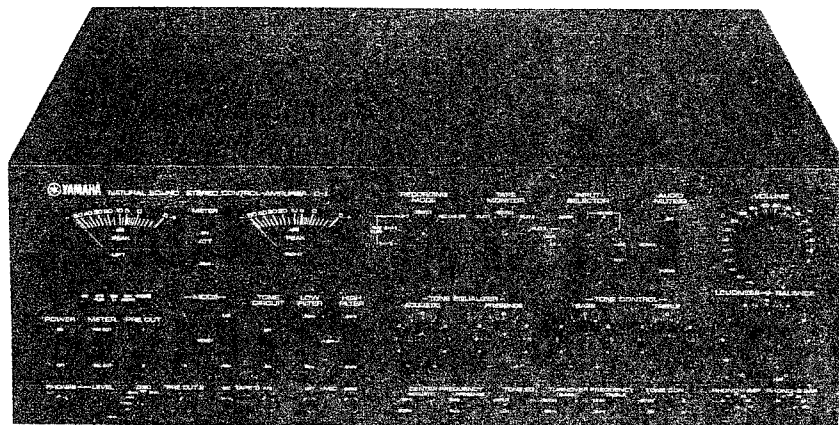


SERVICE MANUAL

C-1

CONTROL AMPLIFIER



SINCE 1887



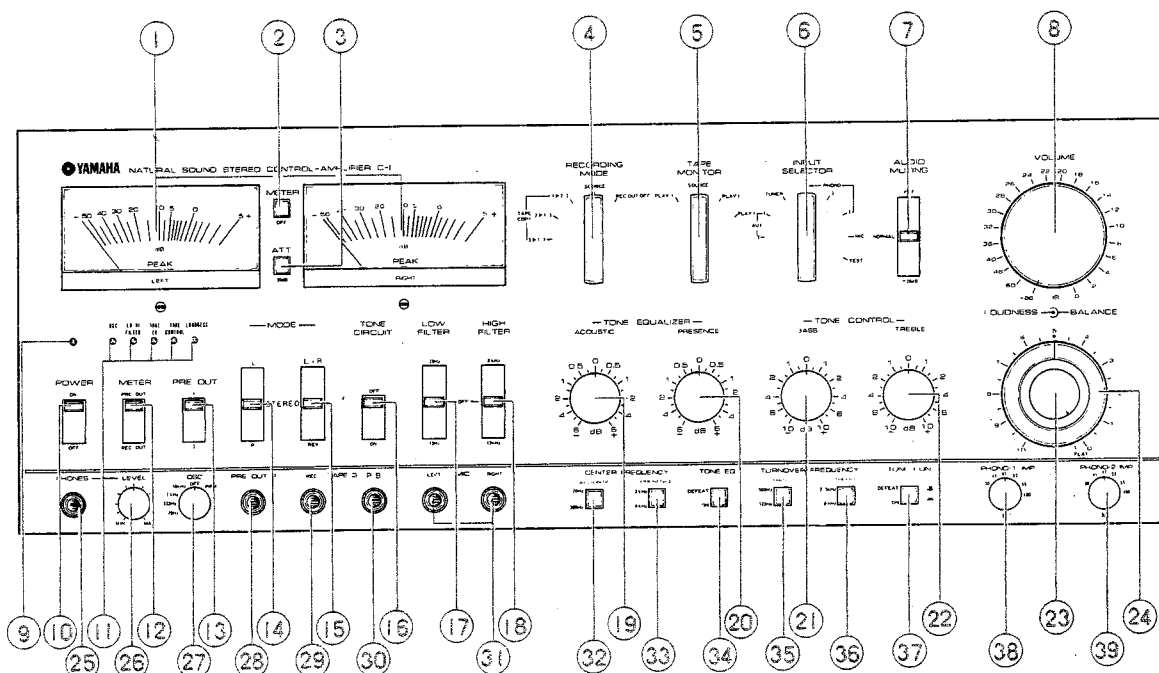
YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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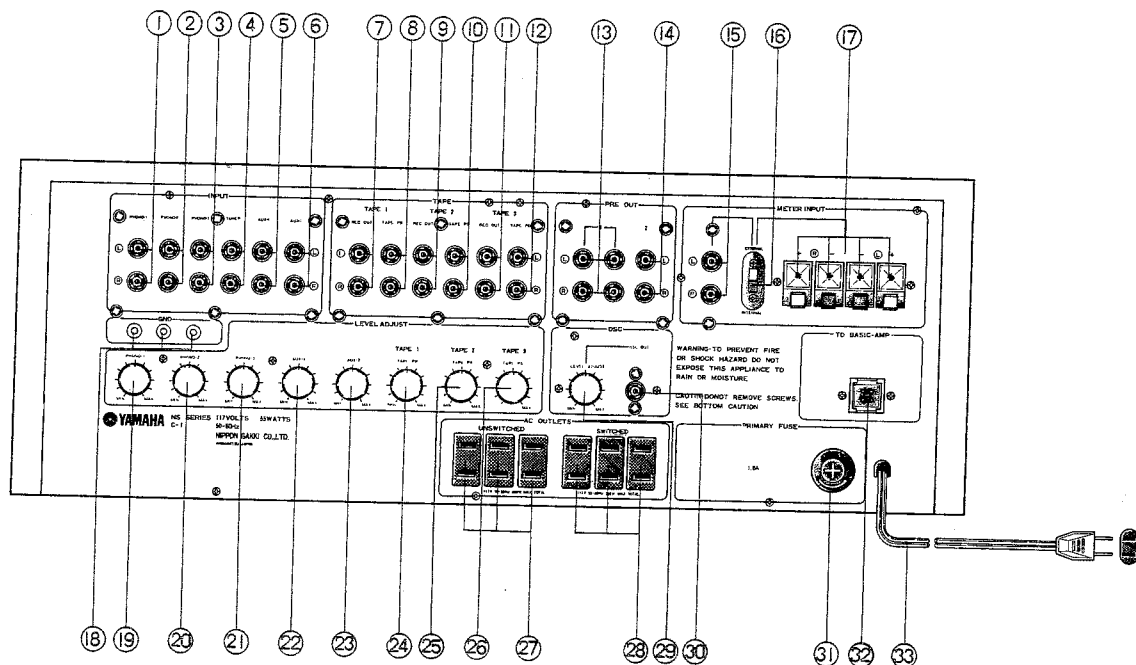
FRONT PANEL



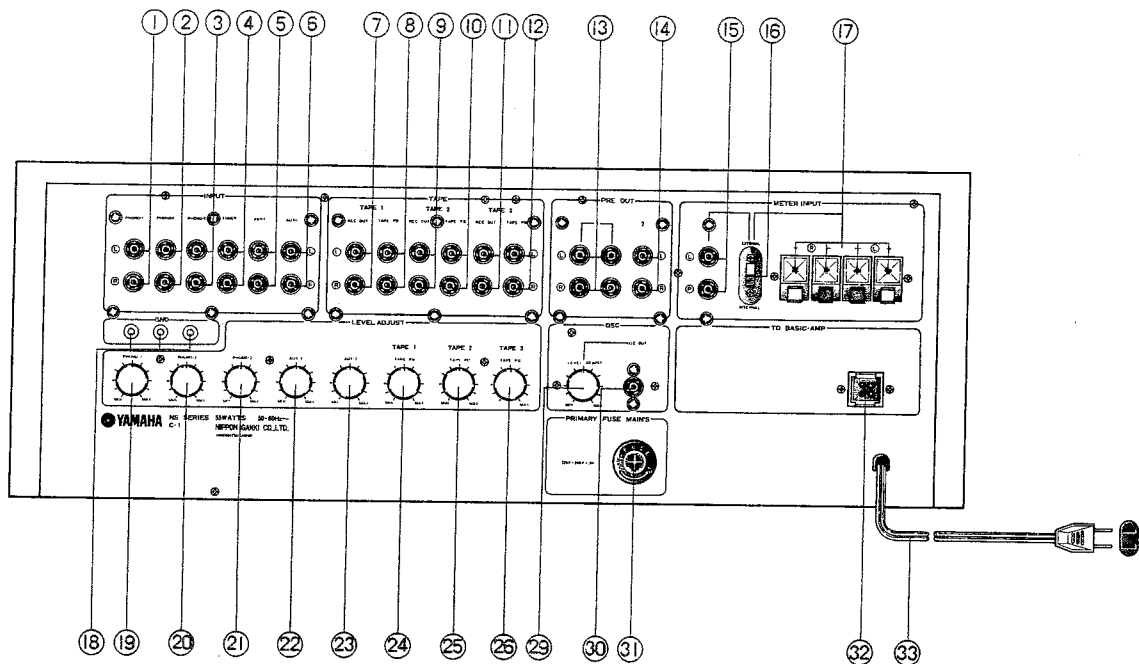
- | | |
|-------------------------------------|--|
| ① PEAK METER | ② TONE CONTROL (TREBLE) |
| ② METER SWITCH | ③ LOUDNESS CONTROL |
| ③ METER ATTENUATOR SWITCH | ④ BALANCE CONTROL |
| ④ RECORDING MODE SELECTOR SWITCH | ⑤ HEADPHONE JACK |
| ⑤ TAPE MONITOR SWITCH | ⑥ HEADPHONE LEVEL CONTROL |
| ⑥ INPUT SELECTOR SWITCH | ⑦ OSCILLATOR FREQUENCY SELECTOR SWITCH |
| ⑦ AUDIO MUTING SWITCH | ⑧ PRE OUT 2 JACK |
| ⑧ VOLUME CONTROL | ⑨ TAPE-3 REC OUT JACK |
| ⑨ POWER INDICATOR | ⑩ TAPE-3 PB JACK |
| ⑩ POWER SWITCH | ⑪ MIC JACKS |
| ⑪ MONITOR INDICATOR | ⑫ CENTER FREQUENCY SELECTOR SWITCH (ACOUSTIC) |
| ⑫ METER FUNCTION SWITCH | ⑬ CENTER FREQUENCY SELECTOR SWITCH (PRESENCE) |
| ⑬ PRE OUT SELECTOR SWITCH | ⑭ TONE EQUALIZER SWITCH |
| ⑭ MODE SELECTOR SWITCH 1 | ⑮ TURN OVER FREQUENCY SELECTOR SWITCH (BASS) |
| ⑮ MODE SELECTOR SWITCH 2 | ⑯ TURN OVER FREQUENCY SELECTOR SWITCH (TREBLE) |
| ⑯ TONE CIRCUIT SWITCH | ⑰ TONE CONTROL SWITCH |
| ⑰ LOW FILTER SWITCH | ⑱ PHONO-1 IMPEDANCE SELECTOR SWITCH |
| ⑱ HIGH FILTER SWITCH | ⑲ PHONO-2 IMPEDANCE SELECTOR SWITCH |
| ⑲ TONE EQUALIZER (ACOUSTIC CONTROL) | |
| ⑳ TONE EQUALIZER (PRESENCE CONTROL) | |
| ㉑ TONE CONTROL (BASS) | |

REAR PANEL

▼U.S. & CANADIAN MODELS



▼GENERAL AND EUROPEAN MODEL



- | | | |
|------------------------|--------------------------|--------------------------------|
| ① PHONO-1 INPUT JACKS | ②② TAPE-3 PB JACKS | ②⑤ AUX-2 LEVEL CONTROL |
| ② PHONO-2 INPUT JACKS | ②③ PRE OUT-1 JACKS | ②④ TAPE-1 PB LEVEL CONTROL |
| ③ PHONO-3 INPUT JACKS | ②④ PRE OUT-2 JACKS | ②⑤ TAPE-2 PB LEVEL CONTROL |
| ④ TUNER INPUT JACKS | ②⑤ METER INPUT JACKS | ②⑥ TAPE-3 PB LEVEL CONTROL |
| ⑤ AUX-1 INPUT JACKS | ②⑥ METER INPUT SWITCH | ②⑦ AC OUTLET (UN SWITCHED) |
| ⑥ AUX-2 INPUT JACKS | ②⑦ METER INPUT TERMINAL | ②⑧ AC OUTLET (SWITCHED) |
| ⑦ TAPE-1 REC OUT JACKS | ②⑧ GROUND TERMINAL | ②⑨ OSCILLATOR OUT LEVEL ADJUST |
| ⑧ TAPE-1 PB JACKS | ②⑨ PHONO-1 LEVEL CONTROL | ③① PRIMARY FUSE |
| ⑨ TAPE-2 REC OUT JACKS | ③① PHONO-2 LEVEL CONTROL | ③② BASIC AMP REMOTE CONNECTOR |
| ⑩ TAPE-2 PB JACKS | ③② PHONO-3 LEVEL CONTROL | ③③ AC CORD |
| ⑪ TAPE-3 REC OUT JACKS | ③③ AUX-1 LEVEL CONTROL | |

CONSTITUTION AND METHOD OF CIRCUIT

- **PHONO EQUALIZER AMP.**

This amplifier incorporates two unit amps (primary stage differential amp and final stage SRPP (all-stage FET circuitry), forming a CR type RIAA equalizer (supply voltage: +100V, -110V).

- **AUXILIARY INPUT BUFFER AMP.**

This is a unit amp construction: primary stage differential amp and final stage source follower (all-stage FET).

- **TONE CONTROL AMP.**

A primary stage differential amp and final stage SRPP (all-stage FET) construction form an NF type precision tone control amp (defeat: absolutely flat response).

- **ACOUSTIC/PRESENCE AMP.**

An NF type attenuator amp formed with a differential primary stage and SRPP final stage (all-stage FET).

- **PRE-OUT BUFFER AMP.**

A unit amp construction featuring differential primary stage and source-follower final stage (all-stage FET).

- **HEADPHONE AMP.**

A primary stage differential amp and final stage SEPP complementary construction (all solid state).

- **PEAK METER AMP.**

A meter amp composed of logarithm constrict 50dB amp, peak hold circuit and buffer amp.

- **OSCILLATOR**

A bridge provides 70, 333, 1K and 10KHz sine waves as well as pink noise in the oscillator, which is combined with a buffer amp.

- **OTHER FEATURES**

Volume Both input and output controlled at the same time for reduced control error. The VR provides the same low error as an attenuator.

Continuous

Loudness Match the loudness effect to any volume level.

Phono Input

Impedance Permits controlling the phono input impedance to provide the ideal load for any cartridge. Six positions.

Tone Circuit

Switch Bypasses tone controls, equalizer, filters and Loudness.

Monitor

Indicators LED indicators light to show the following functions: Osc. Low, High Filter, Tone, Eq., Tone Control, Loudness when any of these controls are set to a position other than Off or Defeat.

SPECIFICATIONS

■ INPUT SENSITIVITY/IMPEDANCE/MAX. INPUT CAP.

INPUT TERMINAL	SENSITIVITY (RATED)	IMPEDANCE	MAXIMUM INPUT CAPACITY
PHONO 1, 2	2 ~ 8 mV (adjustable)	30, 41, 47, 53, 59 100 k Ω	25 ~ 100 mV (20 Hz) 200 ~ 800 mV (1 KHz) 800 ~ 3,200 mV (10 KHz)
PHONO 3	2 ~ 8 mV (adjustable)	47 k Ω	Same as above
AUX 1, 2 TUNER TAPE.P/B1, 2, 3 } MIC EXT. METER	150 mV ~ ∞ (adjustable) 2 mV 775 mV/0 dB	50 k Ω 50 k Ω 110 k Ω	12V 200 mV

■ OUTPUT LEVEL/IMPEDANCE/MAX. OUTPUT LEVEL

OUTPUT TERMINAL	OUTPUT LEVEL	IMPEDANCE	MAXIMUM OUTPUT LEVEL
PRE-OUT 1, 2	775 mV	300 Ω	7.75V
REC-OUT 1, 2, 3	150 mV	1 k Ω	12V
HEAD-PHONE	50 mW/8 Ω	47 Ω	
OSC	775 mV	180 Ω	

■ FREQUENCY CHARACTERISTICS

INPUT		RATING
PHONO 1, 2, 3	30 ~ 15 KHz	0 $\pm$ 0.2 dB (Deviation from RIAA)
AUX 1, 2, TUNER	5 ~ 100 KHz	0 $\pm$ 0 dB
TAPE 1, 2, 3		0 $\pm$ 1.5 dB
MIC	20 ~ 20 KHz	0 $\pm$ 0.5 dB

■ NOISE LEVEL, S/N

INPUT	RATING
PHONO 1, 2, 3 } TUNER AUX 1, 2 }	70 dB (IHF A NETWORK)
TAPE 1, 2, 3	90 dB (IHF A NETWORK)
MIC	60 dB (IHF A NETWORK)
HEAD-PHONE	0.019 μ W / 8 Ω
RESIDUAL NOISE	7.75 μ V at Volume MIN 15.5 μ V at Volume -30 dB

■ DISTORTION

INPUT	CONDITIONS	RATING
PHONO 1, 2, 3	775 mV 20 ~ 20 KHz	Less than 0.02%
	5 V 20 ~ 20 KHz	Less than 0.02%
TUNER AUX 1, 2	775 mV 20 ~ 20 KHz	Less than 0.02%
TAPE 1, 2, 3	5 V 20 ~ 20 KHz	Less than 0.02%
MIC	775 mV 20 ~ 20 KHz	Less than 0.02%

■ TONE CONTROL CHARACTERISTICS

BASS	f _{to} = 125 Hz and 500 Hz	0, $\pm$ 0.5, $\pm$ 1, $\pm$ 1.5, $\pm$ 2.0, $\pm$ 3.0, $\pm$ 4.0, $\pm$ 5.0 $\pm$ 6.0, $\pm$ 8.0, $\pm$ 10.0 dB, (at 20 Hz)
TREBLE	f _{to} = 2.5 KHz and 8 KHz	Same as above (at 20 KHz)
Note: Completely flat at 0 setting.		

■ TONE EQUALIZER CHARACTERISTICS

ACOUSTIC	$f_c = 70 \text{ Hz}$	$0 \pm 0.5 \pm 1.0 \pm 2.0$
	300 Hz	$\pm 4.0 \pm 6.0 \text{ dB}$
PRESENCE	$f_c = 2 \text{ KHz}$	Same as Above
	4 KHz	
Note: Completely flat at 0 setting.		

■ FILTER CHARACTERISTICS

LOW FILTER	$f_c = 15 \text{ Hz}$	-12 dB/OCT
	70 Hz	-12 dB/OCT
HIGH FILTER	$f_c = 8 \text{ Hz}$	-12 dB/OCT
	12 Hz	-12 dB/OCT

■ OSCILLATOR CHARACTERISTICS

FREQUENCY	70, 333, 1K, 10 KHz. PINK NOISE. Switchable	
OUTPUT LEVEL	REC OUT	150 mV
	PRE OUT	775 mV
	EXT OUT	0~775 mV (adjustable)

■ LEVEL METER CHARACTERISTICS

INDICATION RANGE	-50 dB ~ +5 dB
INDICATION ERROR	-20 dB ~ +5 dB $\pm 1 \text{ dB}$
	-20 dB ~ -40 dB $\pm 2 \text{ dB}$
	-40 dB ~ -50 dB $\pm 3 \text{ dB}$
FREQUENCY CHARACTERISTICS	20Hz ~ 20 KHz $\pm 1 \text{ dB}$
RESPONSE TIME	100 μs
DECAY TIME	1 sec
ATT	-30 dB
EXT. METER IN SENSITIVITY/IMPEDANCE	775mV (0 dB)/110 k Ω

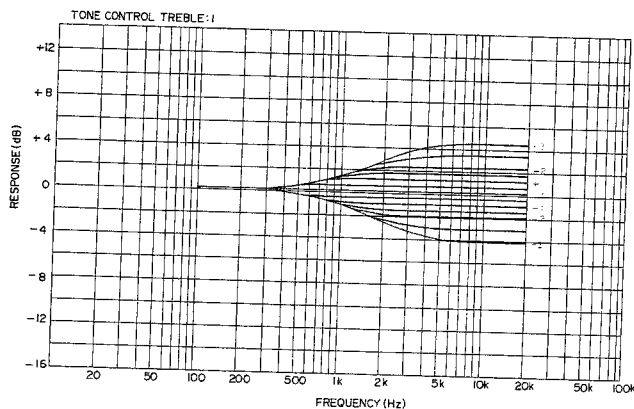
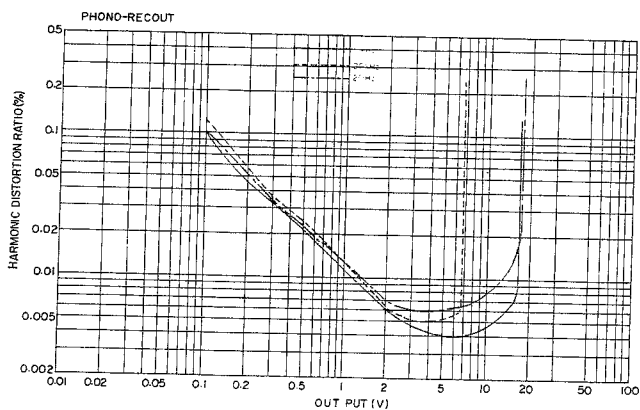
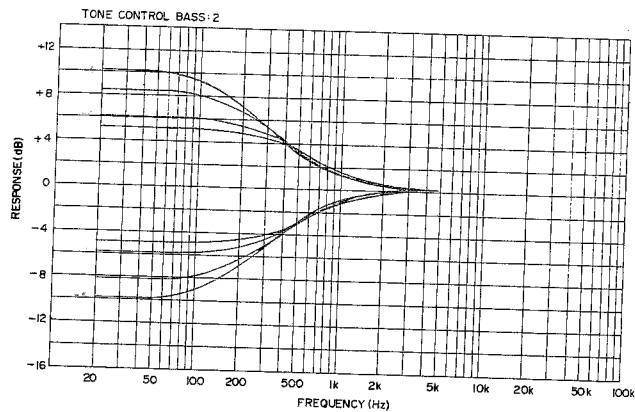
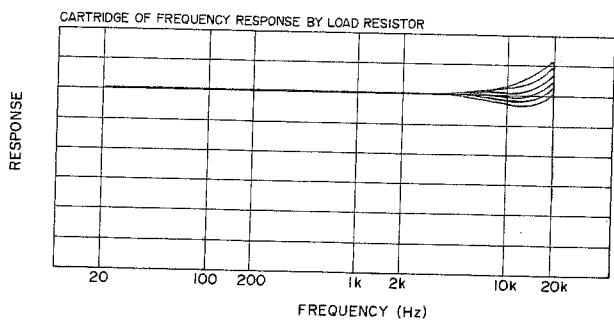
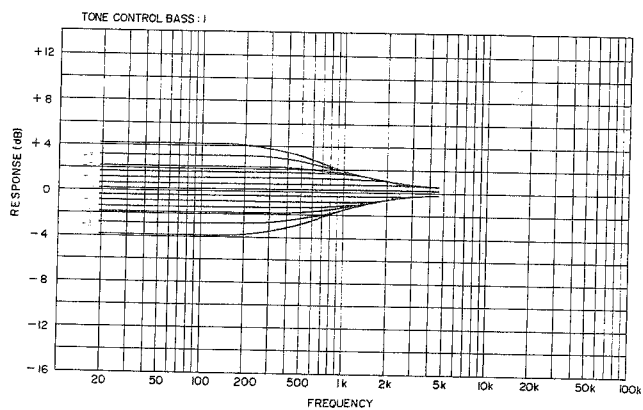
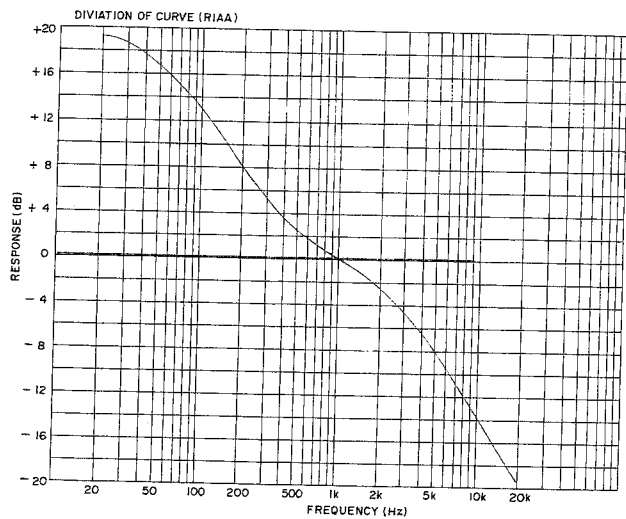
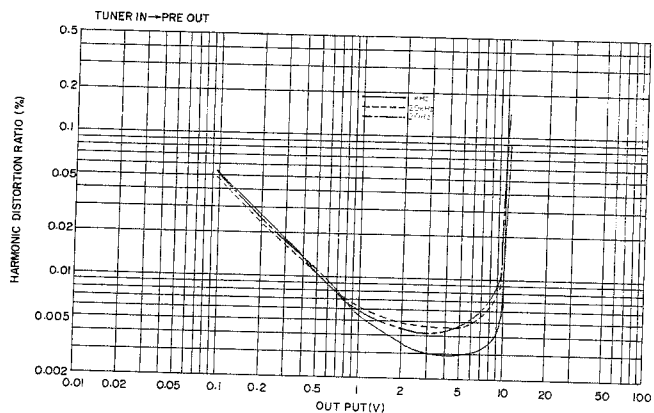
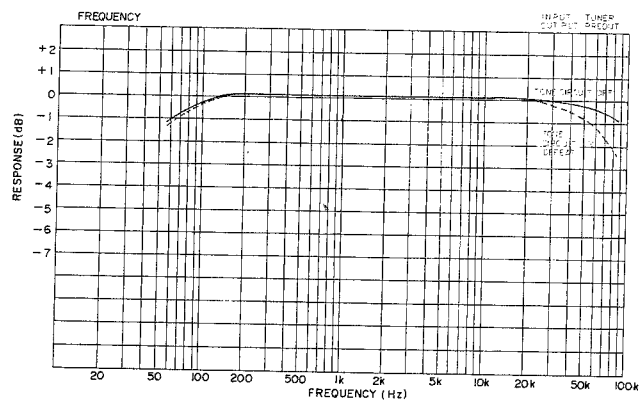
■ OTHERS

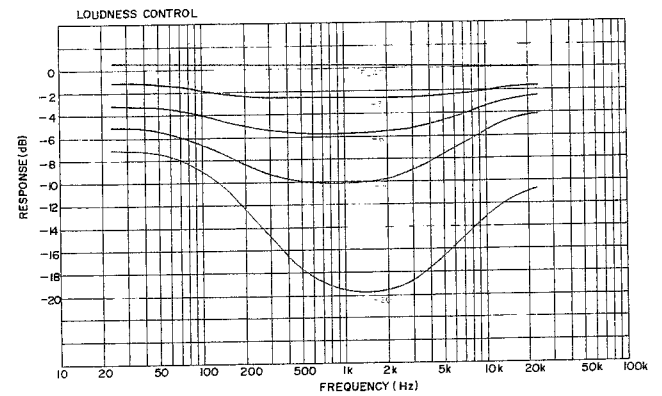
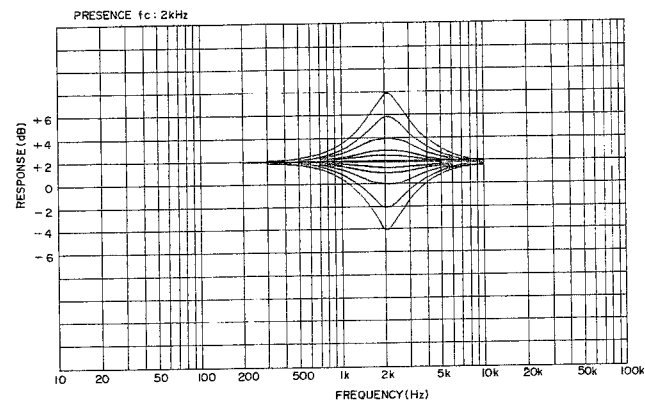
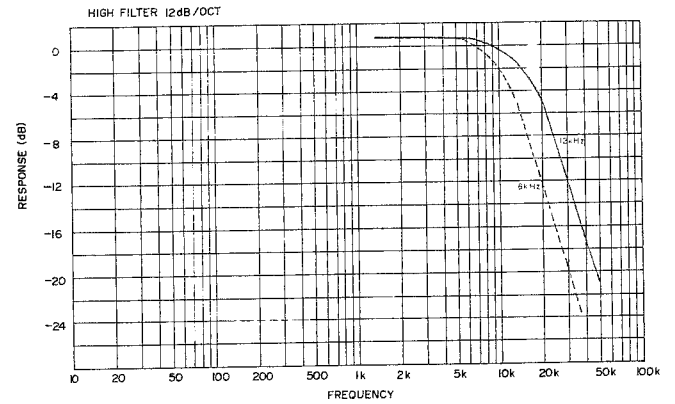
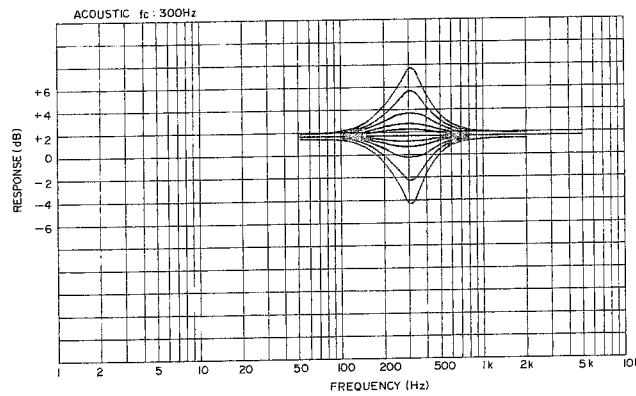
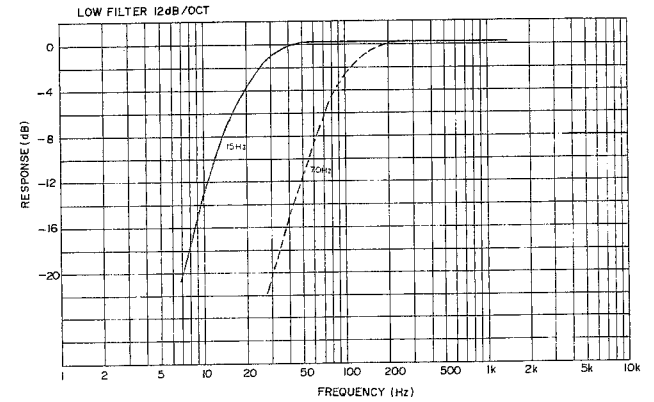
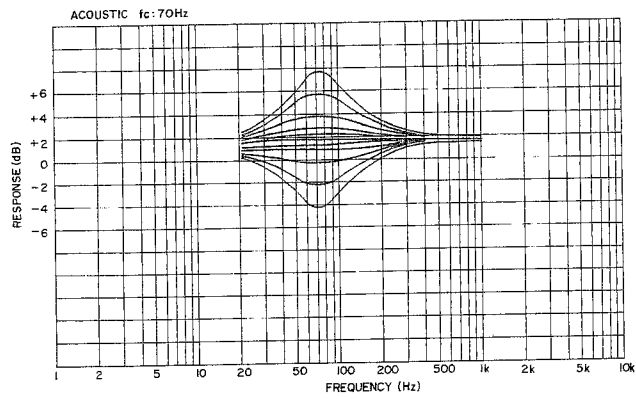
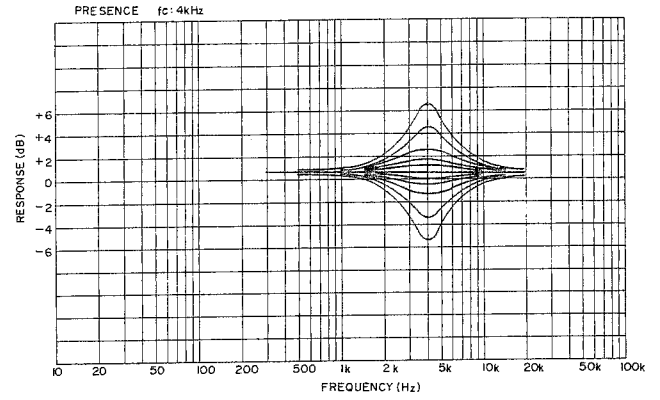
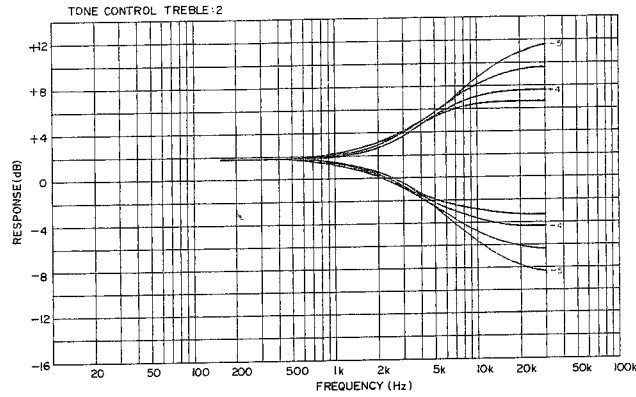
AUDIO MUTING		-20 dB, OFF
CONTINUOUS VOLUME ACCURACY	STEP ERROR	0 ~ -15 dB $\pm 0.5 \text{ dB}$
		-15 ~ -30 dB $\pm 1 \text{ dB}$
		-30 ~ -70 dB $\pm 1.5 \text{ dB}$
	GANG ERROR	0 ~ -15 dB $\pm 0.5 \text{ dB}$
		-15 ~ -30 dB $\pm 1.0 \text{ dB}$
		-30 ~ -70 dB $\pm 1.5 \text{ dB}$

■ OTHERS

SEMICONDUCTORS USED	FET	110
	Transistor	143
	Zener Diodes	2
	Diode	58
	IC	4
	LED	6
POWER CONSUMPTION	55W	
AC OUTLET	SWITCHED 200W UNSWITCHED 400W	
DIMENSIONS	W461 x H170 x D389 m/m (18- $\frac{1}{4}$ " x 6- $\frac{3}{4}$ " x 15- $\frac{1}{4}$ ")	
WEIGHT	17 kg (37.49 lbs.)	
ACCESSORIES	Pin Plug Cords	2
	Hexagonal Allen Wrench	1
	Spare Fuses	2

PRINTED SPECIAL CHARACTERISTIC





8

OPERATION

As the block diagram (Fig. 3) shows, unit amp A is used where high gain is necessary, while the B type is used when only limited gain is needed; unit amp B also served as an impedance converter.

The Phono input passes through the pure CR type equalizer (incorporating a CR filter), which is installed between unit amps A1 and A2. Then, like the Aux and Tuner signals which pass via unit amp B1, it is fed to the input selector.

The Mic signal is fed out after A1.

Tape PB signal routes, like Aux, incorporate buffer

amp B2. The tone circuit, composed of Low and High Filters, Tone Equalizer, Continuous Loudness and the Tone Controls has volume controls at both input and output for improved signal-to-noise characteristics. With the Tone Circuit switch shut off, the signal bypasses this entire tone control circuit, passing through A3 instead.

Unit amp B4 is used in the output.

Other circuits, such as pink noise and sine wave oscillator, headphone amp and meter amp are provided for full versatility of functions.

