

PROFILE PUBLICATIONS

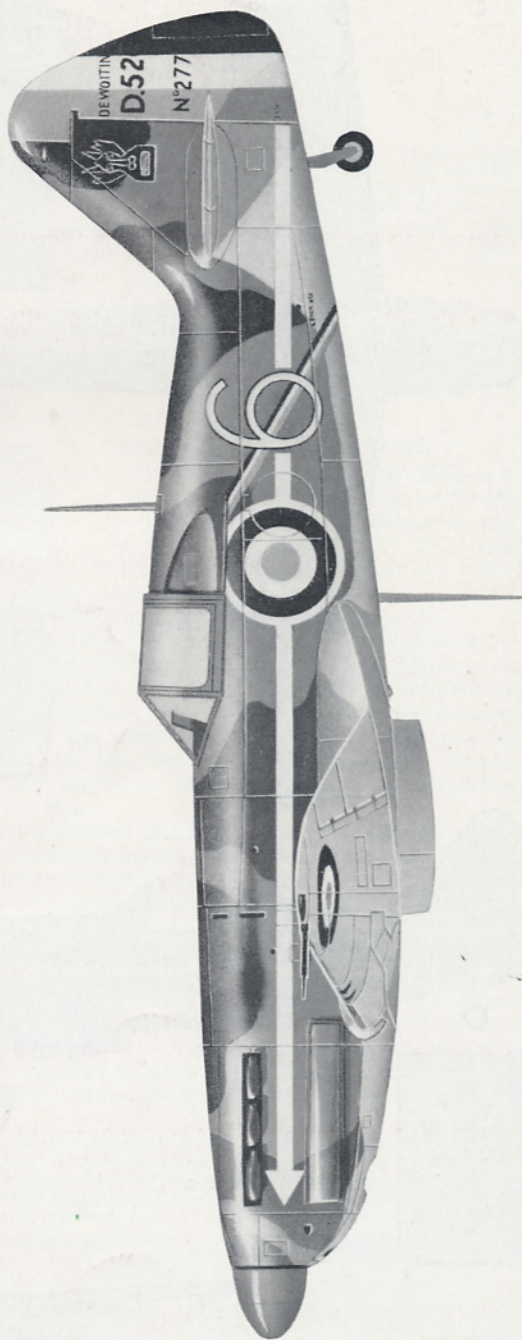
The Dewoitine 520

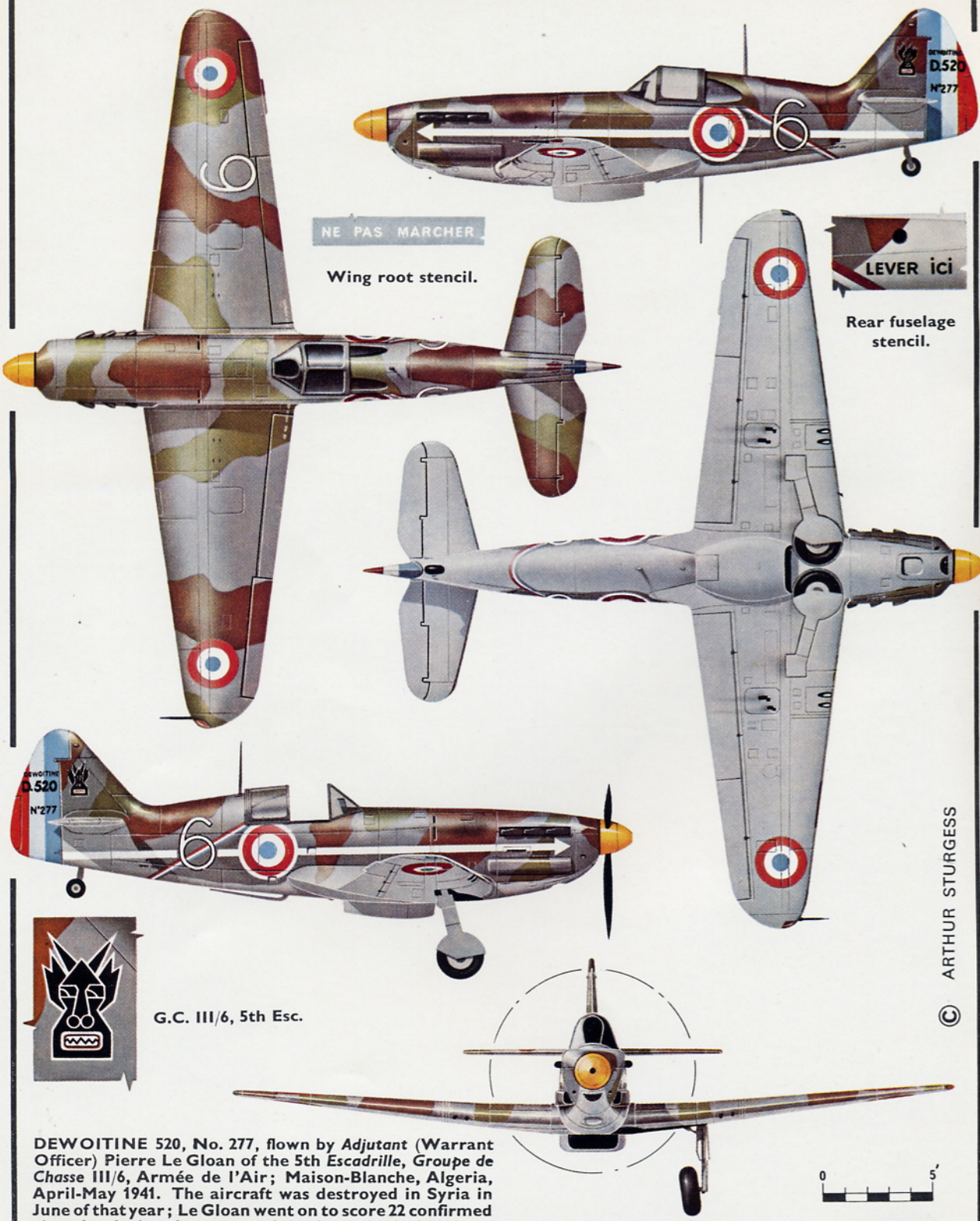
NUMBER 135

RETAIL PRICE

UNITED KINGDOM TWO SHILLINGS

UNITED STATES & CANADA 50 CENTS





NE PAS MARCHER

Wing root stencil.

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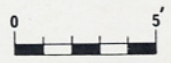
Rear fuselage stencil.

G.C. III/6, 5th Esc.

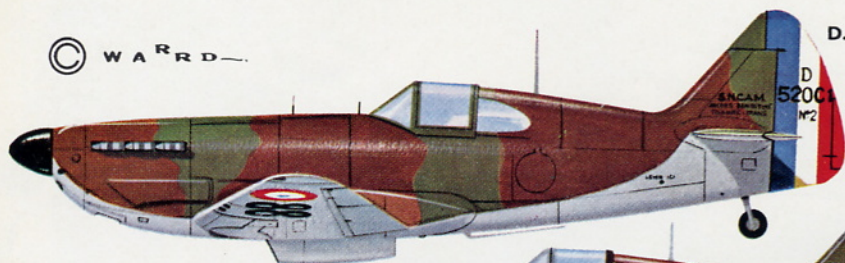


DEWOITINE 520, No. 277, flown by *Adjutant* (Warrant Officer) Pierre Le Gloan of the 5th Escadrille, *Groupe de Chasse III/6*, Armée de l'Air; Maison-Blanche, Algeria, April-May 1941. The aircraft was destroyed in Syria in June of that year; Le Gloan went on to score 22 confirmed victories during the course of the Second World War.

© ARTHUR STURGESS



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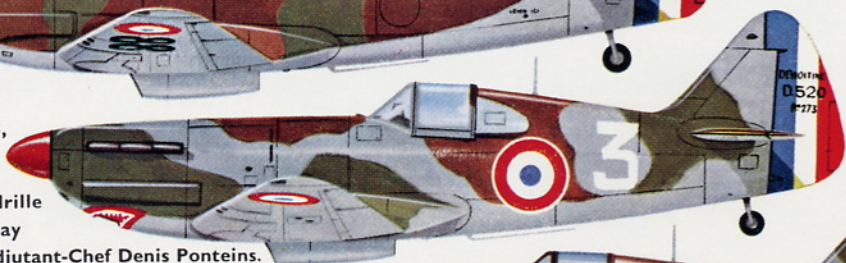


D.520 No. 2, Toulouse, 26th November 1939.
F-188 under wings; fin legend
reads: S.N.C.A.M.
Avions Dewoitine
Toulouse France

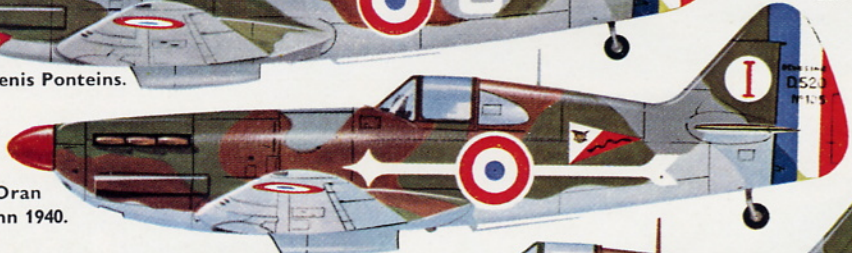


G.C.I/3; the
combined insignia
of Spa 69 and
Spa 88, the
escadrilles
which
formed
G.C.I/3.

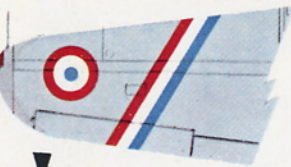
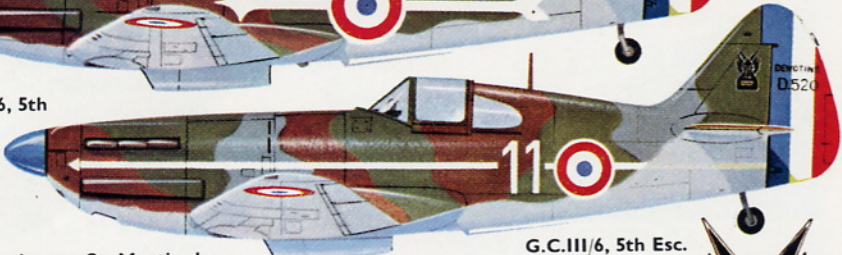
D.520 No. 273,
G.C.II/7, 4th
Escadrille
(Spa 78—Escadrille
"France"); May
1940. Pilot, Adjudant-Chef Denis Ponteins.



