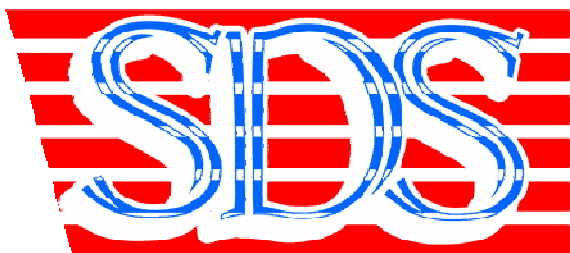


Particulate filter emulator

SK-05

Setting and installation manual Abbreviated



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1. Completeness

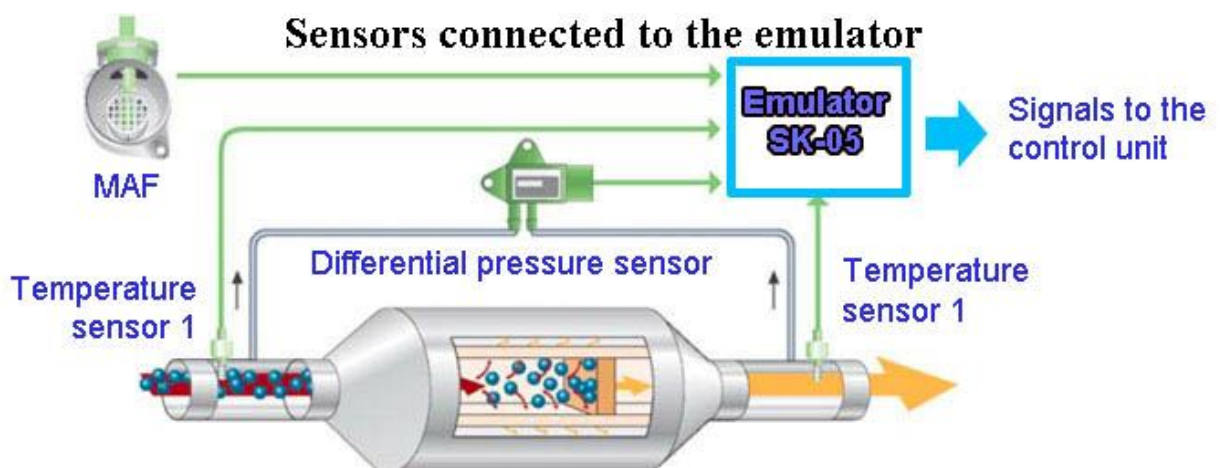
O. No.	Name	Quantity	Note
1	Electronics module	1	
2	User manual	1	
3	The software disc	1	Supplied upon agreement
4			

2. Operation principle and purpose

The emulator SK-05 is designed to recreate the signals from sensors, which are responsible for the diagnosis and maintenance of the particulate FAP/DPF filter. The recreation of signals is carried out by the models, recorded written in memory of the emulator.

The behavioral model of the particulate filter generates signals of the pressure differential and temperature sensors. Thus, the behavioral model of the particulate filter considers following factors:

- Air flow;
- Temperature of the exhaust gases;
- Heat capacity of the filter;
- Thermodynamics of original exhaust system;
- Effect of the chemical processes in the FAP / DPF filter on the sensor data;
- Emulates an increase of filter filling level;
- Regeneration start is tracked and the behavior of the filter during regeneration is emulated.

