INCREASED SAFETY IN CAR REPAIR SHOPS

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ABSTRACT: In the dynamic world of car workshops, safety and efficiency at work are fundamental pillars that guarantee not only operational success, but also compliance with labor legislation. Modern equipment such as car lifts, derailing machines and balancers play a crucial role in achieving these goals, offering innovative solutions to the daily challenges encountered in car workshops. Car workshops are complex and dynamic work environments, where the risks of accidents are high due to the nature of the activities carried out, the equipment used and the specific working conditions. Therefore, improving occupational safety and health in these environments becomes a key priority for protecting employees and ensuring efficient and safe operations.

KEYWORDS: accident risks, car lifts, service, employee protection

1. INTRODUCTION

In Romania there are numerous car workshops, some of which stand out, while others are afloat. The difference between them is most of the time, not by the quality of the spare parts and the expertise of the mechanics, but by the application of a few essential elements, which offer maximum efficiency and perfect safety.

Working in a car service can be interesting and even exciting, offering those who choose this profession an increased degree of financial stability and an interesting work environment, free of monotony or routine. However, auto repair shop owners must ensure that they take all necessary precautions to keep their employees safe while they work, and this task is more difficult than it may seem at first glance [1] .The risk of injury in a car repair shop is not something that can be neglected, as many of the equipment, tools and even substances that employees work with, can be dangerous when not handled and used with care and care. The quality of the equipment in these workshops also plays an important role, as many of the day-to-day operations involve the handling of heavy weights and dangerous tools, which, when they fail, can cause injury or serious injury [2] .

Maintaining tools and equipment is essential to keep them in good working order and to reduce the risk of injury to the employees who use them. Whether we are talking about the best performingelevator 2 coloane or the simplest hammer, each of the tools and equipment used in your repair shop must go through a regular maintenance schedule.

Cuts, electric shocks, blows, burns and numerous other types of injuries are and will always be a risk in the day-to-day

work of a car service. Even so, this does not mean that the risk of these injuries cannot be considerably reduced. One of the best methods is by equipping working mechanics with overalls, gloves and goggles so that they are less exposed to the potential hazards of working on customers' cars [7-8].

2. THE RISKS TO WHICH CAR MECHANICS ARE EXPOSED

Due to the specifics of the work activity, different types of accidents can occur in the car service with various causes such as the lack of grounding at the wheel removal machine, the lack of ventilation in the paint preparation laboratory or the lack of proper safety signage.

The activity of maintenance and repair of vehicles is carried out in accordance with the measures for the prevention of accidents, illness and fires, provided by the labor protection in the car workshop. In this regard, a clear analysis is needed to highlight which are the potential risk factors and what protective actions must be taken to reduce or eliminate the risks.

The norms of labor protection in the car service pay special attention to their machinery and protective equipment, but also to the vehicle suspension devices.

Employees in auto shops, such as mechanics, are at risk of all sorts of injuries. For example, they have to lift heavy objects, which leads to muscle strain.

In addition, they often work for hours in an inappropriate posture, which can lead to repetitive stress injuries or cumulative trauma disorders such as muscle pulls, spinal and wrist injuries. Slips and trips can cause trauma even without a fall and are common in the workplace in car workshops.

Therefore, improving occupational safety and health in these environments becomes a key priority for protecting employees and ensuring efficient and safe operations.

1. **High risk of accidents**: Car workshops involve various activities, from handling and repairing vehicle components to using complex equipment and machinery. These activities pose a significant risk of accidents, including falls, electric shock, burns, and mechanical injuries. The development of an assistance system based on artificial intelligence (AI) can significantly contribute to the identification and prevention of these risks in real time, thus reducing the incidence of accidents and protecting the health of employees.
2. **Complexity of the work environment**: In car workshops, employees face a complex work environment, where they have to monitor several processes simultaneously and make quick decisions. An AI-powered support system can provide real-time data and alerts, helping employees identify and avoid dangerous situations. For example, sensors and surveillance cameras can monitor service activities and alert employees if they detect unsafe behaviors or conditions.
3. **Operational efficiency**: Implementing an assistance system for accident detection and prevention not only improves safety, but also contributes to increased operational efficiency. Reducing the number of accidents and the downtime caused by them leads to higher productivity and financial savings for workshops. Additionally, a safe and well-managed work environment can attract and retain qualified personnel, which is essential for the long-term success of the organization.
4. **Innovation and technology**: The use of advanced technologies, such as AI, in OSH is an innovative direction that can transform the way occupational risks are managed. The research and development of such a support system provides the opportunity to explore and implement state-of-the-art technological solutions, thus contributing to the advancement of knowledge and practices in the field of

OSH. This can include developing machine learning algorithms for data analysis, integrating IoT sensors for monitoring working conditions, and using augmented reality for employee training and education.

