

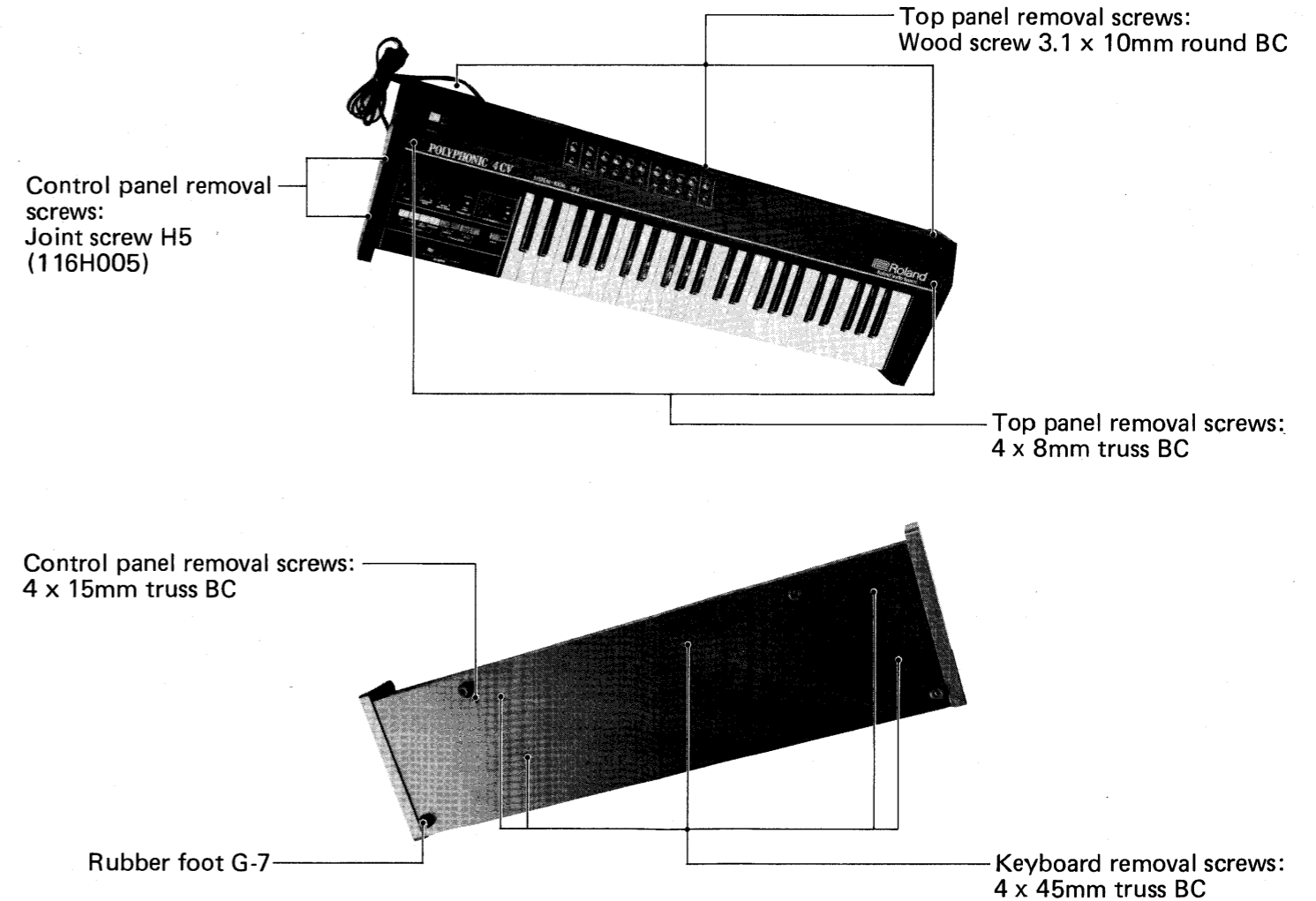
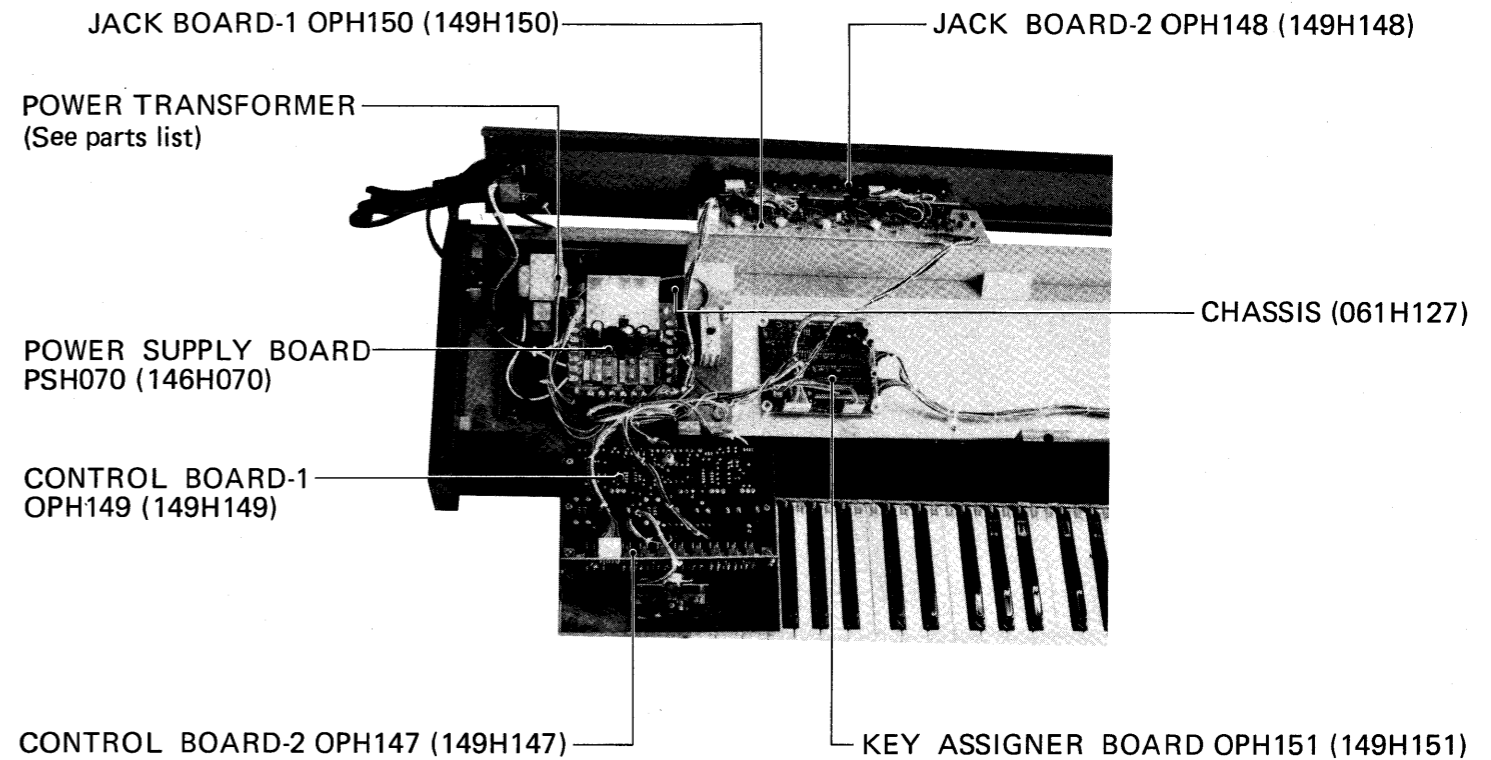
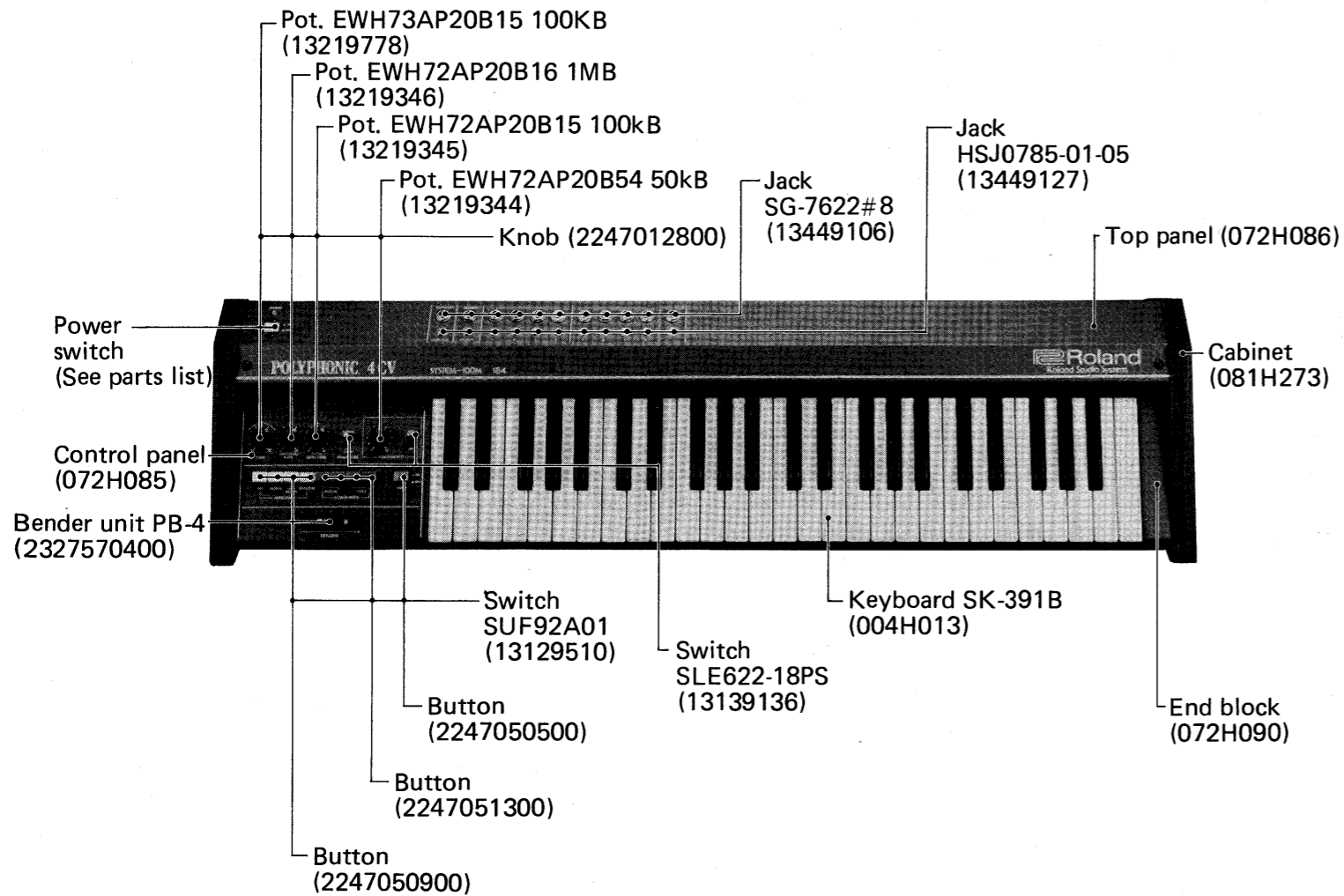
SYSTEM-100M-184

