UNDER THE SEA

The story of the world's most popular dive watch

BY GISBERT L. BRUNNER

The Submariner Ref. 6204 was created in 1953. In 2009 a similar watch sold at Antiquorum for SF30,000 (then about $26,000).

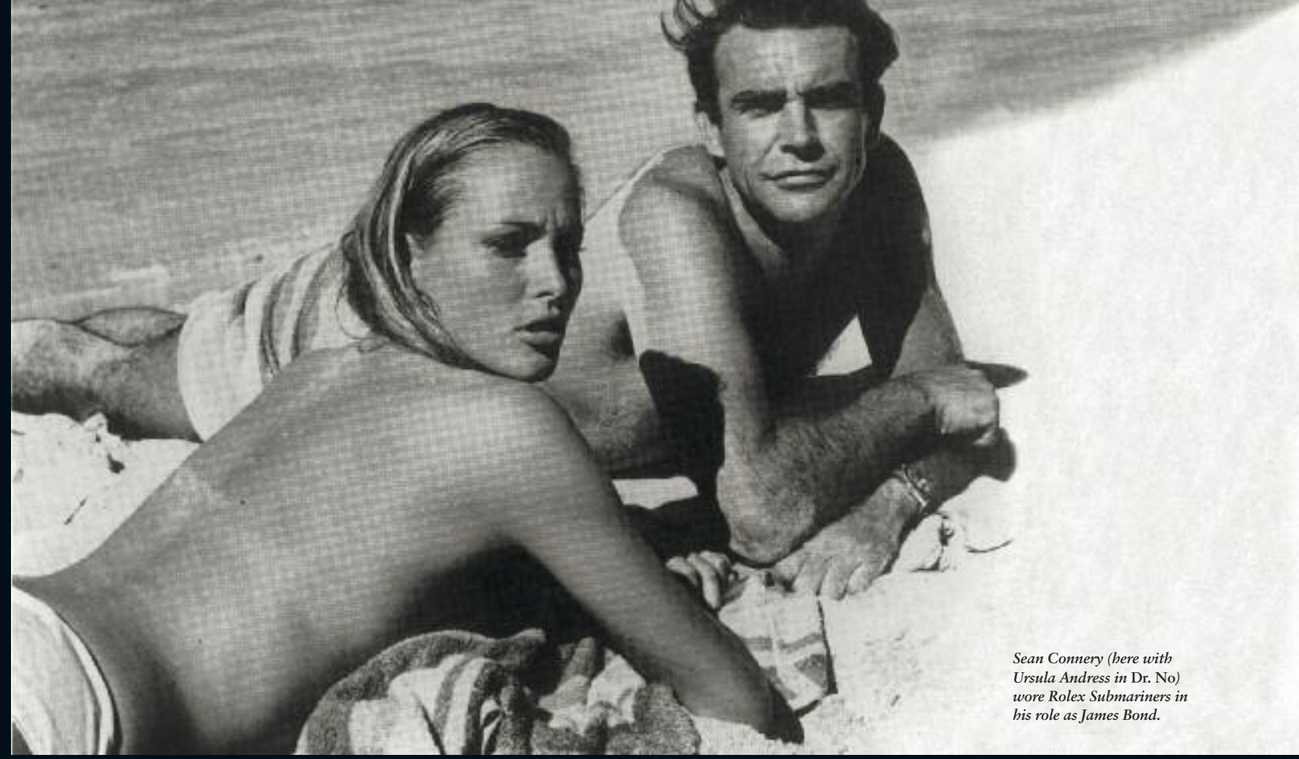
A "James Bond" Rolex: this Ref. 6536 from 1959 sold for SF4,840 (roughly $3,800 at the time) at Antiquorum in 2006.

The story of the Submariner, launched in 1953, really begins in 1926, when Rolex introduced its now-famous water-resistant Oyster case. Thanks largely to its threaded back and screw-down crown, the case provided a degree of impermeability no watch company had achieved before. The Oyster became even more resistant to water and dirt in the early 1930s, when Rolex began incorporating its new, self-winding rotor mechanism. (Rolex dubbed its self-winding watches "Perpetual.") Not having to wind the watch manually meant that the crown needed to be unscrewed only occasionally for setting. Rolex had discovered with its first manual-wind Oyster watches that failing to screw the crown down after winding rendered the supposedly water-resistant watch vulnerable to water and dust entering the case through the crown hole.

As the 1930s progressed, Rolex began to develop watches made specifically for use under water. (The early Oyster and Oyster Perpetual were not thought of as watches for swimming; the point of their impermeable cases was to protect the movement from dirt and accidental exposure to moisture.) The Rolex catalog from 1935 shows a 47-mm wristwatch, Ref. 2533, which has a cushion-shaped Oyster case and a pocketwatch manual-wind movement from Lépine, with a small-seconds display at 9 o'clock. At the time, though, the watch was simply too large for prevailing tastes, and was not a commercial success.