D.520 No. 105, flown by
Commandant Bernard
Challe, C.O. of G.C.I/3 at Oran
—La Senia, Algeria, autumn 1940.

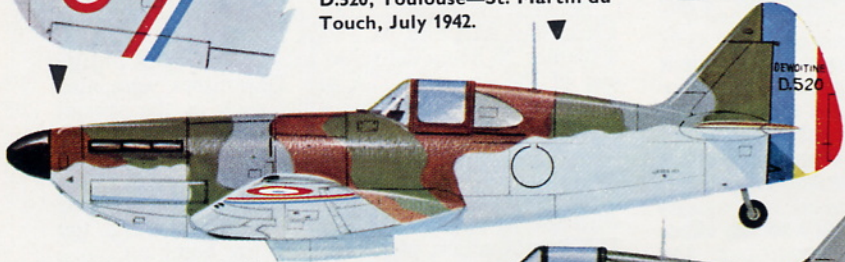


D.520 flown by Sgt. Hardouin of G.C.III/6, 5th
Escadrille, at Casablanca,
Morocco, November 1940.



D.520, Toulouse—St. Martin du
Touch, July 1942.

G.C.III/6, 5th Esc.



D.520, G.C.II/6, 4th Escadrille
(Spa 124—
Escadrille
"Jeanne d'Arc");
Meknes, Morocco,
May 1943.

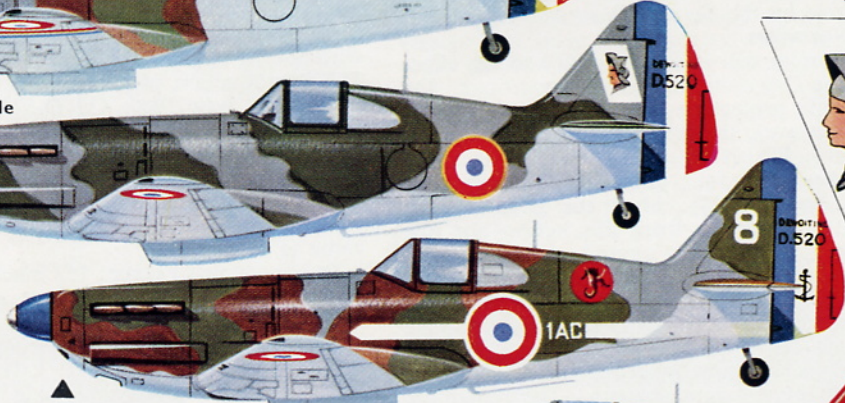


G.C.II/6, 4th Esc.

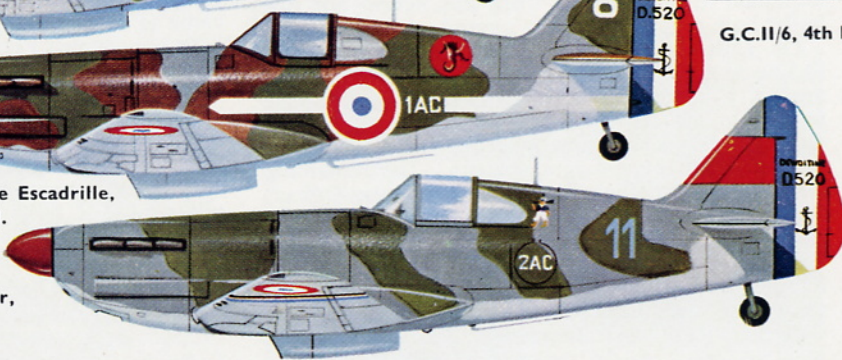


1AC Esc.

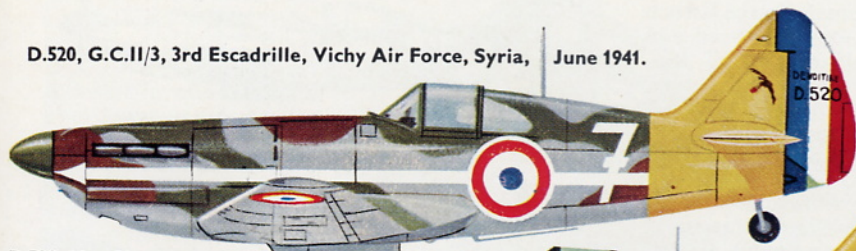
D.520, 1AC Aéronavale Escadrille,
North Africa, early 1941.



D.520 2AC Aéronavale Escadrille, Agadir,
Morocco, early 1942. Note "Donald
Duck" insignia behind cockpit.

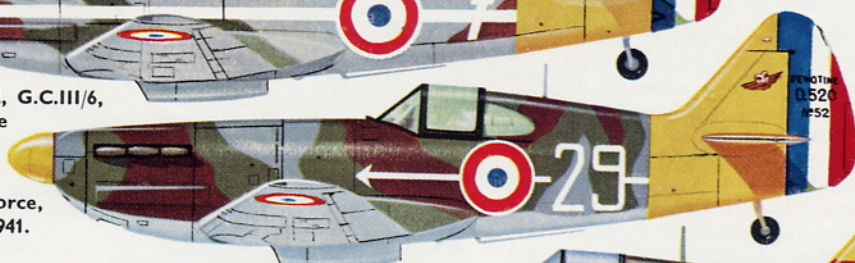


D.520, G.C.II/3, 3rd Escadrille, Vichy Air Force, Syria, June 1941.



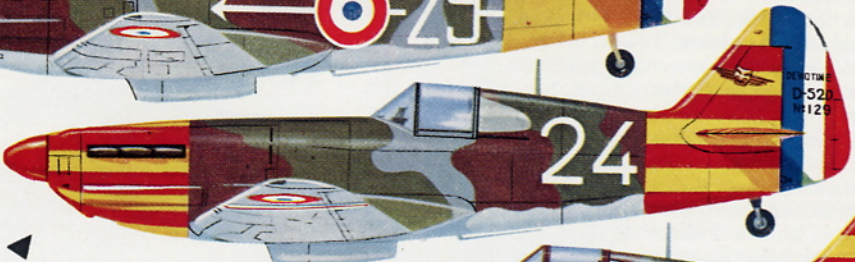
G.C.II/3, 3rd Esc.
(Spa 37).

D.520 No. 52, G.C.III/6,
6th Escadrille
"Laughing Mask",
Vichy Air Force,
Syria, June 1941.



G.C.III/6, 6th Esc.

D.520 No. 129, G.C.III/6, 6th
Escadrille "Laughing Mask",
Vichy Air Force, Syria, 1941.



D.520 No. 248, G.C.II/7, 4th Escadrille,
Vichy Air Force, Gabes, Tunisia, early 1942.



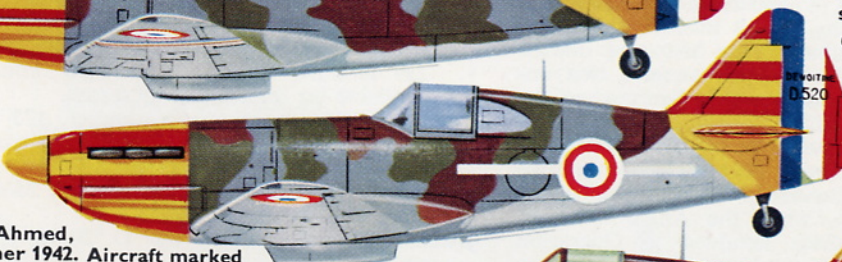
G.C.II/7, 4th Esc.

D.520 No. 468, exhibited at Vichy summer
1942 and later delivered to G.C.III/9.



D.520 No. 494, Toulouse, March 1942;
subsequently delivered
G.C.II/5 at Camp Cazis,
Casablanca, Morocco
and probably destroyed
during Allied
landings.

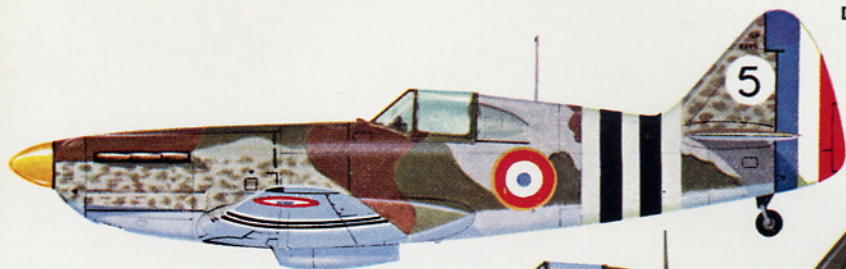
D.520 No. 347,
G.C. II/7, 3rd
Escadrille
(Spa 73), Sidi Ahmed,
Tunisia, summer 1942. Aircraft marked
with initials of pilot, Lt.
Gabriel Gauthier.



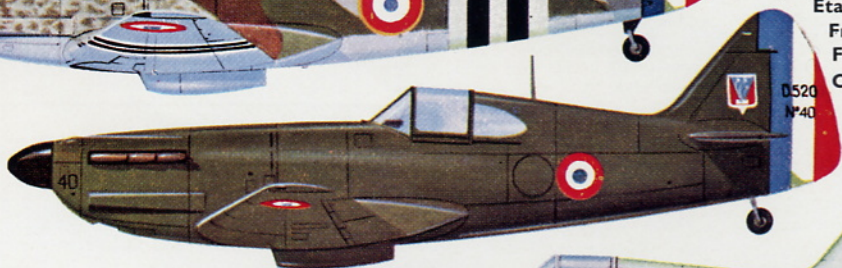
G.C.II/7, 3rd Esc.

