ELECTRONIC VIDEO SYNTHESIZER

THE EVS VIDEO STANDARD

To accomplish video synthesis, a special system had to be devised so that all important signals could be interfaced.

-- So that all output signals could be connected to all inputs.

-- So that all inputs could accept all output signals.

-- So that there would be no frequency distortion at any frequency from D.C. to 10 megacycles.

-- All signals had to be ultra-linear.

-- All signal outputs had to be extremely low impedance (approximately 1 Ohm).

-- All signal inputs were preferred as high impedance as possible, so that many inputs could be driven from one output.

Standard video signals are usually one volt peak to peak including sync. Most equipment manufactured in the United States today does not use D.C. coupled video amplifiers, therefore, the signal which is fed to the co-axial cable is an A.C. signal containing no direct information concerning the Brightness level of the picture. It is therefore necessary for the monitor to contain special circuits called, D.C. Restoration, to re-establish the Brightness level of the picture.

In the E.V.S. System all this is unnessary -- all signals are D.C. coupled everywhere; and a standard of 0- (+1) Volt exists for every signal involved in video synthesis.

The device can be thought of as a video analog computer as far as electronic circuitry goes. This signal standard is compatible with existing video standard. Therefore, E.V.S. can be used with all existing E.I.A. Television Equipment.

The E.V.S. has inputs for (EIA). station synchronizes pulses (EIA) station Blanking pulses and EIA subcarrier, thereby making it a totally EIA device. The Burst is made inside the E.V.S. according to EIA Standards.

All visual pattern signals pass through a video processing amplifier; inside this amplifier the following steps are performed:

1. Black level (Brightness level) control amplifier.
2. New Blanking pulse insertion.
3. New Sync pulse insertion.
4. New Burst signal insertion.
5. Chroma insertion.

The Pattern Generators have push button switches to enable you to have these oscillators locked to a sub multiple of the Vertical, a Horizontal rate, thereby giving you a now moving picture (from left to right and top to bottom); but not necessarily in to out.

By feeding the outputs from the Pattern Generators (Boards 5,6,7,8) to the inputs of the Electronic switch (Board #4), you are able to change the size and sometimes the shape of the various patterns.

By feeding the output of Board #8 to the 1B, 2B or 3B input of Board #4, one can get a moving in and out of the patterns on the screen.

Siegel Video Systems S.V.S.

I wish to make it public knowledge that I have just developed the first all electronic video synthesizer in the world. It is called the Electronic Video Synthesizer (E.V.S.) and it makes pictures electronically. It is an instrument for the Creation of Color Visual information in the medium of video with the possibilities of at least one thousand different pattern variations. The unit can be performed on the air live.

It could also be used in a video tape session involving music for the creation of mythical trips. The colors are the most intense ever seen on any T.V. or monitor before. The E.V.S. does not have a B.L.D. (Brightness level distortion; problem.

***Note: BLD (Brightness level distortion) shows itself as incorrect brightness level on the video screen. Usually apparent in dark scans, showing up as a washed out grey.**

It is the instrument of the New Television; the growing tendency of more artistic abstract television performed by beautiful enchanting people. Where conventional television seeks to inform and entertain the New Television will be engaged in expanding people's consciousness and providing a way for constructive meditation.

The E.V.S. hypnotizes you and the person playing it controls your trip. So the way you see the E.V.S. will depend on who is playing it. "It's the singer not the song."

This is the second instrument in the Siegel Video System. The first is the Video Chrominance Synthesizer which converts the gray scale of a monochrome video signal into a full color chrominance signal. A more detailed discription will be issued at a later time.

For inquiries, write to: Eric Siegel, c/o Howard Wise Gallery, 2 West 13th Street, Rm. 1011, New York, New York 10011, Tel: (212) 989-2316.

SOUND

A **sound** *is composed of a basic frequency (cycles per second) A* **sound (or electromagnetic) source** *emanates from a point in a directional pattern characteristic of its frequency. The higher a frequency is the more directional it is.* **Cosmic rays**, *another form of electromagnetic energy, with a very high frequency, are highly directional.* **Sound waves** *are relatively low in directionality, however the effect of higher frequencies equaling higher directionality is still very apparent. Sound such as a yell or ticking of a clock are much more directional than the rumble of a trailer truck which is felt and has a larger sphere of physical stimulation. (Cosmic rays are attributed with the ability to change genetic structure)*

Ideal Microphone—*a piece of flat solid material which vibrates at the same frequency and intensity (a loud sound has more punch) as the sound source. This [plate] is connected to an electronic circuit where the variation in plate movements are transduced into a variation in the flow of electrons. This energy flow is measured in volts, amperes and db.*

Good simple microphone techniques consists of getting as close to the sound you want recorded and making sure the mike is pointed at the sound source especially if the microphone has a directional (cardioid) sensitivity pattern.

THESE TWO PIECES WERE OMITTED FROM ISSUE THREE.

LÄNSSTYR.

AMPEX AB TRÄDGÅRDSGATAN 26, S-172 38 SUNDBERG

Mr TOM JONESTRÖM, SWEDISH.

UNITED STATES INFORMATION

63 05 20

COUNSULATE
23-05-90

MOPED

1000 Kr

24-55-00

1. DRIVERS LICENCE

SMALL ELECTRONICS BUSNESS

1 PAST. ÄM.

18-01-50

LÄNPOL. INT. 1. POLICE PAPER NO. 2

2. DOCTOR PAPER ANY DOCTOR

2 PHOTO GRAPHS

PAST. ÄM 3. CURCH IDENTFICATION PAPERS

4. WRITTEN TEST - DRIVING TEST

STATENS TRAFIKSÄKERHETSVERK

2

PASTORSÄMBETET

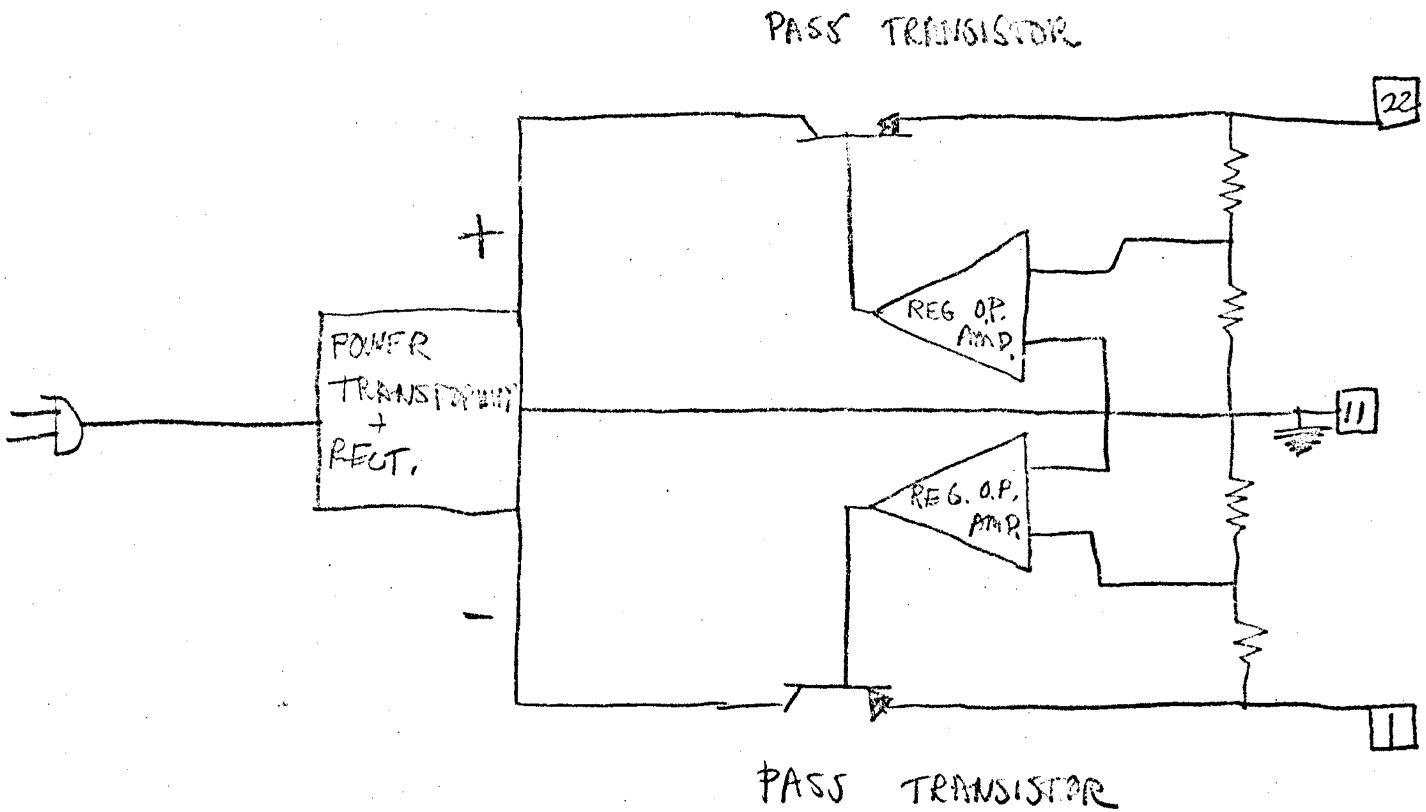
1. CHURCH ST. PAULSGAT. 6

2. POLICE

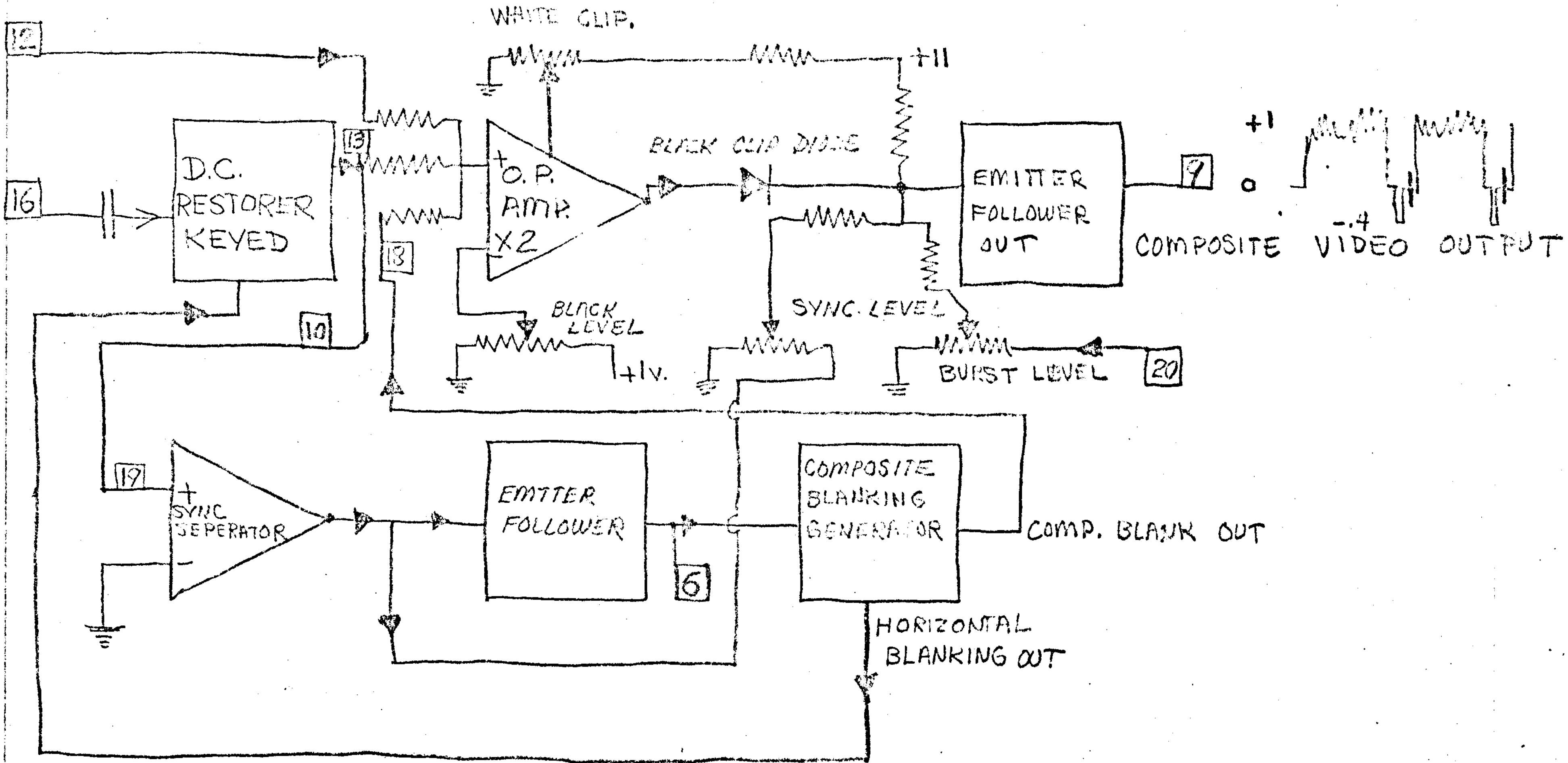
ERIC SIEGEL:

ELECTRONIC VIDEO SYNTHESIZER

POWER SUPPLY BOARD # 1



VIDEO PROSSING AMP
BOARD #2

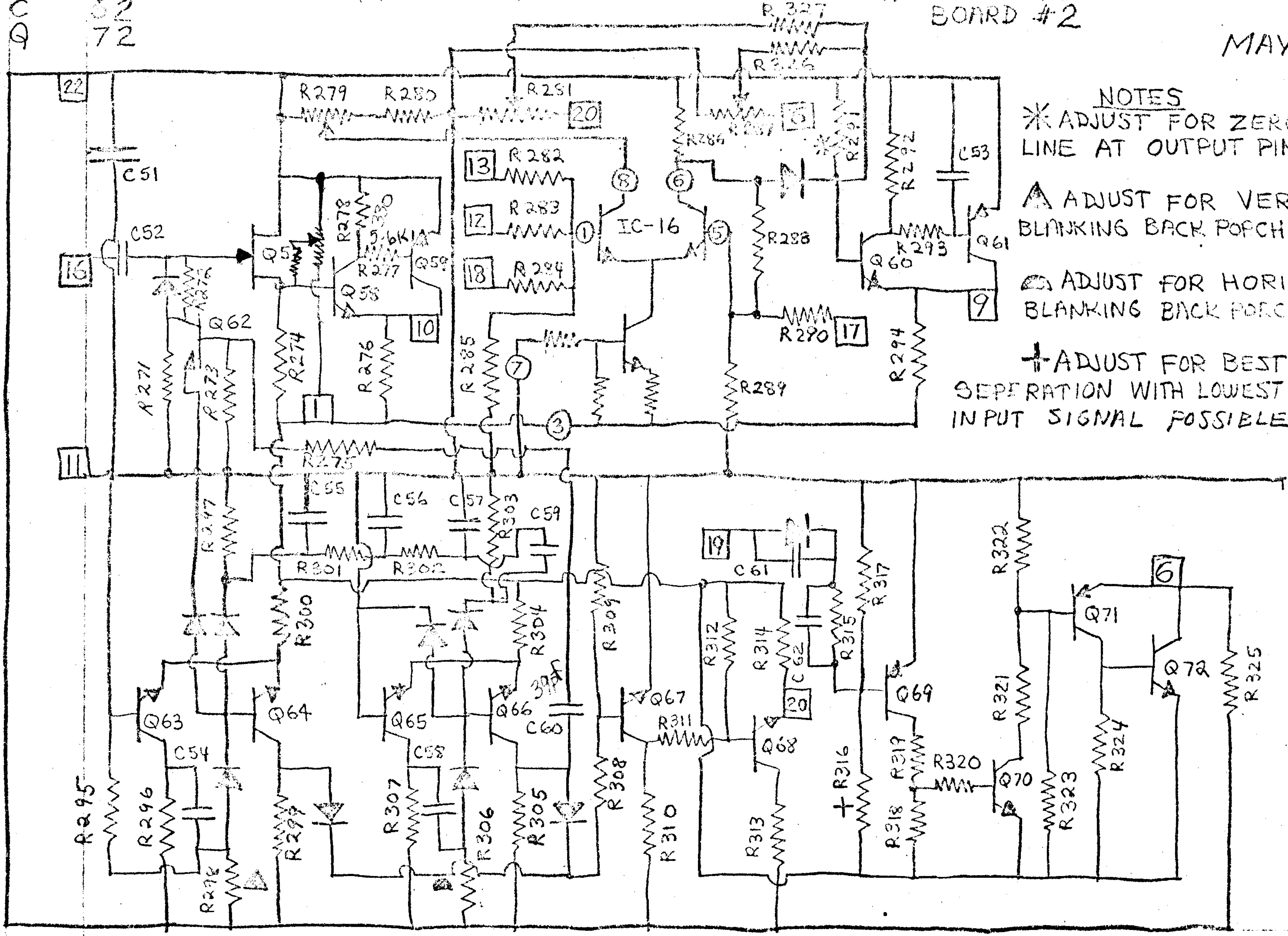


R 327 IC 16
C 32
Q 72

VIDEO PROCESSING AMPLIFIER

BOARD #2

MAY-1971



NOTES

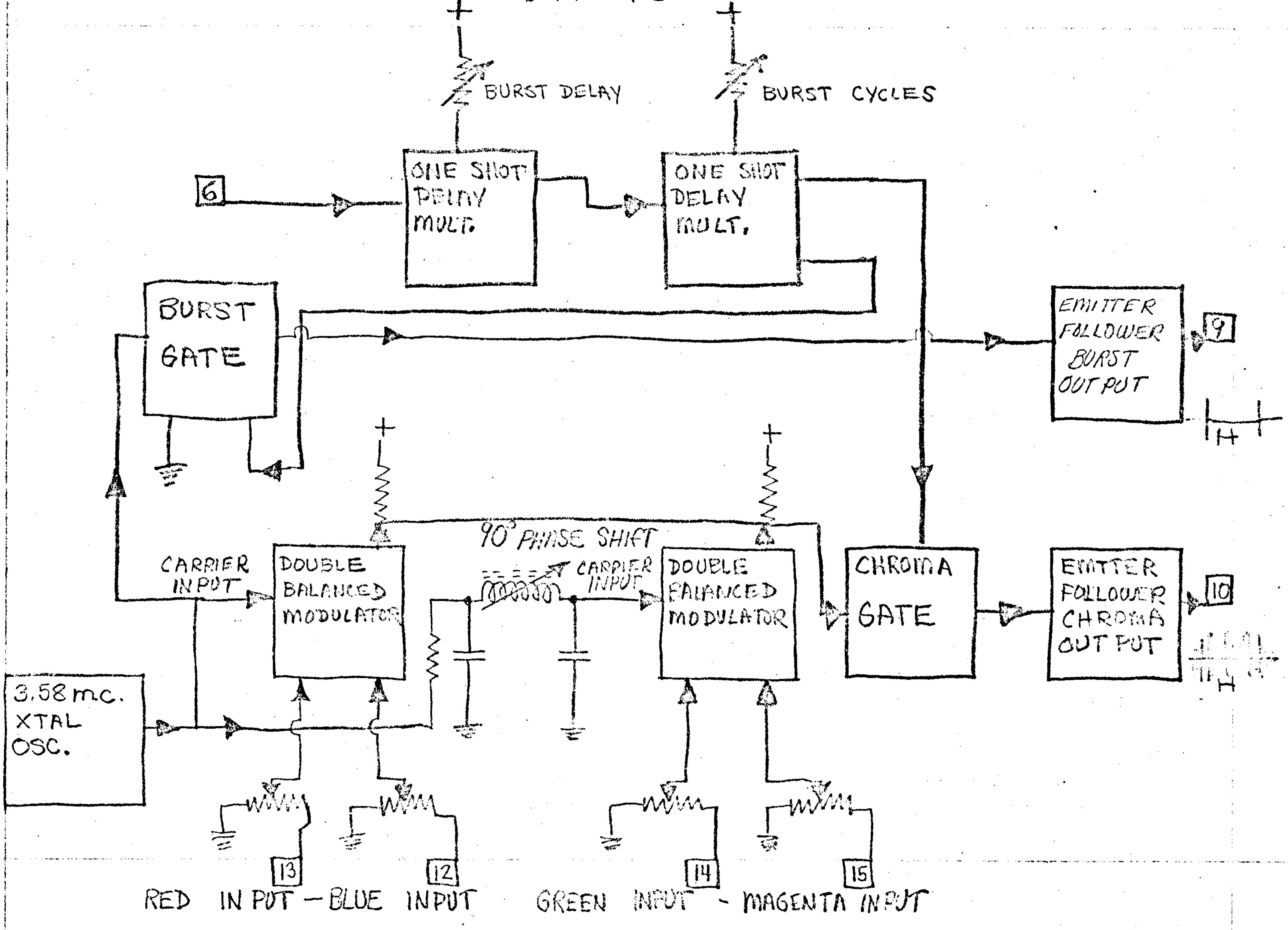
✳ ADJUST FOR ZERO CENTER LINE AT OUTPUT PIN 9

▲ ADJUST FOR VERTICAL BLANKING BACK PORCH WIDTH

◓ ADJUST FOR HORIZONTAL BLANKING BACK PORCH WIDTH

✚ ADJUST FOR BEST SYNC. SEPERATION WITH LOWEST VIDEO INPUT SIGNAL POSSIBLE.

COLOR INCODER
BOARD #3

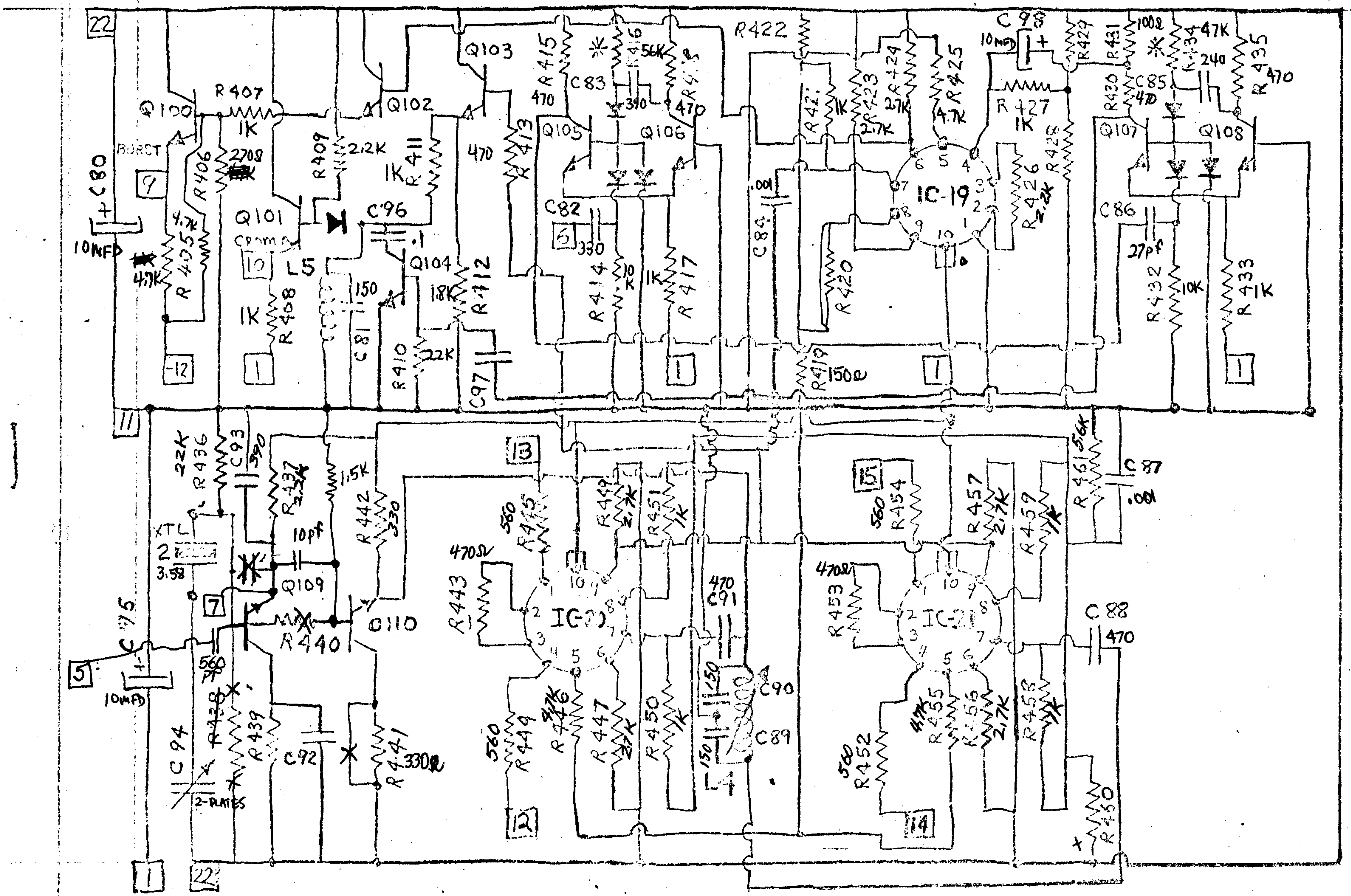


C 98
Q 21 L 3

COLOR INCODER

BOARD #3

MARCH 11, 197



[P] - BOARD PIN NUMBERS

GENERAL DESCRIPTION — The μA796 is a monolithic Double-Balanced Modulator/Demodulator constructed on a single silicon chip using the Fairchild Planar* epitaxial process. This circuit produces an output voltage which is the product of an input voltage (signal) and a switching function (carrier). Communications applications include modulation and demodulation of AM, SSB, DSB, FSK, FM and phase encoded signals. Signal conditioning techniques possible include frequency doubling and halving, linear mixing and chopping, with additional uses as phase detectors in phase locked loops and as differentiators in NRZ and phase encoded digital tape and disk memories.

(For μA796 applications information and other Fairchild Communications Integrated Circuits, see listing on last page.)

