CARTRIDGE TAPE RECORDER

MODEL GXR-82

ALSO APPLICABLE TO MODEL GXR-82D
CARTRIDGE TAPE DECK

I. SPECIFICATIONS

An asterisk next to a figure indicaties the minimum guranteed performance.

RECORDING SYSTEM		In-line 8-track stereo recording system
PLAYBACK SYSTEM		In-line 8-track stereo playback system
TAPE SPEED	Playback	3-3/4 ips±1.5% (*±2%)
	F.FWD	15 ips±10%
WOW AND FLUTTER		Less than 0.25% (*0.35%)
FREQUENCY RESPONSE		50 to 16,000 Hz±3 dB
SIGNAL TO NOISE RATIO		Better than 47 dB (*43 dB)
DISTORTION FACTOR		Less than 3%
CROSS-TALK		Less than 40 dB
ERASE RATIO		Less than 65 dB (*60 dB)
OUTPUTS	Line output	1.228V ("0" VU)±1.5 dB, using 500 Hz "0" VU recorded tape
	Din output	0.4V (*Program ①, ④ +2 dB / -4 dB)
	Power output	More than 5W (Distortionless 8Ω)
INPUTS	Line input	50 mV Impedance 500 kΩ
	Din input	5 mV (*10 mV)
	Mic input	0.5 mV Impedance 5 kΩ
	Phono input	3.5 mV
RECORDING/PLAYBACK HEAD		In-line 8-track stereo
	Gap	1.5/1000 mm
	Impedance	600Ω±15% at 1 kHz
ERASE HEAD		In-line 8-track stereo
	Gap	0.1 mm
	Impedance	210Ω±10% at 90 kHz
OSCILLATION FREQUENCY		67 kHz±5 kHz
TRANSISTORS		2SC458LG(C) (D) . . . 2 / 2SC1312 (G) . . . 4 2SC711 (F) (G) . . . 8 / 2SC711 (E) (F) (G) . . . 3 2SC1211 (D) (E) . . . 2 / 2SC945 (P) (Q) (R) . . . 2 2SD360 (D) (E) . . . 1 / 2SC360 (D) (F) . . . 1
IC		STK-011A . . . 2 (GXR-82)
DIODES		WG-599 . . . 15 / 10D05 . . . 5 (82D: 6) 10D4 . . . 4 / WG-210 . . . 1 1N34A . . . 4
MOTOR		Condenser starting induction two-speed (2-8 pole) motor Condenser Capacity: 4 μF (50 Hz), 2.5 μF (60 Hz) Revolutions: 2900 to 725 rpm (50 Hz), 3480 to 870 rpm (60 Hz)
INSULATION RESISTANCE		More than 50 MΩ
INSULATION DURABILITY		1,000V AC for more than one minute duration
POWER REQUIREMENTS		100 to 240V AC, 50/60 Hz
POWER CONSUMPTION		60W
DIMENSIONS		346(W) x 135 (H) x 266 (D) mm (13.6" x 5.3" x 10.5")
WEIGHT	GXR-82	8.4 kg(18.5 lbs.)
	GXR-82D	8.2 kg(18.0 lbs.)

NOTE: Specifications subject to change wighout noitice.

5. TOTAL HARMONIC DISTORTION FACTOR

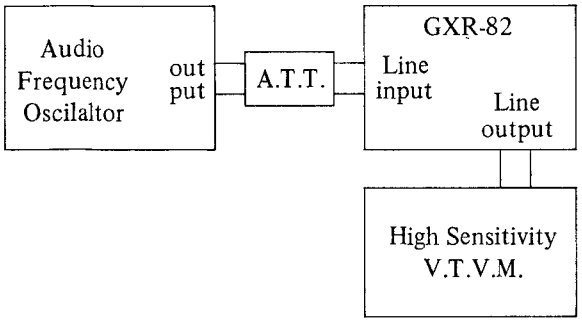


Fig. 5

Connect the measuring instruments as shown in Fig. 5 and record a 1,000 Hz sine wave signal at "0" VU. Playback the resultant signal and measure the overall distortion factor.
Measure the noise level of the tape recorder without the tape. Connect the audio frequency oscillator directly to the distortion meter for measurement of the distortion factor of the oscillator. The required distortion factor can be obtained from the results of the above measurement by the following formula:

$$d_0 = d - d_1 - d_2$$

where, d_0 = Required distortion factor
d = Overall distortion factor
d_1 = Noise level
d_2 = Distortion factor of the oscillator

NOTE: When measuring the distortion factor, new tape should be used.

6. CROSS TALK (Cross talk between the channels)

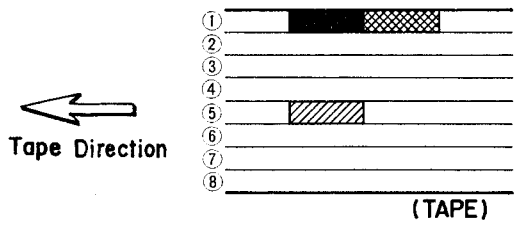


Fig. 6

As shown in Fig. 6, first record a 1,000 Hz sine wave signal on Track No. 1 at +3 VU level. Next, record under a non-input condition. Then, playback the tape on Tracks No. 1 and 5 through the B.P.F. (band pass filter sensitivity ... 1:1) and obtain a ratio between the two from the following formula:

$$C = 20 \log \frac{E_0}{E_2 - E_1} \quad (dB)$$

where,
C = Desired cross talk ratio (dB)
E_0 = 1,000 Hz signal output level
E_2 = 1,000 Hz cross talk level
E_1 = Non-input signal recorded level

7. ERASE RATIO

As shown in Fig. 4, connect a high sensitivity V.T.V.M. to the Line Output of Model GXR-82. Playback a virgin tape and take a V.T.V.M. reading of the output level. Next, record a 1,000 Hz sine wave signal at +3 dB then playback this recorded signal and take a V.T.V.M. reading of the output level. Next, using this pre-recorded tape, record under a non-input condition and take a reading of the noise level output of the erased signal and obtain a ratio between the two from the following formula:

$$E_r = 20 \log \frac{E_0}{E_2 - E_1}$$

where, E_r = Desired erase ratio (dB)
E_0 = 1,000 Hz signal output level
E_2 = Non-Input signal recorded level
E_1 = Virgin tape noise output level

8. POWER OUTPUT

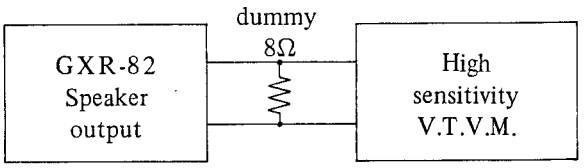


Fig. 7

As shown in Fig. 7, connect an 8Ω dummy load resistor to the speaker output of Model GXR-82 and connect this terminal to a high sensitivity V.T.V.M.
Playback a 500 Hz "0" VU pre-recorded test tape and take a V.T.V.M. reading of the output level. The resultant output can be obtained from the results of the above measurement by using the following formula:

$$P = \frac{E^2}{R} \quad (W)$$

where, P = Desired power output (watts)
E = Measured voltage (R.M.S.)
R = 8Ω

IV. HEAD ADJUSTMENTS

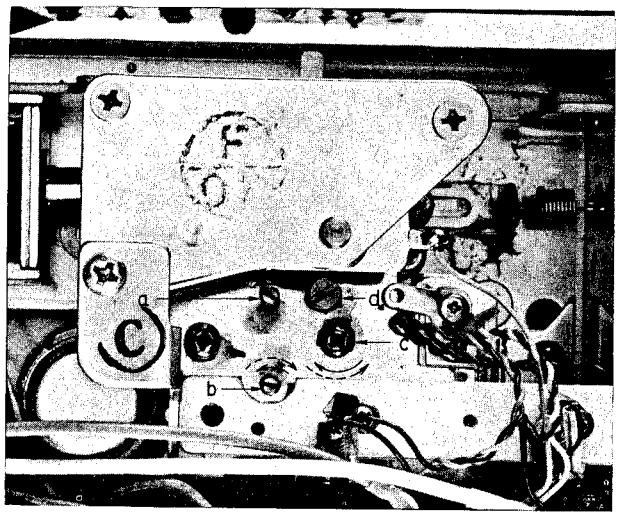


Fig. 8

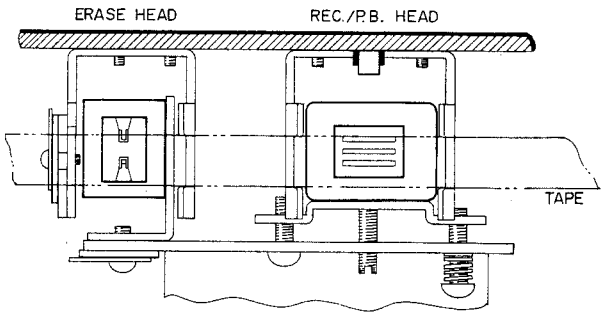


Fig. 9

1. HEAD ANGLE ADJUSTMENTS

1) Connect a High Sensitivity V.T.V.M. (Model 161A) to the Line Output.
2) Playback Program 3 of an 8,000 Hz pre-recorded Tape and adjust Screw "c" shown in Fig. 8 so that the V.T.V.M. indication is maximum.

2. HEAD HEIGHT AND TALK ADJUSTMENTS

1) Connect a High Sensitivity V.T.V.M. (Model 161A) to the Line Output.
2) Playback Program 2 of *Test Tape and adjust Screw "d" shown in Fig. 8 so that the V.T.V.M.* indication is minimum.
3) In case of GXR-82 connect speaker to speaker jack and with volume control turned to maximum, adjust Screw "d" until the sound emitted from the speaker is minimized.
4) The adjustments outlined in items 2) and 3) above will result in ideal head height position and minimize cross-talk.

*Test Tape
This Test Tape is a tape specially designed by AKAI for Head Height and Cross-Talk Adjustment tests.

