

1200

GENERAL INFORMATION
SCHEMATIC DIAGRAM
PARTS LIST
ALIGNMENT MANUAL

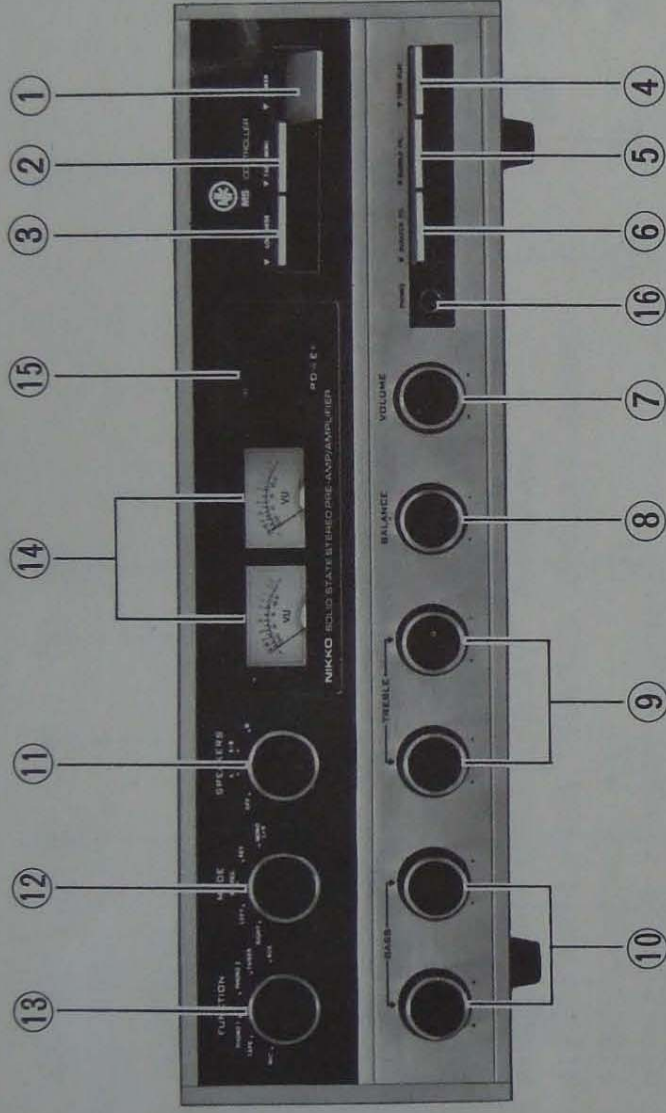
NIKKO

stereo pre-amp/amprifier model trm-1200



NIKKO ELECTRIC MFG. CO., LTD. 4-1, 3-CHOME, TAMAGAWA OKUSAWA-CHO, SETAGAYA-KU, TOKYO, JAPAN.
NIKKO ELECTRIC CORPORATION OF AMERICA 5001 LANKERSHIM BVD., NORTH HOLLYWOOD, CALIF. 91601





FRONT PANEL

SWITCHES.

- 1 **POWER.** Flip down to turn on set. Four-second turn-on delay is built in.
- 2 **TAPE MONI.** Monitor switch used with three-head tape decks. In up position, it lets you hear source material. Pushed down, it lets you hear what has just been recorded on tape. Flip it up and down for instant source-tape comparison while recording.
- 3 **LOUDNESS.** Use when playing the 1200 at low volume. With switch down, bass and treble are automatically boosted to compensate for the Fletcher Munson effect. Use of the switch compensates for loss of frequency experienced by the ear at low listening levels and gives you a richer and more natural sound.
- 4 **TONE FLAT.** Defeats any tone settings you make with **LOUDNESS** switch or **BASS** and **TREBLE** controls. For instantaneous comparison between flat (unenhanced) sound and boosted or reduced bass and/or treble.
- 5 **RUMBLE FIL.** Flipped down, it eliminates much of the low-frequency rumble from records or turntables. Use it judiciously, since it also cuts out wanted low-frequency sounds.
- 6 **SCRATCH FIL.** Flip down if necessary to control high-frequency tape hiss or record scratch. Use it judiciously, since it also eliminates some wanted high-frequency sounds.

KNOBBS.

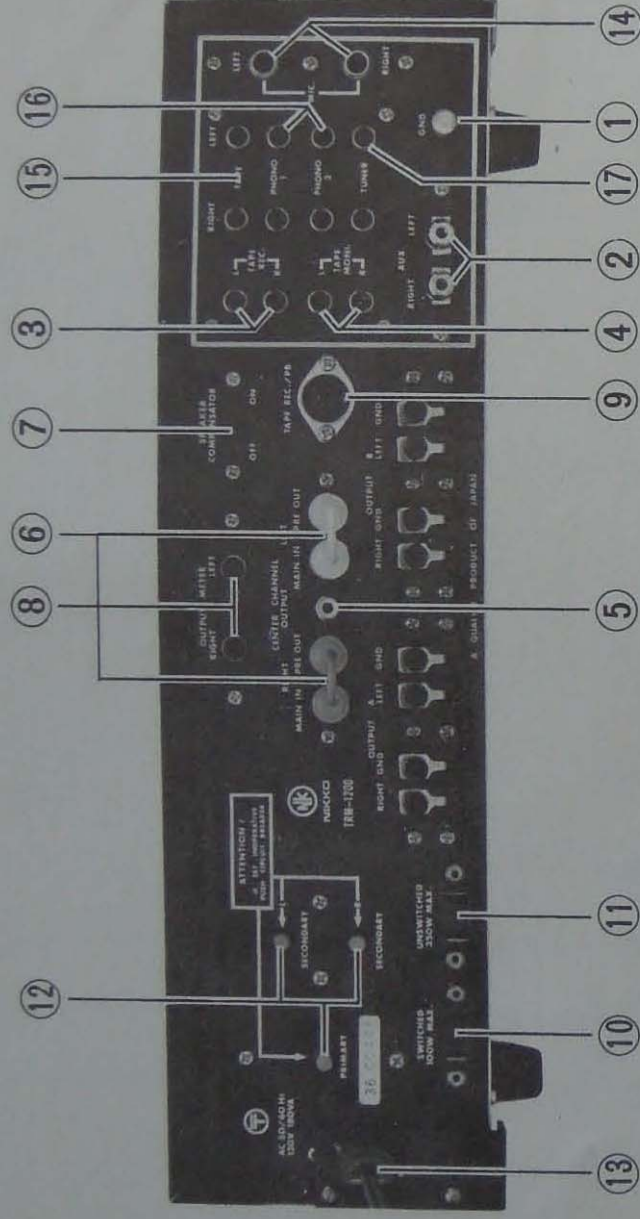
- 7 **VOLUME.** Turn clockwise for higher volume.
- 8 **BALANCE.** Set at the black dot under the letter "A"; it electronically balances output between right and left speakers. Note that many older stereo records and tapes are not correctly balanced, and you can make

corrections as desired.

- 9 **TREBLE.** The right knob is for the right speaker, left for the left. "Flat" position is at 12 o'clock high. Increase by turning clockwise; decrease by turning counter-clockwise.
- 10 **BASS.** The right knob is for the right speaker, left for the left. "Flat" position is at 12 o'clock. Increase by turning clockwise; decrease by turning counter-clockwise.
- 11 **SPEAKERS.** "OFF" position turns off speakers; use when listening privately through headphones. "A" position plays through speakers connected to "A" (on back panel) only. "A+B" plays through speakers connected to "A" and "B". "B" position plays through speakers connected to "B" only.
- 12 **MODE.** **RIGHT** plays the right-channel signal through both speakers; used with monophonic input to play it through both speakers. **LEFT** is the same for the left channel. **STEREO** is the normal two-channel stereo setting. **REV.** Reverses the stereo input signal, sending the left-channel signal to the right speaker and *vice-versa*. **MONO (L+R)** mixes signals from left and right channels and plays program through both speakers monophonically.
- 13 **FUNCTION.** Choose the input source you wish to use as marked.

GLASS PANEL.

- 14 **VU METERS.** Visually indicates the volume of program material being played on each channel. Since meters are coupled to volume controls, you can achieve correct balance, both visually and aurally.
- 15 **ANNUNCIATOR PANEL.** Blacked-out glass lights up to show **POWER** when unit is on. Function selected also lights up, such as **MIC.**
- 16 **PHONES.** Plug in headset for tape monitoring or private listening.