SERVICE NOTES

First Edition

SPECIFICATIONS

- Keyboard 61 keys, 4 octaves (C-C)
- Tunable range ±100 cents
- Pitch bend sens ±1300 cents (max.)
- Portamento time 0-1 s/oct
- CV out 1 V/oct
- Gate out +15V
- Bender CV out ±1V
- Arpeggio clock in +1V (min.)
- Dimensions 938(W) x 235(D) x 95(H)mm
- Power consumption ... 8W
- Weight 8.5 kg



PARTS LIST

004H013 Keyboard SK-391B
 081H273 Cabinet
 Rubber foot G-7
 072H085 Control panel
 072H086 Top panel
 072H090 End block
 061H127 Chassis power supply
 2327570400 Bender unit PB-4

KNOB. BUTTON

2247012800 Knob (016-078)
 2247050900 Button white (016-085)
 2247051300 Button blue (016-089)
 2247050500 Button gray (016-008)

SWITCH

13129101 SDG5P001-1 power 100V
 13129102 SDG5P001-2 (CSA) 117V
 13129103 SDG5P-502 (DNS) 220/240V
 13129510 SUF92A01 push (001-227)
 13139136 SLE622-18PS lever

JACK

13449106 SG-7622#8 (009-008)
 13449127 HSJ0785-01-05 mini.

TRANSFORMER. COIL

022H045J Power 100V
 022H045C Power 117V
 022H045D Power 220/240V
 2244021100 Coil 24M-067-333 (022-136)

