

# The Grand Opening



Audemars Piguet reserves the Edward Piguet series for its rather special watches and the new Edward Piguet Large Date Tourbillon is no exception. The dial, with its radial engraving and sunken chapter ring has a large aperture in the lower half revealing a beautifully crafted tourbillon. More intriguingly, it is balanced above by an unusually large date display - what is likely to be the main draw for AP's more serious collectors. So just why is the oversized date such a source of fascination? *QP* reveals the secrets behind six surprisingly different solutions.

**Timothy Treffry**

The traditional date display in mechanical (and many quartz) watches uses a pierced disc, or annulus, with numbers 1 to 31 printed around its periphery. As the disc must be somewhat smaller in diameter than the dial of the watch, the numbers must be quite small and rather difficult to read at a glance; a problem classically ameliorated by Rolex with its rather ugly 'cyclops' lens in the crystal. In 1994 though, A Lange & Söhne amazed the world with its impossibly 'outsize date' display. It was first a feature of the

Lange 1 series, but proved particularly dramatic when used, at the same size, in the smaller 'Arkade' models for ladies. Now somewhat of a trademark for Lange, the Glashütte marque's display is in fact a worthy tie to the history of the factory, recalling one of the world's first 'digital' clocks, constructed in 1841 for the Dresden Semper Opera House by Ferdinand Adolph Lange's father-in-law - the Saxon court watchmaker Johann Gutkaes. The Lange date's twin-framed apertures echo the clock's hour and five-minute windows.

(Right) Boasting the "largest date display on the market", Audemars Piguet's brand-new Edward Piguet Large Date Tourbillon in pink gold (€118,710). Its new hand-wound calibre 2886 has a 78-hour power reserve, with the barrel making six turns instead of the usual four. This requires the use of a longer, thinner mainspring and results in a more even delivery of power to the gear train. The spring barrel also has a 'progressive recoil barrel click', which, rather mysteriously, AP claims enables 'fast winding'. What the recoil click actually does is to slightly relax its pressure on the barrel ratchet so that the spring coils are not pressed tightly together when fully wound. This reduces 'stiction' in the spring, which also contributes to an even release of energy.





A Lange & Söhne's trademark outside date display is used in the majority of the German marque's collections, no matter how small the watch. (Left to right) Saxonia (£14,300), Cabaret (£18,700) and ladies' Arkade (£12,800). These new models are being showcased in Dresden's Historic Green Vault - the repository of treasures accumulated by Augustus the Strong during the early 18th century, now being re-opened after a 60-year hiatus.

Of course, this represents Lange's unflagging technical innovation as much as its history: the date's proportions were achieved by a two-digit system where four arms of a cross labelled 'blank, 1, 2, 3' were superimposed on a disc showing the numbers '0' to '9'. The size of the disc had to be less than half the diameter of the dial, but nevertheless the date display was dramatically larger than hitherto possible.

### Complicating the matter

Other companies, previously content to ignore the problem, subsequently found alternative ways of producing a 'grande date' display using two-disc systems that were sufficiently different to avoid infringing the Lange patent. For the Edward Piguet Large Date Tourbillon, Audemars Piguet has produced its own system based on superimposed discs. The clever bit is that the lower disc, which is the limiting factor, has only nine digits, allowing each to be larger than the 10 digits distributed around the equivalent disc in the Lange system.

The upper disc has three gaps to allow the numerals on the lower disc to be displayed. The sequence on the upper disc is: '0 gap, 10, 1 gap, 20, 2 gap, 30, 31'. The initial digits on the upper disc have to be at a shorter radius than the '9' on the lower disc, but because there are only seven of them they can be the same size as those on the lower ring. The complexity, however, lies in getting each disc to turn the correct amount each night.

