

TA-F101K

SERVICE MANUAL

E Model



SPECIFICATIONS

Amplifier section

Continuous RMS power output
(both channels driven simultaneously)

50 W + 50 W
(8 ohms, at 1 kHz, EIAJ*)

Harmonic distortion Less than 0.05% at rated output
Intermodulation (IM) distortion (60 Hz : 7 kHz = 1 : 4)

Less than 0.05% at rated output
CD, VIDEO, TAPE 1, TAPE 2:
7 Hz – 100 kHz ± 1 dB

Residual noise Less than 170 μ V (network A)

Inputs

Input jack	Jack type	Sensitivity	Impedance	S/N (weighting network, input level)
VIDEO, CD, TAPE 1, TAPE 2	Phono	250 mV	50 kilohms	100 dB (A, 250 mV)
MIC	Phone	0.8 mV	5 kilohms	80 dB (A, 0.8 mV)

* Measured by the standards of EIAJ (Electronic Industries Association of Japan)

Outputs

Output jack	Jack type	Voltage/Impedance
TAPE 1, TAPE 2	Phono	150 mV/1 kilohm
SPEAKER	—	Accepts speakers of 8 – 16 ohms

General

Power requirement	120 V, 220 V or 240 V AC, adjustable, 50/60 Hz
Power consumption	100 W
Dimensions	Approx. 430 x 110 x 295 mm (w/h/d)
Weight	Approx. 4.7 kg
Accessories	Microphone (1) Plug adaptor (1)
Optional system	Cassette deck TC-FX120 Cassette deck TC-W320 Graphic equalizer SEQ-401 CD player CDP-C305 CD player CDP-190 Speaker system SS-A7000 Speaker system SS-U572

Design and specifications subject to change without notice.

INTEGRATED STEREO AMPLIFIER
SONY®

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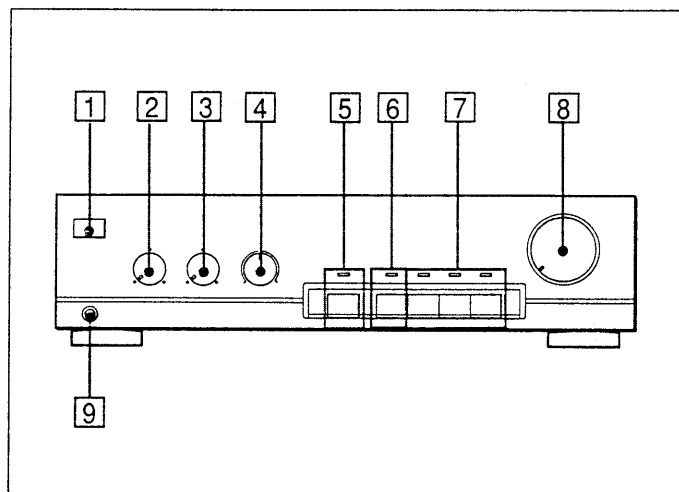
SAFETY-RELATED COMPONENT WARNING!!

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

SECTION 1 GENERAL

This section is extracted from instruction manual.

Function of Controls

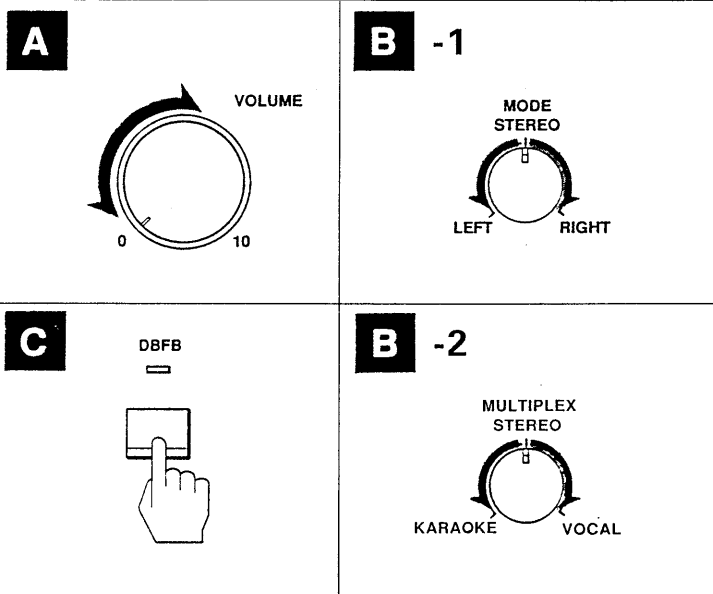
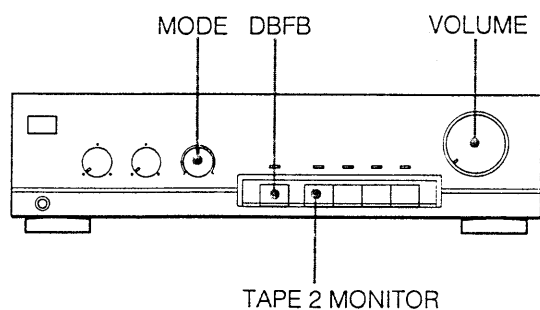


For instructions refer to the pages indicated in the circled number.

- 1 POWER switch
- 2 MICrophone LEVEL control ⑤
- 3 ECHO LEVEL control ⑤
- 4 MODE (MULTIPLEX) control ④
- 5 DBFB button and indicator ④
- 6 TAPE 2 MONITOR button and indicator ④⑤⑥
- 7 FUNCTION selectors and indicators ⑤
- 8 VOLUME control ④
- 9 MICrophone jack ⑤

Adjusting the Sound

For getting the optimum sound, you can adjust volume and sound quality using the functions below.



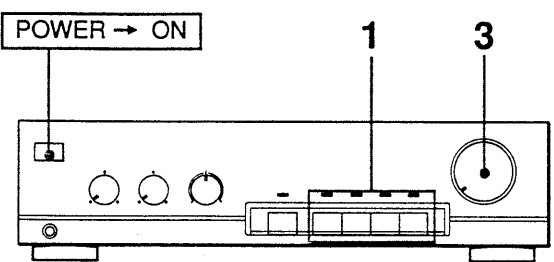
To adjust volume A
Turn the VOLUME control.

To change the stereo mode B
When turning the MODE control to RIGHT (clockwise), the stereo mode is changed to the right (VOCAL) channel monaural mode.
When turning the MODE control to LEFT (counter-clockwise), the mode is changed to the left (KARAOKE) channel monaural mode.

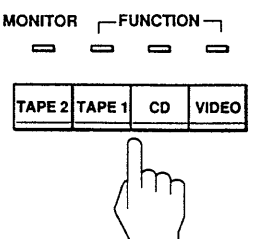
To reinforce the bass and treble frequency response C
Press the DBFB button. The bass and treble frequency sounds are emphasized.

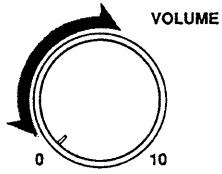
When a graphic equalizer is connected to the TAPE 2 jacks, the sound quality can be controlled with the graphic equalizer
Press the TAPE 2 MONITOR button and operate the graphic equalizer.

Listening to a Program Source



- 1 Select the desired program source.


- 2 Play the program source.
- 3

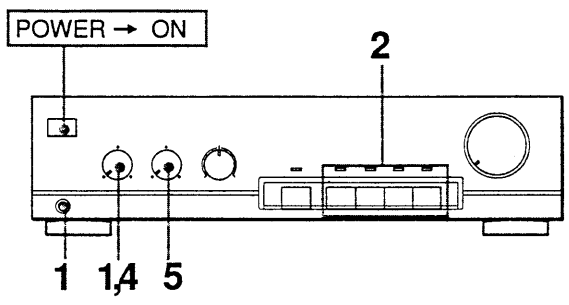


Note on the TAPE 2 MONITOR button

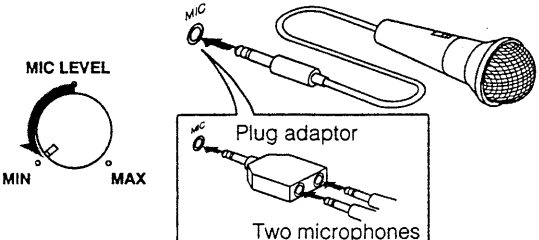
Be sure to release the TAPE 2 MONITOR button except when listening to the program of the cassette deck 2, or controlling the sound quality with the graphic equalizer,

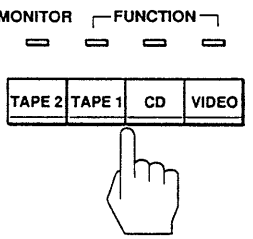
connected to the TAPE 2 jacks. Otherwise, the program source selected with the FUNCTION selectors cannot be heard.

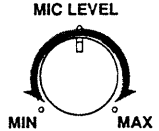
Mixing Sounds with the Microphone (Karaoke)

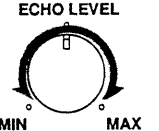


- 1


- 2 Select program source and start playing the selected source.