Program 1 . . . 1,000 Hz
Program 2 . . . Blank
Program 3 . . . 1,000 Hz
Program 4 . . . 3,000 Hz

3. CONFIRMATION OF HEAD HEIGHT

1) Record a 1 kHz "0" VU signal on a *Blank Test Tape. Next, run the tape under a non-signal input condition. Then playback the tape.
2) At this time check to see whether or not the recorded sound is emitted from the speaker or line output.
3) If no signal or no sound is emitted, the height of the recording and erase heads are properly adjusted. If the recorded signal has not been perfectly erased and is emitted from the speaker or line output, the recording and erase head height is not properly adjusted and the following adjustment is necessary:

   Turn screws "a" and "b" in the same direction and to the same degree and turn screw "c" in the opposite direction to the same degree. (see Fig. 8) This fine adjustment screw "c" should not be turned more than 10° and should equal the degree to which screws "a" and "b" have been adjusted.

   *It is important to understand from the beginning that the entire playback head can be moved up and down, but the erase head cannot. In other words, when the entire installation plate of both heads are moved, the erase head is set to correct position, and next, the playback head is moved up and down.

4) After the above adjustment has been carried out, it is necessary to re-adjust Head Heights and Cross-Talk. Use a *Test Tape and make the adjustments outlined in items 2-2) and 2-3) again.

*Blank Test Tape
This is also a special tape designed by AKAI. Duration of tape is only 15 seconds.

VI. AMPLIFIER ADJUSTMENTS

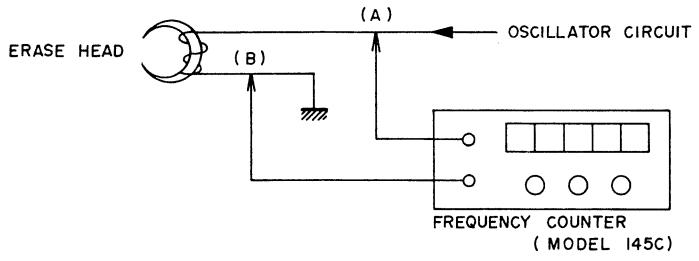


Fig. 12

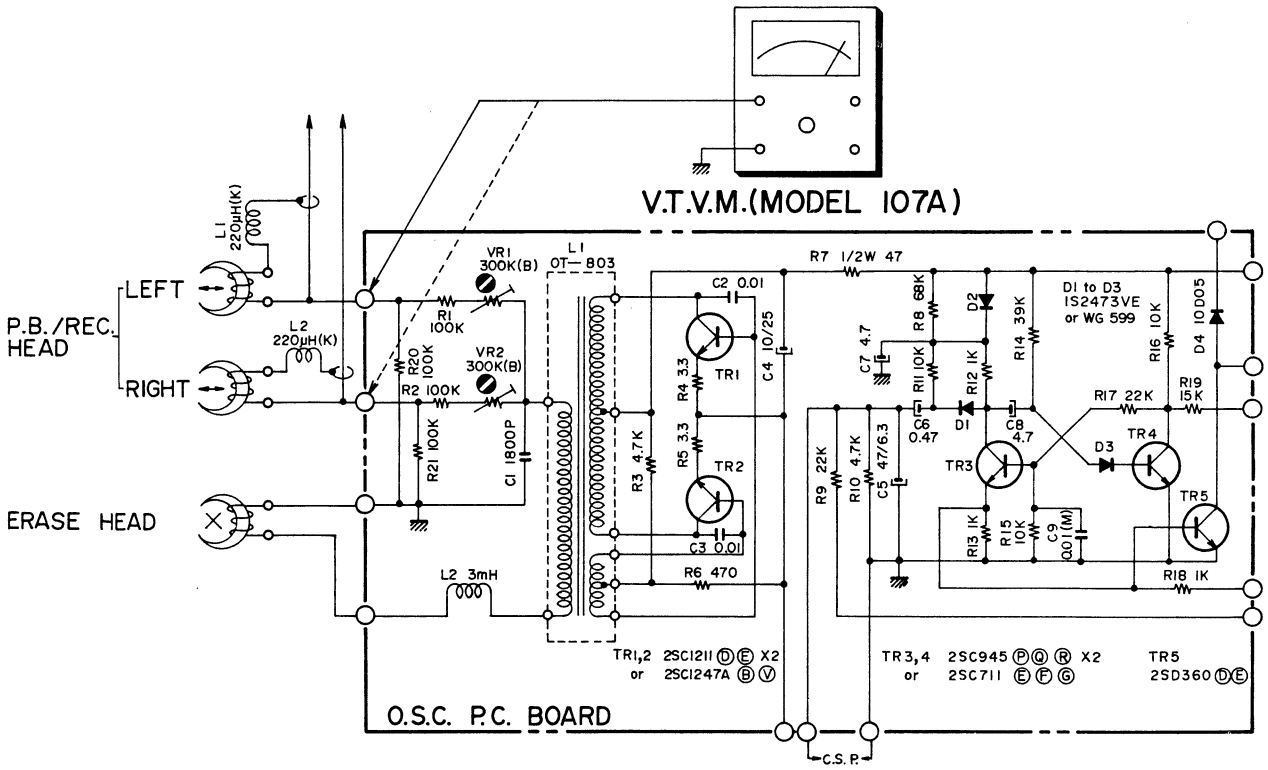


Fig. 13

1. RECORDING BIAS FREQUENCY ADJUSTMENTS (See Fig. 12)

1) Connect a Frequency Counter to points (A) and (B), and read the Frequency Counter indication.
2) If the Frequency Counter reading is 67 kHz±5 kHz the recording bias frequency is correct.
3) If the recording bias frequency is incorrect, it can be adjusted by adjusted by changing the value of condenser C1.

2. RECORDING BIAS VOLTAGE ADJUSTMENTS (See Fig. 13)

1) Connect a V.T.V:M. (Model 107A Type) to points (a) and (b), and measure the bias voltage.
2) Correct recording bias voltage is between 1.8 to 2.0V AC. Adjustment can be made with VR1 and VR2 respectively. Correct Erase Voltage is about 14V AC.

