ODRER NO. HAD8507181C2

Service Manual

Computer Drive New Class A
Stereo Integrated Amplifier

Amplifier

SU-V7X

Color

(K)·····Black Type

Color	Areas
(K)	[D] ·····Scandinavia
(K)	[EF]·····France
(K)	[Ei]····· Italy
(K)	[EW]·····Switzerland
(K)	[EK]·····United Kingdom
(K)	[EH]·····Holland
(K)	[EGA]·····F. R. Germany
(K)	[EB]·····Belgium
(K)	[XA]·····Southeast, Asia, Oceania, Africa, Middle Near East and Central South America
(K)	[XL]·····Australia

SPECIFICATIONS

(DIN 45 500)

■ MAIN AMPLIFIER SECTION

(Input Signal: EXT. INPUT)

1 kHz continuous power output
- **both channels driven** 2 × 100W (4Ω)
  2 × 100W (8Ω)

40 Hz~16 kHz continuous power output
- **both channels driven** 2 × 100W (4Ω)
  2 × 100W (8Ω)

20 Hz~20 kHz continuous power output
- **both channels driven** 2 × 100W (4Ω)
  2 × 100W (8Ω)

Total harmonic distortion
- **rated power at 20 Hz~20 kHz** 0.007% (4Ω)
  0.003% (8Ω)
- **rated power at 40 Hz~16 kHz** 0.007% (4Ω)
  0.003% (8Ω)
- **rated power at 1 kHz** 0.0015% (4Ω)
  0.001% (8Ω)
- **half power at 20 Hz~20 kHz** 0.002% (8Ω)
- **half power at 1 kHz** 0.001% (8Ω)

Intermodulation distortion
- **rated power at 250 Hz: 8 kHz=4:1, 8Ω** 0.01%
- **rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω** 0.007%

Power bandwidth
- **both channels driven, −3 dB** 5 Hz~70 kHz (4Ω, 0.03%)
  5 Hz~70 kHz (8Ω, 0.02%)

Residual hum and noise 0.5 mV

Damping factor 40 (4Ω), 80 (8Ω)

Headphones output level and impedance 670 mV/330Ω

Load impedance
- **MAIN or REMOTE** 4Ω~16Ω
- **MAIN and REMOTE** 8Ω~16Ω

■ PRE AMPLIFIER SECTION

Input sensitivity and impedance
- **PHONO MM** 2.5 mV/47kΩ
- **MC** 170 μV/220Ω
- **TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR** 150 mV/18kΩ

PHONO maximum input voltage (1 kHz, RMS)
- **MM** 170 mV
- **MC** 12 mV

S/N
- **rated power (4Ω)**
  - **PHONO MM** 78 dB (IHF, A: 88 dB)
  - **MC** 72 dB (IHF, A: 72 dB (250 μV))
  - **TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR** 93 dB (IHF, A: 102 dB)

Frequency response
- **PHONO** RIAA standard curve ±0.2 dB (30 Hz~15 kHz)
- **TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR** −3 dB (2 Hz~120 kHz) +0 dB, −0.1 dB (20 Hz~20 kHz)

Tone controls
- **BASS** 50 Hz, +10 dB~−10 dB
- **TREBLE** 20 kHz, +10 dB~−10 dB

Turnover frequency
- **BASS** 250 Hz, 500 Hz
- **TREBLE** 2 kHz, 4 kHz

Muting −20 dB

Subsonic filter 20 Hz, −6 dB/oct.

Loudness control (volume at −30 dB) 50 Hz, +9 dB

Output voltage and impedance
- **TAPE 1, 2, REC OUT** 150 mV

Channel balance, CD, AUX 1, 2 250 Hz~6,300 Hz ±1 dB

Channel separation, CD, AUX 1, 2 1 kHz 55 dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ VIDEO SECTION
(TV/AUX 1, VIDEO/AUX 2, TAPE 2/VCR)

Output voltage (at 1V input 75 ohms unbalanced)	1±0.1 Vp-p
Maximum input voltage	1.5 Vp-p
Input/output impedance	75 ohms unbalanced

Notes:
• Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

■ GENERAL

Power consumption	670W
Power supply	
For F.R. Germany	AC 50Hz/60Hz, 220V
For others	AC 50Hz/60Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	430 × 147 × 392 mm (16-15/16" × 5-25/32" × 15-13/32")
Weight	13.5 kg (29.8 lb.)

• Specifications are subject to change without notice. Weight and dimensions shown are approximate.

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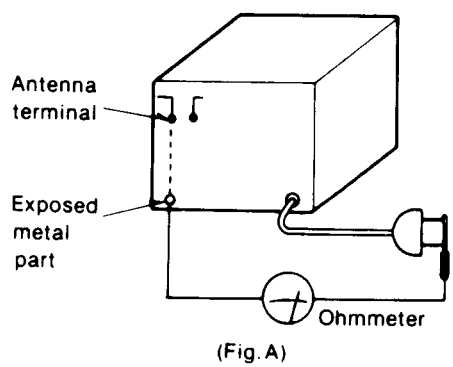
■ SAFETY PRECAUTION
(thes "safety precaution " is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

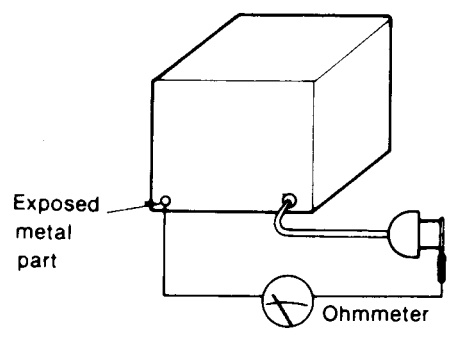
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ

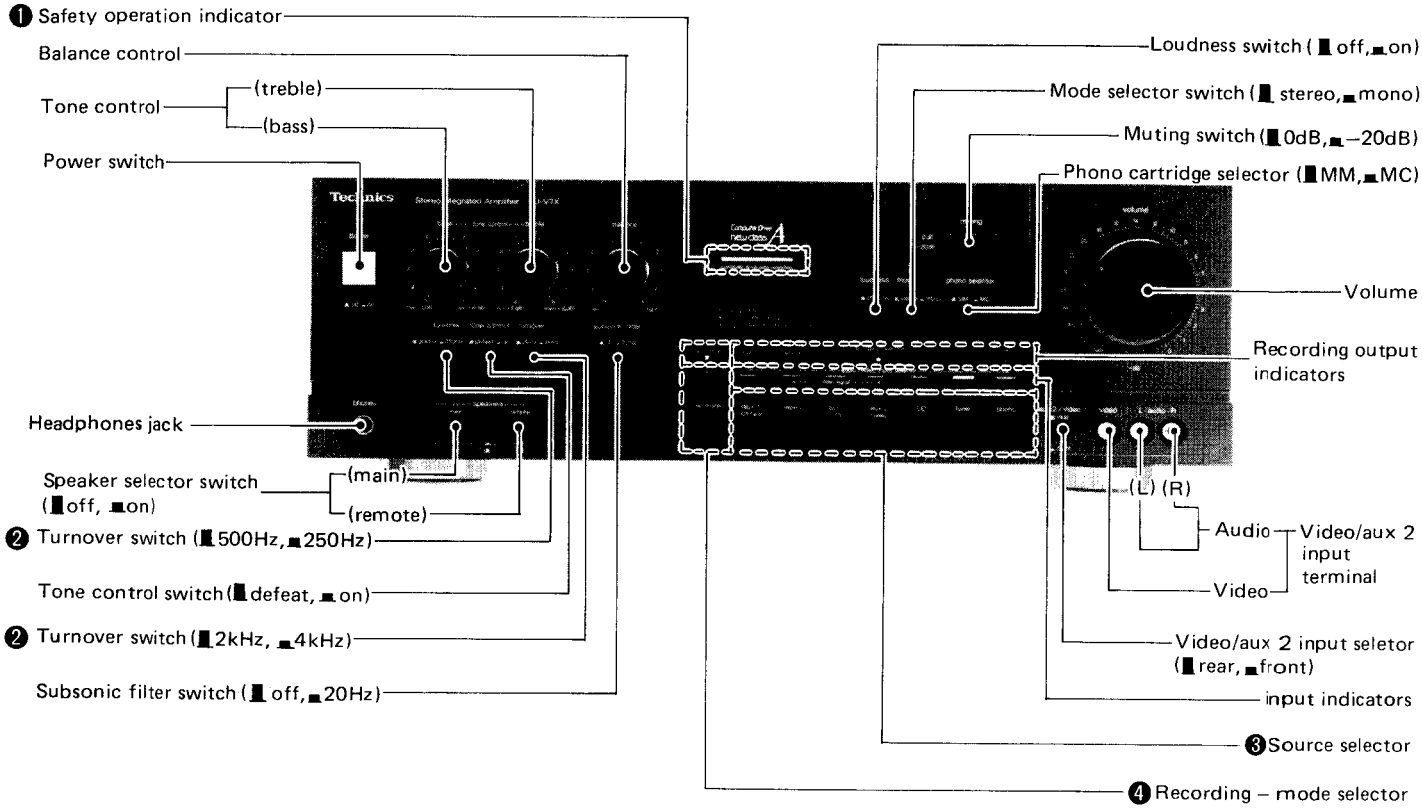


(Fig. B)

Resistance = Approx ∞

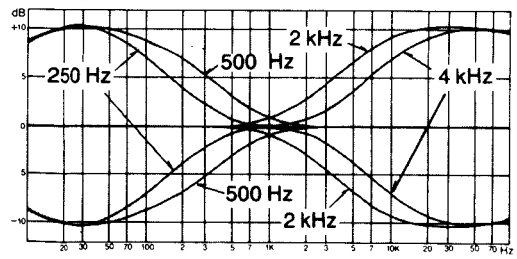
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ LOCATION OF CONTROLS



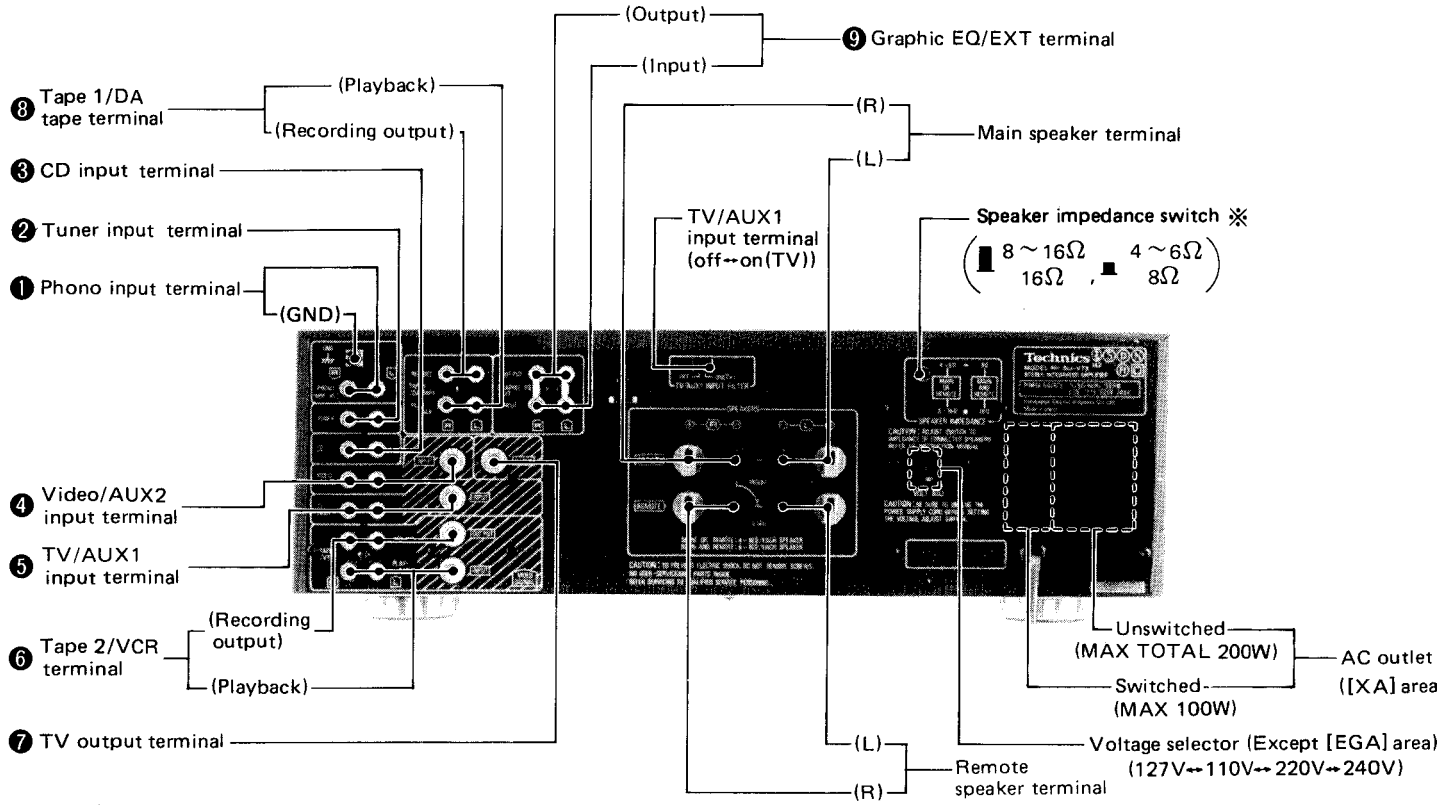
❶ When the power is switched ON, this indicator flashes for about 5 seconds, and then illuminates steadily when the unit is in the operation condition.
If an abnormal condition in the circuitry is detected, such as DC voltage appearing in the output, or a short-circuit of the positive (+) and negative (−) wires from the speaker terminals, the protection circuit functions and this indicator flashes rapidly. If this occurs, switch the power OFF, find the cause of the trouble and correct it, and then switch the power ON once again.

❷ These selectors are used to select the range within which changes of tone control characteristics occur.



❸ This button can be used to switch the mode to the source to be heard (or watched) as selected by one of the source selectors, or to the source to be recorded.
When this button is pressed, the recording-mode indicator flashes, and, when one of the source selectors is pressed, the indicator illuminates steadily. If the indicator flashes, the flashing can be stopped by pressing this button once again.
When the recording-mode indicator is not illuminated:
If one of the source selectors is pressed, the program source to be heard or watched and the recording source will both be switched at the same time.
Note, however, that only the program source to be heard or watched will be switched, and the tape can be monitored during recording, if the "tape 1/DA tape" or "tape 2/VCR" source selector is pressed.
When the recording-mode indicator is flashing:
This is the mode for selection of the source you want to record. If one of the source selectors is pressed, only the recording program source will be switched.
When the recording-mode indicator is illuminated:
This is the mode for listening to (or watching) one source while recording another source. If one of the source selectors is pressed, only the program source to be heard or watched will be switched.

❹ These buttons have two functions:
When the recording-mode indicator is not flashing or not illuminated, these buttons are used to select the program source to be heard or watched. (The signal is available at the speaker terminals and headphones jack.)
When the recording-mode indicator is flashing, these buttons are used to select the program source to be recorded. (The signal is available at the REC OUT terminals.)



★ [EGA] area is provided without voltage selector.
★ Phono input capacitance it adout 150pF.

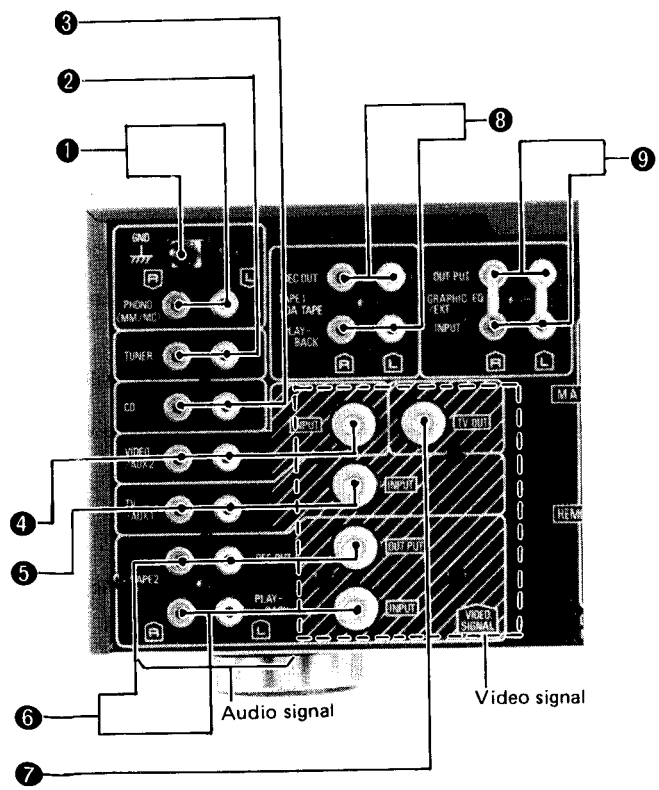
※ If only the main or the remote speaker system is used (4～16Ω):

4～6Ω (▮▁▁▬):
For speaker impedance of 4～6Ω.
8～16Ω (▬▁▁▮):
For speaker impedance of 8～16Ω.

※ If both the main and remote speaker systems (8～16Ω each speaker) are used:

1) If the impedance of both systems is 16 ohms, set the speaker impedance selector to "16Ω".
2) If the impedance of both systems is 8 ohms, or one is 8 ohms and the other is 16 ohms, set the speaker impedance selector to "8Ω".

■ AUDIO AND VIDEO SIGNAL TERMINAL



■ OPERATION

Standard operating procedures

1 Power: "on" (■→▬)

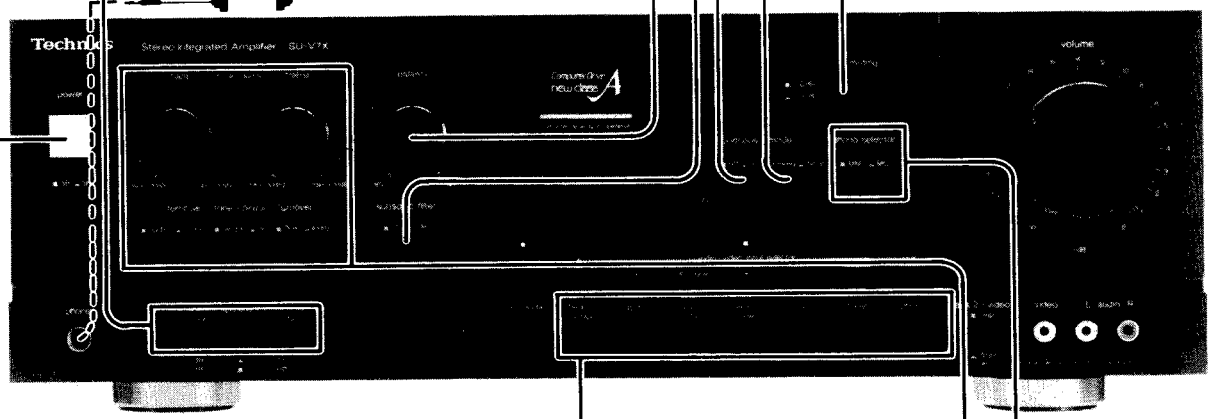
Be sure to reduce the volume level to a low ("∞→60") position before switching ON the power.

2 Select the speaker systems to be used.

If sound from speakers is not wanted, set the speaker selectors to the "off" position.

Headphones (option)
Plug type:
1/4-inch phone plug, stereo type

Note: Set volume control to the minimum ("∞") position before connecting headphones.



3 Select the program source.

(The picture and sound can be switched at the same time.)

tape 1/DA tape:
Press this button to listen to a tape or a digital-audio processor.

tape 2/VCR:
Set to this position for playback from a VCR or tape deck.

aux 1/TV:
Press this button to watch a TV.

aux 2/video:
Press this button to watch a video disc player, etc., is connected to the "VIDEO/AUX 2" terminals (on the front or rear panel).

CD:
Press this button to listen to a compact-disc.

tuner:
Press this button to listen to radio broadcasts.

phono:
Press this button to listen to phono discs.

4 Operate each component.

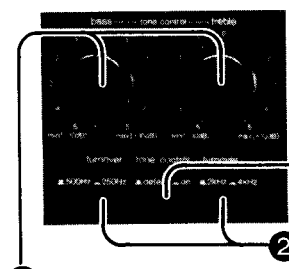
(Refer to the operating instructions for the other equipment used.)

5 Adjust the volume level and the tone quality.

After disc play or radio broadcast, etc. has started

- Adjust left/right volume balance.
- Press inward to the "20 Hz" position to eliminate ultra-low-frequency noise (turntable motor "rumble", etc.).
- Press inward to the "on" position when listening to music at a low volume level (for compensation of the bass range).
- Press inward to the "mono" position to listen to sound monaurally (when adjusting left/right volume balance, etc.).
- Press inward to the "−20 dB" position to temporarily reduce the volume level or for more precise control of the volume level.

- **Adjust the tone quality as desired.**



❶ "on" (■_▬)
If set to the "defeat" position, tone controls have no effect, and frequency response becomes flat.

❷ **Select the tone range.**

❸ **Adjust the tone quality.**

- **Select either "MM" or "MC" when listening to phono discs.**

Suggestions

- If noise is very annoying while listening to an FM or AM broadcast, switch OFF the TV, compact-disc player and turntable.
- Switch OFF the TV power if noise is excessive while listening to an audio tape, compact disc or regular phono disc.
- If a striped pattern appears and makes viewing difficult, switch OFF the digital audio processor.

After use

After listening is finished, power switches of all equipment should be switched OFF.

■ RECORDING

With this unit, you can record an FM broadcast, etc. while watching TV, or record one sound source while listening to another. In addition, the "aux 2/video" terminals on the front panel can be used for easy audio or video tape editing.

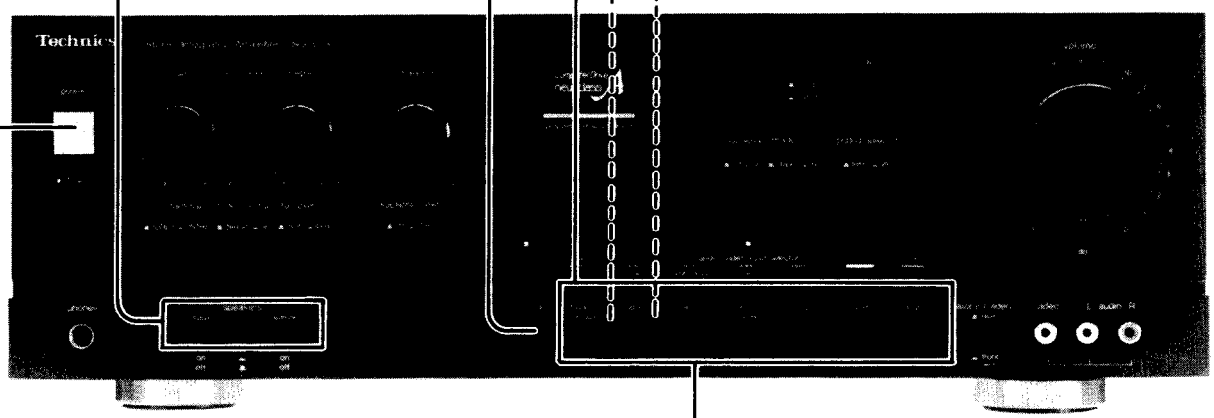
1 Power: "on" (■→▬)
Be sure to reduce the volume level to a low ("∞→60") position before switching ON the power.

2 Select the speaker systems to be used.

3 Press.
The recording mode indicator will flash.
(Refer to note 1.)

4 Select the desired program source for recording.
(The recording mode indicator and recording output signal indicator will illuminate.)

- Press this button in order to record from a tape deck connected to the "TAPE 1/DA TAPE" terminals to a tape deck connected to the "TAPE 2/VCR" terminals.
- Press this button in order to record from a tape deck connected to the "TAPE 2/VCR" terminals to a tape deck connected to the "TAPE 1/DA TAPE" terminals.
- Recording-mode selector



5 Begin recording.
By using the controls on the tape deck, adjust the recording level. Then begin recording.

6 Set to the position corresponding to the program source to be heard.
(One of the input signal indicators will illuminate.)

- **If the program source being recorded is selected:**
  The sound going to the tape deck will be heard.
- **If the tape deck making the recording is selected:**
  The sound going through the tape deck will be heard.
- **If some other sound source is selected:**
  The sound of the selected source can be heard. (This will not effect the recording which is being made.)

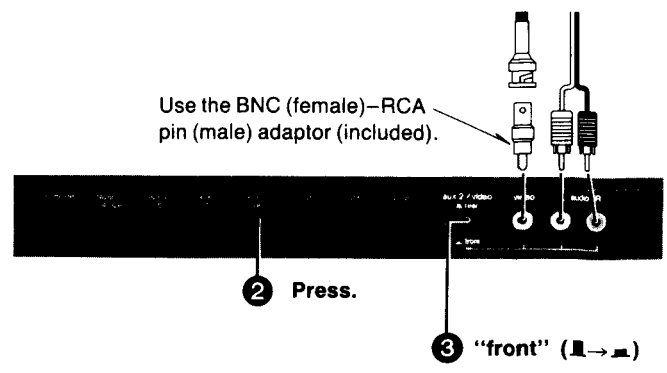
To record one program source and listen to another:
Follow steps 3 through 6.

Tape-to-tape recording of video tapes

A copy of a video tape can be made by connecting a video deck for playback to the "aux 2/video" terminals on the front panel.

Note:
Follow these steps in addition to step 4 above.•

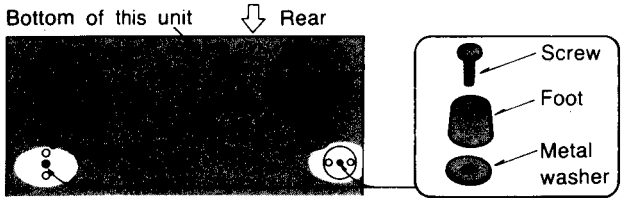
❶ Connect the VCR to be used for playback to the "aux 2/video" terminals on the front panel.



Notes:
1. While a recording is in progress:
   Do not press the recording-mode selector, because the recording will be interrupted and the recording source will be changed.
2. For timer recordings:
   Be sure to check that the recording-mode indicator is illuminated steadily (not flashing).
   Note that the recording might not be made if the recording-mode indicator is flashing.

● Placement on top of other equipment

To accomodate equipment of different depths, use the additional feet (included) to support this unit.



● If a TV is connected to this unit

● If speakers are placed near the television

Move the speakers away from the TV to a position where the picture is improved if the TV's picture color changes or distortion appears on the TV screen.
(This is not necessary, however, for shielded speakers.)

● If a turntable is placed near the TV

Place it on the right side of the TV.
TV magnetism might otherwise affect the record player's cartridge performance, causing interference noise.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is switched ON.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted" , or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.
If this occurs, follow the procedure outlined below:

1. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

■ BEFORE REPAIR AND ADJUSTMENT

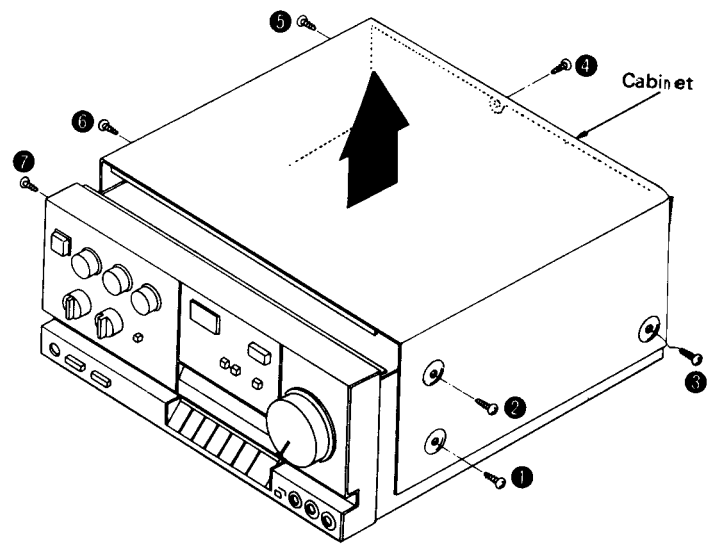
(1) Turn off the power supply. Using a 10Ω, 5W resistor, shortcircuit both ends of power supply capacitors(C901~904, 5600μF) in order to discharge the voltage.