- 3 Sing or speak into the microphone.
- 4 Adjust the microphone volume level.


- 5 When making echo onto the signal from the microphone, turn the ECHO LEVEL control.



If howling occurs

Turn the volume down or move the microphone away from the speakers.

When you have finished using the microphone

Be sure to turn off the switch in the supplied microphone or turn down the MIC LEVEL control fully.

With the plug adaptor

Turning off the switch in the supplied microphone will shut off the sound from both microphones. When two microphones are connected, the sensitivities of microphones are changed.

Recording

	1 Select the desired program source.	2 Set the TAPE 2 MONITOR button to off.
	3 Set the cassette deck 1 or 2 in the recording mode.	4 Start the program source.

When recording to cassette deck 1 connected to the TAPE 1 jacks

The recording sound is effected with the DBFB and MODE controls, and mixed voice through the microphone with the MIC LEVEL and ECHO LEVEL controls.

When a graphic equalizer is connected to the TAPE 2 jacks, the recording sound to cassette deck 1 can be controlled with the graphic equalizer

After selecting the desired program source, press the TAPE 2 MONITOR button, adjust the graphic equalizer, and start recording of the cassette deck 1.

Monitoring the recorded sound while recording

If a cassette deck with three-head system is connected to the TAPE 2 jacks, you can monitor the recording results. While recording to the cassette deck 2, press the TAPE 2 MONITOR button. To listen to the source sound again, press the TAPE 2 MONITOR button again.

Dubbing (from Cassette Deck 1 to Cassette Deck 2)

	1 Select the cassette deck 1 for playback.
	2 Set the cassette deck 2 in the recording mode. 3 Start playing back the tape in the cassette deck 1.

When dubbing from cassette deck 2 to cassette deck 1

Set the FUNCTION selectors to the CD or VIDEO and then press the TAPE 2 MONITOR button so that the indicator above the button lights up. The settings of the DBFB,

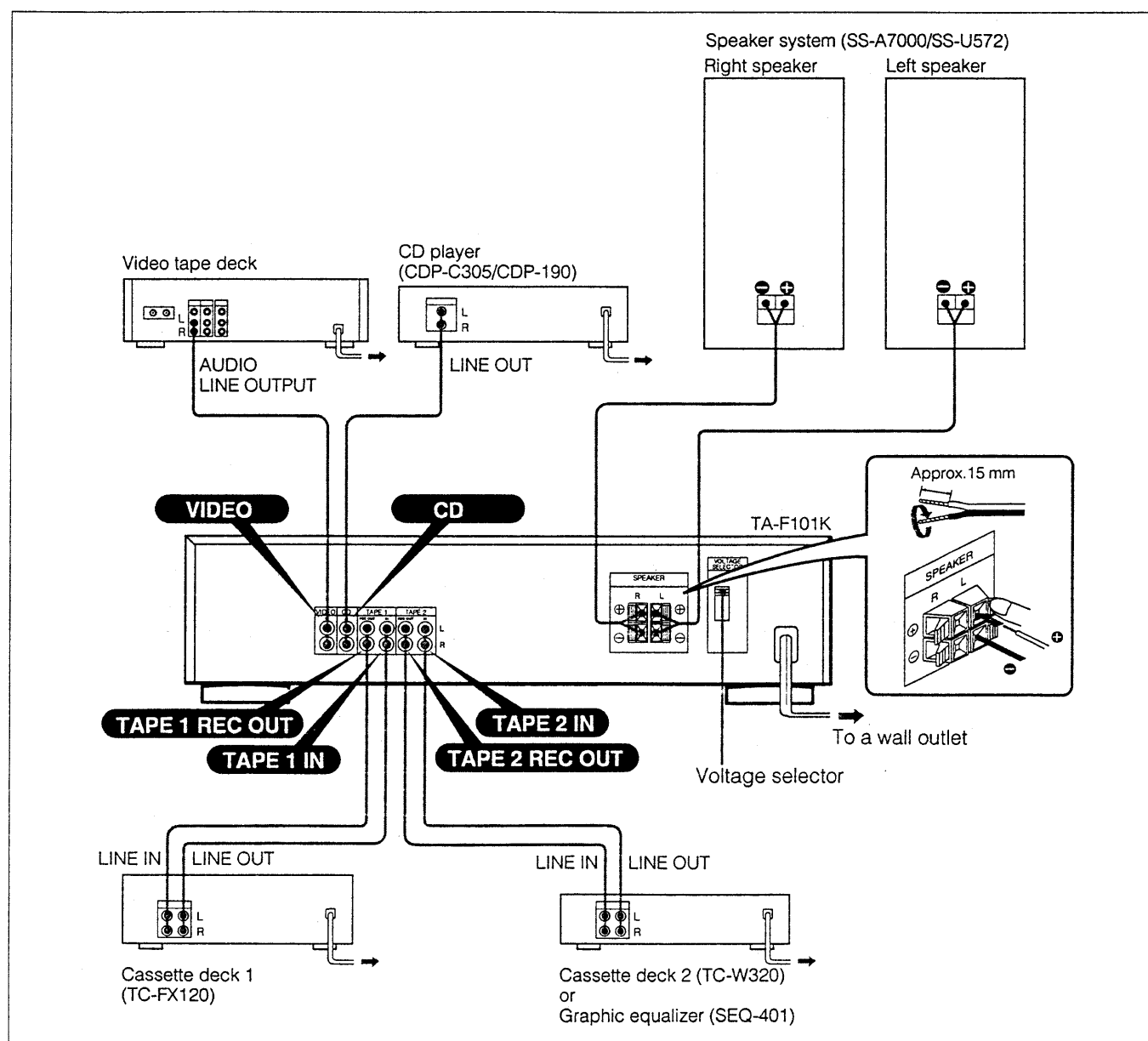
MODE, MIC LEVEL and ECHO LEVEL controls have effect on recording. If the TAPE 1 is selected, the sound from the cassette deck 2 cannot be recorded to the cassette deck 1.

Connections

Notes on Connection

- The power cord should be connected last of all, after making sure that the POWER switch is turned off.
- The cable connectors should be fully inserted into the jacks. Loose connection may cause hum and noise.
- Cord plugs and jacks are color coded. The red plugs and jacks are to be connected to the right-channel (R) and white ones to the left-channel (L).

Connection Diagram



Connecting a graphic equalizer

Connect a graphic equalizer to the TAPE 2 IN and REC OUT jacks. To listen to the sound source through the graphic equalizer, select the source with the FUNCTION selectors and then depress the TAPE 2 MONITOR button so that the MONITOR indicator lights up.

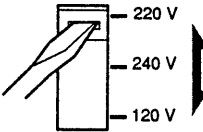
Speaker impedance

Be sure to use a speaker system with adequate nominal impedance from 8 to 16 ohms.

Precautions

On safety

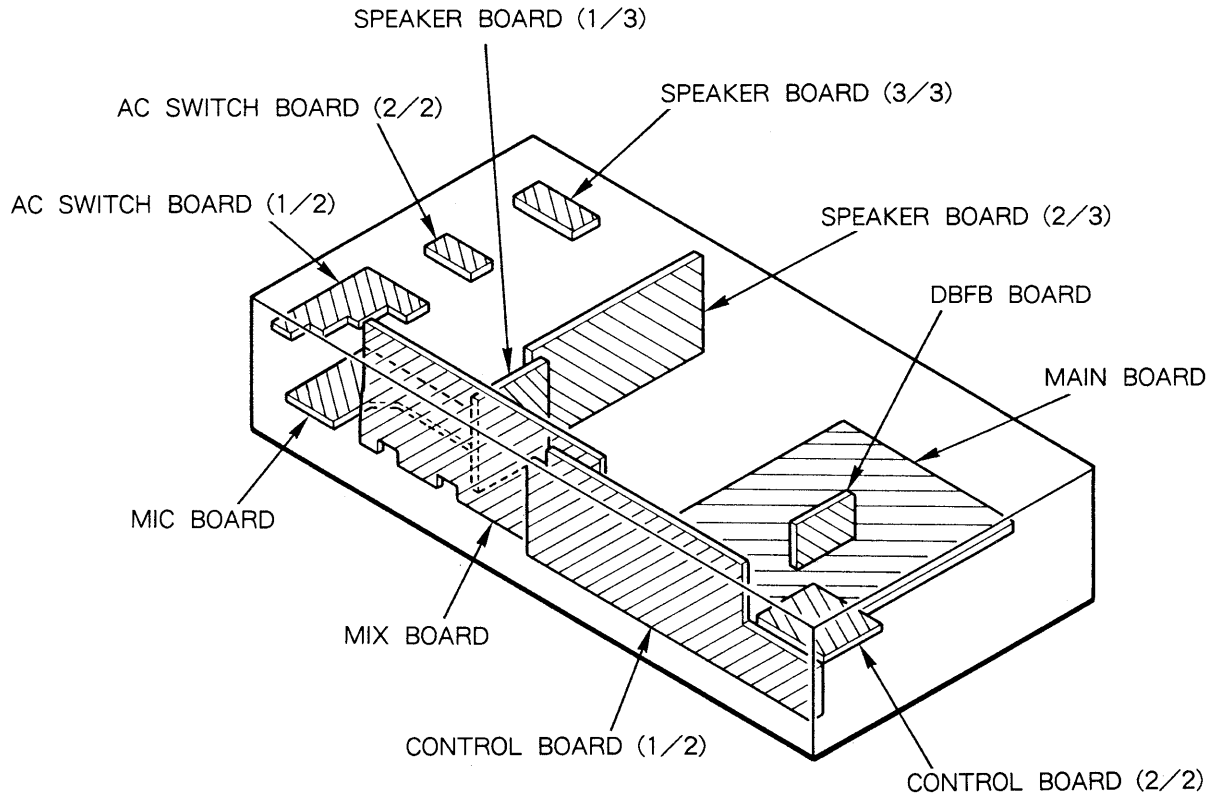
- Before connecting the unit to an AC outlet, be sure that the operating voltage of your unit is identical with that of your local power supply.

