

SEGELFLUGKONFERENZ SFVS 2022

Longines' Journey in Pioneering Aviation Instruments

SPEAKER

DANIEL HUG

**HEAD OF BRANDING
& HERITAGE AT LONGINES**

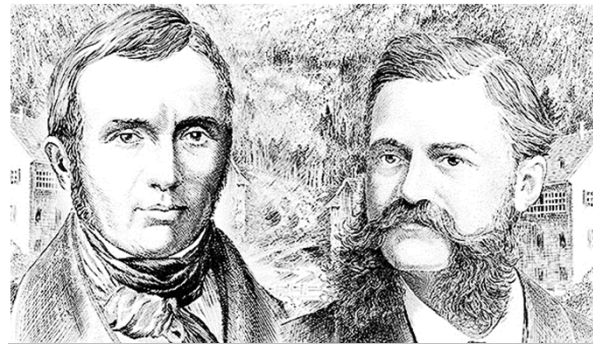
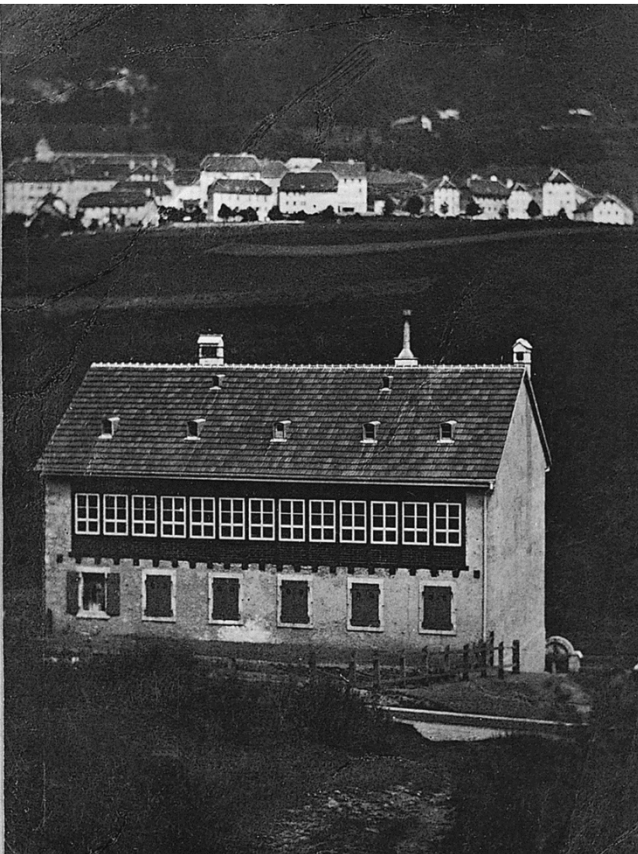
MEMBER OF THE BOARD OF
DIRECTORS



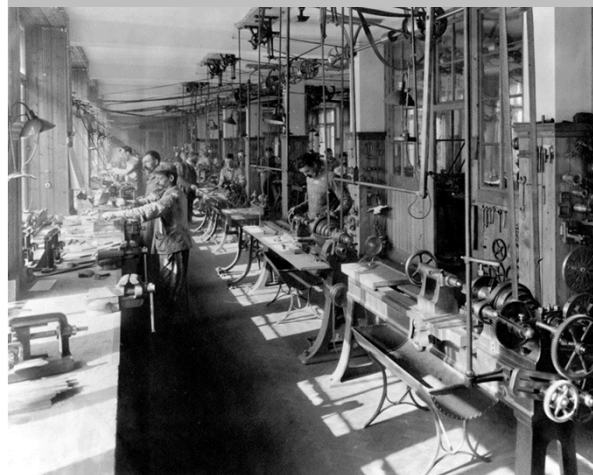


**LONGINES:
A STRONG
LEGACY
SINCE 1832.**

LONGINES' STORY STARTED 190 YEARS AGO



Auguste Agassiz & Ernest Francillon



LONGINES

- **1832** **Auguste Agassiz** & his fellow watchmakers founded a workshop in St-Imier
- **1852** Auguste's nephew, **Ernest Francillon**, took over the operation of the company
- **1867** Francillon transforms his uncle's workshop into a new factory. Longines is **one of the first Swiss watch brands to mechanize its production.**

