

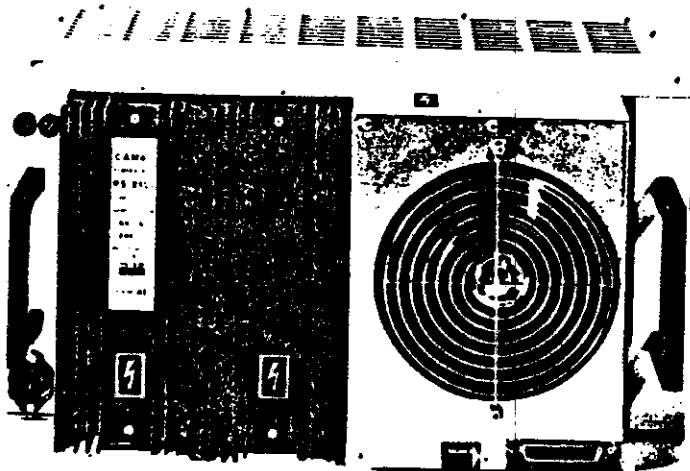
PS 2102 CAMAC SWITCHING POWER SUPPLY 1000W

Description

SEN Electronics has now developed a line of high-output power supplies to fill the ever-increasing power requirements of CAMAC electronics used in high-energy physics applications. Following its 120W, 300W and 500W units, SEN is now offering power supplies capable of delivering 1000W of power.

Due to the high power levels and heat dissipation requirements involved, advanced switching technology has been incorporated in the development of this unit.

The PS 2102 conforms to all EUR CAMAC specifications as well as CERN-EP Technical Specifications 82-01.

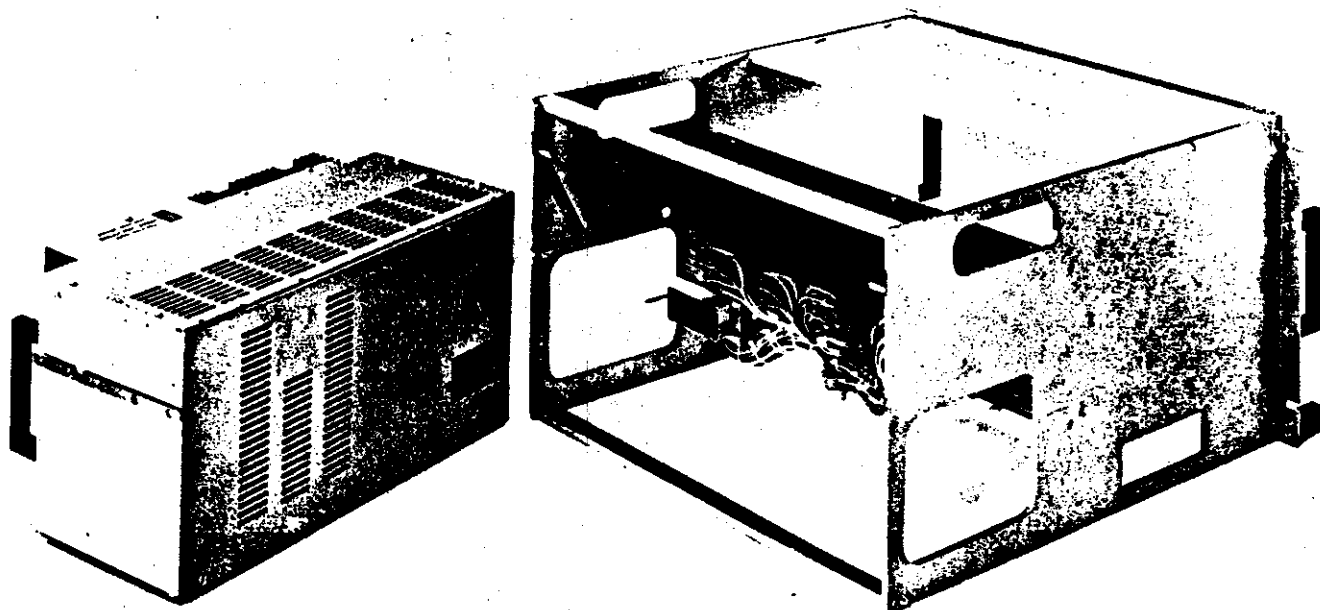


Specifications

DC outputs:

+6.0V (+5.2V), 65A
-6.0V (-5.2V), 65A
+24V, 10A
-24V, 10A

+6V and +24V outputs are adjustable. Max. combined power: 1000W



ADDITIONAL FEATURES

Stabilized and meter-monitored. Impedance < 0.3 ohms. PARD (Periodic and Random Duration) 50mVpp

Hold time: 10 ms with Power Failure signal

Protection: fused inputs; all outputs protected against short-circuit and overvoltage by means of a trip-off circuit. Overheating protection by means of a thermal switch.

Indicator Lamps:

- Green LED: indicates correct operation of power supply
- Yellow LED: indicates fan failure
- Orange Neon: AC power ON
- Yellow LED: overheat indicator, activated by thermal switch at 55 degrees C.

Packaging

This unit is totally enclosed by an integrated metal electrostatic shield, incorporating heat sinks and a single fan ventilator. The unit slides in and out on bearing strips fitted with an automatic lock.

Power Requirements

220VAC $\pm 10\%$ at 50Hz

CAMAC SWITCHING POWER SUPPLY REGULATION PROCEDURE

I. REMOTE MONITORING

A special monitoring connector located at the rear of the power supply provides the inputs and outputs shown in the Wiring Diagram.

I.1 DC MONITOR OUTPUTS

Number of pins: 4 --> +6V: pin 3 +24V: pin 1
-6V: pin 4 -24V: pin 6

DC regulated outputs are monitored at their nominal value via a 1Kohm resistor.

I.2 POWER FAILURE MONITOR OUTPUT

Number of pins: 1 --> pin 12

A Power Failure (PF) signal is provided which informs the plug-in CAMAC controller that mains power is dropping. This signal is available 5 msec prior to any DC line going beyond its specified limits, and is used as a high priority interrupt (LAM 24 in Crate Controller). The signal standard is identical to that of LAM.

The signal output level is in accordance with EUR 4100e specifications, and possesses an output current of 15mA at 0V (1 state), indicating warning ON condition.

I.3 STATUS MONITOR INPUT

Number of pins: 2 --> pins 11 and 23

The power supply is considered as operating properly when the +6V (or +5.2V) and the +24V are within 2% to 5% of their nominal value. In this case an LED on the control unit indicates correct status, and 0 impedance should exist between the two pins of the monitoring connector (i.e., contacts closed), with both pins floating with respect to ground. If one or more of the voltages should exceed the specified range, an infinite impedance (i.e., contacts open) will exist between these same pins and the Status LED will extinguish, thus indicating incorrect status. Once power supply operation has returned to normal, the status LED will again indicate correct status, but the infinite impedance between the remote status lines on the monitoring connector will remain until a Rearming Input Signal is provided.

I.4 REARMING INPUT SIGNAL

Number of pins: 2 --> + pin: 35

o pin: 34

A rearming input signal has been provided so as to reset the status bit. This signal also serves to reset the power supply in the case of trip-off.

The input signal is 5V for 10 ms at an input current of 15mA. Moreover, this input is protected for a maximum input voltage of up to 25V as well as for reverse polarity voltage.

I.5 INHIBIT INPUT SIGNAL

Number of pins: 1 --> pin 26

An inhibit input is provided so as to disable the power supply when required. A TTL low signal ($\leq 0.5V$) or short circuit to the 0V signal line will disable the power supply; while a TTL high signal ($\geq 2.0V$) or open circuit will enable it. This input is protected against reverse polarity input voltage.

I.6 DISABLE INPUT

Number of pins: 1 --> pin 28

The disable input is provided in order to inhibit trip-off. Disabling is achieved by connecting the 0V Signal to the Disable contact.

I.7 OV MONITOR AND OV SIGNAL

Number of pins: 2 --> OV Monitor: pin 9

OV Signal: pin 8

The OV monitor serves as the return of the monitored outputs; while the OV signal serves as the return of the PF (Power Failure) signal^V of the Inhibit and Disable inputs. *And*

II. VOLTAGE REGULATION

II.1 It is possible to reduce the $\pm 6V$ voltages to $\pm 5.2V$. (N.B.: The 2 voltages must be the same so as to ensure correct operation of the protection circuit.

In order to reduce the $\pm 6V$ voltages to $\pm 5.2V$, procede as follows:

First of all, connect pin 28 (Disable Input) of the monitor connector to pin 8 (OV Signal).

+6V ADJUSTMENT

Adjust the +6V potentiometer accessed via the hole located on the upper right portion of the top cover (with the rear of the power supply--i.e. ventilator side--facing you). The potentiometer to be adjusted is located on the printed circuit board next to a 1uF capacitor.

The voltage level may be checked using either the indicator located on the ventilator unit or, if greater precision is required, by means of an external voltmeter connected to pins 3 and 9 of the monitor connector.

-6V ADJUSTMENT

Adjust the -6V potentiometer accessed via the hole located on the lower right portion of the top cover (approx. 10.5 cm below the +6V access hole mentioned above). The potentiometer to be adjusted is located next to a 1uF capacitor.

The voltage level may be checked using either the indicator located on the ventilator unit or, if greater precision is required, by means of an external voltmeter connected to pins 4 and 9 of the monitor connector.

During adjustment the warning buzzer will sound until the two voltages are equal. Once the voltages have been adjusted, disconnect Disable from ground.

