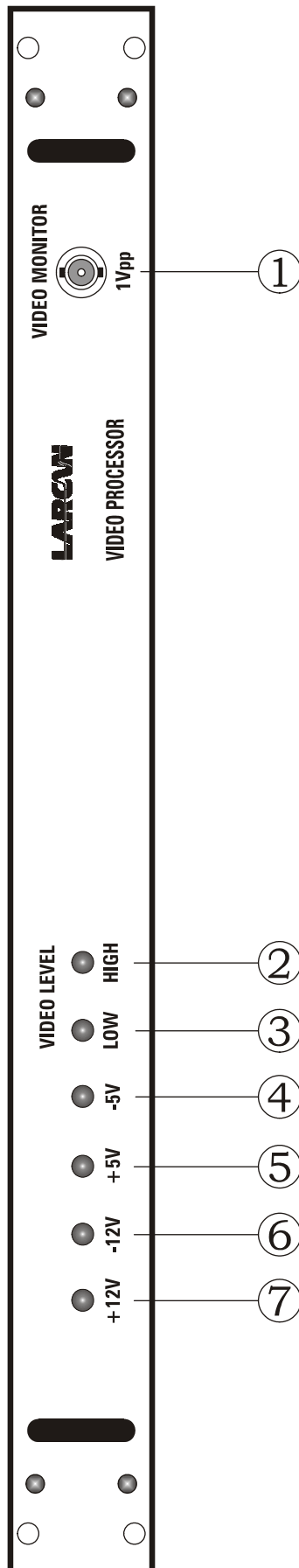


Unit 3

Video Processor

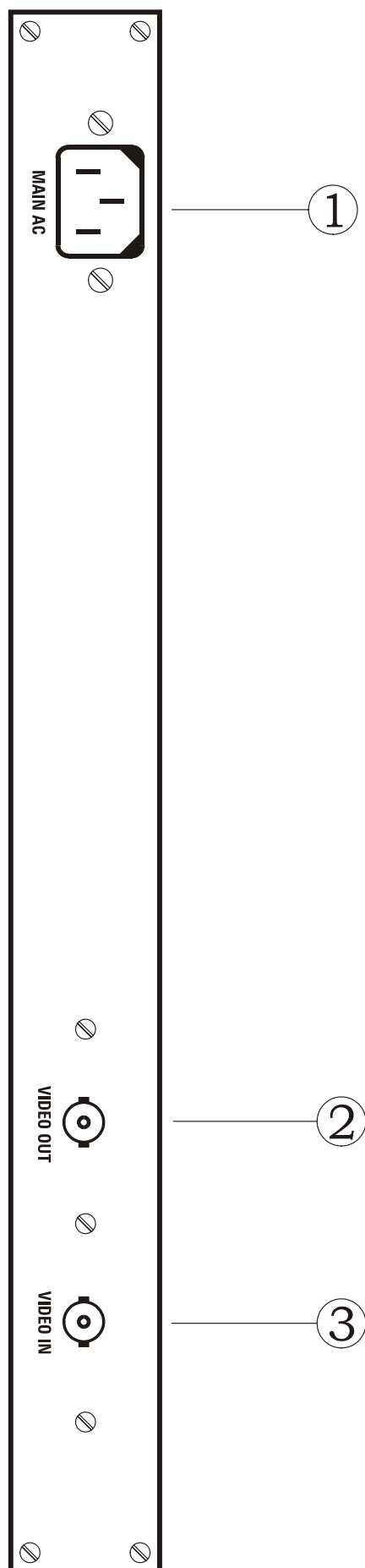
1. Frontal and Back Panel:

1.1. Frontal Panel:



Each element in the panel has the following function:

1. Mon. Video: Can be connected directly to an oscilloscope to monitor the video signal output. It already has a 75 ohm load.
2. High Level: Indicates that video signal input is too high.
3. Low Level: Indicates that video signal input is too low.
4. -5V: Indicates that -5V power supply is working.
5. +5V: Indicates that +5V power supply is working.
6. -12V: Indicates that -12V power supply is working.
7. +12V: Indicates that +12V power supply is working.

