The Panerai Radiomir Titanio 42 MM has a smaller case made of titanium and a new manufacture *movement. We gave this classically styled divers' watch the* WatchTime *once-over.*

BY MARTINA RICHTER

PHOTOS BY ZUCKERFABRIK FOTODESIGN

Rebooting the Radiomir

Pros

+ *Manufacture* caliber with good finishing
+ Day/night legibility
+ Bold, classical design
+ User-friendly functions

Cons

– No stop-seconds function
– Mediocre rate results


12
RADIOMIR
PANERAI
3
6
L SWISS MADE L

Panerai's Radiomir watch was developed in 1936 as a prototype for underwater missions carried out by a special task-force of the Royal Italian Navy. The watch's name comes from the fluorescent substance that combines zinc sulfate, mesothorium and radium bromide.

Many of the attributes that distinguished the early Radiomir still characterize the watch today: the trademark pillow-shaped case, fluorescent numerals and markings, and the pair of distinctive bows — originally soldered, now screwed — to which the strap is affixed. Soon after its debut, Panerai added other details intended to improve the Radiomir's performance, like the well-known sandwich-style dial, which significantly betters the dial's luminosity, and the threaded, protective bridge over the crown. The Radiomir first achieved water-resistance to 200 meters in 1938, making it the world's first professional diver's watch and giving rise to a totally new type of timepiece. Not quite 10 years later, Panerai replaced the luminous but radioactive "Radiomir" material with the innovative "Lu-

Golden hands indicate the hours, minutes and seconds, whose indicators are reduced to the bare essentials.

When darkness falls, the Super-LumiNova on the dial's lower level shines through the apertures cut into its upper disc.

The crown's conical shape and the fluting around its sides make it very user-friendly.

THE WATCH DOESN'T REQUIRE DAILY WINDING, BUT ITS CONICAL, USER-FRIENDLY CROWN TEMPTS ITS OWNER TO USE IT EVERY DAY.

minor," a substance based on tritium. Panerai patented this invention in 1949 and later named another of its model lines after it.

The Radiomir Titanio tested here isn't a divers' watch in the standard or historical sense, but despite its smaller size — 42.1 mm from 6 to 12 o'clock, 45.8 mm across the screwed crown and 47.1 mm along the diagonals — and lightweight construction, it's still a robust instrument in the Panerai tradition. Its case is water-resistant to 100 meters despite being only 11.7 mm thick, which is uncommonly thin for a Panerai. This watch isn't really suitable for serious diving because it lacks several other essential features of a genuine diver's watch, but it's fine to leave it on your wrist when you take a dip. A 1.5-mm-thick crystal of curved, nonreflective sapphire in front contributes to the toughness of the case and to the legibility of the dial, and another sapphire crystal in the screwed caseback offers a clear view of the watch's movement, hand-wound *manufacture* Caliber P.999/1. Engravings on the caseback identify not only the brand's name and the depth to which it is water-resistant, but also the material from which its case is constructed: titanium. Compared to stainless steel, titanium is lighter in weight, more resistant to corrosion and less likely to cause allergic reactions.

The Radiomir's case has a distinctive shape. The four corners of the satin-finished middle piece slope gently downward from the dial and smoothly upward from the caseback to create a pillow-like form. The lateral silhouette forms an ellipse on all four sides, including on the two where the strap lugs join the

The sapphire caseback offers a clear view of the winding subassembly in Caliber P.999/1.

case. Each of the patented, bow-shaped lugs is anchored to the case by a pair of sturdy screws. This means that the watch does not have traditional spring bars; instead, each end of the strap is slipped over a removable metal bow.

All of the case's titanium parts are matte-finished, but the stainless-steel bezel puts a high-gloss ring around the dial, which is approximately 35 millimeters in diameter. The so-called "sandwich" dial, which consists of two levels, is another historic Panerai innovation. The lower disc is coated with luminous material. Above it, numerals and indices are cut out from a second disc, leaving apertures through which the underlying fluorescent material can shine.