- 1 GND. To eliminate hum, connect to the ground terminal of your tape deck, record player, or tuner.
- 2 AUX. Auxiliary input for crystal- or ceramic-cartridge record player. Plug in left and right channels as marked.
- 3 TAPE REC. This is an output used for recording from your 1200 (such as live microphone, tuner, or phonograph). Connect it to the "Line in" of your tape deck. Volume level is unaffected by any changes to volume controls on 1200.
- 4 TAPE MONI (Monitor). Connect this to the "Line out" of your 3-head tape deck for playback of tape through the 1200 amplifier.
- 5 CENTER CHANNEL. Output for special three-dimensional sound effect. Requires an additional monophonic power amplifier with high-cut filter (150-300 Hz). Amplifier should have output of 30 to 60 W.
- 6 Connect center-channel speaker to monophonic main amplifier, matching left-right speaker phasing so that cones move in same direction at same time. Reverse leads, if sound does not seem correct, to re-phase one speaker.
- 7 MAIN-IN, PRE-OUT. For using preamplifier or power amplifier separately or using your 1200 as part of a multichannel system. Pull out red and yellow shielded connecting cable (right and left channels). Then make appropriate connections. Do not forget to reconnect these terminals when you use your 1200 in its normal configuration. Note: Should these wires be misplaced, replace only with shielded cable to

avoid hum.

- 8 SPEAKER COMPENSATOR. Compensates for inadequate bass in speakers with poor low-frequency response. Leave switch "OFF" if the bass is satisfactory.
- 9 OUTPUT METER, RIGHT, LEFT. For "zeroing" VU meters should they get out of adjustment. Just rotate knob slowly till VU meter (on front panel) reads zero when power is on but no signal is being fed to that channel.
- 10 TAPE REC./PB. A receptable for European-type plugs used with some types of tape recorders.
- 11 SWITCHED 100W MAX. Plug in any component of your system that draws no more than 100 Watts. When you turn off your 1200, this component is also turned off.
- 12 UNSWITCHED 350W MAX. Plug in any component of your system that draws no more than 350 Watts. This outlet remains "live" as long as your 1200 itself is plugged into power receptacle.
- 13 PRIMARY, SECONDARY, SECONDARY. These red buttons are to reset circuit breakers, which are an improvement on fuses. Should your 1200 stop working, press the red buttons. Should the buttons continue to pop out, disconnect the instrument and check it before continuing operation.
- 14 AC 50/60 Hz, 120 V 180 VA. Below this marking is the power plug. Plug it into ordinary power receptacle.
- 15 TARE 16 PHONO 1 2 17 TUNER

CONTENTS

	PAGE
1. GENERAL	
1.1 GENERAL	5
1.2 SPECIFICATIONS	6
2. DIAGRAM	
2.1 DIAGRAM	7
2.2 COMPONENT DIAGRAM	8
2.3 SCHEMATIC DIAGRAM	9
2.4 EQUALIZER CIRCUIT DIAGRAM	10
2.5 AUDIO AMPLIFIER CIRCUIT DIAGRAM	11
2.6 AUDIO AMPLIFIER PRINTED CIRCUIT BOARD	12
2.7 TONE CONTROL AMP	13
2.8 REGULATOR CIRCUIT DIAGRAM	14
2.9 TRANSISTOR AND COMPLEMENT	15
3. PARTS LIST FOR TRM-1200	
3.1 AMP PCB ASSEMBLY	17
3.2 EQUALIZER PCB ASSEMBLY	17
3.3 TONE CONTROL PCB ASSEMBLY	17
3.4 POWER AMP ASSEMBLY	18
3.5 POWER PCB ASSEMBLY	18
3.6 REGULATOR PCB ASSEMBLY	18
3.7 LEVER SWITCH ASSEMBLY	18
3.8 REAR PANEL ASSEMBLY	18
3.9 CHASS ASSEMBLY	19
3.10 FRONT PANEL ASSEMBLY	19
3.11 FINAL ASSEMBLY	19
4. SERVICE TOOL	20

1. GENERAL

1.1 GENERAL

The "Nikko" MS controller preamp-amplifier, model TRM-1200, was unveiled by Nikko in February 1970.

As one of the latest refinements by Nikko, the model TRM-1200 is claimed to be among the finest preamp amplifiers ever found on the market. It is proud of the following design features that ensure the complete flexibility of professional operations.

1. The level meter offers accurate readings for output power.
2. The "tone flat" switch makes frequency response flat enough for outstanding music reproduction.
3. The preamp section can be utilized independently of the main amplifier section.
4. In addition to a microphone input, the preamp section provides input facilities for magnetic phonos 1 and 2 which are useful for comparative testings.

DESCRIPTION OF CIRCUITRY

Preamplifier Section---The preamplifier section uses "Nikko" thin film integrated circuits (IC's) on the plug-board which is interchangeable with that of the model STA-1101. These IC's ensure the lowest distortion, noise and crosstalk and the extended dynamic range. This preamplifier section, together with an input selector switch, is sealed in a separate case.

Tone Control Section---The tone control section is so built that tone controls can work on both channels separately, enabling accurate compensation for program sources. The tone control circuit can be by-passed; reproduction of program sources is, therefore, never affected by the phase deviation or distortion that might occur in the circuit.

Power Amplifier Section---

***Power Driver:** Salient among the features of the TRM-1200 is the power driver circuit whose transformer has the "tri-filler" coils wound on the ring core. This transformer is stated to be ideal theoretically, eliminating disadvantages of the conventional power drivers that use transformers and ensuring the extended frequency response, perfect balance and phase reversion and minimum distortion.

***Power Transistors:** A complement of triple mesa type Silicon transistors provide excellent frequency response and linearity, while minimizing distortion.

***Power Supply:** The power supply utilizes a large capacity regulator to ensure the supply of stable voltages.

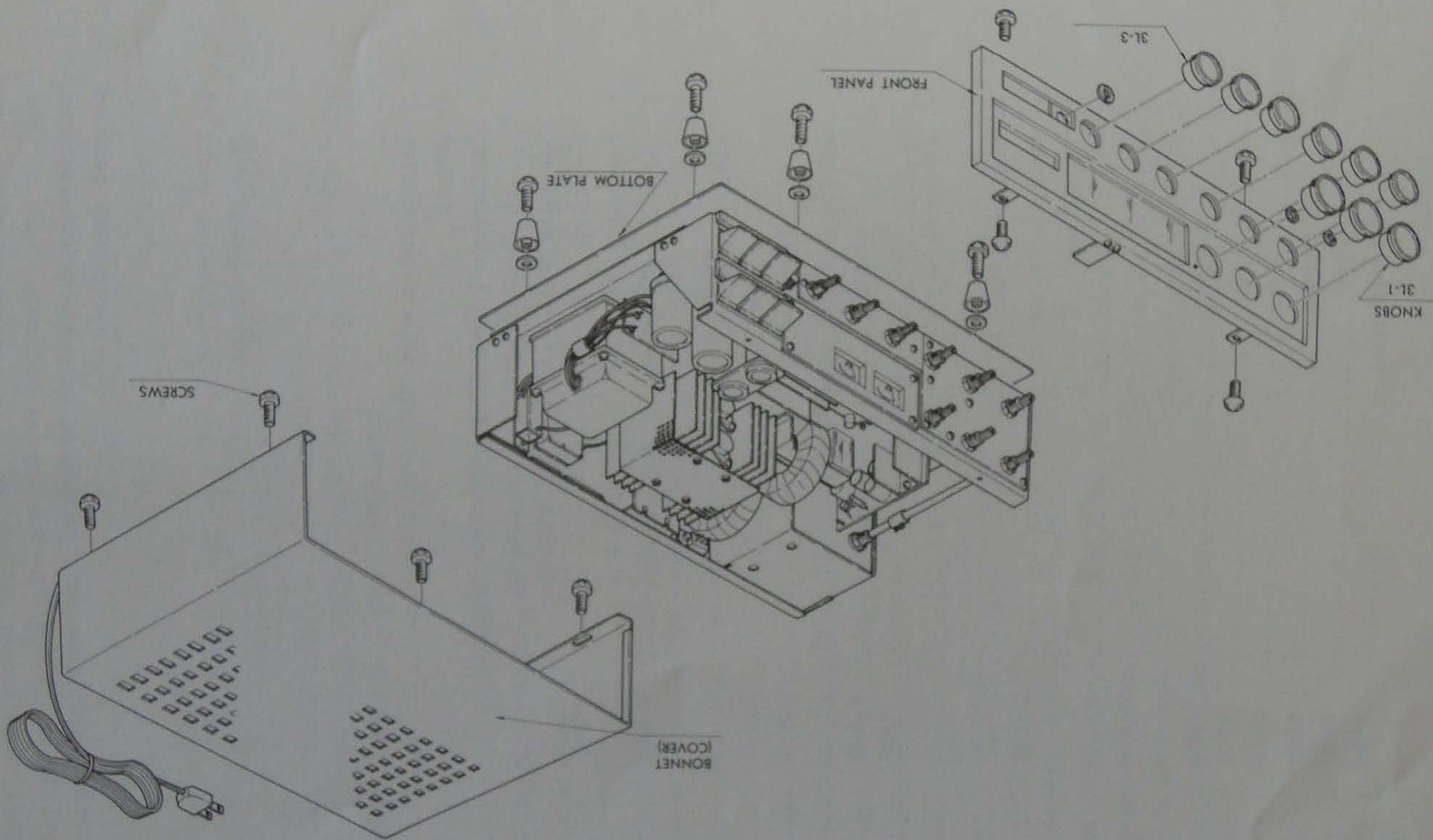
***Circuit Protection:** Three circuit breakers afford protection for the entire circuit; one each is used in the left and right output circuits, and one in the primary side of the power supply. A separate circuit breaker in the secondary side of the power supply protects power transistors from shorting of speaker circuits.

