

УДК 620.91

Andrew Bondarenko¹, Tetyana Suvorova²

¹student of group E-419a, National University «Zaporizhzhia Polytechnic»

²senior teacher, National University «Zaporizhzhia Polytechnic»

THE IMPORTANCE OF ELECTRICAL SAFETY FOR ELECTRICIANS

Electrical safety is a complex of actions and technical means that prevents harmful and dangerous effects of electric current, arc, electromagnetic field and static electricity on a worker.

The rules of electrical safety are established by legal documents, technical documents and the regulatory framework. Everyone working with electrical installations and electrical equipment in general should know the basics of electrical safety. In Ukraine, for electrical safety there was adopted DSTU 7237:2011. The protective grounding must comply with GOST 21130-75 and GOST 12.1.030-81. The definition of the product class for the protection of a person from possible electric shock is determined by GOST 12.2. 007.0-75, GOST 12.2.025-76 and DSTU 3798-98.

Why should electrical safety be observed? As a result of an electric shock, a person will receive burns and some internal injuries. Depending on the strength of the current, the path of its passage, its type (AC or DC), the time that the current passes and resistance of a human, a person can lose consciousness, he can be paralyzed, and in the worst case, he will die. According to the rules for electrical safety, a dangerous current is considered from 100 mA, and when the current reaches 0.1 - 0.15 A, a person can not tear the touching part of the body from the current-carrying part.

Electrical safety can be divided into electrical safety when working with electrical equipment and electrical safety when installing electrical equipment.

To prevent a possible risk of electric shock when working with electrical equipment and electrical safety, the electrician must always check the presence of voltage at the place of work before working.

Checking the absence of voltage on the bare conductors is carried out with a two-pole voltage indicator YHH-1. Before operation, the device is checked for serviceability in the place of the corresponding voltage. In power grids with more than 1000V, the high voltage pointer YBH is applied. If there is need to check the absence of voltage, but in everyday life there is no voltage indicator at hand, then one of the easiest ways to do this – is to take a screwdriver with an insulated handle, at the end of which there is an LED that lights up if the metal part of the screwdriver touches the device connected to the voltage.

If the voltage indicator has detected a voltage, and it is not be possible to remove it, then electricians use special equipment: rubber gloves, shoes, mats, tools with isolated handles and face protection from burns. Before the work itself, all possible risks are reduced to a minimum (switching off all switches, breakers, automatic machines, checking the voltage at the place of work).

As for the electrical safety in the installation of electrical equipment, the essence of this electrical safety is to reduce the risks of failure of devices associated with electricity. For example, all the conductive wires should be securely hidden after the work is finished. Also the installation of some fuses and switches can be included here.

It is also worth mentioning the warning signs when working with some electrical appliances: 1) a black-bordered yellow triangle with a black lightning bolt - indicates the presence of electrical voltage. 2) a black-bordered yellow triangle with a black exclamation mark - indicates a general danger. 3) a black-bordered yellow triangle with a black-and-white magnet - indicates strong magnetic radiation.

Training employees to work safely around electrical hazards is a critical requirement for maintaining worker safety. Electricity is a serious workplace hazard that can result in serious injuries and even fatalities if workers are not properly trained. Only “qualified” workers can perform maintenance and repairs of electrical equipment. These qualified workers must be fully trained to identify exposed live

electrical parts and their voltage, and know exactly what procedures to follow when they work on exposed live parts or are close enough to be at risk.

From all of the above, it is necessary to summarize that every electrician should be guided by electrical safety in order not to risk getting an electric shock.