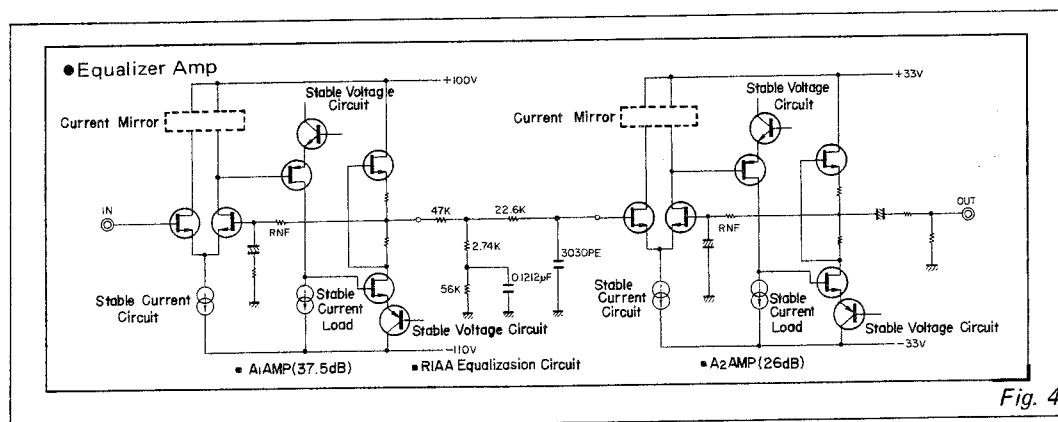


Fig. 4

PURE CR EQUALIZER

By employing a pure CR type equalizer circuit and two unit amps, the equalizer amplifier becomes a CR type, instead of the conventional NF type, thus solving problems of NF instability caused by a feedback circuit time factor.

The cartridge output is amplified by the unit amp of the first stage (A1), passes through the RIAA equalizer circuit composed of condensers and resistors, and is then amplified by the final stage unit amp (A2). In order to increase the rated input and S/N ratio in the first stage unit amp, +100V and -110V high voltage is supplied, providing better than 60Vrms output with very low distortion.

By using the level control at the same time, at a rating of 2mV~8mV the rating becomes: 25mV~100mV at 20Hz, 200mV~800mV at 1KHz, and 800mV~3200mV at 10KHz.

Thanks to the use of $\pm 1\%$ accurate metal film resistors, $\pm 1\%$ accuracy moisture-resistant styrol condensers and $\pm 2\%$ accurate mylar condensers. This assures excellent moisture resistance and hence differential characteristics near zero.

tone Equalizer Circuit with Acoustic and Presence Controls

The Acoustic Control (Bass) and Presence Control

(Mid and Treble) make it possible to match the sound characteristics in every range to those of the listening room.

The Presence control is especially useful in adjusting the balance, tone color and relative volume during vocal selections, for fuller, more natural overall response. Center frequency for the Acoustic control is switched to either 70Hz or 300Hz, while Presence settings are 2KHz and 4KHz.

HIGH-PRECISION FOUR-GANG CONTROLS

Using a special four-gang control which adjusts input and output at the same time, S/N ratio is improved by 14dB during normal use, with the 6~14dB control fully closed. (Residual noise: 7.75 μ V. Residual noise at rated output: 100dB)

In addition, the use of precision circuit design and parts provides outstanding accuracy. Meter accuracy is less than 0.5dB and gang error is also less than 0.5dB, in ordinary ranges. This is complemented by attenuator type controls which provide sensitive inter-stage settings not available in complete step type controls.

PINK NOISE AND SINE WAVE OSCILLATORS

A pink noise oscillator with constant energy in the octave bands and a 70Hz, 333Hz, 1KHz, 10KHz sine wave oscillator are built in. Used with the wide range peak level meters these signals can be used to check the C-I performance, and the signals can be fed out to check other audio equipment as well.

MONITOR INDICATOR

LED monitor indicators light to show when the following functions are being used: Oscillator; Low/High Filter; Tone Equalizer; Tone Control; Loudness.

TAPE CIRCUIT

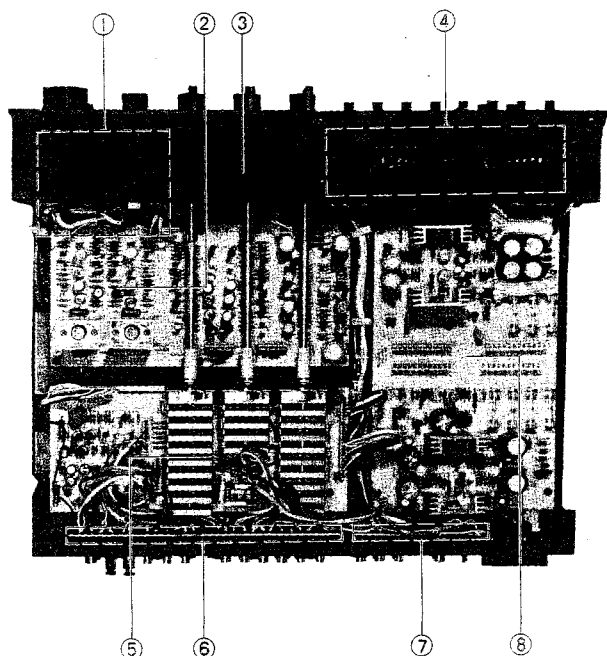
This circuit makes it possible to connect three tape decks and to record on all three or copy one tape on the other two decks. Out Off selector position cuts all signals to the Rec. Out terminals. This avoids sound quality deterioration caused by capacitance in the shielded cable combined with a drop in deck input impedance when the power is turned off which can create a load effect on the signal circuit.

Furthermore, since the Tape Monitor and Recording Mode selectors are independent, it is possible to record while playing back, or independent source play and tape copies can be made simultaneously.

In addition, dubbing can be carried out entirely independent of signal source selection.

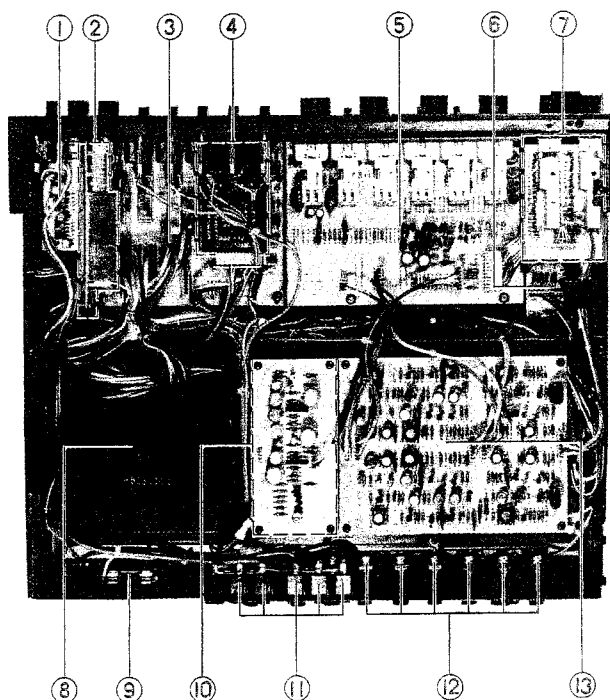
COMPONENTS LOCATION

1. TOP VIEW



- ① MUTING CIRCUIT BOARD (NA06722)
- ② FLAT AMP CIRCUIT BOARD (NA06717)
- ③ SHIELD PLATE
- ④ METER AMP CIRCUIT BOARD (NA06725)
- ⑤ FUNCTION CIRCUIT BOARD (NA06716)
- ⑥ PIN JACK CIRCUIT BOARD (NA06733)
- ⑦ SLIDE SWITCH CIRCUIT BOARD (NA06734)
- ⑧ POWER SUPPLY CIRCUIT BOARD
(US & CANADIAN MODELS: NA06745)
(EUROPEAN MODEL: NA06724)

2. BOTTOM VIEW



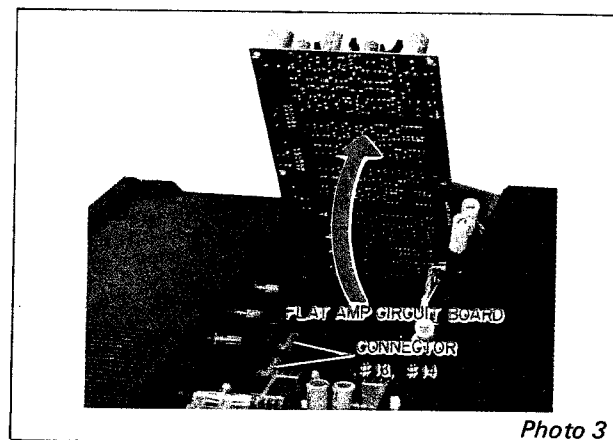
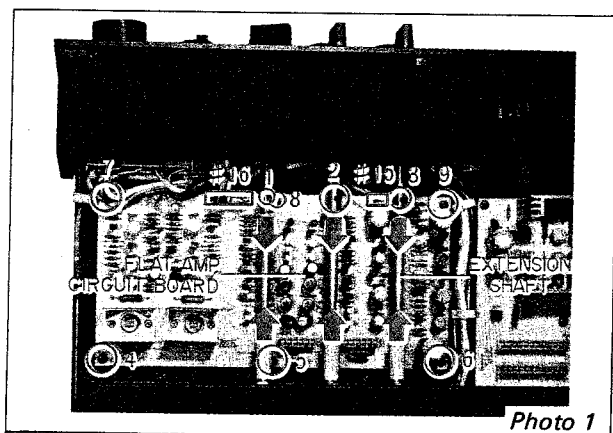
- ① HEAD PHONE VR CIRCUIT BOARD (NA06729)
- ② OSC CIRCUIT BOARD (NA06728)
- ③ LEVER SWITCH CIRCUIT BOARD (NA06731)
- ④ FILTER CIRCUIT BOARD (NA06730)
- ⑤ TONE PUSH SW CIRCUIT BOARD (NA06721)
- ⑥ LOUDNESS CIRCUIT BOARD (NA06718)
- ⑦ IMPEDANCE SELECTOR CIRCUIT BOARD (NA06732)
- ⑧ POWER TRANSFORMER
(US & CANADIAN MODELS: GA60811)
(EUROPEAN MODEL: GA60812)
- ⑨ FUSE
- ⑩ PINK NOISE OSC CIRCUIT BOARD (NA06739)
- ⑪ AC OUTLETS
- ⑫ INPUT LEVEL CONTROLS
- ⑬ TONE AMP CIRCUIT BOARD (NA06719)

PARTIAL DISASSEMBLY

CAUTION: Be sure the power is turned OFF!

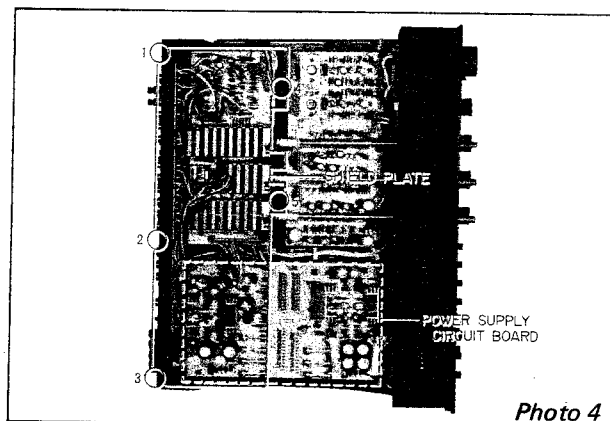
1. FLAT AMP CIRCUIT BOARD REMOVAL

- a. Loosen joint fixing screws (1) to (3) as shown in Photo 1; use the hexagonal allen wrench. Then slide toward the rear panel and at the same time slide the various switch joints toward the front panel. Then, as shown in Photo 2, twist the switch extension shafts and switches apart and tilt the switches toward the muting sheet.
- b. Remove connectors #16 and #15 as shown in Photo 1.
- c. Remove flat amp circuit board fixing screws (4) to (9) as shown in Photo 1.

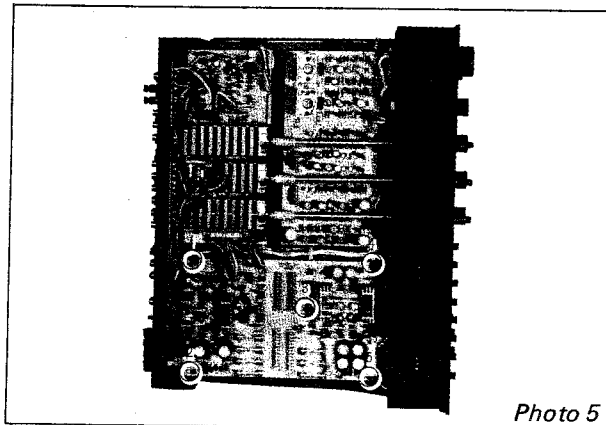


2. POWER CIRCUIT BOARD REMOVAL

- a. Remove screws (1) to (5) in Photo 4.
- b. Remove the rear panel side shield plate.



- c. Remove screws (1) to (5) shown in Photo 5.



- d. When removing the circuit board be careful to gently separate chassis connectors #13 and #14 as shown in Photo 3, and carefully lift the circuit board out.

- d. When removing the circuit board be careful to gently separate chassis connectors #17 to #20 as shown in Photo 6, and carefully lift the circuit board out.

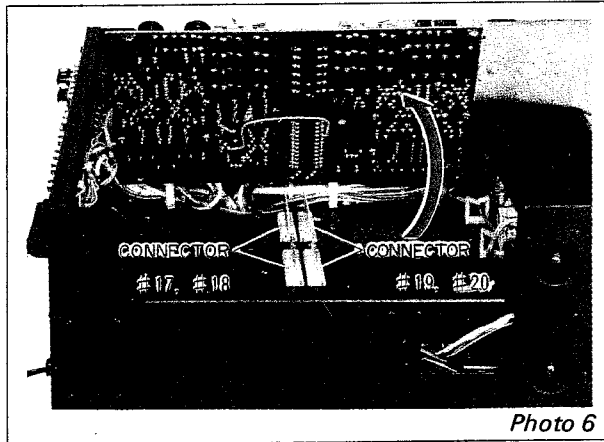


Photo 6

3. FUNCTION CIRCUIT BOARD REMOVAL

- Remove the rear panel side shield plate. (see steps 2a and b above)
- Slide the extension shaft joints toward the front panel as shown in Photo 7, and disconnect them from the switches.
- Remove connectors #1, #2, #4 to #4 and #8 to #12 as shown in Photo 7.
Note: When reconnecting, be sure to match the number on the connector with that on the circuit board.
- Remove circuit board fixing screws (1) to (5) as shown in Photo 7.
- When removing the circuit board be careful to gently separate chassis connectors #3 and #7 and then carefully lift the circuit board out.

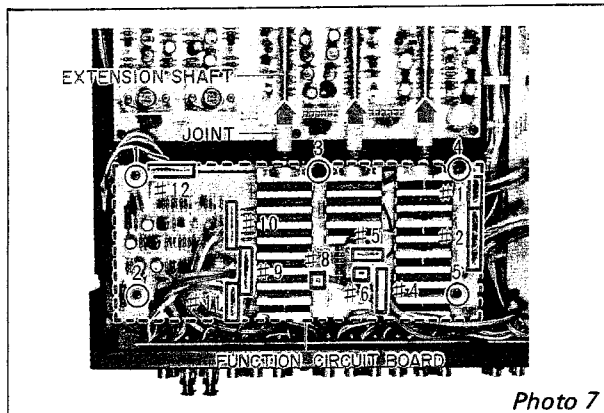


Photo 7

4. EQUALIZER CIRCUIT BOARD REMOVAL

- Remove the bottom cover.
- Remove the two screws from the pink noise tone amp circuit board fixing metal.
- Lift up both the tone amp and pink noise circuit fixing metals as shown in Photo 8.

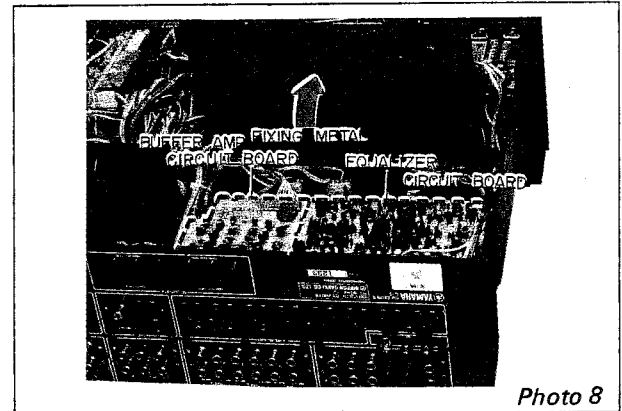


Photo 8

- Remove connectors #51, #52 and #58 as shown in Photo 9.
- Remove circuit board fixing screws (1) to (4).
- When removing the circuit board be careful to gently separate chassis/circuit board connector #50, then carefully lift the circuit board out.

5. BUFFER AMP CIRCUIT BOARD REMOVAL

- Remove the tone amp and pink noise circuit board fixing metals as explained in steps a-c above.
- Remove connector #56 shown in Photo 9.
- When removing the circuit board gently separate chassis/circuit board connector #55, then carefully lift the circuit board out.

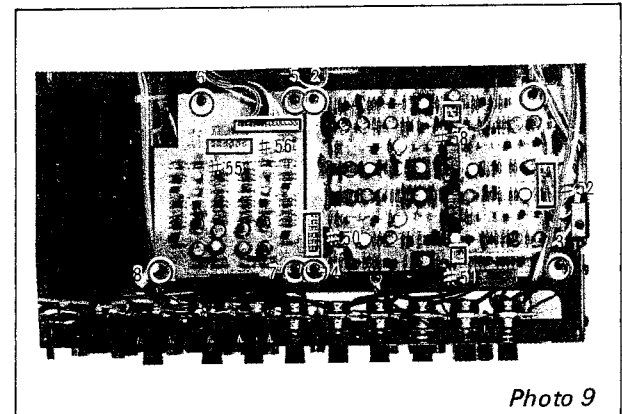


Photo 9

6. FRONT PANEL REMOVAL

- a. Remove the top cover and bottom cover.
- b. Remove the four front panel shield fixing screws on both the right and left sides, as shown in Photo 10.
- c. Lift the shield plate up and out.
- d. Remove the LED circuit board cord connector as shown in Photo 10.

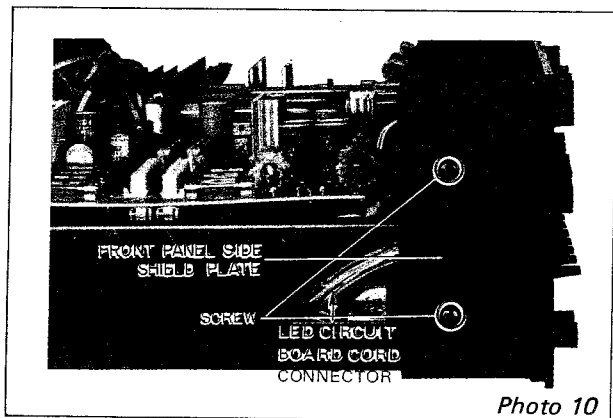


Photo 10

- e. Remove knobs (1) to (9) shown in Photo 11.
- f. Use a hexagonal allen wrench to remove knobs (10) to (12) shown in Photo 11.

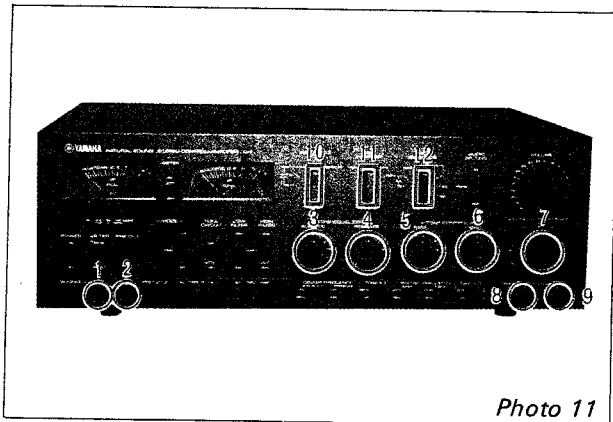


Photo 11

- g. To remove the Volume and Balance knobs, first loosen them with the hexagonal allen wrench as shown in Photo 12.

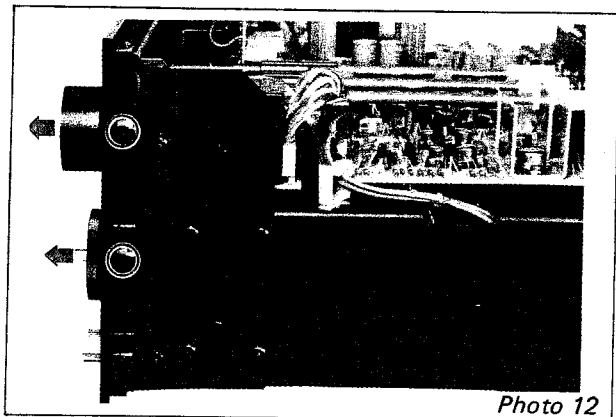


Photo 12

- h. Remove fixing screws (1) to (3) in Photo 13 and (4) to (6) in Photo 14.
- i. Gently pull the front panel away from the chassis.

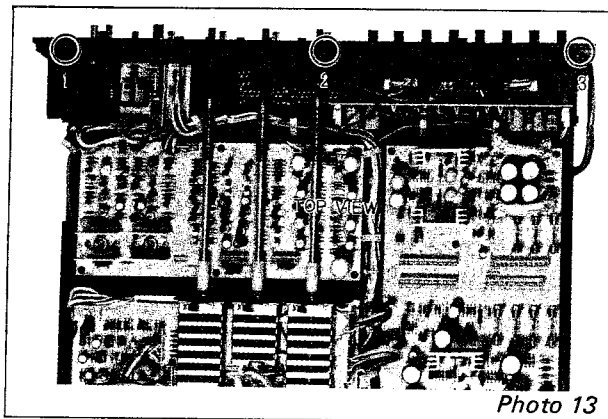


Photo 13

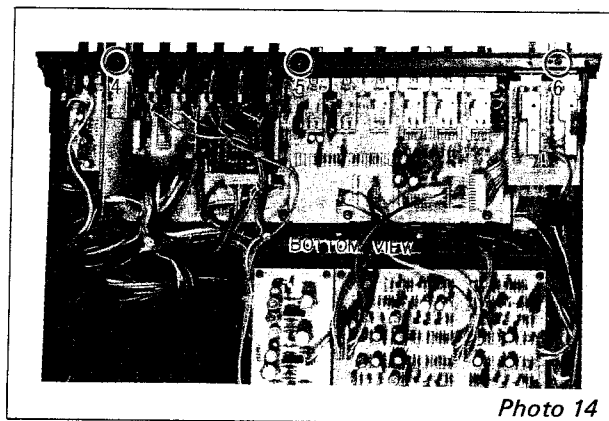


Photo 14

7. METER AMP CIRCUIT BOARD REMOVAL

- a. Remove the front panel as explained above.
- b. Remove screws (1) to (4) shown in Photo 15.

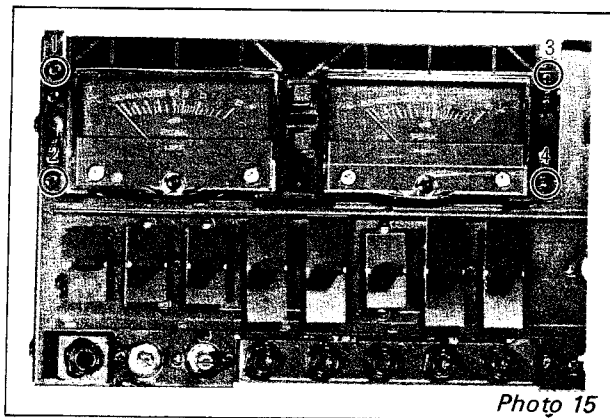


Photo 15

- c. Remove the connectors # 53 and #54 shown in Photo 16.
 - d. Remove the circuit board and meters together by pulling forward.
- Note: Be careful not to damage the meter leads at this time.

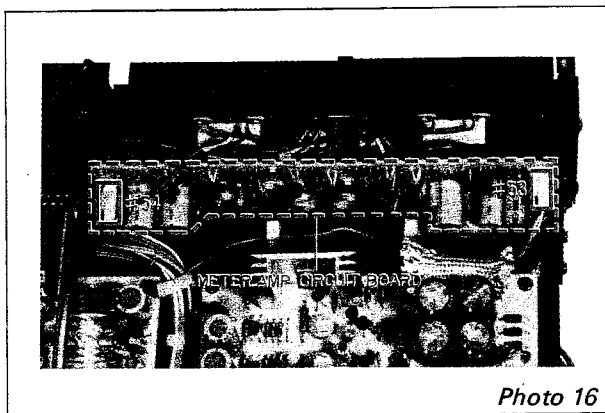


Photo 16

- e. To separate the meter amp circuit board and the meters remove screws (1) and (2) shown in Photo 17.

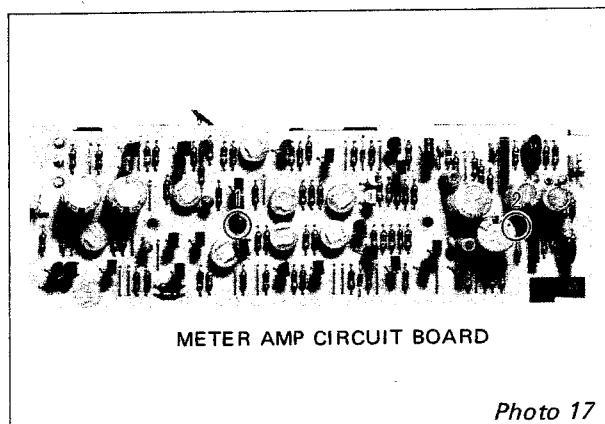


Photo 17

8. TONE CONTROL CIRCUIT BOARD REMOVAL

- a. First to remove the tone push-switch circuit board.
- b. Remove screws (1) to (5) in Photo 18.

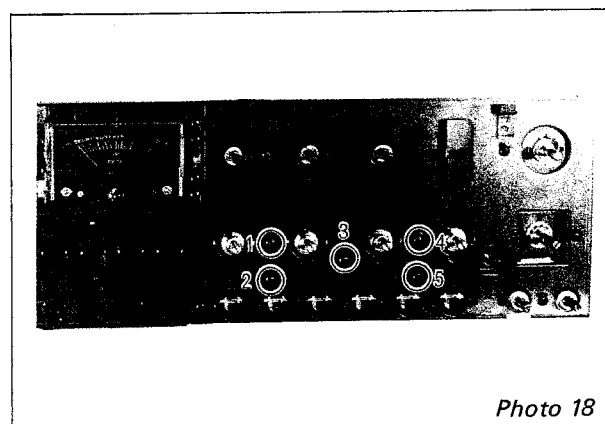


Photo 18

- c. As shown in Photo 19, slide the circuit board inside the chassis so as to remove it together with its fixing metal.

Note: When removing the circuit board, be careful not to damage its leads.

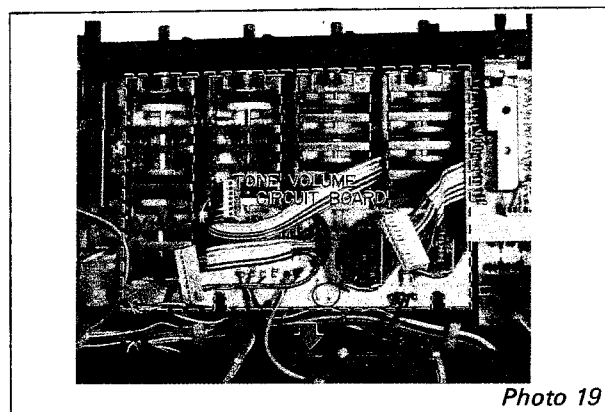


Photo 19

9. HEADPHONE VR CIRCUIT BOARD REMOVAL

- a. Remove the front panel as explained above.
- b. Remove screws (1) to (3) in Photo 20.

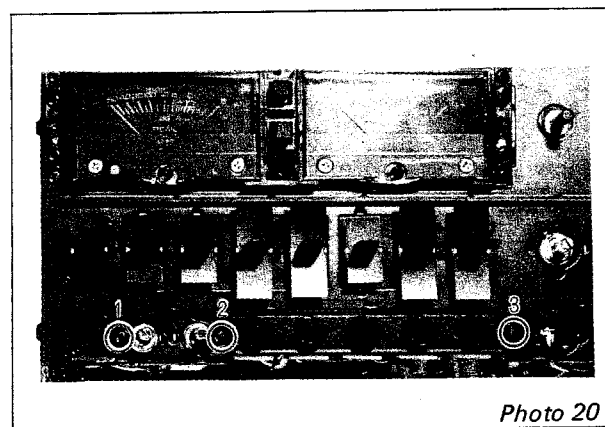


Photo 20

- c. Remove the connector #31 in Photo 21.

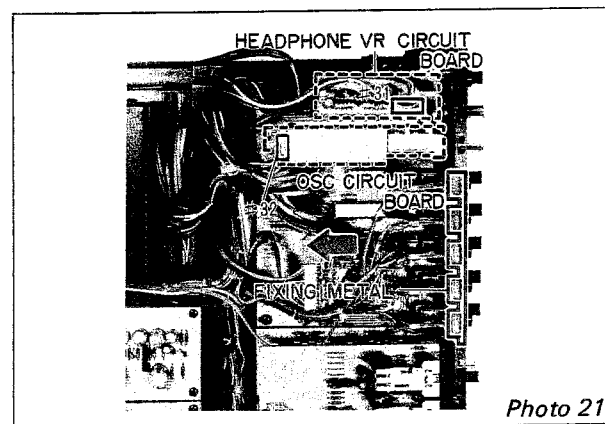
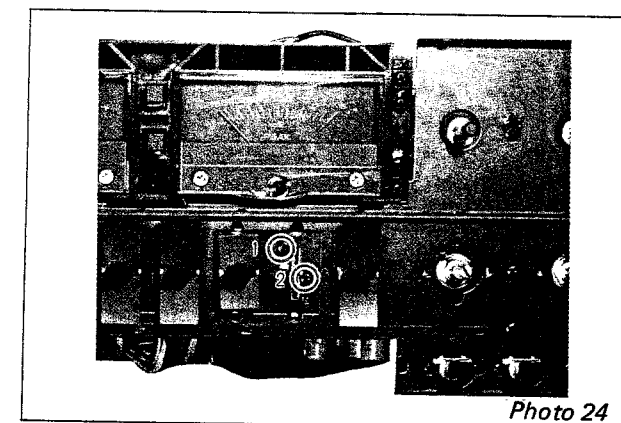
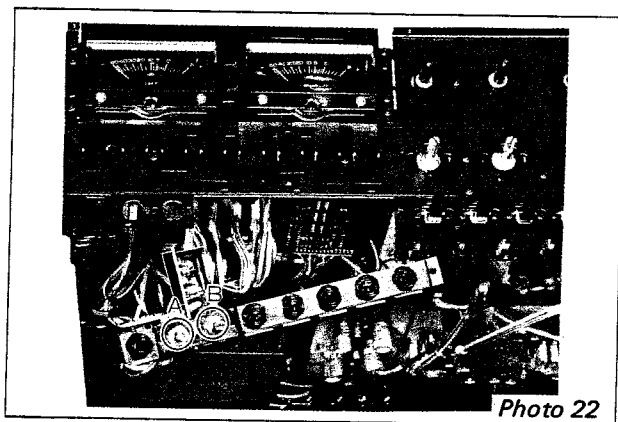


Photo 21

- d. The circuit board should be removed together with the OSC circuit board and jack fixing metal by first sliding it inside the chassis. If the Level control nut is removed from the fixing metal, the control can also be removed (see (A) in Photo 22).

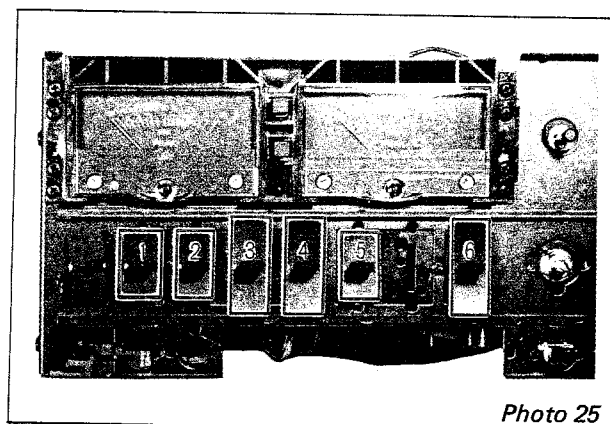
10. PHONES, PRE OUT 2, TAPE 3, MIC JACK REMOVAL

- a. See step 9 concerning headphone level control circuit board removal. Remove the fixing metal as shown in Photo 22.
- b. Remove the nut for each jack: Phones, Pre Out 2, Tape 3, Mic.



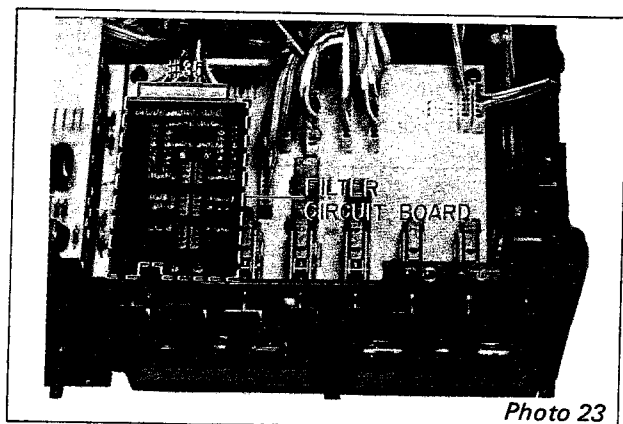
12. LEVER SWITCH CIRCUIT BOARD REMOVAL

- a. Remove the filter circuit board (see step 11).
- b. Remove lever switch knobs (1) to (6) shown in Photo 25.

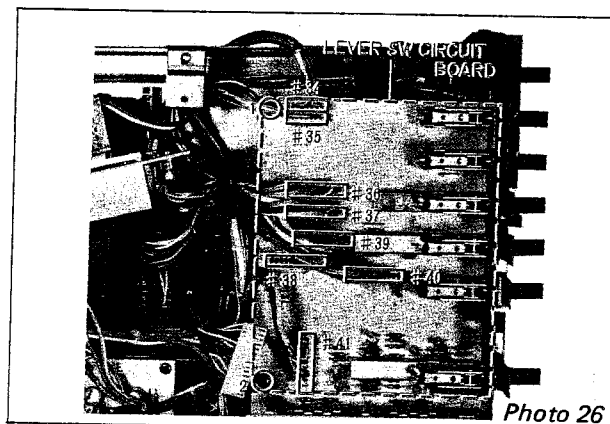


11. FILTER CIRCUIT BOARD REMOVAL

- a. See the explanation on headphone level control circuit board removal. Then remove the headphone level control, OSC circuit board and jack fixing metal (see step 9).
- b. Remove the connector #35 shown in Photo 23.



