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**CIDELSA**

draco

operation & maintenance

———— INDEX —

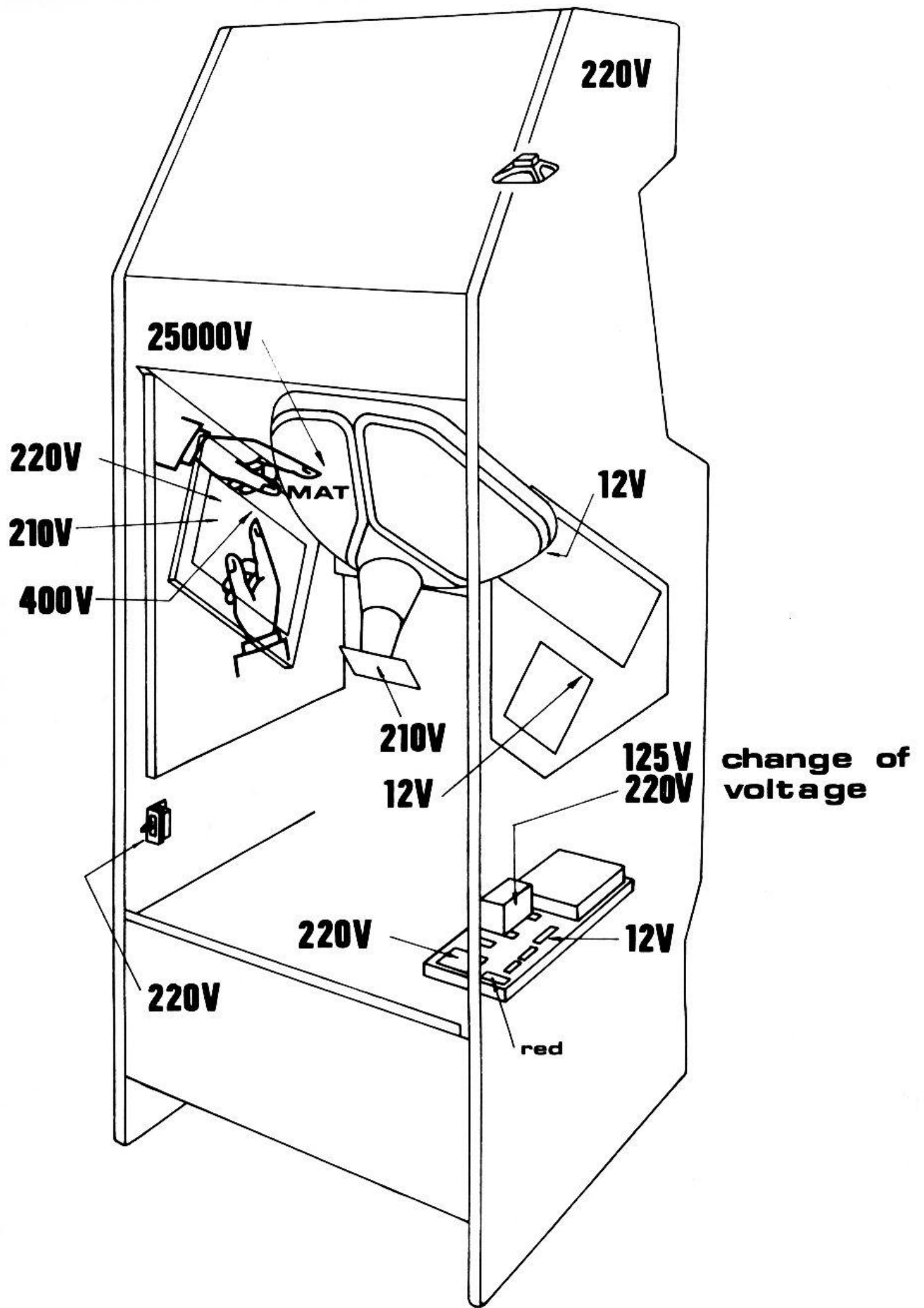
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————— FUNCTIONING —————

# **DANGER!**

**BEFORE MANIPULATING INSIDE  
THIS MACHINE EXAMINE CAREFULLY  
THE DISTRIBUTION OFF VOLTAGES  
(FIGURE 1).**

**AT THE PLACES MARKET WITH «»  
THERE ARE HIGH VOLTAGES, EVEN  
WITH THE MACHINE SWITCHED  
OFF.**



**distribution of voltages  
figure 1**

## INSTALLATION

This machine is ready to play after it has been unpacked. Nevertheless, it is advisable to effect the following checking inside the cabinet before plugging it in:

1. Check there is nothing broken.
2. Check all connectors. Specially the ones of the monitor of the transformer board and MAT.
3. Check that the connection of the transformer reglet is the correct in accordance with the voltage.
4. Check the correct coupling of the tube and the RGB board as well as the condition of the deflector yonk.
5. Check the modifications made to the monitor.

## SETTING INTO OPERATION

Once the former checkings have been carried out, proceed to the setting into operation, therefore:

1. Plug the machine to the source of power supply (110 Watt).
2. Close the door and the rear cover.
3. Activate the switch. In 15 seconds the image should appear.

At this stage, carry out the following checkings:

1. Open the door. The internal lights of the machine should lit and the alarm should sound.
2. Open the rear cover. After 10 centim. the machine should disconnect itself completely.

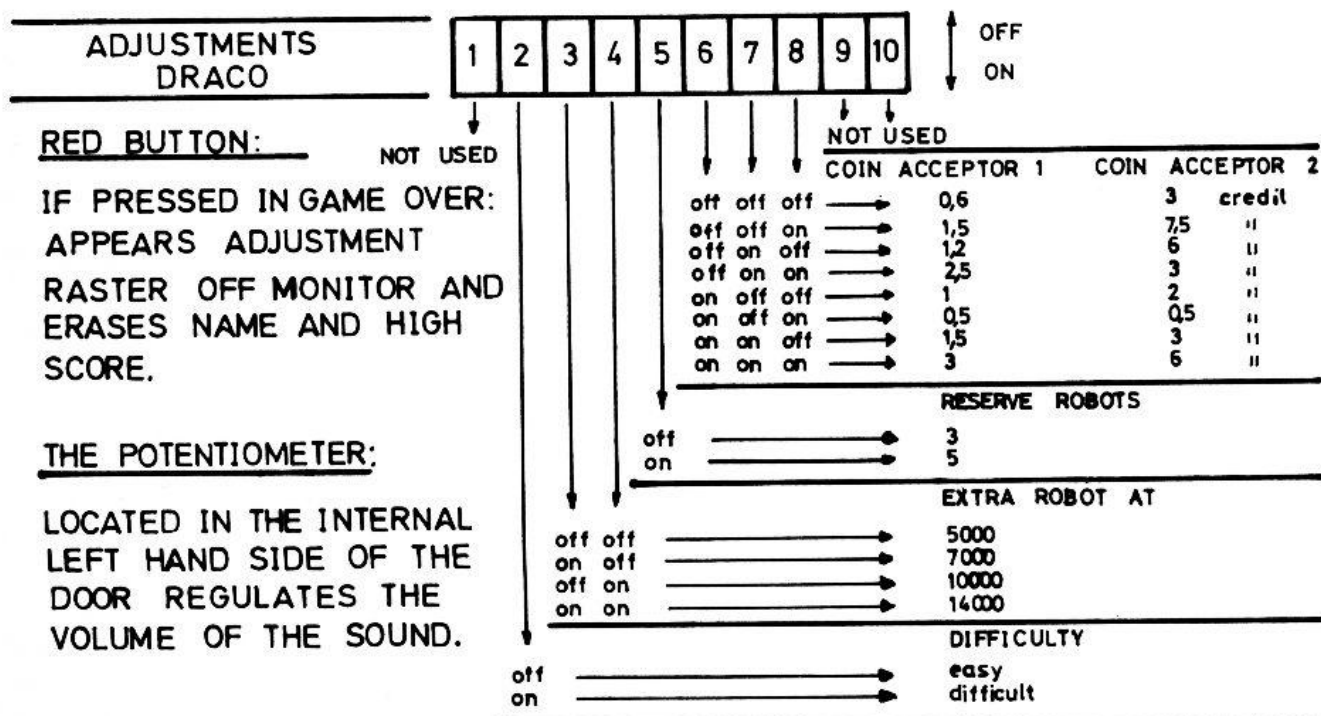
In case of finding a failure in any of the 2 former chapters, check the corresponding switches.

## "GAME OVER"

Once the former steps have been taken and with the rear cover closed, the machine must remain in the state of game over with the punctuations chart and alternatively with the name of the model.

In this state adjustments of the machine can be carried out and, pressing the TEST button, an adjustment chart will appear. To surpass the state of TEST, switch off and on the machine.

The adjustments are the following:



When coins are inserted or the microswitches are activated by hand, the credits accumulate in the counter up to a maximum of 15. In this new state, the "Game Over" remains fixed in the screen.

### PLAY

Pressing "one player" or "two players", the machine enters in the state of play. Overcoming all the impediments 5 screens will appear, increasing the difficulty after each cycle.

Each screen has a given time to be passed. This time will be more or less long in accordance with the obstacles destroyed.

Once the time is over and not having succeeded in overcoming the obstacles the humanoid remains stretched and falls down, passing to play with another humanoid if there is an spare one.

In the first four screens and in each one of them there are four robots which



regenerate as the player destroys them. Each robot scores 10 points.

Each screen is composed of two phases, using one or other, in accordance with the indicating arrow, located at the bottom of the screen.

The controls command the humanoid and the shooting in 8 different directions.

The characteristics of each screen are the following:

SCREEN 1.-

Irregular forms constituted by ovals.

Mission: To destroy these in order to get the indicated score in their inside.

SCREEN 2.-

Isles and streets.

Mission: To reach the small island with 400 points in its internal side and destroy it. Each street has a given points indicated in it, destroying it will increase the score.

SCREEN 3.-

Isles and streets with rhombs.

Mission: To destroy the rhombs. Each rhomb scores 10 points.

SCREEN 4.-

Irregular forms constituted by squares.

Mission: To destroy these in order to get the score indicated in its internal side.

SCREEN 5.-

Huts.

Mission: To destroy the number inside of them avoiding the vertical band which runs over the image.

## WRITING

This is achieved when the HIGH SCORE has been surpassed. Then the player can write his name. In order to do this the left control is used to fix the position and the right control to select the letter. After a few seconds the machine returns to the state of "GAME OVER".

The names of the five players getting the high scores will remain in the screen.

In any of the former states it is possible to regulate the volume by means of a potentiometer located in the platform of the game.

————— MAINTENANCE —————

### CHANGE OF VOLTAGE

The change of voltage is carried out by the reglet located on top of the transformer. The red-green wire must be in the proper place corresponding to the voltage of the power supply.

To the ventilator and the fluorescent light always go 220 V.

The internal plug, also located on top of the transformer, receives the voltage of the power supply and is not affected by the power supply switch.

### SUBSTITUTION OF BOARDS

In general it is advisable to disconnect the harnesses in decreasing order with reference to the voltage and connect them in order increasing with reference to the voltage.

- A.- PLAY, SOUND: They do not require special precaution, only the necessary ones to grant the integrity of same.
- B.- RGB: Disconnect the focus cable. To do so use the aerial connector or directly from the socket depending on the model. Disconnect the rest.
- C.- MONITOR. Carry out the following procedure:
  - 1.- Disconnect MAT, FOCUS, POWER SUPPLY, THERMISTORS, DEFLECTORS, HARNESS OF RGB, in this order.
  - 2.- Manipulate the board without touching the metallic parts with the hands or with some tool.
  - 3.- Unload the condenser C55 using a resistance (for example 100 Ohm/2W) being careful not to touch the terminals with the hands.
  - 4.- When mounting it, carry out step one inverted.

### SUBSTITUTION OF THE TUBE

The tube and its holder are entirely taken out by the rear side. It is not necessary to remove the glass or the filter.

- A.- Disconnect the harness and the RGB board.
- B.- Unblockade the support by means of the bolts.
- C.- Withdraw the holder and tube set.
- D.- Untwist the screw and take out the tube.

SUBSTITUTION OF THE FLUORESCENT LIGHT

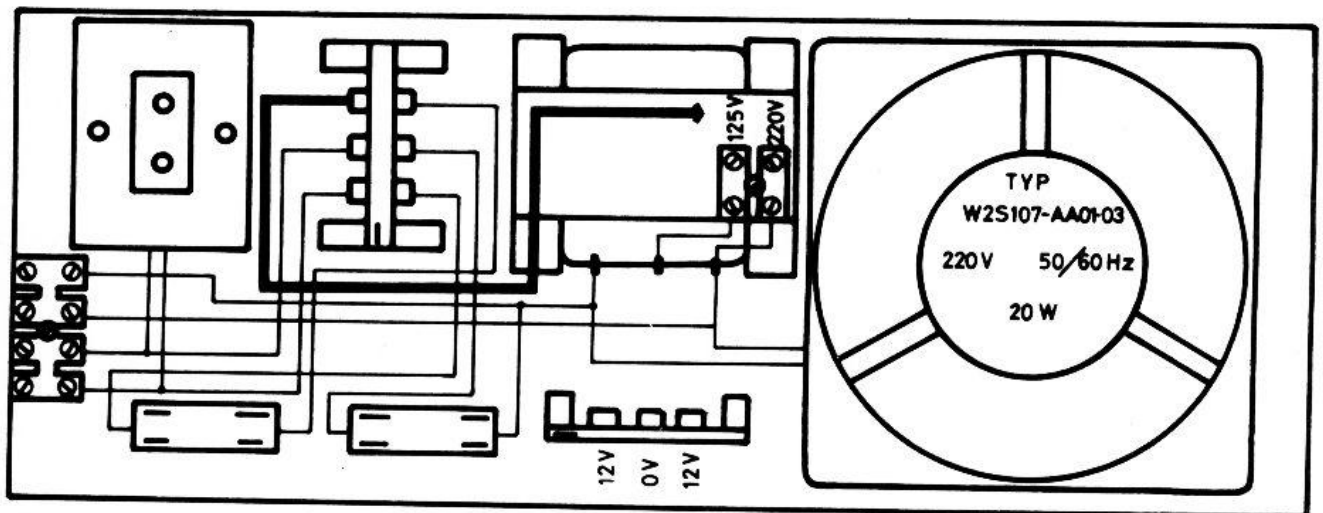
The fluoresecent light is taken out by the rear side.

- A.- Open the rear top door.
- B.- Take out the door - latch and pull softly until the holder of the fluoresecent light comes to sight.

SUBSTITUTION OF THE GLASS

- A.- Follow the same procedure as for the substitution of the fluoresecent light.
- B.- Take out the wall brackets which hold the front panel.

Once this has been done, lift up the top metal bar and the glass will be ready to be changed.



**transformer tablet  
figure 2**

## ADJUSTMENT OF THE MONITOR

If, for any reason, the monitor wants to be adjusted (COPRESA or VIDEOCOLOR) starting from zero, disconnect the SYNCHRO board of the base board and carry out the steps which follow. If only a final adjustment is required, read the instructions given under the heading of "Monitors maintenance repairs".

A.- With all the harnesses that go to the monitor disconnected, start the following sequence:

- 1.- Turn all the potentiometers of the three boards (BASE, RGB and SYNCHRO) counter-clock to its most position.
- 2.- Feed with 220V the BASE board (connector J17) and check that the 115V rectifier diode cathode (D14) there is voltage. At the diode cathode (D13) there must be the double approximately. At the diode cathode (D15) there must be five times less approximately. At the diode cathode (D16) there must be seven times less approximately.
- 3.- Cut the 220V power supply and introduce the SYNCHRO board.  
Connect deflectors TRC (connector J14).  
Connect board RGB to the tube (TRC).  
Connect board RGB (connector J12) to the board BASE (connector J15).  
Connect MAT.  
Connect board RGB (connector J13) to the board VIS (connector B1-B5).
- 4.- Feed with 220V. The screen must not lit. The filament of the TRC must lit. Apply test chart signal by means of TEST push button.
- 5.- Adjust the voltage of the rectifier cathode (D14) at 115V, by means of the potentiometer (P7) of the power supply.  
Check the voltage of the diodes (D13, D15, D16) which must be of 210, 25 and 17V respectively, within a range of the 10% variation.
- 6.- Adjust the voltage of the grid 2 at 390V (central pin of the potentiometer) (P6), by means of such potentiometer.

- 7.- Turn the black level potentiometers of the RGB board until the screen lits. Cross the base of transistor SCL48 (T8) of the SYNCHRO board to earth and adjust the horizontal frequency potentiometer until the image become stable. Eliminate the cross to earth. The image must become horizontally synchronized.  
Adjust the vertical frequency potentiometer (P2) (BASE) until the image becomes vertically synchronized.  
Touch up the focus control, located in the tripler, in order to focus.
- 8.- Adjust amplitude (P3) and vertical lineality (P1) board BASE, so that the image acquire the necessary width and all the squares have the same amplitude.  
Touch up the vertical frequency control (P2).
- 9.- (ONLY APPLIES TO TUBE PHILIPS A51-570X) Adjust the potentiometer of correction E-0 (P5) until the vertical lines of the end become most straight.
- 10.- (ONLY APPLIES TO TUBE PHILIPS A51-570X) Adjust the horizontal amplitude control (P4) until the image have the correct dimension.  
Take care that the correction E-0 does not deteriorate.
- 11.- (ONLY APPLIES TO VIDEOCOLOR TUBE A51-421X) To adjust the horizontal amplitude, touch up the coil core AZ3147.
- 12.- If the horizontal centred is not correct, touch up the coil core AZ3520. If the vertical centred is not correct, touch up the 180-220 ohms 1W (R56) resistance, in the vertical deflection circuit.
- 13.- Disconnect the blanking (crossing to earth the base of the SCL48 transistor (T7) of the RGB board), connect to earth the RGB inputs (connector J13). Adjust the three canyons KG, KR, KB, to 150V, by means of the black level potentiometers of the RGB board.
- 14.- Connect adjustment signal once more and touch up the gain potentiometers of the three canyons (RGB board) until white is obtained.
- 15.- Perform the last adjustment checking following the former steps.

## MONITORS MAINTENANCE REPAIRS

- 1.- If the image is not stable, appearing decomposed in diagonal stripes, touch up the horizontal frequency potentiometer located in the SYN-CHRO board.
- 2.- If the image is not stable, jumping sideways, touch up the vertical frequency potentiometer (P2) located in the BASE board.
- 3.- If the brightness is in excess or insufficient, touch up the brightness potentiometer (P6) located in the BASE board.
- 4.- If the image does not focus properly, touch up the focus potentiometer, located in the tripler, paying more attention in the words GAME OVER.
- 5.- If any of the colours is prevailing over the others or insufficient, touch up the gain potentiometer corresponding to the colour, located in the RGB board, as follows: G for Green, B for Blue, R for Red. Do not touch, in any case, the black level adjustment potentiometer located in the same board.



## STATE OF TEST

### - TEST OF CONTACTS, ADJUSTMENTS.

To enter in this state press the red button located in the internal part of the door when the machine is in game over.

In the screen it will appear the test chart of the monitor, the list of adjustments and the image of the contacts ("0" = open, "1" closed).

To pass this test, switch off and on the machine.