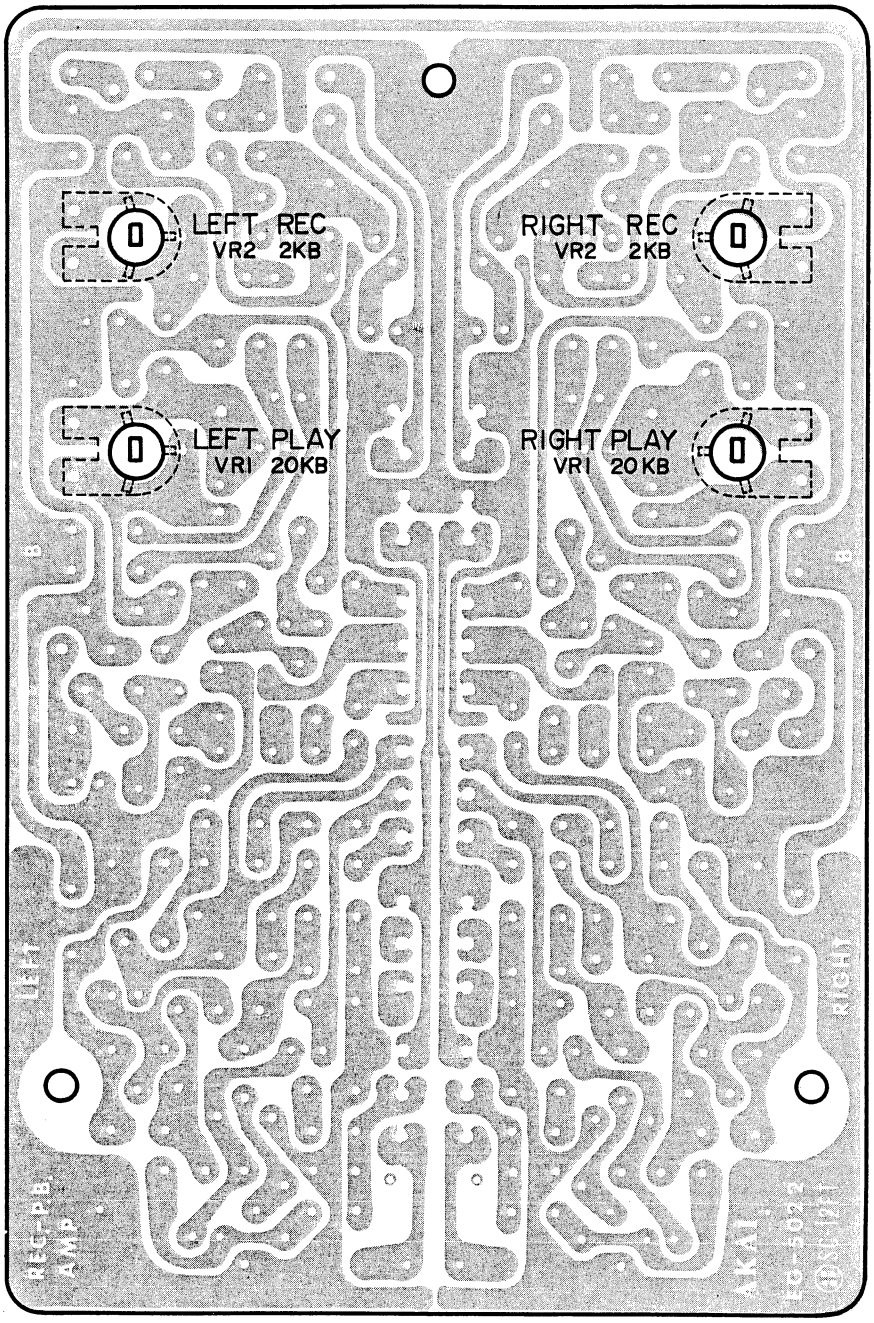
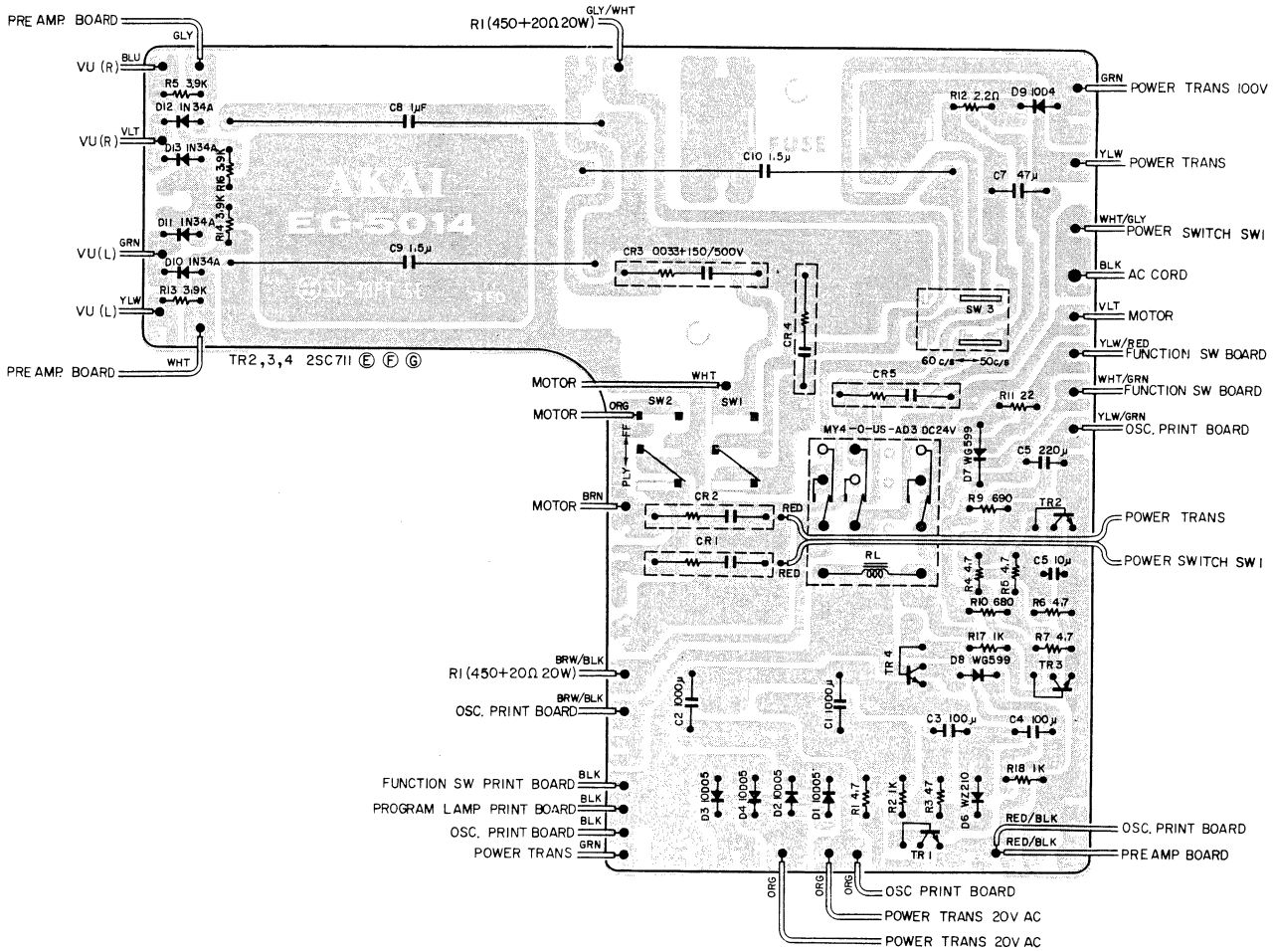
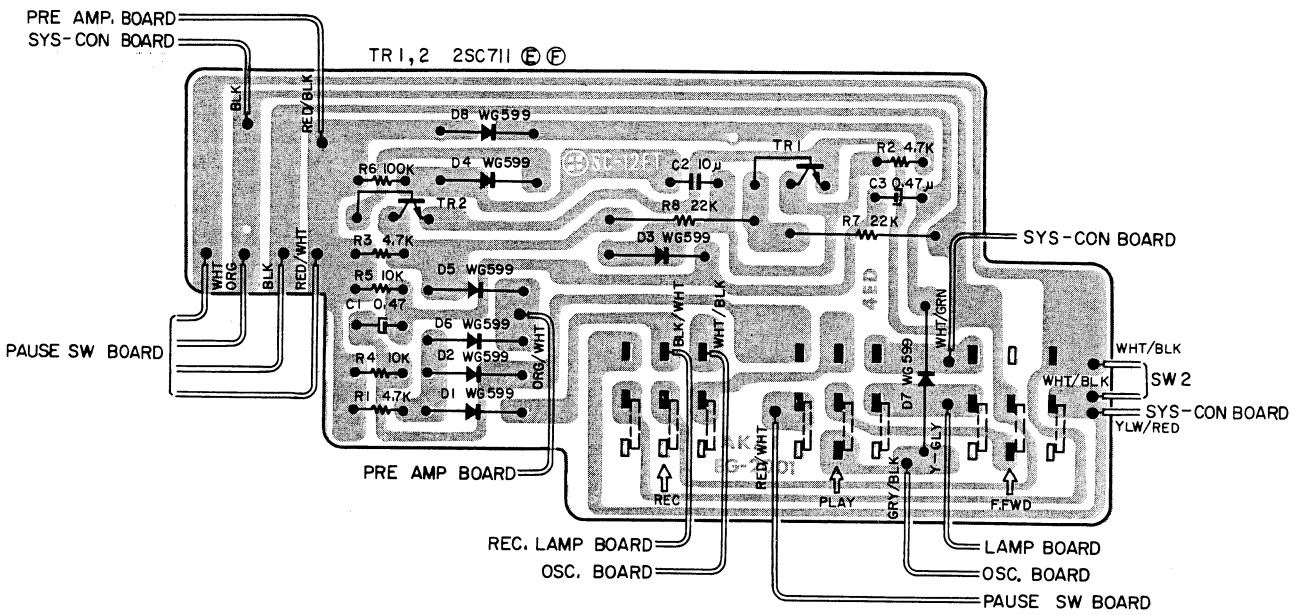

LEFT REC
VR2 2KB
RIGHT REC
VR2 2KB
LEFT PLAY
VR1 20KB
RIGHT PLAY
VR1 20KB
LEFT
RIGHT
REC-PB
AMP.
AKAI
TG-502-2

Fig. 15

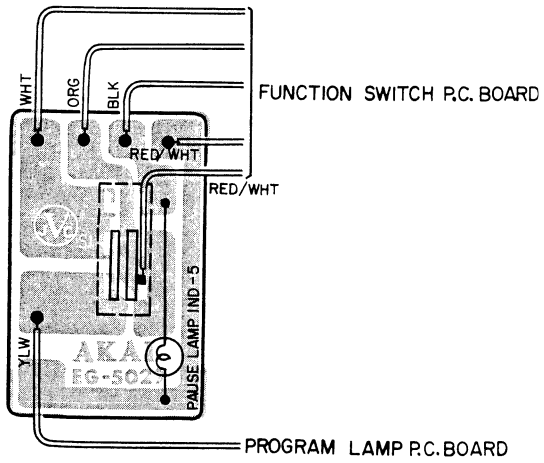
3. POWER SUPPLY & SYS-CON. P.C. BOARD EG-5014



7. FUNCTION SW. P.C. BOARD EG-2001



8. PAUSE SW. P.C. BOARD EG-5027



SECTON 2

PARTS LIST

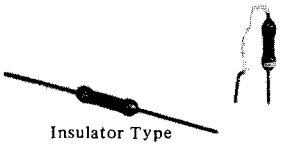
TABLE OF CONTENTS

ELECTRICAL PARTS TABLE

Because the indication of resistors and capacitors in the P. C. Board photos are being eliminated, please confirm parts name and shape by comparing them with the parts shown in this table.

1

Solid Resistor

2 Stopper Type


Carbon Resistor

3

Metal Oxide Film Resistor

4

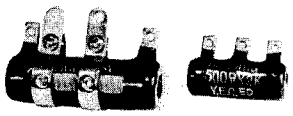
Cement Resistor

5

Wire-Wound Resistor

6

Thermister

7

Enamel Resistor

1

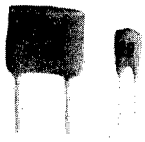
MP Capacitor (Tubular Type)

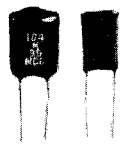
2

Plastic Capacitor

3

Mylar Capacitor

4

VFM (Hi-Q) Capacitor

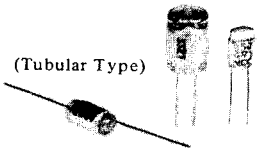
5

Mylar Capacitor

6

Tantalum Capacitor

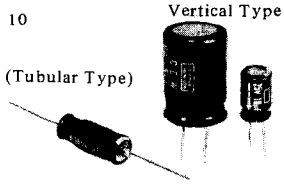
7

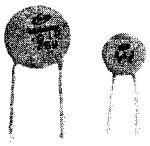

Oil Capacitor (Tubular Type)

8 Vertical Type
(Tubular Type)

Styrol Capacitor

9

Electrolytic Capacitor (Tubular Type)

10 Vertical Type
(Tubular Type)

Electrolytic Capacitor

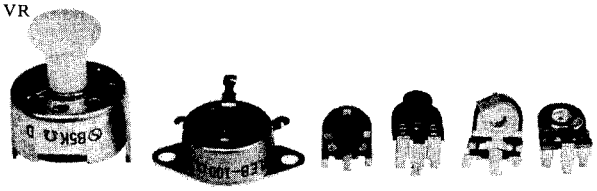
11

Ceramic Capacitor

12

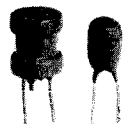
Metalized Mylar (Paper) Capacitor

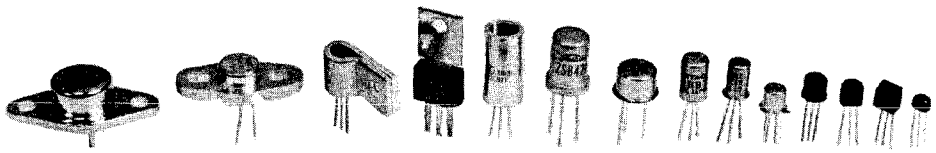
13

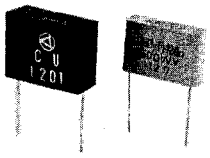
Trimmer Condenser

VR


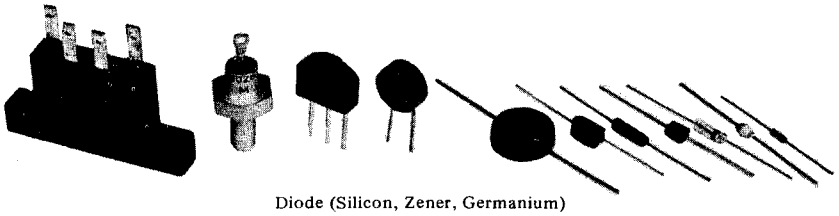
Semi-Fixed Volume

L

Ferri Inductor

TR

Transistor

CR


Spark Quencher

D

Diode (Silicon, Zener, Germanium)

