International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

COPY RIGHT

ELSEVIER
SSRN

IJIEMR Transactions, online available on 13th April 2021.
Link: https://ijiemr.org/downloads/Volume-10/Issue-4
DOI: 10.48047/IJIEMR/V10/I04/43
Title: **ADVANTAGES OF ELECTRONIC SPRING SYSTEM IN MODERN CARS**
Volume 10, Issue 04, Pages: 169-171.
Paper Authors:
Мамадалиев Махаммаджон Хабибуллаевич[1], Тожимухаммадов Мухаммадсобир Носиржон ўғли[2], Йўлдашев Жавохир Муроджон ўғли[3],

USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per UGC Guidelines We Are Providing A Electronic Bar Code

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

ADVANTAGES OF ELECTRONIC SPRING SYSTEM IN MODERN CARS

Мамадалиев Махаммаджон Хабибуллаевич[1], Тожимухаммадов Мухаммадсобир Носиржон ўғли[2], Йўлдашев Жавохир Муроджон ўғли[3],
Associate professor. Andijan Machine-Building Institute Uzbekistan, Andijan[1]
Master student. Andijan Machine-Building Institute. Uzbekistan, Andijan[2]
Master student. Andijan Machine-Building Institute. Uzbekistan, Andijan[3]

Abstract: The article provides information about the advantages and peculiarities of the electronic spraying system used in modern cars.
Keywords: car, carburetor, injector, technology, fuel mixture, cylinder, injection system.

Introduction

At a time when growth and development are rapidly changing in all industries of the country, scientific research is being conducted on the ways of their effective use and development in the automotive industry.

Currently, the process of car production in developed countries is developing rapidly, so the demand for automotive fuel is growing significantly.

The car engine is a complex system that runs continuously in any conditions. A few years ago, cars were equipped with carburetors, it is known that over time, this technology is becoming obsolete and is being replaced by injectors.

An injector engine is a fuel injector transmission engine. This fuel supply technology has a number of important advantages over carburetor technology and can be installed in modern gasoline-powered cars.

One of the current requirements for the improvement of car engines is to reduce fuel consumption, increase the efficiency of engines and reduce production costs.

One of the highest demands on the production of cars today is the fight against toxic gases emitted into the atmosphere. To solve this problem, a number of studies are currently being conducted by scientists, researchers and experts in the field.

The quality of fuel mixture preparation in the supply system of internal combustion engines affects the power of the engines, torque and the composition of the combustion exhaust gases. The carburetor fuel supply system cannot meet the requirement to increase fuel economy and exhaust emissions by increasing power, torque at the same time [8].

The main disadvantages of the carburetor engine supply system are:

- the number of cylinders at different distances from the carburetor;
- the fuel mixture is prepared in the carburetor and the finished mixture is transferred to the cylinders;

As a result of these shortcomings, a mixture of fuels of different composition reaches the cylinders and fuel consumption increases.

To overcome these shortcomings, it is necessary to prepare the fuel mixture in front of each cylinder.

Modern car engines use an electronic fuel injection system that prepares the fuel mixture near the inlet valves of each cylinder.

The disadvantage of this system is that the spray system is more expensive than a carburetor system, the structure and the complexity of maintenance during operation [9].

Electronically controlled systems, which can be adjusted by changing the cyclic

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

(periodic) spray duration to the gasoline delivery, are more commonly used.

Depending on the number of electromagnetic injectors used, these systems will have separate nozzles for each cylinder (distributed spraying), one nozzle for each cylinder (central spraying) for all cylinders.

In four-stroke engines, injection systems with electromagnetic injectors with a pressure of 0,15-0,4 MPa in the injector are common. Direct injection of gasoline into the cylinders of car engines is also used in practice. The main reason for this is the poor working conditions of the headlight, the difficulty of placing it in the combustion chamber and the high spray pressure (3,5-10,0 MPa). Figure 1 shows the electronic gasoline injection system [10].

