

T-Air Time

A squadron of pilots' watches soars into the skies along with our test pilot, Klaus Lenhart. The watches are from Graham, Victorinox Swiss Army, Chronoswiss, Glashütte Original, Breitling, IWC, Sinn, Fortis, Oris, Limes, Hamilton and Longines.

Test pilot Klaus Lenhart, sporting multiple watches, prepares for takeoff



Lenhart put the watches through their paces in a series of aerobatic flights over the German countryside.

BY MARTINA RICHTER

PHOTOS BY FRANK HERZOG, MAIK RICHTER,
THOMAS WANKA, ZUCKERFABRIK FOTODESIGN

What better way to test a pilot watch's moxie than to take it up for a grueling, stomach-wrenching aerobatics routine high above the German countryside? That aim in mind, we took 12 pilots' watches — eight of them chronographs — to the Gruibingen-Nortel airport in southwestern Germany, where aerobatics champion Klaus Lenhart awaited us with his trusty 300-horsepower HP LEKI Extra 300L, ready to take the watches up into the not-so-friendly skies. During the workout, all the watches had to withstand the same G-forces, that is, the loads resulting from acceleration. In aerobatics these forces can fluctuate between +7 and -4.5 G. We measured each watch's rate on an electronic timing machine before and immediately after the flight, and then again later, and compared the values. For the chronographs, we tested factors such as how easy the pushers are to operate and how legible their displays are. There was also a to-the-second, real-time comparison with a radio-controlled clock. We also asked the pilot for his opinion of each watch with respect to its functions, readability and comfort.

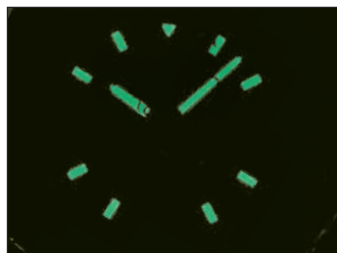


PROS:

- + Unique design
- + Chronometer
- + Rate results
- + Special added module
- + Double display of chronograph function
- + Rotating bezel
- + Slide rule
- + Date
- + Water-resistant to 20 ATM
- + Nonreflective sapphire crystal
- + Day/night legibility
- + Screw-down crown
- + Overall operation
- + Bracelet/locking clasp

CONS:

- A bit heavy on the wrist



In the dark, the Skyracer's hands and indices glow brightly.



The Skyracer from Breitling's Professional line is both very useful and quite easy to read. As a chronometer it shows good rate results, and as a professional gauge it's easy to operate. Plus, it's water-resistant to 200 meters and comfortable despite its considerable weight.

SPECS

BREITLING SKYRACER

Manufacturer: Breitling

Reference number: 2153665

Functions: Hours, minutes, seconds, date, chronograph, circular slide rule

Movement: Breitling 27, based on ETA 2892-A2, automatic; diameter = 25.6 mm; height = 3.60 mm (without module); 38 jewels; 28,800 vph; 42-hour power reserve; Glucydur balance; Nivarox balance spring; Incabloc shock protection; Etachron fine adjustment; côtes de Genève and perlage; chronometer certification

Case: Stainless steel with double nonreflective crystal, water-resistant to 20 ATM

Bracelet and clasp: Stainless steel bracelet with locking folding clasp

Dimensions: Diameter = 43.5 mm, height = 16 mm, weight = 223.5 grams

Price: \$4,960



The Skyracer registers elapsed time twice — with the easy-to-read chronograph seconds and minutes hands mounted in the center, and with another hour and minutes display on a subdial at 9 o'clock.

Breitling Skyracer

The Skyracer belongs to Breitling's Professional collection of watches. Like all Breitling watches, our test model was a chronometer. The watch has an unusual totalizer, which shows, by means of two hands and two concentric scales, both elapsed minutes and elapsed hours. That way the wearer can read elapsed time at a single glance. The Skyracer has another unorthodox feature: a center-mounted chronograph minutes hand. The watch also has a slide rule and a graduated, rotating bezel. Added to this are a date display, a screw-down double-sealed crown that makes the watch water-resistant to 200 meters, and a crystal that is glare-proof on both sides. In keeping with the watch's aeronautical theme, the threaded caseback bears the symbols of the Ground-Air Visual Signal Code, which accident survivors use to send messages to airplanes flying overhead. Despite the many numbers and scales on the dial, the time display is easy to read, even in the dark. The tips of the chrono seconds and minute hands hide the triangular index marking the 12, but our test pilot didn't find this a problem. He praised the readability and attractive design of the dial, its easy-to-use chronograph function and the stainless-steel bracelet. His only caveat: "You have to get used to the watch's considerable weight."

