



# MMA UNITS 125-130A

Language: English

Date Creation: Jan. 2005

Rev.: 00

## Service Manual



## 1.0 REPAIR INSTRUCTIONS

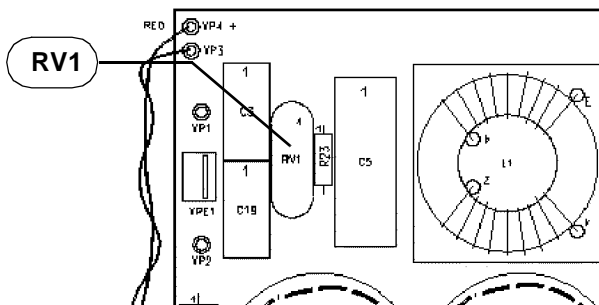
### 1.1 GENERAL CLEANING

Remove the machine shell and clean carefully with compressed air.

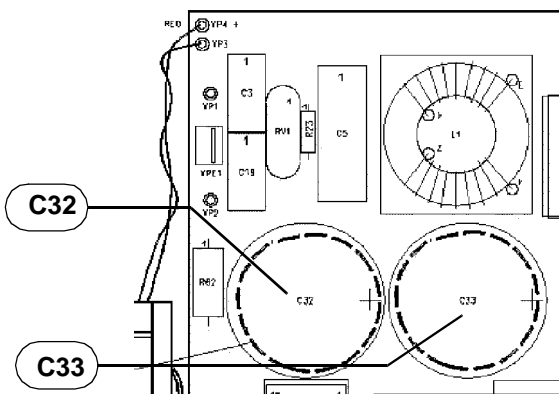
### 1.2 MACHINE: VISUAL INSPECTION

1. Check the general conditions of the electronic circuit ref. 1, particularly:

- the varistor (RV1) (fig. 1) if it presents bursting marks
- the state of the levelling condensers C32 and C33 (fig. 2) check if there are swellings or breaks on the container



**FIG. 1 REF. 1**



**FIG. 2 REF. 1**

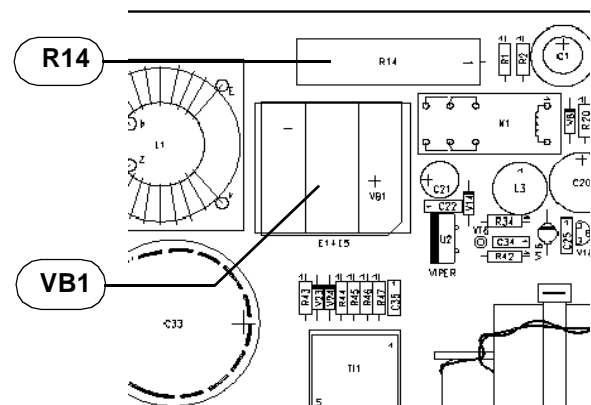
- check for the presence of cracks or breaks on the welds of the following components:
  - transformer T1
  - impedance L2
- the presence of burn tracks or electric discharge marks on the printed circuit

In case of faults, replace the electronic circuit ref. 1

2. Check on all the harnesses the insulation of the cables and the state at the connection points.

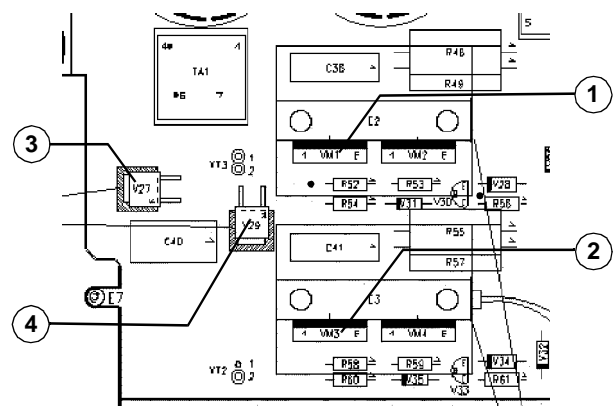
### 1.3 CHECK OF THE MAIN COMPONENTS WITH TESTER (OHMMETER) ON THE CIRCUIT REF. 1

1. Check for the presence of short circuits on the rectifier bridge (VD1) and the correct value of the power resistance (R14) (fig. 3).