D.520, 2AC Aéronavale Escadrille,
Agadir, Morocco, June 1942.

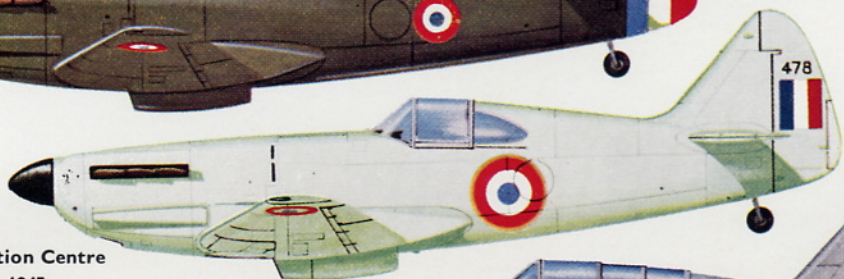




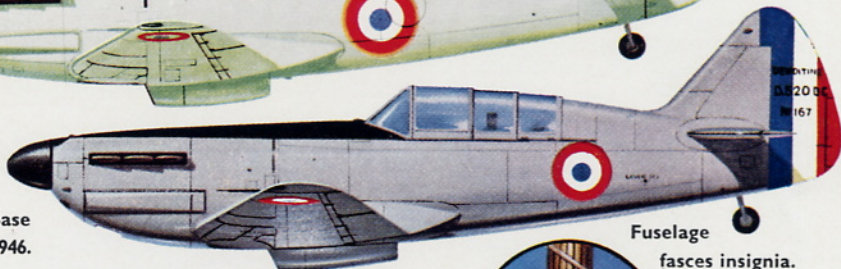
D.520 No. 862, flown by Capt. Marcel Doret, C.O. of F.F.I. Groupe de Chasse "Doret"; Toulouse, France, September 1944.



D.520 No. 40, E.P.A.A.58, Etampes-Mondésir, France, 1950-51. Frequently flown by Commandant "Baron Hector" Perrier.



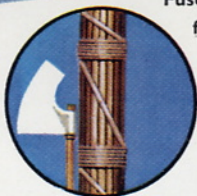
D.520 No. 478, Fighter Instruction Centre (C.I.C.), Meknes, Morocco, 1945.



D.520DC No. 167, Training Base No. 704, Colombes, France, 1946.

Fuselage fascés insignia.

D.520 fighter trainer, Regia Aeronautica, spring 1942.



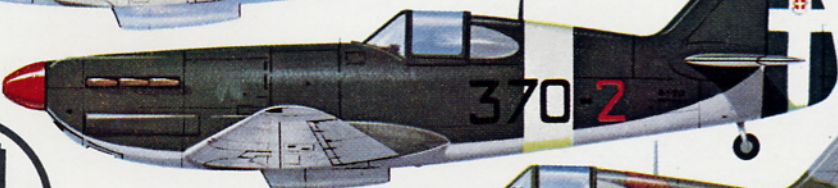
Rudder insignia.



Wing insignia.



D.520, probably of Jagdschulegeschwader JG 101, Toulouse, France, summer 1944. Ex-No. 474 of G.C.I/1 at Lyons-Bron.

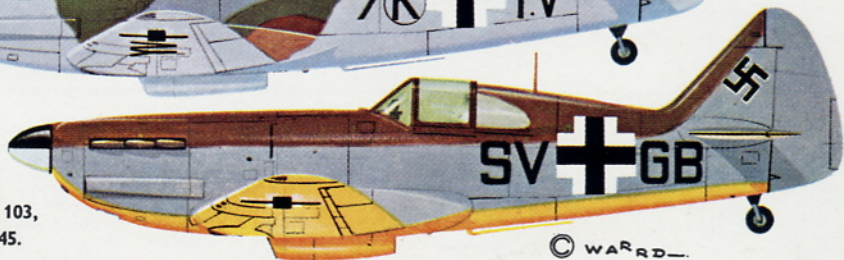


◀ D.520, 24 Gruppo C.T. Autonomo, 370 Squadriglia C.T., Metato, Italy,

September 1943. Note fuselage fascés painted out.



D.520, Jagdschulegeschwader JG 103, Paris-Le Bourget, France, 1944-45.



The Dewoitine 520

by Raymond Danel



D.520 No. 624 of G.C.B. 1/18 in flight over Cognac in March/April 1945. This aircraft, one of the D.520's put into service with the Free French Air Force after the German retreats of 1944, carries the slogan "Allez le gosse!" in front of the cockpit; this may be colloquially translated as "Go to it, kid!", or "Attaboy, kid!".

On 21st April 1940, at the French aircraft test establishment C.E.M.A. situated at Orléans-Bricy, a series of comparative test flights were staged between the second production Dewoitine 520 and a Messerschmitt Bf 109E-3 which had landed intact behind the French lines. These tests proved that despite the *Luftwaffe* fighter's 20 m.p.h. speed advantage due to its more powerful engine, the Dewoitine was a most realistic opponent; the superb handling qualities of the little French aircraft gave it a definite "edge" in manoeuvrability.

The desperate air battles that raged across the skies of France a few weeks later confirmed that in combat the Dewoitine was capable of a performance fully comparable to that of the best fighter aircraft then in service with the belligerent powers, including the Supermarine Spitfire I. It was quantity, not quality, that was lacking; too few of the agile D.520's were available to the hard-pressed fighter squadrons to enable them to cut the *Luftwaffe* from the sky. On the earth below this bitter struggle was repeated by the land forces of France and Britain, whose greatest sacrifices hardly slackened the pace of the juggernaut *Panzer* divisions.

Had the armistice not taken place on 25th June 1940, the D.520 would certainly have paralleled the careers of its contemporaries in England and Germany; a series of progressive developments and improvements might well have seen it still in combat service throughout the Second World War. The seeds of this development were in being already; performance was about to be improved by the installation of the Hispano-Suiza 12Y51 engine of 1,000 h.p. in the D.523, the designation of aircraft Nos. 601 to 780 in the production line. The D.524, aircraft No. 781 onwards, was scheduled to be powered by the 1,200 h.p. H-S12Z; and had the planned production rate continued uninterrupted some 2,200 D.520 or D.520 derivatives would have been delivered to the *Armée de l'Air* by the close of 1940. Other projects disturbed by the armistice included negotiations with the U.S.A. for the mass production of the D.522 by Ford; this was another derivative of the D.520 for which the Allison V1710-C15 engine of 1,040 h.p. was anticipated. Also abandoned was the scheme to set up a new production line in the Chausson plant at Asnières, near Paris, for the D.551, a refined and lightened version of the D.520 which would have been capable of 411 m.p.h. A direct descendant of the D.550 record aircraft which achieved 436.5 m.p.h., the first D.551 of a batch of 18 pre-production

machines manufactured at Bagnères-de-Bigorre was practically ready for its maiden flight when its career was brought to an untimely end by the fortunes of war.

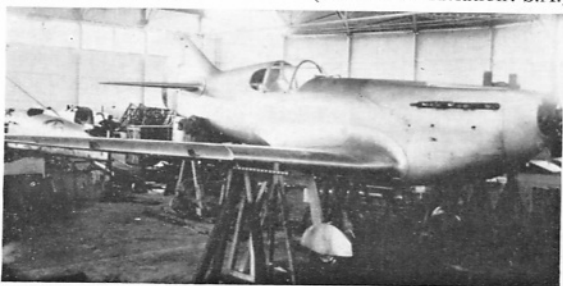
D.520 DESIGN AND PROTOTYPES

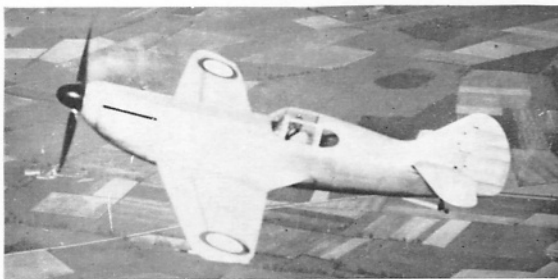
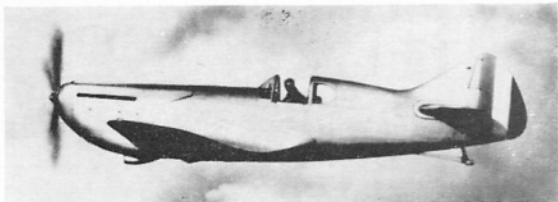
The Dewoitine 520 was born in November 1936 as a private venture by Emile Dewoitine, who was previously well-known for such fighter designs as the D.101 (1921), the D.9 (1924), D.21 (1927), D.26 and D.27 (1928), D.500 (1932), D.501 and D.510 (1934), the last-mentioned three equipping at that time most of the French Air Force *Groupes de Chasse*.

On 13th July 1934, the Air Force staff had issued a technical programme calling for new fighters to succeed the D.510, which had only been ordered in limited quantities as it was considered obsolescent. However, the Dewoitine 513 which appeared in response to this requirement immediately proved itself inferior to its main competitor, the Morane-Saulnier 405.

Having formed in June 1936 a private design office, Dewoitine ordered his chief designer Robert Castello to study without delay an entirely new fighter, as cheap as possible, powered by the 900 h.p. Hispano-Suiza 12Y21 engine and capable of 500 km/h. (310 m.p.h.). This design was initially rejected by the French Air Ministry (a provisional specification of 15th June 1936 amended the following September 18th but not officially issued to the aircraft manufacturers called for a maximum speed of not less than 520 km/h, 323 m.p.h.) and a modified project was submitted once more to the *Service Technique*

The first prototype D.520 at Toulouse-Francazal on 20th September 1938, a few days prior to its first flight. Note the leading-edge slots that were never tested and were omitted on subsequent aircraft. In the background, a D.510 of G.C. 1/11 being repaired. (Photo: Sud-Aviation: S.A.)





Top: The D.520-01 on its second flight, 8th October 1938; note underwing radiator. Centre: Note new fin and rudder in this view of D.520-01 over Toulouse in mid-November 1938; also the propeller spinner. Bottom: The second prototype in February 1939; note machine-gun "baths" under the wings.

