

Ibanez

SERVICE MANUAL

GUITAR AMPLIFIERS
IBZ 60, IBZ 60EQ, IBZ 100, IBZ 100EQ

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1. FEATURES

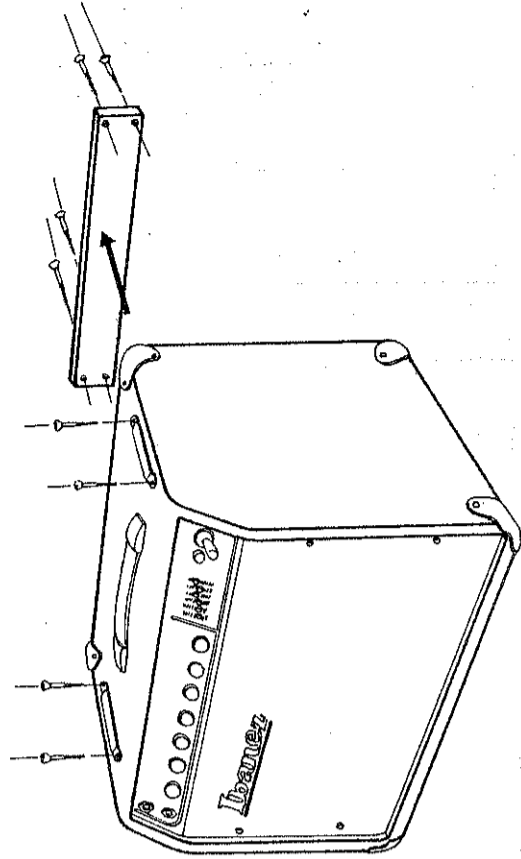
- Full-Scale three volume system supplied with Overdrive circuit. Enjoyable from normal to hard distortion sound. The foot switch add the extra use of exchange between channel No.1(Overdrive) and channel No.2(Normal).

- The newly developed speaker makes very clear sound in treble. Enjoy a rhythmical chord work.

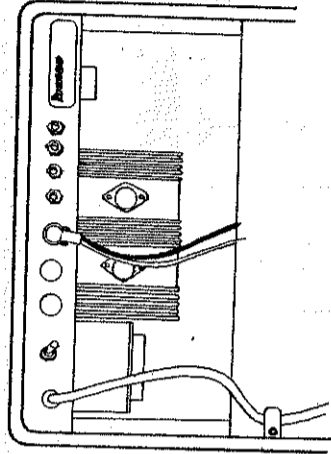
2. OPERATING PRECAUTIONS

Please be sure to use this instrument in standard voltage ($\pm 7\%$). If not, it may cause some trouble of noise or unusual operation by power transistor and something else. Use the standard fuse only.