The Winged Hourglass of Longines

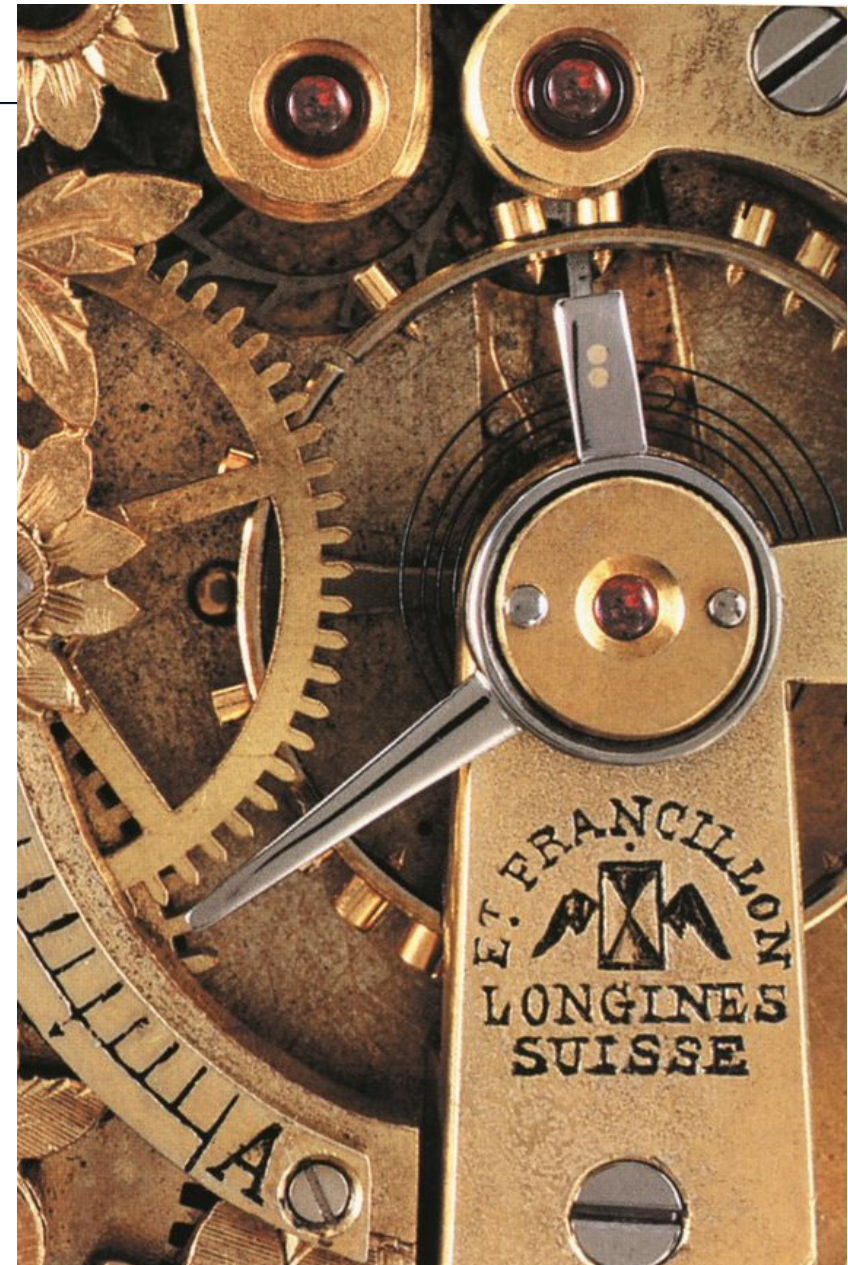
1889 Ernest Francillon trademarked the Longines name

Today Longines is the oldest unchanged brand name registered with the World Intellectual Property Organization (WIPO).



The Winged Hourglass
of Longines, 1889

LONGINES





The Winged Hourglass
of Longines

LONGINES

Longines is able to **identify**
and **authenticate** all its
watches

Every single watch that Longines has ever
produced since 1867 bears a unique number
that has been recorded in the brand archives.

Longines

Today



One of the **5 most important Swiss watch brands**. Longines offers **elegant & sport watches**



A member of the Swatch Group SA
& employs more than **1500 people**



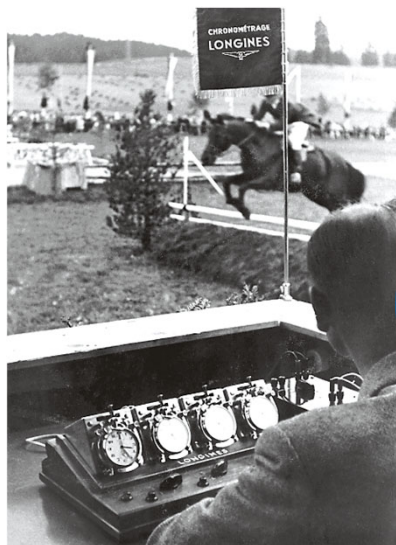
Is established in more than **150 countries**



Is a trusted **official timekeeper**

LONGINES

1. Longines' Milestones In Watchmaking



Professional
Timekeeping of
sport events



Instruments for
professional use
(pilots, navigation)

