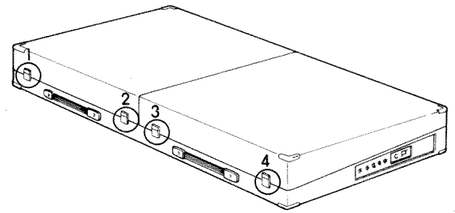
●SETUP

1. Removal Top Lid

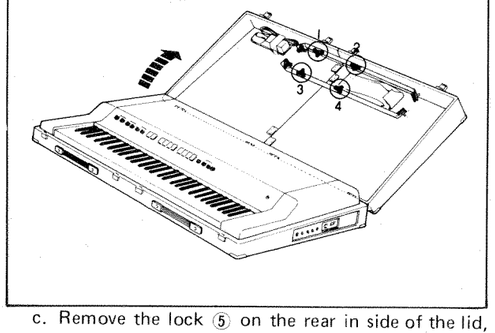
a. Unlatch the locks ① ～ ④ of the top lid, (Fig. 1) then lift the lid.

Fig. 1



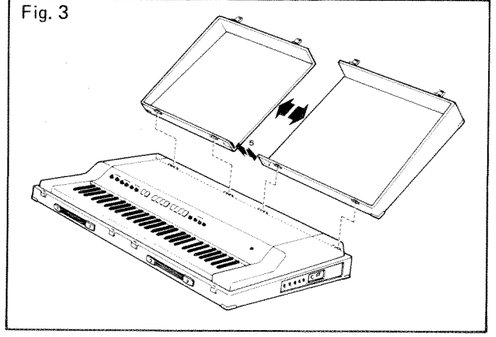
b. Remove the screws ① ～ ④ on the in side of the lid and take out the two supporting bars, the power cord and the sustain pedal (refer to Fig. 2).

Fig. 2



c. Remove the lock ⑤ on the rear in side of the lid, then seperate the right and left parts of the cover (refer to Fig. 3).

Fig. 3

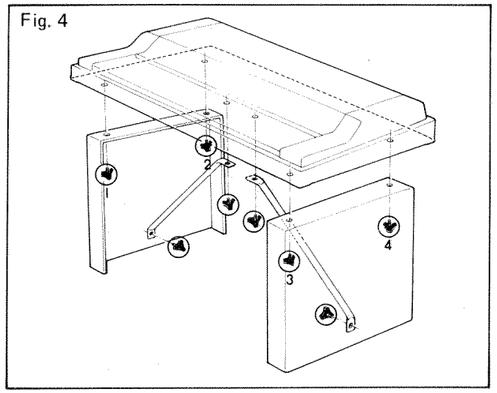


2. Assembly of the Body

a. Position the body on a suitable base, then attach the lids on both sides (refer to Fig. 4).
* Use screws ① ～ ④ as shown in Fig. 1 when attaching the lids.

b. Insert the supporting bars between the body and the lids on both sides, then tighten them by the screws (refer to Fig. 4).

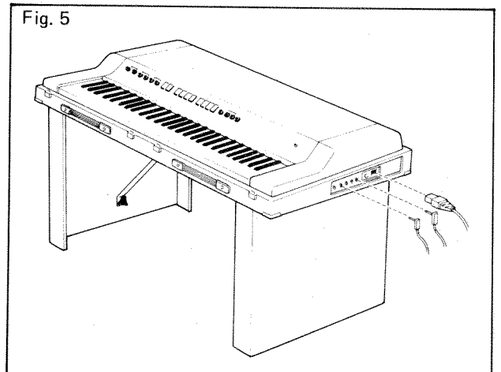
Fig. 4



3. Interconnection

Insert the plugs of the power cord, output cord, pedal switch, etc. into the body (refer to Fig. 5)

Fig. 5



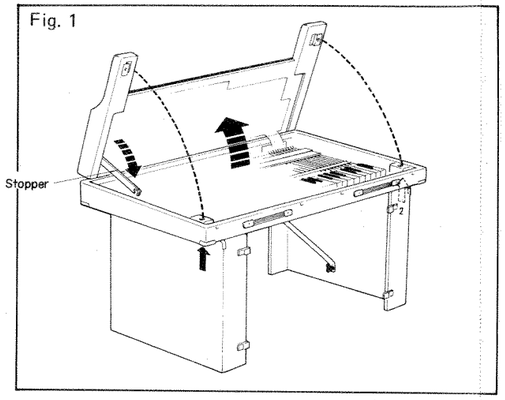
●DISASSEMBLY PROCEDURES

1. Opening and Closing the Panel

(1) Loosen the screws 1 and 2 located below the both sides of the body, then raise the panel upward.

(2) Fix the panel by hooking the stopper stored at the left side of the panel onto the body (refer to Fig. 1).

Fig. 1



3. Keyboard Removal

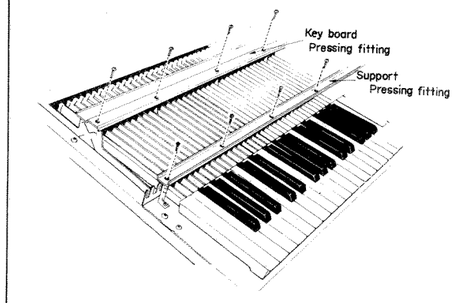
(1) Open the panel referring to the step 1.

(2) Remove the screws of the keyboard pressing fitting and the support pressing fitting.

(3) When removing the keyboard, remove the screw of the D board while taking care not to dash the rear part of the keyboard against the switch pieces, then move the D board to the rear side and remove the keyboard.

(4) Make sure to remove the black key previously and then pull out the white key.

Fig. 3

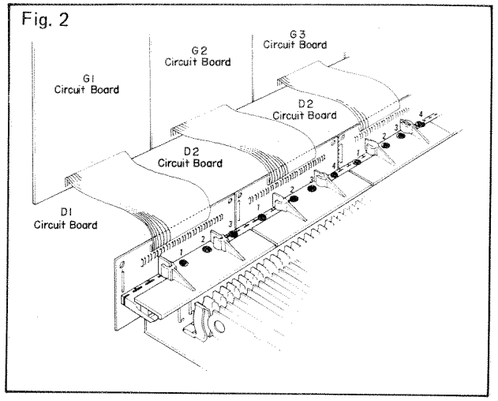


2. D Circuit Board Removal

(1) Open the panel referring to the step 1.

(2) Remove the screws 1 – 4 as shown in Fig. 2, then remove the boards D1 ～ D3.

