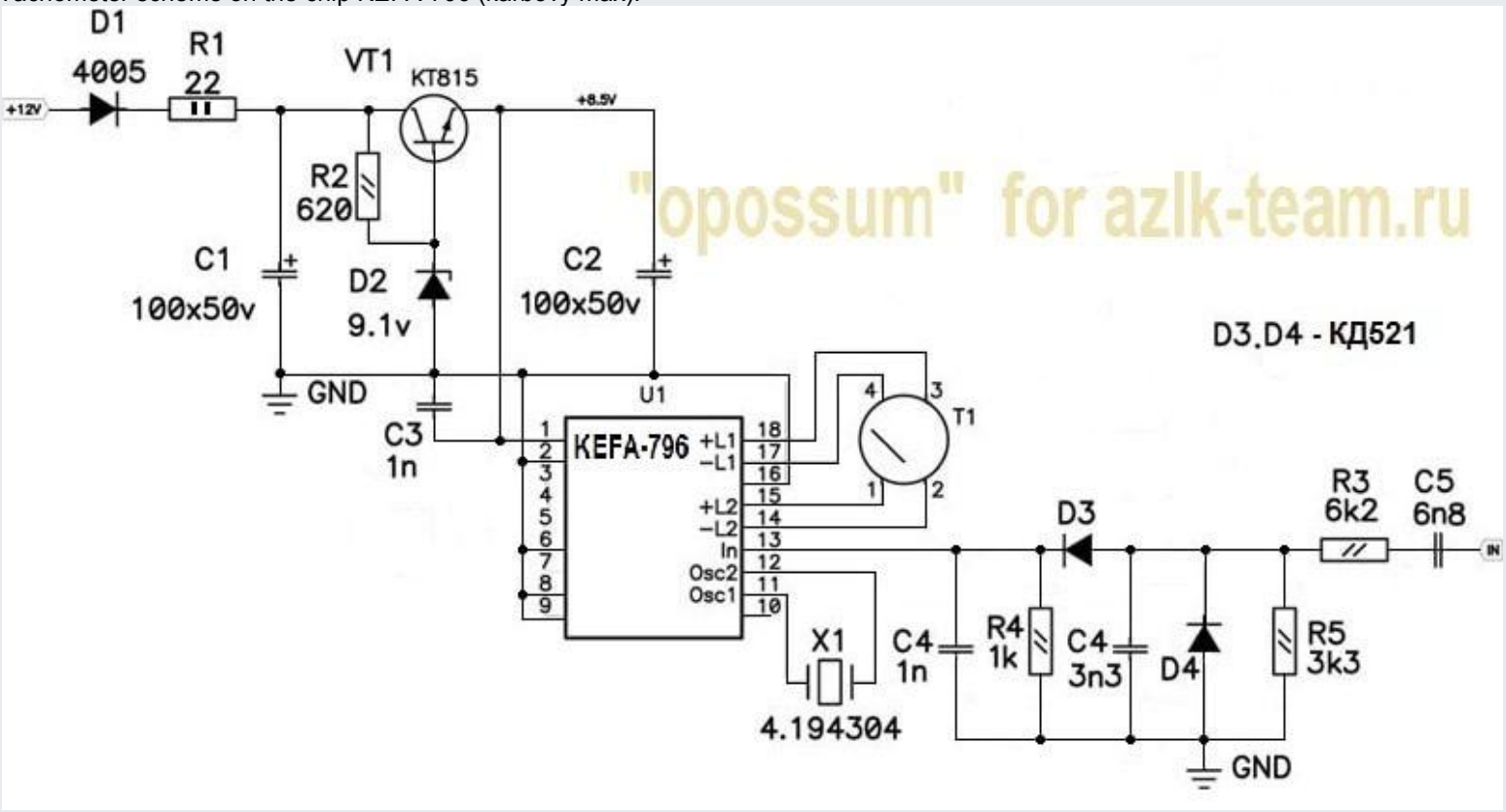
TACHOMETER

ATTENTION TO ALL OF WHOM IS A PROBLEM WITH TACHOMETER .

