ECHO CHAMBER

RE-201/101

SERVICE NOTES

CONTENTS

SECOND EDITION July 30, 1978

All of the information contained in the first edition and the supplement is collected in this second edition.

Roland

Oct. 1984 C-2

Printed in Japan Apr. 1982 A-3

SPECIFICATIONS

	RE-201	RE-101
Supply Voltage	100/117/220/230/240V, 50/60Hz	
Power Consumption	16W	15W
Dimensions	415(W) x 275(D) x 185(H)mm	16.5(W) x 10.8(D) x 7.3(H)in
Weight	9.5Kg, 2.1 lbs.	9.2Kg, 2.0 lbs.
Accessories	Connection Cord (2) Foot Switch (FS-1) Endless Tape (RT-1) Cleaner Vinyl Cover	
S/N Ratio	60dB - "A" weighted	

INPUT

	MIC	INSTRUMENT	FROM PA
Input Level	-50dBm(2.4mV)	-24dBm(44mV)	-24dBm(44mV)
Input Impedance	0.9Kohm	16Kohm	100Kohm

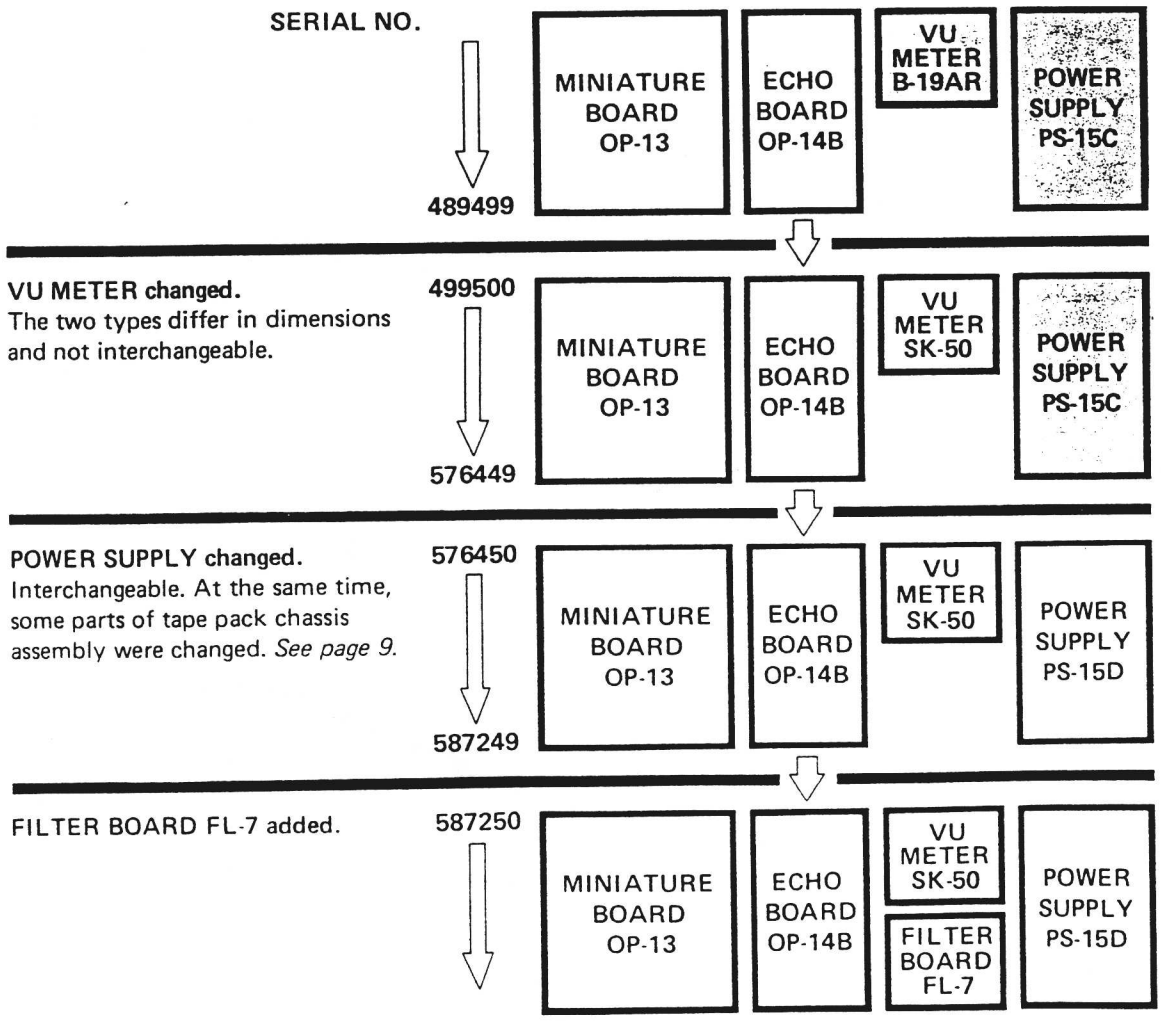
OUTPUT

	H	M	L
Output Level	-15dBm(140mV)	-23dBm(54mV)	-35dBm(14mV)
Output Impedance	1.4Kohm	1.5Kohm	0.5Kohm

Roland

RE-201

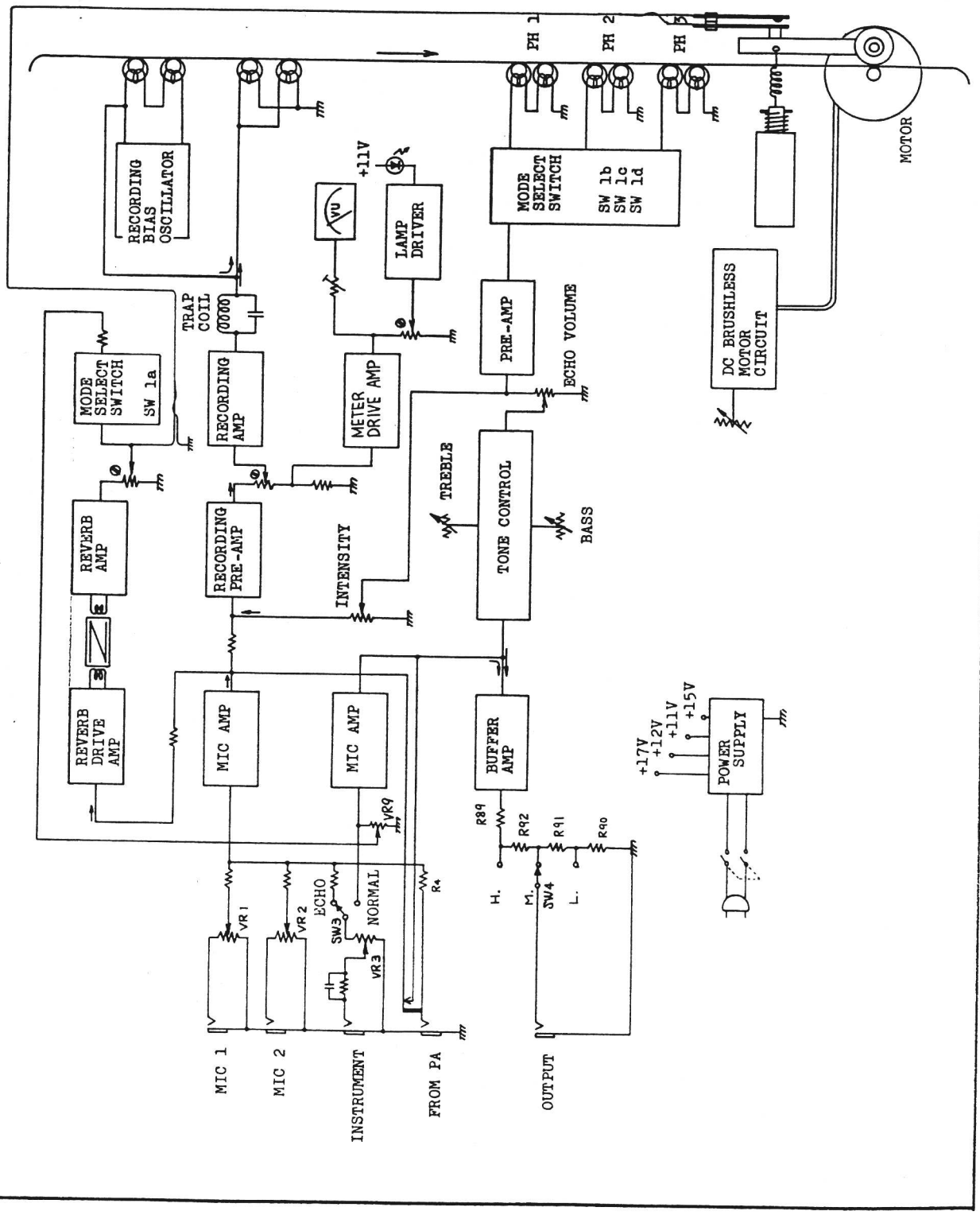
MOTOR
Initially — CDM-131019 (not available now)
Serial No. 331200 and higher — M-502E-B02
See page 8 for replacing CDM-131019 by M-502E-B02.



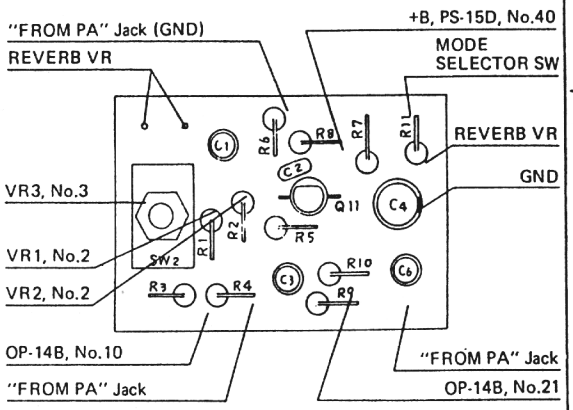
Roland

When ordering parts, never fail to declare:
(1) Model, (2) Serial No., (3) Parts No. and (4) Parts Designation and/or Rating.

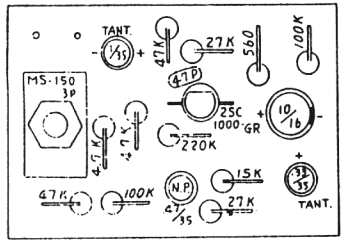
BLOCK DIAGRAM



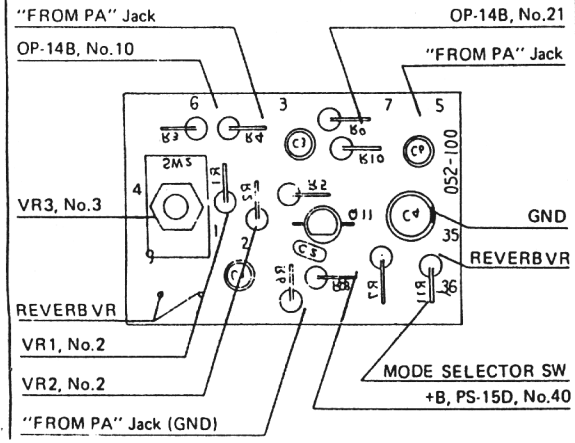
MINIATURE BOARD OP-13 (149-013)



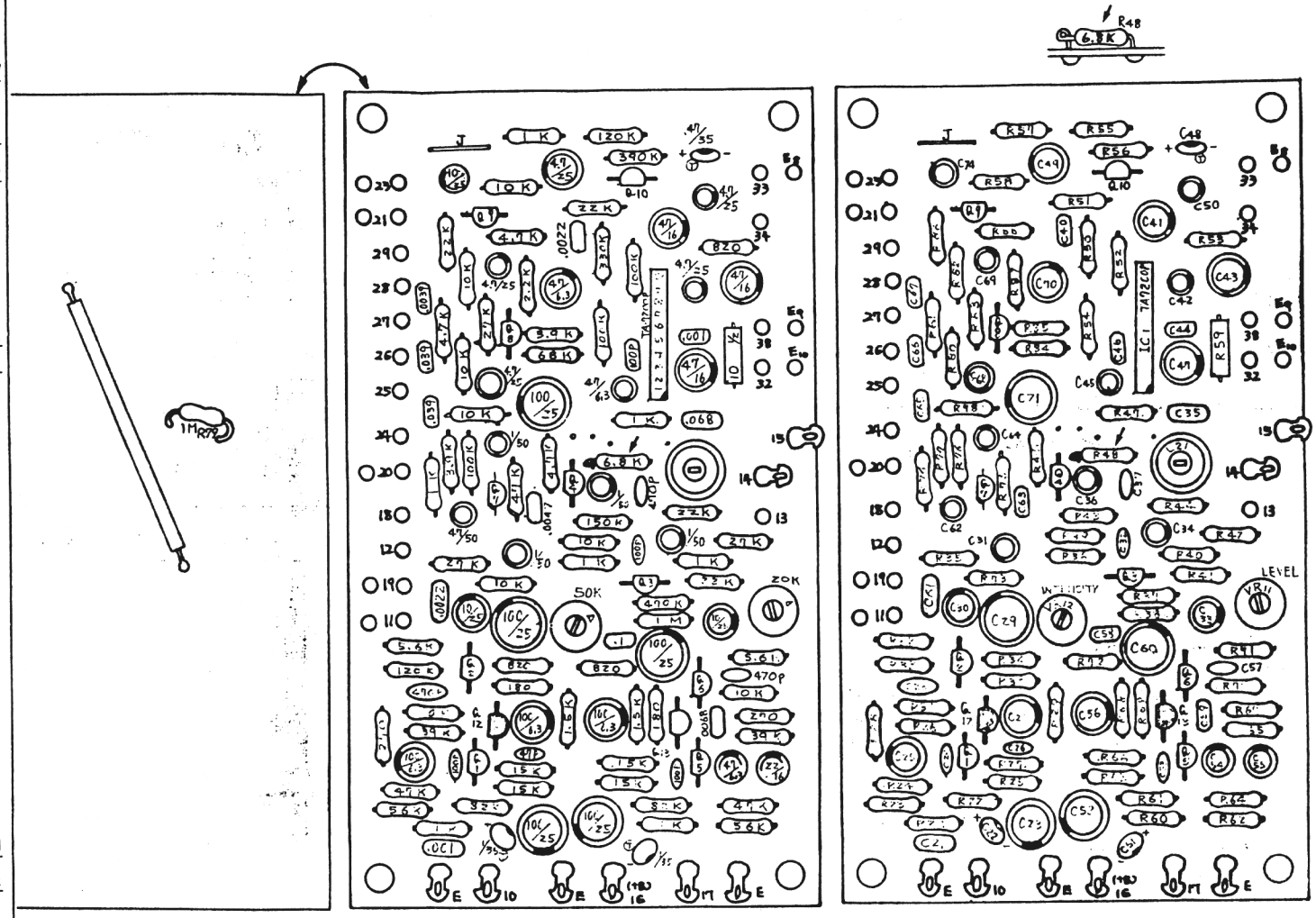
SW2:
MS-150 → 8A-1011 (Serial No. 598100 and higher)
8A-1011 is more rigid.
Interchangeable by slightly modifying the mounting hole.