But it was a harbinger of a now well-known dive-watch collaboration that paired Rolex with the Italian company Panerai, which at the time supplied underwater equipment to the Italian Navy. In the mid-1930s, the Navy asked Panerai to supply it with dive watches. Because Panerai had no watchmaking capacity of its own, it turned to Rolex, which sent it watches with Oyster cases and movements made from ébauches from the Swiss watch-and-movement maker Cortébert. Panerai delivered its first dive-watch prototype to the Italian Navy in 1936, and the company continued to use Rolex-supplied movements into the 1950s. The partnership with Panerai gave Rolex important experience in the manufacturing of dive watches.

IN THE EARLY 1950s, Rolex decided to make its own bona fide dive watch. The idea came from a Rolex director and marketing executive named René-Paul Jeanneret, who was a diving enthusiast and friend of Jacques-Yves Cousteau. Thanks to his hobby, Jeanneret was aware of the technical and design requirements for a dive watch. He persuaded Hans Wilsdorf, who half a century after founding Rolex was still at the company's helm, to initiate a professional divers'-watch project.



Sean Connery (here with Ursula Andress in Dr. No*) wore Rolex Submariners in his role as James Bond.*

In 1953, Rolex made a spectacular move. That September, Swiss scientist Auguste Piccard, in the submersible vessel Bathyscaphe FNRS-2, descended an amazing 3,131.8 meters into the ocean. Wilsdorf, a marketing genius, had seen to it that a specially developed Rolex, equipped with a strikingly luminous dial and prominent Rolex logo, was affixed to the vessel's hull. When the submarine rose out of the water, the timepiece emerged unaffected by the dive and was ticking normally.

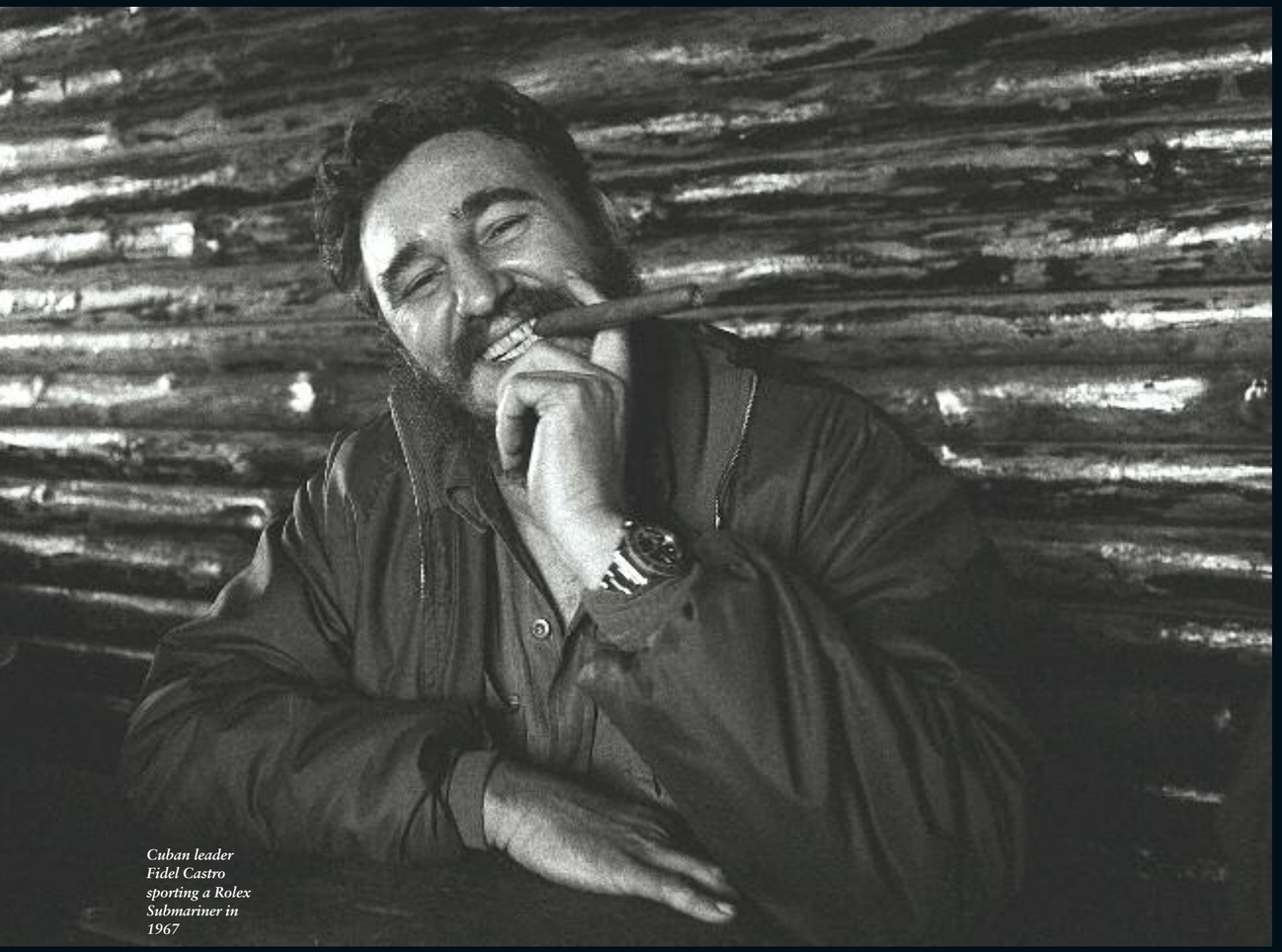
That same year, Rolex introduced the first Submariner. It was water resistant to 100 meters, but Rolex soon increased these specs to 180 meters. The watch had a matte, black dial, large luminous markers and luminous hands for the hours, minutes and seconds. It also had a knurled rotating bezel with clear markings in five-minute increments and an arrow-shaped zero marker with a luminous dot pointing toward the center. Rolex described it as "The Diver's Friend."

