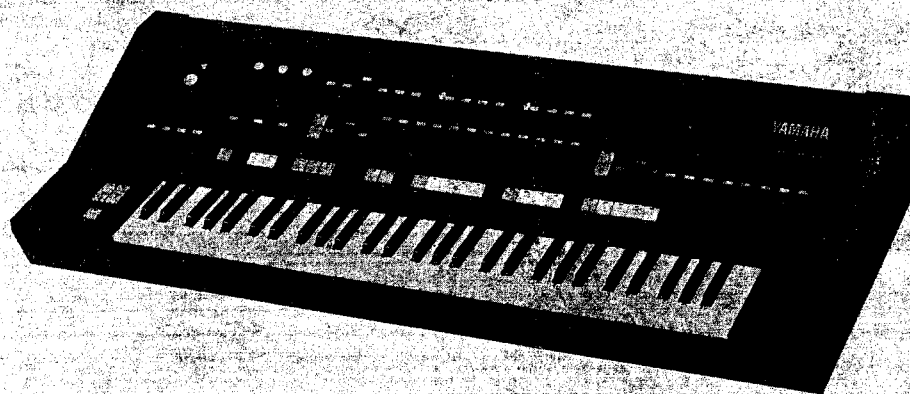


YAMAHA

SYMPHONIC ENSEMBLE

SK30



SERVICE MANUAL

006444

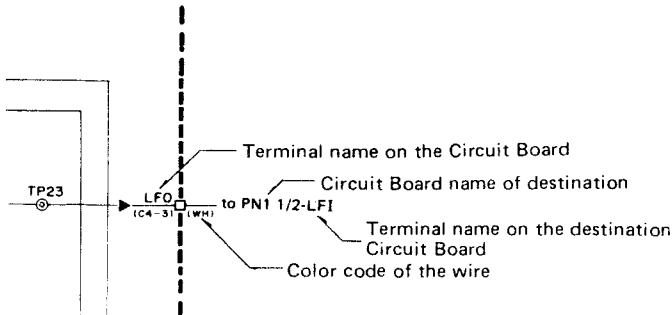
'80.12 2.3K Ⓢ Printed in Japan

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CODING GUIDE(活用の手引)

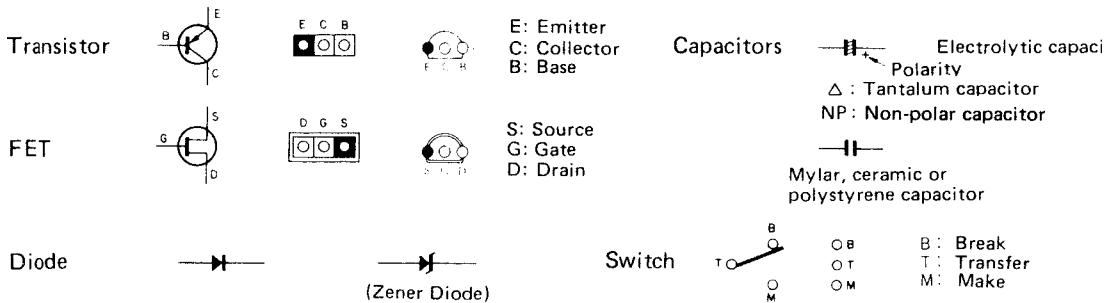
1 Wiring Notation



Note: Types of wire

- ^{BL}— Ordinary wire
- ^{BL}— Shielded wire

2 Symbol Description



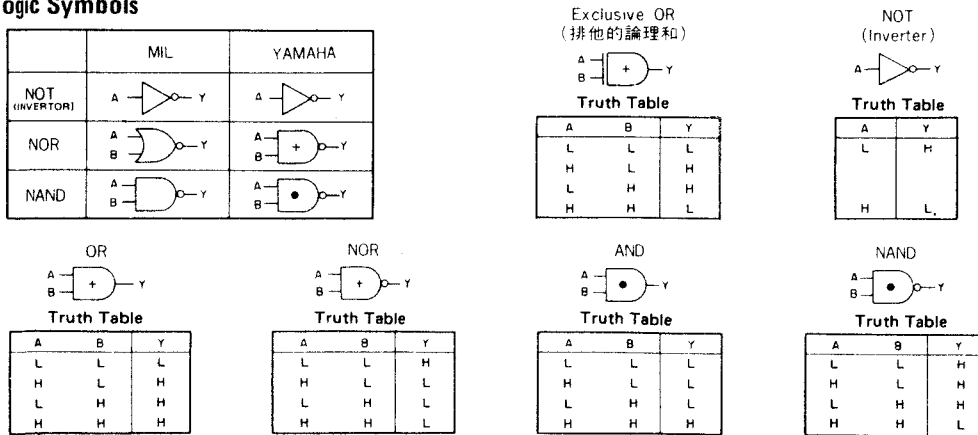
3 Abbreviations of Wire Color Codes

BLACK (クロ).....BL	BROWN (チャ).....BR	RED (アカ).....RE
ORANGE (タイ).....OR	YELLOW (キイ).....YE	GREEN (ミト).....GR
BLUE (アオ).....BE	VIOLET (ムラ).....VI	GRAY (ハイ).....GY
WHITE (シロ).....WH	GRASS GREEN (クサ).....GG	SKY BLUE (ソラ).....SB
PINK (モモ).....PK	TRANSPARENT (トウメイ).....TR	

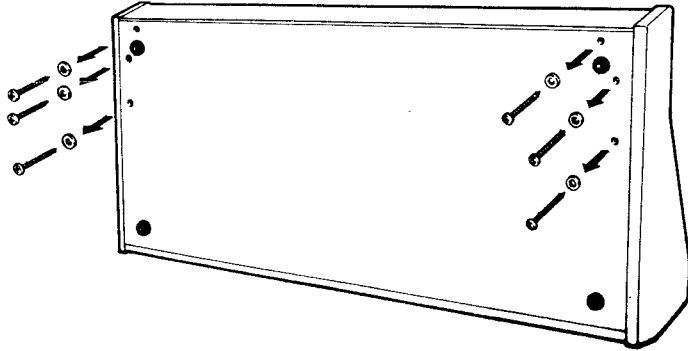
4 Relation of Color Coding and Notes

C	C≠	D	D≠	E	F	F≠	G	G≠	A	A≠	B
BR	RE	OR	YE	GR	BE	VI	GY	WH	GG	SB	PK
(チャ)	(アカ)	(タイ)	(キイ)	(ミト)	(アオ)	(ムラ)	(ハイ)	(シロ)	(クサ)	(ソラ)	(モモ)

5 Logic Symbols



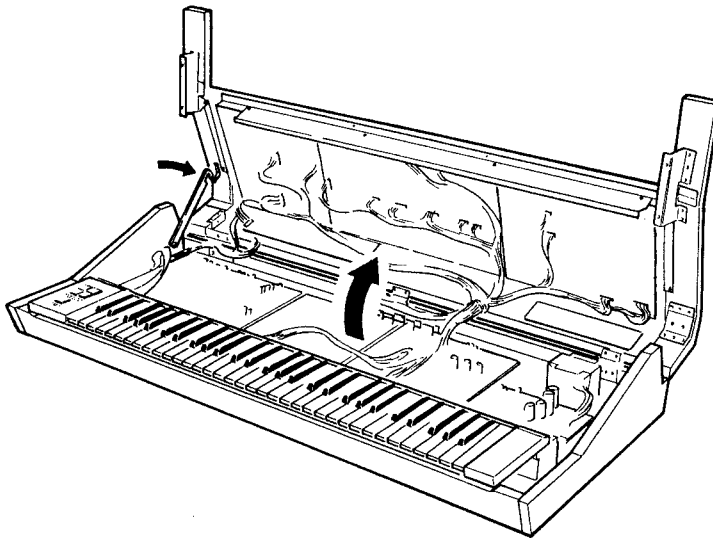
DISASSEMBLY PROCEDURE(分解手順)



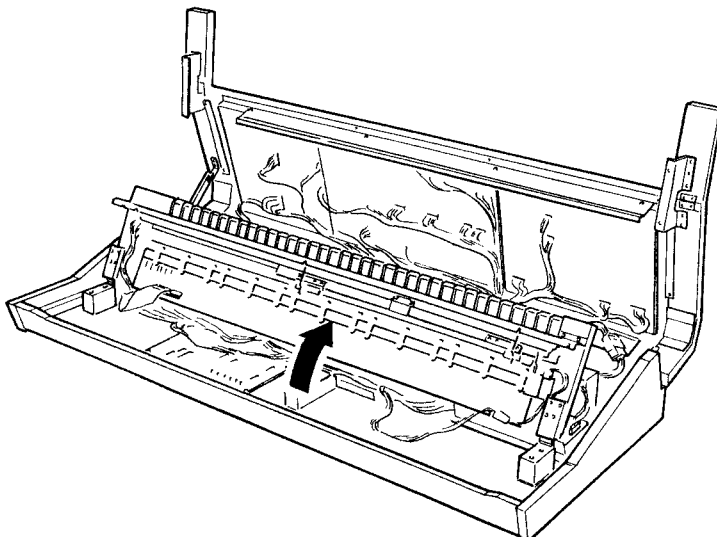
Opening the Console Panel and Keyboard

パネル及び、鍵盤部の開閉

- Remove 6 screws from bottom cover.
- 図のように底板部のネジ合計 6 本を外します。



- Lift the panel as shown in the figure until it is fully opened.
- パネル部を図のように持ち上げ回転させて開けます。

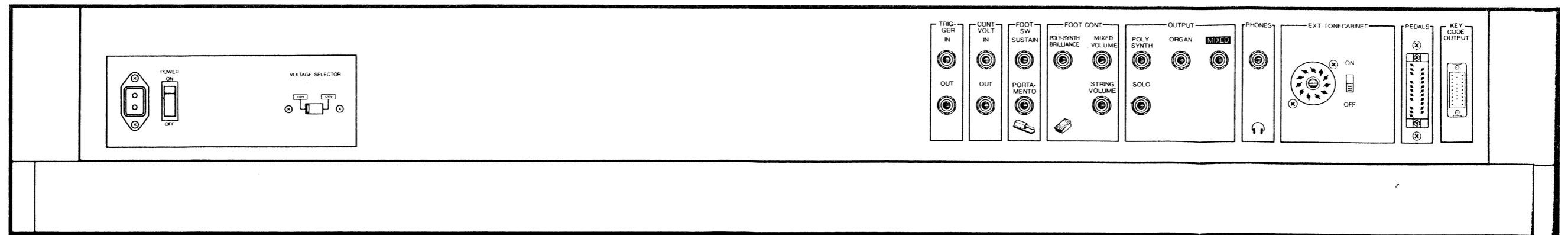
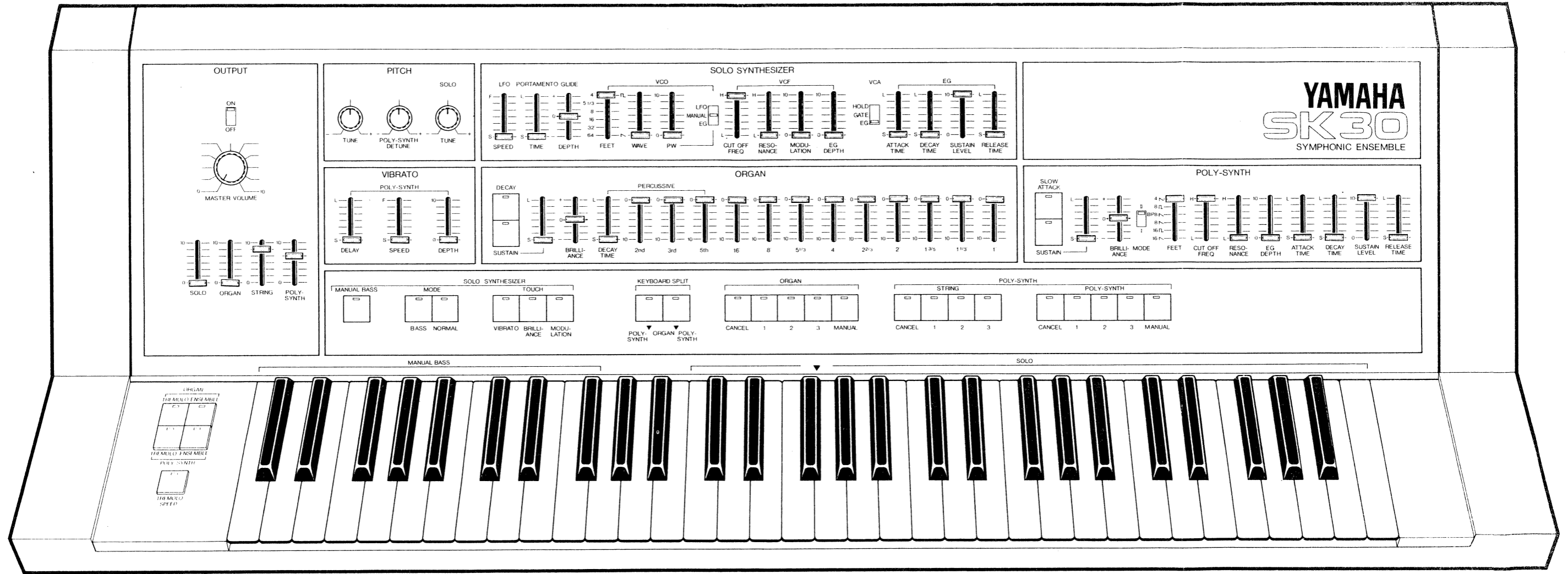


- The keyboard can now be lifted as shown in the figure.
- パネルを上げた状態で鍵盤部を図のように回転させることができます。

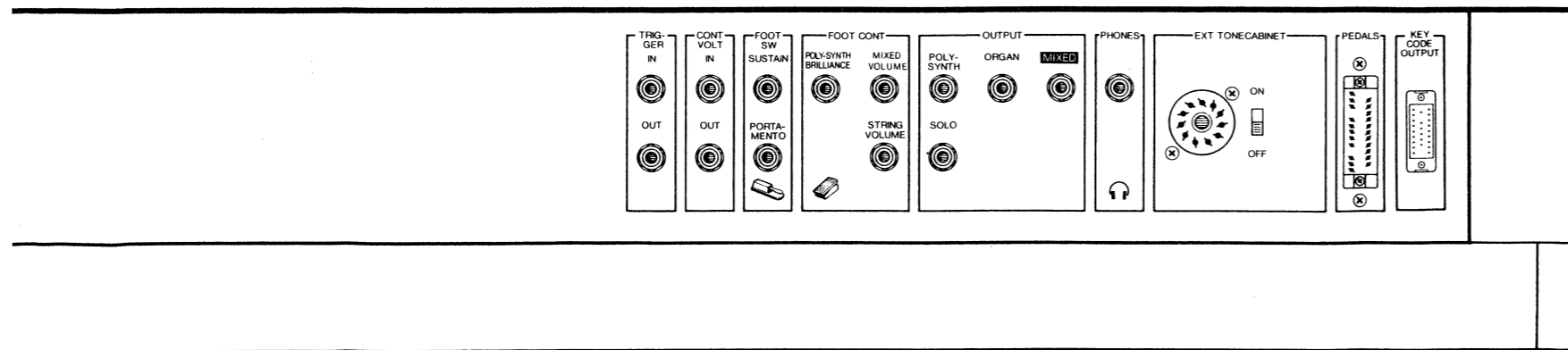
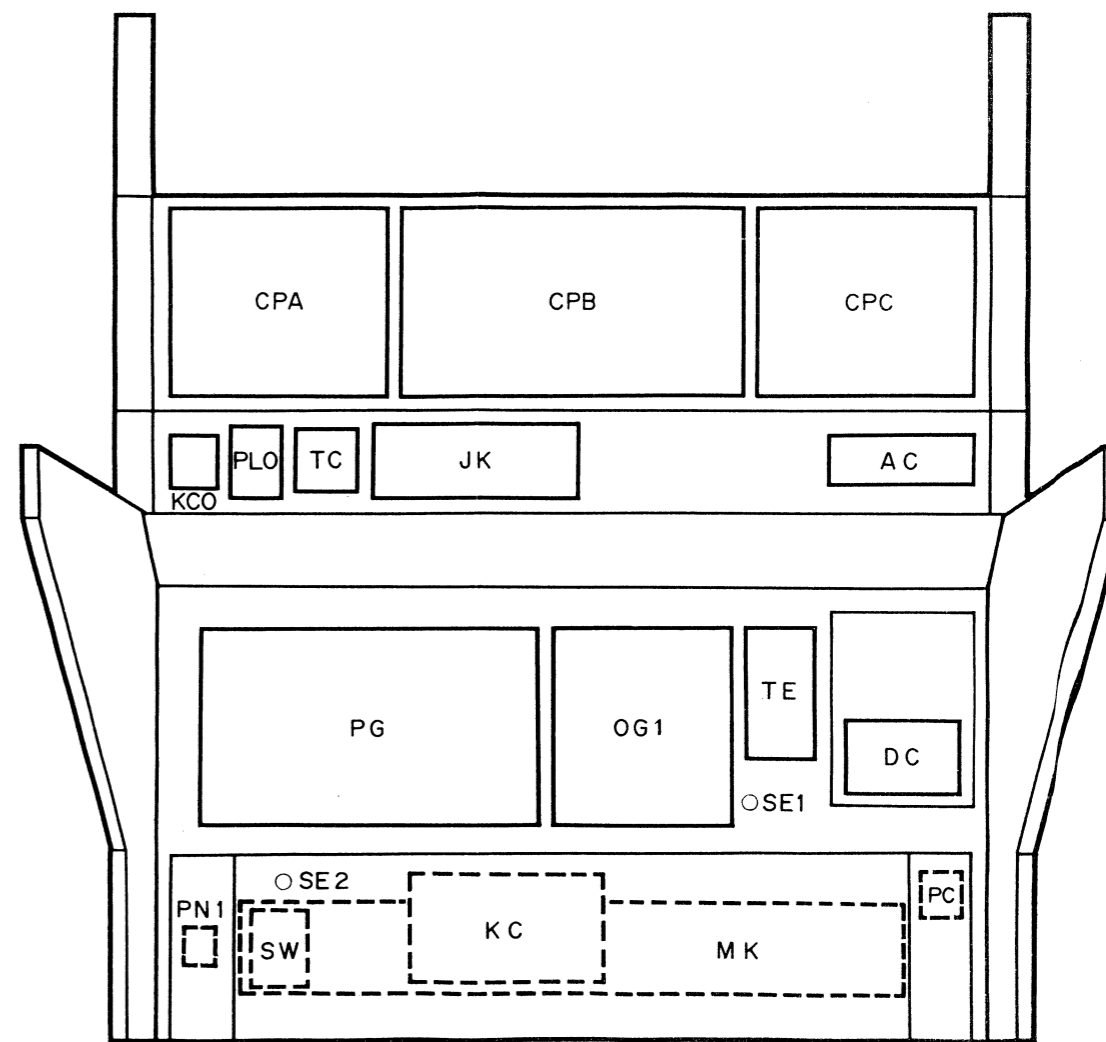
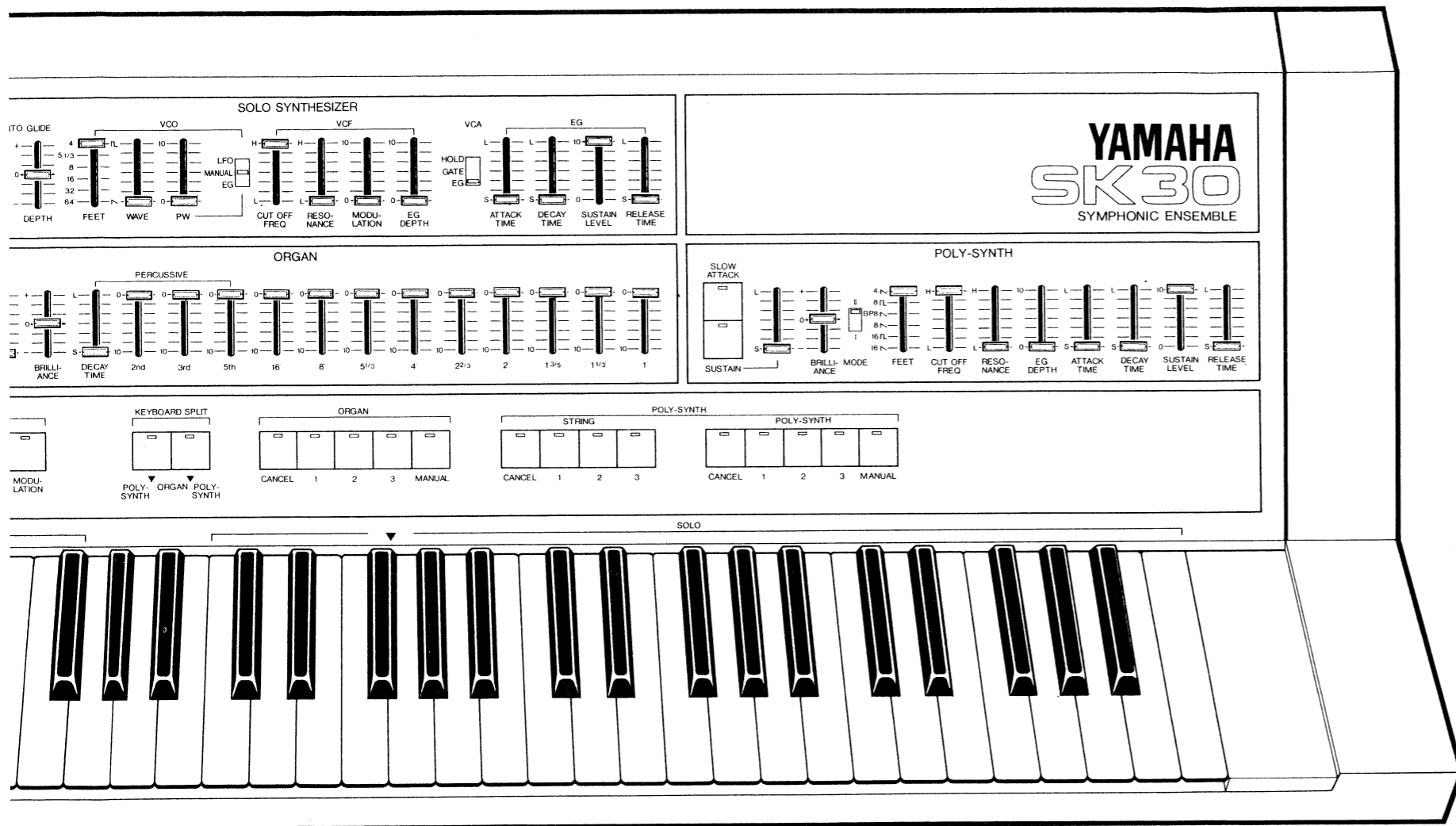
SPECIFICATIONS (総合仕様)

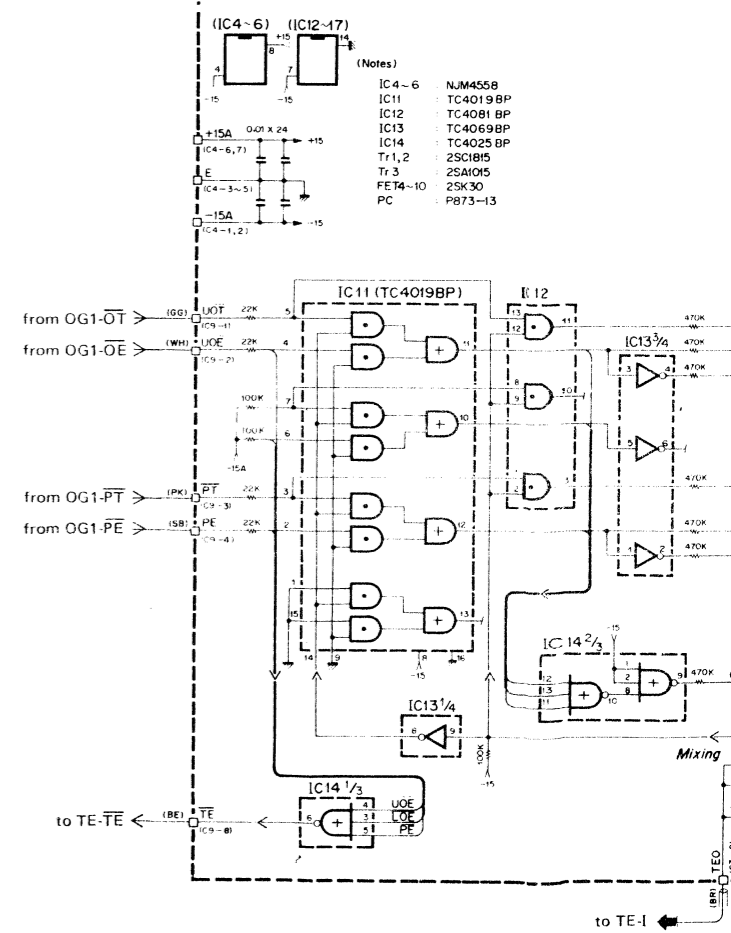
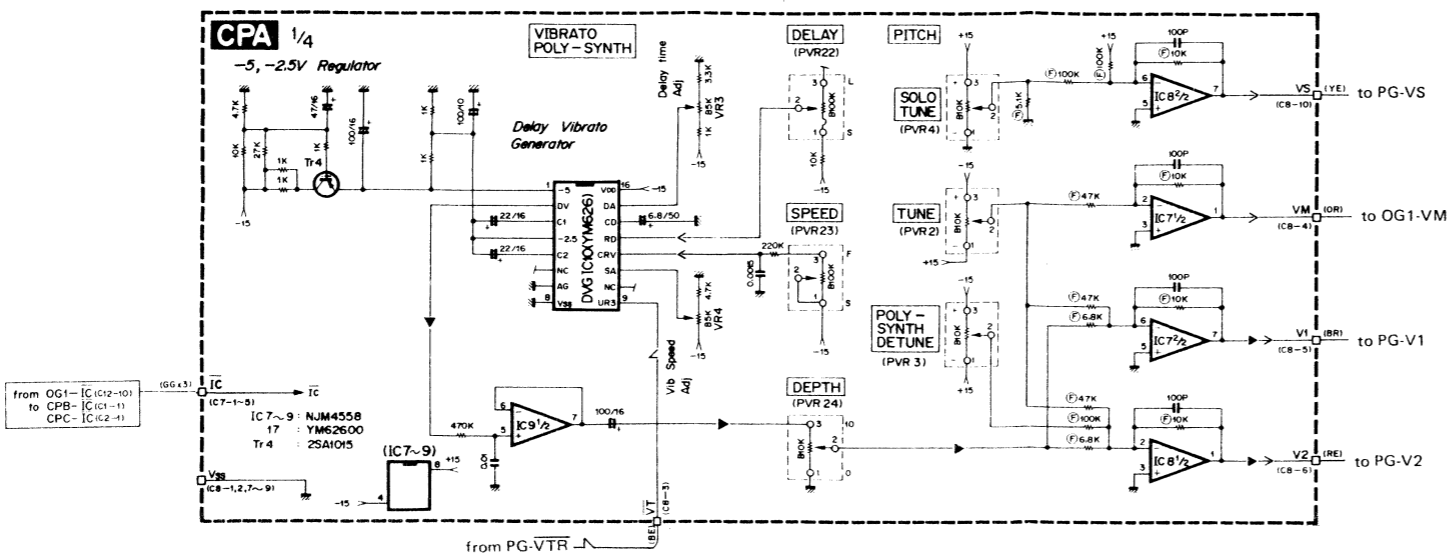
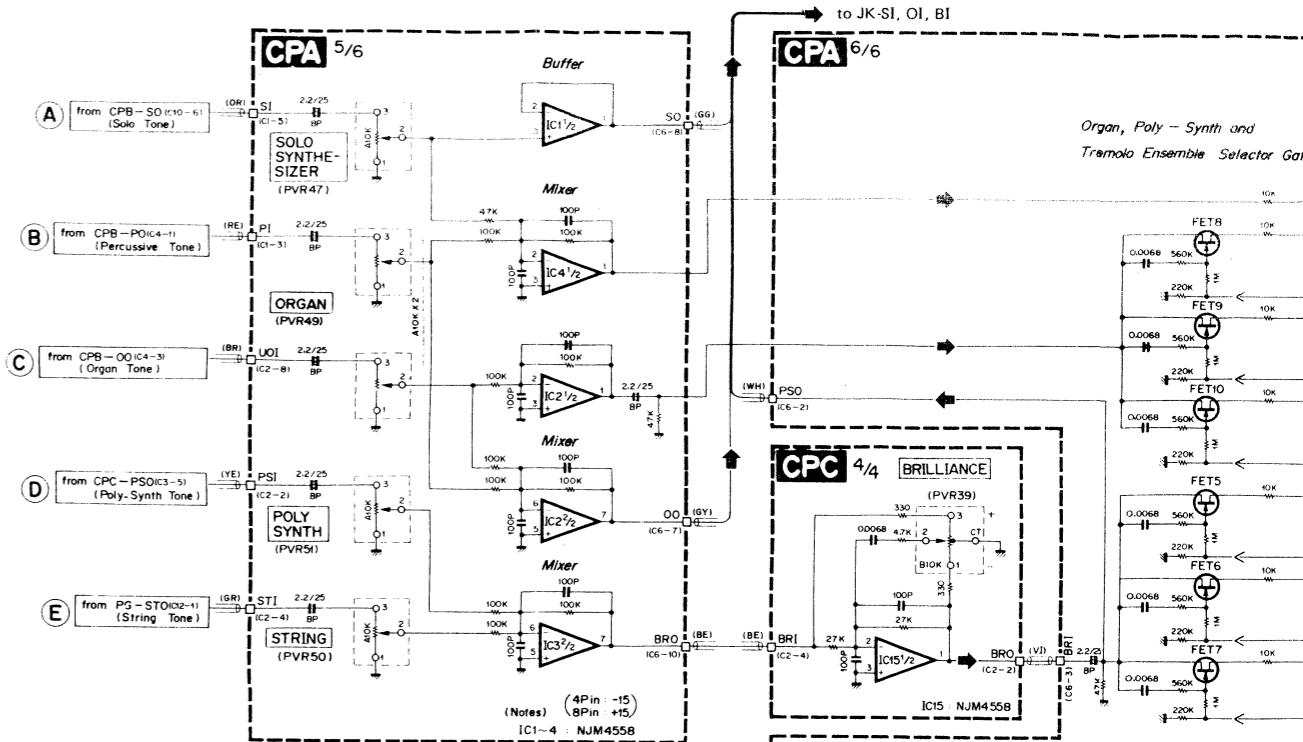
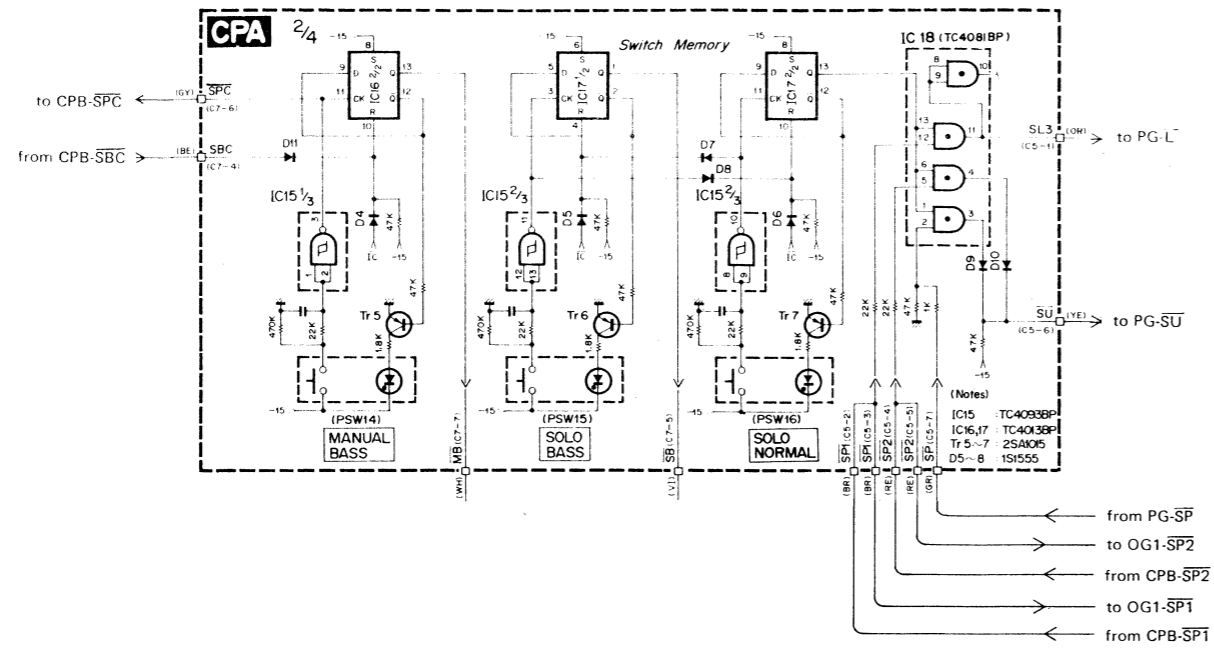
KEYBOARD	61 keys C ₁ ~ C ₆ 5 octaves	ATTACK TIME	0.003 ~ 3 sec.
OUTPUT section		DECAY TIME	0.03 ~ 30 sec.
LINE OUT	ON, OFF: MIXED EXT TONECABINET output OFF	SUSTAIN LEVEL	0 ~ 10
Volume	MASTER VOLUME SOLO/ORGAN/STRING/ POLY-SYNTH volume	RELEASE TIME	0.03 ~ 30 sec.
PITCH section	TUNE: 438 ~ 450Hz POLY-SYNTH DETUNE: -20 +27 cents SOLO TUNE: -500 ~ +700 cents	TREMOLO/ENSEMBLE section (ENSEMBLE priority)	
SOLO SYNTHESIZER section (Single-note High-note priority)		TREMOLO	ORGAN, POLY-SYNTH switch
LFO	SPEED: 0.1 ~ 100Hz	SPEED	OFF: 0.64Hz, ON: 6.4Hz
PORTAMENTO	3 sec. max. (C ₃ ~ C ₆)	ENSEMBLE	ORGAN, POLY-SYNTH switch
GLIDE	70msec. max. (DEPTH +, -)	KEYBOARD SPLIT section	
VCO block		KEYBOARD SPLIT	POLY-SYNTH ▼ ORGAN: ON, OFF ORGAN ▼ POLY-SYNTH: ON, OFF Split between F# and G marked
FEET	4', 5-1/3', 8', 16', 32', 64'	REAR PANEL	
WAVE	↘→↕mixable	OUTPUT	MIXED: 600Ω, -10dBm ORGAN, POLY-SYNTH, SOLO
PW	50 ~ 85% LFO, MANUAL, EG selectable	FOOT CONT	Foot controller connection MIXED VOLUME, STRING VOLUME, POLY-SYNTH BRILLIANCE
VCF block		FOOT SW	Foot switch connection SUSTAIN (ORGAN, POLY- SYNTH), PORTAMENTO (SOLO SYNTHESIZER)
CUT OFF FREQ	Variable range: 10 octaves	CONTROL VOLT	IN: 0.25 ~ 2V OUT: 0.19 ~ 3V
RESONANCE	Q: 0.5 ~ 10	TRIGGER	IN: 15 ~ 5V OFF, 0 ~ -15V ON OUT: OFF (14 ~ 10V), ON (1 ~ 0V)
MODULATION	3 octaves/max.	KEY CODE	TTL level, Key code data output
EG DEPTH	0 ~ 10 octaves	PEDALS	Bass pedal connection
VCA block	HOLD, GATE, EG selectable	EXT TONECABINET	11 pins connector, ON/OFF switch Connectable the LESLIE models 415, 715, 815 or equivalent (2ch-11 pin type)
EG (ENVELOPE GENERATOR)		USABLE TONES	BASS: OFF 7 notes BASS: ON 7 notes + 1 note KEYBOARD SPLIT: ON 7 notes + 7 notes BASS, KEYBOARD SPLIT: ON 7 notes + 7 notes + 1 note
ATTACK TIME	0.003 ~ 3 sec.	OTHERS	
DECAY TIME	0.03 ~ 30 sec.	Power source	US and Canadian models 100V, 120V selectable 60Hz General model 100, 120, 220 or 240V selectable, 50/60Hz
SUSTAIN LEVEL	0 ~ 10	Power consumption	US model 55W Canadian model 55W General model 55W
RELEASE TIME	0.03 ~ 30 sec.	Dimensions (WxHxD)	1089 x 178 x 642mm (42-3/4' x 7' x 25-1/4')
TOUCH		Weight	22 kg (48.5 lbs)
VIBRATO	±120 cents/8', A ₃	Finish	Rosewoodgrain cabinet
BRILLIANCE	+5 octaves/max.	Accessory	FC-3A Foot controller
MODULATION	6 octaves/max.	Optional Accessories	FC-4 Foot switch pedal BP2 Bass pedal
MODE	NORMAL, BASS MANUAL BASS		
VIBRATO section (POLY-SYNTH & STRING)			
DELAY	0 ~ 3.2 sec.		
SPEED	5 ~ 7Hz		
DEPTH	±30 cents		
ORGAN section			
ORGAN selector	CANCEL, ORGAN 1, ORGAN 2, ORGAN 3, MANUAL		
DECAY	OFF, ON (0.03 ~ 1.6 sec.)	} SUSTAIN Lever S ~ L	
SUSTAIN	OFF, ON (0.03 ~ 1.6 sec.)		
BRILLIANCE	±7dB/5kHz (sine wave)		
PERCUSSIVE	2nd, 3rd, 5th Lever		
DECAY TIME	0.8 sec./max.		
Tone Lever	16', 8', 5-1/3', 4', 2-2/3', 2', 1-3/5', 1-1/3', 1'		
POLY-SYNTH section			
Strings selector	CANCEL, STRING 1, STRING 2, STRING 3		
Poly-synth Selector	CANCEL, POLY-SYNTH 1, POLY- SYNTH 2, POLY-SYNTH 3, MANUAL		
SLOW ATTACK	OFF: 3 msec. ON: 80msec.		
SUSTAIN	SUSTAIN switch: ON, OFF SUSTAIN lever: 0.03 ~ 1.6 sec.		
BRILLIANCE	±12dB/5kHz (sine wave)		
MODE	I: one tone generator II: both tone generator		
FEET	4'↘, 8'↕, BP8'↘, 8'↘, 16'↕, 16'↘		
CUT OFF FREQ	10 octaves		
RESONANCE	Q: 0.5 ~ 10		
EG DEPTH	10 octaves		

* Specifications subject to change without notice.

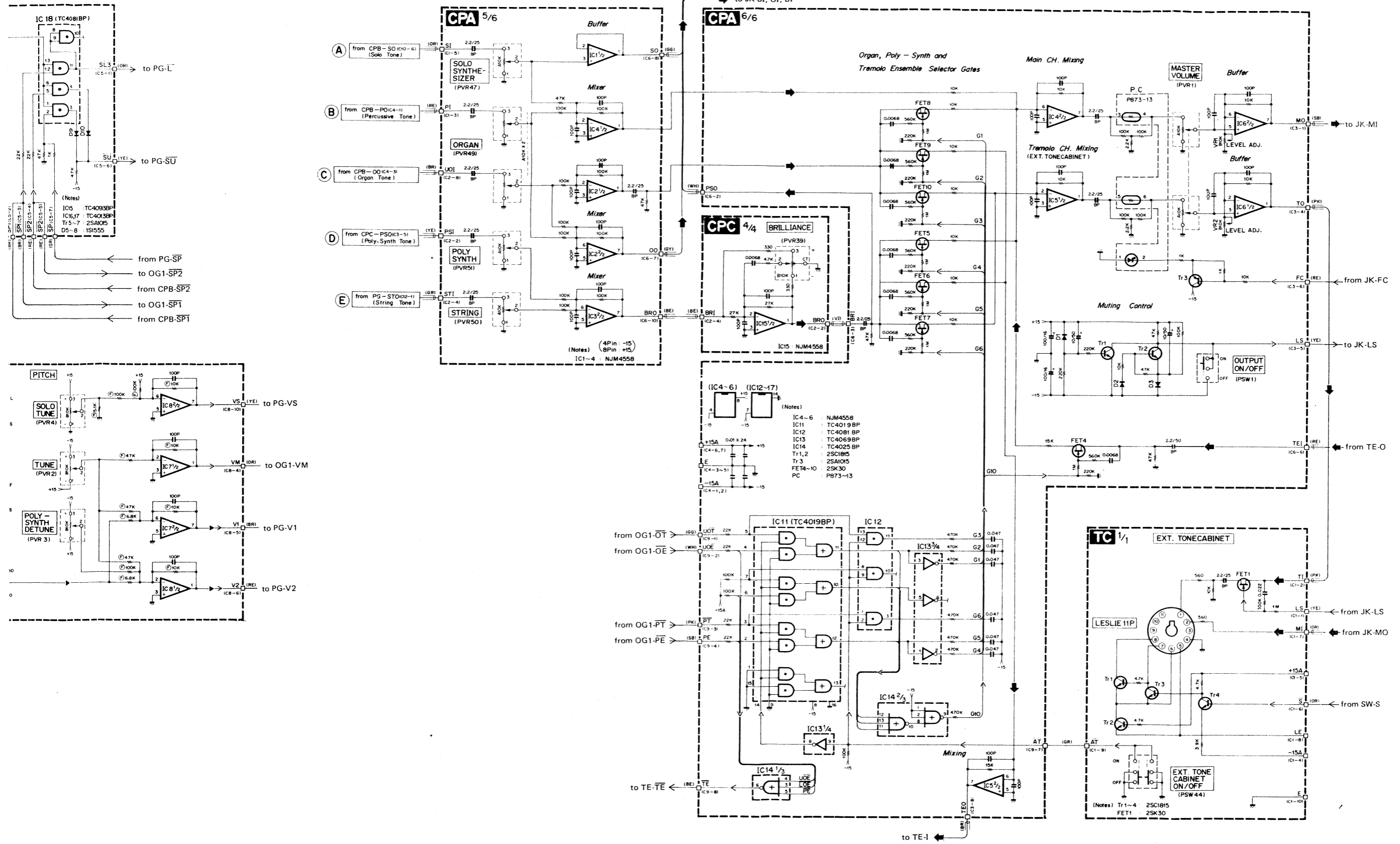


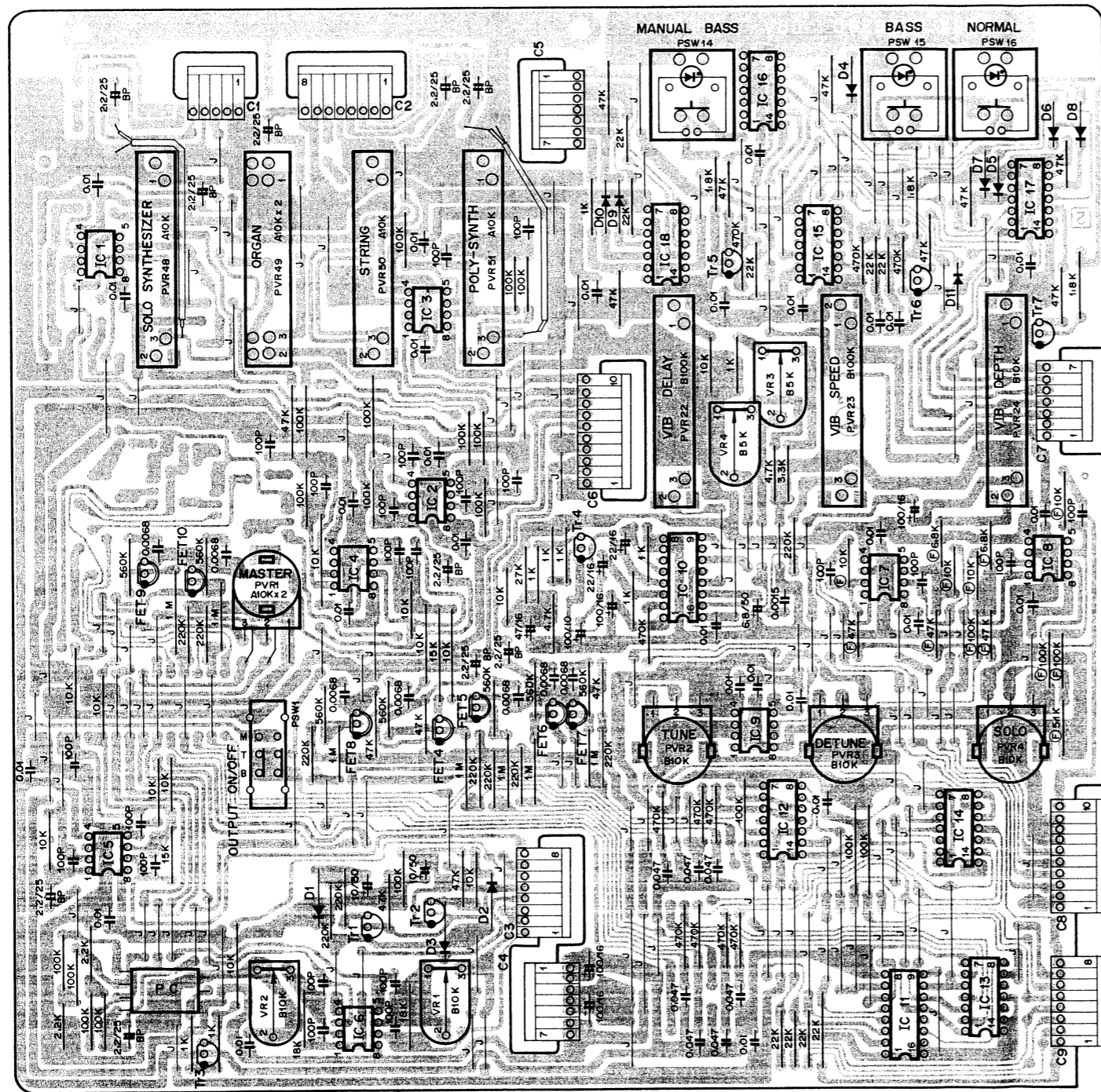
PANEL LAYOUT, UNIT LAYOUT





CPA Circuit Diagram





C1

1	SL3
2	SP1
3	PL1
4	PL2
5	PL3
6	PL4
7	PL5
8	PL6
9	PL7
10	PL8

C2

1	UO1
2	UO2
3	UO3
4	UO4
5	UO5
6	UO6
7	UO7
8	UO8
9	UO9
10	UO10

C5

1	SL3
2	SP1
3	SP2
4	SP3
5	SP4
6	SP5
7	SP6
8	SP7
9	SP8
10	SP9

C6

1	PSO
2	BRI
3	BRI
4	BRI
5	BRI
6	BRI
7	BRI
8	BRI
9	BRI
10	BRI

C3

1	MO'
2	E
3	LS
4	FC
5	TEO
6	TEO
7	TEO
8	TEO

C4

1	-15A
2	-15A
3	E
4	E
5	E
6	+15A
7	+15A

C5

1	SL3
2	SP1
3	SP1
4	SP2
5	SP2
6	SU
7	SP

C6

1	E
2	PSO
3	BRI
4	E
5	TEI
6	OC
7	SO
8	UO1
9	UO1
10	BRO

C7

1	IC
2	IC
3	IC
4	IC
5	IC
6	IC
7	IC
8	IC

C8

10	VS
9	VSS
8	VSS
7	VSS
6	V2
5	V1
4	VM
3	VTR
2	VSS
1	VSS

C9

1	UOT
2	UOE
3	PT
4	PE
5	PT
6	UOE
7	AT
8	T/E

C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	JK-E (C1-8)
2	E	SRES	CPB-IC (C1-1)
3	PI	SRES	CPB-PO (C4-1)
4	E	SORS	CPB-SO (C10-6)
5	SI	SORS	CPB-SO (C10-6)

C7

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-10)
2	IC	GG	CPB-IC (C1-1)
3	IC	GG	CPC-IC (C2-1)
4	SBC	BE	CPB-SBC (C5-5)
5	SB	VI	PG-P (C4-5)
6	SPC	GY	CPB-SPC (C5-2)
7	MB	WH	PG-MB (C8-8)

C2

Pin No.	Pin Name	Wire Color	Destination
1	E	SYES	CPB-PSO (C3-5)
2	PSI	SYES	CPB-PSO (C3-5)
3	E	SGRS	PG-STO (C12-1)
4	STI	SGRS	PG-STO (C12-1)
5	-	-	-
6	-	-	-
7	E	SBRSS	CPB-OO (C4-3)
8	UO1	SBR	CPB-OO (C4-3)

C8

Pin No.	Pin Name	Wire Color	Destination
1	VSS	BL	DC-E (C3-3)
2	VSS	-	-
3	VTR	BE	PG-VTR (C3-6)
4	VM	OR	OG1-VM (C2-5)
5	V1	BR	PG-V1 (C6-5)
6	V2	RE	PG-V2 (C6-4)
7	VSS	-	-
8	VSS	-	-
9	VSS	-	-
10	VS	YE	PG-VS (C9-1)

C3

Pin No.	Pin Name	Wire Color	Destination
1	MO'	SSB	JK-MI (C1-3)
2	E	SSBS	-
3	E	SPKS	-
4	TO'	SPK	TC-T1 (C2)
5	LS	YE	JK-LS (C1-1)
6	FC	RE	JK-FC (C3-3)
7	E	SBRSS	TE-I (C2-4)
8	TEO	SBR	TE-I (C2-4)

C9

Pin No.	Pin Name	Wire Color	Destination
1	UOT	GG	OG1-OT (C15-7)
2	UOE	WH	OG1-OE (C15-6)
3	PT	PK	OG1-PT (C15-5)
4	PE	SB	OG1-PE (C15-8)
5	-	-	-
6	-	-	-
7	AT	GR	TC-AT (C9)
8	T/E	BE	TE-T/E (C3-2)

C4

Pin No.	Pin Name	Wire Color	Destination
1	-15A	YE	DC-15A (C2-2)
2	-15A	YE	CPB-15A (C9-7)
3	E	BL	DC-E (C2-3)
4	E	BL	CPB-E (C9-3)
5	E	BL	TC-LE (C-8)
6	+15A	BR	DC+15A (C2-1)
7	+15A	BR	CPB+15A (C9-1)

C5

Pin No.	Pin Name	Wire Color	Destination
1	SL3	OR	PG-L (C4-3)
2	SP1	BR	CPB-SP1 (C5-4)
3	SP1	BR	OG1-SP1 (C14-1)
4	SP2	RE	CPB-SP2 (C5-1)
5	SP2	RE	OG1-SP2 (C14-3)
6	SU	YE	PG-U (C4-4)
7	SP	GR	PG-SP (C3-2)

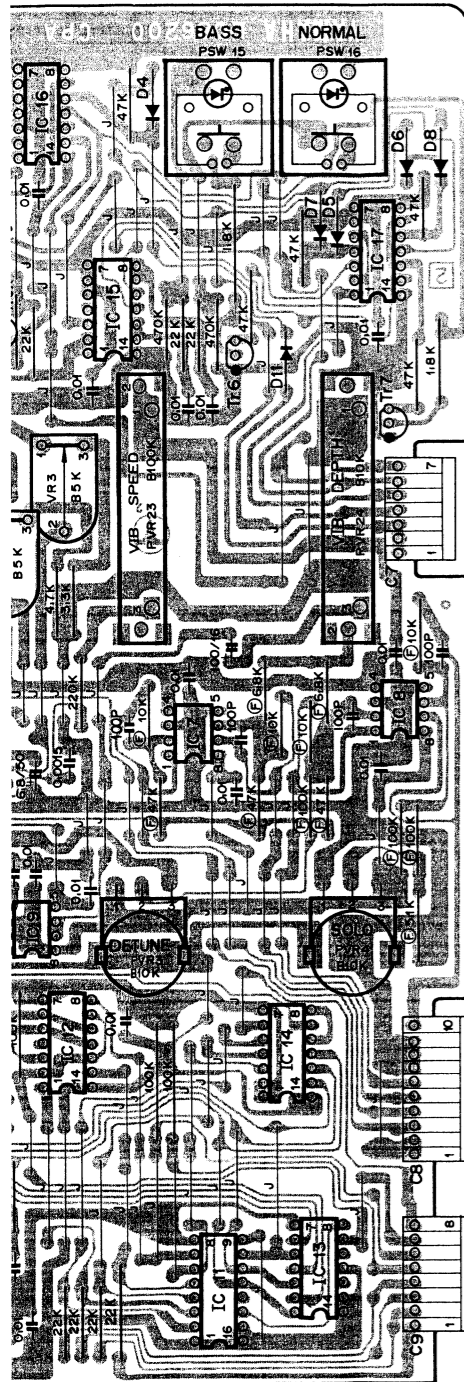
C6

Pin No.	Pin Name	Wire Color	Destination
1	E	-	-
2	PSO	SWH	JK-PSI (C2-1)
3	BRI	SVI	CPC-BRO (C2-2)
4	E	SVIS	-
5	E	SRES	-
6	TEI	SRE	TE-OUT (C3-3)
7	OO	SGY	JK-OI (C2-7)
8	SO	SGG	JK-SI (C2-3)
9	-	-	-
10	BRO	SBE	CPC-BRI (C2-4)

- (Notes)
- Circuit Board : LC86200
 - IC, LSI
 - IC1 ~ 9 : NJM4558D (OP-Amp)
 - IC10 : YM62600 (DVG)
 - IC11 : TC4019BP (AND-OR S)
 - IC12, 18 : TC4081BP (AND)
 - IC13 : TC4069BP (Inverter)
 - IC14 : TC4025BP (NOR)
 - IC15 : TC4093BP (Schmitt Tr)
 - IC16, 17 : TC4013BP ("D" Flip-F)
 - Transistors
 - Tr1, 2 : 2SC1815 (O, Y)
 - Tr3 ~ 7 : 2SA1015 (O, Y)
 - Field Effect Transistors
 - FET4 ~ 10 : 2SK30A (Y)
 - Diodes
 - D1 ~ 11 : 1S1555
 - ⊕ marked Resistor :
 - 1% 100PPM Flame Proc
 - Photo Coupler
 - PC : P873-13
 - Rotary Variable Resistor
 - PVR1 : A10K x 2 HS
 - PVR2, 3, 4 : B10K HS
 - Slide Variable Resistor
 - PVR22 : B100K with OPEN HC
 - PVR23 : B100K HC
 - PVR24 : B10K HC
 - PVR48, 50, 51 : A10K HC
 - PVR49 : A10K x 2 HC
 - Slide Switch
 - PSW1 : 2 way, 2 contact K/
 - Push Switch with LED
 - PSW14 : Gray K/
 - PSW15, 16 : Whit K/

View from the printed pattern side of the circuit board.

CPA Circuit Board & Wiring



C5

1	SL3
2	SP1
3	SP1
4	SP2
5	SP2
6	SU
7	SP

C6

1	E
2	PSO
3	BRI
4	E
5	E
6	TEI
7	OO
8	SO
9	-
10	BRO

C7

7	MB
6	SPC
5	SB
4	SBC
3	IC
2	IC
1	IC

C8

10	Vs
9	Vss
8	Vss
7	Vss
6	V2
5	V1
4	VM
3	VTR
2	Vss
1	Vss

C9

8	T/E
7	AT
6	-
5	-
4	PE
3	PT
2	UOE
1	UOT

C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	JK-E (C1-8)
2	E	SRES	
3	PI	SRE	CPB-PO (C4-1)
4	E	SORS	
5	SI	SOR	CPB-SO (C10-6)

C2

Pin No.	Pin Name	Wire Color	Destination
1	E	YES	
2	PSI	SYE	CPC-PSO (C3-5)
3	E	SGRS	
4	STI	SGR	PG-STO (C12-1)
5	-	-	-
6	-	-	-
7	E	SBR	
8	UOI	SBR	CPB-OO (C4-3)

C3

Pin No.	Pin Name	Wire Color	Destination
1	MO'	SSB	JK-MI (C1-3)
2	E	SSB	
3	E	SPK	
4	TO'	SPK	TC-TI (C2)
5	LS	YE	JK-LS (C1-1)
6	FC	RE	JK-FC (C3-3)
7	E	SBR	
8	TEO	SBR	TE-I (C2-4)

C4

Pin No.	Pin Name	Wire Color	Destination
1	-15A	YE	DC--15A (C2-2)
2	-15A	YE	CPB--15A (C9-7)
3	E	BL	DC-E (C2-3)
4	E	BL	CPB-E (C9-3)
5	E	BL	TC-LE (C-8)
6	+15A	BR	DC+15A (C2-1)
7	+15A	BR	CPB+15A (C9-1)

C5

Pin No.	Pin Name	Wire Color	Destination
1	SL3	OR	PG-L (C4-3)
2	SP1	BR	CPB-SP1 (C5-4)
3	SP1	BR	OG1-SP1 (C14-1)
4	SP2	RE	CPB-SP2 (C5-1)
5	SP2	RE	OG1-SP2 (C14-3)
6	SU	YE	PG-U (C4-4)
7	SP	GR	PG-SP (C3-2)

C6

Pin No.	Pin Name	Wire Color	Destination
1	E	-	-
2	PSO	SWH	JK-PSI (C2-1)
3	BRI	S VI	CPC-BRO (C2-2)
4	E	S VIS	
5	E	SRES	
6	TEI	SRE	TE-OUT (C3-3)
7	OO	SGY	JK-OI (C2-7)
8	SO	SGG	JK-SI (C2-3)
9	-	-	-
10	BRO	S BE	CPC-BRI (C2-4)

C7

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-10)
2	IC	GG	CPB-IC (C1-1)
3	IC	GG	CPC-IC (C2-1)
4	SBC	BE	CPB-SBC (C5-5)
5	SB	V1	PG-P (C4-5)
6	SPC	GY	CPB-SPC (C5-2)
7	MB	WH	PG-MB (C8-8)

C8

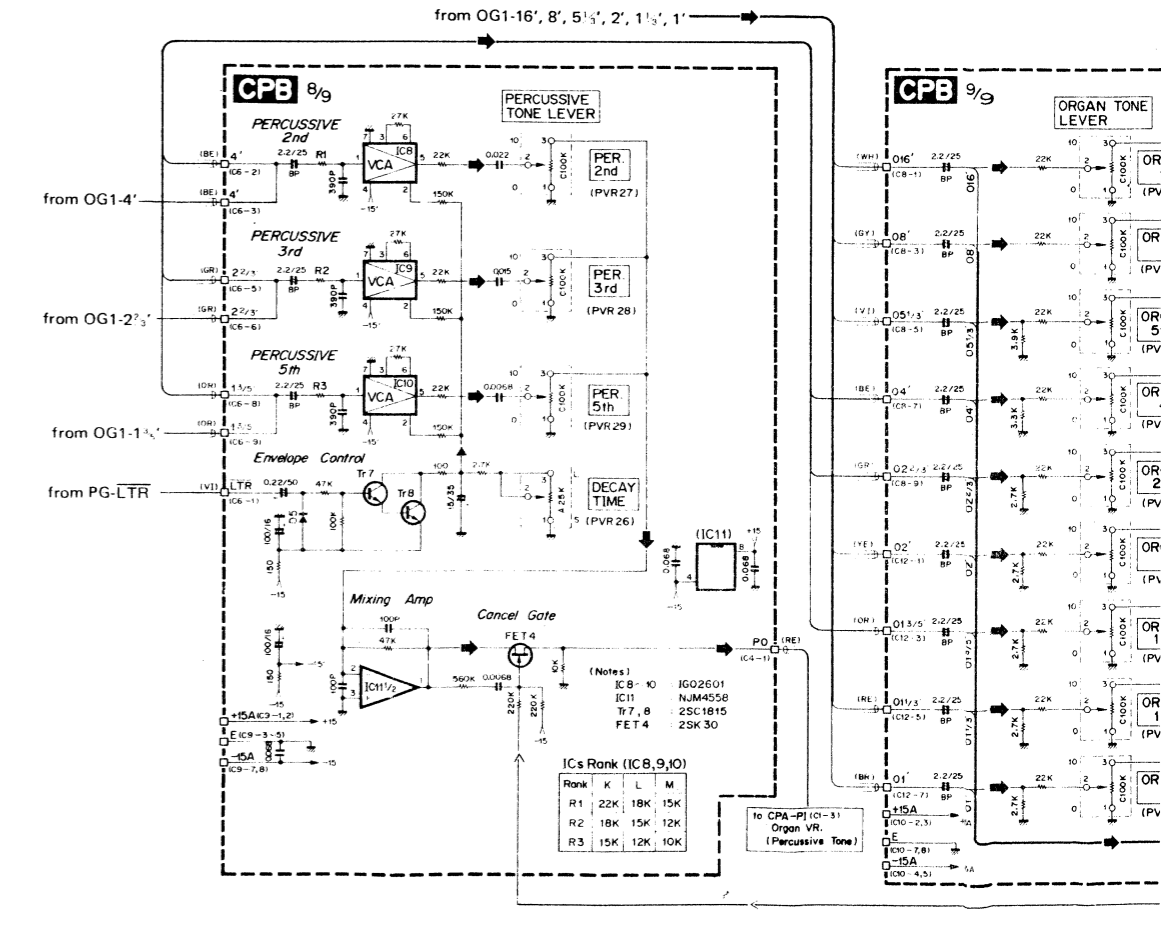
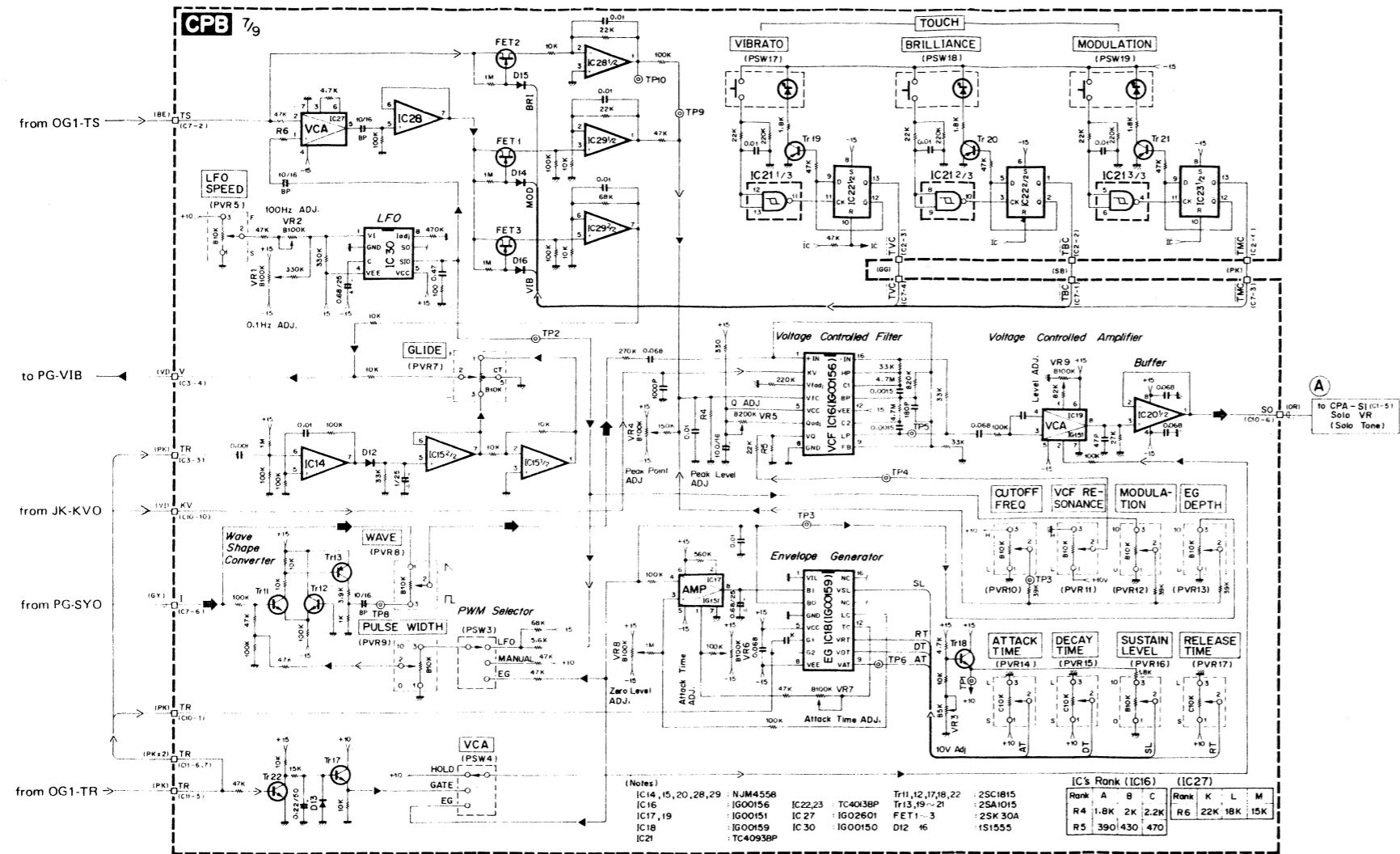
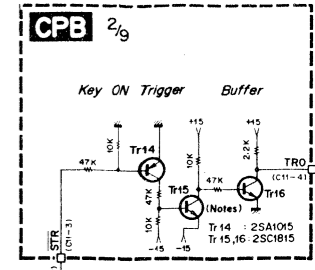
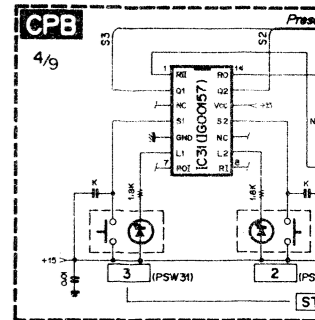
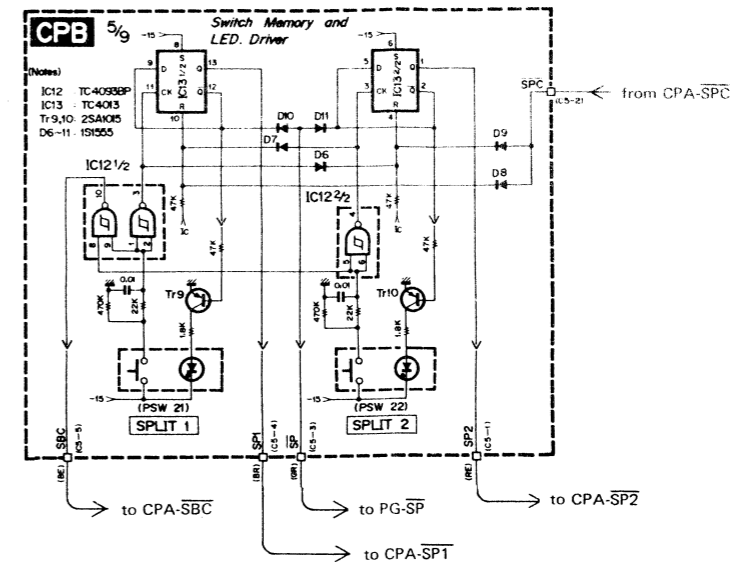
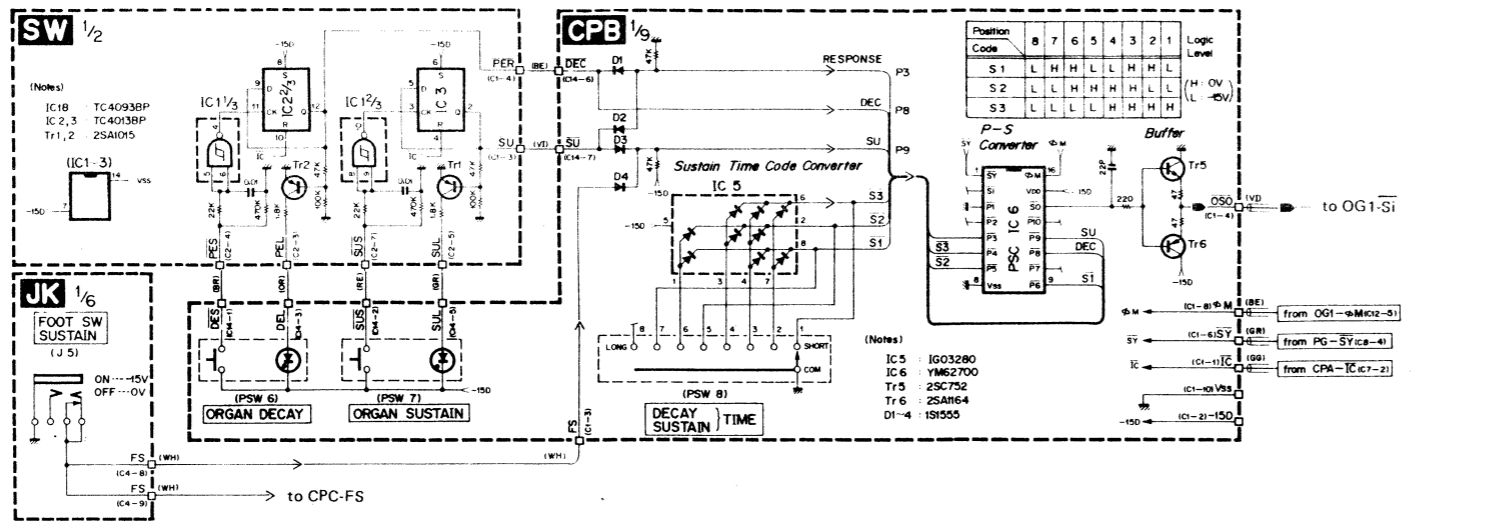
Pin No.	Pin Name	Wire Color	Destination
1	Vss	BL	DC-E (C3-3)
2	Vss	-	-
3	VTR	BE	PG-VTR (C3-6)
4	VM	OR	OG1-VM (C2-5)
5	V1	BR	PG-V1 (C6-5)
6	V2	RE	PG-V2 (C6-4)
7	Vss	-	-
8	Vss	-	-
9	Vss	-	-
10	VS	YE	PG-VS (C9-1)

