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Title:

Technical Manual for POW738 Power Control Module.

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Abstract:

This manual contains applicable information about the POW738 Power Control Modul. The description of the POW738 implies knowledge of the POW728, and therefore, the technical manual for POW728 must be considered as an appendix to this manual.

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1. GENERAL INFORMATION. 1.

1.1 Description. 1.1

The POW 738 is an updated version of, and intended for replacement of the POW728 Control Module.

The function of the two modules, as well as the electronic design, is almost identical. The major difference is made up by an inrush-current limiting circuit incorporated in the POW738.

The current limiter consists of a resistor inserted between the main supply and the capacitive reservoir. When the DC-voltage in the reservoir reaches operational level, the resistor is shunted by a TRIAC.

1.2 Applicable Documents. 1.2

1. Technical manual for POW728,-729,-730,-731,-732.
   Powersupplies for RC Computers, 44-RT1912.

2. Technical Manual for Chassis CHS701.
   44-RT1573

3. Technical Manual for Chassis CHS702.
   44-RT1354.

2. SPECIFICATIONS. 2.

The following specifications are valid for the POW738 in connection with an appropiate electromagnetic interference filter, compatible with the one used in the CHS701/702.

Main requirements:

	Min.	Nom.	Max.	
Frequency:	45	50	66	HZ
Voltage:	198	220	242	Volt RMS
	280	311	342	Volt Peak
Phase:	Single phase			
Current:			3,5	A RMS
			15	A peak
Starting Surge (<one half period)			20	A peak

Allowable Voltage Dirsturbances:

Mains drop-out:	1	halfperiod each second
Width of spikes	50	µs
Magnitude of spikes	800	V Peak

Performance

Rectification: Full wave

"300V DC" Voltage:	238		340	Volt Peak
"300V DC" Ripple:			30	Volt pp
"PINT" activating levels:				
Threshold high:	250	267	284	Volt DC
Threshold low:	198	212	224	Volt DC
Hysteresis:	51	56	61	Volt DC
Delay from PINT to >POK:	1,5			ms
Delay from POK to >PINT:	1,5			ms
Clock frequency:	19	20	24	KHz
Clock voltage:	4,75	5	5,25	Volt Mean
Clock stability:	1			%

3. PRINCIPLES OF OPERATION. 3.

In the following text, only the inrush current limiting circuitry is described. The technical manual for POW728-732 (see 1.2, ref.1) contains a detailed description of the remaining circuitry as well as the power system in general.

The functional components of the current limiter, is made up by a SCR shuntable resistor controlled by a level detector monitoring the voltage of the reservoir, as shown in fig. 3.1.

