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CAR WHEEL WELDING TECHNOLOGY

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Annotation: This article describes the butt welding of passenger car wheels and the subsequent technical operations.

Key words: wheel tires, hubs, through welding, shells, chamfer, pressing.

AVTOMOBIL G‘ILDIRAKLARINI PAYVANDLASH TEXNOLOGIYASI.

Annotatsiya: Mazkur maqola engil avtomobil g’ildiraklarini kontaktli uch-uch payvandlash bilan bajarilganligi xamda ketma-ket bajarilgan texnilk oprastiyalari to’g’risida yozilgan.

Kalit so‘zalar: g’ldirak oboda shina, gupchag, uchma-uch payvandlash, obechayka, faska, zapressovka.

ТЕХНОЛОГИЯ СВАРКИ АВТОМОБИЛЬНЫХ КОЛЕС.

Аннотация: В данной статье рассказывается о стыковой контактной сварке колес легковых автомобилей, а также о последовательных технических операциях.

Ключевые слова: колесо шины, ступицы, сквозная сварка, обечаки, фаска, запрессовка.

The function of the wheel is to connect the car to the road, ensure its movement, and at the same time, to slightly soften the impulses transmitted from road irregularities to the body, and to transfer the vertical loads from the body to the road.

The wheel consists of a pneumatic tire, a connecting part, a disk, and a rim.

It is worth noting that according to the spare parts catalog, the connecting part and the rim are collectively called a wheel.

Rim - a ring-shaped part made with a rim on which the tire is mounted; disk - a part that acts as a support for the rim and connects it to the car hub.

The wheel is necessary to place the tire and act as a support for the car as a result of its fastening to the axle. Disc wheels are used in passenger cars

Contact butt welding is the most effective in the manufacture of passenger car steel disk rims, since it is used, we will dwell on a general description of this method.

Fusion welding is used to produce high-quality butt-welded parts and other welded joints with high production efficiency.

The surfaces to be welded require little or no preparation.

The weld is as strong as the base metal and has a plasticity that is 30-70%. The properties of fusion welding are much better than those of other types of welds.

This type of welding can weld materials ranging from carbon steels to high-alloyed steels, even refractory and reactive materials.

Fusion welding is used in industry to weld many types of parts. In the automotive industry, it is the main, and in some cases the only, method for welding steel disk frames.

In addition, this welding method is also used to weld pipes, railway rails, jet engine crankshafts, and chain links. In fusion welding, voltage is first applied to the parts from a welding transformer, and then they are brought closer together.

When parts touch each other, due to the high current density, the metal in some parts of the contact area heats up quickly and erodes explosively. Due to the continuous formation and erosion of the contact areas, i.e., the joints, the ends of the parts heat up.

By the end of the process, a continuous liquid metal layer forms at the ends. At this time, the speed of approach and the deposition force increase sharply; the ends touch each other, most of the liquid metal is squeezed out of the welding area along with the coatings on the surface, forming a thickened weld. The welding current is automatically interrupted during deposition (Fig. 1).

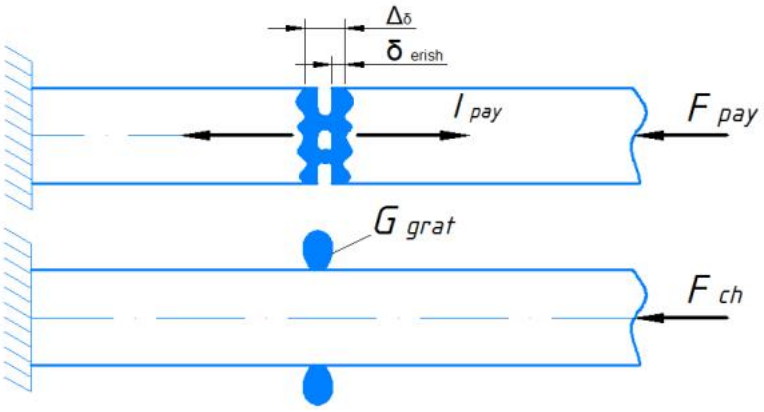

Fig. 1. Scheme of joint formation in fusion welding.

(Fpay - initial force; Fch - deposition force; δer - molten metal layer).

Light vehicles are characterized by a high degree of automation in the production of their wheels. Figure 2 shows the sequence of operations on an automatic line for the production of light vehicle wheels.

The cold-rolled strip is unwound from the roll (position 1), straightened, cut (2) and rolled into a circle on a bending machine (3). After bending, the rolled strips are rolled one after another (4) and sent to one of the two devices for contact welding. In this case, automatic detection of the seam and its welding are carried out using a nozzle. The welded rings are then deburred (5), the ends are machined (6), the chamfers are removed (7), and after cooling (8), the tube is profiled (9-12) and calibrated (13). The preparation of the wheel is completed by contact welding on machines located in series at four points (Fig. 3) and pressing the disk into the hub.

The wheel of a light car (Fig. 5) also consists of a disk (1) and a hub (2), but a profiled strip of greater thickness is used for the hub blank.

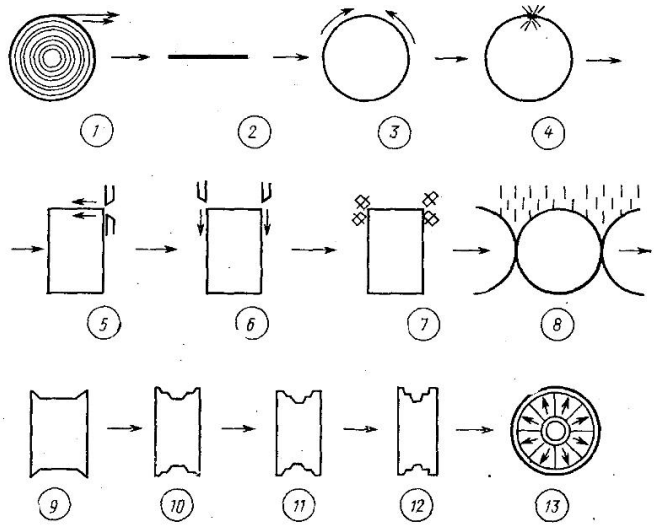

Figure 2. Procedure for preparing the car's wheel arch

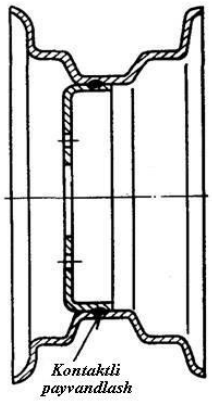

Figure 3. Car wheel rim

Conclusion: We can see that the method we have chosen for welding car wheels, namely the fusion welding method, is the only method that is the most effective in some cases, in terms of sanitary-hygienic and safety, in addition to its advantages such as not requiring any protective equipment during welding and ease of automation.

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