THE RADIOMIR TITANIO, like the majority of Panerai's contemporary models, no longer uses either radium or tritium as its luminescent material. Instead, it uses the more common Super-LumiNova, a material based on alkaline earth metal aluminate pigments, which is not radioactive and not subject to the deterioration associated with a half-life period. The letter "L" at the right and left of the words "Swiss made" near the

SPECS

PANERAI RADIOMIR TITANIO 42 MM

Manufacturer: Officine Panerai, Route des Gouttes d'Or 40, CH-2000, Neuchâtel, Switzerland

Reference number: PAMS0338

Functions: Hours, minutes, small seconds

Movement: P.999/1, hand-wound; 21,600 vph; 19 jewels; Glucydur balance; Nivarox flat hairspring; Incabloc shock absorber; fine adjustment via index; diameter = 27.4 mm; height = 3.0 mm; decorated with circular graining, sunburst patterns, satin-finishing and partly beveled edges; power reserve = 60 hours

Case: Titanium with stainless steel bezel and curved, nonreflective sapphire crystal; water-resistant to 100 meters

Strap and clasp: Alligator leather with pronged buckle in stainless steel

Rate results (deviations in seconds per day, when fully wound/after 24 hours):

Dial up:	+13.2	+16.5
Dial down:	+10.2	+16.2
Crown up:	+15.2	+15.1
Crown down:	+13.1	+7.9
Crown left:	+7.3	+7.8
Greatest deviation of rate:	7.9	8.7
Average deviation:	11.8	12.7
Mean amplitude:		
Flat positions:	300°	286°
Hanging positions:	268°	251°

Dimensions: Diameter = 42.1 mm; thickness = 11.7 mm; weight = 70 grams

Variations: Rose gold ($17,000); stainless steel ($7,200)

Price: $7,900

"6" signifies the presence of Super-LumiNova on the dial's lower disc. Super-LumiNova pigments, as many watch aficionados know, do not shine as brightly as radium or tritium, but their lack of radiation is considered by most to be an advantage. Furthermore, the fluorescence of the type used in the Radiomir is extraordinarily long-lived: even at the break of dawn, after the watch has been in darkness for several hours, there is still enough luminosity to read the dial in the dim light. Of course, the light shining up from the luminous surface on the dial's lower level is augmented by that of the Super-LumiNova inlays on all three rose-gold hands — the elongated, rectangular hour and minute hands with their triangular tips and the teardrop-shaped small seconds hand on the subdial at 9 o'clock.

The tip of the seconds hand runs past a wreath of apertures cut into the dial's upper disk at 15-second intervals (15, 30, 45 and 60 seconds), which are visible in the dark thanks to the light cast by the Super-LumiNova on the lower disc. The little rectangular window at the "45 seconds" mark on the subdial is separated from the larger index at 9 o'clock on the main dial by a small area of black; together they appear the same length as all the other hour indices. This is a very subtle and satisfying detail that reasserts the tasteful self-consistency of the Italian design. But the Radiomir's dial isn't only impressive in the dark. The seconds subdial has eight off-white-colored strokes at five-second intervals between the luminescent 15-second apertures. In daylight, the combination of rectangular windows and applied strokes makes for an attractive seconds circle; in low light, the strokes disappear, leaving only the quartet of luminous indices at the "four corners" of the subdial, which is rather small, but nonetheless large enough to easily read the seconds. Reading the time with to-the-second accuracy isn't possible here, however, because the individual seconds aren't marked between the five-second strokes.

Nine bold indices and the distinctive Arabic numerals 3, 6 and 12 combine to form the Radiomir's hour circle. The tip of the hour hand remains properly aloof from the hour circle, but the minute hand could have been a tad longer so that its tip extended all the way to the outer ends of the indices. Although the lengths of the hands, as well as the luminous coatings, seem somewhat randomly chosen, the arrangement of hands is by no means poorly balanced. The seconds hand deserves special praise: its tip is precisely tangent with the outer ends of the applied five-second markings. All of the markings, whether they're applied atop the dial or shine through it from below, contrast very well with the black upper disk. The thick, curved crystal also enhances legibility.

Panerai's logo adorns the easy-to-grip screwed crown.

THE DESIGN OF THE new Radiomir Titanio is inspired by the first timepiece that Panerai manufactured for the Italian navy in 1938, although neither the historical model nor the prototype had a small seconds subdial. This addition is a feature of Caliber P.999/1, a modified version of the P.999, introduced by Panerai in 2010, a relatively simple movement inspired by the very first Panerai caliber.

The screw balance uses an index to finely adjust the rate.

The pillow-like shape of the Radiomir's case makes it look larger than its actual size of 42 mm.

A SINGLE BARREL WITH A STRONG MAINSPRING GIVES THIS WATCH A POWER RESERVE OF 60 HOURS.

