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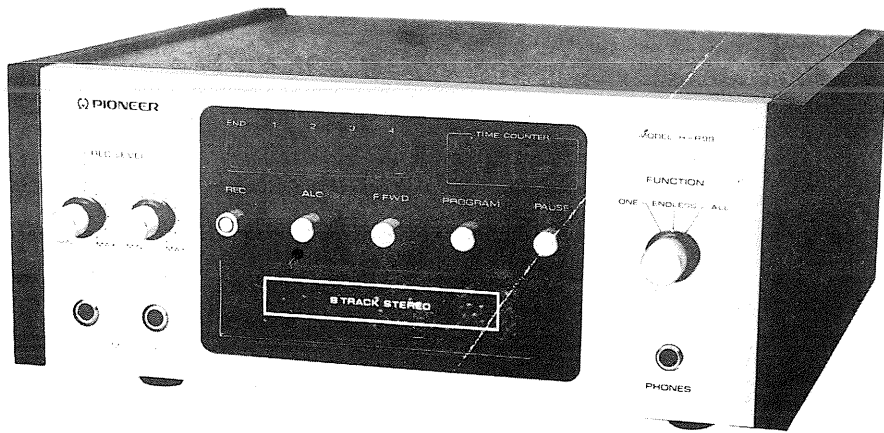
Retail Price \$6.00

#-R99

SERVICE MANUAL

8 TRACK HOME STEREO
RECORDING DECK

H-R99 KCU



PIONEER®

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1. SPECIFICATIONS

SEMI-CONDUCTORS	27 transistors, 19 diodes and 1 thyristor
POWER SOURCE	AC 120V, 50/60Hz
POWER CONSUMPTION	Less than 20W
TAPE SPEED	9.5cm/sec (3-3/4 in./sec)
WOW AND FLUTTER	Less than 0.15% (WRMS)
PROGRAM SELECTION SYSTEM	Automatic and manual selection system
FAST FORWARD TIME	Approx. 2.5 times
FREQUENCY RESPONSE	30 ~ 12,000Hz
TOTAL HARMONIC DISTORTION	Less than 2%
CHANNEL SEPARATION	More than 40dB
CROSSTALK	More than 45dB
SIGNAL TO NOISE RATIO	More than 45dB
OUTPUT IMPEDANCE	Line: Less than 3 k Ω Headphone: 8 Ω
OVER-ALL FREQUENCY RESPONSE	40 ~ 10,000Hz
RECORDING SECTION	
ERASING RATIO	More than 50dB
INPUT LEVEL	200 mV
OUTPUT LEVEL	775 mV
DIMENSIONS (W x H x D)	295 x 116 x 275 mm (11-5/8 x 4-5/8 x 10-7/8 in.)
WEIGHT	5.5 kg (12.1 lbs)

2. PARTS LOCATION

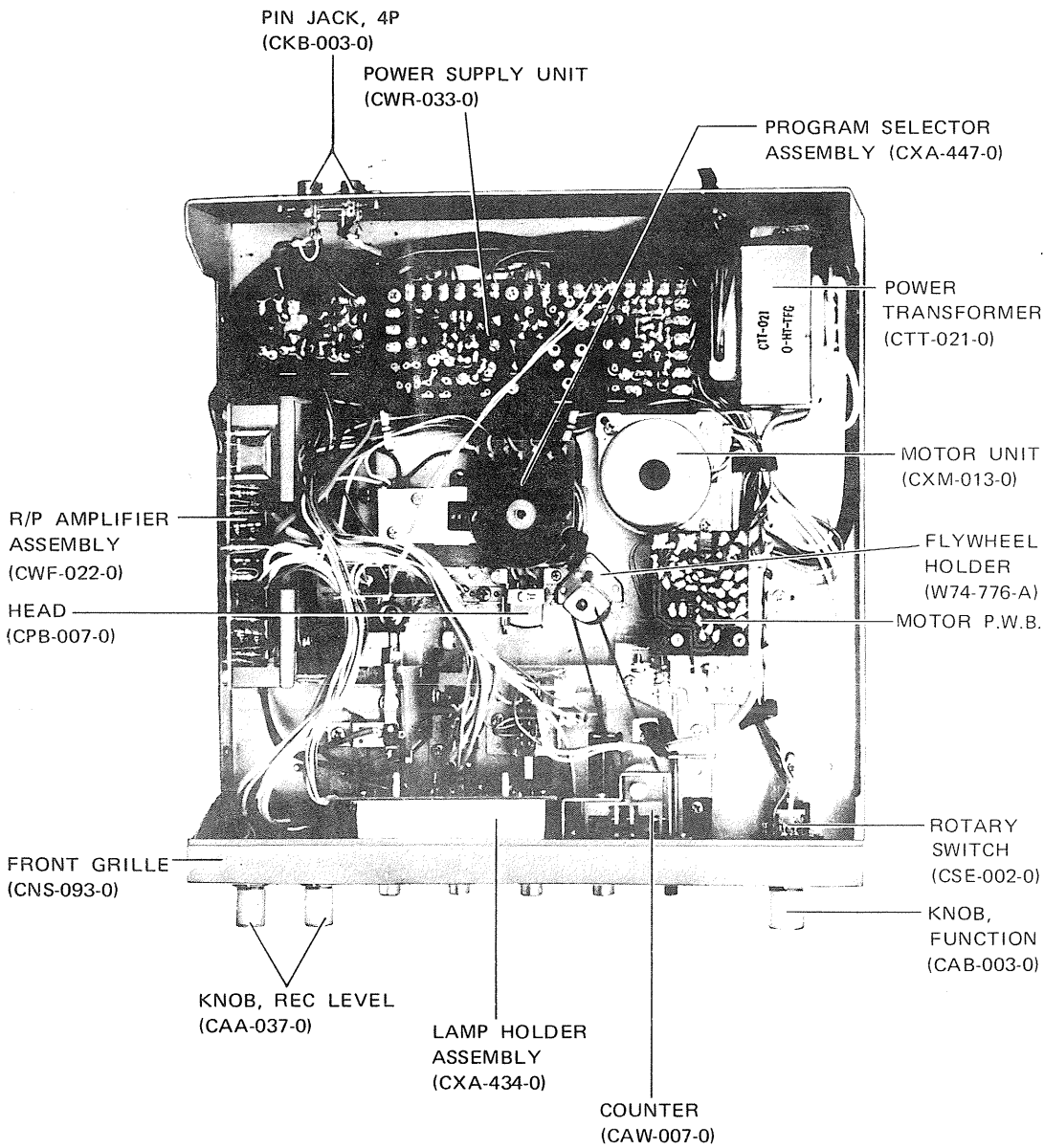


Fig. 1

3. CIRCUIT DESCRIPTION

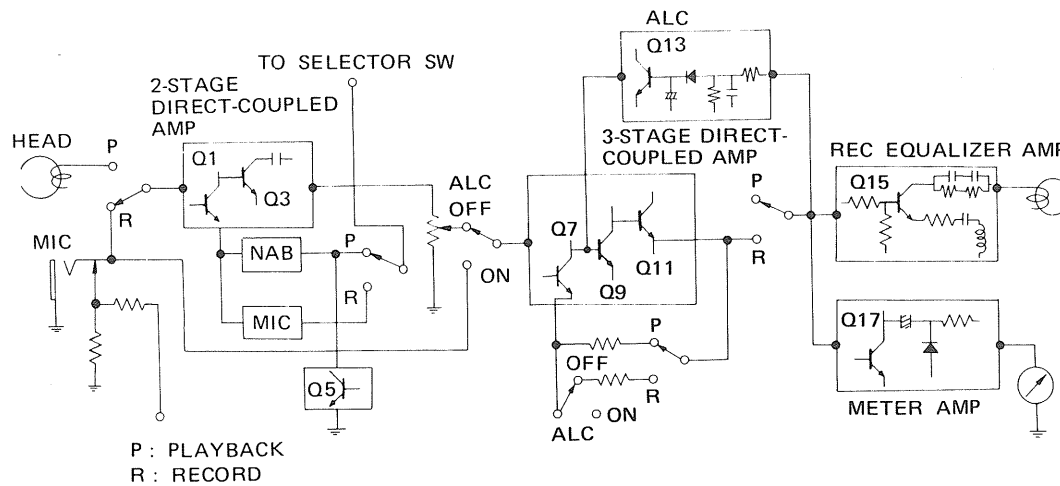


Fig. 2

● R/P Amplifier Section

This unit consists of a 2-stage direct-coupled amplifier, a recording equalizer amplifier, a meter amplifier, ALC circuit, and muting circuit.

Q1, Q3 2-stage direct-coupled amplifier becomes NAB equalizer for a TAPE when reproducing. When positive voltage is applied to Q5 muting circuit, the output of amplifier is muted to approx. 20dB at the time of reproducing. It acts as 20dB MIC amplifier at the time of recording.

Q7, Q9, Q11 3-stage direct-coupled amplifier becomes flat amplifier of approx. 20dB by NF (Negative Feedback) when reproducing a TAPE; it becomes flat amplifier of approx. 40dB when recording.