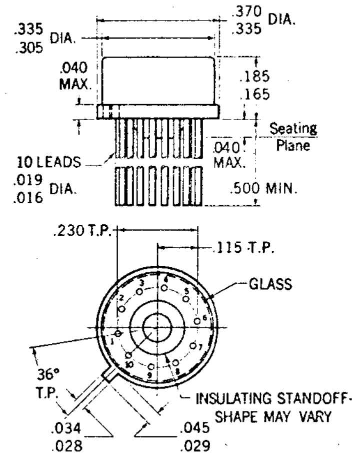
- **EXCELLENT CARRIER SUPPRESSION**
- **LOW OFFSETS AND DRIFT**
- **FULLY BALANCED INPUTS AND OUTPUT**
- **USEFUL TO 100 MHz**
- **WIDE RANGE OF APPLICATION**

ABSOLUTE MAXIMUM RATINGS

Internal Power Dissipation (Note 1)	500 mW
Applied Voltage (Note 2)	30 V
Differential Input Signal ($V_7 - V_8$)	±5.0 V
Differential Input Signal ($V_4 - V_1$)	$\pm(5+I_5R_e)$ V
Input Signal ($V_2 - V_1$, $V_3 - V_4$)	5.0 V
Bias Current (I_5)	12 mA
Operating Temperature Range	−55°C to +125°C
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 60 seconds)	300°C

PHYSICAL DIMENSIONS

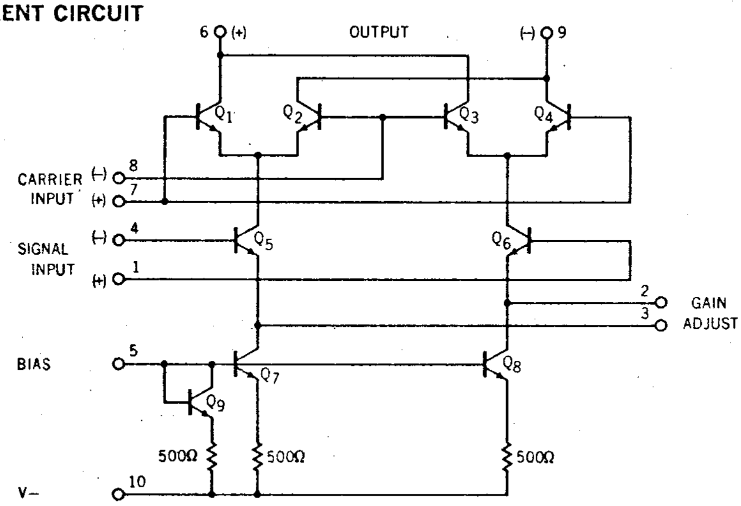
In accordance with JEDEC (TO-100) outline



NOTES:
All dimensions in inches
Leads are gold-plated kovar
Package weight is 1.32 grams

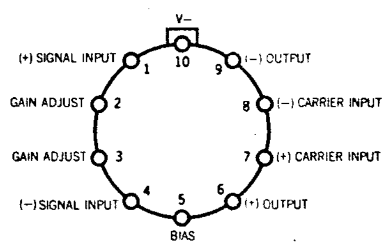
ORDER PART NO. U5E7796312

EQUIVALENT CIRCUIT



CONNECTION DIAGRAM

(TOP VIEW)

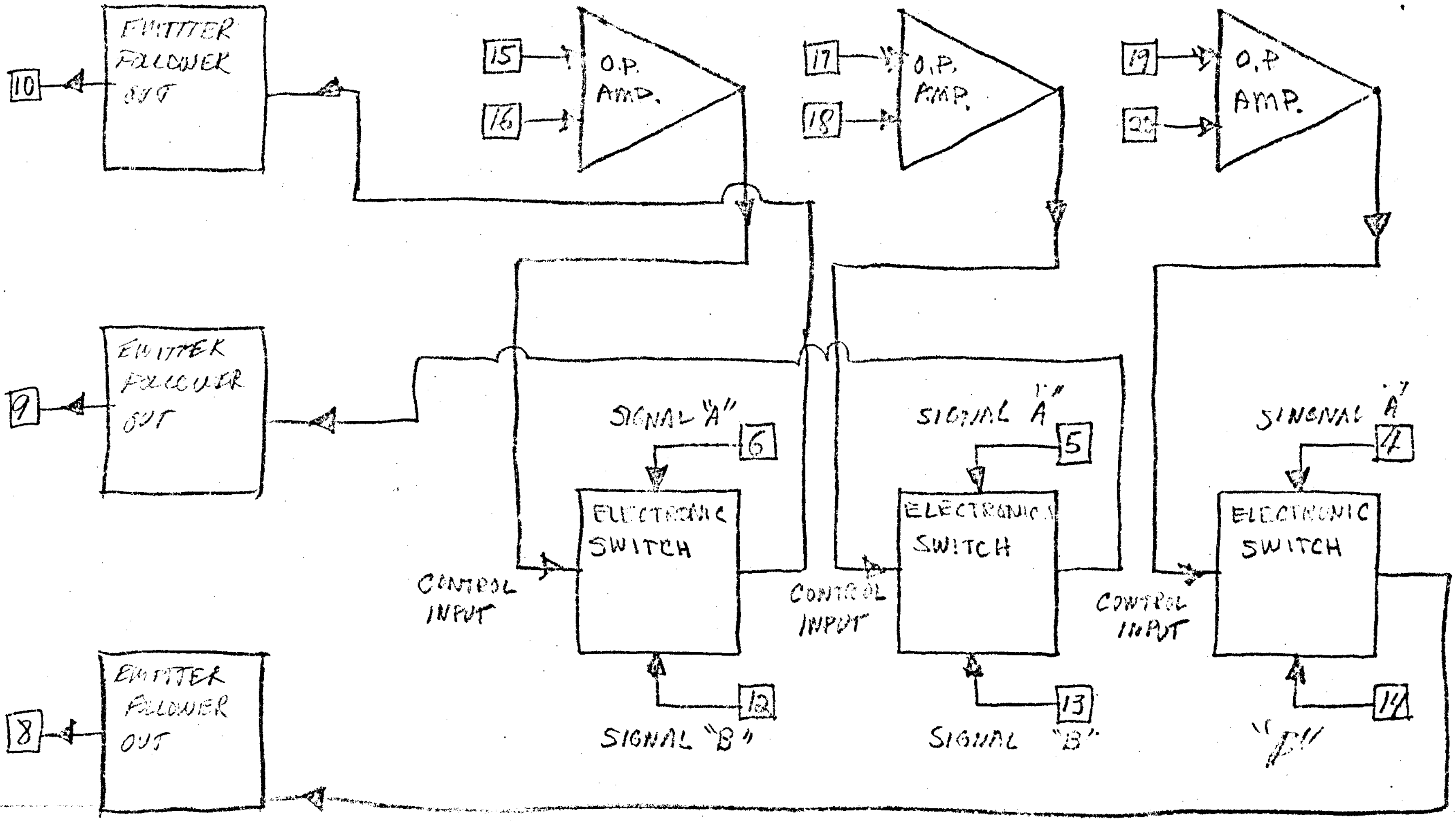


Pin 10 electrically connected to case through substrate.

NOTES:
(1) Rating applies to Case Temperatures to +125°C; derate linearly at 6.5 mW/°C for Ambient Temperature above 75°C.
(2) Voltage applied between pins 6-7, 8-1, 9-7, 9-8, 7-4, 7-1, 8-4, 6-8, 2-5, 3-5.

*Planar is a patented Fairchild process.

ELECTRONIC SWITCH
BOARD # 4

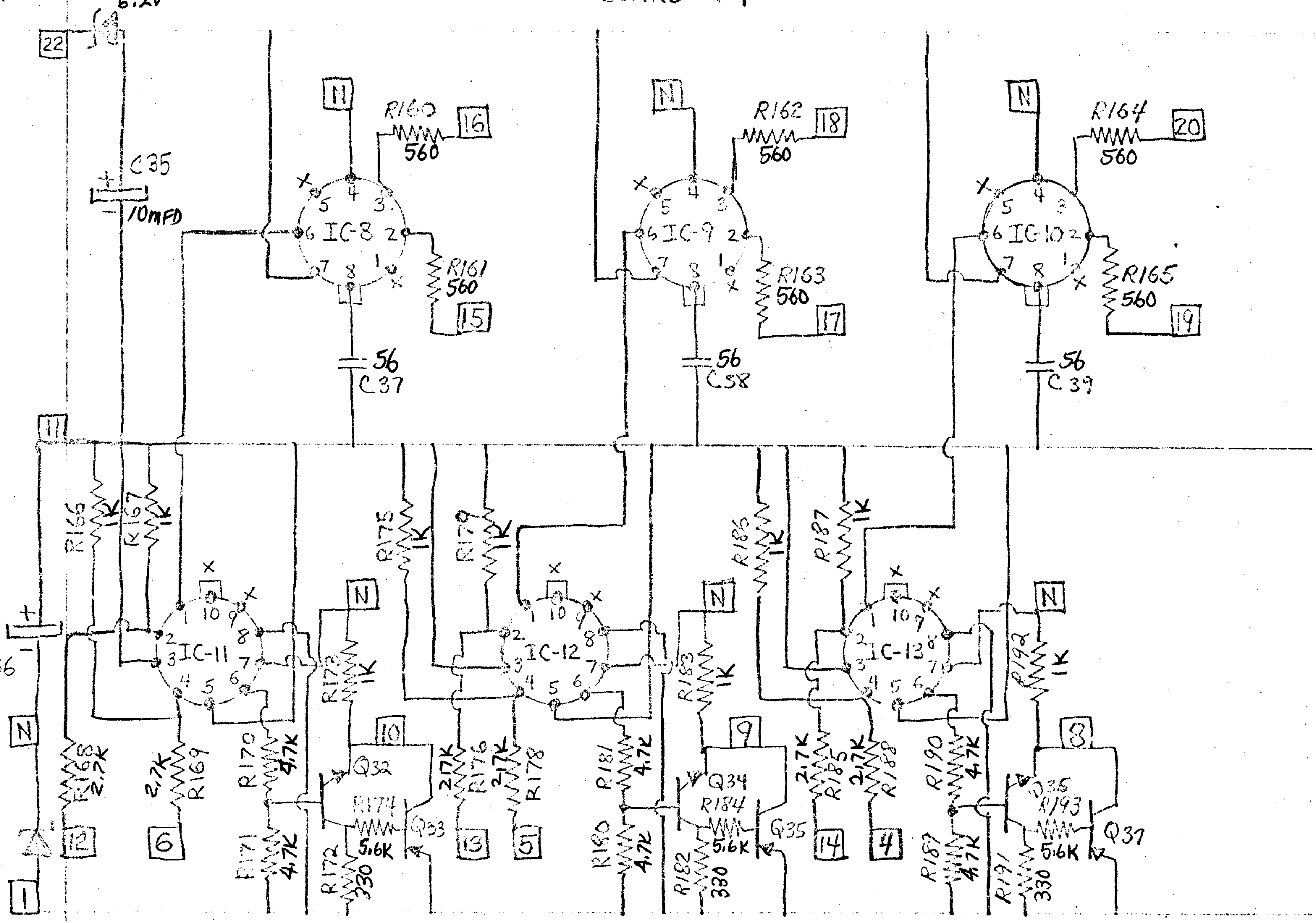


R 200
C 39
Q 37

ELECTRONIC SWITCH

BOARD #4

MARCH 11, 1971



P BOARD PIN NUMBERS

MC1545 MC1445

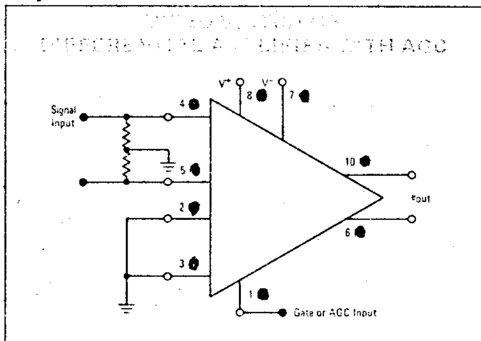
... designed for use as a general-purpose gated wideband-amplifier, video switch, sense amplifier, multiplexer, modulator, FSK circuit, limiter, AGC circuit, or pulse amplifier.

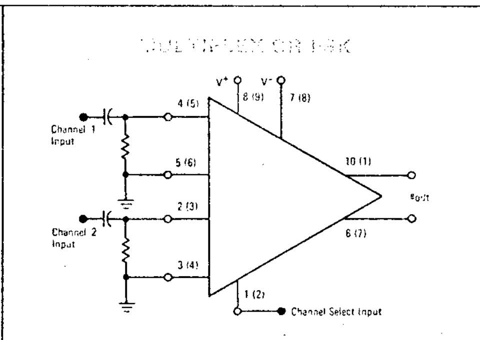
- Large Bandwidth; 75 MHz typical
- Channel-Select Time of 20 ns typical
- Differential Inputs and Differential Output

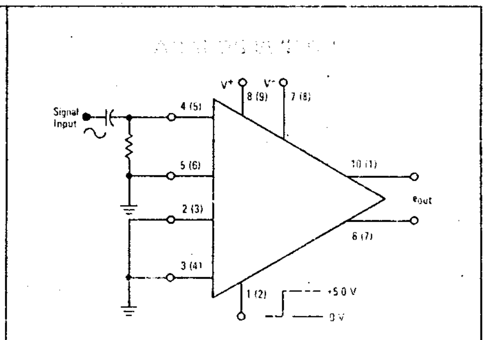
GATE CONTROLLED TWO-CHANNEL-INPUT WIDEBAND AMPLIFIER