3. HOW TO REMOVE THE SHASSIS

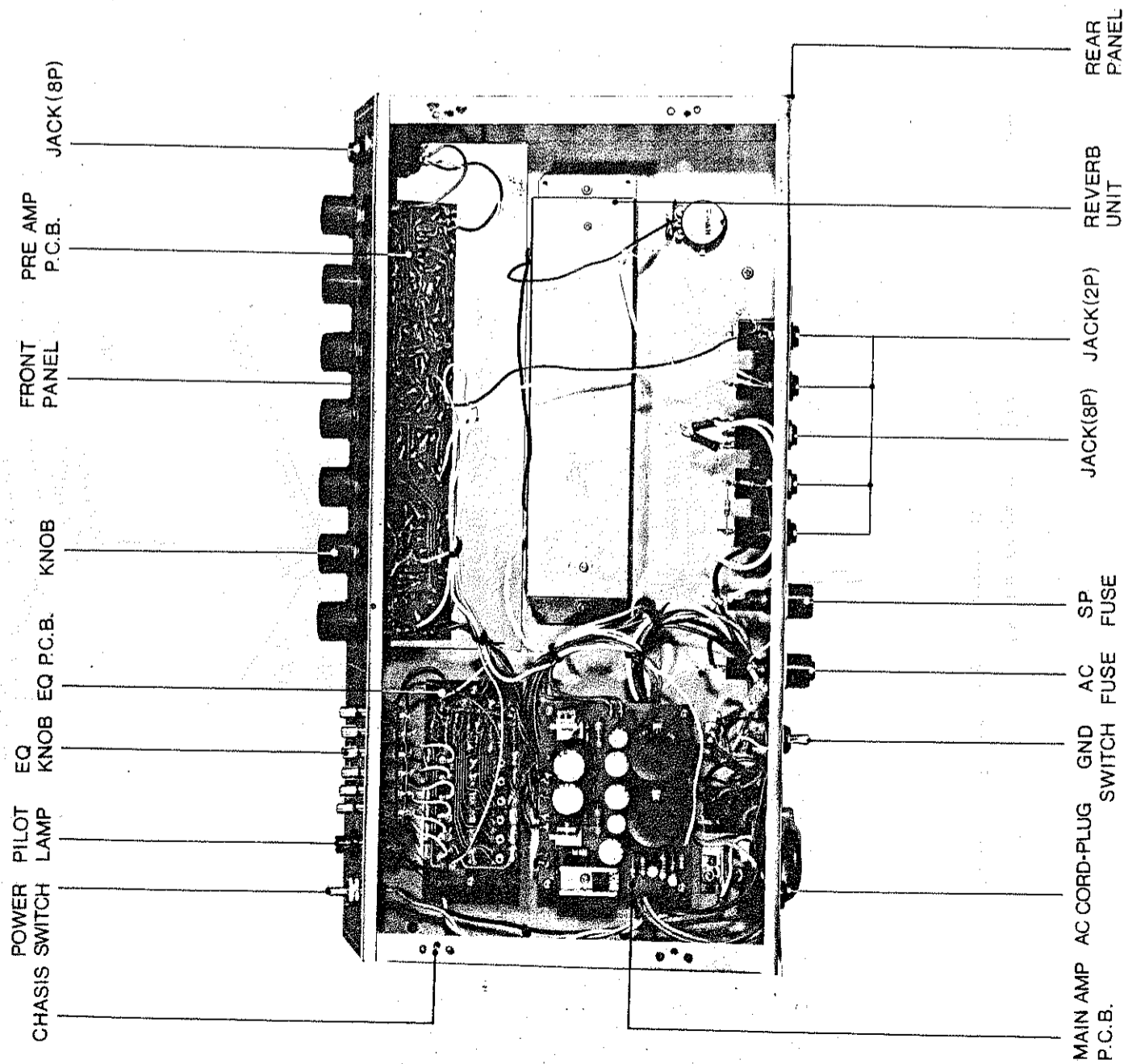


Remove the four screws on the top of body, also remove back of four screws to take off the back plate. Pull out the chassis from back side. Unplugs speaker Jack when pull out the chassis.

