



Within the French Air Force, the Mirage F1 is a dying breed. In the last two years two squadrons have disbanded, and a third will follow in late 2010. Fortunately, the fourth and last squadron will remain operational for at least another five years. **Gert Kromhout** reports on the last squadron operating this French classic.

**Above:** Nestling in behind the boom of a USAF KC-135R from the 100th Air Refuelling Wing, this Mirage F1, along with other examples from Reims, recently participated in the NATO exercise Brilliant Ardent in April. USAF/STAFF SGT AUSTIN M MAY

**Right:** A formation of two F1CRs in the markings of ER 1/33 and ER 2/33. Although the aircraft wear different markings they serve within the pool of available aircraft at Reims. During training flights it may be a case of both aircraft being flown by pilots from the same squadron. ALL PHOTOS AUTHOR, UNLESS STATED





# Finale



**T**HE MIRAGE F1 is known for its beautiful lines. It doesn't matter from which angle you look at it, it just looks good. Nevertheless, it is not very popular with student pilots. This becomes obvious from the choice young aviators give at the end of their advanced training on the Alphajet. The F1 is their last choice. The Rafale and Mirage 2000 are not only a lot sexier, but the chance of qualifying as a fighter pilot in these two types also is considerable greater simply because the F1 is a difficult jet to master.

The F1 design dates from the 1970s. At that time, there were no computers to ease the pilot's workload in the cockpit. Although the French aircraft has had updates over the years, mission planning and flying is still 'old school'.

So, in the navigation room of Escadron de Reconnaissance (EC) 2/33 'Savoie', you are under the illusion that you're back in time. The pilots plan and draw their flight route the old-fashioned way, on paper maps spread over large tables. After completing their charts, they digitize their ground track so that the aircraft navigation system knows where the pilot wants to go and at what time. In the Mirage F1CR, they can follow their routes on a rolling map display in the cockpit. Yes, it is old-fashioned, time consuming and impractical, but it is also a great learning experience.

#### Going the Distance

The replacement process is slow but steadily advancing, although the speed of retiring is much higher than replacing, despite the fact that the last of the F1s leaves the French Air Force (FAF) only in 2014. In all fairness, it should be noted that the FAF is simultaneously running a major downsizing and restructuring program. In fact, before the last F1 squadron disbands, squadrons flying much newer Mirage 2000s have already disappeared.

In July 2008, the FAF EC 1/30 'Alsace' at Colmar-Meyenheim, followed by EC 2/30 'Normandy-Niemen' in July 2009. Around half of the 25 F1Bs and CTs of 2/30 found their way to storage at Chateaudun air base. Both the recce squadrons at Reims, until then flying ▶



## F1 Finale

*Mirage F1CR 642/'112-CG' holds station for the benefit of the camera. The aircraft carries the standard load of two external fuel tanks under the wings, and on this occasion a large practice bomb dispenser on the centreline pylon.*

*Below: The small dimensions of the cockpit are clearly apparent in this view. The pilot sits on a Martin-Baker F10M zero-zero ejection seat. The in-flight refuelling probe is offset to the starboard, and canted to the right to minimise its intrusion into the pilot's field of view. The probe is streamlined to minimise aerodynamic drag.*

*Afghanistan mission markings on a Mirage F1CR.*

## SCUD HUNTING

ON JANUARY 15, 1991, when the French government realised that its last minute diplomatic efforts were not going to convince Saddam Hussein to withdraw his forces from Kuwait, ground and air components were placed under Central Command (CENTCOM). However, with the pro-Iraqi Defence Minister still yielding some influence in Paris, CENTCOM was notified that French forces were not to be used inside Iraq (a restriction that was soon lifted).