All these circuit breakers have excellent temperature characteristics similar to those of quick-acting fuses.

1.2 TRM-1200 STANDARD SPECIFICATIONS

This standard specification is a guide line whether the unit is good or not. When you repair the unit and if the specifications undermentioned would be satisfied, the said unit suppose to be in good condition.

	Nominal	Limit
1. Input Sensitivity		
MIC.	2mV	±2dB
(for Rated Output)		
TAPE	220mV	±2dB
PHONO 1 & 2	2mV	±2dB
TUNER	220mV	±2dB
AUX.	220mV	±2dB
TAPE MONI.	220mV	±2dB
2. Gain Unbalance (at TAPE MONITOR)		±2dB
3. Output		
Continuous Power (Single channel driven)		
(at 8 ohm Load 1.0% distortion)		45W
Harmonic Distortion (at 1W Output)		0.5%
Recording Output	220mV	±2dB
4. Frequency Response 20Hz to 30KHz		±1dB
5. Noise Level (Volume Control Minimum) ...	0.9mV	1.5mV
6. Control		
Bass Control at 70Hz		
BOOST	+13dB	±3dB
CUT	-15dB	±3dB
Treble Control at 10KHz		
BOOST	+11dB	±3dB
CUT	-13dB	±3dB
7. Loudness Control at 70Hz	+10dB	±2dB
10KHz	+6dB	±2dB
8. Rumble Filter at 70Hz	-6dB	±2dB
Scratch Filter at 10KHz	-10dB	±2dB
9. Equalizer		
PHONO 70Hz	+15dB	±2dB
(RIAA) 10KHz	-14dB	±2dB
10. S/N (Frequency Flat)		
MIC.	70dB	55dB
TAPE	85dB	60dB
PHONO 1 & 2	70dB	55dB
TUNER	85dB	70dB
AUX.	85dB	70dB
TAPE MONI.	85dB	70dB