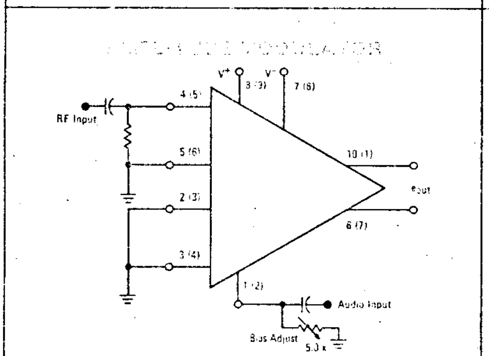
MONOLITHIC SILICON EPITAXIAL PASSIVATED

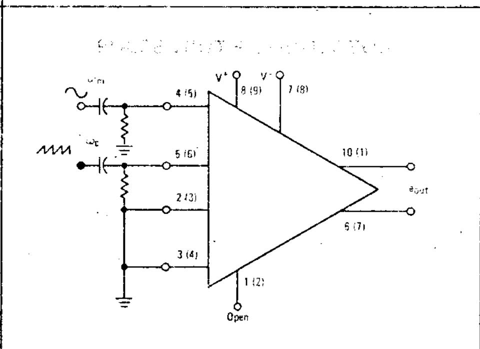
APRIL 1969 – DS 9125

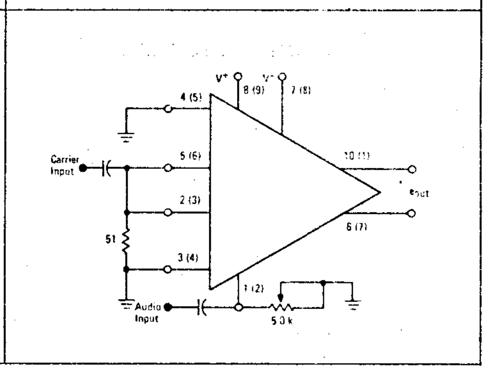


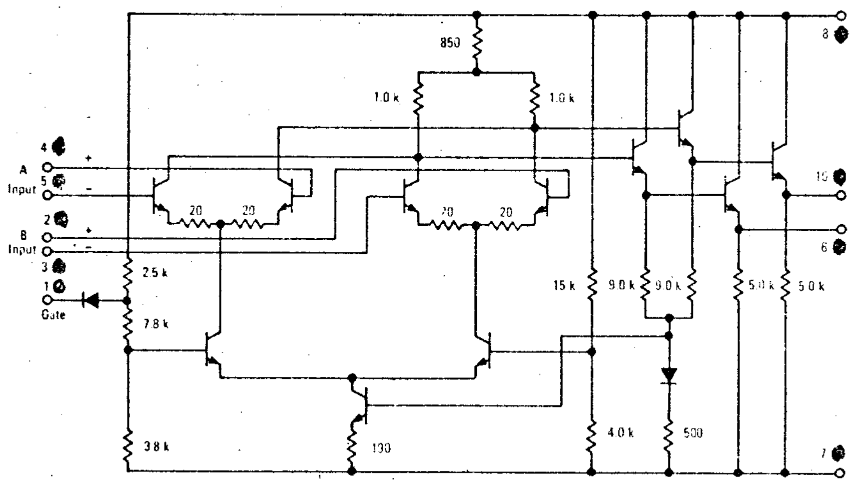




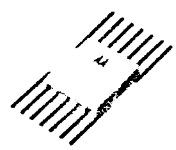




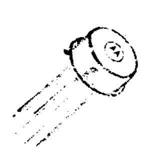




Number in parenthesis denotes pin for F and L packages, number at left in each case denotes corresponding pin for G package.



F SUFFIX
CASE 607
(Formerly Case 83)
TO-86



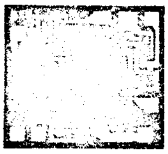
G SUFFIX
CASE 602A
(Formerly Case 71A)

L SUFFIX
CERAMIC PACKAGE
CASE 605C
TO-116

MC1709C

MONOLITHIC
SILICON EPITAXIAL PASSIVATED

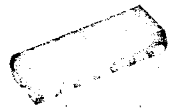
NOVEMBER 1968 – DS 9070 R2
(REPLACES DS 9070 R1)



. . . designed for use as a summing amplifier, integrator, or amplifier with operating characteristics as a function of the external feedback components.

- High-Performance Open Loop Gain Characteristics
  $A_{VOL} = 45{,}000$ typical
- Low Temperature Drift — $\pm 3\ \mu V/^\circ C$
- Large Output Voltage Swing —
  ± 14 V typical @ ± 15 V Supply
- Low Output Impedance — $Z_{out} = 150$ ohms typical

CASE 606
(formerly Case 72)
TO-91
F SUFFIX



CASE 605
(formerly Case 93)
TO-116
UNIBLOC*
PLASTIC PACKAGE
P SUFFIX

CASE 601
(formerly Case 96)
TO-99
G SUFFIX

CASE 605C
TO-116
CERAMIC PACKAGE
SUFFIX L

PIN CONNECTIONS

Schematic	A	B	C	D	E	F	G	H
"G" Package	1	2	3	4	5	6	7	8
[illegible]								

† "P" Package: Pin 7 is electrically connected to substrate and V⁻.

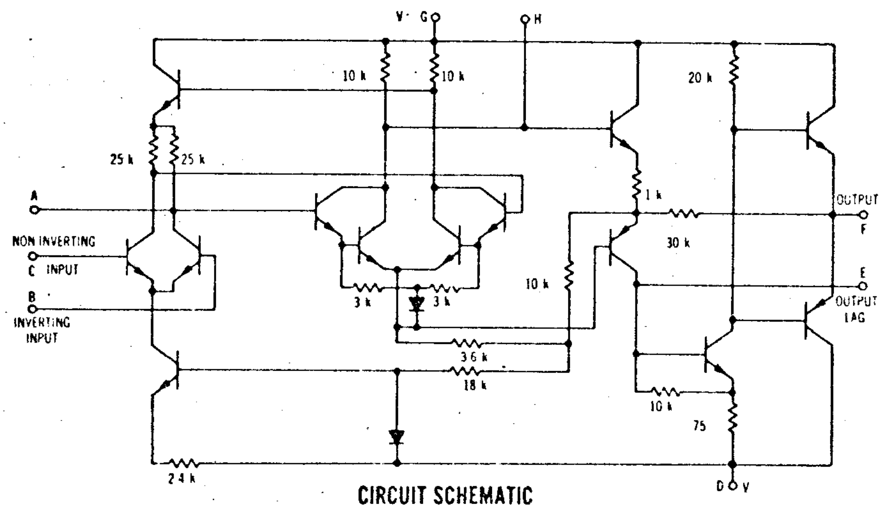
* Trademark of Motorola Inc.

LINEAR INTEGRATED CIRCUIT
MC1709C
DS 9070 R2

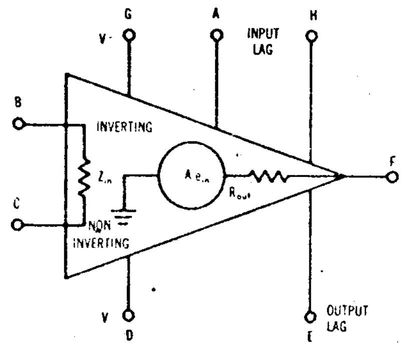
MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted)

Rating	Symbol	Value	Unit
Power Supply Voltage	V^+ V^-	+18 −18	Vdc Vdc
Differential Input Signal	V_{in}	±5.0	Volts
Common Mode Input Swing	CMV_{in}	$\pm V^+$	Volts
Load Current	I_L	10	mA
Output Short Circuit Duration	t_S	5.0	s
Power Dissipation (Package Limitation)	P_D		
Metal Can		680	mW
Derate above 25°C		4.6	mW/°C
Flat Package		500	mW
Derate above 25°C		3.3	mW/°C
Ceramic and Plastic Dual In Line Packages		625	mW
Derate above 25°C		5.0	mW/°C
Operating Temperature Range*	T_A	0 to +75	°C
Storage Temperature Range	T_{stg}		°C
Metal Can and Ceramic Packages		−65 to +150	
Plastic Package		−65 to +125	