1.2. Back Panel:

Each element in the panel has the following function:

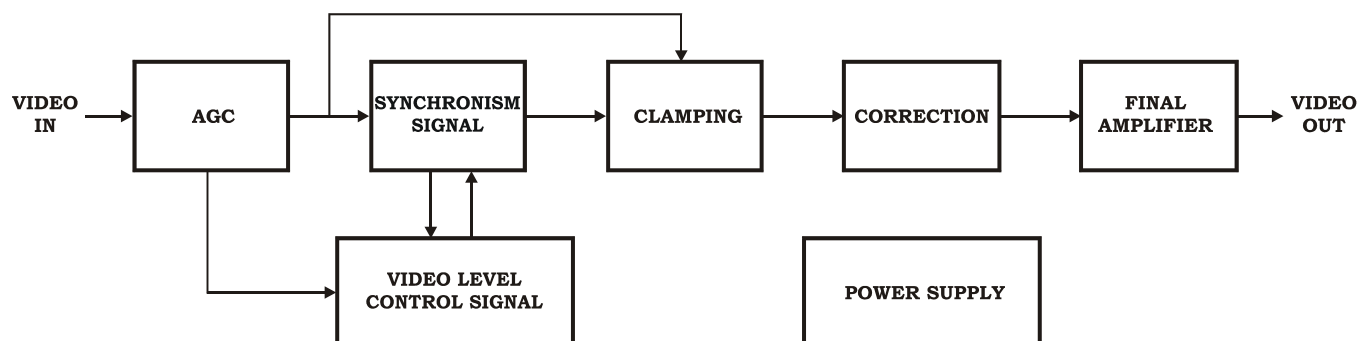
1. MAIN AC: Power supply input 220V.
2. Output: Video signal output 75 ohm impedance and 1Vpp level. (conector BNC).
3. Input: Video signal input 75 ohm impedance and 0,5 to 1,5 Vpp level. (conector BNC).

2. Video Processor:

2.1. Function:

The video processor has the following functions: Synchronism compression correction, Automatic gain control (AGC), Differential gain correction and Differential phase correction.

2.2. Block diagram:



2.3. Technical features:

Video input level: _____ 0,5 to 1,5Vpp
Video output level: _____ 1Vpp $\pm$ 0,05Vpp
Compression Correction: _____ 20%
Differential phase correction: _____ 10°
Differential gain correction: _____ 15%

2.4. Technical description:

The video signal input, pass through the emitter follower Q1, isolating the entrance impedance from the rest of the circuit.

Following, the video signal will be controlled by the AGC circuit. The input video signal can vary from 0,5 to 1,5 Vpp, but the output video will remain at 0,9~1,05 Vpp. IC2 has an output that is proportional to the synchronism pulse level which will be amplified by IC3:B and control IC1 gain. IC2 is also responsible for the sync-pulse generator. The sync-pulse signal will be inverted by Q2 and supply Q3 transistor's gate in order to clamp the video signal via L1.

IC6:A will amplify the video signal and at its output is the transistor Q4. At Q4 transistor's emitter is the circuit responsible for the differential gain control, differential phase control and the sync-pulse expanding.

The processed video will be amplified by IC6:B, and supply the main output (75 ohm impedance) and the video monitor output at the front panel.