The Lange system is relatively straightforward; the lower disc moves by one unit every night with the upper disc moving every tenth night until the 31st when the upper disc moves but the lower is stationary, leaving the '1' in position until the next night, when the blank moves alongside for the 1st of the month. For the watchmakers at Audemars Piguet - or rather, those at its subsidiary, Renaud & Papi, which makes these special movements - the situation is somewhat more complicated. On most nights the lower disc alone moves, but on some nights the upper disc moves while the

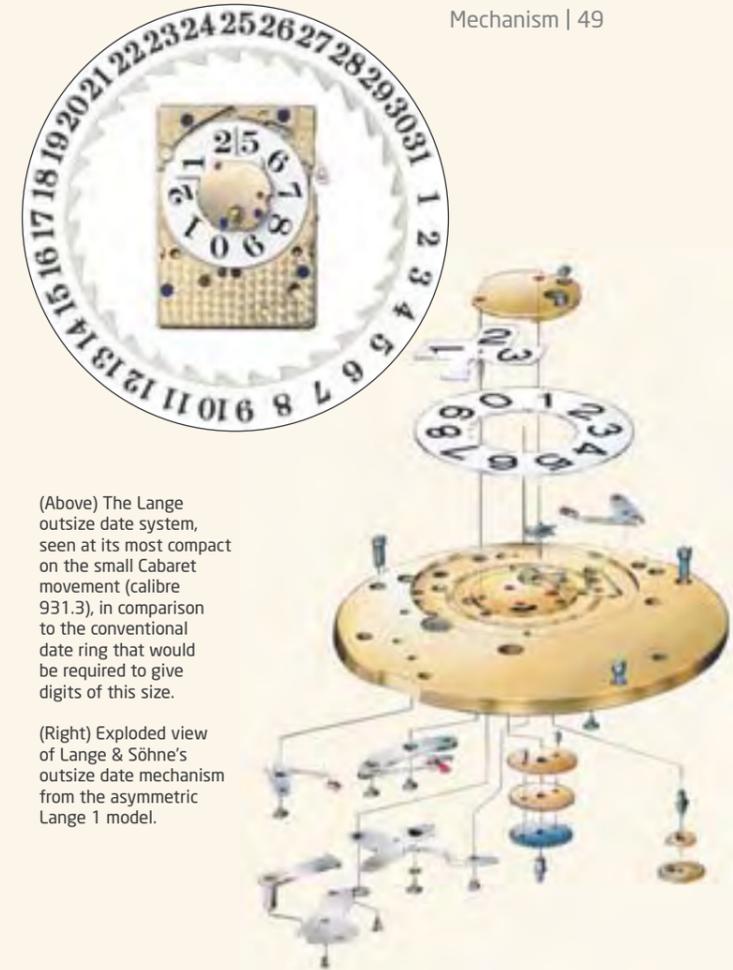
lower is stationary, and on others, both discs must move. Unfortunately, no images of the mechanism that achieves this have been made available.

In contrast, the simplest big date system is perhaps that introduced by Swatch Group's movement-maker ETA in 2002. The calibre 2896 uses two concentric, full-diameter rings to provide the digits. The outer ring has two sets of digits '0' to '9', and the inner ring has three sets of '0' to '3'. The repetition is to fill the periphery of the inner ring so that it does not have to turn a large amount every tenth day. The 'Panorama Date' mechanism by Glashütte Original, just down the street from Lange & Söhne, uses concentric discs in a similar way, but without repetition of the digits, as the discs are smaller and mounted on an acentric axis.

### How the Lange Outside Date Works



**1** Every 24 hours, the wheel of the hour hand drives the cam-switching wheel (blue), which moves the date mechanism on by a day. This movement is controlled by a jumper spring so the date disc leaps forward at midnight rather than turning continuously. **2** The toothed 'units' wheel (orange) rotates in 31 days. It drives a six-toothed cam, which moves the date every night. The 31-toothed disc is missing three teeth, skipping two days on the 31st, so the '1' unit remains for the 1st of the month. **3** The month wheel (orange) controlling the upper, cross-shaped 'units-of-ten' disc has three teeth to move it on the nights of the 9th, 19th and 29th and an extra tooth to move it on the 31st so that the 1 on the lower disc will appear next to the blank on the upper. **4** Combined, the units-of-ten cross and the units disc work in concert to show the correct date.



(Above) The Lange outside date system, seen at its most compact on the small Cabaret movement (calibre 931.3), in comparison to the conventional date ring that would be required to give digits of this size.

(Right) Exploded view of Lange & Söhne's outside date mechanism from the asymmetric Lange 1 model.