	This unit operates on either 120 V, 220 V or 240 V AC, 50/60 Hz. The voltage selector is located on the rear panel. If the selector must be reset, disconnect the AC power cord and set the selector to the proper voltage of your local power supply.
---	---

- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the plug out by the cord.
- Avoid installing or leaving the unit in a location:
 - near heat sources such as radiators, airducts or heaters
 - subject to direct sunlight
 - exposed to rain or moisture
 - where it is liable to come into contact with dust or dirt
 - that is unventilated, such as on a bookcase.
- Should any liquid or solid object fall into the unit, unplug the unit and have the unit checked by qualified personnel before operating it any further.

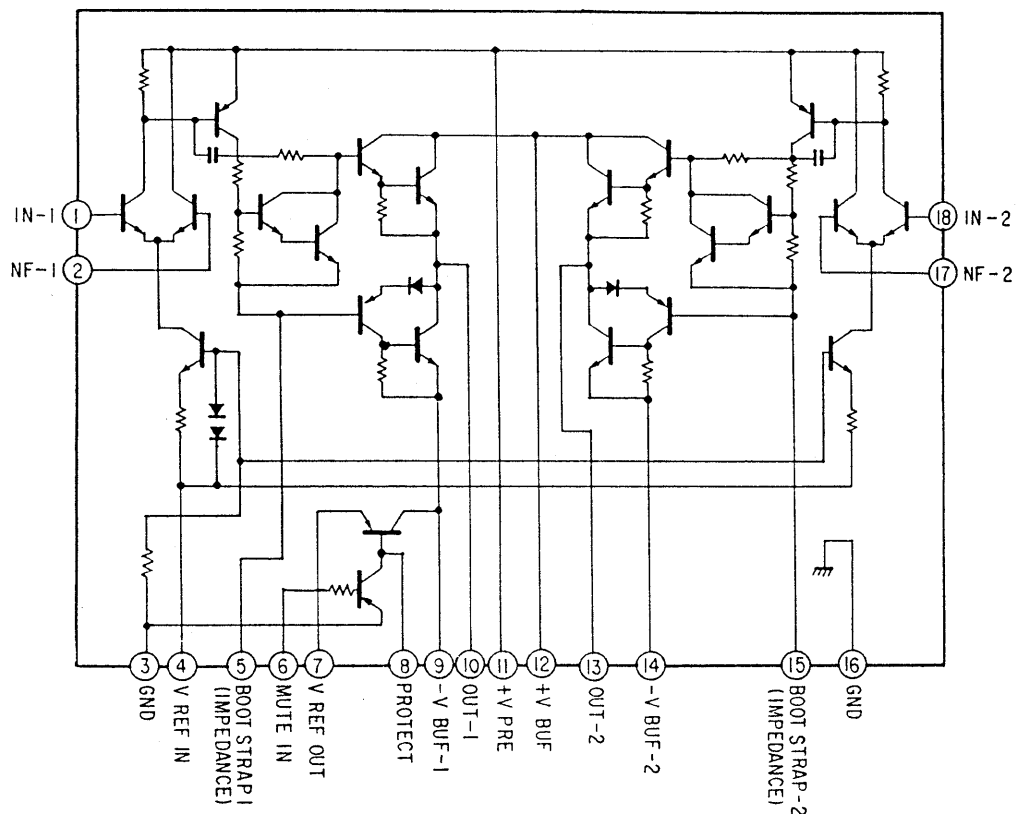
SECTION 2 DIAGRAMS

2-1. CIRCUIT BOARDS LOCATION

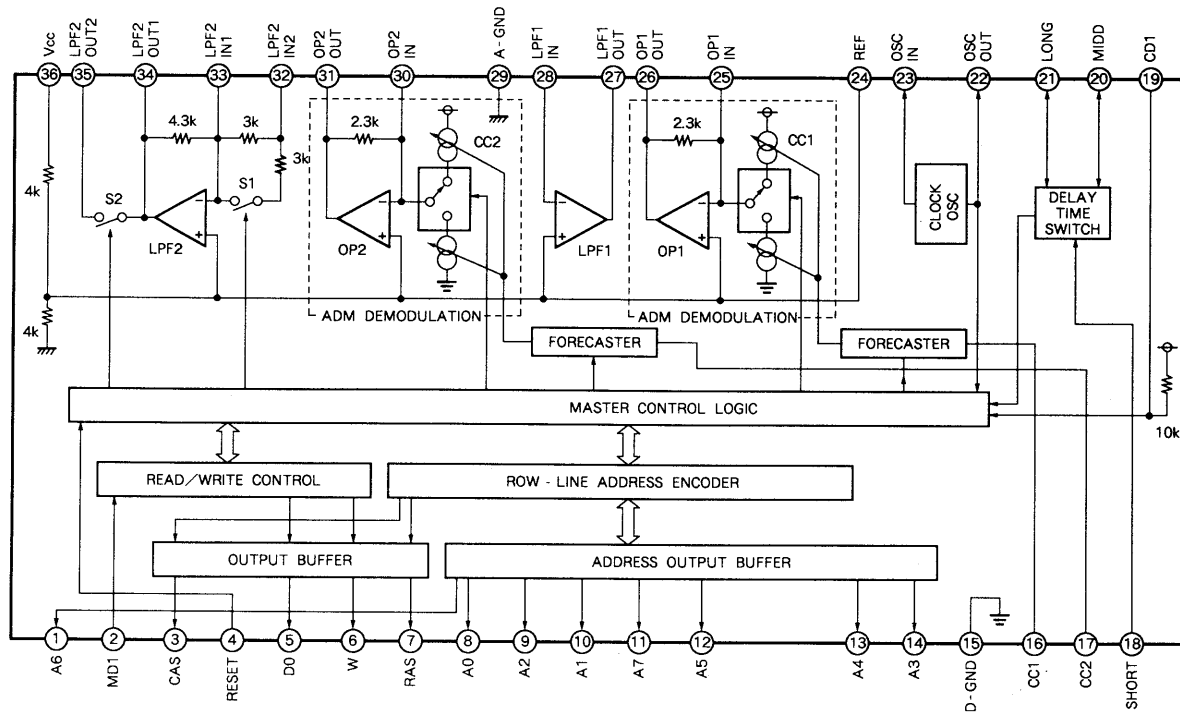


2-2. IC BLOCK DIAGRAM

IC501 STK4162MKII

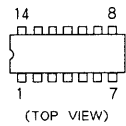


IC31 M50195P

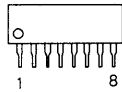


2-3. SEMICONDUCTOR LEAD LAYOUTS

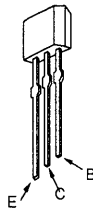
HD14013BP
MC14066BCP
μPD4011BC



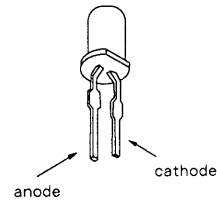
M5218AL



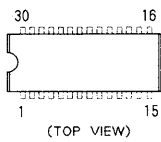
2SA1175-HFE



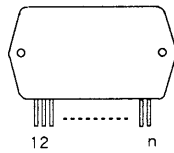
SEL2810A-C



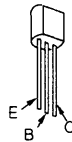
LC7818



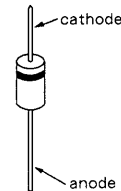
STK-4162MK2



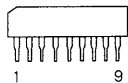
2SC1841-PAFAEA
2SC3623-LK



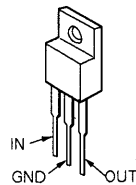
1S1585



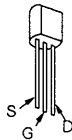
LM2903S



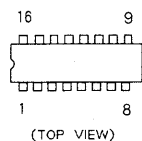
TA7808S
TA7908S



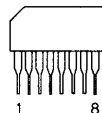
2SK246-Y



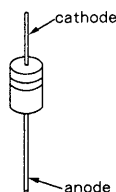
LM3364K-15



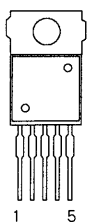
μPC1237HA



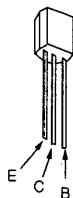
HZS6AIL
1SS120
11ES2



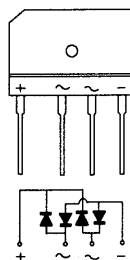
L78MR05



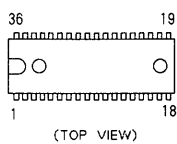
DTA124ES
DTC114ES
DTC124ES
DTC144ES
2SC2603-EF