VIEWED FROM FOIL SIDE



ECHO BOARD OP-14B (149-014B)



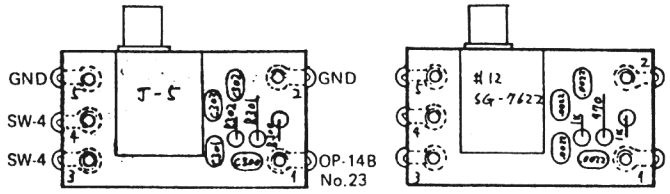
Tr1-10 ..... 2SC-1000 GR

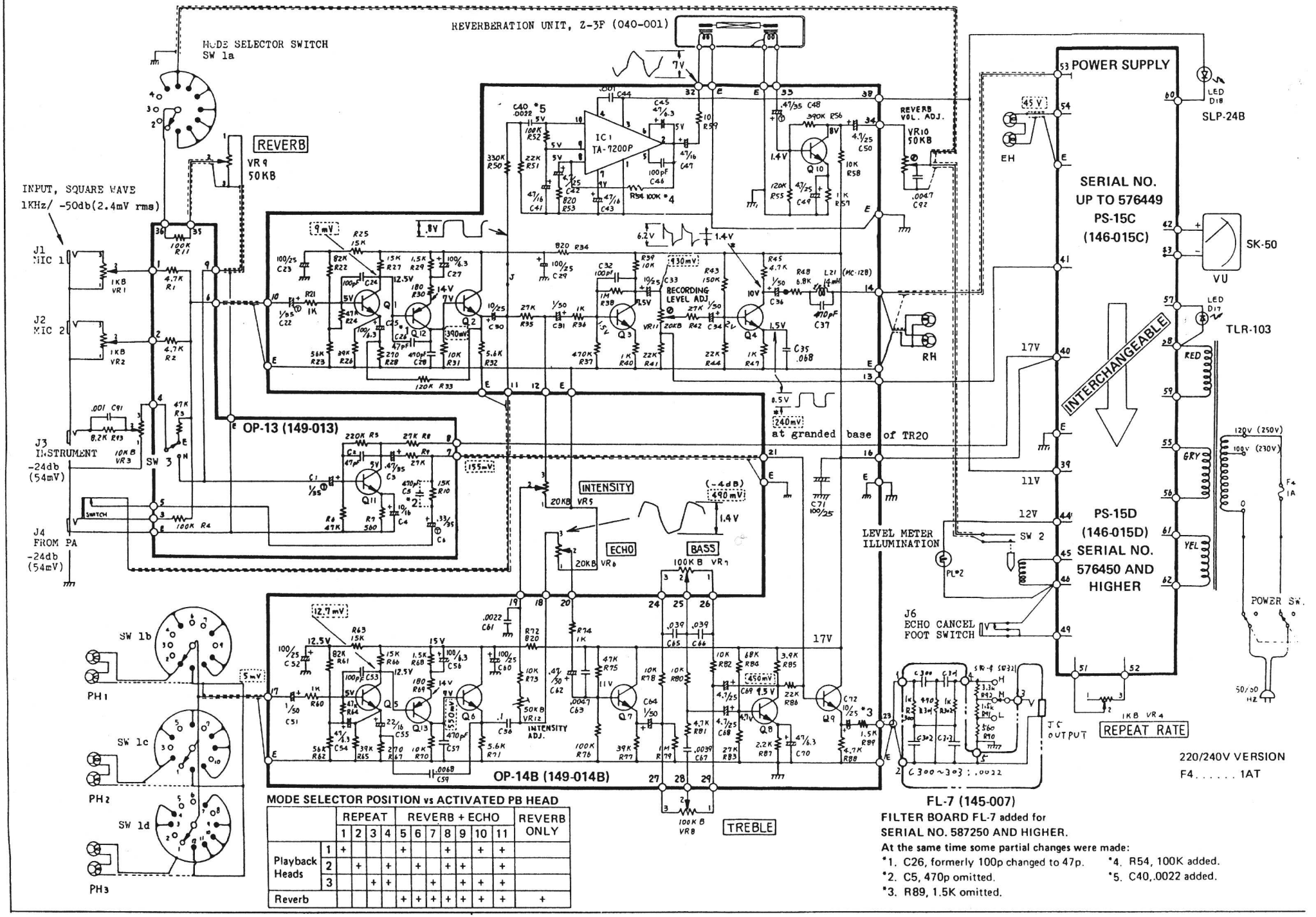
Tr12, 13 ..... 2SA493 GR

-⊖+ ..... Tantalum Capacitor

FILTER BOARD FL-7 (145-007)

For Serial No. 587250 and higher

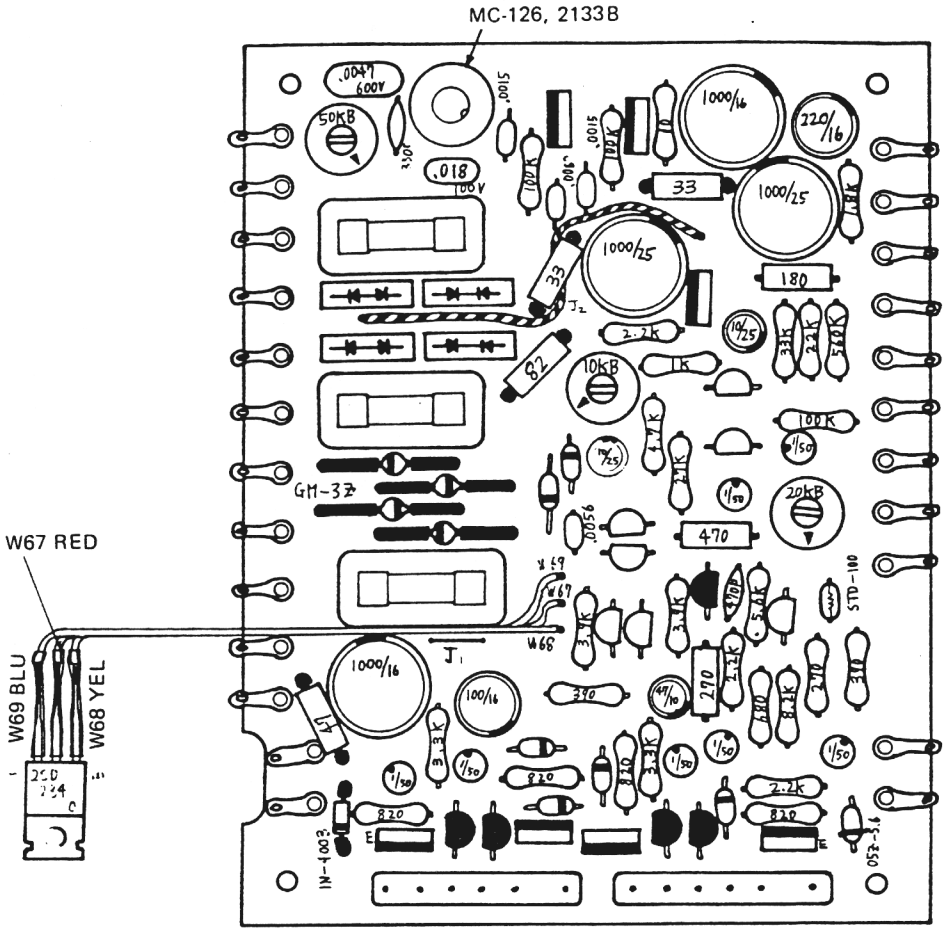


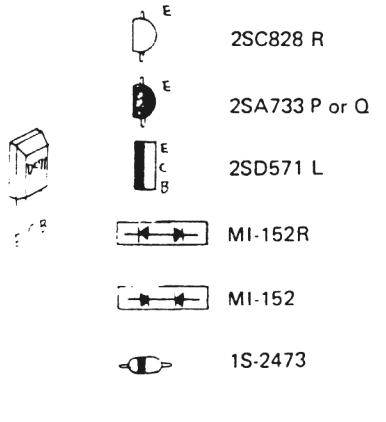


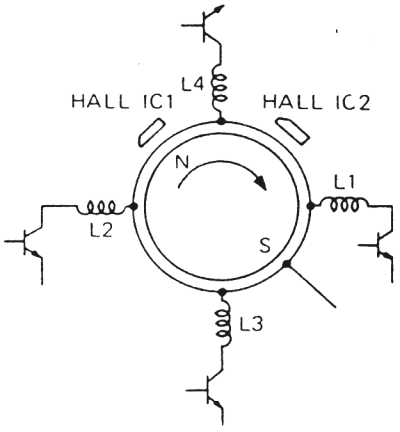
MODE SELECTOR POSITION vs ACTIVATED PB HEAD

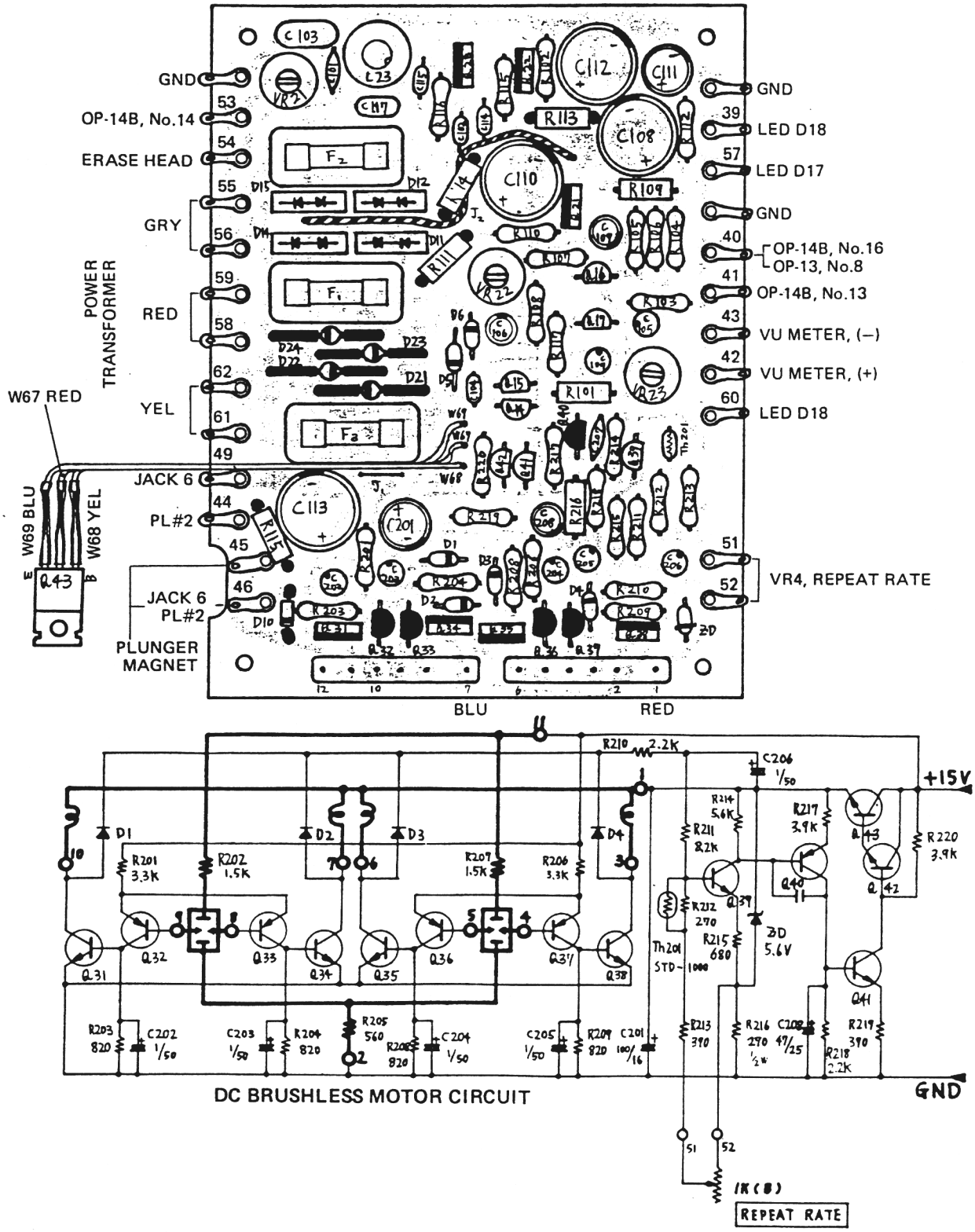
		REPEAT				REVERB + ECHO							REVERB ONLY
		1	2	3	4	5	6	7	8	9	10	11	
Playback Heads	1	+				+			+		+	+	
	2		+		+		+		+	+		+	
	3			+	+			+		+	+	+	
Reverb						+	+	+	+	+	+	+	+