(2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50/60 Hz in NO SIGNAL mode should be shown below with respect to supply voltage 110V/127V/220V/240V.

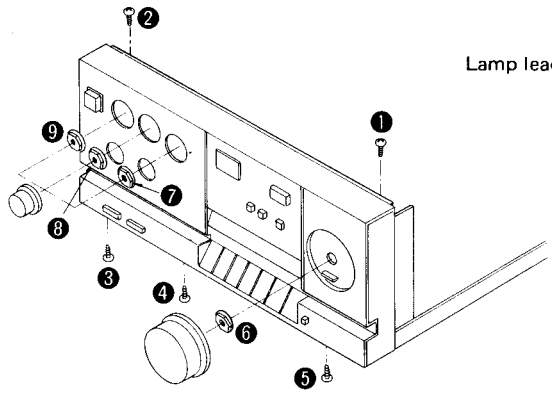
Power supply voltage	AC110V	AC127V	AC220V	AC240V
Consumed current 50/60Hz	220 ~ 640mA	210 ~ 580mA	115 ~ 320mA	105 ~ 290mA

■ DISASSEMBLY INSTRUCTIONS

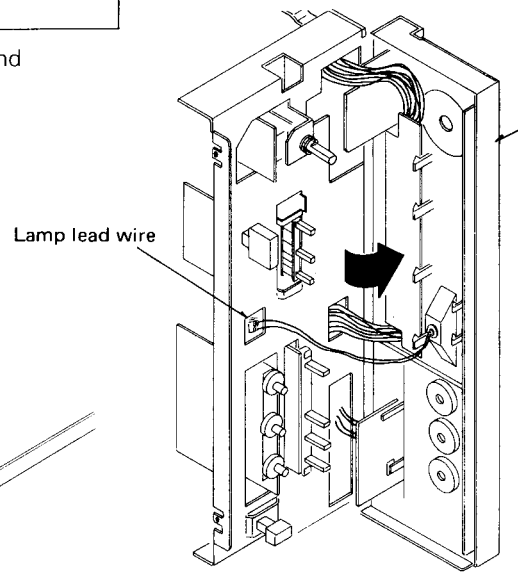
Ref. No. 1	How to remove the cabinet
Procedure 1	1. Remove the 7 screws (❶~❼)



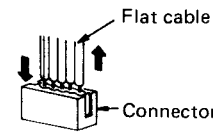
Ref. No. 2	How to remove the front panel
Procedure 1 ➡2	1. Remove the 5 screws (❶ ~ ❺) and 4 nuts (❻ ~ ❾).



2. Remove the front panel (refer to the arrow).

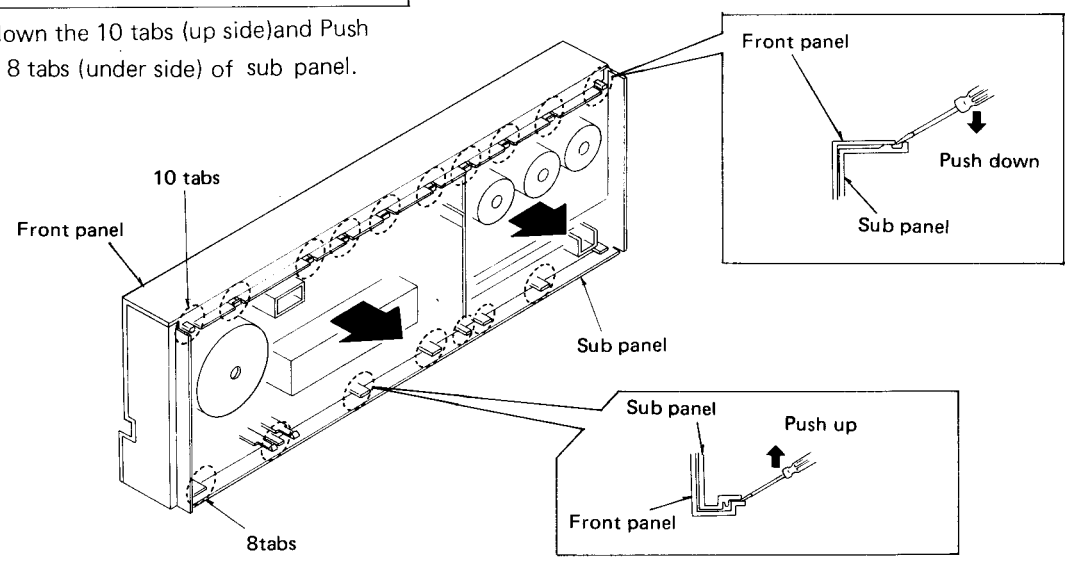


Note
Remove the flat cable



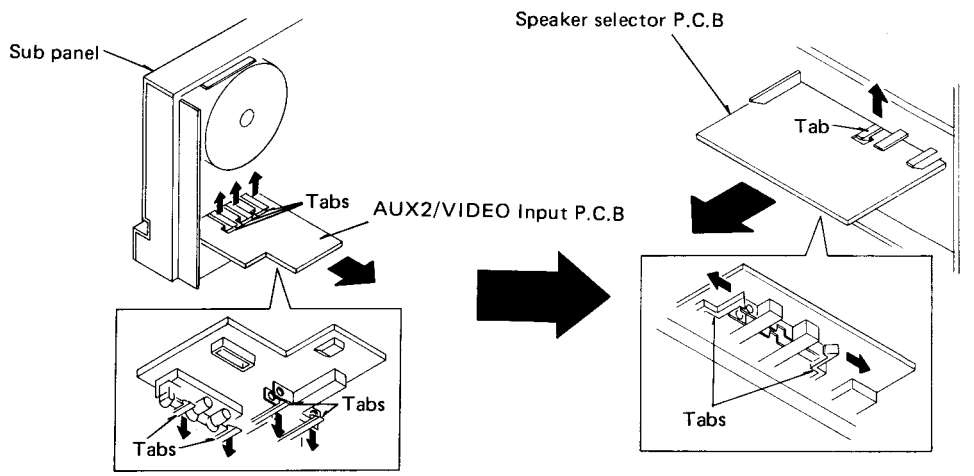
Pushing the connector and extract the flat cable

Ref. No. 3	How to remove the sub panel
Procedure 1 ➡ 2 ➡ 3	1. Push down the 10 tabs (up side)and Push up the 8 tabs (under side) of sub panel.

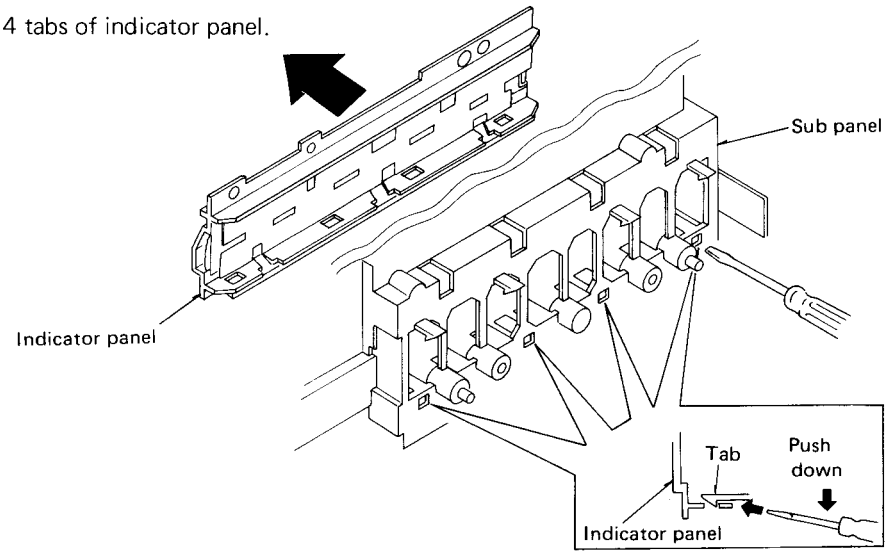


Ref. No. 4	How to remove the AUX2/VIDEO P.C.B and speaker selector P.C.B
Procedure 1➡2➡3➡4	1. Pull the 3 tabs (up side) and 4 tabs (under side) of AUX2/VIDEO Input P.C.B.

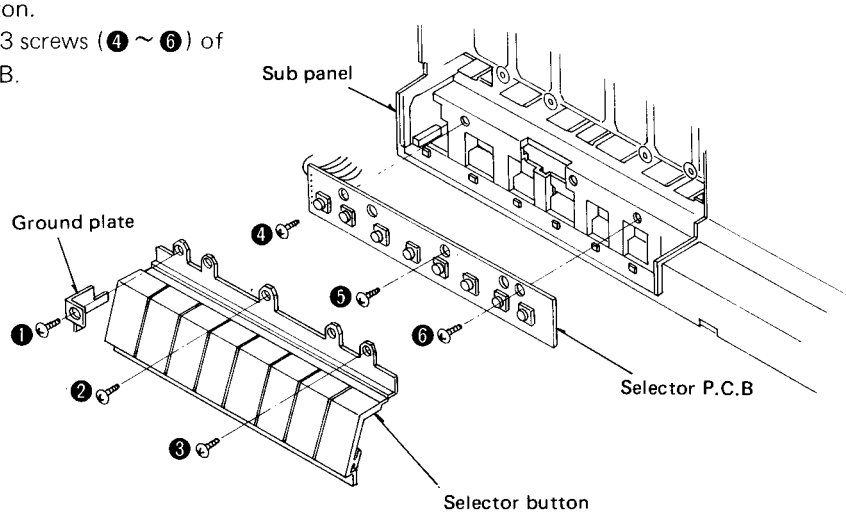
2. Pull the tab (up side) and 2 tabs (under side) of Speaker selector P.C.B.



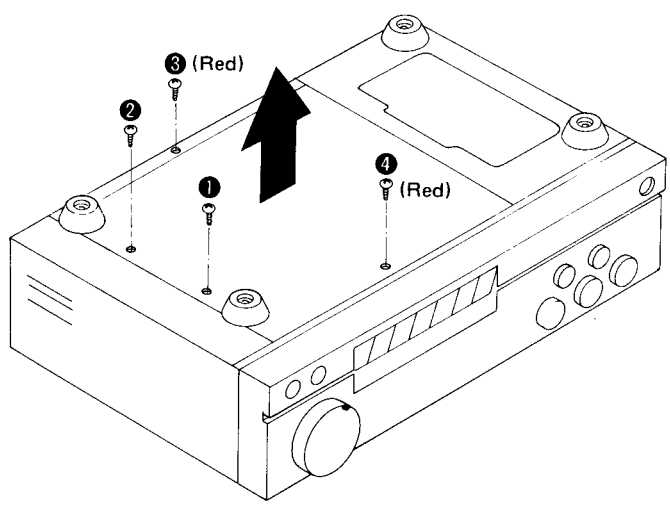
Ref. No. 5	How to remove the indicator panel
Procedure 1➡2➡3➡4➡5	1. Release the 4 tabs of indicator panel.



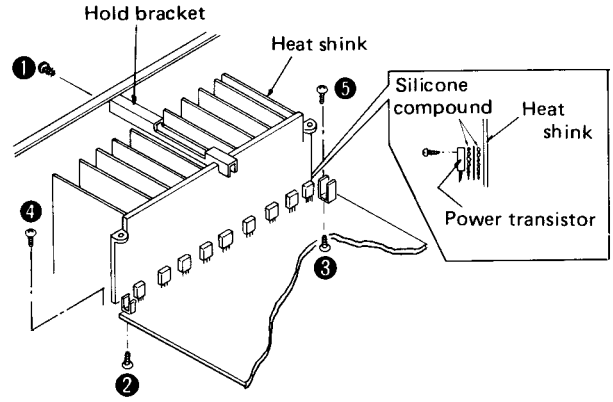
Ref. No. 6	How to remove the selector button and selector P.C.B
Procedure 1➡2➡3➡4➡5➡6	1. Remove the 3 screws (❶ ~ ❸) of selector button. 2. Remove the 3 screws (❹ ~ ❻) of selector P.C.B.



Ref. No. 7	How to remove the bottom board
Procedure 7	1. Remove the 4 screws (❶ ~❹).



Ref. No. 8	How to remove the power transistor	3. Remove the 2 screws (❷ ~ ❺) of heat shink.
Procedure 1 ➡ 7 ➡ 8	1. Remove the screws (❶) of hold bracket. 2. Unsolder the power transistor.	



- When mounting the power transistor, apply silicone compound (SZZ0L15) to the rear side of power transistor.

■ FUNCTION OF TERMINAL (I_{CQ} Controller IC801 : MN1421STA)

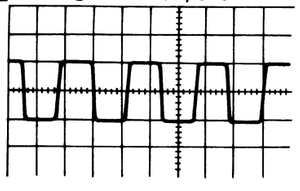
Pin No.	Mark	Name of block	Description of terminal
1	Vss	Power supply input terminal	Ground
2	CO9	Output	It delivers Icq control signal through input port A (❾) (thermal sensor) and input port B (⓫, ⓬)(signal sensor). [Output "H"]
3	CO8		
4	CO7	——	——
5	CO6		
6	CO5		
7	AI3		
8	AI2		
9	AI1	Input	When 60°C (140°F) sensor of power amplifier operates, the input level becomes "L".
10	AI0	——	Ground
11	BI3	Input	Input level changes to "L" as effective output 2V signal sensor of power amplifier operates.
12	BI2		Input level changes to "L" as effective output 5V signal sensor of power amplifier operates.
13	BI1	——	——
14	BI0		
15	EO0	——	——
16	EO1		
17	EO2		
18	EO3	Output	Indicator "Computer drive auto operation" light up at "H" output.
19	TST	Test input terminal	Terminal for testing LSI (Grounded)
20	RST	Reset input terminal	All outputs are cleared or reset with input at "L" (It is connected to power supply circuit)
21	SNS0	——	Not used in this unit
22	SNS1	Input	Input level changes to "H" as power amplifier output short-circuit operates.

Pin No.	Mark	Name of block	Description of terminal
23	PRE HEAT	——	No used
24	DO1	——	Ground
25	DO2		
26	DO3	Output	Output relay turns ON with output at "H"
27	VDD	Power supply input terminal	Apply 5V.
28	OSC	OSC input terminal	Clock signal (about 300 kHz) can be obtained by internal oscillation circuit.

■ FUNCTION OF TERMINAL (Analog Function Control IC251 : μPD7506C043)

Pin. No.	Symbol	Input/Output	Active	Description of terminal
1	P43	—	—	Not used in this unit.
2	x 2	—	—	Not used in this unit.
3	P03/x 1	Input	—	It detects the level of pin ⑤. Push (once) the "rec selector" → Selection of input selector 4.3V / 0V
4	P20/PSTB	Output	H	Clock output port for analog switch. Clock signal output to IC201 pin ⑮ and IC202 pin ⑮ during data transmission. [Refer to A]
5	P21/PTOUT	Output	H	Indicater "rec selector" light up at "H". Push (once) the "rec selector" → Selection of input selector 4.3V / 0V
6	P22	Output	H	Data output for analog switch. Data signal output to IC201 pin ⑯ and IC202 pin ⑯. [Refer to A]
7	P23	Output	H	Strobe output port for analog switch. Strobe signal output to IC201 pin ⑬ and IC202 pin ⑬ during data transmission. [Refer to A]
8	P60	Output	H	Rec side indicator 3-bit output. Rec indicator drive signal output to IC253 pins ⑬ ~ ⑮. [Refer to H]
9	P61			
10	P62			
11	P63	Input	H	Stop mode sensing input. With high pulse signal input, the stop command is executed and the mode is shifted to standby. 4.4V / 0V Power switch "OFF".
12	CL1	—	—	External clock oscillation frequency (400KHz) input port. [Refer to C]
13	CL2	—	—	Not used in this unit.
14	VDD	—	—	Power supply input terminal. (Apply 4.4V)
15	RESET	Input	H	Input terminal for reset signal. Power switch "ON" 4.3V / 0V; Power switch "OFF" 1V / 0V
16	P10	Input	H	Input terminal for key return signal from external key matrix. [Refer to G]
17	P11			
18	P12			
19	P13			
20	P50	Output	H	Output terminal for key scan signal for external key matrix. (Output voltage is 4.3V)
21	P51			
22	P52			
23	P53	Output	H	Muting signal output during input switch or Rec switch operation. 4.3V / 0V Push the each input selector or muting switch.
24	P00	Input	—	Mode shifting port. [H = Function 1 mode, L = Function 2 mode] The input of this unit is "H" (4.9V) because the mode used is Function 1.
25	P40	Output	H	Input side indicator 3-bit output. Input indicator drive signal to IC254 pins ⑬ ~ ⑮. [Refer to F]
26	P41			
27	P42			
28	VSS	—	—	Ground terminal.

C IC251 ⑫ 2V DIV/1 μSEC



① Push the rec selector switch. ("rec indicator" blinking)
② Push the each input selector switch.

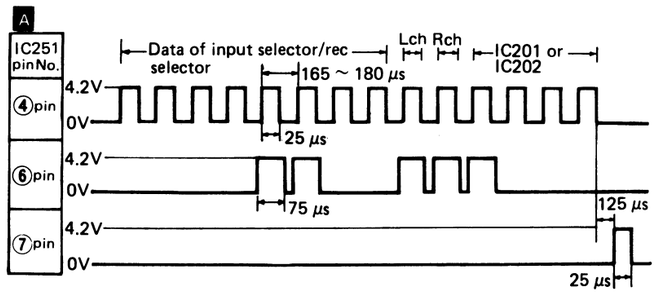
B — L = 0V, H = 4.3V

Input selector \ Pin No. of IC251	⑧	⑨	⑩
phono	L	H	L
tuner	H	L	L
CD	L	H	L
video/aux	H	H	L
tape 2	H	L	H
tape 1/DA tape	L	L	H

D — L = 0V, H = 4.3V

Input selector \ Pin No. of IC251	⑯	⑰	⑱	⑲
phono	L	L	L	H
tuner	L	L	H	L
CD	L	H	L	L
video/aux	H	L	L	L
tape 2	L	L	H	L
tape 1/DA tape	L	L	L	H
rec selector	H	L	L	L

A

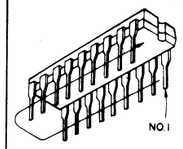


E

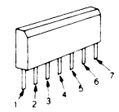
Input selector \ Pin No. of IC251	㉕	㉖	㉗
phono	L	L	L
tuner	H	L	L
CD	L	H	L
video/aux	H	H	L
tape 2	H	L	H
tape 1/DA tape	L	L	H
rec selector	L	L	L
muting	L	4.3V / 0V	L

■ TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S

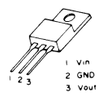
TC9163N	28 Pin
TC9164N	28 Pin
MN1421STA	28 Pin
μPD7506C043	28 Pin
AN7062	18 Pin
DN74LS145	16 Pin
MN4069UB	14 Pin
μPD4066BC	14 Pin



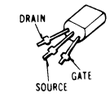
M5219P
M5218P



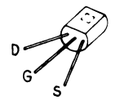
AN78M05



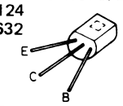
2SK369



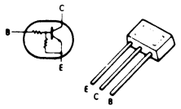
2SK301



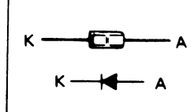
2SA1123, 2SD592ANC, 2SC1845
2SA992, 2SC2631, 2SB621, 2SC3112
2SC1685, 2SA1370, 2SA722
2SA1124
2SC2632



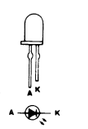
UN4211
UN4212



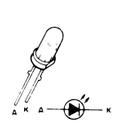
MA165
MA27W-A



LN41YCPHL



LN81CPHL



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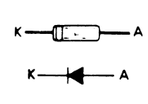

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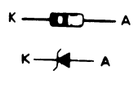
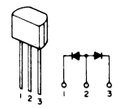
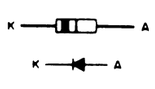


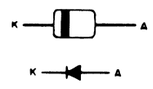
MC911



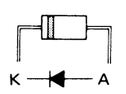
MA162A



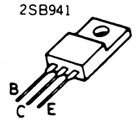
MA167



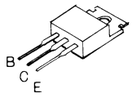
SVDS10VB20
1SR35200



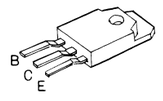
2SD1265
2SB941



2SC2592
2SA1112



2SC3128
2SA1265



MA4200
MA4150
MA4068

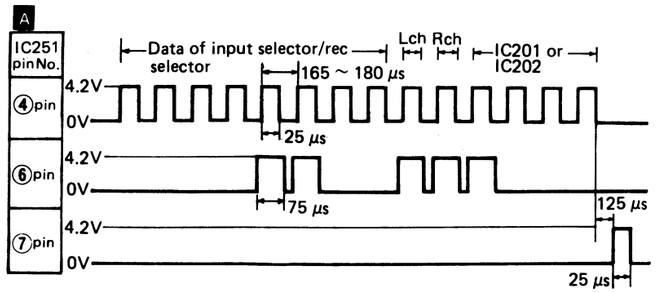
C043)

lection of input 4.3V selector 0V
smission.
ection of input 4.3V selector 0V
smission.
4.4V 0V switch "OFF".
switch "OFF" V V
]
e is 4.3V)
4.3V 0V r muting switch.

0V, H = 4.3V

⑱	⑲
L	H
H	L
L	L
L	L
H	L
L	H
L	L

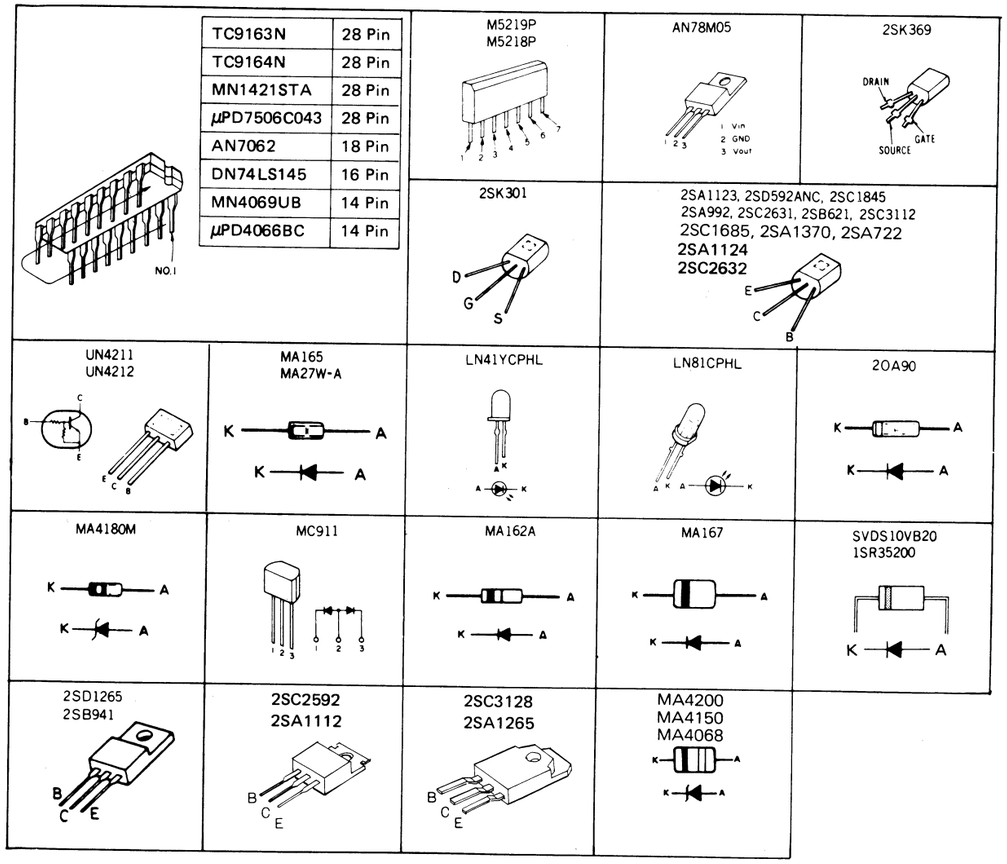
A



E

Input selector \ Pin No. of IC251	㉕	㉖	㉗
phono	L	L	L
tuner	H	L	L
CD	L	H	L
video/aux	H	H	L
tape 2	H	L	H
tape 1/DA tape	L	L	H
rec selector	L	L	L
muting	L	4.3V / 0V	L

■ TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S



■ HOW TO REPLACE IC'S (Small outline type)

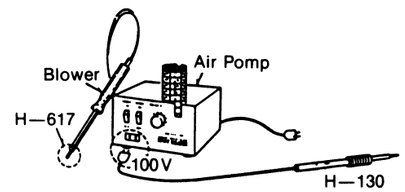
	Replacing procedure		Cautions
1	Reduce the amount of solder on each pin of the integrated circuit by use of a solder sucker.	(Example) H—130 Solder sucker	● **Recommended tool** .....Special soldering iron *H605M and H—130. *H605E and H—130. ● Do not touch the soldering iron to the area for a long time. It may otherwise cause removal of the print foil. ● When shifting the pin upward, do the job quickly while the solder is melting. If the solder is hard, it may cause removal or breakage of the print foil. ● When using a pencil type soldering iron. 1. Completely remove the solder from each IC pin by use of solder sucker. 2. Raise each pin by means of an eyeleteer, hold the pliers then remove IC package from P.C.B.
2	Melt the solder on the pin (one electrode) with the soldering iron.		
3	While the solder is melting, shift the pin upward by the soldering iron to remove it from the foil.		
4	Remove each pin from the foil according to the above-mentioned procedure.		

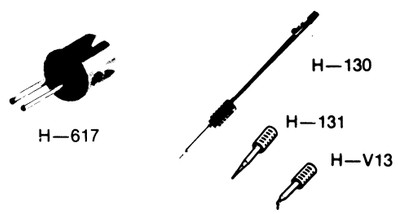
*** Special soldering iron**
(Refer to Technical Information, ORDER NO. GAD84125486T1)...For U.S.A. and Canada
(Refer to Technical Information, ORDER NO. GAD84115476T8)...For others

- **H—605 Spot Heater (hot-air solder iron)**

This device that uses hot air to melt solder was developed to remove Flat-Pakage ICs, RHCs and chip parts.