CIRCUIT SCHEMATIC

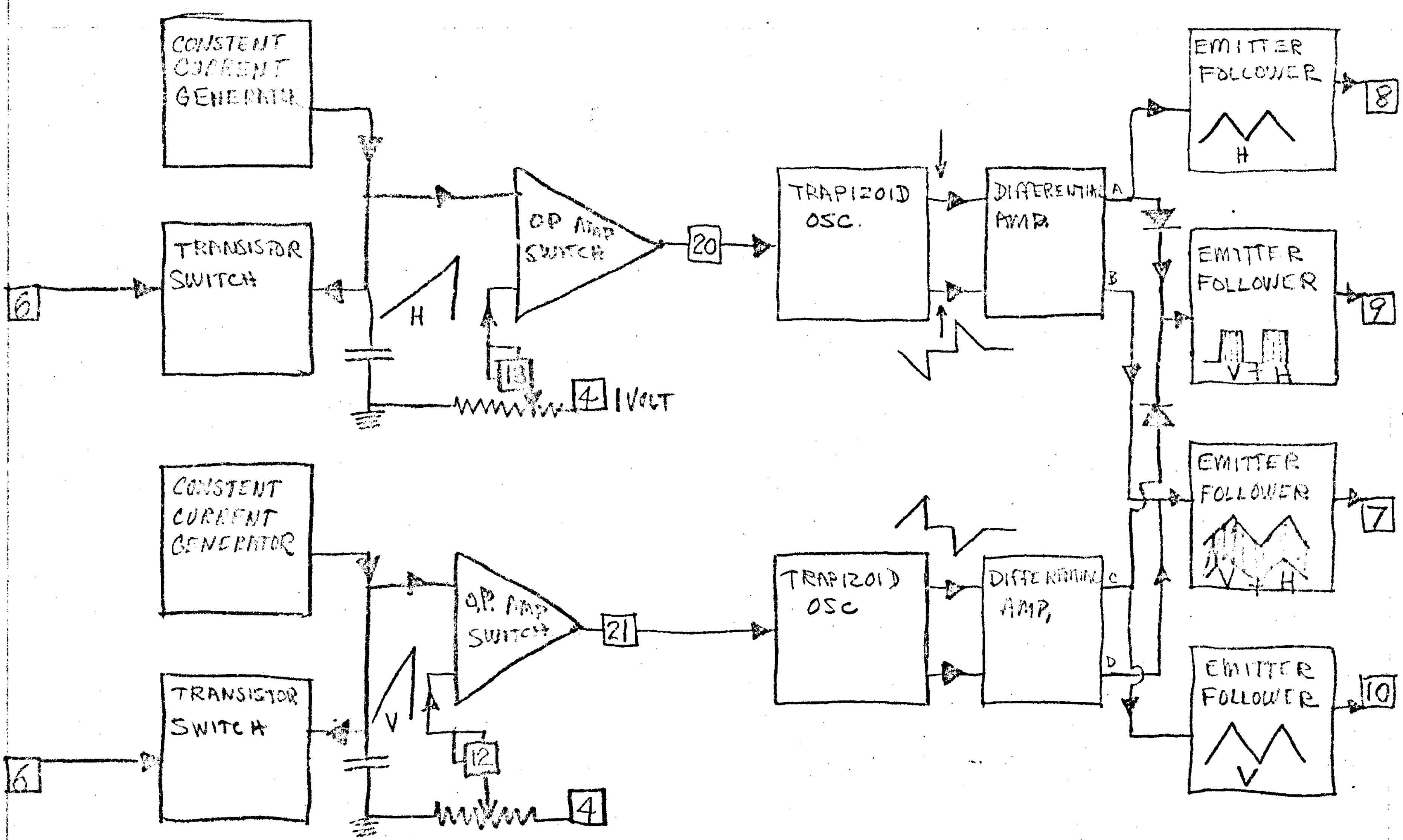


CIRCUIT SCHEMATIC



EQUIVALENT CIRCUIT

PATTERN POSITION + DIMOND, SQUAR, BAR
BOARD # 5

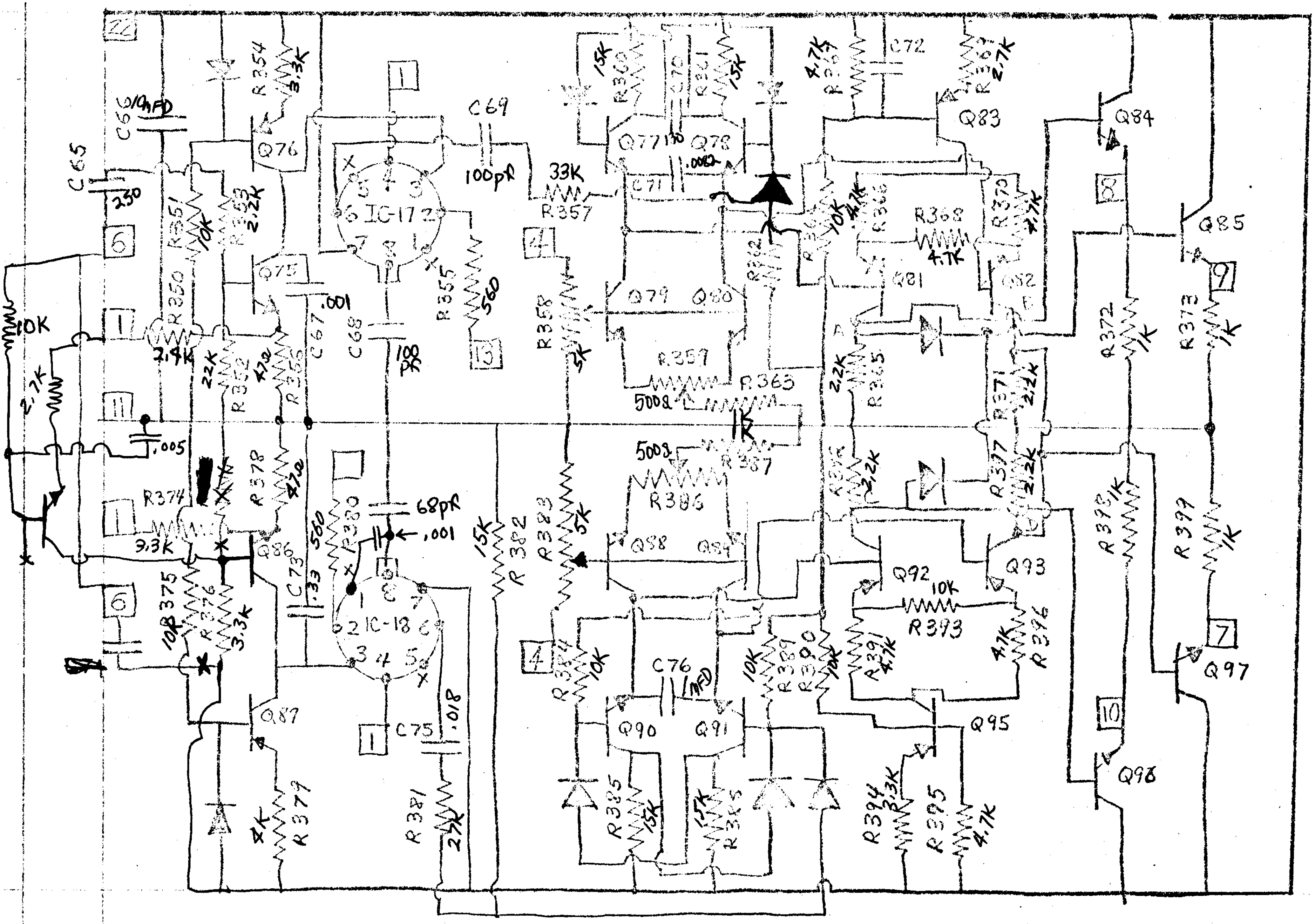


R 399 IC 18
C 76
Q 97

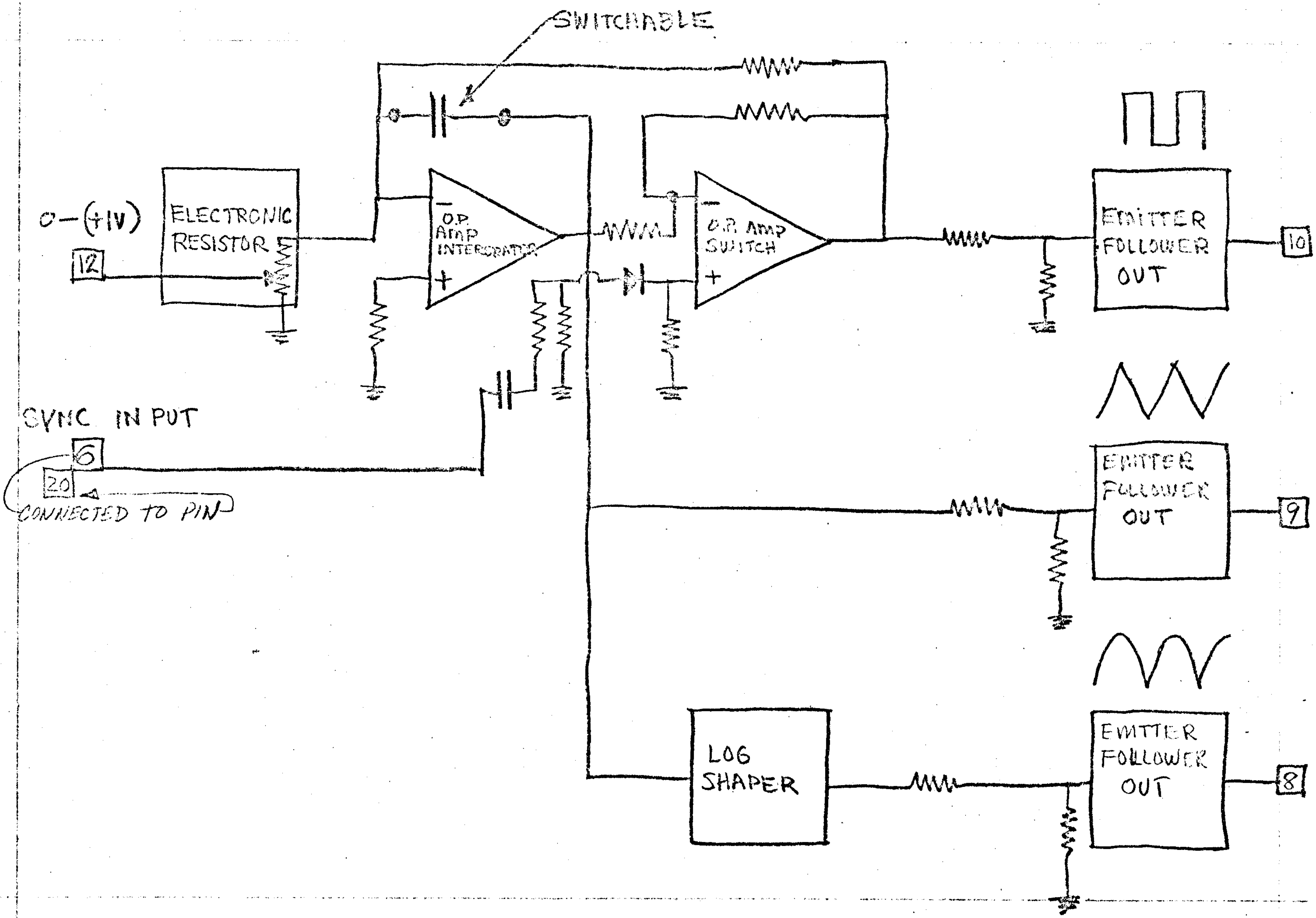
PATTERN POSITION + DIMOND, SQUAR, BAR

BOARD # 5

MARCH 15, 1971



PATTERN GENERATOR 6-7

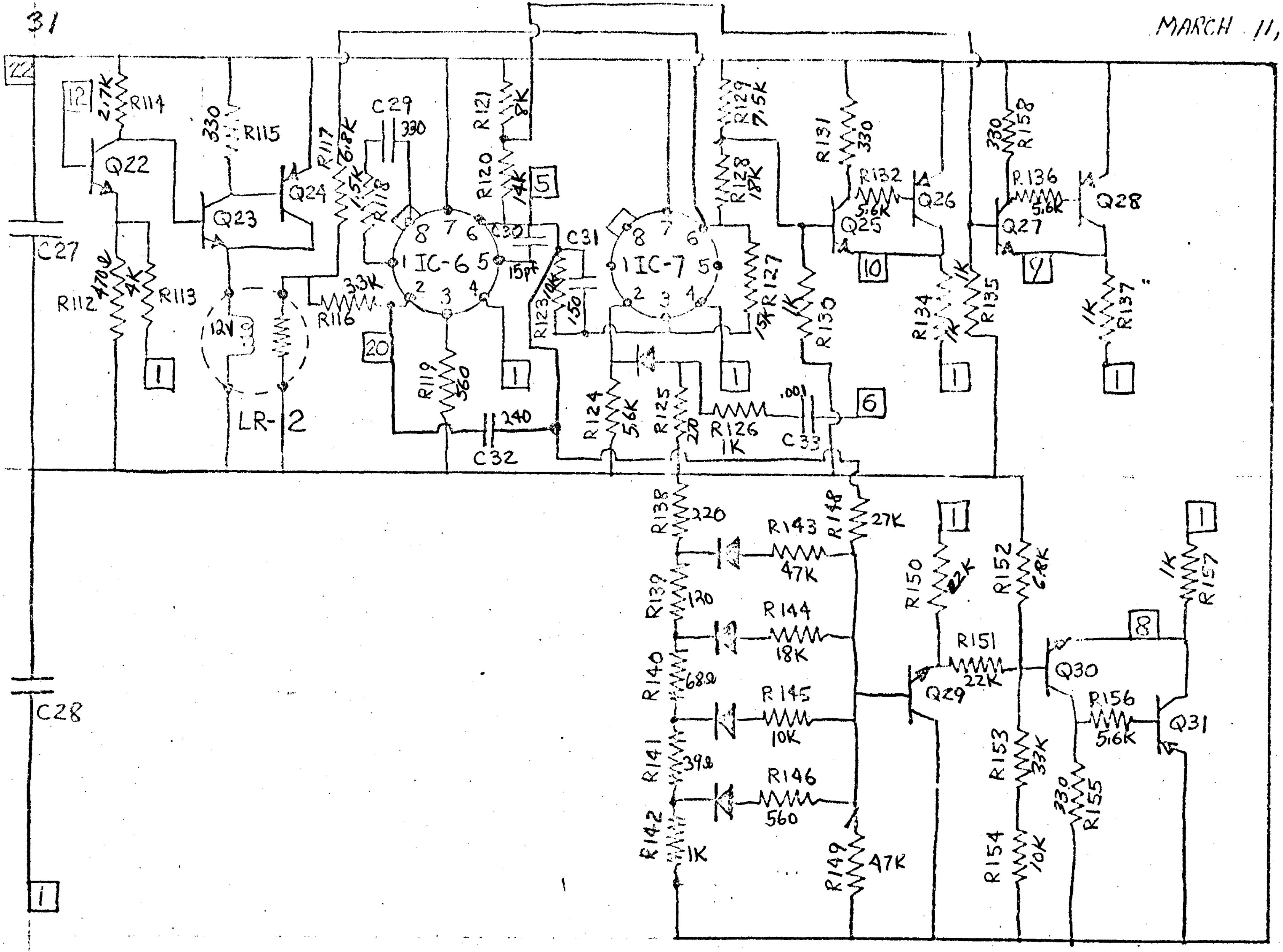


R 158
C 33
Q 31

PATTERN GENERATOR I

BOARD #6

MARCH 11, 1971



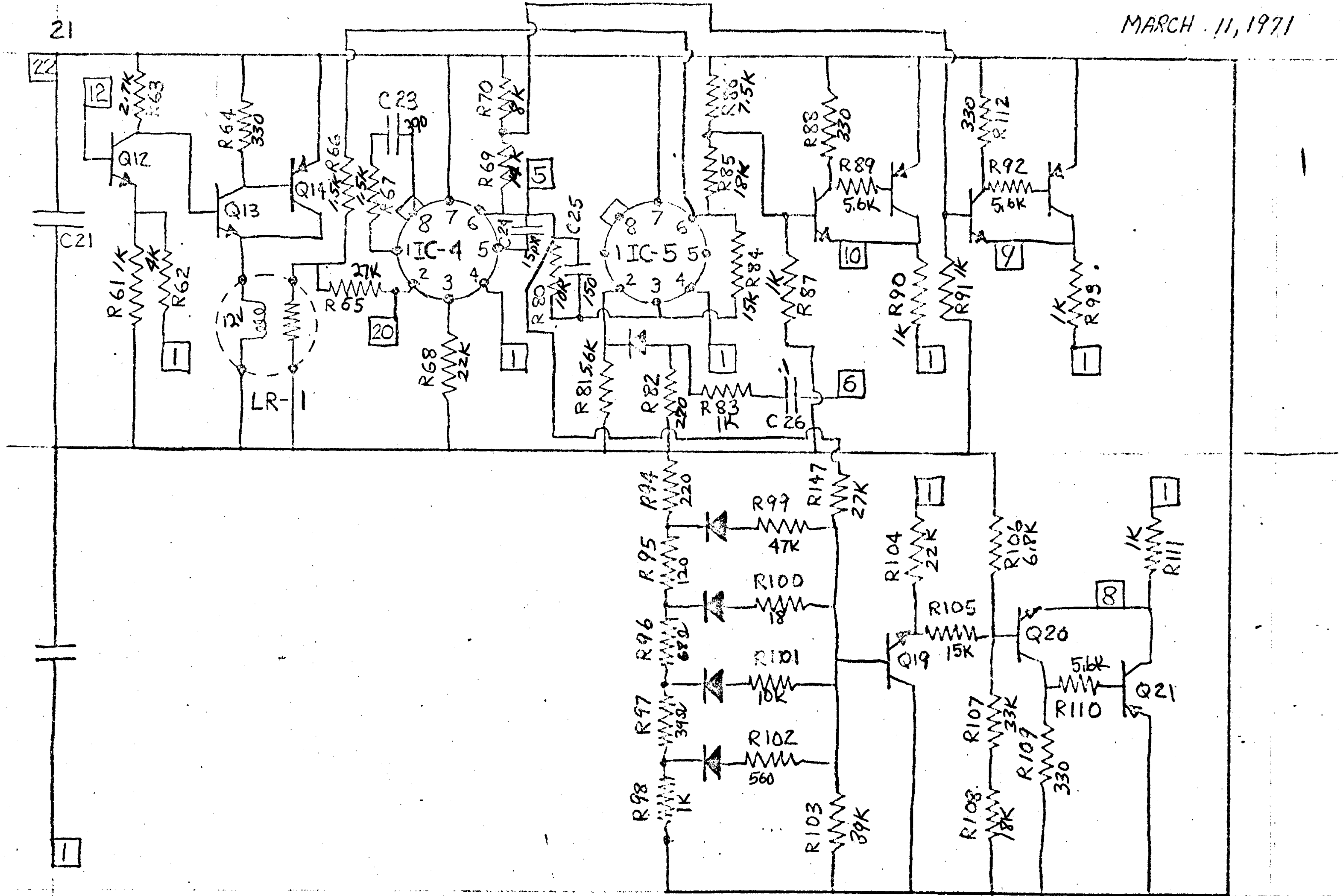
P ... BOARD PIN NUMBERS

ALL DIODES IN914

R 112
C 26
Q 21

PATTERN GENERATOR II
BOARD # 7

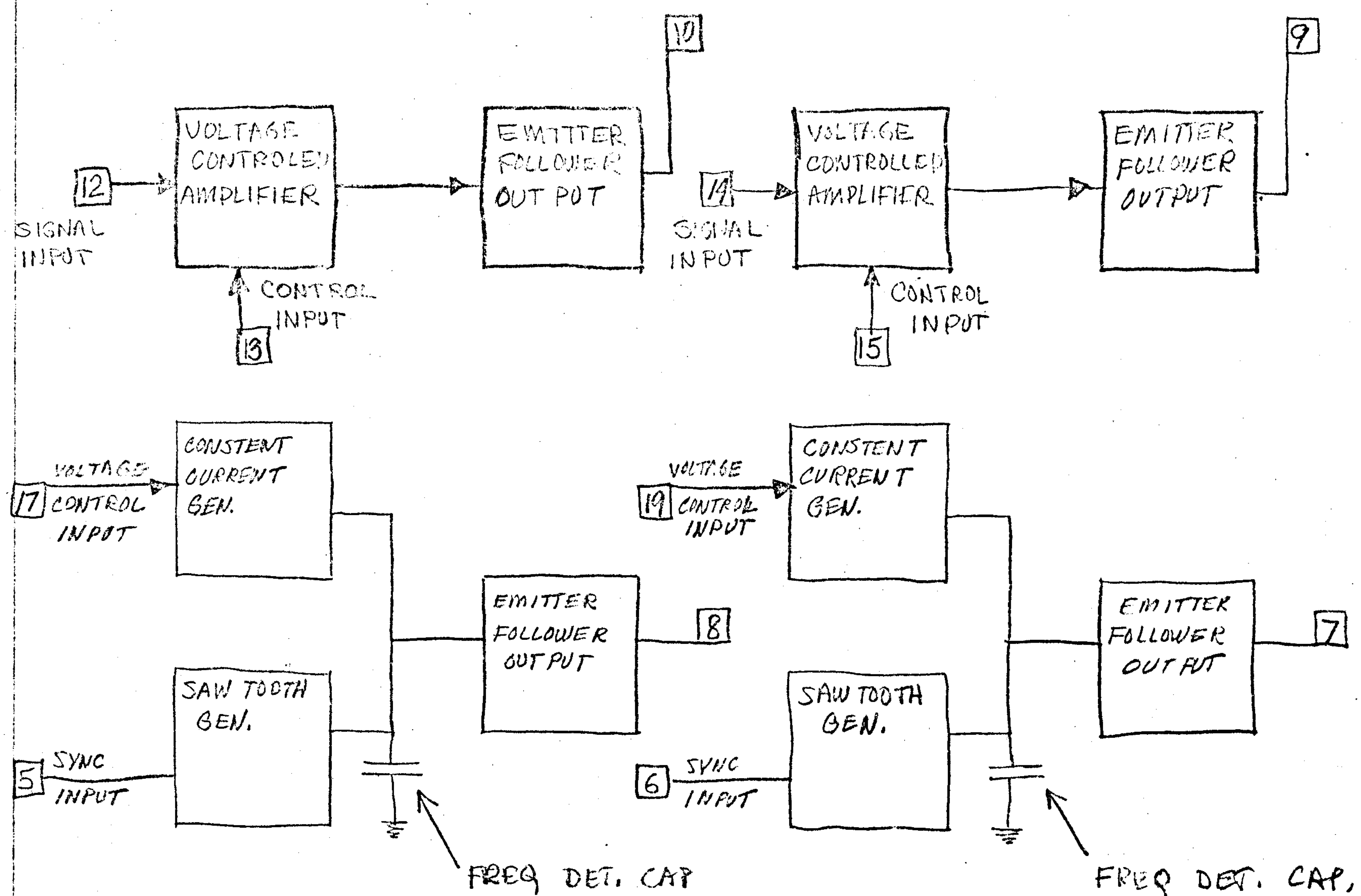
MARCH. 11, 1971



P... BOARD PIN NUMBERS

ALL DIODES 1N914

VOLTAGE CONTROLLED AMP. AND SAWTOOTH GEN.
BOARD # 8

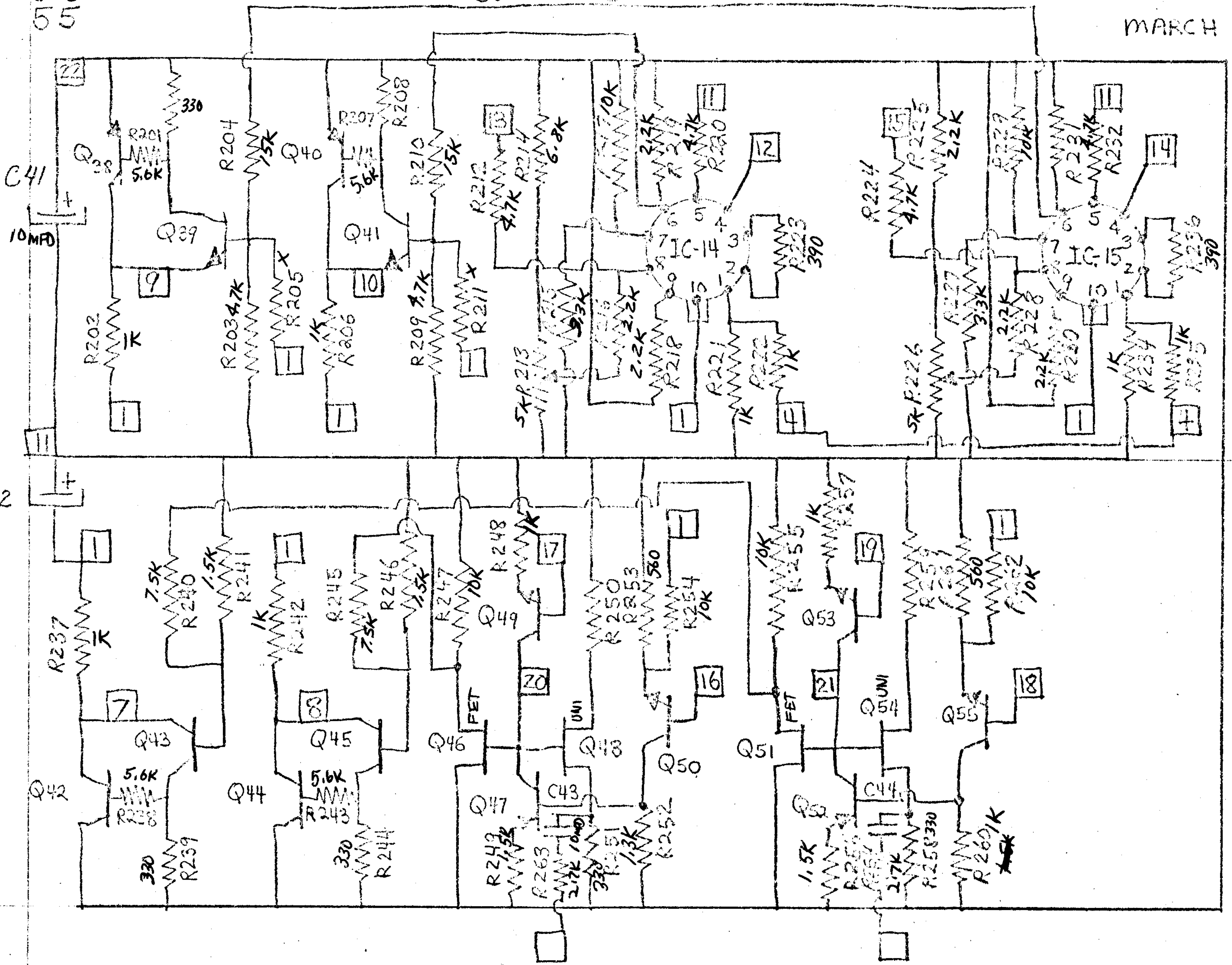


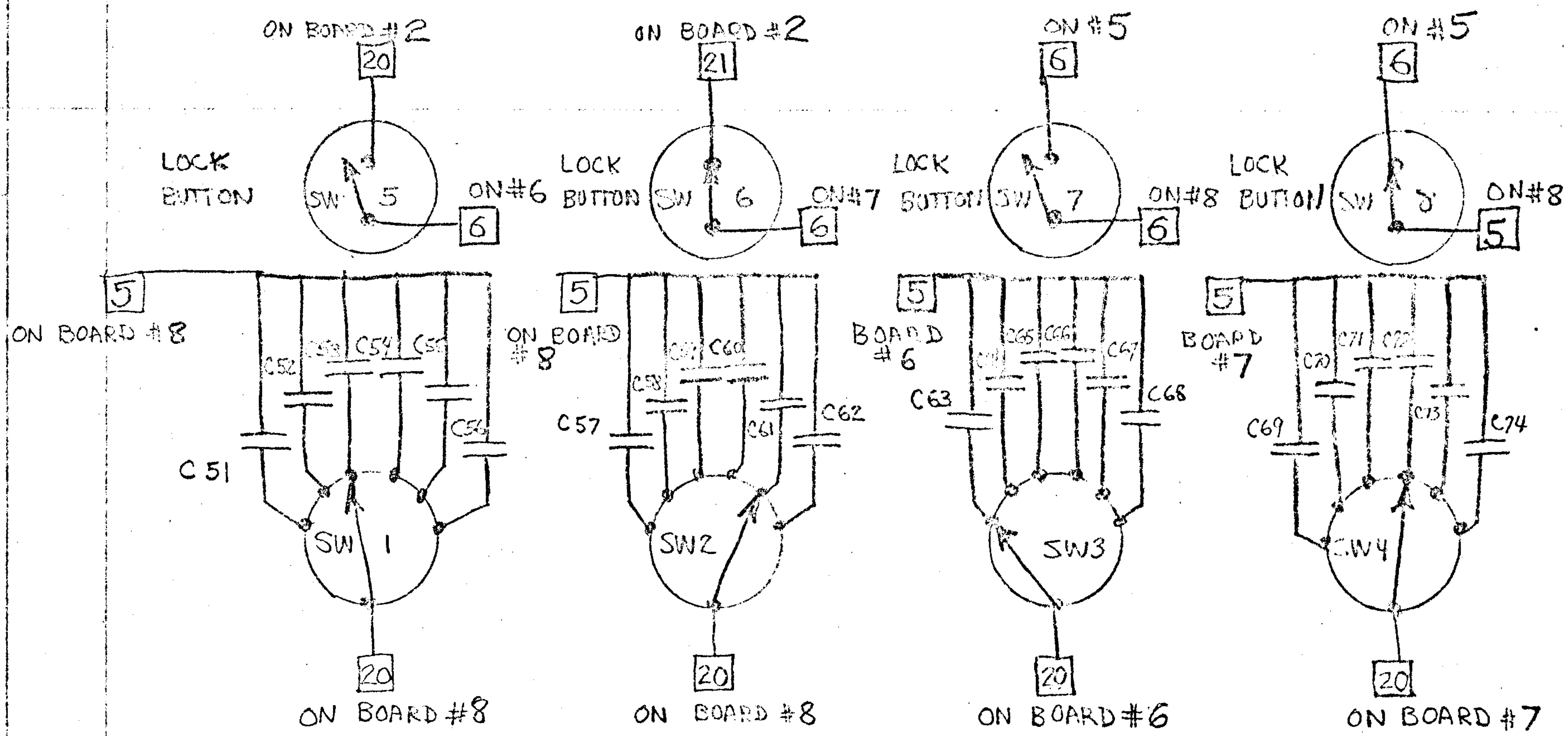
R 265
C 50
Q- 55

VOLTAGE CONTROLLED AMP AND SAWTOOTH GENERATOR

BOARD # 8

MARCH 8, 1971



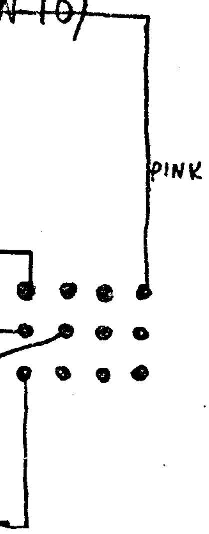


SAW 1 SAW 2 HORIZONTAL VERTICAL

VIDEO PROSESING AMPLIFIER

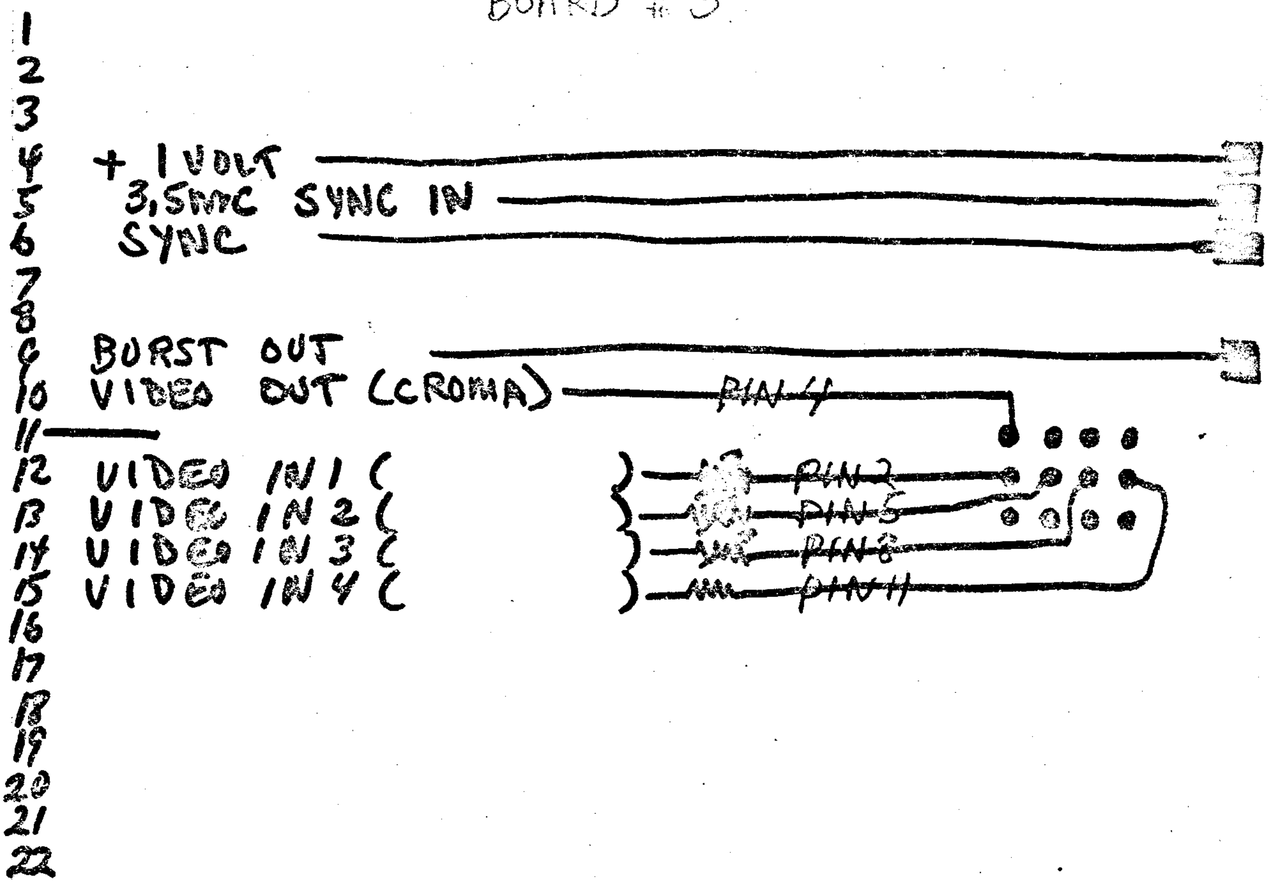
BOARD #2

1 — 11V
2 X
3 X
4 +1. VOLT ~~(PIN 10)~~
5 X
6 SYNC OUT 47Ω (PIN 9)
7 VERT BLANKING OUT
8 MIXED BLANKING OUT
9 COMPOSITE VIDEO OUT
10 SEC VIDEO OUT ~~(PIN 1)~~ PINK
11 GROUND (PIN 7)
12 VIDEO IN (1) ~~(PIN 3)~~ GREEN
13 VIDEO IN (2) ~~(PIN 6)~~ GREEN
14 X
15 X
✓16 SEC VIDEO IN
✓17 BLANKING VOLTAGE CONTROL ~~(PIN 12)~~ GREEN
✓18 BLANKING (IN) 4 V.P.P.
✓19 SYNC (IN) 4 V.P.P.
✓20 BURST (IN) 4 V.P.P.
21 X
22 +11 VOLTS

