

Original Paper

Research on Common Faults and Maintenance Countermeasures of Automobile Engines

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Received: April 19, 2023

Accepted: May 10, 2023

Online Published: May 12, 2023

doi:10.22158/jetss.v5n2p68

URL: <http://dx.doi.org/10.22158/jetss.v5n2p68>

Abstract

With the rapid development of automobile industry, the number of automobiles in China has exceeded 290 million. The increase of car ownership has promoted the development of auto repair industry to a certain extent, but it is an indisputable fact that the overall level of China's auto repair industry is low. In recent years, the performance of automobile engines has been rapidly developed, not only the power and horsepower have been greatly improved, but also the reliability has been greatly improved, but the engine failure is still inevitable. Based on this, several common failures of automobile engines and their solutions are analyzed in this paper for reference only.

Keywords

Engine, Failure, Treatment measures

1. Introduction

Since automobile engines are easily affected by various factors, various failures will occur in practical applications, therefore, it is necessary to analyze the common engine failures and adopt corresponding repair techniques to ensure the effectiveness of vehicle operation. In the face of these problems, owners must take effective maintenance measures to restore the normal operation of the engine and ensure the safe operation of the car, so that the car can provide us with the best service.

2. Common Types of Car Engine Failure

2.1 The Engine can not Start Normally

Engine starting failure is one of the common engine failures, and its causes are across many aspects. In order to ensure the normal operation of the car engine, need to have the appropriate ignition time and provide sufficient ignition voltage. In this way, starting failure can occur, which may be caused by a

current fault or an abnormal ignition system. It needs to be phased out to detect the problem. While the engine is on the starter, the battery electrodes and voltage must be checked for loose and fused connections. Then check the starter circuit and ignition switch. If there are no abnormalities, full consideration should be given to the proper operation of the ignition, fuel supply and control system. Check whether there is enough oil in the fuel tank and whether the anti-theft system is activated. For the ignition system, it is necessary to perform a jump test to observe a high voltage fire. If it is weak or non-existent, the ignition system is faulty. Check the hitch, electronic control unit power, ignition module and camshaft position sensor. Then, perform a fuel injection test on the fuel system. If the fire and oil are normal, check the intake system. If the cause is unknown, check cylinder pressure. If the engine ignition switch is in start and the engine starts slightly, indicating oil is entering the cylinders. If a high pressure fire occurs, check the mixture concentration, check the fault code, and find the cause of the fault according to the fault code. If there is no fault code, it is necessary to further check the ignition, control, fuel, air intake system, cylinder pressure, etc., so as to fully identify the fault in the shortest possible time.

2.2 The Engine Appears Abnormal Noise

There are many noise problems when driving. Usually, during normal driving, the engine is in poor condition, which may produce noise for different reasons, resulting in poor sound inside the engine. Certain parts within the engine may be damaged or loose. During normal driving, various mechanical parts are constantly running at high speed, which will inevitably produce a certain amount of noise. However, if the noise is abnormal, some part of the engine may be abnormal and the driver should be aware of this. As the mileage of the car increases year by year, the gap between engine parts will become larger and larger. When the gap exceeds a certain limit, the collision between the parts will produce abnormal noise. For mechanical products, their failures can often be indicated by sound, and engines are no exception. Depending on the internal noise, it can generally be divided into normal noise, benign noise and malignant noise. By identifying various noises, you can roughly know which part of the engine is faulty. If the system components of the engine are damaged, abnormal noise may be produced. According to the type of abnormal noise, you can initially determine the engine failure, such as cylinder gasket burn, engine overheating, loose crankshaft, etc., will produce different types of noise, affecting the normal operation and service life of the engine.

2.3 Exhaust Failure

Exhaust pipe explosion is the main symptom of engine exhaust failure. Engine exhaust failure may be caused by delayed ignition, improper mixing ratio and failure of several cylinders. That is, when the exhaust continues to burn, improper mixing is the root cause of engine exhaust failure. This failure can affect the life of the car's emitter on one hand and increase the car's fuel demand. If the exhaust pipe explodes, the fault code must be read in order to identify the location of the relevant fault in time. If no fault code is displayed, the main checks are ignition time and ignition energy. If the exhaust pipe fails in the process and emits black smoke, the oil injector and oil pressure must be checked for leaks so that

relevant maintenance measures can be carried out to promote the operation of the car and ensure its high efficiency.