- H—605M (For 120V power source)
- H—605E (For 200V/220V/240V power source)





- **H—617 Twin Nozzle (for spot heater)**

Special nozzle for the removal of RHCs and chip resistors. (Nozzle diameter : 1.0 mm x 2)

- **H—130 Slim Pencil Solder Iron**

An ultrasmall ceramic heater solder iron is extremely handy for soldering chip parts, RHCs, ICs, etc., to high-density circuit boards.
Features:

- Rated power: 100V, 15W
- Max. temp.: 400°C
- Heater: ceramic (long life)
- Insulation resistance: 100MΩ
- Length: 178 mm
- Weight: 16 g (not including cord)

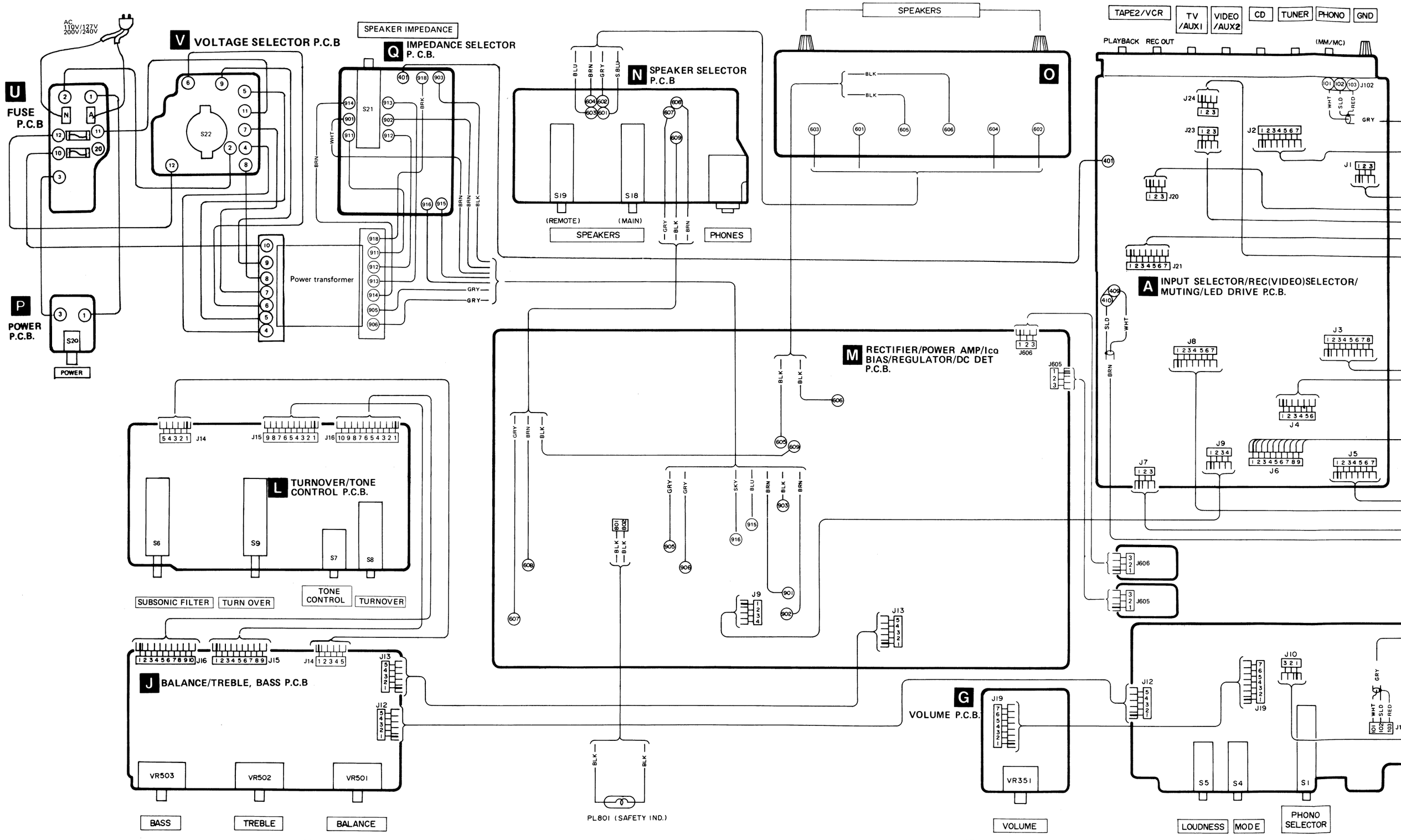
- **H—131, H—V13 Cap Bits**

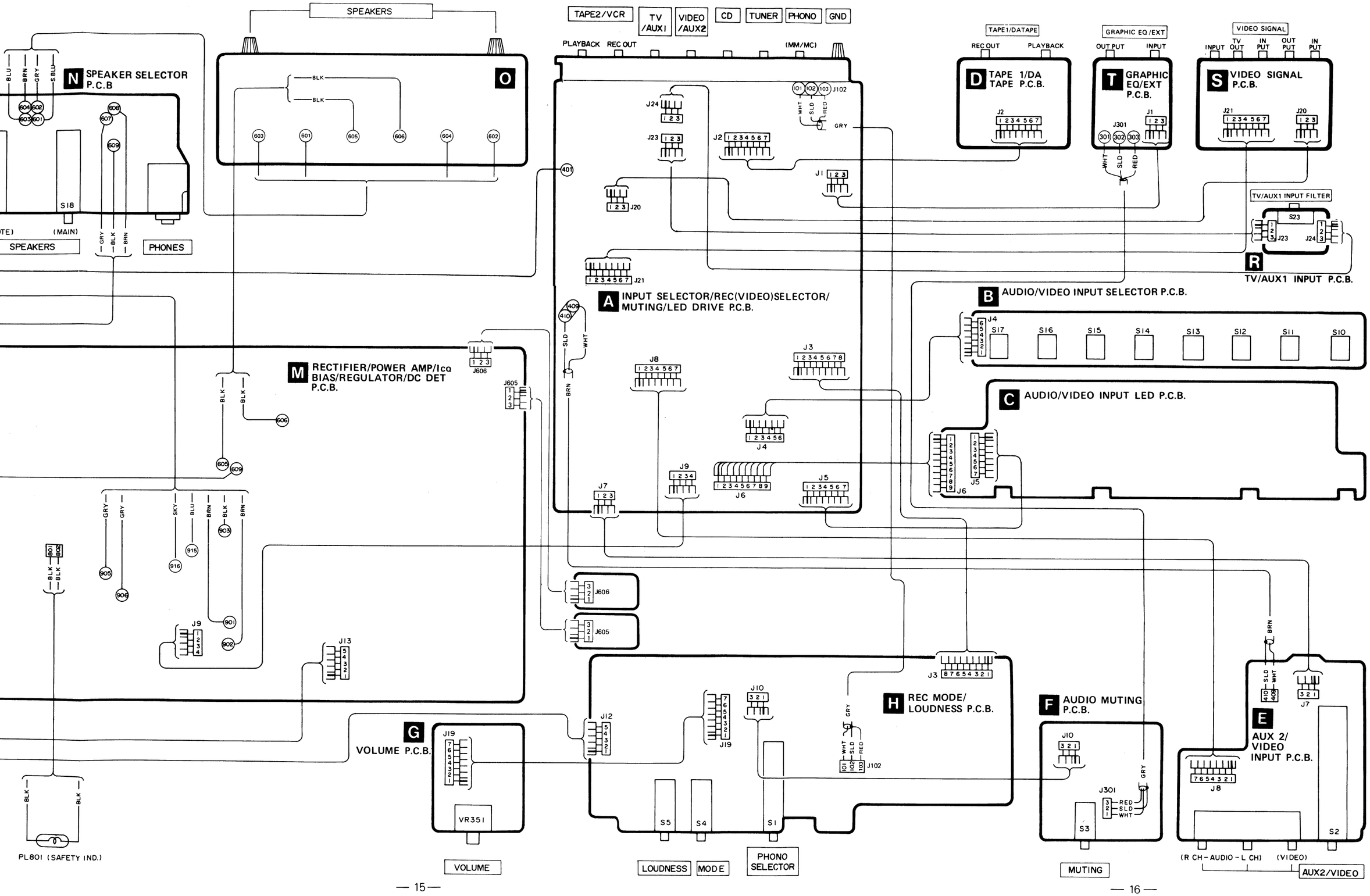
Solder tip for the slim pencil Solder Iron and is composed of a bit holder and a corrosion resistance solder tip.
Permits changing of solder tips even while still hot.

- Solder tip: 0.3 mm

SU-V7X SU-V7X

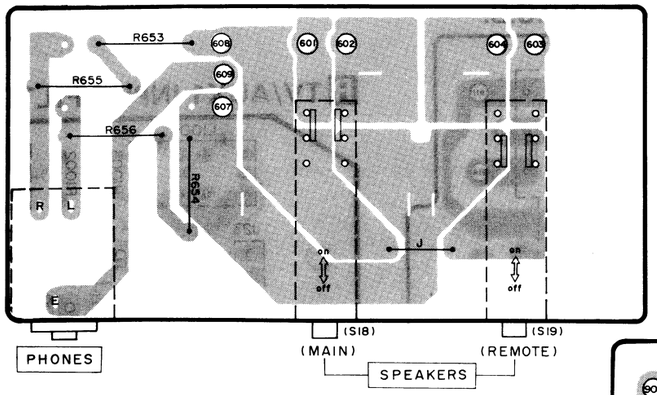
■ WIRING CONNECTION DIAGRAM




SPEAKERS
N SPEAKER SELECTOR P.C.B
O
BLU
BRN
GRY
S.BLU
S18
(MAIN)
SPEAKERS
PHONES
TAPE2/VCR
TV /AUX1
VIDEO /AUX2
CD
TUNER
PHONO
GND
PLAYBACK
REC OUT
(MM/MC)
A INPUT SELECTOR/REC(VIDEO)SELECTOR/ MUTING/LED DRIVE P.C.B.
TAPE1/DATAPE
REC OUT
PLAYBACK
D TAPE 1/DA TAPE P.C.B.
GRAPHIC EQ/EXT
OUT PUT
INPUT
T GRAPHIC EQ/EXT P.C.B.
VIDEO SIGNAL
INPUT
TV OUT
IN PUT
OUT PUT
IN PUT
S VIDEO SIGNAL P.C.B.
TV/AUX1 INPUT FILTER
R
TV/AUX1 INPUT P.C.B.
B AUDIO/VIDEO INPUT SELECTOR P.C.B.
C AUDIO/VIDEO INPUT LED P.C.B.
M RECTIFIER/POWER AMP/Icq BIAS/REGULATOR/DC DET P.C.B.
G VOLUME P.C.B.
H REC MODE/ LOUDNESS P.C.B.
F AUDIO MUTING P.C.B.
E AUX 2/ VIDEO INPUT P.C.B.
PL801 (SAFETY IND.)
VOLUME
LOUDNESS
MODE
PHONO SELECTOR
MUTING
(R CH - AUDIO - L CH)
(VIDEO)
AUX2/VIDEO

■ PRINTED CIRCUIT BOARDS

N SPEAKER SELECTOR P.C.B.



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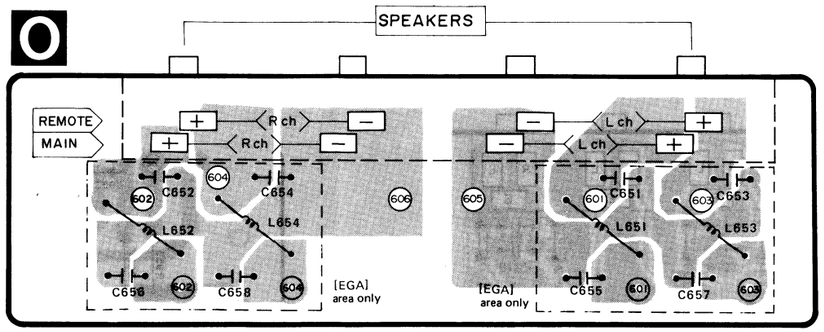
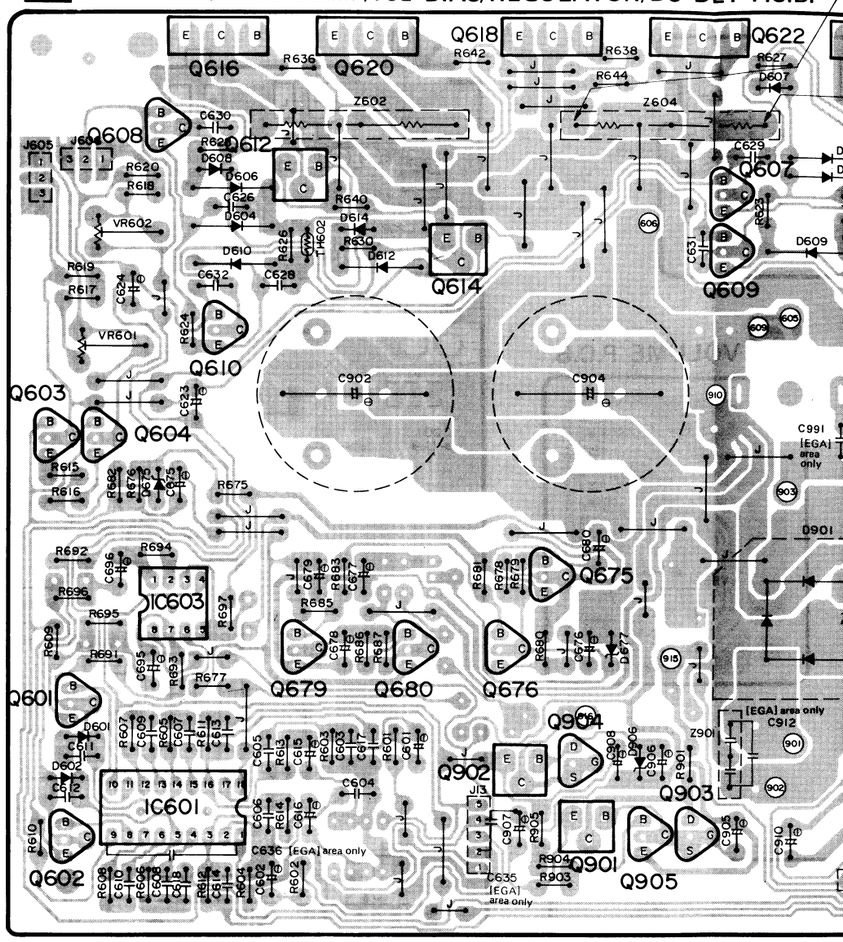
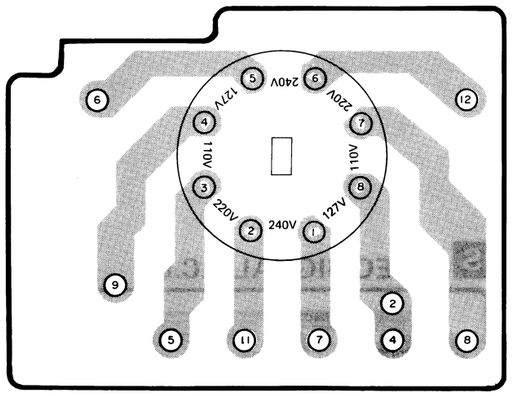
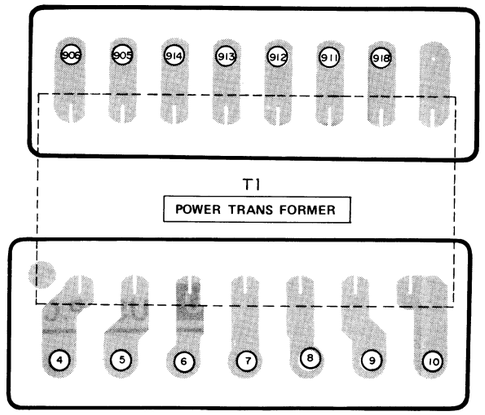


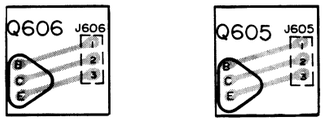
M RECTIFIER/POWER AMP/Icq BIAS/REGULATOR/DC DET P.C.B.



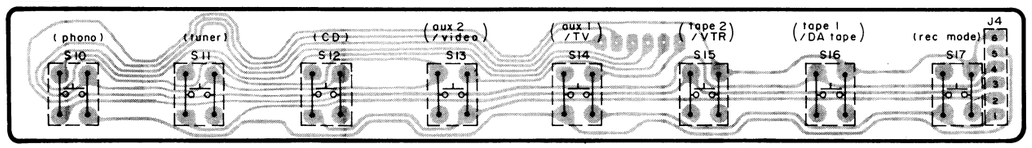
V VOLTAGE SELECTOR (S22)



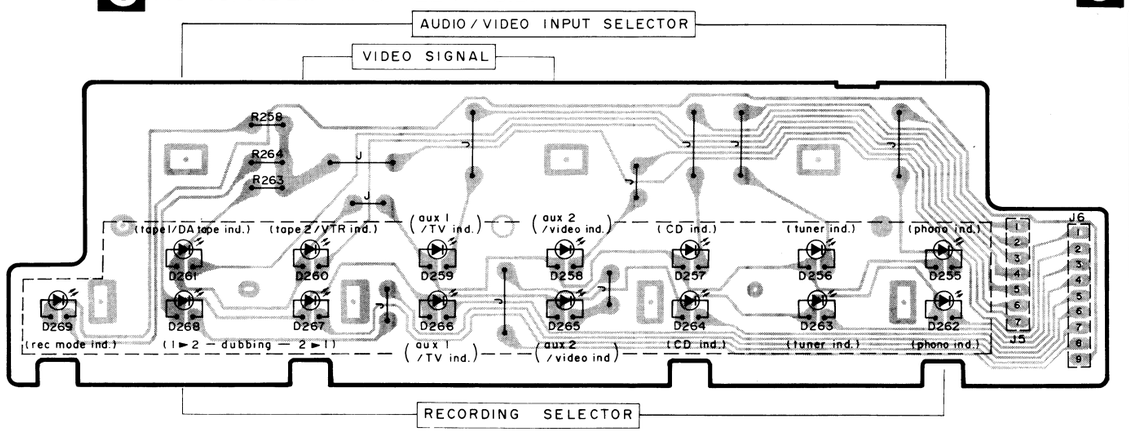




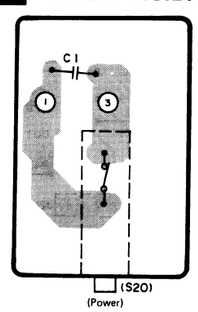
B AUDIO/VIDEO INPUT SELECTOR P.C.B.



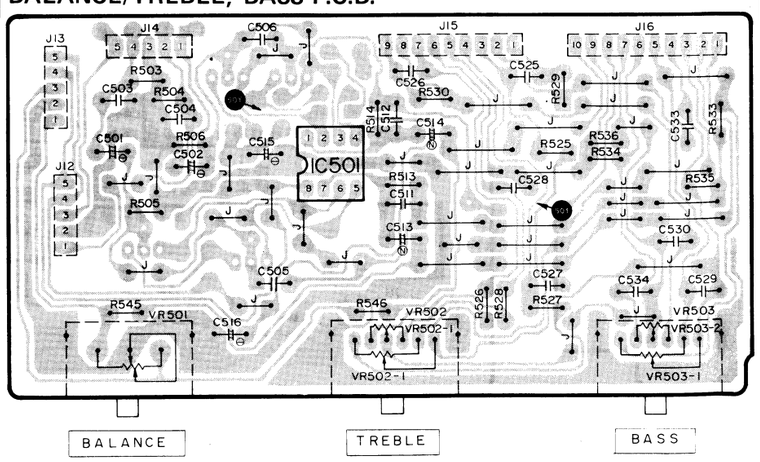
C AUDIO/VIDEO INPUT LED P.C.B.

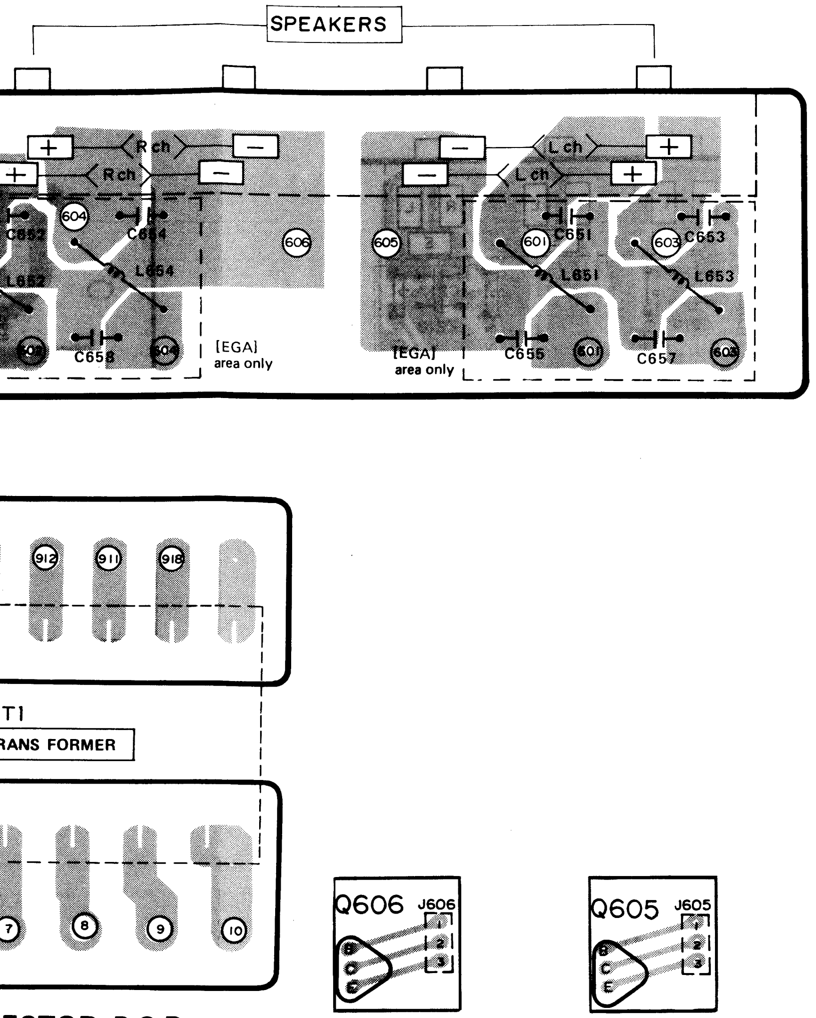


P POWER P.C.B.

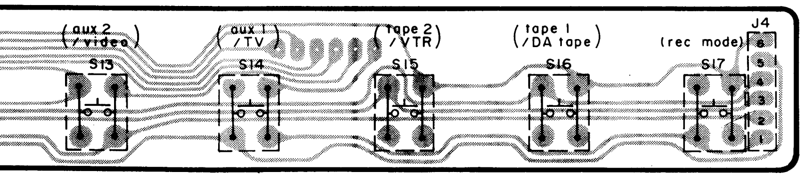


J BALANCE/TREBLE, BASS P.C.B.

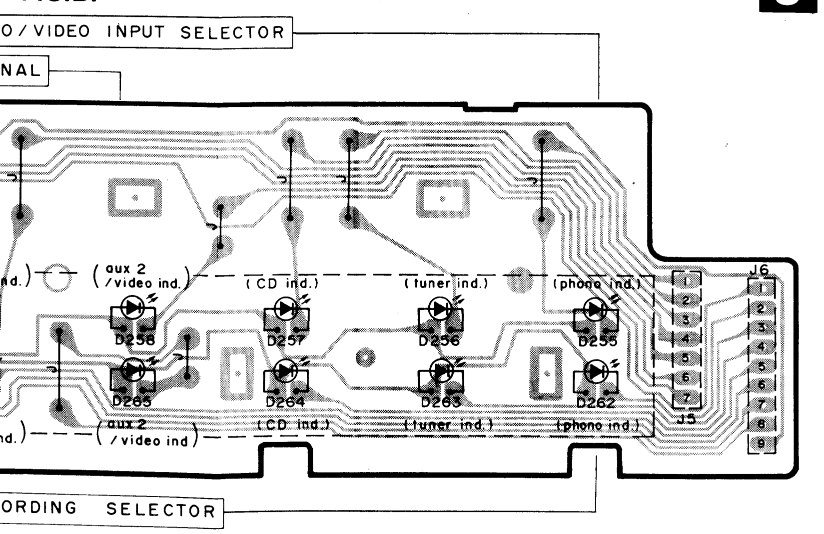




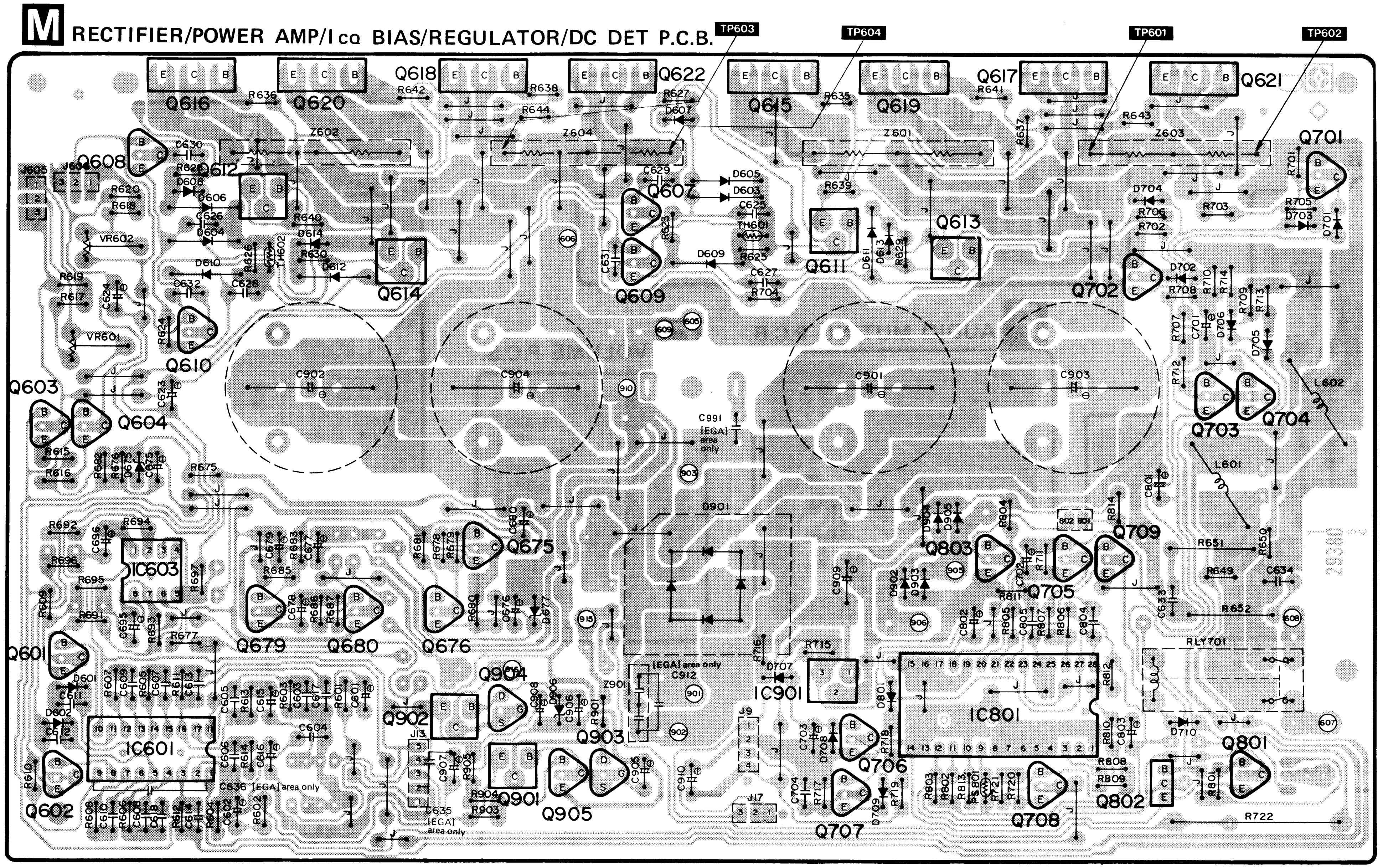
ECTOR P.C.B.



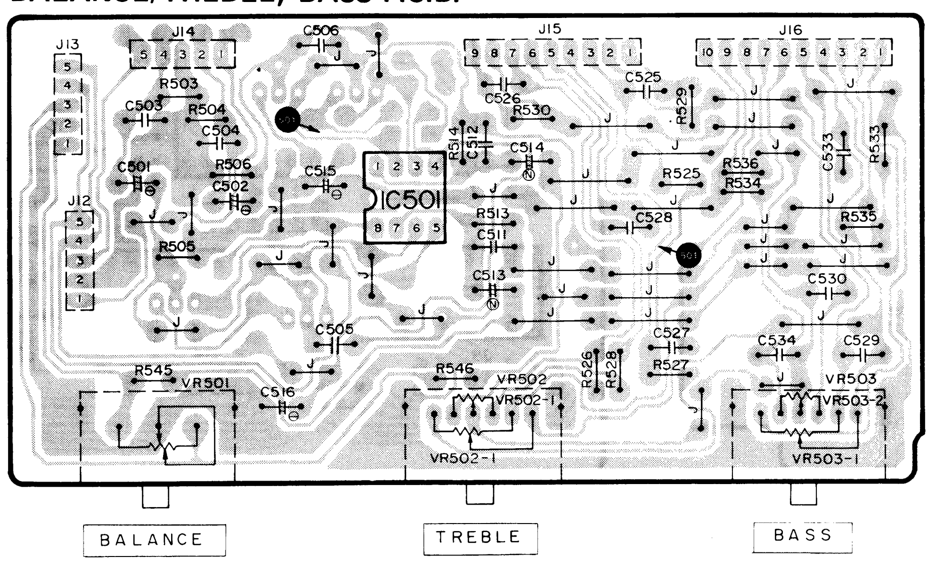
D P.C.B.