- c. Remove the connectors #34 to #41 shown in photo 26.
- d. Remove screws (A) and (B) in Photo 27.
- e. Remove screws (1) and (2) in Photo 26, then take out the circuit board.



- c. Remove the lever switch knob shown in Photo 24.
- d. Remove screws (1) and (2) in Photo 24, then take out the circuit board.

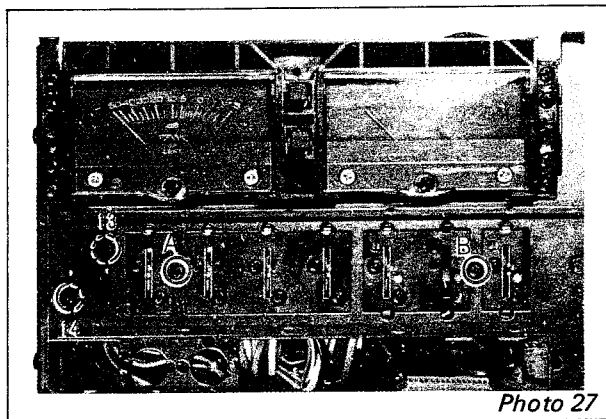


Photo 27

13. LOUDNESS CIRCUIT BOARD REMOVAL

- Remove the impedance change SW circuit board.
- Remove the Screws (1) and (2) shown in Photo 28, and the nut (3).

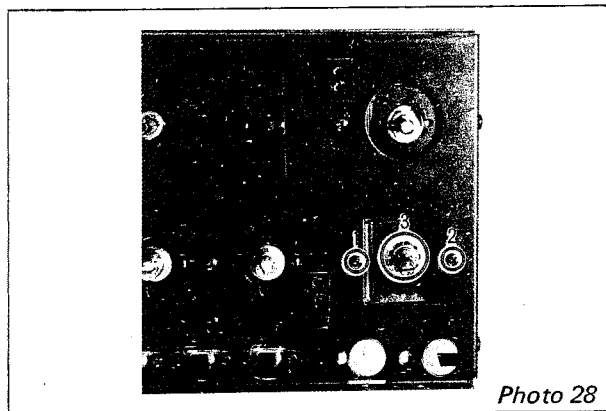


Photo 28

- Remove connectors #49 and #57 shown in Photo 29.

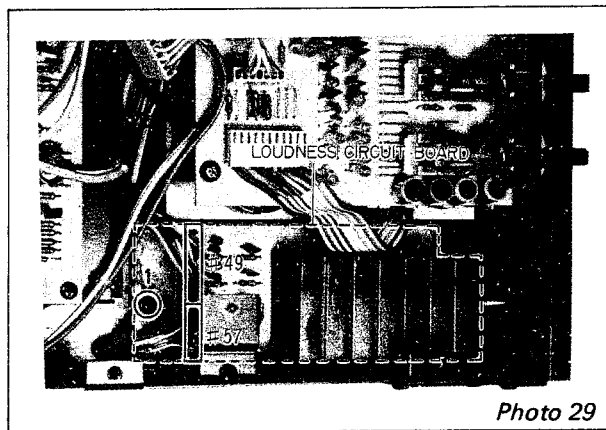


Photo 29

- Remove the circuit board with its fixing metals from the inside of the chassis. After removing, tighten screw (1). When doing this, try to pull out the circuit board to bend to the side as

shown in Photo 30 so that it does not touch other parts.

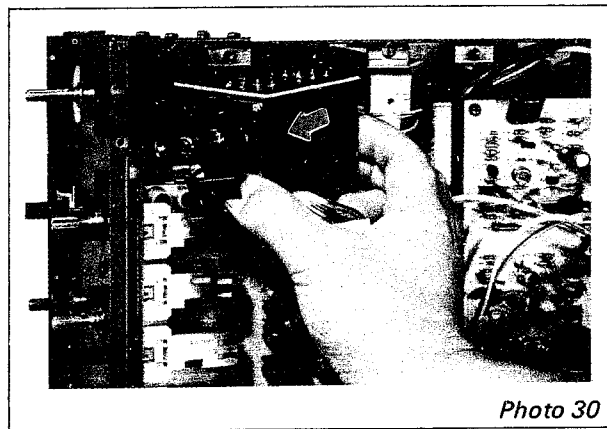


Photo 30

14. SLIDE SWITCH CIRCUIT BOARD REMOVAL

- Remove the case as explained above.
- Remove the inside cover.
- Remove screws (1) to (4) from the rear panel as Photo 31.

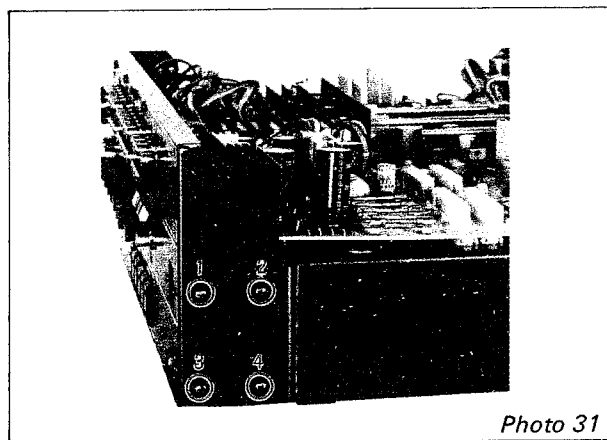


Photo 31

- Remove plastic rivets (1) to (6) shown in Photo 32, as well as screws (A) and (B); then remove the circuit board.

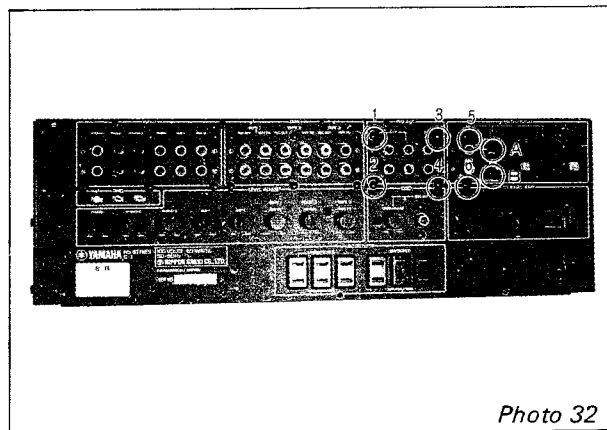


Photo 32

ADJUSTMENT

When using 2SK78, each unit must be used according to the rank below. When using a pair, select both from the same rank.

UNIT	Tr. No.	PRESSURE	RANK
EQUALIZER	Tr. 203 ~ 206	C	DK, DL, DM, DN, EK, EL, EM, EN, FK, FL, FM, FN, GK, GL, GM, GN
	Tr. 221, 222 225, 226	A	CK, CL, CM, DK, DL, DM, EK, EL, EM
TONE CONTROL	1115 ~ 1118	C	DK, DL, DM, DN, EK, EL, EM, EN, FK, FL, FM, FN, GK, GL, CM, GN
	1137, 1138 1141, 1142	A	CK, CL, CM, DK, DL, DM, EK, EL, EM
ACOUSTIC	1123, 1124	C	AK, AL, BK, BL, CK, CL
AUX TAPE BUFF	Tr. 515, 516 435, 436	C	AK, AL, BK, BL, CK, CL, DK, DL

For 2SK75, refer to the list below.

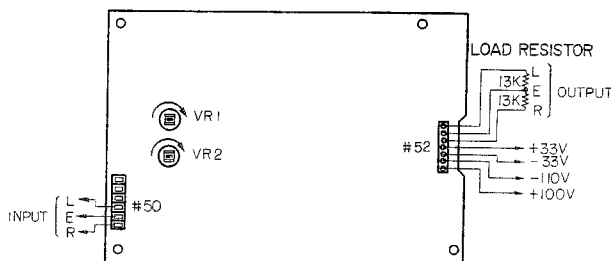
UNIT	Tr. No.	PRESSURE	RANK
OUTPUT BUFFER	Tr. 815, 816	C	AK, AL, BK, BL, CK, CL

1. CIRCUIT BOARD ADJUSTMENT

1. EQUALIZER CIRCUIT BOARD

■ CONNECTIONS

- NOTES: 1) Turn VR1 and VR2 all the way to the right.
2) Adjust VR1 and VR2 during all general adjustments (or checks).

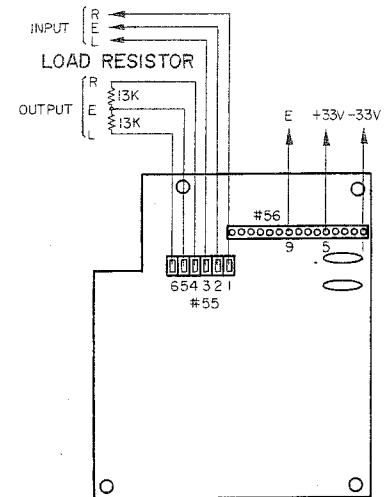


■ MEASUREMENT ITEMS

ITEM	INPUT	OUTPUT	DISTORTION	FREQUENCY
OUTPUT POWER LEVEL and MAXI- MUM OUTPUT POWER	2 mV	150 mV $\pm$ 5 mV 775 mV (0 dBm) 13V (24.5 dBm) 13V (24.5 dBm) 3V (11.75 dBm)	Less than 0.02% Less than 0.02% Less than 0.05% Less than 0.05% Less than 0.05%	1 KHz 20/1K/20 KHz 20 Hz 1 KHz 20 KHz
FREQUENCY CHARACTERISTICS		5.5V $\pm$ 18 mV (16.95 dBm $\pm$ 0.2 dB) 4.5V $\pm$ 18 mV (15.28 dBm $\pm$ 0.2 dB) 2.0V $\pm$ 18 mV (8.22 dBm $\pm$ 0.2 dB) 775 mV (0 dBm) 300 mV $\pm$ 18 mV (-8.23 dBm $\pm$ 0.2 dB) 107 mV $\pm$ 18 mV (-17.17 dBm $\pm$ 0.2 dB)		50 Hz 70 Hz 200 Hz 1 KHz 5 KHz 15 KHz

2. BUFFER AMP CIRCUIT BOARD

■ CONNECTIONS

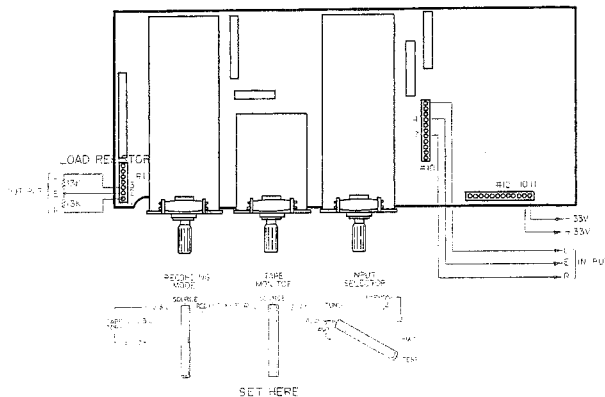


■ MEASUREMENT ITEMS

ITEM	INPUT	OUTPUT	DISTORTION	FREQUENCY
OUTPUT POWER	775 mV (0 dBm)	775 mV $\pm$ 27 mV (0 dBm $\pm$ 0.3 dB)	Less than 0.02%	20/1K/20 KHz
	13V (24.5 dBm)	13V $\pm$ 27 mV (24.5 dBm $\pm$ 0.3 dB)	Less than 0.02%	20/1K/20 KHz
FREQUENCY CHARACTERISTICS		775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 Hz
		775 mV (0 dBm)		1 KHz
		775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 KHz

3. FUNCTION CIRCUIT BOARD

■ CONNECTIONS



MEASUREMENT ITEMS

ITEM CHECKED	INPUT	OUTPUT	DISTORTION	FREQUENCY
OUTPUT	775 mV (0 dBm) 13V (24.5 dBm)	775 mV $\pm$ 27 mV (0 dBm $\pm$ 0.3 dB) 13V $\pm$ 27 mV (24.5 dBm $\pm$ 0.3 dB)	Less than 0.02%	20/1K/20 KHz
FREQUENCY CHARACTERISTICS		775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB) 775 mV (0 dBm) 775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 Hz 1 KHz 20 KHz

4. FLAT AMP CIRCUIT BOARD

CONNECTIONS

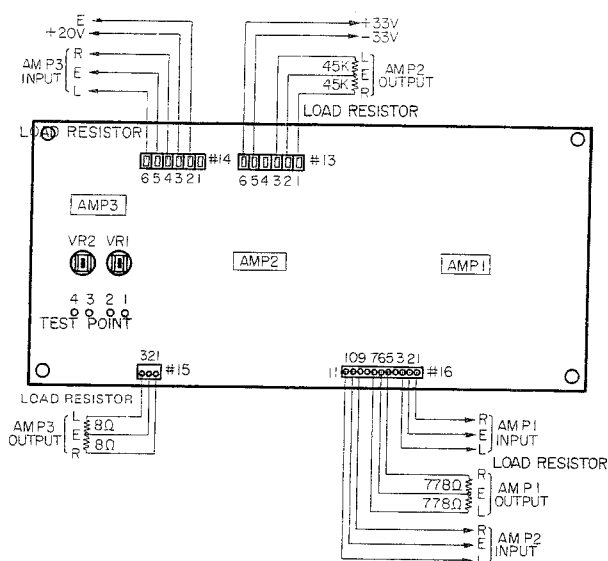
Note: $\pm$ 33V: Power for Amp 1, 2

+20V: Power for Amp 3

No ground is connected in the Circuit Board for Amps 1, 2 and 3.

ADJUSTMENT

Adjust VR1 between test points 1 (+) and ~2 (–)
and VR2 between test points 4 (+) and ~3 (–)
for a reading of 10 mV. (Adjust at no signal).



MEASUREMENT ITEMS

AMP1	INPUT	OUTPUT	DISTORTION	FREQUENCY
OUTPUT LEVEL	775 mV (0 dBm) 7.75V (20 dBm)	775 mV (0 dBm $\pm$ 0.3 dB) 7.75V (20 dBm $\pm$ 0.3 dB)	Less than 0.02%	20/1K/20 KHz
FREQUENCY CHARACTERISTICS		775 mV $\pm$ 18 mV (0 dB $\pm$ 0.2 dB) 775 mV (0 dBm) 775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 Hz 1 KHz 20 KHz

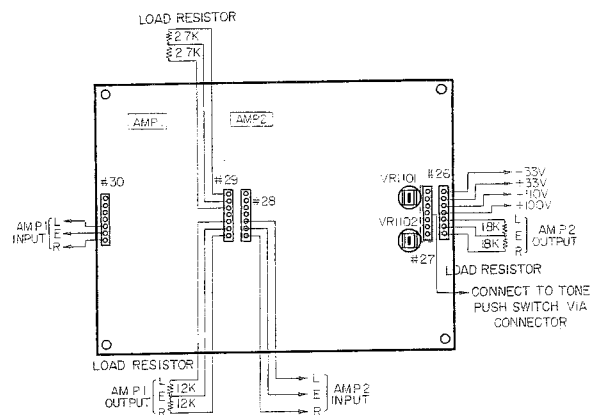
OUTPUT LEVEL	150 mV (–14.3 dBm)	775 mV $\pm$ 27 mV (0 dBm $\pm$ 0.3 dB) 15V (25.8 dBm)	Less than 0.02%	20/1K/20 KHz
FREQUENCY CHARACTERISTICS		775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB) 775 mV (0 dBm) 775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 Hz 1 KHz 20 KHz

FREQUENCY CHARACTERISTICS	138 mV (-15 dBm)	637 mV $\pm$ 46 mV (-1.7 dBm $\pm$ 0.5 dB)	Less than 0.05%	70/1K/20 KHz
OUTPUT LEVEL		245 mV $\pm$ 46 mV (-10 $\pm$ 0.05 dB) 245 mV (-10 dBm) 245 mV $\pm$ 46 mV (-10 $\pm$ 0.3 dB)		70 Hz 1 KHz 20 KHz

5. TONE AMP CIRCUIT BOARD

■ CONNECTIONS

- Notes: 1. VR1101 and 1102 should be turned all the way to the right.
2. The above VR should be adjusted during any general adjustment.
3. The connected tone push-switch circuit board forms a unit with the tone control.



■ MEASUREMENT RATINGS

AMPLI	INPUT	OUTPUT	DISTORTION	FREQUENCY
OUT LEVEL AND MAXIMUM OUTPUT	775 mV (0 dBm)	2.01V $\pm$ 46 mV (8.3 dBm $\pm$ 0.5 dB)	Less than 0.02%	20/1K/20 KHz
		15V (over 25.75 dBm)	Less than 0.03%	20/1K/20 KHz
FREQUENCY CHARACTERISTICS		775 mV $\pm$ 8 mV (0 dBm $\pm$ 0.2 dB)		20 Hz
		775 mV (0 dBm)		1 KHz
		775 mV (0 dBm $\pm$ 0.2 dB)		20 KHz

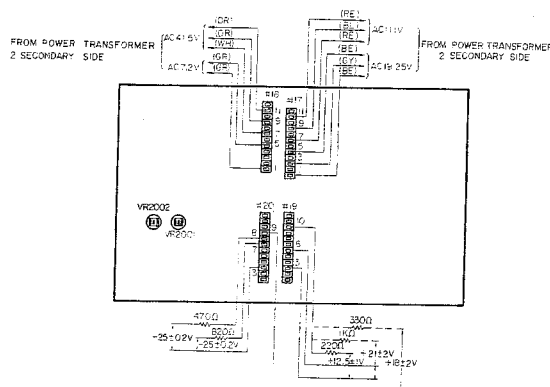
OUT LEVEL AND MAXIMUM OUTPUT	775 mV (0 dBm)	6.3V $\pm$ 46 mV (8.2 dBm $\pm$ 0.5 dB)	Less than 0.02%	20/1K/20 KHz
		19.5V (over 28.0 dBm)	Less than 0.03%	20/1K/20 KHz
FREQUENCY CHARACTERISTICS		775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 Hz
		775 mV (0 dBm)		1 KHz
		775 mV $\pm$ 18 mV (0 dBm $\pm$ 0.2 dB)		20 KHz

6. POWER CIRCUIT BOARD

■ CONNECTIONS

■ ADJUSTMENT

1. Adjust VR2001 and VR2002 so during a loaded condition there is +25.0V and -25.0V at pins 3~7 and 3~8 of #20.
2. Be sure that the 21V present between #19-10~6 rises to this level within 3~5 seconds after switching on, and drops to 0V after switching off.
3. Switch of and then on again, and check that the 21V mentioned above is present.



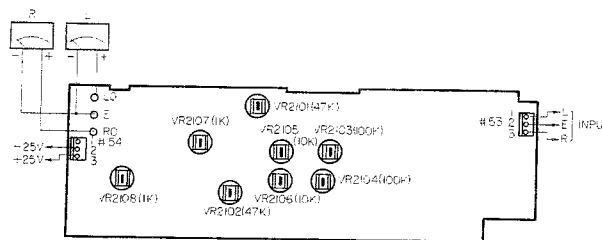
7. METER AMP CIRCUIT BOARD

■ CONNECTIONS

Input: Connect a signal generator between 1 and 2 (R. ch.) and between 3 and 2 (L. ch.) on #53.

Output: Connect LO, E, RO to left and right peak meters. E is the ground.

Power: Feed -25V to 2 of #54, +25V to 3. Connect 1 and 3.



■ ADJUSTMENT

Use the meter needle adjusting screws to set the meters at ∞.

Set each VR to its median position and feed an input signal of 1KHz.

PROCEDURE	INPUT	METER READING	ADJUSTMENT VR	
			L	R
1	245 mV (-30 dBm)	-30 dB	VR2107	2108
2	775 mV (-20 dBm)	-20 dB	VR2101	2102
3	245 mV (-10 dBm)	-10 dB	VR2103	2104
4	775 mV (0 dBm)	0 dB	VR2105	2106

Adjust so that the needle moves over the required indication point. After adjustment check for movement from +5 to -50dB, and correct if necessary.

Adjustment tolerances are checked as follows: for 0, -10, -20 and -30 the needle must be over the white

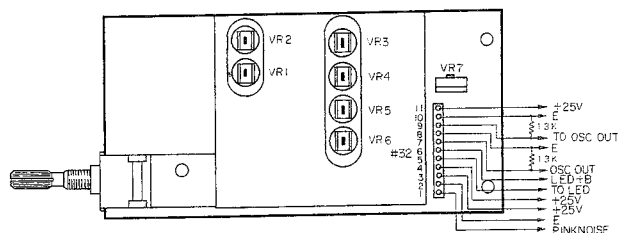
line. For -40 it must be within ±3dB, for -50 within ±5dB and for +5dB within ±0.3dB.

2. Frequency Characteristics Input 775mV (0dB)

3. When the power is switched off after a 0dB reading, the needle should drop to ∞ within 2 seconds.

8. OSC CIRCUIT BOARD

■ CONNECTIONS



Note: Adjust VR7 whenever a general adjustment is carried out.

■ ADJUSTMENT

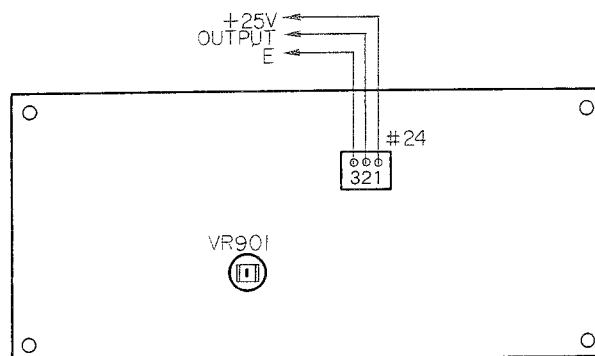
1. Set VR3 to 6 to Maximum (all the way to the right).
2. Adjust VR1 for an 0.5dB drop using an output clip (between (7) and (8)) at 70Hz.
3. Adjust VR3 to 6 for 775mV between (7) and (8) at each frequency.
4. Adjust VR2 for best possible distortion characteristics (under 0.5%) at 1KHz.

■ ADJUSTMENT

VR6		70 Hz $\pm$ 10 Hz
VR5		333 Hz $\pm$ 15 Hz
VR4		1 KHz $\pm$ 0.1 Hz ? 10 Hz
VR3		10 KHz $\pm$ 1 KHz
VR7		General Adjustment

9. PINK NOISE CIRCUIT BOARD

■ CONNECTIONS



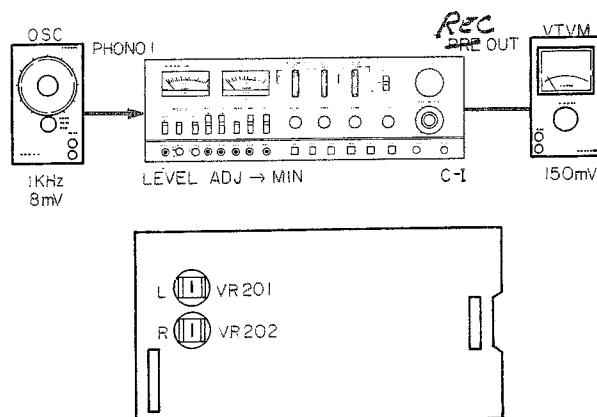
■ ADJUSTMENT

Adjust VR901 for a 300mV (-8dBm) pink noise output at the output jack.
Check that the noise waveform matches the standard configuration.

2. OVERALL ADJUSTMENT

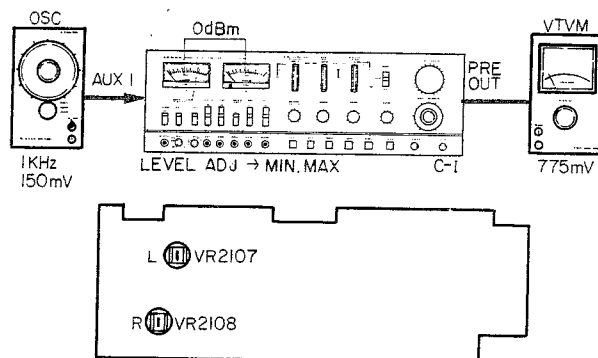
1. EQUALIZER AMP CIRCUIT BOARD ADJUSTMENT

Set the Phono 1 input level control to minimum and feed a 1KHz 8mV signal in through the Phono 1 jack. Adjust VR201 and 202 on the equalizer circuit board for a 150mV output from the Rec Out jack at this time.



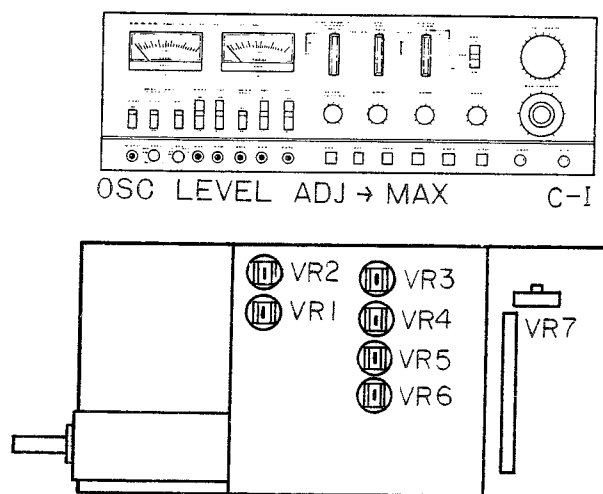
2. METER AMP CIRCUIT BOARD ADJUSTMENT

Feed a 1KHz, 150mV signal to the Aux 1 jack and check for 775mV (0dBm) when the Aux 1 level control is set to maximum. Adjust VR2107, and 2108 on the meter amp sheet for a meter reading of 0dBm at this time.



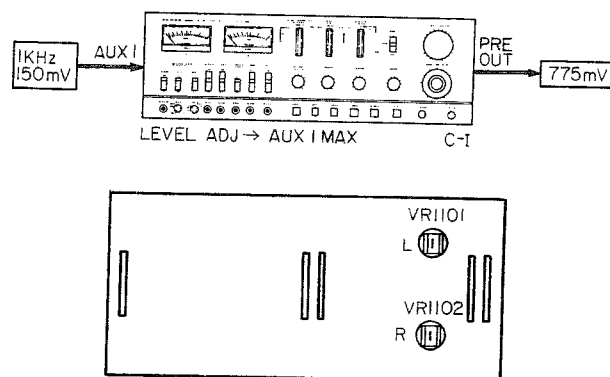
3. OSC CIRCUIT BOARD ADJUSTMENT

Adjust VR7 on the OSC circuit board so that the peak meters read 0dBm for each output: pink noise, 10KHz, 1KHz, 333Hz and 70Hz.

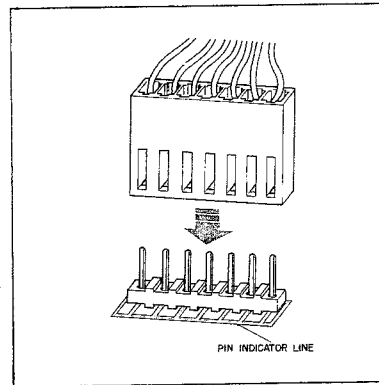


4. TONE AMP CIRCUIT BOARD ADJUSTMENT

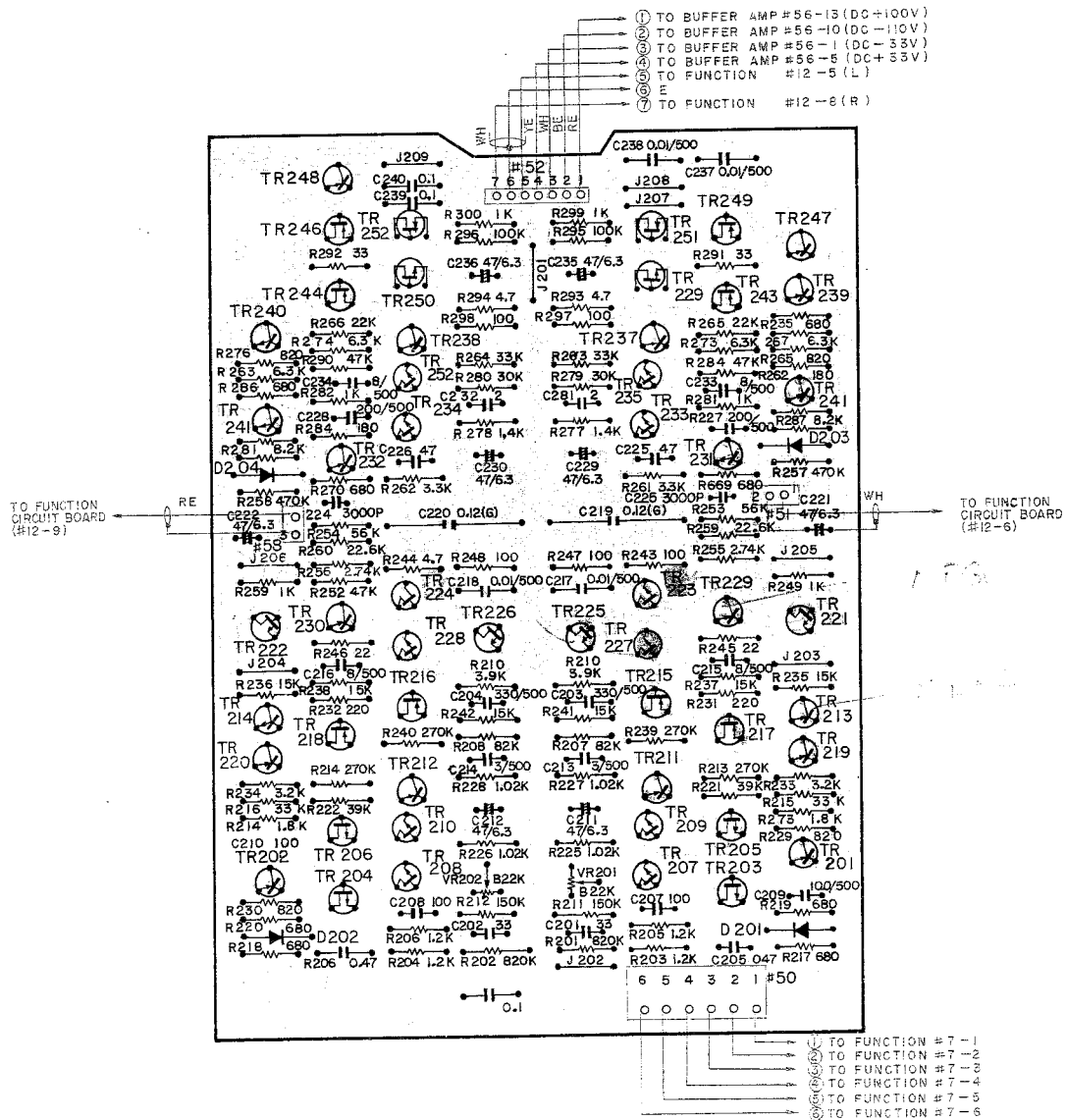
Feed a 150mV signal into the Aux 1 jack and check the output from the Pre Out jack. Adjust the tone amp VR1101 and 1102 so that there is a 0dB difference when the Tone Circuit switch is turned on and off.

