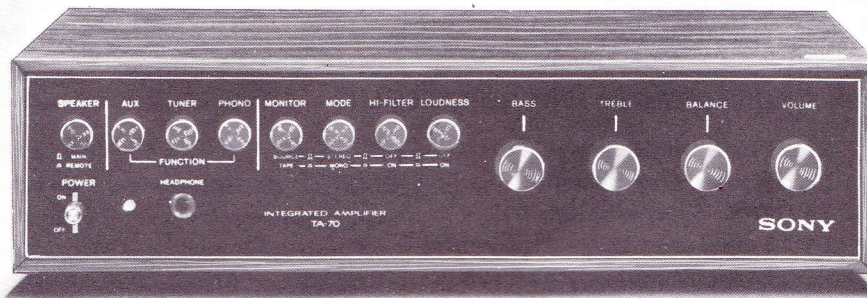


TA-70

UK Model



SPECIFICATIONS

Dynamic power output: 30 watts, both channels operating, 8 ohms

Harmonic distortion: Less than 2.0 % at 1 kHz at rated output

Frequency response: TAPE : 30 to 50 kHz (± 3 dB) at 1 watt output

Input sensitivity and impedance:

PHONO (MAGNETIC) :	3.5 mV, 50 k ohms
PHONO (CERAMIC) :	300 mV, 1 M ohms
TUNER	} 250 mV, 100 k ohms
AUX	
TAPE	
REC/PB	} 435 mV, 100 k ohms

Signal output: REC OUT: 250 mV, 10 k ohms
REC/PB: 30 mV, 80 k ohms

Signal-to-noise ratio: PHONO: greater than 60 dB
TAPE: greater than 65 dB

Tone controls: BASS: ± 10 dB at 100 Hz
TREBLE: ± 10 dB at 10 kHz

Loudness control: 8 dB up at 100 Hz
6 dB up at 10 kHz
(VOLUME control attenuation : 30 dB)

High filter: 3 dB/oct above 5 kHz

GENERAL

Power consumption: 70 watts

Power requirement: 240 V 50 Hz
220 V 50 Hz

Dimensions: 13" (width) x 3 $\frac{1}{2}$ " (height)
x 9 $\frac{7}{10}$ " (depth)
330 mm (width) x 87.5 mm (height)
x 245 mm (depth)

Net weight: approx. 8 lb 6 oz (3.8 kg)

Shipping weight: approx. 9 lb 8 oz (4.3 kg)

SONY
SERVICE MANUAL

SECTION 1

TECHNICAL DESCRIPTION

1-1. CIRCUIT DESCRIPTION DIGEST

1. MAGNETIC/CERAMIC Selector Switch (S9)

Changes PHONO input sensitivity and equalization response according to the phono-cartridge which is to be connected.

In the MAGNETIC position, input signal is fed directly to the equalizer amplifier which is arranged to produce RIAA equalization.

In the CERAMIC position, input signal is attenuated about 39 dB by R901 (3.9 M) and R501 (39 k). This allows the TA-70 to accept a ceramic cartridge output and amplify it without distortion. Note that R901 and C901 act as a equalization circuit for ceramic cartridge to obtain flat response at equalizer output.

2. Preamplifier Section

Equalizer Amp (Q501, Q502)

This direct-coupled two stage amplifier amplifies the small signal produced by the tuner, phono cartridge, tape recorder, or signal applied to the AUX input jacks, to the level required at the input of the following buffer amplifier. Note that the RIAA equalization is performed by the negative-feedback loop of R509, R510, C506 and C507.

Buffer Amp (Q503)

This amplifier provides + 23 dB voltage gain to compensate for the tone-control insertion loss and isolates the volume control and tone control to eliminate mutual interference.

HI-FILTER Switch (S7)

The high cut-off filter (R517 and C523) eliminates unwanted high frequency component (5 kHz

and higher) from the input signal when this switch is ON.

LOUDNESS switch (S8)

This switch and R517, C513, C514 and R518 compensate for the characteristics of the human ear which vary according to the loudness of the sound being heard. When this switch is set to ON and the VOLUME control is set for 30 dB attenuation, the overall frequency response is increased + 8 dB at 100 Hz and + 6 dB at 10 kHz with reference to the level at 1 kHz.

VOLUME control (Rv504)

The level of signal applied to the power amplifier is determined by the setting of Rv504.

3. Power Amplifier Section

Dc Bias Power Supply (Q703)

Q703 is forced to conduct and operates as a small resistance providing the necessary forward bias on the two cascaded emitter-followers (complementary and power amplifier stages).

R708 and R709 determines the impedance between the emitter and collector of Q703, and thereby determines the dc bias voltage for the following complementary circuit.