Technical
learnings and
miniaturization
result in **unique**
wristwatches

**PIONEERING SOLUTIONS
IN WATCHMAKING**

Longines' Watchmaking Milestones



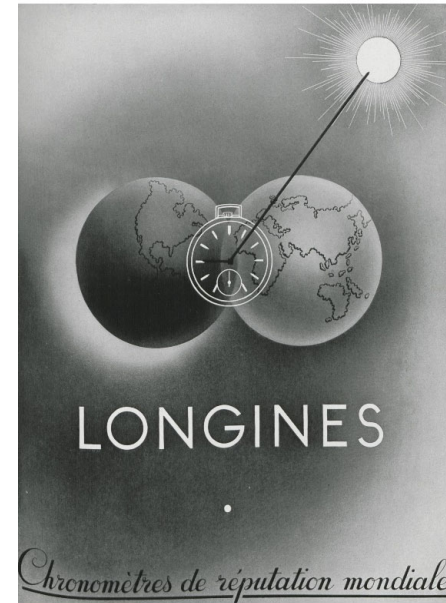
1878

1st chronograph pocket watch:
20H calibre



1908

1st pocket watch indicating two
time zones



1880s

Stopwatches powered by the
20H calibre seen on American
racetracks.



1911

One of the world's first wrist
chronographs (based on a
pocket watch, cal. 19.73N)



LONGINES



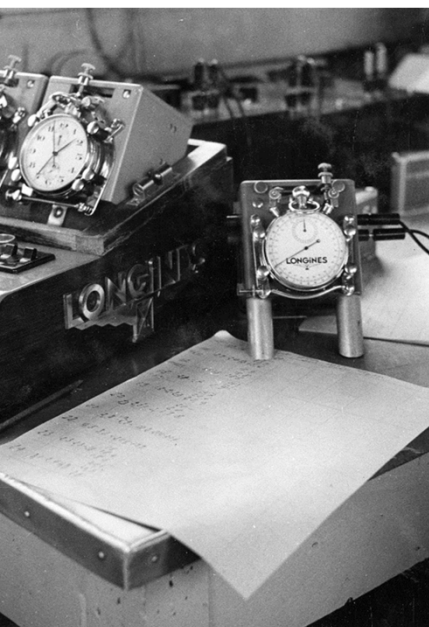
1913

Longines' 1st compact-sized chrono-calibre of 29mm in diameter (cal. 13.33Z)



1916

1st high-frequency timer to measure 1/100th of a sec. 360,000 beats per hour



1914

1st high-frequency timer to measure 1/10th of a sec. 36,000 beats per hour (cal. 19.73N)



1925

1st wristwatch to indicate a second time zone. Additional hour hand, Z-flag for Zulu Time on the dial.



LONGINES



1925

1st wristwatch chronograph
with 2 independent pushers +
flyback (cal. 13.33Z)



1936

1st serial chronograph with
flyback function.
(cal. 13ZN)



1931

1st wristwatch with an
engraved rotating bezel for
astronavigation. Charles A.
Lindbergh inspired its
construction.



1936

Astronavigation chronometer
which enabled quick
calculations of position: The
Longines Siderograph.

LONGINES



Howard Hughes used a Siderograph to
complete round-the-world flight in 1938

2. Important Inventions for Aviation

- > Timepieces indicating a **second timezone**
- > Timepieces with **rotating bezels**
- > Chronographs with **Flyback** & two pushers

2.1 Timepieces Indicating Double Time Zones



1908

The Turkish Watches

For **converting between Turkish time and Western time**. Double minute- and hour-hands, patented in 1911



1925

Longines Zulu Time

1st wristwatch to indicate a second time zone. Additional hour hand. Z-flag for Zulu-Time on the dial



1931

Longines Cockpit Clock

Furnished to aviators **Clyde Pangborn & Hugh Herndon**. Double minute- and hour-hands, 24-hour dial for pilots



1933

Longines Weems

Aviator's wristwatch with two sets of hands independently adjustable. Double minute- and hour-hands to indicate a second time zone



1937

Longines Cockpit Clock

Dashboard instrument equipped with double minute- and hour-hands, as well as a turning bezel with luminescent indicator

LONGINES

LONGINES ZULU TIME (1925)

Zulu Time
hour hand

Red wedges
to mark 3 min.
of radio silence

Movement cal. 10.86N
white-gold case (18k)
34 x 24mm



The international
sign for Zulu Time or
UTC +0

Zulu Time
minute hand

Additional hour hand to
indicate **local time at
Quebec** (Canada) with
a time difference of 4
hours

LONGINES



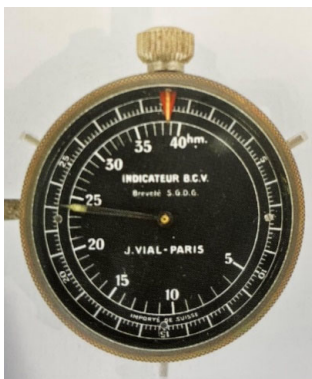
US-President Barack Obama in a briefing at the National Counterterrorism Center in McLean, Va., 2015.