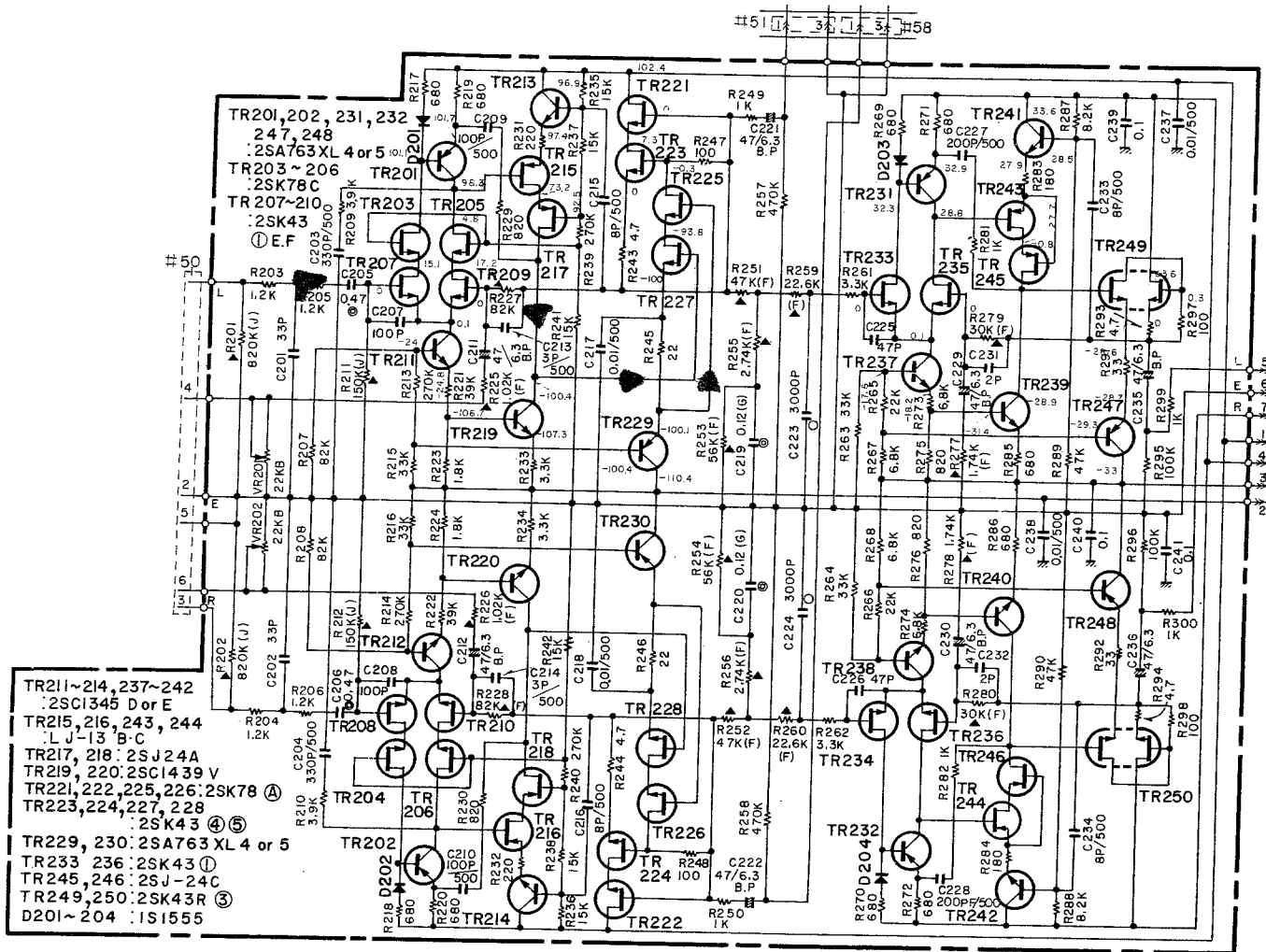


PRINTED CIRCUIT BOARD

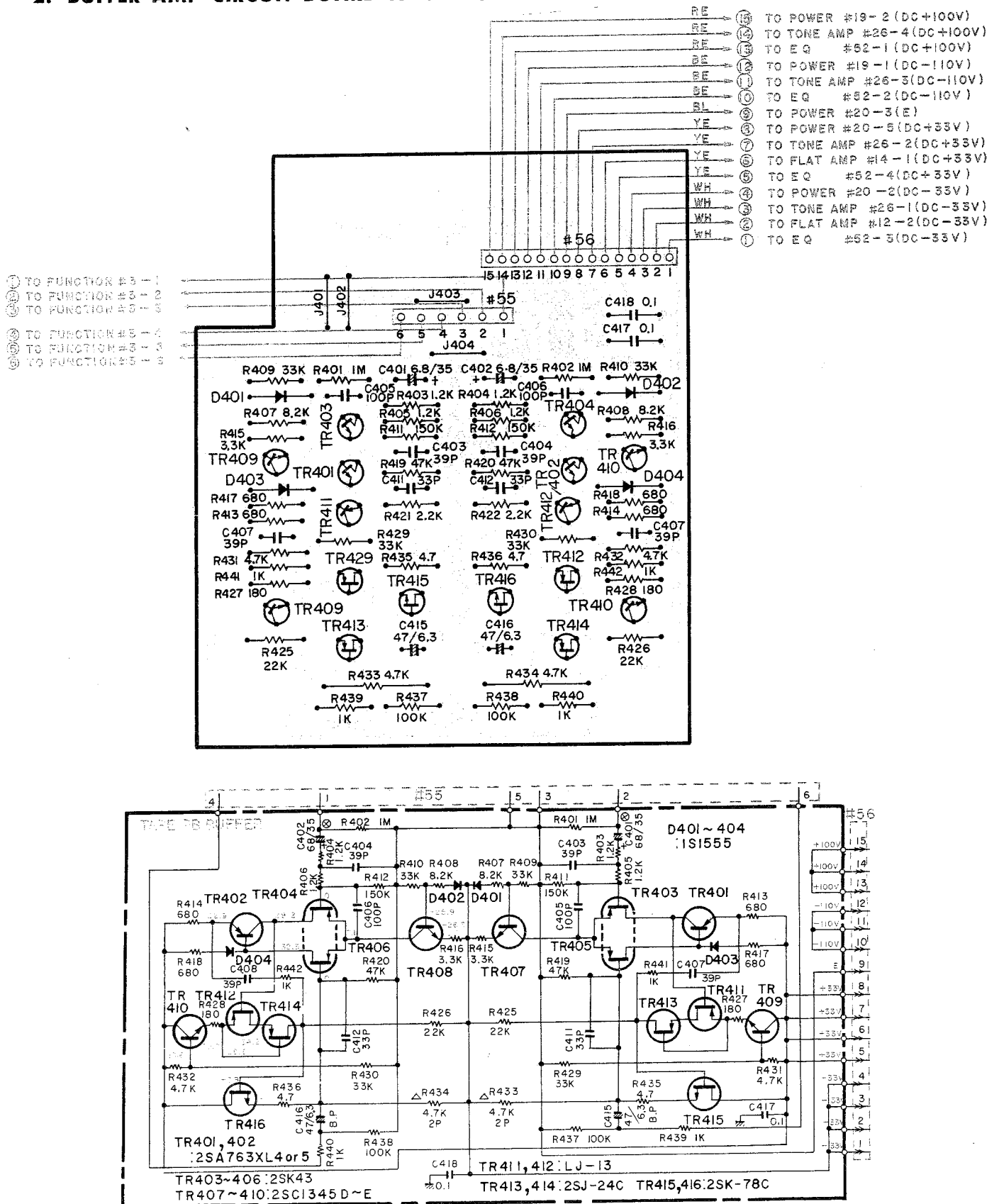


1. EQUALIZER CURCUIT BOARD NAO6714

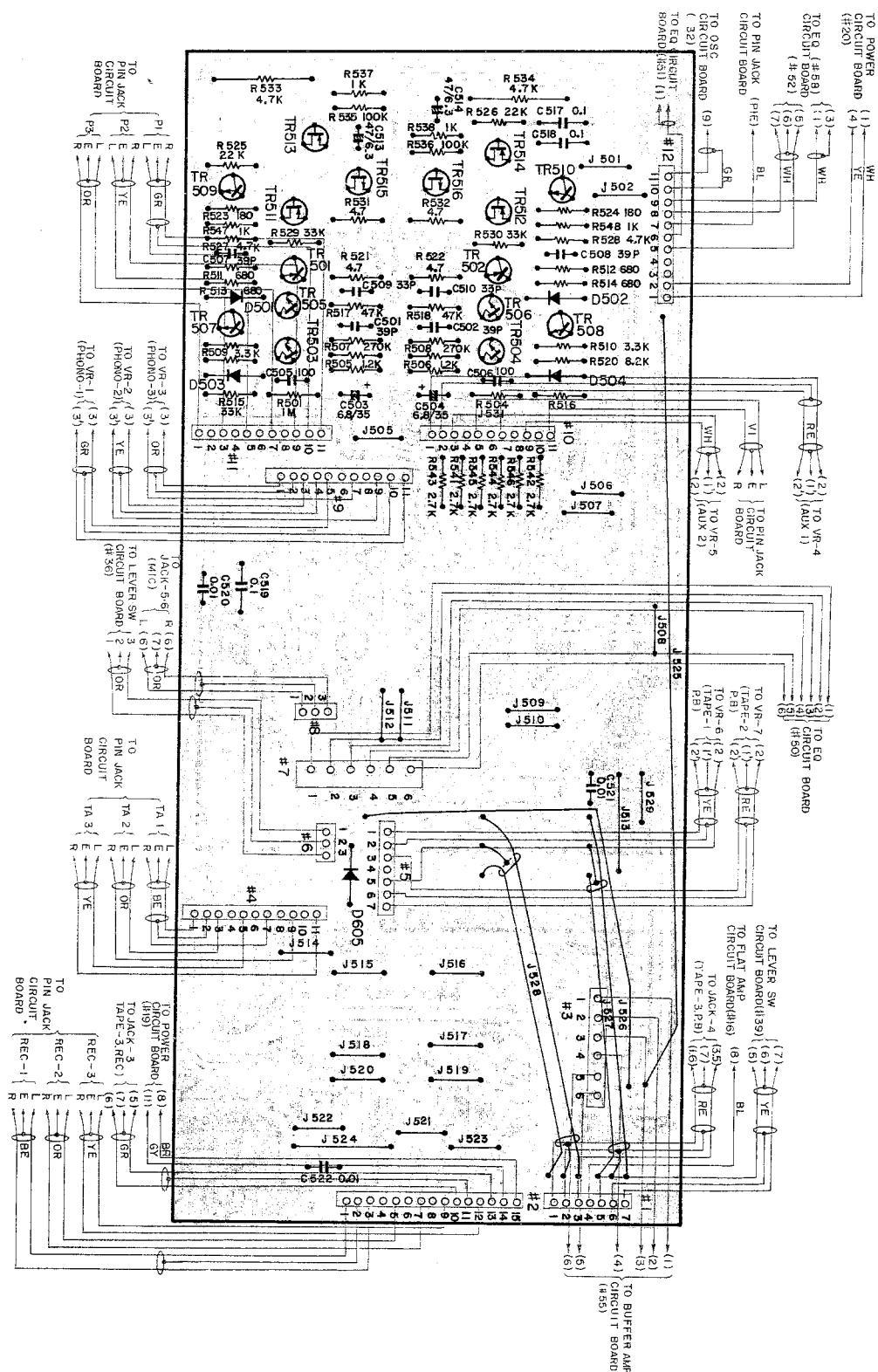


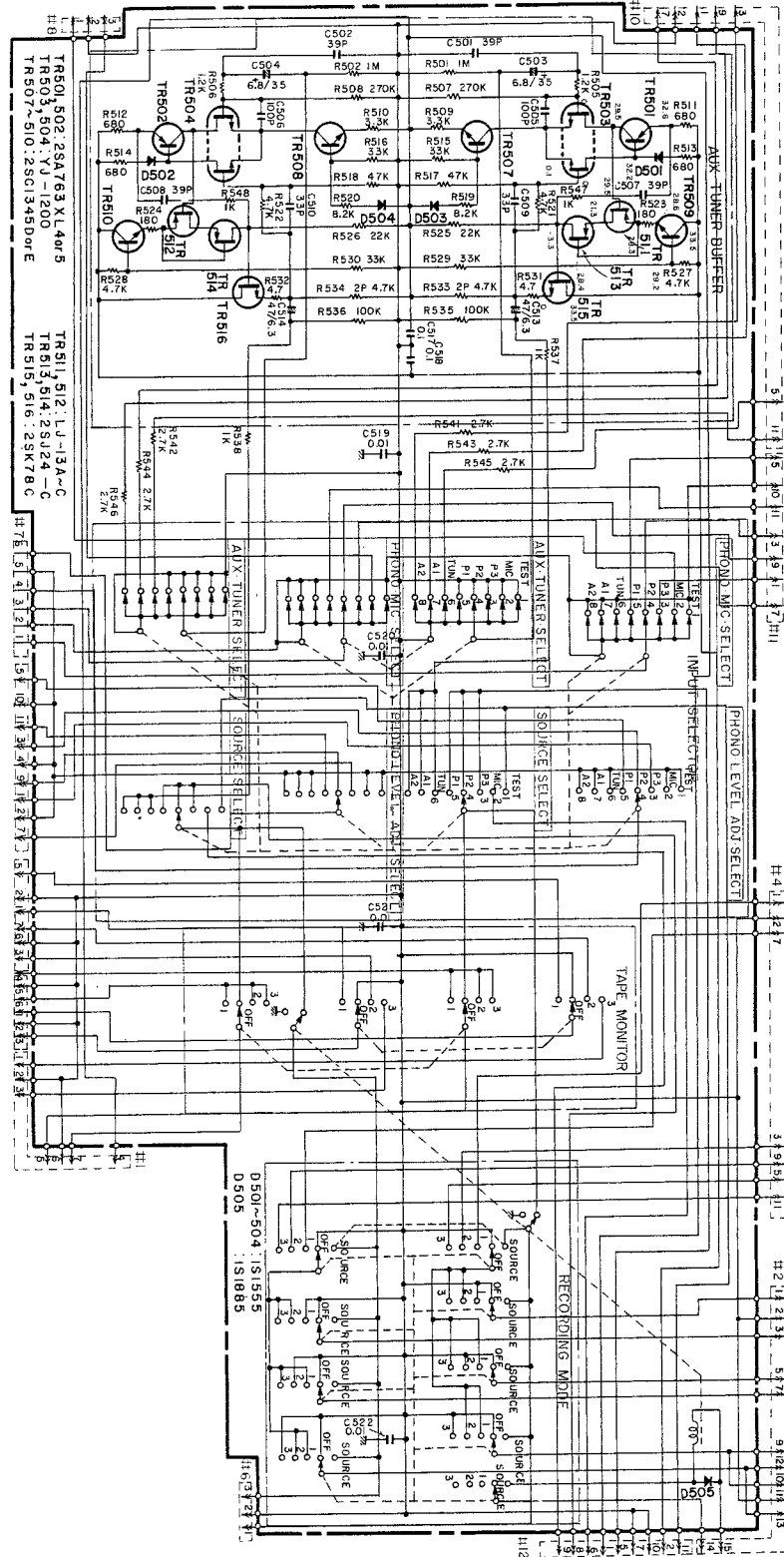


2. BUFFER AMP CIRCUIT BOARD NAO6715

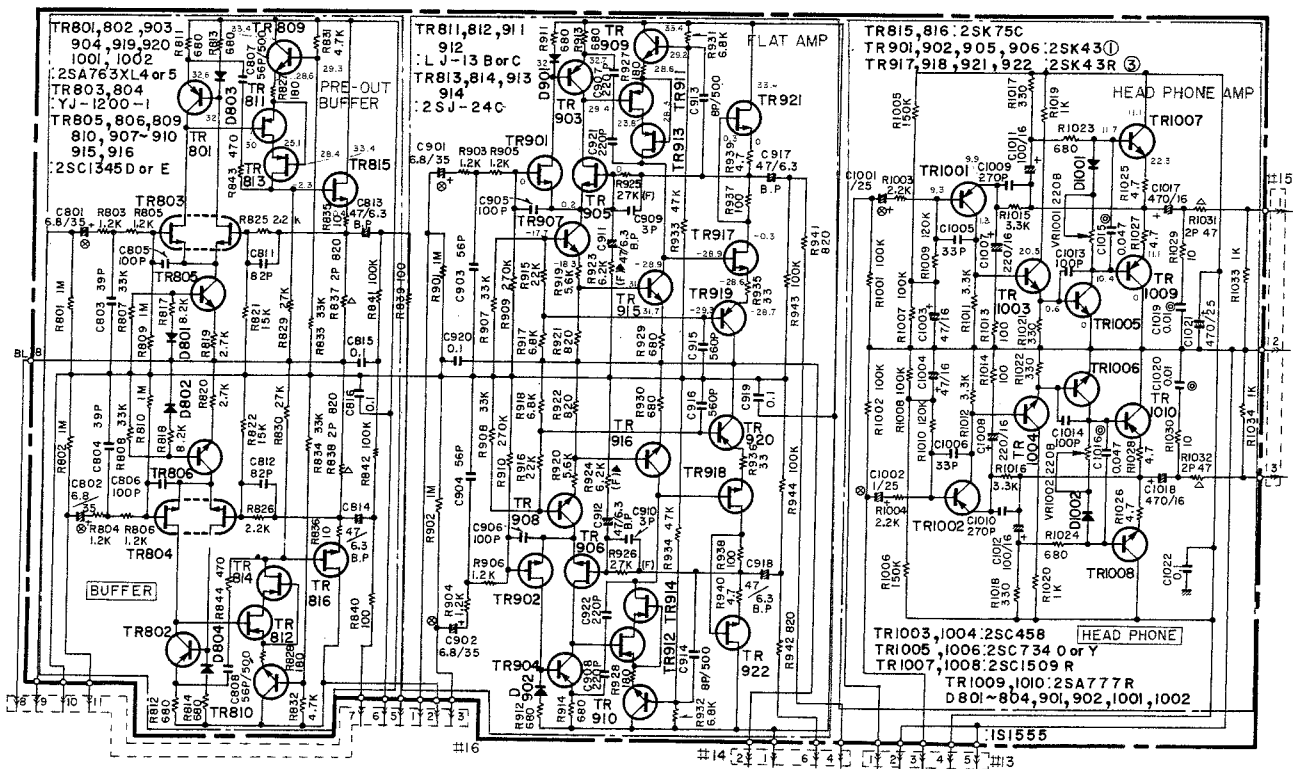
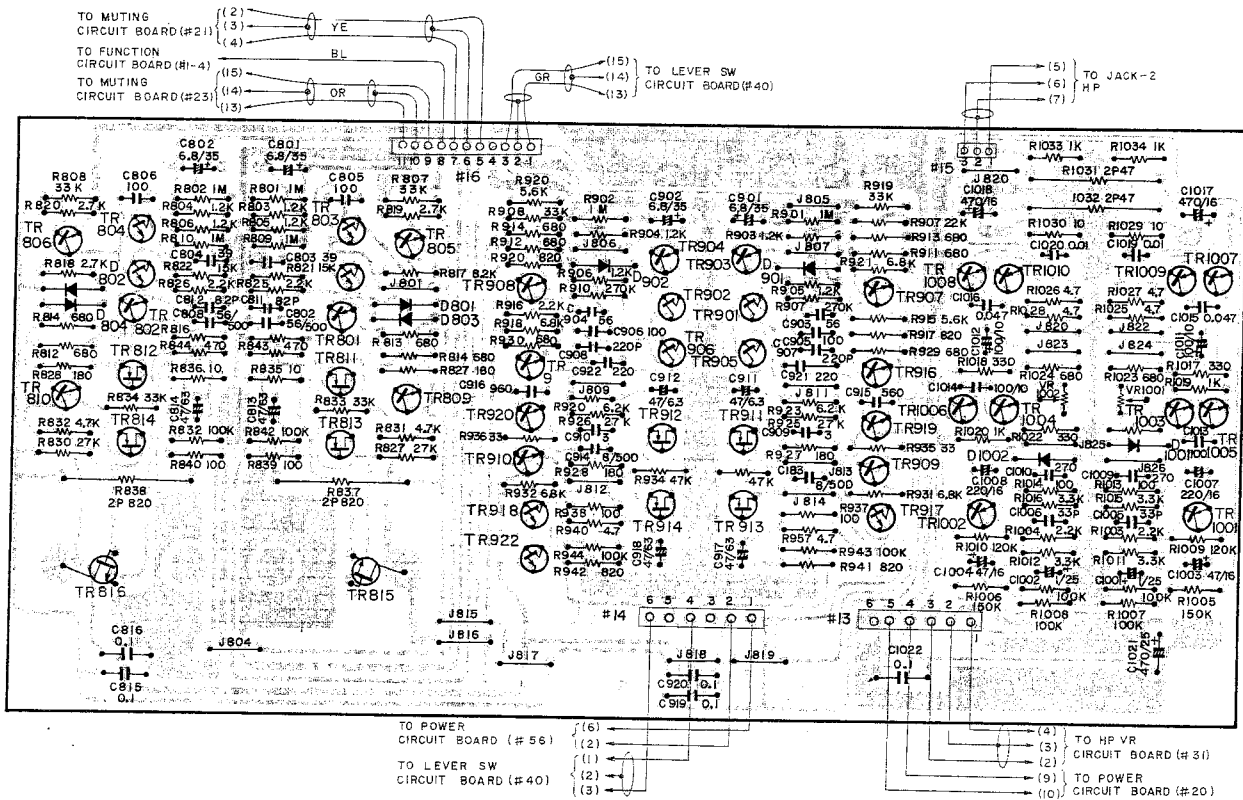


3. FUNCTION CIRCUIT BOARD NAO6716

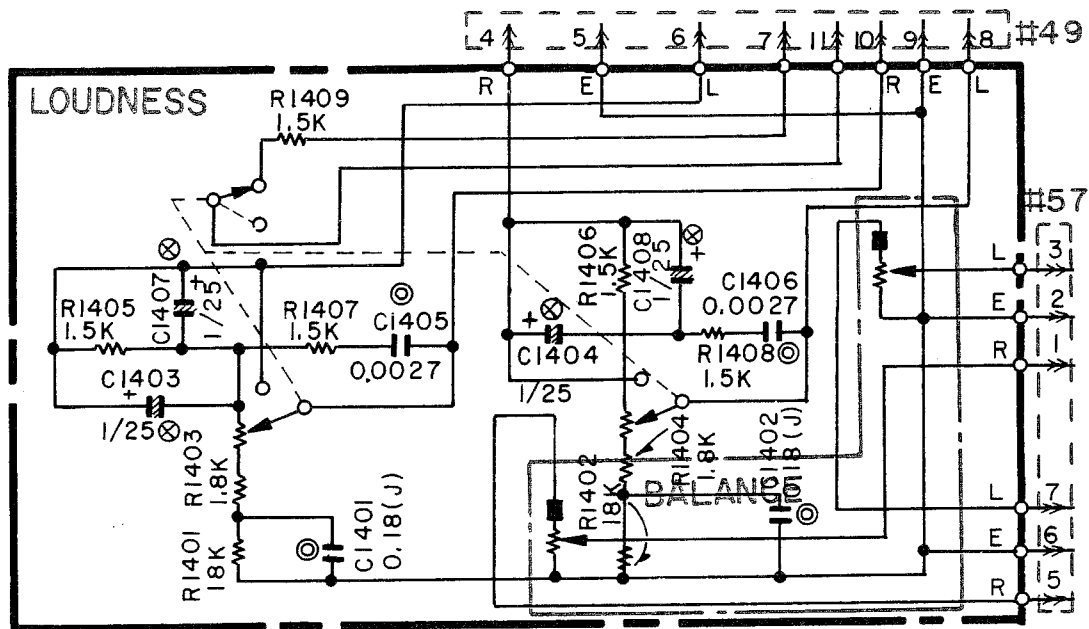
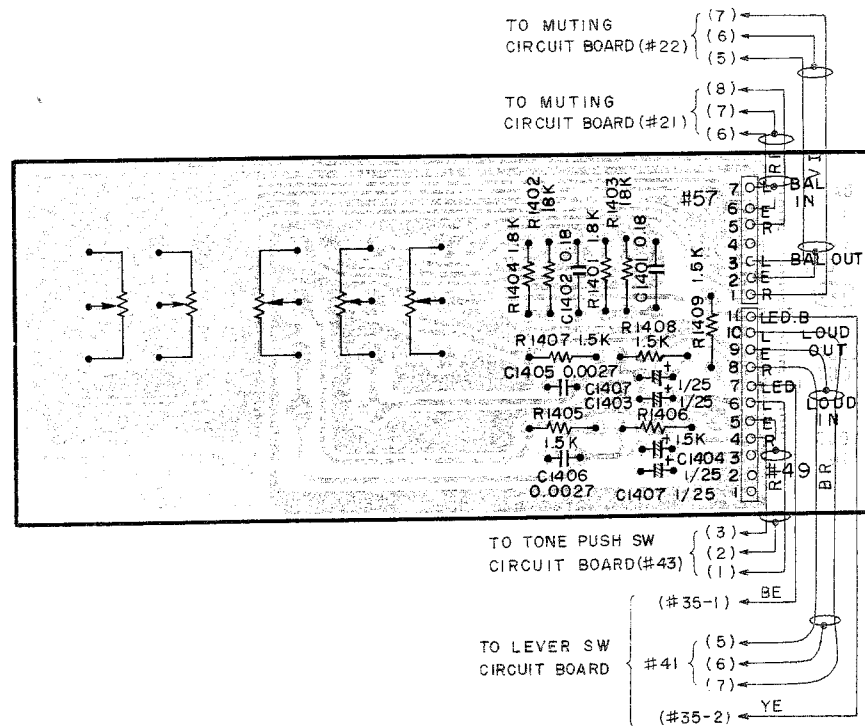




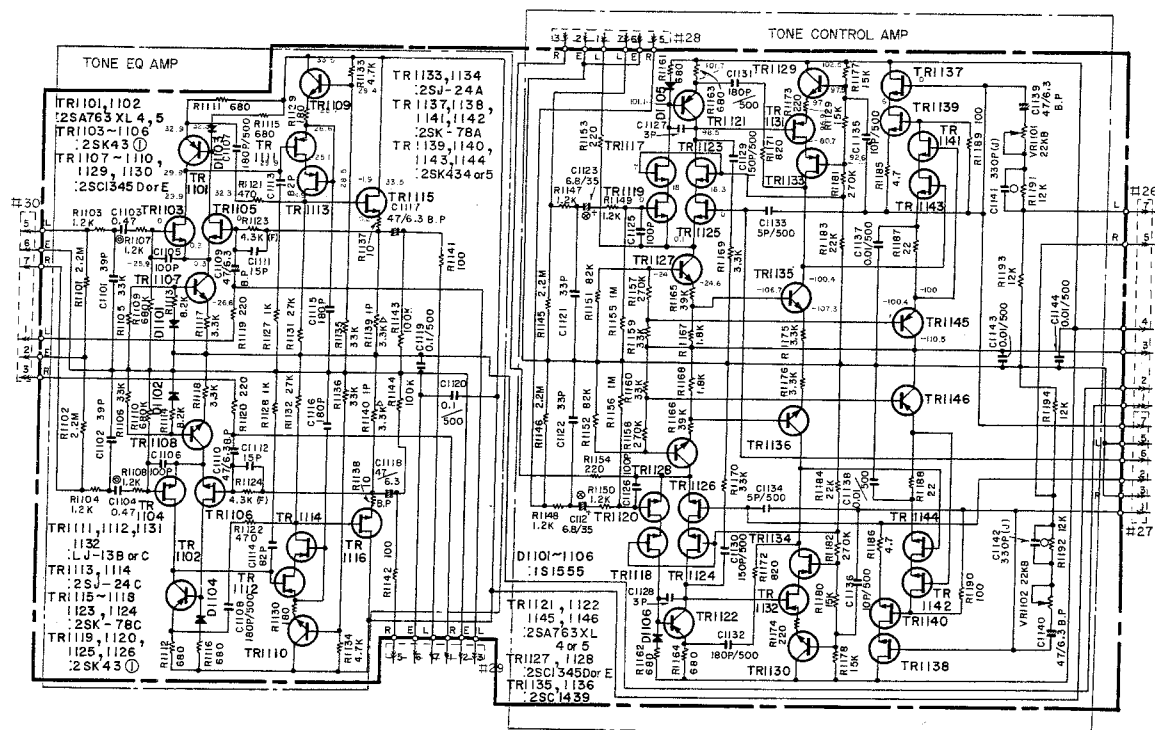
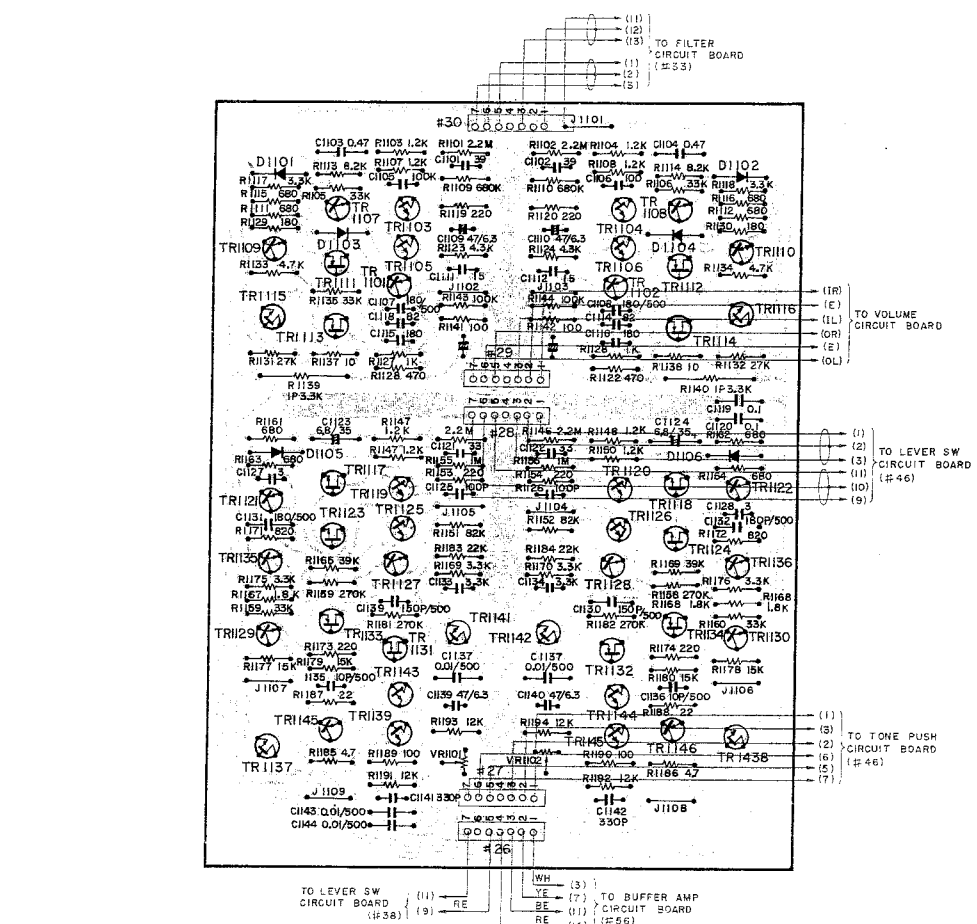
4. FLAT AMP CIRCUIT BOARD NAO6717



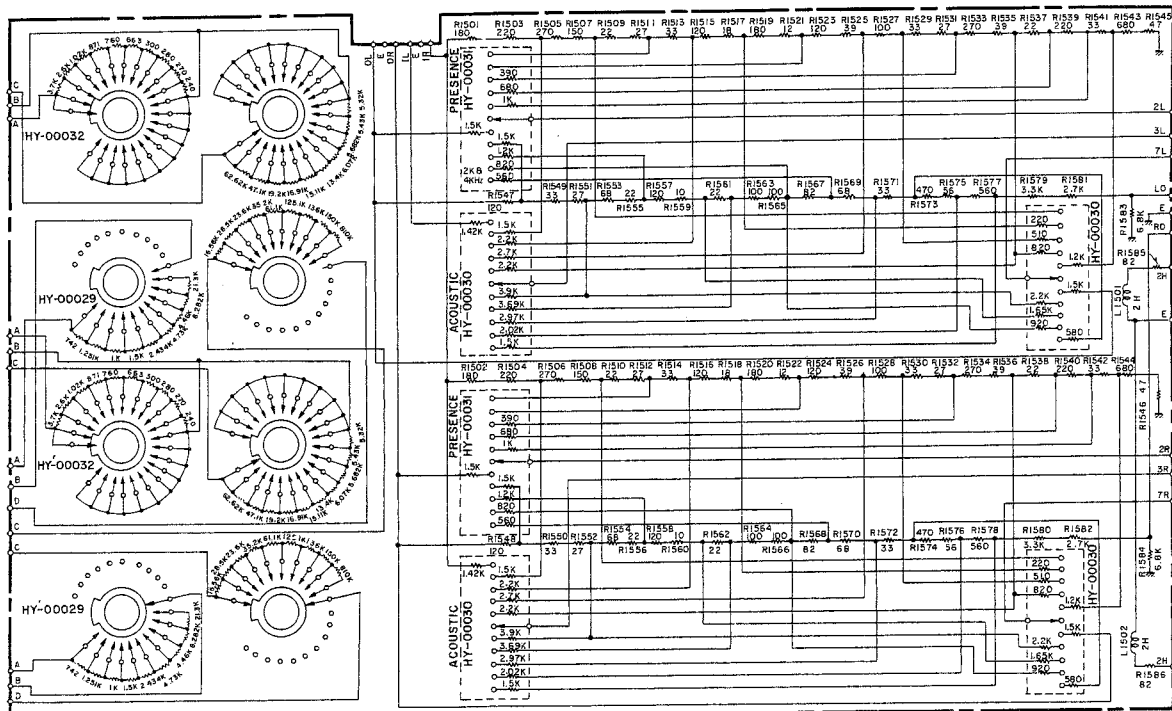
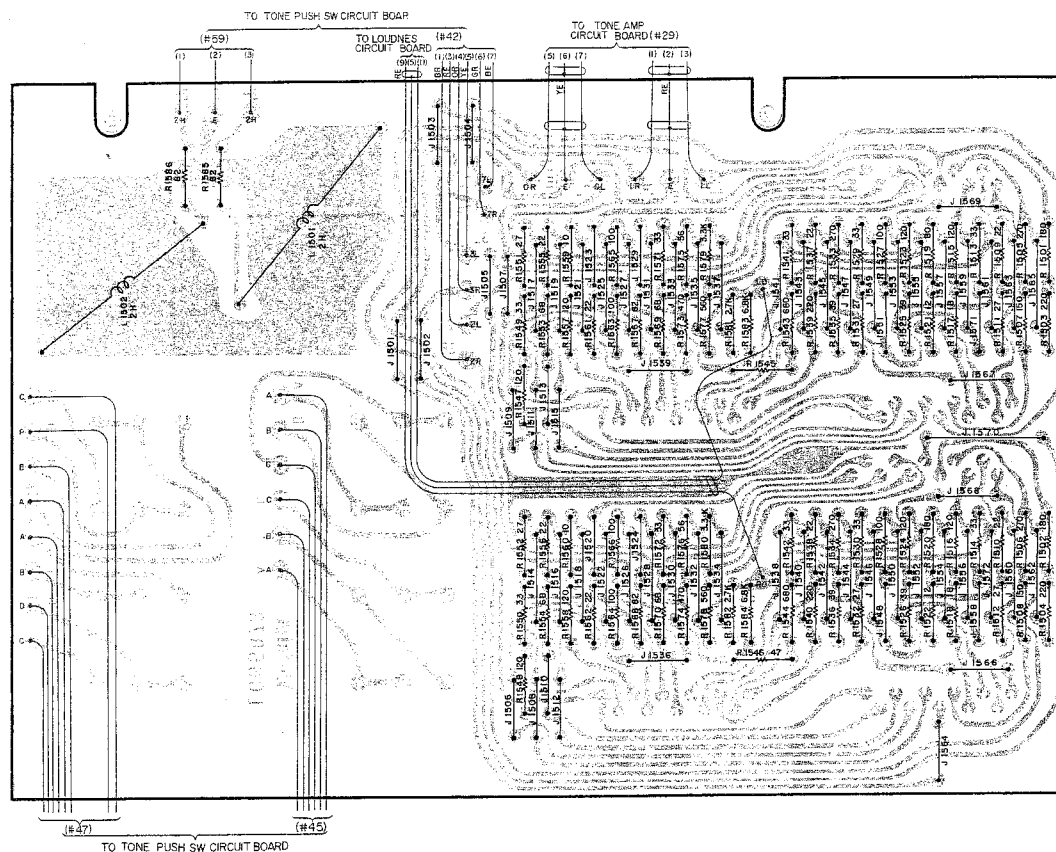
5. LOUDNESS CIRCUIT BOARD NAO6718



