



자동차검사 및 안전관리



자율주행자동차 Lv.4 자동차 검사기술 방향성 연구

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Research on the Direction of Inspection Technology for Autonomous Vehicles Level 4

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Key Words : Autonomous Vehicle(자율주행자동차), Vehicle Inspection(자동차검사), Safety Standard(안전기준),
Monitoring System(관제시스템), BUS BARO(지능형 시내버스 안전모니터링 시스템)

ABSTRACT

Efforts are being made worldwide to usher in the era of autonomous driving. According to an IEEE report, it is expected that by 2040, approximately 75% of vehicles worldwide will have transitioned to autonomous Vehicle. Looking at the actual stages of autonomous driving, SAE Level 4 autonomous vehicles are expected to bring about a paradigm shift in the future automotive market, operating at a level where driver intervention is not necessary, with the system performing core driving control, monitoring the driving environment, and handling emergencies, although the system does not always have complete control.

Accordingly, in the case of the automobile inspection business, which is one of the major businesses conducted by the Korea. Level 4 autonomous vehicles may not have drivers, so the existing inspection methods have limitations. therefore, based on various standards and current research conducted by the KAVIC(Korea Advanced Vehicle Inspection R&D Center), I intend to propose the direction of Level 4 Autonomous Vehicle inspection technology. This Study aims to understand the trends of autonomous vehicles both domestically and internationally, and to analyze the current safety standards for Level 3 autonomous vehicles accordingly. Furthermore, we aim to introduce the developed inspection technologies for autonomous vehicles and propose conducting inspections for Level 4 autonomous vehicles through control technologies, such as remote control inspections for autonomous driving-related system and in person inspections for hardware audits.

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Introduction to Testing & Certification Office of Korea Automotive Tuning Institute of Safety Technology(KATIS), Korea Transportation Safety Authority(TS)

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Key Words : Automotive Ttuning, Unlawful Vehicle Modification, Tuning Market

ABSTRACT

In accordance with the government's initiative to promote the automotive tuning industry, there has been sustained development within the tuning sector. This growth has led to an increase in both the legal and illegal car tuning markets, underscoring the necessity for a regulatory body to oversee these activities. To manage illegal tuning parts and invigorate the tuning market, the Korea Transportation Safety Authority(TS) has inaugurated the Korea Automotive Tuning Institute of Safety Technology(KATIS), accompanied by the establishment of a testing and certification office. This office aims to facilitate market expansion by verifying the safety of automotive tuning components through rigorous testing and certification. This paper presents the foundational objectives, vision, and operational duties of testing and certification office, as well as discusses future works.

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수소전기차 내압용기 안전성강화를 위한 안전 벨류체인 연구

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A Study on the Safety Value Chain for Reinforcing the Safety of Pressure Vessels in Hydrogen Electric Vehicles

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Key Words : Hydrogen(수소), A hydrogen electric vehicle(수소전기차), Pressure-resistant container(내압용기) Collaboration(협업), Safety(안전성), Inspection results(검사결과), Defect(결함), Leak(누출), A value chain(가치사슬), Hydrogen mobility(수소모빌리티)

ABSTRACT

As the importance of eco-friendly carbon neutrality is emphasized around the world, hydrogen-electric vehicles are expected to grow rapidly, and as of July 2003, Korea has 32,500 hydrogen cars and 363 hydrogen vans. Hydrogen cars have the advantage of short charging time and long mileage. However, the safety issue of internal pressure-resistant containers is still one of the important challenges in this field. To improve this, the establishment of a safety value chain to strengthen safety is the key. In this study, a method of developing and applying a safety value chain was studied to reinforce the safety of hydrogen-resistant containers. This study is expected to contribute to the expansion of safe and reliable hydrogen supply by actively applying these safety strategies to the hydrogen electric vehicle industry.

전 세계적으로 친환경·탄소중립 중요성이 강조되면서 수소전기차는 급성장할 전망으로, 대한민국은 2023년 7월 기준으로 수소승용차 32,500대, 수소승합차 363대이다. 수소차는 충전시간이 짧고 주행거리가 길다는 장점이 있다. 그러나 내압용기의 안전 문제는 여전히 이 분야에서 중요한 과제 중 하나이다. 이를 개선하기 위해서는 안전성 강화를 위한 안전 벨류 체인 구축이 핵심이다. 본 연구에서는 수소 내압용기의 안전성을 강화하기 위해 안전 벨류 체인을 개발하고 적용하는 방법을 연구하였다. 이 연구는 이러한 안전 전략이 적극적으로 수소전기차 산업에 적용되어 안전하고 신뢰할 수 있는 수소전기차의 보급 확대에 기여할 것으로 기대된다.

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차량 제동장치 부적합 재현에 따른 제동 지연 및 약화 현상 분석에 대한 실험적 연구

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An Experimental Study on the Analysis of Brake Delay and Weakening Phenomenon by Nonconformity Reproduction of Vehicle Braking System

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Key Words : Braking system(제동장치), Vehicle inspection(자동차 검사), Failure(결함), Nonconformity(부적합), Effectiveness(효과성)

ABSTRACT

Under the current Automobile Management Act, braking systems are managed as vehicle inspection standards and methods 8) braking systems, and have been continuously implemented for traffic safety of driving. We would like to conduct an experiment to analyze the actual effectiveness of the braking system inspection, and analyze the effectiveness of the experiment to present the importance of the braking system inspection. We will analyze the experimental results before and after the failure by artificially creating a failure in the braking system using the actual vehicle. First of all, we present the process of selecting the braking system as the subject of a nonconformity experiment, and determine the method of reproducing the braking system failure. Next, on-site braking experiments are conducted by conditions such as braking start speed, braking force, failure conditions for each braking system direction(left wheel or right wheel), and road surface conditions. Finally, we will conclude this study by organizing the test effectiveness(cost, risk, etc.) analysis based on the results of the experiment.

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제동력 시험기와 Roll&brake 장비의 제동력 상관관계 분석에 관한 연구

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A Study on the Correlation Analysis of Braking Force Between Braking Force Testers And Roll&Brake Equipment

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Key Words : Brake tester(제동력 시험기), PTII(정기검사), Vehicle inspection(자동차검사), Diagnostic tool(전자제어 진단기), Brake force (제동력), Correlation(상관관계)

ABSTRACT

This study aims to compare and analyze the braking force between the braking force test equipment and the roll & brake equipment, in order to utilize the roll & brake equipment for measuring the braking force in vehicle inspections. The test method confirmed the brake pressure using an diagnostic device, and compared the correlation by measuring the braking force when the brake pedal was pressed with the same pressure. The test results showed that there was a high correlation between the braking force tester and roll&brake equipment

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