The earliest Submariners did not have the white Submariner name on their dials. It appeared only at the end of 1954. Nor did they have the signature crown guard — the two "shoulders" on the right side of the case.

In collectors' circles some early Submariner models are known as "James Bonds." And for good reason: in the first four James Bond films, Agent 007 wore Rolex watches, as he did in the novels by Ian Fleming. The watches bore the reference numbers 6200, 6538 and 5510.

The submarine Trieste and the Rolex Deep Sea Special prototype reached the deepest point in the ocean in 1960.

By the time it hit the market, the Submariner had passed rigorous field tests. The Institute for Deep Sea Research in Cannes issued a report on Oct. 26, 1953, on the five months of tests it had conducted with the watch, consisting of 132 dives in depths of 12 to 60 meters. The statement from the laboratory read as follows: "Despite the extremely high salt content of the Mediterranean waters, and the tropical temperature and humidity to which the watch was exposed between the individual dives, it showed no corrosion at all.... Likewise, no moisture was detected within the watch. All other previous tests with water-resistant watches from top brands showed water penetration from the first moment of the dive, indicated by the condensation that formed on the inner surface of the crystal. The watch was worn multiple times during dives with an extended crown (i.e., the crown was pulled out to the position for setting the hands). To conclude these tests, the watch was attached to a thin cord and dropped to a depth of 120 meters — twice as deep as 60 meters, the maximum depth achievable with self-contained compressed air equipment. No leaks were detected even after a one-hour period at this depth."



Cuban leader Fidel Castro sporting a Rolex Submariner in 1967

Rolex had consulted a number of experts while developing the watch. Jeanneret offered many ideas for the outer design of the case, dial and rotating bezel (which at that time still turned in both directions) for underwater reading of the remaining time of the dive.

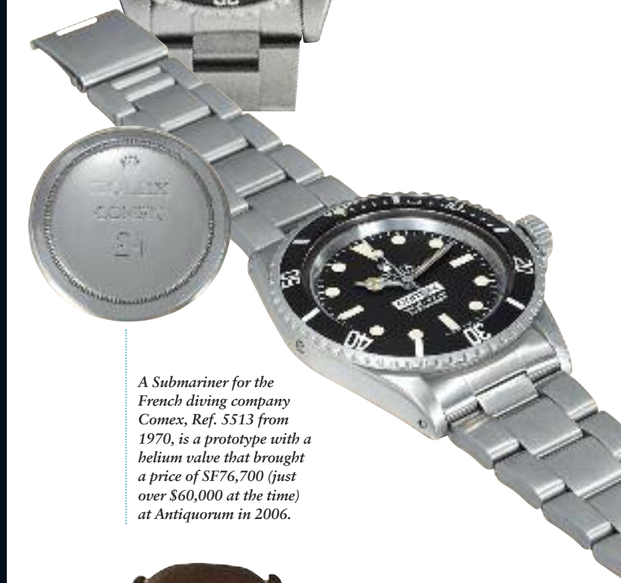
In 1959, the first Submariner with a crown guard (Ref. 5512) was introduced. The crown guard gave the watch the distinctive shape we now associate with the Submariner.

The launch coincided with another impressive Rolex diving feat. On Jan. 23, 1960, the submarine Trieste, with its 2-meter-wide pressure sphere, big enough to hold two people, descended for the 65th time into the depths — this time with the goal of reaching the Challenger Deep in the Mariana Trench, the deepest point in the ocean. Inside the pressure sphere were Piccard's son, Jacques Piccard, and the American Marine lieutenant Dan Walsh. Outside the sphere was a very special Rolex prototype, a watch, with Oyster case, designed to withstand the pressure of the 10,916-meter descent, which exerted a pressure on the vessel of about 1,125 kg/cm. The idea, of course, was to prove that the Oyster case could survive the ordeal.

Excitement was great when the sphere resurfaced after its triumphant dive. How would the watch look? Would the hands still show the correct time? Just as with the 1953 Bathyscaphe dive, the Rolex emerged unscathed. It looked and ran exactly as it had above the water.

