

Technical Specs

Model: Longines Weems Second-Setting Watch

Movement: Calibre L699 automatic movement, with 48 hour power reserve.

Functions: Hours, minutes, seconds.

Special feature: Mobile central dial allowing synchronisation with radio time signals.

Case: Stainless steel, 47.50 mm

Price: £2,130



Modern Classics: Longines Weems and Lindbergh



A tale of two wristwatches: the Weems Second Setting Watch begat the far more famous Lindbergh Angle Hour Watch, and both are now regarded as milestones in the horological stream of aviation history. They soon became mere technological cul de sacs, each with a practical lifespan of only a decade or so; electronics would supersede, just as they would with diving watches. But this makes them no less important...nor covetable. These are absolutely and positively iconic, and no collection should be without at least one of them.

Ken Kessler



Technical Specs

Model: Longines Lindbergh Hour Angle Watch

Movement: Calibre L699 automatic movement, with 48 hour power reserve.

Functions: Hours, minutes, seconds

Special feature: Indication of longitude in degrees and minutes arc; rotating centre dial allowing synchronisation of seconds hand with radio time signal; rotating bezel to adjust to daily variations in the equation of time.

Case: Stainless steel, 47.50 mm (alt. ref. L2.601.4.11.2, 38 mm)

Price: £2,260

Captain Philip Van Horn Weems of the U.S. Navy (1889-1979), one of the fathers of modern navigation, was inspired to develop safer methods of flight calculation when he was witness to an early aviation tragedy. In May 1919, eight years prior to Lindbergh's legendary solo flight, three planes attempted to fly from Newfoundland to London, addressing the challenge of the first trans-Atlantic flight. Only one of them made it, the failure of the other two led Weems, then Lt. Cdr. on board a station tracking ship, to develop something more reliable than a series of small ships equipped with beacons as a method of tracking a plane and setting its path.

Borne of necessity

Traditional methods used by seafarers - compass, sextant and charts - were impractical for in-flight use (especially solo). Spoiled as we are in this age of GPS tracking, it's difficult to imagine the perils of navigation during the first few decades of flight. With computers and even reliable electronics still the stuff of science fiction, Weems set out to produce tools and methodologies that would enable pilots to simplify navigational techniques.

Developed in 1927, the same year Lindbergh would cross the Atlantic, the "Weems System of Navigation" employed a modified sextant taking two "shots" of the sun, allied to an accurate time reading from his "Second Setting Watch", followed

by making reference to the tables in the Line of Positions book. (The Line of Position book provided extensive charts with pre-calculated positions; allowing a pilot to look up the positions quickly and easily, instead of performing the complicated calculations himself.)

To achieve this, Weems invented the Second Setting Watch, enabling a navigator to read truly accurate time directly from the watch face, during an era when chronometric precision was rare. Unless your watch has a hacking seconds-hand, allied with utterly precise timekeeping and you've set it correctly in the first place, with the help of a radio signal, you can be out by a few seconds at any given time. And a few seconds at air speeds and over great distances can prove dangerous, if not fatal.

When synchronising watches to observatory times, navigators would make note of timekeeping errors, i.e. how far off their seconds-hands were from the precise time. The error, the plus-or-minus seconds, had to be compensated for and factored into every calculation.

To facilitate the easy adjustment of the seconds, Weems devised a movable bezel marked with 60 seconds. The cleverness came with the next detail: because no watch could allow the adjustment of the seconds hand to the dial, in the manner of the hours and minutes hands, Weems merely adjusted the dial to the



Both the Weems and the Lindbergh use the Calibre L699 automatic movement.

hands. Along with the watch, he also modified a sextant to operate when the horizon was not visible. With these tools, the aviation navigator of the 1920s and early 1930s was able to chart courses with far less risk and greater accuracy than ever before. But for some, it wasn't enough.

Transatlantic history

On the 20th May 1927, the 25-year old Charles Lindbergh took off from Roosevelt Airport in New York, in his heavily modified aeroplane, the "Spirit of St. Louis". He arrived in Le Bourget airport near Paris thirty-three hours and thirty-nine minutes later, securing his place in aviation history with what is accepted as the first non-stop transatlantic flight. Longines was the official timekeeper of the International Aviation Association, having already made its mark as the watchmaker of choice for pilots.