Fig. 2

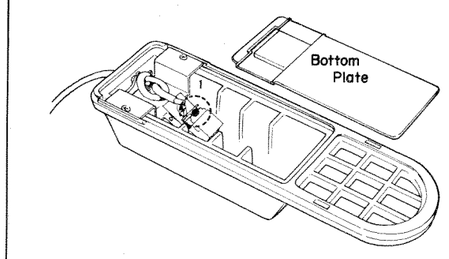


4. Disassembly of the Pedal

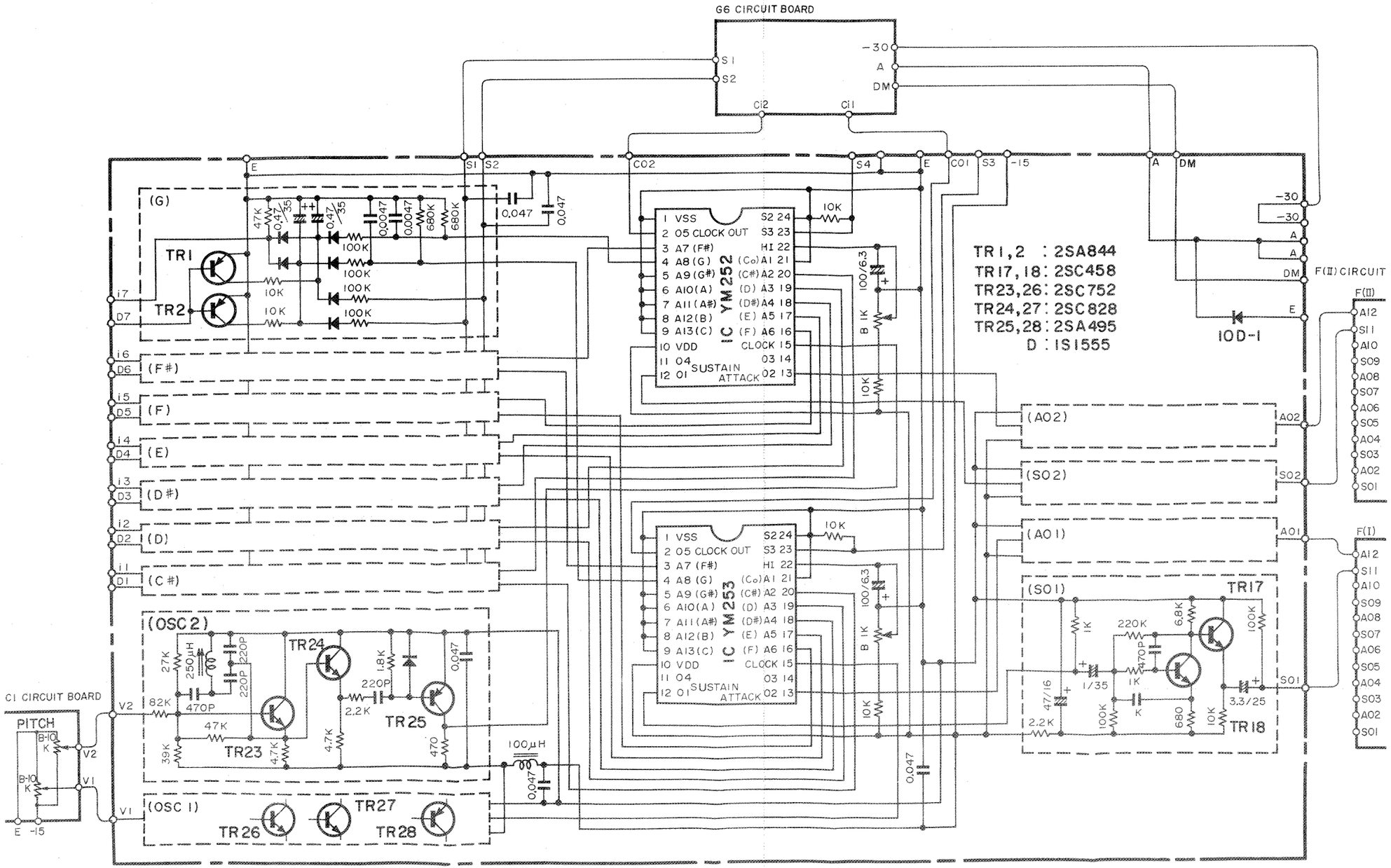
(1) Remove the pedal by inserting the fingers, as if peeling it.

(2) Replace the pedal switch after removing the screw 1.