CARTRIDGE HEAD BLOCK

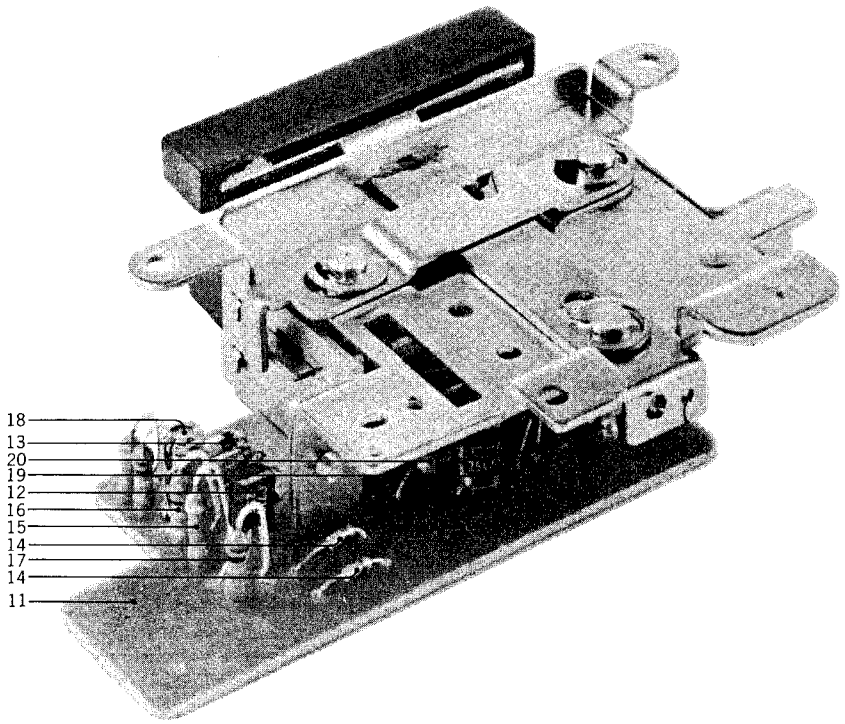
Ref. No.	Parts No.	Description	Schematic No.	Q'ty
1-1x	BH556918	Cartridge Head Block Assy. Comp.	EG	1
1-2	HZ544162	Base Frame C	ED-B322	1
1-3	HZ461485	Side Roller Frame, w/roller	ED-B335	1
1-4	HZ465682	Roller Arm Comp.	ED-B017	1
1-5	HZ465693	Main Roller Arm Comp.	ED-B016	1
1-6	ZS465344	Adjust Screw	ED-B340	1
1-7	ZW465715	Washer (SPC) D3.2x6x0.5t		1
1-8	ZG465142	Main Roller Spring	ED-B341	1
1-9	ZW273756	Nut M3		1
1-10	HZ544138	Selector Base	EG-3007	1
1-11	EA543767	Selector P.C. Board	EG-3008	1
1-12	EL368774	Lamp 6.3V 180mA	28-2-10	4
1-13	ZS447772	Tapping Screw #2 3x6 (BR)		6
1-14	ES490735	Push SW. SPJ-10201	25-5-69	1
1-15x	ZS524812	Screw, countersunk head 2x4		2
1-16	SK371621	PTA Knob (Black)	ED-615	1
1-17	ZS200676	Tapping Screw #2 3x6(Countersunk)		2
1-18	HZ465390	Side Bush C	ED-B327	1
1-19	EP561352	Plunger Solenoid SDC-840THT1	44-1-60	1
1-20x	ZW560171	ISO Screw, pan head 3x5		4
1-21	WM545477	Pull Lever C, w/boss	EG-3015	1
1-22	ZG244394	Hook Spring	RC-39	1
1-23	WM545488	Crown Hook B	EG-3016	1
1-24	ZW270088	'E' Ring 1.9M	6-1-9	3
1-25	MH303682	Plunger Lever Pin	RX-291	1
1-26	ZG256926	Lever Spring	RC-38	1
1-27	EA371272	Cart. P.C. Board ED	ED-309	1
1-28	ZS220061	Graduated Screw (small)	RC-19	1
1-29x	ZW273690	Nut M2.3		1
1-30	HZ436814	Back Stopper	ED-314	1
1-31	ZG226708	Stopper Spring	RC-40	1
1-32	HZ218327	Crown Stopper	RC-20	1
1-33	HZ461507	Tape Guide B	ED-B343	1
1-34x	ZS202296	Screw, round head 2.3x5		2
1-35	HZ547727	Erase Tape Guide	EG-3019	1
1-36x	ZS202307	Screw, round head 2.3x6		2
1-37	ZW269785	Toothed Lock Washer M2.3		3
1-38	HZ225213	Hold-down Table Prop	RC-68	3
1-39x	ZS336857	Screw, round head 3x8		3
1-40	HZ229026	Insulator Bush	RC-77	2
1-41	HZ369786	Mylar Seat	RCC-304	1
1-42	HZ549393	Sensing Plate	EG-0011	1
1-43	ZS201903	Screw, binding head 2.3x4		2
1-44	ZW369843	EH Insulator Washer	RCC-310	2
1-45	HZ545490	Crown Cam B, w/shaft	EG-3017	1
1-46x	ZW259738	Washer (Polyslider) D4.1x7x0.25t		1
1-47x	ZW420682	Washer (Nylon) D4.2x9x0.5t		2
1-48x	ZW259738	Washer (Polyslider) D4.1x7x0.25t		1
1-49	HZ390960	SW. Base Comp.	RC-84	1
1-50	ZW259650	Washer (PBP) D3x5x0.2t		1
1-51	ZW273690	Nut M2.3		1
1-52	HZ543600	Hold-down Table, w/boss	EG-0001	1
1-53	HR556920	REC./P.B. HEAD P8-30		1
1-54	HZ258456	Rec. Head Mt. Plate	RC-63	1
1-55	ZS202353	Screw, round head 2x2		2
1-56	ZS336868	Screw, round head 3x12		2
1-57	ZG303300	Angle Adjust Spring B	RD-55	1
1-58	ZS437883	Set Screw 3x8 (Cup/p.)		2
1-59	ZG303761	ST Spring	RC-76	1
1-60	ZS256476	Lifter Screw	RC-10	1
1-61	HZ566010	Erase Head Mt. Plate	EG-0010	1
1-62	HE224122	ERASE HEAD E8-1	700756	1
1-63x	ZS371777	Screw, countersunk Head 2x3		2
1-64	ZS201914	Screw, binding head 2.3x5		2
1-65	HZ253620	Metal Base, w/prop	RC-66	1
1-66	ZG309745	Hold-down Spring A, RC	RC-69	1
1-67	ZG309756	Hold-down Spring B, RC	RC-69	1
1-68	ZS200417	Screw, countersunk head 3x6		2
1-69	HZ461518	Lower Frame	ED-B326	1
1-70	HZ465726	Cart. Reinforcement Plate	ED-B328	1
1-71	ZS417025	Screw, binding head 3x8, w/washer		1
1-72	HZ544151	P.C. Board Retainer (Left)	EG-3010	1
1-73	HZ544140	P.C. Board Retainer (Right)	EG-3009	1
1-74	ZS447840	Tapping Screw #2 3x8 (BR)		4
1-75x	BA556931	OSC. P.C. Board Comp. GXR-82/D	EG-3013	1
1-76	HZ465445	Canceler Table B	ED-B330	1
1-77	EO394356	Hum Backing Coil (small) 220μH(K)	23-3-26	2
1-78	ZS201925	Screw, binding head 2.3x5		2

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

MOTOR/FLYWHEEL BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	MOTOR BLOCK			
2-1x	BM432257	Motor Block Comp.	EF, EG	1
2-2	MZ395144	Motor Cover B, 900 (w/metal)	900-709	1
2-3	MZ373307	Motor Bottom Plate, ED	ED-706	1
2-4	ZS433620	Screw, countersunk head 3x5 D=4.5		2
2-5	MZ395166	Motor Cover A, 900 (w/metal)	900-707	1
2-6	MZ217620	Rubber Ring, Cap (Large)	900-742	2
2-7	MZ237262	Flower Shaped Nylon A	900-723	1
2-8	MZ296346	Moltplane (900 Type)	900-727	2
2-9	MZ300565	Oil Cap (900 Type)	900-726	1
2-10	MZ300734	Felt Plate, 900	900-722	1
2-11	MZ244192	Felt Retaining Ring	900-724	1
2-12	ZW260245	Washer (Nylon) D7.9x13x1t		1
2-13	MZ253956	Motor Oil Cap D	900-725	1
2-14	ZS427037	Screw, pan head 4x50, w/washer		4
2-15	ZW400713	Motor Hexagon Nut, ED	ED-707	4
2-16	MR371452	Motor Pulley, ED	ED-701	1
2-17	ZS459033	Set Screw, hexagon socket 5x5 (Cup/p.)		2
2-18	MZ431335	Motor Shield	ED-B701	1
	FLYWHEEL BLOCK			
2-19x	BF372464	Flywheel Block Comp.		1
2-20	MS370956	Main Shaft	ED-202	1
2-21	MI370945	Flywheel	ED-201	1
2-22	ZS373577	Set Screw, hexagon socket 5x6 (Flat/P.)		2
2-23	MZ370991	Oil Cut	ED-206	1
2-24	MZ370967	Main Case, w/metal A,B	ED-203	1
2-25	MZ371002	Main Metal Felt A, ED	ED-207	1
2-26	MZ371035	Main Metal Cap	ED-210	1
2-27	ZW371913	Washer (Nylon) D7.1x13.6x0.5t		2
2-28	ZW270134	'E' Ring 5M	6-1-9	1
2-29	WM459000	Tape Stopper	ED-B121	1
2-30	ZS356668	Screw, binding head 2.3x4		1
2-31	MV368886	Steel Ball D3		1
2-32	WM466727	Nylon Spacer (t=0.5)	ED-233	1
2-33x	WM513674	Nylon Spacer A (t=0.8)	ED-233	1
2-34x	WM513685	Nylon Spacer B (t=1.0)	ED-233	1
2-35	WM466435	Oil Cover Support	ED-232	1
2-36x	ZS418858	Screw, countersunk head 3x5 D=5		3
2-37	WM598487	Belt Guide C	EG-5070	1
2-38x	WM495674	Belt Guide (UL)	ED-1001	1
2-39	ZS447772	Tapping Screw #2 3x6 (BR)		1
2-40	MB238768	Drive Belt, RD(Flat) D120x7x1.6	RD-129	1
2-41	ZS413201	Screw, pan head 4x8		3