C9

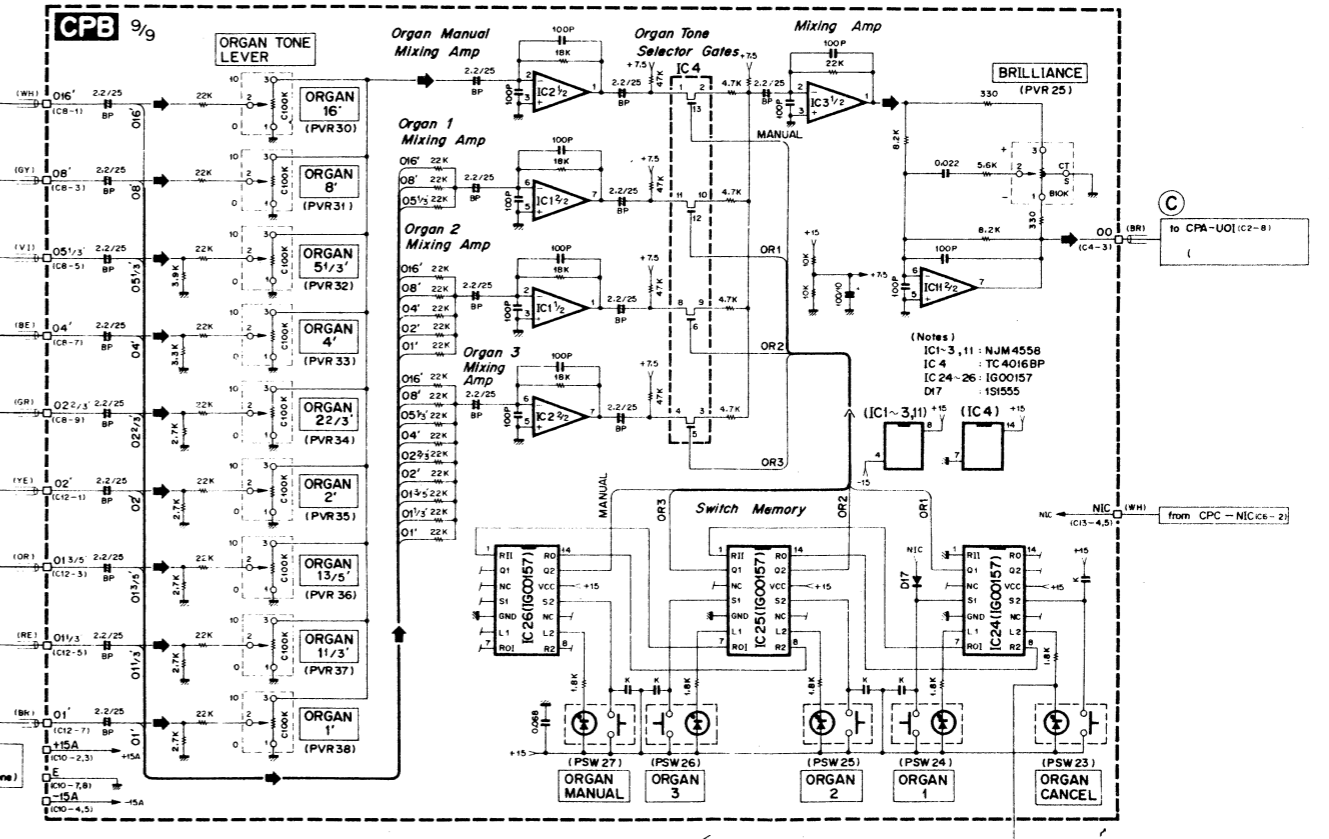
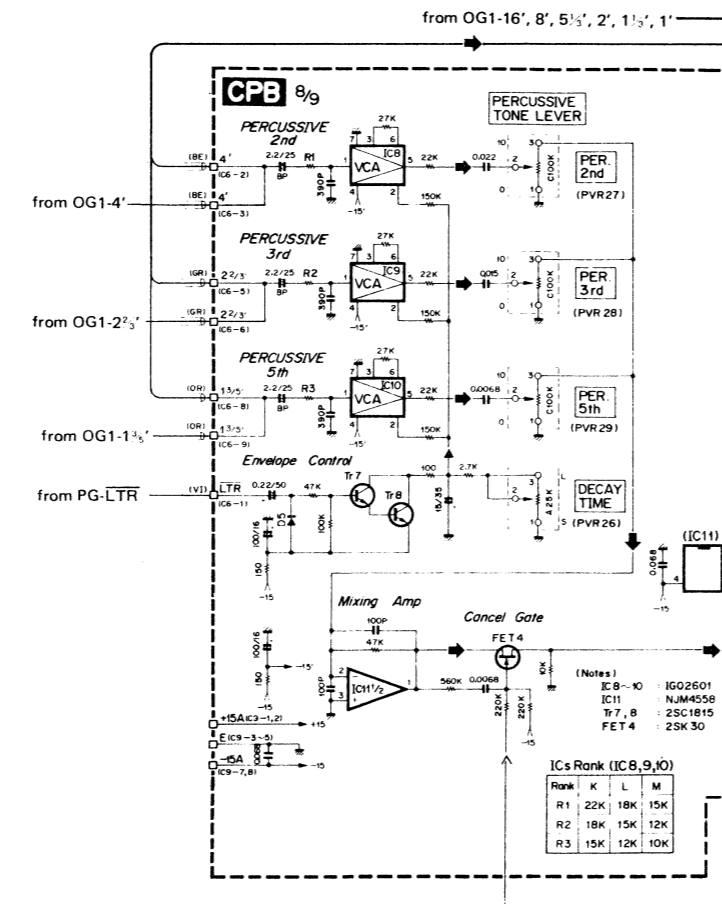
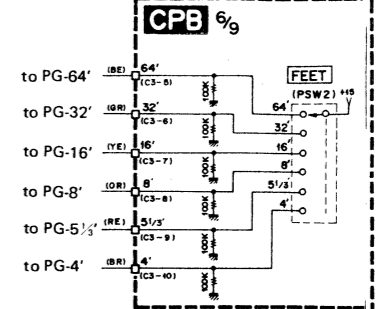
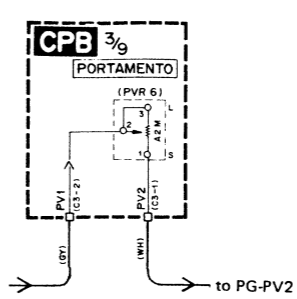
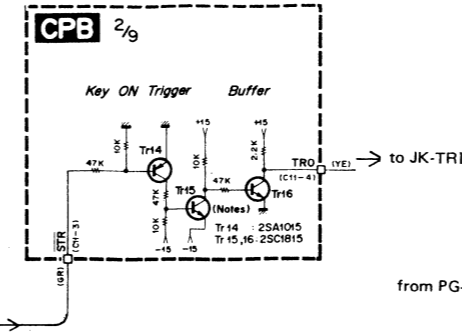
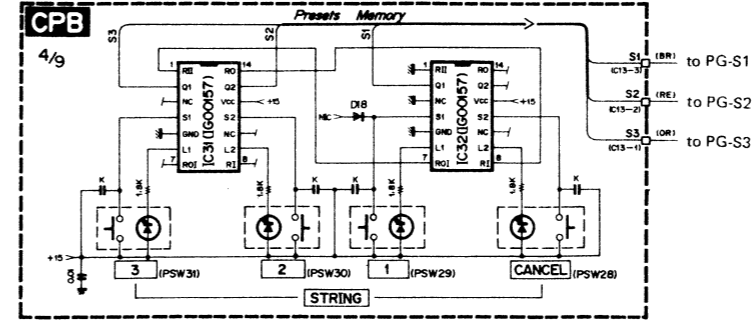
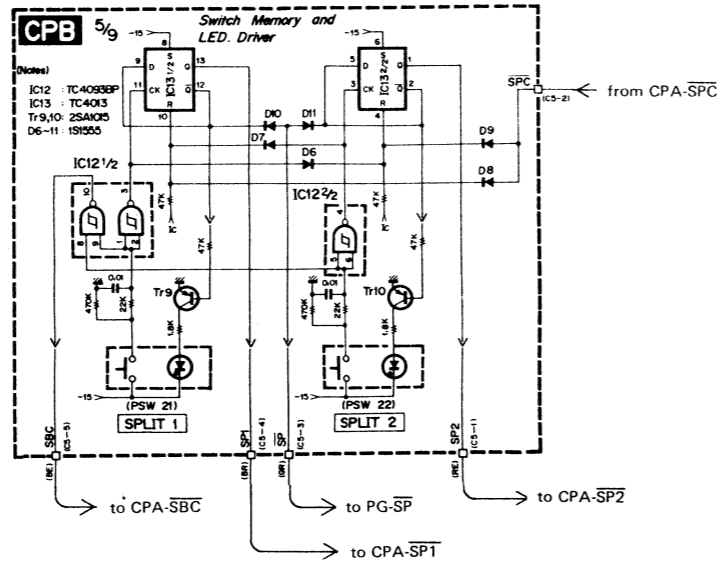
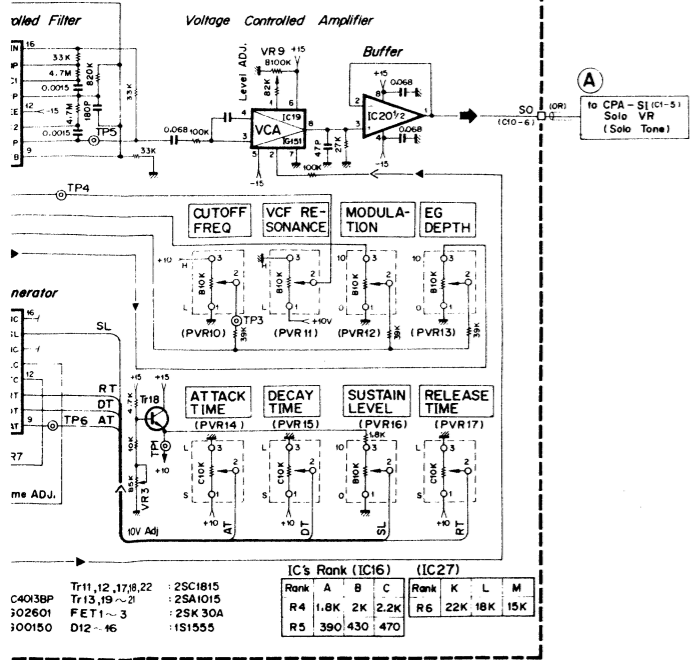
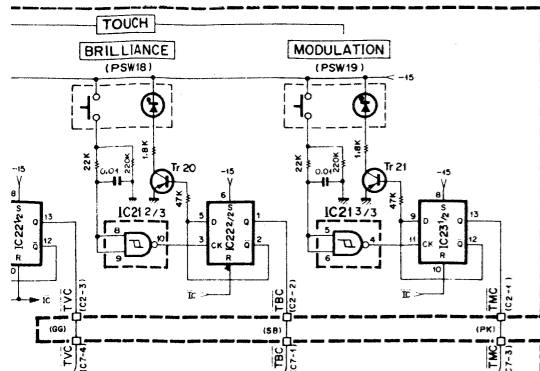
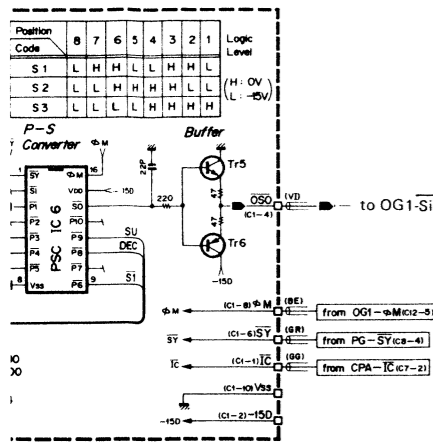
Pin No.	Pin Name	Wire Color	Destination
1	UOT	GG	OG1-OT (C15-7)
2	UOE	WH	OG1-OE (C15-6)
3	PT	PK	OG1-PT (C15-5)
4	PE	SB	OG1-PE (C15-8)
5	-	-	-
6	-	-	-
7	AT	GR	TC-AT (C-9)
8	T/E	BE	TE-T/E (C3-2)

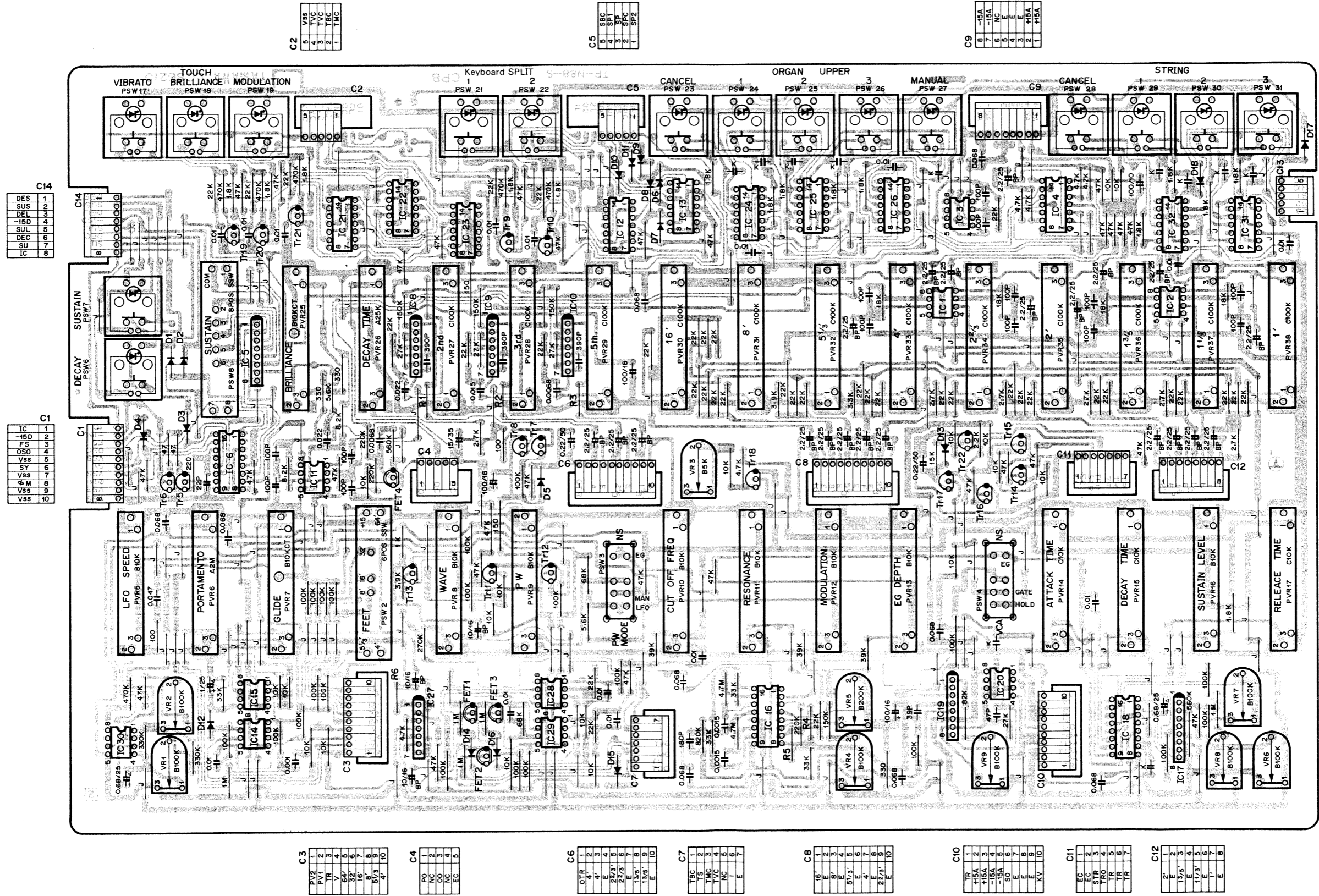
(Notes)

- Circuit Board : LC86200
- IC, LSI
 - IC1 ~ 9 : NJM4558D (OP-Amp)
 - IC10 : YM62600 (DVG)
 - IC11 : TC4019BP (AND-OR Select)
 - IC12, 18 : TC4081BP (AND)
 - IC13 : TC4069BP (Inverter)
 - IC14 : TC4025BP (NOR)
 - IC15 : TC4093BP (Schmitt Trigger NAND)
 - IC16, 17 : TC4013BP ("D" Flip-Flop)
- Transistors
 - Tr1, 2 : 2SC1815 (O, Y)
 - Tr3 ~ 7 : 2SA1015 (O, Y)
- Field Effect Transistors
 - FET4 ~ 10 : 2SK30A (Y)
- Diodes
 - D1 ~ 11 : 1S1555
- ⊕ marked Resistor :
 - 1% 100PPM Flame Proof Carbon Film Resistor
- Photo Coupler
 - PC : P873-13
- Rotary Variable Resistor
 - PVR1 : A10K x 2 HS31009
 - PVR2, 3, 4 : B10K HS31057
- Slide Variable Resistor
 - PVR22 : B100K with OPEN HQ23005
 - PVR23 : B100K HQ23004
 - PVR24 : B10K HQ23006
 - PVR48, 50, 51 : A10K HQ23002
 - PVR49 : A10K x 2 HQ23001
- Slide Switch
 - PSW1 : 2 way, 2 contact KA40060
- Push Switch with LED
 - PSW14 : Gray KA90170
 - PSW15, 16 : White KA90171



CPB Circuit Diagram





C2

3	VSS	1
4	TVC	2
5	TBC	3
6	TMC	4

C5

3	SRC	1
4	SPT	2
5	SP	3
6	SPC	4
7	SP2	5

C9

8	-15A	1
7	-15B	2
6	NC	3
5	E	4
4	E	5
3	E	6
2	HSA	7
1	HSA	8

C14

DES	1
SUS	2
DEL	3
-15D	4
SUL	5
DEC	6
SU	7
IC	8

C1

IC	1
-15D	2
Fs	3
OSO	4
VSS	5
SY	6
VSS	7
SM	8
VSS	9
VSS	10

C3

PV2	1
PV1	2
TR	3
V	4
64'	5
32'	6
8'	7
8 1/3'	8
4'	9
4'	10

C4

PO	1
NC	2
OO	3
NC	4
EC	5

C6

OTR	1
4'	2
4'	3
32'	4
2 1/3'	5
E	6
E	7
13 1/5'	8
E	9
E	10

C7

TBC	1
TS	2
TMC	3
NC	4
NC	5
E	6
E	7

C8

16'	1
E	2
E	3
5 1/3'	4
4'	5
4'	6
2 2/3'	7
E	8
E	9
E	10

C10

TR	1
HSA	2
-15A	3
-15B	4
-15D	5
SUL	6
DEC	7
E	8
E	9
KV	10

C11

EC	1
STR	2
TRO	3
TR	4
TR	5
TR	6
TR	7

C12

2'	1
E	2
13 1/5'	3
E	4
E	5
1 1/3'	6
1'	7
E	8
E	9
E	10

C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-2)
2	-15D	YE	DC-15D (C2-5)
3	FS	WH	JK-FS (C4-8)
4	OSO	S VI	OG1-Si (C5-1)
5	VSS	S VIS	
6	SY	S GR	PG-SY (C8-4)
7	VSS	S GR S	
8	SM	S BE	OG1-SM (C12-5)
9	VSS	S BE S	
10	VSS	BL	DC-VSS (C2-4)

1	1
2	1
3	1
4	1
5	5
6	1
7	1
8	1
9	2
10	1

C2

Pin No.	Pin Name	Wire Color	Destination
1	TMC	PK	CPB-TMC (C7-3)
2	TBC	SB	CPB-TBC (C7-1)
3	TVC	GG	CPB-TVC (C7-4)
4	TVC		
5	VSS	BL	CPC-VSS (C1-7)

1	1
2	+1
3	1
4	1
5	5
6	1
7	1
8	1

C3

Pin No.	Pin Name	Wire Color	Destination
1	PV2	WH	PG-PV2 (C9-5)
2	PV1	GY	PG-PV1 (C9-4)
3	TR	PK	CPB-TR (C11-7)
4	V	VI	PG-VI (C11-4)
5	64'	BE	PG-64' (C11-5)
6	32'	GR	PG-32' (C11-6)
7	16'	YE	PG-16' (C11-7)
8	8'	OR	PG-8' (C11-8)
9	5 1/3'	RE	PG-5 1/3' (C11-9)
10	4'	BR	PG-4' (C11-10)

1	1
2	+1
3	1
4	1
5	1
6	5
7	1
8	1

C4

Pin No.	Pin Name	Wire Color	Destination
1	PO	S RE	CPA-PI (C13-3)
2			
3	OO	S BR	CPA-UOI (C2-8)
4			
5	EC	BL	CPB-EC (C11-2)

1	1
2	1
3	5
4	1
5	1
6	1
7	1
8	1
9	1
10	1

C5

Pin No.	Pin Name	Wire Color	Destination
1	SP2	RE	CPA-SP2 (C5-2)
2	SPC	GY	CPA-SPC (C7-6)
3	SP	GR	PG-SP (C3-3)
4	SP1	BR	CPA-SP1 (C5-4)
5	SBC	BE	CPA-SBC (C7-4)

1	1
2	1
3	1
4	1
5	1
6	1
7	1

C6

Pin No.	Pin Name	Wire Color	Destination
1	OTR	VI	PG-OTR (C3-4)
2	4'	S BE	PG-4' (C9-7)
3	4'	S BE	PG-4' (C10-3)
4	E	S BE S	
5	2 2/3'	S GR	PG-2 2/3' (C8-9)
6	2 2/3'	S GR	PG-2 2/3' (C10-11)
7	E	S GR S	
8	1 3/5'	S OR	PG-1 3/5' (C12-3)
9	1 3/5'	S OR	PG-1 3/5' (C11-9)
10	E	S OR S	

1	1
2	1
3	1
4	5
5	1
6	1
7	1
8	1

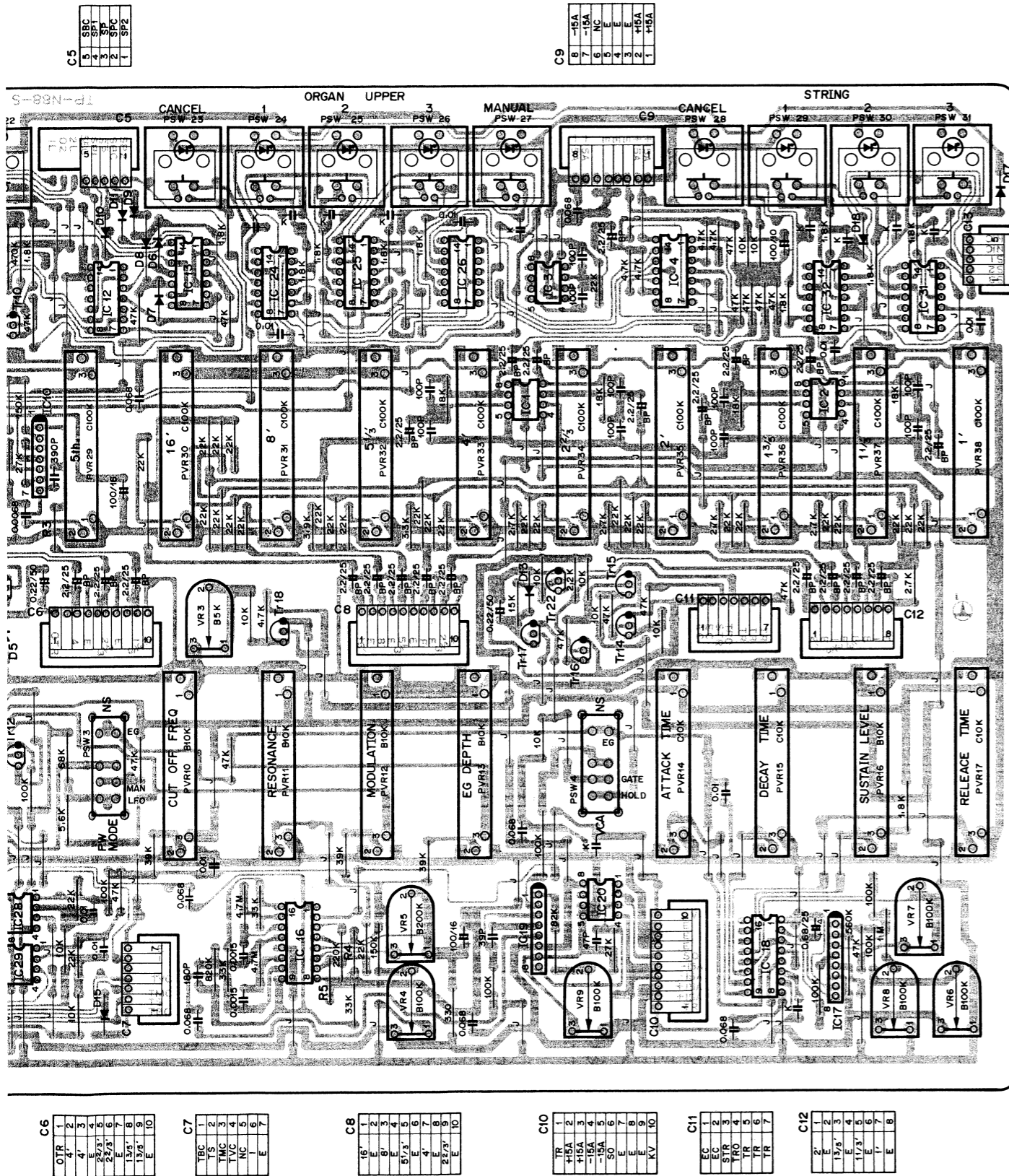
C7

Pin No.	Pin Name	Wire Color	Destination
1	TBC	SB	PE3-TBC (C2-2)
2	TS	BE	IG-1-TS (C13-4)
3	TMC	PK	PE3-TMC (C2-1)
4	TVC	GG	PE3-TVC (C2-3)
5			
6	I	S GY	IG-SYO (C11-2)
7	E	S GYS	

1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1

View from the printed pattern side of the circuit board.

CPB Circuit Board & Wiring



C5

5	SBC
4	SPT
3	SPC
2	SP2
1	SP1

C9

8	-15A
7	-15A
6	NC
5	NC
4	NC
3	E
2	E
1	-15A

C6

OTR	1
4	2
3	3
2	4
1	5
E	6
1/3	7
1/5	8
E	9
E	10

C7

TBC	1
TS	2
TMC	3
TVC	4
NC	5
E	6
E	7
E	8
E	9
E	10

C8

16	1
15	2
14	3
13	4
12	5
11	6
10	7
9	8
8	9
7	10

C10

TR	1
-15A	2
-15A	3
SO	4
E	5
E	6
E	7
E	8
E	9
KV	10

C11

EC	1
STR	2
FRO	3
TR	4
TR	5
TR	6
TR	7
TR	8
TR	9
TR	10

C12

2	1
1/3	2
E	3
1/3	4
E	5
1/3	6
E	7
E	8
E	9
E	10

C13

5	NIC
4	NIC
3	S1
2	S2
1	S3

C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-2)
2	-15D	YE	DC-15D (C2-5)
3	FS	WH	JK-FS (C4-8)
4	OSO	S VI	OG1-Si (C5-1)
5	Vss	S VI S	
6	SY	S GR	PG-SY (C8-4)
7	Vss	S GR S	
8	φM	S BE	OG1-φM (C12-5)
9	Vss	S BE S	
10	Vss	BL	DC-Vss (C2-4)

C2

Pin No.	Pin Name	Wire Color	Destination
1	TMC	PK	CPB-TMC (C7-3)
2	TBC	SB	CPB-TBC (C7-1)
3	TVC	GG	CPB-TVC (C7-4)
4	TVC	-	
5	Vss	BL	CPC-Vss (C1-7)

C3

Pin No.	Pin Name	Wire Color	Destination
1	PV2	WH	PG-PV2 (C9-5)
2	PV1	GY	PG-PV1 (C9-4)
3	TR	PK	CPB-TR (C11-7)
4	V	VI	PG-VIB (C11-4)
5	64'	BE	PG-64' (C11-5)
6	32'	GR	PG-32' (C11-6)
7	16'	YE	PG-16' (C11-7)
8	8'	OR	PG-8' (C11-8)
9	5 1/3'	RE	PG-5 1/3' (C11-9)
10	4'	BR	PG-4' (C11-10)

C4

Pin No.	Pin Name	Wire Color	Destination
1	PO	S RE	CPA-PI (C1-3)
2	-	-	
3	OO	S BR	CPA-OOI (C2-8)
4	-	-	
5	EC	BL	CPB-EC (C11-2)

C5

Pin No.	Pin Name	Wire Color	Destination
1	SP2	RE	CPA-SP2 (C5-2)
2	SPC	GY	CPA-SPC (C7-6)
3	SP	GR	PG-SP (C3-3)
4	SP1	BR	CPA-SP1 (C5-4)
5	SBC	BE	CPA-SBC (C7-4)

C6

Pin No.	Pin Name	Wire Color	Destination
1	OTR	VI	PG-OTR (C3-4)
2	4'	S BE	CPB-4' (C8-7)
3	4'	S BE	OG1-4' (C10-3)
4	E	S BE S	
5	2 2/3'	S GR	CPB-2 2/3' (C8-9)
6	2 2/3'	S GR	OG1-2 2/3' (C10-1)
7	E	S GR S	
8	1 3/5'	S OR	CPB-1 3/5' (C12-3)
9	1 3/5'	S OR	OG1-1 3/5' (C11-5)
10	E	S OR S	

C7

Pin No.	Pin Name	Wire Color	Destination
1	TBC	SB	CPB-TBC (C2-2)
2	TS	BE	OG1-TS (C13-4)
3	TMC	PK	CPB-TMC (C2-1)
4	TVC	GG	CPB-TVC (C2-3)
5	-	-	
6	I	S GY	PG-SYO (C11-2)
7	E	S GY S	

C8

Pin No.	Pin Name	Wire Color	Destination
1	16'	S WH	OG1-16' (C10-9)
2	E	S WH S	
3	8'	S GY	OG1-8' (C10-7)
4	E	S GY S	
5	5 1/3'	S VI	OG1-5 1/3' (C10-5)
6	E	S VI S	
7	4'	S BE	CPB-4' (C8-2)
8	E	S BE S	
9	2 2/3'	S GR	CPB-2 2/3' (C6-5)
10	E	S GR S	

C9

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPA-15A (C4-7)
2	+15A	BR	CPB-15A (C10-2)
3	E	BL	CPA-E (C4-4)
4	E	BL	CPB-E (C10-7)
5	E	-	
6	-	-	
7	-15A	YE	CPA-15A (C4-2)
8	-15A	YE	CPB-15A (C10-4)

C10

Pin No.	Pin Name	Wire Color	Destination
1	TR	PK	CPB-TR (C11-6)
2	+15A	BR	CPB-15A (C9-2)
3	+15A	BR	CPC-15A (C6-5)
4	-15A	YE	CPB-15A (C9-8)
5	-15A	YE	CPC-15A (C6-9)
6	SO	S OR	CPA-SI (C1-5)
7	E	BL	CPB-E (C9-4)
8	E	BL	CPC-E (C6-7)
9	E	-	
10	KV	VI	JK-KVO (C4-5)

C11

Pin No.	Pin Name	Wire Color	Destination
1	EC	BL	DC-Vss (C4-4)
2	EC	BL	CPB-EC (C4-5)
3	STR	GR	PG-STR (C9-2)
4	TRO	YE	JK-TRI (C4-1)
5	TR	PK	OG1-TR (C13-2)
6	TR	PK	CPB-TR (C10-1)
7	TR	PK	CPB-TR (C3-3)

C12

Pin No.	Pin Name	Wire Color	Destination
1	2'	S YE	OG1-2' (C11-7)
2	E	S YE S	
3	1 3/5'	S OR	CPB-1 3/5' (C11-5)
4	E	S OR S	
5	1 1/3'	S RE	OG1-1 1/3' (C11-3)
6	E	S RE S	
7	1'	S BR	OG1-1' (C11-1)
8	E	S BR S	

C13

Pin No.	Pin Name	Wire Color	Destination
1	S3	OR	PG-S3 (C12-4)
2	S2	RE	PG-S2 (C12-3)
3	S1	BR	PG-S1 (C12-5)
4	NIC	WH	CPC-NIC (C6-2)
5	NIC	-	

C14

Pin No.	Pin Name	Wire Color	Destination
1	DES	BR	SW-DES (C2-4)
2	SUS	RE	SW-SUS (C2-7)
3	DEL	OR	SW-DEL (C2-3)
4	-15D	YE	SW-15D (C1-8)
5	SUL	GR	SW-SUL (C2-5)
6	DEC	BE	SW-DEC (C1-4)
7	SU	VI	SW-SU (C1-3)
8	IC	GY	SW-IC (C1-1)

- (Notes)
- Circuit Board : LC86210
 - IC, LSI
 - IC1 ~ 3, 11, 14, 15, 20, 28, 29 : NJM4558DV (OP-Amp)
 - IC4 : TC4016BP (Analog SW)
 - IC5 : iG03280 (Diode Matrix)
 - IC6 : YM62700 (PSC)
 - IC8 ~ 10, 27 : iG02601 (VCA)
 - IC16 : iG00156 (+VCF)
 - IC17, 19 : iG00151 (VCA)
 - IC18 : iG00159 (EG-VCA)
 - IC12, 21 : TC4093BP (NAND Schmitt Trigger)
 - IC13, 22, 23 : TC4013BP ("D" Flip-Flop)
 - IC24 ~ 26, 31, 32 : iG00157 (SW Memory)
 - IC30 : iG00150 (VCOII)
 - Transistors
 - Tr5 : 2SC752 (Y)
 - Tr6 : 2SA1164 (GR)
 - Tr7, 8, 11, 12, 15 ~ 18, 22 : 2SC1815 (O, Y)
 - Tr9, 10, 13, 14, 19 ~ 21 : 2SA1015 (O, Y)
 - Field Effect Transistors
 - FET1 ~ 4 : 2SK30A (Y)
 - Diodes
 - D1 ~ 5, 12 ~ 18 : 1S1555
 - Capacitor
 - (K) marked : Ceramic Capacitor 1000P
 - ▲ marked : Solid Aluminum Capacitor

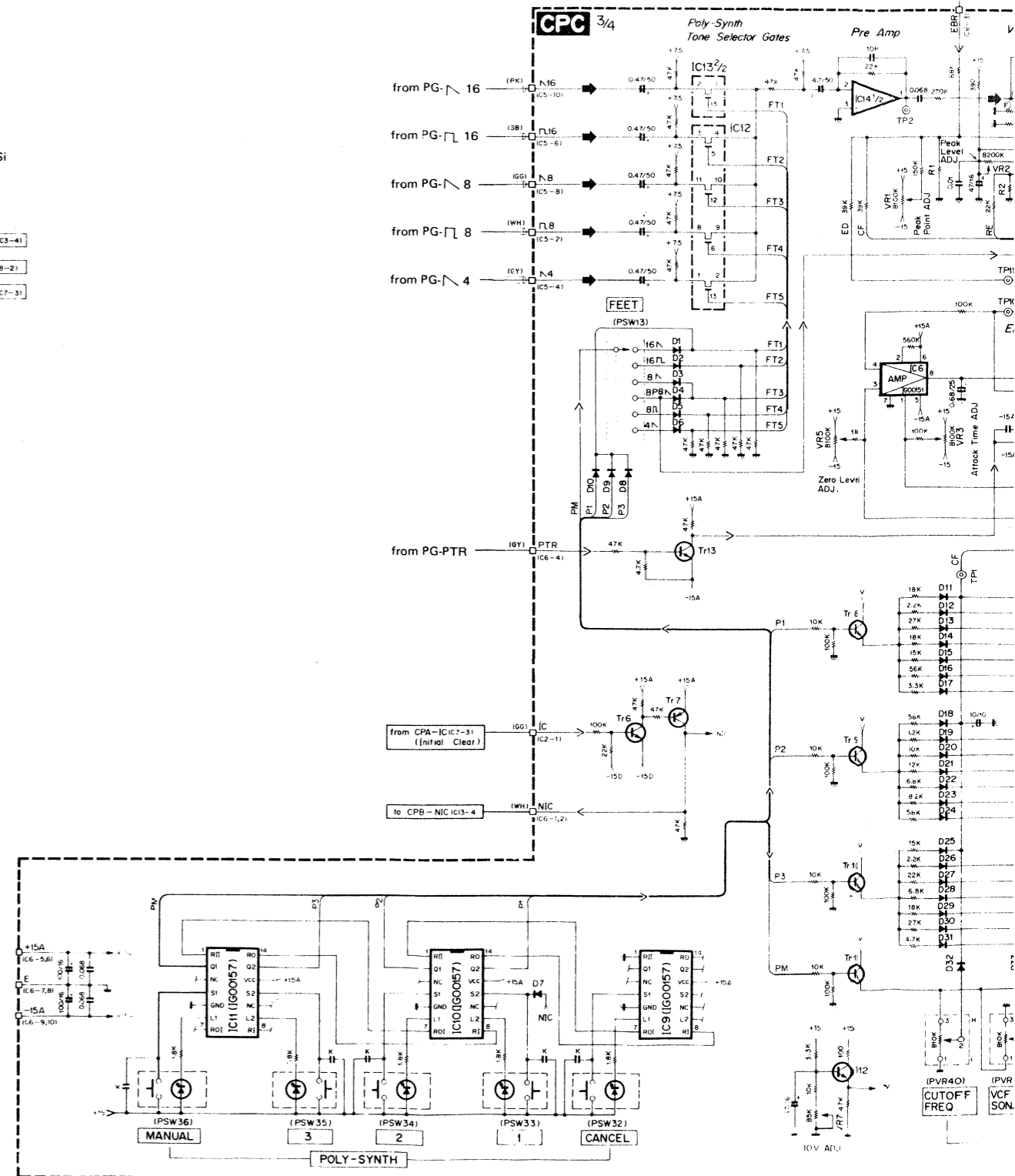
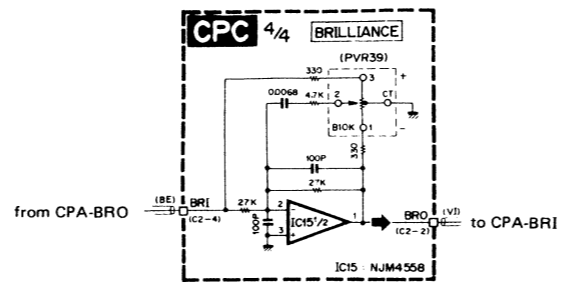
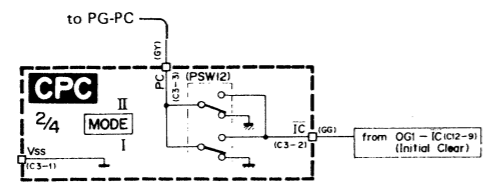
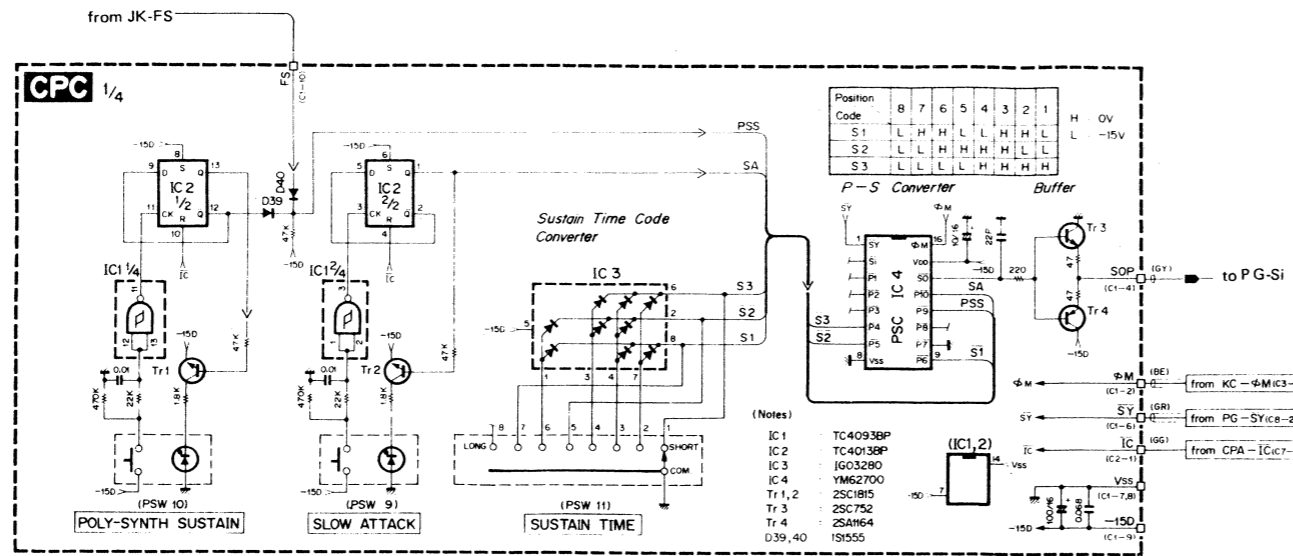
7. Set "R1 ~ R6" in accordance with the following table. See illstr for VCA (IC8 ~ 10, 27) rank.

IC number	rank		
	R	K	M
IC8	R1	22K	18K
IC9	R2	18K	15K
IC10	R3	15K	12K
IC27	R6	22K	18K

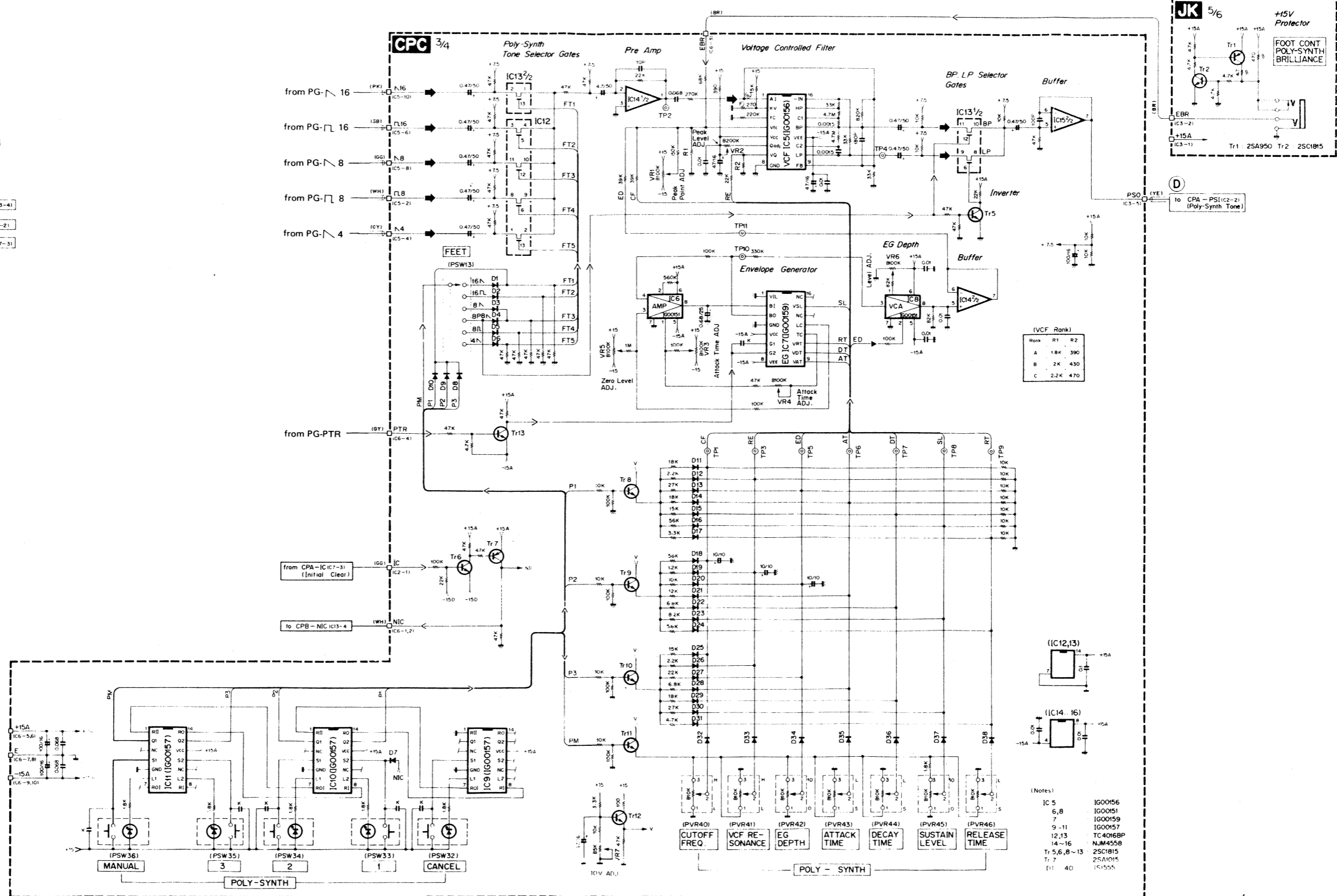
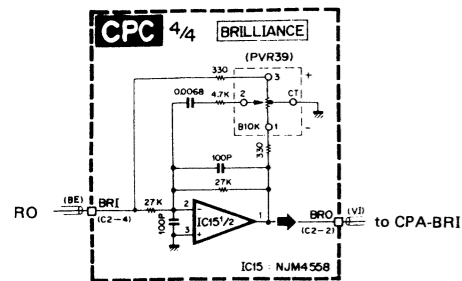
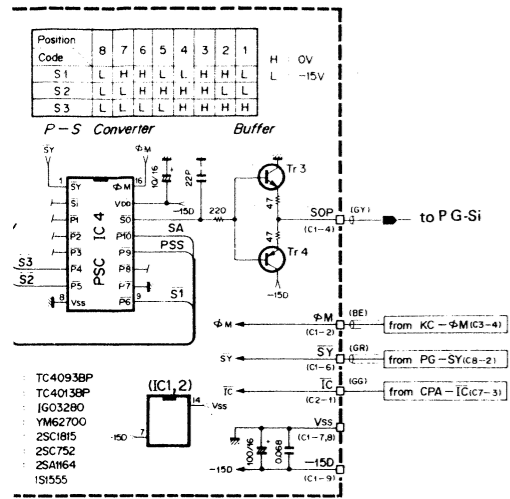
8. Set "R4, R5" in accordance with the following table. See illstr for VCF (IC16) rank.

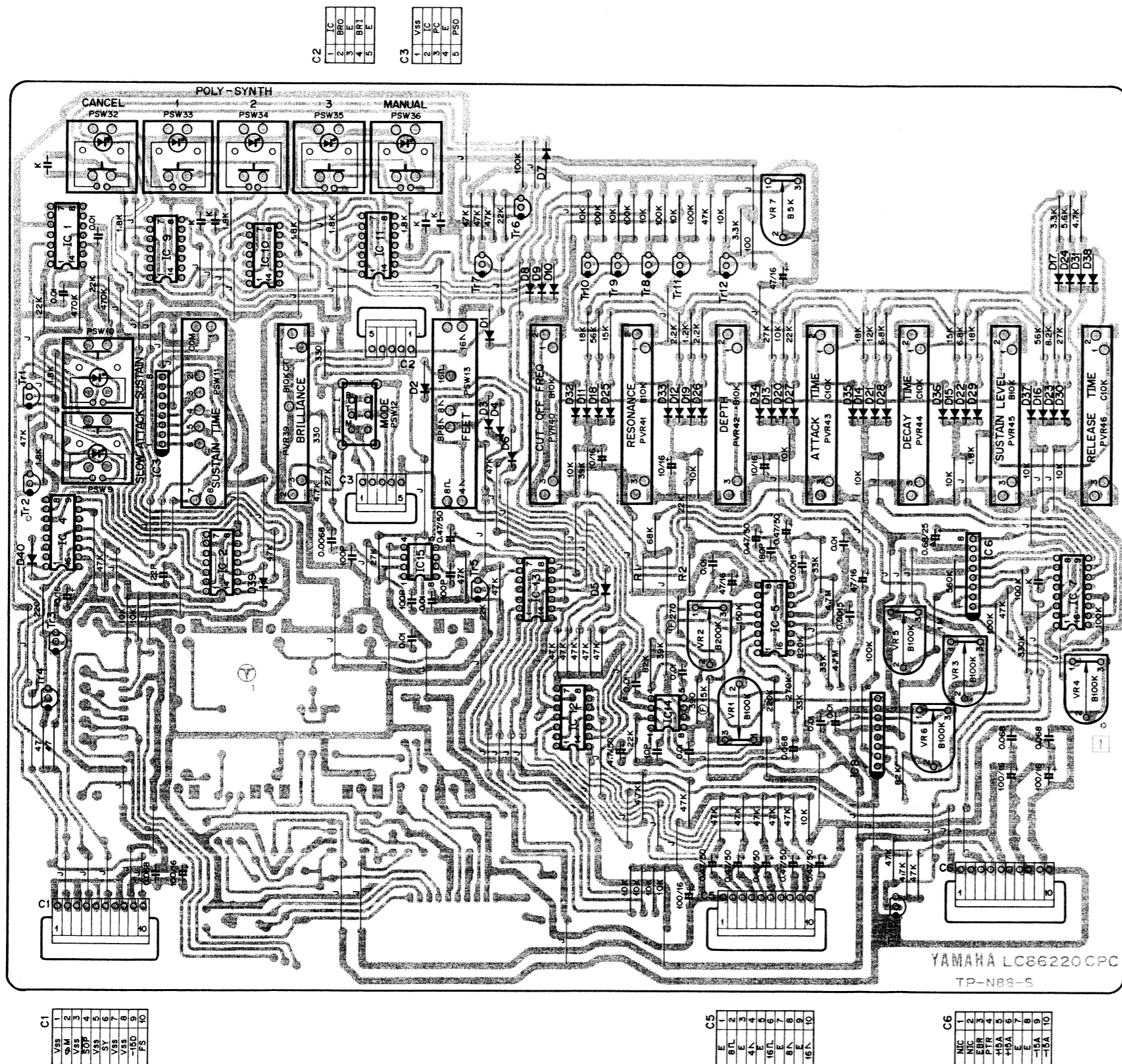
R	rank		
	A	B	C
R4	1.8K	2K	2.2K
R5	390	430	470

- Variable Resistor
 - VR1 ~ 9 : V10K type
- Slide Variable Resistor
 - PVR5, 8 ~ 13, 16 : B10K HQ23006
 - PVR6 : A2M HQ23011
 - PVR7, 25 : B10KCT HQ23007
 - PVR14, 15, 17 : C10K HQ23009
 - PVR26 : A25K HQ23003
 - PVR27 ~ 38 : C100K HQ23008
- Slide Switch
 - PSW2 : 6 contact with click KA40800
 - PSW3, 4 : 2 way, 3 contact (Non shorting) KA40059
 - PSW8 : 8 contact (Non click) KA40079
- Push Switch with LED
 - PSW6, 7, 17 ~ 19 : Gray KA90170
 - PSW24 ~ 27, 29 ~ 31 : White KA90171



CPC Circuit Diagram





C2

1	IC	GG
2	BRO	SVI
3	E	SBE
4	BRI	SBE
5	E	-

C3

1	VSS	BL
2	IC	GG
3	PC	GY
4	PSO	SYE

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S BE S	
2	ψ M	S BE	KC-ψ M (C5-10)
3	Vss	S GY S	
4	SOP	S GY S	PG-SI (C8-5)
5	Vss	S GR S	
6	SY	S GR S	PG-SY (C8-2)
7	Vss	BL	CPB-Vss (C2-5)
8	Vss	BL	DC-Vss (C3-4)
9	-15D	YE	DC-15D (C3-5)
10	FS	WH	JK-FS (C4-9)

C2

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-3)
2	BRO	SVI	CPA-BRI (C6-3)
3	E	S BE S	
4	BRI	S BE	CPA-BRO (C6-10)
5	E	-	

C3

Pin No.	Pin Name	Wire Color	Destination
1	Vss	BL	PG-Vss (C7-7)
2	IC	GG	OG-IC1 (C12-9)
3	PC	GY	PG-PC (C9-7)
4	E	-	
5	PSO	SYE	CPA-PSI (C2-2)

C5

Pin No.	Pin Name	Wire Color	Destination
1	E	S WH S	
2	8 Π	S WH	PG-8Π (C13-2)
3	E	S GY S	
4	4 N	S GY	PG-4N (C13-1)
5	E	S SB S	
6	16 Π	S SB	PG-16Π (C13-3)
7	E	S GG S	
8	8 N	S GG	PG-8N (C13-5)
9	E	S PK S	
10	16 N	S PK	PG-16N (C13-4)

C6

Pin No.	Pin Name	Wire Color	Destination
1	NIC	-	-
2	NIC	WH	CPB-NIC (C13-4)
3	E BR	BR	JK-E BR (C3-2)
4	PTR	GY	PG-PTR (C3-7)
5	+15A	BR	CPB-15A (C10-3)
6	+15A	BR	JK-15A (C3-1)
7	E	BL	CPB-E (C10-8)
8	E	BL	JK-E (C4-10)
9	-15A	YE	CPB-15A (C10-5)
10	-15A	YE	JK-15A (C3-5)

C1

1	VSS
2	ψ M
3	VSS
4	SOP
5	VSS
6	SY
7	VSS
8	-15D
9	FS
10	

C5

1	E
2	8 Π
3	E
4	4 N
5	E
6	16 Π
7	E
8	8 N
9	E
10	16 N

C6

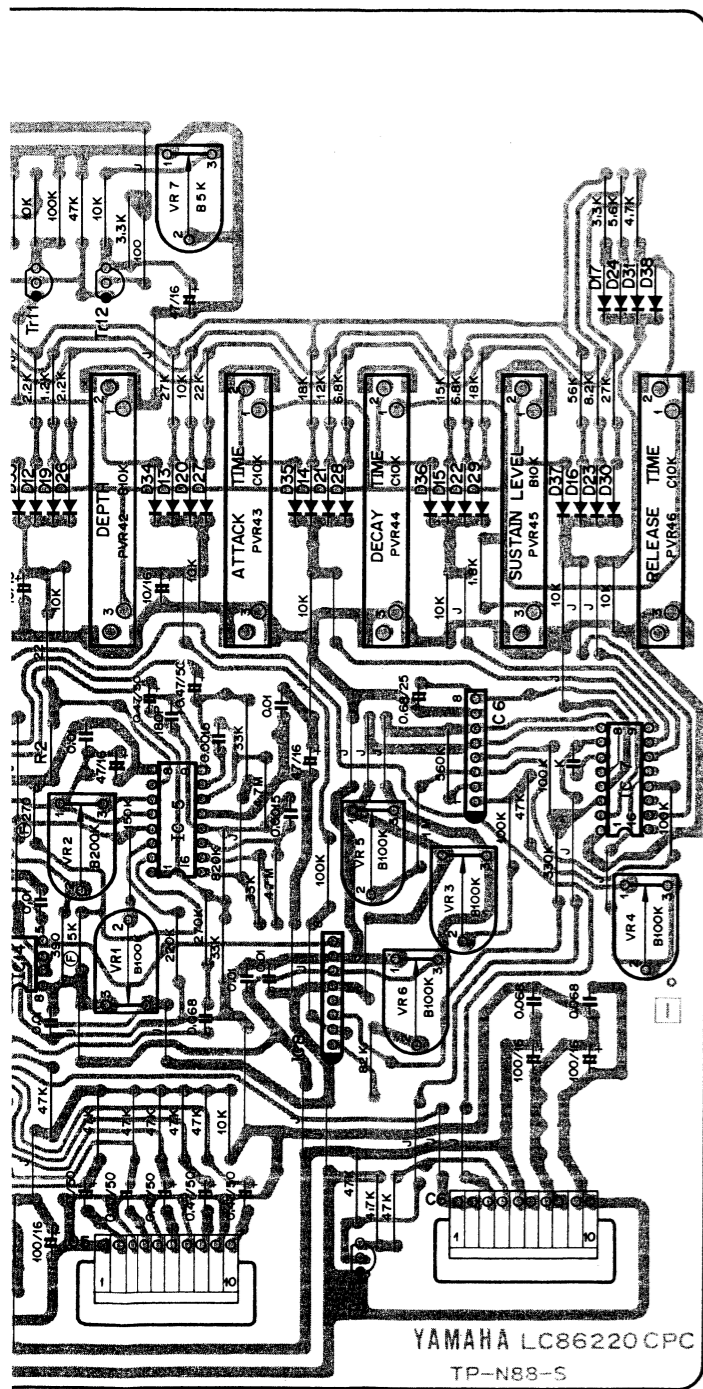
1	NIC
2	NIC
3	E BR
4	PTR
5	+15A
6	+15A
7	E
8	E
9	-15A
10	-15A

- (Notes)
- Circuit Board : LC86220
 - IC, LSI
 - IC1 : TC4093BP (2 IN NAND)
 - IC2 : TC4013BP ("D" Flip-Flop)
 - IC3 : iG03280 (Diodes Matrix)
 - IC4 : YM62700 (PSC)
 - IC5 : iG00156 (VCF)
 - IC6, 8 : iG00151 (VCA)
 - IC7 : iG00159 (EG)
 - IC9, 10, 11 : iG00157 (SW Memory)
 - IC12, 13 : TC4016BP (Gate)
 - IC14, 15 : NJM4558DV (OP-Amp)
 - Transistors
 - Tr1, 2, 5, 6, 8 ~ 13 : 2SC1815 (O, Y)
 - Tr3 : 2SC752 (Y)
 - Tr4 : 2SA1164 (GR)
 - Tr7 : 2SA1015 (O, Y)
 - Diodes
 - D1 ~ D40 : 1S1555
 - Capacitor
 - (K) marked : Ceramic Capacitor 1000P
 - ▲ marked : Solid Aluminum Capacitor
 - Set "R1, R2" in accordance with the following table. See illust for VCF (IC5) rank.

rank	A	B	C
R1	1.8K	2K	2.2K
R2	390	430	470

View from the printed pattern side of the circuit board.

CPC Circuit Board & Wiring



C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S BE S	
2	φM	S BE	KC-φM (C5-10)
3	Vss	S GY S	
4	SOP	S GY S	PG-SI (C8-5)
5	Vss	S GR S	
6	SY	S GR	PG-SY (C8-2)
7	Vss	BL	CPB-Vss (C2-5)
8	Vss	BL	DC-Vss (C3-4)
9	-15D	YE	DC.-15D (C3-5)
10	FS	WH	JK-FS (C4-9)

C2

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-3)
2	BRO	S VI	CPA-BRI (C6-3)
3	E	S BE S	
4	BRI	S BE	CPA-BRO (C6-10)
5	E	-	-

C3

Pin No.	Pin Name	Wire Color	Destination
1	Vss	BL	PG-Vss (C7-7)
2	IC	GG	OG1-IC (C12-9)
3	PC	GY	PG-PC (C9-7)
4	E	-	-
5	PSO	S YE	CPA-PSI (C2-2)

C5

Pin No.	Pin Name	Wire Color	Destination
1	E	S WH S	
2	8 L	S WH	PG-8 L (C13-2)
3	E	S GY S	
4	4 N	S GY	PG-4 N (C13-1)
5	E	S SB S	
6	16 L	S SB	PG-16 L (C13-3)
7	E	S GG S	
8	8 N	S GG	PG-8 N (C13-5)
9	E	S PK S	
10	16 N	S PK	PG-16 N (C13-4)

C6

Pin No.	Pin Name	Wire Color	Destination
1	NIC	-	-
2	NIC	WH	CPB-NIC (C13-4)
3	E BR	BR	JK-E BR (C3-2)
4	PTR	GY	PG-PTR (C3-7)
5	+15A	BR	CPB-+15A (C10-3)
6	+15A	BR	JK-+15A (C3-1)
7	E	BL	CPB-E (C10-8)
8	E	BL	JK-E (C4-10)
9	-15A	YE	CPB.-15A (C10-5)
10	-15A	YE	JK.-15A (C3-5)

(Notes)

- Circuit Board : LC86220
- IC, LSI
 - IC1 : TC4093BP (2 IN NAND)
 - IC2 : TC4013BP ("D" Flip-Flop)
 - IC3 : iG03280 (Diodes Matrix)
 - IC4 : YM62700 (PSC)
 - IC5 : iG00156 (VCF)
 - IC6, 8 : iG00151 (VCA)
 - IC7 : iG00159 (EG)
 - IC9, 10, 11 : iG00157 (SW Memory)
 - IC12, 13 : TC4016BP (Gate)
 - IC14, 15 : NJM4558DV (OP-Amp)
- Transistors
 - Tr1, 2, 5, 6, 8 ~ 13 : 2SC1815 (O, Y)
 - Tr3 : 2SC752 (Y)
 - Tr4 : 2SA1164 (GR)
 - Tr7 : 2SA1015 (O, Y)
- Diodes
 - D1 ~ D40 : 1S1555
- Capacitor
 - (K) marked : Ceramic Capacitor 1000P
 - ▲ marked : Solid Aluminum Capacitor
- Set "R1, R2" in accordance with the following table.
See illust for VCF (IC5) rank.

rank	A	B	C
R1	1.8K	2K	2.2K
R2	390	430	470

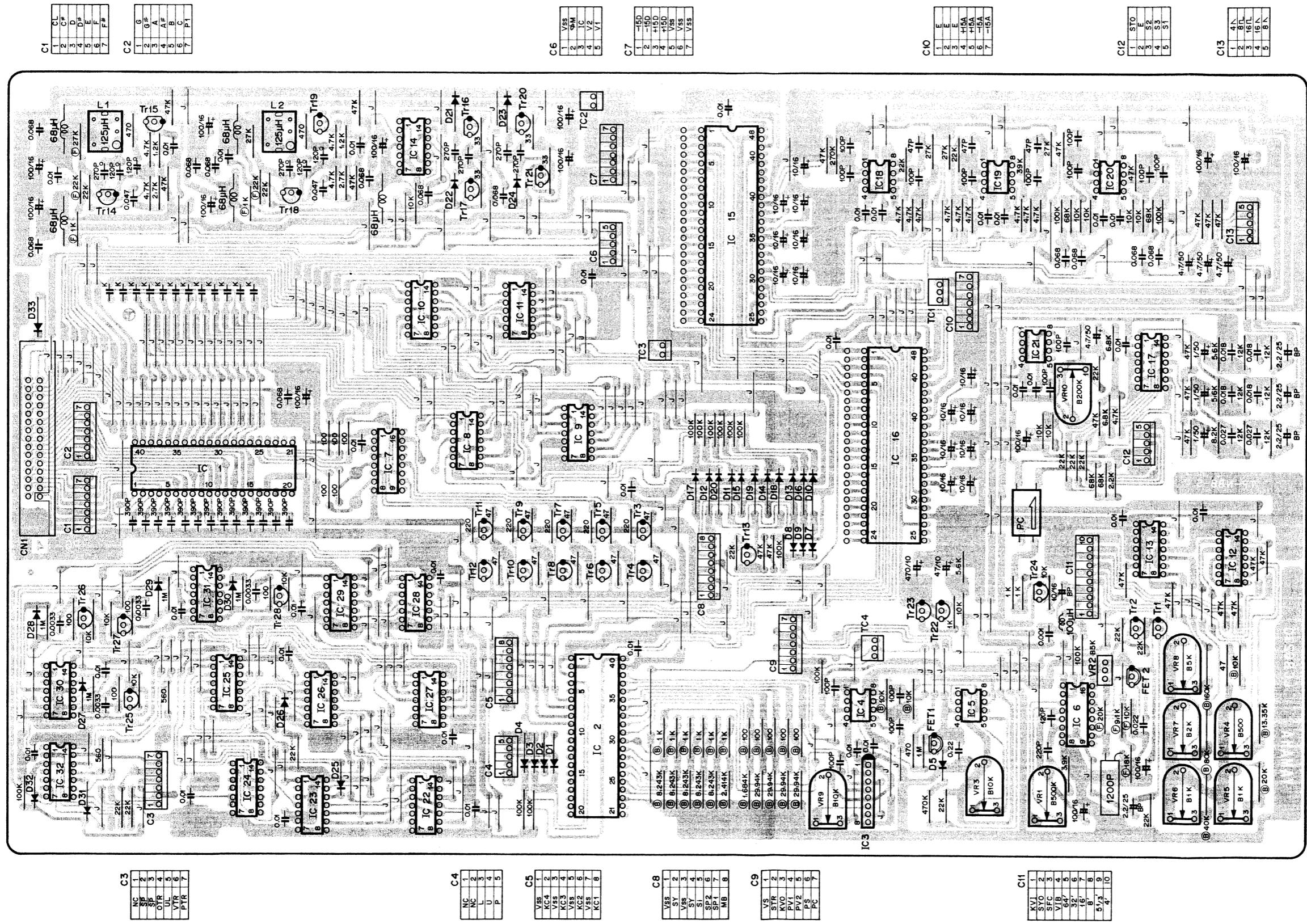
- Ⓢ marked : Metal Film Resistor (1%)
- Semi-Variable Resistor
 - VR1 ~ 7 : V10K type
- Slide Variable Resistor
 - PVR40 ~ 42, 45 : B10K HQ23006
 - PVR39 : B10KCT HQ23007
 - PVR43, 44, 46 : C10K HQ23009
- Slide Switch
 - PSW12 : 2 way, 2 contact (NS) KA40060
 - PSW11 : 8 contact (non click) KA40079
 - PSW13 : 6 contact (with click) KA40080
- Push Switch with LED
 - PSW9, 10, 32 : Gray KA90170
 - PSW33 ~ 36 : White KA90171

C5

1	E
2	8 L
3	4 L
4	4 L
5	16 L
6	8 L
7	8 L
8	8 L
9	16 N
10	16 N

C6

1	NIC
2	NIC
3	BR
4	BR
5	+15A
6	+15A
7	E
8	E
9	-15A
10	-15A



C1

1	CL
2	C#
3	D#
4	E#
5	F#
6	G#
7	H#

C2

1	G#
2	A
3	A#
4	B
5	B#
6	C
7	C#

C6

1	VSS
2	5M
3	IC
4	V2
5	V1

C7

1	-15D
2	-15D
3	+15D
4	+15D
5	VSS
6	VSS
7	VSS

C10

1	E
2	E
3	E
4	+15A
5	+15A
6	-15A
7	-15A

C12

1	STO
2	E
3	S2
4	S1

C13

1	4N
2	8L
3	16L
4	16L
5	8N

C3

NC	1
SP	2
SP	3
UL	4
VTR	5
VTR	6
PTR	7

C4

NC	1
NC	2
L	3
L	4
P	5

C5

VSS	1
VSS	2
VSS	3
KC3	4
VSS	5
KC2	6
VSS	7
KC1	8

C8

VSS	1
STR	2
KVO	3
PV1	4
PV2	5
PC	6
PC	7

C9

VS	1
KVO	2
KVO	3
PV1	4
PV2	5
PC	6
PC	7

C11

KV1	1
SFO	2
SFC	3
VIB	4
64'	5
32'	6
16'	7
8'	8
9'	9
4'	10

C1

Pin No.	Pin Name	Wire Color	Destination
0	NC	-	-
1	CL	BR	PLO-CL (C1-8)
2	C#	PK	PLO-C# (C1-9)
3	D	SB	PLO-D (C1-10)
4	D#	GG	PLO-D# (C1-11)
5	E	WH	PLO-E (C1-12)
6	F	GY	PLO-F (C1-13)
7	F#	V1	PLO-F# (C1-14)

C8

Pin No.	Pin Name	Wire Color	Destination
1	VSS	S GR S	-
2	SY	S GR S	CPC-SY (C1-6)
3	VSS	S GR S	-
4	SY	S GR S	CPB-SY (C1-6)
5	SI	S GY	CPC-SOP (C1-4)
6	SP2	RE	OG1-SP2 (C1-4)
7	SP1	BR	OG1-SP1 (C1-4)
8	MB	WH	CPA-MB (C1-7)

C2

Pin No.	Pin Name	Wire Color	Destination
1	G	BE	PLO-G (C1-15)
2	G#	GR	PLO-G# (C1-16)
3	A	YE	PLO-A (C1-17)
4	A#	OR	PLO-A# (C1-18)
5	B	RE	PLO-B (C1-19)
6	C	BR	PLO-C (C1-20)
7	P1	RE	PLO-P1 (C1-3)

C9

Pin No.	Pin Name	Wire Color	Destination
1	VS	YE	CPA-VS (C8-1)
2	STR	GR	CPB-STR (C11)
3	KVO	BE	JK-KV1 (C4-3)
4	PV1	GY	CPB-PV1 (C3-)
5	PV2	WH	CPB-PV2 (C3-)
6	PS	GR	JK-PS (C4-7)
7	PC	GY	CPC-PC (C3-3)

C3

Pin No.	Pin Name	Wire Color	Destination
1	-	-	-
2	SP	GR	CPA-SP (C5-7)
3	SP	GR	CPB-SP (C5-3)
4	OTR	VI	CPB-OTR (C6-1)
5	UL	YE	OG1-UL (C9-1)
6	VTR	BE	CPA-VTR (C8-3)
7	PTR	GY	CPC-PTR (C6-4)

C10

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	OG1-E (C8-6)
2	E	-	-
3	E	-	-
4	+15A	BR	OG1-+15A (C
5	+15A	YE	OG1-+15A (C
6	-15A	YE	OG1-+15A (C
7	-15A	-	-

C4

Pin No.	Pin Name	Wire Color	Destination
1	-	-	-
2	-	-	-
3	L	OR	CPA-SL3 (C5-1)
4	U	YE	CPA-SU (C5-6)
5	P	V1	CPA-SB (C7-5)

C11

Pin No.	Pin Name	Wire Color	Destination
1	KV1	VI	JK-KVO (C4-)
2	SYO	S GY	CPB-1 (C7-6)
3	SFC	OR	JK-SFC (C3-4)
4	VIB	VI	CPB-V (C3-4)
5	64'	BR	CPB-64' (C3-5)
6	32'	GR	CPB-32' (C3-5)
7	16'	YE	CPB-16' (C3-7)
8	8'	OR	CPB-8' (C3-8)
9	51/3'	RE	CPB-51/3' (C3)
10	4'	BR	CPB-4' (C3-10)

C5

Pin No.	Pin Name	Wire Color	Destination
1	VSS	S YE S	-
2	KC4	S YE	OG1-KC4 (C5-9)
3	VSS	S OR S	-
4	KC3	S OR	OG1-KC3 (C5-7)
5	VSS	S RES S	-
6	KC2	S RE	OG1-KC2 (C5-5)
7	VSS	S BR S	-
8	KC1	S BR	OG1-KC1 (C5-3)

C12

Pin No.	Pin Name	Wire Color	Destination
1	STO	S GR S	CPA-ST1 (C2-4)
2	E	S GR S	-
3	S2	RE	CPB-S2 (C13-2)
4	S3	OR	CPB-S3 (C13-3)
5	S1	BR	CPB-S1 (C13-2)

C6

Pin No.	Pin Name	Wire Color	Destination
1	VSS	S BES S	-
2	φM	S BE	OG1-φM (C12-1)
3	IC	GG	OG1-IC (C12-7)
4	V2	RE	CPA-V2 (C8-6)
5	V1	BR	CPA-V1 (C8-5)

C13

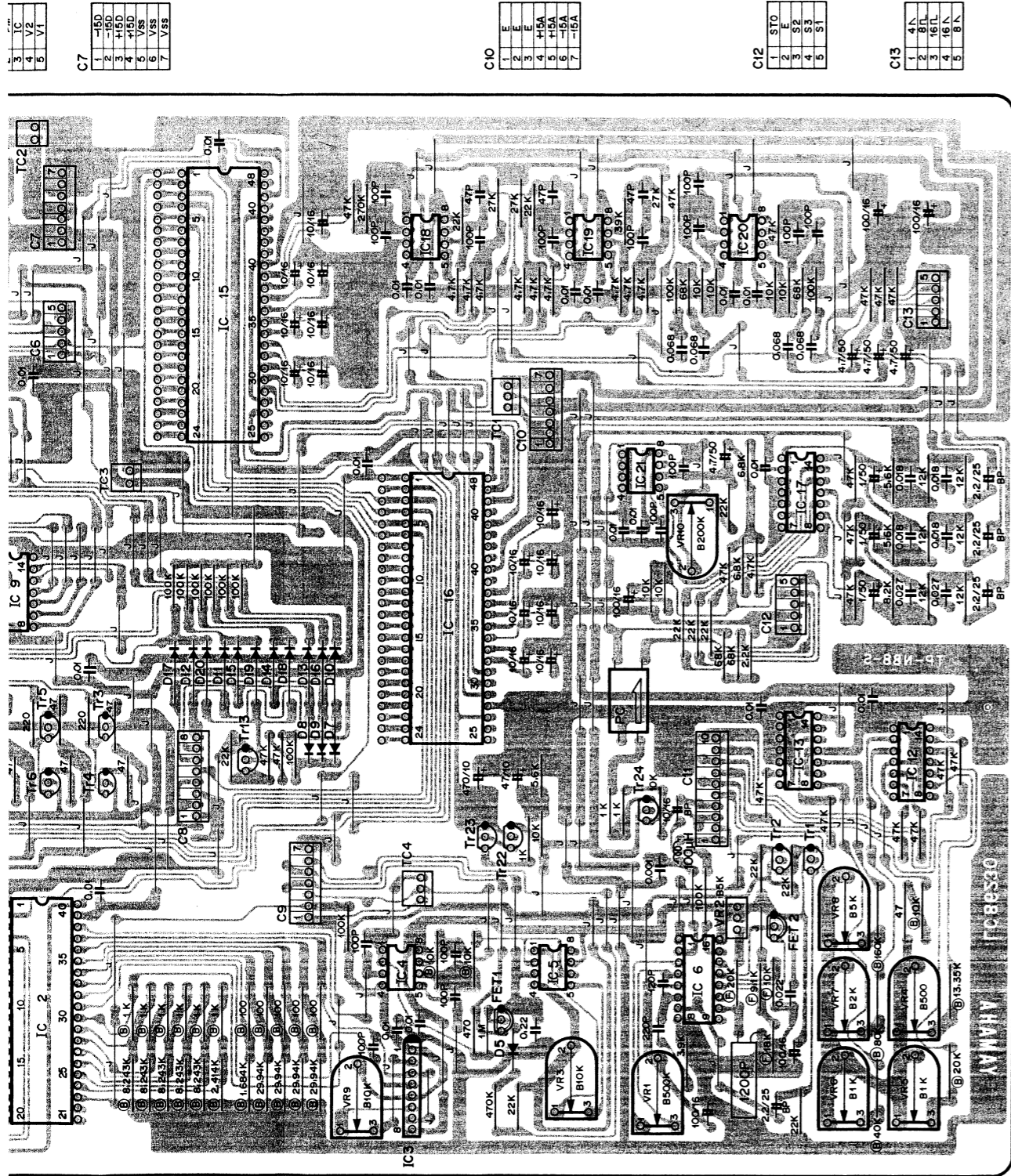
Pin No.	Pin Name	Wire Color	Destination
1	4N	S GY	CPC-4N (C5-4)
2	8L	S WH	CPC-8L (C5-2)
3	16L	S SB	CPC-16L (C5)
4	16N	S PK	CPC-16N (C5)
5	8N	S GG	CPC-8N (C5-4)

C7

Pin No.	Pin Name	Wire Color	Destination
1	-15D	YE	OG1-+15D (C1-5)
2	-15D	-	-
3	+15D	BR	OG1-+15D (C2-3)
4	+15D	-	-
5	VSS	BL	KC-VSS (C4-4)
6	VSS	BL	OG1-VSS (C1-2)
7	VSS	BL	CPC-VSS (C3-1)

View from the component side of the circuit board.