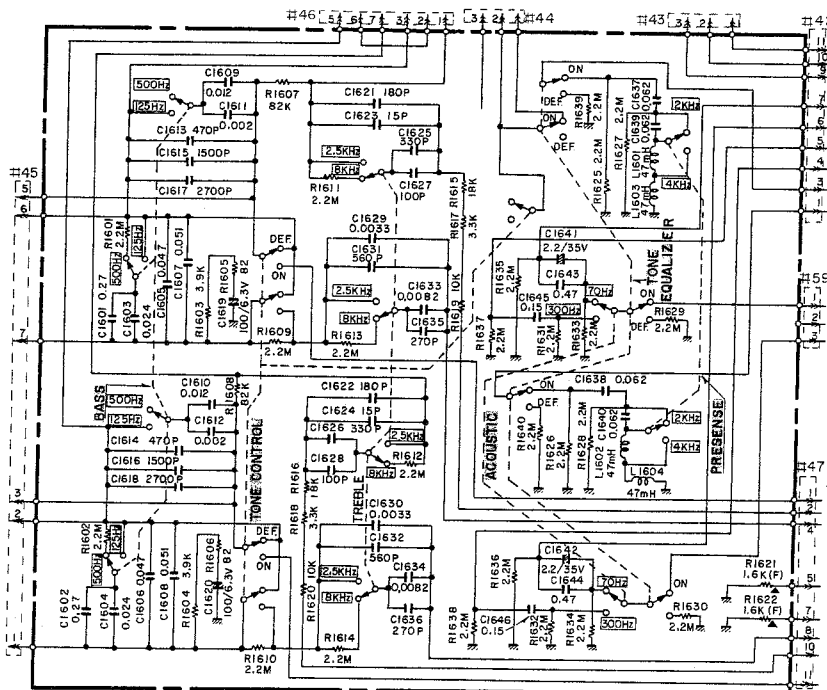
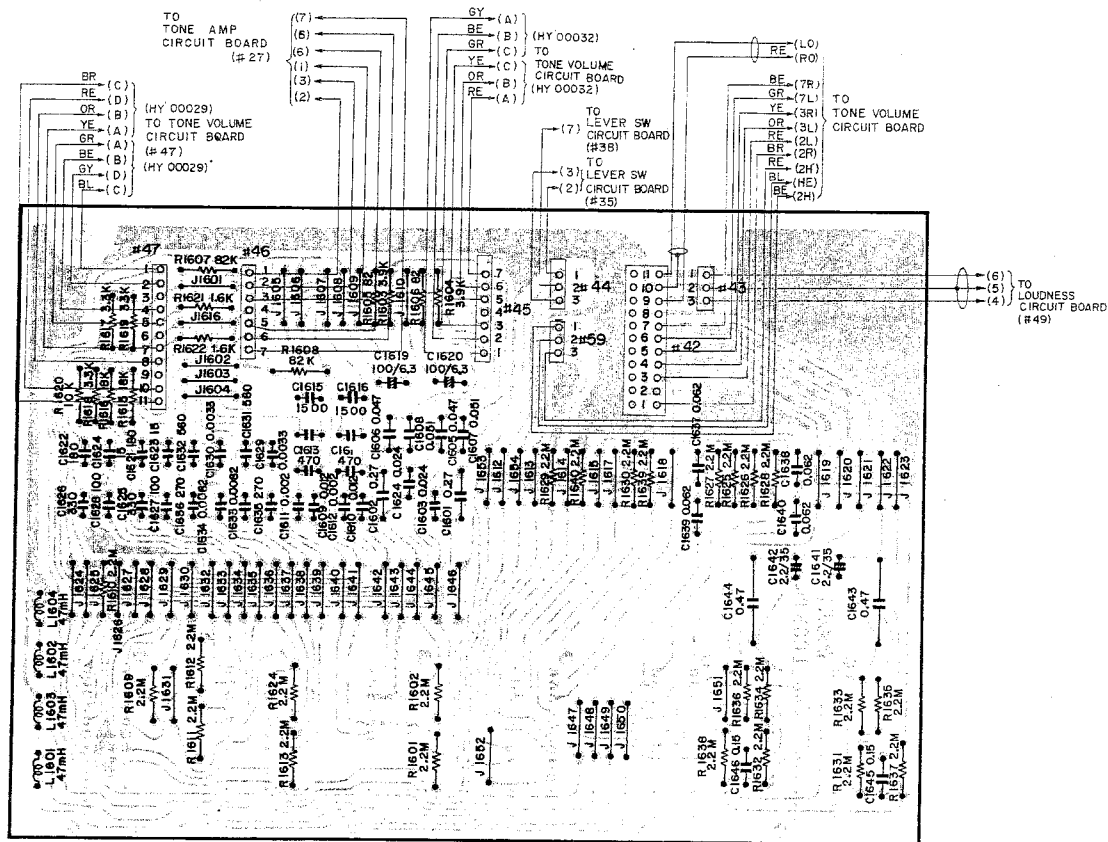
6. TONE AMP CIRCUIT BOARD NAO6719



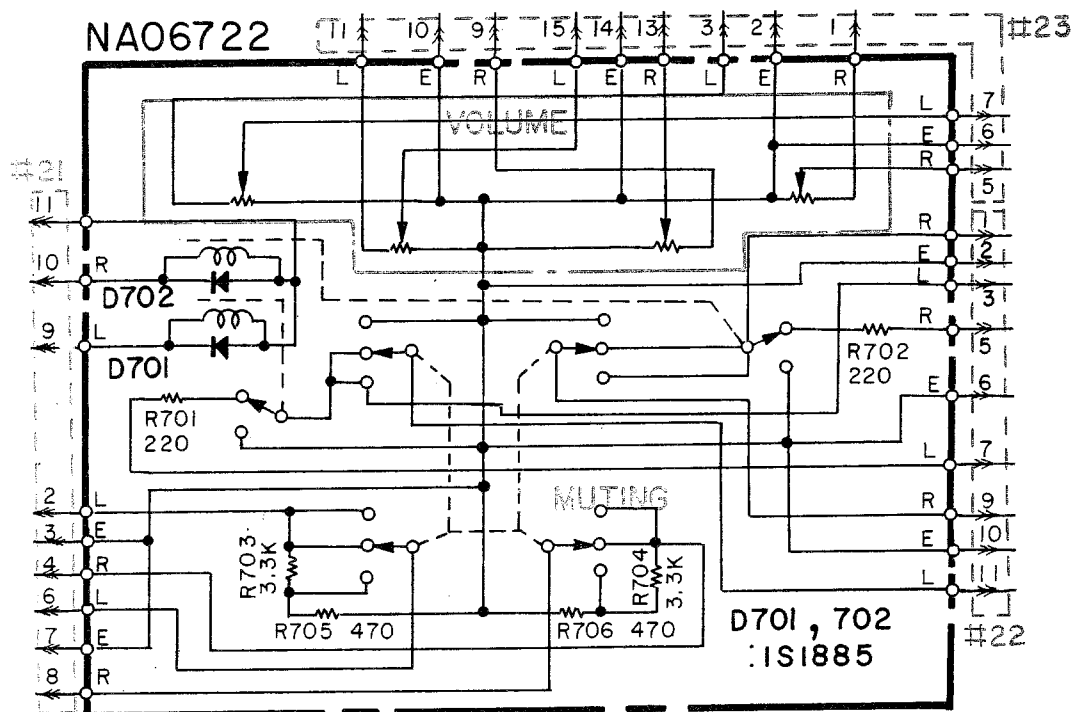
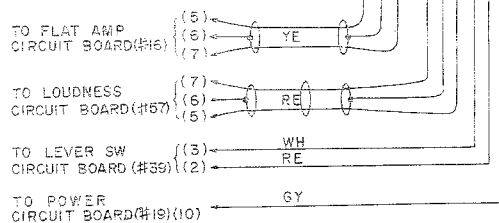
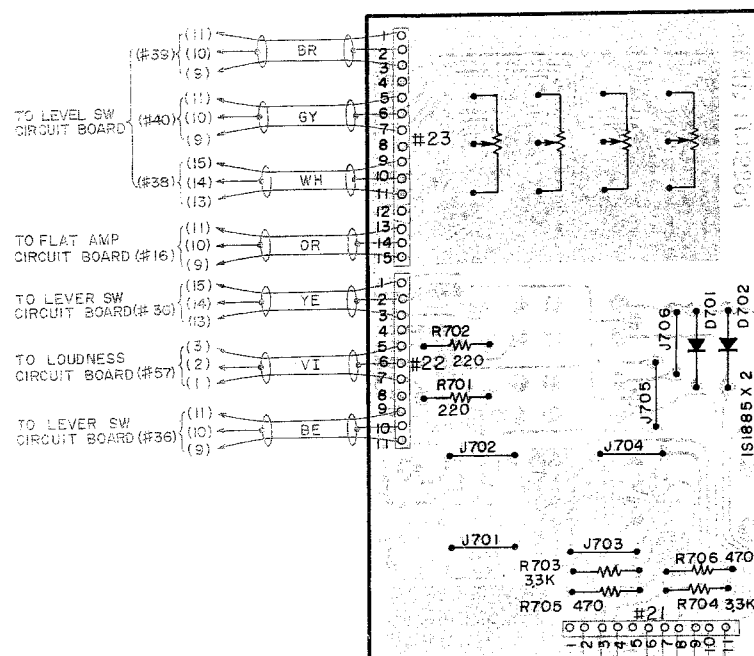
7. TONE VOLUME CIRCUIT BOARD NAO6720



8. TONE PUSH SW CIRCUIT BOARD NAO6721

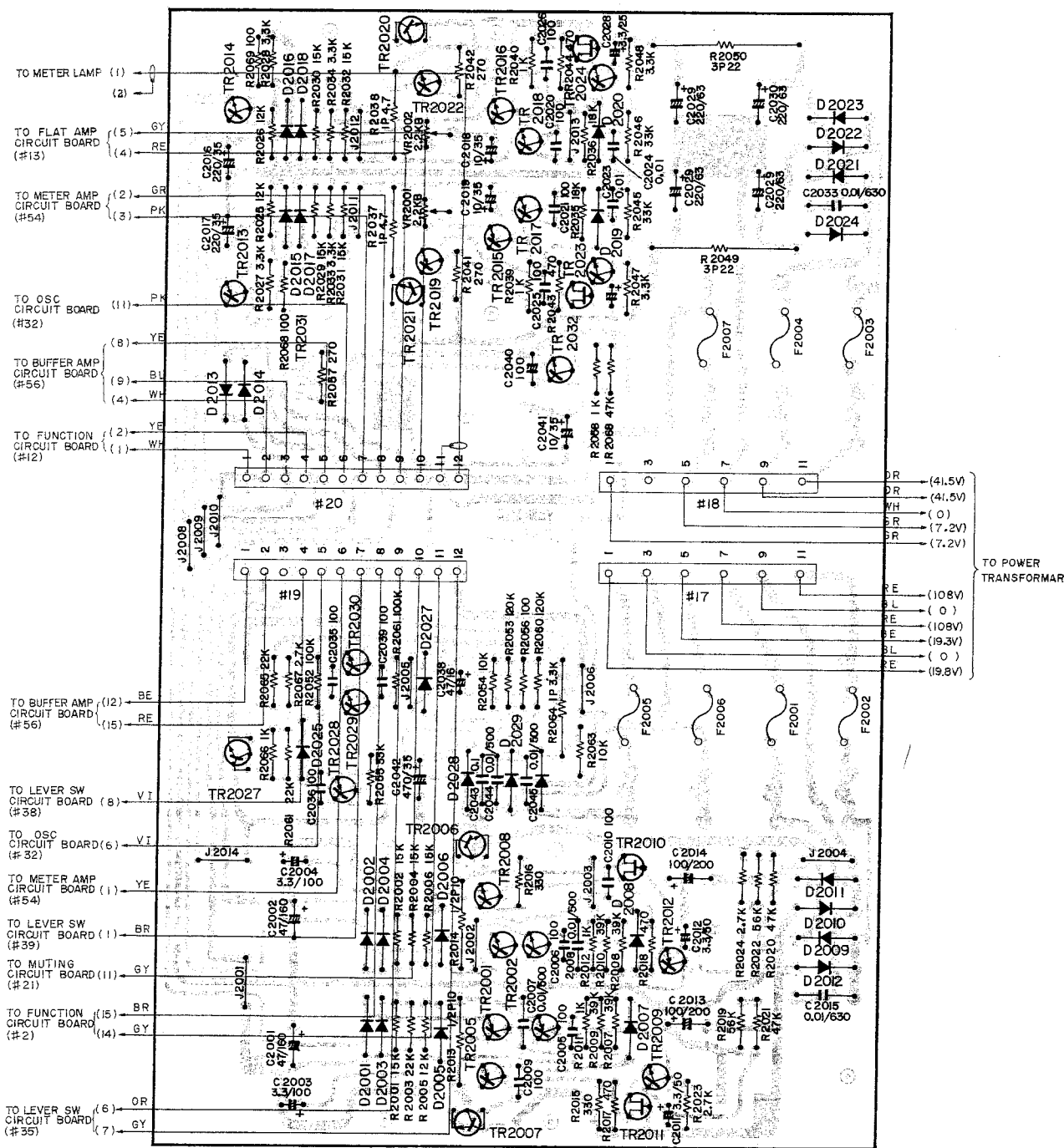


9. MOTING CIRCUIT BOARD NAO6722

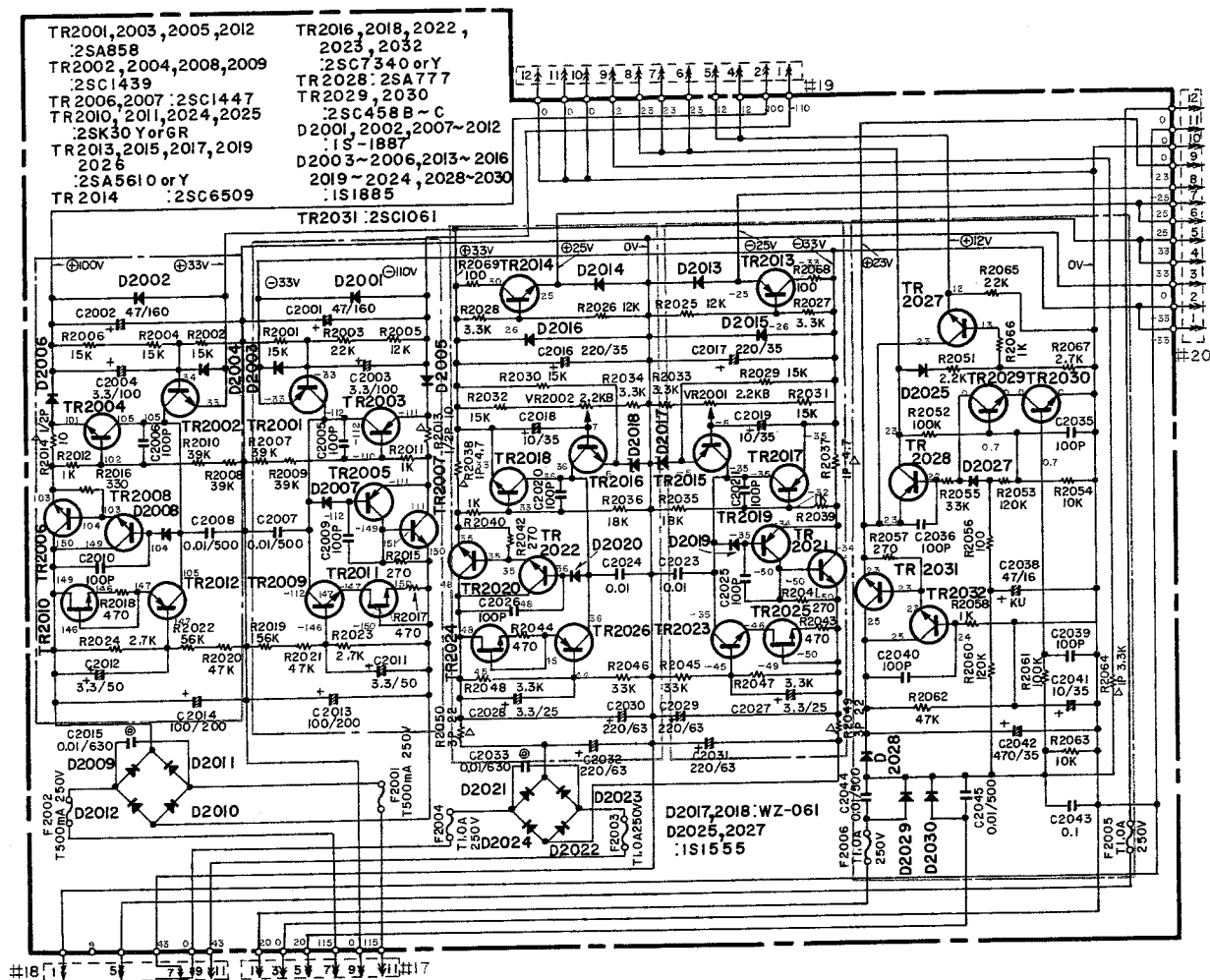


10. POWER SUPPLY CIRCUIT BOARD

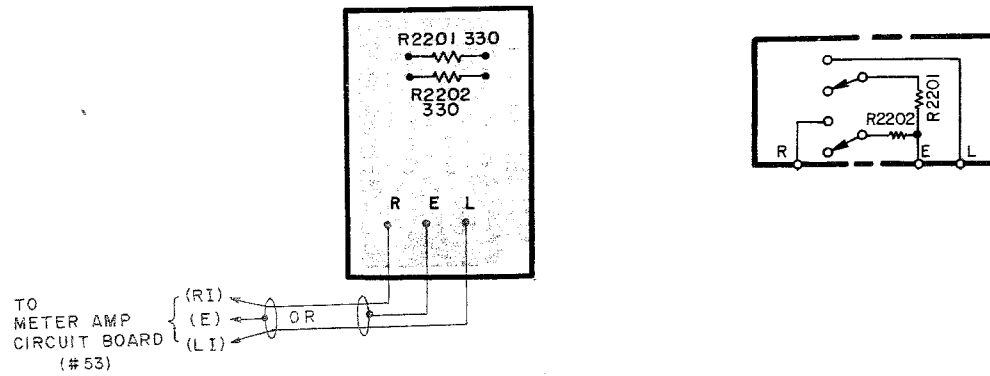
NA06745. US&CANADIAN MODELS
NA06724. EUROPIAN MODEL



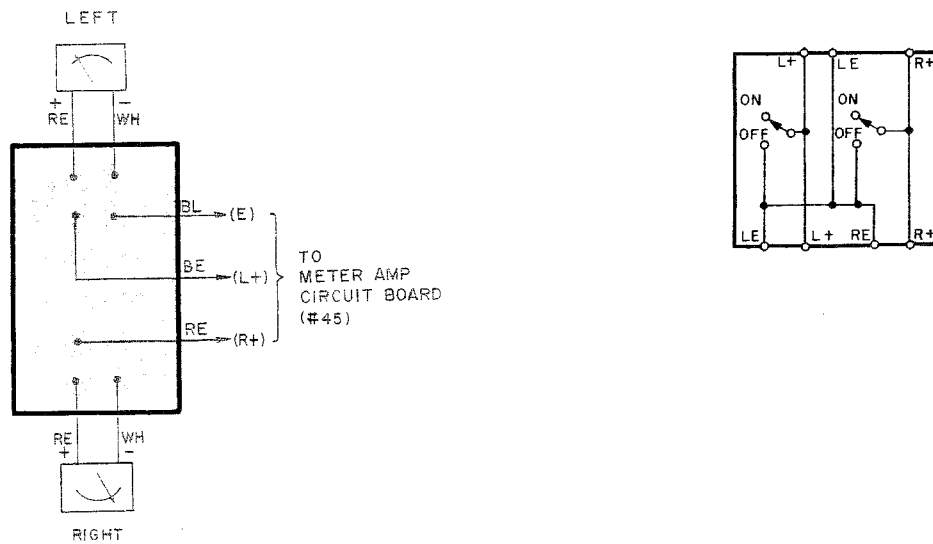
	F2001~2	F2003~7
U.S. & CANADIAN	VL TYPE 500mA 250V	UL TYPE 1A 250V
EUROPEAN	TIME WGS T500mA 250V	TIME LWGS T1A 250V



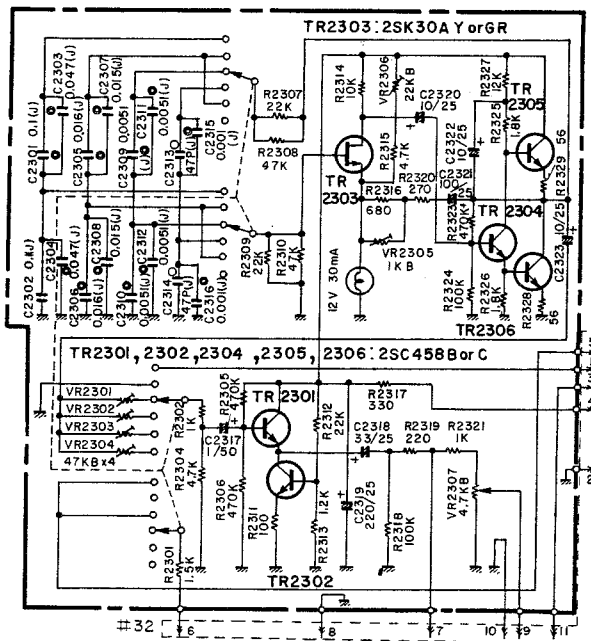
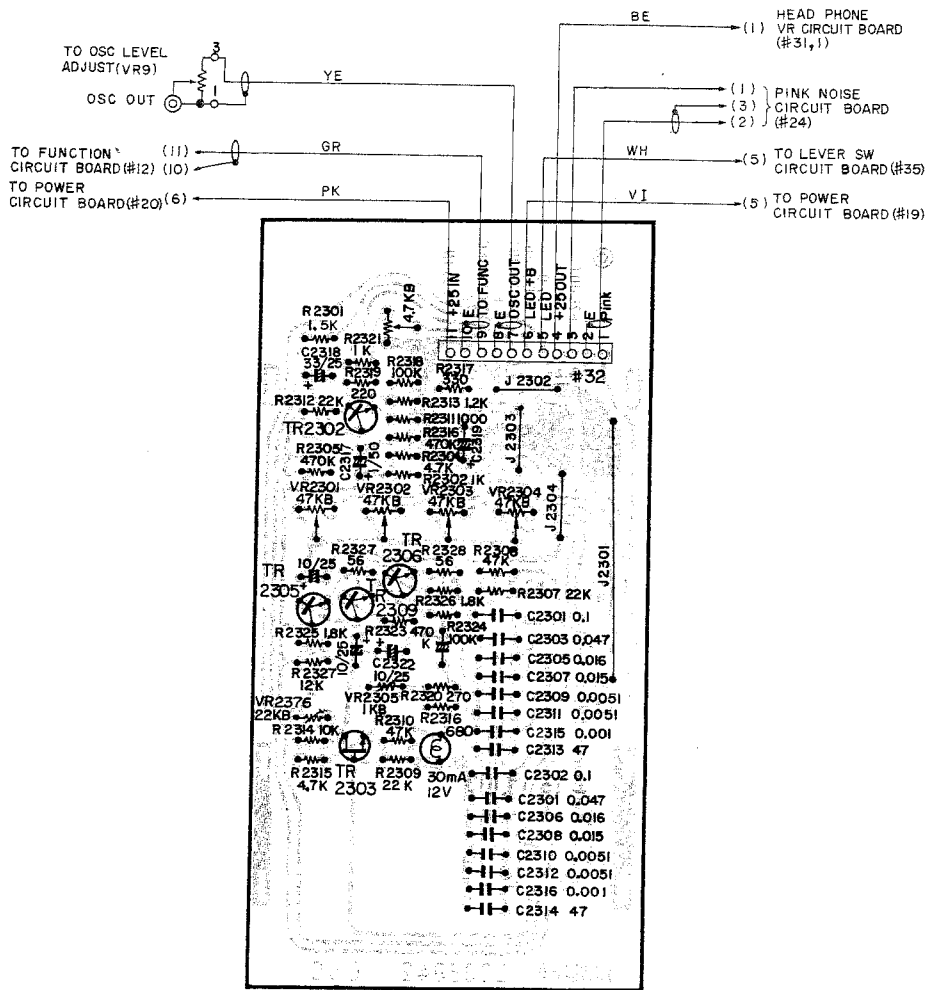
12. METER SW CIRCUIT BOARD NO1 NAO6726



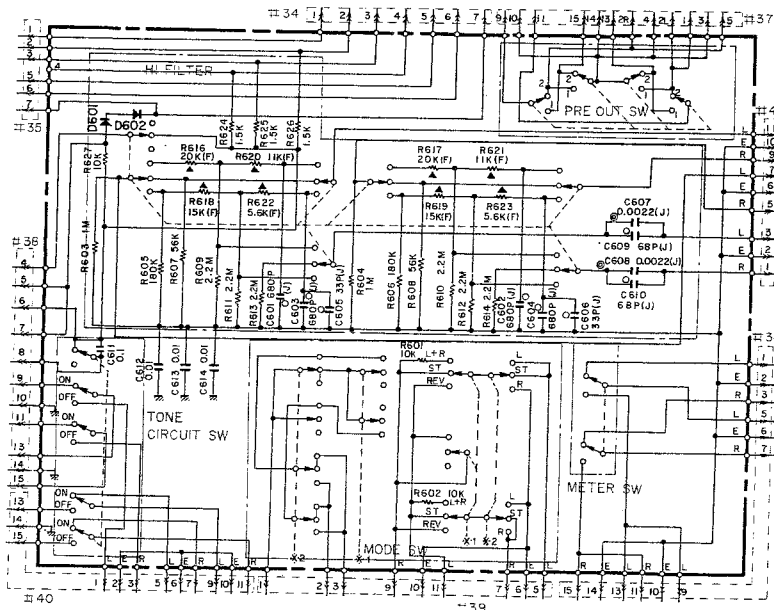
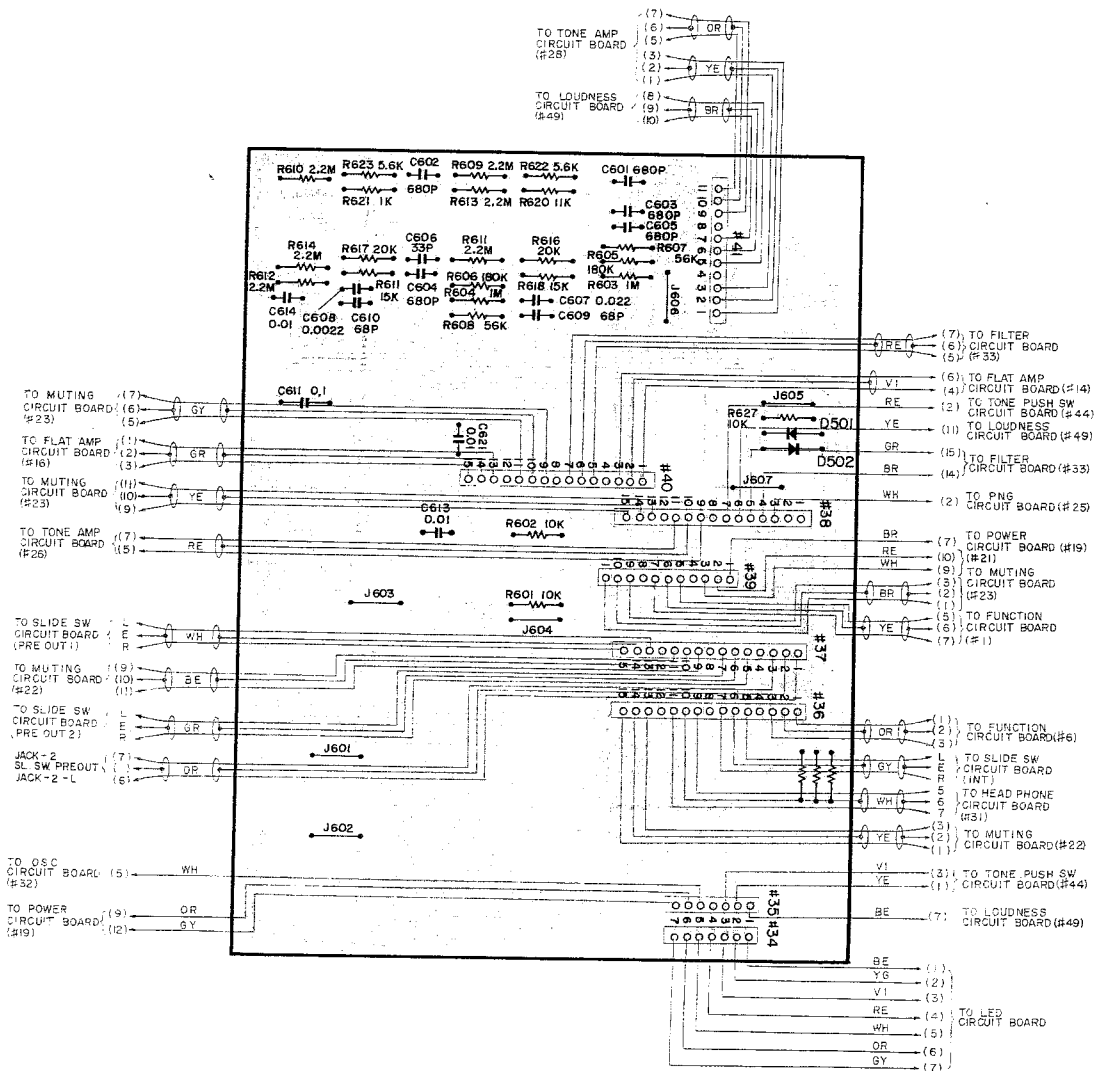
13. METER SW CIRCUIT BOARD NO2 NAO6727



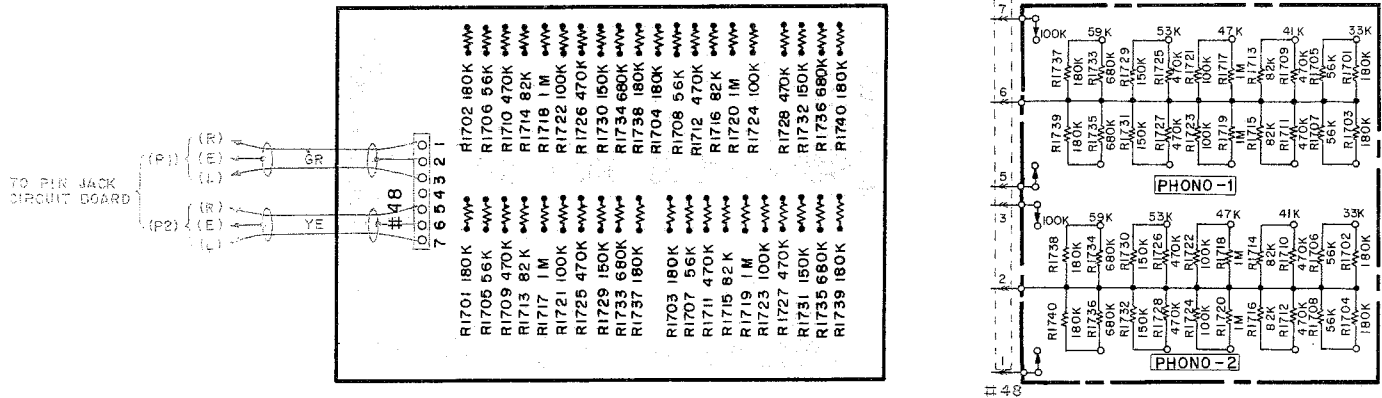
14. OSC CIRCUIT BOARD NAO6728



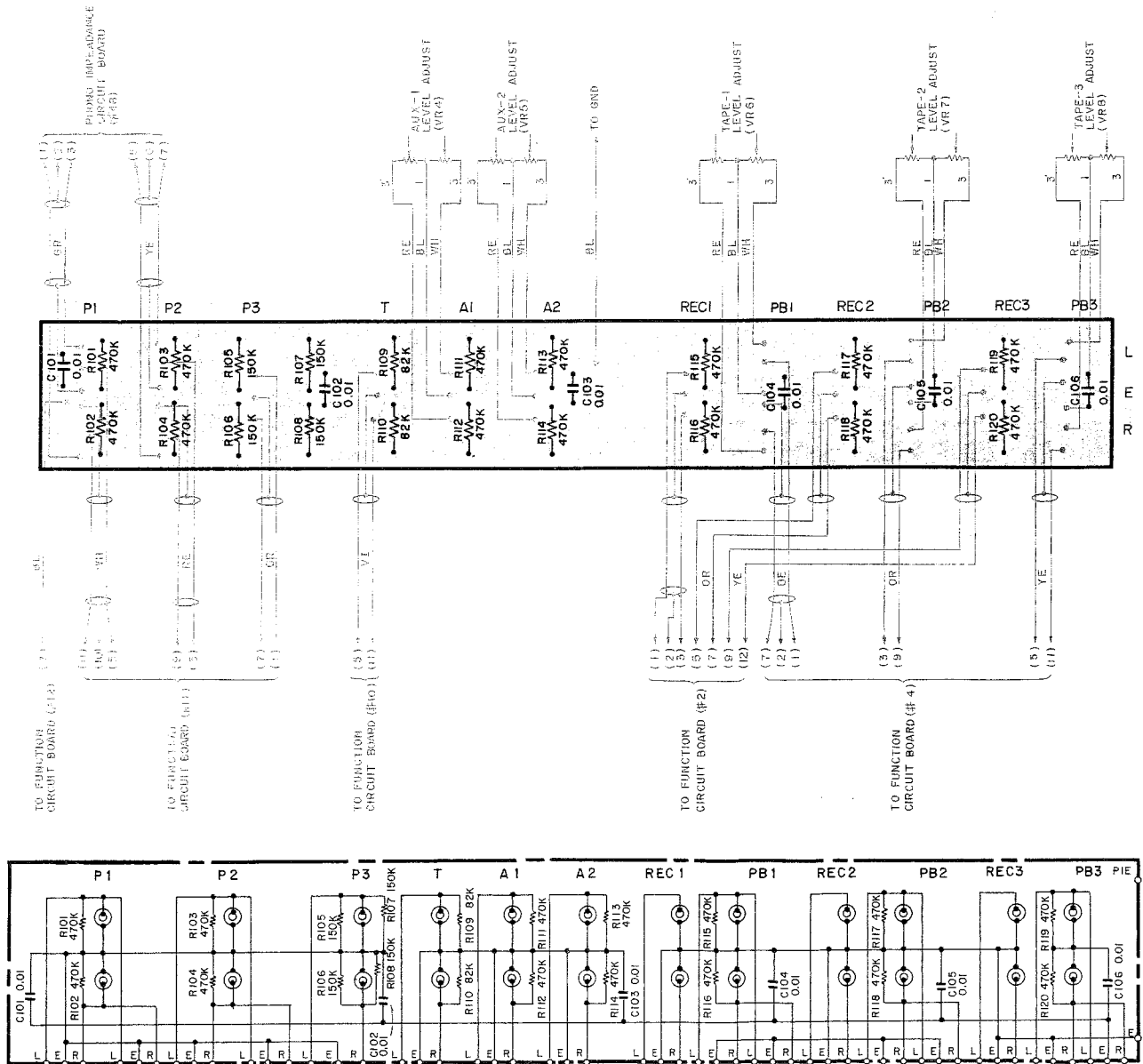
17. LEVER SW CIRCUIT BOARD NAO6731



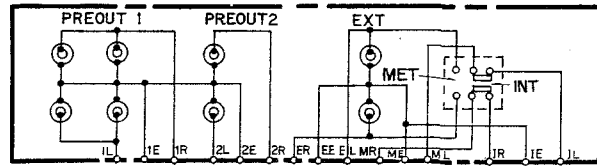
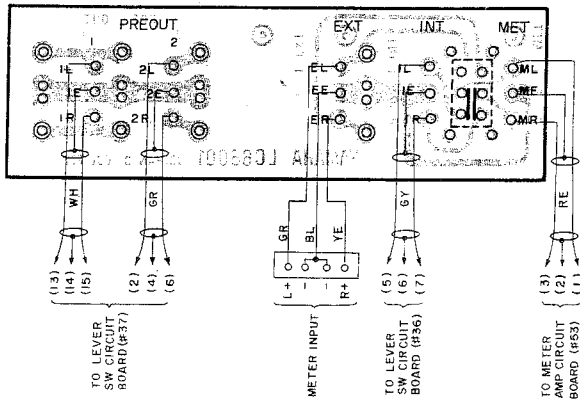
18. IMPEADANCE SELECTOR CIRCUIT BOARD NAO6732



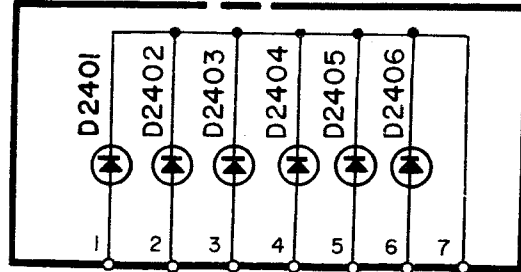
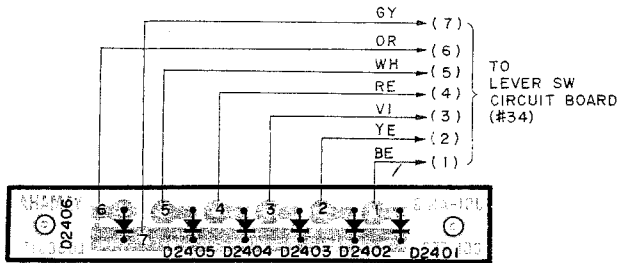
19. PIN JACK CIRCUIT BOARD NAO6733