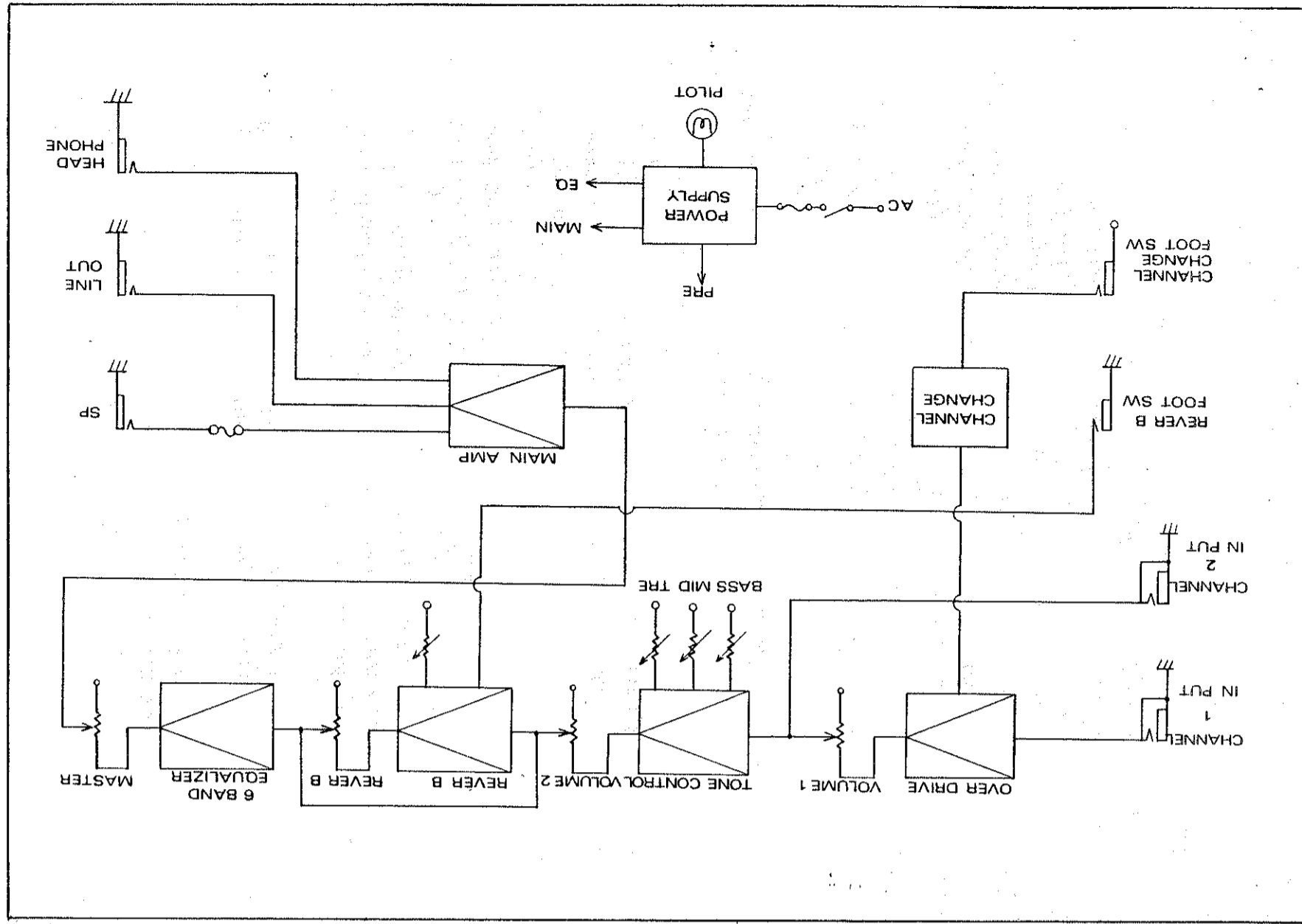


As shown the figure, disconnect the speaker Jack, and pull out the chassis to this side.

4. DISPOSITION OF PARTS



5. BLOCK DIAGRAMS



6. OPERATING INSTRUCTION

- **OVERDRIVE**
The input channel No.1 is designed for Hi-Gain. The input signal of CHANEL No.1 is run through as follow; INPUT VOL. No.1 TONE CONTROL CIRCUIT VOL. No.2 MASTER VOLUME.
So these three volume controls make a variety of sound realizable.
- **TONE CONTROL**
Treble, Middle and Bass: The frequency response - Flat at 0 Treble, at 10 Middle, at 0 Bass, the center frequency is 400Hz.
- **REVERB**
Spring reverb unit - Transformer and reverb unit change the electric signals to the mechanical signals, and do the change in reverse, which effect as the reverb effect.
- **GRAPHIC EQ**
The whole range of 6 bands EQ is boosted and cut by simulated inductor BPFs used OP Amps.
- **MAIN AMP**
OCL system using differential amplifier circuit, S.E.P.P., semi complimentary. Using a DIODE (ST-V3) for the temperature maintenance. The transistor is protected by making fuse in series with speaker.
- **POWER SUPPLY**
+45 50V DC for main Amp., +15V DC for Pre. Amp., 5V AC for Pilot Lamp by Bridge diode, Transistor, and Zener diode.

7. ADJUSTMENT PROCEDURES

No needs adjustment of IBZ Amp. under the strict quality controlled by IBANEZ. To re-adjusts the main circuit of IBZ for your own, first put on power and check the voltage of speaker. Please make sure the voltage range 0.3-1volt. It is no trouble for allowance voltage +0.1volt.
Adjusts VR on the main circuit board without signal to make voltage 0volt. Please note about +0.1volt of drift caused by temperature and so on.

8. PART LIST

PARTS NAME	TYPE	PARTS NO.	REFERENECE NO.
BODY		IB-160BD	
CASE		IB-160CA	
CHASIS		IB-160CH	
KNOB	MOLD	IB-160KH	
JACK	2P	IB-160J2	
JACK	8P	IB-160J8	
FRONT PANEL		IB-160FP	
REAR PANEL		IB-160RP	
REVERB UNIT		IB-160RU	
POWER TRANSFORMER	60W	IBE601(220V) IBC601(117V)	
POWER TRANSFORMER	100W	IBE1001(220V) IBC1001(117V)	
DRIVER TRANSFORMER		IB-160DT	
AC FUSE	1A (10W) 15A(10W)	IB-160AF	
SP FUSE	5A(60W), 6A(100W)	IB-160FL, IB-160FD	
FUSE HOLDER		IB-160FH	
GND SWITCH		IB-160GS	
POWER SWITCH		IB-160PS	
PILOT LAMP	12 ϕ	IB-160PL	
P.C.B.	PRE AMP	IB-160PCA	
P.C.B.	MAIN AMP	IB-160PCB	
P.C.B.	POWER SUPPLY	IB-160PCC	
HEAT SINK		IB-160HS	
FOOT PEDAL		IB-160FP	
CARBON FILM RESISTOR	10Kohm 1/4W \pm 5%		R1
CARBON FILM RESISTOR	470Kohm 1/4W \pm 5%		R2
CARBON FILM RESISTOR	30Kohm 1/4W \pm 5%		R3
CARBON FILM RESISTOR	10Kohm 1/4W \pm 5%		R4
CARBON FILM RESISTOR	1.5Kohm 1/4W \pm 5%		R5
CARBON FILM RESISTOR	100Kohm 1/4W \pm 5%		R6
CARBON FILM RESISTOR	390Kohm 1/4W \pm 5%		R7
CARBON FILM RESISTOR	1Mohm 1/4W \pm 5%		R8
CARBON FILM RESISTOR	4.7Kohm 1/4W \pm 5%		R9
CARBON FILM RESISTOR	100Kohm 1/4W \pm 5%		R10
CARBON FILM RESISTOR	47Kohm 1/4W \pm 5%		R11
CARBON FILM RESISTOR	10Kohm 1/4W \pm 5%		R12
CARBON FILM RESISTOR	100Kohm 1/4W \pm 5%		R13
CARBON FILM RESISTOR	270ohm 1/4W \pm 5%		R14

