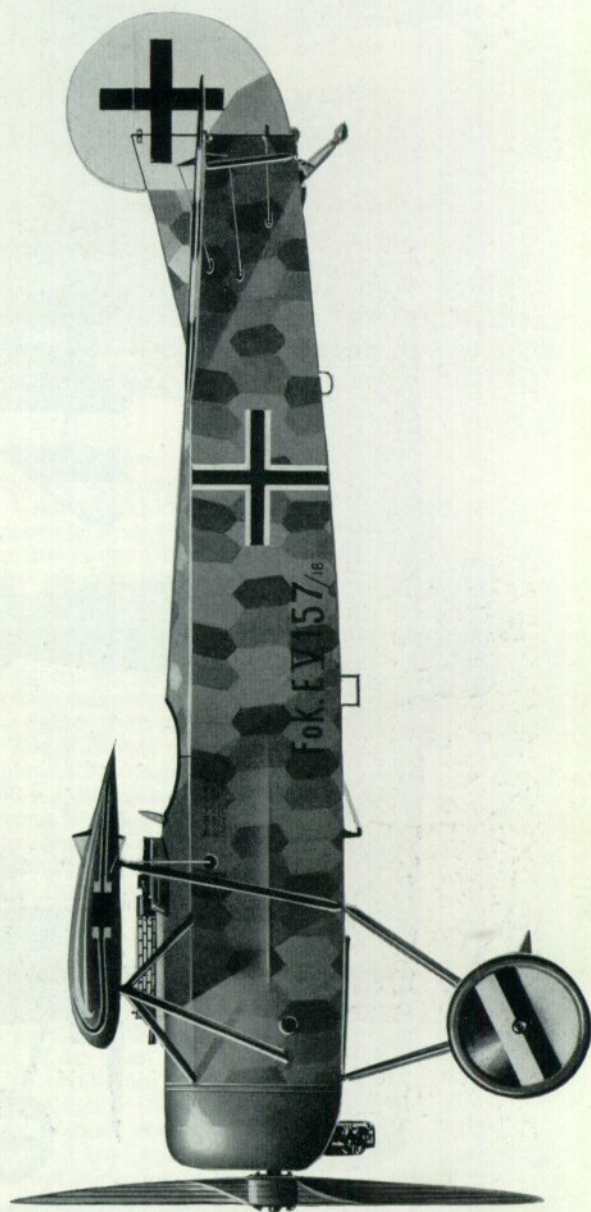


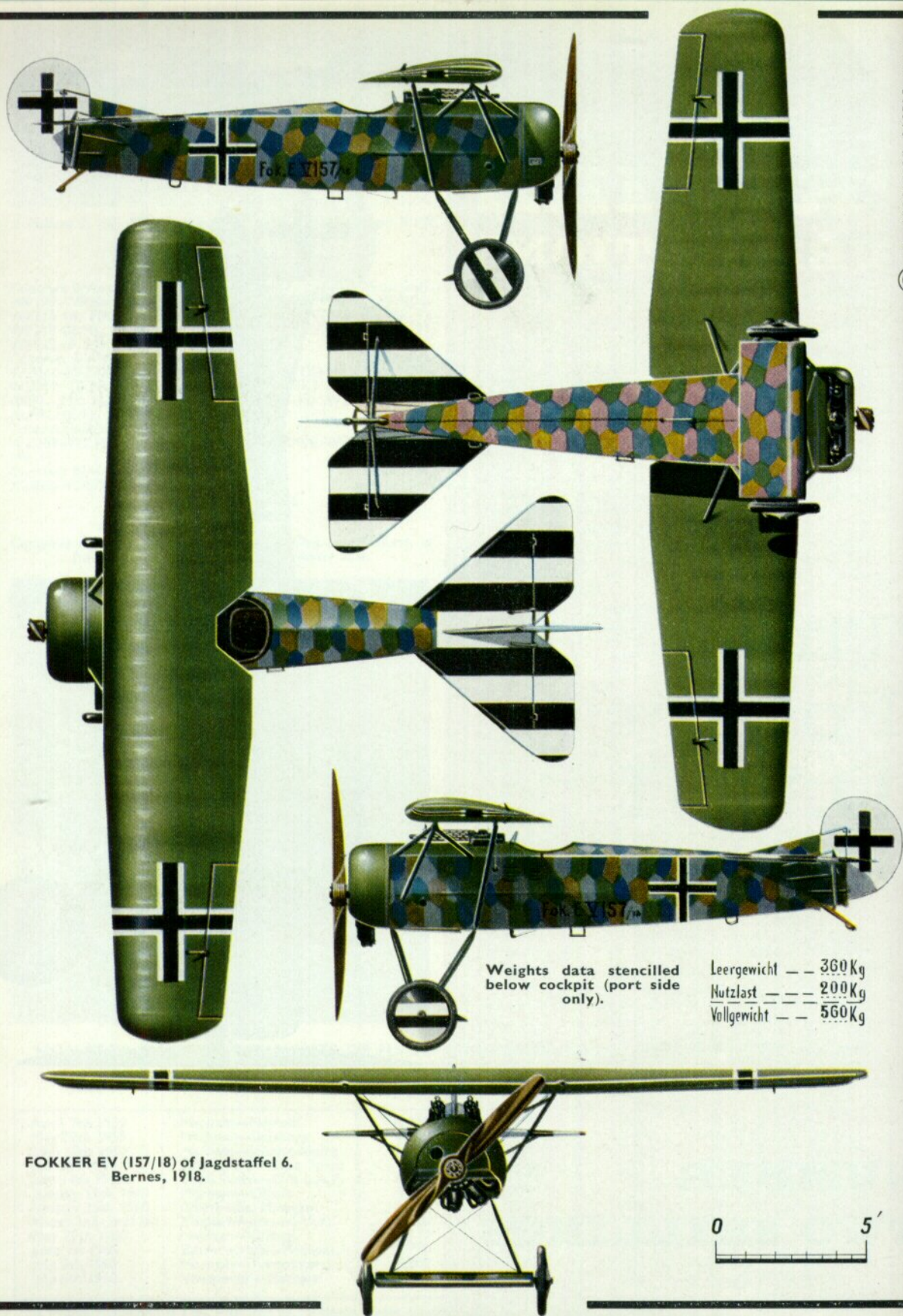
**PROFILE  
PUBLICATIONS**

The  
Fokker  
D.VIII

**NUMBER 67**  
**TWO SHILLINGS**







FOKKER EV (157/18) of Jagdstaffel 6.  
Bernes, 1918.



