THE CHARACTERISTIC FOR INJECTIONS TIMES

Blaga Vasile, Carol Daroczi
University of Oradea, Faculty on Environmental Protection, 26 Gen. Magheru St., 410048 Oradea; Romania,
e-mail: vblaga_unuv_oradea@yahoo.com

ABSTRACT

With help to present parameters in this working are realize on the stand engine: the characteristic from speed at all load, the characteristic from speed at partial load, the combustible consumption's at totally task, the combustible consumption's at partially task In the writing "The characteristic's for revolution at partial's of engine load type 106-10 with injection for gasoline ", the experimental test of settle proposal was determine the performance dynamics and combustible consumption. The equipment for to try is more feet that is existing now. Was using equipment for test of Engines with Spark lightning with help injection of petrol that is present in number one imagines.

Key words: gasoline injection, effective power, totally task, partially task, angle of lighting.

1. INTRODUCTION

The general objective is the development of the infrastructure by the way of acquisition equipment and complementary calculation systems, including the dedicated soft, instruction services etc.), which allow the researchers to work under conditions which assure performance, having the same devices and equipment as that exiting in the European laboratories which have similar profiles. The real objective is development of the research infrastructure for internal burning engines, motor engines, tractors, and agricultural machinery. The specific objective is the growth of the usage rate of the existing research infrastructure, the development of informing and scientific documentation infrastructure and carrying out services towards third persons using the purchased equipments. Among the objectives specific for the research objectives we can mention: refining the internal combustion engines in order to reduce fuel consumption and gases evacuated by the engines of the automobiles and tractors; research regarding experimenting non-conventional fuels, especially bio-diesel for automobiles and tractors; research regarding conversion systems of renewable energies (geothermal thermal energy, solar energy, wind energy etc.); research regarding new types of engines with a mono-regime functioning; research regarding the usage of biogas at the internal combustion engines in agriculture; research regarding the efficiency of the tilling of the soil for agricultural and horticultural in a classical and ecological agriculture cultures; studies and research methods to control and reduce the phonic and chemical pollution at engines with internal combustion. The derived objectives lead to the development of research infrastructure. There will be made equipment and device purchasing, as well as performing works like (appropriating interior space, cleaning, re-dividing of the multifunctional laboratory for Agricultural Mechanization from the University from Oradea having the total usable surfaces 24x16=384 m^2 according to the figure above). By means of the purchased devices, we can sketch the indicated diagrams for the engines starting with their project and applicative research, and those operating, in this way being possible to determine all technical-economical and operating parameters of the tractors. We will try, check, and adjust the engine parts from motors, tractors, and agricultural machinery. We intend to buy equipment for testing engines made of: trying stalls equipped with instruments and devices for fuel supply and cooling water, pipes for gas evacuation,

instruments, and devices for making these measurements. In order to determine the dynamic and fuel consumption performances we will purchase a stall equipped with an electric brake with eddy currents R&D AVL - Austria with all peripheral equipments. The laboratories instruments for determining the polluting products, stalls with rolls having brake with eddy currents and a set of detachable with insertion SCHENCH 364/260, gas analyzer AVL Austria, which works on the non-dispersive absorption principle in specter of infrared radiations, is used for the analysis of engine evacuated gases. We will buy stalls, devices, and testers used for trying the engines, tractors and agricultural machineries presented in the list of equipments necessary to carry on the project. We will purchase devices, office equipment and furniture, testing and consulting services, technical assistance including assembling, functioning, maintenance, repairing and instructing.
General Objective: The general objective of the project is to develop research capacities, the opening of the research-development-innovation system towards the international scientific environment, and connecting it to the national socio-economic environment. The development of research development innovation is made by the way of acquisition of research development innovation equipment and contiguous goods (complementary calculation systems, including the dedicated soft, instruction services etc.), which allow the researchers to work under conditions which assure performance, having the same devices and equipment as that exiting in the European laboratories which have similar profiles. The real objective is development of the research infrastructure for internal burning engines, automobiles, tractors and agricultural machinery.

