

ANALYSIS OF ENGINE AND ENGINE TECHNICAL CONDITION, FUEL CONSUMPTION AND EFFECTS ON GAS EMISSIONS

To'ychiyev Xasanboy Toxir og'li
Assistant of Andijan Machine Building Institute
E-mail: xasanboy.toychiyev.toxirogli@gmail.com, tel: +998(99) 368 8839

To'ychiyev Xusanboy Toxir og'li
Assistant of Andijan Machine Building Institute
E-mail: xasanboy.toychiyev.toxirogli@gmail.com, tel: +998(99) 363 7631

АНАЛИЗ ДВИГАТЕЛЯ И ТЕХНИЧЕСКОГО СОСТОЯНИЯ ДВИГАТЕЛЯ, РАСХОДА ТОПЛИВА И ВЛИЯНИЯ НА ВЫБРОСЫ ГАЗОВ

DVIGATEL VA AVTOMOBILNING TEXNIK XOLATINI, YONILG'I SARFI HAMDA CHIQINDI GAZLAR ZAHARLIGIGA TA`SIRI TAXLILI

ABSTRACT

Today, the deterioration of the existing ecology and its prevention has become an urgent problem. This article examines the parametric changes that occur during the operation of vehicles and analyzes the resulting increase in emissions from the norm.

Аннотация

На сегодняшний день ухудшение существующей экологии и его профилактика стали актуальной проблемой. В данной статье рассматриваются изменения параметров, возникающие при эксплуатации транспортных средств, и анализируется возникающее в результате увеличение выбросов от нормы.

Annotatsiya

Hozirgi kunda paydo bo'lgan ekologiyani yomonlashishi va uni oldini olish dolzarb muammo bo'lib qoldi. Ushbu maqolada transport vositalarini ekspluatatsiya qilish mobaynidan uchraydigan parameter o'zgarishlarini o'rganib chiqilgan va uning natijasida chiqindi gazlarning normadagi miqdoridan ortishini tahlil qilingan.

Keywords: exhaust gases, ecology, fault, parameter change, environmental safety, operation, transport, maintenance, fuel saving, gas analyzer.

Ключевые слова: выхлопные газы, экология, неисправность, изменение параметров, экологическая безопасность, эксплуатация, транспорт, техническое обслуживание, экономия топлива, газоанализатор.

Kalit so'zlar: chiqindi gazlar, ekologiya, nosozlik, parametrlarni o'zgartirish, ekologik xavfsizlik, ekspluatatsiya, avtotransport, texnik xizmat ko'rsatish, yoqilg'i tejash, gaz analizatori.

INTRODUCTION

To date, the treatment of nature, the removal of environmental pollution and its removal from resources has become a global problem.

Protecting the environment from pollution depends on the ecological literacy, level and ecological culture of the people who come from natural resources.

In the post-independence period, a sufficient legal basis has been created for nature conservation and ecological cleanliness. Much attention is paid to the preservation of ecological culture among the population, maintaining the active role of conservation in environmental control, ensuring safety, and improving environmental education [1-2].

Law 50 and other normative-legal acts have been adopted on the protection of the environment and natural resources.

Restoration, use of water, subsoil resources, water, use and subsequent removal of flora and fauna, use of atmospheric air, implementation of healthy joints, observance of healthy legislation, implementation of state control. Decree No. PF-5024 of 21 April 2017 "On the provision of public administration of ecology and environmental protection" and the implementation of the Decree No. 217-2021 "On radical provision and improvement of the environment. - Resolution "On the step" [3-4].

Not every driver thinks about the damage that a car can do to the atmosphere in general and to everyone in particular. therefore check the number of heart cancer, respiratory diseases and diseases of the nervous system, etc. is increasing year by year. Every contribution to the country must be made by one person and his or her own self-defense forces that contribute to the health of their loved ones.

At the same time, by road, it comes out of the most important problems facing humanity, which are loaded with air pollution by road. Atmospheric pollution affects humans and the environment.

At the level of the transport enterprise, the state of technical maintenance of vehicles and its improvement is necessary to ensure road safety. maintenance, upkeep and maintenance of vehicles by a private shuttle company and owners of transport vehicles, maintenance and renewal, and consequent resumption of production operations. The organization of production, the quality of maintenance and current repairs, the technical condition of the used car are formed. This means increasing the amount of harmful power and production waste generated in the movement of the vehicle.

METHODS

Based on the above considerations, in our study we studied the compliance of cars and trucks in Andijan city of Andijan region with the standards of maintenance and the ecology of changes in fuel consumption in the event of a breakdown, and aimed to analyze this process.

Research work was carried out in Andijan "Andijan avtotexhizmat" LLC, "Mukammal avtoservis" LLC and "MAN auto servis" LLC.

The subject of the study was the fact that cars and trucks were serviced with various malfunctions and overdue maintenance.

The study selected 18 types of parameter changes that are most common during operation and affect the environmental safety of vehicles, and examined the amount of vehicle emissions that exist in these changes. Average results were obtained from several vehicles with parameter changes.

