

THE HISTORY BEHIND THE MODELS

DASSAULT'S MIRAGE JET FIGHTERS

By E. L. Motley



Ask an aviation buff what he considers to be the best jet fighters of the era from 1945-1975 and chances are he will say (in no particular order), the F-86 Sabre, the Hawker Hunter, the MiG-21 and the Mirage. By “Mirage,” he will probably mean the Dassault Mirage III which proved so devastating in Israeli hands during the 1967 Six Day War. However, the Mirage III was actually only one of a family of Mirage fighters and bombers serving France and many other nations from the early 1960’s to today.

Until the recent Kinetic, Hobby Boss and Eduard offerings, 1/48 scale Mirage kits have not been plentiful. There have been a number of 1/72 Mirage models over the years from Airfix, Heller, Revell and others. Until recently, 1/48 scale builders have been limited to some dreadful kits in 1/50 scale from Heller and Fujimi and also the 1980’s era ESCI/Italeri offerings (Mirages III, 5, F1 and 2000) now out of production. Monogram released a 1/48 Mirage 2000 long ago, but it’s really a model of the second prototype. There is also a 1970’s vintage 1/32 Revell Mirage IIIE that turns up sometimes at vendors’ tables and swap meets. Like their Soviet rival, the MiG-21, the Mirage group of aircraft has never been abundantly kitted.

The Mirage’s history started in 1945 France with a frail and sickly concentration camp survivor, Marcel Dassault, drawing up airplane designs while his fellow Frenchmen celebrated their country’s liberation. Born into the family of a prominent Paris physician in 1892, Marcel Bloch (as he was known in those days) was one



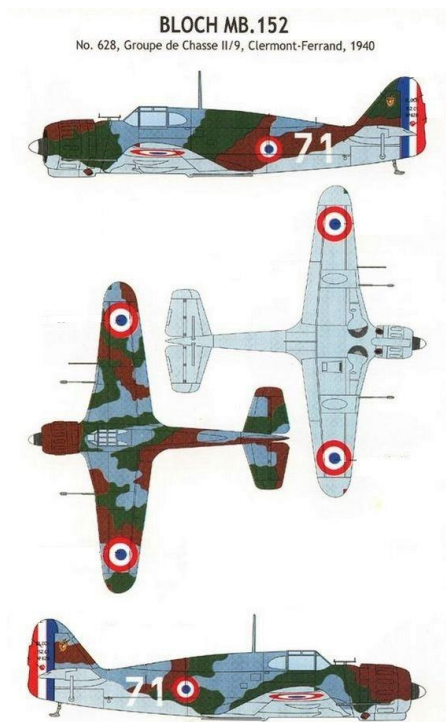
of the first in France to earn a diploma in aeronautical engineering. As a World War I corporal in the French air service's technical office, he used his fiancée's father's furniture shop to design and produce a more aerodynamic wooden propeller. In 1918, Bloch and his friend Henry Potez designed a two-seat reconnaissance biplane, the SEA-4. However, the war ended with only 115 being built.

France had the world's largest air force in 1918, but the 1920's saw little demand for military aircraft. Bloch joined his father-in-law in the furniture business. However, Bloch couldn't stay away from aviation. After designing a tri-motor mail plane for the French postal service in 1930, Bloch, Potez and Henri Deplante started an airplane company. Their company was successful, but in 1936, France's socialist government nationalized all aircraft manufacturers. After nationalization, Bloch remained as an executive with his former company. He designed and produced the Bloch 152 fighter, a plane better than most in French service but still no match for German Bf-109's.

The outbreak of war in 1939 found the French Air Force woefully unprepared and stocked with obsolete aircraft. A bad combination of politics, economics, and reliance upon static fortifications almost guaranteed catastrophe before the first German tanks rolled across the border in 1940. France actually had some excellent fighter aircraft such as the Arsenal VG-33 and the Dewoitine D.520, but there were far too few of them to stem the Luftwaffe. France collapsed within six weeks.

After the French surrendered, Bloch's prominent position and antipathy towards the new Vichy French government resulted in his being placed under house arrest. Already a virtual prisoner of his own countrymen, things would only get worse. In 1942, the Nazis occupied the rest of France. As a Jew with connections to the French Resistance, Bloch was arrested and sent to Buchenwald. The Nazis offered him good treatment if he would work for the German aircraft industry. Bloch refused. On a prison list for execution and nearly dead from diphtheria, Bloch was rescued by the American and Free French troops who reached Buchenwald on April 11, 1945.