Specific objectives

The development of the research infrastructure in the prior research domains established through the National Strategy research development innovation; the growth of the usage rate of the existing research infrastructure; the development of informing and scientific documentation infrastructure; revaluation of the potential and of research development innovation resources in the region; sustaining the science-society dialogue; participation of the research development innovation entities to international research programs; participation and representing Romania at international scientific and technical organizations. Among the specific objectives for the research objectives we can mention: refining the internal combustion engines in order to reduce fuel consumption and gases evacuated by the engines of the automobiles and tractors; research regarding experimenting non-conventional fuels, especially bio-diesel for automobiles and tractors; research regarding conversion systems of renewable energies (geothermal thermal energy, solar energy, wind energy etc.); research regarding new types of engines with a mono-regime functioning; research regarding the usage of biogas at the internal combustion engines in agriculture; research regarding the efficiency of the tilling of the soil for agricultural and horticultural in a classical and ecological agriculture cultures; studies and research methods to control and reduce the phonic and chemical pollution at engines with internal combustion. The results will be measured through indicators which reflect the impact of the investment in the research development innovation system:
Derived objectives: the development of research infrastructure: modernizing, consolidating, extension, and conservation of the existing infrastructure and existing research development devices in the universities, laboratories, high performance equipments, great size databases. The devices from the multifunctional laboratory for agricultural mechanization are essential, as long as we want agriculture in our country to be internationally competitive, we need to have the necessary devices to form new

generations of researchers in the agricultural mechanization domain, who, by a close co-operation with researchers from agricultural research centers to develop relevant research projects on national and international level in agriculture. By means of the purchased devices, we can sketch the indicated diagrams for the engines starting with their project and applicative research, and those operating, in this way being possible to determine all technical-economical and operating parameters of the tractor. We will try, check and adjust the engine parts from motors, tractors and agricultural machinery, namely the greasing and cooling system, the engine supply pump, the ignition system, the starting system, the electric equipment of tractors and agricultural machinery, the hydraulic system, the trying and grinding of these machineries, the power balance of the tractors, to determine the traction force.

2. PRESENTATION OF THE MULTIFUNCTIONAL LABORATORY

The multifunctional laboratory for Agricultural Mechanization, the Faculty for the Protection of the Environment, from the University from Oradea is presented in fig.1. The Multifunctional Laboratory will serve the following specializations from the University: Agriculture, Horticulture, Forestry, Forest Exploitation, Wood Processing, Thermal Engines, Motor vehicles, etc.

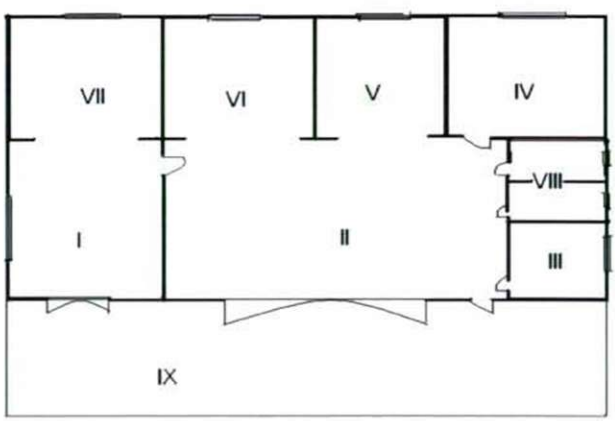

Fig.1 The scheme of multifunctional laboratory for Agricultural Mechanization, Faculty for Protection of the Environment, University from Oradea: I- engine testing(surface 6x8 m^2); II- tractors and agricultural machinery(surface 14x8 m^2); III-office (surface 4x4 m^2);IV- electrical equipments (surface 6x8 m^2); V- electronic testing direction, brakes (surface 6x8 m^2); VI- pollution testing (surface 6x8 m^2); VII- hydraulic tests (surface 6x8 m^2); VIII-health group (surface 4x4 m^2); IX- cold park.

The afferent subjects for these specializations which will use the laboratory for their work are: energetic base for agriculture, Agricultural machinery, Mechanization of forestry work, Machinery operation for agriculture and food industry, General course for machineries, Thermo-techniques and thermal machinery, Thermal engines, The thermo gas dynamics of the engines, Designing and calculation for engines, Designing and calculation for motor vehicles, The technology of transport, The electric equipment on board,

Dynamic of the motor vehicles, Methods of fighting and reducing phonic and chemical pollution at engines with internal combustion. Specialists who will use the multifunctional laboratory will participate to draw up this project.