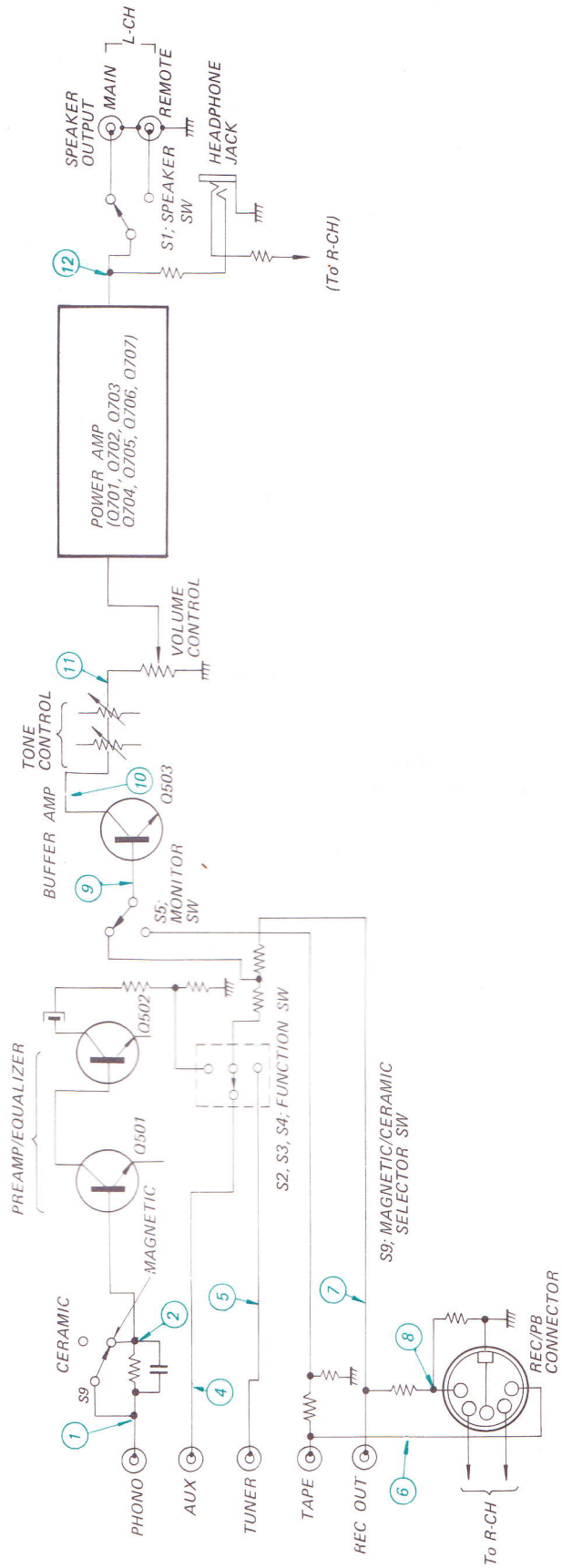
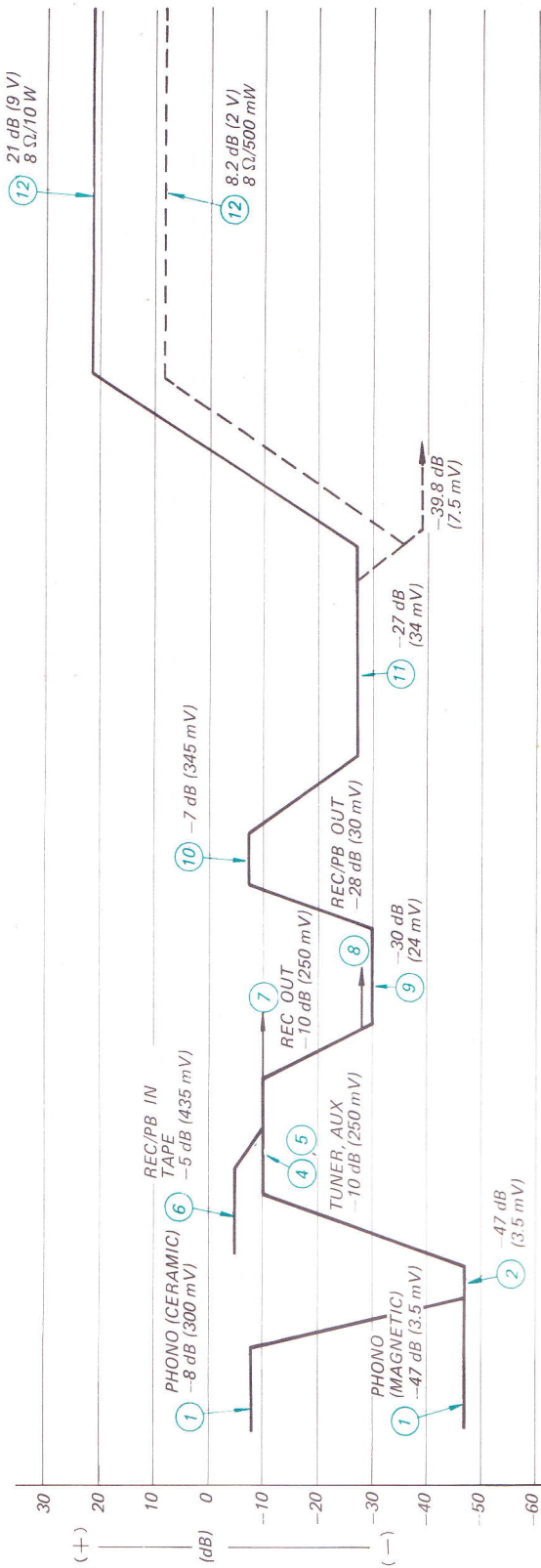
This circuit has the advantage of compensating a lack of idling current at high output power.