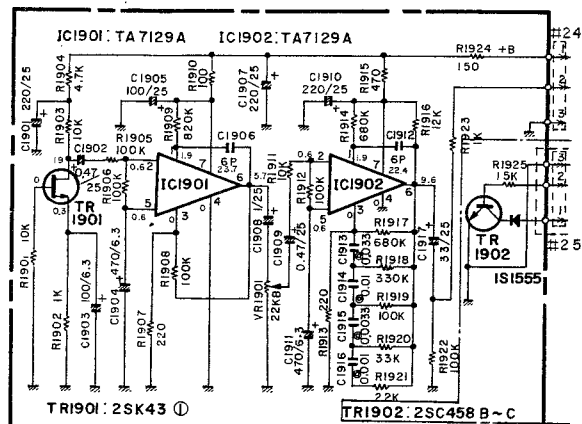
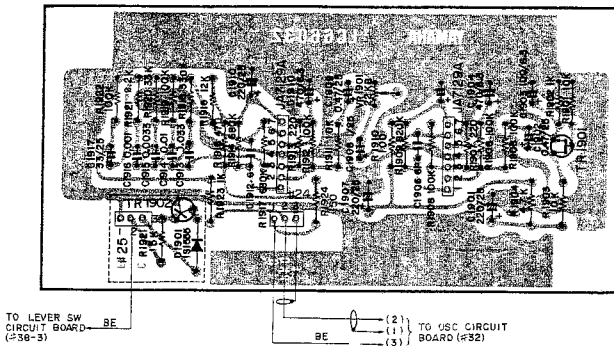
20. SLIDE SW CIRCUIT BOARD NAO6734



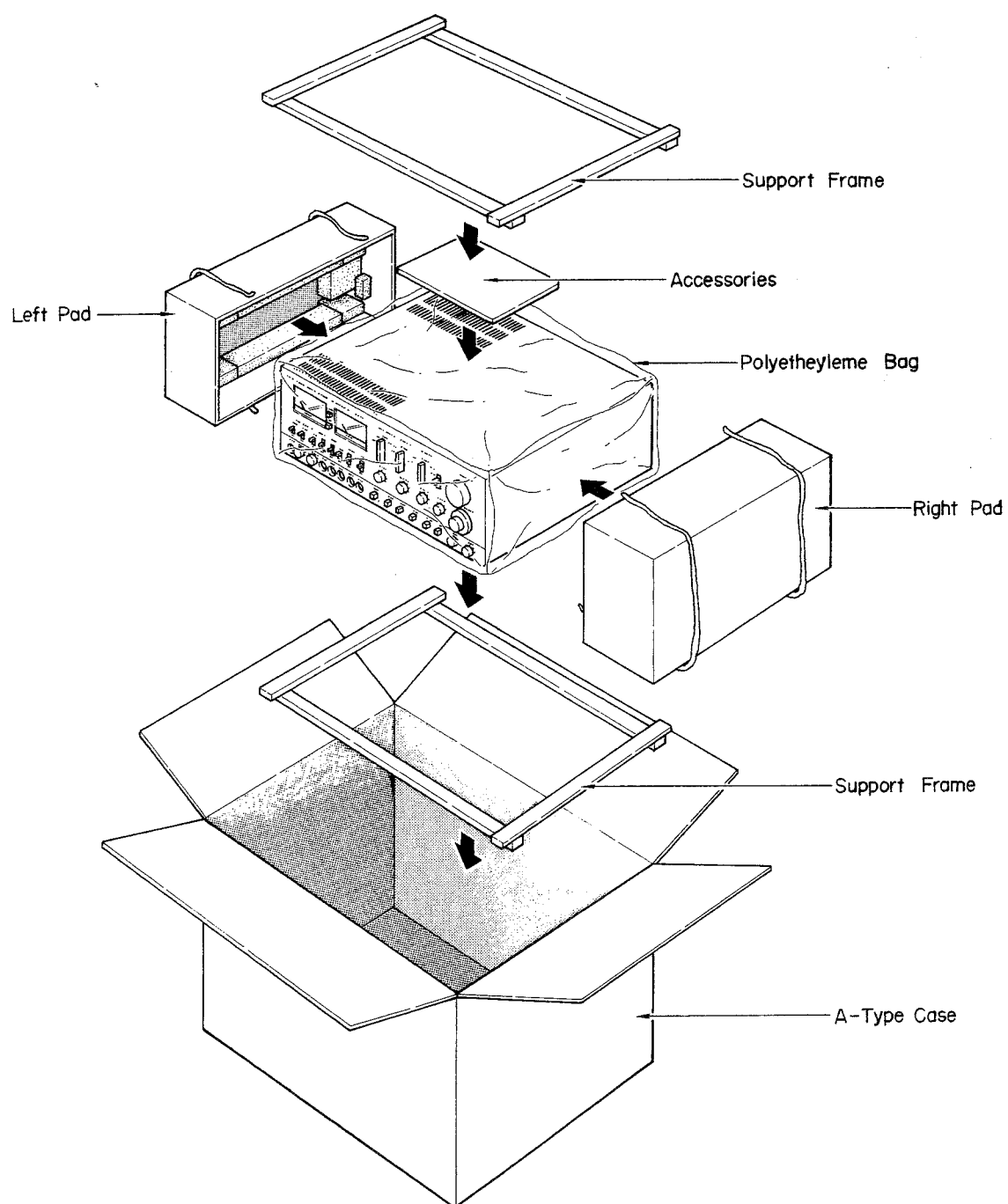
21. LED CIRCUIT BOARD NAO6735



22. PINK NOISE CIRCUIT BOARD NAO6739



PACKAGE



TERMINAL CONNECTION

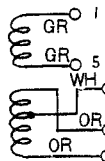
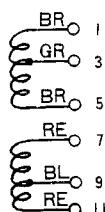
This is the list of sheet terminal connection
Each lead conncted to a left sheet terminal, is conncted to a right sheet terminal

Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.
EQ Sheet (NA-06714-52)	# 50	1	FUNCTION	7	1	Function (NA-06716-52)	# 1	1	JACK	JACK-4 TAPE-3	1 · 6
	50	2 (E)	"	7	2 (E)		1	2	"	"	7
	50	3	"	7	3		1	3	"	"	3 · 5
	50	4	"	7	4		1	4	FLAT AMP	16	8
	50	5	"	7	5		1	5	LEVER SW	39	5
	50	6	"	7	6		1	6	"	39	6
							1	7	"	39	7
	51	1	FUNCTION	12	6						
	51	3 (E)					2	1	PIN JACK	PIN-JACK REC-1	L
							2	2 (E)	"	"	E
	52	1	BUFFER	56	13		2	3	"	"	R
	52	2	"	56	10		2	5	"	P-J REC-2	L
	52	3	"	56	1		2	7	"	"	R
	52	4	"	56	5		2	9	"	P-J REC-3	L
	52	5	FUNCTION	12	5		2	10	JACK 3	JACK-3	6
	52	6 (E)					2	11 (E)	"	"	7 (E)
	52	7	FUNCTION	12	8		2	12	PIN JACK	P-J REC-3	R
							2	13	JACK	JACK-3	5
	58	1	FUNCTION	12	9		2	14	POWER	19	11
	58	3 (E)					2	15	"	19	8
							3	1	BUFFER	55	1
							3	2	"	55	2
							3	3	"	55	3
							3	4	"	55	4
							3	5	"	55	5
							3	6	"	55	6
	56	1	EQ	52	3		4	1	PIN JACK	P-J PB-1	L
	56	2	FLAT AMP	14	2		4	2 (E)	"	"	E
	56	3	TONE AMP	26	1		4	3	"	P-J PB-2	L
	56	4	POWER	20	2		4	5	"	P-J PB-3	L
	56	5	EQ	52	4		4	7	"	P-J PB-1	R
	56	6	FLAT AMP	14	1		4	9	"	P-J PB-2	R
	56	7	TONE AMP	26	2		4	11	"	P-J PB-3	R
	56	8	POWER	20	5						
	56	9	"	20	3		5	1	TAPE 1	VR-6	2'
	56	10	EQ	52	2		5	2 (E)			
	56	11	TONE AMP	26	3		5	3	TAPE 2	VR-7	2'
	56	12	POWER	19	1		5	5	TAPE 1	VR-6	2
	56	13	EQ	52	1		5	6 (E)			
	56	14	TONE AMP	26	4		5	7	TAPE 2	VR-7	2
	56	15	POWER	19	2						
							7	1	EQ	50	1
							7	2	"	50	2
							7	3	"	50	3
							7	4	"	50	4

Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.
Function (NA-06716-52)	# 7	5	EQ	50	5	FLAT AMP (NA-06717-53)	# 13	5	POWER	20	10
	7	6	"	50	6						
	8	1	JACK	JACK-6	4 · 6		14	1	Buffer	56	6
	8	2 (E)					14	2	"	56	2
	8	3	JACK	JACK-5	4 · 6		14	4	LEVER SW	40	1
							14	6	"	40	3
	9	1	PHONO 3	VR-3	3		15	1	PHONES	JACK-2	6
	9	2 (E)					15	2 (E)	"	"	7
	9	3	PHONO 2	VR-2	3		15	3	"	"	5
	9	4 (E)									
	9	5	PHONO 1	VR-1	3		16	1	LEVER SW	40	13
	9	7	PHONO 3	VR-3	3'		16	2 (E)	"	40	14
	9	9	PHONO 2	VR-2	3'		16	3	"	40	15
	9	10(E)					16	5	MUTING	21	2
	9	11	PHONO 1	VR-1	3'		16	6 (E)	"	21	3
							16	7	"	21	4
	10	1	AUX-1	VR-4	2		16	8	FUNCTION	1	4
	10	2 (E)					16	9	MUTING	23	15
	10	3	AUX-2	VR-5	2		16	10(E)	"	23	14
	10	5	PIN JACK	P-J T	L		16	11	"	23	13
	10	7	AUX-1	VR-4	2'						
	10	9	AUX-2	VR-5	2'						
	10	11	PIN JACK	P-J T	R						
						LOUDNESS (NA-06718-52)	# 49	4	TONE Push	43	3
	6	1	LEVER SW	36	1		49	5 (E)	"	43	2
	6	2 (E)	"	36	2		49	6	"	43	1
	6	3	"	36	3		49	7	LEVER SW	35	1
							49	8	"	41	5
	11	1	PIN JACK	P-J P3	L		49	9 (E)	"	41	6
	11	3	"	P-J P2	L		49	10	"	41	7
	11	5	"	P-J P1	L		49	11	"	38	6
	11	7	"	P-J P3	R						
	11	9	"	P-J P2	R		57	1	MUTING	22	5
	11	10	"	P-J P1	E		57	2 (E)	"	22	6
	11	11	"	P-J P1	R		57	3	"	22	7
							57	5	"	21	8
	12	1	POWER	20	1		57	6 (E)	"	21	7
	12	2	"	20	4		57	7	"	21	6
	12	5	EQ	52	5						
	12	6	"	51	1	TONE AMP (NA-06719-52)	# 26	1	Buffer	56	3
	12	7	PIN JACK	P-J P1	E		26	2	"	56	7
	12	8	EQ	52	7		26	3	"	56	11
	12	9	"	58	1		26	4	"	56	14
	12	10(E)	OSC	32	10		26	5	LEVER SW	38	9
	12	11	"	32	9		26	7	"	38	11
FLAT AMP (NA-06717-53)	# 13	1	H-P-VR	31	4		27	1	TONE PUSH	46	1
	13	2 (E)	"	31	3 (E)		27	2	"	46	3
	13	3	"	31	2		27	3 (E)	"	46	2 (E)
	13	4	POWER	20	9		27	5 (E)	"	46	6 (E)

Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.
TONE AMP (NA-06719-52)	# 27	6	TONE PUSH	46	5	TONE VOLUME (NA-06720-52)	HY-00029 (Treble)	B	TONE PUSH	47	4
	27	7	"	46	7		"	C	"	47	1
							"	D	"	47	2
	28	1	LEVER SW	41	3						
	28	2	"	41	2		HY'-00029	A	TONE PUSH	47	7
	28	3	"	41	1		"	B	"	47	8
	28	5	"	41	11		"	C	"	47	11
	28	6	"	41	10		"	D	"	47	10
	28	7	"	41	9						
											2
	29	1	TONE VOLUME		1 R	TONE PUSH (NA-06721-52)	# 42	1	TONE VOLUME	TONE VOLUME	2 R
	29	2 (E)	"		E		42	3	"	"	2 L
	29	3	"		1 L		42	4	"	"	3 R
	29	5	"		0 R		42	5	"	"	3 L
	29	6 (E)	"		E		42	6	"	"	7 R
	29	7	"		0 L		42	7	"	"	7 L
							42	9	"	"	R 0
	30	1	Filter	33	11		42	10(E)	"	"	(E)
	30	2 (E)	"	33	12(E)		42	11	"	"	L 0
	30	3	"	33	13						
TONE VOLUME (NA-06720-52)	30	5	"	33	1		43	1	Loudness	49	6
	30	6 (E)	"	33	2 (E)		43	2 (E)	"	49	5 (E)
	30	7	"	33	3		43	3	"	49	4
							44	1	LEVER SW	35	2
							44	2	"	38	7
							44	3	"	35	3
							45	1	TONE VOLUME	TONE VOLUME	A HY-00032 BASS
							45	2	"	"	B "
							45	3	"	"	C "
							45	5	"	"	C HY-00032
							45	6	"	"	B "
							45	7	"	"	A "
							46	1	TONE AMP	27	1
							46	2 (E)	"	27	3 (E)
							46	3	"	27	2
							46	5	"	27	6
							46	6 (E)	"	27	5 (E)
							46	7	"	27	7
TONE VOLUME (NA-06720-52)											
							47	1	TONE VOLUME	TONE VOLUME	CHY-00029 TREBLE
							47	2	"	"	D "
							47	4	"	"	B "
							47	5	"	"	A "
							47	7	"	"	AHY' 00029
							47	8	"	"	B "
							47	10	"	"	D "
							47	11	"	"	C "
	HY-00032 (BASS)	A	TONE PUSH	45	7						
	"	B	"	45	6						
	"	C	"	45	5						
	HY'-00032	A	TONE PUSH	45	1						
	"	B	"	45	2						
	"	C	"	45	3						
	HY-00029 (Treble)	A	TONE PUSH	47	5						

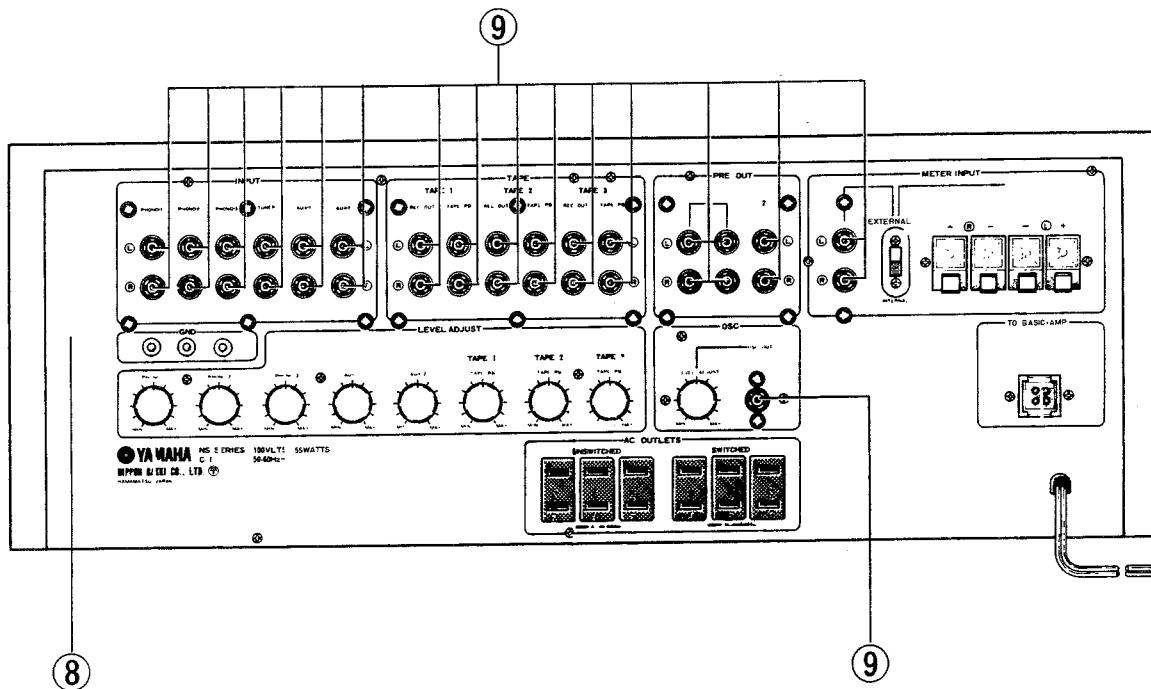
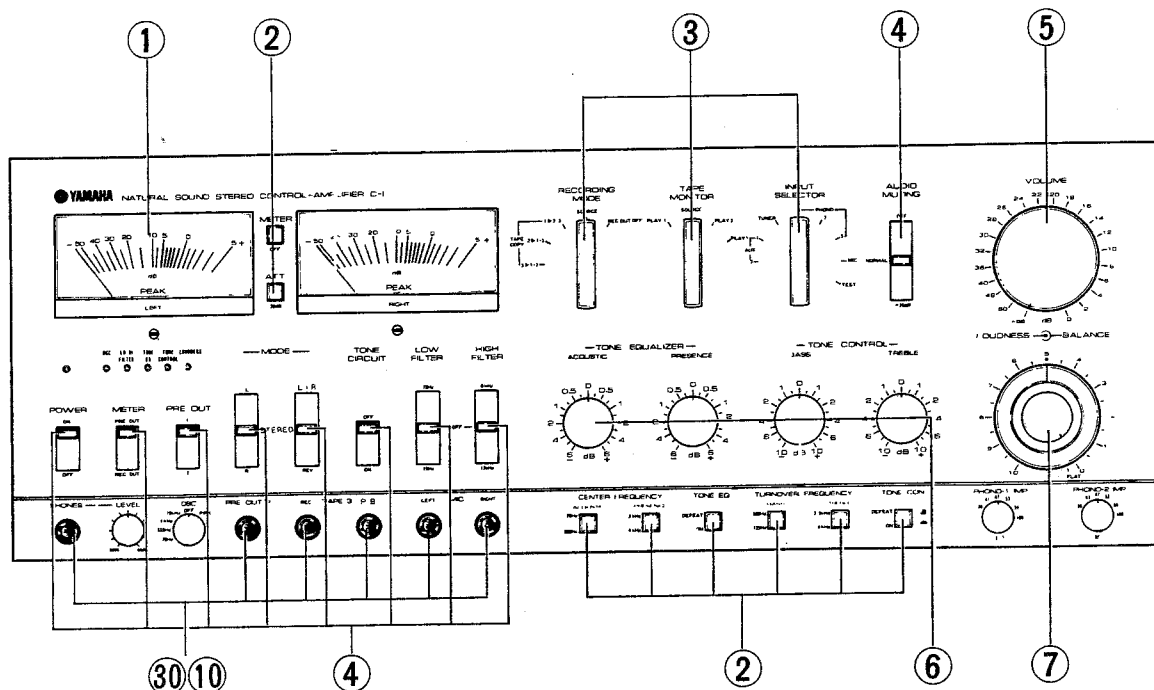
Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.
TONE PUSH (NA-06721-52)	# 59	1	TONE VOLUME	TONE VOLUME	2 H	POWER (NA-06723-52)	# 19	1	BUFFER	56	12
	59	2	"	"	E		19	2	"	56	15
	59	3	"	"	2 H'		19	4	LEVER SW	38	8
							19	5	OSC	32	6
MUTING (NA-06722-52)	# 21	2	FLAT AMP	16	5	METER AMP (NA-06725-53)	19	6	METTER	54	1
	21	3 (E)	"	16	6 (E)		19	7	LEVER SW	39	1
	21	4	"	16	7		19	8	FUNCTION	2	15
	21	6	LOUDNESS	57	7		19	9	LEVER SW	35	6
	21	7 (E)	"	57	6 (E)		19	10	MUTING	21	11
	21	8	"	57	5		19	11	FUNCTION	2	14
	21	9	LEVER SW	39	3		19	12	LEVER SW	35	7
	21	10	"	39	2						
	21	11	POWER	19	10		20	1	FUNCTION	12	1
							20	2	Buffer	56	4
	22	1	LEVER SW	36	15		20	3	"	56	9
	22	2 (E)	"	36	14 (E)		20	4	FUNCTION	12	2
	22	3	"	36	13		20	5	Buffer	56	8
	22	5	LOUDNESS	57	1		20	6	OSC	32	11
	22	6 (E)	"	57	2 (E)		20	7	METTER	54	3
	22	7	"	57	3		20	8	"	54	2
	22	9	LEVER SW	37	11		20	9	FLAT AMP	13	4
	22	10 (E)	"	37	10 (E)		20	10	"	13	5
	22	11	"	37	9		20	11 (E)	METER LAMP	METER LAMP R	2 (E)
							20	12	"	"	1
	23	1	LEVER SW	39	11						
	23	2 (E)	"	39	10 (E)		# 45	Lo	METER SW-2	METER SW-2	L+
	23	3	"	39	9		45	E	"	"	LE
	23	5	"	40	11		45	Ro	"	"	R+
	23	6 (E)	"	40	10 (E)						
	23	7	"	40	9		53	1	SLIDE SW	SLIDE SW	ML
	23	9	"	38	15		53	2	"	"	ME
	23	10 (E)	"	38	14 (E)		53	3	"	"	MR
	23	11	"	38	13		53	LI	METER ATT SW-1		L
	23	13	FLAT AMP	16	11		53	E	"		E
	23	14 (E)	"	16	10 (E)		53	RI	"		R
	23	15	"	16	9						
POWER (NA-06723-52)	# 17	1				METER ATT SW 1 (NA-06726-53)		L	METER AMP	53	LI
	17	3						E	"	53	E
	17	5						R	"	53	RI
	17	7									
	17	9									
	17	11									
	18	1				METER ATT SW 2 (NA-06727-53)		L+	METER AMP	45	L0
	18	5						LE	"	45	E
	18	7						R+	"	45	R0
	18	9									
	18	11									

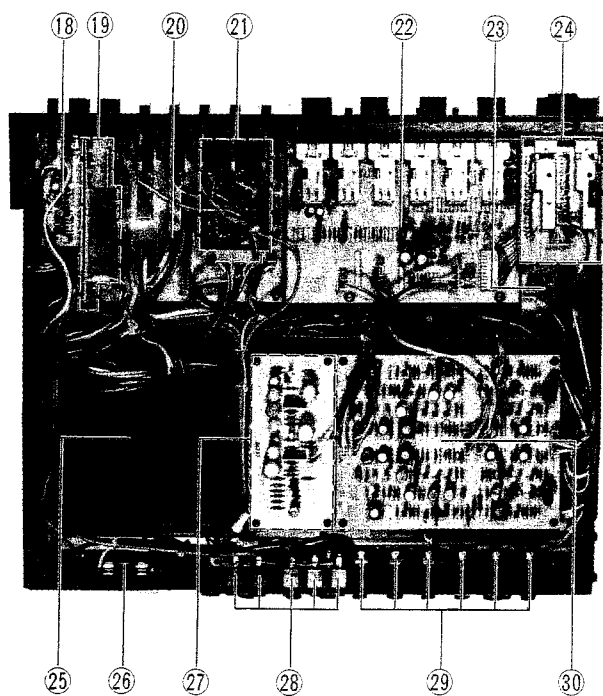
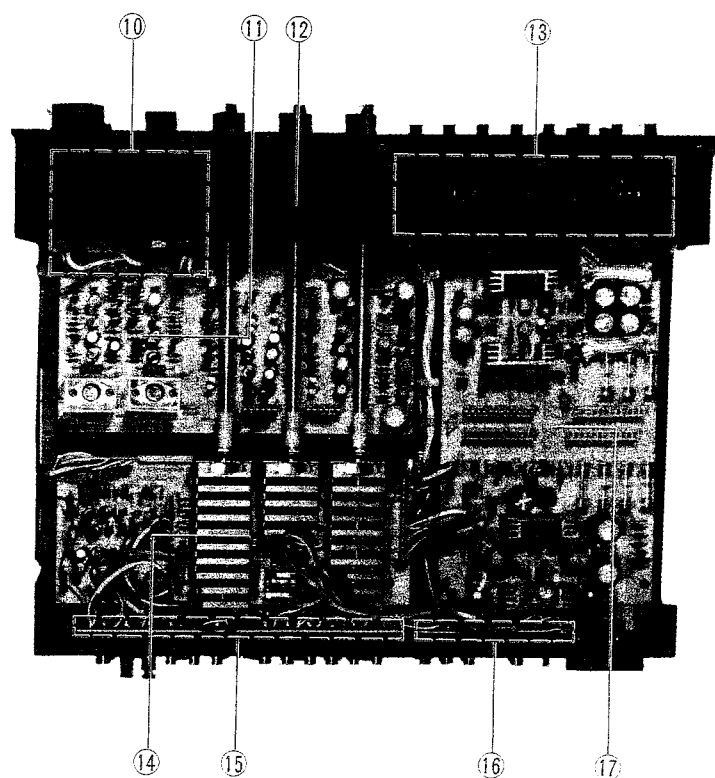


Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.
OSC (NA-06728-53)	# 32	1	PNG	24	2	LEVER SW (NA-06731-53)	# 36	2 (E)	FUNCTION	6	2 (E)
	32	2 (E)	"	24	3 (E)		36	3	"	6	3
	32	3	"	24	1		36	5	SLIDE SW	SL SW	1 L
	32	4	H-P VR	31	1		36	6 (E)	"	"	E
	32	5	LEVER SW	35	5		36	7	"	"	1 R
	32	6	POWER	19	5		36	9	H-P VR	31	5
	32	7	VR-9 (OSC. OUT)	VR-9	3		36	10(E)	"	31	6 (E)
	32	8 (E)	"	11	1 (E)		36	11	"	31	7
	32	9	FUNCTION	12	11		36	13	MUTING	22	3
	32	10(E)	"	12	10(E)		36	14(E)	"	22	2 (E)
H.P VR (NA-06729-52)	# 31	1	OSC	32	4	37	1	JACK-1	JACK-1	6	
	31	2	FLAT AMP	13	3		2	SLIDE SW	PRE OUT-2	L	
	31	3	"	13	2		3	JACK-1	JACK-1	7	
	31	4	"	13	1		4	SLIDE SW	PRE OUT-2	E	
	31	5	LEVER SW	36	9		5	JACK-1	JACK-1	5	
	31	6	"	36	10		6	SLIDE SW	PRE OUT-2	R	
	31	7	"	36	11		9	MUTING	22	11	
							10(E)	"	22	10(E)	
FILTER (NA-06730-52)	# 33	1	TONE AMP	30	5		11	"	22	9	
	33	2 (E)	"	30	6 (E)		13	SLIDE SW	PRE OUT-1	L	
	33	3	"	30	7		14(E)	"	"	E	
	33	5	LEVER SW	40	5		15	"	"	R	
	33	6 (E)	"	40	6 (E)	38	4	FILTER	33	14	
	33	7	"	40	7		5	"	33	15	
	33	11	TONE AMP	30	1		6	LOUDNESS	49	11	
	33	12(E)	"	30	2 (E)		7	TONE PUSH	44	2	
	33	13	"	30	3		8	POWER	19	4	
	33	14	LEVER SW	38	4		9	"	26	5	
	33	15	"	38	5		10(E)	"			
							11	TONE AMP	26	7	
							13	MUTING	23	11	
							14(E)	"	23	10(E)	
LEVER SW (NA-06731-53)	# 34	1	LED	LED	1		15	"	23	9	
	34	2	"	"	2	39	1	POWER	19	7	
	34	3	"	"	3		2	MUTING	21	10	
	34	4	"	"	4		3	"	21	9	
	34	5	"	"	5		5	FUNCTION	1	5	
	34	6	"	"	6		6 (E)	"	1	6 (E)	
	34	7	"	"	7		7	"	1	7	
							9	MUTING	23	3	
	35	1	LOUDNESS	49	7		10	"	23	2	
	35	2	TONE PUSH SW	44	1		11	"	23	1	
	35	3	"	44	3	40	1	FLAT AMP	14	4	
	35	5	OSC	32	5		2				
	35	6	POWER	19	9		3	FLAT AMP	14	6	
	35	7	"	19	12		5	FILTER	33	5	
	36	1	FUNCTION	6	1						

Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.	Sheet Name	Connector No.	Terminal No.
LEVER SW (NA-06731-53)	# 40	6 (E)	FILTER	33	6 (E)	PIN JACK (NA-06733-52)	A 1	E (BL)	AUX 1	VR-4	1
	40	7	"	33	7		A 1	R (RE)	"	"	3'
	40	9	MUTING	23	7						
	40	10(E)	"	23	6 (E)		A 2	L (WH)	AUX 2	VR-5	3
	40	11	"	23	5		A 1	E (BL)	"	"	1 (E)
	40	13	FLAT AMP	16	1		A 2	R (RE)	"	"	3'
	40	14(E)	"	16	2 (E)						
	40	15	"	16	3						
							REC 1	L (WH)	FUNCTION	2	1
	41	1	TONE AMP	28	3		REC 1	E (BL)	"	2	2 (E)
	41	2 (E)	"	28	2 (E)		REC 1	R (RE)	"	2	3
	41	3	"	28	1						
	41	5	LOUDNESS	49	8		PB-1	L (WH)	TAPE 1	TAPE-1 (VR-6)	3
	41	6 (E)	"	49	9 (E)		PB-1	E (BL)	"	"	1
	41	7	"	49	10		PB-1	R (RE)	"	"	3'
	41	9	TONE AMP	28	7		PB-1	L	FUNCTION	4	1
	41	10(E)	"	28	6 (E)		PB-1	E B E	"	4	2 (E)
	41	11	"	28	5		PB-1	R	"	4	7
							REC 2	L	FUNCTION	2	5
							REC 2	E O R			
							REC 2	R	FUNCTION	2	7
PHONO IMP (NA-06732-52)	# 48	1	PIN JACK	P 1	R	PB-2	L (WH)	TAPE 2	VR-7	3	
	48	2 (E)	"	"	E		E (BL)	"	"	1	
	48	3	"	"	L		R (RE)	"	"	3'	
	48	5	"	P 2	R		L	FUNCTION	4	3	
	48	6 (E)	"	"	E		E O R				
	48	7	"	"	L		PB-2	R	FUNCTION	4	9
PIN JACK (NA-06733-52)	P1	L	FUNCTION	11	5						
	P1	E WH	"	11	10(E)		REC 3	L	FUNCTION	2	9
	P1	R	"	11	11		REC 3	E YE			
	P1	L	PHONO IMP	48	3		REC 3	R	FUNCTION	2	12
	P1	E GR	"	48	2						
	P1	R	"	48	1		PB-3	L (WH)	TAPE 3	VR-8	3
							PB-3	E (BL)	"	"	1 (E)
	P2	L	FUNCTION	11	3		PB-3	R (RE)	"	"	3'
	P2	E RE					PB-3	L	FUNCTION	4	5
	P2	R	FUNCTION	11	9		PB-3	E YE			
	P2	L	PHONO IMP	48	7		PB-3	R	FUNCTION	4	11
	P2	E YE	"	48	6						
	P2	R	"	48	5						
						SLIDE SW (NA-06734-42)	1L	LEVER SW	37	13	
	P3	L	FUNCTION	11	1		1E	"	37	14(E)	
	P3	E GR					1R	"	37	15	
	P3	R	FUNCTION	11	7						
							2R	LEVER SW	37	6	
	T	L	FUNCTION	10	5		2E	"	37	4 (E)	
	T	E VI					2L	"	37	2	
	T	R	FUNCTION	10	11						
							ER	METER INPUT		METER INPUT	R+
	A1		AUX 1	VR4	3		EE	"		"	R-

PARTS LIST





Ref. No.	Part No.	Description	Remarks	Common Models
	32:00:00:NA:06:71:40	Equalizer Circuit Board #65813	イコライザーシート	
	42:00:00:FZ:00:02:80	Film Capacitor $0.12\mu F \pm \frac{2}{3}\%$	フィルムコン	
	42:00:00:HZ:00:07:60	Metal Film Resistor $1.02K\Omega \pm 1\%$ (F type)	金属被膜抵抗	
	42:00:00:HZ:00:07:70	-do.- $1.74K\Omega$ -do.-	"	
	42:00:00:HZ:00:07:80	-do.- $2.74K\Omega$ -do.-	"	
	42:00:00:HZ:00:07:90	-do.- $22.6K\Omega$ -do.-	"	
	42:00:00:HU:87:73:00	-do.- $30K\Omega$ -do.-	"	
	42:00:00:HU:87:74:70	-do.- $47K\Omega$ -do.-	"	
	42:00:00:HU:87:75:60	-do.- $56K\Omega$ -do.-	"	
	42:00:00:HU:87:78:20	-do.- $82K\Omega$ -do.-	"	
	42:00:00:HZ:00:08:00	-do.- $820K\Omega \pm 5\%$ (J type)	"	
	42:00:00:HV:87:81:50	-do.- RP42A $150K\Omega \pm 1\%$	"	
	42:00:00:HY:00:01:60	Variable Resistor CR-31R B-22K Ω	メタルグレースVR	
	42:00:00:IA:07:63:90	Transistor 2SA763	トランジスター	
	42:00:00:IC:13:45:40	-do.- 2SC1345	"	
	42:00:00:IC:14:39:00	-do.- 2SC1439	"	Made by Sony
	42:00:00:IE:10:03:30	FET 2SK43①	F E T	-do.-
	42:00:00:IE:10:03:40	-do.- 2SK43R③	"	-do.-
	42:00:00:IE:10:03:20	-do.- 2SK43④or⑤	"	
	32:00:00:IE:20:01:00	-do.- LJ13	"	Made by Yamaha
	32:00:00:IE:40:01:00	-do.- 2SJ24A	"	-do.-
	32:00:00:IE:40:01:20	-do.- 2SJ24C	"	-do.-
	32:00:00:IE:30:03:20	-do.- 2SK78C	"	-do.-
	32:00:00:IE:30:03:00	-do.- 2SK78A	"	-do.-
	42:00:00:IF:00:00:40	Diode IS1555	ダイオード	
	42:00:00:LB:60:05:20	Connector 2145-6B	コネクタコン	
	42:00:00:LB:60:10:00	Miniature Connector 3022-7A	ミニチュアコネクタコン	
	42:00:00:LB:30:03:20	Miniature Connector Pin 5045-3A	"	
	32:00:00:NA:06:71:50	Buffer Amp Circuit Board #65821	バッファアンプシート	
	42:00:00:IF:00:00:40	Diode IS1555	ダイオード	
	42:00:00:HL:42:64:70	Metal Oxide Resistor $4.7K\Omega$ 2W	酸化金抵抗	
	42:00:00:FM:10:74:70	Bi-polar Capacitor $4.7\mu F/6.3V$	ハイボラコン・タデ	
	42:00:00:FP:15:66:80	Tantalum Capacitor $6.8\mu F/35V$	タンタルコン	
	42:00:00:IA:07:63:90	Transistor 2SA763	トランジスター	
	42:00:00:IC:13:45:40	-do.- 2SC1345	"	
	42:00:00:IE:10:03:00	FET 2SK43①	F E T	