How **ZULU** **TIME** is used today

The clock on the wall indicates Zulu Time and some other time zones.

<https://www.youtube.com/watch?v=a5idl8ji78>

2.2 Watches Featuring Rotating Bezels



1923

Count-down Timer with Turning Bezel

Built by Longines according to a patent of Jules Vial, Paris



1928/29

Early Pilot's Wristwatch

Big crown, rotating bezel, luminous numerals, early type of lugs



1931

Longines Lindbergh for Astro-Navigation

Inspired by Charles Lindbergh, 1st wristwatch with engraved bezel for the correction of the equation of time.
Indicating the hour angle and minutes of arc, inner rotating dial to synchronize the watch to a radio time signal



1934

Longines Weems Second Setting Watch

Inspired by Philipp Van Horn Weems, rotating bezel to synchronize the second hand to a radio time



1934

Pilot's Watch ref. 3582 (Majetek)

independently adjustable. Double minute- and hour-hands to indicate a second time zone



1936

Pilot's Chrono, Starting Time Indicator

Dashboard instrument equipped with double minute- and hour-hands, as well as a turning bezel with luminescent indicator



1936

Pilot's Watch, Double Turning Bezels

Dashboard instrument equipped with double minute- and hour-hands, as well as a turning bezel with luminescent indicator

LONGINES

2.3 Wrist-Chronographs With Flyback And Two Pushers*

*except Stopp-Second Pilot's Watch of 1946



1925

First indication of a wrist chronograph with Flyback in our archives (cal. 13.33Z modified)



1928

Cal. 13.33Z modified, gold case, enamel dial



1929

Cal. 13.33Z Modified, silver cushion case, black dial



1935

Cal. 15''' (base Valjoux 22GH), modified with Flyback ref. 3770, 39,5 mm diam.



1936

Cal. 13ZN, first movement with Flyback as a standard, patent filed in 1935



1937

13ZN Mushroom Pushers: First truly waterproof chronograph, patent filed in 1938



1946

Oversized flyback Pilot's wristwatch, stop-seconds mechanism (cal. 12.68Z), central 60 minutes recorder. Delivered to KLM, Israeli and Japanese army pilots



1948

Cal. 30CH, movement with Flyback, 38mm diam.

1968

Cal. 30CH, Nonius scale on second hand to read 1/10 of a second, waterproof to 200m

What is the advantage of a Flyback function?

This mechanism enables to reset and start a new time measurement with a single press of the push-button.

A key function for aviators to precisely measure flight stages and start new ones while flying at high speed. Exact timing is essential for good navigation.

Pictured on the right: Longines Chronograph of 1937, waterproof case & pushers, high-quality caliber 13ZN with flyback mechanism.

LONGINES



MONTRE
ÉTANCHE
BREVETÉE

Dispositif contre les chocs
Verre incassable

LONGINES

EN VENTE CHEZ LES BONS HORLOGERS

3. Some Applications in Pioneering Aviation

LA MONTRE PORTE-BONHEUR DES AVIATEURS



AVIATEURS ET AÉRONAUTES

QUI EMPORIENT AVEC EUX DES
MONTRES ET CHRONOGRAPHES

LONGINES

BYRD
NOBILE
FRANCO
BREMEN

AMELIA EARHART
ELINOR SMITH
POST & GATTY
Dr. ECKENER

**COSTES & LEBRIX
MITTELHOLZER
RUTH NICHOLS
CHAMBERLIN**

AMERICAN POLAR EXPEDITION
HERNDON & PANGBORN
FERRARIN & DEL PRETE
WILLIAMS & YANCEY
"MISS COLUMBIA"
(BOYD & CONNOR)

**LOCATELLI
LADY HEAT
«GRAF ZEPPELIN»**

DE PINEDO
LINDBERGH
LOUISE THADDEN

**PINILLOS & ZEGARRA
COSTES & BELLONTE
ASSOLANT & LEFÈVRE
JIMENEZ & IGLESIAS
MEARS & COLLYER
KINGSFORD SMITH
HILLIG & HOLRIS**



3210
1069 N. Arroyo Hondo



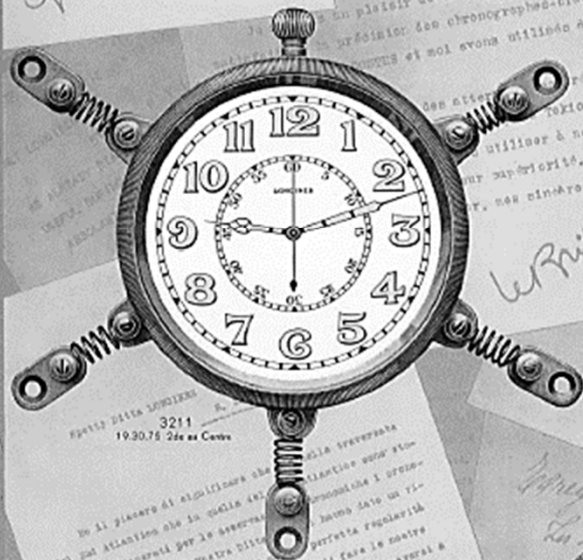
3213
2430.41 192 Hours



asset always.