Fig. 4

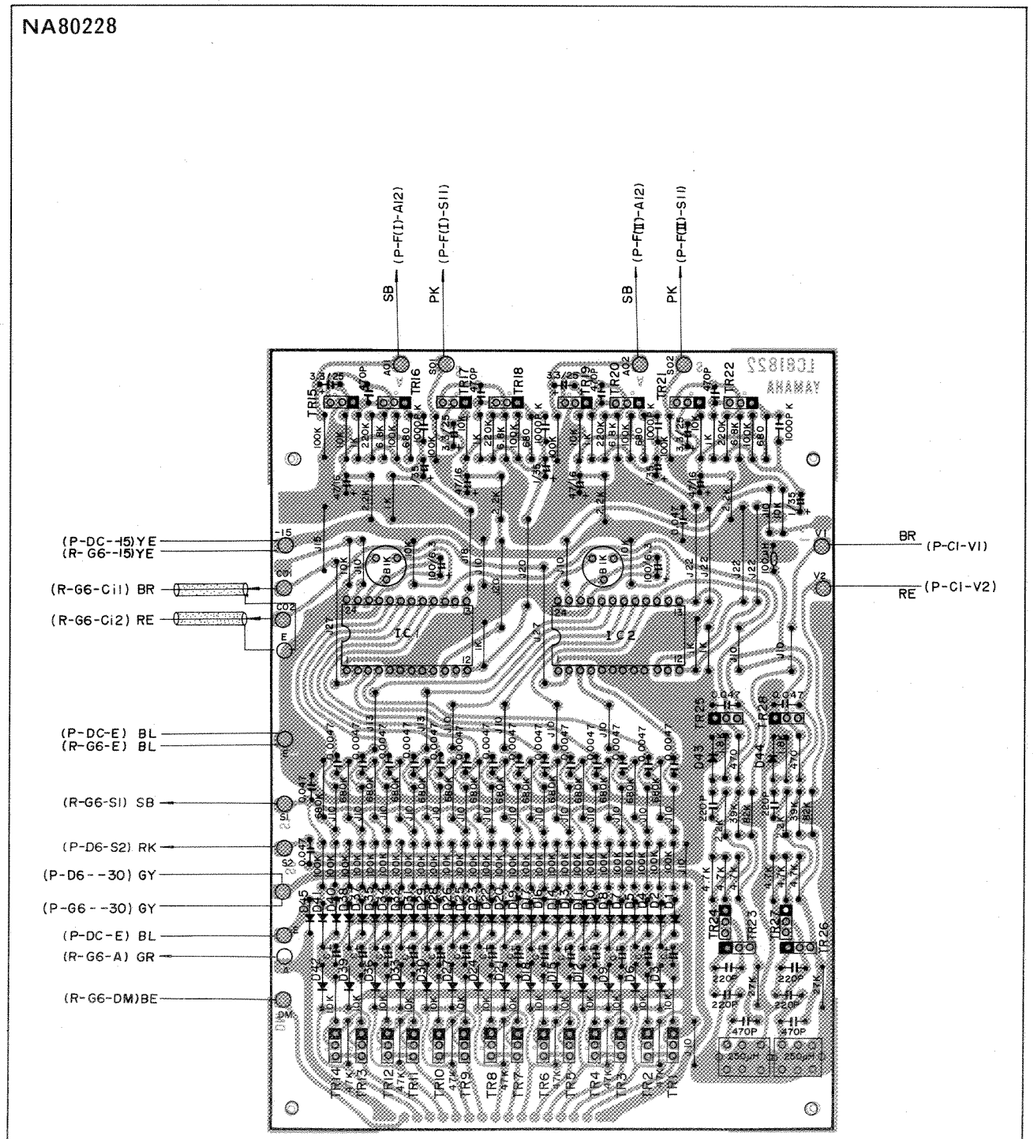


1. G7 Circuit (C7 # ~G7)



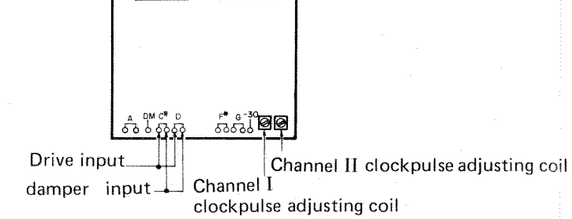
G7 Circuit Board & Wiring

NA80228



1. Transistor
   Tr1 ~ 14 : 2SA844 (D, E)
   Tr15 ~ 22: 2SC458 LG (C)
   Tr23, 26 : 2SC752 (O), (Y)
   Tr24, 27 : 2SC828 (P)
   Tr25, 28 : 2SA495 (O), (Y)
2. IC
   IC 1 : YM253
   IC2 : YM252
3. Diode
   D1 ~ 44 : 1S1555
   D45 : 10D1
4. Choke coil
   250μH x 2

▼ Adjustment Locations



Attack adjusting pot is already adjusted before shipment, therefore do not touch it normally. However, if adjustment is heeded because of IC replacement, etc., procede as follows;

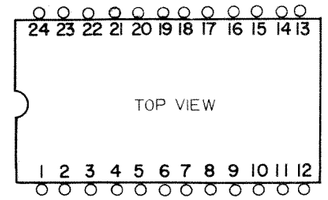
1. Remove wires from output terminals (AO1, SO1, AO2 and SO2). Connect A 1KΩ load resistor from each output terminal to ground, respectively.
2. Apply —5VDC to the drive input (terminal i4) for note name E.
3. Measure the output waveform. Amplitude and waveshape should be as shown in the table below. Adjust respective B—1KΩ adjusting pot as necessary.

(Please recheck pattern of waveform)

Output Terminal	Waveform	Amplitude (P—P)
AO1	2 4 2 4	350 mV
SO1	6 2 6 2	950 mV
AO2	5 5	300 mV
SO2	7 7	950 mV

G7

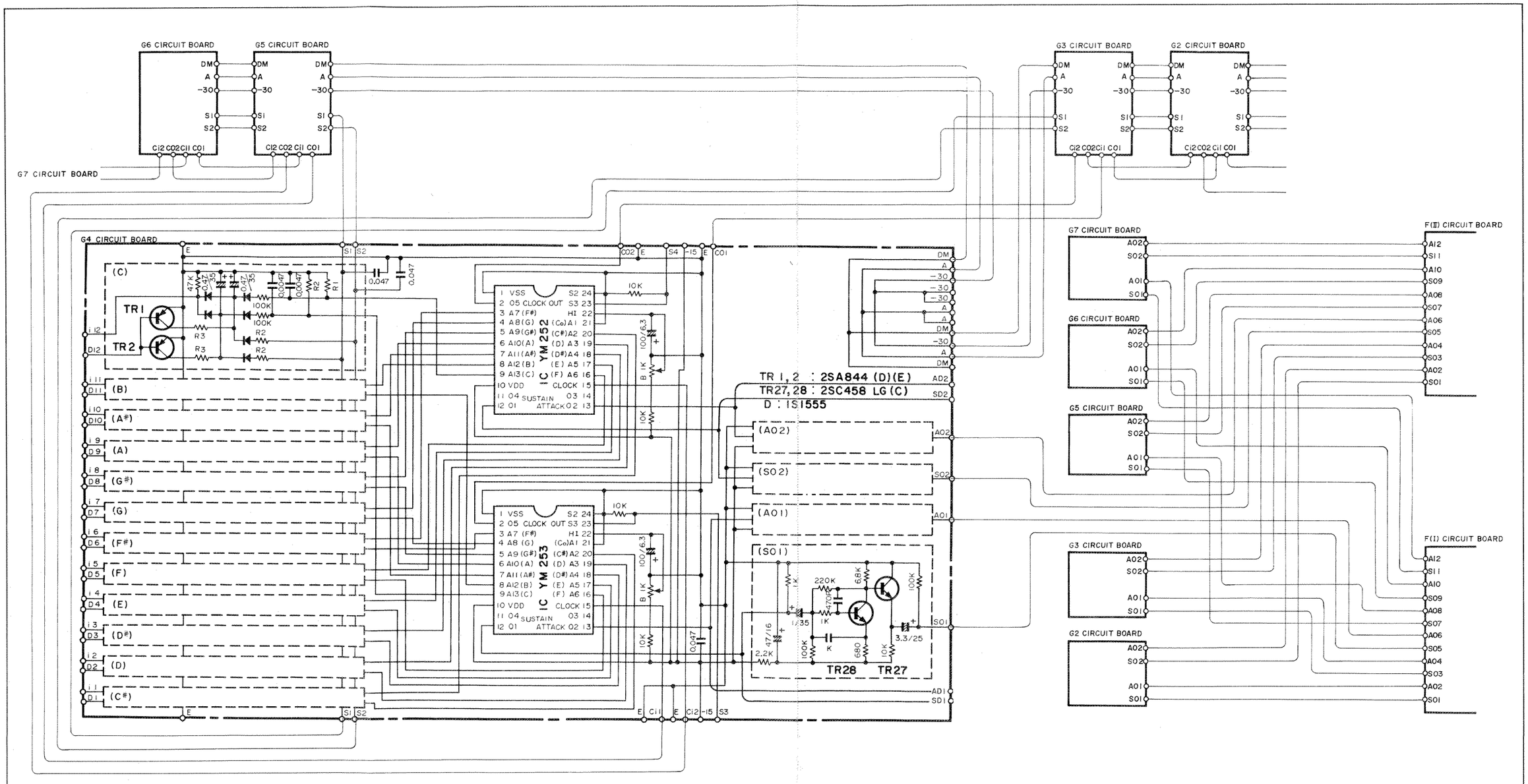
Terminal description YM253 and YM252



Terminal No.	Terminal name	Description
1	VSS	0 V
2	05 CLOCK OUT	—4.0VClock output terminal
3	A7 (F#)	(OFF) (ON) 0 → —1.5V→ 0
4	A 8 (G)	
5	A 9 (G#)	0 V KEY
6	A10(A)	0 V
7	A11(A#)	0 V
8	A12(B)	0 V
9	A13(C)	0 V
10	VDD	—15V
11	04	0 V
12	01 SUSTAIN	YM253 6 2 6 2 YM252 7 7
13	02 ATTACK	2 4 2 4 5 5 Please recheck pattern
14	03	0 V
15	CLOCK	—6.0V Clock input terminal
16	A 6 (F)	KEY (OFF)(ON) 0 → —1.5V→ 0
17	A 5 (E)	
18	A 4 (D#)	
19	A 3 (D)	
20	A 2 (C#)	
21	A 1 (C)	0 V
22	H 1	0 V
23	S 3	0 V
24	S 2	0 V