The fuel is sucked out of the tank (1) by an electric gasoline pump (2). The oil is then pumped through the filter (3) to the main (6). The pressure difference between the inlet and outlet of the fuel to the injector (5) is constantly maintained by means of the reduction valve (7) on the main line. Excess fuel is returned to the tank from the reduction valve (7).

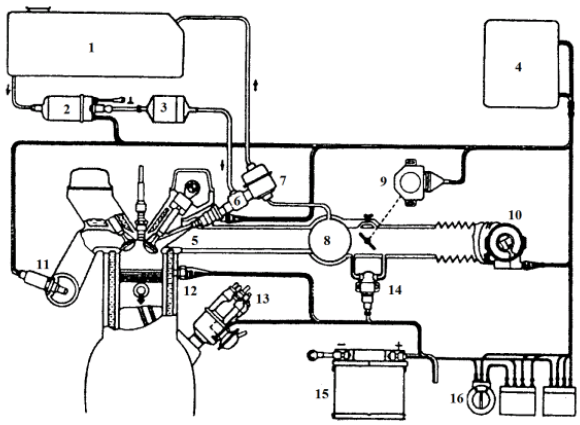

Figure 1. Electronic spraying system

1 fuel tank; 2-electric pump; 3 oil cleaning filter; 4 electronic control unit; 5-electromagnetic injectors; 6-drive main; 7-reduction valve; 8 inlet pipeline; 9 throttle valve sensor; 10 air flow connector; 11-probe; 12 temperature sensor; 13 ignition distributor; 14 additional air regulator;15-battery; 16 ignition lock.

Accordingly, the electronic fuel injection system is rapidly overtaking traditional carburetor systems. The advantages of the electronic fuel injection system over the carburetor system are as follows:

- separate regulation of fuel and air, different distribution of fuel in accordance with the supplied air;

-adjustment of the basic program of standardization on many factors

(depending on the mode of loads and velocities, air and coolant temperature, atmospheric pressure, etc.);

- Exact adjustment of the mixture as required for neutralization of exhaust gases - in probe systems;

- improvement of engine efficiency, power percentage by 5-15%, diagnostics, self-diagnosis;

- fast, because it is controlled by a digital microprocessor;

- the exact composition of the fuel mixture;

- the ability to keep the composition of the fuel mixture the same for a long time;

- be able to provide high fuel economy;

- reduce the harmful effects of exhaust gases.

Literature:

1.Гуревич А.М. Тракторы и автомобили. М.,1978.

2.Сергеев В.В. Автотракторный транспорт. В.Ш. Москва-1984.

3.Худойбердиев Т.С. Трактор ва автомобиллар назарияси ҳамда ҳисоби. Тошкент, Ўқитувчи, 1984.

4.Худойбердиев Т.С. Трактор ва автомобиллар (Ички ёнув двигателларининг тузилиши ва ишлаши) Тошкент. 2015.

5.Маматов Х. Автомобиллар (Автомобиллар конструкцияси асослари) 1

ва 2 қисм. Дарслик, Тошкент, Ўқитувчи, 1995 йил.

6. Коленников В.М., Коленников Е.В. Теория и конструкция автомобиля. М., 1997.

7.Файзуллаев Э.З. Транспорт воситаларининг тузилиши ва назарияси Тошкент.Зарқалам.2005.

8.Мамадалиев М.Х., Абдирахмонов Р.А., Тешабоев У. Особенности антиблокировочной системы тормозов ABS автомобиля. Ученый XX I века

международный научный журнал № 12-3(71), декабрь 2020.

9.Абдирахмонов Р.А., Мамадалиев М.Х., М.М.Халилов. Автомобилсозликнинг келажак истиқболлари Интернаука научный журнал часть 2 №43(172), г.Москва. Ноябр 2020.

10.Мамадалиев М.Х., Йўлдашев Ж.М., М.Н.Тожимухаммадов. Автомобилларда сиқиш даражасини ўзгаришини двигател кўрсаткичларига таъсири. Интернаука научный журнал часть 3 №4 (180), г.Москва. Феврал 2021.