LIGHT AUTOMOBILE STEEL WHEEL MANUFACTURING TECHNOLOGY

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ABSTRACT

It is known that welding is an important technological process in the manufacture of automotive parts, and many types of welding are used. Contact triangular welding is the most effective, and in some cases the only, method for the production of steel wheels for cars. Because this type of welding is fast, without any filling electrodes, shielding gases, does not require special training, suitable for serial production. In the line of preparation of air conditioning based on modern technology, from 0.01% to 0.05% of air conditioning can be defective. The quality of the material does not meet the requirements and the welding technology is not sufficiently improved, which leads to an increase in the level of defects up to 20%. This leads to excessive material consumption, an increase in the cost of production, and a decrease in economic efficiency.

KEYWORDS: The Wheel Is Made Of Pneumatic Tires, The Connecting Part Is Disc And The Housing.

INTRODUCTION

Objective:

To study the impact of product defects on the welding of steel wheels by three-point welding and to develop recommendations for their elimination.

The wheel is one of the components of the carriageway. The function of the wheel is to connect the car to the road and ensure its movement, while at the same time slightly softening the impulses transmitted from the roughness of the road to the body, and the load from the body in the vertical direction to the road. [1]

The wheel consists of a pneumatic tire, a connecting part of a disc and housing. It should be noted that according to the catalog of spare parts, the connecting part and the joint are called wheels. Stamped - a ring-shaped part made of tires; the disc is the part that acts as a base for the trunk and connects to the car hood. The wheel is necessary to perform the function of the support of the car as a result of the placement of the tires and their joint fastening to the wheel. [2]

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Depending on whether the wheel is attached to the axle shaft, it can be disc or disc-free. Trucks use a diskless type of wheel, which is fixed to the hub. Cars use disc wheels. [3]

The following requirements apply to car wheels:

- The selected wheel on the tire must be fully compatible with its structure, stiffness, size;
- Well balanced, the value of the imbalance should be small;
- The wheel must be easy to put on and take off during operation;
- It is desirable that the mass of the wheel is sufficiently small and the moment of inertia is small;
- The wheel should fit the tires with and without tires;

- When using tires without a camera, even when the pressure is low, their joints can not move from each other.

Car wheels are often made integral and differ in design, tire size, material and production technology. There are three types of car wheels according to the technology of production: stamped steel wheels, cast wheels and volumetric stamped wheels. [4]

Stamped steel wheels are the most common and the world's largest in terms of production (Figure 1). Its components - a disk and a sheet of steel sheet are stamped, rolled and welded together. This type of car is produced on the assembly line equipped with wheels. Due to the rapid corrosion of steel, steel wheels are covered with a protective layer (primer, enamel or varnish). The advantage of these wheels is their low cost and the fact that they are made of sufficient plastic material, so that the plastic does not break under impact. This not only makes it completely useless, but also allows it to be easily restored. **[5,6]**



Figure 1 Stamped steel wheels

Wheels made of light alloys. Many manufacturers have been researching alloys and materials for making wheels. By 1960, the first aluminum alloy wheels were produced. Later, magnesium

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alloys began to be used. Wheels made of light alloys are divided into two types depending on the type of production: burnt and hammered wheels. **[7,8]**

Cast Alloy Wheels (Step 2). These wheels are made of liquid alloy using a mold. They have a big advantage over steel wheels. Aluminum wheels are about 25% lighter than steel wheels. The lighter the wheel, the smoother the movement. The reduction of the moment of inertia improved the acceleration and braking properties of the car. In addition, the wear resistance of transmission parts is increased and fuel consumption is significantly reduced. The preparation accuracy of cast and hammered discs is High, so the balancing accuracy is High. The technology of making cast discs can give them any shape. This is why cast discs look better than stamped ones. The disadvantage of cast discs is that when they fall into potholes, they do not bend like stamped discs, but crack. This means that such a drive cannot be recovered. Cast light alloy wheels are installed in expensive cars. [9,10]



Figure 2 Cast aluminum wheels

Hammered wheels (Fig. 3). They are made of aluminum and magnesium alloys by hot stamping. It is then mechanically and thermally treated. This ensures the strength, rigidity and high corrosion resistance of the structure. Unlike cast wheels, hammered wheels do not require additional refilling. The impact wheel does not crack, but is crushed. At first glance, it looks like a steel wheel, but is twice as light. Another advantage of this advantage is the lack of hammered wheels. The hammer wheels, which are easily driven from the depths, transfer all the impact energy to the suspension, which has a negative effect on the condition of the car. The second disadvantage of hammered wheels is the limited design technology. The hammered wheels are popular among motorists and tuning enthusiasts. Such wheels are widely used in sports and charged cars. [11,12]

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Figure 3 Hammered wheels

Marking of wheels (Fig. 4). This information will help us understand how to mark the wheels and what the basic parameters of the wheels are. Whether it is light alloy (cast and hammered) or steel (stamped) wheels, all wheel parameters have a standard setting. [13,14]



Figure 4 Basic dimensions of the wheel

For example: 6.5Jx15 H2 5x100 ET45 d54.1 15 - wheel diameter

(D) In inches; 6.5 - wheel width (B); J and H2 are the characters that professionals need. J - Provides information about the edges of the settlements. H2 is also the code of the structure, which gives information about the seat of the wheel. Hump (English hamp (height, dumbness)) is a ring on the tire designed for a tire without a camera (Fig. 5). The main function of the hump is to securely fasten the tires on turns, ensuring that the tightness of the wheels is not compromised. **[15,16]** If there is only one hamp in the designation of many wheels, the letter N is written one on the outside. However, most wheel models have hump along the inner edge of the wheel, and the H2 index indicates this. Two-wheel drive increases the reliability of tire installation, but causes problems during installation. For this reason, on many wheels, the height of the second

hammock is made with a hammer. Such hamps are called flat hamps and are denoted by the letter X. **[17,18]**

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