Power Amp (Q706, Q707)

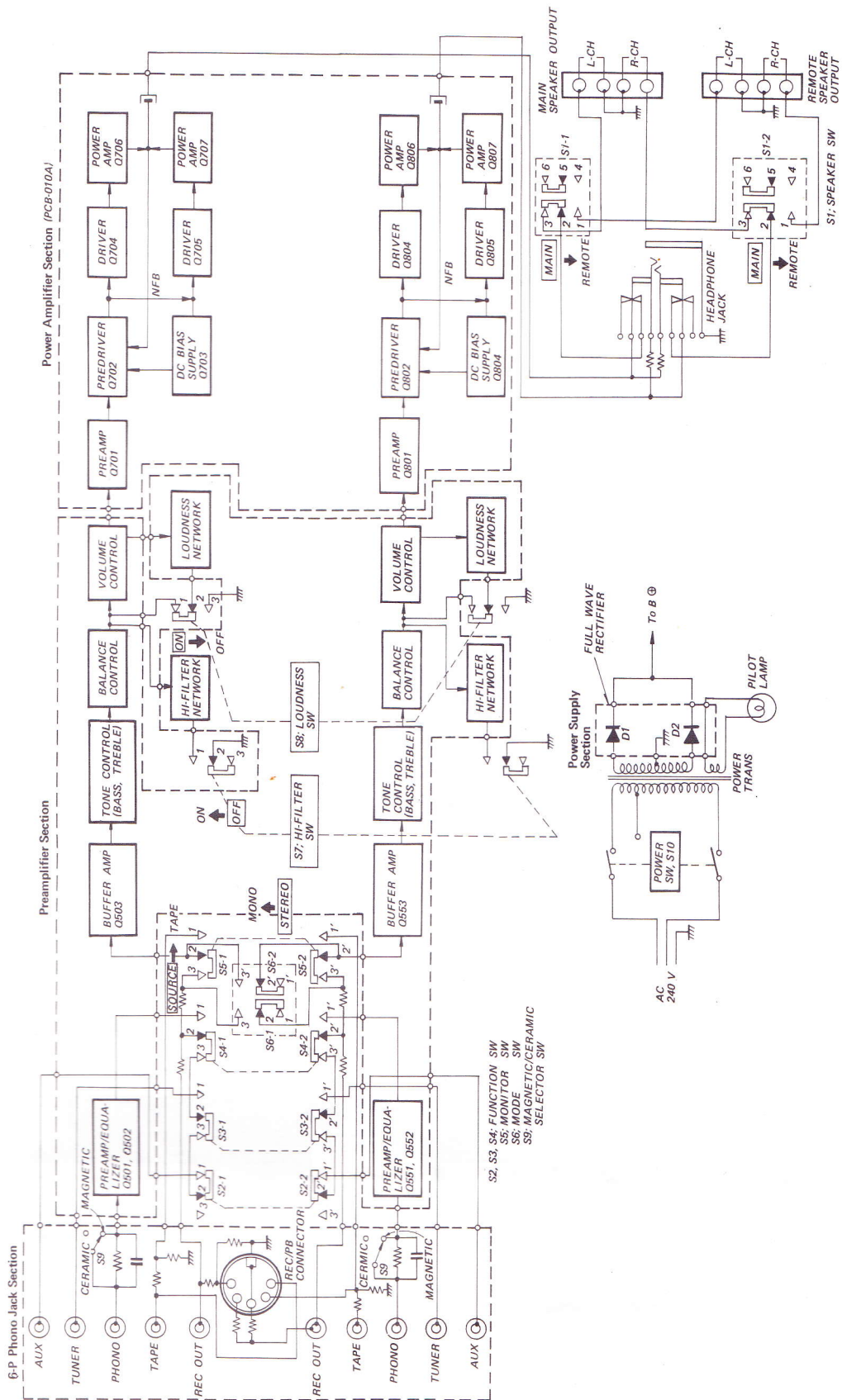
The output transistors Q706 and Q707 are cascaded and supply power to the speaker system.

Q706 supplies power to the load during the positive half cycle and Q707 operates during the negative half cycle. Output is coupled to the speakers through C706.

1-2. LEVEL DIAGRAM



1-3. BLOCK DIAGRAM



SECTION 2

DISASSEMBLY AND REPLACEMENT

WARNING

Unplug the ac power cord before starting any disassembly or replacement procedures.

Note: All screws in this service manual are phillips type (cross recess type) unless otherwise indicated. (-); slotted head.