### - TEST OF THE BOARD OF PLAY

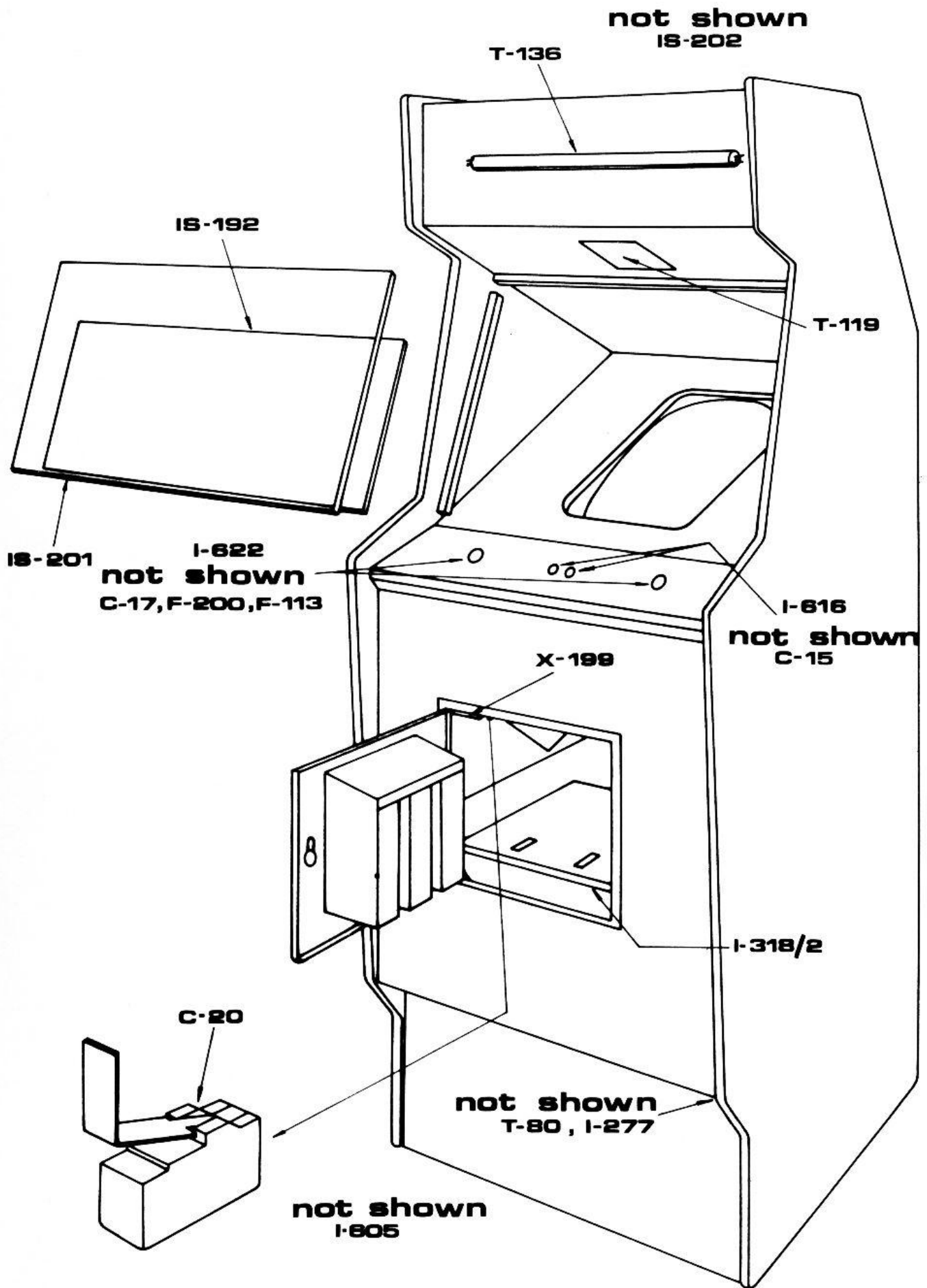
This test is started when the machine is being started with the red button pressed and setting it free afterwards.

During the cycle it makes 22 steps checking in each one of them the following components:

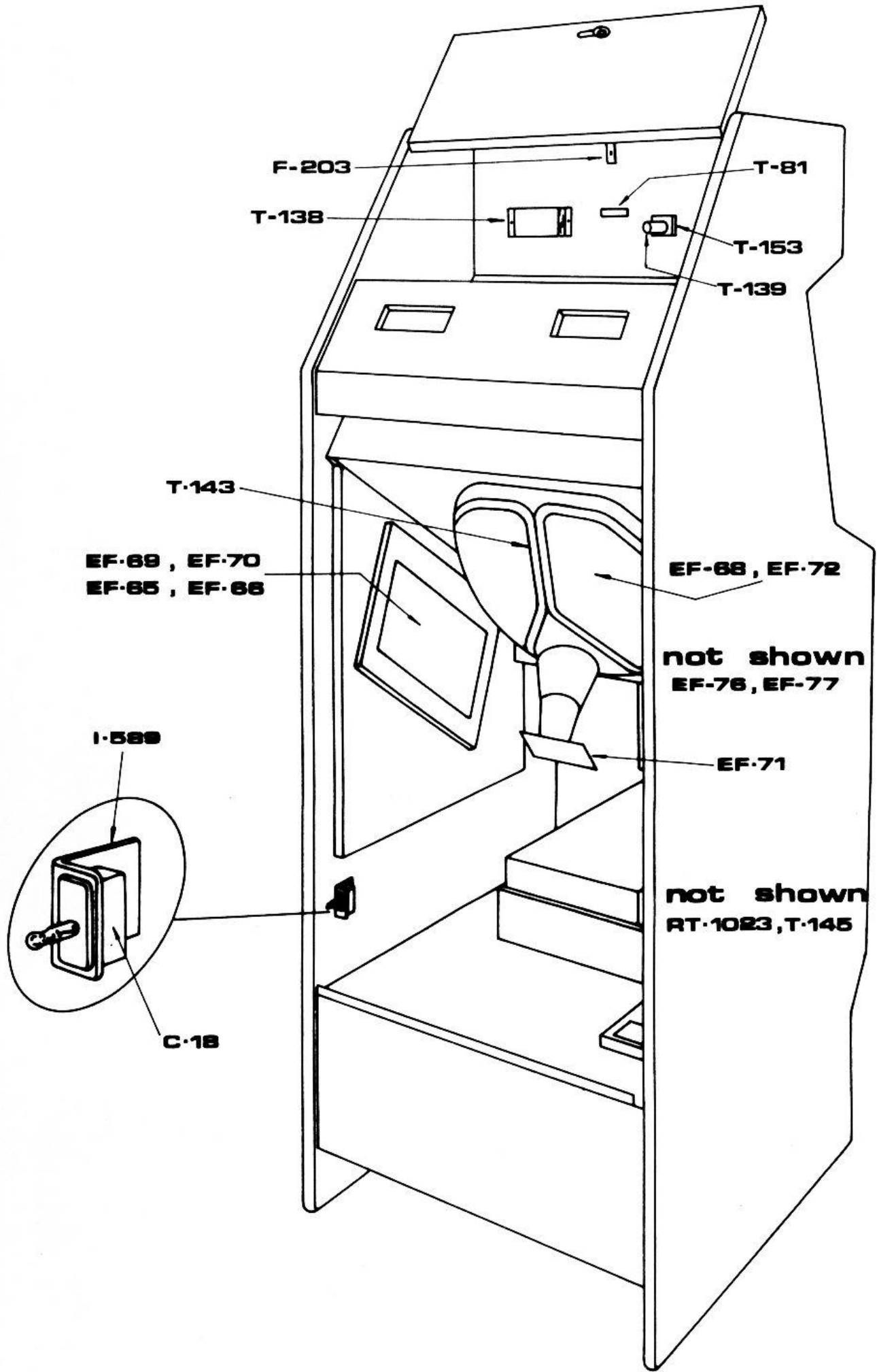
STEPS	COMPONENT
1	EPROM A IC 10
2	" B IC 11
3	" C IC 12
4	" D IC 13
5	" E IC 14
6	" F IC 15
7	" G IC 16
8	" H IC 17
9	RAM IC 9
10	" IC 9
11	" IC 8
12	" IC 8
13	PAGE RAM IC 23
14	" " IC 21
15	" " IC 24
16	" " IC 22
17	CHAR.RAM IC 37
18	" " IC 35
19	" " IC 25
20	" " IC 38
21	" " IC 36
22	" " IC 26

Once the cycle is over the machine passes to the state of game over automatically.

———— COMPONENTS ————



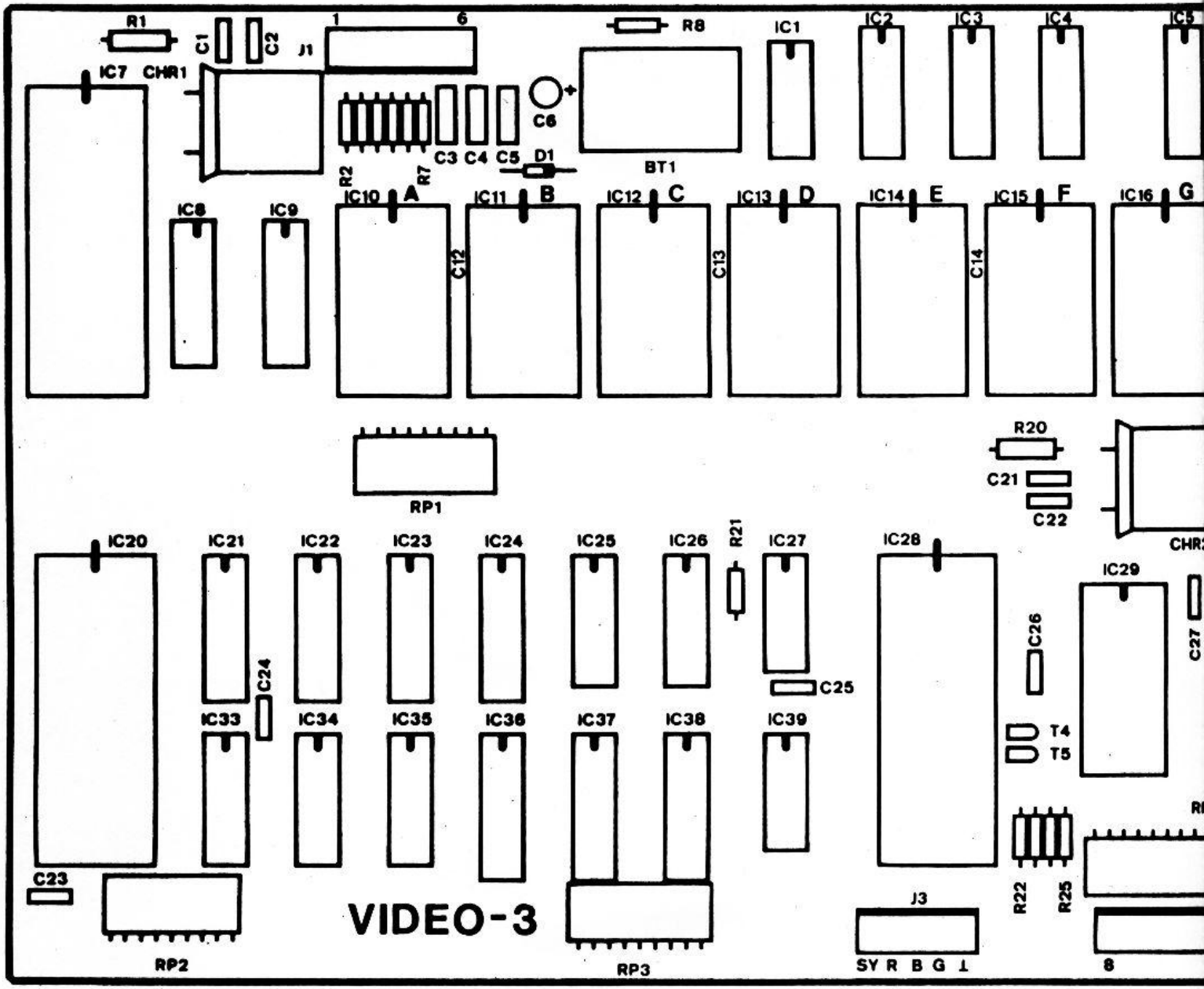
**Figure 3**

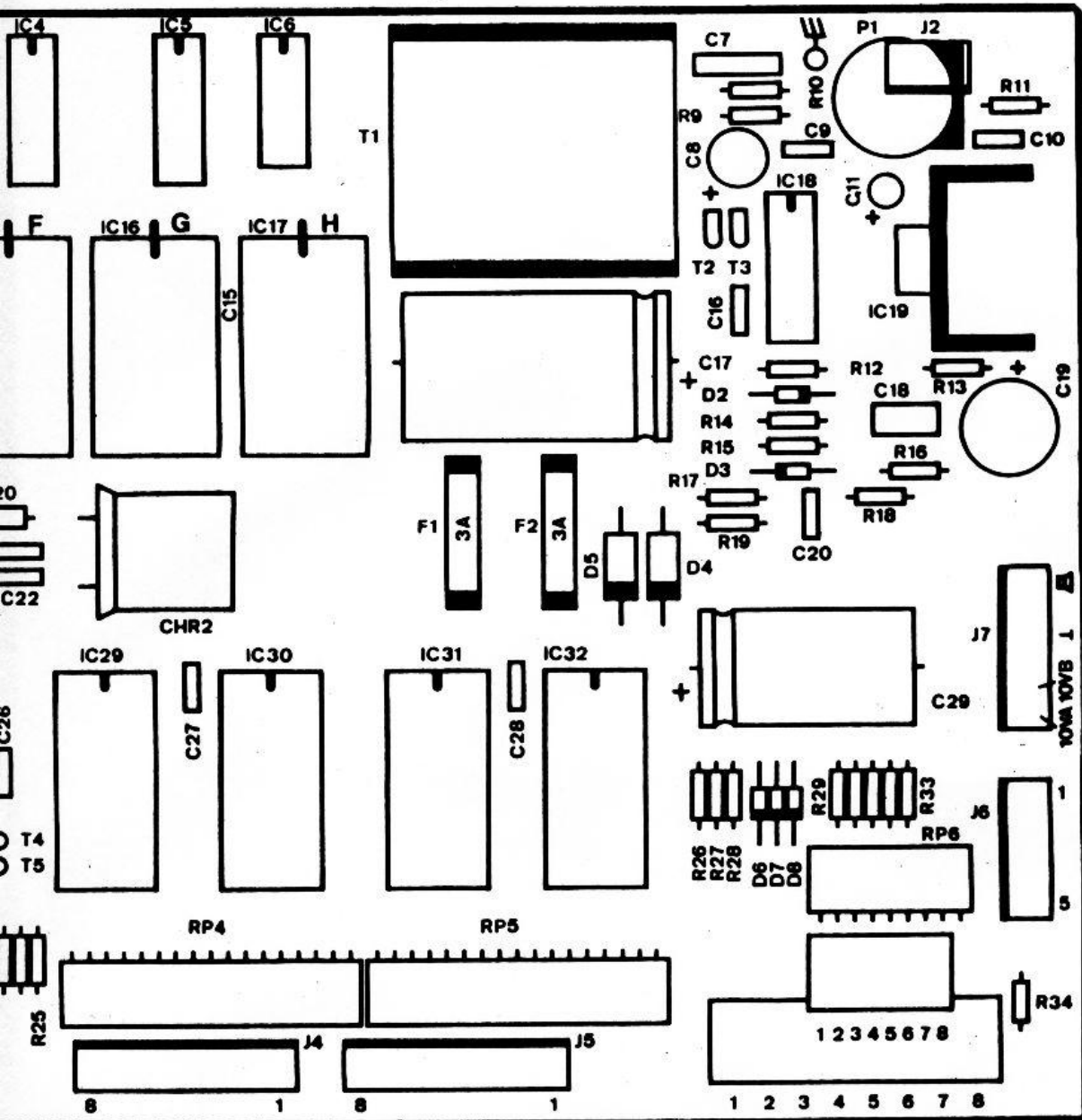


**Figure 4**

LIST OF MATERIALS

C-15	Players micro-switch button
C-17	Pomum Cherry micro-switches
C-18	White micro-switch Cherry
C-20	Wide lever micro-switch
EF-65	Monitor board (tube copresa)
EF-66	Synohro board (tube copresa)
EF-68	Cathodic tube philips
EF-69	Monitor board (tube video color)
EF-70	Synohro board (tube video color)
EF-71	Board RGB videocolor
EF-72	Cathodic tube videocolor
EF-76	Play board (VSC)
EF-77	Sound-2 board
F-113	M5 nut
F-200	M5X20 screw
F-203	Bolt set
I-277	Switch thin metal plate
I-318/2	Coins box
I-589	Angle with window
I-605	Micro-switch G-20 holder
I-616	1-2 players button
I-622	Eight positions control pomum
IS-192	Frontal plastic
IS-201	Painted frontal glass
IS-202	Draco glass
RT-1023	Transformer 12+12
T-80	Switch
T-81	4 connexion nylon reglet
T-119	Loudspeaker 4 ohms
T-136	Fluorescent 15W/220V
T-138	Reactance
T-139	Starter
T-143	Coils
T-145	Ventilator
T-153	Starter holder
X-199	Counters





PLACA JUEGO VIDEO 3

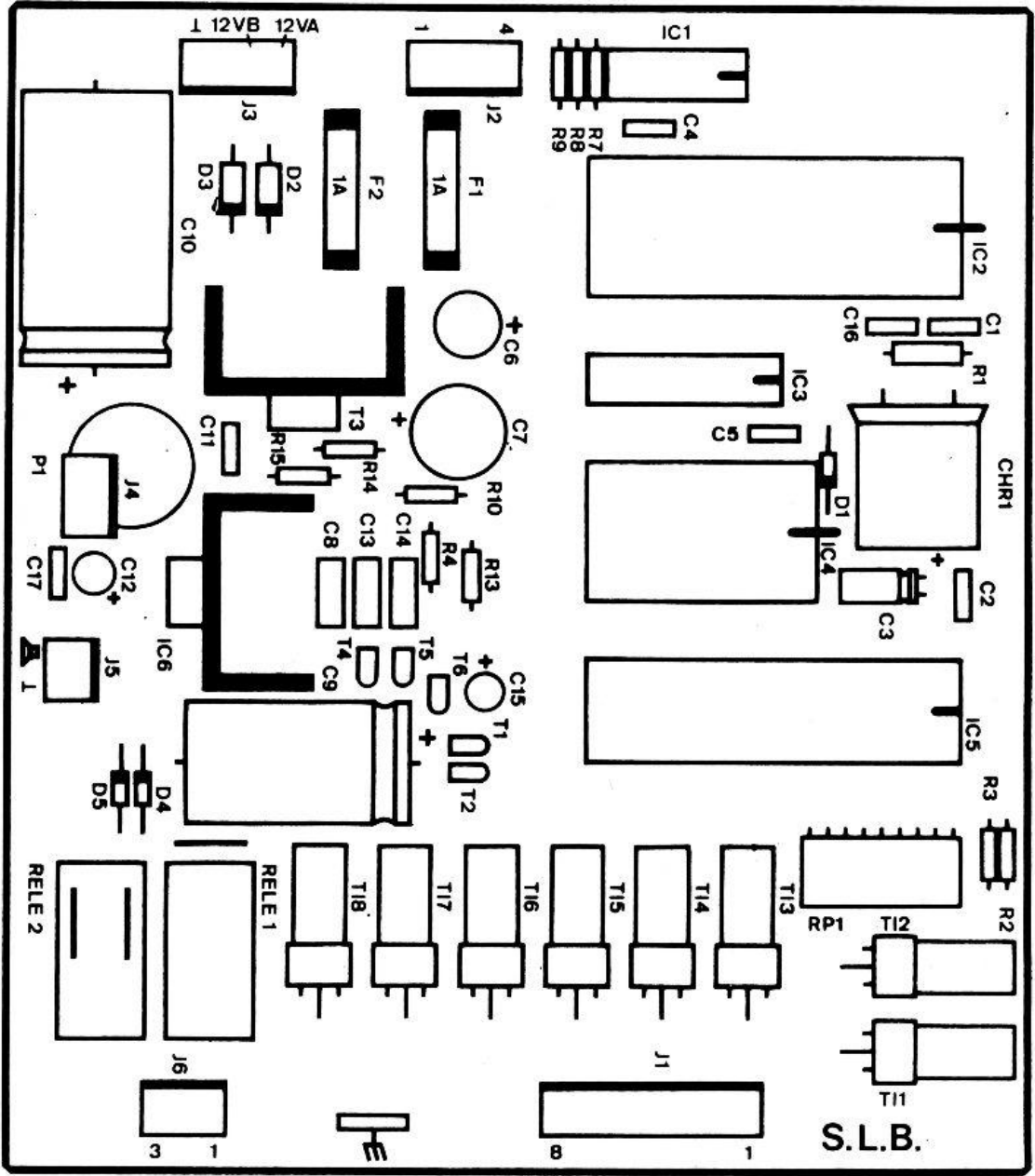
DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
510140	CIRCUITO IMPRESO VIDEO 3 uF 510140	1	1
IC1	CD 4023 . . . . .	1	1
IC2	CDP 1859 . . . . .	1	1
IC3	CDP 1859 . . . . .	1	1
IC4	CDP 1859 . . . . .	1	1
IC5	CD 4040 . . . . .	1	1
IC6	CD 4023 . . . . .	1	1
IC7	CPU 1802 . . . . .	1	1
IC8	RAM 5114 . . . . .	1	1
IC9	RAM 5114 . . . . .	1	1
IC10	ROM 2716 . . . . .	1	1
IC11	ROM 2716 . . . . .	1	1
IC12	ROM 2716 . . . . .	1	1
IC13	ROM 2716 . . . . .	1	1
IC14	ROM 2716 . . . . .	1	1
IC15	ROM 2716 . . . . .	1	1
IC16	ROM 2716 . . . . .	1	1
IC17	ROM 2716 . . . . .	1	1
IC18	CD 4020 . . . . .	1	1
IC19	- - - -	-	-
IC20	CDP 1869 . . . . .	1	1
IC21	RAM 2114 . . . . .	1	1
IC22	RAM 2114 . . . . .	1	1
IC23	RAM 2114 . . . . .	1	1
IC24	RAM 2114 . . . . .	1	1
IC25	RAM 2102 . . . . .	1	1
IC26	RAM 2102 . . . . .	1	1
IC27	CD 4011 . . . . .	1	1
IC28	CDP 1876 . . . . .	1	1
IC29	I/O 1852 . . . . .	1	1
IC30	I/O 1852 . . . . .	1	1
IC31	I/O 1852 . . . . .	1	1
IC32	I/O 1852 . . . . .	1	1
IC33	CDP 1856 . . . . .	1	1
IC34	CDP 1856 . . . . .	1	1
IC35	RAM 2114 . . . . .	1	1
IC36	RAM 2114 . . . . .	1	1
IC37	RAM 2114 . . . . .	1	1
IC38	RAM 2114 . . . . .	1	1
IC39	CD 4011 . . . . .	1	1
CHR1	CRISTAL DE CUARZO 3,579 MHz . . .	1	1
CHR2	CRISTAL DE CUARZO 5,626 MHz . . .	1	1
D1	DIODO IN4148 . . . . .	1	1
D2	DIODO IN4148 . . . . .	1	1
D3	DIODO ZENER 6,2 V. . . . .	1	1
D4	DIODO BY-251 . . . . .	1	1
D5	DIODO BY-251 . . . . .	1	1
D6	DIODO IN4148 . . . . .	1	1



DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
D7	DIODO IN4148 . . . . .	1	1
D8	DIODO IN4148 . . . . .	1	1
T1	TRANSISTOR 7805C . . . . .	1	1
Y2	TRANSISTOR SC-158C . . . . .	1	1
T3	TRANSISTOR SC-148C . . . . .	1	1
T4	TRANSISTOR SC-148C . . . . .	1	1
T5	TRANSISTOR SC-148C . . . . .	1	1
R1	RESISTENCIA 10 M Ohmios 1/2W 10%	1	1
R2	" 100 K Ohmios 1/4W 10%	1	1
R3	" 100 K Ohmios 1/4W 10%	1	1
R4	" 100 K Ohmios 1/4W 10%	1	1
R5	" 1 K Ohmios 1/4W 10%	1	1
R6	" 1 K Ohmios 1/4W 10%	1	1
R7	" 1 K Ohmios 1/4W 10%	1	1
R8	" 1 K Ohmios 1/4W 10%	1	1
R9	" 10 K Ohmios 1/4W 10%	1	1
R10	" 1 K Ohmios 1/4W 10%	1	1
R11	- - - - -	-	-
R12	" 10 K Ohmios 1/4W 10%	1	1
R13	- - - - -	-	-
R14	" 100 Ohmios 1/4W 10%	1	1
R15	" 10 K Ohmios 1/4W 10%	1	1
R16	- - - - -	-	-
R17	" 100 K Ohmios 1/4W 10%	1	1
R18	" 1 K Ohmios 1/4W 10%	1	1
R19	" 4K7 Ohmios 1/4W 5%	1	1
R20	" 10 M Ohmios 1/2W 10%	1	1
R21	" 4K7 Ohmios 1/4W 5%	1	1
R22	" 1 K Ohmios 1/4W 10%	1	1
R23	" 1 K Ohmios 1/4W 10%	1	1
R24	" 1 K Ohmios 1/4W 10%	1	1
R25	" 620 Ohmios 1/4W	1	1
R26	" 3K9 Ohmios 1/4W	1	1
R27	" 820 Ohmios 1/4W	1	1
R28	" 510 Ohmios 1/4W	1	1
R29	" 1K Ohmios 1/4W 10%	1	1
R30	" 1K Ohmios 1/4W 10%	1	1
R31	" 1K Ohmios 1/4W 10%	1	1
R32	" 1K Ohmios 1/4W 10%	1	1
R33	" 1K Ohmios 1/4W 10%	1	1
R34	- - - - -	-	-
RP1	RED PASIVA 8 x 5 K Ohmios 0,1W 10%	1	1
RP2	" " 8 x 5 K Ohmios 0,1W 10%	1	1
RP3	" " 8 x 5 K Ohmios 0,1W 10%	1	1
RP4	" " 16 x 100K Ohmios 0,1W 10%	1	1
RP5	" " 16 x 100K Ohmios 0,1W 10%	1	1
RP6	" " 8 x 5 K Ohmios 0,1W 10%	1	1
C1	CONDENSADOR CERAMICO 18pF 100V.	1	1
C2	" " 18pF 100V.	-	-

DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
C3	CONDENSADOR MKH (M) 0,1 uF 250V	1	1
C4	" MKH (M) 0,1 uF 250V	1	1
C5	" MKH (M) 0,1 uF 250V	1	1
C6	" ELECTROLITICO 10 uF 16V	1	1
C7	" CERAMICO 10K 500V	1	1
C8	" ELECTROLITICO 100 uF 10V	1	1
C9	" CERAMICO 10 K 63 V	1	1
C10	- - - - -	-	-
C11	- - - - -	-	-
C12	" CERAMICO 10 K 63V	1	1
C13	" " 10 K 63V	1	1
C14	" " 10 K 63V	1	1
C15	" " 10 K 63V	1	1
C16	" " 10 K 63V	1	1
C17	" ELECTROLITICO 4700 uF 16V	1	1
C18	- - - - -	-	-
C19	- - - - -	-	-
C20	" CERAMICO 10 K 63 V	1	1
C21	" " 18 pF 100V	1	1
C22	" " 18 pF 100V	1	1
C23	" " 10 K 63V	1	1
C24	" " 10 K 63V	1	1
C25	" " 10 K 63V	1	1
C26	" " 10 K 63V	1	1
C27	" " 10 K 63V	1	1
C28	" " 10 K 63V	1	1
F1	FUSIBLE 3A . . . . .	1	1
F2	" 3A . . . . .	1	1
	MINI INTERRUPTOR DIP BT-8 . . . . .	1	1
BT1	BATERIA 90 mAh Ni Cd . . . . .	1	1
J1	CONECTOR POSTE 6 VIAS . . . . .	1	1
J3	" " 5 VIAS . . . . .	1	1
J4	" " 8 VIAS . . . . .	1	1
J5	" " 8 VIAS . . . . .	1	1
J6	" " 3 VIAS . . . . .	1	1
J7	" " 4 VIAS . . . . .	1	1

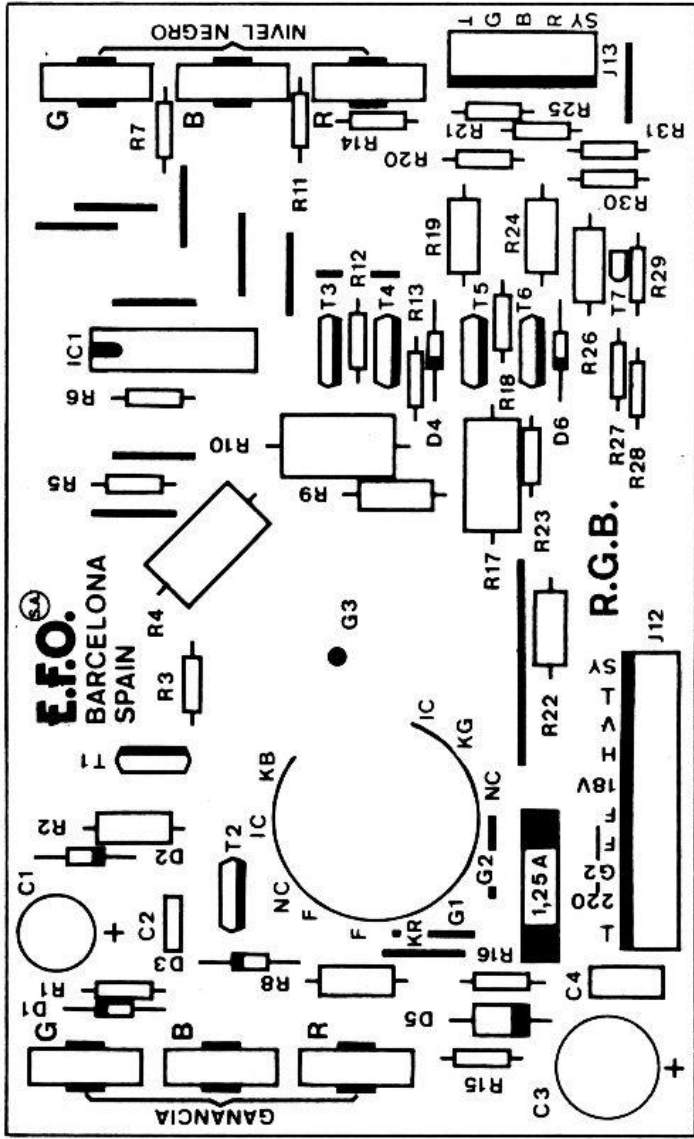
Nota: (M) = Multicapa

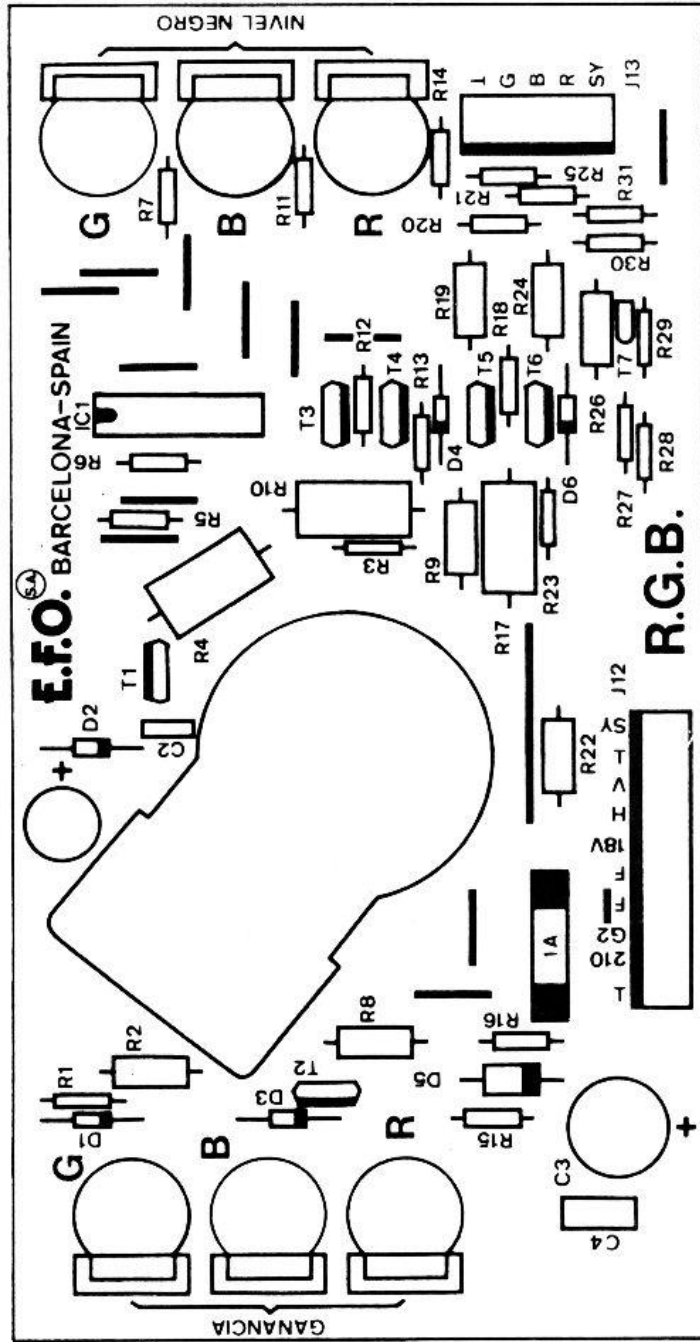


DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
510139	CIRCUITO IMPRESO SLB ref. 510139	1	1
IC1	CD 4069 . . . . .	1	1
IC2	CDP 402 . . . . .	1	1
IC3	LATCH7YC373 . . . . .	1	1
IC4	RAM 2716 . . . . .	1	1
IC5	SOUND AY3 - 8910 . . . . .	1	1
IC6	LM 383 AUDIO . . . . .	1	1
CHRI	CRISTAL DE CUARZO 2,012 MHZ . . .	1	1
D1	DIODO IN 4148 . . . . .	1	1
D2	DIODO IN 4001 . . . . .	1	1
D3	DIODO IN 4001 . . . . .	1	1
D4	DIODO IN 4148 . . . . .	1	1
D5	DIODO IN 4148 . . . . .	1	1
T1	TRANSISTOR SC-148C . . . . .	1	1
T2	" SC-148C . . . . .	1	1
T3	" 7805 . . . . .	1	1
T4	" SC-148C . . . . .	1	1
T5	" SC-148C . . . . .	1	1
T6	" SC-148C . . . . .	1	1
R1	RESISTENCIA 10 M Ohmios 1/2W 10% .	1	1
R2	" 3K3 Ohmios 1/4W 10% .	1	1
R3	" 3K3 Ohmios 1/4W 10% .	1	1
R4	" 1K Ohmios 1/4W 10% .	1	1
R7	" 100K Ohmios 1/4W 10% .	1	1
R8	" 100K Ohmios 1/4W 10% .	1	1
R9	" 100K Ohmios 1/4W 10% .	1	1
R10	" 22 Ohmios 1/4W 10% .	1	1
R13	" 470 Ohmios 1/4W 10% .	1	1
R14	" 1K 1/4W 10% .	1	1
R15	" 4K7 1/4W 5% .	1	1
RP1	RED PASIVA 8x5K Ohmios 0,1W 10% .	1	1
C1	CONDENSADOR CERAMICO 18 pF 100V. .	1	1
C2	" " 10 K 63V. . .	1	1
C3	" ELECTROLITICO 4,7 uF 16V. .	1	1
C4	" CERAMICO 10K 63 V. . .	1	1
C5	" " 10K 63V . . .	1	1
C6	" ELECTROLITICO 100 uF 16V. .	1	1
C7	" " 470 uF 16V. .	1	1
C8	" MKH (M) 0,22 uF 100V .	1	1
C9	" ELECTROLITICO 220 uF 16V. .	1	1
C10	" " 4700 uF 16V. .	1	1
C11	" CERAMICO 10K 63 V. . .	1	1
C12	" ELECTROLITICO 4,7 uF 16V. .	1	1
C13	" MKH (M) 0,022 uF 250V. .	1	1
C14	" MKH (M) 0,22 uF 100V. .	1	1
C15	" ELECTROLITICO 10 uF 10V. .	1	1
C16	" CERAMICO 18 pF 100V .	1	1
C17	" " 10K 63V. .	1	1

Nota: (M) = Multicapa

<u>DESIGNACION</u>	<u>D E S C R I P C I O N</u>	<u>TIPO Y CANTIDAD</u>	
		<u>COPRESA</u>	<u>VIDEOCOLOR</u>
J2	CONECTOR POSTE 4 VIAS . . . . .	1	1
J3	" " 4 VIAS . . . . .	1	1
J4	" " 3 VIAS . . . . .	1	1
J5	" " 2 VIAS . . . . .	1	1
J6	" " 3 VIAS . . . . .	1	1

