

Service Information



NAKAMICHI

Model Nakamichi 620 (Power Amplifier)
Serial No. from 4104902

No. NR-0011 (1/5)
Date 1 September, 1977

Subject Addition of Protector Circuit

I. General:

A. Purpose:

A protector circuit has been added to prevent speakers from breakage, as the breakage of transistors in 620 would induce possible breakage of the speaker.

Note: When the protector circuit is activated (speaker terminals shorted with relay contacts), the power supply for 620 is required to be once switched off so as to release the protecting function. The power should again be supplied for at least 5 minutes after switching off.

B. Modification:

Additional Parts:

Part No.	BA03865A Protector P.C.B. Ass'y	....	1 pce.
	OJ03687A E.P. Stud A	....	2 pcs.
	EE00030A Washer 3mm	....	1 pce.

Modified Parts:

Main Chassis Ass'y Part No. has been changed from JA03104A to JA03104B (including Protector P.C.B. Ass'y).

Mechanism Ass'y Part No. has been changed from JA03103A to JA03103B (including Protector P.C.B. Ass'y).

C. Principle of Operation:

The protector circuit aims at protecting the speaker with a shortcut from the speaker terminals to GND by operating the relay in Protector P.C.B. Ass'y when D.C. voltage is impressed between speaker terminals against any possible accident.

The time length required for protector to operate are specified as below according to D.C. voltages (either plus or minus) impressed between the speaker terminals:

<u>D.C. Voltage between Speaker Terminals</u>	<u>Time required till Protector operates</u>
50V DC	approx. 0.5 sec or less
20V DC	approx. 1.2 sec ± 30%

<u>D.C. Voltage between Speaker Terminals</u>	<u>Time required till Protector operates</u>
10V DC	approx. 2.5 sec \pm 30%
5V DC	approx. 4 ~ 10 sec

Once the protector circuit is activated, the protecting state is retained until the power supply to 620 is disconnected to release it.

The power should be supplied after power capacitors are fully discharged (for approximately 5 minutes or more).

Note: The protector circuit in 620 may occasionally be activated if a high transient D.C. voltage is delivered from the preamplifier connected with 620 at the time when the power supply for the preamplifier is turned on.

The cause is not from any trouble in 620.

For its countermeasure, the power for 620 is recommended to be supplied last of all.

II . Parts List:

Part No.	BA03865A	Protector P.C.B. Ass'y	....	1 pce.
	OJ03687A	E.P. Stud A	....	2 pcs.
	OE00030A	Washer 3mm	....	1 pce.

<u>Schematic Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
	BA03865A	Protector P.C.B. Ass'y
	OB07727A	Protector P.C.B.
Q401,402 403	OB06078A	Transistor 2SC1400
Q404	OB06074A	Transistor 2SA750
D401,402	OB01909A	Silicon Diode 1S1555
D403	OB06109A	Silicon Diode GP08B
ZD401	OB06073A	Zener Diode 10S
ZD402	OB06002A	Zener Diode 15R
R401,402	OB01921A	Carbon Resistor 330K ERD-25V J
R403,404 407	OB05650A	Carbon Resistor 12K ERD-25V J
R405,406	OB01781A	Carbon Resistor 1K ERD-25V J
R408	OB05593A	Carbon Resistor 150K ERD-25V J
R409,410	OB01920A	Carbon Resistor 100K ERD-25V J
R411,414	OB05607A	Carbon Resistor 180 ERD-25V J
R412	OB01795A	Carbon Resistor 4.7K ERD-25V J
R413,415	OB01833A	Carbon Resistor 10K ERD-25V J
C401,402	OB05885A	Electrolytic Capacitor 100 μ F 10V
C403	OB01290A	Ceramic Capacitor 0.01 μ F 50V
RY401	OB07171A	Relay HB-2T

III. Mounting Diagram and Schematic Diagram:

Refer to Figs. 2 and 3.

IV. Modification Procedures for the Current Models:

Following shows the way how to assemble the Protector P.C.B. Ass'y in the current Models.

A. Parts to be required:

Part No. BA03865A Protector P.C.B. Ass'y	....	1 pce.
0J03687A E.P. Stud A	....	2 pcs.
OE00030A Washer 3mm	....	1 pce.

B. Modification Procedures:

Refer to Fig. 1.

1. Disassemble the Cabinet by removing five screws.
2. Remove two screws from the Relay P.C.B. Ass'y and replace with E.P. Studs. Note to add a washer as shown in the figure.
3. Loosen the screw which fixes the cement resistor 6.8Ω 10W to the chassis, then move the cement resistor to prevent contacting the Protector P.C.B. Ass'y.
4. Assemble the Protector P.C.B. Ass'y.
5. Disassemble the Rear Angle by removing two screws.
6. Solder the signal wires (WHT,WHT) of the Protector P.C.B. Ass'y to the speaker terminal (output terminal) plus side of both channels.
7. Solder the RED wire of the Protector P.C.B. Ass'y to the plus terminal (RED wires are already soldered) of the capacitor C1 39,000 μ F 63V.
8. Solder the BLU wire of the Protector P.C.B. Ass'y to the minus terminal (BLU wires are already soldered) of the capacitor C2 39,000 μ F 63V.
9. Bind these wires at an appropriate point.
10. Assemble the Rear Angle.
11. Assemble the Cabinet.