11.2 +24V VOLTAGE ADJUSTMENT

As in the case of the $\pm 6V$ voltages, $\pm 24V$ voltages are also adjustable. The location of the two potentiometers to be adjusted is as follows:

+24V ADJUSTMENT

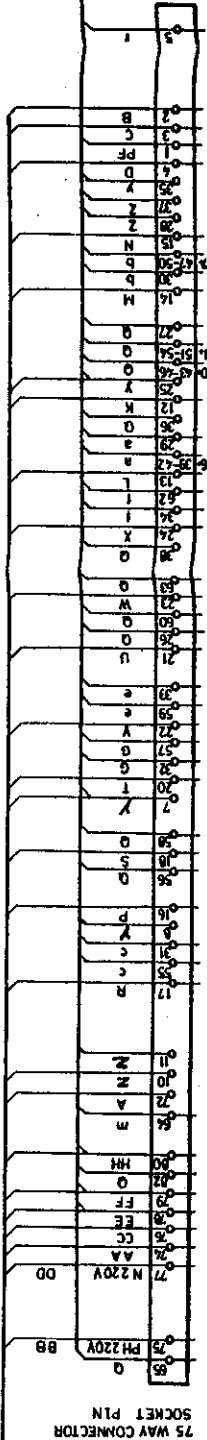
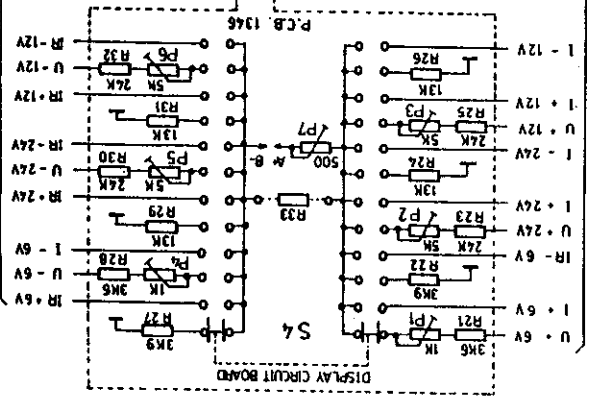
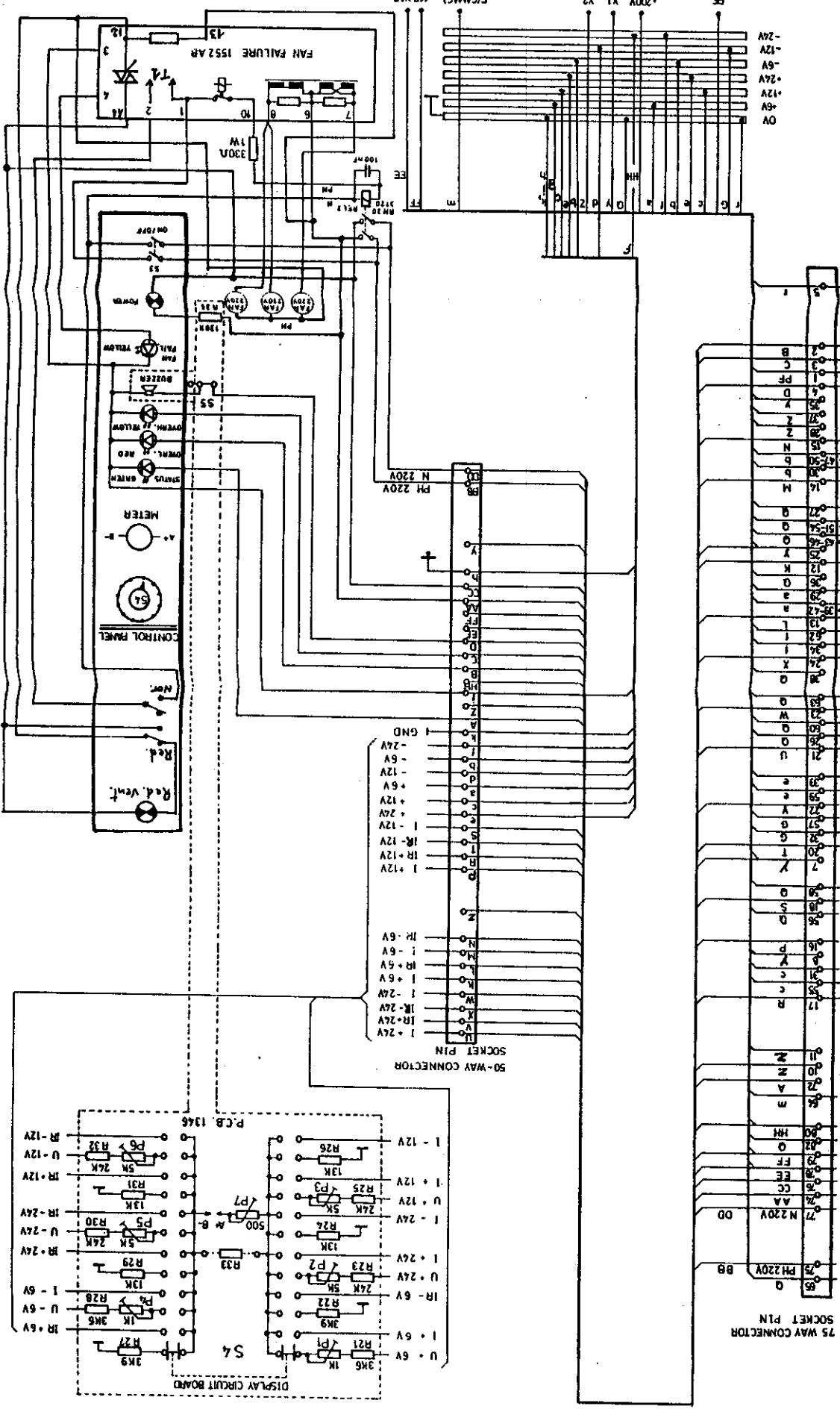
The +24V potentiometer is accessed via the hole located on the bottom left portion of the top cover (just above the leftmost radiator).

-24V ADJUSTMENT

The -24V potentiometer is accessed via the hole on the bottom left portion of the top cover (just above the radiator located to the left of the cooling fan).

VENTILATION MODULE

CRATE



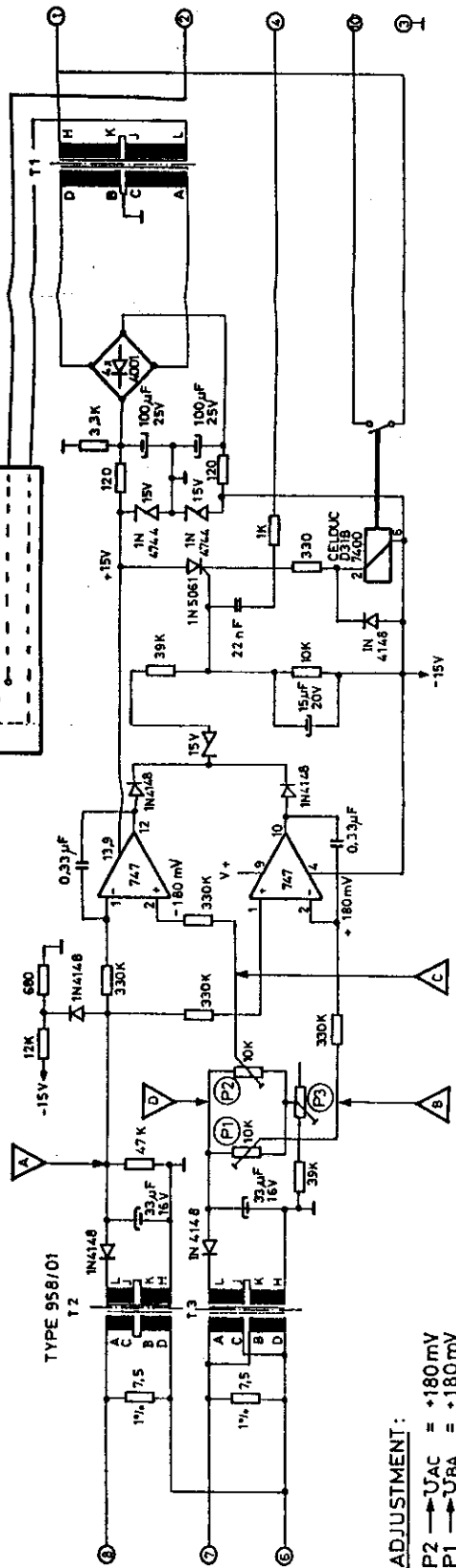
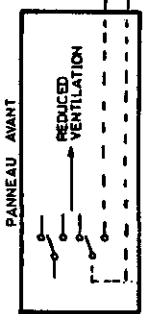
UC 2102
CAMAC
EN
TITLE

CRATE 500W - 1000 W
 wiring diagram

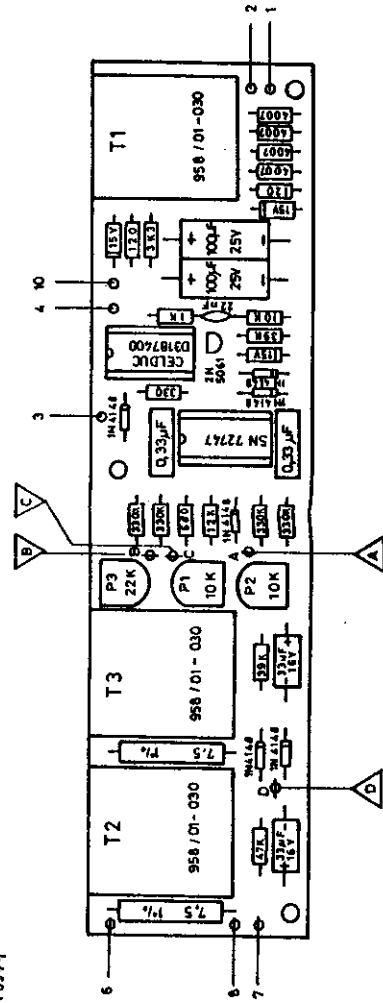
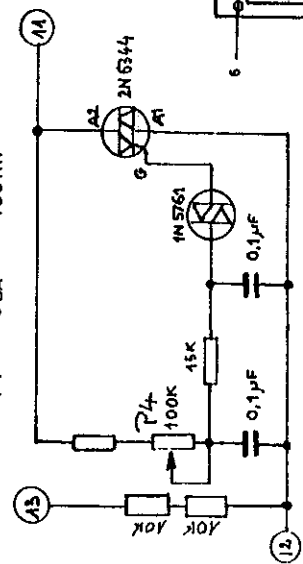
REMARKS
 les lignes +200V - 7/4(-6V) - 7/2(+6V) - E -
 117 VAc (petit neutre) sont réalisées en bus-bars