PCB ASSEMBLY

149H151 KEY ASSIGNER BOARD OPH151
 (pcb 052H032C)
 149H149 CONTROL BOARD-1 OPH149
 (pcb 052H314A)
 149H147 CONTROL BOARD-2 OPH147
 (pcb 052H335)
 145H150 JACK BOARD-1 OPH150
 (pcb 052H315A)
 149H148 JACK BOARD-2 OPH148
 (pcb 052H321)
 146H070 POWER SUPPLY BOARD PSH070
 (pcb 052H172B)
 052H195 LED BOARD less parts

IC

15179101 μ PD8048-C11 (179-020)
 Single-Chip 8-Bit Microcomputer
 15159105T0 TC4013BP (020-041)
 Dual D-Flip Flop
 15159112T0 TC4049BP (020-075)
 Hex Inverter/buffer
 15159116T0 TC4069UBP (020-176)
 Hex Inverter
 15159114H0 MC14052BP (020-175)
 Dual 4-Channel Multiplexer
 15169301X0 SN74LS00
 Quad 2-Input NAND Gate
 15169322X0 SN74LS174
 Hex D-Flip Flop
 15169111X0 SN74LS175
 Quad D-Flip Flop
 15189118 TL082CP (020-100)
 OP Amp
 15229801 IR3109 (020-209)
 VCF
 15189105 μ PC4558 (020-097)
 OP Amp
 15199106N0 μ PC14305H or TA7805 (020-205)
 3-Terminal Regulator
 15199118 TA78015
 3-Terminal Regulator

TRANSISTOR

15119802 2SB596-Y (017-128)
 15119113 2SA1015-Y or GR (017-116)
 15129114 2SC1815-Y or GR (017-106)

DIODE

15019103 1S2473 (018-059)
 15019108 1S2473FV (018-094)
 151019243 1B4B1 (018-098)
 rectifier stack
 15019245 1B4B4
 rectifier stack
 15019624 1SZ52 (018-113)
 zener
 15029103 TLR-124 (019-028)
 LED

POTENTIOMETER

13219344 EWH72AP20B54 50kB
 PORTAMENTO
 13219778 EWH73AP20B15 100kB
 TUNE
 13219345 EWH72AP20B15 100kB
 PITCH BEND SENS
 13219346 EWH72AP20B16 1MB
 ARPEGGIO RATE
 (trimmer)
 13299116 SR19R 47kB (030-469)
 13299138 RJ6P2K 2kB (030-641)
 13299139 RJ6P10K 10kB (030-643)
 13299131 RJ6P20K 20kB

POSISTOR

15229909 ERS-B33G561 560 Ω (030-680)

RESISTOR

044-927 CRB25BY 11k
 044-928 CRB25BY 62.5k
 044-929 CRB25BY 125k
 044-930 CRB25BY 250k
 044-931 CRB25BY 500k

FUSE

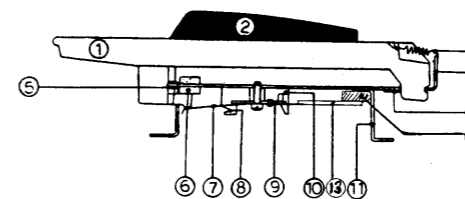
12559133 MGP 1A (008-014)
 pri. 100V
 12559513 SEMKO T1A (5 x 20mm) (008-066)
 sec. 100/220/240V
 12559507 SEMKO T200mA (008-059)
 sec. 100/220/240V
 12559311 MGP 1A CSA (008-041)
 pri. 117V
 12559333 GGS 1-1/4 1.25A/250V CSA
 (5x20mm) sec. 117V
 12559334 GGS 1/4 250mA/250V CSA
 sec. 117V
 12559532 SEMKO T630mA
 pri. 220/240V

FUSE HOLDER

12199519 TF-758 (012-003)

MISCELLANEOUS

048H017 Heat sink
 064H076 Holder power switch



SYS-184 SK-391B (004H013) KEYBOARD PARTS

NO	PART NO	DESCRIPTION	NO	PART NO	DESCRIPTION
1	106H026	Natural key C F	7	071H044	Contact leaf H44
1	106H027	Natural key D	8	071H051	Busbar 8P H51
1	106H028	Natural key D B		071H057	Busbar 1P H57
1	106H029	Natural key G	9	043H007	Switch unit 12P H7
1	106H030	Natural key A		043H008	Switch unit 13P H8
1	106H031	Natural key C'F'		043H011	Switch unit 13P-B H11
2	106H032	Sharp key black	10	064H093	Busbar holder H93
3	070H029	Key spring H29	11	062H024	Chassis bracket H24
4	061H086A	Chassis H86A	12	098H006	Key stopper H6
5	068H004	Guide bushing H4	13	052H283-4	Matrix board H283-4
6	101HL42	Level felt H142	14	107H059	Cushion H59

ADJUSTMENT

ALLOW APPROXIMATELY 20 MINUTES FOR WARMUP PERIOD.

BENDER UNIT PB-4

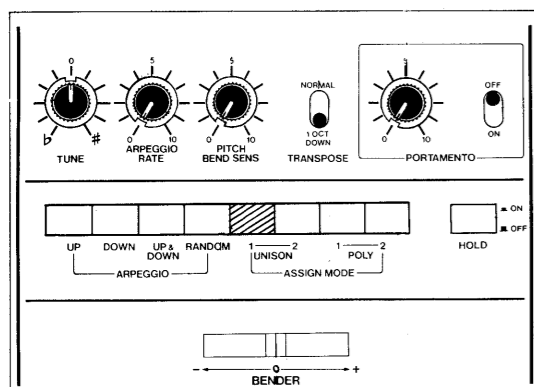
1. Connect digital voltmeter (DVM) across wiper and center tap of the Bender potentiometer.
If the meter reads other than 0.00V,
2. Loosen screw that lockes Bender lever to the Pot's shaft.
Turn the shaft for 0.000V reading.
3. Tighten the screw. Jog the lever and confirm 0V when the lever stands neutral.

D/A REFERENCE VOLTAGE OPH149

1. Connect DVM to CP-1 of OPH149 (or terminal 15 or Q1 collector of the board). (Ground DVM at terminal 20 of PSH70.)
2. Adjust VR1 for -15.000V reading.

