

Well Thought Out Product Features and Functions

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One of the objectives of an HHC is to provide HP with user community feedback on products. A calculator has many aspects and HP started the technical calculator business using well known industrial design guidelines. Not only did the features and functions of the HP-35A astound the world, but the classic tapered case design of the machine itself was exceptional. This first shirt pocket machine was heavy, power hungry, and expensive, but it was also first rate in terms of having well thought out product features and functions.

For me personally, this aspect of an “HP” is what makes an HP calculator exceptional. When the technical calculator business began 37 years ago the market didn’t have much competition and the electronics technology of small components was just getting its start. The insides were very expensive and a good quality package/case was very easily justified. Many technology advances have changed the calculator market, but the need for well thought out product features and functions is just as important as it has always been.

What makes a product well thought out? Perhaps a few examples of poorly thought out designs will provide contrast and illustrate this perspective. I eat grapefruit using a spoon. I picked one that was a suitable size and had a strong handle, but I discovered that my palm hurt after using it. Figure one shows where the “pointed” end presses against my palm to cause the discomfort. I “fixed” the poor design by using a piece of very heavy wall shrink tubing to extend the handle one inch. I use it everyday.



Fig. 1 – Short spoon handle causes palm pain.



Fig. 2 – Water on top.



Fig. 3 – Cooler water on bottom.

I took the photo in figure two while out walking one day. The cover of this telecommunications junction box is shaped to collect water in the center. The dirty collected water causes the brown area seen in the center. Mosquitoes love this design. One of the most common designer flaws is forgetting that water runs down hill. The top should be shaped to be strong and higher in the center to fully drain after every rain.

The opposite poorly designed product water problem is in my back yard. I live in a dry desert. Figure three shows the water tank at the bottom of my evaporative cooler. The removed side panel has aspen wood pads that are kept wet and air moves through them to cool the house. The two inches of water maintained in the bottom of the cooler gets dirty and should be cleaned once or twice a year (usually when the pads are changed), In this example we want just the opposite shape of the cover in figure two. I

want to be able to stir up the dirt and have it settle in a concave portion that collects the water as it drains dry.

What do these three products illustrate? None of the suggested better thought out versions violates any patents or presents additional manufacturing difficulties. From my perspective these three examples (I could fill pages with other examples) illustrate that no one thought out the actual short and long term use of the product. The drainage examples in figures two and three should be taught in every engineering design class.

I can offer an explanation for the “defect” of the spoon. This illustrates another aspect of the design issue; form over function. A spoon must look nice and place setting designers look at this aspect much more than anything else. If I were a spoon designer I would test the spoon by scooping ice cream. If the handle bent I would change it. For me function comes first and good looks must follow good function. The classic HP-35A followed this design “philosophy.” Do the more recent HP calculator designs follow suit?



Fig. 4 – Leather case holding tab.

If you are rushing a product to market you don't have the time to spend on projecting the product's use over its life time. This is especially true of entirely new designs. Patents, materials, and technology limitations are all considerations.

Figure four shows a classic leather case design that provides a strong tab at the bottom of the case to allow you to hold the case while you pull out the calculator. If you have used well fitting leather cases you will immediately agree that this tab is a great well thought out feature.

I have given my opinion on what makes an HP calculator exceptional. The list of features and functions that HP has developed is long and well known. Outstanding Feature lists have been presented at past HHC's. A few examples are the Solver, User key assignments, Key preview (HP-41), HP-IL, Name Plate Well, and SD card memory.

If you were to justify the reason you think HP machines are exceptional what would it be? Think of the overall single reason you like HP calculators – past or present – and send me your comments. I would love to hear from you at:

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I will gather all inputs and post them here.

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