Unless otherwise specified

REV	Date	Chg Description	Print.Circ	Ser. N°
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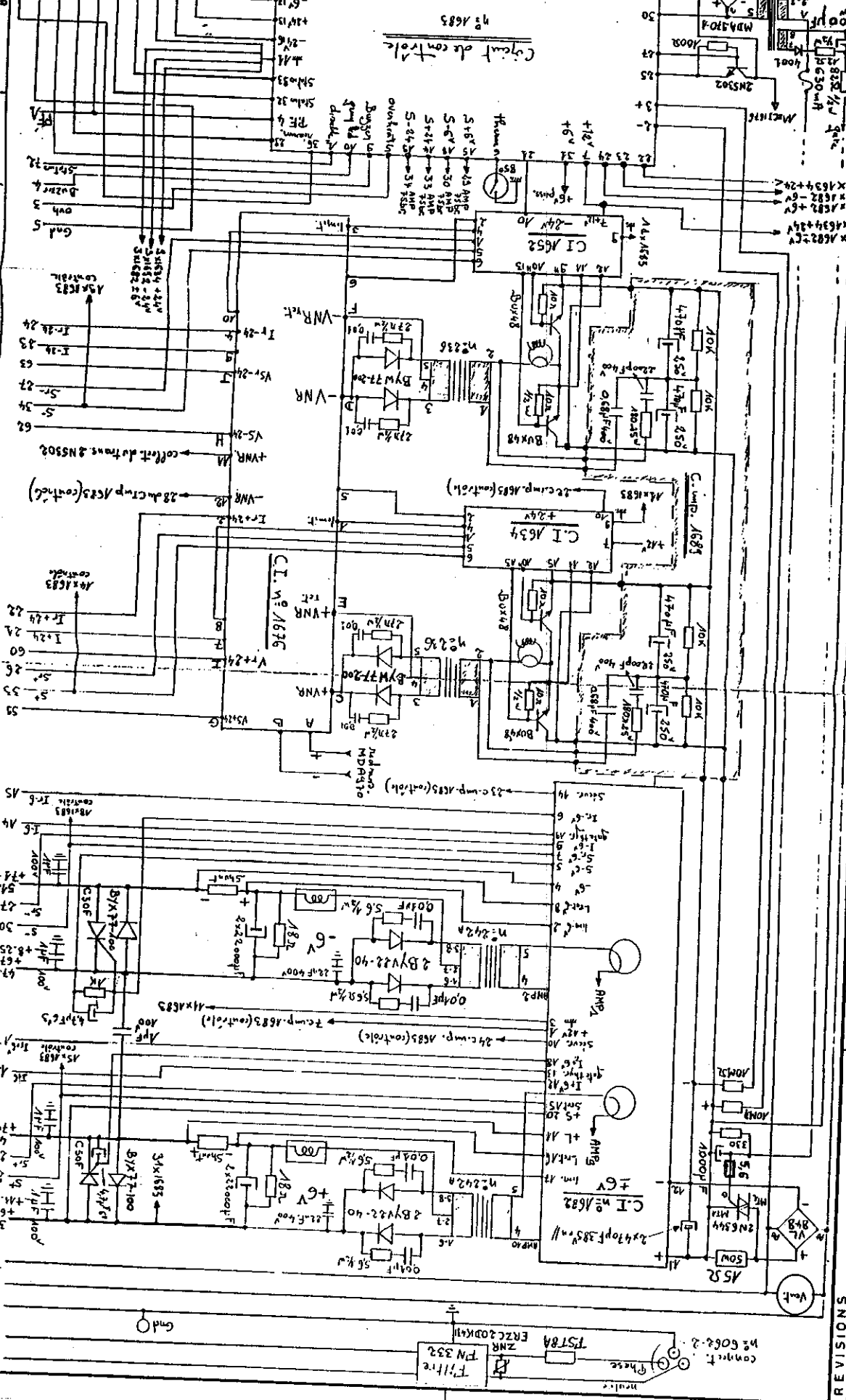


ADJUSTMENT:
P2 → U_{AC} = +180 mV
P1 → U_{BA} = +180 mV



SEI CAMAC VM 2102		TITLE	
REVISIONS		REMARKS	
Pos.	Date	Drn	End
Print.Ckt. Unless otherwise specified		Ser. No.	
		1552 AB1	

FAN FAILURE



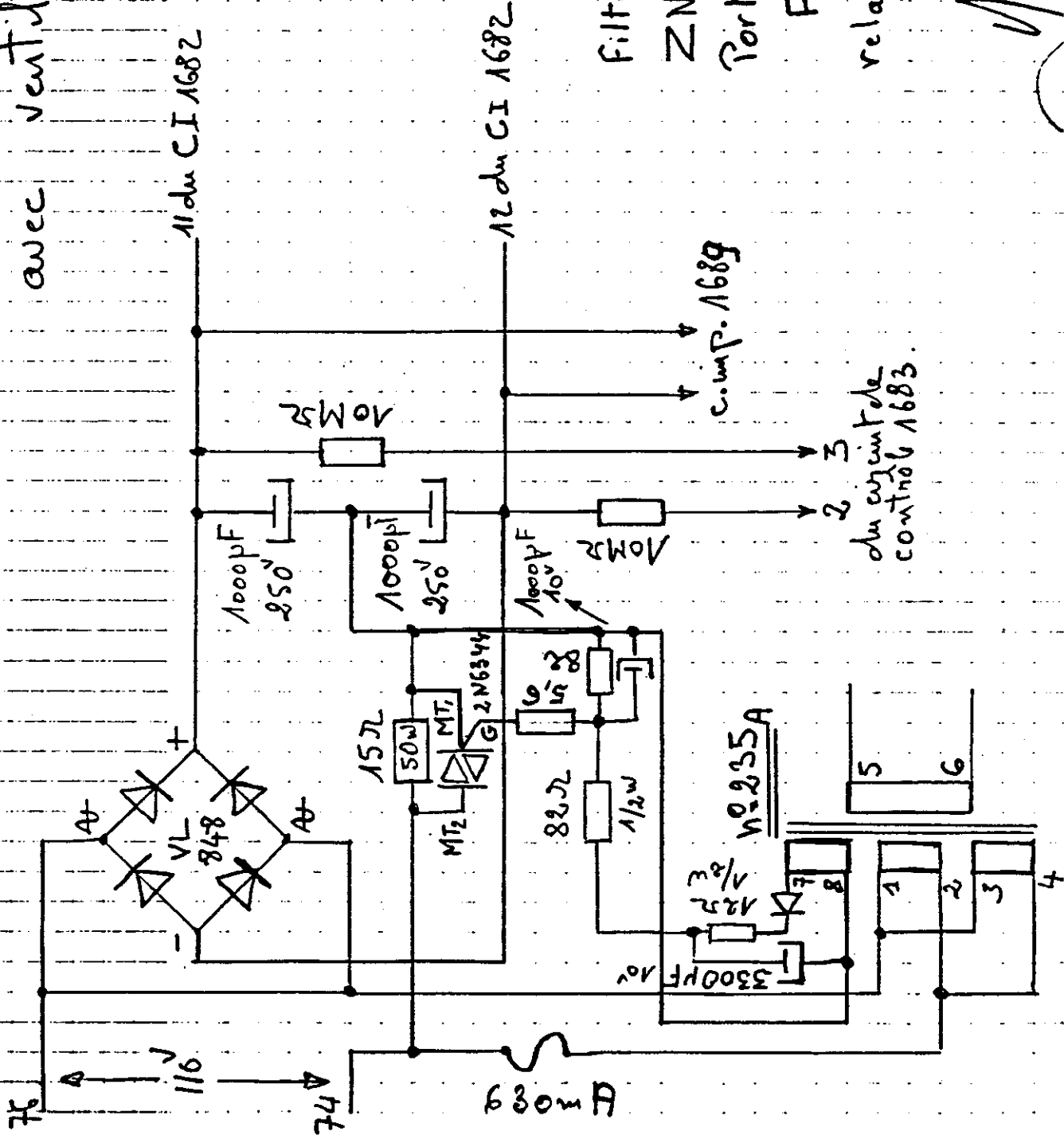
REVISIONS
 Pos. Date Description Ser. No.

Pos.	Date	Description	Ser. No.

Printed Unless otherwise specified
 REMARKS

PS 2102 - réseau 110V

avec ventilateur 110V



Filtre FN612 - 10/07

ZNR = ERZ C20DK241 -

Porte-Fusible FER0312001

Fusible 12,5A - 6,3x32

relais RM 235615 (110V)

