Overcoming the Shortcomings Arising in the Process of Adapting Cars to the Compressed Gas

Maxammadjon Qobulov
Assistant, Department of Land Transport Systems and their Exploitation, Fergana Polytechnic Institute, Fergana, Uzbekistan
E-mail: m.a.qobulov@ferpi.uz

Asrorjon Ismadiyorov
Assistant, Department of Land Transport Systems and their Exploitation, Fergana Polytechnic Institute, Fergana, Uzbekistan
E-mail: a.a.ismadiyorov@ferpi.uz

Xaydarali Fayzullayev
Lecturer, Department of Land Transport Systems and their Exploitation, Fergana Polytechnic Institute, Fergana, Uzbekistan
E-mail: x.fayzullayev@ferpi.uz

ABSTRACT

This article provides information on the results of experiments to improve the load capacity of the car, as well as for instructions on how to overcome the shortcomings that occur in the process of adaptation of cars to the compressed gas.

Keywords: Car, Rubber, Pneumatic Light, Load Capacity, Spring, Methane Gas Cylinder, Alternative Fuel

Introduction

After the independence of our republic, the automotive industry has emerged in our country, and the car fleet has grown rapidly and is now growing. The growing demand for gasoline and diesel fuel, which are used as motor fuel, has forced them to use alternative fuels. At present, the use of low-cost natural gas as a motor fuel for cars is being introduced [1-3].

It should be noted that the country has large reserves of natural gas, which are high-quality natural gas, which can be used as fuel for automobile engines without the use of excess gas processing or chemical processing technologies. can be used as a direct fuel [3-7]. In addition, natural gas, which is used as an engine fuel, is superior to petroleum products. They are used to achieve the high technical and economic performance of the engine, because natural gas has very good antidetanetic properties, has a very good ability to mix with air and can form mixtures with air in any ratio [4-9]. In gas engines, the mixture burns almost completely and the environment is less polluted due to the lower toxicity of the exhaust gases [10-13].

Materials and methods

Despite these advantages, when we install gas cylinder equipment in cars, the carrying capacity and useful capacity of the trunk are reduced to some extent [6]. For example, 100 litres of methane weighs 70-75 kg with gas cylinder equipment. This can be a significant burden on the passenger car, which can cause the car to sink 20-30 mm in excess when the cabin is full of passengers or loads [7]. Overloading has a negative effect on the car:

1. Fuel consumption increases - the heavier the load, the more energy is needed to transport it;
2. Faster wear of tires and brake pads;

3. A load of all shock absorber units increases;
4. The stability and handling of the machine are deteriorating.

Therefore, under increasing load, you should drive smoothly and avoid sudden braking and turning. To prevent drowning, we use the following methods to strengthen our shock absorbers and bridges [8,14,15]. Ways to strengthen the shock absorber: 1. Install harder springs or wrap springs (Figure 1).

Disadvantages:

- It is expensive to buy harder springs.
- Increasing the height of the machine by more than 5 cm has a negative effect on driving [9].

1-rasm.Bikriligi yuqori purjinalar

2. Install smaller springs inside the existing ones. Under normal load, the depreciation regime does not change. As the weight of the luggage increases, it is added to the extra bag. It is in contact with the upper base, the shock absorber is stiffer and the car does not sink (Figure 2) [16-121].