# The Fokker D.VIII



by J. M. Bruce

*A Fok. DVIII in Dutch markings.*

(Photo: via R. Ward)

Reinhold Platz was, in his day, an extraordinary aircraft designer. Although he had no knowledge of aerodynamics, no research facilities at Schwerin, and was not even told of the existence of official technical publications, he was in many of his ideas ahead of his time. He was a welder by trade, skilled in the working of metal; nevertheless he achieved outstanding success as a designer of wooden wings. In spite of his genius for aircraft design he was content to work in the shadow of Tony Fokker and to see his employer explicitly claim all credit for all aspects of the aircraft that he, Platz, had designed.

Platz's ideal was simplicity. Once he had proved that satisfactory and safe cantilever wings, devoid of all the complexities of conventional interplane bracing, could be made and flown it was obvious to him that the ideal aircraft must be a monoplane. He quickly evolved simple methods of structural design,\* and ultimately it was possible for a draughtsman to produce all the drawings for a wing of 15 to 20 sq. m. area in about eight working hours.

Although he complied with Fokker's demand for a triplane Platz was, as indicated in *Profile No. 55*, somewhat disturbed by what he regarded as a retrogression from the Fokker V.1 and V.2 which, as biplanes, seemed unnecessarily complicated to him. After being outraged by the monstrous V.8 quintuplane that Fokker demanded of him, Platz must have returned to biplane design with something akin to relief.

Not all of the Fokker V series of designs can now be accounted for; consequently it cannot be said with complete certainty that the Fokker V.17 was Platz's first monoplane design. What is indisputable is that it was the first Platz-designed monoplane to be built and flown. Powered by a 110-h.p. Oberursel UR.II, it emerged late in 1917. It was virtually a Fokker V.4 fuselage fitted with a one-piece cantilever wing mounted just under the upper longerons of the fuselage. In the V.17's plywood-covered wing Platz first practised his production technique of making the ailerons integral with the wing and cutting them out

of the main structure just before the application of the skin was completed.

Fokker liked the V.17, despite his previous reluctance to let Platz build a monoplane, and flew it during the first of the Adlershof fighter trials in January 1918. The monoplane's low-powered engine denied it a worthwhile performance but Fokker was sufficiently impressed to ask for a more powerful development with the 160-h.p. Mercedes engine. This, the V.20, was designed and built in the space of 6½ days, so that Fokker was able to demonstrate it at Adlershof before the fighter trials ended.

The V.20 was not regarded as successful and was followed by the generally similar V.23, also with the 160-h.p. Mercedes D IIIa engine. The V.23 was flown during the second Adlershof trials in June 1918 but was rejected because its broad shoulder wing obscured too much of the pilot's field of view.

In these trials other Fokker monoplanes participated. The V.25 was built (with some misgivings on Platz's part) as a low-wing monoplane to the specific request of Fokker himself. This was a remarkably clean little aircraft that would not have looked out of place twenty years later. By the standards of the time, however, the downward field of view from the cockpits of the V.20, V.23 and V.25 was too limited.

This could not be said of their running mates in the second fighter trials: the V.26, V.27 and V.28. These were parasol monoplanes in which the wing was mounted level with the pilot's eyes, thus imposing the smallest limitation on his field of view. The V.26 and

*The Fokker V.26, apparently at Adlershof.*

(Photo: Peter M. Bowers)



\*For a full description of these the reader is referred to Fokker: *The Creative Years*, by A. R. Weyl, Chapter X.





Third of the Fokker parasol monoplanes that participated in the first German fighter trials, the V.27 had a 195-h.p. Benz Bz.IIIb engine. (Photo: via R. Ward)

V.28 were identical airframes; the V.26 was powered by the 110-h.p. Oberursel UR.II, the V.28 (of which two apparently took part in the trials) by the eleven-cylinder 145-h.p. UR.III and the 160-h.p. Goebel Goe. III. A small point of difference between the V.26 and V.28 was the strut bracing of the V.28's tailplane. The V.27 was the stationary-engine counterpart of these two. It had the 195-h.p. Benz Bz.IIIb, a water-cooled V-eight, and was rather larger than the Oberursel-powered monoplanes.

In one sense at least Platz realised an ideal in the V.26/V.28 design: of all the developed military aircraft of the war period it must have been the simplest. The fuselage was a welded steel-tube structure with wire cross-bracing from the cockpit bay aft. The two pyramidal supports for the wing were made as integral parts of the fuselage frame. As on the Fok. Dr.I, the circular cross-section of the engine cowling was faired into the flat sides by a shaped piece of plywood, the whole fuselage being fabric covered. Two LMG 08/15 machine guns were installed in the conventional place.

The cantilever wing was of wooden construction throughout; it tapered from a root chord of 1.5 m. to 1.05 m. at the outermost rib. Platz, ever methodical, placed the inboard end of the forward spar at one-fifth of the root chord from the leading edge, the rear spar at three-fifths chord. Sweepback on the leading

edge, as a fore-and-aft linear measurement, was 150 mm. at the outboard end rib; corresponding forward taper of the trailing edge was double that amount, 300 mm. The wing span was 8.3 m.