Sincerely yours,

Amelior & whole



3211 —
19.30.75 24th C.



3212
1320Z



3214
19,3073 N Chong.

28

29

LONGINES AUTHENTIC AVIATION WATCHES



Lindbergh-Longines Hour-Angle Watch

Invented by Col. Chas. A. Lindbergh, this Longines Watch is aviation's most famous timepiece and navigation instrument. It embodies the second-setting feature so valuable in sports and hobbies. Its dials show local time to the exact second and the Greenwich Hour Angle in degrees, minutes and seconds of arc. A simple calculation gives longitude and position in the air.



Weems-Longines Second-Setting Watch

Invented by Lt. Comm. P. V. H. Weems, U. S. N. retired, Lindbergh's navigation instructor, and now Chief of Technical Watch Division, Longines-Wittnauer Company. This patented Longines Watch eliminates the "blind" minute and gives you time to the second. Camera enthusiasts, sportsmen, doctors, nurses and numerous others can profit by its second-setting feature.



The World's Most Honored Watch

LONGINES

PRONOUNCED LONGJEN

The Honored Watch to Give-to Get-to Own



LONGINES—THE FIRST WATCH OF AVIATION

WINNER OF 10 WORLD'S FAIR GRAND PRIZES AND 28 GOLD MEDALS

LONGINES

The World's Most Honored Watch

NEW YORK

Product of Longines-Wittnauer Watch Co.

GENEVA

Adventures of
LONGINES
THE WORLD'S MOST HONORED WATCH

*The watch of the Dean
of women pilots*

Ruth Nichols, world record holder
for speed, altitude and distance

LONGINES

Longines & Douglas DC-3



The United Air Lines stated in 1942 in its official maintenance manual for the Douglas DC-3 regarding the instruments that **LONGINES** is a supplier of the cockpit clock.

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION
WASHINGTON

CIVIL AERONAUTICS ADMINISTRATION,
Washington, D. C.

Part of Operating Certificate No.11.....

UNITED AIR LINES TRANSPORT CORPORATION
hereby makes application for amendment of the Operations Specifications appearing on the reverse side hereof, as follows:

LIST OVERHAUL PERIODS (MAXIMUM HOURS) AFTER EACH COMPONENT TO CONFORM WITH OPERATIONS SPECIFICATIONS FORM.

ORIGINAL SIGNED BY J. A. HERLIHY.

(Signature)

Date OCTOBER 17, 1942

EXECUTIVE VICE PRESIDENT - OPERATIONS

Form ACA-512-C (Rev. 1-1-42)
BUDGET BUREAU No. 42-R-639-43
Approval Expires Dec. 31, 1943

OPERATIONS SPECIFICATIONS
INSTRUMENT MAINTENANCE

UNITED AIR LINES TRANSPORT CORPORATION
(Name of air carrier)

Aircraft make DOUGLAS
Aircraft model DC-3A

INSTRUMENTS	MODEL	OVERHAUL PERIOD (HOURS)	INSPECTION AND CHECK PERIODS			
			#1	ROUTINE	#2	BASE
AIRCRAFT AND ENGINE						
ALTIMETER, SENSITIVE TYPE	KOLLSMAN PIONEER	5800	AFTER EACH FLIGHT	50	125	725
COMPASS	KOLLSMAN PIONEER	4350	AFTER EACH FLIGHT	50	125	725
CLOCK	KOLLSMAN ELGIN LONGINES	2900	AFTER EACH FLIGHT	50	125	---
FILTER, GYROPILOT	SPERRY	725	AFTER EACH FLIGHT	50	125	---
GAUGE, DE-ICER PRESSURE	PIONEER	2900	AFTER EACH FLIGHT	50	125	---
	U.S. GAUGE CO.					
GAUGE, GYROPILOT OIL PRESSURE	PIONEER	2900	AFTER EACH FLIGHT	50	125	---
	SPERRY					
GAUGE, HYDRAULIC PRES.	U.S. GAUGE CO.	6000	AFTER EACH FLIGHT	50	125	---



UNITED AIRLINES Mainliners, flying U. S. airmail route No. 1, coast-to-coast are equipped with Longines Aviation Watches. The ocean air routes of Pan American, Royal Dutch and the survey flights of American Export Airlines are flown with Longines Navigational Watches. In aviation as in other fields where time-accuracy is essential the most honored watch is Longines.