When ALC (Automatic Level Control) switch is ON, ALC circuit is activated, thus changing flat amplifier of 40dB into ALC amplifier with the

gain of more than 60dB.

When ALC switch is OFF, the level of a signal from 2-stage MIC amplifier is controlled by VOL 1, and the signal enters 3-stage 40dB amplifier; when ALC switch is ON, the signal enters 3-stage ALC amplifier directly from MIC JACK without passing through MIC amplifier, and the level of the signal is automatically controlled.

Only when recording, a signal enters Q15 recording equalizer amplifier and Q17 meter amplifier.

● Oscillating Section

This unit, which is an oscillator transformer or Q5, Q6 push-pull oscillator, generates approx. 60kHz oscillations. The unit controls bias (erase) current by VR1. R23 (100Ω) checks bias current.

4. DISASSEMBLY

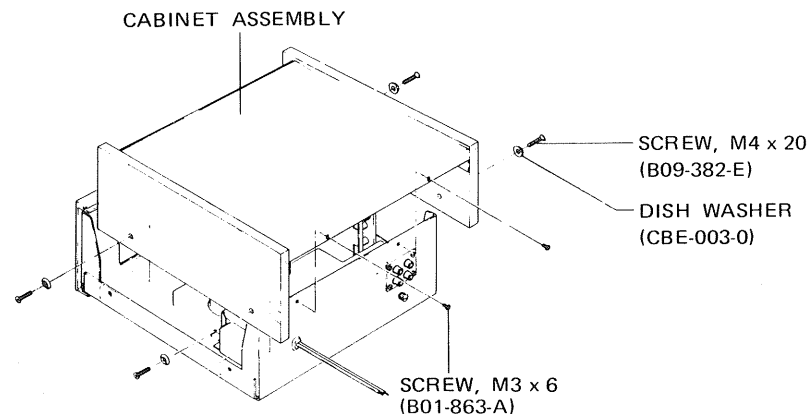


Fig. 3

5. ADJUSTMENT

5.1 HEAD ADJUSTMENT

● Hook-up Diagram

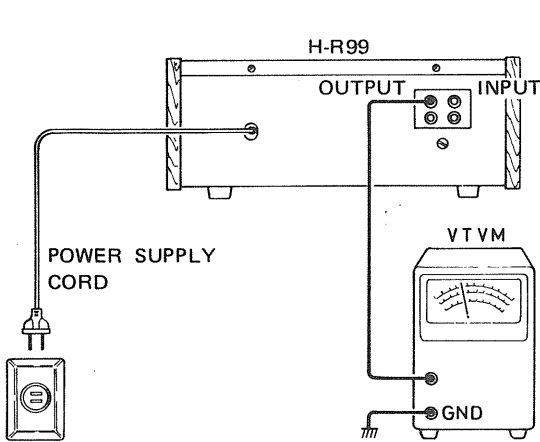


Fig. 4

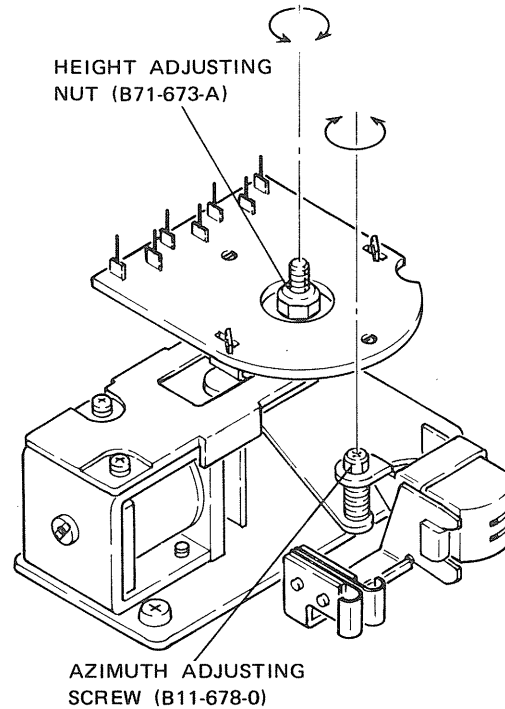


Fig. 5

● Test Tape

Item \ Test tape	PST-4.2	P-328
Recording Track	Full tracks	1, 3, 5, 7
Frequency	8 kHz	400 Hz
Level	-13 dB	0 dB
Application	Azimuth	Crosstalk

● Azimuth Adjustment

1. Hook up according to Fig. 4.
2. Insert test tape PST-4.2 and change over program to "3". Adjust by turning azimuth adjusting screw so that the VTVM indicates maximum reading.
After completion of adjustment, fasten the adjusting screw by using screwlock adhesive.

● Cross-Talk Adjustment

1. Hook up according to Fig. 4.
2. Insert test tape P-328 and set program to "2" and adjust by turning height adjusting nut so that the VTVM indicates minimum reading.
3. Change over program "3" and confirm that the VTVM indicates maximum reading. If maximum output is not obtained, repeat steps from 2 to 3.

5.2 RECORDING BIAS ADJUSTMENT

At a recording state (state where REC button is being pressed), turn the volume knob for adjusting REC LEVEL counterclockwise up to the end. Adjust the semi-variable resistor VR1 in the power supply unit so that the voltage

between 2 and 3 terminals of the power supply unit will be 0.9V. Bias current is thus adjusted to 9mA. ALC button should not be pressed while adjusting.

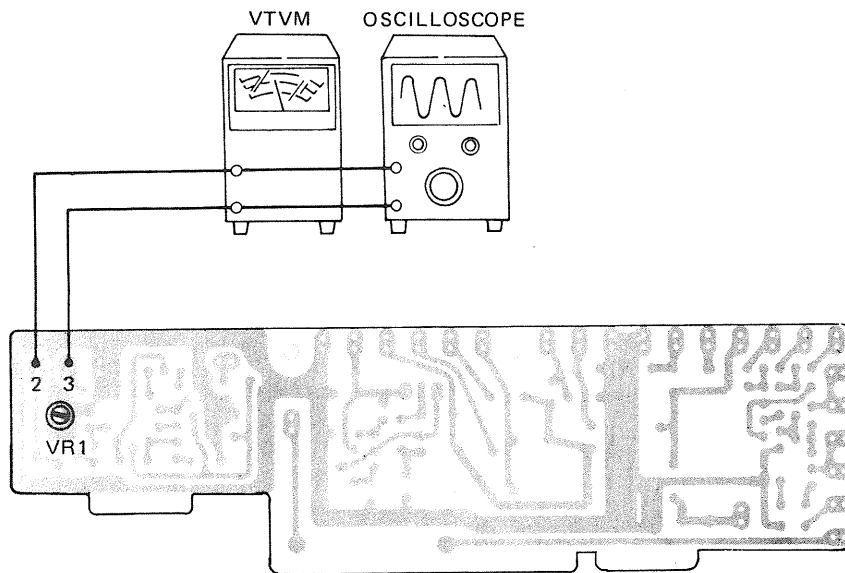


Fig. 6

5.3 BIAS TRAP ADJUSTMENT

At a recording state (state where REC button is being pressed), turn the volume knob for adjusting REC LEVEL clockwise up to the end. Then measure the voltage of TP1 and TP2 terminals in REC/PLAYBACK AMPLIFIER UNIT by means of an AC milli-voltmeter, and adjust L3 and L4 so that the voltmeter will

indicate the lowest value.

- L channel TP1, L3
- R channel TP2, L4

When the trap adjustment is completed the voltmeter indicates approx. 30mV. ALC button should not be pressed while adjusting.