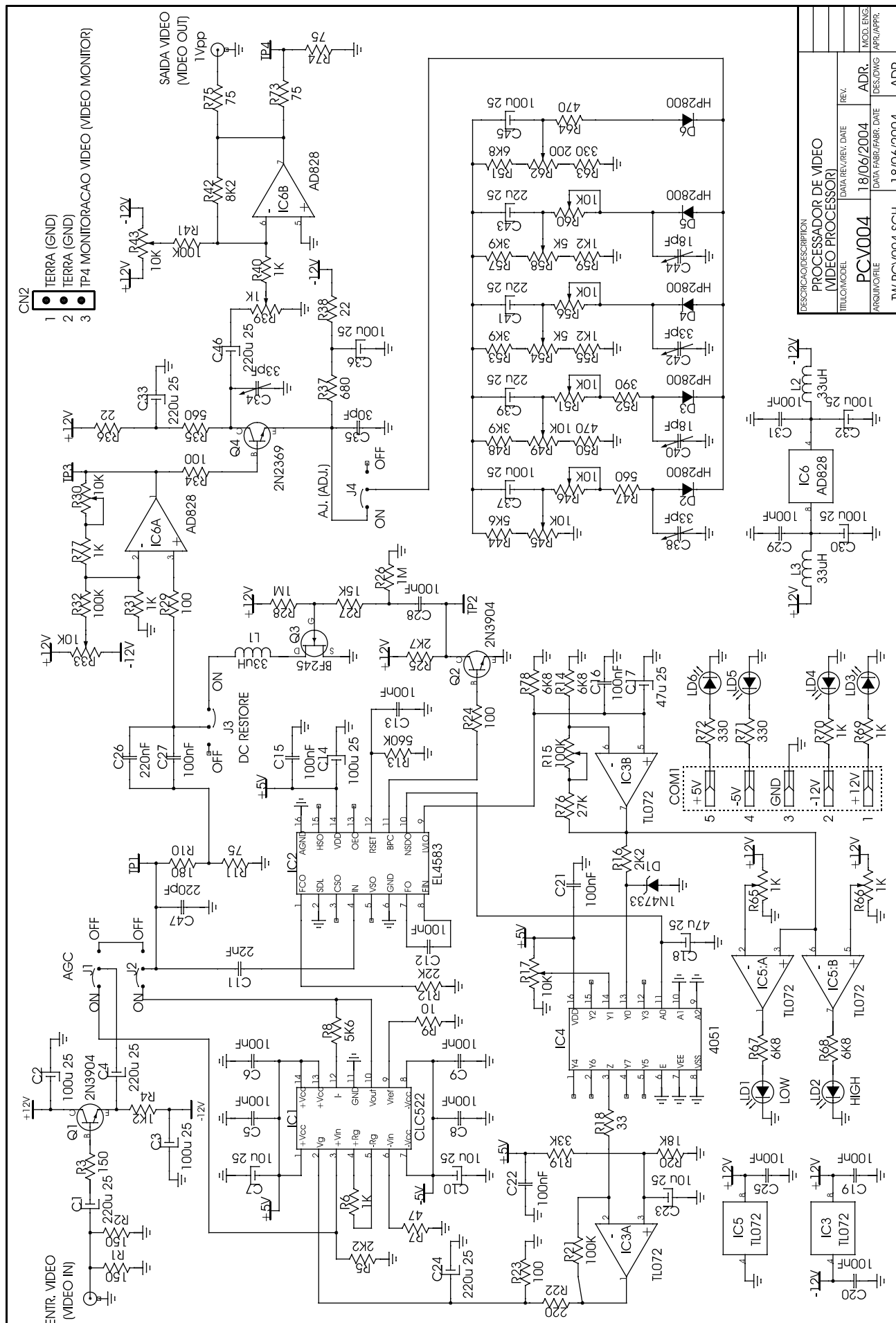
2.5. Adjust procedure:

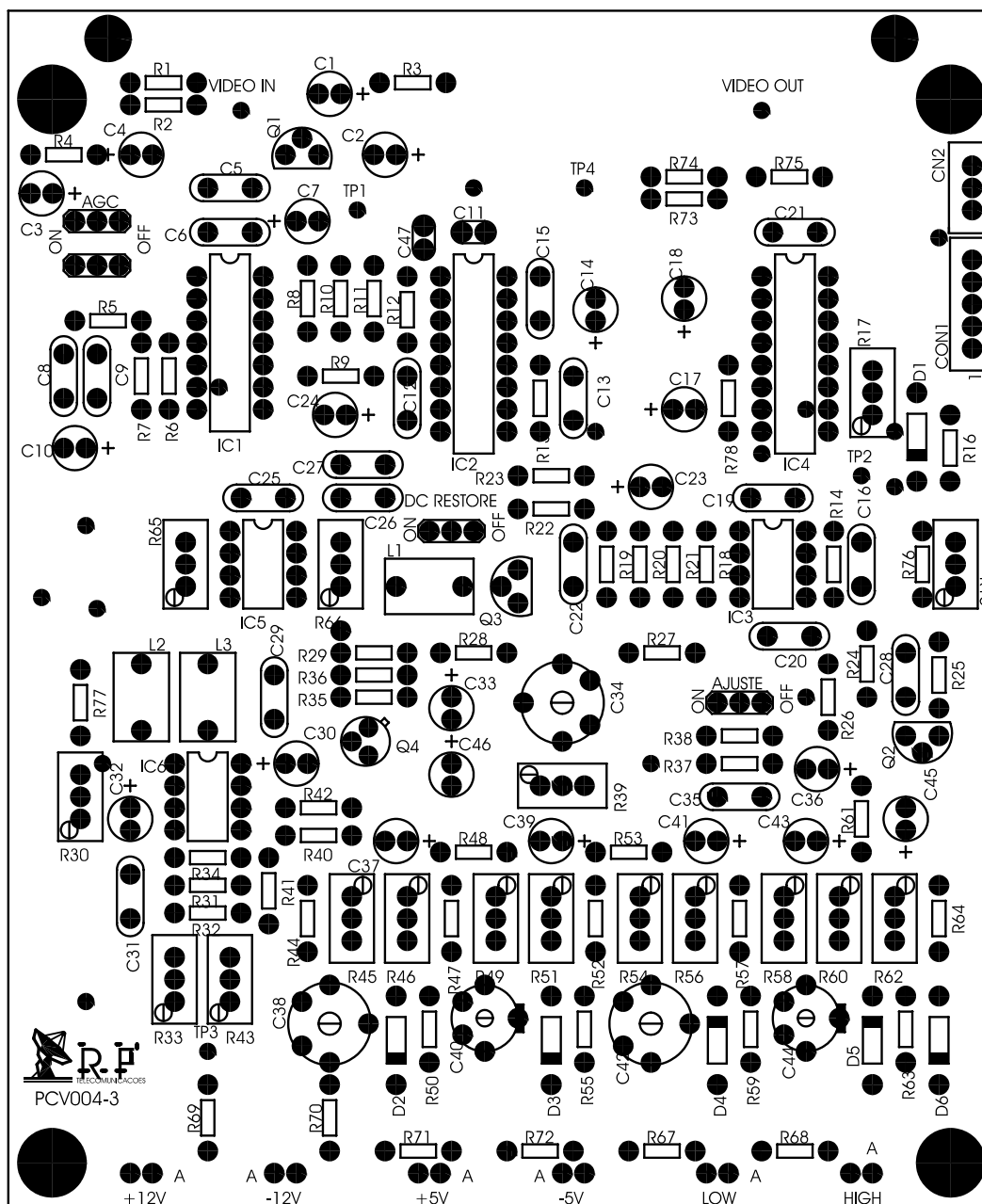
1. Place the AGC and DC RESTORE jumper's to the ON position;
2. Adjust R17 for a voltage level of 3,0~3,2 V at pin14 of the IC4;
3. Monitor TP1 and adjust R15 for a minimum variation of 0,9~1,05 Vpp with a input video signal varying from 0,5 to 1,5 Vpp;
4. Adjust R30 and R33 for a video signal of 650mVpp and pedestal of 0V at TP3;
5. Input a video signal of 0,5Vpp and adjust R66 until **Low** Video Level LED lights on. It will indicate if your input video signal is too low;
6. Input a video signal of 1,5Vpp and adjust R65 until **High** Video Level LED lights on. It will indicate if your input video signal is too high;
7. Adjust R39 and R43 to control the video output level and pedestal, respectively;
8. Place the ADJUST jumper to the ON position and monitor TP4. The following table describes what each component is responsible for:
Synchronism Pulse Expander: R62.
Differential Gain Control: R45, R46, R49, R51, R54, R56, R58, R60, R62.