The rate results of the Skyracer remained true to the promises of the chronometer certificate. On average, the watch gained three seconds per day before the flight, 4.6 seconds immediately after it and 1.6 seconds a bit later. When the chronometer was engaged, the watch ran a bit faster (an average of 5.8 seconds). The amplitudes declined somewhat, though they remained quite good at between 265 and 295 degrees. Without the chronograph they stayed between the relatively high levels of 300 and 340 degrees.

PROS:

- + Striking design
- + Controls
- + Indicator date
- + Sapphire crystal, nonreflective
- + Luminous numerals and hands
- + Water-resistant to 10 ATM
- + Factory finishing
- + Rate results
- + Screwed leather strap

CONS:

- Day/night legibility
- Price



The Timemaster's hands and indices glow strong in the dark, but some of them overlap.



The watch is an impressive companion for any pilot, but it's brimming with so many displays that he may strain his eyes reading it. The pushers and crown are easy to operate. The handmade leather strap is supple, water-resistant and attached to the case with screws.

SPECS

CHRONOSWISS TIMEMASTER DATE

Manufacturer: Chronoswiss

Reference number: CH 7533 bk

Functions: Hours, minutes, seconds, chronograph, center-mounted hand to indicate date

Movement: C.751, based on ETA/Valjoux 7750, automatic; diameter = 30 mm; height = 7.9 mm; 25 jewels; 28,800 vph; 46-hour power reserve; Glucydur balance; Nivarox balance spring; Incabloc shock protection; Eccentric fine adjustment; cotes de Geneve and perlage, skeletonized rotor

Case: Stainless steel with nonreflective sapphire crystal, water-resistant to 10 ATM

Strap and clasp: Walknappa leather strap with pronged buckle

Dimensions: Diameter = 44 mm, height = 16 mm, weight = 117 g

Price: \$6,950



The Timemaster Date chronograph indicates the date by means of a center-mounted hand and a 31-day scale encircling the dial.

Chronoswiss Timemaster Date

The large case, pushers and crown of this watch make it easy to operate, but it's not so easy to read. You need more than a quick glance at the dial to get your bearings. There are so many scales and numbers — large and densely laid-out — that deciphering them can be a challenge, especially in the dark, since some of the luminous markers overlap. Another drawback: the fluted bezel turns too easily and can thus be inadvertently knocked off position. The proportions of the Timemaster Date, like those of all Chronoswiss watches, are attractive, but there is simply too much of everything.

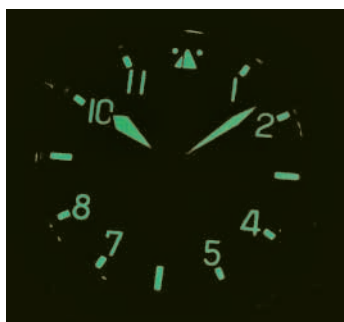
The rate results were nonetheless good. Prior to the aerobatics flight the Timemaster Chronograph showed a gain of 4.2 seconds per day. Directly after the flight the rate increased by 3.6 seconds, which some time later leveled off at 3.4 seconds. The overall deviation in all positions was quite balanced: rates were recorded between +3 and +6 seconds per day. The amplitude fluctuated between 300 degrees in the crown positions and 335 degrees in the dial positions and performed identically in any situation. The only exception: when the chronograph was running, the amplitude fell by about 20 degrees and the rate increased, showing a gain of five seconds. The pilot liked the strap, which is attached to the lugs with screws and is equipped with a pronged buckle.

PROS:

- + Classic aviator design
- + Day/date
- + Rate results
- + Day/night legibility
- + Sapphire crystal (top)
- + Crystal caseback
- + Water-resistant to 20 ATM
- + Operability
- + Strap
- + Double-folding clasp
- + Value

CONS:

- Rate results after test flight slightly in minus range



With its big numerals and triangle, the Fortis's dial looks great at night.



The "42" in the name "B-42" refers to the watch's diameter. The time is easy to read, but making out the additional functions, such as the chronograph, day and date, requires a keener eye. A tachymeter scale is located on the flange along the rim of the dial.

Fortis B-42 Flieger

This new version of the Flieger chronograph is the latest update of this classic, decades-old model. Behind the double-sided, glare-proof sapphire crystal, the numerals, indices and hands draw your attention and are easy to read. In the dark, the hands appear slightly brighter than the dial markings. The chronograph seconds hand and small seconds dial are not luminous. The pilot praised the dial's design, especially the hands, which are easy to tell apart.

The chronograph pushers click precisely into place and the large crown is easy to operate, though it does not screw down. The strap is also well designed and has a comfortable double-folding clasp. It is attached to the lugs with screws.