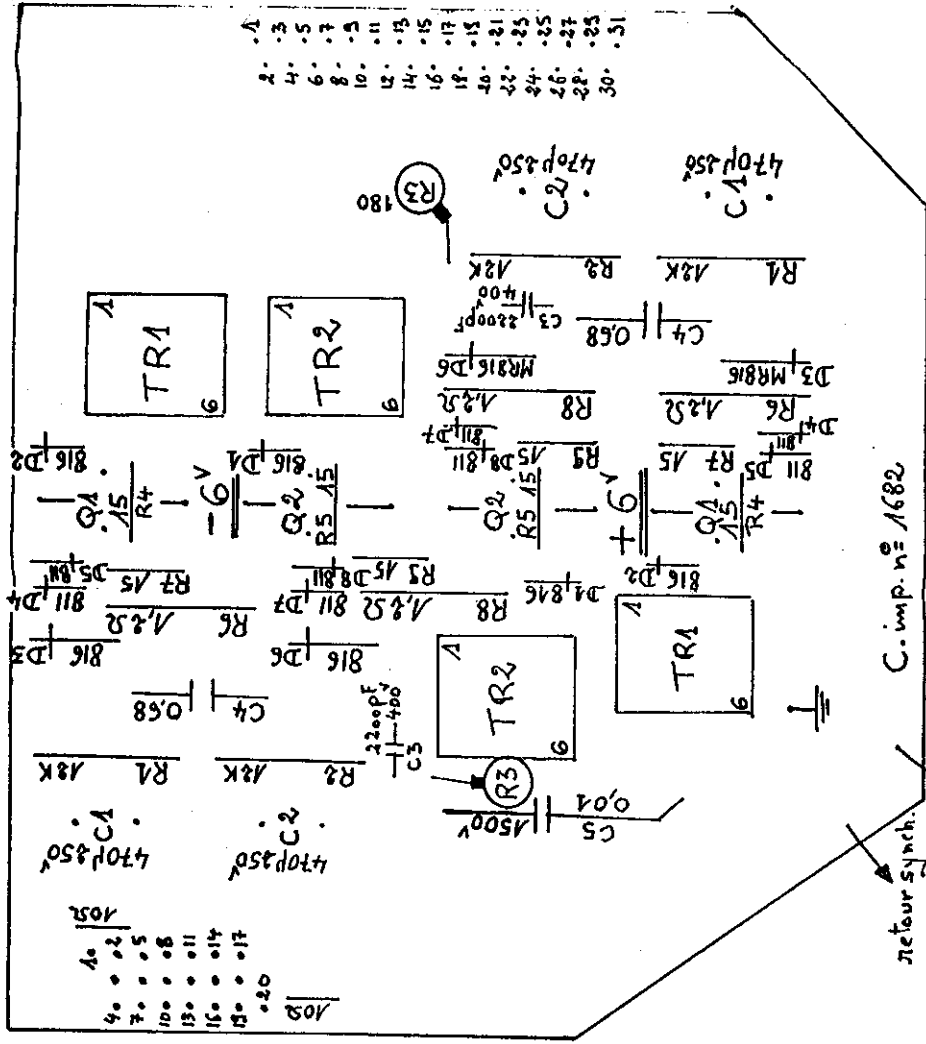
Mc 137 unj 84.

du système de contrôle 1683.

COMP. 1689



- 1 +12V auxil. limit. -6v
- 2 0V auxil.
- 3 -6v
- 4 Ir -6v
- 5 Sr -6v
- 6 -6v ret.
- 7 I -6v
- 8 Secur. -6v
- 9 I +6v
- 10 Secur. +6v
- 11 +6v
- 12 Gate thyr. +6v
- 13 Secur. -6v
- 14 Ir +6v
- 15 +6v ret.
- 16 limit +6v
- 17 Ir +6v
- 18 Gate Thyr. -6v
- 19
- 20



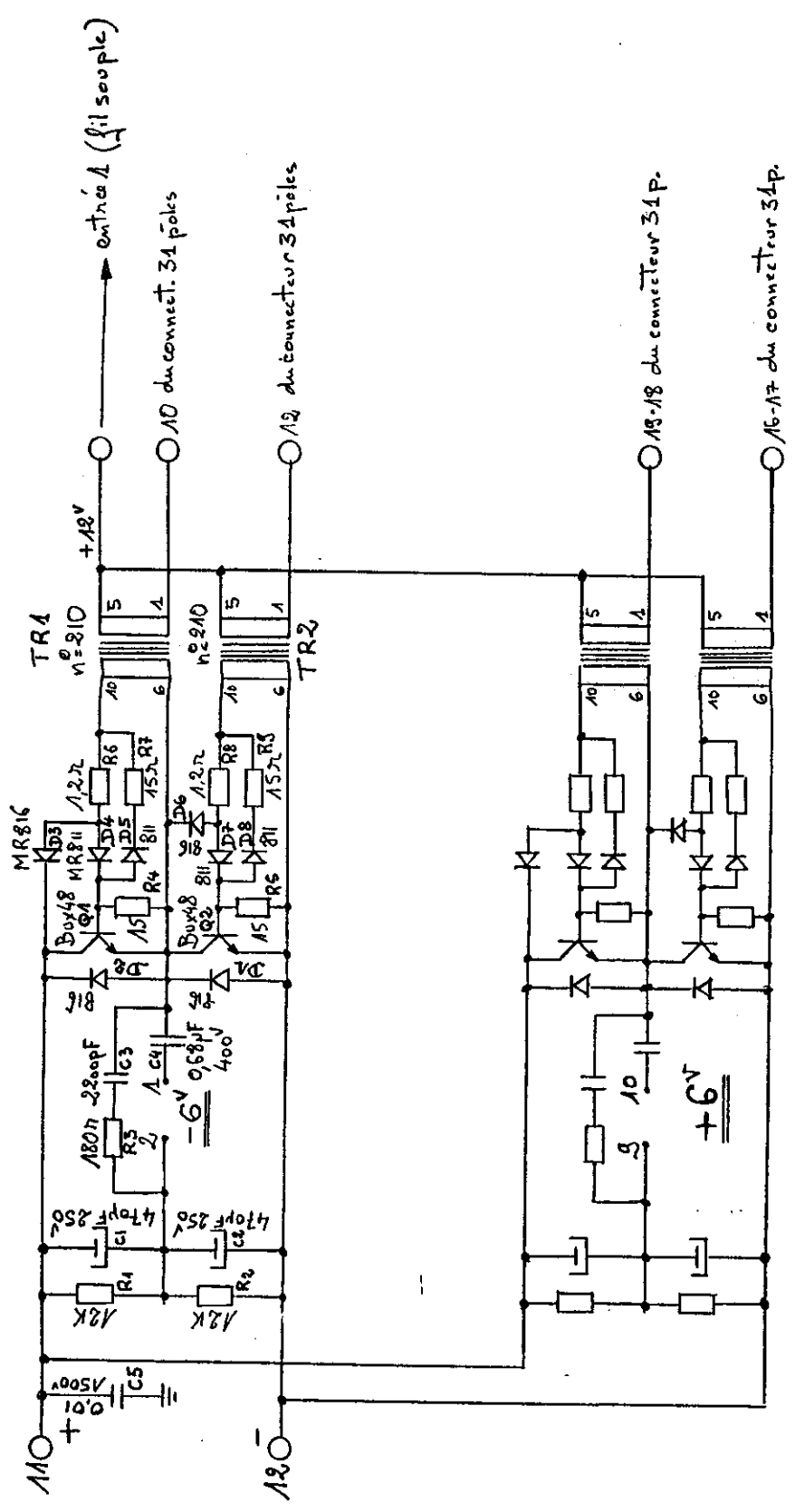
- 1 limit. -6v
- 2 0V auxil.
- 3 0V "
- 4 S -6v
- 5 Ir -6v
- 6 -6v ret.
- 7 I -6v
- 8 Sret. -6v
- 9 Secur. -6v
- 10 A de TR1 -6v
- 11 +12V auxil.
- 12 A de TR2 -6v
- 13 Gate thyr. -6v
- 14 +12V auxil.
- 15 Secur. +6v
- 16 A de TR2 +6v
- 17 A de TR1 +6v
- 18 A de TR1 +6v
- 19 S +6v
- 20 S +6v
- 21 Synchro (dent de scie)
- 22 S +6v
- 23 0V auxil.
- 24 +12V auxil.
- 25 Gate thyr. +6v
- 26 Synchro (dent de scie)
- 27 limit +6v
- 28 I +6v
- 29 Ir +6v
- 30 0V auxil. (retour synchro)
- 31 +6v ret.