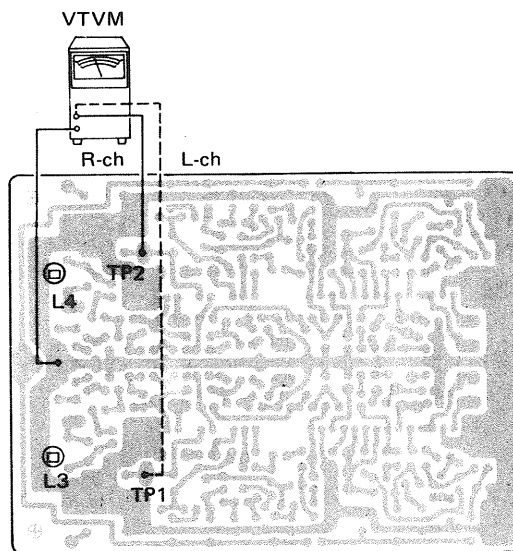


Fig. 7

6. CIRCUIT DIAGRAM SECTION

6.1 MISCELLANEOUS

● Parts List

Ref. Key	Parts No.	Description	Notes
R1	Y05-249-J	Resistor, RD $\frac{1}{4}$ VS560J	56 Ω $\pm 5\%$ $\frac{1}{4}$ W
C1	CCG-003-0	Capacitor	0.01 μ F $\begin{matrix} +80\% \\ -20\% \end{matrix}$ 250V
D1	G00-535-B	Diode, FR-2-02	
J1	K72-622-0	Mic Jack	
J2	K72-622-0	Mic Jack	
J3	K72-627-0	Headphone Jack	
J4	CKB-003-0	4P Pin Jack	Output Jack
J5	CKB-003-0	4P Pin Jack	Input Jack
FU1	CEK-008-0	Fuse, 0.5A	
T1	CTT-021-0	Power Transformer	
M	CXM-013-0	Motor Unit	
P	CXP-009-0	Plunger	
HD1	CPB-007-0	Head	
IL1	CEL-002-0	Indicator Lamp	Counter
PL1	CDG-002-0	AC Power Cord	
S1	S21-625-0	Switch	Power
S2	CSG-022-0	Push Switch	Pause
S3	CSN-010-0	Leaf Switch	Rec.
S4	CSN-017-0	Leaf Switch	Program
S5	CSE-002-0	Rotary Switch	Function
S6	S31-614-A	Push Switch	F. F.
S7	CSG-020-0	Push Switch	ALC
S8	CSN-012-0	Leaf Switch	Program
VR1	CCS-040-0	Volume	Rec Level
VR2	CCS-040-0	Volume	Rec Level
ME1	CAW-005-0	Level Meter	
ME2	CAW-050-0	Level Meter	

6.2 SCHEMATIC CIRCUIT DIAGRAM

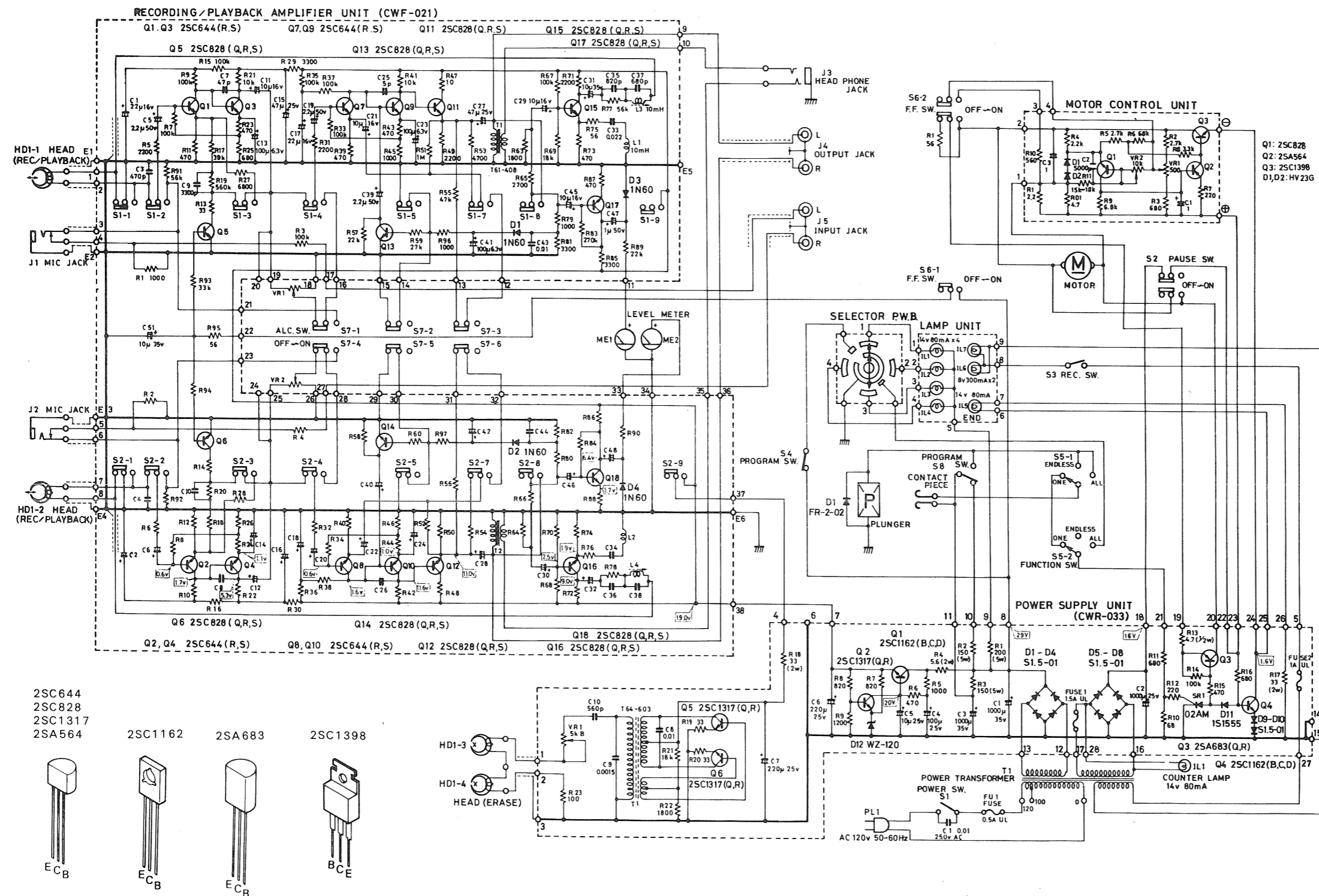
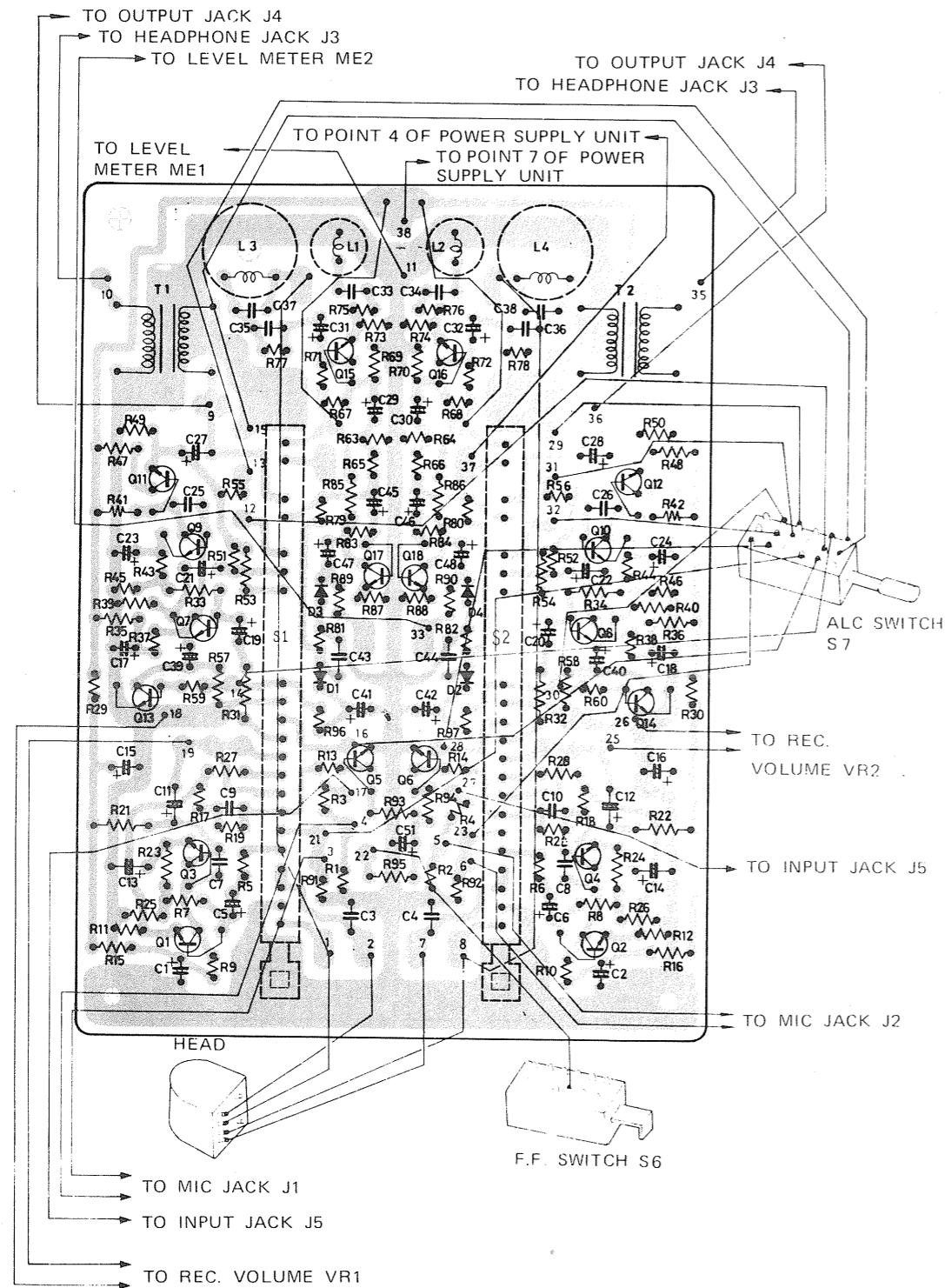