The watch contains the movement that has proven itself a million times over: the ETA 7750, which showed good rate results. Prior to the flight the watch gained an average of 4.6 seconds per day, regardless of whether the chronograph was running or not. Directly after the aerobatics flight we measured a small loss of 0.2 seconds. After some time had passed, the watch returned to an average gain of 2 seconds. The amplitude remained stable in every situation, between 310 degrees in the dial positions and 280 degrees in the crown positions. When the chronograph was engaged the amplitude fell by about 20 degrees. The movement can be viewed through a transparent caseback and is equipped with an engraved rotor.

The Fortis B-42 Flieger chronograph pushers click into place very precisely. The leather strap has a secure folding clasp and lugs with screws.

SPECS

FORTIS B-42 FLIEGER

Manufacturer: Fortis

Reference number: 656.10.11 L01

Functions: Hours, minutes, seconds, date, chronograph

Movement: ETA/Valjoux 7750, automatic; diameter = 30 mm; height = 7.9 mm; 25 jewels; 28,800 vph; 48-hour power reserve; gold-plated nickel balance; Nivarox balance spring; Incabloc shock protection; two-part regulator fine adjustment; blued screws; engraved rotor

Case: Stainless steel with nonreflective mineral glass crystal, water-resistant to 20 ATM

Strap and clasp: Leather strap with double-folding clasp

Dimensions: Diameter = 42.3 mm, height = 15.3 mm, weight = 138.5 g

Price: \$2,650





This pilot's watch from Glashütte Original is patterned after historic predecessors. It's large, functional and, above all, highly legible.

PROS:

- + Classic pilots' watch design
- + Manufacture caliber
- + Movement finishing
- + Panorama date
- + Return-to-zero mechanism
- + Day/night legibility
- + Water-resistant to 5 ATM
- + Sapphire crystal above dial
- + Operable via crown
- + High-quality strap

CONS:

- High price
- Rate results showed strong loss



Nighttime readability is good, and the triangle at 12 makes orientation easy.

The Senator Navigator has a central seconds hand coupled with a return-to-zero mechanism. If you press the push-piece at the 8, the seconds hand instantly jumps to the 12 o'clock position to facilitate setting the watch with to-the-second precision.

SPECS

GLASHÜTTE ORIGINAL SENATOR NAVIGATOR

Manufacturer: Glashütte Original

Reference number: 100-03-07-04-04

Functions: Hours, minutes, seconds, big date

Movement: GO 100-03, automatic; diameter = 31.15 mm; height = 5.80 mm; 51 jewels; 28,800 vph; 55-hour power reserve; Glucydur balance; Nivarox balance spring; Incabloc shock protection; swan's neck fine adjustment; Glashütte waves, beveled edges, skeletonized rotor

Case: Stainless steel with sapphire crystal, water-resistant to 5 ATM

Strap and clasp: calfskin leather strap with pronged buckle

Dimensions: Diameter = 43.89 mm, height = 12.95 mm, weight = 100 grams

Price: \$8,500



Glashütte Original Senator Navigator Panorama Date

Drawing on a long tradition, Saxony-based Glashütte Original patterns its Navigator after a historic predecessor. Traditional elements include a matte black dial made of nickel silver and printed with Arabic numerals and stroke indices for the minutes and seconds. Like other historic models, all of its even-numbered hour numerals, minute-circle, and hands for hours, minutes and seconds are coated with luminous material, ensuring very good nighttime readability. Orientation is made easy by the prominent triangle at 12 o'clock. In addition to his praise for the excellent legibility, our pilot also lauded the impressively large dial and the appearance of the black-on-white date display. His concise verdict: "A good and elegant pilot's watch."

PROS:

- + Unique, modern bicomplex chronograph
- + Innovative materials
- + Sapphire crystal, nonreflective
- + Day/night legibility
- + Easy to operate
- + Water-resistant to 10 ATM
- + Strap/clasp

CONS:

- Rate is too fast
- No date display
- High price



Every hand and index on the Graham watch glows like a neon sign in the dark.

Graham Chronofighter Oversize Commander

The Graham Chronofighter Oversize Commander richly deserves its aeronautical name, and our test pilot gave it a thumbs-up. However, he was glad that the watch, with its diameter of 46 mm, wasn't any bigger. "If a watch is too big, it will scratch during the intense action of aerobatics," Lenhart says. He liked that the watch is very easy to operate, thanks to the gigantic pusher on the left side of the case. The composition of lightweight materials, including almost-pure titanium, carbon fiber and natural rubber, keeps the watch from being too heavy.

The watch is easy enough to read, even under poor conditions, since all the hands and markers are highly luminous. The watch showed gains of more than nine seconds per day both before and after the flight. It ran nine to 12 seconds fast in every position we measured on the timing machine except the crown-up one. The amplitude remained relatively stable at around 300 degrees, but with the chronograph running it fell by about 20 degrees. The rate also declined and stayed at around +6 seconds per day. Unfortunately, the Graham Caliber 1732 has no date display.