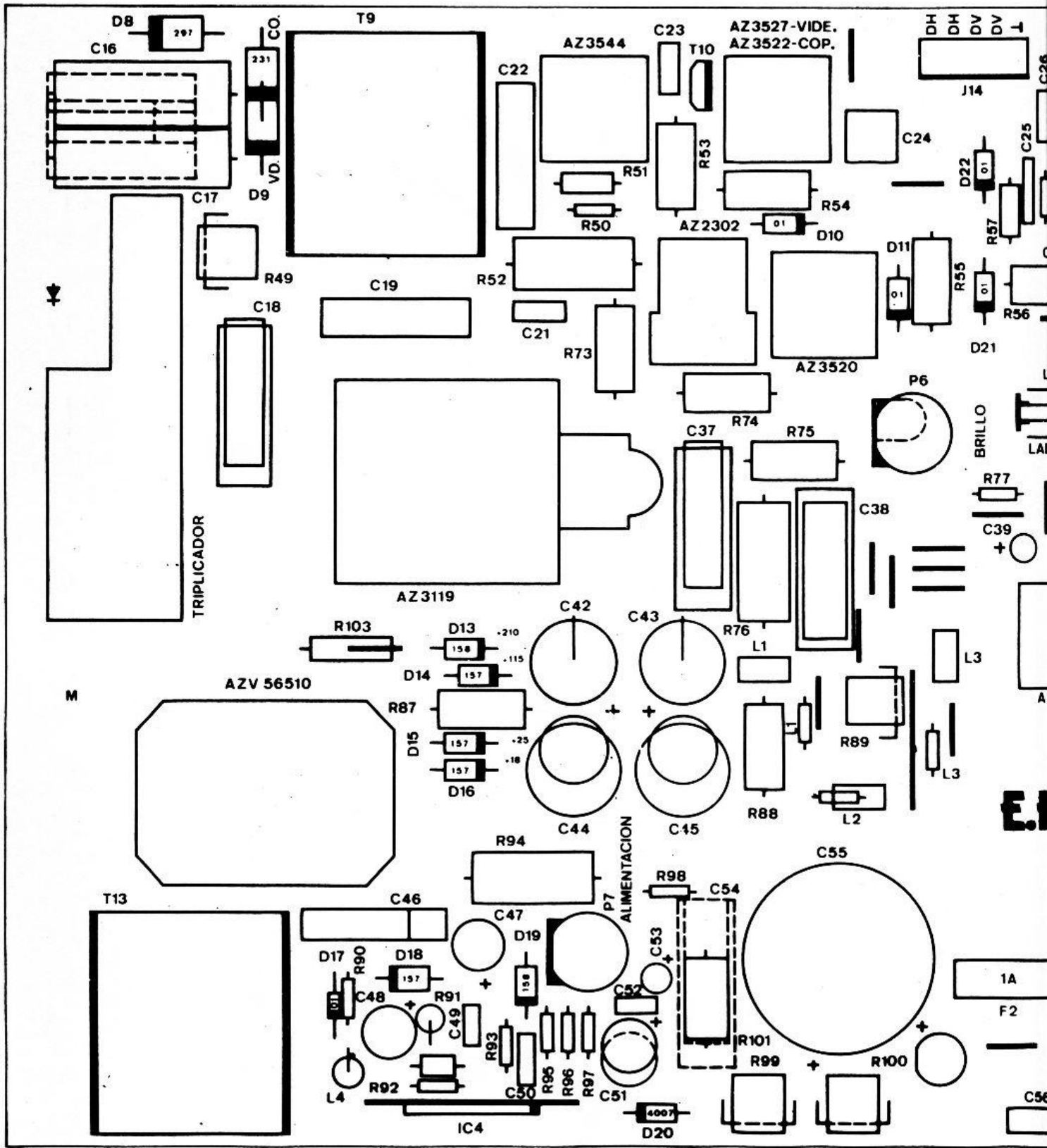


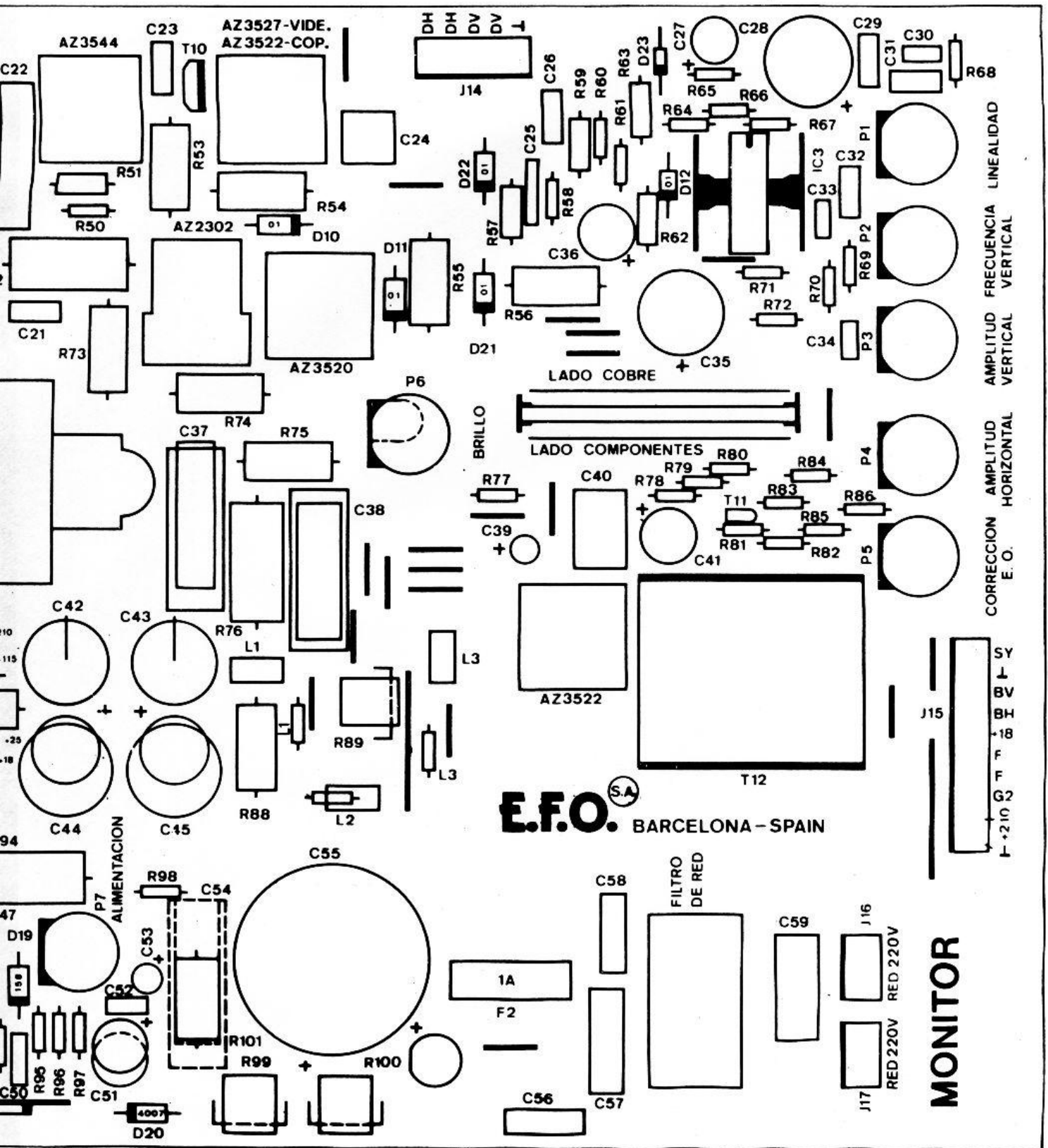


DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
510129	CIRCUITO IMPRESO . . . . .	1	-
510138	CIRCUITO IMPRESO . . . . .	-	1
J12	CONECTOR POSTE 10 VIAS . . . . .	1	1
J13	CONECTOR POSTE 5 VIAS . . . . .	1	1
T1	TRANSISTOR BF 459/300 V. . . . .	1	1
T2	" BF 459/300 V. . . . .	1	1
T3	" BF 459/300 V. . . . .	1	1
T4	" BF 459/300 V. . . . .	1	1
T5	" BF 459/300 V. . . . .	1	1
T6	" BF 459/300 V. . . . .	1	1
T7	" SC 148 C . . . . .	1	1
D1	DIODO ZENER 12 V 400 mA . . . . .	1	1
D2	" " 7,5 V. 400 mA . . . . .	1	1
D3	" 1N 4148 . . . . .	1	1
D4	" 1N 4148 . . . . .	1	1
D5	" 1N 4001 . . . . .	1	1
D6	" 1N 4148 . . . . .	1	1
C1	CONDENSADOR ELECTROLITICO 100 uF/16 V. . . . .	1	1
C2	" 10 nF 63 V. CERAMICO . . . . .	1	1
C3	" ELECTROLITICO 4,7 uF/250 V. . . . .	1	1
C4	" MKH 0,1 uF/250 V . . . . .	1	1
R1	RESISTENCIA 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R2	" 68K Ohm. 1/2 W. 10% . . . . .	1	1
R3	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R4	" 22K Ohm. 1 W. 10% . . . . .	1	1
R5	" 2K2 Ohm. 1/4 W. 10% . . . . .	1	1
R6	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R7	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R8	" 1K5 Ohm. 1/4 W. 10% . . . . .	1	1
R9	" 1K5 Ohm. 1/2 W. 10% . . . . .	1	1
R10	" 22K Ohm. 1 W. 10% . . . . .	1	1
R11	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R12	" 2K2 Ohm. 1/4 W. 10% . . . . .	1	1
R13	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R14	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R15	" 1000 Ohm. 1/4 W. 10% . . . . .	1	1
R16	" 1 M Ohm. 1/4 W. 10% . . . . .	1	1
R17	" 22K Ohm. 1 W. 10% . . . . .	1	1
R18	" 2K2 Ohm. 1/4 W. 10% . . . . .	1	1
R19	" 68K Ohm. 1/2 W. 10% . . . . .	1	1
R20	" 4K7 Ohm. 1/4 W. 10% . . . . .	1	1
R21	" 4K7 Ohm. 1/4 W. 10% . . . . .	1	1
R22	" 1K5 Ohm. 1/2 W. 10% . . . . .	1	1
R23	" 1 K Ohm. 1/4 W. 10% . . . . .	1	1
R24	" 68K Ohm. 1/2 W. 10% . . . . .	1	1
R25	" 4K7 Ohm. 1/4 W. 10% . . . . .	1	1
R26	" 47 Ohm. 1/2 W. 10% . . . . .	1	1
R27	" 22K Ohm. 1/4 W. 10% . . . . .	1	1
R28	" 47K Ohm. 1/4 W. 10% . . . . .	1	1



DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
R29	RESISTENCIA 10K Ohm. 1/4 W. 10%	1	1
R30	" 1 K Ohm. 1/4 W. 10%	1	1
R31	" 1 K Ohm. 1/4 W. 10%	1	1
G	POTENCIOMETRO 500 (nivel negro)	1	1
B	" 500 (nivel negro)	1	1
R	" 500 (nivel negro)	1	1
G	" 10 L (ganancia)	1	1
B	" 10 K (ganancia)	1	1
R	" 10 K (ganancia)	1	1
F1	FUSIBLE 1,25 A	1	1
IC1	TDA 2530	1	1
	ZOCALO TRC	1	-
	ZOCALO TRC	-	1





DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
510133	CIRCUITO IMPRESO . . . . .	1	1
J14	CONECTOR POSTE 5 VIAS . . . . .	1	1
J15	" " 10 VIAS . . . . .	1	1
J16	" " 3 VIAS . . . . .	1	1
J17	" " 3 VIAS . . . . .	1	1
	" CIRCUITO VERTICAL . . . . .	1	1
T9	TRANSISTOR BU-208 . . . . .	1	1
T10	" BD-139 & BD-230 . . . . .	1	1
T11	" SC-147 A . . . . .	1	-
T12	" BDX-54 A . . . . .	1	-
T13	" BU-208 . . . . .	1	1
D8	DIODO BY 297 . . . . .	1	-
D9	" BY 231 1.600 V . . . . .	1	1
D10	" 1N 4001 . . . . .	1	1
D11	" 1N 4001 . . . . .	1	1
D12	" 1N 4001 . . . . .	1	1
D13	" BA 158 . . . . .	1	1
D14	" BA 157 . . . . .	1	1
D15	" BA 157 . . . . .	1	1
D16	" BA 157 . . . . .	1	1
D17	" 1N 4001 . . . . .	1	1
D18	" BA 157 . . . . .	1	1
D19	" BA 158 . . . . .	1	1
D20	" 1N 4007 . . . . .	1	1
C16	CONDENSADOR MKP 0,010 uF & 0,022 uF 1500V. . . . .	-	-
C17	" MKP 0,012 uF . . . . .	1	1
C18	" MKP 0,68 uF 400 V. 5% . . . . .	1	1
C19	" MKH 0,47 uF 400 V. 10% . . . . .	1	1
C20-C22	" MKP 2x0,0033 uF & 1x0,0068 uF . . . . .		
	1.500 V. 5% . . . . .	1	1
C21	" MKH (M) 0,068 uF 250 V. 5% . . . . .	1	1
C23	" MKH (M) 0,220 uF 100 V. 5% . . . . .	1	1
C24	" MKH (M) 0,820 uF 100 V. 5% . . . . .	1	-
C25	" CERAMICO 330 pf . . . . .	1	1
C26	" MKH(M) 0,1 uF 250 V . . . . .	1	1
C27	" ELECTROLITICO 25 uF 25 V . . . . .	1	1
C28	" ELECTROLITICO 1000 uF 25V. . . . .	1	1
C29	" MKH(M) 0,1 uF 250 V . . . . .	1	1
C30	" MKH(M) 6n8 250 V . . . . .	1	1
C31	" MKH(M) 0,1 uF 250 V . . . . .	1	1
C32	" MKH(M) 0,1 uF 250 V . . . . .	1	1
C33	" MKH(M) 4n7 250 V. 5% . . . . .	1	1
C34	" MKH(M) 4n7 250 V. 5% . . . . .	1	1
C35	" ELECTROLITICO 470 uF 25 V. . . . .	1	1
C36	" ELECTROLITICO 100 uF 25 V. . . . .	1	1
C37	" MKP 0,047 uF 1000 V. 5% . . . . .	1	1
C38	" MKP 0,047 uF 1000 V. 5% . . . . .	1	1
C39	" ELECTROLITICO 10 uF 16 V. . . . .	1	-
C40	" MKH(M) 1,5 uF 100 V . . . . .	1	-
C41	" ELECTROLITICO 100 uF 25 V. . . . .	1	-

DESIGNACION

DESCRIPCION

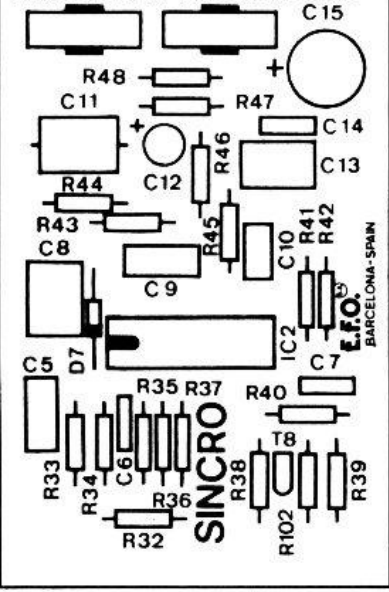
TIPO Y CANTIDAD  
COPRESA VIDEOCOLOR

DESIGNACION	DESCRIPCION	COPRESA	VIDEOCOLOR
C42	CONDENSADOR ELECTROLITICO 47 uF 250 V.	1	1
C43	" ELECTROLITICO 47 uF 250 V.	1	1
C44	" ELECTROLITICO 470 uF 40 V.	1	1
C45	" ELECTROLITICO 470 uF 40 V.	1	1
C46	" MKP 0,0022 uF 1.500 V. 5%	1	1
C47	" ELECTROLITICO 100 uF 25 V.	1	1
C48	" ELECTROLITICO 100 uF 16 V.	1	1
C49	" CERAMICO 10 K . . . . .	1	1
C50	" CERAMICO 22 pF . . . . .	1	1
C51	" ELECTROLITICO 100 uF 10 V.	1	1
C52	" CERAMICO 8 K 2 . . . . .	1	1
C53	" ELECTROLITICO 1 uF 40 V. .	1	1
C54	" MKH 0,680 uF 10% . . . . .	1	1
C55	" ELECTROLITICO 220 uF 350 V	1	1
C57	" MKP 0,1 uF 400 V. 5% . . . .	1	1
C59	" MKP 0,22 uF 400 V . . . . .	1	1
R49	RESISTENCIA 4,7 Ohm. 3 W 10% . . . . .	-	1
R50	" 100 Ohm. 1/4 W 10% . . . . .	1	1
R51	" 15 Ohm. 1/2 W 10% . . . . .	1	1
R52	" 39 Ohm. 2 W 10% . . . . .	1	1
R53	" 15 Ohm. 1 W 10% . . . . .	1	1
R54	" 68 Ohm. 1 W 10% . . . . .	1	1
R55	" 27 Ohm. 1 W 10% . . . . .	1	1
R56	" 220 Ohm. 1W 10% . . . . .	1	-
R56	" 180 Ohm. 1W 10% . . . . .	-	1
R57	" 1K5 1/2 W 10% . . . . .	1	1
R58	" 180 K Ohm. 1/4 W 10% . . . .	1	1
R59	" 3,3 Ohm. 1/2 W 10% . . . . .	1	1
R60	" 2K2 Ohm. 1/4 W 10% . . . . .	1	1
R61	" 5K6 Ohm. 1/4 W 10% . . . . .	1	1
R62	" 10 Ohm. 1/2 W 10% . . . . .	1	1
R63	" 1 Ohm. 1/2 W 10% . . . . .	1	1
R64	" 47 K Ohm. 1/4 W 10% . . . . .	1	1
R65	" 15 K Ohm. 1/4 W 10% . . . . .	1	1
R66	" 18 K Ohm. 1/4 W 10% . . . . .	1	1
R67	" 56 K Ohm. 1/4 W 10% . . . . .	1	1
R68	" 820 K Ohm. 1/4 W 10% . . . . .	1	1
R69	" 220 K Ohm. 1/4 W 10% . . . . .	1	1
R70	" 8K2 Ohm. 1/4 W 10% . . . . .	1	1
R71	" 150 K Ohm. 1/4 W 10% . . . . .	1	1
R72	" 8K2 Ohm. 1/4 W 10% . . . . .	1	1
R73	" 470 K Ohm. 1 W 10% . . . . .	1	1
R75	" 220 K Ohm. 1 W 10% . . . . .	1	1
R76	" 470 K Ohm. 2 W 10% . . . . .	1	1
R77	" 100 Ohm. 1/4 W 10% . . . . .	1	-
R78	" 100 Ohm. 1/4 W 10% . . . . .	1	-
R79	" 220 K Ohm. 1/4 W 10% . . . . .	1	-
R80	" 10 K Ohm. 1/4 W 10% . . . . .	1	-
R81	" 330 Ohm. 1/4 W 10% . . . . .	1	-
R82	" 4K7 Ohm. 1/4 W 10% . . . . .	1	-
R83	" 22 K Ohm. 1/4 W 10% . . . . .	1	-
R84	" 10 K Ohm. 1/4 W 10% . . . . .	1	-

DESIGNACIONDESCRIPCIONTIPO Y CANTIDAD  
COPRESA VIDEOCOLOR

R85	RESISTENCIA	15 K Ohm. 1/4 10%	1	-
R86	"	15 K Ohm. 1/4 10%	1	-
R87	"	56 K Ohm. 1 W 10%	1	1
R88	"	100 K Ohm. 1 W 10%	1	1
R89	"	8,2 Ohm. 3 W 10%	1	1
R90	"	22 Ohm. 1/4 W 10%	1	1
R91	"	0,68 Ohm. 1/2 W. 10%	1	1
R92	"	100 K Ohm. 1/4 W. 10%	1	1
R93	"	15K Ohm. 1/4 W. 10%	1	1
R94	"	100 Ohm. 2 W. 10%	1	1
R95	"	10K Ohm. 1/4 W. 10%	1	1
R96	"	1K2 Ohm. 1/4 W. 10%	1	1
R97	"	200 Ohm. 1/4 W. 10%	1	1
R98	"	270 K Ohm. 1/4 W. 10%	1	1
R99	"	10K Ohm. 3 W. 10%	1	1
R100	"	2,7 Ohm. 3 W. 10%	1	1
P1	POTENCIOMETRO	50 K Ohm . . . . .	1	1
P2	"	470 K Ohm . . . . .	1	1
P3	"	100 K Ohm . . . . .	1	1
P4	"	50 K Ohm . . . . .	1	-
P5	"	5 K Ohm . . . . .	1	-
P6	"	1 M Ohm . . . . .	1	1
P7	"	5 K Ohm . . . . .	1	1
IC3	TDA 1170	. . . . .	1	1
IC4	TDA 4600	. . . . .	1	1
	BOBINA AZ 3544	. . . . .	1	1
	" AZ 3522	. . . . .	2	-
	" AZ 3527	. . . . .	-	1
	" AZ 3520	. . . . .	1	1
	TRANSFORMADOR AZ 3119	. . . . .	1	1
	" AZV 56510	. . . . .	1	1
	TRIPLICADOR TVK 196-25	. . . . .	1	-
	" TVK 196-27	. . . . .	-	1
F2	FUSIBLE 1A	. . . . .	1	1
	FILTRO DE RED	. . . . .	1	1
	PUENTE RECTIFICADOR B 250 C 1000		1	1

CENTRADO H. FRECUENCIA H.

