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Audemars Piguet's fourth cabinet piece is a platinum powerhouse

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In the past, gentlemen of true standing were expected to exercise mind and matter through pastimes both sporting and intellectual. One pursuit of the latter was the creation of a 'cabinet' – not the actual woodwork of course, but the active and knowledgeable collection of curiosities with which to fill it. Audemars Piguet's Tradition d'Excellence series follows a similar philosophy, steadily accumulating eight unique collectors' pieces for their own wooden cabinet. This year sees the launch of a jaw-dropping Royal Oak – the fourth of an increasingly adventurous collection.

(Above) Close-up of the No. 4's openworked dial. The Breguet Philips overcoil is visible, within the oversized tourbillon.

(Right) Twenty of these wooden cabinets have been made, to contain each of the 20 sets of eight Tradition d'Excellence pieces. No. 8 is expected to arrive in 2009.

A cabinet of curiosities was a wonderful conversation piece for guests in the Victorian age, and might contain anything from shrunken heads to rare gemstones; medieval torture instruments to butterflies. While we can expect neither butterflies nor shrunken heads from Audemars Piguet, we have quickly come to expect some truly exceptional horology – the cornerstone principle of its Tradition d'Excellence 'cabinet' collection'. Even an actual wooden cabinet is supplied, within which the eight models of this ongoing project are gradually finding homes.

Initiated in 1999 (and projected to finish in 2009), the first two cabinet pieces of the series were highly complicated examples which both used a case design taken from the Jules Audemars line. No. 1 encompassed a tourbillon, minute repeater and rattrapante; No. 2 the same basic line-up of complications with the addition of a perpetual calendar and a grande date. In a product-sharing environment with Richard Mille, the No. 3 used the mainspring torque dynamograph indicator initially developed for the Richard Mille tourbillons, in combination with a power reserve and tourbillon chronograph in an Edward Piguet case.

Tradition d'Excellence No. 4 is a new Royal Oak tourbillon chronograph, presented at Geneva in 2004. Once past the shock of this wristwatch's sheer weight (the prototype version in platinum could easily knock someone out cold through misguided gesticulation), there is plenty of horological activity to glimpse within the Royal Oak's distinctive, screwed-down bezel. In actuality, so much of the dial is cut away that the bit of dial remaining seems almost superfluous. Visually however, it does seem to function well as a 'frame' to set off various components.

(Right) No. 1 Jules Audemars minute repeater from 1999 with tourbillon and split-seconds chronograph; (left) No.2 Jules Audemars large-size date display, minute repeater, tourbillon mechanism and perpetual calendar; (centre) No. 3 Edward Piguet hand-wound dynamograph with mainspring torque indicator, tourbillon mechanism, chronograph with central minute counter and 70-hour power-reserve.

Power trip

The first thing that you notice is the rather large tourbillon at 9 o'clock. With a cage diameter of 12.3 mm enclosing a two-armed balance wheel of 10 mm diameter, it is certainly larger than many of its compatriots in the market. It was deliberately designed to be as large as possible for good timekeeping, yet open and lightly structured for the eye. More and more scarce today is its escapement, which utilises a Breguet Philips overcoil, beating at 21,600 vph. Though not an absolute necessity for good timekeeping nowadays, the overcoil does allow for ideal contraction and relaxation of the balance spring.

A bit more unusual is the power reserve set-up. With an autonomy of 10 days, or 240 hours, this watch is already a member of a very exclusive group of tourbillons able to function on one wind for so long. When you consider the extra energy that a tourbillon consumes, this is no mean feat. But by avoiding the use of a differential in the power reserve set-up, more flexibility was available for exercising some new ideas.