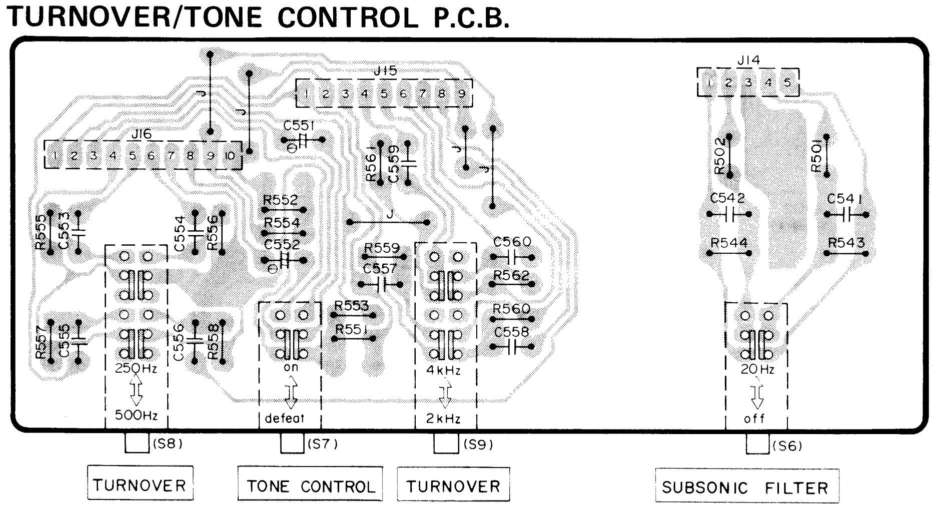
M RECTIFIER/POWER AMP/Icq BIAS/REGULATOR/DC DET P.C.B.



J BALANCE/TREBLE, BASS P.C.B.

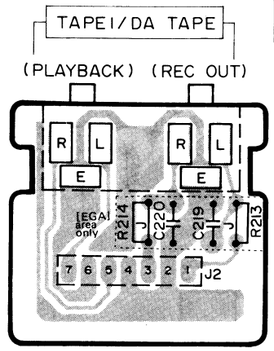


L TURNOVER/TONE CONTROL P.C.B.

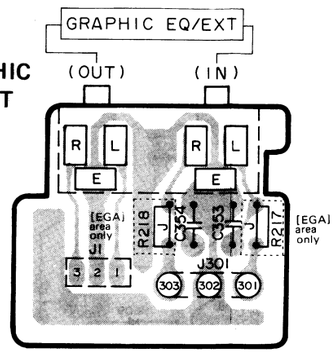


SU-V7X SU-V7X

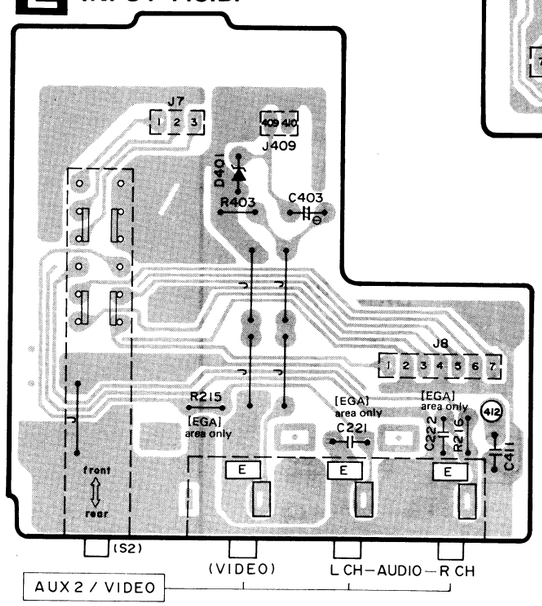
D TAPE 1/DA TAPE P.C.B.



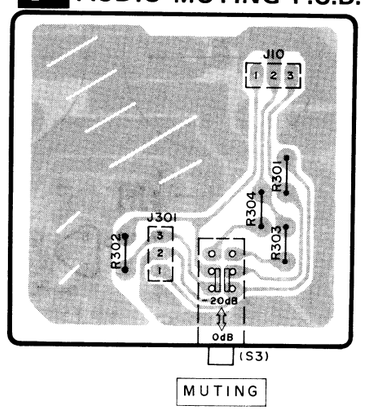
T GRAPHIC EQ/EXT P.C.B.



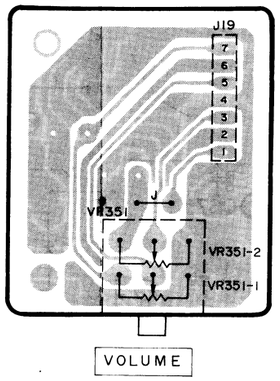
E AUX 2/VIDEO INPUT P.C.B.



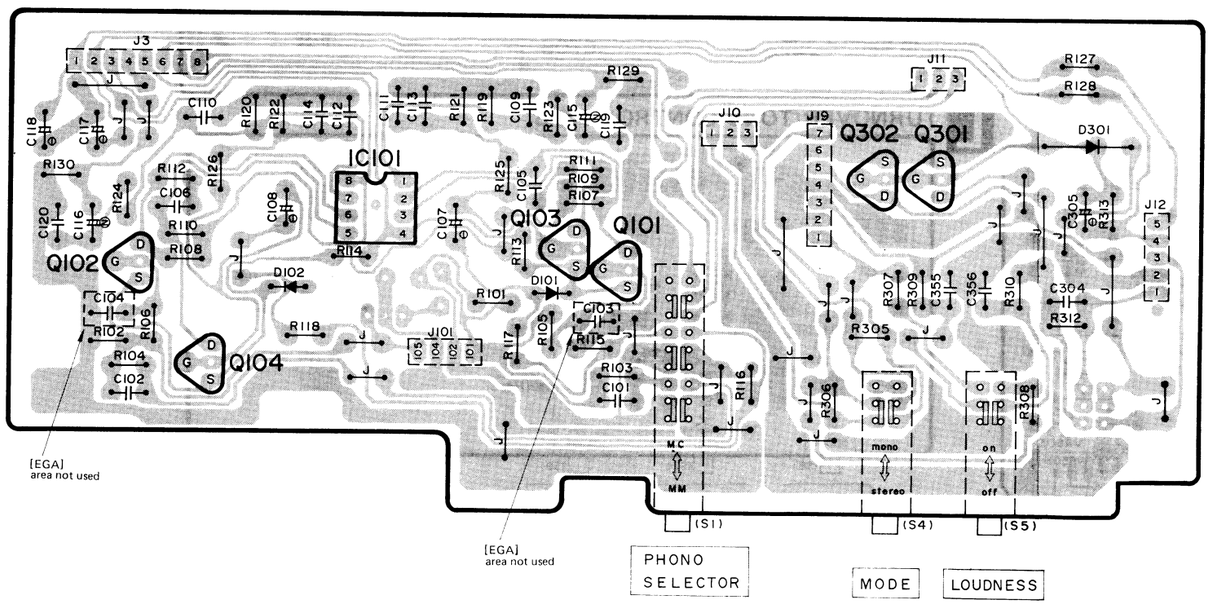
F AUDIO MUTING P.C.B.

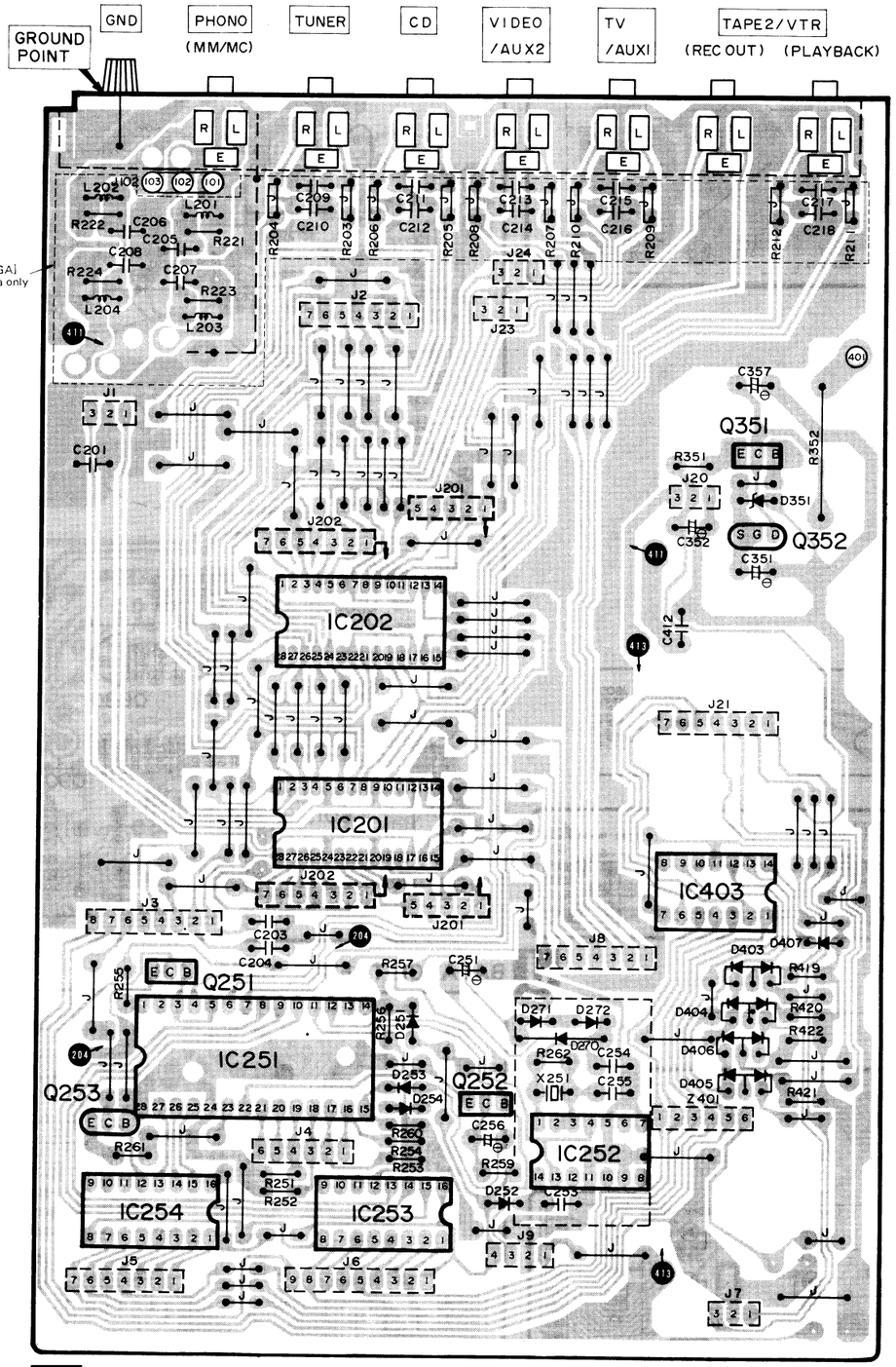


G VOLUME P.C.B.

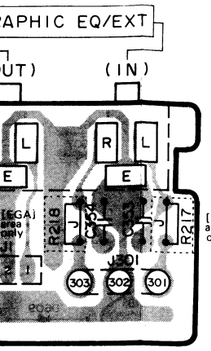


H REC MODE/LOUDNESS P.C.B.

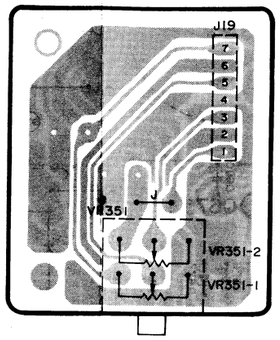


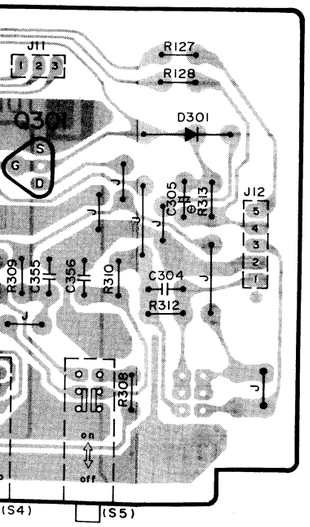


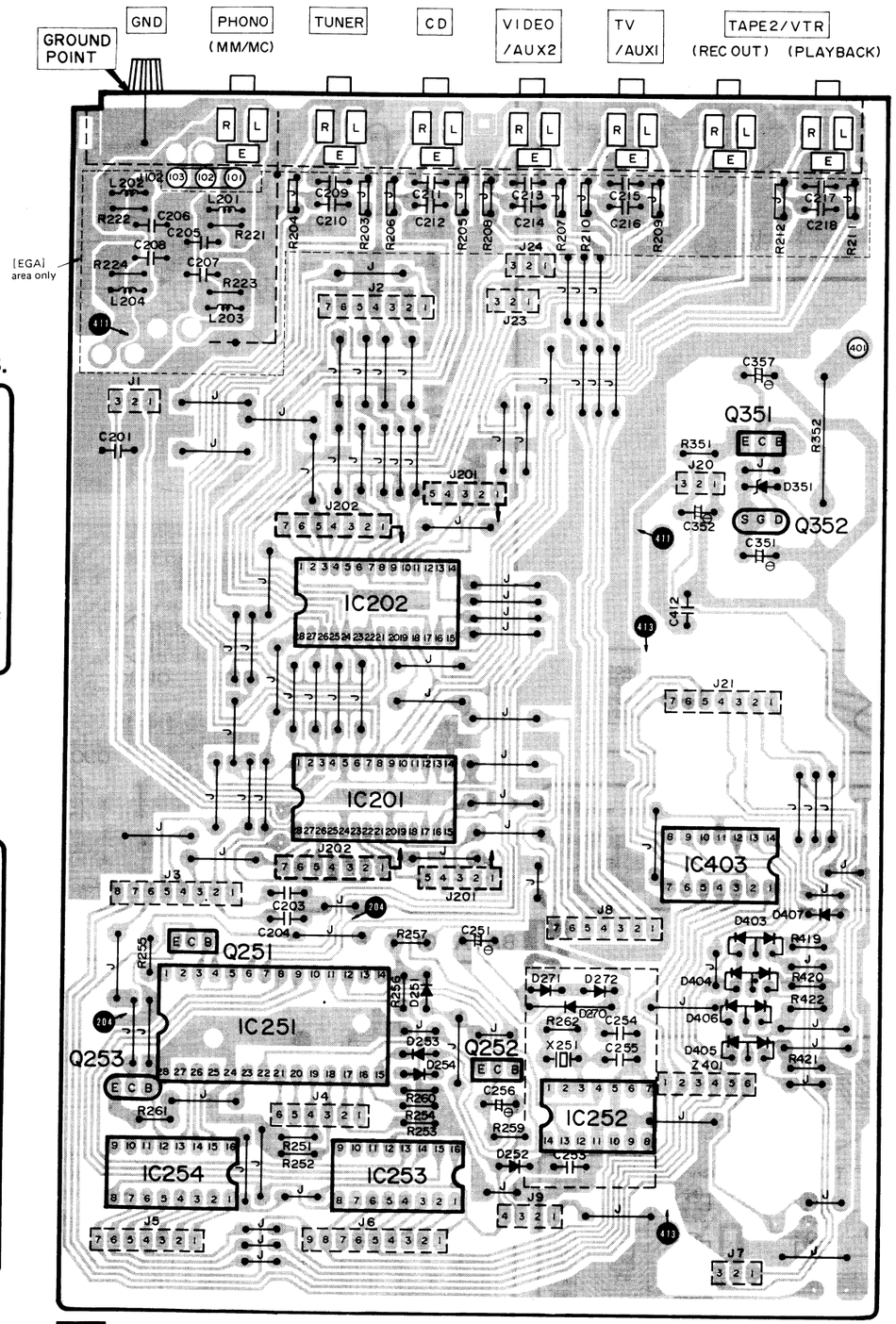
A INPUT SELECTOR/REC(VIDEO)SELECTOR/MUTING /LED DRIVE P.C.B.



G VOLUME P.C.B.

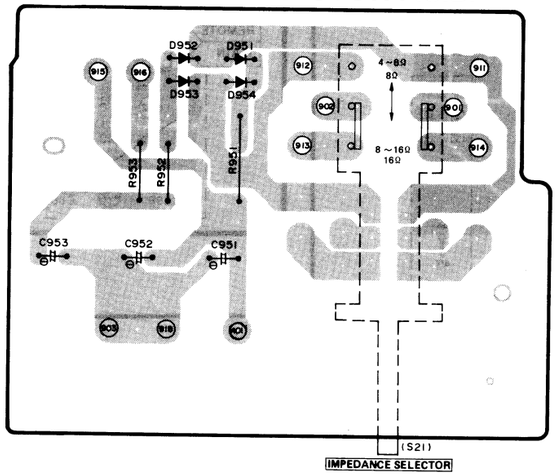




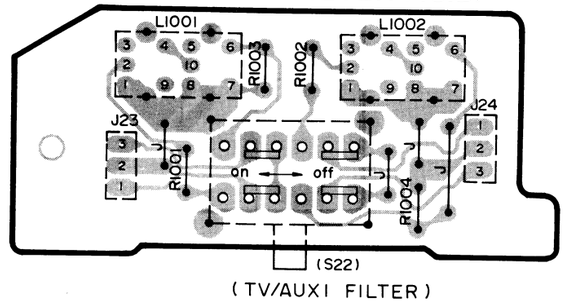


A INPUT SELECTOR/REC(VIDEO)SELECTOR/MUTING /LED DRIVE P.C.B.

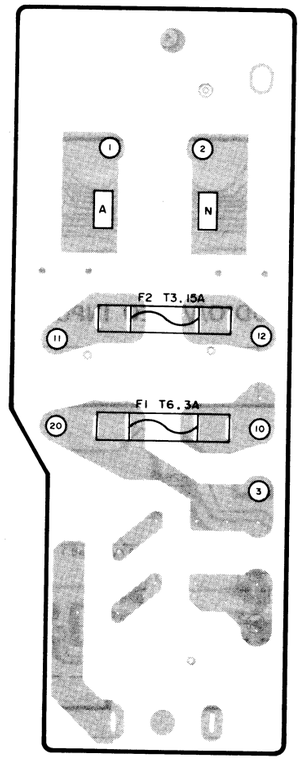
Q MPEDANCE SELECTOR P.C.B.



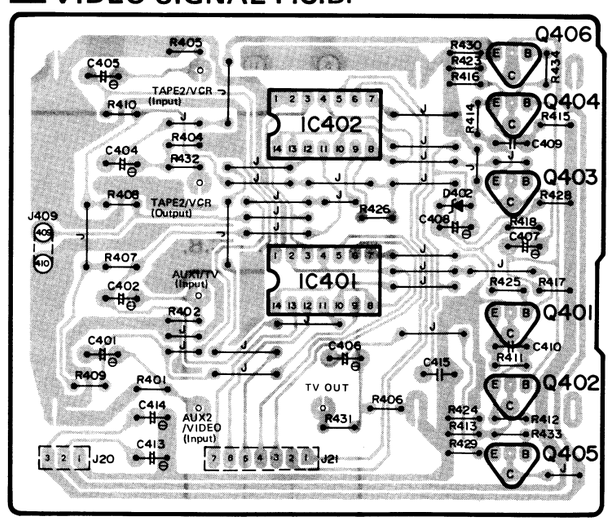
R TV/AUX1 INPUT FILTER P.C.B.



U FUSE P.C.B.



S VIDEO SIGNAL P.C.B.



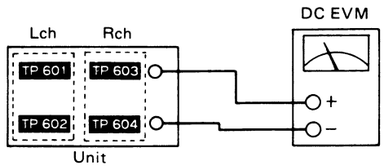
■ MEASUREMENT AND ADJUSTMENTS

Control positions and equipment used

- Volume knob . . . . . ∞ (minimum)
- Main speaker selector . . . . . off
- Remote speaker selector . . . . . off
- Recording selector . . . . . aux 1/TV
- Speaker impedance swith. . . . . 8Ω~16Ω/16Ω
- AC and DC electronic voltmeter (EVM)
- Signal generator
- Resistor (0.33Ω)

Idling (ICQ) Adjustment

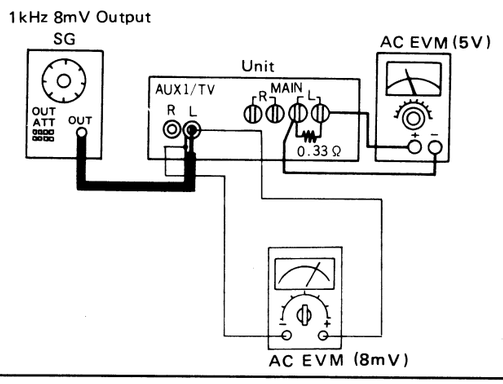
1. Test equipment connection is shown in figure.
2. Turn the ICQ control volume (VR601, VR602) counter-clockwise.
3. After turning the power switch "on", adjust **VR601** (left channel) and **VR602** (right channel) about **20mV** respectively as in Fig. 1.

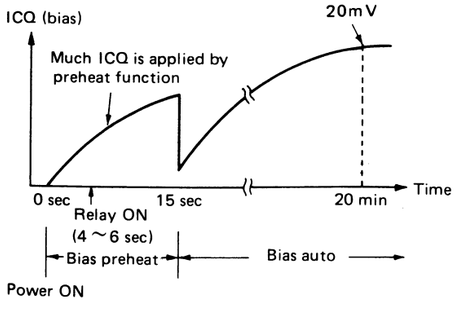


Overload detection circuit check

1. Test equipment connection is shown in figure
2. Apply 1 kHz, 8 mV (output about 5 V) signal to the aux. input terminal (aux 1/TV).
3. The speaker switch turned "off".
4. Connect 0.33 Ω (about 1 W) resistor to main speaker terminal.
5. With main speaker switch turned "on", make sure that
   - relay is "OFF" and
   - computer drive auto operation blinks.
6. Also check the right (R) channel in the same manner as mentioned above.

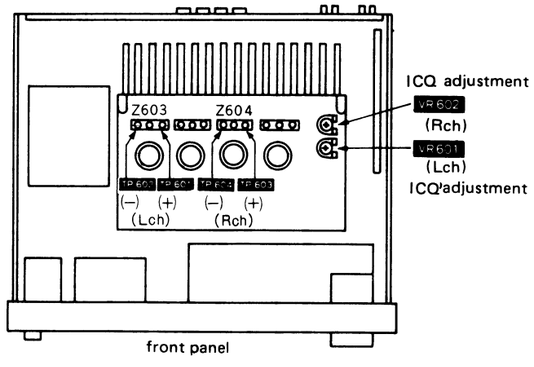
(Note) When turning the relay on again, wait for a while after turning the power supply OFF.
Otherwise, it will not be reset even when the circuit and load are in normal conditions.



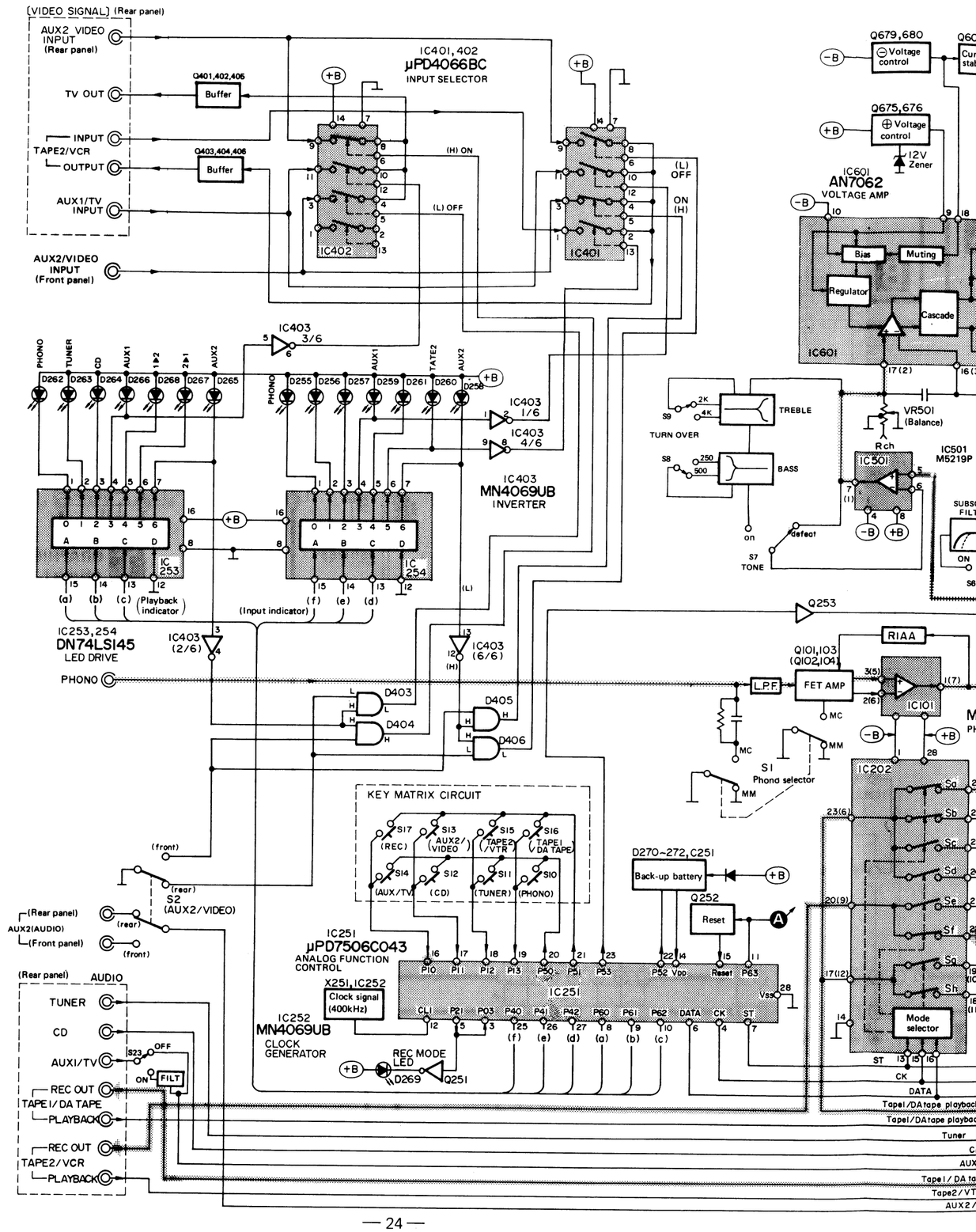


[Fig. 1]

