

YAMAHA

STRINGS

SS-30



SERVICE MANUAL

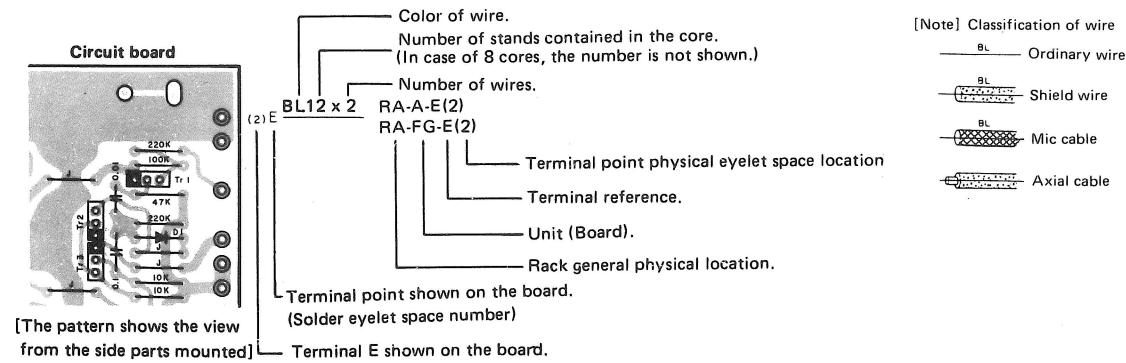
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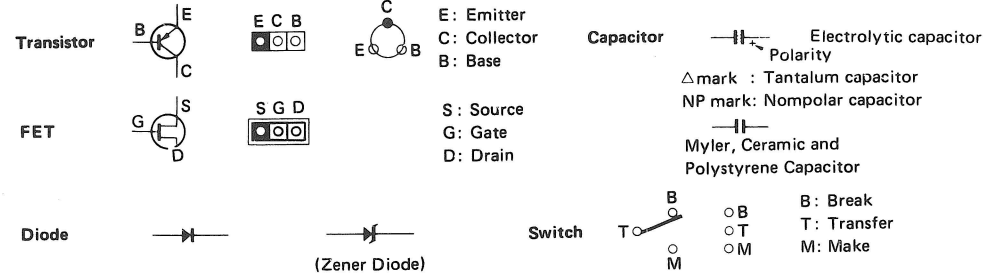
CORDING GUIDE

1 CIRCUIT BOARD AND WIRING

Two (2) black wires are connected to "E" on circuit board. One goes to each "E" terminal of A and FG circuit boards. In this case, the coding system is as follows:



2 SYMBOL DESCRIPTION



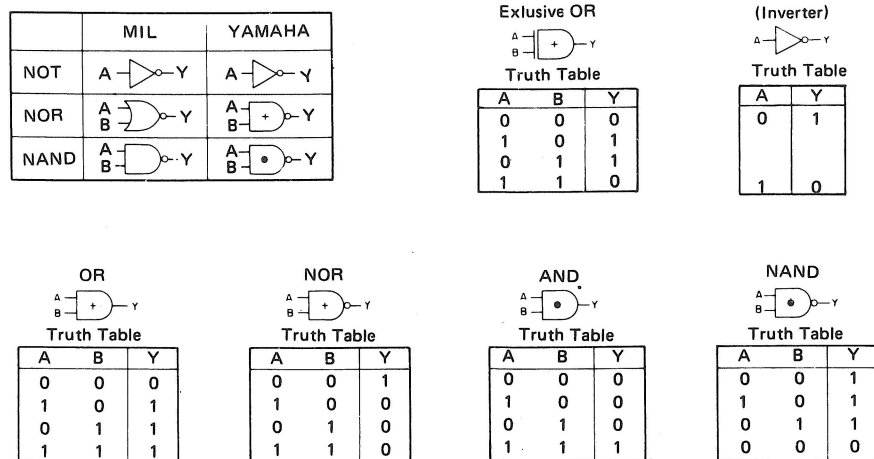
3 ABBREVIATIONS OF WIRE COLOR IN ELECTONE

BLACK.....BL	BROWN.....BR	RED.....RE
ORANGE.....OR	YELLOW.....YE	GREEN.....GR
BLUE.....BE	VIOLET.....VI	GRAY.....GY
WHITE.....WH	GRASS GREEN.....GG	SKY BLUE.....SB
PINK.....PK	TRANSPARENT.....TR	

4 WIRE COLOR - Musical Note Indication

C	C#	D	D#	E	F	F#	G	G#	A	A#	B
BR	RE	OR	YE	GR	BE	VI	GY	WH	GG	SB	PK

5 LOGIC SYMBOL



SPECIFICATIONS

KEYBOARD

49 keys c ~ c₄ (4 octaves)

TONE TABLET

VIOLIN system VIOLA
 VIOLIN 1
 VIOLIN 2
 CELLO system..... CELLO 1
 CELLO 2

TABLET FOR EFFECTS

VIOLIN system ATTACK SLOW
 CELLO system ATTACK SLOW
 ORCHESTRA SPEED 1,2
 CELLO
 VIOLIN

CONTROL VOLUME

PITCH
 DETUNE
 VIBRATO DELAY
 DEPTH
 SUSTAIN CELLO
 VIOLIN
 CELLO system..... VOLUME
 BRILLIANCE VIOLIN

ORCHESTRA DEPTH
 VOLUME

CONTROL SWITCH

KBD. SPLIT
 CONTROL JACK
 FOOT CONTROL (VOLUME)
 FOOT SWITCH (SUSTAIN)

OUTPUT JACK

OUTPUT -20dB/600Ω

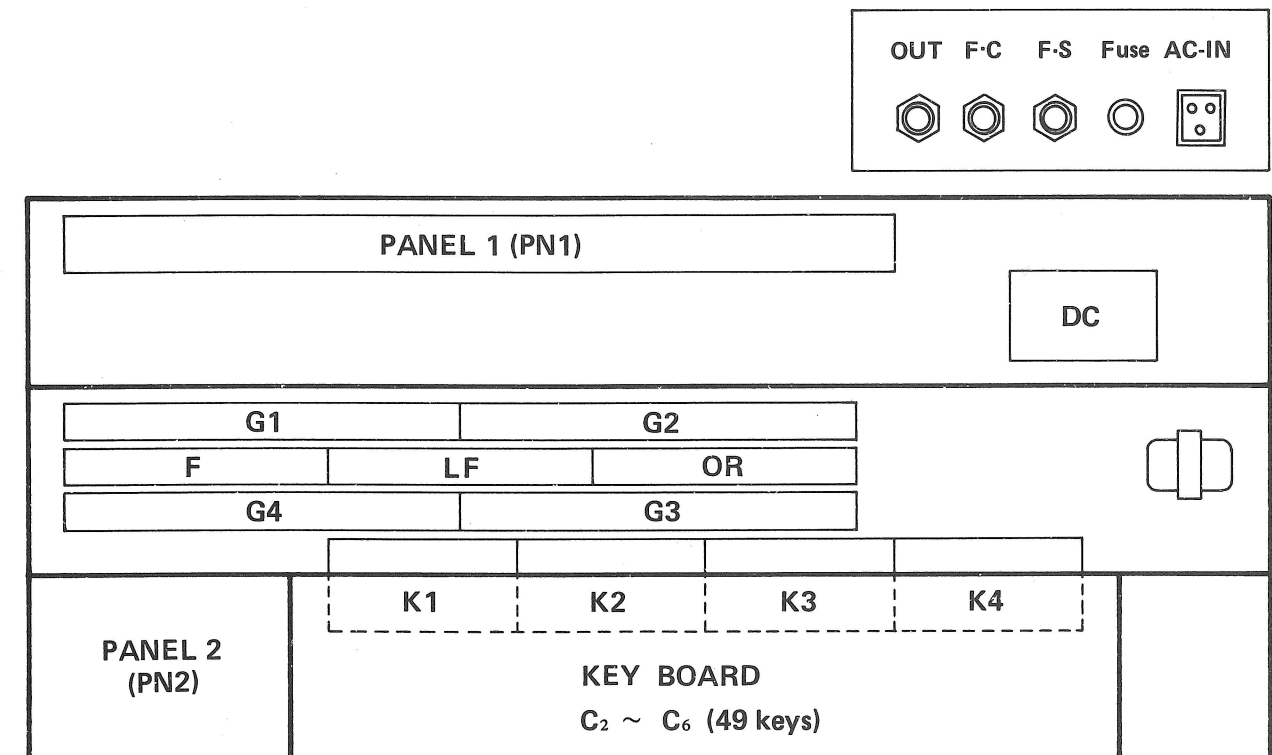
OTHERS

Power switch
 Pilot lamp
 AC input terminal
 Fuse
 Power Consumption ... 25W AC50/60Hz

EXTERNAL VIEW

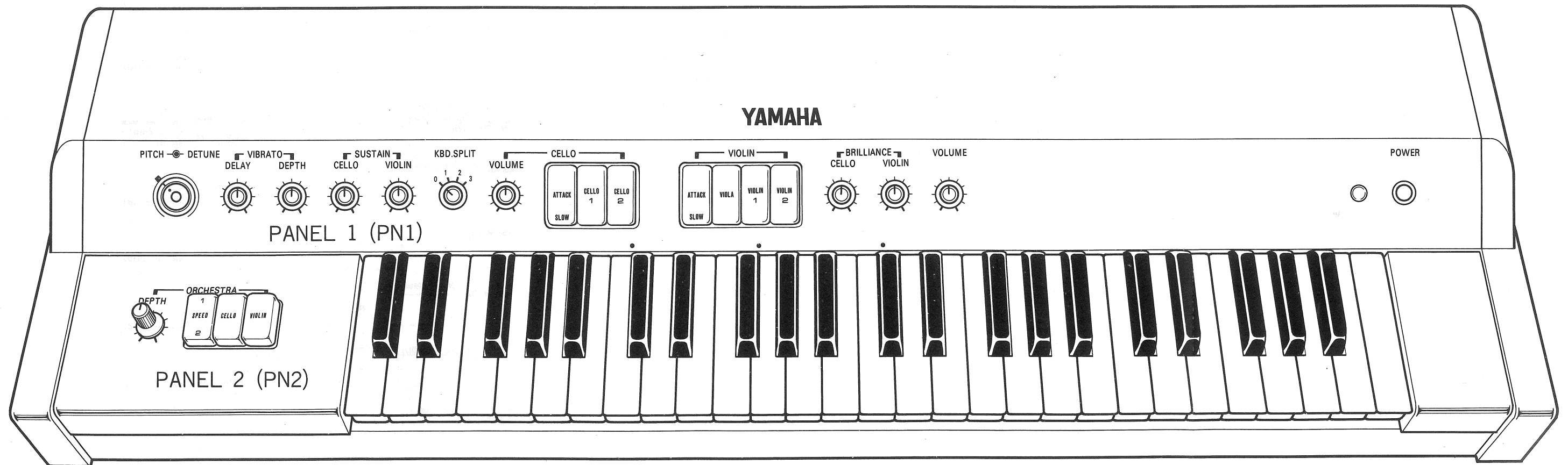
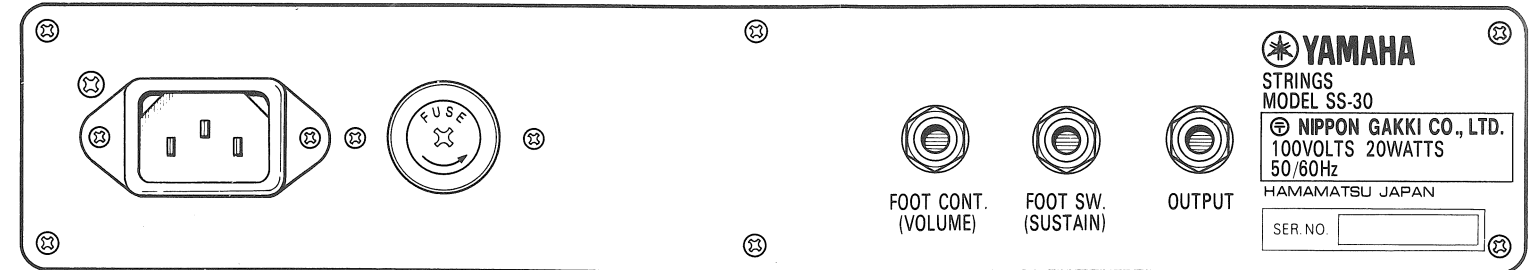
Finish..... Pick bolt rose
 Dimensions 960 x 120 x 350 mm
 (W x H x D) (37-3/4 x 4-3/4 x 13-3/4")
 Weight 16 kg (35.2 lbs)