Although grounded for the first few days of the war, to avoid possible mis-identification of Iraqi Mirages, dual-role French Air Force F1CRs eventually saw action on January 26, when they joined Jaguars on bombing missions over Kuwait and southern Iraq. From February 5, Mirage F1s were again used in the reconnaissance role as the Scud hunt diverted an excessive share of limited USAF tactical reconnaissance assets. Missions were flown by in pairs of aircraft to ensure completion even if the primary aircraft was forced to abort or suffered equipment failure. Whether operating in the strike or reconnaissance roles, the F1s and the Systeme de Navigation d'Attaque et de Reconnaissance, or Strike and Reconnaissance System, performed well and reliably.

Other contributions made by the F1s during the war included dissimilar aircraft combat training; furnishing detailed information and specifications on French-supplied equipment of the Iraq forces and assessment of Iraq pilots' training and capabilities.

By the end of Desert Storm, Mirage F1Cs had flown 150 sorties, while F1CRs had completed 114 combat missions. AFM - GLENN SANDS

solely with the F1CR, received eight CTs (a few others are in flyable storage at Chateaudun Air Base). Moreover, EC 2/33 also received five Mirage F1B trainers (another three are in flyable storage). With the closure of Colmar as an air force base, Reims became the last base equipped with the F1. So 'Savoie' is a unique squadron. It flies with three different types and is tasked with four missions. It is primarily a recce squadron. Its second mission is ground attack, the third air defence and the fourth, since the disbandment of 2/30, pilot training. Sister squadron EC 1/33 'Belfort', also based at Reims, only flies the F1CR and CT and performs the same missions except for training. Actually, both squadrons use each other's aircraft since the FAF adopted a new structure a couple of years ago in which the maintenance departments were pulled from the flying squadrons and



*Taken with the Omera 33 reconnaissance camera system, this view is of the southern region of Helmand. Although in black and white, the intelligence analysts prefer this to colour images. EC 2/33 'SAVOIE', VIA AUTHOR.*



*Like most aircraft of its generation, the Mirage F1 is of all-metal construction, with no significant use of advanced alloys or composites. The fuselage is of a conventional semi-monocoque construction. The wings have two main spars and four auxiliary spars.*





The Mirage F1CT force will be maintained with eight aircraft at Reims, with a few more kept in flyable storage at Chateaudun. Though flying with ER 2/33, this CT 233/112-QT still wears the insignia of GC 2/30 'Normandy Niemen' markings as well as codes in late October 2009.

put into a separate unit, in this case this unit is Escadron de Soutien Technique Aéronautique (ESTA) 2E-033.

Prior to the closure of Colmar, Reims had a shortage of spare parts, but since the disbandment of EC 2/30 they have plenty. However, there is a severe shortage of technicians to maintain these jets and this is a major problem at Reims. These shortages are caused by the restructuring programme and the upcoming closure of the air base. The FAF wants its work force to be reduced by 25 percent within two years.

### Rece Operations

In 1983, the CR entered service as the replacement for the Mirage IIIR. These CR-airframes are the youngest of the fleet. It can employ four different reconnaissance systems at low and medium levels and also collect electronic intelligence (ELINT).

Omera 33 and 40 internal cameras have been used in the F1 since it entered service. The 40 is for panoramic photography at altitudes as low as 200ft (60m). For operations from 5,000ft (1,520m) to medium altitudes the 33 is used. Both use the same compartment in the nose of the aircraft and cannot be used simultaneously.

The Presto (Pod REcognition Stand-Off) is a pod equipped with a long-range camera (610mm, black and white or colour photography) that was

developed from lessons learned during operations over the former Yugoslavia in the late 1990s. The fourth system is the ASTAC pod for collecting ELINT.

Both the FAF and Navy will soon receive a new rece system but according to Lieutenant Colonel Pierre Real, squadron commander of EC 2/33, the F1CR will never fly with this Reco NG (nouvelle generation) pod. "Because the F1CR will be withdrawn from service in 2014, the FAF considers it not economic to certify this pod for the old jet. Although the Mirage 2000D performed the bulk of the test flights, it will only be ▶



Lieutenant Colonel Pierre Real, commanding officer of EC 2/33 'Savoie'.