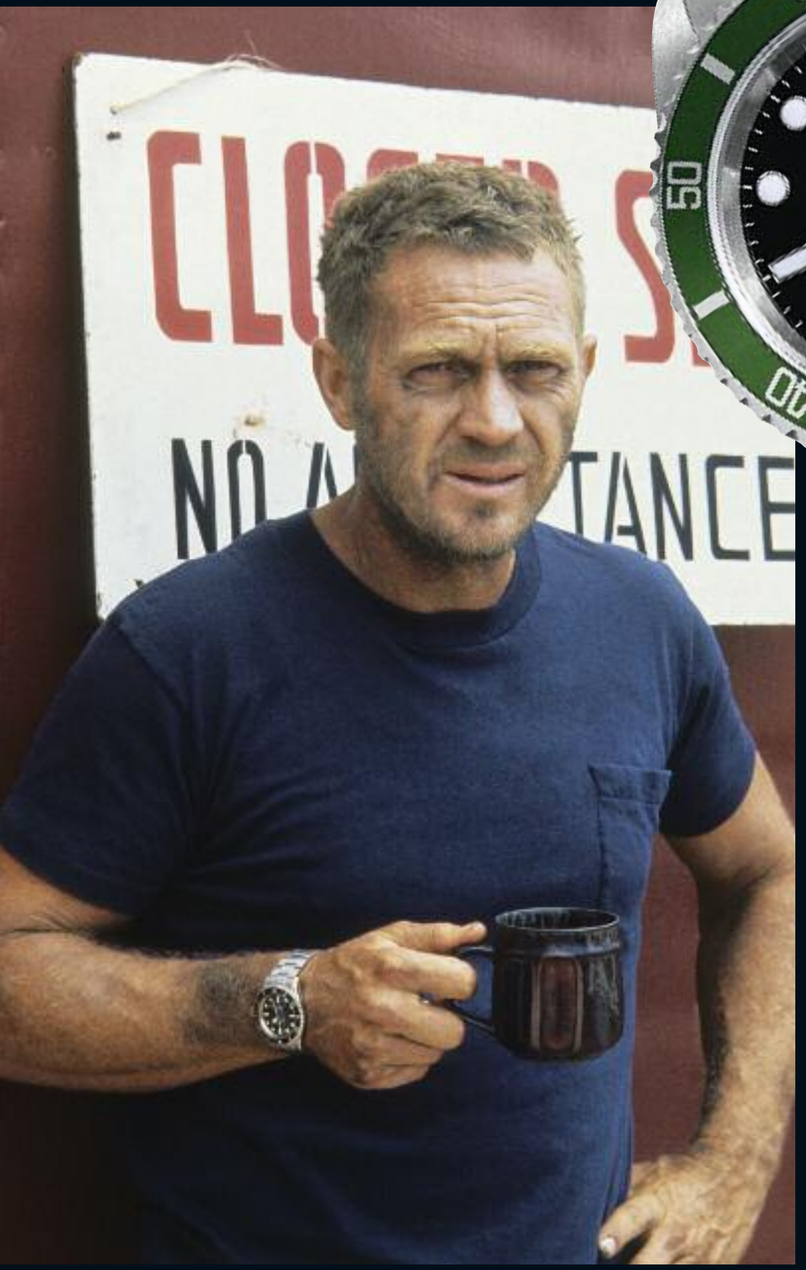
WHEN THE SUBMARINER KEPT TICKING AFTER AN OCEAN DESCENT OF 3,132 METERS ON THE HULL OF THE BATHYSCAPHE, ROLEX DUBBED THE WATCH "THE DIVER'S FRIEND."

This 1970 "Red Sub," with red lettering, was sold in 2006 by Antiquorum for SF20,060 (then nearly $16,000).



A Submariner for the French diving company Comex, Ref. 5513 from 1970, is a prototype with a helium valve that brought a price of SF76,700 (just over $60,000 at the time) at Antiquorum in 2006.

This Submariner model with a brown dial, known as the "Tropical" dial, Ref. 5513 from 1967, was auctioned by Antiquorum in 2001 for SF15,000 (then about $8,800).



Steve McQueen wearing a Submariner during the filming of Papillon *in 1973*

This 2002 Submariner Ref. 16610LV with green bezel, which marked the Submariner's 50th anniversary, was sold by Antiquorum in 2010 for SF5,750 (then about $5,400).

Later that decade, Rolex introduced a new dive-watch feature. It was designed to solve a problem that had emerged as a result of the introduction into professional diving of breathing gases that blended oxygen and helium. These gases enabled divers to descend deeper than before. But divers who wore their watches in decompression chambers filled with the new gas mixture often faced a rude surprise. Helium molecules penetrated the watch crystals and seals and entered the watch cases, and when the pressure in the chamber was reduced during decompression, the helium gas that had built up inside the watch was unable to escape quickly enough, so the watch crystal popped off the watch like a Champagne cork.

Among the divers using these new gas mixtures were those employed by the French firm Compagnie Maritime d'Expertise (Comex). Comex worked with Rolex to find a solution to the popping-crystal dilemma and in 1967 Rolex patented a valve that allowed the dangerous buildup of gas to escape easily. At first Rolex used the valve in standard Submariner models (Ref. 5513). A modified version was produced in Geneva solely for Comex. It bore the Comex name on the dial and a special identification number on the back. The second signed Comex series was given its own unique reference number, 5514.