BASIC SET-UP

for the remaining adjustments



KEY DESIGNATION & KCV OUT

	C0	C1	C2	C3	C4
TRANSPOSE	1.000V	2.000V	3.000V	4.000V	5.000V
NORMAL	0.000V	1.000V	2.000V	3.000V	4.000V
DOWN					

KCV WIDTH (A) OPH151

1. Disconnect connector (terminals 27-36).
Caution: Do not turn the power on/off once connector is separated – no reset signal for CPU.
 2. Connect DVM to terminal 36. (Ground DVM at terminal 20 of PSH70.)
 3. Holding C0 key down, adjust TUNE for 0.000V.
 4. Holding C4 key, adjust WIDTH VR2 for 4.000V.
- Leave the connector disconnected for the next para.

PORTAMENTO TIME OPH151

Reset: PORTAMENTO – ON PORTAMENTO Knob – 10

Others: the same as for above para.

1. Strike C0 key, then hold C4 key. The meter reading will follow the increasing ramp voltage. Time the period required for the CV to reach 4.000V.
2. Adjust VR1 for 4 sec period, or 1 sec/V.

KCV WIDTH (B) OPH150

Settings: Replug The connector housing on OPH151.

Set TUNE at its center.

OFFSET

1. Connect DVM to one of CH1 KCV jacks.
2. While depressing C0 key, adjust VR5 for 0.0mV reading.

WIDTH

1. Adjust VR1 so that KCV changes in 1V/oct steps as C note is depressed on different octaves.
Retain DVM connection for the next para.

TRANSPOSE OPH149

Setting: Set TRANSPOSE into NORMAL.

1. Adjust VR6 so that every KCV jack delivers, on different keys, a voltage 1V higher when compared with the one produced at TRANSPOSE in DOWN.
Leave the DVM connection for the next para.

BENDER SENS OPH149

Setting: BEND SENS – 10

1. Move then holding BENDER lever at "+", adjust VR2 for more than 1.084V (1300 cents) above the voltage at neutral. (Pressing key for 2V or 3V KCV is preferable for easier calculation.)
2. While holding the lever at "-", adjust VR1 for the same amount of voltage change (negative going) as at step 1.
3. Confirm voltage changes at BENDER CV OUT jack.

TUNE SHIFT RANGE

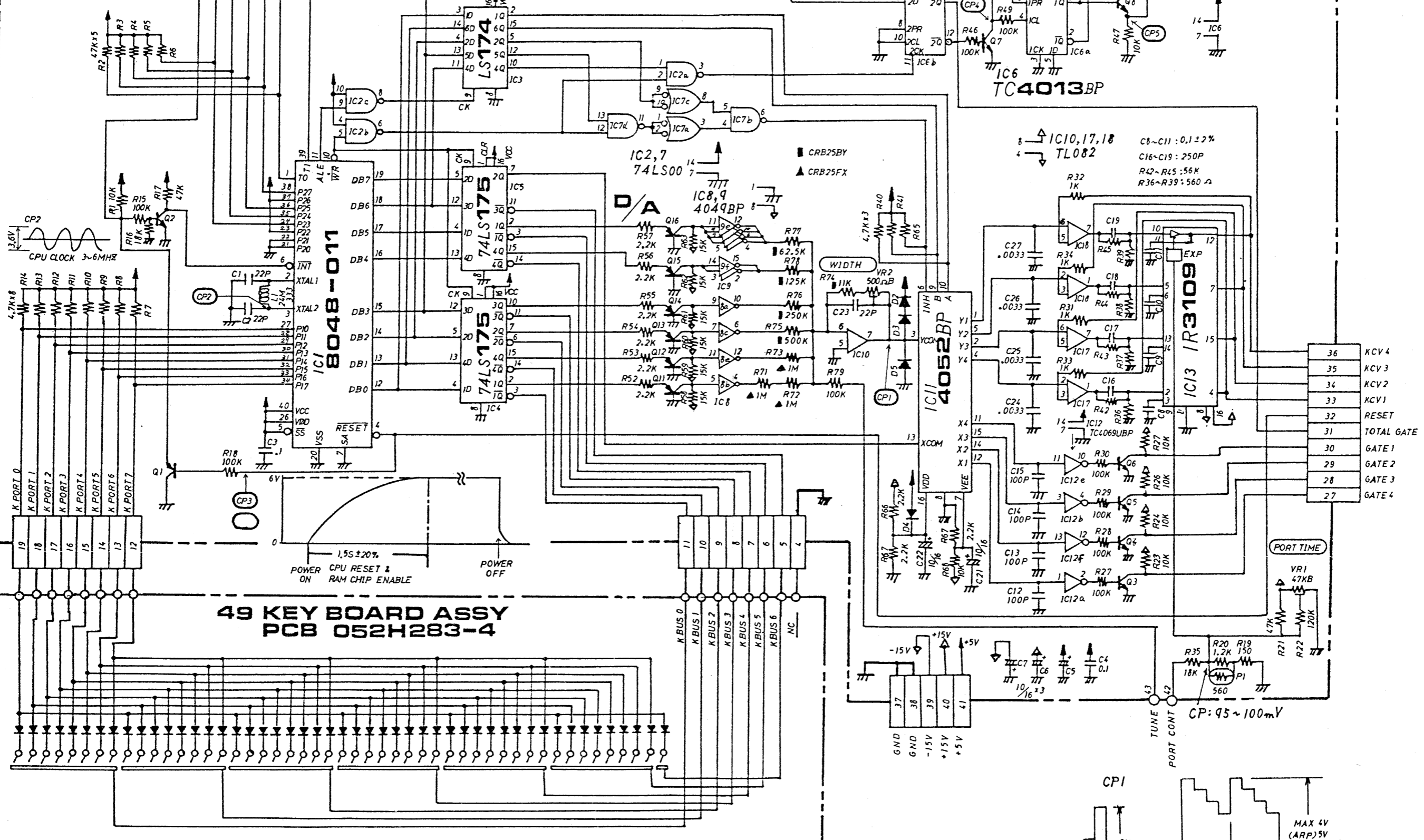
1. Confirm that KCV is shiftable up to ±74mV relative to the center.