5. **Social and economic contribution**: Occupational safety and health have a direct impact on the well-being of employees and the economic performance of organizations. By preventing accidents and improving working conditions, the economic burden associated with medical treatment, compensation, and productivity losses can be reduced. Thus, the development and implementation of an assistance system for the detection and prevention of accidents in car workshops contributes to the creation of a safer and healthier work environment, benefiting both employees and employers and society as a whole.

3. SAFETY IN CAR REPAIR SHOPS

In the dynamic world of car workshops, efficiency and safety are two fundamental pillars that ensure both customer satisfaction and employee well-being. In this context, car lifts play a key role, transforming the way vehicle maintenance and repairs are carried out. This equipment not only optimizes the workspace, but also significantly increases the productivity of mechanics by improving access to vehicle components [3]. Car lifts allow vehicles to be lifted to ergonomic heights, thus facilitating a wide range of operations, from oil changes and brake system repairs, to more complex jobs such as replacing suspension system components. By eliminating the need to work in awkward or dangerous positions, lifts significantly reduce the risk of workplace accidents and long-term illnesses associated with forced fasting.

The adoption of elevation technology in car workshops also represents a commitment to adopting industry best practices. By using lifts, garages can ensure that vehicles are inspected and repaired in accordance with safety standards, giving customers peace of mind that their vehicles are treated with the utmost care and professionalism.

Thus, the implementation of elevators in car workshops in Romania is not only a trend, but a necessity in the continuous evolution of the car repair sector. This essential equipment allows mechanics to perform maintenance and repair work with increased precision and efficiency, underlining the commitment of garages to provide superior quality service to their customers[4]. An elevator autoIt is not just a tool that facilitates access to the lower part of the vehicle. This is an essential piece of equipment that supports employee safety by preventing workplace accidents. The ergonomic design and advanced safety features of modern lifts reduce the risk of injury, thus guaranteeing that all repair, adjustment or maintenance operations are carried out in a controlled and safe environment. When it comes to changing or repairing tyres, aDejantat carIt is a reliable ally for any automotive technician looking to increase their productivity. This allows precise and gentle handling of the wheels, reducing the risk of accidents, increasing working speed and improving the quality of customer service. By automating some of the most tedious tasks, deburring machines contribute to better management of physical effort and reduce employee fatigue[5-6]. The integration of advanced technologies in car workshops not only improves the efficiency and quality of services offered to customers, but also plays an essential role in ensuring a safe working environment in accordance with the legislation in force. Car lifts, derailing machines and balancers are examples of how technological innovation supports

both business development and employee protection. In this context, choosing modern equipment is not just a technical upgrade, but an investment in the safety and long-term efficiency of car repair shops.

Safety in the use of car lifts is a vital component of any car service, having a significant impact on people's lives, business reputation and financial costs. Adherence to general safety principles is essential for accident prevention and for the efficient operation of the business.

4. CONCLUSIONS

Safety in car workshops is a particularly important aspect and should not be underestimated under any circumstances. Safety is not only a legal requirement, but also a commitment to employees, customers and their property. Here are the main reasons why it is necessary to pay special attention to safety in car workshops:

- Protecting people's lives - One of the most obvious and fundamental reasons why safety is essential in car workshops is to protect people's lives. Employees who work in car workshops regularly interact with heavy equipment, vehicles lifted into the air, and dangerous components. Any negligence in this context can lead to serious accidents or even deaths. Thus, everyone involved can work in a safe environment and return home every day safely.
- Legal responsibility- Safety is not just an option, but a legal requirement. The authorities strictly regulate safety standards and require compliance with them. Failure to comply with these rules can lead to costly fines and can even jeopardize the existence of the business. Also, the owners of car workshops can be held criminally liable in the event of serious accidents caused by negligence.
- Business Reputation- Reputation is a valuable asset for any business. An accident or safety-related incident can negatively affect customer confidence. People will be reluctant to leave their vehicles in a car repair shop with a shaky reputation for safety. Therefore, maintaining a safe working environment and adhering to safety standards will help you maintain a solid reputation in the industry and attract loyal customers.
- Cost savings - Investing in safety may initially seem expensive, but in the long run it can bring significant savings. Accidents can generate unpredictable costs, such as repairing or replacing damaged equipment, compensating victims, and paying legal fines. Preventing these situations by applying the appropriate safety measures will bring significant financial savings in the future.

Adherence to safety procedures, proper staff training and regular maintenance of equipment are key factors in ensuring a safe working environment and preventing accidents in car workshops.

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