In 1966 Rolex developed the Sea-Dweller, at first marketed as a particularly water-resistant version of the Submariner. (It is now a separate collection.) The first Sea-Dweller (Ref. 1665) was water-resistant to 600 meters. In 1978, Rolex introduced the new Ref. 16600 with a sapphire crystal and an improved helium valve. (These days, Sea-Dweller models have helium-release valves; Submariners don't.) This watch withstood depths to 1,220 meters. The 1665 existed for several more years, but after 1981, the company produced only the heftiest version of the Sea-Dweller, the 16600.

It was not until 1981 that the Submariner was equipped with a unidirectional bezel. It took so long because starting in 1952, Blancpain held a patent for a ratcheting rotating bezel, which it used on its Fifty Fathoms watch. This kept Rolex and other watch companies from using the bezel.

In 2008 Rolex brought out its Sea-Dweller Deepsea, which withstands water pressure to a very impressive 3,900 meters thanks to a new case design that incorporates what Rolex calls a "Ringlock System." It consists of an interior support ring, a 5-mm-thick domed sapphire crystal and a titanium caseback. It's a far cry from the Oyster case of 1926, but in its unprecedented impermeability, a direct descendant. ○

The Sub Through the Years

The history of the Submariner is one of gradual evolution. The following table lists a half-century of Submariner models and their distinguishing features.

YEAR	REF.	FEATURES
1955	6538	Formerly Ref. 6204 with Cal. 1030 developed in 1950,
	6536	Formerly Ref. 6205 with Cal. 1030 developed in 1950, both now have a slightly larger crown.
	6536/1	Chronometer version of Ref. 6536 with Cal. 1030
	6538	Great Britain selects the Submariner for the Royal Navy.
1956		New hand design; luminous dot on second hand is shifted toward center. Rotating bezel gets minute scale for first quarter hour.
	6538A	The 6538 has the same thick case as Ref. 6200.
	6536	Red zero-point triangle on rotating bezel
	6538	Royal Canadian Navy selects the Submariner. Military versions have ID and service numbers on the caseback, otherwise they are like standard models.
1958	5510	Formerly Ref. 6200 with Cal. 1530 introduced in 1957
	5508	6536/1 with Cal. 1530; zeros on the bezel are more angular.
1959	5512	Crown guard, case diameter is now 40 mm (was 36 mm); "Superlative Chronometer, Officially Certified" is printed on dial.
	6538	"Superlative Chronometer, Officially Certified" is printed on dial.
1962	5513	Altered crown guard, with Cal. 1530
1963	5513	Equipped with Cal. 1520, introduced that year
1966	1680	Date display; Plexiglas with Cyclops lens; red "Submariner" writing on dial (until 1973); new Cal. 1575
1969	16618	Submariner introduced in gold.
1979	16800	Submariner gets a sapphire crystal. Water resistance increases to 300 meters.
1981	16800	Submariner gets a unidirectional bezel so unintentional turns make
	16618	the diving time only shorter, never longer; with Cal. 3085, introduced in 1981.
1983	16613	Submariner also available in "Rolesor," a combination of steel and gold.
1988	16610	Submariner with Cal. 3135
2003	16610LV	Anniversary model with green bezel

The Climber's Timer

We test the latest version of Rolex's classic Explorer, originally made for a Mount Everest expedition, now with a larger case and new caliber.

BY JENS KOCH

PHOTOS BY NIK SCHÖLZEL

Pros

+ Classic design
+ Outstanding workmanship
+ Well-constructed *manufacture* movement

Cons

– No date display
– Hands are too short

The 1950s were a decade of adventure. Mankind strived to conquer nature, to descend to the depths of the ocean's trenches and to climb to the peaks of the world's tallest mountains. The first mountaineers reached the summit of Annapurna, more than 26,000 feet above sea level, in 1950. Edmund Hillary climbed Mount Everest, the world's tallest peak, in 1953. Seven years later, the bathyscaph Trieste descended to the planet's deepest point: the bottom of the Marianas Trench, more than 35,000 feet below sea level. It should come as no surprise, then, that the decade also saw the debut of two Rolex watches tailored to adventurous pursuits: the Submariner divers' watch and the Explorer expedition watch, both in 1953.

The first Explorer watches were provided as tools for the successful Everest expedition of May 1953. Rolex released a modified version of the Explorer later that year, with a black dial and painted-on luminous indices and numerals, which made it more legible under all lighting conditions. This model was designed to live up to the promise implicit in its name, by satisfying all the requirements of expeditions and other adventures. The Explorer underwent more improvements over the years (see "The Evolution of the Explorer" sidebar) and, beginning with the 1989 model, it was also designed to be more luxurious. Its indices and numerals have been made of gold since then, although there is still luminous material inlaid into the indices.

The latest version of the Explorer, launched last year, has a bigger case: 39 millimeters, versus the previous model's 36 millimeters. It also has a new type of shock absorber, along with an in-house, Parachrom hairspring and a new Oysterlock folding clasp.

Caliber 3132 is based on the well-known Caliber 3130, but has Rolex's own shock-absorption system and hairspring.