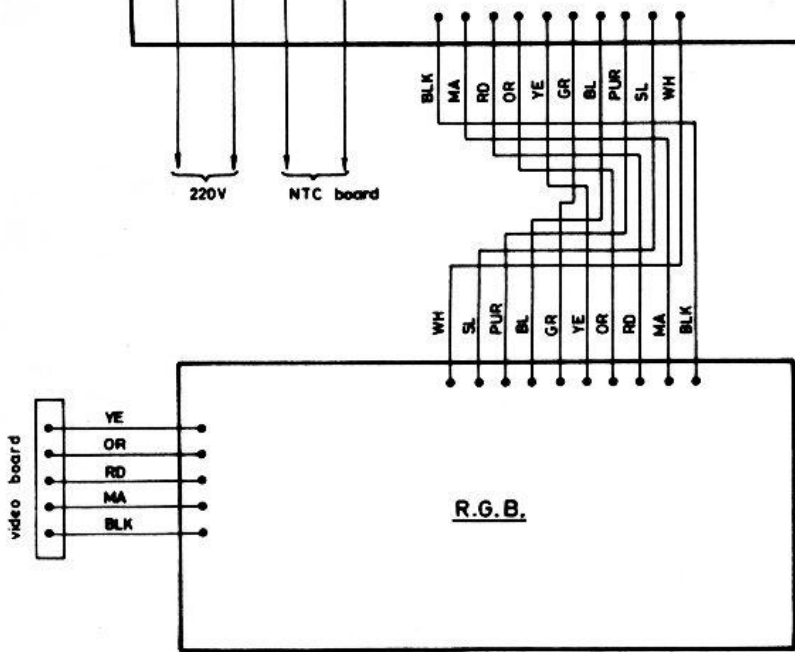
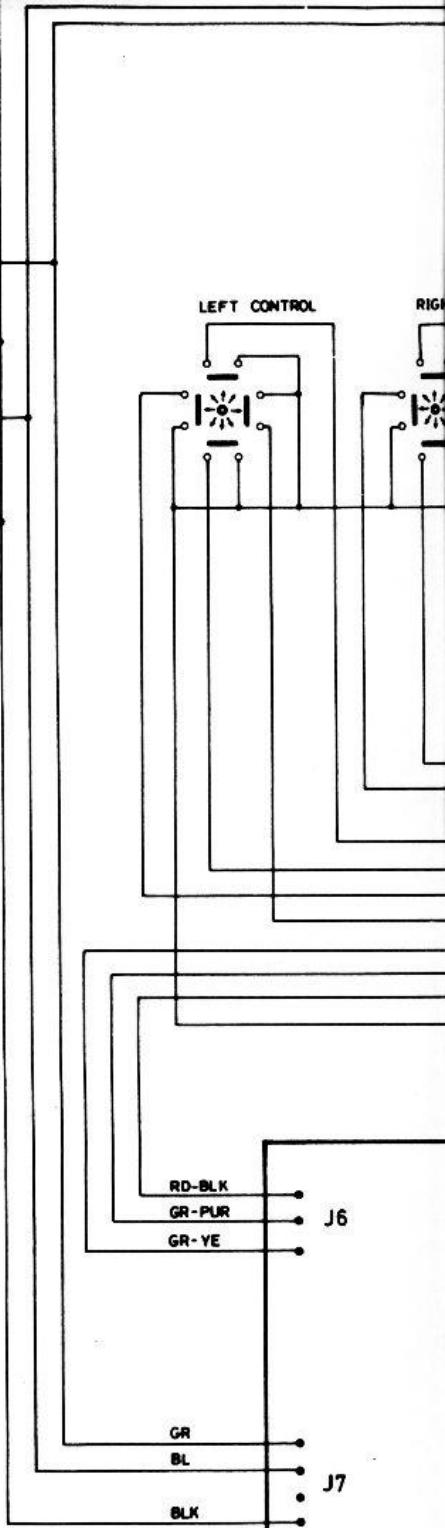
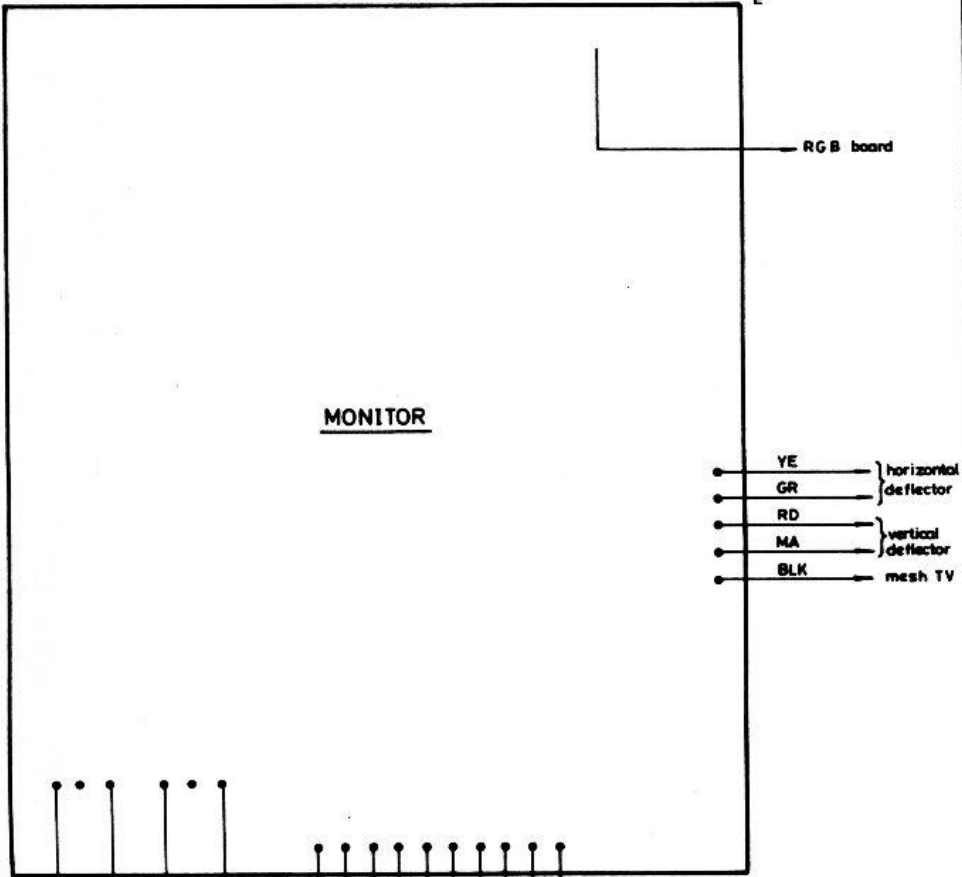
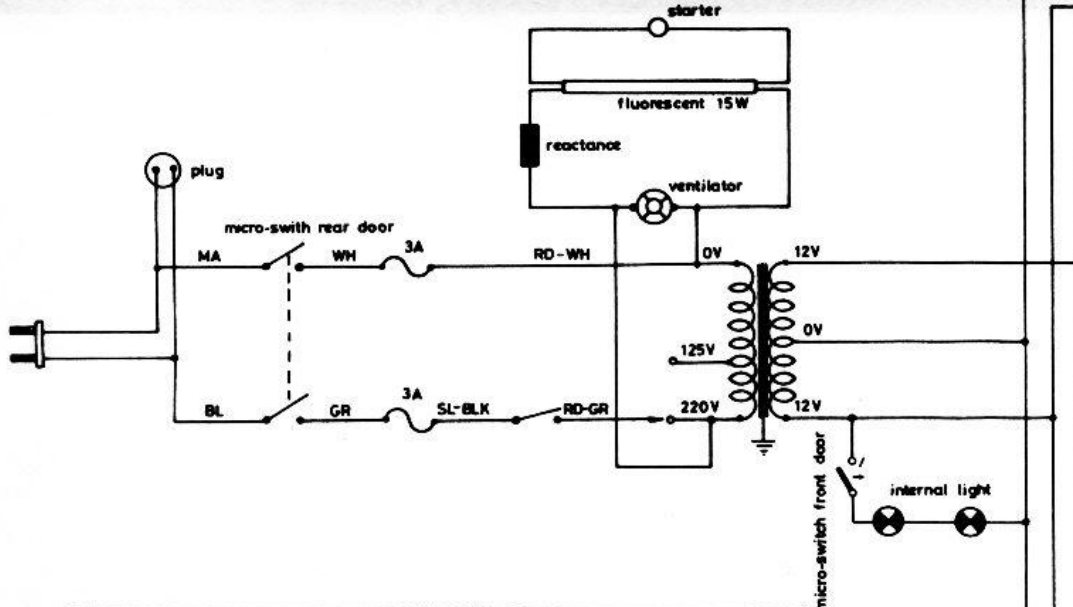


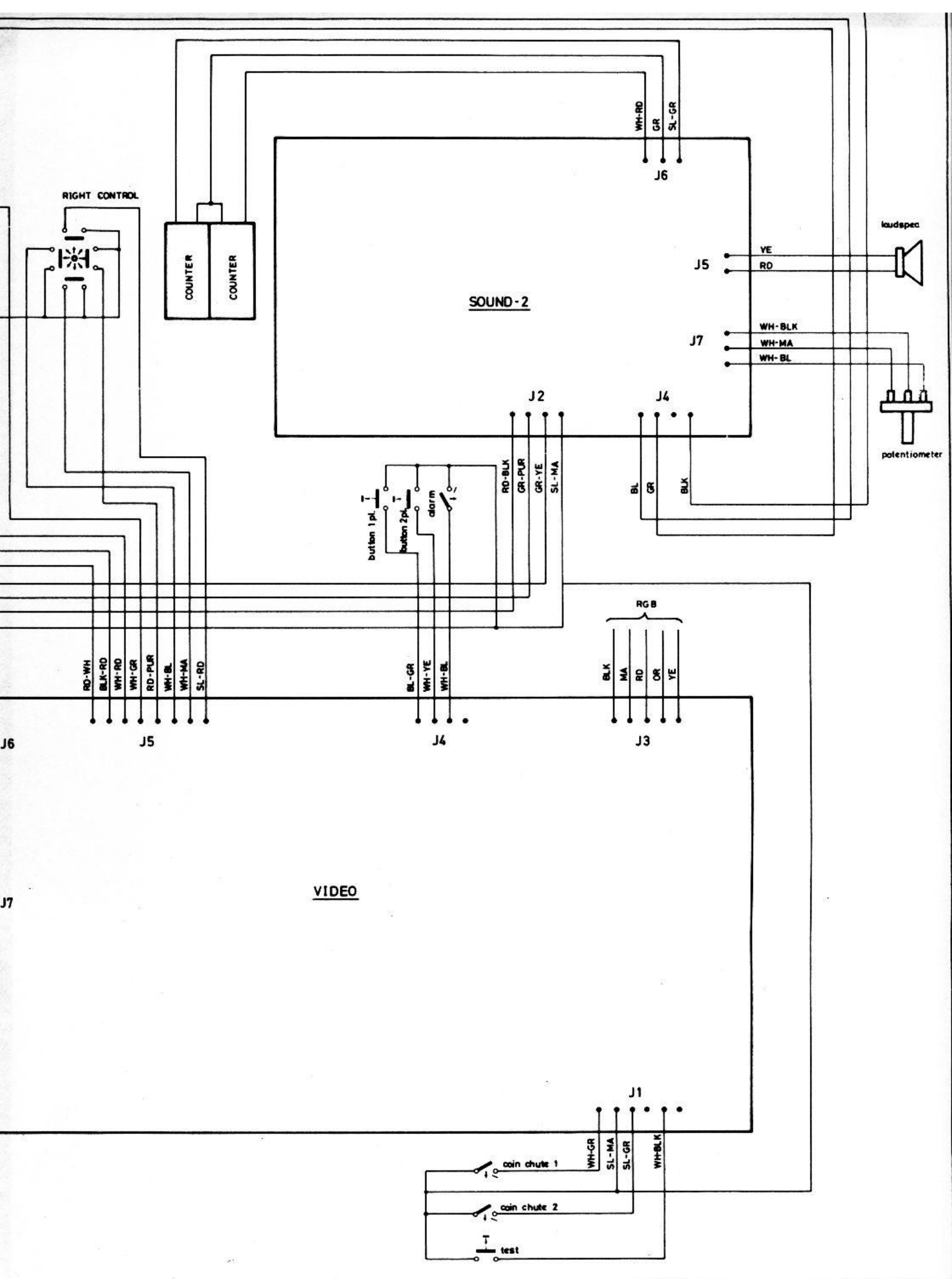
DESIGNACION	DESCRIPCION	TIPO Y CANTIDAD	
		COPRESA	VIDEOCOLOR
510135	CIRCUITO IMPRESO . . . . .	1	1
T8	TRANSISTOR SC-148-C . . . . .	1	1
D7	DIODO ZENER 12 V. 400 mA . . . . .	1	1
C5	CONDENSADOR 0,22 uF 100 V . . . . .	1	1
C6	" 1 uF 63 V . . . . .	1	1
C7	" 10C pF . . . . .	1	1
C8	" MKH 0,68 uF 100 V . . . . .	1	1
C9	" MKH 0,1 uF 250 V . . . . .	1	1
C10	" MKH 6.800 pF 250 V . . . . .	1	1
C11	" STYROFLEX 4.700 pF 160V.5% . . . . .	1	1
C12	" ELECTROLITICO 4,7 uF 16 V. . . . .	1	1
C13	" MKH 0,47 uF 100 V. . . . .	1	1
C14	" 10 nF 63 V . . . . .	1	1
C15	" ELECTROLITICO 100 uF 16 V. . . . .	1	1
R32	RESISTENCIA 47 K Ohm. 1/4 W. 10% . . . . .	1	1
R33	" 100K Ohm. 1/4 W. 10% . . . . .	1	1
R34	" 68 Ohm. 1/4 W. 10% . . . . .	1	1
R35	" 22 Ohm. 1/4 W. 10% . . . . .	1	1
R36	" 150 Ohm. 1/4 W. 10% . . . . .	1	1
R37	" 27 Ohm. 1/4 W. 10% . . . . .	1	1
R38	" 4K7 Ohm. 1/4 W. 10% . . . . .	1	1
R39	" 1K5 Ohm. 1/4 W. 10% . . . . .	1	1
R40	" 1K5 Ohm. 1/4 W. 10% . . . . .	1	1
R41	" 4K7 Ohm. 1/4 W. 10% . . . . .	1	1
R42	" 2,2 Ohm. 1/3 W. 10% . . . . .	1	1
R43	" 3K3 Ohm. 1/4 W. 10% . . . . .	1	1
R44	" 12 K Ohm. 1/4 W. 10% . . . . .	1	1
R45	" 33 K Ohm. 1/4 W. 10% . . . . .	1	1
R46	" 1K2 Ohm. 1/4 W. 10% . . . . .	1	1
R47	" 82 K Ohm. 1/4 W. 10% . . . . .	1	1
R48	" 120K Ohm. 1/4 W. 10% . . . . .	1	1
	" 2K2 Ohm. 1/4 W. 10% . . . . .	1	1
IC2	TDA 2591 δ TDA 2591 Q . . . . .	1	1
	POTENCIOMETRO 50 K (Centrado Horizontal) . . . . .	1	1
	" 50 K (Frecuencia " . . . . .	1	1

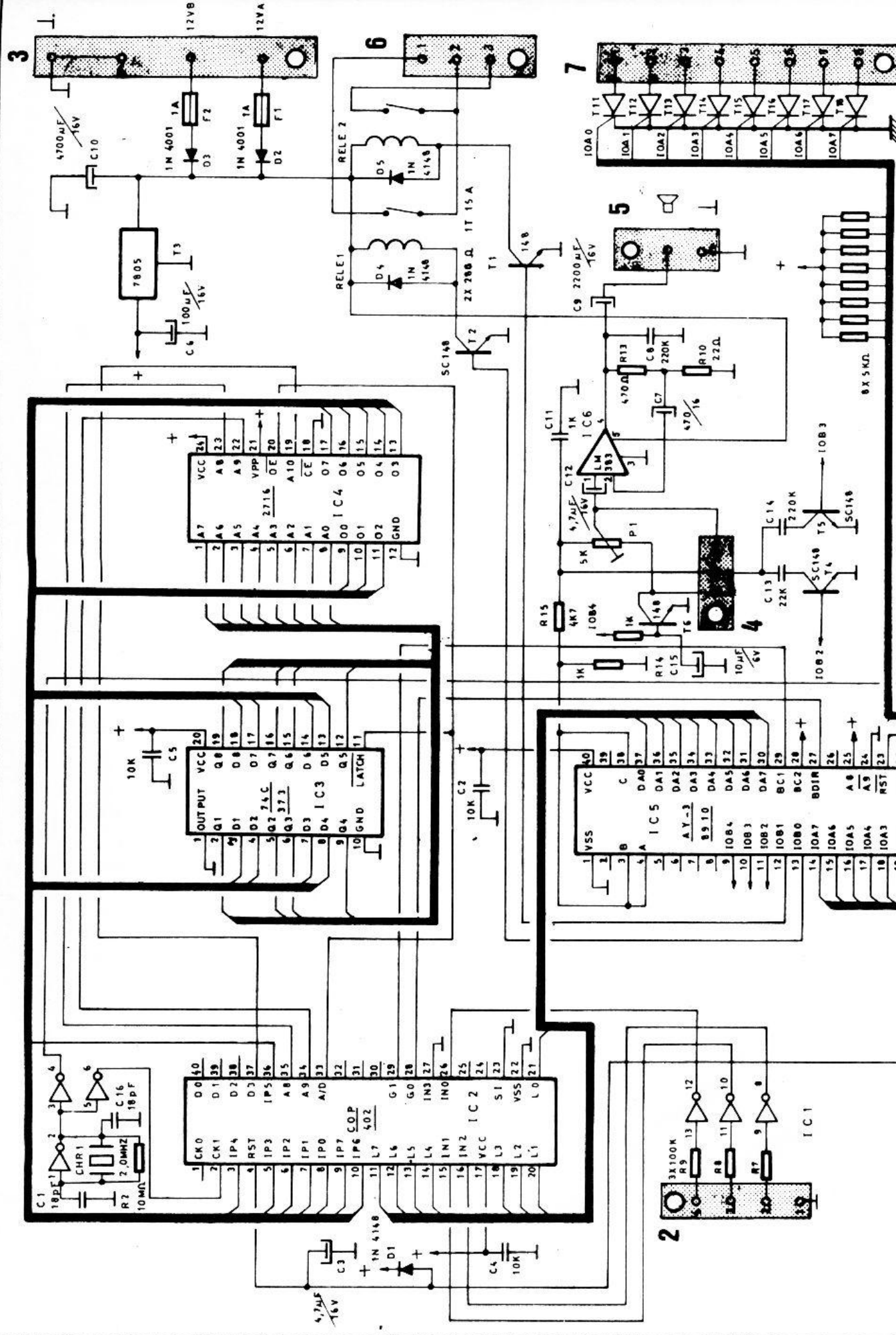


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DIAGRAMS —

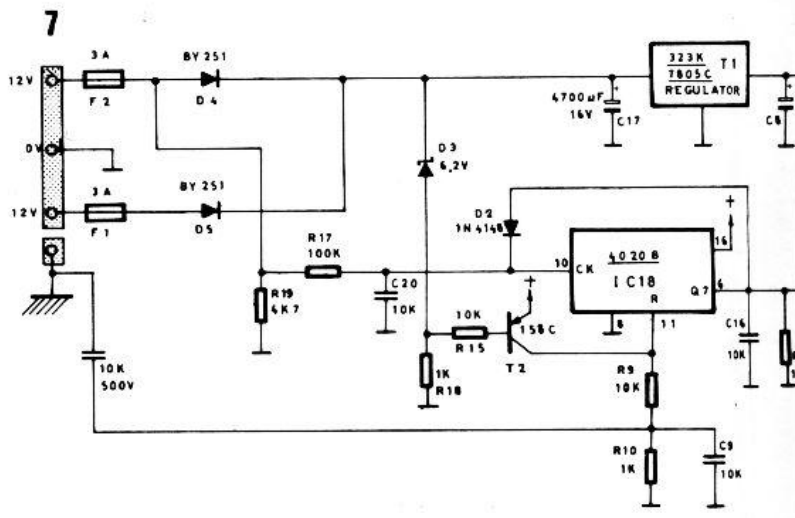
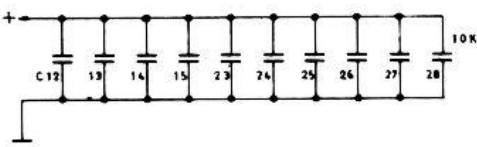
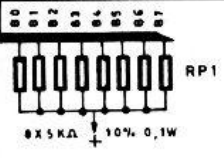
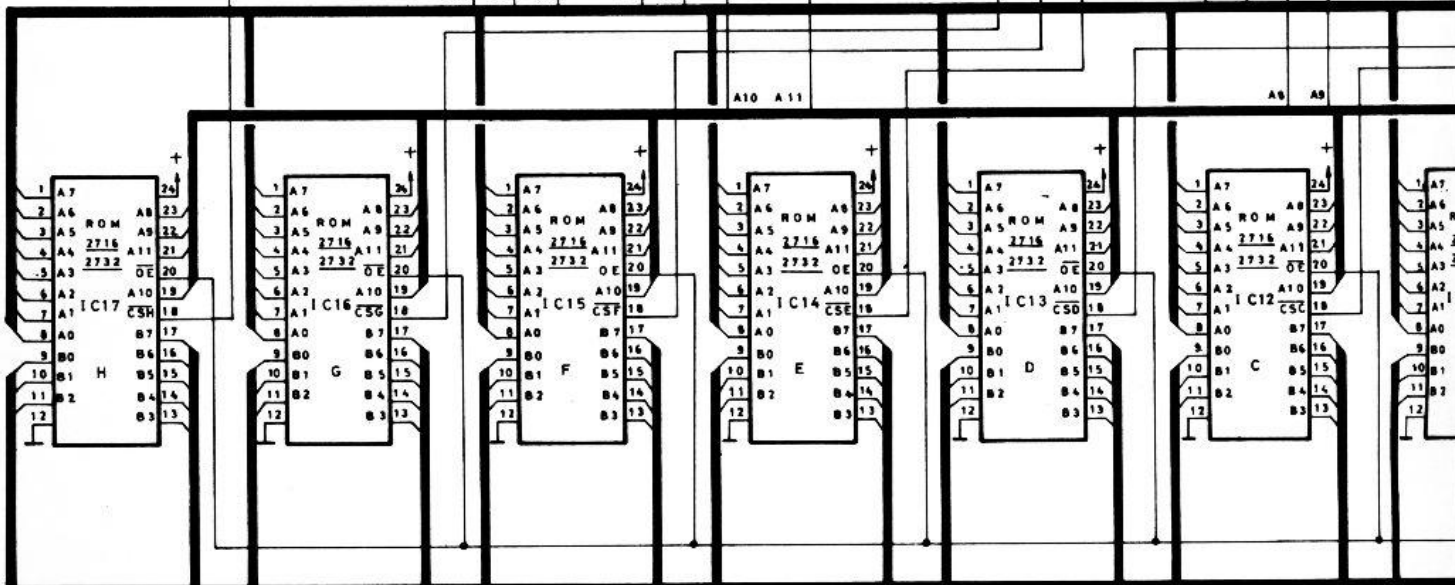
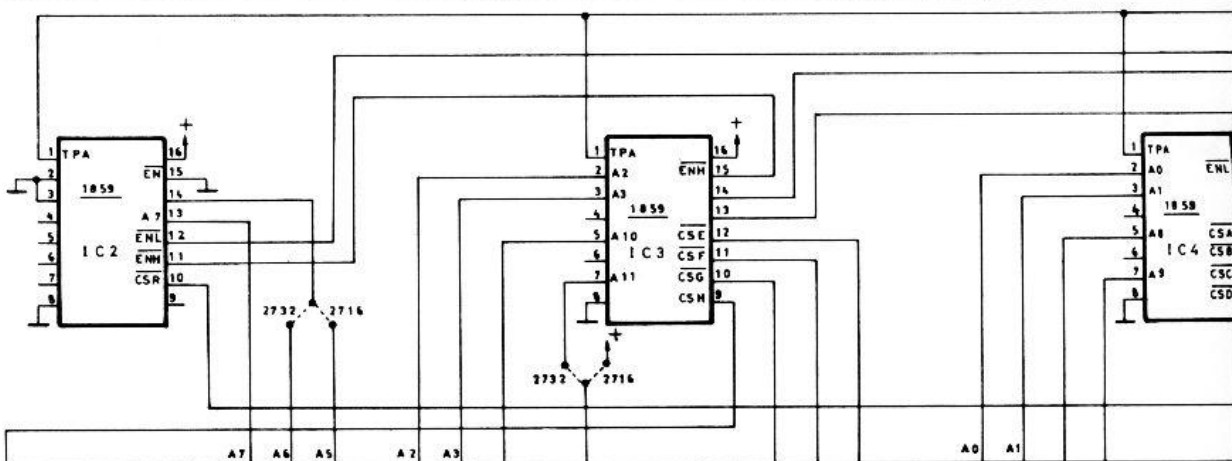