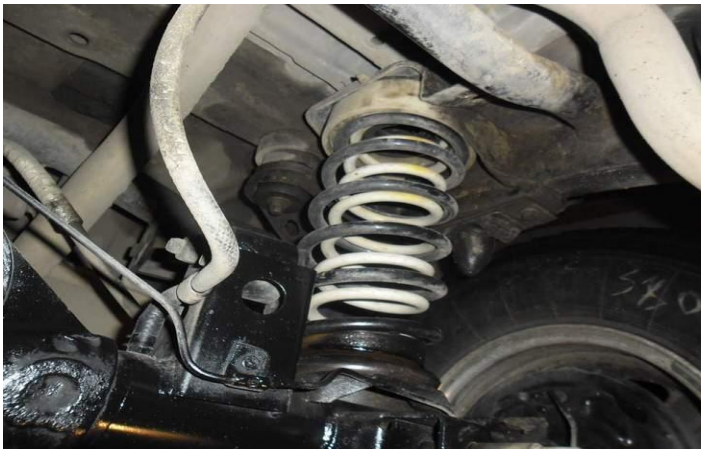

Figure 2. Install smaller springs

3. Increase the number of bridges (for spring cars). It is usually sufficient to add one additional spring to strengthen the depreciation (Figure 3) [22-28].

Figure 3. Installing an additional spring on the bridge

4. Increase stiffness using special rubber columns. Such elements are made of polyurethane or ordinary rubber. They are placed inside the spindle and prevent it from being over-compressed [29-34]. Disadvantages of the method:

- the pressure on the springs of the spring in contact with the automatic buffer increases;
- dirt can accumulate between the spacers and the coils, irritating the spring and causing corrosion;
- The car bumper vibrates a lot.

Figure 4. Special rubber column.

5. Install airbags (if the springs are separate from the shock absorbers). This pneumatic pad can be replaced cheaply. It is a hollow rubber balloon built into the spring that works with it and takes up part of the load (Figure 5) [35-38]. Disadvantages:

- Cylinders may burst under high load - pressure must be controlled;
- Pumping (or lowering the cylinders) is done manually.

Figure 5. Pneumatic backlight

The methods described may not increase the car's load capacity more than once. But these measures will help to increase the load and partially restore the load-bearing capacity that we lose.

References

1. Xusanjonov, A., Qobulov, M., & Ismadiyorov, A. (2021). Avtomobil Shovqiniga Sabab Bo'luvchi Manbalarni Tadqiq Etish. *Academic research in educational sciences*, *2*(3).
2. Xusanjonov, A., Qobulov, M., & Abdubannopov, A. (2021). Avtotransport vositalaridagi shovqin so'ndiruvchi moslamalarda ishlatilgan konstruksiyalar tahlili. *Academic research in educational sciences*, *2*(3).
3. Абдурахмонов, А. Г., Одилов, О. З., & Сотволдиев, У. У. (2021). Альтернативные пути использования сжиженного нефтяного газа с добавкой деметилового эфира в качестве топлива легкового автомобиля с двигателем искрового зажигания. *Academic research in educational sciences*, *2*(12), 393-400.
4. Hurmamatov, A. M., & Hametov, Z. M. (2020). Definitions the division factor at purification of oil slime of mechanical impurity. *ACADEMICIA: An International Multidisciplinary Research Journal*, *10*(5), 1818-1822.
5. Tursunaliyev, I. E., Ergashev, I. E., Tursunov, D. M., & Abdurahimov, A. A. (2021). Simulation of wear of the piston ring of the internal combustion engine. *Asian Journal of Multidimensional Research*, *10*(9), 353-362.
6. Omonov, F. A. (2022). The important role of intellectual transport systems in increasing the economic efficiency of public transport services. *Academic research in educational sciences*, *3*(3), 36-40.
7. Mirzakarimov, E. M., & Faizullaev, J. I. (2019). Method of teaching the integration of information and educational technologies in a heterogeneous parabolic equation. *scientific bulletin of Namangan state university*, *1*(5), 13-17.
8. Mirzakarimov, E. M., & Fayzullaev, J. S. (2020). Improving the quality and efficiency of teaching by developing students* mathematical competence using the animation method of adding vectors to the plane using the maple system. *scientific bulletin of Namangan state university*, *2*(9), 336-342.
9. Xusanjonov, A. S., & Otaboev, N. I. (2018). Improving Of Steerability Of Automobiles With Rotation Of X-Type Of His Rear Wheels Relatively Of Front Wheels. *Scientific-technical journal*, *22*(2), 131-133.
10. Xodjayev, S., Xusanjonov, A., & Botirov, B. (2021). Gibrid dvigatelli avtomobillardan foydalanib ichki yonuv dvigatellari ishlab chiqargan quvvat samaradorligini oshirish va atrof-muhitga chiqarilayotgan zararli gazlarni kamaytirish. *Scientific progress*, *2*(1), 1523-1530.
11. Сотволдиев, У., Абдубаннопов, А., & Жалилова, Г. (2021). Теоретические основы системы регулирования акселерационного скольжения. *Scientific progress*, *2*(1), 1461-1466.
12. Qobulov, M. A. O., & Abdurakhimov, A. A. (2021). Analysis of acceleration slip regulation system used in modern cars. *ACADEMICIA: An International*