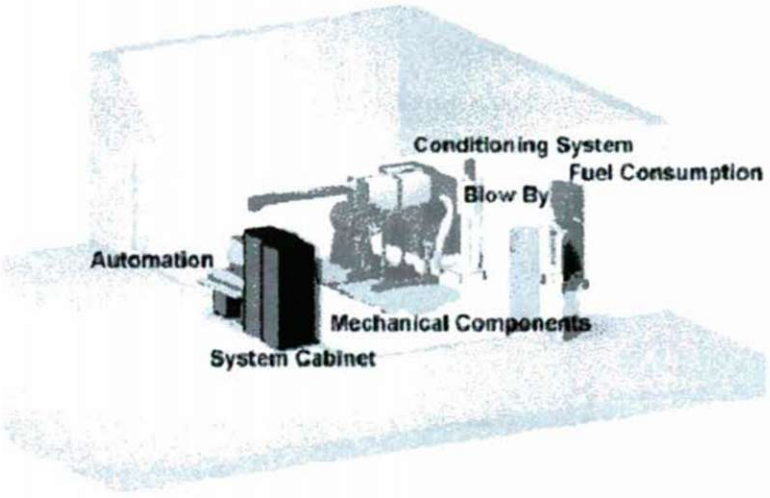

Fig. 2 System Cabinet

2.1. The equipment for i.c.e. testing

The equipment for i.c.e. testing are constituted by: test benches equipped with apparatus and the devices for fuel and water supply, the exhaust gases manifolds, apparatus and devices for the measurement's effectuation. The equipment for to try of the engine with fuel injection is made by: figure 3
-foundation with a plate and a frame, on which it is fixed the equipment for testing;
-electric or hydraulic brake
-the engine fuel supply system and the devices which allow the determination of fuel consumption;
-the engine's starting system;
-the exhaust system of the burned gases and of the damping of the noise;
-the system for measuring oil consumption, air and water rate;
-apparatus for measuring temperatures, pressures etc.

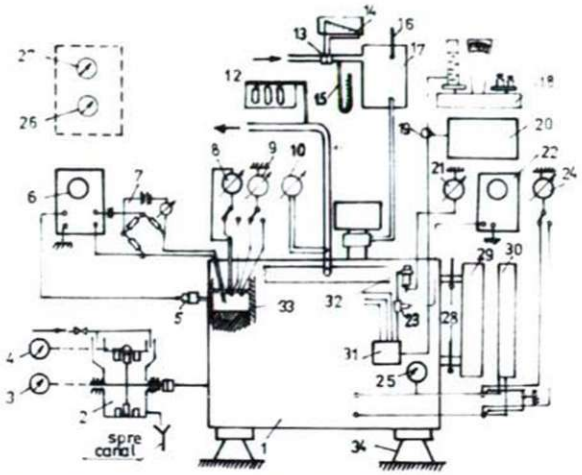

Fig. 3. The engine test bench with diesel fuel injection system:
1-engine; 2-electric brake; 3-tahometer; 4- brake's indication dial; 5-piezoelectric transducer; 6-oscilograph; 7-apparatus to measure gases temperature in the cylinder; 8-piezoelectric pyrometer to measure the valve's temperatures; 9- piezoelectric pyrometer to measure lid cylinder's; 10- piezoelectric pyrometer to measure the temperature in the exhaust manifold; 11- the exhaust manifold;12-exhaust gases analyzer; 13-dyaphragm; 14-micrometer; 15-manometer with liquid; 16-thermometer; 17-the tank for air; 18-device to measure fuel rate; 19-tap for 3 ways; 20-tank; 21- piezoelectric pyrometer for measuring the temperature at the injector; 22-oscilograph; 23- piezoelectric transducer for measuring the injection's pressure; 24- piezoelectric pyrometers for measure ting oil's temperature; 25-manometer for oil; 26-thermometer for the environment's temperature; 27- barometer; 28-thermometer for the cooling water; 29-radiator for water; 30-radiator for oil; 31-fuel supply electric pump; 32-injector; 33-the engine's cylinder; 34-the engine's support on foundation.