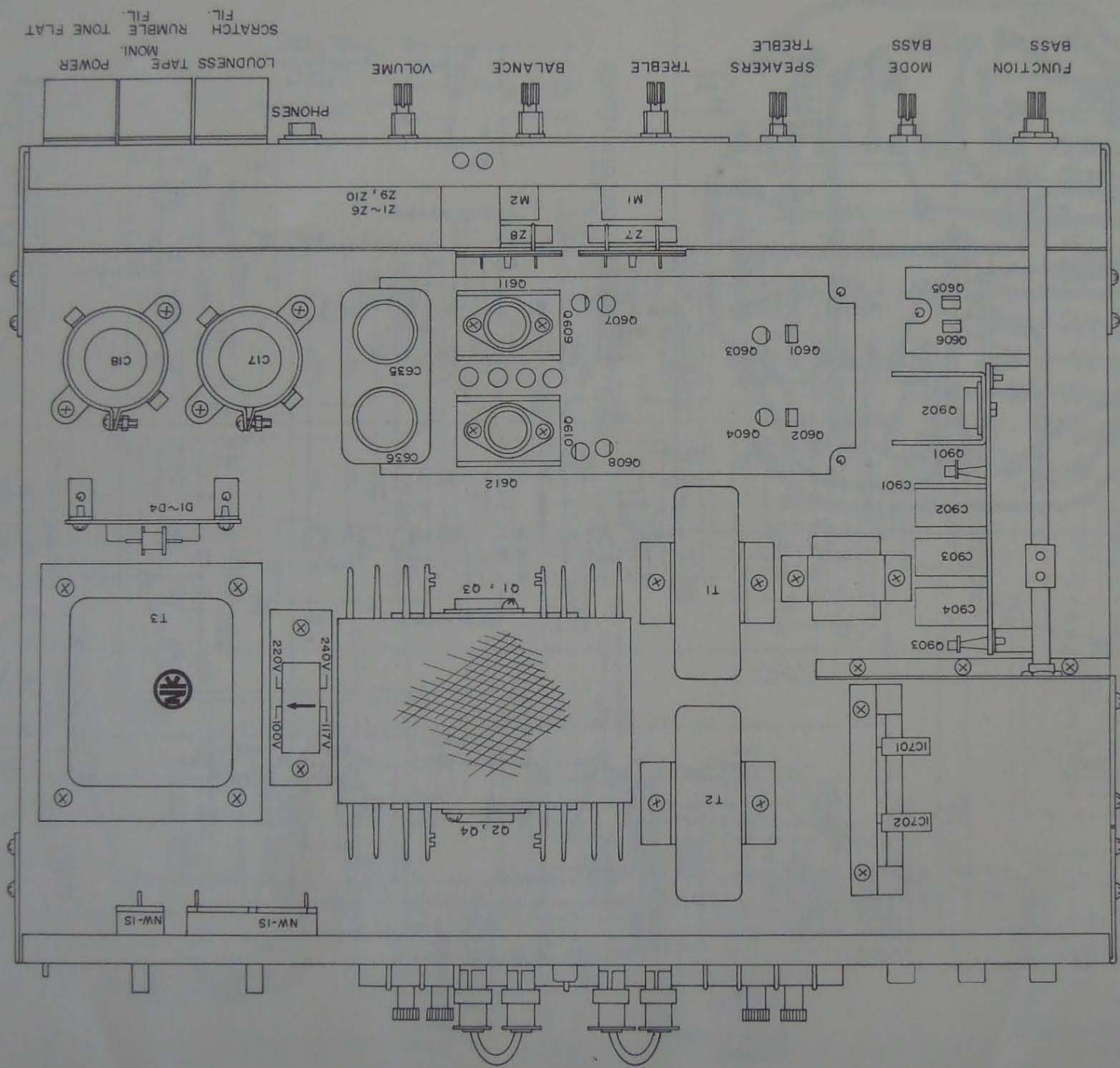


REMOVING THE FRONT PANEL BONNET AND BOTTOM PLATE

2.1 TRM-1200 DISASSEMBLY PROCEDURE

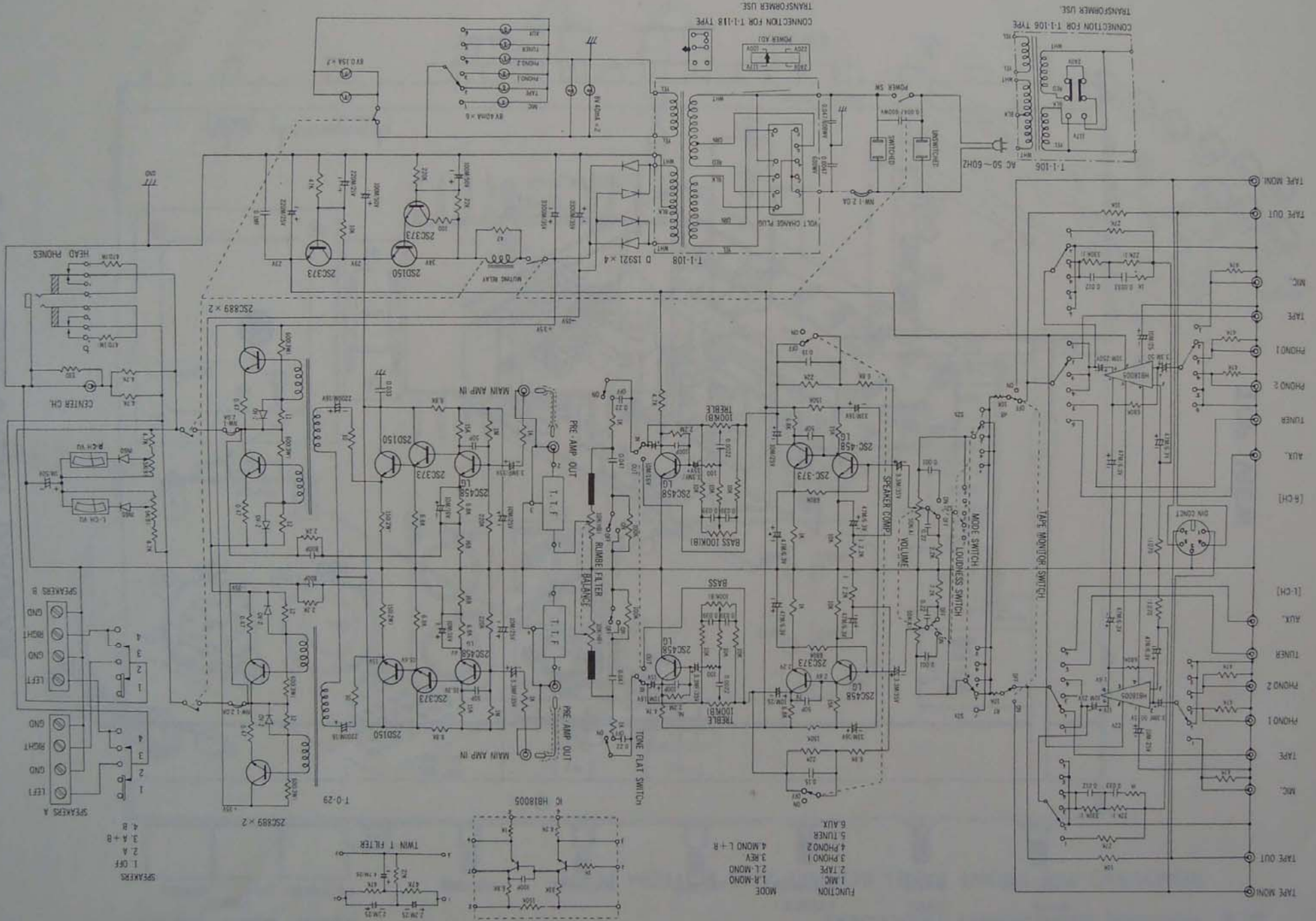
2. DIAGRAM

2.2 COMPONENT DIAGRAM



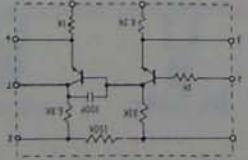
TOP VIEW

2.3 SCHEMATIC DIAGRAM



- FUNCTION
- 1 MC
 - 2 TAPE
 - 3 PHONO 1
 - 4 PHONO 2
 - 5 TUNER
 - 6 AUX

- MODE
- 1 R-MONO
 - 2 L-MONO
 - 3 REV
 - 4 MONO L + R

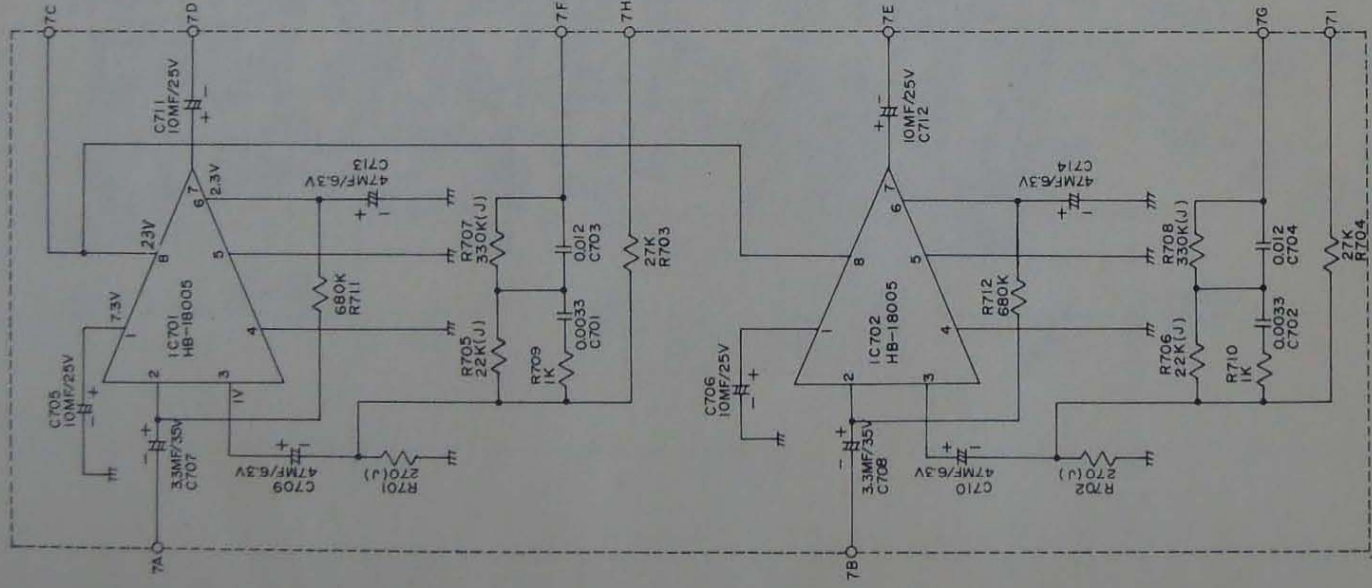


- SPEAKERS
- 1 OFF
 - 2 A
 - 3 A+B
 - 4 B

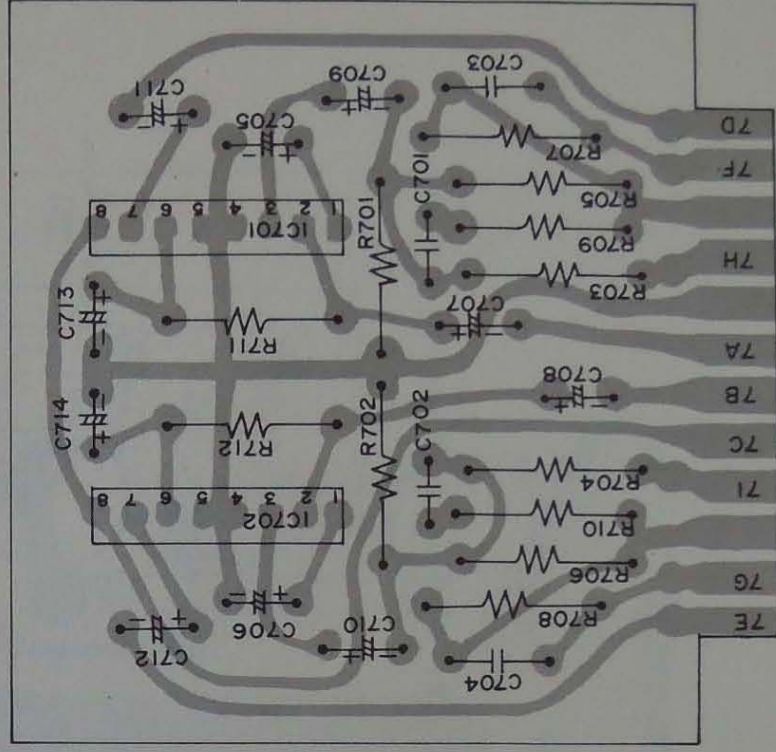
- SPEAKERS A
- 1 LEFT
 - 2 CND
 - 3 RIGHT
 - 4 CND