An F1CR 647/112-CB departs Kandahar airport for a close-air support mission. Mounted under the centerline station is a Paveway IV laser-guided bomb. (ETZEL DE VRIES)





**Above:** In an effort to protect the aircraft from the variable European climate, the Mirages are kept in open-ended shelters during the week. Here a student pilot climbs into the cockpit of her F1B, while the instructor conducts the final walk-around checks. **Right:** As the end of another flying day draws to a close, an F1CR pilot is seconds away from touchdown, after which will follow a lengthy debrief on how the practice sortie went.



used under the Rafale, firstly under naval Rafale Ms. EC 1/7 at StDizier will get it as the first air force unit while a yet to be established Rafale unit at Mont de Marsan will be next."

### The CT

The F1CT airframe (Chasse-Tactique, Tactical Fighter) is older than that of the CR, and was developed as ground attack aircraft in the early Nineties from redundant F1C-200s. Dassault delivered this air defence variant to the FAF between 1977 and 1983, but it was succeeded by the Mirage 2000 during the late 1980s and early 1990s.

### Epervier

Since 1986 the FAF has had a strong presence in Chad. Currently, it has four Mirages stationed at n'Djamena for Operation Epervier. Initially, this operation was established as a reaction to a conflict between Chad and Libya. This conflict was resolved in 1988 but France did not end its commitment to Epervier. The location of n'Djamena in Africa is of great strategic importance and France has significant interests in the region.

According to Lt Col Real, recce is the main mission in Chad: "We regularly fly over troubled areas in the south and east. During the EUFOR (European Force) mission, we often flew for EUFOR but since that operation has finished, we fly exclusively for France. Naturally, the government of Chad also uses the reconnaissance efforts. It very seldom

happens that the jets are used for combat though. Even in 2008, when rebels in the north moved up the offer by France to provide support was declined. Chad did not need it. The last time F1s saw combat was briefly in 2007."

Currently, they monitor refugees and troop movements. The missions in Darfur last three to five hours on average and are always supported by tankers. Real: "Chad is a first-rate learning opportunity for young pilots who just completed conversion training," says Real. "Because these operations are much less taxing than Afghanistan ops. Operation Epervier is totally French. The communication is much easier and the tasking is lighter."

The future of the Epervier fighter force is uncertain. Real does not know if the CR/CT will be in theatre until his squadron is de-activated in 2014/15. "The Rafale can do a lot of things but the Rafale squadrons will possibly be too busy. We have several other options. We can maintain some CRs until they run out of airframe hours. We can also send Mirage 2000Cs. However, UAVs are also a possibility and, personally, I think they can eventually take over this job."

Though the Mirage F1 is old, it is still employed in Afghanistan. The current detachment is the second for the F1CR squadrons, the first being in 2007. All FAF activity in Afghanistan falls under the responsibility of Operation Serpenteaire.

From May 2009 until the summer of 2010, three F1CRs will serve at Kandahar Air Field together with three Mirage 2000Ds in support of IFOR. In this theatre too, they perform recce and ground attack although the latter much more frequently occurs says Real. "For recce we primarily use Omera 33 and the Presto pod, for close-air support the GBU-12 and 30mm canon."

The F1CR is certified for the GBU-12 since the late 1990s, but it needs another platform such as the Mirage 2000D to guide the weapon, it is a substantial communication intensive cooperation because the F1CR does not even have a laser spot finder, let alone a designator. The pilot's only aid



**Above:** In a clean configuration, devoid of pylons and stores, the Mirage F1 is one of the sleekest looking aircraft currently flying. This F1CT 236/ '30-QR' pauses for the camera prior to taxiing out for a training sortie.