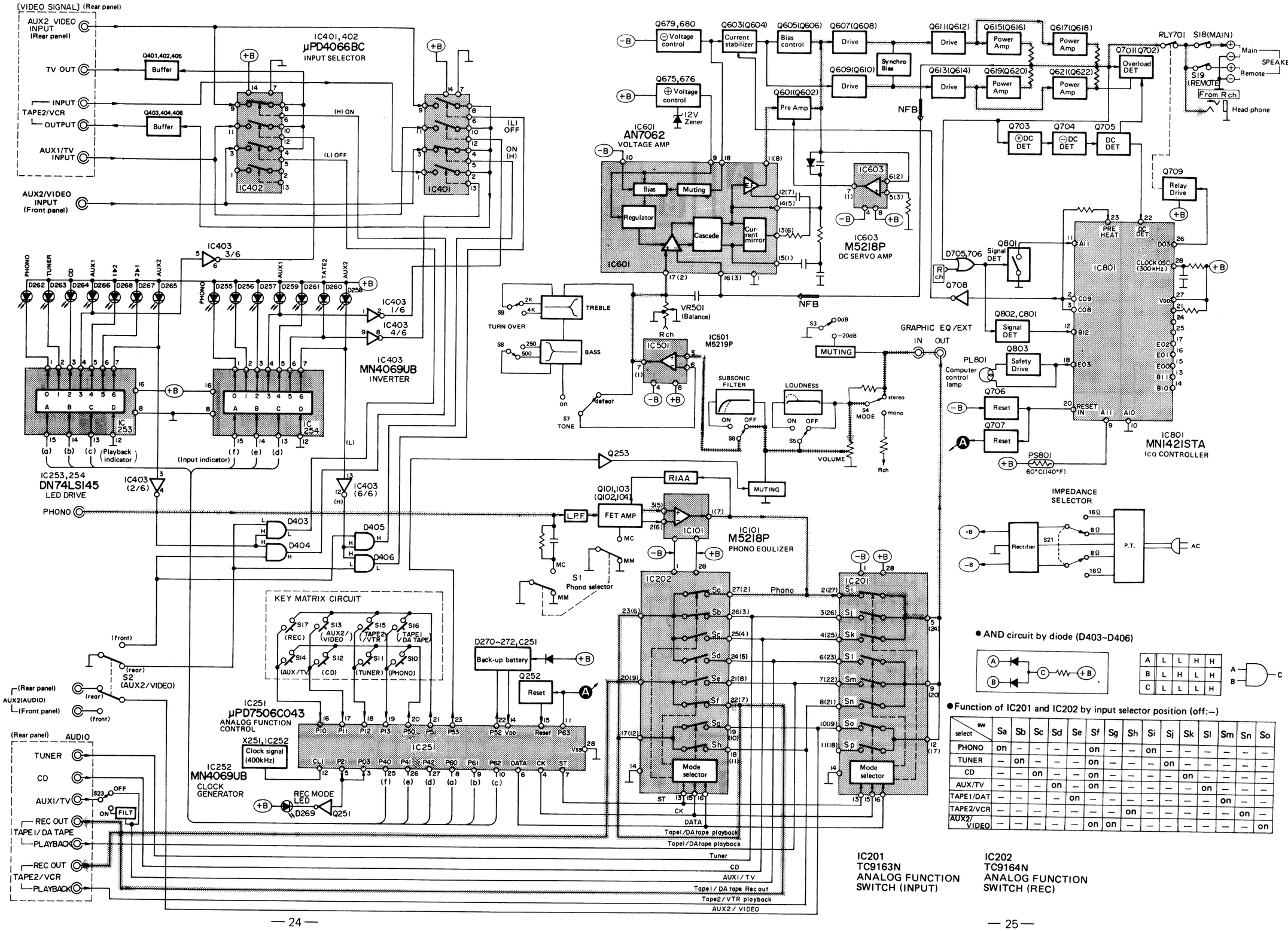
● **Adjustment points**



■ BLOCK DIAGRAM



■ BLOCK DIAGRAM



● AND circuit by diode (D403~D406)

A	L	L	H	H
B	L	H	L	H
C	L	L	L	H

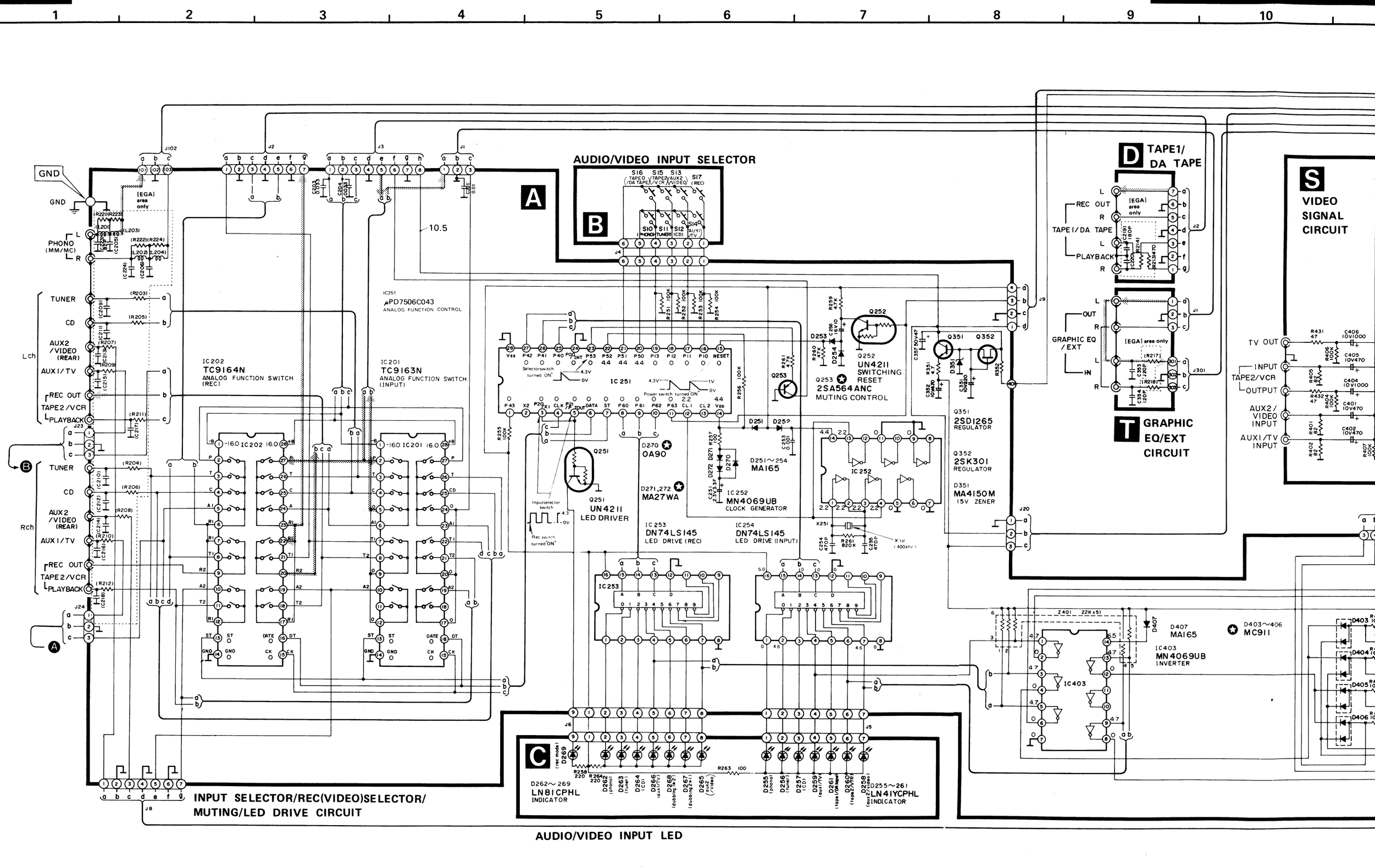
● Function of IC201 and IC202 by input selector position (off:—)

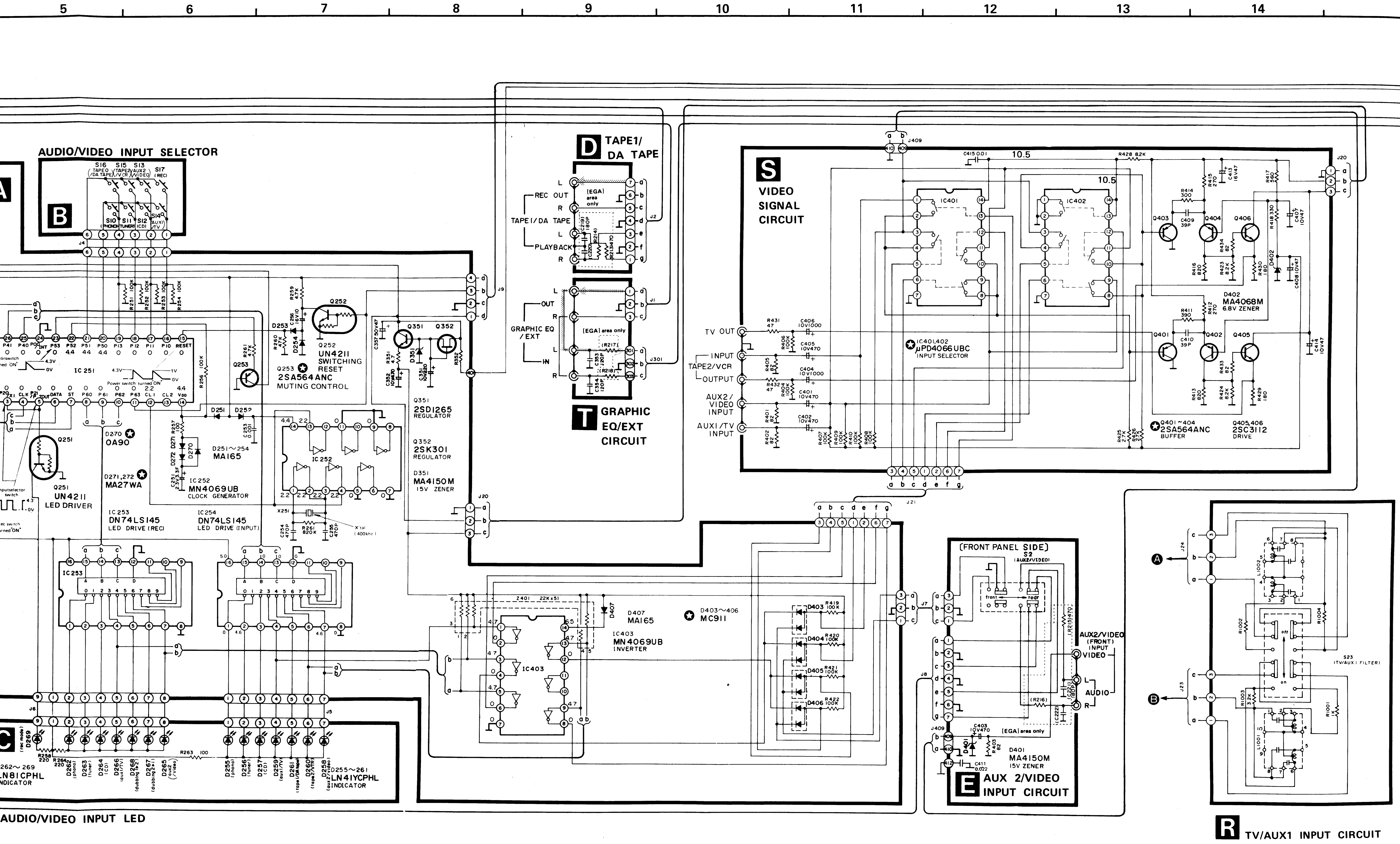
sw / select	Sa	Sb	Sc	Sd	Se	Sf	Sg	Sh	Si	Sj	Sk	Sl	Sm	Sn	So
PHONO	on	—	—	—	—	on	—	—	on	—	—	—	—	—	—
TUNER	—	on	—	—	—	on	—	—	—	on	—	—	—	—	—
CD	—	—	on	—	—	on	—	—	—	—	on	—	—	—	—
AUX/TV	—	—	—	on	—	on	—	—	—	—	—	on	—	—	—
TAPE1/DAT	—	—	—	—	on	—	—	—	—	—	—	—	on	—	—
TAPE2/VCR	—	—	—	—	—	—	—	on	—	—	—	—	—	on	—
AUX2/VIDEO	—	—	—	—	—	on	on	—	—	—	—	—	—	—	on

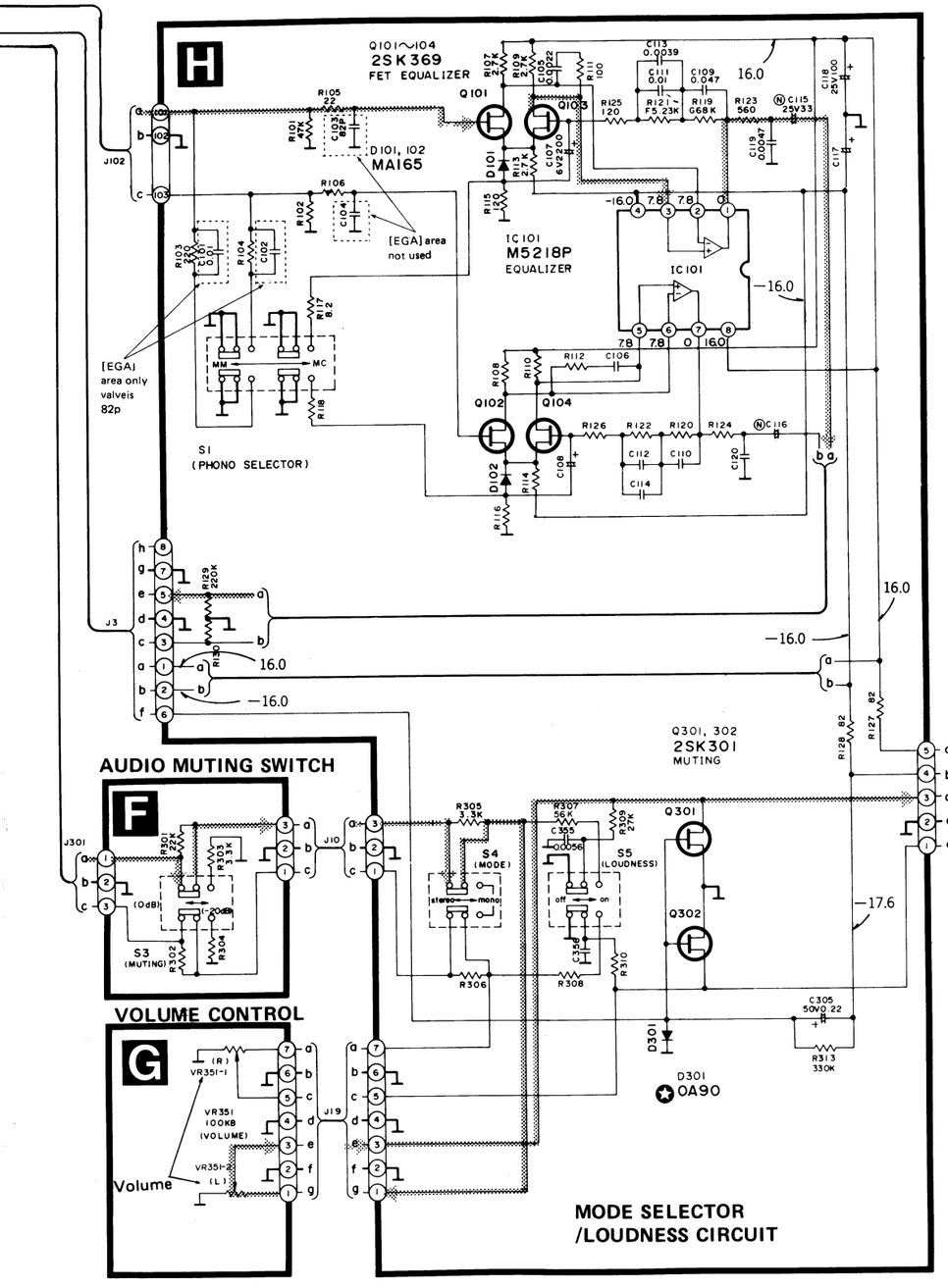
IC201
TC9163N
ANALOG FUNCTION
SWITCH (INPUT)

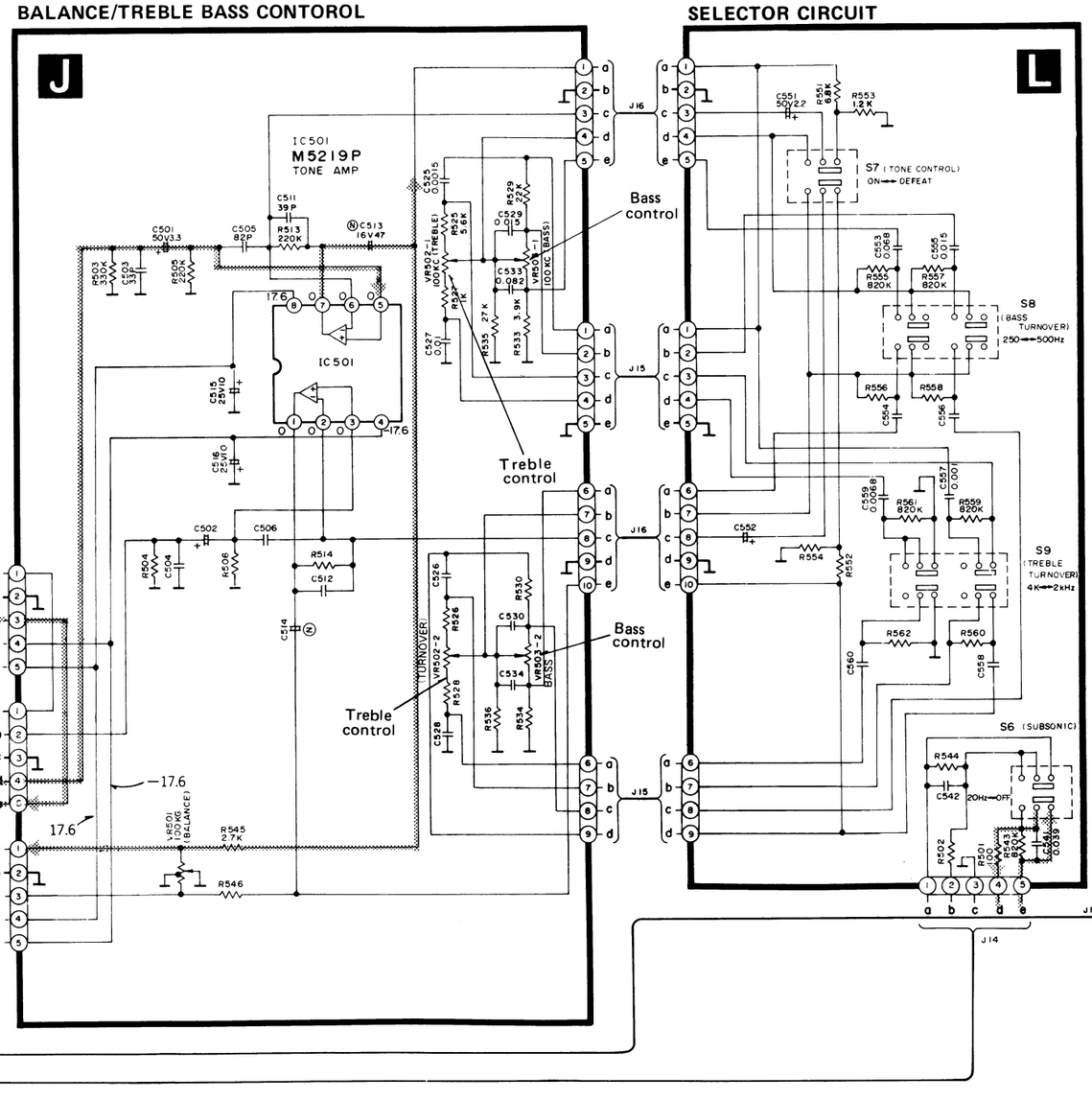
IC202
TC9164N
ANALOG FUNCTION
SWITCH (REC)

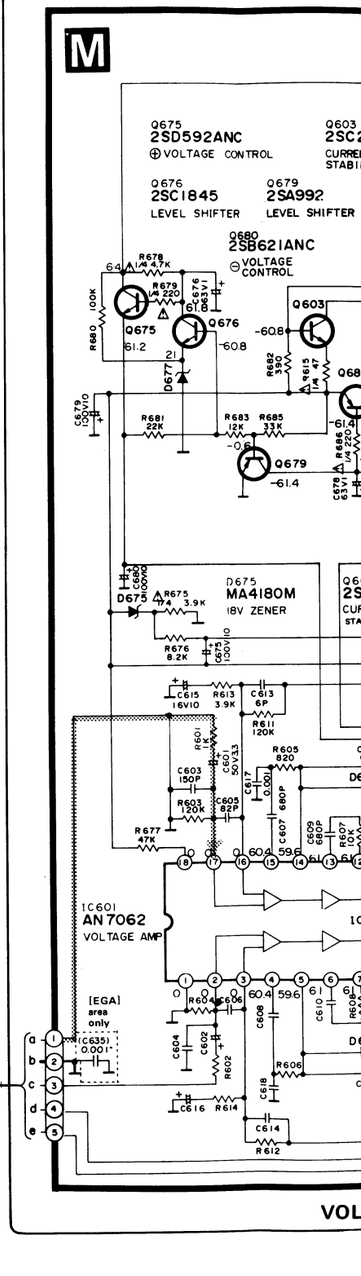
SU-V7X SU-V7X

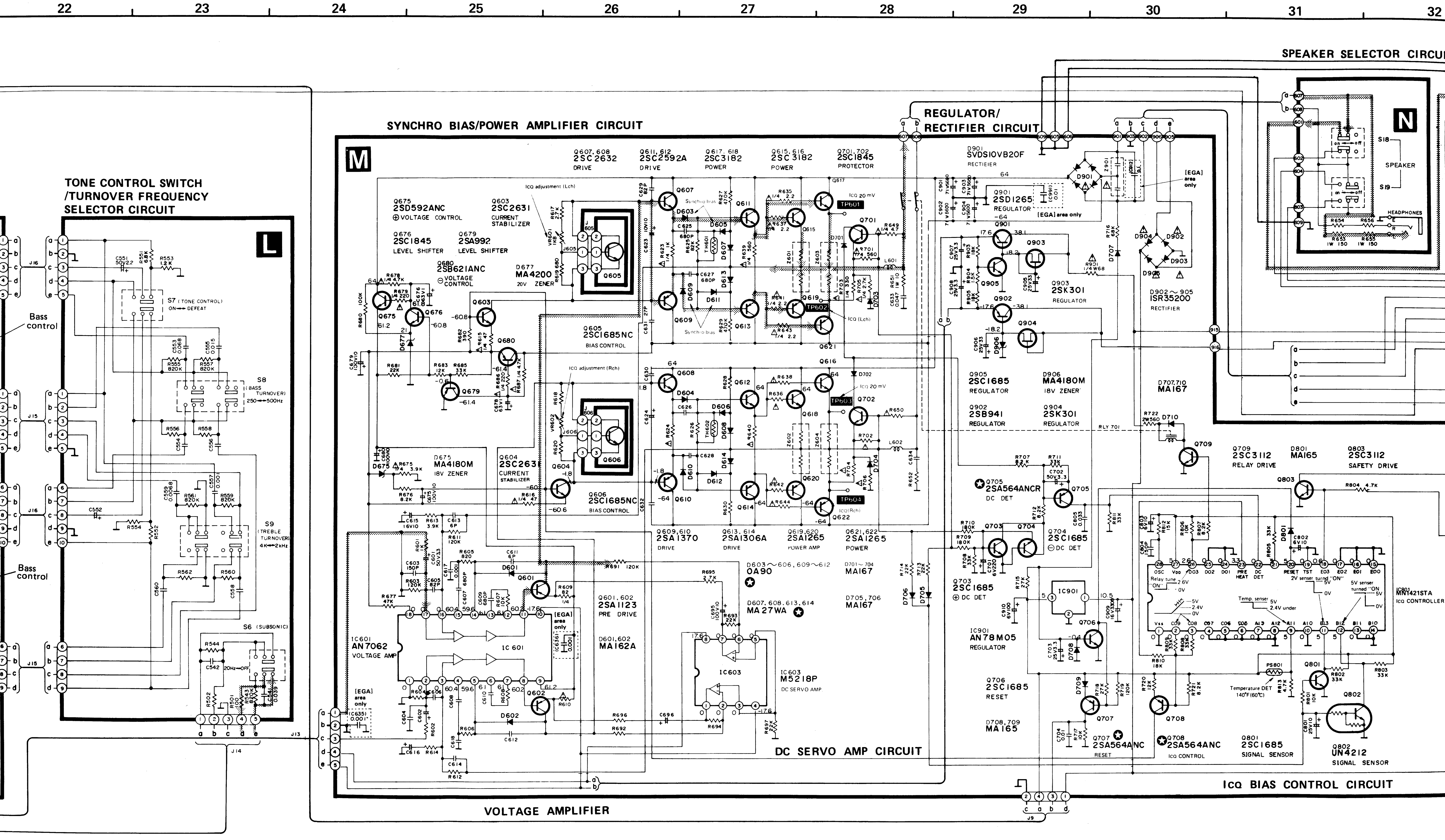

AUDIO/VIDEO INPUT SELECTOR
INPUT SELECTOR/REC(VIDEO)SELECTOR/ MUTING/LED DRIVE CIRCUIT
AUDIO/VIDEO INPUT LED
D TAPE1/ DA TAPE
T GRAPHIC EQ/EXT CIRCUIT
S VIDEO SIGNAL CIRCUIT
IC251 μPD7506C043 ANALOG FUNCTION CONTROL
IC202 TC9164N ANALOG FUNCTION SWITCH (REC)
IC201 TC9163N ANALOG FUNCTION SWITCH (INPUT)
IC252 MN4069UB CLOCK GENERATOR
IC253 DN74LS145 LED DRIVE (REC)
IC254 DN74LS145 LED DRIVE (INPUT)
IC403 MN4069UB INVERTER
Q251 UN4211 LED DRIVER
Q252 UN4211 SWITCHING RESET
Q253 2SA564ANC MUTING CONTROL
Q351 2SD1265 REGULATOR
Q352 2SK301 REGULATOR
D351 MA4150M 15V ZENER
D251~254 MA165
D270 0A90
D271,272 MA27WA
D407 MA165
D403~406 MC911
D262~269 LN81CPHL INDICATOR
D255~261 LN41YCPHL INDICATOR
GND
PHONO (MM/MC)
TUNER
CD
AUX2 /VIDEO (REAR)
AUX1/TV
REC OUT
TAPE2/VCR
PLAYBACK
Lch
Rch
[EGA] area only
TAPE1/DA TAPE
GRAPHIC EQ /EXT
TV OUT
INPUT
TAPE2/VCR OUTPUT
AUX2/ VIDEO INPUT
AUX1/TV INPUT


AUDIO/VIDEO INPUT SELECTOR
B
D TAPE1/ DA TAPE
REC OUT
TAPE1/DA TAPE
PLAYBACK
GRAPHIC EQ /EXT
T GRAPHIC EQ/EXT CIRCUIT
S VIDEO SIGNAL CIRCUIT
TV OUT
INPUT
TAPE2/VCR
OUTPUT
AUX2/ VIDEO INPUT
AUX1/TV INPUT
IC401,402 μPD4066UBC INPUT SELECTOR
Q401~404 2SA564ANC BUFFER
Q405,406 2SC3112 DRIVE
D402 MA4068M 6.8V ZENER
IC 251
Q251 UN4211 LED DRIVER
Q252 UN4211 SWITCHING RESET
Q253 2SA564ANC MUTING CONTROL
Q351 2SD1265 REGULATOR
Q352 2SK301 REGULATOR
D351 MA4150M 15V ZENER
D270 OA90
D251~254 MA165
D271,272 MA27WA
IC252 MN4069UB CLOCK GENERATOR
IC253 DN74LS145 LED DRIVE (REC)
IC254 DN74LS145 LED DRIVE (INPUT)
IC403 MN4069UB INVERTER
D407 MA165
D403~406 MC911
(FRONT PANEL SIDE)
AUX2/VIDEO (FRONT) INPUT
VIDEO
AUDIO
D401 MA4150M 15V ZENER
E AUX 2/VIDEO INPUT CIRCUIT
S23 (TV/AUX1 FILTER)
R TV/AUX1 INPUT CIRCUIT
C
D262~269 LN81CPHL INDICATOR
D255~261 LN41YCPHL INDICATOR
AUDIO/VIDEO INPUT LED