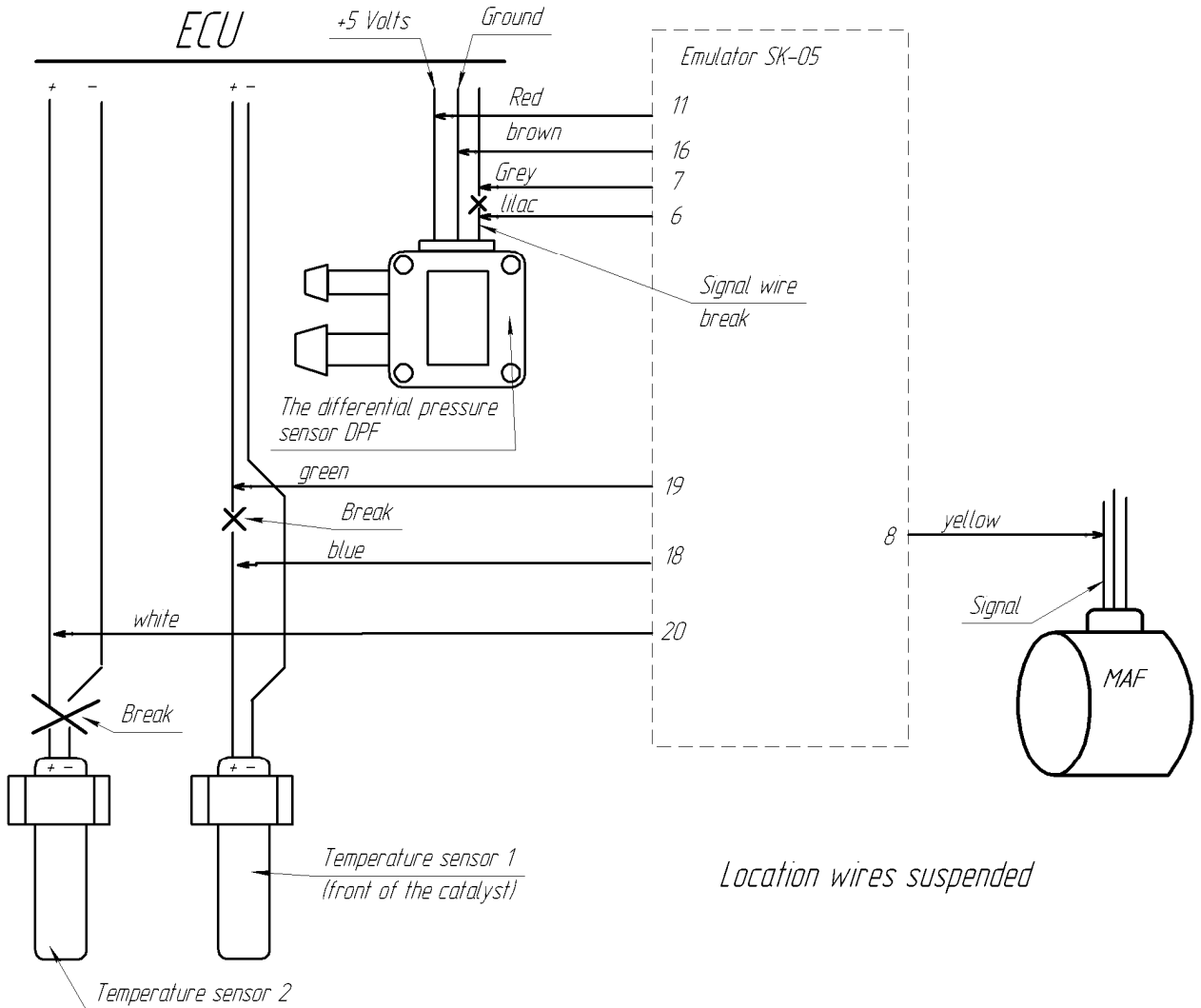


3. Installation of the emulator

The emulator must be installed in a place protected from exposure to elevated temperatures and moisture.

Schemes shown in Figures 3.1., 3.2, 3.3 are used depending on the quantity of temperature sensors.

Figure 3.1. Scheme of connection of emulator SK-05 with 2 temperature sensors.