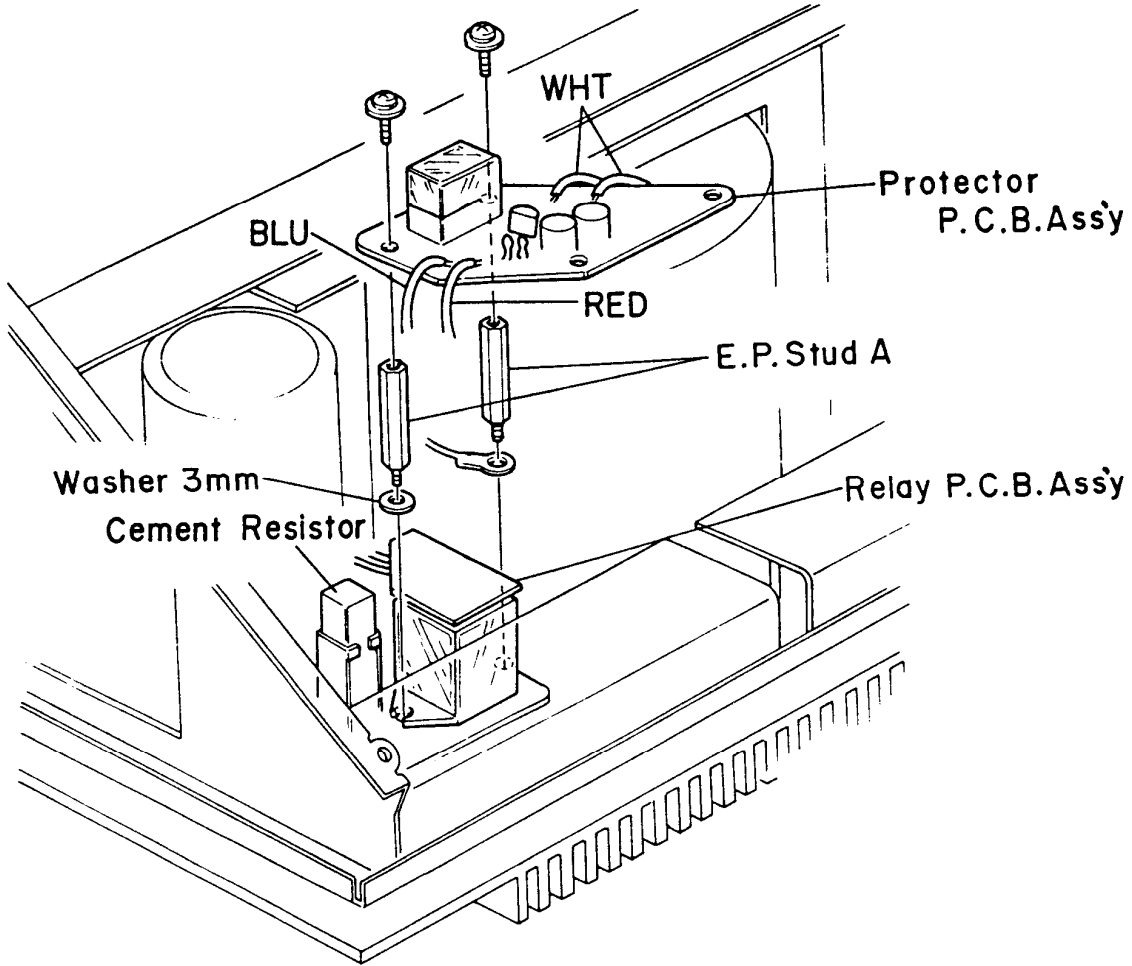


Fig. 1

Protector P.C.B. Ass'y Mounting Diagram