The ETA-based Graham Caliber 1732 has a 30-minute counter at 9 o'clock. Its constant-seconds subdial is at the three. The watch rests securely on the arm thanks to a hypoallergenic non-slip rubber strap and simple pronged buckle.

The Chronofighter has a special crown lever construction on the left side of the case, which is of good quality. The manufacturer combines innovative materials such as carbon fiber and titanium for greater durability and less weight.

SPECS

GRAHAM CHRONOFIGHTER COMMANDER

Manufacturer: Graham

Reference number: 20VATCO.B01A.K10B

Functions: Hours, minutes, seconds, chronograph

Movement: G 1732, based on ETA/Valjoux 7750, automatic; diameter = 30 mm; height = 8.70 mm; 30 jewels; 28,800 vph; 48-hour power reserve; Glucydur balance; Nivarox balance spring; annular hair-spring, Incabloc shock protection; Etachron fine adjustment; perlage and côtes de Genève on rotor

Case: Titanium and carbon fiber with sapphire crystal, nonreflective on both sides; water-resistant to 10 ATM

Strap and clasp: Natural rubber with pronged buckle

Dimensions: Diameter = 46 mm, height = 8.7 mm, weight = 132 grams

Price: \$10,400

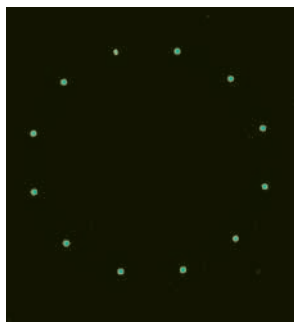


PROS:

- + Navigation function
- + Day/date
- + Screw-down crowns
- + Legibility during the day
- + Water-resistant to 10 bar
- + Rate results
- + Strap/extension piece
- + Sapphire crystals
- + Price

CONS:

- Legibility at night
- Complexity of navigation function



Without luminous hands, you can't read the time in the dark on the Khaki X-Wind; only small dots on the edge of the dial are visible.



The yellow dial and the many scales of the Khaki X-Wind are eye-catching. The time display is clear, at least in good light. The watch has a sturdy riveted strap with an H-shaped double-pronged buckle. An extension piece on the strap makes it possible to wear the watch over a flight jacket.

SPECS

HAMILTON KHAKI X-WIND AUTOMATIC

Manufacturer: Hamilton

Reference number: H77666523

Functions: Hours, minutes, seconds, day/date, chronograph

Movement: ETA/Valjoux 7750, automatic; diameter = 30 mm; height = 7.9 mm; 25 jewels; 28,800 vph; 48-hour power reserve; gold-plated nickel balance; Nivarox balance spring; annular hairspring; Incabloc shock protection; two-part regulator fine adjustment; engraved rotor

Case: Anti-rust steel with sapphire crystal, water-resistant to 10 ATM

Strap and clasp: Leather with double-prong clasp and extension piece

Dimensions: Diameter = 44.5 mm, height = 15.7 mm, weight = 143.0 g

Price: \$1,395



Three adjustable bezels, two of which are located beneath the sapphire crystal, and an engraved monogram on the threaded caseback enable a pilot to navigate, though the system requires special expertise.

Hamilton Khaki X-Wind Automatic

The Khaki X-Wind might make your head spin if you tried to understand all its numerals and scales at once. It houses an ingenious integrated navigation system that is used to calculate and log crosswinds. To do this you need the wind directions, speeds, a map and a control tower. Our pilot found this process overly complicated. "I had to get used to the yellow dial," our pilot said, "but the black hands do show up well against it." However, if you think the dial will show up brightly at night, think again. It's impossible to read the time in the dark, since the only markers that glow, albeit weakly, are 12 small dots marking the hours.

Something else to get used to: the chronograph pushers, which, along with the crown, are on the left side of the case, not the right. That side is instead used for two screw-down crowns with crown guards that adjust the rotating bezels for the navigation function.

The Hamilton watch contains an ETA 7750 movement, which produced the good rates you'd expect from it. It showed steady rates in all positions at +4.8 seconds per day before the flight, +4.4 seconds immediately after landing, +3.8 seconds a few days later and +4.0 seconds while the chronograph was in operation. The amplitude also remained stable — at around 310 degrees in the dial positions and 285 degrees in the crown positions. The amplitude fell an average of 10 degrees immediately after the aerobatics flight and about 20 degrees when the chronograph was in operation.

PROS:

- + Classic pilots' watch design
- + Movement finishing
- + Protection against magnetic fields
- + Nonreflective sapphire crystal
- + Stable rate results
- + Water-resistant to 6 ATM
- + Sapphire crystal above dial
- + Screwable crown
- + High-quality crocodile strap

CONS:

- Date display is too small
- High price



The triangle glows in the dark, as do the three other main index strokes and the hour and minute hands.