**FIG. 3 RIF. 1**

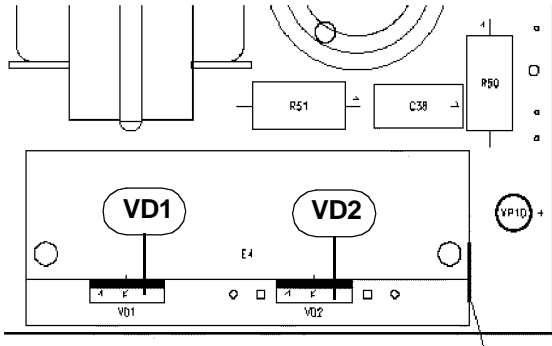
1. IGBT of the primary circuit and diodes of recycle: test points G-C, G-E, C-E of components 1 and 2; points A-K of components 3 and 4 (fig. 4).



**FIG. 4 RIF. 1**

2. Diodes of the secondary circuit: check points 1-K of diodes VD1 and VD2 (fig. 5).

If there are short circuits or faults during these tests, replace the electronic circuit.

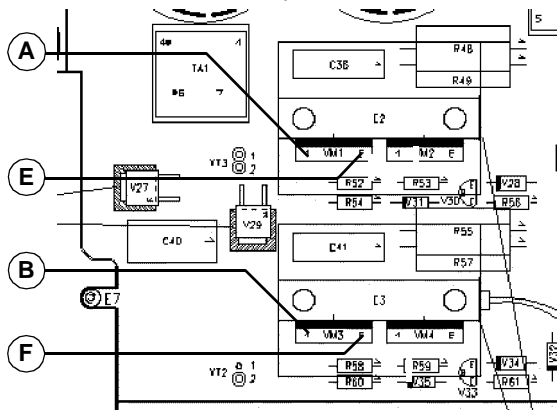


**FIG. 5 REF. 1**

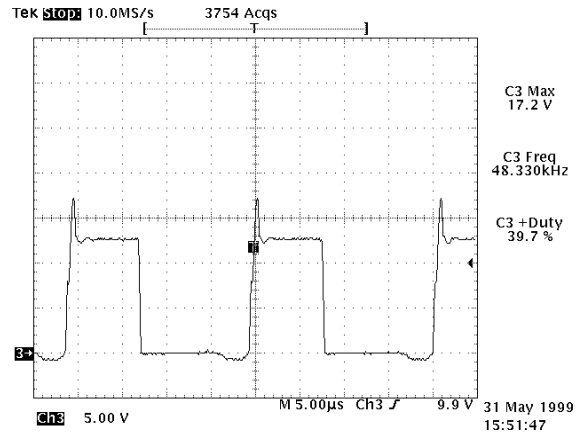
**1.4 CHECK OF GENERATOR OPERATION WITH OSCILLOSCOPE AND VOLTMETER**

1. Connect a feeder on the zener V13 with GND on the anode and supply with approx. 15Vdc; set the oscilloscope on a time base of 5 uS and a range of 0.5 V/Div with probe x10 and verify:

- the presence between points: E (GND) - A (probe) and F (GND) - B (probe) (fig. 6) of the waveform shown in fig. 7: if the waveform differs from the one in the figure or it is not present, the electronic circuit is broken.
- Solution:** board replacement ref. 1.

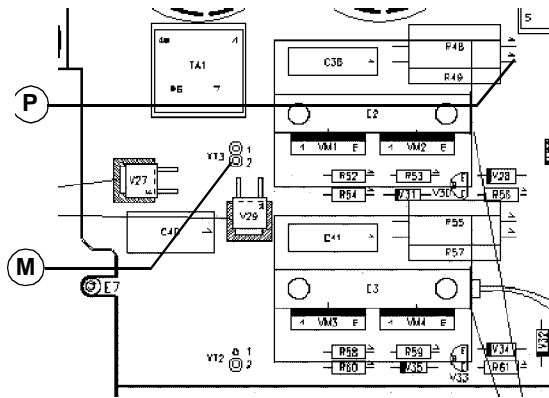


**FIG. 7 REF. 1**



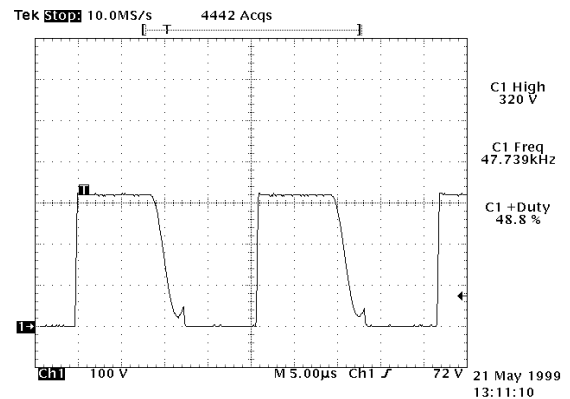
**FIG. 8 REF. 1**

2. Disconnect the feeder; set the oscilloscope with a range of 1V/Div and connect the probe X100 between points M and P (fig. 9); connect the machine to the power supply, switch it on:



**FIG. 8 RIF. 1**

- the motor fan starts up, and after approx. 2 seconds a wave will appear as in fig. 9.