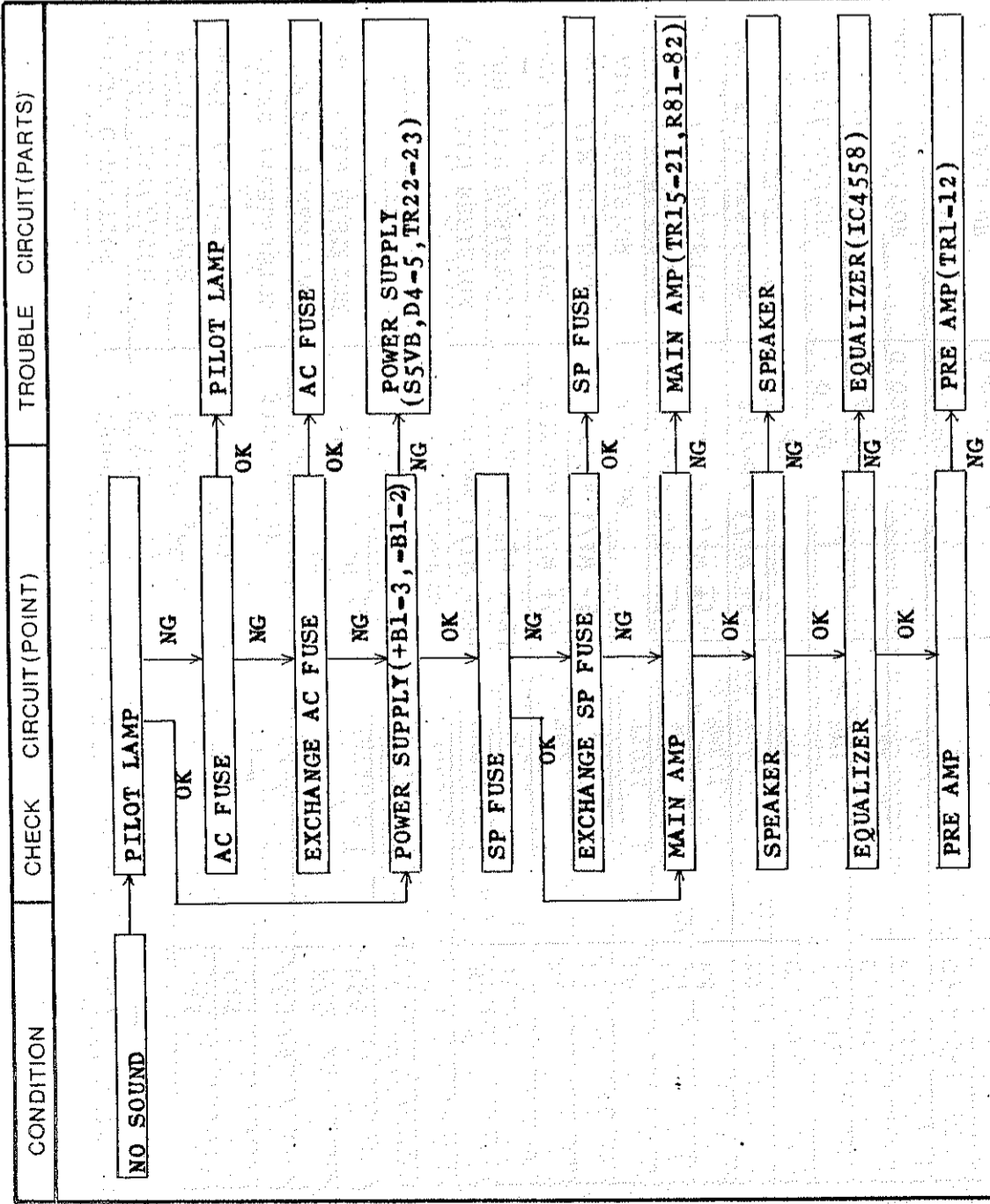
PARTS NAME	TYPE	PARTS NO.	REFERENCE NO.
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R15-R16
CARBON FILM RESISTOR	220Kohm 1/4W ±5%		R17
VARIABLE RESISTOR	16φ 250KohmB		R18
CARBON FILM RESISTOR	68 1/4W ±5%		R19
CARBON FILM RESISTOR	1Mohm 1/4W ±5%		R20
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R21-22
CARBON FILM RESISTOR	47Kohm 1/4W ±5%		R23
CARBON FILM RESISTOR	30Kohm 1/4W ±5%		R24
CARBON FILM RESISTOR	1Kohm 1/4W ±5%		R25
CARBON FILM RESISTOR	100Kohm 1/4W ±5%		R26
VARIABLE RESISTOR	16φ 10KohmB		R27
VARIABLE RESISTOR	16φ 250KohmA		R28
VARIABLE RESISTOR	16φ 250KohmB		R29
CARBON FILM RESISTOR	470Kohm 1/4W ±5%		R30
CARBON FILM RESISTOR	470ohm 1/4W ±5%		R31
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R32
VARIABLE FILM RESISTOR	16φ 250KohmB		R33
CARBON FILM RESISTOR	470Kohm 1/4W ±5%		R34
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R35
CARBON FILM RESISTOR	100Kohm 1/4W ±5%		R36-37
CARBON FILM RESISTOR	470ohm 1/4W ±5%		R38-39
CARBON FILM RESISTOR	30Kohm 1/4W ±5%		R40
CARBON FILM RESISTOR	470ohm 1/4W ±5%		R41
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R42
CARBON FILM RESISTOR	39Kohm 1/4W ±5%		R43
CARBON FILM RESISTOR	68Kohm 1/4W ±5%		R44
CARBON FILM RESISTOR	100Kohm 1/4W ±5%		R45
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R46
CARBON FILM RESISTOR	22Kohm 1/4W ±5%		R47
CARBON FILM RESISTOR	2.7Kohm 1/4W ±5%		R48
VARIABLE RESISTOR	16φ 250KohmB		RM
VARIABLE RESISTOR	16φ 250KohmB		R49
CARBON FILM RESISTOR	100Kohm 1/4W ±5%		R50
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R51
CARBON FILM RESISTOR	22Kohm 1/4W ±5%		R52
CARBON FILM RESISTOR	560ohm 1/4W ±5%		R53
CARBON FILM RESISTOR	22Kohm 1/4W ±5%		R54-55