Differential Phase Control:

C34, C38, C40, C42, C44

2.6. Circuit Diagram PCV004:





2.8. Parts List PCV004:

Quant.	Description	Position	Code
3	INDUCTOR 30 μ H	L1,L2,L3	50001
2	INTEGRATED CIRCUIT TL072 CDP	IC3,IC5	60066
1	INTEGRATED CIRCUIT CD 4051	IC4	60079
1	INTEGRATED CIRCUIT AD828	IC6	60157
1	INTEGRATED CIRCUIT CLC 522	IC1	60158
1	INTEGRATED CIRCUIT EL 4583 C	IC2	60159
8	CAPACITOR ELCO. RADIAL 100 μ F 25V	C2,C3,C14,C30,C36,C37,C45 C30,C33	74010
5	CAPACITOR ELCO. RADIAL 220 μ F 25V	C1,C4,C12,C24,C29,C33,C46	74013
3	CAPACITOR ELCO. RADIAL 22 μ F 25V	C39,C41,C43	74014
3	CAPACITOR ELCO. RADIAL 10 μ F 25V	C7,C10,C23	74028
2	CAPACITOR ELCO. RADIAL 47 μ F 25V	C17,C18	74029
17	CAPACITOR POL. METAL. 100 η F	C5,C6,C8,C9,C12,C13,C15,C16,C19,C20, C21,C22,C25,C27,C28,C29,C31	75019
1	CAPACITOR CER.MULTI LAYER. 22 η F	C11	76045
1	CAPACITOR MICA CMO 33pF 100V	C35	79914
1	CAPACITOR MICA CMO 120pF	C47	79943
1	DIODE 1N 4733 A 5,1V	D1	82018
2	CAPACITOR TRIMMER 2/22pF	C40,C44	85002
3	CAPACITOR TRIMMER 5,5/65pF	C34,C38,C42	85003
1	TRIMPOT 3296W-1-104 100K	R15	90025
1	TRIMPOT 3296W-1-201 200 Ohms	R62	90026
10	TRIMPOT 3296W-1-103 10 K	R17,R30,R33,R43,R45,R46,R49,R51,R56, R60	90027
3	TRIMPOT 3296W-1-102 1 K	R39,R65,R66	90028
2	TRIMPOT 3296W-1-502 5 K	R54,R58	90029
1	RESISTOR 1/8W 10 Ohms	R9	100008
2	RESISTOR 1/8W 22 Ohms	R36,R38	100010
1	RESISTOR 1/8W 47 Ohms	R7	100013
4	RESISTOR 1/8W 75 Ohms	R11,R73,R74,R75	100016
4	RESISTOR 1/8W 100 Ohms	R23,R24,R29,R34	100017
3	RESISTOR 1/8W 150 Ohms	R1,R2,R3	100019
1	RESISTOR 1/8W 180 Ohms	R10	100020
1	RESISTOR 1/8W 220 Ohms	R22	100021
3	RESISTOR 1/8W 330 Ohms	R63,R71,R72	100023
1	RESISTOR 1/8W 390 Ohms	R52	100024