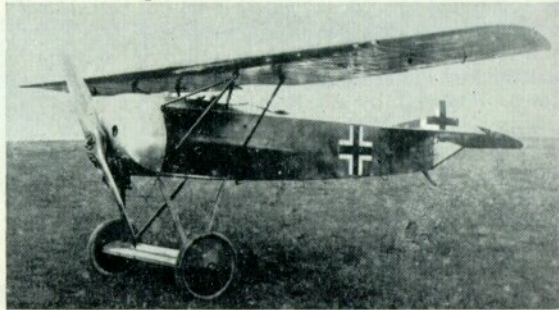
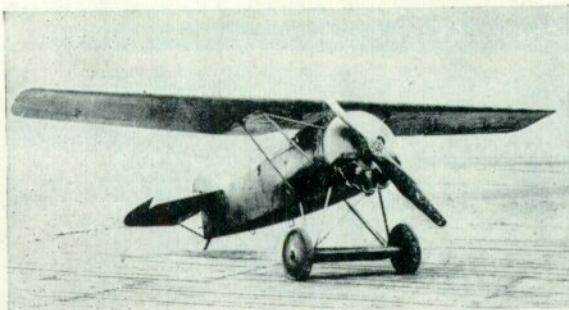
Each spar was a full-span wooden box with the upper and lower spanwise members composed of five 10-mm. laminations. The flange members thus formed were of constant chord between the wing-attachment points and tapered in plan towards the wing tips; the flanges were joined by vertical webs of 2-mm. ply-



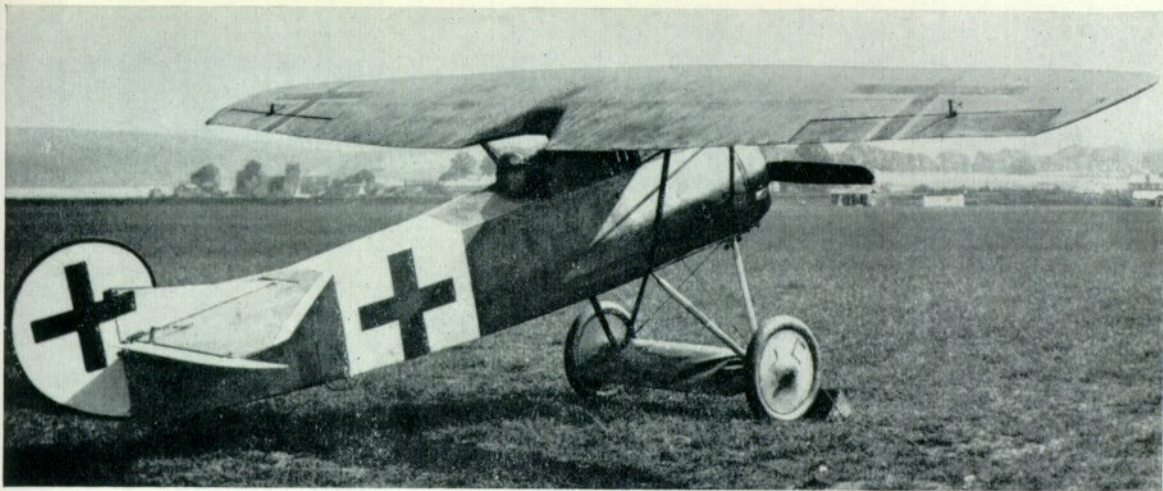
Another photograph of the V.28, seen here without guns. (Photo: Peter M. Grosz)

The Fokker V.28. This photograph and that of the V.27 show clearly the somewhat square shape of the wing tips of the prototypes. (Photo: Egon Krueger)

This unarmed aircraft bore no Bestellnummer when it was photographed and may have been one of the prototypes brought up to production standard. (Photo: via R. Ward)







*A post-Armistice photograph of 132/18, still marked as a Fok. EV, with non-standard presentation of fuselage and tail markings. In the cockpit is Captain Johnson of No. 1 Squadron, Canadian Air Force. (Photo: M. F. Eacock)*

wood. The complete spar tapered in depth outboard of the wing-attachment points, which were 1 m. outboard of the centre line. The covering of 1.5-mm. plywood was glued and pinned in place; it was then carefully polished and lacquered. Each aileron had an aerodynamic span of 1.57 m. and an aerodynamic chord of 276 mm.

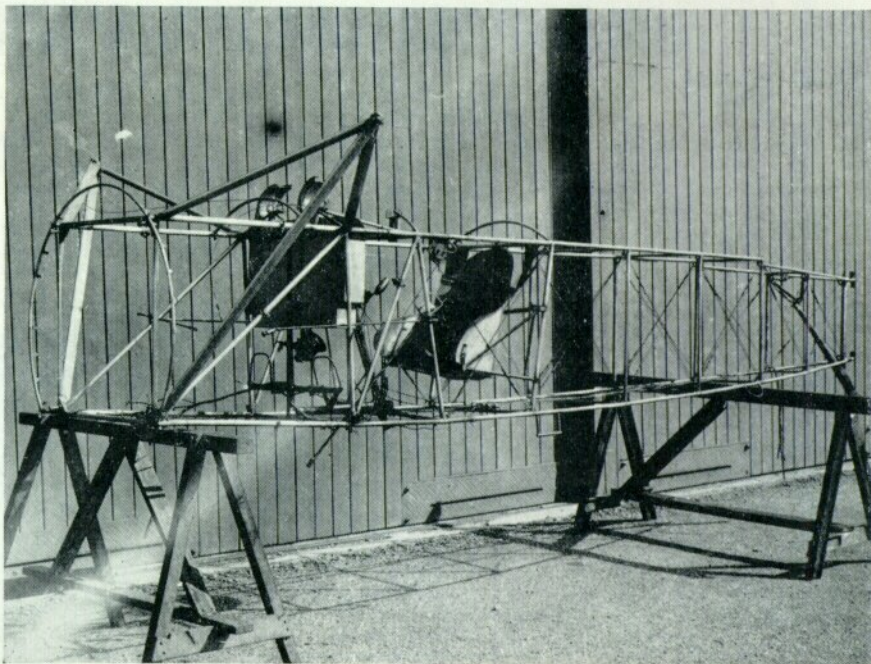
The tail unit was similar in design to that of the V.25 and was made of steel tubing. Platz's simple but effective pinned ball-and-socket fixings held the undercarriage in place, and the axle was enclosed in the characteristic small aerofoil.