Among other details, the difference between the two calibers lies in the mechanism for finely adjusting the movement's rate. The P.999 uses a swan's neck; the P.999/1, which is somewhat simpler, uses an index. The latter is produced in a limited series of 500 serially numbered pieces. There is a significant height difference of 0.4 millimeters between the two versions. The P.999/1, which is only three millimeters thick, is Panerai's slimmest caliber. Its dimensions are in stark contrast to other, bulkier Panerai calibers, like the OP XI, based on an ETA/Unitas 6497-2, which had previously powered the Radiomir and which was 4.5 millimeters thick. The diameter of the P.999/1 is also modest: 27.4 millimeters, compared to 36.6 mm for the OP XI.

The P.999/1 was expressly created for the comparatively compact proportions of the Radiomir's 42-mm case. It consists of 144 components (the P.999 has 154), including 19 jewels, and its balance completes 21,600 semi-oscillations each hour, meaning it "breathes" at a rate of three hertz.

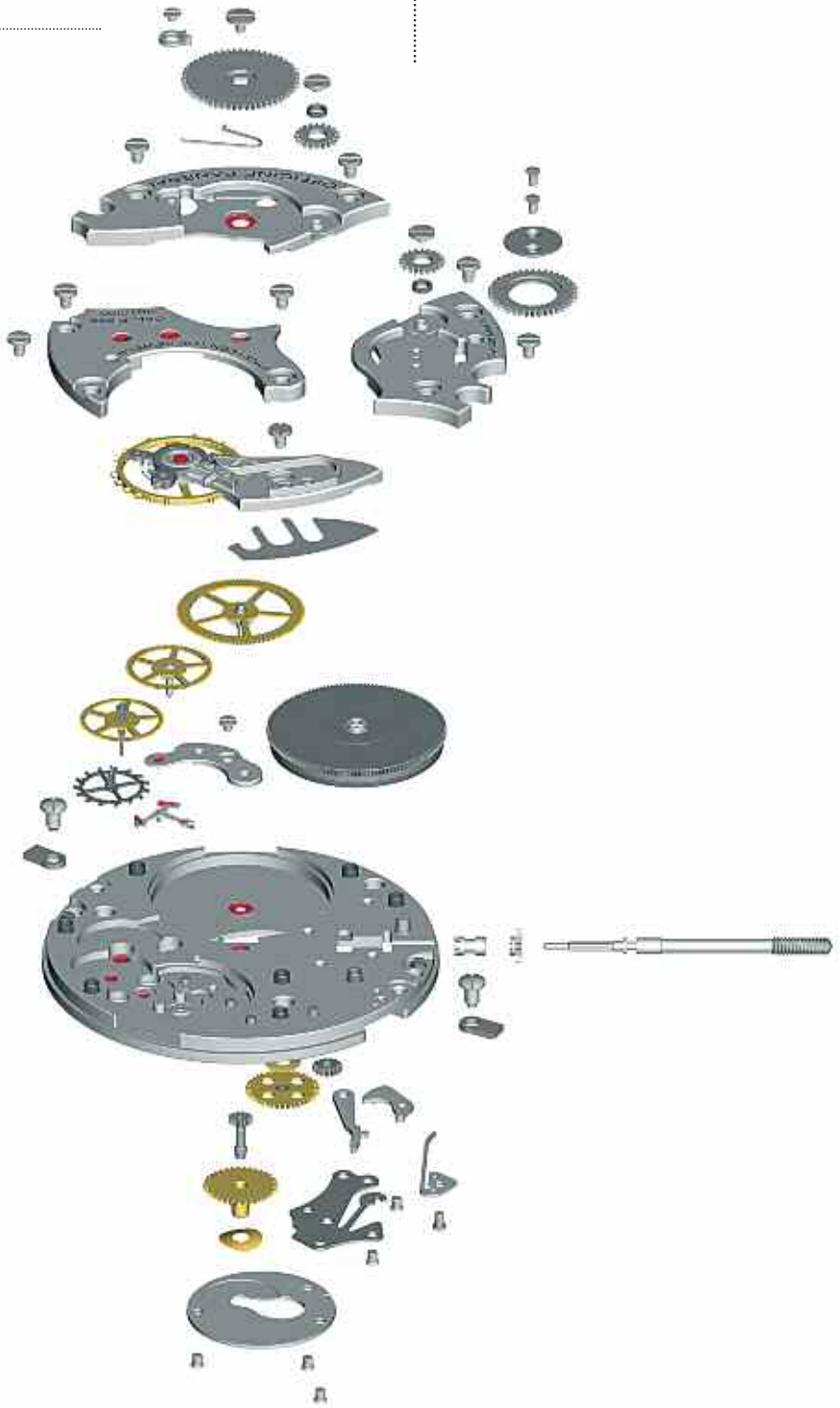
A single barrel with a strong mainspring gives the watch a 60-hour power reserve. This is worth mentioning, because many Panerai calibers are equipped with several barrels. The architecture of this movement is also different from the P.2002 or the recently introduced P.3000. The barrel, gear train and even the escapement of these other calibers are hidden beneath large, stable bridges, but the P.999/1 is more "open." For example, the entire winding subassembly, including the barrel, is easily visible. The balance oscillates beneath a cock rather than under a bridge. The old maxim, "You can't have your cake and eat it too" is true here: you can have big bridges that cover everything, or you can have a slimmer movement, but you can't have both. Despite this architecture, both the P.999 and P.999/1 have Panerai's typically high-tech look, characterized by the unusual shapes of the bridges and the balance cock, embellished with satin-finishing or sunburst patterns, and a bit of circular graining in the depths of the movement.