SPECS

ROLEX OYSTER PERPETUAL EXPLORER

Manufacturer: Montres Rolex SA, Rue François-Dussaud 3–7, CH-1211 Geneva, Switzerland

Reference number: 214270

Functions: Hours, minutes, seconds, stop-seconds function

Movement: *Manufacture* Caliber 3132, automatic; diameter = 28,5 mm; height = 5.37 mm; 28,800 vph; 31 jewels, Paraflex shock absorption; Parachrom hairspring with Breguet terminal curve; Glucydur balance with Microstella regulating screws; 48-hour power reserve

Case: 904L stainless steel, fully threaded screw-down back, flat sapphire crystal, screwed Twinlock crown, water-resistant to 100 meters

Bracelet and clasp: 904L stainless steel, Oyster band and Oysterlock safety clasp with Easylink extender

Rate results:
(Deviations in seconds per 24 hours)

Dial up	+7
Dial down	+6
Crown up	+5
Crown down	0
Crown left	+4
Crown right	0
Greatest deviation of rate.	7
Average deviation:	3.7
Mean amplitude:	
Flat positions	296°
Hanging positions	263°

Dimensions: Diameter = 39 mm; height = 11 mm; weight = 126 g

Price: $5,725

THE EXPLORER IS THE FIRST STEEL WATCH IN WHICH ROLEX DEPLOYED ITS OWN SHOCK-ABSORPTION SYSTEM. KNOWN AS "PARAFLEX," THE DEVICE ABSORBS SHOCKS MORE EFFECTIVELY AND SIMPLIFIES THE ASSEMBLY PROCESS.

The watch's new size is just right: the dial's proportions look good in the enlarged case. But the narrow and somewhat short hands don't quite fit into the otherwise pretty picture. The minute hand is especially problematic: the one on the previous Explorer extends all the way to the minute circle, but the tip of this one falls quite a long way from it. However, except for this flaw, the design is excellent and the watch's classic look is easily recognizable.

With gently curving lugs and a broad bezel, the case looks as though it had been poured into a mold and hardened into a single unit. All surfaces, with the sole exception of the upper side of the bracelet, are polished. As with nearly all Rolex watches, the flat, sapphire crystal rises above the plane of the bezel, but its perimeter is bevelled to deflect the force of a blow. Rolex's crown-shaped logo is laser-etched into the crystal at the "6" as proof of the watch's authenticity. Additional anti-counterfeiting details include the letters of the name "Rolex" engraved into the metal flange around the dial, the Rolex logo at 12 o'clock and a serial number at 6 o'clock.

The crystal has no nonreflective treatment, which would have improved the legibility, but the rhodium-plated and slightly curved gold hands (with a Mercedes-logo-like circle on the hour hand) clearly contrast with the matte black dial. The rectangular indices for the hours are filled with luminous material, and a large luminous triangle at 12 o'clock provides orientation for reading the time in the dark, although the rhodium-plated digits 3, 6 and 9 have no luminous coating. The rhodium-plated numerals on the previous model were filled with white, non-luminescent paint, giving the dial a more harmonious appearance and improving its legi-

(Photos: The Worshipful Company of Clockmakers' Collection, UK/The Bridgeman Art Library)

When Edmund Hillary became the first man to climb to the summit of Mount Everest, was he wearing this Smiths De Luxe or this Rolex Reference 6098?

Mount Everest Mystery

On May 29, 1953, Edmund Hillary and the Sherpa Tenzing Norgay became the first human beings to set foot atop the summit of Mount Everest, the world's tallest peak, which rises 29,000 feet above sea level. Opinions differ about which wristwatches they wore on this historic occasion. Rolex probably equipped the expedition's Western mountaineers (but not its Sherpas) with the Oyster Perpetual, References 6098 and 6150. Antiquorum recently auctioned one of these expedition watches in Geneva for the incredible sum of 145,300 Swiss francs. But Smiths, an English brand, also claimed in its post-ascent advertising that its watch had reached the summit together with Hillary, who later gave his Smiths watch to the Clockmakers' Museum in London, where it is on display as the watch that was worn on the first successful ascent to the peak of Mount Everest. To date, nowhere in the Rolex literature is there mention of the fact that the Beyer Watch Museum in Zurich claims that its Rolex Reference 6098, with pale dial, was supposedly worn by Hillary on the first climb to the top of the world. Is this a contradiction? Or did Hillary wear both watches? Norgay is also believed to have worn a Rolex, which the Swiss mountaineer Raymond Lambert had given to him as a gift. This particular watch is rumored to be in Rolex's possession today. The firm — with its characteristic discretion — neither confirms nor denies this.

bility in low light. The hands and indices of the new model gleam brightly in the dark, thanks in part to the new Chromalight luminous substance, which debuted on the Sea-Dweller Deepsea and is now also used on the Explorer. Unlike on that watch, however, it glows in the traditional, pale green hue rather than a blue one. The luminosity lasts a very long time: the dial remains easy to read even after 11 hours in total darkness.

THE NEW EXPLORER is very user-friendly. The crown is easy to unscrew and has only two positions: one for winding; the other for setting the time. A stop-seconds mechanism stops the balance, immobilizing the hands for easy to-the-second setting. The line under the Rolex "crown" logo on the winding crown marks it as the Twinlock type, which helps make the watch water-resistant to a depth of 100 meters.