ASSEMBLY LAYOUT

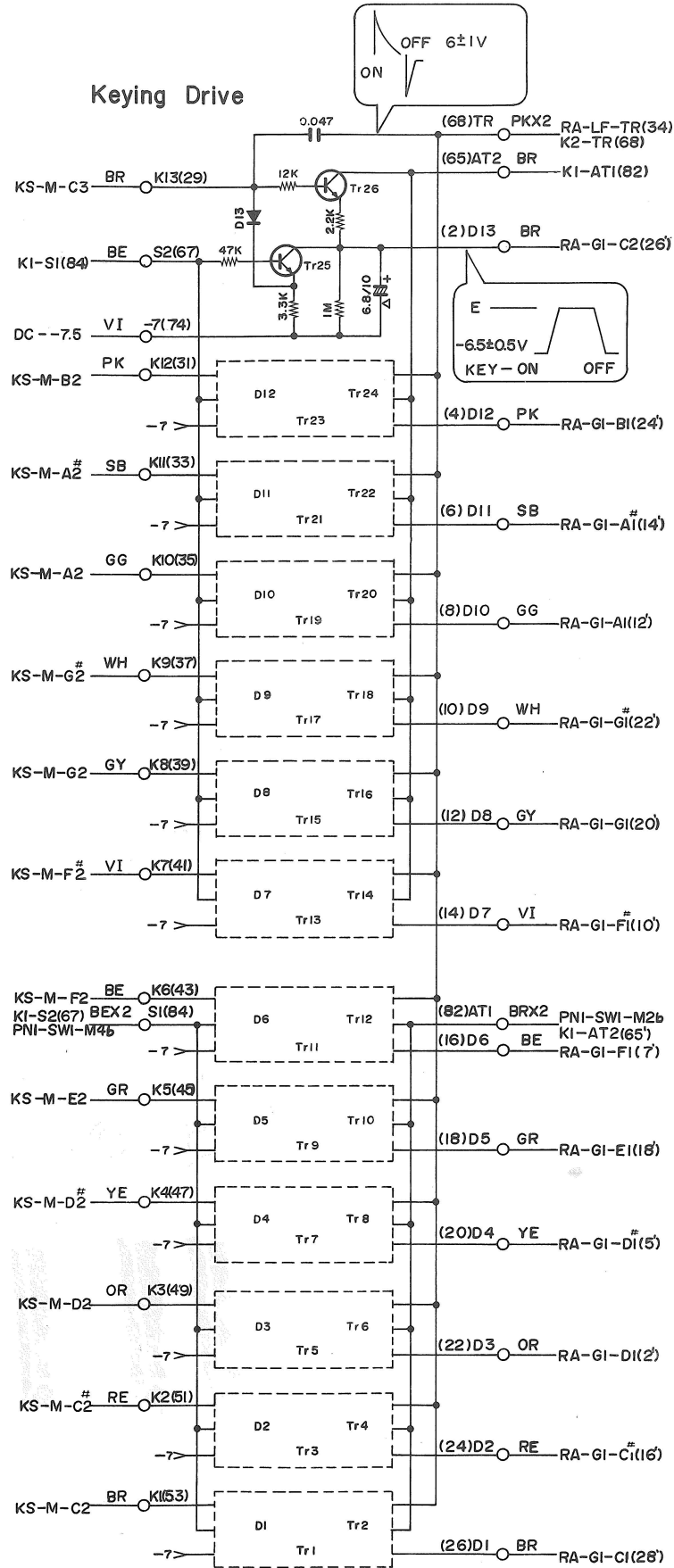


PANEL LAYOUT

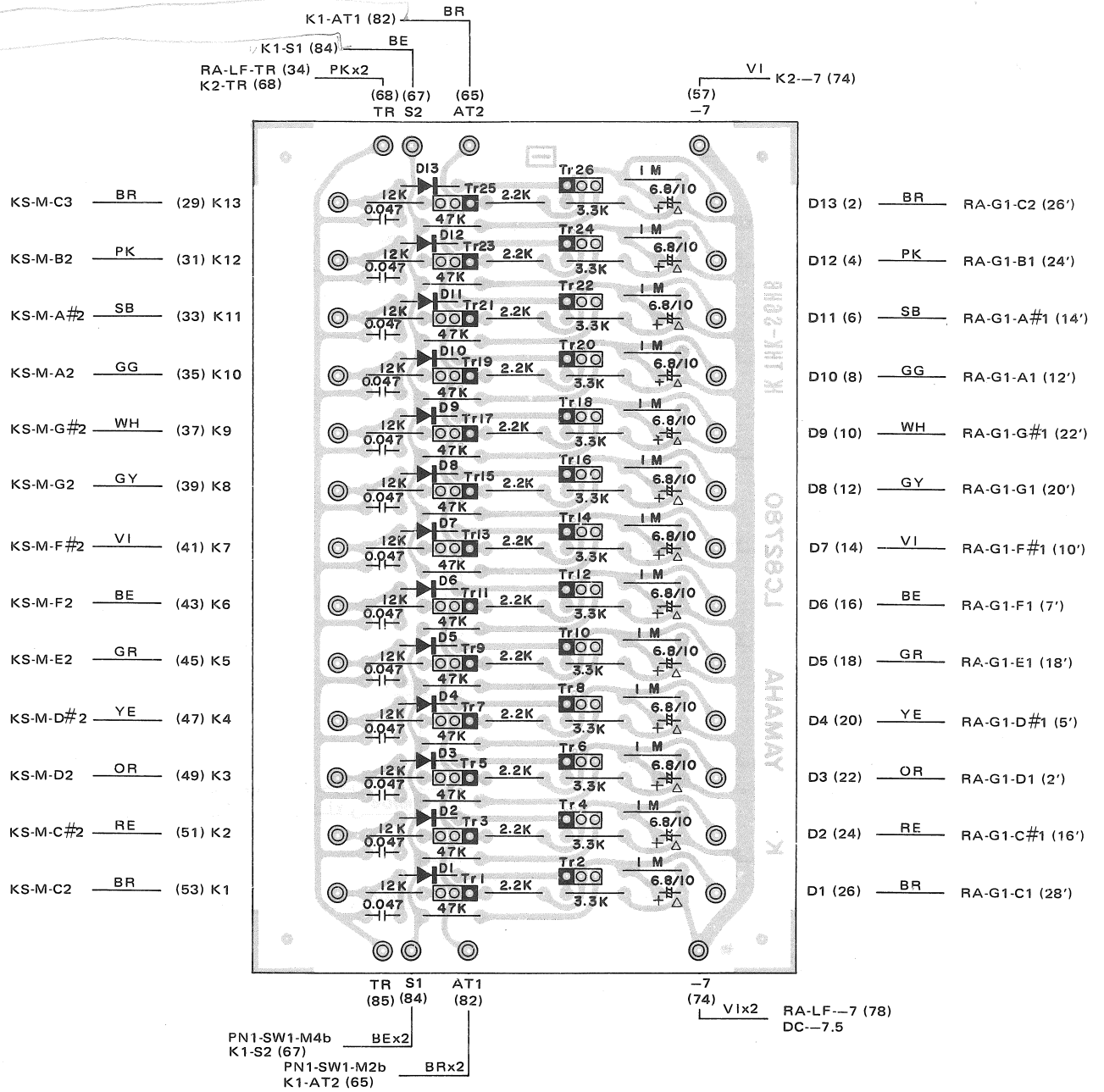
REAR PANEL (RP)



K1 Circuit Diagram

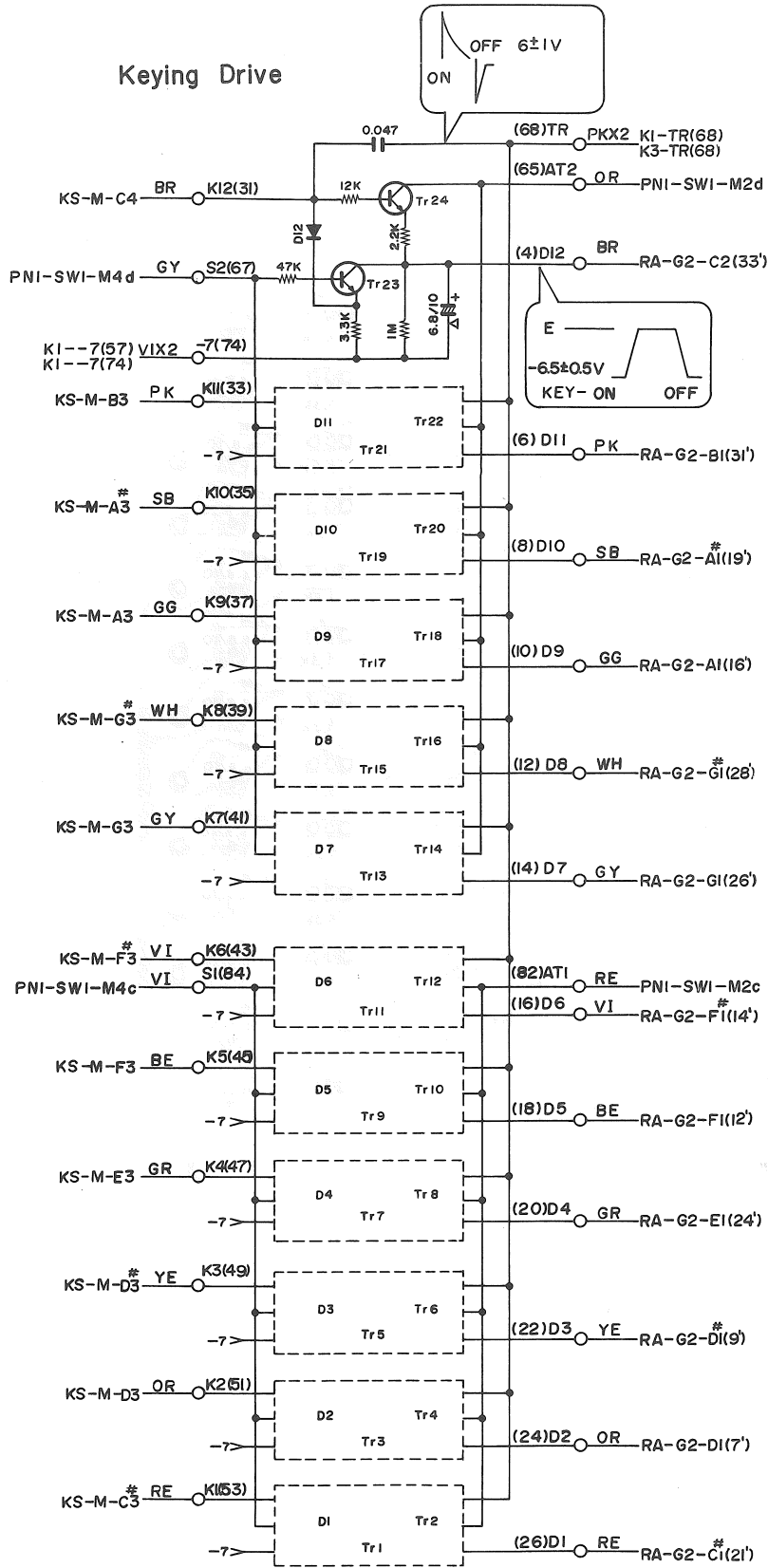


K1 Circuit Board & Wiring

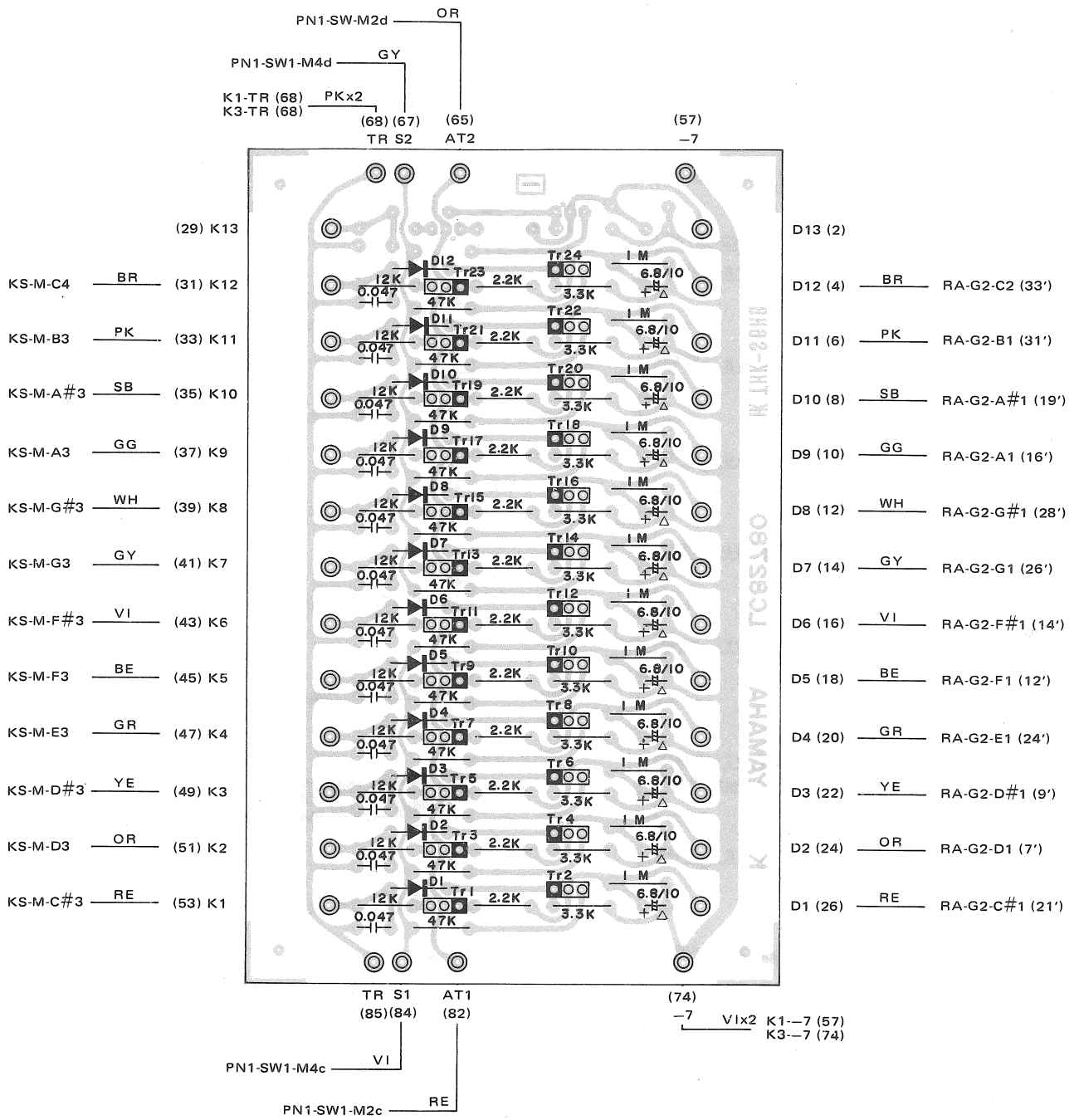


- Note) 1. Print Board : LC82780
 2. Transistor
 All : 2SC458
 3. Diode
 All : 1S1555
 4. Capacitor
 Δ marked: Tantalum Capacitor