In the course of the fighter trials the Goebel-powered Fokker V.28 climbed to a height of 6,000 m. (19,700 ft.) in 16 mins. The aircraft's weight was 626 kg. (1,380 lb.) on that occasion, and the climb was regarded as a record.

The Fokker V.26/28 design made such a good impression at the fighter trials that a production order

was placed. It was intended that the 145-h.p. UR.III and 200-h.p. Goe. III engines should be fitted to the production aircraft but as these engines had not been fully tested and cleared for operational use the 110-h.p. Le Rhône would be installed as an interim power unit. Production of the Fok. Dr.I had by no means exhausted the stock of Thulin-made Le Rhône's at Adlershof (see *Profile* No. 55), and production of the Oberursel UR.II was well under way, so there would be no shortage of engines.

Structural tests were successfully conducted on a V.28 airframe, and 400 Fokker parasol monoplanes were ordered with the official designation Fok. EV; the version with the UR.III was to be known as the Fok. EVe. The type was adopted for service with both the Army Flying Corps and the *Marine-Feld-Jagdstaffeln*. The contract specified that the rate of delivery was to be eighty per month, starting two months from the date of the contract. Fokker took it upon himself



*The simple steel-tube fuselage of the Fok. EV/DVIII.*





*A Fok. EV of Jasta 36.*

to promise the first few EVs within two or three weeks.

Twenty were in fact delivered by the end of July 1918. The production aircraft differed visibly from the prototypes only in the planform of the wing tips: this was more curved and increased the span slightly to 8.4 m. The single struts that supported the rear spar of the mainplane were of slightly larger cross-section than those of the prototypes, and the rudder bar support was strengthened. The tailplane struts of the V.28 were fitted as standard on the production aircraft. There were internal, unsuspected differences between the EVs and the V.26 and V.28, however; these did not manifest themselves until the hurriedly-built production aircraft were flown by the *Jagdstaffeln*.

Six Fok. EVs were delivered to *Jagdstaffel* 6 on 7th August 1918. On 19th August the EV flown by Leutnant Rolff suffered a wing failure in flight; the aircraft crashed from a height of about 300 m. near Bernes and Rolff sustained fatal injuries. Within the next week two more wing failures occurred on Fok. EV aircraft, with fatal results. In the first of these the entire port wing of No. 107/18 broke away just outboard of the attachment points.

It seemed that the grim history of the Fok. Dr.I was repeating itself. Certainly the fatalities led immediately

to urgent investigations of the same kind as had been made into the triplane wing failures a year earlier. *The Sturz-Kommission* was headed by Leutnant von Mallinckrodt and began its investigation on 24th August 1918.

Apparently the *Sturz-Kommission* did not make a thorough examination of an EV wing, for they produced a theory that the wing might have failed in torsion following deformation under a high lift loading. This was good enough for Fokker: always ready to disparage qualified men like aerodynamicists, he clutched with relief at the belief that the wing failures were caused by an unforeseen aerodynamic loading. He (or his biographer) produced a fairly circumstantial (but inaccurate) account of structural tests that could never have taken place; this was published in the book *Flying Dutchman*.

Unfortunately for Fokker, the *Sturz-Kommission* theory was exploded almost immediately by the thorough examination of the starboard wing of the EV No. 107/18 that was made at Adlershof. The findings are best described in the words of the late A. R. Weyl in his book *Fokker: the creative years* (pp. 330-331):

*Fok. EV 143/18 of Marine-Feld-Jagdstaffel 3. Second from the left is Oberflugmeister Carl Kuring.* (Photo: Alex Imrie)

*An early Fok. EV, 138/17, in standard factory finish.*

(Photo: Egon Krueger)





The workmanship was at once seen to be deplorable, and defective timber had been used for the spars. The wing of another machine, No. 110/18, showed the same deficiencies. Fok. EV No. 127/18 was even worse: water had collected inside the wing, the wood of which was rotting. When the plywood skin was cut, a stream of foetid water flowed out, indicating that the casein glue was perishing.

Closer investigations of the remains of the wing of 107/18 showed that the plywood was of acceptable quality. But the pins that attached the skin to the ribs had been driven in carelessly; most of them had missed the rib cap-strips or had merely splintered them. The glued joints were likewise defective. In fact, the plywood skin was adhering only in parts to the wing structure.

Similar carelessness in pinning was found in the attachment of the plywood webs to the wing spars; moreover, the material used for the spar webs was inferior. The pine used for the flanges of both spars was brittle: it was still "green" and had been insufficiently seasoned. Most glued joints were poor and it was obvious that they had been ineffectively clamped.

It was incredible that so many blatant defects had managed to pass any kind of inspection.

But there was worse to come. When the cross-sections

of the wing spars of this production wing were compared with those of the aircraft that had undergone the type test, it was discovered that the lower flange of the front spar of the crashed aircraft was only 7.5 mm. (0.295 in.) thick, as against 13 mm. (0.515 in.) in the type-test aircraft. The rear spar of the salvaged wing was missing and could not be checked.