1 2 3 4 5 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

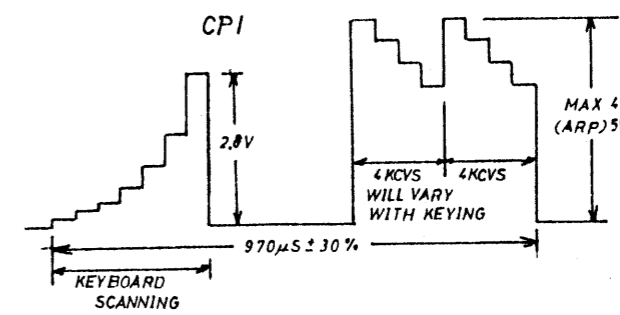
A B C D E F G H I J K L M N O P Q R S T U V

KEY ASSIGNER BOARD ASSY

PCB 052-032

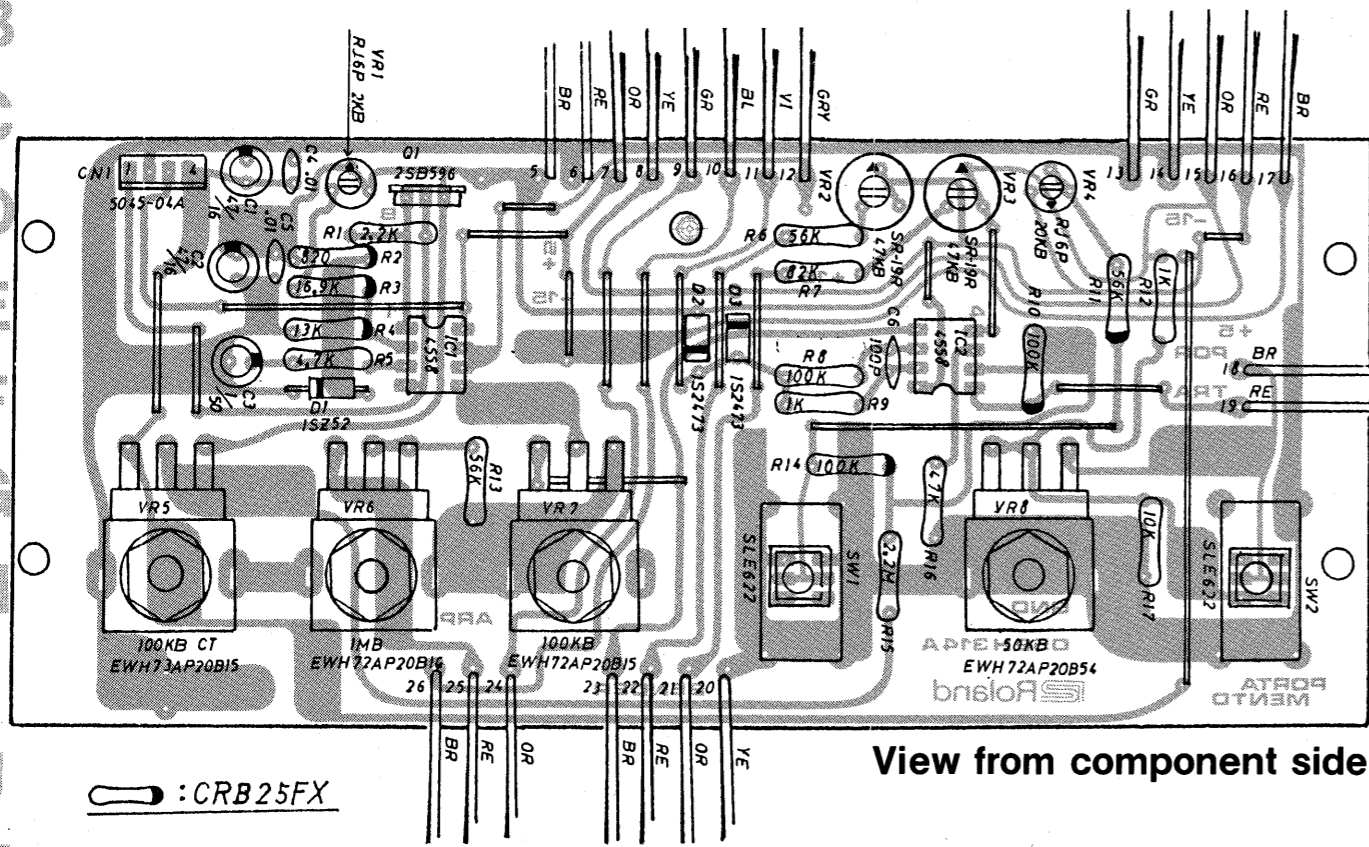


49 KEY BOARD ASSY PCB 052H283-4

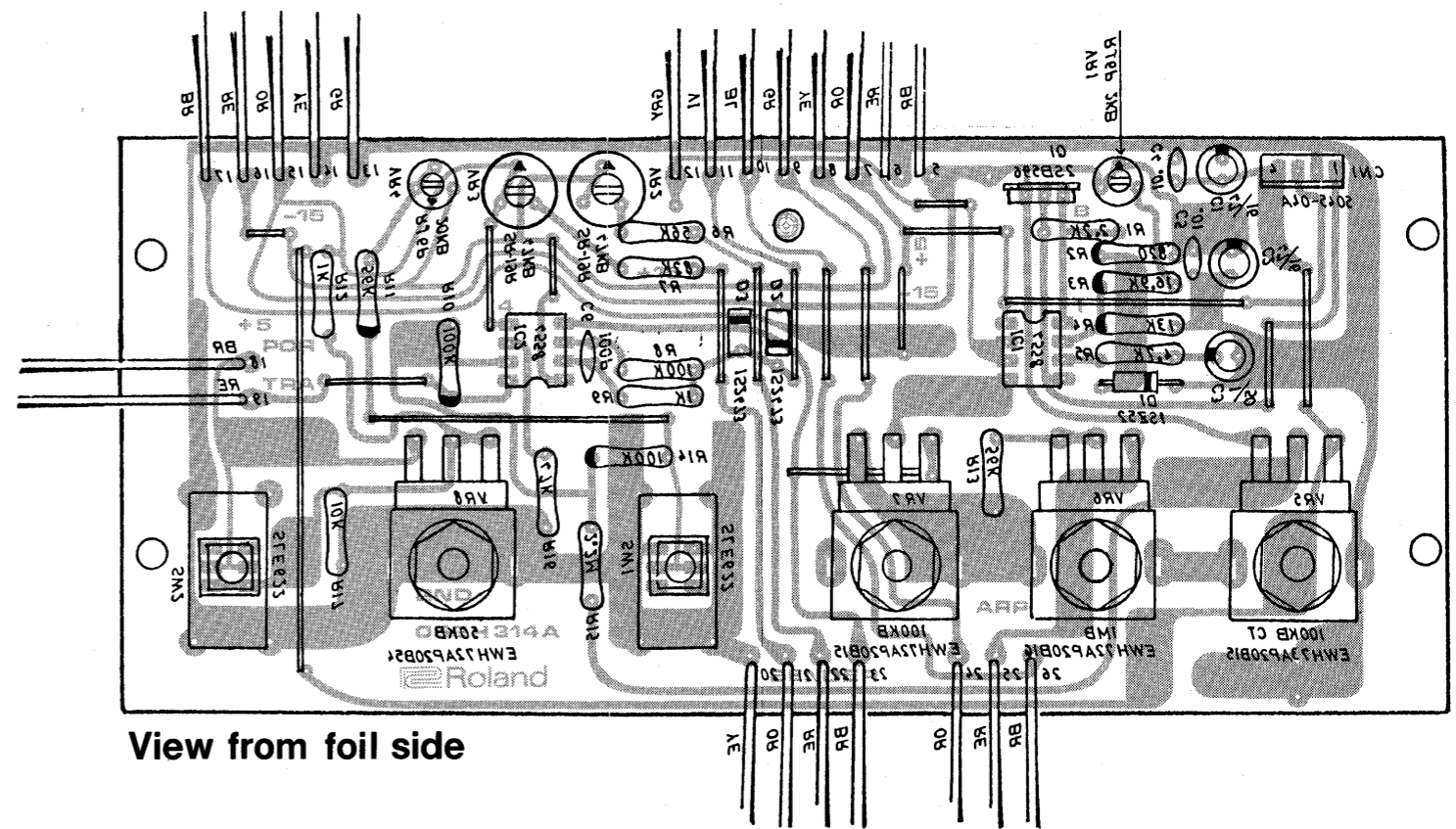