Longines Aviation Watches were proven in the service of the great pioneer flyers—Chamberlain, Balchen, Post, Lindbergh, Byrd, Mattern, Hughes, and others. As a result, the science of airplane navigation was built around Longines Aviation Watches.

The research and technical facilities necessary for the construction of super-accurate Longines timepieces for navigation and scientific use have contributed to the greater accuracy and dependability of all Longines Watches. Thirty-eight world's fairs have given Longines Watches highest honors.

Cockpit Clocks for Military Aircrafts



1940s
**Army Type A-9
8 Days Clock**

Longines-Wittnauer aircraft clock. Type A-9 was used across nearly all aircraft of the US Air Corps and Air Force, including B-17, B-25, B-26, and fighters P-38, P-40, P-47 and P-51. The first movement with 8 day power reserve for aviator (cal. 19.41) was introduced by Longines in 1915.



1940s
**Army Type A-11
8 Days Clock**

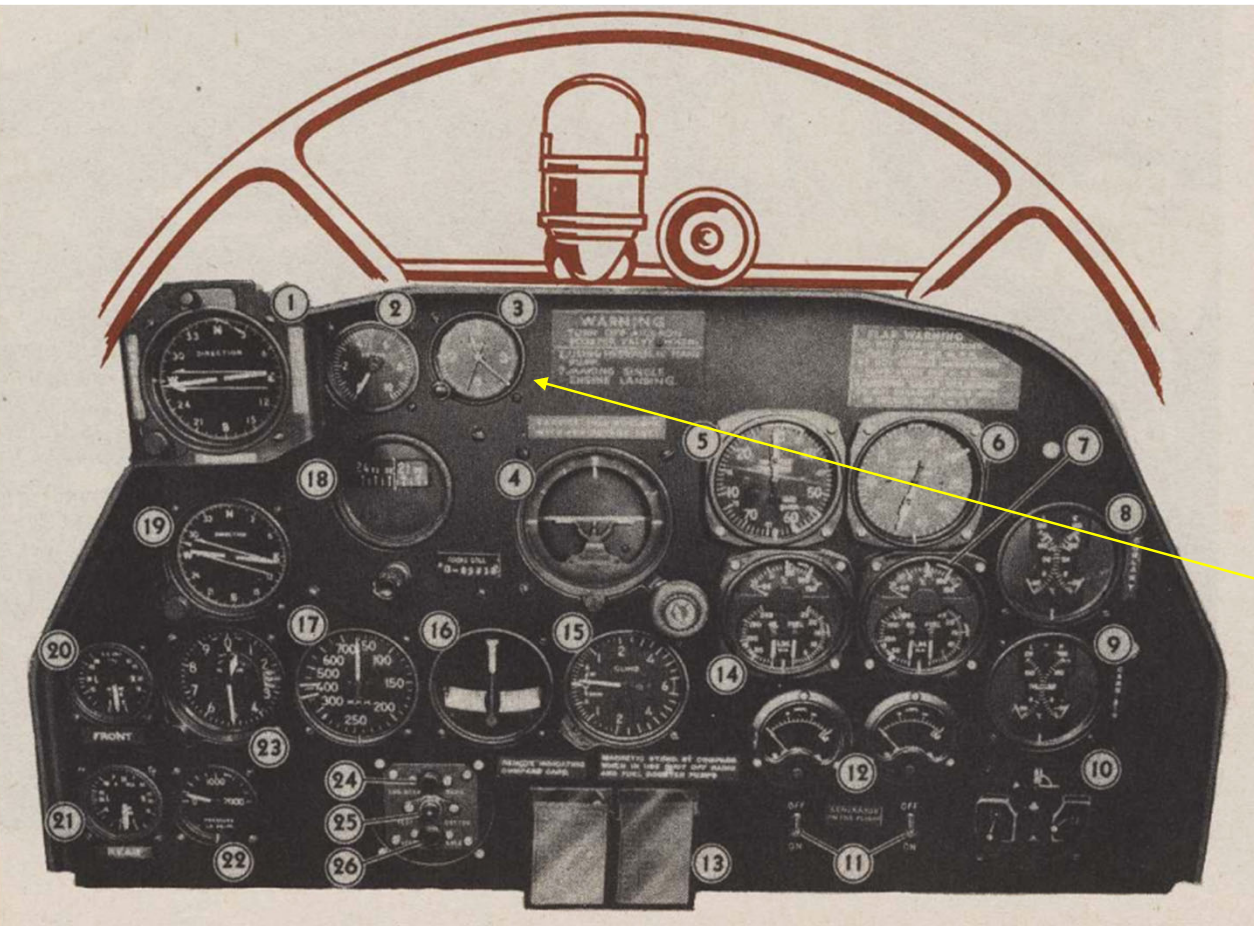
Longines-Wittnauer aircraft clock. Type A-11 was used across US Air Corps and Marine aircrafts. Power reserve of 8 days, two barrel mainsprings, luminescent hands and figures, sweep second hand, aluminum case, produced to accomplish regulations of US-Army.