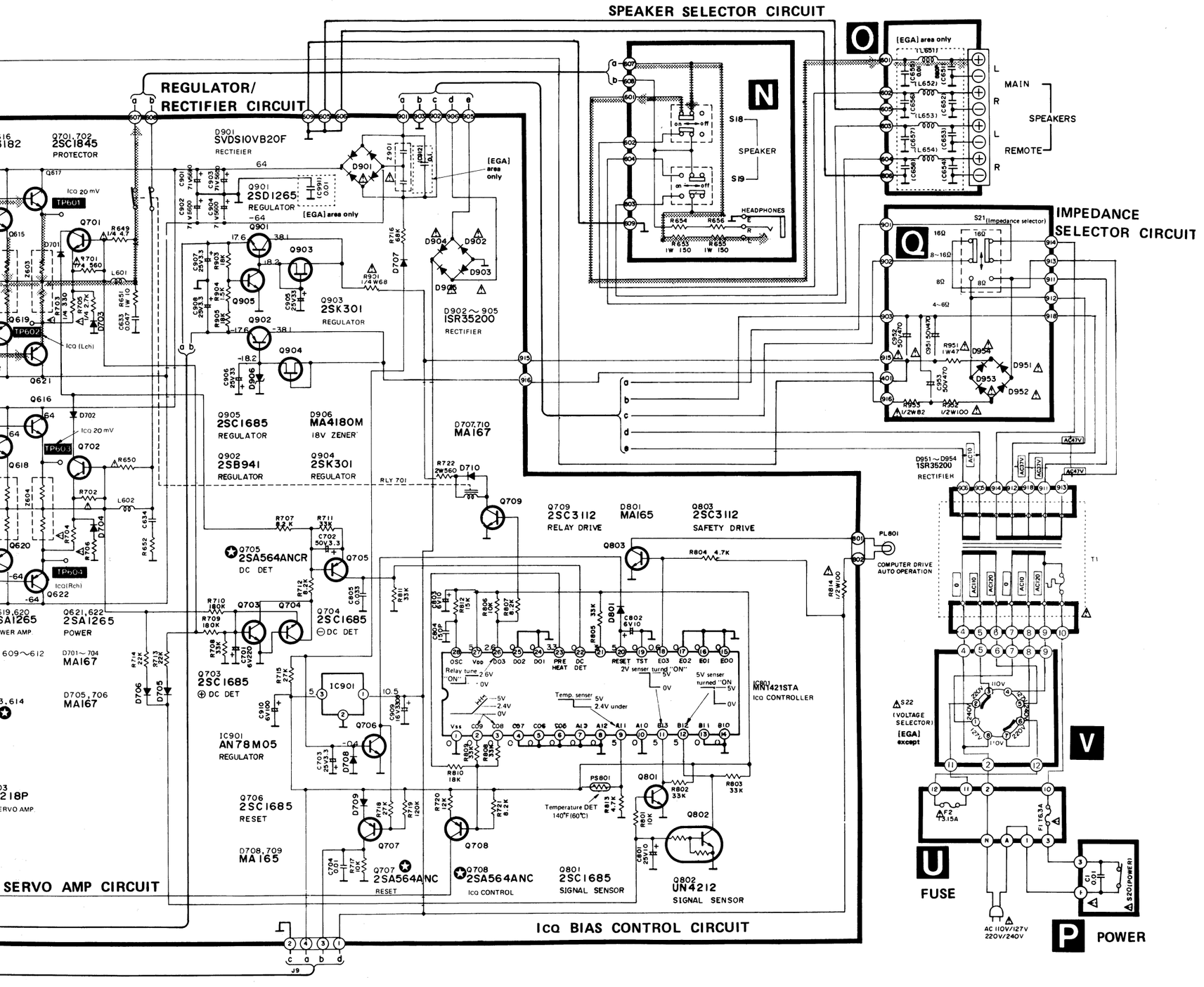

H
Q101~104
2SK369
FET EQUALIZER
Q101
Q103
D101, 102
MA165
IC101
M5218P
EQUALIZER
[EGA] area not used
[EGA] area only valveis 82p
S1
(PHONO SELECTOR)
Q102
Q104
16.0
-16.0
AUDIO MUTING SWITCH
F
S3
(MUTING)
S4
(MODE)
S5
(LOUDNESS)
Q301, 302
2SK301
MUTING
Q301
Q302
D301
0A90
VOLUME CONTROL
G
VR351
100KB
(VOLUME)
Volume
-17.6
MODE SELECTOR
/LOUDNESS CIRCUIT


BALANCE/TREBLE BASS CONTOROL
J
IC501
M5219P
TONE AMP
IC501
LR501
100KB
(BALANCE)
TONE CONTROL SWITCH
/TURNOVER FREQUENCY
SELECTOR CIRCUIT
L
Bass control
Treble control
Bass control
Treble control
S7 (TONE CONTROL)
ON⟷DEFEAT
S8
(BASS TURNOVER)
250⟷500Hz
S9
(TREBLE TURNOVER)
4K⟷2kHz
S6 (SUBSONIC)
20Hz⟷OFF
TURNOVER
-17.6
17.6


SYNCHRO BIAS/POWE
M
Q675
2SD592ANC
⊕VOLTAGE CONTROL
Q676
2SC1845
LEVEL SHIFTER
Q679
2SA992
LEVEL SHIFTER
Q680
2SB621ANC
⊖VOLTAGE CONTROL
Q675
Q676
Q603
Q679
D675
MA4180M
18V ZENER
IC601
AN7062
VOLTAGE AMP
[EGA] area only
VOL



22 23 24 25 26 27 28 29 30 31 32
SPEAKER SELECTOR CIRCUIT
N
SPEAKER
HEADPHONES
REGULATOR/
RECTIFIER CIRCUIT
SYNCHRO BIAS/POWER AMPLIFIER CIRCUIT
M
TONE CONTROL SWITCH
/TURNOVER FREQUENCY
SELECTOR CIRCUIT
L
Bass
control
S7 (TONE CONTROL) ON→DEFEAT
S8 (BASS TURNOVER) 250↔500Hz
S9 (TREBLE TURNOVER) 4K↔2kHz
S6 (SUBSONIC)
Q607, 608 2SC2632 DRIVE
Q611, 612 2SC2592A DRIVE
Q617, 618 2SC3182 POWER
Q615, 616 2SC3182 POWER
Q701, 702 2SC1845 PROTECTOR
D901 SVDS10VB20F RECTIFIER
Q675 2SD592ANC ⊕VOLTAGE CONTROL
Q603 2SC2631 CURRENT STABILIZER
Q676 2SC1845 LEVEL SHIFTER
Q679 2SA992 LEVEL SHIFTER
Q680 2SB621ANC ⊖VOLTAGE CONTROL
D677 MA4200 20V ZENER
Q605 2SC1685NC BIAS CONTROL
D675 MA4180M 18V ZENER
Q604 2SC2631 CURRENT STABILIZER
Q606 2SC1685NC BIAS CONTROL
Q901 2SD1265 REGULATOR
[EGA] area only
Q903 2SK301 REGULATOR
D902～905 ISR35200 RECTIFIER
Q905 2SC1685 REGULATOR
D906 MA4180M 18V ZENER
Q902 2SB941 REGULATOR
Q904 2SK301 REGULATOR
D707, 710 MA167
RLY 701
Q709 2SC3112 RELAY DRIVE
D801 MA165
Q803 2SC3112 SAFETY DRIVE
Q705 2SA564ANCR DC DET
Q704 2SC1685 ⊖DC DET
Q703 2SC1685 ⊕DC DET
IC901 AN78M05 REGULATOR
Q706 2SC1685 RESET
D708, 709 MA165
Q707 2SA564ANC RESET
Q708 2SA564ANC Icq CONTROL
Q801 2SC1685 SIGNAL SENSOR
Q802 UN4212 SIGNAL SENSOR
IC801 MN1421STA Icq CONTROLLER
Temperature DET 140°F(60°C)
Icq BIAS CONTROL CIRCUIT
Q609, 610 2SA1370 DRIVE
Q613, 614 2SA1306A DRIVE
Q619, 620 2SA1265 POWER AMP
Q621, 622 2SA1265 POWER
D603～606, 609～612 OA90
D607, 608, 613, 614 MA27WA
D701～704 MA167
D705, 706 MA167
IC601 AN7062 VOLTAGE AMP
Q601, 602 2SA1123 PRE DRIVE
D601, 602 MA162A
IC603 M5218P DC SERVO AMP
DC SERVO AMP CIRCUIT
VOLTAGE AMPLIFIER
Icq adjustment (Lch)
Icq adjustment (Rch)
TP601 TP602 TP603 TP604



■ SCHEMATIC DIAGRAM

- The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.

1. **S1:** Phono selection switch in "**MM**" position.
   MM ⟷ MC
2. **S2:** AUX 2 / Video selection switch in "**rear**" position.
   front ⟷ rear
3. **S3:** Muting switch in "**off**" position.
   off ⟷ on (–20dB)
4. **S4:** Mode switch in "**stereo**" position.
   stereo ⟷ mono
5. **S5:** Loudness switch in "**off**" position.
   off ⟷ on
6. **S6:** Subsonic switch in **"off"** position.
   off ⟷ –20Hz
7. **S7:** Tone control switch in "**on**" position.
   tone on ⟷ defeat
8. **S8:** Bass turnover switch in "**500Hz**" position.
   500Hz ⟷ 250Hz
9. **S9:** Treble turnover switch in "**2kHz**" position.
   4kHz ⟷ 2kHz
10. **S10–S17:** Input selection switch
    S10: Phono, **S11:** tuner, **S12:** CD,
    S13: AUX 2 / Video, **S14:** AUX 1 / TV,
    S15: TAPE 2 / VCR,
    S16: TAPE 1 / DA TAPE, **S17:** REC mode
11. **S18:** Main speaker switch in "**on**" position.
    on ⟷ off
12. **S19:** Remote speaker switch in "**off**" position.
    on ⟷ off
13. **S20:** Power switch in "**on**" position.
14. **S21:** Impedance selection switch in "**8~16Ω/16Ω**" position.
    4~6Ω / 8Ω ⟷ 8~16Ω / 16Ω
15. **S22 (Except for [EGA] area):** Voltage selector switch "**220V**" position.
    127V ⟷ 110V ⟷ 220V ⟷ 240V
16. **S23:** TV/AUX 1 input filter switch in **"off"** position.
    off ⟷ on(TV)
17. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
18. ▒▒▒ Phono signal (Lch)
19. ——— Positive voltage lines or Nagative voltage lines.
20. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

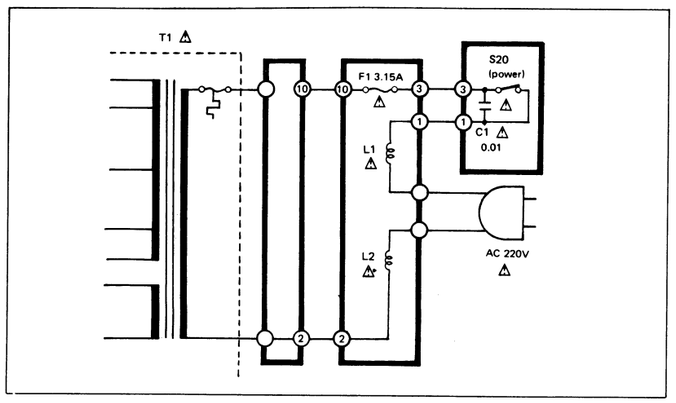
★Caution !

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

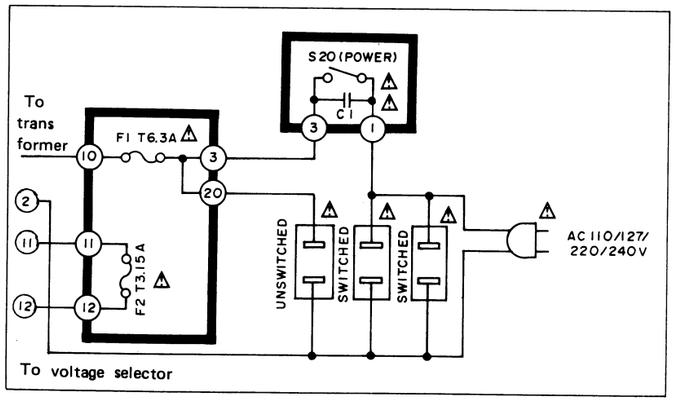
★ Cover the parts boxes made of plastics with aluminum foil.
★ Ground the soldering iron.
★ Put a conductive mat on the work table.
★ Do not touch the legs of IC or LSI with the fingers directly.

■ CIRCUITS TO BE CHANGED AND THE AREA

[EGA] area



[XA] area



Ref.No.	Part No.	Value
C1	ECKDKC103PF2	0.01
C101,102 Ⓢ	ECKD1H103ZF	0.01
C103,104 Ⓢ	ECCD1H820K	82P
C105,106 Ⓢ	ECQM1H222JZ	0.0022
C107,108	ECEA0JU222	2200
C109,110 Ⓢ	ECQM1H473JZ	0.047
C111,112 Ⓢ	ECQM1H103JZ	0.01
C113,114 Ⓢ	ECQM1H392JZ	0.0039
C115,116	ECEA1HN3R3	3.3
C117,118	ECEA1EU101	100
C119,120 Ⓢ	ECQM1H472JZ	0.0047
C201 Ⓢ	ECKD1H103ZF	0.01
C201,204 Ⓢ	ECKD1H333ZF	0.033
C205,206 [EGA]only	ECCD1H820K	82P
C209,210 Ⓢ [EGA]only	ECCD1H181K	180P
C211,212 Ⓢ [EGA]only	ECCD1H181K	180P
C213,214 Ⓢ [EGA]only	ECCD1H181K	180P

Ref.No.	Part No.	Value
C215,216 Ⓢ [EGA]only	ECCD1H181K	180P
C217,218 Ⓢ [EGA]only	ECCD1H181K	180P
C219,220 Ⓢ [EGA]only	ECCD1H181K	180P
C221,222 Ⓢ [EGA]only	ECCD1H181K	180P
C223,224 Ⓢ [EGA]only	ECCD1H820K	82P
C251	EECW2R3A3R3E	3.3F
C253 Ⓢ	ECKD1H102MD	0.001
C254,255 Ⓢ	ECKD1H471KB	470P
C256	ECEA1CU100	10
C305 Ⓢ	ECEA50MR22R	0.22
C351,352	ECEA1AU221	220
C353,354 Ⓢ	ECCD1H121K	120P
C355,356 Ⓢ	ECQM1H563JZ	0.056
C357	ECEA1HU470	47
C401,402	ECEA0JU471	470
C403	ECEA0JU471	470

■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. The unit of resistance is OHM (Ω).
K = 1000Ω, M = 1000KΩ
6. The unit of capacitance is MICROFARAD (μF).
P = 10^{-6} μF
7. The parenthesized numbers in the column of description stand for the quantity per set.

Resistor Type	Wattage	Tolerance
ERD: Carbon	10 : 1/8W	J : ± 5%
ERG: Metal Oxide	25 : 1/4W	G : ± 2%
ERC: Solid	2F : 1/4W	K : ±10%
	S2 : 1/4W	
	S1 : 1/2W	
	12 : 1/2W	

Capacitor Type		Voltage		Tolerance
		ECEA Type	Other	
ECEA....N	: Non-polar Electrolytic	2R3 : 2.3V	05 : 50V DC	C : ±0.25pF
ECEA	: Electrolytic	DC	1H : 50V DC	J : ± 5%
ECCD	: Ceramic	OJ : 6.3V	1 : 125V DC	K : ±10%
ECKD	: Ceramic	1C : 16V	2H : 500V DC	Z : +80%, −20%
ECQM	: Polyester	1E : 25V	KC : 400V AC	M : ±20%
ECQV	: Polyester	1V : 35V		
ECQP	: Polypropylene	1H : 50V		
EECW	: Liquid electrolyte double layer capacitor	50 : 50V 25 : 25V		
ECKF	: Ceramic	2A : 100V		

●RESISTORS AND CAPACITORS

Ref.No.	Part No.	Value
R101,102	ERDS2TJ473	47K
R103,104	ERDS2TJ221	220
R105,106	ERDS2TJ220	22
R107,108	EROS2TKG2701	2.7K
R109,110	EROS2TKG2701	2.7K
R111,112	ERDS2TJ101	101
R113,114	ERDS2TJ272	2.7K
R115,116	ERDS2TJ121	120
R117,118	ERDS2TJ8R2	8.2
R119,120	ERDS2TJ683	68K
R121,122	EROS2TKF5231	5.23K
R123,124	ERDS2TJ561	560
R125,126	ERDS2TJ121	120
R127,128	ERDS2TJ820	82
R129,130	ERDS2TJ224	220K
R203,204 [EGA]only	ERDS2TJ471	470
R205,206 [EGA]only	ERDS2TJ471	470
R207,208 [EGA]only	ERDS2TJ471	470
R209,210 [EGA]only	ERDS2TJ471	470
R211,212 [EGA]only	ERDS2TJ471	470
R213,214 [EGA]only	ERDS2TJ471	470
R215,216 [EGA]only	ERDS2TJ471	470
R217,218 [EGA]only	ERDS2TJ471	470
R221,222 [EGA]only	ERDS2TJ222	2.2K
R223,224 [EGA]only	ERDS2TJ222	2.2K
R251,252	ERDS2TJ104	100K
R253,254	ERDS2TJ104	100K
R255,256	ERDS2TJ104	100K
R257	ERDS2TJ101	100
R258	ERDS2TJ221	220
R259	ERDS2TJ472	4.7K
R260	ERDS2TJ473	47K
R261	ERDS2TJ472	4.7K

Ref.No.	Part No.	Value
R262	ERDS2TJ824	820K
R263	ERDS2TJ101	100
R264	ERDS2TJ221	200
R301,302	ERDS2TJ223	22K
R303,304	ERDS2TJ332	3.3K
R305,306	ERDS2TJ332	3.3K
R307,308	ERDS2TJ563	56K
R309,310	ERDS2TJ273	27K
R313	ERDS2TJ334	330K
R314	ERDS2TJ561	560
R351	ERDS2TJ4R7	4.7
R352	ERG2ANJ471	470
R403	ERDS2TJ820	82
R411	ERDS2TJ390	39
R412	ERDS2TJ271	270
R414	ERDS2TJ391	390
R415	ERDS2TJ271	270
R416	ERDS2TJ821	820
R417	ERDS2TJ561	560
R418	ERDS2TJ331	330
R419,420	ERDS2TJ104	100K
R421,422	ERDS2TJ104	100K
R423,424	ERDS2TJ822	8.2K
R425	ERD25FJ272	2.7K
R426	ERD25FJ272	2.7K
R501,502	ERDS2TJ101	100
R503,504	ERDS2TJ334	330K
R505,506	ERDS2TJ224	220K
R513,514	ERDS2TJ224	220K
R525,526	ERDS2TJ562	5.6K
R527,528	ERDS2TJ102	1K
R529,530	ERDS2TJ223	22K
R533,534	ERDS2TJ392	3.9K
R535,536	ERDS2TJ273	27K
R543,544	ERDS2TJ824	820K
R545,546	ERDS2TJ272	2.7K
R551,552	ERDS2TJ682	6.8K
R553,554	ERDS2TJ122	1.2K
R555,556	ERDS2TJ824	820K
R557,558	ERDS2TJ824	820K
R559,560	ERDS2TJ824	820K
R561,562	ERDS2TJ824	820K

Ref.No.	Part No.	Value
R601,602	ERDS2TJ102	1K
R603,604	ERDS2TJ124	120K
R605,606	ERDS2TJ821	820
R607,608	ERDS2TJ103	10K
R609,610 Ⓢ⚠	ERD25FJ820	82
R611,612	EROS2TKG1203	120K
R613,614	ERDS2TJ392	3.9K
R615,616 Ⓢ⚠	ERD25FJ470	47
R617,618 Ⓢ⚠	ERDS2TJ272	2.7K
R619,620	ERDS2TJ681	680
R623,624 Ⓢ⚠	ERD25FJ102	1K
R625,626	ERDS2TJ823	82K
R627,628	ERDS2TJ474	470K
R629,630	ERDS2TJ474	470K
R635,636 Ⓢ⚠	ERD25FJ2R2	2.2
R637,638 Ⓢ⚠	ERD25FJ2R2	2.2
R639,640 Ⓢ⚠	ERD25FJ561	560
R641,642 Ⓢ⚠	ERD25FJ2R2	2.2
R643,644 Ⓢ⚠	ERD25FJ2R2	2.2
R649,650 Ⓢ⚠	ERD25FJ4R7	4.7
R651,652 Ⓢ	ERG1ANJ100	10
R653,654 Ⓢ	ERG1ANJ151	150
R655,656 Ⓢ	ERG1ANJ151	150
R675 Ⓢ⚠	ERD25FJ392	3.9K
R676	ERDS2TJ822	8.2K
R677	ERDS2TJ473	47K
R678 Ⓢ⚠	ERD25FJ472	4.7K
R679 Ⓢ⚠	ERD25FJ221	220
R680	ERDS2TJ104	100K
R681	ERDS2TJ223	22K
R682	ERDS2TJ391	390
R683	ERDS2TJ153	15K
R684	ERDS2TJ392	3.9K
R685	ERDS2TJ333	33K
R686 Ⓢ⚠	ERD25FJ221	220
R687 Ⓢ⚠	ERDS2TJ472	4.7K
R691,692	ERDS2TJ124	120K
R693,694	ERDS2TJ223	22K
R695,696	ERDS2TJ273	27K
R697	ERDS2TJ223	22K
R701,702 Ⓢ⚠	ERD25FJ561	560
R703,704 Ⓢ⚠	ERD25FJ331	330

Ref.No.	Part No.	Value
R705,706 Ⓢ⚠	ERD25FJ272	2.7K
R707	ERDS2TJ822	8.2K
R708	ERDS2TJ333	33K
R709,710	ERDS2TJ184	180K
R711	ERDS2TJ333	33K
R712	ERDS2TJ822	8.2K
R713,714	ERDS2TJ223	22K
R715	ERDS2TJ273	27K
R716	ERDS2TJ683	68K
R717	ERDS2TJ103	10K
R718	ERDS2TJ273	27K
R719	ERDS2TJ124	120K
R720	ERDS2TJ123	12K
R721	ERDS2TJ822	8.2K
R722	ERG2ANJ681	680
R801	ERDS2TJ103	10K
R802,803	ERDS2TJ333	33K
R804	ERDS2TJ472	4.7K
R805	ERDS2TJ333	33K
R806	ERDS2TJ103	10K
R807	ERDS2TJ822	8.2K
R808,809	ERDS2TJ333	33K
R810	ERDS2TJ183	18K
R811	ERDS2TJ333	33K
R812	ERDS2TJ153	15K
R813	ERDS2TJ472	4.7K
R814	ERDS1FJ220	22
R901	ERD25FJ101	100
R903	ERDS2TJ183	18K
R904	ERDS2TJ152	1.5K
R905	ERDS2TJ183	18K
R951 [EGA]	ERG1ANJ470	47
R951 [other]	ERG1ANJ220	22
R952 ⚠	ERDS1FJ101	100
R953	ERDS1FJ820	82
R961,962	ERD2FCJ6R8	6.8
R963,964	ERD2FCJ6R8	6.8
R965,966	ERD2FCJ6R8	6.8
R967	ERD2FCG470	47
R1001,1002	ERDS2TJ102	1K
R1003,1004	ERDS2TJ332	3.3K

Ref.No.	Part No.	Value
C404	ECEA0JU102	1000
C405	ECEA0JU471	470
C406	ECEA0JU102	1000
C407,408	ECEA0JU470	47
C409,410 Ⓢ	ECCD1H390K	39P
C411 Ⓢ	ECKD1H223ZF	0.022
C413,414	ECEA1CU470	47
C415 Ⓢ	ECKD1H103ZF	0.01
C501,502	ECEA1HU3R3	3.3
C503,504 Ⓢ	ECCD1H330K	33P
C505,506 Ⓢ	ECCD1H820K	82P
C511,512 Ⓢ	ECCD1H390K	39P
C513,514	ECEA1CN470S	47
C515,516	ECEA1EU100	10
C525,526 Ⓢ	ECQM1H152JZ	0.0015
C527,528 Ⓢ	ECQM1H103JZ	0.01
C529,530 Ⓢ	ECQM1H153JZ	0.015

Ref.No.	Part No.	Value
C533,534 Ⓢ	ECQM1H823JZ	0.082
C541,542 Ⓢ	ECQM1H393JZ	0.039
C551,552	ECEA1HU2R2	2.2
C553,554 Ⓢ	ECQM1H683JZ	0.068
C555,556 Ⓢ	ECQM1H153JZ	0.015
C557,558 Ⓢ	ECQM1H102JZ	0.001
C559,560 Ⓢ	ECQM1H682JZ	0.0068
C601,602	ECEA1HU3R3	3.3
C603,604 Ⓢ	ECCD1H151K	150P
C605,606 Ⓢ	ECCD1H820K	82P
C607,608 Ⓢ	ECKD1H681KB	680P
C609,610 Ⓢ	ECKD1H681KB	680P
C611,612 Ⓢ	ECCD1H060C	6P
C613,614 Ⓢ	ECCD1H060C	6P
C615,616	ECEA1CU100	10
C617,618 Ⓢ	ECKD1H102MD	0.001
C623,624	ECEA2AU100	10

Ref.No.	Part No.	Value
C625,626 Ⓢ	ECKD1H681KB	680P
C627,628 Ⓢ	ECKD1H681KB	680P
C629,630 Ⓢ	ECCD2H820K	82P
C631,632 Ⓢ	ECCD2H270K	27P
C633,634 Ⓢ	ECQM1H473JZ	0.047
C635[EGA]only	ECKD1H102MD	0.001
C636[EGA]only	ECKD2H102ZEM	0.001
C675	ECEA1EU3R3	3.3
C676	ECEA1JU010	1
C678	ECEA1JU010	1
C679,680	ECEA1JU010	1
C695,696	ECEA2AU100	10
C701	ECEA0JU221	220
C702	ECEA1HU3R3	3.3
C703	ECEA1EU3R3	3.3
C704 Ⓢ	ECKD1H103ZF	0.01
C801	ECEA1VU100	10

Ref.No.	Part No.	Value
C802,803	ECEA1CU100	10
C804 Ⓢ	ECCD1H151K	150P
C805 Ⓢ	ECKD1H333ZF	0.033
C901,902	ECES71V562U	5600
C903,904	ECES71V562U	5600
C905,906	ECEA1EU330	33
C907,908	ECEA1EU3R3	3.3
C909	ECEA1CU332	3300
C910	ECEA0JU101	100
C912[EGA]only	ECQE2104MS	0.1
C951,952	ECEA1HU471	470
C953	ECEA1HU471	470
C991 Ⓢ [EGA]only	ECKD1H103ZF	0.01

Ref.No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	M5218P	Integrated Circuit
IC201	TC9163N	Integrated Circuit
IC202	TC9164N	Integrated Circuit
IC251	μPD7506C043	Integrated Circuit
IC252,403	MN4069UB	Integrated Circuit
IC253,254	DN74LS145	Integrated Circuit
IC401,402	μPD4066BC	Integrated Circuit
IC501	M5219P	Integrated Circuit
IC601	AN7062N	Integrated Circuit
IC603	M5218P	Integrated Circuit
IC801	MN1421STA	Integrated Circuit
IC901	AN78M05	Integrated Circuit
TRANSISTORS		
Q101~104	2SK369-GR	Transistor
Q251,252	UN4211	Transistor
Q253,705, 707,708	2SA722-S	Transistor (Product part is 2SA564)
Q301,302,352	2SK301-S	Transistor
Q351	2SD1265-P	Transistor
Q405,406	2SC3112	Transistor
Q601,602	2SA1123-R	Transistor
Q603,604	2SC2631-R	Transistor
Q605,606	2SC1685-QNC	Transistor
Q607,608	2SC2632-R	Transistor
Q609,610	2SA1124-R	Transistor
Q611,612	2SC2592-R	Transistor
Q613,614	2SA1112-R	Transistor
Q615~618	2SC3182-R	Transistor
Q619~622	2SA1265R	Transistor
Q675	2SD592ANC-S	Transistor
Q676,701,702	2SC1845-E	Transistor
Q679	2SA992E	Transistor
Q680	2SB621A-R	Transistor
Q703,704,706, 801,905	2SC1685-QNC	Transistor

