American Journal of Interdisciplinary Research and Development
ISSN Online: 2771-8948
Website: www.ajird.journalspark.org
Volume 29, June - 2024

ALTERNATIVE IN FUELS WORKING, SPARK GRASS TO BE REMOVED AND DIESEL ENGINES HEAT ACCOUNT PROGRAM CREATE

Axmatjanov Ravshanjan Nematjonovich
Tashkent State Transport University, "Transport Energy Devices "
of the Department Head, Technical Sciences Philosophy Doctor (PhD)

Nosiraliev Ismailjon Usmanali o'g'li
In the name of Islam Karimov Tashkent State Technical University
Kokan Branch, "Engineering Technologies" of the Department Intern Teacher

Raxmanov Saxibjon Shokirjon o'g'li
In the name of Islam Karimov Tashkent State Technical University
Kokan Branch, " Material Science and Sure Sciences "
Assistant Teacher of the Department

Abstract:
By developing software for thermal calculation of spark ignition engines and diesel engines operating on alternative fuels, it allows analyzing the process of operation of engines on any fuel using computer programs in the field of engine building, improvement of internal combustion engines (ICE) and research, development of candidate and diploma projects, course projects on the topic "Internal combustion engines" and get results, as well as study the thermal calculation of the internal combustion engine.

Keywords: engines, alternative fuels, spark-ignition engines, diesel engines, modern information technologies, programming, calculation, experiment, analysis, synthesis.

Introduction

At the current stage of the development of scientific technology, the increase of modern information media and their penetration into educational systems, their practical use will undoubtedly increase the effectiveness of the educational process .

Currently, all teachers working in the education system, like all other fields, are required to use modern information technology tools. The reason for this is that modern information technology methods are being developed in all subjects during the course of the lesson.

The program we are developing is dedicated to the methodology of using information technology tools for the use of teachers teaching in the automotive field in the teaching process, and we think that it will provide practical help to teachers working in the technical higher education system, to scientific researchers, as well as to specialists working in the field of R&D.

Currently, software products for various fields are being prepared with the help of computer programs, which certainly increases the efficiency of work in these fields. Computer programs are used to create mathematical and 3D models of all technical tools and equipment, to test them, to calculate, to analyze the obtained results and to put them into practice.

We aim to create heat calculation software for alternative fuel, spark ignition and diesel engines . In this case, it will be possible to directly monitor the temperature calculations and changes in IYoD indicators during the operation of the car on alternative fuels, spark-ignition and diesel engines.

The use of alternative fuels for cars and trucks is becoming an urgent issue today. Therefore, the research of such car engines has to make changes to some details of engines, supply systems. For this, first of all, heat calculation of IODs is carried out, and these calculations are carried out separately for different fuels, depending on the amount of their components. Of course, this process has to be carried out several times depending on the change of IYoD indicators. The calculation program we offer serves to quickly and qualitatively implement the calculation processes.

Currently, various alternative fuels are used as motor fuel in car engines in the world, some of them are introduced below.

Gases: Compressed natural gas, liquefied petroleum gas, hydrogen gas;

Alcohols: Methanol, ethanol, butanol, propanol;

Ethers: Dimethylether;

Biofuels: Biodiesel, biomethanol, bioethanol, biohydrogen;

P-Series fuels, etc.

Gases are considered underground resources and are extracted directly from the ground and extracted from oil products. Hydrogen gas is simply separated from water by electrodes. Ethers and biofuels are also obtained from biomass in various ways. Alcohols are naturally obtained from plants and industrially from natural gases. P-Series fuel is a mixture of biomass-derived ethyl alcohol, natural gas liquid, and methyltetrahydrofuran (MeTHF). P - series fuels are open, high-octane alternative fuels that can be used as flexible fuels in motor vehicles.

The above-mentioned fuels can be used alone or mixed with gasoline or diesel fuel in any proportion. All of these produce different amounts of heat when used as fuel in engines, and for such types of fuel, it is necessary to perform an IYOD heat calculation, taking into account the parameters of the engines.

Our program allows to obtain the results of heat calculation taking into account their parameters depending on the type of IYODs (spark ignition and diesel engines) based on the characteristics of alternative fuels in the implementation of heat calculation of engines, to draw up a graph of external speed characteristics of IYOD and to build indicator diagrams based on these results.

It will be useful for teachers conducting scientific research and teaching in this field, in organizing laboratory work and applying it to teaching processes.

Currently, the Python programming language, which is considered one of the modern programming languages, is used to create a software product that allows to determine the amount of heat released during the operation of internal combustion engines.

So, the advantage of the developed program is that the users of the program can perform calculations of the operation of car engines for different alternative fuels based on new technologies. When using this software product, it is possible to view the results of experimental studies in the form of tables, graphs and indicator diagrams, in addition, by adding video-audio recordings and using animated actions, to view the image on a large screen.

References:

1. Р.А.Зоҳидов, М.М.Алимова, Ш.С. Мавжудова- “ Иссиқлик Техникаси ” Ўзбекистон Файласуфлари миллий жамияти нашриёти. Тошкент 2010 йил
2. Б.И.Базаров. Работа поршневых двигателей на альтернативных видах топлива.– Ташкент:ТАДИ, 2001. – 138 с.
3. Б.И.Базаров. Альтернативные моторные топлива. - Ташкент: Shams Asa, 2014. -189 с.
4. Б.И.Базаров. Газобаллонные транспортное средства и стационарные средства.- Ташкент: ТАДИ 2004. – 298 с.
5. Б.И.Базаров, С.А.Калауов. Эксплуатация и испытание двигателей внутреннего сгорания. Учебное пособие. – Ташкент: Voris – Nashriyot, 2014. – 272 с.
6. А.И.Колчин, В.П.Демидов. Расчет автомобильных и тракторных двигателей. – 3-е изд. – М.: Высш. шк., 2002. – 496 с.
7. М.М.Файзиев, М.М. Мирюнусов, М.М.Орифжанов, Б.И.Бозоров- “Ички ёнув двигателлари” Toshkent “Turon-Iqbol” 2007, “Двигатели внутреннего сгорания” (М.:“Высшая Школа”, 1995) Нашридан таржима
8. Т.С.Худойбердиев, Б.П.Шаймарданов, Р.А.Абдураманов, А.Н.Худоёров, Б.Р.Болтабоев – “Иссиқлик техникаси асослари”. Чўлпон номидаги нашриёт-матбаа ижодий уйи. Тошкент-2008.