The Explorer's Oysterlock safety folding clasp is distinguished by its ease of operation. A gentle tug with a fingernail opens the protective bow; a second tug on the front part of the clasp triggers a lever mechanism to unlock it. The Easylink lengthening system is very practical, too: concealed inside the clasp is one half of a link, which can be pivoted out without changing the appearance of the bracelet. This five-millimeter extension can be a welcome addition when your wrist expands after a workout or in hot weather.

Top-quality craftsmanship is also evident in the bracelet. Like the clasp, it has a completely satin-finished upper surface and polished flanks, which ensure that it perfectly matches the case. However, compared to the big 39-mm-diameter case, the bracelet tapers to a rather narrow width at the point where it joins its clasp.

The improvements aren't confined to the watch's exterior. Its movement, Rolex Caliber 3132, is well protected under a fully threaded screw-down back. This movement differs from Caliber 3130, which powered the previous Explorer, because of its Parachrom hairspring and Paraflex shock absorbers. It's based on the familiar Caliber 3135 with date display, which powers the Submariner and the Datejust. These Rolex *manufacture* calibers are regarded as the best automatic movements on the market, a distinction they've earned thanks to their structure, which is designed for robustness, longevity and very precise fine adjustment. A

The bezel is elegantly polished, as are the flanks of the case and bracelet; the upper sides have a satin finish.

SCORES

ROLEX OYSTER PERPETUAL EXPLORER

Bracelet and clasp (Maximum: 10 points): Beautifully crafted steel bracelet with easy-to-operate, massive folding clasp and extending mechanism. 9

Operation (5): Thanks to the stop-seconds function, the time can be set quickly, simply and precisely via the crown, which is convenient to unscrew and easy to grasp. 5

Case (10): The well-made steel case has neatly polished and satin-finished surfaces. 9

Design (15): Except for the unduly short hands, this is a successful enlargement of the classic design, which epitomizes sporty elegance. 13

Legibility (5): Only the reflective crystal above the dial detracts somewhat from the good legibility of the high-contrast hands and large indices; the legibility is also good at night. 5

Wearing comfort (10): Nothing pokes or scratches uncomfortably; the wearing comfort is unusually good for a watch with a steel bracelet. 10

Movement (20): The construction, which is built for robustness and precision, is quite solid, and the decorations are nice. Rolex has further improved the hairspring and the shock absorption. 18

Rate results (10): The rate is decent, but one has a right to expect even better performance from a Rolex. 8

Overall value (15): The price of $5,725 is justified. 13

TOTAL: 90 points

The Evolution of the Explorer

The "Pre-Explorer" (References 6098 and 6150) debuted in 1953 with Caliber A296 and a black dial, Arabic numerals for the 3, 6 and 9, and hands with Mercedes-logo adornments. The Explorer insignia first appeared later that year, on the dial of the successor References 6298 and 6350, but pale dials were also used. Reference 6610 premiered in 1959: it contained Caliber 1030, which enabled Rolex to use a flatter back. These early Explorer models used gold as the color for the hands and minute circle. Reference 6610 was replaced in 1963 by Reference 1016, which contained Caliber 1560; the water-resistance was increased from 50 to 100 meters. This reference remained in production for a quarter of a century. Starting in 1975, it was equipped with Caliber 1570, which gave it a stop-seconds function, and massive links were used in its bracelet. The Explorer underwent major revisions in 1989: Reference 14270 had a different case, a crystal made of sapphire, applied white-gold indices with luminous material, and Caliber 3000 ticking inside its case. Reference 114270, with massive lugs and containing Caliber 3130, replaced this model in 2001. This reference was later given a crown-shaped logo lasered into the glass and a flange with the word "Rolex" engraved all around it. In 1971, Rolex's Explorer II model joined the traditional Explorer: it had an additional 24-hour display and was later given an hour hand that could be reset in hourly increments.

The Explorer insignia first appeared on the dial of Reference 6350 (above), which came out in 1953; Antiquorum sold this one for $6,600 in 2009.

Ref. 6150, the so-called "Pre-Explorer" (above) debuted in 1953; Antiquorum sold this model for $10,200 in 2010.

Ref.1016 (right), was in production for 25 years; Antiquorum sold this piece for $4,320 in 2010.

sturdy balance bridge replaces a conventional cantilevered balance cock. Two knurled screws are used to adjust the balance's vertical clearance. The hairspring's Breguet terminal curve contributes to the watch's precision in all situations, as does Rolex's decision to eliminate an index in favor of Microstella nuts along the balance's hoop. Red anodized reverser gears minimize friction in the self-winding device.

The Parachrom hairspring is made of a blue niobium-zircon alloy and is immune to the influence of magnetic fields. It is also claimed to be 10 times less susceptible to vibrations than a conventional hairspring.

THE PARAFLEX SHOCK-ABSORPTION SYSTEM (another Rolex invention) provides improved protection against sharp blows. This is the first time that Rolex has installed the system in a steel watch. The Paraflex mechanism had previously been used only in the Cellini Prince and the Day-Date II, both of which are available only in precious-metal cases. In the Paraflex system, the spring that returns the upper bearing jewel to its original position is symmetrical and smooth on both its faces so that it can be inserted on both sides, which makes the assembly process much easier. The spring is also less likely to jump out of its anchorage when a strong blow strikes the watch. Its shape, which extends over the center of the balance staff, makes it less yielding, which improves its ability to resist deformation. Furthermore, the spring bears two markings: one for the maximum oil level and one for the minimum. The Paraflex system is another example of Rolex striving to take what's already good and make it even better.