PG Circuit Board & Wiring



1	IC
2	IC
3	IC
4	IC
5	VI

1	-10
2	H80
3	H10
4	H10
5	VSS
6	VSS
7	VSS

1	E
2	E
3	E
4	H10A
5	H10A
6	H10A
7	H10A

1	STO
2	E
3	E
4	S1
5	S1

1	4N
2	8L
3	16L
4	16L
5	8N

1	KC2
2	KC1
3	KC1

1	VS
2	VS
3	VS
4	VS
5	SI
6	SP2
7	MB
8	MB

1	VS
2	K10
3	PV1
4	PV1
5	PS
6	PS
7	PC

1	KV1
2	STO
3	SFC
4	64
5	32
6	16
7	8
8	5 1/3
9	4
10	4

Pin No.	Pin Name	Wire Color	Destination
0	NC	-	-
1	CL	BR	PLO-CL (C1-8)
2	C#	PK	PLO-C# (C1-9)
3	D	SB	PLO-D (C1-10)
4	D#	GG	PLO-D# (C1-11)
5	E	WH	PLO-E (C1-12)
6	F	GY	PLO-F (C1-13)
7	F#	VI	PLO-F# (C1-14)

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S GR S	-
2	SY	S GR S	CPC-SY (C1-6)
3	Vss	S GR S	-
4	SY	S GR S	CPB-SY (C1-6)
5	SI	S GY	CPC-SOP (C1-4)
6	SP2	RE	OG1-SP2 (C14-4)
7	SP1	BR	OG1-SP1 (C14-2)
8	MB	WH	CPA-MB (C7-7)

Pin No.	Pin Name	Wire Color	Destination
1	G	BE	PLO-G (C1-15)
2	G#	GR	PLO-G# (C1-16)
3	A	YE	PLO-A (C1-17)
4	A#	OR	PLO-A# (C1-18)
5	B	RE	PLO-B (C1-19)
6	C	BR	PLO-C (C1-20)
7	P1	RE	PLO-P1 (C1-3)

Pin No.	Pin Name	Wire Color	Destination
1	VS	YE	CPA-VS (C8-10)
2	STR	GR	CPB-STR (C11-3)
3	KVO	BE	JK-KV1 (C4-3)
4	PV1	GY	CPB-PV1 (C3-2)
5	PV2	WH	CPB-PV2 (C3-1)
6	PS	GR	JK-PS (C4-7)
7	PC	GY	CPC-PC (C3-3)

Pin No.	Pin Name	Wire Color	Destination
1	-	-	-
2	SP	GR	CPA-SP (C5-7)
3	SP	GR	CPB-SP (C5-3)
4	OTR	VI	CPB-OTR (C6-1)
5	UL	YE	OG1-UL (C9-1)
6	VTR	BE	CPA-VTR (C8-3)
7	PTR	GY	CPC-PTR (C6-4)

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	OG1-E (C8-6)
2	E	-	-
3	E	-	-
4	+15A	BR	OG1-15A (C8-2)
5	+15A	-	-
6	-15A	YE	OG1-15A (C8-4)
7	-15A	-	-

Pin No.	Pin Name	Wire Color	Destination
1	-	-	-
2	-	-	-
3	L	OR	CPA-SL3 (C5-1)
4	U	YE	CPA-SU (C5-6)
5	P	VI	CPA-SB (C7-5)

Pin No.	Pin Name	Wire Color	Destination
1	KV1	VI	JK-KVO (C4-4)
2	SYO	S GY	CPB-1 (C7-6)
3	SFC	OR	JK-SFC (C3-4)
4	VIB	VI	CPB-V (C3-4)
5	64	BE	CPB-64 (C3-6)
6	32	GR	CPB-32 (C3-6)
7	16	YE	CPB-16 (C3-7)
8	8	OR	CPB-8 (C3-8)
9	5 1/3	RE	CPB-5 1/3 (C3-9)
10	4	BR	CPB-4 (C3-10)

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S YE S	-
2	KC4	S YE	OG1-KC4 (C5-9)
3	Vss	S OR S	-
4	KC3	S OR	OG1-KC3 (C5-7)
5	Vss	S RE S	-
6	KC2	S RE	OG1-KC2 (C5-5)
7	Vss	S BR S	-
8	KC1	S BR	OG1-KC1 (C5-3)

Pin No.	Pin Name	Wire Color	Destination
1	STO	S GR	CPA-ST1 (C2-4)
2	E	S GR S	-
3	S2	RE	CPB-S2 (C13-2)
4	S3	OR	CPB-S3 (C13-1)
5	S1	BR	CPB-S1 (C13-3)

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S BE S	-
2	φM	S BE	OG1-φM (C12-1)
3	IC	GG	OG1-IC (C12-7)
4	V2	RE	CPA-V2 (C8-8)
5	V1	BR	CPA-V1 (C8-5)

Pin No.	Pin Name	Wire Color	Destination
1	4N	S GY	CPC-4N (C5-4)
2	8L	S WH	CPC-8L (C5-2)
3	16L	S SB	CPC-16L (C5-6)
4	16N	S PK	CPC-16N (C5-10)
5	8N	S GG	CPC-8N (C5-8)

Pin No.	Pin Name	Wire Color	Destination
1	-15D	YE	OG1-15D (C1-5)
2	-15D	-	-
3	+15D	BR	OG1+15D (C2-3)
4	+15D	-	-
5	Vss	BL	KC-Vss (C4-4)
6	Vss	BL	OG1-Vss (C1-2)
7	Vss	BL	CPC-Vss (C3-1)

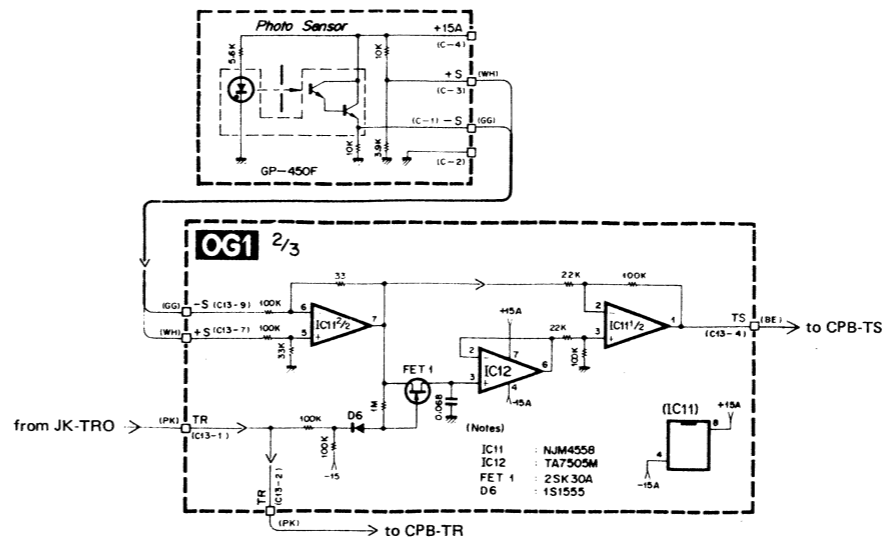
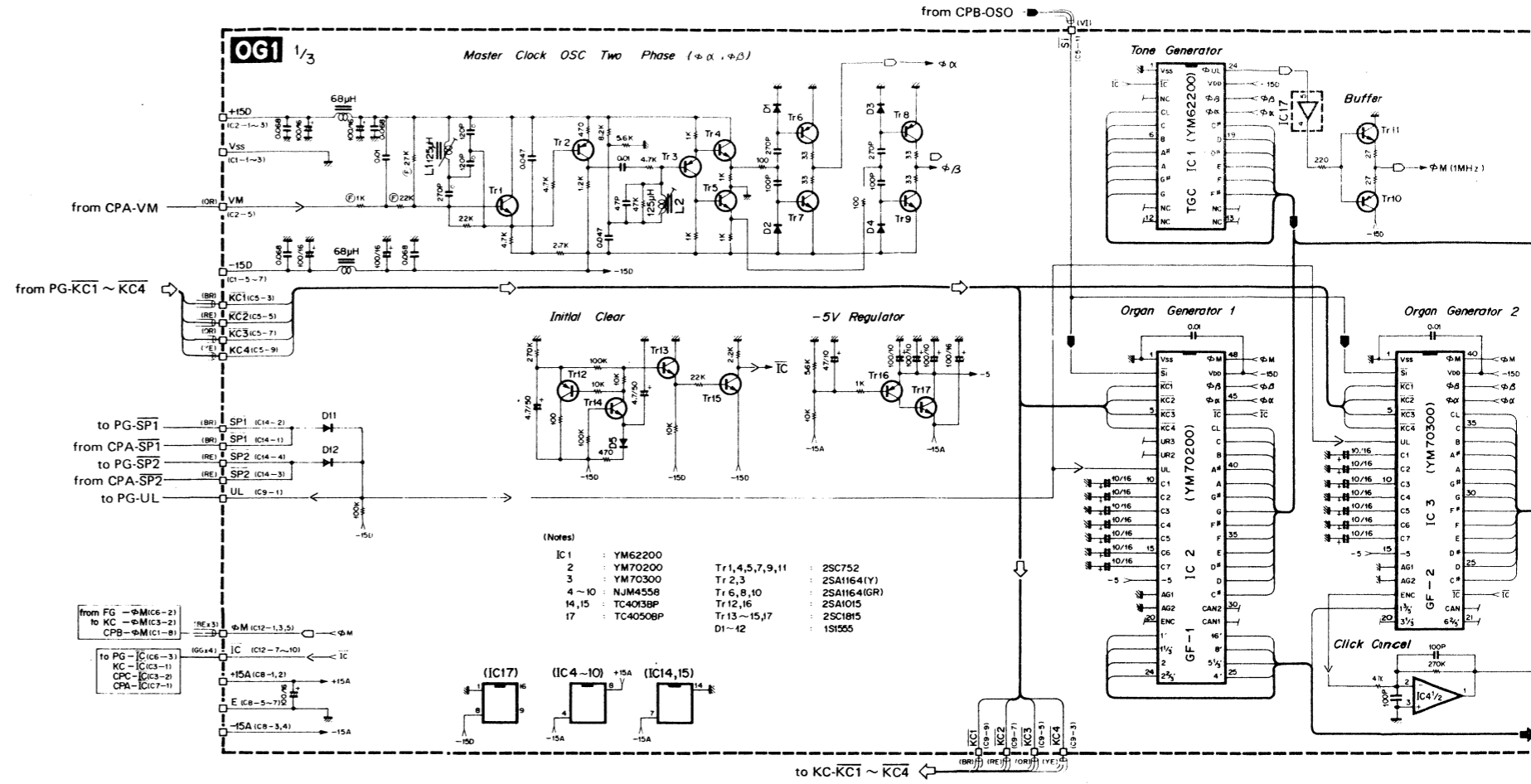
PLO

C1

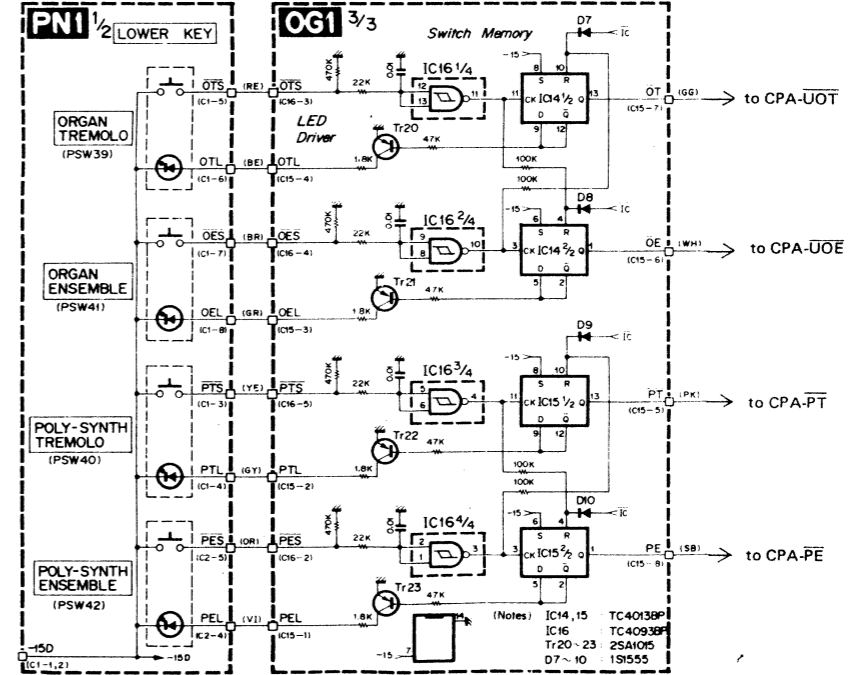
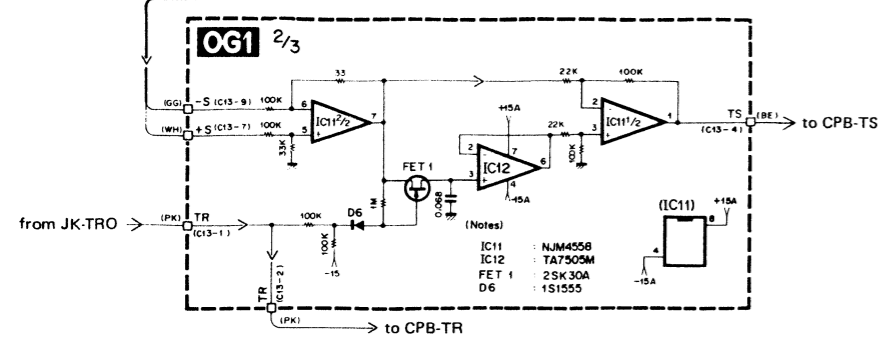
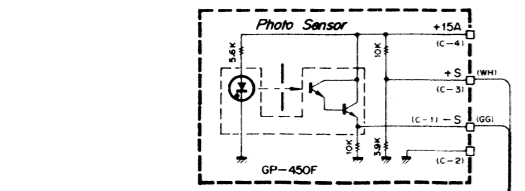
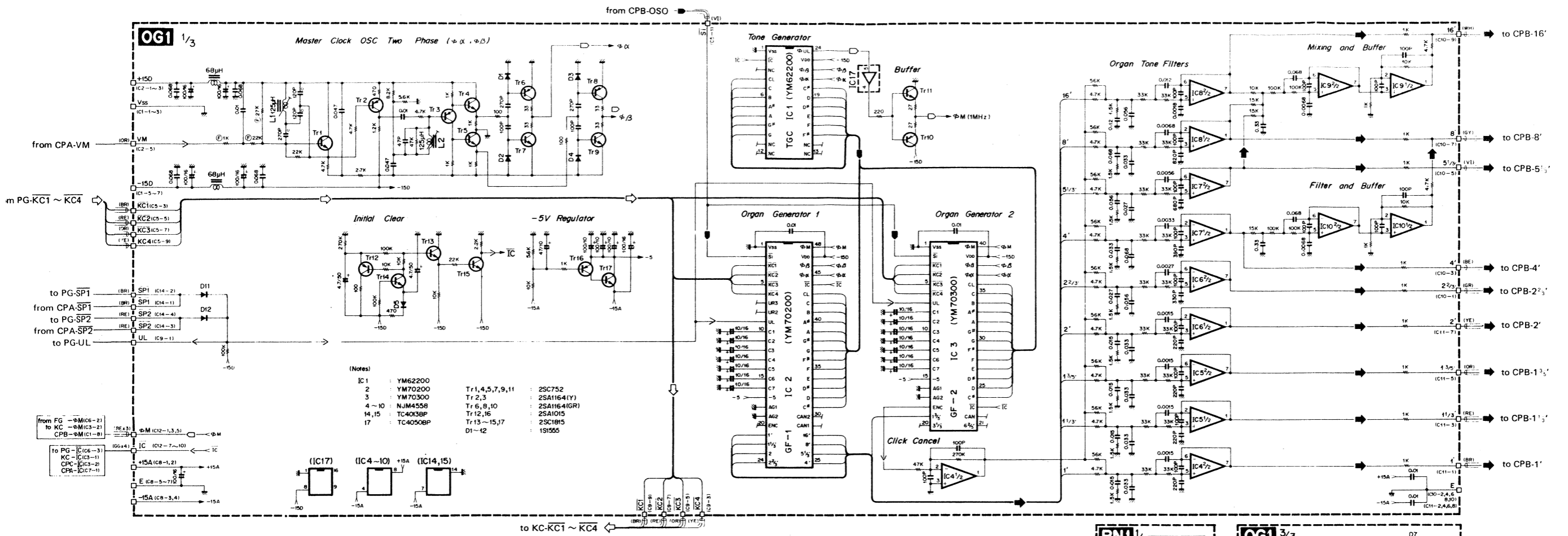
Pin No.	Pin Name	Wire Color	Destination
1	-	-	-
2	-	-	-
3	P1	RE	PG-P1 (C2-7)
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	CL	BR	PG-CL (C1-1)
9	C#	PK	PG-C# (C1-2)
10	D	SB	PG-D (C1-3)
11	D#	GG	PG-D# (C1-4)
12	E	WH	PG-E (C1-5)
13	F	GY	PG-F (C1-6)
14	F#	VI	PG-F# (C1-7)
15	G	BE	PG-G (C2-1)
16	G#	GR	PG-G# (C2-2)
17	A	YE	PG-A (C2-3)
18	A#	OR	PG-A# (C2-4)
19	B	RE	PG-B (C2-5)
20	C	BR	PG-C (C2-6)

(Notes)

- Circuit Board : LC86230
- IC, LSI
 - IC1 : YM62100 (KAC)
 - IC2 : YM62400 (SCA)
 - IC3 : TA7504S (OP-Amp)
 - IC4, 18 ~ 21 : NJM4558DV (OP-Amp)
 - IC5 : TA7505M (OP-Amp)
 - IC6 : iG00153 (VCOIII)
 - IC7 : TC4050BP (Buffer)
 - IC8 ~ 13 : TC4066BP (Analog SW)
 - IC14, 22, 23, 28 ~ 31 : TC4013BP ("D" Flip-Flop)
 - IC15, 16 : YM70400 (GOA)
 - IC17 : TC4016BP (Analog SW)
 - IC24 : TC5027BP (Counter)
 - IC25 : TC4011BP (2 IN NAND)
 - IC26 : TC4071BP (2 IN OR)
 - IC27 : TC4001BP (2 IN NOR)
 - IC32 : TC4081BP (2 IN AND)
- Transistors
 - Tr1, 22, 25 ~ 28 : 2SC1815 (O, Y)
 - Tr2, 13, 23, 24 : 2SA1015 (O, Y)
 - Tr3, 5, 7, 9, 11, 14, 17, 18, 21 : 2SC752 (Y)
 - Tr4, 6, 8, 10, 12, 16, 20 : 2SA1164 (GR)
 - Tr15, 19 : 2SA1164 (Y)
- Field Effect Transistors
 - FET1, 2 : 2SK30A (Y)
- Diodes
 - D1 ~ 5, 7 ~ 33 : 1S1555
- Capacitor
 - (K) marked : Ceramic Capacitor 1000P
 - (O) marked : Polystyrene Capacitor
- Coil
 - 125μH : OSC Coil
- Resistor
 - (B) marked : Metal Oxide Film Resistor (±0.1%)
 - (E) marked : Metal Oxide Film Resistor (±1%)
- Semi-Variable Resistor
 - VR2 : RJ9W
- Photo Coupler
 - PC : P873-G35-201B



OG1 Circuit Diagram



C1

Vss	1
Vss	2
Vss	3
SY	4
-15D	5
-15D	6
-15D	7

C5

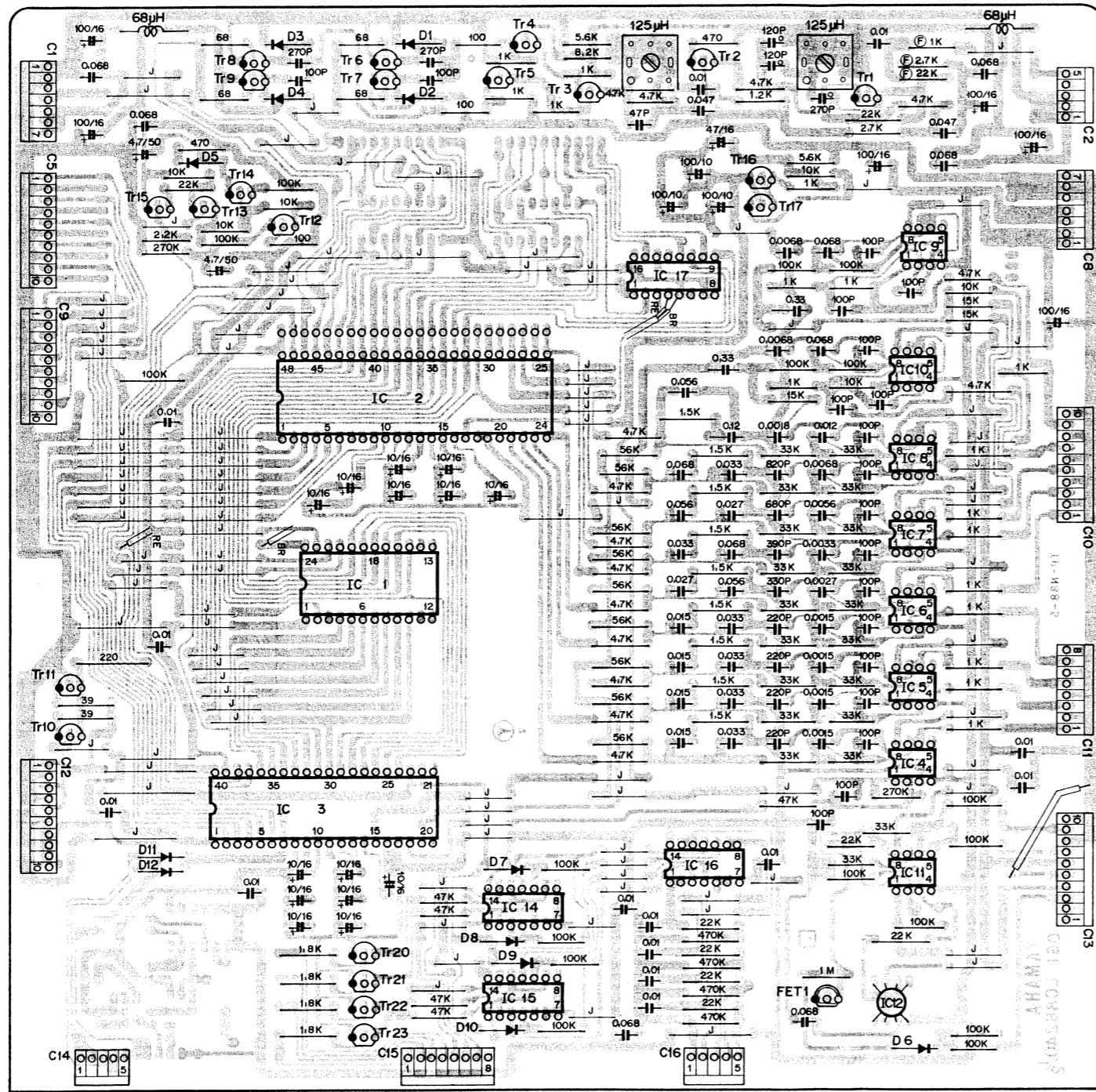
S1	1
Vss	2
KC1	3
Vss	4
KC2	5
Vss	6
KC3	7
Vss	8
KC4	9
Vss	10

C9

UL	1
Vss	2
KC4	3
Vss	4
KC3	5
Vss	6
KC2	7
Vss	8
KC1	9
Vss	10

C12

φM	1
Vss	2
φM	3
Vss	4
φM	5
Vss	6
IC	7
IC	8
IC	9
IC	10



C14

1	2	3	4	5
6	7	8	9	10

C15

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

C16

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

C2

5	VM
4	NC
3	+15D
2	+15D
1	+15D

C8

7	E
6	E
5	E
4	-15A
3	-15A
2	+15A
1	+15A

C10

10	E
9	16'
8	E
7	E
6	E
5	5 1/3'
4	E
3	4'
2	E
1	2 2/3'

C11

8	E
7	2'
6	E
5	1 3/4'
4	E
3	1 1/3'
2	E
1	1'

C13

10	E
9	-S
8	E
7	+S
6	+15A
5	E
4	TS
3	TR
2	TR
1	TR

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	BL	DC-Vss (C1-4)
2	Vss	BL	PG-Vss (C7-6)
3	Vss	BL	KCT1-Vss (C2-8)
4	-	-	-
5	-15D	YE	PG-15D (C7-1)
6	-15D	YE	KC-15D (C4-2)
7	-15D	YE	DC-15D (C1-5)

C2

Pin No.	Pin Name	Wire Color	Destination
1	+15D	BR	DC+15D (C1-8)
2	+15D	BR	KC+15D (C4-7)
3	+15D	BR	PG+15D (C7-3)
4	-	-	-
5	VM	OR	CPA-VM (C8-4)

C5

Pin No.	Pin Name	Wire Color	Destination
1	S1	S VI	CPB-OSO (C1-4)
2	Vss	S VI S	-
3	KC1	S BR	PG-KC1 (C5-8)
4	Vss	S BR S	-
5	KC2	S RE	PG-KC2 (C5-6)
6	Vss	S RE S	-
7	KC3	S OR	PG-KC3 (C5-4)
8	Vss	S OR S	-
9	KC4	S YE	PG-KC4 (C5-2)
10	Vss	S YE S	-

C8

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	DC+15A (C1-1)
2	+15A	BR	PG+15A (C10-4)
3	-15A	YE	DC-15A (C1-2)
4	-15A	YE	PG-15A (C10-7)
5	E	-	-
6	E	BL	PG-E (C10-1)
7	E	BL	DC-E (C1-3)

C9

Pin No.	Pin Name	Wire Color	Destination
1	UL	YE	PG-UL (C3-5)
2	Vss	-	-
3	KC4	S YE	KC-KC4 (C5-8)
4	Vss	S YE S	-
5	KC3	S OR	KC-KC3 (C5-6)
6	Vss	S OR S	-
7	KC2	S RE	KC-KC2 (C5-2)
8	Vss	S RE S	-
9	KC1	S BR	KC-KC1 (C5-4)
10	Vss	S BR S	-

C10

Pin No.	Pin Name	Wire Color	Destination
1	2 2/3'	S GR	CPB-2 2/3' (C6-6)
2	E	S GR S	-
3	4'	S BE	CPB-4' (C6-3)
4	E	S BE S	-
5	5 1/3'	S VI	CPB-5 1/3' (C8-5)
6	E	S VI S	-
7	8'	S GY	CPB-8' (C8-3)
8	E	S GY S	-
9	16'	S WH	CPB-16' (C8-1)
10	E	S WH S	-

C11

Pin No.	Pin Name	Wire Color	Destination
1	1'	S BR	CPB-1' (C12-7)
2	E	S BR S	-
3	1 1/3'	S RE	CPB-1 1/3' (C12-5)
4	E	S RE S	-
5	1 3/5'	S OR	CPB-1 3/5' (C6-9)
6	E	S OR S	-
7	2'	S YE	CPB-2' (C12-1)
8	E	S YE S	-

C12

Pin No.	Pin Name	Wire Color	Destination
1	φM	S BE	PG-φM (C6-2)
2	Vss	S BE S	-
3	φM	S BE	KC-φM (C5-10)
4	Vss	S BE S	-
5	φM	S BE	CPB-φM (C1-8)
6	Vss	S BE S	-
7	IC	GG	PG-IC (C6-3)
8	IC	GG	KC-IC (C4-1)
9	IC	GG	CPC-IC (C3-2)
10	IC	GG	CPA-IC (C7-1)

C13

Pin No.	Pin Name	Wire Color	Destination
1	TR	PK	JK-TRO (C4-2)
2	TR	PK	CPB-TR (C11-5)
3	TR	-	-
4	TS	BE	CPB-TS (C7-2)
5	E	BL	TS-E (C-2)
6	+15A	BR	TS+15A (C-4)
7	+S	WH	TS+S (C-3)
8	E	-	-
9	-S	GG	TS-S (C-1)
10	E	-	-

C14

Pin No.	Pin Name	Wire Color	Destination
1	SP1	BR	CPA-SP1 (C5-3)
2	SP1	BR	PG-SP1 (C8-7)
3	SP2	RE	CPA-SP2 (C5-6)
4	SP2	RE	PG-SP2 (C8-6)
5	-	-	-

C15

Pin No.	Pin Name	Wire Color	Destination
1	PEL	VI	PN1-PEL (C2-4)
2	PTL	GY	PN1-PTL (C1-4)
3	OEL	GR	PN1-OEL (C1-8)
4	OTL	BE	PN1-OTL (C1-6)
5	PT	PK	CPA-PT (C9-3)
6	OE	WH	CPA-OE (C9-2)
7	OT	GG	CPA-OT (C9-1)
8	PE	SB	CPA-PE (C9-4)

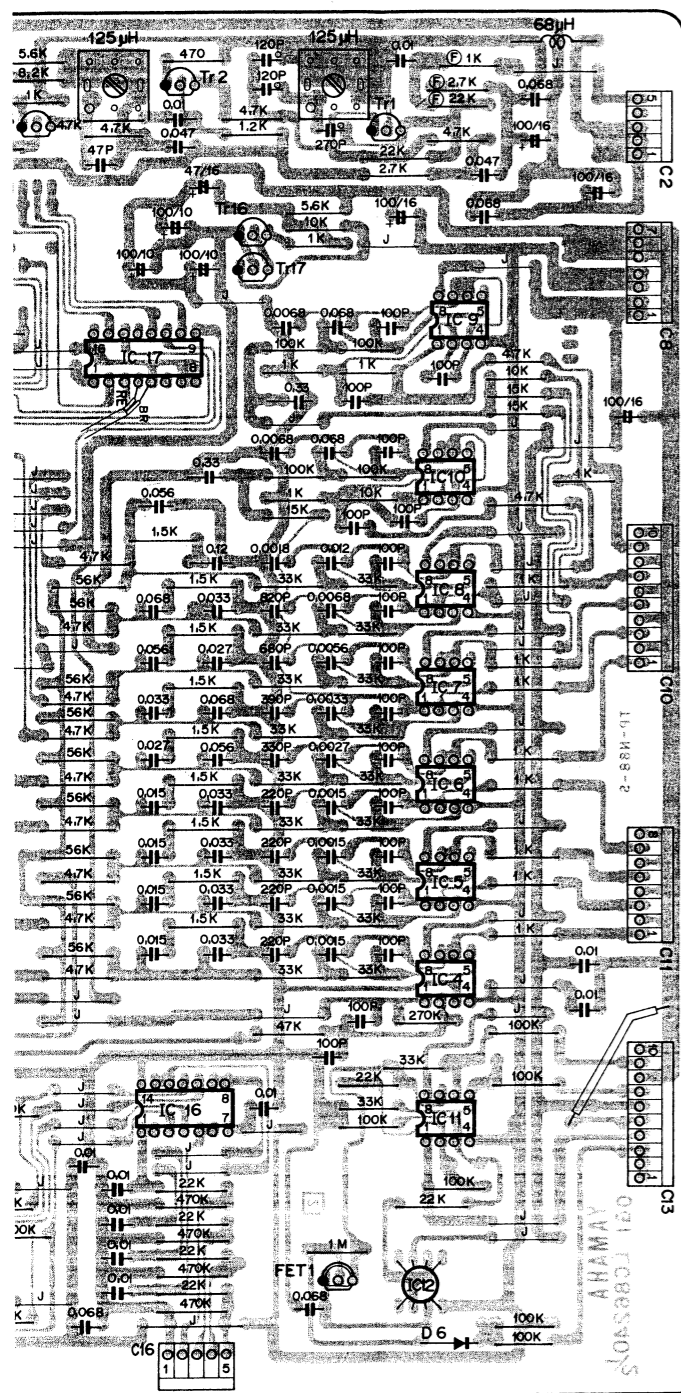
C16

Pin No.	Pin Name	Wire Color	Destination
1	E	-	-
2	PES	OR	PN1-PES (C2-5)
3	OTS	RE	PN1-OTS (C1-5)
4	OES	BR	PN1-OES (C1-7)
5	PTS	YE	PN1-PTS (C1-3)

- (Notes)
- Circuit Board : LC8624
 - IC, LSI
 - IC1 : YM622
 - IC2 : YM702
 - IC3 : YM703
 - IC4 ~ 11 : NJM451
 - IC12 : TA7501
 - IC14, 15 : TC4013
 - IC16 : TC4093
 - IC17 : TC4050
 - Transistors
 - Tr1, 4, 5, 7, 9, 11 : 2SC752
 - Tr2, 3 : 2SA116
 - Tr6, 8, 10 : 2SA116
 - Tr12, 16, 20 ~ 23 : 2SA101
 - Tr13 ~ 15, 17 : 2SC181
 - Field Effect Transistor
 - FET1 : 2SK30A
 - Diodes
 - D1 ~ 12 : 1S1555
 - Capacitor
 - (○) marked : Polysty
 - Coil
 - 68μH : Choke C
 - 125μH : OSC Co
 - Resistor
 - (⊕) marked : Metal F

View from the component side of the circuit board.

OG1 Circuit Board & Wiring



C1			
Pin No.	Pin Name	Wire Color	Destination
1	Vss	BL	DC-Vss (C1-4)
2	Vss	BL	PG-Vss (C7-6)
3	Vss	BL	KCT1-Vss (C2-8)
4	-	-	-
5	-15D	YE	PG--15D (C7-1)
6	-15D	YE	KC--15D (C4-2)
7	-15D	YE	DC--15D (C1-5)

C11			
Pin No.	Pin Name	Wire Color	Destination
1	1'	S BR	CPB-1' (C12-7)
2	E	S BR S	-
3	1 1/3'	S RE	CPB-1 1/3' (C12-5)
4	E	S RE S	-
5	1 3/5'	S OR	CPB-1 3/5' (C8-9)
6	E	S OR S	-
7	2'	S YE	CPB-2' (C12-1)
8	E	S YES	-

C2			
Pin No.	Pin Name	Wire Color	Destination
5	VM	-	-
4	NC	-	-
3	+15D	-	-
2	+15D	-	-
1	+15D	-	-

C2			
Pin No.	Pin Name	Wire Color	Destination
1	+15D	BR	DC+15D (C1-6)
2	+15D	BR	KC+15D (C4-7)
3	+15D	BR	PG+15D (C7-3)
4	-	-	-
5	VM	OR	CPA-VM (C8-4)

C5			
Pin No.	Pin Name	Wire Color	Destination
1	SI	S VI	CPB-OSO (C1-4)
2	Vss	S VIS	-
3	KC1	S BR	PG-KC1 (C5-8)
4	Vss	S BR S	-
5	KC2	S RE	PG-KC2 (C5-6)
6	Vss	S RE S	-
7	KC3	S OR	PG-KC3 (C5-4)
8	Vss	S OR S	-
9	KC4	S YE	PG-KC4 (C5-2)
10	Vss	S YES	-

C8			
Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	DC+15A (C1-1)
2	+15A	BR	PG+15A (C10-4)
3	-15A	YE	DC--15A (C1-2)
4	-15A	YE	PG--15A (C10-7)
5	E	-	-
6	E	BL	PG-E (C10-1)
7	E	BL	DC-E (C1-3)

C9			
Pin No.	Pin Name	Wire Color	Destination
1	UL	YE	PG-UL (C3-5)
2	Vss	-	-
3	KC4	S YE	KC-KC4 (C5-8)
4	Vss	S YES	-
5	KC3	S OR	KC-KC3 (C5-6)
6	Vss	S OR S	-
7	KC2	S RE	KC-KC2 (C5-2)
8	Vss	S RE S	-
9	KC1	S BR	KC-KC1 (C5-4)
10	Vss	S BR S	-

C10			
Pin No.	Pin Name	Wire Color	Destination
1	2 2/3'	S GR	CPB-2 2/3' (C6-6)
2	E	S GR S	-
3	4'	S BE	CPB-4' (C6-3)
4	E	S BE S	-
5	5 1/3'	S VI	CPB-5 1/3' (C8-5)
6	E	S VIS	-
7	8'	S GY	CPB-8' (C8-3)
8	E	S GYS	-
9	16'	S WH	CPB-16' (C8-1)
10	E	S WHS	-

C12			
Pin No.	Pin Name	Wire Color	Destination
1	φM	S BE	PG-φM (C6-2)
2	Vss	S BE S	-
3	φM	S BE	KC-φM (C5-10)
4	Vss	S BE S	-
5	φM	S BE	CPB-φM (C1-8)
6	Vss	S BE S	-
7	IC	GG	PG-IC (C6-3)
8	IC	GG	KC-IC (C4-1)
9	IC	GG	CPC-IC (C3-2)
10	IC	GG	CPA-IC (C7-1)

C13			
Pin No.	Pin Name	Wire Color	Destination
1	TR	PK	JK-TRO (C4-2)
2	TR	PK	CPB-TR (C11-5)
3	TR	-	-
4	TS	BE	CPB-TS (C7-2)
5	E	BL	TS-E (C-2)
6	+15A	BR	TS+15A (C-4)
7	+S	WH	TS+S (C-3)
8	E	-	-
9	-S	GG	TS-S (C-1)
10	E	-	-

C14			
Pin No.	Pin Name	Wire Color	Destination
1	SP1	BR	CPA-SP1 (C5-3)
2	SP1	BR	PG-SP1 (C8-7)
3	SP2	RE	CPA-SP2 (C5-5)
4	SP2	RE	PG-SP2 (C8-6)
5	-	-	-

C15			
Pin No.	Pin Name	Wire Color	Destination
1	PTL	VI	PN1-PTL (C2-4)
2	OEL	GR	PN1-OEL (C1-8)
3	OTL	BE	PN1-OTL (C1-6)
4	PT	PK	CPA-PT (C9-3)
5	OE	WH	CPA-OE (C9-2)
6	OT	GG	CPA-OT (C9-1)
7	PE	SB	CPA-PE (C9-4)

C16			
Pin No.	Pin Name	Wire Color	Destination
1	E	-	-
2	PES	OR	PN1-PES (C2-5)
3	OTS	RE	PN1-OTS (C1-5)
4	OES	BR	PN1-OES (C1-7)
5	PTS	YE	PN1-PTS (C1-3)

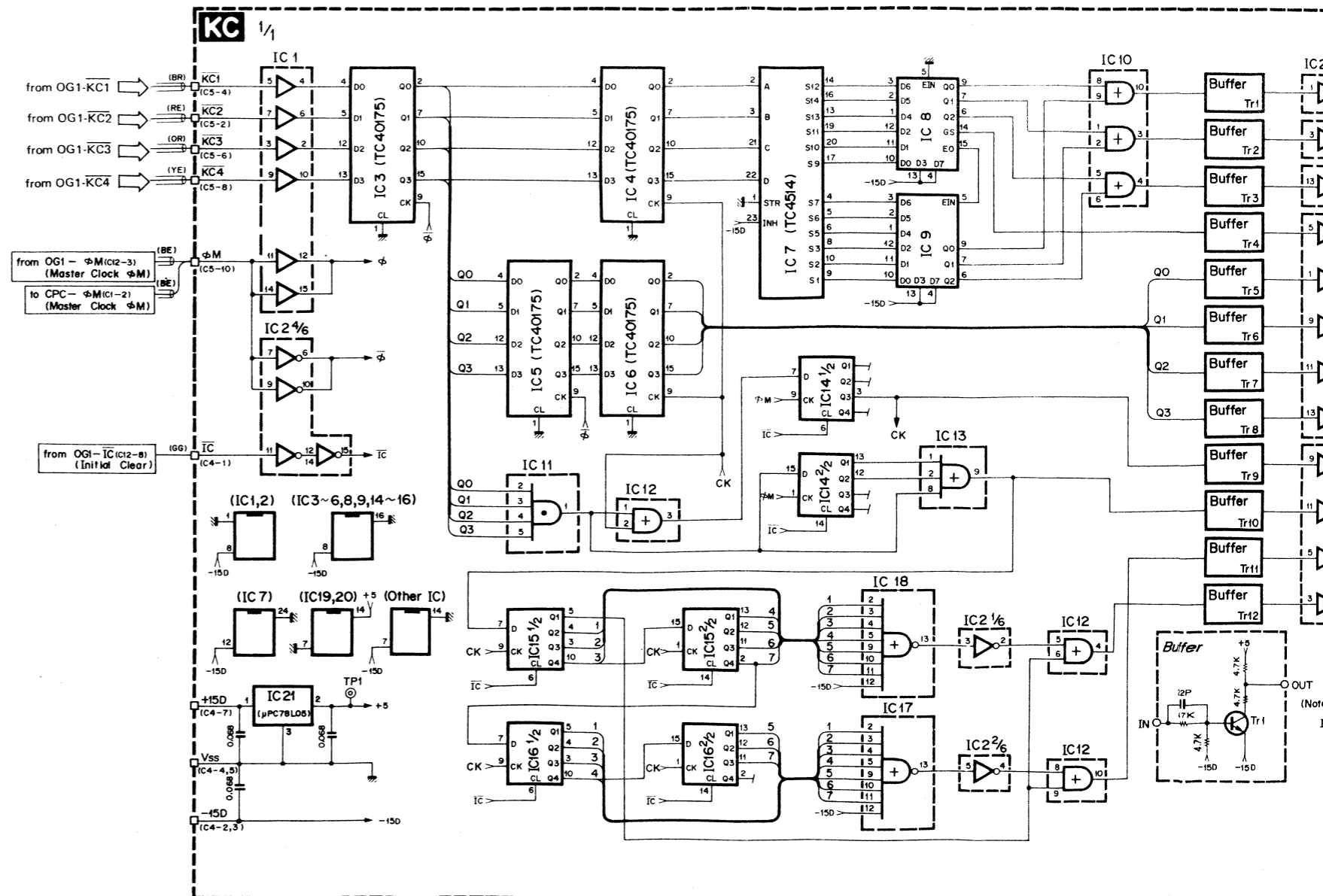
C13			
Pin No.	Pin Name	Wire Color	Destination
10	E	-	-
9	-S	-	-
8	E	-	-
7	+S	-	-
6	+15A	-	-
5	E	-	-
4	TS	-	-
3	TR	-	-
2	TR	-	-
1	TR	-	-

C10			
Pin No.	Pin Name	Wire Color	Destination
10	E	-	-
9	-S	-	-
8	E	-	-
7	+S	-	-
6	+15A	-	-
5	E	-	-
4	TS	-	-
3	TR	-	-
2	TR	-	-
1	TR	-	-

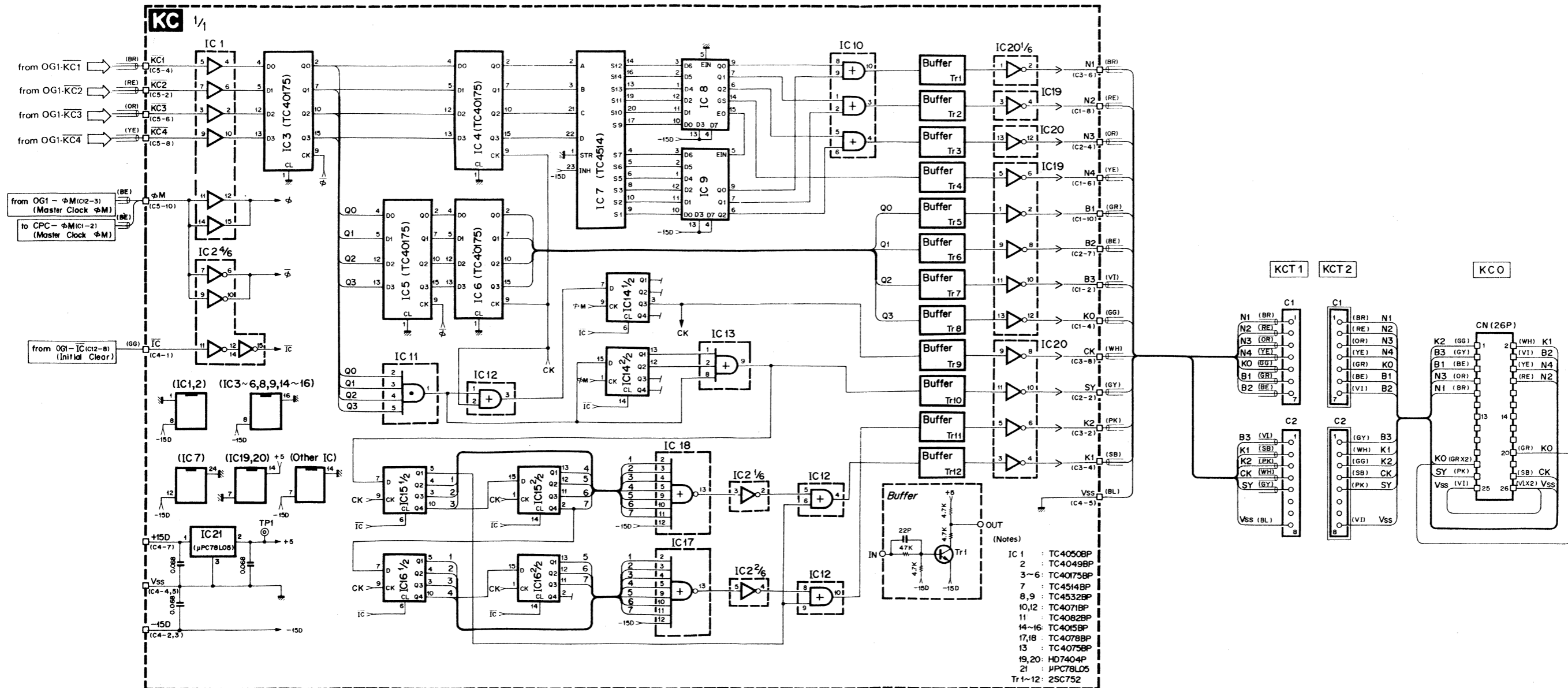
(Notes)

- Circuit Board : LC86240
- IC, LSI
 - IC1 : YM62200 (TGC)
 - IC2 : YM70200 (GF-1)
 - IC3 : YM70300 (GF-2)
 - IC4 ~ 11 : NJM4558DV (OP-Amp)
 - IC12 : TA7505M (OP-Amp)
 - IC14, 15 : TC4013BP ("D" Flip-Flop)
 - IC16 : TC4093BP (2 IN NAND Schmitt Trigger)
 - IC17 : TC4050BP (Buffer)
- Transistors
 - Tr1, 4, 5, 7, 9, 11 : 2SC752 (Y)
 - Tr2, 3 : 2SA1164 (Y)
 - Tr6, 8, 10 : 2SA1164 (GR)
 - Tr12, 16 20 ~ 23 : 2SA1015 (O, Y)
 - Tr13 ~ 15, 17 : 2SC1815 (O, Y)
- Field Effect Transistor
 - FET1 : 2SK30A (Y)
- Diodes
 - D1 ~ 12 : 1S1555
- Capacitor
 - (○) marked : Polystyrene Capacitor
- Coil
 - 68μH : Choke Coil
 - 125μH : OSC Coil
- Resistor
 - (⊕) marked : Metal Film Resistor (±1%)

1	2	3	4	5
6	7	8	9	10



KC Circuit Diagram



KC Circuit Board & Wiring

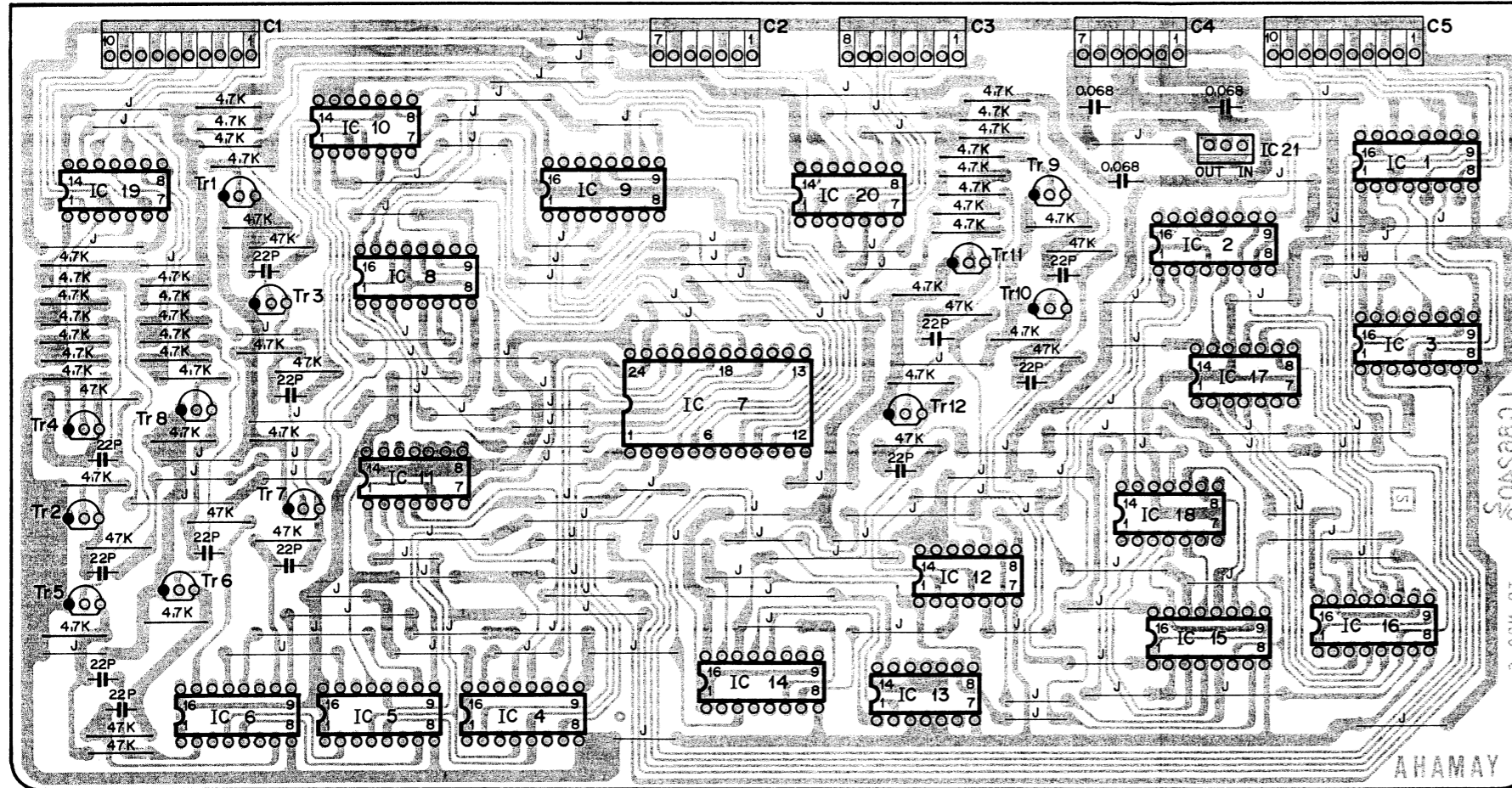
C1	10	B1
	9	Vss
	8	N2
	7	Vss
	6	N4
	5	Vss
	4	KO
	3	Vss
	2	B3
	1	Vss

C2	7	B2
	6	Vss
	5	N3
	4	Vss
	3	N3
	2	SY
	1	Vss

C3	8	CK
	7	Vss
	6	N1
	5	Vss
	4	K1
	3	Vss
	2	K2
	1	Vss

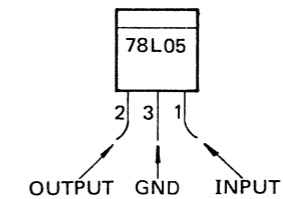
C4	7	+15D
	6	Vss
	5	Vss
	4	Vss
	3	-15D
	2	-15D
	1	IC

C5	10	M
	9	Vss
	8	KC4
	7	Vss
	6	KC3
	5	Vss
	4	KC1
	3	Vss
	2	KC2
	1	Vss



(Key Code Section)

- IC, LSI
 - IC1 : TC4050BP (Buffer)
 - IC2 : TC4049BP (Inverter)
 - IC3 ~ 6 : TC40175BP ("D" Flip-Flop)
 - IC7 : TC4514BP (Decoder)
 - IC8, 9 : TC4532BP (Encoder)
 - IC10, 12 : TC4071BP (2 IN OR)
 - IC11 : TC4082BP (4 IN AND)
 - IC13 : TC4075BP (3 IN OR)
 - IC14 ~ 16 : TC4015BP (Shift Register)
 - IC17, 18 : TC4078BP (8 IN NOR)
 - IC19, 20 : HD7404P (Inverter-TTL)
 - IC21* : μPC78L05 (+5V Regulator)
- Transistors
 - Tr1 ~ 2 : 2SC752 (Y)
 - * μPC78L05



View from the component side of the circuit board.

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S V I S	
2	B3	S V I	KCT1-B3 (C2-1)
3	Vss	S G G S	
4	KO	S G G	KCT1-KO (C1-5)
5	Vss	S Y E S	
6	N4	S Y E	KCT1-N4 (C1-4)
7	Vss	S R E S	
8	N2	S R E	KCT1-N2 (C1-2)
9	Vss	S G R S	
10	B1	S G R	KCT1-B1 (C1-6)

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S P K S	
2	K2	S P K	KCT1-K2 (C2-3)
3	Vss	S S B S	
4	K1	S S B	KCT1-K1 (C2-2)
5	Vss	S B R S	
6	N1	S B R	KCT1-N1 (C1-1)
7	Vss	S W H S	
8	CK	S W H	KCT1-CK (C2-4)

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S R E S	
2	KC2	S R E	OG1-KC2 (C9-7)
3	Vss	S B R S	
4	KC1	S B R	OG1-KC1 (C9-9)
5	Vss	S O R S	
6	KC3	S O R	OG1-KC3 (C9-5)
7	Vss	S Y E S	
8	KC4	S Y E	OG1-KC4 (C9-3)
9	Vss	S B E S	
10	M	S B E	OG1-M (C12-8) OG1-M (C12-8) OG1-M (C12-8)

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-8)
2	-15D	YE	OG1--15D (C1-6)
3	-15D	YE	
4	Vss	BL	PG-Vss (C7-5)
5	Vss	BL	SW-Vss (C1-10)
6			
7	+15D	BR	OG1+15D (C2-2)

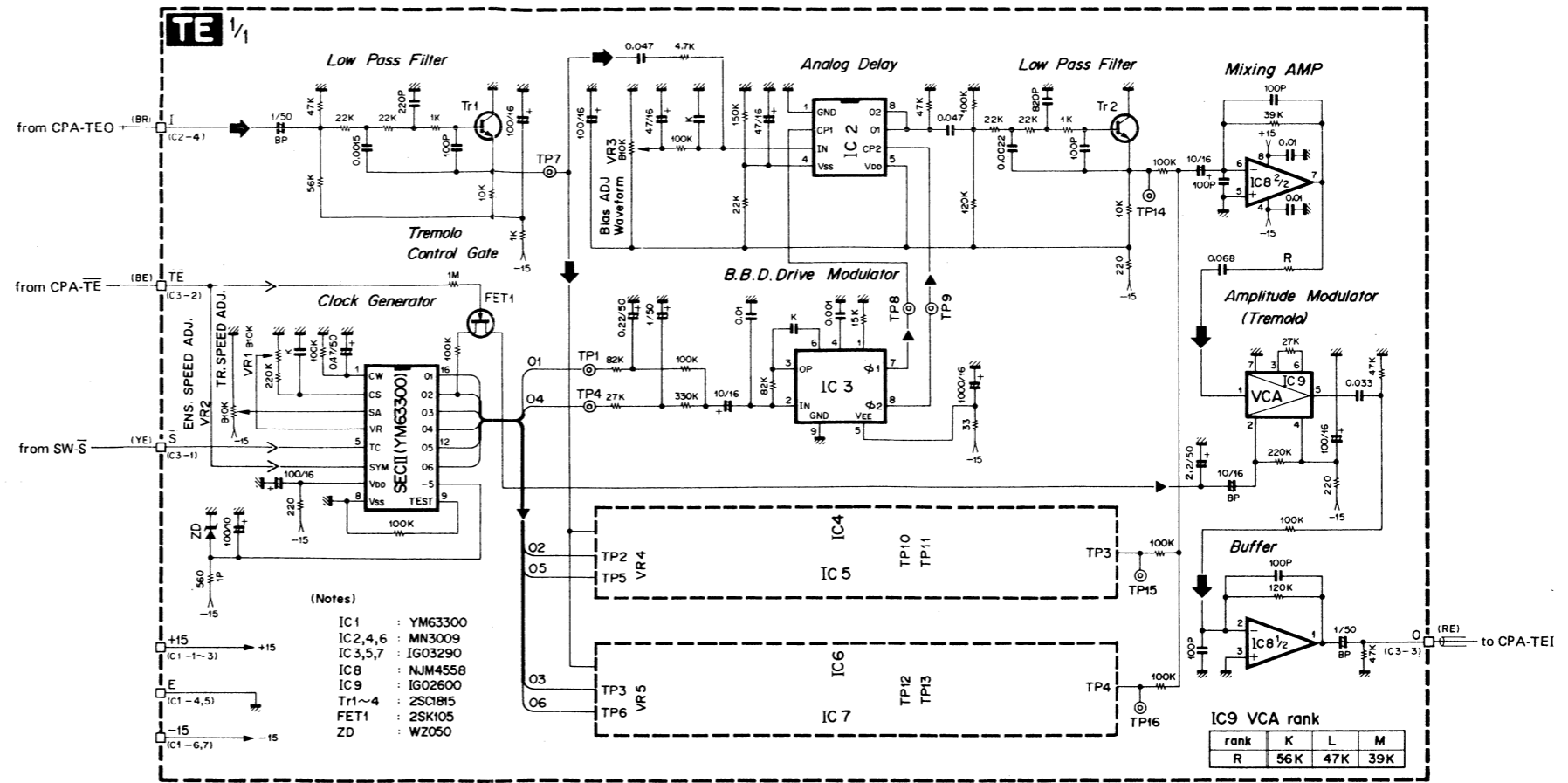
Pin No.	Pin Name	Wire Color	Destination
1	B3	S V I	KC-B3 (C1-2)
2	K1	S S B	KC-K1 (C3-4)
3	K2	S P K	KC-K2 (C3-2)
4	CK	S W H	KC-CK (C3-8)
5	SY	S G Y	KC-SY (C2-2)
6			
7			
8	Vss	BL	OG1-Vss (C1-3)

Pin No.	Pin Name	Wire Color	Destination
1	N1	S B R	KCO-N1 (C-9)
2	N2	R E	KCO-N2 (C-8)
3	N3	S O R	KCO-N3 (C-7)
4	N4	Y E	KCO-N4 (C-6)
5	KO	S G G	KCO-KO (C-21)
6	B1	B E	KCO-B1 (C-5)
7	B2	V I	KCO-B2 (C-4)

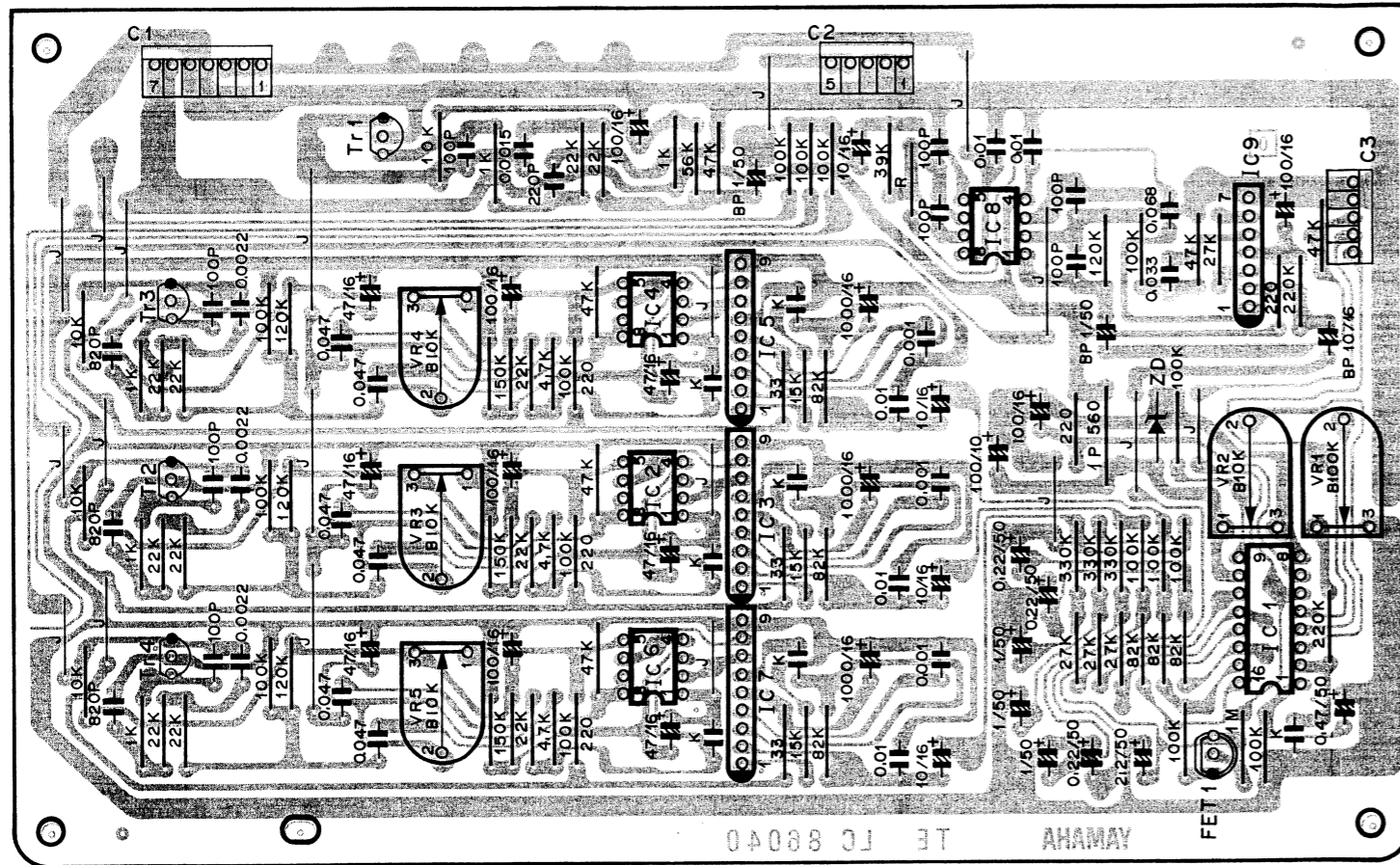
Pin No.	Pin Name	Wire Color	Destination
1	B3	G Y	KCO-B3 (C-3)
2	K1	W H	KCO-K1 (C-2)
3	K2	G B	KCO-K2 (C-1)
4	CK	S B	KCO-CK (C-24)
5	SY	P K	KCO-SY (C-23)
6			
7			
8	Vss	V I	KCO-Vss (C-26)

Pin No.	Pin Name	Wire Color	Destination
1	K2	G G	KCT2-K2 (C2-3)
2	K1	W H	KCT2-K1 (C2-2)
3	B3	G Y	KCT2-B3 (C2-1)
4	B2	V I	KCT2-B2 (C1-7)
5	B1	B E	KCT2-B1 (C1-6)
6	N4	Y E	KCT2-N4 (C1-4)
7	N3	O R	KCT2-N3 (C1-3)
8	N2	R E	KCT2-N2 (C1-2)
9	N1	B R	KCT2-N1 (C1-1)
11			
12			
13			
14			
15			
16			
17			
18			
19			
20	KO	G R	KCO-KO (C-21)
21	KO	G R	KCT1-KO (C1-5) KCO-KO (C-21)
22	FS		
23	SY	P K	KCT2-SY (C2-5)
24	CK	S B	KCT2-CK (C2-4)
25	Vss	V I	KCO-Vss (C-26)
26	Vss	V I	KCT1-Vss (C2-8) KCO-Vss (C-26)

TE Circuit Diagram



TE Circuit Board & Wiring



Note)

1. Circuit Board : LC86040
2. Transistor
Tr1 ~ 4 : 2SC1815 (O, Y)
3. FET
FET1 : 2SK105F
4. IC
IC1 : YM63300 (SECII)
IC2, 4, 6 : MN3009 (BBD)
IC3, 5, 7 : iG03290 (BBD Driver)
IC8 : NJM4558DV (OP Amp)
IC9 : iG02600 (VCA)
iG02590 (VCA)
5. Diode
ZD : WZ050
6. Capacitor
K mark : 1000P
7. IC9 (iG02660, iG02590)

Rank	K	L	M
R	56K	47K	39K

View from the component side of the circuit board.