2-1. FRONT PANEL REMOVAL

1. Remove all the control knobs.
2. Remove the three screws at the front bottom of the wooden case shown in Fig. 2-1.

2-2. WOODEN CASE REMOVAL

1. Remove the front panel as described in Procedure 2-1.

2. Remove the five screws from the bottom, then pull out the amplifier unit as shown in Fig. 2-1.

2-3. FRONT SUBCHASSIS REMOVAL

1. Remove the wooden case as described in Procedure 2-2.
2. Remove the seven screws shown in Fig. 2-2.
3. Remove the three screws shown in Fig. 2-3.
4. This frees front subchassis along with preamplifier board as shown in Fig. 2-4.

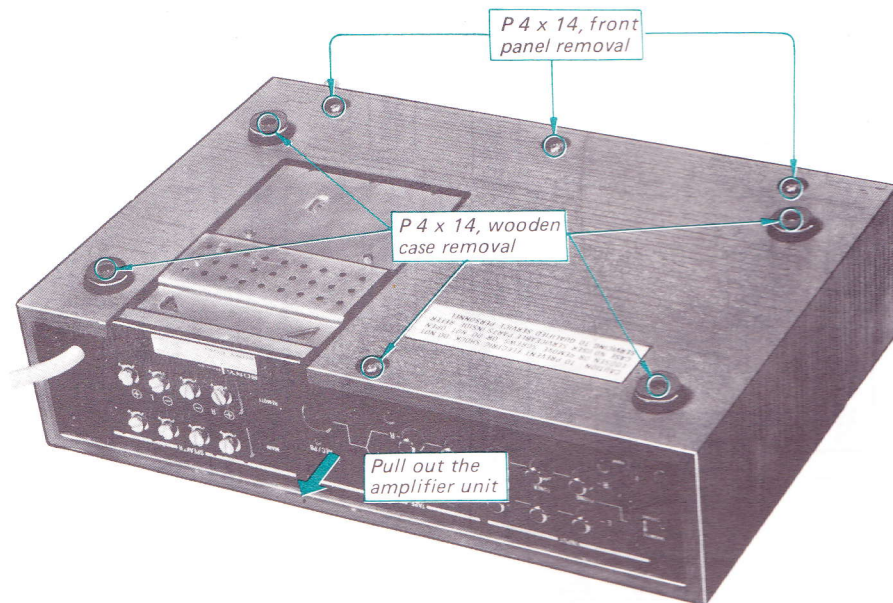


Fig. 2-1. Front panel and wooden case removal

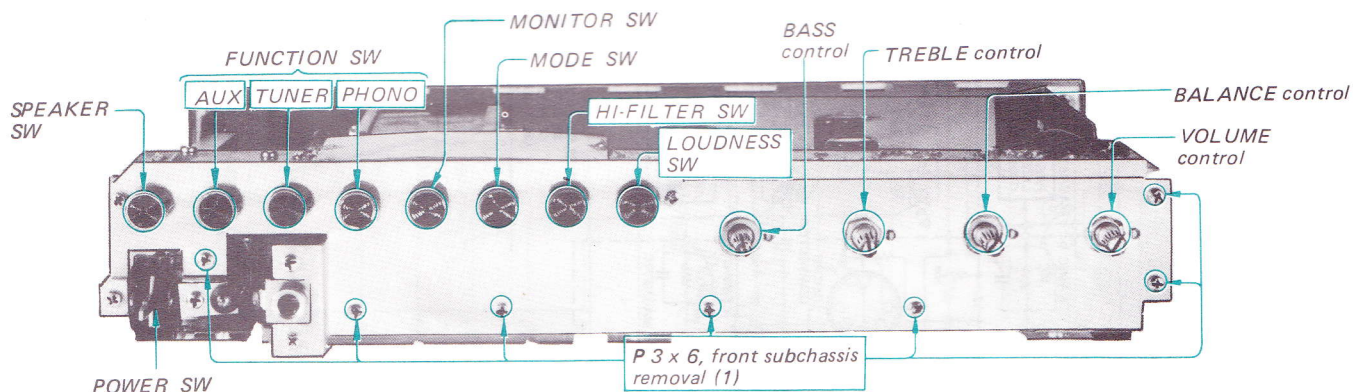


Fig. 2-2. Front subchassis removal (1)

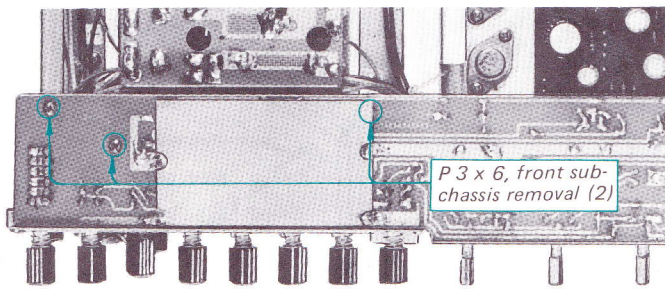


Fig. 2-3. Front subchassis removal (2)