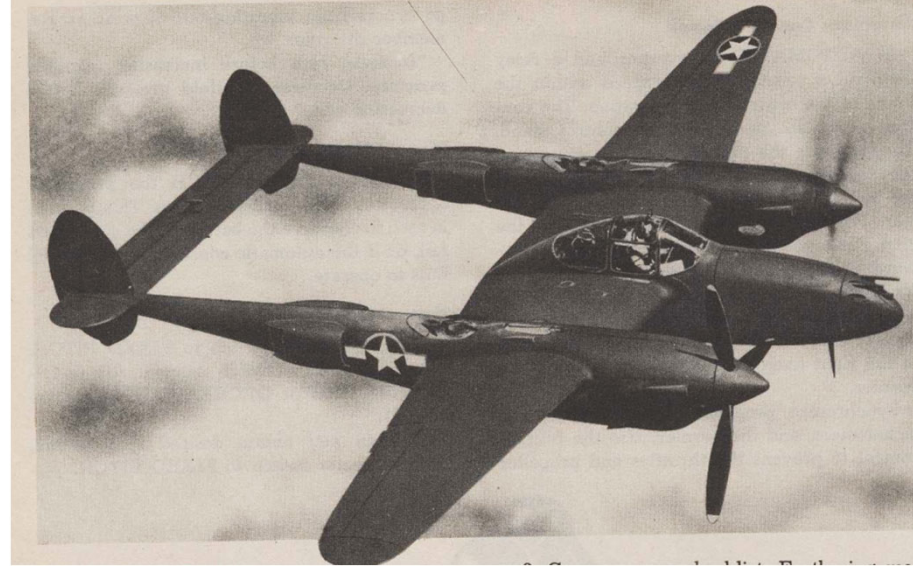
1940s
**Army Type ABU VA
Chronograph**

Chronograph clock from Longines-Wittnauer, indicating hours, minutes, seconds, elapsed minutes and hours. Swiss made marking on the dial. From the collection of the National Air and Space Museum, Washington, USA (Smithsonian Institution)

Inside a Lockheed P-38 Lightning



RESTRICTED



INSTRUMENT PANEL (P-38J-25)

1. Standby magnetic compass.
2. Suction gage.
3. Clock.
4. Gyro horizon.
5. Manifold pressure gages (left and right).
6. Tachometers (left and right).
7. Engine gage right engine (oil temperature and pressure and fuel pressure).
8. Coolant temperature gage.
9. Carburetor air temperature gage.
10. BC-608 contractor (eliminated).
11. Generator switches.
12. Ammeters.
13. Compass correction cards.
14. Engine gage left engine (oil temperature and pressure and fuel pressure).
15. Rate of climb indicator.
16. Bank and turn indicator.
17. Airspeed indicator.
18. Directional gyro.
19. Remote indicating compass.
20. Front (reserve) fuel tanks quantity gage.
21. Rear (main) fuel tanks quantity gage.
22. Hydraulic pressure gage.
23. Altimeter.
24. Landing gear warning light.
25. Landing gear warning light test button.
26. Spare bulb.

18

RESTRICTED

4. Pioneers in Aviation

Mastering Time Zones

Clyde Pangborn & Hugh Herndon
Amy Johnson

Clyde Pangborn & Hugh Herndon

5,500 miles

On 5th October 1931 Clyde Pangborn and Hugh Herndon, Jr., two daring American aviators, **completed the world's first nonstop, transpacific flight from Japan to the United States**. They took off and landed 41 hours later in Wenatchee, Washington, having covered a distance of 5,500 miles. At the time, it was the longest flight ever made over water.



Clyde Pangborn & Hugh Herndon



«Miss Veedol»

A reproduction of the aircraft (Bellanca CH-400 with 420 hp) is in the Wenatchee Valley Museum, USA.



Longines Cockpit Clock
Credit ©Oliver Hartmann

LONGINES

Letter sent from Clyde Pangborn and
Hugh Herndon to Longines

“ ...From the start of the flight (...) to the final Pacific ‘hop’, in which we encountered such frigid arctic weather as to even freeze the water in our canteens **Longines watches continued to keep absolutely accurate time.** As you know, correct time is essential to good navigation. May we congratulate the manufacturers of so excellent a timepiece.”