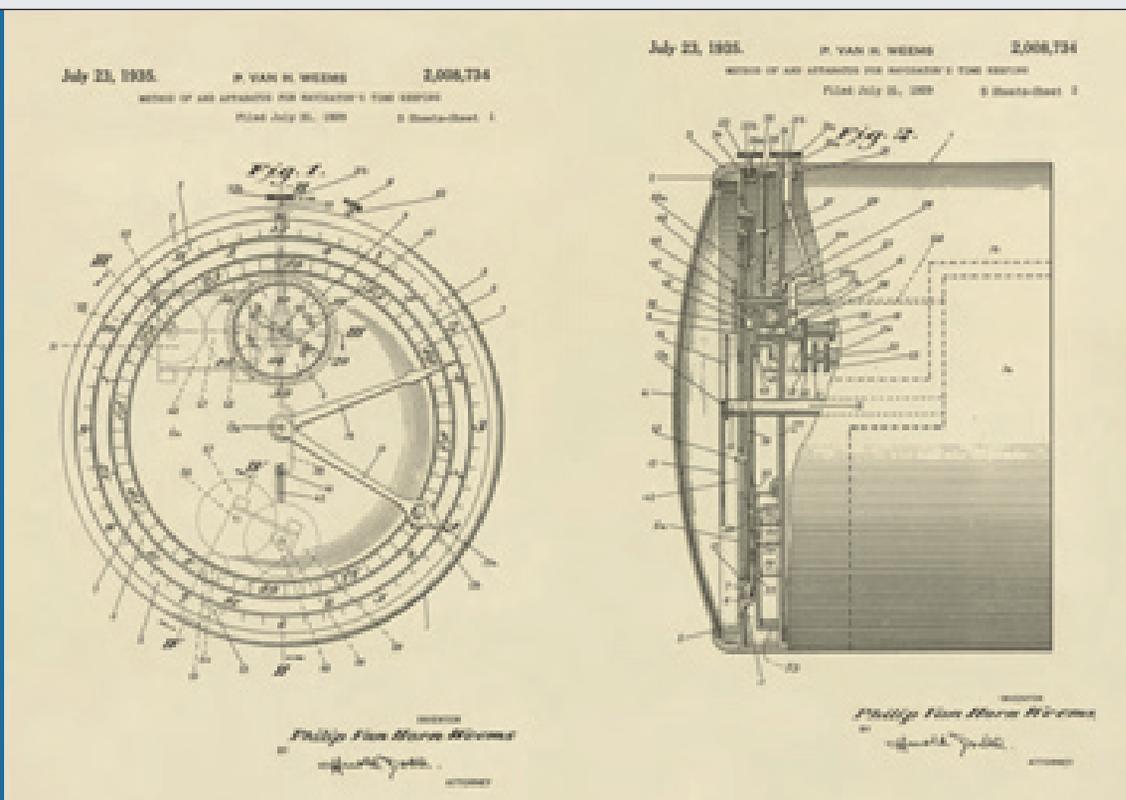
While it's not clear precisely which make of watch Lindbergh clipped to the control panel of the Spirit of St Louis, his own methods enabled him to successfully land in Paris. The achievement cannot be overstated. Equally, it pointed out to Lindbergh that pilots needed something more to improve their calculations.

During 1929, in conjunction with Longines, Weems registered the patent for the Second Setting Watch. Synchronisation of the

watch to the second was achieved by using a radio time signal without having to adjust the hands, by using the exterior bezel or centre dial, both rotating and both bearing independent minute tracks.

Lindbergh, a pupil of Weems, used this as the basis for his own Hour Angle Watch, his own patent registered in 1935. Exploiting both the rotating bezel and the rotating inner dial, Lindbergh cleverly devised and applied graduations, which added a number of functions to the Weems. What he set out to achieve, however useless it was to aviators aside from those flying solo and without the latest instruments or charts, was the rapid equation of solar time. Briefly, the variation between the time we use - the arbitrary 24-hour clock - and that of the sun, can have a difference of some minutes over the course of the year, depending upon the season. The Angle Hour Watch allowed a pilot to make this calculation, avoiding any error that could potentially prove catastrophic.

Using Longines Calibre 39.7, with centre seconds in a 47.5 mm or 38 mm case, Lindbergh devised scales to calculate GMT and Universal Time, based on the knowledge that the earth rotates 360 degrees every 24 hours and, therefore, 180 degrees in 12 hours. The values in degrees corresponding to each division in time were engraved in the bezel and marked on the dials. The sweep second would therefore indicate minutes from 0-15, the



minute hand offered degrees intervals of 15-180. The sum of the values of the three hands would be equal to the Universal Time hour angle of the sun.

Neat but obsolete

Confused? So were most users, but then they needn't have worried. By WWII, radio navigation, the modernisation of airports and a host of other developments rendered such concerns groundless. Just as today's deep-sea divers depend on portable computers rather than their Sea-Dwellers, Seamasters or Submariners, pilots' watches have become anachronistic for all but flyers of vintage aircraft and for those who revel in retro, pilot or not.

Which is not to say that the watch never found adherents. Following its introduction, and up to the intervention of WWII, the Lindbergh design played a key role in the setting of a number of new aviation world records. In 1931, Clyde Panghorn and Hugh Herndon used it when undertaking the first direct single-engine transpacific flight from Japan to Washington State. Amelia Earhart, who would later disappear somewhere in the Pacific Ocean, used one when setting the woman's solo transcontinental and transatlantic flying records in 1932. Other pilots who favoured the Lindbergh included Amy Johnson, who flew solo from England to South Africa and back; Paul Codos and Maurice Rossi who set a New York to Syria record; Wiley Post

when establishing a round-the-world speed record and Henry T. Merrill and Jack Lambie, who managed a same-day round trip from New York to London.