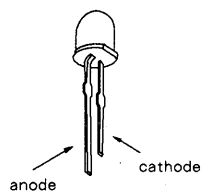
RBA-402



M50195P



SEL2510C

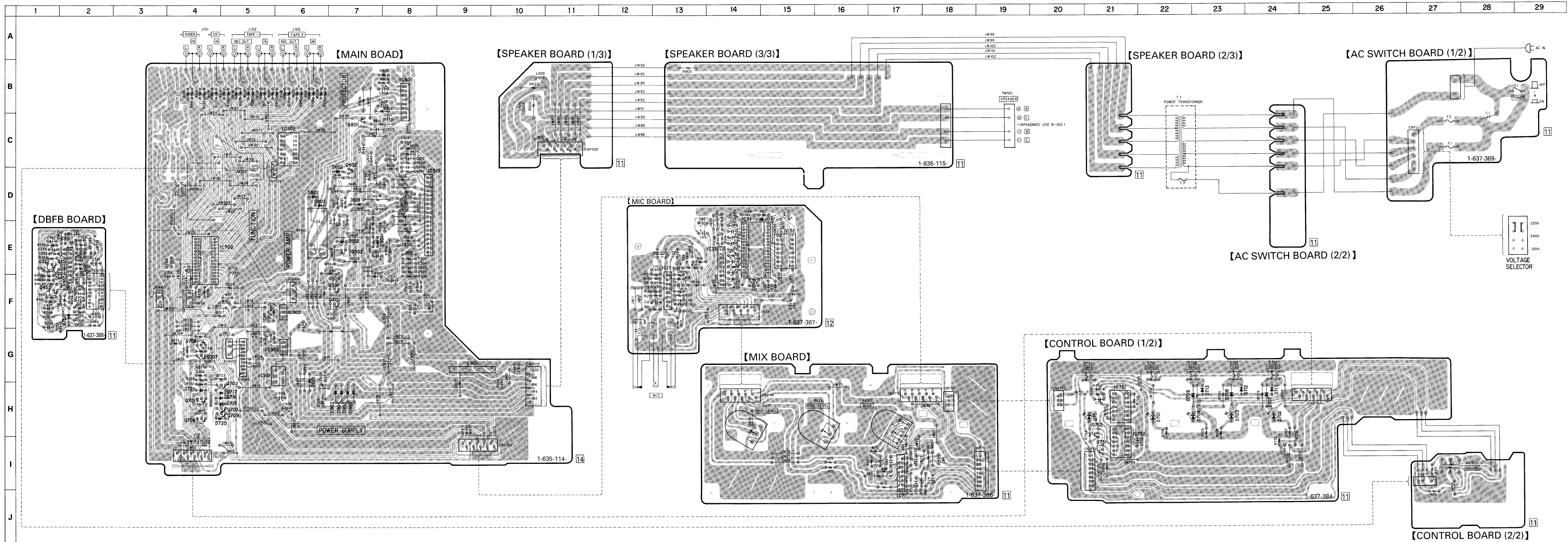


The schematic diagram illustrates the internal circuitry of a stereo cassette player, organized into several functional blocks:

- Input Section:** Features multiple input jacks (J101, J102, J103) for REC, TAPE 1, TAPE 2, VIDEO, and CD. A microphone (MIC) input is also present. These inputs are routed through a REC SWITCH and a FUNCTION SWITCH (IC 702) to the main processing stages.
- Processing Section:** The signal path continues through DBFB ON/OFF FILTERS (Q 351, Q 352 and Q 451, Q 452), DBFB AMPS (IC 351 (1/2) and IC 351 (2/2)), and a central AMP (IC 71 (1/2) and IC 71 (2/2)). A VOLUME control (RV 303) is used to adjust the signal level before it reaches the POWER AMPS (IC 501 (1/2) and IC 501 (2/2)).
- Control Section:** A central control unit (IC 31 ECHO) is connected to a RAM (IC 32) and a BUFFER (IC 33). It also interfaces with a FLIPFLOP (IC 752) and a WAVE SHAPER (IC 751). A SWITCH CONTROL (Q 703, Q 709) manages the various input and output switches.
- Power Section:** The power supply is derived from an AC INPUT through a POWER TRANSFORMER (T1). It includes a RECTIFIER (D 901), a PROTECTOR (Q 801), and several REGULATORS (IC 901, IC 902, IC 903) to provide stable voltages (+36V, -36V, +8.0V, +4.3V, +5.0V, -8.0V). A VOLTAGE SELECTOR switch (S1) is used to select the appropriate power level.
- Output Section:** The processed signal is sent to a LOAD PICK-UP (Q 502, Q 602) and then to the SPEAKER (SPEAKER) via a switch (S751).

2-5. PRINTED WIRING BOARDS

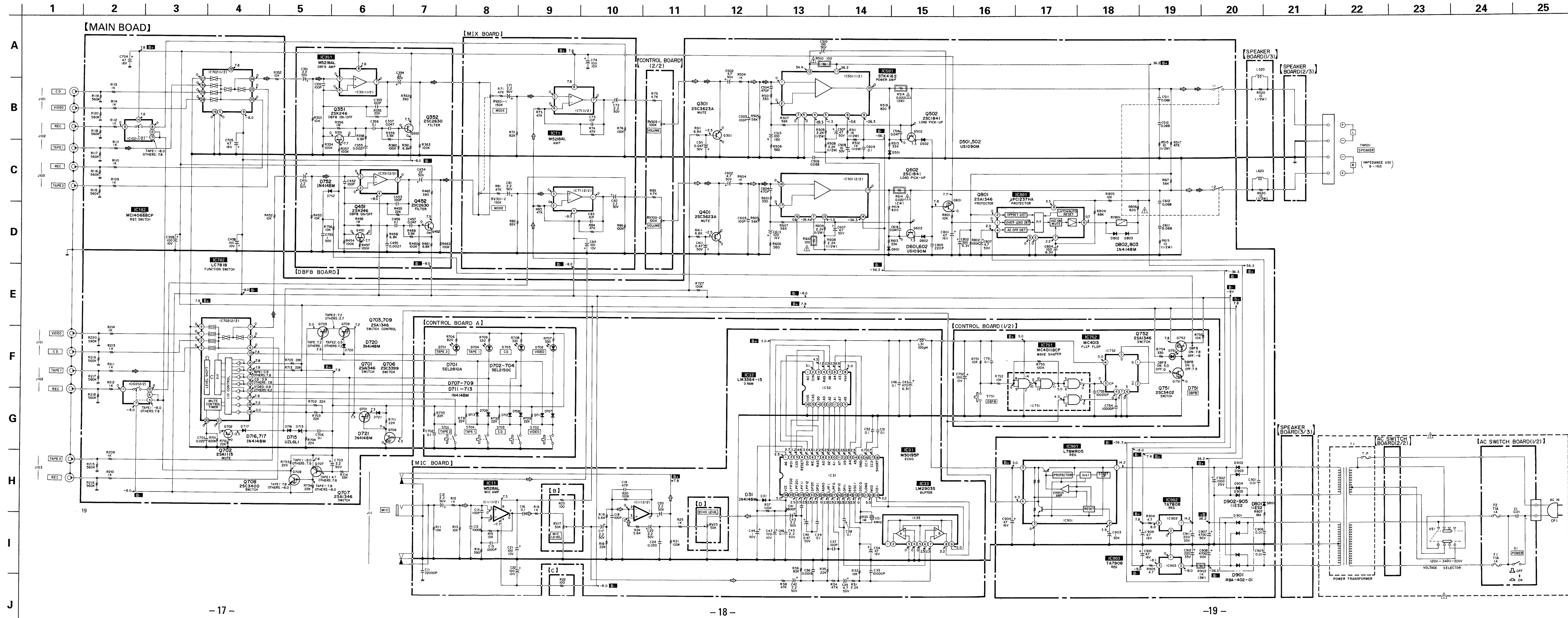
Pef. No.	Location	Pef. No.	Location
IC11	F-13	D31	E-15
IC31	E-14	D501	E-7
IC32	E-15	D502	E-7
IC33	E-14	D601	D-7
IC71	I-17	D602	D-7
IC102	C-6	D701	H-22
IC351	E-2	D702	H-24
IC501	D-8	D703	H-23
IC702	E-4	D704	H-23
IC751	H-21	D707	H-24
IC752	H-21	D708	H-23
IC801	B-8	D709	H-22
IC901	G-6	D711	H-24
IC902	G-6	D712	H-23
IC903	F-6	D713	H-23
		D715	H-5
Q301	F-7	D716	H-5
Q351	E-2	D717	H-5
Q352	E-1	D720	H-5
Q401	F-7	D721	H-4
Q451	F-2		
		D751	H-21
Q452	F-1	D752	F-2
Q502	E-7	D801	G-6
Q602	D-7	D802	D-6
Q701	H-4	D803	D-6
Q702	H-5		
		D901	G-9
Q703	H-5	D902	H-7
Q706	H-4	D903	H-7
Q707	G-4	D904	H-7
Q708	G-4	D905	H-7
Q709	H-5		
Q751	I-21		
Q752	H-21		
Q801	C-7		



Note on Printed Wiring Board :

- : parts extracted from the component side.
-  : Pattern on the side which is seen.