K2 Circuit Diagram

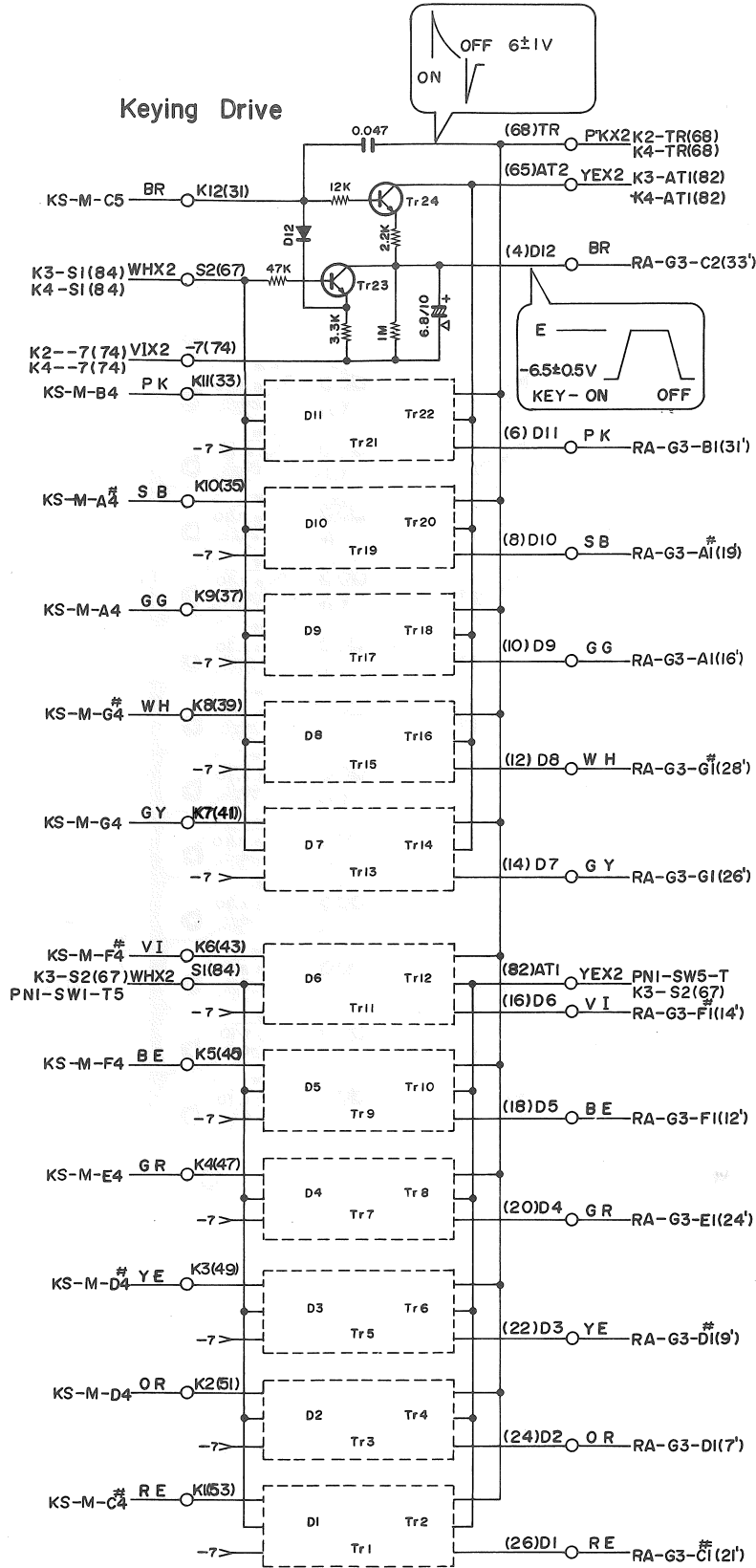


K2 Circuit Board & Wiring



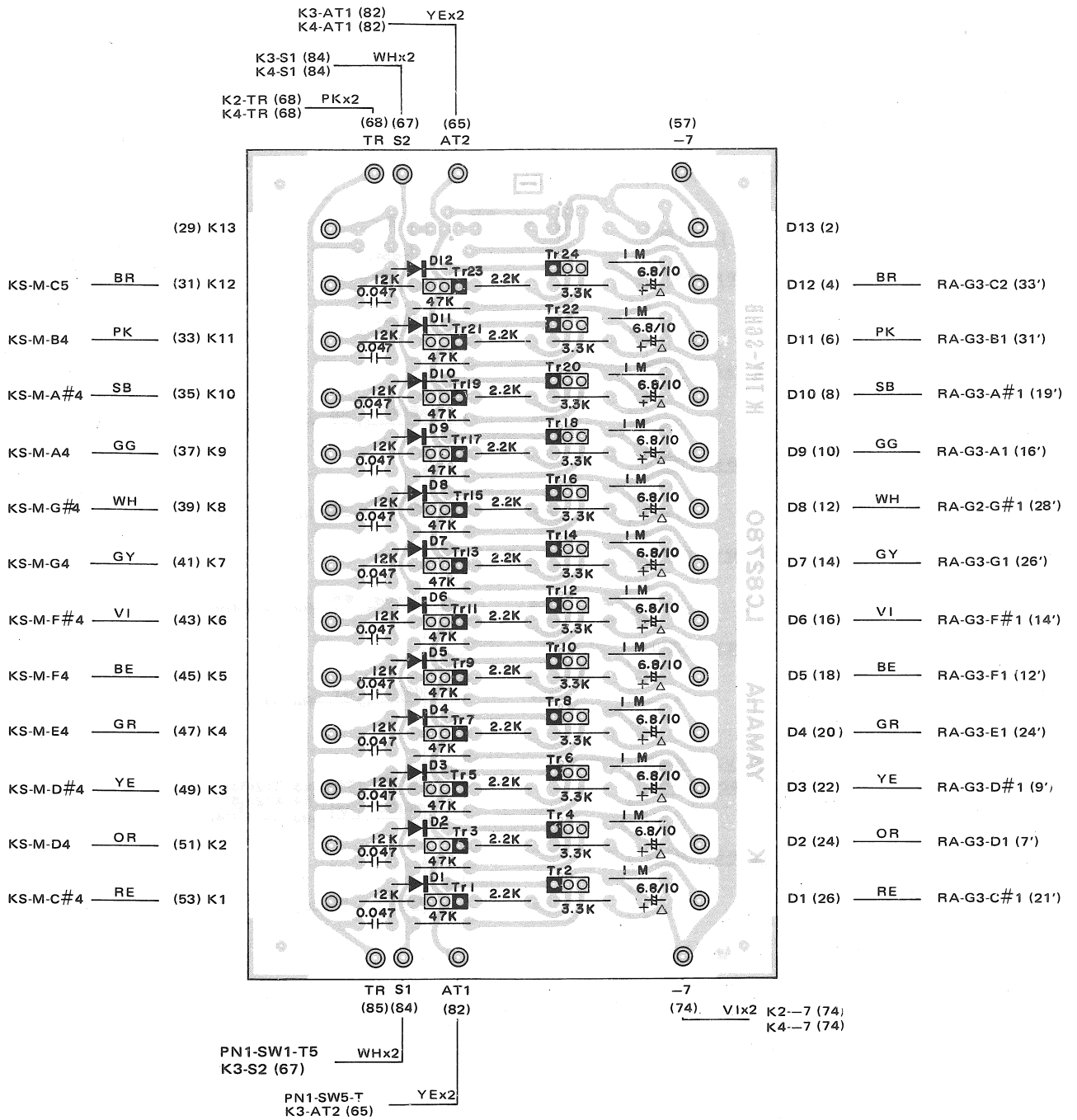
- Note) 1. Print Board : LC82780
 2. Transistor
 All : 2SC458
 3. Diode
 All : IS1555
 4. Capacitor
 Δ mark : Tantalum Capacitor