We will buy test benches, devices, and testers used for trying the engines, tractors and agricultural machineries presented in the list of equipments necessary to carry on the project.
We will purchase devices, office equipment, and furniture, testing and consulting services, technical assistance including assembling, functioning, maintenance, repairing and instructing.

3. THE TESTING PRESENTATION

At the engines stall have been brought in order to try a Mono-Motronic [Delanette,1989], injection system engine type 106-20 equipped with carburetor 28/30 DCI. The injection's and lighting map drawings used at the engine with fuel injection expert meted by the author constitute some networks of characteristics with are put in the memory under the numerical form into an electronic module. They do not alter net much on the whole duration of the engine's work-ink.
The electronic variation of the advance at the lighting has two important advantages the relative information to the revolution speed is directly taken from the shaft engine thank to in inductive sound with a highly precision of measure and the using of a map drawing allows to obtain adjustment of the advances angle at the lighting. The testing have carried

on retiring to the followings the engine's running in; the determination of the dynamic and of consumption's .

At the engines stall have been brought in order to try a Mono-Motronic injection system engine type 106-10 equipped with carburetor 28/30 DCI. The injection's and lighting map drawings used at the engine with fuel injection expert meted by the author constitute some networks of characteristics with are put in the memory under the numerical form into an electronic module. They do not alter net much on the whole duration of the engine's work-ink. The electronic variation of the advance at the lighting has two important advantages the relative information to the revolution speed is directly taken from the shaft engine thank to in inductive sound with a highly precision of measure and the using of a map drawing allows to obtain adjustment of the advances angle at the lighting. [Bataga, 1996]

The testing have carried on retiring to the followings the engine's running in; the determination of the dynamic and of consumption's performances according to SR ISO 1585/1998 and the carburetor variant; the determination of the STAS 6635/87 and of the combustible consumption's performance according to; in the fuel injection's variant; the comparison of the obtained results in the two equipment variant presented in the figures 4,5, and 6. [Blaga,2000];[Blaga,2005].

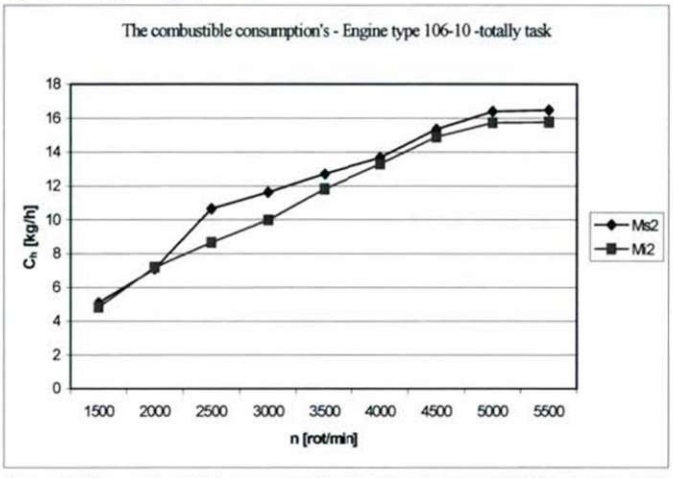

Fig. 4. The combustible consumption's - Engine type 106-10 -totally task

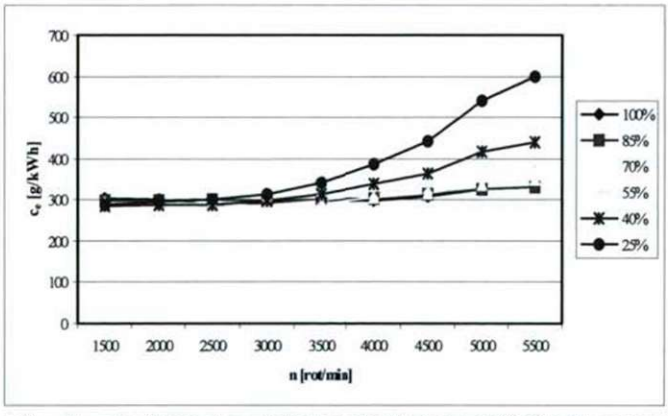

Fig. 5 The rotation characteristic's at partially task. Engine's type 106-10 with carburetor 28/30DCI