POWER SUPPLY PS-15D (146-015D)









DC BRUSHLESS MOTOR CIRCUIT

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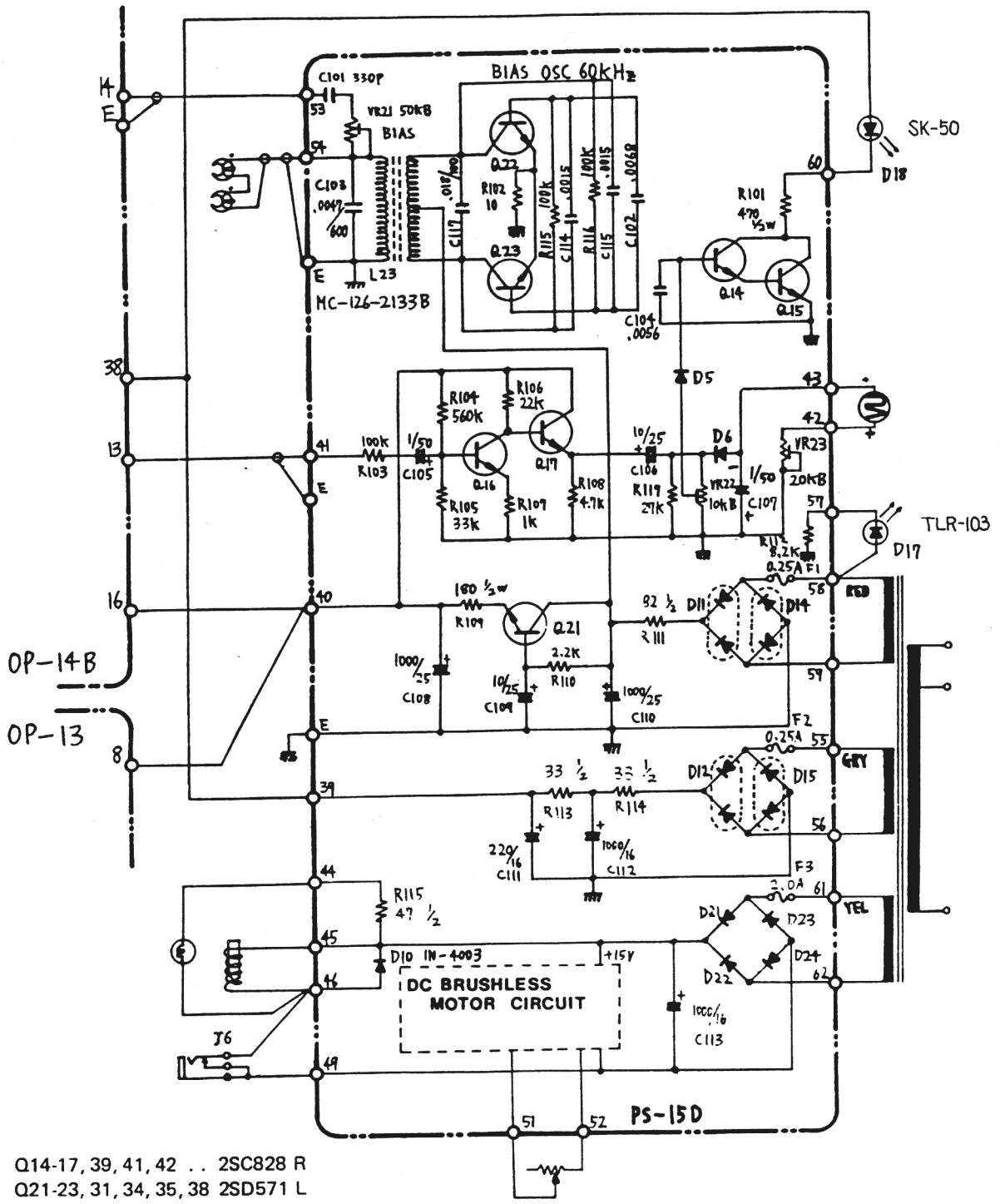


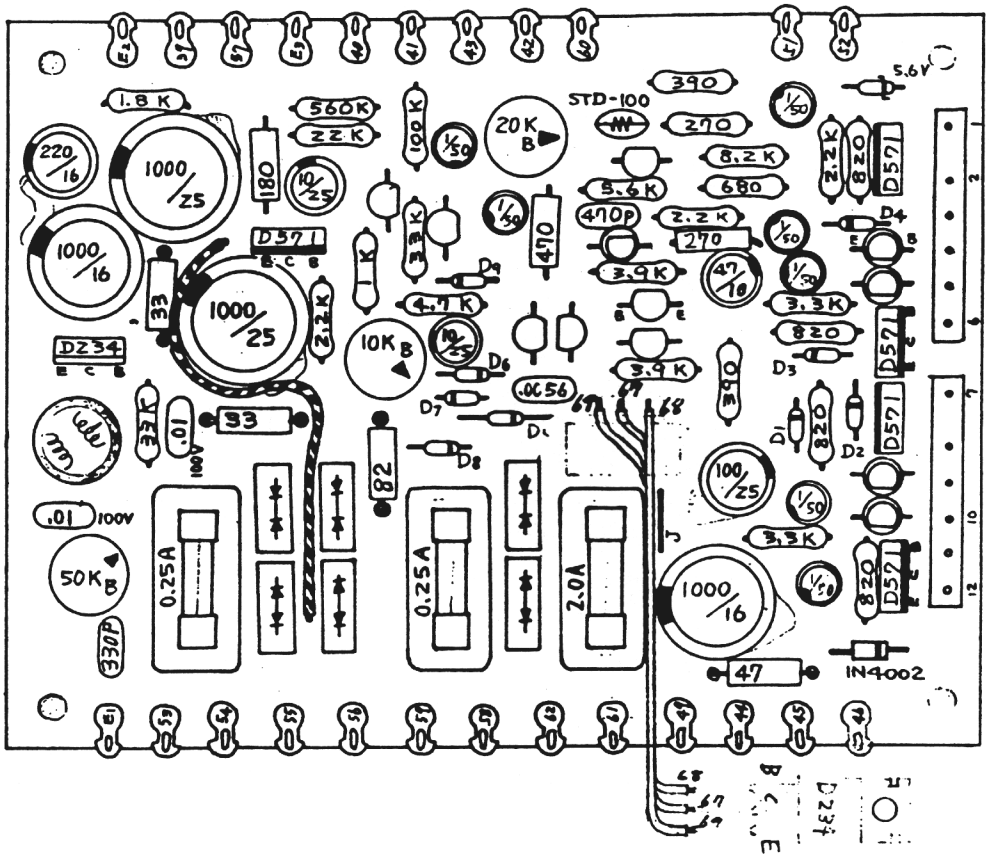
Q14-17, 39, 41, 42 . . 2SC828 R
Q21-23, 31, 34, 35, 38 2SD571 L
Q32, 33, 36, 37, 40 . . 2SA733 P or 2SA493 GR
Q43 . . . . . 2SD234 O

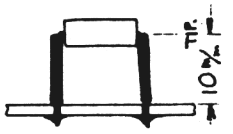
D1-6 . . . . . 1S2473
D21-24 . . . . . GM-3Z
D11, 12 . . . . . MI-152
D14, 15 . . . . . MI-152 R
D10 . . . . . 1N4003

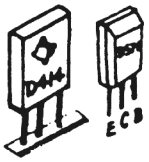
Th201 . . . . . STD-100, 1kΩ at 25°C
ZD 05Z-5.6 (5.6V, 500mW)
L23 . . . . . MC-126-2133B, No.94

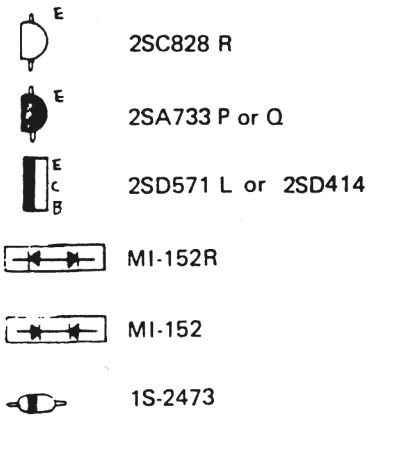
220/240V (J) VERSION
F1. . . . . 250mAT
F2. . . . . 250mAT
F3. . . . . 1.6AT

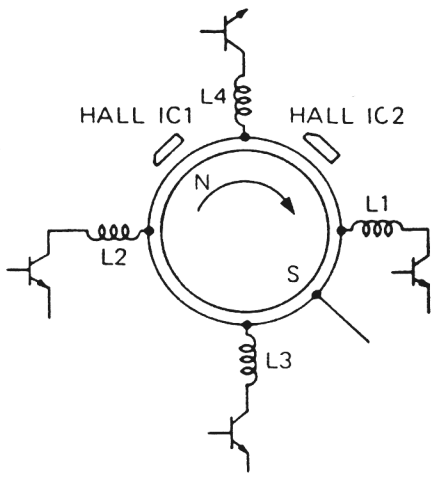
POWER SUPPLY PS-15C (146-015C)











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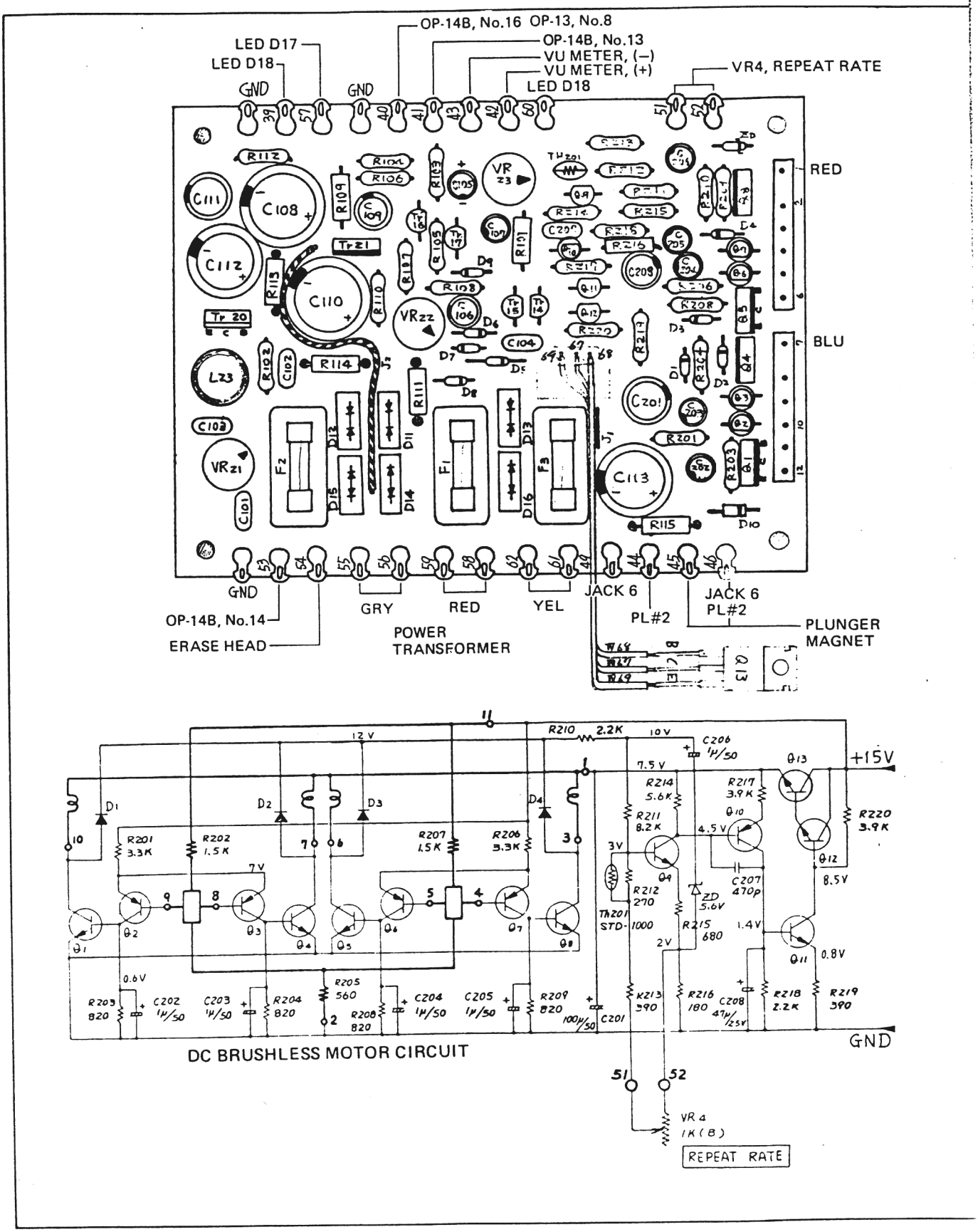
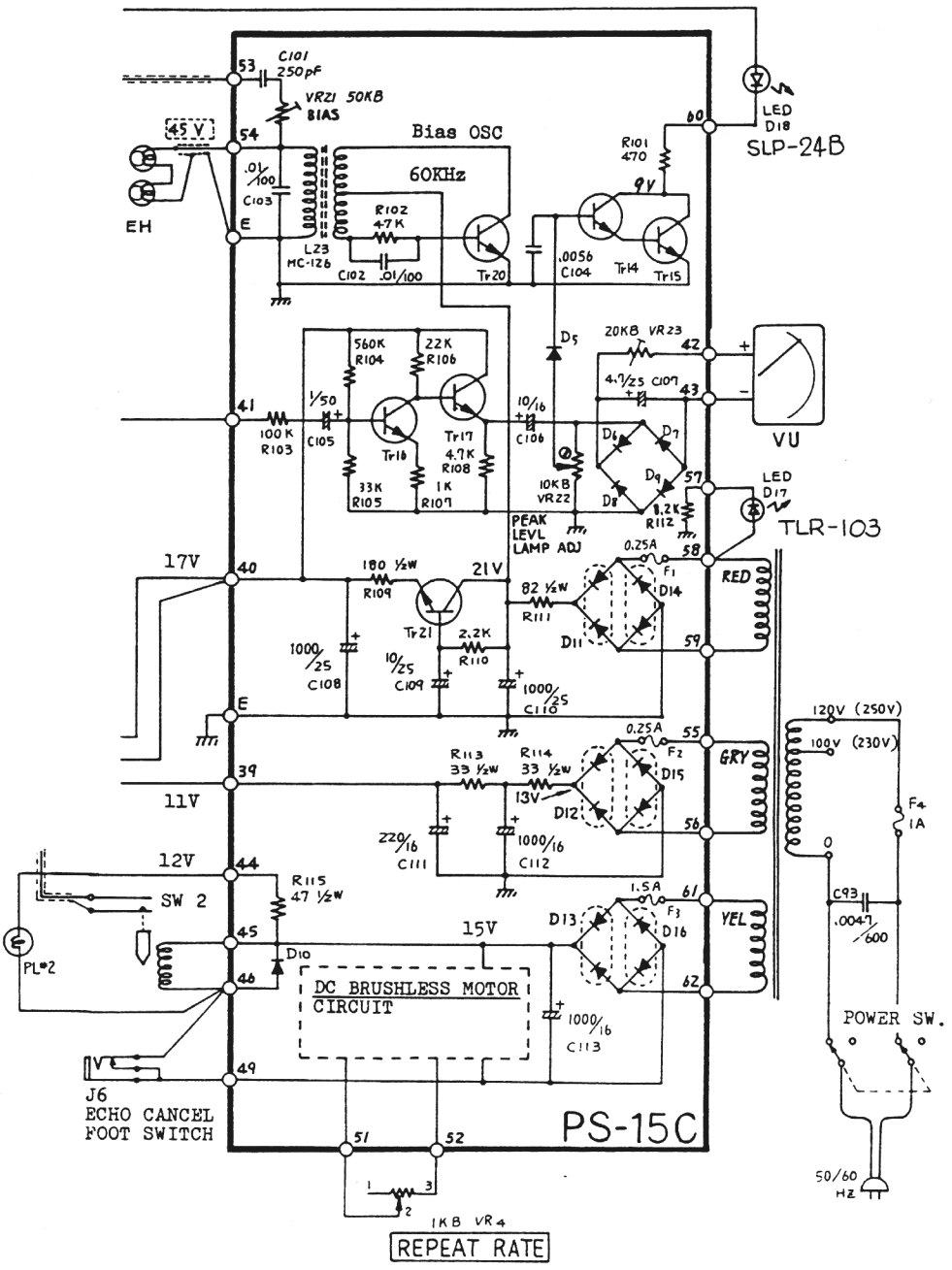