FIG. 3 b PHOTO OF FUNCTION SW. BLOCK



FUNCTION SW. BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	FUNCTION SW. BLOCK			
3-1x	BA556885	Function SW. Block Comp.	EG	1
3-2	WM371057	Push Button SW. Base A, w/pin	ED-213	1
3-3	WM371081	Stop Lever A	ED-216	1
3-4	ZW290283	'U' Ring 2.85M	6-1-1	3
3-5	WM371092	Stop Lever B	ED-217	1
3-6	ZG219385	Keyboard Lever E Spring	BT-226	1
3-7	SB371610	Stop Button	ED-613	1
3-8	SB371586	Push Button A (Play)	ED-614	1
3-9	SB371597	Push Button B (Rec.)	ED-614	1
3-10	SB371608	Push Button C (F.Fwd)	ED-614	1
3-11	EA543802	Function SW. P.C. Board	EG-2001	1
3-12	ET453486	Transistor 2SC711(E) (F)	45-1-67	2
3-13	ED219464	Germanium Diode 1N34A	45-3-1	2
3-14	ED514721	Silicon Diode WG-599	45-3-17	6
3-15	ER212883	Carbon/R. RD1/4 4.7k(J) (Stop. Type)	35-10-1	3
3-16	ER336442	Carbon/R. RD1/4 10k(J) (Stop. Type)	35-10-1	2
3-17	ER211757	Carbon/R. RD1/4 100k(J) (Stop. Type)	35-10-1	1
3-18	EC450281	Elect./C. 0.47μF 50WV (Vert. Type)	24-12-9	2
3-19	EC220994	Elect./C. 10μF 25WV (Vert. Type)	24-12-9	1
3-20	ER345712	Carbon/R. RD1/4 22k(J) (Insu. Type)	35-9-5	2
3-21	ES557122	Push Button SW. 3-axial AC125V 0.3A	25-5-107	1
3-22	ZS323728	Screw, binding head 3x5		2

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
	ASSEMBLY BLOCK			
3-23	WM583086	Protect Angle	EG-5067	1
3-24	ZS447772	Tapping Screw #2 3x6 (BR)		6
3-25	WM543521	Rec. Lever C	EG-5006	1
3-26	WM543510	Rec. Lever D	EG-5005	1
3-27	ZW290283	'U' Ring 2.85M	6-1-1	3
3-28	ZW259931	Washer (PBP) D5.1x10.3x0.3t		1
3-29	ZS323728	Screw, binding head 3x5		1
3-30	ZG370934	SW. Spring		1
3-31	WM543543	FF Slide	ED-124	1
3-32	WM583097	FF SW. Spring	EG-5008	1
3-33	ZS425981	Screw, binding head 3x3	EG-5068	2

FIG. 5 ILLUSTRATION OF POWER SUPPLY/ASSEMBLY BLOCK

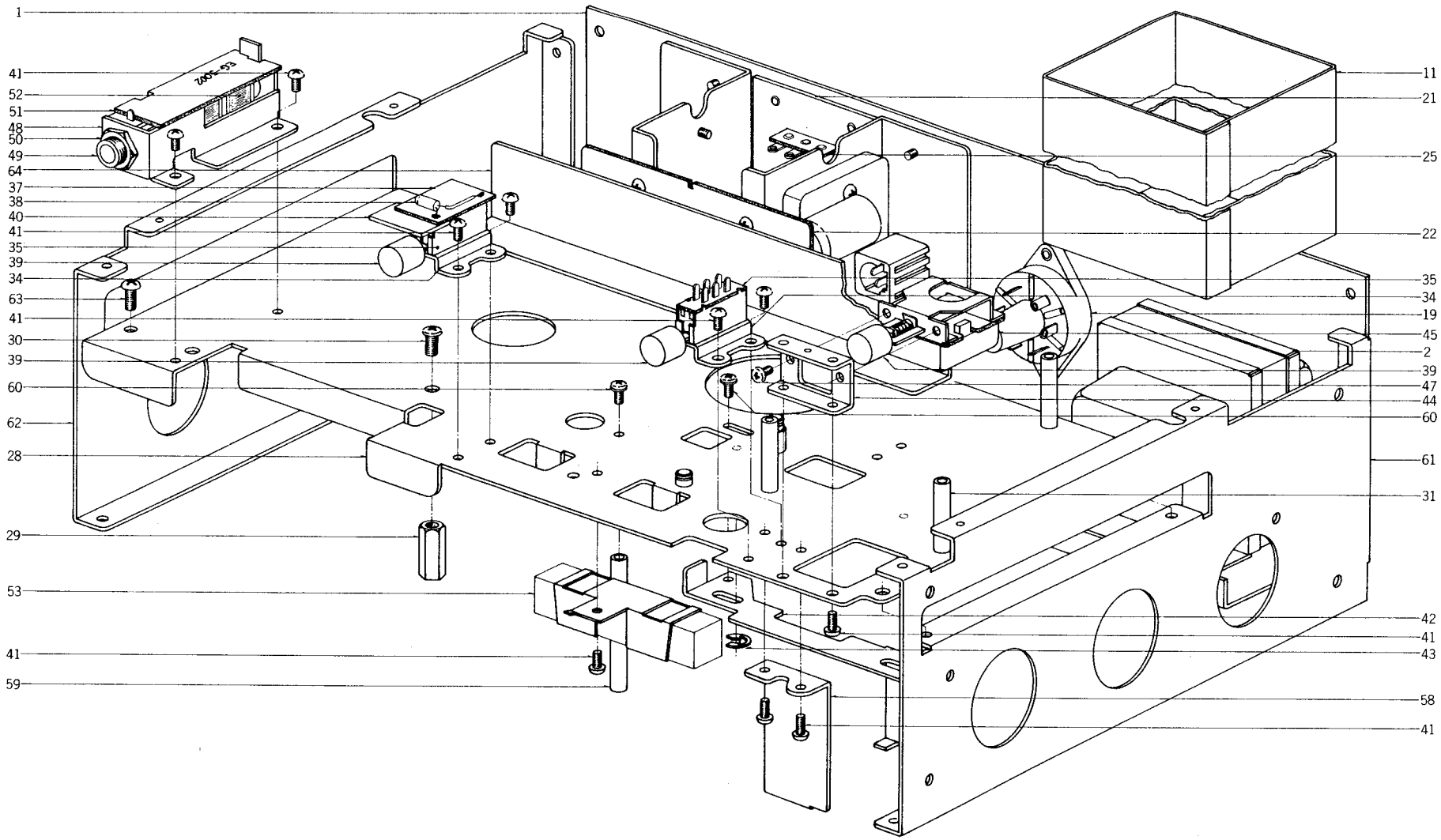
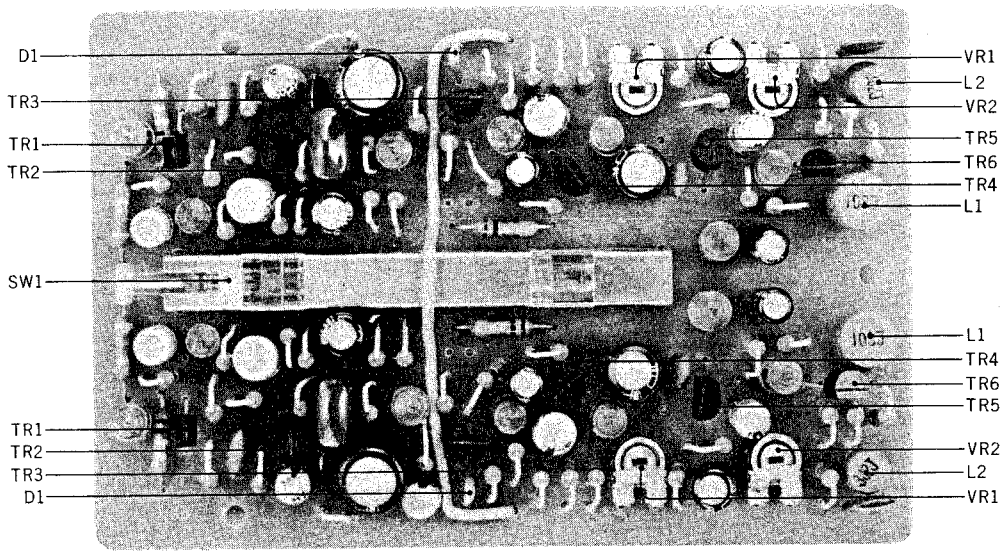