Fig. 8

6.3 R/P AMPLIFIER UNIT

● Parts Connection



H-R99

● Parts List RESISTORS

Ref. Key	Parts No.	Description	Notes		
R1	Y05-287-J	Resistor, RD1/4VS102J	1000Ω	±5%	1/4W
R2	Y05-287-J	Resistor, RD1/4VS102J	1000Ω	±5%	1/4W
R3	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R4	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R5	Y05-293-J	Resistor, RD1/4VS222J	2200Ω	±5%	1/4W
R6	Y05-293-J	Resistor, RD1/4VS222J	2200Ω	±5%	1/4W
R7	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R8	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R9	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R10	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R11	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R12	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R13	Y05-241-J	Resistor, RD1/4VS330J	33Ω	±5%	1/4W
R14	Y05-241-J	Resistor, RD1/4VS330J	33Ω	±5%	1/4W
R15	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R16	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R17	Y05-330-J	Resistor, RD1/4VS393J	39kΩ	±5%	1/4W
R18	Y05-330-J	Resistor, RD1/4VS393J	39kΩ	±5%	1/4W
R19	Y05-365-J	Resistor, RD1/4VS564J	560kΩ	±5%	1/4W
R20	Y05-365-J	Resistor, RD1/4VS564J	560kΩ	±5%	1/4W
R21	Y05-317-J	Resistor, RD1/4VS103J	10kΩ	±5%	1/4W
R22	Y05-317-J	Resistor, RD1/4VS103J	10kΩ	±5%	1/4W
R23	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R24	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R25	Y05-280-J	Resistor, RD1/4VS681J	680Ω	±5%	1/4W
R26	Y05-280-J	Resistor, RD1/4VS681J	680Ω	±5%	1/4W
R27	Y05-310-J	Resistor, RD1/4VS682J	6800Ω	±5%	1/4W
R28	Y05-310-J	Resistor, RD1/4VS682J	6800Ω	±5%	1/4W
R29	Y05-298-J	Resistor, RD1/4VS332J	3300Ω	±5%	1/4W
R30	Y05-298-J	Resistor, RD1/4VS332J	3300Ω	±5%	1/4W
R31	Y05-293-J	Resistor, RD1/4VS222J	2200Ω	±5%	1/4W
R32	Y05-293-J	Resistor, RD1/4VS222J	2200Ω	±5%	1/4W
R33	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R34	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R35	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R36	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R37	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R38	Y05-346-J	Resistor, RD1/4VS104J	100kΩ	±5%	1/4W
R39	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R40	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R41	Y05-317-J	Resistor, RD1/4VS103J	10kΩ	±5%	1/4W
R42	Y05-317-J	Resistor, RD1/4VS103J	10kΩ	±5%	1/4W
R43	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R44	Y05-274-J	Resistor, RD1/4VS471J	470Ω	±5%	1/4W
R45	Y05-287-J	Resistor, RD1/4VS102J	1000Ω	±5%	1/4W
R46	Y05-287-J	Resistor, RD1/4VS102J	1000Ω	±5%	1/4W
R47	Y05-231-J	Resistor, RD1/4VS100J	10Ω	±5%	1/4W
R48	Y05-231-J	Resistor, RD1/4VS100J	10Ω	±5%	1/4W
R49	Y05-293-J	Resistor, RD1/4VS222J	2200Ω	±5%	1/4W
R50	Y05-293-J	Resistor, RD1/4VS222J	2200Ω	±5%	1/4W

Fig. 9

Ref. Key	Parts No.	Description	Notes		
R51	Y05-375-J	Resistor, RD1/4VS105J	1M Ω	$\pm 5\%$	1/4W
R52	Y05-375-J	Resistor, RD1/4VS105J	1M Ω	$\pm 5\%$	1/4W
R53	Y05-304-J	Resistor, RD1/4VS472J	4700 Ω	$\pm 5\%$	1/4W
R54	Y05-304-J	Resistor, RD1/4VS472J	4700 Ω	$\pm 5\%$	1/4W
R55	Y05-333-J	Resistor, RD1/4VS473J	47k Ω	$\pm 5\%$	1/4W
R56	Y05-333-J	Resistor, RD1/4VS473J	47k Ω	$\pm 5\%$	1/4W
R57	Y05-323-J	Resistor, RD1/4VS223J	22k Ω	$\pm 5\%$	1/4W
R58	Y05-323-J	Resistor, RD1/4VS223J	22k Ω	$\pm 5\%$	1/4W
R59	Y05-326-J	Resistor, RD1/4VS273J	27k Ω	$\pm 5\%$	1/4W
R60	Y05-326-J	Resistor, RD1/4VS273J	27k Ω	$\pm 5\%$	1/4W
R63	Y05-291-J	Resistor, RD1/4VS182J	1800 Ω	$\pm 5\%$	1/4W
R64	Y05-291-J	Resistor, RD1/4VS182J	1800 Ω	$\pm 5\%$	1/4W
R65	Y05-296-J	Resistor, RD1/4VS272J	2700 Ω	$\pm 5\%$	1/4W
R66	Y05-296-J	Resistor, RD1/4VS272J	2700 Ω	$\pm 5\%$	1/4W
R67	Y05-346-J	Resistor, RD1/4VS104J	100k Ω	$\pm 5\%$	1/4W
R68	Y05-346-J	Resistor, RD1/4VS104J	100k Ω	$\pm 5\%$	1/4W
R69	Y05-321-J	Resistor, RD1/4VS183J	18k Ω	$\pm 5\%$	1/4W
R70	Y05-321-J	Resistor, RD1/4VS183J	18k Ω	$\pm 5\%$	1/4W
R71	Y05-293-J	Resistor, RD1/4VS222J	2200 Ω	$\pm 5\%$	1/4W
R72	Y05-293-J	Resistor, RD1/4VS222J	2200 Ω	$\pm 5\%$	1/4W
R73	Y05-274-J	Resistor, RD1/4VS471J	470 Ω	$\pm 5\%$	1/4W
R74	Y05-274-J	Resistor, RD1/4VS471J	470 Ω	$\pm 5\%$	1/4W
R75	Y05-249-J	Resistor, RD1/4VS560J	56 Ω	$\pm 5\%$	1/4W
R76	Y05-249-J	Resistor, RD1/4VS560J	56 Ω	$\pm 5\%$	1/4W
R77	Y05-336-J	Resistor, RD1/4VS563J	56k Ω	$\pm 5\%$	1/4W
R78	Y05-336-J	Resistor, RD1/4VS563J	56k Ω	$\pm 5\%$	1/4W
R79	Y05-287-J	Resistor, RD1/4VS102J	1000 Ω	$\pm 5\%$	1/4W
R80	Y05-287-J	Resistor, RD1/4VS102J	1000 Ω	$\pm 5\%$	1/4W
R81	Y05-298-J	Resistor, RD1/4VS332J	3300 Ω	$\pm 5\%$	1/4W
R82	Y05-298-J	Resistor, RD1/4VS332J	3300 Ω	$\pm 5\%$	1/4W
R83	Y05-355-J	Resistor, RD1/4VS274J	270k Ω	$\pm 5\%$	1/4W
R84	Y05-355-J	Resistor, RD1/4VS274J	270k Ω	$\pm 5\%$	1/4W
R85	Y05-298-J	Resistor, RD1/4VS332J	3300 Ω	$\pm 5\%$	1/4W
R86	Y05-298-J	Resistor, RD1/4VS332J	3300 Ω	$\pm 5\%$	1/4W
R87	Y05-274-J	Resistor, RD1/4VS471J	470 Ω	$\pm 5\%$	1/4W
R88	Y05-274-J	Resistor, RD1/4VS471J	470 Ω	$\pm 5\%$	1/4W
R89	Y05-323-J	Resistor, RD1/4VS223J	22k Ω	$\pm 5\%$	1/4W
R90	Y05-323-J	Resistor, RD1/4VS223J	22k Ω	$\pm 5\%$	1/4W
R91	Y05-336-J	Resistor, RD1/4VS563J	56k Ω	$\pm 5\%$	1/4W
R92	Y05-336-J	Resistor, RD1/4VS563J	56k Ω	$\pm 5\%$	1/4W
R93	Y05-328-J	Resistor, RD1/4VS333J	33k Ω	$\pm 5\%$	1/4W
R94	Y05-328-J	Resistor, RD1/4VS333J	33k Ω	$\pm 5\%$	1/4W
R95	Y05-249-J	Resistor, RD1/4VS560J	56 Ω	$\pm 5\%$	1/4W
R96	Y05-287-J	Resistor, RD1/4VS102J	1000 Ω	$\pm 5\%$	1/4W
R97	Y05-287-J	Resistor, RD1/4VS102J	1000 Ω	$\pm 5\%$	1/4W

