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Review on Need of Vehicles Testing in Automotive Industry

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ABSTRACT

In this paper we study about need of Vehicle testing and their types.Testing is very important factor in automotive industry to increase the efficiency of vehicle. Automotive industry is a highly competitive and progressive industry all across the globe. To survive in the market for a long period of time, automotive industries need to be constantly innovative in terms of quality, durability, etc with the help of testing.

Introduction:

The manufacturers of vehicles need to ensure that the system and components of the automobiles must function properly at throughout their working life. Although the environment which the automobiles bear in a year or year after year changes frequently, engineers need to make use of highly sophisticated and innovated test application to enhance. The testing standards and quality measurement techniques help to refine the quality of the vehicles and help to reduce down the vibration and noise while enhancing the fuel efficiency, quality and overall performance of the products to serve the best product to the customers .

Need of vehicle testing

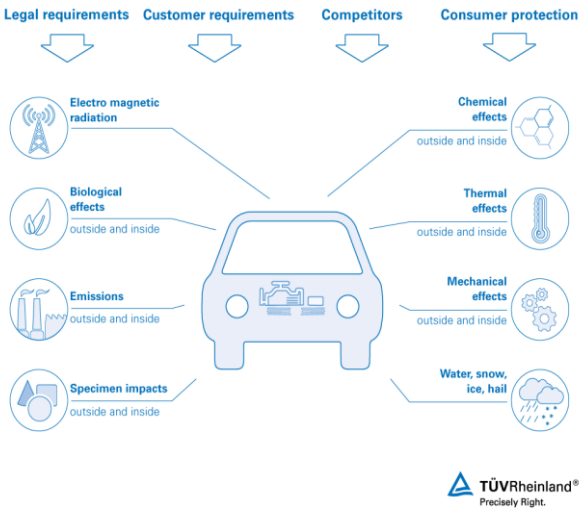
Automotive parts industry is a very famous industry which is concerned. with the manufacturing, distribution, retailing and installation of vehicle parts, equipment. With the wide usage of automotive parts by a large number of people, the manufacturers need to test the quality of each and every component before offering it to the customers because a minor mistake in the components can become a cause of a major risk. The quality of these components can be determined by using high-quality testing instruments Presto Stantest, a leading global manufacturer of testing instruments offers a wide range of Automotive Parts Testing Instruments. Owing an experience in industrial testing instruments, Presto ensures that the products are manufactured in accordance with the industrial requirements and standards.

Requirement of Testing in Automobile Industries

With the growing rate of innovations in the industry, the test engineers need to react accordingly, to offer best testing solutions according to the fast market changes, new launches and user-friendly testing solutions that can be implemented easily for the highly advanced and new technological changes. However, sometimes complex testing need a highly effective and reliable testing strategies, right from the research and development till the final product is produced then the engineers need to take active and quick decisions instantly.

Standards Introduced for Automobiles Standard for Testing Effect of Ecological Conditions Various environmental conditions such as wind, humidity, cold, dampness, salt water, rain water ,heat, high temperature affect the quality and appearance of the automotive products. The environmental testing standards and highly standardized testing equipment help to authenticate the quality and fitness of the automotive components. The environmental testing standards and highly standardized testing equipment help to authenticate the range of automotive testing equipment helps to create real working conditions with different environmental factors. This helps to ascertain the effect of environmental conditions on the automotive when they are subjected to real working conditions.

The automotive testing equipment offers dynamic testing of the products to assure that components will survive for a long period of time. The samples components that are kept for testing are subjected to mechanical shocks and vibrant conditions clearly explains the level of vehicles or can surpass thoselevels to measure the actual performance and life of the vehicles.



Quality And Fitness of the Automotive Components.

Automotive Testing Instruments

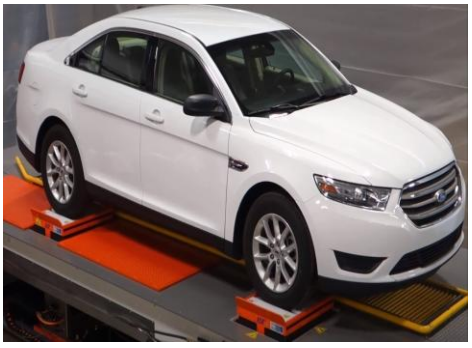
The wide assortment of testing machines that areavailable in the market to fulfill the requirements of testing machine includes:

- UV light weathering testers
- Salt Spray Chambers
- Gloss meters
- Tensile testing machines
- Universal testing machines
- Din abrasion testers
- Color measurement devices such ascolorimetersand spectrophotometers, etc.

