

The Effect of Vehicle Development on Technology Development of Automotive Testing

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Abstract

In China, testing and maintenance of the car industry foundation is weak, rather late, and means of repair is relatively backward. Since the late 1980s, we imported vehicle inspection and maintenance of the emergence of a large number of devices, such as scanners, wheel alignment. Exhaust tester, the only engine analysis, etc., which in the past we had never heard, detection equipment has now become a tool for development of equipment maintenance enterprises, and enterprises also need more high quality professional personnel to operate these devices, the only way to meet the needs of the market. Car repair appear professional network, breaking the transmission of information in a spatial limitations of time, it comprehensively, quickly credit accurately the first time. Quickly spread to the global Internet, in our modern automobile maintenance industries, information technology has begun to emerge. In order to meet operational needs servicing sector, we required to perform some service technician which must master skilled Internet technology, have the ability to query some car maintenance information from professional automotive professional website, and analyze and study surface for a variety of complex situation can accurately analyze and judge, efficient troubleshooting and resolving various problems.

Keywords: automobile; detection technology; development

1. INTRODUCTION

With the rapid progress and development of modern electronic technology, computer-controlled adjustment means have become more widely used in the car, the cars computerized become the development direction of the unstoppable future. With the improvement of the car's various systems, vehicle testing and maintenance equipment must advance with the times to meet the needs of users, the computer is the general development direction of the automotive industry, its main performance is divided into the following aspects.

2. In automotive testing diagnostic techniques

First, technology is not the current vehicle inspection and maintenance to prevention, but corrective maintenance, there is an urgent need to reform the system of vehicle maintenance, eliminate safety hazards, and ensure the personal safety of car users. During vehicle maintenance, it will inevitably have to be demolished, is bound to damage the automotive interior parts, so that shorten the life of the car. And improve the detection and diagnosis techniques you can repair the damage caused to a minimum, and to extend the life of the vehicle. Second, with the accelerated pace of life, for car maintenance efficiency requirements are also increasing, so the need to further strengthen diagnostic automotive testing technology to improve the quality of supervision, and further improve the efficiency of the car.

2.1 Classification of automotive testing technology

The number of cars is now more and more, so the car safety performance testing is an important development direction detection technology, and protects the safety of the cars with the core. Here in

accordance with the test items to be divided into two detection techniques for analysis.

2.2 Comprehensive Performance Testing

The so-called comprehensive performance test is to detect various aspects of vehicle performance, operational capability and technical conditions for the car to detect, identify problems and faults car, and improve overall vehicle safety, economy through quality monitoring system in order to improve the social economic benefits.

2.3 Safety Environmental Testing

Environmental testing is to detect so-called safe car operation and environmental conditions, safety and environmental protection is not required for the detection of the disintegration of the car by safety and environmental monitoring systems, to protect the car's overall performance in line with relevant regulations to reduce emissions from car exhaust and noise, the maximum extent possible the automobile pollution, high efficiency driving. In the vehicle detection process, due to software technology into large, slow and so often not taken seriously, as the car has improved detection methods, and hardware to match the software technology development is relatively weak. In the future vehicle inspection technology development process, the need to focus on basic research vehicle detection technology, specifically manifested in two aspects: first, to develop and improve detection methods and testing standards vehicle detection program; secondly, the development of vehicle performance and environmental health evaluation criteria, industry-wide implementation of uniform standards and technical operations to ensure that the vehicle inspection accuracy and impartiality.

3. Auto detection of cutting-edge technology

Currently, humans have been able to use a variety of advanced equipment, the car full and comprehensive detection and diagnosis of automatic control. These advanced equipment are: 1) electrical test equipment, such as battery testing headlight tester and Electrical universal test-bed; 2) chassis and vehicle testing diagnostic equipment, such as computers four locator automotive brake test Taiwan, etc.; 3) electronic control system detection diagnostic equipment, such as decoders and integrated engine analyzers; 4) engine performance testing diagnostic equipment, such as cylinder pressure gauge and engine temperature gauge and the like.

3.1 Four-wheel vehicle location detection technologies

Hyundai Motor is mainly used in four-wheel independent suspension; this can improve comfort and stability at high speed car driver and passengers. In addition, some cars can also wheel alignment, which means that it not only has the steering wheel positioning, but also can take advantage of the rear wheel toe and camber parameters for positioning, this can let the car has good steer ability. From now, the demand for high-speed car more and more, but also safety and vehicle stability is guaranteed, which requires four positioning detection and adjustment. Wheel alignment apparatus having a simple calibration, high accuracy and ease of use, has been widely used in the automotive testing technology.

3.2 Based on GPS technology, automobile testing technology

As we all know, the development of GPS technology and its application in the automotive testing, it can be said is a historic leap in automotive testing technology. GPS (global positioning system) can accurately and easily provide the required driver's position, speed and time information. Based Automotive Testing Technology GPS technology, its system involves a GSM, GPS, GIS, and computer data processing and communications network technology, which is a comprehensive

testing technology, capable of traffic conditions in real-time testing. GPS can track the entire process of driving; can travel time, one way, speed, and braking and other automotive-related message with a detailed analysis, testing, recording and storage, while the data output to a related automotive electronic record means. In some special cases or necessities, the trajectory of the vehicle can be monitored and its historical track is play backed.

4. The development trend of China's auto detection and diagnosis technology

With China's rapid economic development and motor vehicle ownership in the rapid growth of automobile detection and diagnosis technology to reach the world advanced level, it should also be in the car detection and diagnosis technology based on intelligent automotive testing equipment, testing lines of integration and streamlining, Cars detection and diagnosis of network management and testing standards institutionalization and standardization direction.