LONGINES

HERNDON-PANGBORN FLIGHT HEADQUARTERS
HOTEL WALDORF-ASTORIA
NEW YORK

November 23, 1931

A. Wittnauer Company
402 Fifth Avenue,
New York City.

Attention---Mr. J. P. V. Haimmuller

Dear Harry:

It gives me great pleasure to inform you that, not only on our flight across the Atlantic Ocean and through Siberia to Tokio, but also during the first non-stop Pacific crossing, Japan to Washington, Clyde Pangborn and myself carried Longines time pieces, which performed faultlessly throughout both trips.

From the start of the flight in terrific midsummer heat to the final Pacific "hop", in which we encountered such frigid arctic weather as to even freeze the water in our canteens Longines watches continued to keep absolutely accurate time. As you know, correct time is essential to good navigation.

May we congratulate the manufacturers of so excellent a timepiece.

Very sincerely,

Hugh Herndon Jr.
Hugh Herndon Jr.

Amy Johnson

Amy Johnson

11,000 miles

On 5th May 1930, Amy Johnson, the most famous aviator in Britain, was the **first woman to fly solo from England to Australia.**

She took off from Croydon (near London) and landed in Darwin 19 days later, having covered a distance of 11,000miles.



The original named "Jason" is located in a museum in London (The Science Museum's Flight Hall).

LONGINES

Amy Johnson's record solo flight from England to Australia, from 5th May 1930 to 24th May 1930



Amy Johnson and her Longines Weems Sidereal Time



Amy Johnson in 1937, wearing a big Longines Weems Pilot's watch over her sleeve. In her right hand she is holding a sextant, another important device for celestial navigation.



Personal Longines Weems Watch of Amy Johnson, manufactured in February 1937. Silver case of 47mm, cal. 18.69N, rotating center dial to synchronize the watch to a radio time signal. Her watch was regulated on sidereal time (marked on the dial); it served as pure navigational instrument.



Amy Johnson in front of her airplane named Jason (de Havilland DH 60G Gipsy Moth). She was flying in May 1930 from England to Australia. (Photo: Academy of Aviation)

5. Longines' Pioneers Of Today

Raphaël Domjan
SolarStratos



World premiere: The SolarStratos aircraft, powered purely by solar cells, will attempt to ascend to the stratosphere (approx. 25,000m) in 2024.

Géraldine
Fasnacht



World premiere: Géraldine Fasnacht became the first person to jump in a wingsuit from a solar-powered airplane on June 18, 2022, from 2850m.

LONGINES

6.

Longines Spirit Zulu Time

LONGINES SPIRIT ZULU TIME



L3.812.4.63.6

Black Dial, Green Bezel



LONGINES SPIRIT ZULU TIME: DIE DETAILS MACHEN DEN UNTERSCHIED.

Ergonomisches und harmonisches Gehäuse

Die Hörner wurden verkürzt und abgerundeter gestaltet, um den Tragekomfort und die Ästhetik zu verbessern. Auch die Integration des Armbandansatzes in den Gehäusemittelteil wurde überarbeitet.

Das Ergebnis: eine perfekt ausgewogene Uhr, die sich an jedem Handgelenk gut anfühlt.

Anthrazitfarbenes Zifferblatt

Eine Alternative zum traditionellen schwarzen Zifferblatt. Ein gedämpfter Farbton, der das Dunkelgrün der Lünette sowie die goldenen Markierungen akzentuiert.

Datum in 6-Uhr-Position

Es fügt sich harmonisch in das Zifferblatt ein.



L3.812.4.63.6

Neues Longines-Kaliber: L844

Eine technologische Meisterleistung, die eine Einstellung der GMT-Anzeige unabhängig vom Stundenzeiger möglich macht.

COSC-zertifizierter Chronometer,
Unruhfeder aus Silizium, 72 Std. Gangreserve

GMT-Funktion

- Möglichkeit, bis zu 3 Zeitzonen abzulesen
- Der GMT-Zeiger wird nicht mit einem Drücker, sondern über die verschraubte Krone aktiviert. Eine Seltenheit!

Lünette mit grünem Keramikeinsatz und vergoldeten Ziffern

- Grün: DIE Farbe des Jahres 2022
- Die bidirektionale Lünette hat eine 24-Stunden-Einteilung; damit kann eine zusätzliche Zeitzone angeboten werden.
- Die lackierten Ziffern und das Dreieck aus SLN bei 12 Uhr ermöglichen leichtes Ablesen.



Longines Spirit

Zulu Time - Ø42

L844.4



L3.812.4.53.2
2'750 CHF



L3.812.4.53.6
2'850 CHF



L3.812.4.93.2
2'750 CHF



L3.812.4.93.6
2'850 CHF



L3.812.4.63.2
2'750 CHF



L3.812.4.63.6
2'850 CHF

**The Pioneering Story
of Longines Goes On...**

LONGINES

The Longines logo, featuring a stylized winged hourglass symbol centered below the brand name.