

# The long trip of a Swiss atomic clock

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## SWISSAIR NEWS

### Swissair now All-Jet

Swissair has now retired the last of eleven Convair 440 Metropolitans it put into service between June 1956 and June 1957. The phasing out of this aircraft is of historical importance to the 37-year-old company as it marked the transition to an all-jet fleet. It made Swissair the third European airline to use jet aircraft exclusively.

Each of the propeller-driven CV-440s had some 25,000 flying hours to its credit; at an average speed of 400 km/h, this totals about 10 million kilometres. The performance is all the more noteworthy as the aircraft were used on European short-haul routes only, where they recorded an aggregate 255,000 landings.

Swissair's Metropolitans were progressively replaced from October 1966 onwards by Caravelles and DC-9s.



Swissair's new detuner installation is seen here connected to the engines of Coronado HB-ICH operated by Balair.

### Swissair's New Four-Engine Jet Detuner

Readers may remember an article "From Sound to Nausea — Swissair tackles Noise" in the issue of 12th July. Some new measures were announced for the near future, and the following is information just received.

The world's largest detuner installation for test running the power plants of four-engined long-haul jets has been put into use by Swissair at Zurich Airport. It consists of four silencer tubes which can be moved behind three aircraft stands on two parallel rails 150 metres in length. Thus, the detuners can be connected simultaneously to all four engines of one aircraft, or they can be used on any four engines of up to three aircraft parked side by side.

Each silencer tube is 27 metres long, 3.5 metres in diameter and weighs 33 tons. It is mounted on an electrically driven chassis capable of moving along the rails at speeds of 20 metres per minute or 5 metres per minute, depending on the distance to be covered. The movement range at right angles to the rails is 10 metres at 3 metres per minute. In addition, the tube can be swivelled vertically, providing an 85 cm. height adjustment of the front aperture. Therefore, although the installation was built exclusively for all versions of Douglas DC-8s and Convair 990 Coronados, Swissair's long and medium-haul jets, it can be used for other four-engined aircraft of similar dimensions and engine layout.

Measurements of noise levels achieved with the new equipment have shown satisfactory silencing; at a distance of about 2 km., a DC-8 engine at full power registered 49 PNdB and a Coronado engine 47 PNdB.

The detuner installation was built by the firm Oskar Gerber of Waedenswil near Zurich, a branch of Oskar Gerber, *Schall-und Schwingungstechnik*, of Stuttgart. It cost about £130,000. The design was based on principles and elements of crane and hoist construction incorporating numerous safeguards against accidental damage to aircraft. An arm bearing the control unit determines the correct position of the main silencer tube before the latter is fully extended and prevents travel beyond it. The top of the tube has a feeler contact which switches off the height adjustment if it touches the underside of the wing. The rails are fitted with stops which, when touched, cut off the power and prevent excessive lateral movement. When power is cut, two special brakes immediately act on each tube chassis, halting it within an inch or so. This braking device, also derived from crane design, prevents the chassis from moving under wind pressure.

### THE LONG TRIP OF A SWISS ATOMIC CLOCK

A Swiss atomic clock, made by Ebauches Co. Ltd., in close co-operation with the Swiss Laboratory of Horological Research in Neuchâtel, was used to indicate the official time for the "Hemisfair 68" exhibition in San Antonio (Texas). Before returning to Switzerland, this clock is to go on a tour of almost 10,000 miles all over America, in order to synchronize the quartz clocks of the Latin-American timekeeping system. It started off at the NASA Center in Houston, before going to Brasilia and Rio de Janeiro, to set the time on the two timing standards given to these two towns by the Swiss watchmaking industry, and whose precision is of the order of 100,000th of a second. The atomic clock will continue its scientific mission in several South American capitals. It is interesting to note that it is a timekeeper with an absolute precision, since it varies by no more than a second in 3,000 years.

[O.S.E.C.]

### A SWISS CAMERA

Among the interesting new features of the latest model of the Swiss camera ALPA, presented at the photographic trade fair "Photokina" in Cologne, mention must be made of the precision feed, fitted to a magazine holding 30m. of film, making it possible to take a 35mm. film directly, frame by frame. With the Alpa 10d therefore it is possible to make animated cartoons as well as speeded up natural science films, thanks to the possibility of taking photographs at regular intervals, varying from 2 seconds to 27 hours and photographs at a distance (for the observation of wild animals for instance), by triggering the camera by means of a radio transmitter-receiver. It should be remembered that the Alpa, which has been christened the "watchmaker's camera" is one of the few photo-cameras manufactured in Switzerland, and in addition it has all the traditional precision of Swiss industry. It is a universal

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