



SLIDE RULE, STILL COOL

Breitling's rollout of its in-house Caliber 01 movement has reached the Navitimer. We examine the new Navitimer 01.

BY MARTINA RICHTER PHOTOS BY ZUCKERFABRIK FOTODESIGN



BREITLING
1884
CHRONOMETRE
NAVITIMER

SWISS
MADE



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etro watches are hot. That's good news for the Breitling Navitimer because in the digital age, it's hard to imagine a watch more retro than one whose bezel sports a slide rule. Slide rules long ago joined buggy whips and typewriters in history's scrapheap. But for nearly 60 years, the circular slide rule has been the Navitimer's claim to fame.

The watch, launched in 1952, is beloved by pilots because it enables them to make quick aeronautical calculations like converting miles to kilometers or determining average speeds, distances covered, and rates of ascent or descent. Now Breitling has equipped its most recognized timepiece with the firm's first in-house movement, Caliber 01, introduced in 2009 on the occasion of the firm's 125th anniversary. The Navitimer 01 was introduced in 2010 as a limited edition of 200 watches in rose-gold cases and 2,000 in stainless-steel cases. The unlimited version made its debut at this year's Baselworld. Recently we spent some quality time with the limited-edition steel-cased model.

Each Navitimer comes with an illustrated guide that explains how to use the slide rule. The circular slide rule consists of two identical logarithmic scales that give the Navitimer dial its distinctive look. One is stationary on the edge of the black dial; the other is mobile and marked on the white bezel, which turns in two directions. Pilots use these two scales to make their calculations. Reading and setting the small, finely calibrated scales requires a very sharp eye — or a magnifying glass. There is a third scale at the edge of the dial, below the slide rule scales: the tachymeter. Adjacent to this scale are the index strokes for the hours, minutes and seconds. Gleaming appliqués indicate the hours, but they're reduced to luminous dots at the 3, 6 and 9 o'clock positions to make room for the subdials for the small seconds and the chronograph. Just under the tachymeter scale is the seconds scale, with four subdivisions for the chronograph seconds, corresponding to the four-hertz, 28,800-vph frequency of the balance in Caliber 01.

The elapsed seconds and their fractions are indicated by a red hand with an arrowhead at its tip and Breitling's "B" logo on its shorter end. The arrowhead extends to the seconds scale and sometimes slightly beyond it. The steel minute hand is just as long and coated with luminous material. The tip of the hour hand does not quite reach the applied hour indices. These three time-indicating elements contrast neatly with the dark dial and cannot be confused with the numerous scales along the dial's periphery. Notwithstanding its many other functions, the time dis-

SPECS

BREITLING NAVITIMER 01

Manufacturer: Breitling SA, Schlachtausstrasse 2, CH-2540, Grenchen, Switzerland

Reference Number: AB0121-011

Functions: Hours, minutes, seconds, date, chronograph, slide rule, tachymeter scale

Movement: Breitling Caliber 01, automatic; 28,800 vph (4 hertz); 346 components; 47 jewels; diameter = 30 mm; height = 14.3 mm; Glucydur balance; Nivarox balance spring; Kif shock absorber; 70+ hour power reserve; COSC-certified as a chronometer

Case: Stainless steel, nonreflective sapphire crystal front and back, water-resistant to 30 meters

Strap and clasp: Black calfskin with white stitching, pronged steel buckle with Breitling winged "B" logo

Dimensions: Diameter = 43.2 mm, height = 14.3 mm

Price: \$8,215 (stainless steel, limited to 2,000 pieces), \$18,315 (rose gold, limited to 200 pieces), \$7,715 (unlimited, steel), \$7,945 (unlimited, with deployant clasp)



The column wheel is the heart of the chronograph. It controls all of the stopwatch functions.

*The Navitimer 01
has an exhibition
back, a rare sight on
a Breitling watch.*





Top: Breitling's winged "B" logo adorns the pronged buckle.

Above: The watch's grooved bezel turns smoothly and is easy to operate.

play remains the Navitimer's top priority. In the dark, the hour and minute hands glow, as do the rectangular indices for the hours. Two luminous indices mark the 12 o'clock position.

The subdials for the small seconds at 9 o'clock, the elapsed minutes at 3 o'clock, and the elapsed hours at 6 o'clock are inset into the plane of the dial, highlighting their silver color. All three counters feature circular guilloché patterns in the center. Steel hands, invisible in the dark, rotate above them. In the date display between 4 and 5 o'clock, dark red digits appear on a white background. One noteworthy feature of Caliber 01 is that the wearer can adjust the date display at any time of the day or night without having to worry about interfering with the mechanics. On conventional calibers, manual resetting of the date should be avoided during the switching phase, usually between 9 p.m. and 4 a.m. That's not a worry with Caliber 01.