C1

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	TC+15A (C-5)
2	+15A	BR	DC+15A (C4-1)
3	+15A	-	-
4	E	BL	DC-E (C4-3)
5	E	BL	TE-E (C2-1)
6	-15A	YE	DC-15A (C4-2)
7	-15A	YE	TC-15A (C-4)

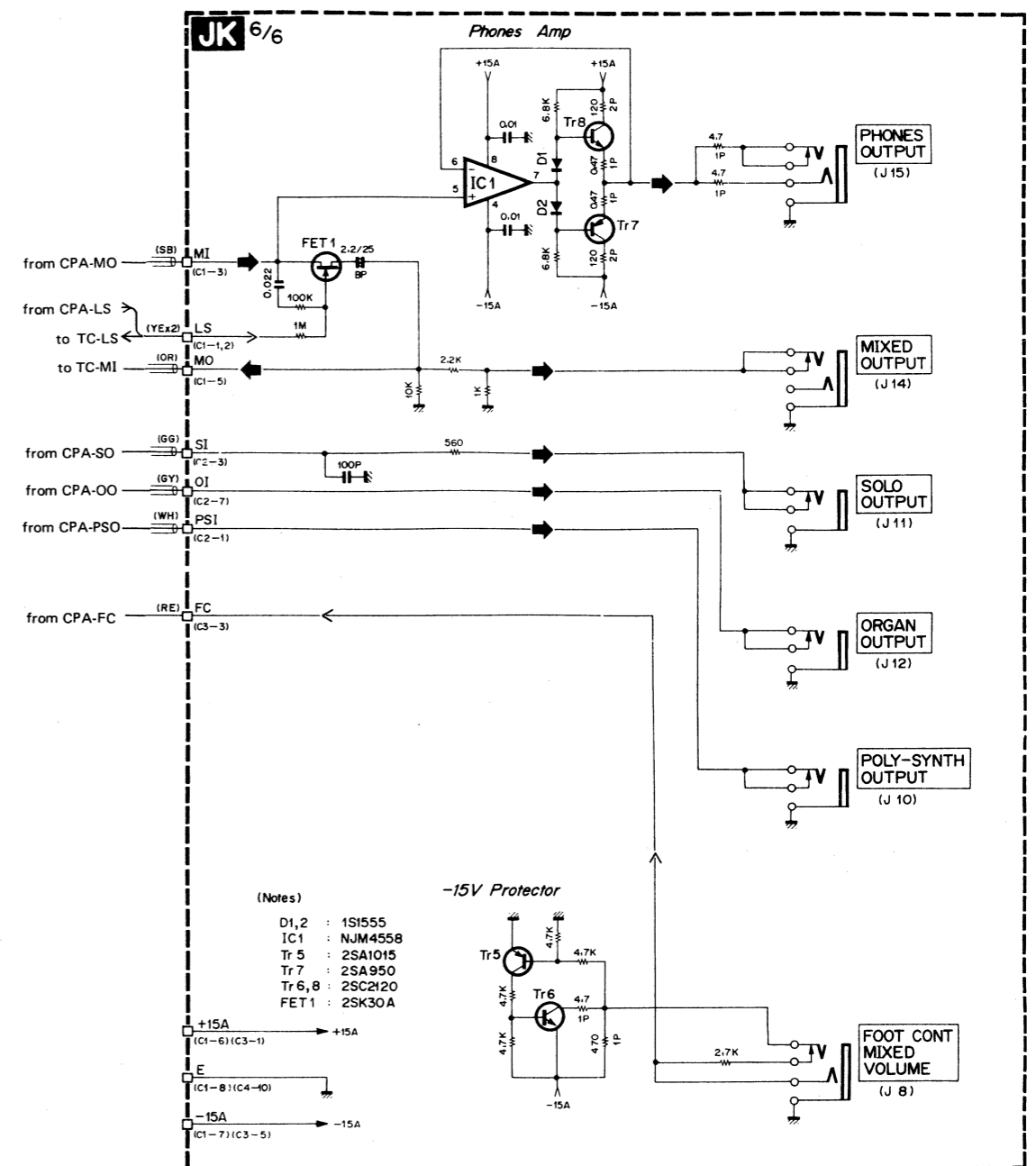
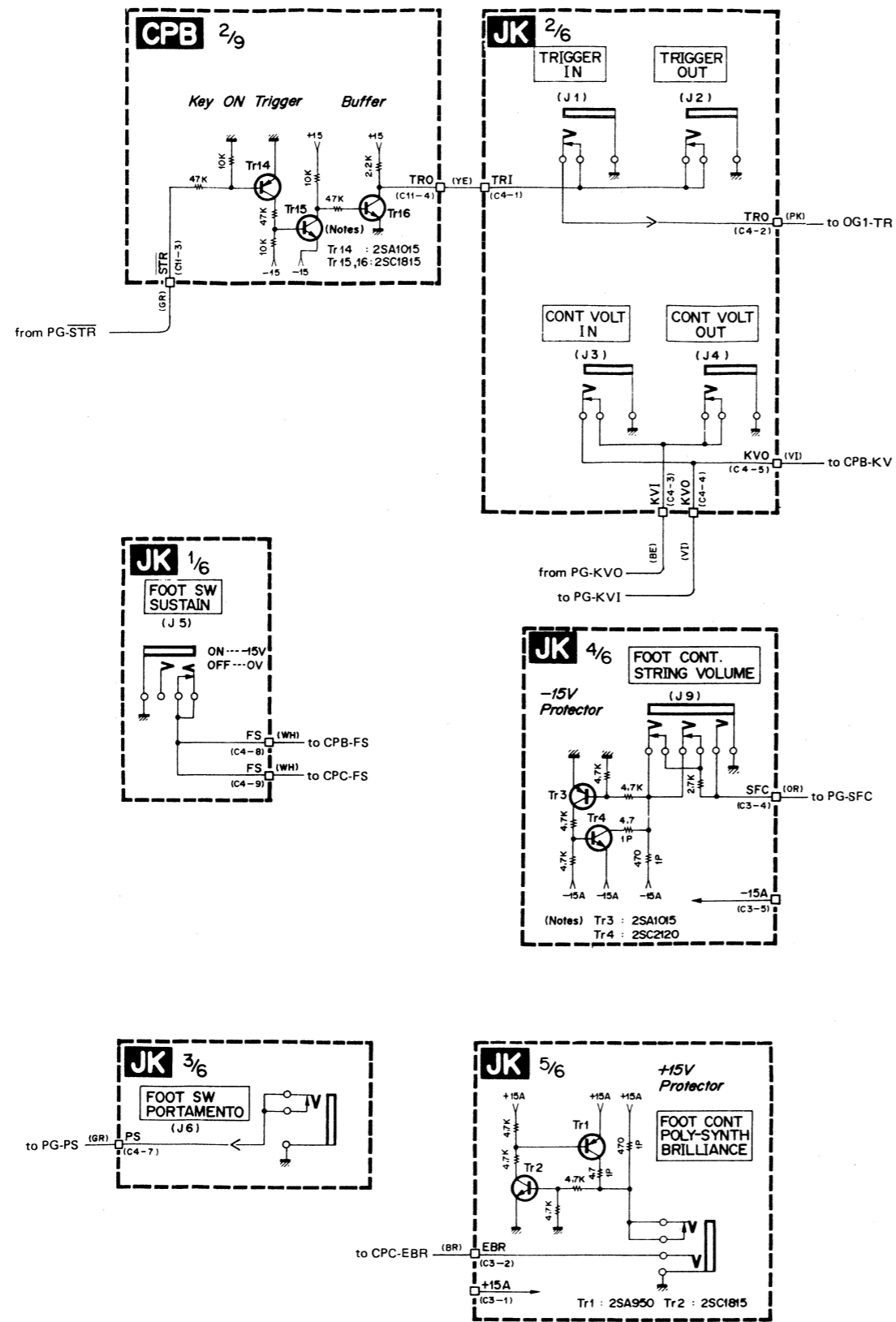
C2

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	TE-E (C1-5)
2	E	BL	SE-E (C1-1)
3	E	S BR S	-
4	I	S BR	CPA-TEO (C3-8)
5	I	-	-

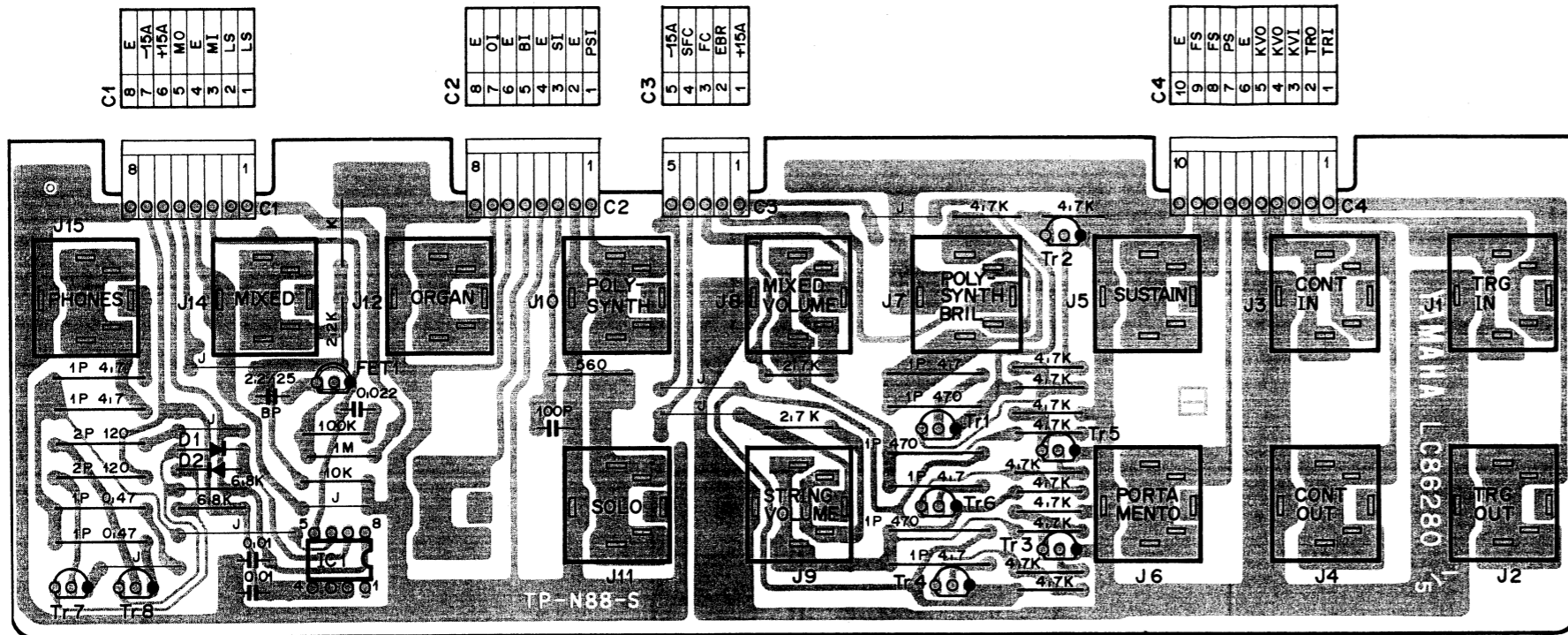
C3

Pin No.	Pin Name	Wire Color	Destination
1	S	YE	SW-S (C1-6)
2	T/E	BE	CPA-T/E (C9-8)
3	OUT	S RE	CPA-TEI (C8-6)
4	E	S RE S	-
5	E	BL	TC-E (C-10)

JK Circuit Diagram



JK Circuit Board & Wiring

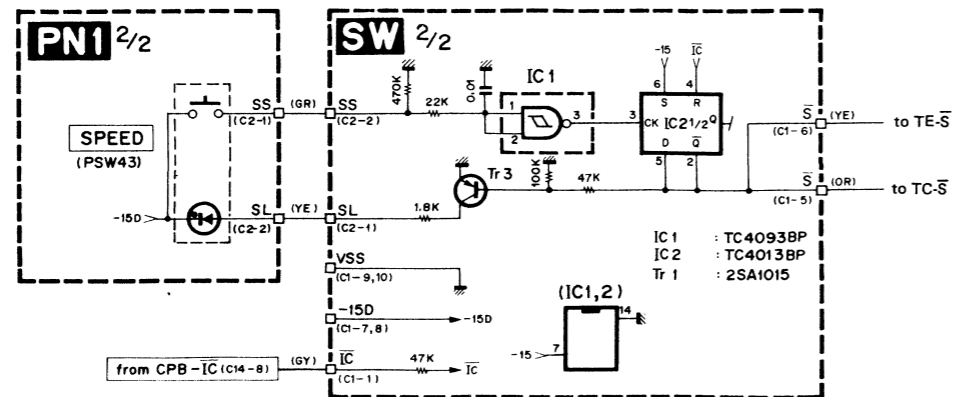
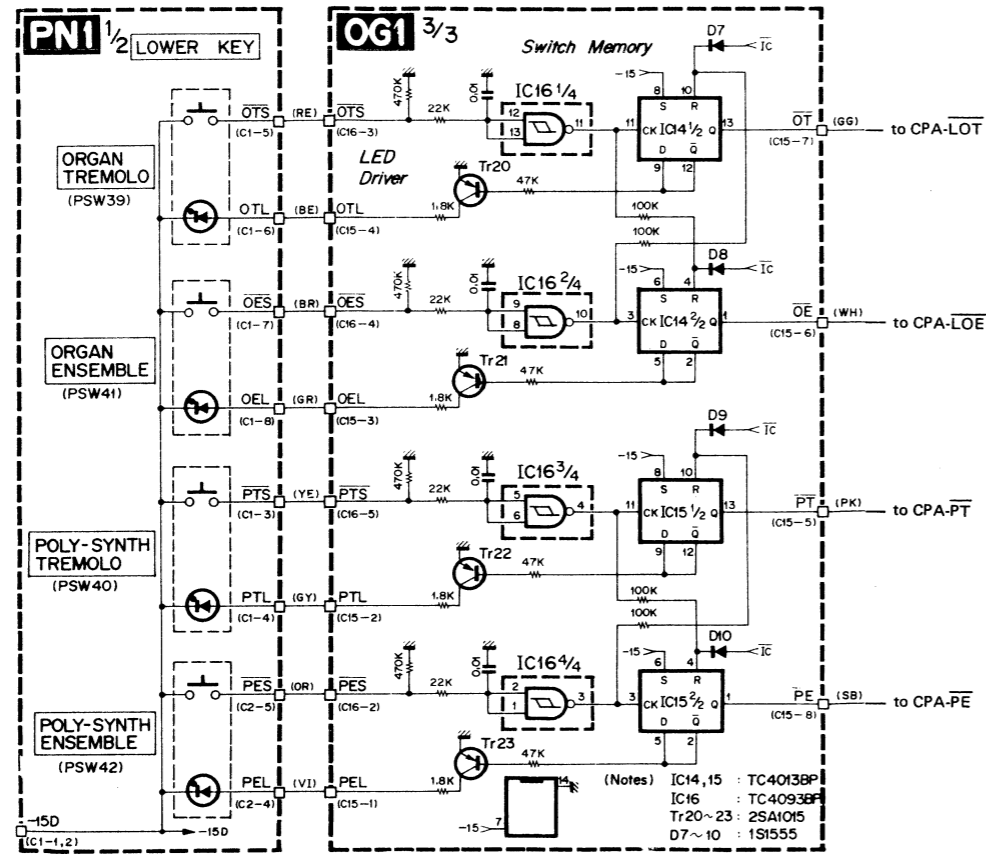


- (Notes)
1. Circuit Board : LC86280
 2. IC
IC1 : NJM4558DV (OP-Amp)
 3. Transistor
Tr1, 7 : 2SA950 (Y)
Tr2 : 2SC1815 (O, Y)
Tr3, 5 : 2SA1015 (O, Y)
Tr4, 6, 8 : 2SC2120 (Y)
 4. Field Effect Transistor
FET : 2SK30A (Y)
 5. Diodes
D1, 2 : 1S1555
 6. Jack
J1 ~ 12, 14, 15 : JL2B
 7. Resistor
(*) marked : Metal Oxide Film Resistor

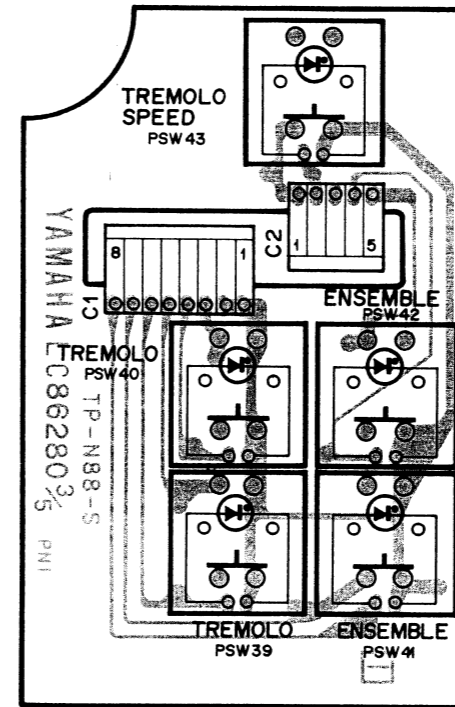
View from the printed pattern side of the circuit board.

C1				C2				C3				C4			
Pin No.	Pin Name	Wire Color	Destination	Pin No.	Pin Name	Wire Color	Destination	Pin No.	Pin Name	Wire Color	Destination	Pin No.	Pin Name	Wire Color	Destination
1	LS	YE	CPA-LS (C3-5)	1	PSI	S WH	CPA-PSO (C6-2)	1	+15A	BR	CPC+15A (C6-6)	1	TRI	YE	CPB-TRO (C11-4)
2	LS	YE	TC-LS (C1-1)	2	E	S WH	---	2	EBR	BR	CPC-EBR (C6-3)	2	TRO	PK	OG1-TR (C13-1)
3	MI	S SB	CPA-MO' (C3-1)	3	SI	S GG	CPA-SO (C6-8)	3	FC	RE	CPA-FC (C3-6)	3	KVI	BE	PG-KVI (C9-3)
4	E	S OR	---	4	E	S GG	---	4	SFC	OR	PG-SFC (C11-3)	4	KVO	VI	PG-KVI (C11-1)
5	MO	S OR	TC-MI (C-7)	5	---	---	---	5	-15A	YE	CPC--15A (C6-10)	5	KVO	VI	CPB-KV (C10-10)
6	+15A	BR	DC+15A (C3-1)	6	---	---	---	6	E	---	---	6	E	---	---
7	-15A	YE	DC--15A (C3-2)	7	OI	S GY	CPA-OO (C6-7)	7	PS	GR	PG-PS (C9-6)	7	PS	GR	PG-PS (C9-6)
8	E	BL	CPA-E (C1-1)	8	E	S GY	---	8	FS	WH	CPB-FS (C1-3)	8	FS	WH	CPB-FS (C1-3)
												9	FS	WH	CPC-FS (C1-10)
												10	E	BL	CPC-E (C6-8)

PN1 Circuit Diagram, Circuit Board & Wiring



KEC-90471-06 Δ

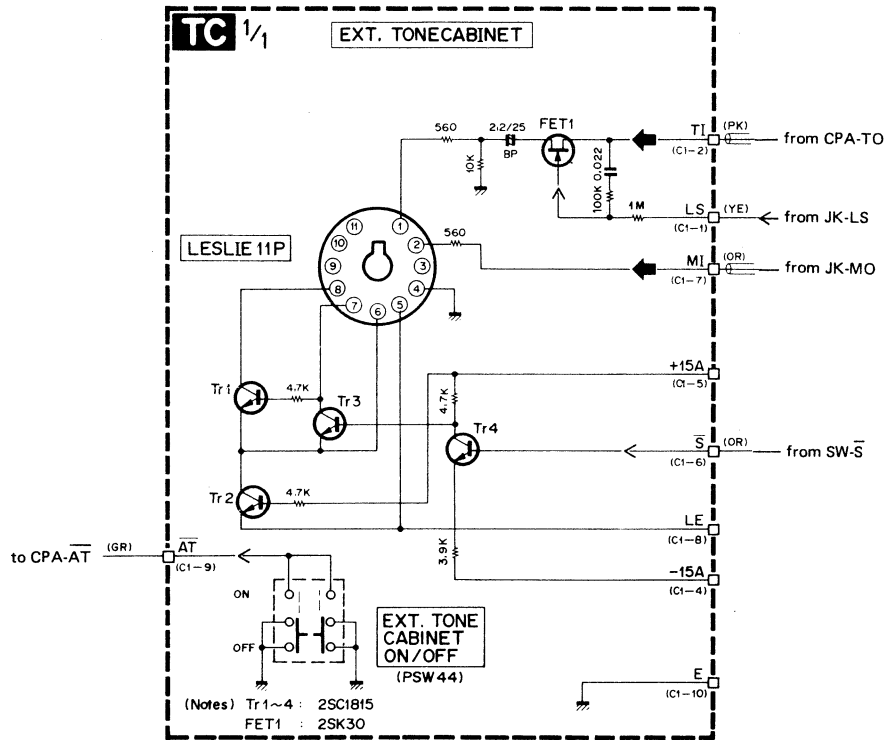


View from the printed pattern side of the circuit board.

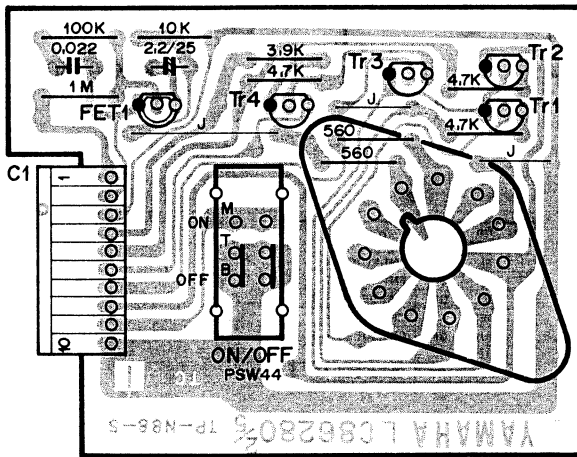
- (Notes)
 1. Circuit Board : LC86280
 2. Push SW with LED
 PSW39 ~ 43 : Gray

C1				C2			
Pin No.	Pin Name	Wire Color	Destination	Pin No.	Pin Name	Wire Color	Destination
1	-15A	YE	SW -15D (C1-7)	1	SS	GR	SW-SS (C2-2)
2	-15A	-	-	2	SL	YE	SW-SL (C2-1)
3	PTS	YE	OG1-PTS (C16-5)	3	-	-	-
4	PTL	GY	OG1-PTL (C15-2)	4	PEL	VI	OG1-PEL (C15-1)
5	OTS	RE	OG1-OTS (C16-3)	5	PES	OR	OG1-PES (C16-2)
6	OTL	BE	OG1-OTL (C15-4)				
7	OES	BR	OG1-OES (C16-4)				
8	OEL	GR	OG1-OEL (C15-3)				

TC Circuit Diagram, Circuit Board & Wiring



KEC-90471-06 △



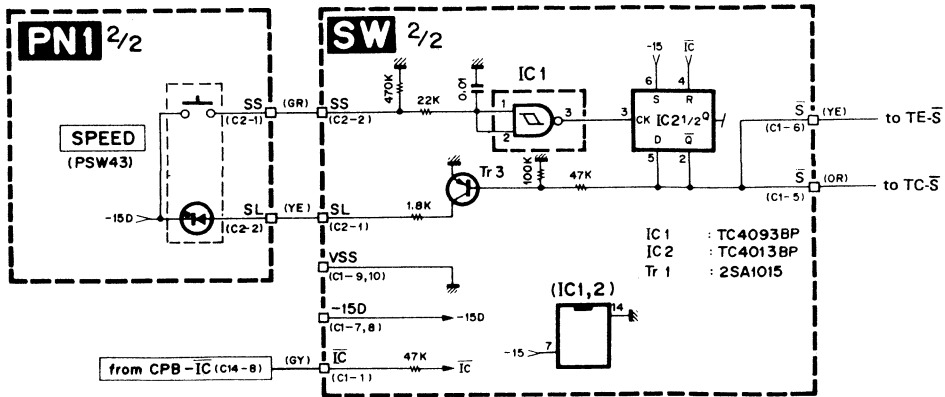
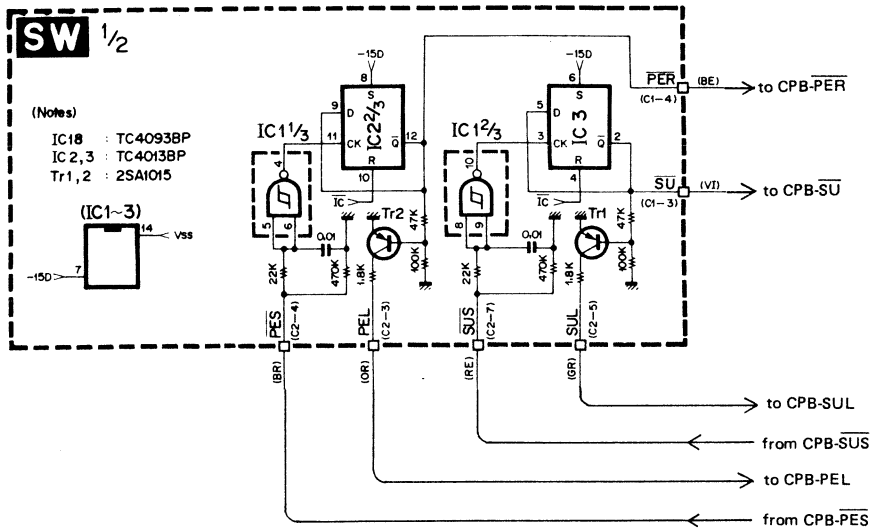
(Notes)

1. Circuit Board : LC86280
2. Transistor
Tr1 ~ 4 : 2SC1815 (O, Y)
3. Field Effect Transistor
FET1 : 2SK30A (Y)
4. Slide Switch
PSW44 : 2 way, 2 contact KA40084

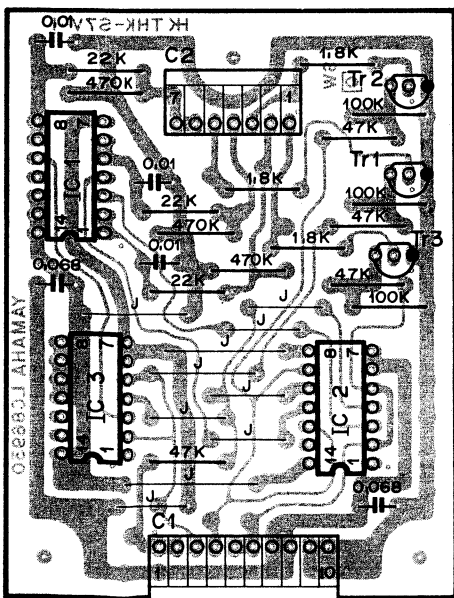
View from the printed pattern side of the circuit board.

Pin No.	Pin Name	Wire Color	Destination
1	LS	YE	JK-LS (C1-2)
2	TI	SPK	CPA-TO' (C3-4)
3	E	SPK S	
4	-15A	YE	TE -15A (C1-7)
5	+15A	BR	TE +15A (C1-1)
6	S	OR	SW-S (C1-5)
7	MI	S OR	JK-MO (C1-5)
8	LE	BL	CPA-E (C4-5)
9	AT	GR	CPA-AT (C9-7)
10	E	BL	TE-E (C3-5)

SW Circuit Diagram, Circuit Board & Wiring



KEC-90503-09



C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GY	CPB-IC (C14-8)
2	IC	-	-
3	SU	VI	CPB-SU (C14-7)
4	DEC	BE	CPB-DEC (C14-6)
5	S	OR	TC-S (C-6)
6	S	YE	TE-S (C3-1)
7	-15D	YE	PN1-15A (C1-1)
8	-15D	YE	CPB-15D (C14-4)
9	VSS	-	-
10	VSS	BL	OG1-VSS (C1-3)

C2

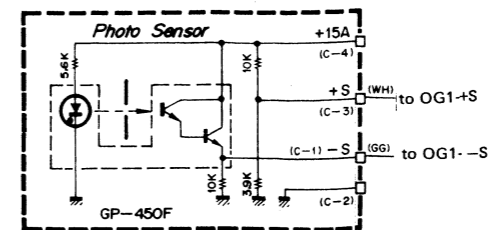
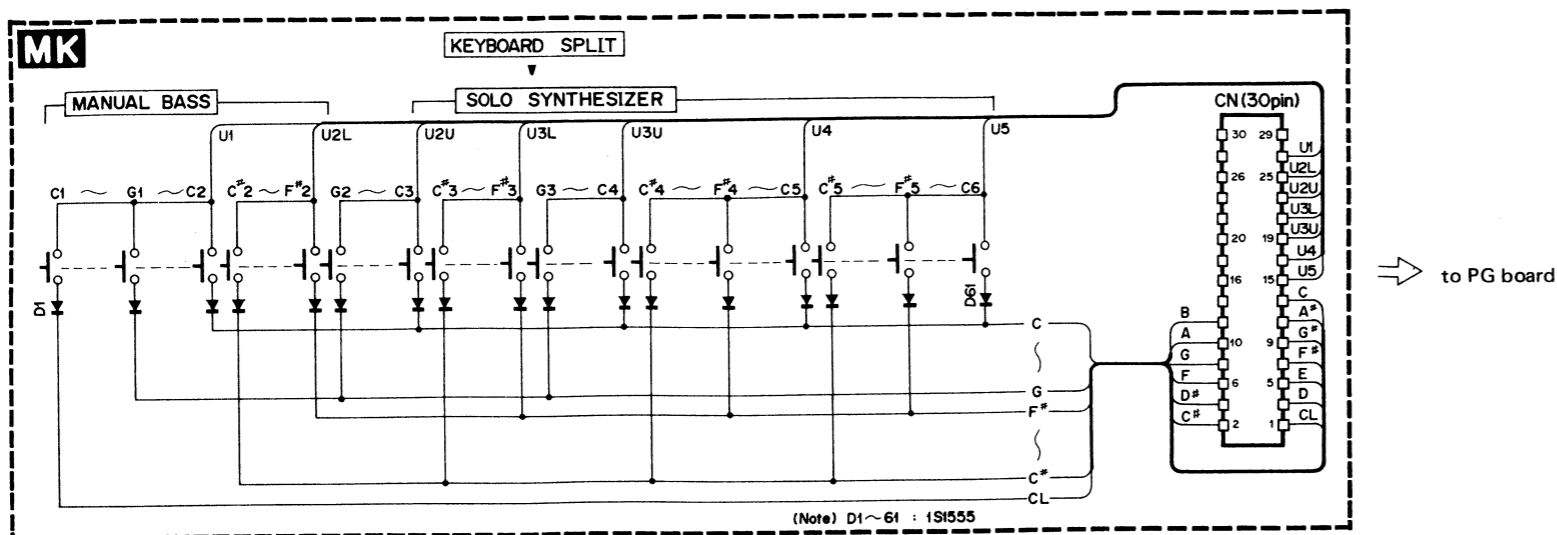
Pin No.	Pin Name	Wire Color	Destination
1	SL	YE	PN1-SL (C2-2)
2	SS	GR	PN1-SS (C2-1)
3	DEL	OR	CPB-DEL (C14-3)
4	DES	BR	CPB-DES (C14-1)
5	SUL	GR	CPB-SUL (C14-5)
6	SUS	-	-
7	SUS	RE	CPB-SUS (C14-2)

(Notes)

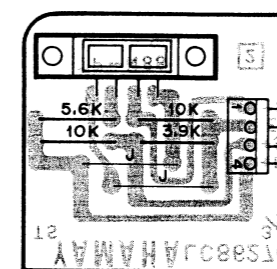
1. Circuit Board : LC86930
2. IC
 IC1 : TC4093BP (2 IN NAND Schmitt Trigger)
 IC2, 3 : TC4013BP ("D" Flip-Flop)
3. Transistors
 Tr1 ~ 3 : 2SA1015 (O, Y)

View from the component side of the circuit board.

MK Circuit Diagram, PC Circuit Diagram • Circuit Board & Wiring



KEC-90505-09 △

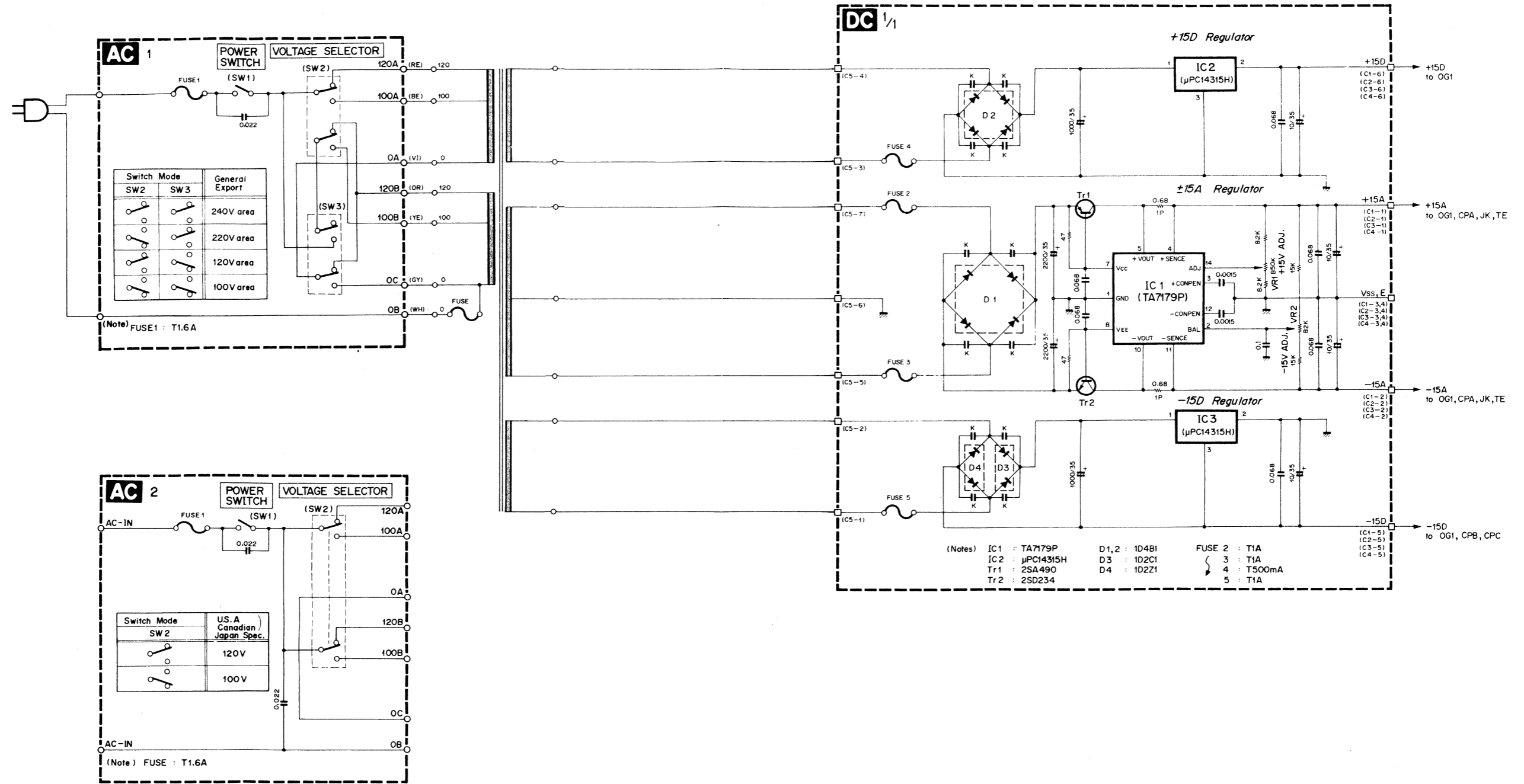


View from the component side of the circuit board.

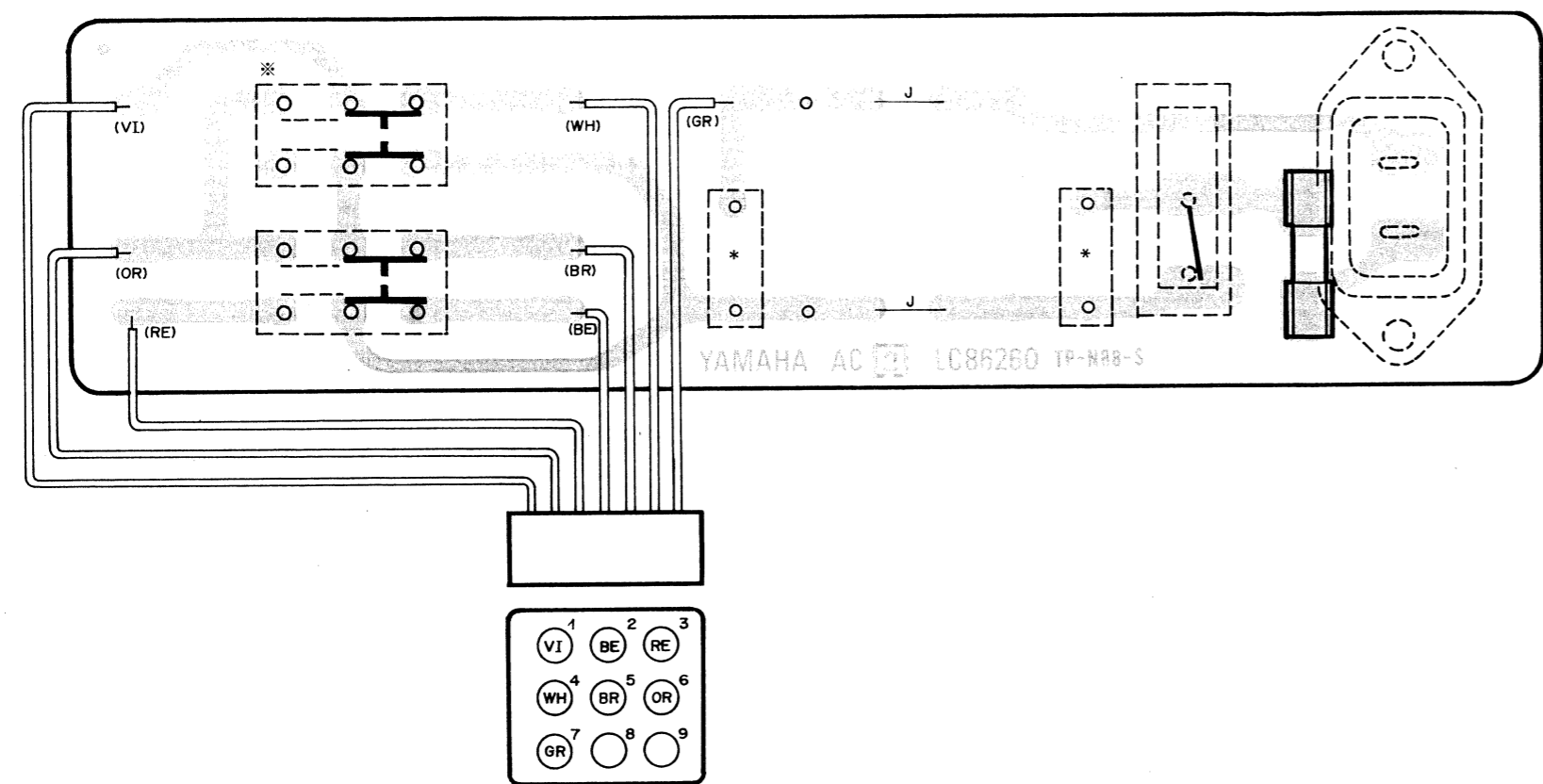
Pin No.	Pin Name	Wire Color	Destination
1	-S	GG	OG1-S (C13-9)
2	E	BL	OG1-E (C13-6)
3	+S	WH	OG1+S (C13-7)
4	+15A	BR	OG1+15A (C13-6)

KEP-NA80743-09 △

DC • AC Circuit Diagram



AC (General Export Model)



View from the printed pattern side of the circuit board.

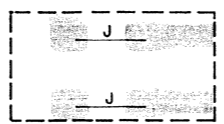
(Notes)

- 1. Circuit Board : LC86260
- 2. Capacitor
(*) marked : Spark Killer Capacitor 250V/0.022μF
- 3. Fuse

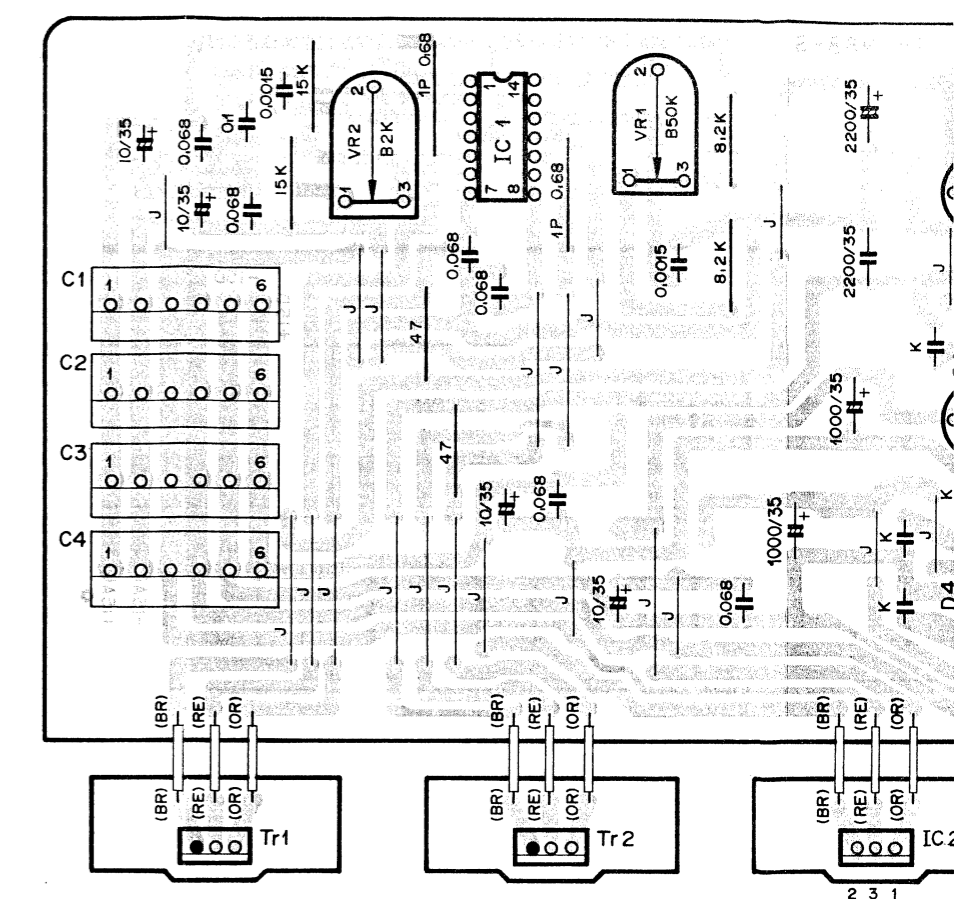
Common Model	NA No.	Fuse
General Export	NA80734	T1.6A 250V
US. American Canadian	NA80733	UL 1.6A 125V
Japan	NA80735	1.6A 250V

KEP-NA80733-07
 KEP-NA80734-07
 KEP-NA80735-07

* U.S. American & Canadian Model



DC



View from the printed pattern side of the circuit board.

(Notes)

- 1. Circuit Board : LC86270
- 2. IC
IC1 : TA7179P
IC2, 3 * : μPC14315H
- 3. Transistor
Tr1 : 2SA490 (Y)
Tr2 : 2SD234 (Y)
- 4. Diodes
D1, 2 : 1D4B1
D3 : 1D2C1
D4 : 1D2Z1
- 5. Capacitor
(K) marked : Ceramic Capacitor 1000P
- 6. Resistor
1P 0.68 : Metal Oxide Film Resistor
- 7. Variable Resistor
Vr1, 2 : V10K

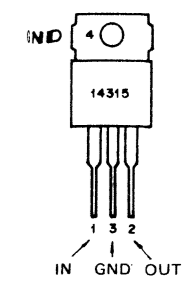
8. Fuse

Common Model	NA No.	F2, F:
US. American Canadian Japan	NA80730	UL 1A
General Export	NA80731	T 1A

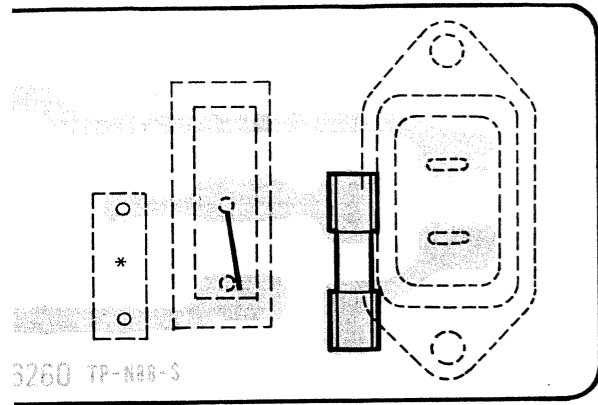
9. Connector

- C1 ~ 4 : 77-06A LB6038
- C5 : 77-07A LB6038

*μPC14315 Connector Diagram



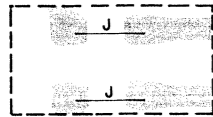
DC · AC Circuit Board & Wiring



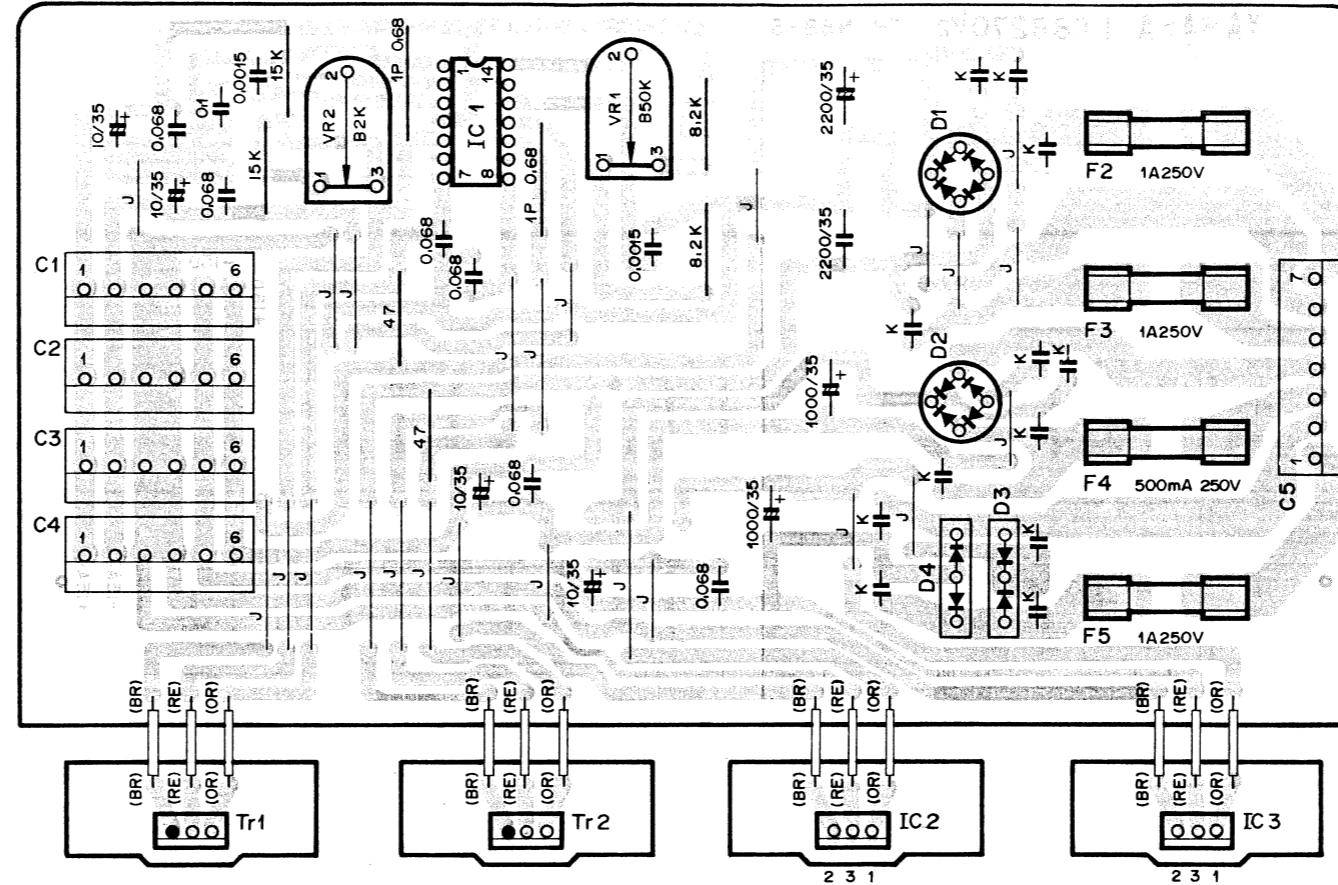
3260 TP-N88-3

KEP-NA80733-07 △
KEP-NA80734-07
KEP-NA80735-07

※ U.S. American & Canadian Model



DC



view from the printed pattern side of the circuit board.

KEP-NA80730-09 △
KEP-NA80731-09

(Notes)

1. Circuit Board : LC86270
2. IC
IC1 : TA7179P
IC2, 3 * : μPC14315H
3. Transistor
Tr1 : 2SA490 (Y)
Tr2 : 2SD234 (Y)
4. Diodes
D1, 2 : 1D4B1
D3 : 1D2C1
D4 : 1D2Z1
5. Capacitor
(K) marked : Ceramic Capacitor 1000P
6. Resistor
1P 0.68 : Metal Oxide Film Resistor
7. Variable Resistor
Vr1, 2 : V10K

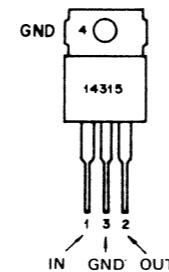
8. Fuse

Common Model	NA No.	F2, F3	F4	F5
US. American Canadian Japan	NA80730	UL 1A 250V	UL 500mA 250V	UL 1A 250V
General Export	NA80731	S T 1A 250V	S T500mA 250V	S T1A 250V

9. Connector

- C1 ~ 4 : 5277-06A LB60397
C5 : 5277-07A LB60398

*μPC14315 Connection Diagram



C1

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	OG1-+15A (C8-1)
2	-15A	YE	OG1- -15A (C8-3)
3	E	BL	OG1-E (C8-7)
4	Vss	BL	OG1-Vss (C1-1)
5	-15D	YE	OG1- -15D (C1-7)
6	+15D	BR	OG1-+15D (C2-1)

C2

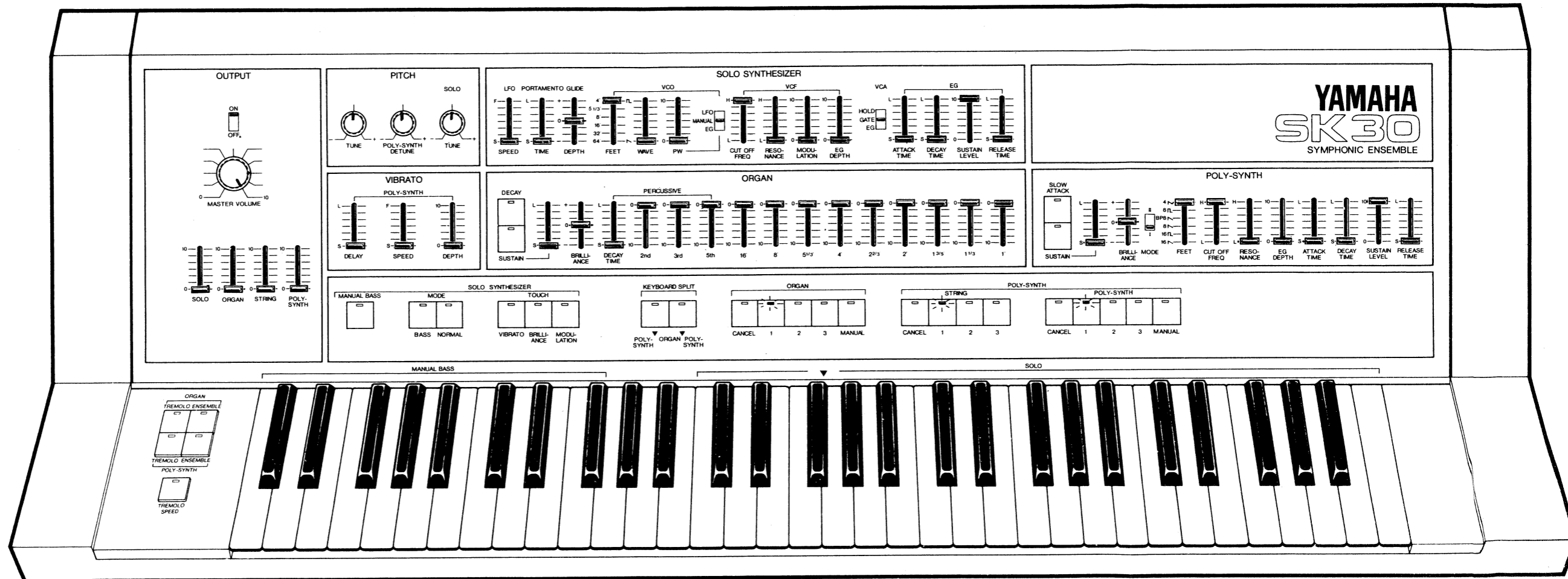
Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPA-+15A (C4-6)
2	-15A	YE	CPA- -15A (C4-1)
3	E	BL	CPA-E (C4-3)
4	Vss	BL	CPB-Vss (C1-10)
5	-15D	YE	CPB- -15D (C1-2)
6	+15D	-	-

C3

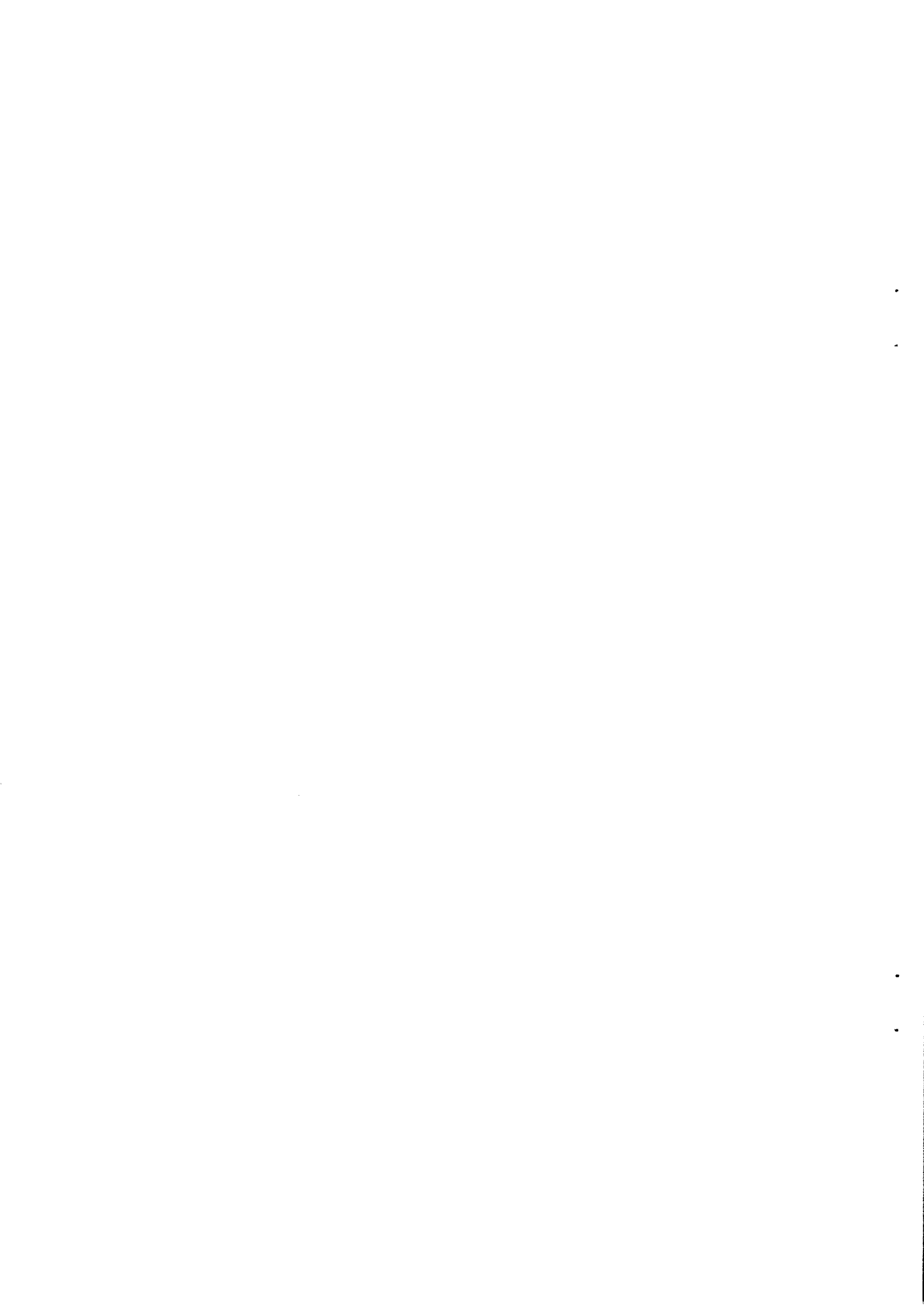
Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	JK-+15A (C1-6)
2	-15A	YE	JK- -15A (C1-7)
3	E	BL	CPA-Vss (C8-1)
4	Vss	BL	CPC-Vss (C1-8)
5	-15D	YE	CPC- -15D (C1-9)
6	+15D	-	-

C4

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	TE-+15A (C1-2)
2	-15A	YE	TE- -15A (C1-6)
3	E	BL	TE-E (C1-4)
4	Vss	BL	CPB-EC (C11-1)
5	-15D	-	-
6	+15D	-	-



YAMAHA
SK30
 SYMPHONIC ENSEMBLE



CHECKS AND ADJUSTMENTS

Before checking or making an adjustment, you must first set-up the panel as shown on page 61, then change panel setting as required to make each adjustment.

Equipment Required

Oscilloscope
AC Voltmeter
Frequency counter
Digital voltmeter

CIRCUIT BOARDS AND FUNCTIONS

Circuit boards	Functions	Circuit boards	Functions
CPA	Mixing Circuit LINE OUT Control Circuit SOLO SYNTHESIZER Circuit PITCH Circuit DELAY VIBRATO Circuit	PG	KEY ASSIGNER & SPLIT Circuit SOLO SYNTHESIZER KEY VOLTAGE Generator VCO Circuit POLY - SYNTH MASTER CLOCK Circuit Tone Generator Circuit Mixing Circuit STRING Filter & Selector Circuit TRIGGER Detector
CPB	SOLO SYNTHESIZER KEY ON TRIGGER Circuit FEET Switch Circuit LFO Circuit GLIDE Circuit VCF Circuit VCA Circuit EG Circuit TOUCH CONTROL Switch Circuit ORGAN Mixing Circuit PERCUSSIVE Circuit DECAY/SUSTAIN Circuit BRILLIANCE Circuit PRESET MEMORY & Tone Selector Circuit STRING PRESET MEMORY Circuit	OG1	INITIAL CLEAR Circuit ORGAN MASTER CLOCK Circuit Tone Generator Circuit Filter & Mixing Circuit TOUCH SENSE Circuit TREMLO/ENSEMBLE Switch MEMORY Circuit
		KC	KEY CODE DATA Converter
		TE	TREMLO/ENSEMBLE Circuit
		DC	+ 15D Regulator - 15D Regulator ± 15A Regulator
CPC	POLY-SYNTH VCF Circuit EG-VCF Circuit BRILLIANCE Circuit SLOW ATTACK/SUSTAIN MODE Switch Circuit PRESET MEMORY Circuit	JK	PHONES Amp + 15V Protector Circuit Two - 15V Protector Circuits
		TC	EXT. TONECABINET Control Circuit

Tuning

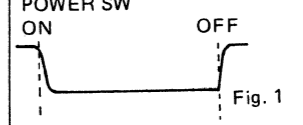
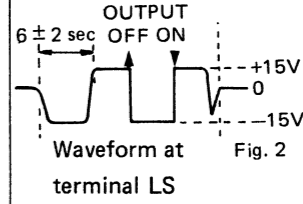
Item	Setting	Adjustment & reading	Where to adjustment	Remark
		<p>Note: Before tuning make sure that the DEPTH control in the VIBRATO block is set to "0" and the TUNE, POLY-SYNTH DETUNE and SOLO TUNE controls are all center. If the results are not satisfactory after performing the preceding steps, verify the voltages found in the pitch circuit checks on page 68 of the CPA circuit board adjustment. Also verify the key voltage reference, the key voltage adjustment, and the offset adjustment as found on page 89 of the PG circuit board adjustment.</p>		
ORGAN	ORGAN block 8' 10	Depressing the A3 Key, adjust L1 on the OG1 board to tune A3 to pitch 440Hz ± 1 cent.	L1 (OG 1)	*1
POLY-SYNTH I	POLY-SYNTH block MODE I FEET 8'	Depressing the A3 key, adjust L1 on the PG board to tune A3 to pitch 440Hz ± 1 cent.	L1 (PG)	
POLY-SYNTH II	POLY-SYNTH block MODE II	Depressing the A3 key, adjust L2 on the PG board to tune A3 to pitch 440Hz ± 1 cent.	L2 (PG)	

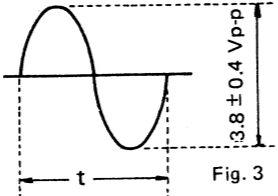
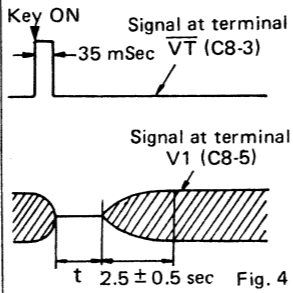
*1 Connect a tuning device to the MIXING OUTPUT jack.
 Tuning can be done by ear using two previously tuned voice (Organ) as a reference and eliminate the beating with the voice being tune.

Item	Setting	Adjustment & reading	Where to adjustment	Remark
SOLO SYNTHESIZER				
1. PITCH adjustment	SOLO SYNTHESIZER block	a) Adjust VR2 on the PG board to tune C6 to ORGAN pitch.	PG board VR2	
	FEET 4'			
	ORGAN block	b) Adjust VR1 on the PG board to tune C3 to ORGAN pitch.	VR1	
	4' 10			
		c) Repeat a) and b) to eliminate the beating perfectly.		
2. FEET adjustment	FEET 5 1/3'	d) Depressing the C6 Key, adjust VR4 on the PG board to tune C6 to ORGAN pitch.	VR4	
	ORGAN block			
	5 1/3' 10			
	FEET 8'	e) Depressing the C6 Key, adjust VR5 on the PG board to tune C6 to ORGAN pitch.	VR5	
	ORGAN block			
	8' 10			
	FEET 16'	f) Depressing the C6 Key, adjust VR6 on the PG board to tune C6 to ORGAN pitch.	VR6	
	ORGAN block			
	10 10			
	FEET 32'	g) Depressing the C6 Key, adjust VR7 on the PG board to tune C6 to ORGAN pitch.	VR7	
	ORGAN block			
	16 10			
	FEET 64'	h) Depressing the C6 Key, adjust VR8 on the PG board to tune C6 to ORGAN pitch.	VR8	
	ORGAN block			
	16 10			

CPA Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
MIXING	OUTPUT block				
1. POLY-SYNTH	<input type="checkbox"/> POLY-SYNTH . . . 10	PSI (C2-2) BRO (C6-3)	Depressing the C5 Key, the signal level should be the same at terminals BRO and PSI.		Check
2. STRING	<input type="checkbox"/> POLY-SYNTH . . . 0 <input type="checkbox"/> STRING 10	STI (C2-4) BRO (C6-3)	Depressing the C5 Key, the signal level should be the same at terminals STI and BRO.		Check
3. ORGAN	<input type="checkbox"/> STRING 0 <input type="checkbox"/> ORGAN 10	UOI (C2-8) OO (C6-7)	Depressing the C5 Key, the signal level should be the same at terminals UOI and OO.		Check
		PI (C1-3) OO (C6-7)	Depressing the C5 Key, the signal level should be the same at terminals PI and OO.		Check
	Keyboard Endblock <input type="checkbox"/> TREMOLO/ENSEMBLE <input type="checkbox"/> ENSEMBLE . . . ON	UOI (C2-8) TEO (C3-8)	a. Depressing the C5 Key, the signal level at terminal TEO should be 1.5 times greater than the level at terminal UOI.		Check
		TE (C9-8)	b. The logic level at terminal TE should be a low logic level (-15V).		
• Level adjustment	<input type="checkbox"/> ENSEMBLE . . OFF	MO (C3-1)	c. Adjust the level at terminal MO to 3 times the level appearing at terminal UOI (2-8).	VR1	Adjustment
	<input type="checkbox"/> TREMOLO . . . ON	TEO (C3-8)	d. Same as in a.		Check
• Level adjustment	REAR PANEL <input type="checkbox"/> EXT. TONE CABINET <input type="checkbox"/> ON/OFF ON	TO (C3-4)	e. Depressing the C5 Key, adjust the level to 3 times the level appearing at terminal UOI (C2-8).	VR2	Adjustment

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
4. SOLO SYNTHESIZER	<input type="checkbox"/> ORGAN 0 <input type="checkbox"/> SOLO 10	SI (C1-7) SO (C6-8)	Depressing the C5 key, the signal level should be the same at terminals SI and SO.		Check
LINE OUT Control circuit (Muting)	OUTPUT block <input type="checkbox"/> ON/OFF SW	LS (C3-5)	The waveform should appear at terminal LS as shown Figure 2 when the OUTPUT switch is turned on and off.  		Check
SOLO SYNTHESIZER Control circuit	SOLO SYNTHESIZER Switch block MODE Switches <input type="checkbox"/> NORMAL <input type="checkbox"/> BASS <input type="checkbox"/> MANUAL BASS		The note ranges of SOLO SYNTHESIZER are given in Table 1.		Check
PITCH circuit	PITCH block				
1. TUNE	<input type="checkbox"/> TUNE - } } + . . . Center 0	VW (C8-4) V1 (C8-5)	- 3.2V ± 0.2V } } } + 3.2V ± 0.2V 0V ± 0.1V		Check
2. DETUNE	<input type="checkbox"/> DETUNE - } } + . . . Center 0	V2 (C8-6)	- 1.5V ± 0.3V } } } } + 1.5V ± 0.3V 0V ± 0.1V		
3. SOLO TUNE	<input type="checkbox"/> SOLO TUNE . . . - } } + . . . Center 0	VS (C8-10)	- 1.5V ± 0.2V } } } } - 3V ± 0.2V Approx. -2V ± 0.002V		

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
DELAY VIBRATO circuit (POLY-SYNTH)	1. Vibrato speed adjustment	V1 (C8-5)	 <p>$t = 0.2 \text{ sec}$ ($f = 5 \pm 0.1 \text{ Hz}$) ($f = 7 \pm 0.3 \text{ Hz}$)</p>	VR4	Adjustment
	2. Delay Time adjustment		<p>When depressing any key, the waveform as shown below should appear at the V1 terminal.</p>  <p>$t = 0.7 \pm 0.1 \text{ sec}$</p>	VR3	Adjustment

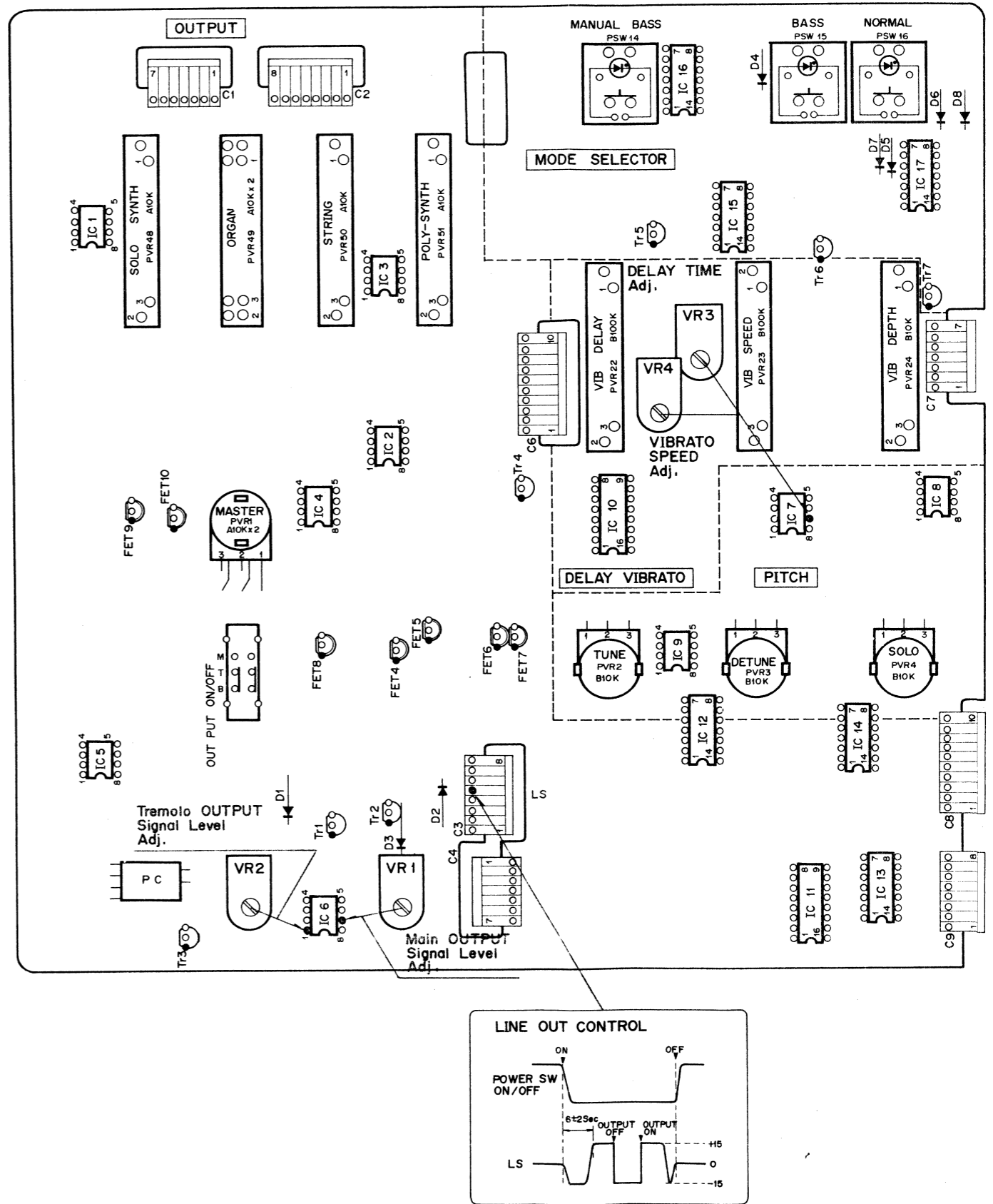


Table 1
The not
MODE S

1
2
3
4
5
6
7
8
9
10
11

Where to adjustment	Remark
VR4	Adjustment
	Check
VR3	Adjustment

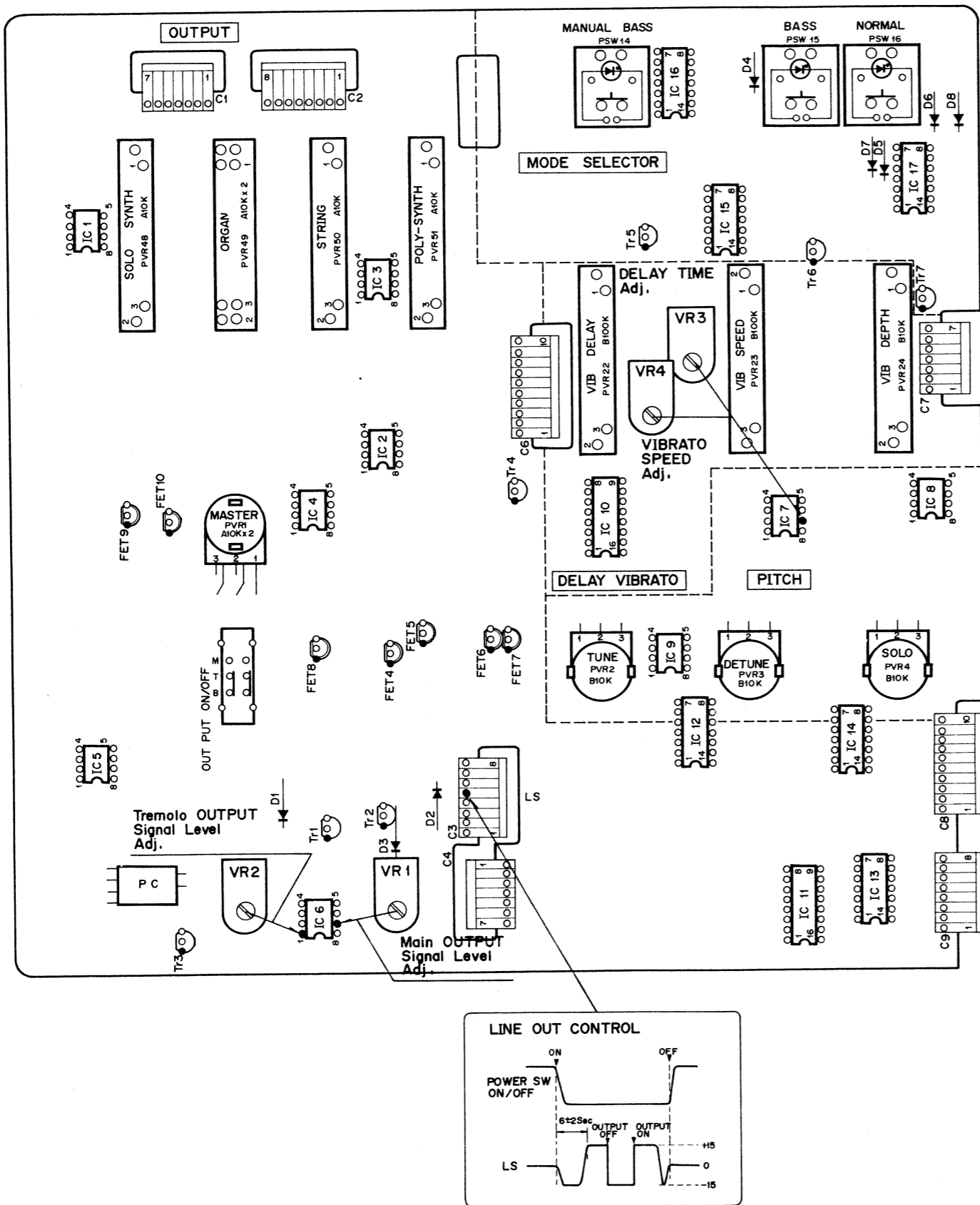
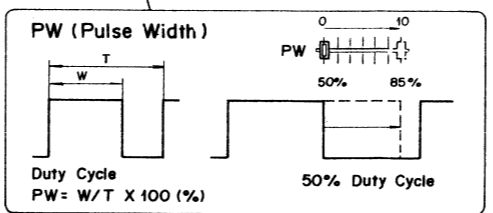
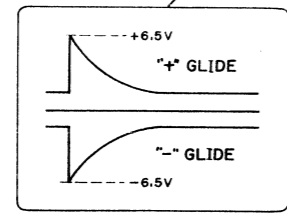
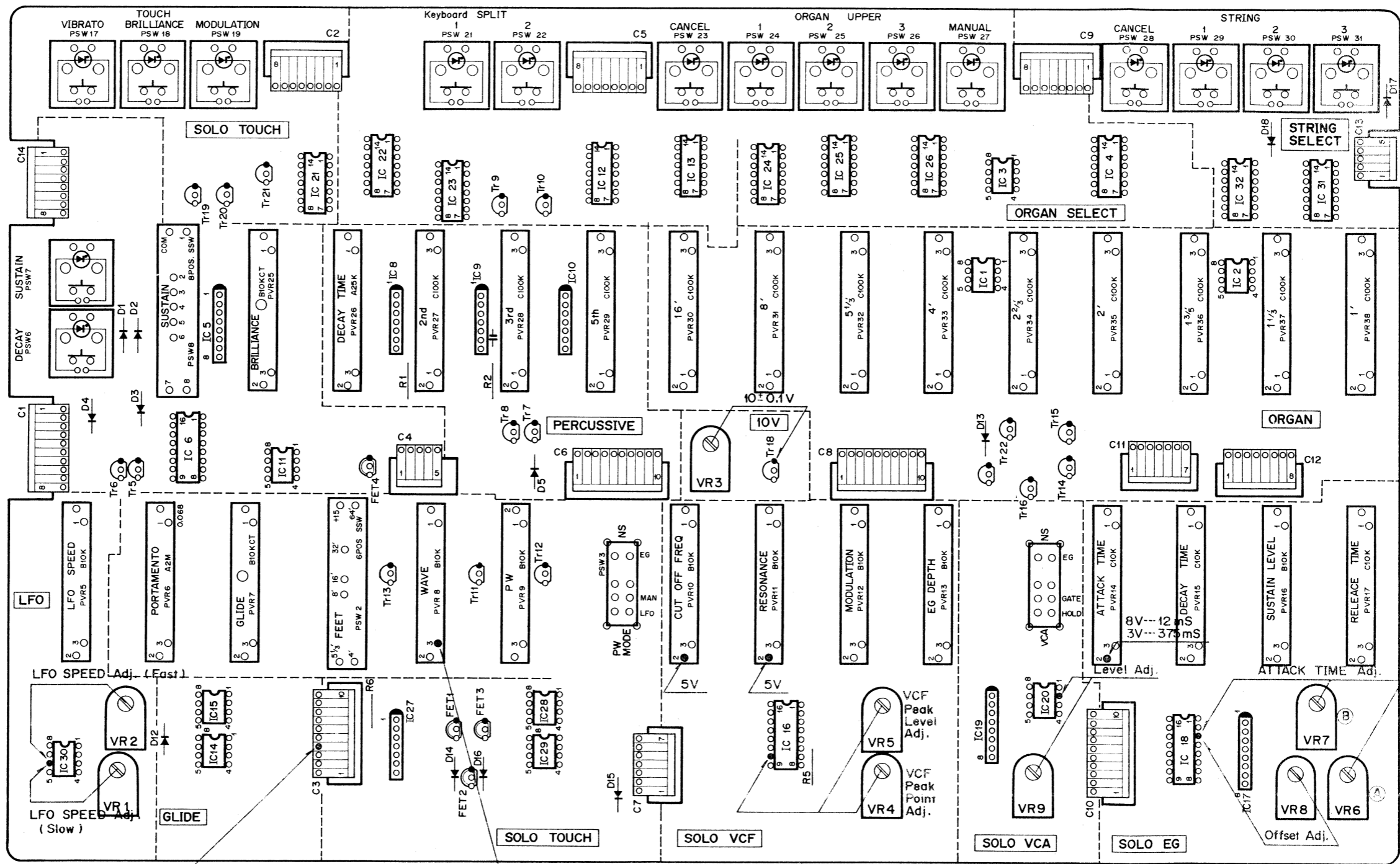


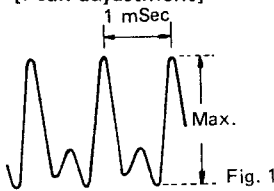
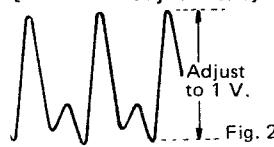
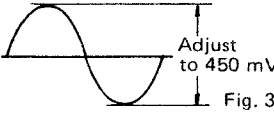
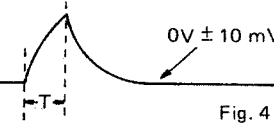
Table 1.
The note ranges of each keyboard corresponding to the settings of the SOLO SYNTHESIZER MANUAL BASS switch, MODE switches and KEYBOARD SPLIT switches are shown below.