**FIG. 9 REF.1**

- check with a voltmeter that the output voltage is approx. 47Vdc (see test specification point 2).
- If the wave form does not appear or the output voltage is not correct, replace the electronic circuit ref. 1

Carry out the final test after the repair.

## 2.0 FINAL TEST

1. Carry out the safety test according to our operative instruction N. SLL12, before proceeding, act as follows:

- on the electronic board (ref. 1) short-circuit points U, T and a rheophore of the primary circuit of the transformer (fig. 10)
- switch on
- short-circuit the feeder plug
- short-circuit the output disne..

After the test remove all the short circuits and switch off.

2. Connect the generator to the power supply (230 Vac), switch it on and check if the voltage of the outputs is 47 Vdc (+/- 5%): switch off the generator.

3. Connect the generator to the resistive load: the load must be regulated so that the voltage on the load, with maximum current, is between 20V and 23V. Apply oscilloscope probe as in fig. 8

4. Set the regulation knob to the centre of the dial, switch on the generator, turn the knob to the maximum welding current and read with the amperometer the maximum current indicated on the technical table with +/- 5% tolerance. You will see on the oscilloscope a waveform as in fig. 11.

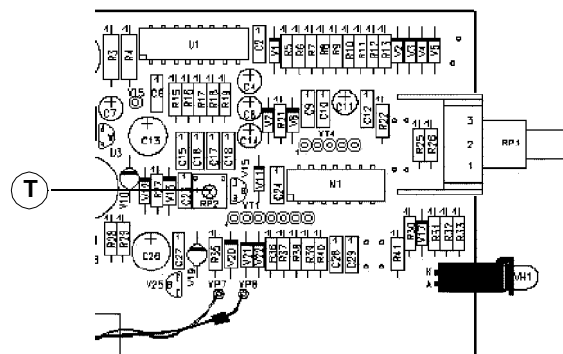
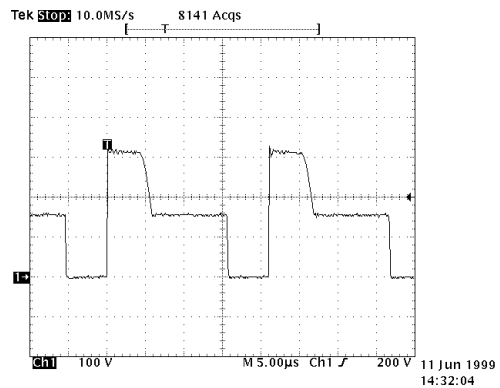
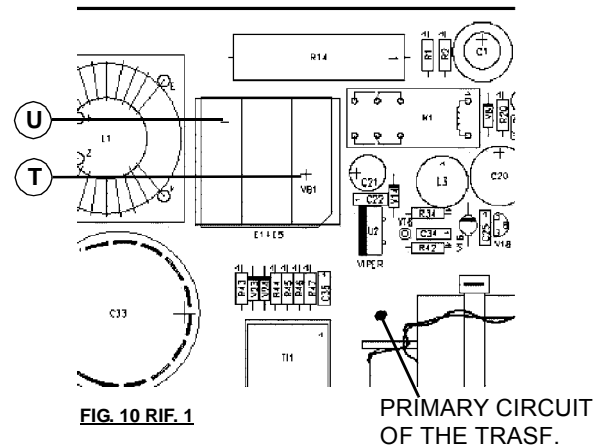
5. If the current readings differ, use the trimmer T (fig. 13) to obtain the correct current value.