(Photos: S.A.)

Aéronautique in January 1937. Designated D.520, the number referring to the required speed, this second proposal embodied a wing of reduced span and provision for the future installation of the 1,200 h.p. engine under development by Hispano-Suiza.

In the meantime the Air Ministry issued a new technical programme coded A.23, of 12th January 1937. Though the *S.T.Aé.* agreed that the D.520 was likely to meet its requirements no prototype order was placed for the aircraft, the M.S.405 having been chosen shortly beforehand to re-equip the fighter units and orders calling for 67 of these having been placed in November 1936. In spite of this further set-back, Emile Dewoitine, who from March 1937 had been appointed deputy managing director of the *Société Nationale de Constructions Aéronautiques du Midi* (SNCAM) which had absorbed his own plant, decided to carry on with the detail drawing of two D.520 prototypes and a structural test cell, which were initiated in late 1937. His initiative was not regularised until 3rd April 1938, by Air Ministry contract No. 513/8. At that stage the first prototype was not far from completion, designated D.520-01.

Slightly delayed by minor modifications resulting from the examination of a full-scale wooden mock-up by *S.T.Aé.* on 27th June 1938, the first prototype made its maiden flight on 2nd October of that year, with Marcel Doret at the controls, from Toulouse-Franczal airfield. For the preliminary trials the 12Y21 engine drove a two-bladed wooden airscrew and the cockpit canopy was removed. The first flight tests proved rather disappointing, the maximum speed not exceeding approximately 480 km/h (300 m.p.h.) due to the excessive drag of the underwing coolant

radiators. Their efficiency was also low, causing engine overheating; and the first step was to replace them with a single radiator under the fuselage, at the same time increasing fin and rudder area slightly to improve lateral stability. After a wheels-up landing on its eighth flight on 28th November, the D.520-01, practically undamaged, was re-engined with a 12Y29 powerplant and fitted with a "jet" exhaust manifold replacing the former separate pipes. These modifications allowed the Dewoitine to attain its quoted speed of 520 km/h; indeed, on 7th February 1939, Léopold Galy reached a speed of 825 km/h (506 m.p.h.) in a power dive.

Bearing the inaccurate designation D.520 No. 1 painted on its fin, and the serial F-317 underwing, the second prototype flew for the first time on 28th January 1939. Main differences between this machine and the 01 were a completely redrawn tail, a backwards-sliding canopy, new undercarriage shock absorbers and the fitting of a provisional armament of one H.S.404 20 mm. cannon firing through the airscrew hub and two machine guns located in gondolas under the wings. Immediately taken on charge by C.E.M.A., the second prototype was flown by Capitaine Rozanoff at 527 km/h (326 m.p.h.) at 5,000 m. (16,400 ft.) and climbed to 8,000 m. (26,240 ft.) in 13 minutes 45 seconds. When it was re-engined with a 12Y31 powerplant in place of its original 12Y29 (and, incidentally, repainted in standard fighter camouflage with its correct designation D.520-02) it recorded the following performance: maximum speed, 550 km/h (341 m.p.h.) at 5,200 m. (17,060 ft.); climb to 8,000 m. (26,240 ft.) 12 minutes 53 seconds.

The third prototype was essentially similar to the second, the only changes being the replacement of the Hispano-Suiza supercharger on the engine by one



Top: D.520-02 at C.E.M.A., Villacoublay, late in February 1939. Centre: D.520-02 with correct fin markings, flown by C.E.M.A. at Orleans-Bricy in March 1940, in standard camouflage. Bottom: The second production aircraft.



of Szydlowski manufacture, and the fitting of a steerable non-retracting tail wheel in place of the tail-skid. Marcel Doret flew the D.520-03 on its maiden flight on 15th March 1939. The Belgian test pilot Capt. Arendt was permitted to evaluate the 03 in flight, his government intending at that time to negotiate for licence production rights. The machine was taken on charge by C.E.M.A. in late September of 1939; it was first used for armament trials at Casaux and was flown in October to Orléans-Bricy, to which airfield C.E.M.A. had transferred its facility from Villacoublay. It was recently revealed that, as had been suggested by the famous American pilot Charles Lindbergh, secret negotiations were undertaken early in 1939 with the goal of obtaining the German Daimler Benz DB.601 engine for the D.520; these came to nothing.

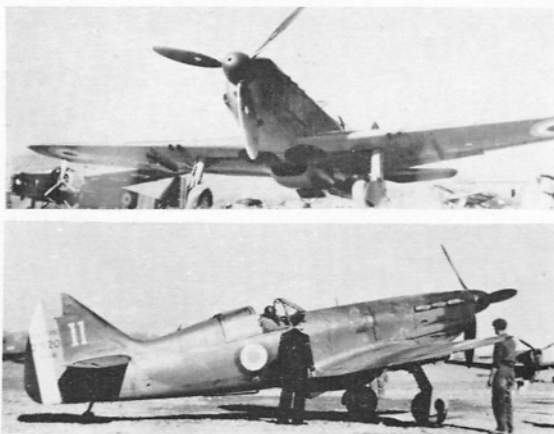
FIRST PRODUCTION ORDERS

In late December 1938, just at the time when the D.520-01 had achieved its quoted speed, the French Air Force's first-line fighter strength consisted of 378 single-engined machines, of which only 16 Morane-Saulnier 405's and 406's could be described as modern fighters. Seventy per cent. of the total were Dewoitine-built aircraft: 69 D.500's, 108 D.501's, 76 D.510's, and 13 D.371's. All of these types were obsolete compared to the *Luftwaffe's* Bf 109B and D fighters. In April 1939, the production of French fighters was far below the expected rate; and the M.S.406, Bloch 151/152 and American Curtiss Hawk 75A machines which were beginning to re-equip the *Groupes de Chasse* were already surpassed in performance by the newly mass-produced Bf 109E.

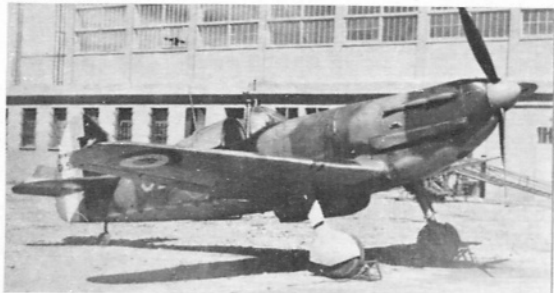
A Polish order for 160 M.S.406's being agreed by the French authorities, it was decided to replace them, and 40 other fighters released for export, with Dewoitine 520's. A first production contract, No. 588/9 dated 17th April 1939, called for 200 D.520's fitted with the 12Y31 engine (later replaced by the 12Y45) to be delivered between September and December 1939; a very short delivery time. This requirement was followed on 5th June by a second order



Fuselages of the first production batch at Toulouse-Saint Eloi in late November 1939; and machines of the initial batch awaiting delivery to the Armée de l'Air at Toulouse-Francazal in February 1940. It is just possible to distinguish the unfaired compressor intakes on the noses. (Photos: S.A.)



Top: One of the first D.520's delivered to G.C.I/3 at Cannes-Mandelieu in March 1940; in the background, a Bloch 200 bomber. Centre: D.520 No. 48, a special machine delivered to G.C.I/3 in April 1940 for endurance tests. Numbers 47 and 49 were also involved, coded I and III respectively. (Photos: Etablissement Cinématographique des Armées; E.C.A.). Bottom: Supposedly No. 362, an aircraft of G.C.III/6, 6th escadrille, in June 1940.



(No. 912/9) for 600 further machines, reduced to 510 in July. On the outbreak of war, a new contract (No. 1948/9 of 12th September 1939) brought the total of D.520's on order to 1,280 aircraft at a scheduled production rate of 200 a month from May 1940 onwards. Successive amendments to these orders called finally, on 19th April 1940, for 350 aircraft per month from November 1940 with 2,200 D.520's to be manufactured not including 120 machines ordered by the *Aéronavale* in January 1940.

The first production D.520, serial No. F-187 (only about 30 D.520's were allocated a serial number; this was painted under the wings in black) flew for the first time on 2nd November 1939, and was followed by the second aircraft on 3rd December. The production machines differed from the 02 and 03 in that the fuselage was lengthened by 51 cm. (20 ins.); there were modified engine cowlings, two additional unprotected fuel tanks forming part of the wing leading edge, and armour plate was fitted behind the pilot's seat. The armament was increased by a further



Adjutant *Pierre Le Gloan*, the fighter ace, during his service with the 5th *escadrille* of *Groupe de Chasse III/6*. *Le Gloan's aircraft is the subject of the five-view painting on p.2 of this Profile.* (Photo: E.C.A.)

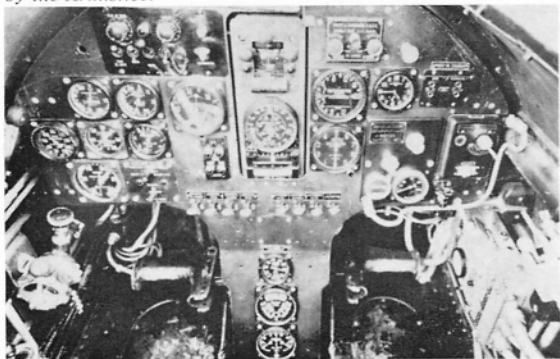
two machine guns enclosed within the wing profile. The powerplant was the Hispano-Suiza 12Y45 embodying a Szydlowski-Planiol S39-H3 supercharger and driving a Ratier 1606M electrically-operated air screw.

Some engine difficulties delayed the development programme of D.520 No. 1 which was not transferred to Cazaux for armament trials until late December, whereas No. 2 was delivered to the C.E.M.A. for performance evaluation early in January 1940. On the first of that month, the 13 aircraft produced represented a severe fall-short; the official schedule called for 44 machines from SNCAM's Toulouse plant by that date. Furthermore, the lack of ejector exhaust pipes and inadequate air intakes to the superchargers limited their top speed to 510 km/h (316 m.p.h.) and a number of modifications were necessary before they could be judged operational.