- SPEAKERS B
- 1 LEFT
 - 2 CND
 - 3 RIGHT
 - 4 CND

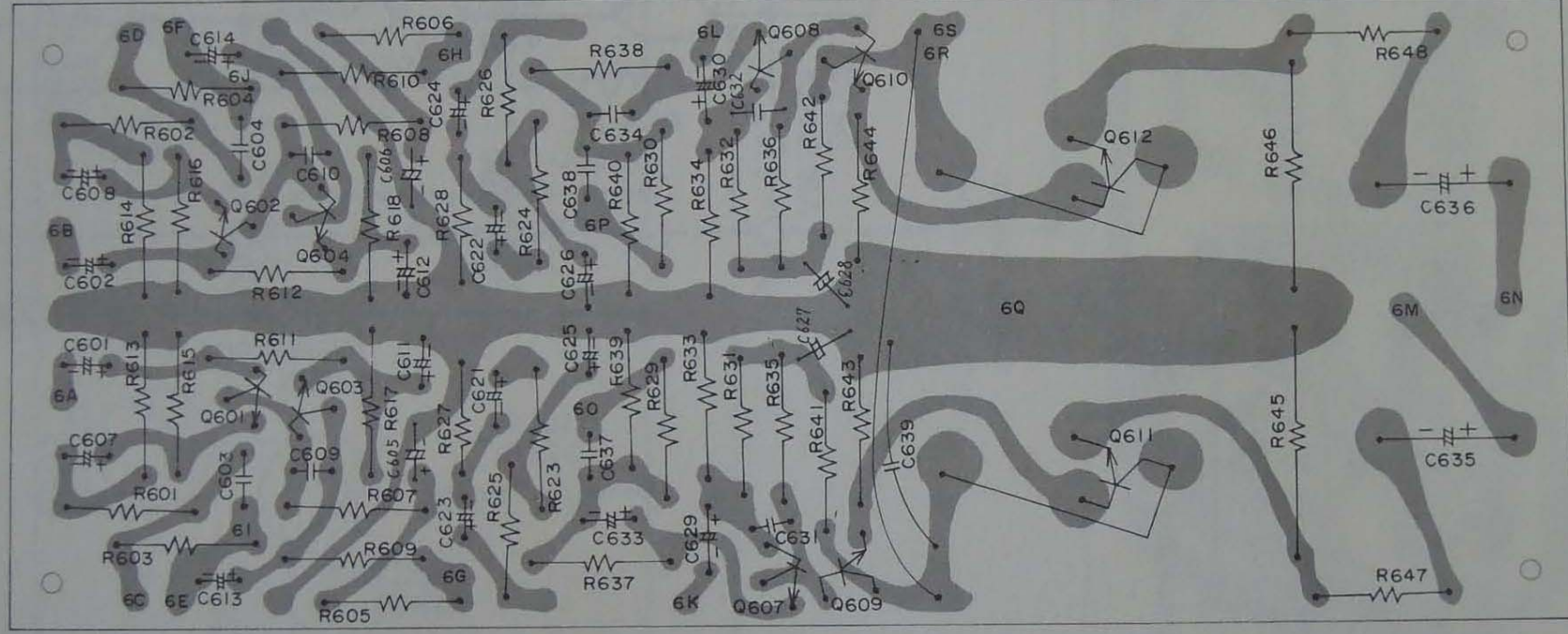
2.4 EQUALIZER CIRCUIT DIAGRAM



EQUALIZER PRINTED CIRCUIT BOARD

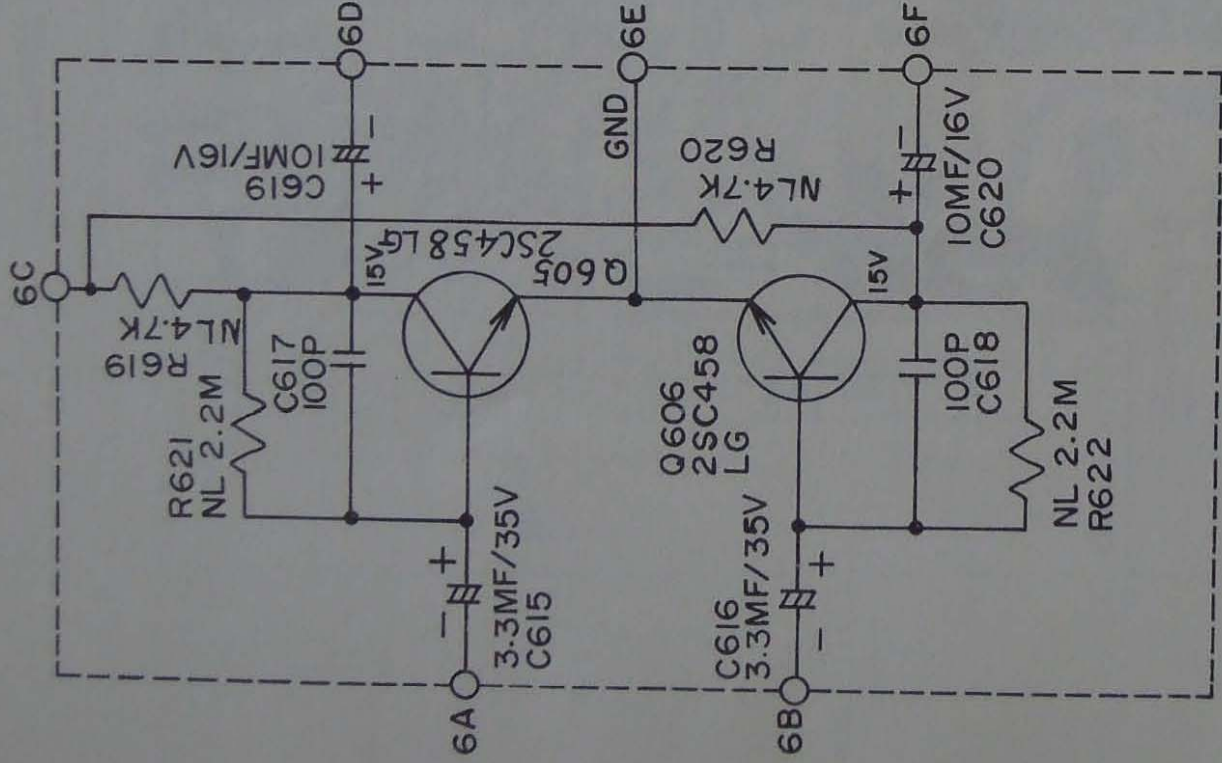


AUDIO AMPLIFIER PRINTED CIRCUIT BOARD

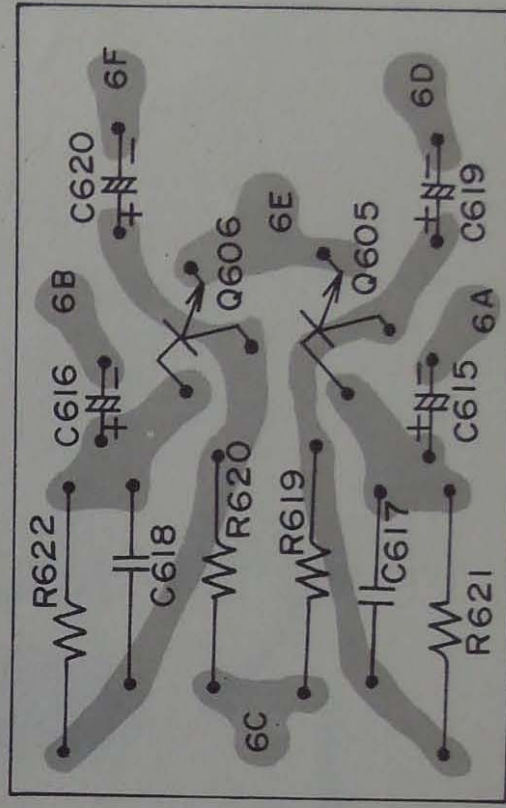


TOP VIEW

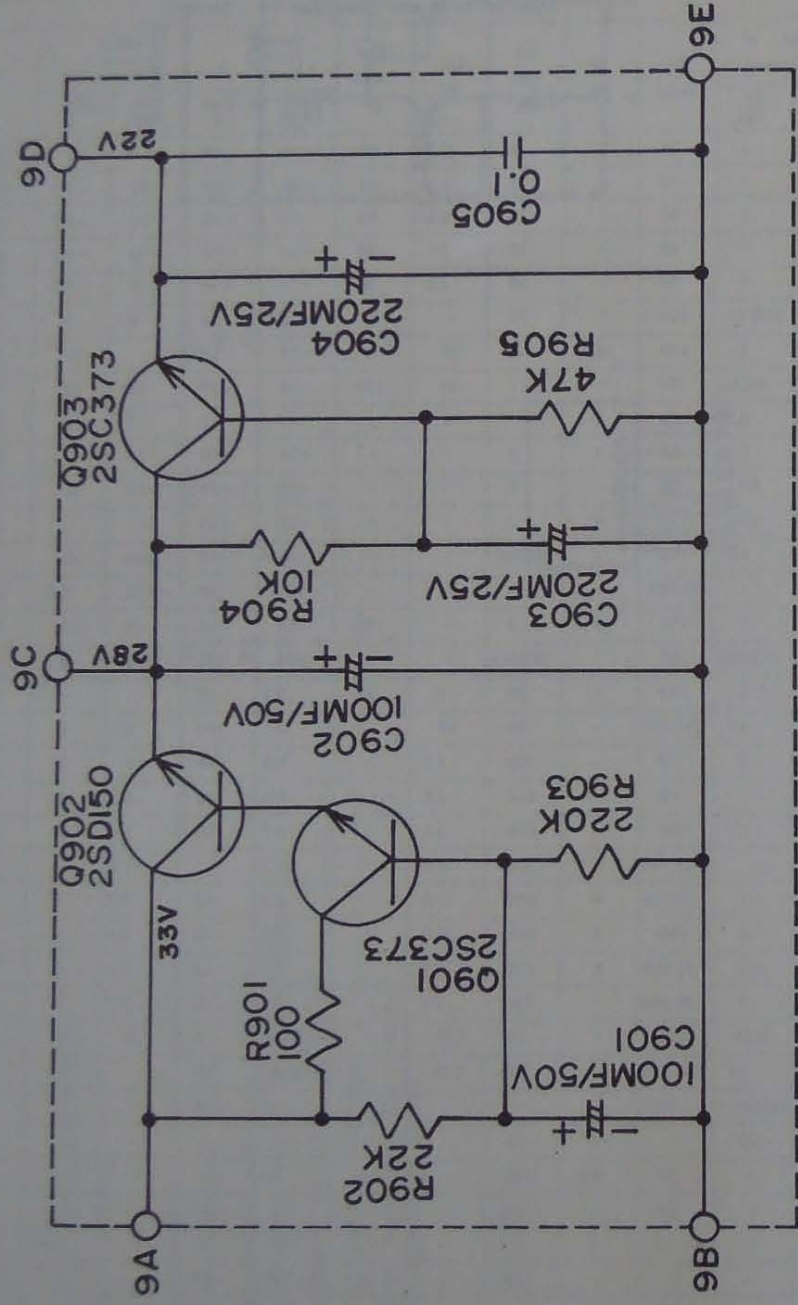
2.7 TONE CONTROL AMP CIRCUIT DIAGRAM



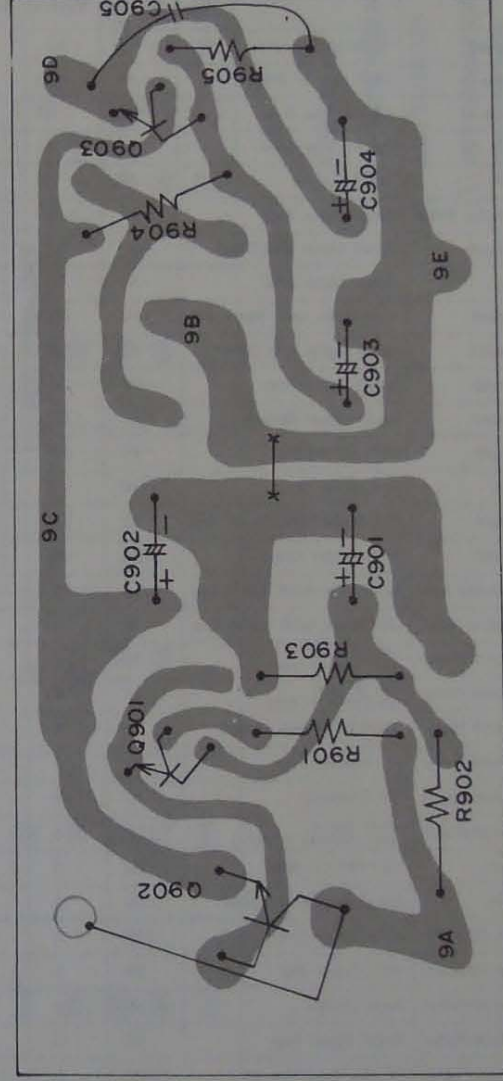
TONE CONTROL AMP PRINTED CIRCUIT BOARD



2.8 REGULATOR CIRCUIT DIAGRAM



REGULATOR PRINTED
CIRCUIT BOARD



TOP VIEW

2.9 TRANSISTOR COMPLEMENT

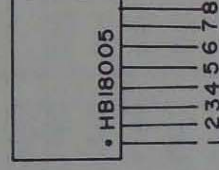
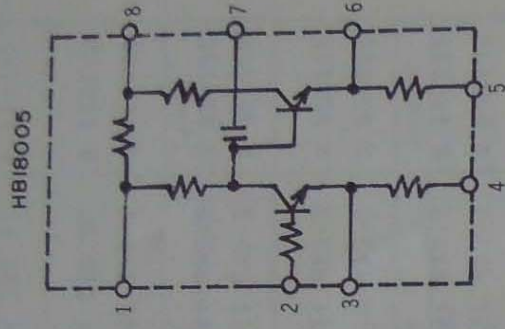
TYPE	DESCRIPTION	Maximum Ratings (Ta=25°C) (Absolute Values)										Electrical Characteristics (Typical Value) (Ta=25°C)									
		Collector Voltage (V _{CB0})	Emitter to Base Voltage (V _{EB0})	Collector Current (I _C)	Emitter Current (I _E)	Collector Dissipation (P _C)	Junction Temperature (T _J)	Condition of Measurement (V _{CE} , I _E)	h _{FE}	h _{FE} (hFE)	Emitter NF (dB)	Tab (ft)	Cap (pF)	h _{ie} (real)	Collector Cutoff Current (I _{CB0})	Emitter Cutoff Current (I _{EB0})	Collector Cutoff Current (I _{CB0})	Emitter Cutoff Current (I _{EB0})	Manufacturer		
2SA49	PNP Ge Alloyed	-18	-12	-5	5	60	75	-6	1	26	6	10	90	-10	18	-	-	①			
2SA234	PNP Ge Mesa	-20	-10	-0.5	10	80	85	-6	1	70	120	2.1	55	-30	-20	-50	-0.5	①			
2SA235	PNP Ge Mesa	-20	-10	-0.5	10	80	85	-6	1	90	135	2.1	50	-30	-20	-50	-0.5	①			
2SA350	PNP Ge Drift	-20	-10	-0.5	10	80	85	-9	1	90	40	2.5	30	-10	-12	-50	-0.5	①			
2SA354	PNP Ge Drift	-25	-10	-0.5	10	80	85	-9	1	70	30	2.5	30	-10	-12	-15	-0.5	①			
2SA562	PNP Si Epitaxial Planar	-30	-10	-5	400	300	125	-1	100(ic)	400	70	-	-	-0.1	18	-0.1	5	①			
2SB54	PNP Ge Alloyed	-30	-12	-150	150	150	75	-1	-50(ic)	80	1	35	120	-14	-30	-14	14	①			
2SB73	PNP Ge Alloyed	-10	-10	-2	20	85	85	-4	0.5	65	6	-	-	-7	-10	-7	-10	①			
2SB75	PNP Ge Alloyed	-25	-12	-100	150	150	85	-6	1	55	7	2	-	-14	-25	-12	-12	①			
2SB77	PNP Ge Alloyed	-25	-12	-100	150	150	85	-1.5	50	85	2	-	-	-12	-25	-12	-12	①			