The dial side of the movement of the Edward Piguet Large Date Tourbillon shows the two superimposed discs. The upper disc has 10, 20, 30 and 31 as well as 0, 1 and 2 adjacent to notches which reveal the 9 digits on the lower disc as required. This arrangement allows the digits to be 12% larger than the Lange system.



(Top) Glashütte Original's Senator Karree perpetual calendar with moonphase in rose gold (£12,330). (Above left) Exploded view of Glashütte Original's 'Panorama Date' system, and (right) the date discs being fitted to the Senator perpetual calendar with moonphase. Unlike the similar 'concentric rings' system in the ETA 2896, Glashütte's discs' smaller diameter means only one set of units is required for each disc, rather than several.

### Cutting the edge

In all of these systems though, you can see the join. Except on the 10th, 20th, 30th and 31st with the Edward Piguet mechanism, the overlap between the two discs is visible for the whole month, and not exactly attractive. While this is not an issue for Lange, as the central window frame occludes the edge of the top disc (as much a signature for the brand as an aesthetic tool), there are solutions - most recently from ETA, who has even gained an increase in size as a result. The idea behind ETA's new large date movement (2826-2) is having two peripheral rings fully superimposed. The lower one has the numbers '1' to '16' and the upper disc has '17' to '31' plus a number-sized gap. Thus the lower disc turns for the first half of the month (visible through the gap in the upper disc), and for the remainder of the month the upper disc turns. This approach means that only 16 numbers (or 15 plus a gap) have to be fitted on each movement-sized ring, so they can be 20% larger than in the previous model.

Another elegant answer to the 'seamless discs' question (and QP's favourite) is a variant introduced by Girard-Perregaux in



(Above) The ETA 2896 self-winding calibre uses two large concentric discs for its grande date display. With 20 digits around the periphery instead of the usual 31 they can be a third larger. Three sets of units-of-ten and two sets of units are required to fill the rings' circumferences.

(Below) With digits 1.91 times larger than those of the popular 2824-2, ETA's new 2826-2 allows a logical date display in which the 1st automatically follows the 31st day and, moreover, double-digit dates appear without a gap. The system also offers extensive latitude in dial design; unlike other solutions, the big date's dial position is not fixed, so it can be arranged in many different ways to accommodate brand-typical layouts.



(Left) The first watch to accommodate Girard-Perregaux's grande date system in 2001 was the Vintage 1945 (pink-gold model featured; SFr.17,400).

(Above) The originality of G-P's grande date lies in the use of two overlapping discs, one of them transparent, so that both digits can be displayed with no separation line visible.

2001, originally for the Vintage 1945 range. Here, the upper disc showing the units is transparent. This provides a merged presentation of the two digits, as no disc edge is visible in the date window, with the lower units-of-ten disc just needing a double '0, 1, 2, 3' sequence. The only drawback is that the units cast a shadow onto the lower disc, and the transparent disc's slight opacity also makes the units of ten just a little faded.

This year, the same system has been combined with a new power reserve and continuous moonphase display in the sporty Laureato Evo3 Grande Date. If I could ever afford to buy this watch, or a Glashütte Panorama Date, or even the Edward Piguet Large Date Tourbillon for that matter, I would make just one simple request: that the zero is omitted from the units-of-ten disc. A watch is a personal thing and one would never write numbers below 10 with a preliminary zero!

### As good as it gets?

After telling the time, the date is about the most useful information a watch can provide. Most people, except presumably the buyers of skeletonised watches and those with exotic displays, want to be able to check the time at a glance. The development of displays using larger characters is a welcome extension of this facility in ascertaining the date. Thus far, such large date displays have only been available in luxury watches, but the new ETA movement should now make them available in mid-market watches. An added advantage of this system is its simplicity. The date disc simply moves a unit distance each night, with a changeover between discs just twice a month. It is perhaps a dangerous thing to say with the obvious thirst for change in the industry, but it is hard to see how this system could be bettered. ○

(Above) New this year, G-P's grande date system has now been used for the new Laureato Evo3 Grande Date (SFr.11,500), combined with a power reserve and moonphase display.