OP-14B, No.16 OP-13, No.8
OP-14B, No.13
VU METER, (–)
VU METER, (+)
LED D18
VR4, REPEAT RATE
LED D17
LED D18
GND
GND
RED
BLU
GND
OP-14B, No.14
ERASE HEAD
GRY
RED
YEL
POWER TRANSFORMER
JACK 6 PL#2
JACK 6 PL#2
PLUNGER MAGNET
DC BRUSHLESS MOTOR CIRCUIT
+15V
GND
VR 4 1K(B)
REPEAT RATE

Roland

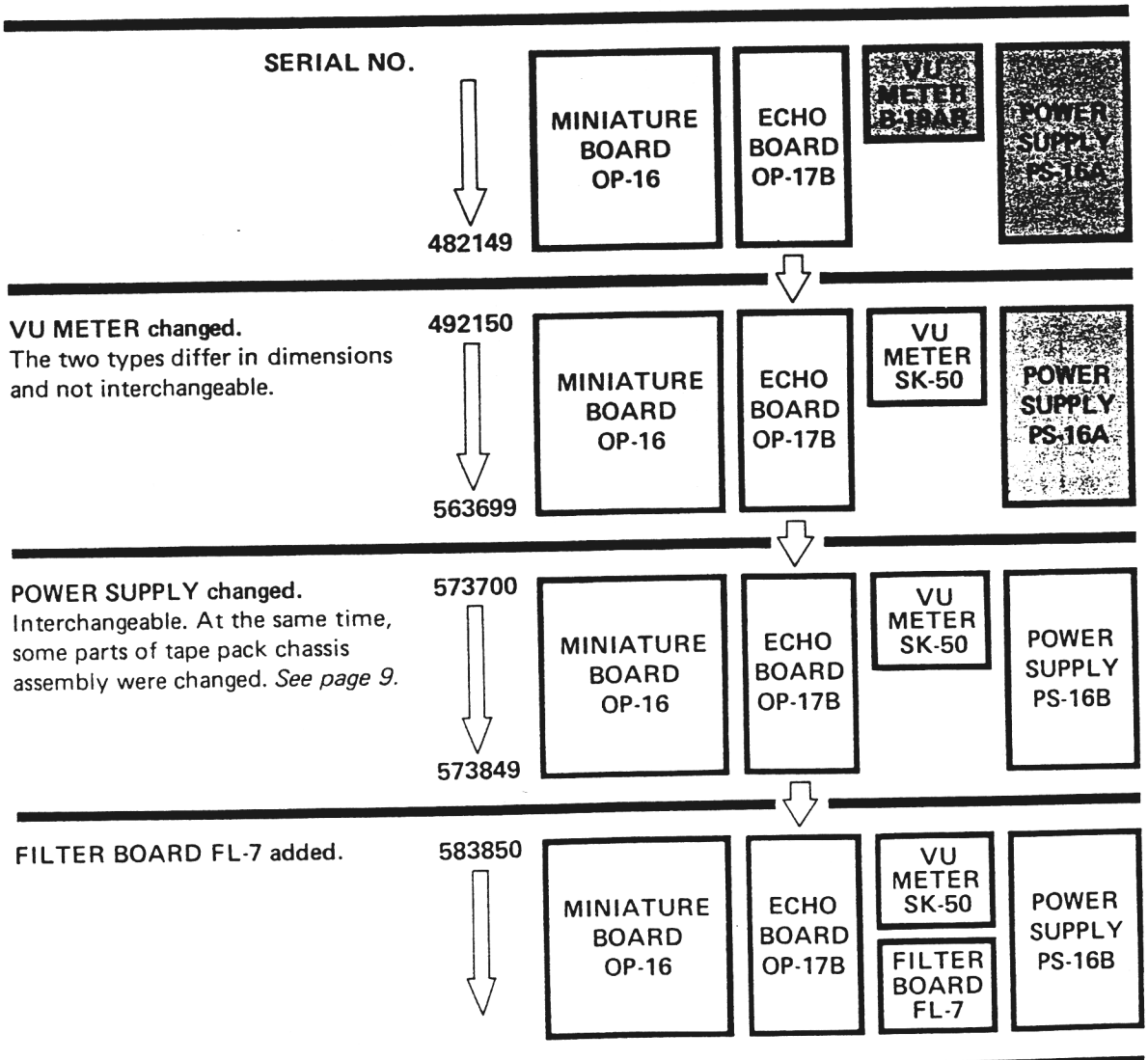


Tr14-17, Q9, 11, 12	2SC828 R
Tr20, Q13	2SD234 O
Tr21, Q1, 4, 5, 8	2SD571 L or 2SD414 Q *1
Q2, 3, 6, 7, 10	2SA493 GR or 2SA733 P
D1-9	1S2473
D10	1N4002
D11-13	1S1850 (CSA) or MI-152
D14-16	1S1850 (CSA) or MI-152 R
L23	MC-126, No.46

(*1) Q1, 4, 5, and 8 must be same class of same transistor.

RE-101

MOTOR
Initially — CDM-131019 (not available now)
Serial No. 330300 and higher — M-502E-B02
See page 8 for replacing CDM-131019 by M-502E-B02.



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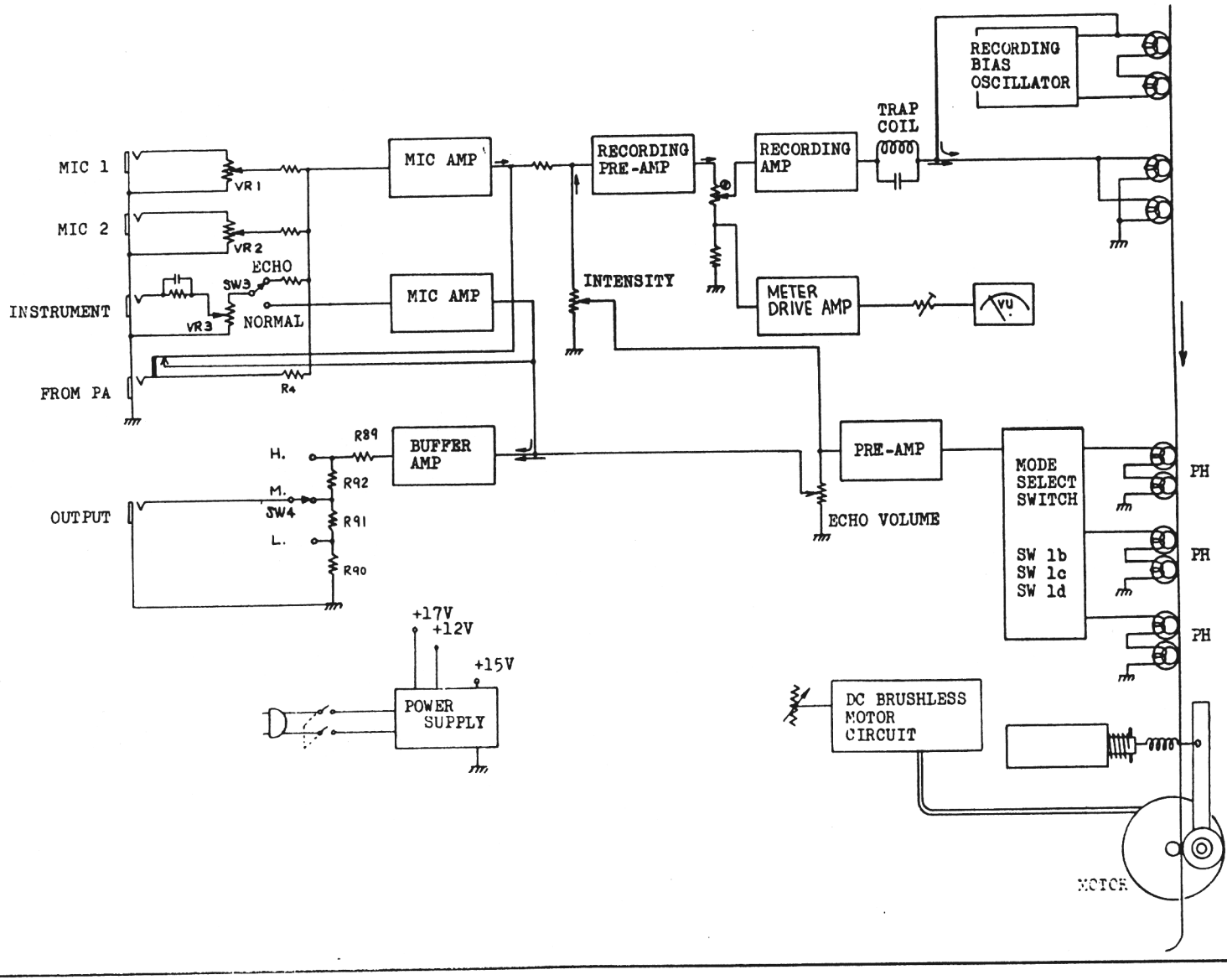
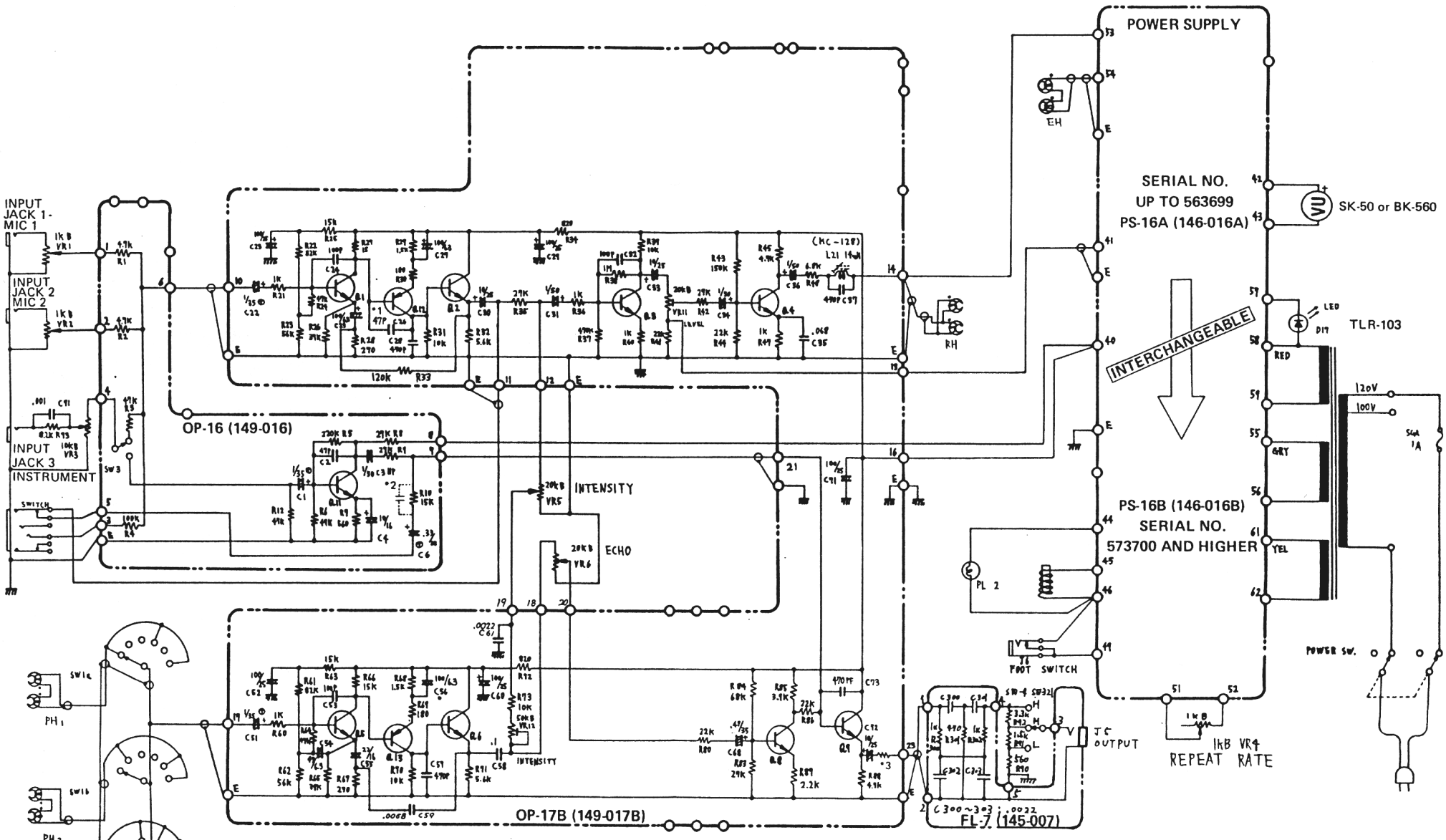