Slowly recovering from imprisonment and disease, Bloch returned home to find his factory gutted. With nearly nothing to work with, Bloch joined with some of his former colleagues to build a French aviation industry practically from scratch. He changed his name from Bloch to Dassault, tweaking his brother's Resistance code name,



Char d'assault (“battle tank”). By the late 1940’s, Dassault had designed several civil transports and light planes and was working on a jet fighter, the Ouragan (“Hurricane”). Knowing France had no experience with jet engines, Dassault persuaded French authorities to permit him to employ Hermann Oestrich, the ex-BMW engineer whose jet engine powered the He-162. Oestrich’s talents helped Dassault establish the SNECMA jet engine company, the powerplant provider for Mirage jets past and present.

From 1945 until the early 1960’s, many French military aircraft were foreign produced. A mixed bag of WWII British, American and captured German aircraft was followed by U.S. supplied Bearcats, Corsairs, Skyraiders, Thunderflashes and Super Sabres. The French Navy only recently retired their very last ancient F-8 Crusaders. Dassault resolved to make the *Armee de l’Air* a truly French air force. He was aided by having excellent designers, engineers...and the benevolence of Charles DeGaulle.

Dassault’s Ouragan entered French service in 1951. Looking somewhat like a fatter F-84E Thunderjet, the Ouragan was also exported to Israel and India. Several versions of Mystere (“Mystery”) fighters followed in 1954. Once again, Israel and India were export customers, with Israel flying a few Super Mysteres as late as the 1970’s. After the Mystere IV-N night fighter looked remarkably like an F-86 Sabre Dog and the Super Mystere SMB.2 fighter closely resembled the F-100 Super Sabre, North American and the U.S. Air Force suspected espionage or reverse engineering. In reality, NAA and Dassault unknowingly followed the same aerodynamics and engineering approaches in developing two aircraft with the same configuration flying the same mission.



In 1952, both the French Air Force and NATO wanted a light point defense interceptor using a combination of turbojets with rocket boost. Dassault produced the Mirage I prototype, a small delta with two British Viper turbojets and a rocket. Although the Mirage I could fly at Mach 1.3, Dassault knew small mixed power fighters weren’t the answer. After testing different engines and refinements in the follow-on Mirage II, Dassault decided to abandon the small fighter concept and go for a larger, more powerful delta-winged aircraft that could fly and fight independently of ground controllers. The French Air Force received their first Mirage IIIC’s in 1960. The IIIC could carry 30 mm guns, Sidewinders or a large Matra radar-guided missile. Early models also mounted a rocket booster under the tail.

Along with the single-seat fighter, Dassault produced the camera-nose Mirage IIIR and the two seat IIIB trainer. Israel and South Africa were early customers, followed later by 11 other countries, including Australia, Switzerland, and Argentina. Dassault was a master marketer who crafted the Mirage III to the particular needs of each buyer's military. When the French Air Force and other air arms wanted a Mirage with improved ground attack capability, Dassault upgraded the IIIC into the E mark with improved radar and avionics.

Israel took their Mirages to war in June 1967, with spectacular success. The Israelis' Mirage IIICJ's struck the war's opening blows as strike bombers, then shot Arab MiG's to pieces in the air superiority role. However, the Mirage's history in Israel then took some interesting turns. At Israel's request, Dassault designed and built the Mirage V, a simplified Mirage III with no radar and optimized for the daytime fighter-bomber mission. Dassault built 50 Mirage V's and Israel paid \$60,000,000.00 for them. However, President DeGaulle imposed an arms embargo on Israel. To this day, the explanations for the embargo range from DeGaulle's fear of damaging French commerce with Arab nations to latent anti-Semitism. Israel's Mirage V's were never delivered, although payment was eventually refunded. As something of a payback, Mossad (Israel's intelligence service) agents stole blueprints of the Mirage airframe and Atar jet engine which ultimately yielded the Israeli-built IAI Neshar and Kfir. F-4 Phantoms slowly replaced Mirages as Israel's principal fighter, and the U.S. became Israel's main source of weaponry.

DeGaulle considered France's rehabilitation as a world power incomplete without French nuclear weapons. Long before the first French atomic test in the Sahara in 1960, the French Defense Ministry studied nuclear delivery systems. IRBM's and missile-armed submarines would take time to develop, so a jet bomber was the obvious choice for the first leg of France's nuclear deterrent. The French aviation industry, including Dassault, was incapable of building a large strategic bomber such as Britain's Vulcan or America's B-52, but Dassault again had a practical solution. Instead of trying to build huge bombers or going down a long, expensive and politically charged road like the British with TSR.2 and the Americans with TFX/F-111, Dassault simply "supersized" the Mirage III into the Mirage IV strategic bomber.