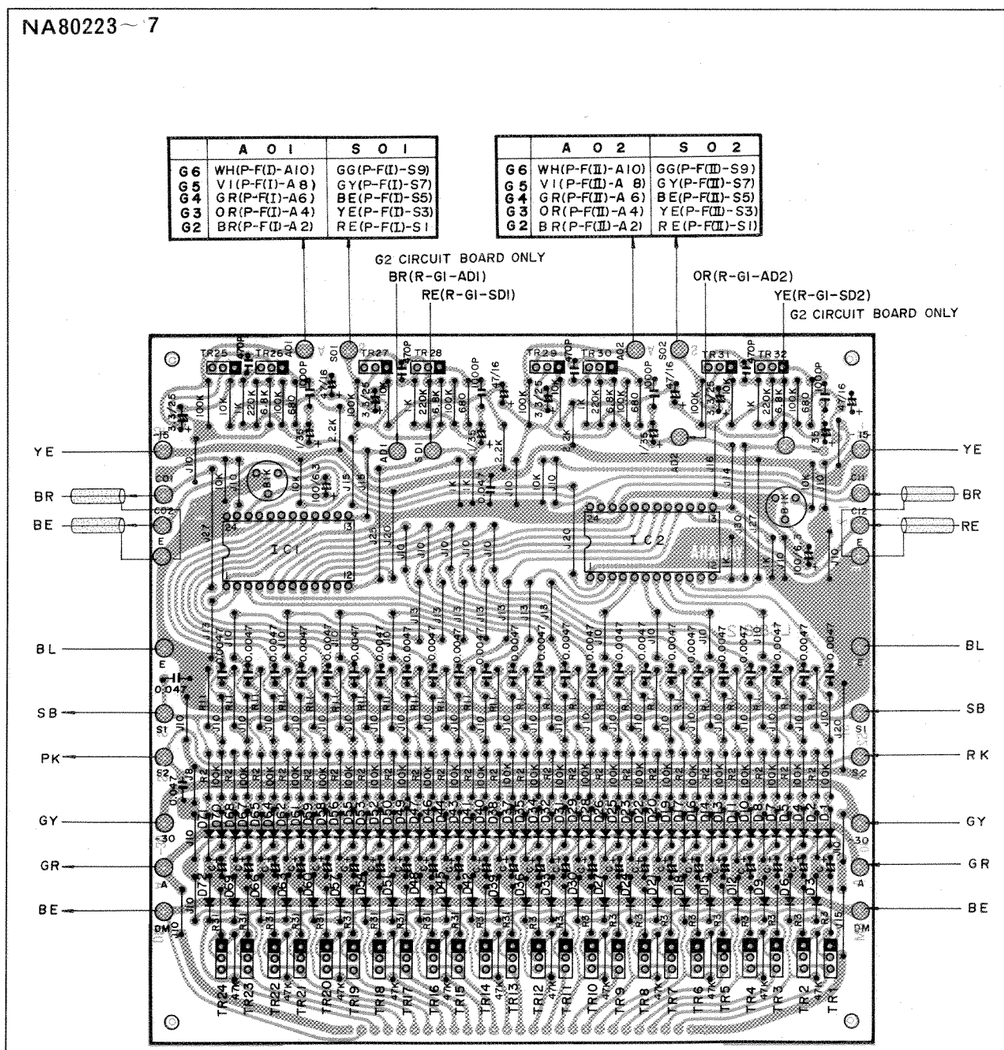
* Thus, G6 ~ G1 circuit boards are same except for note terminal voltage.

2. G2~G6 Circuit (C2#~C7)



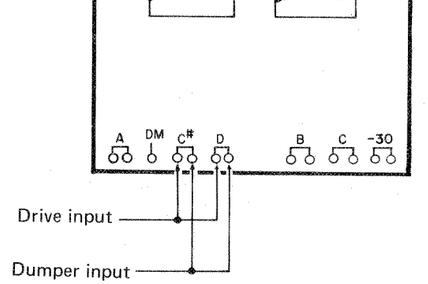
G2～G6 Circuit Board & Wiring

NA80223～7



1. Transistor
   Tr1～24 : 2SA844 (D) (E)
   Tr25～32: 2SC458 LG (C)
2. IC
   IC1 : YM253
   IC2 : YM252
3. Diode
   D1～72 : 1S1555
4.

▼ Adjustment Locations



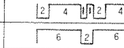
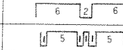
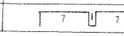
G2 ～ G6

Circuit board	R I	R II	R 2	R 3	R3I
G 2	3.3M	3.3M	270K	47K	47K
G 3	2.2M	2.7M	220K	22K	33K
G 4	1.8M	2.2M	180K	15K	15K
G 5	1.2M	1.5M	150K	12K	12K
G 6	820K	1M	120K	10K	10K