The main reason for tachometer marking our RAR tidy is 9.1V Zener diode sdyhanie !!! It is in a glass case and does not withstand constant temperature expansions! We change it to any analog for 9.1V, precision is not necessary. And everything works again! Can take in a metal case to forget forever. Cured more than one tidy RAR200. Periodic failures, dependence on the weather - just his fault.
But this is not a panacea! 100% guarantee that after this replacement, no one will earn everything, but in many cases it is he who is to blame, in view of the design in the glass case. It is also desirable to solder all contacts using rosin or LTI-120 flux (NOT ACID!) I also recommend that you unscrew all the nuts on the entire panel and clean the contact pads under them and crack them. DO NOT overheat the elements, contact with the soldering tip - no more than 3 seconds !.

If it does not help, we look at the remaining diodes in the glass. Conders can also dry (some immediately rush to change them), but the reduced capacity of electrolytes does not cause a complete failure of the entire taha! But an open circuit on a faulty element - for sure.
Scheme of the tachometer 2182.3801.00:

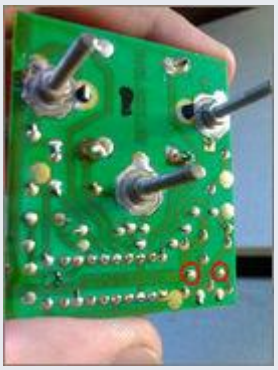
Tachometer scheme on the chip KEFA-796 (karbovy max):



In the photo below, a new Zener diode has already been installed, in a metal case, on different boards, as seen from the details:



View from soldering:

To install it, I had to drill a hole in the board a little and grind its other leg to the desired diameter. ATTENTION! BEFORE INSTALLATION CHECK THE POLARITY OF THE STABILITRON !!! You may have to flip 180 gr. in contrast to how it is in the photo.
If the replacement of the Zener diode did not help, watch the diodes D3, D4, D5, which are also in glass cases and are subject to the same problems.

BETment: Tachometers 2182.3801 and TX200C1 / R are fully compatible!

Carbide RAR180:


RAR180 on the KEFA-796 microcircuit:


In order for it to work on the injector, we solder how and where the 5.1 kOhm resistor is convenient between the board's power supply and the signal wire.For example, like this:

In order not to get lost:

Based on **dfmkp** from March 11, 2010, 23:10:48 (many thanks to him). Tachometers with / about AEP and Vladimirsky - reliable without microcircuit, but not very beautiful. RAR tachometers are less reliable on chips (ITT and LMS)
Malfunctions on appearance statistics are exposed:

- If tach does not give stable and adequate indicators, then disassemble the PP and solder the entire tach board, including the coil. NO ACID (LTI-120 flux, rosin).
- In case of unstable operation of the switch with the XX (jerking), it is necessary to replace 2 electrolytic capacitors: 25-50 volts and at least 100 microfarads, more, but not much. It is advisable to pay attention to the temperature mode of operation of the purchased capacitors (indicated on the case)
- If there is a problem with a jerking arrow under load on the motor, see the capacitor that is near the coils. There you can put 1000mkf X 25-63 volts.
- Condors are not electrolytic, reaching normally, are frozen and start to fail.
- Diodes it is desirable to ring all very often die because of the glass case
- with the death of the taha with all other serviceable components - mikruha burned. Checking the microcircuit is simple: We feed the tachometer board to the studs + and minus, according to the wiring diagram. The signal wire from the computer (LOW VOLT, no more than 5 VOLTS!) Is connected directly to the chip, to pin No. 13 (IF THE ACS is DO NOT RECOMMENDLY PERSONALLY RECOMMENDS !!!) see pinout LMS111 (connection table):

  But pinout native LMS2711 (duplicate):

- Trimmer not twist !!! We'll have to make a stand on the computer to properly put back.

For a tachometer, a U-shaped signal is needed (rectangular impulses _P_P_P_), and the higher the frequency of this signal in Hertz, the faster the speed is shown in TAX. The amplitude of the signal for the injection and BSZ is not higher than 5 volts, for karbovyh tachometers = 12 volts.
When I calibrated the tachometer needle.
He assembled a tachometer on the BSZ table, replaced the hall sensor sensor, a signal wire (green wire) connected to the headphone output on the computer, let's say on the left channel, a mass (black and white wire) on the computer screen, the computer the sound generator set

the U-shaped signal and set the reference frequency, adjust the volume with the volume control at which the arrow starts to show turns, see what defense the arrow shows and adjust it ...

Table

Hz	rpm
33.3	1000
66.6	2000
100	3000
133.3	4,000
166.6	5000
200	6000