2.4 The Engine in the Process of its Own Running Odor Failure

When the car travels a certain distance, the car will age due to the oxidation of some rubber seals in the car. Therefore, it is necessary to avoid the oil leakage caused by the aging of the seals dripping on the exhaust pipe. If the engine oil leaks and drips on the exhaust pipe, the engine oil will evaporate in a short time as the temperature of the exhaust pipe rises, creating an odor. If the problem is simply the aging of the engine seal, a simple seal replacement can effectively solve the odor problem during engine operation.

3. The Corresponding Repair Measures for Car Engine Failure

The engine is not repaired for a long time and is prone to various problems. Car failures are usually caused by plumbing problems or battery failure. At this time, check whether the battery has enough energy to start the car. Otherwise, please replace the battery in time. Check whether the oil supply system is faulty or insufficient, and adjust it in time. When the engine has a noise problem, it is necessary to determine which part of the engine has a problem based on the noise. If it is determined that the ignition system is faulty, first check the rotation of the engine fan blades and then repair accordingly. If the engine cylinder has abnormal noise, the engine must be disassembled in the prescribed order to identify the problem and develop appropriate repair measures. Noise failure is one of the main engine failures, that is, the engine has serious problems that must be solved in a timely manner. Although the maintenance of the car engine is simple, it is very important. The oil needs to be changed regularly. First, the type of lubricant chosen depends on the model, and the lubricant used varies greatly from model to model. The grade of lubricant used should be higher than the manufacturer's initial minimum standard. Avoid the hazards caused by an inadequate grade of lubricant. Second, wait for the oil and filter element to become smoother to reduce the incidence of clogging. Consider the crankshaft ventilation capability in time to reduce the hazards caused by gas backflow and crankshaft clogging, and clean the crankcase in time. Finally, the corresponding water tank and fuel system should be strengthened, and timely internal maintenance and management should be carried out to avoid declining service life. The cylinder is a precision part of the engine and is the core of the whole engine. When diagnosing cylinder failure, firstly, check whether the high pressure branch pipe is dislodged, and then develop corresponding maintenance methods. Through the engine running jitter and current, you can determine whether the engine cylinder is faulty. If the engine shudder is weak and the current is too high, the cylinder has a problem and the engine needs to be removed for maintenance. Depending on the actual situation, the specific maintenance measures may only require replacing spark plugs or making other maintenance adjustments.

4. Future Development Trend of Auto Repair Industry

Technology is the first productive force. For auto repair, technical progress is the fundamental progress of the whole industry. At present, if automobile repair enterprises need to achieve long-term development, they must rely on advanced science and technology to do support, combined with the actual needs, the application and maintenance of information technology in the automotive field, increase the proportion, increase investment in new equipment, the introduction of new technologies, through the upgrading of equipment maintenance technology and maintenance updates to promote the development of automobile repair enterprises. At the same time, automotive repair enterprises to, strengthen foreign relations, rational use of resources, adjust the industrial structure, study the introduction of advanced foreign technology and ideas. The quality of auto repair is crucial to the whole industry. Maintenance personnel are the main body of vehicle maintenance. In order to improve the professional skills and knowledge of auto repair personnel, regular training and communication can improve the quality and service level of the whole auto repair industry. At the same time, strengthening auto repair quality testing and rational allocation of various resources is the future development trend of the auto repair industry. Improve the problems in the auto repair market through legal means, clarify strict professional ethics and industry rules, limit the behavior of auto repair enterprises, strengthen supervision, coordinate daily management and rectification, and regulate auto repair behavior. At the same time, local transportation authorities should strengthen the contact with the Bureau of Industry and Commerce and the Public Security Bureau to improve the entire market system and promote the rapid, orderly and standardized development of the auto repair industry.

5. Conclusion

With the continuous development of China's economy and the rapid development of the automobile industry, people's demand for cars is increasing, which has led to a sharp increase in the number of cars to a certain extent. However, with the development of the automobile market, the faults of automobile engines are gradually exposed, which to a certain extent affect the normal use of automobiles. The engine is the power source of vehicle operation, but due to its new common reasons, it is impossible to achieve scientific and effective fault repair management. In the actual maintenance process, corresponding measures must be taken to fundamentally improve the operation efficiency of automobile engines. In daily life, people should pay enough attention to the maintenance of the car and use their experience and knowledge to find and correct faults in a timely and accurate manner, so as to extend the service life of the engine and restore the normal use of the car.

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