The caliber's undisputed eye-catcher is its screw balance, which unfortunately cannot be stopped to enable to-the-second time setting. This lack of a stop-seconds mechanism deserves some criticism, as do the rate results, which suggest that Panerai's standards are a bit more lax than those of, say, the Swiss chronometer-testing authority COSC. Panerai permits Caliber P.999/1 to deviate between –5 and +7 seconds per day when fully wound and between –7 and +9 seconds per day after the movement has been running for 24 hours. An additional three

In Panerai's trademark "sandwich" design, two piggybacked discs combine to produce one highly legible dial.

THE RADIOMIR TITANIO IS INSPIRED BY THE FIRST TIMEPIECE THAT PANERAI MANUFACTURED FOR THE ITALIAN NAVY IN 1938.

CALIBER P.999/1 WAS EXPRESSLY CREATED FOR THE COMPARATIVELY COMPACT PROPORTIONS OF THE RADIOMIR'S 42-MM CASE.



This watch's movement, Caliber P.999/1, is a modified version of the P.999, a slender movement Panerai launched in 2010.

seconds of wiggle room are added at both ends of the span after the caliber is inside the watch.

The rate behavior of our review watch remained more or less within this ballpark, although Panerai stresses that it is a pre-series model. On the timing machine, it gained an average of 11.8 seconds per day when fully wound. The gain increased by an additional second after we had left it running for 24 hours, which means that it slightly exceeded the tolerance limits specified by its manufacturer. On the wrist, the watch tended to run faster as the tension in its mainspring declined. The daily gain increased to 18 or 19 seconds after we had allowed the watch to run for more than 24 hours. The gain decreases to between 10 and 14 seconds per day if the watch is wound daily, and the average daily rate comes close to the values calculated by our timing machine. The rate results suggest that the watch's relatively high average daily rate occurs in the principal positions, "dial up," "dial down" and "crown up." In daily use, a wristwatch most frequently finds itself in the "dial up" and "crown down" positions. These are the positions in which the Radiomir spent much of the day, and the same ones in which it tended to gain most severely — and this accounts for the average daily gain of +12.8 seconds on the wrist.

MANUALLY WINDING a mechanical watch is a special ritual. The Radiomir Titanio doesn't require daily winding, but its beautiful, conical and uncommonly user-friendly screwed crown tempts its owner to use it every day. Counterclockwise torque unlocks the threaded crown. After overcoming slight resistance, the crown jumps into the position required for manual winding, and an unmistakable crackle announces that it is now in position for setting the hands. But let the winder beware: this process can sometimes cause the minute hand to jump backward a few minutes, leaving you wondering the next day why your watch lost so much time. Re-screwing the crown requires just a bit of pressure, accompanied by the sounds of the manual winding mechanism. But fear not: the teeth on the gears of the

The military-style leather strap has a simple pronged buckle.

winding mechanism won't crumble, even if the crunching makes it sound as though they are.

Having wound the spring, we strapped the Radiomir Titanio around our wrist. In the process, our attention was drawn to the new, simple, stainless-steel pronged buckle: it's styled to harmonize with the screwed bows to which the strap is attached. The broad, hand-sewn alligator-skin strap is not only comfortable on the wrist but does justice to the Radiomir's military origins and sporty character. ○