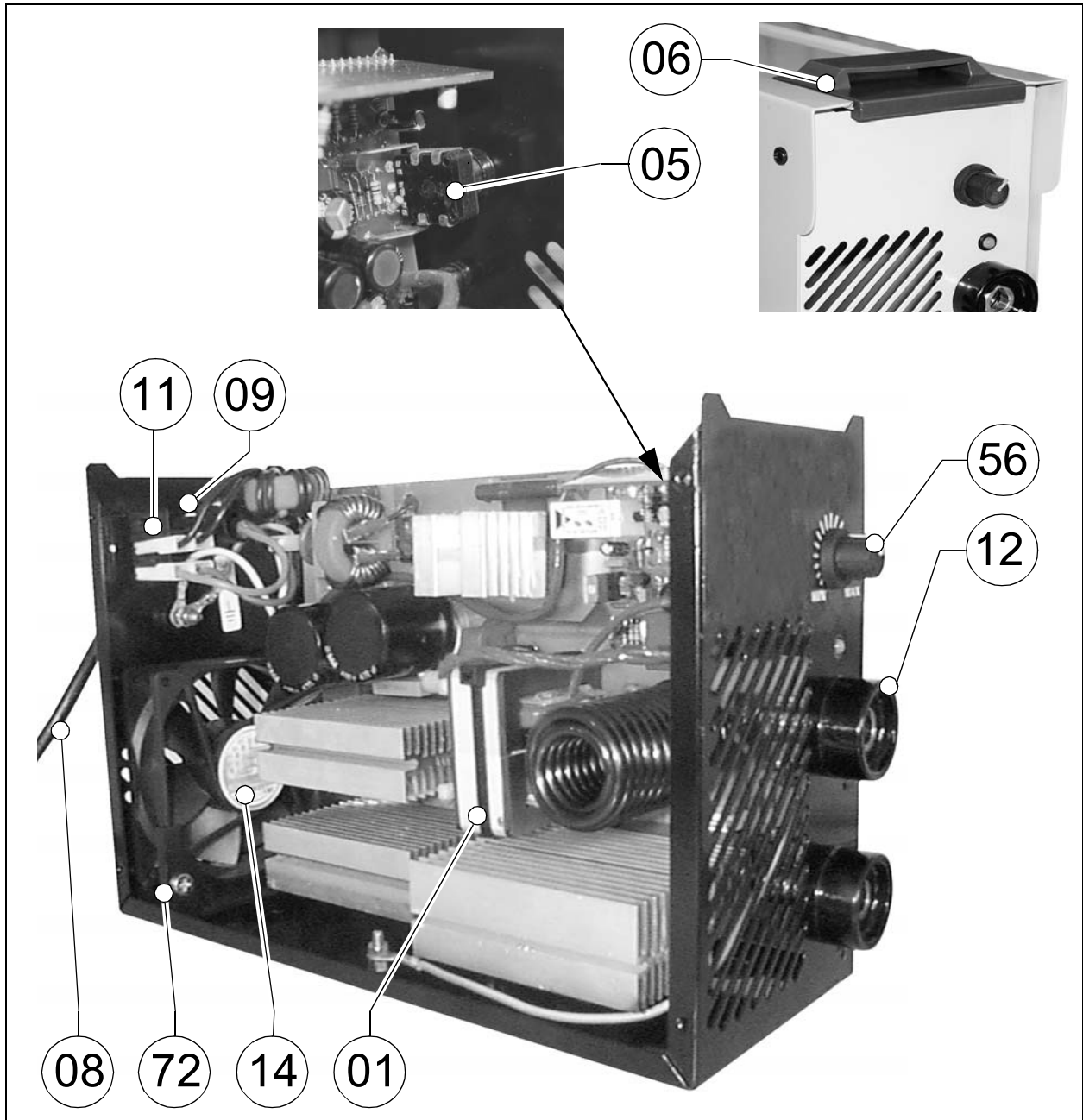
6. Short-circuit the load and verify that after 1,5 sec. the current descends to approx. 25A.

7. Regulate the resistive load to measure the minimum current (5A - 20V), set the minimum current on the frontal panel and check with the amperometer that there is a value near than the one indicated on the technical table.

8. Disconnect the probe, switch off the generator and with the load to the maximum current, let the machine work at the greatest capacity.