Ref. No.	Part No.	Description			Remarks	Common Models	
	32:00:00:IE:20:01:30	FET	LJ-13A	F E T			
	32:00:00:IE:30:03:20	-do.-	2SK78C	"			
	32:00:00:IE:40:01:20	-do.-	2SJ24C	"			
	42:00:00:LB:60:10:20	Miniature Connector	3022-15A	ミニチュアコネクタコン			
	42:00:00:LB:60:05:20	Connector	2145-6B	コネクタコン			
⑩	32:00:00:NA:06:71:60	Function Circuit Board	#65831	ファンクションシート			
	42:00:00:FM:10:74:70	Bi-Polar Capacitor	47 μ F/6.3V	バイポーラコン・タテ			
	42:00:00:FP:15:66:80	Tantalum Capacitor	6.8 μ F/35V	タンタルコン			
	42:00:00:HL:42:64:70	Metal Oxide Resistor	4.7K Ω 2W	酸金抵抗			
	42:00:00:IA:07:63:90	Transistor	2SA763	トランジスター			
	42:00:00:IC:13:45:40	-do.-	2SC1345	"			
	42:00:00:IE:10:03:00	FET	2SK43①	F E T			
	32:00:00:IE:20:01:30	-do.-	LJ-13A	"			
	32:00:00:IE:40:01:20	-do.-	2SJ24C	"			
	32:00:00:IE:30:03:20	-do.-	2SK78C	"			
	42:00:00:IH:00:02:40	Diode	IS1885	ダイオード			
	42:00:00:IF:00:00:40	-do.-	IS1555	"			
	42:00:00:KA:50:05:90	Rotary Switch	2-4-4	ロータリースイッチ			
	42:00:00:KA:50:06:00	-do.-	5-10-5	"			
	42:00:00:KA:50:06:10	-do.-	8-8-8	"			
	42:00:00:KC:00:02:00	Relay	24V AE-1324-44	リレー			
	42:00:00:LB:30:03:20	Miniature Connector	5045-3A	ミニチュアコネクタコン			
	42:00:00:LB:60:10:00	-do.-	3022-7A	"			
	42:00:00:LB:60:10:10	-do.-	3022-11A	"			
	42:00:00:LB:60:10:20	-do.-	3022-15A	"			
	42:00:00:LB:60:05:20	Connector	2145-6B	コネクタコン			
	32:00:00:AA:08:01:50	Function Switch Stay		F SW ステータス			
⑪	32:00:00:NA:06:71:70	Flat Amp Circuit Board	#65842	フラットアンプシート			
	42:00:00:FH:61:08:00	Ceramic Capacitor	8pF 500V	セラミックコン			
	42:00:00:FH:61:21:80	-do.-	180PF 500V	"			
	42:00:00:FM:10:74:70	Bi-Polar Capacitor	6.3V 47 μ F	バイポーラコン・タテ			
	42:00:00:FP:15:61:00	Tantalum Capacitor	1 μ F/25V	タンタルコン	Substitution part	1 μ F/35V	
	42:00:00:FP:15:66:80	-do.-	6.8 μ F/35V	"			
	42:00:00:HL:42:44:70	Metal Oxide Resistor	47 Ω 2W	酸金抵抗			
	42:00:00:HL:42:58:20	-do.-	820 Ω 2W	"			
	42:00:00:HU:87:66:20	Metal Film Resistor	6.2K Ω $\pm$ 1%	金属被膜抵抗 F 型			

Ref. No.	Part No.	Description	Remarks	Common Models
	42:00:00 HT 41:00:10	Variable Resistor B-220Ω SR19R	ソリッド V R	
	42:00:00 i A 07:63:09	Transistor 2SA763WL	トランジスター	
	42:00:00 i A 07:77:30	-do.- 2SA777	"	
	42:00:00 i C 07:34:20	-do.- 2SC734	"	
	42:00:00 i C 13:45:40	-do.- 2SC1345	"	
	42:00:00 i C 15:09:30	-do.- 2SC1509	"	
	42:00:00 i C 04:58:90	-do.- 2SC458	"	
	42:00:00 i E 10:03:00	FET 2SK43 ①	F E T	
	42:00:00 i E 10:03:40	-do.- 2SK43R ③	"	
	32:00:00 i E 20:01:00	-do.- LJ-13	"	
	32:00:00 i E 40:01:20	-do.- 2SJ 24C	"	
	32:00:00 i E 30:02:10	-do.- 2SK75C	"	
	42:00:00 i F 00:00:40	Diode IS1555	ダイオード	
	42:00:00 LB 30:03:20	Miniature Connector 5045-3A	ミニチュアコネクタコン	
	42:00:00 LB 60:10:10	-do.- 3022-11A	"	
	42:00:00 LB 60:05:20	Connector 2145-6B	コネクタコン	
㊟	32:00:00 NA 06:71:80	Loudness Circuit Board #65852	ラウドネスシート	
	32:00:00 FP 15:61:00	Tantalum Capacitor 1μF/25V	タンタルコン	Substitution part 1μF/35V
	42:00:00 HY 00:02:80	Variable Resistor	V R	
	32:00:00 AA 08:03:70	Loudness V.R. Stay	ラウドネスV.R.ステー	
	42:00:00 LB 60:10:00	Miniature Connector 3022-7A	ミニチュアコネクタコン	
	42:00:00 LB 60:10:10	-do.- 3022-11A	"	
㊟	32:00:00 NA 06:71:90	Tone Control Amp. Circuit Board #65861	トーンアンプシート	
	42:00:00 FH 61:05:00	Ceramic Capacitor 15pF 500V CH	セラコン	
	42:00:00 FH 61:11:00	-do.- 10pF -do.-	"	
	42:00:00 FH 61:21:50	-do.- 150pF -do.-	"	
	42:00:00 FH 61:21:80	-do.- 180pF -do.-	"	
	42:00:00 FH 23:41:00	-do.- 0.01μF 500V YZP	"	
	42:00:00 FM 10:74:70	Bi-Polar Capacitor 4.7μF/6.3V	バイポーラコン・タテ	
	42:00:00 FP 15:66:80	Tantalum Capacitor 6.3μF/35V	タンタルコン	
	42:00:00 HL 41:63:30	Metal Oxide Resistor 3.3KΩ 1W	酸化抵抗	
	42:00:00 Hu 87:64:30	Metal Film Resistor 4.3KΩ±1%	金属被膜抵抗 F 型	
	42:00:00 HY 00:01:60	Variable Resistor B-22KΩ CR-31R	メタルグレース V R	
	42:00:00 i A 07:63:90	Transistor 2SA763	トランジスター	
	42:00:00 i C 13:45:40	-do.- 2SC1345	"	

Ref. No.	Part No.	Description	Remarks	Common Models
42:00:00:IC:14:39:00	Transistor	2SC1439		
42:00:00:FE:10:03:00	FET	2SK43①	F E T	
42:00:00:FE:10:03:20	-do.-	2SK43④or⑤	"	
32:00:00:FE:20:01:00	-do.-	LJ13	"	
32:00:00:FE:40:01:20	-do.-	2SJ24C	"	
32:00:00:FE:40:01:00	-do.-	2SJ24A	"	
32:00:00:FE:30:03:20	-do.-	2SK78C	"	
32:00:00:FE:30:03:00	-do.-	2SK78A	"	
42:00:00:IF:00:00:40	Diode	IS1555	ダイオード	
42:00:00:LB:60:10:00	Miniature Connector	3022-7A	ミニチュアコネクタコン	
42:00:00:BA:00:66:60	Heat Sink		放熱器	
32:00:00:NA:06:72:00	Tone Volume Circuit Board	LC65872	トーンボリュームシート	
42:00:00:GD:90:01:40	Coil	47 mH	コイル	
42:00:00:HY:00:03:20	Variable Resistor	(Detent type) , Bass	SRAディテントVR	
42:00:00:HY:00:02:90	-do.-	, Treble	"	
42:00:00:HY:00:03:00	-do.-	, Acoustic	"	
42:00:00:HY:00:03:10	-do.-	, Presence	"	
22 32:00:00:NA:06:72:10	Tone Push Switch Circuit Board	#65882	トーンプッシュスイッチシート	
42:00:00:HU:87:61:60	Metal Film Resistor	1.6K Ω $\pm$ 1%	金属被膜抵抗	
42:00:00:FA:15:45:10	Mylar Capacitor	0.051 μ F 50V MS	マイラーコン	
42:00:00:FA:15:54:70	-do.-	0.47 μ F "	"	
42:00:00:FA:15:52:70	-do.-	0.27 μ F "	"	
42:00:00:FD:15:31:50	Polystyrene Capacitor	1500pF 50V	スチロールコン	
42:00:00:FD:15:24:70	-do.-	470pF 50V	"	
42:00:00:FE:15:11:50	-do.-	15pF 50V	"	
42:00:00:FM:23:62:20	Bi-Polar Electrolytic Capacitor	2.2 μ F/35V	バイポーラケミコン	
42:00:00:FM:10:81:00	-do.-	100 μ F/6.3V	"	
42:00:00:GE:20:01:10	MPX. Coil	GE6062 47mH	MPX 固定コイル	
42:00:00:LB:30:03:20	Miniature Connector	5045-3A	ミニチュアコネクタコン	
42:00:00:LB:60:10:00	-do.-	3022-7A	"	
42:00:00:LB:60:11:50	-do.-	3094-11A	"	
42:00:00:LB:60:11:60	-do.-	5110-7A	"	
42:00:00:LB:60:11:70	-do.-	5110-11A	"	
42:00:00:KA:70:06:20	Push Switch	Non Shorting Type SPU-019A12	プッシュSW	
42:00:00:KA:70:06:10	-do.-	Shorting Type SPU-019A11	"	

Ref. No.	Part No.	Description	Remarks	Common Models
⑩	32 00 00 NA 06 72 20	Muting Circuit Board #65894	ミュートイングシート	
	42 00 00 HY 00 02 70	Variable Resistor 20K Ω x 2 + 50K Ω x 2	VR	
	42 00 00 KC 00 02 40	Relay AG1014 DL-1a-24V	リレー	
	42 00 00 IH 00 02 40	Diode IS1885	ダイオード	
	42 00 00 KA 20 02 30	Lever Switch SLA-34351 NonShortingType	レバースイッチ	
	42 00 00 LB 60 10 10	Miniature Connector 3022-11A	ミニチュアコネクタ	
	42 00 00 LB 60 10 20	-do.- 3022-15A	"	
⑪	32 00 00 NA 06 72 30	Power Supply Circuit Board #65901	電源シート	
	42 00 00 FZ 00 06 50	Metal Film Capacitor 0.01 μ F/630V	メタライズドフィルムコン	
	42 00 00 FJ 15 84 70	Electrolytic Capacitor 470 μ F/35V	ケミコン	Substitution part
	42 00 00 FJ 26 63 30	-do.- 3.3 μ F/50V	"	-do.-
	42 00 00 FJ 27 82 20	-do.- 220 μ F/63V	"	
	42 00 00 FJ 29 63 30	-do.- 3.3 μ F/100V	"	
	42 00 00 FJ 20 74 70	-do.- 47 μ F/160V	"	
	42 00 00 FZ 00 06 40	-do.- 100 μ F/200V	"	
	42 00 00 FJ 53 74 70	-do.- KU Type 47 μ F/16V	ケミコン KU 型	
	42 00 00 HL 40 41 00	Metal Oxide Resistor 10 Ω 1/2W	酸化抵抗	
	42 00 00 HL 41 34 70	-do.- 4.7 Ω 1W	"	
	42 00 00 HL 41 63 30	-do.- 3.3K Ω 1W	"	
	42 00 00 HL 63 42 20	-do.- 22 Ω 3W	"	
	42 00 00 HT 41 00 30	Variable Resistor B-2.2K Ω	ソリッドVR	
	42 00 00 IA 08 58 00	Transistor 2SA858	トランジスタ	
	42 00 00 IC 14 39 00	-do.- 2SC1439	"	
	42 00 00 IA 05 61 22	-do.- 2SA561	"	
	42 00 00 IA 07 77 30	-do.- 2SA777	"	
	42 00 00 IC 07 34 22	-do.- 2SC734	"	
	42 00 00 IC 07 93 20	-do.- 2SC1061	"	Substitution part
	42 00 00 IC 04 58 90	-do.- 2SC458	"	2SC793
	42 00 00 IC 14 47 00	-do.- 2SC1447	"	
	42 00 00 IE 00 00 10	FET 2SK30A	FET	
	42 00 00 IF 00 03 20	Zener Diode WZ-061	ツェナーダイオード	
	42 00 00 IF 00 03 50	-do.- WZ-130	"	
	42 00 00 IH 00 03 30	Diode IS1887	ダイオード	
	42 00 00 IF 00 00 40	-do.- IS1555	"	
	42 00 00 IH 00 02 40	-do.- IS1885	"	

Ref. No.	Part No.	Description			Remarks	Common Models
	42 00 00 KB 00 03 10	Fuse T	500mA	250V	耐ラッシュヒューズ	Except European model
	42 00 00 KB 00 07 10	Miniature Fuse	500mA	250V	タイムラグ [®] ヒューズ	European model
	42 00 00 KB 00 03 30	Fuse T	1.0A	250V	耐ラッシュヒューズ	Except European model
	42 00 00 KB 00 07 30	Miniature Fuse	1.0A	250V	タイムラグ [®] ヒューズ	European model
	42 00 00 BA 06 69 40	Heat Sink			放 熱 板	
	42 00 00 LB 60 10 80	Connector	2145-12B		コ ネ ク ト コ ン	
	42 00 00 LB 60 12 50	—do.—	5145-6E		"	
⑬	32 00 00 NA 06 72 50	Meter Circuit Board	#65911		メー ター シー ト	
	32 00 00 FP 15 64 70	Tantalum Capacitor	4.7 μ F/16V		タ ン タ ル コ ン	Substitution part
	42 00 00 HT 41 00 20	Variable Resistor	B-1K Ω		ソ リ ッ ド V R	
	42 00 00 HT 41 00 70	—do.—	B-10K Ω		"	
	42 00 00 HT 41 01 40	Variable Resistor	B47K Ω		"	
	42 00 00 HT 41 00 90	—do.—	B100K Ω		"	
	42 00 00 iA 07 63 00	Transistor	2SA763 L		ト ラ ン ジ ス タ ー	
	42 00 00 iC 13 45 40	—do.—	2SC1345		"	
	42 00 00 iG 00 09 70	IC	TA7129AP		I C	
	42 00 00 iF 00 00 40	Diode	IS1555		ダ イ オ ード	
	42 00 00 LB 30 03 20	Miniature Connector	5045-3A		ミニ ュ ア チ ュ ア コ ネ ク ト コ ン	
	32 00 00 NA 06 72 60	No.1 Meter Switch Circuit Board	#65931		メー ター S W シ ー ト No. 1	
	42 00 00 KA 70 06 30	Push Switch	SPZ 4-2		プ ッ シ ュ ス イ ッ チ	
	32 00 00 NA 06 72 70	No.2 Meter Switch Circuit Board	#65920		メー ター S W シ ー ト No. 2	
	42 00 00 KA 70 06 30	Push Switch	SPZ 4-2		プ ッ シ ュ ス イ ッ チ	
⑭	32 00 00 NA 06 72 80	Oscillator Circuit Board	#65942		O S C シ ー ト	
	42 00 00 FA 15 31 00	Mylar Capacitor	0.001 μ F	50V MS	マ イ ラ ー コ ン	
	42 00 00 FA 15 35 10	—do.—	0.0051 μ F		"	
	42 00 00 FA 15 41 50	—do.—	0.015 μ F		"	
	42 00 00 HT 41 00 20	Variable Resistor	B1K Ω		ソ リ ッ ド V R	
	42 00 00 HT 41 00 80	—do.—	B22K Ω		"	
	42 00 00 HT 41 01 40	—do.—	B47K Ω		"	
	41 00 00 HT 41 01 50	—do.—	B4.7K Ω		"	

Ref. No.	Part No.	Description	Remarks	Common Models
	42:00:00:IC:04:58:90	Transistor 2SC458	トランジスター	
	42:00:00:IE:00:00:10	FET 2SK30A	F E T	
	42:00:00:KA:50:06:20	Rotary Switch SRZ-064	ロータリーSW	
	42:00:00:JB:00:00:70	Lamp Lead Type 12V 30mA	パイロットランプ	
	42:00:00:LB:60:10:00	Miniature Connector 3022-11A	ミニチュアチュア コネクタコン	
⑮	32:00:00:NA:06:72:90	Headphone VR Circuit Board #65953	ヘッドホーン V R シート	
	32:00:00:FP:15:61:00	Tantalum Capacitor 1 μ F/25V	タンタルコン	Substitution part 1 μ F/35V
	42:00:00:IC:04:58:90	Transistor 2SC458LG	トランジスター	
	42:00:00:HS:11:01:30	Variable Resistor A100K Ω x 2 16 ϕ	ボリューム	
	42:00:00:LB:60:11:50	Miniature Connector 3094-7A	ミニチュアチュア コネクタコン	
⑰	32:00:00:NA:06:73:00	Filter Circuit Board #65961	フィルターシート	
	42:00:00:LB:60:10:30	Miniature Connector 3094-15A	ミニチュアチュア コネクタコン	
	42:00:00:KA:20:02:40	Lever Switch SLA36304 Shorting 6-3	レバースイッチ	
⑳	32:00:00:NA:06:73:10	Lever Switch Circuit Board #65974	レバースイッチシート	
	42:00:00:FD:15:13:30	Polystyrene Capacitor 33pF	スチロールコン	
	42:00:00:FD:15:16:80	-do.- 68pF	"	
	42:00:00:FD:15:26:80	-do.- 680pF	"	
	42:00:00:Hu:87:65:60	Metal Film Resistor 5.6K Ω $\pm$ 1%	金属被膜抵抗F型	
	42:00:00:Hu:87:71:10	-do.- 11K Ω $\pm$ 1%	"	
	42:00:00:Hu:87:71:50	-do.- 15K Ω $\pm$ 1%	"	
	42:00:00:Hu:87:72:00	-do.- 20K Ω $\pm$ 1%	"	
	42:00:00:IF:00:00:40	Diode IS1555	ダイオード	
	42:00:00:LB:60:10:00	Miniature Connector 3022-7A	ミニチュアチュア コネクタコン	
	42:00:00:LB:60:10:10	-do.- 3022-11A	ミニチュアチュア コネクタコン	
	42:00:00:LB:60:10:20	-do.- 3022-15A	"	
	42:00:00:KA:20:01:40	Lever Switch SLA34301 Shorting type 4-3	レバースイッチ	
	42:00:00:KA:20:02:50	-do.- SLA38301 Shorting type 8-3	"	
	42:00:00:KA:20:02:60	-do.- SLA36203	"	
	42:00:00:KA:20:01:50	-do.-	"	
㉑	32:00:00:NA:06:73:20	Impedance Selector Circuit Board #65980	インピーダンス 切 換 シート	
	42:00:00:KA:50:06:20	Rotary Switch SRZ-064	ロータリースイッチ	
	42:00:00:AA:08:02:80	Phone Switch Stay	フォノSWステー	
	42:00:00:LB:60:10:00	Miniature Connector 3022-7A	ミニチュアチュア コネクタコン	

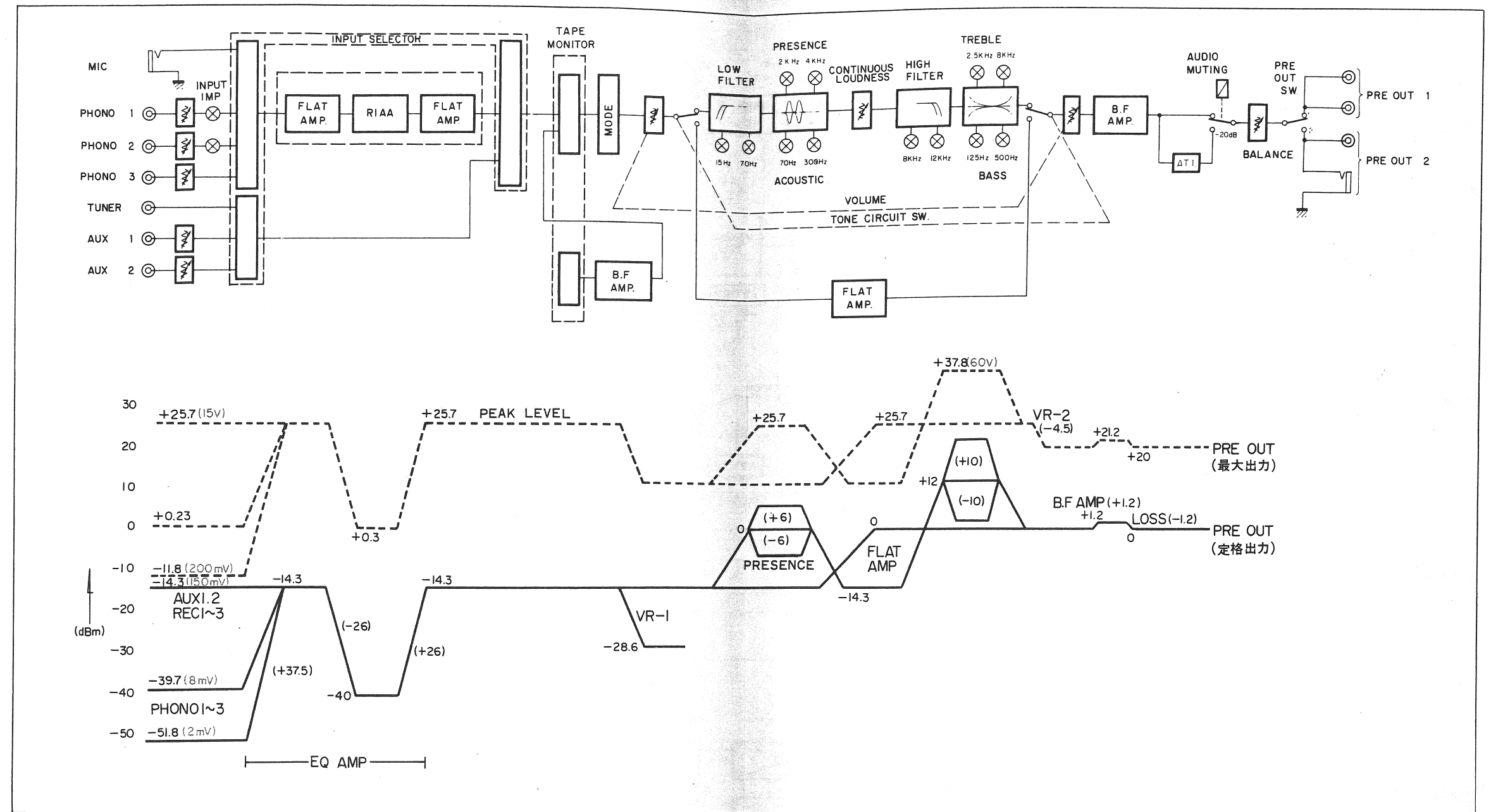
Ref. No.	Part No.	Description	Remarks	Common Models
⑬	32:00:00:NA:06:73:30	Pin Jack Circuit Board #65992	ピンジャックシート	
	42:00:00:LB:60:09:90	12P Pin Jack	12Pピンジャック	
⑭	32:00:00:NA:06:73:40	Slide Switch Circuit Board #66001	スライドスイッチシート	
	42:00:00:LB:20:08:30	2P Pin Jack	2Pピンジャック	
	42:00:00:LB:60:12:40	6P —do.—	6P "	
	42:00:00:KA:40:02:10	Slide Switch	スライドスイッチ	
	32:00:00:NA:06:73:50	LED Circuit Board #66011	LEDシート	
	42:00:00:IF:00:04:90	Light Emitting Diode SLP-119B	発光ダイオード	
⑰	32:00:00:NA:06:73:70	Pink Noise Circuit Board #66032	ピンクノイズシート	
	42:00:00:FA:15:31:00	Mylar Capacitor 0.001 μ F 50V	マイラーコン	
	42:00:00:IG:00:09:70	IC TA7129A	IC	
	42:00:00:IC:04:58:90	Transistor 2SC458	トランジスター	
	42:00:00:IE:10:03:00	FET 2SK43①	FET	
	42:00:00:HT:41:00:80	Variable Resistor B-22K Ω	ソリッドVR	
	42:00:00:LB:30:03:20	Miniature Connector 5045-3A	ミニコネクター	
⑧	32:00:00:AA:08:00:50	Top Cover	ケース	
	32:00:00:AA:08:00:70	Bottom Cover	底板	
③	32:00:00:BA:06:69:90	Switch Knob	スイッチツマミ	
⑤	32:00:00:BA:06:70:00	Volume Knob	VRツマミ	
⑦	32:00:00:BA:06:69:70	Loudness Knob	ラウドネスツマミ	
⑥	32:00:00:BA:06:69:80	Tone Control Knob	トーンコンツマミ	
	32:00:00:BA:06:71:10	Control Knob	コントロールノブ	
②	32:00:00:BA:06:67:80	Push Button	プッシュボタン	
④	32:00:00:CB:07:38:40	Lever Knob	レバーツマミ	
	32:00:00:CB:06:85:80	Bushing for Switch	スイッチ用ブッシュ	
	42:00:00:CB:07:35:70	Apron for Switch	スイッチエプロン	
	42:00:00:CB:07:41:00	—do.—	"	
	32:00:00:CB:06:86:60	Serrated Bushing	セレーションブッシュ	
	42:00:00:CB:07:44:50	Leg	脚(トランレグG)	

Ref. No.	Part No.	Description			Remarks	Common Models
①	42:00:00:JI:00:03:10	Level Meter	Left	レベルメーター L		
①	42:00:00:JI:00:03:30	—do.—	Right	” R		
	42:00:00:LB:20:05:40	Fuse Holder	TN-0125	ヒューズホルダー ウェハー型		
	42:00:00:JB:00:00:40	Cartridge Type Lamp	8V 0.3A	パイロットランプ筒型		
	32:00:00:AA:08:02:00	Meter Stay		メーターステー		
	32:00:00:AA:08:02:70	Lamp Stay		ランプステー		
	32:00:00:CB:07:40:00	Meter Sash		メーター枠		
	32:00:00:AA:08:01:20	Lever Switch Stay		レバースイッチステー		
	32:00:00:AA:08:01:90	Extension Shaft Holder		延長シャフトホルダー		
	32:00:00:AA:08:02:90	Shaft Holder		シャフトホルダー		
	32:00:00:BA:06:70:90	Extension Shaft		延長シャフト		
	32:00:00:AA:08:01:70	Holder for Tone Control Circuit Board		TCシートホルダー		
	32:00:00:MZ:06:65:10	Tone Control Connector Assembly		TCコネクター Assy		
	42:00:00:LB:60:10:40	7P Housing	3021-7	7Pハウジング		
	42:00:00:LB:60:10:50	11P Housing	3021-11	11Pハウジング		
	42:00:00:LB:10:03:40	Connector Terminal	2759-T	コネクタコンター ミナル連鎖状		
	42:00:00:LB:30:03:30	3P Miniature Connector Housing	5051-3			
⑩	42:00:00:LB:30:03:80	Phone Jack	JH-5020K	ホーンジャック		
	32:00:00:AA:08:01:10	Phone Jack Stay		ホーンジャックステー		
	32:00:00:CB:07:39:70	Phone Nut		ホーンナット		
	32:00:00:MZ:06:65:20	Jack Connector Assembly		ジャックコネクター Ass'y		
	42:00:00:LB:30:03:30	3P Housing	5051-3	3Pハウジング		
	42:00:00:LB:10:03:40	Connector Terminal	2759-T	コネクタコンター ミナル連鎖状		
	42:00:00:KA:20:01:00	Power Switch	JL-04 TV-3	レバーSW	U.S. and Canadian models	
	42:00:00:KA:20:02:10	—do.—	PETRICK 285/5	”	European model	CR-600
	42:00:00:FZ:00:01:10	Spark Killer	0.033 μ F + 120 Ω /500V	スパークキラーコン	U.S. and Canadian models	
	32:00:00:NB:07:37:90	Front Panel Unit		フロントパネルユニット		
	32:00:00:MZ:06:65:70	LED Connector Assembly		LEDコネクター Ass'y		

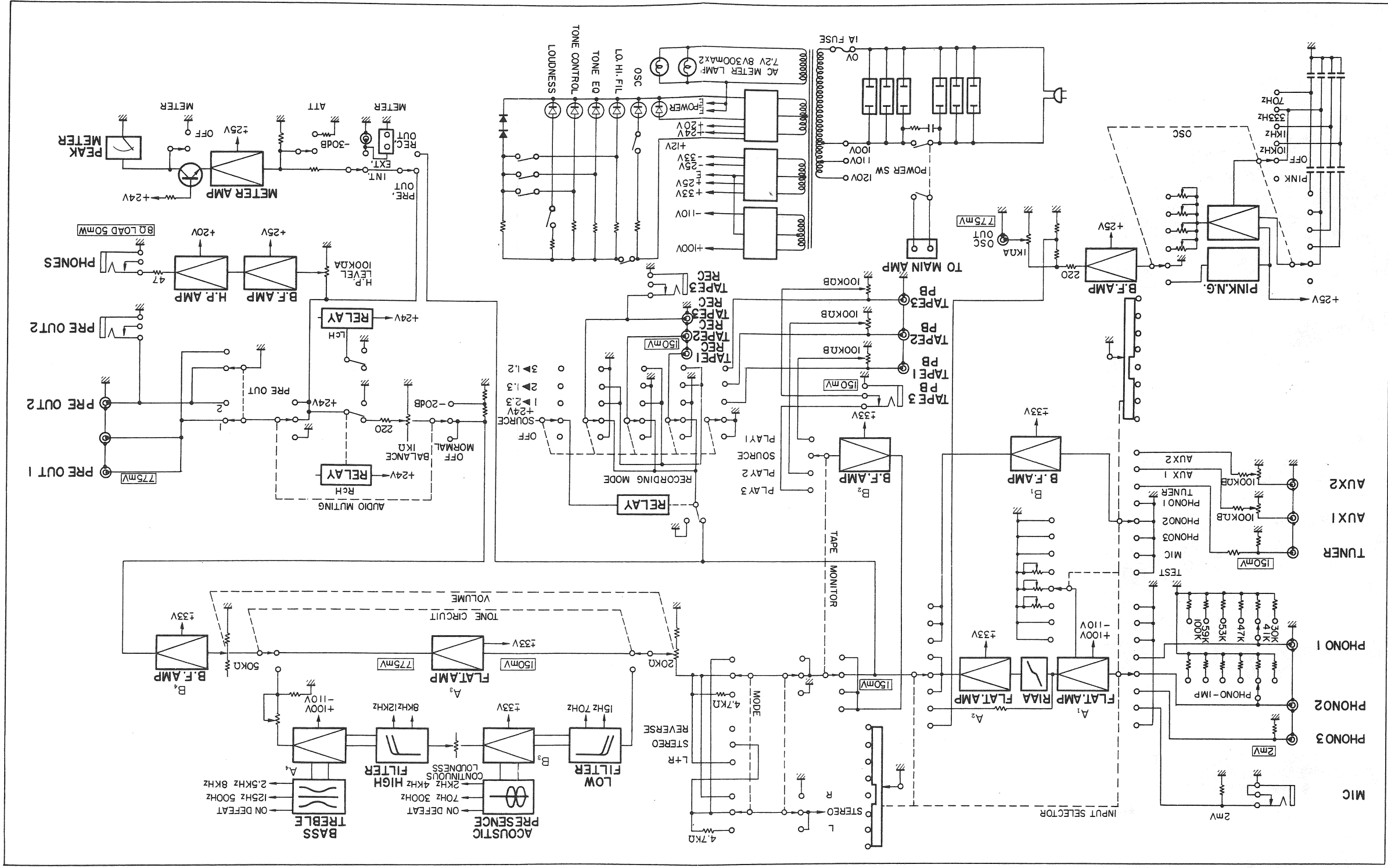
Ref. No.	Part No.	Description	Remarks	Common Models
	42 00 00 LB 60 10 40	7P Housing 3021-7	7 Pハウジング	
	42 00 00 LB 10 03 40	Connector Terminal 2759-1	コネクタコンターミナル 連鎖状	
②⑤	42 00 00 GA 60 81 10	Power Transformer	電 源 ト ラ ン ス	U.S. and Canadian models
②⑤	42 00 00 GA 60 81 20	-do.-	"	European model
	42 00 00 LB 60 11 20	Connector Housing 2139-12	コネクタコン配線用ハウジング	
	42 00 00 LB 10 02 70	Connector Terminal 2478-T	コネクタコンターミナル 連鎖状	CT-7000
	42 00 00 LA 00 13 20	4PE Push Terminal SQ-2161	4 P E 型 プッシュターミナル	
	42 00 00 LB 40 02 20	4P Connector Plug P-1304-DB-01	4 Pコネクタプラグ	U.S. and Canadian models
	42 00 00 LB 20 07 10	AC Socket Spring Type SI-6432	ACソケットパネ式	-do.-
	42 00 00 LB 20 08 40	Fuse Holder	ヒューズホルダー	-do.-
	42 00 00 LB 20 05 90	-do.- Screw Type FEB031-1401	" ネジ式	European model
	42 00 00 KB 00 10 60	UL Listed Fuse 1AT 250V	U L ヒ ュ ー ズ	U.S. and Canadian models
	42 00 00 KB 00 07 10	Miniature Fuse 0.5A 250V	⑤ヒューズタイムラグ	European model
	32 00 00 AA 08 00 90	Rear Panel	リ ア ー パ ネ ル	U.S. and Canadian models
	32 00 00 AA 08 01 00	-do.-	"	European model
	42 00 00 CB 06 86 30	Cord Stopper HEYCO SR-3P-4	コードストッパー	U.S. and Canadian models
	42 00 00 CB 07 06 90	-do.- EA-5	"	European model
⑨	42 00 00 LB 10 03 30	1P Pin Jack	1 Pピンジャック	
	42 00 00 HS 11 01 00	16φ Variable Resistor A-1KΩ	V R	
	42 00 00 HS 11 01 10	-do.- B-5KΩ x 2	"	
	42 00 00 HS 11 01 20	-do.- B-100KΩ x 2	"	
	42 00 00 LA 00 10 40	Connection Terminal	中 継 端 子 台	European model
	42 00 00 LA 00 10 70	Ground Terminal Knob Type		CA-1000
	42 00 00 CB 06 88 80	Plastic Rivet	プラスチックリベット	
	42 00 00 CB 06 86 50	Plastic Washer	プラスチックワッシャー	
	32 00 00 MZ 06 66 10	Rear Panel Connector Assembly	リ ア ー パ ネ ル コネクタ Ass'y	
	42 00 00 LB 30 03 30	3P Housing 5051-3	3 Pハウジング	
	42 00 00 LB 60 10 40	7P -do.- 3021-7	7 P "	
	42 00 00 LB 60 10 50	11P -do.- 3021-11	11 P "	
	42 00 00 LB 10 03 40	Connector Terminal 2759-T	コネクタコンターミナル 連鎖状	
	32 00 00 AA 08 01 60	Rotary Metal Stay	回転金具ステー	
	32 00 00 AA 08 01 80	Rotary Metal	回 転 金 具	
	32 00 00 AA 07 44 70	Rotary Screw	回 転 ネ ジ	
	32 00 00 MZ 06 66 50	Connector Assembly A	コネクタ Ass'yA	European model