The Mirage IV was essentially a Mirage III doubled in size, given a second engine and a back seat navigator/bombardier. With aerial refueling, the Mirage IV could carry France's 60 kiloton nuke into the western USSR (although assuming they got through, there would be no France to return to). By late 1968, 62 Mirage IV's stood nuclear watch over France. During its long service career, the Mirage



IV received continuing upgrades. Some of the Mirage IV's were also configured for reconnaissance and conventional bombing roles. The ASMP cruise missile could also be carried in place of the French free-fall nuclear bomb. Eventually replaced by missile subs as France's nuclear sword, the last Mirage IV's stood down in 2005.

Other Mirage designs didn't fare as well, however. The vertical take-off and landing Balzac was cancelled after several crashes. A swing-wing Mirage G somewhat similar to Russia's MiG-23 failed to win production orders. The Super Mirage 4000, a large canard delta-winged fighter in the same general category as the F-15 Eagle and the Su-27 Flanker, fizzled. A specialized canard-nose Mirage for the Swiss also went nowhere.



Despite the dead ends, the Mirage family of jets continued growing. By 1977, about 1,200 Mirages had been sold worldwide. Dassault even profited from the Mirage V fiasco, dumping Israel's embargoed planes off onto the French Air Force and then revamping the mark into the Mirage 5 series bought by Belgium, Egypt and other nations.

Dassault's next production Mirage fighter after the delta III and 5 was the F1. A swept wing design, the Mirage F1 remedied many of the delta's aerodynamic shortcomings. Some of the Mirage G's technology was carried over to the F1, and a new generation of Atar engines provided superior performance compared to the Mirage III. After an initial French Air Force order of 100 F1's in 1973, the F1 was purchased by Spain, Greece, South Africa, Iraq, and others. Dassault also built the laser-nosed F1AZ ground attack version for the South Africans. However, a major effort to sell the F1 to Belgium, the Netherlands and other NATO members failed when the American F-16 became available in 1975. Fast, versatile and well-armed, the F1 provided excellent service for over four decades. The F1's final variant, the strike fighter-reconnaissance F1CR, was retired in 2014.



Using "fly by wire" computer technology, Dassault returned to the delta wing in 1978 with the Mirage 2000. The 2000 was developed following cancellation of two major military aircraft projects. First, the French government balked on a very expensive French equivalent to the Panavia Tornado. Second, there were no buyers in

sight for Dassault's large twin-engine Super Mirage 4000. Although it was a highly impressive multi-mission aircraft, the Super Mirage 4000 was cancelled after Saudi Arabia turned it down.

Dassault downsized the 4000 to the Mirage 2000 and incorporated the 4000's advanced avionics. Although the Mirage 2000 looked much like the earlier delta-winged Mirage III, it was streets ahead in performance and capability. Entering service in 1984, the Mirage 2000 steadily became the French Air Force's primary combat airplane, replacing Mirage III's and supplementing F-1's and Jaguars. Mirage 2000's have served France well as fighters, fighter-bombers and interceptors. Armed with the ASMP cruise missile, the two seat Mirage 2000N is now the bomber component of the French nuclear deterrent. India, Egypt, Greece, Taiwan, Peru, Qatar, United Arab Emirates, and Abu Dhabi also fly the 2000. Brazil retired their Mirage 2000's in 2013 in favor of the Saab Gripen.



Marcel Dassault died at age 94 in 1986. However, his company, *Groupe Industriel Marcel Dassault*, continues to design and build cutting edge fighter aircraft second to none. France's newest fighter isn't a Mirage, but the Dassault Rafale ("Squall") now serves in the French Air Force and the French Navy aboard the nuclear-powered aircraft carrier *Charles DeGaulle*. In time, the Rafale will replace the Mirage 2000.

Competing in the world fighter market against the F/A-18 Super Hornet, F-35 Lightning II (Joint Strike Fighter), Eurofighter Typhoon, Saab Gripen, Mikoyan MiG-29 and varieties of the Sukhoi Su-27, the Rafale struggled to secure export orders. However, that situation has changed the past several years with Egypt (24 aircraft), India (36 aircraft), Qatar (36 aircraft) and Greece (12 aircraft) having purchased Rafales. With Canada, Finland, Switzerland (and possibly Austria) shopping for fighter aircraft, future Rafale sales are possible. As this article is written, Greece appears ready to order more Rafales.



The Rafale has acquitted itself quite well when deployed in combat over Afghanistan, Iraq, Mali and Syria. French Navy Rafales have also participated in “cross-decking” exercises with U.S. Navy aircraft carriers. Capable of performing fighter, interception, strike and reconnaissance missions, and with different versions flying from land and sea, the Rafale continues Dassault’s tradition of building excellent combat aircraft.