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

CONTROL BOARD-1 OPH149
(149H149) (pcb 052H314A)



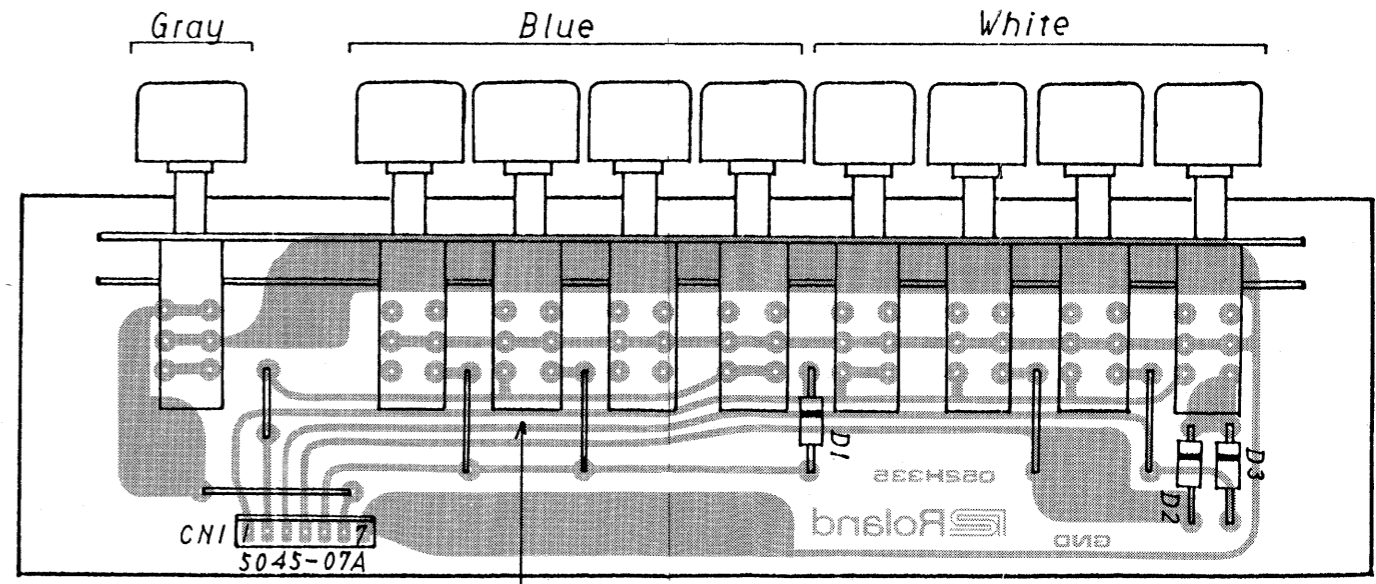
View from component side



View from foil side

:CRB25FX

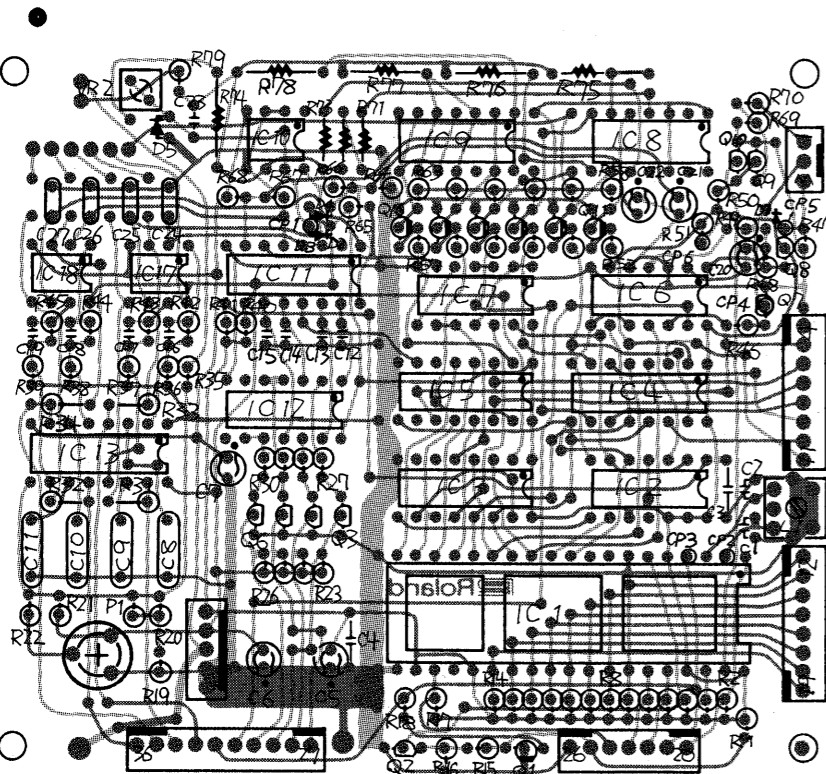
CONTROL BOARD-2 OPH147
(149H147) (pcb 052H335)