FIG. 6 PHOTO OF PRE-AMP. P.C. BOARD (EG-5022) BLOCK

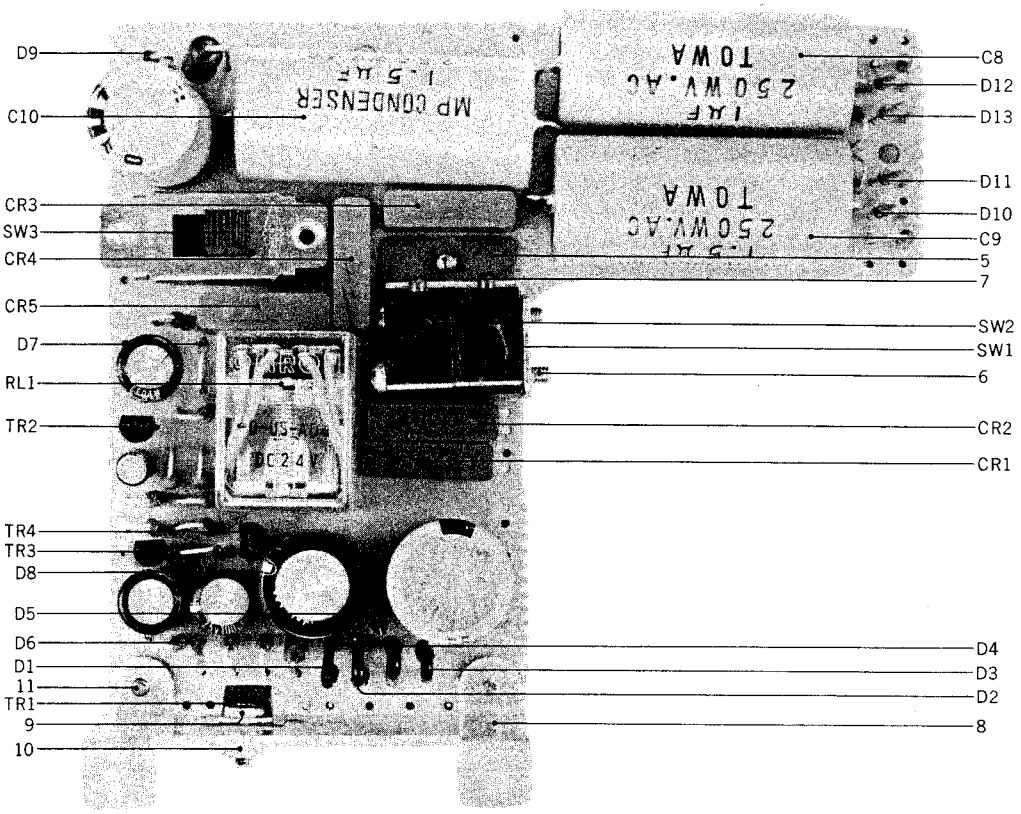


PRE-AMP. P.C. BOARD (EG-5022) BLOCK

Symbol No.	Parts No.	Description	Q'ty
6-1x	BA556896	Pre-amp. P.C. Board Comp. (EG-5022)	1
6-2x	BA556907	Pre-amp. P.C. Board Comp. (EG-5022) (Deck)	1
6-TR1	ET391768	Transistor 2SC458LG(C) (D)	2
6-TR2	ET550754	Transistor 2SC1312(G)	2
6-TR3	ET398777	Transistor 2SC711(G) (F)	2
6-TR4	ET550754	Transistor 2SC1312(G)	2
6-TR5, 6	ET398777	Transistor 2SC711(G) (F)	4
6-D1	ED514721	Silicon Diode WG-599	2
6-SW1	ES371924	Slide SW. CLB2102-B4	1
6-VR1	EV522797	Semi-fixed/Vol. V8K4-1 20 kB	2
6-VR2	EV464196	Semi-fixed/Vol. V8K4-1 2 kB	2
6-L1	EO244001	Ferri Inductor FL9H 10MH(J)	2
6-L2	EO308395	Ferri Inductor FL7H 3MH(J)	2
		Capacitor, Vertical Type	
6-C1	EC432810	Elect. 10μF 16WV NL	2
6-C2	EC516767	Styrol 470PF(K) 50WV	2
6-C3	EC562678	Styrol 750PF(J) 50WV	2
6-C4	EC476976	Elect. 33μF 10WV NL	2
6-C5	EC290531	VFM 100PF(K) 50WV	2
6-C6	EC450527	Elect. 4.7μF 25WV	2
6-C7	EC220590	Elect. 33μF 10WV	2
6-C8	EC311793	Mylar 0.012μF(J) 50WV	2
6-C9	EC302253	Mylar 0.15μF(K) 50WV	2
6-C10	EC220151	Elect. 100μF 25WV	2
6-C11	EC434070	Styrol 680PF(J) 50WV	2
6-C12	EC313108	Elect. 1μF 50WV	1
6-C13	EC516712	Styrol 220PF(K) 50WV	2
6-C14	EC320051	Elect. 10μF 16WV	2
6-C15	EC329771	Elect. 47μF 6.3WV	2
6-C16	EC368335	Mylar 0.022 F(J) 50WV	2
6-C17	EC220612	Elect. 33μF 25WV	2
6-C18	EC402388	VFM 39PF(J) 50WV	2
6-C19	EC435690	Styrol 560PF(J) 50WV	2
6-C20	EC307664	Elect. 33μF 6.3WV	2
6-C21	EC320051	Elect. 10μF 16WV	2
6-C22	EC450055	Elect. 1μF 25WV	2
6-C23	EC516712	Styrol 220PF(K) 50WV	2
6-C24	EC516723	Styrol 270PF(K) 50WV	2

Symbol No.	Parts No.	Description	Q'ty
		Resistor, Stopper Type	
6-R1	ER214290	Carbon RD1/4 4.7k(J) (Insu. Type)	2
6-R2	ER213715	Carbon RD1/4 100k(J) (Insu. Type)	2
6-R3	ER211757	Carbon RD1/4 100k(J)	2
6-R4	ER399060	Carbon RD1/4 9.1k(J)	2
6-R5	ER465276	Carbon RD1/4 270k(J) NL	2
6-R6	ER336442	Carbon RD1/4 10k(J)	2
6-R7	ER212264	Carbon RD1/4 22k(J)	2
6-R8	ER211757	Carbon RD1/4 100k(J)	2
6-R9	ER347073	Carbon RD1/4 200(J)	2
6-R10	ER350100	Carbon RD1/4 68k(J)	2
6-R11	ER212883	Carbon RD1/4 4.7k(J)	2
6-R12	ER336442	Carbon RD1/4 10k(J)	2
6-R13	ER213030	Carbon RD1/4 5.6k(J)	2
6-R14	ER212264	Carbon RD1/4 22k(J)	2
6-R15	ER211757	Carbon RD1/4 100k(J)	2
6-R16	ER429996	Carbon RD1/4 470k(J)	2
6-R17	ER212264	Carbon RD1/4 22k(J)	2
6-R17	ER430121	Carbon RD1/4 (J) (Deck)	2
6-R18	ER212883	Carbon RD1/4 4.8k(J)	2
6-R19	ER306887	Carbon RD1/4 15k(J)	2
6-R20	ER212883	Carbon RD1/4 4.7k(J)	2
6-R21	ER212016	Carbon RD1/4 150(J)	2
6-R22	ER357491	Carbon RD1/4 82k(J)	2
6-R23	ER211757	Carbon RD1/4 100k(J)	2
6-R24	ER362441	Carbon RD1/4 1.8k(J)	2
6-R25	ER213300	Carbon RD1/4 680(J)	2
6-R26	ER212264	Carbon RD1/4 22k(J)	2
6-R27	ER357570	Carbon RD1/4 150k(J)	2
6-R28	ER306887	Carbon RD1/4 15k(J)	2
6-R29	ER430018	Carbon RD1/4 1(J)	2
6-R30	ER336442	Carbon RD1/4 10k(J)	2
6-R31	ER211465	Carbon RD1/4 1k(J)	2
6-R32	ER430053	Carbon RD1/4 22(J)	2
6-R33	ER211465	Carbon RD1/4 1k(J)	2

FIG. 8 PHOTO OF POWER/SYS. CON. P.C. BOARD (EG-5014) BLOCK

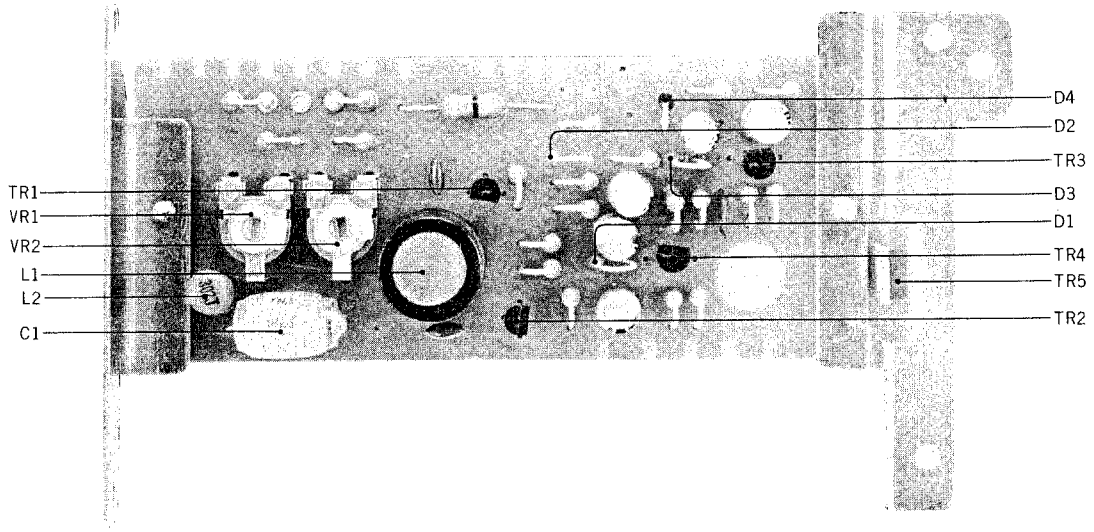


POWER/SYS. CON. P.C. BOARD (EG-5014) BLOCK

Symbol No.	Parts No.	Description	Q'ty
8-1x	BA556964	Power, Sys. Con. P.C. Board Comp. (EG-5014)	1
8-2x	BA556975	Power, Sys. Con. P.C. Board Comp. (EG-5014) (Deck)	1
8-3x	BA558821	Power, Sys. Con. P.C. Board Comp. (EG-5014) (UL)	1
8-4x	BA558832	Power, Sys. Con. P.C. Board Comp. (EG-5014) (D-UL)	1
8-TR1	ET517375	Transistor 2SD360(D) (E)	1
8-TR2to4	ET520841	Transistor 2SC711(E)(F)(G)	3
8-D1to4	ED494583	Silicon Diode 10D05	4
8-D5	ED494583	Silicon Diode 10D05 (Deck)	1
8-D6	ED557111	Zener Diode WZ-210	1
8-D7, 8	ED516420	Silicon Diode WG-599	2
8-D9	ED224550	Silicon Diode 10D4	1
8-D10to13	ED219464	Germanium Diode 1N34A	4
8-SW1, 2	ES250086	Micro SW. VV-15-1A U/L	2
8-SW3	ES479485	Slide SW. S-1	1
8-CR1to5	ER376413	Spark Quencher U/L 0.033μ+120Ω 500WV	5
8-RL1	EP344136	Relay MY4-O-US-AD4 24V	1
8-FR1	ER574841	Fuse/R. FRN1/2 4.7ΩK 250mA	1
8-5	WM543576	Micro SW. Plate	1
8-6	ZS393388	Screw, round head 3x25	2
8-7	ZS417137	Screw, binding head 3x4	2
8-8	EZ543587	Heat-sink Plate	1
8-9	ZS413741	Screw, binding head 3x8	1
8-10	ZW273756	Nut M3	1
8-11	ZS413728	Screw, binding head 3x6, w/washer	2
8-12x	EJ514822	Fuse Holder, P.C. Board S-N5051	2
8-13x	EF277402	Fuse ST-2 1A	1