K3 Circuit Diagram



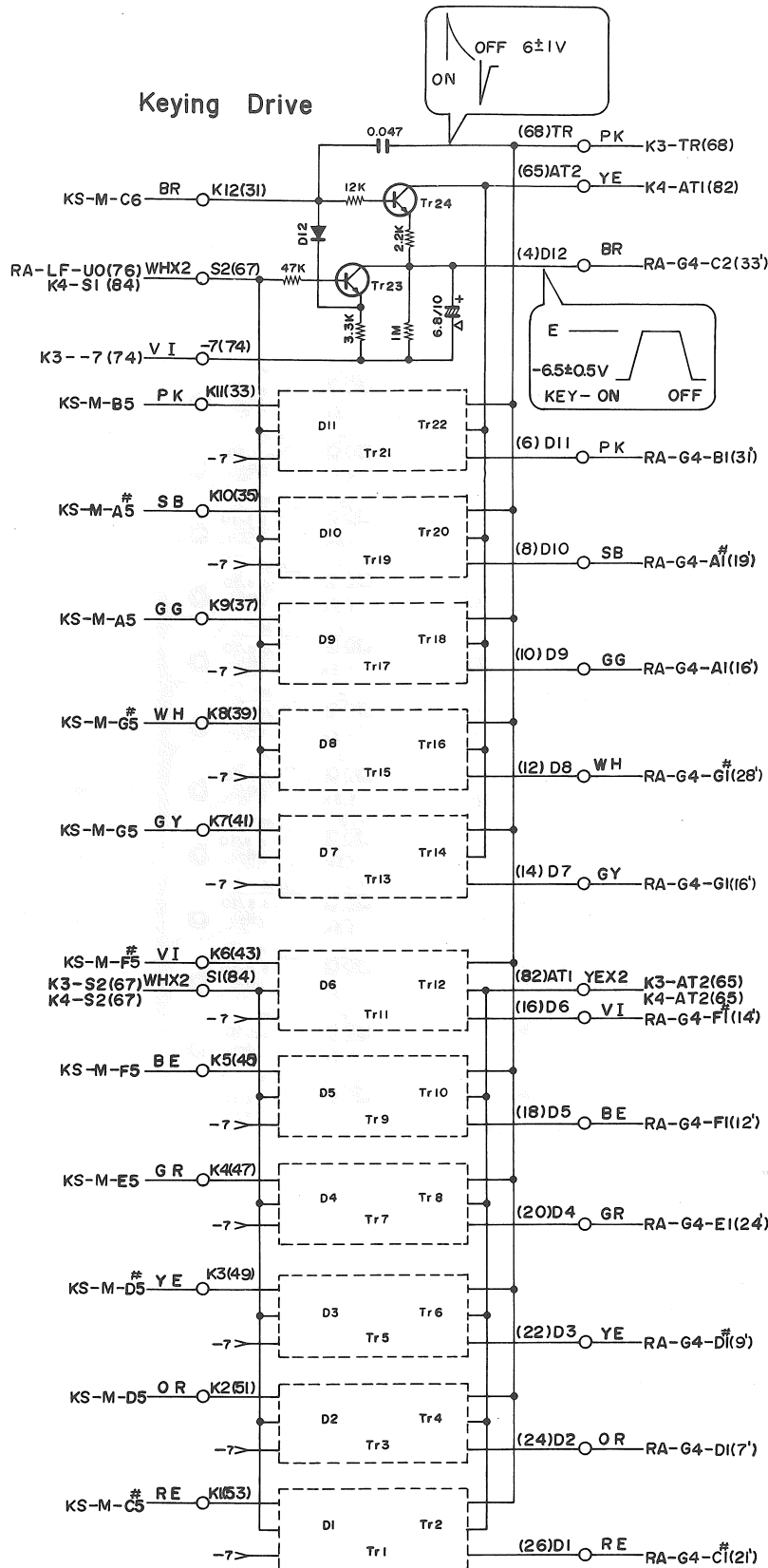
Note) Tr : 2SC458
D : IS1555

K3 Circuit Board & Wiring



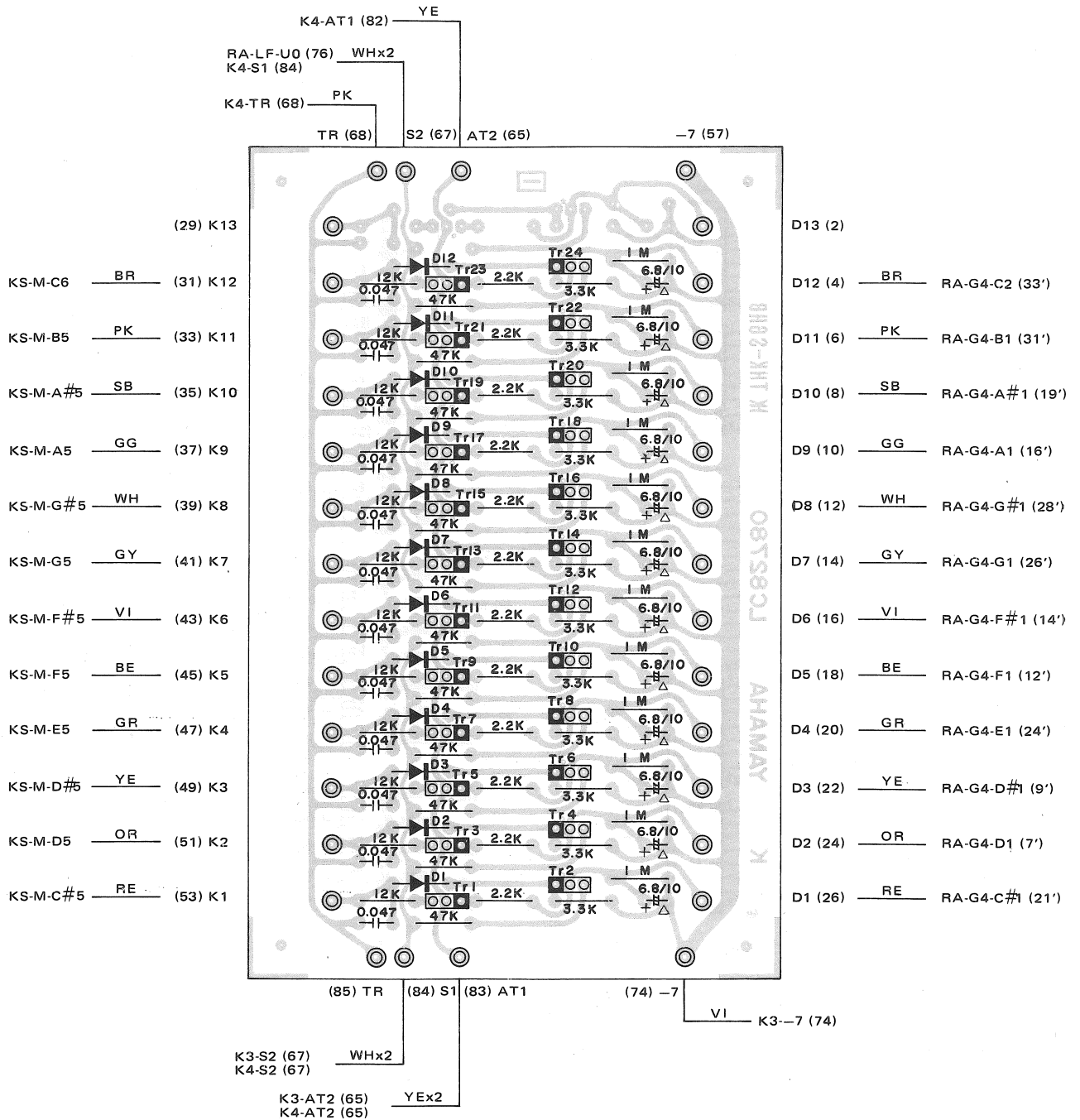
1. Resistor : EC827c
2. Transistor
All : 2SC458
3. Diode
All : IS1555
4. Capacitor
△ mark : Tantalum Capacitor

K4 Circuit Diagram



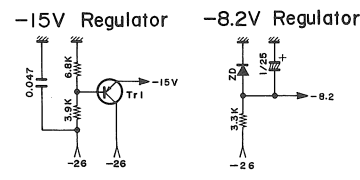
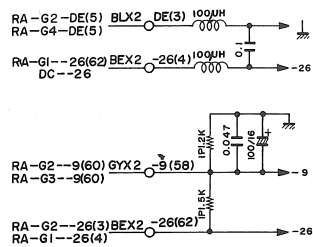
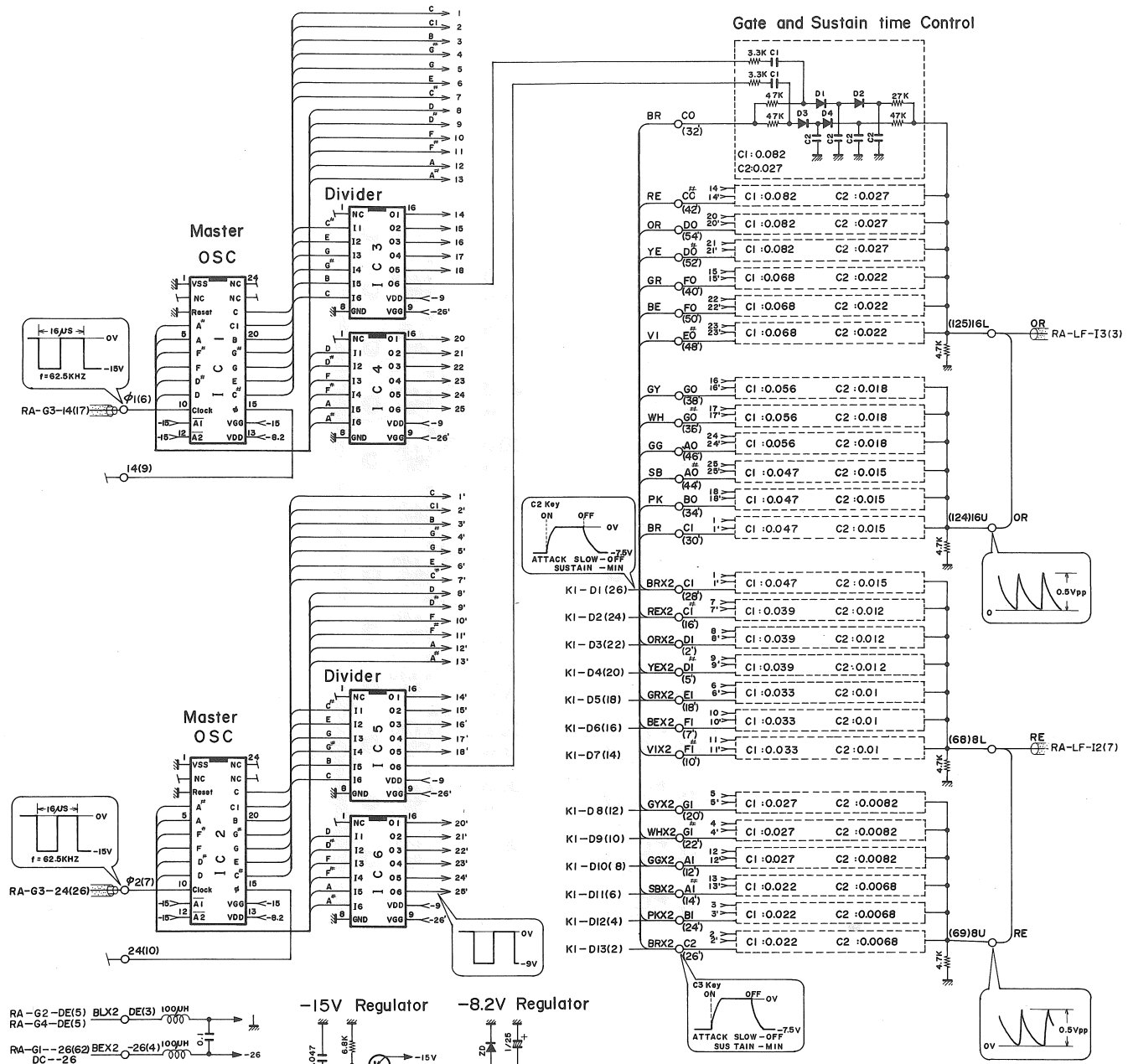
Note) Tr : 2SC458
D : 1S1555

K4 Circuit Board & Wiring



- Note) 1. Print Board : LC82780
 2. Transistor
 All : 2SC458
 3. Diode
 All : IS1555
 4. Capacitor
 Δ mark : Tantalum Capacitor

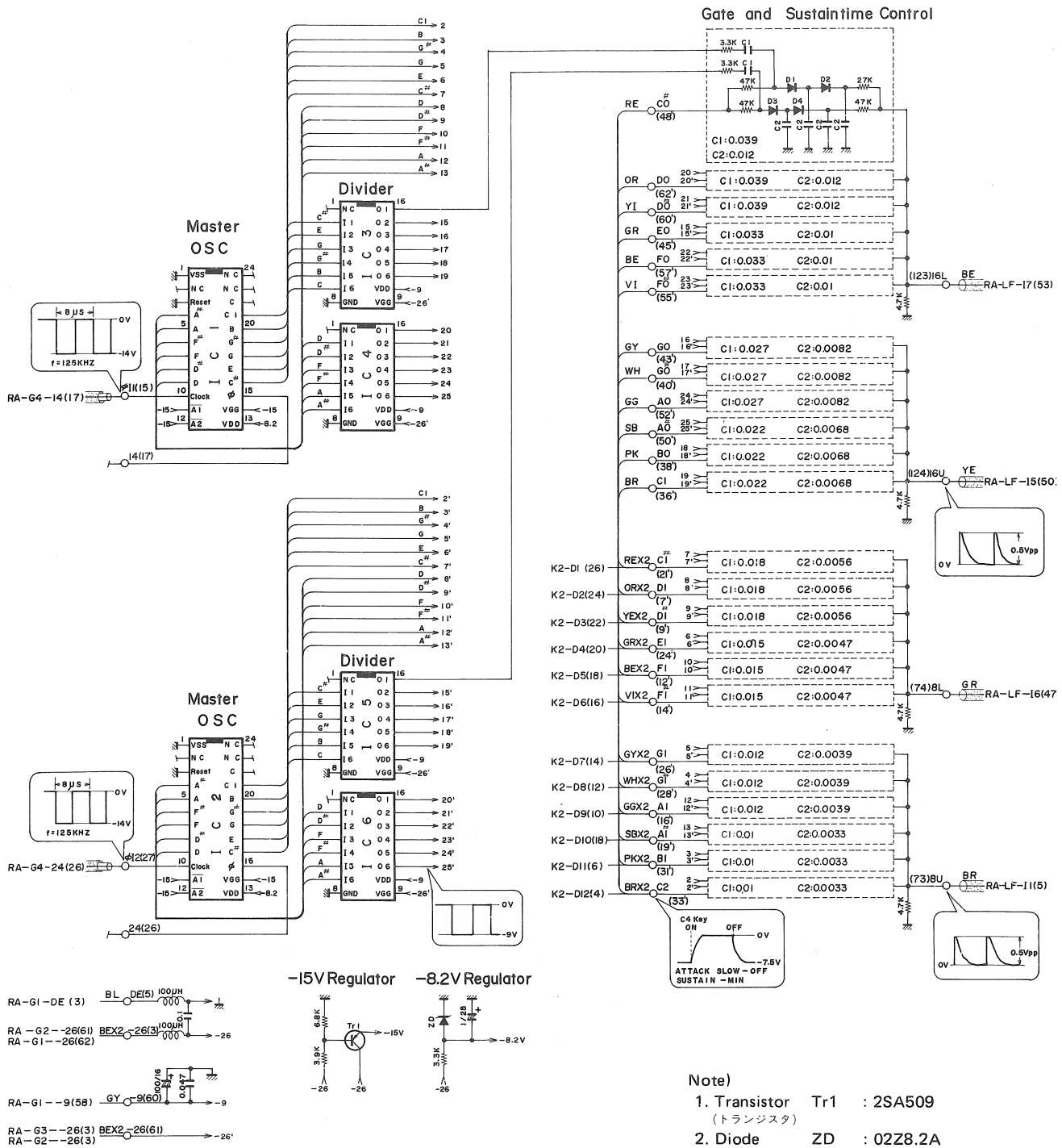
G1 Circuit Diagram



- Note)
1. Transistor Tr1 : 2SA509 (トランジスタ)
 2. Diode ZD : 02Z8.2A (ダイオード) others : 1S1555
 3. IC IC1, 2 : YM25400
IC3~6 : LM3211
 4. $\begin{matrix} \rightarrow & 1 & 1 & \rightarrow \\ & \{ & \} & \\ \rightarrow & 25' & 25' & \rightarrow \end{matrix}$

Same numbers are connected in common.
(番号同志が接続されている事を示す)