4.1 Vapor detection and diagnosis technology to promote progress and intelligence equipment

With the development of computer technology and control technology matures, the use of the latest scientific and technological achievements of automotive testing and diagnosis become the main development trend of China in this field. For example, by application of light, mechanical, electrical integration technology, while using computer control, the car can automatically identify the health inspection, and quickly and accurately locate the site and the reasons for failure in the car, and guide technicians to troubleshoot: Meanwhile, China's Cars detection and diagnosis technology investment should focus on expert systems and intelligent diagnosis, such as wheel alignment detection system, EFI engine integrated detector technologies, get rid of as soon as possible to rely on imports, and strive to achieve independent research and development to improve our the pace of development of intelligent devices of Vehicle Inspection.

4.2 Comprehensive test line and streamlining

At present, China's auto detection and diagnosis technology function being to stand-alone multi-function integrated test bed from a single direction single function, such as the early 1990s the introduction of the flat-panel test bench is set brake, skid, weighing and suspension characteristics other detection functions in one detector device, such a comprehensive diagnostic testing equipment not only reduces the cost of testing, reducing the space occupied by the device, effectively improve the detection efficiency: Another example of Japan recently introduced NICE-AII-based integrated test units, on having an output power chassis, power train and engine power loss, cars with four-wheel alignment state analog values, automotive anti-lock braking system checks, suspension, steering system to detect a number of detection.

5. Development Trend of Chinese Automobile Comprehensive Performance Testing Technology

Development of China's automobile inspection technology has also been a course of gradual progress. From nothing to have, from small to big, from the introduction of technology, the introduction of testing equipment, to carry out independent research to develop the use of; from simple to complex test performance test, it achieved great development. For the status of automotive testing industry within the country on the basis of understanding, we should see the inadequacies of its existence, and through effective analysis of the latest automotive testing technology to more effectively enhance the ability of the domestic industry as a whole on comprehensive testing equipment, testing personnel improved.

5.1 Vehicle Inspection achieve standardization and institutionalization

China should improve the legal system construction. Vehicle Inspection interests involved complicated, improve service quality and ensure fair and equitable rule-based, to be sure the community as much as possible to win the trust of the community, is the automotive testing industry is a major requirement, but also the main direction of its development. To ensure good system construction, management set a certain standard, if irregularities occur, must be handled according to law. Establishing a sound internal and external supervision system to supervise all aspects, supervision and transparency to do to avoid the presence of inspectors luck, and thus bound behavior detection officers. In other countries, mainly the use of the vehicle emission control system to maintain vehicle inspection done. This system involves a wide range of content, the main vehicle inspection, the car user through regular inspection, particular embodiments of the decision based on the actual local situation. Vehicle Inspection developed countries have a relatively sound standard, accepted test cars should be strictly in accordance with standard data for testing. Test results have the appropriate criteria to determine the results relatively objective, it is conducive to enhancing accuracy. Because monitoring to achieve the standardization and institutionalization, the detection efficiency has been greatly improved, more accurate test results. The earliest development of the auto detection mechanism is also in foreign countries began with the increase in car ownership, many countries manage vehicles and other security technologies are supporting the establishment of standards and institutional settings. In the foreign industrial countries, automobile testing a set of standards, vehicle inspection work by the unified management of the transport sector in the country have been established by the Department of Transportation certified vehicle inspection stations, responsible for the registration of new cars and in safety testing of vehicles, repair shop to repair the car had been tested vehicle testing to determine its safety performance and discharge of hair meets national standards. In other countries, the detection devices are also standard, such as detection performance testing equipment, detection accuracy, a specific structure have strict specifications on the use of periodic inspection equipment, technology updates are specific requirements.

5.2 Technical quality testing equipment must be further improved

With the development of science and technology, intelligent car technology has entered an advanced stage, automotive testing equipment in an unprecedented broad prospect for development, but also presents many new features. For example: stand-alone intelligent, integrated equipment, application of computer graphics processing technology and high-precision sensors and the like. We should pay close attention to the development of the world's developed countries, car detection technology, and actively introduce and develop advanced automotive testing and verification aspects of the device. And the rapid development of comprehensive testing, on-board diagnostics, online query on the current basis of new technologies, new products, in order to make China's automobile testing equipment and detection technology and the simultaneous development of the world's developed countries.

5.3 Test Management Network

At present, China's auto comprehensive performance inspection stations although some computer management, but because of the way the computer monitoring and control of each inspection station there is a difference, and not all networked station to another. With advances in technology and management, the future development of China's auto detection technology must be done: the use of information technology to promote the development of automotive testing business, making the car detect networked: the use of the information highway of the country's auto comprehensive

performance inspection stations linked into a wide area network, to achieve the sharing of information resources: the use of information technology for the development of automobile testing business, to enhance China's automobile inspection and verification of the technical level.

6. CONCLUSIONS

Comparative analysis of domestic and foreign automotive testing technology through development, China's automotive results in detection technology infrastructure standardization, intelligent devices and network management and other aspects of Western industrial countries have a larger gap, it should be the focus of future development direction. Promoting legal system construction, establish and improve the standard auto detection of the competent authorities of China's automotive testing, the National Reform and Development Commission is responsible for detecting aspects of the new car: the Ministry of Public Safety is responsible for detecting a vehicle: The Ministry of Transportation is responsible for using the vehicle comprehensive performance testing. Among them, the construction safety detection and public security comprehensive performance test line of traffic is very repetitive, resulting in a waste of resources. Recommendation references to foreign practices, organized by the unified management of the transport sector, to avoid duplication of testing, reduce the owner's expense. On the automotive testing strategy to strengthen the functions of government departments at the same time, we must vigorously implement standardization strategy. Emphasis should be placed on the development and improvement of the standard detection methods and limits of each car testing program: development of automotive technology operating condition detecting assessment rules, standardized testing requirements across the country and operating technology.

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