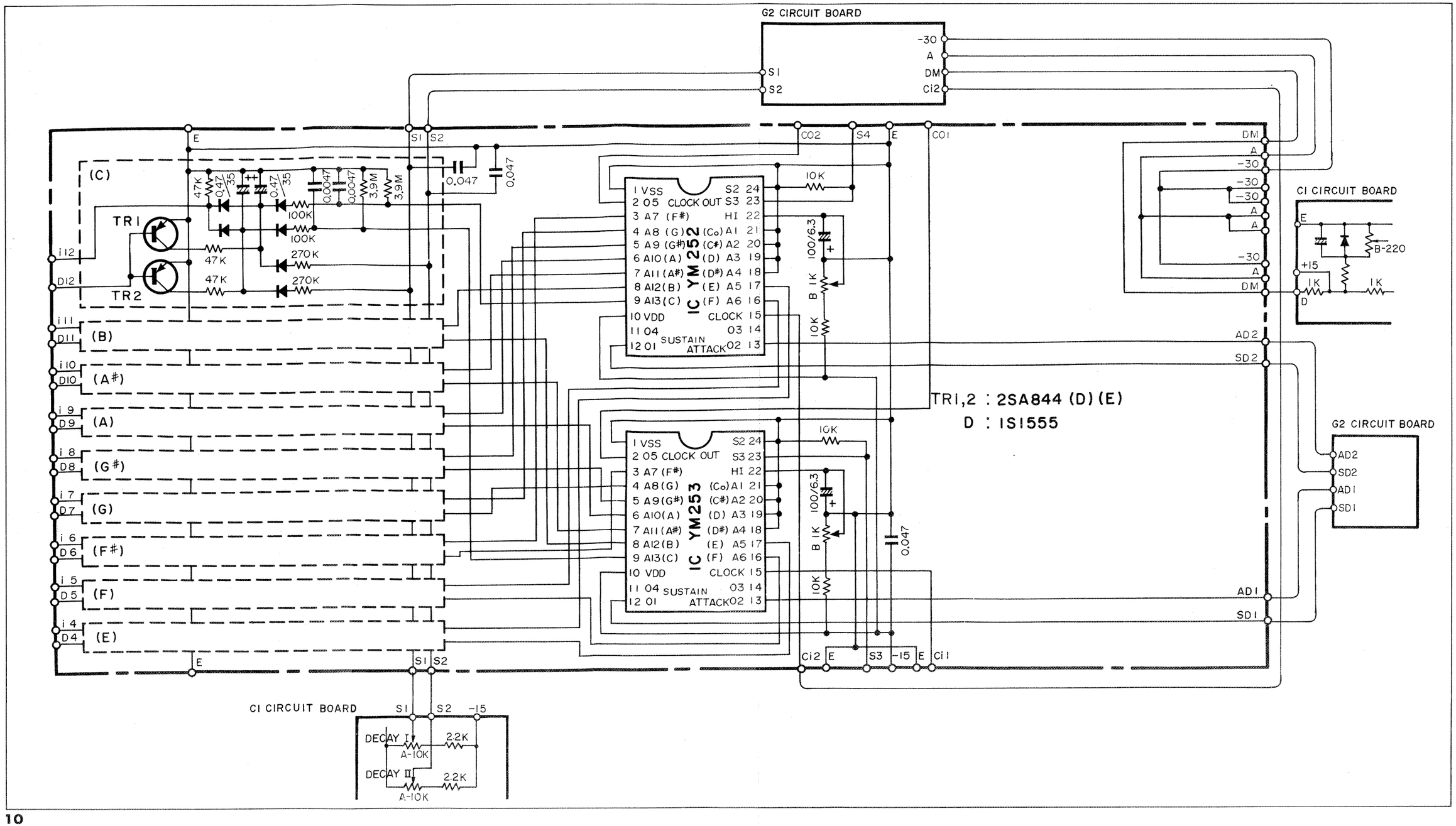
Attack adjusting pot is already adjusted before shipment, therefore do not touch it normally. However, if adjustment is needed because of IC replacement, etc., procede as follows;

1. Remove wires from output terminals (AO1, SO1, AO2 and SO2). Connect a—1KΩ load resistor from each output terminal to ground, respectively.
2. Apply —5VDC to the drive input (terminal i4) for note name E.
3. Measure the output waveform. Amplitude and waveshape should be as shown in the table below. Adjust respective B—1KΩ adjusting pot as necessary.

(Please recheck pattern of waveform)

Output Terminal	Waveform	Amplitude (P—P)
AO1		350 mV
SO1		1100 mV
AO2		300 mV
SO2		1100 mV

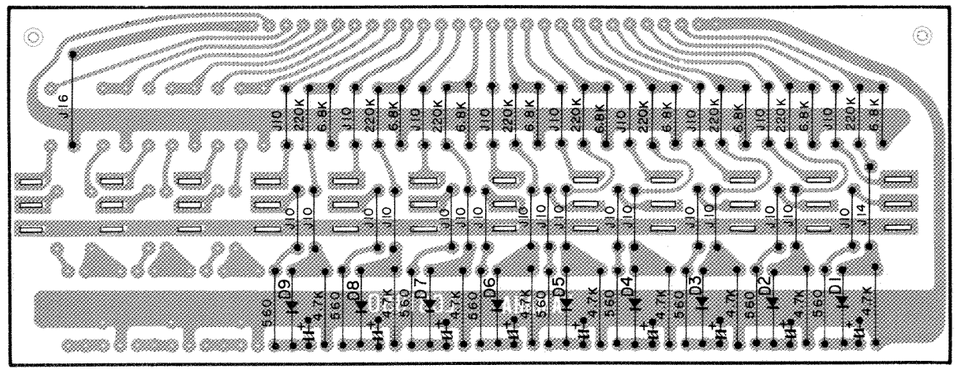
3. G1 Circuit (E1~C2)