The Mark XVI boasts a classic design and produces stable rate results. Its matte stainless-steel case contains a soft iron sheath that keeps magnetism from interfering with the performance of the movement. The grooved crown can be screwed shut.

SPECS

IWC MARK XVI PILOT'S WATCH

Manufacturer: IWC Schaffhausen

Reference number: IW 325501

Functions: Hours, minutes, seconds, date

Movement: IWC 30110, based on ETA 2892-A2, automatic; diameter = 25.6 mm; height = 3.6 mm; 23 jewels; 28,800 vph; 42-hour power reserve; Glucydur balance; Nivarox balance spring; Incabloc shock protection; Etachron fine adjustment; waves and circular graining on movement

Case: Stainless steel with nonreflective sapphire crystal, water-resistant to 6 ATM

Strap and clasp: Crocodile leather strap with pronged buckle

Dimensions: Diameter = 39.2 mm, height = 10.6 mm, weight = 66.5 grams

Price: \$3,400



Numerals and indices, neatly applied to the dial's matte black background, combine with bold hands to ensure maximum legibility in all situations — even on the wrist of a stunt pilot.

IWC Mark XVI Pilot's Watch

The Mark XVI is a classic model from Schaffhausen-based IWC, which has been making professional time-measuring instruments for pilots and travelers since the 1930s. The most famous of these watches is the Mark 11, launched in 1948. The Mark XVI, the successor of the Mark XV, is one millimeter larger than its predecessor. "It really shouldn't be any smaller," our test pilot remarked. As befits a pilot's watch, the Mark XVI is "tidy, sleekly functional and very highly legible. Its hands have perfect lengths and clearly differ from one another." They glow brightly in the dark, as do the indices at 3, 6 and 9 o'clock and the triangle at 12 o'clock. The other indices and the Arabic numerals remain dark, but this doesn't detract from the overall legibility. The date display is a bit too small.

The movement, Caliber 30110 (based on an ETA caliber), is protected against magnetic fields by a soft iron cage, and its rate is extraordinarily stable. It ran slightly ahead in all situations: on the timing machine, its daily gain measured 2.6 seconds before the test flight, 2.8 seconds immediately afterwards and 3.6 seconds several days after the flight. The amplitudes varied between 300 degrees in the dial positions and 270 degrees in the crown positions; they behaved similarly in all situations. The embellished caliber is hidden behind stainless steel and soft iron. The case is water-resistant to 60 meters (6 ATM). The domed, nonreflective pane of sapphire crystal guarantees good visibility and won't easily pop off if the atmospheric pressure suddenly plunges.

DATA

LIMES CLASSIC VINTAGE 1924

Manufacturer: Limes

Reference number: U7624R-LA4.2

Functions: Hours, minutes, seconds, date

Movement: Sellita SW 200, automatic;
diameter = 25.6 mm; height = 4.6 mm; 25
jewels; 28,800 vph; 49-hr power reserve;
Nickel dore balance; Nivarox balance
spring; Incabloc shock protection;
Etachron fine adjustment; côtes de
Genève and circular graining, blued
screws

Case: Stainless steel with sapphire crystal,
water-resistant to 5 ATM

Strap and clasp: Leather strap with
pronged buckle

Dimensions: Diameter = 38 mm, height =
9.67 mm, weight = 61 grams

Price: \$870



Among the features of the Limes case are screwed strap lugs and a knurled top ring that surrounds a sapphire crystal. A second sapphire crystal is set into the back of the partly matte and partly polished stainless-steel case.

Our test pilot praised the Limes model as an “elegant watch with an aviator’s image.” He specifically lauded its impeccable legibility, classically designed case and secure leather strap. It takes some effort to extract the onion crown into the positions required to quickly reset the date display and to set the hands.



Limes Classic Vintage 1924

Limes has been making its own watch cases since 1924; hence, this model’s name. The watch attracts attention with a beautiful case distinguished by a fluted bezel, finely crafted lugs and an onion crown. The large, ornamental numerals on the black dial recall the look of instruments that measured flight time decades ago. Together with the lancet-shaped hands, they make the time easily legible, even in poor-visibility conditions. The hands glow somewhat brighter than the numerals. The date display, with its white digits against a black background, is easy to miss in the dark, and it occupies a less-than-ideal location between the 4 o’clock and 5 o’clock positions.

The watch’s elegance is reflected in its smooth, brown leather strap, which is securely screwed to the lugs; its two ends are joined with a pronged buckle.