Fokker was told that if sand-loading tests of two more production EV wings showed that they were unsatisfactory all wings already built would be condemned and would have to be replaced, at Fokker's expense, by new, properly constructed mainplanes. Static tests were made on 3rd and 5th September 1918, the subjects being respectively the wing of EV No. 127/18 and a new wing taken straight from the Fokker production line. Both were unsatisfactory. The Fok. Dr.I history was indeed repeating itself.

Platz had been shocked by the revelations of slipshod workmanship and apparently non-existent inspection at the Fokker works. He had an EV wing built precisely as he had originally designed it and delivered it to Adlershof on 7th September. This



*Fok. DVIII 553/18.*

(Photos: via R. Ward)







Fok. D.VIIIe, 697/18.

(Photo: Egon Krueger)

proved to be entirely satisfactory when tested and Platz's design was vindicated.

In view of the urgency of operational demands tests were conducted with a production EV wing fitted with cable lift bracing. This gave acceptable results. The *Flugzeugmeisterei* recommended that all EV wings should be scrapped but added that if this were not immediately possible lift cables should be fitted pending the delivery of replacement wings. It seems unlikely, however, that any EV saw operational use with the emergency bracing cables.

The source of the EV's wing troubles lay in the Perzina works (the former Perzina Pianoforte Fabrik that Fokker had bought in 1916 to expand his production facilities), where the EV wings were made. To quote again from *Fokker: The Creative Years* (pp. 336-337):

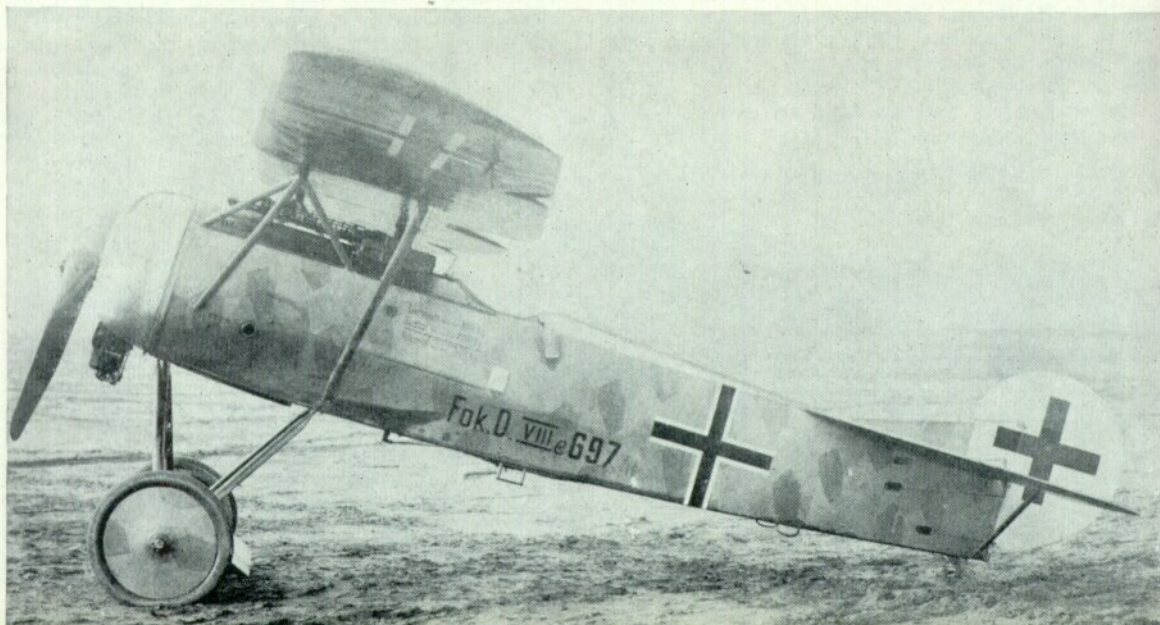
The spars for the Fok. EV wings had been made without proper jigs. While the plywood webs were being joined to the flanges by gluing and pinning, the webs had been allowed to move down the faces of the flanges, leaving the flanges projecting outside the webs. This

made the spars too deep to pass through the ribs, so the "excess" material of the flanges was simply planed away, thus reducing the thickness of the flanges. In this way, some spars had half the thickness of their flanges planed away.

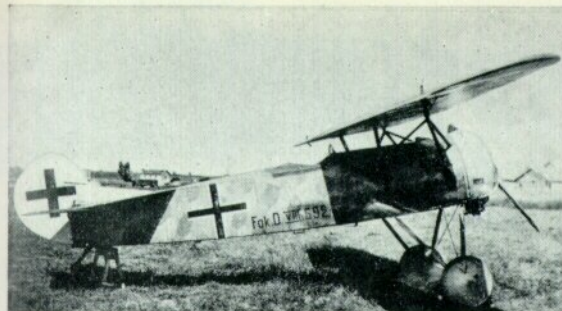
Apparently no one noticed that the designer had made the top and bottom flanges of different thicknesses, consequently the spars were assembled in random fashion, and not a few had the weaker flanges on top, where the greater strength was required.

Following the shocking discoveries of the *Flugzeugmeisterei* examination of the EV wing Fokker received an acrid letter, dated 3rd September, from the *IdFlieg*. This told him in unequivocal terms that a most serious view was taken of the EV wing failures and that the *IdFlieg* held him responsible. According to the late A. R. Weyl, it was officially recommended that criminal proceedings should be instituted against Fokker but no action was in fact taken. The immediate consequence of all this was that Platz took over the management of the Perzina works.

Production of the EV was resumed late in September 1918. The wing-spar flanges were, at the request of







*Fok. DVIIIg, 692/18.*



*The Fokker V.29.*

(Photo: via R. Ward)



*Fok. EV, 238/18, with the main fuel tank in the undercarriage aerofoil. In the cockpit is Ernst Udet. (Photo: Peter M. Bowers)*

the *Flugzeugmeisterei*, increased in thickness by 2 mm. as a safeguard against manufacturing errors. Aircraft with the new wing were to be re-designated Fok. DVIII. It was laid down that aircraft built as EVs but subsequently fitted with the correctly-built wing were to be given the new designation; this does not seem to have been done in every case, however, as a few examples of the type survived the armistice bearing the EV designation.