CAPACITORS

Ref. Key	Parts No.	Description	Notes		
C1	C00-527-P	Capacitor, CEA220P16	22 μ F	+100% -10	16V
C2	C00-527-P	Capacitor, CEA220P16	22 μ F	+100% -10	16V
C3	C06-114-K	Capacitor, CKDYB471K50	470pF	\pm 10%	50V
C4	C06-114-K	Capacitor, CKDYB471K50	470pF	\pm 10%	50V
C5	C00-907-P	Capacitor, CEA2R2P50	2.2 μ F	+100% -10	50V
C6	C00-907-P	Capacitor, CEA2R2P50	2.2 μ F	+100% -10	50V
C7	C08-028-K	Capacitor, CCDSL470K50	47pF	\pm 10%	50V
C8	C08-028-K	Capacitor, CCDSL470K50	47pF	\pm 10%	50V
C9	C03-213-K	Capacitor, CQMA332K50	3300pF	\pm 10%	50V
C10	C03-213-K	Capacitor, CQMA332K50	3300pF	\pm 10%	50V
C11	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C12	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C13	C00-142-P	Capacitor, CEA101P6	100 μ F	+100% -10	6V
C14	C00-142-P	Capacitor, CEA101P6	100 μ F	+100% -10	6V
C15	C00-733-P	Capacitor, CEA470P25	47 μ F	+100% -10	25V
C16	C00-733-P	Capacitor, CEA470P25	47 μ F	+100% -10	25V
C17	C00-527-P	Capacitor, CEA220P16	22 μ F	+100% -10	16V
C18	C00-527-P	Capacitor, CEA220P16	22 μ F	+100% -10	16V
C19	C00-907-P	Capacitor, CEA2R2P50	2.2 μ F	+100% -10	50V
C20	C00-907-P	Capacitor, CEA2R2P50	2.2 μ F	+100% -10	50V
C21	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C22	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C23	C00-142-P	Capacitor, CEA101P6	100 μ F	+100% -10	6V
C24	C00-142-P	Capacitor, CEA101P6	100 μ F	+100% -10	6V
C25	C08-006-K	Capacitor, CCDSL050K50	5pF	\pm 10%	50V
C26	C08-006-K	Capacitor, CCDSL050K50	5pF	\pm 10%	50V
C27	C00-733-P	Capacitor, CEA470P25	47 μ F	+100% -10	25V
C28	C00-733-P	Capacitor, CEA470P25	47 μ F	+100% -10	25V
C29	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C30	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C31	C00-822-P	Capacitor, CEA100P35	10 μ F	+100% -10	35V
C32	C00-822-P	Capacitor, CEA100P35	10 μ F	+100% -10	35V
C33	C03-235-K	Capacitor, CQMA223K50	0.022 μ F	\pm 10%	50V
C34	C03-235-K	Capacitor, CQMA223K50	0.022 μ F	\pm 10%	50V
C35	C06-122-K	Capacitor, CKDYB821K50	820pF	\pm 10%	50V
C36	C06-122-K	Capacitor, CKDYB821K50	820pF	\pm 10%	50V
C37	C06-119-K	Capacitor, CKDYB681K50	680pF	\pm 10%	50V
C38	C06-119-K	Capacitor, CKDYB681K50	680pF	\pm 10%	50V
C39	C00-907-P	Capacitor, CEA2R2P50	2.2 μ F	+100% -10	50V
C40	C00-907-P	Capacitor, CEA2R2P50	2.2 μ F	+100% -10	50V
C41	C00-142-P	Capacitor, CEA101P6	100 μ F	+100% -10	6V
C42	C00-142-P	Capacitor, CEA101P6	100 μ F	+100% -10	6V
C43	C03-230-K	Capacitor, CQMA103K50	0.01 μ F	\pm 10%	50V
C44	C03-230-K	Capacitor, CQMA103K50	0.01 μ F	\pm 10%	50V
C45	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C46	C00-522-P	Capacitor, CEA100P16	10 μ F	+100% -10	16V
C47	C00-902-P	Capacitor, CEA010P50	1 μ F	+100% -10	50V
C48	C00-902-P	Capacitor, CEA010P50	1 μ F	+100% -10	50V
C51	C00-822-P	Capacitor, CEA100P35	10 μ F	+100% -10	35V

MISCELLANEOUS

Ref. Key	Parts No.	Description	Notes
Q1	G05-035-D,E	Transistor, 2SC644 R,S	
Q2	G05-035-D,E	Transistor, 2SC644 R,S	
Q3	G05-035-D,E	Transistor, 2SC644 R,S	
Q4	G05-035-D,E	Transistor, 2SC644 R,S	
Q5	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q6	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q7	G05-035-D,E	Transistor, 2SC644 R,S	
Q8	G05-035-D,E	Transistor, 2SC644 R,S	
Q9	G05-035-D,E	Transistor, 2SC644 R,S	
Q10	G05-035-D,E	Transistor, 2SC644 R,S	
Q11	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q12	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q13	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q14	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q15	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q16	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q17	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
Q18	G05-036-C,D,E	Transistor, 2SC828 Q,R,S	
D1	G00-003-A	Diode, 1N60	
D2	G00-003-A	Diode, 1N60	
D3	G00-003-A	Diode, 1N60	
D4	G00-003-A	Diode, 1N60	
L1	CTF-029-0	Coil, 10mH	
L2	CTF-029-0	Coil, 10mH	
L3	T84-401-A	Trapping Coil, 10mH	
L4	T84-401-A	Trapping Coil, 10mH	
S1	CSH-017-0	Slide Switch	Rec./Playback Selector
S2	CSH-017-0	Slide Switch	Rec./Playback Selector
T1	T61-408-A	Matching Transformer	
T2	T61-408-A	Matching Transformer	