WRITER’S NOTE: Many thanks to Alex Valz of IPMS Richmond for the photographs of his recently completed 1/48 Eduard Mirage IIICJ. Alex’s superbly done Mirage is finished in the desert camouflage of the Israeli Defense Forces.



**SOURCES,
REFERENCES AND
RECOMMENDED
READING:**

Mirage: Warplane for the World, by Jack Gee, Macdonald & Co., Ltd., 1971. A concise biography of Marcel Dassault as well as the story of his aircraft company and the Mirage III.

Mirage (Modern Combat Aircraft Series, No. 23), by Paul Jackson, Ian Allan, Ltd., 1985. Well-illustrated and highly detailed history of the Mirage brand from the Mirage III through the Mirage 2000.

The Dassault Adventure: A First Century of Aviation, by Luc Berger, Abrams, 2016. A recent “coffee table” book profiling Marcel Dassault and his company.

The Illustrated Encyclopedia of the World’s Modern Military Aircraft, by Bill Gunston, Crescent Books, 1979. This is an older but still comprehensive reference book from Britain’s best aviation writer. All of Dassault’s military aircraft in service during the late 1970’s are covered (along with the Mirage 2000), including technical information and color photographs or profiles.

Superfighters: The Next Generation of Combat Aircraft, edited by Mel Williams, AIRtime Publishing, Inc., 2002. Contains an excellent chapter on the Dassault Rafale.

Dassault Mirage: The Combat Log, by Savador Mafe Huertas, Schiffer Publishing, Ltd., 1996. The complete combat history of the Mirage fighter family with many color photographs.

Mirage, Warbirds Illustrated No. 32, by Jean-Pierre Decock, Arms and Armour Press Limited, 1985. Concise collection of black and white (and some color) photographs of Mirage III, V and 5 versions. Particularly helpful for squadron information, colors and markings of French, Belgian, Swiss, Israeli and South African Mirages.

DASSAULT MIRAGE JETS IN PLASTIC:

This is certainly not an exhaustive list, but just a quick summary of what kits scale modelers can currently find and build. A disclosure here—this is slanted towards 1/48 scale. For most fighter aircraft, including modern jets, I prefer 1/48 scale. I mean no offense to the builders who like 1/72 and 1/32. If you want to build one of Dassault's aircraft in any scale, my advice is always to scout online first. See what the online vendors have available (e.g., Amazon, Sprue Brothers, Hobbylinc, etc.). Also check websites such as Scalemates or Rare Plane Detective. The internet is also your best bet shopping for aftermarket items such as decals, resin parts and photoetch. You can also find very helpful online articles and You Tube video presentations by experienced modelers who have built that particular kit you're interested in.

Mirage III (1/48): Probably the best kits for the money are Eduard's 1/48 Mirage IIIC and IIICJ. Hobby Boss also offers the Mirage IIIC. New manufacturer Kinetic has various marks of the Mirage III and 5. Kinetic even has the upgraded Mirage IIIS and IIIRS flown by the Swiss. Still out there...amazingly...is the Academy 1/50 Mirage IIIC which is basically the old Fujimi kit dating back to the early 1970's.

The Fujimi 1/50 Mirage IIIR is still around at times, too. If you can find them at a show or swap meet, the old 1/48 ESCI kits of the Mirage IIIC and similar Mirage 5 are not bad. They can be built into very good models which will be satisfactory unless you are a competition builder or demand highly detailed molding. Be prepared to do some extra work.



Mirage IV (1/48): Not currently in production, Heller's 1/48 Mirage IV is still the only 1/48 injection molded kit going of France's *Force de Frappe* strategic bomber. They also produced the IV in 1/72. Yes, Heller (deservedly) has a bad rep, but all things considered, the big IV is a decent kit, especially when compared to other Heller aircraft models from the 1970's and 1980's. Heller released a 1/48 updated kit of the Mirage IVP in the 1990's with an ASMP cruise missile. There are still some very old—and terrible—1/50 Heller aircraft kits from the 1960's and 1970's (including the prototype Mirage IV-01) that are still around. Run from them.



Mirage F1 (1/48): The 1980's vintage 1/48 ESCI F1C and F1CR kits have been resurrected by Italeri. A few badly needed corrective parts have been added, but other shortcomings remain unchanged, and Italeri has doubled the price of those kits. Kitty Hawk released both single and two seat versions of the Mirage F1 (F1B, C, CT and CR) in 1/48 scale, but like many Kitty Hawk products, these premium kits are designed for the most experienced and patient of modelers.