In order to speed up these mandatory modifications four aircraft, Nos. 13, 30, 31, and 36, were handed back to SNCAM from 1st March 1940 as special test machines. On these aircraft were flight-tested the improvements hastily effected to solve the main problems: engine overheating at continuous maximum r.p.m., inefficiency of the supercharger intakes, faulty armament systems, etc. Early in April 1940, as the 139th aircraft rolled from the assembly lines, the operational standard of the D.520 was at last defined. After official tests at Bricy, it was recorded that the modified D.520 No. 2 attained a maximum operational speed of 535 km/h (332 m.p.h.) at 5,500 m. (18,040 ft.).

From the 14th January onward, unarmed training aircraft had been provisionally delivered to an experimental flight formed at Bricy from C.E.M.A.

Left: *Cockpit interior of a production D.520.* Right: *The Toulouse-Saint Martin D.520 assembly lines as they appeared when halted by the Armistice.* (Photo: S.A.)



and *Groupe de Chasse I/3* pilots and mechanics; these were now replaced by 34 "war-cleared" machines taken on charge by G.C.I/3 at Cannes-Mandelieu between 17th April and 7th May. Three of these aircraft, Nos. 33, 35 and 37, were specially equipped for high altitude reconnaissance.

THE MAY-JUNE 1940 CAMPAIGN

On 10th May 1940, to support the lightning attack of the German armies in Europe, *Luftflotten II* and *III* could muster approximately 3,500 operational aircraft out of the 3,914 machines they had on charge. The total included 1,120 twin-engined bombers, 358 dive-bombers (Ju 87B's and R's), 1,016 single-engined fighters (Bf 109E's) and 248 Bf 110 twin-engined "destroyers".

Backed up by 78 Belgian and 63 Dutch fighters, as well as by the six R.A.F. squadrons of Hurricane I's based in France with the B.E.F. Air Component, the French fighter force mustered 609 fighters in first-line home-based units, not including 26 obsolete machines of various types. This strength was broken down as follows:

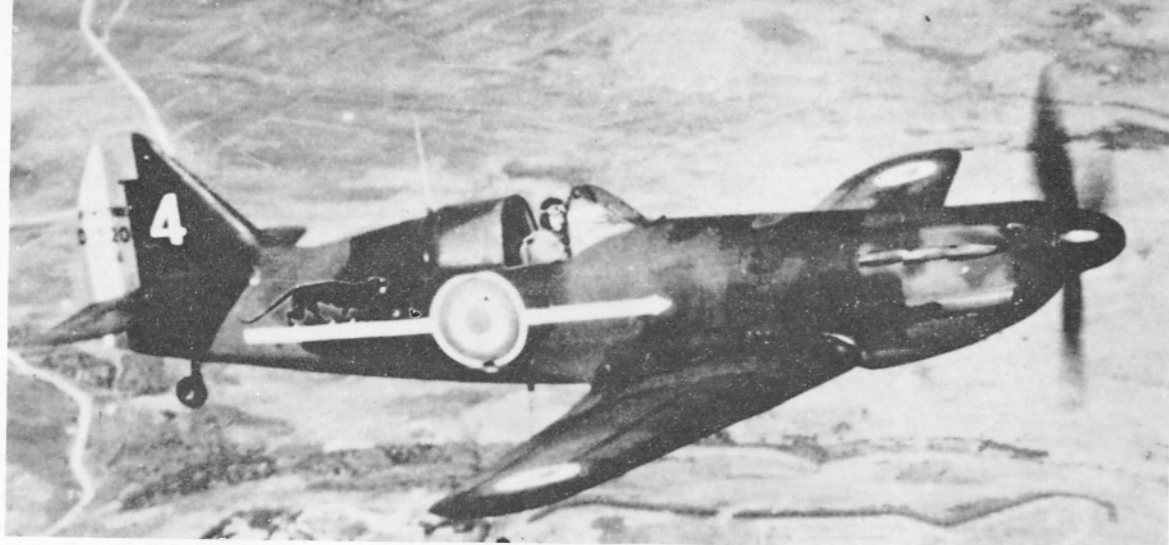
- 542 single-seat fighters;
 - 37 M.Bloch 151 and 93 M.Bloch 152, equipping seven *Groupes de Chasse*.
 - 98 Curtiss H.75A-1 and A-2, equipping four *Groupes de Chasse*.
 - 278 Morane-Saulnier 406, equipping eleven *Groupes de Chasse*.
 - 36 Dewoitine 520, equipping one *Groupe de Chasse*.
- 67 twin-engined day and night fighters; 3 Potez 630 and 64 Potez 631, in six *Escadrilles*.

The *Aéronavale Escadrilles AC1* and *AC2* of *Flotille F1C* at Calais-Marck had approximately 20 Potez 631; while *Escadrille AC3* at Hyères was converting from the D.510 to the M.B.151.

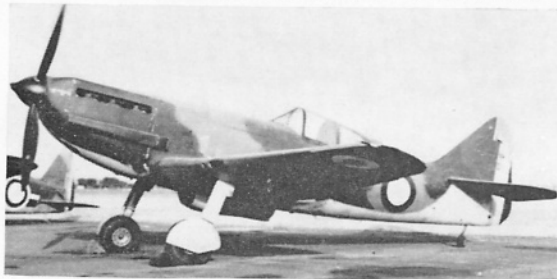
When the "Phoney War" came to an end, a total of 79 D.520's had been taken on charge by the French Air Force, out of 246 produced at SNCAM's Toulouse plant.

On the evening of 13th May, the losses of French fighters from enemy action and accidents stood at 116 aircraft, 82 of which were M.S.406's; these latter had been more or less overrun by the Bf 109E's of the *Jagdflieger*. Although scarcely ready for action, *Groupe de Chasse I/3* was hastily sent to the fighting area, its Dewoitines meeting the *Luftwaffe* for the first time on 13th May, and shooting down three Henschel Hs 126's and one Heinkel He 111 without loss to themselves. The following day, two of the unit's pilots lost their lives over Sedan, but G.C.I/3 was credited with 10 confirmed victories (four Bf 110's, two Bf 109E's, two Dornier Do 17's and two He 111's) and one probable Bf 110.





D.520 No. 248 of G.C.II/7, in flight over Tunisia late in 1940.



One of about 50 D.520's flown to North Africa by ferry pilots before the Armistice, photographed at Oran-La Senia in July 1940. Note absence of exhaust stacks.

The size of the present *Profile* does not permit a detailed chronicle of the D.520 *Groupes de Chasse* in the brief, savage Battle of France. A summary will be found in the accompanying table of their activities; it has been prepared from official service records made available by the *Service Historique de l'Armée de l'Air* at Versailles.

A few examples will suffice to testify to the effectiveness of the Dewoitine in combat conditions. On 9th June, while protecting Allied bombers over the Forge-les-Eaux area, the pilots of G.C.I/3 scored 10 confirmed (five Bf 109E's, three Do 17's, and two Ju 87B Stukas) and four probable kills (three Bf 109E's and one Do 17); when the D.520's were examined after returning from this action not one bullet hole was found in any aircraft.

On 15th June, one week after receiving its first D.520, G.C.III/6 at Le Luc sent up three aircraft against a large-scale raid by Italian Fiat CR.42 fighters of the 18° and 23° *Gruppi C.T.*, 3° *Stormo C.T.* A mechanical failure forced one of the Dewoitines to land again almost immediately. The remaining two aircraft were flown by Adjutant (Warrant Officer) Le Gloan and Capitaine Assolant; engaging a formation of 12 Fiats, each pilot rapidly destroyed one Italian aircraft, and Le Gloan shot down a second minutes later. At this stage the French pilots were recalled to their base by radio, as another 12 Fiats were carrying out a strafing attack, destroying D.520's Nos. 149 and 249 on the ground and damaging a third. Engaging this force, Le Gloan brought down his third CR.42 and before landing destroyed a

reconnaissance Fiat BR.20 bomber which was photographing the results of the raid from 12,000 feet. At this time Le Gloan, patrol leader of the 5^{ème} *Escadrille* of G.C.III/6 had already recorded four confirmed kills and one probable while flying the obsolescent Morane-Saulnier 406 (No. 597) and, in his Dewoitine, two confirmed Fiat BR.20's only two days before the exploit described above.

Besides the five *Groupes de Chasse* that were actually engaged in operations, two further units, G.C.II/6 and G.C.III/7, were converting from the M.Bloch 152's and M.S.406's onto D.520's at the time of the armistice.

Between the 9th and 22nd June 1940, the *Aéronavale Escadrilles* AC1 and AC2 took on charge 26 D.520's; a further 26 being delivered to AC3 and AC4 on the eve of the armistice. A few Dewoitines were also flown by non-operational units such as the special patrol of *l'Ecole de l'Air* at Salon-de-Provence led by Capitaine Fleurquin; and one Polish patrol of three aircraft, which, together with another formed by three civil test pilots from SNCAM, was entrusted with the defence of the Toulouse airstrips and the D.520 production plant from enemy bombing.

On 25th June 1940, 437 D.520's had rolled from the production line; 351 of these had been taken on charge by *l'Armée de l'Air* and 52 by *l'Aéronavale*. One hundred and six Dewoitines had been lost through various causes; and the remaining aircraft were located as follows when the Battle of France came to an end:

In unoccupied France: 153 machines, among them 34 at Toulouse-Francazal, not officially taken on charge.

In North Africa: 175 machines, flown there by survivors of G.C.I/3, II/3, III/3, II/7, III/6, *Escadrille* AC1, and various ferry pilots.

In Great Britain: three machines, flown by escaping pilots of G.C.III/7 on 25th June. Two of these aircraft, together with six Hawker Hurricane I, formed part of the Free French Air Force 1st Fighter Group formed at R.A.F. Odiham on 29th August 1940.