SW1
Push SW SUF92A01

D1~D3 : Diode IS2473

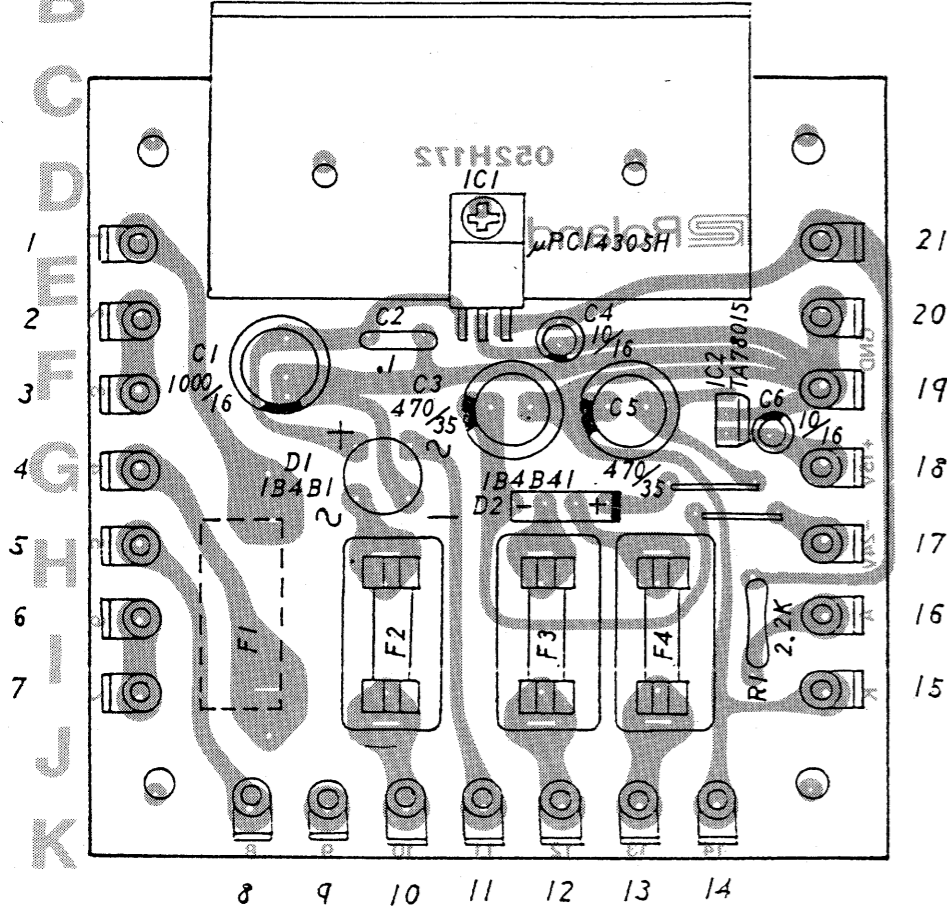
KEY ASSIGNER BOARD
OPH151
(149H151)
(pcb 052H032C)



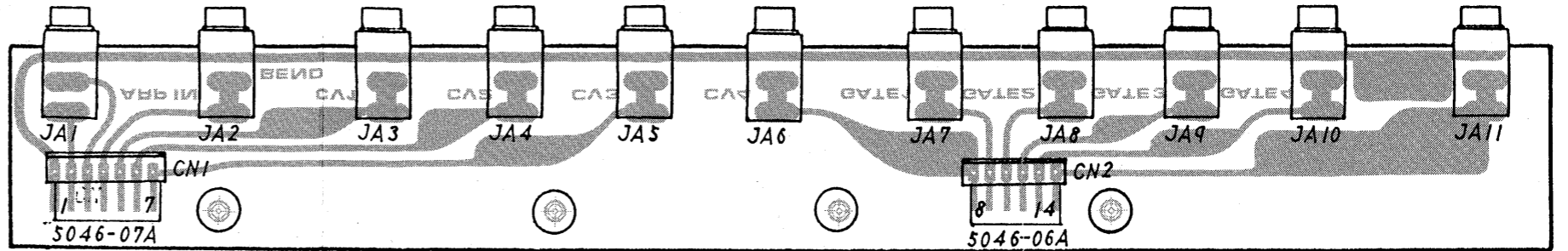
- R71~R73 : CRB25FX
- R74~R78 : CRB25BY
- : 2SA1015Y
- : 2SC1815Y
- : IS2473FV

POWER SUPPLY BOARD PSH070
(146H070) (pcb 052H172B)

HEAT SINK HI7

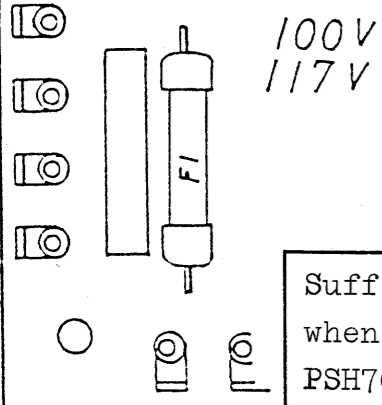
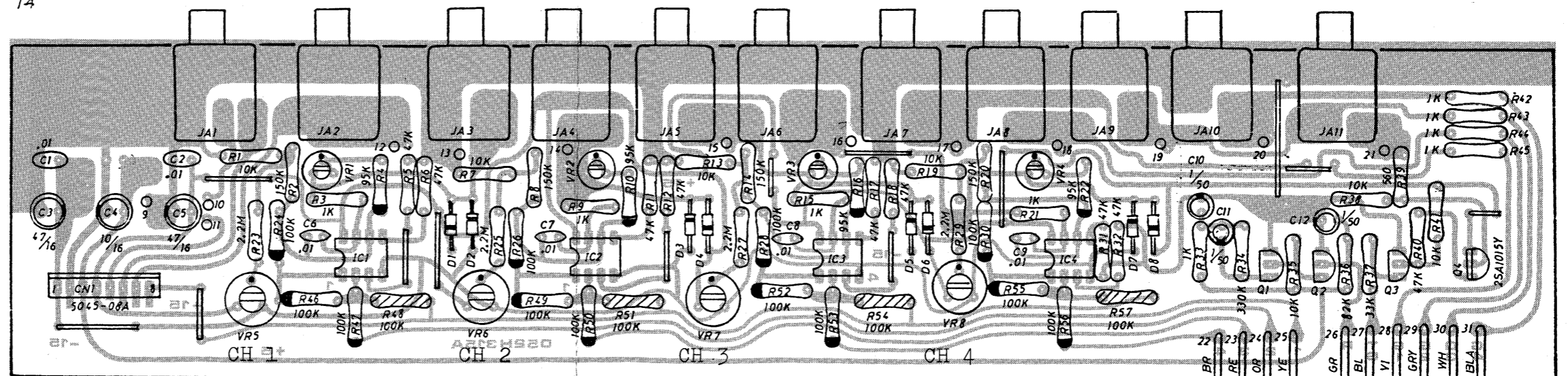