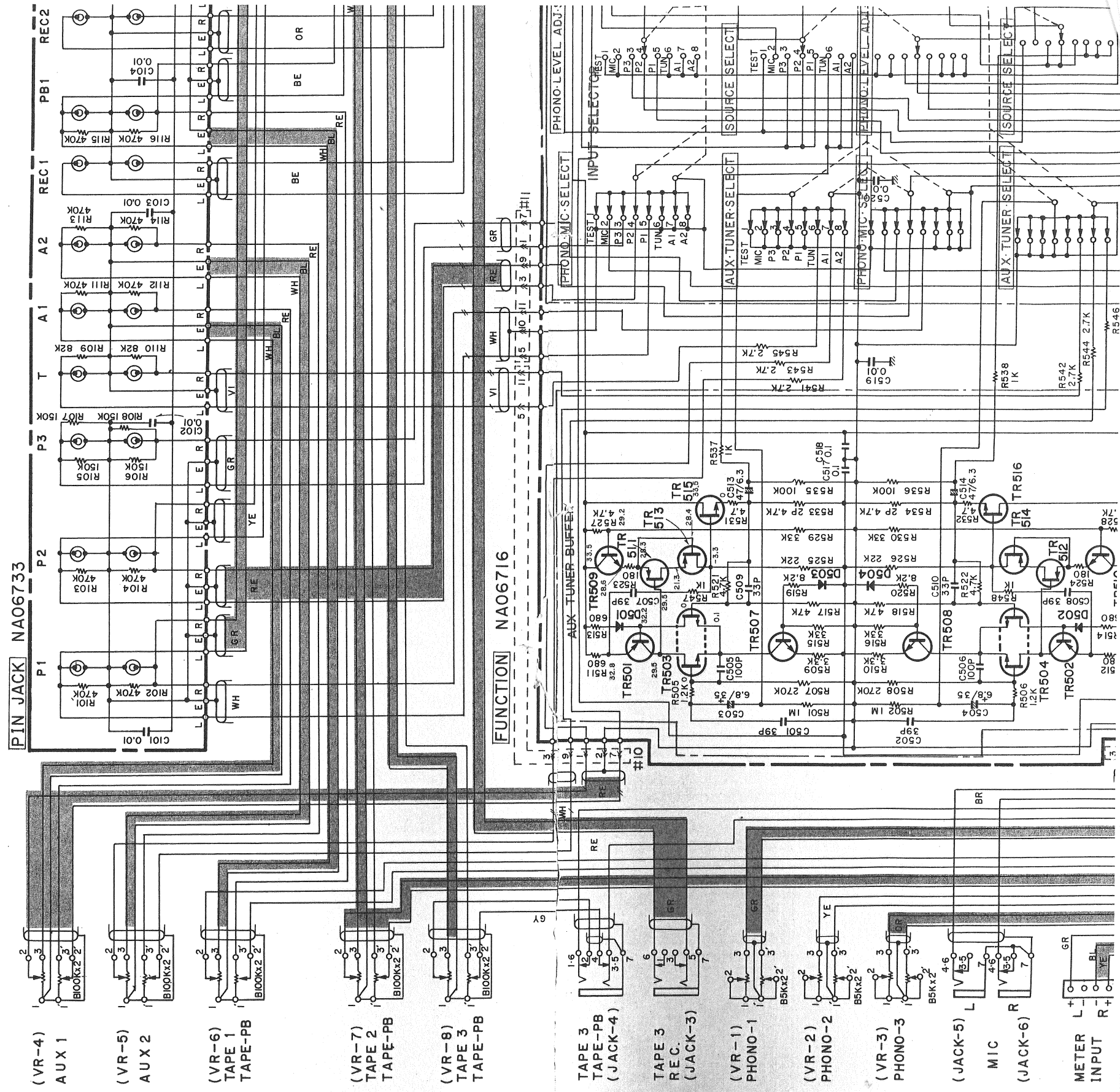
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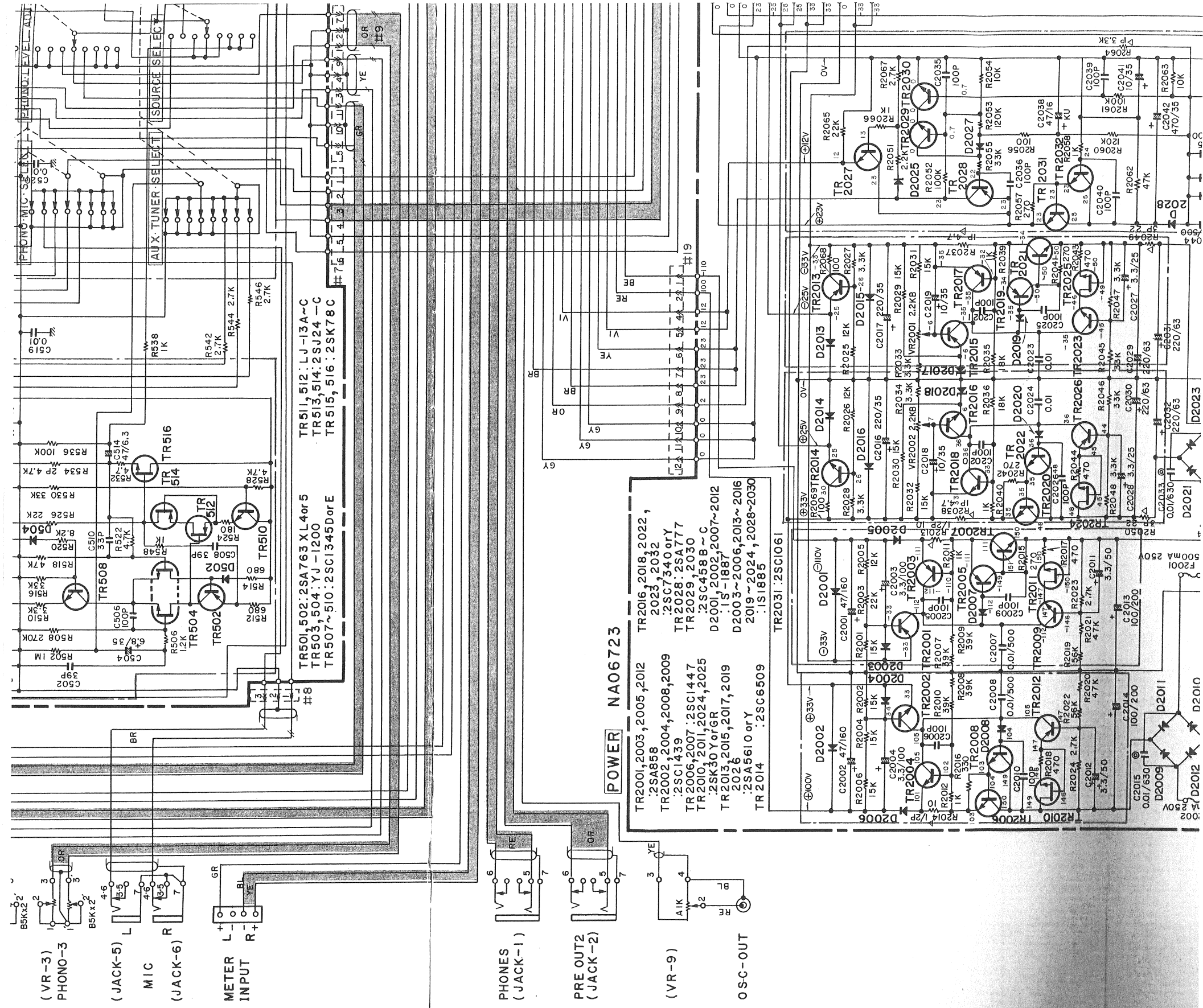
LEVEL DIAGRAM

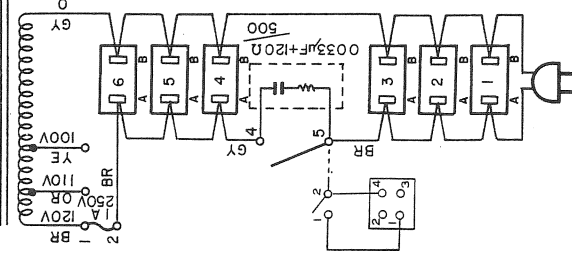
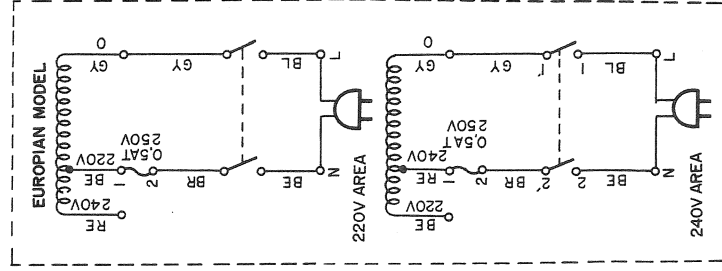


BLOCK DIAGRAM

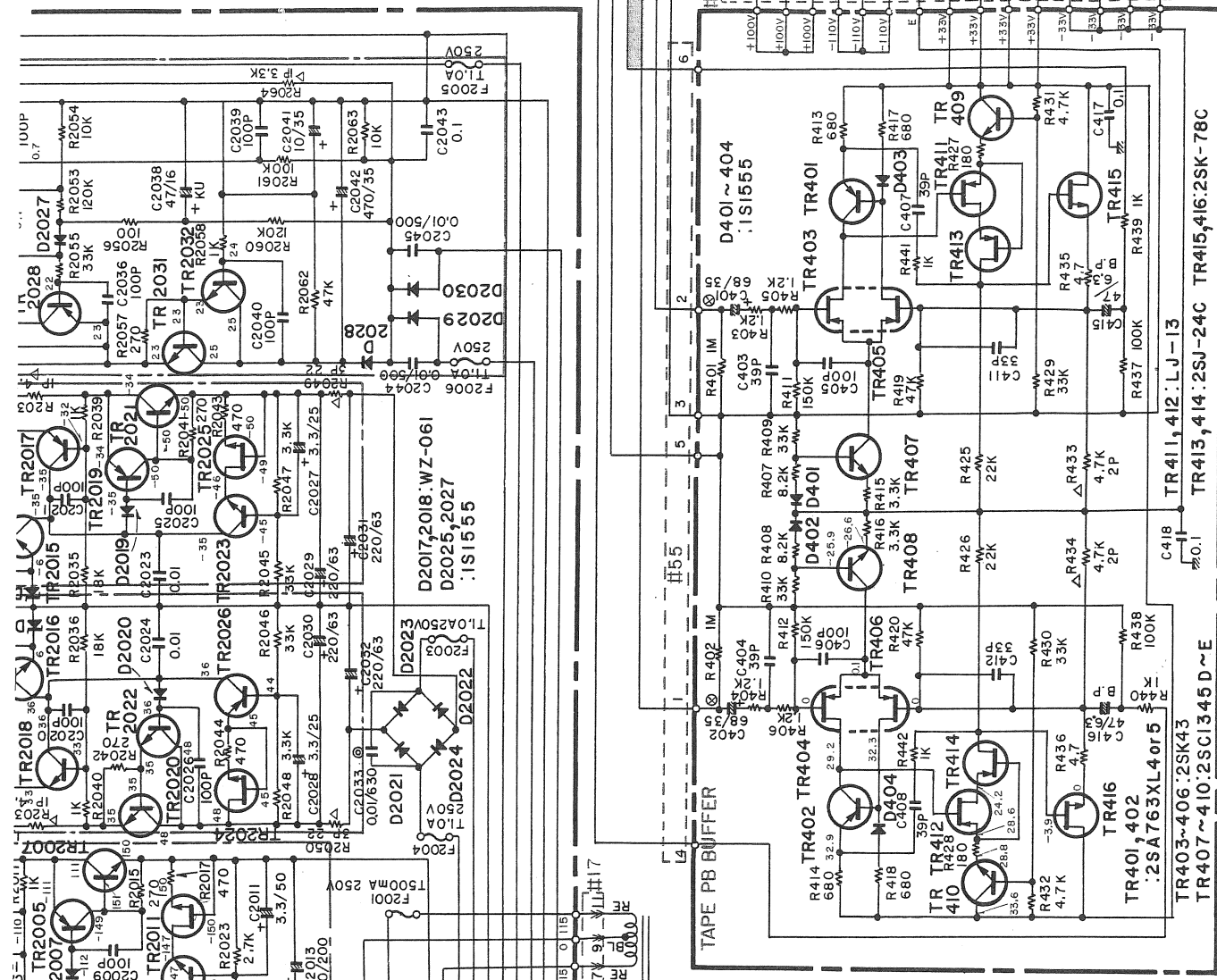




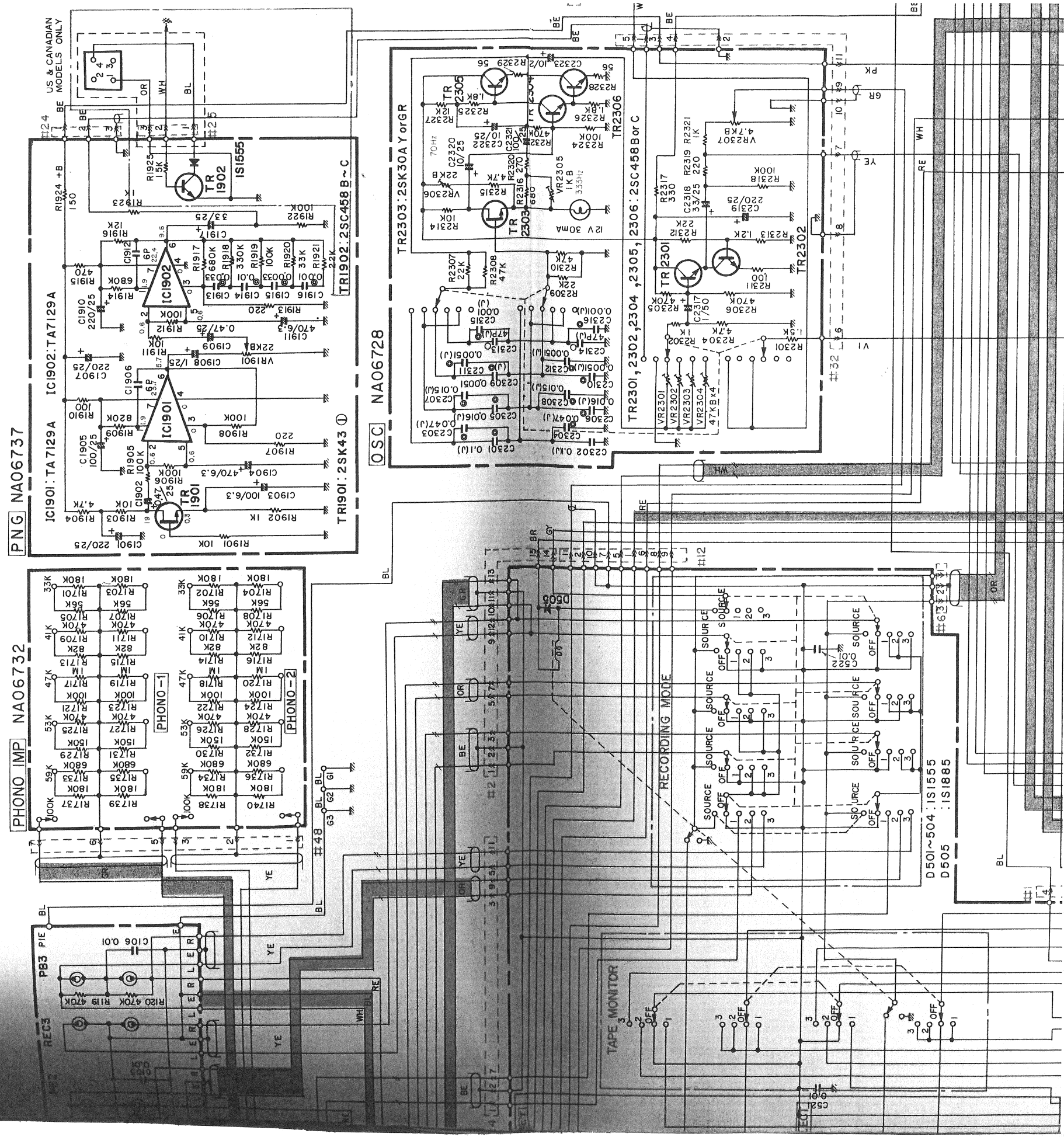




NA06715 BUFFER AMP



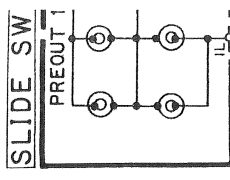
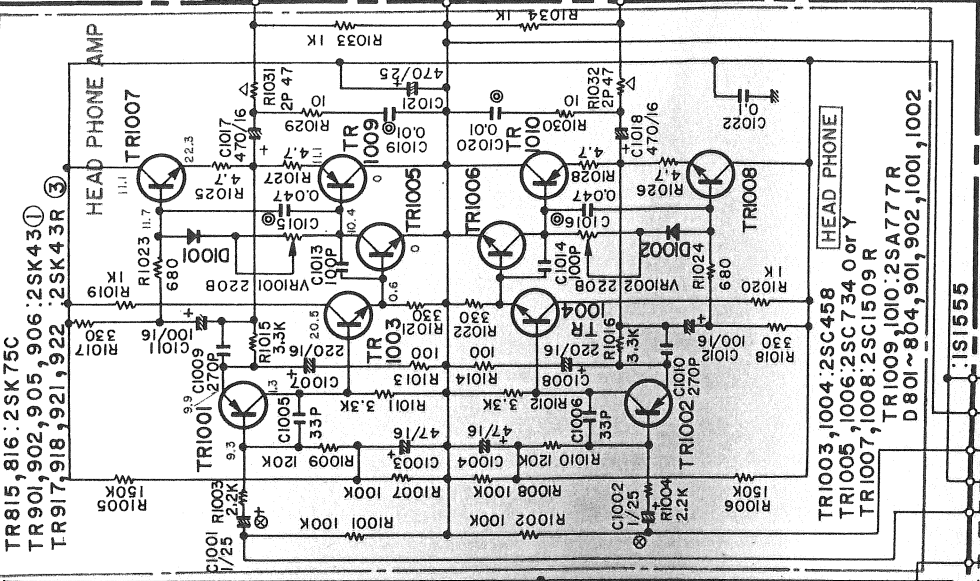
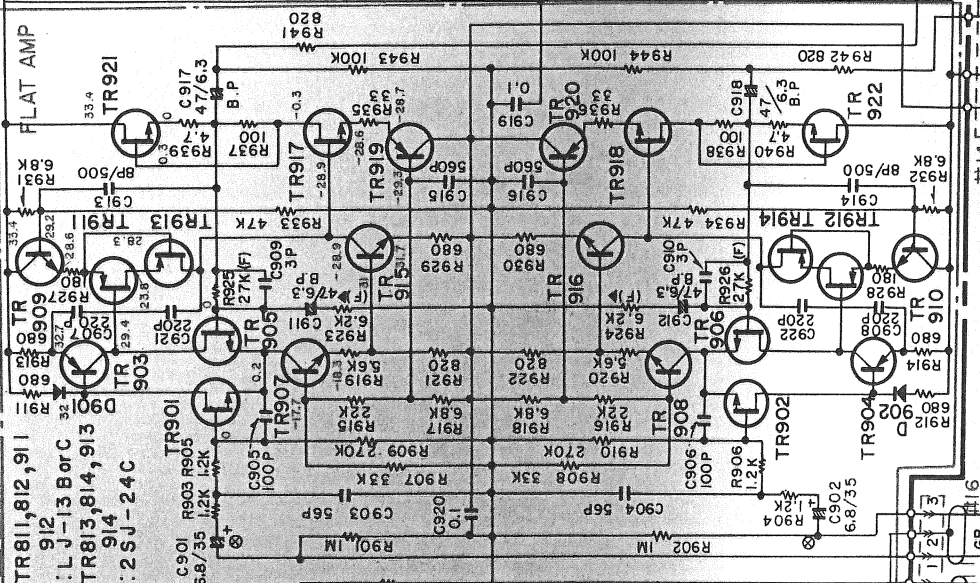
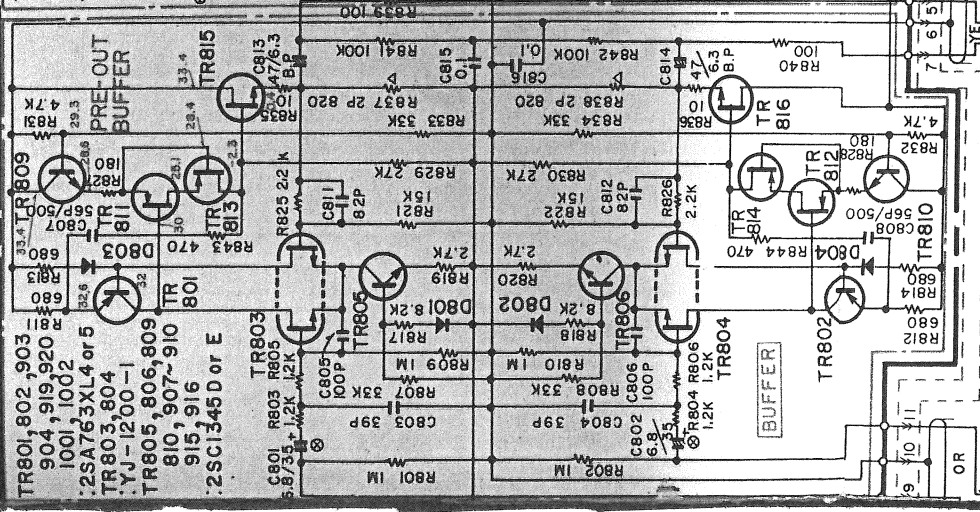
C-1 SCHEMATIC I



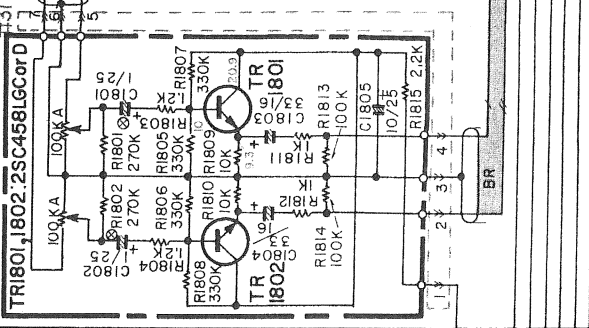


AGRAM

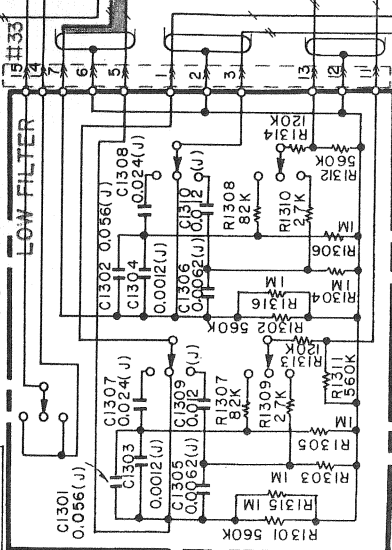
LAT AMP NAO6717

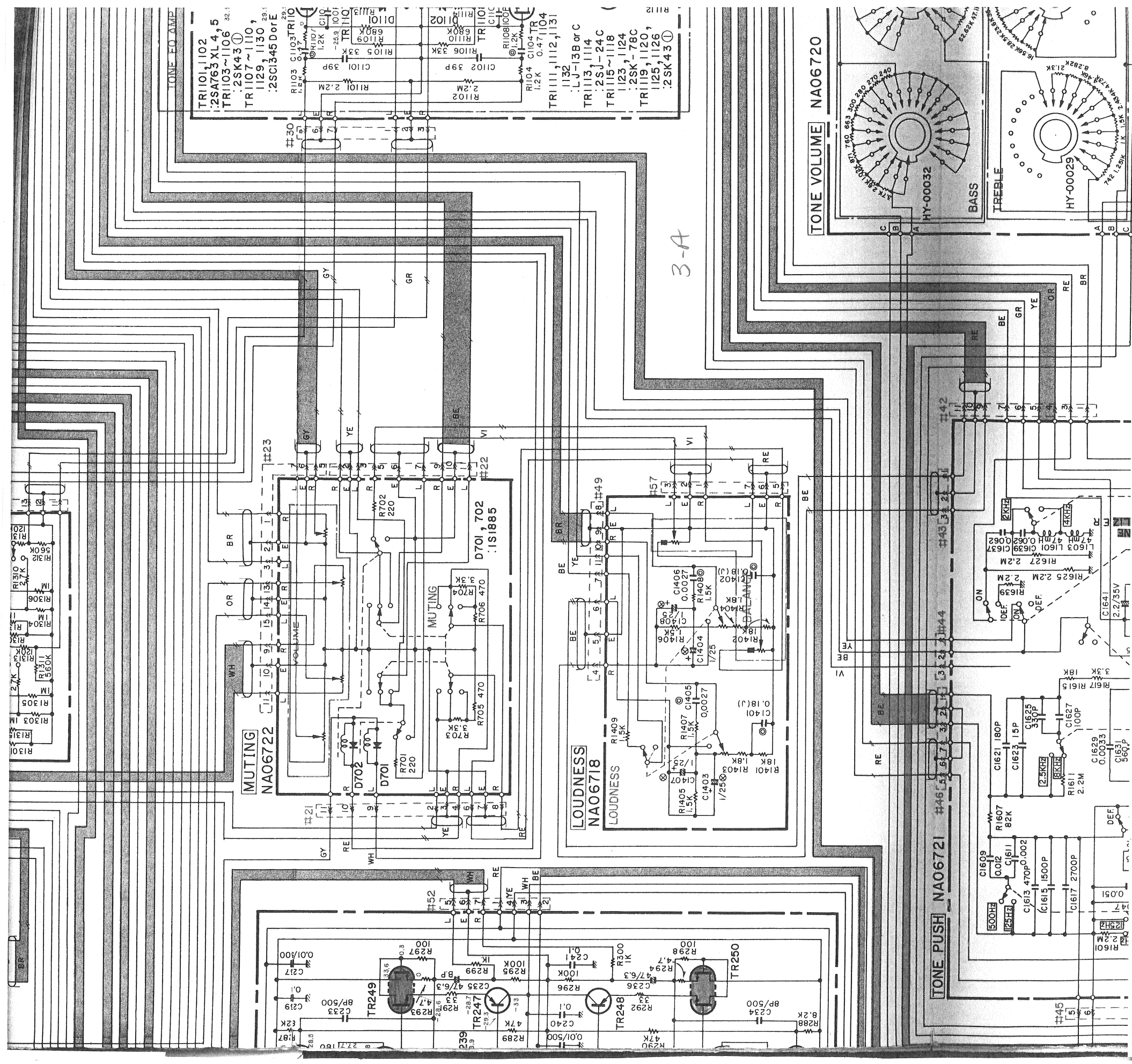


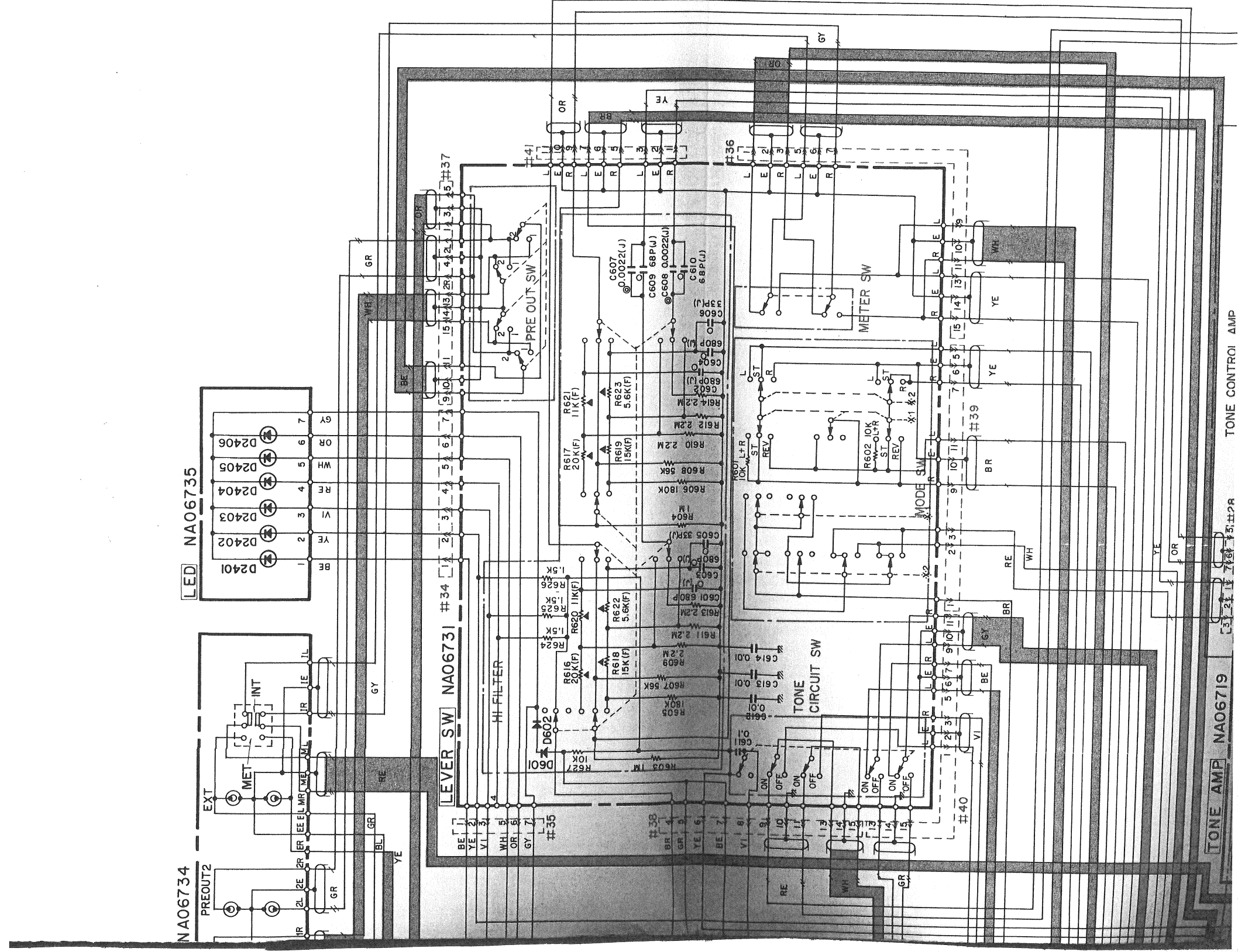
H.P.V.R NAO6729

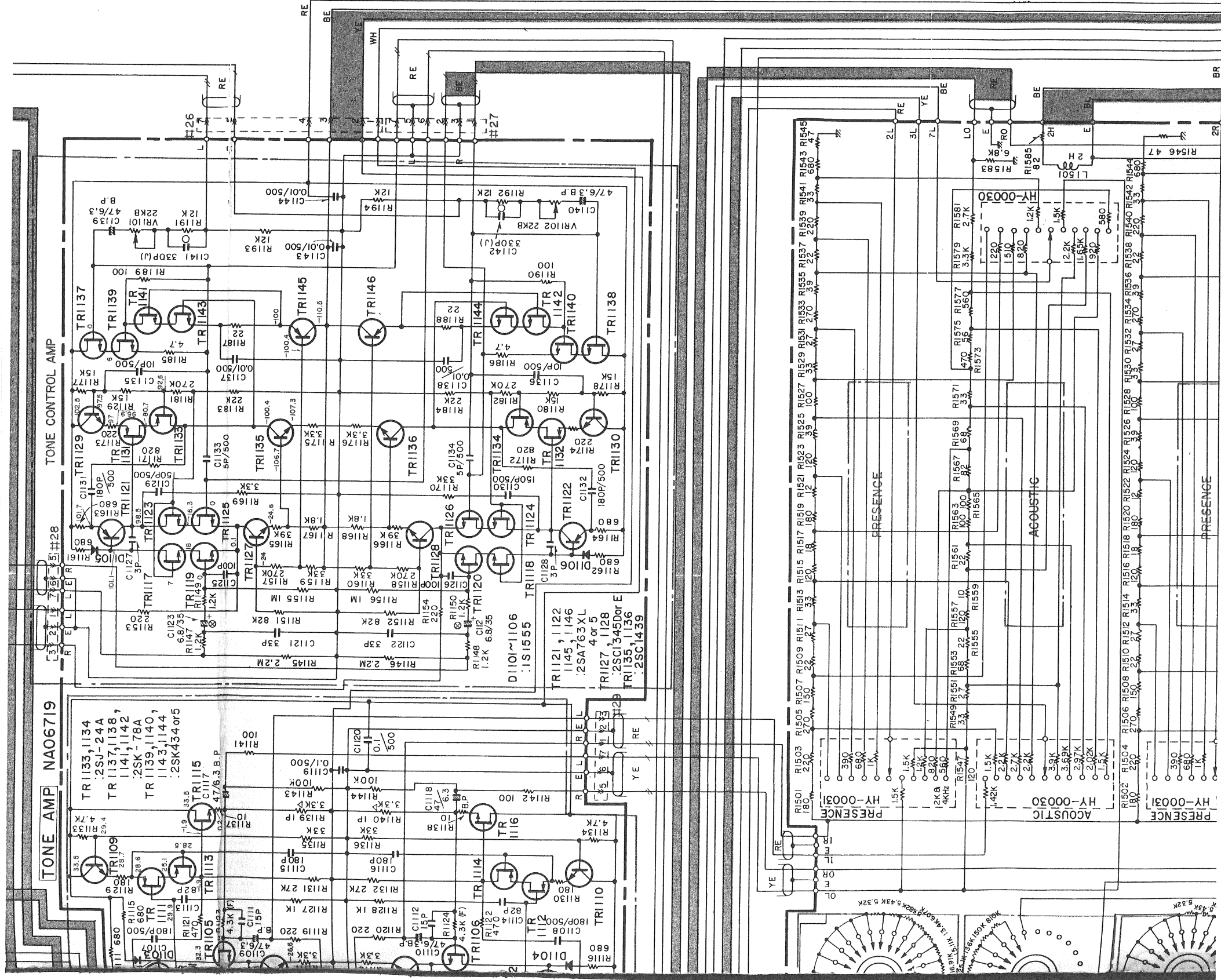


FILTER NAO6730









4-A

