

= Sinclair Sovereign =

The Sinclair Sovereign was a high end calculator introduced by Clive Sinclair 's company Sinclair Radionics in 1976 . It was an attempt to escape from the unprofitable low end of the market , and one of the last calculators Sinclair produced . Made with a case of pressed steel that a variety of finishes , it cost between GB £ 30 and GB £ 60 at a time when other calculators could be purchased for under GB £ 5 . A number of factors meant that the Sovereign was not a commercial success , including the cost , high import levies on components , competition from cheaper calculators manufactured abroad , and the development of more power efficient designs using liquid crystal displays . Though it came with a five year guarantee , issues such as short battery life limited its usefulness . The company moved on to producing computers soon afterwards .

The design by John Pemberton won a Design Council award , and there are examples of the Sovereign in the Museum of Modern Art in New York . It had a Mostek MK50321N main integrated circuit and a small memory register , a LED display , and could perform a variety of a number of basic mathematical operations besides four function arithmetic .

= = History = =

The Sovereign was one of the last calculators produced during Sinclair 's foray into the calculator market that had started with the Sinclair Executive in September 1972 . The Executive had retailed for GB £ 80 when introduced , but in little over a year it was possible to purchase a Sinclair calculator for GB £ 20 and by November of 1976 a model was available for GB £ 4 . 95 . Cheaper calculators with liquid crystal displays instead of light emitting diodes were becoming more popular , and had much longer battery lives of months or years . Such calculators were available for well under GB £ 10 , with all the functionality of the more expensive models . The impossibility of selling " simple " calculators profitably led Sinclair to introduce models such as the Cambridge Scientific , introduced in August 1975 at a price of GB £ 29 . 95 .

The Sovereign , released in 1976 , represented an attempt to move upmarket in an increasingly saturated market . In December 1976 , the chrome plated version of the Sovereign cost GB £ 30 and the gold plated version GB £ 60 , including VAT , but profit margins on the Sovereign were so small that Sinclair ended up selling the Sovereign at a loss , and it was not a commercial success . The Sovereign was made in England , like every other Sinclair calculator except the President .

Sinclair would shortly stop producing calculators and instead focus on computers , starting with the MK14 in 1977 . The loss of the calculator market was due in part to technological development leading to smaller and cheaper components , which put heavy pressure on profit margins . An import levy of up to 17 . 5 % was placed on components , but the duty for calculators imported from Japan or Hong Kong could be as little as 5 % , making it unprofitable to produce calculators in the UK . Sinclair also had some problems with the reliability of earlier calculators that had adversely affected its reputation , but the Sovereign was sold with a " full and unconditional " five year guarantee .

= = Design = =

The Sovereign came in satin chrome and gold plated models , with leather pouches and fitted wooden cases . It had an 8 digit seven segment display that used red light emitting diodes , with a decimal point to the right of each digit that could be illuminated as necessary . Power was provided by two 1 . 35 mercury button cells . The Sovereign measured 36 by 141 by 12 millimetres ( 1 . 42 in x 5 . 55 in x 0 . 47 in ) , which made it small and sleek compared to other calculators of the time .

The Sovereign was unusual because the casing was made from pressed steel , which gave it a much higher quality feel compared to injection moulded plastic . This allowed a variety of paint and

plating options , including black painted , chrome @-@ plated , silver @-@ plated , and gold @-@ plated , and a limited edition silver @-@ plated version , inscribed to commemorate the Silver Jubilee of Queen Elizabeth II in 1977 , were also produced . Asprey of London was rumoured to have produced two Sovereigns in solid gold , costing GB £ 2 @, @ 750 each .

The design , by John Pemberton , won the Design Council Award in 1977 , as the Executive had in 1973 , and there are examples in the collection of the Museum of Modern Art in New York . Sovereigns are highly collectible , and used models command high prices .

= = = Functions = = =

As well as addition , subtraction , multiplication and division , it had reciprocal and square @-@ root functions , and the ability to multiply by a fixed constant . With an eight @-@ digit display , the calculator could display positive numbers between 0 @.@ 0000001 and 99 @, @ 999 @, @ 999 , and negative numbers between -0.000001 and -9,999,999 . Calculators of the time tended to have displays of between 3 and 12 digits , as reducing the number of digits was an effective way of reducing the cost of the calculator . A number outside that range leads to an overflow , and the screen flashes and all keys except the clear key are rendered inoperable to inform the user of the error . A independent memory register could read information from the screen , and information could only be taken from the memory onto the screen . Five keys were used for memory operations .

The Sovereign used a Mostek MK50321N main integrated circuit , the same as the Sinclair Wrist Calculator and some variants of the Sinclair Cambridge . Clive Sinclair had assumed that people would prefer attractive illuminated LED displays to LCD displays , which incidentally also required more expensive CMOS chips . However , his calculators were designed with the assumption they would be turned off between calculations , which did not prove to be the case . Advertisements suggested that the batteries would last " about a year " under normal use , but in reality the small button cell batteries and comparatively high power consumption meant a short battery life compared to the competition .