Weems takes to the air

Longines' sublime replica of the Longines Weems Second-Setting Watch (Ref L2.713.4.13. 2, price £2130) is arguably the more legible and 'classic' of the two, almost bordering on the dressy. It truly honours the achievement of Captain Weems, who lived in Annapolis as a Naval Academy midshipman in the early 1900s and again from the 1930s to his death in 1979. (And the company he founded survives to this day as Weems & Plath, in the Eastport neighbourhood of Annapolis, just blocks from the Annapolis Maritime Museum.)

His horological masterpiece now bears the 24-jewel Calibre L699 automatic movement, with a power reserve of 46 hours. Its stainless steel case measures an impressive 47.50 mm and it's fitted with an engraved and numbered hinged back cover that opens to reveal a transparent sapphire window through which the movement can be observed. The silvered centre dial operates precisely as per the original, for synchronisation to the second via a radio time signal. Absolutely keeping in "period", the dial is white lacquer with black painted external double minute track and 12 black-painted Arabic numerals and it wears Breguet-style blued steel hands. It's supplied with a

BREITLING NAVITIMER

Ref A2332212/B635 435X

£3150



Like the Lindbergh, this classic model was rendered almost instantly obsolete, superseded by electronics. Some might even argue that its arrival in 1952 was intrinsically too late: pilots of the post-WWII era simply didn't have to resort to clever wristwatches. That aside, the original Navitimer did feature a useful if complicated circular slide rule, a more complex version of the similar tool seen on the Chronomat of 1942. It enabled pilots (and civilians) to calculate mechanically even more flight parameters than ever before, and with greater accuracy: air speed, fuel consumption, arrival times, basic maths including multiplication, division, money conversion and more. But, as one wag put it, most owners wouldn't know how to use it, and no pilot would use it in-flight unless he or she had a co-pilot! The model shown here is the no-frills, purist edition, which is precisely the way we like it: polished 41.8 mm stainless steel case and bracelet, black dial with silver subsidiary dials, 28,800 vph, 25-jewel automatic movement with 42-hour power reserve, 1/4 second, 30 minutes and 12 hour counters, scratch-resistant glare-proof sapphire crystal and luminous hands and markers. As butch - and iconic - as it gets.

Further information: www.breitling.com

IWC PILOT'S WATCH HAND-WOUND

Ref. IW325401

£6250



IWC's pilot's watch of 1936 wasn't really innovative: Longines had issued a model with the same function, for the Czech military, a year before, and pointers on rotating bezels aren't exactly high-tech. But until Longines decides to reissue that oft-overlooked treasure, this gem will do nicely. The 'mother' of all IWC pilot watches, it offered the airman of the 1930s a less-complicated way of accomplishing what the Weems offered, by allowing time synchronisation through the aforementioned pointer on a rotating bezel rather than via a movable inner dial. The bezel pointer function is used primarily to show elapsed time, as with the markings on the bezel of a diving watch, but it could also be used in conjunction with the seconds hand for time alignment; of course, a sweep second would make it even more useful, eliminating the need for the eye to coordinate the position of the pointer with that of the small seconds hand. One of the six watches in IWC's Vintage Collection, this handsome replica has a larger-than-original 44 mm case housing a 98000-calibre series pocket watch movement: hand-wound with a large screw balance with a frequency of 2.5 Hz, and Breguet spring. It looks sensational with black dial, in stainless steel on a brown buffalo leather strap.

Further information: www.iwc.com



If ever a wristwatch screamed “Art Deco”, this is it.

genuine brown alligator strap with “Charleston” clasp and extension. Naturally, it features the “Louis XV” style onion-shaped winding crown.

Lindbergh flies again

For some, though, it just has to be the Lindbergh Hour Angle Watch (Ref. L2.678.4.11.2, price £2260). Longines has had replica versions of the Lindbergh (as well as the smaller Weems) in its catalogue for many years; the latest versions maintain the authenticity and fidelity to the original. If ever a wristwatch screamed “Art Deco”, this is it. Two sizes are offered, including a 38 mm version with a L614.2 self-winding movement for the small of wrist, while purists will prefer the 47.50 mm edition, with L699 automatic movement and 42-hour power reserve - “longer” as Longines points out, “than the entire duration of Charles Lindbergh’s epochal 1927 flight from New York to Paris.”

Hours and minutes are indicated by blued steel Breguet hands, plus sweep seconds, on a gorgeous white lacquered dial,

protected by a scratch-resistant sapphire crystal. In perfect period form, there’s a black painted double minute track and Roman numerals, the dial features the 12 Arabic numerals painted in blue. As with the original, the seconds hand can be synchronised to a radio time signal via the silvered rotating centre dial, itself featuring a black painted double minute track and red numerals. The blue and black Arabic numerals engraved on the case’s rotating bezel serve to adjust it to daily variations in the equation of time. Also, like the new Weems, a hinged and engraved back cover can be lifted to reveal a transparent sapphire observation back.

As with mechanical diving watches, fountain pens and handlebar moustaches, there’s something pointless about a pilots’ watch that achieve with manual dexterity, concentration and mathematical skills what computers deal with seamlessly and transparently. But we live in a fast-moving era where the comforts of quasi-familiar “retro” designs are positively therapeutic. In watch-wearer terms, then, this pair is Omega 3 for the wrist. ☺