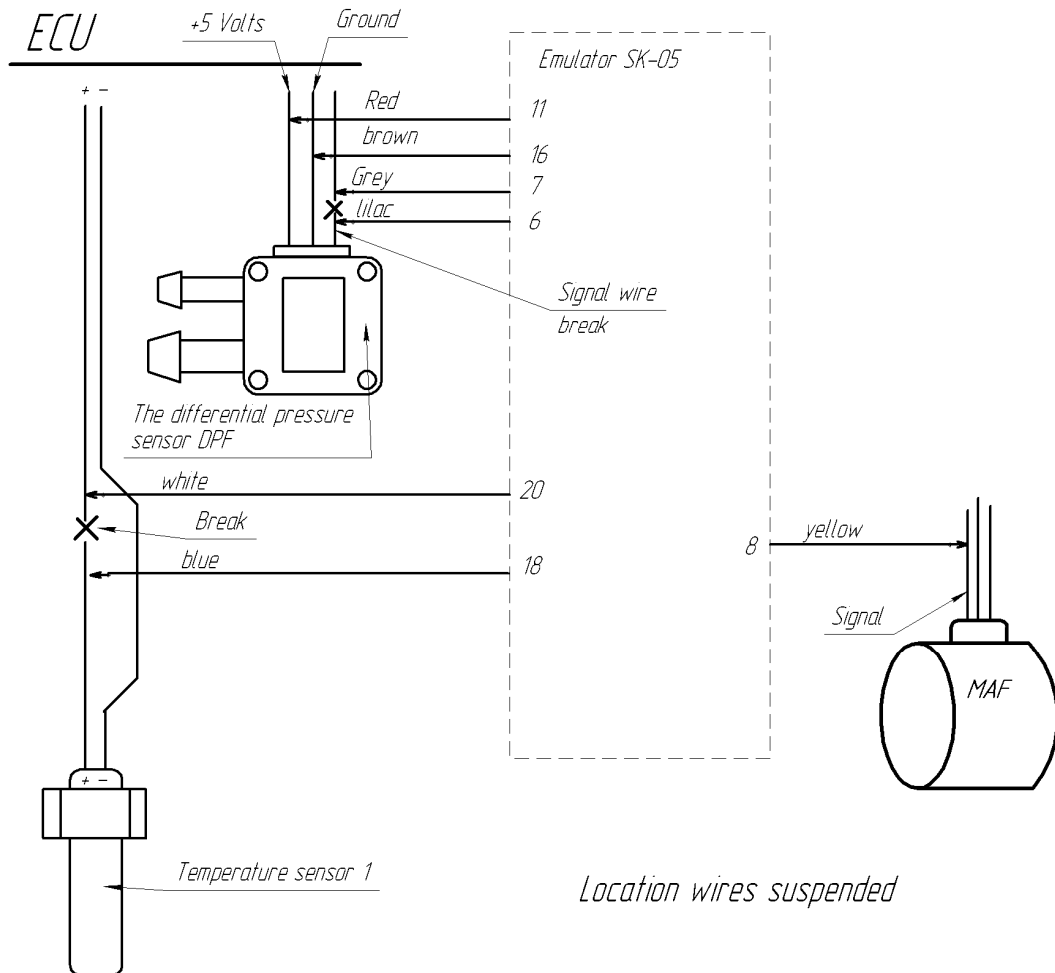


Before connecting the temperature sensors, it is necessary to start up the ignition and to measure the voltage with multimeter and to determine the polarity on their wires.

At removing particulate filter, make sure that the 1st temperature sensor was located in the exhaust gas flow, and not away from it!

To determine signal wire of pressure differential sensor, it is necessary to start up the ignition and to measure the voltage on sensor wires referred to case. Typically, the wires have the voltage of 0 and 5 volts. Usually the signal wire has the voltage around 0,4 ... 1,0 volts with turned off engine, in some cases — 2.5V.

Figure 3.2. Scheme of connection of emulator SK-05 with temperature sensor



To determine the signal wire MAF, it is necessary to start up the motor and to determine the signal wire by measuring the voltage relative to the weight of the car. The voltage of this wire should be approximately 1 ... 1,7V. This voltage should increase to 3 ... 4 volts upon pressing on the gas pedal. MAF with frequency output can be used in some models of engines; the voltage of signal wire of such sensor does not significantly change and is approximately 2 ... 3V.

If you have such MAF, you must choose “Digital” type of mass airflow sensor (ДМРВ) (normally, the emulator is supplied already set for a specific automobile) in the settings of the emulator.

Figure 3.3. Scheme of connection of emulator SK-05 with three temperature sensors