2SB228	PNP Ge Alloyed	-25	-10	-200	150	85	85	-1.0	-20	70	6	2	-	-10	-15	-	-	①			
2SB337	PNP Ge Alloyed	-40	-10	-7A	30W	100	100	-4	1A	90	300KHz	-	-	-1.5mA	-30	-2mA	-10	①			
2SB361	PNP Ge Drift	-80	-1	-5A	5A	12W	100	-2	1	85	230	5	-	-500	-40	-100	1.0	①			
2SB443	PNP Ge Alloyed	-18	-12	-10	100	100	100	-6	1	150	4	3	110	-10	-10	-12	-12	①			
2SB474	PNP Ge Alloyed	-35	-6	-2A	2A	12W	85	-1.5	-0.2A(ic)	100	700KHz	-	-	200	-25	200	-6	①			
2SC281	PNP Si Passivated Mesa	30	5	100	100	200	175	6	0.1	80-300	4	80	10	65	0.1	20	-	①			
2SC350	PNP Si Epitaxial Mesa	30	5	100	100	200	175	6	0.1	80-300	4	80	10	65	0.1	20	-	①			
2SC370	PNP Si Epitaxial Planar	30	4	100	100	200	125	10	-1	30	200	3.5	-	0.5	18	1	2	①			
2SC371	PNP Si Epitaxial Planar	30	4	100	100	200	125	10	-1	60	200	3.5	-	0.5	18	1	2	①			
2SC373	PNP Si Epitaxial Planar	30	4	100	100	200	125	10	-1	280	200	3.5	-	0.5	18	1	2	①			
2SC374	PNP Si Epitaxial Planar	35	4	100	100	200	125	-	-	350-700	200	2.0	-	0.5	-	1.0	-	①			
2SC454	PNP Si Epitaxial Planar	30	5	100	100	200	125	12	-2	60-320	8	230	1.8	0.5	18	0.5	2	①			
2SC458	PNP Si Epitaxial Planar	30	5	100	100	200	125	12	-2	160	8	230	1.8	0.5	18	0.5	2	①			
2SC460	PNP Si Planar	30	5	100	100	200	125	12	-2	35-250	5	230	1.5	0.5	18	0.5	2	①			
2SC461	PNP Si Planar	30	5	100	100	200	125	12	-2	35-200	-	230	1.5	0.5	18	0.5	2	①			
2SC490	PNP Si Triple Diffused	100	5	3A	3A	16W	150	5	-0.5A	200	10	130	-	3(mA)	5	30	5	①			
2SC493	PNP Si Triple Diffused	80	5	5A	5A	50W	150	5	1A	20-200	10	130	-	10(mA)	50	-	-	①			
2SC815	PNP Si Epitaxial Planar	60	5	200	200	250	125	2	150(ic)	70	-	-	-	0.1	45	-	-	①			
2SC968	PNP Si Epitaxial Planar	50	5	500	500	500	500	4	-10	-	70	-	-	-	-	-	-	①			
2SC839	PNP Si Epitaxial Planar	50	5	50	50	250	150	0.2	-	75	2.5	250	1.8	-	-	-	-	①			
2SC1030	PNP Si Triple Diffused	150	6	6A	6A	50W	150	-	-	80	10	10	-	1	30	-	-	①			
2SC1060	PNP Si Epitaxial Planar	50	4	3A	3A	25W	150	1.0	-	70	-	-	-	100	-	-	0.85	①			
2SD150	PNP Si Epitaxial Planar	50	5	2A	2A	15W	150	-	-	-	10	-	-	0.1(mA)	40	-	-	①			
2SD154	PNP Si Epitaxial Planar	80	5	3A	3A	20W	150	-	-	80	-	-	-	1	60	-	-	①			

