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WATER ROCKET
100 FEET OR HIGHER!

Street Legal Electric Cars



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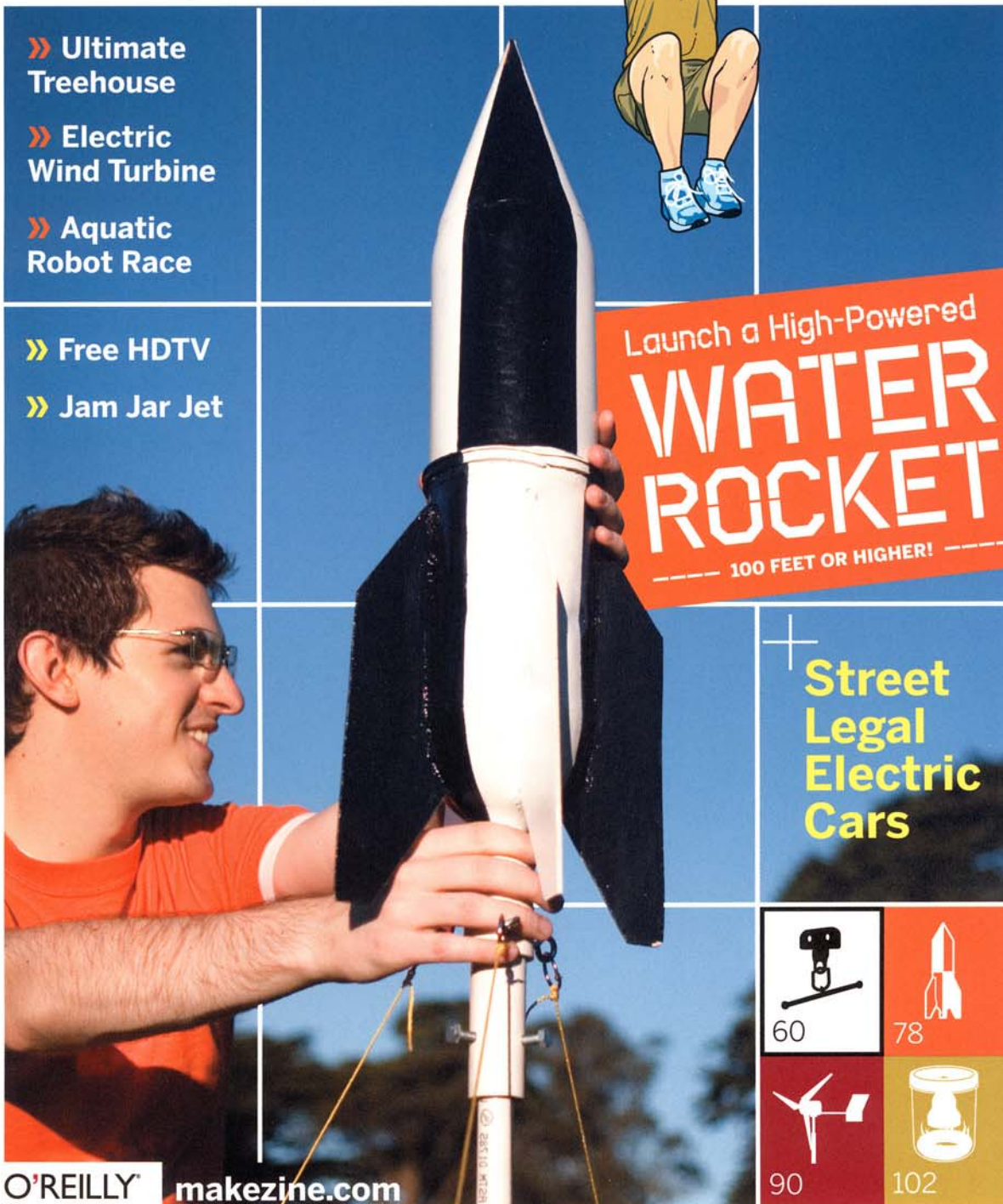