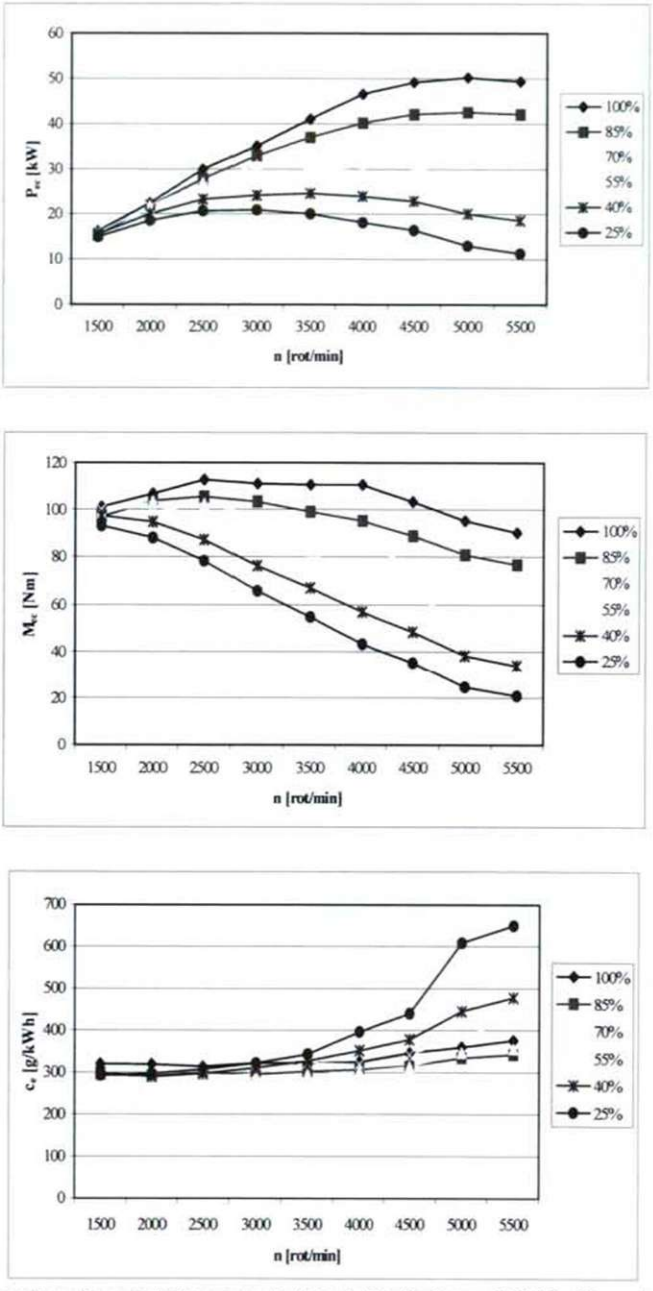

Fig.6. The rotation characteristic's at partially task. Engine's type 106-10 with engine injection

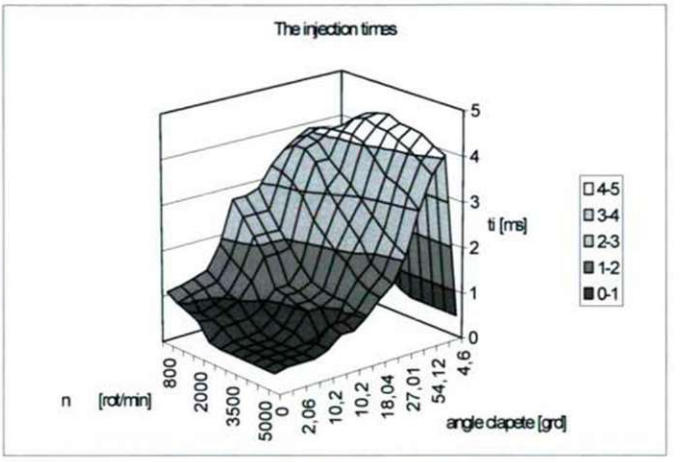

Fig. 7.The characteristic for injection's times

4. CONCLUSION

For the equipped engine's with the model supposed by the author, have been raised up on the engine stall, the main cartograms for the injection's times, at totally and partially task [Grünwald,1980] and the enrichment's coefficient at the totally task which are presented in the figure no 5 .[Blaga,2000]

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