6.4 POWER SUPPLY UNIT

● Parts Connection

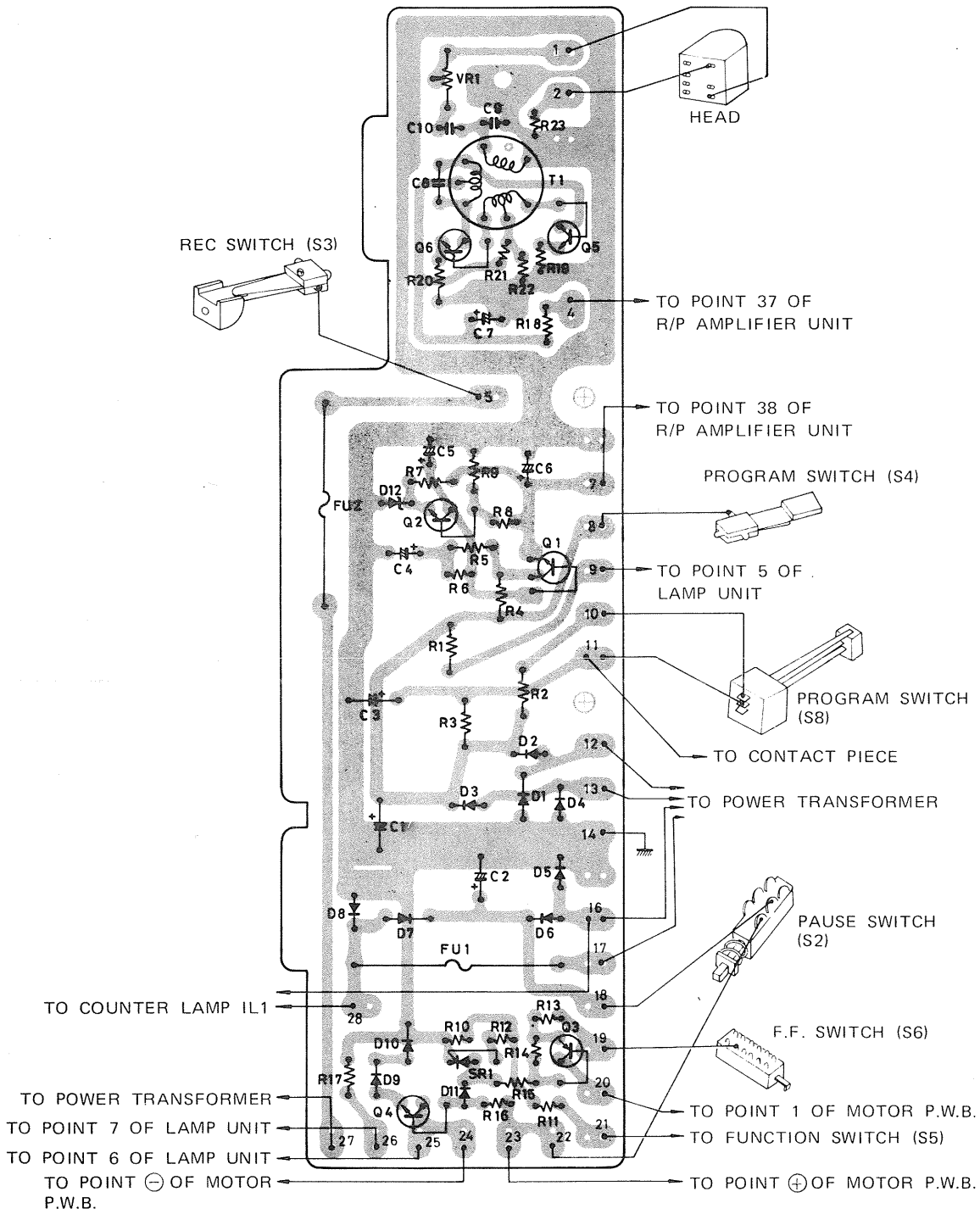


Fig. 10

● Parts List

RESISTORS

Ref. Key	Parts No.	Description	Notes		
R1	Y50-463-K	Resistor, RT5B201K	200Ω	±10%	5W
R2	Y50-461-K	Resistor, RT5B151K	150Ω	±10%	5W
R3	Y50-461-K	Resistor, RT5B151K	150Ω	±10%	5W
R4	Y20-824-K	Resistor, RS2P5R6K	5.6Ω	±10%	2W
R5	Y05-287-J	Resistor, RD¼VS102J	1000Ω	±5%	¼W
R6	Y05-274-J	Resistor, RD¼VS471J	470Ω	±5%	¼W
R7	Y05-284-J	Resistor, RD¼VS821J	820Ω	±5%	¼W
R8	Y05-284-J	Resistor, RD¼VS821J	820Ω	±5%	¼W
R9	Y05-288-J	Resistor, RD¼VS122J	1200Ω	±5%	¼W
R10	Y05-252-J	Resistor, RD¼VS680J	68Ω	±5%	¼W
R11	Y05-280-J	Resistor, RD¼VS681J	680Ω	±5%	¼W
R12	Y05-264-J	Resistor, RD¼VS221J	220Ω	±5%	¼W
R13	Y03-422-J	Resistor, RD½PS4R7J	4.7Ω	±5%	¼W
R14	Y05-346-J	Resistor, RD¼VS104J	100kΩ	±5%	¼W
R15	Y05-274-J	Resistor, RD¼VS471J	470Ω	±5%	¼W
R16	Y05-280-J	Resistor, RD¼VS681J	680Ω	±5%	¼W
R17	Y20-841-K	Resistor, RS2P330K	33Ω	±5%	2W
R18	Y20-841-K	Resistor, RS2P330K	33Ω	±5%	2W
R19	Y05-241-J	Resistor, RD¼VS330J	33Ω	±5%	¼W
R20	Y05-241-J	Resistor, RD¼VS330J	33Ω	±5%	¼W
R21	Y05-321-J	Resistor, RD¼VS183J	18kΩ	±5%	¼W
R22	Y05-291-J	Resistor, RD¼VS182J	1800Ω	±5%	¼W
R23	Y05-258-J	Resistor, RD¼VS101J	100Ω	±5%	¼W

CAPACITORS

Ref. Key	Parts No.	Description	Notes		
C1	C00-862-P	Capacitor, CEA102P35	1000μF	+100% -10%	35V
C2	C00-762-P	Capacitor, CEA102P25	1000μF	+100% -10%	25V
C3	C00-862-P	Capacitor, CEA102P35	1000μF	+100% -10%	35V
C4	C00-742-P	Capacitor, CEA101P25	100μF	+100% -10%	25V
C5	C00-722-P	Capacitor, CEA100P25	10μF	+100% -10%	25V
C6	C00-747-P	Capacitor, CEA221P25	220μF	+100% -10%	25V
C7	C00-747-P	Capacitor, CEA221P25	220μF	+100% -10%	25V
C8	C03-230-M	Capacitor, CQMA103M50	0.01μF	±20%	50V
C9	C03-506-M	Capacitor, CQMA152M200	0.0015μF	±20%	200V
C10	C06-116-K	Capacitor, CKDYB561K50	560pF	±10%	50V

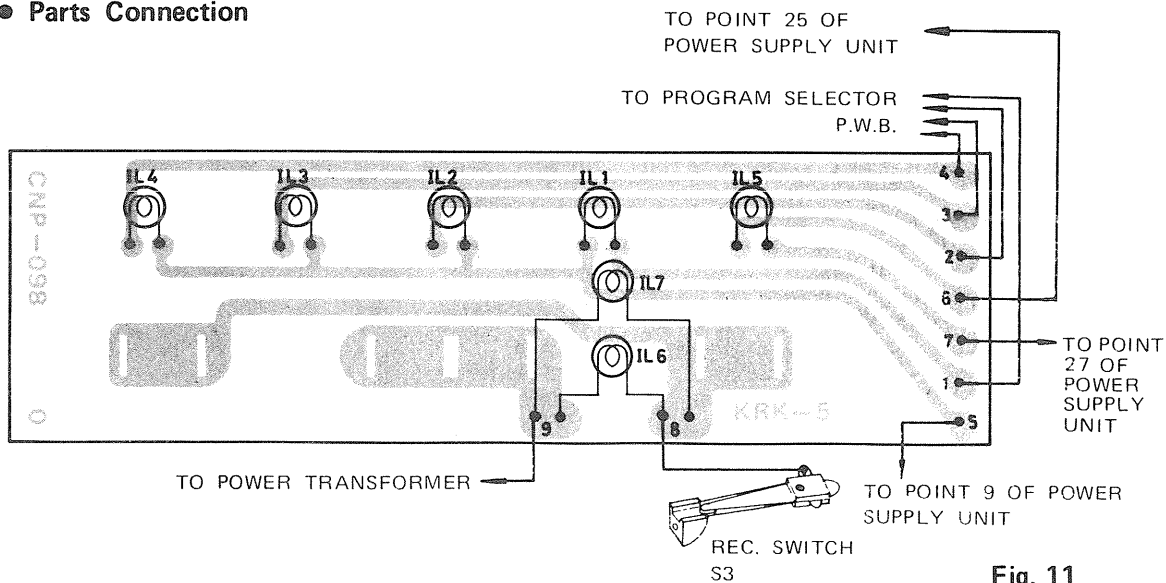
MISCELLANEOUS

Ref. Key	Parts No.	Description	Notes
Q1	G06-717-B,C,D	Transistor, 2SC1162B,C,D	
Q2	G05-055-D,E	Transistor, 2SC1317 Q,R	
Q3	G03-404-B,C	Transistor, 2SA683 Q,R	
Q4	G06-717-B,C,D	Transistor, 2SC1162 B,C,D	
Q5	G05-055-D,E	Transistor, 2SC1317 Q,R	

Ref. Key	Parts No.	Description	Notes
Q6	G05-055-D,E	Transistor, 2SC1317 Q,R	
D1	G00-536-A	Diode, S1.5-01	
D2	G00-536-A	Diode, S1.5-01	
D3	G00-536-A	Diode, S1.5-01	
D4	G00-536-A	Diode, S1.5-01	
D5	G00-536-A	Diode, S1.5-01	
D6	G00-536-A	Diode, S1.5-01	
D7	G00-536-A	Diode, S1.5-01	
D8	G00-536-A	Diode, S1.5-01	
D9	G00-536-A	Diode, S1.5-01	
D10	G00-536-A	Diode, S1.5-01	
D11	G01-803-A	Diode, 1S1555	
D12	G01-037-A	Zener Diode, WZ-120	
VR1	C92-605-0	Semi-Variable Resistor	5k Ω
SR1	G02-001-A	Thyristor, 02AM	
FU1	E21-606-0	Fuse, 1.5A	
FU2	E21-601-0	Fuse, 1A	
T1	T64-603-0	Oscillating Transformer	