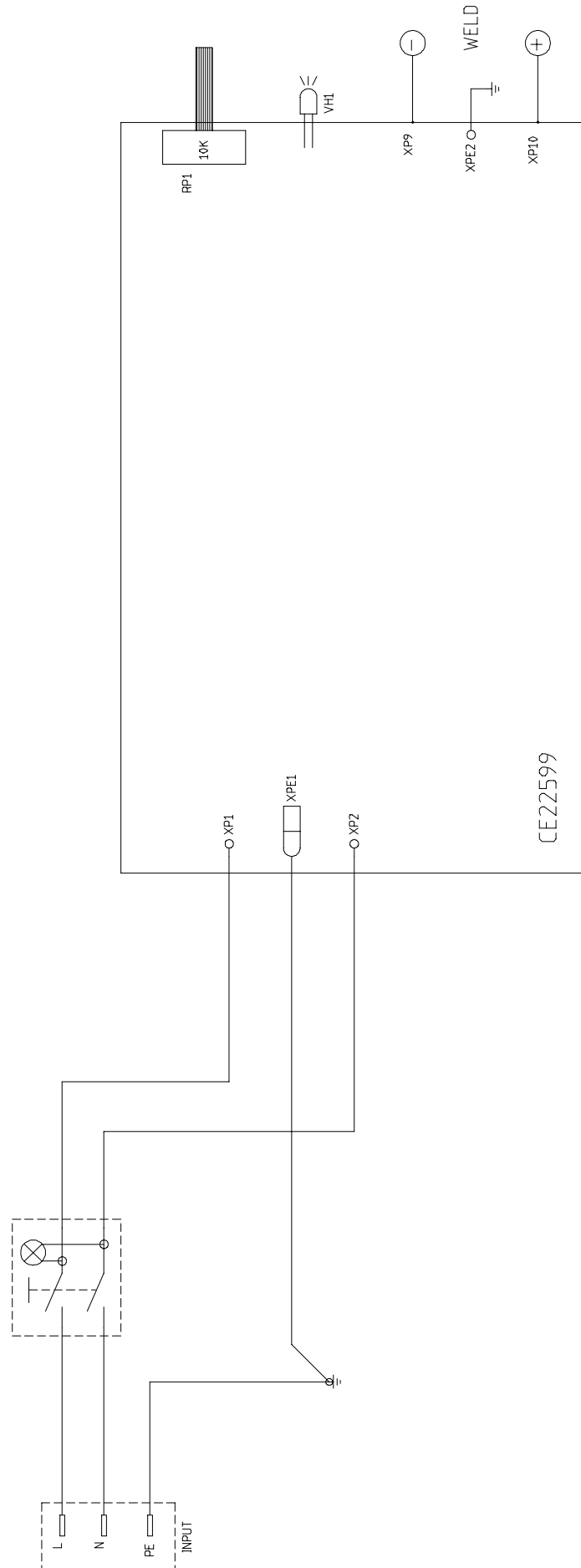
9. Carry out MMA welding tests at maximum current (one electrode)