**Below:** The sturdy undercarriage of the Mirage F1 is a result of the exceptionally large shock absorbers located at the rear of each leg, allowing for operation from semi-prepared strips. All three undercarriage units carry twin wheels.







**Above:** Despite the gradual winding down of F1 operations, at least one F1B received anniversary markings in 2008 to celebrate the 67th anniversary of Groupe 'Alsace' and its traditions. The spectacular colour scheme remained on the jet long after the celebrations.

**Below:** Mirage F1Bs are also used for training foreign pilots such as those of the Moroccan Air Force.



is goggles with a magnification factor of ten. In other words, the pilots need to be 'talked on' to their target before they can employ their weapons. That's the old way to do Close Air Support. "Nevertheless, we do fine," Real emphasizes. "Nearly all the pilots are veterans from operations in Chad. Before they go to Afghanistan, they complete an intense two-week training exercise with the 2000D. This exercise, called, Serpentex, is conducted at Solenzara Air Base on Corsica."

Another F1CR limitation is the lack of night-vision goggle (NVG) capability forcing the pilots to fly almost exclusively in daylight. However, the lack of laser targeting equipment and NVG capability are not the only deficiencies in Afghanistan. The altitude and heat at Kandahar present limitations to the take-off weight. It's not a problem in the winter but in the high temperatures of the rest of the year, the F1 is forced to take-off with a lighter weapon and fuel load. Says Real: "The ATAR engine is old, while the thrust-to-weight ratio of the F1CR is not that impressive. When it is hot, we take off with less fuel, or we take only one bomb instead of two."

The CR did get a few small modifications. "We now make use of a small computer that enables us to take digitized maps. In addition, we received the EVA system which is a moving map projected on to the radar display but we are also trying to get the Improved Data Modem so that we can reduce our communications." The F1CR detachment is comprised of five pilots that fly two sorties every three

days. These sorties last around four hours on average.


The detachment was due to finish in June. About the same time, EC 1/33 will be disbanded. "With one squadron, it will be very difficult to man Kandahar and Chad simultaneously," says Real. "And that is a challenge because the French efforts will be maintained. We only have two Rafale squadrons, of which one is permanently assigned for strategic duties while the other is partly a training unit. Yes, we do have three Mirage

2000D squadrons but this type does not have a gun and that is really a very important weapon in Afghanistan. With strafing, we have a much smaller chance of collateral damage than with a bomb. It is also the preferred weapon when the enemy is very close to our own troops. Furthermore, the Mirage 2000D is used permanently in Djibouti." (See Exercise Report: Djibouti Junction, May, p46)

### The Future

After the disbandment of 1/33 this summer, 2/33 will start preparing the move to Mont de Marsan. Lt Col Real will not be there anymore as he is due to leave the squadron for another assignment. Actually, the two squadrons merge but EC 2/33 'Savoie' will not change its designation, nor will it retire the Mirage F1CT and B. It will also not change its complement of thirty operational pilots and eight instructor pilots. The instructors are needed to train new French pilots as well as foreign F1 pilots such as those of the Moroccan Air Force.

What will change is the composition of the escadrilles, and with that the unit emblems on the tails. EC 2/33 will adopt the traditions of escadrille Sal 33 'Hache d'A.Bordage' from EC 1/33. The other emblems of 1/33, *Le Petit Prince*, named after the book of the famous writer and World War Two pilot Antoine de Saint-Exupéry, and the Leopard of Br 244 *Léopard* will disappear. Nevertheless, EC 2/33 will lose one too. Escadrille C53 'Drapeau' has to make room for the axe of 'Sal 33'.

Although the final retirement from French service is set for 2014, the F1CR has plenty of airframe life remaining. "Both types can linger on beyond 2014," says Real. "The CT has probably another four to five years left but the CR is much younger and could easily fly until 2025." 



With a weather-beaten 317 US gal (1,200lit) drop tank mounted under its port wing, this F1CR undergoes some routine maintenance during a break in the day's flying schedule.



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