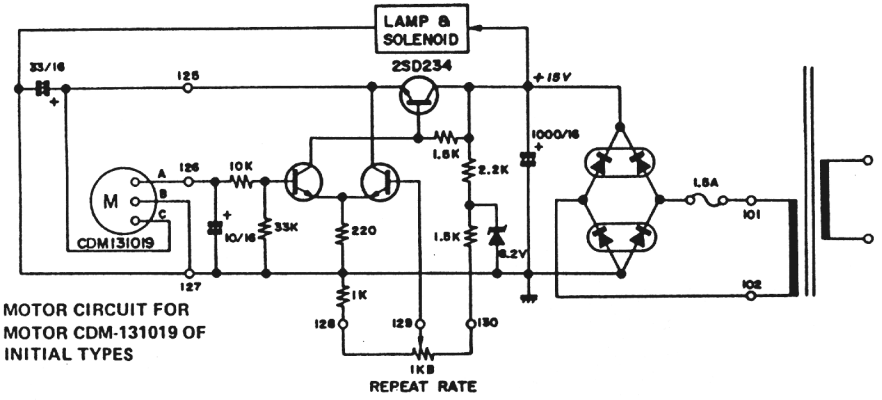
MODE SELECTOR POSITION VS ACTIVATED PB HEAD							
		1	2	3	4	5	6
Playback Head	1	+			+		+
	2		+			+	+
	3			+	+	+	+

SW1: MODE SELECTOR
SW2: ECHO CANCEL
SW3: OUTPUT LEVEL (H-M-L)

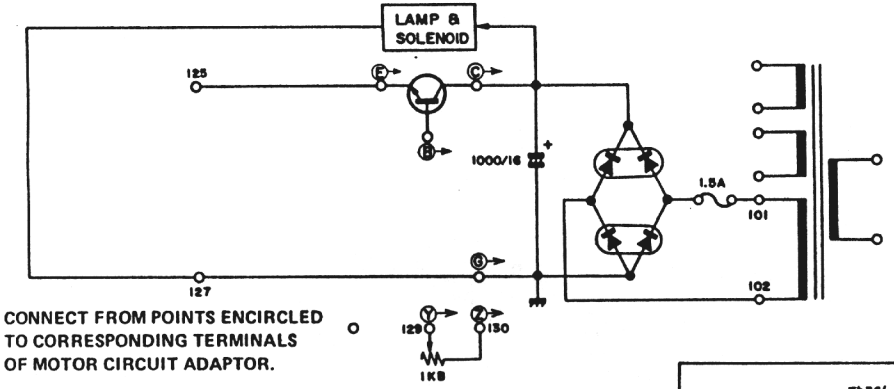
FILTER BOARD FL-7 added for
SERIAL NO. 583850 AND HIGHER.
At the same time, some partial changes were made:
*1. C26, formerly 100p changed to 47p.
*2. C5, 470p omitted.
*3. R89, 1.5K omitted.

TO REPLACE MOTOR CDM-131019 BY M-502E-B02

Motor CDM-131019 that was initially used is no more available. If it is necessary to replace the motor, use M-502E-B02. Mount it by use of an adaptor as shown in the photo below and by adding a motor circuit adaptor as shown on the left.

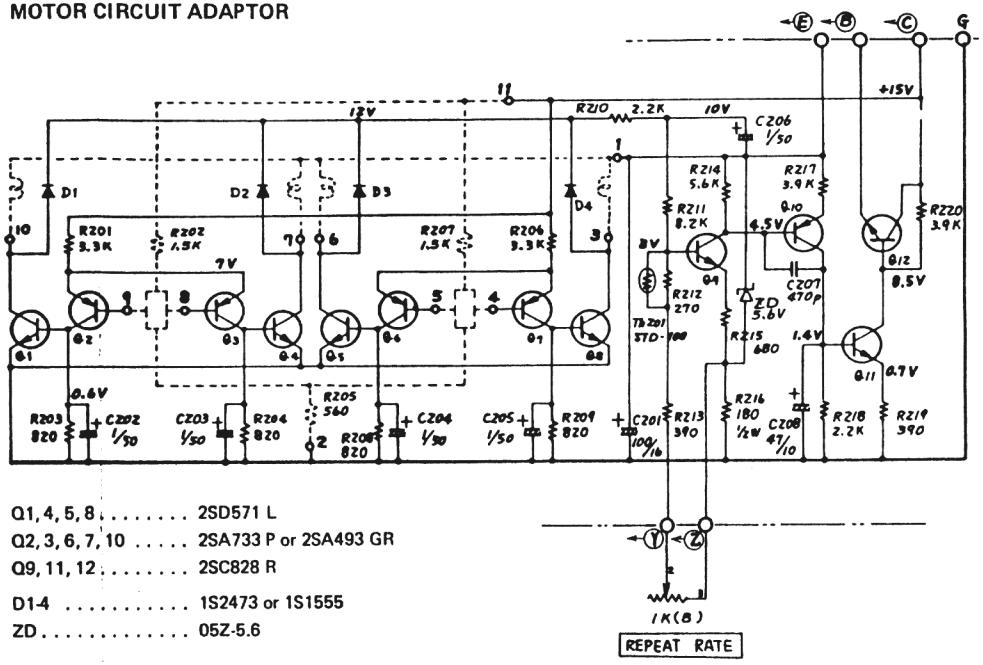


MOTOR CIRCUIT FOR MOTOR CDM-131019 OF INITIAL TYPES

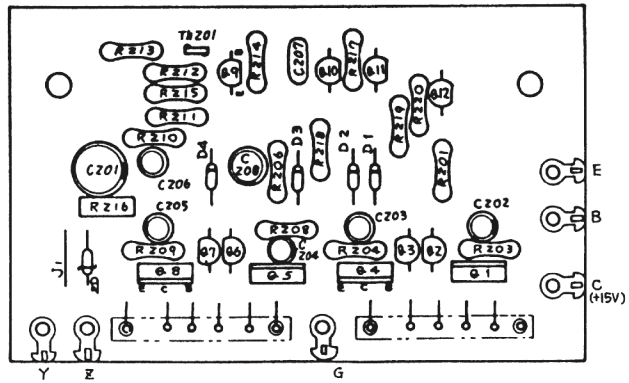


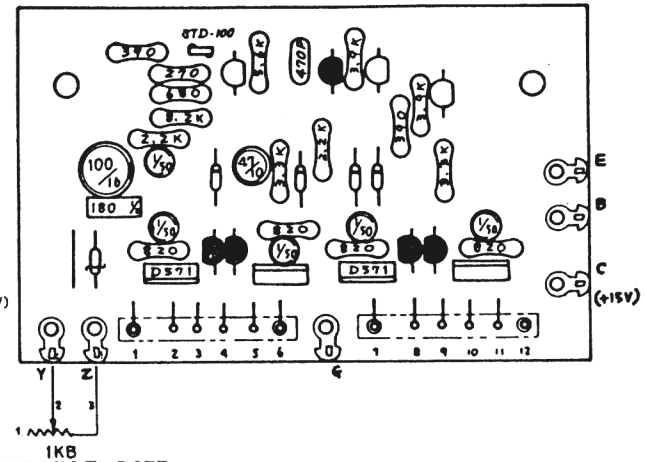
CONNECT FROM POINTS ENCIRCLED TO CORRESPONDING TERMINALS OF MOTOR CIRCUIT ADAPTOR.

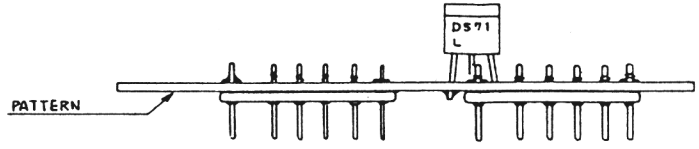
MOTOR CIRCUIT ADAPTOR



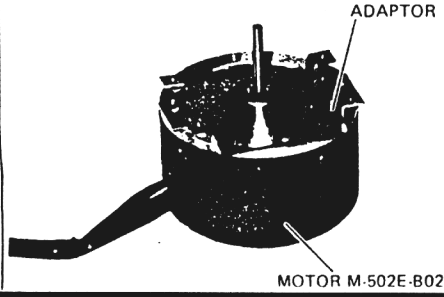
Q1, 4, 5, 8 . . . . . 2SD571 L
Q2, 3, 6, 7, 10 . . . . . 2SA733 P or 2SA493 GR
Q9, 11, 12 . . . . . 2SC828 R
D1-4 . . . . . 1S2473 or 1S1555
ZD 05Z-5.6





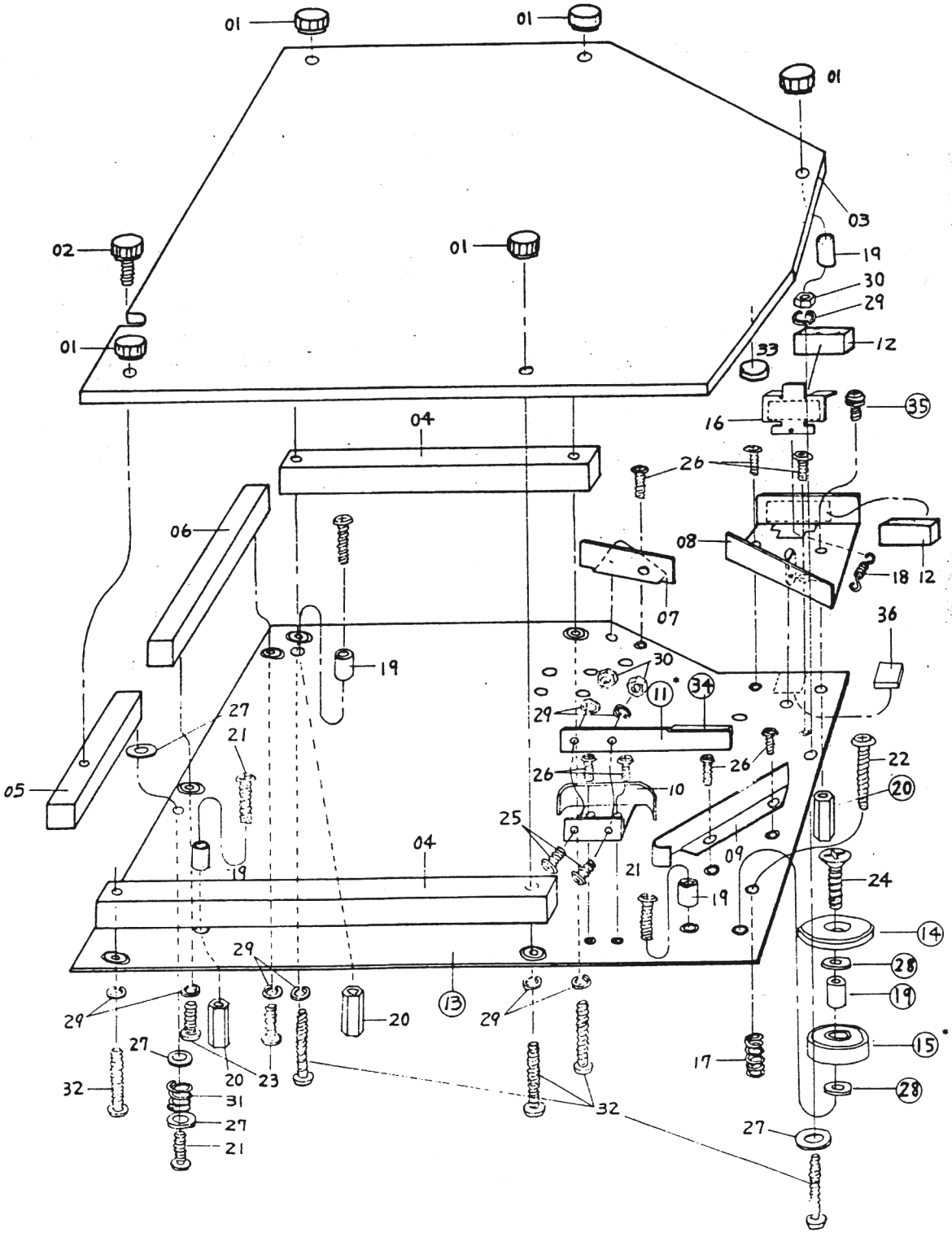


Mount motor M-502E-B02 by use of an adaptor.
Secure it with four 4ϕ bolts.