WITH THE VICHY AIR FORCE AUGUST 1940—NOVEMBER 1942

Following the Mers-el-Kebir tragedy, the German occupation authorities allowed the Vichy French

(Continued on page 10)

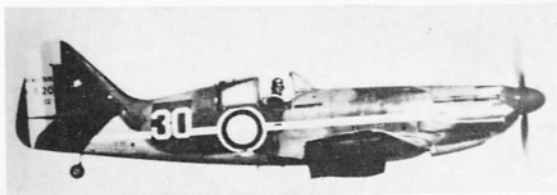
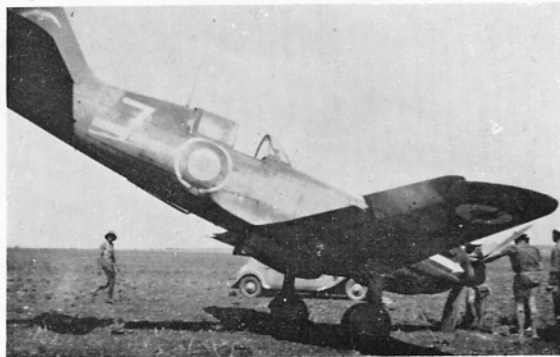
government to organize a reduced armistice Air Force including 14 *Groupes de Chasse* and three *Escadrilles* as well as two *Aéronavale* fighter *Escadrilles*. As no D.520 unit was to remain on the French mainland, the surviving aircraft were dispersed and stored. In North Africa, four *Groupes* (G.C.I/3, II/3, III/6, II/7) and *Aéronavale Escadrille* 1AC (the former AC1) were maintained in service with their D.520's. Beginning the following September, *Escadrille* 2AC received a dozen Dewoitines to replace its four M.Bloch 151's.

In April 1941, a programme was initiated with the agreement of the German armistice commission which called for a total of 1,074 new French aircraft to be manufactured in unoccupied plants by June 1943. Among these were 550 Dewoitine 520's; and on 23rd June the *Société Nationale de Constructions Aéronautiques du Sud-Est* (SNCASE), which had absorbed the Toulouse plants when SNCAM was dissolved, received a purchase order for these aircraft which was confirmed by contract No. 157/41 on 8th August. These new machines were to replace all other single-engined fighters still in service, such as the D.501, the M.S.406, the Bloch 152 and the Curtiss H.75; and in a second stage of the programme, to equip units to be reformed from September 1942 onwards. It was anticipated that on 1st July 1943 the Armistice Air Force would muster 17 Dewoitine 520 *Groupes* (442 first line aircraft), three *Aéronavale Escadrilles* (37 aircraft) and three training units totalling 13 aircraft. Commencing with a first batch of 22 aircraft delivered in August 1941, the resumed production attained 349 aircraft by 31st December 1942, thus bringing the total production of the D.520 to 775 aircraft. Of these, 197 were fitted with the 12Y49 engine driving two varieties of Chauvière air-screws.

Groupes de Chasse III/6 and II/3 took part in the operations in Syria in June-July 1941, reinforcing the M.S.406's of G.C.I/7. They were joined by *Escadrille* 1AC, and saw combat against R.A.F. Gladiators, Hurricanes, Tomahawks, Blenheims and Marylands. The Vichy D.520 losses totalled 32; 11 shot down in combat, seven destroyed on the ground, 12 written off in accidents, and two un-serviceable machines abandoned in Syria when the fighter units flew back to French North Africa. G.C.III/6 was credited with 19 confirmed and four probable kills; G.C.II/3 with three confirmed and two probable; and Esc.1AC with eight confirmed kills.

In November 1942, when the Anglo-American landings in North Africa heralded in Operation Torch, the disposition of the Vichy D.520 force was

Slight mishap to a machine of 3rd escadrille, G.C.II/3 in Syria.



Top: D.520 No. 302 of G.C.III/6 in late 1940, over French North Africa; this aircraft was lost in June of the following year in the Syrian fighting. Centre: D.520 No. 395 and No. 52 with the 6th *escadrille* of G.C.III/6 in Syria, June 1941. Note yellow tail assemblies and the "Laughing Mask" emblem, just visible behind the trailing edge of the nearest aircraft. Bottom: No. 423, a replacement aircraft delivered to G.C.III/6 in Syria.

approximately as follows:

Unoccupied Zone of France: on 15th November, 234 aircraft, 93 of which were immediately available for service and 89 stored.

North Africa: on 1st November, 173 aircraft, 142 of which were in service with operational units.

West Africa (Senegal): 30 aircraft, 25 of which were at first-line status.

Excluding training units, the D.520 at that time equipped:—

Unoccupied France: *Groupes de Chasse* I/1, II/1, III/9 (which unit had recently received the Dewoitine in place of their M.Bloch 152's) and I/2. This latter, led by Commandant Fleurquin, escaped with 24 aircraft on the 9th November to Meknès, thus avoiding capture by the German forces.

North Africa: *Groupes de Chasse* II/3, III/3 (formerly I/3, its designation being changed at German request since three of its pilots escaped to Gibraltar on 14th October 1941 with D.520's Nos. 102, 144 and 187), III/6, II/7. and II/5 (one *escadrille* of the latter was still flying a few Curtiss H.75's). The *Aéronavale 1F Flotille*, comprising *Escadrilles* 1AC and 2AC was also based in this theatre.

West Africa: *Groupe de Chasse* II/6.

The Allied landings gave rise from 8th to 10th November to fratricidal air battles in which the

Two views of No. 494, factory-fresh at Toulouse in March 1942 before delivery to the Vichy Air Force. (Photos: S.A.)



D.520's of G.C.III/3 and II/5 were involved, as were also those of 1F Flotille and the H.75's of G.C.I/5 and II/5. The losses were heavy on both sides; the *Aéronavale* lost 19 Dewoitines and seven Glenn Martin bombers; and among 56 Armistice Air



Force machines lost were 16 D.520 and Curtiss fighters. The Allied air forces taking part in this phase of "Torch" lost 44 aircraft including 25 fighters. The savagery of this tragic incident may be judged from one instance; it is reported that early on the morning of 8th November, a whole formation of nine Fairey Albacores from the carrier H.M.S. *Furious* were shot down during a raid on Oran-La Senia airfield, together with three Seafires from the 24 sent up as escort by Nos. 801 and 807 Squadrons, Fleet Air Arm. One D.520 was brought down in flames from the defending patrol mounted by G.C.III/3.

SERVING THE ENEMY MARCH 1943 - AUGUST 1944

In response to the Allied landings in North Africa, the German land forces and *Luftwaffe* took over by

force the previously unoccupied "free" zone of France, beginning the operation on 11th November. On 27th November the Vichy air force was demobilised, and the 1,876 military aircraft taken over by the Germans included 246 Dewoitine 520's, 13 of these awaiting repair and four damaged irreparably. In the Toulouse plant of SNCASE they seized a further 169, in varying stages of manufacture and assembly, 19 being in flying condition. In March 1943, the first D.520 to be taken on charge by a German pilot stalled and crashed immediately after take-off. However, the SNCASE plant, which had just been re-activated, received a contract to continue the construction of the 150 partly-completed machines. By summer 1944 they had all been delivered, bringing the final total of D.520 production to 905 aircraft.

A few D.520's were at first used as trainers (and in a few cases on operations) by the *Jagdgeschwader* engaged in Russia; the exceptional manoeuvrability of the type was highly praised by the *Luftwaffe* veterans. When the training wing JG 105 was moved to Chartres and various airfields around Paris it was entirely re-equipped with D.520's, as was also, at least partly, JG 103 at Zeltweg in Austria. A third training wing, JG 101, whose commander early in 1944 was the ace Walter Nowotny (see *Profile No. 130*,

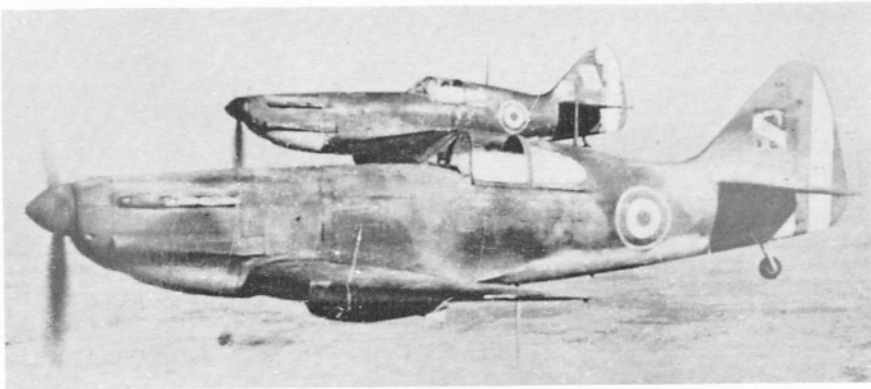
The Messerschmitt Me 262), flew D.520's alongside its Fw 190A's at Pau-Long and satellite airstrips. The rate of losses among *Luftwaffe* D.520 trainers was fairly high, owing to the great differences between it and the German aircraft to which the pilots were accustomed.



No. 245 with 3rd escadrille, G.C.II/7 at Gabés in 1942. Noteworthy points are the oblique red-on-yellow identification stripes on the nose, and the single wing gun; the size of the gun-port seems to indicate a weapon larger than the standard machine gun.

Two interesting machines serving with the Ecole d'Application du Personnel Navigant at Marrakech in 1943. Nearest aircraft is No. 447, carrying emblems of the two escadrilles of G.C.I/4 and that of 4th escadrille, G.C.II/6 "Jeanne d'Arc". The second aircraft carries the latter emblem only. These machines originally served with G.C.II/6 and were passed to G.C.I/4 when the former unit was disbanded. No. 447 was flown at that time by Commandant Ladousse.

(Photo: E.C.A.)



Sixty D.520's were transferred to the Italian Regia Aeronautica, and served for a limited period as trainers and second-line fighters with one *squadriglia* of the 13°, 22°, 24°, and 167° Gruppi. The Rumanian Air Force was allocated a small batch of D.520's, which saw action on the Eastern Front alongside that air force's Bf 109E's. A further 120 D.520's constituted the main strength of the Bulgarian 6th Air Force; most of these were destroyed in combat with the P-38 Lightnings and B-24 Liberators of the U.S. 9th Air Force.