Ref.No.	Part No.	Description
CABINET and CHASSIS PARTS		
1	SGWUV7X-KM	Front Panel Ass'y (1)
2	SKU8990-5	Chassis
3	SKL295	Foot (4)
4	SBCUV10X-KM	Button Ass'y (1) (Input)
5	SGWUV10X-KM1	Ornament Door Ass'y (1)
6	SGXUV10X-KN	Grille Ass'y (1)
7	SDU270	Filter (1)
8	SBN1192	Volume Button (1)
9	SBN1193	Knob (3)
10	SGXUV10X-KM1	Grille Ass'y (1)
11	SBC439-2	Speaker Button (2)
12	SJJ63B	Headhone Jack (1)
13	SDU268	Filter (1)
14	SMP388	Lamp Case (1)
15	SBC719-1	Button (8)
16	SJF3061-2N	Terminal Board (1) (Input)
17	SMP387-1	LED Holder (1)
18	SBC708	Muting Button (1)
19	SHR9756	Rod,Muting Button (1)
20	SBC666	Power Button (1)
21	SBC719-1	Button (7)
22	SML107-12	Plate, (1) Power Transformer
23	SGE1729	Cap (1)
24	SUH575-5	Plate (1)
25	SHR9755	PCB Holder (1)
26	SUV2908	Plate (1)
27	SHG6352	Rubber (2)
28	SUV2909	Hold Plate,P.C.B (2)
29	SJF4815-1	Terminal Board (1) (Speaker)
30	SUV2915	Plate,Heat Sink (1)
31	SJF3057N	In/Output Terminal Board (1)
32	SJF3059N	In/Output Terminal Board (1)
33[XA]	SGP6390-4A	Rear Panel (1)
33[EGA]	SGP6390-3A	Rear Panel (1)
33[D,EW]	SGP6390-2A	Rear Panel (1)
33[EK]	SGPUV7X-KK	Rear Panel Ass'y (1)
33[other]	SGPUV7X-KE	Rear Panel Ass'y (1)

Ref.No.	Part No.
TRANSISTORS	
Q709,803	2SC5
Q802	UN42
Q901	2SD1
Q902	2SB6
Q903,904	2SK3
DIODES	
D101,102, 251~254,407, 708,709,801	MA16
D255~261	LN41
D262~269	LN81
D270,301 603~606, 609~612	20A6
D271,272	MA27
D351,401	MA41
D402	MA40
D403~406	MC91
D601,602	MA16
D607,608,613, 614	MA27
D675,906	MA41
D677	MA42
D701~707,710	MA16
D901	SVD5
D902~905, 951~954	1SR3
COILS	
L1,2[EGA]only	⚠ELQC
L201~204 [EGA]only	SLQW
L601,602	SLQV
L651~654 [EGA]only	SLQV
L1001,1002	SLM1
TRANSFORMER	
T1 [EGA]	⚠SLT5
T1 [other]	⚠SLT5
CRYSTAL	
X251	SVFC
VARIABLE RESISTORS	
VR351	EWJK
VR501	EWHF

Ref.No.	Part
CABINET and CHASSIS	
34[XL]	⚠RJA79ZA
34[EK]	⚠SFDAB31G
34[XA,EW]	⚠SJA111
34[other]	⚠SJA97
35[XA] only	⚠SJS601-3
36	SJP9205-2
37	SUS782
38	SMCUV10X-
39	SJT347
40	SKC1720K
42	SHR301
43	SJS5519
43	SJS5627
43	SJS5707
43	SJS5807
43	SJS5903
44	SJT783
45	SJS5215
45	SJS5331
46	SJT3213
46	SJT3319
46	SJT3709
47	SUV2951
49	SHR9767
50	SHR9766
51[EK]	SHR129
51[other]	SHR127
52	SMC1206
53	SHR401-1
54	SBC165
56	SJS104
57	SUV2952
58	SHR9776
59	SUV2828
SCREWS,VASHER and NU	
N1	XTB3+8JFZ
N2	XTB3+8GFZ

"Ⓢ" mark is service standard parts and may differ
n production parts.
unit of resistance is OHM (Ω).
K = 1000Ω, M = 1000KΩ
unit of capacitance is MICROFARAD (μF).
P = 10^{-6} μF
parenthesized numbers in the column of descrip-
stand for the quantity per set.

acitor Type	Voltage		Tolerance
	ECEA Type	Other	
Non-polar Electrolytic	2R3: 2.3V	05 : 50V DC	C : ±0.25pF
Electrolytic	DC	1H : 50V DC	J : ± 5%
Ceramic	OJ : 6.3V	1 : 125V DC	K : ±10%
Ceramic	1C : 16V	2H : 500V DC	Z : +80%, −20%
Polyester	1E : 25V	KC : 400V AC	M : ±20%
Polyester	1V : 35V		
Polypropylene	1H : 50V		
Liquid electrolyte	50 : 50V		
double layer capacitor	25 : 25V		
Ceramic	2A : 100V		

	Part No.	Value
	ERDS2TJ102	1K
	ERDS2TJ124	120K
	ERDS2TJ821	820
	ERDS2TJ103	10K
Ⓢ⚠	ERD25FJ820	82
	ERQS2TKG1203	120K
	ERDS2TJ392	3.9K
Ⓢ⚠	ERD25FJ470	47
Ⓢ⚠	ERDS2TJ272	2.7K
	ERDS2TJ681	680
Ⓢ⚠	ERD25FJ102	1K
	ERDS2TJ823	82K
	ERDS2TJ474	470K
	ERDS2TJ474	470K
Ⓢ⚠	ERD25FJ2R2	2.2
Ⓢ⚠	ERD25FJ2R2	2.2
Ⓢ⚠	ERD25FJ561	560
Ⓢ⚠	ERD25FJ2R2	2.2
Ⓢ⚠	ERD25FJ2R2	2.2
Ⓢ⚠	ERD25FJ4R7	4.7
Ⓢ	ERG1ANJ100	10
Ⓢ	ERG1ANJ151	150
Ⓢ	ERG1ANJ151	150
Ⓢ⚠	ERD25FJ392	3.9K
	ERDS2TJ822	8.2K
	ERDS2TJ473	47K
Ⓢ⚠	ERD25FJ472	4.7K
Ⓢ⚠	ERD25FJ221	220
	ERDS2TJ104	100K
	ERDS2TJ223	22K
	ERDS2TJ391	390
	ERDS2TJ153	15K
	ERDS2TJ392	3.9K
	ERDS2TJ333	33K
Ⓢ⚠	ERD25FJ221	220
Ⓢ⚠	ERDS2TJ472	4.7K
	ERDS2TJ124	120K
	ERDS2TJ223	22K
	ERDS2TJ273	27K
	ERDS2TJ223	22K
Ⓢ⚠	ERD25FJ561	560
Ⓢ⚠	ERD25FJ331	330

Ref.No.	Part No.	Value
R705,706 Ⓢ⚠	ERD25FJ272	2.7K
R707	ERDS2TJ822	8.2K
R708	ERDS2TJ333	33K
R709,710	ERDS2TJ184	180K
R711	ERDS2TJ333	33K
R712	ERDS2TJ822	8.2K
R713,714	ERDS2TJ223	22K
R715	ERDS2TJ273	27K
R716	ERDS2TJ683	68K
R717	ERDS2TJ103	10K
R718	ERDS2TJ273	27K
R719	ERDS2TJ124	120K
R720	ERDS2TJ123	12K
R721	ERDS2TJ822	8.2K
R722	ERG2ANJ681	680
R801	ERDS2TJ103	10K
R802,803	ERDS2TJ333	33K
R804	ERDS2TJ472	4.7K
R805	ERDS2TJ333	33K
R806	ERDS2TJ103	10K
R807	ERDS2TJ822	8.2K
R808,809	ERDS2TJ333	33K
R810	ERDS2TJ183	18K
R811	ERDS2TJ333	33K
R812	ERDS2TJ153	15K
R813	ERDS2TJ472	4.7K
R814	ERDS1FJ220	22
R901	ERD25FJ101	100
R903	ERDS2TJ183	18K
R904	ERDS2TJ152	1.5K
R905	ERDS2TJ183	18K
R951 [EGA]	ERG1ANJ470	47
R951 [other]	ERG1ANJ220	22
R952	⚠ERDS1FJ101	100
R953	ERDS1FJ820	82
R961,962	ERD2FCJ6R8	6.8
R963,964	ERD2FCJ6R8	6.8
R965,966	ERD2FCJ6R8	6.8
R967	ERD2FCG470	47
R1001,1002	ERDS2TJ102	1K
R1003,1004	ERDS2TJ332	3.3K

	Part No.	Value
Ⓢ	ECKD1H681KB	680P
Ⓢ	ECKD1H681KB	680P
Ⓢ	ECCD2H820K	82P
Ⓢ	ECCD2H270K	27P
Ⓢ	ECQM1H473JZ	0.047
nly	ECKD1H102MD	0.001
nly	ECKD2H102ZEW	0.001
	ECEA1EU3R3	3.3
	ECEA1JU010	1
	ECEA1JU010	1
	ECEA1JU010	1
	ECEA2AU100	10
	ECEA0JU221	220
	ECEA1HU3R3	3.3
	ECEA1EU3R3	3.3
Ⓢ	ECKD1H103ZF	0.01
	ECEA1VU100	10

Ref.No.	Part No.	Value
C802,803	ECEA1CU100	10
C804 Ⓢ	ECCD1H151K	150P
C805 Ⓢ	ECKD1H333ZF	0.033
C901,902	ECES71V562U	5600
C903,904	ECES71V562U	5600
C905,906	ECEA1EU330	33
C907,908	ECEA1EU3R3	3.3
C909	ECEA1CU332	3300
C910	ECEA0JU101	100
C912 [EGA]only	ECQE2104MS	0.1
C951,952	ECEA1HU471	470
C953	ECEA1HU471	470
C991 Ⓢ	ECKD1H103ZF	0.01
[EGA]only		

Ref.No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	M5218P	Integrated Circuit
IC201	TC9163N	Integrated Circuit
IC202	TC9164N	Integrated Circuit
IC251	μPD7506C043	Integrated Circuit
IC252,403	MN4069UB	Integrated Circuit
IC253,254	DM74LS145	Integrated Circuit
IC401,402	μPD4066BC	Integrated Circuit
IC501	M5219P	Integrated Circuit
IC601	AN7062N	Integrated Circuit
IC603	M5218P	Integrated Circuit
IC801	MN1421STA	Integrated Circuit
IC901	AN78M05	Integrated Circuit
TRANSISTORS		
Q101～104	2SK369-GR	Transistor
Q251,252	UN4211	Transistor
Q253,705, 707,708	2SA722-S	Transistor (Product part is 2SA564)
Q301,302,352	2SK301-S	Transistor
Q351	2SD1265-P	Transistor
Q405,406	2SC3112	Transistor
Q601,602	2SA1123-R	Transistor
Q603,604	2SC2631-R	Transistor
Q605,606	2SC1685-QNC	Transistor
Q607,608	2SC2632-R	Transistor
Q609,610	2SA1124-R	Transistor
Q611,612	2SC2592-R	Transistor
Q613,614	2SA1112-R	Transistor
Q615～618	2SC3182-R	Transistor
Q619～622	2SA1265R	Transistor
Q675	2SD592ANC-S	Transistor
Q676,701,702	2SC1845-E	Transistor
Q679	2SA992E	Transistor
Q680	2SB621A-R	Transistor
Q703,704,706, 801,905	2SC1685-QNC	Transistor

Ref.No.	Part No.	Description
TRANSISTORS		
Q709,803	2SC3112	Transistor
Q802	UN4212	Transistor
Q901	2SD1265-P	Transistor
Q902	2SB941-Q	Transistor
Q903,904	2SK301-S	Transistor
DIODES		
D101,102, 251～254,407, 708,709,801	WA165	Diode
D255～261	LN41YCPHL	LED
D262～269	LN81CPHL	LED
D270,301 603～606, 609～612	20A90	Diode
D271,272	WA27W-A	Diode
D351,401	WA4150M	Diode
D402	WA4068M	Diode
D403～406	WC911	Diode
D601,602	WA162A	Diode
D607,608,613, 614	WA27W-A	Diode
D675,906	WA4180M	Diode
D677	WA4200M	Diode
D701～707,710	WA167	Diode
D901	SVDS10VB20	Rectifier
D902～905, 951～954	1SR35200	Rectifier
COILS		
L1,2 [EGA]only	⚠ELQ050D15	Choke Coil
L201～204 [EGA]only	SLQW471-1P3	Choke Coil
L601,602	SLQY18G-10	Choke Coil
L651～654 [EGA]only	SLQY07G-30	Choke Coil
L1001,1002	SLN1Z37-P	Choke Coil
TRANSFORMER		
T1 [EGA]	⚠SLT5Q144	Power Source
T1 [other]	⚠SLT5Q143	Power Source
CRYSTAL		
X251	SVFCSB400P-M	Crystal
VARIABLE RESISTORS		
VR351	EWJKMA054B15	Variable Resistor 100kΩ (B)
VR501	EWHFKA002G15	Variable Resistor 100kΩ (G)

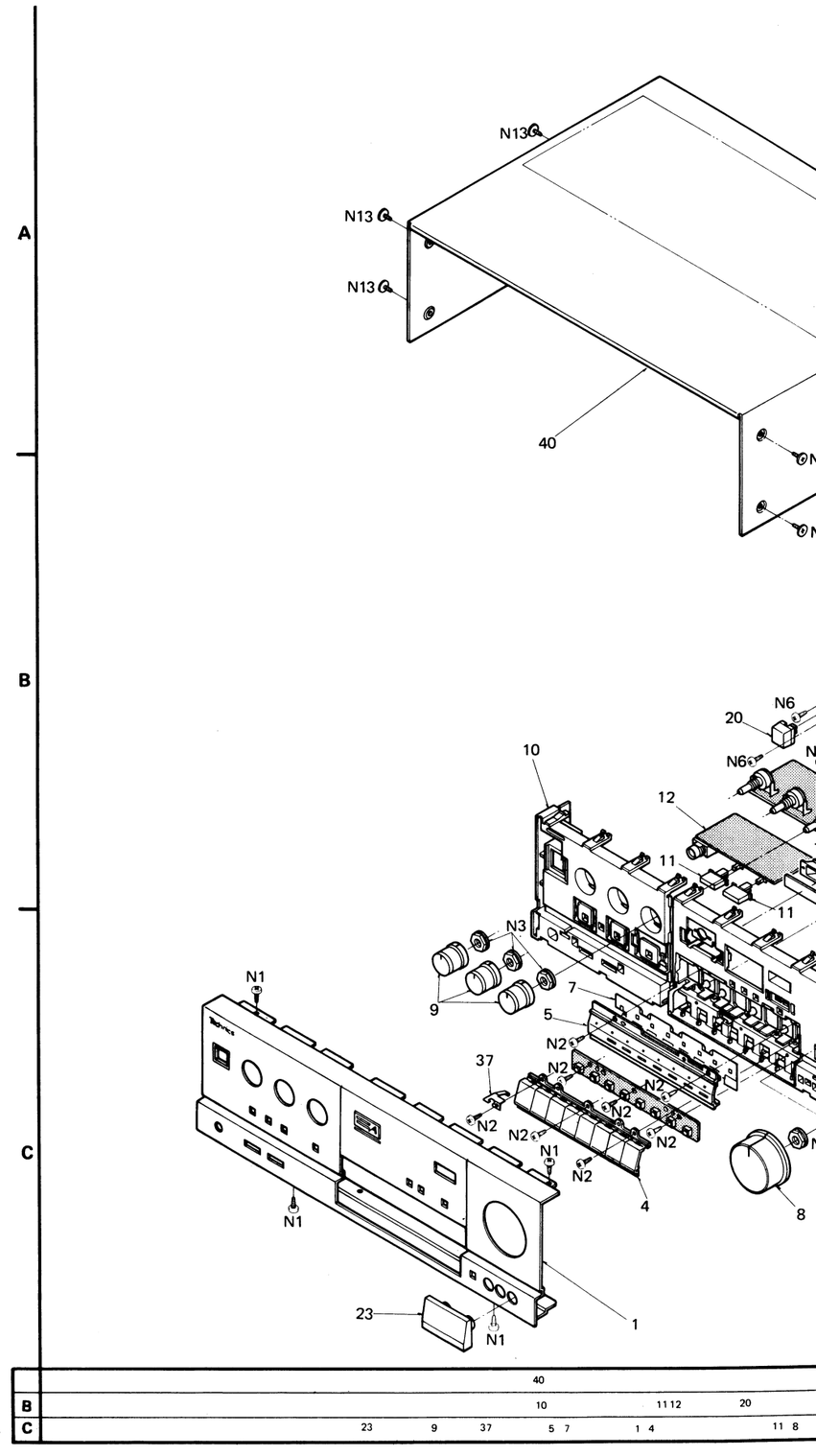
Ref.No.	Part No.	Description
VARIABLE RESISTORS		
VR502,503	EWCXEA000C15	Variable Resistor 100kΩ (C)
VR601,602	EVNK6AA00B13	Variable Resistor 1kΩ (B)
COMPONENT COMBINATIONS		
Z401	EXBP85223K	Component Combination
Z601～604	ERF3GBKR22N	Component Combination
Z901 [EGA] except	⚠SXRFS203ZSM	Component Combination
THERMISTERS		
TH601,602	ERTD2ZHL103S	Thermister,10kΩ
RELAY		
RLY701	SSY126	Relay
THEREMAL DETECTOR		
PS801	SRPBG47101	Posistor
LAMP		
PL	⚠XAMS12S500	Lamp
FUSES		
F1 [EK]	⚠XBA2C63TBO	250V,6.3A
F1 [EGA]	⚠XBA2C31TRO	250V,3.15A
F1 [other]	⚠XBA2C63TRO	250V,6.3A
F2 [EK]	⚠XBA2C31TBO	250V,3.15A
F2 [EGA] except	⚠XBA2C31TRO	250V,3.15A
SWITCHES		
S1,4,5	SSH3079	Loudness
S2	SSH1183	Aux
S3	SSH1184	Muting
S6～9	SSH485	Tone
S10～17	SSG13	Input Selector
S18,19	SSH2089	Speaker
S20	⚠SSH1109	Power Sourse
S21	SSH1158	Rec Mode
S22 [EGA] except	⚠ESE37263	Voltage Selector
S23	RSS42A	Filter

Ref.No.	Part No.	Description
CABINET and CHASSIS PARTS		
1	SGWUV7X-KM	Front Panel Ass'y (1)
2	SKU8990-5	Chassis
3	SKL295	Foot (4)
4	SBCUV10X-KM	Button Ass'y (1) (Input)
5	SGWUV10X-KM1	Ornament Door Ass'y (1)
6	SGXUV10X-KM	Grille Ass'y (1)
7	SDU270	Filter (1)
8	SBN1192	Volume Button (1)
9	SBN1193	Knob (3)
10	SGXUV10X-KM1	Grille Ass'y (1)
11	SBC439-2	Speaker Button (2)
12	SJJ63B	Headhone Jack (1)
13	SDU268	Filter (1)
14	SMP388	Lamp Case (1)
15	SBC719-1	Button (8)
16	SJF3061-2N	Terminal Board (1) (Input)
17	SMP387-1	LED Holder (1)
18	SBC708	Muting Button (1)
19	SHR9756	Rod,Muting Button (1)
20	SBC666	Power Button (1)
21	SBC719-1	Button (7)
22	SML107-12	Plate, (1) Power Transformer
23	SGE1729	Cap (1)
24	SUH575-5	Plate (1)
25	SHR9755	PCB Holder (1)
26	SUW2908	Plate (1)
27	SHG6352	Rubber (2)
28	SUW2909	Hold Plate,P.C.B (2)
29	SJF4815-1	Terminal Board (1) (Speaker)
30	SUW2915	Plate,Heat Sink (1)
31	SJF3057N	In/Output Terminal Board (1)
32	SJF3059N	In/Output Terminal Board (1)
33 [XA]	SGP6390-4A	Rear Panel (1)
33 [EGA]	SGP6390-3A	Rear Panel (1)
33 [D,EW]	SGP6390-2A	Rear Panel (1)
33 [EK]	SGPUV7X-KK	Rear Panel Ass'y (1)
33 [other]	SGPUV7X-KE	Rear Panel Ass'y (1)

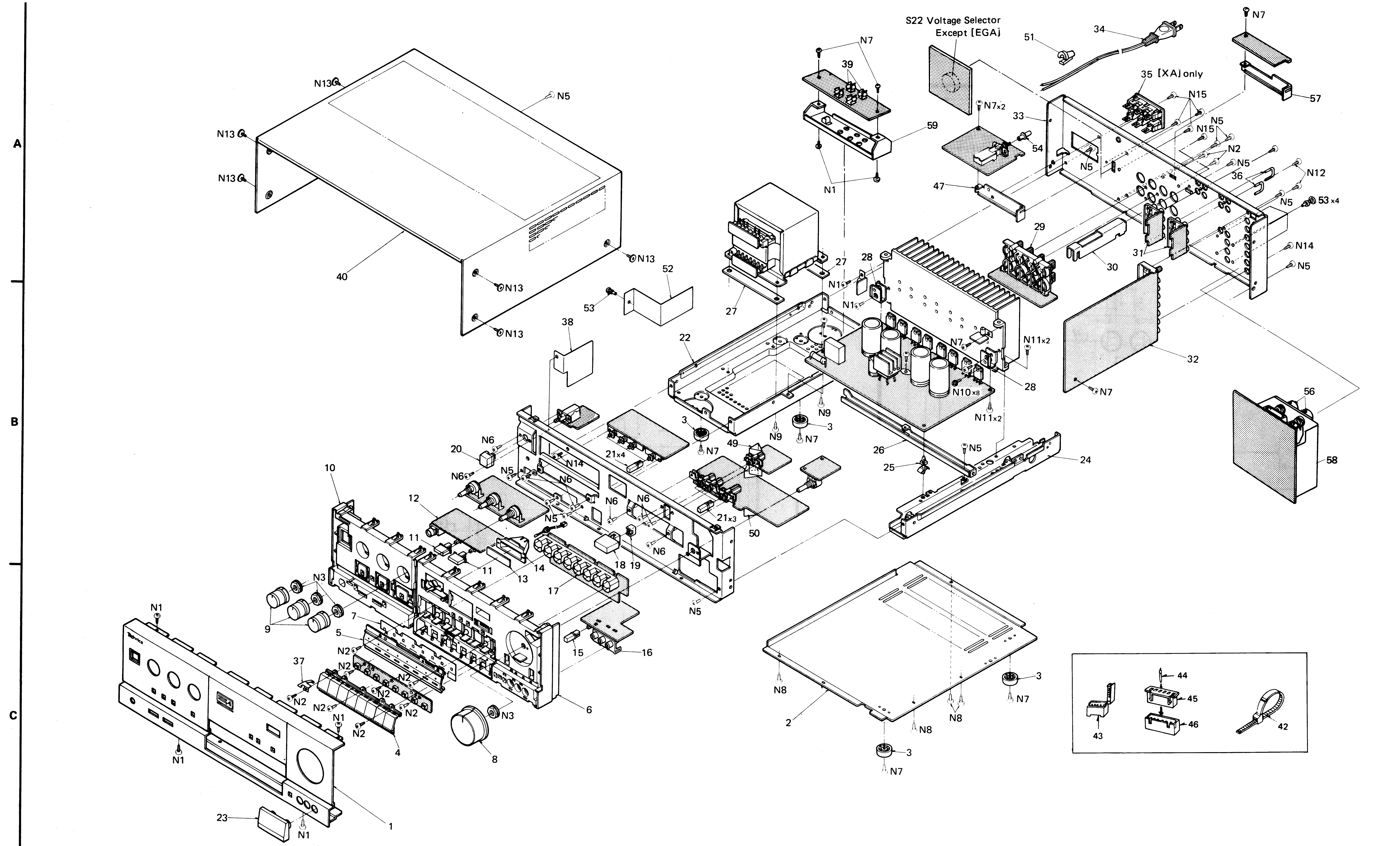
Ref.No.	Part No.	Description
CABINET and CHASSIS PARTS		
34 [XL]	⚠RJA79ZA	AC Cord (1)
34 [EK]	⚠SFDAB31G01	AC Cord (1)
34 [XA,EW]	⚠SJA111	AC Cord (1)
34 [other]	⚠SJA97	AC Cord (1)
35 [XA] only	⚠SJS601-3	AC Outlet (1)
36	SJP9205-2	Short Pin (2)
37	SUS782	Spring (Earth) (1)
38	SMCUV10X-KM	Shield Plate Ass'y (1)
39	SJT347	Fuse Holder (4)
40	SXC1720K991	Cabinet (1)
42	SHR301	Clamp (12)
43	SJS5519	Connector (5P) (1)
43	SJS5627	Connector (6P) (1)
43	SJS5707	Connector (7P) (1)
43	SJS5807	Connector (8P) (1)
43	SJS5903	Connector (9P) (1)
44	SJT783	Terminal (2)
45	SJS5215	Connector (2P) (1)
45	SJS5331	Connector (3P) (1)
46	SJT3213	Post (2P) (1)
46	SJT3319	Post (3P) (3)
46	SJT3709	Post (7P) (1)
47	SUW2951	Plate (1)
49	SHR9767	Shield Plate,PCB (1)
50	SHR9766	Shield Plate,PCB (1)
51 [EK]	SHR129	Bushing (1)
51 [other]	SHR127	Bushing (1)
52	SMC1206	Shield Plate (1)
53	SHR401-1	Nylon Libet (5)
54	SBC165	Button,Impedance Selector (1)
56	SJS104	Terminal (5)
57	SUW2952	Shield Plate (1)
58	SHR9776	Shield Plate (1)
59	SUW2828	Bracket (1)
SCREWS,WASHER and NUT		
N1	XTB3+8JFZ	Tapping,⊕3×8 (6)
N2	XTB3+8GFZ	Tapping,⊕3×8 (2)

Ref.No.	Part No.	Description
SCREWS,WASHER and NUT		
N3	SNE4021	Nut (4)
N5	XTBS3+8JFZ1	Tapping,⊕3×8 (13)
N6	XYNS3+C6-1S	Cabinet (8)
N7	XTW3+8T	Tapping,⊕3×8 (10)
N8	XTBS3+8BFR1	Tapping,⊕3×8 (4)
N9	XTB4+8F	Tapping,⊕4×8 (4)
N10	SNE2117-1	Transistor (8)
N11	XTW3+8TFR	Tapping,⊕3×8 (4)
N12	XTB3+8GFZ	Tapping,⊕3×8 (3)
N13	SNE2095-5	Cabinet (6)
N14	XTBS3+8JFZ1	Tapping,⊕3×8 (2)
N15	XYN3+C6FZS	Tapping,⊕3×6 (2)
N16	SHW40L150	Washer (1)
ACCESSORIES		
A1 [XA]	SQF12423	Instruction Book (1)
A1 [EGA]	SQF12424	Instruction Book (1)
A1 [other]	SQF12422	Instruction Book (1)
A2	SKL281-1	Foot (2)
A3	SHW39K50	Washer (2)
A4	XTB3+14J	Tapping,⊕3×14 (2)
A5	SJP9005	Plug (1)
A6 [EGA]	SJP5213-1	Plug (1)
A6 [XA]	SJP5215	Plug (1)
A6 [XA]	SJP9215	Plug (1)
PACKING PARTS		
P1 [EW,XA]	SPG5329	Carton Box (1)
P1 [EF]	SPG5332	Carton Box (1)
P1 [EK]	SPG5333	Carton Box (1)
P1 [other]	SPG5331	Carton Box (1)
P2 [EW,EK, XA]	SPS4553	Pad,Left (1)
P2 [other]	SPS4553-2	Pad,Left (1)
P3 [EW,EK, XA]	SPS4554	Pad,Right (1)
P3 [other]	SPS4554-2	Pad,Right (1)
P4	SPS4569	Pad (2)
P5	SPS4488	Pad,Upper (1)
P6	SPP730	Polyethlene Bag (1)

■ EXPLODED VIEW



■ EXPLODED VIEW



				40							52			27 28 39	59 47	33 51 54 29	34 30	31	35			36		53x4 57
B				10	11 12	20	14	38	53	21 39 18 19	3 22	21 27 49	50	3	26 25	28	24			32				56 58
C	23	9	37	5 7	1 4	11 8	13	17	15 6	16			2		3	3	43			44 45 46		42		

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ORDER NO. HAD8507181C2–A

Computer Drive New Class A Stereo Integrated Amplifier

SU-V7X

DEUTSCH

- This booklet contains the specifications and adjusting procedures for SU–V7X , written in German, French and Spanish.
- File this manual together with the SU–V7X service manual (Order No. HAD8507181C2).