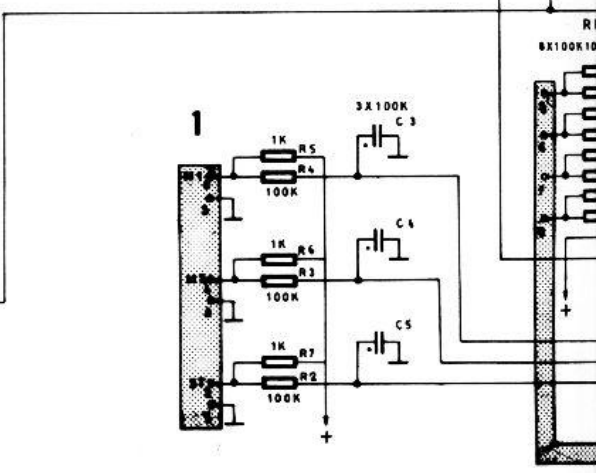
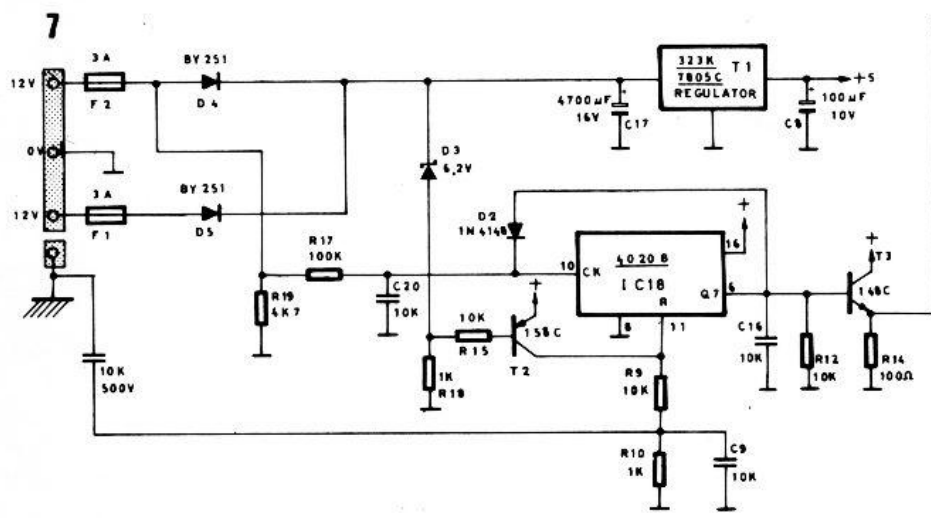
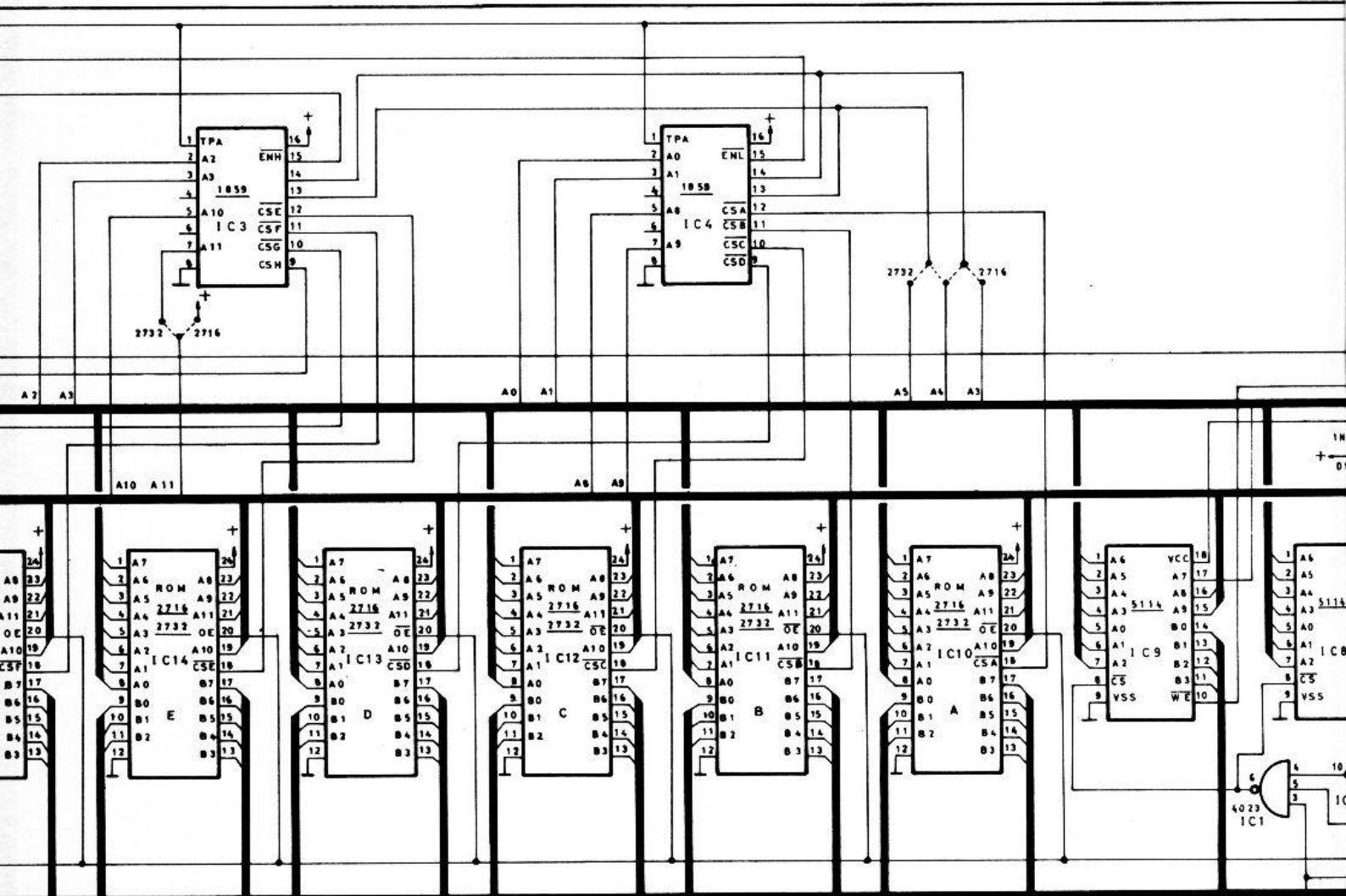


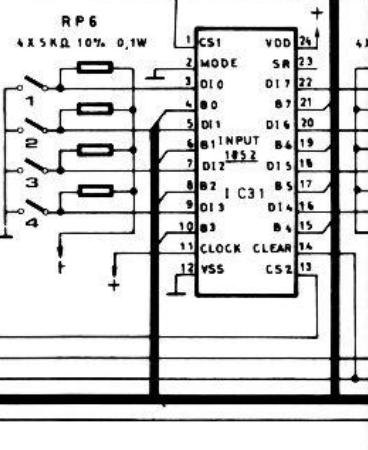
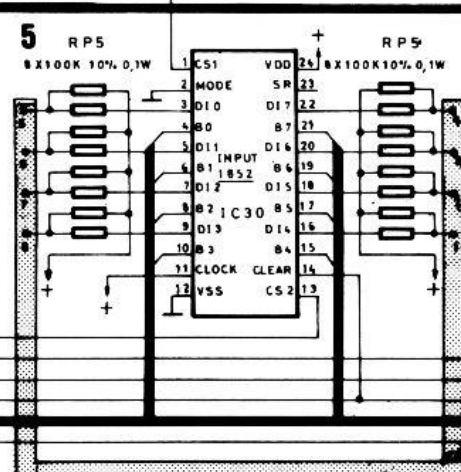
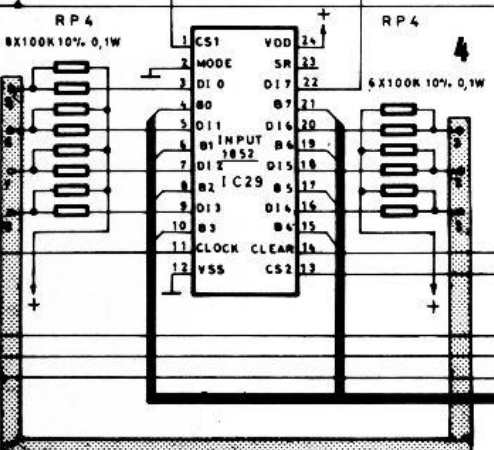
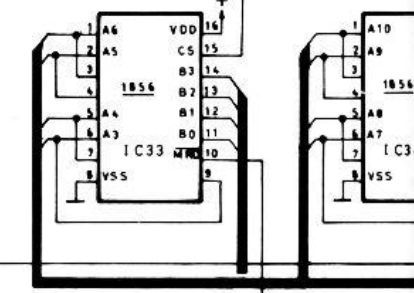
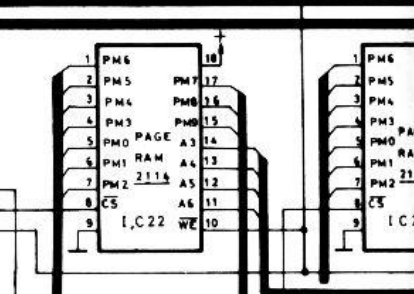
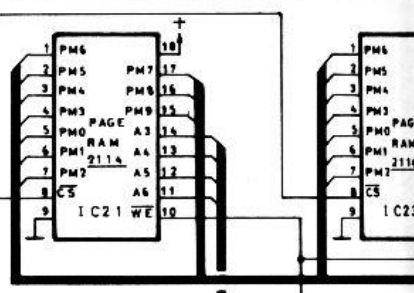
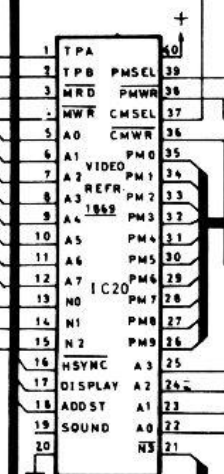
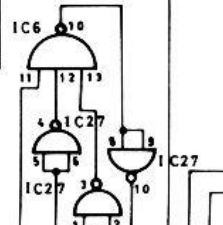
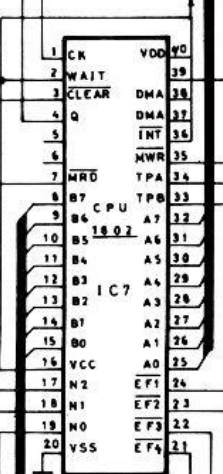
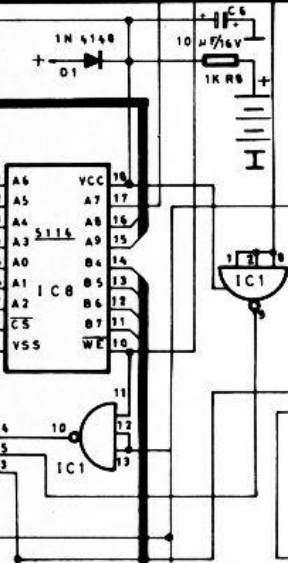
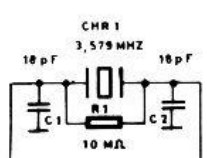
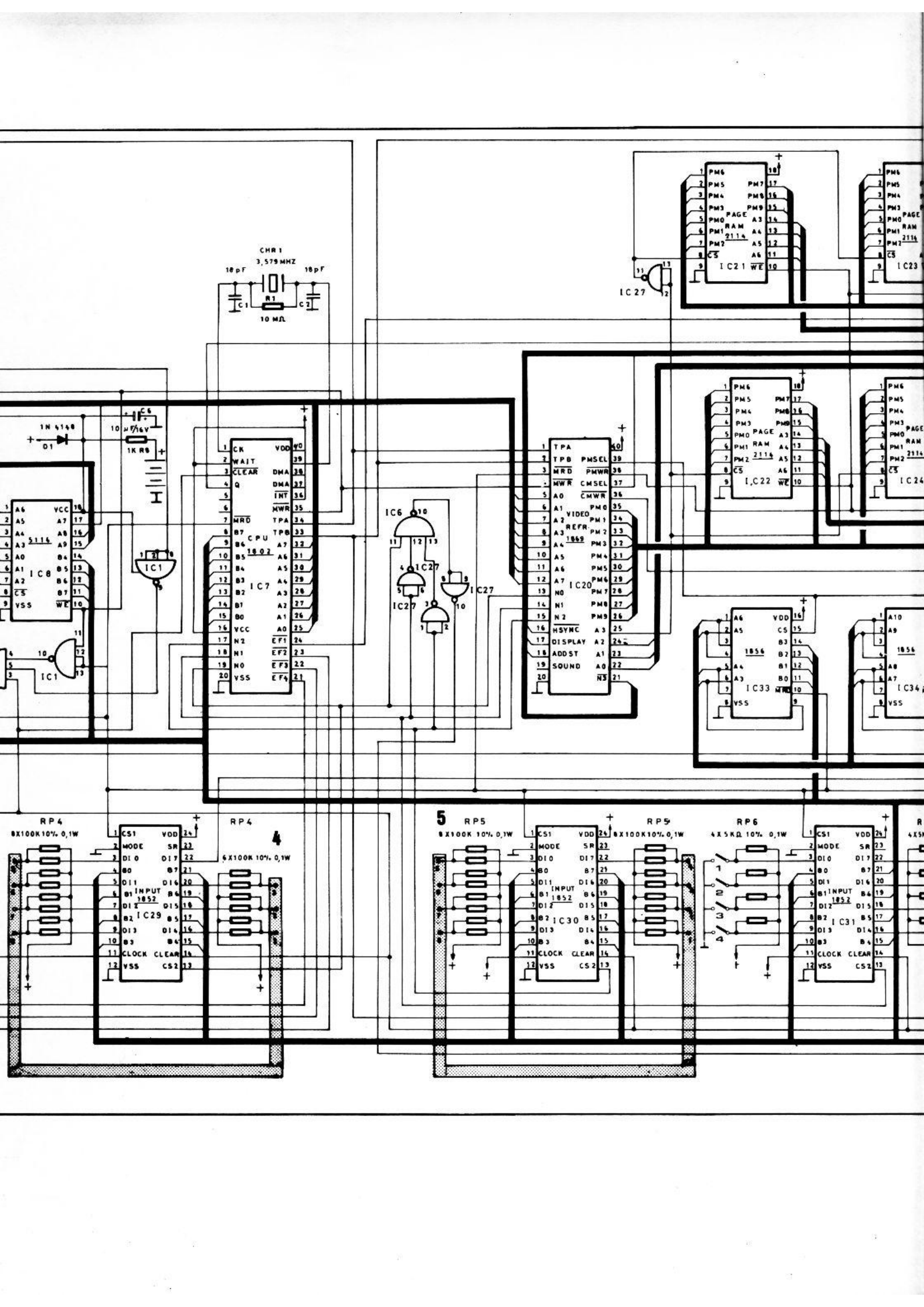


PROYECTADO 26-4-81 F. YAGO  
 DIBUJADO 27-5-81 J. Y.G.

