

## Section 01. Innovations in Engineering

Dmitrii Fedorov

Galushko O.M, research supervisor

I.I. Zuyenok, language adviser

National Mining University, Dnipro, Ukraine

### **Upgrading control devices of automatic telephone exchange**

Telephone communication has become one of the means of communication without which we can't imagine our life nowadays. Having appeared in the 19-th century, telecommunication has changed greatly that was provided by introducing innovations and modernization based on the latest findings in the area of telecommunication. To provide effective modernization of control devices of automatic telephone exchange there is a need in investments and technological policy aimed at modernization of communication networks. This paper describes the system of step-by-step modernization of coordinate automatic telephone exchanges aimed to increase the efficiency of operation of the ATS coordinate system,.

The main problem of today telephone communication in Ukraine is that it is provided mainly by electromechanical automatic telephone exchanges (EMATS), which have been operated for at least 20 years. Due to its wear relay equipment, requires replacement or repair. All this pushes the operators to find ways to solve these problems through the modernization of the existing equipment. To solve the problems of modernization effectively and develop communication networks, a correct and justified evaluation of the residual resource of the equipment should be made, taking into account investments to be put in the modernization, being planned..

Thus, the main question to be answered when determining the residual resource of the automatic telephone exchange is the limit state of the automatic telephone exchange based on the valid criteria.

There are three main ways to solve these problems: The first way is so-called "bulldozer technology" that is the complete replacement of EMATS with modern digital exchanges (DATs). This way significantly expands the range of services to the subscriber and significantly improves the quality of communication as well as reduces power consumption. The second way applies only coordination of the stations of ATC type: ATSC, ATSC, ATSC 100/2000, PUK 1000, and provides the replacement of relay of PCs, registers, RSLO, etc. to the similar, but electronic ones. The third way is the modernization of EMATS by replacing the relay group equipment with a digital switching system.

The research proves that from the economic point of view, the third path requires 5-6 times less capital investment than the first one and 2 times less than the second one.

### **References:**

1. Goldstein B.S. Switching systems. St. Petersburg: BHV, St. Petersburg, 2003
2. Biryukov NL, Steklov V.K. Transport networks and telecommunication systems. Multiplexing systems. - K .: , 2003. - 352 p.