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PECULIARITIES OF COMPUTER – AIDED CREATION OF SECTIONAL VIEWS BASED ON 3D MODEL

Development of the engineering graphics performance technologies raises new questions concerning the methodology of the solution of this discipline's tasks. The article presents peculiarities of computer-aided detection of a simple section view projections based on a 3D model using AutoCAD and SolidWorks computer systems. Moreover, differences between results and standard requirements for sectional views and ways in which more accurate results can be obtained are discussed. Author shows inaccuracies of details sectional views created automatically and analyses the ways of correcting the drawing manually.

The course of engineering graphics is quite wide. Results of this disciplines tasks solutions partially depend upon technology which was used to perform a task. Real world is three-dimensional, but when the world objects have to be presented two-dimensionally, problems concerning transformation occur even when modern design tools are used. Notwithstanding the development of computer science and its influence upon engineering graphics, there are still problematic issues to address when solving graphics tasks. Such problems need professional interpretations and ways to achieve optimal results. Computer systems provide us with powerful modelling tools but their proper usage is impossible without understanding standard requirements for engineering graphics.

The first step in constructing a simple sectional view automatically is a creation of a three-dimensional model of the detail. It is easy to do that using popular computer programs like AutoCAD and SolidWorks, but in some cases it is impossible to get a precise result without manual correcting. We face with problems when it is necessary to show thin elements of the detail (Fig. 1) or the edge which coincides with the symmetry line of the view (Fig. 2).

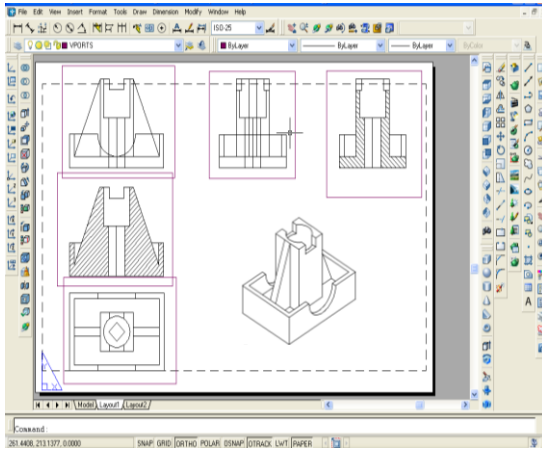


Fig.1. Computer – aided detection of sectional views

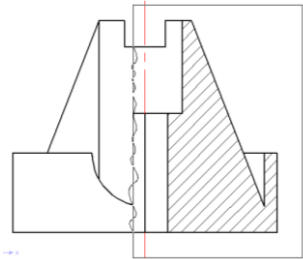


Fig.2. Joining two views of the detail

Considering rationality of actions, everyone can personally choose the sequence of steps to solve the problem.