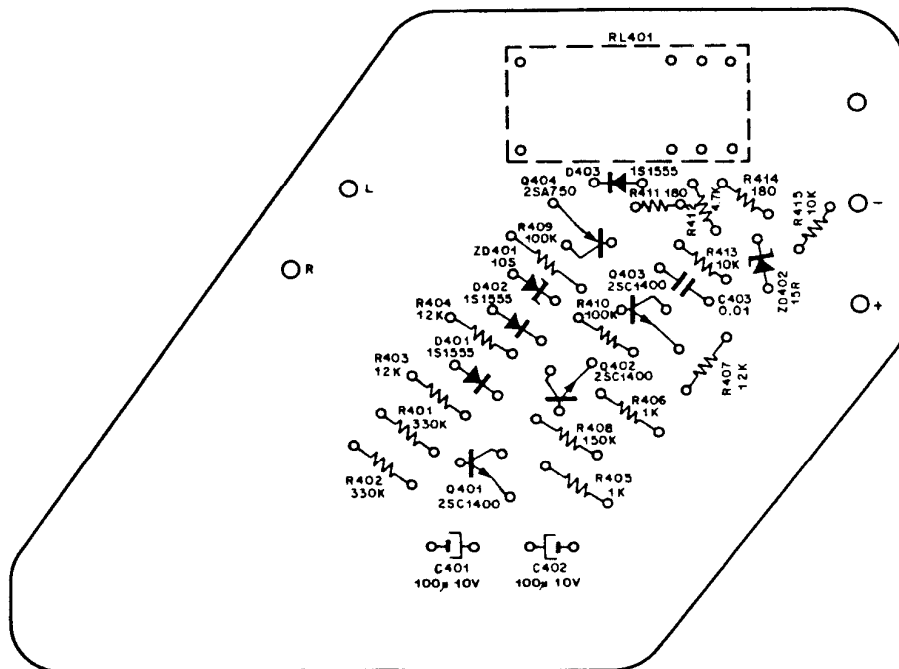


Fig. 2

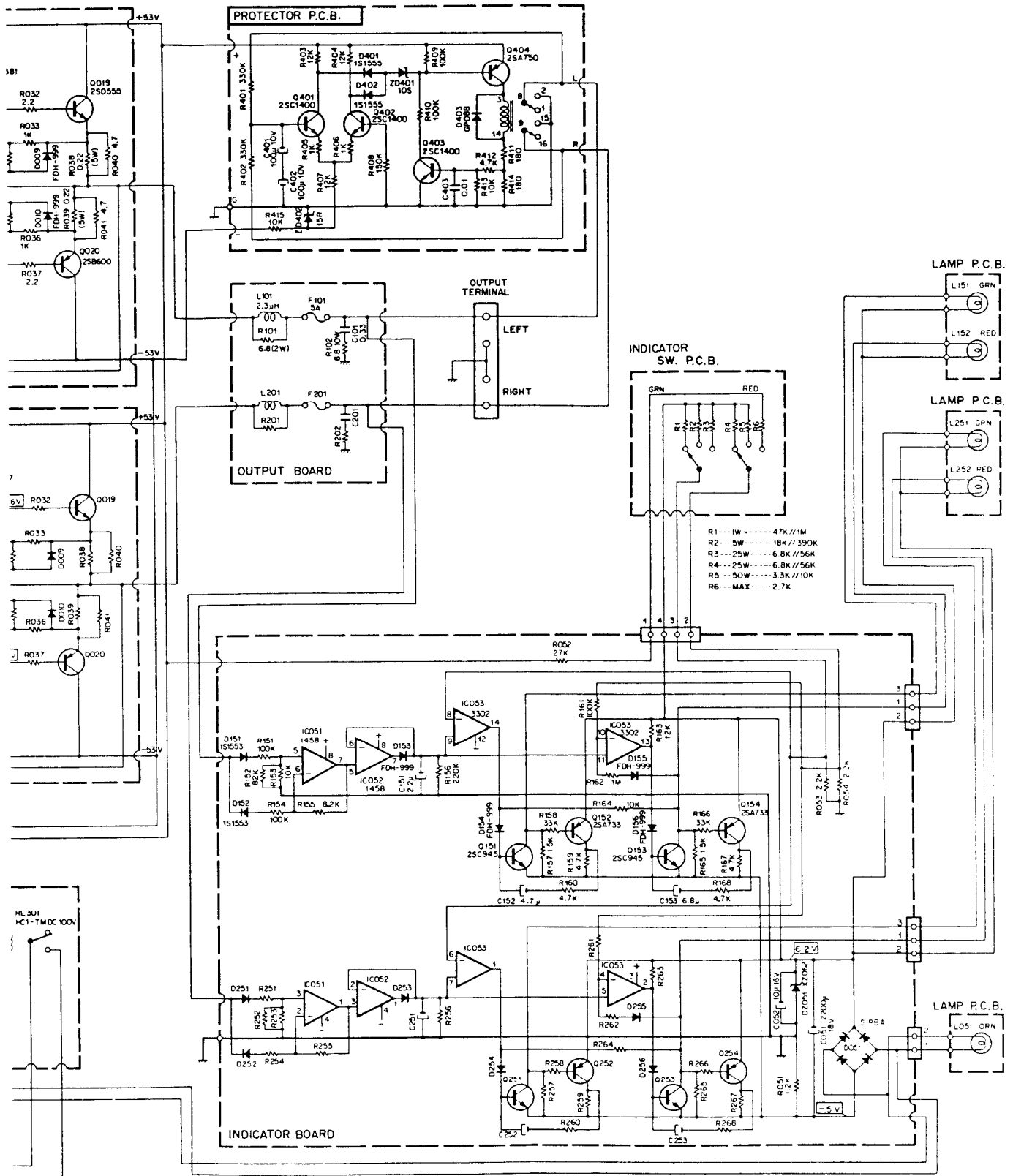


Fig. 3