Thus it was that the Fok. DVIII proper had somewhat less than three weeks operational service, for the type did not appear at the front until 24th October 1918. By 1st November army *Jagdstaffeln* had a total of 85 Fok. DVIII fighters in operational use; some were also in service with *Marine Feld-Jagdstaffeln* 1, 2 and 3. Despite the low power of their Le Rhône or UR.II engines these aircraft gave a good account of themselves in combat. The Fok. DVIII was not quite so agile as the Dr.I had been but it was more manoeuvrable than the DVII; pilots found the parasol monoplane to have good flying qualities and regarded it as an excellent fighter.

If hostilities had continued into 1919 the Fok. DVIII might have proved to be a thorn in the Allied flesh; particularly so because by then the 145-h.p. Oberursel UR.III and 200-h.p. Goebel Goe. IIIa engines would have been available. With the UR.III the aircraft was designated Fok. DVIIIe; with the Goebel, Fok. DVIIIg. Installations of these engines are known to have been made in 697/18 and 692/18 respectively.

An even more powerful version of the Fok. DVIII had the 220-h.p. Siemens-Halske Sh 3a bi-rotary engine. This variant was designated Fok. DVIII<sub>s</sub> (suffix "s"); it was the most manoeuvrable version of the DVIII but appeared too late to be developed for operational use. The 160-h.p. Sh 3 was fitted to at least one DVIII.

A Fok. DVIIIe and a DVIIIg participated in the third fighter trials, held at Adlershof from 15th to 31st October 1918. A DVIII should also have been there but did not compete, owing to engine or airscrew trouble. A further Fokker parasol monoplane took part: this was the V.29 which, powered by a 185-h.p. BMW IIIa, looked like a parasol-wing version of the Fok. DVII. In these trials the V.29 tied for first place with the Rumpler DI and would undoubtedly have been ordered in quantity if the war had not ended.

The altitude performance of the Fok. DVIII would have been enhanced in 1919, for a Schwade super-charger had been developed for use on the type following successful tests on a Fok. Dr.I in 1918.

It was intended also that later production aircraft would have the main fuel tank inside the undercarriage aerofoil. This idea had been put forward by Platz early in 1918 as a means of minimising the fire hazard following hits on the tank by tracer bullets, and various experimental installations were made that year. The first of the parasol monoplanes to have the undercarriage tank was the EV No. 238/18, which was completed by 21st August 1918; this aircraft had a 145-h.p. Oberursel UR.II engine.

After the Armistice small numbers of Fok. DVIII<sub>s</sub> were handed over to Britain, France, Italy, the U.S.A. and Japan; a few aircraft, still marked as EVs, found their way to Poland. It seems that in Britain and France the EV wing-failure history was known and there was no enthusiasm for the DVIII, consequently little was done with the aircraft. Some of the aircraft that went to Italy were still airworthy in the mid-1920s and were probably the best-preserved survivors of the type.

In the U.S.A. two were flown at McCook field with the U.S. Air Service numbers 64345 and 94112; these had the McCook Field project numbers P-165 and P-169 respectively. Apparently P-165 survived until March 1927. It had been the subject of McCook Field Report No. 1669 dated 20th May 1921, in which Lieutenant Leigh Wade described its flying qualities in the following terms:

The airplane has a tendency to turn to the right in taxiing, takes off very quickly, climbs very rapidly, and is very manoeuvrable.

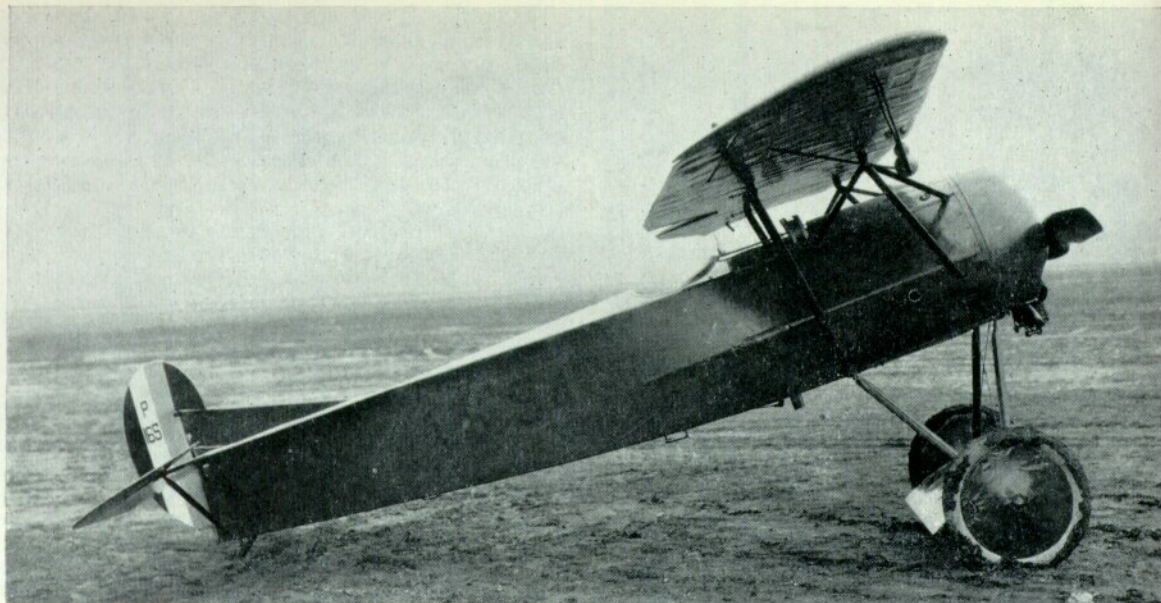
It is easy to fly, and the controls are sensitive. It is tail heavy, but so light on the controls that it is not tiresome to fly.