The rate results of this watch’s Sellita movement aren’t quite so elegant. It lost time right from the start and in all positions. The deviations averaged 1.8 seconds per day before the test flight and increased to 4.2 seconds immediately afterward. A subsequent test on the electronic timing machine revealed an average daily loss of 3.6 seconds. The amplitude varied between 320° in the dial positions and about 300° in the crown positions. The amplitude declined by an additional 30° in all positions immediately after the test flight. The movement is visible through the sapphire crystal in the back of the case, which is water-resistant to 50 meters (5 ATM).

PROS:

- + Case made in-house
- + Elegant outfitting
- + Screwed strap lugs
- + Day/night legibility
- + Water-resistant to 5 ATM
- + Sapphire crystals
- + Long, secure strap

CONS:

- Rate results showed loss
- Amplitudes varied
- Small date display
- Crown difficult to operate



The lancet-shaped hands glow a bit brighter in the dark than the numerals.

Longines Lindbergh Hour Angle Watch

Longines's reissue of the historic Charles Lindbergh Hour Angle Watch in its original size is a real eye-catcher, and not only because of its 47.5-mm diameter. The numerous scales and the functions they perform require explanation: the longitude is shown in minutes of arc, the rotating bezel takes into account the equation of time, and the central portion of the dial can be rotated to synchronize the seconds hand. "All this isn't necessary in the cockpit," our test pilot explained, but he acknowledged that this watch's "aesthetic playfulness" will surely find an audience. The back of the watch has a surprise in store: open the hinged back and peek through the domed pane of sapphire crystal, and you'll find a generously proportioned movement with a gigantic rotor.

The watch achieved a remarkably good rate and it behaved identically in all positions. It gained an average of 3.8 seconds per day before the test flight, ran 3.6 seconds faster when tested on the timing machine immediately afterward, and scored an average daily gain of 4.2 seconds a few days after the flight. Its amplitudes were also very stable: under all conditions, they were 305 degrees in the dial positions and 280 degrees in the crown positions.

Beautiful details adorn the watch's face. The white lacquered dial is painted with a black-lacquered minute circle and 12 Roman numerals for the hours, as well as blue Arabic numerals for the longitudes. A silver-plated inner disk bearing black and red digits can be rotated. Breguet hands made of blued steel complete the pretty picture. Only one detail is lacking: there's no luminous paint anywhere on the dial.

PROS:

- + Based on historic predecessor
- + Longitude function
- + Equation of time
- + Time synchronization
- + Stable rate behavior
- + Sapphire crystals
- + Crown operates easily
- + Strap with extension piece

CONS:

- No nighttime legibility



No luminous material anywhere on the Lindbergh's big dial means this watch is unreadable in the dark.



The Lindbergh Hour Angle boasts several exotic functions. Thanks to its large size, the time display remains legible despite the plethora of additional functions. The grooved Louis XV crown is easy to grip, even when wearing gloves.

SPECS

LONGINES LINDBERGH HOUR ANGLE WATCH

Manufacturer: Longines

Reference number: L2.678.4.11.2

Functions: Hours, minutes, seconds, longitude function, equation of time

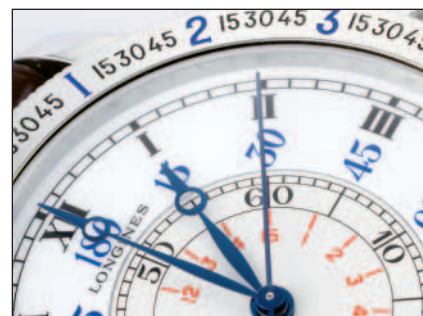
Movement: L699.2, based on ETA A07.111, automatic; diameter = 36.6 mm; height = 7.9 mm; 24 jewels; 28,800 vph; 42-hour power reserve; Glucydur dore balance; Nivarox balance spring; Incabloc shock protection; Index-assembly fine adjustment; côtes de Genève and circular graining

Case: Stainless steel with sapphire crystal, water-resistant to 3 ATM

Strap and clasp: Leather strap with extension piece; "Charleston" pronged buckle

Dimensions: Diameter = 47.5 mm, height = 16.2 mm, weight = 124 grams

Price: \$4,100



Lots of numerals: longitude, equation of time and synchronization for the time. A rotatable inner disk at the center of the dial lets the wearer adjust the seconds display without stopping the movement. One simply rotates the disk, along with its zero marking, until it corresponds with another timekeeper, such as a radio time signal.

The Oris dial is elegant and easy to read. It's dominated by the yellow-green hour and minute hands. Steel-colored rings around the subdials identify the chronograph functions. The small-seconds hand moves on a delicate subdial at 3 o'clock, and the easy-to-read date is found at 9 o'clock.



