

ANALYSIS OF PROBLEMS IN WELDING THE BODY OF A COBALT CAR

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Today, the automotive industry of Uzbekistan is one of the most rapidly developing industries. The Kobalt car, produced at the UzAuto Motors enterprise, is distinguished by its convenience, durability and reliability. At the same time, the welding process of a car body is one of the most responsible stages of production. Poor welding quality directly affects the strength, safety and service life of the car. Therefore, it is an urgent task to analyze technological problems encountered in welding body parts and find ways to eliminate them.

This thesis analyzes the main problems in welding the Kobalt car body, their causes and solutions using advanced technologies. Structural features of the Kobalt car body; The body of the Kobalt car consists of a monocoque (one-piece) metal frame, which is mainly made of the following materials:

low carbon steel (grades St3, St5,); galvanized thin sheet steel; aluminum alloys in some parts.

The main elements of the body - the front panel, pillars, door frames, floor and roof parts - are joined by spot welding. This method is the most common in the passenger car industry, providing high speed and minimal thermal deformation. The main problems encountered in the welding process; Incorrect selection of electrode grip and current strength. In this case, the welds are not formed uniformly, as a result of which the metal heating level is insufficient or overheats.

The problem of corrosion (rusting). Welded areas are prone to rusting due to the destruction of the galvanizing layer. This negatively affects the long-term

service life of the body. Deformations and internal stresses. As a result of thermal exposure, there is an elongation or contraction of metal layers, which reduces the accuracy between body elements. Failures in robotic welding.

Errors in the programming of welding robots or electrode wear lead to a decrease in the quality of the weld. The introduction of automatic control systems for welding parameters (using sensors and cameras) allows online control of the quality of the weld.

Laser welding technology provides more accurate results than the traditional spot method for some delicate parts, reduces deformation.

It is recommended to apply special anti-corrosion primers and epoxy coatings after welding to restore the galvanic protective layer.

Installing systems that automatically calibrate the electrode pressure of robots stabilizes the quality of the weld. Improving the skills of workers and improving the technical control system also reduces production errors. Today, welding lines at UzAuto Motors plants are being equipped with robots controlled by digital technologies. They analyze each weld parameter (current, time, pressure) in real time. Process monitoring is carried out using IoT (Internet of Things) technologies.

Data is transmitted to a cloud system and is useful for analyzing production quality. As a result, the human factor in welding is reduced, the stability of the weld quality increases, and the overall reliability of the body is guaranteed.

The welding process of a cobalt car body is a complex technological system in which thermal effects, metal properties, welding method, and equipment condition play an important role.

The analysis shows that the main problems are electrode pressure, corrosion, deformations and malfunctions in the adjustment of robotic systems. To eliminate them, it is necessary to introduce digital control systems, automatic calibration devices, laser welding and anti-corrosion protection technologies.

Also, increasing the scientific potential of engineering and technological personnel, developing skills in working with modern equipment will serve the sustainable development of the “New Uzbekistan” industry.

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