Finally, a score or more Dewoitines were destroyed or severely damaged during Allied bombing raids on the Toulouse plant in April and June 1944.

FREE TO FIGHT AGAIN AUGUST 1944 - MAY 1945

As soon as the South-West of France was liberated, a French FFI (*Forces Francaises de l'Interieur*) fighter *Groupe* was formed and equipped with D.520's recaptured from the retreating enemy. Designated *Groupe Doret* after its commander, the former test pilot Marcel Doret, it consisted of two *escadrilles* based at Tarbes-Ossun and Toulouse. This unit took part in attacks on the German pockets at Royan and Pointe de Grave, covering Allied bombers and strafing artillery positions. With the reformation of the French Air Force on 1st December 1944, the *Groupe Doret* became G.C.II/18 "Saintonge", and was equipped with 15 D.520's. Commencing on

D.520Z, No. 465, at Toulouse in March 1942; note undercarriage doors.



A Luftwaffe D.520, almost certainly of Jagdgeschwader 105, photographed at Chartres in 1944.

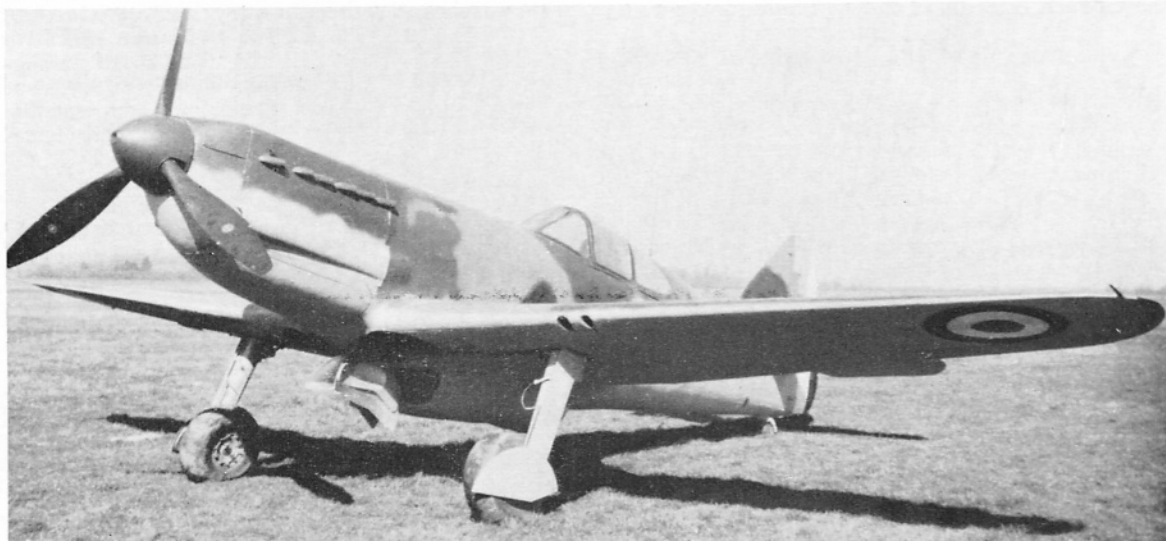
1st March 1945, the unit was re-equipped with the Spitfire Vb, its Dewoitines being transferred to G.C.B. I/18 "Vendée" and to a training unit at Toulouse-Francazal.

About 55 Dewoitines were recovered from the *Luftwaffe* as the Allied advance swept eastward; they were later reinforced by another score which were brought back to the mainland when the Meknès CIC (*Centre d'Instruction de Chasse*) was disbanded.

POSTWAR SERVICE

When on 1st June 1945 the school base No. 704 was formed at Tours for the training of pilot instructors, its statutory strength was mixed but included 17 D.520's. Late in the year, on the initiative of the C.O.,

(Photo: S.A.)





No. 827, operated from Toulouse-Blagnac by the Free French unit G.C. Doret in September 1944. Led by ex-test pilot Marcel Doret, the unit flew re-captured Dewoitines in action against German forces in the south and east of France.

mechanics at the base converted one of these machines to a two-seater configuration. This modification was accepted by the service authorities, designated D.520 DC (for *double commande*) and ordered on 20 machines undergoing overhaul by l'Atelier Aéronautique de Colombes. About a dozen aircraft were in fact so modified, the serials being Nos. 41, 167, 186, 243, 310, 404, 447, 558, 567, 603, 650 and 791. When it was disbanded on 31st August 1947, school base No. 704 had on charge 29 Dewoitines, only six of which were serviceable. These were allotted to the Cazaux fighter school and the strength of ZDA (*Zone de Défense Aérienne*) 902.

The last unit to fly the Dewoitine 520 was the EPAA, *Escadrille de Présentation de l'Armée de l'Air*, No. 58. Its previous equipment was the Russian Yak 3, brought back to France by the *Normandie-Niemen* Regiment, and phased out of service through lack of spares in June-July 1948. They were replaced by seven D.520's, Nos. 474, 603 DC, 650 DC, 40, 186 DC, 574 and 862. Being worn out and often unserviceable they were not a great success, and the unit was disbanded on 30th September 1953. The final flight by a Dewoitine 520 was carried out by No. 474 on 3rd September 1953, thus bringing to a close at last the long and gallant career of Emile Dewoitine's hard-born brainchild.

DEWOITINE 520 DERIVATIVES

Dewoitine 521. As an alternative to the Hispano-Suiza engine, it was decided in October 1939 to fit a Rolls-Royce Merlin III driving a de Havilland airscrew to the 251st production aircraft. Although the project was cancelled the following 19th November, the Merlin engine being allocated to the

Amiot 353/356 bombers, the 41st D.520 fuselage was experimentally equipped with Merlin No. 20337 and fitted with an unarmed wing. Designated D.521-01, it first flew on 9th February 1940. Despite the heavier engine being badly balanced, it achieved a better rate of climb than the standard D.520 and attained about 570 km/h (354 m.p.h.) at its rated altitude. Before being converted back to D.520 No. 41, the machine performed seven test flights in all, the last on 23rd March 1940.

Dewoitine 524. In mid-June 1940, the same D.520 No. 41 was re-engined once more, this time with the new Hispano-Suiza 12Z89ter, No. 700,002. Its weight was recorded at 2,910 kg (6,410 lbs.) on 18th June, and its estimated speed was 616 km/h (382.5 m.p.h.). The armistice prevented the D.524 from making any test flights; in July 1941 the standard 12Y45 engine was fitted and it became once more D.520 No. 41.

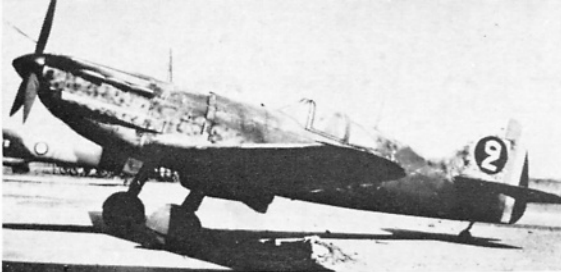
Dewoitine 523. As, at that time, the 1,000 h.p. Hispano-Suiza 12Y51 was intended for the D.551, the first powerplant received by SNCAM in late February 1940 was mounted on D.520 No. 45 for flight testing. Designated D.523 No. 45 (*not* D.523-01) the new prototype was flown between 9th May and 14th June 1940 by Marcel Doret. Performance figures were unfortunately not recorded. After the armistice the aircraft was converted back to its original configuration.

Dewoitine 520 Z. On 30th September 1941 D.520 No. 465 was handed back to SNCASE for a series of special tests to be carried out by test pilot Pierre Nadot. The modifications undertaken included individual "jet" exhaust pipes, a new Messier undercarriage, a heat exchanger instead of the standard

oil cooler and a coolant radiator embodying a boundary layer trap. Thus modified it was either D.520-465 or D.520 Z, despite the fact that the 12Z engine was never fitted; in fact in December 1941



The D.520 was used by several Regia Aeronautica training units; note the white belly-band and white cross rudder marking of this Italian-operated machine.



A Dewoitine, presumed to be No. 694, operated by G.C.II/18 "Saintonge" in early 1945.

it received the 12Y49 No. 2 powerplant driving the electro-magnetically operated Chauvière 10,105 airscrew. The aircraft achieved a speed of 560 km/h (348 m.p.h.) at altitude.

SE 520 Z. With the agreement of the German armistice commission, the manufacture of 105 D.520 Z's was planned on 12th September 1942. Differing from the "false D.520 Z", No. 465, in having the forward fuselage lengthened by 365 mm. and streamlined to receive the 1,600 h.p. improved version of the Hispano-Suiza 12Z engine, the type was later redesignated SE 520 Z (for "Sud-Est"); it was to carry increased wing armament of two 20 mm. cannon and two MAC machine guns.

In spite of the invasion of the Free Zone, the production of the first prototype was not hindered by the Germans. With its 12Z01 engine developing 1,200 h.p. and its standard D.520 wing, it was only one step short of the final version as it appeared in February 1943. (Although it carried the numeral 372 on the fuselage, it had no connection with the production D.520 No. 372 which was serving at the time with G.C.I/3 in North Africa). Weighing 3,179 kg (7,000 lbs.) at take-off, its estimated maximum speed was 659 km/h (409.2 m.p.h.) at 9,150 m. (30,012 ft.). The aircraft never flew; at first this was forbidden by the Germans, and later forgotten in the disorganisation of liberation. In 1947 it was planned to use it as a flying test-bed for the L2Z engines of the prototype Bréguet 482 four engined bomber, and it received the civil registration F-WEPJ. It was fitted successively with engines Nos. 10,106 and 10,108, developing 1,300 h.p. at take-off. Engine troubles delayed the first taxiing test until 22nd October 1948; and further tests on the SE 520 Z were finally cancelled in January 1949.

Dewoitine 550. Designed in 1938 by Emile Dewoitine's private engineering department, the D.550 was a civil racing aircraft which was evolved from the D.520 with a general refinement of outline, reduced span and fuel capacity. Fitted originally with a boosted Hispano-Suiza 12Ycrs engine, it first flew on 23rd June 1939 with Marcel Doret at the controls.