PARTS NAME	TYPE	PARTS NO.	REFERENCE NO.
CARBON FILM RESISTOR	100ohm 1/4W ±5%		R56
CARBON FILM RESISTOR	220Kohm 1/4W ±5%		R57
CARBON FILM RESISTOR	100ohm 1/4W ±5%		R58
MILLER CAPACITOR	0.047MF		C1
MILLER CAPACITOR	0.047MF		C2
CHEMICAL CAPACITOR	3.3MF 50V		C3
MILLER CAPACITOR	0.047MF		C4-5
CHEMICAL CAPACITOR	3.3MF 50V		C6
MILLER CAPACITOR	0.047MF		C7
CHEMICAL CAPACITOR	1MF 50V		C8
MILLER CAPACITOR	0.047MF		C9
TRANSISTOR	2SC 1328	2SC1328	TR12-13
TRANSISTOR	2SD 389	2SD389	TR14
TRANSISTOR	2SA 564 or 722A	2SA564 or 722	TR15-16
TRANSISTOR	2SD 381	2SD381	TR17-18
TRANSISTOR	2SD 536	2SD536	TR19
TRANSISTOR	SD 287	2SD287	TR20-21
TRANSISTOR	2SD 381	2SD381	TR22
TRANSISTOR	2SB 536	2SB536	TR23
VARIABLE RESISTOR	50KohmB		R REV L
CARBON FILM RESISTOR	220ohm 1/2W ±5%		R59
CARBON FILM RESISTOR	820ohm 1W		R60
CARBON FILM RESISTOR	10Kohm 1/4W ±5%		R61-62
CARBON FILM RESISTOR	820ohm 1W		R63
CARBON FILM RESISTOR	1Kohm 1/4W ±5%		R64
CARBON FILM RESISTOR	47Kohm 1/4W ±5%		R65
CARBON FILM RESISTOR	3.9Kohm 1/4W ±5%		R66
CARBON FILM RESISTOR	39Kohm 1/4W ±5%		R67
CARBON FILM RESISTOR	100ohm 1/4W ±5%		R68
CARBON FILM RESISTOR	3.9Kohm 1/4W ±5%		R69
CARBON FILM RESISTOR	680ohm 1/4W ±5%		R70
CARBON FILM RESISTOR	39Kohm 1/4W ±5%		R71
CARBON FILM RESISTOR	150ohm 1/4W ±5%		R72
CARBON FILM RESISTOR	22ohm 1/4W ±5%		R73
CARBON FILM RESISTOR	3.9Kohm 1/2W ±5%		R74-75
CARBON FILM RESISTOR	1Kohm 1/4W ±5%		R76
CARBON FILM RESISTOR	150ohm 1/2W ±5%		R77

