

## THE G.O.S.T.S IN ASSEMBLY LINE DRAWING

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### ANNOTATION

This article provides feedback on assembly drawing.

**Keywords:** drawing, hatching, drawing, detail, scale, specification.

A person who is not familiar with assembly drawings may not understand anything at first sight of them. It is difficult for him to start reading from which of the confusing lines in the drawing, to understand the working process of the unit depicted in the drawing. Knowing this feature, the teacher tells the students the importance of sequence and step-by-step reading of assembly drawings, including projection connections of images, cross-hatching in cuts, various auxiliary images made in the drawings specification etc. It is necessary to emphasize that it will be of great help. What are the most common mistakes students make when reading assembly drawings? To these, trying to determine the shape of the detail from one of the images, they usually try to find it from the clipping depicted on the output line, which often shows the position number of the part. Avoiding such a mistake should always be the focus of the teacher's attention. Often, when the reader goes to determine the incomprehensible form of a detail from another image, he forgets the rules of projection connection and looks for the image of the detail in a place where it cannot be located.

One of the fairly common errors in the process of detailing is that the contour lines belonging to another intermediate detail are preserved in the outline of the detail being depicted. The opposite error is that students do not show in the drawing the lines that are not in the assembly drawing, but appear after the part that penetrates the part is removed. As an example, we can show the cut of the unit where the shaft passes through the cylindrical hole of the housing. By performing this cut without a stock, the reader leaves the transition line (which is formed at the intersection of two cylindrical holes) without describing it.

In the simplifications intended to be used in the assembly drawings by the State Education Standards, it is allowed not to show a number of elements in the drawing, such as chamfer, combing. Also, the gap between the hole and the stem is not shown. Students, when drawing from assembly drawings, often forget that it is necessary to recreate these "not shown" elements on the drawing, that is, to show the chamfer on the shaft end or hole.

Assembly drawing - a document containing the image of the assembly unit and other information, necessary for its assembly (preparation) and control. Assembly drawings are included in the set of working documents and are intended for production. The drawing of the assembly unit will improve at all stages of the design of the building. In the development stages of the design documents, it is called a general drawing, and in the stages of execution of the working document, it is called an assembly drawing.

The general drawing is specified in GOST 212-96 as a construction document and is performed according to GOST 2119-96, GOST 2103-96. The general drawing is intended to determine the structure (construction) of the product, and provides information about the interconnection of its components and the principle of operation. General view drawing serves for preparation of specification, detail drawing and assembly drawing of the item for preparation of working documents.

An assembly drawing is a representation of an assembly that provides an understanding of the location and relationship of the components of the assembly on the drawing, and provides assembly and control of the item. Assembly drawings include drawings of complete machines or machine tools consisting of several

assembly units and details, as well as hydroassembly, pneumatic assembly, and electrical assembly drawings. The assembly drawing is performed according to the working drawings or sketches of the details that make up the product. Making the working drawing of each detail according to the assembly drawings is called division into details. The working drawing of details included in the assembly drawing of the product (except for standard details) is drawn up according to GOST 2109-96.

Before drawing the assembly drawing in detail, it is necessary to read and understand the drawing, and then identify the components that go into the item depicted in the assembly drawing. It is recommended to read the assembly drawings in the following order:

- The name of the product, its scale and the name of the design organization, as well as the principle of operation of the product are determined from the main text of the drawing
- The main and additional images of the assembly drawing, views, cuts and sections, what material it is made of are determined.
- The specification of the drawing will be introduced.

Using the specification, the shape of each detail is analyzed.

1. The nature of joining together of all the details that make up the item (detachable and non-detachable connections and fixing details included in their composition) is determined.

2. Other information given in the drawing (dimensions, technical requirements, etc.) are determined.

After reading the assembly drawing, it is started to be divided into details. It is recommended to draw the assembly drawing of the item in detail in the following order:

3. The number of details to be drawn on the working drawing is determined.

4. The scale and format of the drawing is determined. The format varies according to the complexity and number of details, and space is allocated for the main entries.

- The number of main and auxiliary views of each detail, the necessary cuts and sections are determined
- Its working drawing is drawn in the format reserved for each detail; main and auxiliary views, cuts and sections are defined. The drawing's dimensions, contours and offsets are set.
- In each format of the drawing, the main entry related to this detail is written. Then a key entry is written that applies to all drawings. The scale of an assembly drawing can be determined in two different ways. One of these methods is used to draw a working drawing of assembly drawing details.

In order to determine the dimensions of the details graphically, a piece of mm paper is taken and the first quarter of the Cartesian coordinate system is drawn on it. The original size of the detail described in the assembly drawing is placed on the X axis, and the size of the detail measured from the assembly drawing is placed on the U axis, and points A and V are found. Then connecting rays are passed through these points and point Q is formed. Scale beam (O.Q) is formed by connecting points o and Q. This beam can be used to find the original dimensions of any detail included in the assembly drawing. For this, it is done as follows:

- The size of a part of the detail is measured from the assembly drawing, and the point D is created by placing it on the OU axis starting from point O;
- Point F is found by passing a connecting ray from point D;
- The point G of the intersection of the connecting beam from the point F with the axis OX is found;
- OG section length equals the original size of the desired part of the detail.

This scale chart allows you to draw the details given in the assembly drawing to any scale. The placement of detail images in the working drawings does not necessarily have to be the same as the training drawings. All views, cuts, sections and other images are performed according to the guidelines recommended in GOST 2305-96. For each detail, the scale of the images is selected, taking into account the shape and size. The more complex the shape of the detail, the more contours and dimension lines there are in the drawing. Therefore, it is necessary to draw the images of such details on a large scale

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