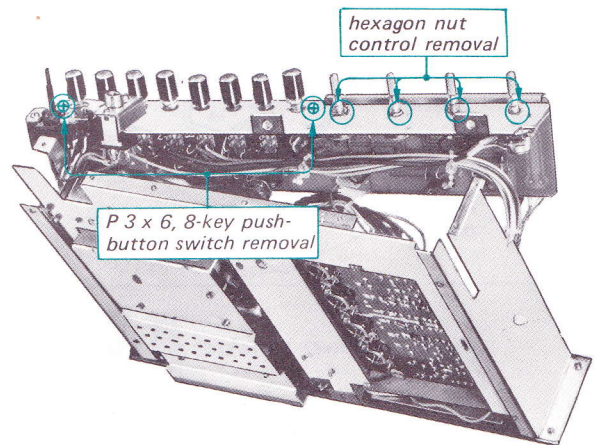


Fig. 2-5. Switch and control replacement

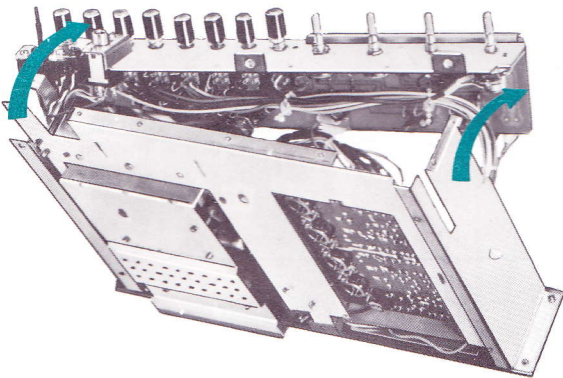


Fig. 2-4. Front subchassis removal (3)

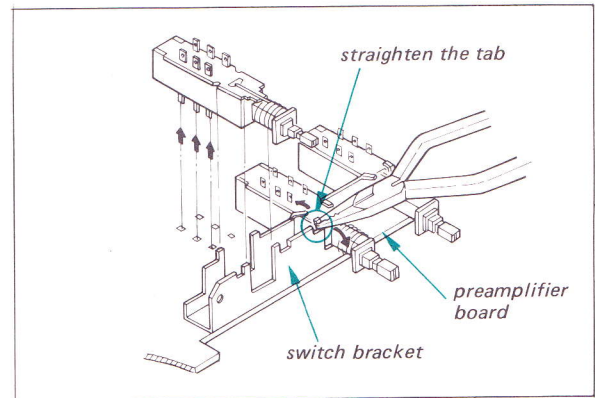


Fig. 2-6. Pushbutton switch replacement

2-4. SWITCH AND CONTROL REPLACEMENT

1. Remove the front subchassis as described in Procedure 2-3.
2. Remove all the pushbutton.
3. Remove all the nuts or two screws, securing the switch bracket or controls to the front subchassis as shown in Fig. 2-5. This frees preamplifier board.
4. With a soldering iron having a solder-sucking tip, clean the solder from each lug of the defective switch or control and the preamplifier board. This frees control.
5. Straighten the tab of the switch bracket to permit the removal of switch as shown in Fig. 2-6. This frees switch.
6. Remove the defective controls and switches, and then install a new one.