PARTS NAME	TYPE	PARTS NO.	REFERENCE NO.
CARBON FILM RESISTOR	10ohm 1/2W ±5%		R78
CARBON FILM RESISTOR	150ohm 1/2W ±5%		R79
MILLER CAPACITOR	0.1MF		C10
CHEMICAL CAPACITOR	1MF 50V		C11
CHEMICAL CAPACITOR	47MF 50V		C12
MILLER CAPACITOR	0.1MF		C13
MICA CAPACITOR	250PF		C14
MILLER CAPACITOR	0.047MF		C15
MILLER CAPACITOR	0.1MF		C16
CERAMIC CAPACITOR	500PF		C17
MILLER CAPACITOR	0.047MF		C18
CHEMICAL CAPACITOR	3.3MF 50V		C19
CHEMICAL CAPACITOR	1MF 50V		C20
MILLER CAPACITOR	0.01MF		C21
CERAMIC CAPACITOR	250PF		C22
CHEMICAL CAPACITOR	1MF 50V		C23
CHEMICAL CAPACITOR	3.3MF 50V		C24
CHEMICAL CAPACITOR	1MF 50V		C25
MILLER CAPACITOR	0.47MF		C26
CHEMICAL CAPACITOR	1MF 50V		C27-28
VARIATOR	VDD 1220	VDD1220	D1-2
RECTIFIER	5A	S5VB	D3
DIODE	STV-3	STV-3	
VARIATOR	VD4 20133	VD420133	
FET	2SK30GR	2SK30GR	TR1-2
TRANSISTOR	2SA 564 or 722	2SA564 or 722	TR3
FET	2SK30GR	2SK30GR	TR4-9
TRANSISTOR	2SA 564 or 722	2SA564 or 722	TR10
TRANSISTOR	2SC 1328	2SC1328	TR11
CARBON FILM RESISTOR	10ohm 1/2W ±5%		R80
CARBON FILM RESISTOR	0.5ohm 5 W ±5%		R81-82
OIL CAPACITOR	0.001MF 1500V		C GND
CHEMICAL CAPACITOR	3300MF 50V		C31-C32
CHEMICAL CAPACITOR	100MF 50V		C33-C34
CHEMICAL CAPACITOR	100MF 25V		C35-C36
CHEMICAL CAPACITOR	1000MF 16V		C37-C38
CHEMICAL CAPACITOR	1MF 50V		C39

PARTS NAME	TYPE	PARTS NO.	REFERENCE NO.
CHEMICAL CAPACITOR	47MF 50V		C40-41
CERAMIC CAPACITOR	100PF 50V		C42
CHEMICAL CAPACITOR	3.3MF 50V		C43
CHEMICAL CAPACITOR	100MF 50V		C44
CHEMICAL CAPACITOR	3.3MF 50V		C45
OXIDIZED TALRESISTOR	330ohm 2P		R83-84
CARBON FILM RESISTOR	220Kohm 1/4W ±5%		R85
CARBON FILM RESISTOR	1Kohm 1/4W ±5%		R86
60EQ,100EQ PARTS			
CARBON FILM RESISTOR	1.2Kohm 1/4W ±5%		R1
CARBON FILM RESISTOR	100Kohm 1/4W ±5%		R2-3
CARBON FILM RESISTOR	12Kohm 1/4W ±5%		R4
CARBON FILM RESISTOR	22Kohm 1/4W ±5%		R5
VARIABLE RESISTOR	10KohmB		R6
CARBON FILM RESISTOR	22Kohm 1/4W ±5%		R7
CARBON FILM RESISTOR	12Kohm 1/4W ±5%		R8
CARBON FILM RESISTOR	22Kohm 1/4W ±5%		R9
MILLER CAPACITOR	0.2MF		C1(100)
MILLER CAPACITOR	0.1MF		C1(300)
MILLER CAPACITOR	0.047MF		C1(600)
MILLER CAPACITOR	0.022MF		C1(1.2K)
MILLER CAPACITOR	0.022MF		C1(2.5K)
MILLER CAPACITOR	0.047MF		C1(5K)
MILLER CAPACITOR	0.01MF		C2(100)
MILLER CAPACITOR	0.047MF		C2(300)
MILLER CAPACITOR	0.022MF		C2(600)
MILLER CAPACITOR	0.01MF		C2(1.2K)
MILLER CAPACITOR	0.0047MF		C2(2.5K)
MILLER CAPACITOR	0.0033MF		C2(5K)
CHEMICAL CAPACITOR	1M 1V		C3
CHEMICAL CAPACITOR	3.3M 1V		C4
CHEMICAL CAPACITOR	1M 1V		C5