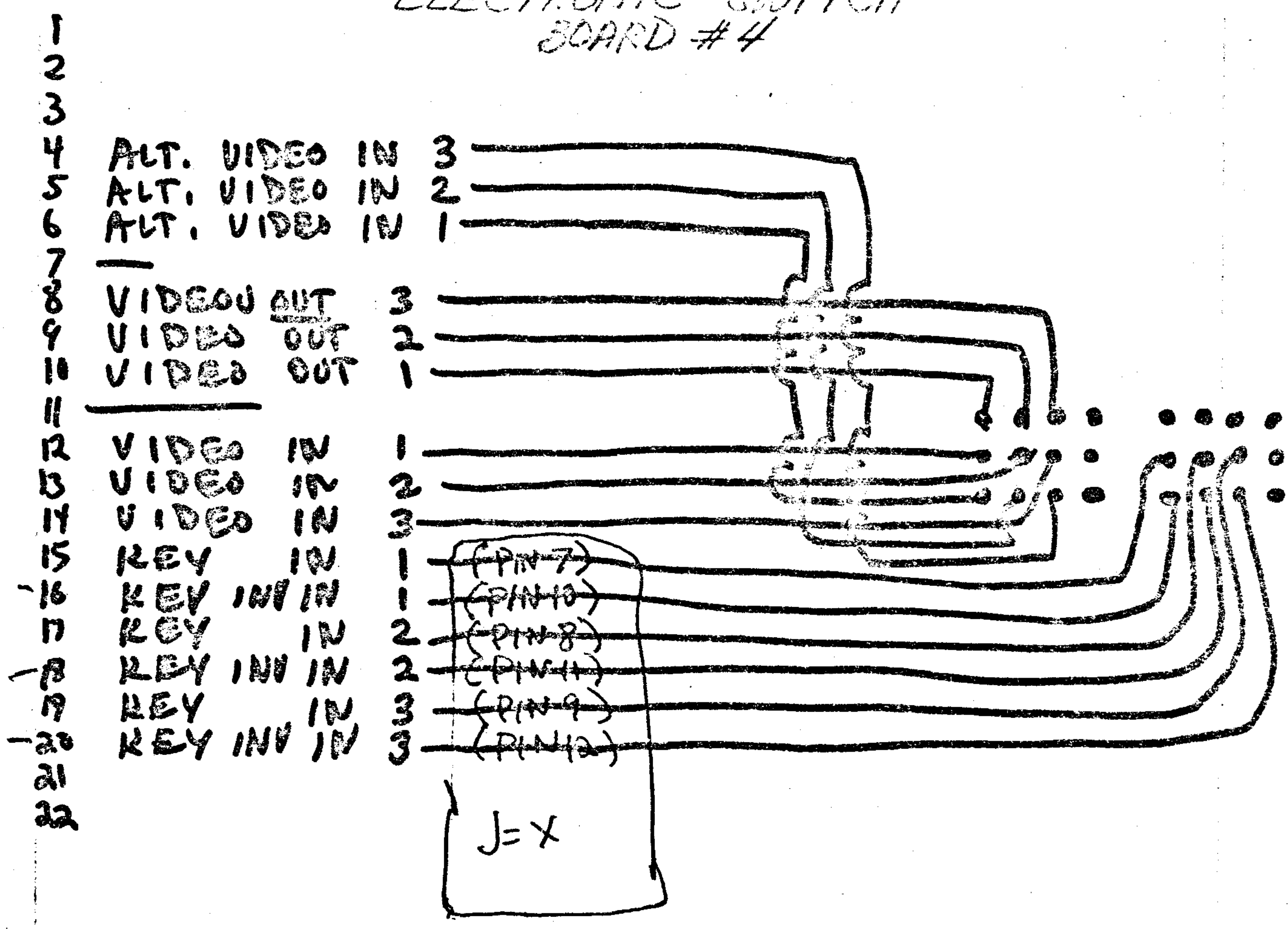


COLOR BOARD

BOARD # 3



VIDEO KEY BOARD
ELECTRONIC SWITCH
BOARD #4



TRIANGE BOARD

PATTERN POSITION & DIMOND, SQUAR-BAR

BOARD #5

1
2
3
4 IV (PIN 3)
5
6 AUG (SYNC IN)
7 HOR WAVE OUT
8 VERT WAVE OUT
9 SQUAR WAVE OUT
10 TRIANGLUAR WAVE OUT
11
12 VERTICA CONT. IN
13 HORIZONTA CONT IN
14
15
16
17
18
19
20 VERTICAL CENT. PULSE OUT AUG (PIN 9)
21 HORIZONTAL CENT. PULSE OUT AUG (PIN 10)
22

VARABLE OSC BOARD

BOARD # 6 + 7

(FREQ DET CAP) OUT (PIN 9) AUG. (2)

SYNC IN (PIN 6) AUG. (1)

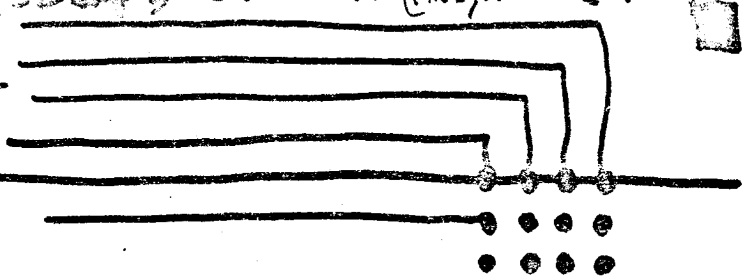
OUT

SINE WAVE OUT

TRIANGLE WAVE OUT

SQUARE WAVE OUT

VOLTAGE CONT 1

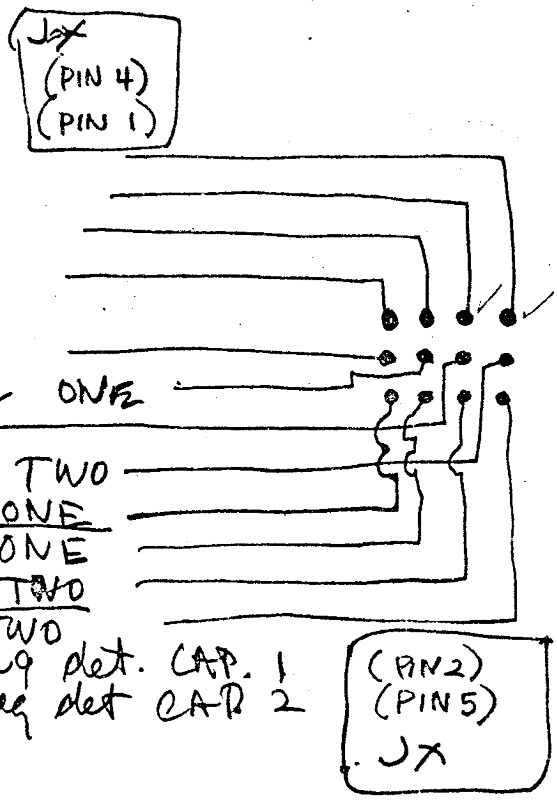


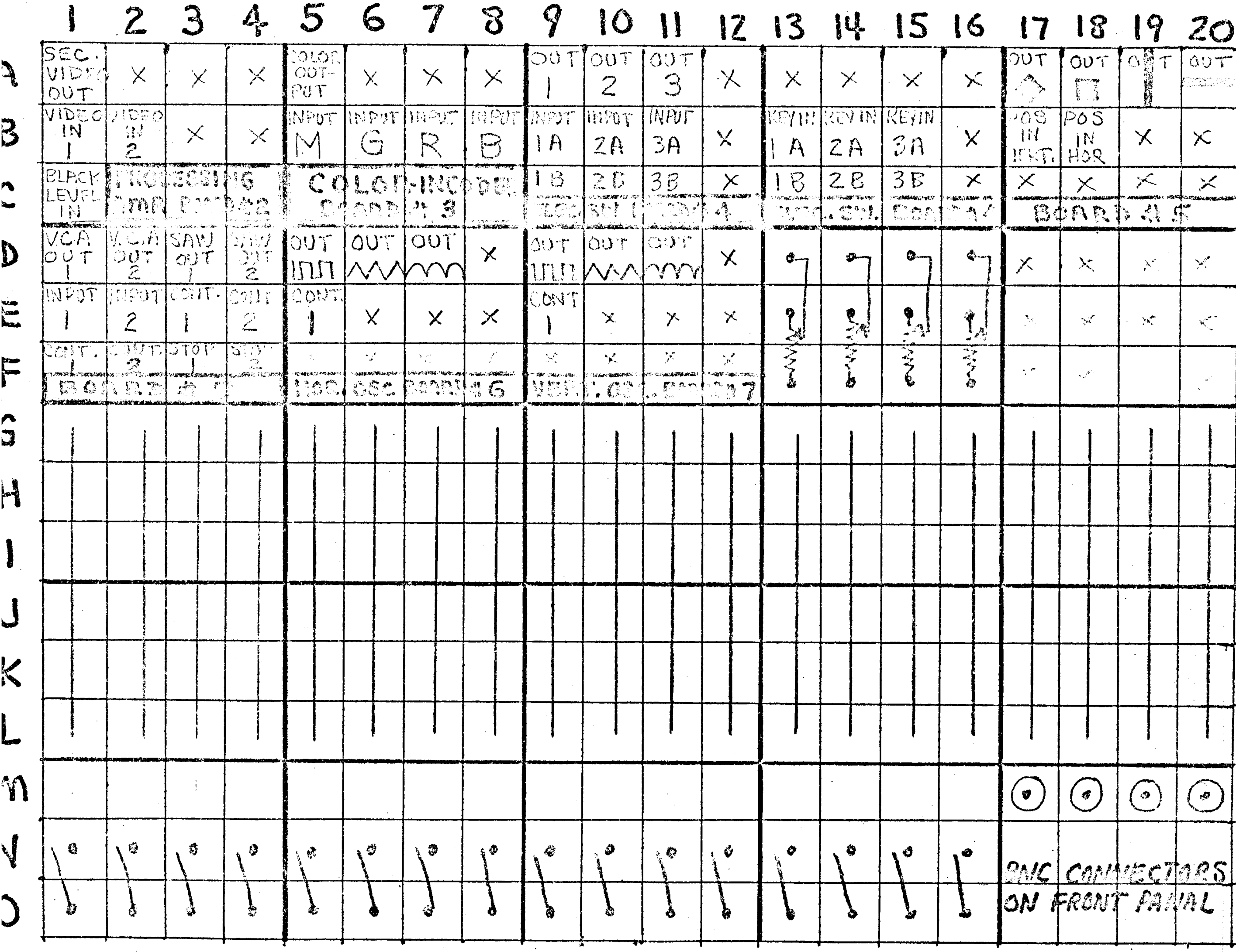
AUG IN (1) (freq det. cap) ~~#1 IN~~ ~~(PIN 12)~~