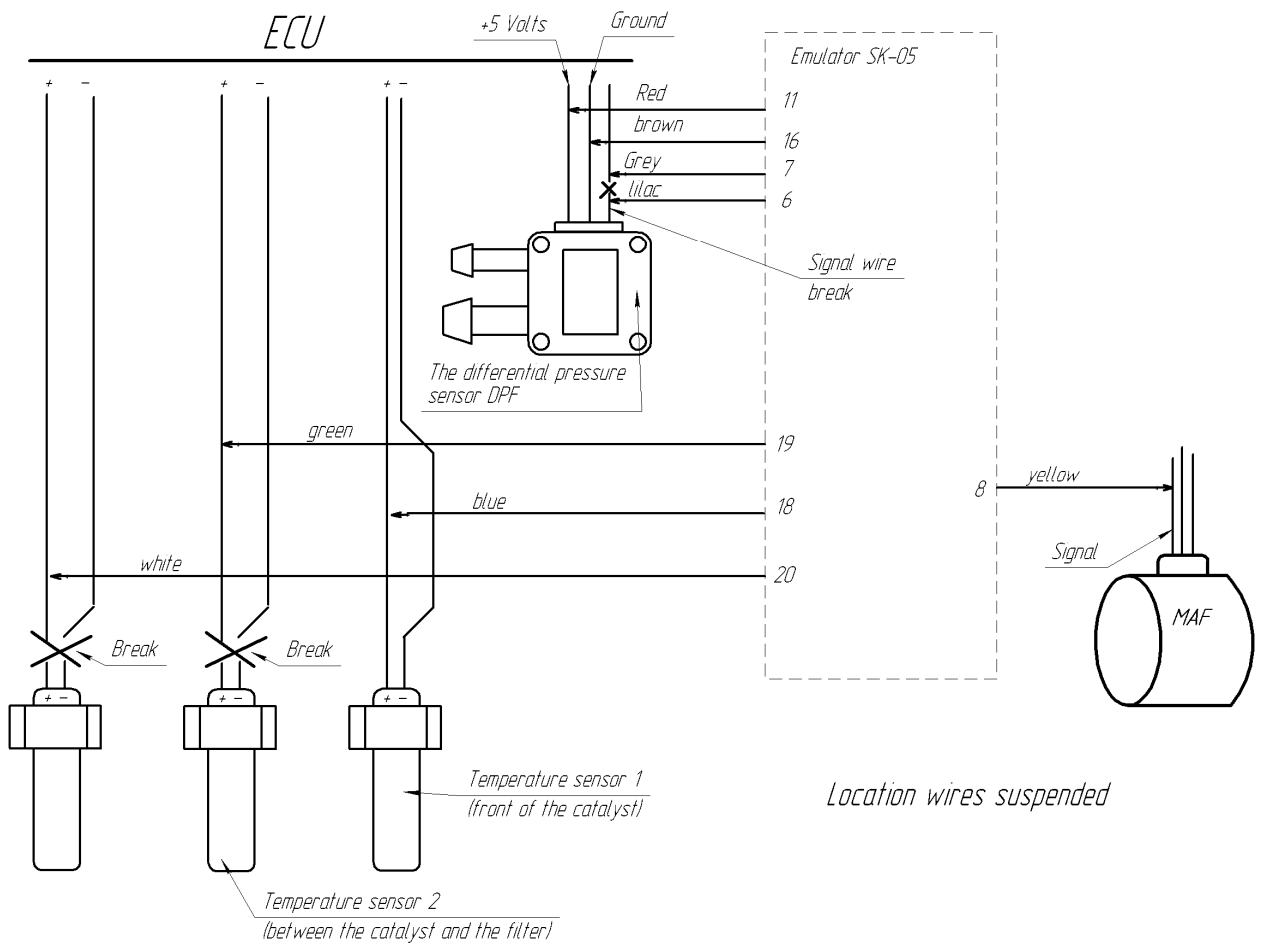
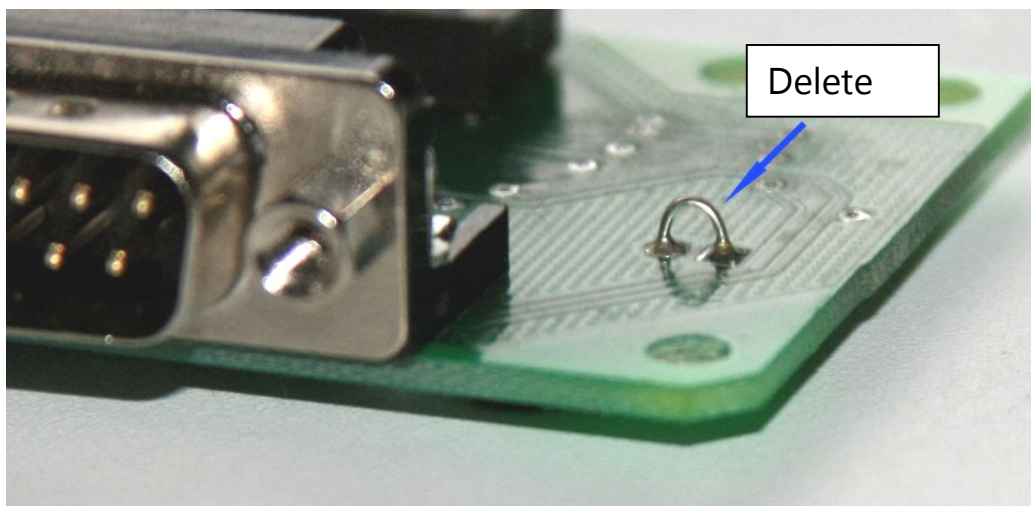
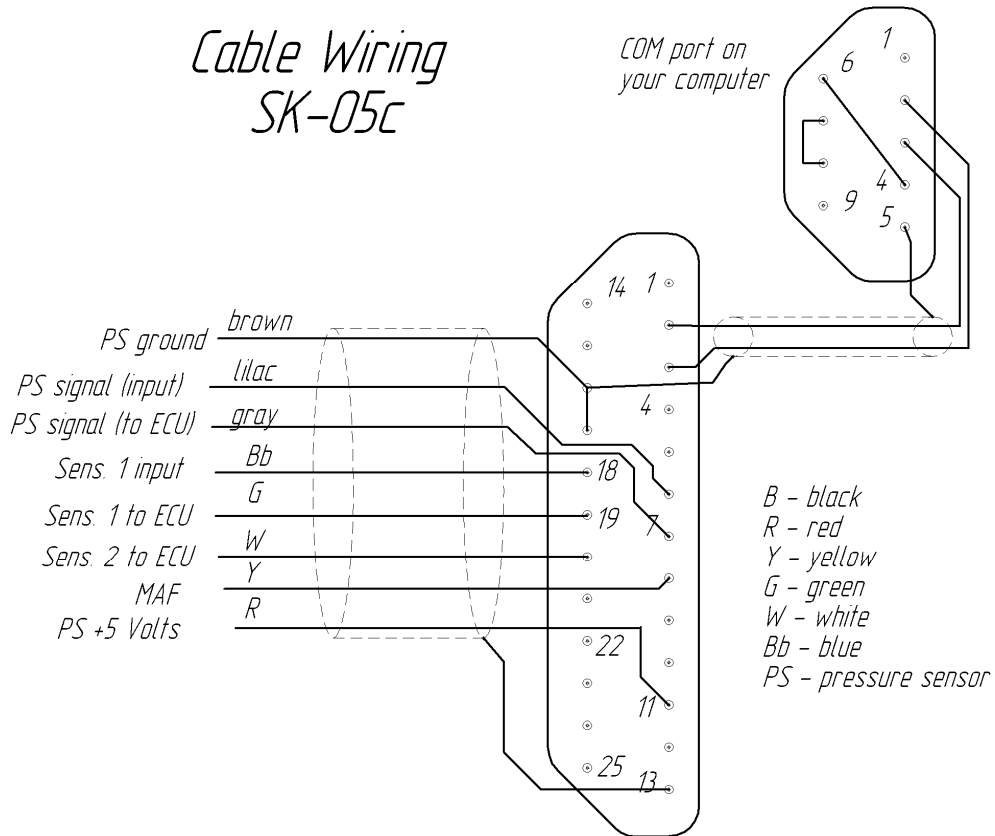