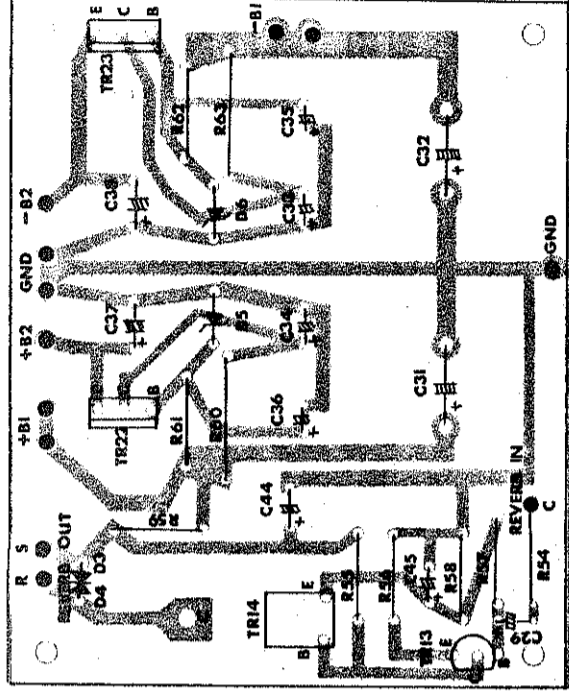
9. TROUBLE SHOOTING



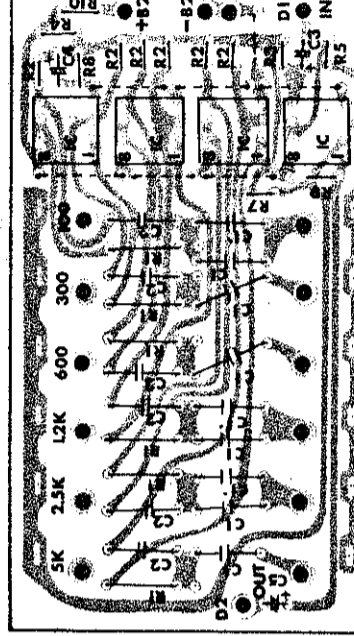
- Check of Main Amp.
- 1. Defect of TR17-21 on main amp. makes noisy sound like "BOO!"
Check the transistor when you can hear noisy sound.
- 2. No sound from IBZ, please check following positions.
 - 1) POWER SUPPLY
 - 2) SP. FUSE
 - 3) SPEAKER
 - 4) RESISTOR (R81-82)
 - 5) HEAD PHONE JACK

■ Simple checking (Using Tester)
Range at Ohm section. Check click sound from circuit board.
SETTING MASTER VOL. 10

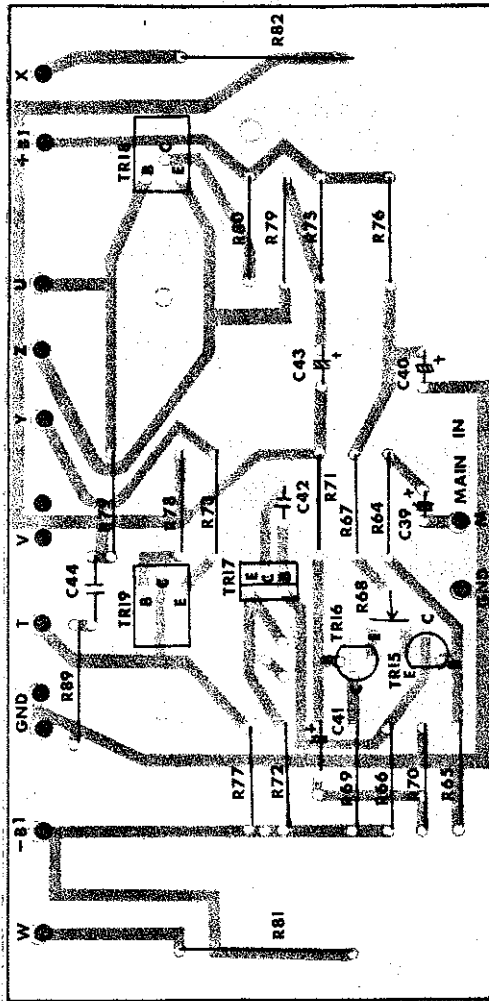
(POWER SUPPLY)



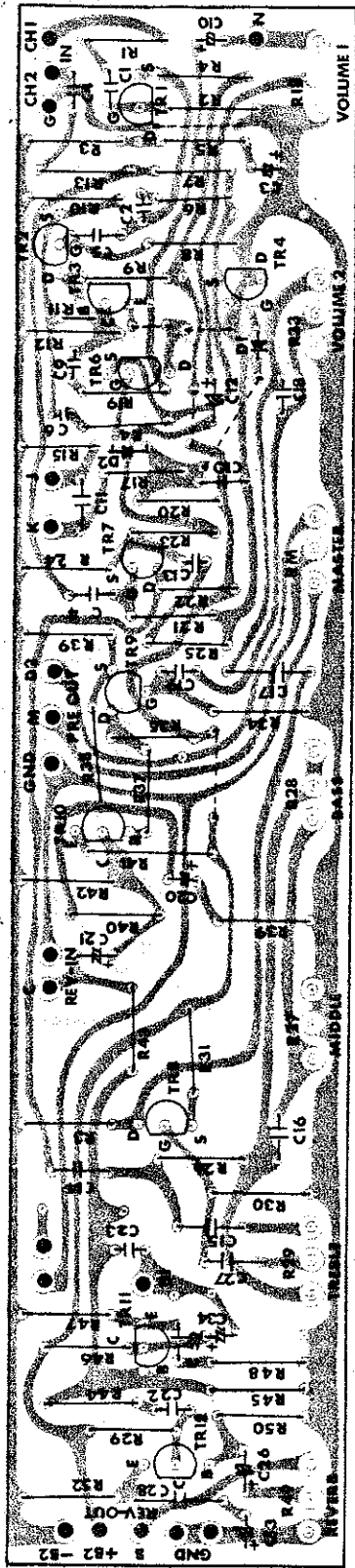
(EQUALIZER)