The practical folding clasp has a bracelet extender and bears Rolex's crown-shaped logo.

The movement's construction is solid and its decorations are impressive, despite the fact that the case has no viewing window in its back. Rolex's standard piercings adorn the rotor, and the self-winding bridge sports a sunburst pattern. Other bridges are embellished with circular graining, a pattern that resembles tiny clouds. All bridges and plates are coated with a layer of rhodium and their edges are bevelled and polished. The polished heads of the screws look particularly handsome.

Rolex is renowned for its precision, and the watch we tested did not disappoint in this area. It gained three seconds per day when tested on the wrist. The values measured on the timing machine (a Witschi Chronoscope X1) were similar. Averaging the values in all positions resulted in a daily gain of 3.7 seconds. However, the amplitude declined noticeably in the hanging positions. The greatest deviation among the various positions was seven seconds, which slightly exceeds the maximum allowable for chronometers. In fairness, however, we must disclose that we tested this watch in each position for only a half hour on the timing machine (not for 24 hours, as the COSC chronometer-testing authority does), and used that measured deviation to calculate the assumed variance over 24 hours. In any case, the results indicate that you should not need to bring this timepiece to a watchmaker for fine adjustment.

Considering all the improvements Rolex made to the new Explorer, it's not surprising to learn that it costs a bit more than its predecessor. It sells for $5,725, whereas the previous model was $5,150. Overall, the cost seems reasonable for a vastly updated watch that can ascend to the peak of a mountain and still look good peeking out from a shirt cuff under a business suit. ○

The month is shown by a window next to the corresponding numeral (here, "IIII" for April).

Mastering the Sky-Dweller

Rolex unveiled its first new complication in years at the 2012 Basel-world watch fair.

In the past half-century, since it launched its GMT Master, Rolex has brought out just one new complication: the Yacht-Master II, in 2007, which has a countdown yacht timer.

This year it's launching another, the **Sky-Dweller**, equipped with both a second time zone and an annual calendar (a calendar that automatically differentiates between months of 30 days and 31 days, and need be adjusted just once per year, at the end of February). Thanks to its innovative movement, and the fact that Rolex launches so few complications, the Sky-Dweller was one of the most talked-about watches at Baselworld.

It contains an entirely new caliber, 9001, which Rolex makes in house. The second time zone is indicated by an off-center, rotating 24-hour disk. Local time, indicated by the center-mounted hands, can be adjusted quickly when you change time zones by setting the hour hand forward or backward in one-hour increments. The minutes, seconds, and second-time-zone indicators are not affected during this operation.

The rose-gold version has an alligator strap.

The calendar mechanism, which changes instantaneously, is relatively simple, Rolex says: the company has added just two gear ratios and four gear wheels to its existing instantaneous date calendar. As Rolex explains it, "The mechanism is designed around a fixed planetary gear wheel at the center of the movement. A satellite wheel engages with the planetary wheel and rotates, orbiting the planetary wheel in one month, driven by the date disk. The satellite wheel is fitted with four fingers for the four 30-day months (April, June, September and November).

"The gear ratio between the satellite wheel and the planetary wheel is calculated in such a way that at the end of each 30-day month – and only in these months – one of the satellite's fingers receives an additional impulse from the date-change mechanism. This makes the calendar disk jump two days (from the 30th to the first) within a few milliseconds to display the correct date." Rolex has dubbed the mechanism "Saros," a Greek word that refers to the approximately 18-year cycle that can be used to predict when eclipses will occur. Rolex chose the name because it brings to mind the revolutions of the Earth and moon, which are like the motion of the satellite wheel (the Earth) with its four fingers (the moon).

The calendar has an unusual month display. The hour numerals correspond to the 12 months of the year. Next to each numeral is a window. The window for the current month (e.g., "IIII" for April) is black; the other 11 windows are white. (On the brown-dial model, the correct month is indicated by a white window for better contrast.)

To set the watch, you use both the bezel and the crown. First you rotate the bezel to one of three positions to select which of three functions – date, local time or home (24-hour) time – you want to set. Then, using the crown, you set the function, going either forward or backward. Rolex says, "The heart of the mechanism is a double cam and levers that engage various gear trains inside the movement according to the function selected. One of these cams is activated by pulling out the winding crown; the other is driven by rotating the bezel [Rolex calls it a "Ring Command Bezel"] to activate setting wheels located in the middle case of the watch."

Caliber 9001, which has bi-directional winding is, like all Rolex calibers, certified by COSC. It has a stop- seconds function and a power reserve of 72 hours. The movement has 380 components and is protected by seven patents, four of them new.

The case is 42 mm in diameter and water resistant to 100 meters. It comes in white, yellow or rose gold. The white- and yellow-gold models have Oyster-style bracelets; the rose-gold version has a leather strap. U.S. prices were not available at press time.

— *NORMA BUCHANAN*