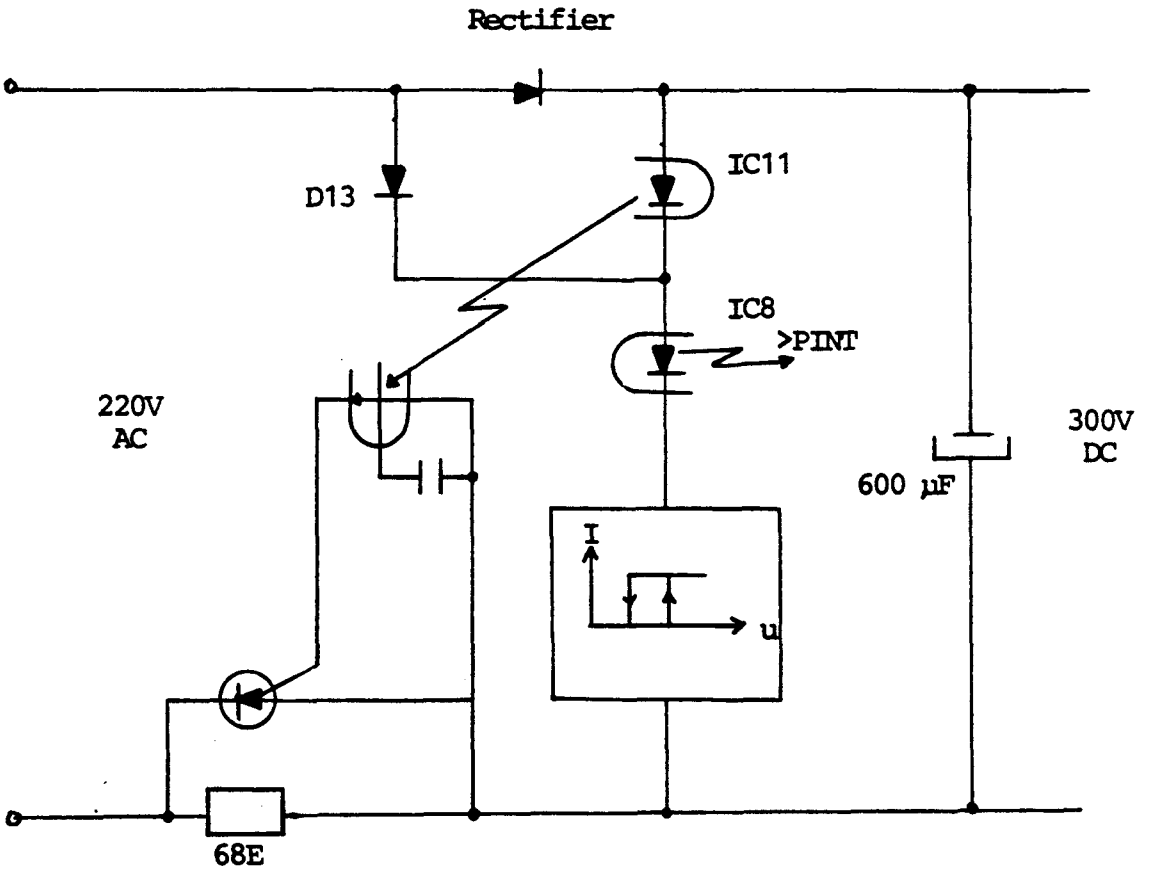

Fig. 3.1. Functional diagram of the inrush current limiter.

The leveldetector is formed as a voltage controlled on/off constant current generator with build-in hysteresis. Whenever the voltage falls below the negative going threshold the current is switched off, causing the two photocouplers, IC8 and IC11, to turn off. IC8 informes the control logic that power is low, and IC11 controls the SCR.

As the voltage rises, the detector current is switch on, when the positive going threshold is reached.

The effect of the diode D13 is to turn off the photocoupler IC11 (and consequently the gate current of the SCR) whenever the reservoir is charged. This ensures that the SCR is triggered at zero voltage only.

A detailed diagram for the POW738 is found on the following page.