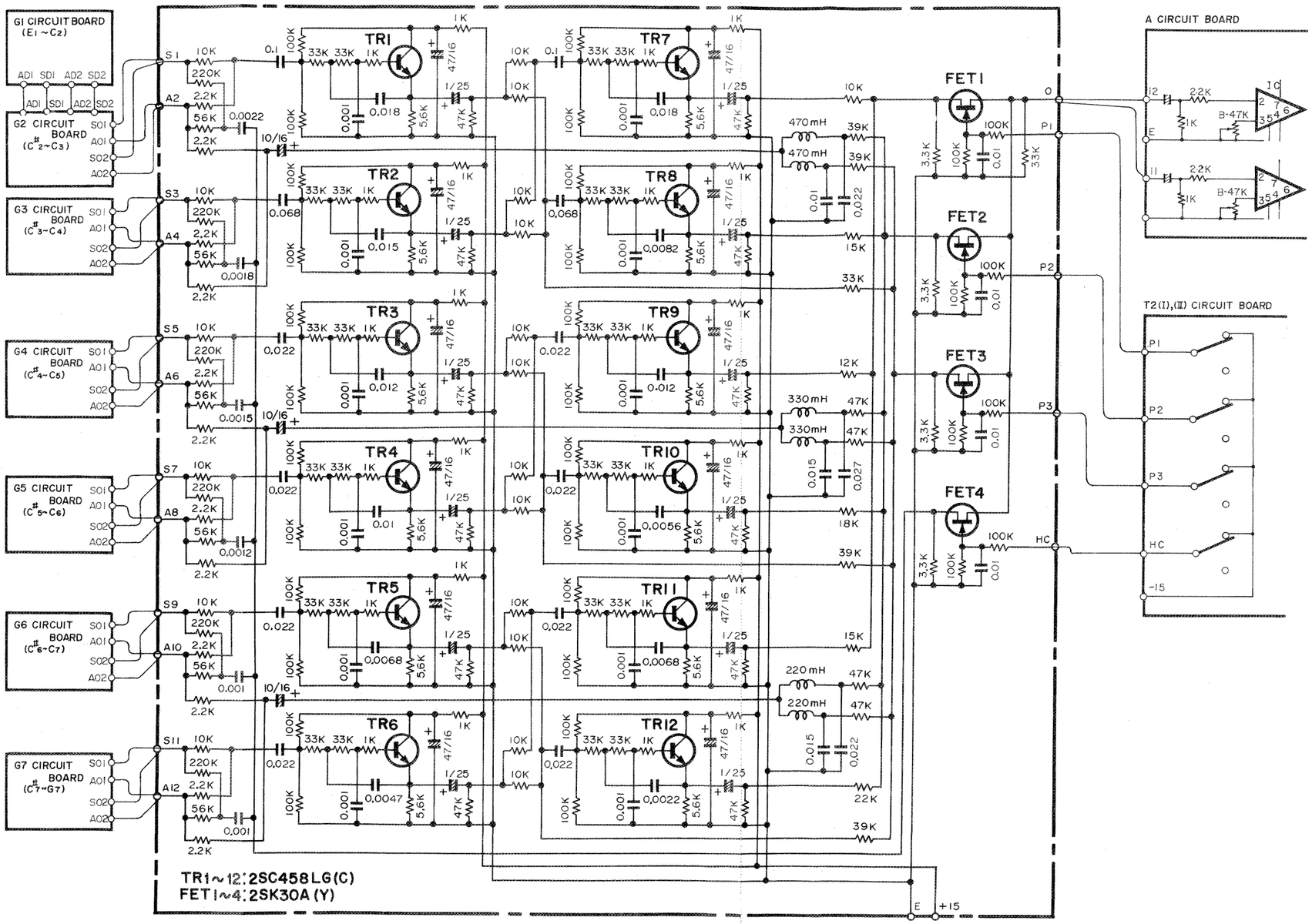
D1

D1 Circuit Board & Wiring

1. Diode
   D1～9 : 1S1555
2. Electrolytic capacitor
   1/50 (± 10%)
3. Key contacts, 9 keys



7. F Circuit

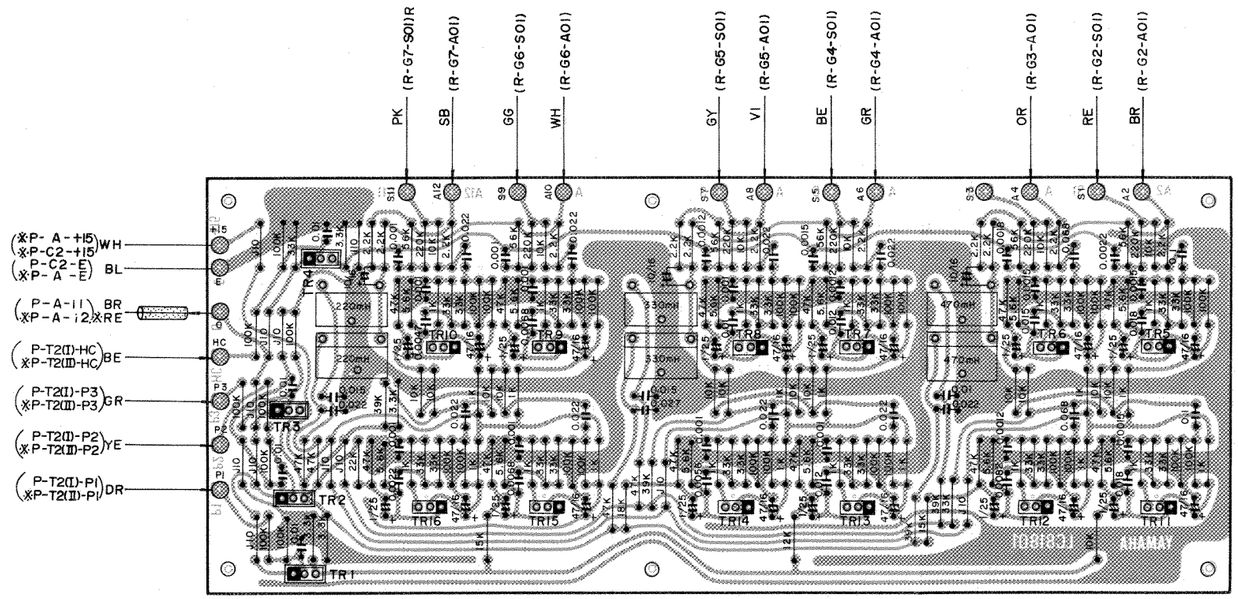

G1 CIRCUIT BOARD (E1~C2)
ADI SDI AD2 SD2
G2 CIRCUIT BOARD (C#2~C3)
G3 CIRCUIT BOARD (C#3~C4)
G4 CIRCUIT BOARD (C#4~C5)
G5 CIRCUIT BOARD (C#5~C6)
G6 CIRCUIT BOARD (C#6~C7)
G7 CIRCUIT BOARD (C#7~G7)
SOI AOI SO2 AO2
S1 A2 S3 A4 S5 A6 S7 A8 S9 A10 S11 A12
TR1 TR2 TR3 TR4 TR5 TR6 TR7 TR8 TR9 TR10 TR11 TR12
FET1 FET2 FET3 FET4
A CIRCUIT BOARD
T2(I),(II) CIRCUIT BOARD
P1 P2 P3 HC -15
TR1~12:2SC458LG(C)
FET1~4:2SK30A(Y)
E +15

F

F Circuit Board & Wiring

NA80230

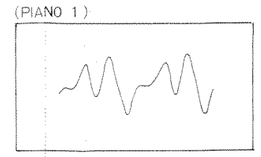
1. Transistor
   Tr 1 ～ 4 : FET 2SK30A(Y)
   Tr 5 ～ 16 : 2SC458LG(C)
2. Filter coil
   200mH × 2
   330mH × 2
   470mH × 2



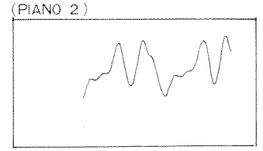
(Each sound tone waveform)
at depressing F4 key : OUTPUT (0 terminal)

Channel I

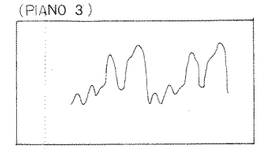
(PIANO 1)



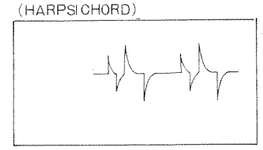
(PIANO 2)



(PIANO 3)

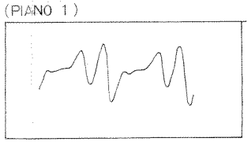


(HARPSICHORD)

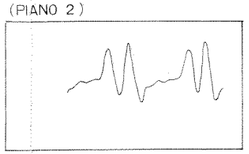


Channel II

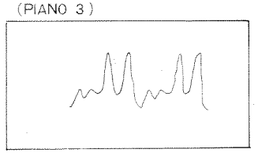
(PIANO 1)



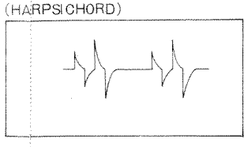
(PIANO 2)