2	RESISTOR 1/8W 470 Ohms	R50,R64	100025
2	RESISTOR 1/8W 560 Ohms	R35,R47	100026
3	RESISTOR 1/8W 680 Ohms	R37,R67,R69	100027
6	RESISTOR 1/8W 1 K	R6,R31,R40,R69,R70,R77	100028
3	RESISTOR 1/8W 1 K 2	R4,R55,R59	100029
2	RESISTOR 1/8W 2 K 2	R5,R16	100032
1	RESISTOR 1/8W 2 K 7	R25	100033
3	RESISTOR 1/8W 3 K 9	R48,R53,R57	100036
1	RESISTOR 1/8W 4 K 7	R61,R62	100037
2	RESISTOR 1/8W 5 K 6	R8,R44	100038
2	RESISTOR 1/8W 6 K 8	R14,R61	100039
1	RESISTOR 1/8W 8 K 2	R42	100040
1	RESISTOR 1/8W 15 K	R27	100043
1	RESISTOR 1/8W 18 K	R20	100044
1	RESISTOR 1/8W 22 K	R12	100045
1	RESISTOR 1/8W 27 K	R76	100046
1	RESISTOR 1/8W 33 K	R18	100047
3	RESISTOR 1/8W 100 K	R21,R32,R41	100051
1	RESISTOR 1/8W 560 K	R13	100054
2	RESISTOR 1/8W 1 M	R26,R28	100059
1	TRANSISTOR 2N 2369 A	Q4	120022
2	TRANSISTOR 2N 3904	Q1,Q2	127012
1	TRANSISTOR BF 245 C	Q3	128012
1	CONNECTOR BURDY MMP-5S1	CON1	800818
1	CONNECTOR IC 2 VIAS	CON2	801914
5	DIODE HP 2800	D1,D2,D4,D5,D6	IMPD00001
1	PCB VIDEO PROCESSOR	PCB1	PCIPCV004

6. Power Supply:

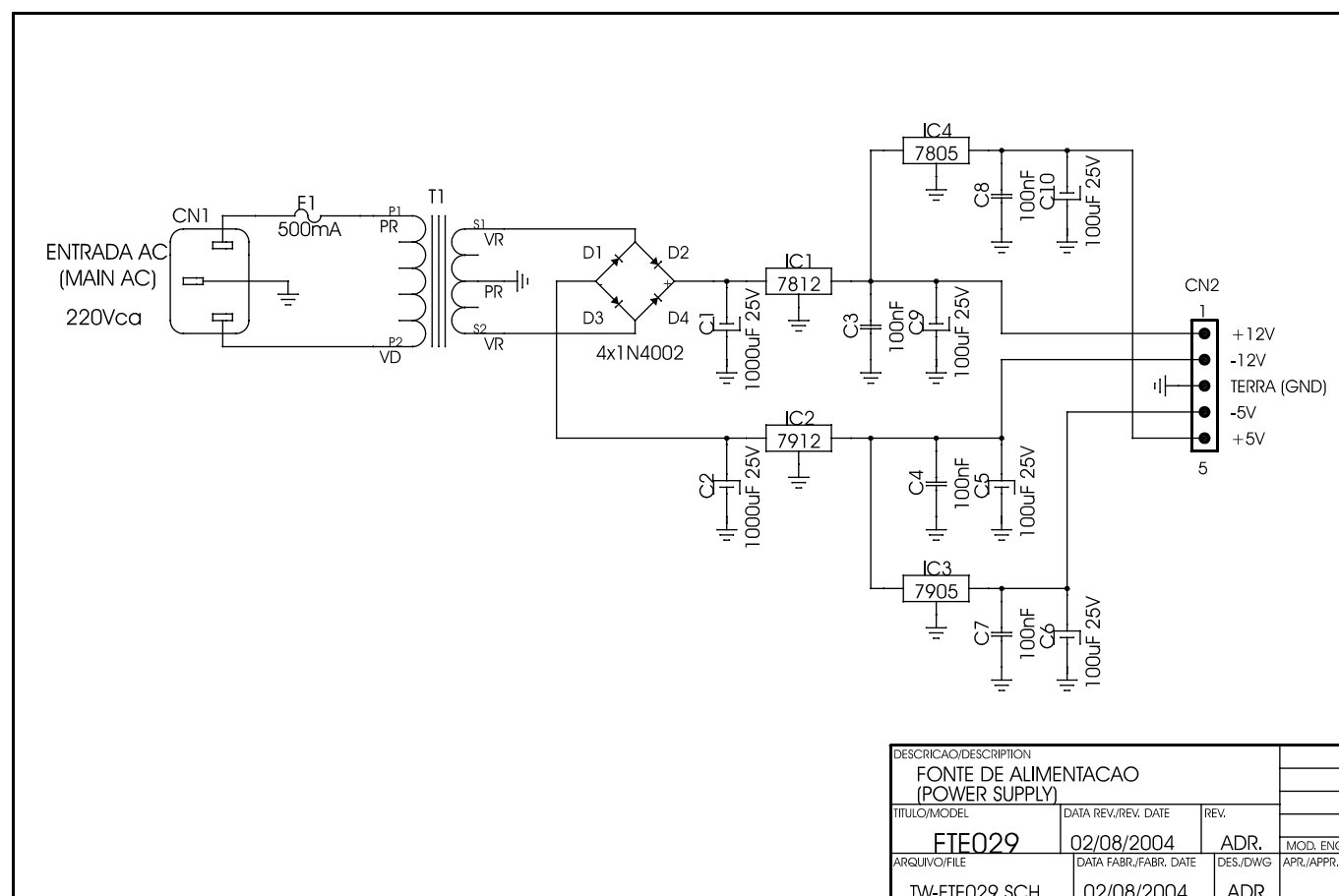
6.1. Function:

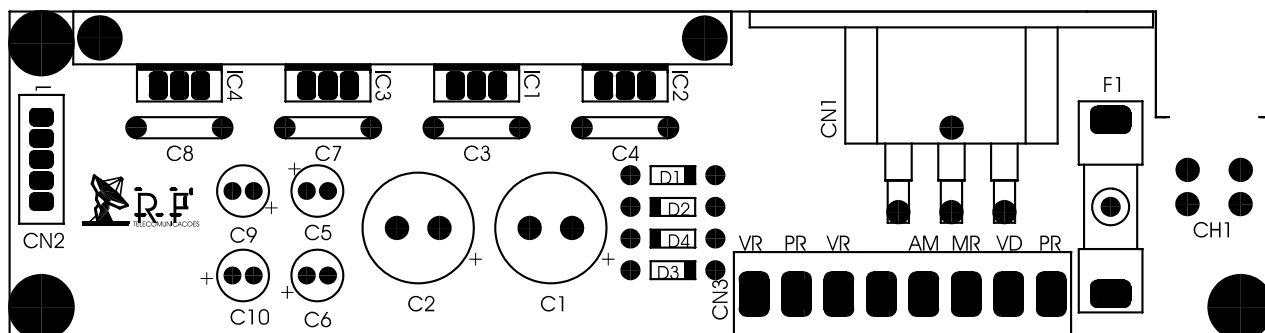
The power supply function is to generate +12V, -12V, +5V and -5V voltage suitable to supply the modulator.

6.2. Technical description:

The transformer T1 reduces the input voltage for the rectifiers D1 to D4. The positive and negative voltage obtained after the rectification and filtering through are regulated through IC1, IC2, IC3 and IC4 to obtain +12V, -12V, +5V and -5V voltage to supply the video processor.

6.3. Circuit Diagram FTE029:





6.5. Parts List FTE029:

Quant.	Description	Position	Code
1	VOLTAGE REGULATOR 7905	IC3	60015
4	CAPACITOR ELCO. RADIAL 100μF 25V	C5,C6,C6,C10	74010
2	CAPACITOR ELCO. RADIAL 1000μF 25V	C1,C2	74021
4	CAPACITOR POL. METAL. 100nF	C3,C4,C7,C8	75004
4	DIODE 1N 4002	D1,D2,D3,D4	82001
1	FUSE PEQUENO 500mA	F1	86018
1	VOLTAGE REGULATOR 7912	IC2	126006
1	VOLTAGE REGULATOR 7805	IC4	126007
1	VOLTAGE REGULATOR 7812	IC1	126019
1	CONNECTOR AC MALE R332	CN1	800208
1	CONNECTOR MUL. MALE 5P BURDY	CN2	800818
1	CONNECTOR BORNE KRE-8	CN3	800212
1	PCB POWER SUPPLY	PCB1	PCIFTE029

7. Video Processor Circuit Diagram:

