

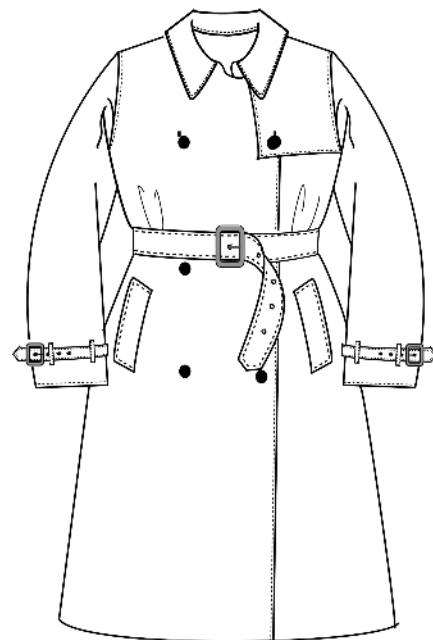
# Draw Plus

## A “Rich Man’s” C.A.D.

**David Haythornthwaite examines a free drawing package which can be used to make excellent engineering drawings with little fuss and little or no cost.**

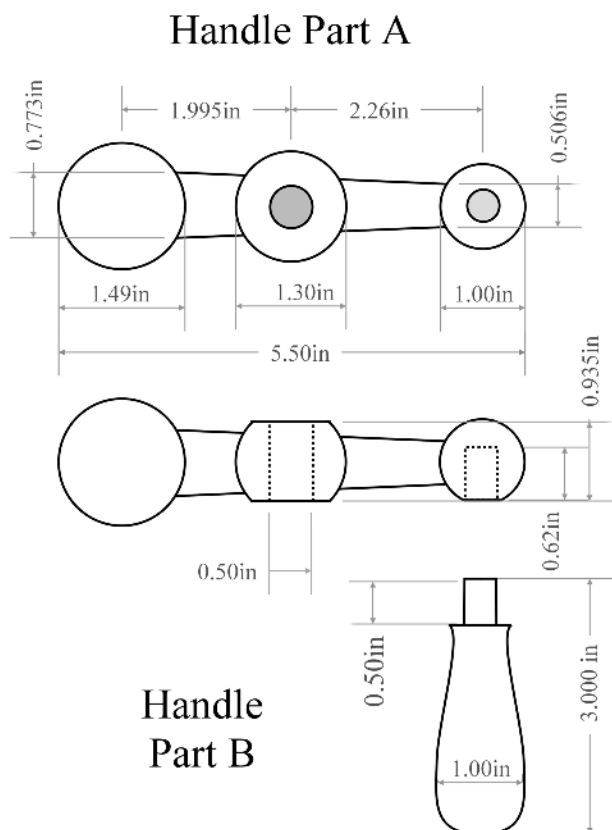
In Issue 132, our editor said that he would welcome an article about using CAD for our engineering projects and I look forward to reading any forthcoming articles written by those much more knowledgeable than myself in this black art. I have used CAD for drawings in the past but nowadays I use a drawing / drafting programme produced by Serif which is called called “Draw Plus”. Originally I headed this article “A Poor Man’s CAD” but changed it

to “A Rich Man’s CAD” as Serif Draw Plus is supplied absolutely free without any restrictions as a download from the web, and in that respect it makes all it’s users richer not poorer. (Since Writing it is Draw Plus Starter That is Free) Draw Plus is not strictly a CAD programme, but is a drawing and drafting programme using vector graphics as opposed to the bitmap graphics used by programmes such as “paint” etc. With a vector graphics programme, you can draw lines and shapes on the computer, and the shapes become objects that you may select, resize, re-colour and move about on the drawing. As already mentioned, Draw Plus 4 is absolutely free and I upgraded mine to version 6 and then version 7 costing something

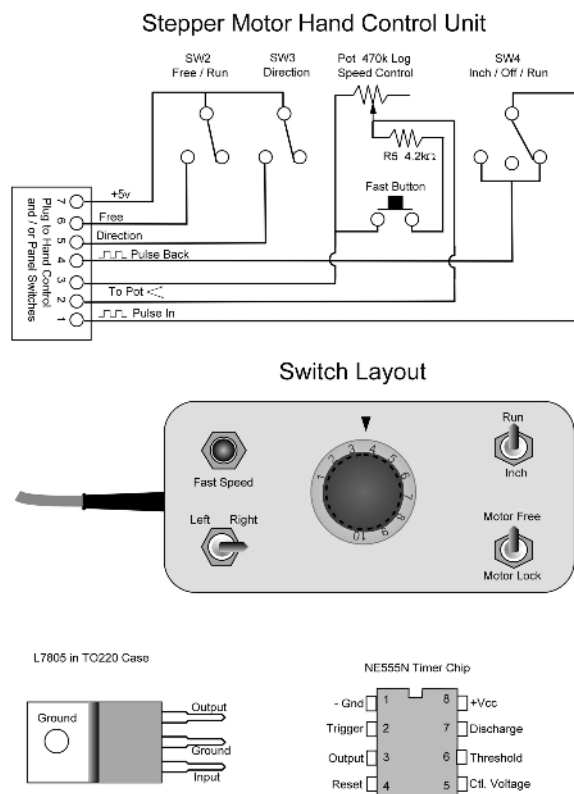


**Fig.1 Drawing of a Trench Coat**

in the order of £9.99 each time. However, Draw Plus 4 is perfectly ok for my type of engineering drawing. (Since writing this I have started to use Draw Plus X6.) When using the free download programme, a “worry panel” re-



**Fig.2 Ball Handle Drawing**



**Fig.3 Electronic Circuit & Components**

minds you to register each time you load the programme, but it does not hinder the working of the programme at all. If you choose to register, there is no charge, but you do have to go into verbal combat with a sales person for about 5 minutes, asking you what software you use for various tasks, and you also have to give them your email address. This obtains a registration key but causes product emails to arrive from them every month or two. The download site is [www.freeserifsoftware.com](http://www.freeserifsoftware.com) and I recommend you to visit this site. Visiting [www.Serif.com](http://www.Serif.com) will only show you their excellent value, but nevertheless chargeable, items, not the free versions.

So – what is Draw Plus and how do we use it? I use it all the time for a wide variety of tasks from engineering drawings, sketches, electronic diagrams, garment sketches at my work through to making greetings cards etc. It is very adaptable. However this is an engineering magazine and I should concentrate on the programme's ability to create engineering drawings. I create all my engineering drawings using Draw Plus and I actually prefer it to using a "proper" CAD programme, although I have to say that for major engineering plans, it would probably be found lacking.

To draw lines in Draw plus, you can choose a straight line tool which, surprise, surprise, draws straight lines and if you hold down the shift key draws them absolutely horizontal or vertical. There is a freehand line tool which I NEVER use and a curved line tool which is fantastic. Drawing a curved line involves clicking on the end points which draws a straight line. You can then use "handles" at the end of the lines to bend the line into a nice curve or double curve. If you create several consecutive lines which close at the ends, the object becomes a solid object which can

be filled with any colour (or not) and can be filled with graded patterns to give shape. There are tools to create objects of many different shapes and these can then be placed on top of, or behind, one another, can be grouped into one shape, and can be made "solid", "Wire" (not filled) or semi transparent at will. Objects can be resized manually with the mouse or if you use the "status panel" an object may be resized and positioned to exact dimensions and location. You type in the length and breadth of a rectangle and the object resizes on screen.

Many layers may be created and objects can be arranged on the various layers in the drawings. This can be useful by having different types of objects on individual layers. Dimension objects can be attached to handles on the drawn objects and the correct dimensions will automatically be displayed – and changed in real time, if the size of the object to which they are attached is adjusted. Layers may be locked, made visible - or not, printable – or not, and may be made semi transparent.

The advantage of the modular nature of the drawing cannot be stressed to much. I show in figure 1 a garment which has been drawn by me working in the clothing trade. This garment is made up of separate drawings of sleeves, pockets, collar etc, all saved separately and then assembled into one drawing. If the collar is too small, then I can click on it and stretch it. Click on the belt, and I can move it around or resize it. The belt would appear as a solid object, hiding the features beneath. This drawing also shows the great curved lines feature and shows different line styles. Another feature that I sometimes use in this type of application, is to import a photograph onto a background layer, make it semi transparent to make it pale, and then I draw over

the top. I remove my photograph – or make it invisible, and I have my drawing, overcoming my lack of artistic ability.

To come back to our engineering use, I show in **Fig.2** a part of a ball handle, complete with dimensions. This handle is made up of a tapered rectangle with several filled circles laid on top of it giving the impression of a solid compound object. The drawing scale of any drawing is adjustable on the paper, so for example you can state that 1mm on the paper represents 5mm in real life. Measurements can be set to imperial or metric in each individual drawing.

In **Fig.3** I show part of my electronic circuit for the hand control of my milling table drive as featured in MEW issue 119. I have saved all elements of electronic circuits such as resistors, transistors, integrated circuits etc. on to one or more drawings and then I copy them onto the circuit that I am building, rotating them and positioning them as appropriate. It is possible to have many drawings in memory at the same time and to copy parts from one drawing to another.

When making symmetrical objects, it is often easier to draw one half of the object, copy it, paste the copy and then flip it horizontally – or vertically in order to create an identical second half. Then group the two halves into one object. Lower in **Fig.3** you will see an illustration of a hand control box showing how a "solid" object can be drawn. If I wish to annotate a photograph I import it, adjust to the correct size and add the text. Whilst this is not a complete CAD system, the fact that in previous articles, MEW chose to use all my drawings without alteration or redrawing them speaks for itself. Lastly, I illustrate a cartoon of myself in **Fig.4** to show the versatility of Draw Plus.



**Fig. 4 Cartoon of Me Drawn in Draw Plus**

I must stress that Draw Plus is a great programme that one would not expect to be provided free of charge and the programme is packed with features far too numerous to mention here. It is a fully fledged, professional design package which has to present wonderful value in view of the zero cost. In my experience it's performance far surpasses programmes that are very expensive and it has proved to be entirely reliable. There is a comprehensive help system

available which I have printed out into an extensive manual. There are also some excellent example drawings, the like of which I can only dream about achieving myself.

We all have the need to create a drawing or two from time to time and whilst the back of an envelope can suffice occasionally, if you have a computer, I suggest that you download this programme and make your drawings something of which you are proud.

David Haythornthwaite