6.5 LAMP UNIT

● Parts Connection

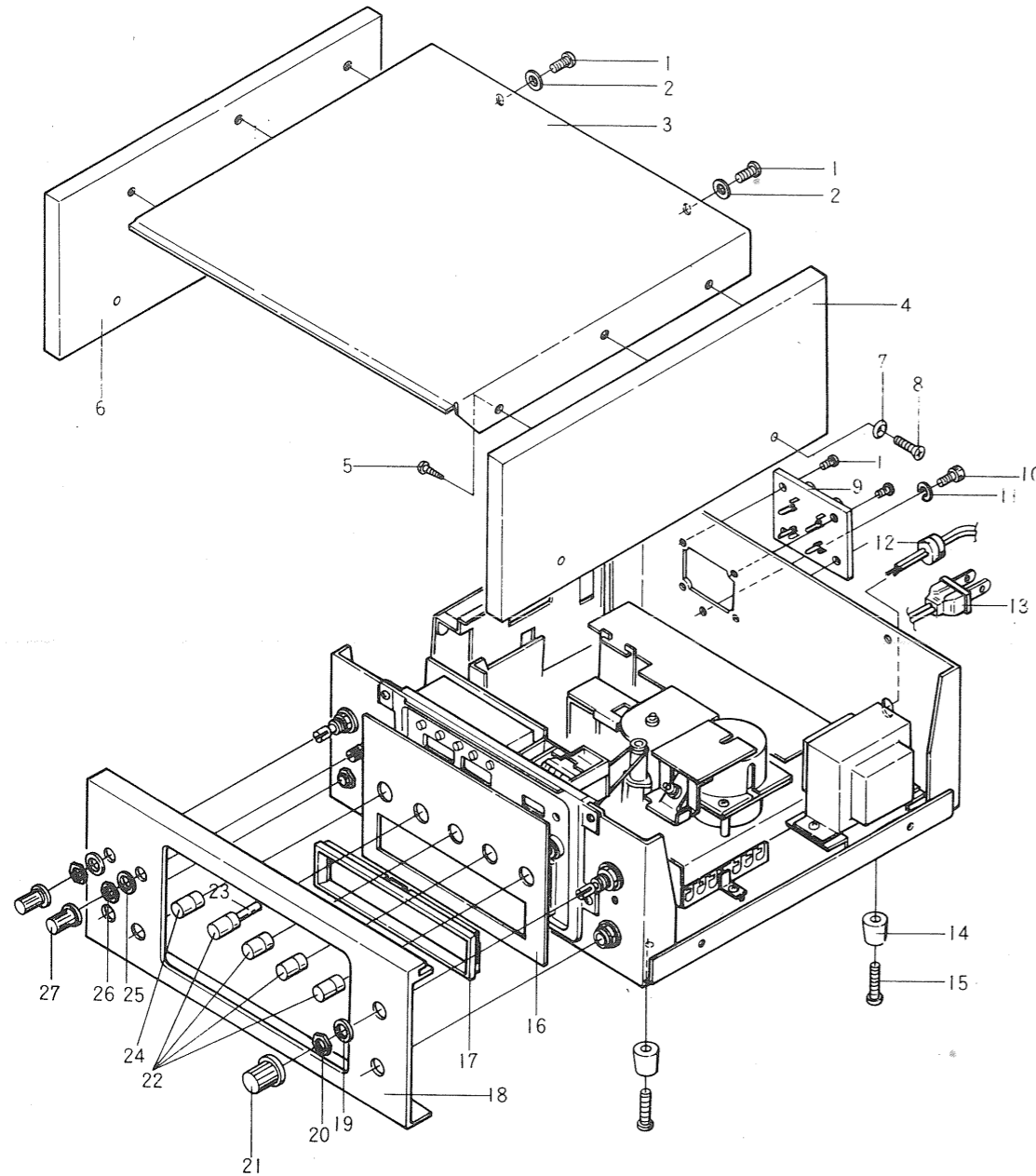


● Parts List

Ref. Key	Parts No.	Description	Notes
IL1	E22-617-A	Lamp	Program Indicator
IL2	E22-617-A	Lamp	Program Indicator
IL3	E22-617-A	Lamp	Program Indicator
IL4	E22-617-A	Lamp	Program Indicator
IL5	E22-617-A	Lamp	End Indicator
IL6	E22-017-0	Lamp	Level Meter Indicator
IL7	E22-017-0	Lamp	Level Meter Indicator

7. EXPLODED VIEW

7.1 CABINET



● Parts List

Ref. Key	Parts No.	Description	Notes
1	B01-863-A	Screw, M3 x 6	
2	B20-074-L	Fiber Washer, M3	
3	CNB-120-0	Cabinet Top	
4	CMS-015-0	Side Board, Right	
5	B02-013-A	Screw, M3.1 x 10	
6	CMS-016-0	Side Board, Left	
7	CBE-003-0	Dish Washer	
8	B09-382-E	Screw, M4 x 20	
9	CKB-003-0	Pin Jack, 4P	
10	B11-012-A	Screw, Grounding	
11	B20-013-A	Spring Washer, M4	
12	E32-056-0	Cord Stopper	
13	CDG-002-0	AC Power Cord	
14	W73-686-0	Rubber Foot	
15	B01-267-A	Screw, M3 x 14	
16	CNS-092-0	Front Panel	
17	N94-828-0	Front Escutcheon	
18	CNS-093-0	Front Grille	
19	CBE-014-0	Flat Washer, M9	
20	CBN-005-0	Hex. Nut, M9	
21	CAB-003-0	Knob	Function
22	CAC-036-0	Push Button	ALC, F. FWD, Program, Pause
23	CNV-038-A	Connecting Lever	
24	CAC-037-0	Push Button	REC
25	CBE-012-0	Flat Washer, M7	
26	CBN-003-0	Hex. Nut, M7	
27	CAA-037-0	Knob	REC Level

Fig. 12

7.2 CHASSIS

● Parts List

NOTICE: Any parts asterisked (*) are subject to being not supplied.

Ref. Key	Parts No.	Description	Notes
1	CNC-446-0	F. F. Lever	
2	CNC-445-A	Program Lever	
3	CNC-447-0	Pause Lever	
4	CWR-033-0	Power Supply Unit	
5	B01-863-A	Screw, M3 x 6	
6	CXM-013-0	Motor Unit	
7	B10-863-A	Screw, M3 x 6	
8*	CNC-577-0	Lever Holder	Pause
9	CSG-022-0	Push Switch	
10*	CNC-588-0	Holder, Power Supply Unit	
11	B06-162-A	Screw, M3 x 5	
12	CXA-447-0	Program Selector Assembly	
13	CXP-009-0	Solenoid	Solenoid
14	CBH-001-0	Spring	
15	CXA-412-A	Cam Ratchet	
16	B71-673-A	Hex. Nut	with Nylon Ring
17	N26-621-B	Cam	
18	B20-105-B	E Ring, 3.2mm	Head Base
19	B33-726-0	Spring	
20	CXA-333-A	Head Base	
21*	M16-624-0	Lead Retainer	Cam
22	CBH-002-0	Spring	
23*	CXA-332-A	Sub Chassis	
24	B11-678-0	Screw, M2.6 x 14	
25	B06-111-A	Screw, M2.6 x 6	
26	CNC-242-0	Head Holder	
27	CPB-007-0	Head	Azimuth Adj.
28	B33-727-0	Spring	
29	W74-842-D	Lock Plate Assembly	
30	B20-103-B	E Ring, 2.5mm	
31	N92-609-0	Roller	Lock Plate Assembly
32	B33-671-B	Spring	
33	N52-672-A	Spacer	
34	B01-864-A	Screw, M3 x 8	
35	B10-864-A	Screw, M3 x 8	
36	CLA-028-A	Motor Pulley	
37	B11-607-0	Screw, M2.6 x 5	
38	CNC-645-0	Protector Plate	
39	B10-802-A	Screw, M2 x 4	
40	CBF-034-0	Teflon Washer	
41	CNR-019-0	Flywheel	
42	CNT-016-0	Main Belt	
43*	CNA-056-0	Chassis	
44	B01-875-A	Screw, M4 x 6	
45	CTT-021-0	Power Transformer	
46*	CNC-590-0	Holder, Power Transformer	
47	CSE-002-0	Rotary Switch	
48	K72-627-0	Headphone Jack	
49	CNC-624-0	Spacer, Headphone Jack	
50	CEK-008-0	Fuse, 0.5A	