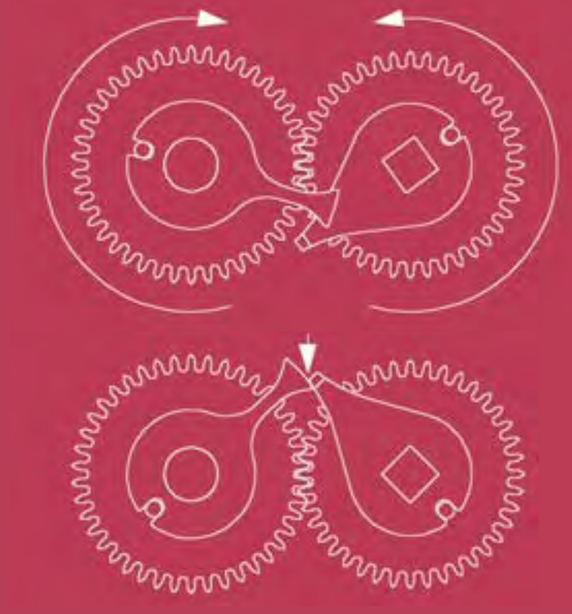
It is a simple fact that, when engaged, the chronograph will use up a lot of energy too, and for this reason Audemars Piguet wanted a better defined energy readout. The 10 days of power reserve are shown on a 120° scale around the lower edge of the dial. However, for reasons of visibility as well as accuracy, a finely adjusted indicator located at 4 o'clock shows the last 24 hours of energy within a small circular dial, with one day equalling one complete rotation of the hand. Supplying all this energy are twin barrels working in parallel. They mesh with the pinion of the centre wheel, thus mostly compensating for the loss of force linked to the friction of the pivot in the jewel. The large amount of stored energy must also be dealt with properly, in order to avoid damage to the mechanism. One issue to be addressed is the exact point of stopping when the barrels, visible at 12 and 6 o'clock, are fully wound. Due to the amount of force in the winding springs and the number of turns required, a classical stopping mechanism cannot be used here to avoid over-winding. The alternative is a very simple but effective system utilising two small 'fingers' mounted on the winding barrel located at 12 o'clock. Approximately 160 turns of the crown are required to make both barrels turn 20.75 times and reach their 10-day autonomy. Throughout the 20 turns, the two fingers pass over each other until turn 20.75, when they finally coincide, delicately blocking further winding and the possible transference of undue stress to other areas of the winding system.

(Background) In this line diagram, the over-winding limiting system is visible on the top barrel, with the two 'fingers' both currently positioned in a '5 o'clock' position.

Raising the bar

The chronograph itself uses a classical column-wheel system with an enlarged, semi-instantaneous minute counter located at 3 o'clock. Audemars Piguet made a conscious choice for this semi-instantaneous system because, in essence, it is more accurate than the instantaneous type, which can have a small delay of alignment when the sweep-seconds hand passes 12 o'clock. The most important improvements found in No. 4's chronograph system concern the chronograph lever and wheel. Both of these parts have been manufactured from titanium for lightness and stiffness, with careful additional calculations regarding the lever's centre of gravity and exact point of attachment to the movement. This was researched in order to reduce and eliminate jumping of the seconds hand when the chronograph is started.

It goes without saying that in addition to all these issues, the movement itself – comprising 332 parts with baseplate and bridges of ARCAP alloy – has been painstakingly finished with the attention befitting such a unique wristwatch. Undoubtedly, it will not be very long before some details or ideas from this chronograph (and the preceding cabinet pieces) eventually work their way into the ainstream models. Whatever the case may be, if this 'cabinet of exceptional timekeeping' continues to raise the bar as it has with every new instalment so far, we have much to look forward to for years to come.



Detail diagram of the over-winding limiting system. (Top) As the two barrels are wound, the 'fingers' pass over each other. (Bottom) Here, a maximum state of wind has been reached in both barrels, and the two fingers have finally coincided after 20.75 turns, jamming any further winding.

Front view of the No. 4's hand-wound calibre 2893, with the vertically arranged parallel-mounted double barrel system clearly visible.

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