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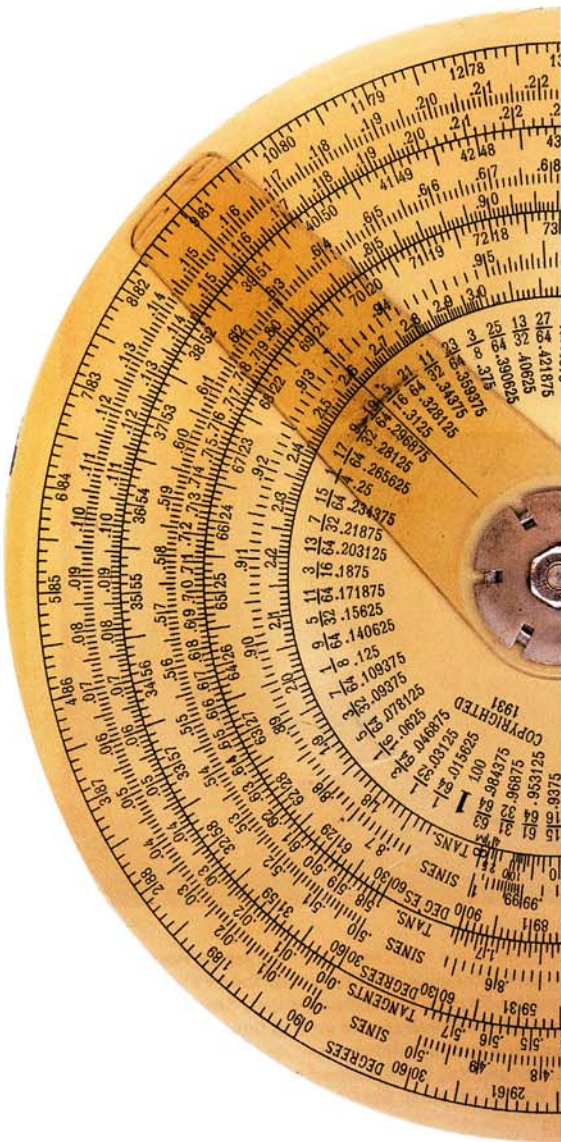
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MAKE LOOKS AT SLIDE RULES

Calculate This!

By Robert Luhn



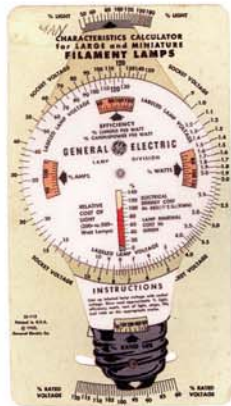
In the Pre-Digital Epoch, people building bridges, launching rockets, or trying to fill an inside straight used manual calculators. It might've been a snazzy slide rule, or a paper wheel with dials that (when properly aligned) computed a sales commission, the proper valve fitting, or how big a hole a 20-megaton H-bomb would make.

As one observer put it, manual calculators like the slide rule and its kin “radically increased our capacity to perform complex mathematical computations. They literally enabled us to develop our modern world.” Here are six classic calculators, ranging from the mind-blowing to the arcane.