SPECS

ORIS FLIGHT TIMER R4118

Manufacturer: Oris

Reference number: 674 7583 4084

Functions: Hours, minutes, seconds, chronograph, second time zone

Movement: ETA/Valjoux 7750, automatic; diameter = 30 mm; height = 7.9 mm; 25 jewels; 28,800 vph; 48-hr power reserve; gold-plated nickel balance; Nivarox balance spring; Incabloc shock protection; two-part regulator fine adjustment;

Case: 316L stainless steel with nonreflective [sapphire/mineral] crystal, water-resistant to 5 ATM

Strap and clasp: Aviator-style leather strap with pronged buckle/snap

Dimensions: diameter = 43.5 mm, height = 14.9 mm, weight = 142.5 g

Price: \$3,195



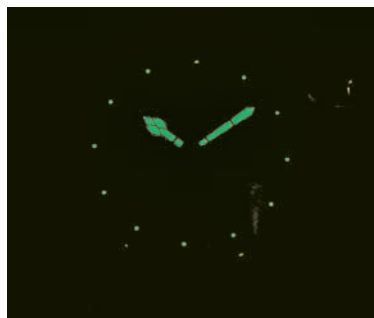
The Flight Timer R4118 gets its flamboyant look from the vertical crown located at the 2 o'clock position. Pulling the crown up allows you to set a second time zone on the bezel beneath the sapphire crystal. This design requires that the chronograph pushers and crown be positioned on the left side of the case.

PROS:

- + Limited edition
- + Includes R4118 collector's case
- + Special caseback engraving
- + Vintage-style vertical crown
- + Second time zone, date
- + Water-resistant to 5 ATM
- + Day/night legibility
- + Sapphire crystal (top)
- + Price
- + Strap with extension piece

CONS:

- Strap can be uncomfortable
- Rate is quite fast
- Second time zone only in 12-hour time



The classically styled hands on the Oris glow more brightly than the indices.

Oris Flight Timer R4118

This watch is a tribute to the legendary fighter plane, the Hurricane R4118, which played a starring role in the Battle of Britain. That's why it's being manufactured in a limited edition of 4,118 pieces. Its exterior evokes an airplane cockpit. Like early aircraft clocks, the Flight Timer has a conspicuous crown, perpendicular to the watch face, which is used to adjust a rotating ring located under the sapphire crystal. The ring enables the wearer to keep track of the time in a second time zone. Unfortunately, it shows 12-hour, not 24-hour, time. Because the crown is on the right side of the case, the crown and chronograph pushers had to be moved to the left side.

The watch has an unusually long leather strap. At first it wasn't entirely clear how it should be worn. Once we mastered it, though, it was a snap to put on and take off and was extremely comfortable and secure. The strap is less than ideal for aerobatics flying, however. Before the test flight, our pilot feared he might catch the strap on objects in the cockpit during the intense activity required for aerobatic stunts — and his fear was realized.

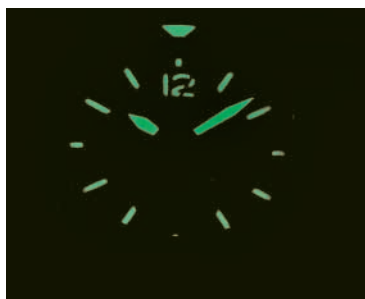
The rate results of the ETA 7750 movement here are interesting. The watch runs quite fast, but consistently so — before and immediately after the flight the watch gained 8.8 seconds per day, and later it gained 10.6 seconds per day. Only when the chronograph is in operation did the rate slow somewhat to +5.8 seconds. The amplitude fluctuated between 290 degrees in the dial positions and 320 degrees in the crown positions. It decreased by 40 degrees when the chronograph was running.

PROS:

- + Aviator watch design
- + Second time zone, date
- + Aviator's bezel
- + Antimagnetic protection
- + Keep-dry technology
- + Day/night legibility
- + Water-resistant to 20 ATM
- + Resistant to low pressure
- + Sapphire crystal, nonreflective
- + Screw-down crown
- + Operability
- + Rate results
- + Special Sinn oil in movement
- + Price

CONS:

- No seconds display
- Small date



The hands on the Sinn are slightly more luminous than the indices, but the triangle and the big "12" make it easy to tell the time.



The strong black-and-white contrast of the dial and bezel makes the watch very easy to read. The stainless-steel case has a hardness of 1200 Vickers to protect against scratches. The sealed crown and pushers ensure water-resistance to 200 meters.

SPECS

SINN 757 UTC

Manufacturer: Sinn

Reference number: 757.0573

Functions: Hours, minutes, chronograph

Movement: ETA/Valjoux 7750, automatic; diameter = 30 mm; height = 7.9 mm; 25 jewels; 28,800 vph; 48-hr power reserve; Glucydur balance; Nivarox balance spring; Incabloc shock protection; two-part regulator fine adjustment; côtes de Genève and perlage; blued screws

Case: Stainless steel (hardened) with double nonreflective sapphire crystal, water-resistant to 20 ATM

Strap and clasp: Waterproof leather with pronged buckle

Dimensions: Diameter = 43.1 mm, height = 15.45 mm, weight = 130 grams

Price: \$1,970



Many functions, many hands — the different shapes, lengths and colors ensure good legibility. The luminous "12" and the large triangle on the bezel, in addition to luminous hour and minute hands and indices, guarantee easy reading in the dark.