TAPE PACK CHASSIS ASSEMBLY

This drawing shows tape pack chassis assembly for SERIAL NO. 573700 AND HIGHER.
For SERIAL NO. UP TO 563699, parts encircled slightly differ.
They can be interchangeable except for (11) and (15) that should be replaced as a set.



NO.	PARTS NO.	PARTS NAME AND DESCRIPTION
01	120-036	Nut, Decoration, M3
02	123-004	Screw, Decoration, M3
03	092-004	Top cover No.4, pack (acrylic)
04	079-004	Frame No.4
05	079-005	Frame No.5
06	079-006	Frame No.6
07	079-007	Frame No.7
08	079-008	Frame No.8
09	079-009	Frame No.9
10	079-010	Frame No.10
(11)	070-033	Leaf spring No.33
12	101-017	Felt No.17
(13)	061-063A	Chassis No.63A
(14)	065-113	Cover, Bearing
(15)	113-004	Bearing
16	063-011	Plate No.11
17	070-017	Spring No.17, Support for chassis
18	070-018	Spring No.18
(19)	*	Collar (plastic), M3 x 6mm
(20)	120-001	Sleeve Nut No.1, 10mm
21	*	Screw, B.H. M3 x 12mm, Nickel
22	*	Screw, B.H. M3 x 15mm, Chrome
23	*	Screw, B.H. M3 x 6mm,
24	*	Screw, O.H. M3 x 15mm, Nickel
25	*	Screw, B.H. M3 x 6mm,
26	*	Screw, T.H. M2.6 x 4mm, Nickel
27	*	Plain washer M3 x 8 x 0.5mm
(28)	121-035	Plain washer No.35, M3 x 8 x 0.3mm Phosphor bronze
29	*	Spring washer M3
30	*	Nut, Hex M3
31	070-005	Spring No.5
32	*	Screw, B.H. M3 x 18mm
33	101-008	Felt Chip No.8
(34)	101-026	Felt No.26
(35)	*	Screw, SEMS M3 x 8mm, Chrome (wire spring washer)
36	107-004	Cushion No.4

NOTE: *(15) is slightly smaller in height than older (15). When replacing (15), replace (11), too.

ADJUSTMENT AND CHECKING

1. MECHANICAL ADJUSTMENT

1-1. TAPE CHASSIS POSITION

Adjust the tape chassis position so that the clearance from the motor shaft is 1mm. See Fig.1. Secure it by tightening 2 screws at the rear section of the chassis.

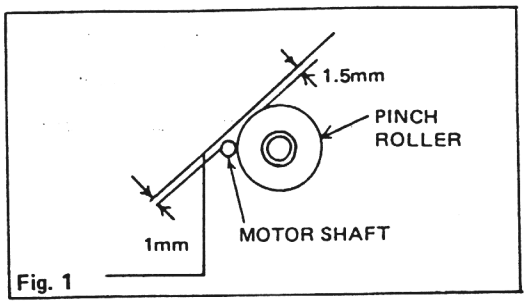


Fig. 1

1-2. TAPE CHASSIS HEIGHT (TEMPORARY)

Adjust the tape chassis height so that it is 10.5±0.5mm above the main chassis. See Fig.2. (Make sure that Frame No.8 is not deformed)

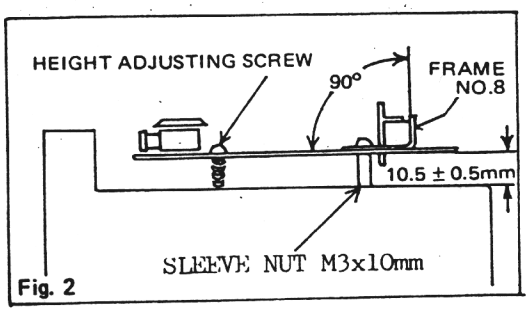


Fig. 2

1-3. LEAF SPRING PRESSURE

Adjust position of Frame No.10 so that the tension to separate the leaf spring from the bearing roller is 25-30g. See Fig.3.

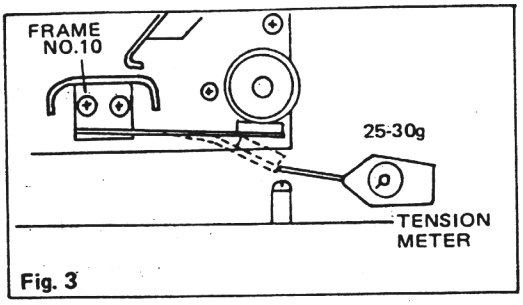


Fig. 3

1-4. POSITION OF FRAMES NOS.7, 8, AND 9

Secure the frames as illustrated in Fig.4.

CAUTION: Make adjustment of position of Frames Nos. 7 and 8 accurately with the pinch roller in contact with the motor shaft.

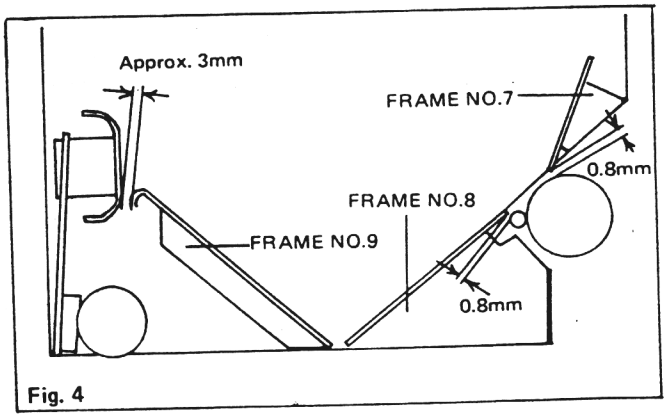


Fig. 4

1-5. PINCH ROLLER PRESSURE

Plug in the power cord and turn switch on. Adjust the solenoid position so that the tension to separate the pinch roller from the motor shaft is 1.0-1.4kg, using a spring balance. See Fig.5.

CAUTION: Make sure that pinch roller surface is perfectly parallel with the motor shaft.

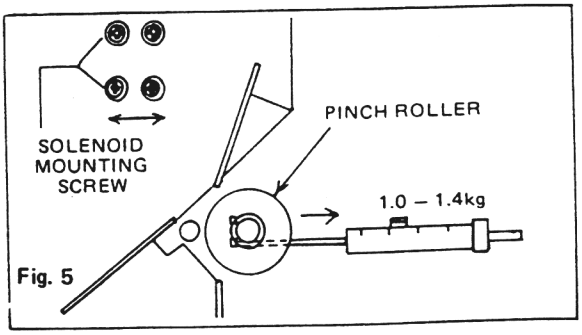


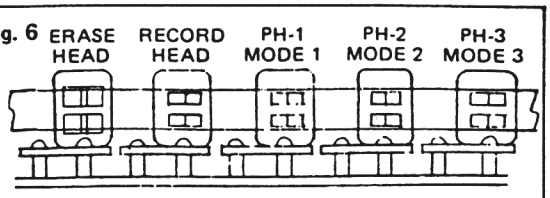
Fig. 5

1-6. TAPE PACK HEIGHT (FINAL)

a) Thread the tape and run it.

b) Consulting Fig.6, visually adjust the head alignment. (This alignment must be made first, otherwise tape cannot run stably.)

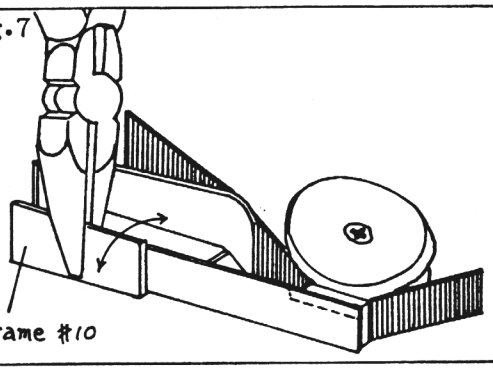
Fig. 6



Adjust head gap so that it is:
1. vertical to platform, and
2. located at the center of the tape.

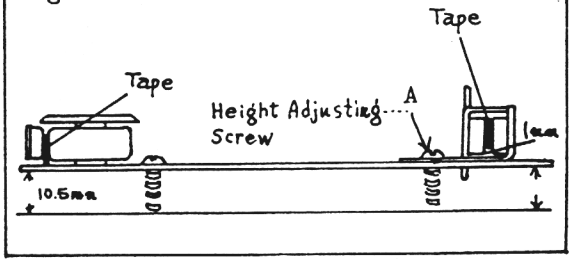
c) For products without cutting on Leaf Spring;
Adjust Frame No.10 so that the tape passes right below the flange edge of the bearing roller.

Fig.7

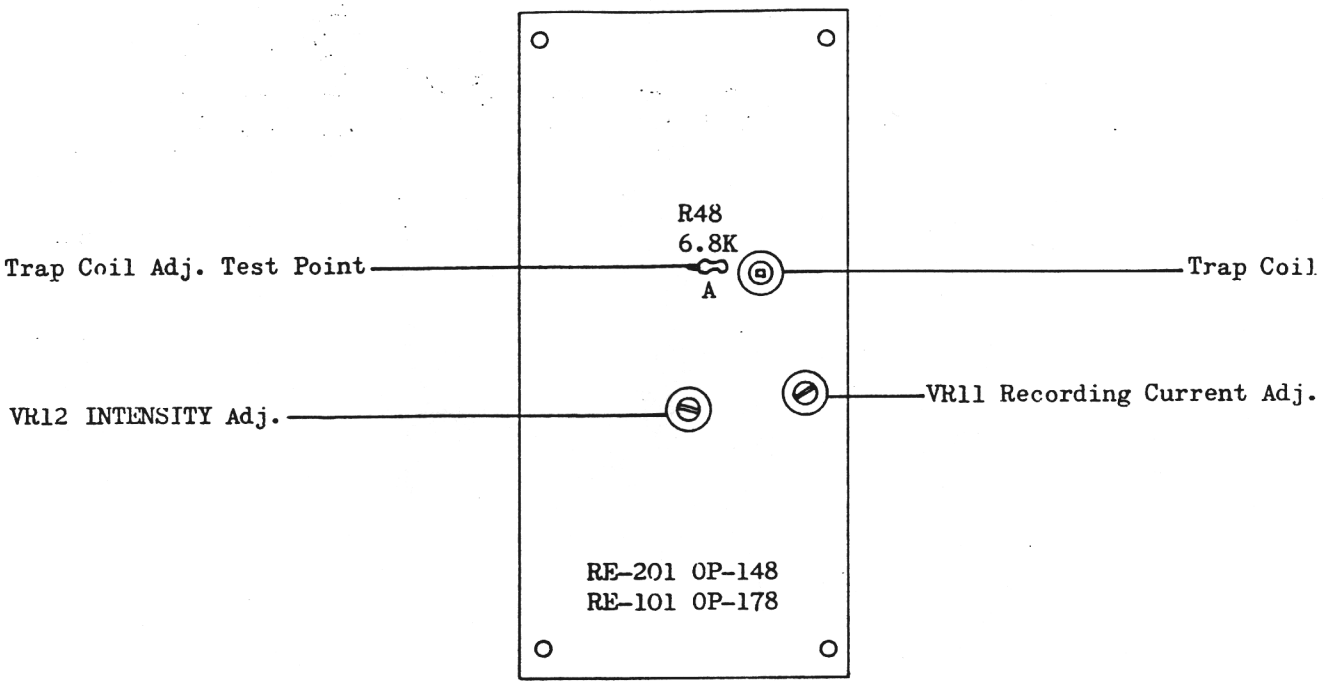


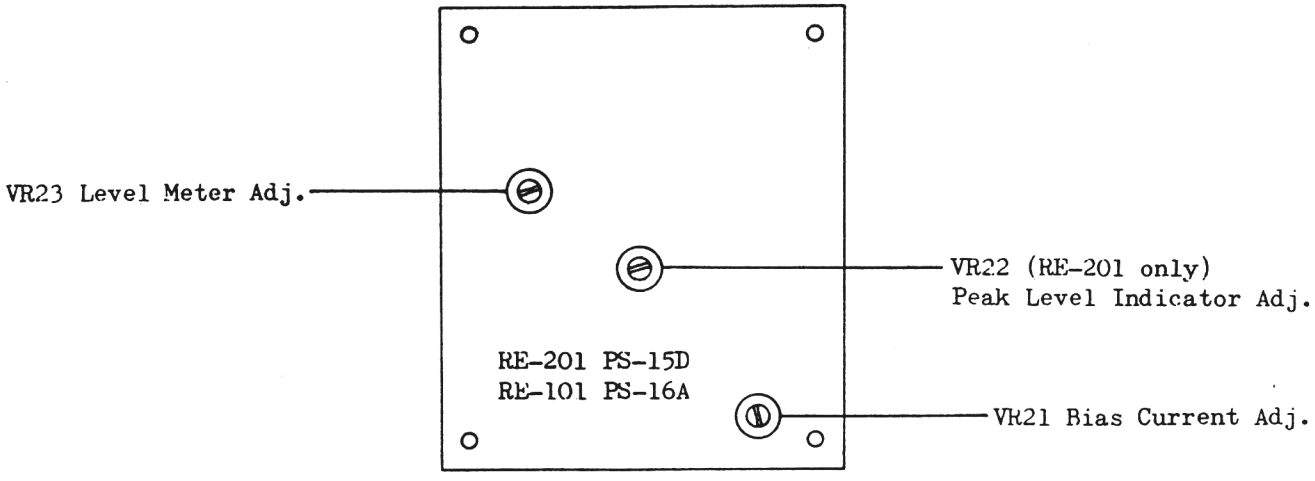
d) For products with Spring around Height Adjust Screw A:
Make sure that the tape travels with its lower edge 1±0.2mm above Frame No.8, measured at the pinch roller side.
The Frame No.8 height is adjusted by Height Adjusting Screw "A".
After adjustment of step 1-2, there would be no need of turning the screw so much. If it happens that due to adjustment of this step, the height of tape chassis largely deviates from 10.5mm, there might be another problem to be solved.