REVISIONS		Print. Date	Print. No.
Pos.	Date	Drn	Description

UNLESS OTHERWISE SPECIFIED

REMARKS

Components location



C. imp. n° 1682
SEN CAMAC
PS 210
 Convertisseur ± 6V

REVISIONS		Print. Clrc.	REMARKS
Pos.	Date	Dir. C/d	Description

Print. Clrc.	REMARKS

Print. Clrc.	Ser. No
	1682

Components location p.c. n° 168

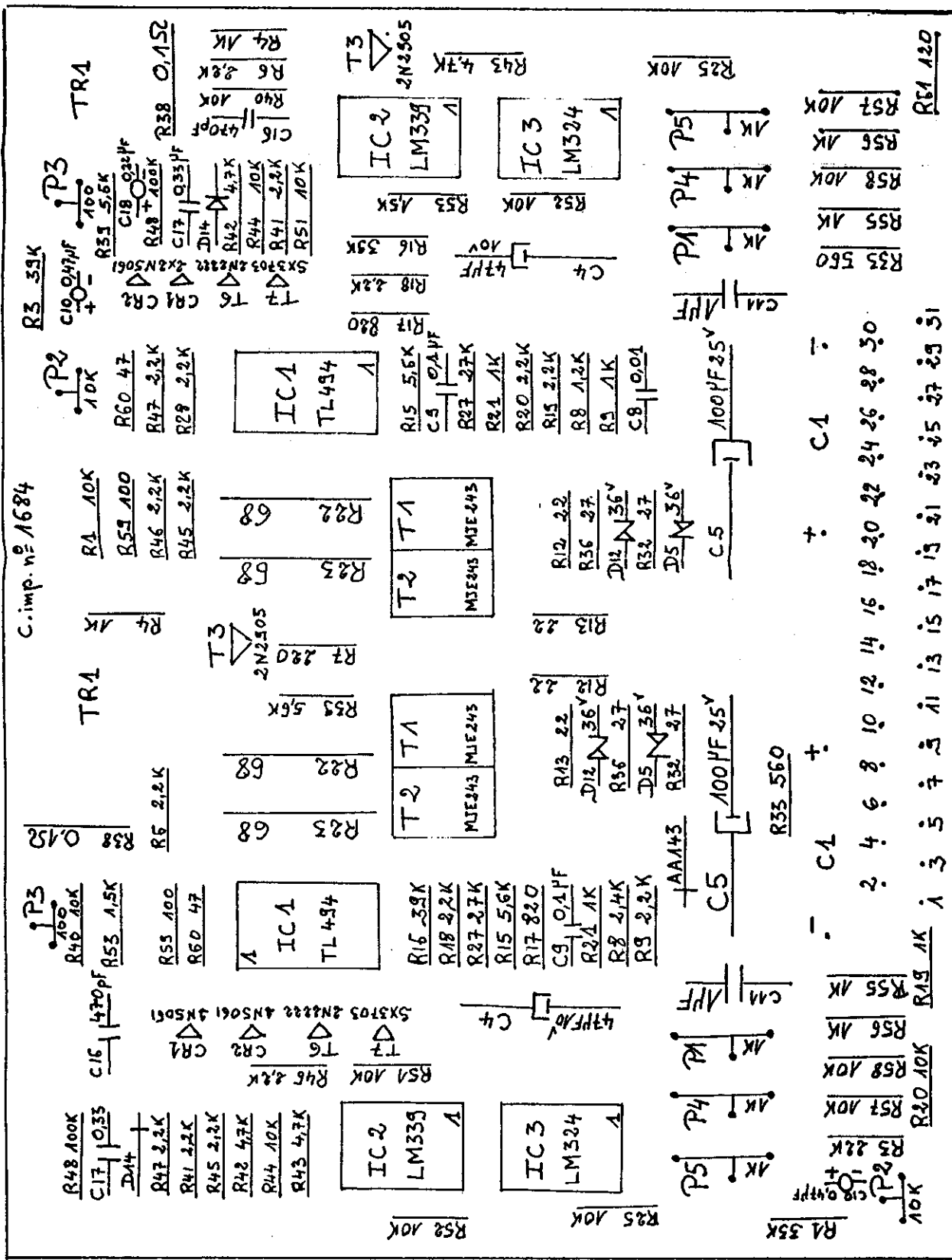
PS 2102 CAMAC

TITLE

REMARKS

+6V Regulator

P1 → volta
P2 → overvolt
P3 → primo livello
P4 → secondo livello
P5 → I meter



- R1 35K
- R2 10K
- R3 10K
- R4 10K
- R5 10K
- R6 2.2K
- R7 2.2K
- R8 2.2K
- R9 2.2K
- R10 2.2K
- R11 2.2K
- R12 2.2K
- R13 2.2K
- R14 2.2K
- R15 2.2K
- R16 2.2K
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- R19 2.2K
- R20 2.2K
- R21 1K
- R22 1K
- R23 1K
- R24 1K
- R25 10K
- R26 10K
- R27 10K
- R28 10K
- R29 2.2K
- R30 2.2K
- R31 2.2K
- R32 2.2K
- R33 2.2K
- R34 2.2K
- R35 2.2K
- R36 2.2K
- R37 2.2K
- R38 2.2K
- R39 2.2K
- R40 10K
- R41 2.2K
- R42 4.7K
- R43 4.7K
- R44 10K
- R45 2.2K
- R46 2.2K
- R47 2.2K
- R48 2.2K
- R49 10K
- R50 10K
- R51 10K

- C1 100µF 35V
- C2 100µF
- C3 100µF
- C4 47µF
- C5 100µF 35V

- T1 MJE245
- T2 MJE245
- T3 2N2505

- TR1

- IC1 TL494
- IC2 LM339
- IC3 LM324

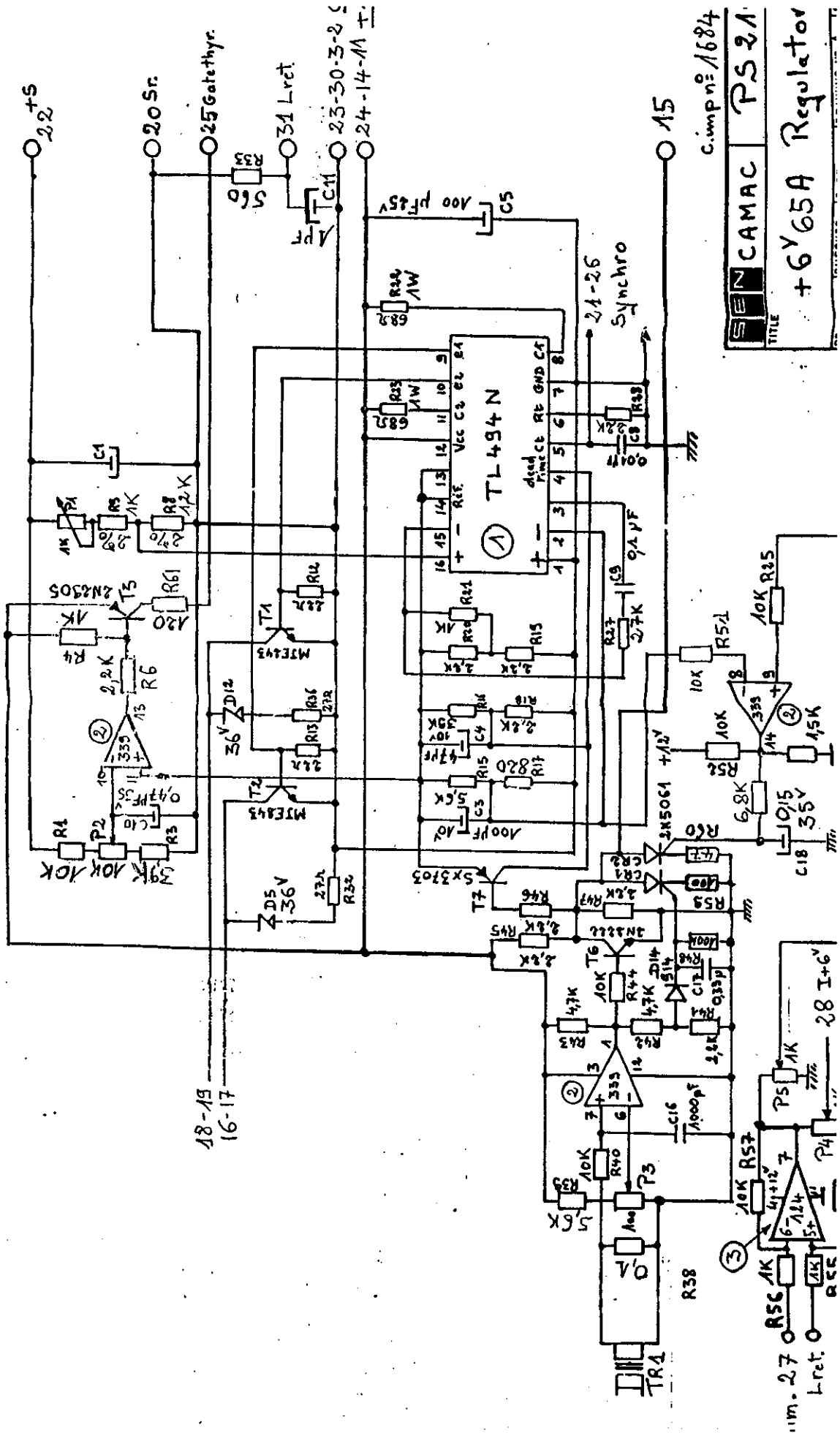
- R52 10K
- R53 15K
- R54 10K
- R55 10K
- R56 10K
- R57 10K
- R58 10K
- R59 10K
- R60 4.7K
- R61 4.7K
- R62 2.2K
- R63 2.2K
- R64 2.2K
- R65 2.2K
- R66 2.2K
- R67 2.2K
- R68 2.2K
- R69 2.2K
- R70 2.2K
- R71 2.2K
- R72 2.2K
- R73 2.2K
- R74 2.2K
- R75 2.2K
- R76 2.2K
- R77 2.2K
- R78 2.2K
- R79 2.2K
- R80 2.2K
- R81 2.2K
- R82 2.2K
- R83 2.2K
- R84 2.2K
- R85 2.2K
- R86 2.2K
- R87 2.2K
- R88 2.2K
- R89 2.2K
- R90 2.2K
- R91 2.2K
- R92 2.2K
- R93 2.2K
- R94 2.2K
- R95 2.2K
- R96 2.2K
- R97 2.2K
- R98 2.2K
- R99 2.2K
- R100 2.2K

- C6 47µF
- C7 100µF
- C8 100µF
- C9 100µF

- T4 2N2505
- T5 2N2505
- T6 2N2505
- T7 2N2505
- T8 2N2505
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- T10 2N2505
- T11 2N2505
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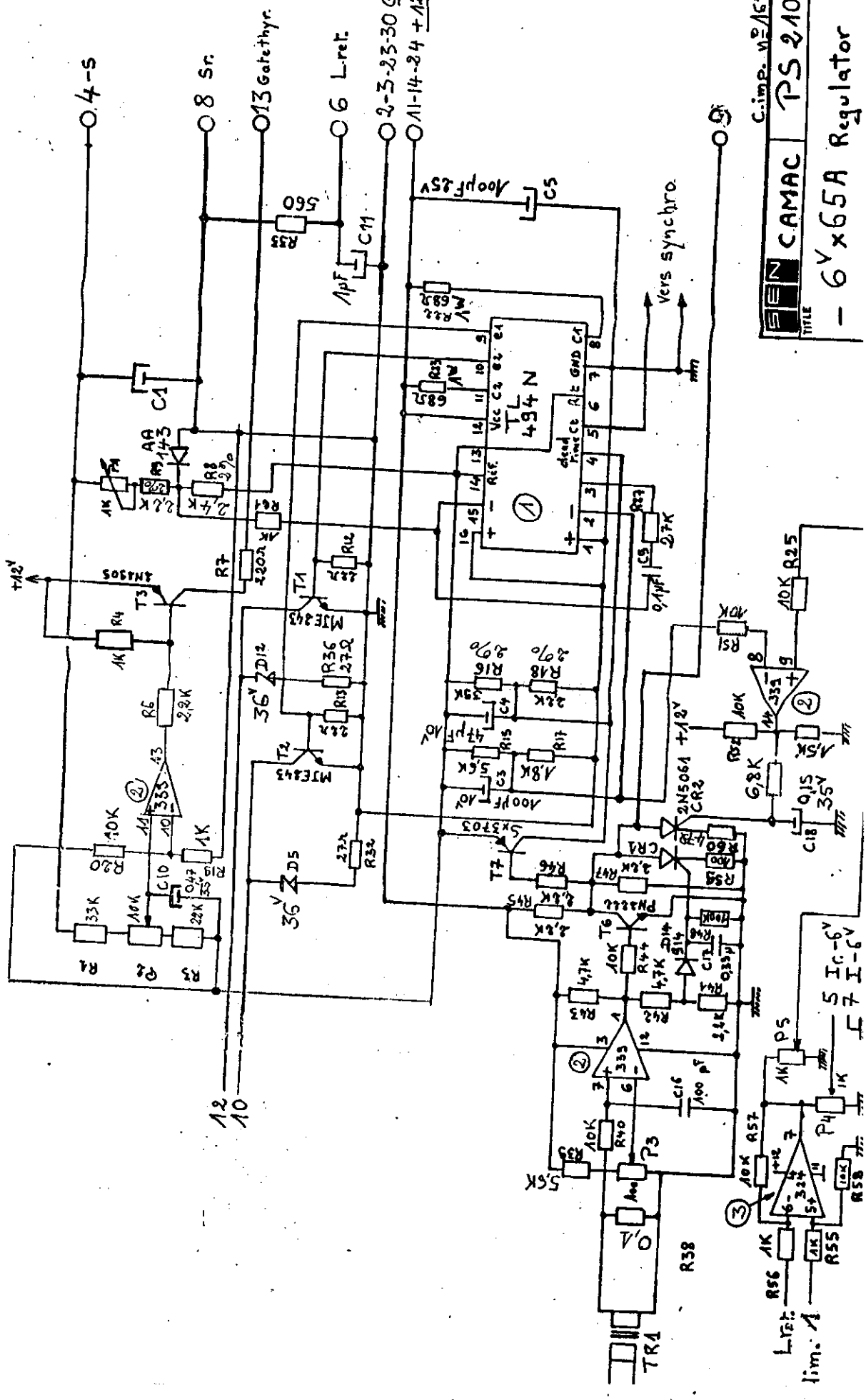