2-6. SCHEMATIC DIAGRAM • Refer to pages 8 and 9 for IC Block Diagrams.



- **B₊** : B+ Line
- **B₋** : B- Line
- Voltages are taken with a VOM (Input impedance 10M Ω).
Voltage variations may be noted due to normal production tolerances.
- Signal path.
 : TAPE 1
 : MIC

SECTION 3

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)

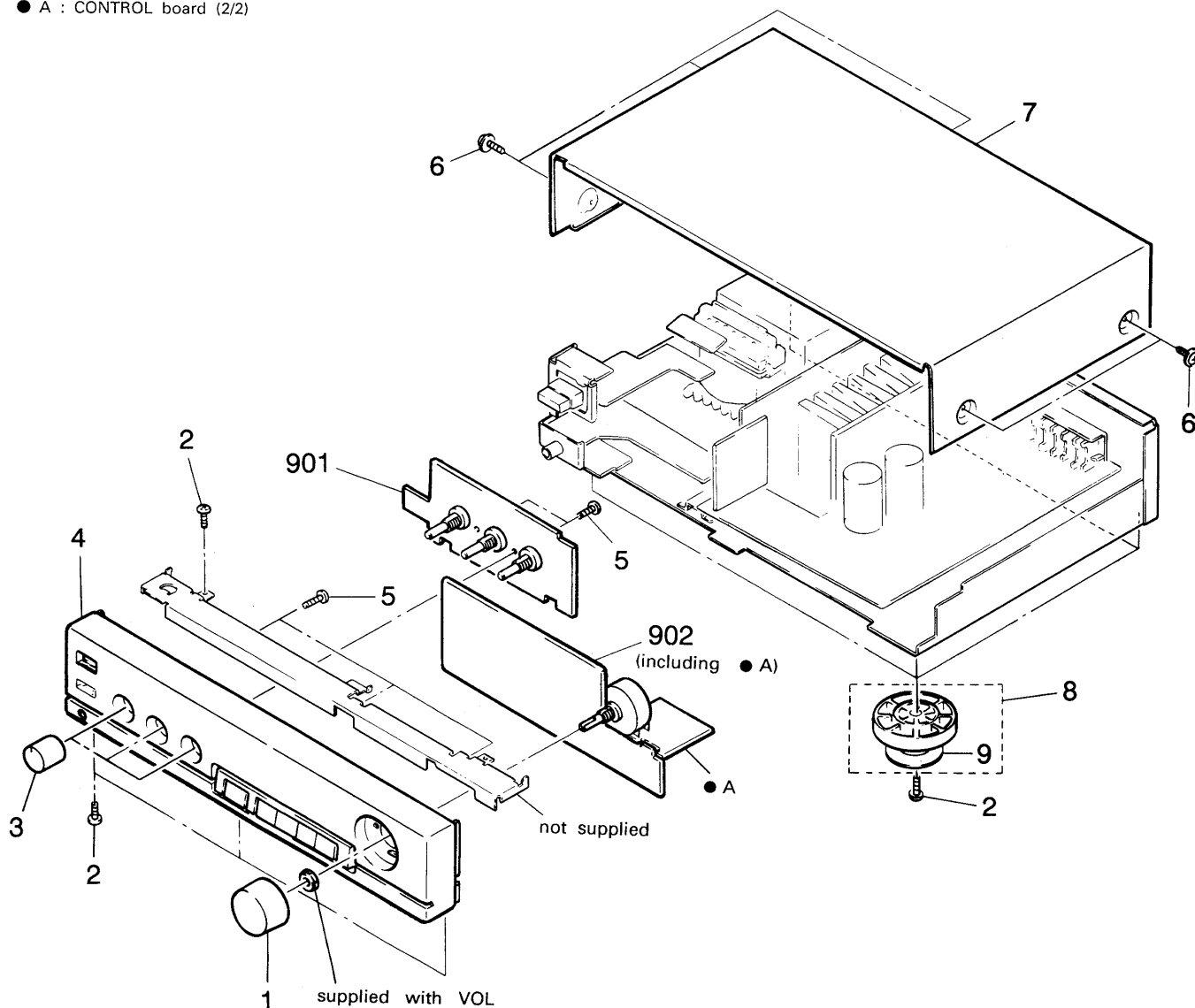
↑
Cabinet's Color

↑
Parts Color

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

(1)

● A : CONTROL board (2/2)

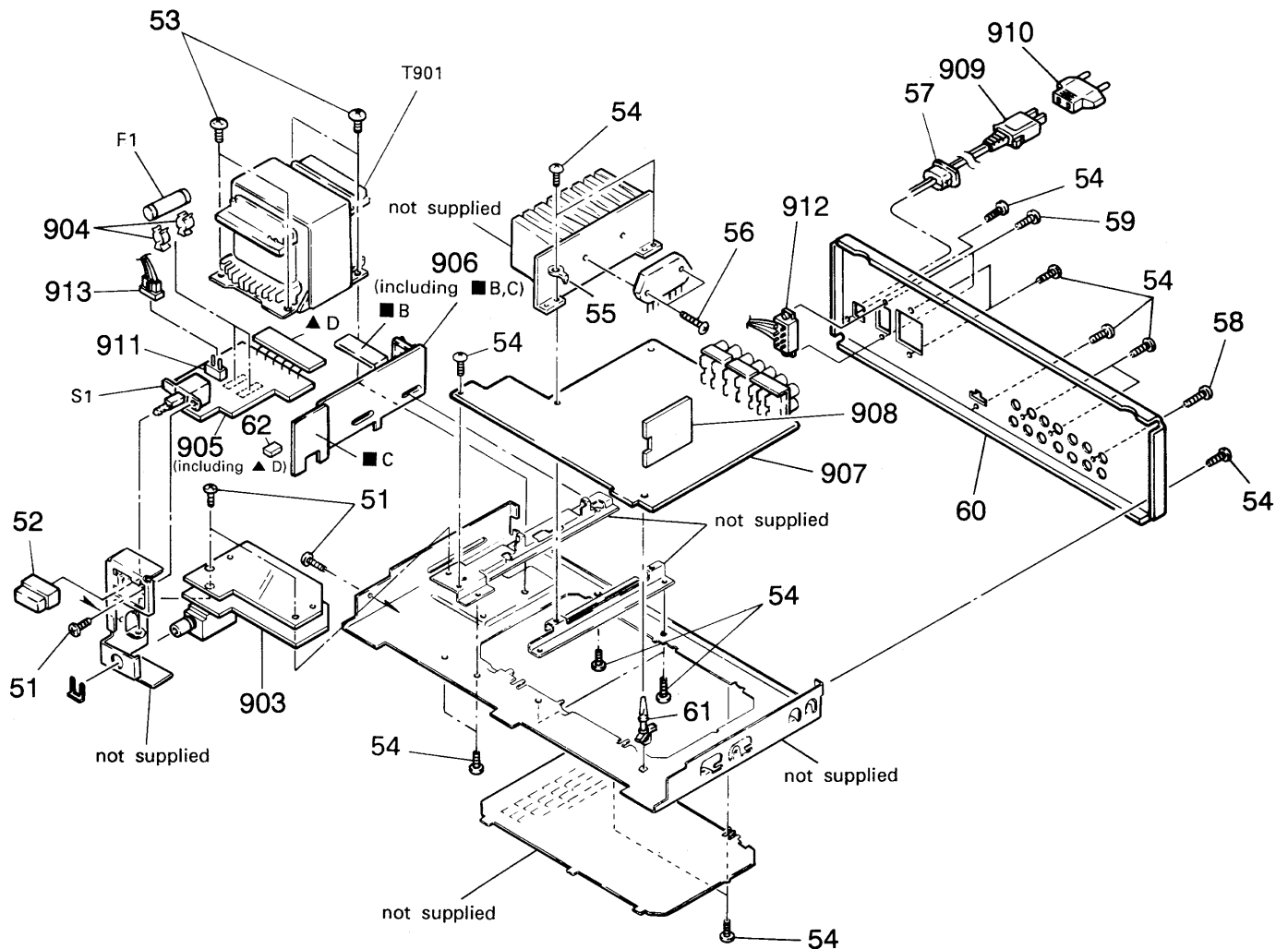


No.	Part No.	Description
1	4-929-288-22	KNOB (VOL 47)
2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
3	4-916-746-21	KNOB (DIA. 21), ROUND
4	X-4941-172-1	PANEL ASSY, FRONT
5	4-928-635-01	SCREW, +BV (2.6X8) TAPPING
6	3-704-366-01	SCREW (CASE) (M3X8)

Remarks	No.	Part No.	Description	Remarks
	7	*4-937-817-11	CASE	
	8	X-3304-938-2	FOOT ASSY	
	9	4-923-836-11	CUSHION	
	901	*1-637-386-11	PC BOARD, MIX	
	902	*1-637-384-11	PC BOARD, CONTROL SWITCH	

(2)

- B : SPEAKER board (3/3)
- C : SPEAKER board (1/3)
- ▲ D : POWER board (2/2)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	7-682-547-04	SCREW +BVTT 3X6 (S)		904	1-533-225-11	HOLDER, FUSE	
52	3-354-912-01	KNOB, POWER		905	*1-637-389-12	PC BOARD, AC SWITCH	
53	7-682-560-04	SCREW +BVTT 4X6 (S)		906	*1-635-115-11	PC BOARD, SPEAKER	
54	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		907	*A-4341-429-A	MOUNTED PCB, MAIN	
55	4-870-539-00	PLATE, GROUND		908	*1-637-388-11	PC BOARD, DBFB	
56	4-928-635-11	SCREW, +BV (2.6X16) TAPPING		909	▲ 1-574-902-11	CORD, POWER	
57	*3-703-571-11	BUSHING (S) (4516), CORD		910	▲ 1-569-007-11	ADAPTER, CONVERSION 2P	
58	7-621-849-00	SCREW, TAPPING		911	▲ *1-564-321-00	PIN, CONNECTOR 2P	
59	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT		912	1-570-307-11	SWITCH, VOLTAGE CHANGE	
60	*4-942-366-01	PANEL, BACK		913	▲ 1-506-384-21	ADAPTOR, PLUG	
61	*3-346-265-11	HOLDER, PC BOARD		F1	▲ 1-532-078-00	FUSE, TIME-LAG	
62	*4-398-732-01	CUSHION		S1	▲ 1-554-920-11	SWITCH, PUSH (AC POWER)(1 KEY)	
903	*A-4341-433-A	MOUNTED PCB, MIC		T901	▲ 1-450-338-11	TRANSFORMER, POWER	

SECTION 4

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 μ F.

RESISTORS

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORS

In 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	*1-637-386-11	PC BOARD, MIX	C71	1-124-925-11	ELECT 2.2MF 20% 50V
902	*1-637-384-11	PC BOARD, CONTROL SWITCH	C72	1-124-925-11	ELECT 2.2MF 20% 50V
903	*A-4341-433-A	MOUNTED PCB, MIC	C73	1-162-199-31	CERAMIC 10PF 5% 50V
904	1-533-225-11	HOLDER, FUSE	C74	1-124-443-00	ELECT 100MF 20% 10V
905	*1-637-389-12	PC BOARD, AC SWITCH	C81	1-124-925-11	ELECT 2.2MF 20% 50V
906	*1-635-115-11	PC BOARD, SPEAKER	C82	1-124-925-11	ELECT 2.2MF 20% 50V
907	*A-4341-429-A	MOUNTED PCB, MAIN	C83	1-162-199-31	CERAMIC 10PF 5% 50V
908	*1-637-388-11	PC BOARD, DBFB	C84	1-124-443-00	ELECT 100MF 20% 10V
909	Δ 1-574-902-11	CORD, POWER	C311	1-124-902-00	ELECT 0.47MF 20% 50V
910	Δ 1-569-007-11	ADAPTER, CONVERSION 2P	C351	1-124-925-11	ELECT 2.2MF 20% 50V
911	Δ *1-564-321-00	PIN, CONNECTOR 2P	C352	1-164-073-11	CERAMIC 100PF 10% 50V
912	1-570-307-11	SWITCH, VOLTAGE CHANGE	C353	1-164-073-11	CERAMIC 100PF 10% 50V
913	Δ 1-506-384-21	ADAPTOR, PLUG	C354	1-126-233-11	ELECT 22MF 20% 50V
C1	1-161-744-00	CERAMIC 0.01MF 400V	C355	1-130-476-00	MYLAR 0.0027MF 5% 50V
C11	1-161-494-00	CERAMIC 0.022MF 30% 25V	C356	1-136-165-00	FILM 0.1MF 5% 50V
C12	1-124-925-11	ELECT 2.2MF 20% 50V	C357	1-136-161-00	FILM 0.047MF 5% 50V
C13	1-164-085-11	CERAMIC 0.001MF 10% 50V	C358	1-124-443-00	ELECT 100MF 20% 10V
C14	1-164-073-11	CERAMIC 100PF 10% 50V	C411	1-124-902-00	ELECT 0.47MF 20% 50V
C15	1-164-085-11	CERAMIC 0.001MF 10% 50V	C451	1-124-925-11	ELECT 2.2MF 20% 50V
C16	1-136-165-00	FILM 0.1MF 5% 50V	C452	1-164-073-11	CERAMIC 100PF 10% 50V
C17	1-124-925-11	ELECT 2.2MF 20% 50V	C453	1-164-073-11	CERAMIC 100PF 10% 50V
C18	1-164-073-11	CERAMIC 100PF 10% 50V	C454	1-126-233-11	ELECT 22MF 20% 50V
C19	1-164-062-11	CERAMIC 47PF 5% 50V	C455	1-130-476-00	MYLAR 0.0027MF 5% 50V
C20	1-124-925-11	ELECT 2.2MF 20% 50V	C456	1-136-165-00	FILM 0.1MF 5% 50V
C21	1-124-443-00	ELECT 100MF 20% 10V	C457	1-136-161-00	FILM 0.047MF 5% 50V
C22	1-124-443-00	ELECT 100MF 20% 10V	C458	1-124-443-00	ELECT 100MF 20% 10V
C23	1-124-925-11	ELECT 2.2MF 20% 50V	C502	1-124-927-11	ELECT 4.7MF 20% 50V
C24	1-136-159-00	FILM 0.033MF 5% 50V	C503	1-162-282-31	CERAMIC 100PF 10% 50V
C31	1-164-159-11	CERAMIC 0.1MF 50V	C504	1-162-290-31	CERAMIC 470PF 10% 50V
C32	1-164-159-11	CERAMIC 0.1MF 50V	C506	1-136-163-00	FILM 0.068MF 5% 50V
C33	1-161-379-00	CERAMIC 0.01MF 30% 16V	C507	1-124-910-11	ELECT 47MF 20% 50V
C34	1-124-477-11	ELECT 47MF 20% 16V	C508	1-123-875-11	ELECT 10MF 20% 50V
C35	1-124-927-11	ELECT 4.7MF 20% 50V	C509	1-136-165-00	FILM 0.1MF 5% 50V
C36	1-130-474-00	MYLAR 0.0018MF 5% 50V	C510	1-124-122-11	ELECT 100MF 20% 50V
C37	1-164-073-11	CERAMIC 100PF 10% 50V	C511	1-136-163-00	FILM 0.068MF 5% 50V
C38	1-164-159-11	CERAMIC 0.1MF 50V	C512	1-136-163-00	FILM 0.068MF 5% 50V
C39	1-164-159-11	CERAMIC 0.1MF 50V	C513	1-126-101-11	ELECT 100MF 20% 16V
C40	1-124-902-00	ELECT 0.47MF 20% 50V	C514	1-136-161-00	FILM 0.047MF 5% 50V
C41	1-164-094-11	CERAMIC 0.0068MF 10% 25V	C602	1-124-927-11	ELECT 4.7MF 20% 50V
C42	1-124-925-11	ELECT 2.2MF 20% 50V	C603	1-162-282-31	CERAMIC 100PF 10% 50V
C43	1-124-925-11	ELECT 2.2MF 20% 50V	C604	1-162-290-31	CERAMIC 470PF 10% 50V
C44	1-124-791-11	ELECT 1MF 20% 50V	C607	1-124-910-11	ELECT 47MF 20% 50V
C45	1-124-472-11	ELECT 470MF 20% 6.3V	C609	1-136-165-00	FILM 0.1MF 5% 50V
C46	1-164-159-11	CERAMIC 0.1MF 50V	C611	1-136-163-00	FILM 0.068MF 5% 50V
C47	1-124-443-00	ELECT 100MF 20% 10V	C612	1-136-163-00	FILM 0.068MF 5% 50V
C48	1-164-159-11	CERAMIC 0.1MF 50V			

Ref.No.	Part No.	Description			
C613	1-126-101-11	ELECT	100MF	20%	16V
C614	1-136-161-00	FILM	0.047MF	5%	50V
C701	1-161-494-00	CERAMIC	0.022MF		25V
C702	1-164-159-11	CERAMIC	0.1MF		50V
C703	1-124-925-11	ELECT	2.2MF	20%	50V
C704	1-124-477-11	ELECT	47MF	20%	16V
C705	1-124-477-11	ELECT	47MF	20%	16V
C706	1-136-165-00	FILM	0.1MF	5%	50V
C751	1-164-159-11	CERAMIC	0.1MF		50V
C752	1-124-443-00	ELECT	100MF	20%	10V
C753	1-124-499-11	ELECT	1MF	20%	50V
C754	1-161-379-00	CERAMIC	0.01MF	30%	16V
C755	1-161-379-00	CERAMIC	0.01MF	30%	16V
C801	1-124-477-11	ELECT	47MF	20%	16V
C802	1-126-176-11	ELECT	220MF	20%	6.3V
C804	1-124-443-00	ELECT	100MF	20%	6.3V
C805	1-162-286-31	CERAMIC	220PF	10%	50V
C807	1-124-927-11	ELECT	4.7MF	20%	50V
C901	1-136-153-00	FILM	0.01MF	5%	50V
C902	1-124-480-11	ELECT	470MF	20%	25V
C903	1-124-791-11	ELECT	1MF	20%	50V
C904	1-124-477-11	ELECT	47MF	20%	16V
C905	1-136-153-00	FILM	0.01MF	5%	50V
C906	1-136-153-00	FILM	0.01MF	5%	50V
C907	1-126-138-11	ELECT	4700MF	20%	50V
C908	1-126-138-11	ELECT	4700MF	20%	50V
C909	1-124-477-11	ELECT	47MF	20%	16V
C910	1-124-477-11	ELECT	47MF	20%	16V
C911	1-124-484-11	ELECT	220MF	20%	35V
C912	1-124-484-11	ELECT	220MF	20%	35V
CNJ31	1-568-321-11	SOCKET, CONNECTOR 10P			
CNJ301	1-568-321-11	SOCKET, CONNECTOR 10P			
CNJ302	1-568-321-11	SOCKET, CONNECTOR 10P			
CNJ351*	1-565-438-11	SOCKET, CONNECTOR (PCB) 10P			
CNJ502	1-568-321-11	SOCKET, CONNECTOR 10P			
CNJ752*	1-562-573-11	SOCKET, CONNECTOR 8P			
CNJ753*	1-565-835-11	SOCKET, CONNECTOR 3P			
CNJ754*	1-568-322-11	PLUG, CONNECTOR 10P			
CNP1	*1-535-140-00	BASE POST 22MM (10MM PITCH) 3P			
CNP2	*1-535-140-00	BASE POST 22MM (10MM PITCH) 3P			
CNP71	*1-564-599-11	PIN, CONNECTOR 8P			
CNP72	*1-560-666-00	PIN, CONNECTOR 3P			
CNP73	*1-568-322-11	PLUG, CONNECTOR 10P			
CNP74	*1-568-322-11	PLUG, CONNECTOR 10P			
CNP105*	1-564-506-11	PLUG, CONNECTOR 3P			
CNP106*	1-565-439-11	PIN, CONNECTOR (PCB) 10P			
CNP502*	1-568-322-11	PLUG, CONNECTOR 10P			
D31	8-719-912-20	DIODE 1SS120			
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	8-719-301-52	DIODE SEL2810A-C			
D702	8-719-303-00	DIODE SEL2510C			
D703	8-719-303-00	DIODE SEL2510C			
D704	8-719-303-00	DIODE SEL2510C			

Ref.No.	Part No.	Description	
D707	8-719-912-20	DIODE 1SS120	
D708	8-719-912-20	DIODE 1SS120	
D709	8-719-912-20	DIODE 1SS120	
D711	8-719-912-20	DIODE 1SS120	
D712	8-719-912-20	DIODE 1SS120	
D713	8-719-912-20	DIODE 1SS120	
D715	8-719-933-33	DIODE HZS6A1L	
D716	8-719-912-20	DIODE 1SS120	
D717	8-719-912-20	DIODE 1SS120	
D720	8-719-912-20	DIODE 1SS120	
D721	8-719-912-20	DIODE 1SS120	
D751	8-719-303-00	DIODE SEL2510C	
D752	8-719-912-20	DIODE 1SS120	
D801	8-719-200-82	DIODE 11ES2	
D802	8-719-912-20	DIODE 1SS120	
D803	8-719-912-20	DIODE 1SS120	
D901	8-719-312-09	DIODE RBA-402	
D902	8-719-200-82	DIODE 11ES2	
D903	8-719-200-82	DIODE 11ES2	
D904	8-719-200-82	DIODE 11ES2	
D905	8-719-200-82	DIODE 11ES2	
D906	8-719-912-20	DIODE 1SS120	
F1	△ 1-532-078-00	FUSE, TIME-LAG	
IC11	8-759-634-50	IC M5218AL	
IC31	8-759-604-81	IC M50195P	
IC32	8-759-821-13	IC LM3364K-15	
IC33	8-759-981-68	IC LM2903S	
IC71	8-759-634-50	IC M5218AL	
IC102	8-759-000-49	IC MC14068BCP	
IC351	8-759-634-50	IC M5218AL	
IC501	8-749-900-24	IC STK4162MK2	
IC702	8-759-802-52	IC LC7818	
IC751	8-759-040-11	IC UPD4011BC	
IC752	8-759-340-13	IC HD14013BP	
IC801	8-759-111-68	IC UPC1237HA	
IC901	8-759-820-84	IC L78MR05	
IC902	8-759-231-55	IC TA7808S	
IC903	8-759-245-81	IC TA7908S	
J11	1-563-347-11	JACK, LARGE TYPE	
J101	1-565-258-11	JACK, PIN 4P	
J102	1-565-258-11	JACK, PIN 4P	
J103	1-565-258-11	JACK, PIN 4P	
L31	1-410-521-11	INDUCTOR 100UH	
L520	*1-420-872-00	COIL, AIR CORE	
L620	*1-420-872-00	COIL, AIR CORE	
Q301	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q351	8-729-224-61	TRANSISTOR 2SK246Y-GR	
Q352	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q401	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q451	8-729-224-61	TRANSISTOR 2SK246Y-GR	
Q452	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q502	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q602	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q701	8-729-900-63	TRANSISTOR DTA124ES	
Q702	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q703	8-729-900-63	TRANSISTOR DTA124ES	
Q706	8-729-900-89	TRANSISTOR DTC144ES	

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				
Q707	8-729-900-63	TRANSISTOR	DTA124ES			
Q708	8-729-900-36	TRANSISTOR	DTC124ES			
Q709	8-729-900-63	TRANSISTOR	DTA124ES			
Q751	8-729-900-80	TRANSISTOR	DTC114ES			
Q752	8-729-900-63	TRANSISTOR	DTA124ES			
Q801	8-729-900-63	TRANSISTOR	DTA124ES			
R11	1-249-429-11	CARBON	10K	5%	1/4W	
R12	1-249-417-11	CARBON	1K	5%	1/4W	
R13	1-249-429-11	CARBON	10K	5%	1/4W	
R14	1-249-412-11	CARBON	390	5%	1/4W	
R15	1-249-429-11	CARBON	10K	5%	1/4W	
R16	1-249-417-11	CARBON	1K	5%	1/4W	
R18	1-249-433-11	CARBON	22K	5%	1/4W	
R19	1-249-426-11	CARBON	5.6K	5%	1/4W	
R20	1-249-441-11	CARBON	100K	5%	1/4W	
R21	1-249-441-11	CARBON	100K	5%	1/4W	
R22	1-249-405-11	CARBON	100	5%	1/4W	
R23	1-249-405-11	CARBON	100	5%	1/4W	
R24	1-249-426-11	CARBON	5.6K	5%	1/4W	
R25	1-249-417-11	CARBON	1K	5%	1/4W	
R31	1-249-421-11	CARBON	2.2K	5%	1/4W	
R32	1-249-429-11	CARBON	10K	5%	1/4W	
R33	1-247-903-00	CARBON	1M	5%	1/4W	
R34	1-249-437-11	CARBON	47K	5%	1/4W	
R35	1-249-433-11	CARBON	22K	5%	1/4W	
R36	1-249-440-11	CARBON	82K	5%	1/4W	
R37	1-249-441-11	CARBON	100K	5%	1/4W	
R38	1-249-437-11	CARBON	47K	5%	1/4W	
R71	1-249-437-11	CARBON	47K	5%	1/4W	
R72	1-249-440-11	CARBON	82K	5%	1/4W	
R73	1-249-437-11	CARBON	47K	5%	1/4W	
R74	1-249-437-11	CARBON	47K	5%	1/4W	
R75	1-249-425-11	CARBON	4.7K	5%	1/4W	
R76	1-249-441-11	CARBON	100K	5%	1/4W	
R81	1-249-437-11	CARBON	47K	5%	1/4W	
R82	1-249-440-11	CARBON	82K	5%	1/4W	
R83	1-249-437-11	CARBON	47K	5%	1/4W	
R84	1-249-437-11	CARBON	47K	5%	1/4W	
R85	1-249-425-11	CARBON	4.7K	5%	1/4W	
R86	1-249-441-11	CARBON	100K	5%	1/4W	
R109	1-249-417-11	CARBON	1K	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	1-247-897-11	CARBON	560K	5%	1/4W	
R116	1-247-897-11	CARBON	560K	5%	1/4W	
R117	1-247-897-11	CARBON	560K	5%	1/4W	
R118	1-247-897-11	CARBON	560K	5%	1/4W	
R119	1-247-897-11	CARBON	560K	5%	1/4W	
R120	1-247-897-11	CARBON	560K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	
R210	1-249-417-11	CARBON	1K	5%	1/4W	
R211	1-249-417-11	CARBON	1K	5%	1/4W	
R212	1-249-417-11	CARBON	1K	5%	1/4W	
R213	1-249-417-11	CARBON	1K	5%	1/4W	

Ref.No.	Part No.	Description				
R214	1-249-417-11	CARBON	1K	5%	1/4W	
R215	1-247-897-11	CARBON	560K	5%	1/4W	
R216	1-247-897-11	CARBON	560K	5%	1/4W	
R217	1-247-897-11	CARBON	560K	5%	1/4W	
R218	1-247-897-11	CARBON	560K	5%	1/4W	
R219	1-247-897-11	CARBON	560K	5%	1/4W	
R220	1-247-897-11	CARBON	560K	5%	1/4W	
R311	1-249-427-11	CARBON	6.8K	5%	1/4W	
R352	1-249-429-11	CARBON	10K	5%	1/4W	
R353	1-249-429-11	CARBON	10K	5%	1/4W	
R354	1-249-441-11	CARBON	100K	5%	1/4W	
R355	1-249-433-11	CARBON	22K	5%	1/4W	
R356	1-247-903-00	CARBON	1M	5%	1/4W	
R357	1-249-441-11	CARBON	100K	5%	1/4W	
R358	1-249-427-11	CARBON	6.8K	5%	1/4W	
R359	1-249-424-11	CARBON	3.9K	5%	1/4W	
R360	1-249-441-11	CARBON	100K	5%	1/4W	
R361	1-249-427-11	CARBON	6.8K	5%	1/4W	
R362	1-249-412-11	CARBON	390	5%	1/4W	
R363	1-249-441-11	CARBON	100K	5%	1/4W	
R411	1-249-427-11	CARBON	6.8K	5%	1/4W	
R452	1-249-429-11	CARBON	10K	5%	1/4W	
R453	1-249-429-11	CARBON	10K	5%	1/4W	
R454	1-249-441-11	CARBON	100K	5%	1/4W	
R455	1-249-433-11	CARBON	22K	5%	1/4W	
R456	1-247-903-00	CARBON	1M	5%	1/4W	
R457	1-249-441-11	CARBON	100K	5%	1/4W	
R458	1-249-427-11	CARBON	6.8K	5%	1/4W	
R459	1-249-424-11	CARBON	3.9K	5%	1/4W	
R460	1-249-441-11	CARBON	100K	5%	1/4W	
R461	1-249-427-11	CARBON	6.8K	5%	1/4W	
R462	1-249-412-11	CARBON	390	5%	1/4W	
R463	1-249-441-11	CARBON	100K	5%	1/4W	
R501	1-249-411-11	CARBON	330	5%	1/4W	
R504	1-249-417-11	CARBON	1K	5%	1/4W	
R505	1-249-438-11	CARBON	56K	5%	1/4W	
R506	1-249-414-11	CARBON	560	5%	1/4W	
R507	1-249-438-11	CARBON	56K	5%	1/4W	
R508	1-247-756-11	CARBON	2.2K	5%	1/2W	
R509	1-247-756-11	CARBON	2.2K	5%	1/2W	
R510	△ 1-247-700-11	CARBON	100	5%	1/4W	F
R511	1-247-752-11	CARBON	1K	5%	1/2W	
R512	1-247-752-11	CARBON	1K	5%	1/2W	
R513	1-249-435-11	CARBON	33K	5%	1/4W	
R514	△ 1-216-361-00	METAL OXIDE	0.22	5%	2W	F
R515	1-247-727-11	CARBON	10	5%	1/2W	
R517	1-249-437-11	CARBON	47K	5%	1/4W	
R519	1-249-416-11	CARBON	820	5%	1/4W	
R520	1-247-727-11	CARBON	10	5%	1/2W	
R601	1-249-411-11	CARBON	330	5%	1/4W	
R604	1-249-417-11	CARBON	1K	5%	1/4W	
R605	1-249-438-11	CARBON	56K	5%	1/4W	
R606	1-249-414-11	CARBON	560	5%	1/4W	
R607	1-249-438-11	CARBON	56K	5%	1/4W	
R608	1-247-756-11	CARBON	2.2K	5%	1/2W	
R609	1-247-756-11	CARBON	2.2K	5%	1/2W	
R610	△ 1-247-700-11	CARBON	100	5%	1/4W	F

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Ref.No.	Part No.	Description				
R613	1-249-435-11	CARBON	33K	5%	1/4W	
R614	△1-216-361-00	METAL OXIDE	0.22	5%	2W	F
R615	1-247-727-11	CARBON	10	5%	1/2W	
R617	1-249-438-11	CARBON	56K	5%	1/4W	
R619	1-249-416-11	CARBON	820	5%	1/4W	
R620	1-247-727-11	CARBON	10	5%	1/2W	
R701	1-247-901-11	CARBON	820K	5%	1/4W	
R702	1-249-433-11	CARBON	22K	5%	1/4W	
R703	1-249-433-11	CARBON	22K	5%	1/4W	
R704	1-249-433-11	CARBON	22K	5%	1/4W	
R705	1-249-433-11	CARBON	22K	5%	1/4W	
R706	1-249-416-11	CARBON	820	5%	1/4W	
R707	1-249-411-11	CARBON	330	5%	1/4W	
R708	1-249-411-11	CARBON	330	5%	1/4W	
R709	1-249-411-11	CARBON	330	5%	1/4W	
R711	1-249-433-11	CARBON	22K	5%	1/4W	
R712	1-249-433-11	CARBON	22K	5%	1/4W	
R713	1-249-433-11	CARBON	22K	5%	1/4W	
R714	1-249-435-11	CARBON	33K	5%	1/4W	
R727	1-249-441-11	CARBON	100K	5%	1/4W	
R729	1-249-433-11	CARBON	22K	5%	1/4W	
R730	1-249-433-11	CARBON	22K	5%	1/4W	
R731	1-249-433-11	CARBON	22K	5%	1/4W	
R733	1-249-433-11	CARBON	22K	5%	1/4W	
R734	1-249-433-11	CARBON	22K	5%	1/4W	
R735	1-249-433-11	CARBON	22K	5%	1/4W	
R751	1-249-429-11	CARBON	10K	5%	1/4W	
R752	1-249-429-11	CARBON	10K	5%	1/4W	
R753	1-249-441-11	CARBON	100K	5%	1/4W	
R754	1-249-411-11	CARBON	330	5%	1/4W	
R755	1-249-429-11	CARBON	10K	5%	1/4W	
R756	1-249-429-11	CARBON	10K	5%	1/4W	
R801	1-249-429-11	CARBON	10K	5%	1/4W	
R802	1-249-441-11	CARBON	100K	5%	1/4W	
R804	1-249-439-11	CARBON	68K	5%	1/4W	
R805	1-249-430-11	CARBON	12K	5%	1/4W	
R806	△1-216-432-00	METAL OXIDE	820	5%	1W	F
R807	1-249-432-11	CARBON	18K	5%	1/4W	
R902	△1-215-917-11	METAL OXIDE	1K	5%	3W	F
R903	△1-249-451-11	CARBON	2.2	5%	1/4W	F
R904	1-249-389-11	CARBON	4.7	5%	1/4W	
R905	1-249-389-11	CARBON	4.7	5%	1/4W	

Ref.No.	Part No.	Description
RV17	1-241-375-11	RES, VAR, CARBON 50K
RV25	1-241-375-11	RES, VAR, CARBON 50K
RV301	1-241-022-11	RES, VAR, CARBON 150K/150K
RV303	1-241-376-11	RES, VAR, CARBON 100K/100K
RY801	1-515-533-11	RELAY
S1	△1-554-920-11	SWITCH, PUSH (AC POWER)(1 KEY)
S701	1-554-303-21	SWITCH, KEY BOARD
S702	1-554-303-21	SWITCH, KEY BOARD
S703	1-554-303-21	SWITCH, KEY BOARD
S704	1-554-303-21	SWITCH, KEY BOARD
S751	1-554-303-21	SWITCH, KEY BOARD
T901	△1-450-338-11	TRANSFORMER, POWER
TM501	1-537-240-31	TERMINAL BOARD (CHECKER PIN)
X31	1-577-358-21	VIBRATOR, CERAMIC (4MHz)

ACCESSORY & PACKING MATERIAL

1-506-384-21	ADAPTOR, PLUG
3-752-623-11	MANUAL, INSTRUCTION
*4-942-376-01	INDIVIDUAL CARTON
*4-942-377-01	CUSHION
8-812-030-90	MICROPHONE, DYNAMIC F-VJ10A

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