Fig.8



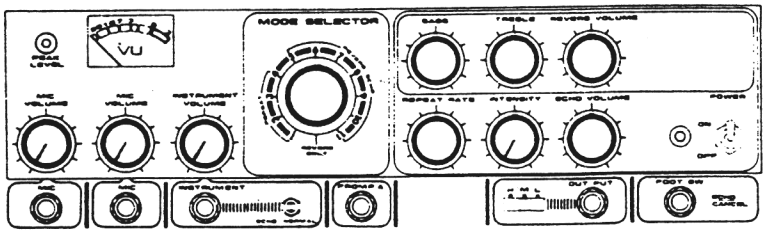
2. ELECTRICAL ADJUSTMENT





2-1. TRAP COIL

Adjust Trap Coil (L21) so that bias leakage at Point "A" (R48, 6.8Kohms) is below 2.5Vrms. If the voltage cannot be lowered than the level, replace C37 (470p) with a new one.



2-2. HEAD ALIGNMENT

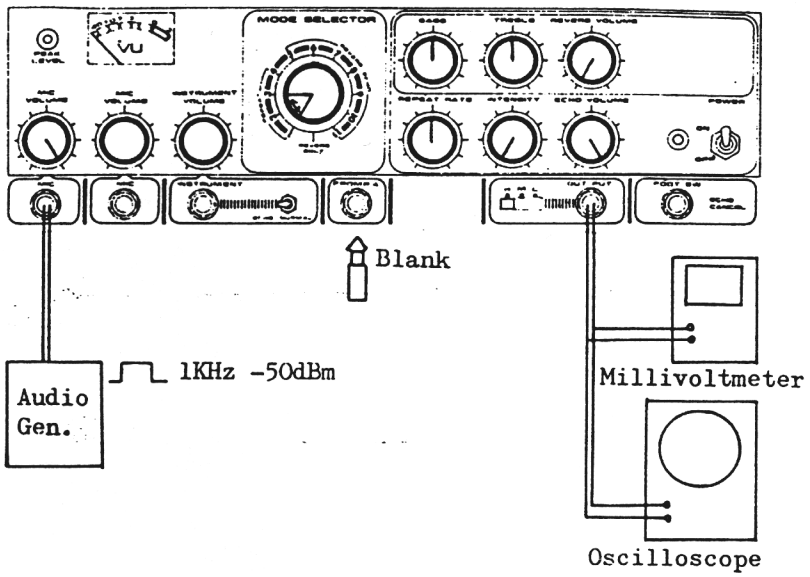
Before attempting the following electrical adjustment, make sure that mechanical head alignment is perfected.

(a) Run the tape and adjust Record and Playback Heads with alignment screws so that their gaps are completely perpendicular to the edge of the running tape, and that all heads' gap-width dimensions are centered on the tape path.

(b) While monitoring an individual waveform on a scope, adjust alignment screws to obtain maximum output at high frequencies.

The ideal is for all playback heads' output to be equal in levels. Difference in the levels should be minimized by reducing the output of head with higher output. To reduce the output level, center off slightly the playback head's gap from the track.

When doing so, be careful not to cause ill affect on the high frequency response by tilting or azimuth error.



2-3. RECORDING BIAS/CURRENT

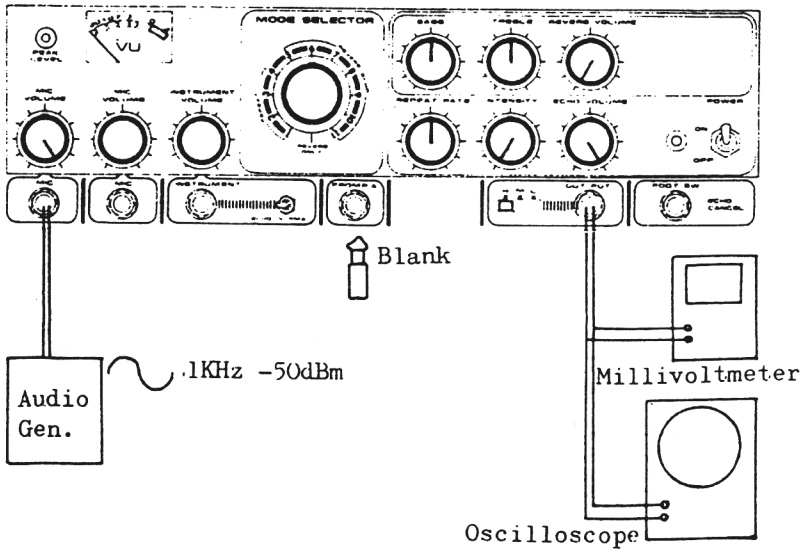
Feed sine wave signal, -50dB to input.

(a) Recording Bias

Adjust VR21 for maximum output.

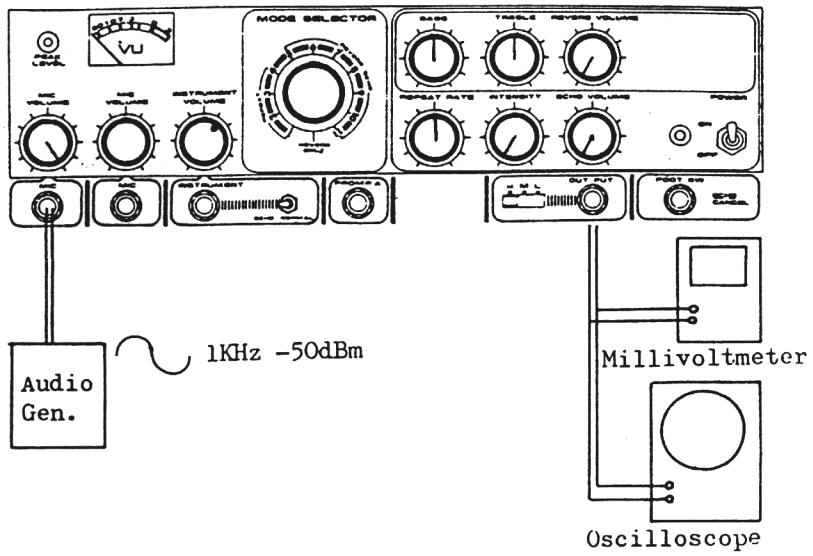
(b) Recording Current

Adjust VR11 for -12dBm output.



2-4. DIRECT OUTPUT CHECKING

Remove the Blank Plug from FROM PA jack. Turn Echo Volume fully counterclockwise. Make sure that direct signal output is -15dB± 1dBm.



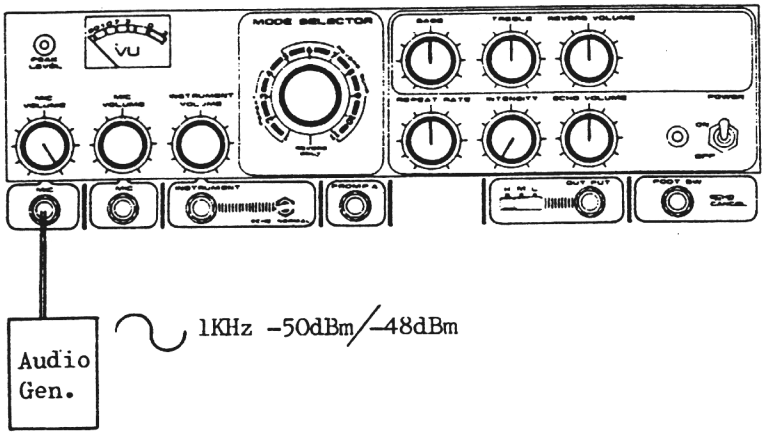
2-5. PEAK LEVEL/ LEVEL METER

a) PEAK LEVEL (RE-201 only)

Adjust VR22 so that LED lights dimly at -50dB input signal and goes off completely at -48dB input.

b) LEVEL METER

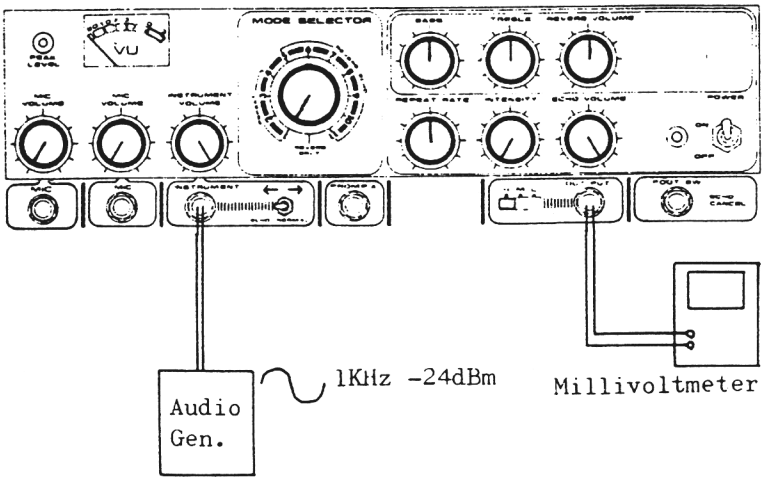
Adjust VR23 for 0dB reading on Level Meter at -50dB input.



2-6. INSTRUMENT INPUT jack

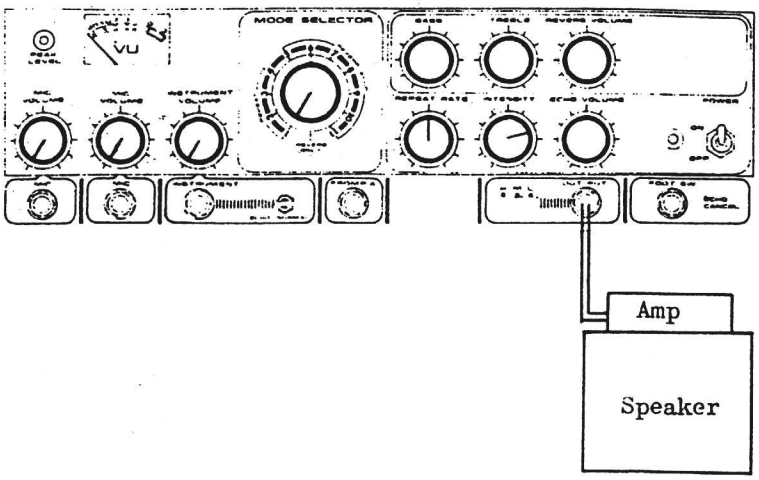
Feed 1KHz, -24dBm sine wave to INSTRUMENT Input jack. Check to see that the outputs are as shown below.

SELECTOR	OUTPUT
ECHO	-15dBm
NORMAL	-12.5dBm



2-7. INTENSITY

Adjust VR12 so that multiple repetition of noises occurs with Intensity Control as shown.