Symbol No.	Parts No.	Description	Q'ty
		Capacitor, Vertical Type	
8-C1, 2	EC303592	Elect. 1,000μF 35WV	2
8-C2	EC444082	Elect. 470μF 35WV (Deck)	1
8-C3, 4	EC220151	Elect. 100μF 25WV	2
8-C5	EC320051	Elect. 10μF 16WV	1
8-C6	EC329782	Elect. 220μF 10WV	1
8-C7	EC562577	Elect. 47μF 160WV	1
8-C8	EC557087	MP 1μF(K) 250WV (Tub. Type)	1
8-C9, 10	EC557098	MP 1.5μF(K) 250WV (Tub. Type)	2
		Resistor, Stopper Type	
8-R1	ER215234	Carbon RD1/2 4.7(K)	2
8-R2	ER305627	Carbon RD1/4 1k(J)	1
8-R3	ER361642	Carbon RD1/4 47(J)	1
8-R4to7	ER304345	Carbon RD1/4 4.7k(J)	4
8-R9,10	ER213300	Carbon RD1/4 680(J)	2
8-R11	ER407463	Carbon RD1/4 22(J)	1
8-R12	ER562634	Wire-wound 1/2 2.2(K) (P Type)	1
8-R13to16	ER352067	Carbon RD1/4 3.9k(J)	4
8-R17, 18	ER211465	Carbon RD1/4 1k(J)	2

FIG. 9 PHOTO OF OSC. P.C. BOARD (EG-3013) BLOCK



OSC. P.C. BOARD (EG-3013) BLOCK

Symbol No.	Parts No.	Description	Q'ty
9-1x	BA556931	Osc. P.C. Board Comp. (EG-3013)	1
9-TR1, 2	ET511694	Transistor 2SC1211(D) (E)	2
9-TR3, 4	ET517994	Transistor 2SC945(P) (Q) (R) (K)	2
9-TR5	ET517375	Transistor 2SD360(D) (E)	1
9-D1,2,3	ED514721	Silicon Diode WG-599	3
9-D4	ED511097	Siiicon Diode 1N4001	1
9-L1	EO453521	Osc. Coil OT-803	1
9-L2	EO308395	Ferri Inductor FL7H 3MH(J)	1
9-VR1,2	EV499882	Semi-fixed/Vol. V10K8-4-2 300 kB	2
		Capacitor, Vertical Type	
9-C1	EC343372	Plastic Film 1,800PF(J) 500WV	1
9-C2,3	EC302321	Mylar 0.01μF(J) 50WV	2
9-C4	EC220994	Elect. 10μF 25WV	1
9-C5	EC329771	Elect. 47μF 6.3WV	1
9-C6	EC450281	Elect. 0.47μF 50WV	1
9-C7, 8	EC331738	Elect. 4.7μF 50WV	2
9-C9	EC420423	Mylar 0.01μF(M) 50WV	1
		Resistor, Stopper Type	
9-R1, 2	ER211757	Carbon RD1/4 100k(J)	2
9-R3	ER304345	Carbon RD1/4 4.7k(J)	1
9-R4, 5	ER336406	Carbon RD1/4 3.3(J)	2
9-R6	ER304378	Carbon RD1/4 470(J)	1
9-R7	ER552780	Carbon RD1/2 47(J)	1
9-R8	ER350122	Carbon RD1/4 68k(J)	1
9-R9	ER212264	Carbon RD1/4 22k(J)	1
9-R10	ER304345	Carbon RD1/4 4.7k(J)	1
9-R11	ER349740	Carbon RD1/4 10k(J)	1
9-R12	ER305627	Carbon RD1/4 1k(J)	1
9-R13	ER211465	Carbon RD1/4 1k(J)	1
9-R14	ER357557	Carbon RD1/4 39k(J)	1
9-R15,16	ER349740	Carbon RD1/4 10k(J)	2
9-R17	ER306944	Carbon RD1/4 22k(J)	1
9-R18	ER305627	Carbon RD1/4 1k(J)	1
9-R19	ER306887	Carbon RD1/4 15k(J)	1
9-R20	ER211757	Carbon RD1/4 100k(J)	2

FIG. 10 PHOTO OF FINAL ASSEMBLY BLOCK

FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
		FRONT PANEL BLOCK		
10-1x	BZ557021	Front Panel Block Comp.	EG	1
10-2x	BZ557032	Front Panel Block comp. (Deck)	EG	1
10-3	SP543431	Front Panel C	EG-6001	1
10-4x	SP543870	Front Panel D (Deck)	EG-6001	1
10-5	WM371531	Cart. Escutcheon	ED-606	1
10-6	WM544713	Cart. Plate GX	ED-607	1
10-7x	WM371553	Cart. Shaft	ED-608	1
10-8x	ZG371564	Cart. Spring	ED-609	1
10-9x	WM533564	Screw, Flange Head	ED-6006	4
10-10	SZ378426	Lamp Indication (Red)	AA-5612	1
10-11x	WM549033	Pause Lamp Cover B (5x25x10t)	EG-5062	1
10-12	WM549988	Lens Holder C	EG-6009	4
10-13	WM549990	Lamp Lens C (Blue)	EG-6008	4
10-14	WM549055	Lamp Indication B (Orange)	AA-5612	1
10-15x	UM494267	Lamp Cover (D14x26x12t)	CG-2206	1
10-16x	WM371575	Moltplane (10x300x3t)	ED-610	1
10-17x	UM433361	Lamp Mask (S10x25:30x45x10t)	ED-A620	1
10-18x	WM474355	Lamp Mask (6x65x12t)	ED-C604	1
		FINAL ASSEMBLY BLOCK		
10-19	WM370765	Side Plate	ED-107	2
10-20	ZS589836	Screw, oval countersunk head 3x18		8
10-21	ZW463285	Decorative Washer M3		8
10-22x	ZW259492	Washer (PBP) D3.1x8x0.3t		8
10-23x	SM543317	Back Name Plate A	EG-5017	1
10-24	SM545938	Back Name Plate C (UL)	EG-5017	1
10-25x	SM543328	Back Name Plate B (Deck)	EG-5017	1
10-26x	SM545940	Back Name Plate D (D-UL)	EG-5017	1
10-27	ZW526577	Collar B, Jack	MC-5006	2
10-28	EZ436217	Collar for Jack	MC-5006	1
10-29	SP583031	Lower Cover G	ED-618	1
10-30x	SP543453	Lower Cover F (Deck)	ED-618	1
10-31	SA371654	Foot, ED	ED-620	4
10-32x	ZW516431	Tapping Screw #2 4x10 binding		4
10-33x	ZS447772	Tapping Screw #2 3x6 (BR)		6
10-34x	ZS417137	Screw, binding head 3x4		3
10-35	BC458976	ED Upper Cover Comp.	ED-630	1
10-36	SK409511	Amp. Knob D Comp.	LF-6025	2
10-37	SK409476	Amp. Knob B Comp.	LF-6023	2
10-38x	SK543881	Amp. Knob Comp. (Deck)	ED-C606	2
10-39x	EF389575	Fuse ST-4 0.7A	39-1-28	1
10-40x	EF277402	Fuse ST-2 1A	39-1-26	1

When ordering parts, please describe Parts Number, Serial Number, and Model Number in detail.