G2 Circuit Diagram

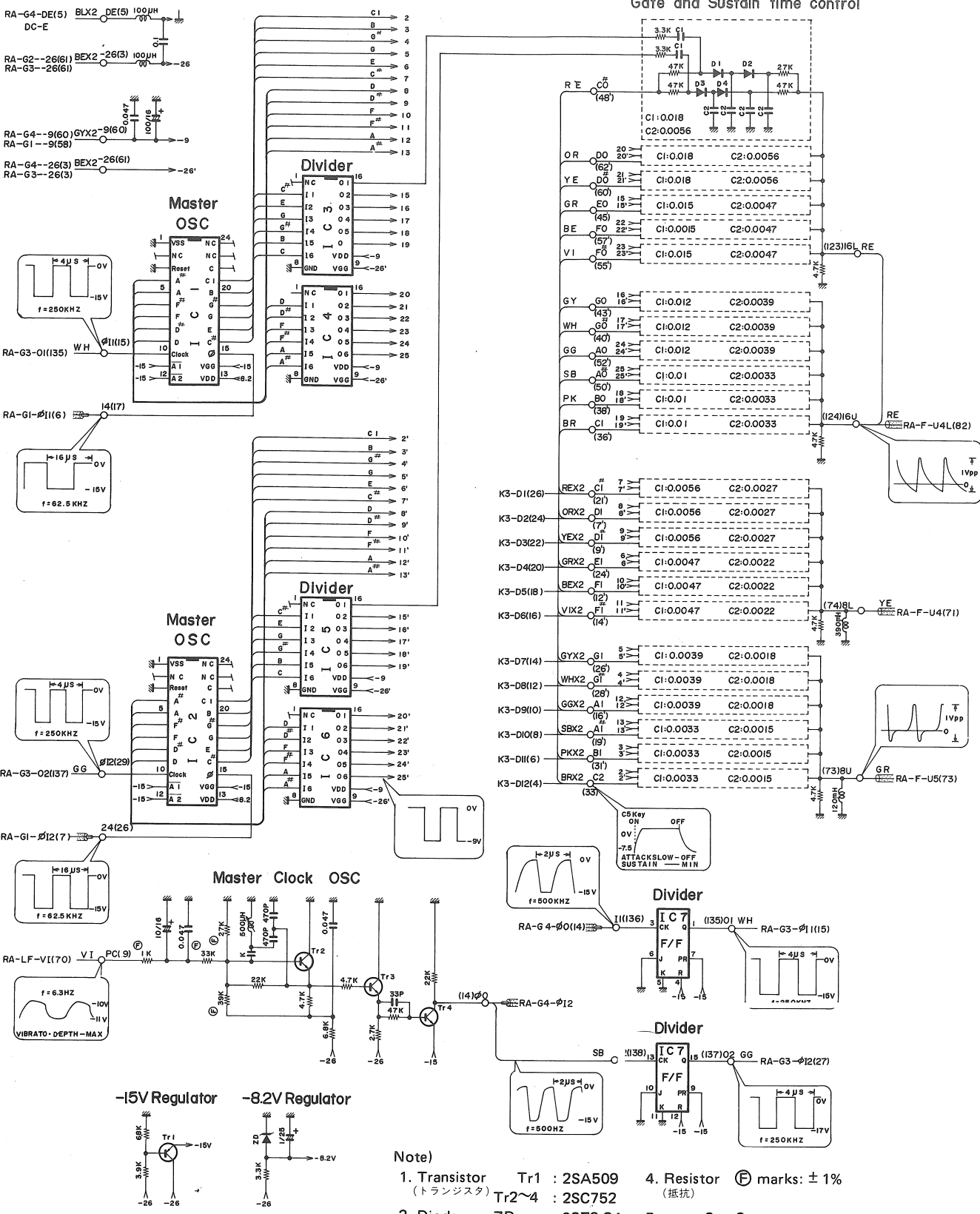


Note)

1. Transistor Tr1 : 2SA509 (トランジスタ)
2. Diode ZD : 02Z8.2A (ダイオード) others : IS1555
3. IC IC1, 2 : YM25400 IC3~6 : LM3211
4. ⇒ 2 2 ⇒
 ∩ ∩
 ⇒ 25' 25' ⇒

Same numbers are connected in common.
(番号同志が接続されている事を示す)

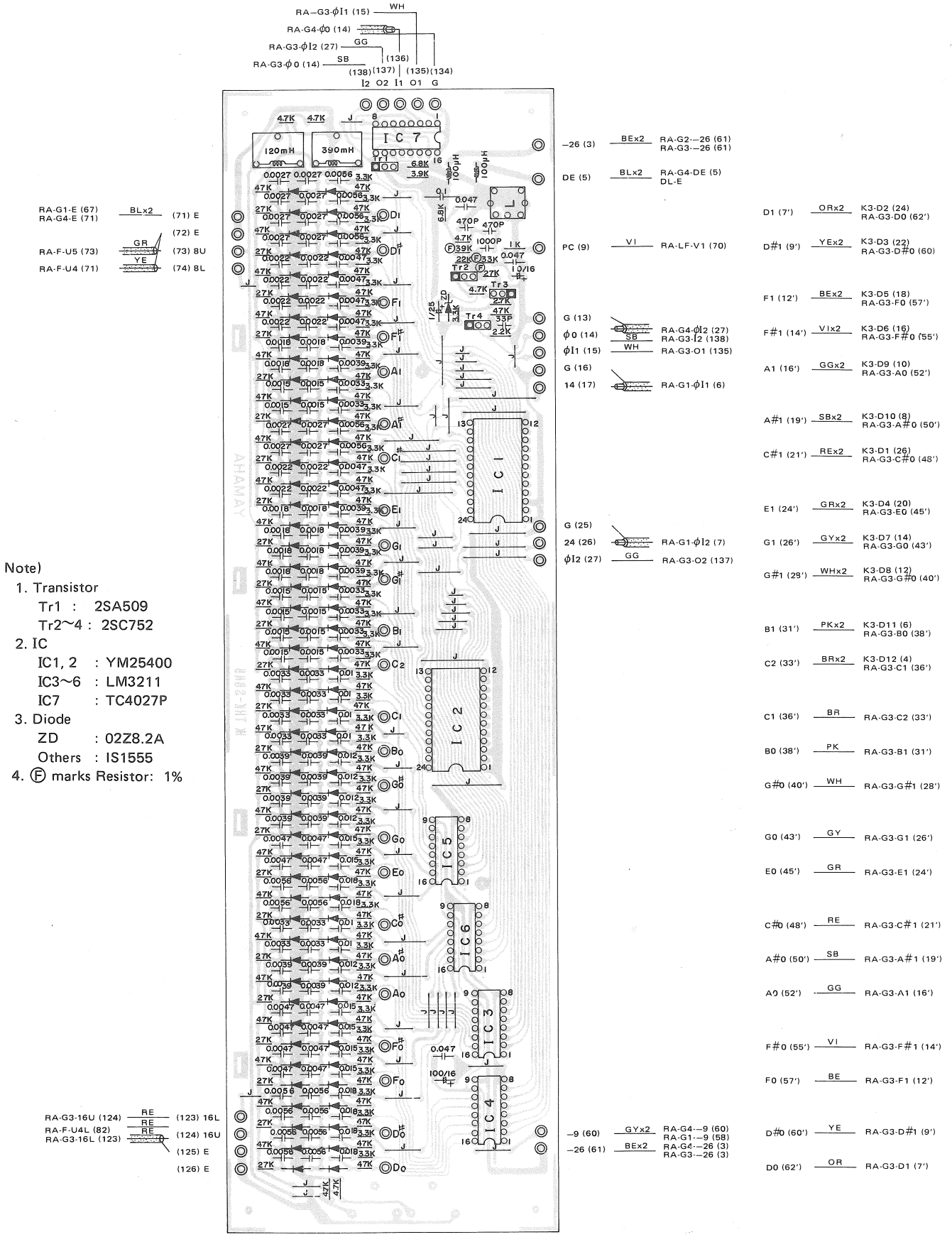
G3 Circuit Diagram



- Note)
- | | | | |
|------------------------|------------------|------------------|---------------|
| 1. Transistor (トランジスタ) | Tr1 : 2SA509 | 4. Resistor (抵抗) | ⊕ marks: ± 1% |
| | Tr2~4 : 2SC752 | 5. → 2 2 > | |
| 2. Diode (ダイオード) | ZD : 02Z8.2A | } } | |
| | others : 1S1555 | → 25' 25' > | |
| 3. IC | IC1, 2 : YM25400 | | |
| | IC3~6 : LM3211 | | |
| | IC7 : TC4027P | | |

Same numbers are connected in common.
(番号同志が接続されている事を示す。)

G3 Circuit Board & Wiring



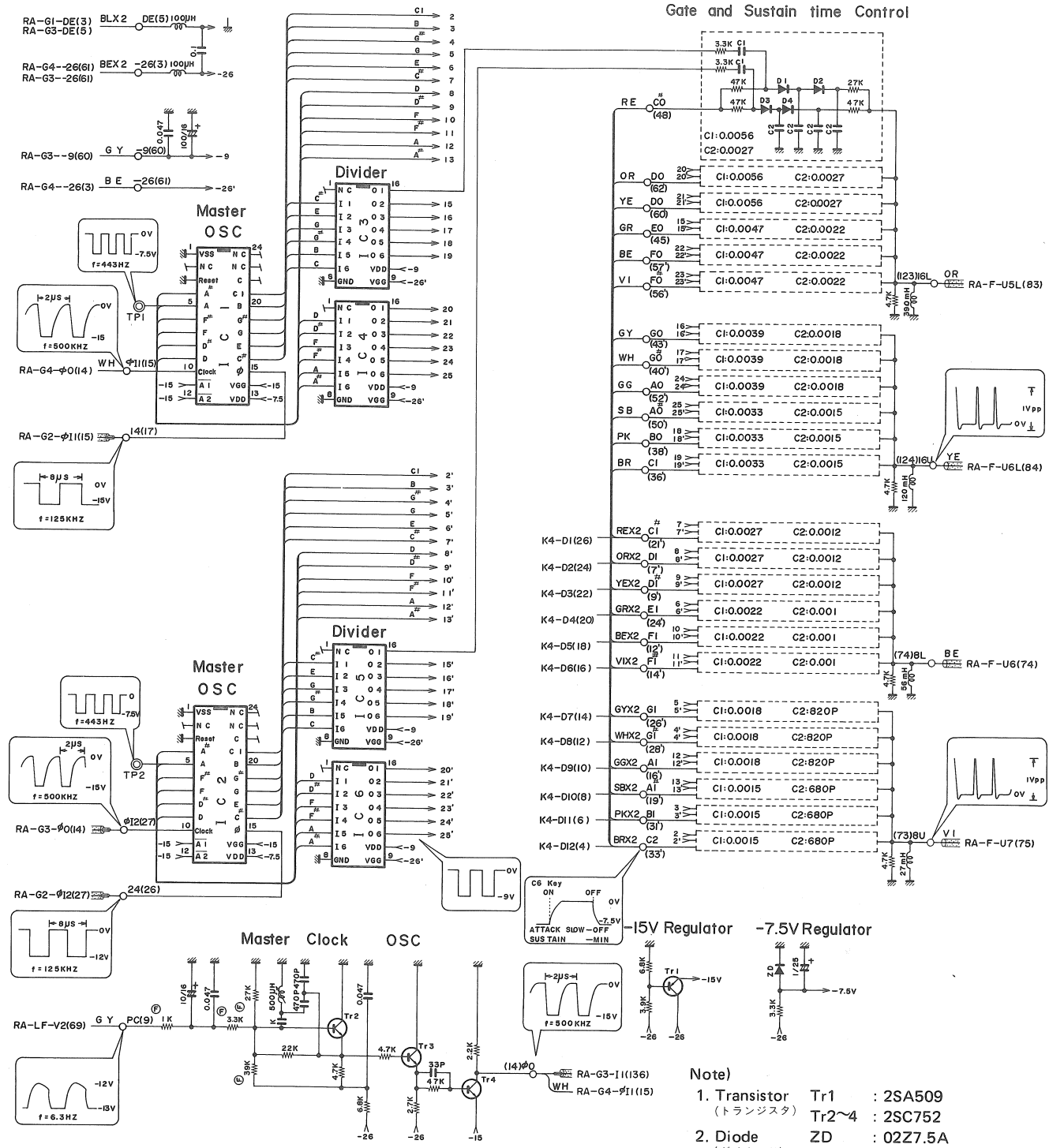
- RA-G1-E (67) BLx2 (71) E
- RA-G4-E (71) GR (72) E
- RA-F-U5 (73) GR (73) 8U
- RA-F-U4 (71) YE (74) 8L

- Note)
1. Transistor
Tr1 : 2SA509
Tr2~4 : 2SC752
 2. IC
IC1, 2 : YM25400
IC3~6 : LM3211
IC7 : TC4027P
 3. Diode
ZD : 02Z8.2A
Others : IS1555
 4. $\text{\textcircled{R}}$ marks Resistor: 1%

- RA-G3-16U (124) RE (123) 16L
- RA-F-U4L (82) RE (124) 16U
- RA-G3-16L (123) RE (125) E
- (126) E

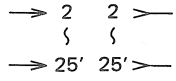
- 26 (3) BEx2 RA-G2--26 (61)
RA-G3--26 (61)
- DE (5) BLx2 RA-G4-DE (5)
DL-E
- D1 (7') ORx2 K3-D2 (24)
RA-G3-D0 (62')
- PC (9) VI RA-LF-V1 (70)
- D#1 (9') YEx2 K3-D3 (22)
RA-G3-D#0 (60)
- F1 (12') BEx2 K3-D5 (18)
RA-G3-F0 (57')
- F#1 (14') VIx2 K3-D6 (16)
RA-G3-A#0 (55')
- A1 (16') GGx2 K3-D9 (10)
RA-G3-A0 (52')
- A#1 (19') SBx2 K3-D10 (8)
RA-G3-A#0 (50')
- C#1 (21') REx2 K3-D1 (26)
RA-G3-C#0 (48')
- E1 (24') GRx2 K3-D4 (20)
RA-G3-E0 (45')
- G (25) GR RA-G1- ϕ 12 (7)
- 24 (26) GG RA-G3-O2 (137)
- ϕ 12 (27) GG
- G#1 (28') WHx2 K3-D8 (12)
RA-G3-G#0 (40')
- B1 (31') PKx2 K3-D11 (6)
RA-G3-B0 (38')
- C2 (33') BRx2 K3-D12 (4)
RA-G3-C1 (36')
- C1 (36') BR RA-G3-C2 (33')
- B0 (38') PK RA-G3-B1 (31')
- G#0 (40') WH RA-G3-G#1 (28')
- G0 (43') GY RA-G3-G1 (26')
- E0 (45') GR RA-G3-E1 (24')
- C#0 (48') RE RA-G3-C#1 (21')
- A#0 (50') SB RA-G3-A#1 (19')
- A0 (52') GG RA-G3-A1 (16')
- F#0 (55') VI RA-G3-F#1 (14')
- F0 (57') BE RA-G3-F1 (12')
- 9 (60) GYx2 RA-G4--9 (60)
RA-G1--9 (58)
RA-G4--26 (3)
RA-G3--26 (3)
- 26 (61) BEx2
- D#0 (60') YE RA-G3-D#1 (9')
- D0 (62') OR RA-G3-D1 (7')

G4 Circuit Diagram



Gate and Sustain time Control

- Note)**
1. Transistor Tr1 : 2SA509 (トランジスタ) Tr2~4 : 2SC752
 2. Diode ZD : 02Z7.5A (ダイオード) others : IS1555
 3. IC IC1, 2 : YM25400 IC3~6 : LM3211
 4. Resistor \textcircled{E} marks : $\pm 1\%$
 - 5.