C. imp n° 1684

SEN CAMAC PS 2A
TITLE
+6V65A Regulator

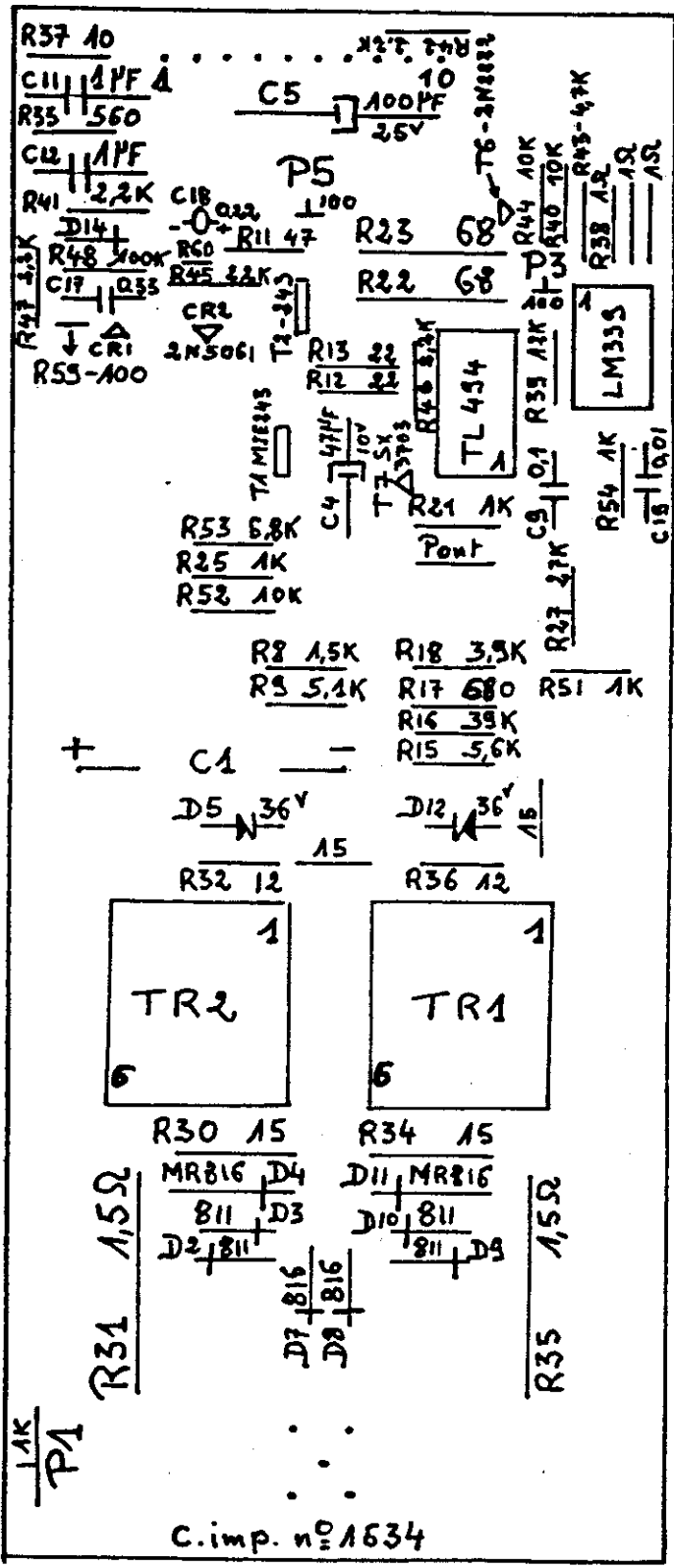
18-19
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28 I+V



C.ime. V.2/153
CAMAC
PS 210:
6V x 65A Regulator

+24V



P1 → Voltage
 P5 → Second. overload
 P3 → primary overload

EMARKS



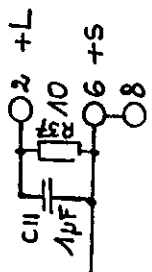
CAMAC

PS 2102.

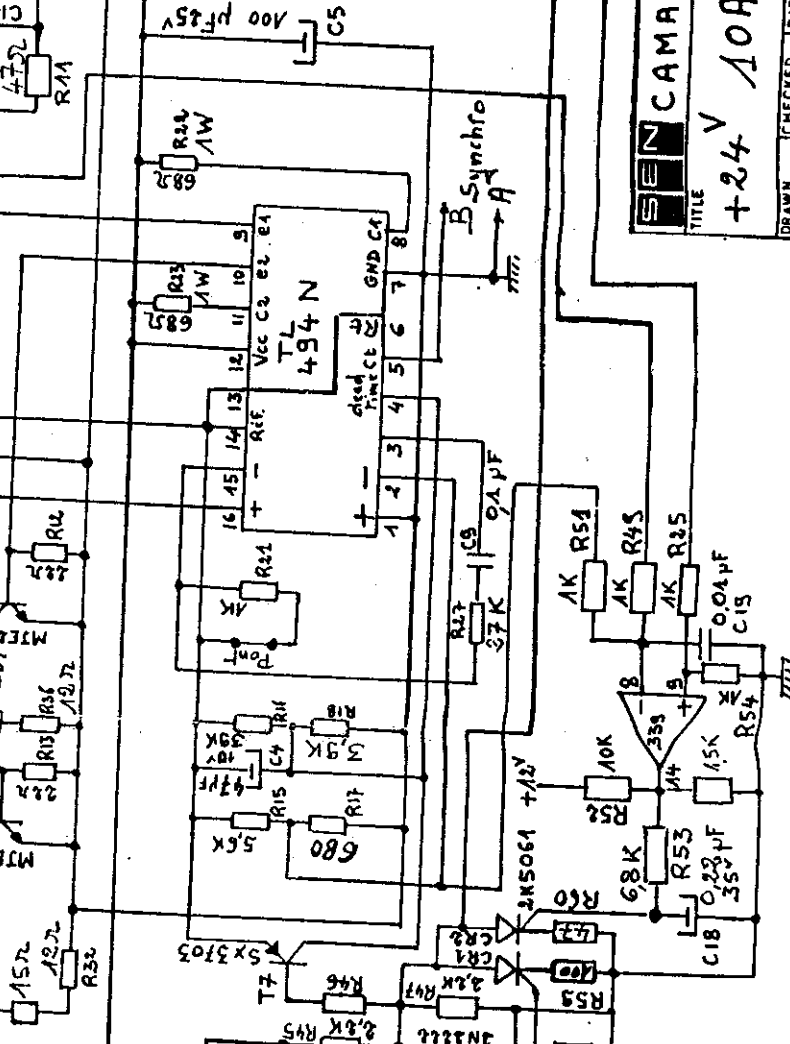
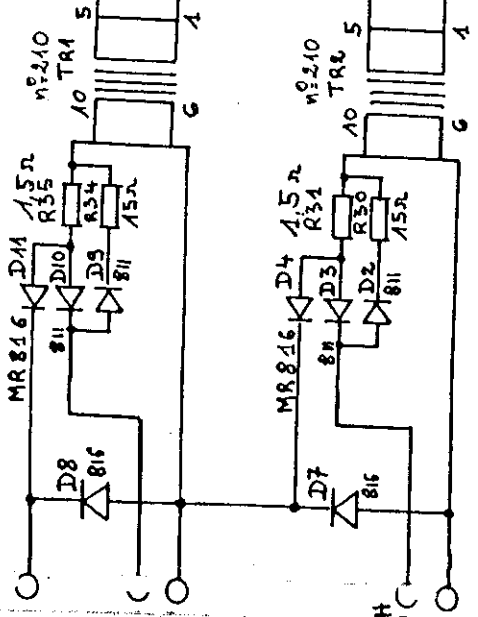
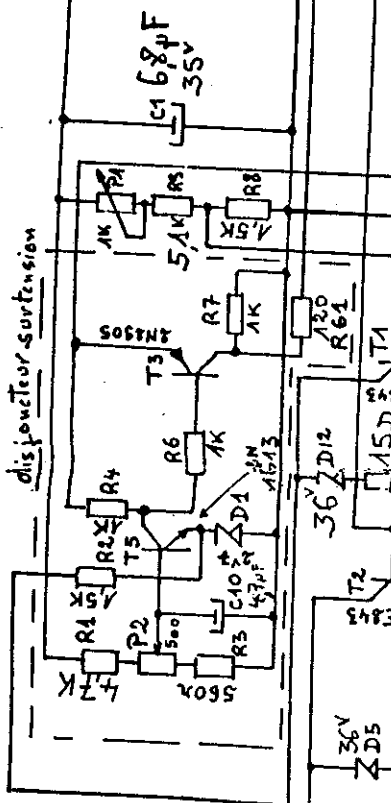
TITLE