Saw tooth - VC AMP BOARD

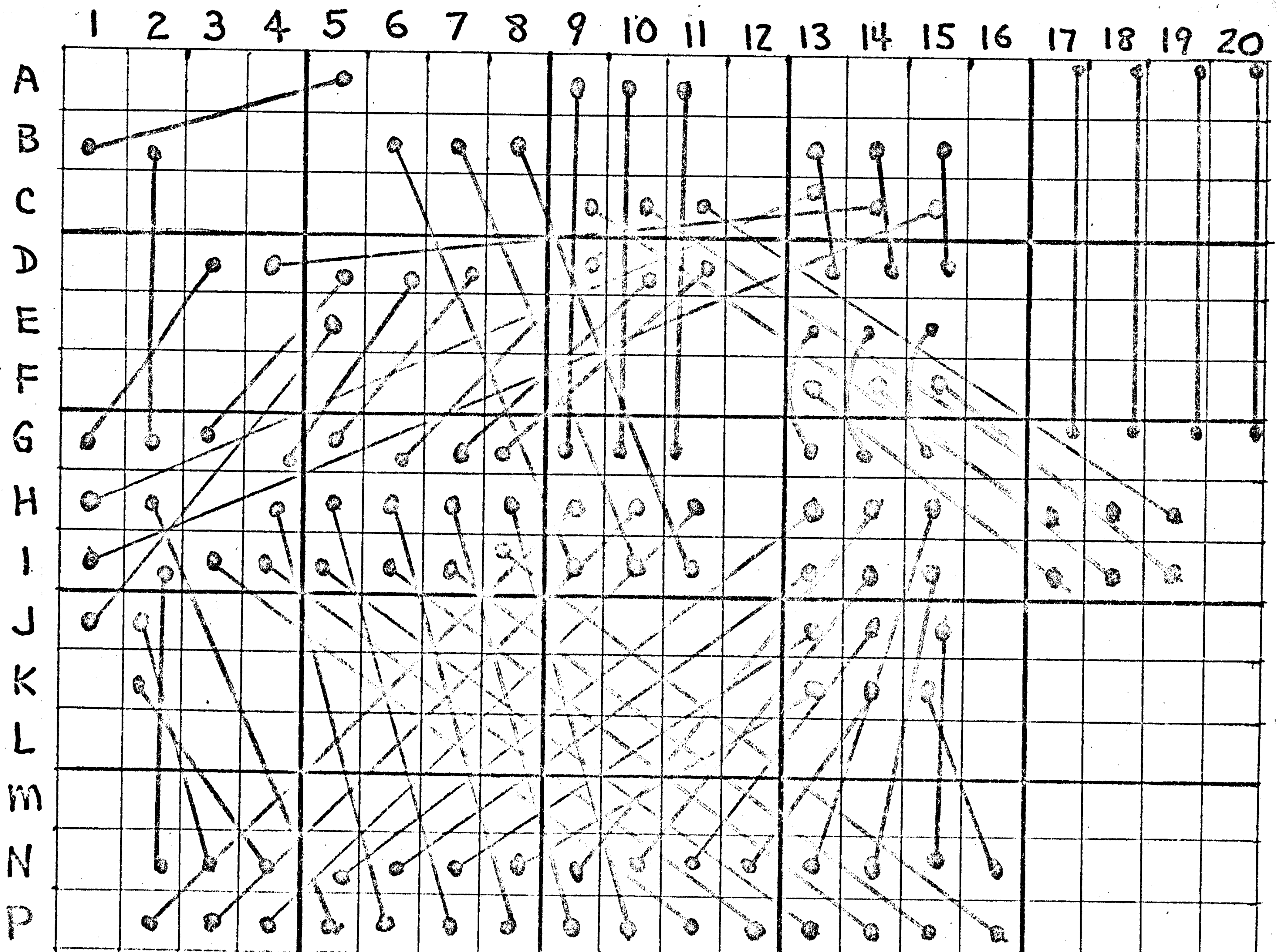
VOLTAGE CONTROLLED AMP AND SAWTOOTH GEN,
BOARD #8

1
2
3
4
5 AUG. OSC SYNC 2
6 AUG. OSC. SYNC 1
7 VIDEO OUT ~~4~~ SAW 2
8 VIDEO OUT 3 SAW 1
9 VIDEO OUT 2
10 VIDEO OUT 1
11
12 VIDEO IN ONE
13 VIDEO VOLTAGE CONTROL ONE
14 VIDEO IN TWO
15 VIDEO VOLT. CONTROL TWO
16 OSC FREQ CONTROL ONE
17 OSC STOP CONT. ONE
18 OSC FREQ CONTRO TWO
19 OSC STOP CONTRO. TWO
20 AUG IN (1) ~~SYNC~~ freq det. CAP. 1
21 AUG IN (2) ~~SYNC~~ freq det CAP 2
22

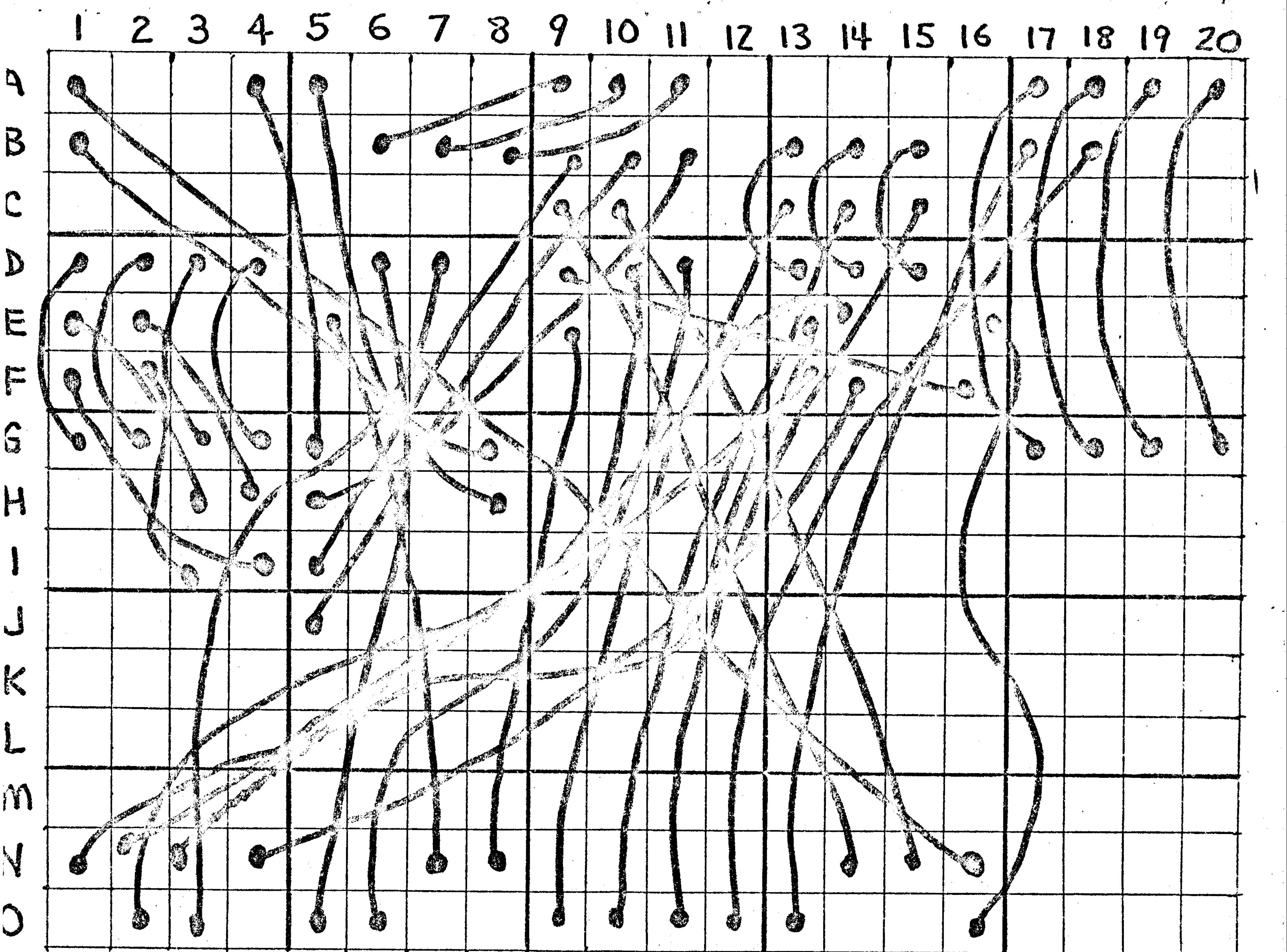



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N O
SEC. VIDEO OUT
COLOR OUTPUT
OUT 1
OUT 2
OUT 3
OUT
OUT
OUT
VIDEO IN 1
VIDEO IN 2
INPUT M
INPUT G
INPUT R
INPUT B
INPUT 1A
INPUT 2A
INPUT 3A
KEY IN 1A
KEY IN 2A
KEY IN 3A
POS IN VERT.
POS IN HOR
BLACK LEVEL IN
PROCESSING
COLOR-INCODER
BOARD # 3
1B
2B
3B
1B
2B
3B
BOARD # 5
VCA OUT 1
V.C.A OUT 2
SAW OUT 1
SAW OUT 2
OUT
OUT
OUT
OUT
OUT
OUT
INPUT 1
INPUT 2
CONT. 1
CONT 2
CONT. 1
CONT 1
CONT. 1
CONT. 2
STOP 1
STOP 2
BOARD
OSC
BOARD # 6
BOARD 7
BNC CONNECTORS ON FRONT PANAL

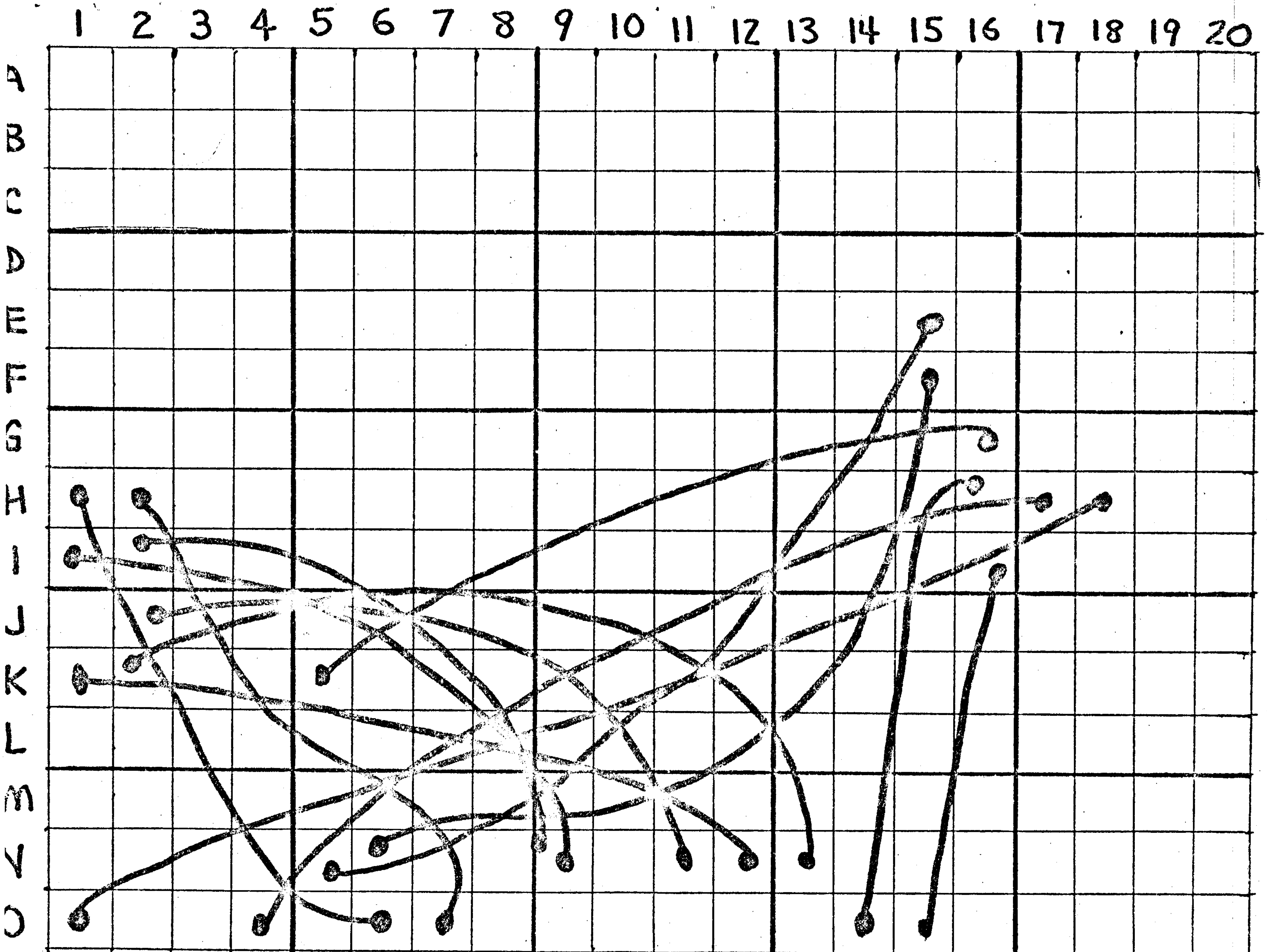
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	B#2 P#10	X	X	B#2 P#4	B#3 P#10	X	X	X	B#4 P#10	B#4 P#9	B#4 P#8	X	X	X	X	X	B#5 P#10	B#5 P#9	B#5 P#8	B#5 P#7
B	B#2 P#12	B#2 P#13	X	X	B#3 P#12	B#3 P#13	B#3 P#14	B#3 P#15	B#4 P#12	B#4 P#13	B#4 P#14	X	B#4 P#15	B#4 P#17	B#4 P#19	X	B#5 P#12	B#5 P#13	X	X
C	B#2 P#17	X	X	X	X	X	X	X	B#4 P#6	B#4 P#5	B#4 P#4	X	B#4 P#16	B#4 P#18	B#4 P#20	X	X	X	X	X
D	B#8 P#10	B#8 P#9	B#8 P#8	B#8 P#7	B#6 P#10	B#6 P#9	B#6 P#8	B#6 P#7	B#7 P#10	B#7 P#9	B#7 P#8	B#7 P#7					X	X	X	X
E	B#8 P#12	B#8 P#13	B#8 P#14	B#8 P#15	B#6 P#12	X	X	X	B#7 P#12	X	X	X					X	X	X	X
F	B#8 P#16	B#8 P#17	B#8 P#18	B#8 P#19	X	X	X	X	X	X	X	X					X	X	X	X
G																				
H																				
I																				
J																				
K																				
L																				
M																				
N																	BNC		CONNECTOR	
O																	ON	PANAL		



PROGRAM # 1



PROGRAM 2 PAGE 1


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N O