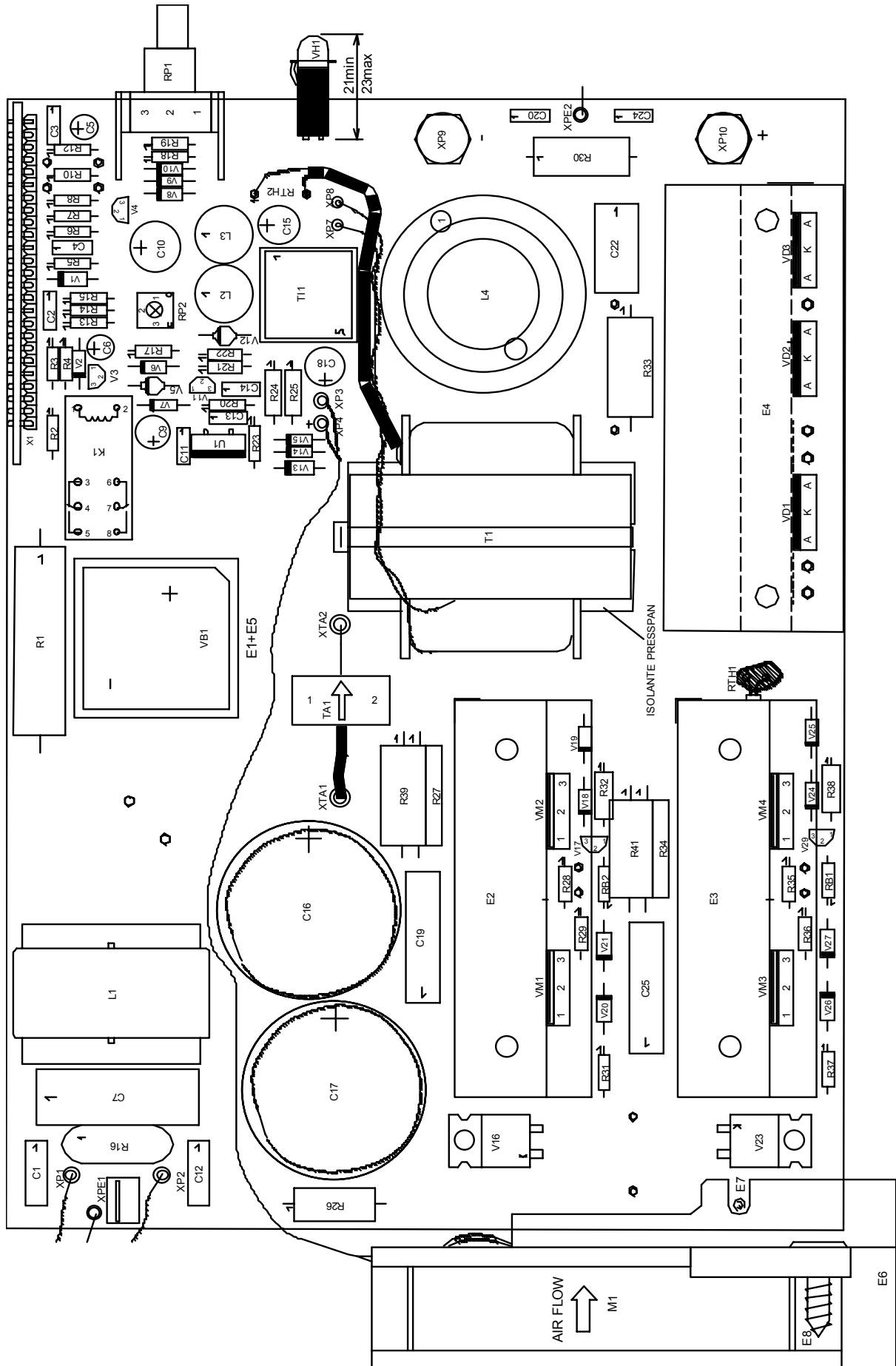


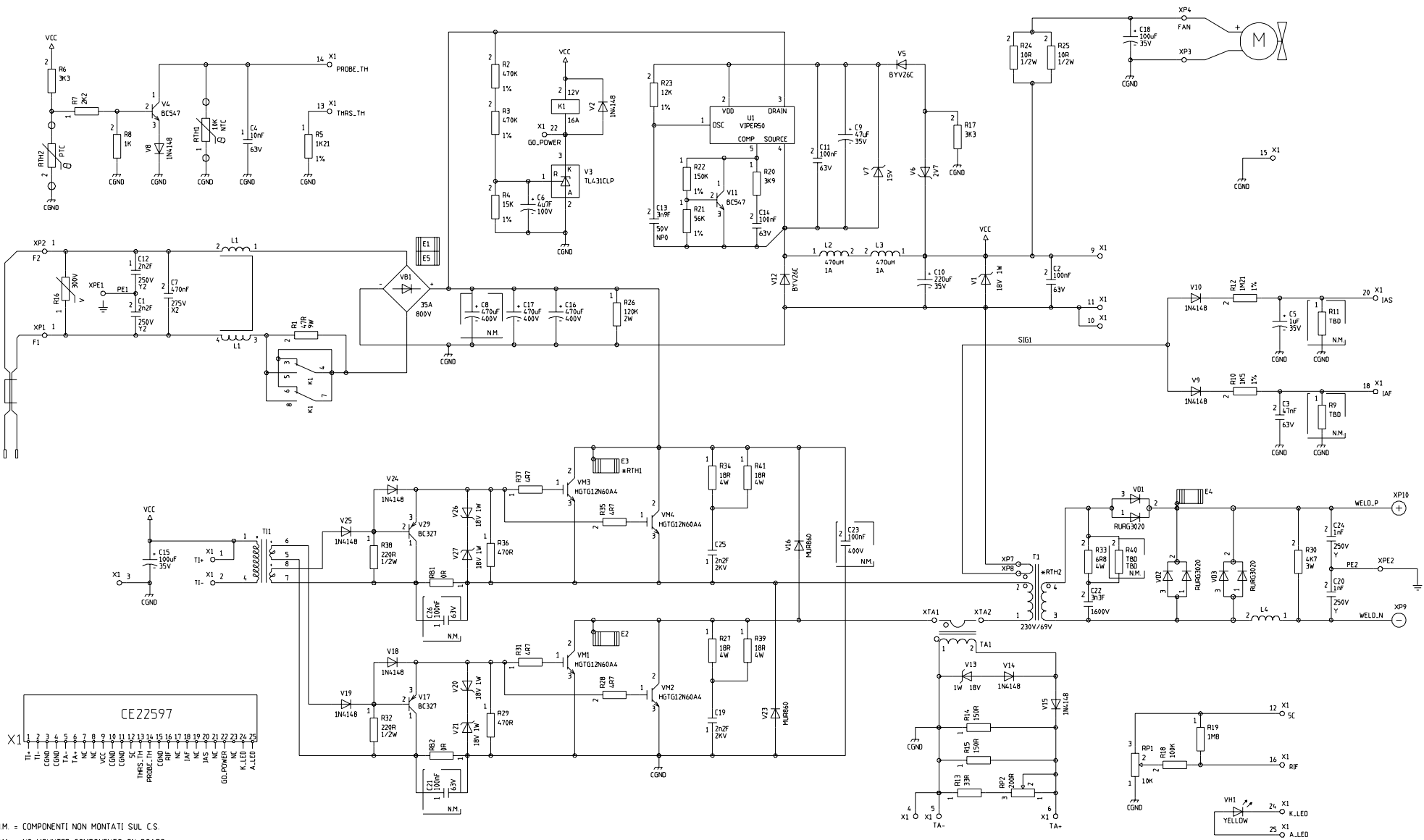


SAXO 1300

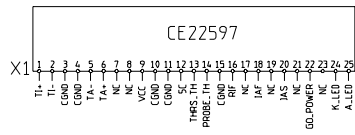
R.	COD.	DESCRIZIONE	DESCRIPTION	DESCRIPTION	BESCHREIBUNG	DESCRIPCIÓN
01	W000050018	CIRCUITO ELETTRONICO CE 22599	CIRCUIT BOARD CE 22599	CIRCUIT ÉLECTRONIQUE CE 22599	STEUERPLATINE CE 22599	CIRCUITO ELECTRÓNICO CE 22599
05	W000050019	POTENZIOMETRO	POTENTIOMETER	POTENTIOMÈTRE	POTENTIOMETER	POTENCIÓMETRO
06	W000050028	AGGANCIO CINGHIA	STRAP ATTACHMENT	ANNEAU ACC. DE LA SANGLE	RIEMENKUPPLUNG	ENGANCE DE LA CORREA
08	W000050020	CAVO ALIMENTAZIONE	POWER CABLE	CÂBLE D'ALIMENTATION	NETZKABEL	CABLE DE ALIMENTACIÓN
09	W000050021	PRESSACAPO	CABLE CLAMP	SERRE-CABLE	KABELSCHELLE	PRENSACABLE
11	W000050022	INTERRUPTORE	SWITCH	INTERRUPTEUR	SCHALTER	INTERRUPTOR
12	W000050023	RACCORDO USCITA	OUTLET CONNECTOR	RACCORD SORTIE	AUSGANGANSCHLUSS	RACOR DE SALIDA
14	W000050026	MOTOVENTILATORE	ELECTRIC FAN	MOTOVENTILATEUR	MOTORLÜFTER	VEN. ELÉCTRICO
--	W000050029	CINGHIA NYLON	NYLON STRAP	COURROIE NYLON	NYLONRIEMEN	CORREA DE NYLON
56	W000050025	MANOPOLA	KNOB	BOUTON	DREHKNOFF	PERILLA
56	W000050024	CAPPUCCIO	HOOD	CAPUCHON	KAPPE	CAPUCHÓN
72	W000050027	SUPPORTO SCHEDA	SUPPORT	SUPPORT	AUFHANGUNG	SUPORTE