LINEAR HYBRID INTEGRATED CIRCUITS

DESCRIPTION FOR AF AMPLIFIER

ELECTRICAL CHARACTERISTICS
($V_{CC}=24V$ $f=1KHz$)

Parameter	Condition	Min.	Typ.	Max.	Unit
Power consumption			1.8		mA
Maximum Stable Gain	$R_{nf}=\infty$	61	64	67	dB
Maximum Stable Gain	$R_{nf}=33K\Omega$	39	40	41	dB
Noise Output Level	$R_{nf}=\infty$		2		mV
Non Crip Output Voltage		4.5			V
Frequency Response at 10KHz (0dB=1KHz level)	$R_{nf}=\infty$	+12	-15	-18	dB



SILICON RECTIFIER COMPLEMENT

Type	Peak Inverse Voltage (V)	AC Input Voltage (V)	Output Current (max mA)	Inverse Current (A/Hz)	Surge Current (A/Hz)	Junction Temperature (°C)	CES Type
SE-05	400	120	500	10	15	-55 ~ +130	1S1021
S-2E	200	75	500	35	40	120	1S1221
SPN-01	100	36	1A	Full Wave Bridge Stack			
SR-1-DM	100	50	1A	40 ~ +100			
S-2A-20	200	75	1.5A	150			1S921
S-2A-10	100	75	1.5A	15			
10 D1	250	100	1A	70			1S1664

- ORIGIN
- SHINDENGEN
- MITSUBISHI
- INTERNATIONAL RECTIFIER

3.1 AMP PCB ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
944007 0	AMP PCB ASSY		225333 K	M-CAP 0.033MF	C639
461038 A	PC-461038 (A)		225154 K	M-CAP 0.15MF	C603,604
515003 S	TR 2SC 458LG (C)	Q601,602	311100 K	RES 10 ohm 1/4P	R647,648
515012 S	TR 2SC 373 (H)	Q607,608	311102 K	RES 1K ohm 1/4P	R617,618
513017 S	TR 2SD 150	Q603,604	311682 K	RES 6.8K ohm 1/4P	R601,602
204335 W	E-CAP 35R 3.3	Q609,610			R637,638, R641,642, R643,644
202106 W	E-CAP 16R 10	Q611,612	311103 K	RES 10K ohm 1/4P	R615,616
203106 W	E-CAP 25R 10	C601,602	311153 K	RES 15K ohm 1/4P	R635,636
202336 W	E-CAP 16R 33	C629,630	311223 K	RES 22K ohm 1/4P	R603,604, R627,628
200476 W	E-CAP 6.3R 47	C633,634	311473 K	RES 47K ohm 1/4P	R623,624, R625,626
202228 V	E-CAP 16ML 2200	C613,614, C627,628	311154 K	RES 150K ohm 1/4P	R605,606
203225 M	E-CAP 25R 2.2	C621,622, C623,624	311224 K	RES 220K ohm 1/4P	R633,634
203475 M	E-CAP 25R 4.7	C625,626	311105 K	RES 1M ohm 1/4P	R631,632
245500 K	C-CAP 50PF	C609,610, C631,632	311222 J	RES 2.2K ohm 1/4P	R629,630 R613,614 R609,610
235801 J	S-CAP 800PF	C637,638	311682 Y	NL-RES 6.8K ohm 1/4P	R607,608
			311153 Y	NL-RES 15K ohm 1/4P	R611,612
			311684 Y	NL-RES 680K ohm 1/4P	R611,612
			374151 K	M-RES 150 ohm 2P	R645,646

3.2 EQ AMP PCB ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
949013 0	EQ AMP PCB ASSY		225123 K	M-CAP 0.012MF	C703,704
461114 0	EQ AMP PCB		225332 K	M-CAP 0.0033MF	C701,702
518005 0	IC HB 18005	IC701,702	311102 K	RES 1K ohm 1/4P	R709,710
204335 0	E-CAP 35R 3.3	C707,708	311684 K	RES 680K ohm 1/4P	R711,712
203106 W	E-CAP 25R10	C705,706, C711,712	311271 J	RES 270 ohm 1/4P	R701,702
200476 W	E-CAP 6.3R 47	C709,710, C713,714	311223 J	RES 22K ohm 1/4P	R705,706
			311273 J	RES 27K ohm 1/4P	R703,704
			311334 J	RES 330K ohm 1/4P	R707,708

3.3 TONE CONTROL AMP PCB ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
949014 0	T.C AMP PCB ASSY		513017 S		
461047 0	PC 461047		205107 W		
515003 S	TR 2SC 458 LG (C)	Q605,606	203227 W		
311472 Y	NL-RES 4.7K ohm 1/4P	R619,620	225104 M		
311225 Y	NL-RES 2.2M ohm 1/4P	R621,622	311101 K		
204335 W	E-CAP 35R 3.3	C615,616	311103 K		
202106 W	E-CAP 16R 10	C619,620	311223 K		
245101 K	C-CAP 100PF	C617,618	311473 K		

3.4 POWER AMP ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
959001 0	POWER AMP ASSY		334479 K	W-RES 0.47 ohm 2P	R39, 40, 41, R42
451004 0	POWER TRANSISTOR SOCKET		311120 J	RES 12 ohm 1/4P	R33, 34, 37, R38
505007 S	D 0V-2	D5, 6, 7, 8	441130 R	LUG 1L3P R	
375601 K	M-RES 600 ohm 3P	R31, 32, 35, R36	441130 L	LUG 1L3P L	

3.5 POWER PCB ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
945009 0	POWER PCB ASSY		560004 S	D IS-921	D1, 2, 3, 4
461017 0	PC P0-3		702005 0	PC-L-BRAKET	

3.6 REG PCB ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
945008 0	REG PCB ASSY		311101 K	RES 100 ohm 1/4P	R901
515012 S	TR 2SC 373 (H)	Q901, 903	311103 K	RES 10K ohm 1/4P	R904
513017 S	TR 2SD 150	Q902	311223 K	RES 22K ohm 1/4P	R902
203227 W	E-CAP 25R 220	C903, 904	311473 K	RES 47K ohm 1/4P	R905
205107 W	E-CAP 50R 100	C901, 902	311224 K	RES 220K ohm 1/4P	R903
225104 M	M-CAP 0.1MF 50V	C905			

