

Good Vibrations

As **Richard Mille** unveils its second collaboration with Airbus Corporate Jets, AIR chats to technical director Salvador Arbona about the groundbreaking vibrating alarm complication

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In the world of haute horlogerie, the mechanical alarm is a surprisingly underused complication. For its latest timepiece, Richard Mille has made not only an alarm complication, but one that vibrates silently – a first for mechanical watchmaking and the most complicated timepiece the marque has ever produced.

Available in a 30-piece limited edition, the RM 62-01 Tourbillon Vibrating Alarm ACJ is the second collaboration between Richard Mille and Airbus Corporate Jets (ACJ), following 2016's RM 50-02 Tourbillon Split-Seconds Chronograph ACJ. The original sketches by Sylvain Mariat, ACJ's head of creative design, were turned into reality by a team at Richard Mille headed up by Salvador Arbona, technical director for movements.

"The first decision made was that we really wanted not just to make something novel; we wanted to make something that would add useful and practical functionality to the ACJ line of timepieces," says Arbona. "Although the idea of an alarm wristwatch seems rather simple and straightforward the first time you think about it, in reality it is a highly complex mechanism that is very hard to realise, especially when it is being added to an already intricate tourbillon movement."

Instead of a striking alarm that emits a chime, the RM 62-01 produces a vibration that can be felt, but not heard. With watchmakers continually striving to eliminate vibration, inviting it into the heart of the movement seems counterintuitive to say the least. "Well, it was a sort of tongue-in-cheek challenge that we made for ourselves," explains Arbona. "We were fully aware that there are many battery-powered or electronic watches that have such a silent alarm function that is felt



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on the wrist only and not heard.

"We always say at Richard Mille that the boundaries of mechanical watchmaking are still far from reaching their full development," Arbona continues, "so we wanted to prove that this could be done in a fully mechanical way. Furthermore, we wanted to show how the mechanism itself could be a part of high-end luxury watchmaking."

So as not to affect the watch movement, the team settled upon an offset weight in solid gold, akin to an automatic rotor, inspired by the vibrating function of earlier mobile phones. "The greatest challenge was to find the exactly correct vibration rate for the alarm signal, one that would not affect the movement and timekeeping in any way, yet still be clearly sensed directly on the wrist. In the end, we had to spend a great deal of time just to research the optimal vibrational frequency, which ended

up being 5,400 rpm," says Arbona.

Assembly was another huge challenge. Five years of research and development went in to creating the RM 62-01, a three-dimensional jigsaw puzzle of 816 parts, two barrels, seven hands, 11 displays and a tourbillon cage. Four partial prototypes and extensive studies were required in order to fit so many components and functionalities into the limited space, with one of Richard Mille's four watch constructors working exclusively on the project.

According to Arbona, the development timeline is on par with several of the marque's other highly complex timepieces. "It often happens that almost all answers are found during the early research and development phase, but there remain one or two areas that take up a huge amount of time to implement and develop 'in the metal', so to speak," he says.

"For the RM 62-01, the areas of intense scrutiny involved the mechanism for transmitting the frequency selected in the correct manner. We already know a lot about tourbillon movements in general, of course, but these areas took up at least two years of time in the development phase," he explains.

Aesthetically, the RM 62-01 looks very similar to its older sibling. It shares the same barrel-shaped case with rounded corners, and the movement can be seen through a sapphire crystal that is shaped like an airplane window. But where the RM 50-02 echoed the stark white profile of a jumbo jet, the RM 62-01 is inspired by the dark wood panelling of a bespoke cabin interior. The extra-wide diameter titanium crown, meanwhile, mirrors the shape of a jet turbine, while the pushers evoke the profile of pylons connecting the engine and wing.



Opening pages, from left:
 RM 62-01 face-on; handling tiny details @Jerome_Bryon
These pages, from left:
 Salvador Arbona @Renaud Corlouer; RM 62-01, front and back

The timepiece has a double bezel; one is satin-polished titanium and the second milled from a block of Carbon TPT to a waferthin 1.8mm. “This combination of materials was chosen for its scratch resistance and ability to withstand any impacts that might affect the dial side of the watch. After all, this is a watch to be used all over the globe, so toughness is something we have to consider in all development areas,” says Arbona. “In addition, this combination of materials ensures that vibrations produced by the alarm will be transferred back towards the wrist and deflected from the movement.”

The RM 62-01 features a UTC indicator for a second time zone, indicated by the green hand at the centre. At nine o’clock, below the

sapphire dial, the tourbillon has a free-sprung balance oscillating at 3Hz. The oversized date is positioned at 12 o’clock and framed by an aperture with the red hatching typical of Richard Mille, while the indicator for the movement’s 70-hour power reserve is found at 11 o’clock.

All functions relating to the vibrating alarm are grouped on the lower part of the main dial. Among other novelties, this is the first watch to boast a function selector with a full five positions to permit adjustment of all settings. Adjustable to the nearest minute on a 24-hour basis, when the appropriate function is selected, the alarm has three indicators of its own: on/off, AM/PM and a power-reserve indicator.

The RM 62-01 is also the only alarm to be wound, not by rotating the crown, but simply by pressing the pusher. There is a pusher at eight o’clock for winding the alarm, which has a dedicated barrel. “You only need to press the pusher 14 times for it to fully wind. The alarm can also be turned on or off at will,” adds Arbona.

Aviation and aeronautics have always provided rich inspiration for Richard Mille, and the RM 62-01 continues to push the envelope of technical innovation. “This is one of the important reasons that we choose not to look solely to the world of watchmaking for new, inspirational ideas and concepts,” says Arbona. And with a price tag of US\$1.225 million, it is sure to set pulses racing.