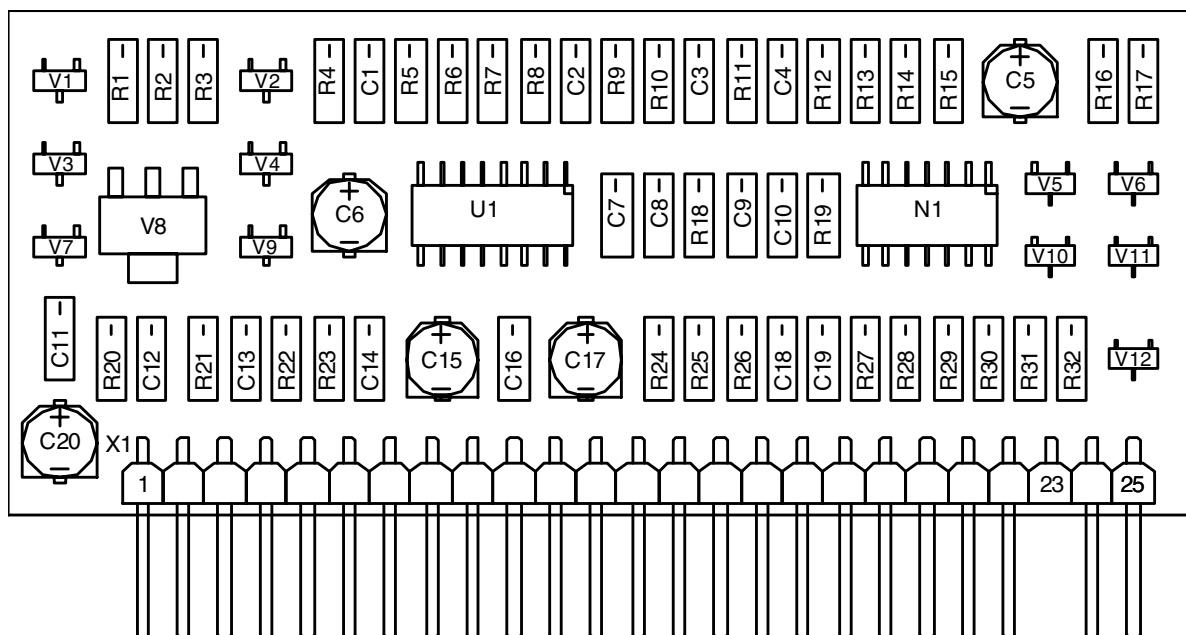


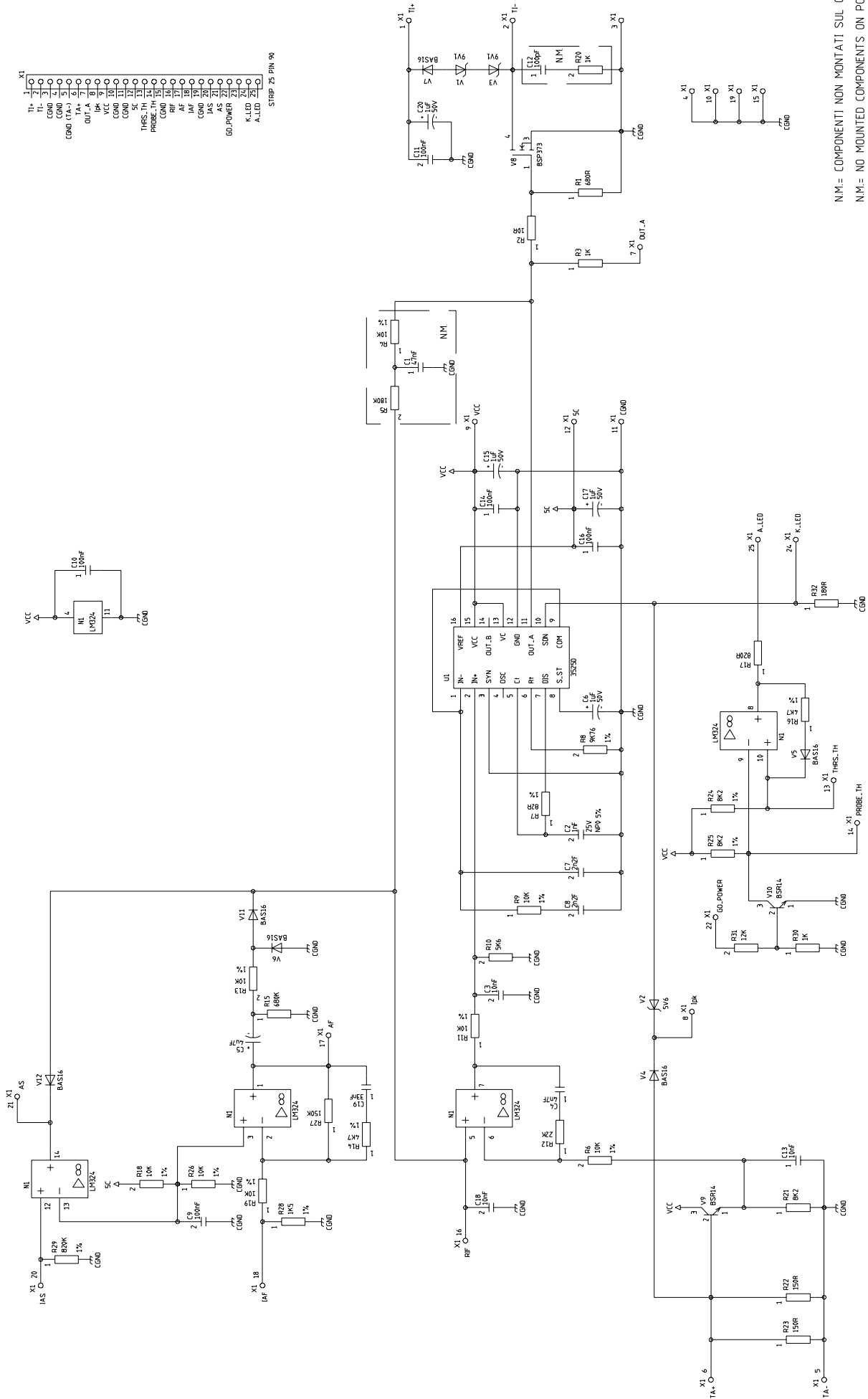


NM = COMPONENTI NON MONTATI SUL C.S.  
 NM = NO MOUNTED COMPONENTS ON BOARD









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