Multidisciplinary Research Journal, *11*(9), 526-531.

13. Qobulov, M., Jaloldinov, G., & Masodiqov, Q. (2021). Existing systems of exploitation of motor vehicles. *Экономика и социум*, (4-1), 303-308.
14. Мелиев, Х. О., & Қобулов, М. (2021). Сущность и некоторые особенности обработки деталей поверхностно пластическим деформированием. *Academic research in educational sciences*, *2*(3).
15. Khusanjonov, A. S. O., & Nosirjonov, S. I. O. (2021). Theoretical foundations of the acceleration slip regulation system. *ACADEMICIA: An International Multidisciplinary Research Journal*, *11*(9), 618-623.
16. Fayzullayev, E. Z., Raxmonov, I. S. O., & Nosirjonov, S. I. O. G. L. (2021). Tog' iqlim sharoitining transport xarakati xavfsizligiga ta'sirini o'rganish. *Academic research in educational sciences*, *2*(12), 53-56.
17. O'G, T. X. S. S., & O'G'Li, N. S. I. (2021). Avtomobillar bo'ylama oralig'ida xavfsiz masofani meyorlash uslubi. *Academic research in educational sciences*, *2*(11), 1179-1183.
18. Обидов, Н., Рузибаев, А., Асадова, М., & Ашуров, Ш. (2019). Выбор зубьев ковшей одноковшовых экскаваторов зависимости от условий эксплуатации. In *World Science: Problems And Innovations* (pp. 89-92).
19. Hurmamatov, A. M., & Hametov, Z. M. (2020). Results of preparation of oil slime for primary processing. *ACADEMICIA: An International Multidisciplinary Research Journal*, *10*(5), 1826-1832.
20. Numanovich, A.I., Mamajonov, A.O., & Qosimov, L.M. (2021). Features of the properties of cement systems in the presence of mineral fillers and additives of acetone-formaldehyde resin. *Scientific and technical journal of NamIET*, *6*(1), 99-108.
21. Fayzullayev, E. Z., Raxmonov, I. S. O., & Nosirjonov, S. I. O. G. L. (2021). Tog'iqlim sharoitining transport xarakati xavfsizligiga ta'sirini o'rganish. *Academic research in educational sciences*, *2*(12), 53-56.
22. Imamovich, B. B., Nematjonovich, A. R., Khaydarali, F., Zokirjonovich, O. O., & Ibragimovich, O. N. (2021). Performance Indicators of a Passenger Car with a Spark Ignition Engine Functioning With Different Engine Fuels. *Annals of the Romanian Society for Cell Biology*, 6254-6262.
23. Uktam Salomov, Sardorbek Yusupov, Odil Odilov, Dilyor Moydinov, (2022). Theoretical Substantiation of the Advisability of Using Adhesives When Sealing the Core of Car Radiators and Diagnosing Radiators with a Thermal Load. *International Journal of Engineering Trends and Technology*, 70(1), 81-92.
24. Ismadiyorov, A. A., & Sotvoldiyev, O. U. (2021). Model of assessment of fuel consumption in car operation in city conditions. *Academic research in educational sciences*, *2*(11), 1013-1019.
25. Алимова, З. Х., Исмадиёров, А. А., & Тожибаев, Ф. О. (2021). Влияние химического состава моторных масел на вязкостные показателей. *Экономика и социум*, (4-1), 595-598.
26. Мелиев, Ҳ. О., Исмадиёров, А. А., Шермухамедов, А. А., & Эргашев, Н. Т. (2021). Универсал шассили трактор тиркамаси кузов платформасининг легирланган ва оддий углеродланган пўлат материаллардан фойдаланган ҳолда кучланганлик-деформатсияланиш ҳолатини сонли таҳлили. *Academic research in educational sciences*, *2*(11), 1107-1113.
27. Xujamkulov, S., Abdubannopov, A., & Botirov, B. (2021). Zamonaviy avtomobillarda qo'llaniladigan acceleration slip regulation tizimi tahlili. *Scientific progress*, *2*(1), 1467-1472.
28. O'. Sotvoldiyev, Abduraxmonov, A., & Tojiboyev, F. (2021). KOrxonada shinalar va