- Das vorliegende Büchlein enthält die technische Daten und Justierverfahren für den SU–V7X in deutscher, französischer und spanischer Sprache.
- Bewahren Sie das Büchlein zusammen mit der Bedienungsanleitung für des SU–V7X auf (Bestell-Nr. HAD8507181 C2).

- Cette brochure contient les spécifications et les procédures de mises au point pour le SU–V7X , écrites en allemand, en francais et en espagnol.
- Classer ce manuel en même temps qu'avec le manuel de service du SU–V7X (N° d'order : HAD8507181C2).

- Este librito contiene la especificaciones y procedimientos de ajuste para SU–V7X , escritos en alemán, francés y español.
- Guardar este manual juntamente con el manual de servico de SU–V7X (Pedido N° HAD8507181C2).

DEUTSCH

■ TECHNISCHE DATEN

(DIN 45 500)

■ ENDVERSTÄRKERTEIL (Eingangssignal: EXT INPUT)

Dauerton-Ausgangsleistung bei 1 kHz
beide Kanäle ausgesteuert 2 × 100W (4 Ω)
2 × 100W (8 Ω)
Dauerton-Ausgangsleistung bei 40 Hz ~ 16 kHz
beide Kanäle ausgesteuert 2 × 100W (4 Ω)
2 × 100W (8 Ω)
Dauerton-Ausgangsleistung bei 20 Hz ~ 20 kHz
beide Kanäle ausgesteuert 2 × 100W (4 Ω)
2 × 100W (8 Ω)
Gesamtklirrfaktor
Nennleistung bei 20 Hz ~ 20 kHz 0,007% (4 Ω)
0,003% (8 Ω)
Nennleistung bei 40 Hz ~ 16 kHz 0,007% (4 Ω)
0,003% (8 Ω)
Nennleistung bei 1 kHz 0,0015% (4 Ω)
0,001% (8 Ω)
halbe Nennleistung bei 20 Hz ~ 20 kHz 0,002% (8 Ω)
halbe Nennleistung bei 1 kHz 0,001% (8 Ω)
Intermodulationsfaktor
Nennleistung bei 250 Hz: 8 kHz = 4:1, 8 Ω 0,01%
Nennleistung bei 60 Hz: 7 kHz = 4:1, nach SMPTE, 8 Ω 0,007%
Leistungsbandbreite
beide Kanäle ausgesteuert bei −3 dB
5 Hz ~ 70 kHz (4 Ω, 0,03%)
5 Hz ~ 70 kHz (8 Ω, 0,02%)
Restbrumm und Geräusch 0,5 mV
Dämpfungsfaktor 40 (4 Ω), 80 (8 Ω)
Kopfhörerpegel und -impedanz 670 mV/330 Ω
Lautsprecherimpedanz
MAIN oder REMOTE 4 Ω ~ 16 Ω
MAIN und REMOTE 8 Ω ~ 16 Ω

■ VORVERSTÄRKERTEIL

Eingangsempfindlichkeit und -impedanz
Phono - magnetisch (PHONO MM) 2,5 mV/47 kΩ
Phono - dynamisch (PHONO MC) 170 μV/220 Ω
Tuner, CD, TV/AUX 1, Video/AUX 2, Tape 1/Digitaltonband, Tape 2/VCR 150 mV/18 kΩ
Maximale TA-Eingangsspannung (1 kHz, eff.)
Magnetisch (MM) 170 mV
Dynamisch (MC) 12 mV
Geräuschspannungsabstand
Nennleistung (4 Ω)
Phono - magnetisch (PHONO MM)
78 dB (88 dB nach IHF, A)
Phono - dynamisch (PHONO MC)
72 dB (72 dB nach IHF, A (250μV))
Tuner, CD, TV/AUX 1, Video/AUX 2, Tape 1/Digitaltonband, Tape 2/VCR
93 dB (102 dB nach IHF, A)
Frequenzgang
Phono RIAA-Standardkurve, ±0,2 dB (30 Hz ~ 15 kHz)
Tuner, CD, TV/AUX 1, Video/AUX 2, Tape 1/Digitaltonband, Tape 2/VCR
−3 dB (2 Hz~120 kHz)
+0 dB, −0,1 dB (20 Hz~20 kHz)
Klangregler
Baßregler (BASS) 50 Hz, +10 dB ~ −10 dB
Höhenregler (TREBLE) 20 kHz, +10 dB ~ −10 dB
Übergangsfrequenz
Baßregler (BASS) 250 Hz, 500 Hz
Höhenregler (TREBLE) 2 kHz, 4 kHz
Tondämpfung −20 dB
Tiefenfilter 20 Hz, −6 dB/Okt.
Gehörrichtige Lautstärkekorrektur (Loudness)
(bei −30 dB Ausgangsleistung) 50 Hz, +9 dB

Ausgangsspannung und -impedanz	
Tape 1/2 Aufnahme (TAPE 1, 2, REC OUT)	150 mV
Kanalabweichung (CD, Aux 1, 2 250 Hz ~ 6300 Hz)	±1 dB
Übersprechdämpfung (CD, Aux 1, 2 1 kHz)	55 dB

■ VIDEOTEIL (TV/AUX 1, VIDEO/AUX 2, TAPE 2/VCR)

Ausgangsspannung (Eingang 1 V, 75 Ω unsymmetrisch)	1±0,1 Vss
Maximale Eingangsspannung	1,5 Vss
Eingangs/Ausgangsimpedanz	75 Ω unsymmetrisch

■ ALLGEMEINE DATEN

Leistungsaufnahme	580 W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 220V
Abmessungen (B×H×T)	430 × 147 × 385 mm
Gewicht	11 kg

Bemerkung:
Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.
(Die technischen Daten können infolge von Verbesserungen ohne Ankündigung geändert werden.)

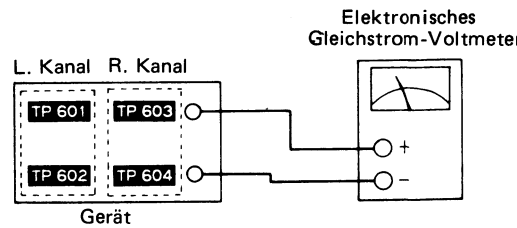
■ MESSUNGEN UND JUSTIERUNGEN

Einstellungen der Bedienelemente und zu verwendende Geräte

- Lautstärkeregler . . . . . ∞
- Hauptlautsprecher-Wahlschalter . . . . . off
- Nebenlautsprecher-Wahlschalter . . . . . off
- Aufnahme-Wahlschalter . . . . . aux 1/TV
- Lautsprecherimpedanz-Schalter 16Ω
- Elektronisches Wechsel-und Gleichstrom-Voltmeter
- Meßsender
- Widerstand (0,33Ω)

Leerlauf-(ICQ)-Justierung

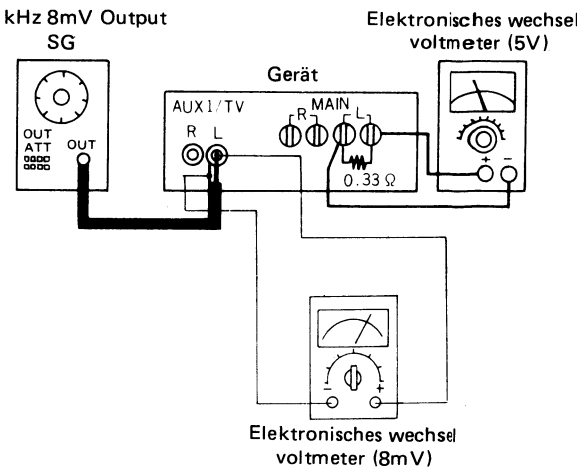
1. Der Testaufbau ist in der Zeichnung gezeigt.
2. Die ICQ-Volumenregler (VR601, VR602) entgegen dem Uhrzeigersinn drehen.
3. Nach Einschalten des Netzschalters **VR601** (linker Kanal) und **VR602** (rechter Kanal) auf je ca. **20mV** justieren, wie in Abb. 1.

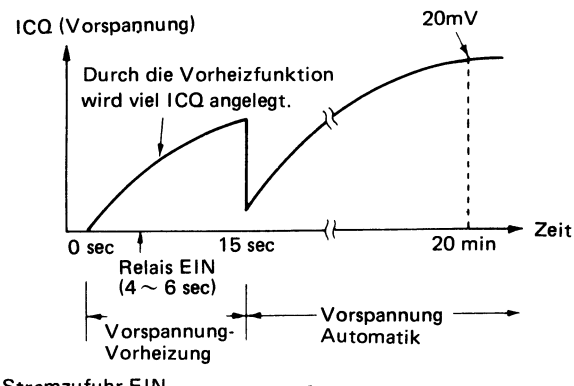


Prüfung der Überlast Detektorschaltung

1. Der Testaufbau ist in der Zeichnung gezeigt.
2. Ein Signal von 1kHz, 8mV (Ausgang ca. 5V) an den Aux.-Eingangsanschluß (aux 1/TV).
3. Den Lautsprecherschalter auf "off" stellen.
4. Einen 0,33Ω-Widerstand (ca. 1W) an den Hauptlautsprecheranschluß anschließen.
5. Bei eingeschaltetem Hauptlautsprecherschalter uberprüfen, daß
   - das Relais ausgeschaltet ist und
   - die Anzeige "Computer Drive Auto Operation" blinkt.
6. Den rechten (R.) Kanal auf dieselbe vorstehend beschriebene Weise überprüfen.

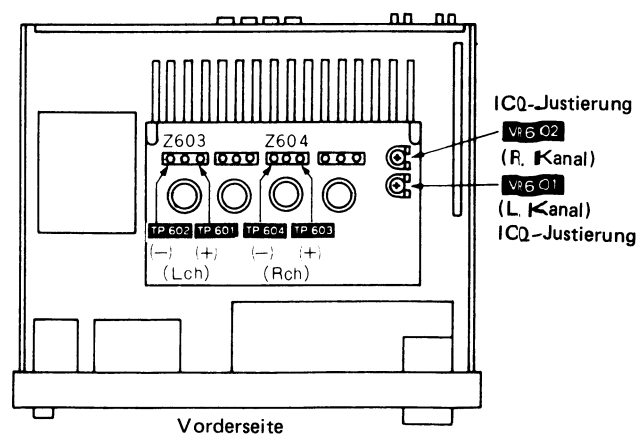
(Anmerkung) Wenn das Relais wieder eingeschaltet wird, ist ein Moment zu warten, nachdem die Stromversorgung ausgeschaltet worden ist. Andernfalls wird es nicht zurückgestellt, selbst wenn die Schaltung und Last in normalem Zustand sind.





[Abb. 1]

● Zu justierende Punkte



FRANÇAIS

■ CARACTERISTIQUES

(DIN 45 500)

■ SECTION AMPLIFICATEUR PRINCIPAL
(signal d'entrée: EXT INPUT)

Puissance de sortie continue à 1 kHz
les deux canaux en circuit 2 × 100W (4Ω)
2 × 100W (8Ω)

Puissance de sortie continue de 40 Hz~16 kHz,
les deux canaux en circuit 2 × 100W (4Ω)
2 × 100W (8Ω)

Puissance de sortie continue de 20 Hz~20 kHz,
les deux canaux en circuit 2 × 100W (4Ω)
2 × 100W (8Ω)

Distorsion harmonique totale
à puissance nominale (20 Hz~20 kHz) 0,007% (4Ω)
0,003% (8Ω)
à puissance nominale (40 Hz~16 kHz) 0,007% (4Ω)
0,003% (8Ω)
à puissance nominale (1 kHz) 0,0015% (4Ω)
0,001% (8Ω)
à demi-puissance (20 Hz~20 kHz) 0,002% (8Ω)
à demi-puissance (1 kHz) 0,001% (8Ω)

Distorsion d'intermodulation
à puissance nominale à 250 Hz: 8 kHz=4:1, 8Ω 0,01%
à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8Ω
0,007%

Réponse de fréquences
les deux canaux en circuit, −3 dB
5 Hz~70 kHz (4Ω, 0,03%)
5 Hz~70 kHz (8Ω, 0,02%)
Bruit et ronflement résiduels 0,5 mV
Coefficient d'amortissement 40 (4Ω), 80 (8Ω)
Niveau de sortie des casques et impédance 670 mV/330Ω
Impédance de charge
PRINCIPALE ou AUXILIAIRE (MAIN or REMOTE)
4Ω~16Ω
PRINCIPALE et AUXILIAIRE (MAIN and REMOTE)
8Ω~16Ω

■ SECTION PRE-AMPLIFICATEUR

Sensibilité et impédance d'entrée
PHONO, AIMANT MOBILE (PHONO MM) 2,5 mV/47kΩ
PHONO, BOBINE MOBILE (PHONO MC) 170 μV/220Ω
SYNTONISATEUR, DISQUE COMPACTO, TV/AUX 1, VIDEO /AUX 2, BANDE 1/DIGITALE, BANDE 2/VCR (TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR)
150 mV/18kΩ
PHONO (tension d'entrée maximum, 1 kHz RMS)
AIMANT MOBILE (MM) 170 mV
BOBINE MOBILE (MC) 12 mV
Signal/Bruit
à puissance nominale (4Ω)
PHONO, AIMANT MOBILE (PHONO MM)
78 dB (88 dB, IHF, A)
PHONO, BOBINE MOBILE (PHONO MC)
72 dB (72 dB, IHF, A (250 μV))
SYNTONISATEUR, DISQUE COMPACTO, TV/AUX 1, VIDEO /AUX 2, BANDE 1/DIGITALE, BANDE 2/VCR (TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR)
93 dB (102 dB, IHF, A:)
Réponse de fréquence
PHONO Courbe nominale RIAA
±0,2 dB (30 Hz~15 kHz)
SYNTONISATEUR, DISQUE COMPACTO, TV/AUX 1, VIDEO /AUX 2, BANDE 1/DIGITALE, BANDE 2/VCR (TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR) −3 dB (2 Hz~120 kHz)
+0 dB, −0,1 dB (20 Hz~20 kHz)
Réglage de la tonalité
BASSES (BASS) 50 Hz, +10 dB~−10 dB
AIGUS (TREBLE) 20 kHz, +10 dB~−10 dB
Fréquence de renversement
BASSES (BASS) 250 Hz, 500 Hz
AIGUS (TREBLE) 2 kHz, 4 kHz
Réglage silencieux −20 dB
Filtre subsonique 20 Hz, −6 dB/oct.
Compensateur physiologique (volume à −30 dB) 50 Hz, +9 dB
Tension de sortie et impédance
SORTIE ENREGISTREMENT/BANDE 1, 2 (TAPE 1, 2, REC OUT) 150 mV
Equilibrage des canaux, CD, AUX 1, 2
250 Hz~6 300 Hz ±1 dB
Séparation des canaux, CD, AUX 1, 2 1 kHz 55 dB

■ SECTION VIDEO
(TV/AUX 1, VIDEO/AUX 2, TAPE 2/VCR)

Tension de sortie (pour une entrée de 1V sous 75 ohms, non compensée) 1±0,1 Vp-p
Tension d'entrée max. 1,5 Vp-p
Impédance entrée/sortie 75 ohms, non compensée

■ DIVERS

Consommation 580W
Alimentation CA 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (L×H×Pr) 430 × 147 × 385 mm
Poids 11 kg

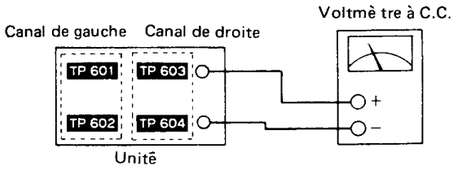
Remarque:
- La Société NATIONAL-PANASONIC-FRANCE, importateur du matériel MATSUSHITA-ELECTRIC déclare que cet appareil est conforme aux prescriptions de la directive 76/889/C.E.E. (arrêté 14 Janvier 1980).
- On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

(Sujet à changement sans préavis)

■ MESURAGES ET RÉGLAGES

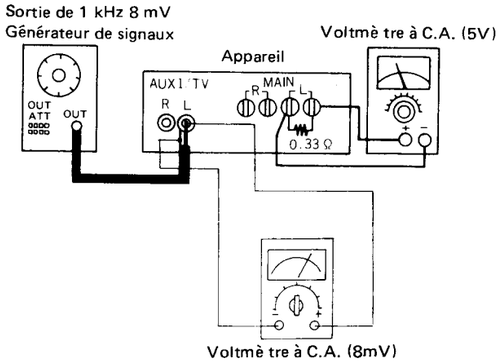
Positions de réglage et équipement utilisé
- Bouton du volume . . . . . ∞
- Sélecteur du haut-parleur principal . . . . . hors circuit
- Sélecteur du haut-parleur auxiliaire . . . . . hors circuit
- Sélecteur d'enregistrement . . . . . auxil. 1/TV
- Sélecteur d'impedance des enceints 16Ω
- Voltmetres électroniques à C.A. et à C.C. (EVM).
- Générateur de signaux
- Résistance (0,33Ω)

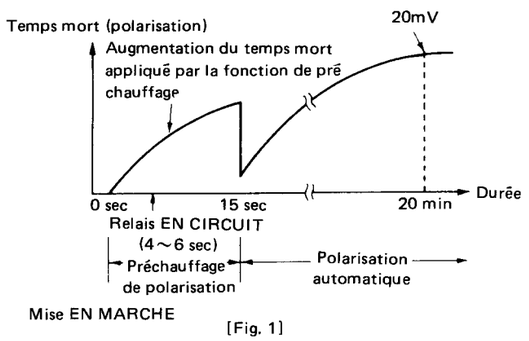
Réglage du temps mort (ICQ)
1. Raccordement de l'equipement d'essai, comme il est montré sur la figure.
2. Tourner le volume de contrôle de ICQ (VR601, VR602) dans sens inverse des aiguilles d'une montre.
3. Aprés avoir tourné l'interrupteur d'alimentation sur "on" (mise en marche), régler respectivement **VR601** (canal de gauche) et **VR602** (canal de droite) sur environ **20mV** , comme il est montré à la Fig. 1.



Vérification du circuit de détection de-surcharge
1. Raccordement de l'équipement d'essai, comme il est montré sur la figure.
2. Appliquer un signal de 1 kHz, 8 mV (sortie d'environ 5 V) à la borne d'entree auxil. 1. (aux. 1/TV).
3. Commutateur du haut-parleur réglé sur "off" (hors circuit).
4. Raccorder une résistance de 0,33Ω (environ 1 W) à la borne du haut-parleur principal.
5. Avec le commutateur du haut-parleur principal tourné sur "on" (en circuit), s'assurer que :
   - le relais est "HORS CIRCUIT" ("OFF") et que
   - la commande automatique d'impulsions par ordinateur clignote.
6. Vérifier aussi le canal de droite (R) de la même maniére que celle mentionnée ci-dessus.

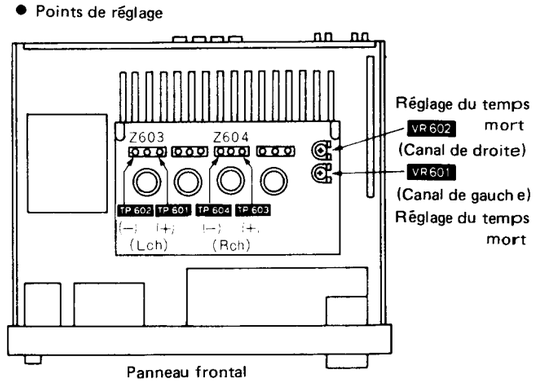
(Nota) Lorsqu'on remet en marche le relais, attendre un moment avant de mettre HORS CIRCUIT l'alimentation en courant. Sans quoi, elle ne pourra pas se réenclencher, même lorsque le circuit et la charge sont dans des conditions normales.





[Fig. 1]

- Points de réglage



ESPAÑOL

■ ESPECIFICACIONES

(DIN 45 500)

■ SECCION AMPLIFICADOR PRINCIPAL
(Señal de entrada: EXT INPUT)

Potencia continua de 1 kHz en ambos canales	2 × 100W (4Ω) 2 × 100W (8Ω)
Potencia continua de 40 Hz~16 kHz en ambos canales	2 × 100W (4Ω) 2 × 100W (8Ω)
Potencia continua de 20 Hz~20 kHz en ambos canales	2 × 100W (4Ω) 2 × 100W (8Ω)
Distorsión armónica total	
potencia de régimen a 20 Hz~20 kHz	0,007% (4Ω) 0,003% (8Ω)
potencia de régimen a 40 Hz~16 kHz	0,007% (4Ω) 0,003% (8Ω)
potencia de régimen a 1 kHz	0,0015% (4Ω) 0,001% (8Ω)
mitad de potencia a 20 Hz~20 kHz	0,002% (8Ω)
mitad de potencia a 1 kHz	0,001% (8Ω)
Distorsión por intermodulación	
potencia de régimen a 250 Hz: 8 kHz=4:1, 8Ω	0,01%
potencia de régimen a 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0,007%
Ancho de banda de potencia con ambos canales, −3 dB	5 Hz~70 kHz (4Ω, 0,03%) 5 Hz~70 kHz (8Ω, 0,02%)
Zumbido residual y ruido	0.5 mV
Factor de amortiguamiento	40 (4Ω), 80 (8Ω)
Impedancia y nivel de salida de los auriculares	670 mV/330Ω
Impedancia de carga	
MAIN o REMOTE	4Ω~16Ω
MAIN y REMOTE	8Ω~16Ω

■ SECCION DEL PREAMPLIFICADOR

Sensibilidad e impedancia de entrada	
TOCADISC. I. M. (PHONO MM)	2,5 mV/47kΩ
TOCADISC. B. M. (PHONO MC)	170 μV/220Ω
SINTON., DISCO COMPACTO, TV/AUX. 1, VIDEO/AUX. 2, GRAB. 1/DIGITAL, GRAB. 2/VCR (TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR)	150 mV/18kΩ
Voltaje máximo de entrada de PHONO (1 kHz, RMS)	
I. M. (MM)	170 mV
B. M. (MC)	12 mV
Relación de señal a ruido	
potencia de régimen (4Ω)	
TOCADISC. I. M. (PHONO MM)	78 dB (88 dB, IHF, A)
TOCADISC. B. M. (PHONO MC)	72 dB (72 dB, IHF, A (250 μV))
SINTON., DISCO COMPACTO, TV/AUX. 1, VIDEO/AUX. 2, GRAB. 1/DIGITAL, GRAB. 2/VCR (TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR)	93 dB (102 dB, IHF, A)
Respuesta de frecuencia	
TOCADISC. (PHONO)	curva RIAA estándar ±0,2 dB (30 Hz~15 kHz)
SINTON., DISCO COMPACTO, TV/AUX. 1, VIDEO/AUX. 2, GRAB. 1/DIGITAL, GRAB. 2/VCR (TUNER, CD, TV/AUX 1, VIDEO/AUX 2, TAPE 1/DA TAPE, TAPE 2/VCR)	−3 dB (2 Hz~120 kHz) +0 dB, −0,1 dB (20 Hz~20 kHz)
Controles de tono	
BAJOS (BASS)	50 Hz, +10 dB~−10 dB
AGUDOS (TREBLE)	20 kHz, +10 dB~−10 dB
Frequencia de transición	
BAJOS (BASS)	250 Hz, 500 Hz
AGUDOS (TREBLE)	2 kHz, 4 kHz
Silenciamiento	−20 dB
Filtro subsónico	20 Hz, −6 dB/oct.
Control de sonoridad (volumen a −30 dB)	50 Hz, +9 dB
Voltaje e impedancia de salida	
GRAB. 1, 2, SAL. GRAB.(TAPE 1, 2, REC OUT)	150 mV
Equilibrio de canales, CD, AUX 1, 2 250 Hz~6 300 Hz	±1 dB
Separación de canales, CD, AUX 1, 2 1 kHz	55 dB

■ SECCION DE VIDEO
(TV/AUX 1, VIDEO/AUX 2, TAPE 2/VCR)

Voltaje de salida (con una entrada de 1V, 75 ohmios desequilibrado)	1±0,1 Vp-p
Voltaje de entrada máximo	1,5 Vp-p
Impedancia de entrada/salida	75 ohmios desequilibrado

■ GENERAL

Consumo de energía	580W
Alimentación de energía	CA 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensiones (An.×Al.×Prof.)	430 × 147 × 385 mm
Peso	11 kg

Nota:
La distorsión armónica total se mide con el analizador de espectro digital (sistema H.P. 3045).

(Esta especificaciones están sujetas a cualquier cambio sin previo eviso.)

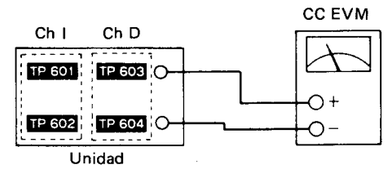
■ MEDICIONES Y AJUSTE

Posiciones de control y equipo usádo

- Perilla de volumen . . . . . ∞
- Selector de altavoz principal . . . . . off (desconectado)
- Selector de altavoz remoto . . . . . off
- Selector de grabación . . . . . aux. 1/TV
- Selector de impedancia de altavoces 16Ω
- Voltímetro electrónico de CA y CC (EVM)
- Generador de señales
- Resistor (0,33Ω)

Ajuste de marcha en vacío (ICQ)

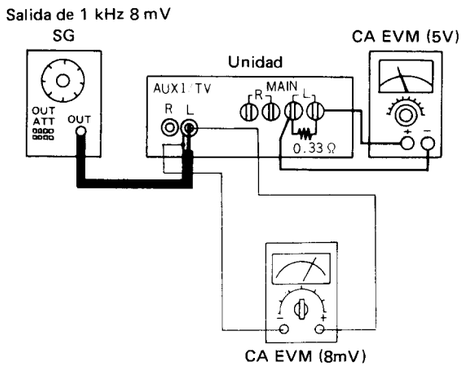
1. La conexión de equipo de prueba se muestra en la figura.
2. Girar el volumen de control ICQ (VR601, VR602) a la izquierda.
3. Después de prender el interruptor de alimentación, ajustar **VR601** (canal izquierdo) y **VR602** (canal derecho) unos **20mV**, respectivamente, como en la Fig. 1.

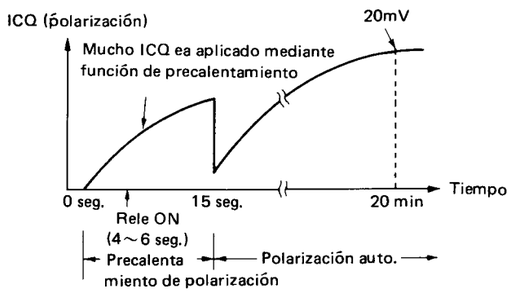


Comprobación de circuito detector de sobrecarga

1. La conexión de equipo de prueba se muestra en la figura.
2. Aplicar señal de 1 kHz, 8 mV (salida unos 5 V) al terminal de entrada aux. (aux. 1/TV).
3. El interruptor de altavoz desconectado.
4. Conectar resistor de 0,33 (aprox. 1 W) al terminal de altavoz principal.
5. Con interruptor de altavoz principal conectado, asegurarse de que.
   - relé está en "OFF" y
   - operación auto. de accionamiento de computador parpadea.
6. También comprobar el canal derecho (D) de la misma manera que mencionado arriba.

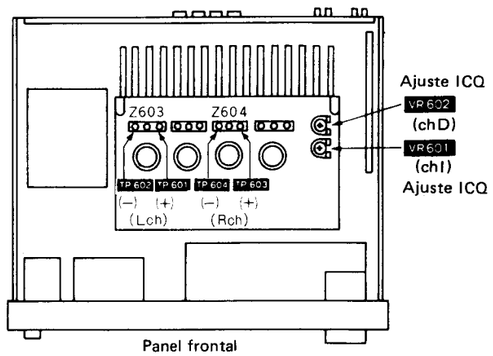
(Nota) Al conectar de nuevo el relé, esperar un rato después de desconectar el suministro de alimentación. De lo contrario, no se répondrá aun cuando el circuito y la carga estén en condiciones normales.





[Fig. 1]

● Puntos de ajuste



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