THE NAVITIMER case is notable for the large grooves along the rotating bezel. The bezel surrounds both the sapphire crystal, which is curved on top and nonreflective on both surfaces, and the inner ring for the slide rule. The bezel is very easy to grip. It turns smoothly in both directions so it can be set to perform mathematical calculations. The smoothly turning bezel deserves praise, but its bold fluting can be hazardous. Be careful when winding the watch with the crown: if your thumb glides along the bezel grooves, they can leave marks on the skin. A fingernail is needed to pull out the crown for setting the date and the hands. Both of these operations are smooth and user-friendly.

Starting the chronograph requires extreme pressure on the button at 2 o'clock — so much, in fact, that it leaves a little dent in your fingertip. Stopping the chronograph requires less force, as does restarting it after an intervening stop. Resetting the chronograph to zero is much easier. Breitling says that it expended much time and effort in determining the force needed to operate the buttons, but the results are a matter of taste. Whether the buttons are stiff or easy to operate, the switching processes seem quite reliable.

The steel case is sleekly simple and thoroughly polished. It's 43.2 mm in diameter, which makes it slightly larger than the previous Navitimer. The case is water-resistant to 30 meters. Its back is equipped with sapphire window, a rare feature on a Breitling, but a welcome one because it offers a view of Caliber 01 in action. (The unlimited version does not have a window.)

The Navitimer has a simple but sturdy calfskin strap that's slightly convex and topstitched with white thread. This strap is

*STARTING THE CHRONOGRAPH
REQUIRES EXTREME PRESSURE ON
THE BUTTON AT 2 O'CLOCK.*

CLOSE-UP

Breitling Navitimer 01



Pros

- + Manufacture caliber
- + Superior rate performance
- + Time easy to read in daylight or dark
- + Daytime legibility of chronograph
- + Wearing comfort
- + Rotating bezel moves easily

Cons

- Push-pieces can be uncomfortable to operate
- Tiny slide-rule scales can be hard to read and set

The Navitimer's slide rule consists of two identical scales that can be used for calculations.

The steel Navitimer 01 we reviewed was limited to 2,000 pieces. Breitling has since released an unlimited model with a solid steel caseback.



ON THE TIMING MACHINE, THE WATCH WHEN FULLY WOUND SHOWED VIRTUALLY NO DEVIATION IN RATE.

just the right length and closes securely with a pronged buckle, ensuring a comfortable fit around the wrist.

Caliber 01, like all Breitling movements, is a certified COSC chronometer. When the watch was fully wound and timed on our electronic timing machine, its rate showed virtually no deviation. It strayed very slightly into the “minus” column after 24 hours, as it also did when the chronograph was switched on. The watch gained slightly more than one second per day when worn on the wrist, but it’s common knowledge that timepieces perform differently on different wrists. To eliminate such variations, Breitling equipped its caliber with a special index mechanism that lets a watchmaker adjust each movement to suit its owner. Clearly visible through the caseback is the setting screw and the +/- indications, which a watchmaker uses to finely regulate the rate.

The 346-part movement combines high technology and fine finishing touches. The latter include Geneva waves, spiral patterns, circular graining, diamond-polished bevels and polished screws. The former is embodied in a column wheel, shock-resistant bearings for the escape wheel and a powerful, ball-borne rotor that winds the mainspring in both directions of rotation. That enables the barrel to amass enough energy for nearly three days of uninterrupted running.

Vertical coupling guarantees an absolutely clean, jump-free and tremble-free start for the chronograph’s elapsed-seconds hand. Breitling’s Caliber 01 connects the chronograph to the flow of force completely through the coupling, unlike other systems with independent hour-counter mechanisms. This makes it impossible to have inconsistent information on the various displays. The patented self-centering system for the heart lever that resets the counters to zero is useful for watchmakers. This refined mechanism eliminates the need for the fine adjustment that used to have to be performed on each movement.

Breitling’s Caliber 01 is a so-called “integrated” chronograph, but its architecture nevertheless exhibits a certain degree of modularity, which is advantageous when the movement is assembled or serviced. The entire chronograph mechanism is borne between two bridges, the barrel bridge and the chronograph’s gear-train bridge. If a watchmaker needs to make manual adjustments in the base caliber, he need only remove a few screws rather than disassemble the entire stopwatch mechanism. To confirm what connoisseurs no doubt already suspect, the architecture of Caliber 01 makes it possible to add other complications in the future. ○