Exhaust emissions from vehicles were measured using a state-of-the-art, certified gas analyzer. Statistical data on the amount of exhaust gases from vehicles were collected and modern methods and techniques of mathematical statistics were used in their analysis.

RESULTS

In recent years, advanced agro-technologies have been developed and introduced into Studies have shown that the technical condition of the car changes as a result of wear of parts during operation, changes in the joints, and related changes in the parameters of the system, joints, units. It reduces engine power, increases fuel consumption and emissions.

According to current estimates, 5-15% of faulty vehicles account for about 35% of the total emissions from road transport. Therefore, a properly selected and applicable maintenance period and list of operations is one of the main mechanisms influencing the level of vehicle performance and fuel consumption, environmental pollution and automotive and aggregate resources by motor transport enterprises and drivers. .

For example, increasing the oil change period of an ISUZU NQR truck by 1.5 times will reduce its resource by 15%, and failure to perform timely and incomplete maintenance operations will reduce it by another 10-15%.

Toxicity of the car in motion is mainly affected by the technical condition of the engine and its systems, and it accounts for 80-85% of all faults that cause excessive fuel consumption and toxicity (the remaining 15-20% of transmission and walking faults). (table 1).

The distribution of faults in carburetor engines is as follows: ignition lightning 38%, carburetor 26%, circuit breaker 21%, high voltage wires 7.5%, ignition coil 3.4%, the rest 0.8%. . The occurrence of these faults directly affects the composition of the working mixture or its combustion in the cylinder. As a result, the concentration of CO, CxHy and NOx in the exhaust gases varies widely. At the same time, the specific fuel consumption during transportation, g / 100 tkm, increases, which in turn increases the emission of harmful substances.

Table 1 Effects of fuel consumption on vehicle and vehicle maintenance

№	Parameter change	Increase relative to the norm		
		Fuel consumption, %	CO output, %.	CxHy output, %.
1	10% increase in head jikli capacity	6-7	45	9
2	4mm increase in saturation in the shield camera	2-4	36-40	2
3	Exomiser valve tight fit	20	100-500	20
4	Pre-activation of the exomaser valve	5-17	200	25
5	The air filter is full	9-10	150-200	130-190
6	Wrong adjustment of the riding system	30-35	500	100-150
7	Deviation of 0.2 mm from the gap in the breaker contacts	7-8	0	200-300
8	Deviation of the crack in the bolt by 0.2 mm from the norm	3-5	0	300
9	A broken spark	20-30	0	500-900
10	Deviation of firing advance angle by 1 degree	0.3-1.0	0	10
11	Deviation of 0.2 mm from the norm of the hole in the valve mechanism	7-8	7	80
12	Diesel engines malfunction high pressure fuel pumps	5-25	5-50	5-25
13	Nozzle failure	10-20	10	50-100
14	Improper tightening of the wheel hub bearing	6-7	10	50
15	Improper tightening of the rear axle reducer bearing	7	10	50
16	Decrease in tire pressure by 10-15%	8	50	20
17	Deviation from wheel alignment by 1 mm	3-4	-	-
18	A 10 degree drop in coolant temperature in the engine	2-3	-	-

Any failure of the fuel system in diesel engines (coking of nozzle holes, irregular fuel supply, reduced spray pressure, pressure drop when the injector needle is opened, etc.) can also dramatically change the toxicity of the exhaust.

Increased wear and tear in the joints will change the condition of the transmission and suspension units (gearbox, reducer, wheel hub). The relative position of the details (gear teeth, approach and wheel deflection, angle of inclination of the wheel) also changes. As a result, the transmission loses power and increases the car's resistance to movement, resulting in a significant increase in specific fuel consumption and emissions[5,21-23].

DISCUSSION

The chemical composition of the exhaust gases is very dangerous and does not harm human and animal health, but destroys trees and even houses. The combined presence of nitrogen dioxide, hydrocarbons and oxygen leads to the formation of very aggressive and harmful organic compounds - peroxyacetyl nitrates, which produce photochemical smoke. In humans, under its influence, the eyes and mucous membranes are damaged, pulmonary and nervous diseases, and bronchial asthma are exacerbated[6-8].

The toxic composition of engine exhaust gases is oxides of carbon, nitrogen and hydrocarbons. Prevents sleep and breathing at night with gases released into the atmosphere, unsaturated and saturated hydrocarbons, carcinogens, aldehydes, heat and other unhealthy substances. An engine running on dry gasoline emits lead and produces a diesel engine [11 - 15,22].

The results of the study show that as a result of changes in the parameters of vehicles, the amount of exhaust gases exceeds the norm by 0-900%. As a result, human diseases are on the rise, and the plant world is getting sick.

If we look at the material damage caused by these failures, we all know the current state of fuel prices.

CONCLUSION

Thus, use of cars that deviate from the norm, which is common in practice, increases fuel consumption by 40-50% and exhaust emissions several times. Therefore, one of the most important factors in improving the economy and environmental friendliness of vehicles in operation is the maintenance of the rolling stock of motor transport enterprises and private transport owners.

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