Figure 3.4. Removal of the connection element for temperature sensors with voltage 0,5 ... 0,6V.



On automobiles with the voltage of 0,5 ... 0,6 volts on the temperature sensor (on the cold sensor), it is necessary to break a special connection element on the plate (Fig. 3.4.). Opel 1,7 with motor Z170TG, some Audi since 2009 are the examples of such automobiles.

Figure 3.5.



4. Check of the emulator

1. Start up the ignition and connect the scanner (cold engine).
2. Check pressure difference in the particulate filter in situ. Readings should be at the level of about 0.
3. Check temperature in the exhaust system (before the catalyst and in the particulate filter). It should not differ by more than +/- 40 degrees from the real temperature for sensors with a voltage up to 1V and not by more than + 100 degrees for sensors with a voltage of 5V.
4. Start up the engine up and heat it. At idle speed the temperature should be between 180 to 300 degrees. Pressure difference is about 0.
5. At 3000 rpm the pressure difference should be 5 - 9 mBar (50 ... 90 hPa).
6. At the speed of 100 km/h the temperature should be 500 – 650 degrees.

5. Guarantee obligations

The manufacturer guarantees the operation capacity of the product provided that rules of operation, stipulated in the operation manual, are observed.

The guaranteed service life of the emulator is 12 months from the date of sale.

During guaranteed service life, in case of system failure, the owner is entitled to free repair.

During guaranteed service life the repair is made at the expense of the owner, if he operates the optimizer not in accordance with this operation manual or does not comply with the manufacturer's recommendations.

The guarantee of the system is cancelled in the following cases:

- Opening of the device;
- Mechanical damages;
- Operation not in accordance with this user manual.

Emulator SK-05, serial number _____ complies with specifications and accepted for service.

Date of manufacture _____ 2014

Seller _____

Place for seal

Automobile model (on which the equipment is installed):

Was installed by: _____ / _____ /

Date of installation: _____