D.520 at Ecole des Moniteurs de Tours, B.E.704, in 1946.



On 23rd October it attained 677 km/h (420.4 m.p.h.) at 6,000 m (19,680 ft.). It was re-engined with a 1,300 h.p. 12Y51, and reached 702.2 km/h (436 m.p.h.) at the same altitude on 22nd November. Modified to a "long-nose" configuration, it once more attained 703 km/h at 6,500 m on 24th February 1940, without using maximum potential power, because of engine overheating. This was solved by two underwing coolant radiators, and on its last flight on 18th May 1940, the D.550 achieved 673 km/h (418 m.p.h.) at 5,750 m and 2,540 r.p.m.

Dewoitine 551. Designed at Bagnères-de-Bigorre in October 1939 as a military version of the 550, whose designation it shared for a time, the D.551 was intended for production in only 4,000 working hours. Embodying the 12Y51 engine, the calculated speed of the final version was 662 km/h (411 m.p.h.) at 6,000 m, with an armament of five machine guns and a maximum take-off weight of 2,150 kg (4,735 lbs). An amended version, designated D.552, fitted with a 12Z engine and carrying two further machine guns was to replace the D.551 on the intended production line from the 201st machine onwards. Including two D.552's and four special high-altitude photo reconnaissance machines, 16 prototypes were ordered at the request of General Vuillemin, commander in chief of the French Air Force; this was in order to form an evaluation squadron as soon as possible. In fact two further D.551's were manufactured on Emile Dewoitine's own initiative. As the first five aircraft were being readied for their maiden flights, their development was stopped by the armistice. On 9th August 1940 the German authorities allowed two machines to be converted to D.560 unarmed sports aircraft. Transferred to Saint-Martin-du-Touch in January 1941 for their maiden flight, these aircraft were later forbidden to fly and eventually wrecked, as were the other 16 machines.

SURVIVING D.520's

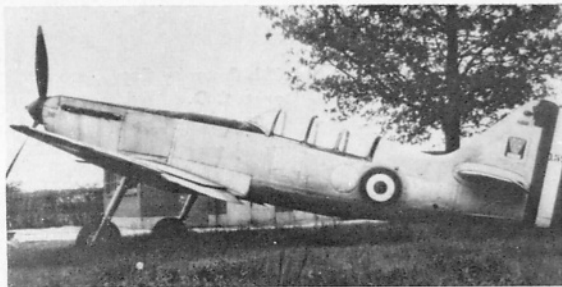
As this *Profile* goes to press, at least four D.520's are known to remain intact, none unfortunately in flying condition. They are on display at the following sites:

D.520 No. 408 belongs to the *Musée de l'Air* and is for the time being preserved at the ONERA park, Meudon, near Paris.

D.520 No. 603 adorns the Honour Courtyard of the *Ecole de l'Air* at Salon-de-Provence. This curious aircraft is one of the few which were converted to DC configuration and later restored to the original single-seat form.

Preserved at Luxeuil-Saint Sauveur, No. 862 bears the emblem carried by the 3rd escadrille of G.C.II/7 during the Battle of France. It stands in memory of the W.W.II pilot Colonel Papin; and indirectly, of all the French pilots who fought so gallantly in 1940, and whose place in aviation history is not as honourable as they deserve.



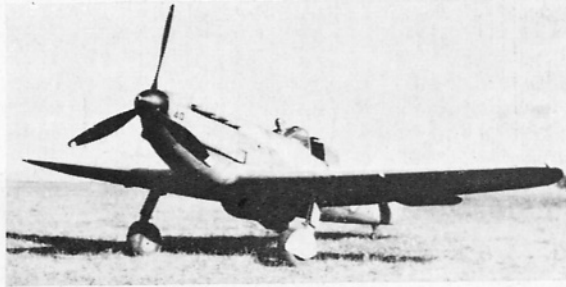


D.520 DC, No. 650, with EPAA 58 at Etampes-Mondésir in 1965. Painstakingly repaired by historically-minded base personnel, it lacks only the wheel fairings and part of a wing-root plate.

D.520 No. 650 DC was bought by a subscription raised by the base personnel of EPAA No. 58 when the unit was disbanded, to save it from scrapping. At the present time it lacks only part of the wing-fuselage fittings, and retains its EPAA No. 58 colours and markings. It is still on display at Etampes.

D.520 No. 862 is on display at the Luxeuil-Saint Sauveur Air Base No. 116. When the base was named after Colonel Papin, it was decided that this officer should be commemorated by an aircraft of the type which he flew in the 1939-40 campaigns. No. 862 has been repainted, unfortunately not quite accurately, in the camouflage scheme of the period; the stork emblem of Spa 73, the 1st *escadrille* of G.C.II/7, is displayed on the fin. It is perhaps worthy of note that this machine was repaired during its operational service with replacement wings taken from D.520 No. 664.

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The veteran No. 40, of the first production batch, with EPAA 58 at Etampes in 1950.

SPECIFICATION — Dewoitine 520

Powerplant: 558 a/c fitted with Hispano-Suiza 12Y45 (remainder 12Y49) 12-cylinder Vee liquid-cooled engine with Szydlowski-Planior supercharger, developing 850 h.p. (820) at sea level at 2,400 r.p.m., 920 h.p. (910) at rated altitude and 930 h.p. (900) at 2,520 r.p.m. at take-off. Three-bladed controllable-pitch propeller, diameter 9-84 ft., gear ratio 2/3; Raticier Type 1606M, electrically controlled on first 350 a/c and on No. 748; Chauvière Type 3981, pneumatically controlled; or Type 10105 and 10105A, electro-pneumatically controlled.

Dimensions: Wing span, 33-456 ft. Overall length, 28-733 ft. Height, tailwheel on ground, 8-43 ft. Gross wing area, 171-886 sq. ft. Aspect ratio, 6-5. Wing incidence, +1°. Dihedral (on outer wing profile), 3° 55½'. Undercarriage track, 9-447 ft.

Weights: Empty, 4,679 lbs. Normal loaded, wing tanks empty, 5,900 lbs. Maximum permitted take-off weight, 6,144 lbs.

Performance: With 12Y45 engine and Raticier airscrew, figures recorded in official tests carried out by CEMA on 21st April 1940 on D.520 No. 2. Data in parentheses, with 12Y49 engine in tests by SNCASE in April and June 1942 on D.520 No. 462, with Chauvière airscrew type 10105 and special V.G.33 blades:—

Maximum speed: 332-2 m.p.h. at 18,040 ft. (334-7 m.p.h. at 23,030 ft.), 263-9 m.p.h. at s.l., 850 h.p. (257-7 m.p.h., 820 h.p.).

Time to 13,120 ft., 5 mins. 49 secs.; to 19,680 ft., 8 mins. 59 secs.; to 26,240 ft., 14 mins. 30 secs.

Maximum range: at 1,915 r.p.m., 16,730 ft., 230 m.p.h. cruising speed, mean fuel consumption 59-18 l.G. per hour. Wing tanks empty, 552-7 miles. Wing tanks full, 956-3 miles.

Service ceiling: 33,620 ft. (36,080 ft.). Landing speed: 80-7 m.p.h. Maximum diving speed: 412 m.p.h.

Armament: One 20 mm. Hispano-Suiza HS 404 cannon with 60 rounds, mounted between engine cylinder banks and firing through airscrew hub. Four wing-mounted 7-5 mm. 1934-M39 M.A.C. machine guns with 675 r.p.g.

Operational units	Date first D.520 trainer on charge	Date first oprtn. D.520 on charge	Date first combat with D.520	Dewoitine 520 Operations: May-June 1940										D.520's lost on ops. (1)	D.520 pilot losses							
				Enemy aircraft destroyed: confirmed+probable											K	P	W	KA	WA	Total		
				Bf 109	Bf 110	Do. 17 & 215	He 111	Hs 126	Ju 87	Ju 88	Hs 123	Fiat CR.42	Fiat BR.20								Total	
G.C.I/3	18th Jan. 1940	17th Apr. 1940	13th May 1940	16 +7	6 +1	11 +7	5 +3	8 +0	2 +0	2 +0	—	—	—	—	50 +18	32 (2)	8	3	6	—	—	17
G.C.II/3	6th Apr. 1940	10th May 1940	21st May 1940	2 +1	2 +0	9 +6	4 +4	2 +1	12 +3	—	—	—	—	—	31 +15	20 (3)	3	1	10 (4)	1	—	15
G.C.II/7	29th Apr. 1940	20th May 1940	1st June 1940	2 +0	—	3 +3	6 +1	—	—	—	—	1 +0	—	—	12 +4	14 (5)	3	—	3	—	1	7
G.C.III/3	19th Apr. 1940	28th May 1940	5th June 1940	3 +2	1 +0	1 +0	1 +0	2 +0 (6)	—	—	—	—	—	—	8 +2	17 (7)	—	—	3	1	1	5
G.C.III/6	—	10th June 1940	13th June 1940	—	—	—	—	—	—	—	—	—	4 +0	3 +0	7 +0	2	—	—	—	—	—	—
Total figures:				23 +10	9 +1	24 +16	16 +8	12 +1	14 +3	2 +0	1 +0	—	4 +0	3 +0	108 +39	85 (8)	14	4	22	2	2	44

Notes on operations table:

K=Killed in action. P=Prisoner of war. W=Wounded in action. KA, WA=Killed, wounded by accident. (1) Not including those lost during training accidents. (2) The detailed figures are:— 18 in air combat, 3 in crash-landings following battle damage, 2 by bombing on the ground, 9 by G.C.I/3 itself before retreat to another airfield. (3) Two of these by French anti-aircraft fire. (4) Two of these by French anti-aircraft fire. (5) Including 3 training D.520's destroyed on the ground, and two by G.C.II/7 itself. (6) Not including 4 further Hs 126's burnt out on the ground. (7) Including 11 by G.C.III/3 itself. (8) Only 54 of these due to direct enemy action.

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