Gilson Binary Slide Rule | 1940

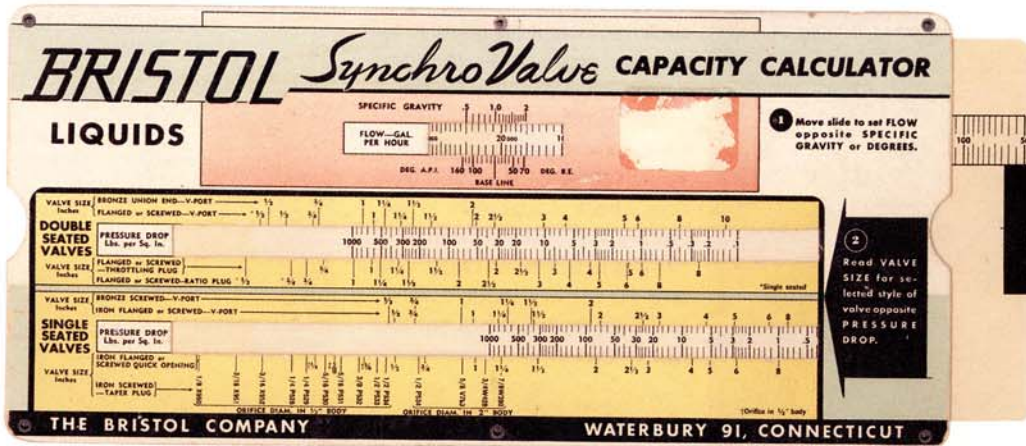
When people think of slide rules, they think of the classic rectangular slipstick. But many engineers, scientists, and merchants turned to this Frisbee-sized binary slide rule from Gilson (a whopping \$11 with case). This was the HP calculator of its era, sporting nearly two dozen scales, from trig functions to logarithms to multiplication. But this calculator was rooted in the real world — for merchants, the Gilson could quickly compute retail pricing and add and subtract fractions. For engineers, the Gilson could compute an answer to five figures — not bad for a pre-Pentium device. As with all slide rules, your ability to estimate numbers and keep track of decimal points was key to getting the right answer. (For more calculating, go to the Slide Rule Universe at sphere.bc.ca/test/sruniverse.html.)

Images courtesy of Robert Luhn



Characteristics Calculator for Large and Miniature Filament Lamps | 1952

How long before that incandescent bulb blows? This handy General Electric calculator — probably created for GE salespeople pitching the company’s wares — has the answer. Turn the bulb-cum-pointer until it aligns on the socket voltage and bulb voltage, and you can quickly learn how much energy the bulb consumes, the relative cost of lighting your hovel with this particular bulb, and how long the bulb will last before it goes nova. (To shed further light on this topic, seek out the Hall of Electrical History at schenectadymuseum.org.)



Bristol Liquids SynchroValve Capacity Calculator | 1943

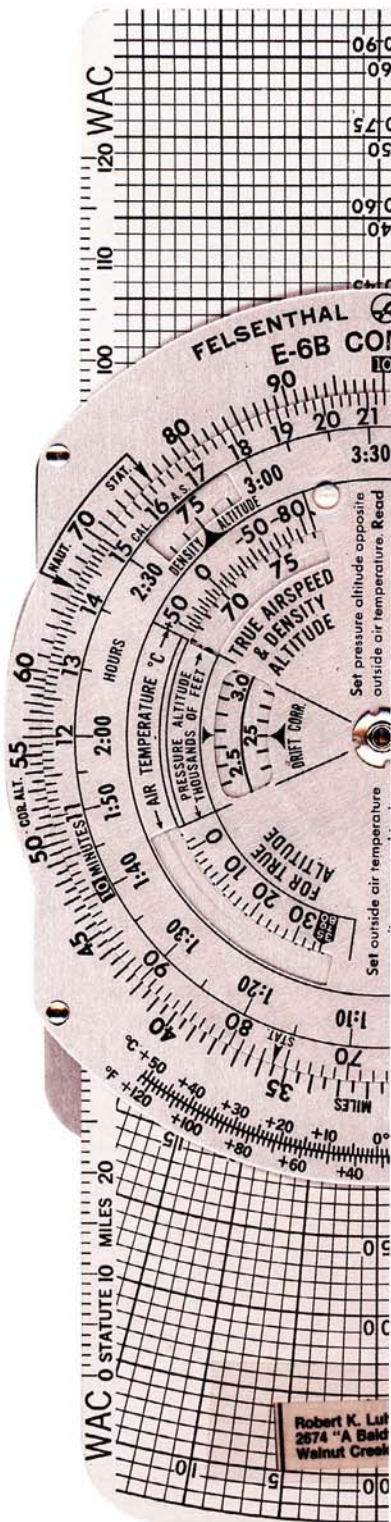
No, this isn’t for tuning up your Flux Capacitor. Bristol manufactured sensors, recorders, and other instruments for companies working with liquids and gases, from water to steam to pancake batter. This handy multicolored slide let engineers quickly figure out the right valve type and size for a given fluidic situation. Bristol closed its doors years ago; according to the EPA, the company site is a heady stew of lubricants, solvents, PCBs, and other toxic byproducts. Calculate the cost of *that*.