Components location

+24V Regulator



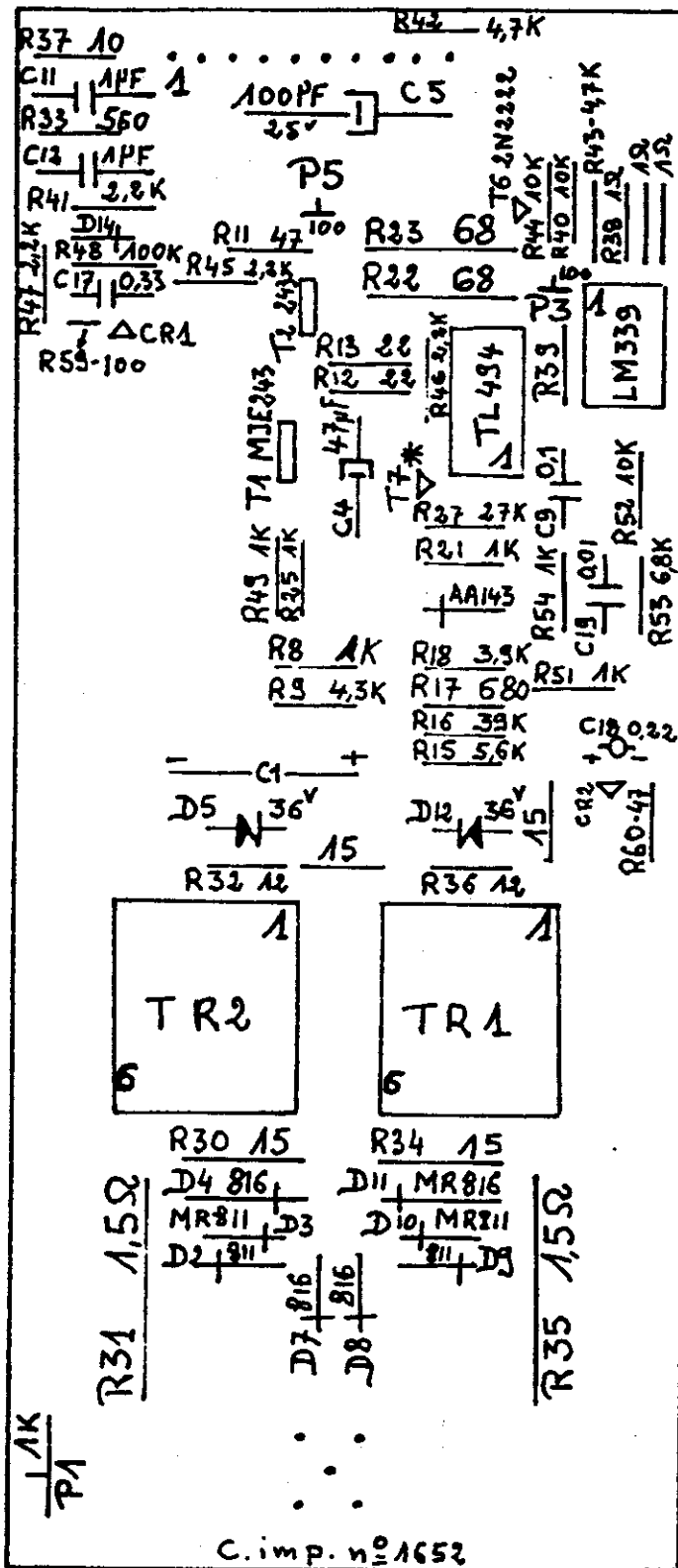
disjoncteur surtension



C. imp n° 16373
CAMAC PS210A
+24V 10A Regulator
 DRAWN CHECKED TRYS

10

- 24V



P1 → Voltage
 P5 → second. overload
 P3 → primary overload

* implantation de T7:
 Vue de dessus:
 coll. émet.
 base

REMARKS

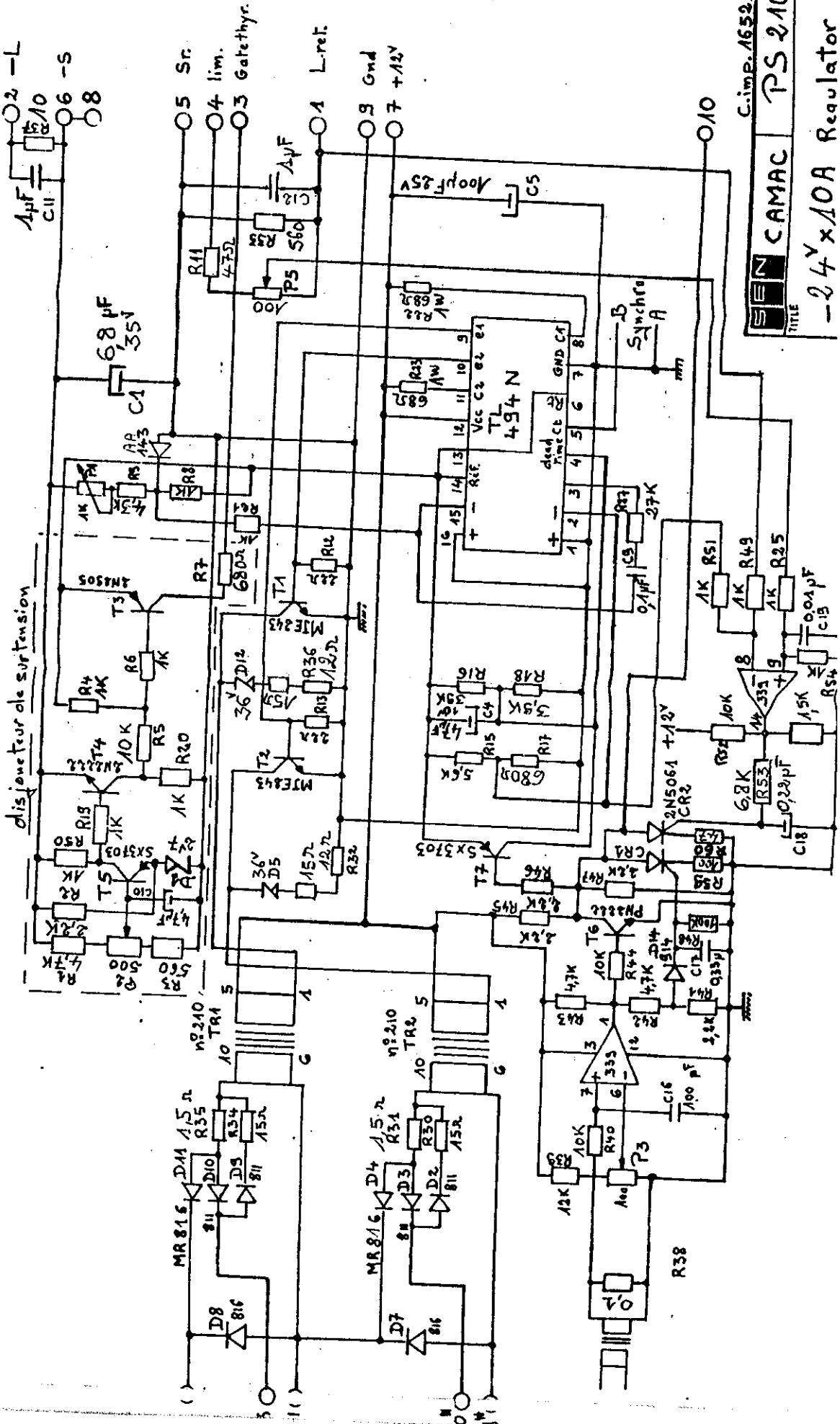
SEN CAMAC

PS2102

TITLE

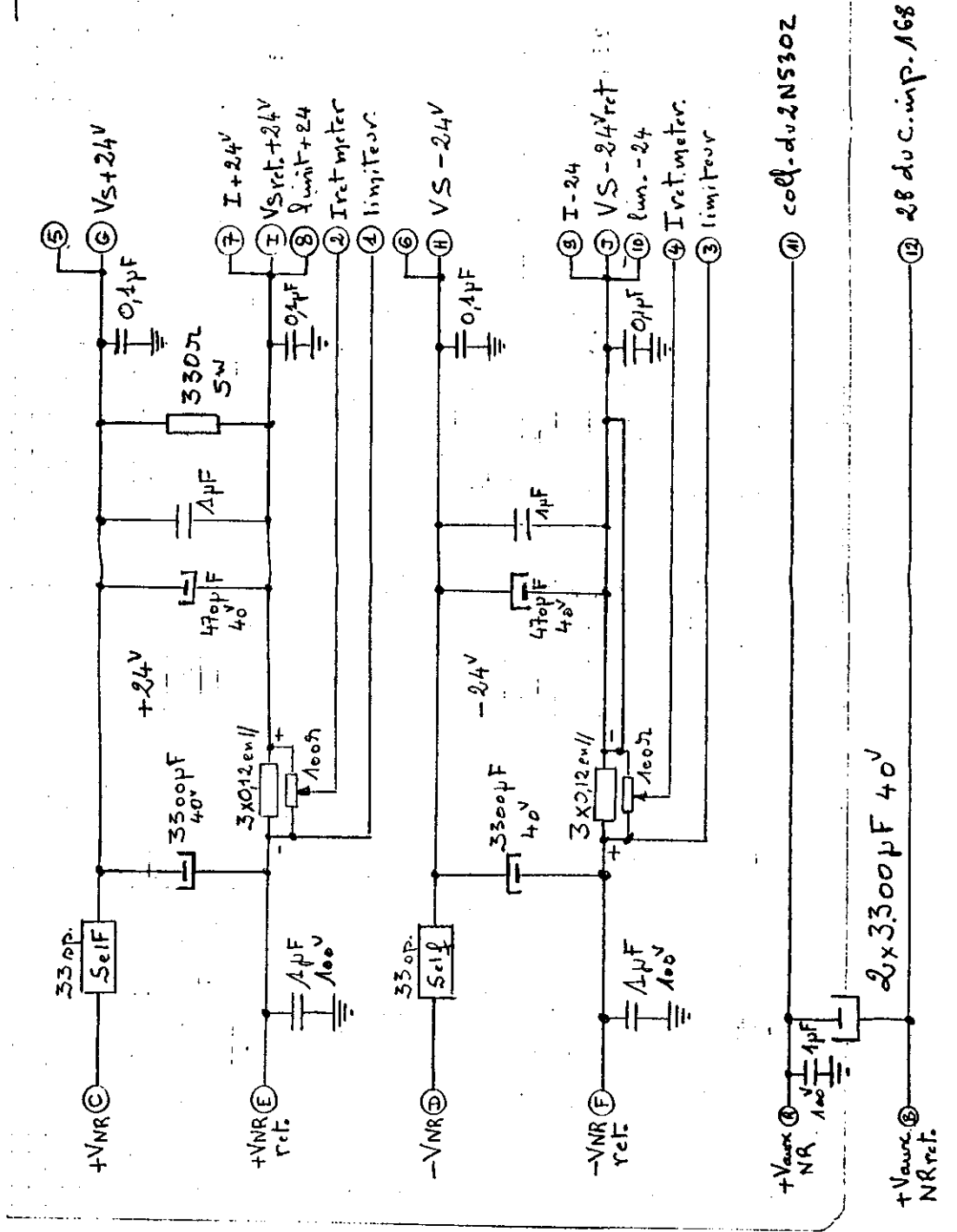
24V D 1 +

disjoncteur de surtension



C. imp. A6522
PS 2102
TITLE
CAMAC
-24V x10A Regulator

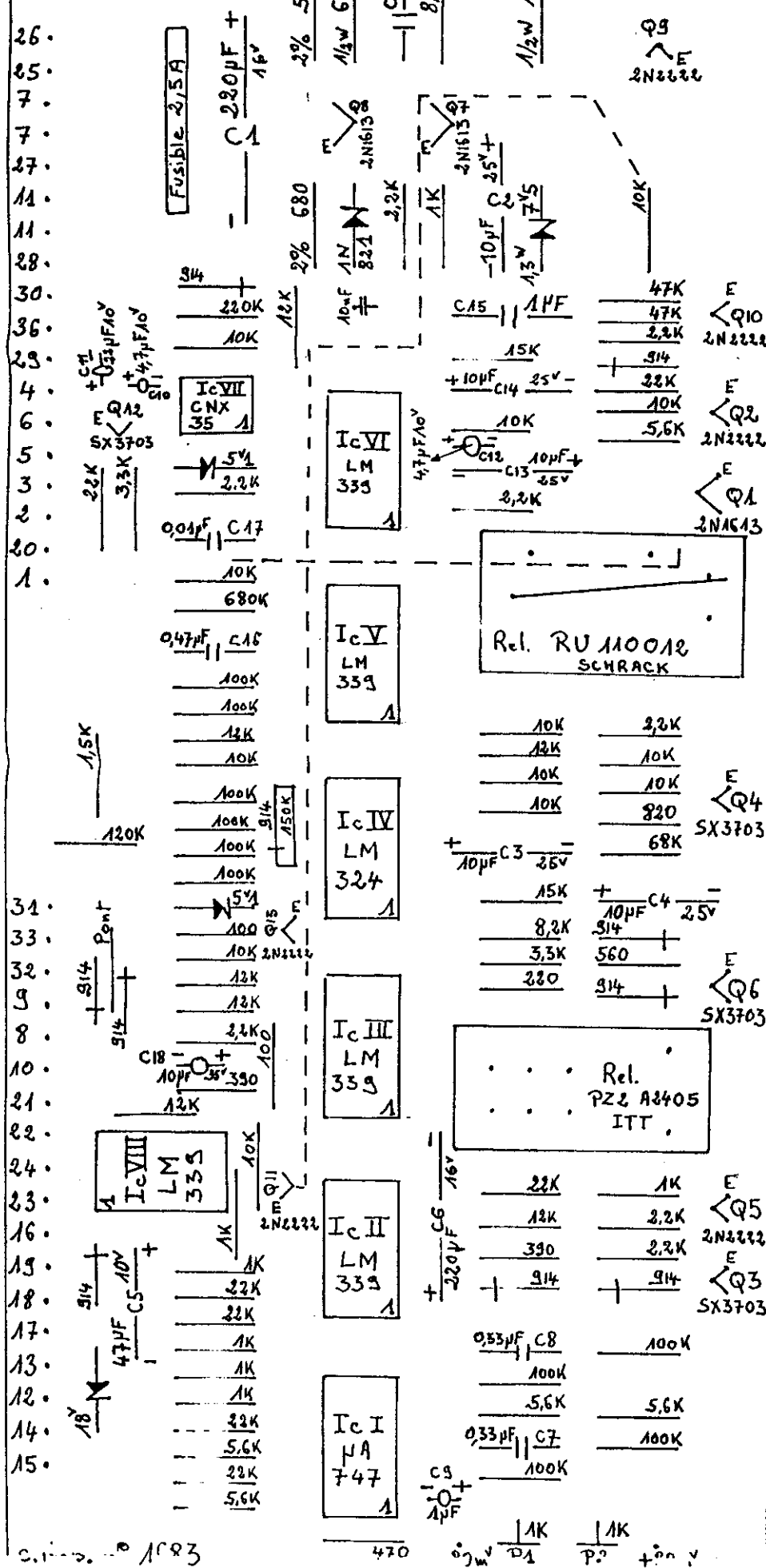
4 3 2 1



C. imp. n° 1676
 CAMAC PS 21