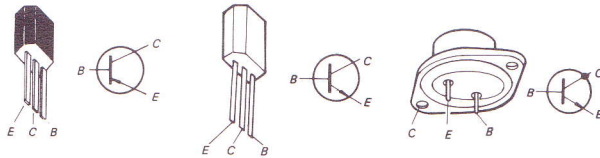
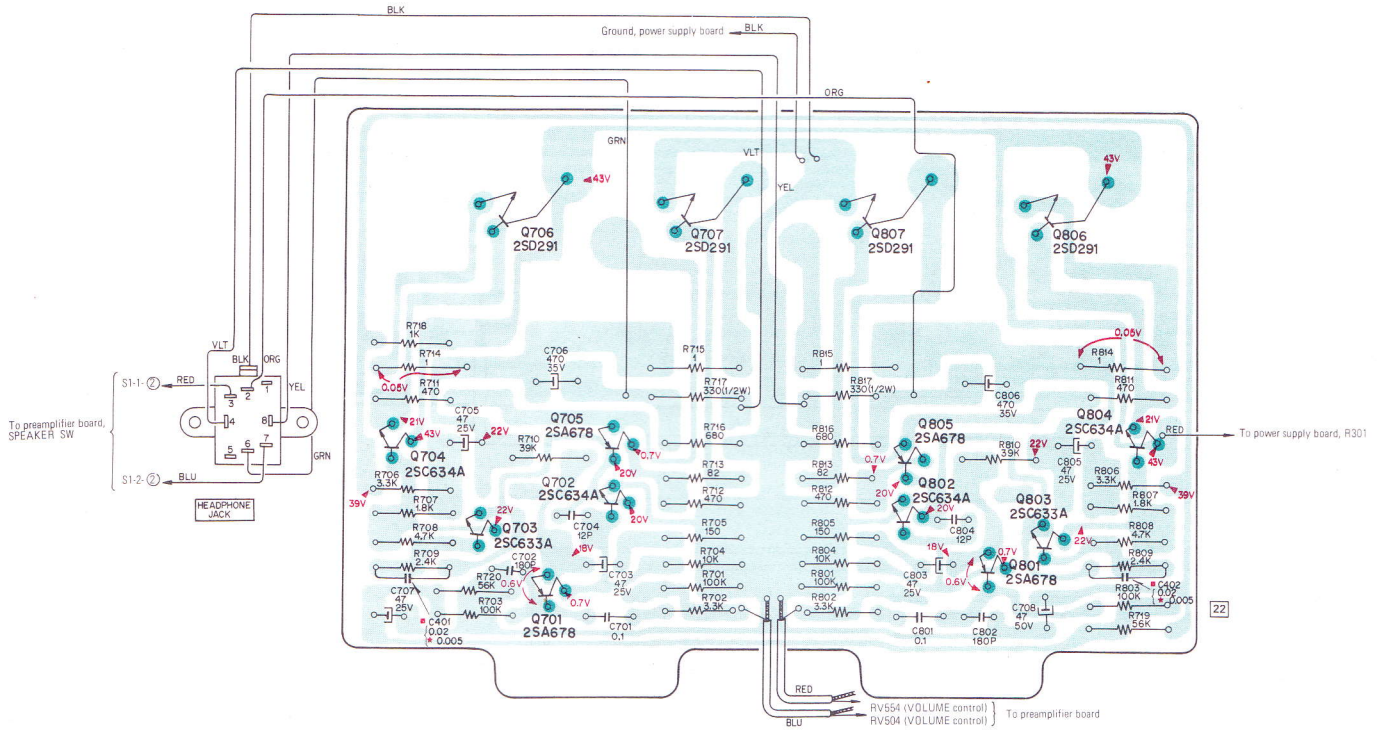
2-5. POWER TRANSISTOR REPLACEMENT

1. Remove the two screws and retaining bracket securing the defective power transistor to the heat sink and power amplifier board as shown in Fig. 2-7.
2. Unsolder the leads of power transistor, and then install the new one.
3. When replacing the power transistor, apply a coating of a heat-transferring grease to both sides of the insulation mica spacer. Any excess grease squeezed out when the mounting screws are tightened should be wiped off with a clean cloth. This prevents it from accumulating conductive dust particles that might eventually cause a short.

SECTION 4

DIAGRAMS

4-1. MOUNTING DIAGRAM – Power Amplifier Board (PCB-010B) –
– Conductor Side –



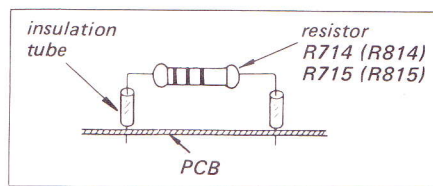
2SA678

2SC634A

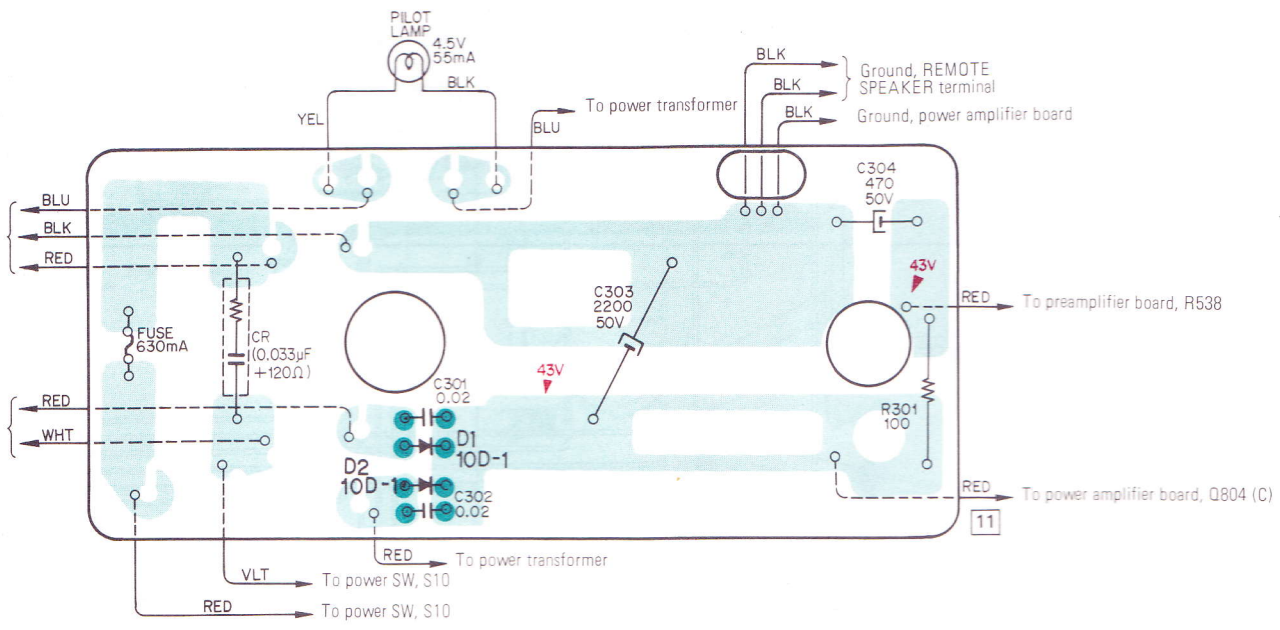
2SD291

CAUTION

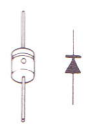
Emitter resistor of power transistors should be stood off from the surface of PCB by using insulation tube as illustrated.



4-2. MOUNTING DIAGRAM – Power Supply Board –

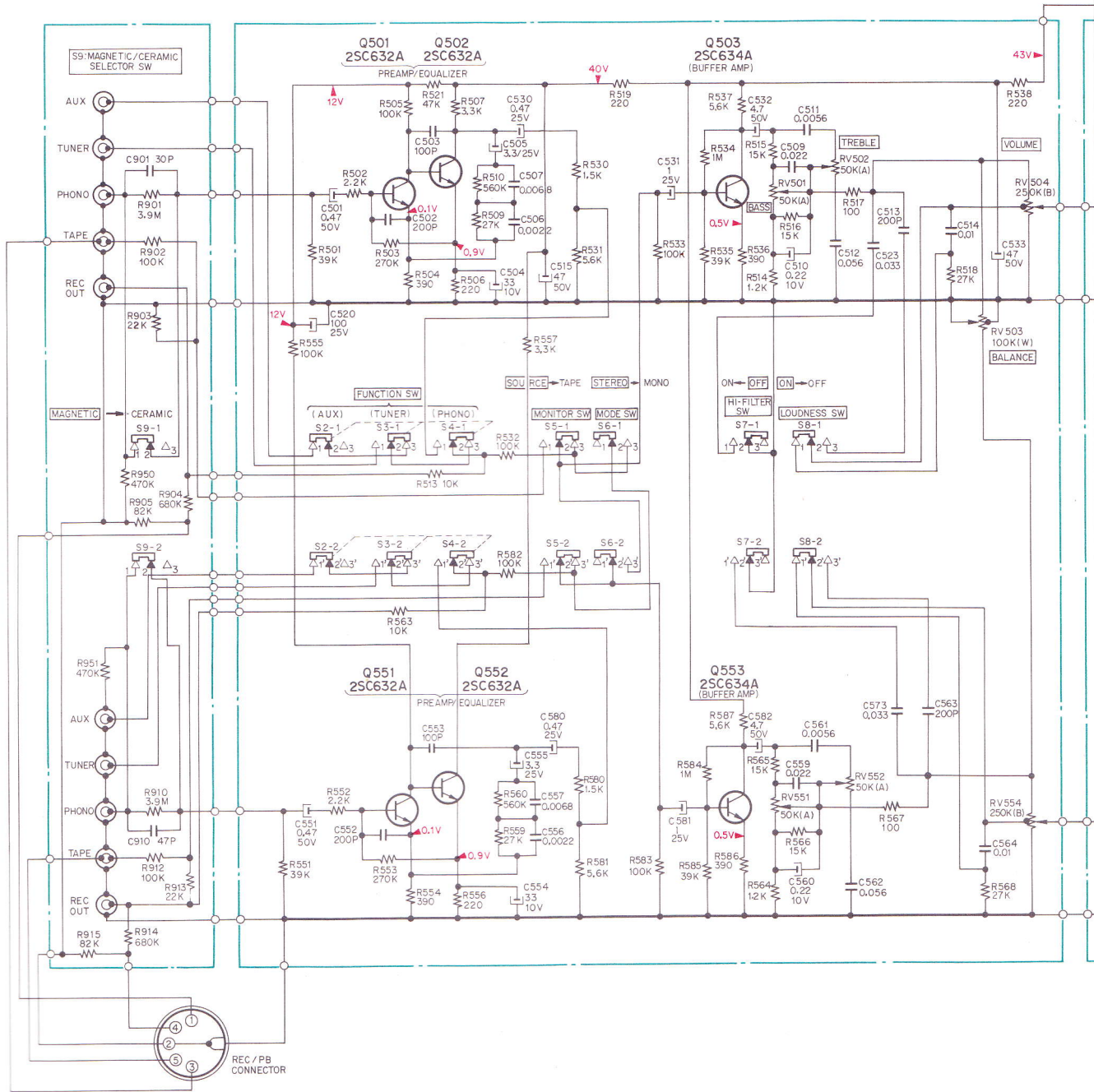


Note: ★ Serial number 104,001 and later
 ■ C401 and C402 are mounted on conductor side.