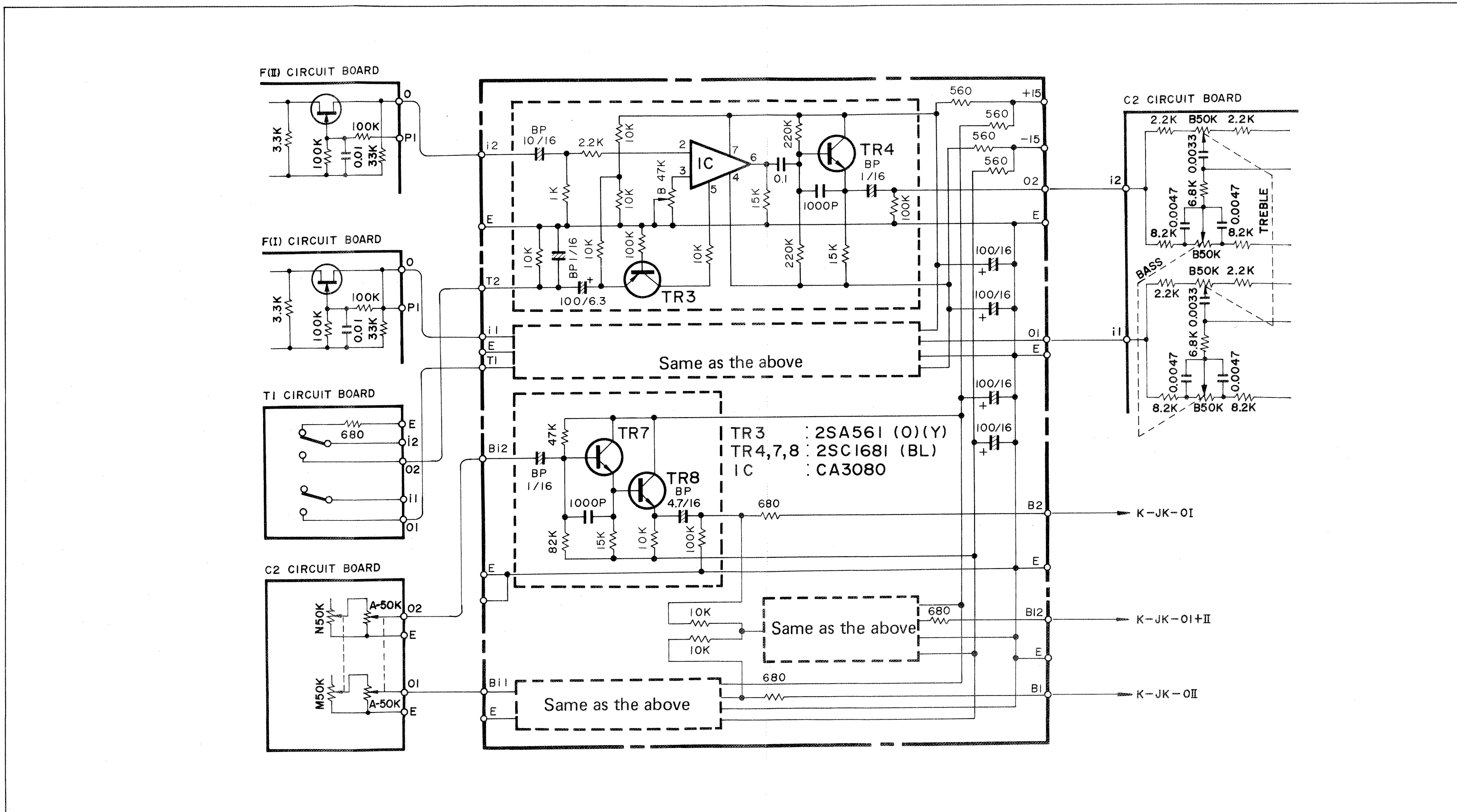
(PIANO 3)



(HARPSICHORD)



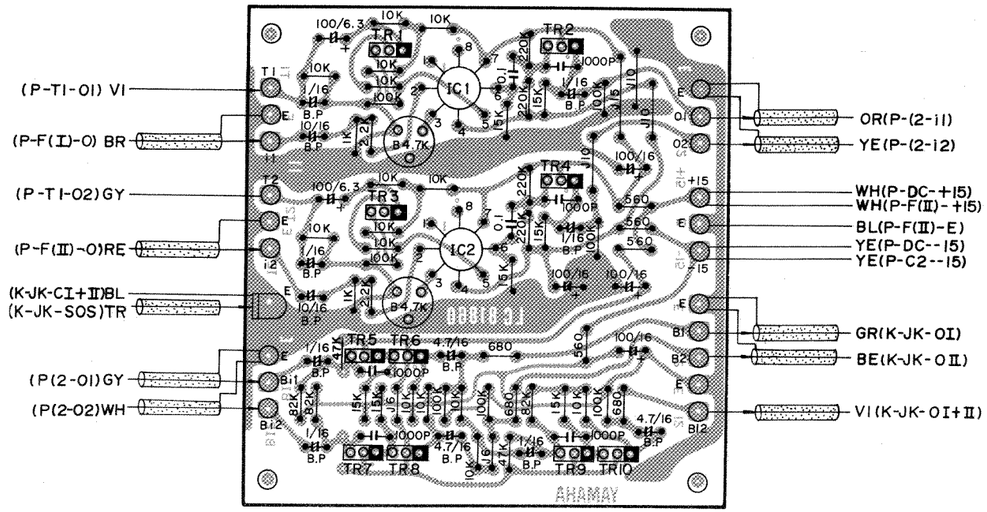
8. A Circuit


F(II) CIRCUIT BOARD
F(I) CIRCUIT BOARD
T1 CIRCUIT BOARD
C2 CIRCUIT BOARD
C2 CIRCUIT BOARD
TR3 : 2SA561 (O)(Y)
TR4,7,8 : 2SC1681 (BL)
IC : CA3080
Same as the above
Same as the above
Same as the above
Same as the above
TREBLE
BASS
K−JK−OI
K−JK−OI+II
K−JK−OII

A

A Circuit Board & Wiring

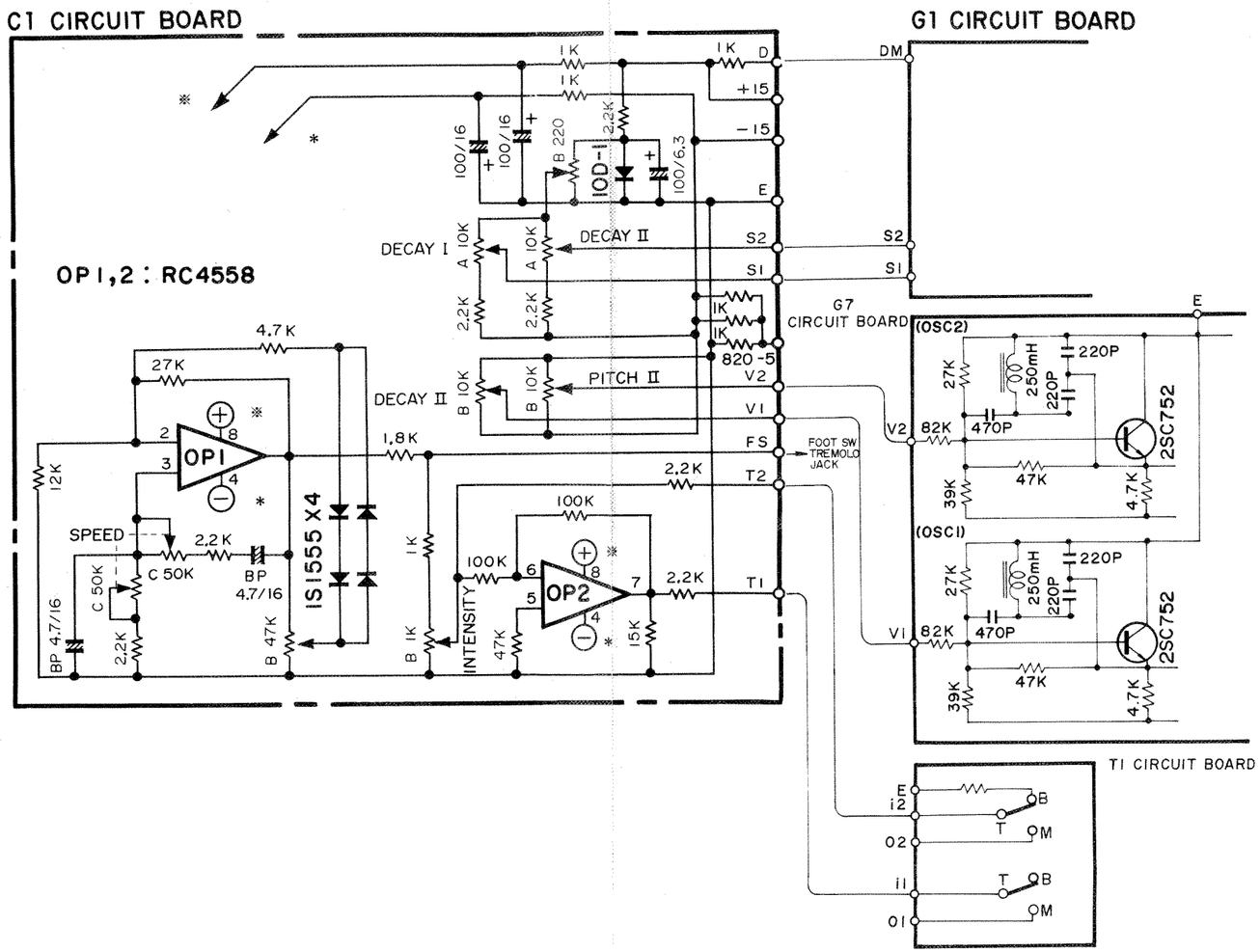
NA80214



1. Transistor
   Tr1, 3 : 2SA561 (O) (Y)
   Tr2, 4, 5, 6:2SC1681 (BL)
2. IC
   IC1, 2 : CA3080

▼ **Adjustment Locations**

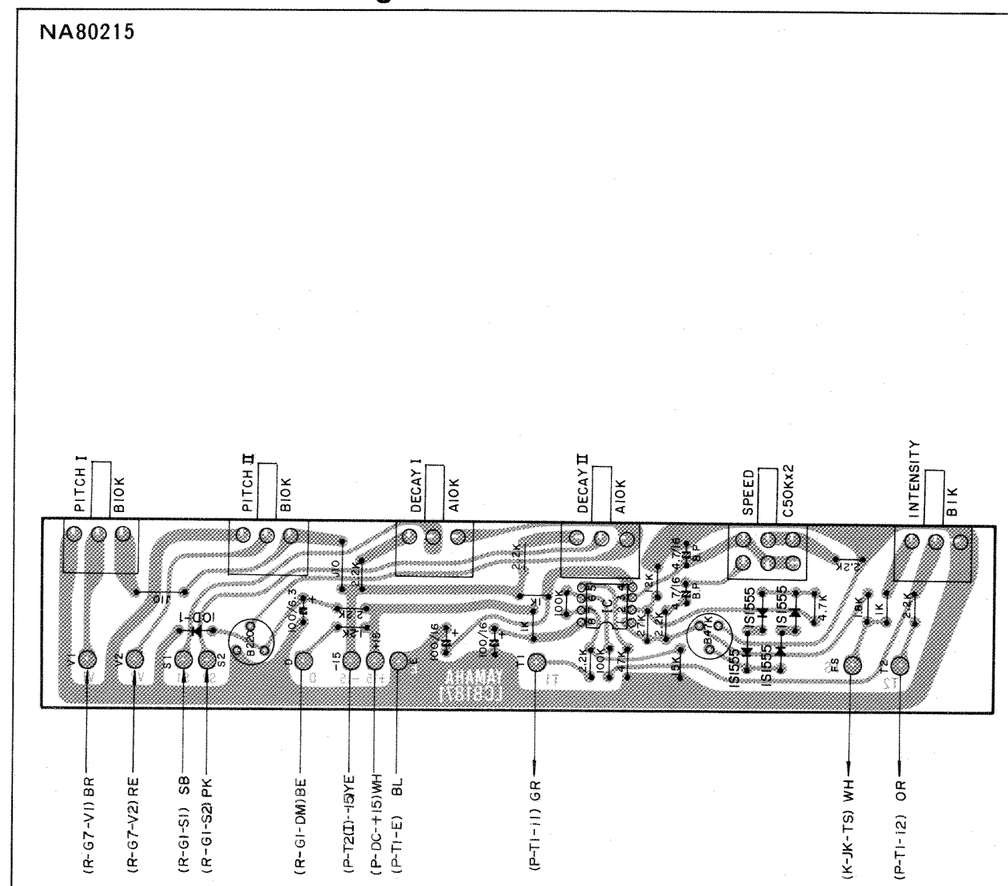
9. C1 Circuit


C1 CIRCUIT BOARD
G1 CIRCUIT BOARD
OP1,2 : RC4558
IS1555 X4
OP1
OP2
IOD-1
DECAY I
DECAY II
PITCH II
SPEED
INTENSITY
FOOT SW TREMOLO JACK
G7 CIRCUIT BOARD
(OSC2)
(OSC1)
2SC752
T1 CIRCUIT BOARD
1K
2.2K
4.7K
27K
12K
10K
100/16
100/6.3
220
47K
1.8K
100K
15K
820-5
82K
470P
220P
250mH
39K
D
+15
-15
E
S2
S1
V2
V1
FS
T2
T1
DM

C1

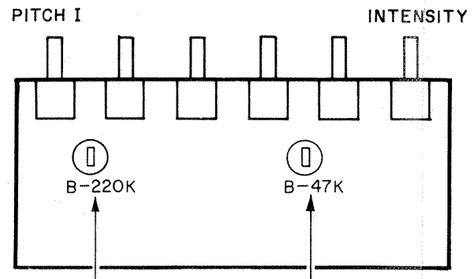
C1 Circuit Board & Wiring

NA80215



1. IC
   RC 4558
2. Electrolytic capacitors 100/6.3, 100/16x2 are firmly attached.

1. Variation range of PITCH 1, 2 is approx. 437 – 453 Hz.
2. Variation range of TREMOLO SPEED is approx. 0.5 – 11 Hz.
3. Modulation degree of TREMOLO INTENSITY is approx. 70% at maximum.



Adjustment is made such that, when pots of DECAY I, II are set at minimum, +0.1V will be present at S1 and S2 terminals and when they are set at maximum, –11V will be present.

Oscillation voltage adjusting pot

10. C2 Circuit