Types of Automotive Testing

The tests you select for your components have their roots in the reasons you need testing. Tests encompass the durability of your parts and the environmental impact of operating them. Automotive testing procedures typically look at part durability or exterior resilience. These two broad categories have several tests within them, designed to verify your parts' ability to measure up to the required standards.

1. Vibration Testing



Driving creates constant vibrations on the vehicle's frame andcomponents.Our vibration testing puts the carthroughextremes to ensure durability. During vibration testing, ambientmovements in the building itself can contaminate the results,but our facility accounts for environmental movement by usinghigh-mass bases and airbearing pads. These devices ensure our results are accurate.Our testing equipment can exert up to 70,000 force pounds withshakers working in tandem. A single shaker can apply up to45,000 force pounds. Testing accommodates 60 data channels.We give you immediate results as soon as the test finishes, andyou receive a thorough report.Vibration testing helps you improve your component design byidentifying weak points when the part gets subjected to randomvibrations until failure. Because vibrations occur in all forms oftransportation, safety and longevity of

parts both rely on beingable to withstand constant and erratic movements. To see howmuch your components can take, you must put them throughvibration testing.

2. Climatic Testing

The environment plays a substantial role in the lifespan of automobiles and their components. Certain climates have conditions that foster premature wear. Hot and cold extremes can create stress on automotive parts. We put parts through environmental simulations to see how long the components last. Climatic testing examines UV exposure,heat, cold, dry and wet conditions.Humidity levels matter, especially with metal parts that can rust over time. That's what makes humidity testing important for car components. In many
areas, such as coastal locations or humid places, the excessive moisture in the air could cause rusting of the car's coatings, wearing of the vehicle's paint or degrading of electrical parts. Because temperature and humidity tend to rise together, we often test both in tandom.

3. Mechanical Testing

Mechanical operations can wear over time and become less efficient. With automobiles that rely on both electrical and mechanical systems running at their peak for the vehicle to continue working, physical operation testing is critical. Automotive mechanical tests include examining engine performance and efficiency from a variety of systems. We conduct leak detection, fluid dynamics analysis, stress testing and more. Our testing ensures your engines meet or exceed the regulatory requirements without sacrificing the performance consumers need from your brand.

4. Pressure Impulse Testing

Pressure impulse testing puts your system's hydraulic components through their paces. Multiple systems use fluid movement to create mechanical motion. Regular tests ensure the system maintains pressure and operates as expected for the anticipated lifespan. New designs or models should undergo rigorous testing to prove their performance level matches or exceeds the previous iterations. Pressure impulse testing can help measure the effectiveness of the hydraulic system.

At NTS, our pressure impulse testing equipment can test both dynamic and static pressures. Our testing apparatuses, which includes both rotary and linear servo-hydraulic actuators, reaches up to 8,000 psi at 30,000 Hz. For static testing, our setup can reach even higher pressures of 30,000 psi. In addition to examining the impacts of stress during the test, we can also measure torque, strain, flow and force.

5. Emissions Control Systems Testing

Reducing pollution is more important than ever. A single passenger car creates an average of 4.6 metric tons of carbon dioxide annually. In addition to carbon dioxide, internal combustion engines also release other harmful substances. To mitigate the effects of these pollutants on the environment, the federal government has set standards for emissions. Engine components and emissions systems must be tested to determine the amount of greenhouse gases they emit. Without appropriate testing, polluting engines could net their manufacturers hefty fines from both the federal and local governments.

Components can become a cause of a major risk. The quality of these components can be determined by using high-quality testing instruments Presto Stantest, a leading global manufacturer of testing instruments offers a wide range of Automotive Parts Testing Instruments. Owing an experience in industrial testing instruments, Presto ensures that the products are manufactured in accordance with the industrial requirements and standards.

Requirement of testing in automobile industry

With the growing rate of innovations in the industry, the test engineers need to react accordingly, to offer best testing solutions according to the fast market changes, new launches and user-friendly testing solutions that can be implemented easily for the highly advanced and new technological changes. However, sometimes complex testing need a highly effective and reliable testing strategies, right from the research anddevelopment till the final product is produced then the engineers need to take active and quick decision instantly.

Conclusion:

Testing is an independent check of the effectiveness of vehicle maintenance systems and its effectiveness must be viewed in that context.
Testing improves the the efficiency of Vehicle.
Testing also improves the working life of vehicle.

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