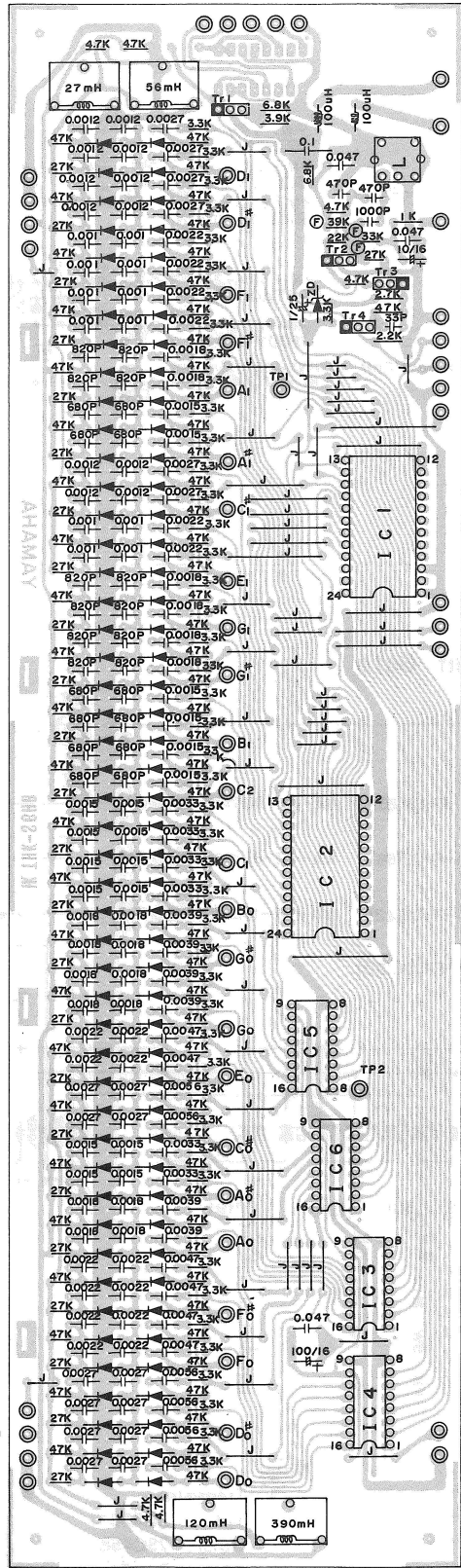


Same numbers are connected in common.
 (番号同志が接続されている事を示す。)

- RA-G3-E (71) (71) E
- RA-F-E (41) (72) E
- RA-F-U7 (75) (73) 8U
- RA-F-U6 (74) (74) 8L

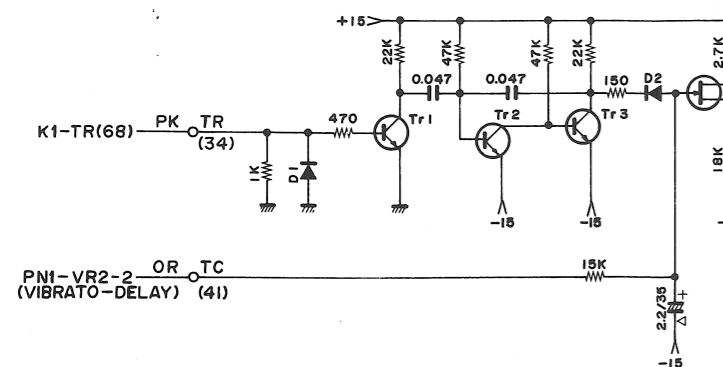
- Note) 1. Print Board : LC82800
 2. Transistor
 Tr1 : 2SA509
 Tr2~4 : 2SC752
 3. Diode
 ZD : 02Z7.5A
 Others : IS1555
 4. IC
 IC1,2 : YM25400
 IC3~6 : LM3211
 5. $\text{\textcircled{R}}$ marks Resistor : 1%

- RA-F-U5L (83) (123) 16L
- RA-F-U6L (84) (124) 16U
- (125) E
- (126) E

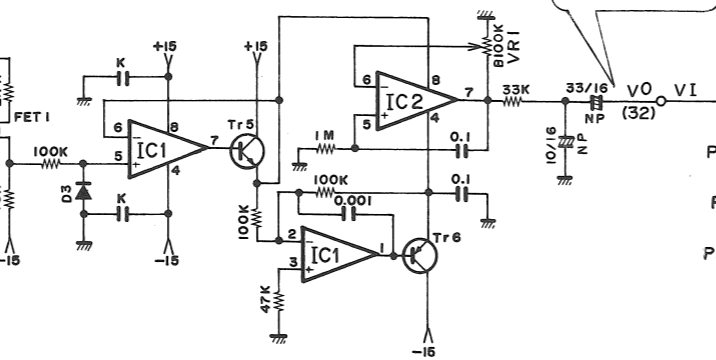


- 26 (3) BEx2 RA-G4-26 (61)
RA-G3-26 (61)
- DE (5) BLx2 RA-G1-DE (3)
RA-G3-DE (5)
- D1 (7) ORx2 K4-D2 (24)
RA-G4-D0 (62')
- PC (9) GY RA-LF-V2 (69)
- D#1 (9') YEx2 K4-D3 (22)
RA-G4-D#0 (60')
- F1 (12') BEx2 K4-D5 (18)
RA-G4-F0 (57')
- G (13)
- ϕ 0 (14) RA-G3-I1 (136)
RA-G4- ϕ I1 (15)
- ϕ I1 (15) WH RA-G4- ϕ 0 (14)
- G (16)
- 14 (17) RA-G2- ϕ I1 (15)
- A#1 (19') SBx2 K4-D10 (8)
RA-G4-A#0 (50')
- C#1 (21') REx2 K4-D1 (26)
RA-G4-C#0 (48')
- E1 (24') GRx2 K4-D4 (20)
RA-G4-E0 (45')
- G (25)
- 24 (26) RA-G2- ϕ I2 (27)
- ϕ I2 (27) RA-G3- ϕ 0 (14)
- G1 (26') Gyx2 K4-D7 (14)
RA-G4-G0 (43')
- G#1 (28') WHx2 K4-D8 (12)
RA-G4-G#0 (40')
- B1 (31') PKx2 K4-D11 (6)
RA-G4-B0 (38')
- C2 (33') BRx2 K4-D12 (4)
RA-G4-C1 (36')
- C1 (36') BR RA-G4-C2 (33')
- B0 (38') PK RA-G4-B1 (31')
- G#0 (40') WH RA-G4-G#1 (28')
- G0 (43') GY RA-G4-G1 (26')
- E0 (45') GR RA-G4-E1 (24')
- C#0 (48') RE RA-G4-C#1 (21')
- A#0 (50') SB RA-G4-A#1 (19')
- A0 (52') GG RA-G4-A1 (16')
- F#0 (55') VI RA-G4-F#1 (14')
- F0 (57') BE RA-G4-F1 (12')
- 9 (60) GY RA-G3-9 (60)
- 26 (61) BE RA-G4-26 (3)
- D#0 (60') YE RA-G4-D#1 (9')
- D0 (62') OR RA-G4-D1 (7')