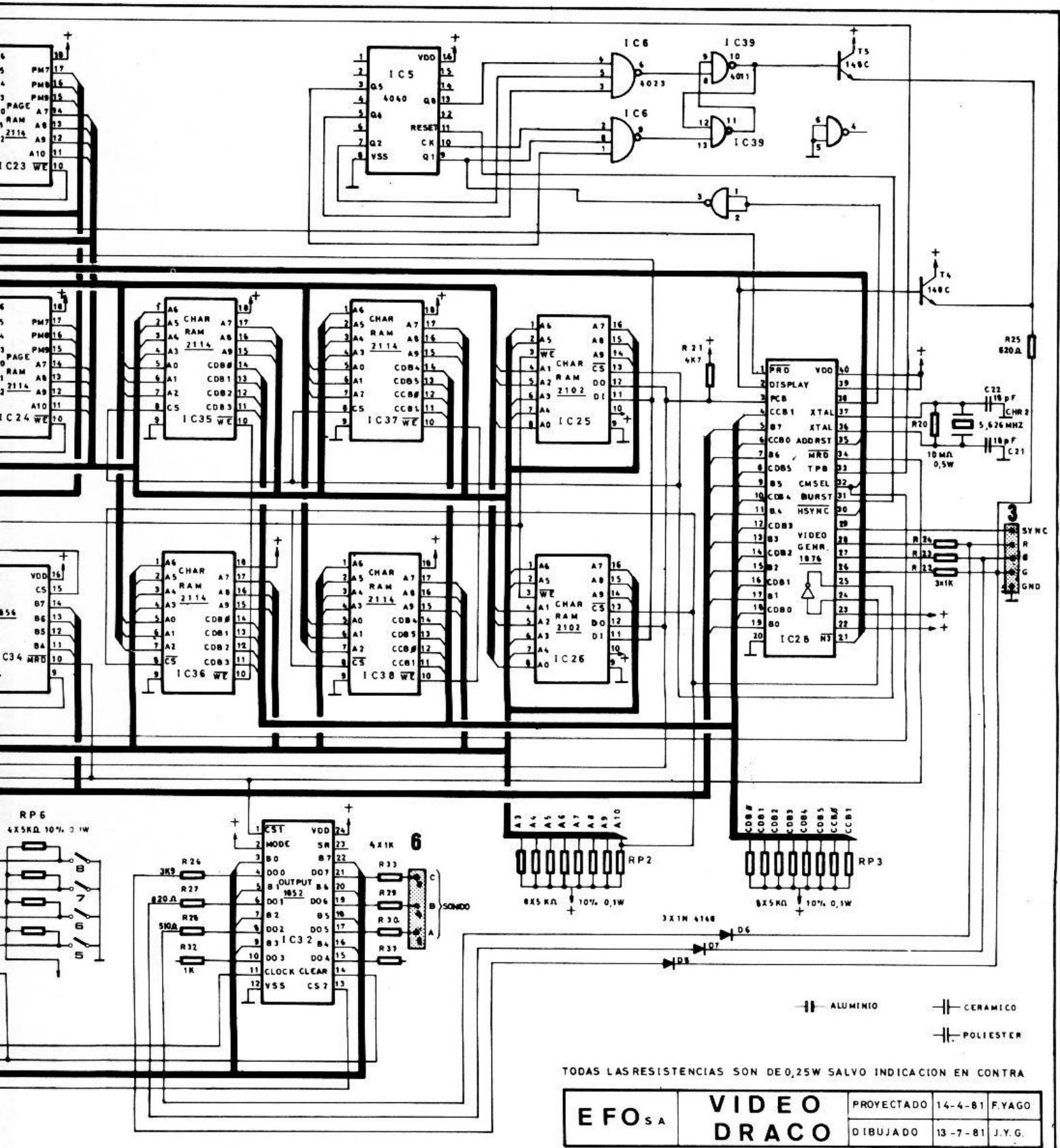
EFO<sub>SA</sub> **SOUND - 2**









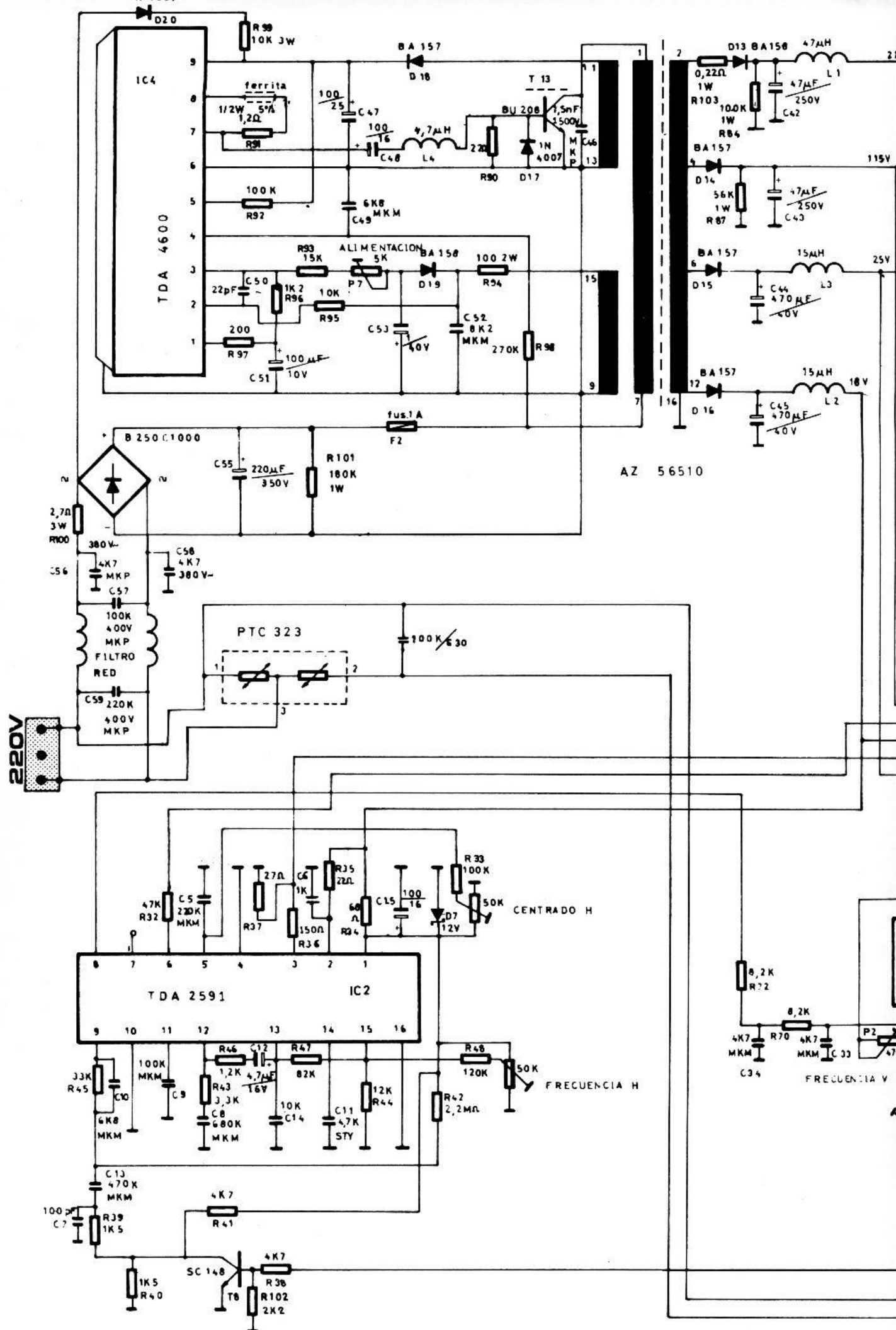


— ALUMINIO      — CERAMICO  
 — POLIESTER

TODAS LAS RESISTENCIAS SON DE 0,25W SALVO INDICACION EN CONTRA

<b>EFO</b> S A	<b>VIDEO DRACO</b>	PROYECTADO	14-4-81	F.YAGO
		DIBUJADO	13-7-81	J.Y.G.





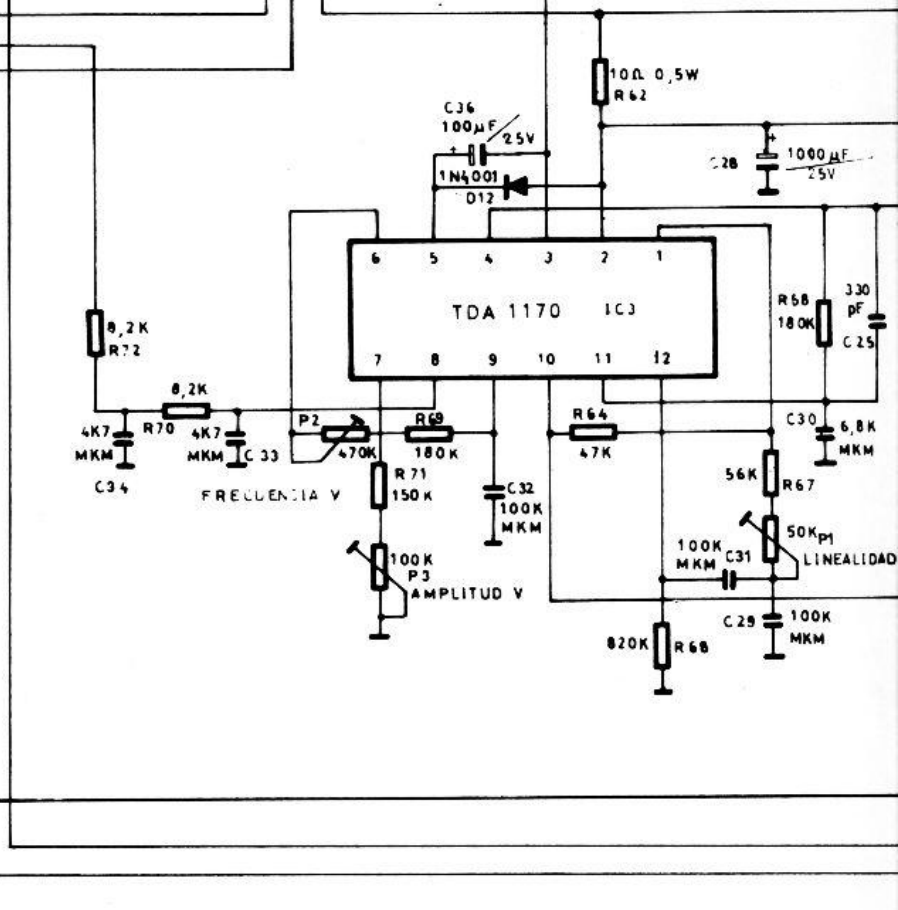
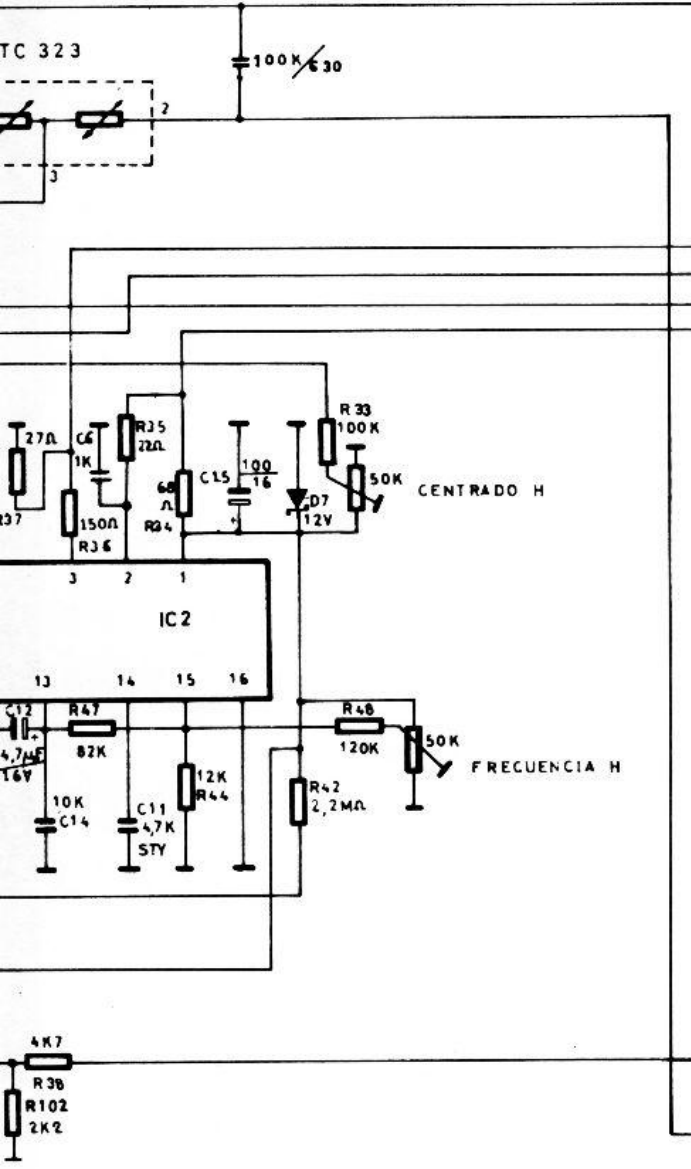
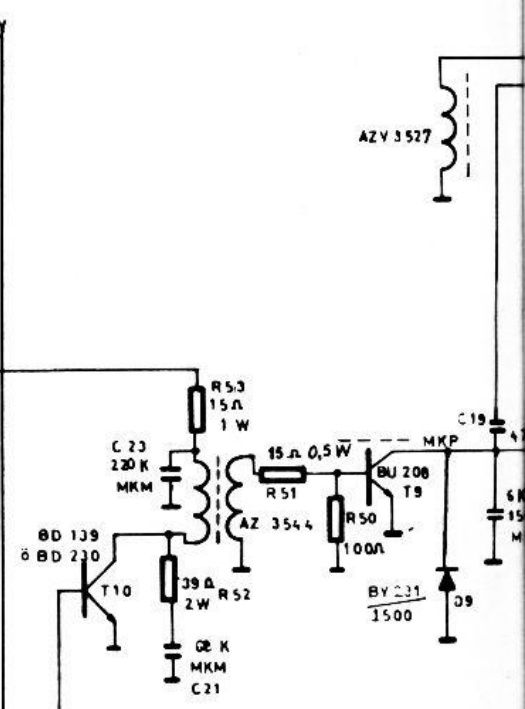
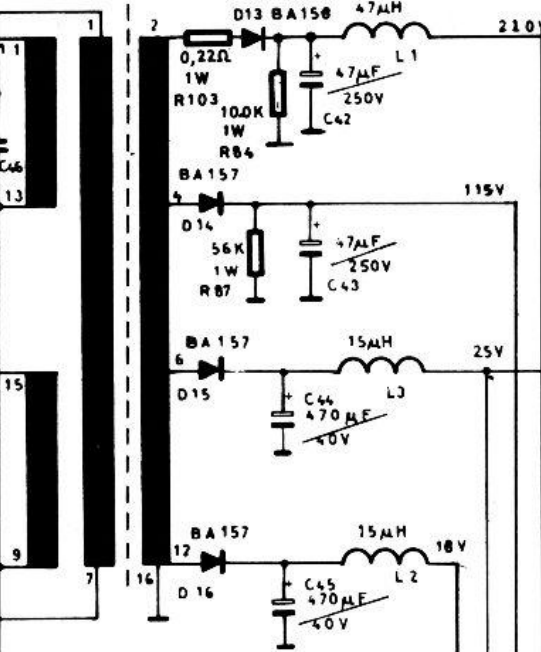
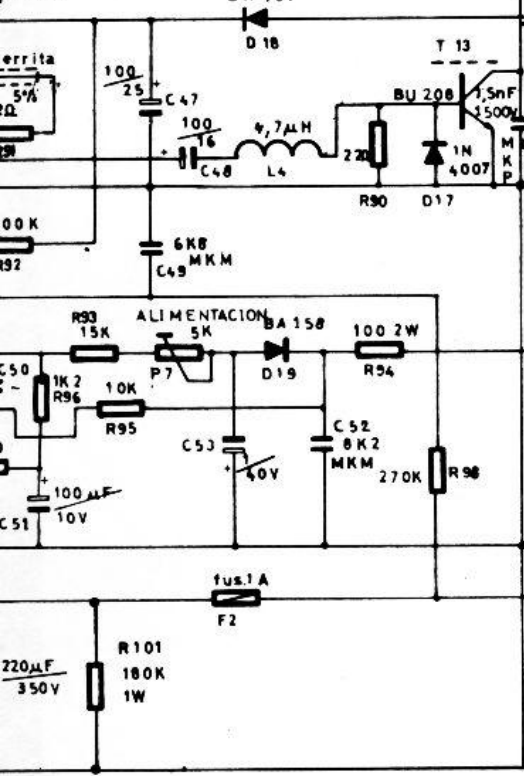
AZ 56510

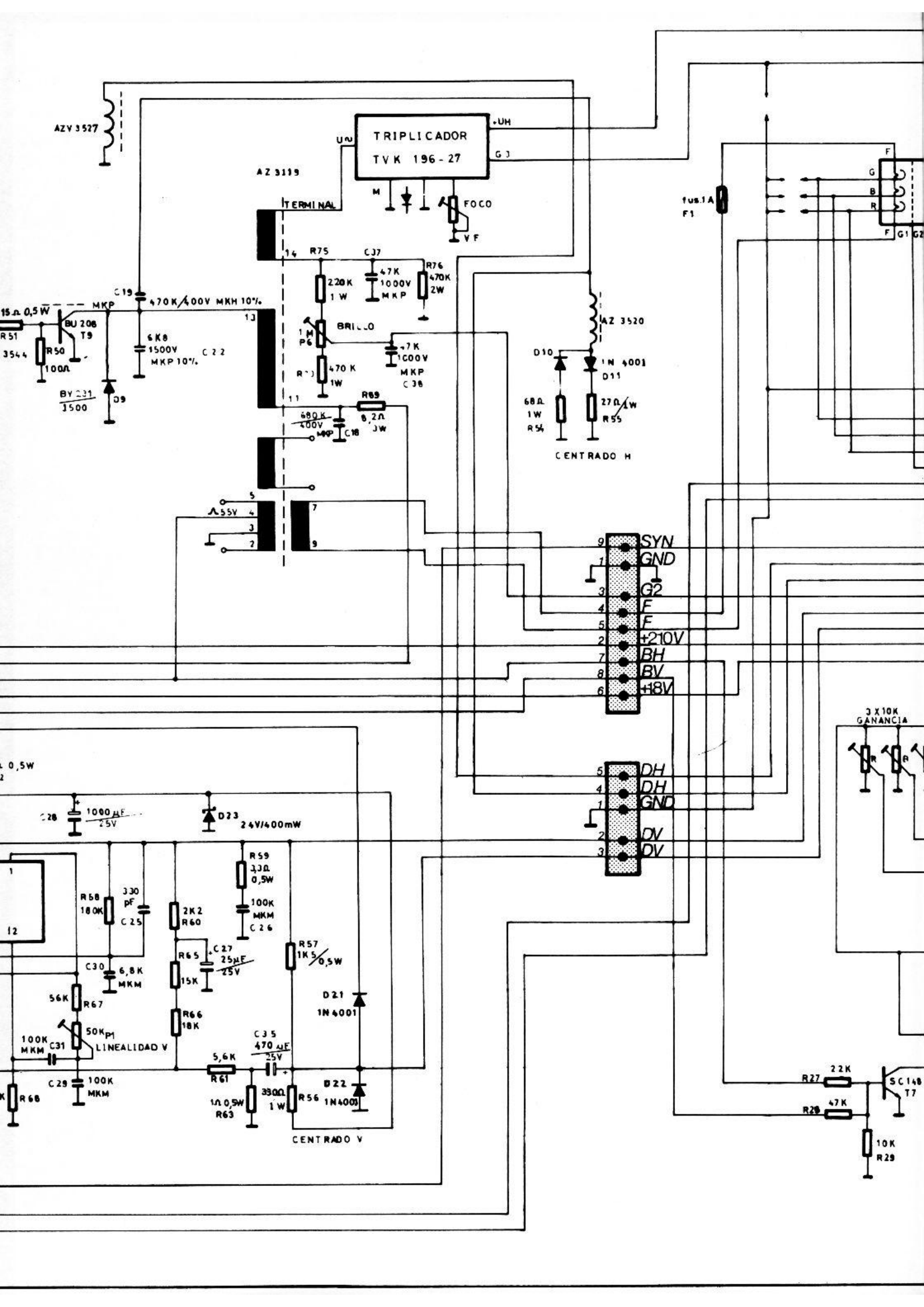
CENTRADO H

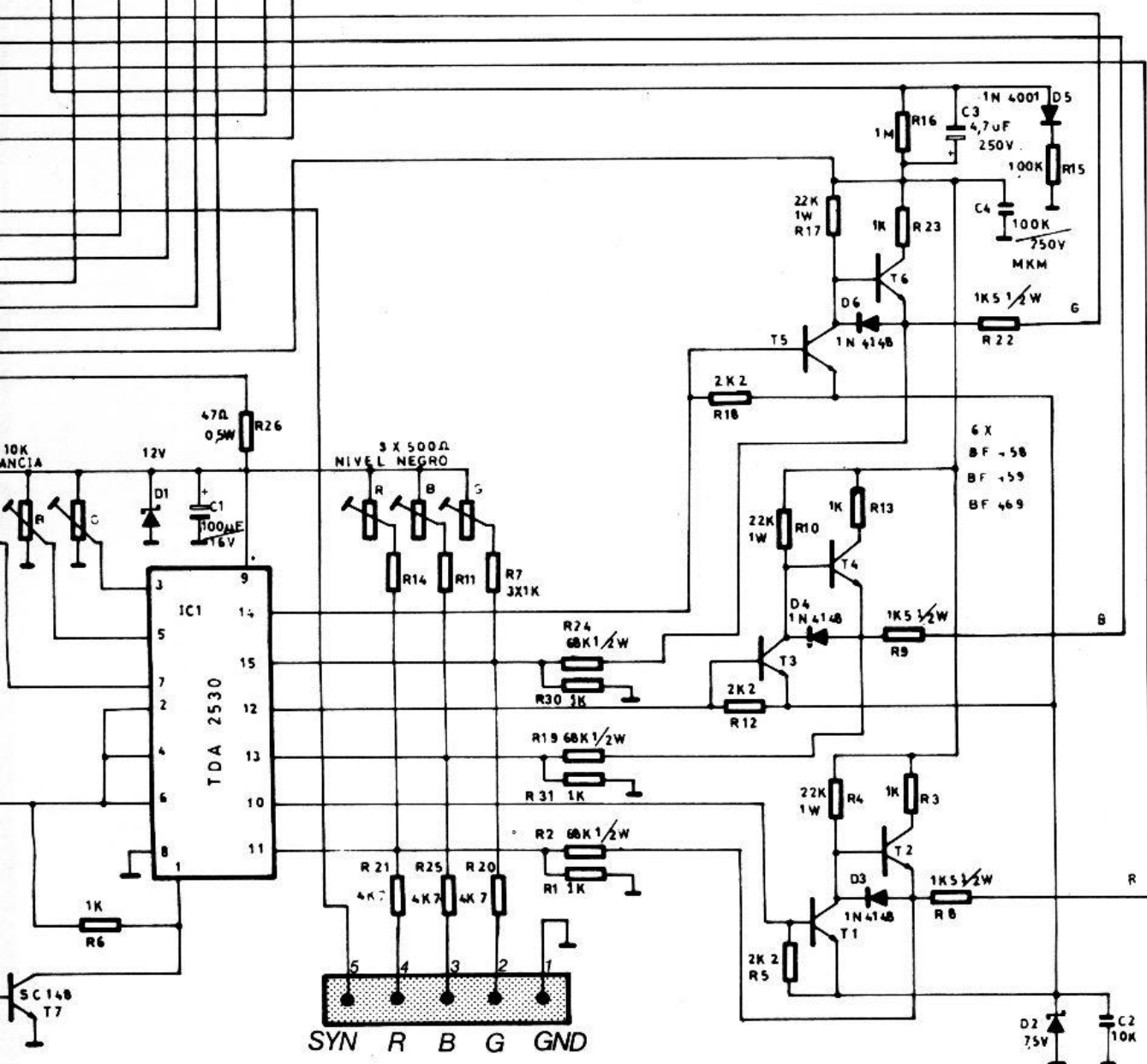
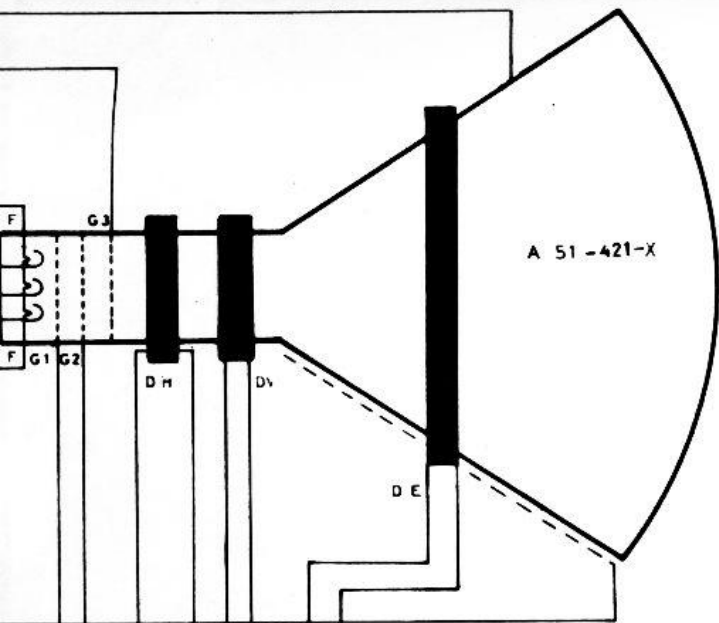
FRECUENCIA H