harakatlanuvchi tarkibni tahlil qilish va tekshirilayotgan harakat tarkibining xususiyatlari. *Academic research in educational sciences*, *2*(11), 1357-1363.

29. Набиев, Т. С., Обидов, Н. Г., & Умаров, Б. Т. (2021). О методике оценки физико-механических свойств картофеля. In *Приоритетные направления научных исследований. Анализ, управление, перспективы* (pp. 20-24).
30. Файзиев, П. Р., Исмадиёров, А., Жалолдинов, Г., & Ганиев, Л. (2021). Солнечный инновационный бытовой водонагреватель. *Science and Education*, *2*(6), 320-324.
31. Imamovich, B. B., Nematjonovich, A. R., Khaydarali, F., Zokirjonovich, O. O., & Ibragimovich, O. N. (2021). Performance Indicators of a Passenger Car with a Spark Ignition Engine Functioning With Different Engine Fuels. *Annals of the Romanian Society for Cell Biology*, 6254-6262.
32. Базаров, Б. И., Магдиев, К. И., Сидиков, Ф. Ш., Одилов, О. З., & Джаманкулов, А. К. (2019). Современные тенденции в использовании альтернативных моторных топлив. *Journal of Advanced Research in Technical Science*, *2*(14), 186-189.
33. Rakhimov, S. T., Alimov, I. A., & Abduraximov, A. A. (2021). Composition and properties of special solutions. *Asian Journal of Multidimensional Research*, *10*(10), 843-848.
34. Zokirzhonovich, O. O. (2021). Use of Low-Carbon Technologies on Vehicle Transport. *International Journal of Innovative Analyses and Emerging Technology*, *1*(5), 15-17.
35. Fayziyev, P. R., Ikromov, I. A., Abduraximov, A. A., & Dehqonov, Q. M. (2022). Organization of technological processes for maintenance and repair of electric vehicles. *International Journal of Advance Scientific Research*, *2*(03), 37-41.
36. Bahadirov, G., Umarov, B., Obidov, N., Tashpulatov, S., & Tashpulatov, D. (2021, December). Justification of the geometric dimensions of drum sorting machine. In *IOP Conference Series: Earth and Environmental Science* (Vol. 937, No. 3, p. 032043). IOP Publishing.
37. Muxammadjonovich, K. N. M., & Abduxalilovich, I. I. (2021). Substantiation of Deep Softener Parameters that Cut the Vine Roots and Apply Fertilizer in a Wide-Band Manner. *Central asian journal of theoretical & applied sciences*, *2*(12), 56-59.
38. Рузибаев, А. Н., Обидов, Н. Г., Отабоев, Н. И., & Тожибаев, Ф. О. (2020). Объемное упрочнение зубьев ковшей экскаваторов. *Universum: технические науки*, (7-1 (76)), 36-39.