The visibility is very good.

The machine guns are so placed that in the event of a crash, the pilot would undoubtedly be injured by being thrown against the same.

The airplane lands very slowly with a slight tendency to drop the right wing, and to turn to the right on the ground.





A Fok. D.VIII in Dutch markings.

(Photo: via R. Ward)

The controls for the engine are very inconveniently located, inasmuch as the throttle for the gas is on the left side of the fuselage, and the throttle for the air is on the left side of the control stick.

The story of how Fokker succeeded in taking large quantities of aircraft and accessories from Germany to Holland after the Armistice has been told in several places. Among the aircraft were twenty D.VIIIs, one of which must have been the aircraft flown by Lt. Versteegh during the 1919 aircraft exhibition held at Amsterdam (ELTA). His aerobatic displays on the D.VIII were much admired. One of Fokker's "sal-

vaged" D.VIIIs was fitted with a Spijker-built 130-h.p. Clerget engine.

The Fok. D.VIII was subsequently used by the Dutch *Luchtvaart Afdeling* in the post-war years; doubtless the aircraft were some of the twenty that had been brought out of Germany. Some of the Dutch D.VIIIs were later fitted with the 145-h.p. UR.III engine and gave excellent service for some years.

Several Fok. D.VIIIs were secreted in various hiding places in Germany in order to escape destruction by the Allied forces of occupation. When they were brought to light again some years later for use

The Fok. D.VIII that was tested at McCook Field after the war.

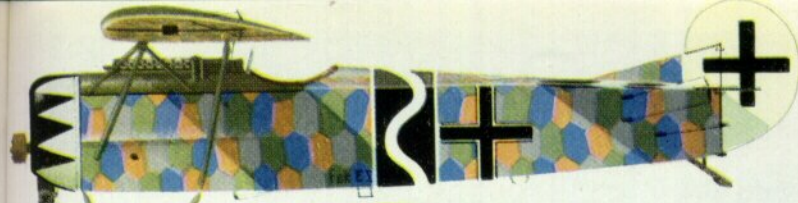




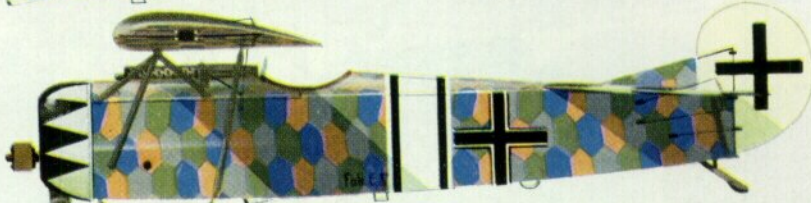
Tailplane detail, upper and under.



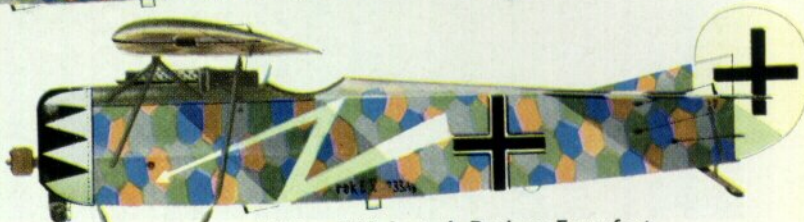
Fokker E.V, Jasta 6,  
Busigny-Escaufort, France,  
August 1918.



Fokker E.V, Jasta 6,  
Busigny-Escaufort,  
France, August 1918.



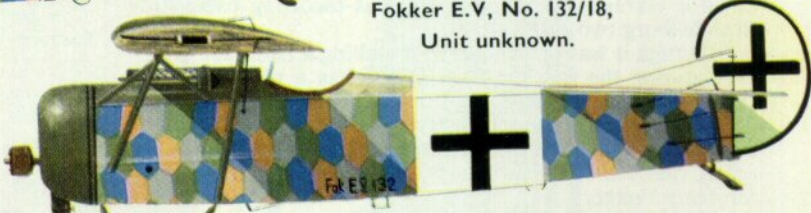
Fokker E.V, Jasta 6, Busigny-Escaufort,  
France, August 1918.



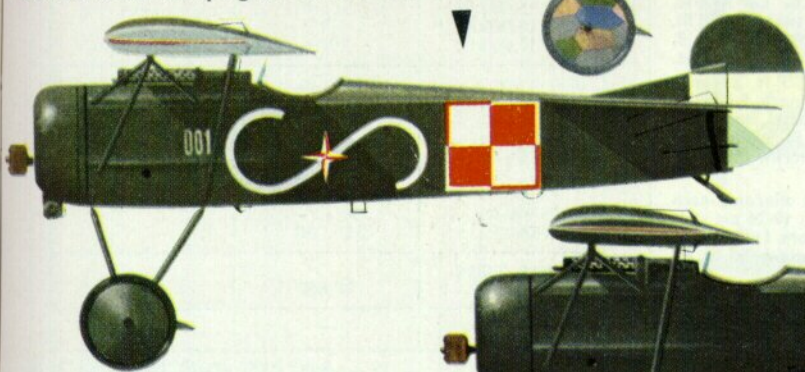
Fokker E.V, Jasta 6, Busigny-Escaufort,  
France, August 1918.



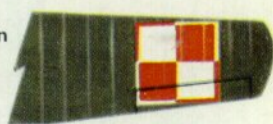
Fokker E.V, No. 132/18,  
Unit unknown.



Fokker E.V, No. 7 (Kosciuszko) Squadron,  
Polish Air Force, Lwow, 1919. Flown by  
Lt. S. Stec, the Squadron Commander during  
the Ukranian Campaign, February-July 1919.