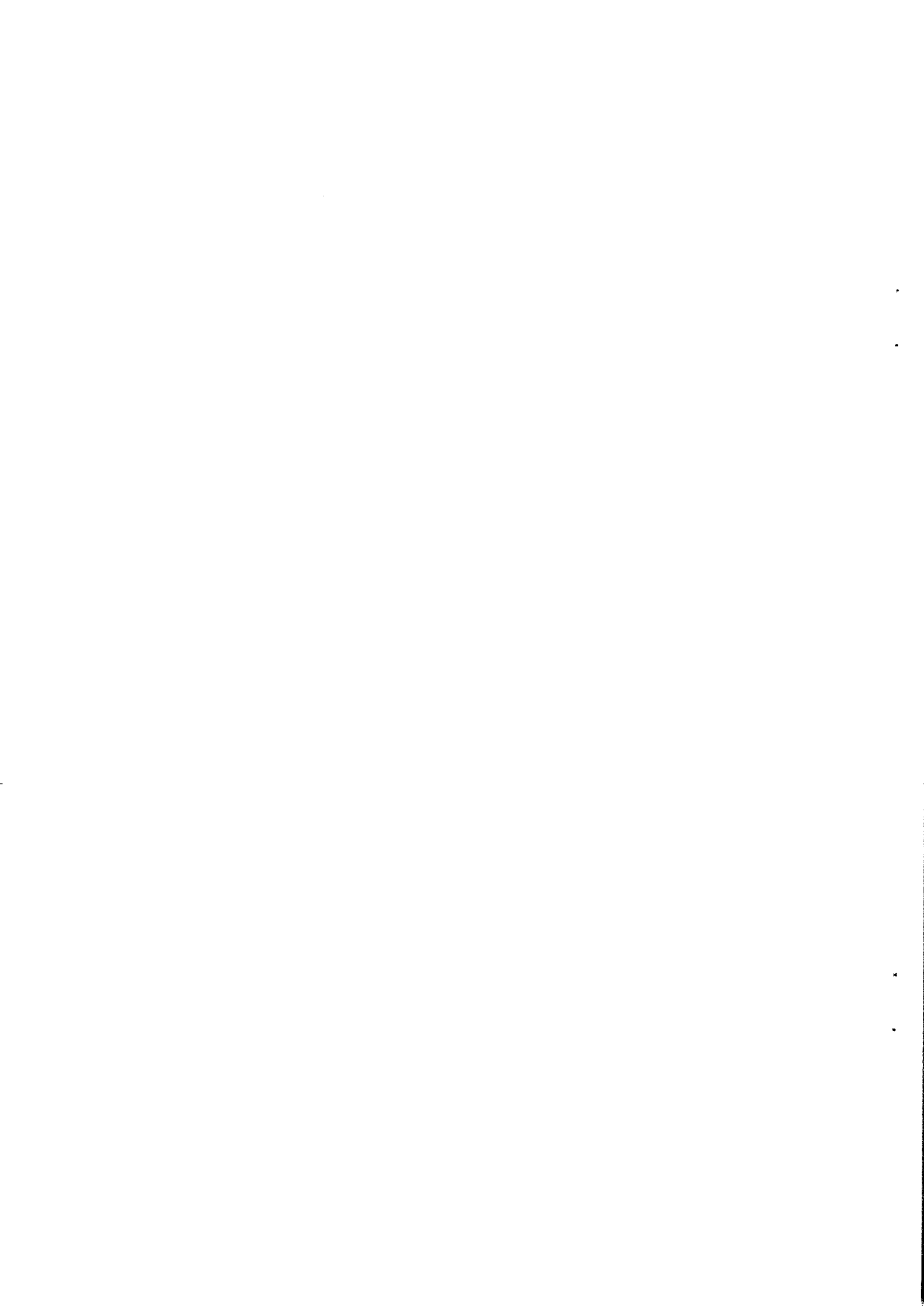
SWITCH SETTINGS		SOLO SYNTHESIZER	ORGAN	POLY-SYNTH
1	MODE SW OFF	No sound is generated.		
2	NORMAL ON	C ₃ ~ C ₆	C ₁ ~ C ₆	C ₁ ~ C ₆
3	BASS ON	Sound generated by BP2 bass pedal (Corresponding to C ₃ ~ C ₄)		
4	MANUAL BASS ON	No sound is generated		
5	BASS + MANUAL BASS ON	Sound generated by BP2 (Corresponding to C ₃ ~ C ₄) + C ₁ ~ F ₂ # (Corresponding to C ₃ ~ F ₄ #)	G ₂ ~ C ₆	G ₂ ~ C ₆
6	SPLIT1 (POLY-SYNTH ▼ ORGAN) ON	No sound is generated.	G ₃ ~ C ₆	C ₁ ~ F ₃ #
7	SPLIT2 (ORGAN ▼ POLY-SYNTH) ON		C ₁ ~ F ₃ #	G ₃ ~ C ₆
8	NORMAL SPLIT1 ON	C ₃ ~ C ₆	G ₃ ~ C ₆	C ₁ ~ F ₃ #
9	NORMAL SPLIT2 ON		C ₁ ~ F ₃ #	G ₃ ~ C ₆
10	BASS SPLIT1 ON		G ₃ ~ C ₆	C ₁ ~ F ₃ #
11	BASS SPLIT2 ON	Sound generated by BP2	C ₁ ~ F ₃ #	G ₃ ~ C ₆

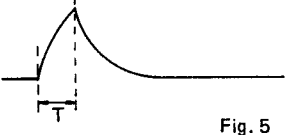
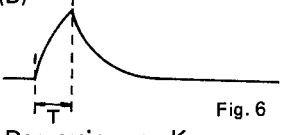
The volume of the SOLO SYNTHESIZER, ORGAN, and POLY-SYNTH can be adjusted.
MANUAL BASS and SPLIT can not be turned on at the same time.



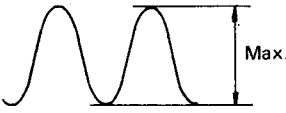
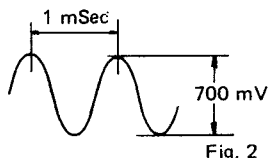
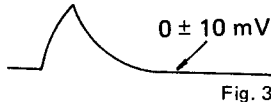

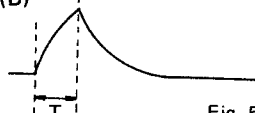
CPB Circuit Board

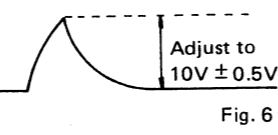
Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Reference voltage (10V) generator		Tr 18-E	Adjust VR3 to obtain a 10V ± 0.1V reading.	VR3 (B5K)	Adjustment
LFO SPEED adjustment	SOLO SYNTHESIZER block LFO SPEEDF LEO SPEEDS	IC30-pin6	Adjust to 0.1Hz (10s) ± 0.01Hz with VR1. Adjustment to 100Hz (10ms) ± 10Hz with VR2.	VR1 (B100K) VR2 (B100K)	Adjustment
VCF Peak/peak level adjustment (Tone quality adjustment)	WAVE N EG DEPTH0 Adjust CUTOFF FREQ lever (PVR10) to achieve a +5V reading at the second terminal of PVR10. Adjust RESONANCE lever (PVR11) to achieve a +5V reading at the second terminal of PVR11. FEET 8'	IC16-pin 10 (LP)	Depress the C4 Key. [Peak adjustment]  Fig. 1 Adjust to achieve maximum amplitude. [Peak level adjustment]  Fig. 2	VR4 (B100K) VR5 (B200K)	
VCA Level adjustment	VCA HOLD	IC20-pin 1	 Fig. 3	VR9 (B100K)	
EG Offset voltage adjustment	Adjust ATTACK TIME lever (PVR14) to achieve a 8V ± 0.1V reading at the second terminal of PVR14. DECAY TIMES SUSTAIN LEVEL0 RELEASE TIMES	IC18-pin 3 (BO)	 Fig. 4 Depressing any Key, adjust to 0V ± 100 mV.	VR8 (B100K)	

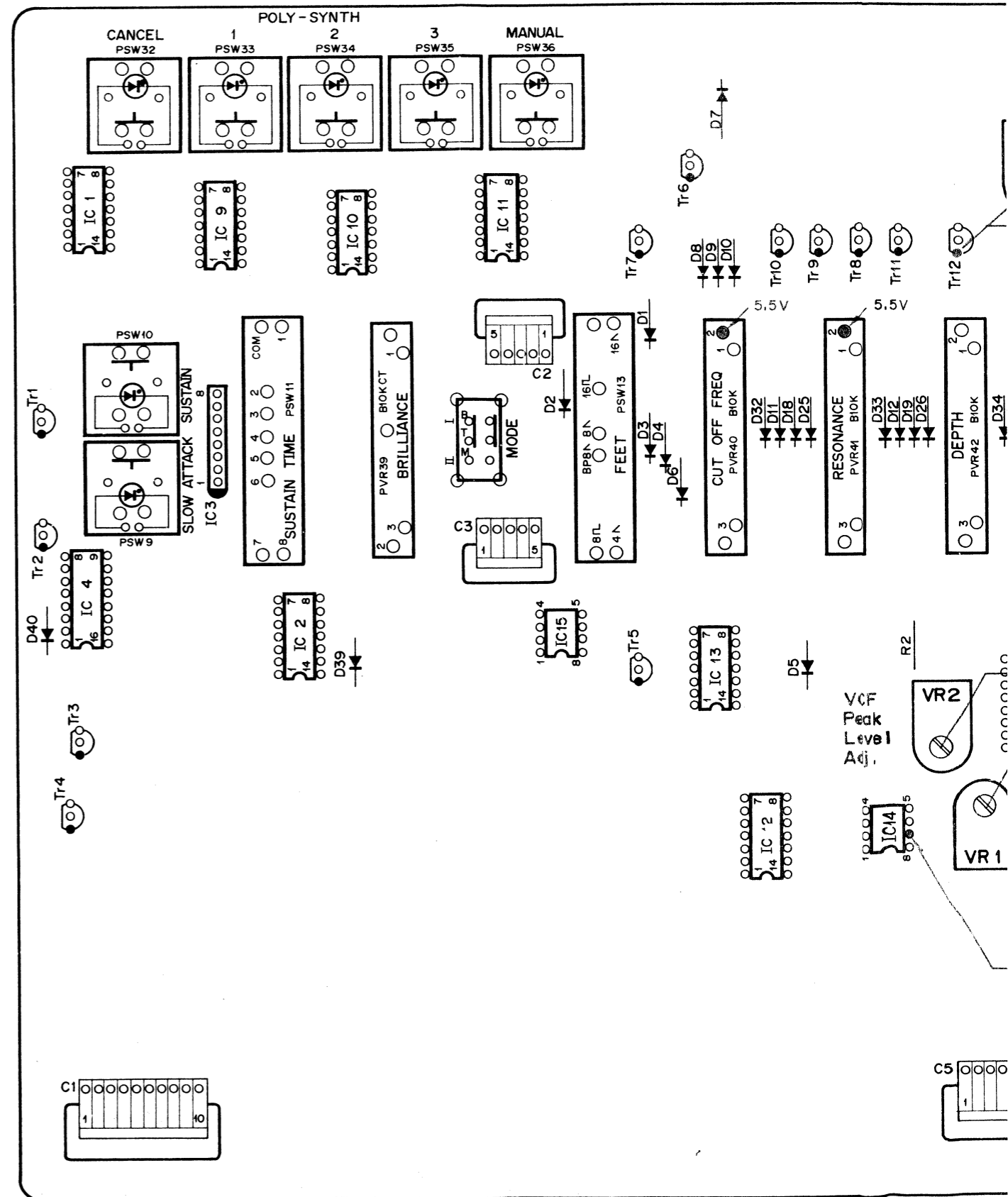


Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
EG ATTACK TIME adjustment	Adjust ATTACK TIME lever (PVR14) to achieve a $8V \pm 0.1V$ reading the second terminal of PVR14. DECAY TIME . . . S SUSTAIN LEVEL . . . 0 RELEASE TIME . . . S	IC18-pin 3	(A)  Fig. 5 Depressing any Key, adjust T to 12 mSec.	VR6 (B100K)	Adjust- ment
	Adjust ATTACK TIME lever (PVR14) to achieve a $3V \pm 0.05V$ reading at the second terminal of PVR14.	IC18-pin 3	(B)  Fig. 6 Depressing any Key, adjust T to 375 mSec. Note: Both VR6 and VR7 affect ATTACK TIME adjustment each other. If the attack time is longer than 375 mSec, adjust VR7 so that the attack time is slightly longer. If shorter, adjust VR7 so that the attack time is slightly shorter. Repeat steps (A) and (B).	VR7 (B100K)	Adjust- ment

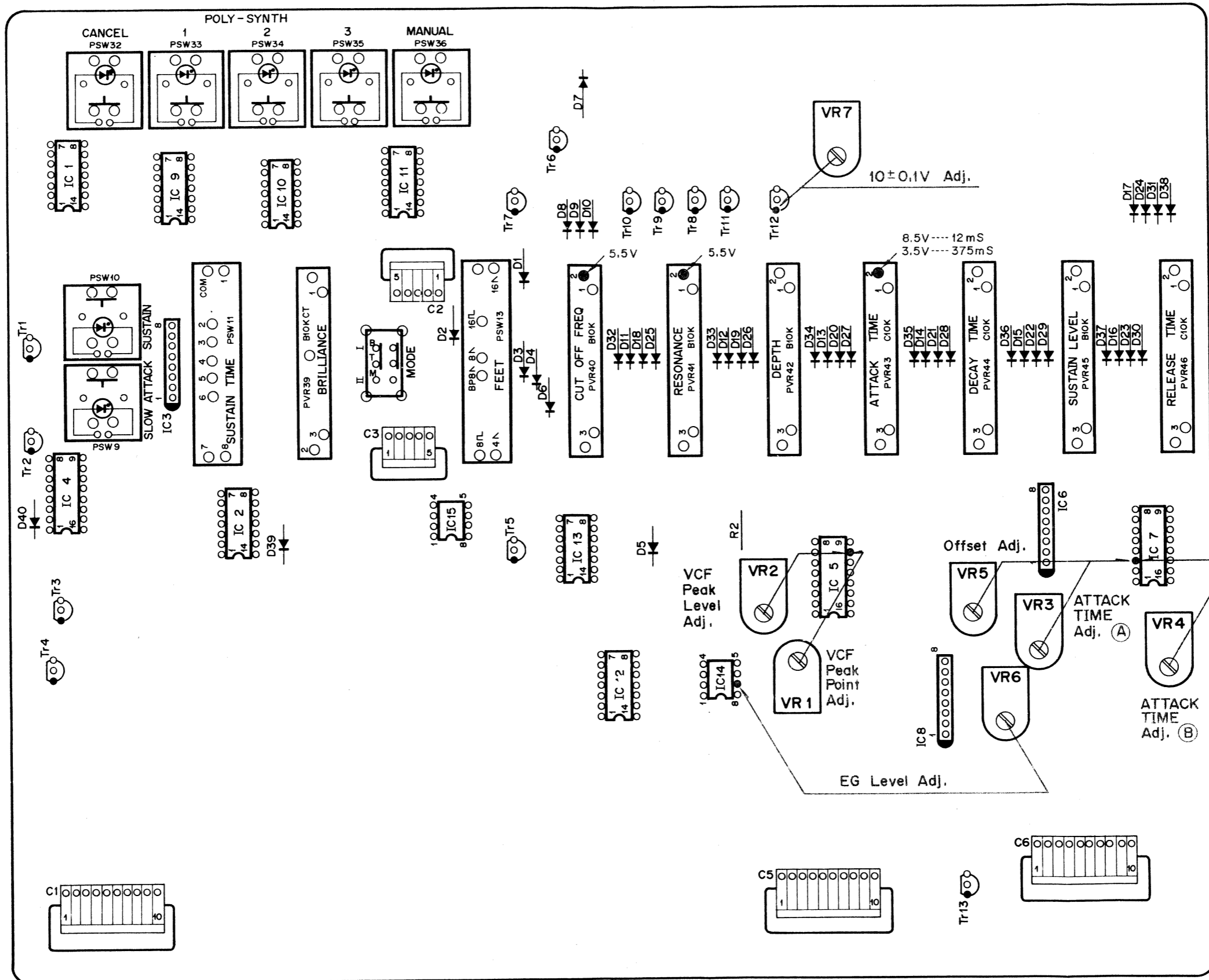
CPC Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Reference voltage (10V) generator		Tr 12-E	Adjust to 10.5V	VR7	
VCF Peak/peak level adjustment (Tone quality adjustment)	Switch block POLY-SYNTH MANUAL ON POLY-SYNTH block FEET 16' Adjust CUTOFF FREQ lever (RVR40) to achieve a 5.5V reading at the second terminal of PVR 40. Adjust RESONANCE lever (PVR41) to achieve a 5.5V reading at the second terminal of PVR 41. EG DEPTH 0	IC5 Pin 10 (LP) of VCF (iG00156)	Depress the C6 Key. [Peak]  Fig. 1 Adjust to achieve maximum amplitude. [Peak level]  Fig. 2 Adjust to 700 mV.	VR1 VR2	
EG Offset adjustment	Adjust ATTACK TIME lever (PVR43) to achieve a 8.5V reading at the second terminal of PVR43.	IC7 Pin 3 (BO) of EG (iG00159)	 Fig. 3 Depressing any Key, adjust to 0V ± 10mV.	VR5	
ATTACK TIME adjustment	DECAY TIME S SUSTAIN LEVEL 0 RELEASE TIME S		(A)  Fig. 4 Depressing any Key, adjust T to 12 mSec.	VR3	
	Adjust ATTACK TIME level (PVR43) to achieve a 3.5V reading at the second terminal of PVR43.		(B)  Fig. 5 Depressing any Key, adjust T to 375 mSec.	VR4	

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
EG level adjustment			Note: Both VR3 and VR4 affect ATTACK TIME adjustment each other. If the attack time is longer than 375 mSec adjust VR4 so that the attack time is slightly longer. If shorter, adjust VR4 so that the attack time is slightly shorter. Repeat steps (A) and (B).	VR3 VR4	
	EG DEPTH 10	IC14-pin 7		VR6	



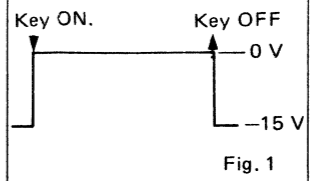
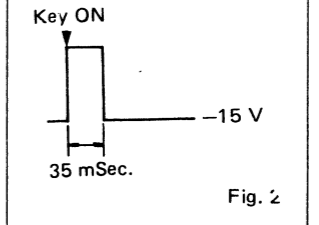
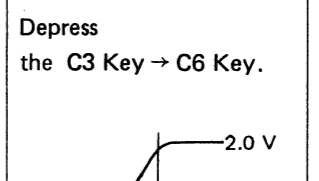
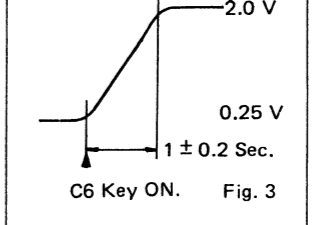
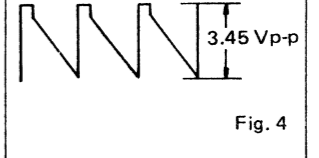
Where to adjustment	Remark
R4 VR3 VR4	
VR6	



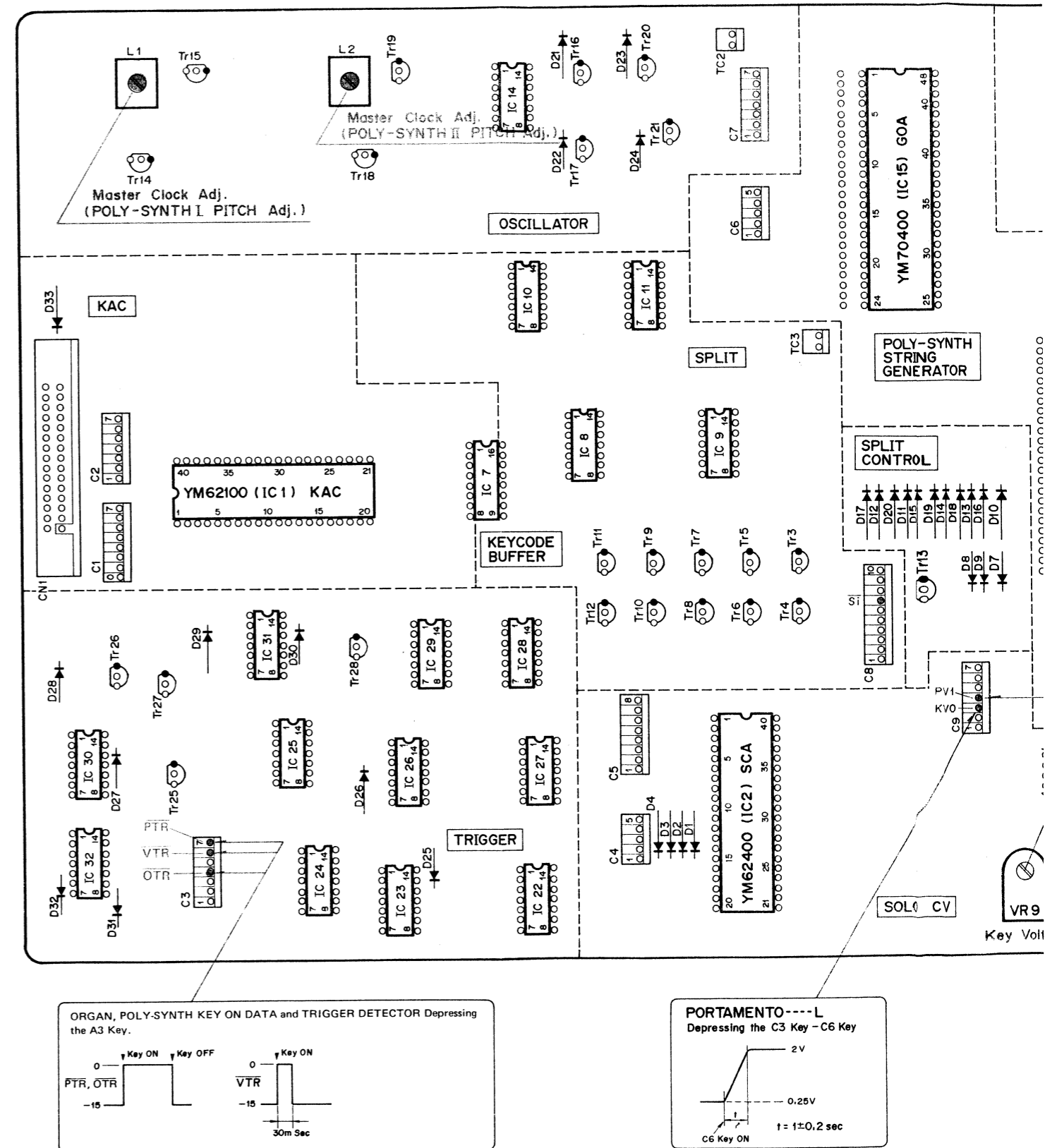
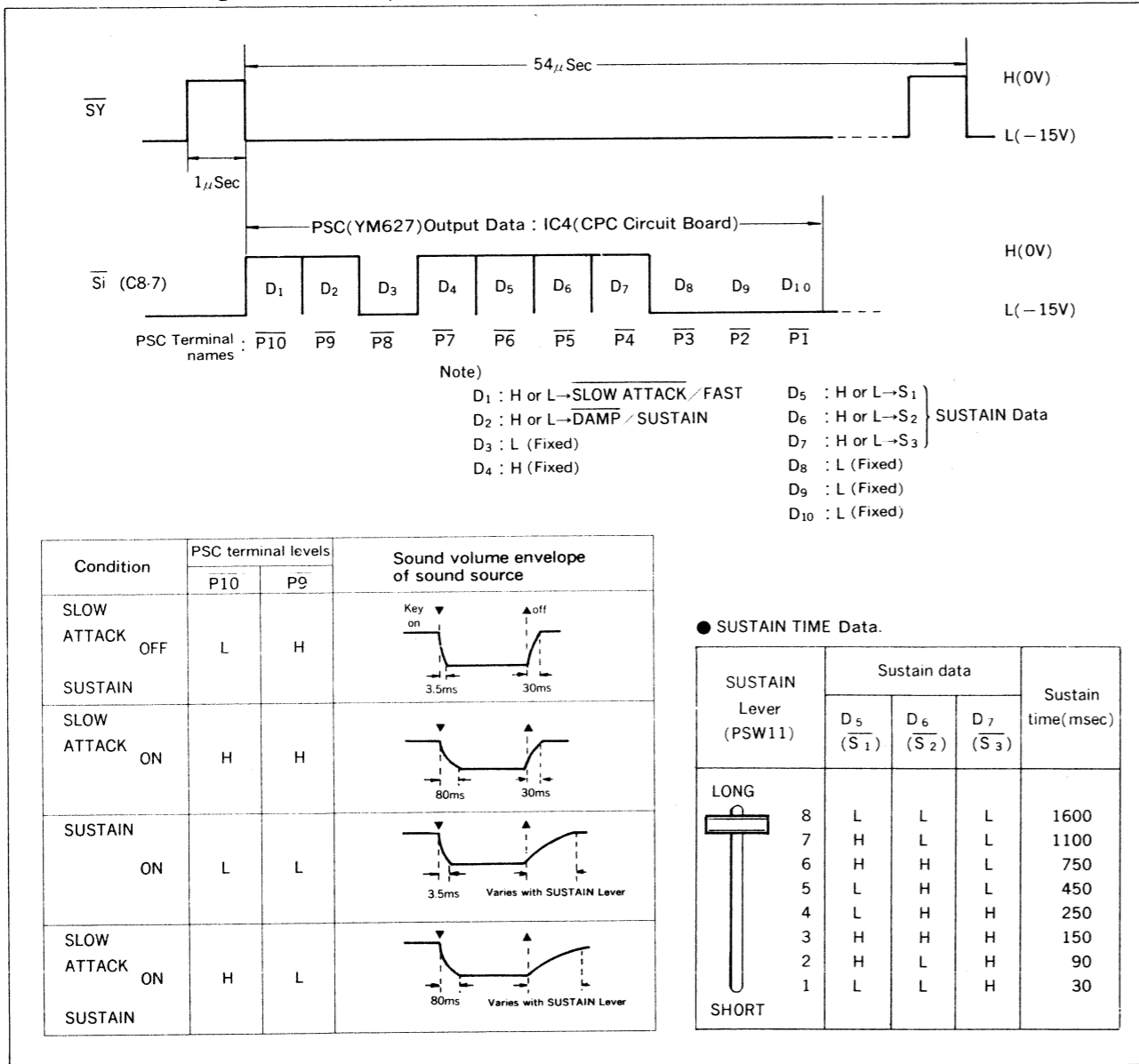
PG Circuit Board

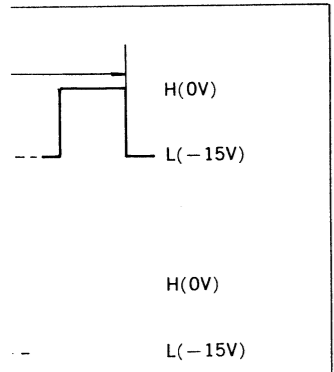
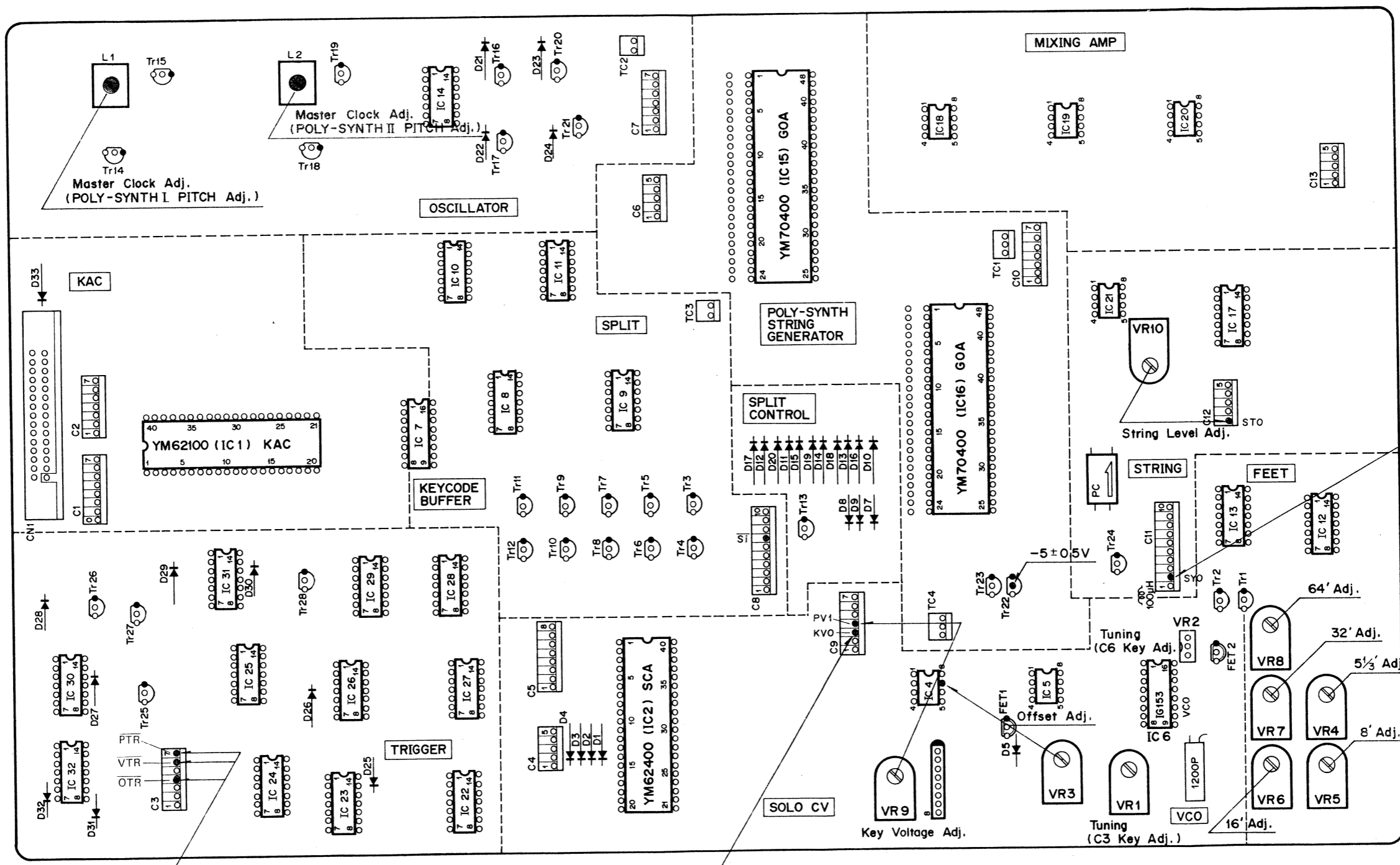
Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Key voltage Reference Generator	SOLO SYNTHESIZER block PORTAMENTO . . S PITCH block Adjust SOLO TUNE control (PVR 4) to achieve a -2V ± 0.002V at VS terminal.				
Key voltage adjustment		PV1 (C9-4)	Depress the C3 Key. -0.25V ± 0.001V	VR9	Adjustment
Offset adjustment		KVO (C9-3)	+0.25V ± 0.001V	VR3	Adjustment
SOLO SYNTHESIZER TUNING			Refer to tuning procedure on page 65.		
Master clock osc adjustment (POLY-SYNTH PITCH tuning)			Refer to tuning procedure on page 65.		
STRING level adjustment	POLY-SYNTH block MODE I Switch block STRING 2 ON Depress the C3 Key.	STO (C12-1)	Adjust VR10 to achieve 0.26 Vp-p reading at STO terminal.	VR10	Adjustment

PG Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
TRIGGER Detector	Depress the A3 Key.	PTR (C3-7)			Check
	Depress the A3 Key.	OTR (C3-4)			Check
	Depress the A3 Key.	VTR (C3-6)			Check
PORTAMENTO	PORTAMENTO . . . L	KVO (C9-3)	Depress the C3 Key → C6 Key.		Check
					Check
VCO OUT	Depress the C6 Key.	SYO (C11-2)			Check

● Serial Data Timing Chart for GOA (POLY-SYNTH Generator)

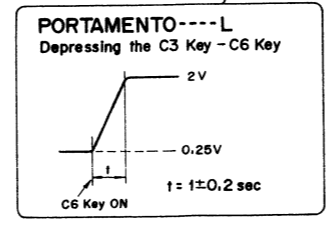
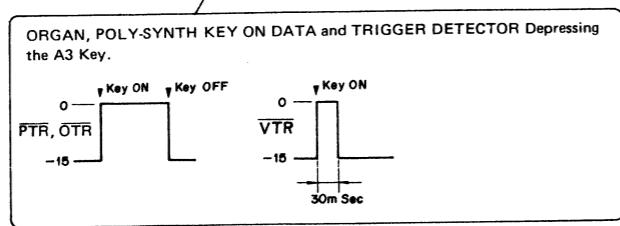




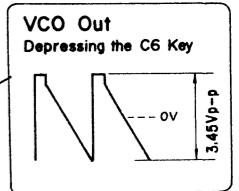
L→S₁
L→S₂
L→S₃
SUSTAIN Data
ixed)
ixed)
ixed)

1) a.

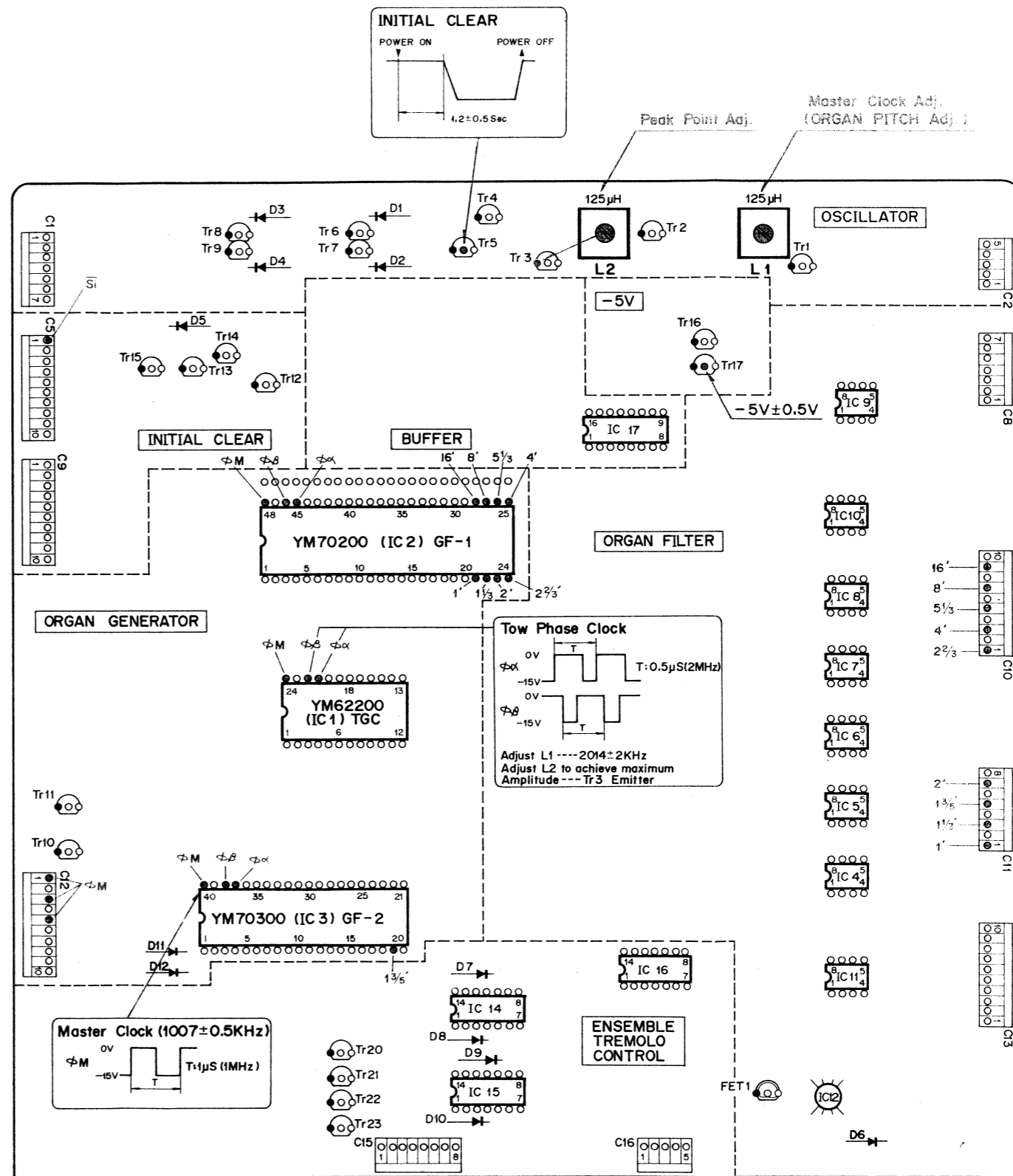
Sustain data		Sustain time(msec)
D ₆ (S ₂)	D ₇ (S ₃)	
L	L	1600
L	L	1100
H	L	750
H	L	450
H	H	250
H	H	150
L	H	90
L	H	30



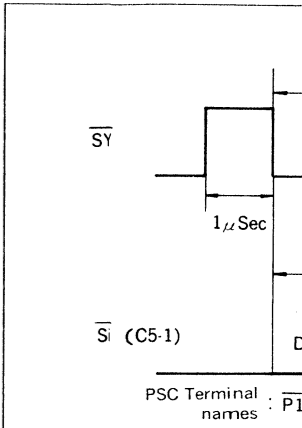
Key	Key Voltage	Key	Key Voltage	Key	Key Voltage
C3	0.260	C4	0.530	C5	1.000
C#3	0.265	C#4	0.530	C#5	1.099
D3	0.281	D4	0.561	D5	1.122
D#3	0.297	D#4	0.595	D#5	1.189
E3	0.315	E4	0.630	E5	1.260
F3	0.334	F4	0.667	F5	1.335
F#3	0.354	F#4	0.707	F#5	1.414
G3	0.375	G4	0.749	G5	1.498
G#3	0.394	G#4	0.794	G#5	1.587
A3	0.420	A4	0.841	A5	1.682
A#3	0.445	A#4	0.891	A#5	1.782
B3	0.472	B4	0.944	B5	1.888
				C6	2.000



OG1 Circuit Board



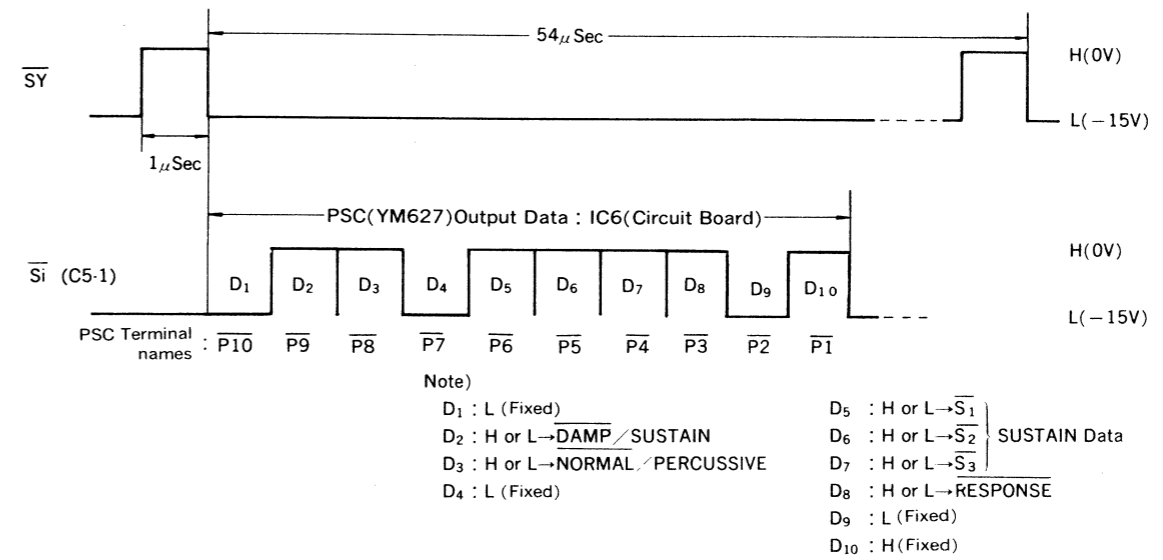
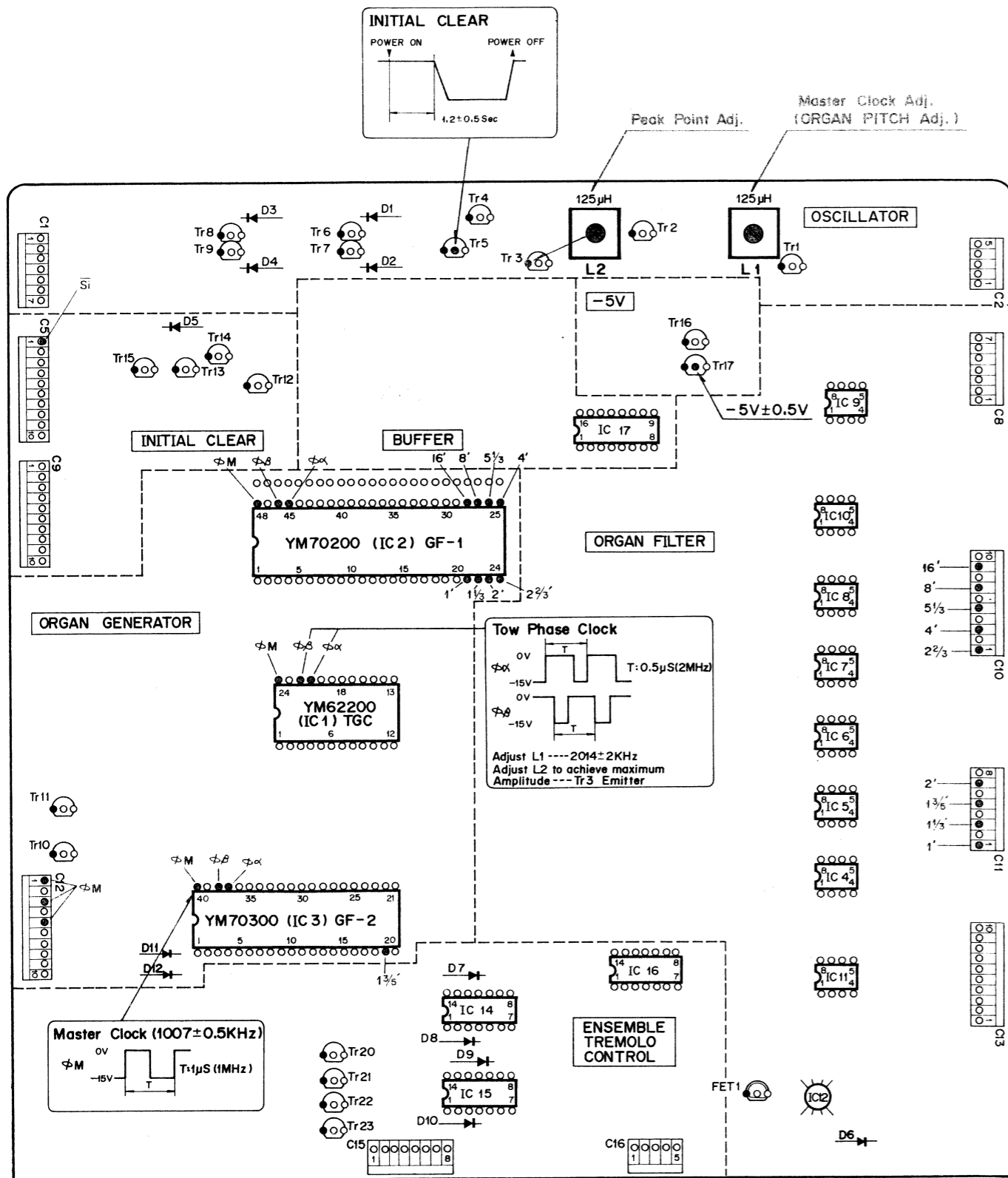
Item	
Master Clock adjustment (ORGAN PITCH adjustment)	PITCH TUN Depre
PEAK point adjustment	Depre



Condition	PSC termin.	
	P9	P8
DECAY OFF	H	H
SUSTAN ON	L	H
DECAY ON	H	L
DECAY SUSTAN ON	L	L

OG1 Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Master Clock adjustment (ORGAN PITCH adjustment)	PITCH block TUNE center Depress the A3 Key.		Adjust L1 to tune A3 to pitch ± 1 cent.	L1	Adjustment
PEAK point adjustment	Depress the A3 Key.	Tr3-E	Adjust L2 to achieve maximum amplitude at the emitter of Tr3.	L2	



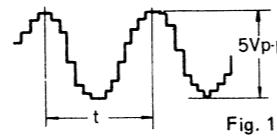
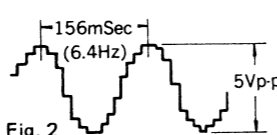
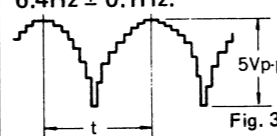
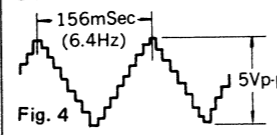
Note:
 D₁ : L (Fixed)
 D₂ : H or L → DAMP / SUSTAIN
 D₃ : H or L → NORMAL / PERCUSSIVE
 D₄ : L (Fixed)
 D₅ : H or L → S₁
 D₆ : H or L → S₂
 D₇ : H or L → S₃
 D₈ : H or L → RESPONSE
 D₉ : L (Fixed)
 D₁₀ : H (Fixed)

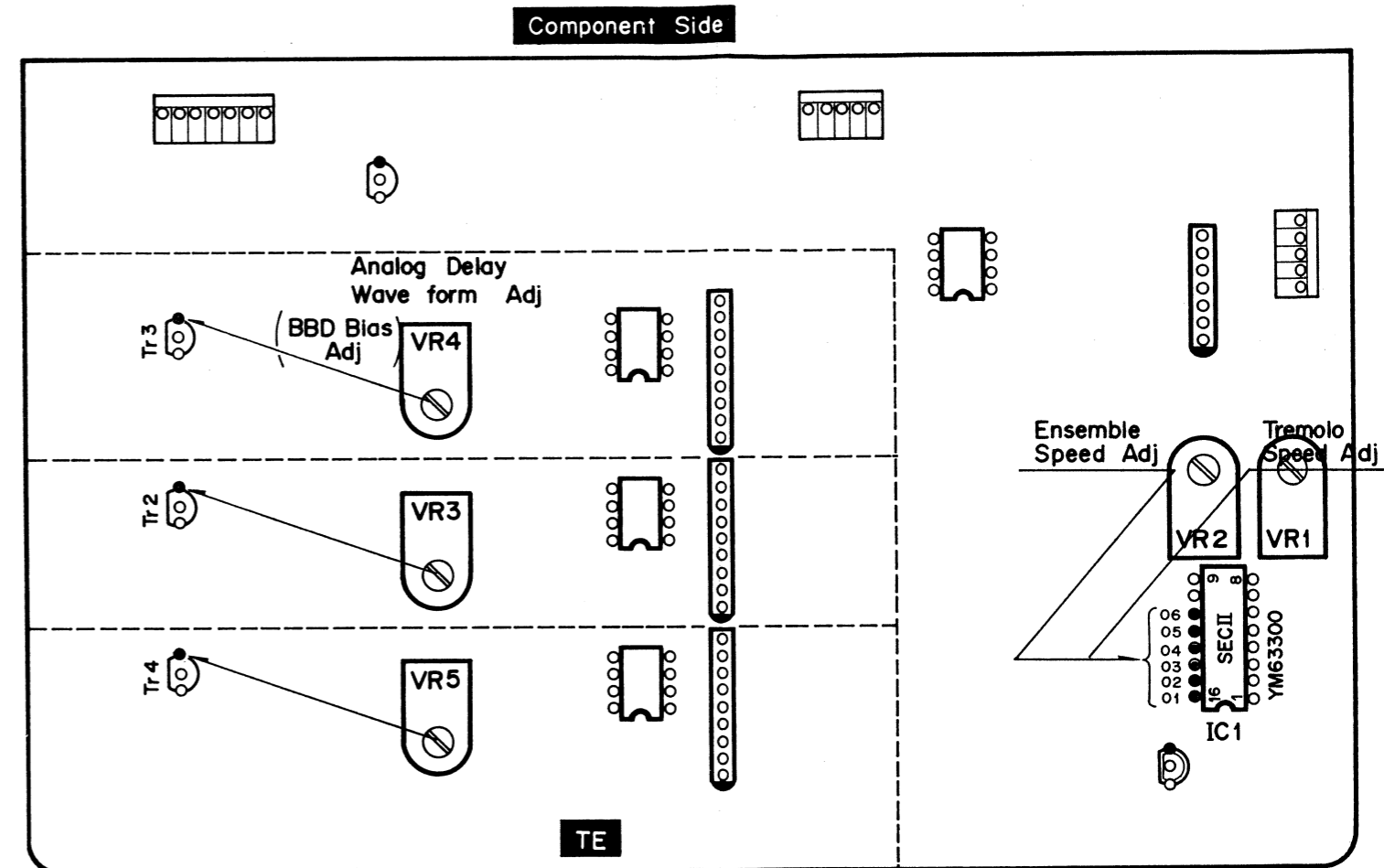
Condition		PSC terminal levels			Sound volume envelope of sound source	Mode
		P9	P8	P3		
DECAY	OFF	H	H	H	Key-on off	Direct Keying mode
SUSTAIN	ON	L	H	L	Varies with SUSTAIN Lever	Normal mode
DECAY	ON	H	L	L		PERCUSSIVE mode
DECAY	SUSTAIN ON	L	L	L		PERCUSSIVE mode

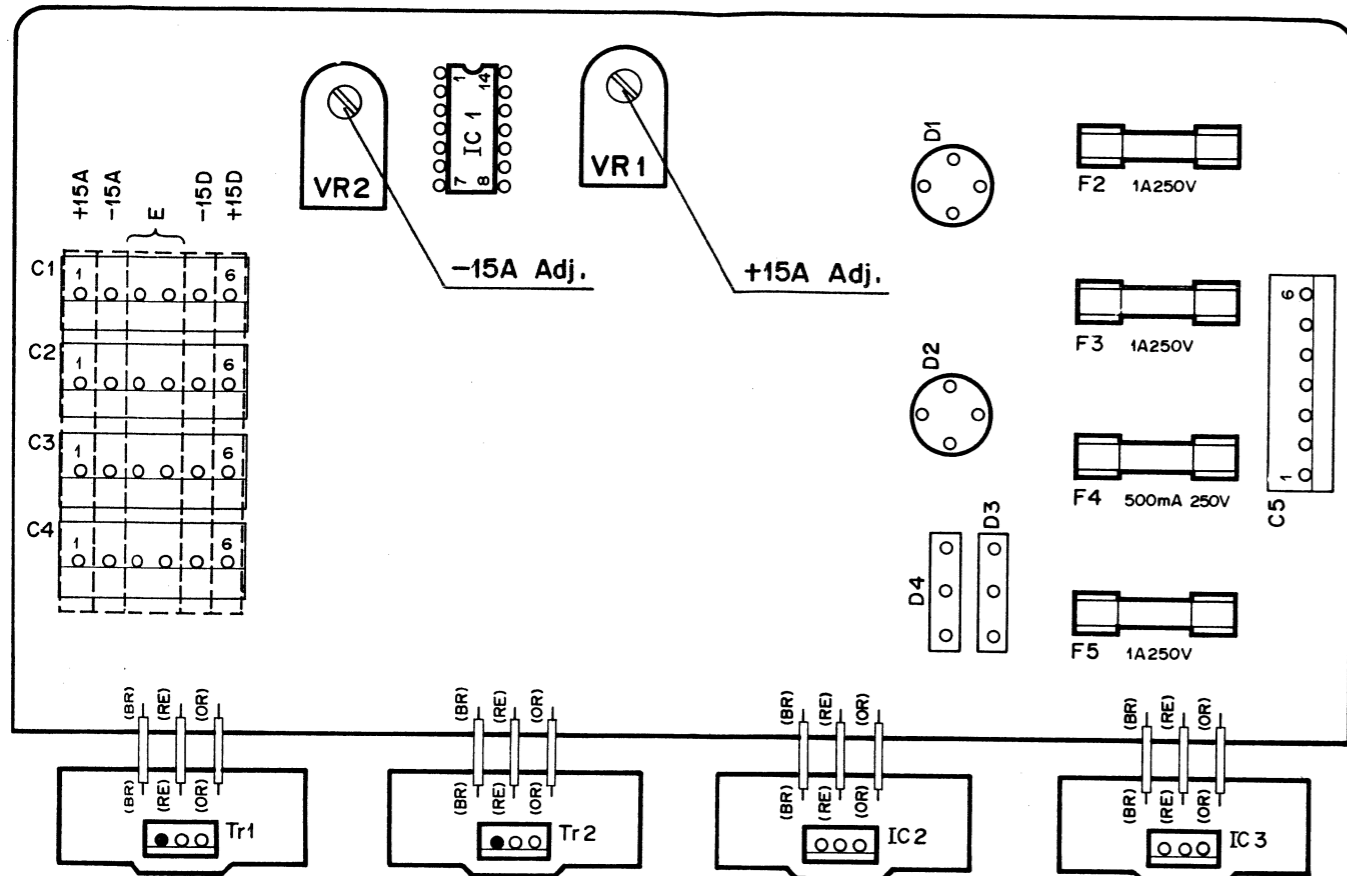
● SUSTAIN TIME Data.

SUSTAIN Lever (PSW8)	Sustain data			Sustain time(msec)
	D ₅ (S ₁)	D ₆ (S ₂)	D ₇ (S ₃)	
LONG	8	L	L	1600
	7	H	L	1100
	6	H	H	750
	5	L	H	450
	4	L	H	250
	3	H	H	150
	2	H	L	90
SHORT	1	L	L	30

TE Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
T/E Clock Generator Circuit Ensemble Speed adjustment	Keyboard Endblock TREMOLO/ENSEMBLE ENSEMBLE ... ON	O1 (IC1 - pin 16) O2 (IC1 - pin 15) O3 (IC1 - pin 14) O4 (IC1 - pin 13) O5 (IC1 - pin 12) O6 (IC1 - pin 11)	The waveforms shown in Fig 1 and 2 should appear at O1, O2, O3, and O4, O5, O6 (IC1) terminal.  t=1.6 Sec (0.64 Hz) 	VR2	
Tremolo Speed adjustment	ENSEMBLE ... OFF TREMOLO ... ON	O1 (IC1 - pin 16) O2 (IC1 - pin 15) O3 (IC1 - pin 14) O4 (IC1 - pin 13) O5 (IC1 - pin 12) O6 (IC1 - pin 11)	The waveforms shown in Fig 3 should appear at O1. At this time adjust VR1 so that the frequency is 6.4Hz ± 0.1Hz.  t=156 mSec (6.4 Hz) The waveforms shown in Fig 4 should appear at O2, O3.  Check for a DC voltage of -2.5V.	VR1	
BBD Circuit	Connect pin 9 (TEST-Terminal) of IC1 to -15V. Keyboard Endblock TREMOLO/ENSEMBLE TREMOLO ... ON OUTPUT block ORGAN 0 ORGAN block 8 10	Tr2-E Tr3-E Tr4-E	Adjust VR3, VR4, and VR5 for the best achievable sine wave.	VR3 VR4 VR5	





DC Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Power supply voltage adjustment		(C1-1) (C2-1) (C3-1) (C4-1)	+15V ± 0.015V	VR1 (B-50K)	Adjustment
			(C1-2) (C2-2) (C3-2) (C4-2)		
1) +15D		(C1-6) (C2-6) (C3-6) (C4-4)	+15V ± 0.7V		Check
			2) -15D	(C1-5) (C2-5) (C3-5) (C4-5)	-15V ± 0.7V

PC Circuit Board

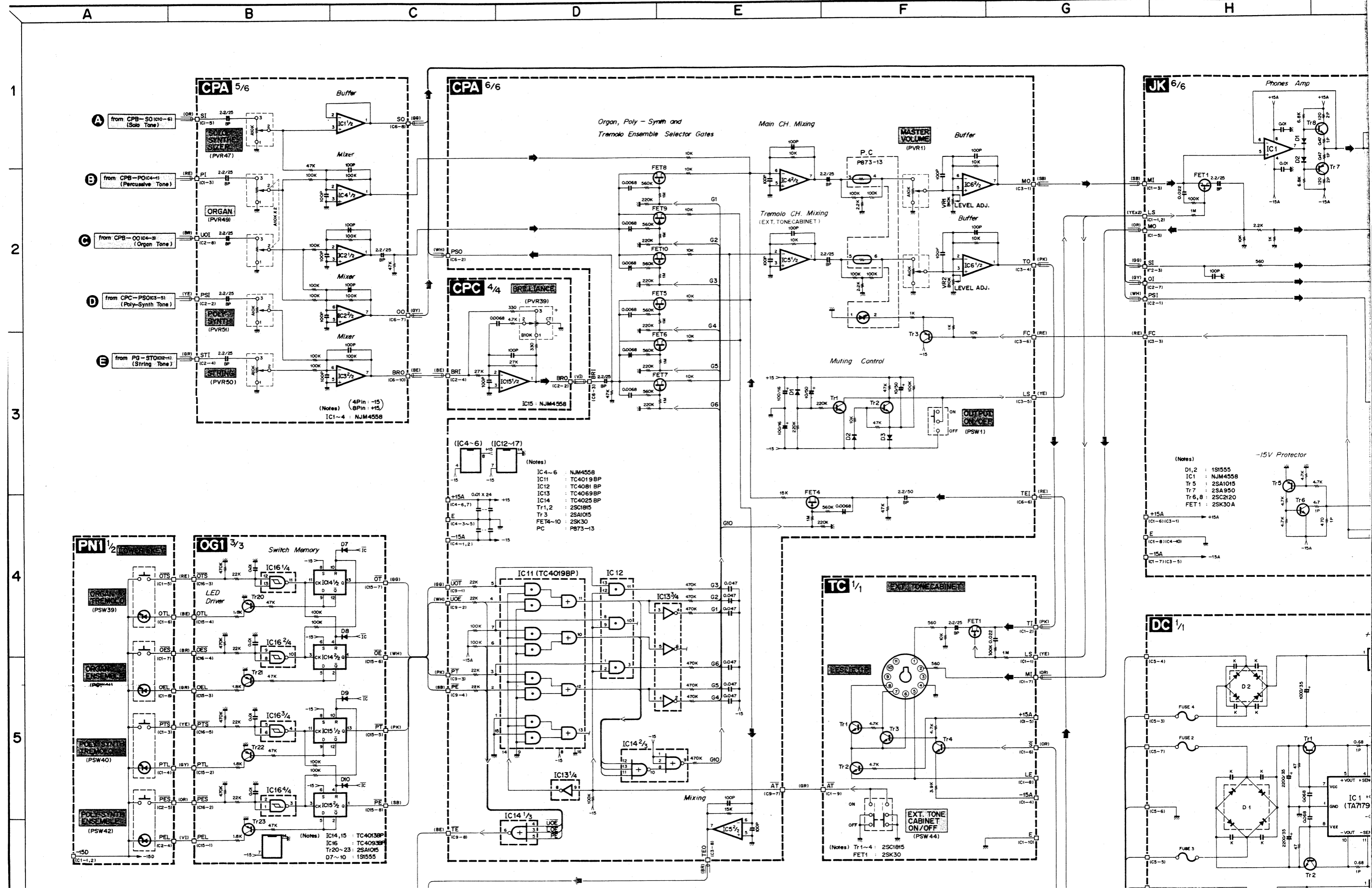
Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
TOUCH CONTROL	No Keys depressed	+S (C-3)	4.2V ± 0.2V		Check
		-S (C-1)	4.0V		Check
	Apply pressure while depressing a Key. (C ₃ ~ C ₆)	-S (C-1)	3.0V		Check

JK Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
+15V Protector circuit		EBR (C3-2)	+15V \pm 0.2V		Check
-15V Protector circuit		SFC (C3-4)	-15V \pm 2.0V		Check
-15V Protector circuit		FC (C3-3)	-15V \pm 0.2V		Check
LINE OUT Control Circuit	OUTPUT block ON/OFF ON	MO output signal	MI (C1-3) MO (C1-5)	Signal level should be equal to the signal input at terminal MI.	Check
		MIXED OUTPUT	MIXED OUTPUT	Check for an output signal from the MIXED OUTPUT	Check
PHONES Amp	ON/OFF OFF	PHONES OUTPUT	PHONES OUTPUT	Check for an output signal from a set of stereo headphones.	Check
		MO (C1-5) MIXED OUTPUT	MIXED OUTPUT	Check for no output	Check
		PHONES OUTPUT	PHONES OUTPUT	Check for an output signal from a set of stereo headphones.	Check

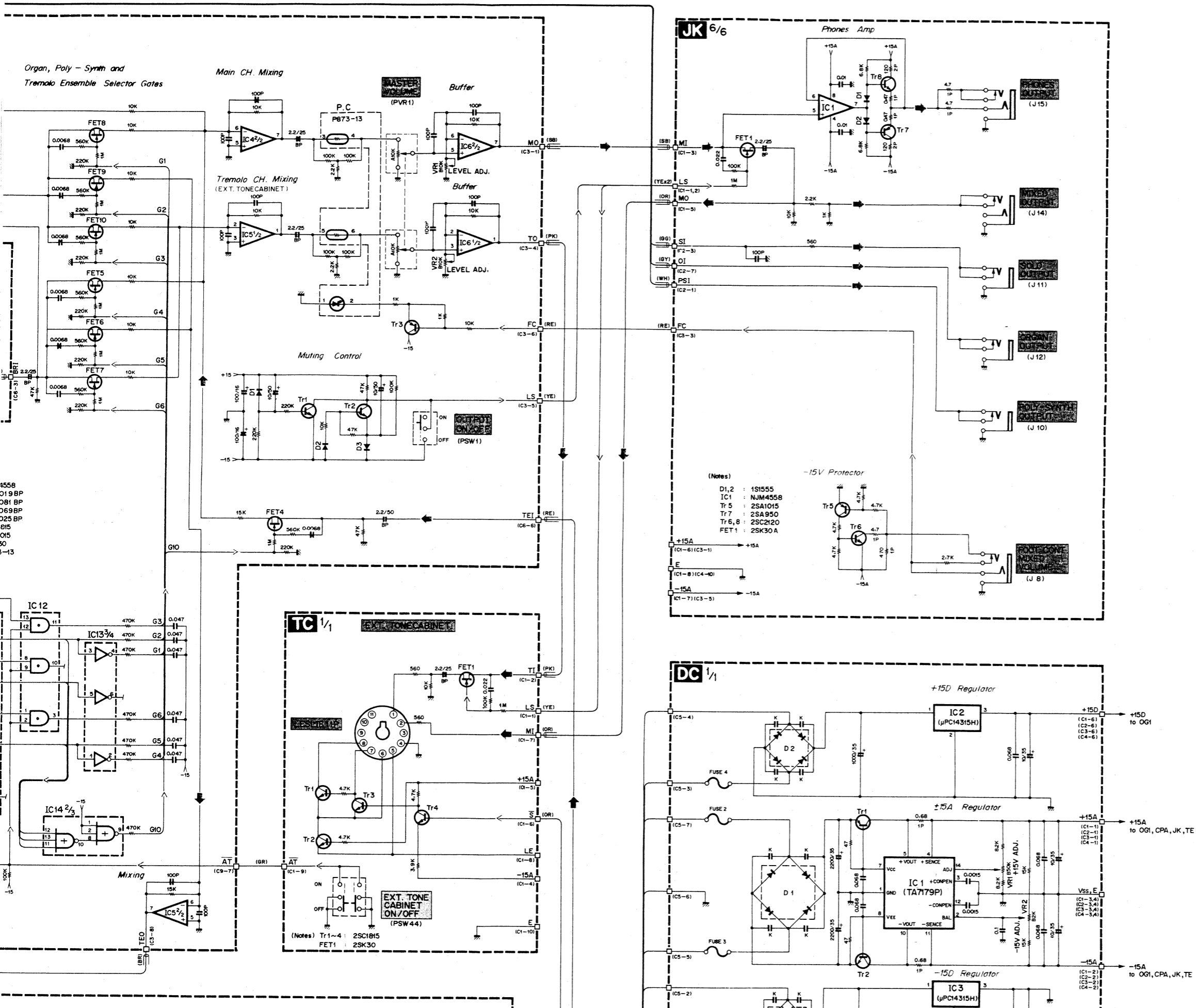
SK30 OVERALL CIRCUIT

SK30 OVERALL CIRCUIT DIAGRAM 2/2



SK30 OVERALL CIRCUIT DIAGRAM ²/₂ 006885

E F G H I J K L



C1

Pin No.	Pin Name	Wire Color	Destination
0	NC	-	-
1	CL	BR	PLO-CL (C1-8)
2	C#	SB	PLO-C# (C1-9)
3	D	GG	PLO-D (C1-10)
4	D#	GG	PLO-D# (C1-11)
5	E	WH	PLO-E (C1-12)
6	F	GY	PLO-F (C1-13)
7	F#	VI	PLO-F# (C1-14)

C4

Pin No.	Pin Name	Wire Color	Dest
1	-	-	-
2	-	-	-
3	L	OR	CPA-SL
4	U	YE	CPA-SU
5	P	VI	CPA-SB

C2

Pin No.	Pin Name	Wire Color	Destination
1	G	BE	PLO-G (C1-16)
2	G#	GR	PLO-G# (C1-18)
3	A	YE	PLO-A (C1-17)
4	A#	OR	PLO-A# (C1-18)
5	B	RE	PLO-B (C1-19)
6	C	BR	PLO-C (C1-20)
7	P1	RE	PLO-P1 (C1-3)

C5

Pin No.	Pin Name	Wire Color	Dest
1	Vss	S YE S	-
2	KC4	S YE	OG1-KC
3	Vss	S OR S	-
4	KC3	S OR	OG1-KC
5	Vss	S RE S	-
6	KC2	S RE	OG1-KC
7	Vss	S BR S	-
8	KC1	S BR	OG1-KC

C3

Pin No.	Pin Name	Wire Color	Destination
1	-	-	-
2	SP	GR	CPA-SP (C5-7)
3	SP	GR	CPB-SP (C5-3)
4	OTR	VI	CPB-OTR (C6-1)
5	UL	YE	OG1-UL (C9-1)
6	VTR	BE	CPA-VTR (C8-3)
7	PTR	GY	CPC-PTR (C6-4)

C6

Pin No.	Pin Name	Wire Color	Dest
1	Vss	S BE S	-
2	φM	S BE	OG1-φM
3	IC	GG	OG1-IC
4	V2	RE	CPA-V2
5	V1	BR	CPA-V1

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	BL	DC-Vss (C1-4)
2	Vss	BL	PG-Vss (C7-6)
3	-15A	BL	KCT1-Vss (C2-8)
4	-	-	-
5	-15D	YE	PG-15D (C7-1)
6	-15D	YE	KC-15D (C4-2)
7	-15D	YE	DC-15D (C1-5)

C8

Pin No.	Pin Name	Wire Color	Dest
1	+15A	BR	DC+1
2	+15A	BR	PG+1
3	-15A	YE	DC-
4	-15A	YE	PG-
5	E	-	-
6	E	BL	PG-E
7	E	BL	DC-E

C2

Pin No.	Pin Name	Wire Color	Destination
1	+15D	BR	DC+15D (C1-6)
2	+15D	BR	KC+15D (C4-7)
3	+15D	BR	PG+15D (C7-3)
4	-	-	-
5	VM	OR	CPA-VM (C8-4)

C9

Pin No.	Pin Name	Wire Color	Dest
1	UL	YE	PG-UL
2	E	S GR S	-
3	KC4	S YE	KC-KC
4	Vss	S YE S	-
5	KC3	S OR	KC-KC
6	Vss	S OR S	-
7	KC2	S RE	KC-KC
8	Vss	S RE S	-
9	KC1	S BR	KC-KC
10	Vss	S BR S	-

C5

Pin No.	Pin Name	Wire Color	Destination
1	Si	S VI	CPB-OSO (C1-4)
2	Vss	S VI S	-
3	KC1	S BR	PG-KC1 (C5-8)
4	Vss	S BR S	-
5	KC2	S RE	PG-KC2 (C5-6)
6	Vss	S RE S	-
7	KC3	S OR	PG-KC3 (C5-4)
8	Vss	S OR S	-
9	KC4	S YE	PG-KC4 (C5-2)
10	Vss	S YE S	-

C10

Pin No.	Pin Name	Wire Color	Dest
1	2/23'	S GR	CPB-2
2	E	S GR S	-
3	4'	S BE	CPB-4
4	E	S BE S	-
5	5 1/3'	S VI	CPB-5
6	E	S VI S	-
7	8'	S GY	CPB-8
8	E	S GY S	-
9	16'	S WH	CPB-1
10	E	S WH S	-

J K L M N O P Q

PG

PLO

Table C1 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include NC, CL, C#, D, D#, E, F, F#.

