# IN A NEUTRAL SKY

***WE EXAMINE THE ONLY AIRWORTHY MORANE-SAULNIER MS.406/D.3801***

**BY LUIGINO CALIARO**

**COLOR PROFILES COURTESY OSPREY PUBLSIHING**

Numerically, the Morane-Saulnier MS.406 was the most important French fighter aircraft of the Second World War. If one were to compare the MS.406 to other Allied fighters of the same time period, it would most probably be similar to the Hawker Hurricane, although smaller and rather underpowered. The creation of the MS.406 came about during 1934 when the French Air Ministry issued a requirement for a single-engine fighter to replace the Dewoitine 500 and other aircraft that were becoming obsolete.

The *Service Technique Aeronautique* of the *Armee de l'Air* specified an aircraft that could compete with similar types from Britain and Germany — a monoplane with enclosed cockpit and retractable landing gear. The Morane-Saulnier response to the proposal was the MS.405, an aircraft designed by Rene Gauthier. The MS.405 was of mixed construction with the fuselage built out of duralumin tubing and wooden flying surfaces. The aircraft was covered with Plymax, a material that consisted of a sheet of plywood to which was bonded a very thin sheet of duralumin.

The fighter was a departure for the company, whose last military aircraft had been parasol monoplanes with fixed landing gear. Morane-Saulnier had become better known for its civil aircraft designs. The first MS.405 was fitted with a Hispano-Suiza 12Ygrs engine driving a two-pitch Chauviere propeller and producing some 860-hp. The prototype became airborne on 8 August 1935. However, this particular time period saw the French aviation industry wracked with numerous problems including government bungling and gross inefficiency.

Even though Nazi Germany was developing new warplanes at a rapid rate, France seemed to have a difficult time getting new designs into the air. The second prototype MS.405 did not fl until 20 January 1937 — almost 1.5-years after the first aircraft. This aircraft had a Hispano-Suiza 12Ycrs powerplant of 760-hp that produced a low top speed of just 275-mph, but it was a speed high enough to justify a government order for 16 pre-production machines.

The pre-production aircraft would feature numerous improvements that included a redesigned wing structure that would lower weight and increase aerodynamic efficiency along with a retractable radiator located under the fuselage. These improvements, along with the addition of a Hispano-Suiza 12Y-31 engine of 860-hp saw top speed increase to 340-mph. Armament consisted of a Hispano-Suiza HS.9/404 20mm cannon with 60 rounds that was fitted in the V of the engine and fired through the propeller hub. This weapon was augmented by two MAC 1934 7.5mm machine guns with one in each wing panel and equipped with 300 rounds per gun.

Even though Germany's military intentions were obvious, the French government waited until March 1938 before placing a massive order for 1000 MS.406 fighters. Of course, there was no way the company could produce such a number of fighters so a second production line was opened with the nationalized factories of SNCAO, located at St. Nazaire. Because of numerous problems, production did not get underway until late 1938 with the first production example flying on 29 January 1939. As with other French combat aircraft of the time period, deliveries of the completed aircraft were hampered by the lack of completed engines.

By April 1939, the combined production lines were delivering six MS.406s per day and when German forces pushed into Poland on 3 September 1939, production had reached eleven per day and the *Armee de l'Air* could claim 535 examples in service, although some of these were not operational.

While this was going on, numerous attempts were made to upgrade the basic design including the MS.410/411/412 and 450 but none of these reached full production. The MS.450 was an MS.410 (improved wing structure, revised armament and radiator) fitted with an H-S 12Z engine of 1300-hp that greatly increased performance but the engine did not enter full production before France surrendered.

The basic design attracted the interest of other countries, including Finland, which initially received 30 406s followed by a further 46 and eleven 410s (this last group was purchased directly from the Nazis). The Finns were in desperate need of reasonably modern combat aircraft and designer Aarne Lakomaa set out to turn the design into a first-rate fighter with the addition of captured Soviet Klimov M-105P engines, fully adjustable propellers, and airframe strengthening. Armament was changed to superior German weapons and the first example, designated MS.631, flew on 25 January 1943. The plane not only had a greatly increased ceiling but top speed jumped by 40-mph. Only a few got into combat but the Morko-Morane, as it was called, was superior over Soviet aircraft. After the end of the war, the conversion program was completed and 41 such aircraft served as advanced trainers.

**Given the small size of Switzerland and that of its neighbors, the D.3801 is able to visit numerous airshows without having to travel vast distances.**

PROFILE