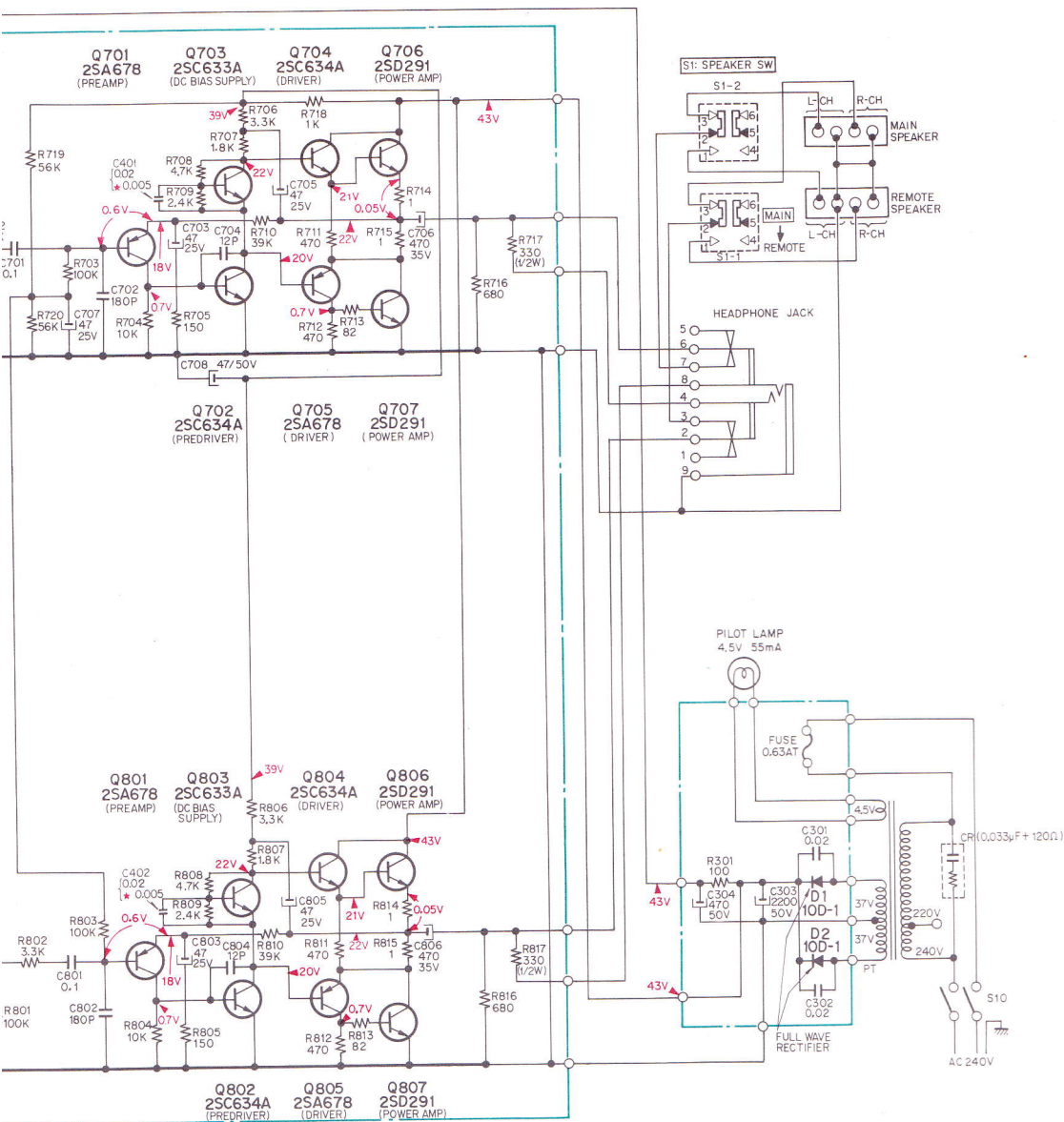


10D-1

4-4. SCHEMATIC DIAGRAM



Ref. No.	Description	Position	Ref. No.	Description	Position
S1	SPEAKER SW (MAIN-REMOTE)	MAIN	S7	HI-FILTER SW (ON-OFF)	OFF
S2	FUNCTION (AUX) SW	(AUX, TUNER, PHONO)	S8	LOUDNESS SW (ON-OFF)	ON
S3	FUNCTION (TUNER) SW		S9	MAGNETIC/CERAMIC SELECTOR SW (MAGNETIC-CERAMIC)	MAGNETIC
S4	FUNCTION (PHONO) SW		S10	POWER SW (ON-OFF)	OFF
S5	MONITOR SW (SOURCE-TAPE)	SOURCE			
S6	MODE SW (STEREO-MONO)	STEREO			



Note:
 All resistance values are in ohms. k = 1,000, M = 1,000 k.
 All capacitance values are in μF except as indicated with p, which means μF .
 All voltages represent an average value and should hold within $\pm 20\%$.
 All voltages are dc measured with a VOM which has an input impedance of 20 k ohms/volt. No signal in.

★Serial number 104,001 and later

SONY
TA-70

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