCTION
*4-929-260-01	CUSHION
*4-931-989-01	(F220)...INDIVIDUAL CARTON
*4-931-990-01	(F120)...INDIVIDUAL CARTON

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