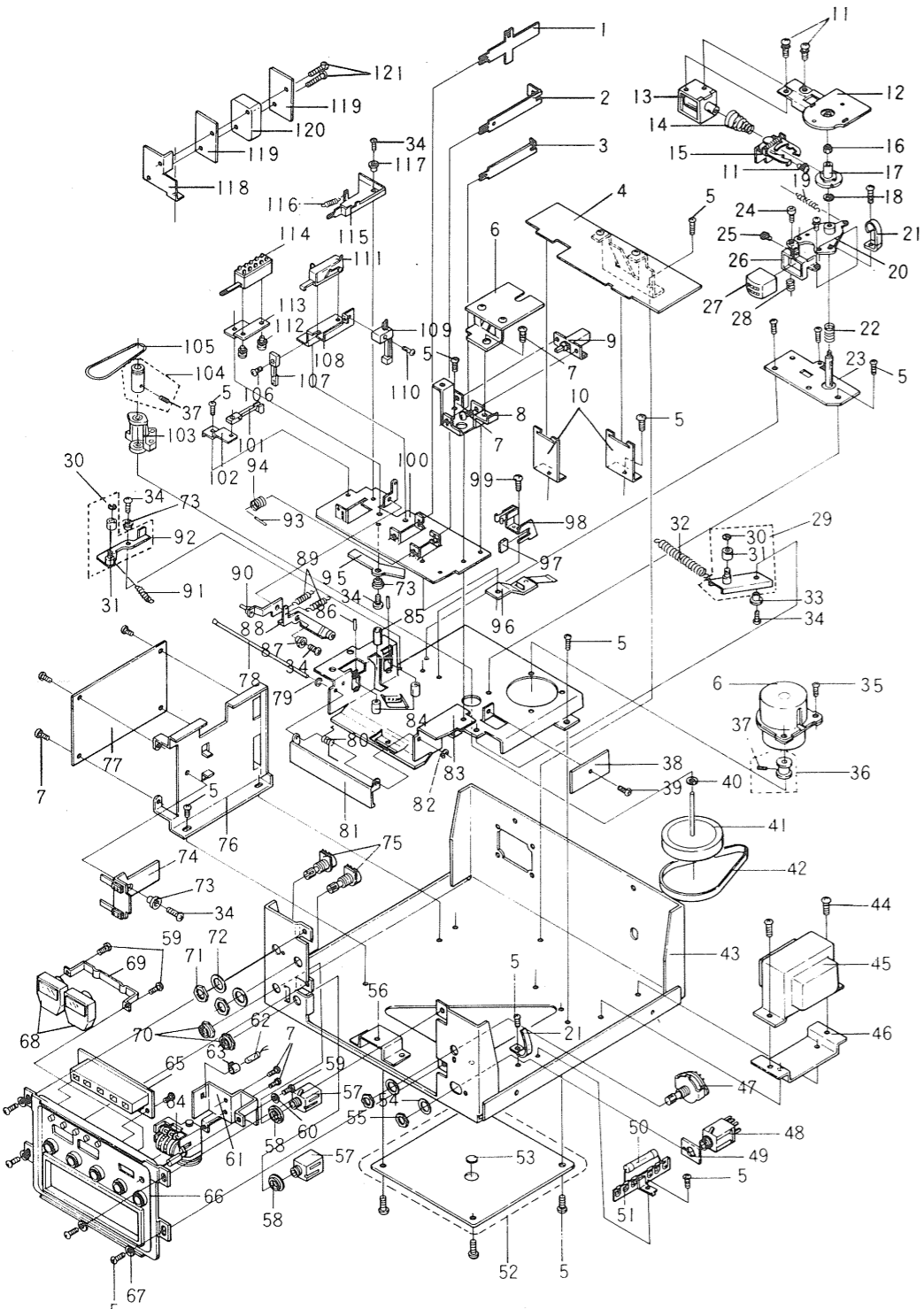


Fig. 13

Ref. Key	Parts No.	Description	Notes
51	CKC-003-0	Lug Terminal	
52	CXA-525-0	Bottom Cover	
53	B23-657-0	Nylon Washer	
54	CBE-014-0	Flat Washer, M9	
55	CNB-005-0	Hex. Nut, M9	
56*	CNC-453-0	Supporting Bracket	
57	K72-622-A	Mic Jack	
58	B23-644-0	Insulating Washer	
59	B08-219-A	Screw, M2.6 x 6	
60	B20-002-A	Flat Washer, M2.6	
61*	CNC-432-0	Counter Holder	
62	CEL-002-0	Indicator Lamp	
63	E31-727-A	Lamp Holder	
64	CAW-007-0	Counter	
65	CXA-434-0	Lamp Holder Assembly	
66	CXA-503-0	Sub Panel	
67	B20-003-A	Flat Washer, M3	
68	CAW-005-0	Level Meter	
69	CNC-462-0	Meter Holder	
70	B71-031-0	Insulating Nut	
71	CBN-003-0	Hex. Nut, M7	
72	CBE-012-0	Flat Washer, M7	
73	N52-728-0	Spacer	
74	CXA-413-0	Recording Lever	
75	CCS-040-0	Volume	Rec Level
76*	CNC-476-A	Bracket, R/P Amplifier	
77	CWF-022-0	R/P Amplifier Assembly	
78	B33-613-A	Door Shaft	
79	B20-010-A	Spring Washer, M2	
80	B33-673-A	Spring	Door
81	CNB-054-0	Door	
82	B20-111-B	E Ring, 1.5mm	
83*	CNA-054-A	Chassis	
84	E32-718-0	Guide Roller	
85	E32-603-A	Guide Pole	
86	N55-653-0	Roller Shaft	
87	CLA-178-0	Spacer	
88	CXA-331-A	Recording Lock Lever A	
89	CBH-102-0	Spring	Recording Lock Lever
90	CXA-379-0	Recording Lock Lever B	
91	CBH-048-0	Spring	
92	CXA-533-A	Switch Lever Assembly	
93	B20-508-E	Stop Pin	
94	CBH-103-0	Spring	Program Lever Return
95	CNC-444-0	Revolution Lever	
96	CXA-381-0	Leaf Spring Unit	Cartridge Pressure
97	E32-656-0	Tape Protector	
98	CXA-264-A	Tape Guide	
99	B01-263-A	Screw, M3 x 6	
100*	CNC-433-A	Lever Bracket	

NOTICE: Any parts asterisked (*) are subject to being not supplied.

Ref. Key	Parts No.	Description	Notes
101	CSN-010-0	Leaf Switch	
102*	CSN-435-0	Bracket, Leaf Switch	
103	W74-776-A	Flywheel Holder	
104	CLA-187-0	Pulley	
105	CNT-021-0	Counter Belt	
106	B10-203-A	Screw, M2 x 5	
107	CSN-017-0	Leaf Switch	
108*	CNC-443-0	Bracket, Push Switch	
109	CSN-012-0	Leaf Switch	
110	B10-205-A	Screw, M2 x 8	
111	S31-614-A	Push Switch	
112	B06-109-A	Screw, M2.6 x 4	
113*	CNC-587-0	Bracket, Push Switch	
114	CSG-020-0	Push Switch	
115	CNC-433-A	Recording Lever	
116	CBH-131-0	Spring	Recording Lever
117	CBE-019-0	Spacer	
118*	CNC-592-0	Switch Bracket	
119	M98-676-A	Insulating Plate	
120	S21-625-0	Switch	Power
121	B06-168-A	Screw, M3 x 6	

8. PACKING METHOD

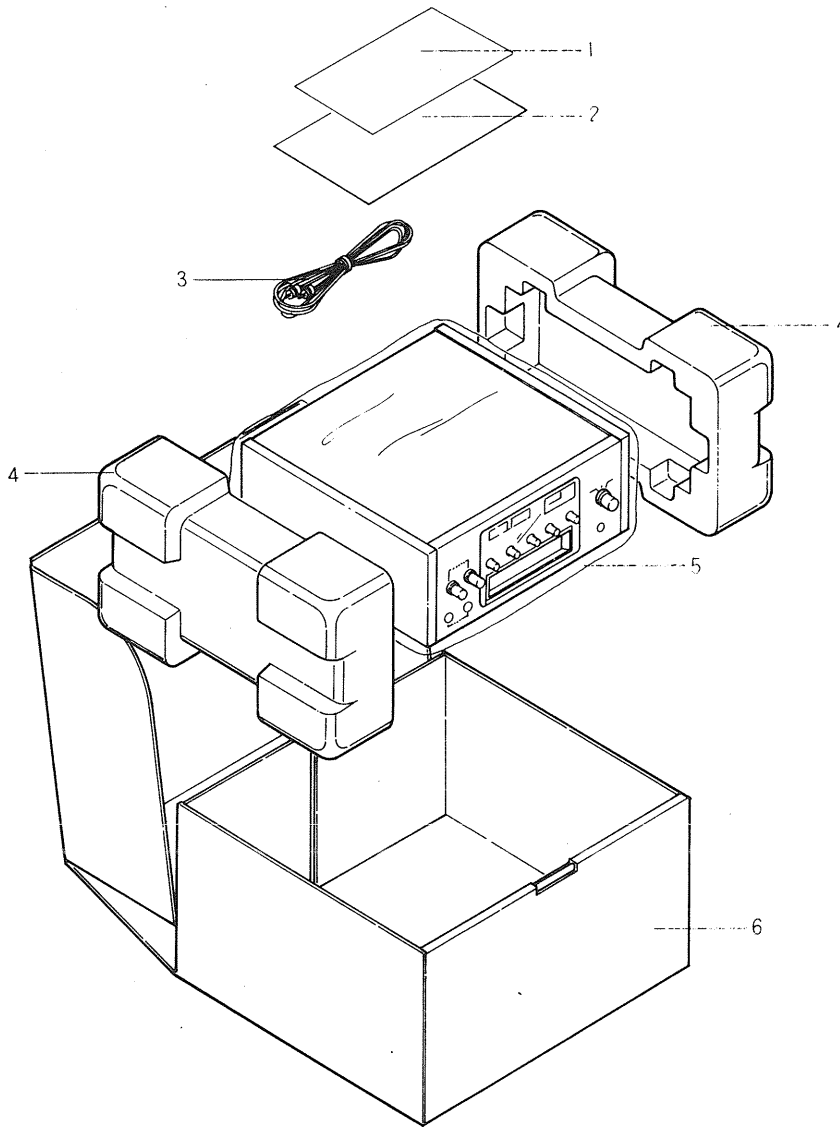


Fig. 14

● Parts List

NOTICE: Any parts asterisked (*) are subject to being not supplied.

Ref. Key	Parts No.	Description	Notes
1*	CRY-002-0	Registration Card	for Set
2	CRB-054-0	Owners Manual	
3	CDE-045-0	Connecting Cord	
4	CHA-256-0	Styro Foam	
5	E36-620-0	Polyethylene Bag	
6	CHA-255-0	Carton	

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