 Filtrage ±24V

REVISIONS		Print/Clk. UNLESS OTHERWISE SPECIFIED		REMARKS
Pos.	Date	Drn	Chd	Description

1 FACI OR E O EMS
 2 P
 3 SSK
 4



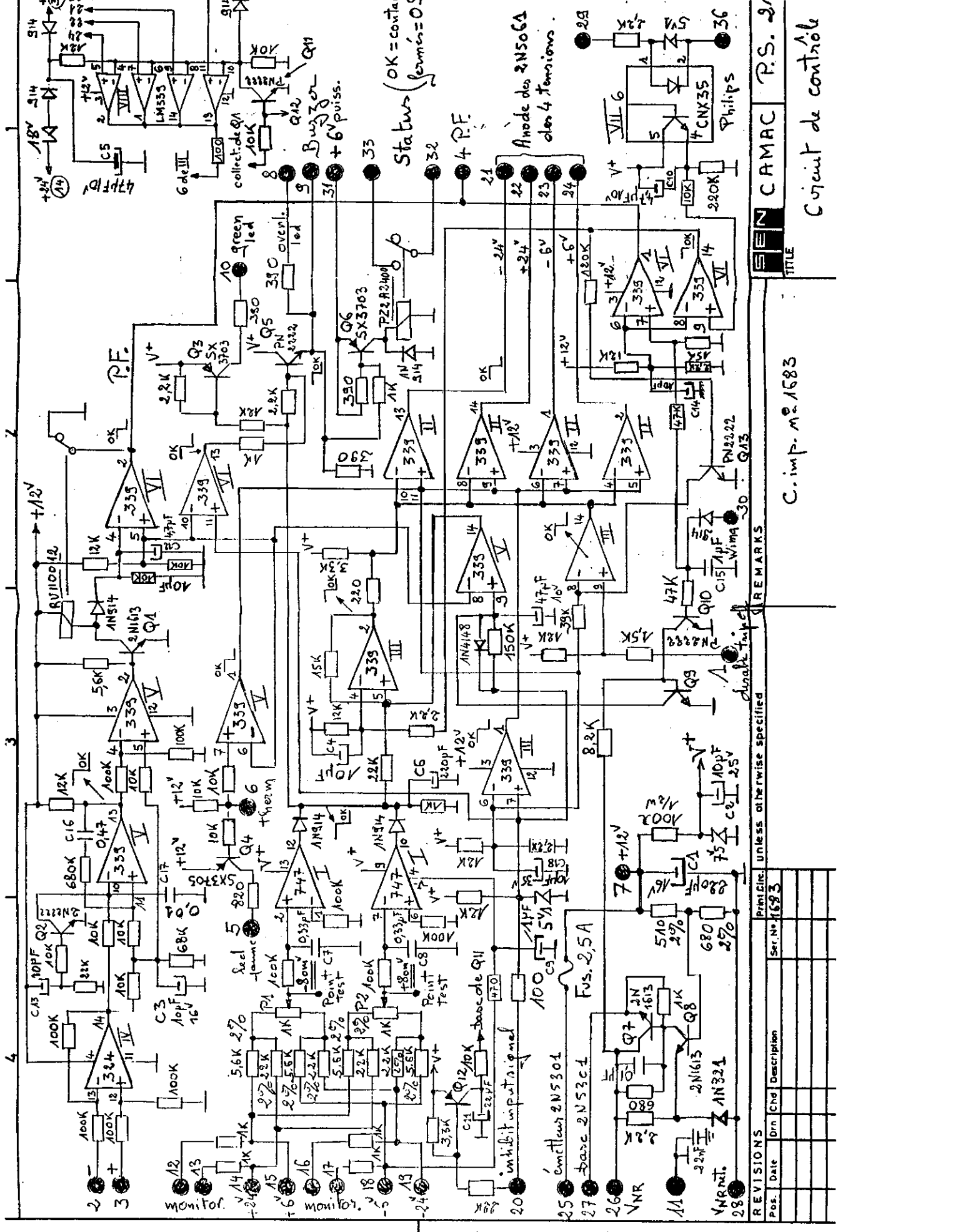
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REVISIONS				REMARKS	TITLE	CAMAC PS 2M
Pos.	Date	Drn	Description			
				Components location	Control circuit	PS 2M

REVISIONS: UNLESS OTHERWISE SPECIFIED

Prin. No. 1583

Ser. No.



C. imp. M. 1683

REMARKS

Pos.	Date	Drn	Chg	Description	Pos.	Date	Drn	Chg	Description

Principle, unless otherwise specified
Ser. No. 1683

Philips CAMAC P.S. 21

Circuit de contrôle