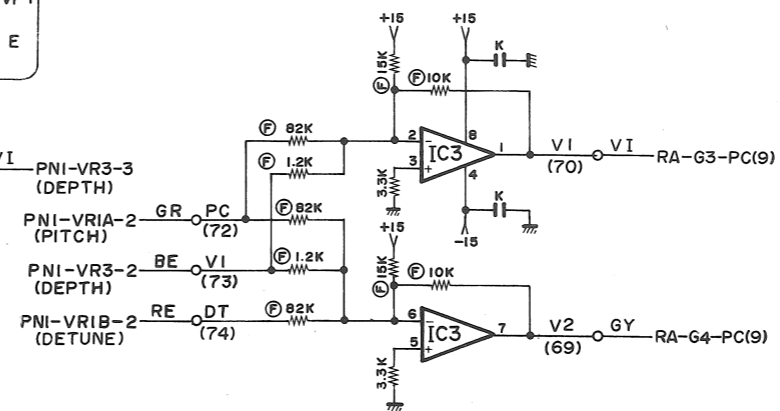
Trigger



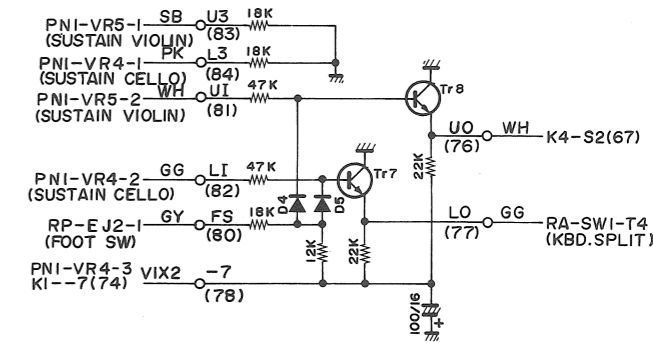
Vibrato OSC



Pitch Control, Voltage Mixing



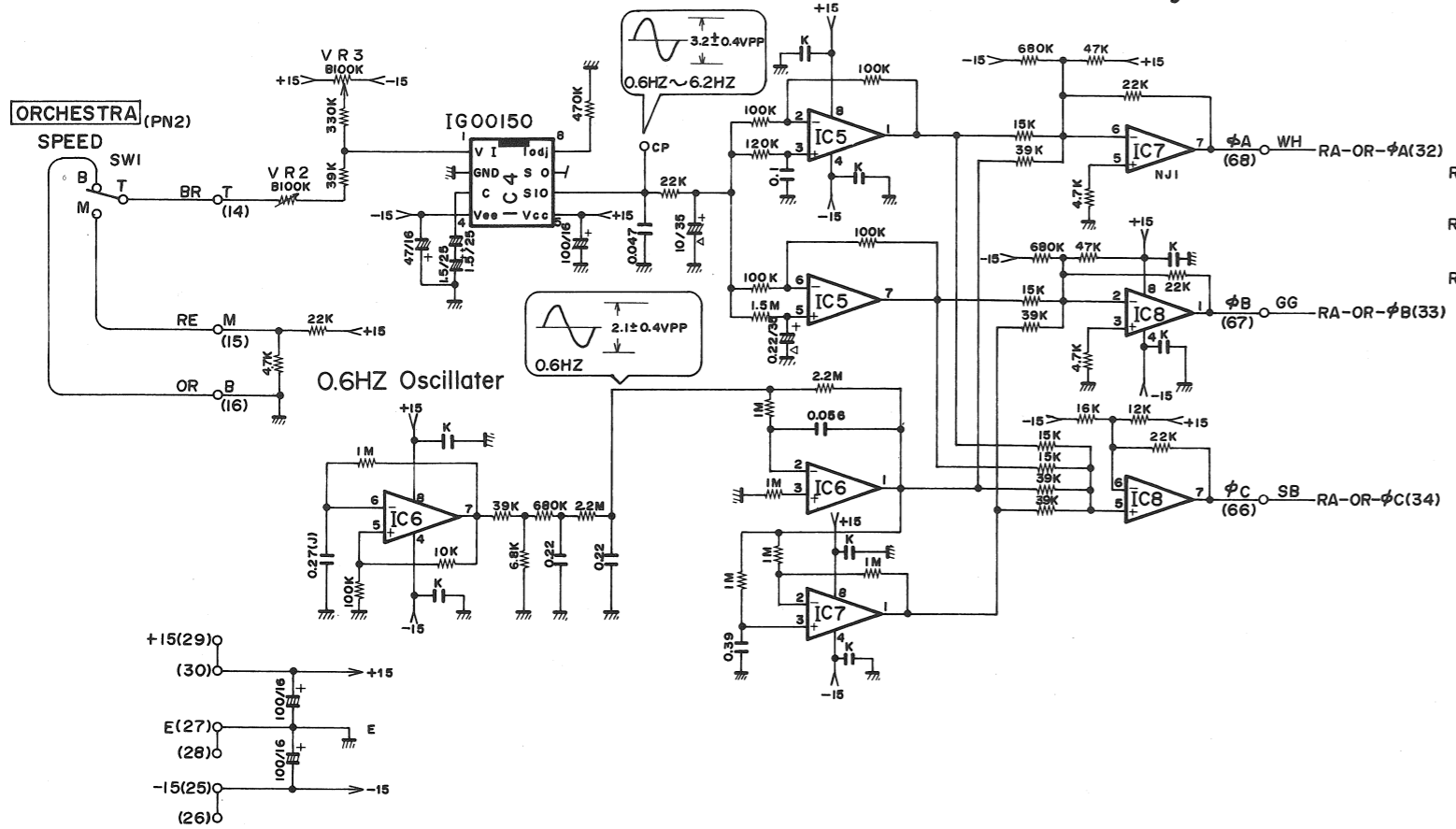
Sustain Control



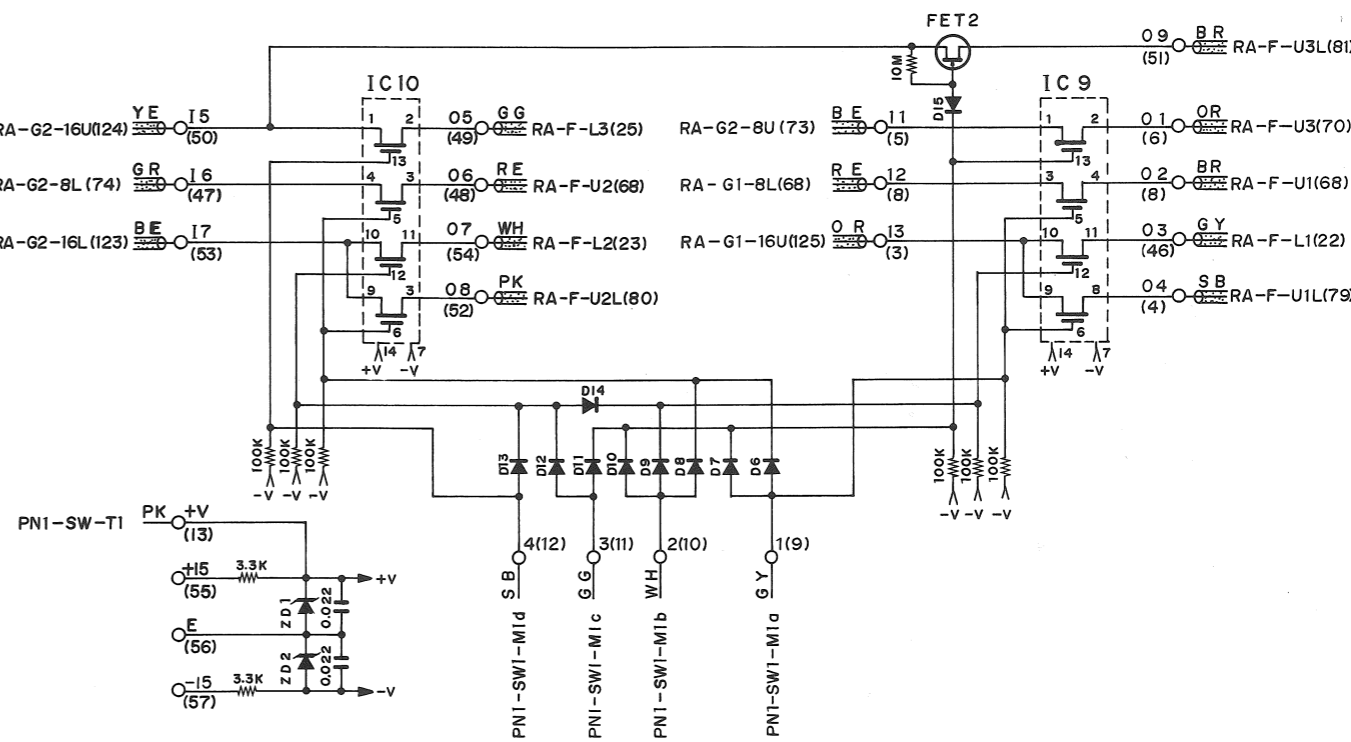
Orchestra Oscillator

Phase shift

Phase Mixing



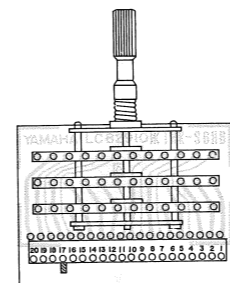
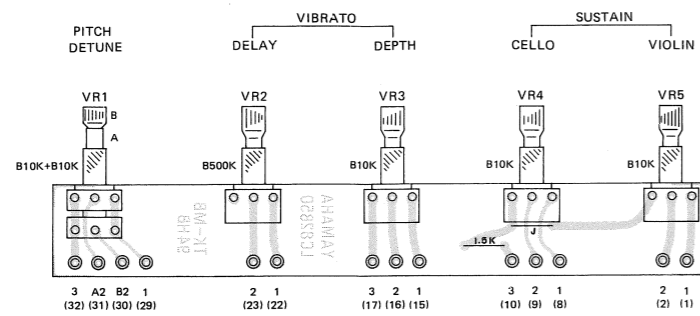
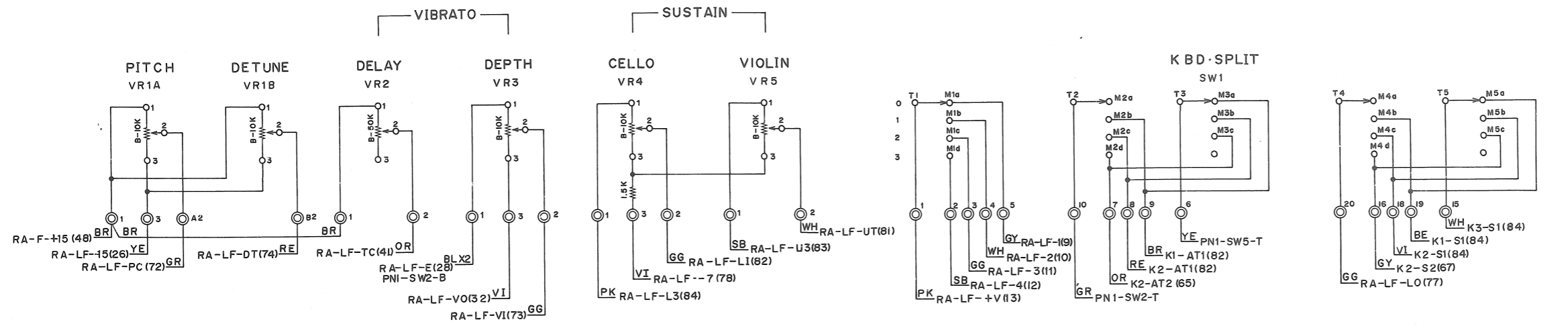
KBD. Split Gate



Note)

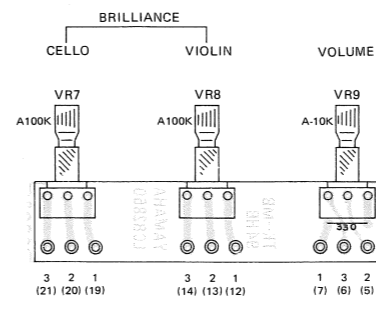
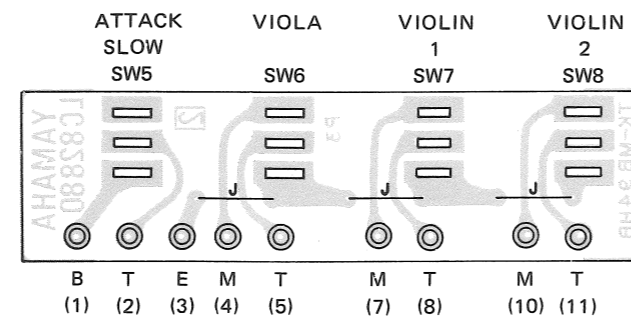
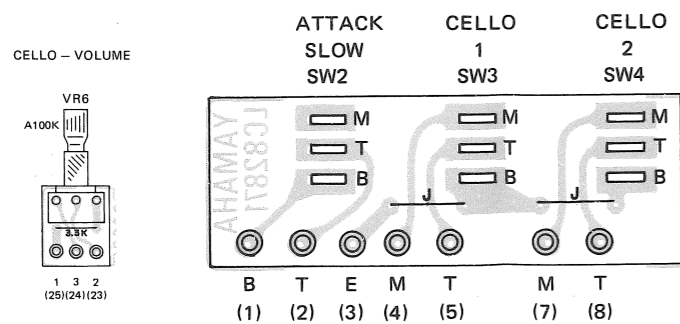
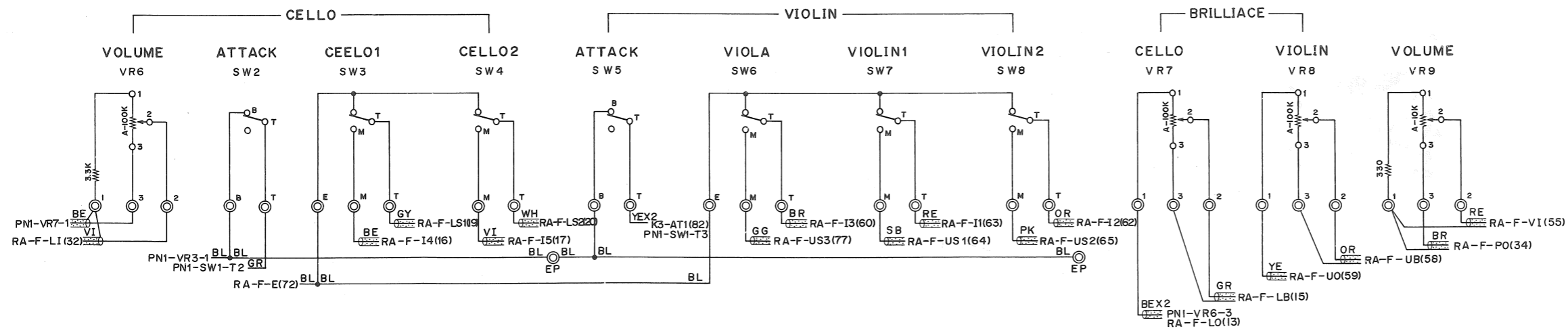
- 1. Transistor
Tr6 : 2SA561
Others : 2SC458
- 2. FET : 2SK30A
- 3. Diode
D : 1S1555
ZD : 02Z7.5A
- 4. IC
IC4 : IGO0150
IC9,10: TC4016P
Others: NJM4558
- 5. ⊕ marks Resistor : ± 1%