Poker Pal | 1955

When the chips are down — and you wonder if you’ll ever fill that inside straight — reach for Perrygraf’s Poker Pal. With a quick yank of the slide, you can determine what hand you need to win (in draw or stud) — and the odds of getting it. You can “what-if” with ease by setting the number of players, number of cards wanted, what’s showing on the table, and so on. In business since 1934, Perrygraf is still “THE source for innovative Slide-Charts, Wheel-Charts, Pop-Ups and other dimensional marketing products.” (To see its modern-day equivalent, slide over to poker-pal.com.)



MAKE LOOKS AT SLIDE RULES

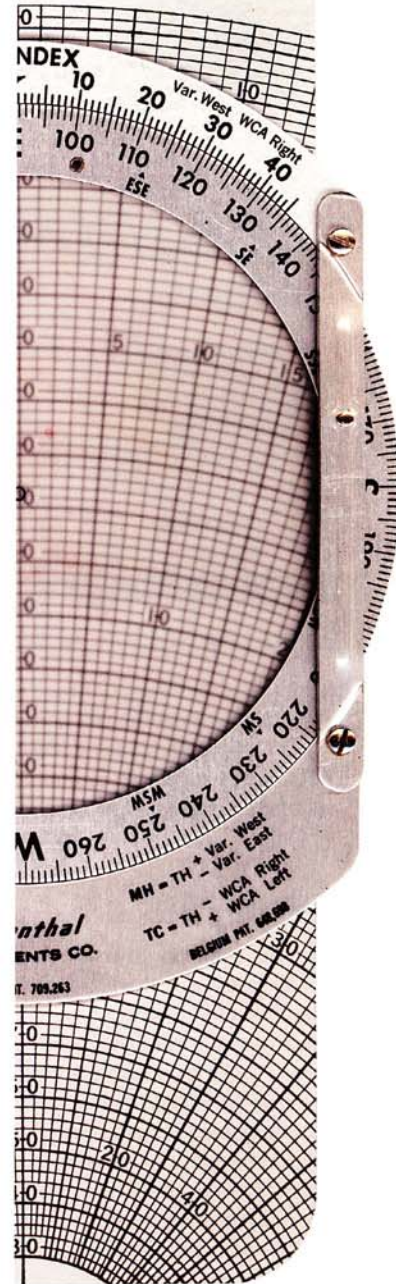


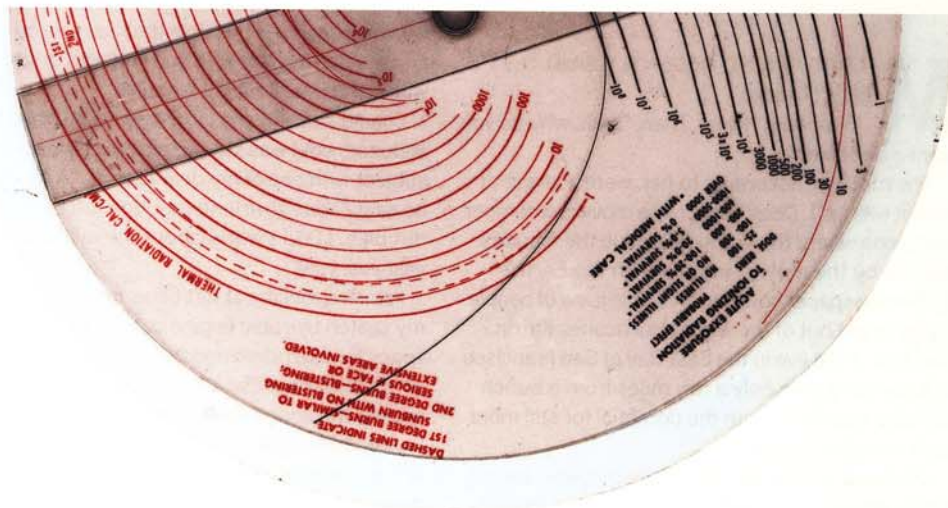
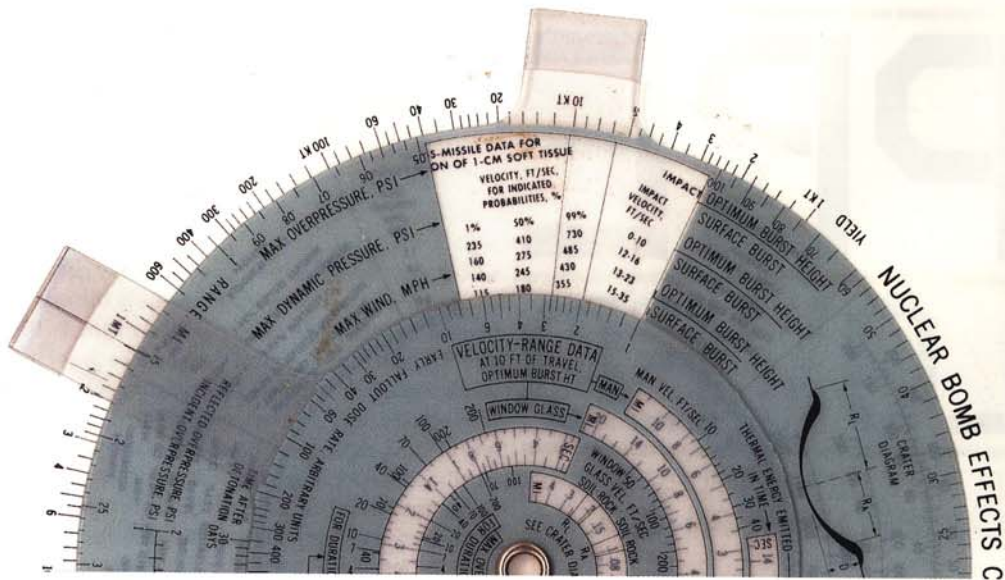
E-6B Flight Computer | 1966

Time, speed, distance, fuel. These are the mantras of the pilot. In the old days (pre-1990s), pilots relied on this device to solve such in-flight quandaries as “If I fly 40 minutes and consume 75 gallons, when will I run out of gas and plow into that mountain?” One side of the E-6B is devoted to such issues, and the other, to figuring out your true direction and speed while correcting for the nefarious effects of wind. These days, you can pick up a digital version of the E-6B for \$60 that does a heck of a lot more — but nothing says “veteran aviator” like this baby tucked under your arm. (To see how modern fliers plot their flights, check out the DUATS system at duats.com.)

Today, when everything is programmable, it's reassuring to discover dedicated calculators that are as straightforward to use as a hammer.

IND SPEED & WIND CORRECTION ANGLE
 DIRECTION OPPOSITE TRUE INDEX ▼
 DOT (W) UP FROM GROMMET (G) (EL.)
 COURSE OPPOSITE TRUE INDEX ▼
 TAS ARC UNDER THE WIND DOT (W)
 IND SPEED UNDER GROMMET (G)
 CORRECTION ANGLE AT WIND DOT (W)





Nuclear Bomb Effects Computer | 1962

What every nuclear family needed in the 1960s. In an era when building a bomb shelter was more fashionable than building a swimming pool, the Atomic Energy Commission contracted with the Lovelace Foundation to create this handy computer. Know the megatonnage of that incoming Soviet ICBM and where it hit? Turn the wheels to those values and you can learn the maximum radius of the fireball, the velocity of burst window glass, your chances of surviving 5,000 rems, and more. Fun for the whole family! (For more history and the scoop on building your own bomb effects computer, skulk over to fourmilab.ch/bombcalc/).

Robert Luhn is an executive editor at O'Reilly Media. He collects antique machines and small, unattractive animals.