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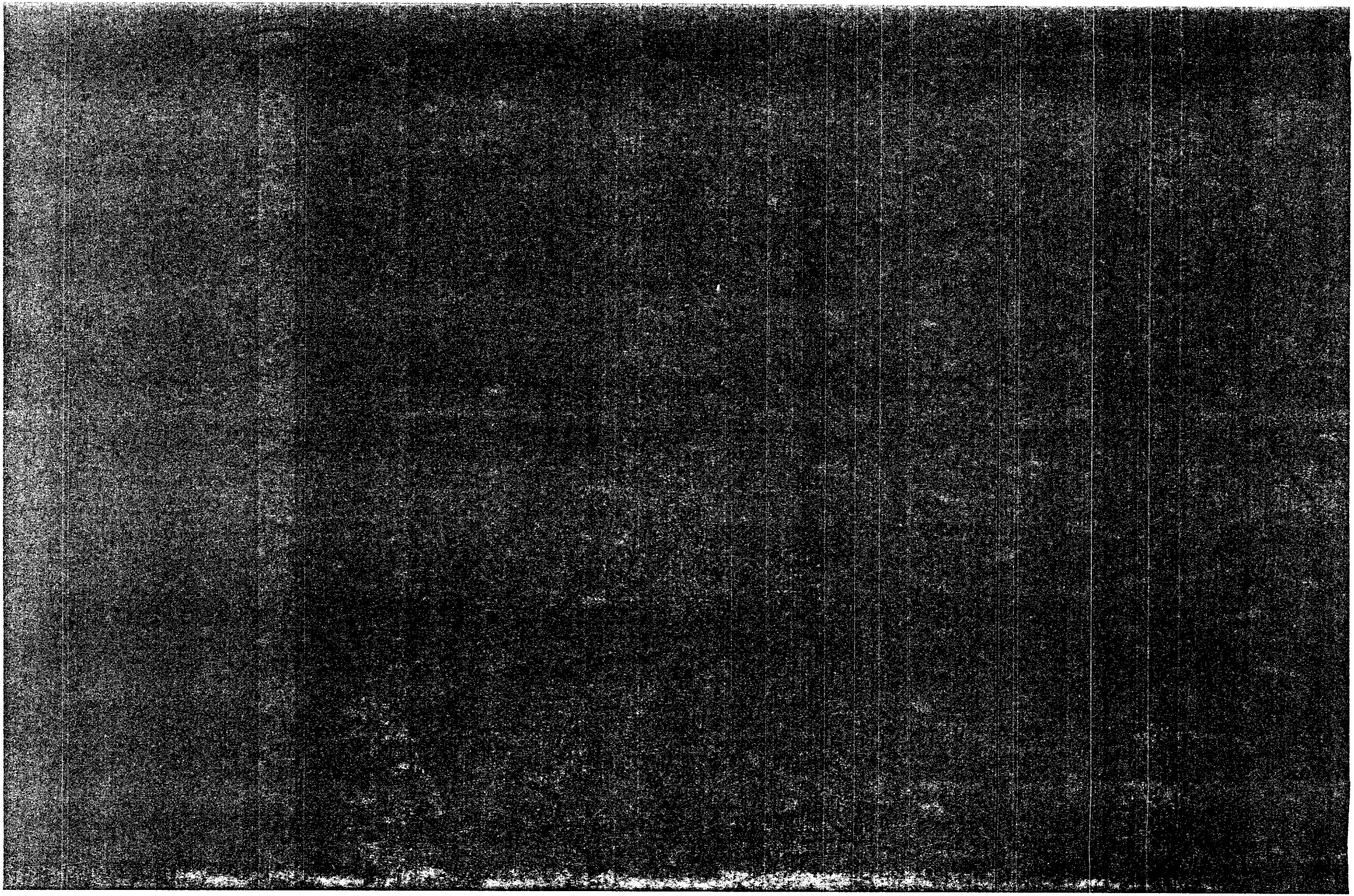
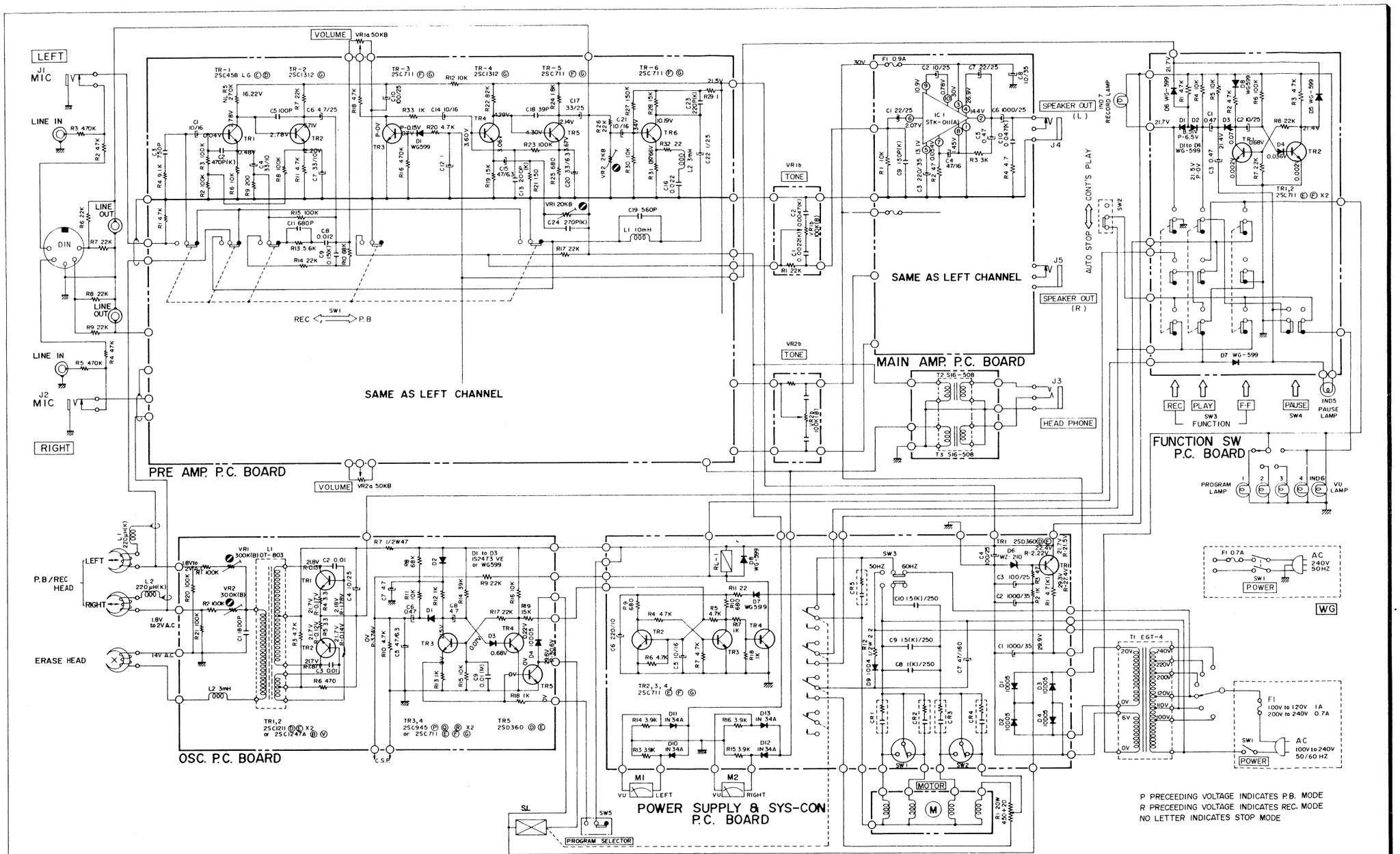
SECTION 3

SCHEMATIC DIAGRAM

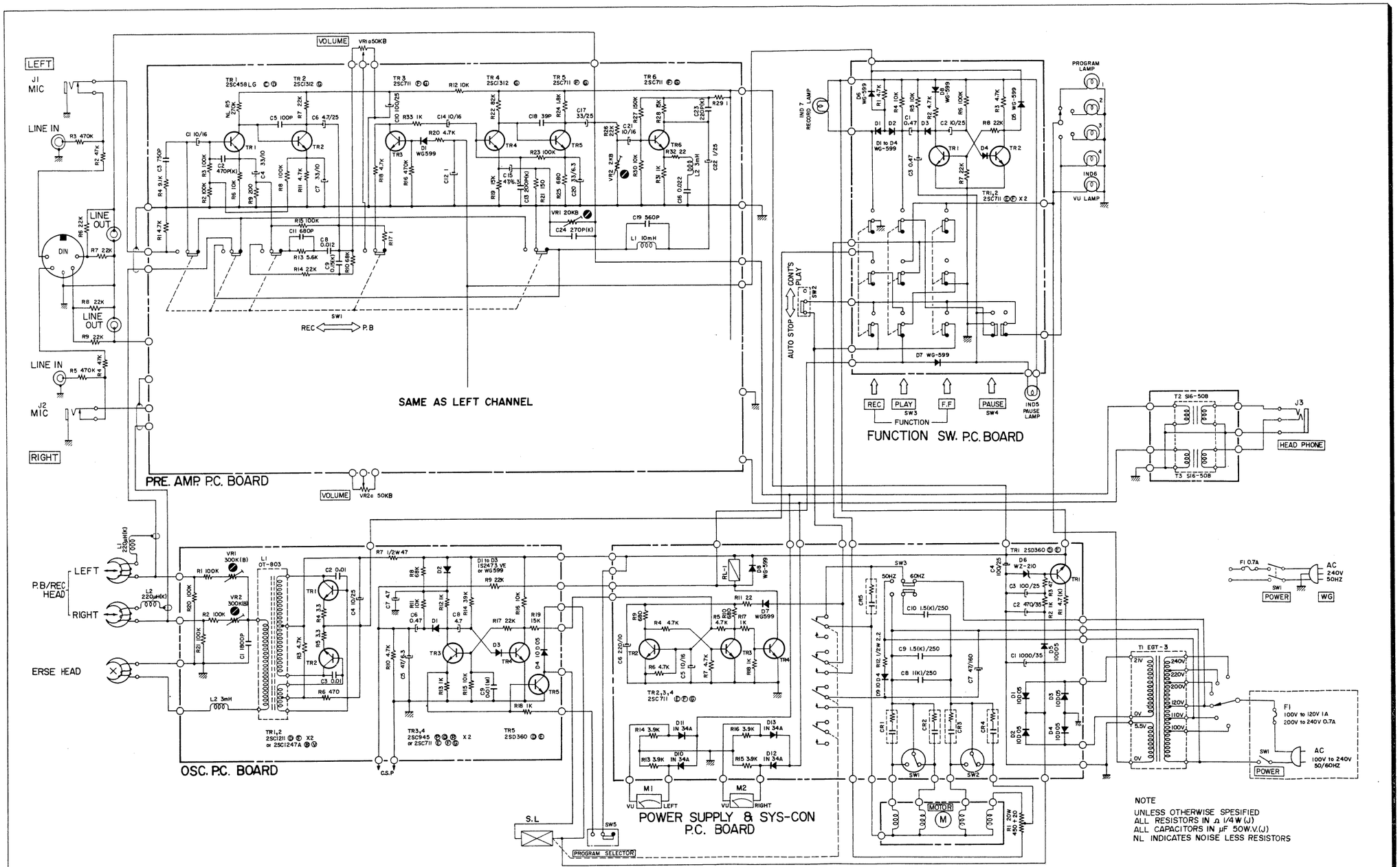
1. GXR-82 SCHEMATIC DIAGRAM
2. GXR-82D SCHEMATIC DIAGRAM





NOTE
UNLESS OTHERWISE SPESIFIED
ALL RESISTORS IN Ω 1/4W (J)
ALL CAPACITORS IN μF 50W.V.(J)
NL INDICATES NOISE LESS RESISTORS

GXR-82
SCHEMATIC DIAGRAM
NO.2-1 1480460A 2C



NOTE
UNLESS OTHERWISE SPESIFIED
ALL RESISTORS IN Ω 1/4W (J)
ALL CAPACITORS IN μF 50W.V.(J)
NL INDICATES NOISE LESS RESISTORS

GXR-82D
SCHEMATIC DIAGRAM
NO. 2-2 1480461A