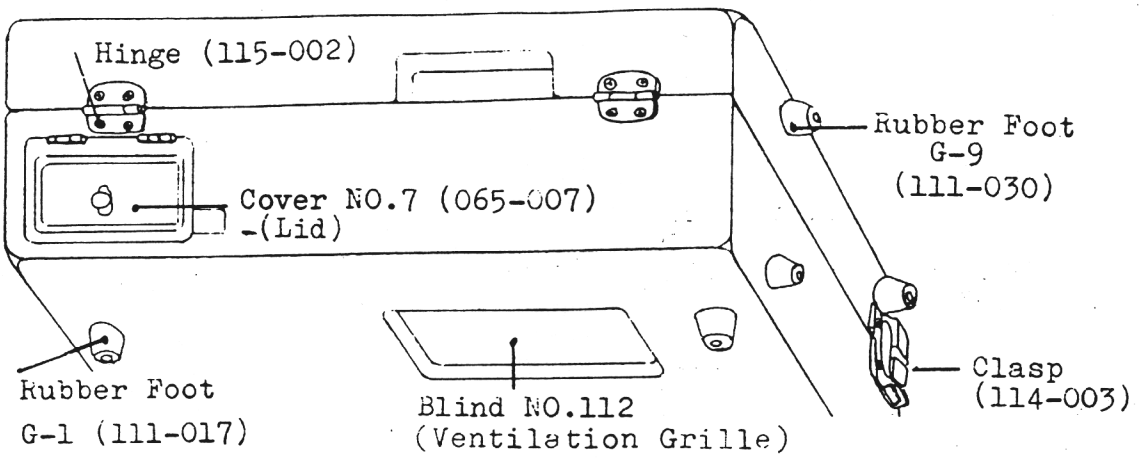
Other Reference Data

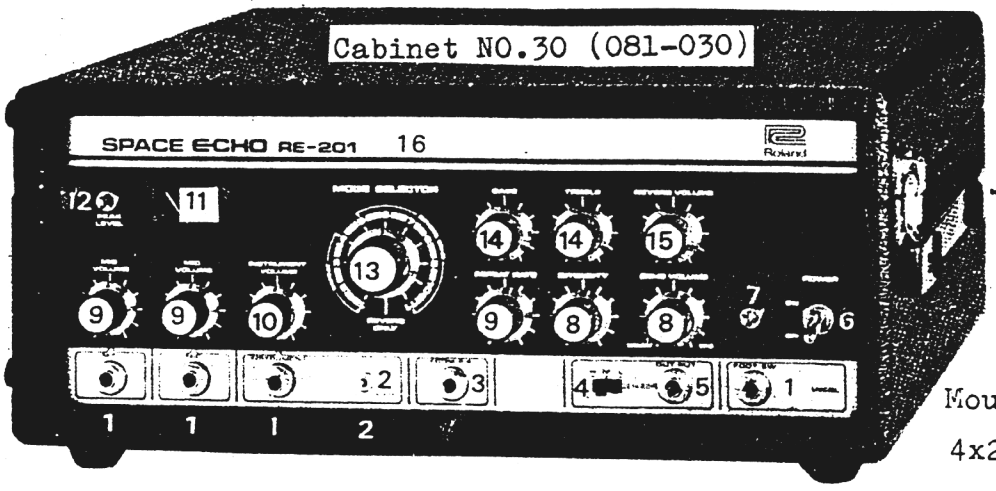
Bias Voltage ..... 50 - 60Vrms across Erase Head.

Tape Speed ..... 12cm - 40cm/sec (approx)

Tone Control: Treble... ±10dB at 5KHz

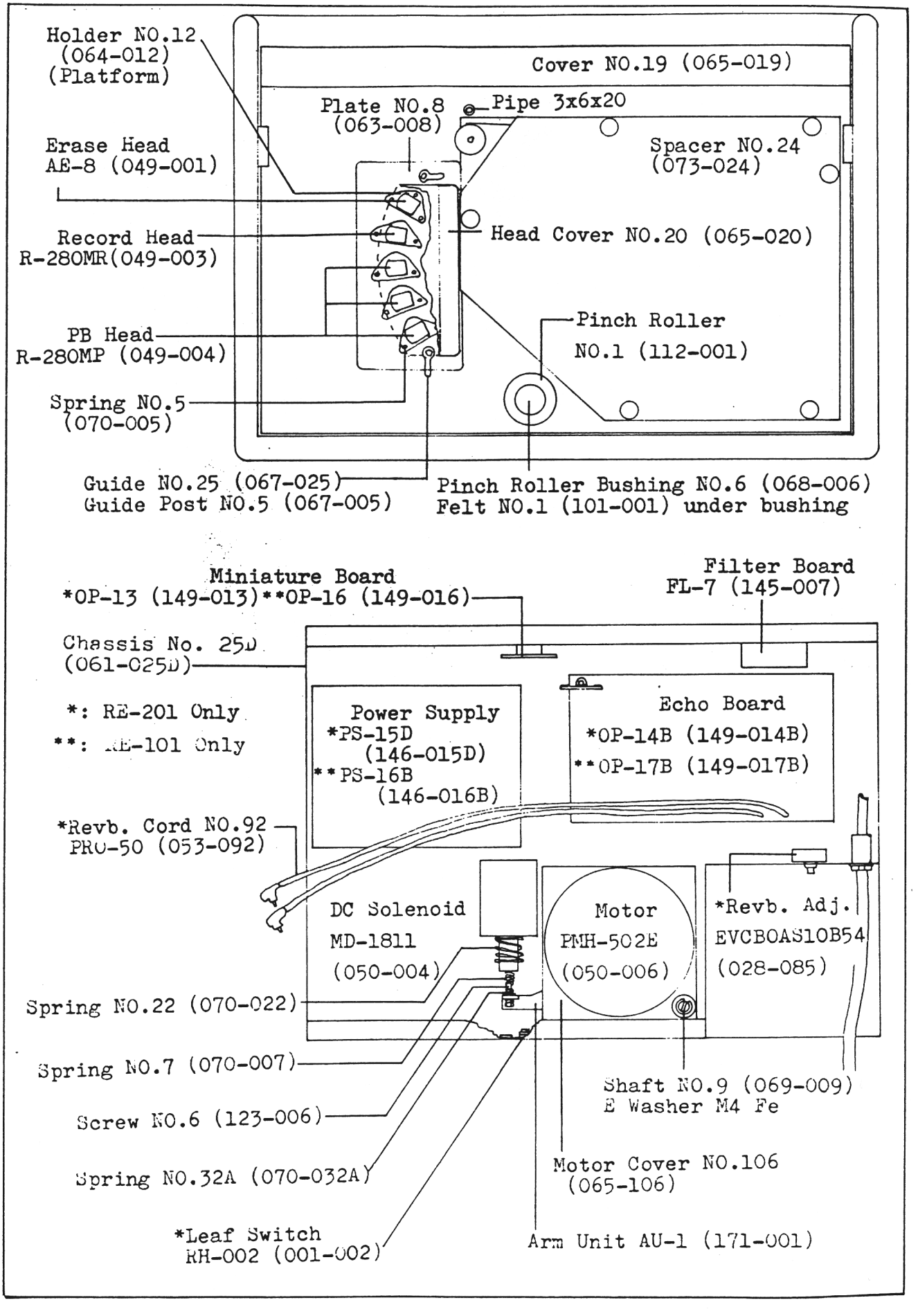
Bass .... ±10dB at 100Hz





1		009-001	Jack SG-7615
2		001-172	Switch 8A-1011
3		009-008	Jack TJ-253-8
4		001-018	Switch SW-321-1-1
5		009-012	Jack SG-7622
6		001-012	Switch WD-1311
7		019-003	LED SLP-24B
		062-004	Bracket NO.4 (lens)
8		028-332	EVCBOAK15B24 20KB
9		028-330	EVCBOAK15B13 1KB
		016-026	Knob TK-1113
10		028-331	EVCBOAK15B14 10KB
11		046-004	Meter BK-560-67503 (equiv. SK-50)
		025-002	Lamp BQ044-32527A
12	A	019-003	LED SLP-24B
13	A	001-118	ESR-E44CR15
	B	001-003	ESR-E246R15
		016-020	Knob TK-1112
14	A	028-334	EVCBOAK15B15 100KB
15	A	028-333	EVCBOAK15B54 50KB
16	A	072-070A	Panel NO.70A
	B	072-069A	Panel NO.69A

* A: RE-201 Only
B: RE-101 Only


Holder NO.12
(064-012)
(Platform)
Cover NO.19 (065-019)
Plate NO.8
(063-008)
Pipe 3x6x20
Erase Head
AE-8 (049-001)
Spacer NO.24
(073-024)
Record Head
R-280MR(049-003)
Head Cover NO.20 (065-020)
PB Head
R-280MP (049-004)
Pinch Roller
NO.1 (112-001)
Spring NO.5
(070-005)
Guide NO.25 (067-025)
Guide Post NO.5 (067-005)
Pinch Roller Bushing NO.6 (068-006)
Felt NO.1 (101-001) under bushing
Miniature Board
*OP-13 (149-013)**OP-16 (149-016)
Filter Board
FL-7 (145-007)
Chassis No. 25D
(061-025D)
*: RE-201 Only
**: RE-101 Only
Power Supply
*PS-15D
(146-015D)
**PS-16B
(146-016B)
Echo Board
*OP-14B (149-014B)
**OP-17B (149-017B)
*Revb. Cord NO.92
PRO-50 (053-092)
DC Solenoid
MD-1811
(050-004)
Motor
PMH-502E
(050-006)
*Revb. Adj.
EVCBOAS10B54
(028-085)
Spring NO.22 (070-022)
Spring NO.7 (070-007)
Screw NO.6 (123-006)
Spring NO.32A (070-032A)
Shaft NO.9 (069-009)
E Washer M4 Fe
Motor Cover NO.106
(065-106)
*Leaf Switch
RH-002 (001-002)
Arm Unit AU-1 (171-001)

Roland

PART NO.	PART AND DESCRIPTION
	RE-101 Only
072-069A	Panel No.69A
001-003	Rotary Switch ESR-E246R15
	PCB Assy
149-017B	OP-17B Echo Board (052-098B)
149-016	OP-16 Miniature Board (052-100)
146-016B	PS-16B Power Supply Board (052-099E)
	RE-201 Only
072-070A	Panel No.70A
001-118	Rotary Switch ESR-E44CR15
028-333	EVCB0AK15B54 50KB Reverb Vol.
038-334	Potentiometer EVCB0AK15B15 100KB Bass Treble
028-085	Potentiometer EVCB0AS10B54 50KB Reverb Adj.
020-028	IC TA-7200P
040-001	Reverb Unit Z-3F
	PCB Assy
149-014B	OP-14B Echo Board (052-098E)
149-013	OP-13 Miniature Board (052-100)
146-015D	PS-15D Power Supply Board (052-099E)
001-002	Leaf Switch RH-002
	RE-101 and RE-201 include the following.
081-030A	Cabinet (Upper & Lower)
108-104	Carrying Handle H-15
065-007	Cover No.7 (Lid Cord Compartment)
114-003	Clasp
115-002	Hinge
111-017	Rubber Foot G-1 (Large)
111-030	Rubber Foot G-9 (Small)
065-112	Blind No.112, Ventilation Grille
131-023	Vinyl Cover No.23
130-048	Carton No.48
061-025D	Chassis No.25D, Main
065-019	Cover No.19, Front
073-024	Spacer No.24, Side
064-012	Holder H-12 (Platform)
063-008	Plate No.8, Head Mounting
065-020	Head Cover No.20
067-025	Guide No.25
067-005	Guide Post No.5
049-003	Record Head R-280MR
049-004	Playback Head R-280MP
049-001	Erase Head AE-28
112-001	Pinch Roller
068-006	Cover No.6, Pinch Roller
101-001	Felt No.1, Under Cover No.6
050-006	Motor PHM-502E-B02
120-037	Nut No.37, Moter Mounting
065-106	Cover No.106, Motor

PART NO.	PART AND DESCRIPTION
171-001	Arm Unit Assy AU-1
069-009	Shaft No.9, AU-1 Mounting
050-004	DC Solenoid, Magnet & Plunger
070-007	Spring No.7, Plunger
070-022	Spring No.22, Solenoid
070-032A	Spring No.32A
123-006	Screw No.6, Plunger Adj.
016-026	Knob TK-1113
016-020	Knob TK-1112
062-004	Bracket No.4, Lens, LED
068-001	Pad No.1 (inside Bracket)
121-007	Spring Nut No.7, M8p, Bracket No.4
	Switches
001-012	WD-1311 Power
001-102	8A-1011 Miniature Toggle
001-018	SW-321-1-1 Slide
009-001	Jack SG-7615
009-008	Jack TJ-253-8, From PA
009-012	SG Jack SG-7622, Output
046-004	VU Meter BK-560-67503, Equiv. SK-50
025-002	Lamp BQ044 (14V 80mA)
022-094	Coil MC-126-2133B, OSC
022-045	Coil MC-128 Trap
022-068AC	Power Transformer No.68AC, 100/117V
022-067AD	Power Transformer No.67AD, 220/240V
012-003	Fuse Holder TF-758, SEC.
012-018	Fuse Holder X-N1153, Prim. 220/240V
042-032	Terminal TT-501 D-1, 2p, 220/240V
047-025	Line Cord Strain Relief EA-5
	Transistors
017-251	2SD234-O
017-008	2SC828-R
017-003	2SC1000-GR
017-072	2SD571-L
017-024	2SA733-P
	Diodes
018-035	05Z-5.6 (5.6V 1/2W), Zener
018-014	1S-2473
018-018	1N-4003
018-062	MI-152
018-063	MI-152R
019-003	SLP-24B LED
018-036	SDT-100 1K ohm at 25° Centigrade, Thermistor
	Fuse
008-023	SGA-0.25A, Sec.
008-028	SGA-2A, Sec.
008-041	MGP-1A, Pigtail, Pri.
008-060	CEE 250mAT, Sec.
008-069	CEE 1.6AT, Sec.
008-066	CEE 1AT, Sec.
145-007	FL-7 PCB Assy, Filter Board (052-226)

PART NO.	PART AND DESCRIPTION
	Potentiometer
028-330	EVCB0AK15B13 1KB, Mic, Re.rate, Inte
028-332	EVCB0AK15B24 20KB Echo Vol.
028-331	EVCB0AK15B14 10KB Inst.
028-004	EVTR4AAB14 10KB Trimmer.
028-005	EVTR4AAB24 20KB
028-006	EVTR4AAB54 50KB
	Optional
057-004	Cleaner Set.
057-006	Tape RT-1L (4.5m)
053-013	Connection Cord L1-10

PARTS ORDERING INFORMATION

Name of part number of some of the parts is changed from those printed on previously issued parts list. When ordering replacement parts, be sure to follow the description on the present issue.

When ordering parts, be sure to include the following information:

1. Model and Serial Number
2. Part Number
3. A Description of the Part

This parts list includes all standard stock replacement parts. No attempt has been made to include every nut, bolt and screw. If the necessity for a non-listed part arises, please write describing the parts location and function as well as model and serial number of the unit.