JACK BOARD-2 OPH148
(149H148) (pcb 052H321)

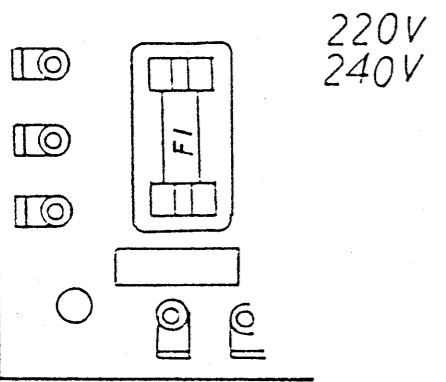


JA1~JA11 : JACK HSJ0785-01

JACK BOARD-1 OPH150 (149H150) (pcb 052H315A)



Suffix voltage
when ordering
PSH70.

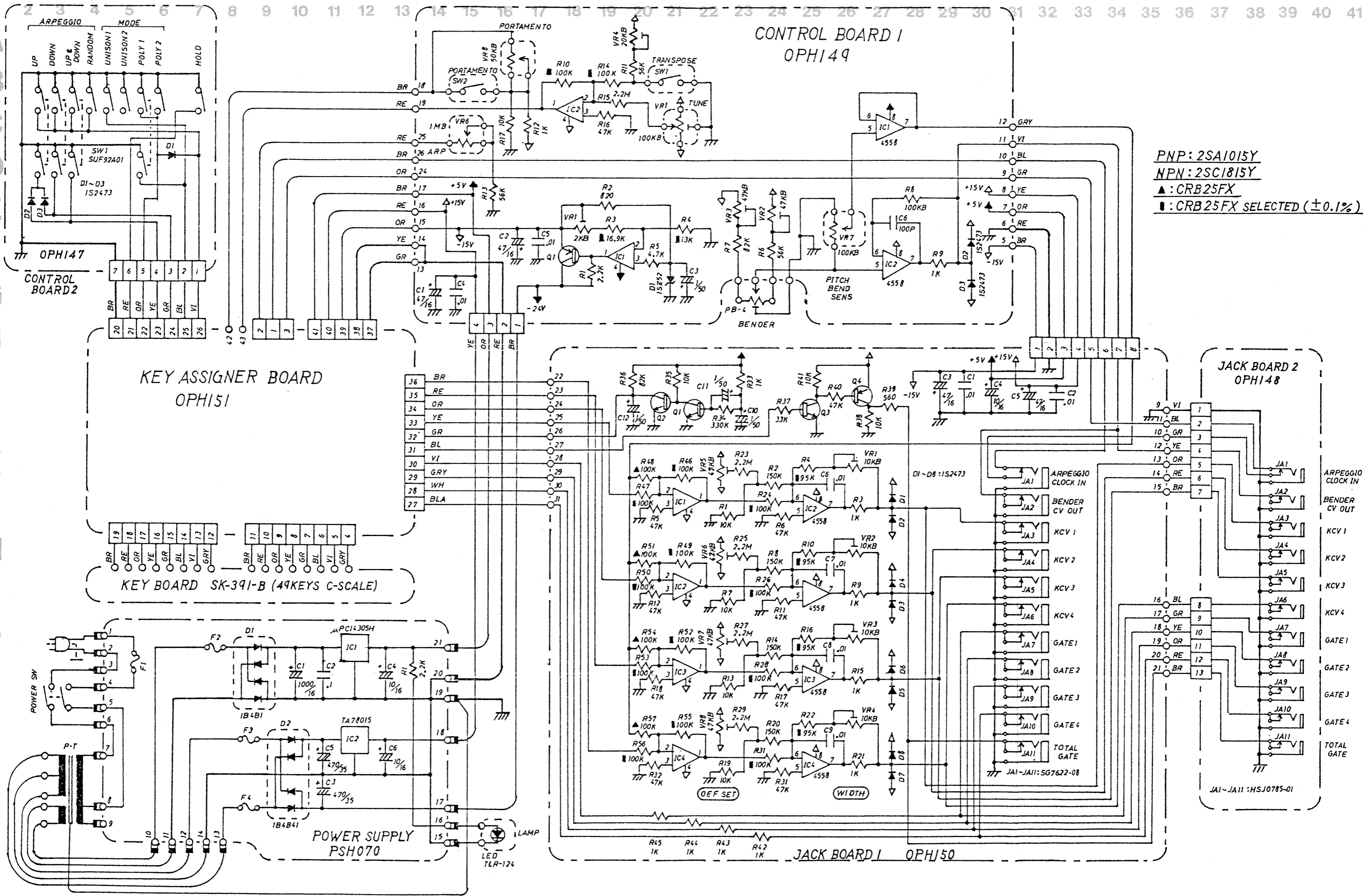


	F1	F2	F3,4
100V	MGPIA	Ⓢ 1AT	Ⓢ 200mAT
117V	MGPIA CSA	Ⓢ 1/4	Ⓢ 1/4
220/240V	Ⓢ 630mAT	Ⓢ 1AT	Ⓢ 200mAT

FUSE HOLDER : TF758

Q1~Q3 : 2SC1815Y
D1~D8 : IS2473
IC1~IC4 : μPC4558
JA1~JA11 : Jack SG7622-08

VR1~VR4 : RJ6P 10KB
VR5~VR8 : SR-19 47KB
Ⓢ : CRB25FX
▨ : CRB25FX selected (±0.1%)



PNP: 2SA1015Y
 NPN: 2SC1815Y
 ▲: CRB25FX
 ■: CRB25FX SELECTED (±0.1%)

	100V	117V	220/240V
P-T	022H045J	022H045C	022H045D
P-SW	SD65P001-1	SD65P001-2	SD65P-502