Table C4 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include blank, L, U, P.

Table C7 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include -15D, +15D, Vss, Vss.

Table C10 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include E, +15A, -15A, -15A.

Table C13 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include 4N, 8N, 16N, 8N.

Table C1 for PLO component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include blank, P1, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank, blank.

Table C2 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include G, G#, A, A#, B, C, P1.

Table C5 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, KC4, Vss, KC3, Vss, KC2, Vss, KC1.

Table C8 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, SY, Vss, SY, SY, SP2, SP1, MB.

Table C11 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include KV1, SYO, SFC, VIB, 64', 32', 16', 8', 5 1/3', 4'.

Table C3 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include blank, SP, SP, OTR, UL, VTR, PTR.

Table C6 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, phi M, IC, V2, V1.

Table C9 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include VS, STR, KVO, PV1, PV2, PS, PC.

Table C12 for PG component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include STO, E, S2, S3, S1.

OG1

KC

Table C1 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, Vss, Vss, blank, -15D, -15D, -15D.

Table C8 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include +15A, +15A, -15A, -15A, E, E, E.

Table C11 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include 1', E, 1 1/3', E, 1 3/5', E, 2', E.

Table C14 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include SP1, SP1, SP2, SP2.

Table C1 for KC component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, B3, Vss, KO, Vss, N4, Vss, N2, Vss, B1.

Table C4 for KC component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include IC, -15D, -15D, Vss, Vss, Vss, +15D.

Table C2 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include +15D, +15D, +15D, blank, VM.

Table C9 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include UL, Vss, KC4, Vss, KC3, Vss, KC2, Vss, KC1, Vss.

Table C12 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include phi M, Vss, phi M, Vss, phi M, Vss, IC, IC, IC, IC.

Table C15 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include PEL, PTL, OEL, OTL, PT, OE, OT, PE.

Table C2 for KC component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, SY, Vss, N3, Vss, B2.

Table C5 for KC component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, KC2, Vss, KC1, Vss, KC3, Vss, KC4, Vss, phi M.

Table C5 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include SI, Vss, KC1, Vss, KC2, Vss, KC3, Vss, KC4, Vss.

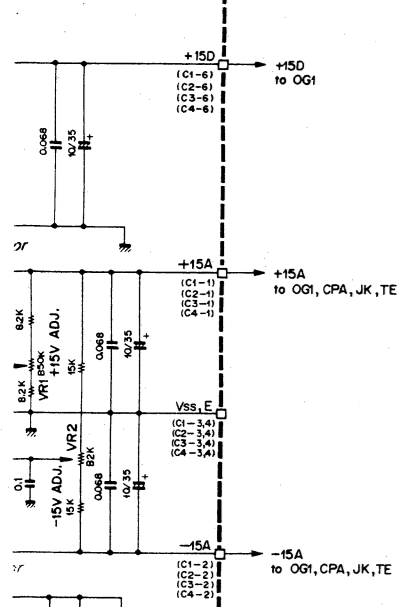
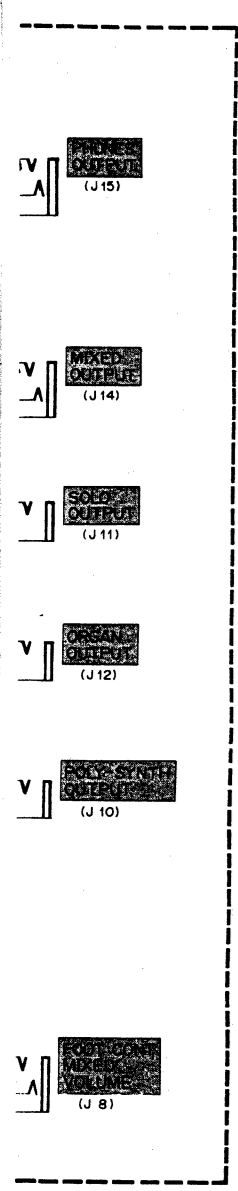
Table C10 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include 2 2/3', E, 4', E, 5 1/3', Vss, 8', Vss, 16', Vss, E.

Table C13 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include TR, TR, TR, TS, E, +15A, +S, E, -S, E.

Table C16 for OG1 component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include E, PES, OTS, OES, PTS.

Table C3 for KC component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, K2, Vss, K1, Vss, N1, Vss, CK.

Table C5 for KC component with columns: Pin No., Pin Name, Wire Color, Destination. Rows include Vss, KC2, Vss, KC1, Vss, N1, Vss, CK.



KCT1

KCT2

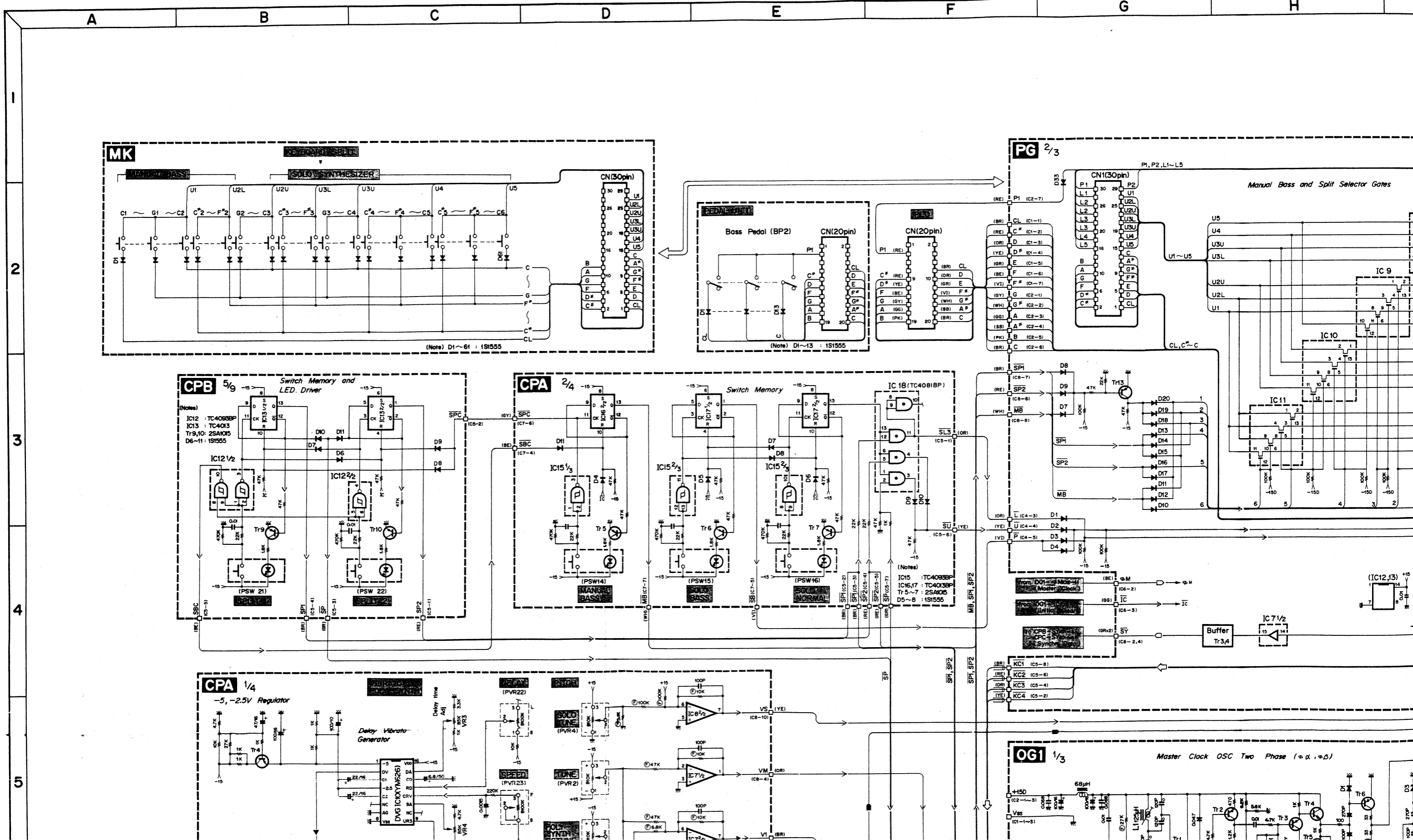
KCO

TE

PN1

1 2 3 4 5 6

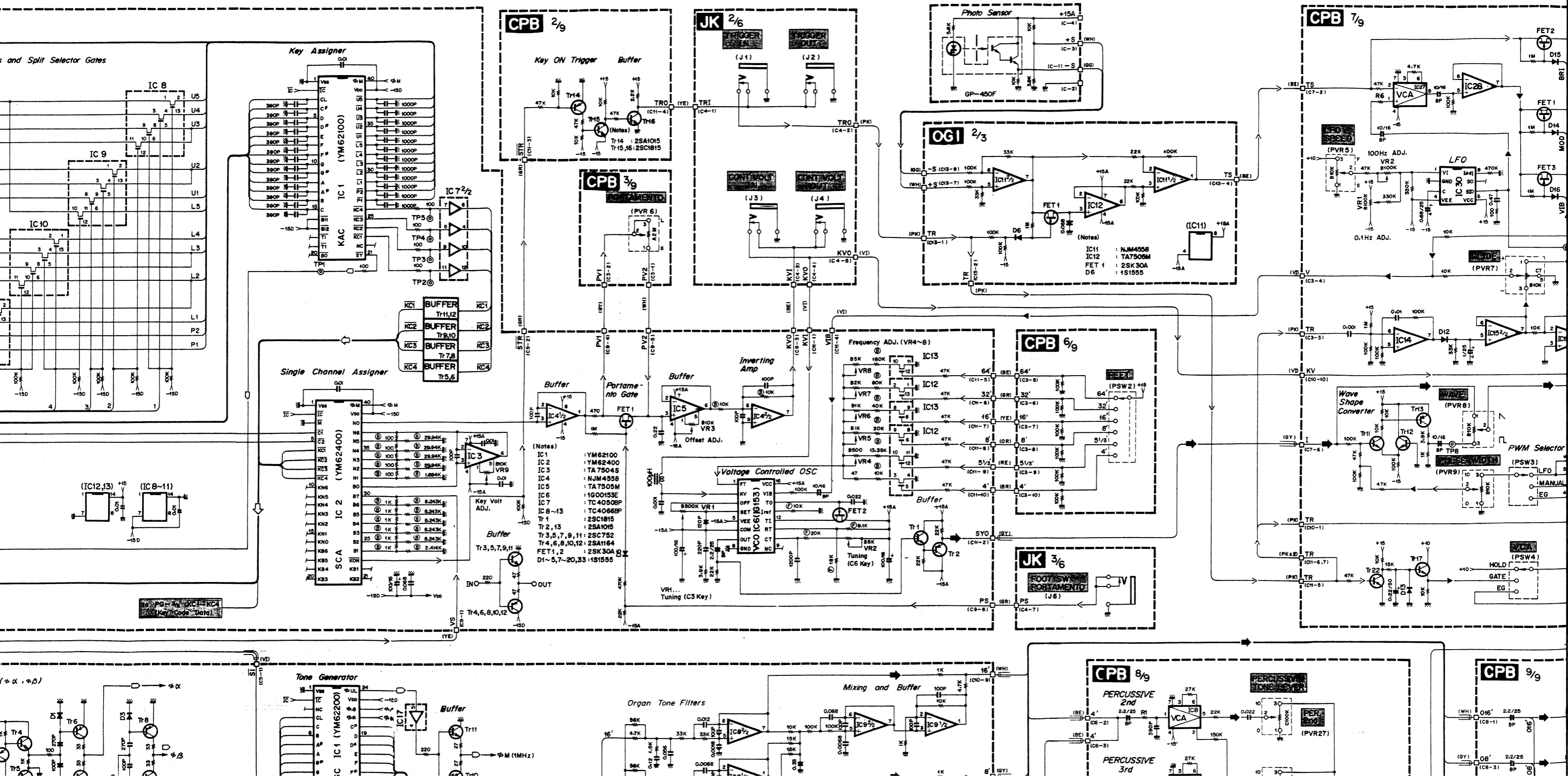
SK30 OVERALL CIRCUIT DIAGRAM 1/2



SK30 OVERALL CIRCUIT DIAGRAM 1/2

006885

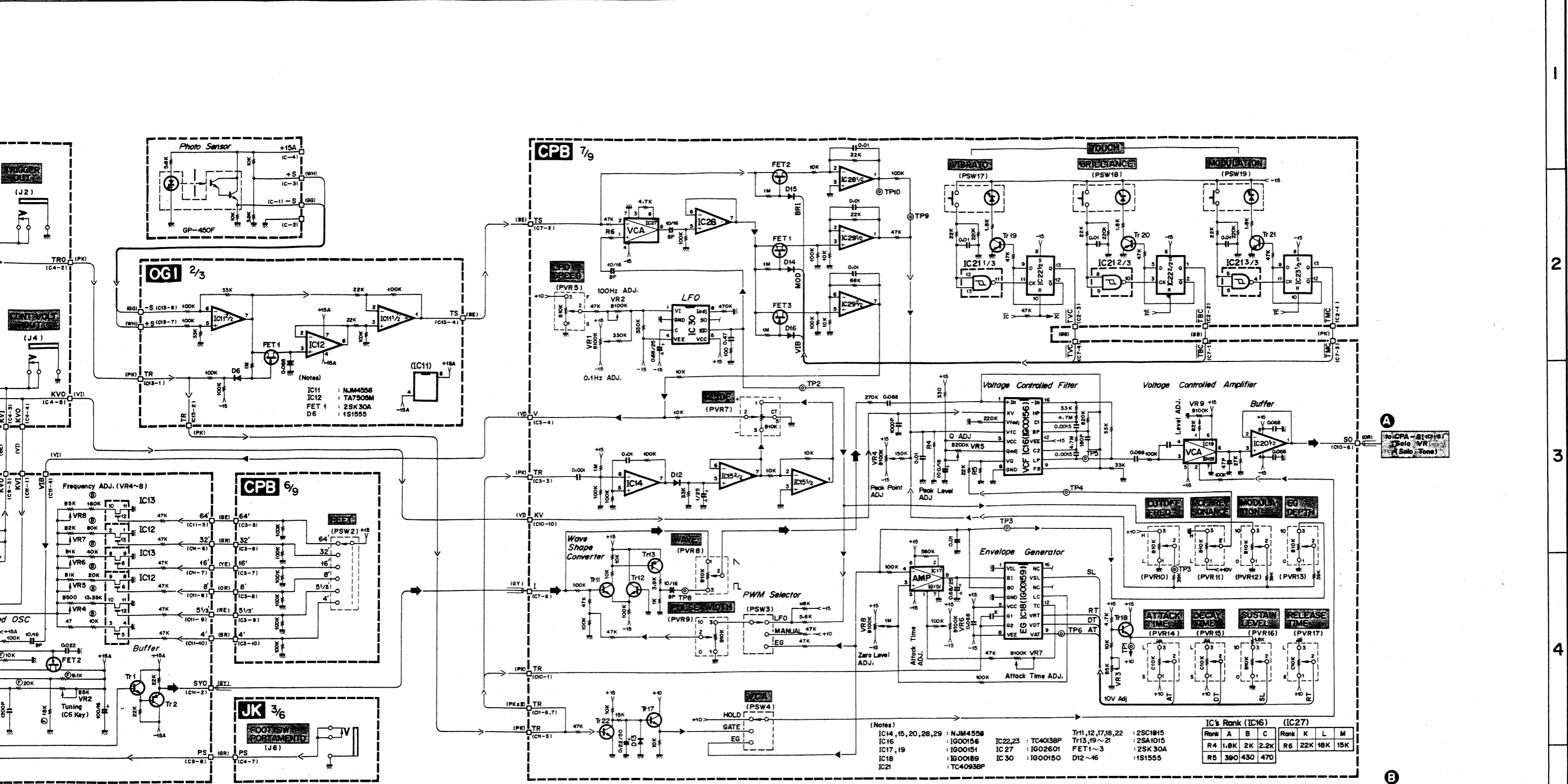
J K L M N O P



006885

SK30 OVERALL CIRCUIT DIAGRAM 1/2

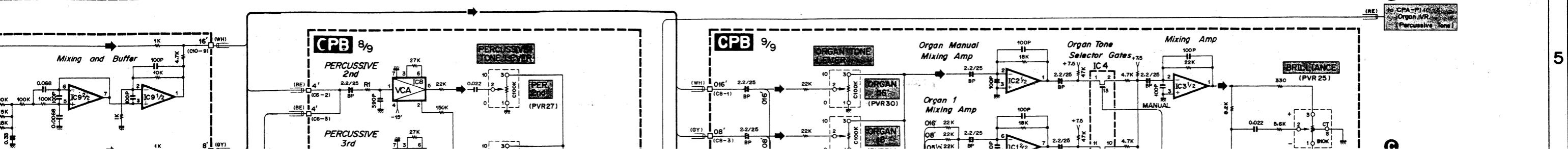
M N O P Q R S T



(Notes)

IC14, 15, 20, 28, 29	: NJM4558	IC22, 23	: TC4013BP	Tr11, 12, 17, 18, 22	: 2SC1815
IC16	: 1G00156	IC27	: 1G02601	Tr13, 19 ~ 21	: 2SA1015
IC17, 19	: 1G00151	FET1-3			: 2SK30A
IC18	: 1G00189	D12-16			: 1S1555
IC21	: TC4093BP				

IC's Rank (IC16)			IC's Rank (IC27)		
Rank	A	B	Rank	K	L
R4	1.8K	2K	R6	22K	18K
R5	390	430		470	



1
2
3
4
5

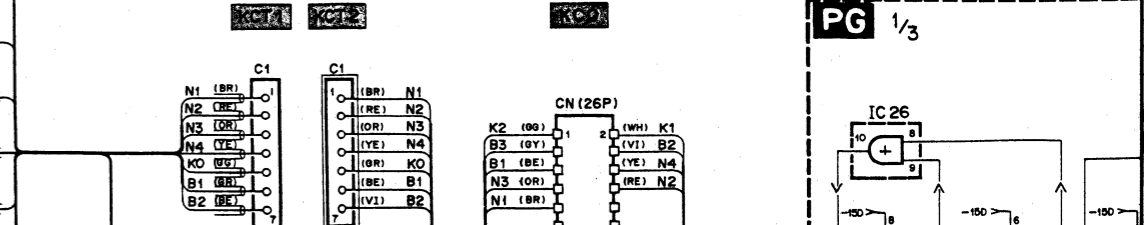
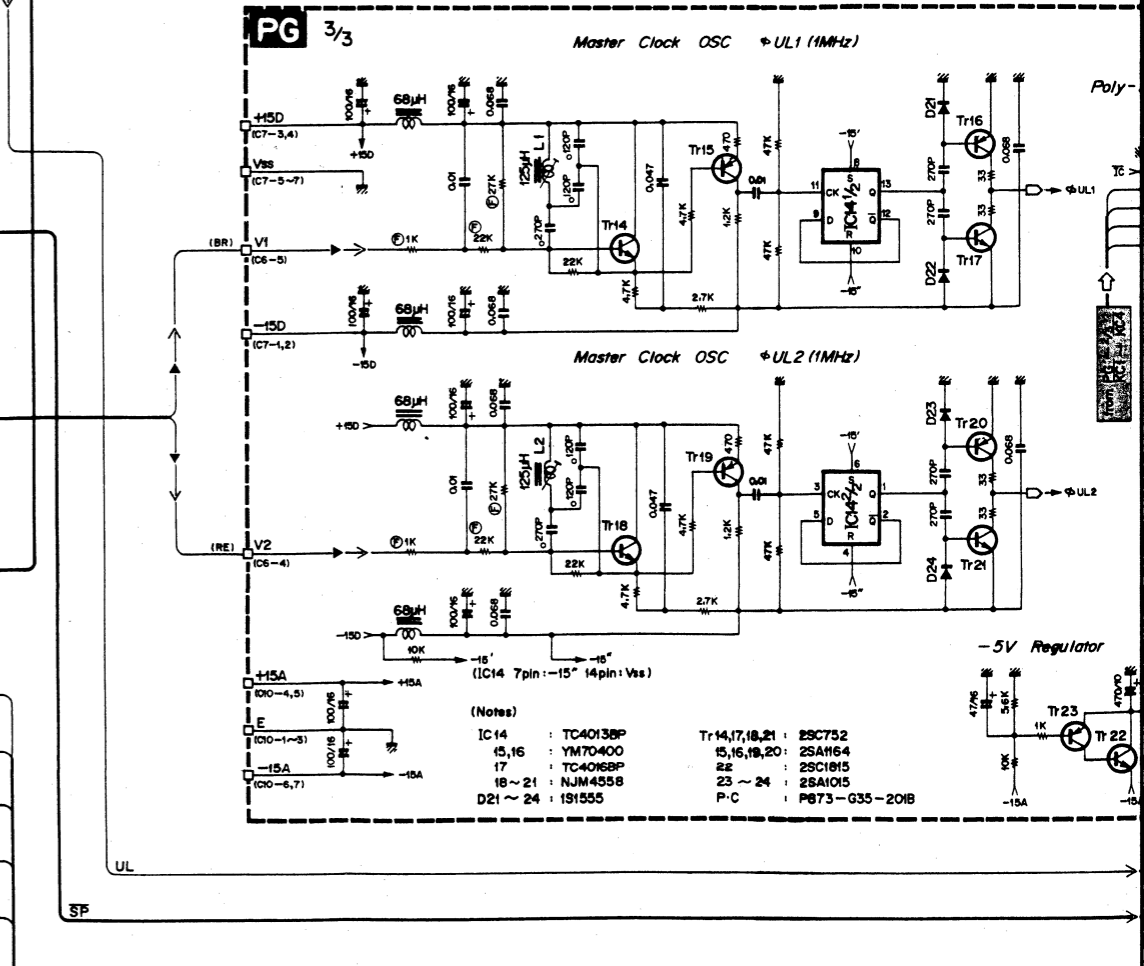
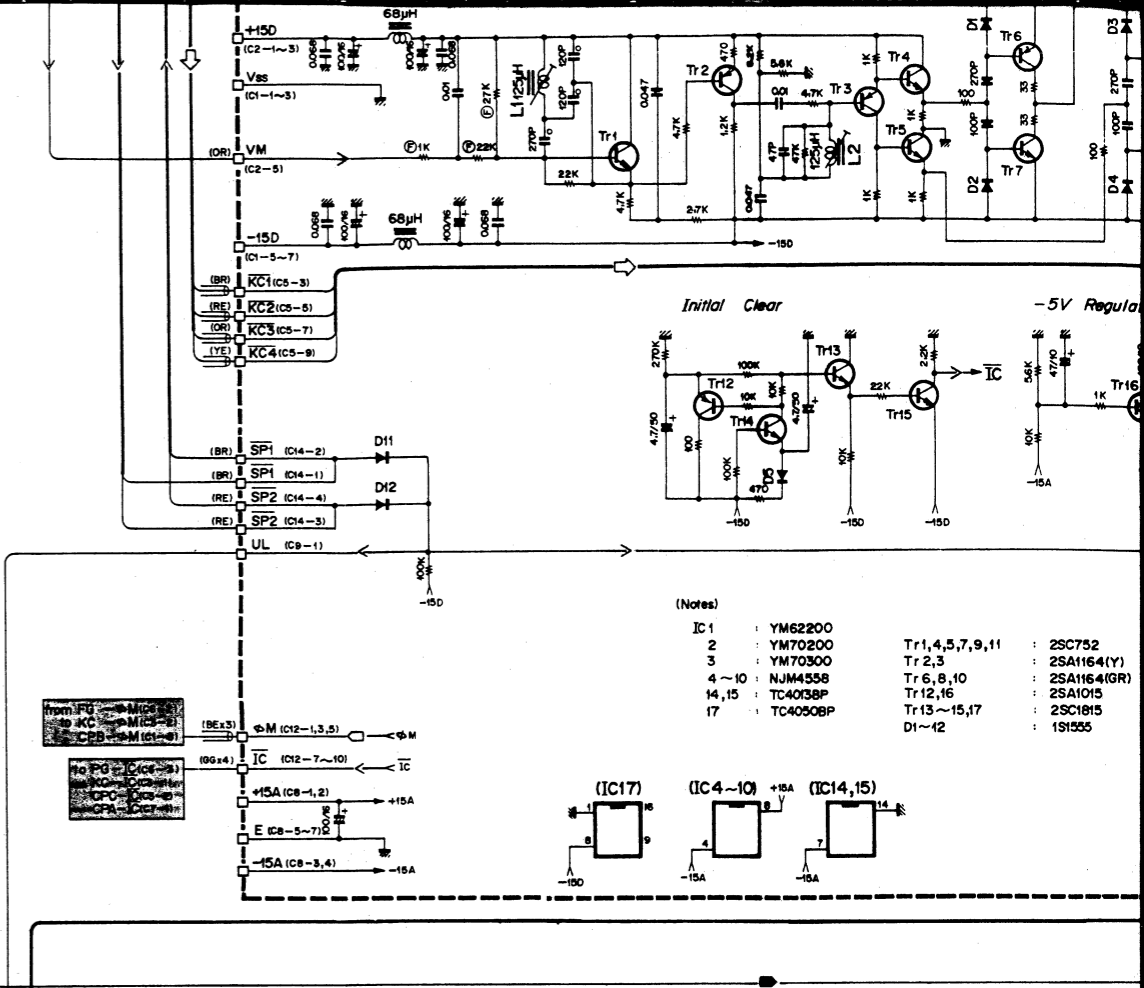
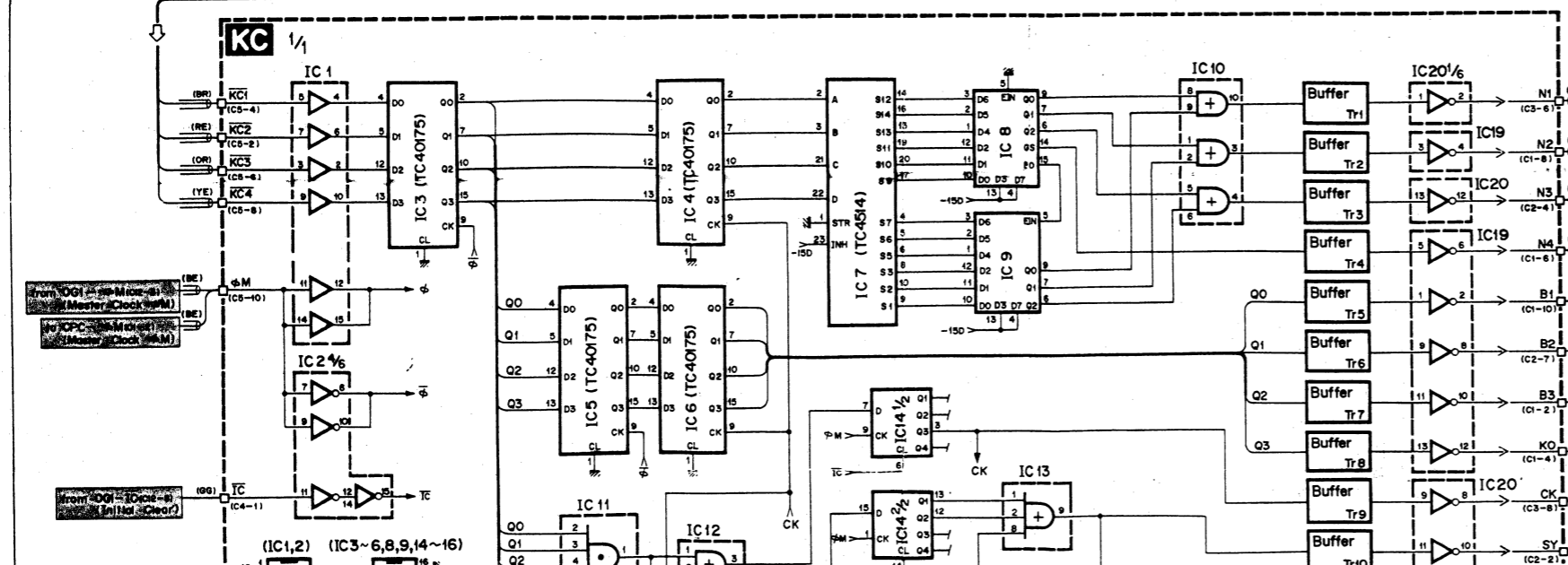
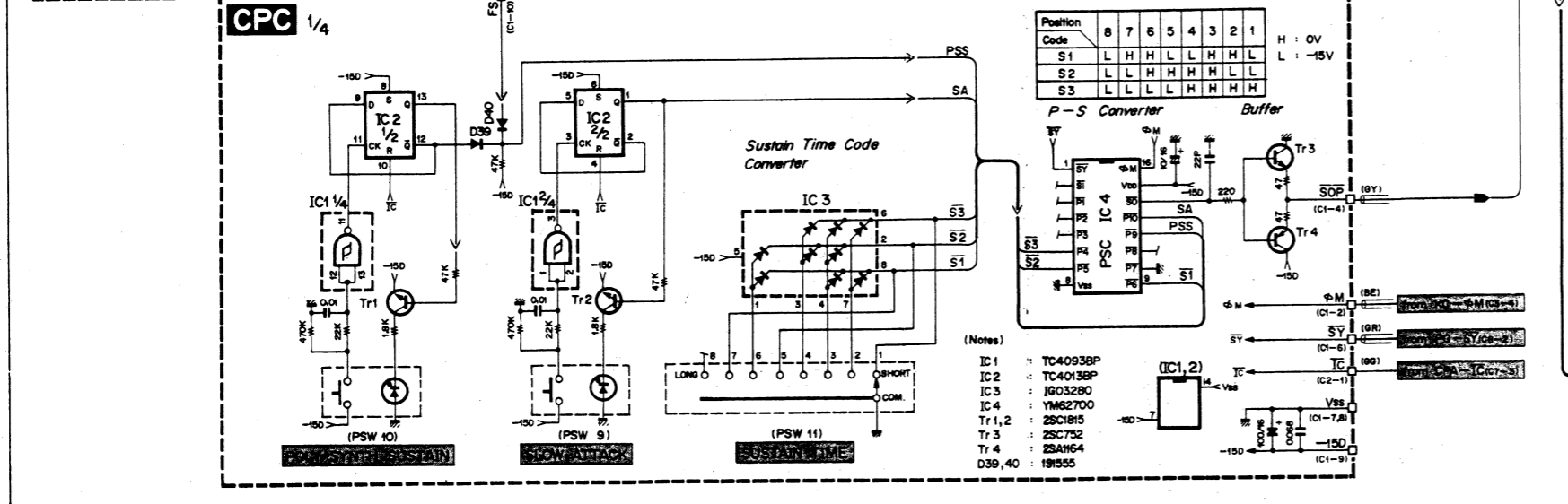
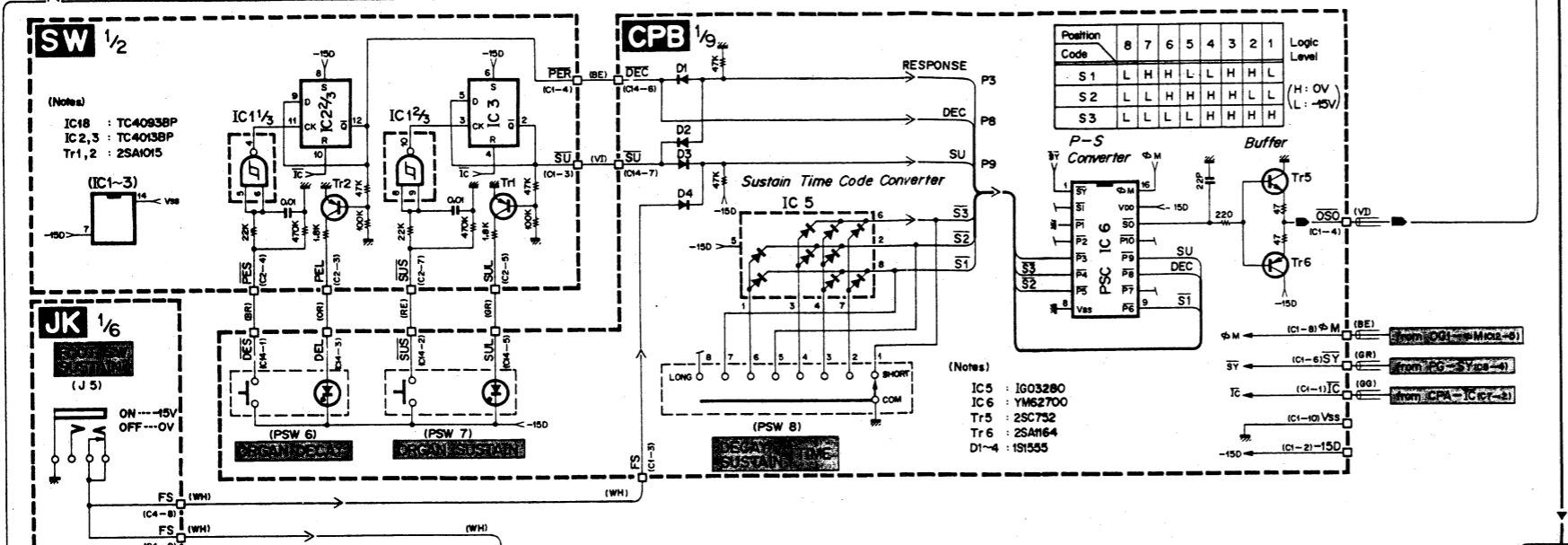
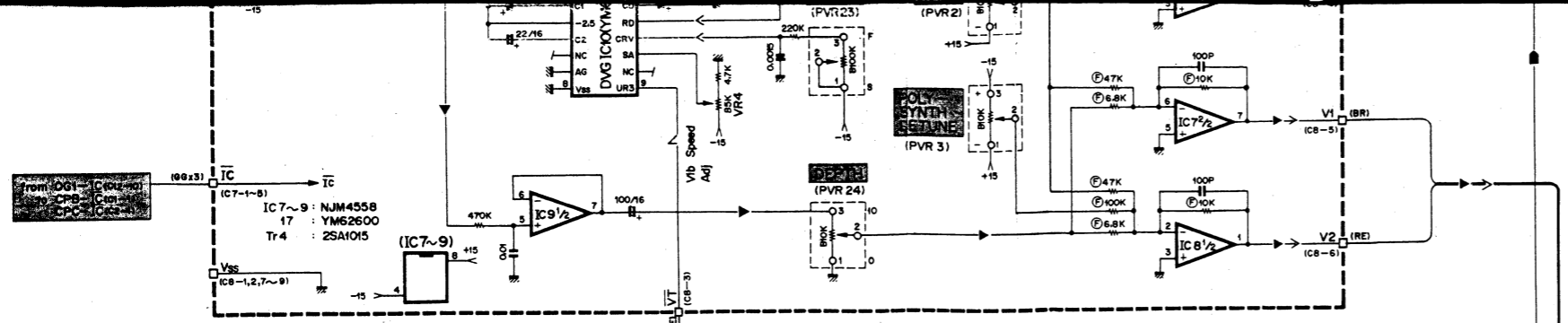
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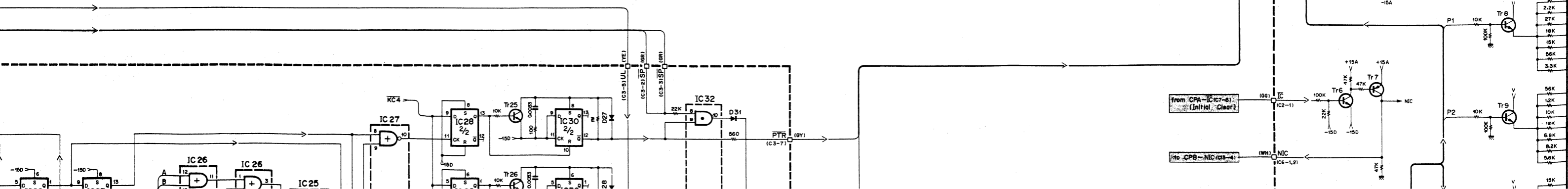
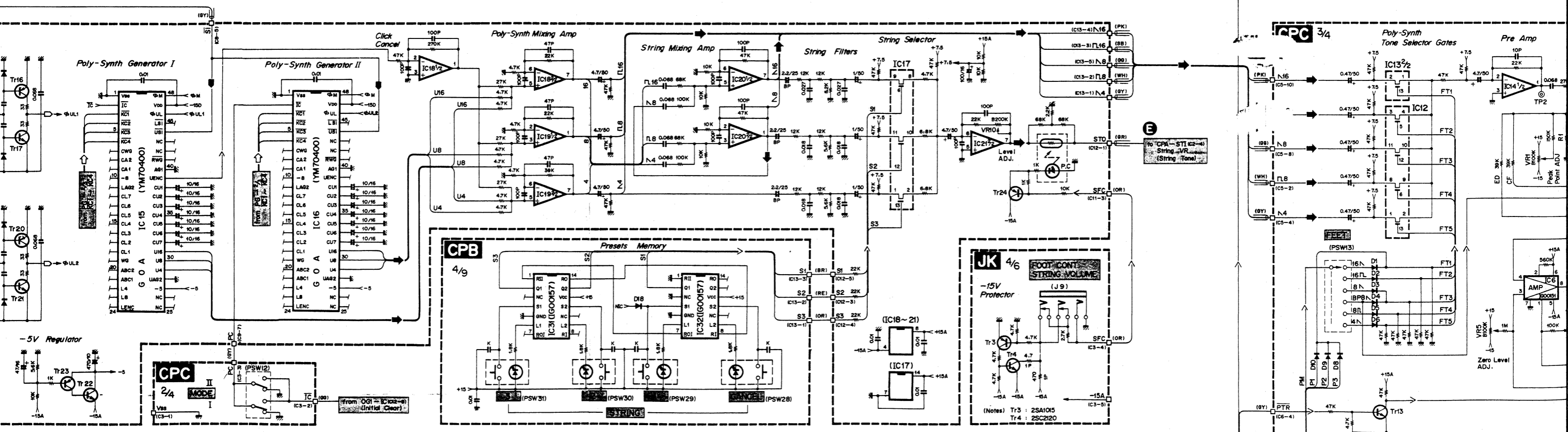
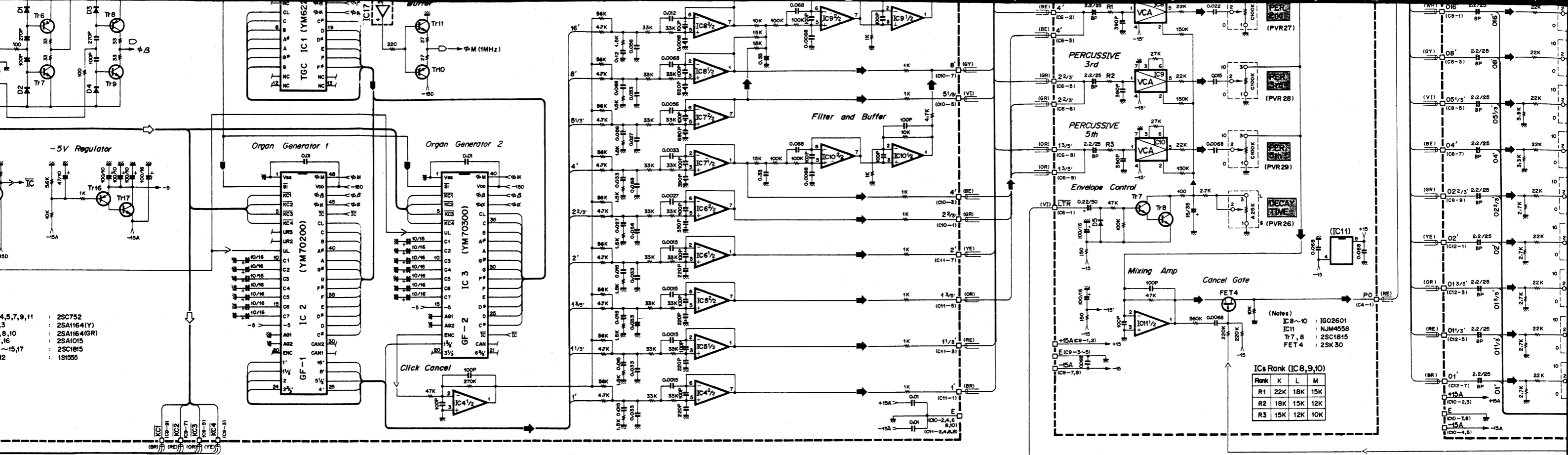
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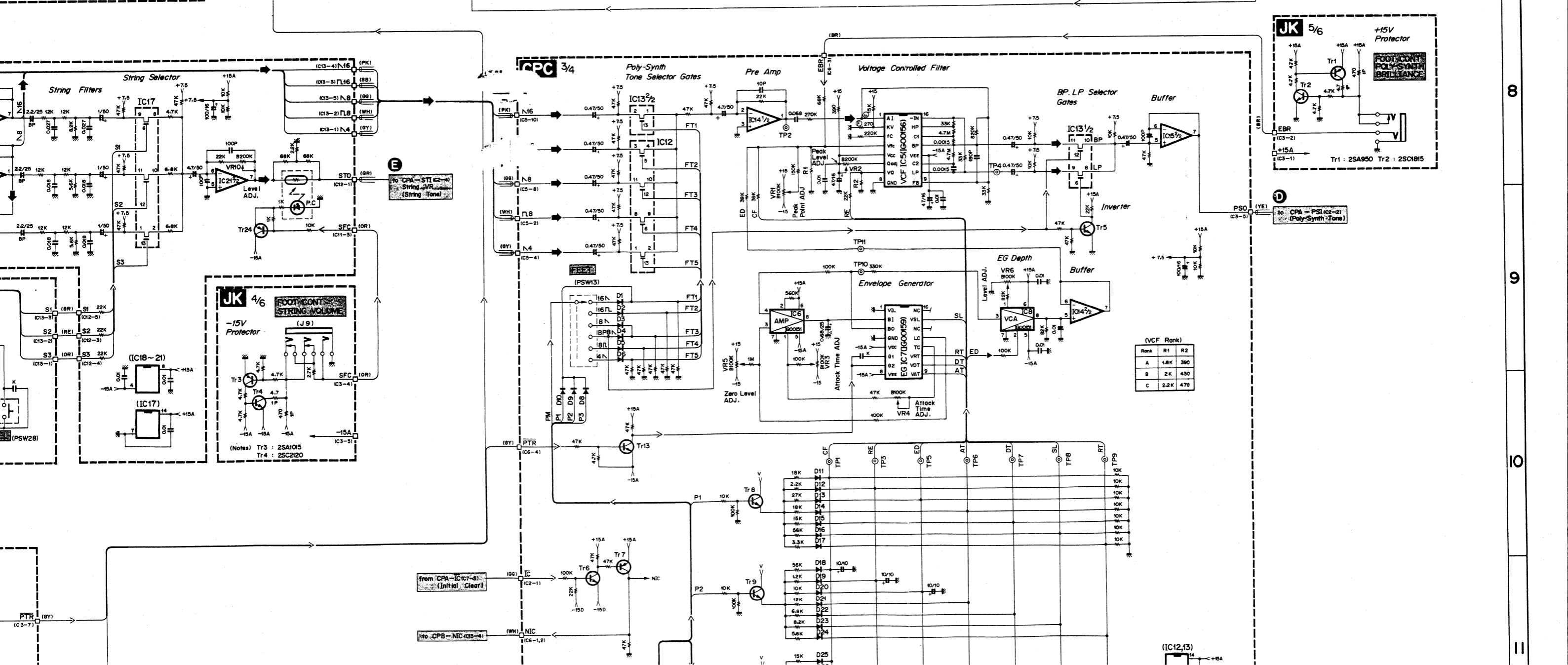
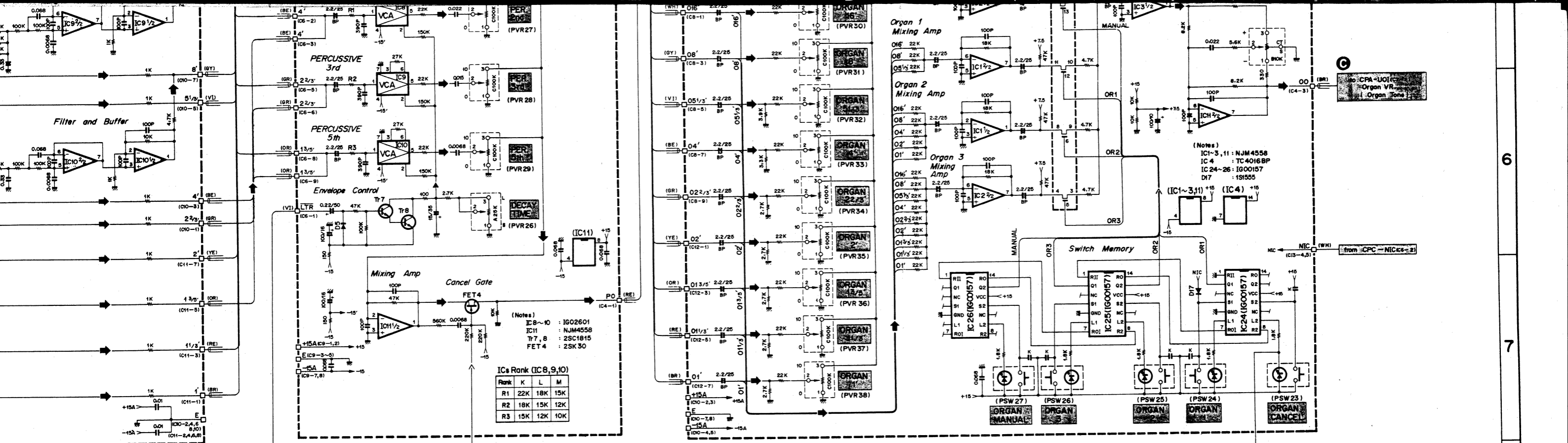
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9

10







9

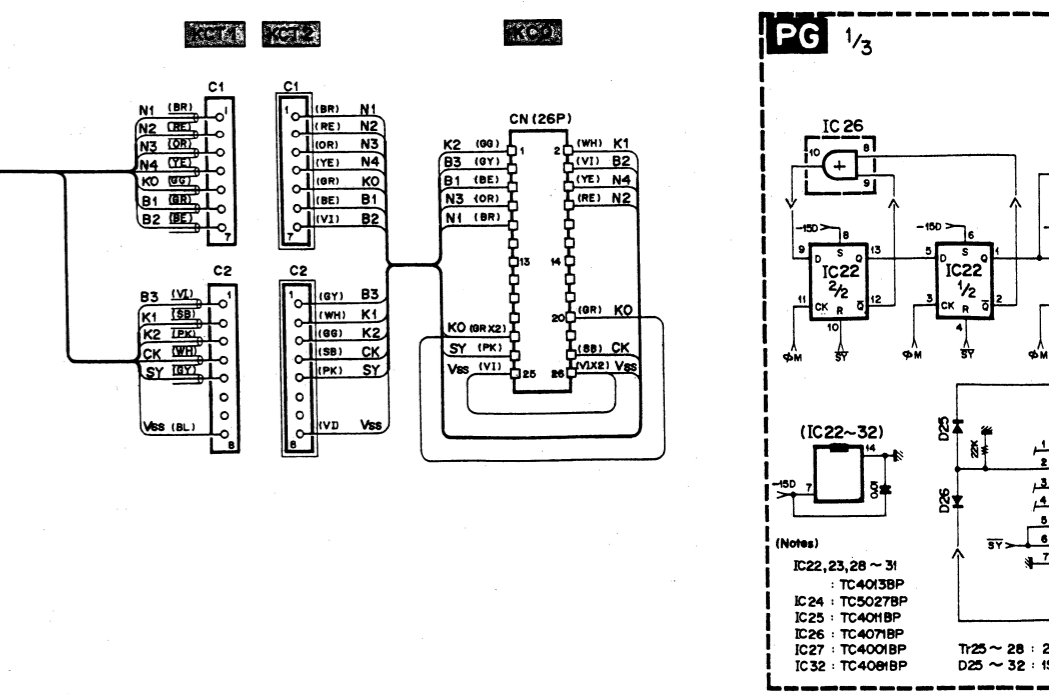
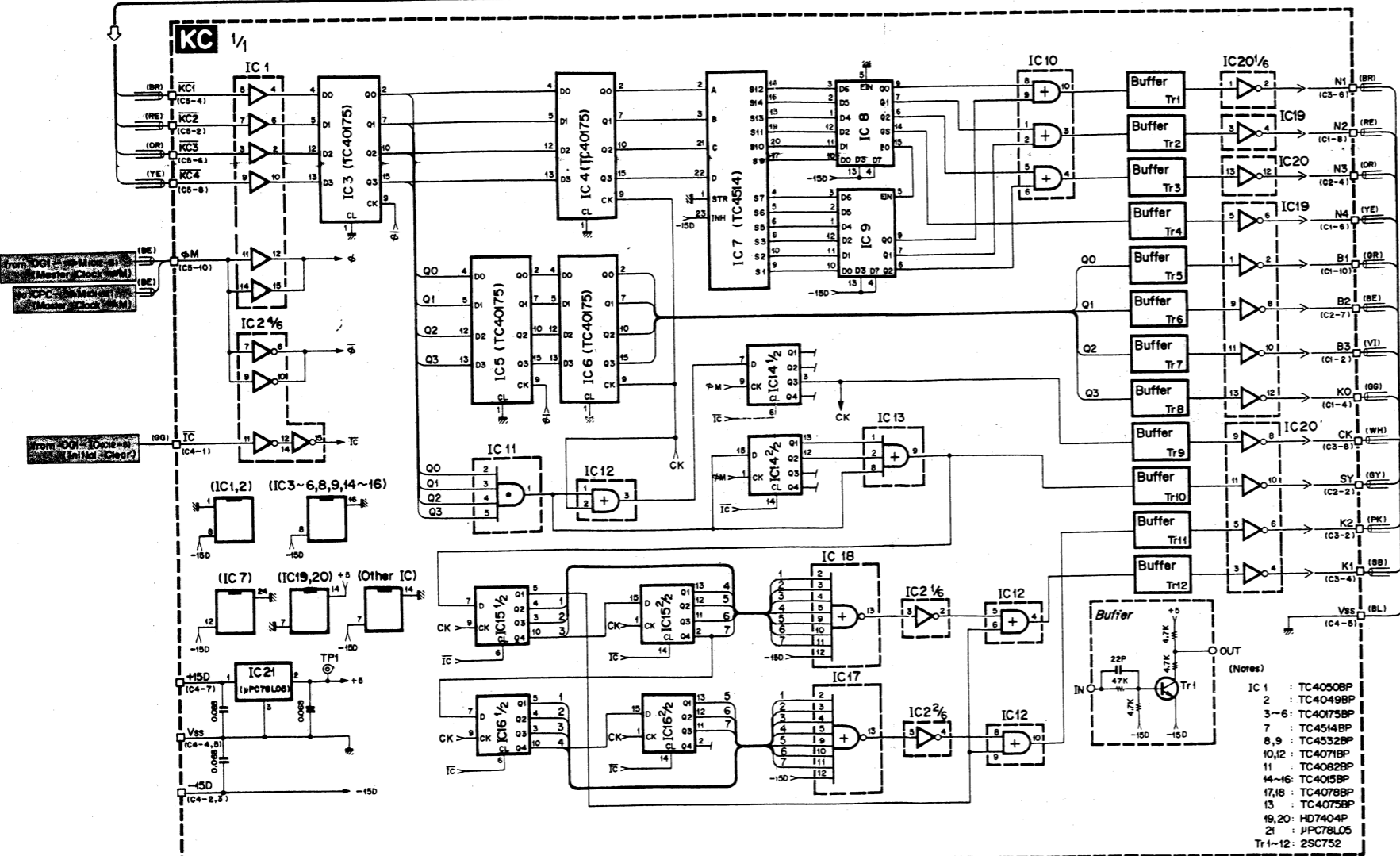
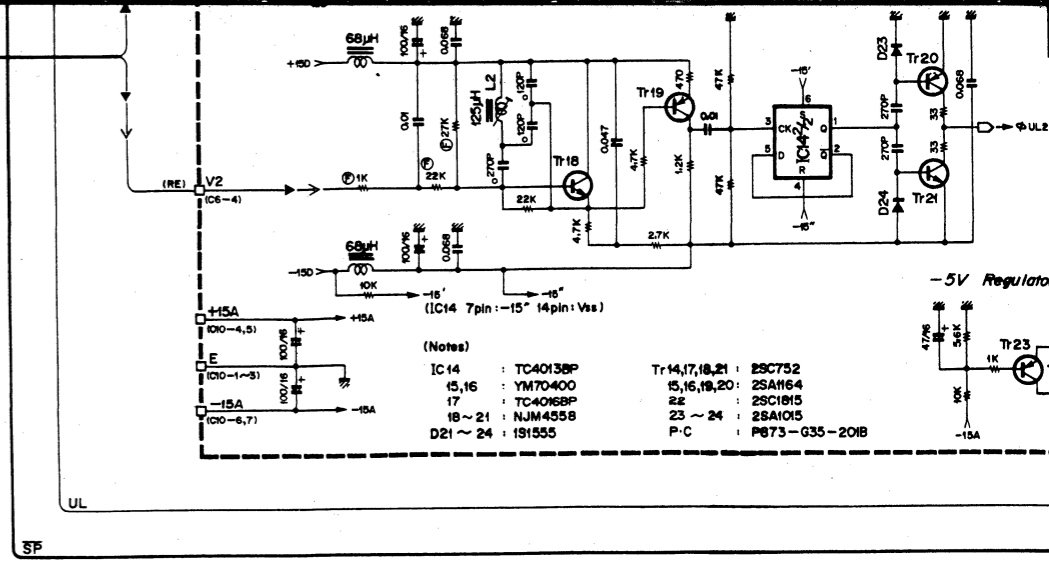
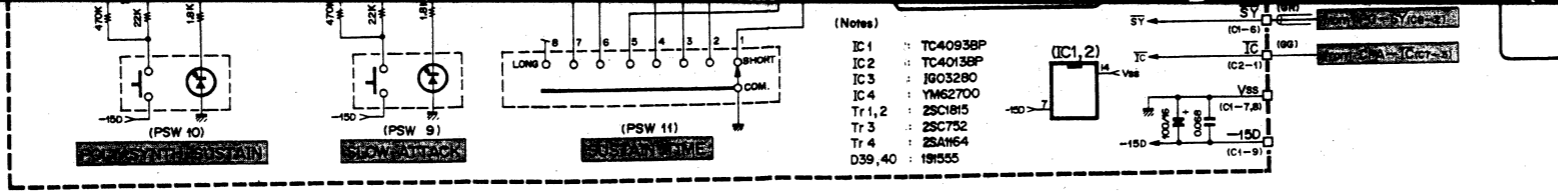
10

11

12

13

14



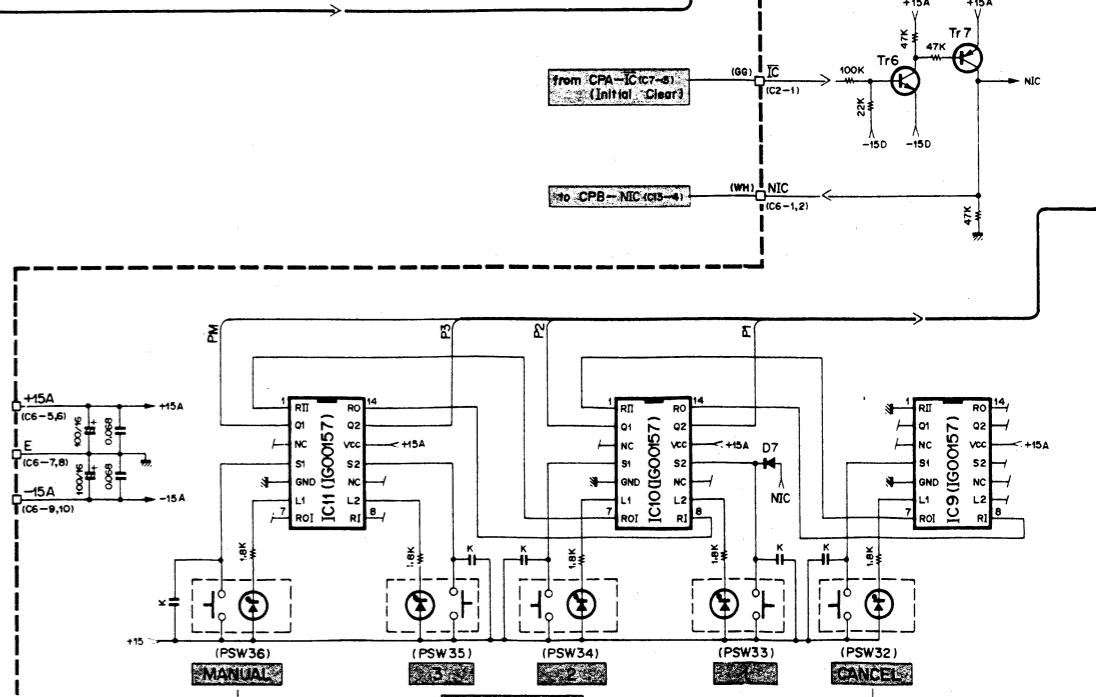
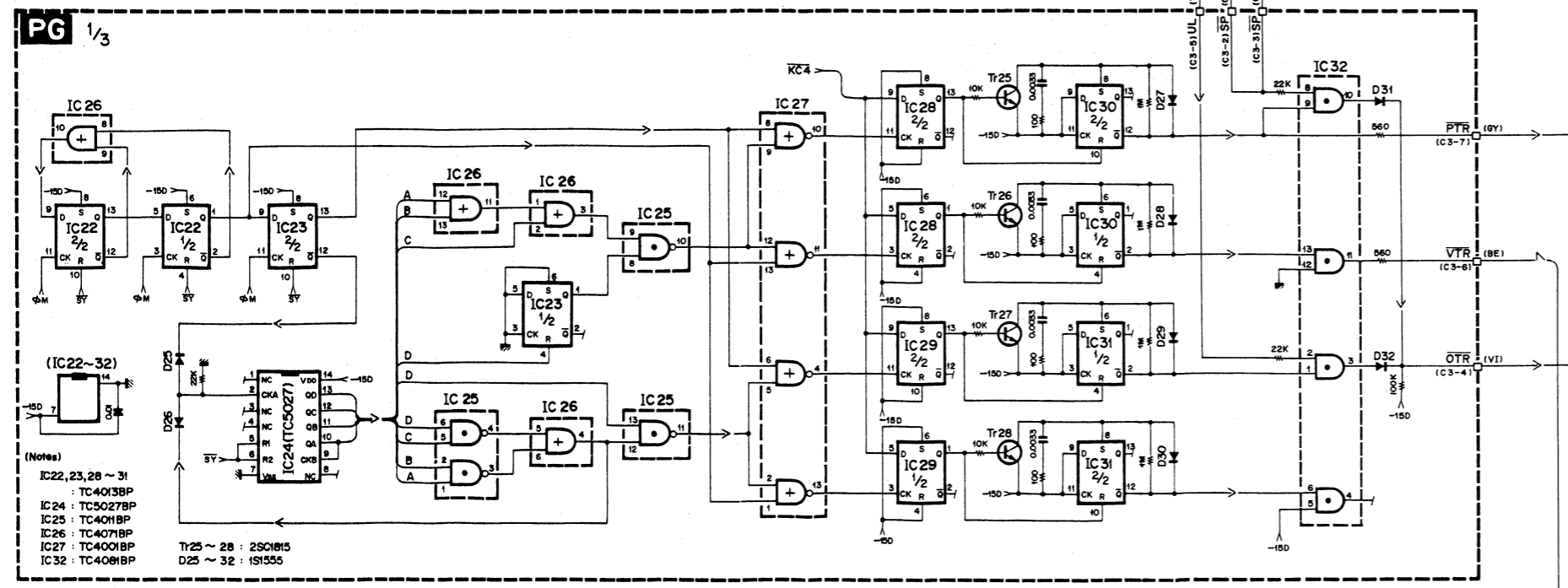
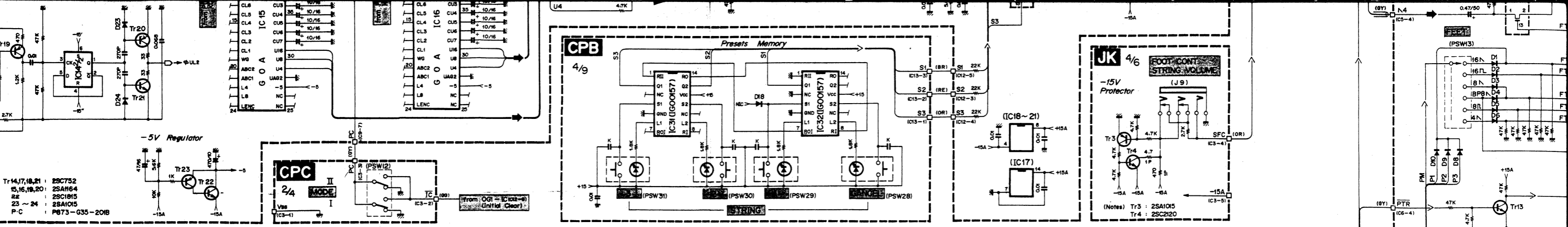
- Digital Data
- Audio Signal
- Clock Pulse
- Key Code Data
- >— DC Control
- >— Low Frequency Modulation Data
- >— Trigger Pulse

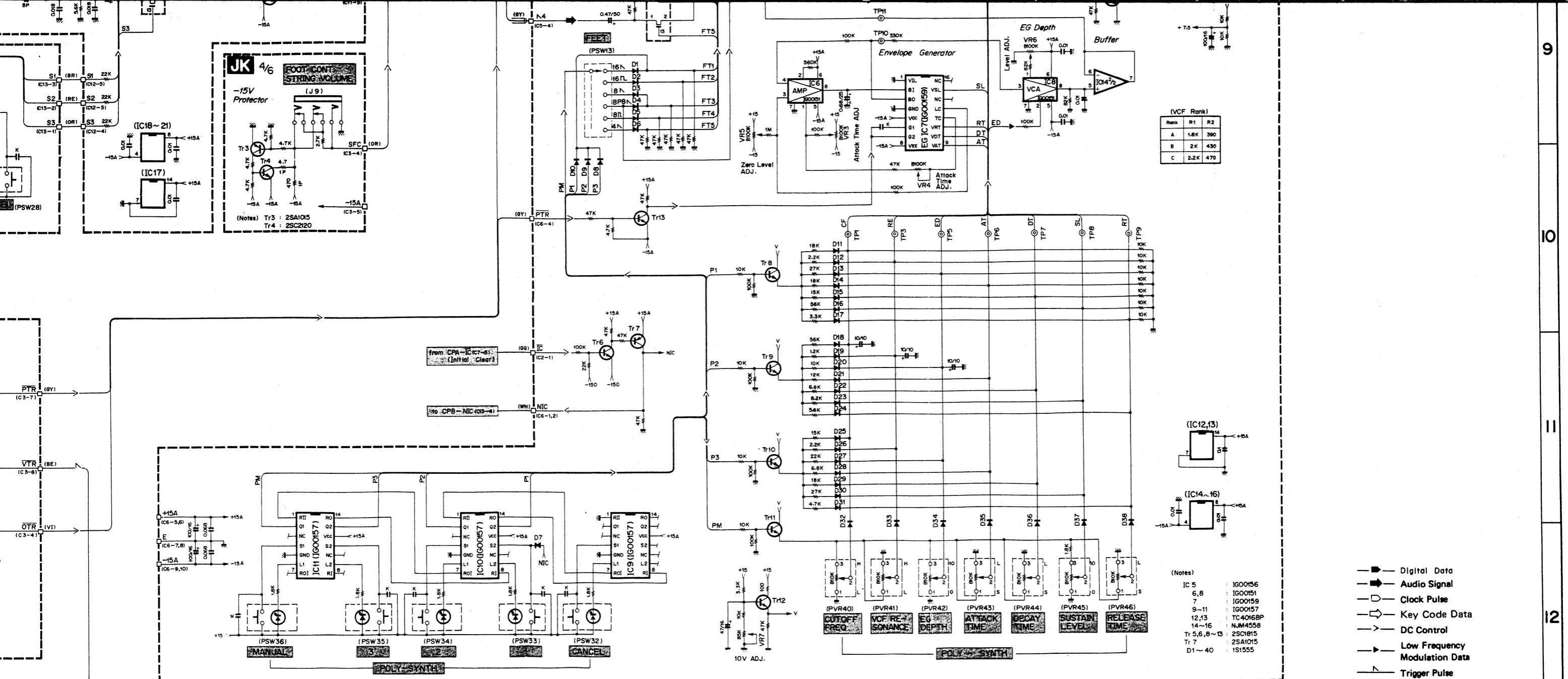
- (Notes)
- IC 1 : TC4093BP
 - IC 2 : TC4013BP
 - IC 3 : IC03280
 - IC 4 : YM62700
 - Tr 1, 2 : 2SC1815
 - Tr 3 : 2SC752
 - Tr 4 : 2SA164
 - D39, 40 : 1N1555

- (Notes)
- IC 1 : TC4050BP
 - 2 : TC4049BP
 - 3-6 : TC40175BP
 - 7 : TC4514BP
 - 8, 9 : TC4532BP
 - 10, 12 : TC4078BP
 - 11 : TC4068BP
 - 14-16 : TC4058BP
 - 17, 18 : TC4078BP
 - 13 : TC4075BP
 - 19, 20 : HD7404P
 - 21 : µPC78L05
 - Tr1-12 : 2SC752

- (Notes)
- IC22, 23, 28 ~ 31 : TC4013BP
 - IC24 : TC5027BP
 - IC25 : TC401BP
 - IC26 : TC4071BP
 - IC27 : TC4001BP
 - IC32 : TC4081BP
 - Tr25 ~ 28 : 2SC752
 - D25 ~ 32 : 1N1555

SK30 OVERALL CIRCUIT DIAGRAM 1/2





NOTES:

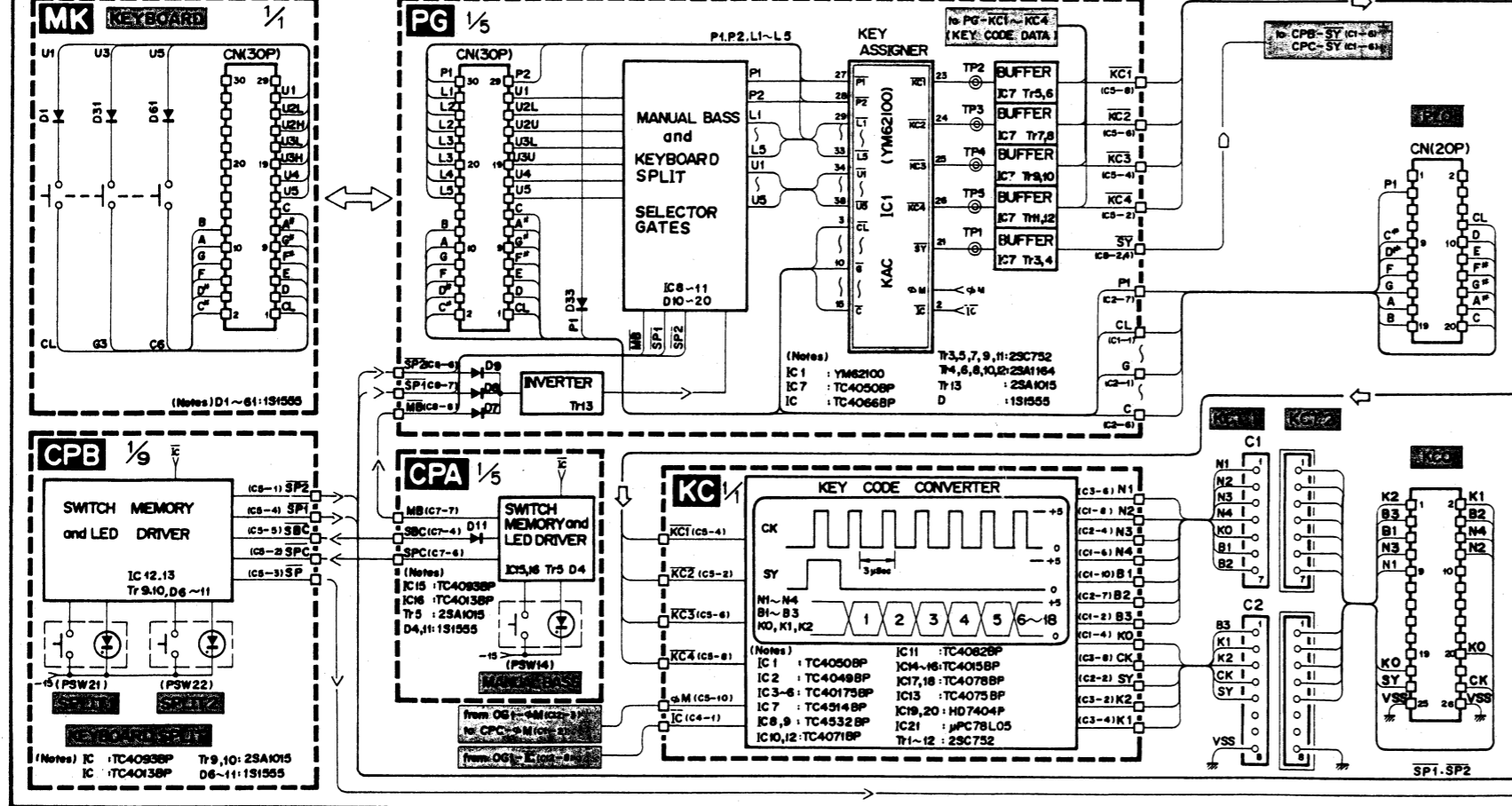
- All Resistors are 1/4 watt unless otherwise specified.
- All Capacitors are in microfarads unless otherwise specified.
- All Keyswitches, Tabswitches and Pushbutton Switches shown in "off" position.
- Capacitors
 - Δ mark : Tantalum Capacitor
 - mark : Polystyrene Capacitor
 - K mark : Ceramic Capacitor 1000pF

5. ABBREVIATIONS OF WIRE COLOR IN ELECTONE

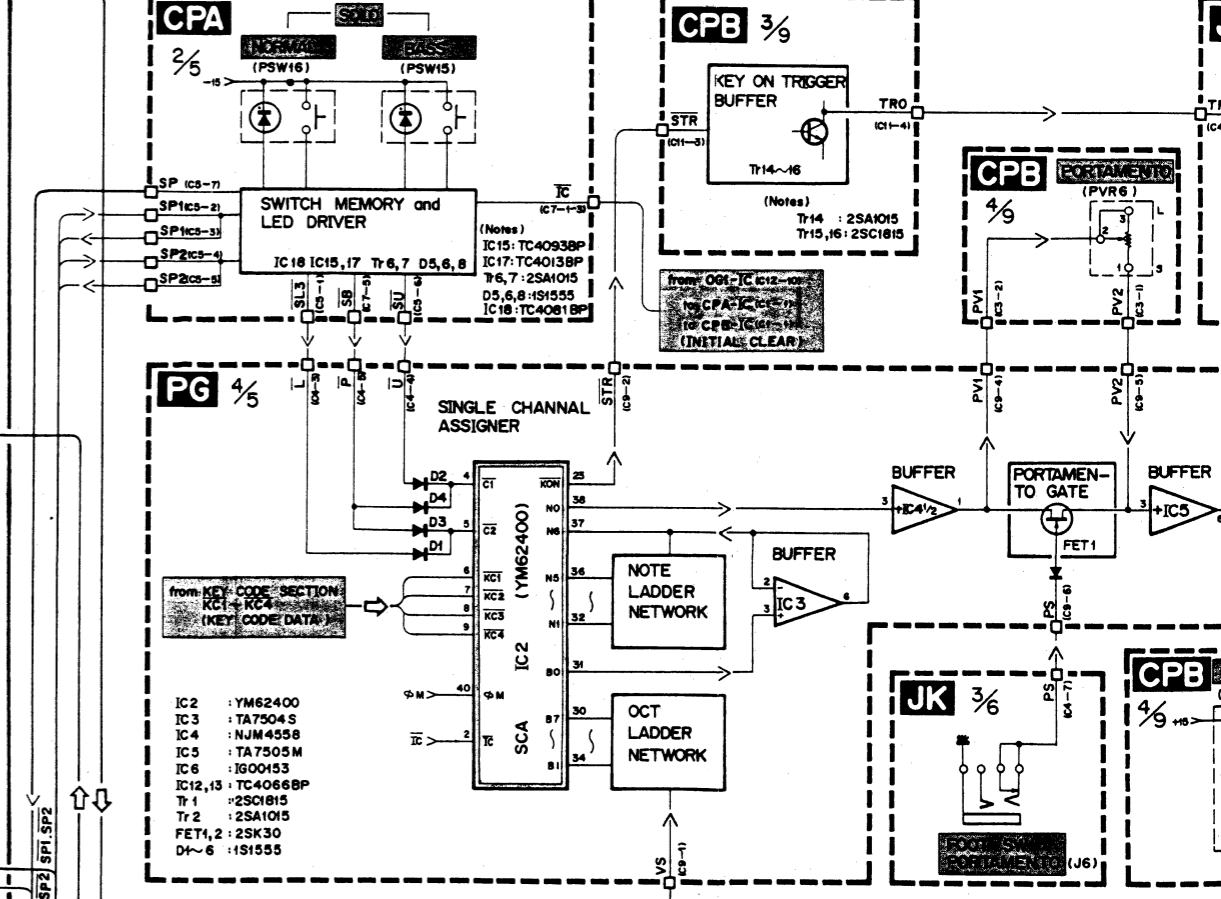
- | | |
|--|--------------------------|
| BL BLACK | RE RED |
| YE YELLOW | BE BLUE |
| GY GRAY | GG GRASS GREEN |
| PK PINK | OR ORANGE |
| BR BROWN | VI VIOLET |
| GR GREEN | SB SKY BLUE |
| WH WHITE | TP TIN PLATED WIRE |
| TR TRANSPARENT | |
| SOR Shielding orange wire | |
| SGRS..... Earthing conductor of shielding green wire | |

SK30 BLOCK DIAGRAM

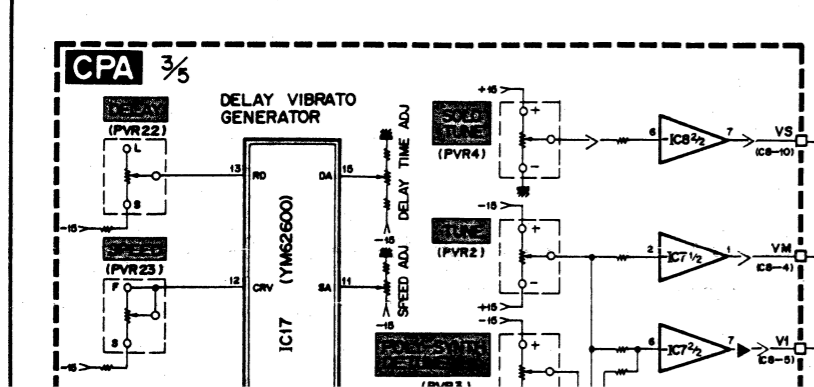
KEY CODE SECTION



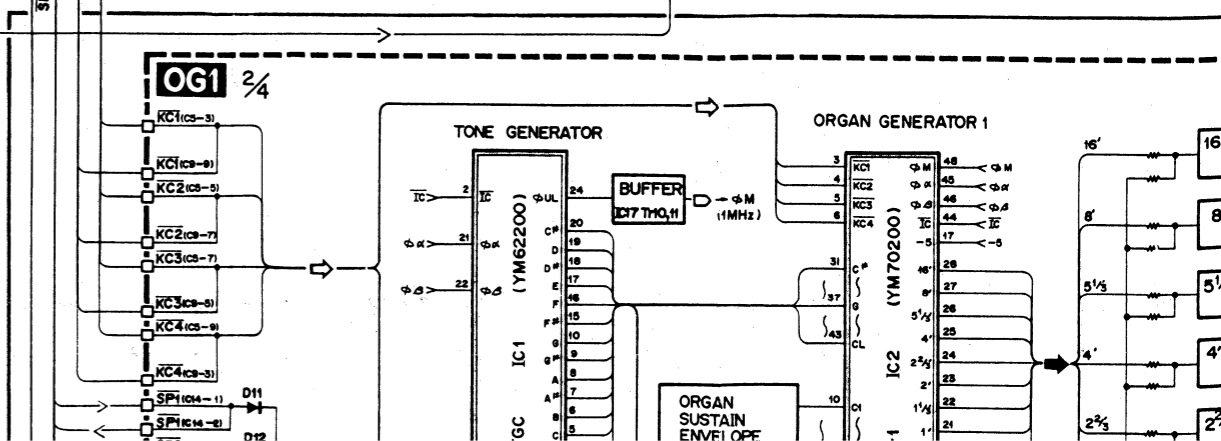
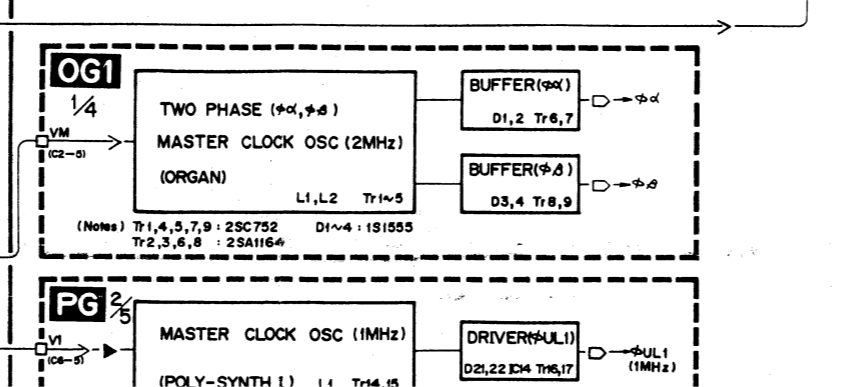
SOLO SYNTHESIZER SECTION



POLY-SYNTH VIBRATO/PITCH SECTION

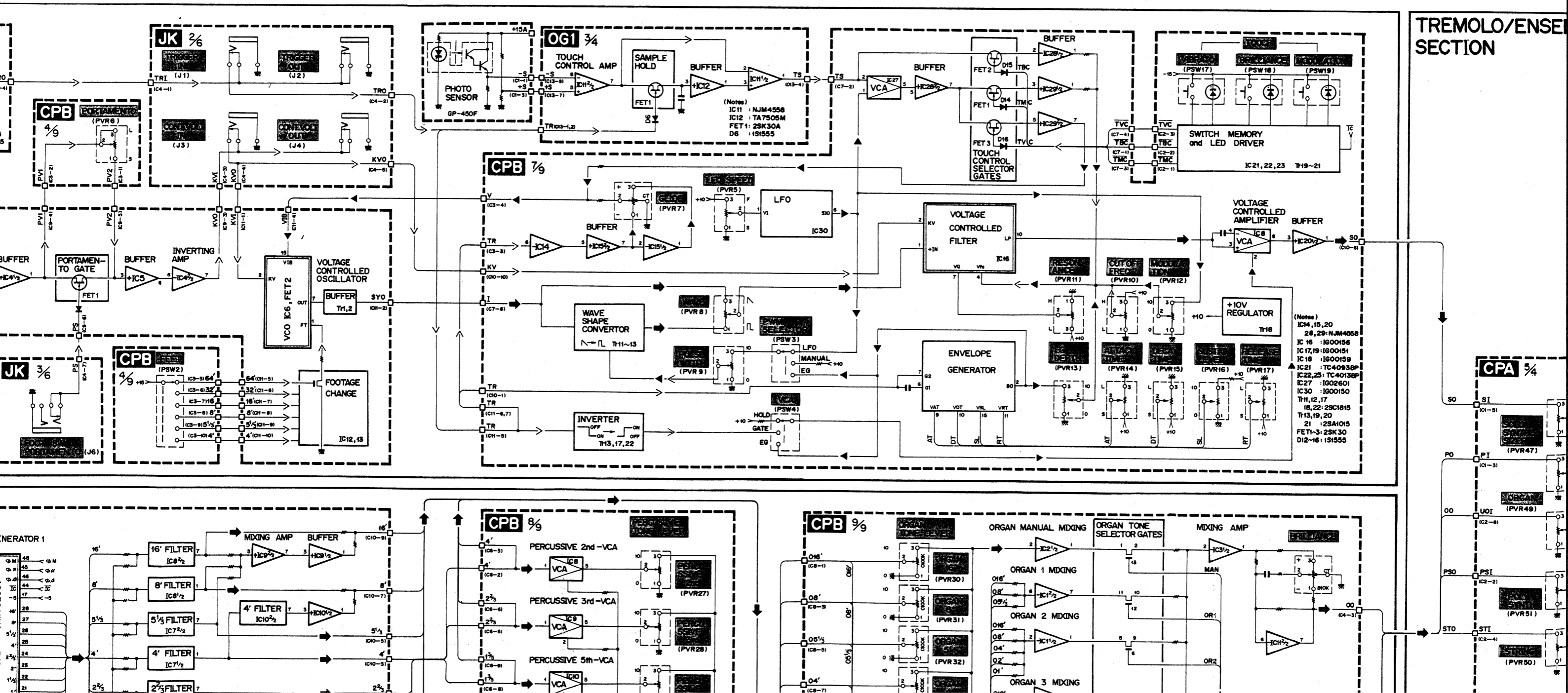


MASTER OSC SECTION



SK30 BLOCK DIAGRAM

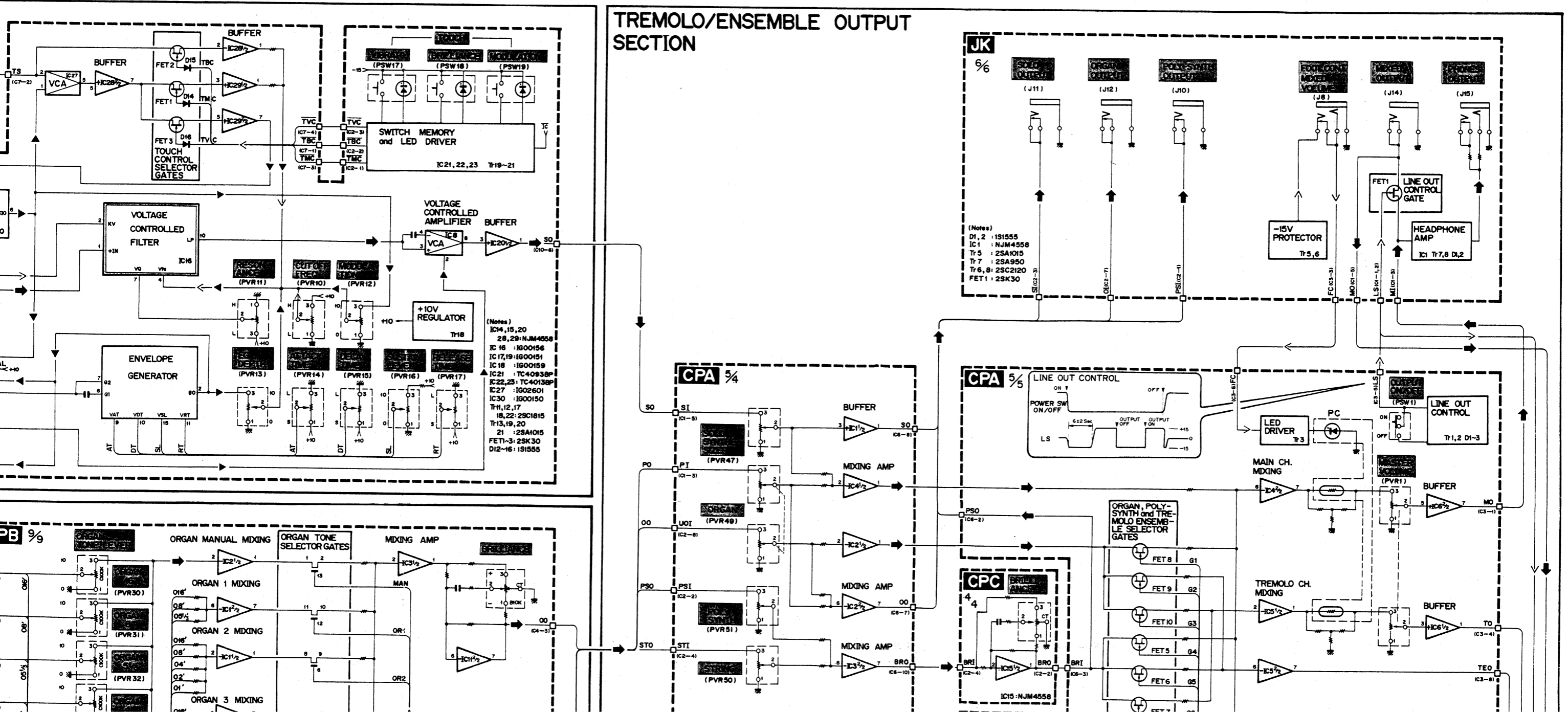
006885

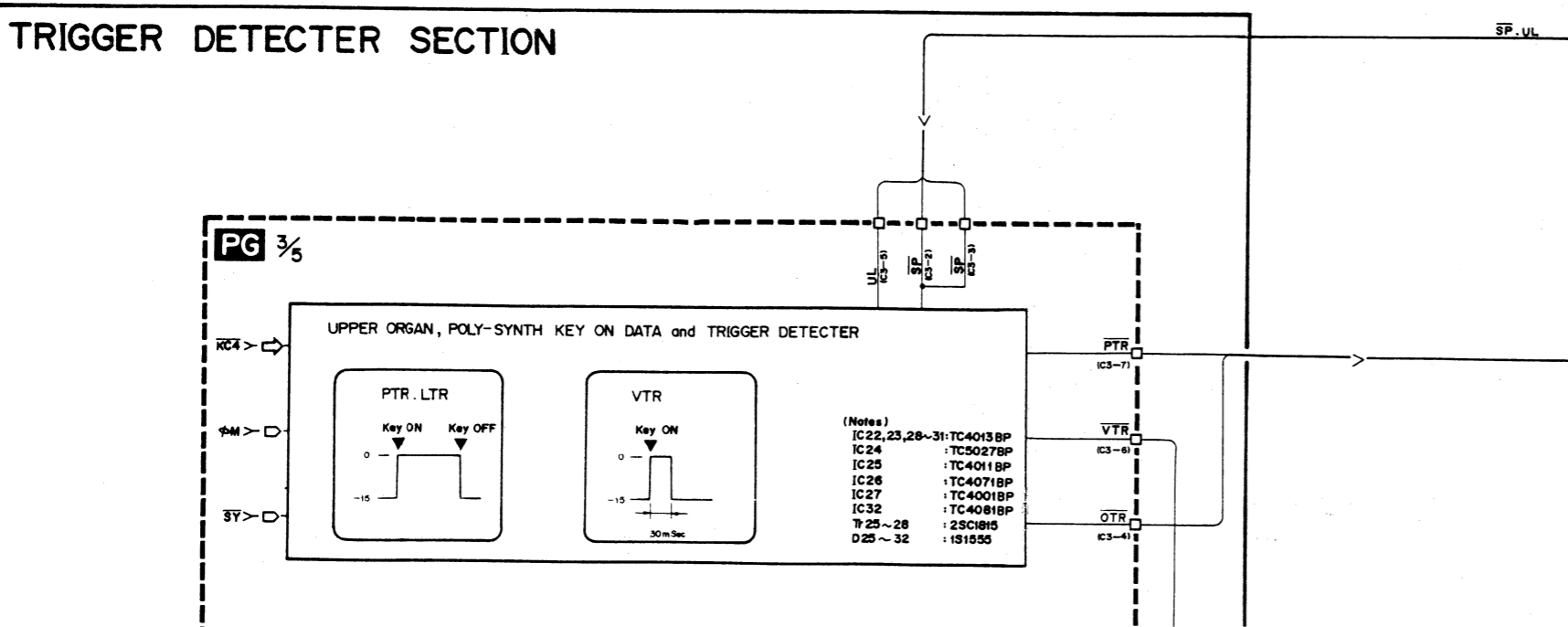
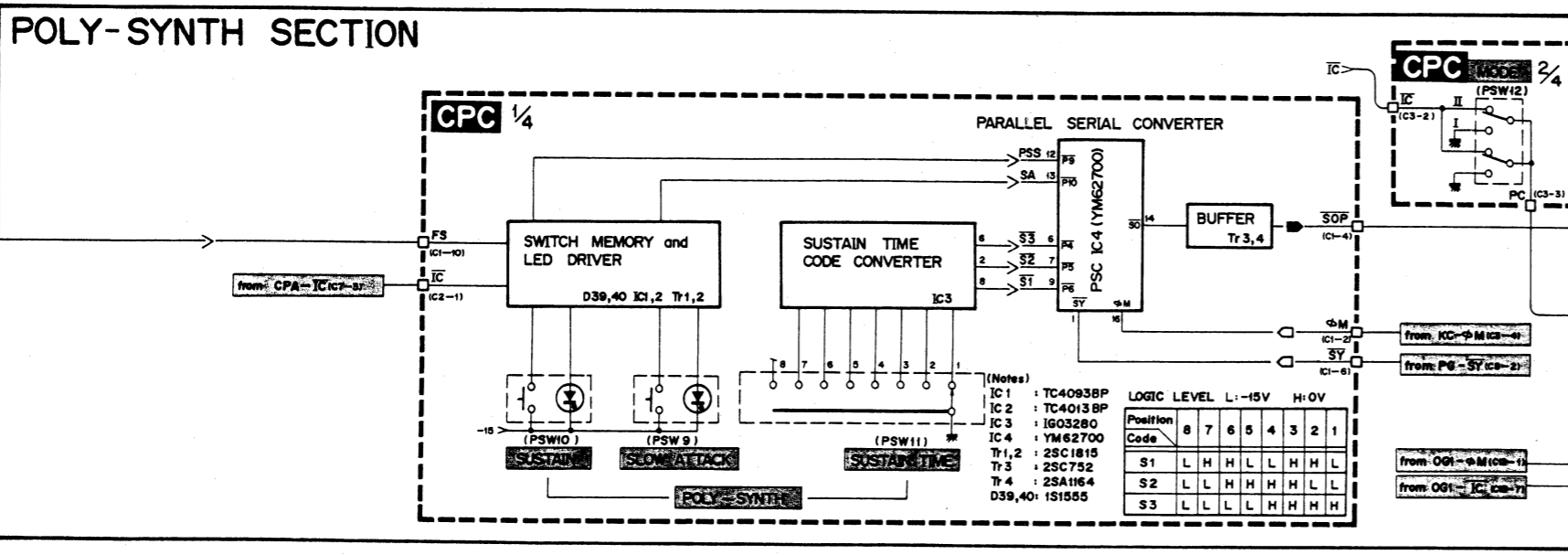
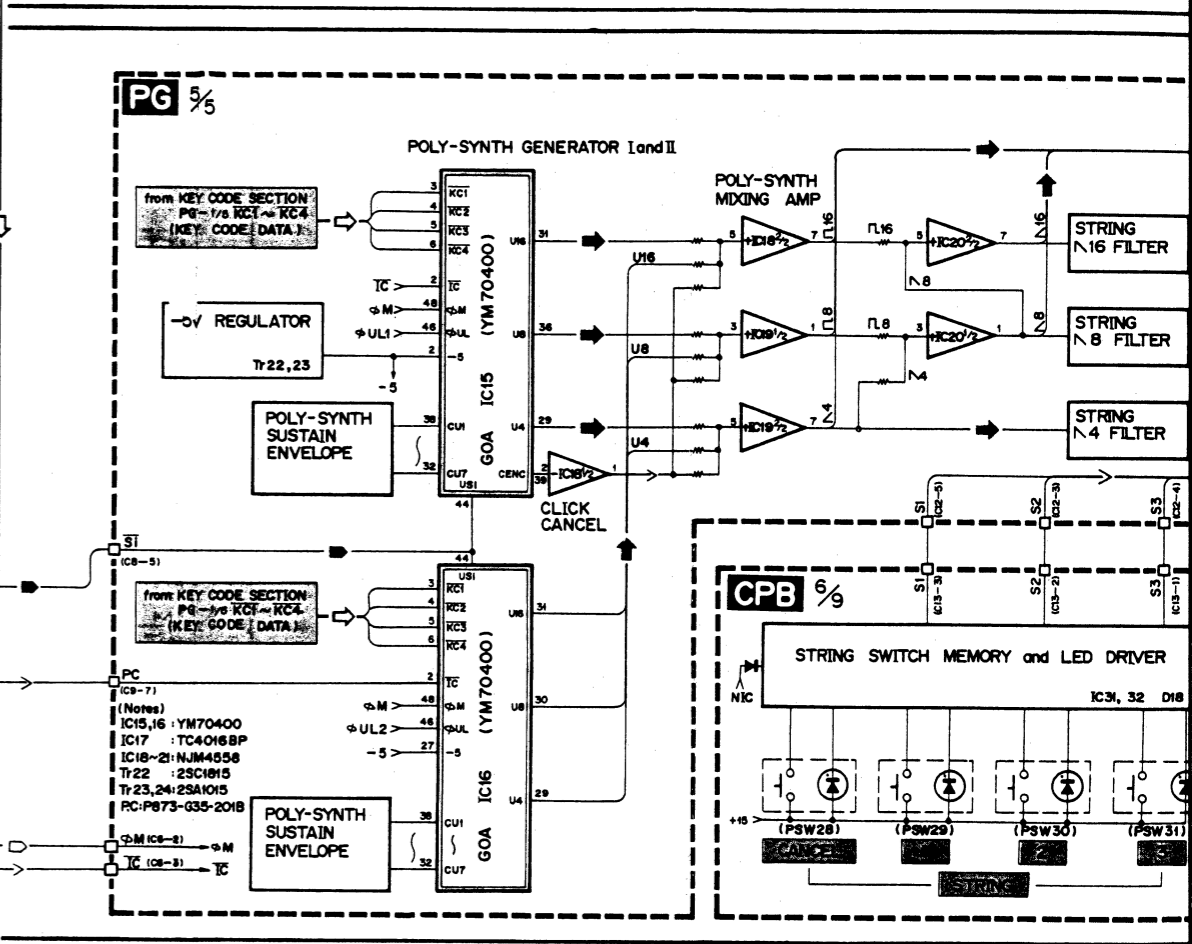
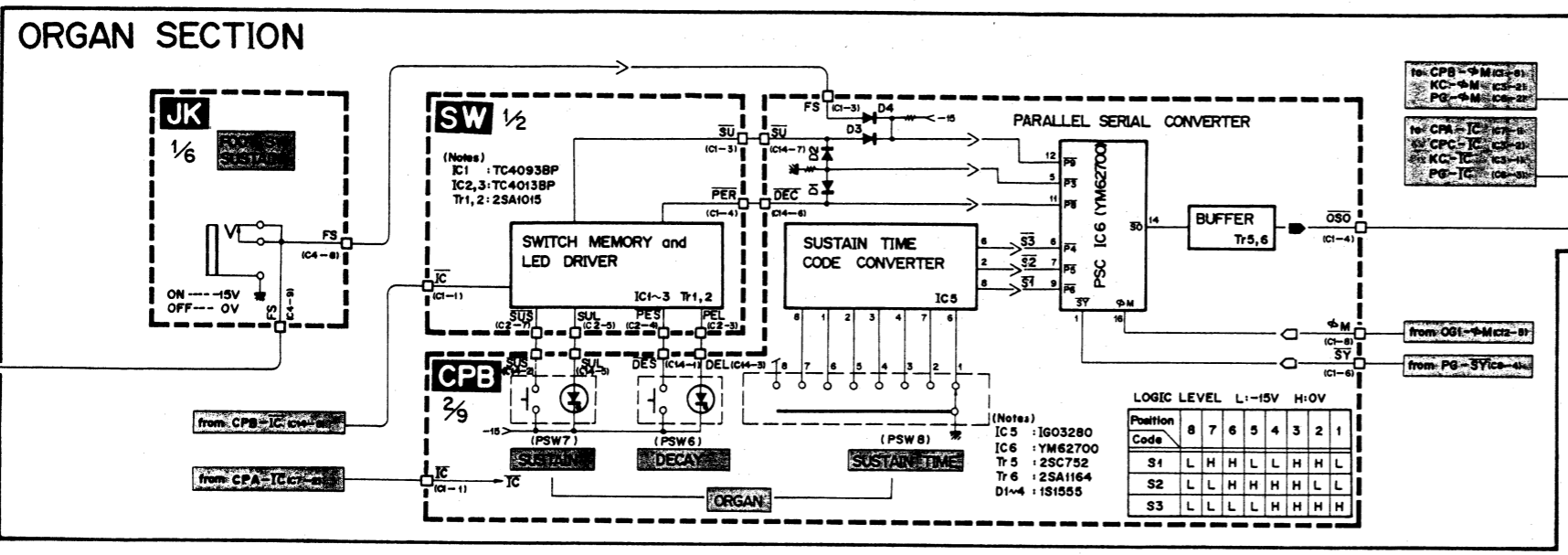
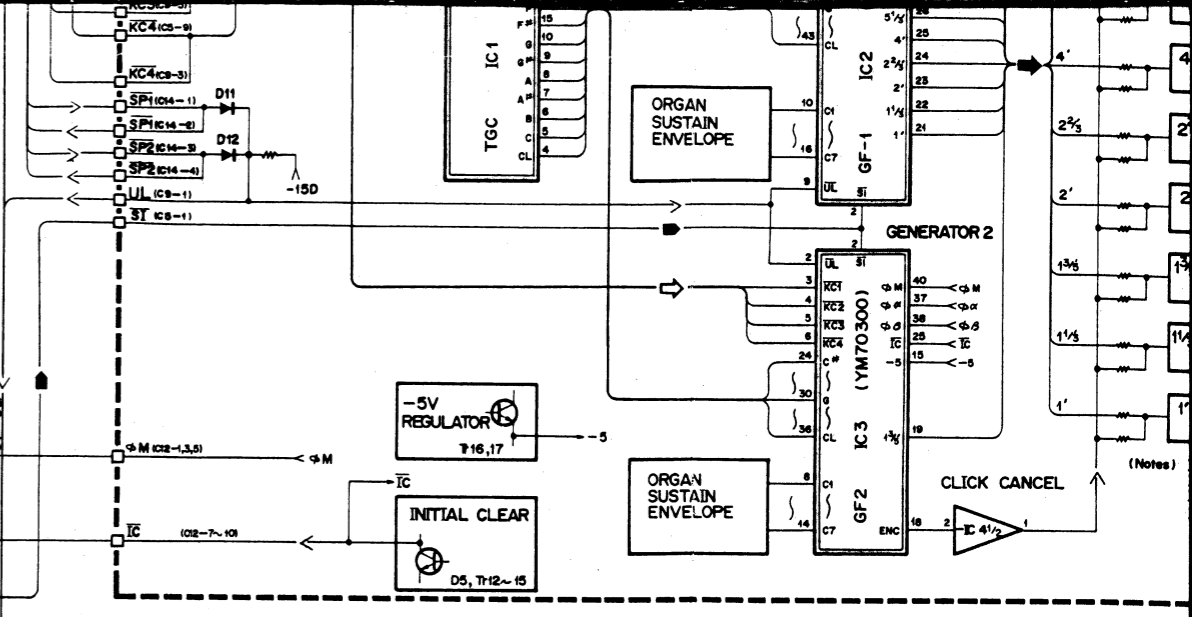
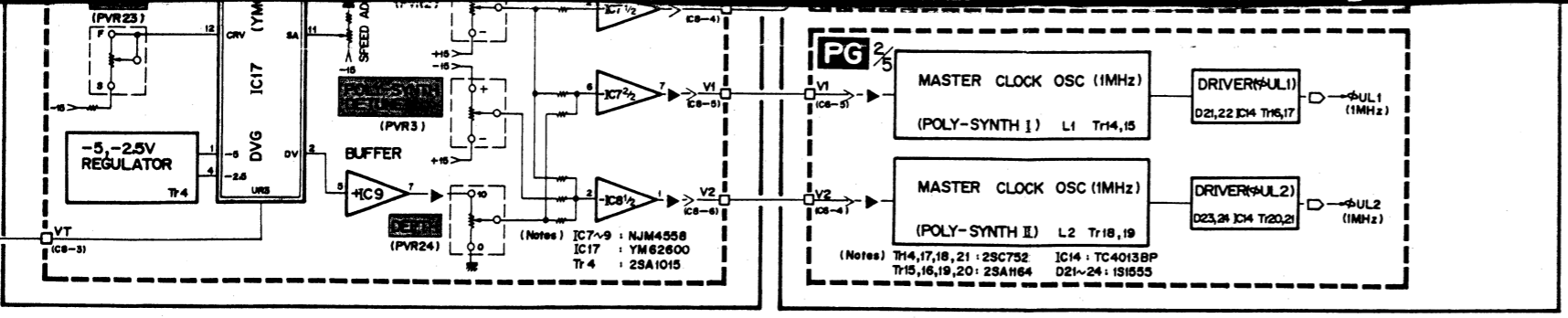


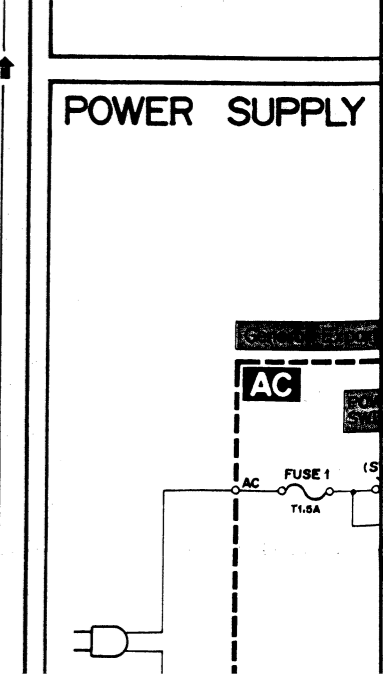
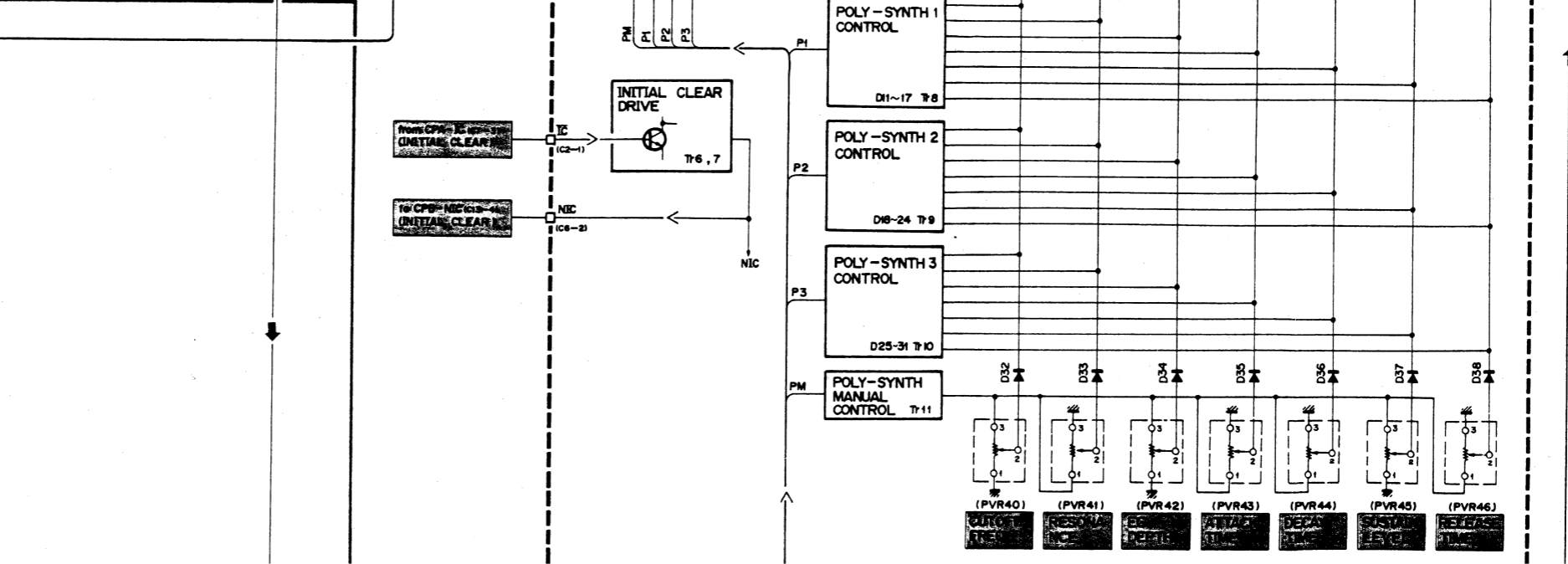
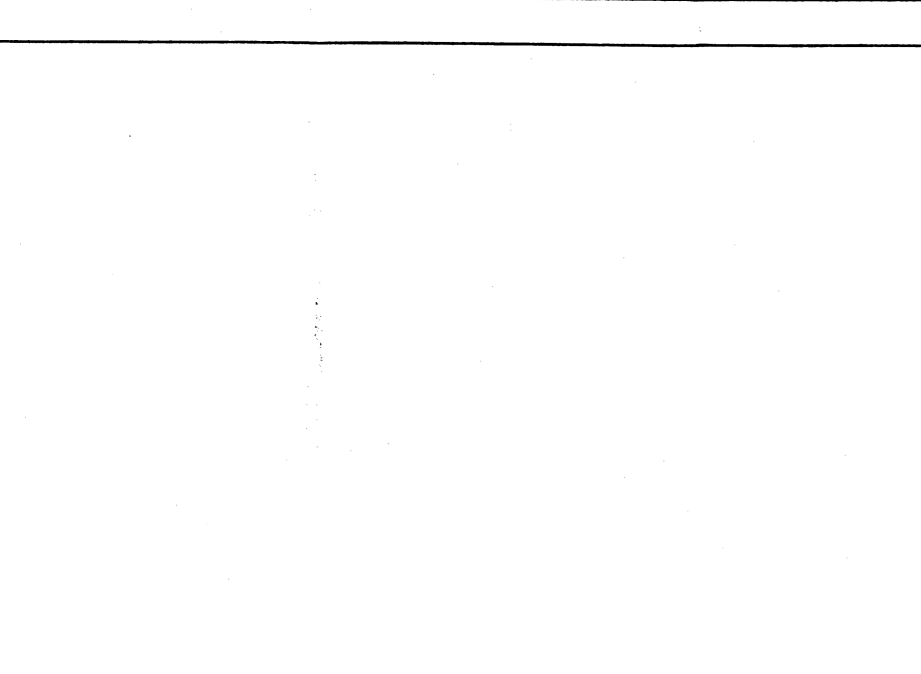
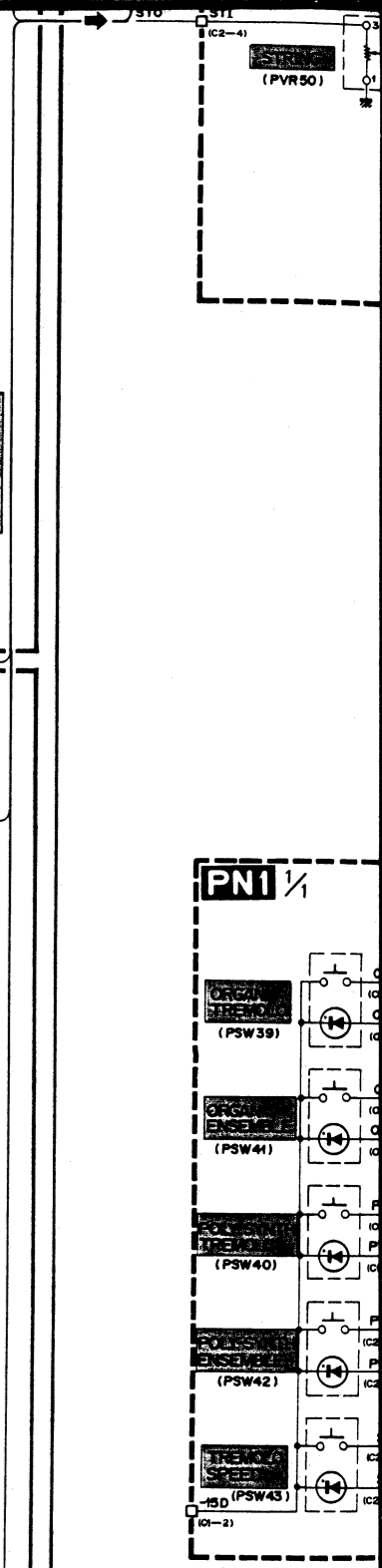
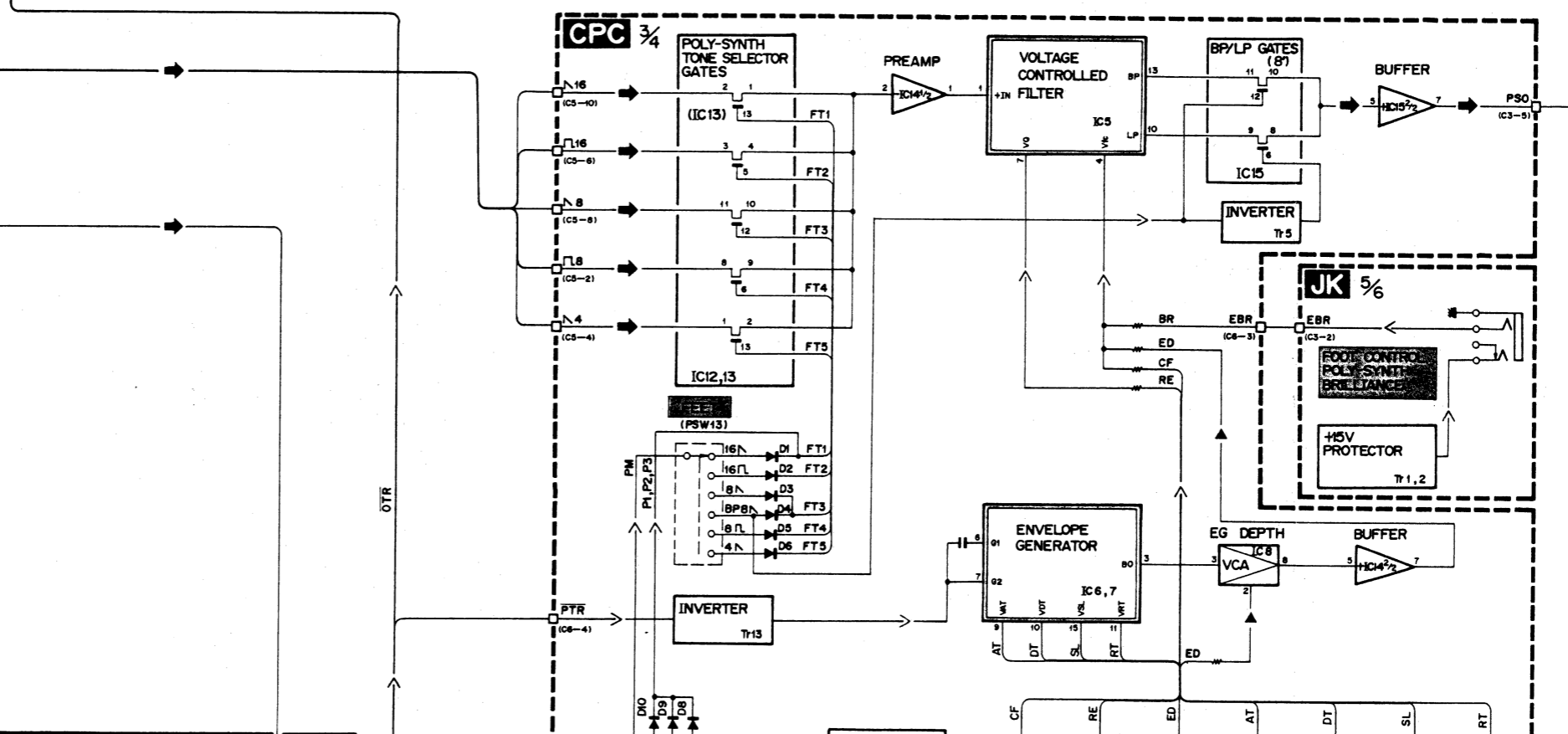
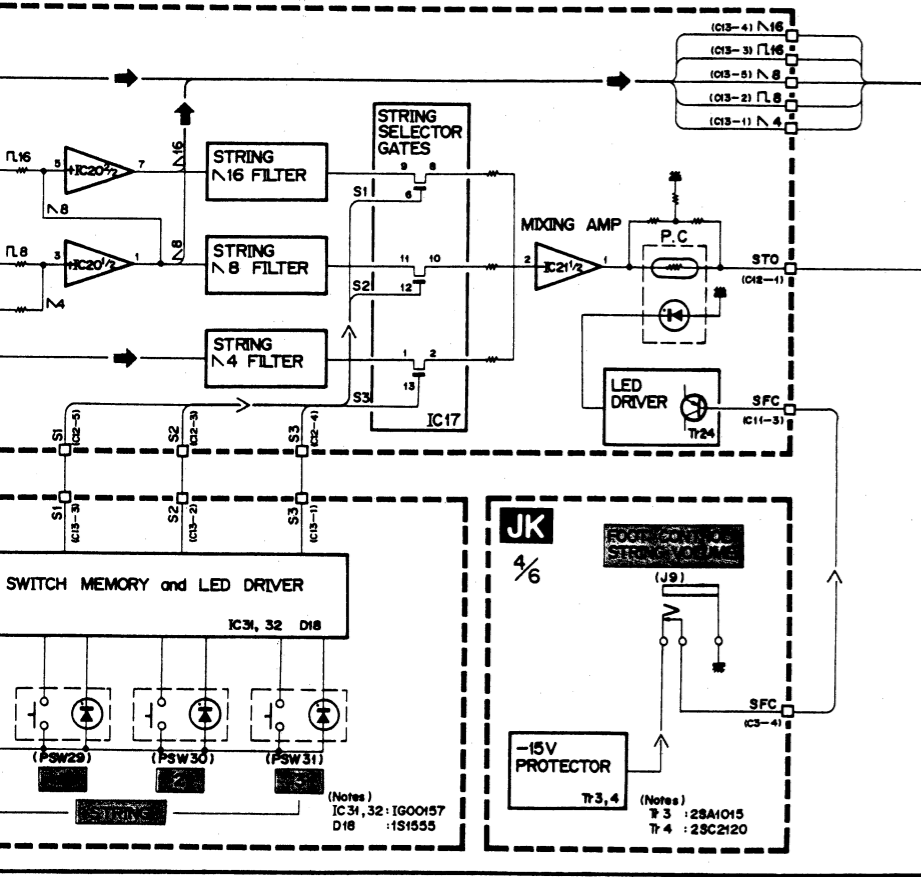
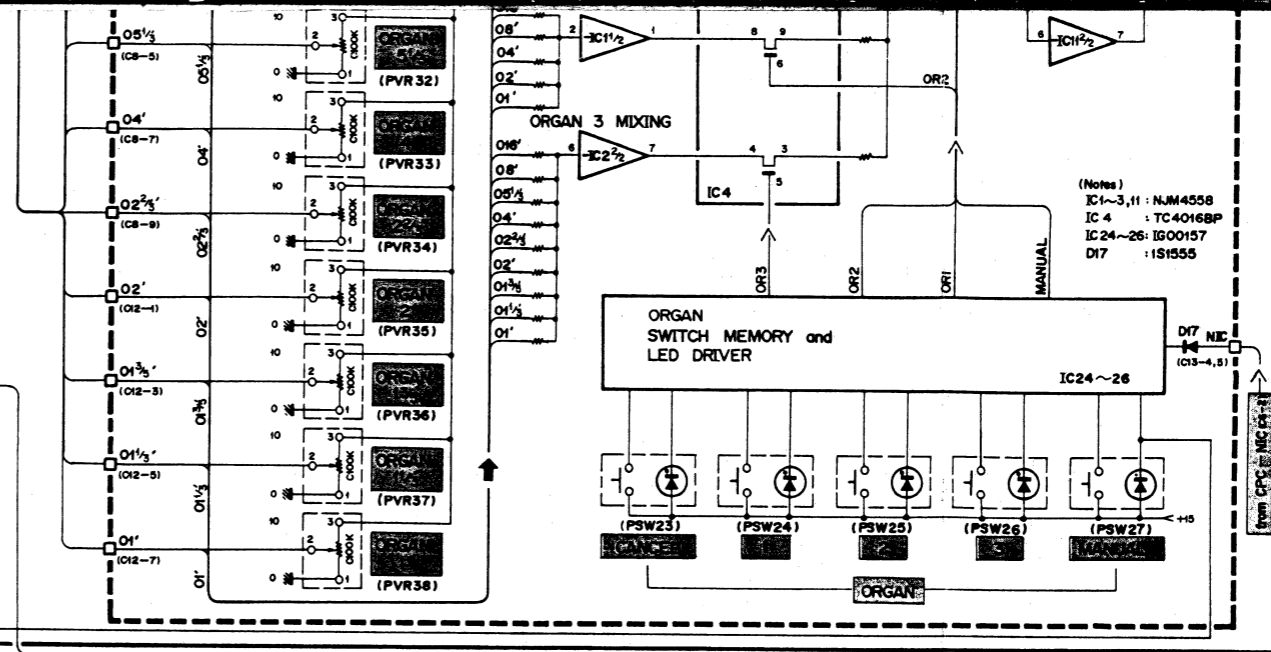
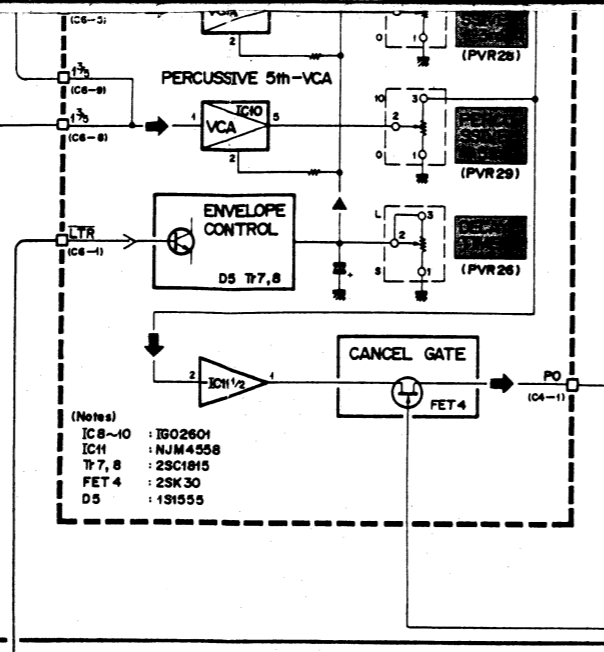
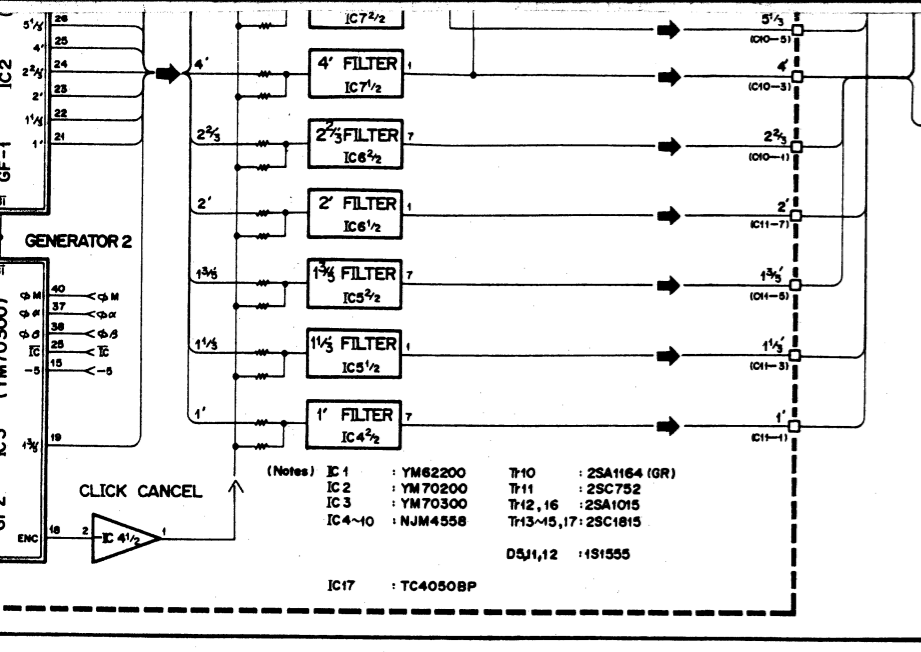
TREMOLO/ENSEMBLE SECTION

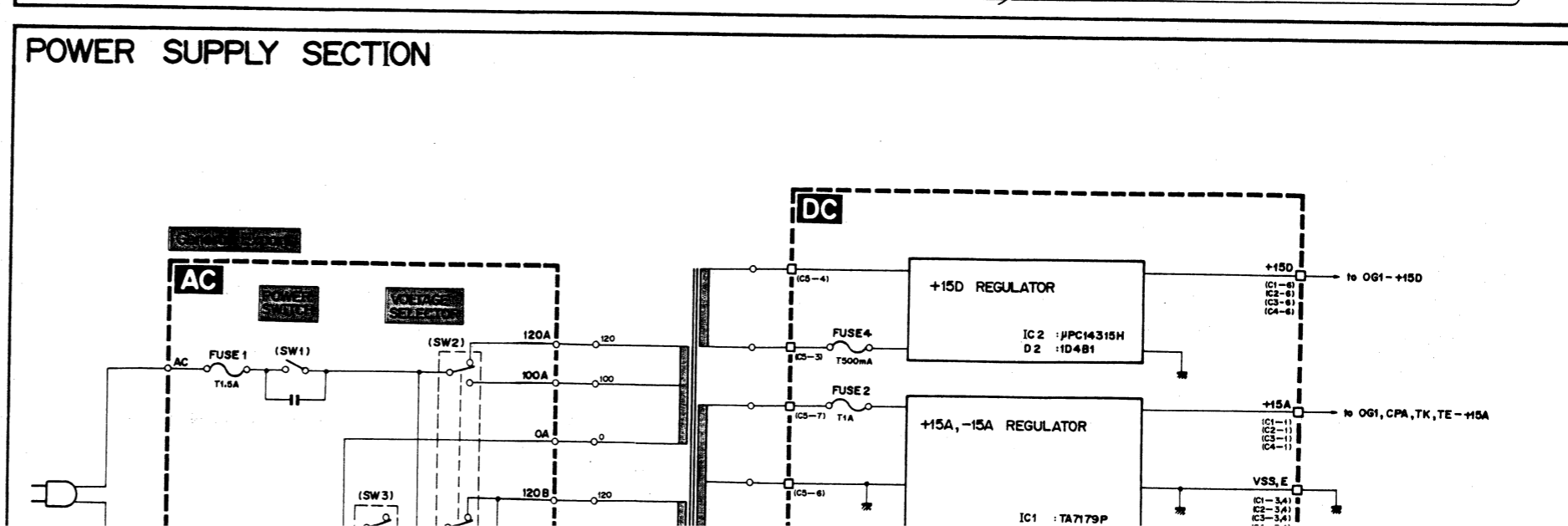
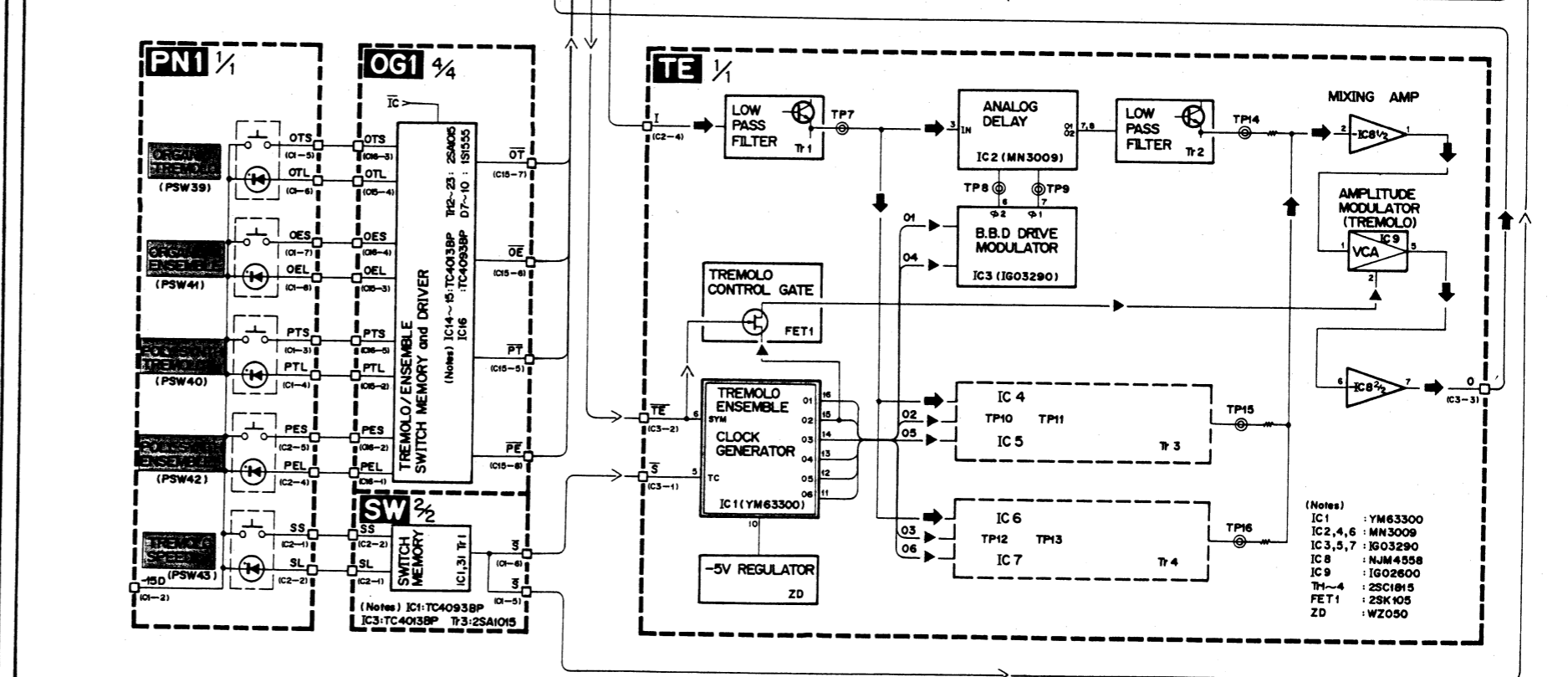
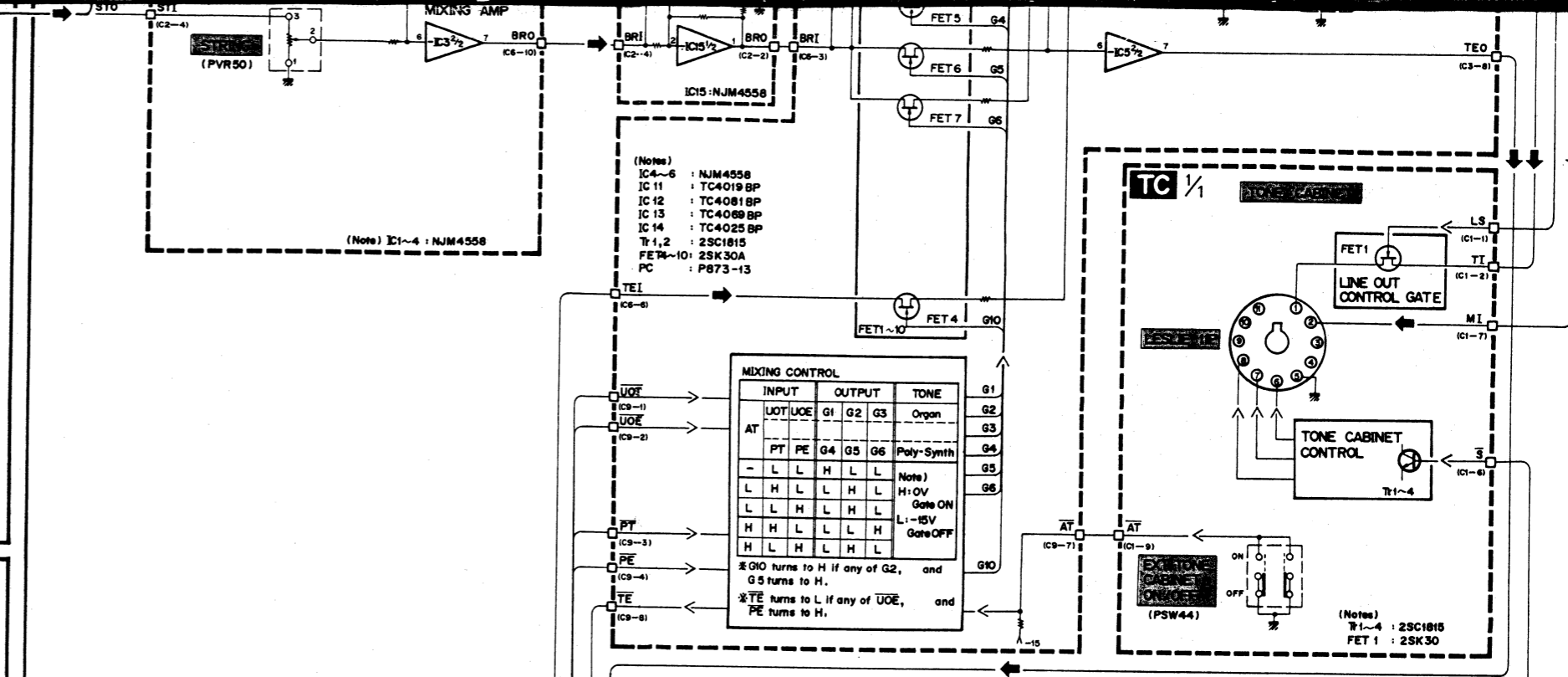
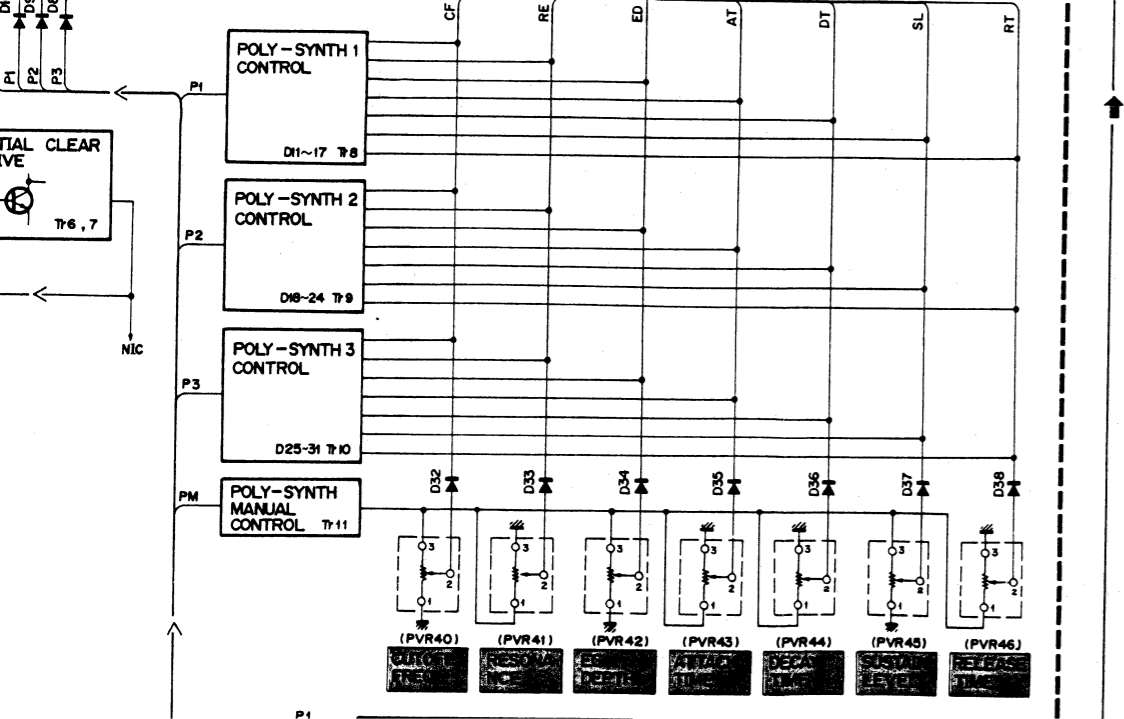
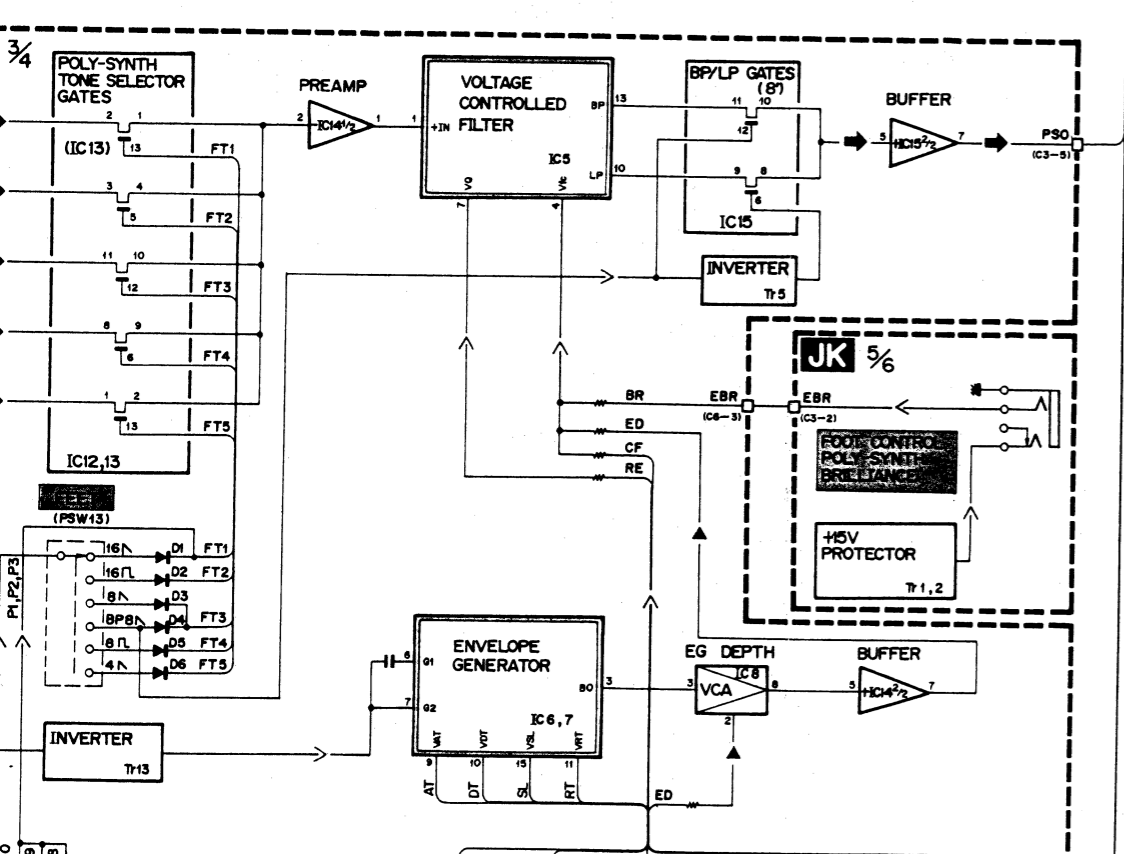
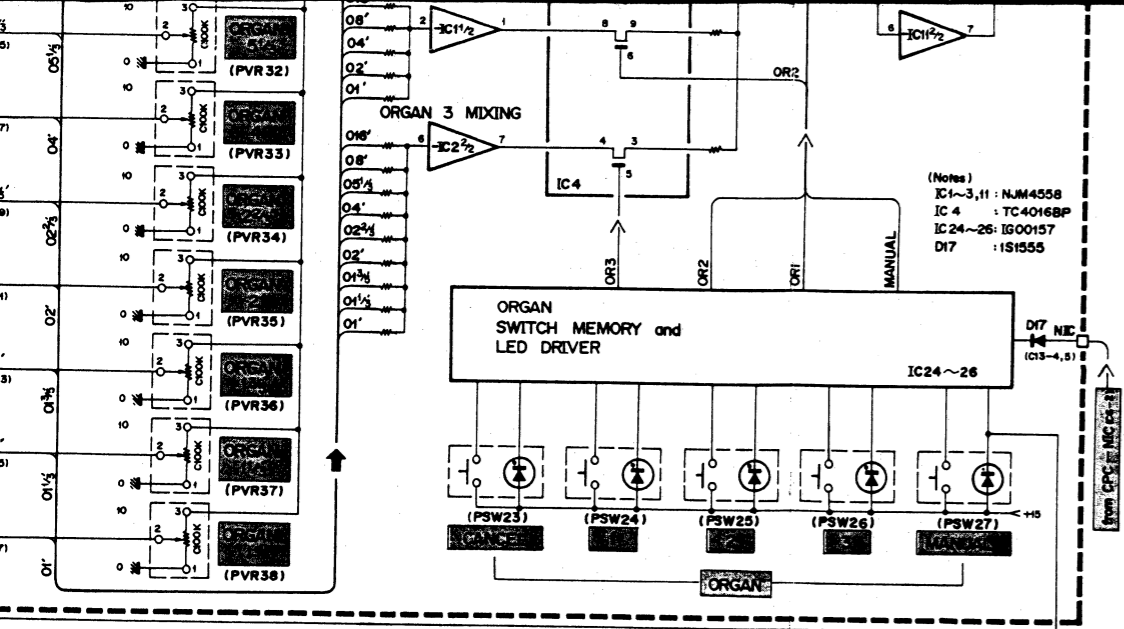
CPA 1/4

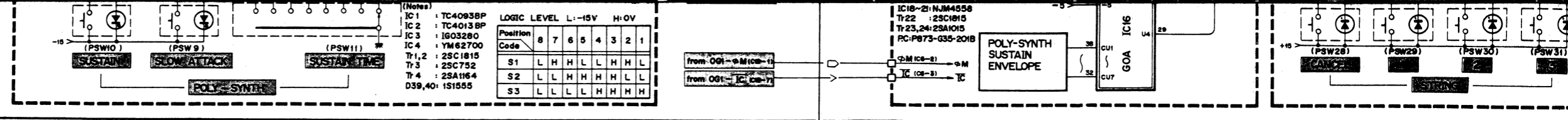
SK30 BLOCK DIAGRAM



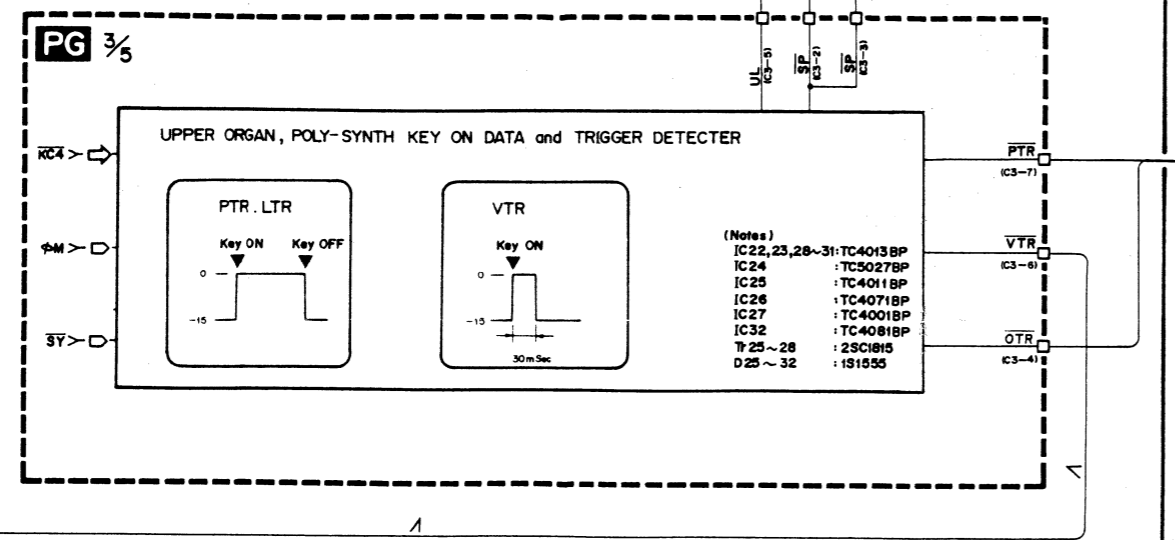




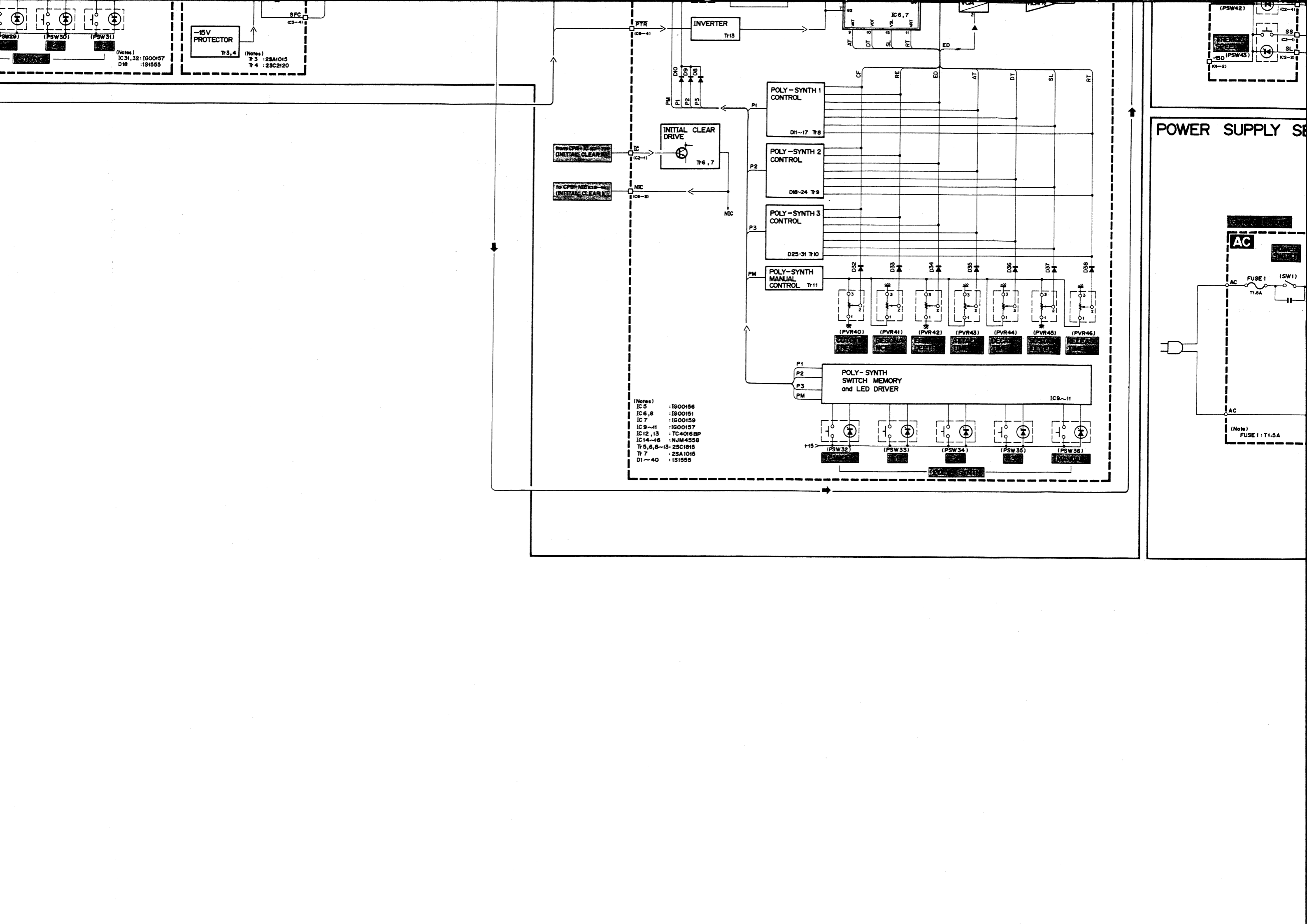




TRIGGER DETECTOR SECTION



- Digital Data
- Audio Signal
- Clock Pulse
- Key Code Data
- >— DC Control
- ▶— Low Frequency Modulation Data
- ▲— Trigger Pulse

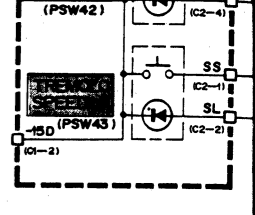
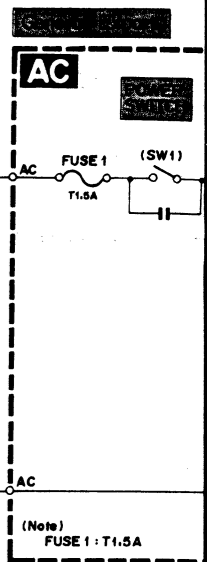


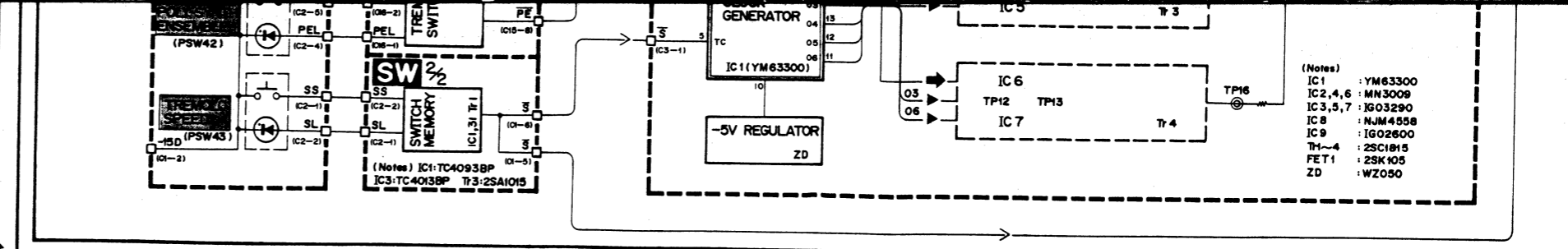
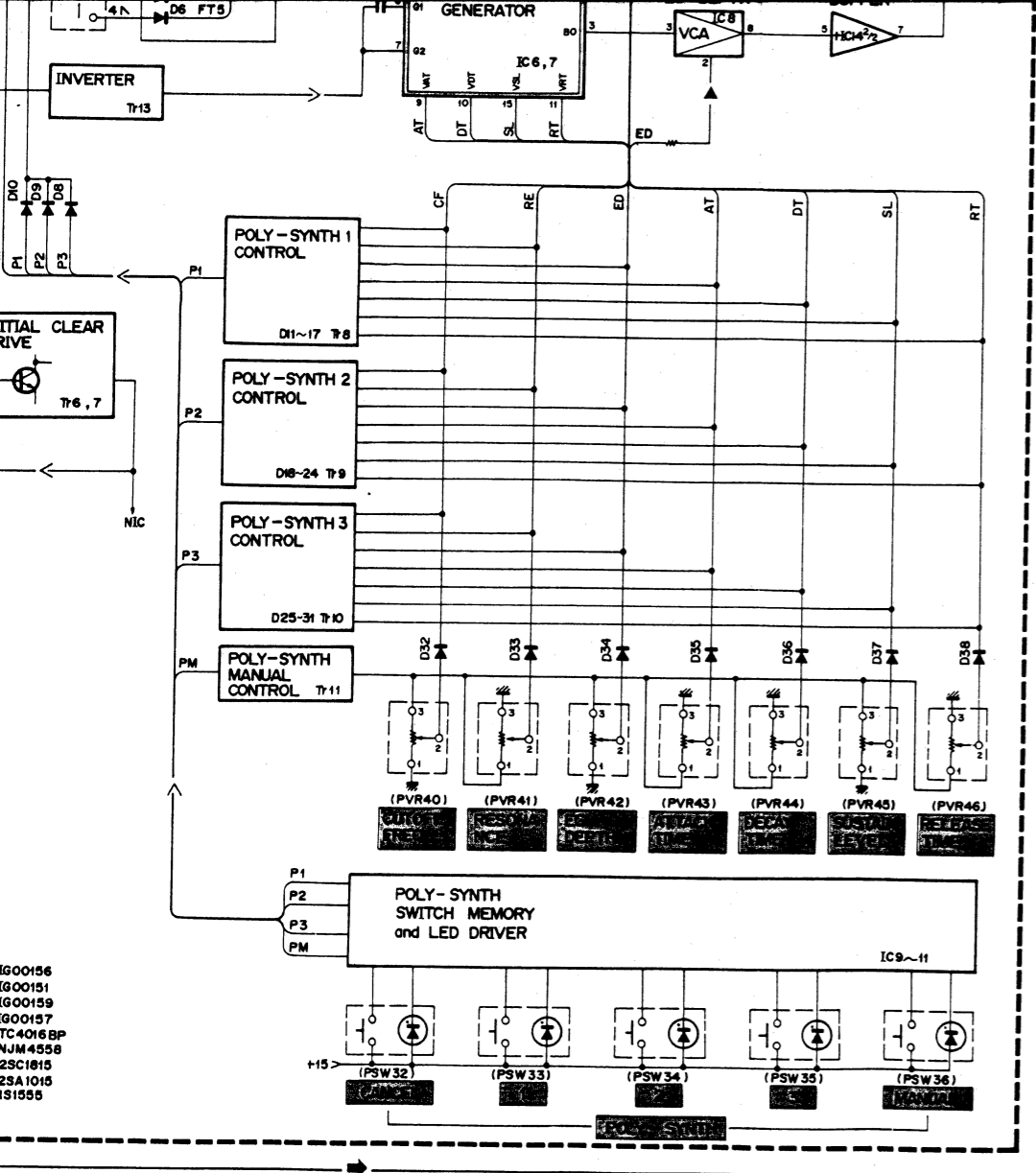
(Notes)
 IC 31, 32 : 1G00157
 D1B : 1S1555

(Notes)
 Tr 3 : 28A1015
 Tr 4 : 28C2120

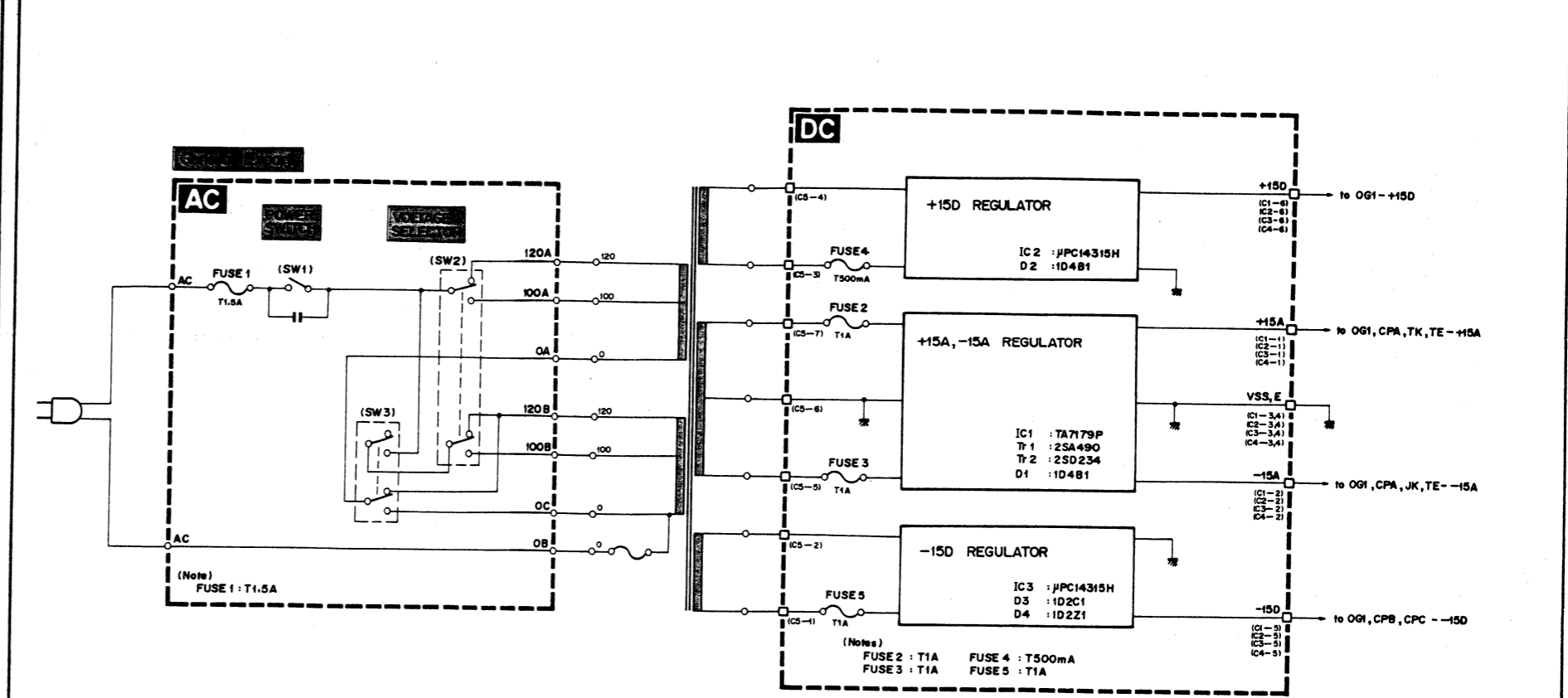
(Notes)
 IC 5 : 1G00156
 IC 6, 8 : 1G00151
 IC 7 : 1G00159
 IC 9~11 : 1G00157
 IC 12, 13 : TC4016BP
 IC 14~16 : NJM4558
 Tr 5, 6, 8~13 : 28C1815
 Tr 7 : 28A1015
 D1~40 : 1S1555

POWER SUPPLY SE





POWER SUPPLY SECTION



- Digital Data
- Audio Signal
- Clock Pulse
- ◇— Key Code Data
- >— DC Control
- ▶— Low Frequency Modulation Data
- ▲— Trigger Pulse

YAMAHA

SYMPHONIC ENSEMBLE

SK30

PARTS LIST

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D. Keyboard Assembly	11
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F. Foot Controller FC-3A	15

A. Electronic Components

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
	30:12:91 NA:80:68:60	Circuit Board, TE	T E シ ー ト		SK 20
*	30:12:92 NA:80:71:30	- do. - , CPA	C P A "		
*	30:12:92 NA:80:71:40	- do. - , CPB	C P B "		
*	30:12:92 NA:80:71:50	- do. - , CPC	C P C "		
*	30:12:92 NA:80:71:60	- do. - , PG	P G "		
*	30:12:92 NA:80:71:70	- do. - , OG1	O G 1 "		
*	30:12:00 NA:80:71:80	- do. - , KC	K C "		
*	30:12:00 NX:80:00:40	- do. - , JK	J K "		
*	30:12:00 NX:80:00:60	- do. - , TC	T C "		
*	30:12:00 NX:80:00:70	- do. - , PN1	P N 1 "		
*	30:12:00 NA:80:73:00	- do. - , DC	D C "	J.U.C	
*	30:12:00 NA:80:73:10	- do. - , - do. -	" "	G	
*	30:12:00 NA:80:73:30	- do. - , AC	A C "	U.C	
*	30:12:00 NA:80:73:40	- do. - , - do. -	" "	G	
*	30:12:00 NA:80:73:50	- do. - , - do. -	" "	J	
*	30:12:00 NA:80:74:30	- do. - , PC	P C "		
*	30:12:92 NA:80:76:30	- do. - , SW	S W "		
*	40:10:00 LC:86:42:00	Printed Circuit Board	プ リ ン ト 基 板	Bass Pedal	
	40:10:00 iG:00:11:70	IC TC4001BP	I C	NOR	
	40:10:00 iG:00:11:80	- do. - TC4013BP	"	D-F/F x 2	
	40:10:00 iG:00:11:90	- do. - TC4015BP	"	Shift Register x 2	
	40:10:00 iG:00:12:40	- do. - TC4011BP	"	NAND	
	40:10:00 iG:00:12:60	- do. - TC4049BP	"	inverter	
	40:10:00 iG:00:12:70	- do. - TC4066BP	"	Analog SW	
	40:10:00 iG:00:13:90	- do. - NJM4558DV	"	OP Amp x 2	
	40:10:00 iG:00:14:40	- do. - TC4071BP	"	OR	
	40:10:00 iG:00:15:00	- do. - iG00150	"	VCOII	
	40:10:00 iG:00:15:10	- do. - iG00151	"	VCA	
	40:10:00 iG:00:15:30	- do. - iG00153	"	VCOIII	
	40:10:00 iG:00:15:60	- do. - iG00156	"	(+) VCF	
	40:10:00 iG:00:15:70	- do. - iG00157	"	SW-MEMORY	
	40:10:00 iG:00:15:90	- do. - iG00159	"	EG-VCA	
	40:10:00 iG:00:16:90	- do. - TC4016BP	"	Analog SW	
	40:10:00 iG:00:17:00	- do. - TC4019BP	"	AND-OR Select	
	40:10:00 iG:00:17:20	- do. - TC4069UBP	"	Inverter	
	40:10:00 iG:00:17:40	- do. - TC4050BP	"	Buffer	
	40:10:00 iG:00:17:60	- do. - TC4081BP	"	AND	
	40:10:00 iG:02:55:00	- do. - TA7504S	"	OP Amp	
	40:10:00 iG:02:56:00	- do. - TA7505M	"	- do. -	
	40:10:00 iG:02:60:00	- do. - iG02600	"	VCA	
*	40:10:00 iG:02:60:10	- do. - iG02601	"	- do. -	
	42:00:00 iG:02:70:00	- do. - HD7404P	"	Inverter (TTL)	
	40:10:00 iG:02:87:00	- do. - μ PC14315H	"	+15V Regulator	
*	42:00:00 iG:03:16:00	- do. - μ PC78L05	"	+5V Regulator	
	40:10:00 iG:03:20:10	- do. - TA7179P	"	\pm 15V Regulator	
	40:10:00 iG:03:28:00	- do. - iG03280	"	Di Matrix	
	40:10:00 iG:03:29:00	- do. - iG03290	"	BBD Driver	
	40:10:00 iG:03:56:00	- do. - TC4532BP	"	8bit Encoder	
	40:10:00 iG:03:57:00	- do. - TC4075BP	"	3irpat OR	
	40:10:00 iG:03:58:00	- do. - TC40175BP	"	D-F/F	
	40:10:00 iG:04:33:00	- do. - TC4093BP	"	NAND (Schmitt Trigger)	SK 20
	40:10:00 iG:04:34:00	- do. - TC5027BP	"	Counter	

* New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
	40:10:00 iG 04:61:00	IC MN3009	I C	BBD	
※	40:10:00 iG 04:73:00	- do. - TC4025BP	"	3 input NOR	
※	40:10:00 iG 04:75:00	- do. - TC4078BP	"	8 input NOR	
※	40:10:00 iG 04:76:00	- do. - TC4082BP	"	4 input AND	
※	40:10:00 iG 04:77:00	- do. - TC4514BP	"	4 bit to 16 bit DECODER	
	30:10:00 iT 62:10:00	- do. - YM62100	"	KAC	SK 20
	30:10:00 iT 62:20:00	- do. - YM62200	"	TGC	SK 20
※	30:10:00 iT 62:40:00	- do. - YM62400	"	SCA	
	30:10:00 iT 62:60:00	- do. - YM62600	"	DVG	SK 20
	30:10:00 iT 62:70:00	- do. - YM62700	"	PSC	SK 20
	30:10:00 iT 63:30:00	- do. - YM63300	"	SECII	SK 20
	30:10:00 iT 70:20:00	- do. - YM70200	"	GF1	SK 20
※	30:10:00 iT 70:30:00	- do. - YM70300	"	CF2	
	30:10:00 iT 70:40:00	- do. - YM70400	"	GOA	SK 20
	40:10:00 iA 04:90:10	Transistor 2SA490(Y)	ト ラ ン ジ ス タ		
	40:10:00 iA 09:50:00	- do. - 2SA950(Y)	"		
	40:10:00 iA 10:15:70	- do. - 2SA1015(O,Y)	"		
	40:10:00 iA 11:64:00	- do. - 2SA1164(Y)	"		
	40:10:00 iA 11:64:10	- do. - (GR)	"		
	40:10:00 iC 07:52:20	- do. - 2SC752(Y)	"		
	40:10:00 iC 18:15:70	- do. - 2SC1815(O,Y)	"		
	40:10:00 iC 21:20:00	- do. - 2SC2120(Y)	"		
	42:00:00 iD 02:34:20	- do. - 2SD234(Y)	"		
	40:10:00 iE 00:00:10	FET 2SK30A(Y)	F E T		
	40:10:00 iE 10:12:30	- do. - 2SK105	"		
	40:10:00 iF 00:00:40	Diode 1S1555	ダ イ オ ー ド		
	40:10:00 iF 00:08:80	- do. - WZ050	"		
	40:10:00 iH 00:02:80	- do. - 1D2C1	"		
	40:10:00 iH 00:02:90	- do. - 1D2Z1	"		
	40:10:00 iH 00:04:70	- do. - 1D4B1	"		
	40:10:00 HQ:23:00:10	Slide Variable Resistor A-10KΩ x 2	ス ラ イ ド ボ リ ュ ー ム		
	40:10:00 HQ:23:00:20	- do. - A-10KΩ	"		
	40:10:00 HQ:23:00:30	- do. - A-25KΩ	"		
	40:10:00 HQ:23:00:40	- do. - B-100KΩ	"		
	40:10:00 HQ:23:00:50	- do. - (with open) - do. -	"		
	40:10:00 HQ:23:00:60	- do. - B-10KΩ	"		
	40:10:00 HQ:23:00:70	- do. - C.T. - do. -	"	Center Click	
	40:10:00 HQ:23:00:80	- do. - C-100KΩ	"		
	40:10:00 HQ:23:00:90	- do. - C-10KΩ	"		
	40:10:00 HQ:23:01:10	- do. - A-2MΩ	"		
	40:10:00 HS:31:05:70	Rotary Variable Resistor B-10KΩ	ロ ー タ リ ー ボ リ ュ ー ム		
	40:10:00 HS:31:09:90	- do. - A-10KΩ x 2	"		
	40:10:00 HT:19:00:10	Semi Variable Resistor B-500Ω	半 固 定 抵 抗		
	40:10:00 HT:19:00:20	- do. - B-1KΩ	"	V10K	
	40:10:00 HT:19:00:40	- do. - B-5KΩ	"	V10K8-4-2	
	40:10:00 HT:19:00:50	- do. - B-10KΩ	"	- do. -	
	40:10:00 HT:19:00:70	- do. - B-50KΩ	"	- do. -	
	40:10:00 HT:19:00:80	- do. - B-100KΩ	"	- do. -	

※ New Parts (新規部品)

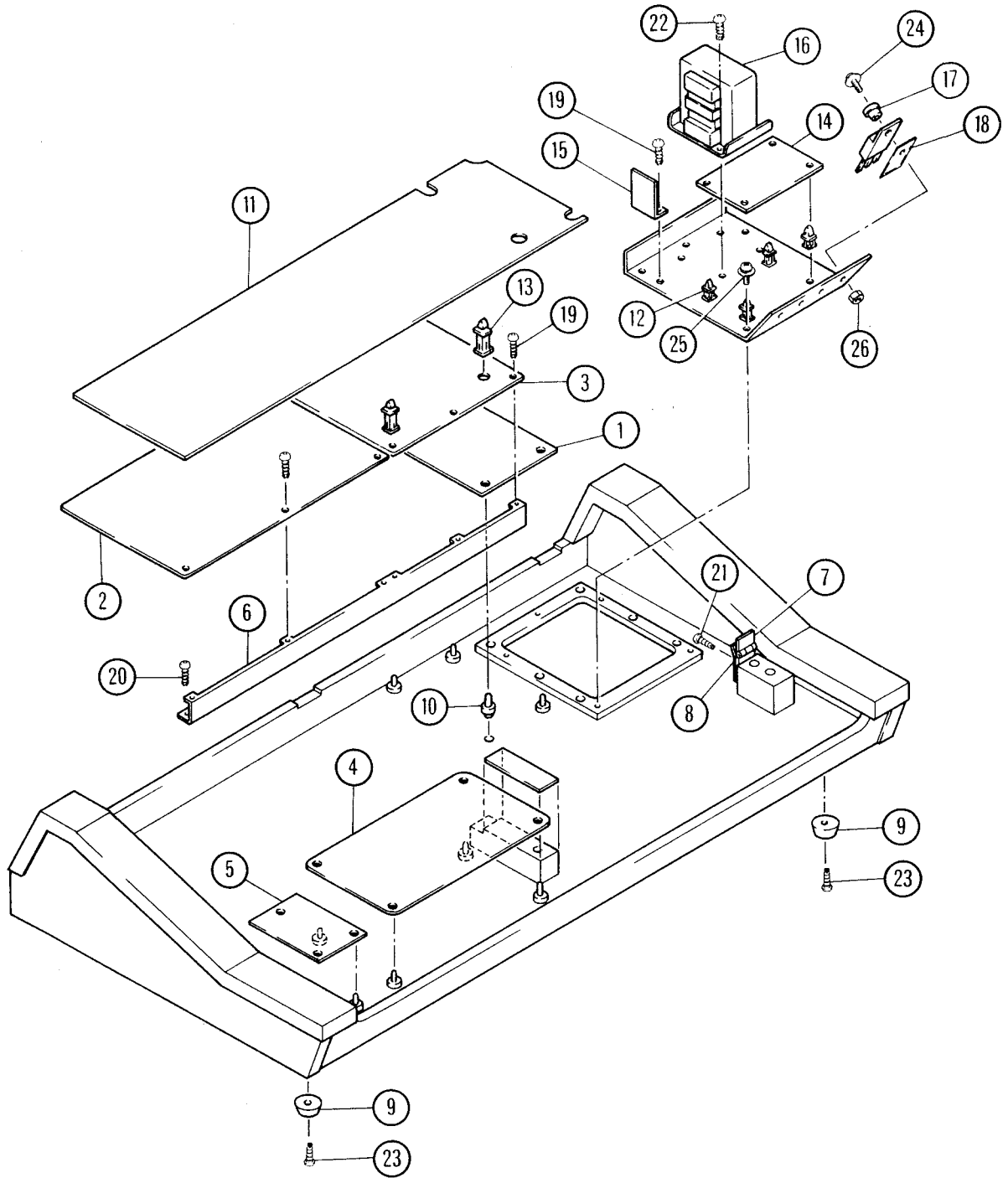
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
40:10:00	HT:19:00:90	- do. - B-200K Ω	半 固 定 抵 抗	V10K8-4-2	
40:10:00	HT:19:01:00	- do. - B-500K Ω	"	- do. -	
40:10:00	HT:19:01:30	- do. - B-2K Ω	"	V10K	
40:10:00	HT:69:00:10	- do. - B-5K Ω	"	RJ9W	
40:10:00	HL:32:51:20	Metal Oxide Film Resistor 120 Ω	酸 金 抵 抗		
40:10:00	HL:31:24:70	- do. - 0.47 Ω	"		
40:10:00	HL:31:26:80	- do. - 0.68 Ω	"		
40:10:00	HL:31:34:70	- do. - 4.7 Ω	"		
40:10:00	HL:31:54:70	- do. - 470 Ω	"		
40:10:00	HU:57:52:00	Metal Film Resistor $\pm 1\%$ 270 Ω	金 属 皮 膜 抵 抗		
40:10:00	HU:57:61:00	- do. - 1K Ω	"		
40:10:00	HU:57:65:10	- do. - 5.1K Ω	"		
40:10:00	HU:57:66:80	- do. - 6.8K Ω	"		
40:10:00	HU:57:69:10	- do. - 9.1K Ω	"		
42:00:00	HU:57:71:00	- do. - 10K Ω	"		
40:10:00	HU:57:71:50	- do. - 15K Ω	"		
40:10:00	HU:57:71:80	- do. - 18K Ω	"		
40:10:00	HU:57:72:00	- do. - 20K Ω	"		
40:10:00	HU:57:72:20	- do. - 22K Ω	"		
42:00:00	HU:57:72:70	- do. - 27K Ω	"		
40:10:00	HU:57:74:70	- do. - 47K Ω	"		
40:10:00	HU:57:81:00	- do. - 100K Ω	"		
40:10:00	HU:59:51:00	- do. - $\pm 0.1\%$ 100 Ω	"		
40:10:00	HU:59:61:00	- do. - 1K Ω	"		
40:10:00	HU:59:71:00	- do. - 10K Ω	"		
* 40:10:00	HU:59:72:00	- do. - 20K Ω	"		
40:10:00	HU:59:74:00	- do. - 40K Ω	"		
40:10:00	HU:59:78:00	- do. - 80K Ω	"		
40:10:00	HU:59:81:60	- do. - 160K Ω	"		
* 40:10:00	HZ:00:18:30	- do. - 1.684K Ω	"		
* 40:10:00	HZ:00:18:40	- do. - 2.414K Ω	"		
* 40:10:00	HZ:00:18:50	- do. - 8.243K Ω	"		
* 40:10:00	HZ:00:18:60	- do. - 13.35K Ω	"		
* 40:10:00	HZ:00:18:70	- do. - 29.94K Ω	"		
40:10:00	FD:65:21:20	Polystyrene Capacitor 120PF	スチロールコンデンサ		
40:10:00	FD:65:22:70	- do. - 270PF	"		
40:10:00	FF:04:31:20	Polystyrene Capacitor 1200PF	防湿型 スチコン		
40:10:00	FL:63:71:00	Bipolar Capacitor 16V 10 μ F	バイポーラコンデンサ		
40:10:00	FL:64:62:20	- do. - 25V 2.2 μ F	"		
40:10:00	FL:66:61:00	- do. - 50V 1 μ F	"		
42:00:00	FM:11:61:00	- do. - - do. -	"		
42:00:00	FM:22:62:20	- do. - 25V 2.2 μ F	"		
40:10:00	FN:14:61:00	Solid Aluminium Capacitor 25V 1 μ F	固体アルミコンデンサ		
40:10:00	FN:24:56:80	- do. - - do. - 0.68 μ F	"		
40:10:00	FN:24:61:00	- do. - - do. - 1 μ F	"		
40:10:00	FZ:00:22:50	Spark Killer Capacitor 0.022 μ F	スパークキラーコンデンサ		

* New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
※	40:10:00 UJ:13:91:00	Electrolytic Capacitor 16V 1000μF	電 解 コ ン デ ン サ		
※	40:10:00 UJ:15:91:00	- do. - 35V 1000μF	"		
	40:10:00 UJ:15:92:20	- do. - 2200μF	"		
	40:10:00 KA:40:05:90	Slide Switch 2way, 3contact (NS)	ス ラ イ ド ス イ ッ チ	2回路3接点(NS)	
	40:10:00 KA:40:06:00	- do. - 2way, 2contact (NS)	"	2回路2接点(NS)	
	40:10:00 KA:40:07:90	- do. - 8contact (non click)	"	8接点(クリック無し)	
※	40:10:00 KA:40:08:00	- do. - 6contact (with click)	"	6接点(クリック有り)	
※	40:10:00 KA:40:08:40	- do. - 2way, 2contact (S)	"	2回路2接点(S)	
	40:10:00 KA:90:17:00	Push Switch with L.E.D. Gray	プ ッ シ ュ ス イ ッ チ		
	40:10:00 KA:90:17:10	- do. - White	"		
	40:10:00 iK:00:02:60	Photo Cupler P873-G35-201B	フ ォ ト カ プ ラ ー		
	40:10:00 iK:00:02:90	- do. - P873-13	"		
	40:10:00 iK:00:00:30	Photo Cell	フ ォ ト セ ル	EXP Pedal	
※	40:10:00 iK:00:03:20	Photo Sensor	フ ォ ト セ ン サ ー	Touch Control	
	40:10:00 GE:30:01:20	Choke Coil 100μH	チ ョ ー ク コ イ ル		
	40:10:00 GE:30:03:50	- do. - 68μH	"		
	40:10:00 GE:90:01:70	OSC Coil 125μH	発 振 コ イ ル		
	40:10:00 LB:20:15:40	Jack JL2B	ジ ャ ッ ク		
	40:10:00 LB:60:33:70	Socket 11P	ソ ケ ッ ト		
	40:10:00 JB:00:01:70	Lamp 24V 5W	電 球	EXP Pedal	
	42:00:00 KB:00:07:10	Fuse 250V T500mA	ミ ニ チ ュ ア ヒ ュ ー ズ	DC Board G	
	40:10:00 KB:00:07:30	- do. - T1A	"	- do. - G	
	40:10:00 KB:00:24:40	- do. - T500mA	"	- do. - J.U.C	
	40:10:00 KB:00:24:70	- do. - T1A	"	- do. - J.U.C	
	42:00:00 KB:00:07:40	- do. - T2A	"	AC Board G	
※	40:10:00 KB:00:23:50	- do. - 2A	"	- do. - J	
※	40:10:00 KB:00:25:00	- do. - 125V - do. -	"	- do. - U.C	
	40:10:00 KA:40:08:30	Voltage Selector	電 圧 切 換 器		
	30:12:00 NB:81:68:60	Power Transformer Unit	電 源 ト ラ ン ス ユ ニ ッ ト		
※	40:10:00 MG:00:10:30	AC Cord	電 源 コ ー ド	J	
※	40:10:00 MG:00:10:40	- do. -	"	U	
※	40:10:00 MG:00:10:50	- do. -	"	C	
※	40:10:00 MG:00:11:20	- do. -	"	G	
	40:10:00 CB:50:03:70	Connector NH 5P	N H コ ネ ク タ ー	Bottom Entry	
	40:10:00 LB:60:30:00	- do. - 7P	"	- do. -	
	40:10:00 LB:60:30:10	- do. - 8P	"	- do. -	
	40:10:00 LB:60:30:70	- do. - 10P	"	- do. -	
	40:10:00 LB:20:13:90	- do. - 2P	"	Top Entry	
	40:10:00 LB:50:02:50	- do. - 5P	"	- do. -	
	40:10:00 LB:60:24:60	- do. - 7P	"	- do. -	
	40:10:00 LB:60:24:90	- do. - 8P	"	- do. -	
	40:10:00 LB:60:24:70	- do. - 10P	"	- do. -	

※ New Parts (新規部品)

B. Cabinet Assembly



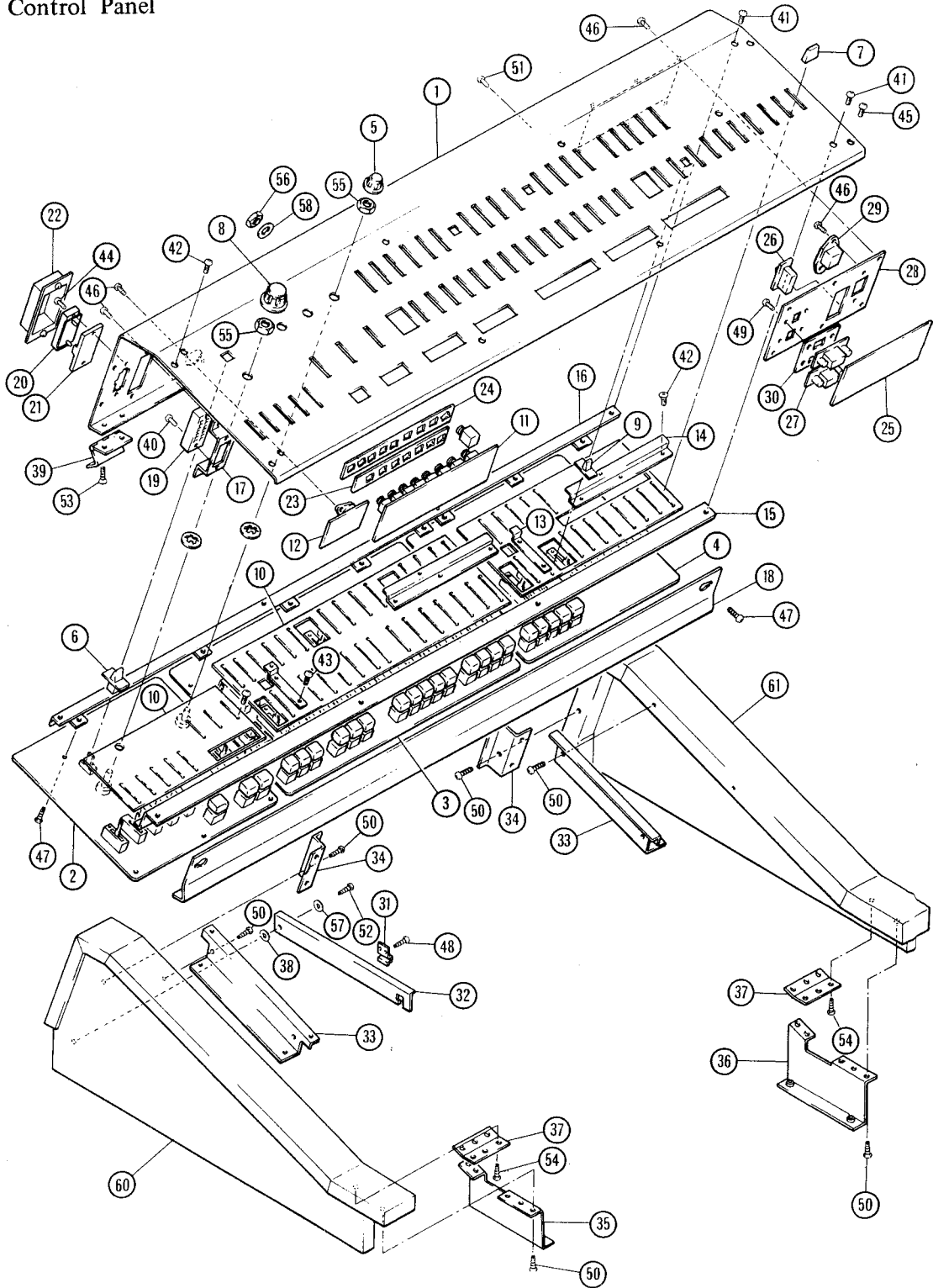
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
	30:12:92 00:00:00:10	Case Assembly	外 装 集 成		
1	30:12:91 NA:80:68:60	Circuit Board, TE	T E シ ー ト		SK 20
* 2	30:12:92 NA:80:71:60	- do. - , PG	P G "		
* 3	30:12:92 NA:80:71:70	- do. - , OG1	O G 1 "		
* 4	30:12:00 NA:80:71:80	- do. - , KC	K C "		
5	30:12:92 NA:80:76:30	- do. - , SW	S W "		

* New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
* 6	30:10:00 AA:81:55:00	Circuit Board Angle	シート取付アングル		
7	30:10:00 AA:81:12:00	Hinge	蝶 番		
* 8	30:10:00 AA:81:57:10	Stopper	回 転 止 め		
9	30:54:00 CB:80:12:70	Leg, Rubber	ゴ ム 脚		
10	30:56:00 CB:08:70:00	Holder, Circuit Board	シ ー ト ホ ル ダ ー		
11	40:10:00 CA:80:25:80	Shield Plastic	シ ー ル ド 紙		
* 12	30:10:00 CB:81:78:10	PC Suport	P C サ ポ ー ト		
* 13	40:10:00 CB:81:85:80	- do. -	"		
* 30:12:00 NB:81:67:10	Power Supply Unit Assembly	電 源 Ass'y	J.U.C		
* 30:12:00 NB:81:68:10	- do. -	"	G		
* 14	30:12:00 NA:80:73:00	Circuit Board, DC	D C シ ー ト	J.U.C	
* 30:12:00 NA:80:73:10	- do. -	"	G		
* 15	30:10:00 AA:81:63:00	Holder, Connector	コネクタホルダー		
42:00:00 KB:00:07:10	Fuse 250V T500mA	ヒ ュ ー ズ	G		
40:10:00 KB:00:07:30	- do. - T1A	"	- do. -		
40:10:00 KB:00:24:40	- do. - 500mA	"	J.U.C		
40:10:00 KB:00:24:70	- do. - 1A	"	- do. -		
40:10:00 LB:20:15:30	Fuse Holder Pin	ヒューズホルダーピン			
* 40:10:00 LB:60:39:70	Connector Socket Housing 6P	コ ネ ク タ			
* 40:10:00 LB:60:39:80	- do. - 7P	"			
* 16	30:12:00 NB:81:68:60	Power Transformer Unit	電源トランスユニット		
17	30:54:00 CB:07:28:80	Isolation Bush	絶 縁 ブ ッ シ ュ		
18	42:00:00 iL:00:02:70	Isolation Base	マイカベース		
19	42:00:00 Ei:33:00:60	Bind Head Tapping Screw 3 x 6	バインドタッピンネジ2種	Black	
20	40:10:00 Ei:33:01:00	- do. - 3 x 10	" 1種	- do. -	
21	40:10:00 Ei:03:01:60	- do. - 3 x 16	"	Yellow	
22	40:10:00 Ei:34:01:00	- do. - 4 x 10	"	Black	
23	40:10:00 Ei:04:01:60	- do. - 4 x 16	"	Yellow	
24	40:10:00 EL:02:60:80	Sems Screw M2.6 x 8	セムス小ネジ	- do. -	
25	40:10:00 EL:04:01:40	Sems Screw M4 x 14	セムス小ネジ	- do. -	
26	40:10:00 EV:10:02:60	Hexagonal Nut M2.6	六角ナット	- do. -	

* New Parts (新規部品) (J : Japan, U : US.American, C : Canadian, G : General)

C. Control Panel



Ref. No.	Part No.	Description	部品名	Remarks	Common Mod.
* 1	30:10:00 AA:81:58:70	Control Panel	コントロールパネル		
* 2	30:12:92 NA:80:71:30	Circuit Board, CPA	C P A シート		
* 3	30:12:92 NA:80:71:40	- do. - , CPB	C P B //		
* 4	30:12:92 NA:80:71:50	- do. - , CPC	C P C //		

* New Parts (新規部品)

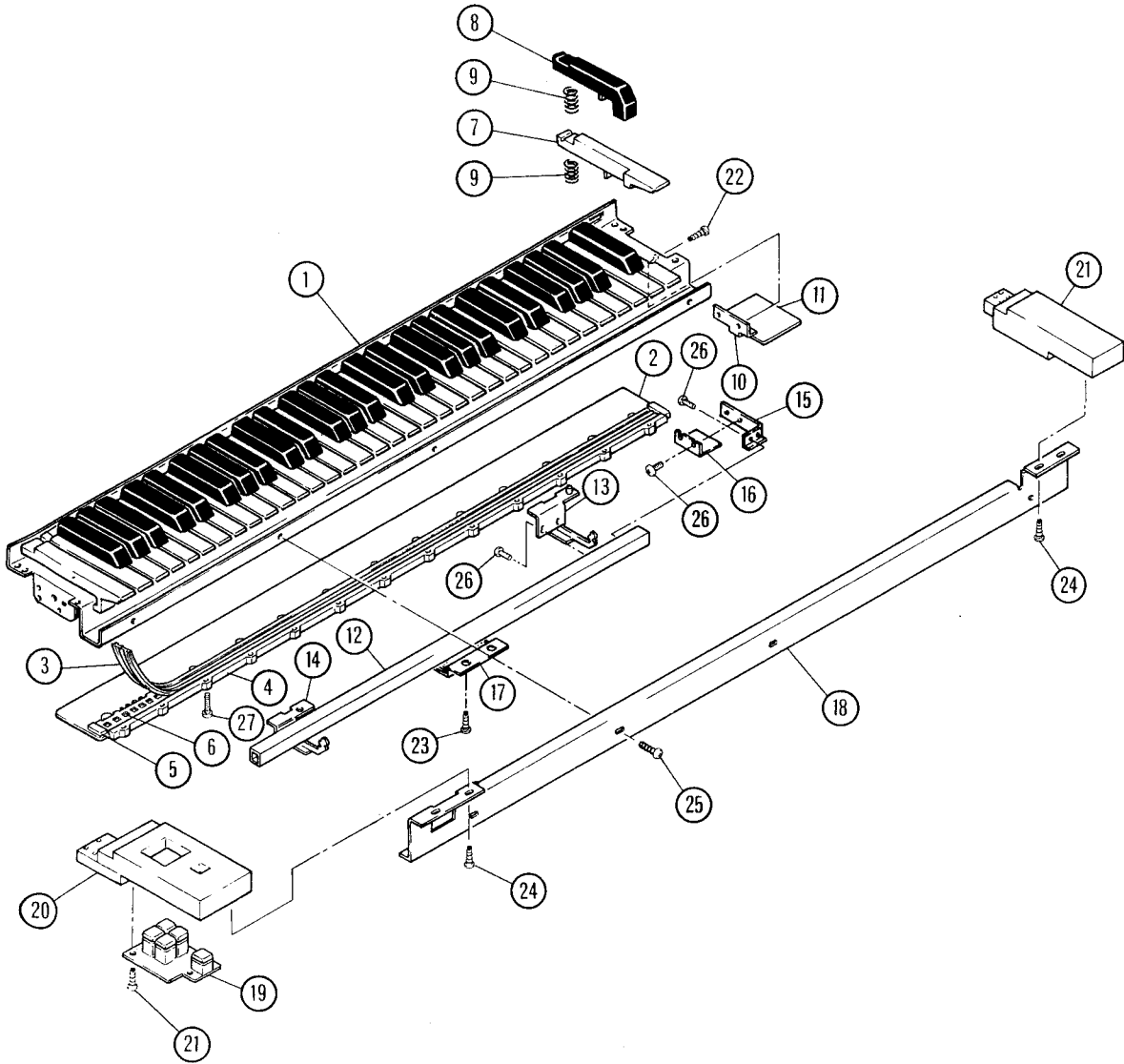
Ref. No.	Part No.			Description	部 品 名	Remarks	Common Model		
5	30:56:00	CB:81:21:40	Knob (Ivory)	ツ マ ミ					
6	30:10:00	CB:81:46:90	- do. - (- do. -)	"					
7	30:10:00	CB:81:69:60	- do. - (Yellow)	"					
	30:10:00	CB:81:69:70	- do. - (Gray)	"					
	30:10:00	CB:81:69:80	- do. - (White)	"					
* 8	30:10:00	CB:81:78:30	- do. -	"					
* 9	30:10:00	CB:81:79:00	- do. -	"					
* 10	40:10:00	CA:80:26:60	Dust Proot Cloth	防 塵 ク ロ ス					
* 40:10:00	CA:80:28:80	- do. -	"	"					
* 40:10:00	CA:80:28:90	- do. -	"	"					
* 11	30:12:00	NA:80:00:60	Circuit Board, TC	T C シ ー ト					
* 12	30:12:00	NA:80:00:40	- do. - , JK	J K シ ー ト					
* 13	30:10:00	AA:81:47:90	Bracket	取 付 板			SK 10,20		
* 14	30:10:00	AA:81:57:40	Slide VR Angle	補 強 ア ン グ ル					
* 15	30:10:00	AA:81:57:80	Circuit Board Angle	シ ー ト 取 付 ア ン グ ル					
* 16	30:10:00	AA:81:57:90	- do. -	"					
* 17	30:10:00	AA:81:58:30	PK Connector Holder	コ ネ ク タ 取 付 金 具					
* 18	30:10:00	AA:81:58:60	Panel Holder	パ ネ ル 受 け 金 具					
19	30:12:00	MZ:80:88:20	PK Cord Assembly	P K 束 線 Ass'y					
	40:10:00	BB:00:44:30	Contact Pin 2.5P	2.5Pコネクタピン					
	40:10:00	LB:60:01:30	20P Connector	コネクタ 20P					
	40:10:00	LB:60:24:40	Housing 7P	ハウジング 7P					
	40:10:00	LB:60:24:80	- do. - 8P	" 8P					
20	30:12:00	MZ:80:88:40	KC Cord Assembly	K C 束 線 Ass'y					
	40:10:00	BB:00:46:90	Contact Pin	コネクタピン					
	40:10:00	LB:60:37:60	Housing 7P	ハウジング 7P					
	40:10:00	LB:60:37:70	- do. - 8P	" 8P					
		LB:60:39:40	Connector Socket 24P	コネクタ 24P					
21	40:10:00	AA:81:65:00	Bracket	ブ ラ ケ ッ ト					
22	30:10:00	CB:81:79:10	Cover	カ バ ー					
23	30:10:00	AA:81:36:10	Spacer, Jack	ジャックスペーサー					
24	30:10:00	AA:81:57:20	- do. -	"					
	30:12:00	NB:81:66:70	AC Panel Assembly	A C パ ネ ル Ass'y	u.c				
	30:12:00	NB:81:68:70	- do. -	"	G				
	30:12:00	NB:81:68:80	- do. -	"	J				
25	30:12:00	NA:80:73:30	Circuit Board AC	A C シ ー ト	u.c				
	30:12:00	NA:80:73:40	- do. -	"	G				
	30:12:00	NA:80:73:50	Circuit Board AC	A C シ ー ト	J				
26	40:10:00	KA:10:08:10	Power Switch	パ ワ ー ス イ ッ チ					
27	40:10:00	KA:40:08:30	Voltage Selector	電 圧 切 換 器					

* New Parts (新規部品)

Ref. No.	Part No.		Description	部 品 名	Remarks	Common Model
28	30:10:00	AA:81:55:10	AC Panel	A C パネル	G	
	30:10:00	AA:81:64:50	- do. -	"	J.U.C	
29	40:10:00	LB:20:18:20	AC Inlet	A C インレット	J.U.C	
	40:10:00	LB:20:18:60	- do. -	"	G	
	40:10:00	MG:00:10:30	AC Cord	電 源 コ ー ド	J	
	40:10:00	MG:00:10:40	- do. -	"	C	
	40:10:00	MG:00:10:50	- do. -	"	G	
	40:10:00	MG:00:11:20	- do. -	"	U	
30	40:10:00	CB:81:78:90	Spacer	ス ペ ー サ ー		SK 10
60	30:12:92	DA:80:58:50	Arm (Left)	腕 木 (左)		
61	30:12:92	DA:80:58:60	- do. - (Right)	" (右)		
31	30:54:00	AA:80:25:40	Holder, Stay	ス テ ー 押 え 金 具		
32	30:10:00	AA:81:12:30	Stay (Left)	ス テ ー (左)		
33	30:10:00	AA:81:11:50	Panel Bracket (Large)	パ ネ ル 取 付 金 具		
34	30:10:00	AA:81:11:60	- do. - (Small)	"		
35	30:10:00	AA:81:56:60	- do. - (Left)	固 定 金 具 (左)		
36	30:10:00	AA:81:56:70	- do. - (Right)	" (右)		
37	30:10:00	AA:81:56:40	Slide VR Angle	補 強 ア ン グ ル		
38	30:10:00	CB:81:14:30	Bush	ブ ッ シ ュ		
39	30:10:00	AA:81:12:40	Hinge	蝶 番		
40	42:00:00	EA:30:00:80	Pan Head Screw M3 x 8	ナ ベ 小 ネ ジ	Black	
41	40:10:00	EC:30:00:50	Truss Head Screw M3 x 5	ト ラ ス 小 ネ ジ	- do. -	
42	40:10:00	ED:32:00:40	Bind Head Screw M2 x 4	バ イ ン ド 小 ネ ジ	- do. -	
43	40:10:00	ED:32:60:40	- do. - M2.6 x 4	"	- do. -	
44	40:10:00	ED:32:60:80	- do. - M2.6 x 8	"	- do. -	
45	42:00:00	ED:33:00:40	- do. - M3 x 4	"	- do. -	
46	40:10:00	ED:33:00:60	- do. - M3 x 6	"	- do. -	
47	40:10:00	Ei:33:00:60	Bind Head Tapping Screw 3 x 6	バ イ ン ド タ ッ ピ ン ネ ジ 2 種	- do. -	
48	42:00:00	Ei:03:01:00	- do. - 3 x 10	" 1 種	Yellow	
49	40:10:00	Ei:33:01:00	- do. - - do. -	"	Black	
50	40:10:00	Ei:03:01:20	- do. - 3 x 12	"	Yellow	
51	40:10:00	Ei:34:01:00	- do. - 4 x 10	"	Black	
52	40:10:00	Ei:04:01:60	- do. - 4 x 16	"	Yellow	
53	40:10:00	EM:23:00:60	Oval Head Tapping Screw 3 x 6	丸 皿 タ ッ ピ ン ネ ジ 2 種	Chromium Plate	
54	40:10:00	EO:03:01:20	Flat Head Tapping Screw 3 x 12	皿 タ ッ ピ ン ネ ジ 1 種	Yellow	
55	40:10:00	EZ:30:70:10	Hexagonal Nut M7	六 角 ナ ッ ト		
56	40:10:00	LX:20:00:60	- do. - M9	"	Black	
57	40:10:00	EV:20:00:40	Plain Washer M4	平 座 金	Yellow	
58	40:10:00	LX:20:00:10	- do. - 9S	"	Black	
59	40:10:00	EV:41:00:70	Toothed Lock Washer A7S	歯 付 座 金	Yellow	

* New Parts (新規部品) (J: Japan, U: US.American, C: Canadian, G: General)

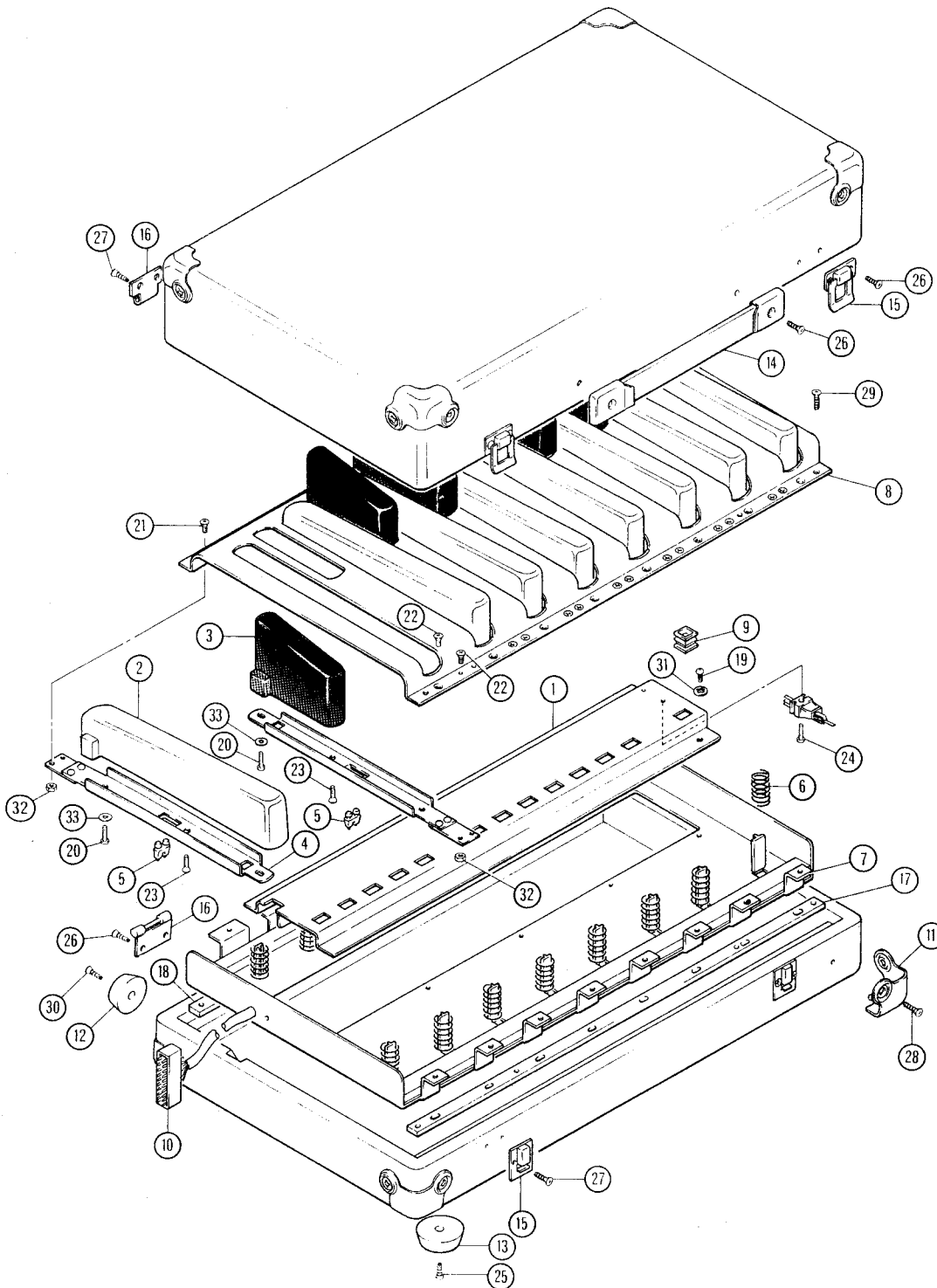
D. Keyboard Assembly



Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
1	30:10:00 NB:81:74:30	Keyboard Assembly	鍵盤 Ass'y		
	30:10:00 NB:81:55:30	Switch Unit	スイッチユニット		SK 20
2	30:10:00 NA:80:65:20	Circuit Board, MK	M K シ ー ト		SK 20
3	40:10:00 CB:03:23:30	Rubber Contact	可 動 導 電 ゴ ム		
4	30:10:00 CB:03:24:00	Holder 12Keys	基板ホルダー(Q)		
	30:10:00 CB:03:24:10	- do. - 13Keys	" (K)		
5	40:10:00 CB:03:35:40	End Plate	エンドプレート		
6	30:10:00 CB:03:35:70	Isolation Spacer 12Keys	絶縁スペーサー(Q)		
	30:10:00 CB:03:35:80	- do. - 13Keys	" (K)		
7	30:10:00 CB:03:22:10	White Key C, F	白 鍵		
	30:10:00 CB:03:22:20	- do. - D	"		
	30:10:00 CB:03:22:30	- do. - B, E	"		
	30:10:00 CB:03:22:40	- do. - G	"		
	30:10:00 CB:03:22:50	- do. - A	"		
	30:10:00 CB:03:22:60	- do. - C#	"		
※	30:10:00 CB:81:83:40	Black Key	黒 鍵		
9	30:10:00 AA:04:37:20	Coil Spring	コイルスプリング		
※	30:10:00 AA:81:63:70	Intrapta Angle	インタラプタアングル		
※	30:12:00 NA:80:74:30	Circuit Board, PC	P C シ ー ト		
※	30:10:00 BA:80:51:80	PC Bar	P C バ ー		
※	30:10:00 AA:81:63:30	PC Angle A	P C ア ン グ ル A		
※	30:10:00 AA:81:65:60	- do. - B	" B		
※	30:10:00 BA:80:52:70	Angle, Reflector	リフレクターアングル		
※	30:10:00 BA:80:52:80	PC Reflector	P C リ フ レ ク タ ー		
※	30:10:00 AA:81:63:80	Stopper, PC Bar	P C バ ー ス ト ッ パ ー		
18	30:10:00 AA:81:57:60	Keyboard Spacer (L)	口 金 (L)		
※	30:12:00 NX:80:00:70	Circuit Board PN1	P N 1 シ ー ト		
※	30:12:00 DA:80:58:30	Lower Endblock (Left)	下 鍵 盤 拍 子 木 (左)		
※	30:12:00 DA:80:58:20	Endblock (Right)	" (右)		
22	42:00:00 ED:32:60:60	Bind Head Screw M2.6 x 6	バ イ ン ド 小 ネ ジ	Black	
23	40:10:00 Ei:03:00:60	Bind Head Tapping Screw 3 x 6	バ イ ン ド タ ッ ピ ン ネ ジ 2 種	Yellow	
24	40:10:00 Ei:33:01:20	- do. - 3 x 12	" 1 種	Black	
25	40:10:00 Ei:34:01:00	- do. - 4 x 10	"	- do. -	
26	40:10:00 ED:03:00:80	Bind Head Screw 3 x 8	バ イ ン ド 小 ネ ジ	Yellow	
27	40:10:00 EZ:33:01:40	- do. - M3 x 14	エ ー バ ー タ イ ト バ イ ン ド ネ ジ	- do. -	

※ New Parts (新規部品)

E. Bass Pedal BP2



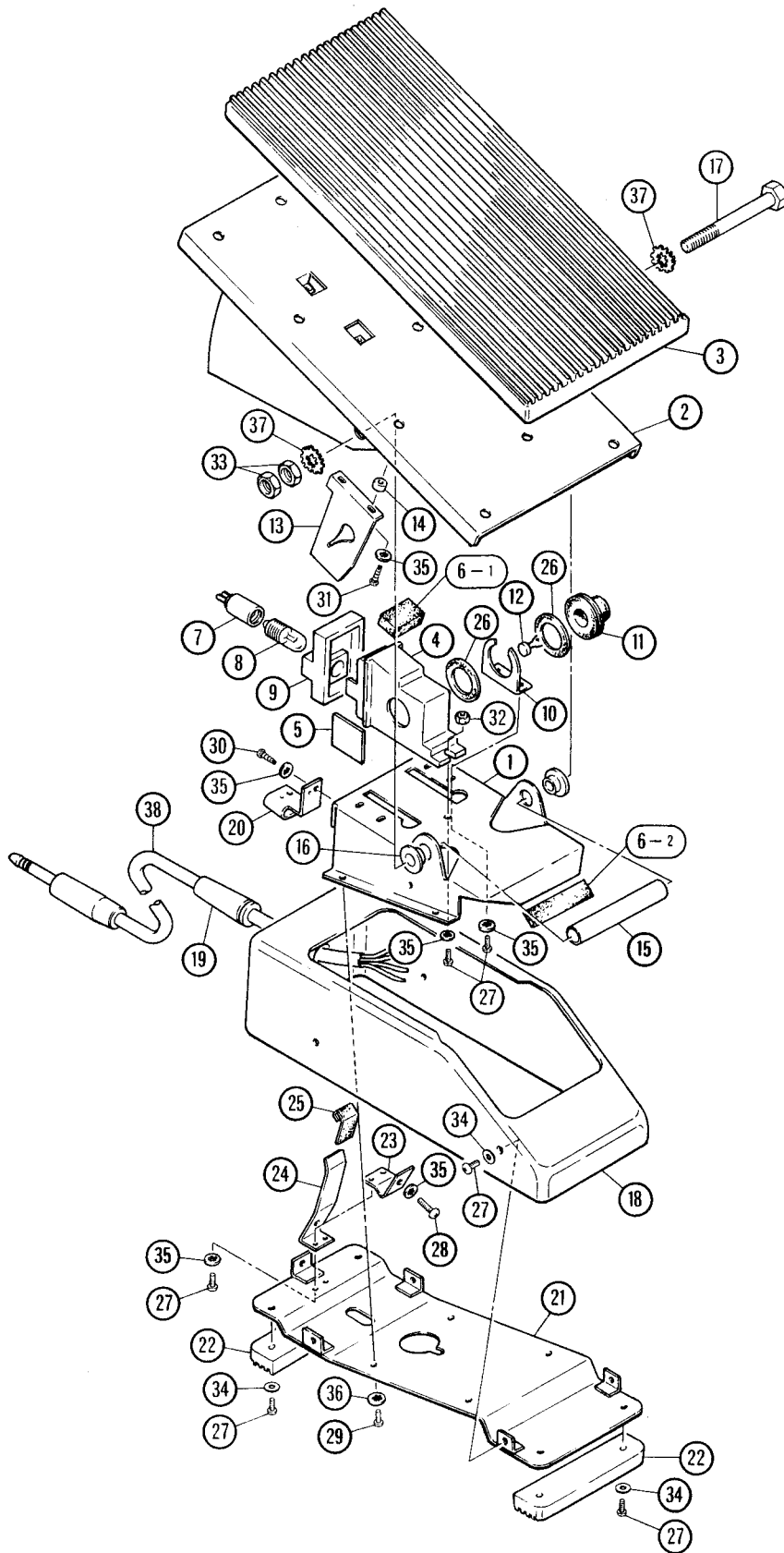
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model
※	30:12:00 NB:81:68:90	Bass Pedal Assembly	ベースペダル Ass'y		
※	1 30:12:00 NB:81:69:00	Switch Base Assembly	スイッチベース Ass'y		
	30:10:00 AA:02:31:40	Switch Base	スイッチベース		
	30:10:00 NB:03:70:40	Switch Assembly	スイッチ Ass'y		
※	40:10:00 LC:86:42:00	Printed Circuit Board	プリント基板		

※ New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model		
	30:10:00 NB:01:88:20	White Key Assembly	白 鍵 Ass'y				
	30:10:00 NB:01:88:30	Black Key Assembly	黒 鍵 Ass'y				
2	30:10:00 CB:01:70:70	White Key Head	白 鍵 ヘ ッ ド				
3	30:10:00 CB:01:70:80	Black Key Head	黒 鍵 ヘ ッ ド				
4	30:10:00 AA:02:13:90	Key Arm	キ ー ア ー ム				
	30:0:00 AA:02:14:00	Key Arm Spring	板 パ ネ				
5	30:10:00 CB:01:69:30	Actuator	ア ク チ ェ ー タ ー				
6	30:10:00 AA:02:14:10	Key Spring	キ ー ス プ リ ン グ				
7	30:10:00 AA:02:14:20	Switch Frame	ス イ ッ チ フ レ ー ム				
※	8	30:10:00 AA:81:59:10	Key Frame	キ ー フ レ ー ム			
	9	30:10:00 CB:01:83:70	Rubber, Dust Cover	防 塵 ゴ ム			
	40:10:00 CD:01:02:10	Key Guide Cloth	キ ー ガ イ ド ク ロ ス				
	40:10:00 CD:01:02:20	- do. -	//				
※	10	30:12:00 MZ:80:89:30	B.P. Cable Assembly	B P 線 材 Ass'y			
	30:10:00 CB:00:45:30	Cord Bush	コ ー ド ブ ッ シ ュ				
	40:10:00 LB:60:01:40	Plug 20P	プ ラ グ 20P				
	40:10:00 LB:00:01:50	Connector Cover	コ ネ ク タ カ バ ー				
	40:10:00 MD:00:01:00	Cable	ケ ー ブ ル				
	40:10:00 LB:60:24:40	Connector Housing 2.5P	コ ネ ク タ ハ ウ ジ ン グ				
	40:10:00 CB:00:07:10	Cord Holder	コ ー ド 押 え				
	30:12:00 00:00:00:01	B.P. Case Assembly	B P ケ ー ス 本 体 Ass'y	蓋 含 む			
	30:12:94 DA:80:59:40	B.P. Case Cover Assembly	B P ケ ー ス 蓋 Ass'y				
11	30:10:00 AA:80:90:50	Corner Fitting	コ ー ナ ー 金 具				
12	30:10:00 CB:02:32:00	Slip Fitt	ス ベ リ 座				
13	30:54:00 CB:80:12:70	Leg, Rubber	ゴ ム 脚				
14	30:54:00 NB:81:12:70	Handle Assembly	把 手 Ass'y				
15	40:10:00 EX:00:00:40	Lock	バ ッ チ ン 錠				
16	40:10:00 EX:00:00:50	Hanging Hinge	引 掛 蝶 番				
17	30:10:00 CB:01:84:00	Cushion	ク ッ シ ョ ン				
18	30:10:00 CB:01:84:10	- do. -	//				
19	40:10:00 EA:03:00:50	Pan Head Screw M3 x 5	ナ ベ 小 ネ ジ	Yellow			
20	40:10:00 EA:04:02:00	- do. - M4 x 20	//	- do. -			
21	40:10:00 EB:03:00:50	Flat Head Screw M3 x 5	皿 小 ネ ジ	- do. -			
22	40:10:00 EB:03:00:60	- do. - M3 x 6	//	- do. -			
23	40:10:00 EB:04:02:00	- do. - M4 x 20	//	- do. -			
24	40:10:00 ED:03:01:20	Bind Head Screw M3 x 12	バ イ ン ド 小 ネ ジ	- do. -			
25	40:10:00 Ei:34:01:20	Bind Head Tapping s 4 x 12	バ イ ン ド タ ッ ピ ン ネ ジ 1 種	Black			
26	40:10:00 EM:23:01:00	Oval Head Tapping Screw 3 x 10	丸 皿 タ ッ ピ ン ネ ジ 1 種	Choromium			
27	40:10:00 EM:23:51:00	- do. - 3.5 x 10	//	- do. -			
28	40:10:00 EO:24:02:00	Flat Head Tapping Screw 4 x 20	皿 タ ッ ピ ン ネ ジ 1 種	- do. -			
29	40:10:00 EP:03:11:00	Flat Head Screw 3.1 x 10	サ ラ 木 ネ ジ	Yellow			
30	40:10:00 ER:22:71:30	Oval Head Wood Screw 2.7 x 13	丸 皿 木 ネ ジ	Choromium			
31	40:10:00 EV:41:00:30	Toothed Lock Washer A3M	歯 付 座 金	Yellow			
32	40:10:00 EV:10:00:30	Hexagonal Nut M3	六 角 ナ ッ ト	- do. -			
33	40:10:00 EV:20:00:40	Flat Washer M4	平 座 金	- do. -			

※ New Parts (新規部品)

F. Foot Controller FC-3A



Ref. No.	Part No.		Description	部 品 名	Remarks	Common Model		
*	30:12:00	NB:81:64:90	EXP Pedal Assembly	E X P Ass'y				
*	1	30:10:00 AA:81:53:30	EXP Frame	E X P フ レ ー ム				
	2	30:10:00 AA:01:38:00	EXP Pedal Plate	踏 板				
	3	30:10:00 CB:00:36:80	EXP Mat	E X P マ ッ ト				
	4	30:10:00 CB:00:76:20	Lamp Cover	ラ ン プ カ バ ー				
	5	40:10:00 CG:00:00:10	Glass	ス リ ガ ラ ス				
*	6	30:10:00 CB:81:77:80	Stopper Rubber	ス ト ッ パ ー ゴ ム				
*		30:10:00 CB:81:85:90	- do. -	//				
	7	30:10:00 CB:00:76:40	Lamp Holder	ラ ン プ ホ ル ダ ー				
	8	40:10:00 JB:00:01:70	Lamp 24V 5W	電 球				
	9	40:10:00 LB:20:01:20	Bracket	ブ ラ ケ ッ ト				
	10	30:10:00 AA:01:08:00	Holder Plate	ホ ル ダ ー 支 持 板				
	11	30:10:00 CB:00:76:30	Holder, Photo Cell	フ ォ ト セ ル ホ ル ダ ー				
	12	40:10:00 iK:00:00:30	Photo Cell	フ ォ ト セ ル				
*	13	30:10:00 AA:81:53:40	Shutter Plate	シャ ッ タ ー 板				
	14	30:10:00 CB:00:76:50	Spacer	ス ペ ー サ ー				
	15	30:10:00 AA:01:48:00	- do. -	//				
*	16	30:10:00 CB:00:18:10	Bearing	L E 軸 受				
	17	30:10:00 AA:01:08:20	Shaft	シャ フ ト				
*	18	30:10:00 CB:81:86:00	EXP Case	E X P ケ ー ス				
	19	30:56:00 CB:00:45:30	Cord Bush	コ ー ド ブ ッ シ ュ				
*	20	30:10:00 AA:01:37:80	Cord Clamper	コ ー ド 支 え				
*	21	30:10:00 AA:01:37:90	EXP Base	E X P ベ ー ス				
*	22	30:10:00 CB:03:00:40	Stopper	滑 り 止 め ゴ ム				
*	23	30:10:00 AA:81:53:50	Pedal Spring Angle	バ ネ 押 え ア ン グ ル				
*	24	30:10:00 AA:81:53:60	Pedal Spring	板 バ ネ				
*	25	40:10:00 CA:80:25:90	Pedal Slide Skin	摺 動 皮 革				
	26	30:10:00 CC:02:03:70	Felt $\phi 25 \times \phi 25 \times 2t$	フ ェ ル ト				
		40:10:00 Mi:01:35:70		束 線				
*	27	40:10:00 ED:33:01:00	Bind Head Screw M3 x 10	バ イ ン ド 小 ネ ジ	Black			
	28	42:00:00 ED:03:02:50	- do. - M3 x 25	//	Yellow			
	29	40:10:00 ED:34:01:00	- do. - M4 x 10	//	Black			
	30	40:10:00 Ei:03:00:80	Bind Head Tapping Screw 3 x 8	バ イ ン ド タ ッ ピ ン ネ ジ 2 種	Yellow			
	31	40:10:00 Ei:03:01:00	- do. - 3 x 10	// 3 種	- do. -			
	32	40:10:00 EV:10:00:30	Hexagonal Nut M3	六 角 ナ ッ ト				
	33	40:10:00 EV:10:00:68	- do. - M6	//				
*	34	40:10:00 EV:20:30:30	Flat Washer M3	平 座 金	Black			
	35	40:10:00 EV:41:00:30	Toothed Lock Washer A3M	歯 付 座 金	Yellow			
*	36	40:10:00 EV:40:30:40	- do. - A4M	//	Black			
	37	40:10:00 EV:43:00:60	- do. - AB6M	//	- do. -			

* New Parts (新規部品)