3.7 TRI LEVER SWITCH ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
403016 0	TRI LEVER SWITCH ASSY	S3a, 3b, 4a, S4b, 6a, 6b, S7a, 7b, 8a, S8b, 10a, S10b	705024 0	TERMINAL (STATIONARY)	
			705031 0	TERMINAL (STATIONARY)	
			705025 0	TERMINAL (CENTER)	
			705029 0	CONTACT (2)	
			705030 0	CONTACT (3)	
740007 0	CASE		740017 0	KN0B (LEVER)	

3.8 REAR PANEL ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
951002 0	REAR PAENL ASSY		455001 0	EAR JACK 3P	
732014 0	REAR PANEL		441110 L	LUG 1L1P L	
490054 0	NW-1S 2A		441120 R	LUG 1L2P R	
450002 0	AC CONNECT SOCKET		441130 R	LUG 1L3P R	
450006 0	UL SOCKET (B)		311472 K	RES 4.7K ohm 1/4P	R43, 44, 47, R48
248473 M	C-CAP 0.047MF	C21			
430021 0	VK 242(2R) N B5K x 2	R45, 46	311103 K	RES 10K ohm 1/4P	R51, 52
444052 0	US PIN TER 5P		311473 J	RES 47Kohm 1/4P	R1, 2, 3, 4, R5, 6
447041 0	BARRIER TER 4P		311331 K	RES 330 ohm 1/4P	R56
402008 0	SLIDE SWITCH SL-13		500001 G	D IN 60 (P)	D9, 10
444021 0	PIN TER 2P		205105 W	E-CAP 50RT	C15
444122 0	PIN TER 4P x 3NL				
453022 0	DIN CONNECT				

3.9 CHASS ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
953022 0	CHASS ASSY		101022 0	T-0-29	T1,2
732013 0	CHASS		489001 0	RING CORE 1.3K-9	
441140 C	LUG 1L4P C		453032 0	VOLT CHANGE PLUG	
441130 R	LUG 1L3P R		453033 0	VOLT CHANGE SOCKET	
441120 R	LUG 1L2P R		170007 0	RELAY 4P	
204338 U	E-CAP 3300MF 35V		405047 0	ROTRY SWITCH	Z7,8
457003 0	MULT CONNECT 12P		580806 0	PL-8 8V 0.3A	Z1,2,3,4,
458069 0	TERMINAL		580807 0	PL-8 8V 40mA	Z5,6,9,10
110111 0	P.T T-1-111				

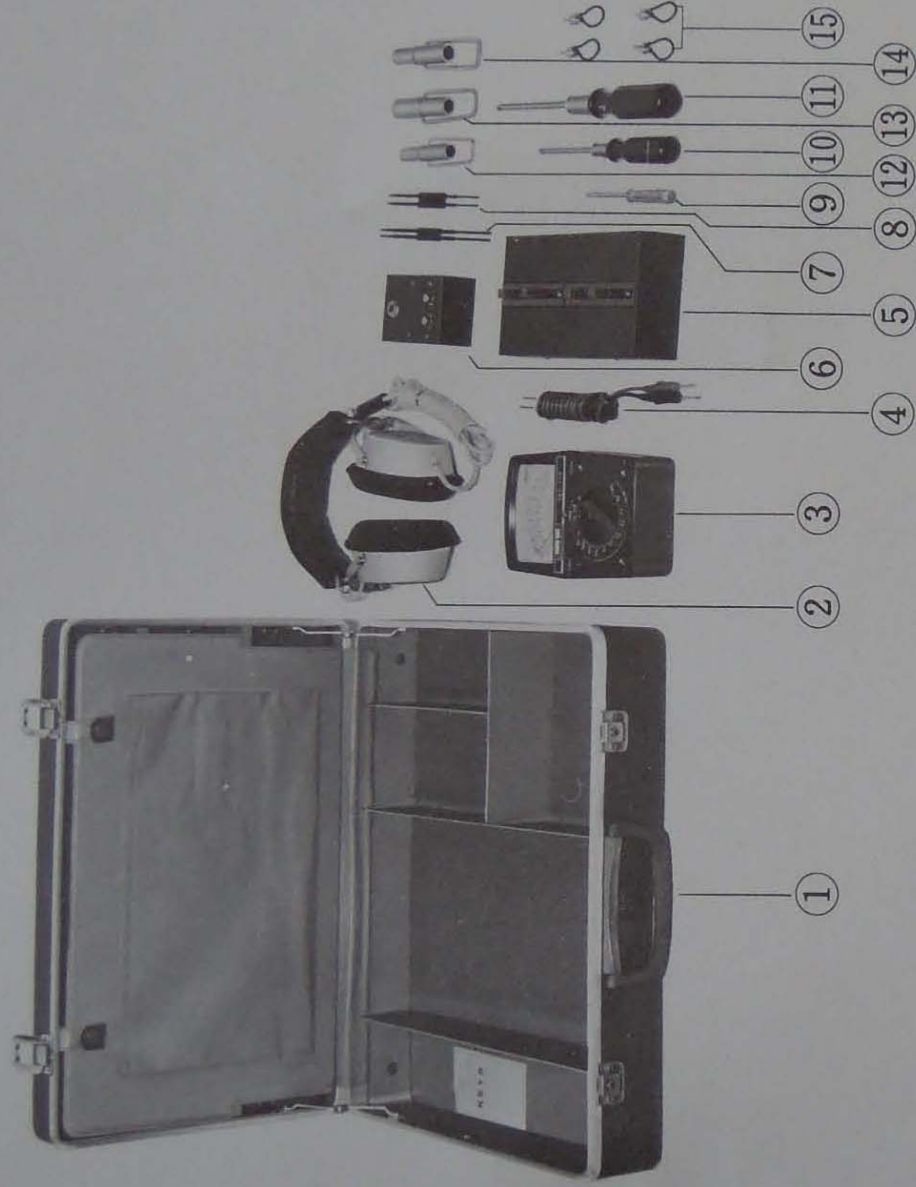
3.10 FRONT PALTE ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
952010 0	FRONT PLATE ASSY		311222 K	RES 2.2K ohm 1/4P	R9,10
732023 0	FRONT PLATE		311103 K	RES 10K ohm 1/4P	R7,8,15, R16,17,18, R19,20
458066 0	VU METER V-45	M1,2			R27,28
780042 0	METER PANEL				C1,2
405045 0	ROTRY SWITCH 2-4-5	S2a,2b,2c	311104 K	RES 100K ohm 1/4P	C5,6
405046 0	ROTRY SWICH	S9a,9b	225102 K	M-CAP 0.001MF	C7,8,9,10
432014 0	VR QS 50K x 2 CT	R11,12	225222 K	M-CAP 0.0022MF	C13,14
432009 0	VR HB 10K x 2	E29,30	225393 K	M-CAP 0.039MF	C3,4,11,12
431018 0	VR BLOOK	R13,14,23, R24	225473 K	M-CAP 0.047MF	
		R49,50	225224 K	M-CAP 0.22MF	
374471 K	M-RES 470 ohm 2P	R21,22	441140 C	LUG 1L4P C	
311101 K	RES 100 ohm 1/4P	R25,26	311103 K	RES 10K ohm 1/4P	
311102 K	RES 1K ohm 1/4P		441120 C	LUG 1L2P (C)	

3.11 FINAL ASSEMBLY

Parts No.	Description	Symbol	Parts No.	Description	Symbol
950019 0	FINAL ASSY		782011 0	COVER SUB ASSY	
788121 0	PANEL SUB ASSY		782029 0	COVER	
722131 0	PANEL SUPPORT (L)		606003 J	PLUG CORD	
722132 0	PANEL SUPPORT (R)		982311 0	CARTON BOX	
784051 0	KNOB 3L1		984001 0	STYROL BOX (COV)	
784053 0	KNOB 3L3		984012 0	STYROL BOX (BTM)	

4. SERVICE TOOL



1	TOOL BOX.....	1
2	HEAD PHONES	1
3	CIRCUIT TESTER	1
4	TEST LEADES	2
5	DUMMY LOAD BOX	1
6	HEADPHONE CONVERTER	1
7	ALIGNMENT TOOL (M. P. X)	2
8	ALIGNMENT TOOL (FRONT. END)	2
9	TINY SCREW DRIVER	1
10	SMALL SIZE CROSS SCREW DRIVER	1
11	MEDIUM SIZE CROSS SCREW DRIVER.....	1
12	VOLUME WRENCH (8—10)	1
13	VOLUME WRENCH (11—12)	1
14	VOLUME WRENCH (13—14)	1
15	SHORTED PIN JACK.....	4