PANEL 1 (PN1) Circuit Diagram



P1 NA80338

P5 NA80342



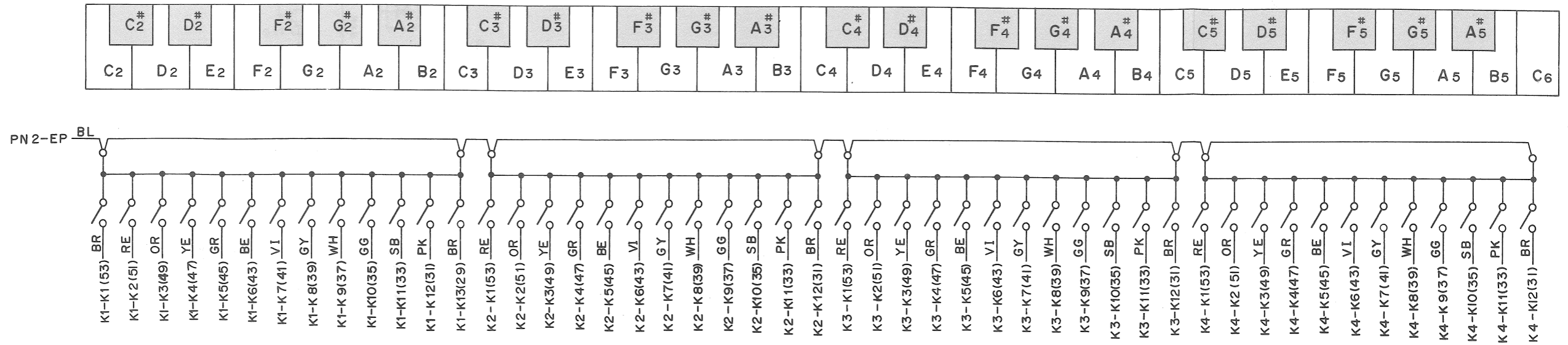
P2-2/3 NA80339

P4 NA80384

P3 NA80383

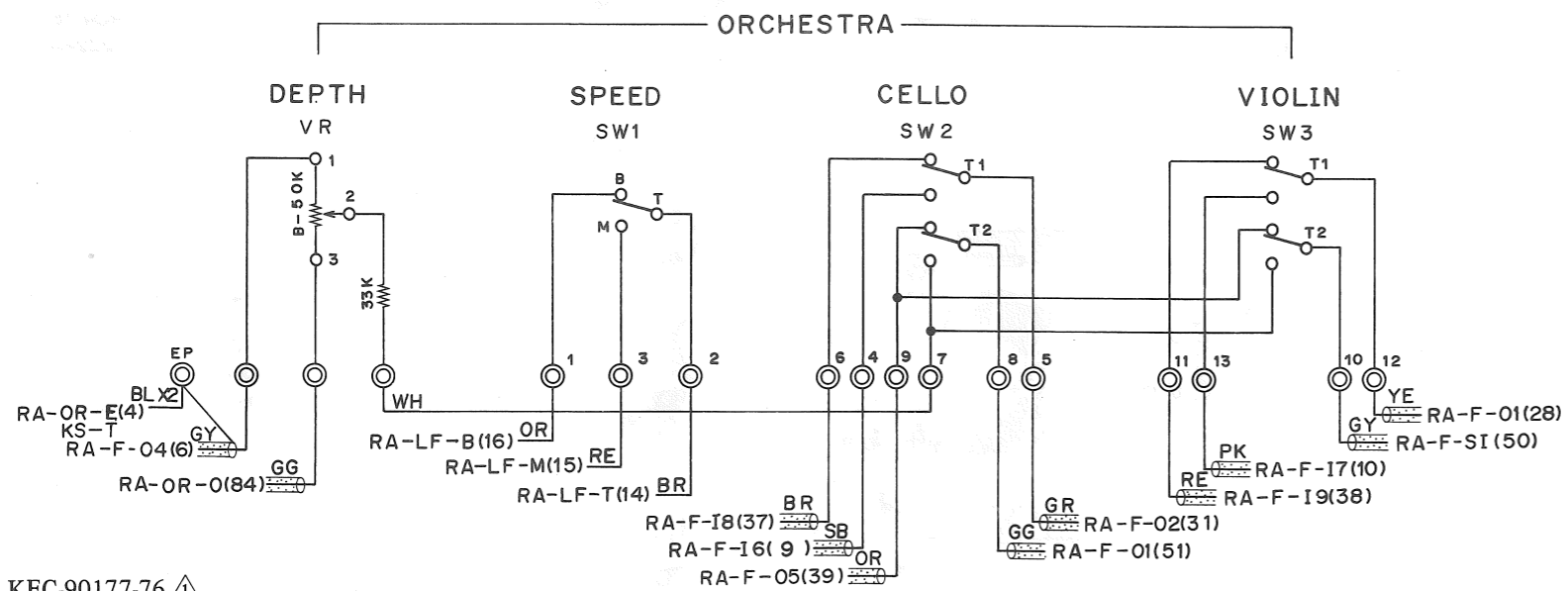
P2-1/3 NA80339

KEY SWITCH (KS) Circuit Diagram



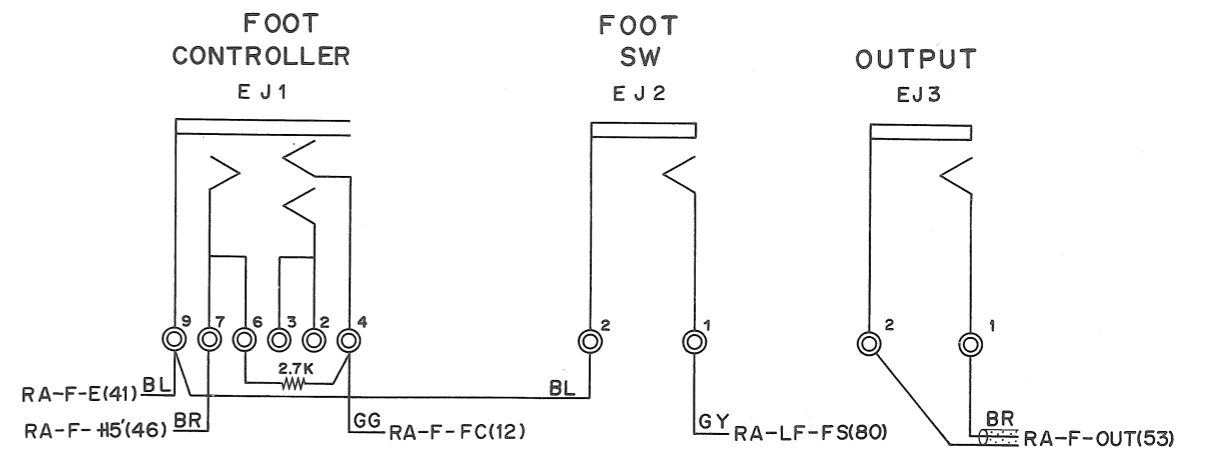
KEC-90165-76 Δ

PANEL 2 Circuit Diagram



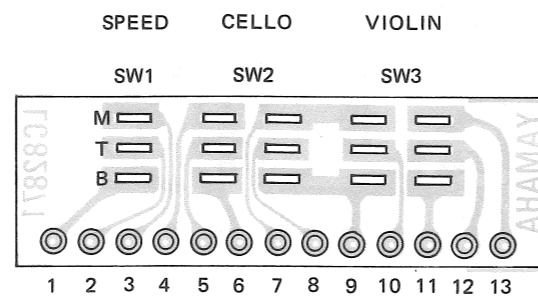
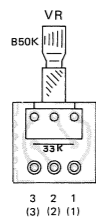
KEC-90177-76 Δ

REAR PANEL (RP) Circuit Diagram



KEC-90178-76 Δ

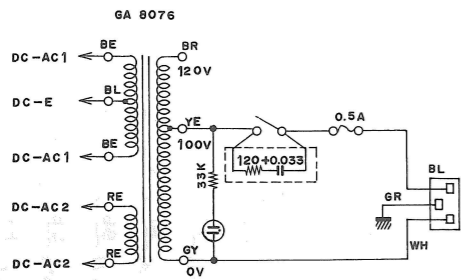
ORCHESTRA-DEPTH



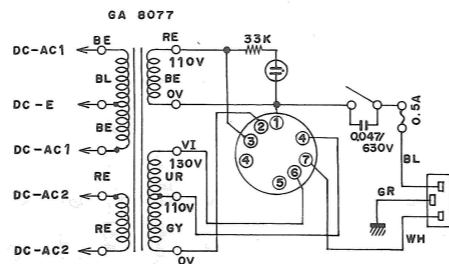
P2-2/3 NA80339

POWER SUPPLY (PRIMARY)

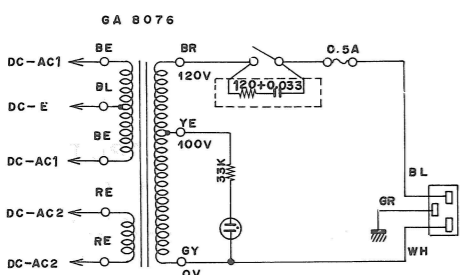
Japan Spec



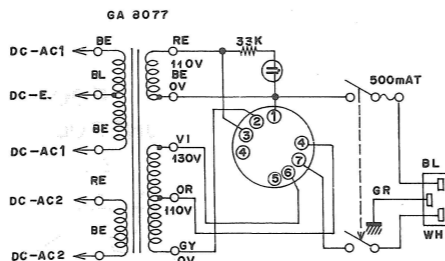
General and South African Spec



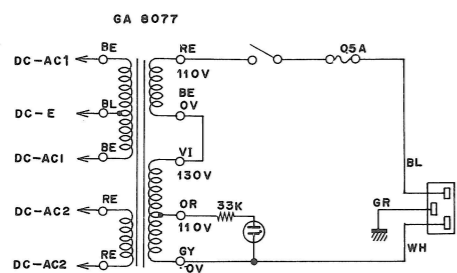
US American and Canadian Spec



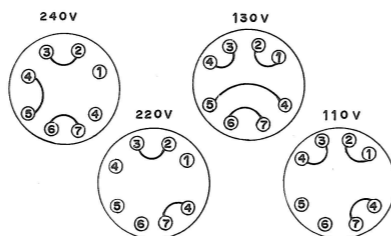
North European and British Spec



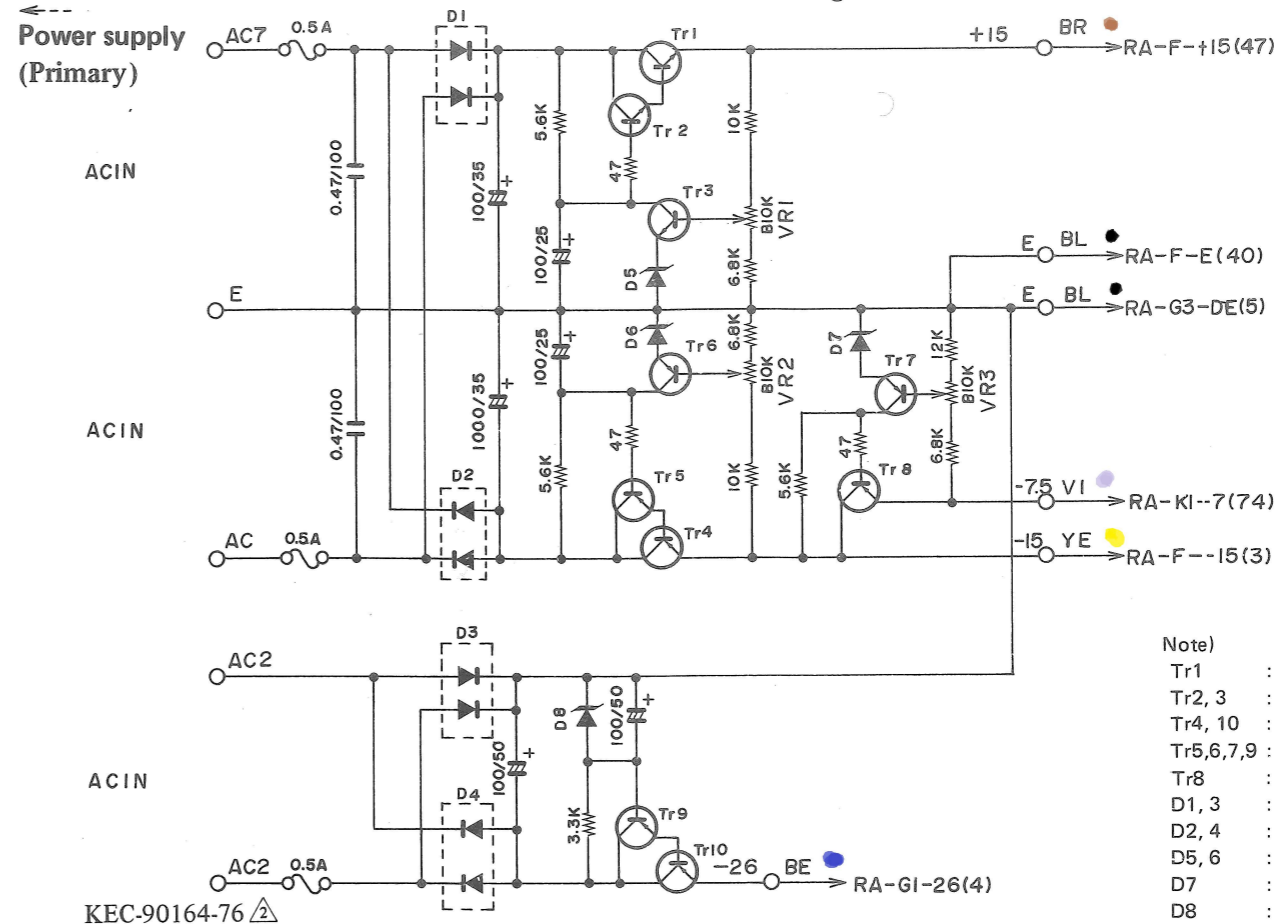
Australian Spec



Actual Connections on Voltage Selector

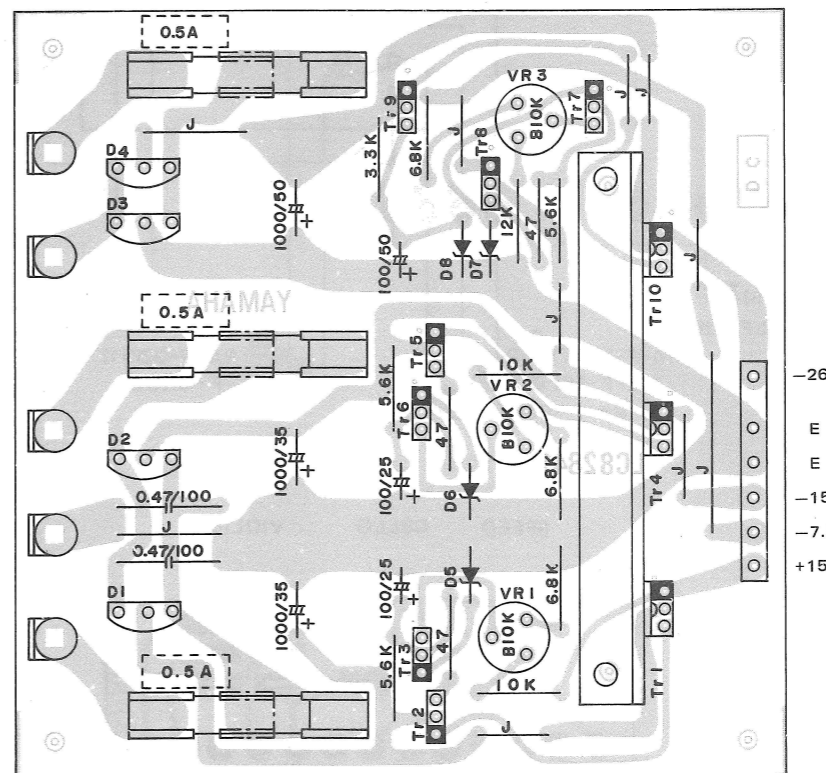


DC Circuit Diagram



- Note)
- Tr1 : 2SD526
 - Tr2, 3 : 2SC1681
 - Tr4, 10 : 2SB596
 - Tr5,6,7,9 : 2SA561
 - Tr8 : 2SA777
 - D1,3 : 10DC-1
 - D2,4 : 10DC-1R
 - D5,6 : WZ061
 - D7 : RD4.7E
 - D8 : 02Z24A

DC Circuit Board



- Note)
1. Print Board : LC82841
 2. Transistor
 - Tr1 : 2SD526
 - Tr2,3 : 2SC1681
 - Tr4,10 : 2SB596
 - Tr5,6,7,9 : 2SA561
 - Tr8 : 2SA777
 3. Diode
 - D1,3 : 10DC-1
 - D2,4 : 10DC-1R
 - D5,6 : WZ-061
 - D7 : RD4.7E
 - D8 : 02Z24A
 4. Fuse
 - US.American, Canadian: 0.5A approved by UL
 - British, North European: 500mA miniature
 - Others : 0.5A

KEP-NA80335~7.77

SINCE 1887  **YAMAHA**
NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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