POW 738
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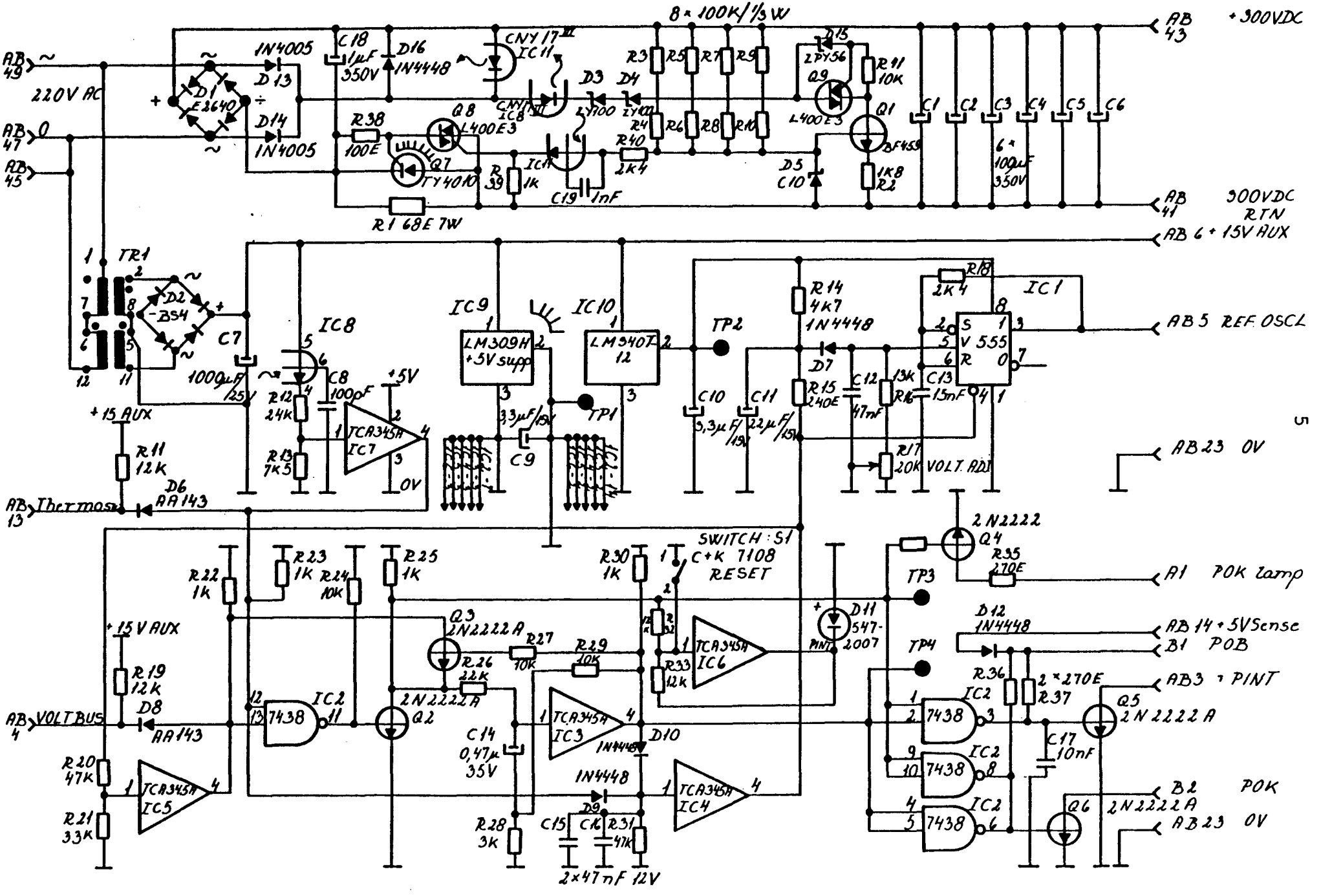
CONTROL MODULE
POW 738



5. RECOMMENTED SPAREPARTS. 5.

In the wollowing, recommented spareparts for the POW738 are listed. The list includes only electrical components.

QTY	Description.	RC partnumber.
1	Bridge rectifier	
1	" " BS4	
2	CNY17 II Photo coupler	60117
1	Light emitting Diode	
2	AA143 Diode	64510
2	1N4005 Diode	21710
5	1N4448 Diode	64613
1	BZY88 C10 Diode	29611
1	ZPY56 Diode	
2	ZY100 Diode	
5	2N2222A Transistor	34116
1	BF459 Transistor	54709
1	SN7438N, IC	40804
1	LM309H, IC	58817
1	LM340T-12, IC	
1	LM555CN, IC	54717
5	TCA345A	63815
1	1uF/350V El-lyt	
6	100uF/350V El-lyt	
1	1000uF/25V " "	43909
1	22uF/15V Tantal	11118
2	3,3uF/15V "	11117
1	0,47uF/35V "	41902
1	100pF/63V Condenser	11209
1	nF/63V "	11303
1	10nF/250V "	11315
1	15nF/250V "	11317
3	47nF/250V "	11406
1	68E Resistor 7W 10%	
1	TY4010 Thyristor	
2	L400E3 TRIAC	

QTY	Description	RC partnumber.
8	100K Resistor 1/3W 5%	16002
1	100E " 1/8W 5%	15104
1	240E " "	15113
3	270E " "	15114
2	1K " "	10600
1	1K8 " "	10606
2	2K4 " "	10609
1	3K " "	10611
1	4K7 " "	10616
1	7K " "	10701
5	10K " "	10704
4	12K " "	10706
1	13K " "	10707
1	22K " "	10722
1	24K " "	10713
1	33K " "	10716
2	47K " "	10800

RETURN LETTER

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