FRECUENCIA V

R99  
10K 3W



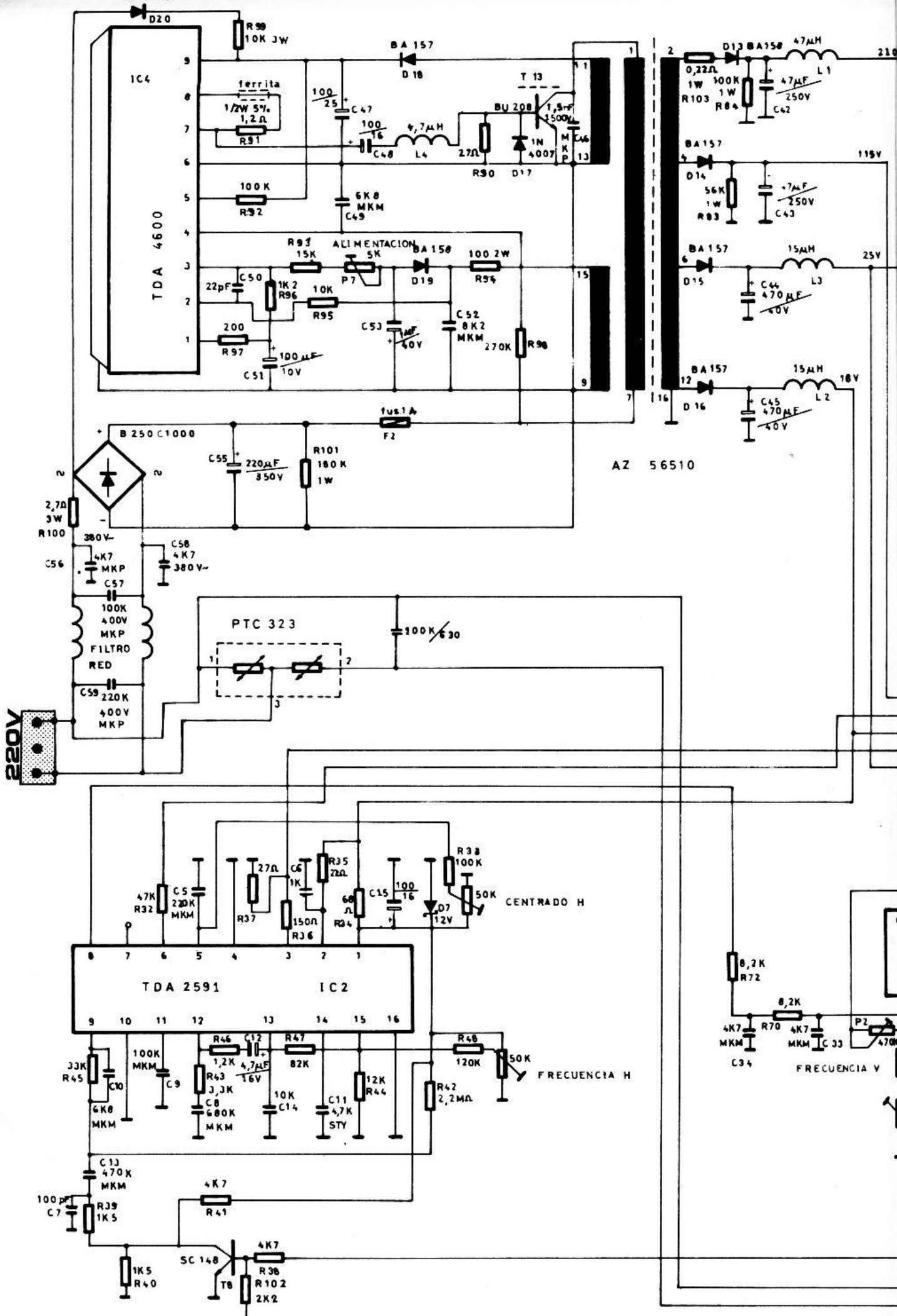


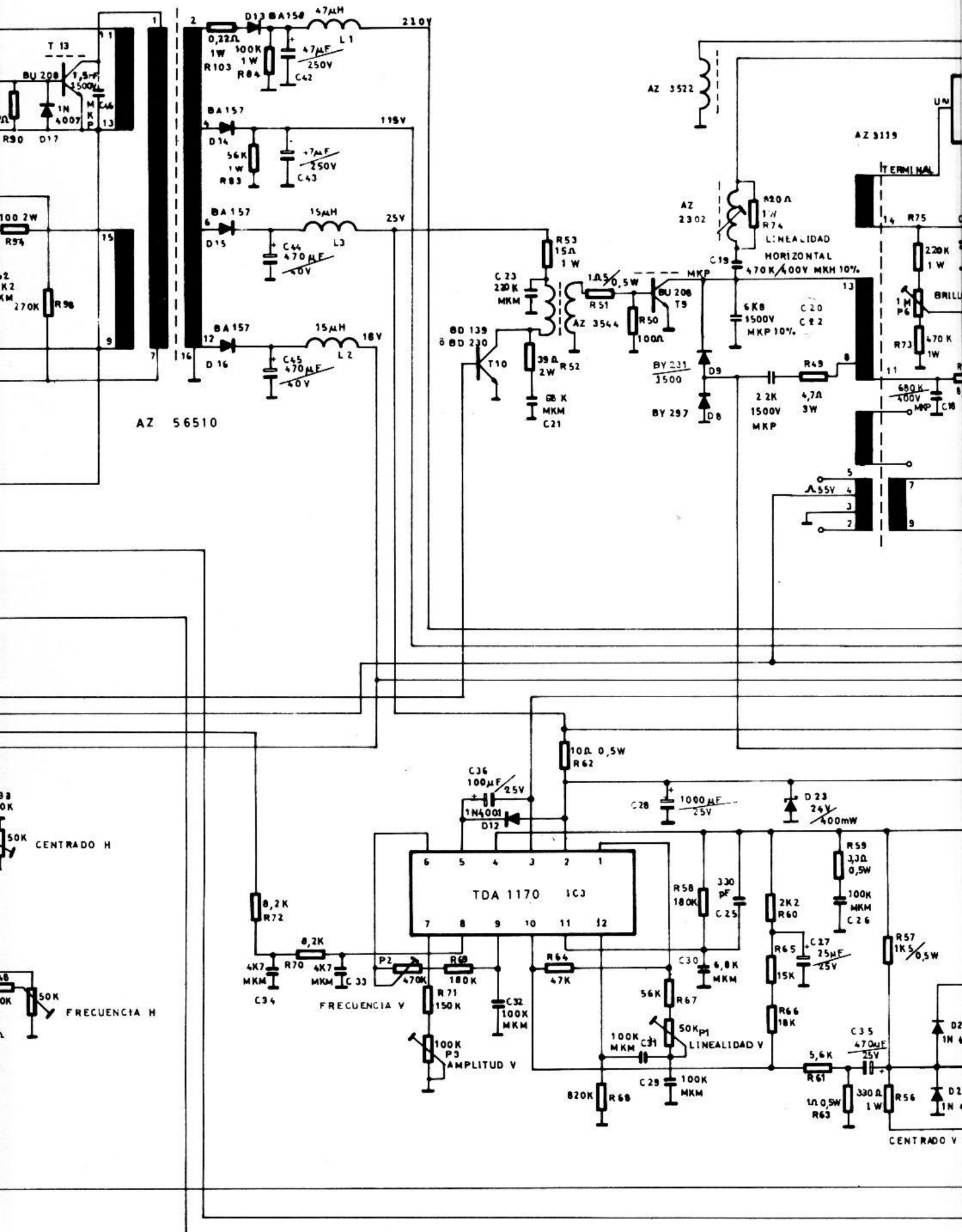


10K  
R29

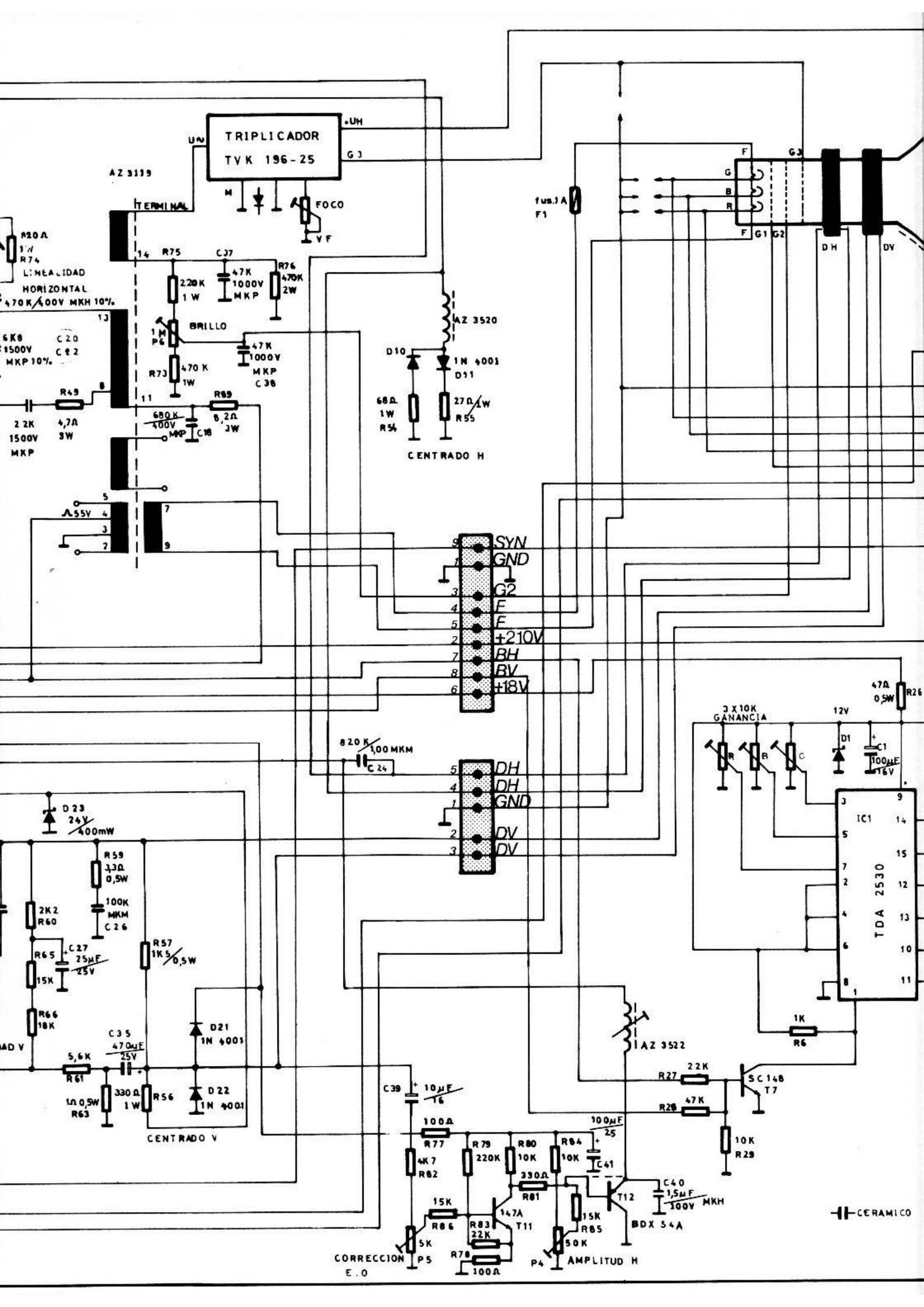
— CERAMICO

<b>EFO</b> <sub>S</sub> A	MONITOR TV	PROYECTADO	3-9 -80	F. YAGO
	TUBO VIDEOCOLOR	DIBUJADO	3-10-80	J. Y G









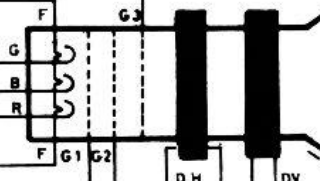
AZ 3119

TRIPPLICADOR  
TVK 196-25

TERMINAL

FOCO  
V.F.

fus. JA  
F1



R20 A  
1/4 W  
R74  
LINEALIDAD  
HORIZONTAL  
470K/400V MKH 10%

6K8  
1500V  
MKP 10%  
C20  
C22  
MKP 10%

R49  
2.2K  
1500V  
MKP  
4.7A  
3W  
R89  
0.2A  
3W

5  
A.55V  
4  
3  
2

D23  
24V  
400mW

R59  
33Ω  
0.5W  
100K  
MKM  
C26

R65  
15K  
C27  
25M  
25V

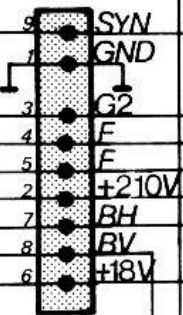
R66  
18K  
C35  
470μF  
25V

R61  
5.6K  
R63  
1/4 0.5W  
330Ω  
1W

D21  
1N 4001  
D22  
1N 4001

CENTRADO V

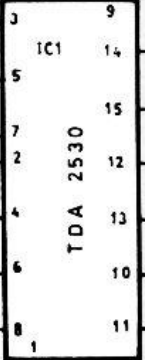
D10  
68Ω  
1W  
R54  
D11  
1N 4001  
27Ω  
1/4 W  
R55  
CENTRADO H



820K  
100MKM  
C24



3 X 10K  
GANANCIA  
12V  
D1  
C1  
100μF  
16V



R27  
22K  
R28  
47K  
SC 148  
T7

C39  
10μF  
16

R77  
100A  
R79  
220K  
R80  
10K  
R84  
10K

R86  
15K  
R83  
22K  
R78  
100A

R81  
330Ω  
R85  
15K  
R86  
50K

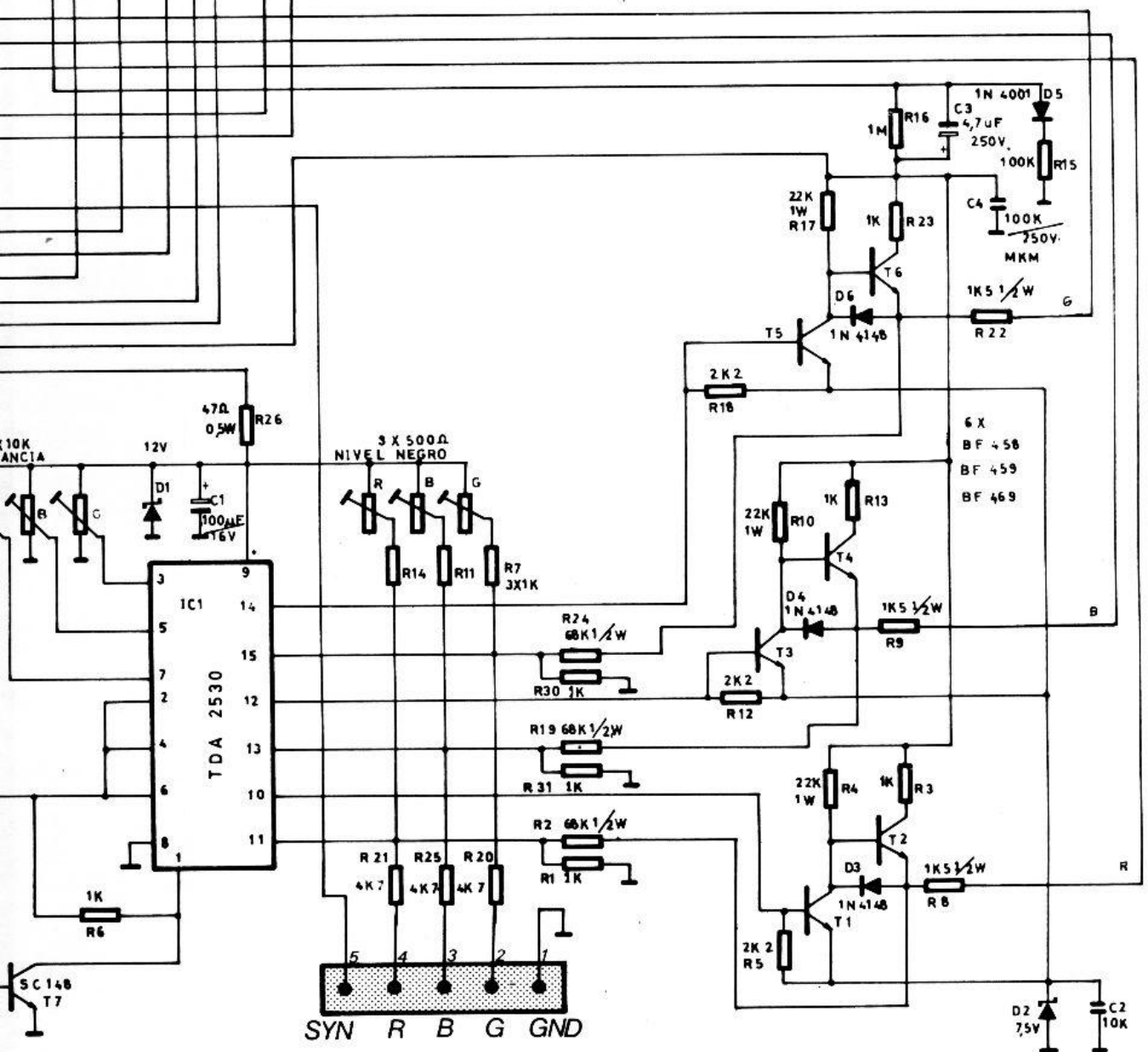
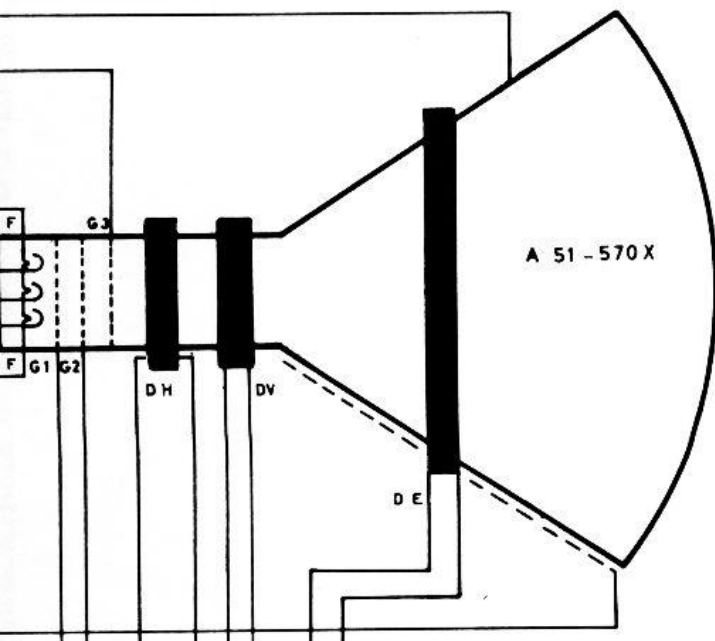
T11  
147A  
T12  
BDX 54A

C40  
1.5μF  
100V MKH

P4  
AMPLITUD H

CORRECCION  
E.O.

CERAMICO



— CERAMICO

<b>EFO<sub>S</sub>A</b>	MONITOR TV	PROYECTADO	3-9-80	F. YAGO
	TUBO COPRESA	DIBUJADO	3-10-80	J. Y. G.





c/ Tucumán, 26-28  
tel. 345 85 04 - TELEX 53912 PLAY E  
Barcelona-30 - SPAIN