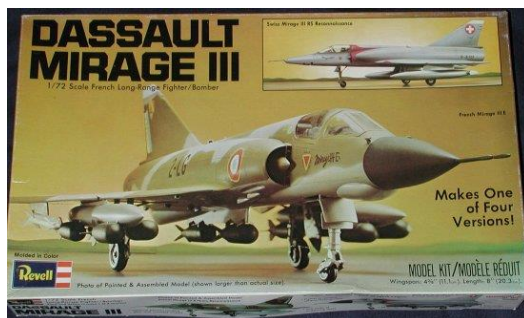
Mirage 2000 (1/48): Kinetic has highly detailed 1/48 Mirage 2000 kits covering the B, C, D and N versions. Running in the \$50.00 range, Kinetic's Mirage 2000's aren't cheap, but from online reviews, are good values. These are probably the best bet for building a "right" 1/48 Mirage 2000 of any version. Heller released a Mirage 2000C (single seat) kit in 1991 that is very accurate and detailed, but reportedly has fit problems. Italeri's Mirage 2000C began life as an ESCI kit in 1978 (prototype and pre-production aircraft). ESCI updated the kit in 1983 with new parts and different decals. Italeri re-released the ESCI kit in 2001, 2008 and 2011. Italeri was to re-release the 2000C and a (new?) 2000D last year, but this release could not be confirmed. The Italeri 2000C is said to be a better fit and easier build than its Heller counterpart, but it isn't as detailed or accurate.



Airfix, in a joint venture with Heller, released a (two seat) Mirage 2000D in 1992, using many of the parts from Heller's Mirage 2000C. The old (1982) Monogram model of the second Mirage 2000 prototype made its way to Revell. It still shows up from time

to time, usually re-boxed and passed off as a production jet with different decals and underwing stores. One reissue had new French AAM's and another contained a pair of Exocet air to ground missiles.

1/72 Mirages: Mirage kits in this scale are a mix of the old and new, with the old predominating. The 1970's and 1980's saw 1/72 Mirage III (C or E versions) from Airfix, Frog, Heller, Lindberg, Revell and Italeri. These oldies still appear at times on vendors' tables or eBay. Revell, Hasegawa, Airfix, Italeri and Heller have at times also released the Mirage F1 in 1/72 scale.



There was also a 1/72 Mirage F1 kit from ESCI in the mid-1980's. Since Italeri now has ESCI's molds, we may see that kit again in an Italeri boxing (and for a much higher price). Heller may still have their old 1/72 Mirage IVA bomber available, too. Heller also released all of the variants of the Mirage 2000 a few years ago—these kits should still be available. Again, since I'm not a 1/72 builder (at least not for fighter planes), I'm not the one to ask which is the best 1/72 kit. That said, Special Hobby, which I think is part of Eduard in the Czech Republic, offers a line of 1/72 Mirage III's and F1's. Assuming Eduard is involved, these are probably the best Mirage kits currently available in that scale. For those just wanting to build a good basic 1/72 Mirage IIIIE, the 1970's Revell kit—assuming you can still find it—is probably fine.

1/32 Mirages: For years, the only game in town for a 1/32 scale Mirage was Revell's IIIIE released in 1973. In 1975, Revell added new parts and reissued the kit as a Mirage 5. There were several reissues of the 1/32 Revell kit, the last being of a Swiss Air Force Mirage IIIS around 2009. The best features of the Revell kit were that Revell provided a wealth of underwing stores and extra parts to build one of several versions of the III (for example, the photo-recon IIIR). Italeri released a 1/32 Mirage IIIC in 2015 and followed with a IIIIE version in 2016. Ironically, in 2018, Revell released Italeri's 1/32 Mirage IIIIE under their standard Revell label. Kitty Hawk offers all versions of the Mirage 2000 (single and two seat) in 1/32 scale.

Dassault Rafale (1/48): Although not called a Mirage, Dassault's Rafale fighter is the Mirage's first cousin. Hobby Boss makes excellent 1/48 kits of both single and two-seat Rafale types, but they are a bit on the pricey side. For those wanting a less expensive (but still good) 1/48 single-seat Rafale, the Revell kit is also recommended. In fact, some hobbyists have expressed a preference for Revell's 1/48 Rafale over Hobby Boss'. Note, however, that Revell's 1/48 Rafale is a model of a pre-production aircraft (tweaked with additional underwing stores and extra parts) and may have some minor inaccuracies when compared to the actual production version of the plane. Revell (Revell Germany) also released a French Air Force two seat Rafale in 1/48, but this kit

apparently is no longer available. Heller's 1/48 Rafale is the first prototype, has many fit and some molding issues and is not recommended.