Sinn 757 UTC

The watch manufacturer Sinn, based in Frankfurt, Germany, is known for the distinctive technological features of its watches. The 757 UTC, the watch we tested, has a case with an inner lining of iron to protect against magnetic fields of up to 80,000 A/m. The case contains a copper sulfate capsule to soak up moisture, thus protecting the movement and preventing the crystal from fogging up after abrupt changes of temperature. Furthermore, a special oil is used to lubricate the movement. The 757 UTC performed very well during our test. Before the flight it gained 0.6 seconds per day. That figure rose to just 1.2 seconds when the chronograph was engaged. Right after the aerobatics session, the watch gained 0.8 seconds per day, and when tested later it gained 1.8 seconds per day. The amplitude remained steady in all situations and was between 315 degrees in the dial positions and 275 degrees in the crown positions. The amplitude was nearly the same when the chronograph was running.

The watch isn't just precise; it's also extremely easy to read, due to its high-contrast dial and the glare-proof treatment on both sides of its sapphire crystal. The date is the only display that can be somewhat difficult to make out. The UTC hand, which displays the time in a second time zone, stands out in bright yellow. The watch does not have a constant-seconds display, but our pilot did not miss it. He praised not only the dial but also the smoothly locking, bidirectional bezel that can be used to measure elapsed time or as a countdown timer. The chronograph pushers and the screw-down crown are easy to operate. The strap is a pleasure to wear because of its ideal length and comfortable inner lining.

Victorinox Swiss Army AirBoss Mach 6

This model belongs to Victorinox's Swiss Air Force Professional collection. Inspired by aeronautics, the watch unites function with a simple but powerful design.

Thanks to the large dial — 37-mm diameter — and strong contrasting colors, both the time and the chronograph function are easy to read. The only drawback: the hands, which are faceted, are sometimes a bit too shiny, although in combination with the rimmed hour numerals they do give the watch an elegant touch. There's a tachymeter scale on the bezel. The main dial is graduated in quarter-second increments. A date aperture sits between 4 and 5 o'clock.

The rates of the AirBoss Mach 6 were admirable. Prior to the aerobatics flight the watch gained 4.2 seconds per day with the chronograph off and 4.8 seconds with it on. After the test flight the watch was only slightly slower, at +3.1 seconds. After a while it returned to a rate of +4.6. The amplitude fluctuated between 295 degrees in the dial positions and 265 in the crown positions and remained steady in all situations, even when the chronograph was running.

Speaking of the chronograph: our pilot liked the feeling of resistance he got when using the pushers. The crown was easy to operate, he said. He thought that the size of the watch, 45 mm in diameter, was the maximum a pilot could wear in a cockpit. He liked the pleasant feel of the leather strap and comfortable folding clasp.

PROS:

- + Tricompax chronograph
- + Legible dial
- + Rate results
- + Date
- + Water-resistant to 10 ATM
- + Day/night legibility
- + Sapphire crystals
- + Good operability
- + Sturdy, ideal-length leather strap
- + Double-folding clasp
- + Price

CONS:

- Hands are somewhat reflective



In low light, the AirBoss Mach 6 reveals bright hands but dull numerals.



SPECS

VICTORINOX SWISS ARMY AIRBOSS MACH 6

Manufacturer: Victorinox

Reference number: V 24783

Functions: Hours, minutes, chronograph

Movement: ETA/Valjoux 7753, automatic; diameter = 30 mm; height = 7.9 mm; 27 jewels; 28,800 vph; 48-hr power reserve; gold-plated nickel balance; Nivarox balance spring; Incabloc shock protection; two-part regulator fine adjustment

Case: 316L stainless steel with sapphire crystal, water-resistant to 10 ATM

Strap and clasp: Calfskin leather with double-folding clasp

Dimensions: Diameter = 45 mm, height = 14.75 mm, weight = 139 grams

Price: \$1,395



The chronograph AirBoss Mach 6 is stylish, functional and, to top it all off, a good value. A tachymeter scale on the bezel encircles the elapsed-seconds scale, which is graduated in quarter-second increments. The crown and pushers are easy to use.

The Victorinox is big — with a large, easy-to-read dial and diameter of 45 mm. In the tricompax version it shows elapsed minutes at 3 o'clock and elapsed hours at 6 o'clock. The constant-seconds subdial is at 9 o'clock. The date is also highly legible.