Wing marking position



Wing marking  
position.



Personal insignia of Lt. S. Stec.



Fokker D.VIII, Royal Netherlands Air Force.



© W A R D





The Fok. EV flown by Lieutenant S. Stec of the Polish 7th Aviation Squadron in 1919.

(Photo: J. B. Cynk)

by the *Reichswehr* they were found to have deteriorated beyond redemption.

Probably the last Fok. DVIII to fire their guns in anger were the few (still designated EV) that served with the 7th Aviation Squadron of the Polish forces in 1919. The Poles fought Ukrainian forces during the first half of 1919, and the first air-combat victory to be won by the Polish air force was registered by a Fok. EV on 29th April 1919, when Lieutenant S. Stec shot down a Ukrainian Nieuport that was escorting two Brandenburg two-seaters.

Although it was prevented from making a name for itself during the war the Fok. DVIII has a place in aviation history as one of the principal forerunners of the great line of monoplane transports designed by Platz in the years that followed the war. One can only reflect that the Armistice happened at the right time for Tony Fokker.

#### SPECIFICATION

**Power:** 110-h.p. Oberursel UR.II, 110-h.p. Le Rhône, 145-h.p. Oberursel UR.III, 160-h.p. Goebel Goe. III, 200-h.p. Goebel Goe. IIIa, 160-h.p. Siemens-Halske Sh 3, 220-h.p. Siemens-Halske Sh 3a, 130-h.p. Spijker-Clerget.

**Dimensions:** Span (V.26 and V.28) 8.3 m. (27 ft. 2.8 in.), (EV and DVIII) 8.4 m. (27 ft. 6.7 in.); length 5.865 m. (19 ft. 3.9 in.); height 2.82 m. (9 ft. 3 in.); chord, maximum 1.5 m. (4 ft. 11 in.), minimum 1.05 m. (3 ft. 5.3 in.); incidence, nil; wheel track 5 ft. 9½ in.; airscrew diameter 2.6 m. (8 ft. 6 in.).

**Areas:** Wings 10.7 sq. m. (115.17 sq. ft.); ailerons, each 0.43 sq. m. (4.63 sq. ft.), total 0.86 sq. m. (9.26 sq. ft.); tailplane 1.32 sq. m. (14.2 sq. ft.); elevators 1.02 sq. m. (10.98 sq. ft.); fin 0.15 sq. m. (1.6 sq. ft.); rudder 0.6 sq. m. (6.46 sq. ft.).

**Armament:** Two 7.92-mm. LMG 08/15 machine guns synchronised by Fokker Zentralsteuerung interrupter mechanism.

**Production:** At least 381 Fok. EV and DVIII aircraft were delivered by the time of the Armistice. All were built by Fokker Flugzeugwerke G.m.b.H., Schwerin-in-Mecklenburg. Known ranges of Bestellnummern for EVs and DVIII are 107/18-169/18, 238/18-274/18, 520/18-557/18 and 692/18-697/18.

**Service use:** Western front—Jagdstaffeln 1, 6, 10, 11, 19, 23 and 36; Marine-Feld-Jagdstaffeln 1, 2 and 3. Also used for training

purposes by Flieger-Ersatz-Abteilung 5, Hanover.

**Examples of EVs used by operational units:**

Jasta 6: EV No. 157/18.

Jasta 19: EV No. 107/18.

Marine-Feld-Jasta 1: EV No. 160/18.

Marine-Feld-Jasta 3: EV No. 143/18.

#### WEIGHTS AND PERFORMANCE

| Engine                                  | 110-h.p. Oberursel<br>(U.S.A.S. report<br>on P-165, tested<br>at McCook Field,<br>20th May 1921) | 145-h.p. Oberursel<br>UR.III<br><br>(German<br>figures) |
|-----------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <b>Weights (lb.):</b>                   |                                                                                                  |                                                         |
| Empty ...                               | 848                                                                                              | 893                                                     |
| Military load ...                       | 74                                                                                               | —                                                       |
| Pilot... ..                             | 180                                                                                              | —                                                       |
| Fuel and oil... ..                      | 136                                                                                              | —                                                       |
| Loaded ...                              | 1,238                                                                                            | 1,334                                                   |
| <b>Maximum speed<br/>(m.p.h.):</b>      |                                                                                                  |                                                         |
| at ground level                         | 115                                                                                              | 125                                                     |
| at 6,500 ft.                            | 113.8                                                                                            | —                                                       |
| at 10,000 ft.                           | 112.3                                                                                            | —                                                       |
| at 15,000 ft.                           | 107.8                                                                                            | —                                                       |
| <b>Climb to:</b>                        | m. s.                                                                                            | m. s.                                                   |
| 3,280 ft. ...                           | —                                                                                                | 2 0                                                     |
| 6,500 ft. ...                           | 5 5                                                                                              | 4 30                                                    |
| 9,840 ft. ...                           | —                                                                                                | 7 30                                                    |
| 10,000 ft. ...                          | 8 55                                                                                             | —                                                       |
| 13,120 ft. ...                          | —                                                                                                | 10 45                                                   |
| 15,000 ft. ...                          | 16 40                                                                                            | —                                                       |
| 16,400 ft. ...                          | —                                                                                                | 15 0                                                    |
| 20,000 ft. ...                          | 34 40                                                                                            | —                                                       |
| <b>Service ceiling<br/>(ft.) ... ..</b> | 20,650                                                                                           | —                                                       |
| <b>Endurance (hrs.)</b>                 | —                                                                                                | 1½                                                      |

With the 160-h.p. Goe. III the Fok. DVIII climbed to 16,400 ft. in 14 min. and to 19,680 ft. in 21 min. The Fok. DVIII with the 160-h.p. Siemens-Halske Sh 3 climbed to 3,280 ft. in 4 min., to 14,750 ft. in 11 min. 30 sec.

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