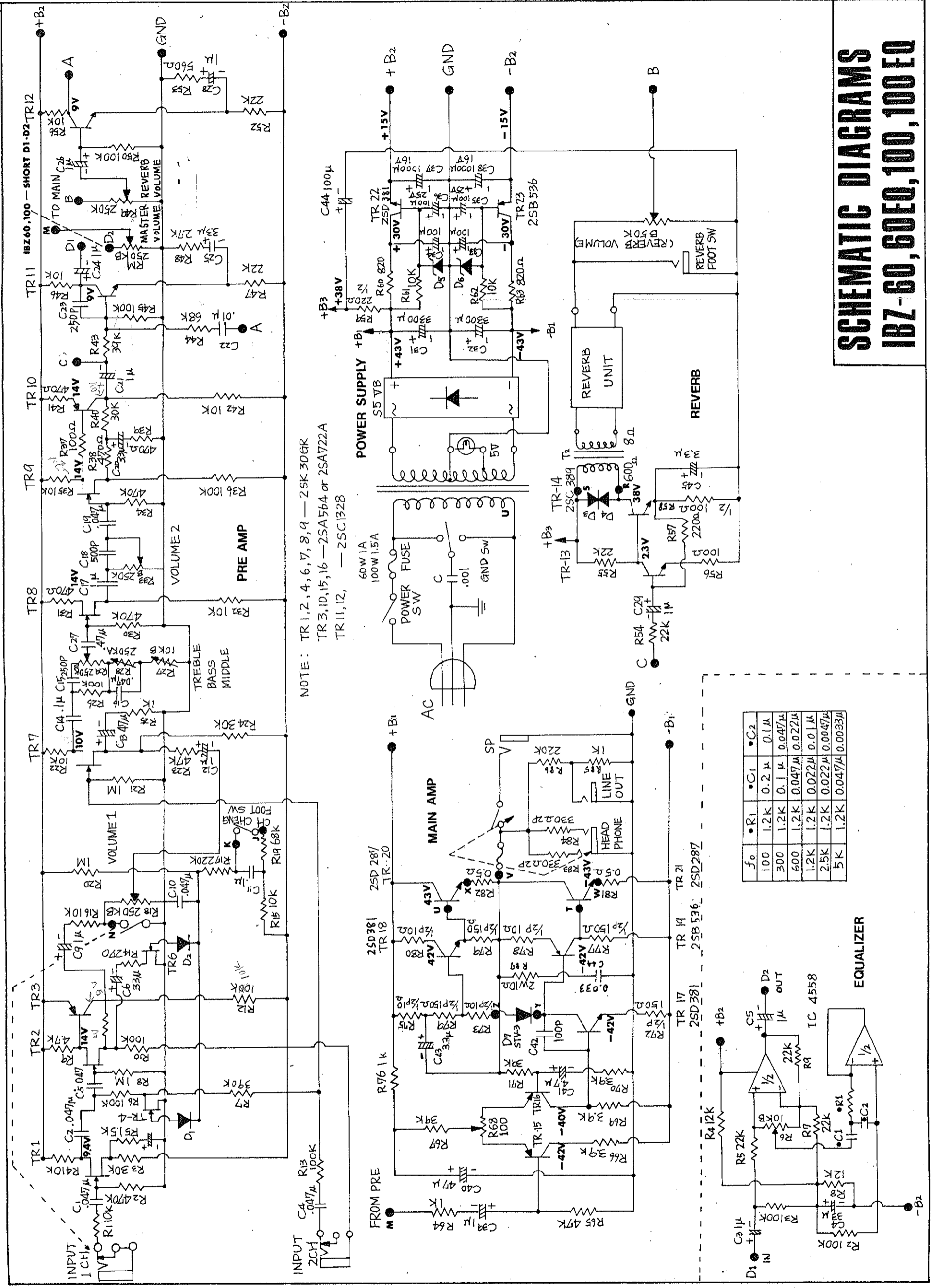


(MAIN AMP)



(PRE AMP)





NOTE: TR 1,2, 4,6,7,8,9 — 2SK30GR
 TR 3,10,15,16 — 2SA564 or 2SA722A
 TR 11,12, — 2SC1328

f_o	$\bullet R_1$	$\bullet C_1$	$\bullet C_2$
100	1.2K	0.2 μ	0.1 μ
300	1.2K	0.1 μ	0.047 μ
600	1.2K	0.047 μ	0.022 μ
1.2K	1.2K	0.022 μ	0.01 μ
2.5K	1.2K	0.022 μ	0.0047 μ
5K	1.2K	0.047 μ	0.0033 μ

SCHEMATIC DIAGRAMS IBZ-60, 60EQ, 100, 100EQ